BACKUP
Service Manual

GALANT

1989-1990-1991-1992-1993
Volume 2
Body & Electrical

FOREWORD

This Service Manual has been prepared with the latest service information available at the time of publication. It is subdivided into various group categories and each section contains diagnostic, disassembly, repair, and installation procedures along with complete specifications and tightening references. Use of this manual will aid in properly performing any servicing necessary to maintain or restore the high levels of performance and reliability designed into these outstanding vehicles.

MITSUBISHI
MOTOR SALES OF AMERICA, Inc.

Reprinted in USA

GROUP INDEX

M00AA-

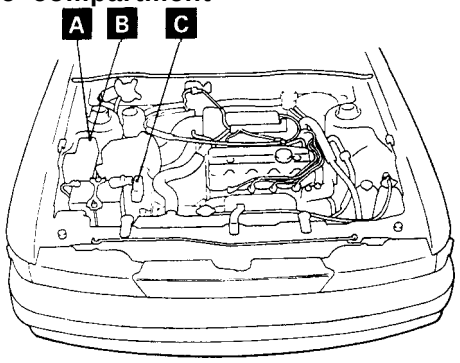
General .....
Fusible Link and Fuse Location .....
Inspection Terminal Location .....
Grounding Location .....
Diode Location .....
Junction Block .....
Centralized Junction .....
Inspection of Harness Connector .....
Configuration Diagrams .....
Circuit Diagrams .....
Steering 37A
4 Wheel Steering System (4WS) 37B
Body 42
Exterior 51
Heater, Air Conditioning and Ventilation 55
Engine Electrical 16
Chassis Electrical 54
Alphabetic Index .....

NOTE:
For information concerning all components other than the electrical system and on-vehicle service procedures for engines and transmissions, refer to Volume 1 "Chassis & Body" of this paired Service Manual.
For overhaul procedures of engines or transmissions, refer to the separately issued Engine Service Manual or Manual/Automatic Transmission Service Manual.

FUSIBLE LINK AND FUSE LOCATION

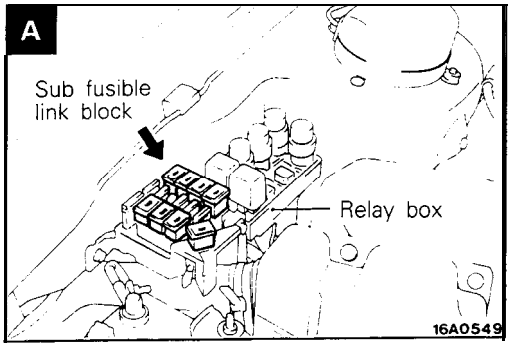
M16BA--

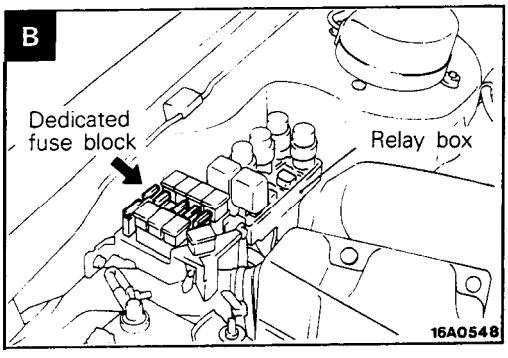
<Engine compartment>



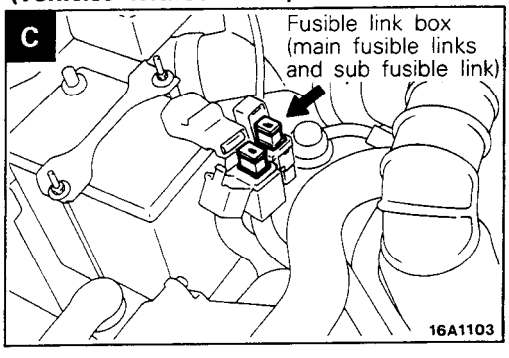
Name	Symbol
Dedicated fuse block	B
Fusible link box (main fusible links and sub fusible link)	C
Multi-purpose fuse block	D
Sub fusible link-block	A

NOTE
(1) For details of fusible link and fuse, refer to P.12.
(2) The "Name" column is arranged in alphabetical order.

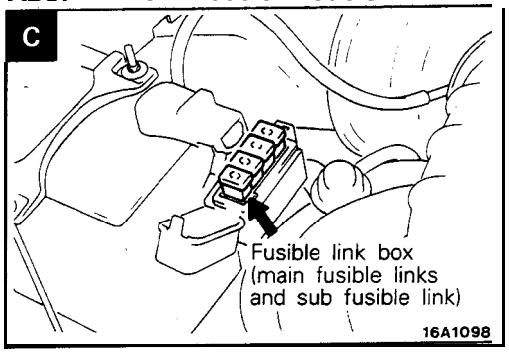




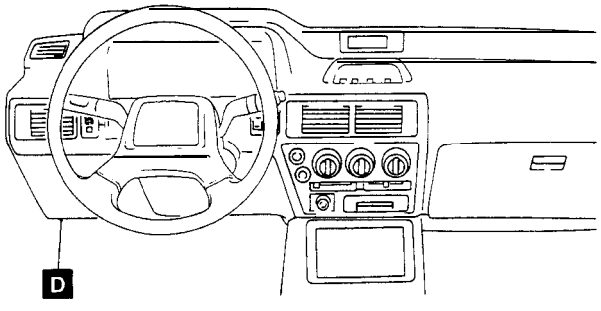
<Up to 1990 models (vehicles without ABS)>



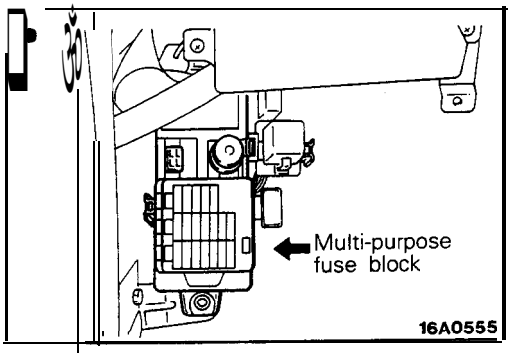
<Up to 1990 models (vehicles with ABS)> <From 1990.5 models>



<Interior>



13A0218



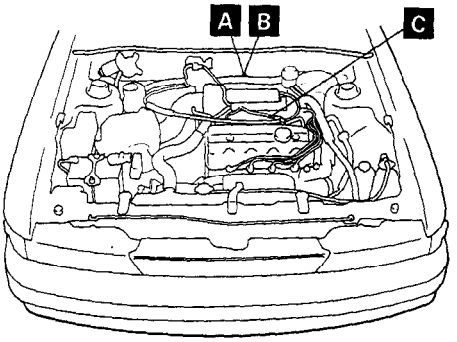
TSB Revision

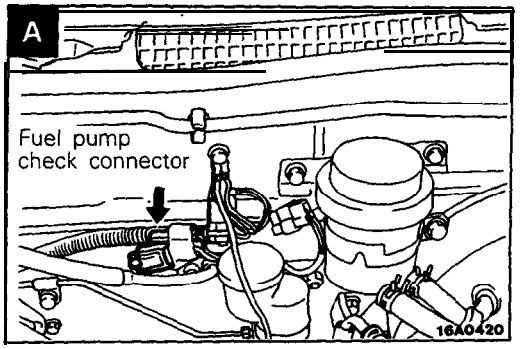
INSPECTION TERMINAL LOCATION

Name	Symbol	Name	Symbol
Engine speed detection connector* <DOHC>	C	Oxgen sensor check connector <DOHC>	D
Fuel pump check connector	A	Data link connector	E
Ignition timing adjustment connector	B		

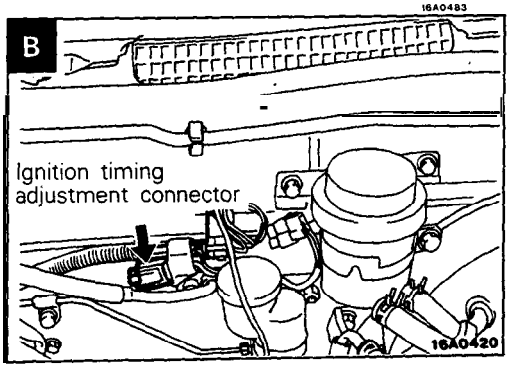
NOTE
(1) *: <From 1990 models>
(2) The "Name" column is arranged in alphabetical order.

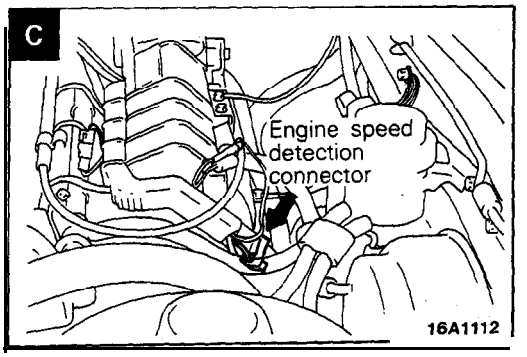
<Engine compartment>



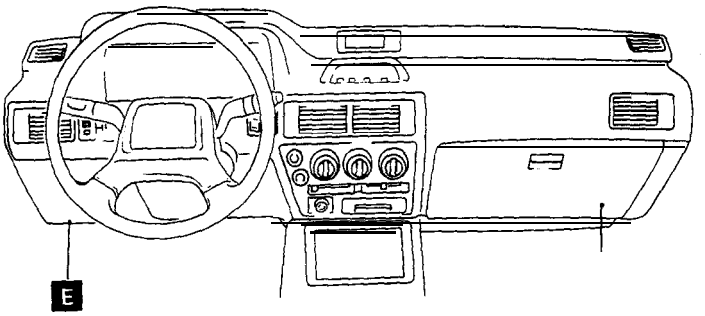


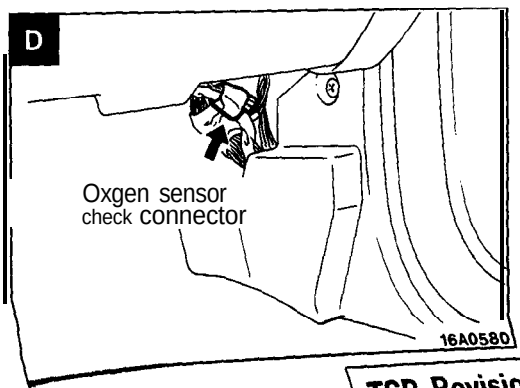
16A0483

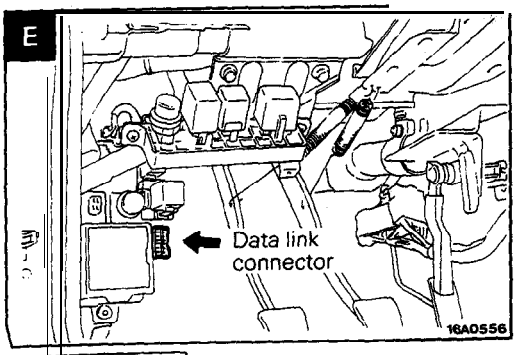




<Interior>



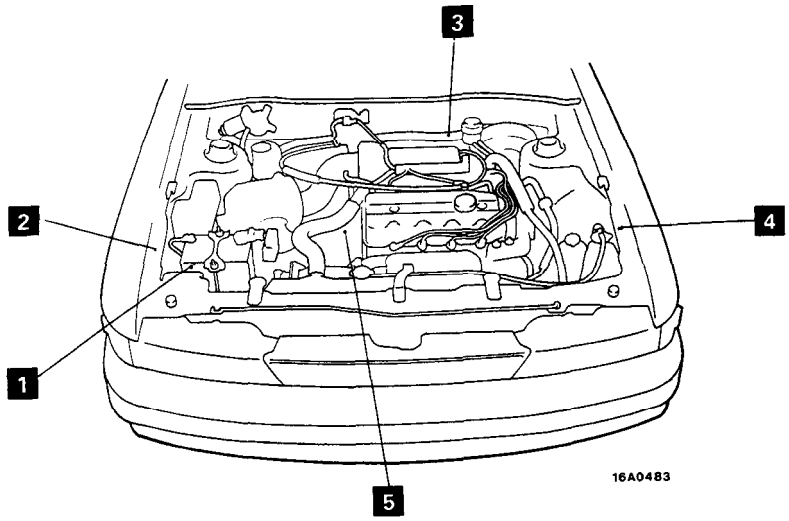


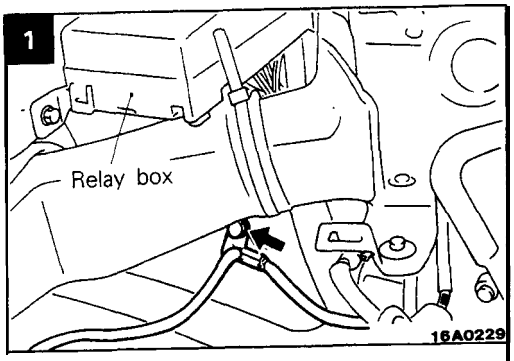


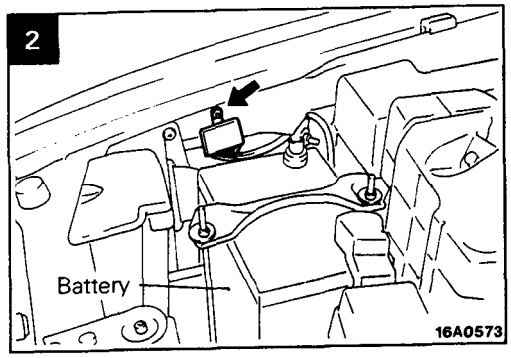
TSB Revision

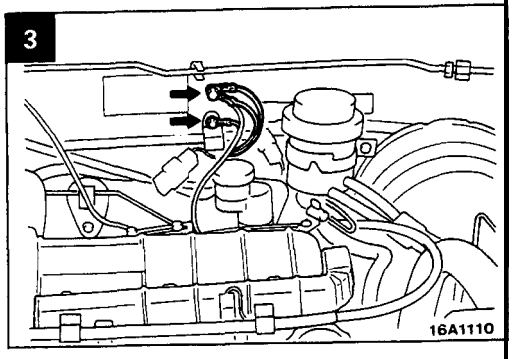
GROUNDING LOCATION

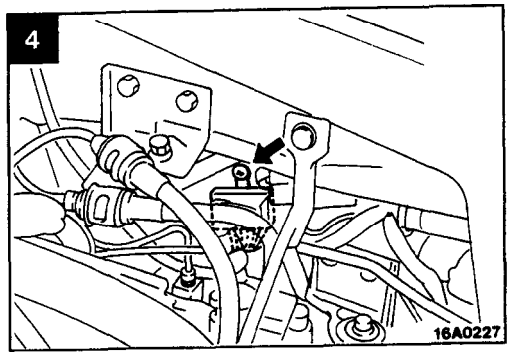
<Engine compartment>

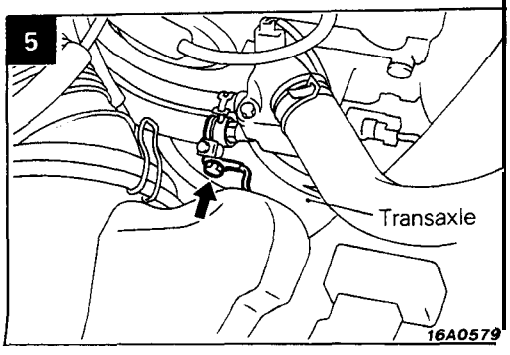






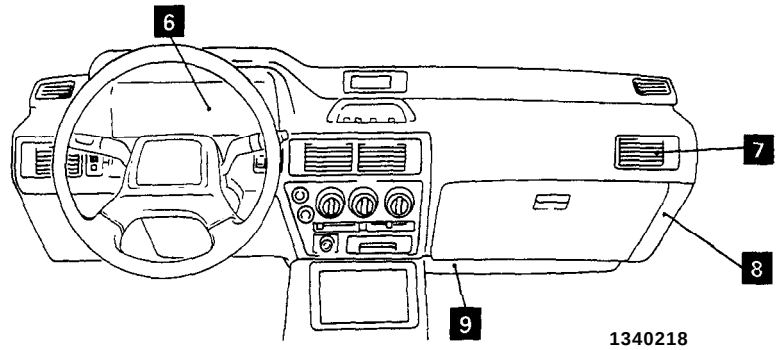




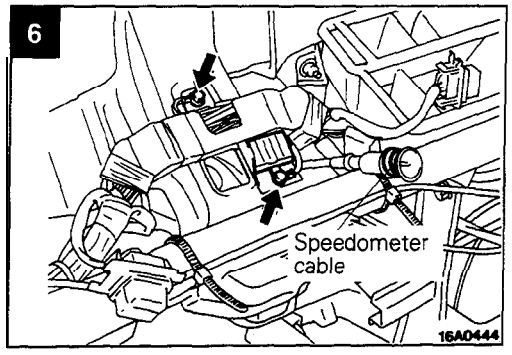


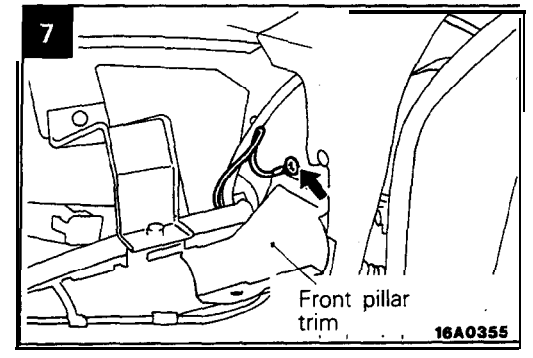
TSB Revision

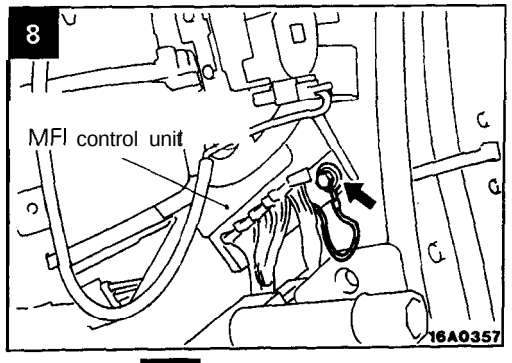
<Interior>

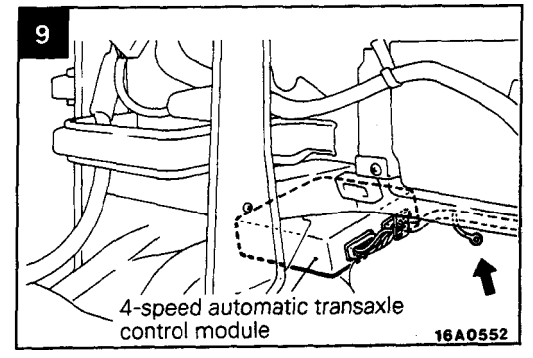


1340218

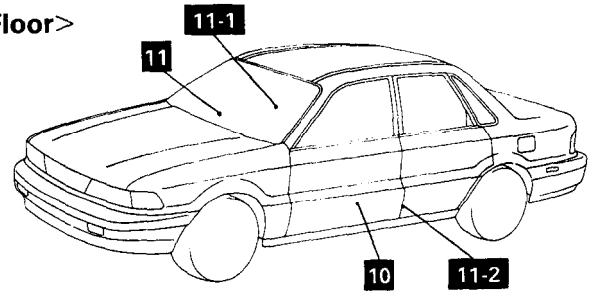






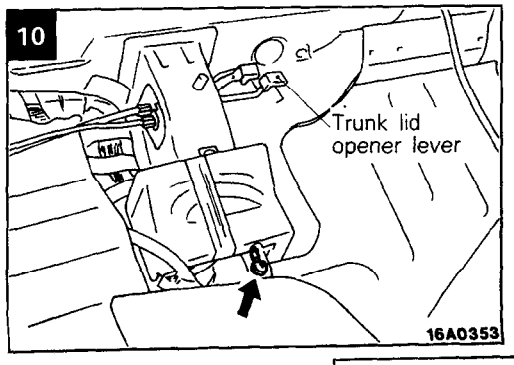


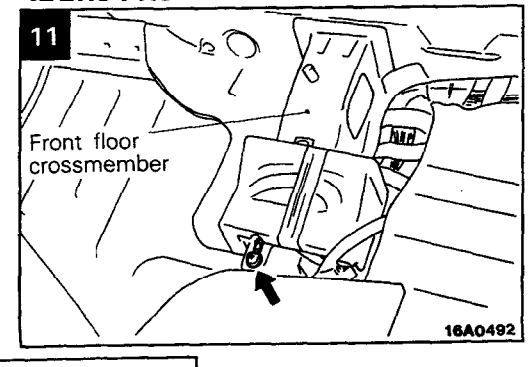
<Floor>



16A0535

<DOHC-FWD>

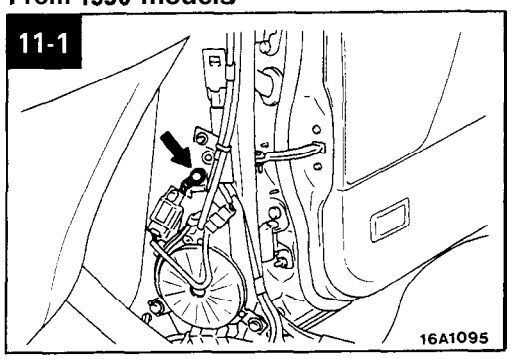




TSB Revision

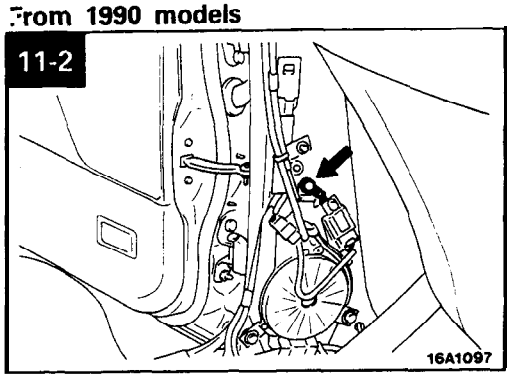
From 1990 models

11-1

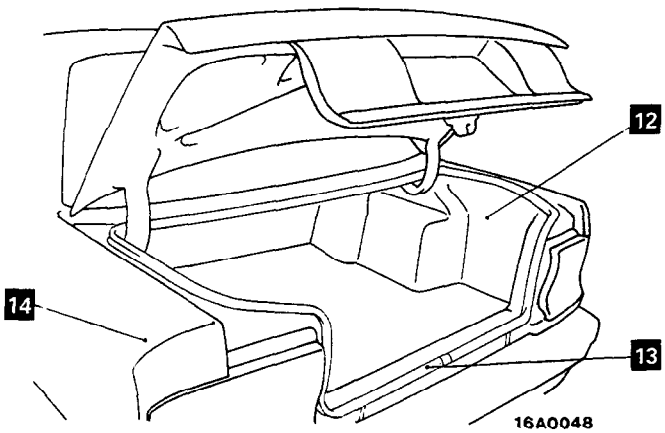


From 1990 models

11-2

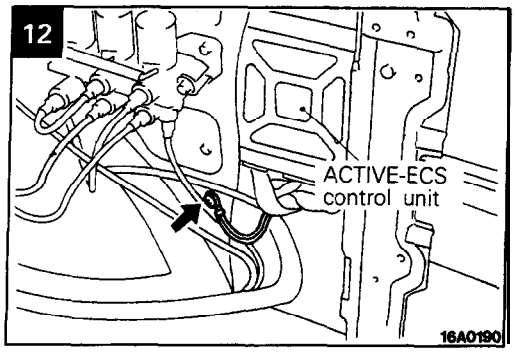


<Luggage compartment>

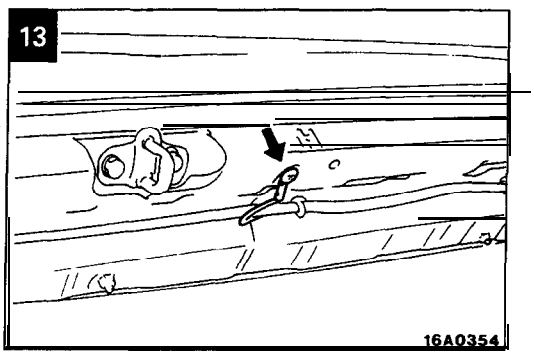


<DOHC-FWD>

12

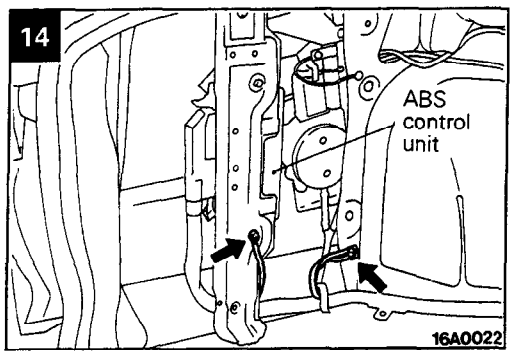


13



<DOHC>

14



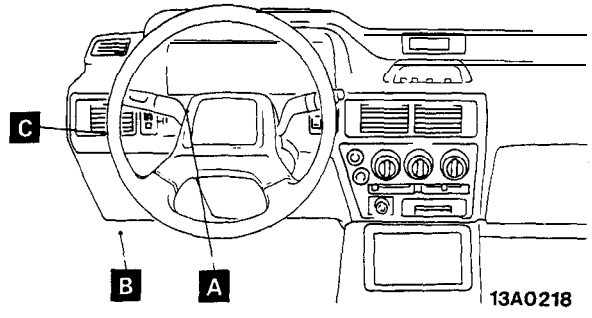
TSB Revision

DIODE LOCATION

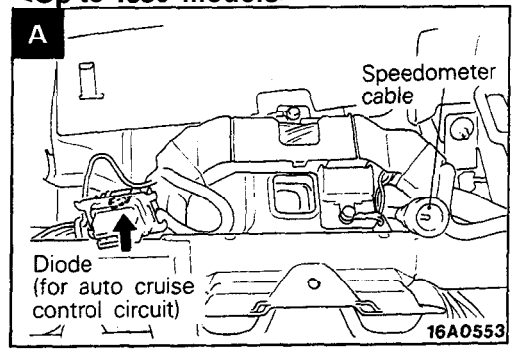
Name	Symbol
Diode (4WS fluid level warning light circuit)	A
Diode (ABS circuit)	B
Diode (ACTIVE-ESC circuit)	C
Diode (A/T fluid temperature warning light circuit) <AWD-A/T>	A
Diode (auto-cruise control circuit) <up to 1990 models>	A
Diode (sunroof circuit) <From 199 1 models>	C
Diode (theft-alarm system circuit)	A,C

NOTE
The "Name" column is arranged in alphabetical order.

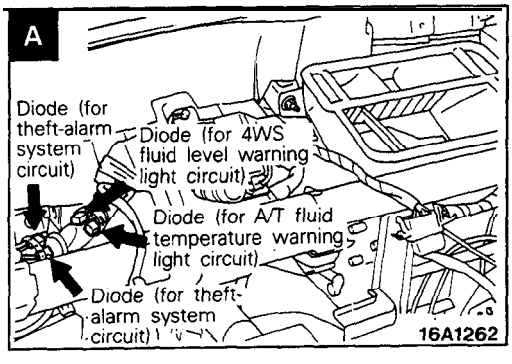
<Interior>

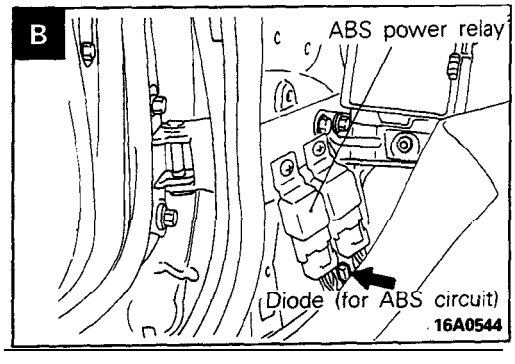


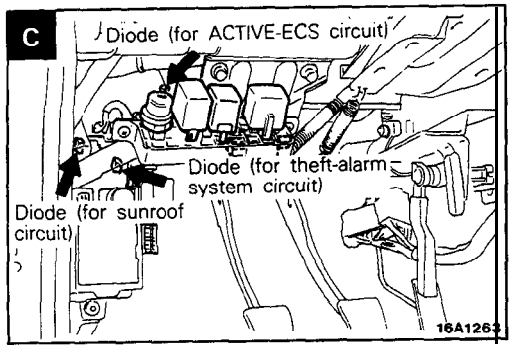
<Up to 1990 models>



<From 1991 models>



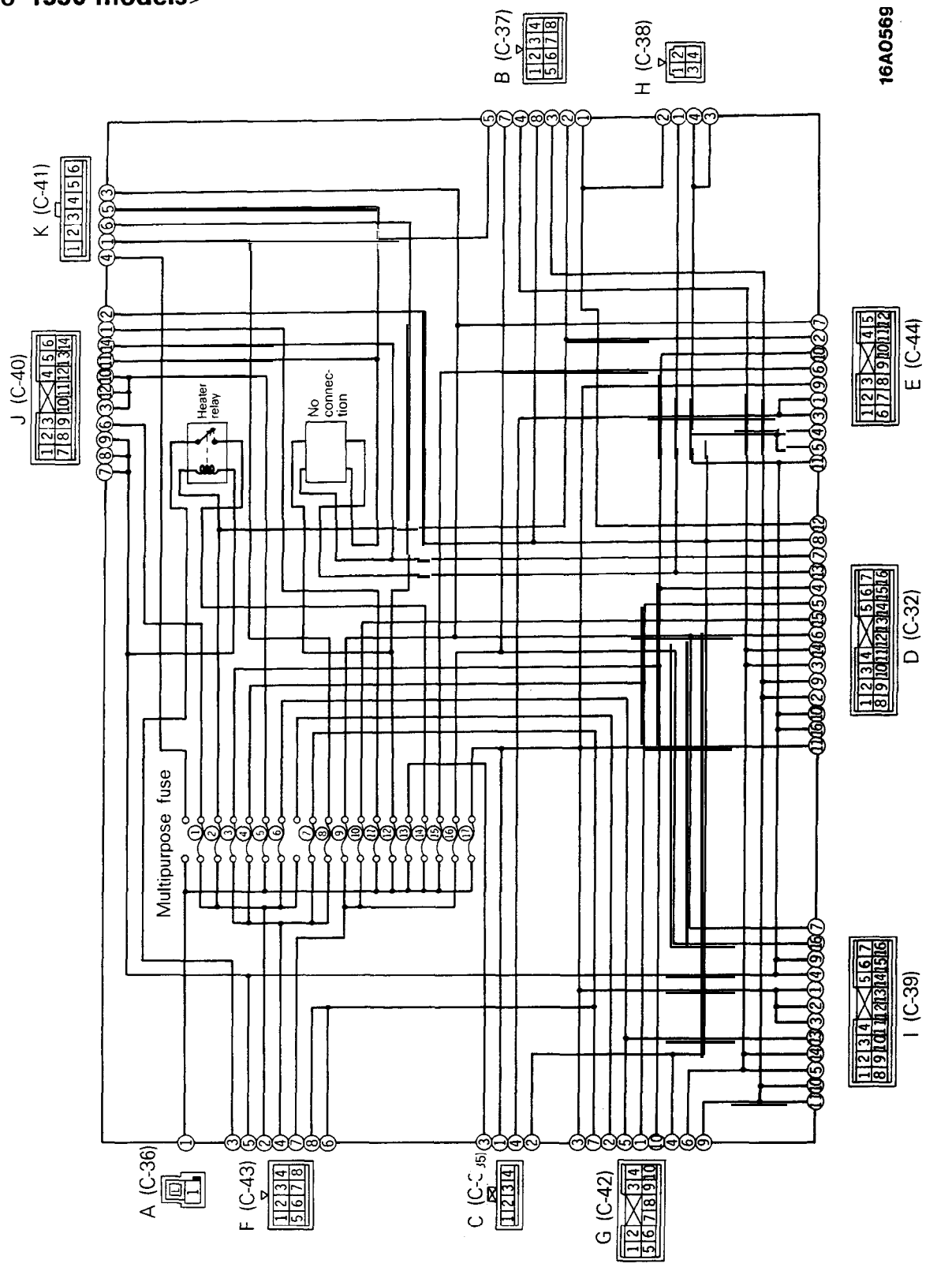




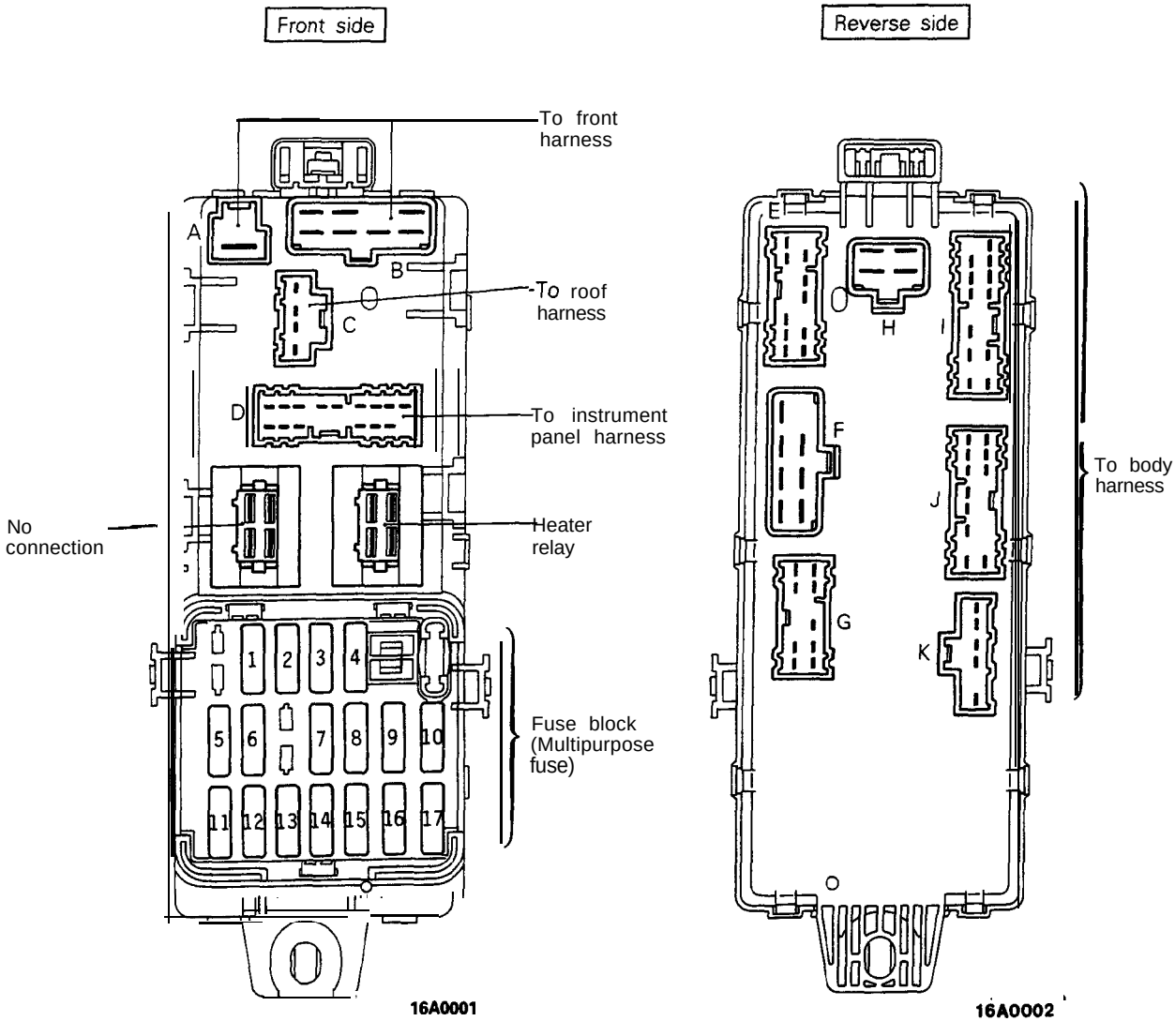
JUNCTION BLOCK

M168C--

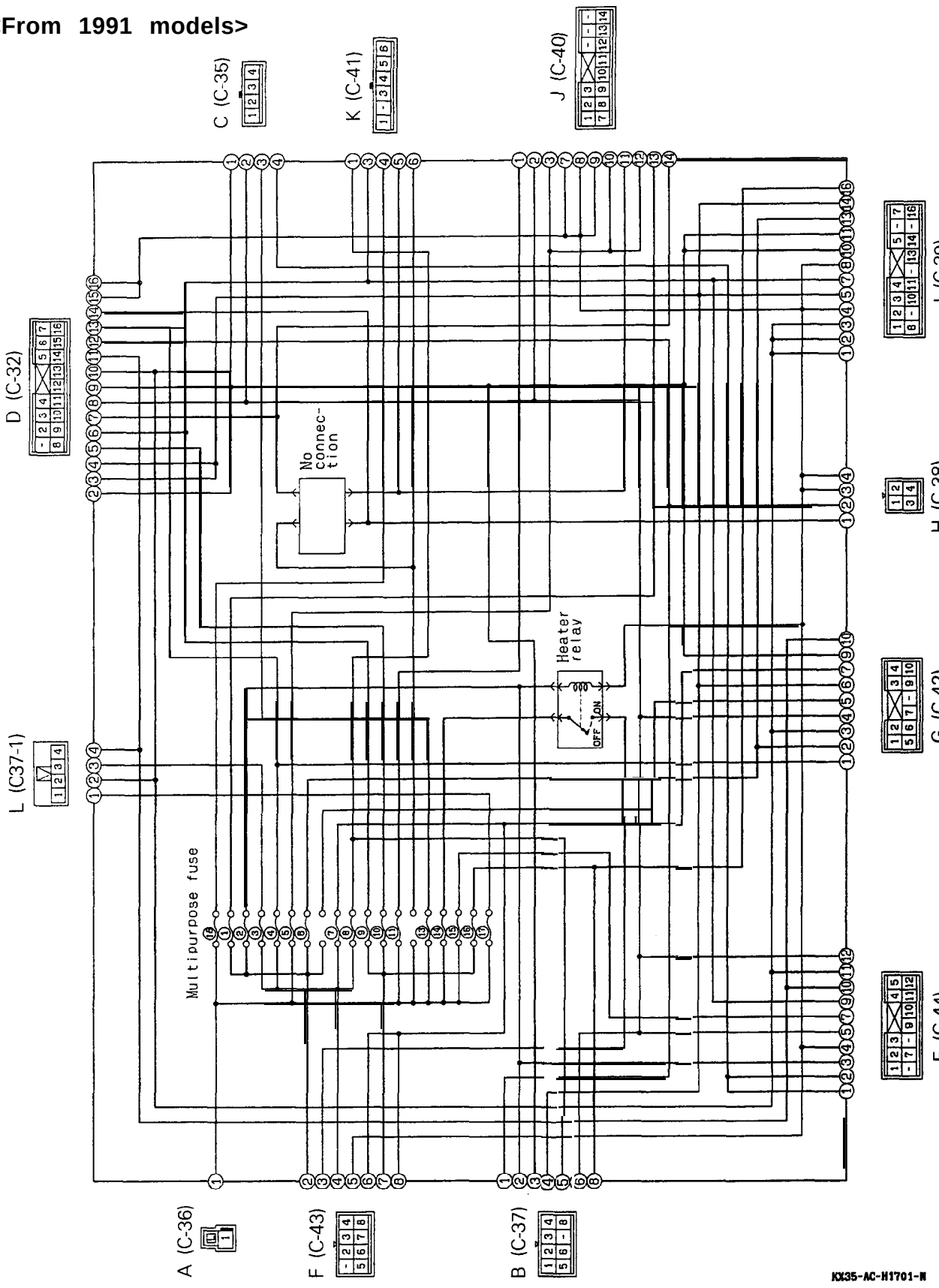
<Up to 1990 models>



Vote
1) The alphabetical symbols used for connectors correspond to the alphabetical symbols for connectors on next page.
2) The ( ) indicates the connection terminal at the harness side.

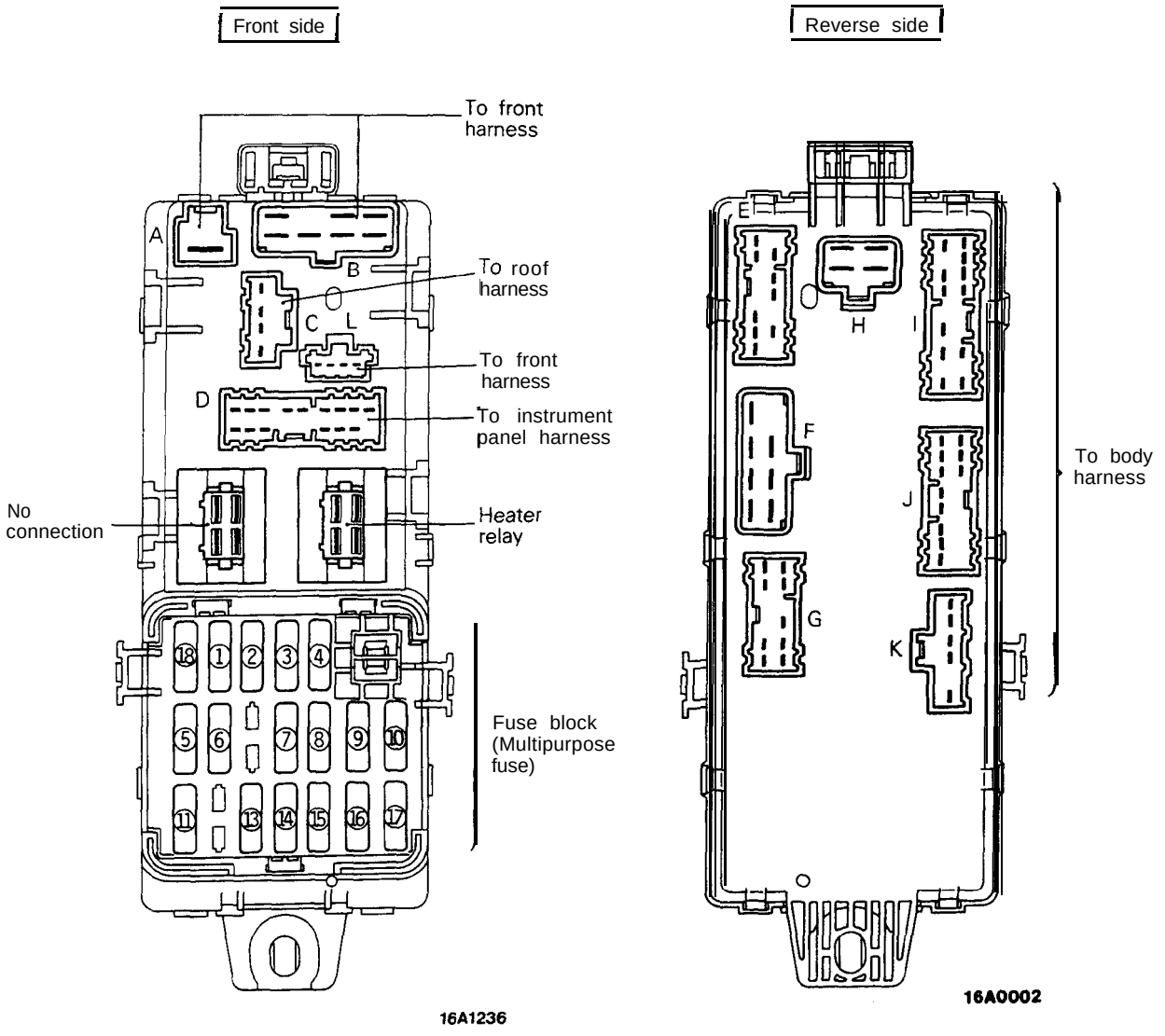

Front side
Reverse side
To front harness
To roof harness
To instrument panel harness
Heater relay
No connection
Fuse block (Multipurpose fuse)
To body harness
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
16A0001
16A0002

<From 1991 models>



NOTE
(1) The alphabetical symbols used for connectors correspond to the alphabetical symbols for connectors on next page.
(2) The ( ) indicates the connection terminal at the harness side.

TSB Revision


Front side
Reverse side
To front harness
To roof harness
To front harness
To instrument panel harness
No connection
Heater relay
Fuse block (Multipurpose fuse)
To body harness
A
B
C
L
D
E
F
G
H
I
J
K
18
1
2
3
4
5
6
7
8
9
10
11
13
14
15
16
17
16A1236
16A0002

CENTRALIZED JUNCTION

M16BB--

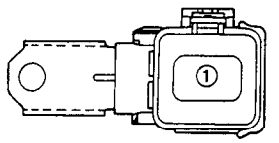
MAIN FUSIBLE LINK (direct connection to battery's positive ⊕ terminal)

No.	Circuit	Housing color	Rated capacity (A)
1	Generator circuit	Black*', Blue*2	80*1, 100*2
2	ABS circuit (control unit power supply)	Blue	20
3	ABS circuit (hydraulic unit power supply)	Yellow	60

NOTE
*1: <1989 models>
*2: <From 1990 models>

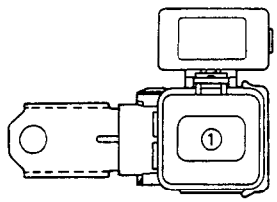
<Vehicles without ABS>

1989 models



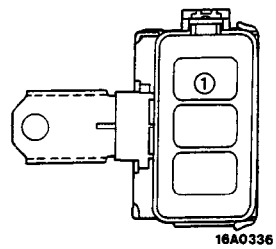
16A0335

1990 models



16A1092

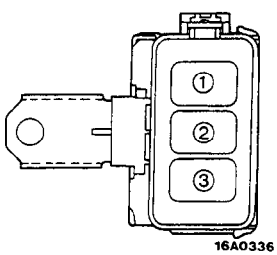
From 1990.5 models



16A0336

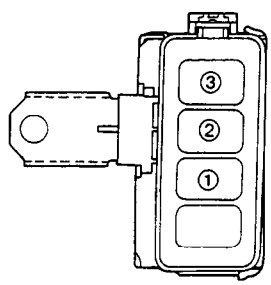
<Vehicles with ABS>

1989 models



16A0336

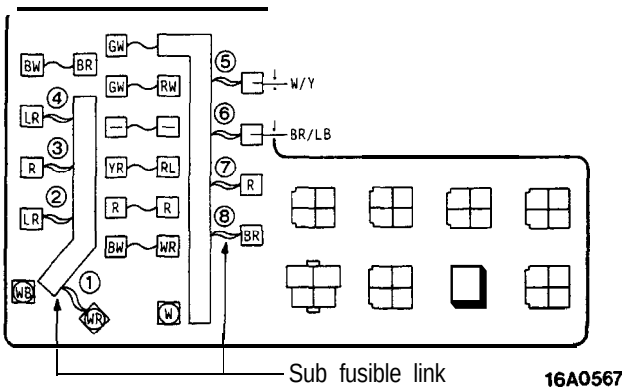
From 1990 models



16A1093

SUB FUSIBLE LINK (relay box inside engine compartment, fusible link box)

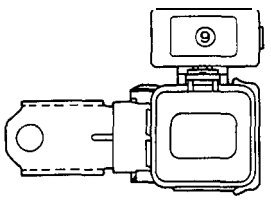
No.	Circuit	Housing color	Rated capacity (A)
1	Junction block (Multipurpose fuse ⑤, ⑪, ⑫, ⑬, ⑭, ⑮, ⑰) A/C circuit	Yellow	60
2	Power window circuit	Pink	30
3	ACTIVE-ECS circuit	Green	40
4	Defogger circuit	Pink	30
5	ignition switch and generator circuit	Pink	30
6	Radiator fan motor and condenser fan motor circuit	Pink	30
7	Headlight and tail light circuit	Green	40
8	MFI circuit	Blue	20
9	Automatic seatbelt circuit <From 1990 models>	Pink	30



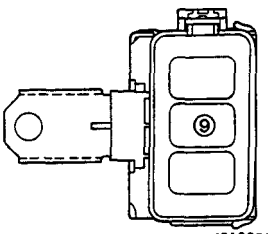
16A0567

<Vehicles without ABS>

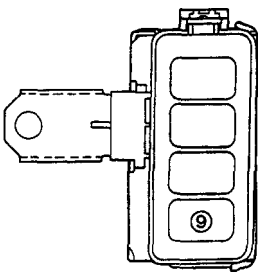
1990 models


16A1092

From 1990.5 models


16A0336

<Vehicles with ABS>

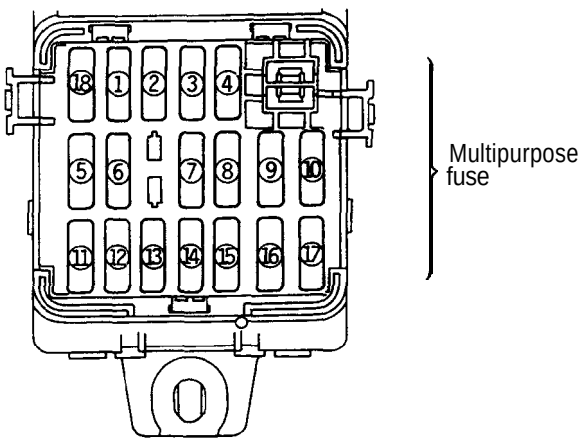

16A1093

TSB Revision

MULTI-PURPOSE FUSE (inside junction block)

Power supply circuit		No.	Rated capacity (A)	Load circuit
Ignition switch	IG2	1	10	EPS control unit
		2	10	Heater relay, blower switch, defogger timer, power window relay (Vehicles without ETACS), sunroof power relay (Vehicles without ETACS), ABS power relay, ACTIVE-ECS power relay
	ACC	3	10	Clock, motor antenna, radio, ETACS control unit*4
		4	15	Remote-controlled mirror switch, cigarette lighter
Battery		5	15	Door lock relay
Ignition switch	IG2	6	10	Power/Economy change over switch <A/T>, over drive switch <A/T>, park/neutral position switch <A/T>, ELC 4-speed automatic transaxle control module, auto-cruise control unit <A/T>
	ACC	7	15	Wiper and washer, ETACS control unit*3, wiper relay
		8	10	Headlight relay, horn
	IG1	9	10	Combination meter, auto-cruise control switch, motor antenna, ETACS control unit, seat belt timer*1, clutch pedal position switch
		10	10	Hazard switch
Battery		11	20	ACTIVE-ECS power relay
		12	20	–
		13	20	Sunroof relay
		14	30	Heater relay
		15	15	Stop light, auto-cruise control unit <M/T>
Ignition switch	IG1	16	10	Back-up light <M/T>, park/neutral position switch <A/T>
Battery		17	10	MFI control unit, clock, dome light, luggage compartment light, door light, map light (Vehicles without sunroof), radio, ETACS control unit, sunroof relay (Vehicles with ETACS), combination meter, ELC 4-speed automatic transaxle control module, key reminder switch, automatic seatbelt control unit*2
		18	10	–

NOTE
*1: <1989 models>
*2: <From 1990 models>
*3: <Up to 1990 models>
*4: <From 1991 models>



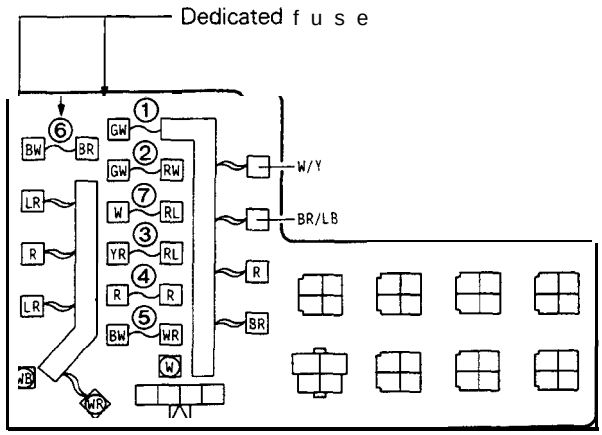
16A1236

TSB Revision

DEDICATED FUSE (relay box inside engine compartment)

Power supply circuit	No.	Rated capacity (A)	Housing color	Circuit
Battery	1	10	Red	Hazard light circuit
Taillight relay (Battery)	2	10	Red	Taillight circuit
Headlight relay (Battery)	3	10	Red	Upper beam indicator
Battery	4	15	Blue	ECS circuit
	5	10	Red	A/C compressor circuit
	6	25, 30*	transparent	Condenser fan motor circuit
Headlight relay (Battery)	7	15	Blue	Fog light circuit

NOTE
*: DOHC <From 1992 models>



TSB Revision

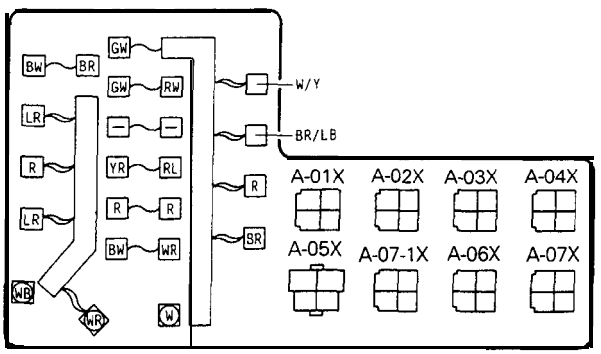
CENTRALIZED RELAY

Classification		Name
Relay box inside engine compartment	A-01X	Headlight relay
	A-02X	Taillight relay
	A-03X	Radiator fan motor relay (HI)
	A-04X	Radiator fan motor relay (LO)
	A-05X	Generator relay
	A-06X	ACTIVE-ECS solenoid valve power relay
	A-07X	A/C compressor clutch relay
	A-07-1X	Fog light relay

Classification		Name
Passenger compartment relay box	C-72X	Power window relay
	C-73X	Door lock relay
	C-74X	Seat belt timer*1 Theft-alarm starter relay*2
	C-75X	Defogger timer

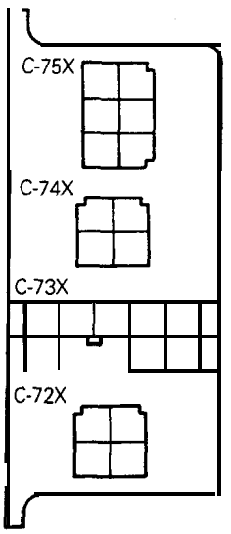
NOTE
*1: <1989 models>
*2: <From 1991 models>

<Relay box inside engine compartment>



16A0567

<Passenger compartment relay box>



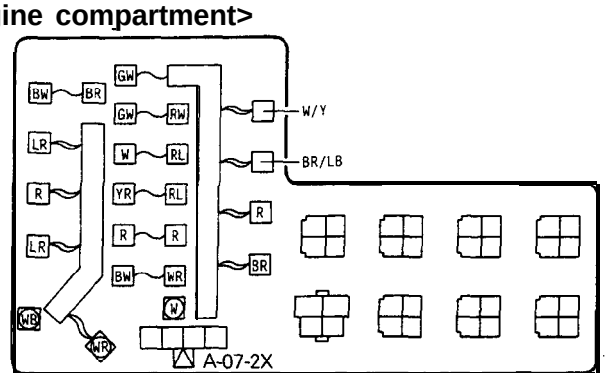
16A0566

IOD or STORAGE CONNECTOR <From 1991 models>

Classification		Name
Relay box inside engine compartment	A-07-2X	IOD or Storage Connector

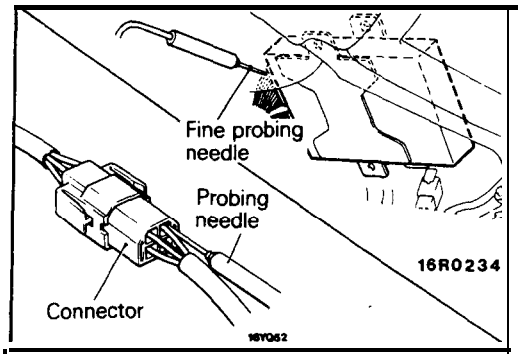
NOTE
IOD: Ignition Off Draw

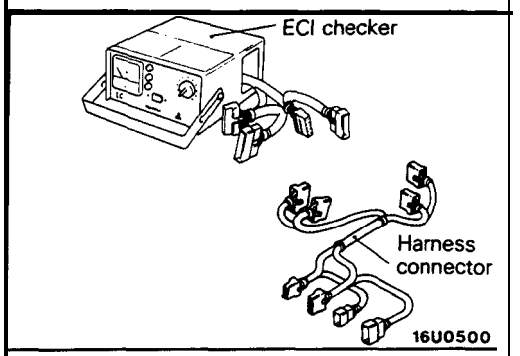
<Relay box inside engine compartment>

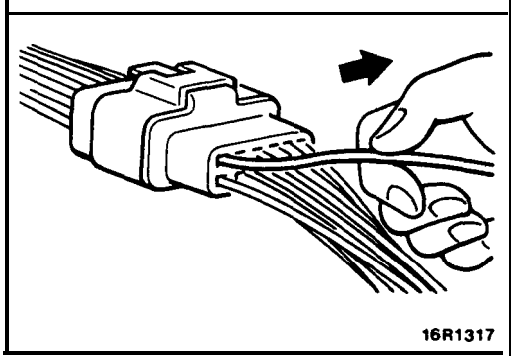


16A1259

TSB Revision







INSPECTION OF HARNESS CONNECTOR

M16CAAA

CONTINUITY AND VOLTAGE TEST FOR CONNECTOR

Following procedures shall be followed for testing continuity and voltage at connector in order to prevent improper contact and deterioration of waterproof in connector.

CONVENTIONAL (NON-WATERPROOF) CONNECTOR

Check shall be done by inserting a probing needle from harness side.

WATER PROOF CONNECTOR

Caution

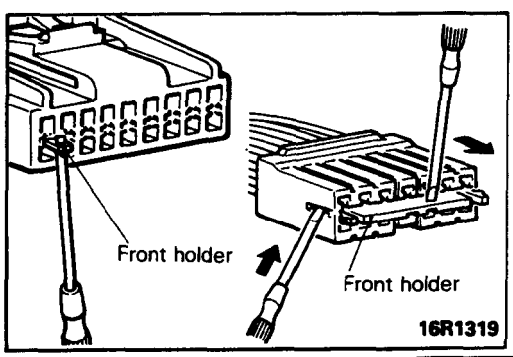
Do not insert probing needle from harness side as it will deteriorates waterproof and cause for rusting. To inspect the energized circuit, use the ECI checker.

CHECK FOR IMPROPER ENGAGEMENT OF TERMINAL

When terminal stopper of connector is out of order, engagement of male and female terminals becomes improper even when connector itself is engaged perfectly and terminal sometimes slips out to rear side of connector. Ascertain, therefore, that each terminal does not come off connector by pulling each harness wire.

ENGAGING AND DISENGAGING OF CONNECTOR TERMINAL

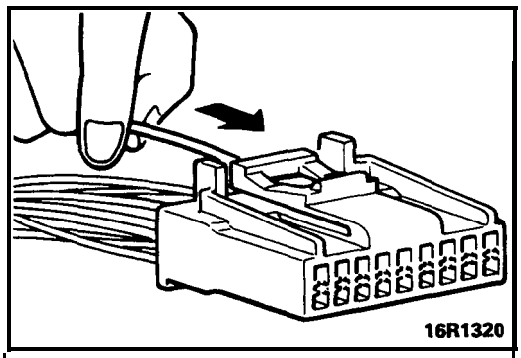
Connector which gives loose engagement shall be rectified by removing female terminal from connector housing and raise its lance to establish securer engagement. Removal of connector *housing and raise its lance to establish securer engagement.* Removal of connector terminal used for ECI and ELC 4 A/T control circuit shall be done in the following manner.



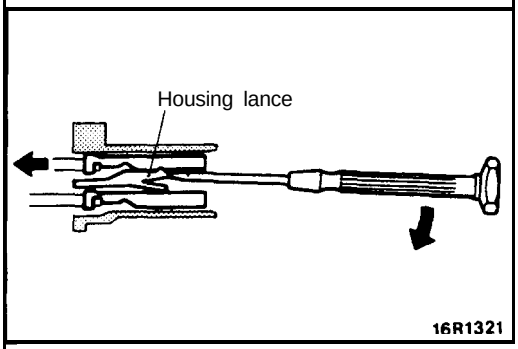
COMPUTER CONNECTOR

(1) Insert screwdriver [1.4 mm (.06 in.) width] as shown in the figure, disengage front holder and remove it.

TSB Revision

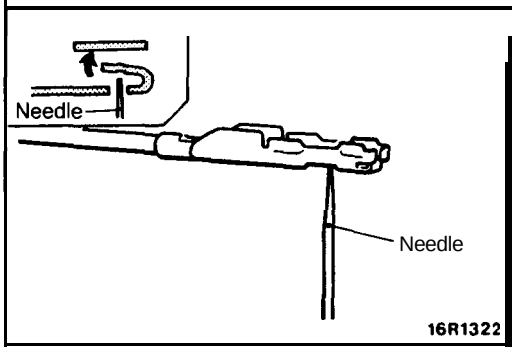


(2) Insert harness of terminal to be rectified deep into connector from harness side and hold it there.



(3) Insert tip of screwdriver [1.4 mm (.06 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.

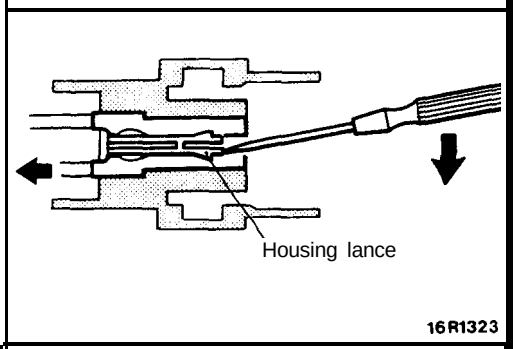
Caution
Tool No. 753787-1 supplied by AMP can be used instead of screwdriver.

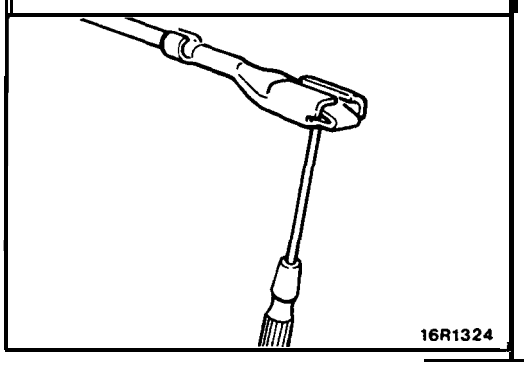


(4) Insert needle through a hole provided on terminal and raise contact point of male terminal.

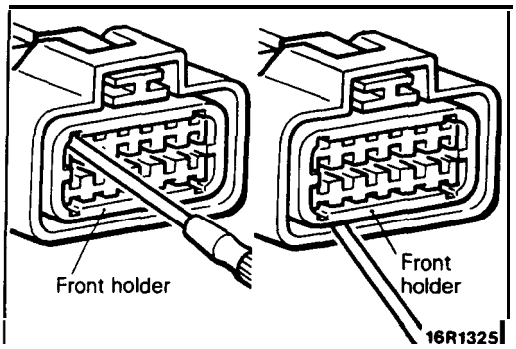
ROUND WATERPROOF CONNECTOR

(1) Remove waterproof cap by using a screwdriver.
(2) Insert tip of screwdriver [1.4 mm (.06 in.) or 2.0 mm (.08 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.



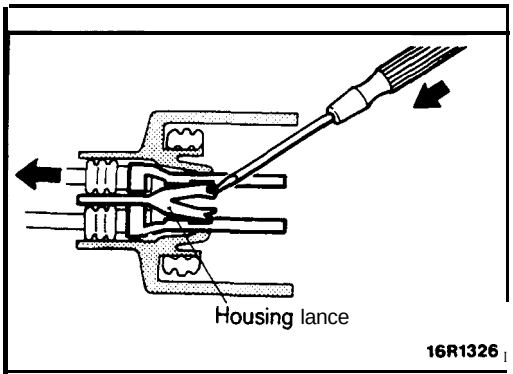


(3) Insert screwdriver through a hole provided on terminal and raise contact point of male terminal.

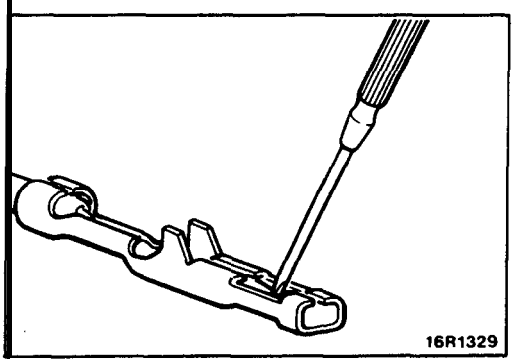


RECTANGULAR WATERPROOF CONNECTOR

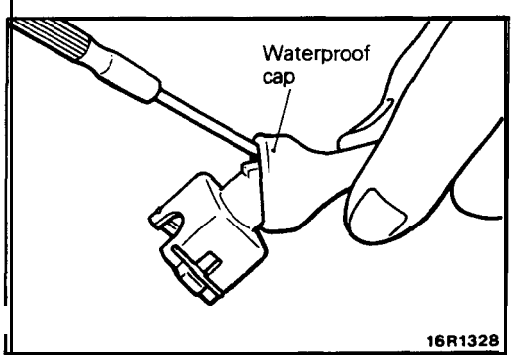
(1) Disengage front holder by using a screwdriver and remove it.



(2) Insert tip of screwdriver [*0.8 mm (.03 in.) width] into connector in a manner as shown in the figure, push it lightly to raise housing lancer and pull out harness.
*If right size screwdriver is not available, convert a conventional driver to suit the size.

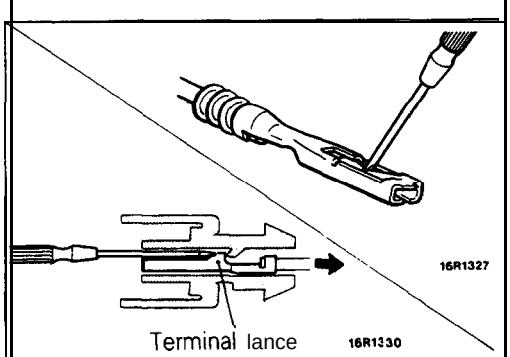


(3) Press contact point of male terminal down by holding a screwdriver [1.4 mm (.06 in.) width] in a manner as shown in the figure.



INJECTOR CONNECTOR

(1) Remove waterproof cap.



(2) Insert tip of screwdriver [1.4 mm (.06 in.) width] into connector in a manner as shown in the figure, press in terminal lance and pull out harness.
(3) Press contact point of male terminal down by holding a screwdriver [1.4 mm (.06 in.) width] in a manner as shown in the figure.

Caution
Correct lancer to be in proper condition before terminal is inserted into connector.

HOW TO DIAGNOSE

M16DAAC

The most important point in troubleshooting is to determine "Probable Causes". Once the probable causes are determined, parts to be checked can be limited to those associated with such probable causes. Therefore, unnecessary checks can be eliminated. The determination of the probable causes must be based on a theory and be supported by facts and must not be based on intuition only.

TROUBLESHOOTING STEPS

If an attempt is made to solve a problem without going through correct steps for troubleshooting, the problem symptoms could become more complicated, resulting in failure to determine the causes correctly and making incorrect repairs. The four steps below should be followed in troubleshooting.

1 Observation of Problem Symptoms	Observe the symptom carefully. Check if there are also other problems.
2 Determination of Probable Causes	In determining the probable causes, it is necessary to check the wiring diagram to understand the circuit as a system. Knowledge of switches, relays and other parts is necessary for accurate determination. The causes of similar problems in the past must be taken into account.
3 Checking of Parts Associated with Probable Causes and Determination of Faultv Parts	Troubleshooting is carried out by making step by step checks until the true cause is found. Always go through the procedures considering what check is to be made where for the best results.
4 Repair and Confirmation	After the problems are corrected, be sure to check that the system operates correctly. Also check that new problems have not been caused by the repair.

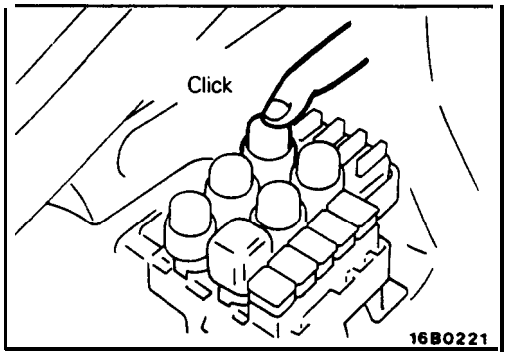
INFORMATION FOR DIAGNOSTIC

This manual contains the cable diagrams as well as the individual circuit drawings, operational explanations, and troubleshooting hints for each component required to facilitate the task of troubleshooting. The information is compiled in the following manner:

(1) Cable diagrams show the connector positions, etc., on the actual vehicle as well as the harness path.
(2) Circuit drawings show the configuration of the circuit with all switches in their normal positions.
(3) Operational explanations include circuit drawings of voltage flow when the switch is operated and how the component operates in reaction.
(4) Troubleshooting hints include numerous examples of problems which might occur, traced backward in a common-sense manner to the origin of the trouble. Problems whose origins may not be found in this manner are pursued through the various system circuits.

NOTE
Components of ECI, ETACS, ECS, etc. with ECU do not include 3 and 4 above. For this information, refer to a manual which includes details of these components.

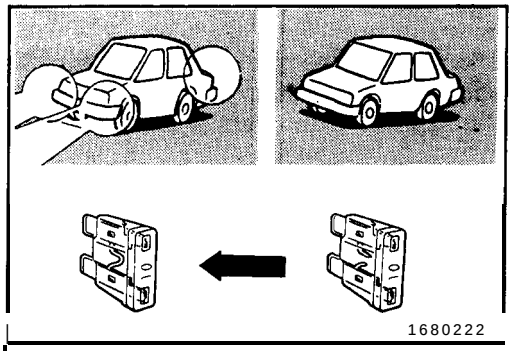
TSB Revision



INSPECTION

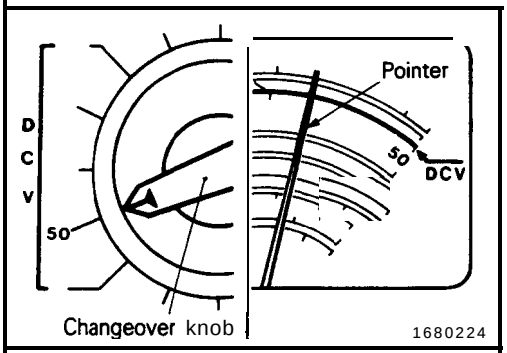
1. Visual and aural checks

Check relay operation, blower motor rotation, light illumination, etc. visually or aurally. The flow of current is invisible but can be checked by the operation of the parts.



2. Simple checks

For example, if a headlight does not come on and a faulty fuse or poor grounding is suspected, replace the fuse with a new one or ground the light to the body by a jumper wire to determine which part is responsible for the problem.



3. Checking with instruments

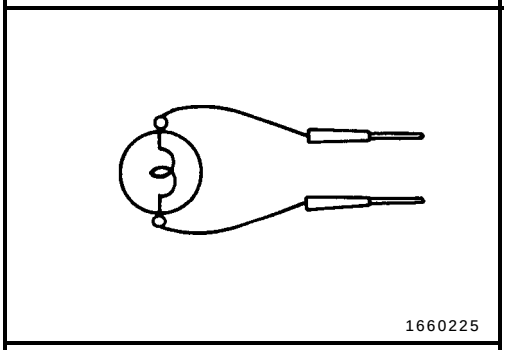
Use an appropriate instrument in an adequate range and read the indication correctly. You must have sufficient knowledge and experience to handle instruments correctly.

INSPECTION INSTRUMENTS

In inspection, make use of the following instruments.

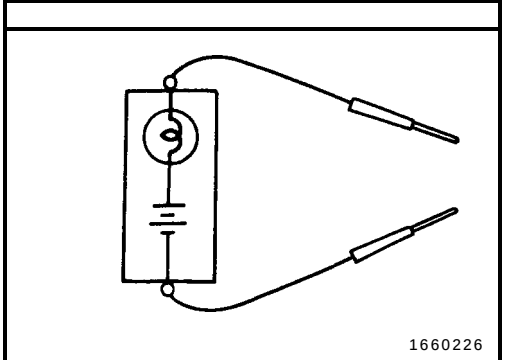
1. Test lights

A test light consists of a 12V bulb and lead wires. It is used to check voltages or shortcircuits.

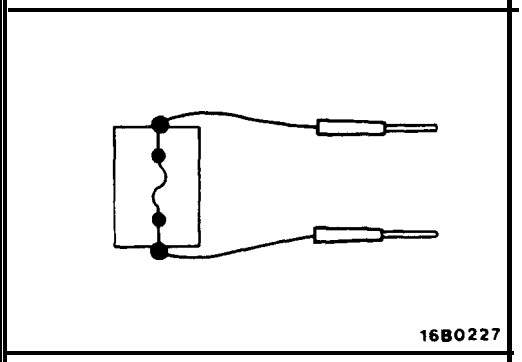


2. Self-power test light

A self-power test light consists of a bulb, battery and lead wires connected in series. It is used to check continuity or grounding.

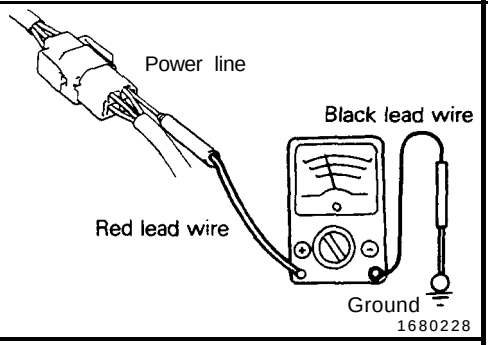


TSB Revision


16B0227

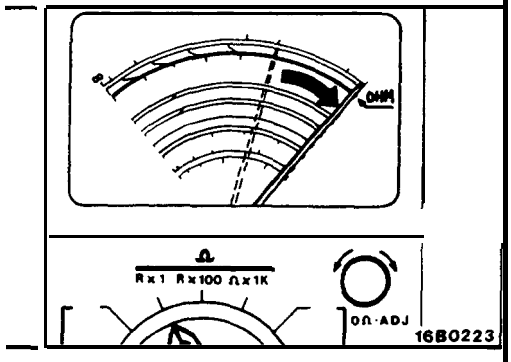
3. Jumper wire

A jumper wire is used to close an open circuit. Never use one to connect a power supply directly to a load.



4. Voltmeter

A voltmeter is used to measure the circuit voltage. Normally, the positive (red lead) probe is applied to the point of voltage measurement and the negative (black lead) probe to the body ground.



5. Ohmmeter

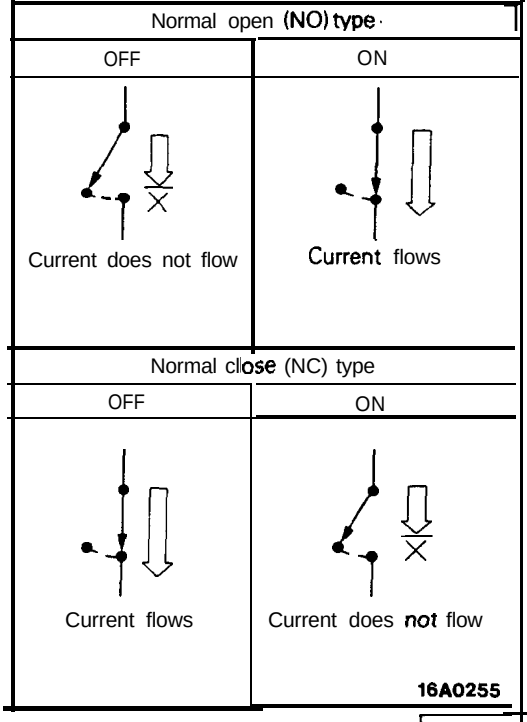
An ohmmeter is used to check continuity or measure resistance of a switch or coil. If the measuring range has been changed, the zero point must be adjusted before measurement.

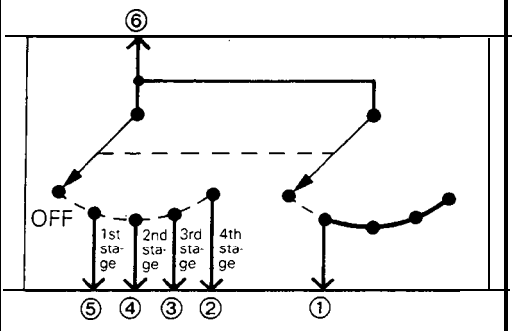
CHECKING SWITCHES

In a circuit diagram, a switch is represented by a symbol and in the idle state.

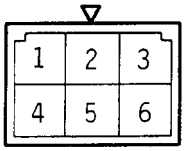
1. Normal open or normal close switch

Switches are classified into those which make the circuit open and those which make the circuit closed when off.





16A0253



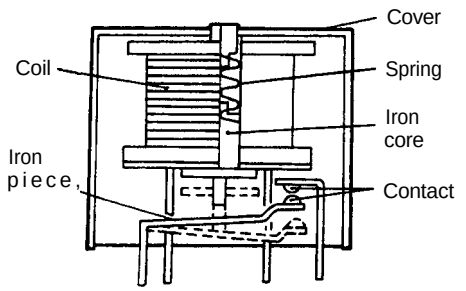
16W898

2. SWITCH CONNECTION

This figure illustrates a complex switch. The continuity between terminals at each position is as indicated in the table below.

Position \ Terminal No.	1	2	3	4	5	6
OFF						
1 st stage	0				∩	0
2nd stage	○			○		○
3rd stage	○		○			○
4th stage	○	○				○

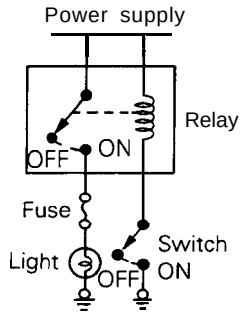
NOTE
○—○ denotes continuity between terminals.



1680231

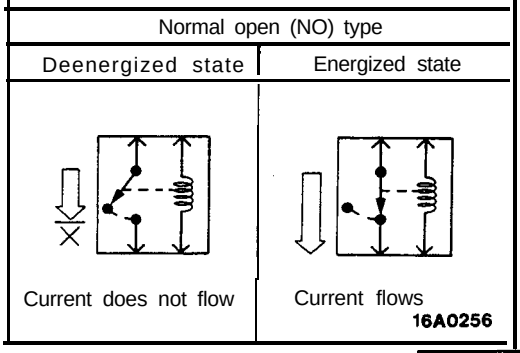
CHECKING RELAYS

1. When current flows through the coil of a relay, its core is magnetized to attract the iron piece, closing (ON) the contact at the tip of the iron piece. When the coil current is turned off, the iron piece is made to return to its original position by a spring, opening the contact (OFF).



16A0254

2. By using a relay, a heavy current can be turned on and off by a switch of small capacity. For example, in the circuit shown here, when the switch is turned on (closed), current flows to the coil of the relay. Then, its contact is turned on (closed) and the light comes on. The current flowing at this time to the switch is the relay coil current only and is very small.

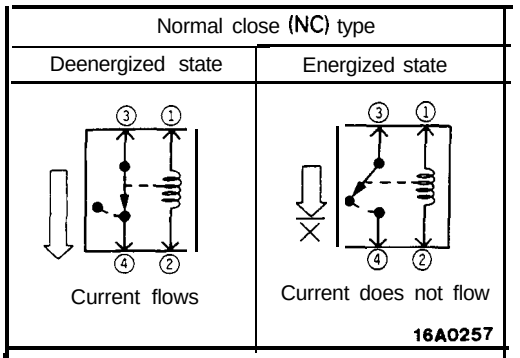


16A0256

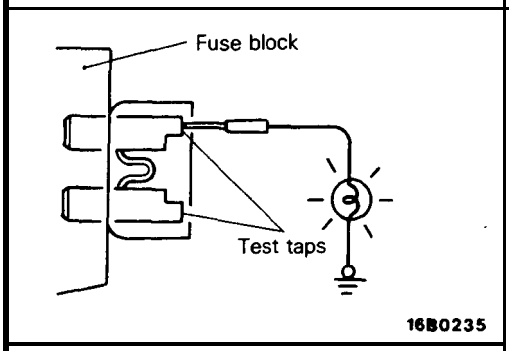
3. The relays may be classified into the normal open type and the normal close type by their contact construction.

NOTE
The deenergized state means that no current is flowing through the coil and the energized state means that current is flowing through the coil.

TSB Revision

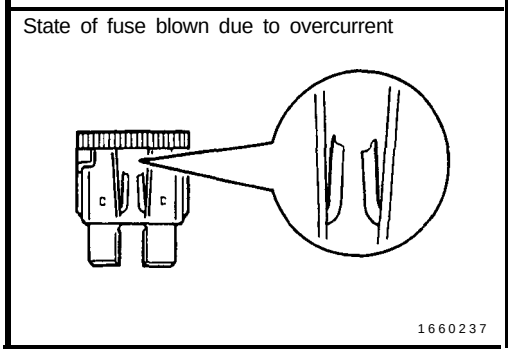


When a normal close type relay as illustrated here is checked, there should be continuity between terminals (1) and (2) and between terminals 3 and 4 when the relay is deenergized, and the continuity should be lost between terminals 3 and 4 when the battery voltage is applied to the terminals 1 and 2. A relay can be checked in this manner and it cannot be determine if a relay is okay or faulty by checking its state only when it is deenergized (or energized).



CHECKING FUSES

A blade type fuse has test taps provided to allow checking of the fuse itself without removing it from the fuse block. The fuse is okay if the test light comes on when its one lead is connected to the test taps (one at a time) and the other lead is grounded. (Change the ignition switch position adequately so that the fuse circuit becomes live.)

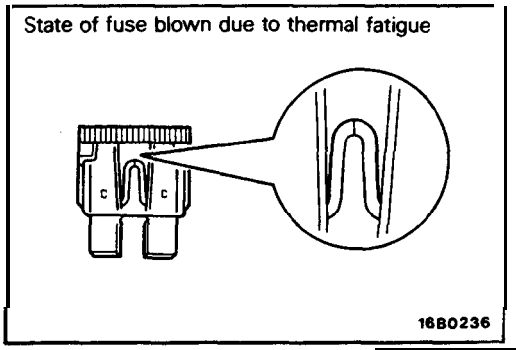


CAUTIONS IN EVENT OF BLOWN FUSE

When a fuse is blown, there are two probable causes as follows : One is that it is blown due to flow of current exceeding its rating. The other is that it is blown due to repeated on/off current flowing through it. Which of the two causes is responsible can be easily determined by visual check as described below.

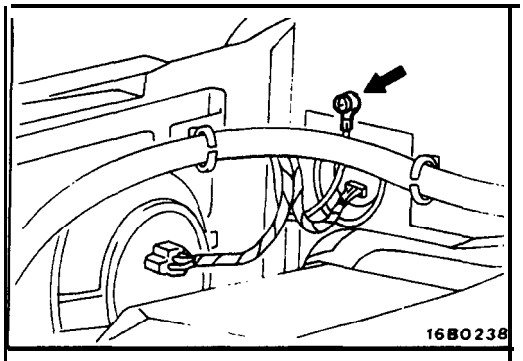
(1) Fuse blown due to current exceeding rating

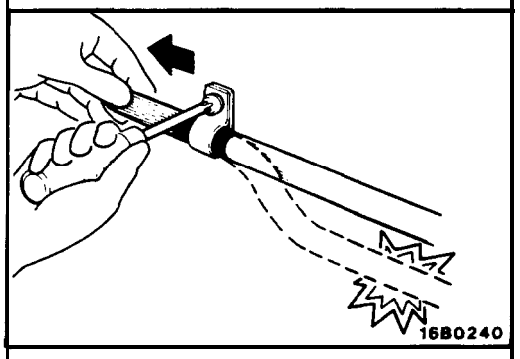
The illustration shows the state of a fuse blown due to this cause. In this case, do not replace the fuse with a new one hastily since a current heavy enough to blow the fuse has flowed through it. First, check the circuit for shorting and check for abnormal electric parts. Only after the correction of such shorting or parts, fuse of the same capacity should be used as a replacement. Never use a fuse of lager capacity than the one that has blown. If such a fuse is used, electric parts or wirings could be damaged before the fuse blows in the event an overcurrent occurs again.

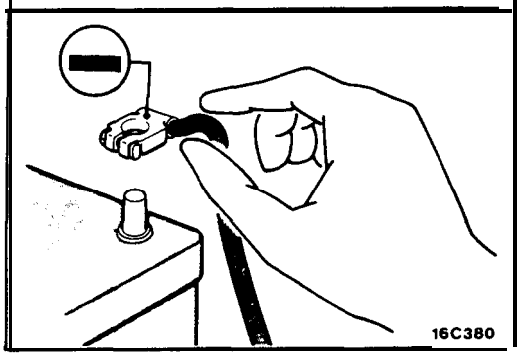


(2) Fuse blown due to repeated current on/off

The illustration shows the state of a fuse blown due to repeated current on/off. Normally, this type of problem occurs after fairly long period of use and hence is less frequent than the above type. In this case, you may simply replace with a new fuse of the same capacity.







CHECKING CABLES AND WIRES

1. Check connections for looseness, rust and stains.
2. Check terminals and wires for corrosion by battery electrolyte, etc.
3. Check terminals and wires for open circuit or impending open circuit.
4. Check wire insulation and coating for damage, cracks and degrading.
5. Check conductive parts of terminals for contact with other metallic parts (vehicle body and other parts).
6. Check grounding parts to verify that there is complete continuity between attaching bolt(s) and vehicle body.
7. Check for incorrect wiring.
8. Check that wirings are so clamped as to prevent contact with sharp corners of the vehicle body, etc. or hot parts (exhaust manifold, pipe, etc.).
9. Check that wirings are clamped firmly to secure enough clearance from the fan pulley, fan belt and other rotating or moving parts.
10. Check that the wirings between the fixed parts such as the vehicle body and the vibrating parts such as the engine are made with adequate allowance for vibrations.

HANDLING ON-VEHICLE BATTERY

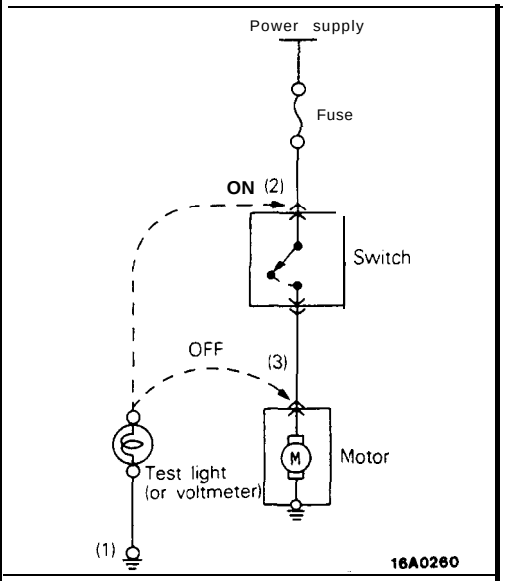
When checking or servicing does not require power from the on-vehicle battery, be sure to disconnect the cable from the battery (–) terminal. This is to prevent problems that could be caused by shorting of the circuit. Disconnect the (–) terminal first and reconnect it last.

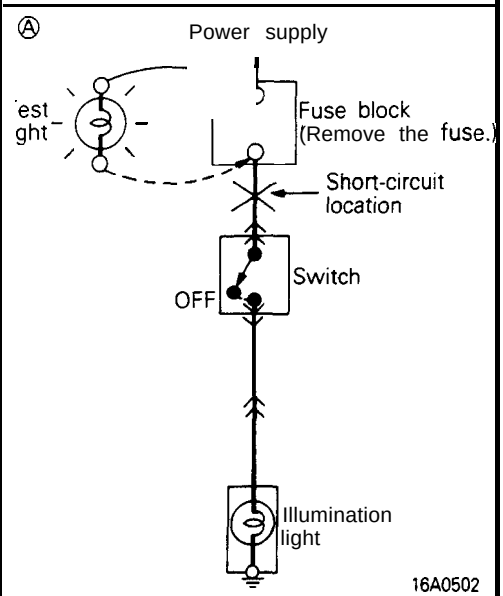
Caution

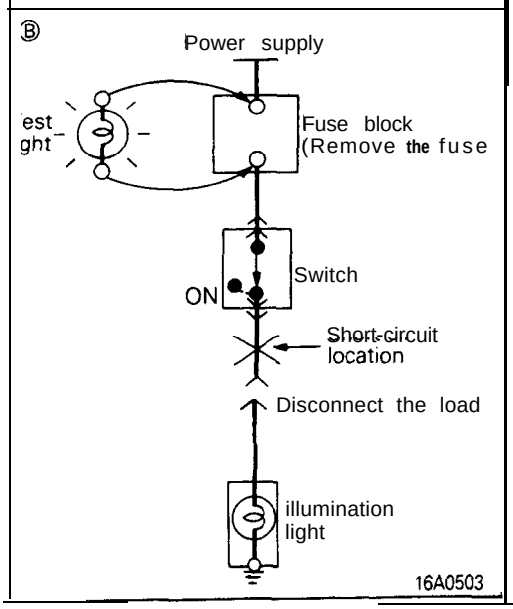
1. **Before connecting or disconnecting the negative cable, be sure to turn off the ignition switch and the lighting switch.**
   (If this is not done, there is the possibility of semiconductor parts being damaged.)
2. **For MFI-equipped models, after completion of the work steps [when the battery's negative (–) terminal is connected], warm up the engine and allow it to idle for approximately five minutes under the conditions described below, in order to stabilize engine control conditions, and then check to be sure that the idling is satisfactory.**

   Engine coolant temperature: 85–95°C (185–203°F)
   Lights, electric fans, accessories: OFF
   Transaxle: neutral position
   (A/T models: "N" or "P")
   Steering wheel: neutral (center) position

TSB Revision







TROUBLESHOOTING

A circuit consists of the power supply, switch, relay, load, **ground.** etc. There are various methods to check a circuit including an overall check, voltage check, shortcircuit check and continuity check. Each of these methods is briefly described in the following.

1. VOLTAGE CHECK

(1) Ground one lead wire of the test light. If a voltmeter is used instead of the test light, ground the grounding side lead wire.

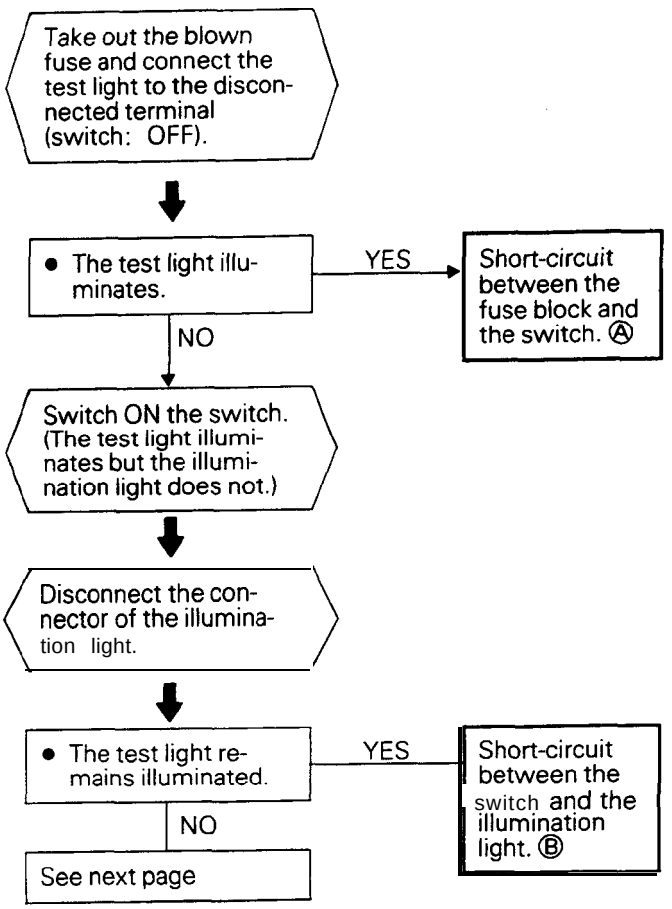
(2) Connect the other lead wire of the test light to the power side terminal of the switch connector. The test light should come on or the voltmeter should indicate a voltage.

(3) Then, connect the test light or voltmeter to the motor connector. The test light should not come on, or the voltmeter should indicate no voltage. When the switch is turned on in this state, the test light should come on, or the voltmeter should indicate a voltage, with motor starting to run.

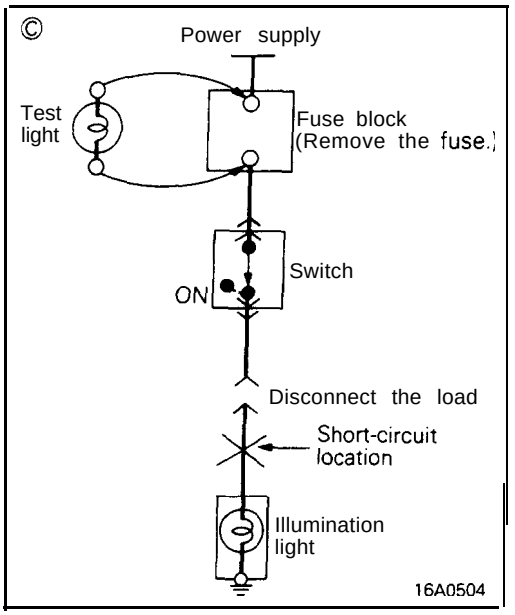
(4) The circuit illustrated here is normal but if there is any problem such as the motor failing to run, check voltages beginning at the connector nearest to the motor until the faulty part is identified.

2. CHECKING FOR A SHORT-CIRCUIT

Because the fuse has blown, it is probable that there is a short-circuited circuit. Follow the procedures below to narrow down the short-circuit location.

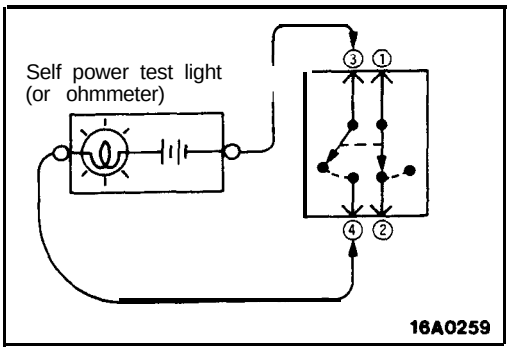


TSB Revision



Continued from previous page

Short-circuit between the connector and the illumination light. ©



3. CHECKING CONTINUITY

(1) When the switch is in the OFF position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 1 and 2 are interconnected.

(2) When the switch is the ON position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 3 and 4 are interconnected.

TSB Revision

NOTES

CONFIGURATION DIAGRAMS

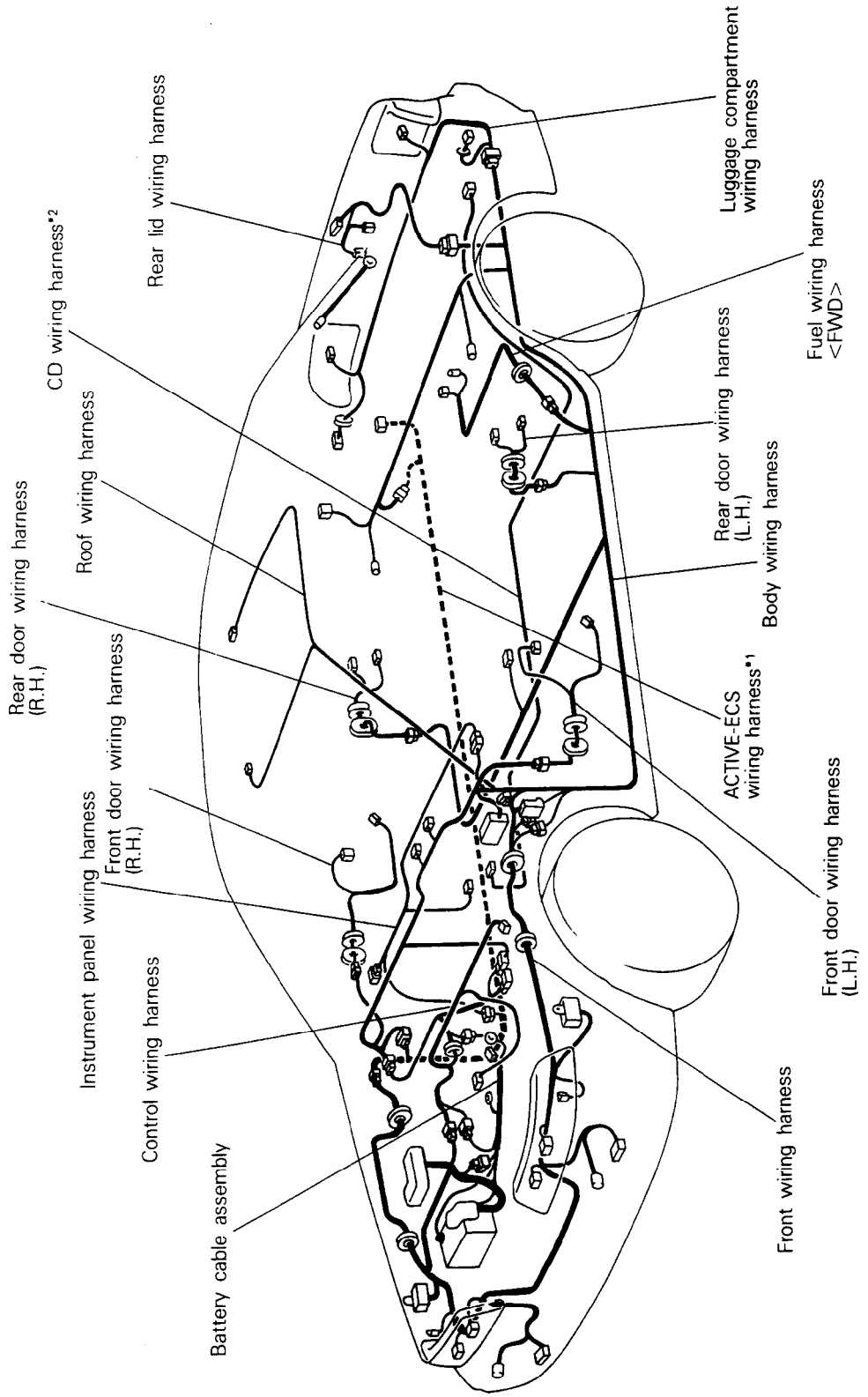
CONTENTS

M16VA--

Dash Panel <DOHC> 56
Dash Panel <SOHC> 52
Engine and Transaxle 44
Engine Compartment <DOHC (Non-Turbo)> 36
Engine Compartment <DOHC (Turbo)> 40
Engine Compartment <SOHC> 32
How to Read Configuration Diagrams 31
Instrument Panel 64
Interior <DOHC> 62
Interior <SOHC> 60
Luggage Compartment 66
Overall Configuration Diagram 30
Rear Under Floor 68

OVERALL CONFIGURATION DIAGRAM

M16VB--



NOTE
(1) This illustration shows only the major wiring harness.
(2) *1: Vehicles with ACTIVE-ECS
(3) *2: 1991 models <Vehicles with CD player>

TSB Revision

HOW TO READ CONFIGURATION DIAGRAMS

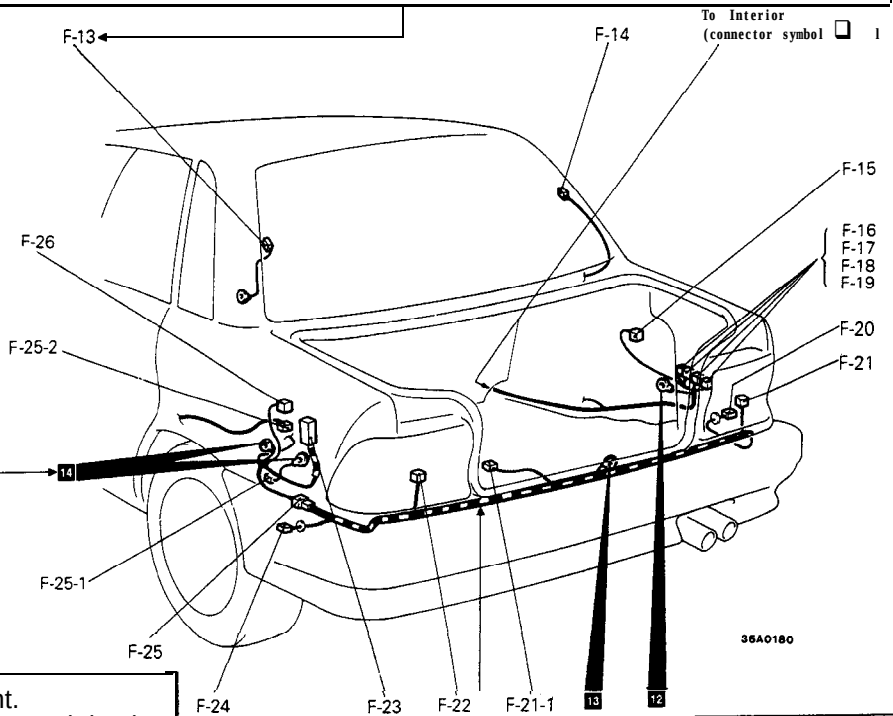
M16VCAEb

The wiring diagrams are prepared in such a way that the arrangement of connectors for each vehicle, and the routing of each harness, can be easily understood for each individual wiring section.

Indicates the connector number.
The connector number used is the same number as that used for circuit diagrams; these numbers facilitate the location of the connector positions.
The alphabet letter used as the prefix represents the wiring section in which that connector is used; subsequent numerals make up the number that indicates particular characteristics of that individual connector. As a general rule, numbers are assigned clockwise around the wiring diagram.
Note that, if there is a concentration of connectors with the same form (same number of pins), the connnectors' colors are noted in order to facilitate identification.

Example: A-12-01 (Black)

- Connector color
- indicates that the connector has been added as a result of model year change, specifications change, etc.
- Number indicating the connector's characteristics (series number)
- Symbol indicating wiring section location of the connector
  - A: Engine compartment
  - B: Engine and transaxle
  - C: Dash panel
  - D: Interior
  - E: Instrument panel
  - F: Luggage compartment
  - G: Rear under floor



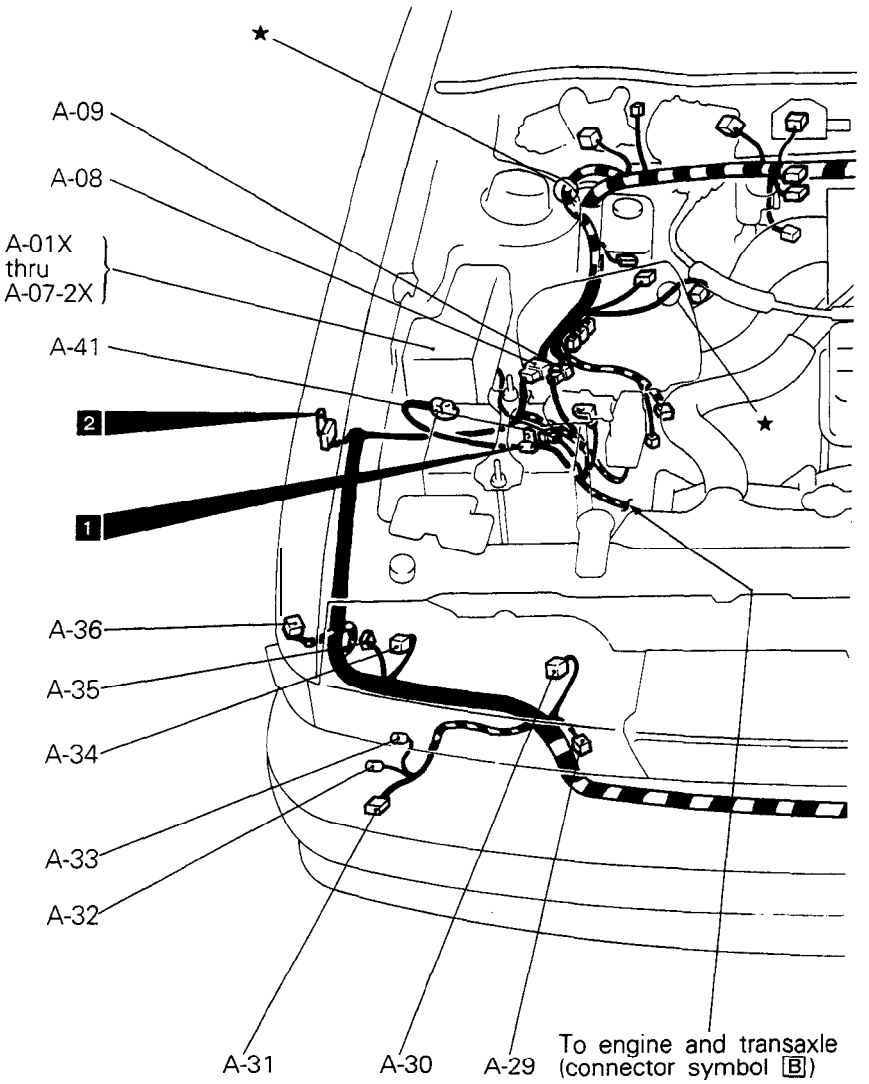
Indicates ground point.
The ground number used is the same number as that used for circuit diagrams; these numbers facilitate the location of the ground points.
For detailed information concerning ground points, refer to P.4.

Represents the part concealed by corrugated tubing.

TSB Revision

ENGINE COMPARTMENT <SOHC>

Connector symbol	
A	01 thru 41

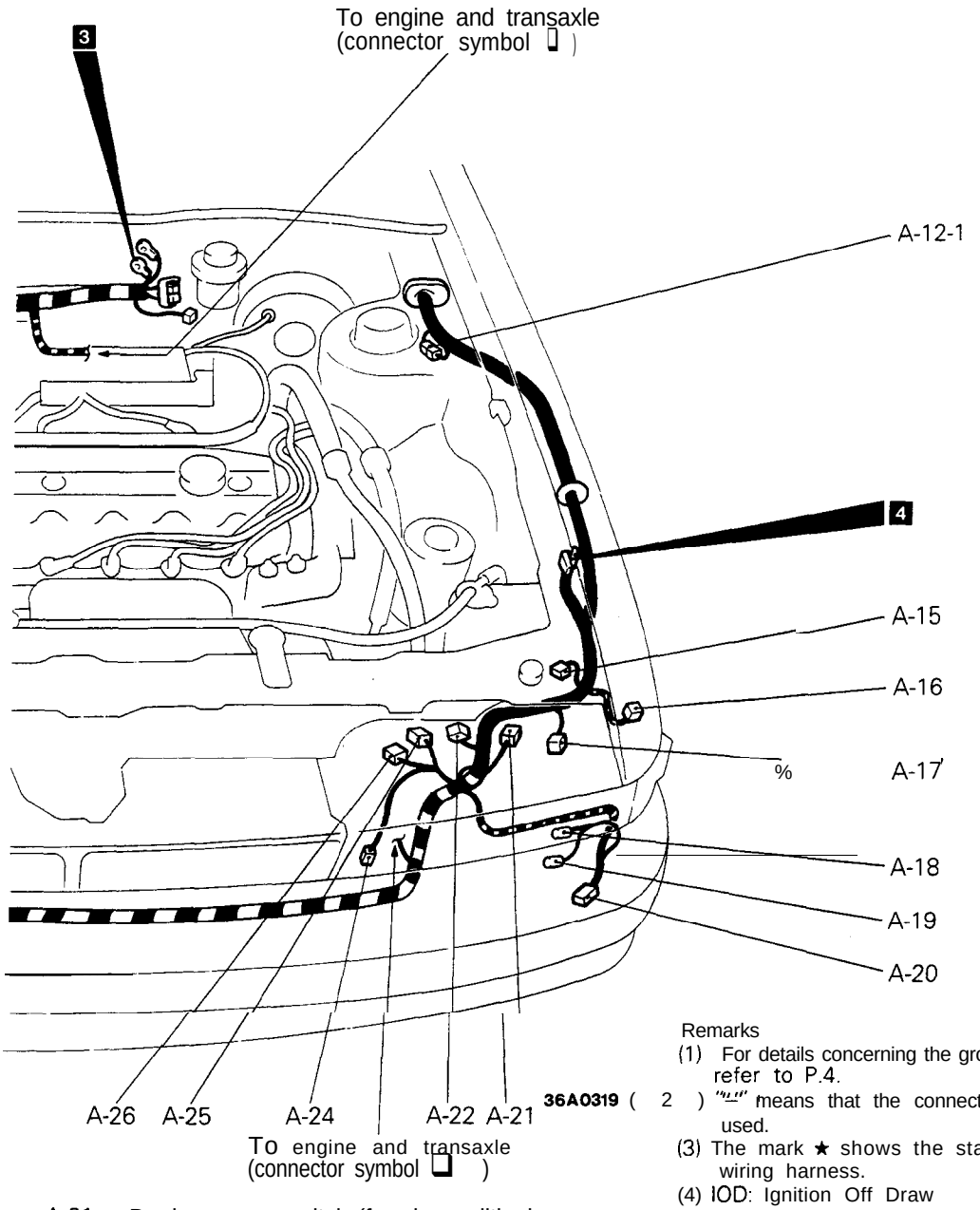


A-01X Headlight relay
A-02X Taillight relay
A-03X Radiator fan motor relay (HI)
A-04X Radiator fan motor relay (LO) (for air conditioning circuit)
A-05X Generator relay
A-06X –
A-07X Air conditioning compressor clutch relay
A-07-1X –
A-07-2X IOD or storage connector

Refer to CENTRALIZED JUNCTION

A-08 Front wiring harness and control wiring harness combination
A-09 Control wiring harness and battery cable assembly combination <A/T>

A-10 thru A-12 –
A-l 2-1 Front wiring harness and front wiring harness combination
A-13 –
A-14 –
A-15 Pressure switch
A-16 Front combination light (left side)
A-17 Headlight <Type 2> (left side)
A-18 A-19 Horn (left side)
A-20 Front turn-signal light (left side)



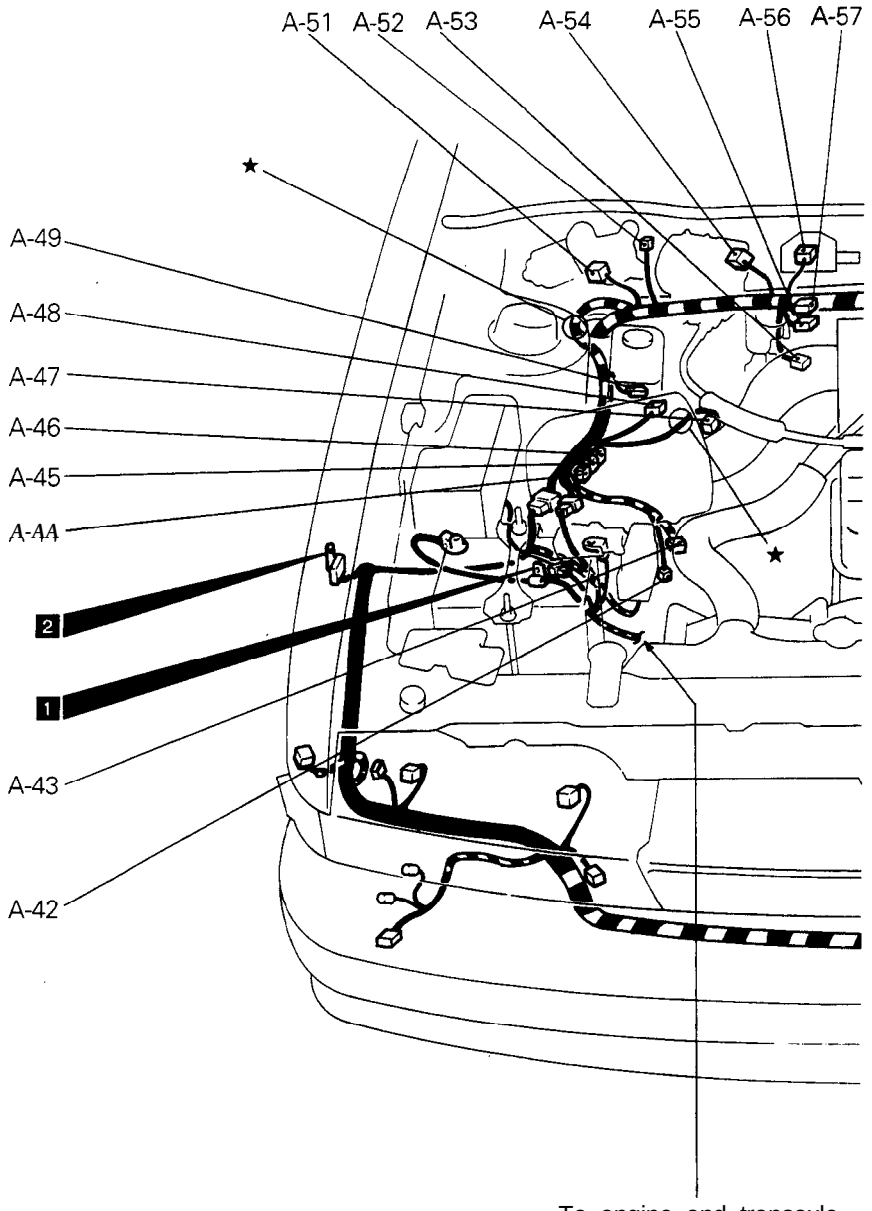
Remarks
(1) For details concerning the ground point (example: ❑), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) IOD: Ignition Off Draw

A-21 Dual pressure switch (for air conditioning circuit)
A-22 Headlight <Type 1> (left side)
A-23 –
A-24 Condenser fan motor (for air conditioning circuit)
A-25 Condenser fan motor relay (Hi) (for air conditioning circuit)
A-26 Condenser fan motor realy (LO) (for air conditioning circuit)
A-27 –
A-28 –
A-29 Radiator fan motor
A-30 Headlight <Type 1> (right side)
A-31 Front turn-signal light (right side)
A-32, A-33 Horn (right side)
A-34 Headlight <Type 2> (right side)
A-35 Defogger relay
A-36 Front combination light (right side)
A-37 thru A-40 –
A-41 Front wiring harness and battery cable assembly combination

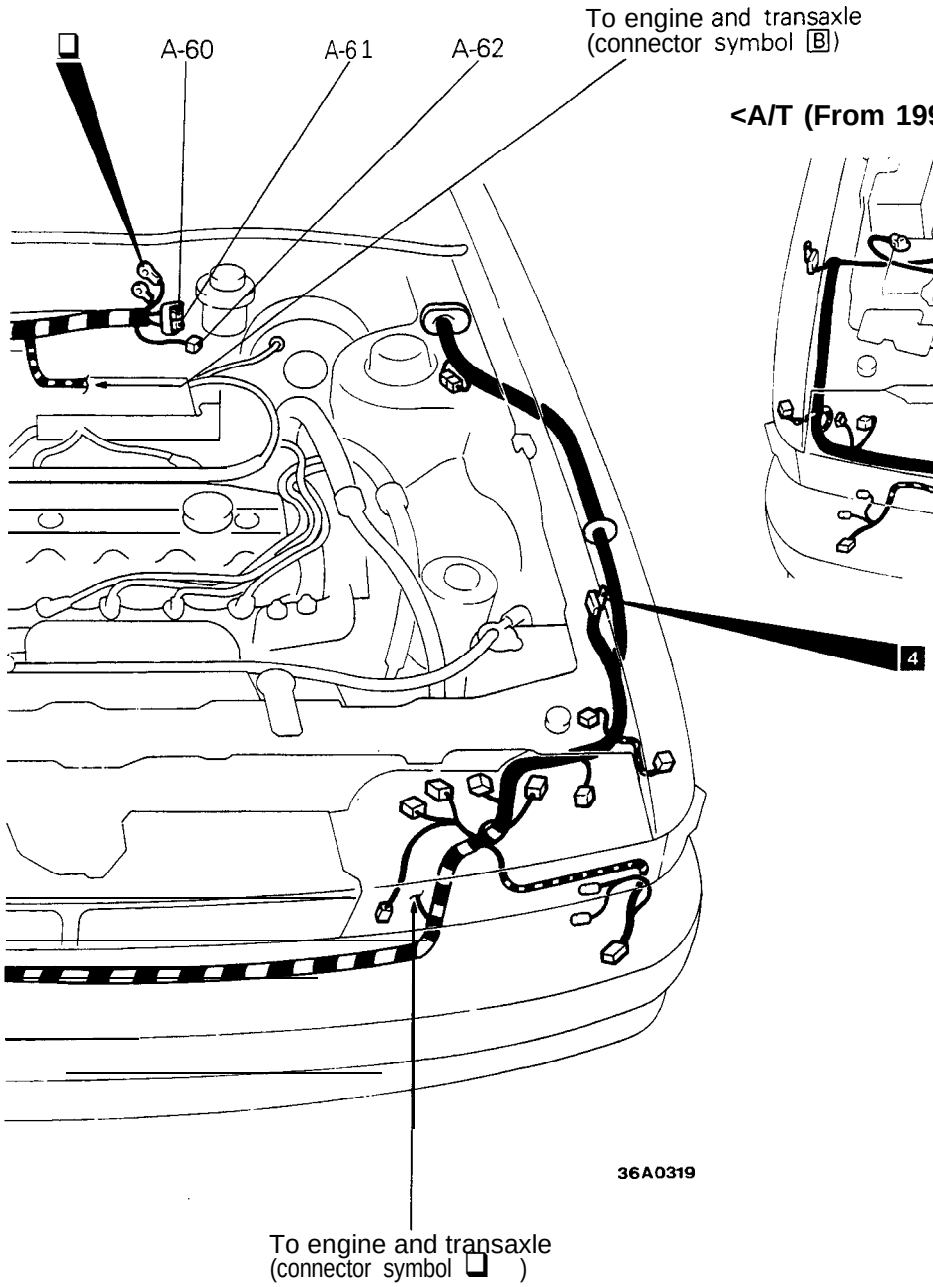
ENGINE COMPARTMENT <SOHC>

Connector symbol

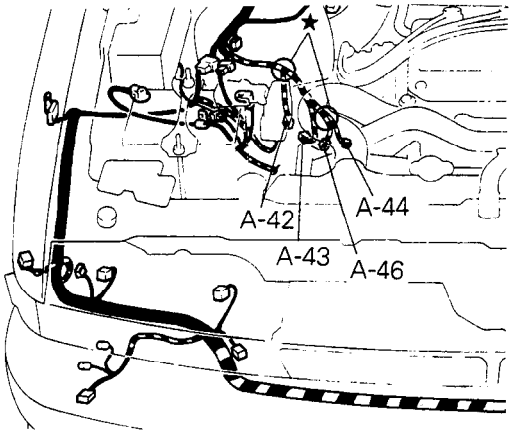
A 42 thru 63



A-42 ELC 4-speed automatic transaxle control solenoid valve
A-43 Park/neutral position switch <A/T>
A-44 Kickdown servo switch <A/T>
A-45 Pulse generator <A/T>
A-46 Automatic transaxle fluid temperature sensor
A-47 Volume air flow sensor
A-48 EGR solenoid <Vehicles for California>
A-49 Washer motor
A-50 –
A-51 Wiper motor
A-52 Wiper relay <Vehicles with ETACS>
A-53 Idle speed'control motor position sensor (1989 models)
A-54 Auto-cruise control actuator*1, Auto-cruise control vacuum pump*2
A-55 Throttle position sensor (1989 models)
A-56 Evaporative emission purge solenoid
A-57 Crankshaft position sensor and camshaft position sensor <Up to 1990 models>



<A/T (From 1993 models)>

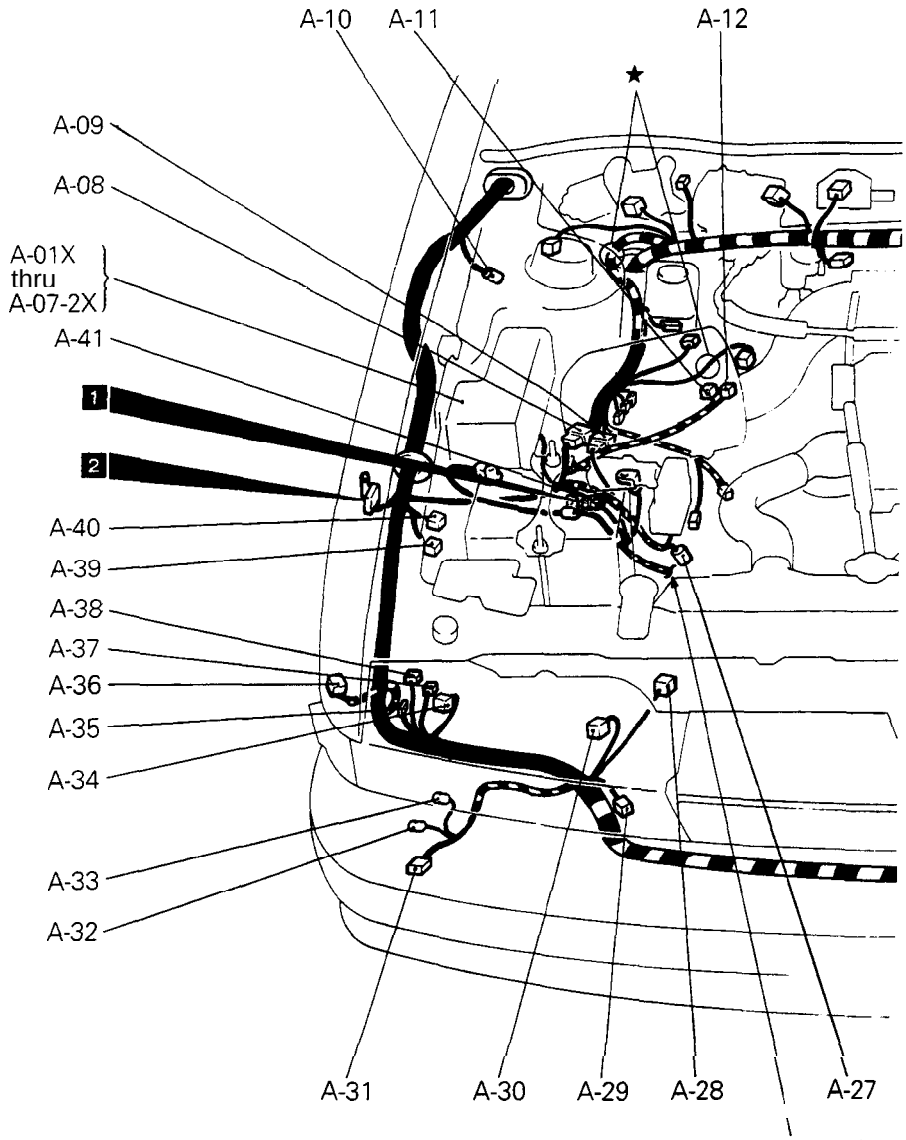


A-58 –
A-59 –
A-60 Fuel pump check connector
A-61 Ignition timing adjustment connector
A-62 Brake fluid level sensor
A-63 –

Remarks
(1) For details concerning the ground point (example:), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) ● I: Up to 1990 models
(5) ● *: From 1991 models

ENGINE COMPARTMENT <DOHC (Non-Turbo)>

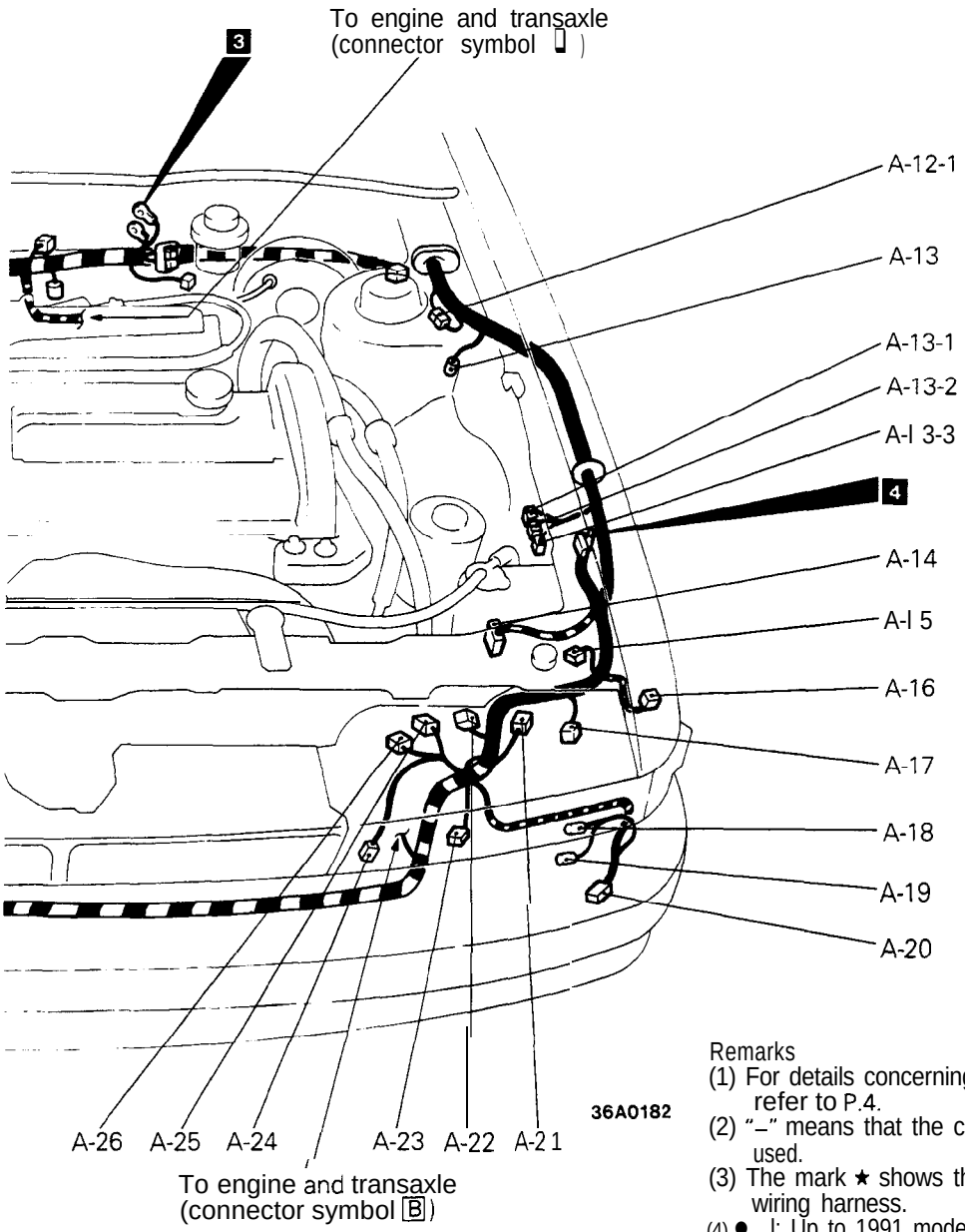
Connector symbol
A 01 thru 41



A-01X Headlight relay
A-02X Taillight relay
A-03X Radiator fan motor relay (HI)
A-04X Radiator fan motor relay (LO) (for air conditioning circuit)
A-05X Generator relay
A-06X ACTIVE-ECS solenoid valve power relay
A-07X Air conditioning compressor clutch relay
A-07-1X – A-07-2X IOD or storage connector

Refer to CENTRALIZED JUNCTION

A-08 Front wiring harness and control wiring harness combination
A-09 Control wiring harness and battery cable assembly combination <A/T>
A-I 0 ABS front speed sensor (right side)
A-I 1 ACTIVE-ECS exhaust solenoide valve
A-I 2 ACTIVE-ECS air compressor
A-12-1 Front wiring harness and front wiring harness combination
A-13 ABS front speed sensor (left side)
A-I 3-1 ABS brake fluid pressure switch <AWD>*1
A-13-2, A-13-3 ABS hydraulic unit <AWD>*1, <FWD and AWD>*2
A-I 4 ABS hydraulic unit <FWD>*1
A-15 Pressure switch
A-16 Front combination light (left side)
A-I 7 Headlight <Type 2> (left side)
A-18, A-19 Horn (left side)
A-20 Front turn signal light (left side)
A-21 Dual pressure switch (for air conditioning circuit)

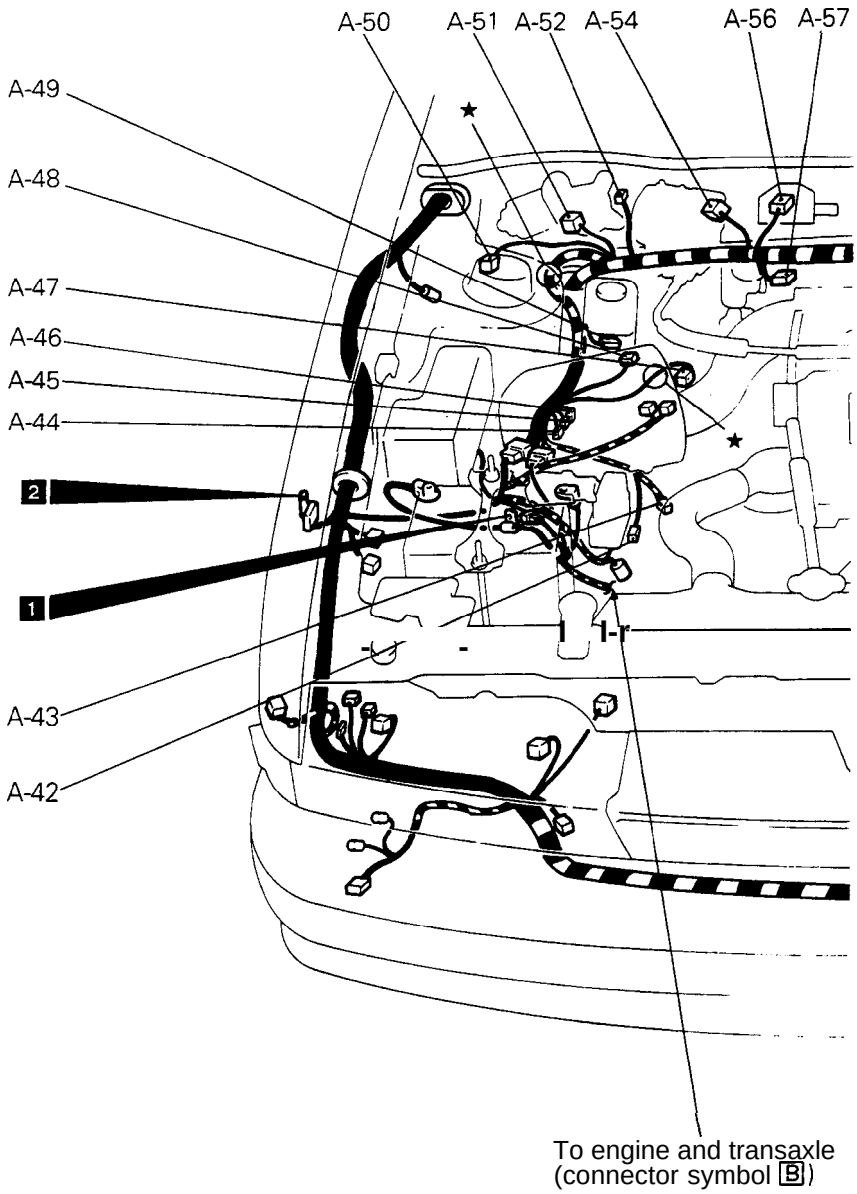


Remarks
(1) For details concerning the ground point (example: ❑), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) ● 1: Up to 1991 models
(5) ● 2: From 1992 models
(6) IOD: Ignition Off Draw

A-22 Headlight <Type 1> (left side)
A-23 ACTIVE-ECS G sensor
A-24 Condenser fan motor (for air conditioning circuit)
A-25 Condenser fan motor relay (HI) (for air conditioning circuit)
A-26 Condenser fan motor realy (LO) (for air conditioning circuit)
A-27 ACTIVE-ECS front height sensor
A-28 ACTIVE-ECS flow control solenoid valve
A-29 Radiator fan motor
A-30 Headlight <Type 1> (right side)
A-31 Front turn-signal light (right side)
A-32, A-33 Horn (right side)
A-34 Headlight <Type 2> (right side)
A-35 Defogger relay
A-36 Front combination light (right side)
A-37 ACTIVE-ECS return pump
A-38 ACTIVE-ECS pressure switch
A-39 ACTIVE-ECS compressor relay
A-40 ACTIVE-ECS return pump relay
A-41 Front wiring harness and battery cable assembly combination

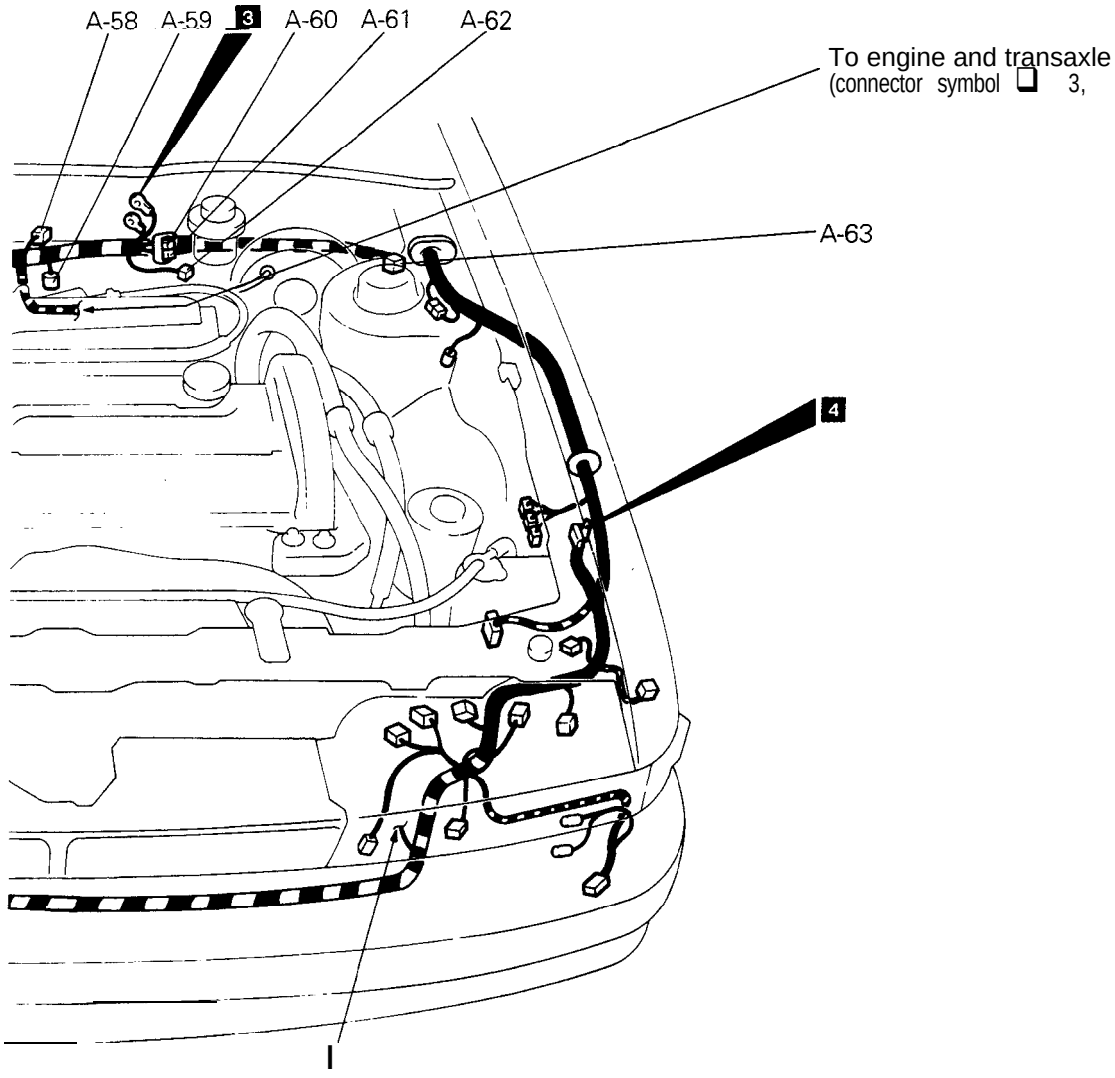
ENGINE COMPARTMENT <DOHC (Non-Turbo)>

Connector symbol	
A	42 thru 63



- A-42 ELC 4-speed automatic transaxle control solenoid valve <A/T>
- A-43 Park/neutral position switch <A/T>
- A-44 Kickdown servo switch
- A-45 Pulse generator <A/T>
- A-46 Automatic transaxle fluid temperature sensor
- A-47 Volume air flow sensor
- A-48 EGR solenoid <Vehicles for California>
- A-49 Washer motor
- A-50 ACTIVE-ECS front actuator (right side)
- A-51 Wiper motor
- A-52 Wiper relay
- A-53
- A-54 Auto-cruise control actuator*1, Auto-cruise control vacuum pump*2
- A-55
- A-56 Evaporative emission purge solenoid
- A-57 Crankshaft position sensor and camshaft position sensor <Up to 1990 models>
- A-58 ACTIVE-ECS front solenoid valve

TSB Revision



36A0182

To engine 'and transaxle
(connector symbol B)

A-59 EPS solenoid valve
A-60 Fuel pump check connector
A-61 Ignition timing adjustment connector
A-62 Brake fluid level sensor
A-63 ACTIVE-ECS front actuator (left side)

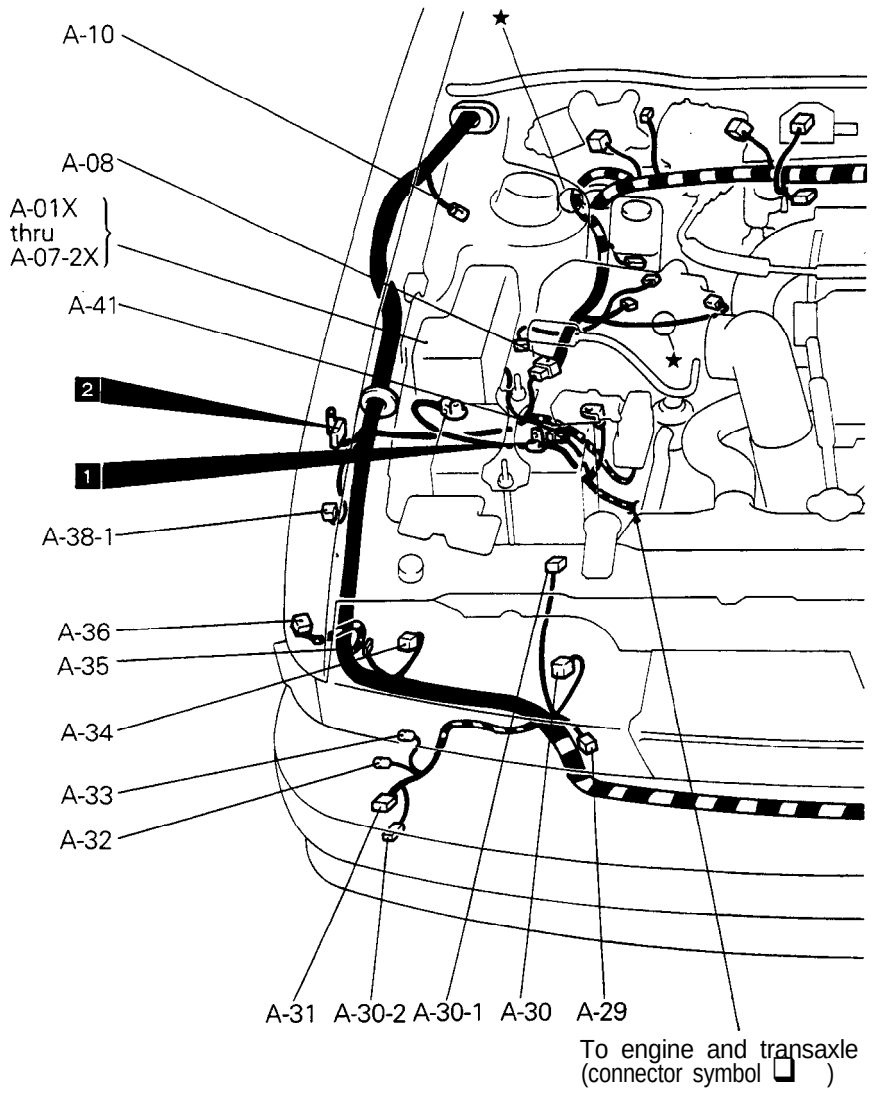
Remarks
(1) For details concerning the ground point (example: 1), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) ● I: Up to 1990 models
(5) ● *: From 1991 models

TSB Revision

ENGINE COMPARTMENT <DOHC (Turbo)>

Connector symbol

A 01 thru 41

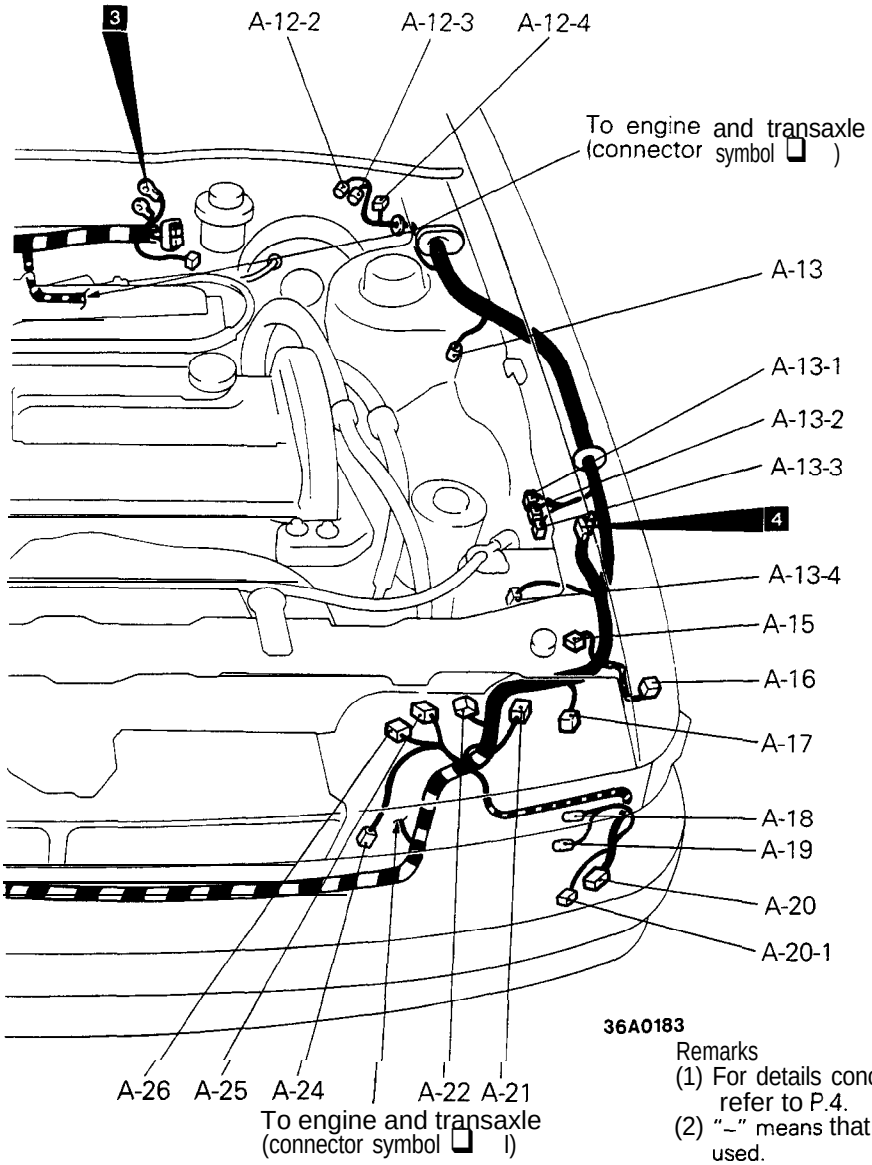


A-01X Headlight relay
A-02X Taillight relay
A-03X Radiator fan motor relay (HI)
A-04X Radiator fan motor relay (LO) (for air conditioning circuit)
A-05X Generator relay
A-06X –
A-07X Air conditioning compressor clutch relay
A-07-1X Fog light relay
A-07-2X IOD or storage connector

} Refer to CENTRALIZED JUNCTION

A-08 Front wiring harness and control wiring harness combination
A-09 –
A-10 ABS front speed sensor (right side)
A-I 1 }
A-12 } –
A-I 2-1 }
A-I 2-2 }
A-I 2-3 } Theft-alarm horn
A-I 2-4 Theft-alarm horn relay
A-13 ABS front speed sensor (left side)
A-I 3-1 ABS brake fluid pressure switch
A-I 3-2 }
A-I 3-3 } ABS hydraulic unit
A-I 3-4 4WS fluid level sensor
A-14 –
A-15 Pressure switch
A-16 Front combination light (left side)
A-17 Headlight <Type 2> (left side)
A-18 }
A-19 } Horn (left side)
A-20 Front turn signal light (left side)
A-20-1 Fog light (left side)
A-21 Dual pressure switch (for air conditioning circuit)

TSB Revision



36A0183

Remarks
(1) For details concerning the ground point (example: ❑), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) *: Up to 1991 models
(5) IOD: Ignition Off Draw

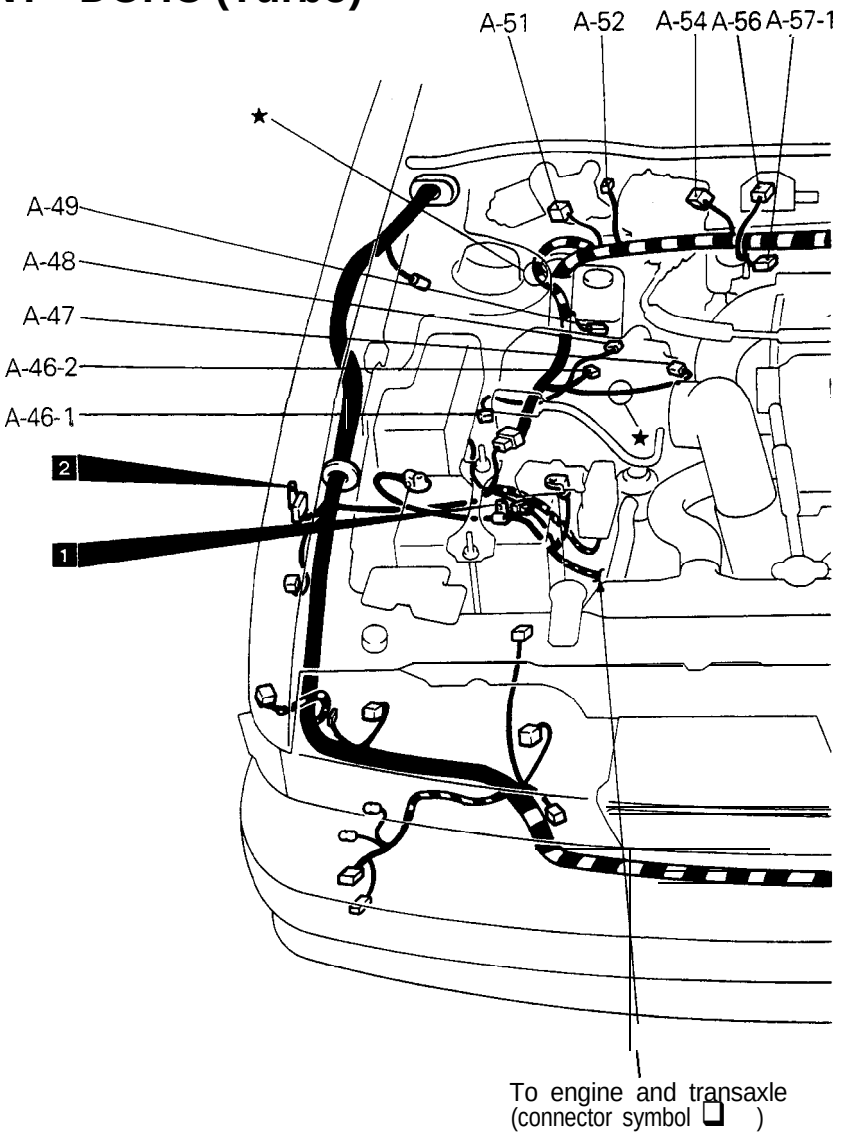
A-22 Headlight <Type 1> (left side)
A-23 –
A-24 Condenser fan motor (for air conditioning circuit)
A-25 Condenser fan motor relay (HI) (for air conditioning circuit)
A-26 Condenser fan motor realy (LO) (for air conditioning circuit)
A-27 –
A-28
A-29 Radiator fan motor
A-30 Headlight <Type 1 > (right side)
A-30-1 Hood switch
A-30-2 Fog light (right side)
A-31 Front turn-signal light (right side)
A-32, A-33 Horn (right side)
A-34 Headlight <Type 2> (right side)
A-35 Defogger relay
A-36 Front combination light (right side)
A-37, A-38 –
A-38-1 Theft-alarm headlight relay
A-39, A-40 –
A-41 Front wiring harness and battery cable assembly combination

TSB Revision

ENGINE COMPARTMENT <DOHC (Turbo)>

Connector symbol

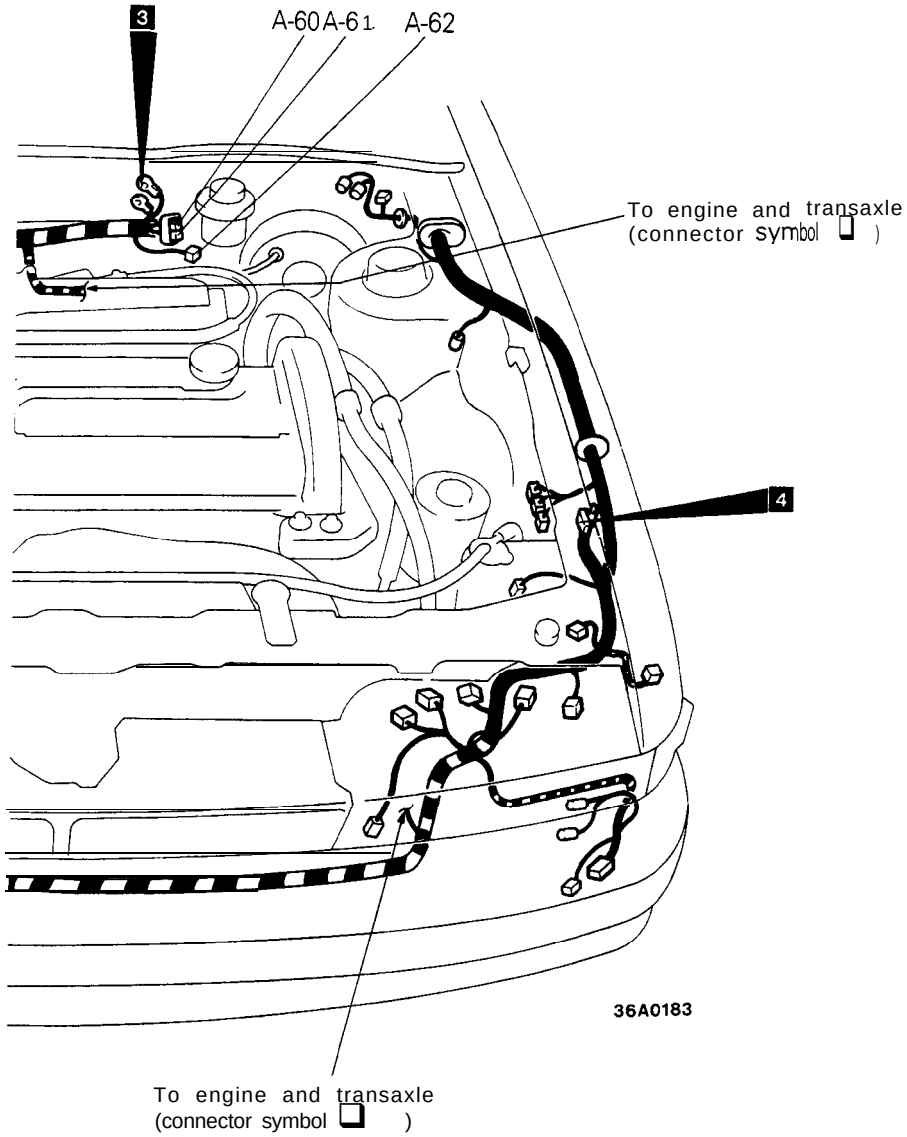
A 42 thru 63



A-42 thru A-46 –
A-46-1 Turbocharger waste gate solenoid
A-46-2 Fuel pressure solenoid
A-47 Volume air flow sensor
A-48 EGR solenoid <Vehicles for California>
A-49 Washer motor
A-50 –

A-51 Wiper motor
A-52 Wiper relay
A-53 –
A-54 Auto-cruise control actuator*1, Auto-cruise control vacuum pump*2
A-55 –
A-56 Evaporative emission purge solenoid
A-57 –
A-57-1 Resistor
A-58 –

TSB Revision

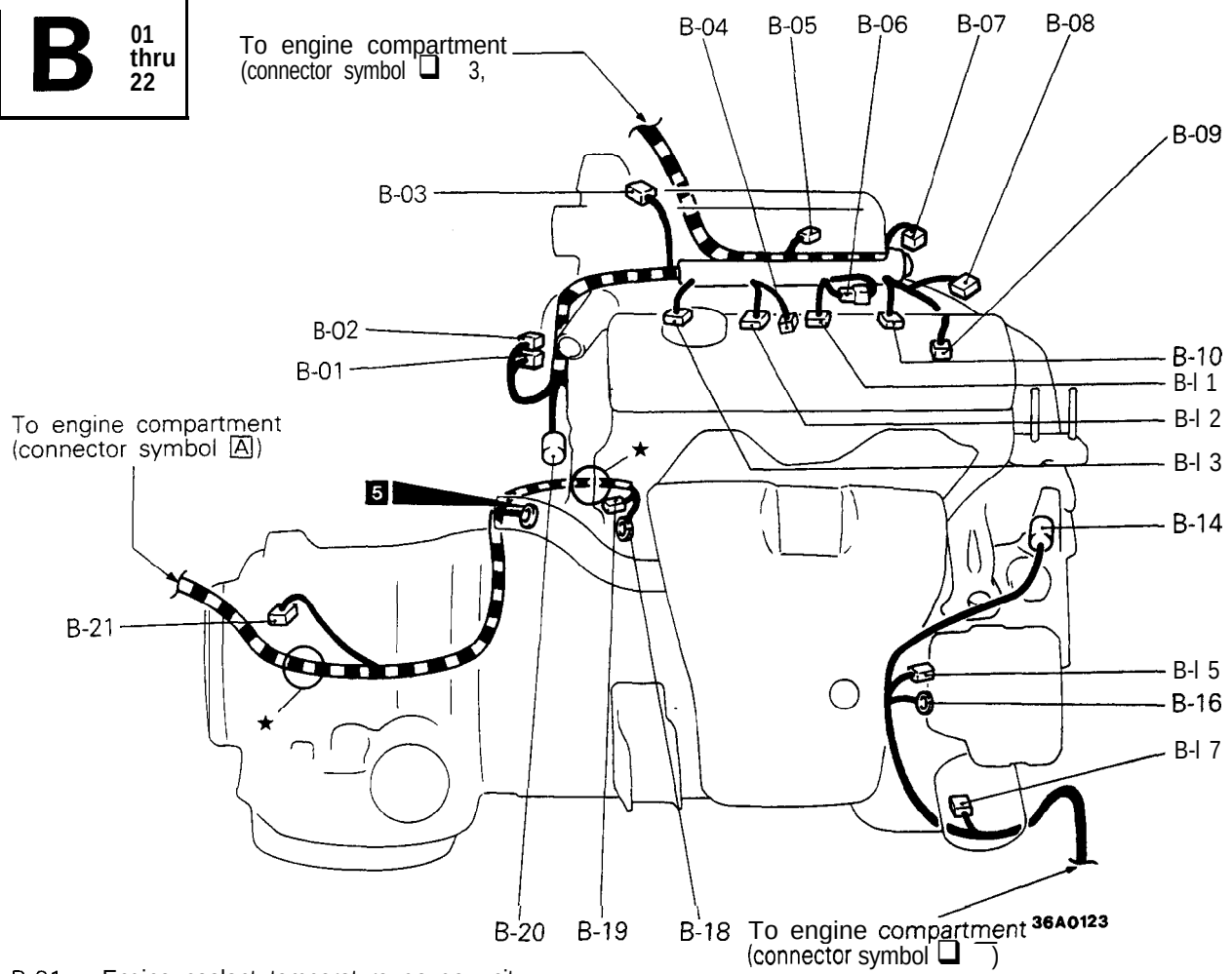


A-59 –
A-60 Fuel pump check connector
A-61 Ignition timing adjustment connector
A-62 Brake fluid level sensor
A-63 –

Remarks
(1) For details concerning the ground point (example: 1), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The mark ★ shows the standard mounting position of wiring harness.
(4) *1: Up to 1990 models
(5) ● *: From 1991 models

ENGINE AND TRANSAXLE (1989 MODELS) <SOHC>

Connector symbol	
B	01 thru 22

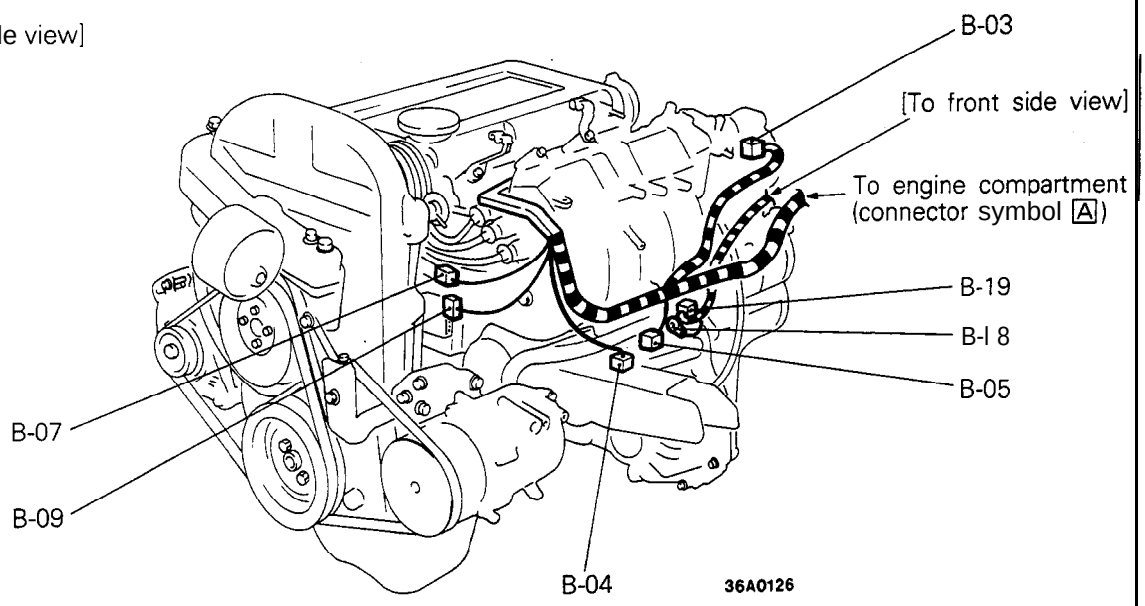


B-01	Engine coolant temperature gauge unit
B-02	Engine coolant temperature sensor
B-03	Idle speed control motor <SOHC> or Idle air control motor <DOHC>
B-04	EGR temperature sensor <Vehicles for California>
B-05	Air conditioning compressor
B-06	Control wiring harness and control wiring harness combination
B-07	Ignition coil
B-08	Condenser
B-09	Ignition power transistor
B-10	Injector No.1
B-11	Injector No.2
B-12	Injector No.3
B-I 3	Injector No.4
B-14	Power steering pressure switch
B-I 5, B-16	Generator
B-I 7	Oil pressure switch

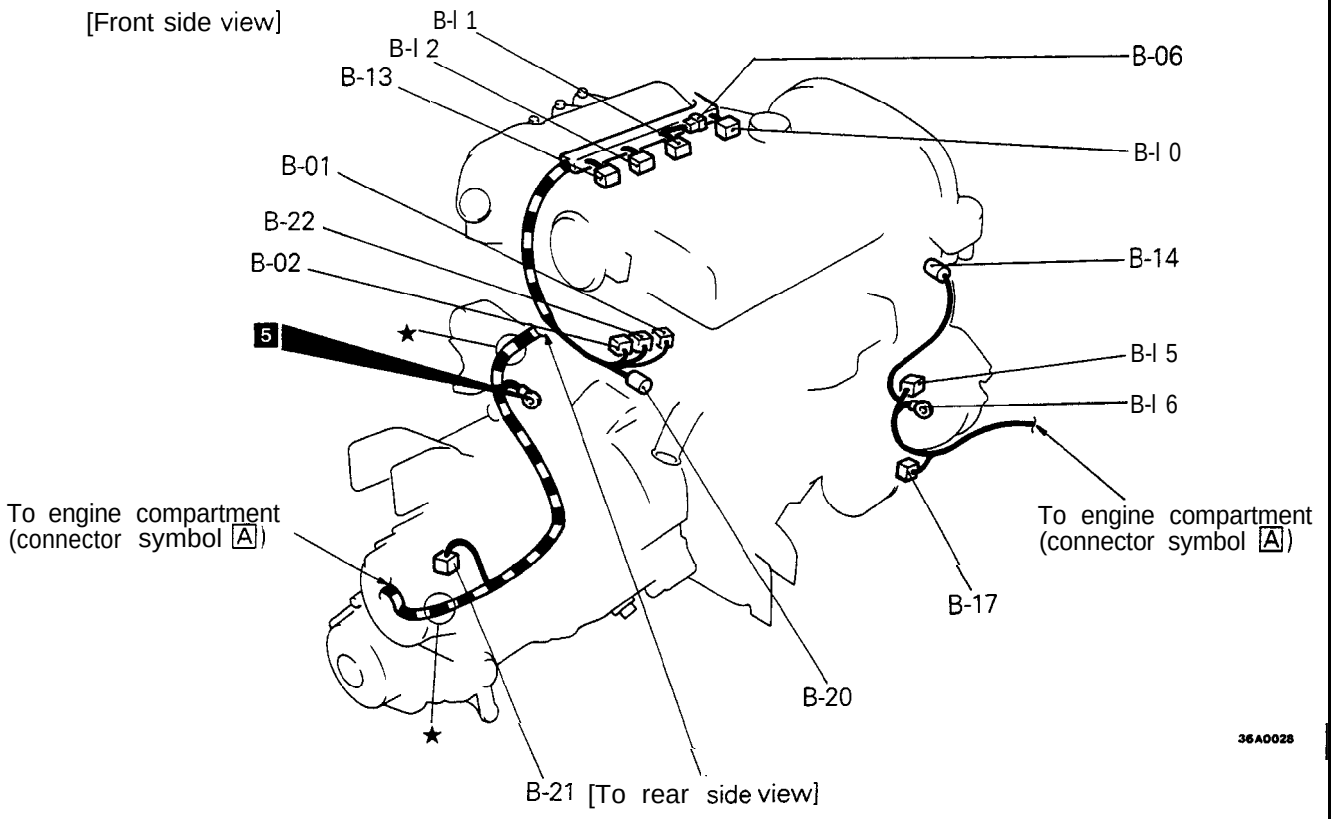
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: ❑), refer to P.4.
(3) "–" means that the connector with code-number is not used.

<DOHC>

[Rear side view]



[Front side view]

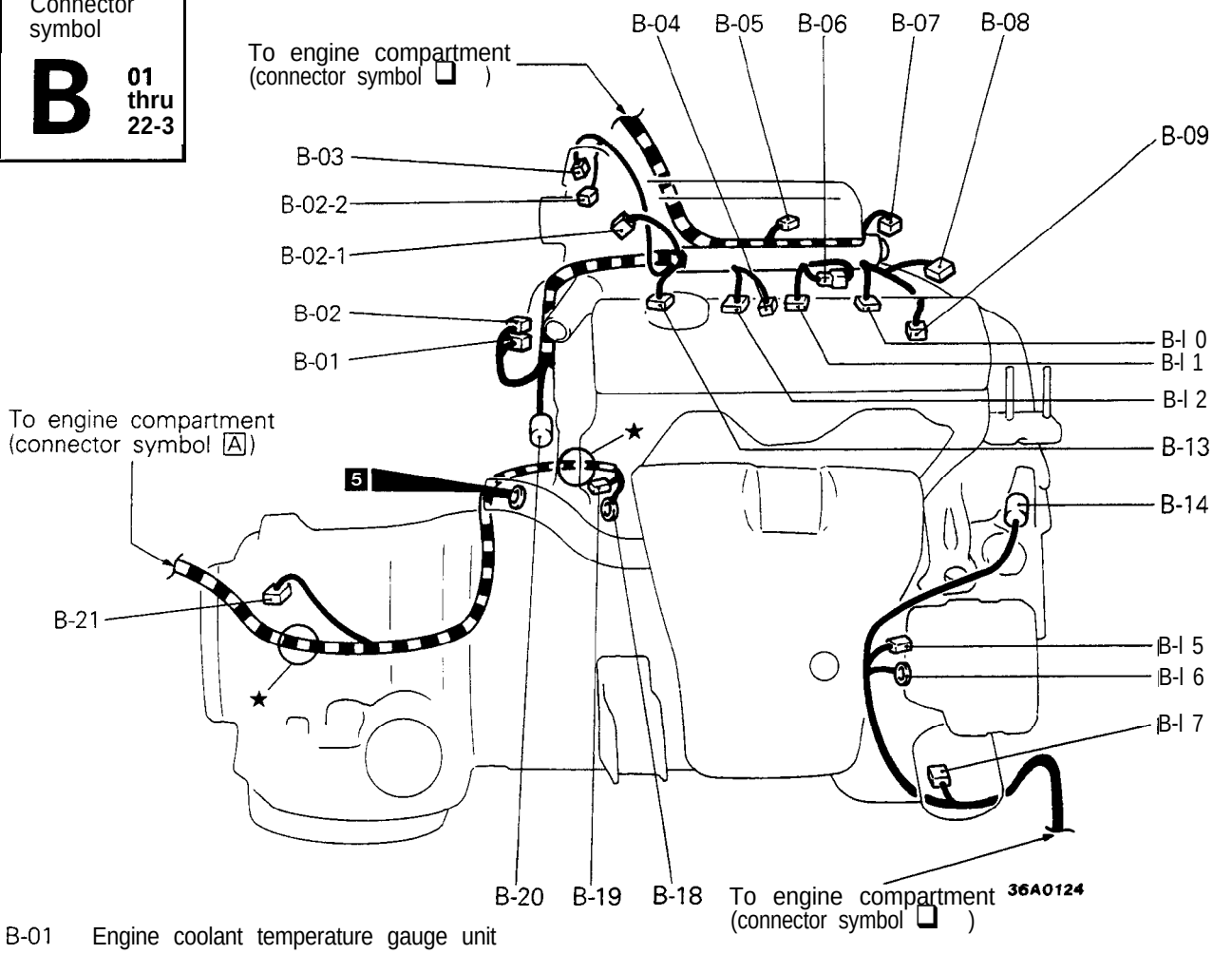


B-I 8, B-I 9 } Starter motor
B-20 Oxygen sensor <SOHC> or Heated oxygen sensor <DOHC>
B-21 Back-up light switch <M/T>
B-22 Air conditioning engine coolant temperature switch

ENGINE AND TRANSAXLE (1990 MODELS) <SOHC>

Connector symbol

B 01 thru 22-3

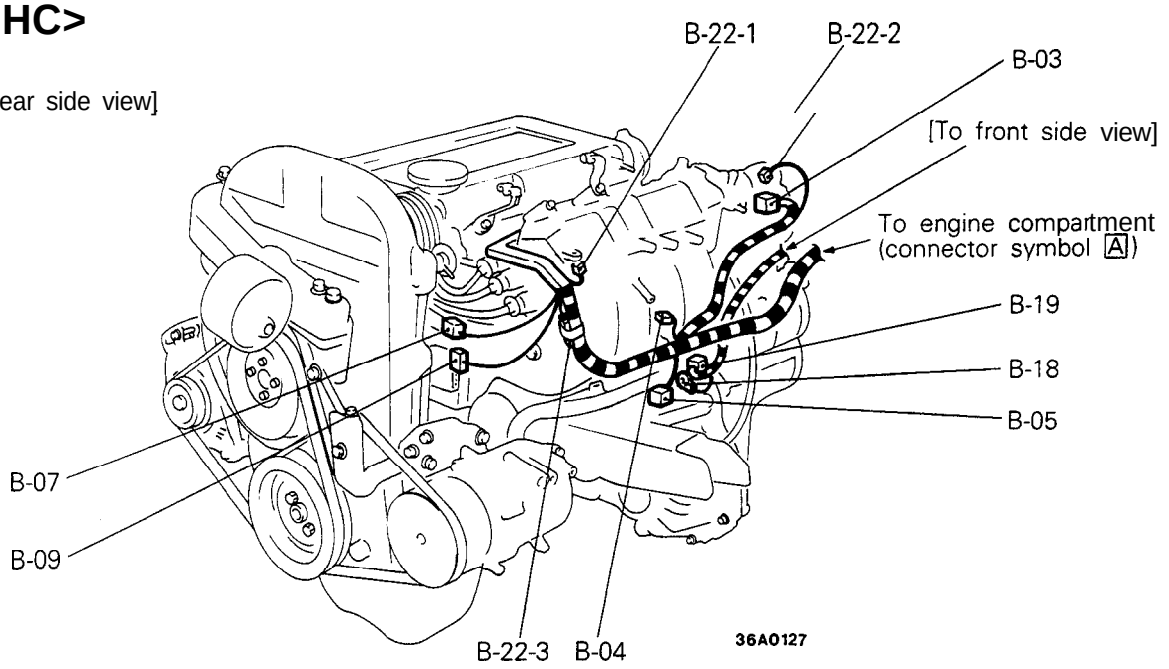


B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-02-1 Throttle position sensor
B-02-2 Idle speed control motor position sensor
B-03 Idle speed control motor <SOHC> or Idle air control motor <DOHC>
B-04 EGR temperature sensor <Vehicles for California>
B-05 Air conditioning compressor
B-06 Control wiring harness and control wiring harness combination
B-07 Ignition coil
B-08 Condenser
B-09 Ignition power transistor
B-I 0 Injector No. 1
B-I 1 Injector No.2
B-I 2 Injector No.3
B-I 3 Injector No.4
B-14 Power steering pressure switch
B-I 5, B-I 6 } Generator
B-I 7 Oil pressure switch

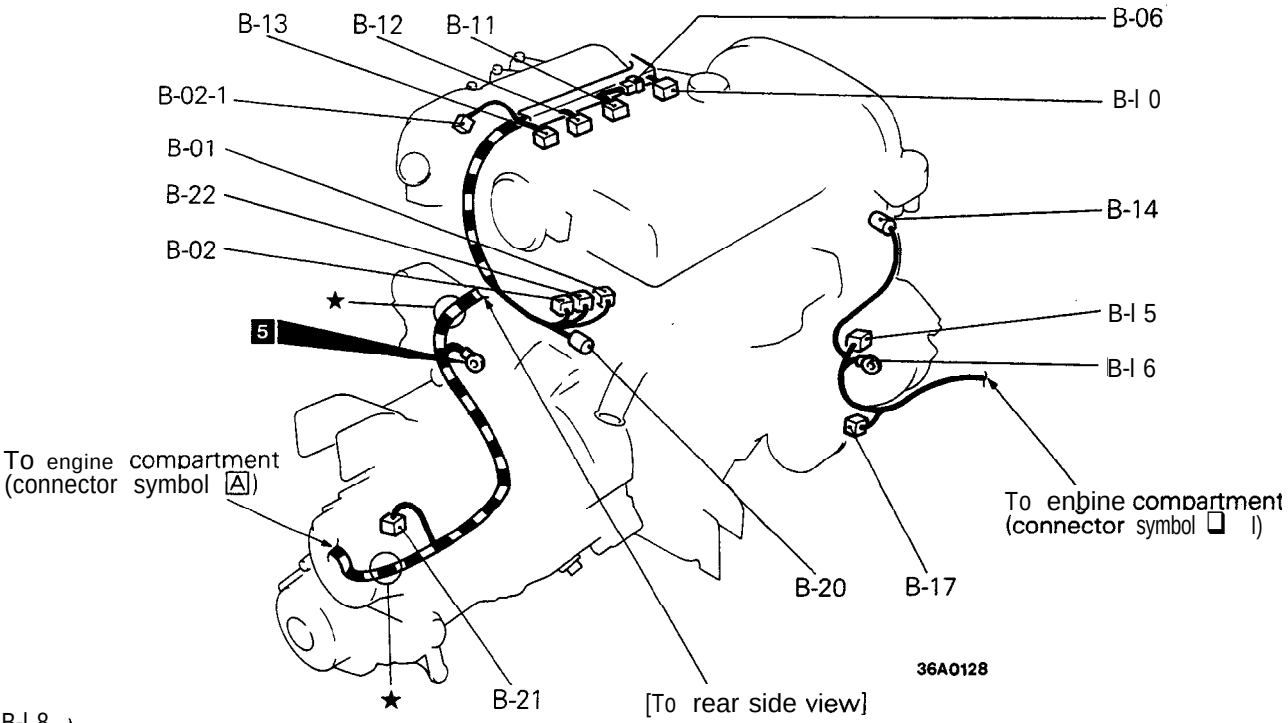
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: ❑), refer to P.4.
(3) "–" means that the connector with code-number is not used.

<DOHC>

[Rear side view]



[Front side view]

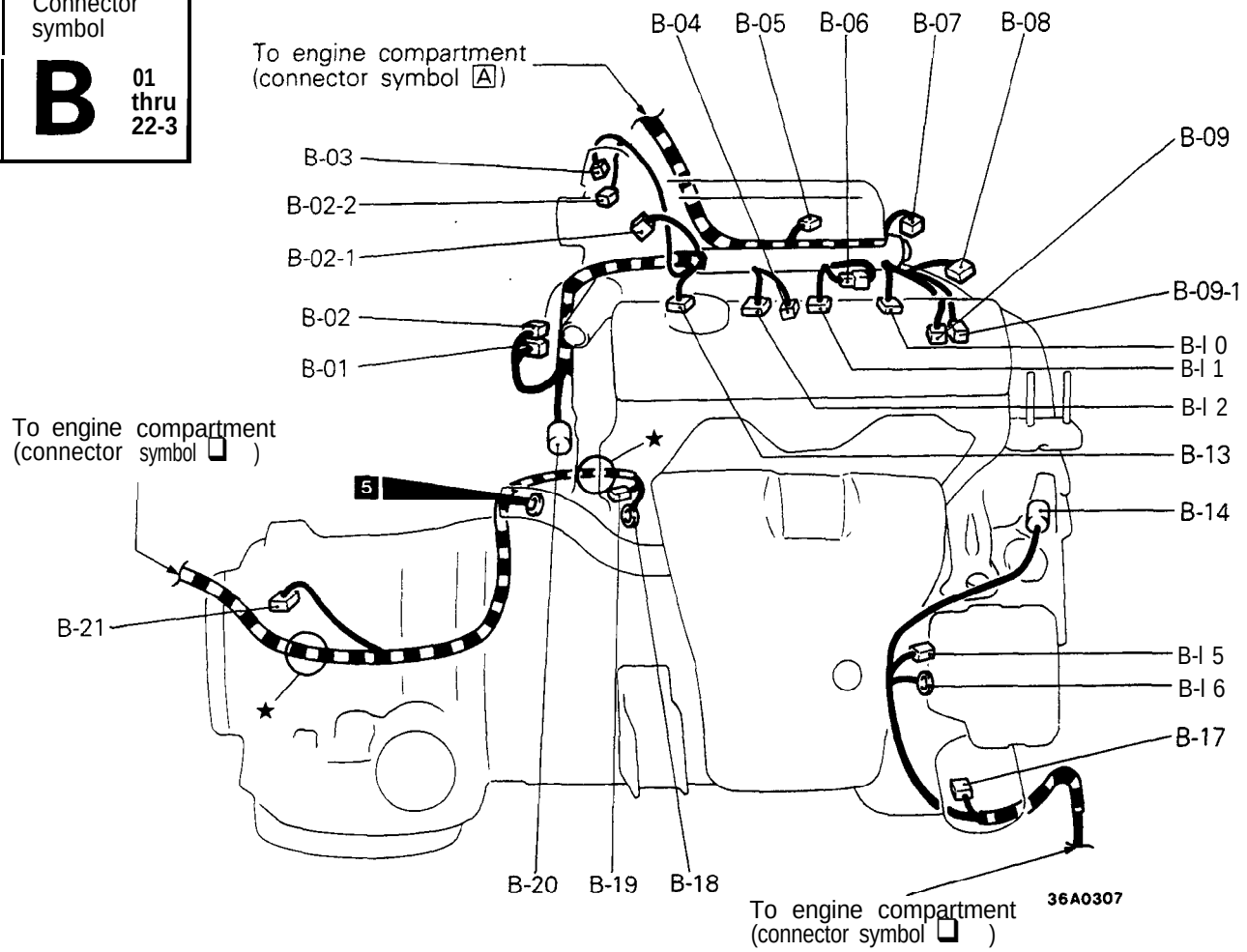


B-I 8, B-I 9 } Starter motor
B-20 Oxygen sensor <SOHC> or Heated oxygen sensor <DOHC>
B-21 Back-up light switch <M/T>
B-22 Air conditioning engine coolant temperature switch
B-22-1 Condenser <AWD>
B-22-2 Closed throttle position switch
B-22-3 Engine speed detection connector

ENGINE AND TRANSAXLE (1991 and 1992 MODELS) <SOHC>

Connector symbol

B 01 thru 22-3



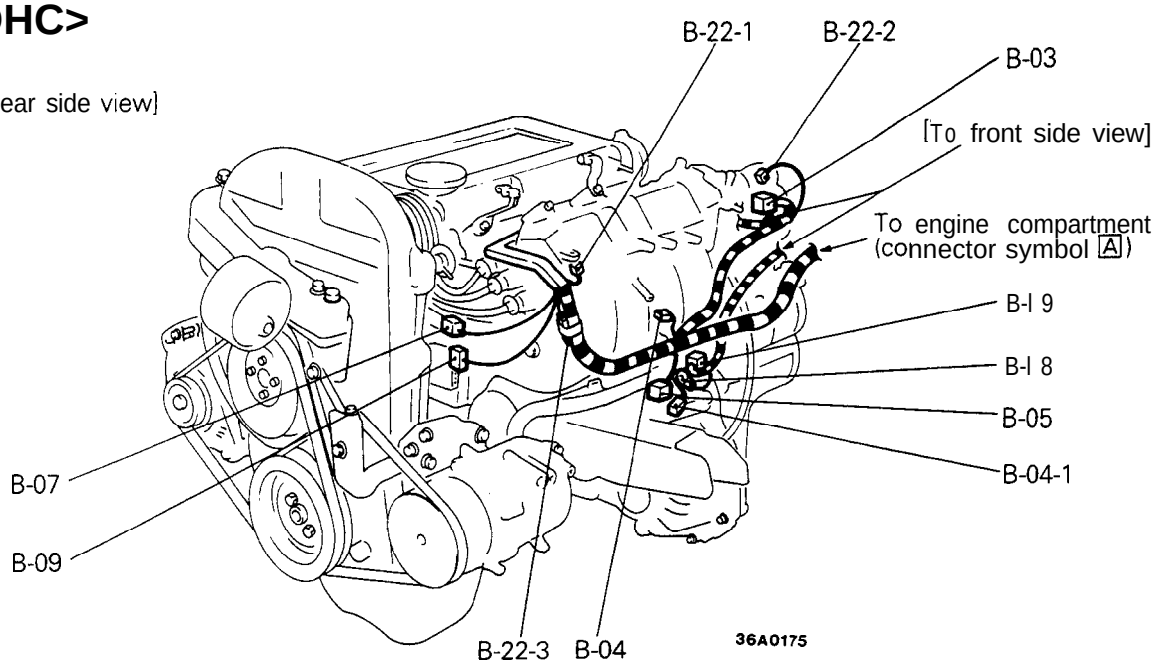
B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-02-1 Throttle position sensor
B-02-2 Idle speed control motor position sensor
B-03 Idle speed control motor <SOHC> or Idle air control motor <DOHC>
B-04 EGR temperature sensor <Vehicles for California>
B-04-1 Knock sensor (Turbo)
B-05 Air conditioning compressor
B-06 Control wiring harness and control wiring harness combination
B-07 Ignition coil
B-08 Condenser
B-09 Ignition power transistor
B-09-1 Crankshaft position sensor and camshaft position sensor
B-I 0 Injector No. 1
B-I 1 Injector No.2
B-I 2 Injector No.3
B-13 Injector No.4
B-14 Power steering pressure switch
B-I 5, B-I 6 Generator
B-17 Oil pressure switch

Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: ❑), refer to P.4.
(3) "–" means that the connector with code-number is not used.

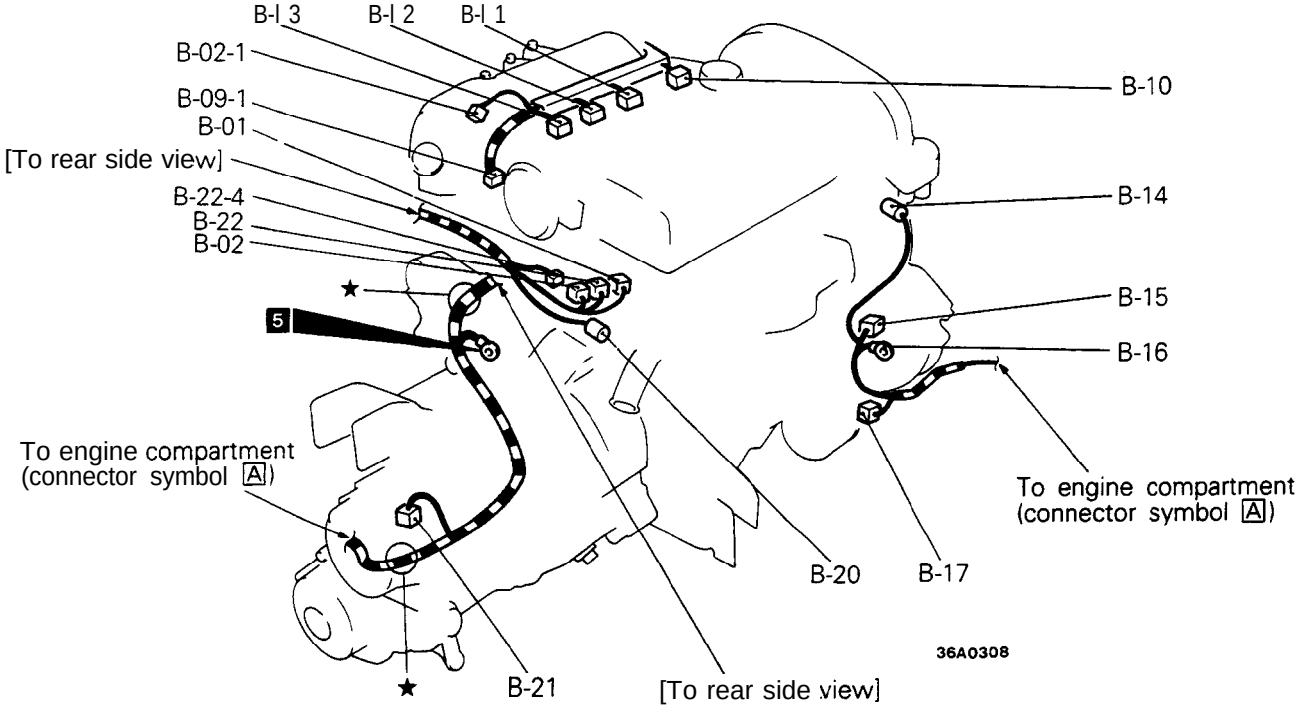
TSB Revision

<DOHC>

[Rear side view]



[Front side view]

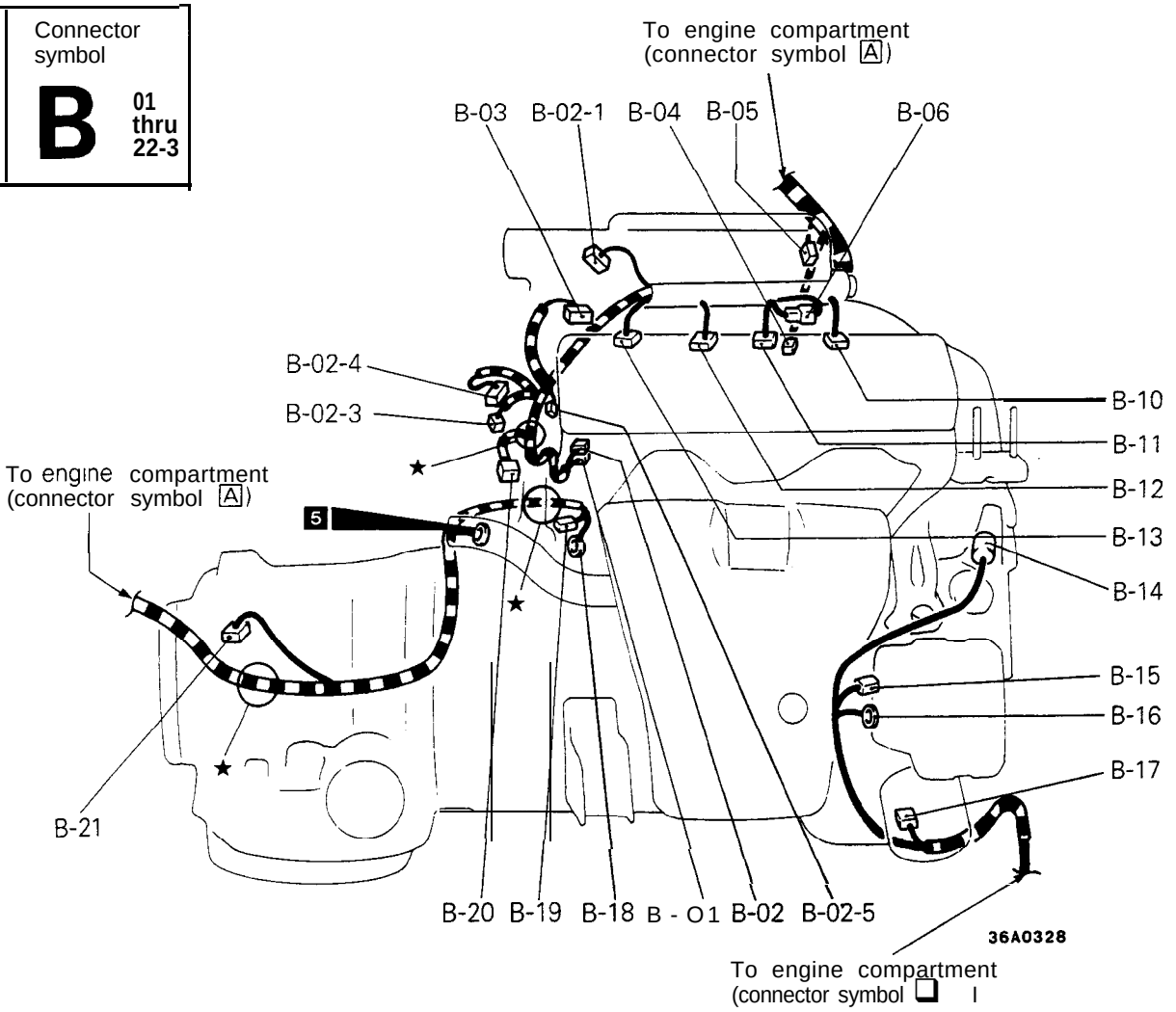


B-I 8, B-I 9 } Starter motor
B-20 Oxygen sensor <SOHC> or Heated oxygen sensor <DOHC>
B-21 Back-up light switch <M/T>
B-22 Air conditioning engine coolant temperature switch
B-22-1 Condenser <AWD>
B-22-2 Closed throttle position switch
B-22-3 Engine speed detection connector
B-22-4 Engine coolant temperature switch (for air conditioning condenser fan) <Turbo, AWD-A/T>

ENGINE AND TRANSAXLE (From 1993 MODELS) <SOHC>

Connector symbol

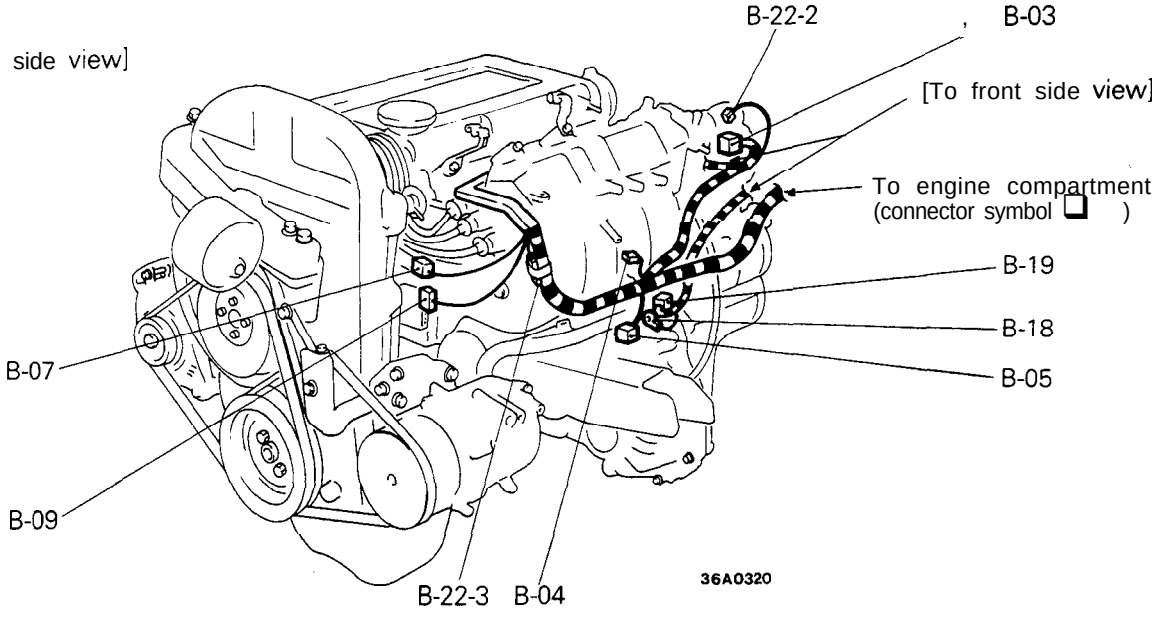
B 01 thru 22-3

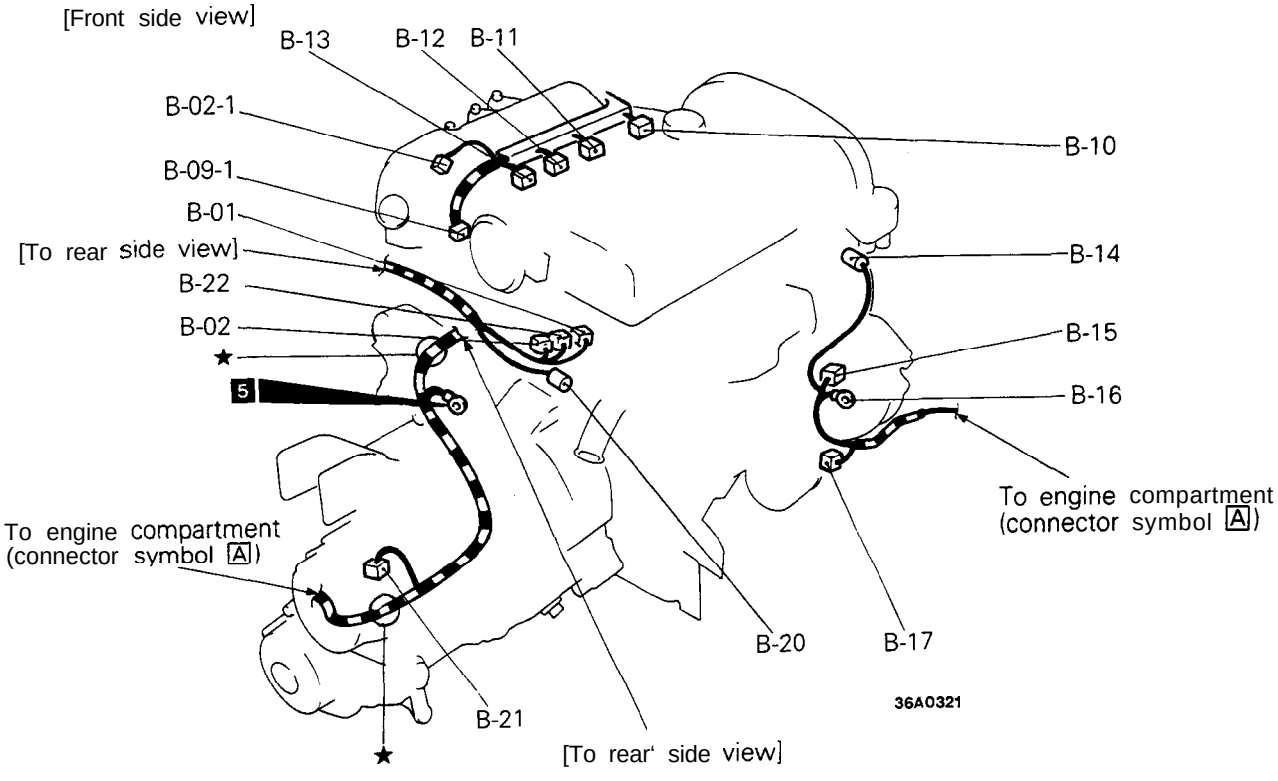


B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-02-1 Throttle position sensor
B-02-2 –
B-02-3, B-02-4 Distributor assembly
B-02-5 Condenser
B-03 Idle speed control motor <SOHC> or Idle air control motor <DOHC>
B-04 EGR temperature sensor <Vehicles for California>
B-04-1 –
B-05 Air conditioning compressor
B-06 Control wiring harness and control wiring harness combination
B-07 Ignition coil
B-08 Condenser
B-09 Ignition power transistor
B-09-1 Crankshaft position sensor and camshaft position sensor
B-I 0 Injector No.1
B-I 1 Injector No.2
B-I 2 Injector No.3
B-I 3 Injector No.4
B-I 4 Power steering pressure switch
B-I 5, B-I 6 Generator
B-I 7 Oil pressure switch

Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: 5), refer to P.4.
(3) "–" means that the connector with code-number is not used.

<DOHC>





B-18 Starter motor
B-19

B-20 Oxygen sensor <SOHC> or Heated oxygen sensor <DOHC>

B-21 Back-up light switch <M/T>

B-22 Air conditioning engine coolant temperature switch

B-22-1 –

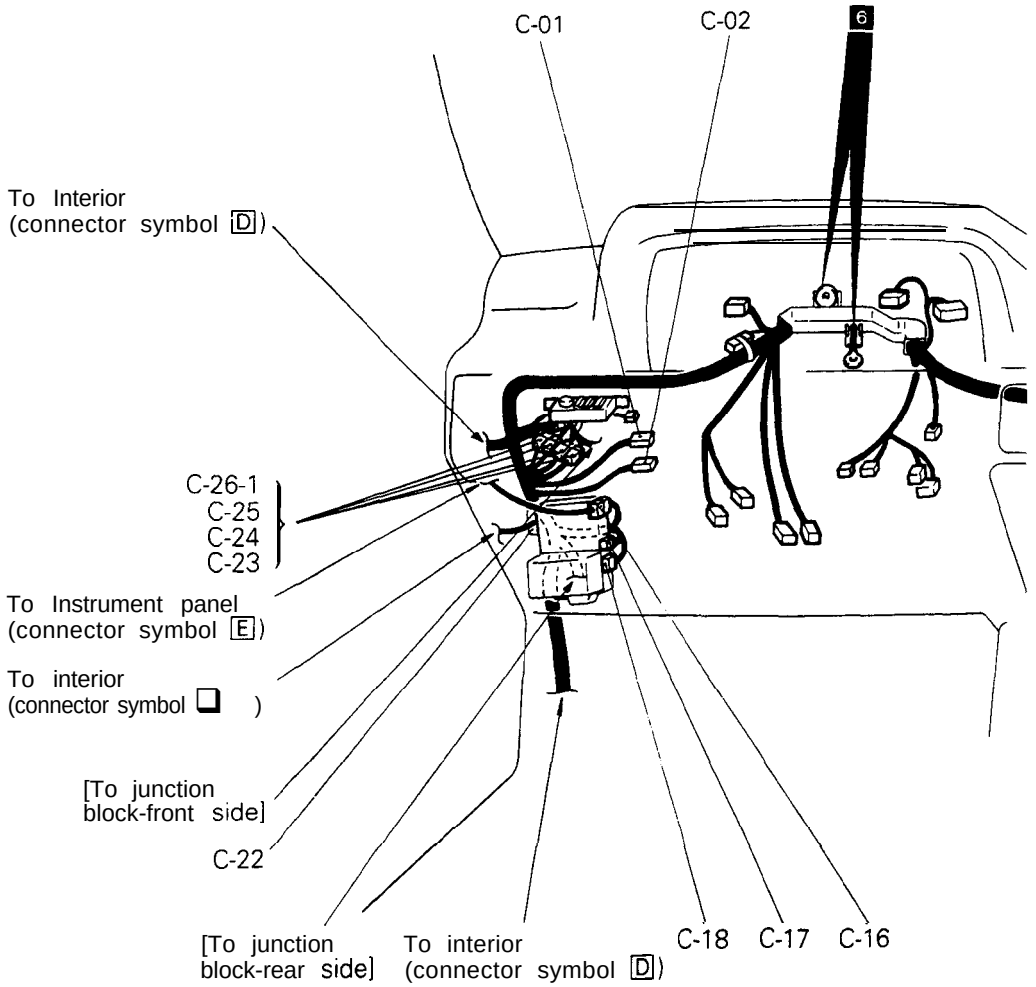
B-22-2 Closed throttle position switch

B-22-3 Engine speed detection connector

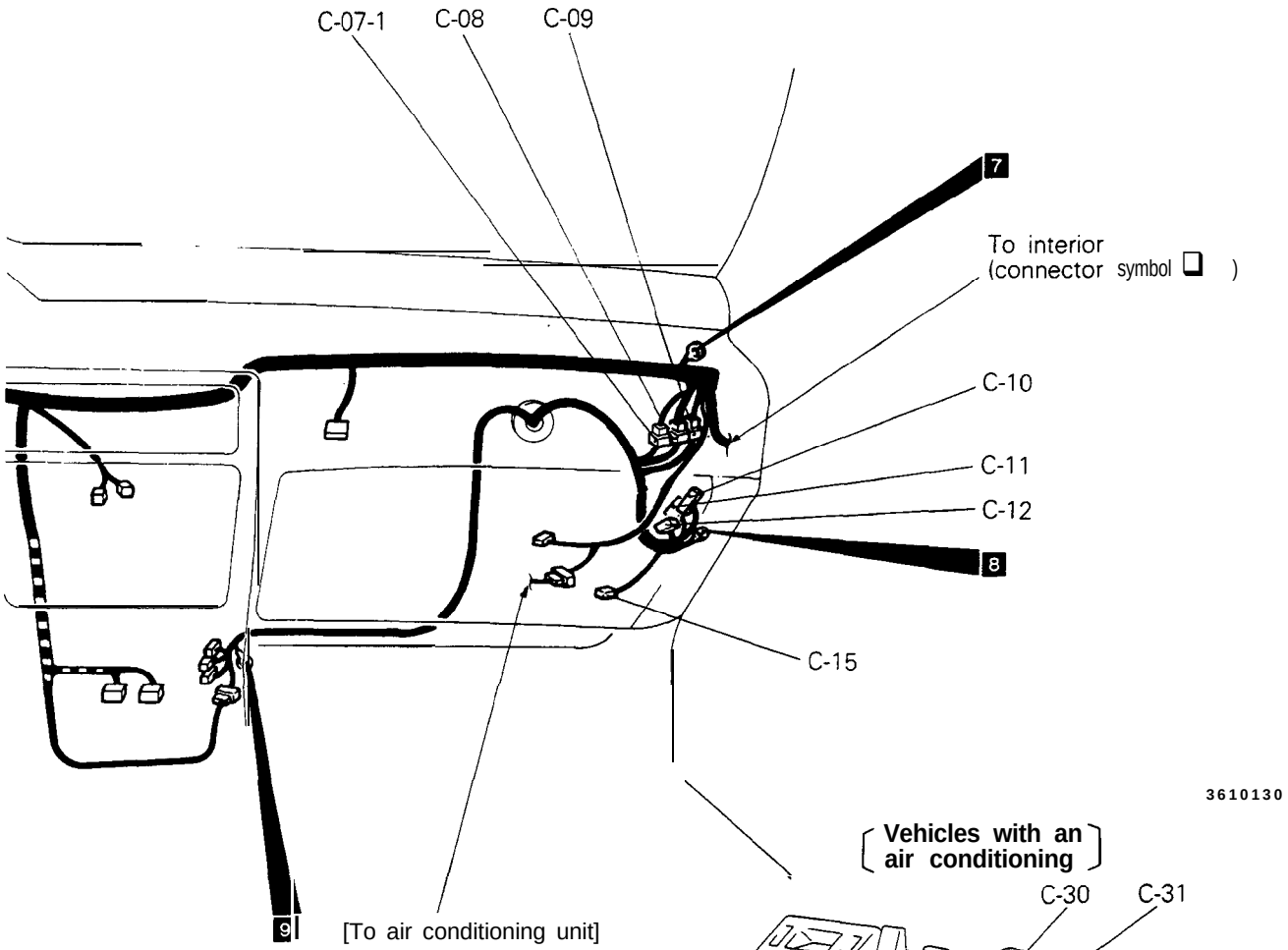
B-22-4 –

DASH PANEL <SOHC>

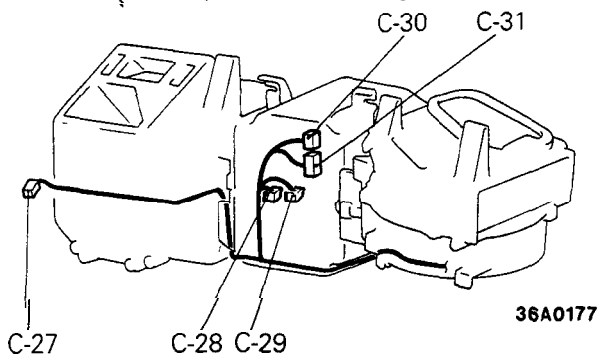
Connector symbol
C 01 thru 44



C-01 Auto-cruise control unit or *jumper connector
C-02 Door lock control unit
C-03 thru C-07 –
C-07-1, C-08, C-09 Body wiring harness and control wiring harness combination
C-10, C-11, C-12 MFI control unit
C-13 –
C-14 –
C-15 MFI relay
C-16 Body wiring harness and instrument panel wirrng harness combination
C-17 Turn-signal and hazard flasher unit
C-18 Data link connector
C-19 –
C-20 –
C-21
C-22 Body wiring harness and roof wiring harness combination
C-23, C-24, C-25 Front wiring harness and body wiring harness combination
C-26 –
C-26-1 Front wiring harness and body wiring harness combination
C-27 Air conditioning switch
C-28 Air inlet sensor (for air conditioning circuit)
C-29 Air thermo sensor (for air conditioning circuit)
C-30, C-31 Auto compressor control unit (for air conditioning circuit)
C-32 Instrument panel wiring harness and junction block combination
C-33 Heater relay
C-34 No connection
C-35 Roof wiring harness and junction block combination



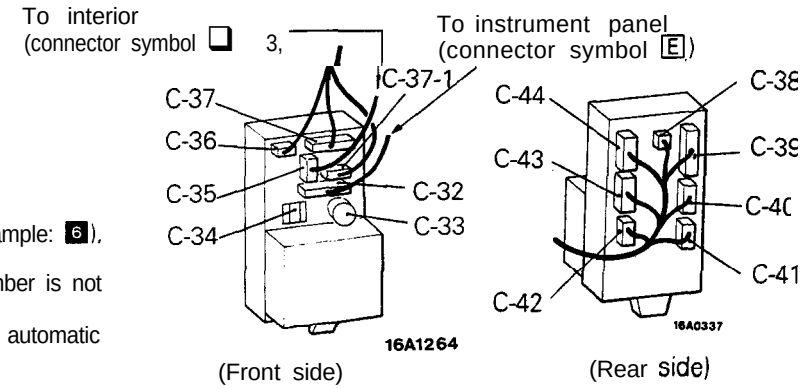
〔Vehicles with an air conditioning〕



〔Junction block〕

C-36, C-37, C-37-1 } Front wiring harness and junction block combination

C-38 thru C-44 } Body wiring harness and junction block combination

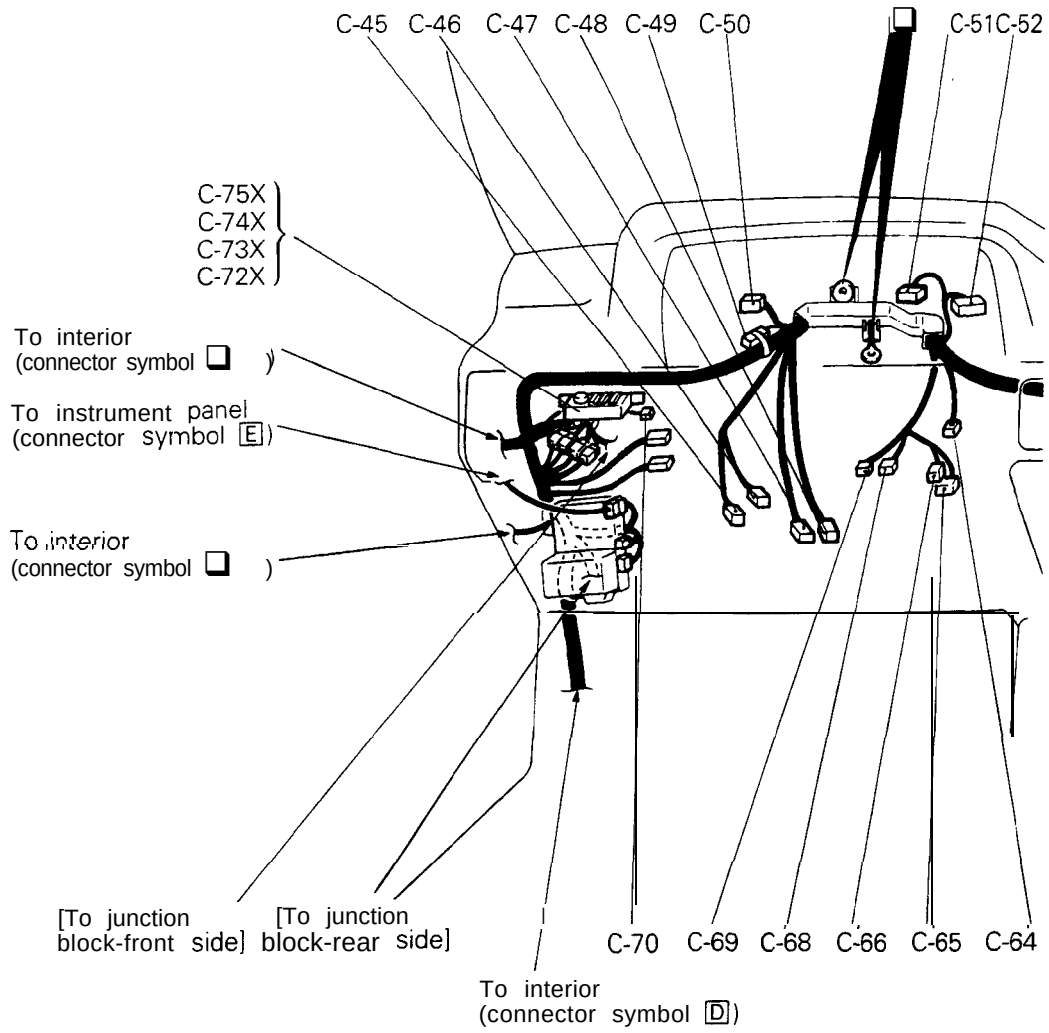


Remarks
(1) For details concerning the ground point (example: 6), refer to P.4.
(2) "–" means that the connector with code-number is not used.
(3) The * symbol indicates models for which the automatic transaxle is optional.

TSB Revision

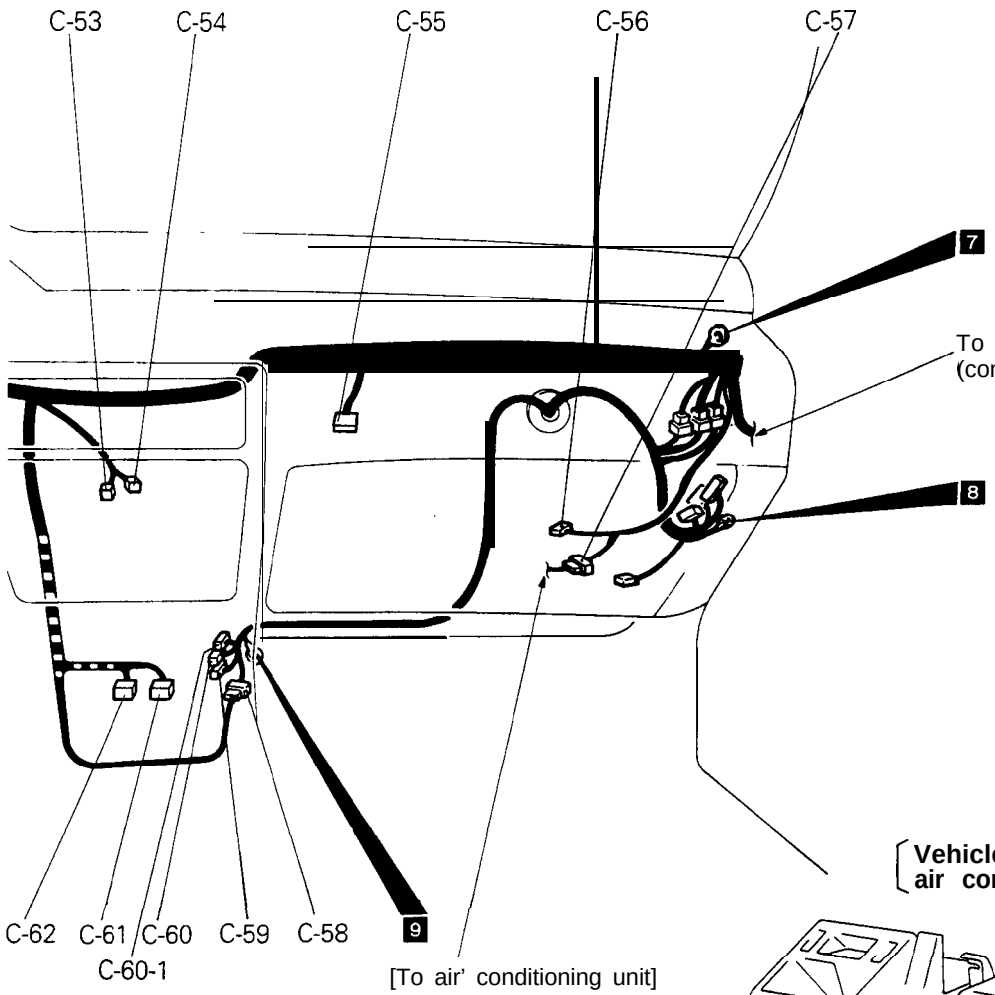
DASH PANEL <SOHC>

Connector symbol
C 45 thru 75



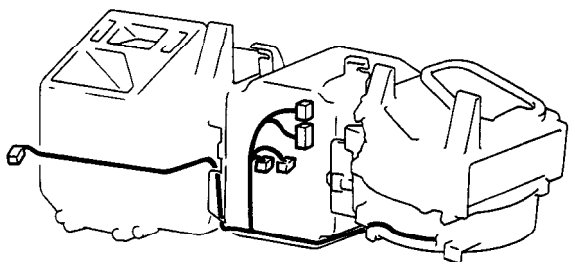
C-45 Clutch pedal position switch (for starting circuit) <M/T>
C-46 Clutch pedal position switch (for auto-cruise circuit) <M/T>
C-47 Stop light switch or open connector
C-48 Stop light switch
C-49 Diode (for auto-cruise circuit) <Up to 1990 models>
C-50 Combination meter
C-51 Combination meter <A/T>
C-52 Combination meter
C-53 Blower switch
C-54 Heater control illumination light
C-55 Blower resistor
C-56 Blower motor
C-57 Body wiring harness and air conditioning wiring harness combination
C-58 Body wiring harness and control wiring harness combination <A/T>
C-59, C-60 ELC 4-speed automatic transaxle control module
C-60-1 ELC 4-speed automatic transaxle control module <Up to 1992 models>
C-61, C-62 Radio
C-63 –
C-64 Accelerator pedal switch <A/T>
C-65 Key reminder switch
C-66 Ignition switch
C-67 –
C-68, C-69 Column switch
C-70 Starter relay <M/T>
C-71 –
C-72X Power window relay
C-73X Door lock relay
C-74X Seat belt timer <1989 models>
C-75X Defogger timer

Refer to CENTRALIZED JUNCTION



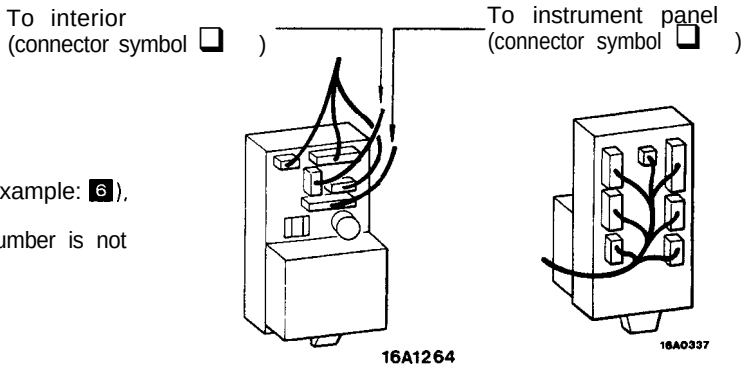
36A0177

〔Vehicles with an air conditioning〕



36A0079

(Junction block)

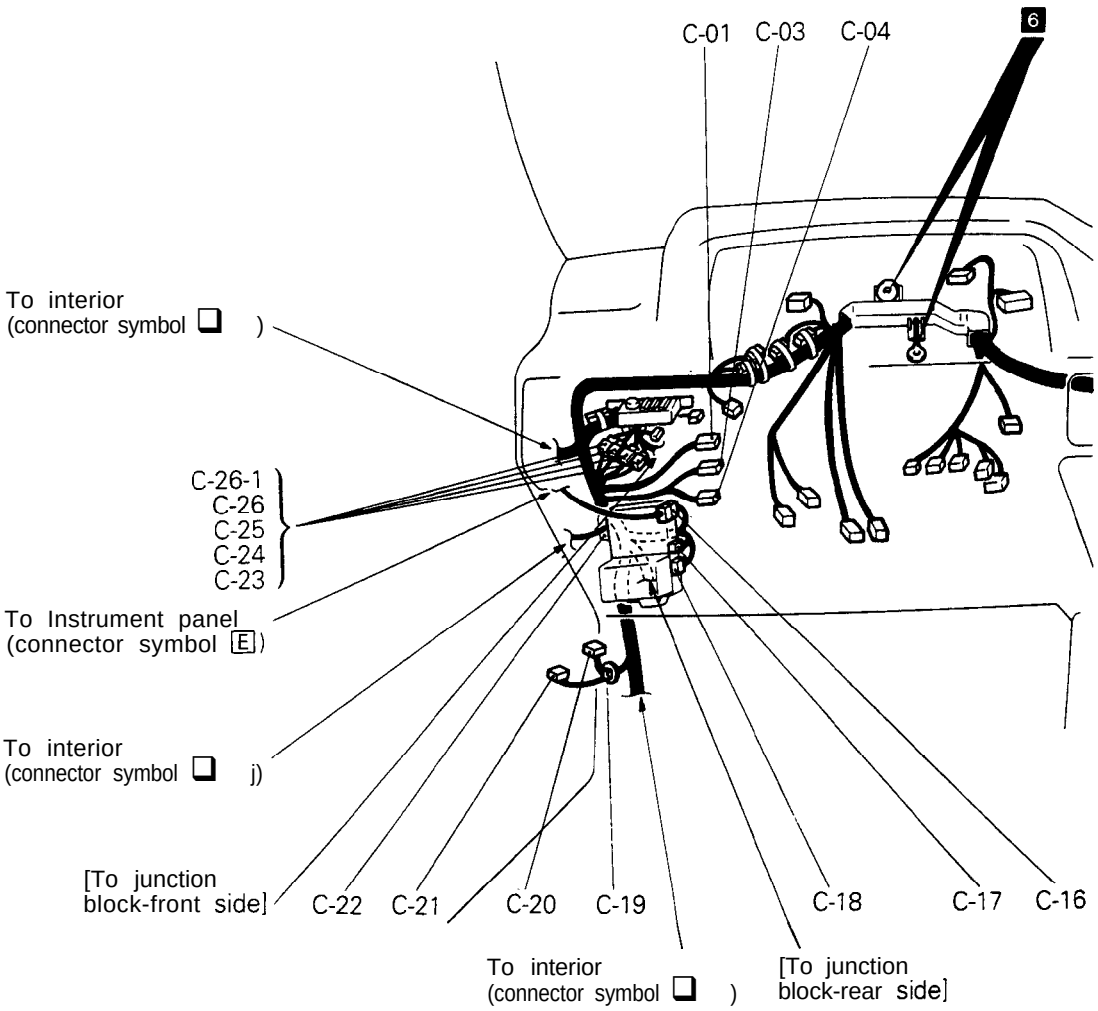


Remarks
(1) For details concerning the ground point (example: 6), refer to P.4.
(2) "–" means that the connector with code-number is not used.

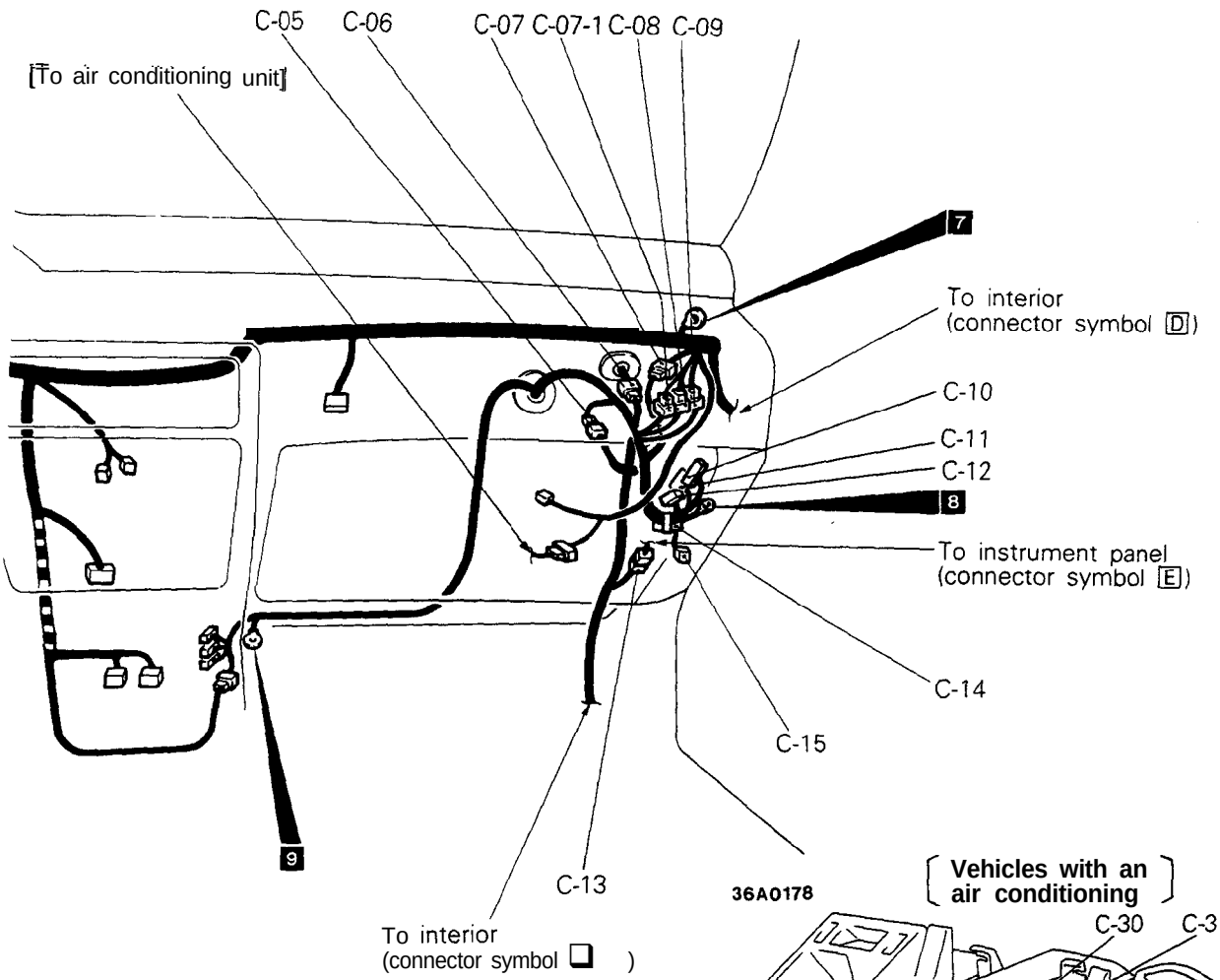
TSB Revision

DASH PANEL <DOHC>

Connector symbol
C 01 thru 44



C-01 Auto-cruise control unit
C-02 –
C-03, C-04 ETACS control unit
C-05 Control wiring harness and ACTIVE-ECS wiring harness combination
C-06 Front wiring harness and ACTIVE-ECS wiring harness combination
C-07 Body wiring harness and ACTIVE-ECS wiring harness combination
C-07-1, C-08, C-09 Body wiring harness and control wiring harness combination
C-10, C-11, C-12 MFI control unit
C-13 Instrument panel wiring harness and ACTIVE-ECS wiring harness combination
C-14 Oxygen sensor check connector
C-15 MFI relay
C-I 6 Body wiring harness and instrument panel wiring harness combination
C-17 Turn-signal and hazard flasher unit
C-I 8 Data link connector
C-19 Diode (for ABS circuit)
C-20 ACTIVE-ECS power relay
C-21 ABS power relay
C-22 Body wiring harness and roof wiring harness combination
C-23, C-24, C-25, C-26, C-26-1 Front wiring harness and body wiring harness combination
C-27 Air conditioning switch
C-28 Air inlet sensor (for air conditioning circuit)
C-29 Air thermo sensor (for air conditioning circuit)
C-30, C-31 Auto compressor control unit (for air conditioning circuit)
C-32 instrument panel wiring harness and junction block combination
C-33 Heater relay

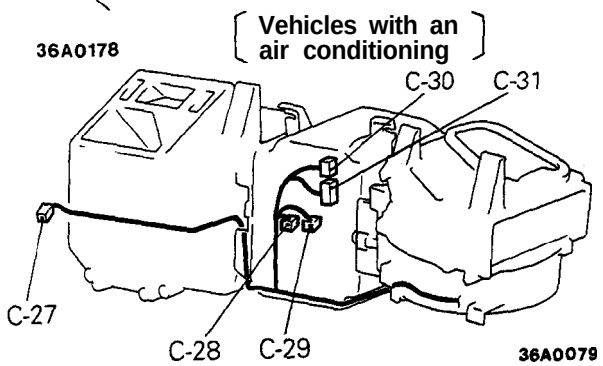


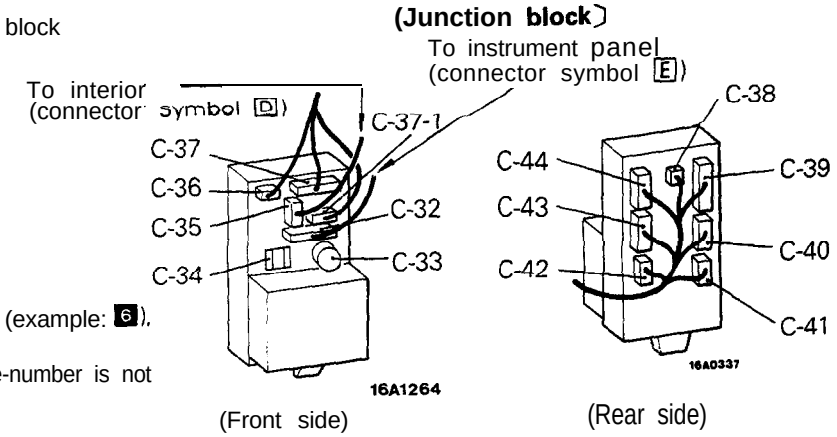
C-34 No connection

C-35 Roof wiring harness and junction block combination

C-36, C-37, C-37-1 } Front wiring harness and junction block combination

C-38 thru C-44 } Body wiring harness and junction block combination

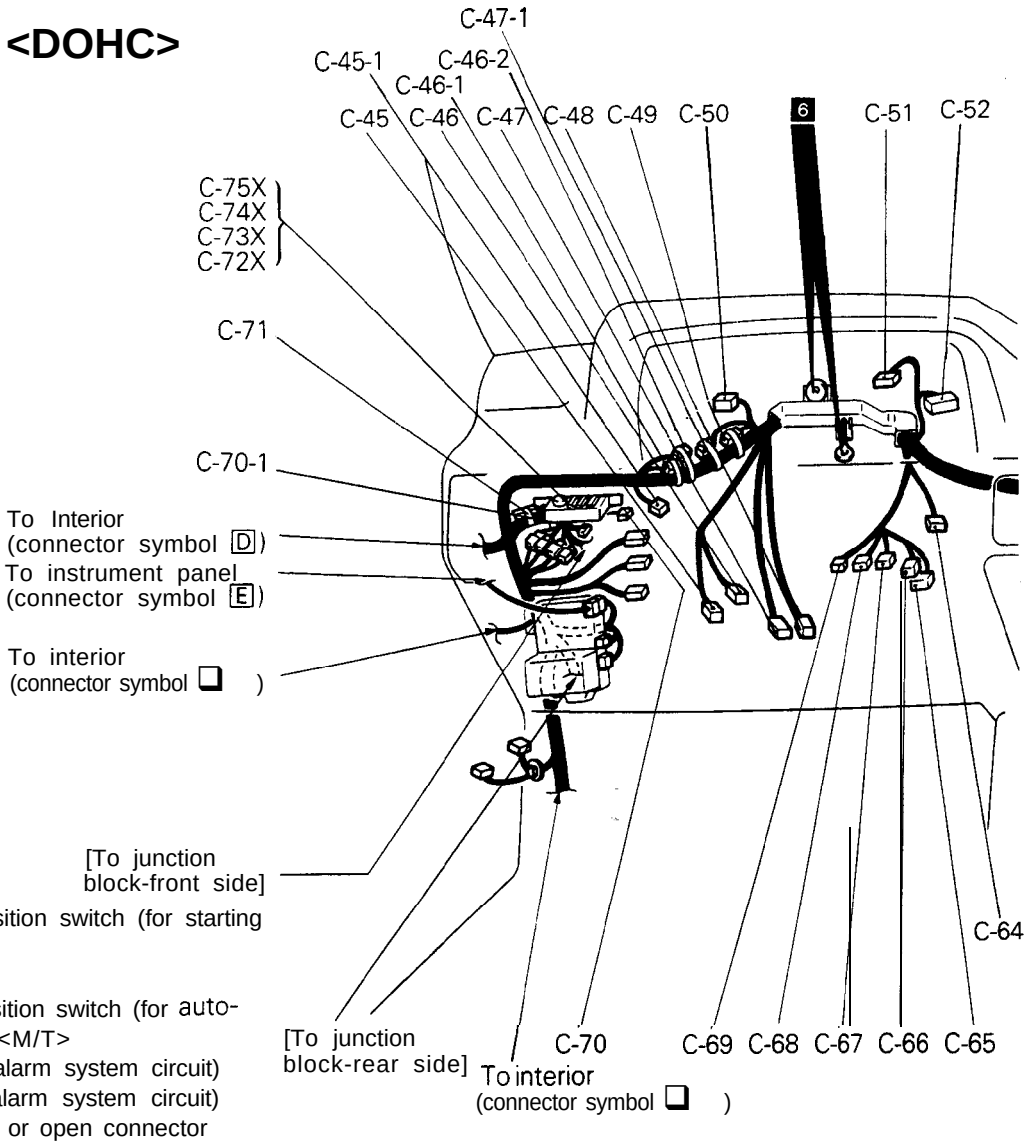




Remarks
(1) For details concerning the ground point (example: 6), refer to P.4.
(2) "–" means that the connector with code-number is not used.

DASH PANEL <DOHC>

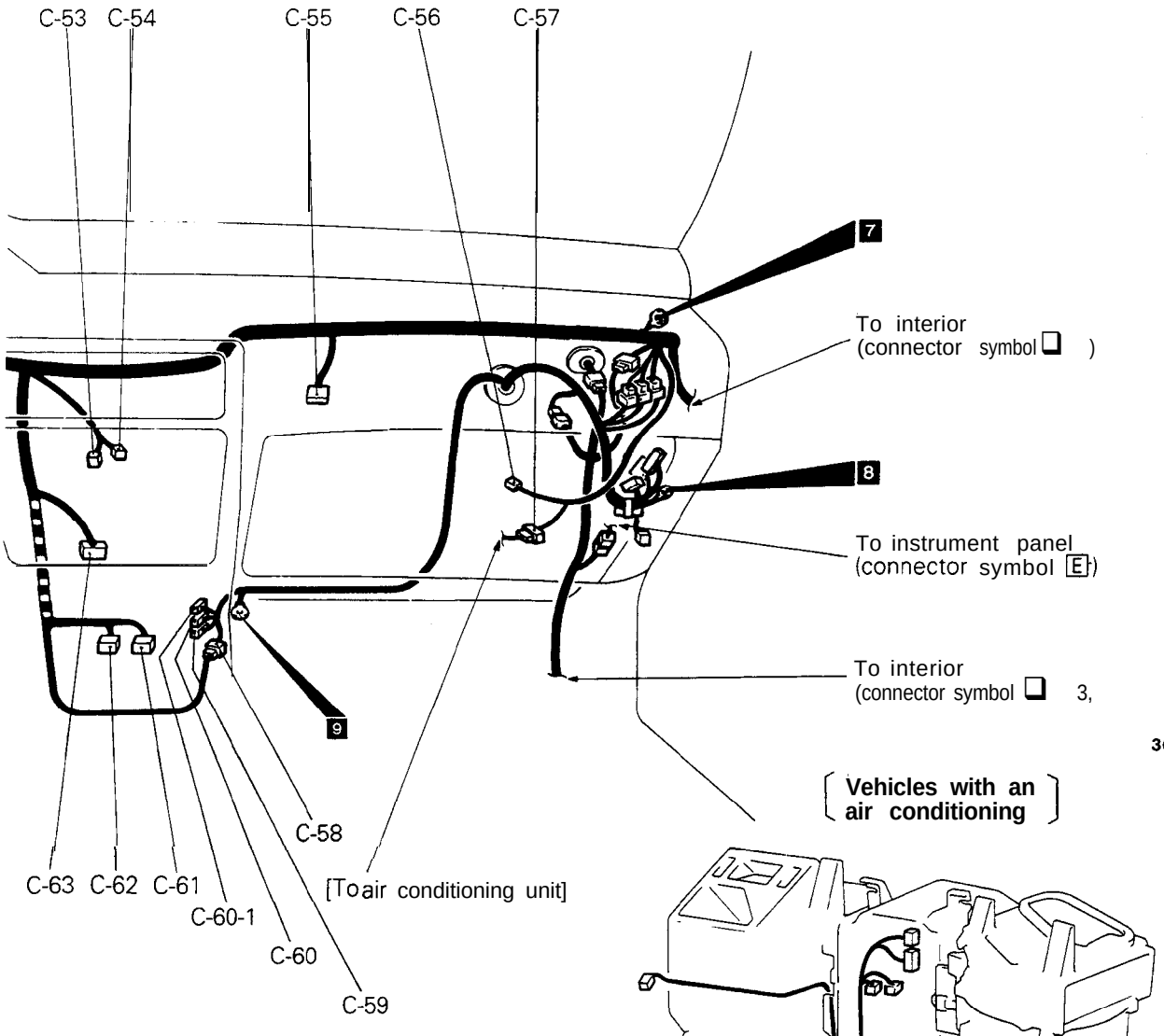
Connector symbol **C** 45 **thru** 75



C-45 Clutch pedal position switch (for starting circuit) <M/T>
C-45-1 Fog light switch
C-46 Clutch pedal position switch (for auto-cruise circuit) <M/T>
C-46-1 Diode (for theft-alarm system circuit)
C-46-2 Diode (for theft-alarm system circuit)
C-47 Stop light switch or open connector
C-47-1 Diode (for A/T fluid temperature warning light circuit) <AWD-A/T>
C-48 Stop light switch
C-49 Diode (for auto-cruise circuit) <Up to 1990 models>
Diode (for 4WS fluid level warning light circuit) <1991 and 1992 models>
C-50 Combination meter
C-51 Combination meter <A/T>
C-52 Combination meter
C-53 Blower switch
C-54 Heater control illumination light
C-55 Blower resistor
C-56 Blower motor
C-57 Body wiring harness and air conditioning wiring harness combination
C-58 Body wiring harness and control wiring harness combination <A/T>
C-59, C-60, C-60-1 ELC 4-speed automatic transaxle control module
C-61, C-62 Radio
C-63 EPS control unit
C-64 Accelerator pedal switch <A/T>
C-65 Key reminder switch
C-66 Ignition switch
C-67, C-68, C-69 Column switch
C-70 Starter relay <M/T>
C-70-1 Diode (for theft-alarm system circuit)
C-71 Diode (for ACTIVE-ECS circuit)
C-72X Powerwindow relay
C-73X Door lock relay
C-74X Seat belt timer <1989 models>
Theft-alarm starter relay <1991 and 1992 models>
C-75X Defogger timer

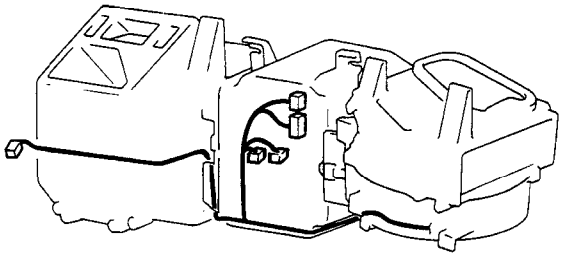
Refer to CENTRALIZED JUNCTION

TSB Revision



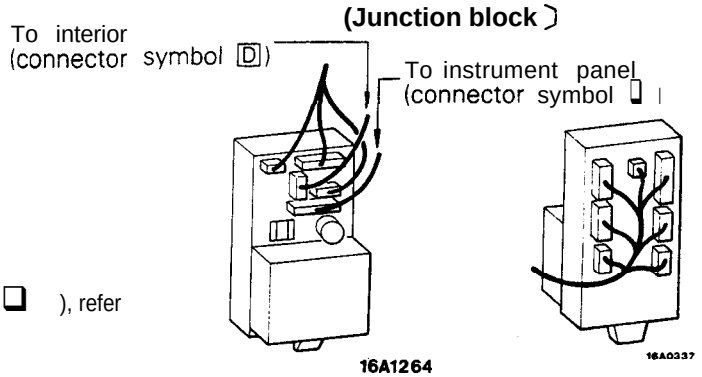
36A0178

(Vehicles with an air conditioning)



36A0079

(Junction block)



16A1264

(Front side)

16A0337

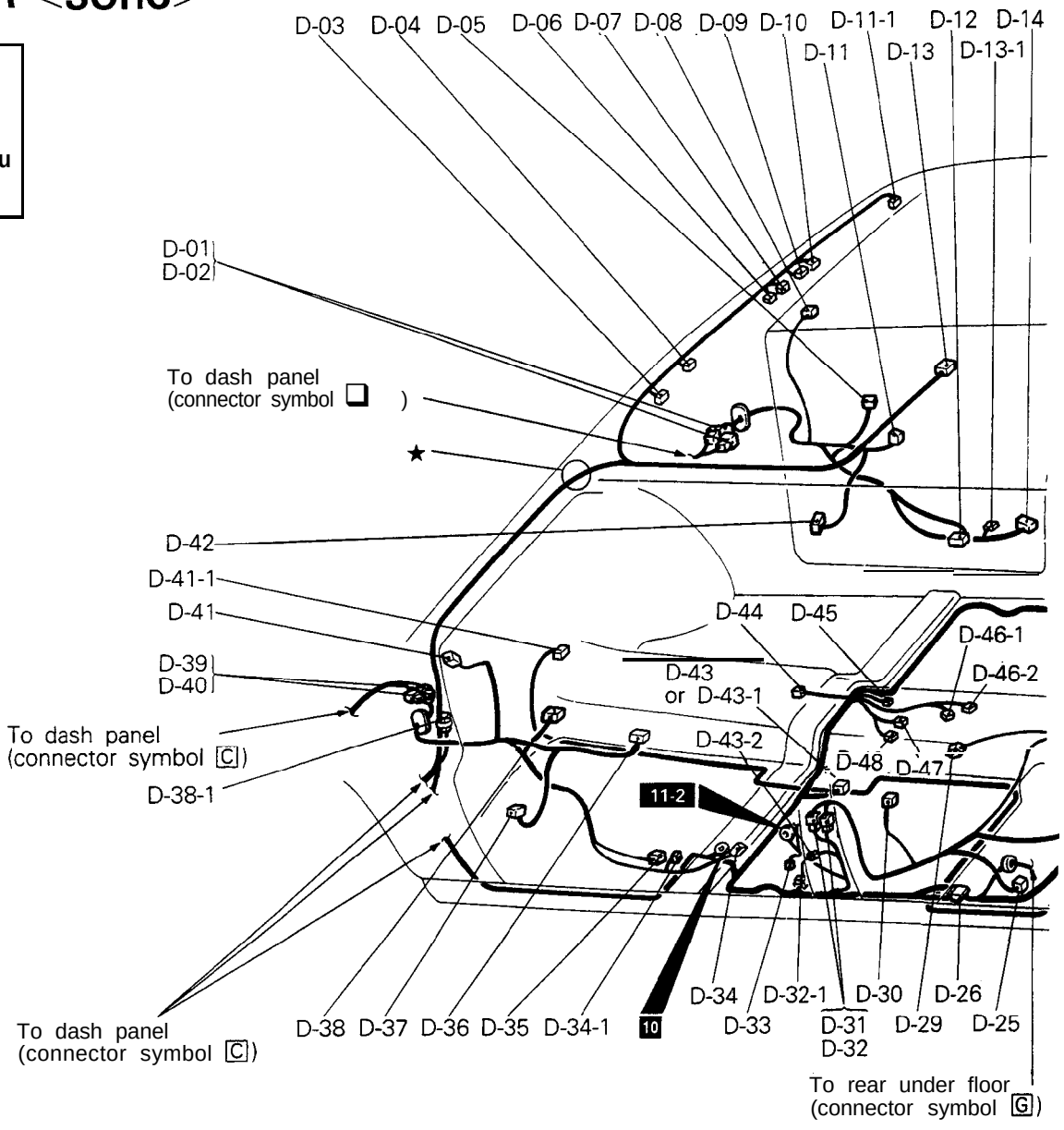
(Rear side)

Remarks
For details concerning the ground point (example: ❑), refer to P.4.

TSB Revision

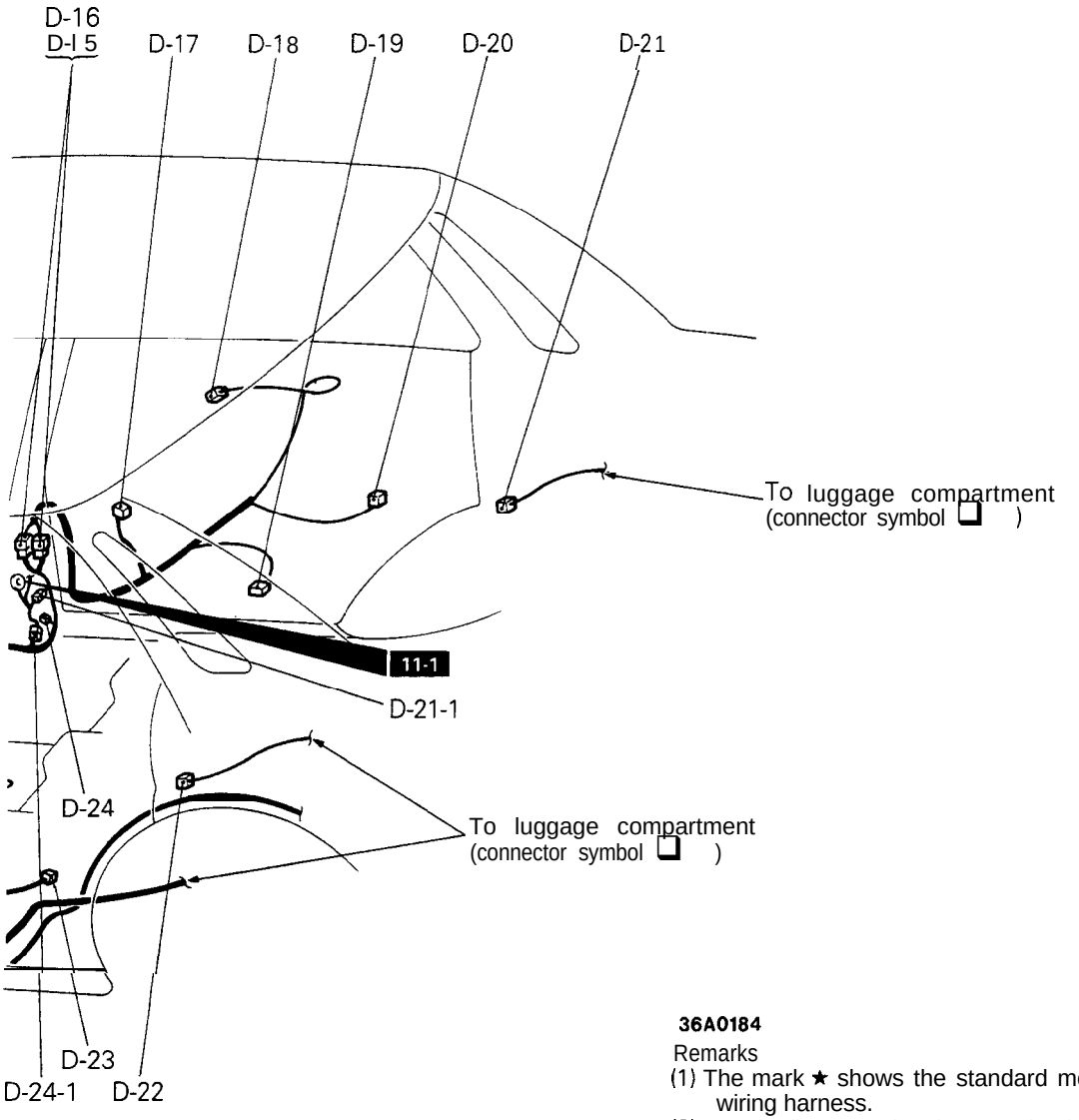
INTERIOR <SOHC>

Connector symbol **D** 01 thru 48



D-01, D-02 Body wiring harness and front door wiring harness combination (right side)
D-03 Sunroof control relay
D-04 Sunroof power relay
D-05 Front power window motor (right side)
D-06 Limit switch (Vehicles with sunroof)
D-07 Sunroof motor
D-08 Door mirror (right side)
D-09 Dome light (Vehicles with sunroof)
D-10 Map light (Vehicles without sunroof)
D-11 Front power window sub switch (right side)
D-11-1 Vanity mirror light
D-12 Front door light (right side)
D-13 Dome light (Vehicles without sunroof)
D-13-1 Door latch switch (right side)
D-14 Front door lock actuator (right side)
D-15, D-16 Body wiring harness and rear door wiring harness combination (right side)
D-17 Rear power window motor (right side)
D-18 Rear power window sub switch (right side)
D-19 Rear door light (right side)
D-20 Rear door lock actuator (right side)
D-21 Rear door switch (right side)
D-21-1 Automatic seatbelt (right side)
D-22 Rear door switch (left side)
D-23 Rear door lock actuator (left side)
D-24 Front door switch (right side)
D-24-1 Automatic seatbelt (right side)
D-25 Rear door light (left side)
D-26 Body wiring harness and fuel wiring harness combination
D-27 –

TSB Revision



36A0184

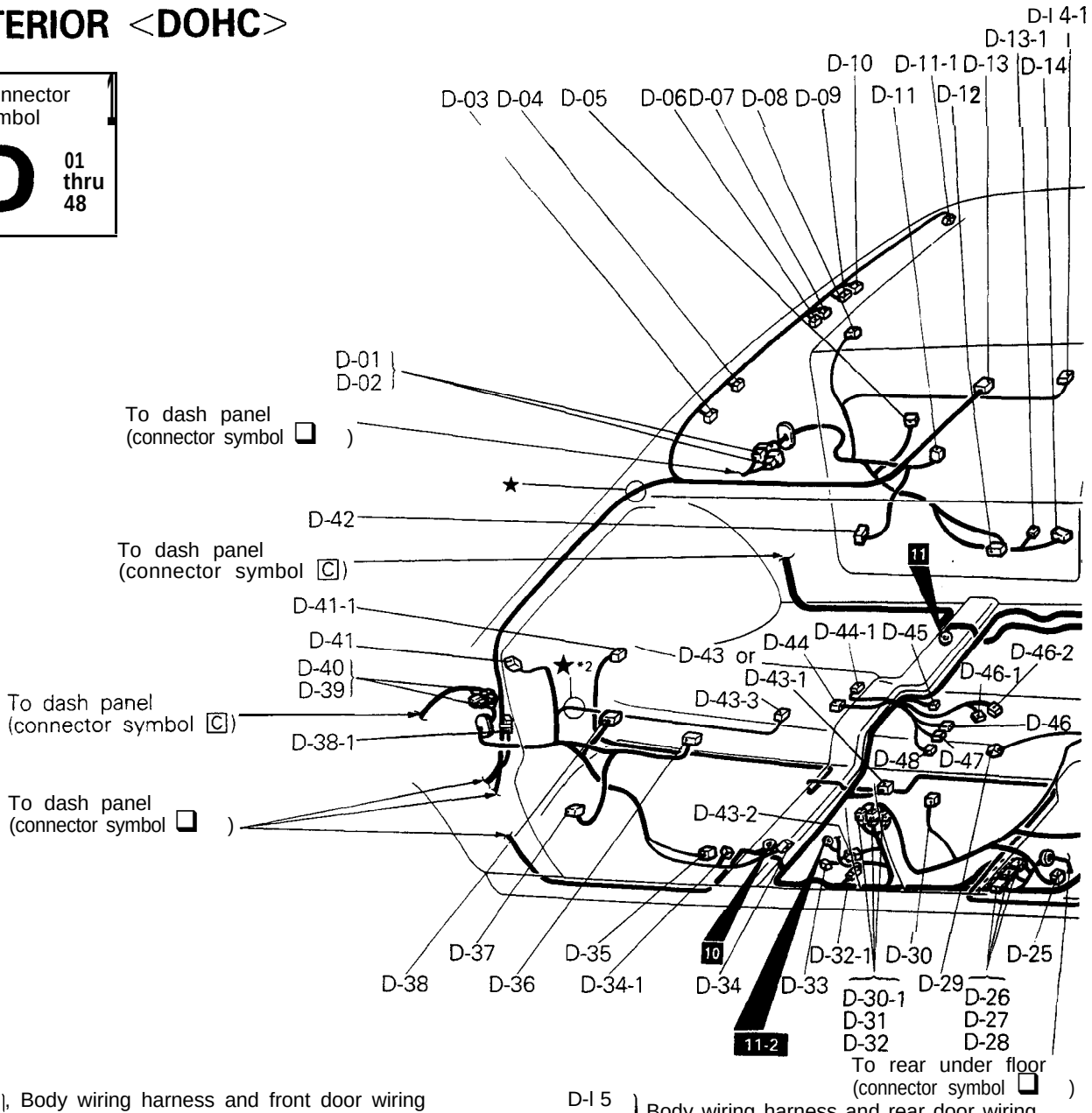
Remarks
(1) The mark ★ shows the standard mounting position of wiring harness.
(2) For details concerning the ground point (example: ❑), refer to P.4.
(3) "–" means that the connector with code-number is not used.
(4) ● : 1991 models <Vehicles with CD player>

D-28 –
D-29 Rear power window sub switch (left side)
D-30 Rear power window motor (left side)
D-31 } Body wiring harness and rear door wiring
D-32 } harness combination (left side)
D-32-1 Automatic seatbelt (left side)
D-33 Front door switch (left side)
D-34 Front door lock actuator (left side)
D-34-1 Door latch switch (left side)
D-35 Front door light (left side)
D-36 Front power window main switch (left side)
D-37 Front door speaker (left side)
D-38 Front power window motor (left side)
D-38-1 Diode (for sunroof circuit)
D-39 } Body wiring harness and front door wiring
D-40 } harness combination (left side)

D-41 Door mirror (left side)
D-41-1 Radio with tape player*
D-42 Front door speaker (right side)
D-43 Seat belt switch
D-43-1 Seatbelt buckle switch
D-43-2 Automatic seatbelt (left side)'
D-44 Over drive switch <A/T>
D-44-1 –
D-45 Parking brake switch
D-46 –
D-46-1 Automatic seatbelt control unit
D-46-2 Outer switch
D-47 Power/Economy changeover switch <A/T>
D-48 Remote-control mirror switch

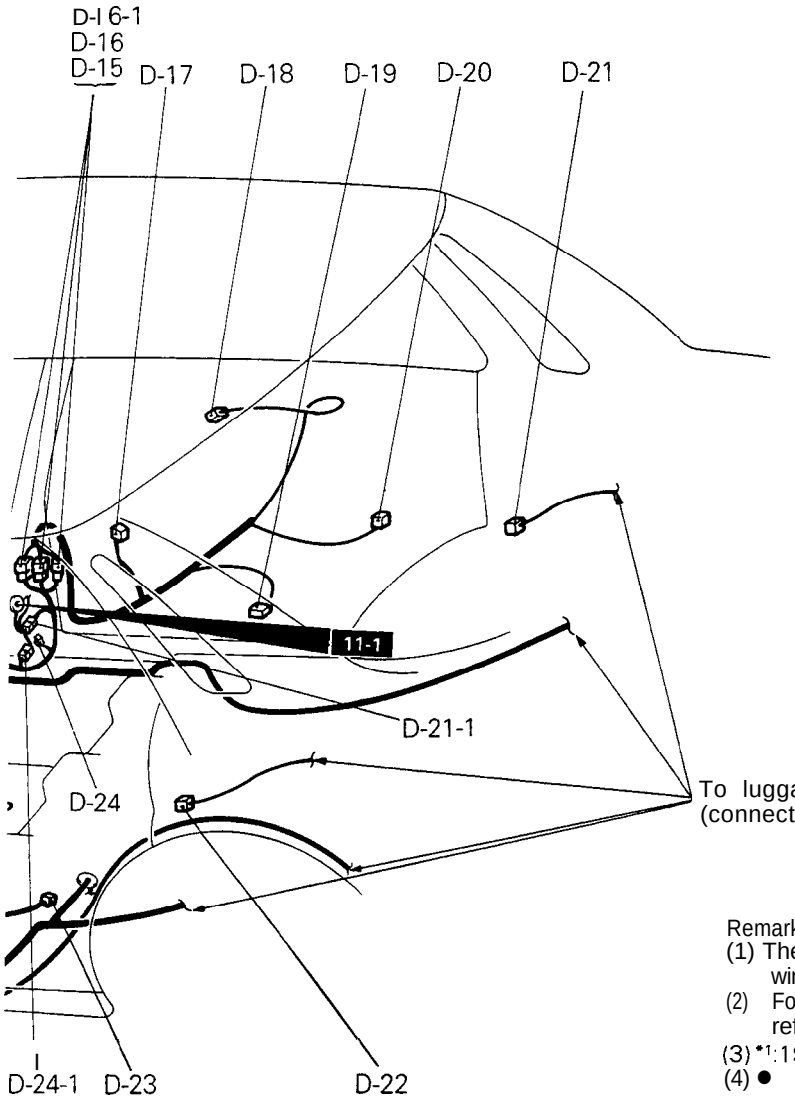
INTERIOR <DOHC>

Connector symbol **D** 01 thru 48



D-01, D-02 Body wiring harness and front door wiring harness combination (right side)
D-03 Sunroof control relay
D-04 Sunroof power relay
D-05 Front power window motor (right side)
D-06 Limit switch (Vehicles with sunroof)
D-07 Sunroof motor
D-08 Door mirror (right side)
D-09 Dome light (Vehicles with sunroof)
D-10 Map light (Vehicles without sunroof)
D-11 Front power window sub switch (right side)
D-11-1 Vanity mirror light
D-12 Front door light (right side)
D-13 Dome light (Vehicles without sunroof)
D-13-1 Door latch switch (right side)
D-14 Front door lock actuator (right side)
D-14-1 Front door key cylinder switch (right side)

D-15, D-16, D-16-1 Body wiring harness and rear door wiring harness combination (right side)
D-17 Rear power window motor (right side)
D-18 Rear power window sub switch (right side)
D-19 Rear door light (right side)
D-20 Rear door lock actuator (right side)
D-21 Rear door switch (right side)
D-21-1 Automatic seatbelt (right side)
D-22 Rear door switch (left side)
D-23 Rear door lock actuator (left side)
D-24 Front door switch (right side)
D-24-1 Automatic seatbelt (right side)
D-25 Rear door light (left side)
D-26, D-27, D-28 Body wiring harness and fuel wiring harness combination



36A0185

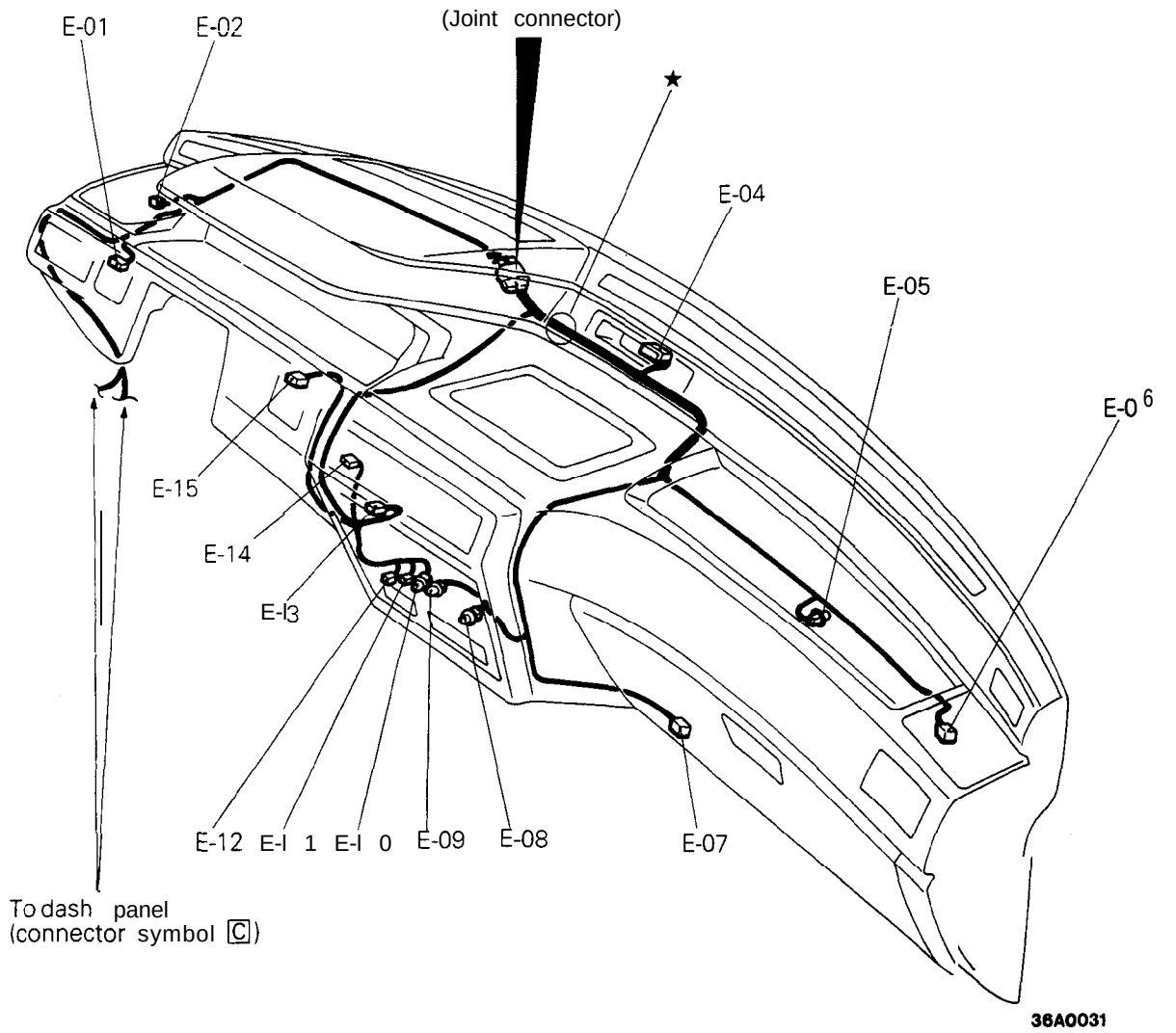
Remarks
(1) The mark ★ shows the standard mounting position 0 wiring harness.
(2) For details concerning the ground point (example: ❑) refer to P.4.
(3) *1: 1991 models <Vehicles with CD player>
(4) ● z: 1992 models <Turbo>

D-29 Rear power window sub switch (left side)
D-30 Rear power window motor (left side)
D-30-1, D-31, D-32 Body wiring harness and rear door wiring harness combination (left side)
D-32-1 Automatic seatbelt (left side)
D-33 Front door switch (left side)
D-34 Front door lock actuator (left side)
D-34-1 Door latch switch (left side)
D-35 Front door light (left side)
D-36 Front power window main switch (left side)
D-37 Front door speaker (left side)
D-38 Front power window motor (left side)
D-38-1 Diode (for sunroof circuit)
D-39, D-40 Body wiring harness and front door wiring harness combination (left side)
D-41 Door mirror (left side)
D-41-1 Radio with tape player*1
D-42 Front door speaker (right side)
D-43 Seat belt switch
D-43-1 Seatbelt buckle switch
D-43-2 Automatic seatbelt (left side)
D-43-3 Front door key cylinder switch (left side)
D-44 Over drive switch <A/T>
D-44-1 ABS G sensor (front) <AWD>
D-45 Parking brake switch
D-46 EPS mode changeover switch
D-46-1 Automatic seatbelt control unit
D-46-2 Outer switch
D-47 Power/Economy change over switch <A/T>
D-48 Remote-control mirror switch

INSTRUMENT PANEL <SOHC>

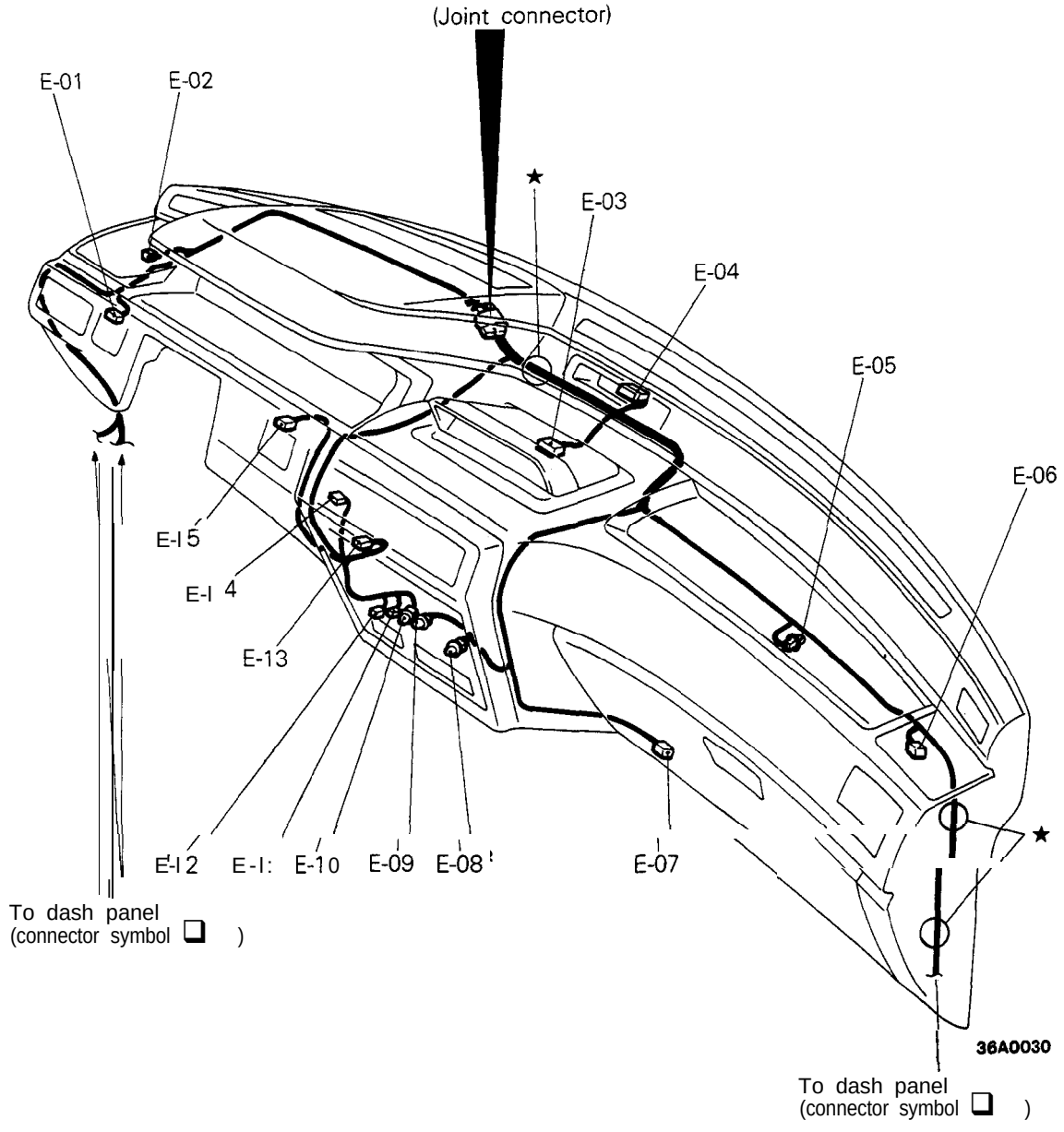
Connector symbol

E 01 thru 15



E-01 Rheostat
E-02 Front speaker (left side)
E-03 ACTIVE-KS indicator
E-04 Clock
E-05 Glove box light
E-06 Front speaker (right side)
E-07 Glove box light switch
E-08 Ashtray illumination light
E-09 Heater control panel illumination light

<DOHC>

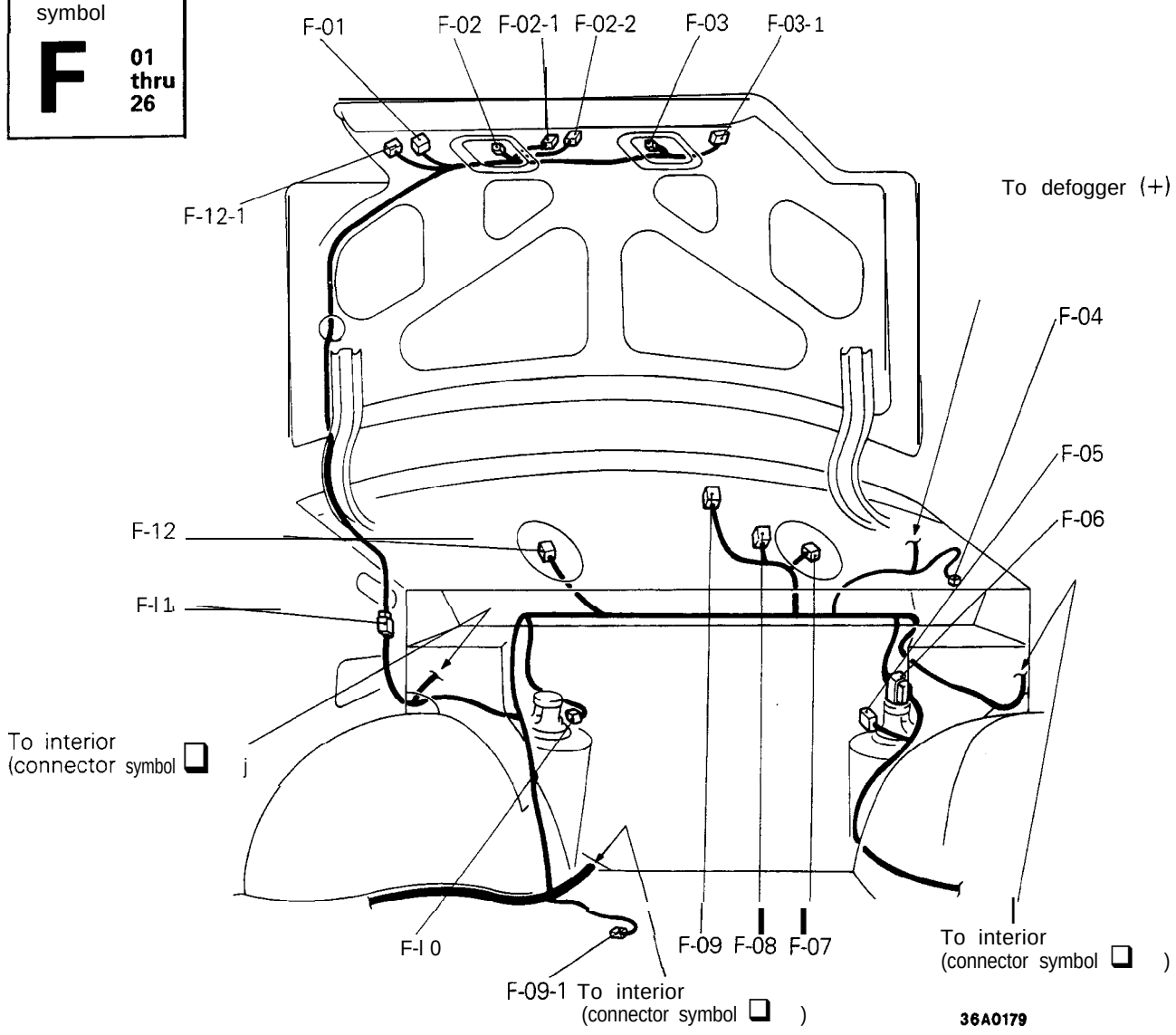


E-10	Cigarette lighter illumination light
E-11, E-12	Cigarette lighter
E-13	Hazard switch
E-14	Seatbelt warning buzzer
E-15	Defogger switch

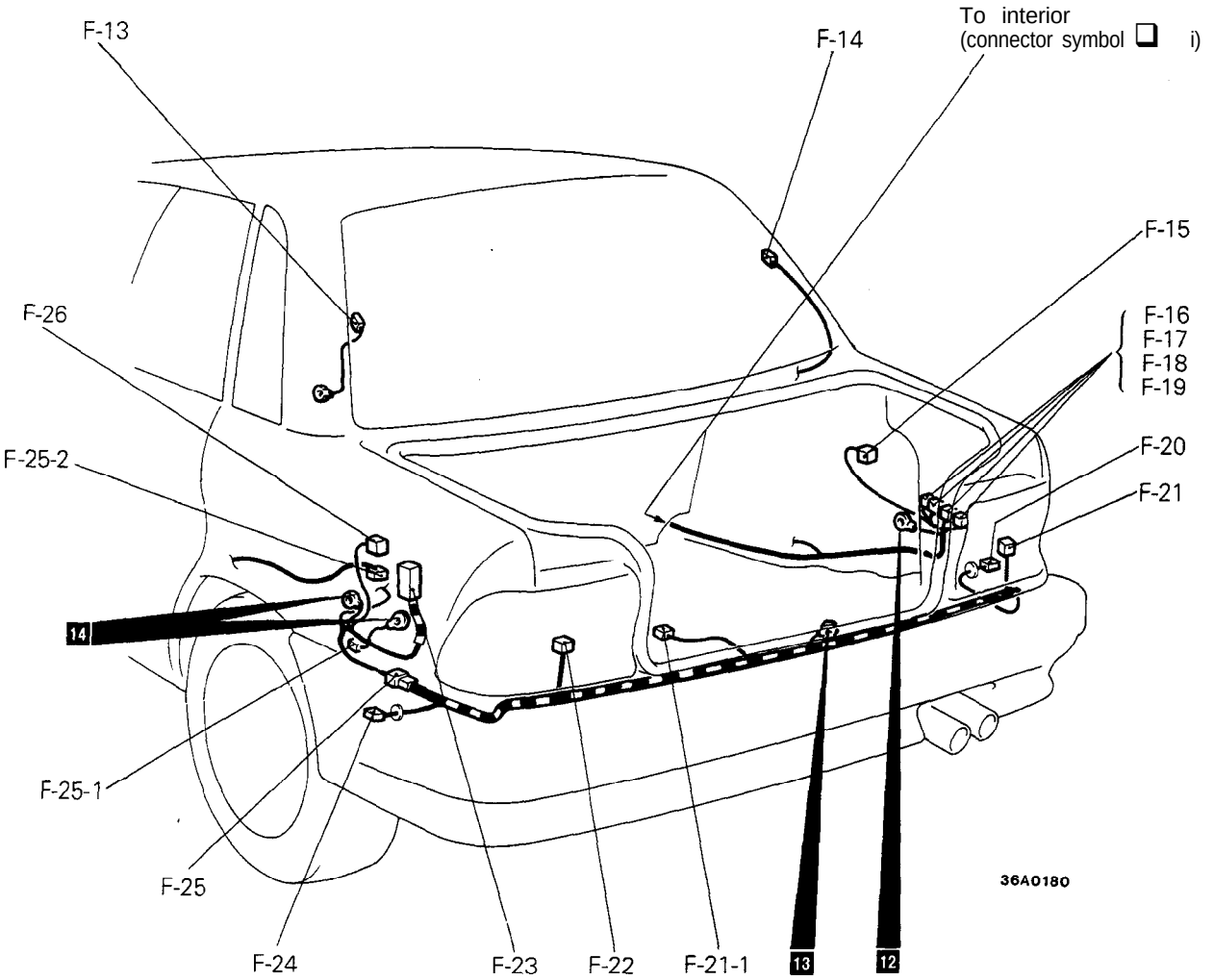
Remark
The mark ★ shows the standard mounting position of wiring harness.

LUGGAGE COMPARTMENT

Connector symbol
F 01 thru 26



F-01	High mounted stop light <Vehicles with air spoiler>	F-07	Rear speaker (right side)
F-02	Licence plate light (left side)	F-08	Luggage compartment light
F-02-1	Trunk lid key cylinder unlock switch	F-09	High mounted stop light <Vehicles without air spoiler>
F-02-2	Trunk lid switch	F-09-1	ABS G sensor (rear) <AWD>*1
F-03	Licence plate light (right side)	F-10	ACTIVE-ECS rear actuator (left side)
F-03-1	Rear lid light (right side)	F-11	Body wiring harness and rear lid wiring harness combination
F-04	Luggage compartment light switch	F-12	Rear speaker (left side)
F-05	ACTIVE-ECS rear actuator (right side)	F-12-1	Rear lid light (left side)
F-06	Body wiring harness and ACTIVE-ECS wiring harness combination		



F-13 Defogger (–)
F-14 Defogger (+)
F-I 5 ACTIVE-ECS rear solenoid valve
F-16, F-I 7, F-I 8, F-19 ACTIVE-ECS control unit
F-20 Rear side marker light (right side)
F-21 Rear combination light (right side)
F-21-1 Fuel pump and gauge unit assembly <AWD>
F-22 Rear combination light (left side)
F-23 ABS control unit
F-24 Rear side marker light (left side)
F-25 Body wiring harness and luggage compartment wiring harness combination
F-25-1 ABS resistor <AWD>*1
F-25-2 Power amplifier <Vehicles with CD player>*
F-26 Motor antenna

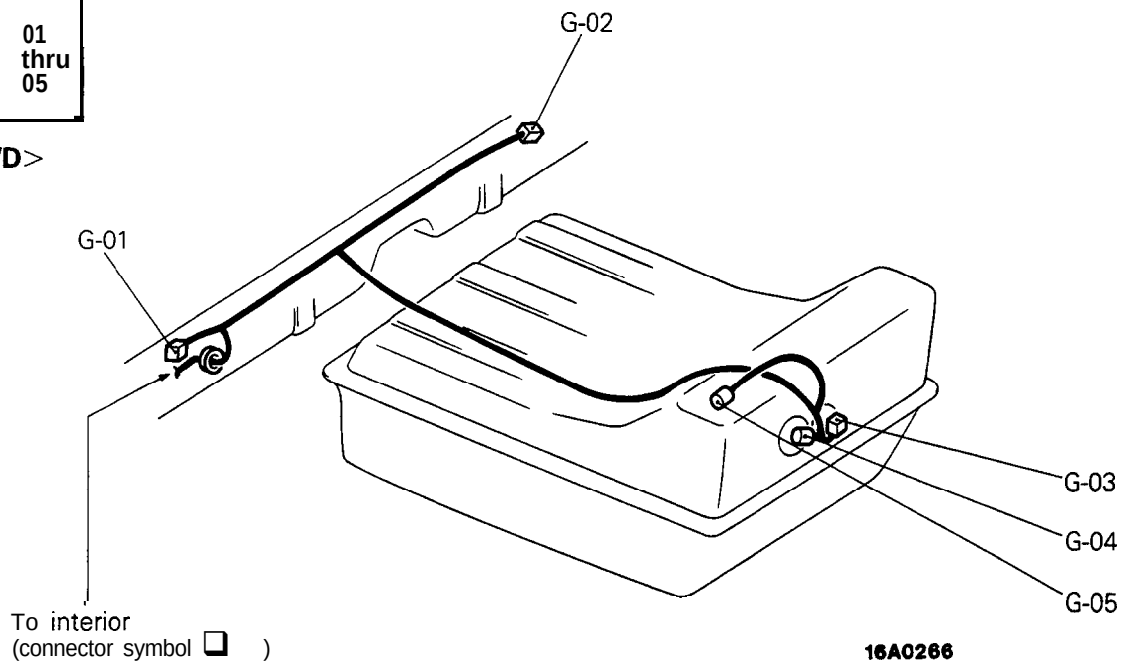
Remarks
(1) For details concerning the ground point (example: 13), refer to P.4.
(2) ● I: Up to 1991 models
(3) ● 2: 1991 models

REAR UNDER FLOOR

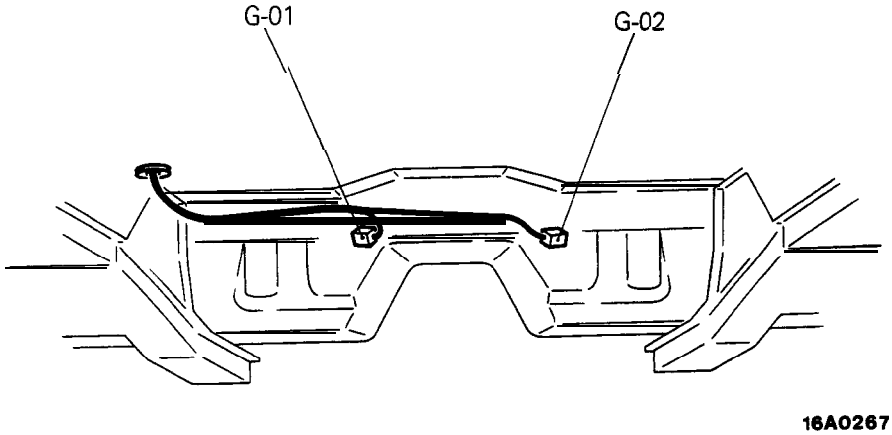
Connector symbol

G 01 thru 05

<FWD>



<AWD>



G-01 ABS rear speed sensor (left side)
G-02 ABS rear speed sensor (right side)
G-03 Fuel gauge unit
G-04 Fuel pump
G-05 ACTIVE-ECS rear height sensor

TSB Revision

CIRCUIT DIAGRAMS

CONTENTS

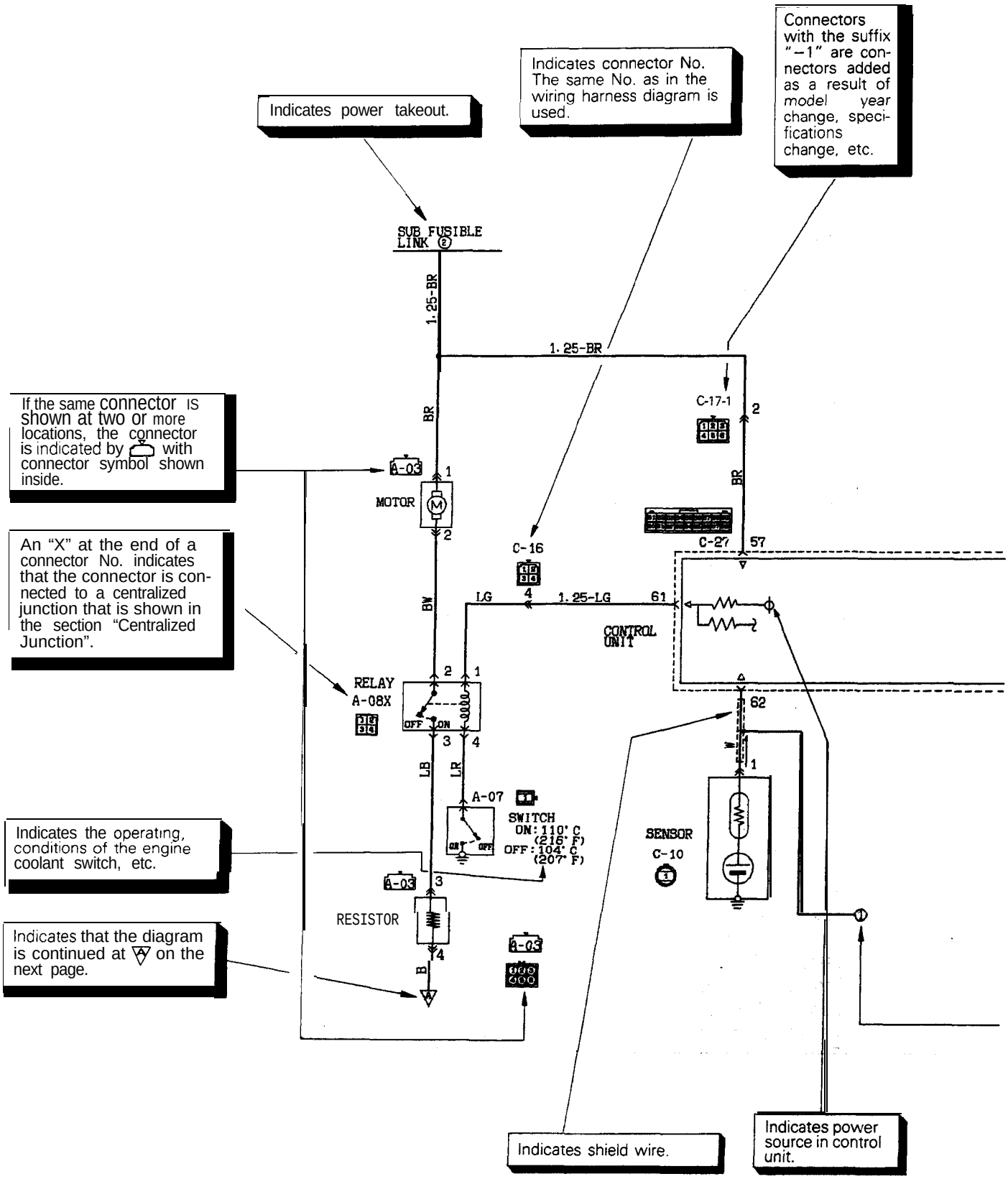
M16VE--

ACTIVE-Electronic Control Suspension (ECS) Circuit 249
Air Conditioning Circuit 199
Anti-Lock Braking System (ABS) Circuit 274
Audio Circuit 54-112
Auto-Cruise Control Circuit 292
Automatic Seat Belt Circuit 326
Back-Up Light Circuit 54-68
Buzzer Circuit 180
Central Door Locking Circuit 214
Charging Circuit 16-3
Cigarette Lighter Circuit.. 54-106
Clock Circuit 54-109
Cooling Circuit 155
Defogger Circuit 54-156
Dome Light Circuit.. 54-56
Door Light Circuit.. 54-65
ELC 4-Speed Automatic Transaxle Circuit 158
Electronic Control Power Steering (EPS) Circuit 323
Fog Light Circuit 54-46
Headlight Circuit 54-41
Heater Circuit 197
Horn Circuit 54-104
How to Read Circuit Diagrams 70
Ignition Circuit 16-34
Indicator Light Circuit.. 54-22
Luggage Compartment Light, Glove Compartment Light and Vanity Mirror Light Circuit 54-54
Meter and Gauges Circuit 54-12
MFI Circuit 96
Power Distribution Circuit 76
Power Window Circuit 182
Remote Controlled Mirror Circuit 235
Starting Circuit 16-17
Stop Light Circuit 54-78
Sunroof Circuit 238
Tail light, Position Light, Side Marker Light and License Plate Light Circuit 54-48
Theft-Alarm System Circuit 332
Turn Signal Light and Hazard Light Circuit 54-72
Warning Light Circuit 54-16
Wiper and Washer Circuit 228

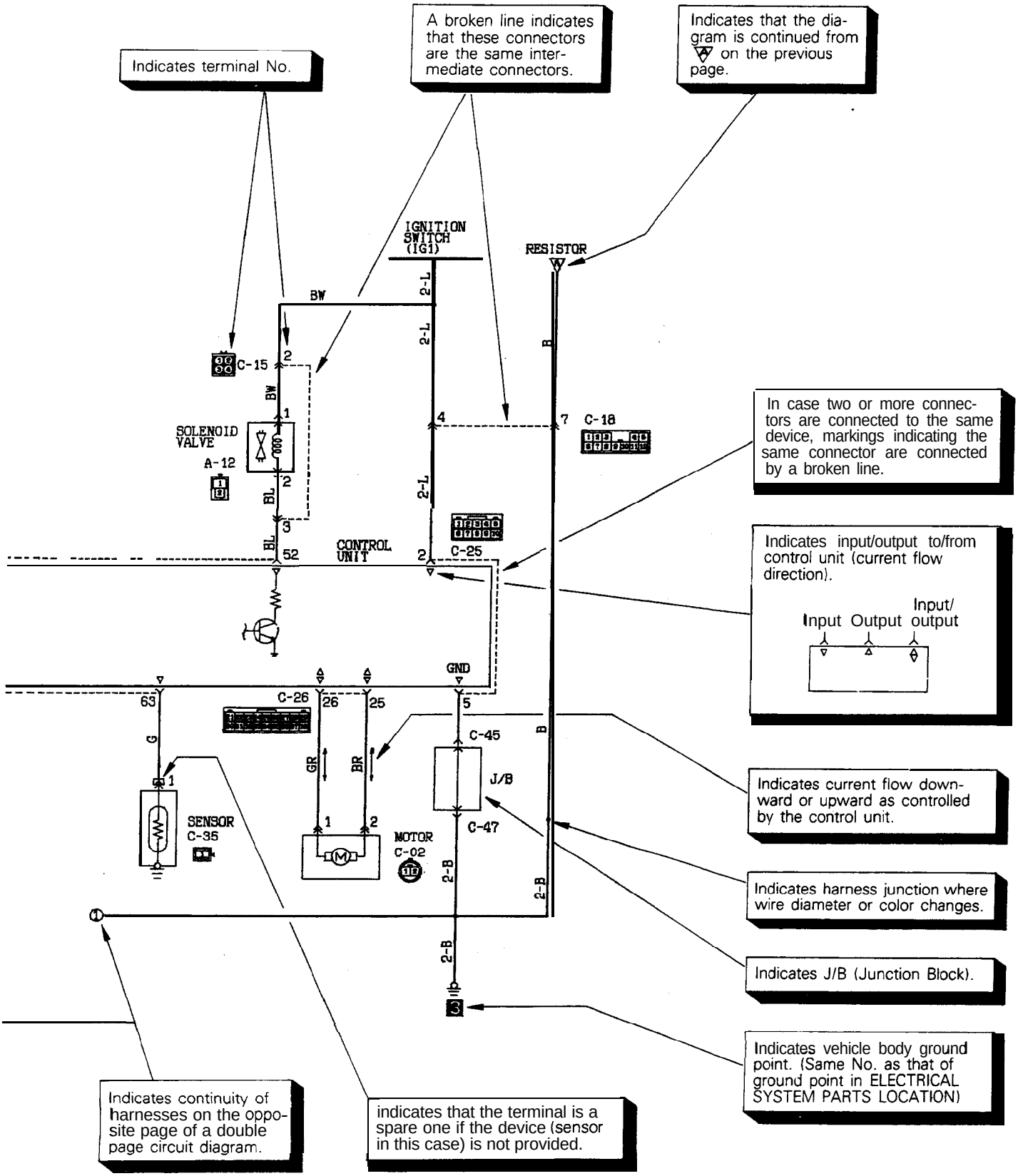
HOW TO READ CIRCUIT DIAGRAMS

M16VGAHb

The circuit of each system from the fuse (or fusible link) to ground is shown. The power supply is shown at the top and the ground at the bottom to facilitate understanding of how the current flows.

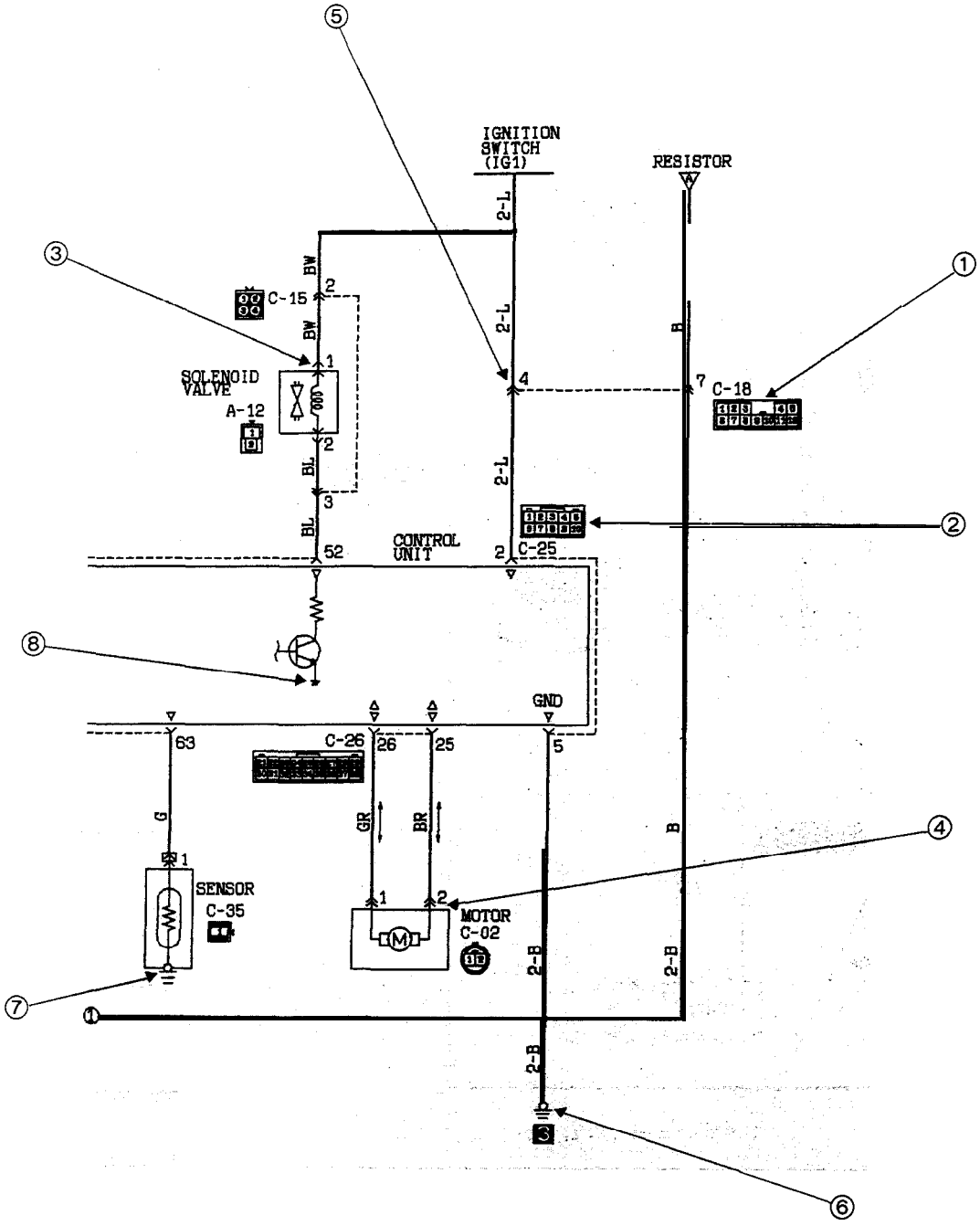


TSB Revision

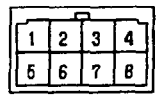
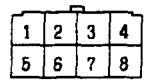
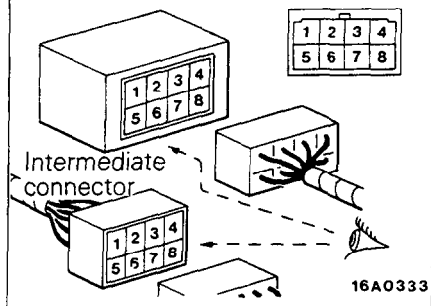
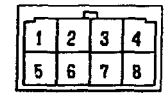
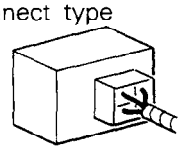
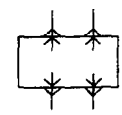
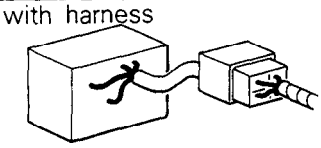
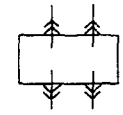
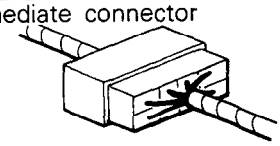
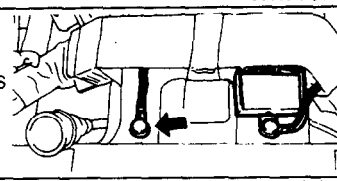
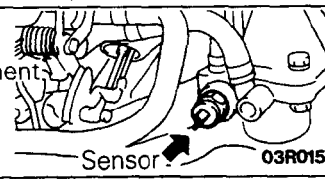
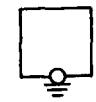
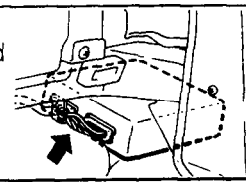


TSB Revision

CONNECTOR/GROUND INDICATIONS



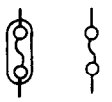
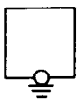
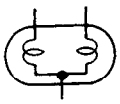
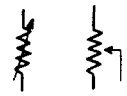
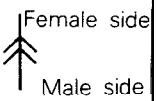
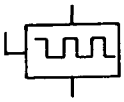
TSB Revision

	No.	Layout indications	Symbol	Description
Connector indications	①	Male 		Male and female terminals are distinguished one from the other as shown in the illustration: connectors framed by a double line are male terminals, and those framed by a single line are female terminals.
	–	Female 		
Connector symbol indications	②	Equipment 		Symbols are shown as facing in the direction indicated in the illustration. For connections to the equipment is shown; for intermediate connectors, the symbol for the connector at the male side is shown.
Connector connection indications	③	Direct-connect type 		There are two types of conneciton between the equipment and the connector at the harness: the type by which there is direct plug-in to the equipment (the direct-connect type), and the type by which connection is with the harness connector at the equipment (the type with harness); these are individually indentified as shown in the illustration.
	④	Type with harness 		
	⑤	Intermediate connector 		
Ground indications	⑥	Chassis ground 		There are three types of grounds: the chassis ground, the equipment ground, and the ground within the control unit; these are individually identified as shown in the illustration.
	⑦	Equipment ground 		
	⑧	Ground within control unit 		

TSB Revision

SYMBOLS

The various devices and equipment identified in circuit diagrams are represented by **the symbols described** below.

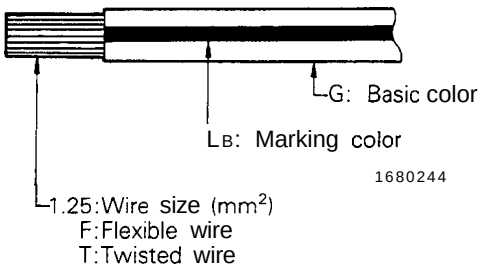
Battery 	Body ground 	Single bulb 	Resistor 	Diode 	Capacitor 
Fuse 	Equipment ground 	Dual bulb 	Variable resistor 	Zener diode 	Crossing of wires without connection 
Fusible link	Ground within ECU 	Speaker 	Coil 	Transistor with 	Crossing of wires connection 
Connector Female side  Male side	Motor 	Horn 	Pulse generator 	Buzzer 	Chime 
Thyristor 	Piezo-electric element 	Thermister 	Light-emitting diode 	Photo diode 	Photo transistor 

16A0252

WIRING COLOR CODES

Wire colors are identified by the following color codes.

Example: 1.25F–GB



(1) No code indicates 0.5 mm² (.0008 in.²).
(2) Cable color code in parentheses indicates 0.3 mm² (.0005 in.²).

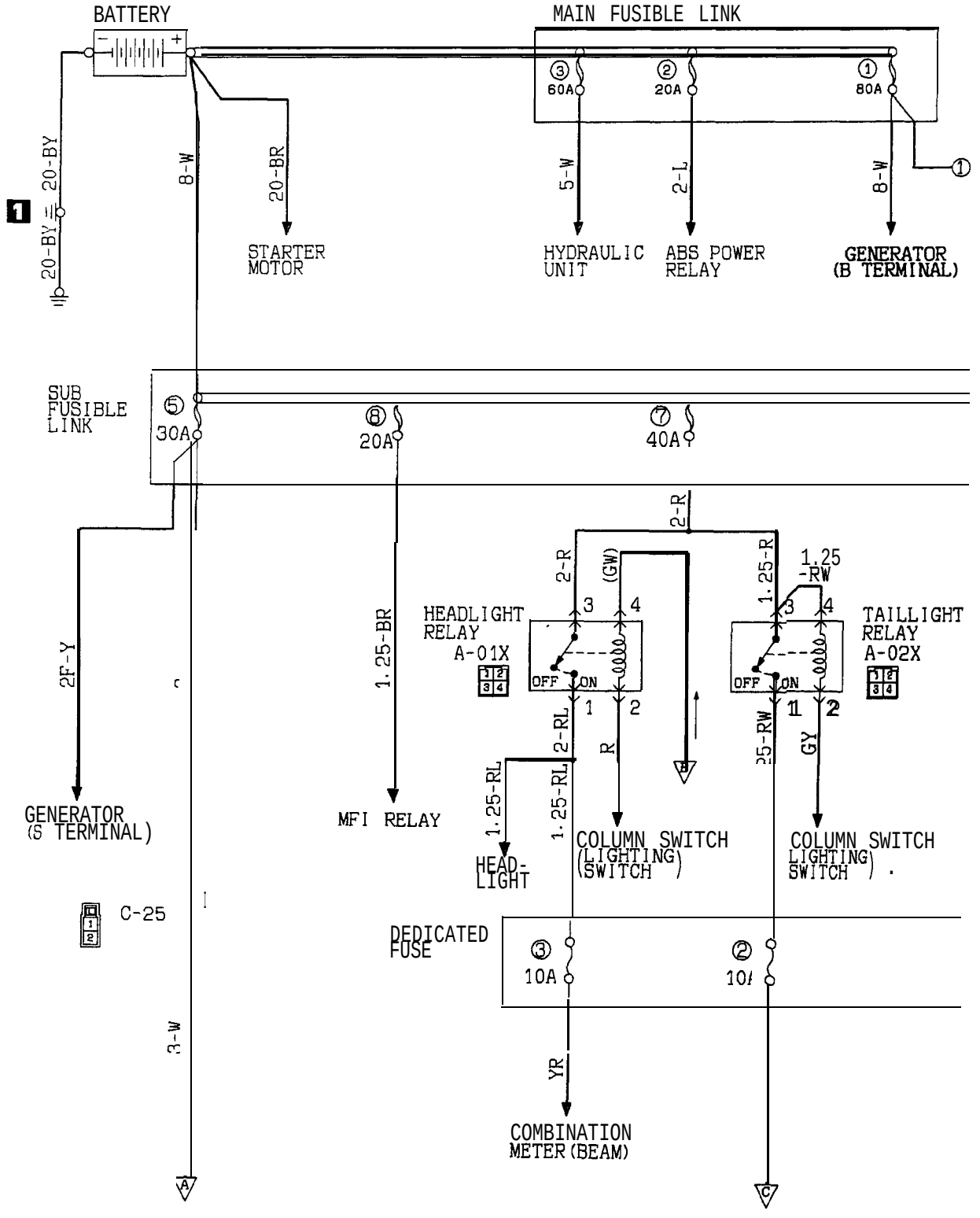
Code	Wire color	Code	Wire color
B	Black	P	Pink
Br	Brown	R	Red
G	Green	Sb	Sky blue
Gr	Gray	V	Violet
L	Blue	W	White
Lg	Light green	Y	Yellow
O	Orange		

NOTE
If a cable has two colors, the first of the two color code characters indicates the basic color (color of the cable coating) and the second indicates the marking color.

TSB Revision

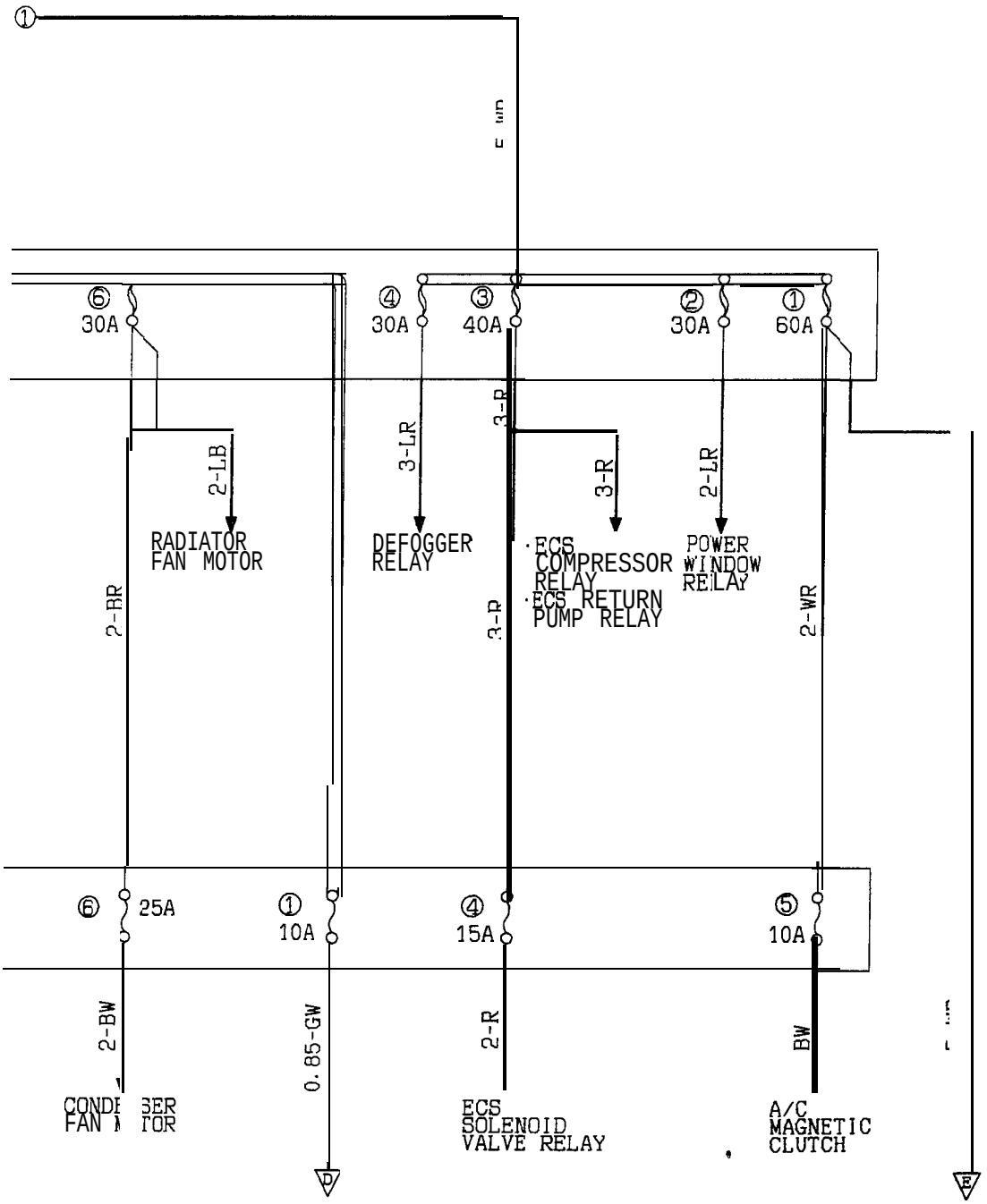
NOTES

POWER DISTRIBUTION CIRCUIT (1989 MODELS>

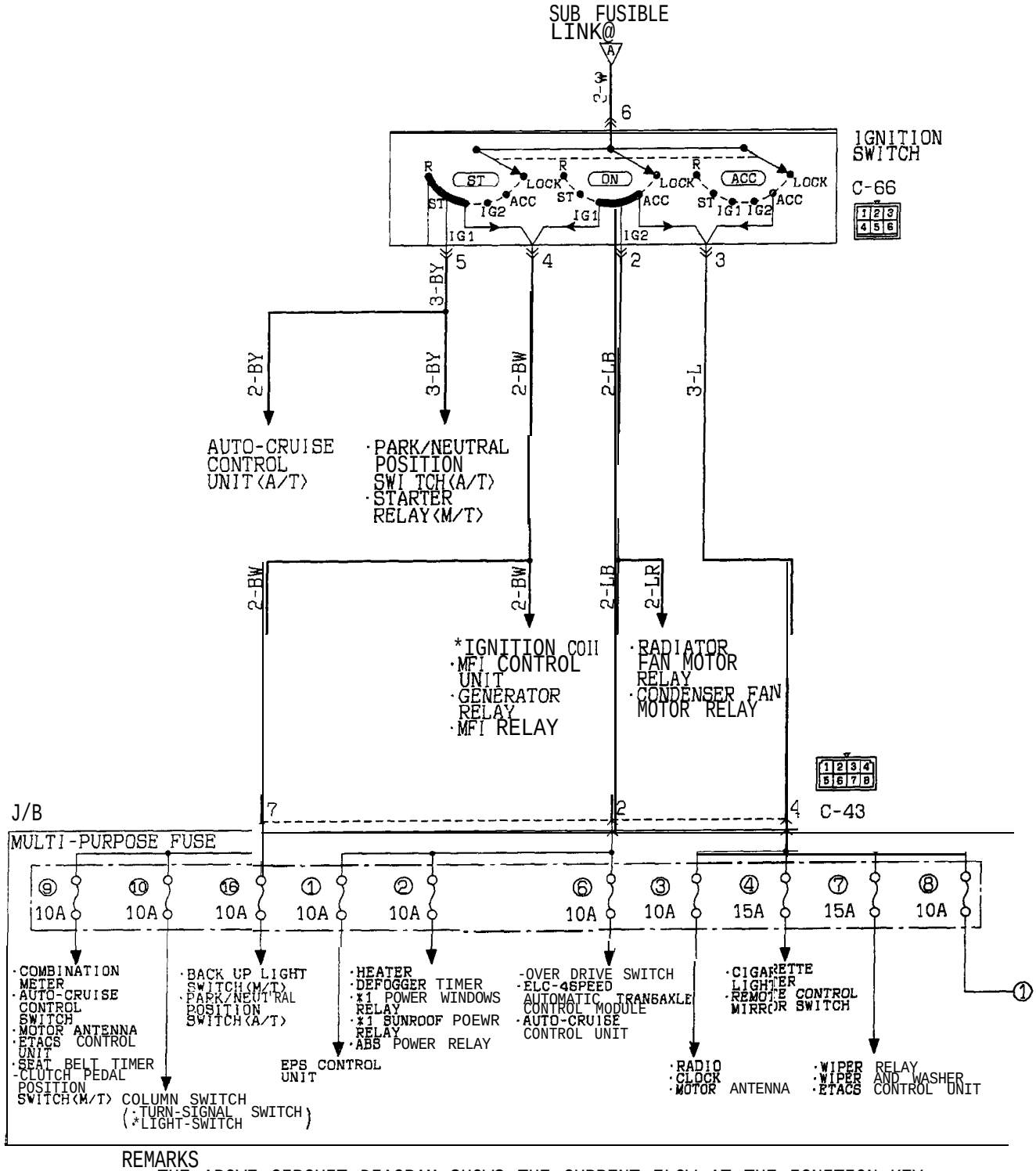


KX35-AC-H0105-NM

TSB Revision


①
⑥ 30A
④ 30A
③ 40A
② 30A
① 60A
2-LB
3-LR
3-R
3-R
2-LR
2-BR
3-P
2-WR
RADIATOR FAN MOTOR
DEFOGGER RELAY
·ECS COMPRESSOR RELAY
·ECS RETURN PUMP RELAY
POWER WINDOW RELAY
⑥ 25A
① 10A
④ 15A
⑤ 10A
2-BW
0.85-GW
2-R
BW
CONDENSER FAN MOTOR
ECS SOLENOID VALVE RELAY
A/C MAGNETIC CLUTCH
D
E

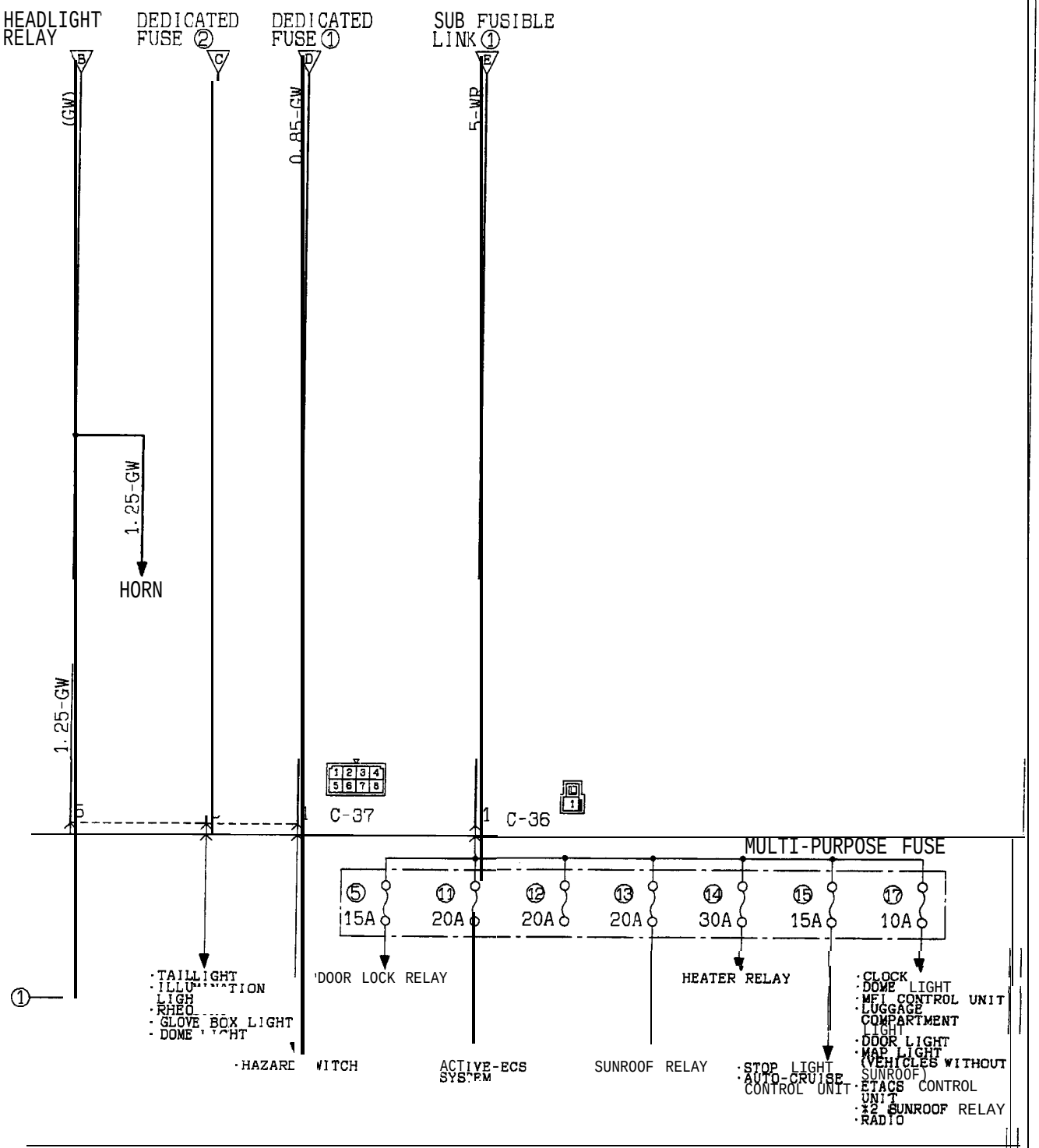
POWER DISTRIBUTION CIRCUIT (CONTINUED) (1989 MODEL)



REMARKS
(1) THE ABOVE CIRCUIT DIAGRAM SHOWS THE CURRENT FLOW AT THE IGNITION KEY POSITIONS "ACC", "ON" AND "ST" COMBINED.
(2) BE SURE TRACE THE APPROPRIATE CIRCUIT DEPENDING ON THE IGNITION KEY POSITION.

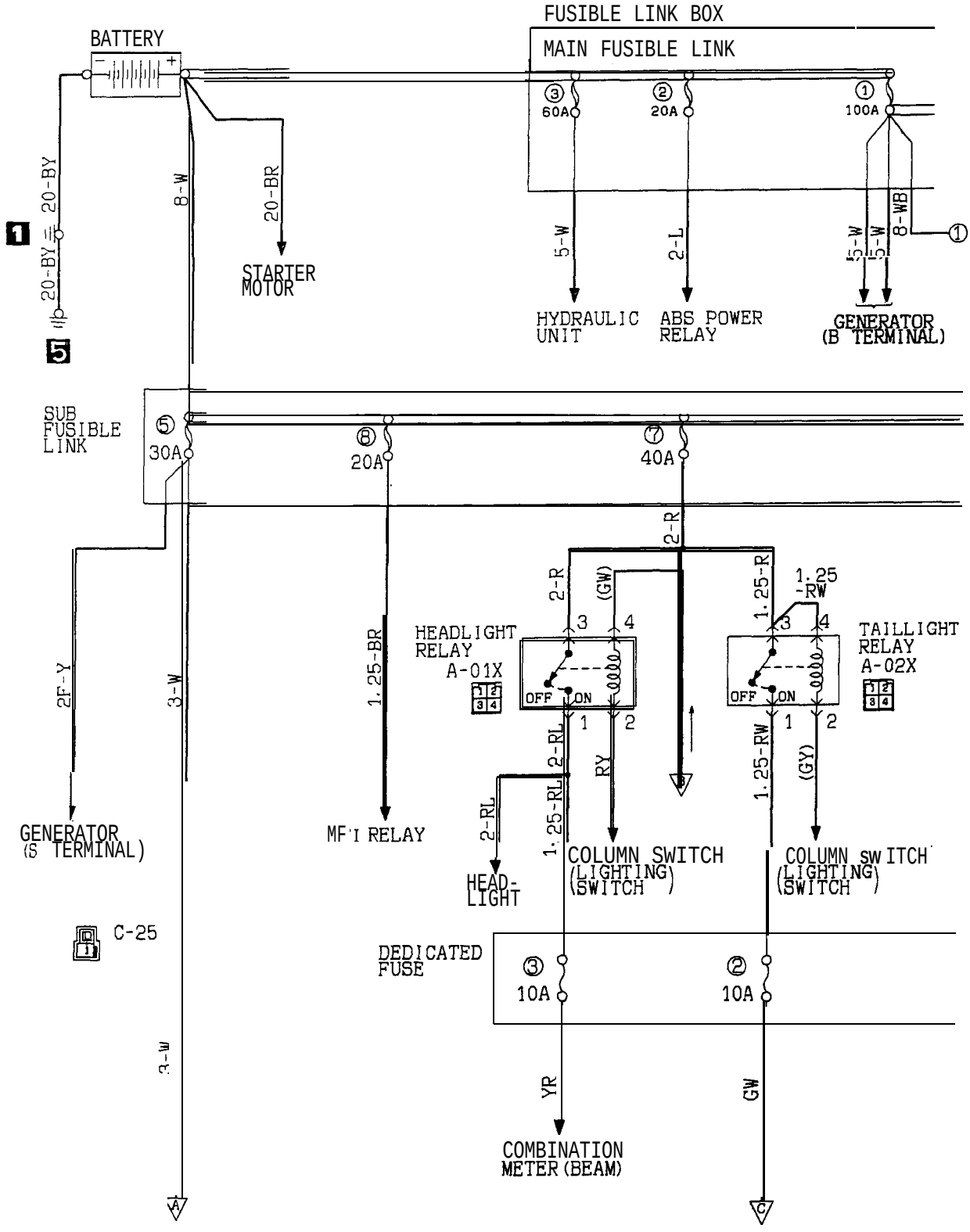
KX35-AC-H0105A-NM

TSB Revision

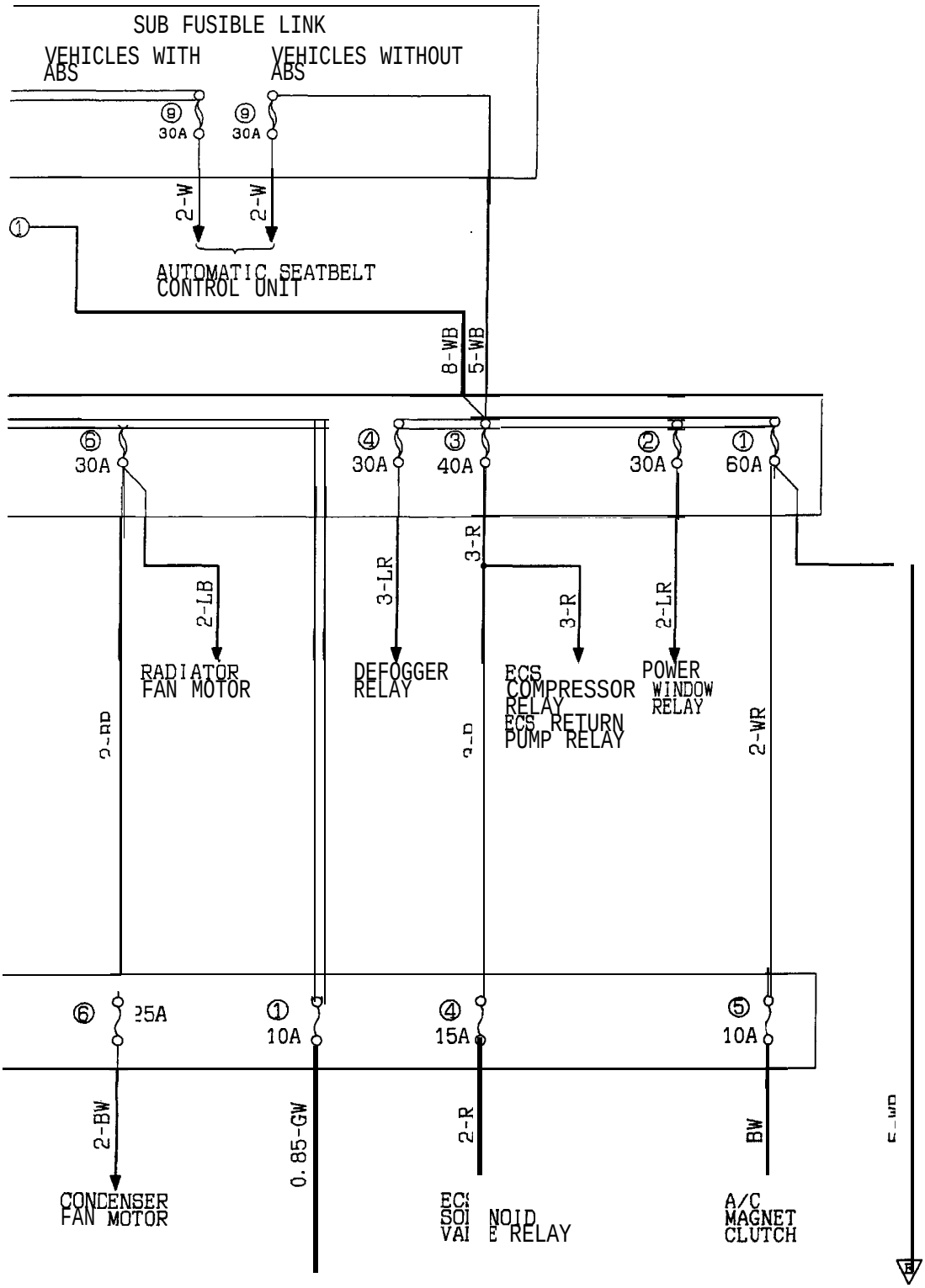


(3) *1 INDICARES VEHICLES WITHOUT AN ETACS CONTROL UNIT.
(4) *2 INDICATES VEHICLES WITH AN ETACS CONTROL UNIT.

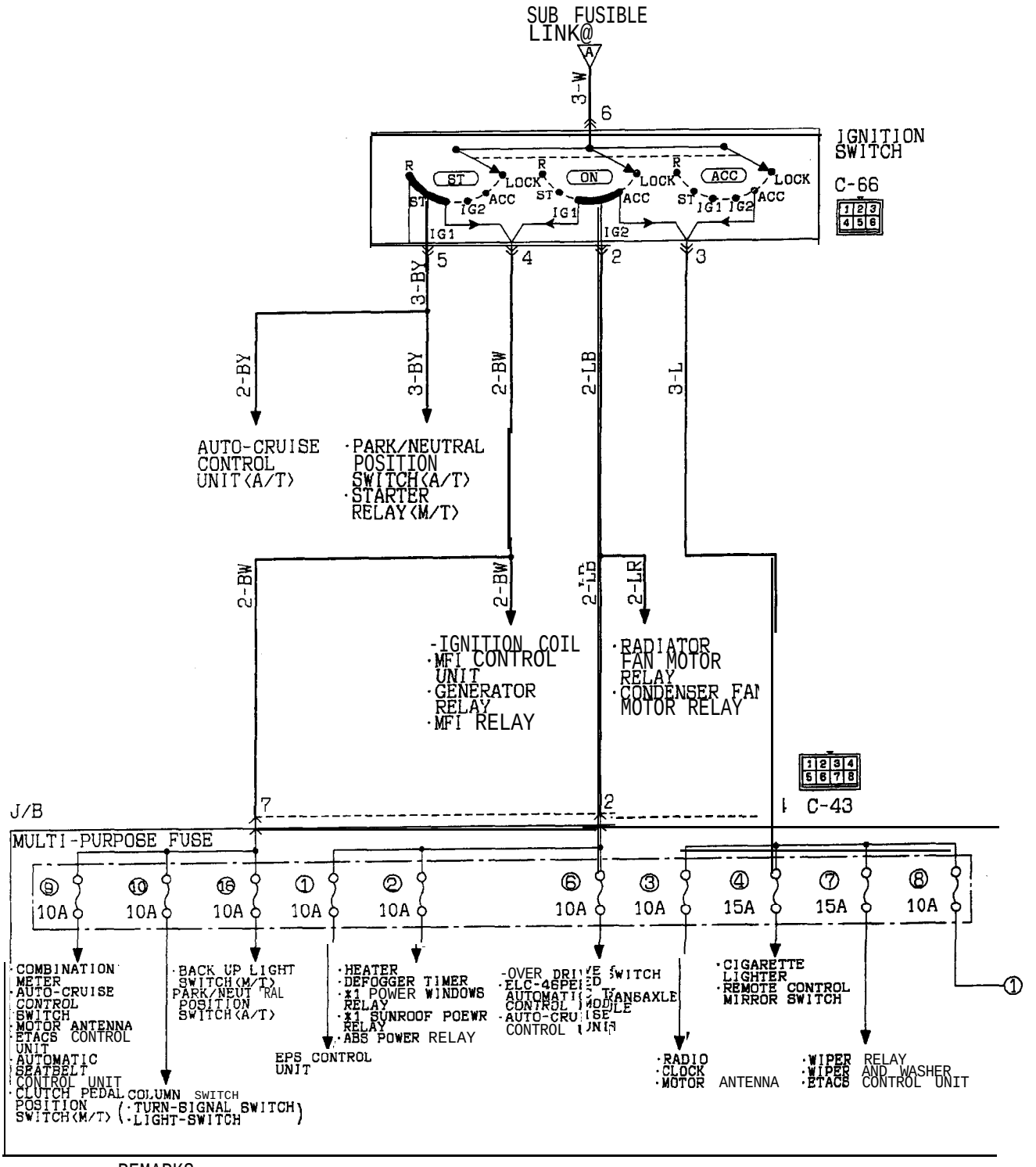
POWER DISTRIBUTION CIRCUIT (1990 MODELS)



135-AC-H0106-NM


SUB FUSIBLE LINK
VEHICLES WITH ABS
VEHICLES WITHOUT ABS
⑨ 30A
⑨ 30A
2-W
2-W
①
AUTOMATIC SEATBELT CONTROL UNIT
8-WB
5-WB
⑥ 30A
④ 30A
③ 40A
② 30A
① 60A
2-LB
3-LR
3-R
3-R
2-LR
2-WR
RADIATOR FAN MOTOR
DEFOGGER RELAY
ECS COMPRESSOR RELAY
ECS RETURN PUMP RELAY
POWER WINDOW RELAY
⑥ 25A
① 10A
④ 15A
⑤ 10A
2-BW
0.85-GW
2-R
BW
CONDENSER FAN MOTOR
A/C MAGNET CLUTCH
B

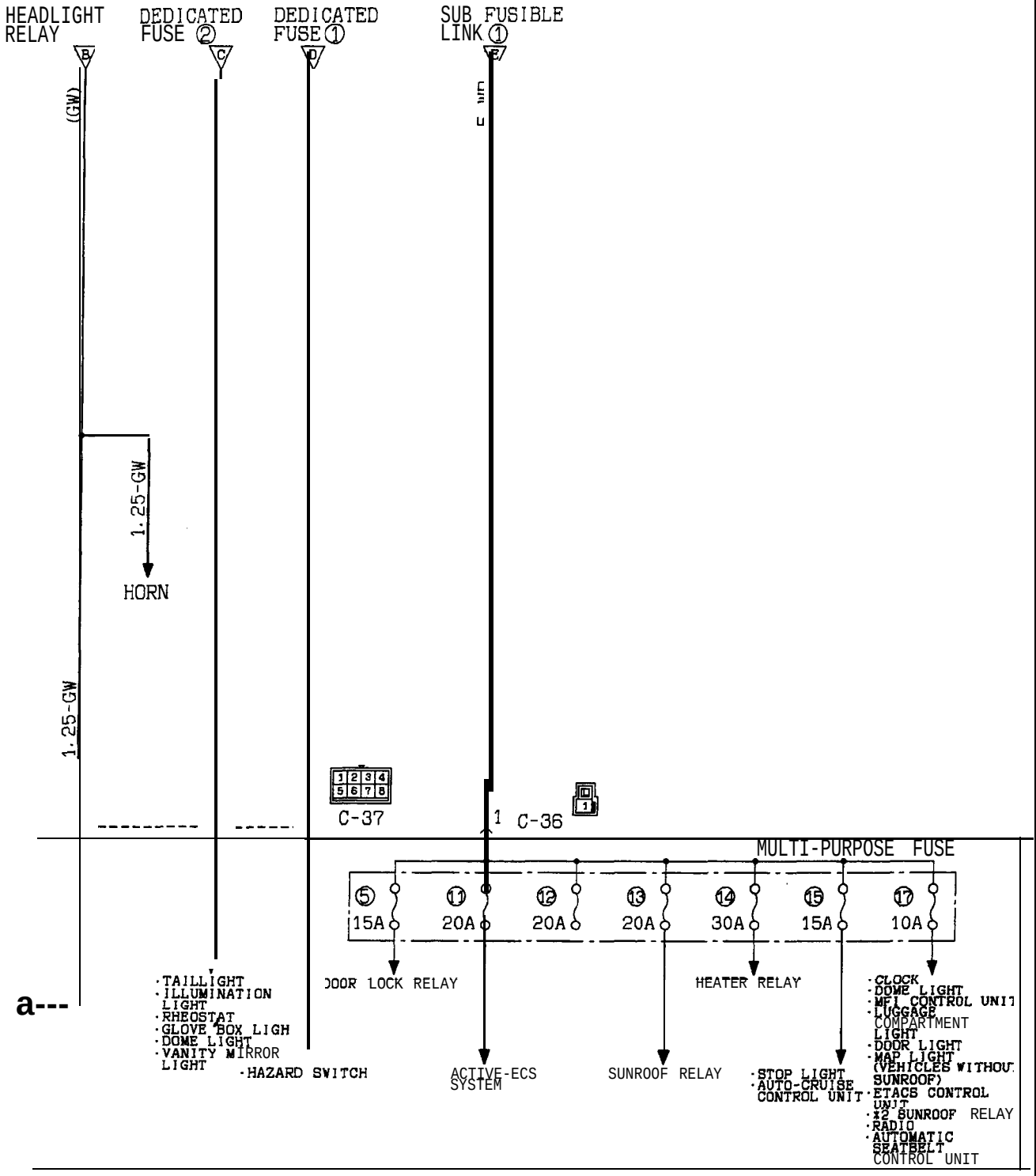
POWER DISTRIBUTION CIRCUIT (CONTINUED) (1990 MODELS)



REMARKS
(1) THE ABOVE CIRCUIT DIAGRAM SHOWS THE CURRENT FLOW AT THE IGNITION KEY POSITIONS "ACC", "ON" AND "ST" COMBINED.
(2) BE SURE TRACE THE APPROPRIATE CIRCUIT DEPENDING ON THE IGNITION KEY POSITION.

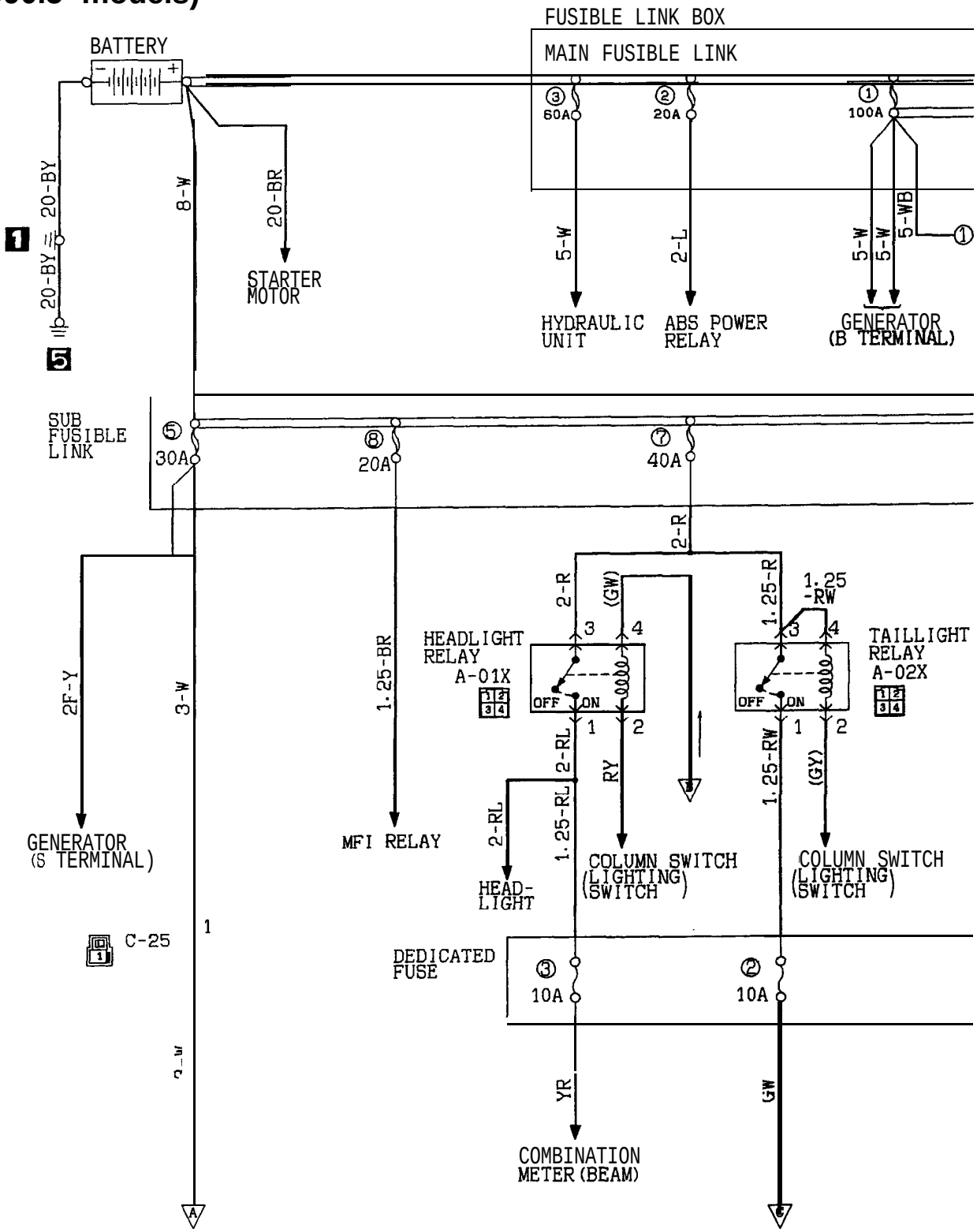
KX35-AC-H0106A-NM

TSB Revision



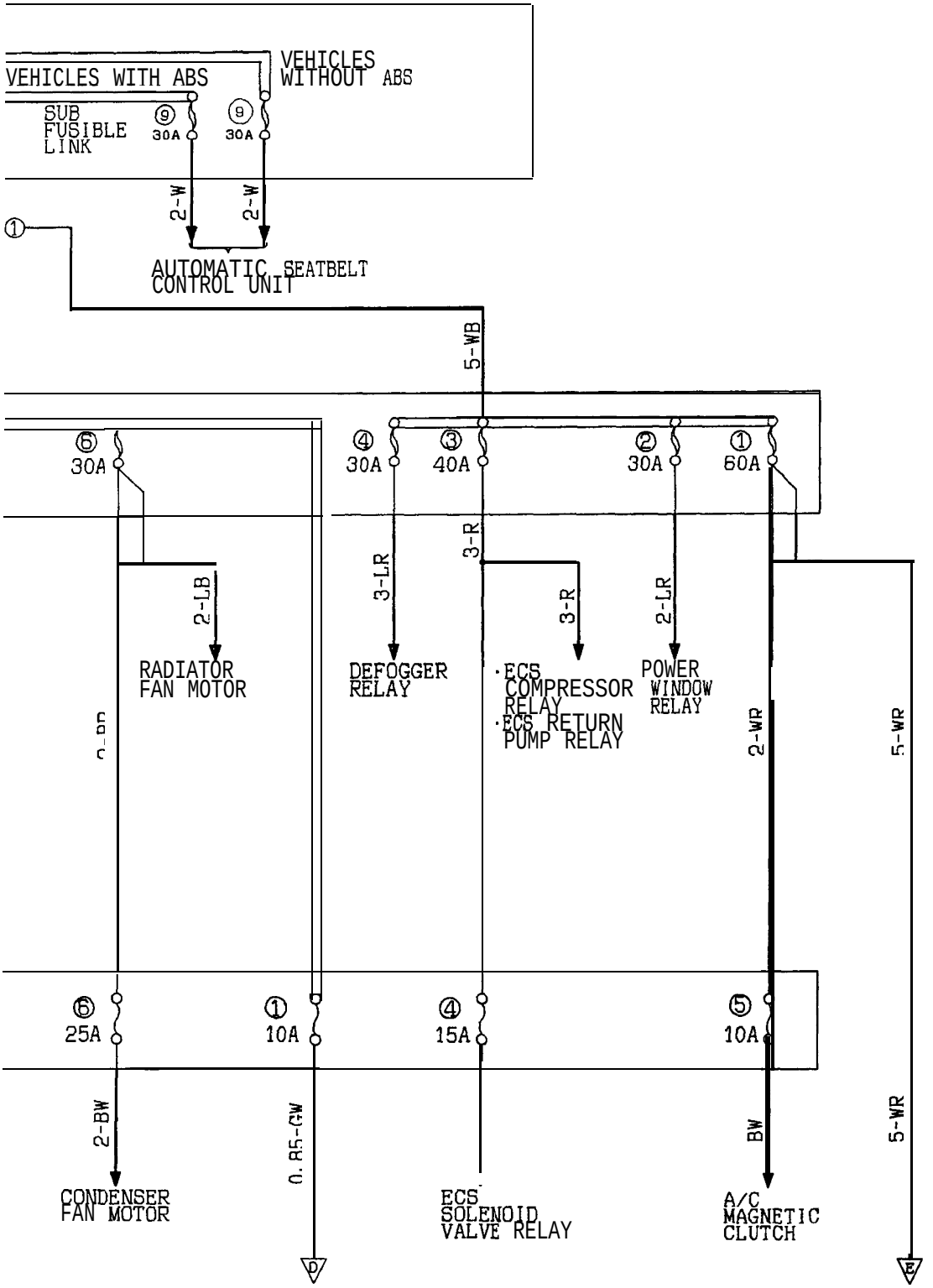
(3) *1 INDICARES VEHICLES WITHOUT AN ETACS CONTROL UNIT.
(4) *2 INDICATES VEHICLES WITH AN ETACS CONTROL UNIT.

POWER DISTRIBUTION CIRCUIT
(1990.5 models)

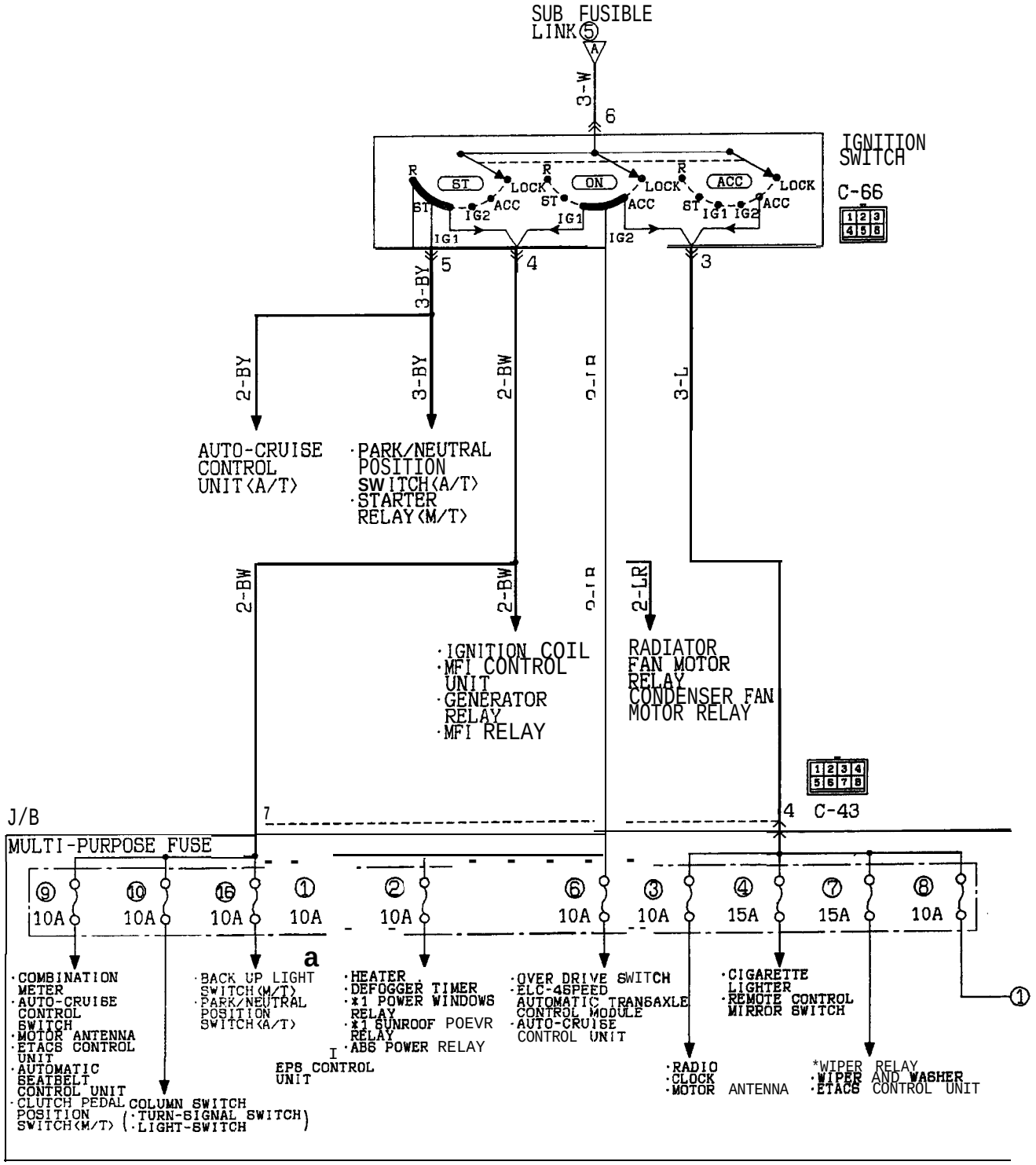


X35-AC-H0108-NW

TSB Revision


VEHICLES WITH ABS
VEHICLES WITHOUT ABS
SUB FUSIBLE LINK
⑨ 30A
⑨ 30A
2-W
2-W
①
AUTOMATIC SEATBELT CONTROL UNIT
5-WB
⑥ 30A
④ 30A
③ 40A
② 30A
① 60A
2-LB
3-LR
3-R
3-R
2-LR
RADIATOR FAN MOTOR
DEFOGGER RELAY
·ECS COMPRESSOR RELAY
·ECS RETURN PUMP RELAY
POWER WINDOW RELAY
2-WR
5-WR
⑥ 25A
① 10A
④ 15A
⑤ 10A
2-BW
0.85-GW
BW
5-WR
CONDENSER FAN MOTOR
ECS SOLENOID VALVE RELAY
A/C MAGNETIC CLUTCH
D
E

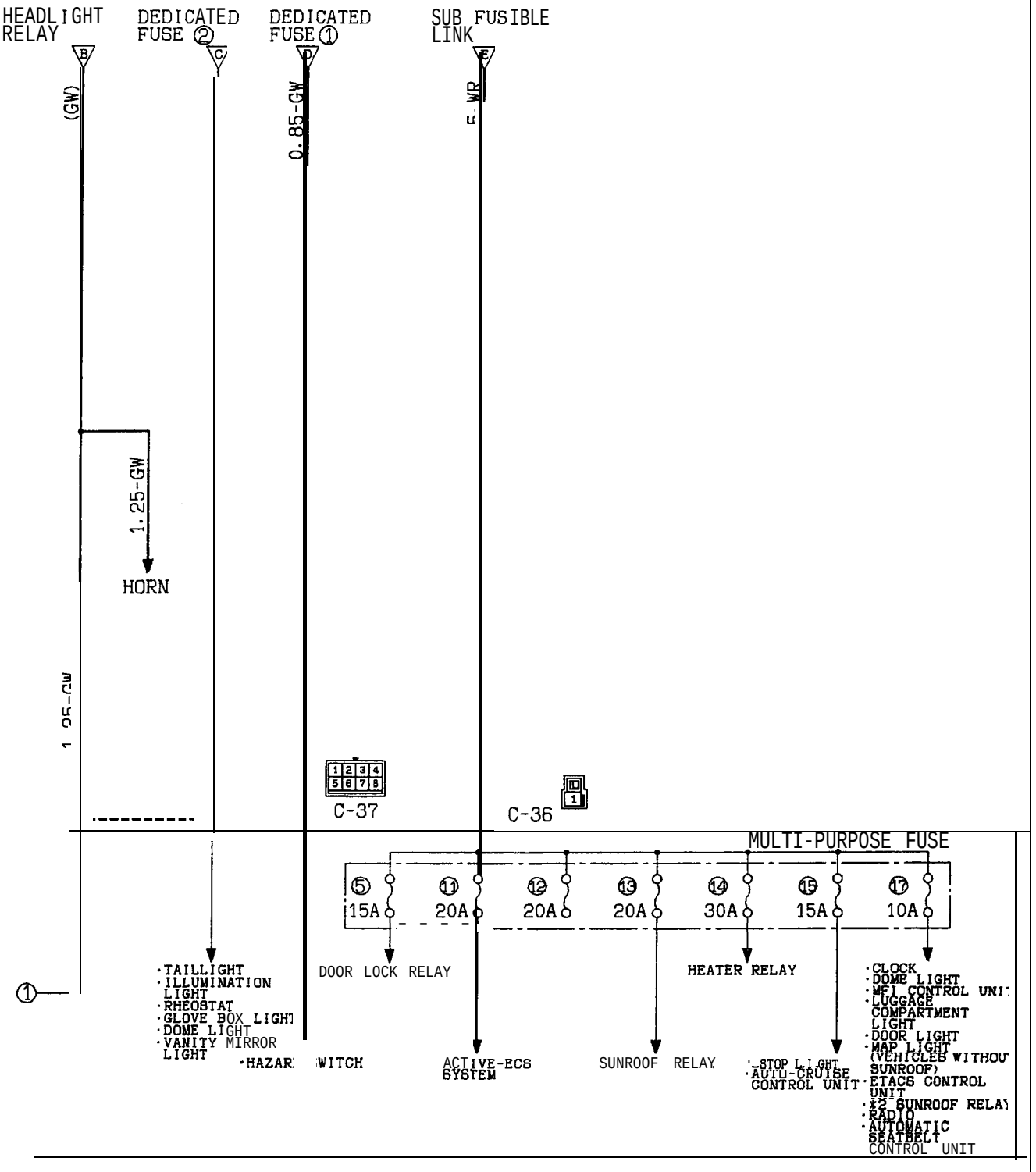
POWER DISTRIBUTION CIRCUIT (CONTINUED)
(1990.5 models)



REMARKS
(1) THE ABOVE CIRCUIT DIAGRAM SHOWS THE CURRENT FLOW AT THE IGNITION KEY POSITIONS "ACC", "ON" AND "ST" COMBINED.
(2) BE SURE TRACE THE APPROPRIATE CIRCUIT DEPENDING ON THE IGNITION KEY POSITION.

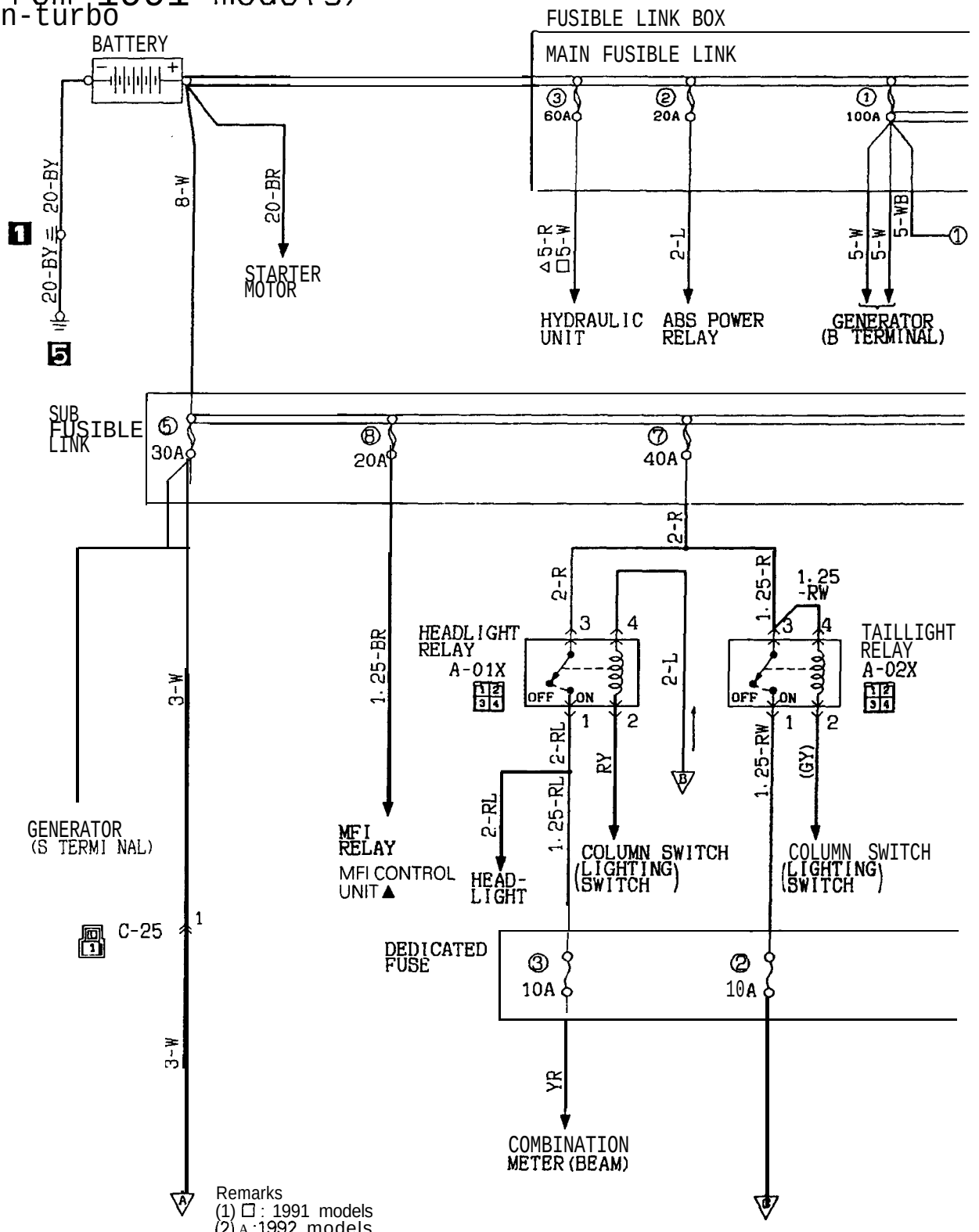
KX35-AC-H0108A-NM

TSB Revision



(3) *1 INDICARES VEHICLES WITHOUT AN ETACS CONTROL UNIT.
(4) *2 INDICATES VEHICLES WITH AN ETACS CONTROL UNIT.

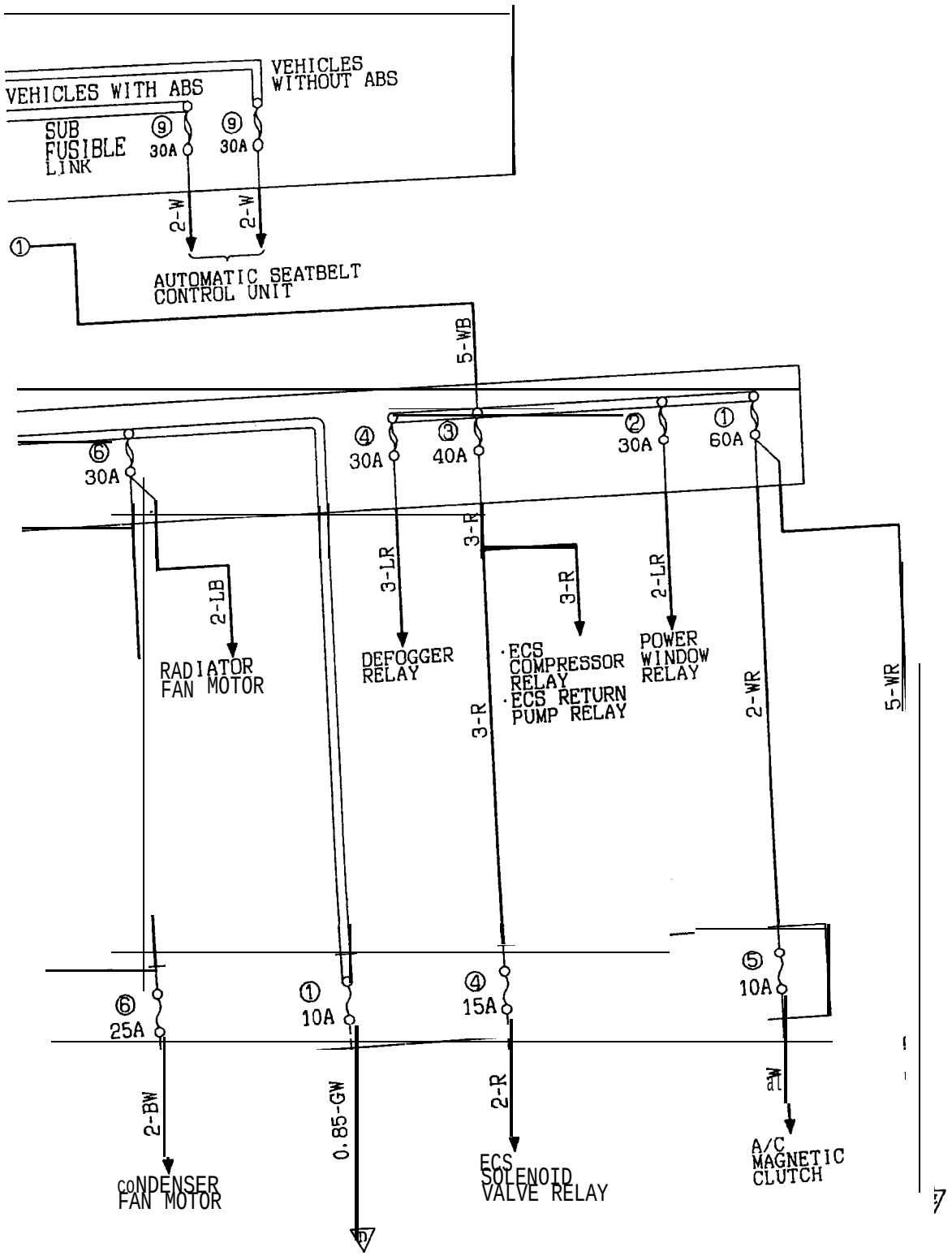
POWER DISTRIBUTION CIRCUIT
(From 1991 models)
Non-turbo



Remarks
(1) □ : 1991 models
(2) A :1992 models
(3) *: DOHC <From 1992 models>
(4) ▲: SOHC <1993 models>

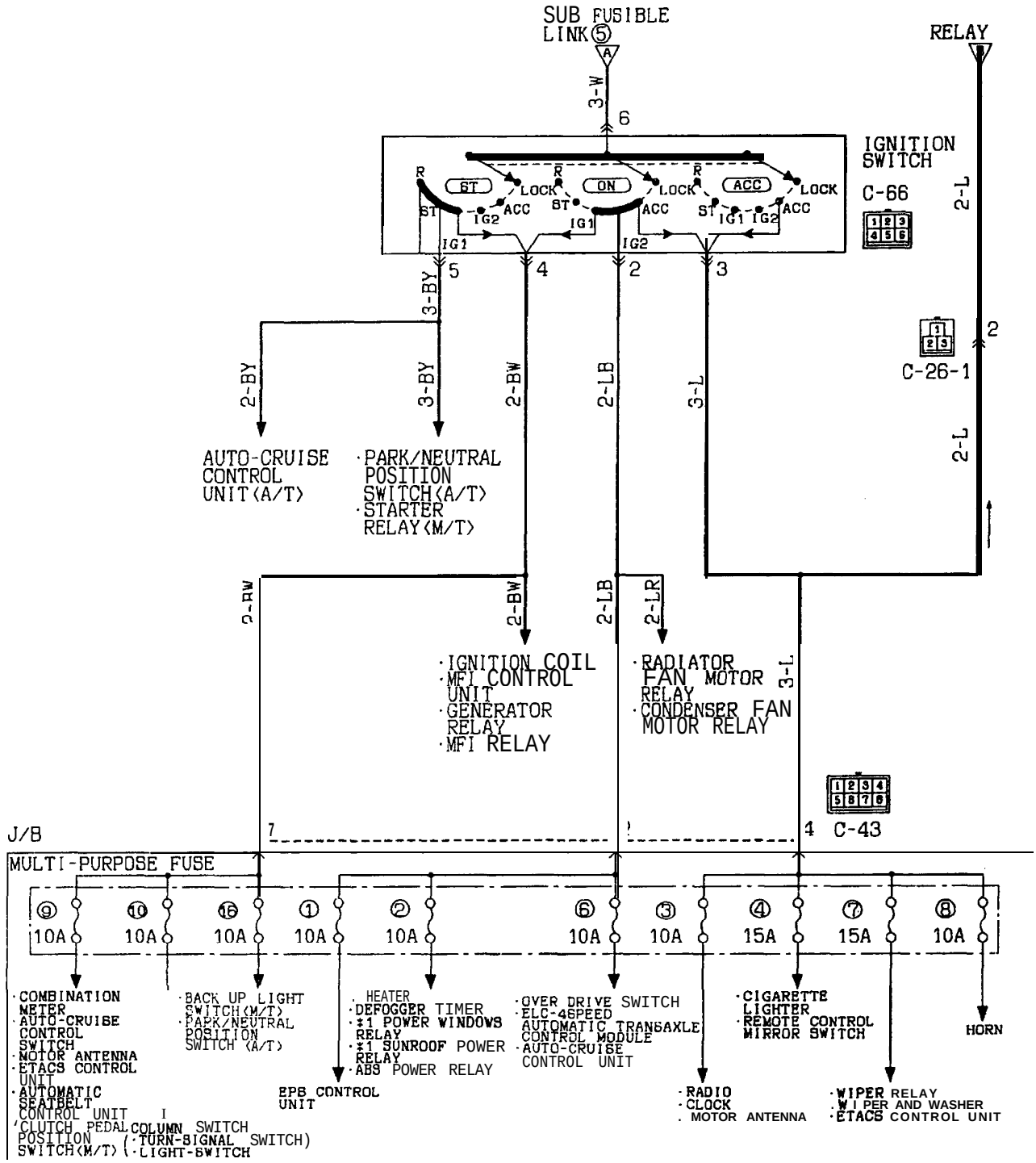
KX35-AC-H0112-NM

TSB Revision


VEHICLES WITH ABS
VEHICLES WITHOUT ABS
SUB FUSIBLE LINK
⑨ 30A
⑨ 30A
2-W
2-W
①
AUTOMATIC SEATBELT CONTROL UNIT
5-WB
⑥ 30A
④ 30A
③ 40A
② 30A
① 60A
2-LB
RADIATOR FAN MOTOR
3-LR
DEFOGGER RELAY
3-R
·ECS COMPRESSOR RELAY
·ECS RETURN PUMP RELAY
3-R
3-R
2-LR
POWER WINDOW RELAY
2-WR
5-WR
⑥ 25A
① 10A
④ 15A
⑤ 10A
2-BW
CONDENSER FAN MOTOR
0.85-GW
2-R
ECS SOLENOID VALVE RELAY
A/C MAGNETIC CLUTCH

POWER DISTRIBUTION CIRCUIT (CONTINUED)
(From 1991 models)

Non-turbo



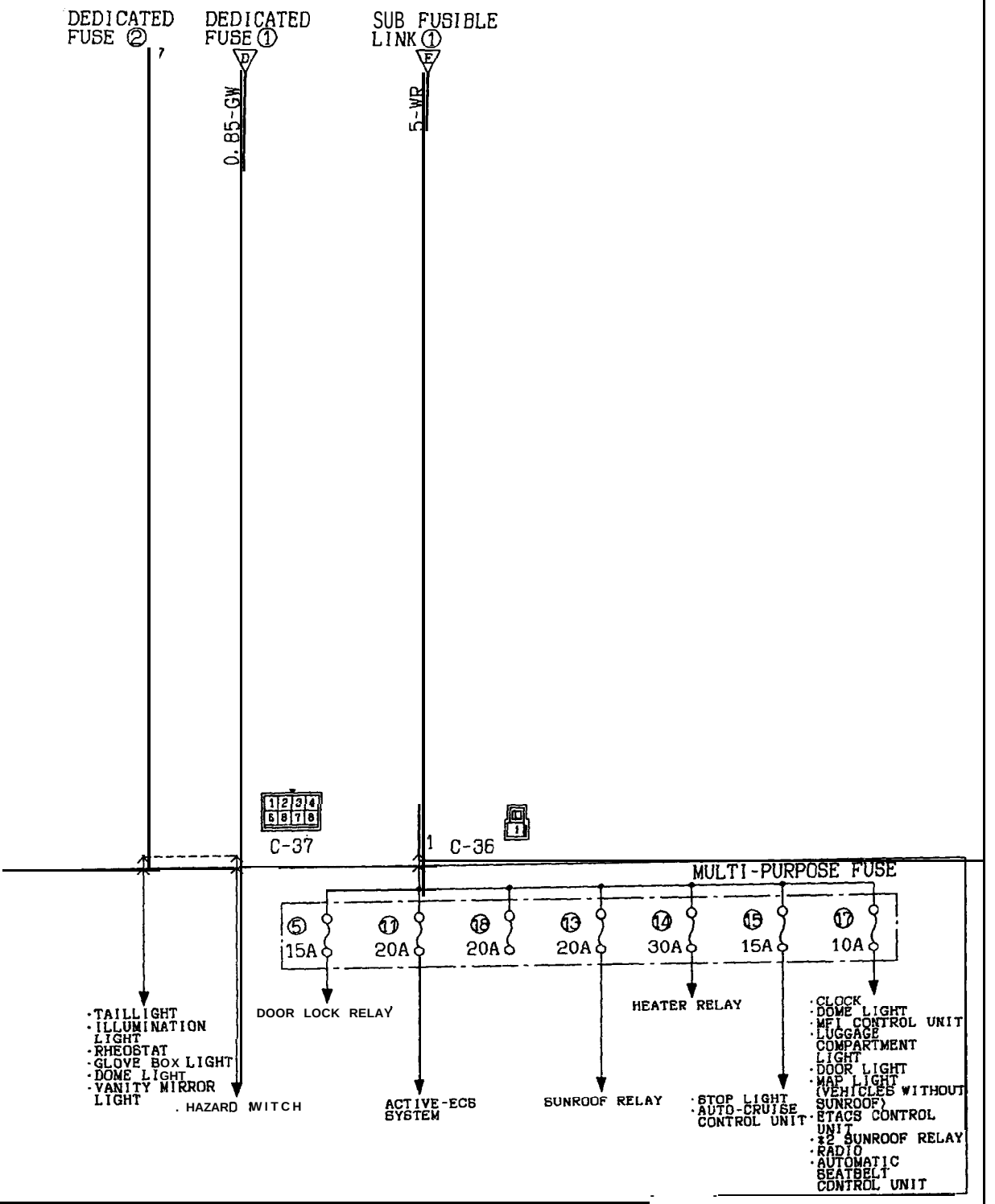
Remarks

(1) **The above circuit diagram shows the current flow at the ignition key positions "ACC", "ON" and "ST" combined.**

(2) **Be sure trace the appropriate circuit depending on the ignition key position.**

XX35-AC-H0112A-NM

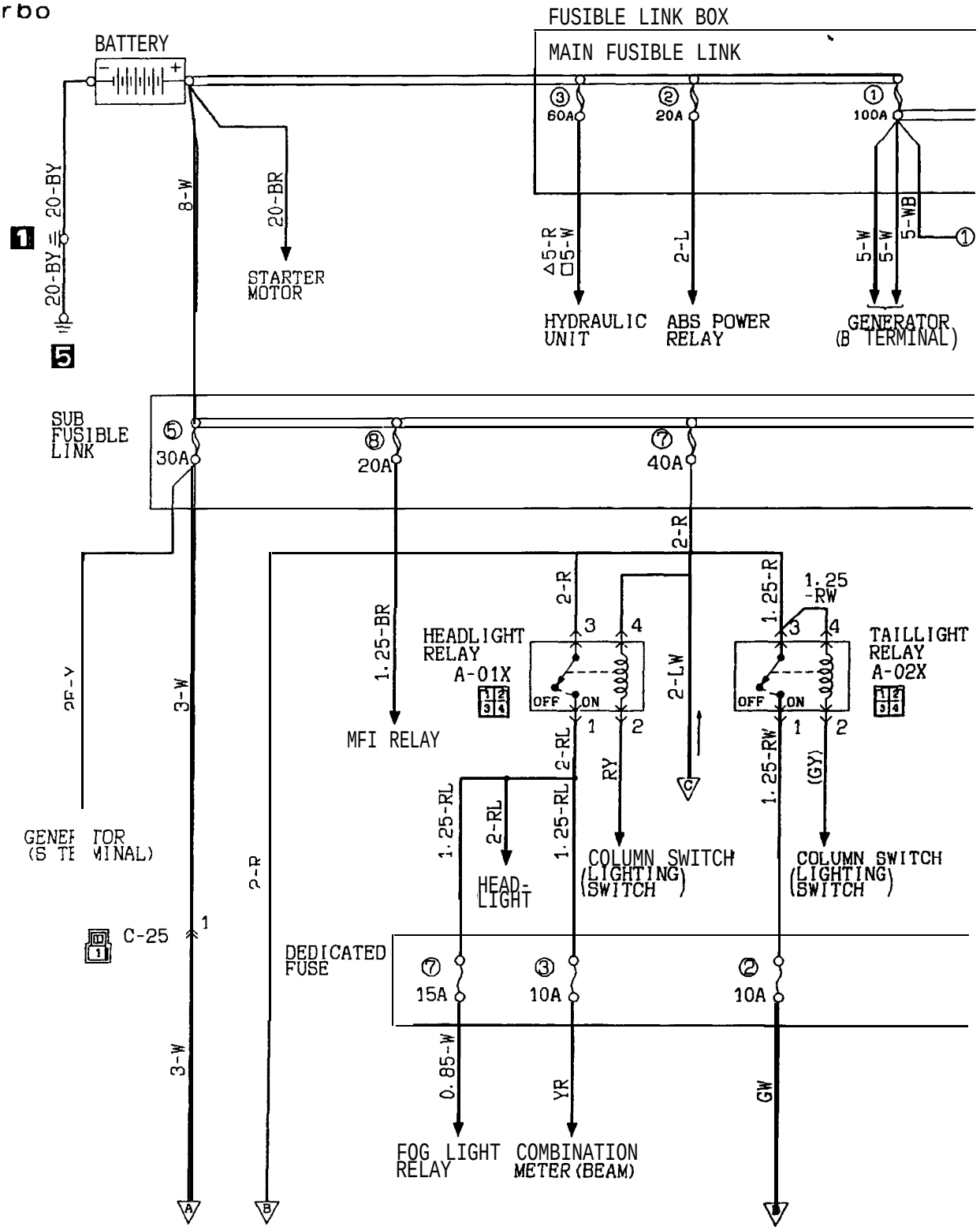
TSB Revision



(3) *1 Indicates vehicles without an ETACS control unit.
(4) *2 Indicates vehicles with an ETACS control unit.

POWER DISTRIBUTION CIRCUIT

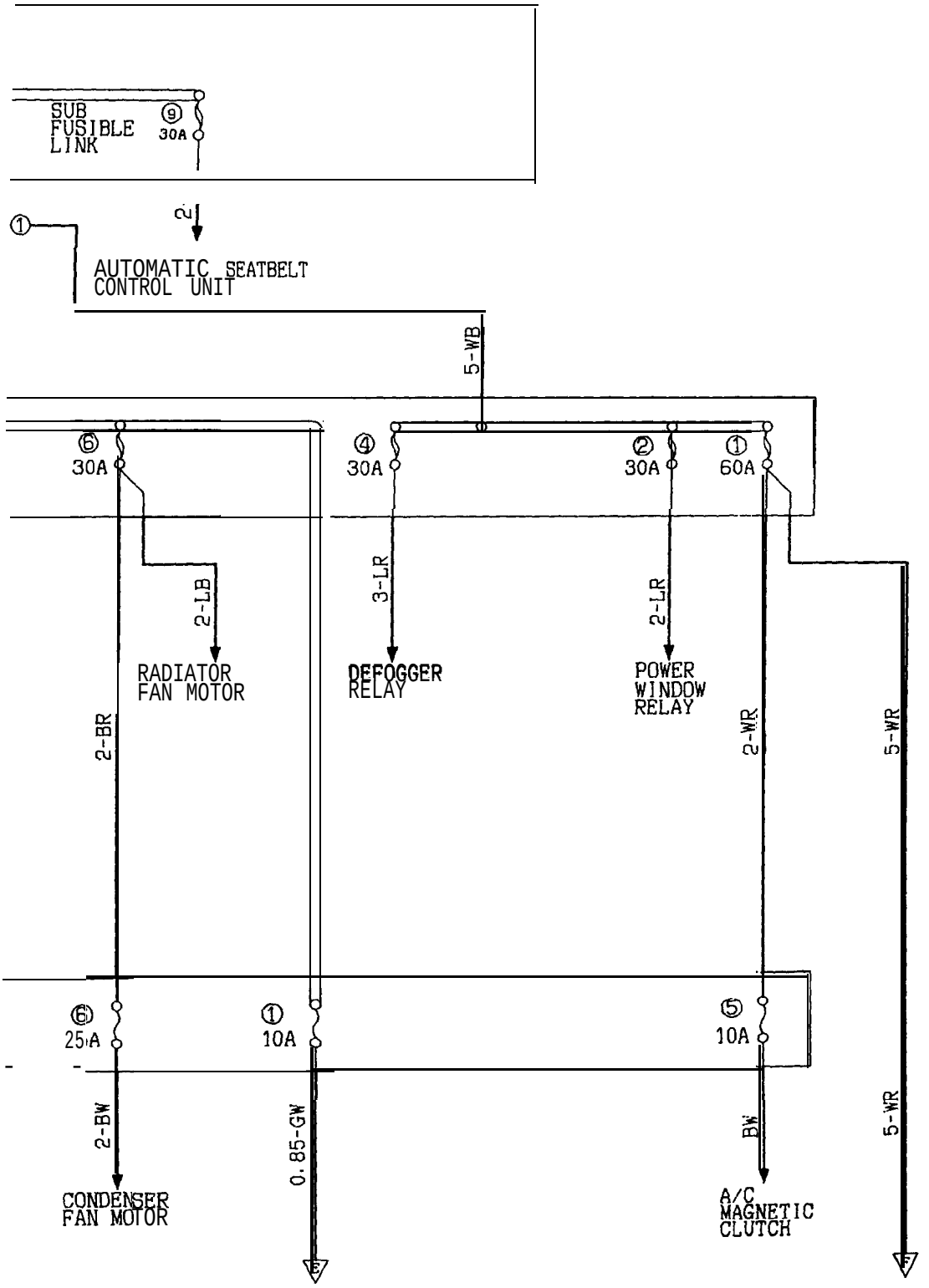
(From 1991 models)
Turbo



Remarks
(1)□: 1991 models
(2)△: 1992 models

I35-AC-H0113-NM

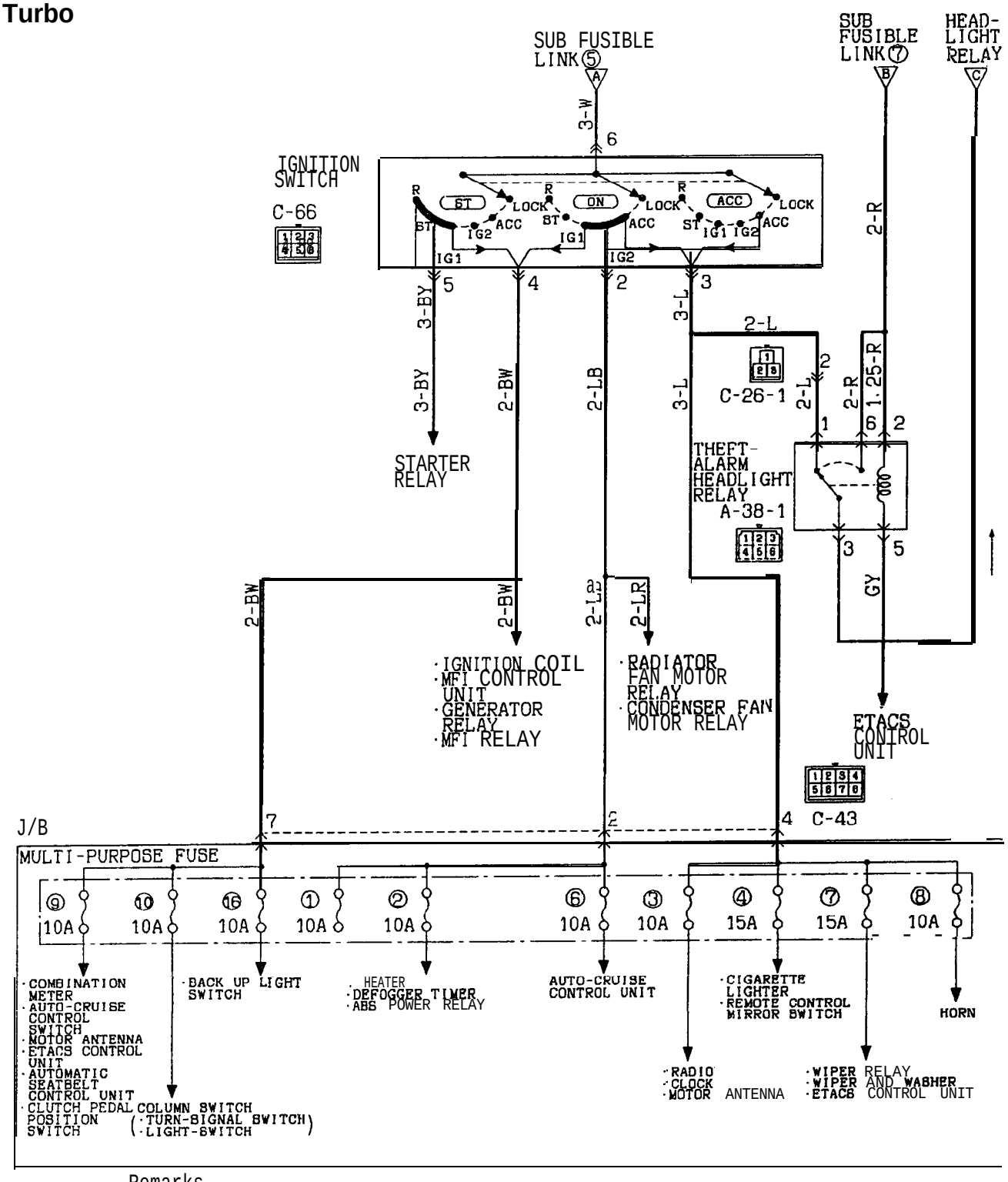
TSB Revision



TSB Revision

POWER DISTRIBUTION CIRCUIT (CONTINUED)
(From 1991 models)

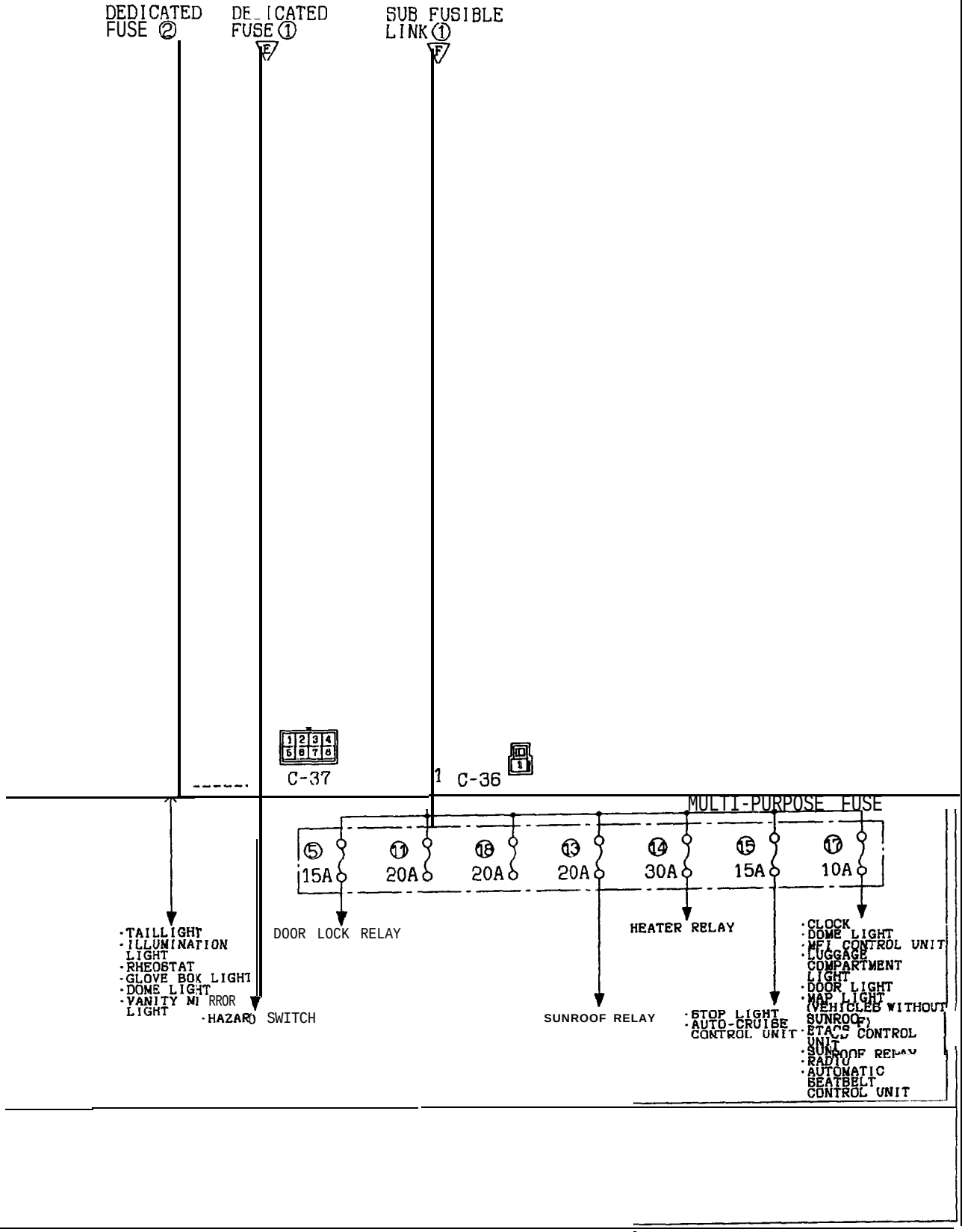
Turbo



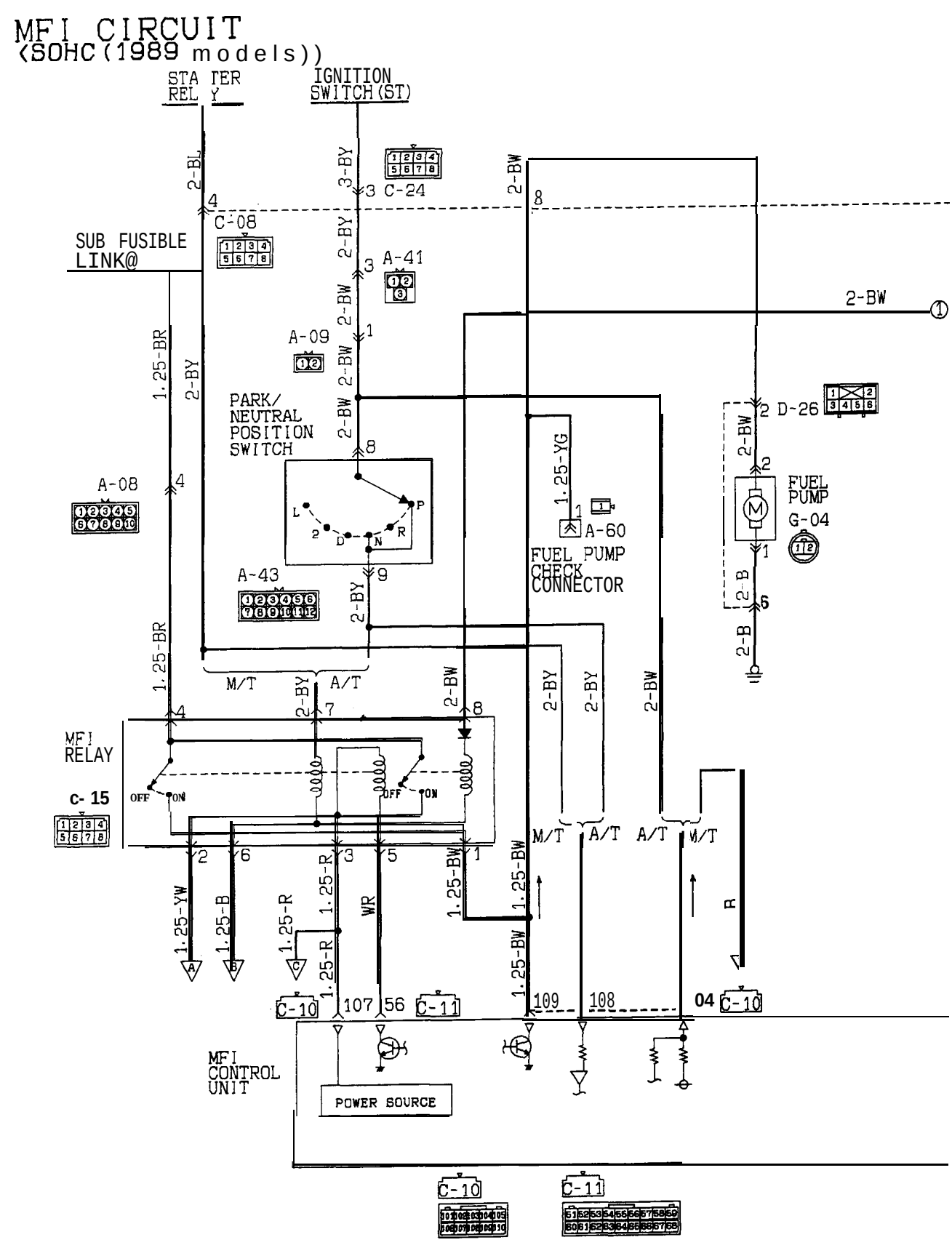
Remarks
(1) The above circuit diagram shows the current flow at the ignition key positions "ACC", "ON" and "ST" combined.
(2) Be sure trace the appropriate circuit depending on the ignition key position.

KX35-AC-H0113A-MM

TSB Revision

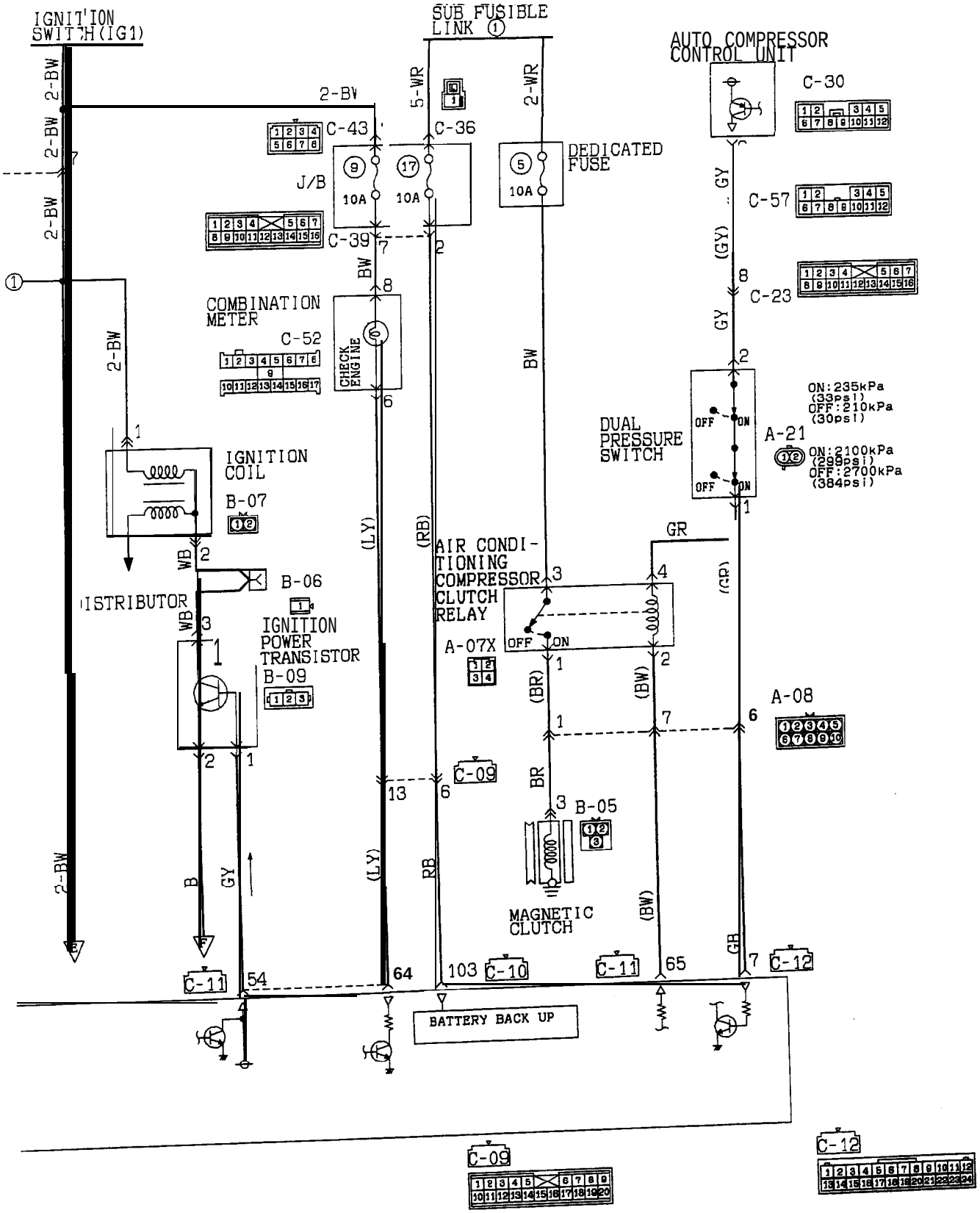


TSB Revision



X35-AC-H0525-NM

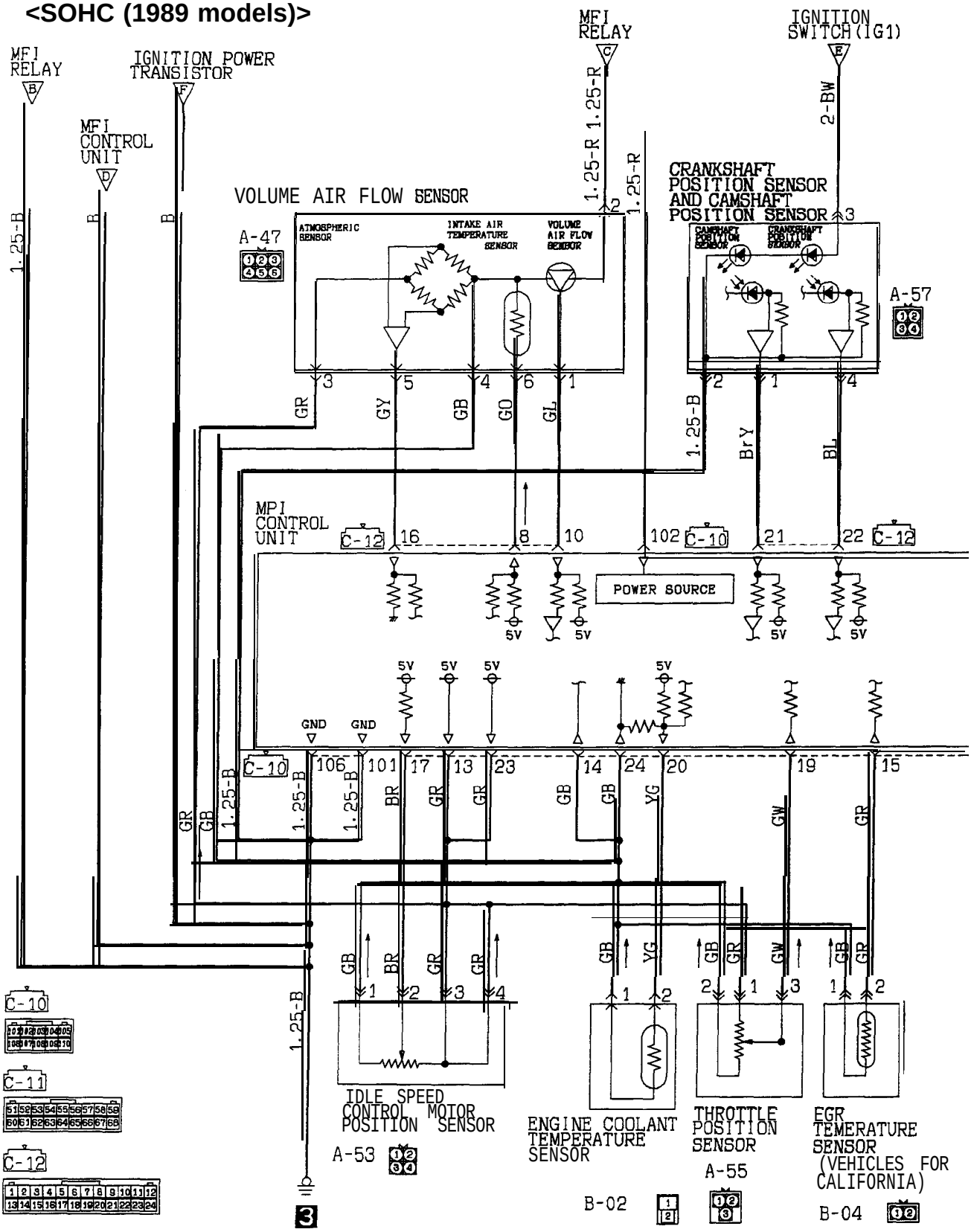
TSB Revision



TSB Revision

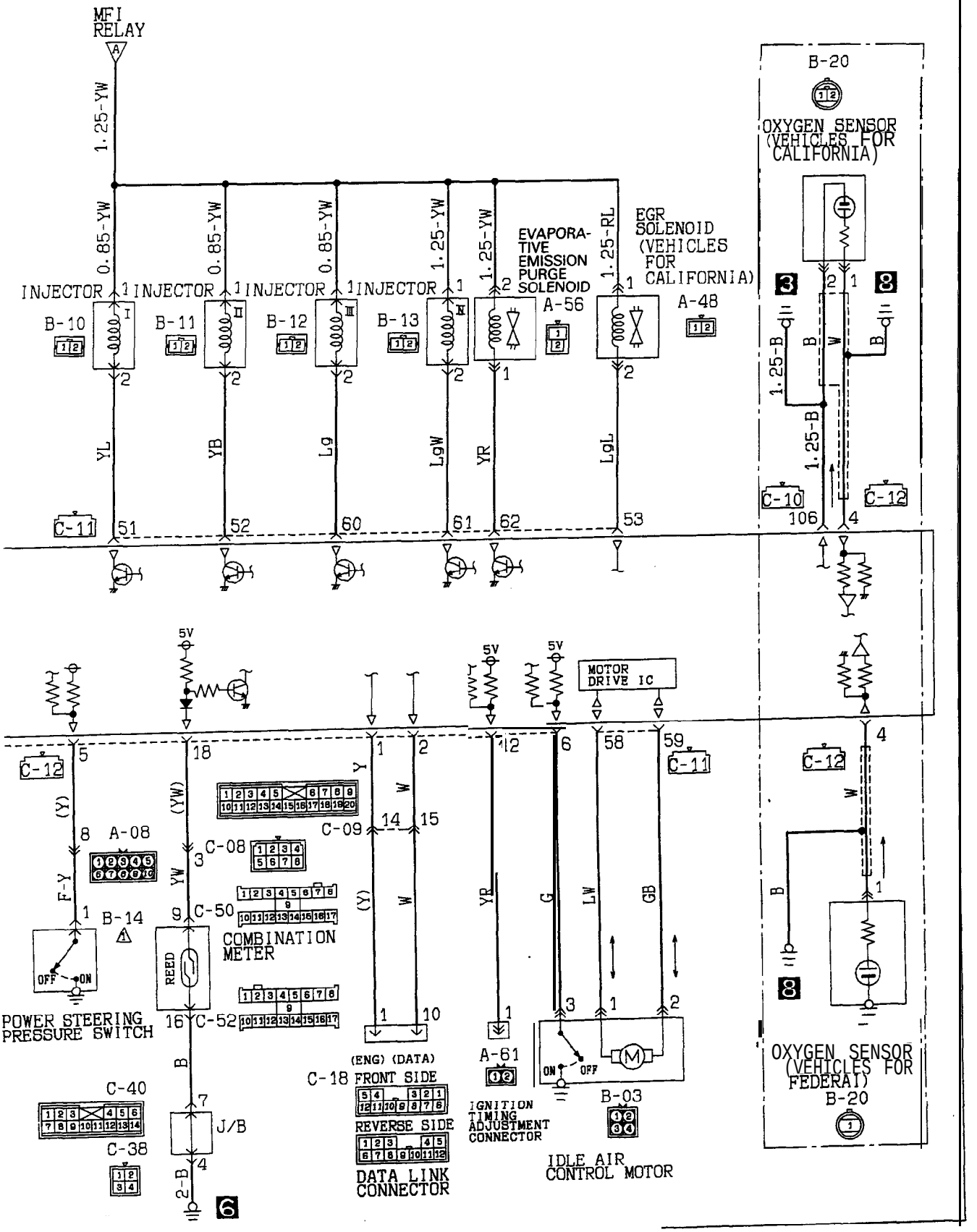
MFI CIRCUIT (CONTINUED)

<SOHC (1989 models)>



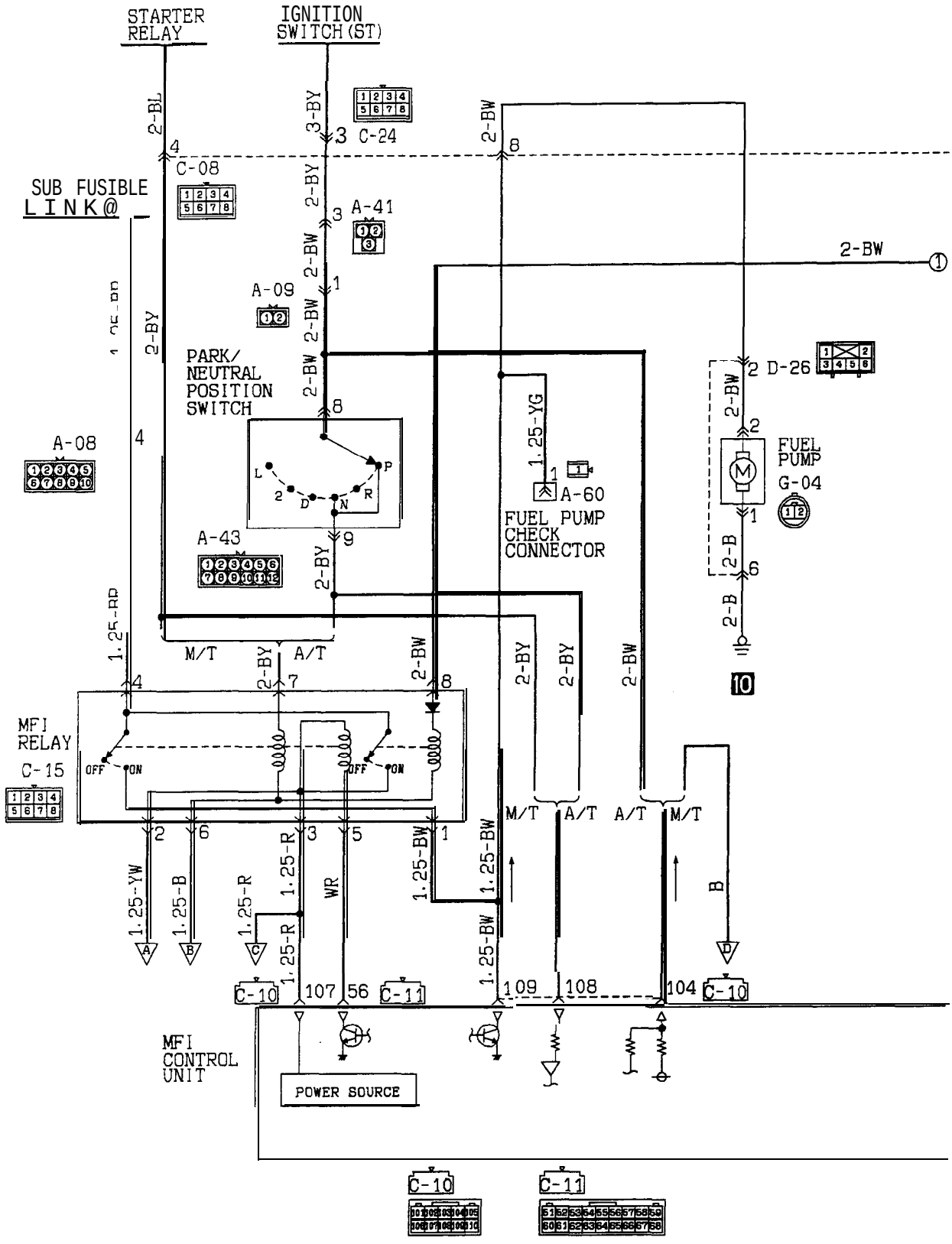
KX35-AC-H0525A-NM

TSB Revision



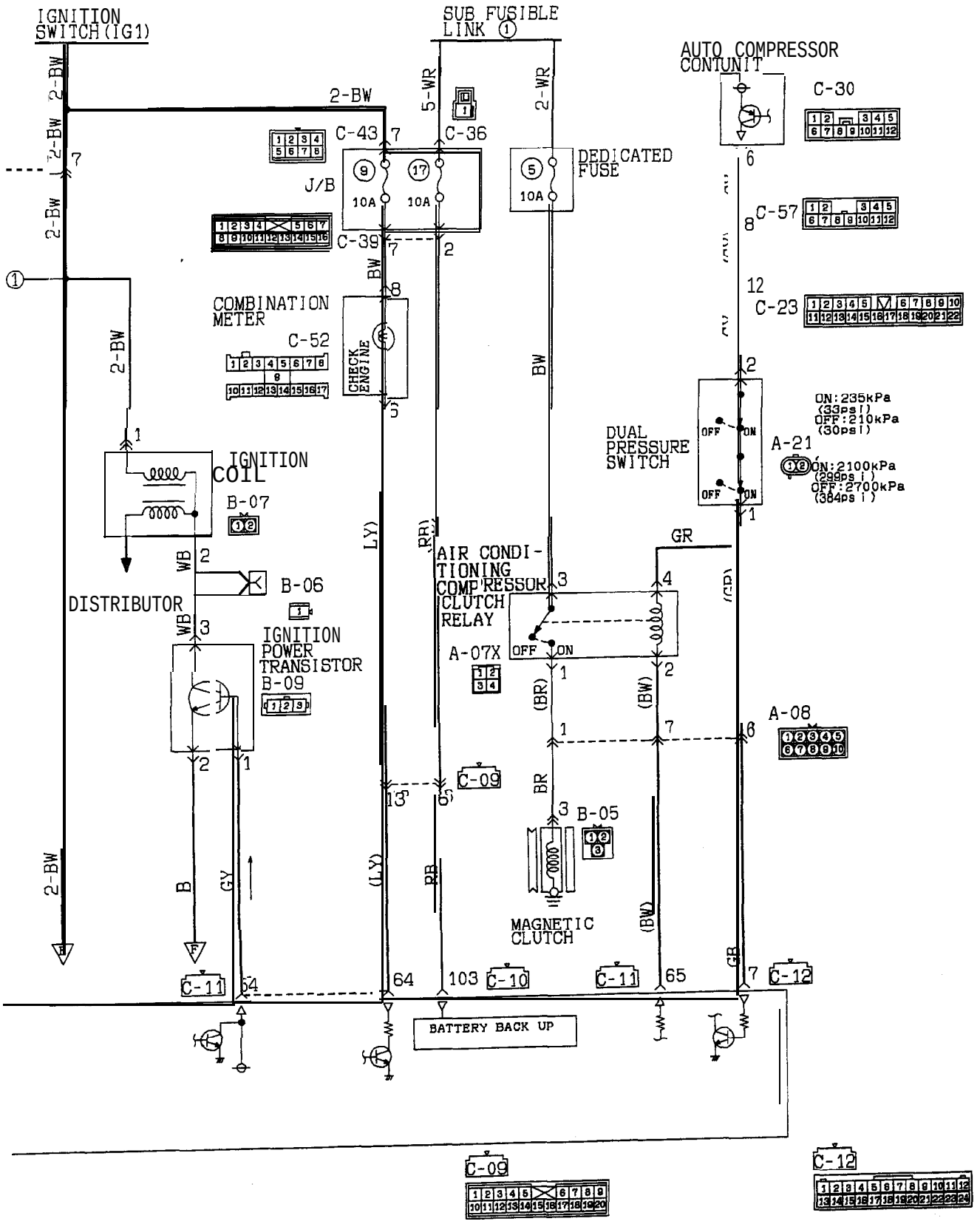
TSB Revision

MFI CIRCUIT
<SOHC (1990 models)>



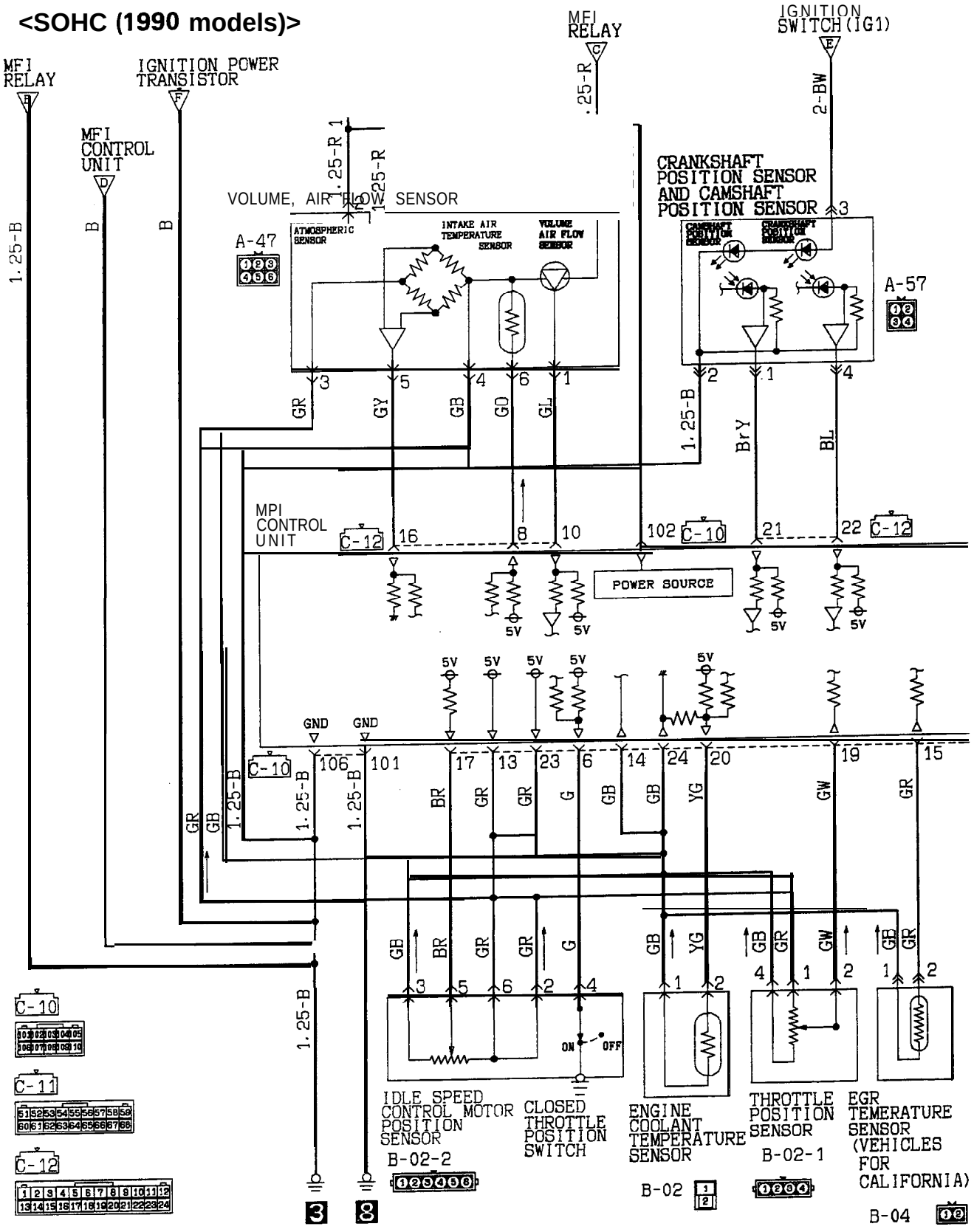
(35-AC-H0526-NM

TSB Revision


IGNITION SWITCH(IG1)
SUB FUSIBLE LINK ①
AUTO COMPRESSOR CONTUNIT
C-30
C-43
C-36
J/B
10A
10A
DEDICATED FUSE
10A
C-57
C-39
C-23
COMBINATION METER
C-52
CHECK ENGINE
IGNITION COIL
B-07
DISTRIBUTOR
B-06
IGNITION POWER TRANSISTOR
B-09
AIR CONDI-TIONING COMPRESSOR CLUTCH RELAY
A-07X
DUAL PRESSURE SWITCH
A-21
ON:235kPa (33psi)
OFF:210kPa (30psi)
ON:2100kPa (299psi)
OFF:2700kPa (384psi)
A-08
C-09
B-05
MAGNETIC CLUTCH
C-11
C-10
C-12
BATTERY BACK UP
2-BW
5-WR
2-WR
BW
LY
RR
GR
WB
B
GY
BR
RB
(BR)
(BW)
(LY)

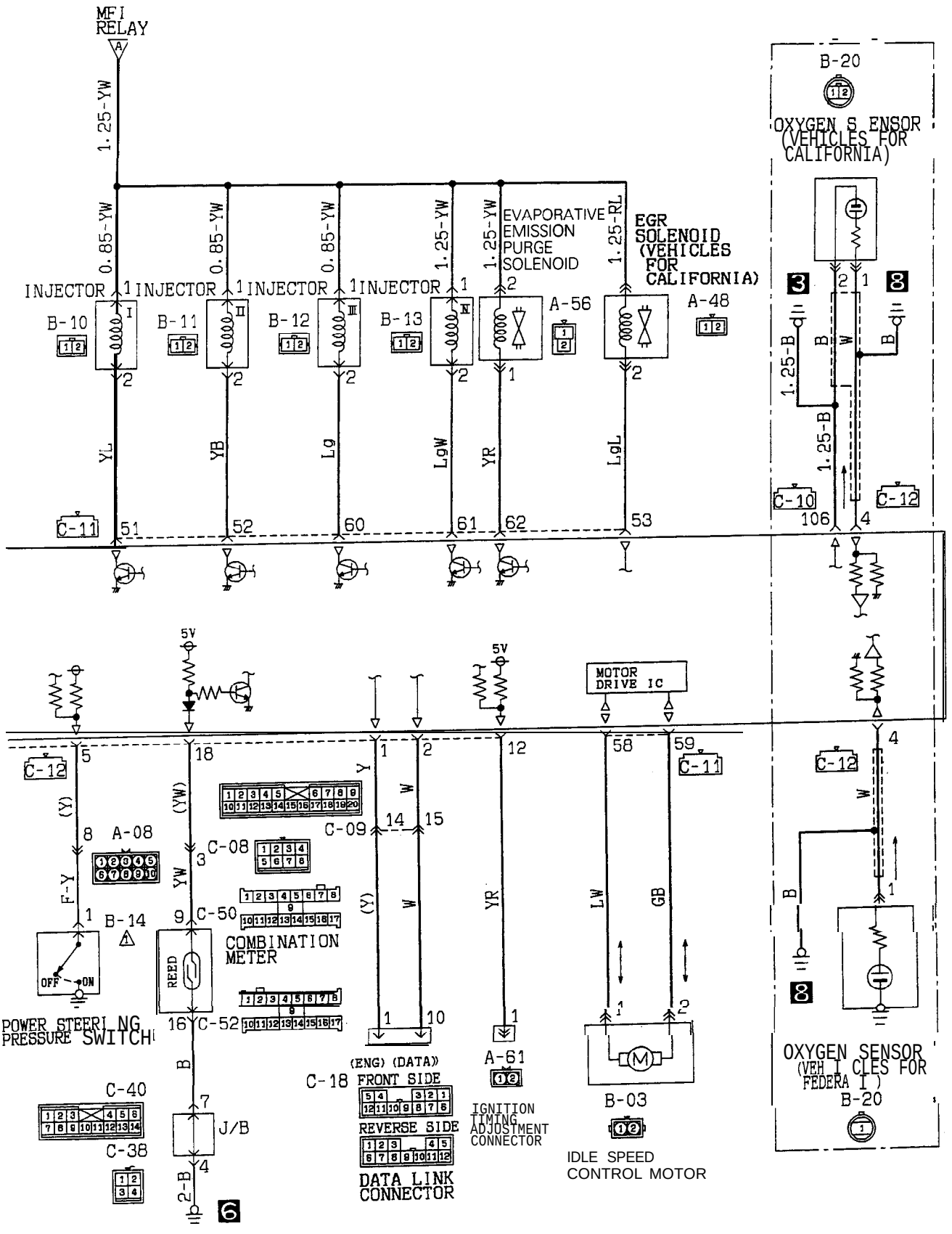
MFI CIRCUIT (CONTINUED)

<SOHC (1990 models)>



KX35-AC-H0526A-NM

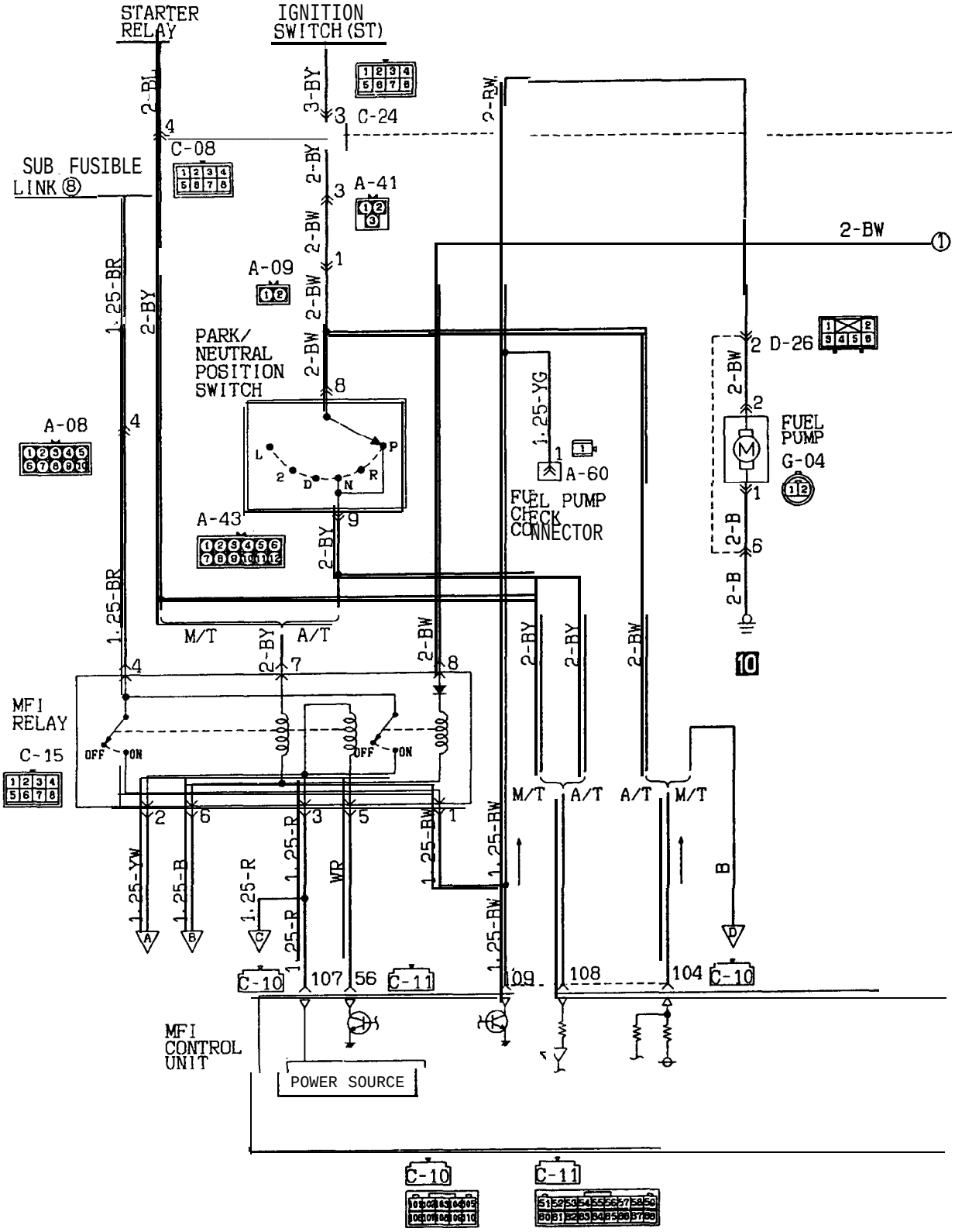
TSB Revision



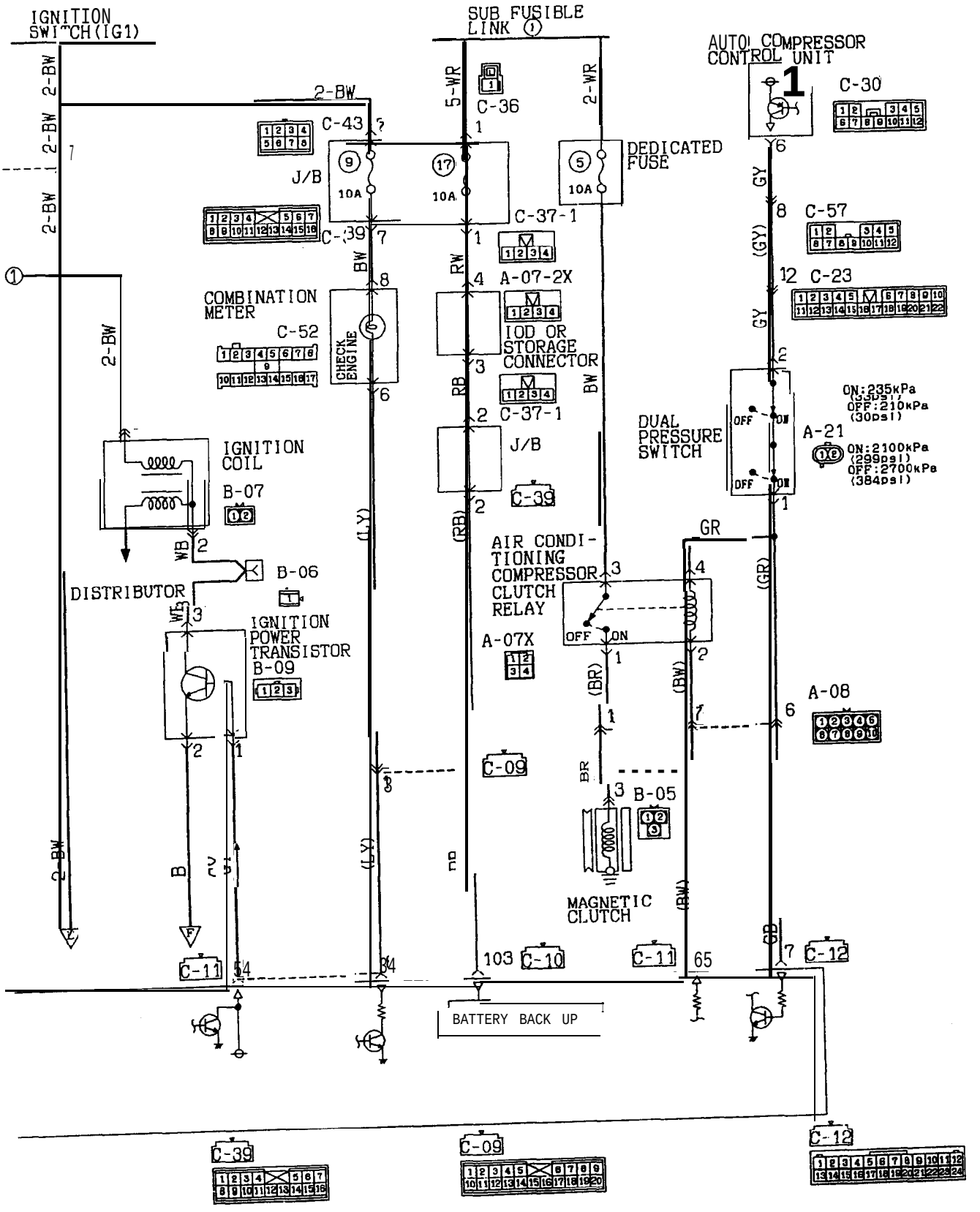
TSB Revision

MFI CIRCUIT

<SOHC (1991 and 1992 models)>

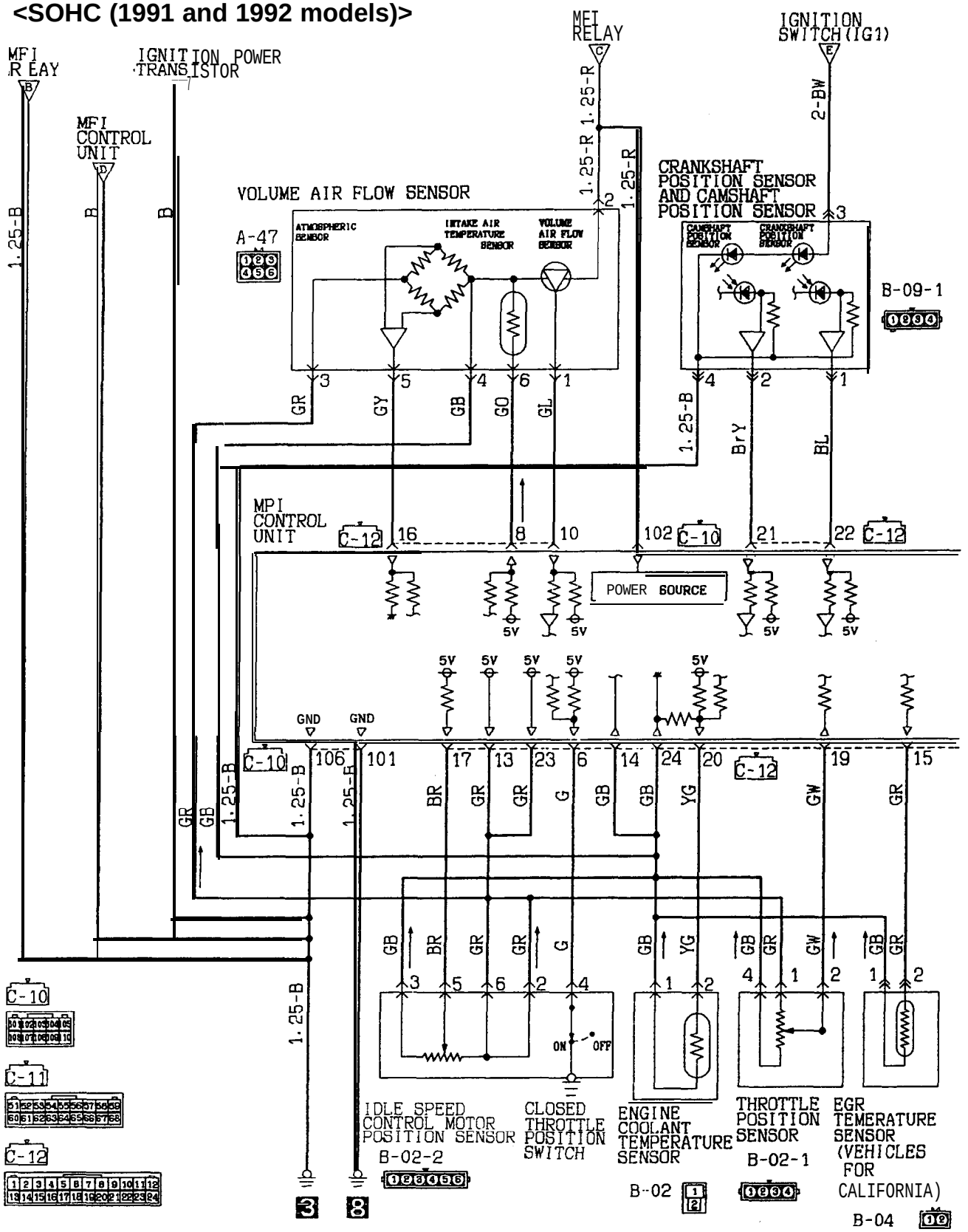


KX35-AC-H0534-NM

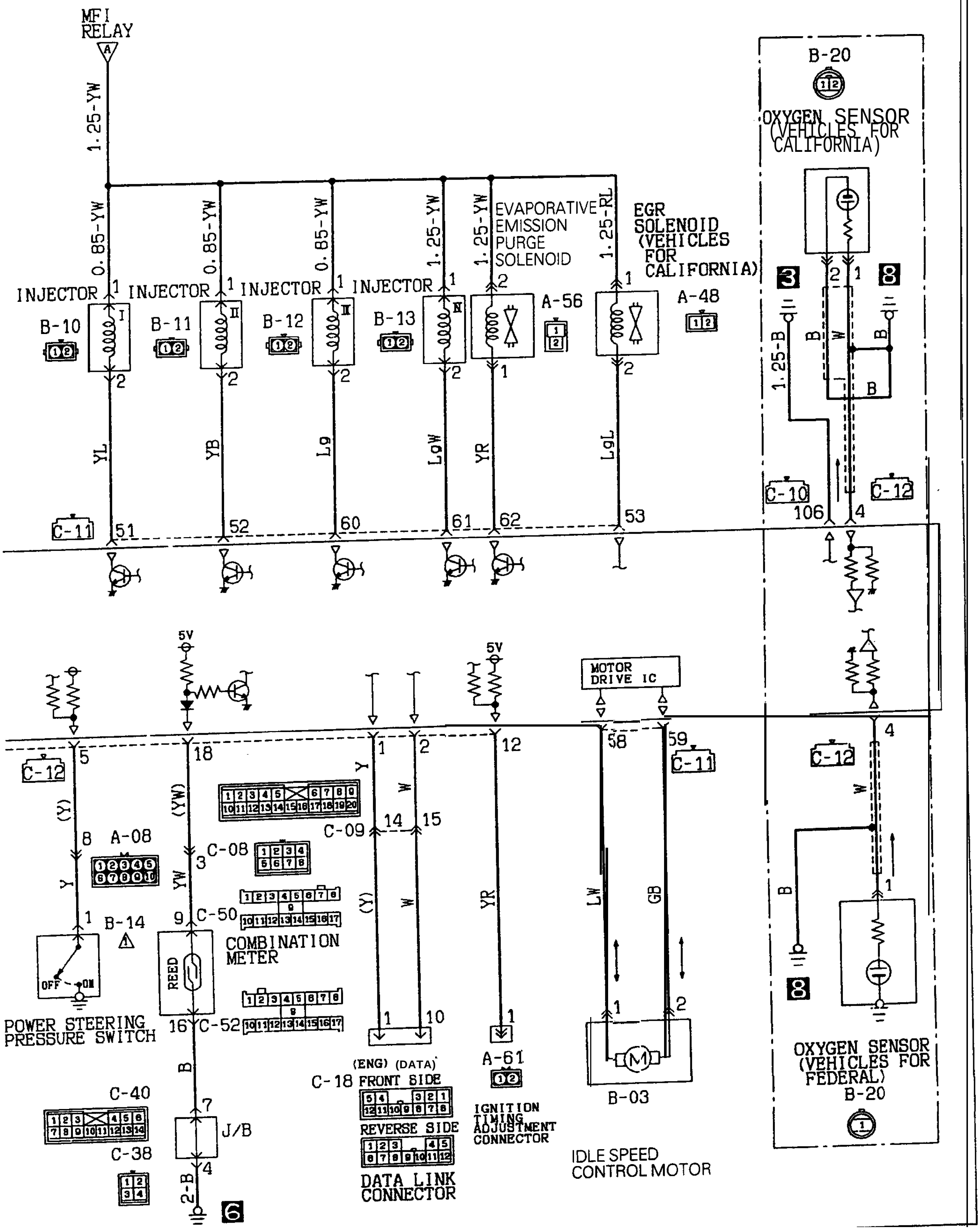

IGNITION SWITCH(IG1)
SUB FUSIBLE LINK
AUTO COMPRESSOR CONTROL UNIT
DEDICATED FUSE
J/B
COMBINATION METER
CHECK ENGINE
IOD OR STORAGE CONNECTOR
DUAL PRESSURE SWITCH
IGNITION COIL
DISTRIBUTOR
IGNITION POWER TRANSISTOR
AIR CONDITIONING COMPRESSOR CLUTCH RELAY
MAGNETIC CLUTCH
BATTERY BACK UP
ON:235kPa (34psi)
OFF:210kPa (30psi)
ON:2100kPa (299psi)
OFF:2700kPa (384psi)

MFI CIRCUIT (CONTINUED)

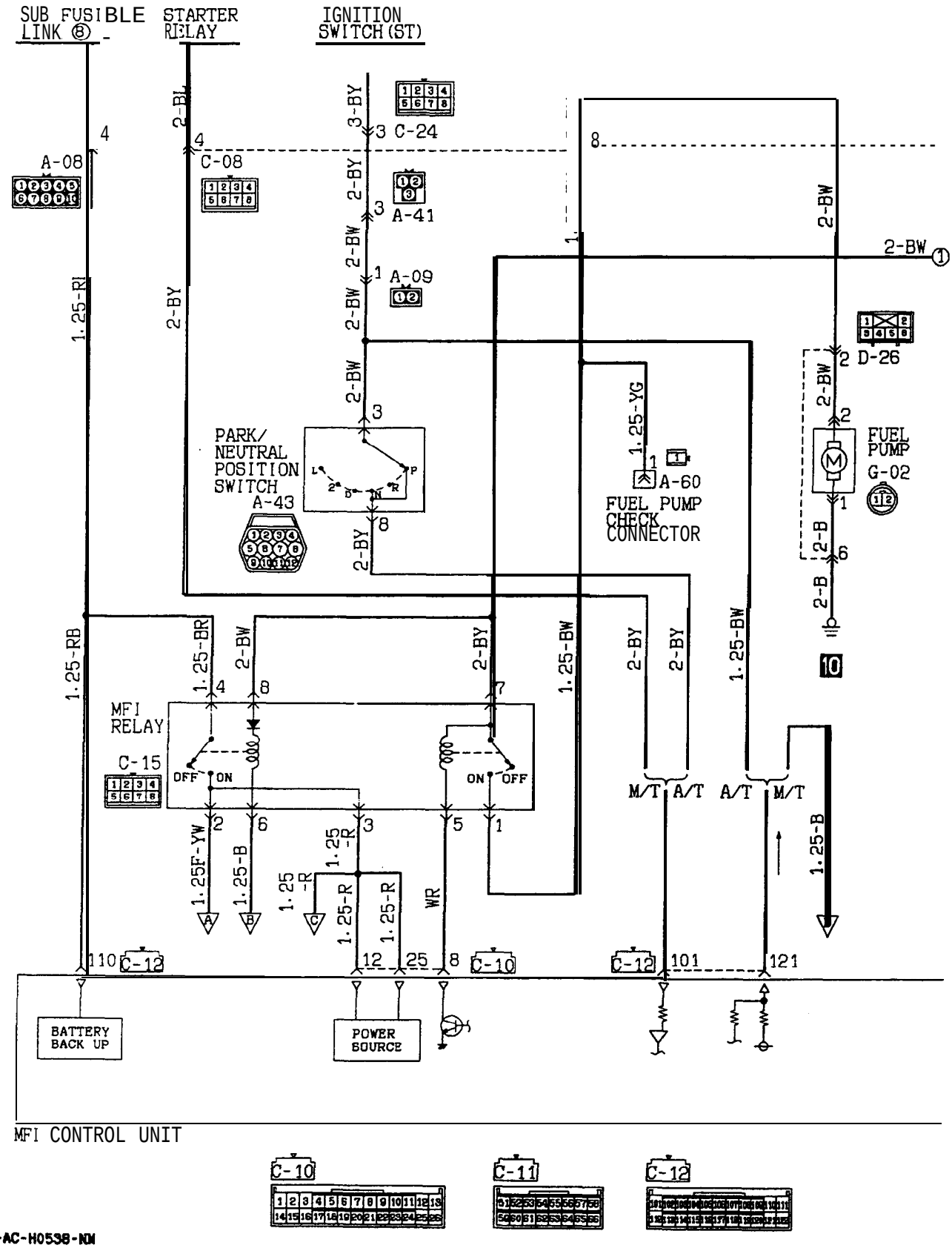
<SOHC (1991 and 1992 models)>



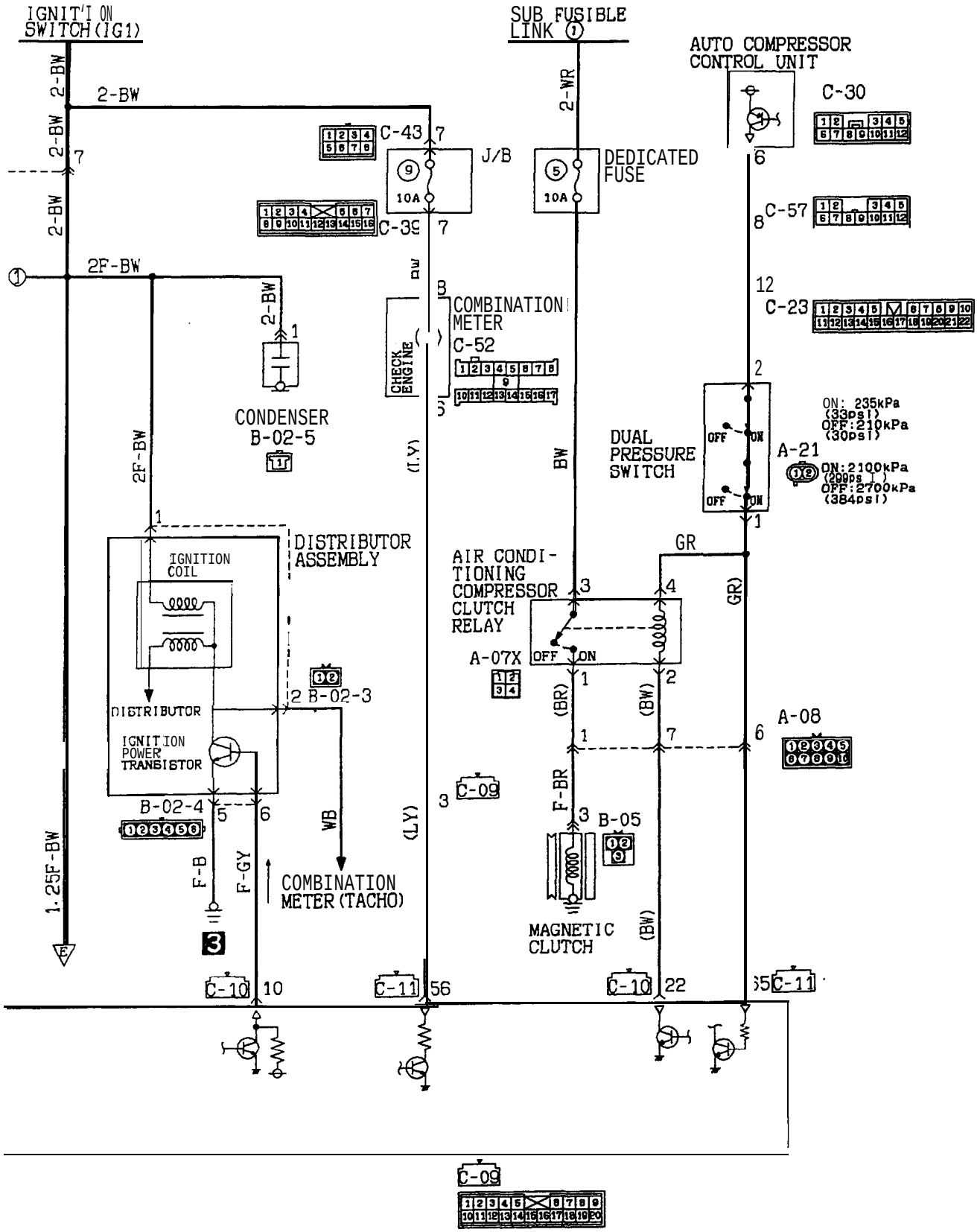
TSB Revision


MFI RELAY
1.25-YW
0.85-YW
INJECTOR
B-10
INJECTOR
B-11
INJECTOR
B-12
INJECTOR
B-13
1.25-YW
EVAPORATIVE EMISSION PURGE SOLENOID
A-56
1.25-RL
EGR SOLENOID (VEHICLES FOR CALIFORNIA)
A-48
B-20
OXYGEN SENSOR (VEHICLES FOR CALIFORNIA)
YL
YB
Lg
LgW
YR
LgL
C-11
C-10
C-12
1.25-B
5V
MOTOR DRIVE IC
POWER STEERING PRESSURE SWITCH
B-14
A-08
C-08
C-50
C-52
COMBINATION METER
REED
J/B
2-B
C-40
C-38
C-09
(ENG) (DATA)
C-18 FRONT SIDE
REVERSE SIDE
DATA LINK CONNECTOR
A-61
IGNITION TIMING ADJUSTMENT CONNECTOR
B-03
IDLE SPEED CONTROL MOTOR
OXYGEN SENSOR (VEHICLES FOR FEDERAL)
B-20

MFI CIRCUIT
<SOHC (From 1993 models)>



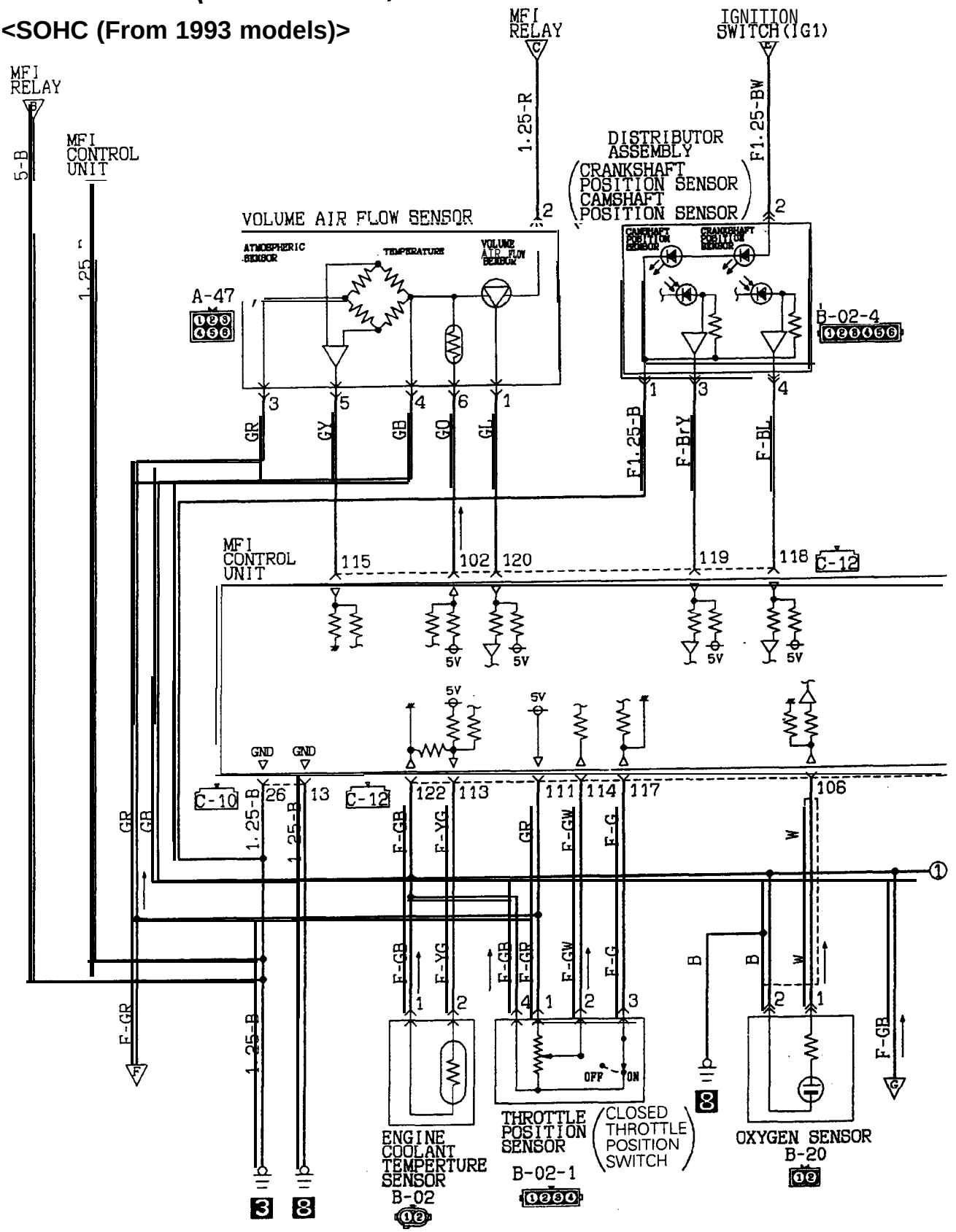
TSB Revision



TSB Revision

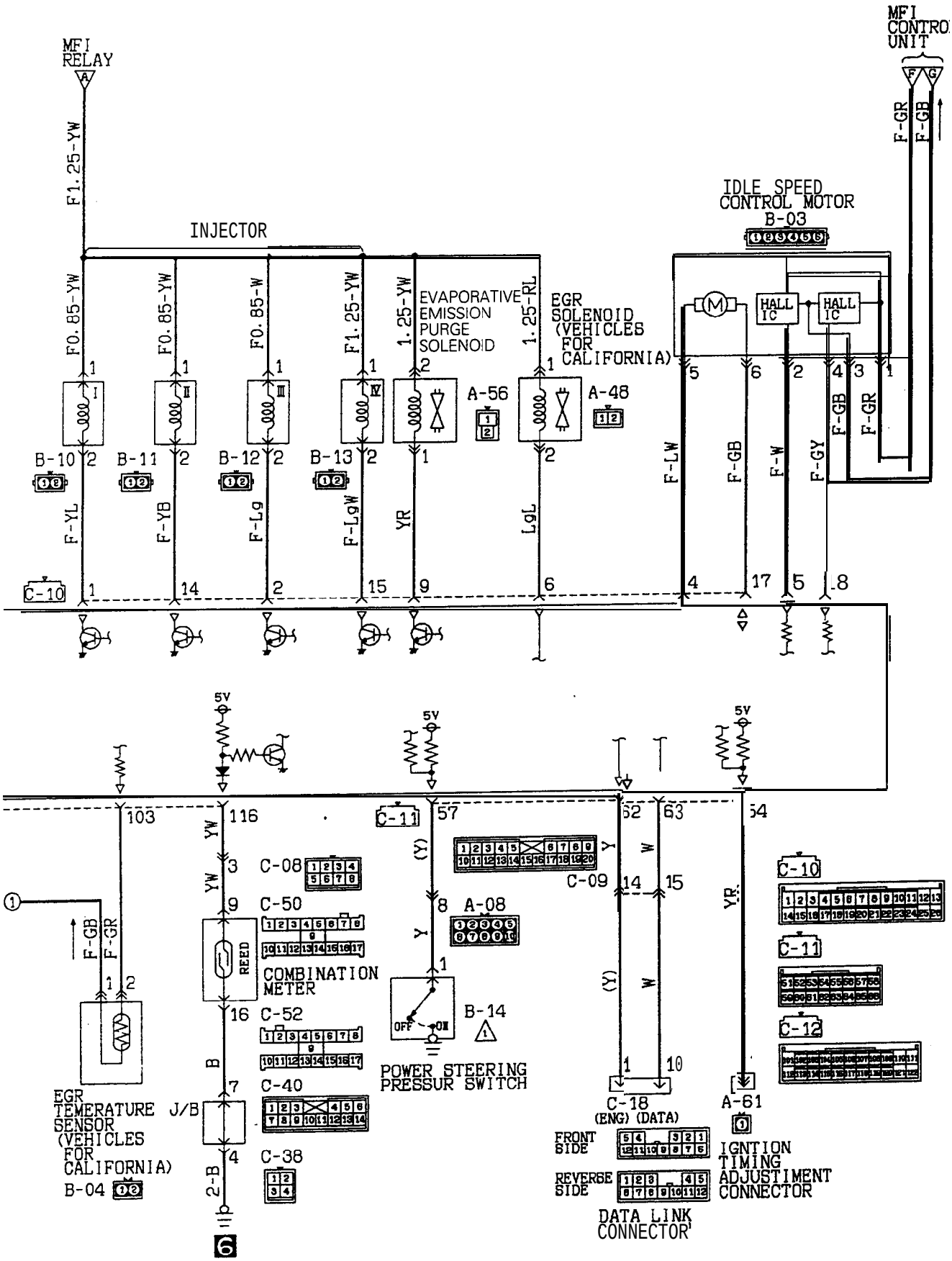
MFI CIRCUIT (CONTINUED)

<SOHC (From 1993 models)>



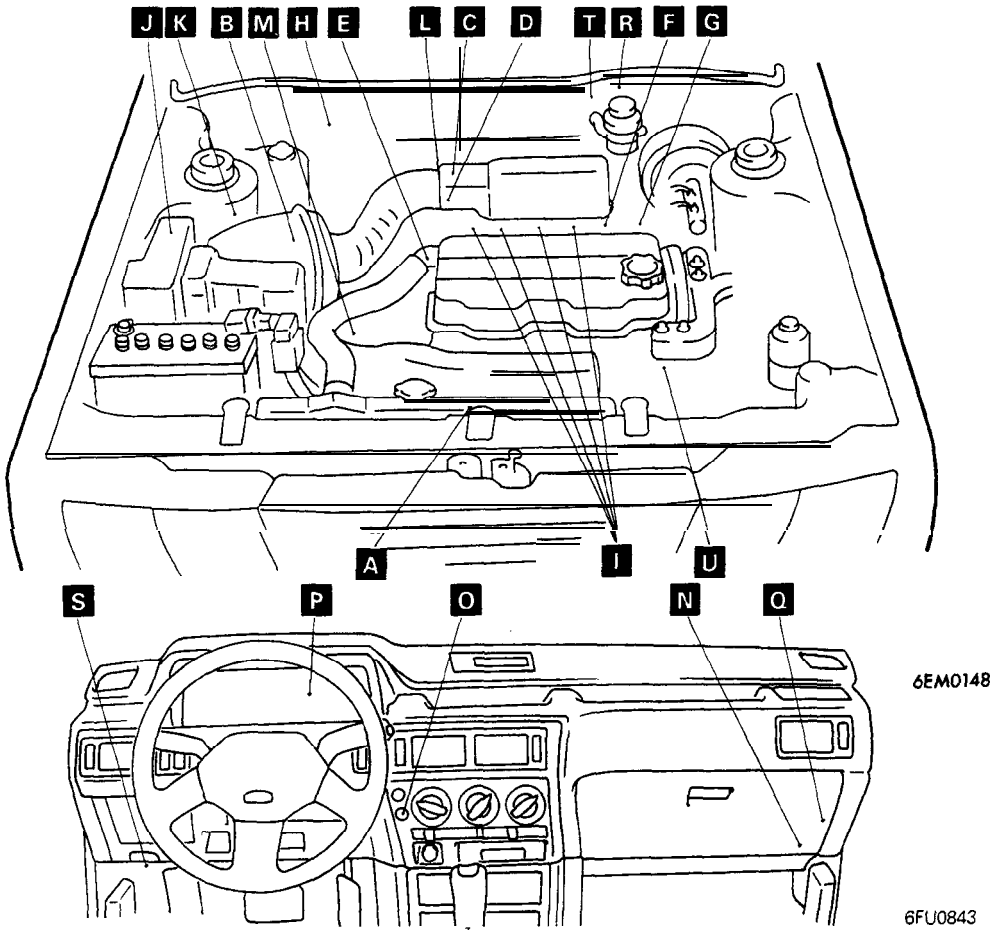
KX35-AC-H0538A-NM

TSB Revision



TSB Revision

COMPONENT LOCATION <8 VALVE>



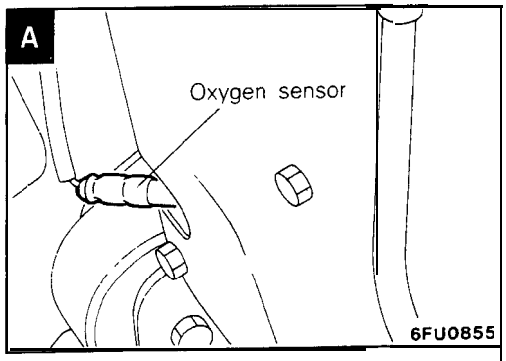
Name	Symbol
Air conditioning compressor clutch relay	J
Air conditioning switch	0
Crankshaft position sensor and camshaft position sensor	G
Data link connector	S
EGR solenoid <California>	K
EGR temperature sensor <California>	L
Engine control module	Q
Engine coolant temperature sensor	E
Evaporative emission purge solenoid	H
Fuel pump check terminal	T
Idle speed control motor (closed throttle position switch, idle speed control motor position sensor)	C

Name	Symbol
Ignition coil (ignition power transistor)	F
ignition timing adjustment terminal	R
Injector	I
Multiport fuel injection relay	N
Oxygen sensor	A
Park/neutral position switch <A/T>	M
Power steering pressure switch	U
Throttle position sensor	D
Vehicle speed sensor (reed switch)	P
Volume air flow sensor (incorporating intake air temperature sensor and barometric pressure sensor)	B

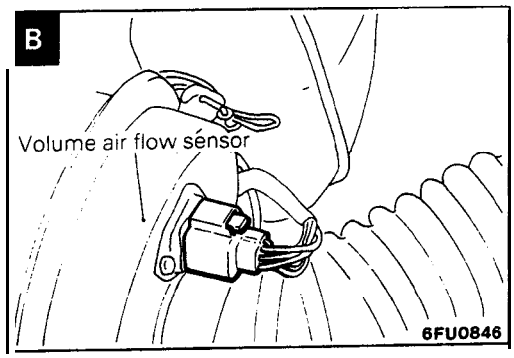
NOTE
The "Name" column is arranged in alphabetical order.

TSB Revision

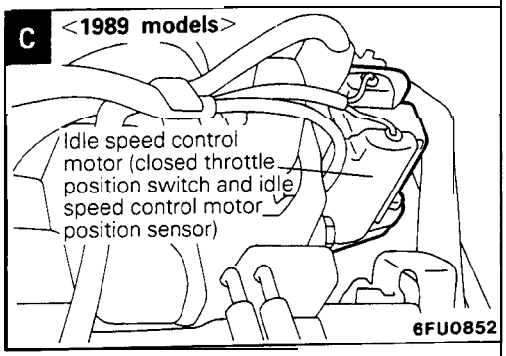
A



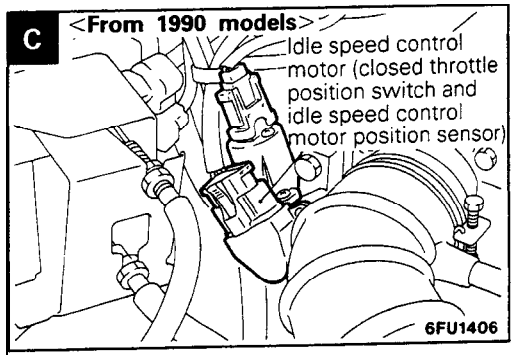
B



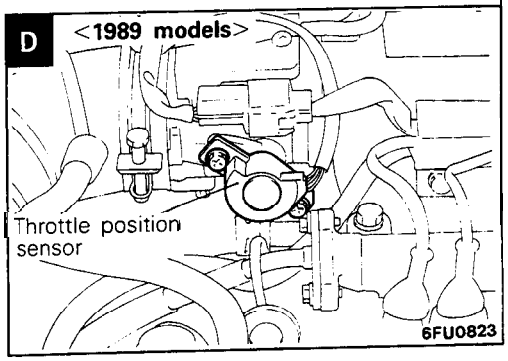
C <1989 models>



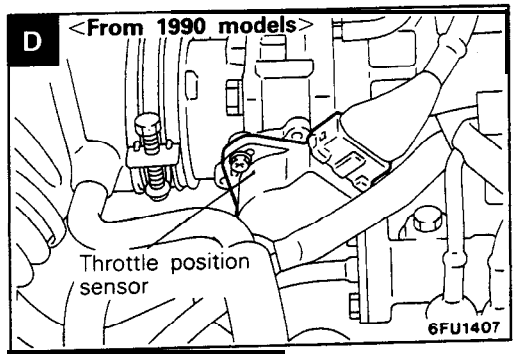
C <From 1990 models>



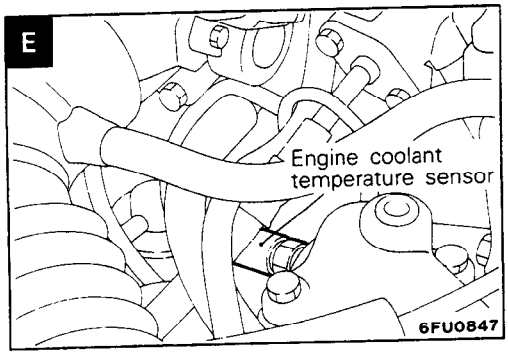
D <1989 models>



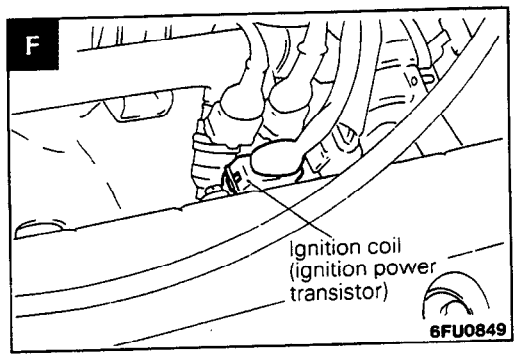
D <From 1990 models>



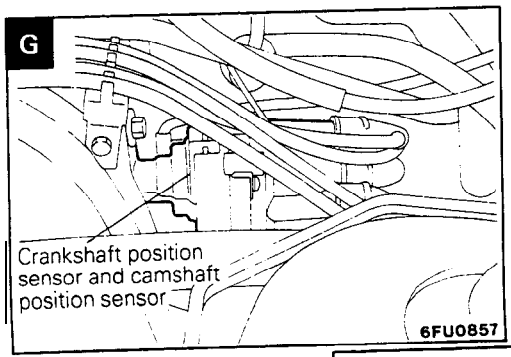
E



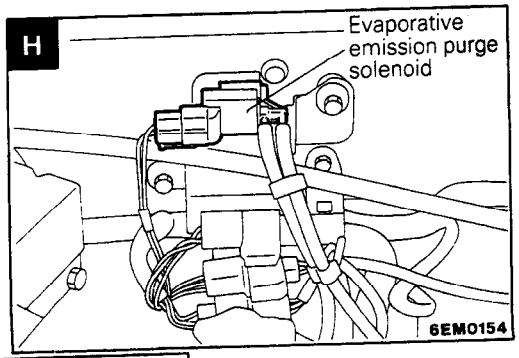
F



G

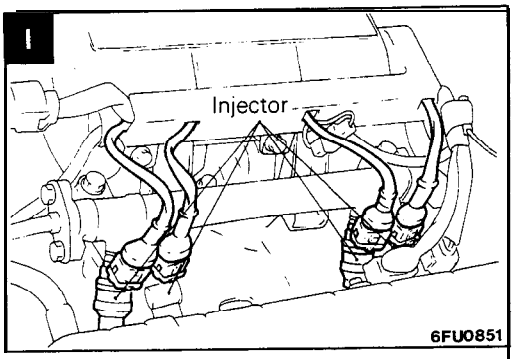


H

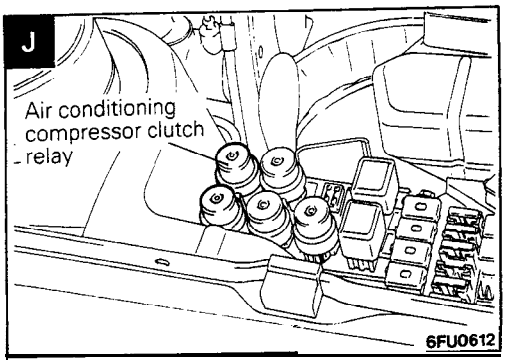


TSB Revision

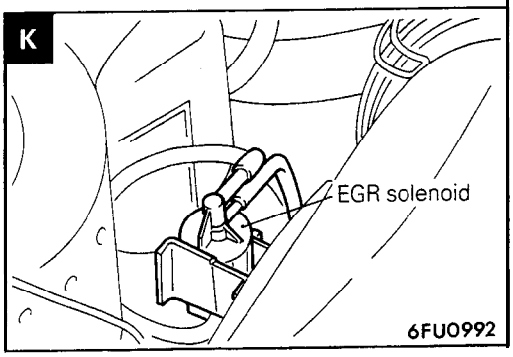
I



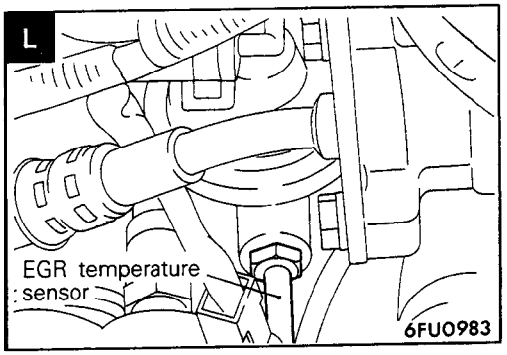
J



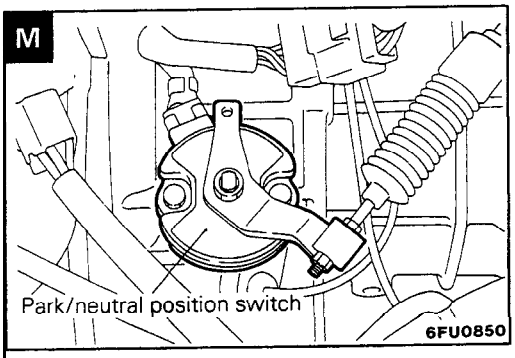
K



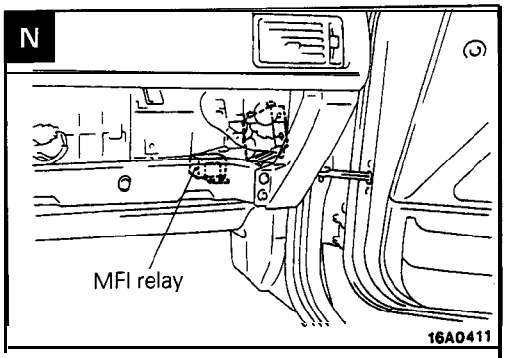
L



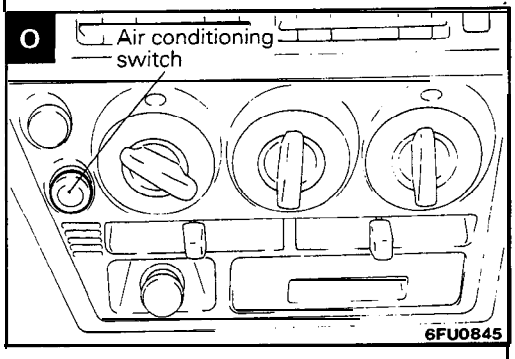
M



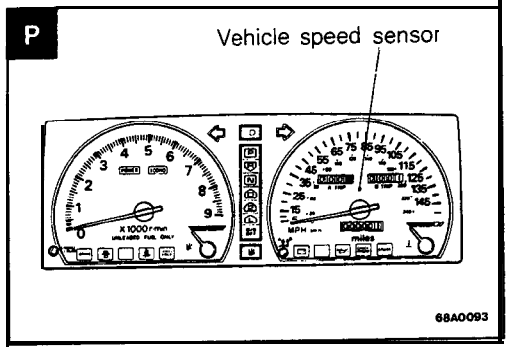
N



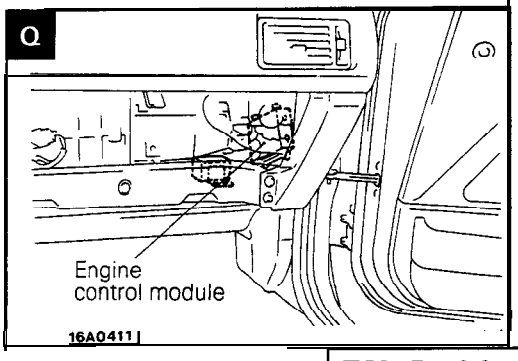
O



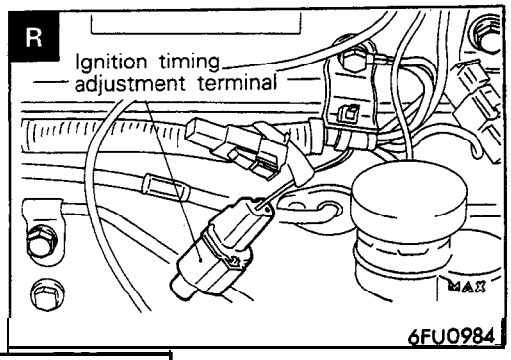
P



Q

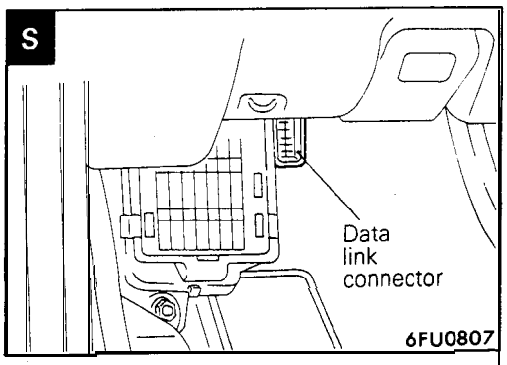


R

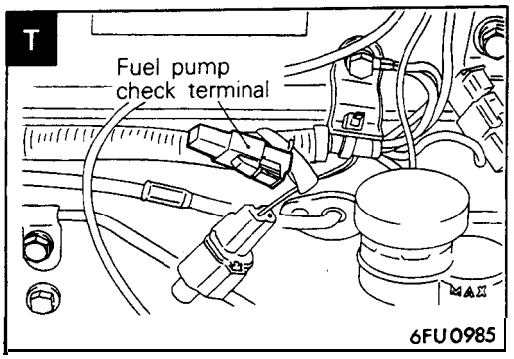


TSB Revision

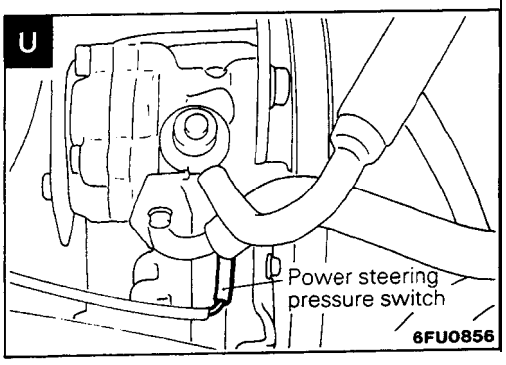
S



T

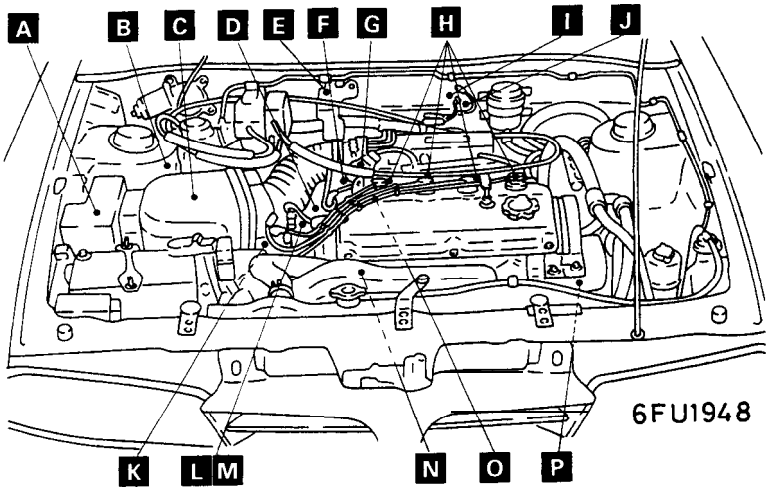


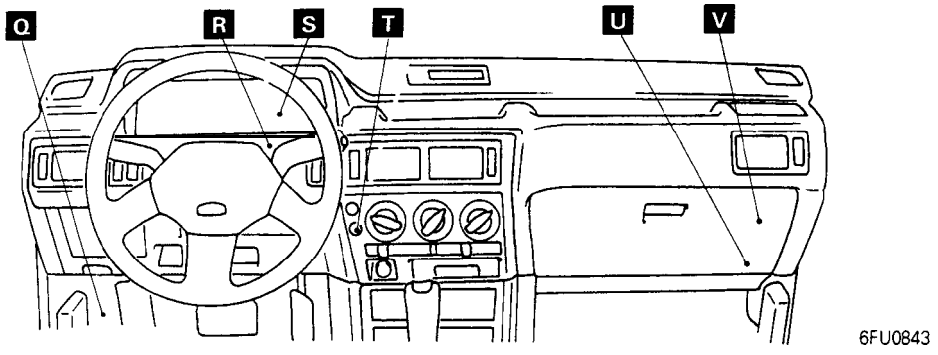
U



TSB Revision

COMPONENT LOCATION <16 VALVE>



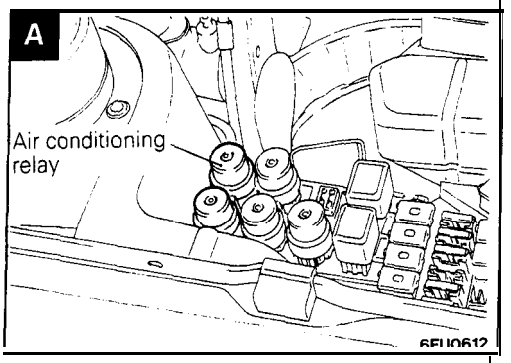


Name	Symbol	Name	Symbol
Air conditioning compressor clutch relay	A	Ignition coil (ignition power transistor)	L
Air conditioning switch	T	Ignition timing adjustment terminal	K
Camshaft position sensor and crankshaft position sensor	M	Injector	H
Check engine/malfunction indicator lamp	S	Multiport fuel injection relay	U
Data link connector	Q	Oxygen sensor	N
EGR solenoid <California>	I	Park/Neutral position switch (A/T)	B
EGR temperature sensor <California>	O	Power steering pressure switch	P
Engine control module	V	Throttle position sensor (with closed throttle position switch)	E
Engine coolant temperature sensor	F	Vehicle speed sensor (reed switch)	R
Evaporative emission purge solenoid	J	Volume air flow sensor (with incorporated intake air temperature sensor and barometric pressure sensor)	C
Fuel pump check terminal	G		
Idle air control motor	D		

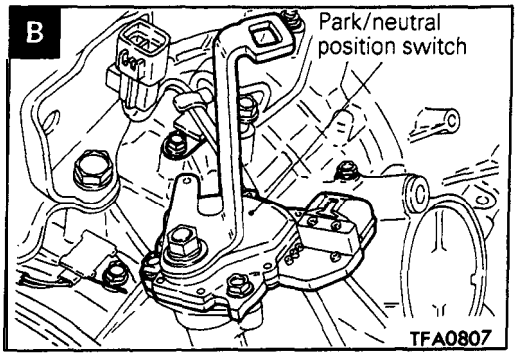
NOTE
The "Name" column is arranged in alphabetical order.

TSB Revision

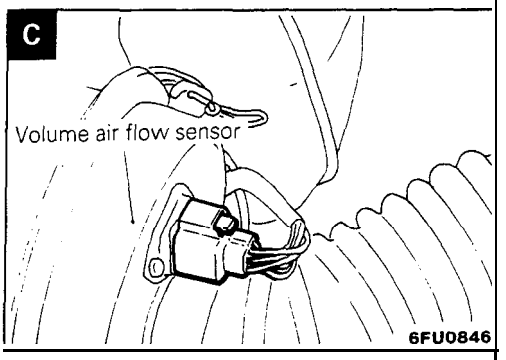
A


Air conditioning relay
6FU0612

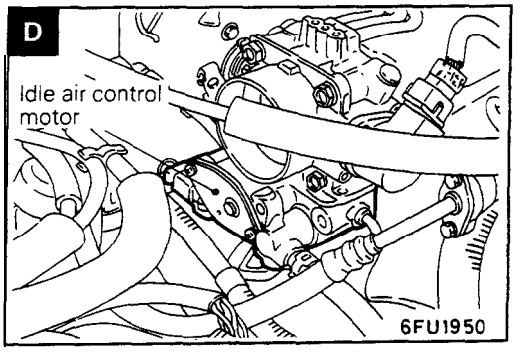
B


Park/neutral position switch
TFA0807

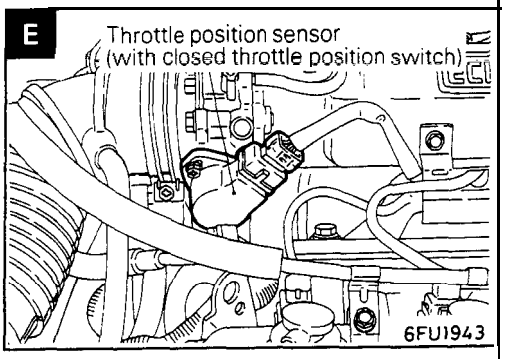
C


Volume air flow sensor
6FU0846

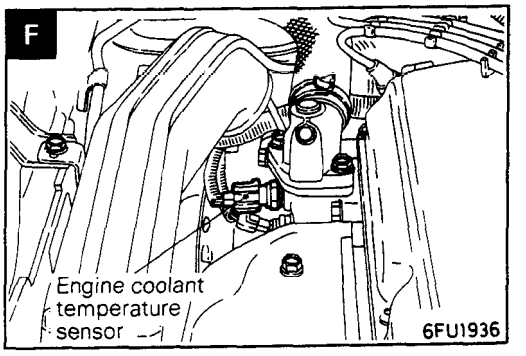
D


Idle air control motor
6FU1950

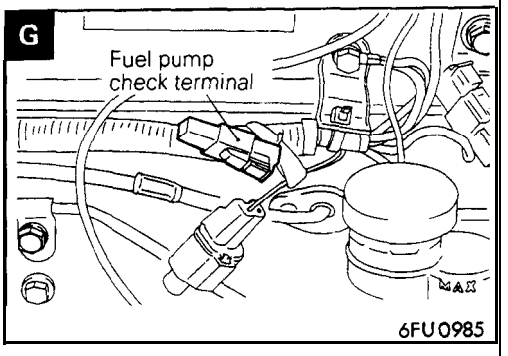
E


Throttle position sensor (with closed throttle position switch)
6FU1943

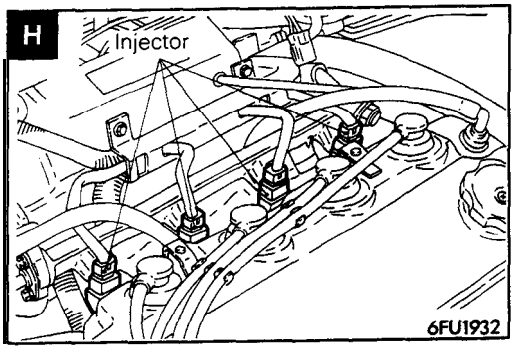
F


Engine coolant temperature sensor
6FU1936

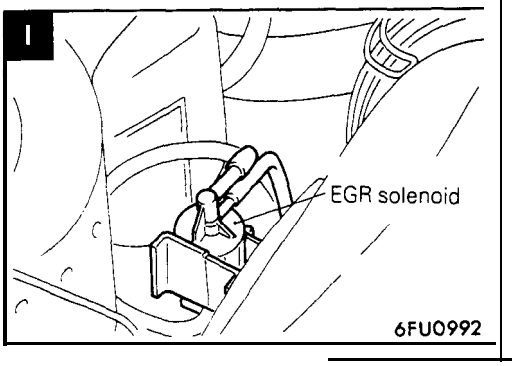
G


Fuel pump check terminal
6FU0985

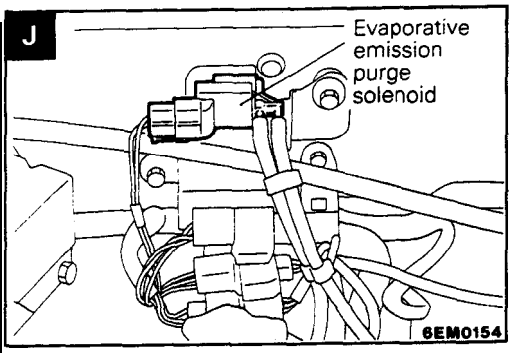
H


Injector
6FU1932

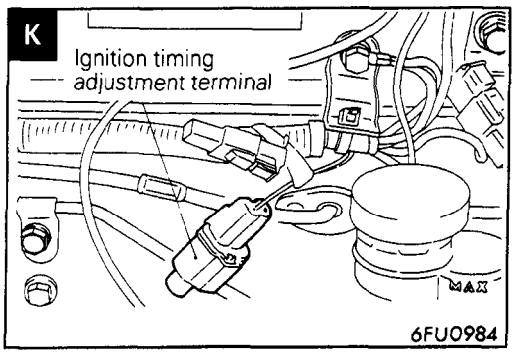
I


EGR solenoid
6FU0992

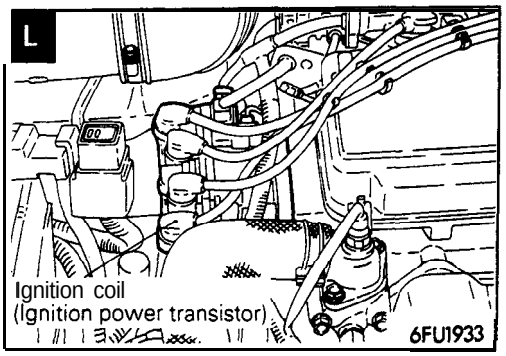
J


Evaporative emission purge solenoid
6EM0154

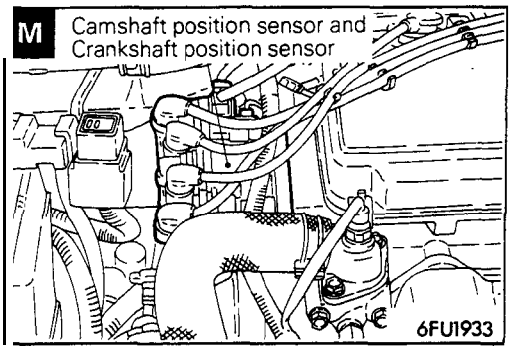
K



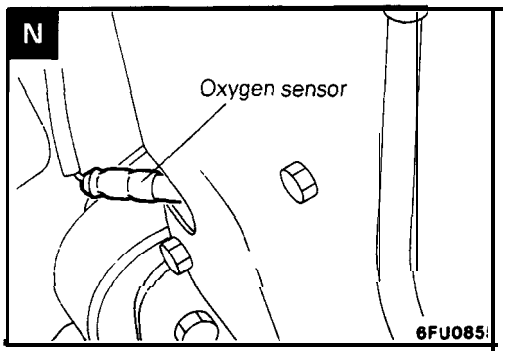
L



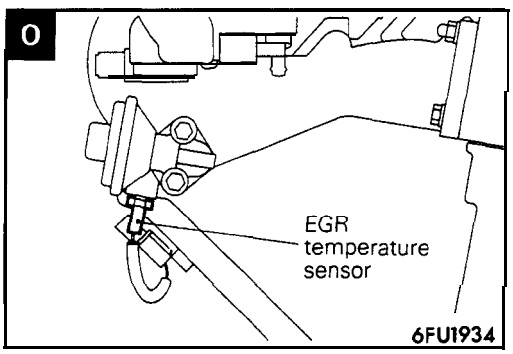
M



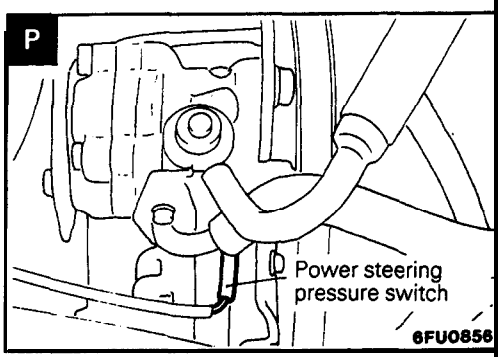
N



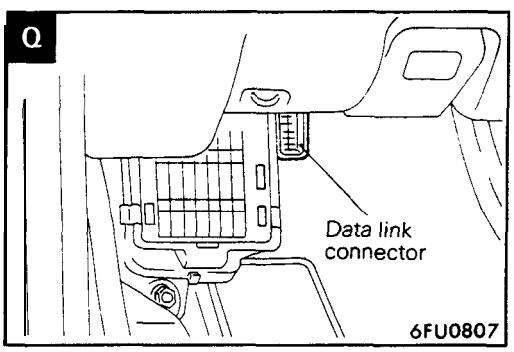
O



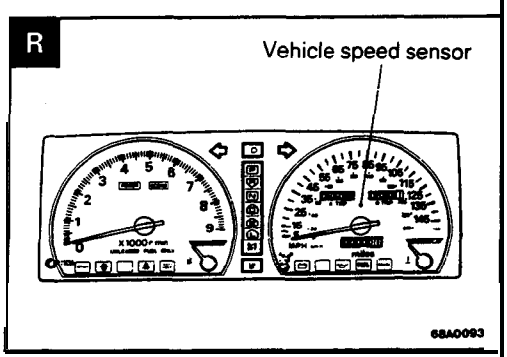
P



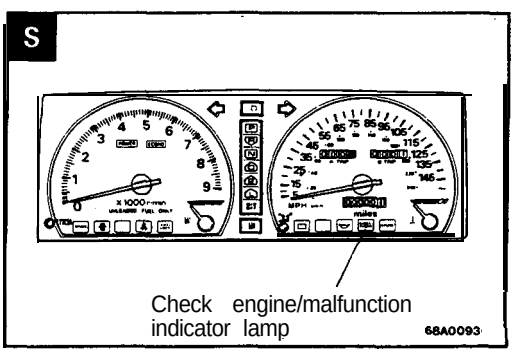
Q



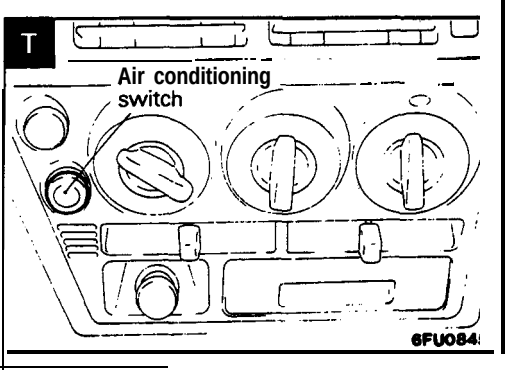
R



S

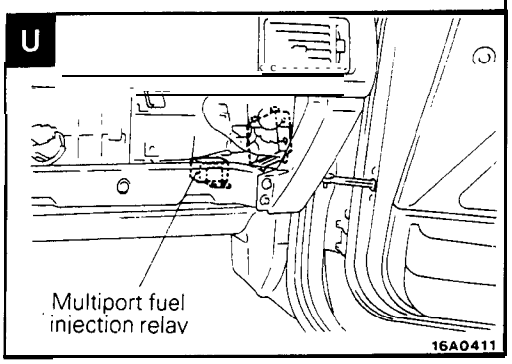


T

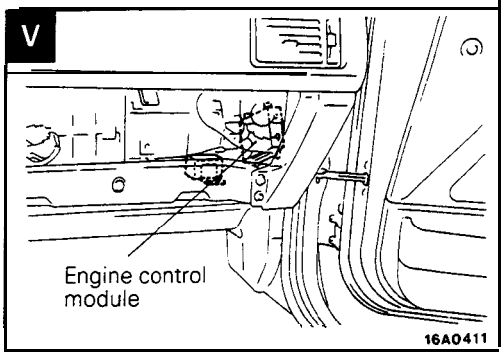


TSB Revision

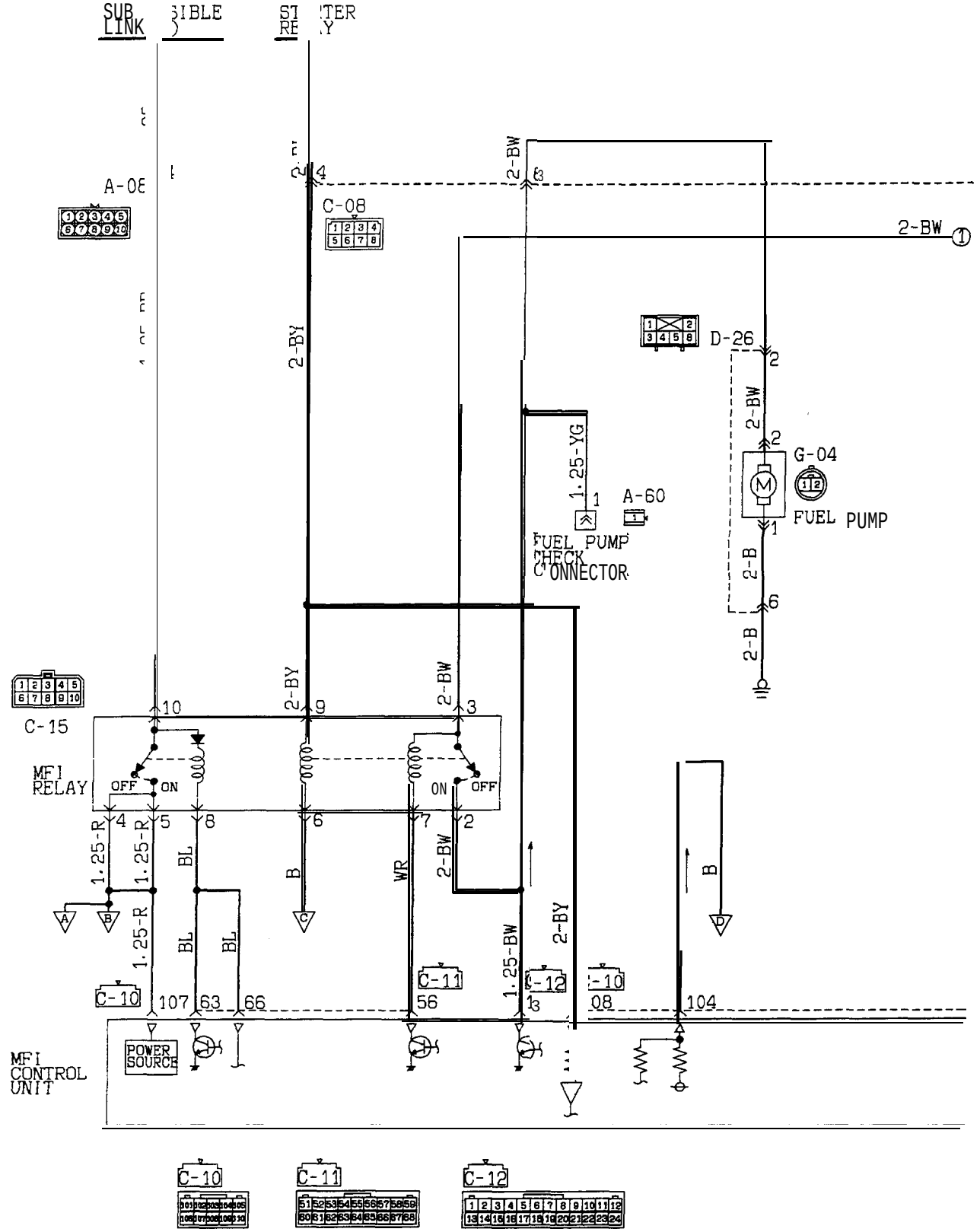
U


Multiport fuel injection relay
16A0411

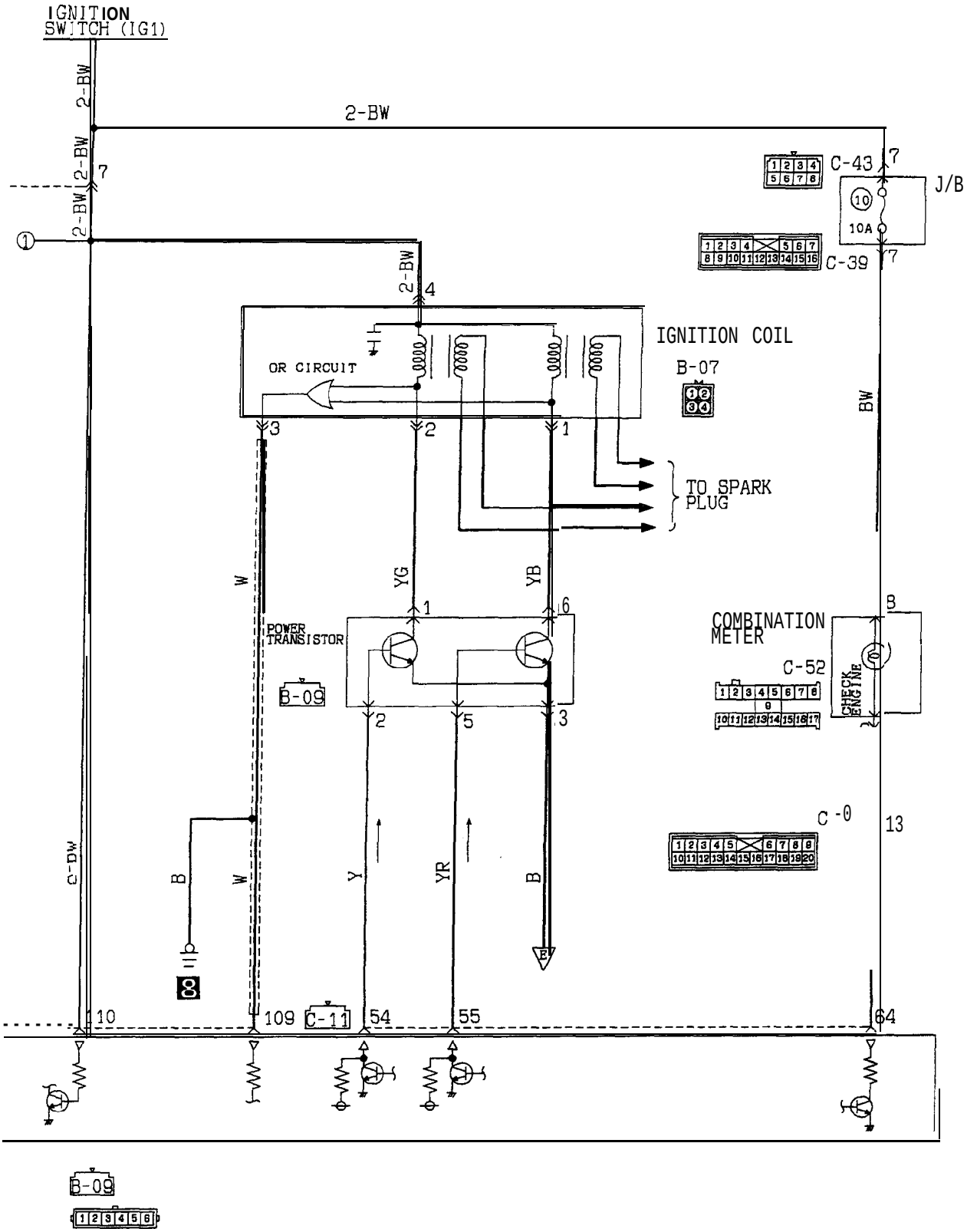
V


Engine control module
16A0411

MFI CIRCUIT
<DOHC (1989 models)>



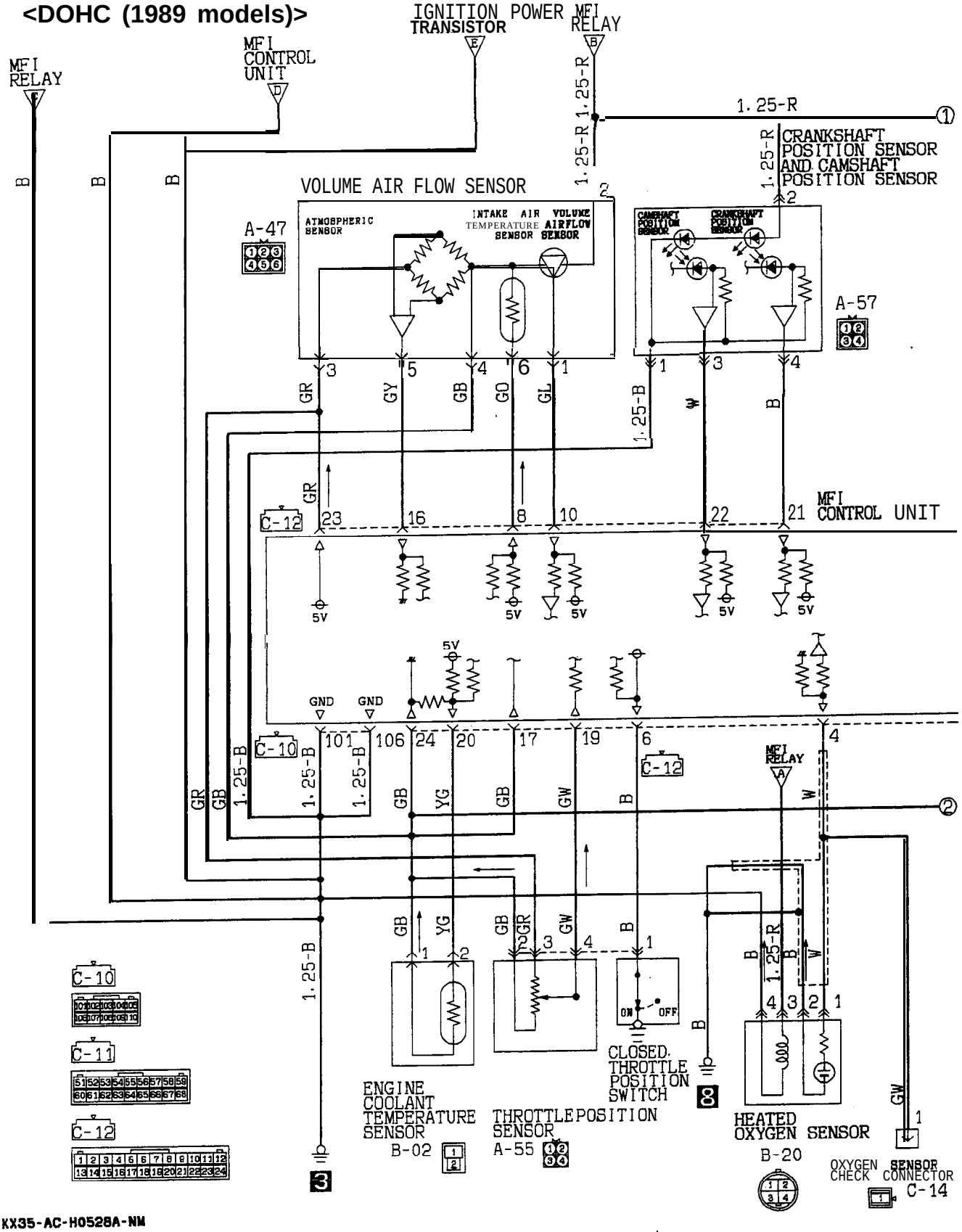
TSB Revision



TSB Revision

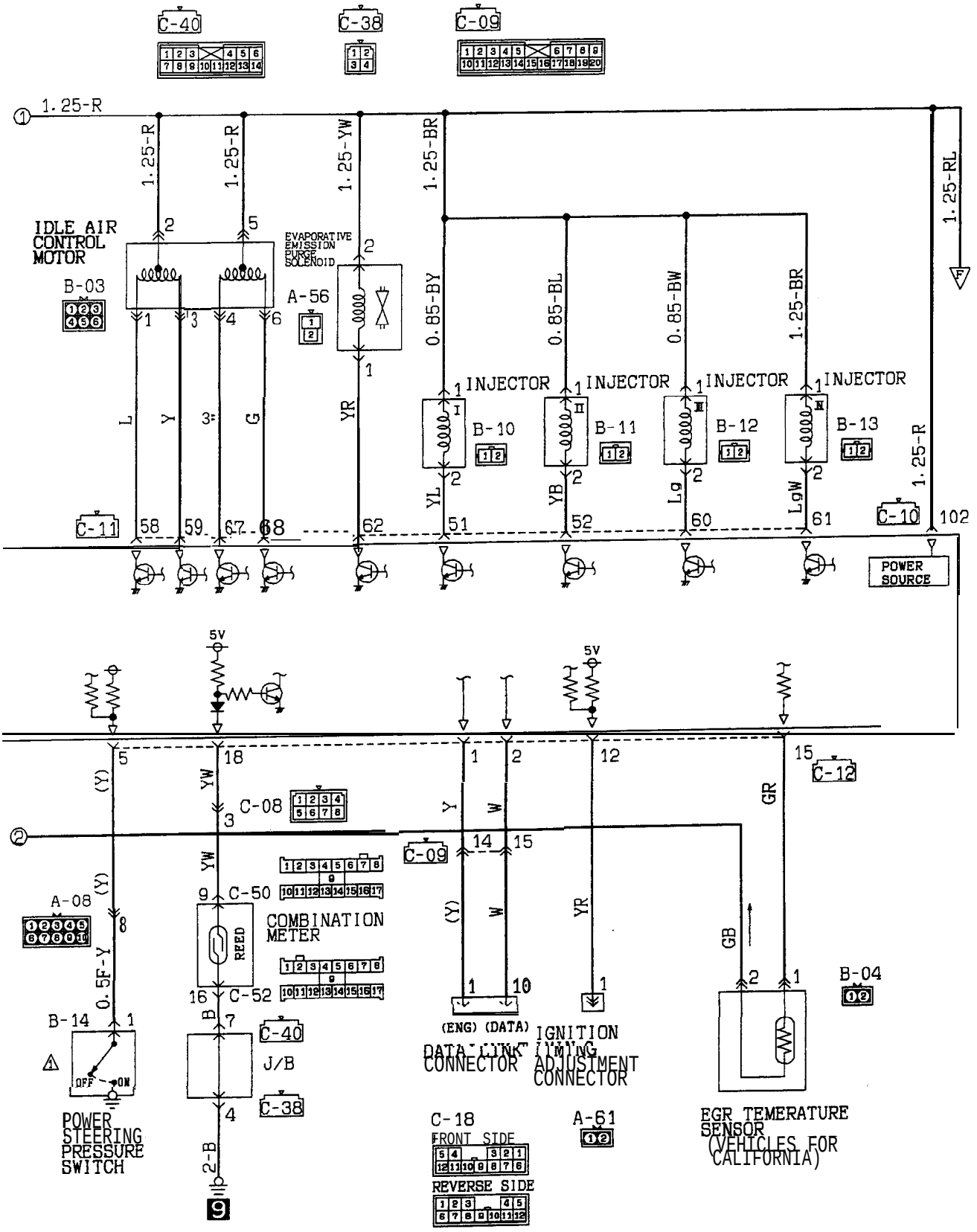
MFI CIRCUIT (CONTINUED)

<DOHC (1989 models)>



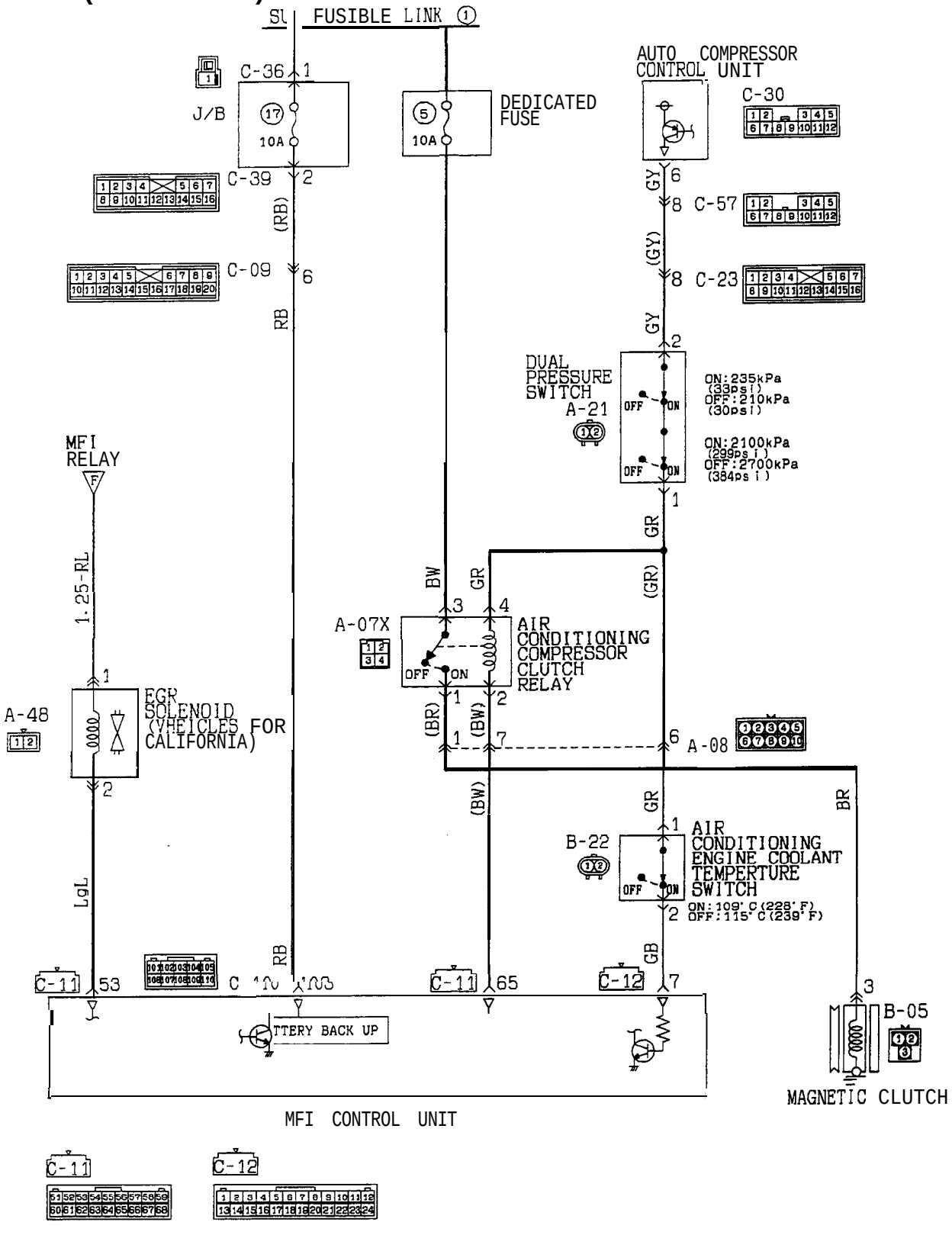
KX35-AC-H0528A-NM

TSB Revision


C-40
C-38
C-09
1.25-R
IDLE AIR CONTROL MOTOR
B-03
EVAPORATIVE EMISSION PURGE SOLENOID
A-56
INJECTOR
B-10
B-11
B-12
B-13
C-11
C-10
POWER SOURCE
5V
C-08
C-50
COMBINATION METER
REED
C-52
C-40
J/B
C-38
A-08
B-14
POWER STEERING PRESSURE SWITCH
OFF
ON
C-09
(ENG) (DATA) LINK CONNECTOR
IGNITION TIMING ADJUSTMENT CONNECTOR
C-18
FRONT SIDE
REVERSE SIDE
A-61
C-12
B-04
EGR TEMERATURE SENSOR (VEHICLES FOR CALIFORNIA)

MFI CIRCUIT (CONTINUED)

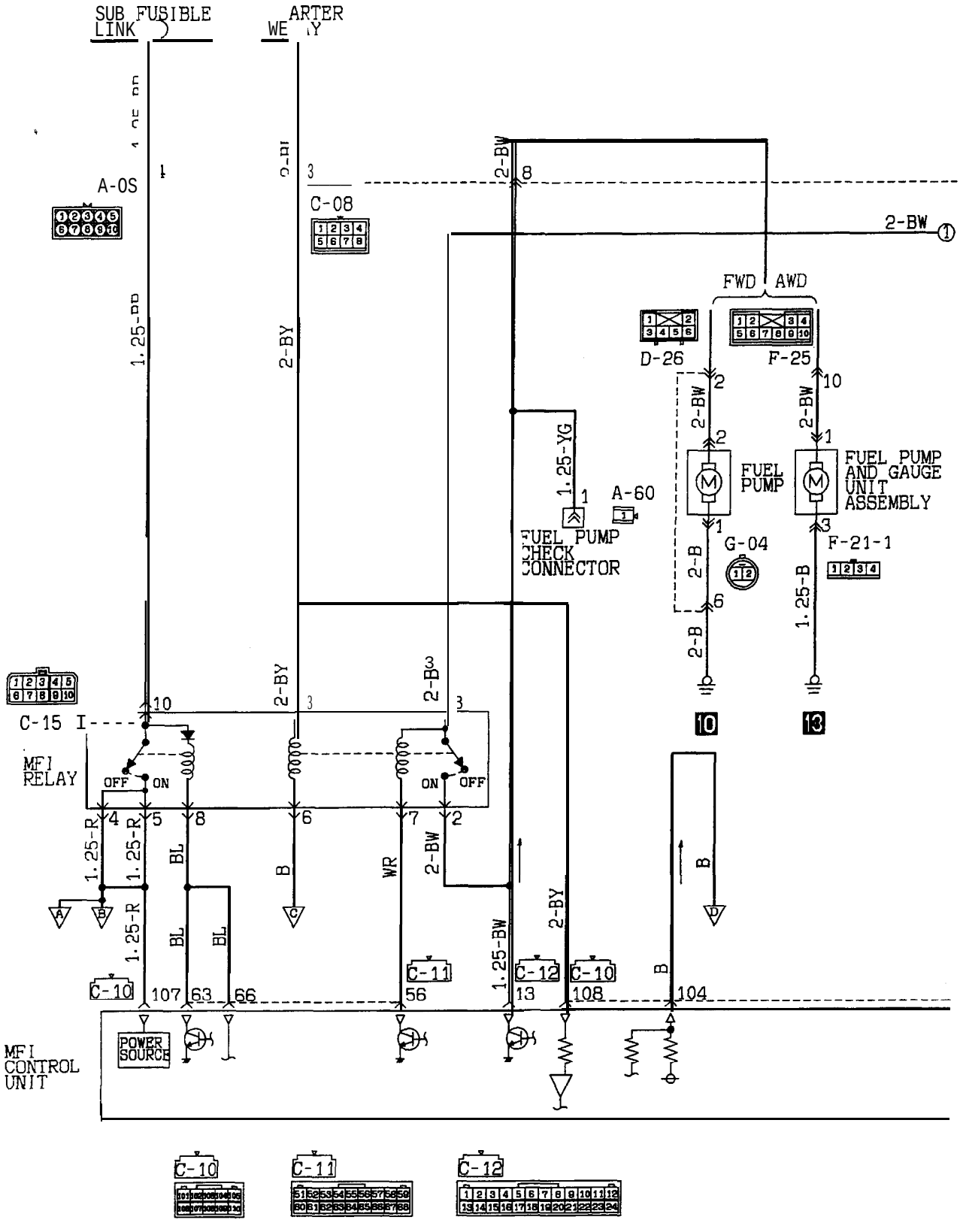
<DOHC (1989 models)>



KX35-AC-H0528B-NM

TSB Revision

MFI CIRCUIT
<DOHC (1990 models)>

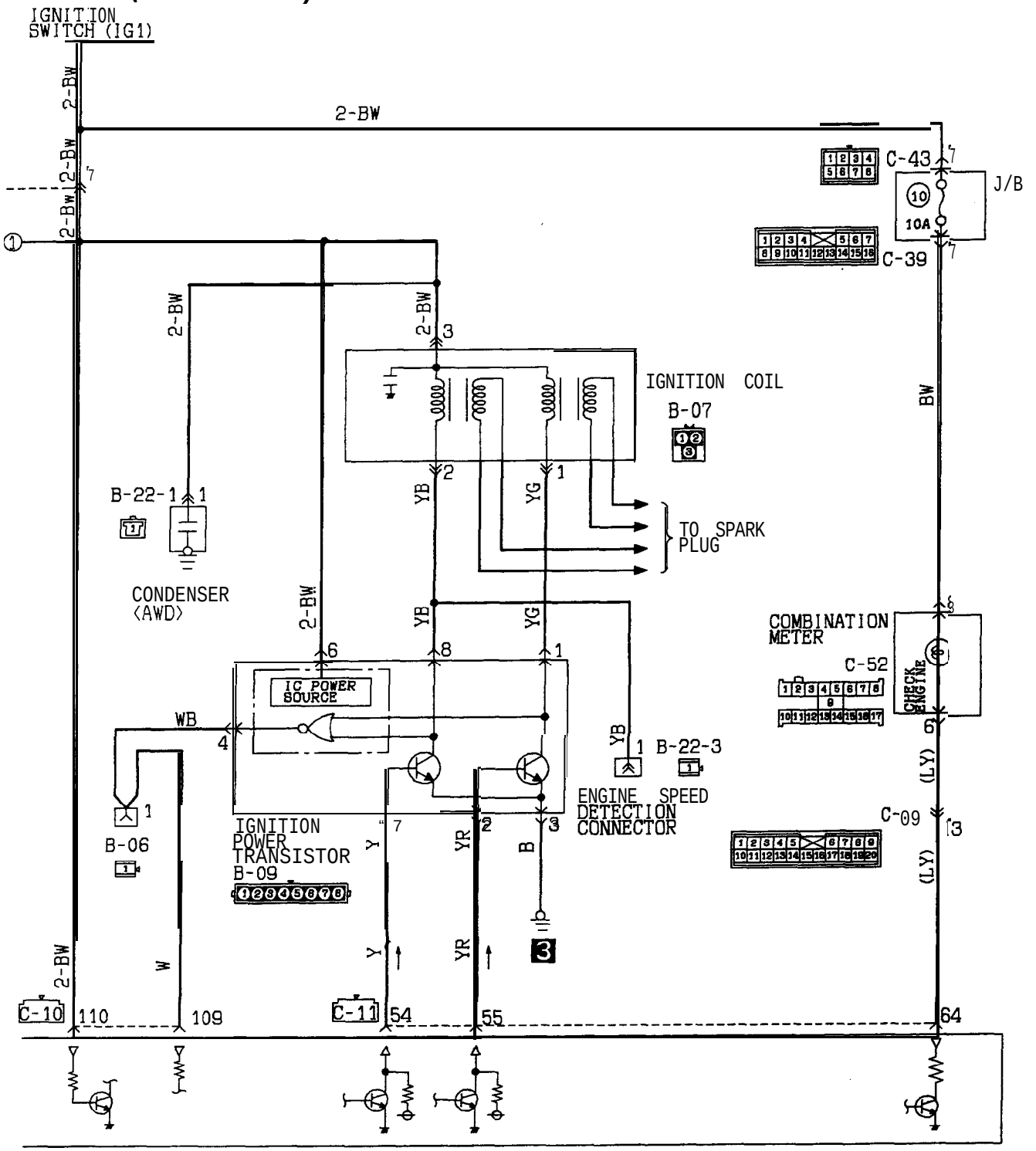


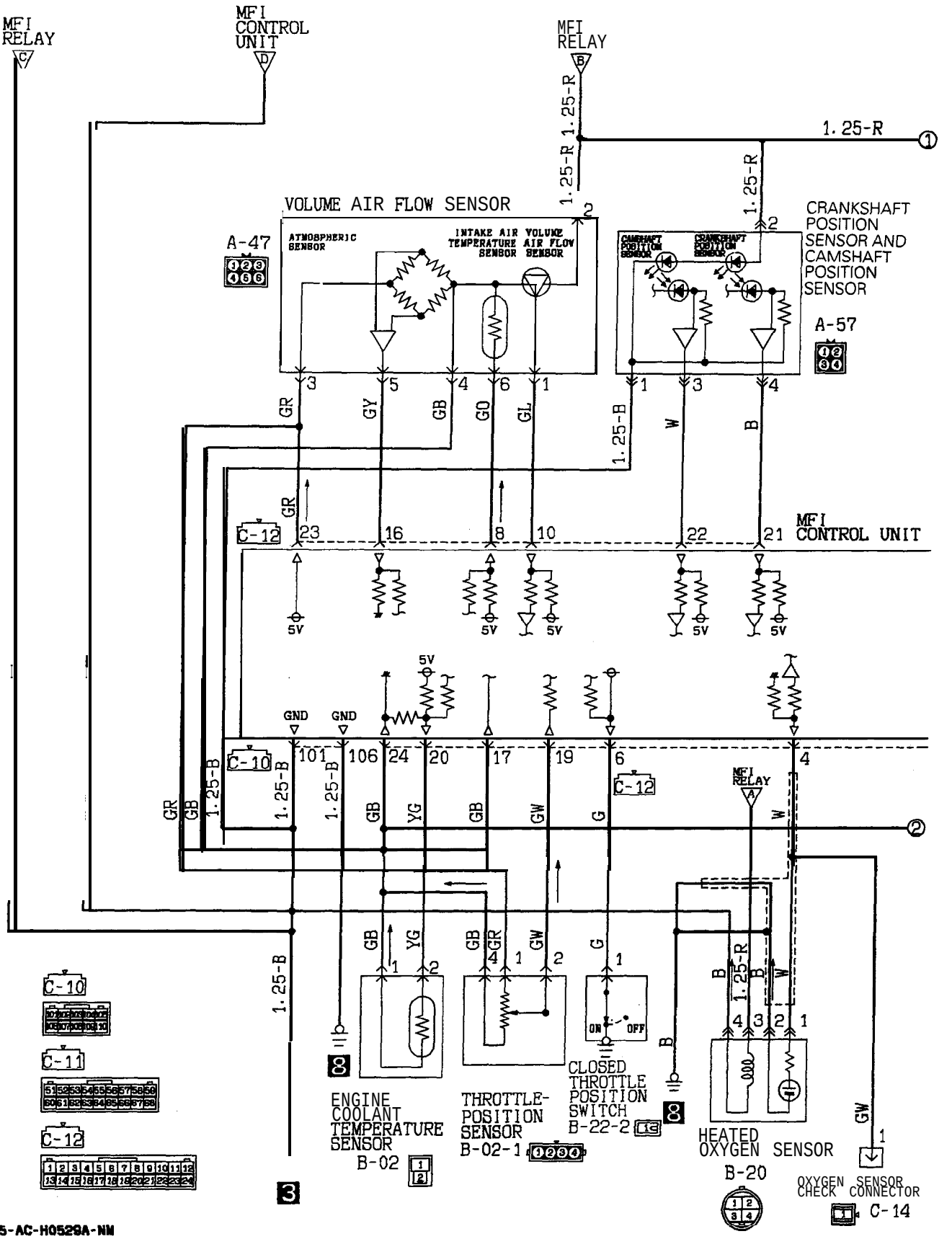
XX35-AC-H0529-NN

TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1990 models)>



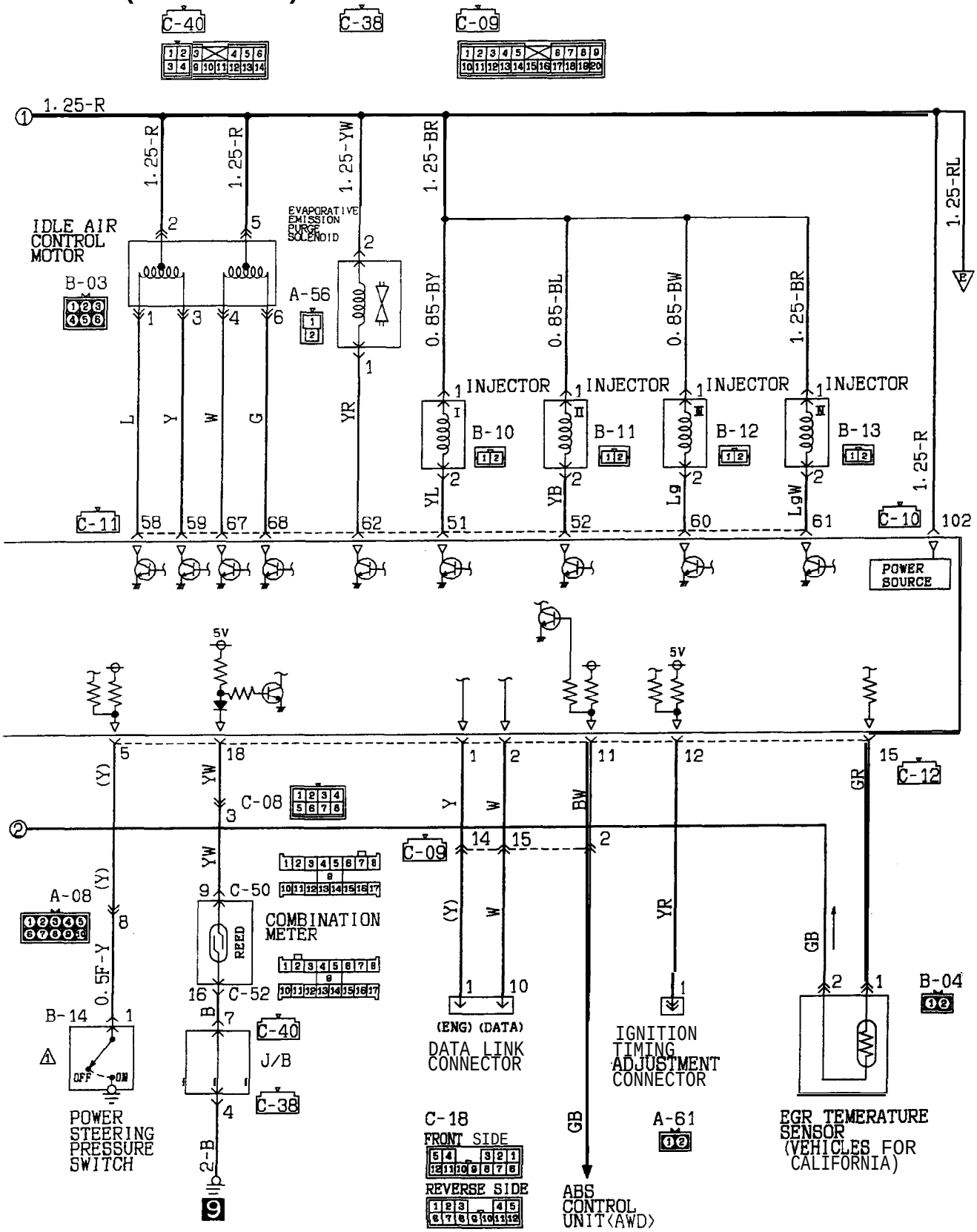


KX35-AC-H0529A-NM

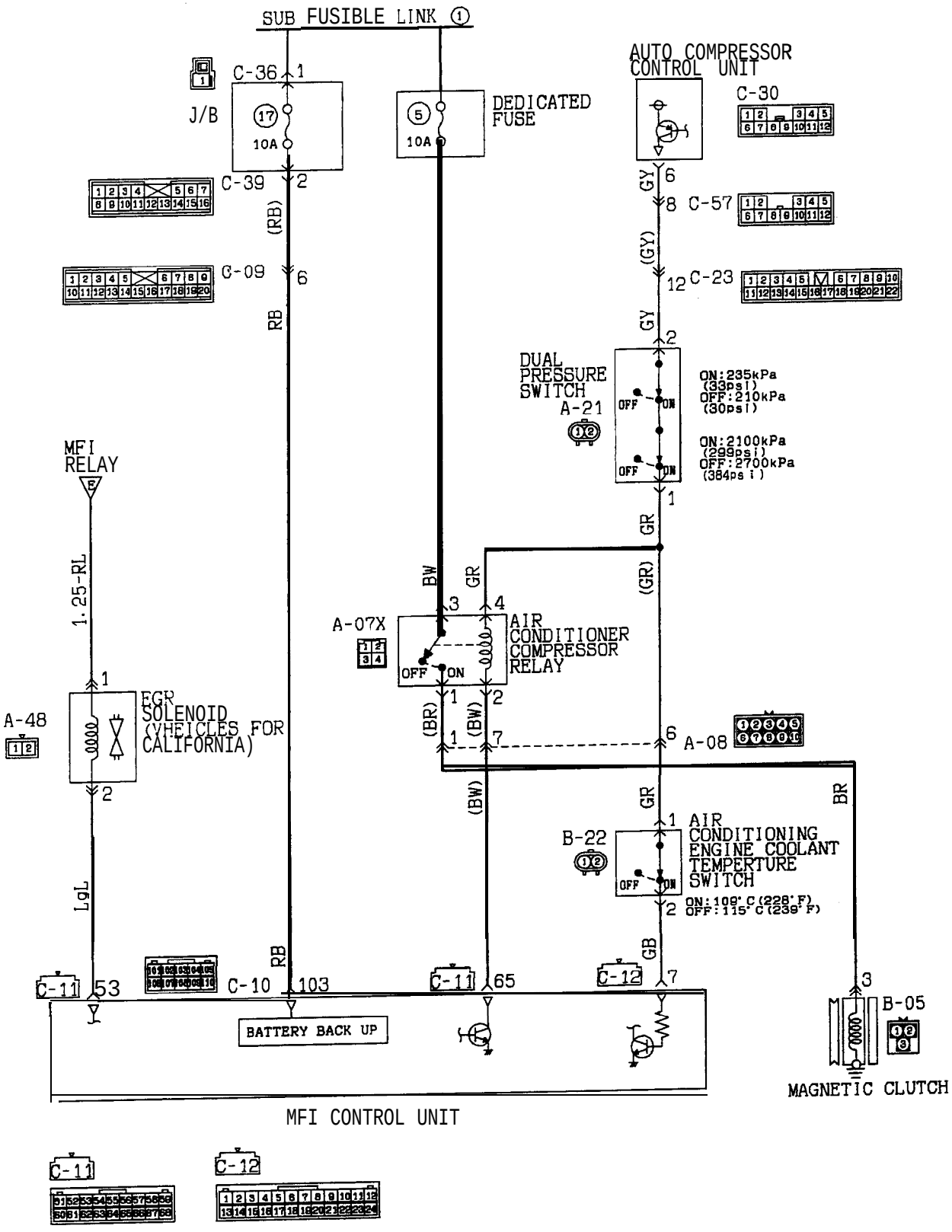
TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1990 models)>



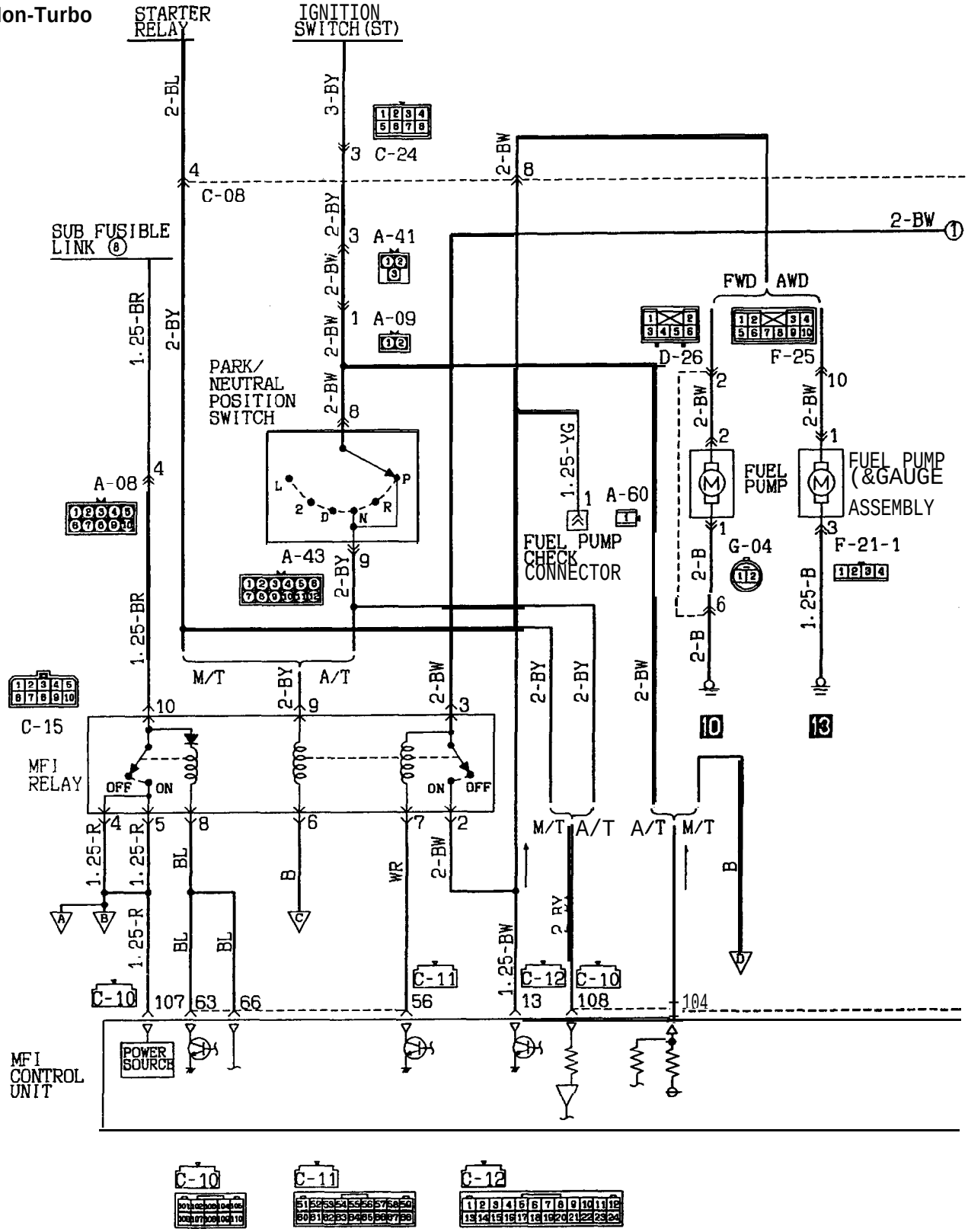
TSB Revision


SUB FUSIBLE LINK ①
C-36
J/B
10A
C-39
C-09
DEDICATED FUSE
AUTO COMPRESSOR CONTROL UNIT
C-30
C-57
C-23
DUAL PRESSURE SWITCH
A-21
ON:235kPa (33psi)
OFF:210kPa (30psi)
ON:2100kPa (299psi)
OFF:2700kPa (384psi)
MFI RELAY
1.25-RL
A-07X
AIR CONDITIONER COMPRESSOR RELAY
A-48
EGR SOLENOID (VHEICLES FOR CALIFORNIA)
A-08
B-22
AIR CONDITIONING ENGINE COOLANT TEMPERTURE SWITCH
ON:109°C(228°F)
OFF:115°C(239°F)
B-05
MAGNETIC CLUTCH
C-10
C-11
C-12
BATTERY BACK UP
MFI CONTROL UNIT
RB
(RB)
GY
(GY)
GR
(GR)
BW
(BW)
BR
(BR)
LgL
GB

MFI CIRCUIT

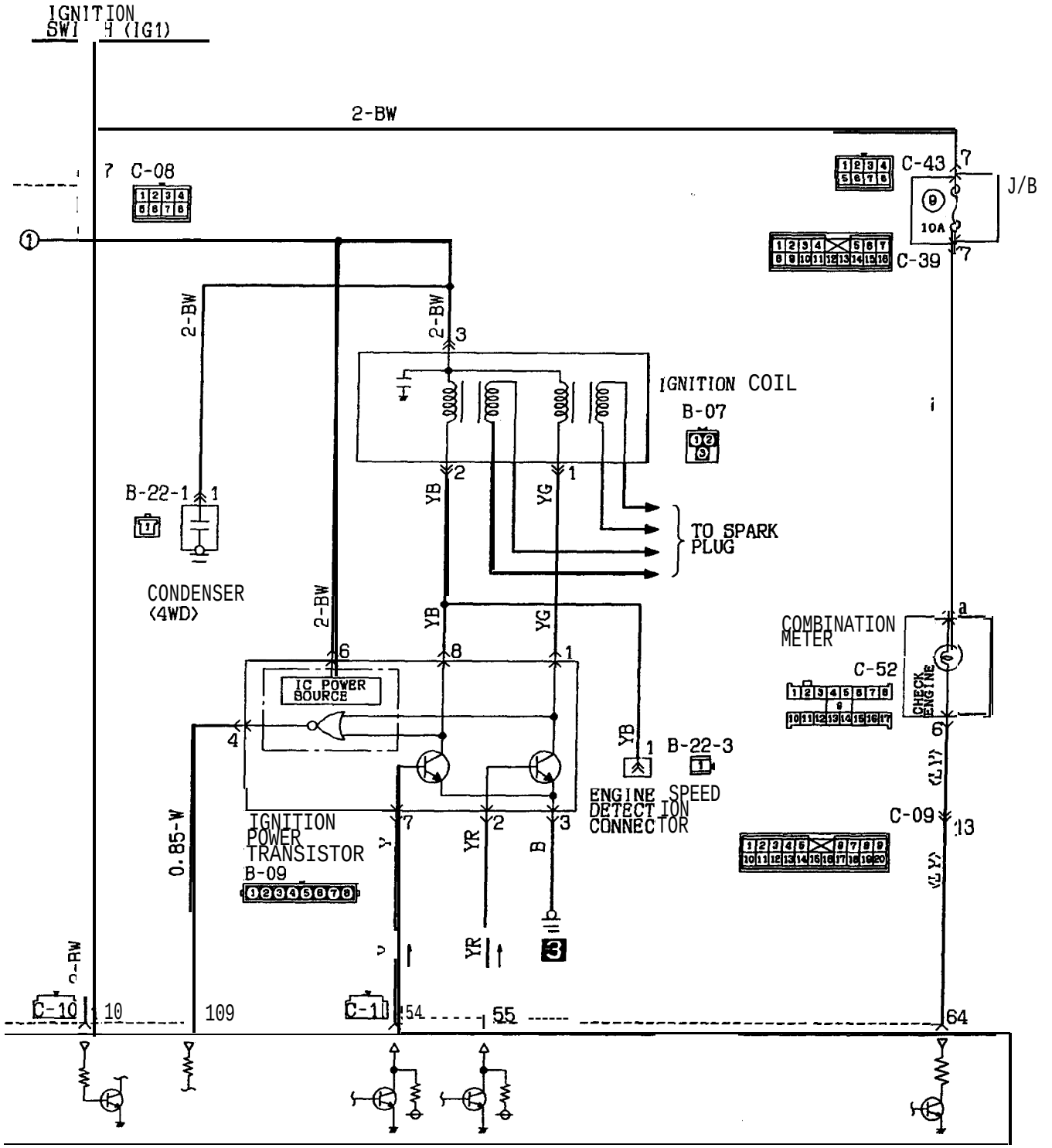
<DOHC (1991 models)>

Non-Turbo



XX35-AC-H0535-NM

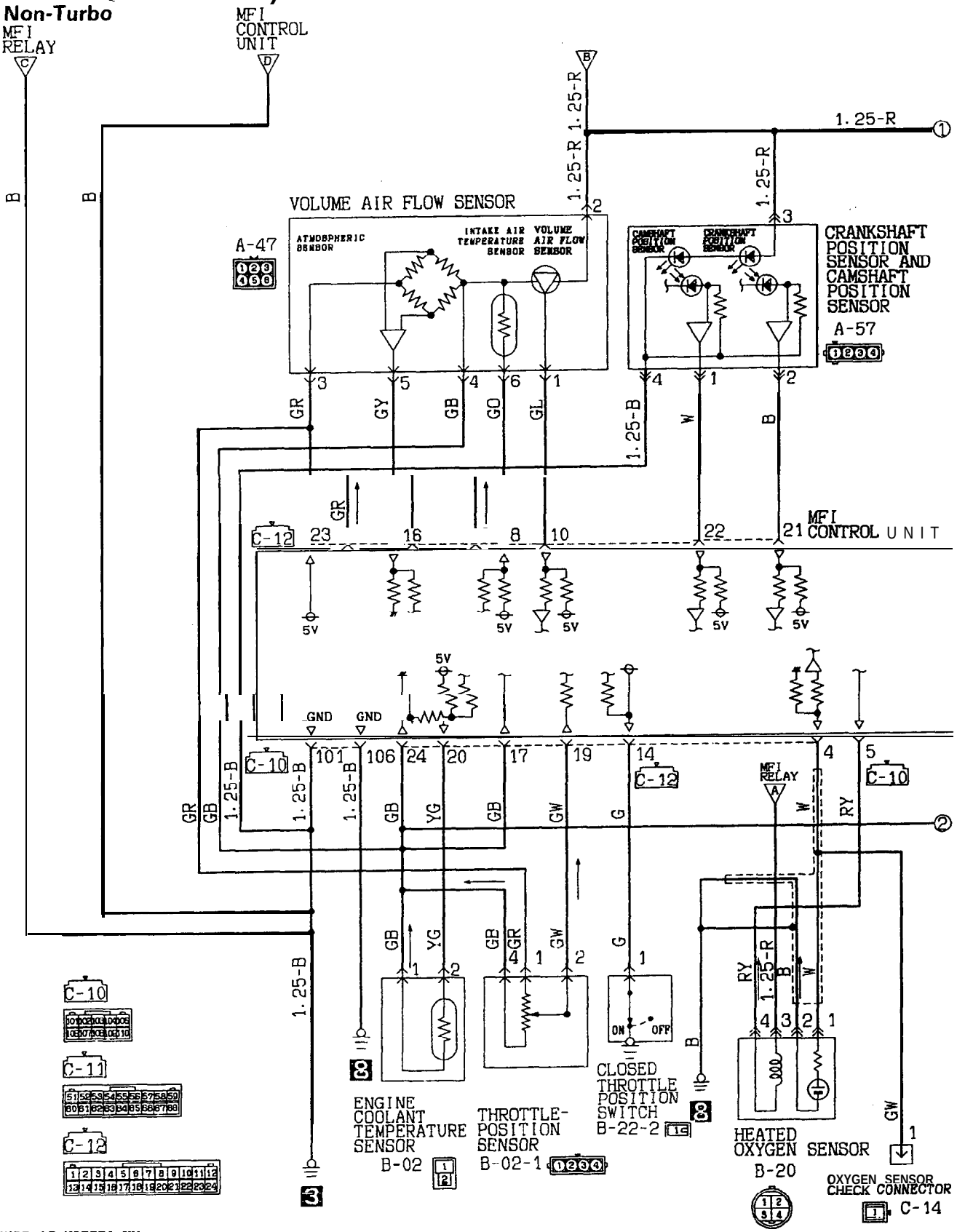
TSB Revision


IGNITION SWITCH (IG1)
2-BW
C-08
C-43
J/B
10A
C-39
IGNITION COIL
B-07
TO SPARK PLUG
B-22-1
CONDENSER
<4WD>
IC POWER SOURCE
COMBINATION METER
C-52
CHECK ENGINE
B-22-3
ENGINE SPEED DETECTION CONNECTOR
C-09
IGNITION POWER TRANSISTOR
B-09
0.85-W
C-10
C-11
109
54
55
64

MFI CIRCUIT (CONTINUED)

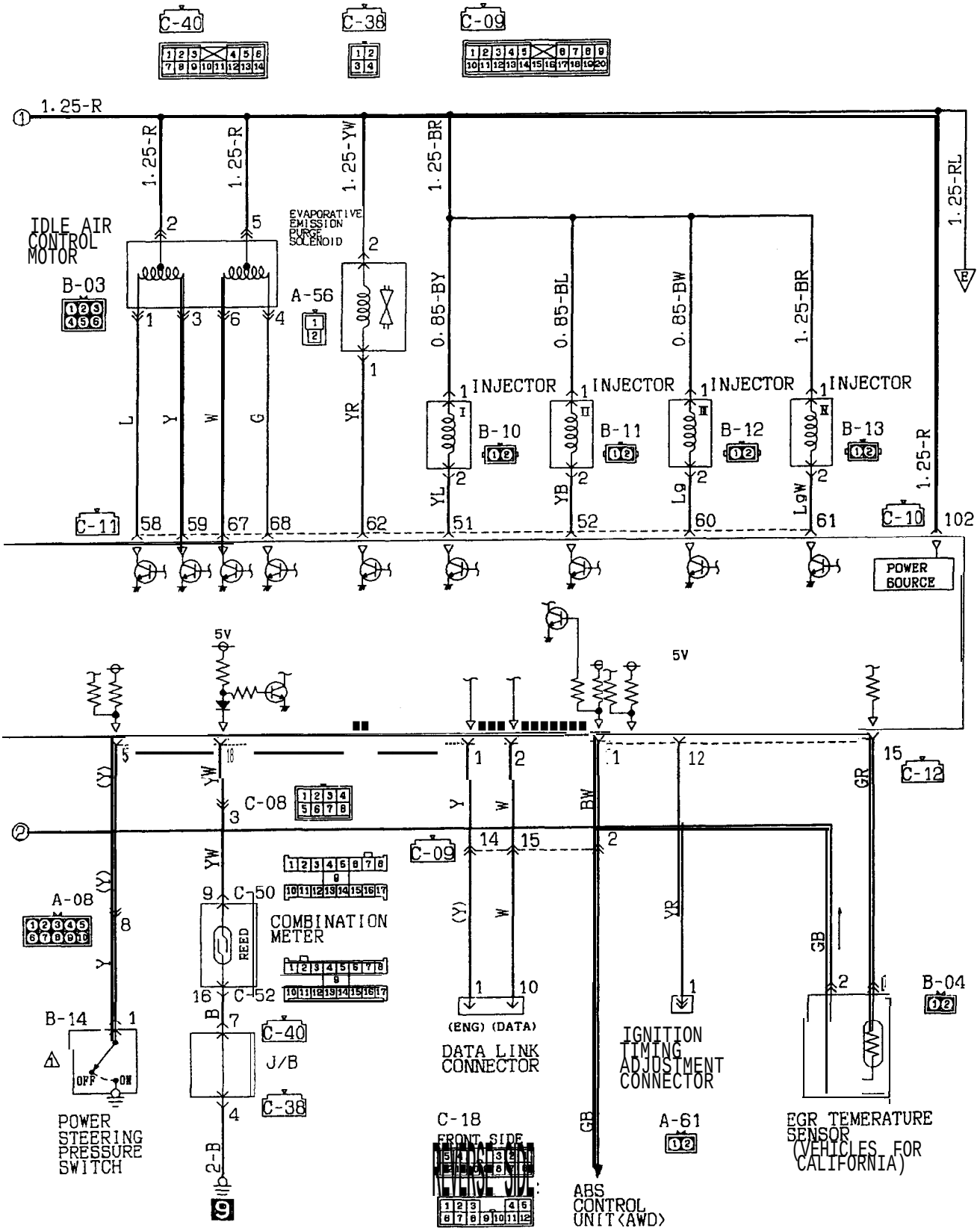
<DOHC (1991 models)>

Non-Turbo



KX35-AC-H0535A-NM

TSB Revision

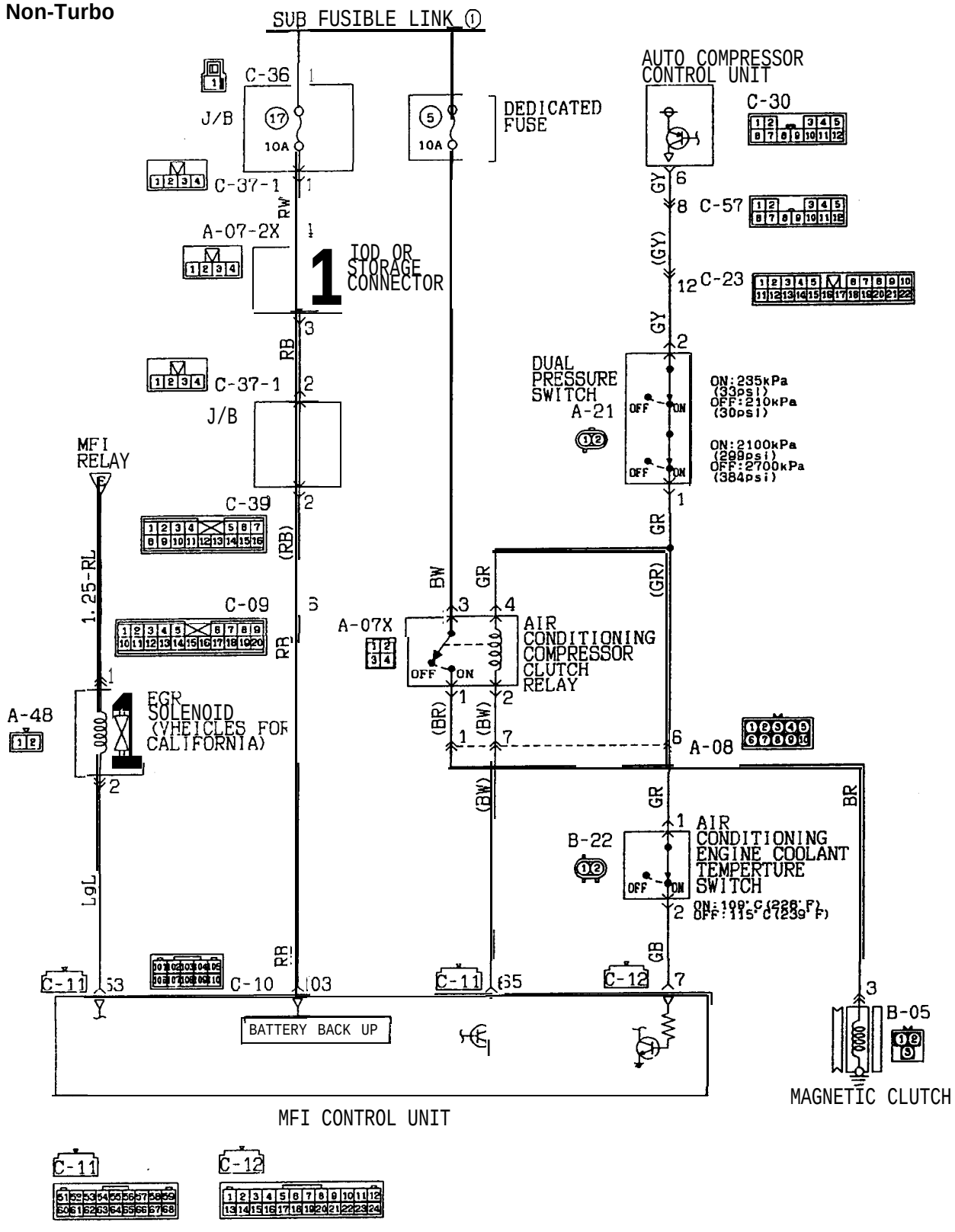


TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1991 models)>

Non-Turbo



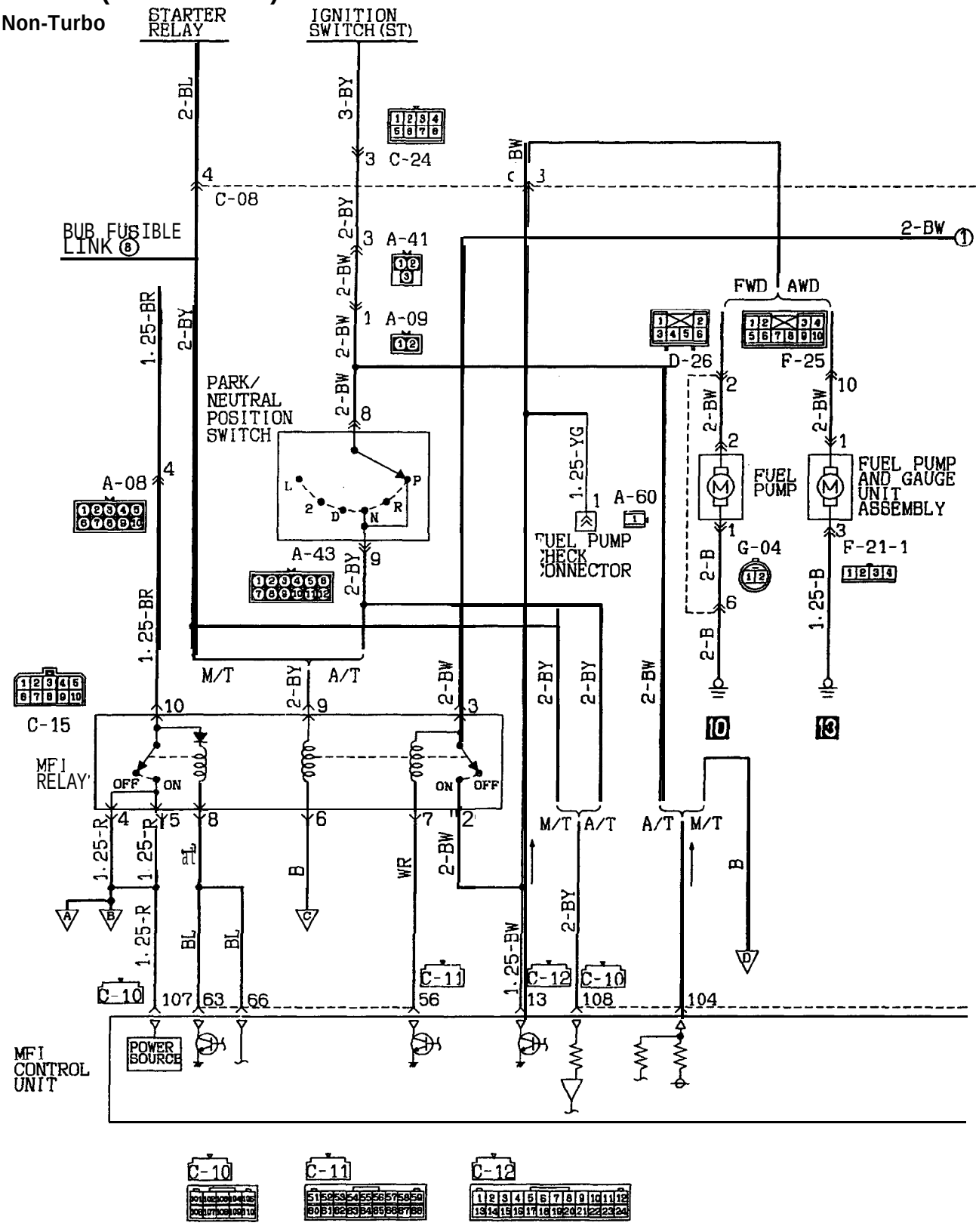
KX35-AC-H0535B-NW

TSB Revision

MFI CIRCUIT

<DOHC (1992 models)>

Non-Turbo



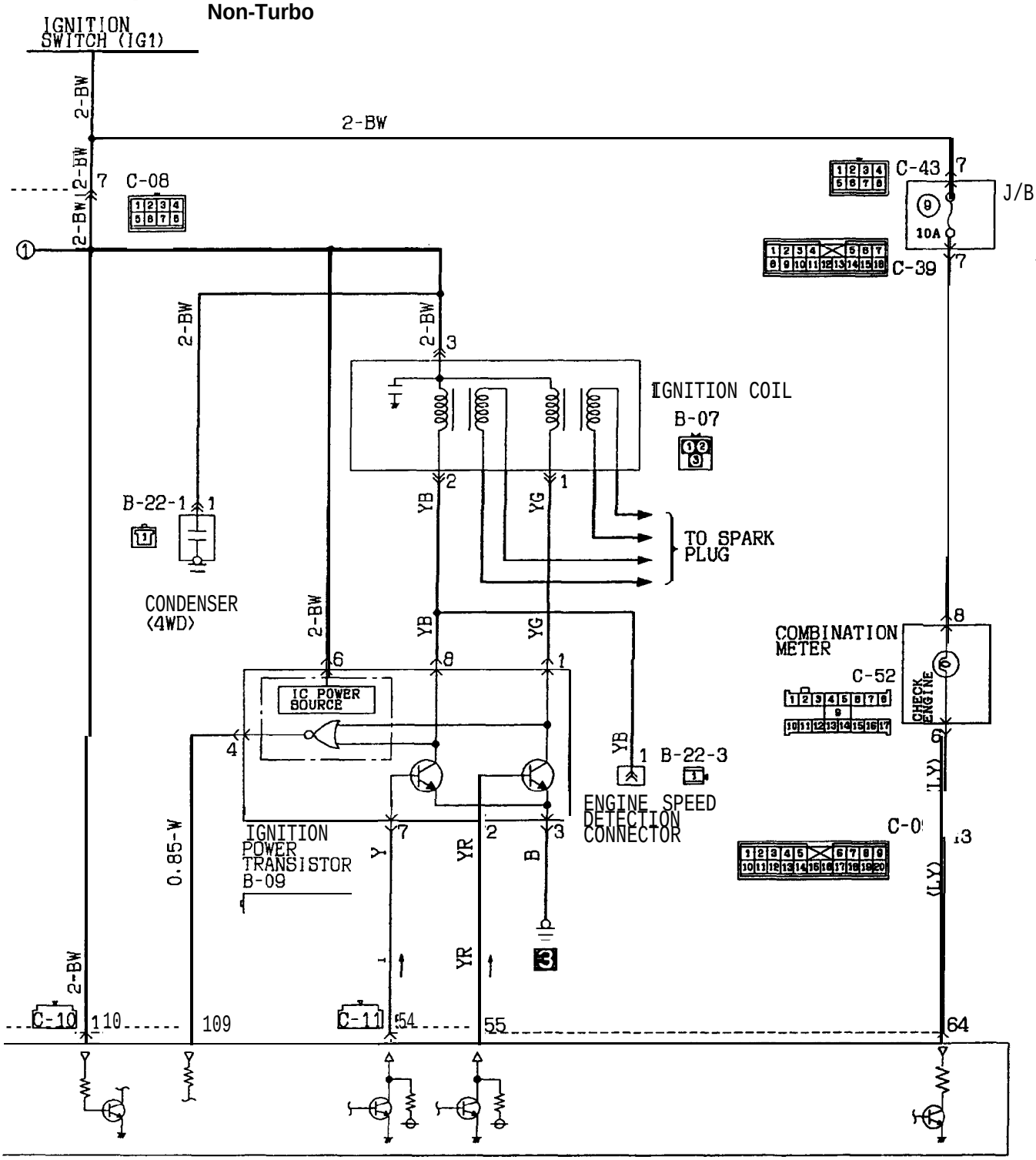
XX35-AC-H0537-NM

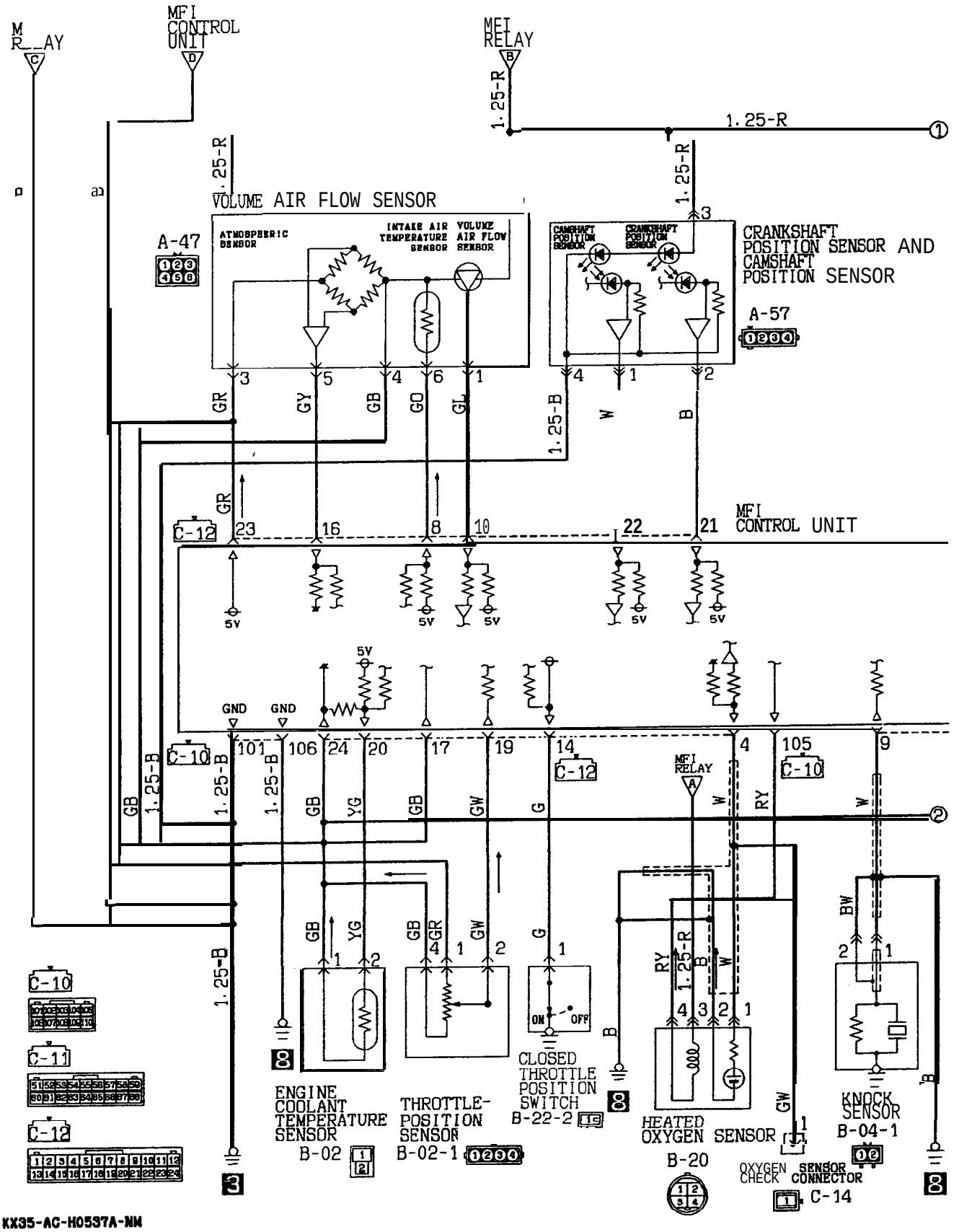
TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1992 models)>

Non-Turbo





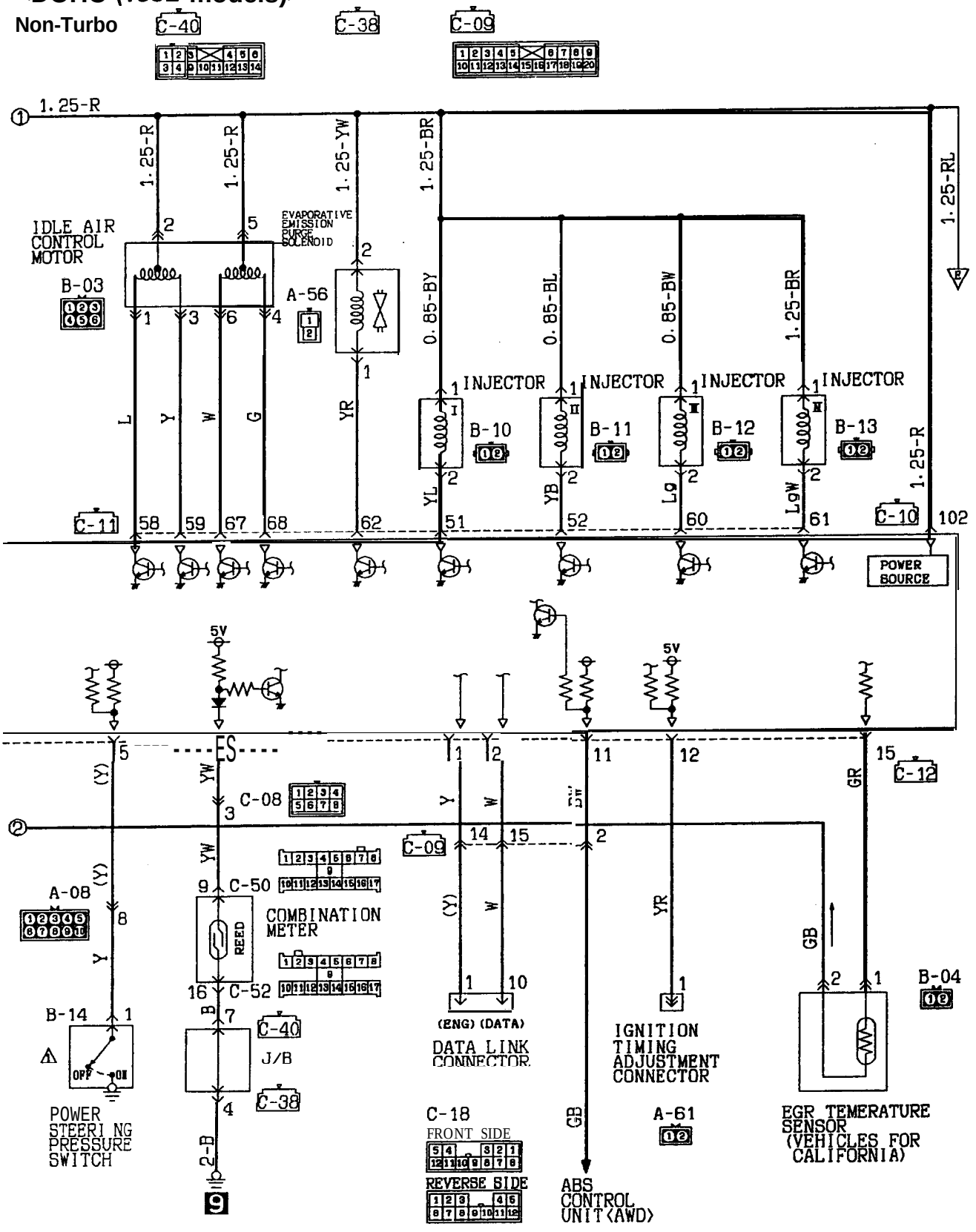
KX35-AC-H0537A-NM

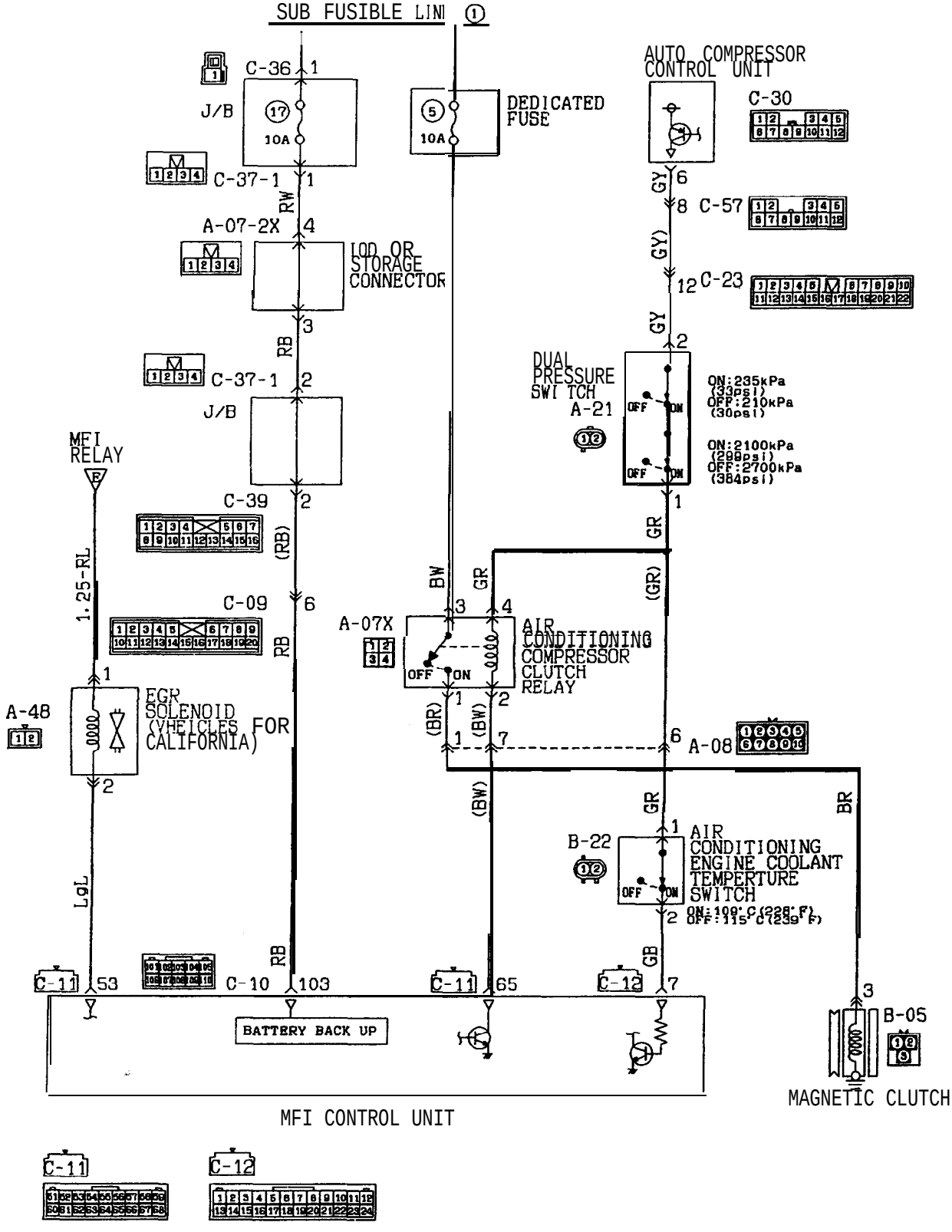
TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1992 models)>

Non-Turbo

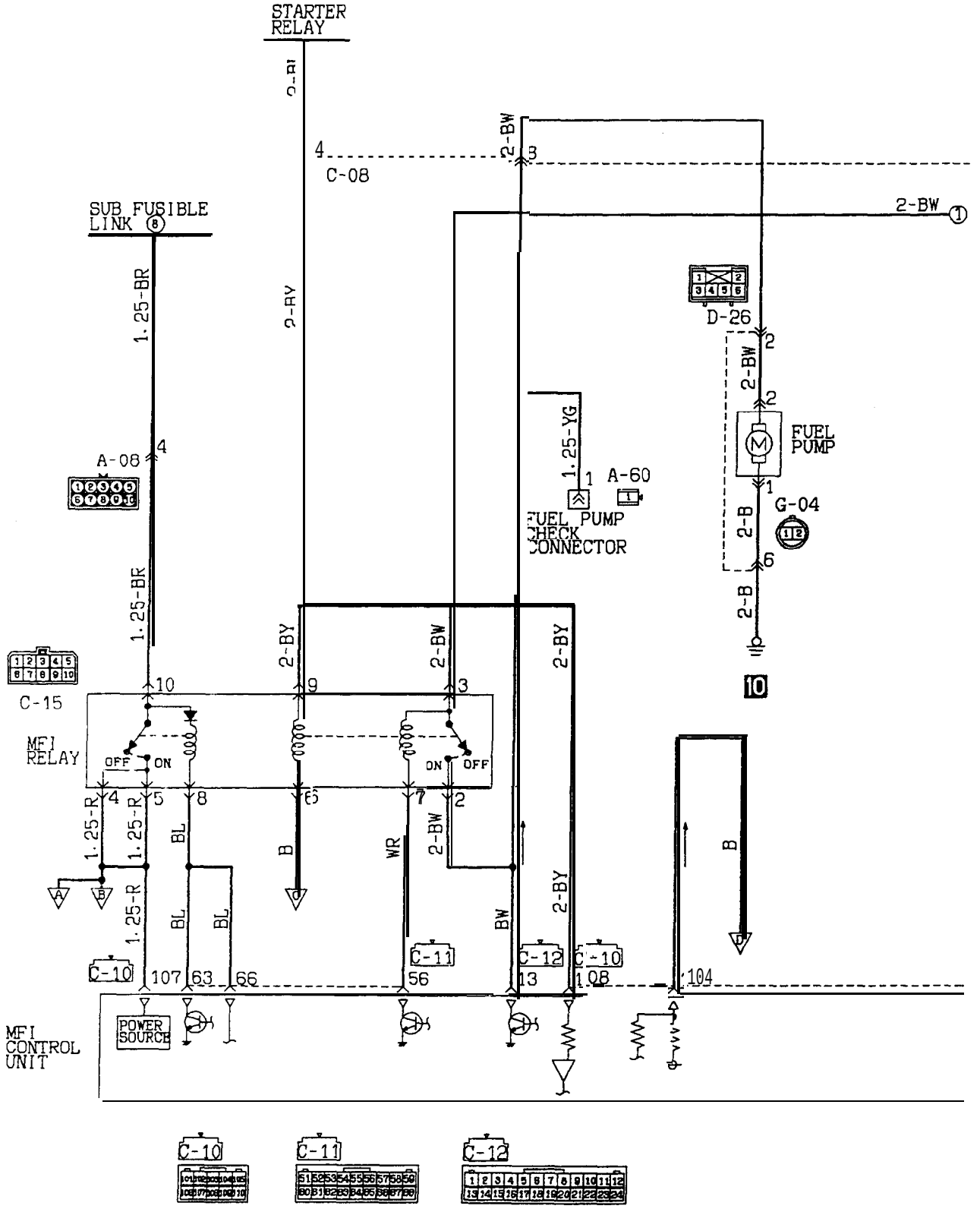




KX35-AC-H0537B-NM

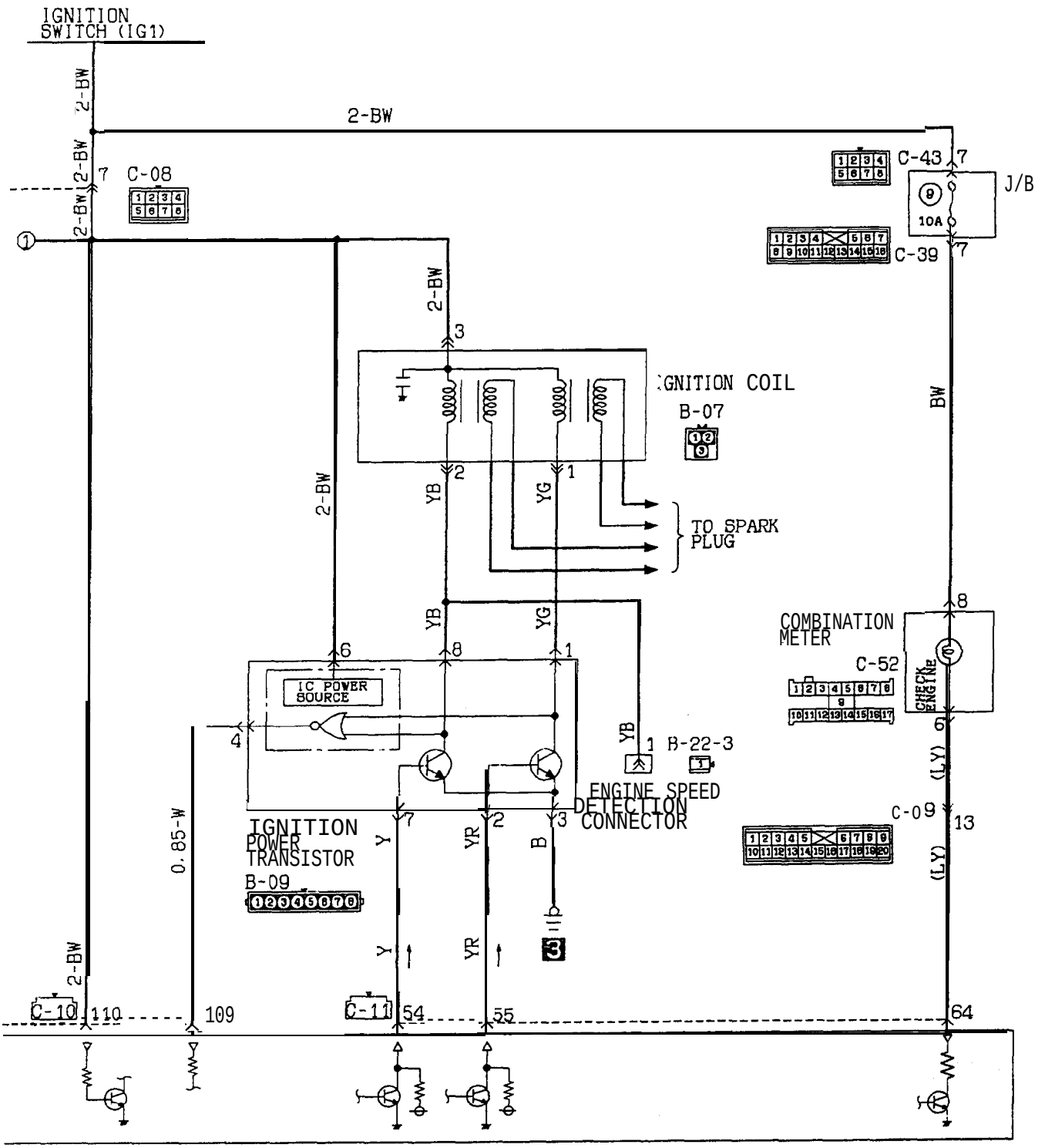
TSB Revision

MFI CIRCUIT
(DOHC (1993 models))
Non-Turbo



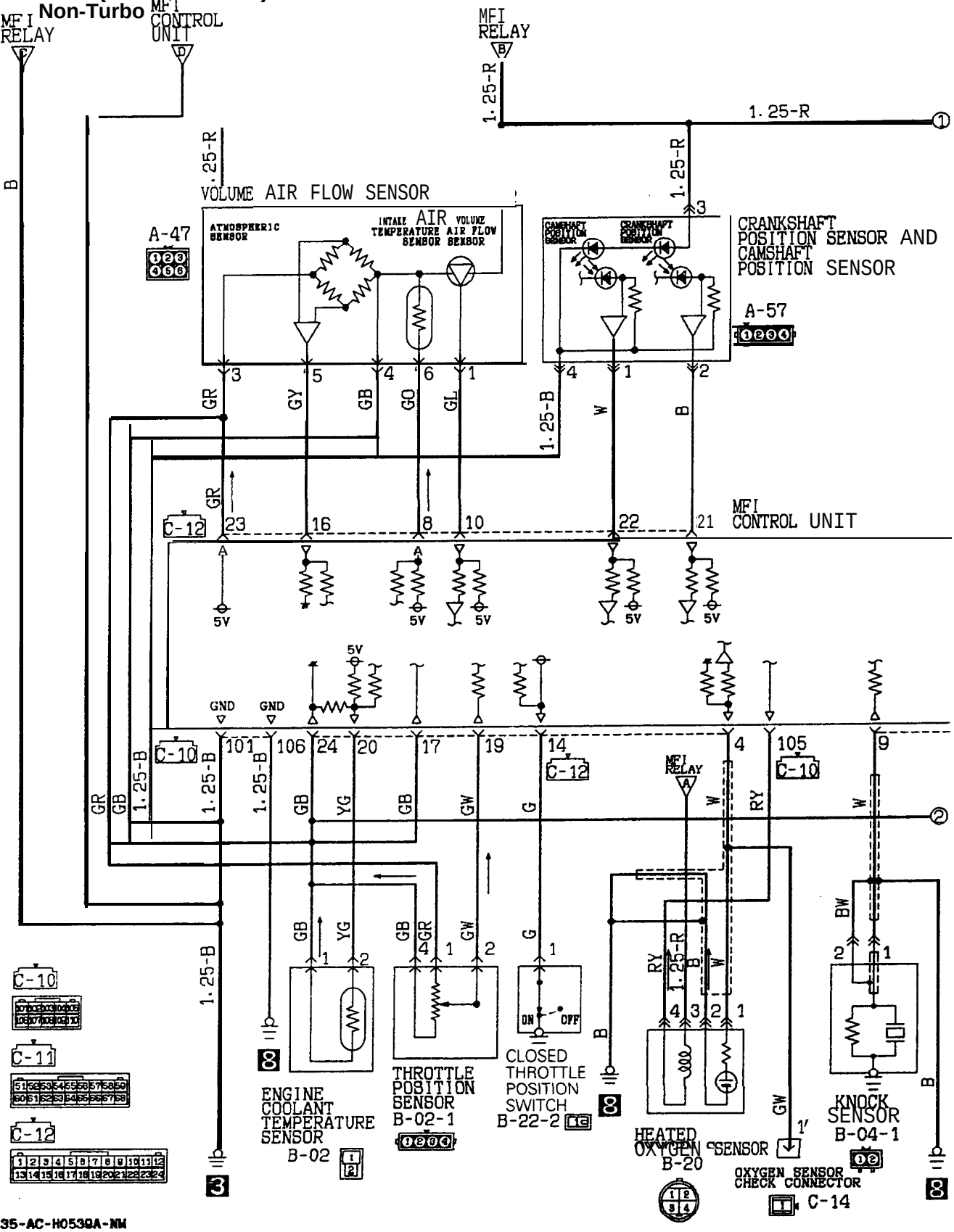
KX35-AC-H0539-KM

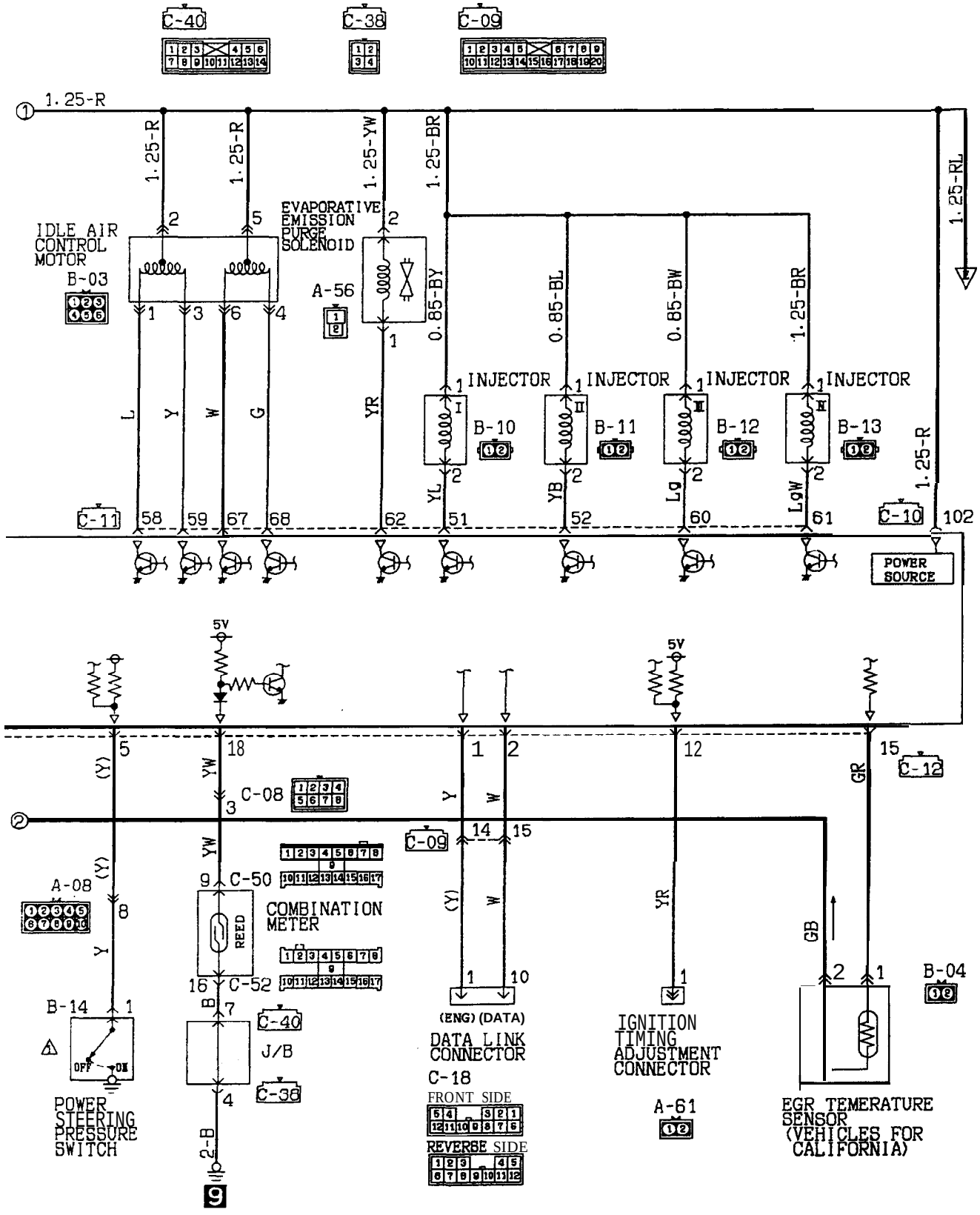
TSB Revision


IGNITION SWITCH (IG1)
2-BW
C-08
C-43
J/B
10A
C-39
IGNITION COIL
B-07
TO SPARK PLUG
YB
YG
BW
IC POWER SOURCE
COMBINATION METER
C-52
CHECK ENGINE
B-22-3
ENGINE SPEED DETECTION CONNECTOR
C-09
IGNITION POWER TRANSISTOR
B-09
0.85-W
(LY)
Y
YR
B
C-10
C-11
110
109
54
55
64

MFI CIRCUIT (CONTINUED)

<DOHC (1993 models)>



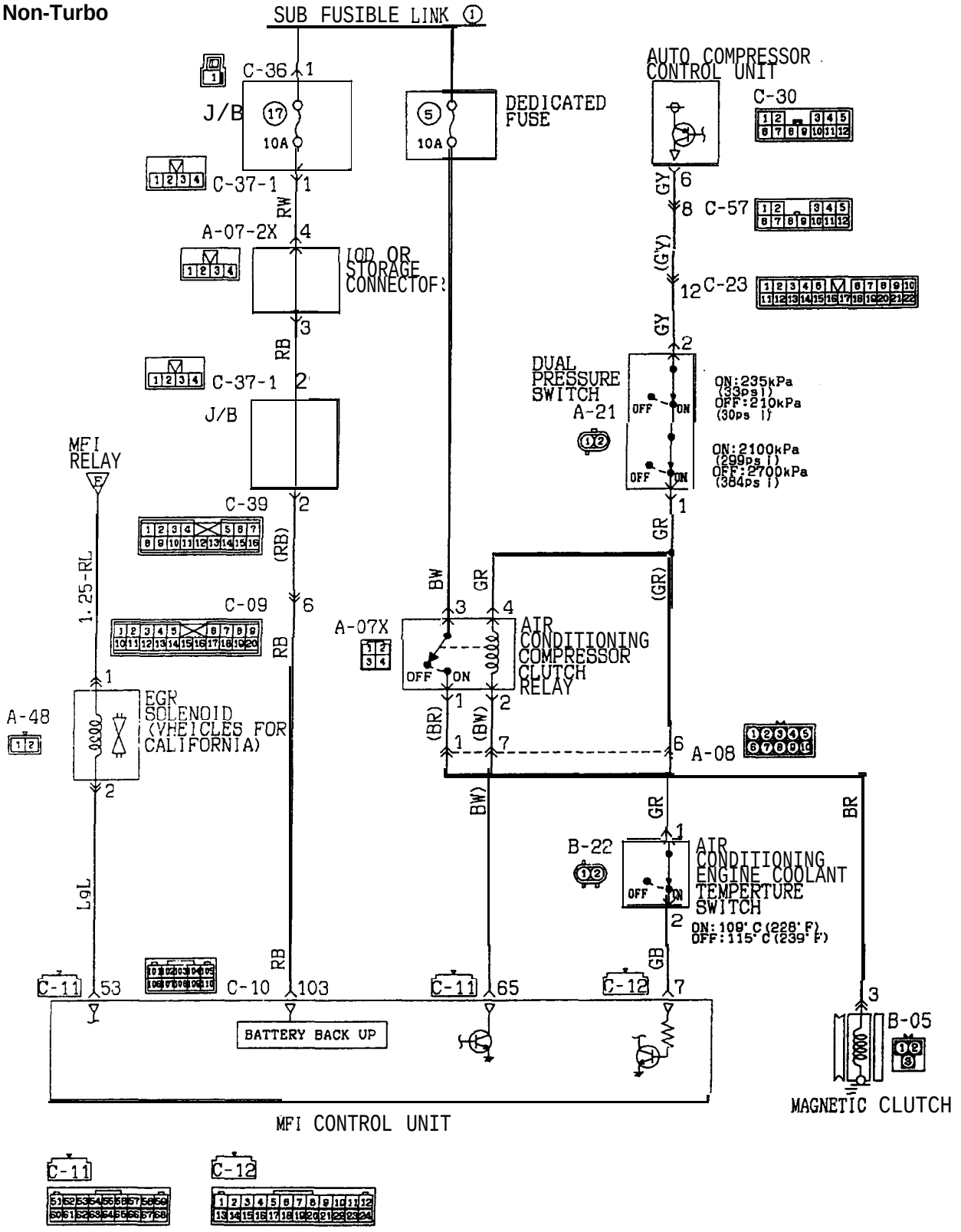


TSB Revision

MFI CIRCUIT (CONTINUED)

<DOHC (1993 models)>

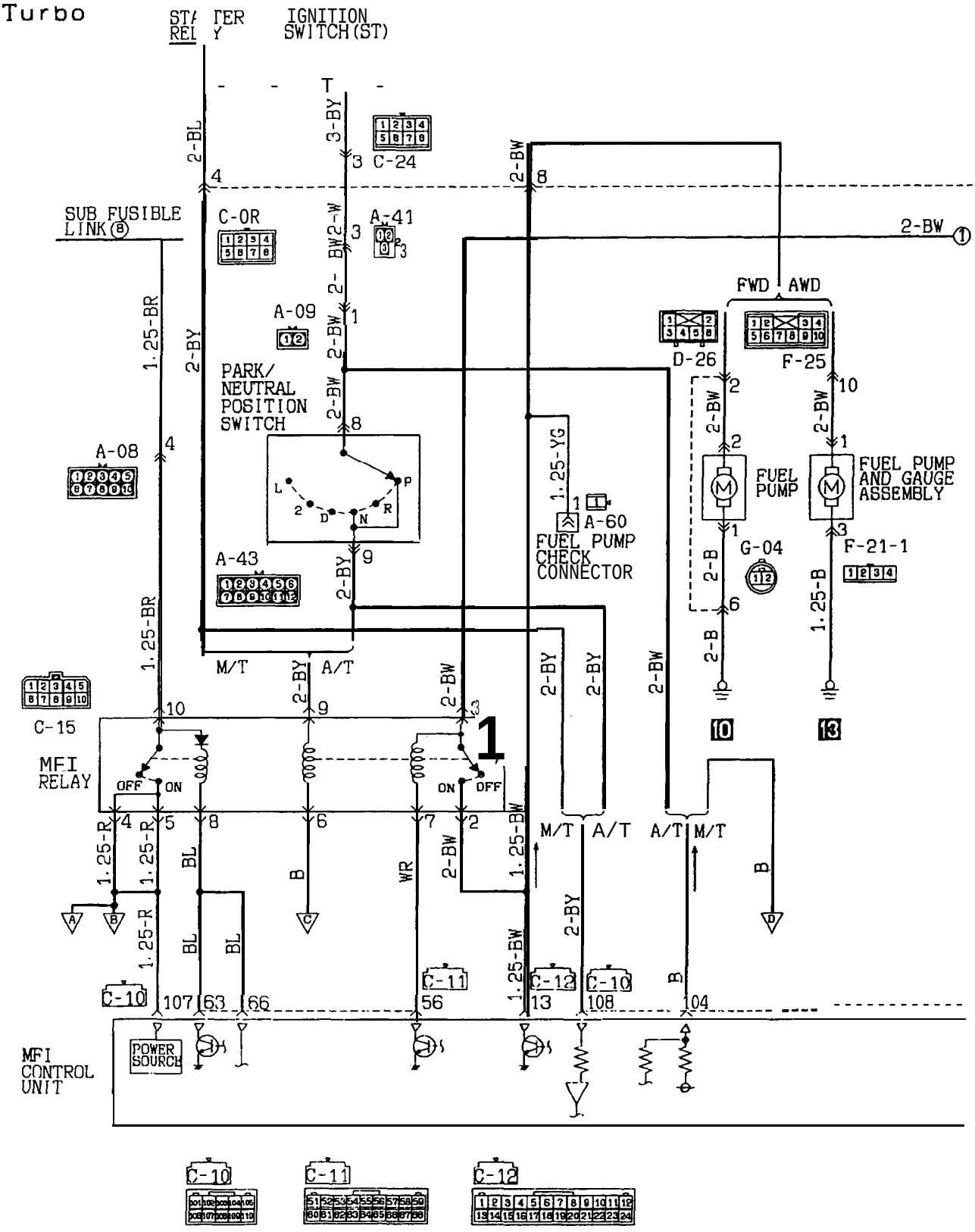
Non-Turbo



XX35-AC-H05398-NM

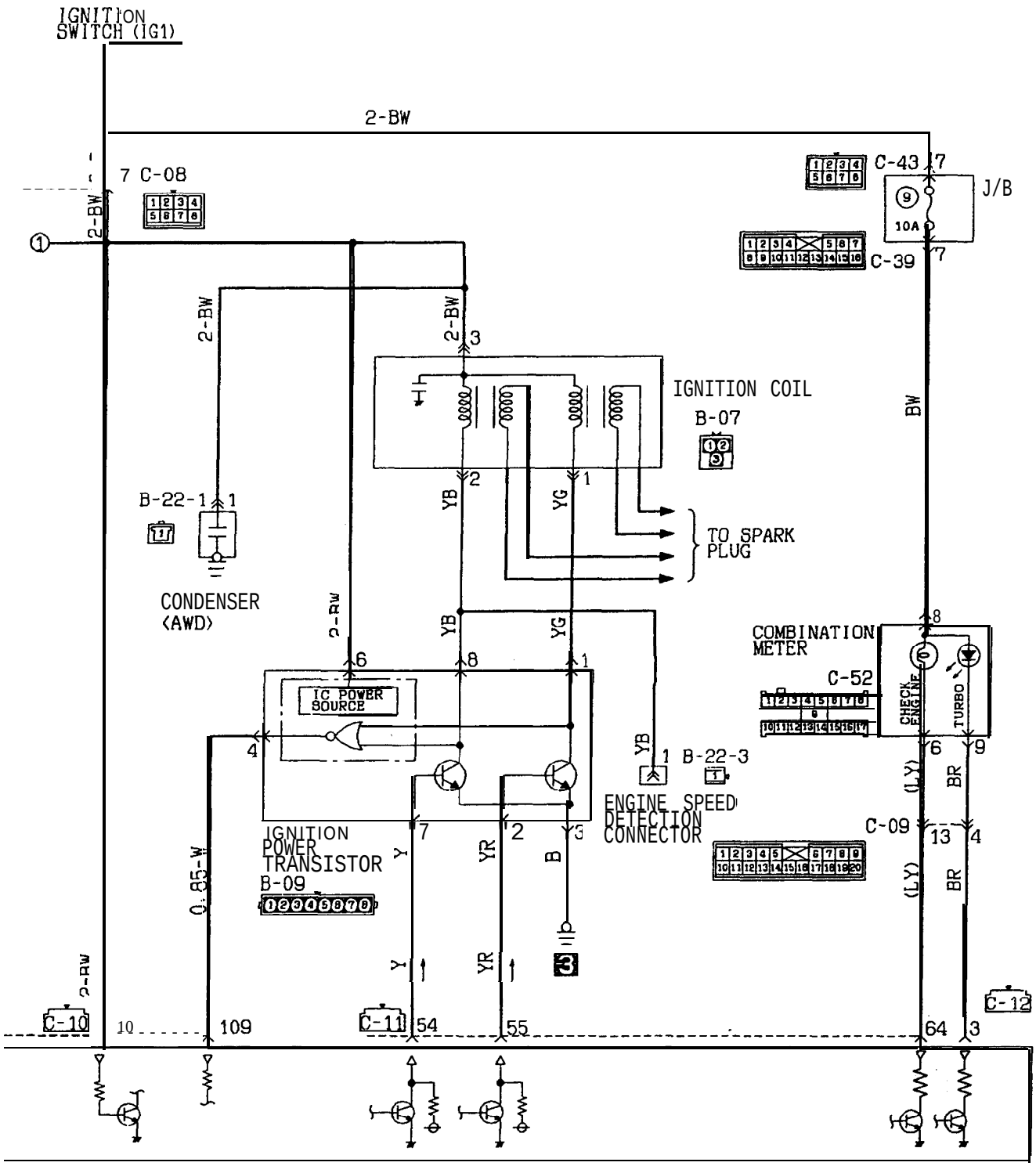
NOTES

MFI CIRCUIT
<DOHC(From 1991 models)>
Turbo



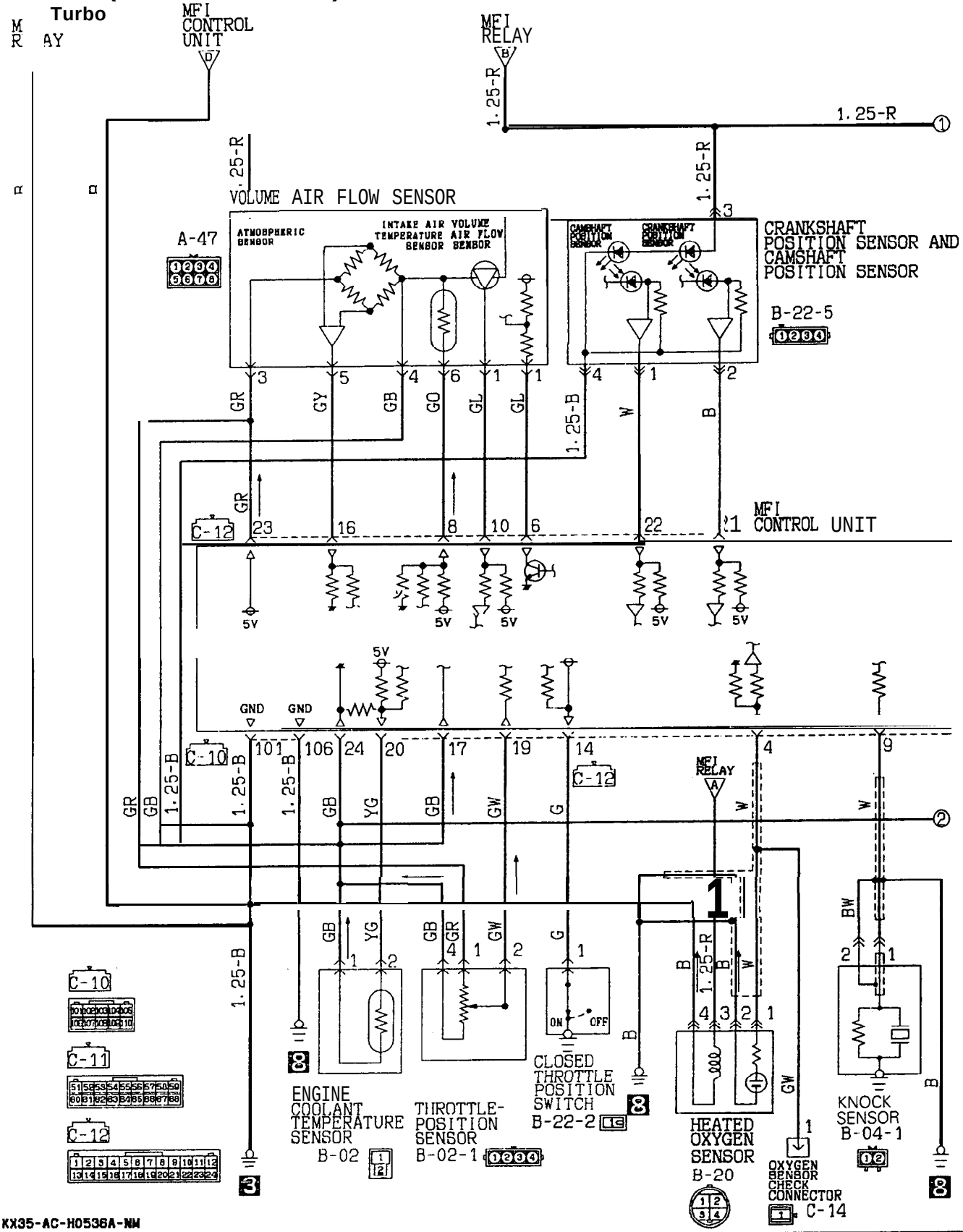
(35-AC-H0538-NM

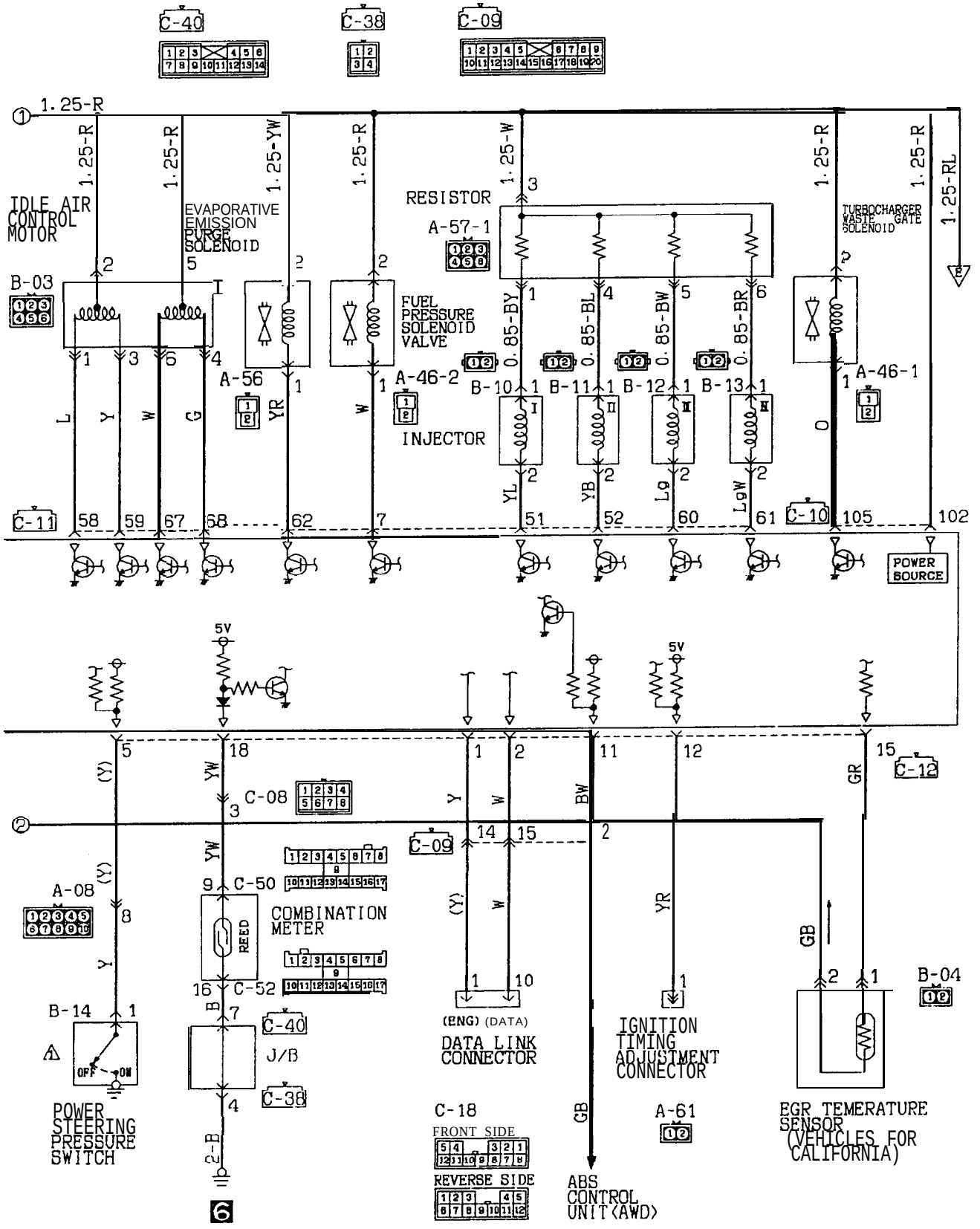
TSB **Revision**


IGNITION SWITCH (IG1)
2-BW
7 C-08
C-43
J/B
10A
C-39
IGNITION COIL
B-07
TO SPARK PLUG
B-22-1
CONDENSER <AWD>
IC POWER SOURCE
IGNITION POWER TRANSISTOR
B-09
B-22-3
ENGINE SPEED DETECTION CONNECTOR
COMBINATION METER
C-52
CHECK ENGINE
TURBO
C-09
C-10
C-11
C-12
YB
YG
BW
BR
(LY)
Y
YR
B
0.85-W
2-RW

MFI CIRCUIT (CONTINUED)

<DOHC (From 1991 models)>

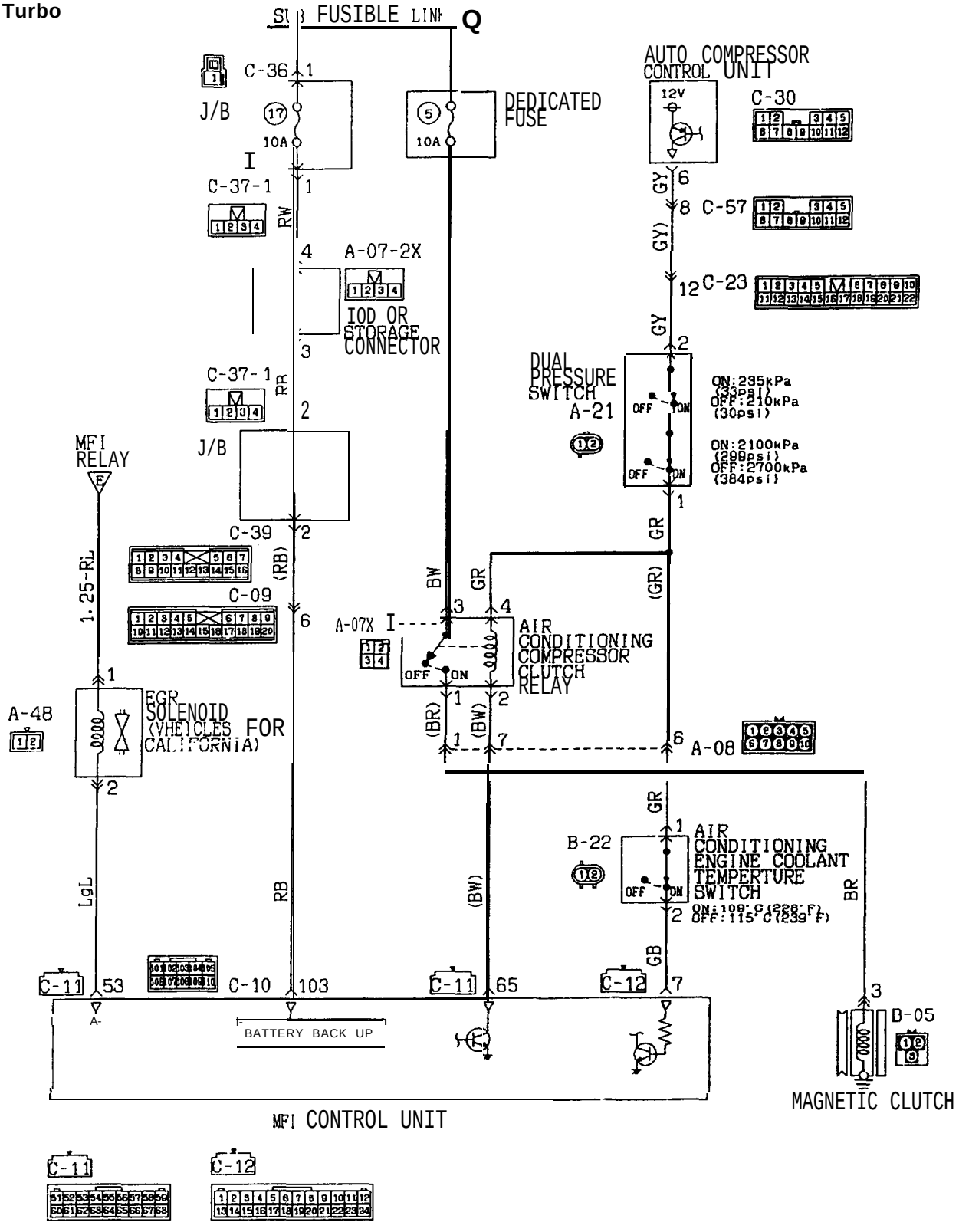



C-40
C-38
C-09
1.25-R
IDLE AIR CONTROL MOTOR
EVAPORATIVE EMISSION PURGE SOLENOID
RESISTOR
A-57-1
FUEL PRESSURE SOLENOID VALVE
TURBOCHARGER WASTE GATE SOLENOID
1.25-RL
B-03
A-56
A-46-2
A-46-1
B-10
B-11
B-12
B-13
INJECTOR
C-11
C-10
105
102
POWER BOURCE
5V
C-08
C-12
A-08
C-50
REED
COMBINATION METER
B-14
OFF
ON
POWER STEERING PRESSURE SWITCH
C-40
J/B
C-38
2-B
(ENG) (DATA)
DATA LINK CONNECTOR
C-18
FRONT SIDE
REVERSE SIDE
ABS CONTROL UNIT<AWD>
IGNITION TIMING ADJUSTMENT CONNECTOR
A-61
EGR TEMERATURE SENSOR (VEHICLES FOR CALIFORNIA)
B-04
6

MFI CIRCUIT (CONTINUED)

<DOHC (From 1991 models)>

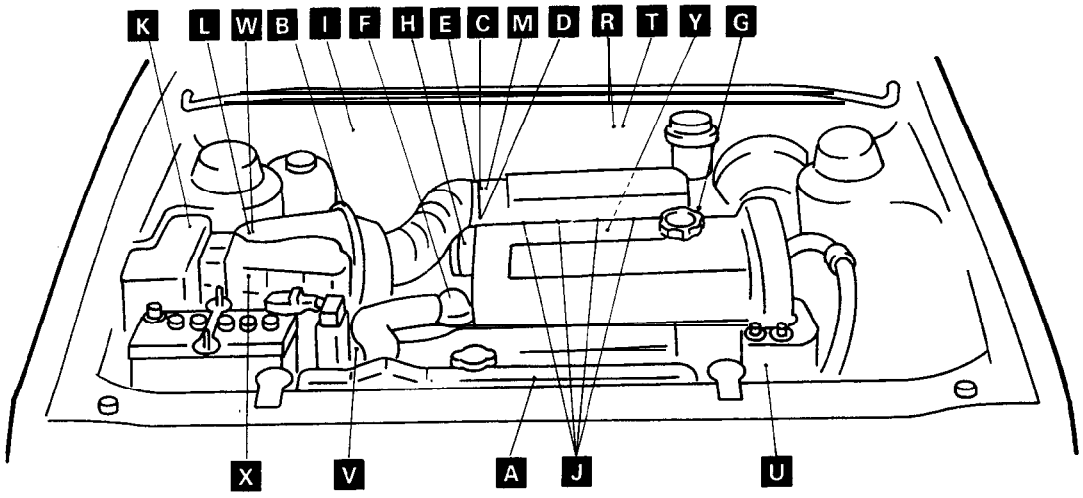
Turbo



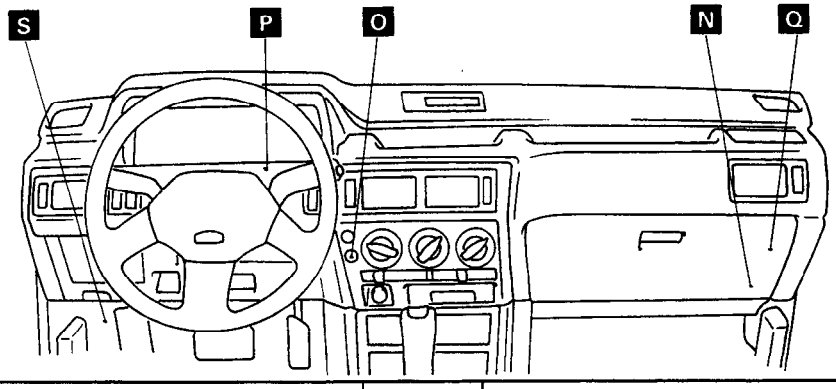
KX35-AC-H0538B-NM

TSB Revision

COMPONENT LOCATION



6EM0166



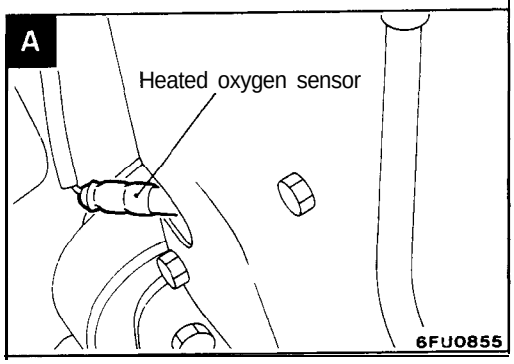
6FU0843

Name	Symbol
Air conditioning compressor clutch relay	K
Air conditioning switch	O
Closed throttle position switch (fixed SAS)	E
Crankshaft position sensor and camshaft position sensor	H
Data link connector	S
Engine control module	Q
Engine coolant temperature sensor	F
EGR solenoid	L
EGR temperature sensor	M
Evaporative emission purge solenoid	I
Fuel pressure solenoid	W
Fuel pump check terminal	T
Heated oxygen sensor	A

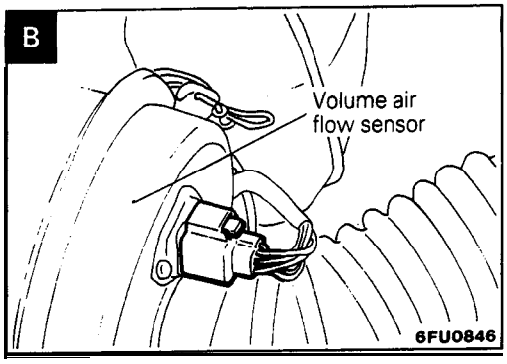
Name	Symbol
Idle air control motor (stepper motor)	C
Ignition coil (ignition power transistor)	G
Ignition timing adjustment terminal	R
Injector	J
Knock sensor	Y
Multiport fuel injection relay	N
Park/neutral position switch <A/T>	V
Power steering pressure switch	U
Throttle position sensor	D
Turbocharger waste gate solenoid	X
Vehicle speed sensor (reed switch)	P
Volume air flow sensor (incorporating intake air temperature sensor and barometric pressure sensor)	B

NOTE
The "Name" column is arranged in alphabetical order,

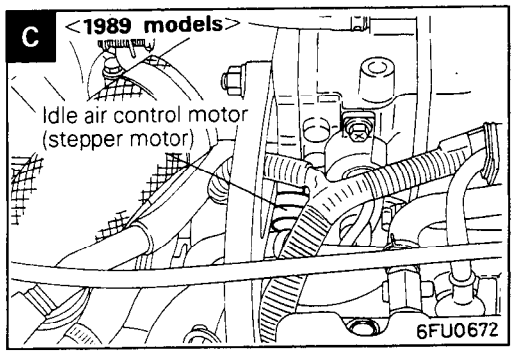
A



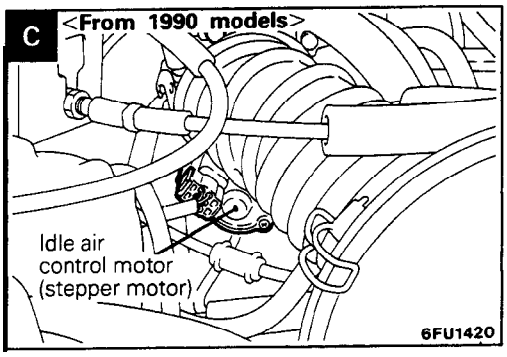
B



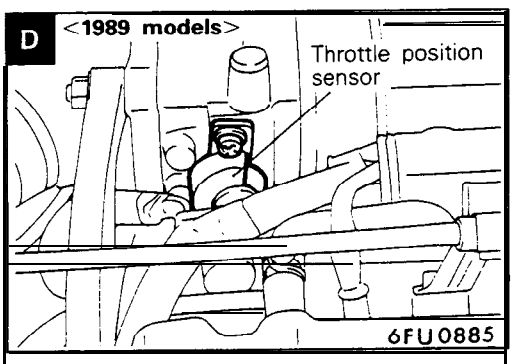
C <1989 models>



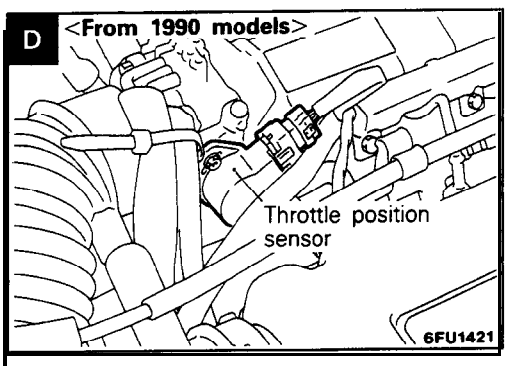
C <From 1990 models>



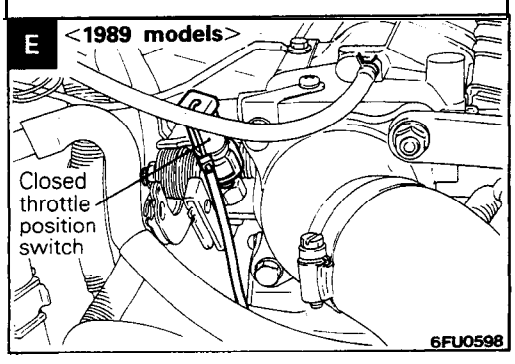
D <1989 models>



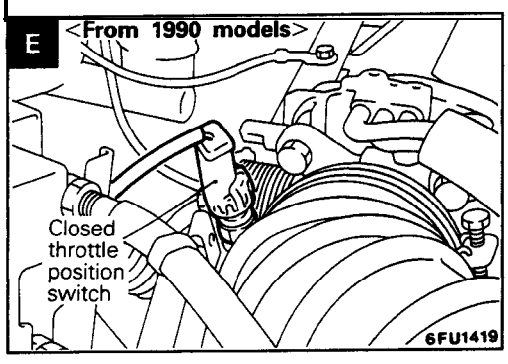
D <From 1990 models>



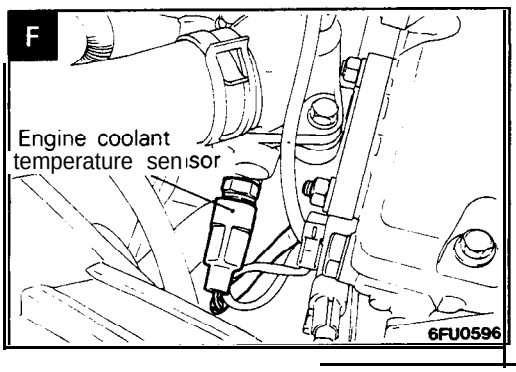
E <1989 models>



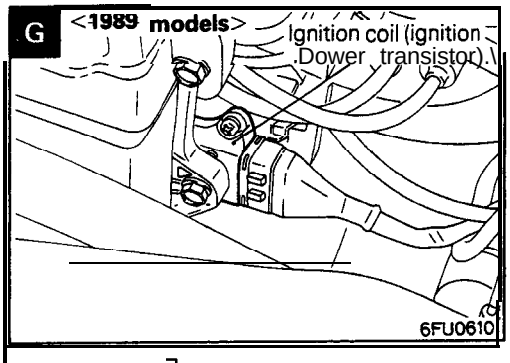
E <From 1990 models>



F

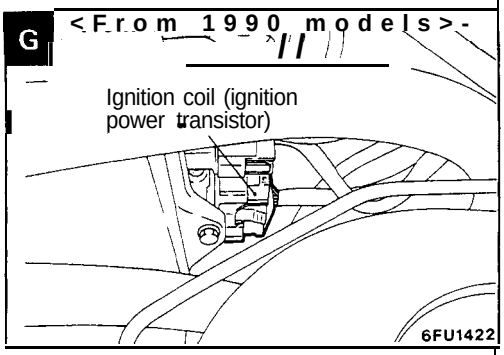


G <1989 models>

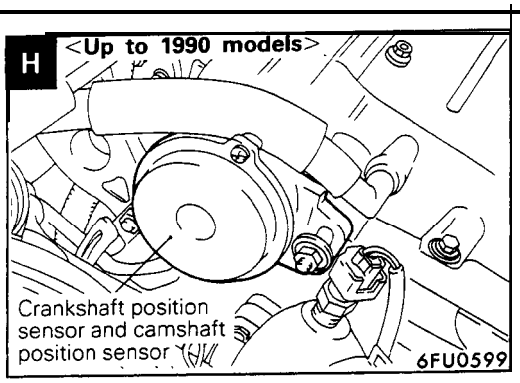


TSB Revision

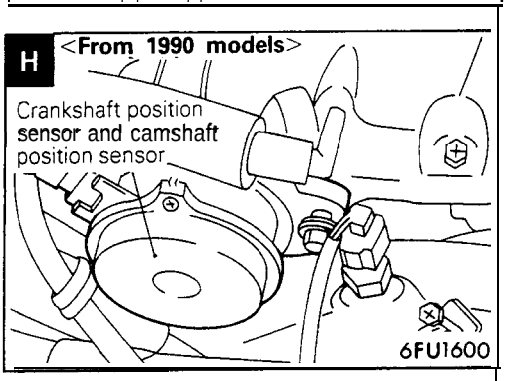
G <From 1990 models>



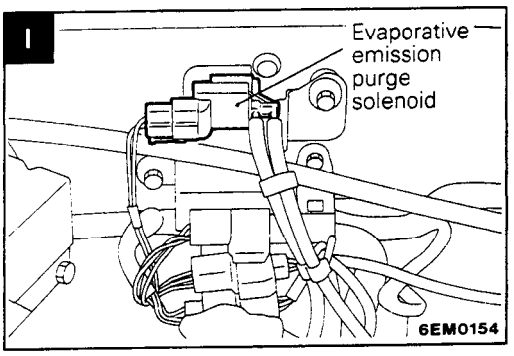
H <Up to 1990 models>



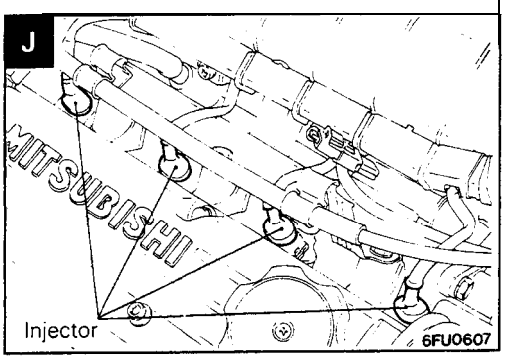
H <From 1990 models>



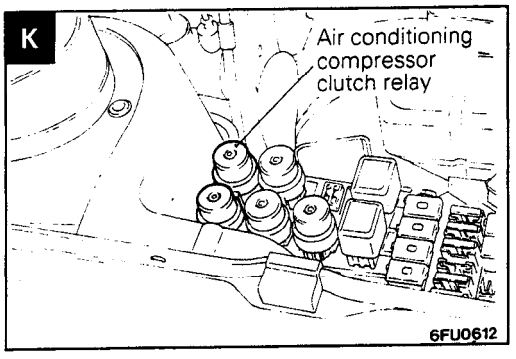
I



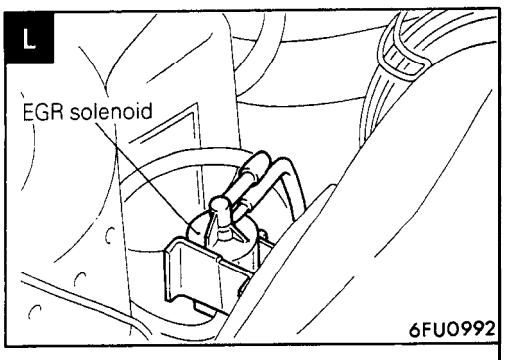
J



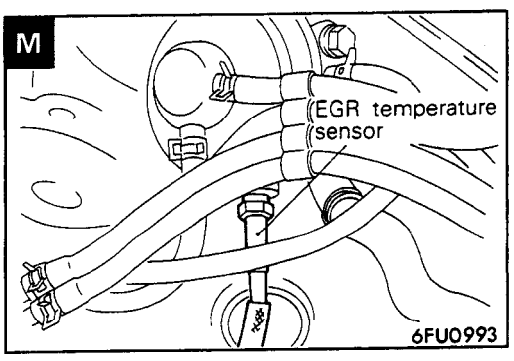
K



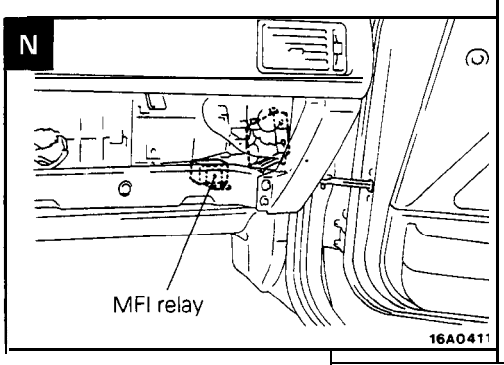
L



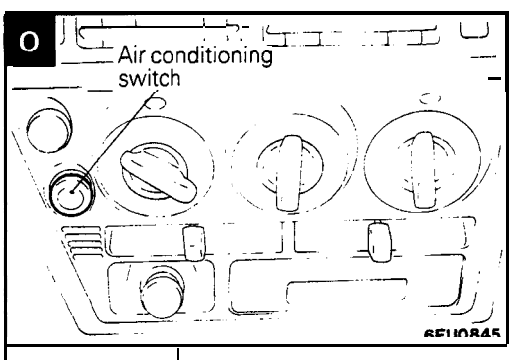
M



N

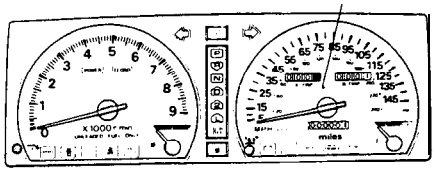


O

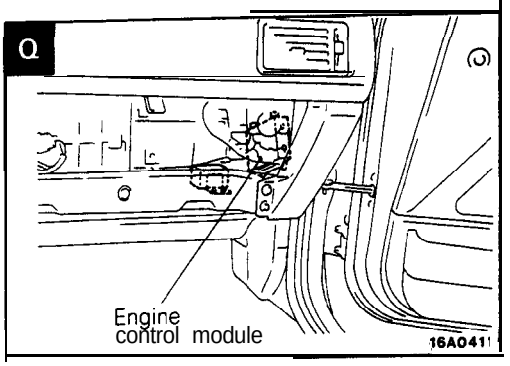


TSB Revision

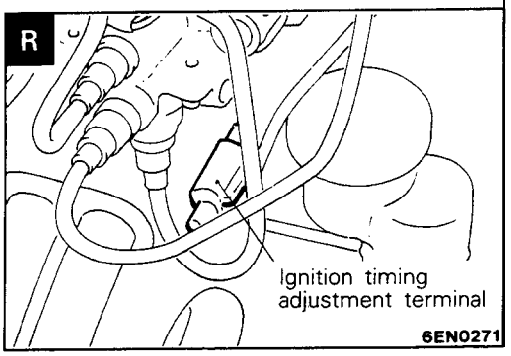
P



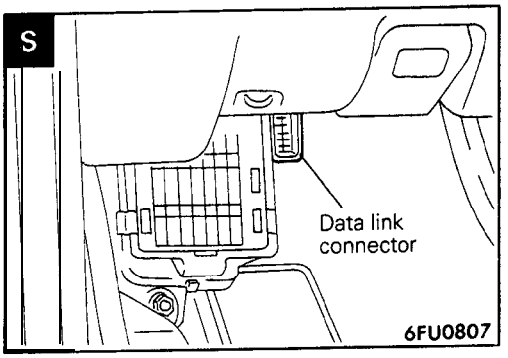
Q



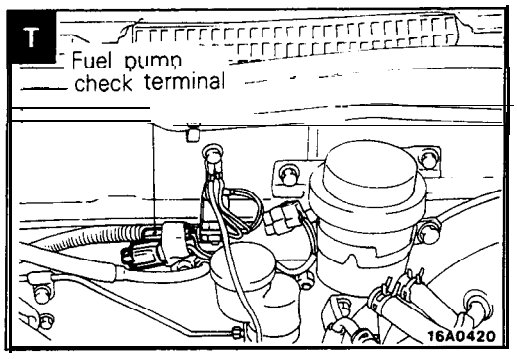
R



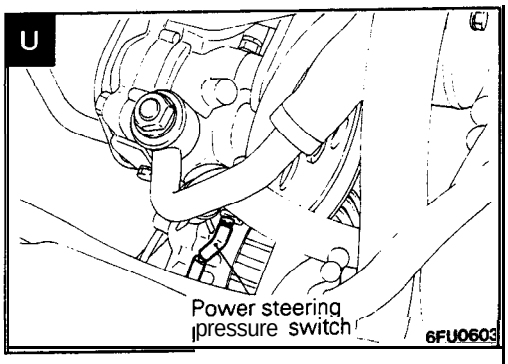
S



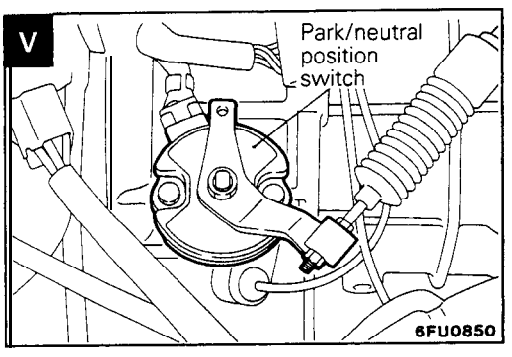
T



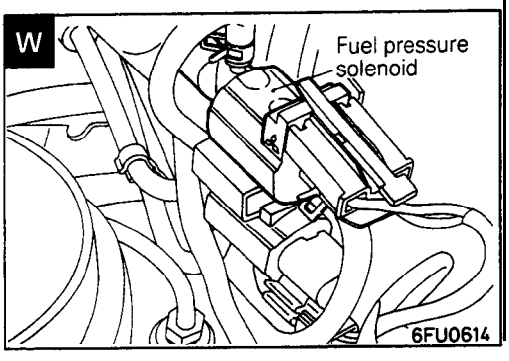
U



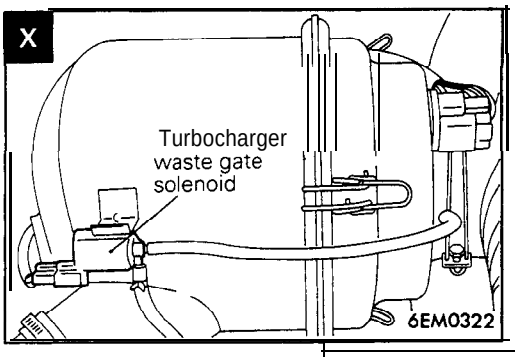
V



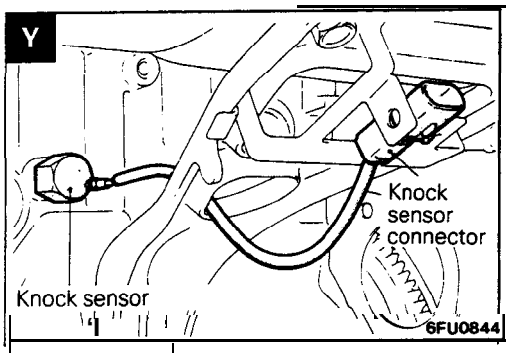
W



X



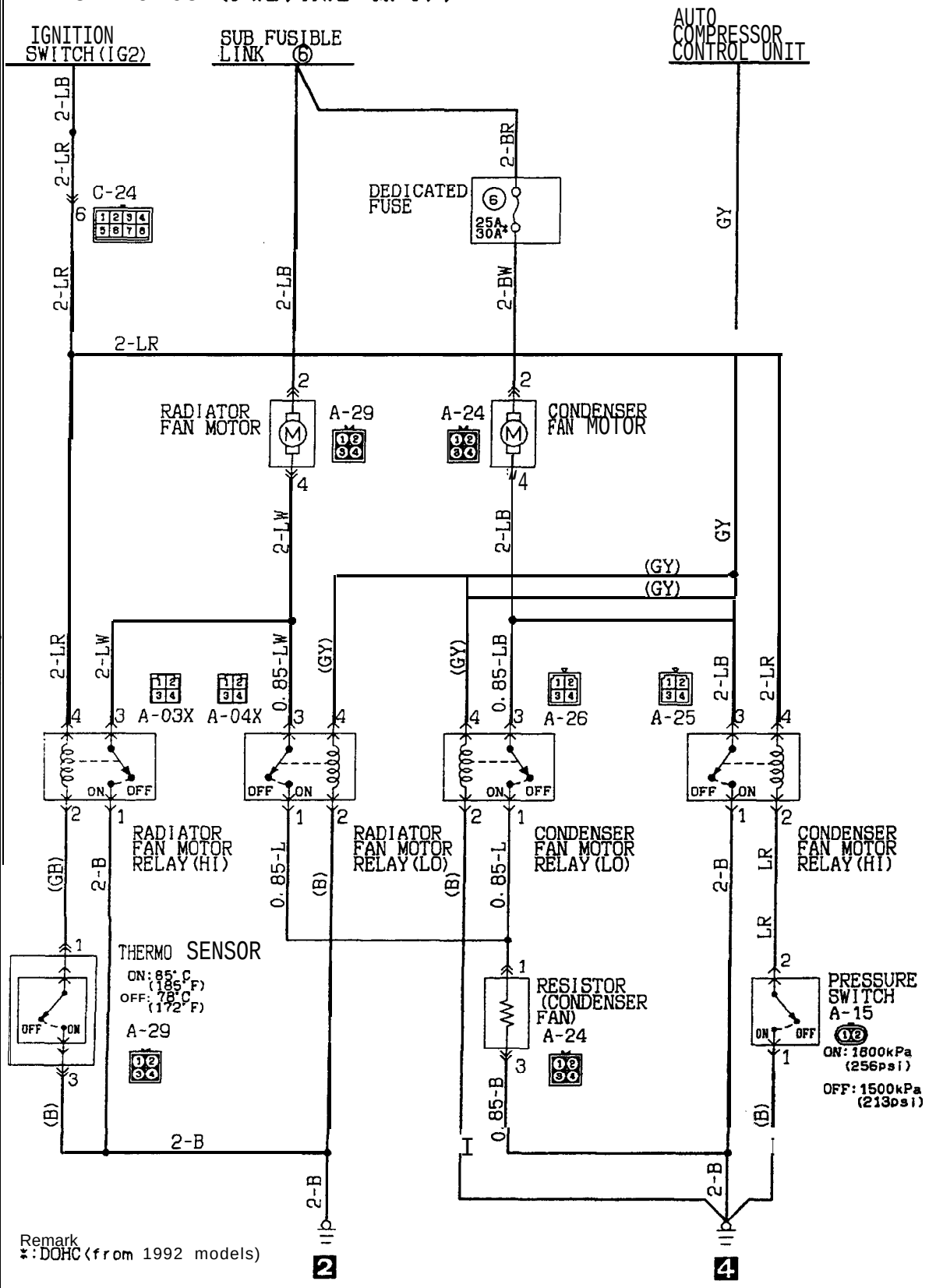
Y



TSB Revision

COOLING CIRCUIT

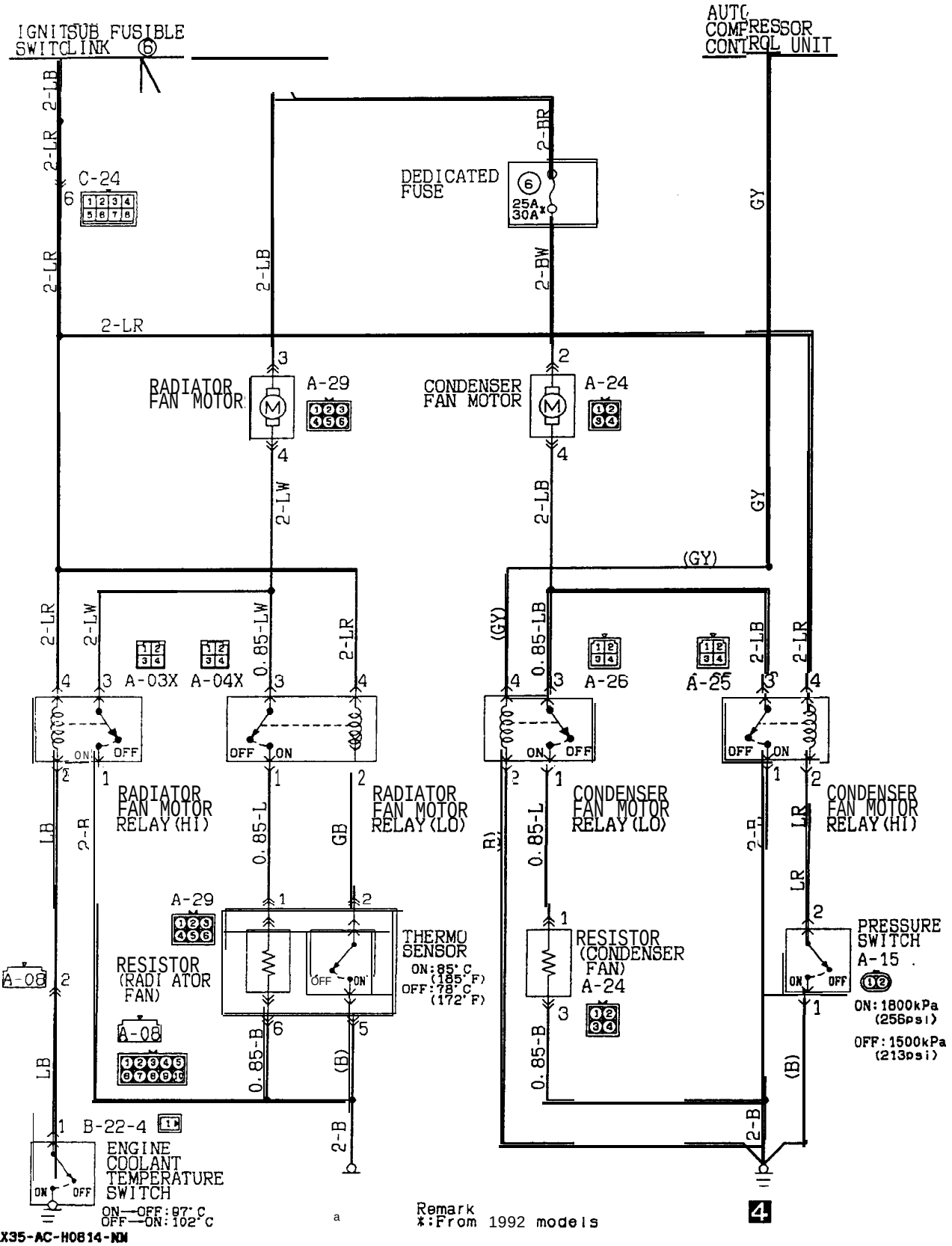
<Non-Turbo (FWD, AWD-M/T)>



TSB Revision

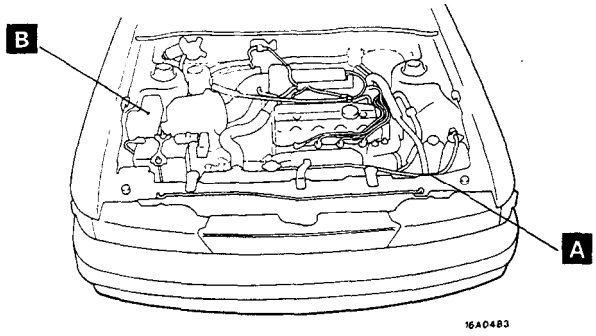
COOLING CIRCUIT

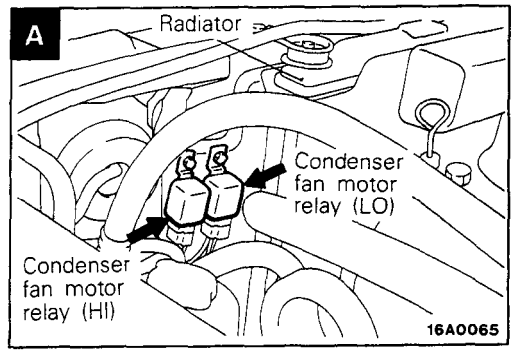
<Non-Turbo (AWD-A/T), Turbo>

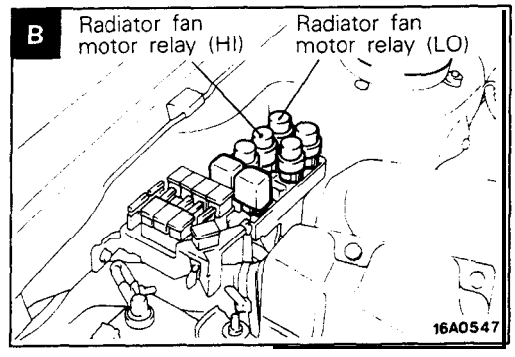


COMPONENT LOCATION

Name	Symbol	Name	Symbol
Condenser fan motor relay (HI)	A	Radiator fan motor relay (HI)	B
Condenser fan motor relay (LO)	A	Radiator fan motor relay (LO) <Vehicles with an air conditioning>	B

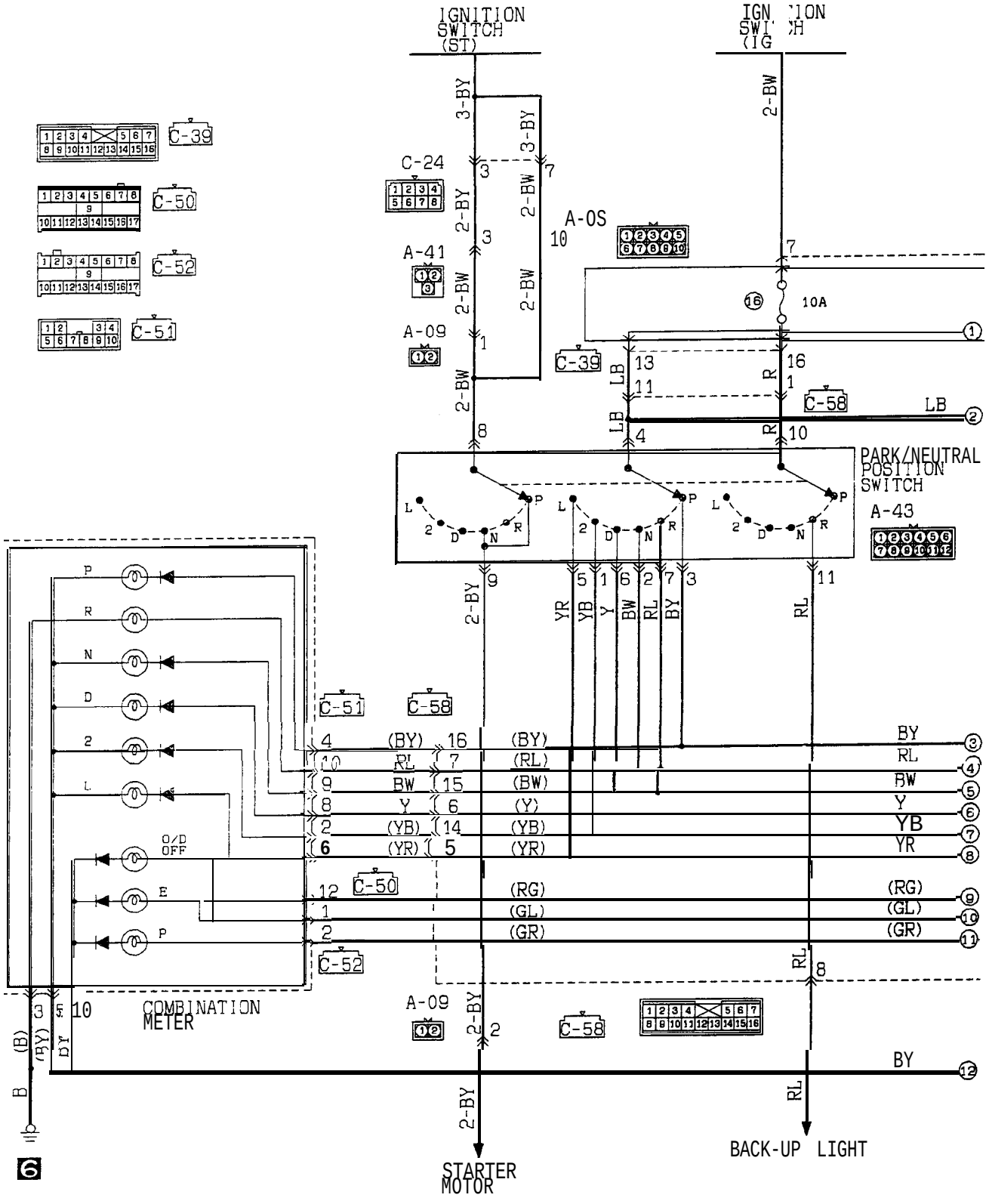






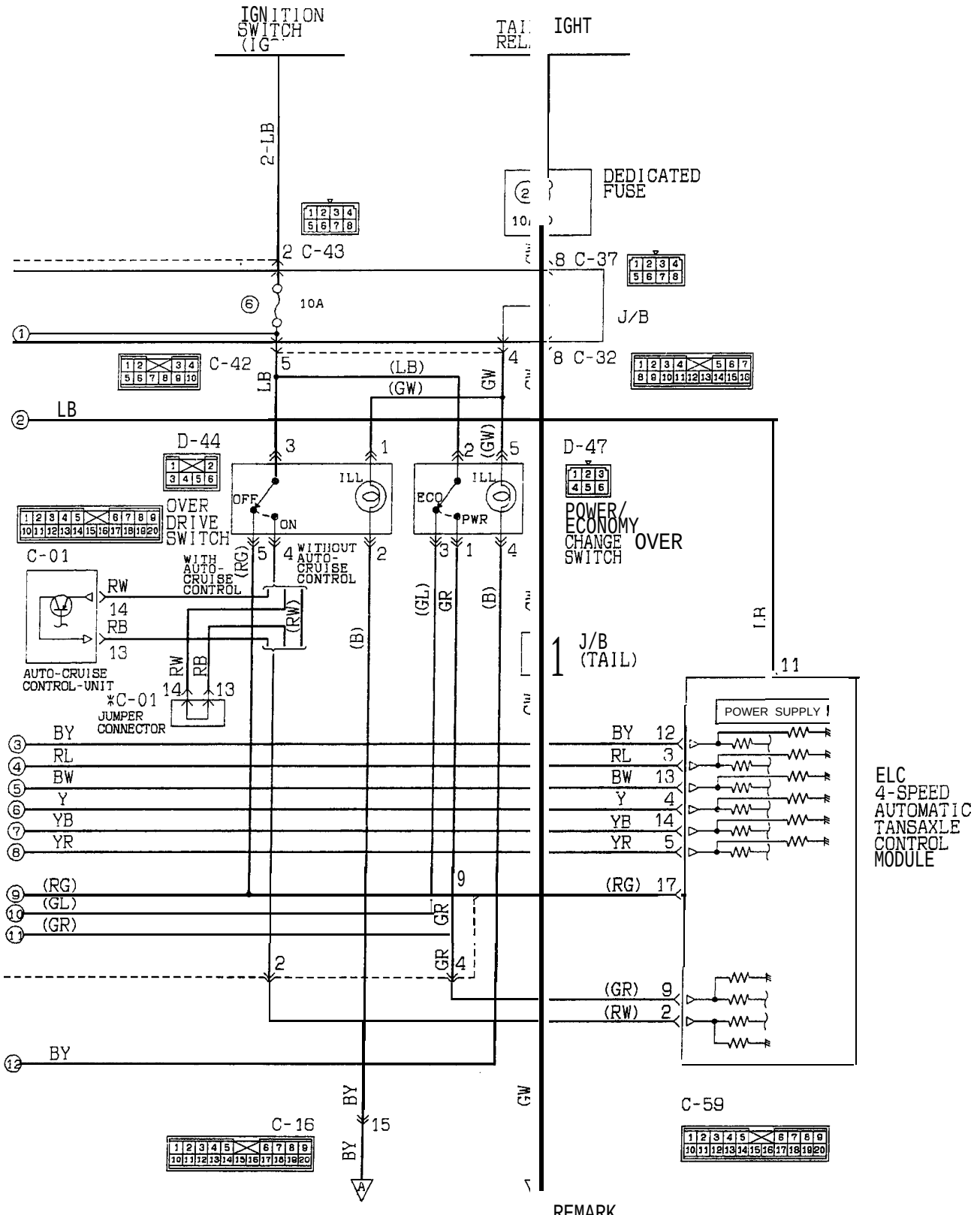
TSB Revision

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT
(1989 MODELS)



135-AC-H0707-NM

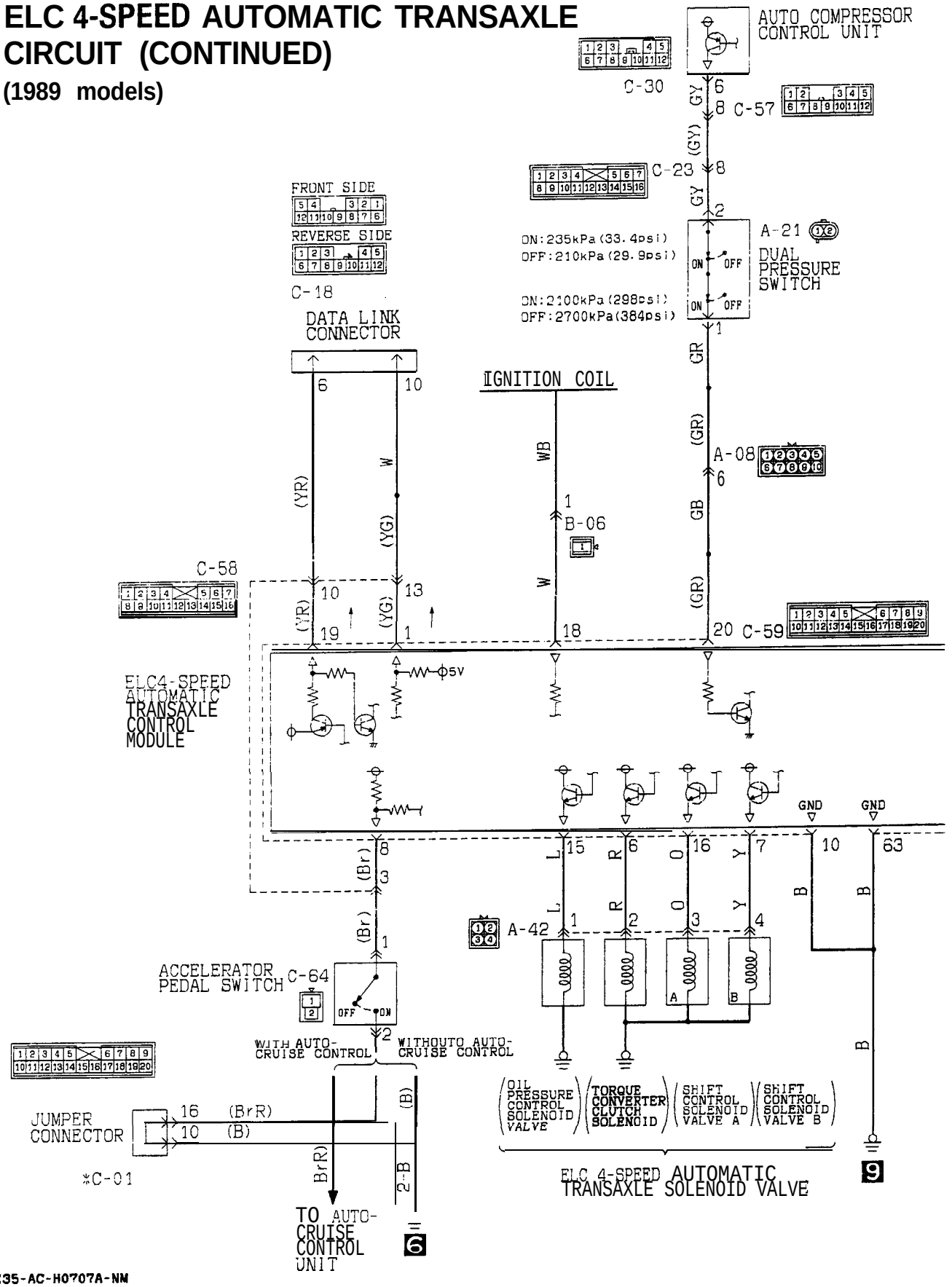
TSB Revision



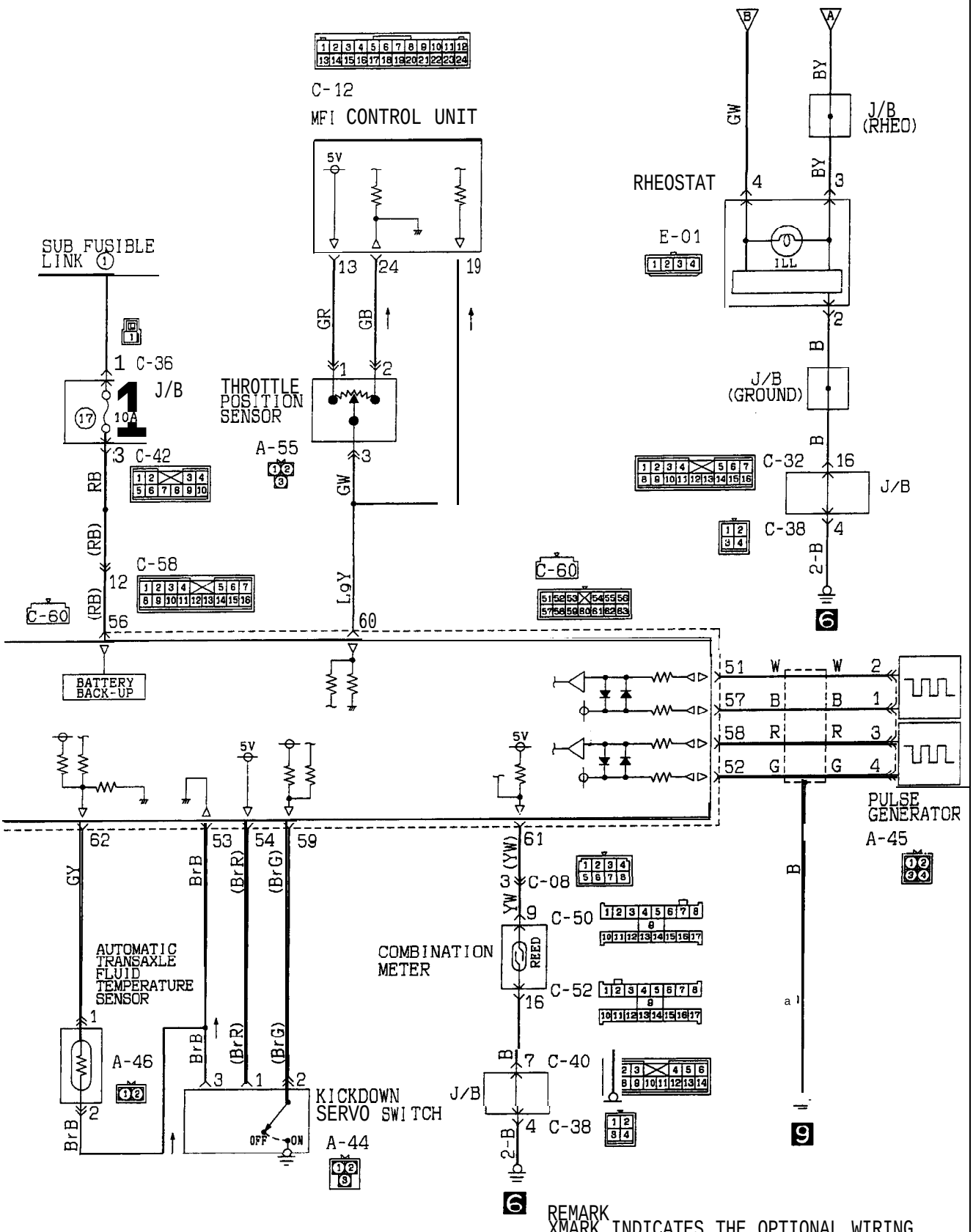
REMARK
*MARK INDICATES THE OPTIONAL WIRING HARNESS FOR AUTO-CRUISE CONTROL SYSTEM.

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT (CONTINUED)

(1989 models)

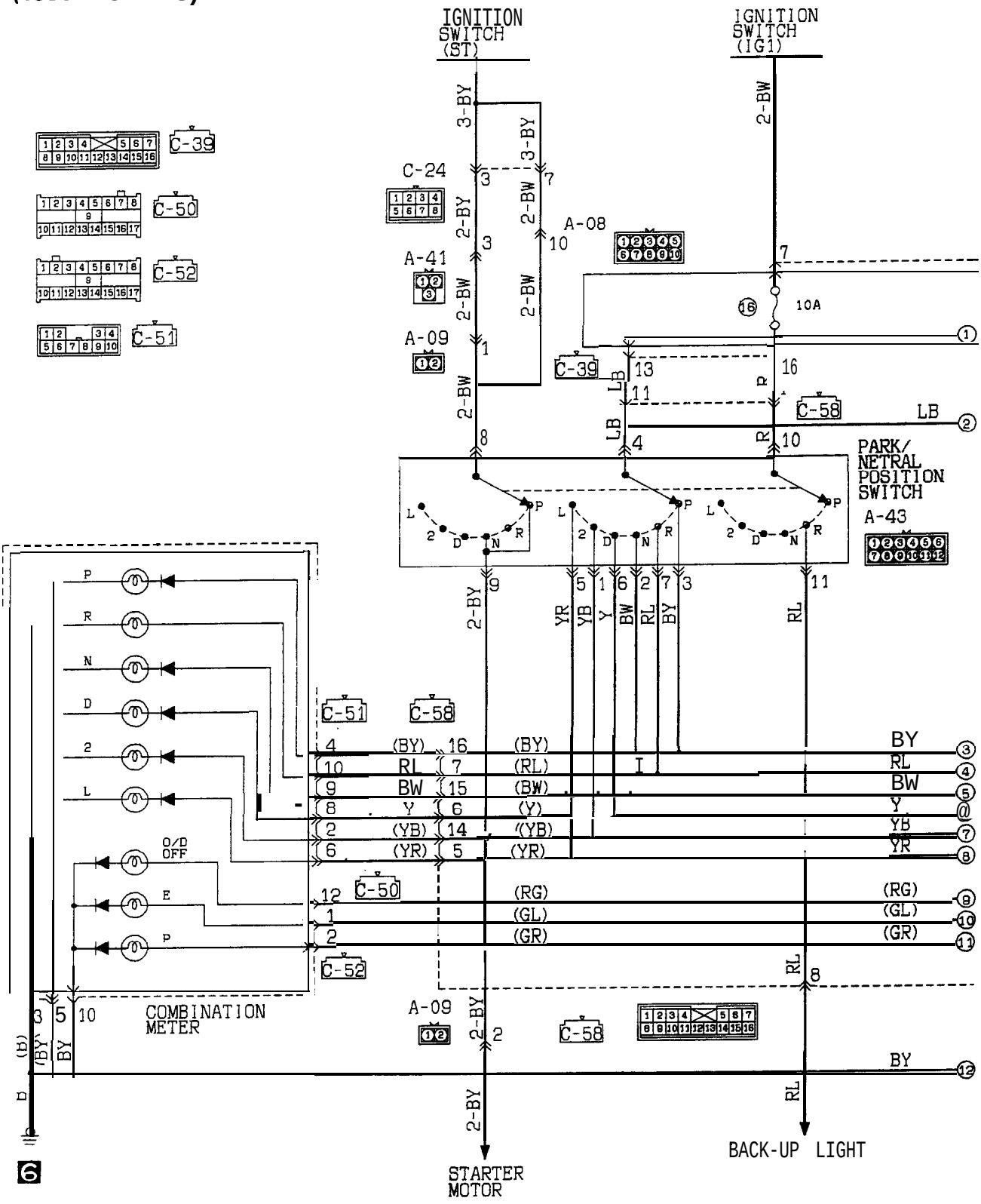


KX35-AC-H0707A-NM



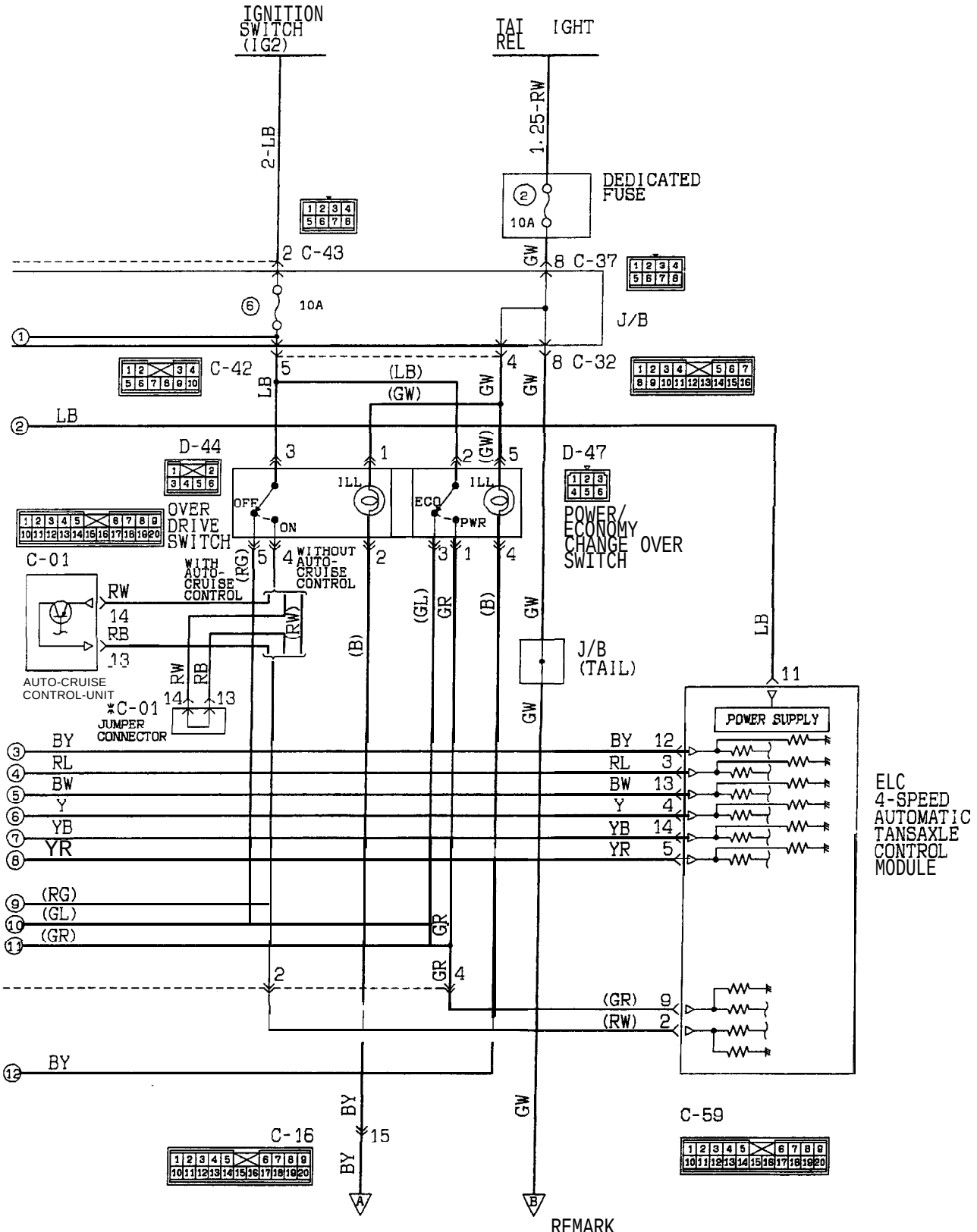
TSB Revision

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT
(1990 MODELS)



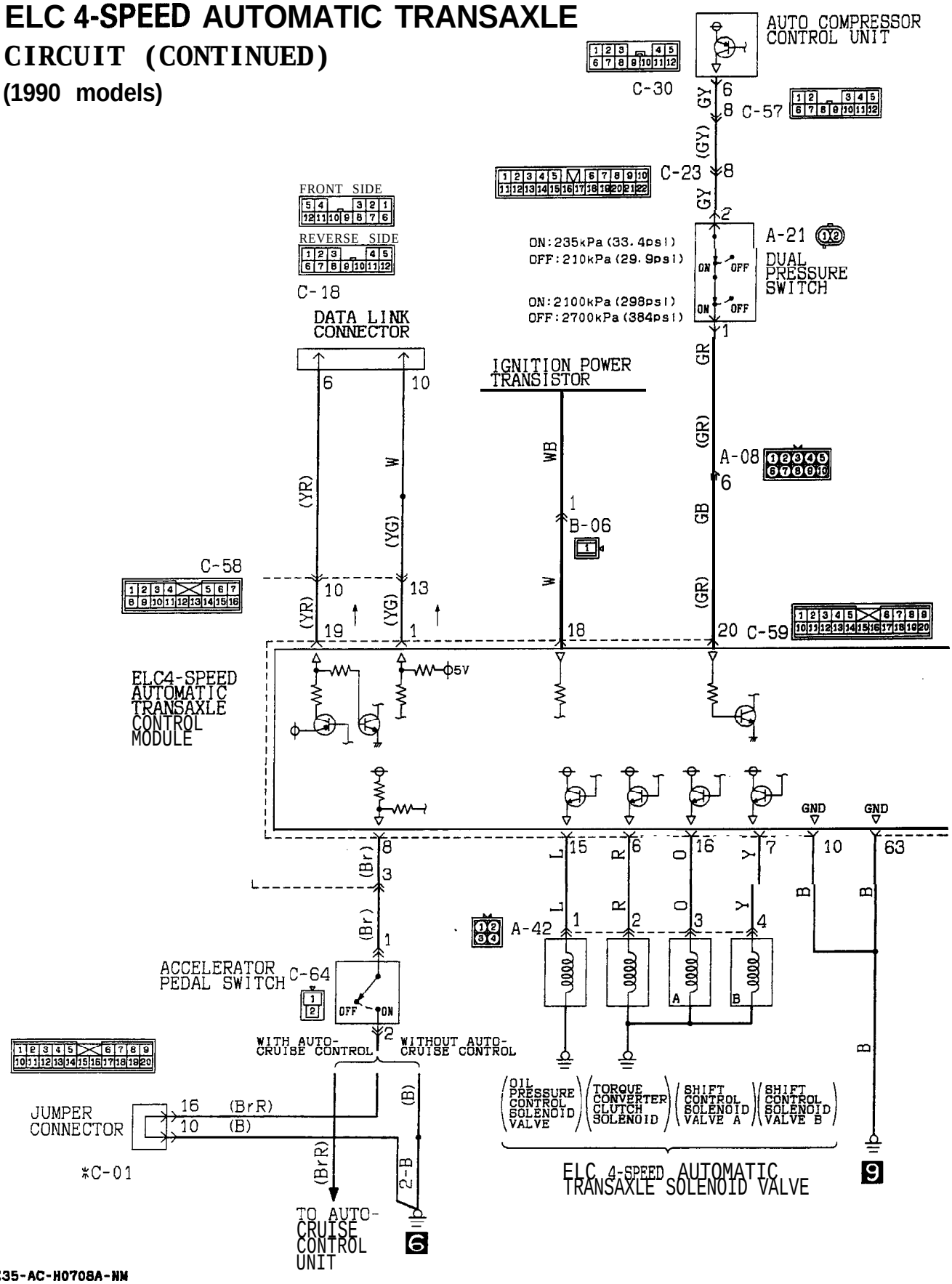
X35-AC-H0708-NM

TSB Revision


IGNITION SWITCH (IG2)
TAI LIGHT REL
2-LB
1.25-RW
DEDICATED FUSE
10A
2 C-43
8 C-37
J/B
C-42
8 C-32
(LB)
(GW)
LB
D-44
D-47
OVER DRIVE SWITCH
OFF
ON
ILL
ECO
PWR
POWER/ ECONOMY CHANGE OVER SWITCH
C-01
WITH AUTO-CRUISE CONTROL
WITHOUT AUTO-CRUISE CONTROL
AUTO-CRUISE CONTROL-UNIT
*C-01 JUMPER CONNECTOR
J/B (TAIL)
POWER SUPPLY
ELC 4-SPEED AUTOMATIC TANSAXLE CONTROL MODULE
C-16
C-59
BY
RL
BW
Y
YB
YR
(RG)
(GL)
(GR)
(RW)
GW
GR
RW
RB
REMARK
*MARK INDICATES THE OPTIONAL WIRING HARNESS FOR AUTO-CRUISE CONTROL SYSTEM.

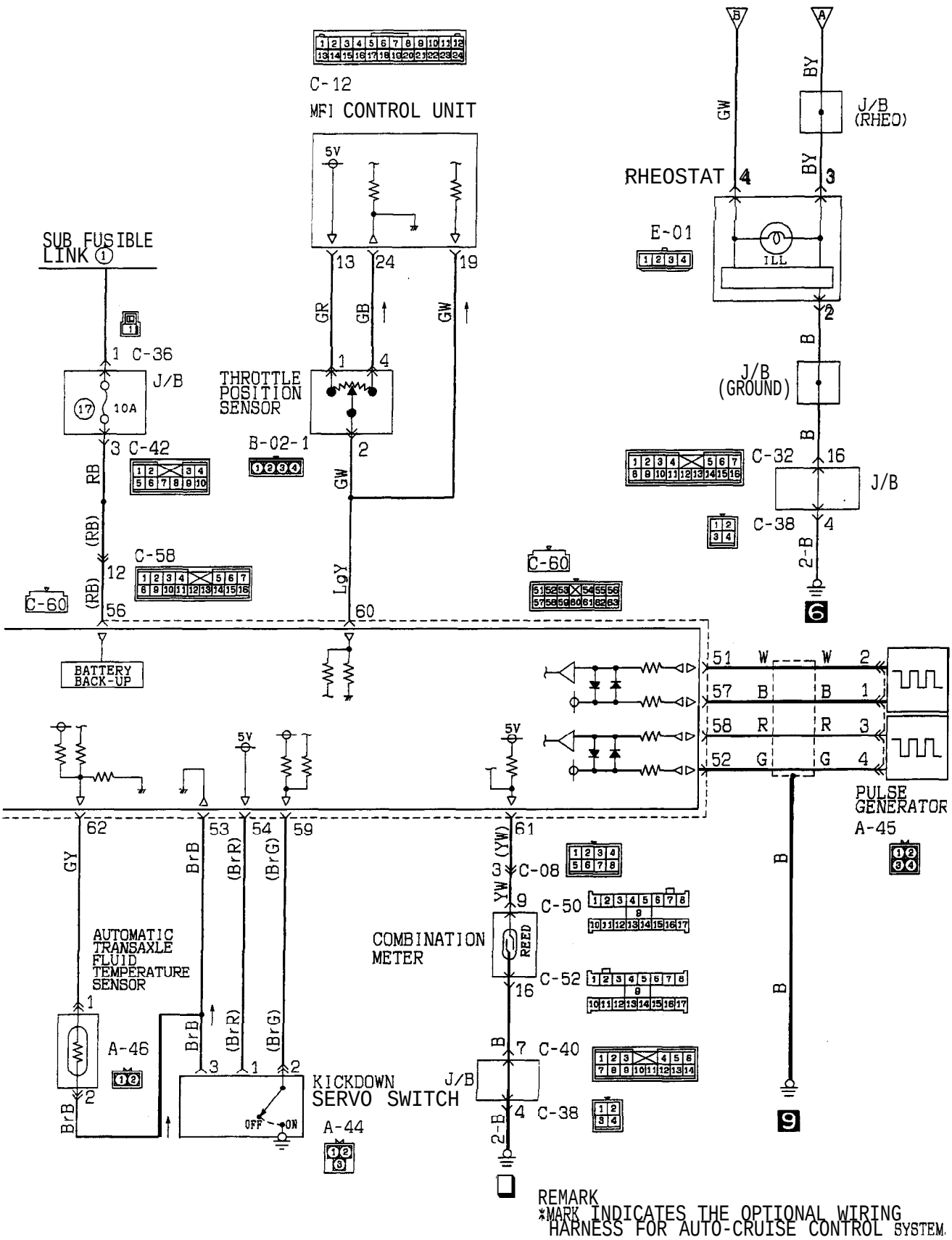
ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT (CONTINUED)

(1990 models)



KX35-AC-H0708A-NN

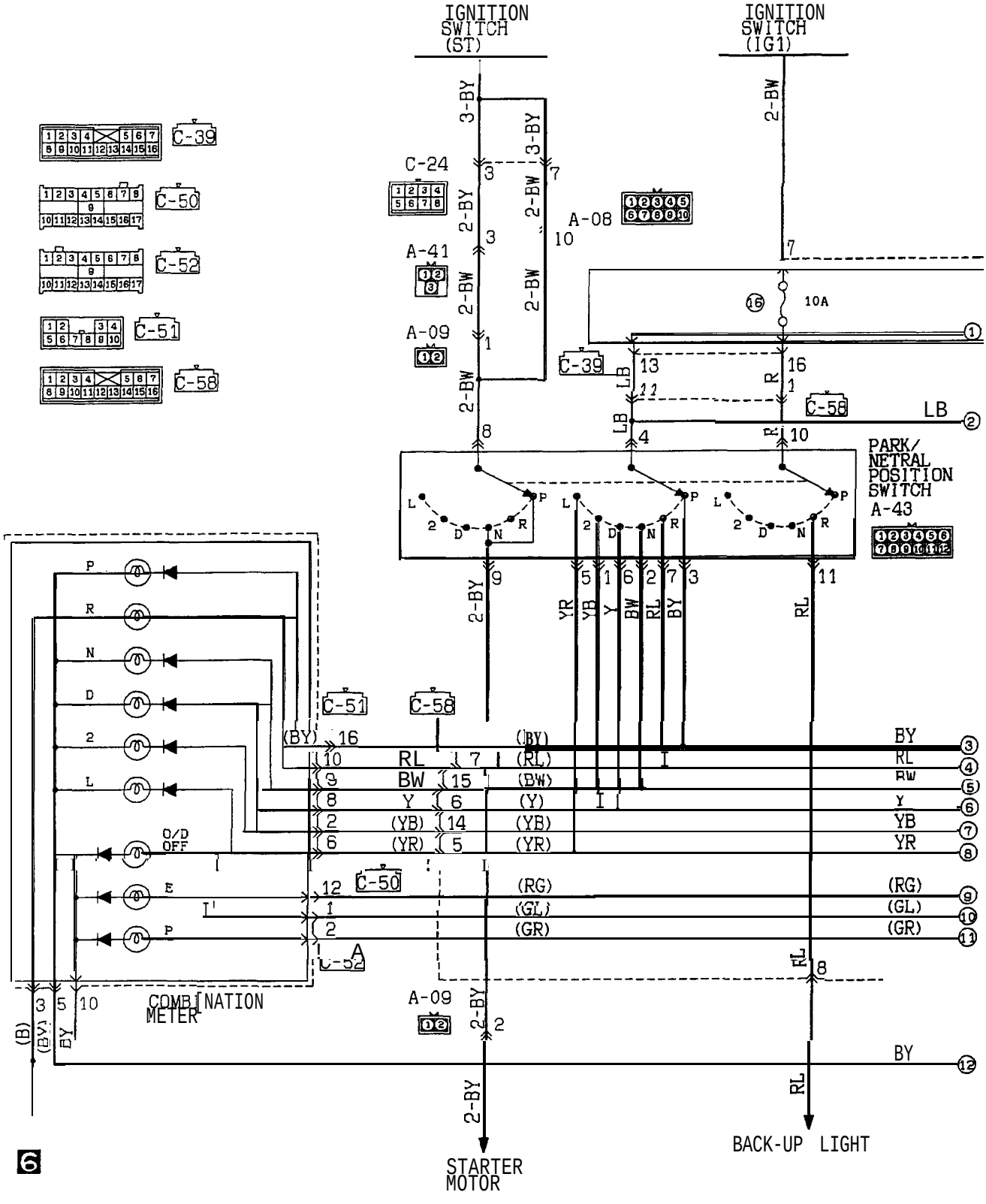
TSB Revision



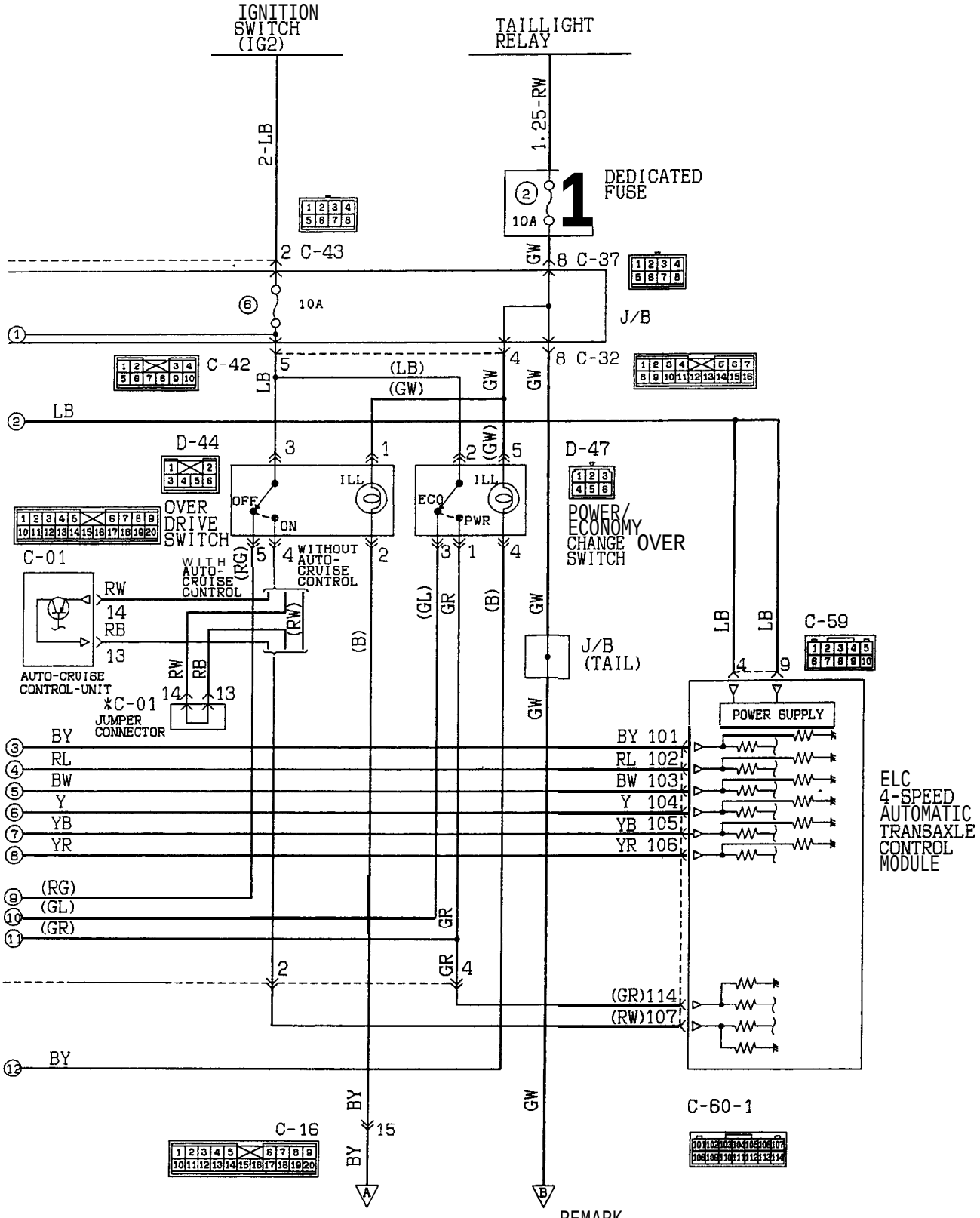
TSB Revision

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT

(1990.5 models)



K35-AC-H0710-NM

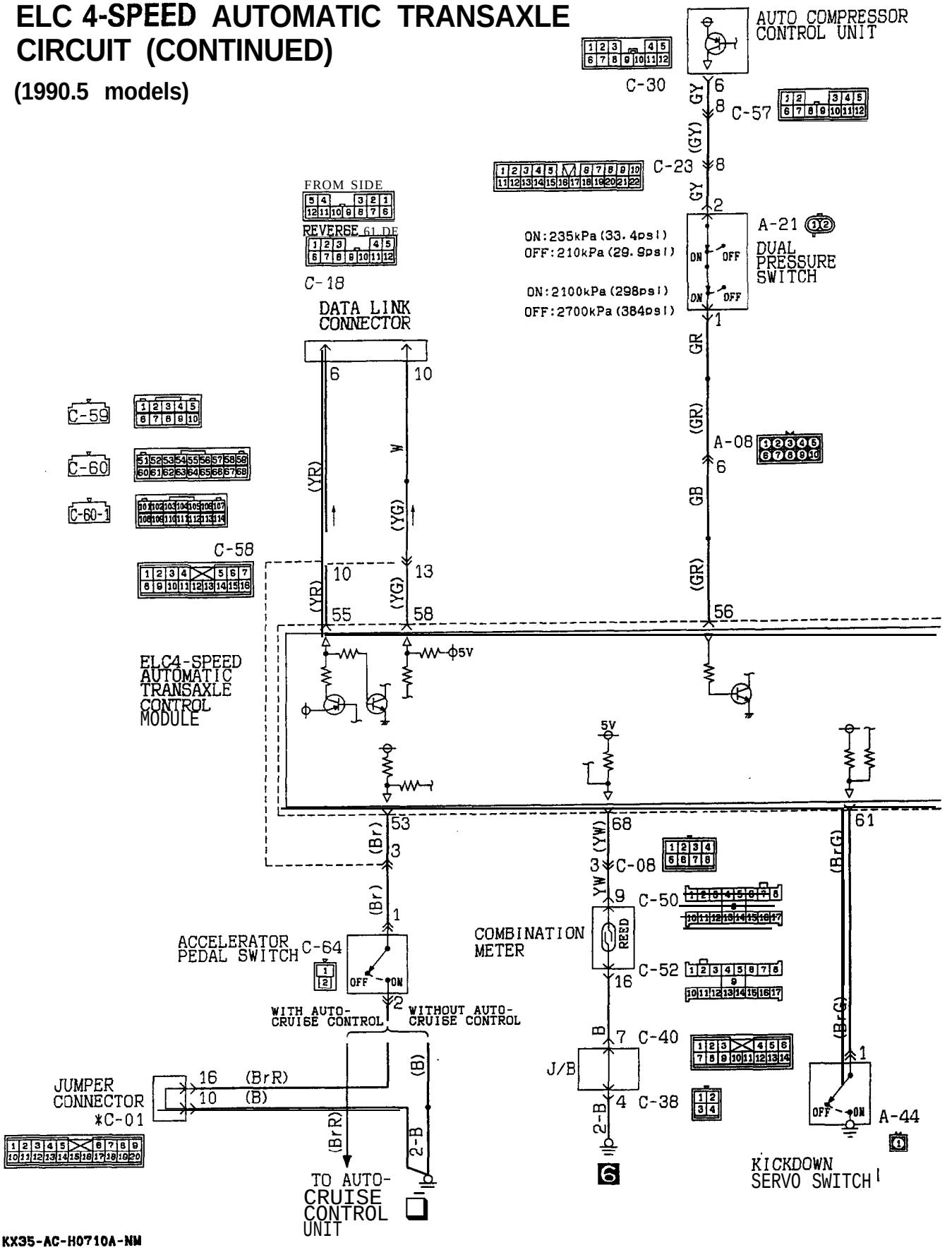


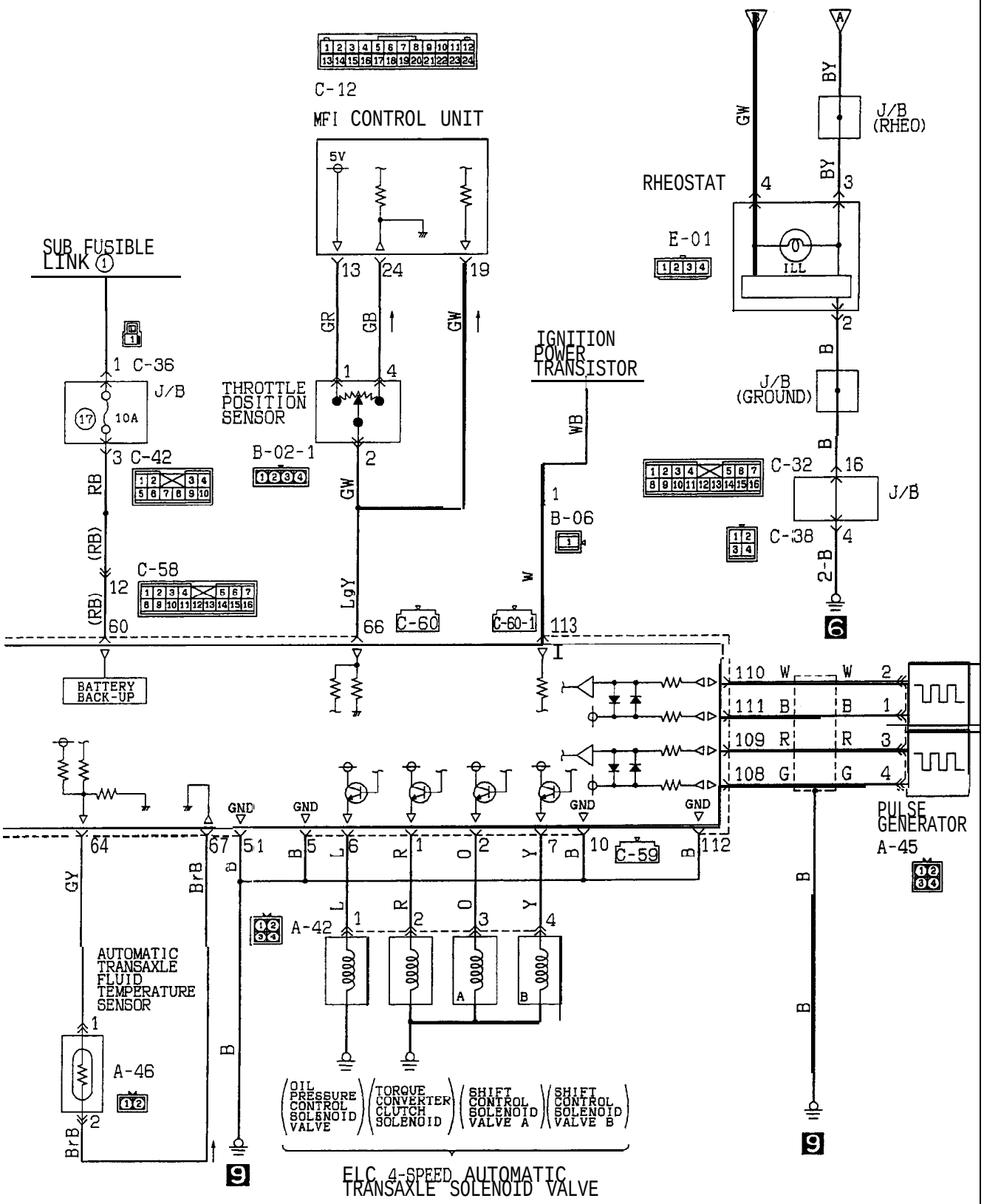
REMARK
XMARK INDICATES THE OPTIONAL WIRING HARNESS FOR AUTO-CRUISE CONTROL SYSTEM.

TSB Revision

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT (CONTINUED)

(1990.5 models)

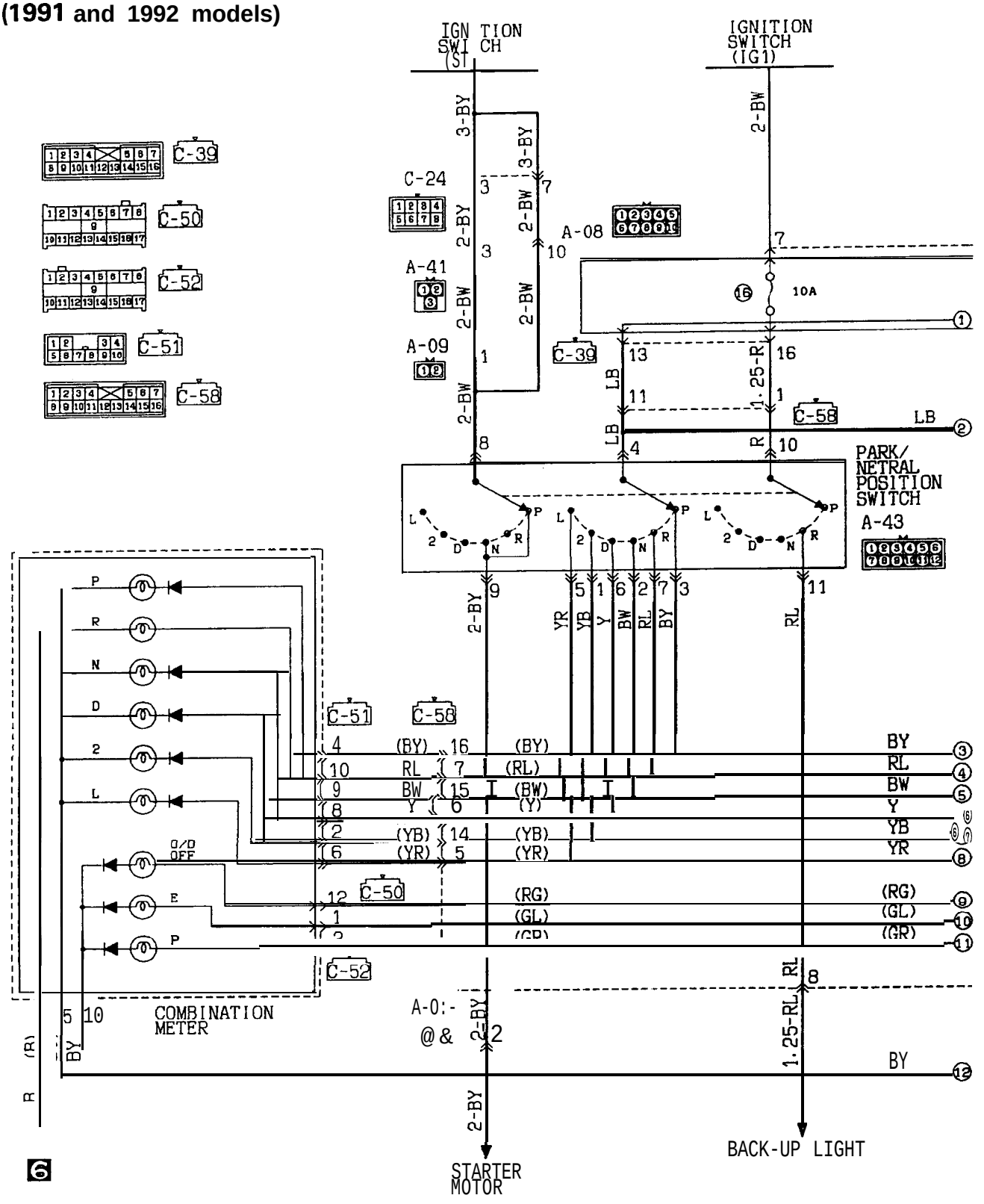




REMARK
*MARK INDICATES THE OPTIONAL WIRING HARNESS FOR AUTO-CRUISE CONTROL SYSTEM.

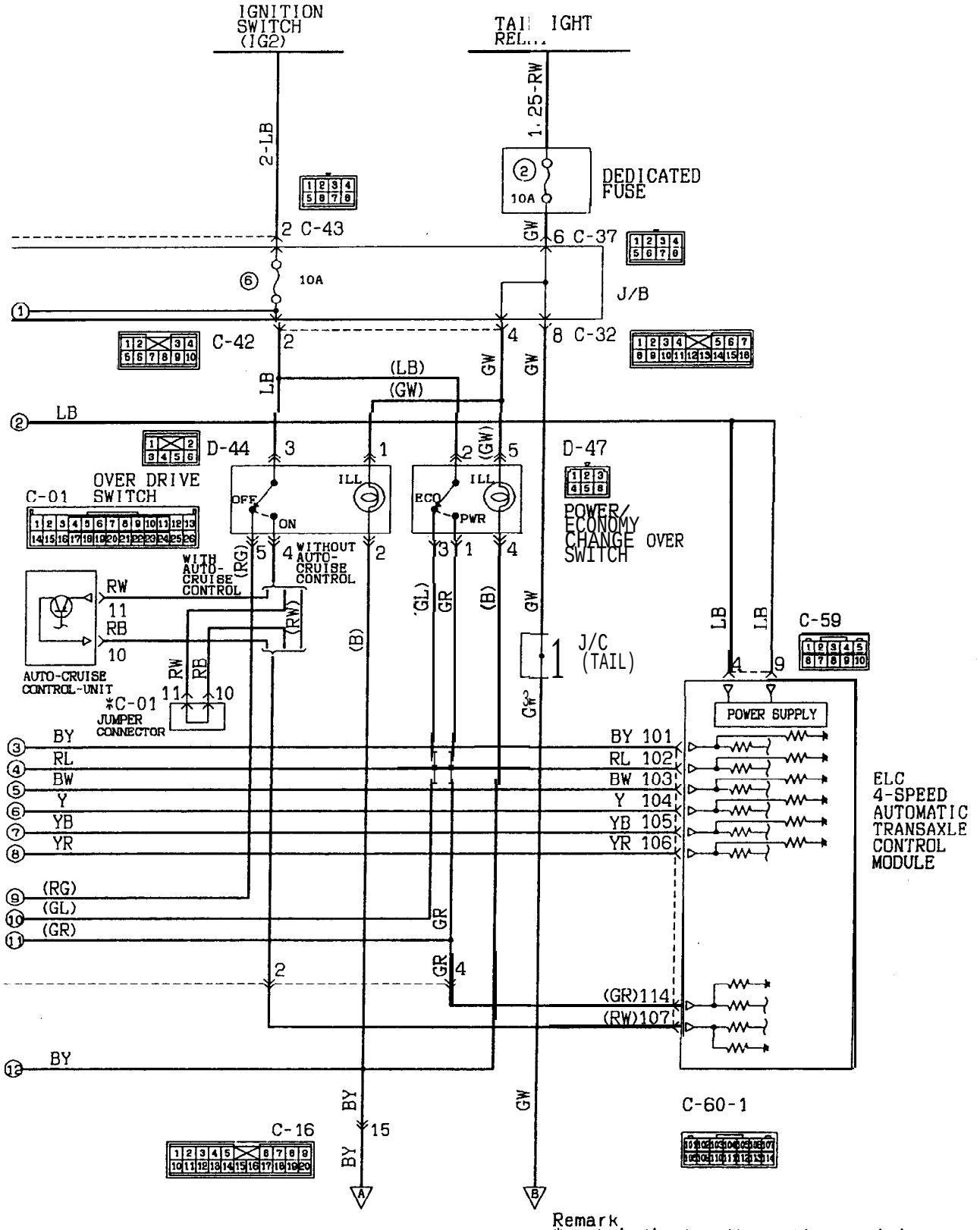
ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT

(1991 and 1992 models)



KX35-AC-H0713-NM

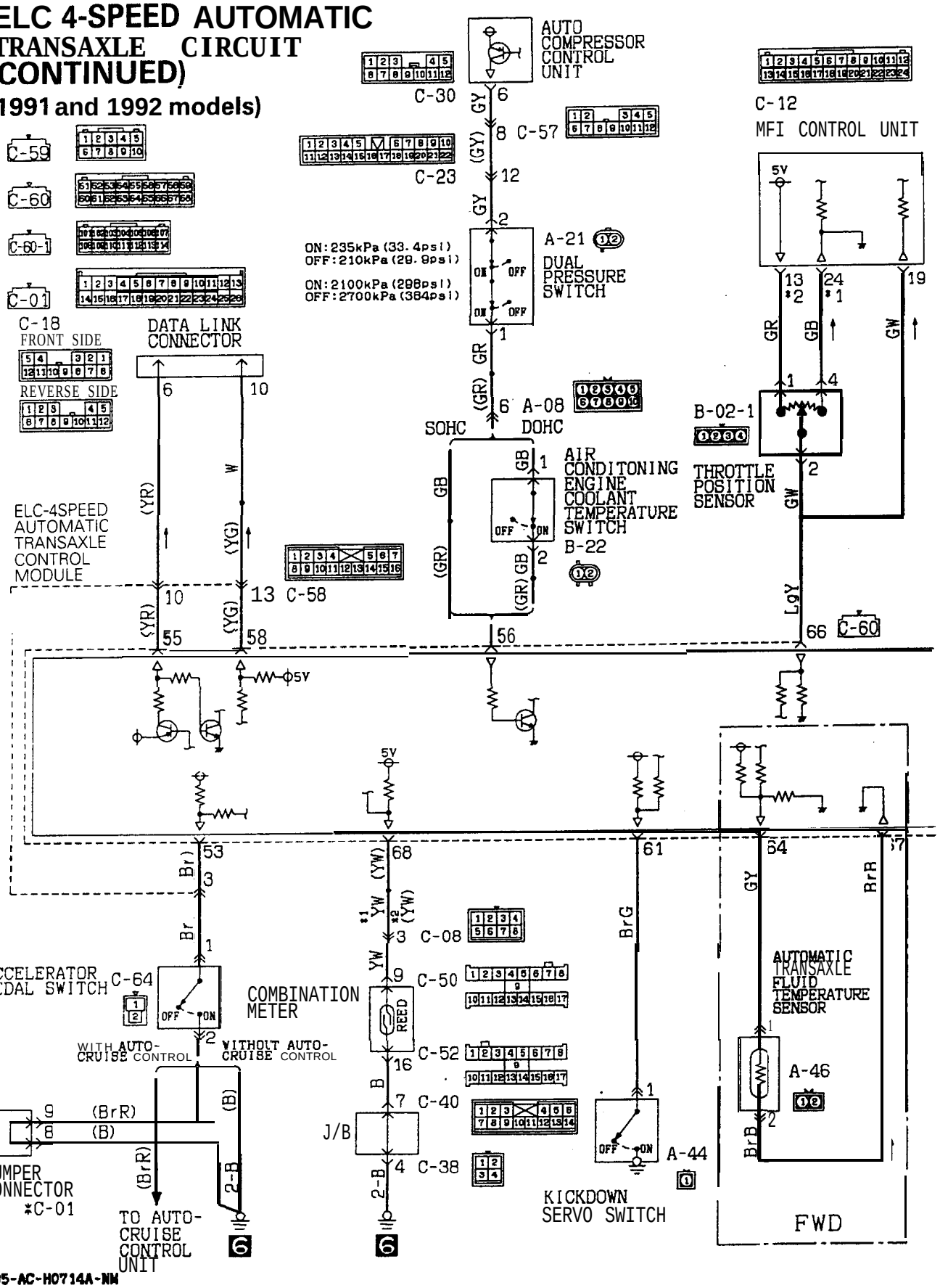
TSB Revision



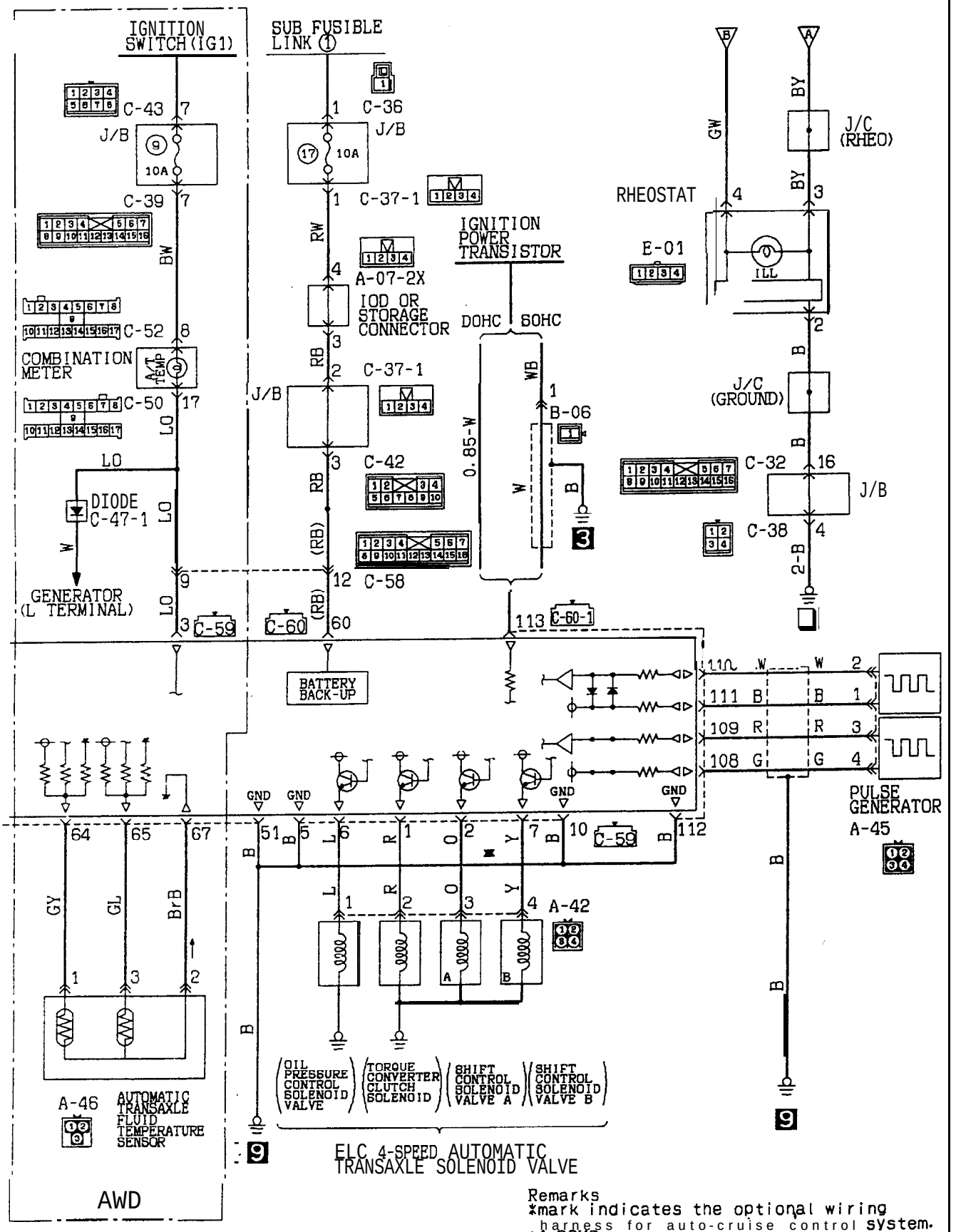
TSB Revision

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT (CONTINUED)

(1991 and 1992 models)



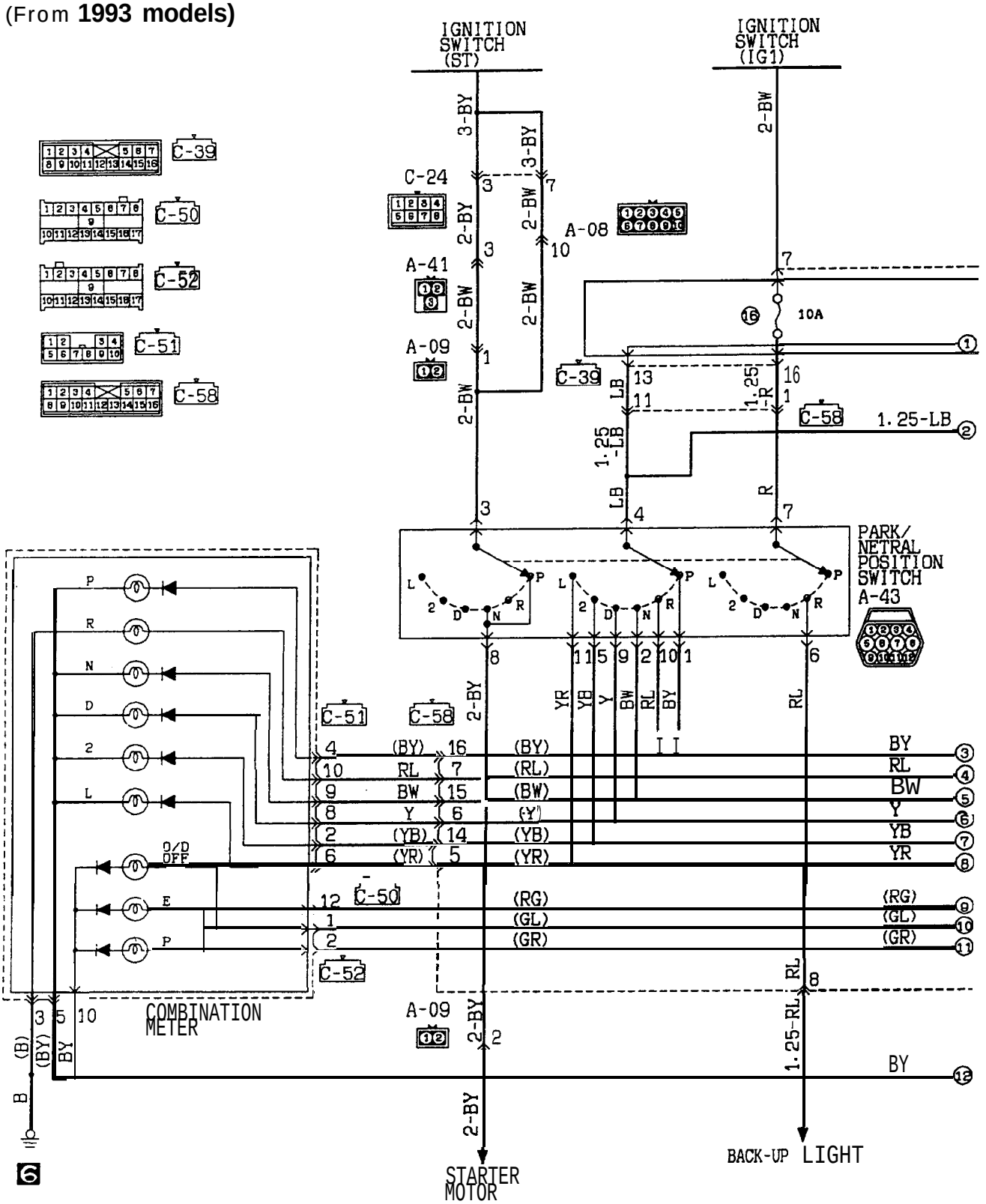
TSB Revision



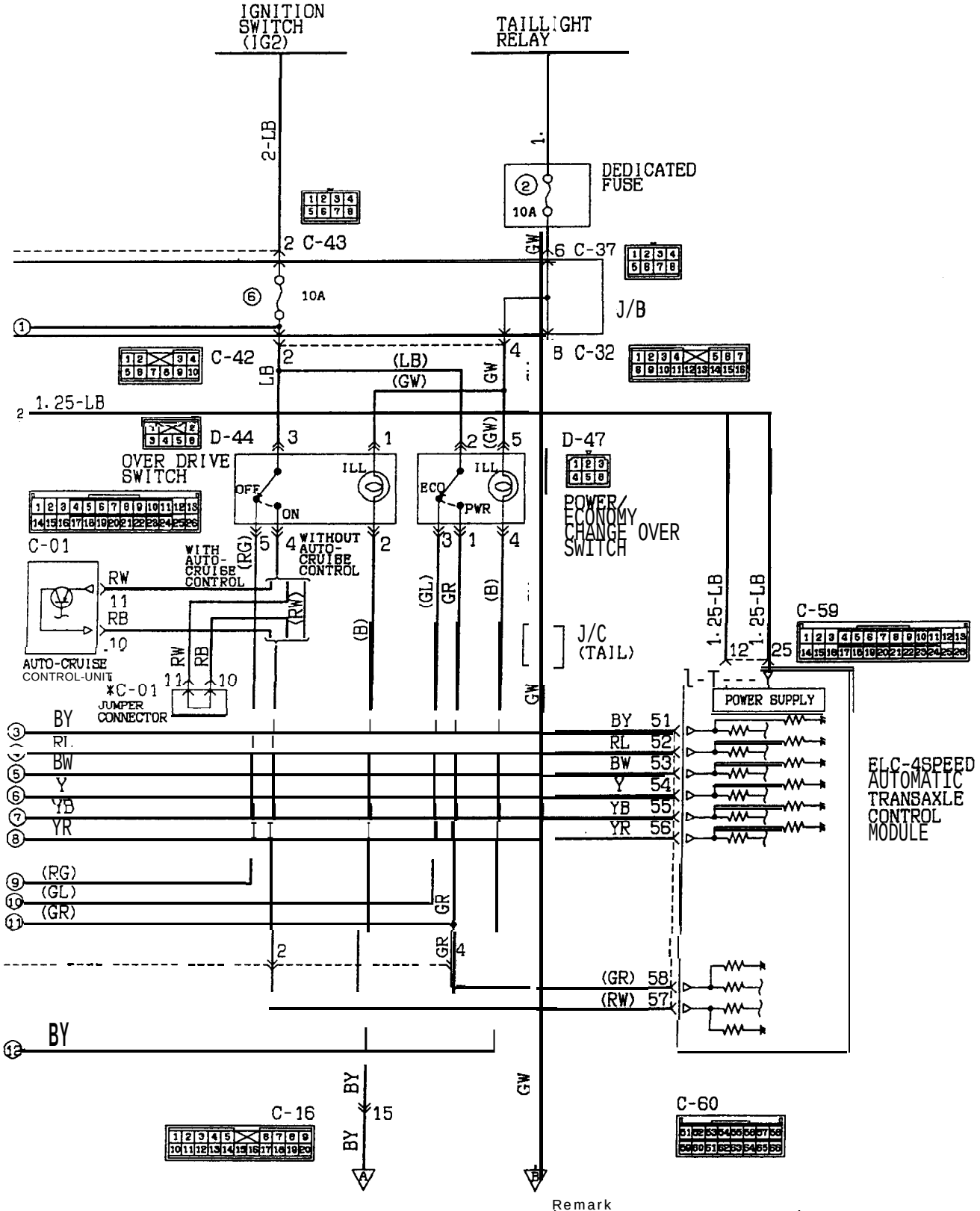
Remarks
*mark indicates the optional wiring harness for auto-cruise control system.
*1:DOHC
*2:SOHC

ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT

(From **1993 models)**



TSB Revision

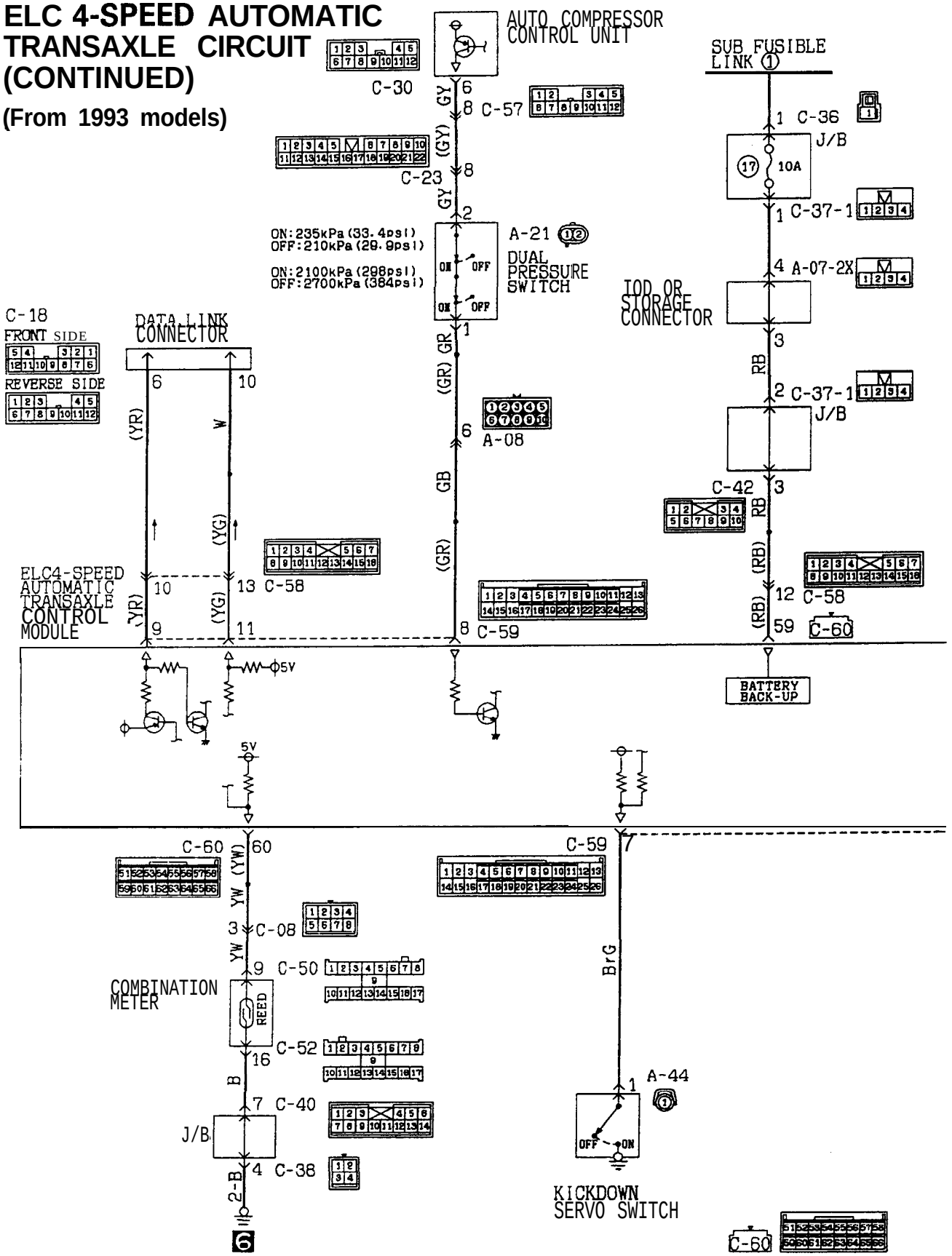


Remark
*mark indicates the optional wiring harness for auto cruise control system

TSB Revision

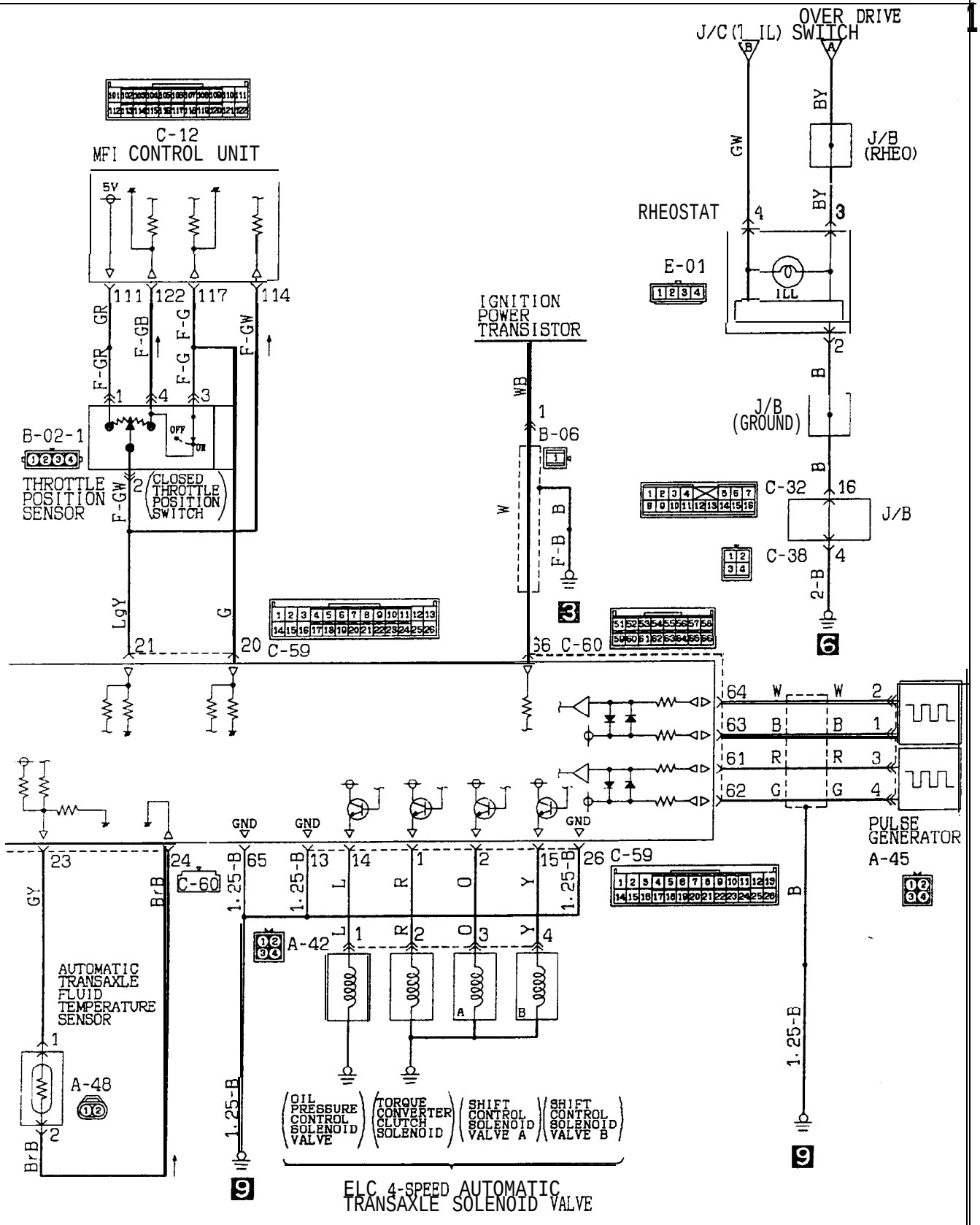
ELC 4-SPEED AUTOMATIC TRANSAXLE CIRCUIT (CONTINUED)

(From 1993 models)



XX35-AC-H0715A-NM

TSB Revision

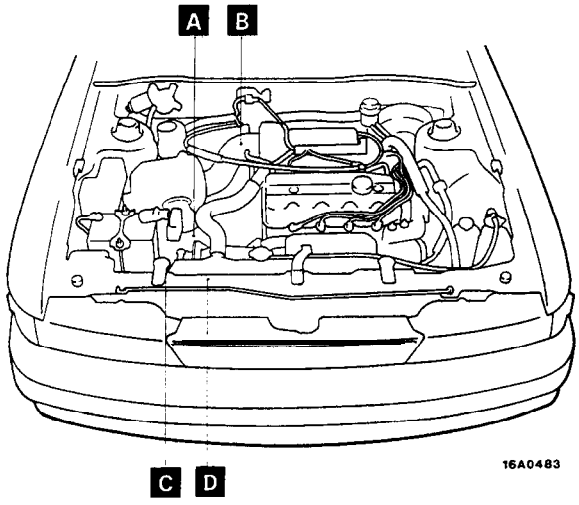


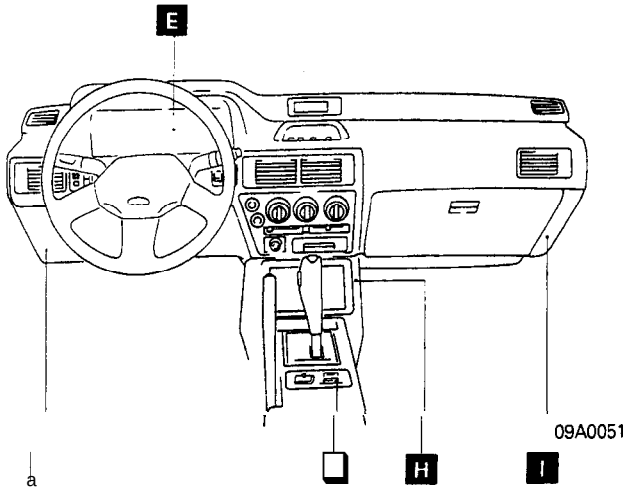
TSB Revision

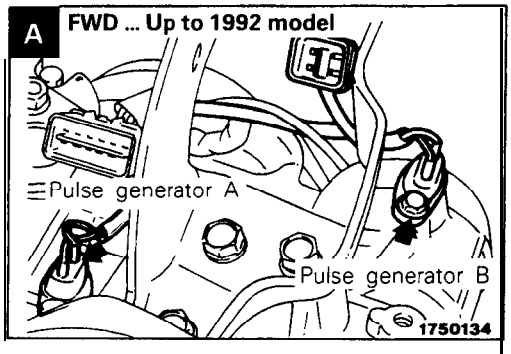
COMPONENT LOCATION

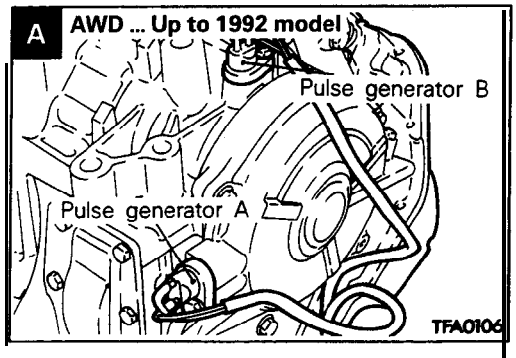
Name	Symbol	Name	Symbol
Data link connector	F	Pulse generator A	A
4 A/T control module	H	Pulse generator B	A
MFI control module	I	Solenoid valve	C
Oil temperature sensor	D	Throttle position sensor	B
Power (PWR)/Economy (ECO) switch	G	Vehicle-speed sensor	E

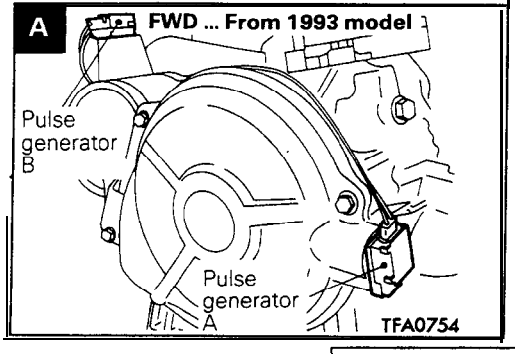
NOTE
The "Name" column is arranged in alphabetical order.
C and D are built into the transaxle. <From 1991 models>

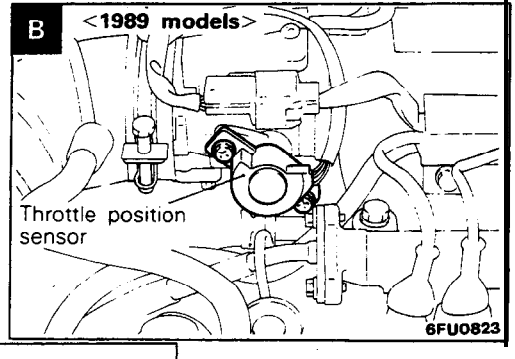






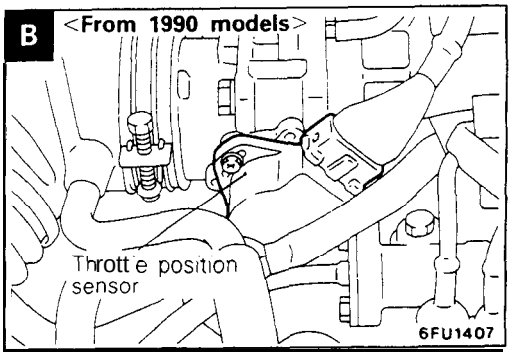




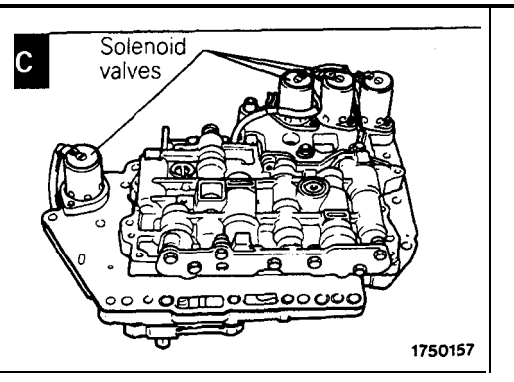


TSB Revision

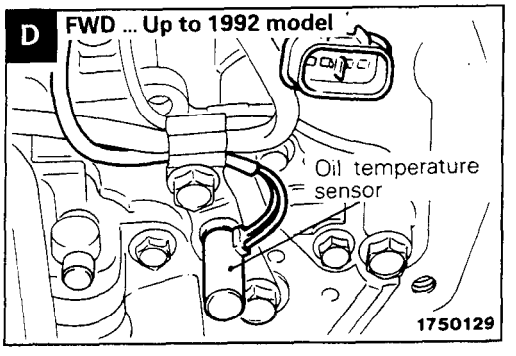
B <From 1990 models>



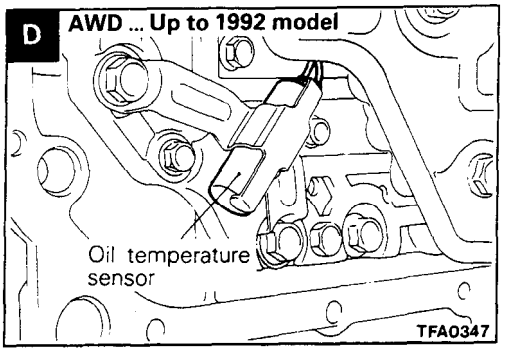
C



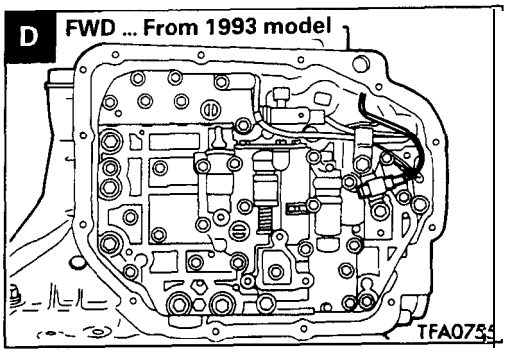
D FWD ... Up to 1992 model



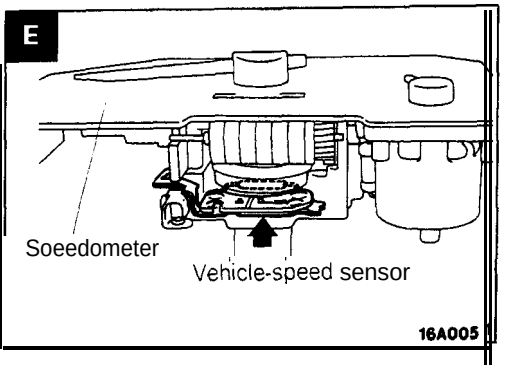
D AWD ... Up to 1992 model



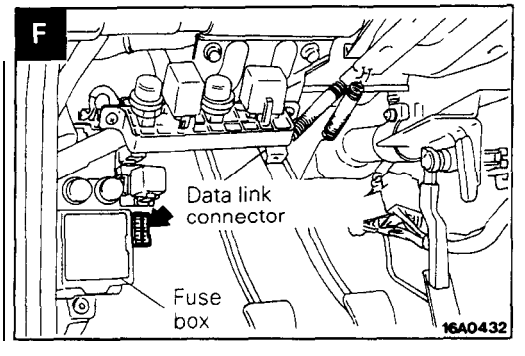
D FWD ... From 1993 model



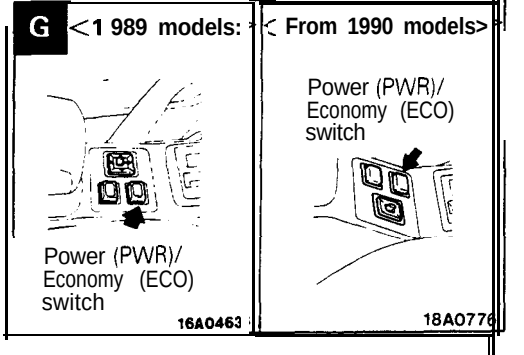
E



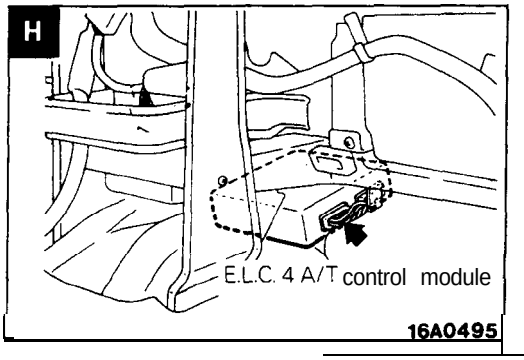
F



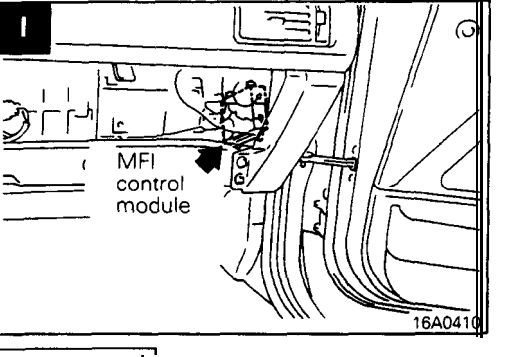
G <1 989 models: < From 1990 models>



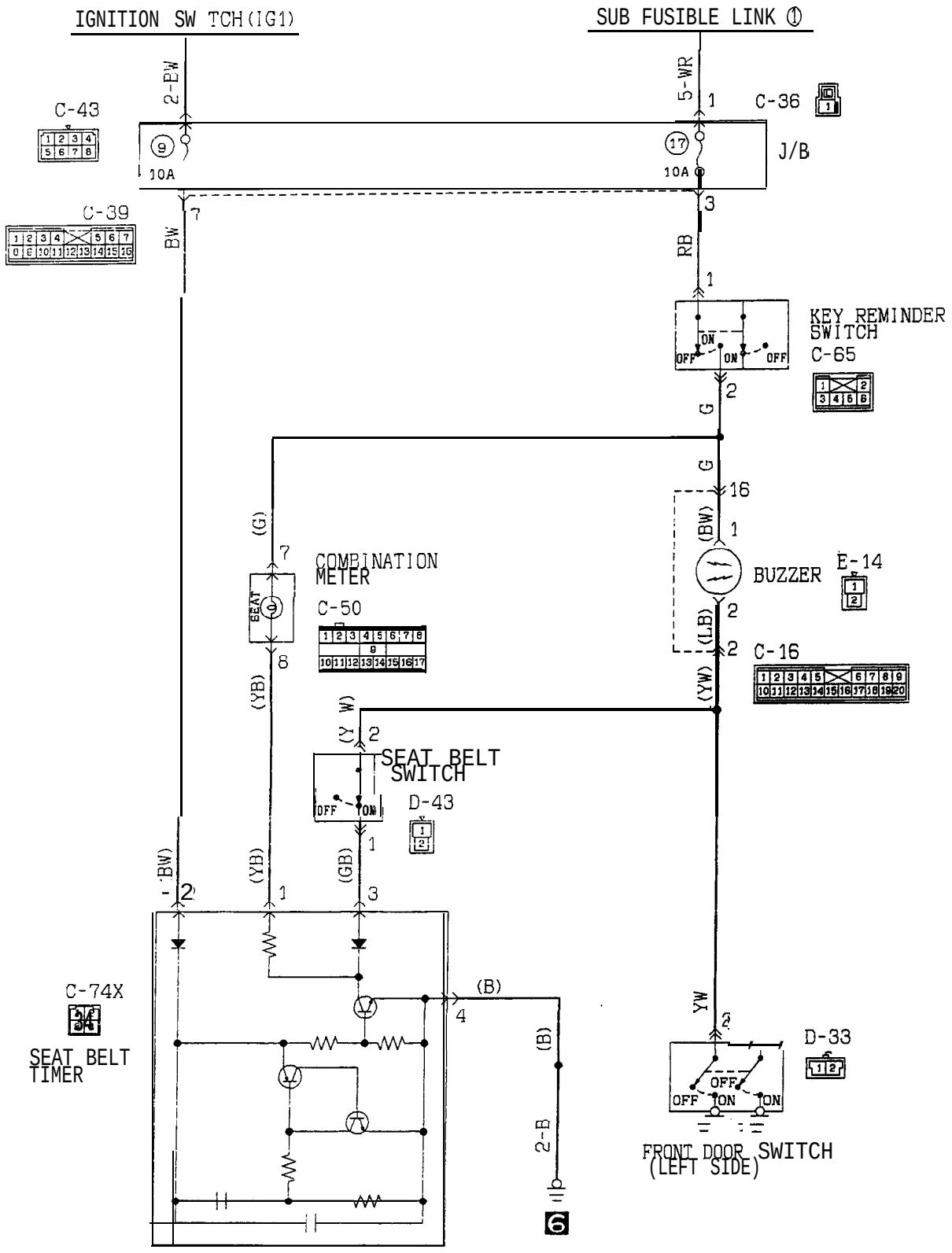
H



I



BUZZER CIRCUIT (1989 MODELS)

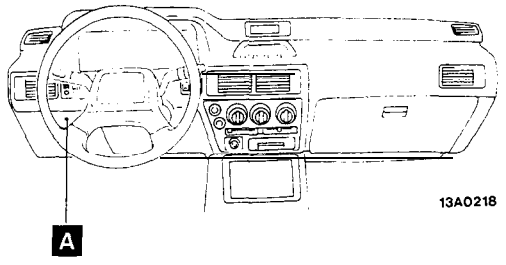


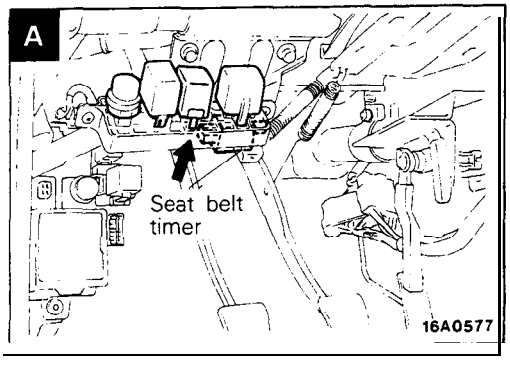
KX35-AC-H0931-NM

TSB Revision

COMPONENT LOCATION

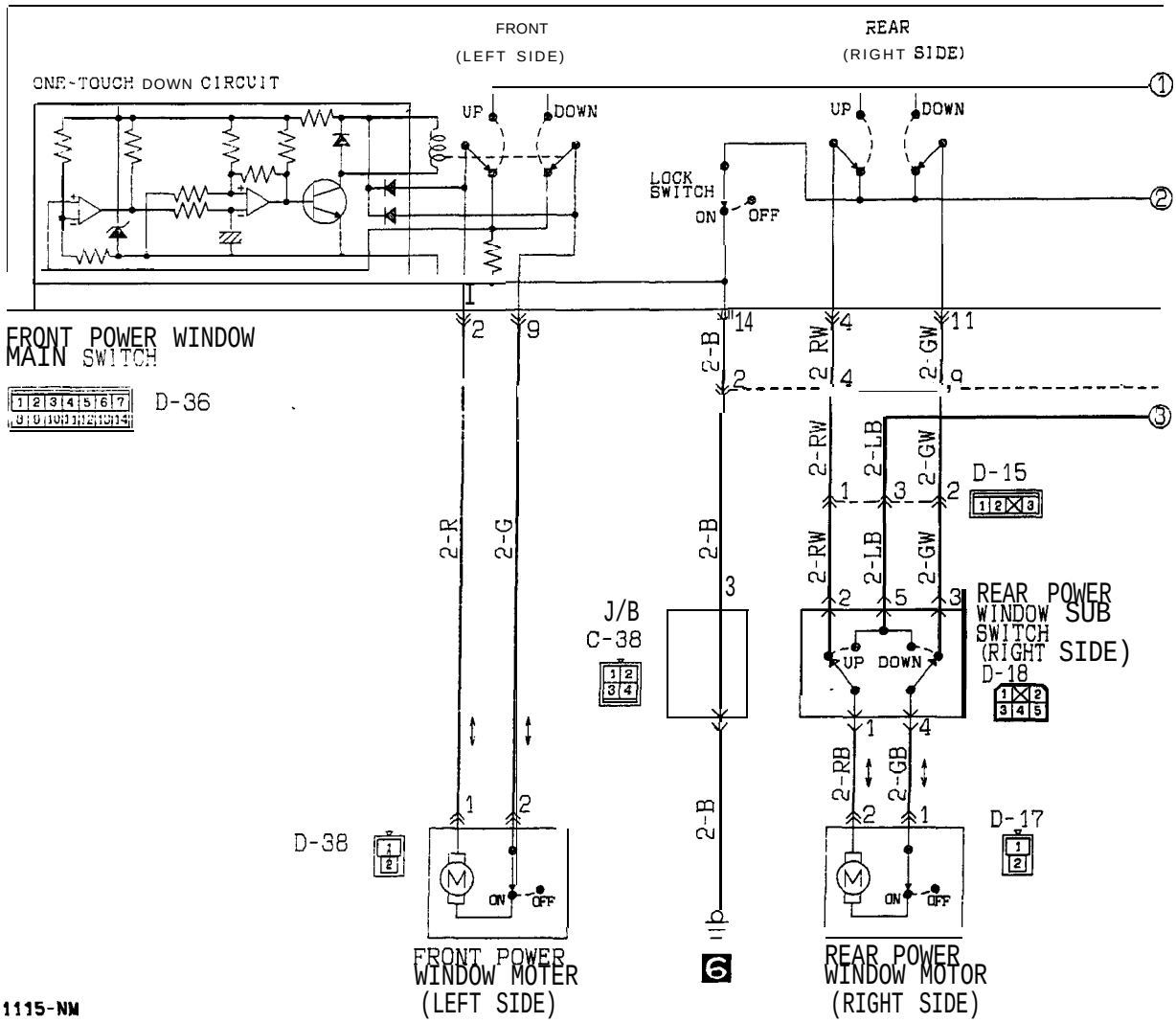
Name	Symbol
Seat belt timer	A





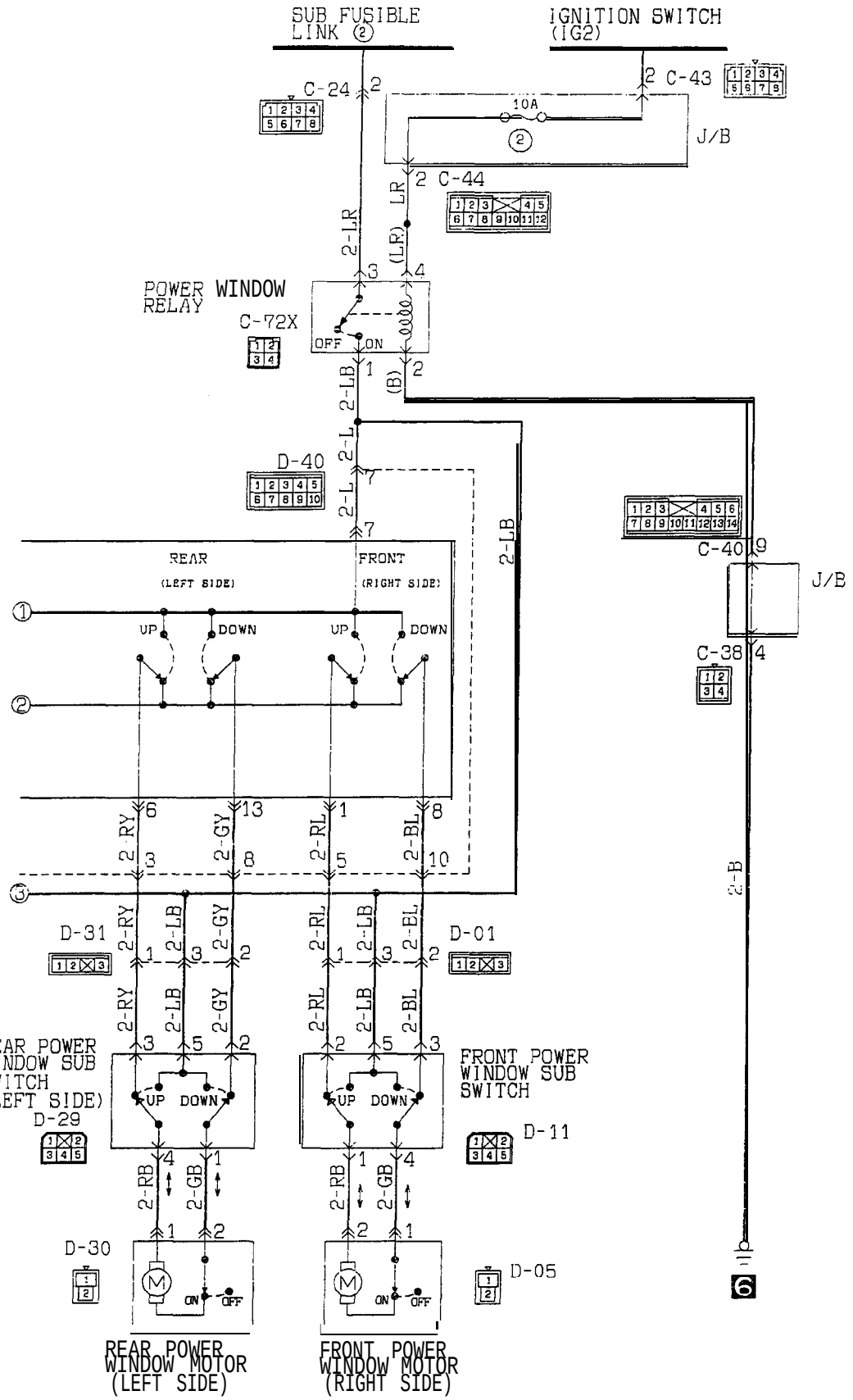
TSB Revision

POWER WINDOW CIRCUIT
(Vehicles without ETACS(1989 models))



KX35-AC-H1115-NM

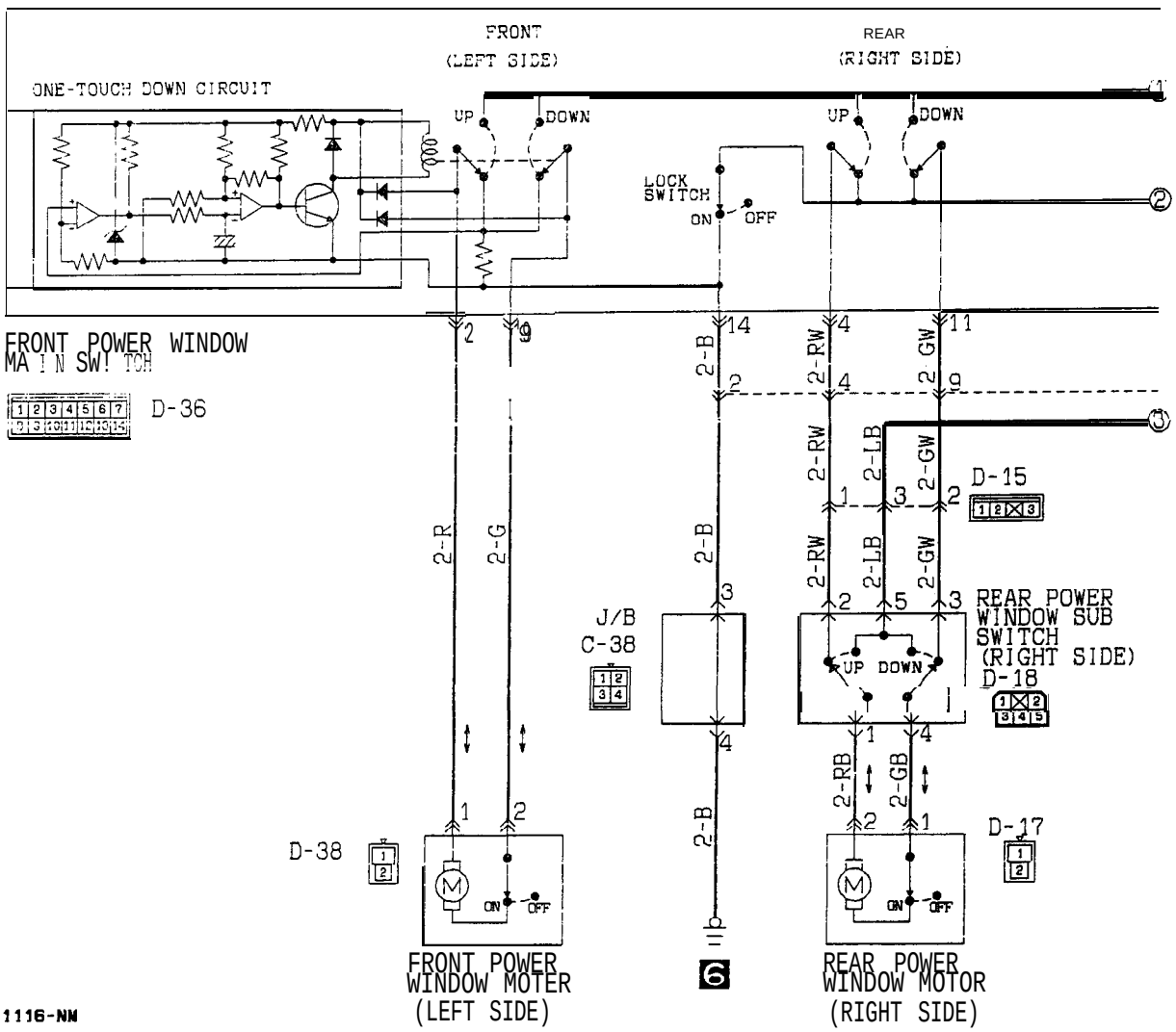
TSB Revision



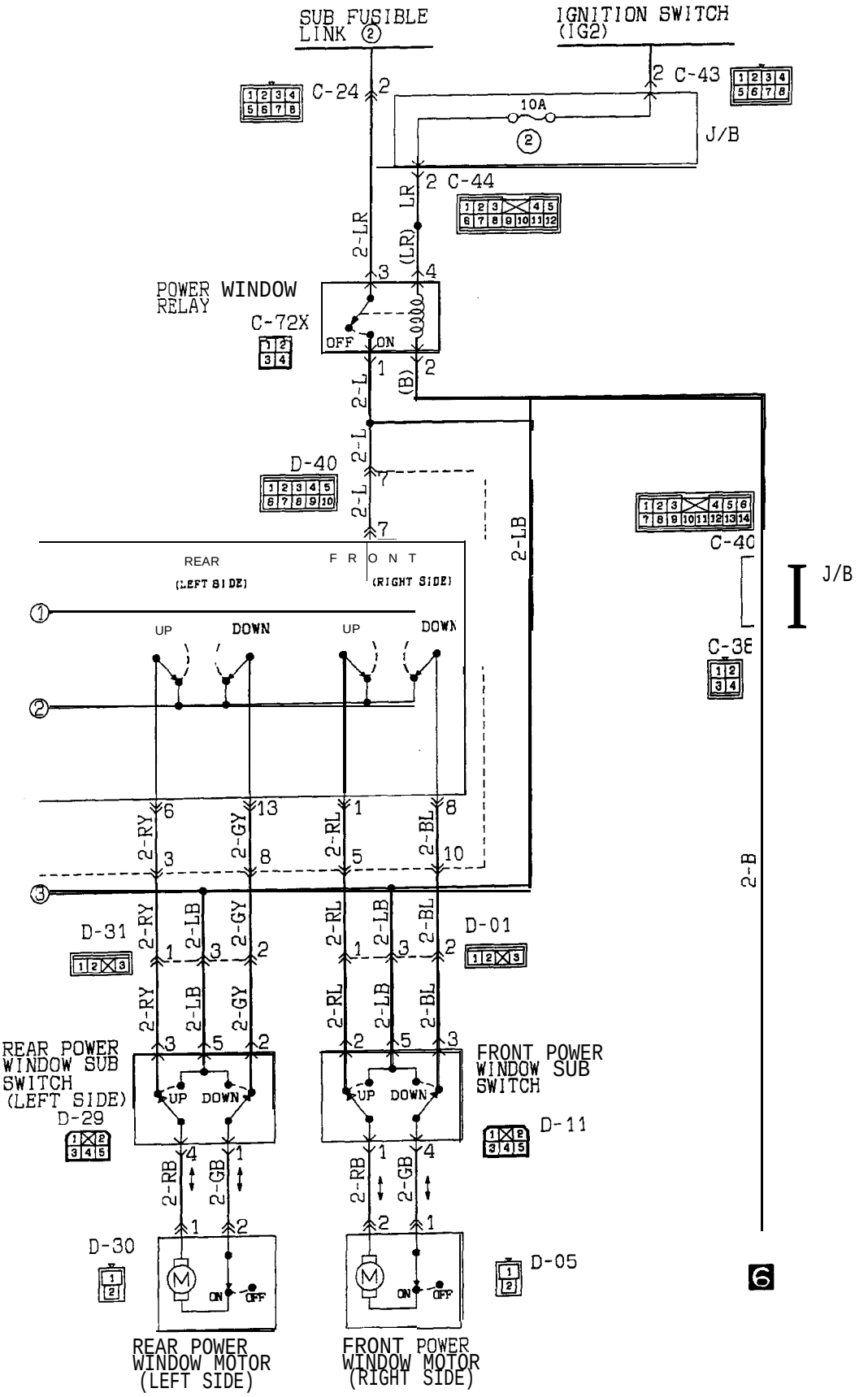
TSB Revision

POWER WINDOW CIRCUIT

<Vehicles without ETACS (1990 models)>



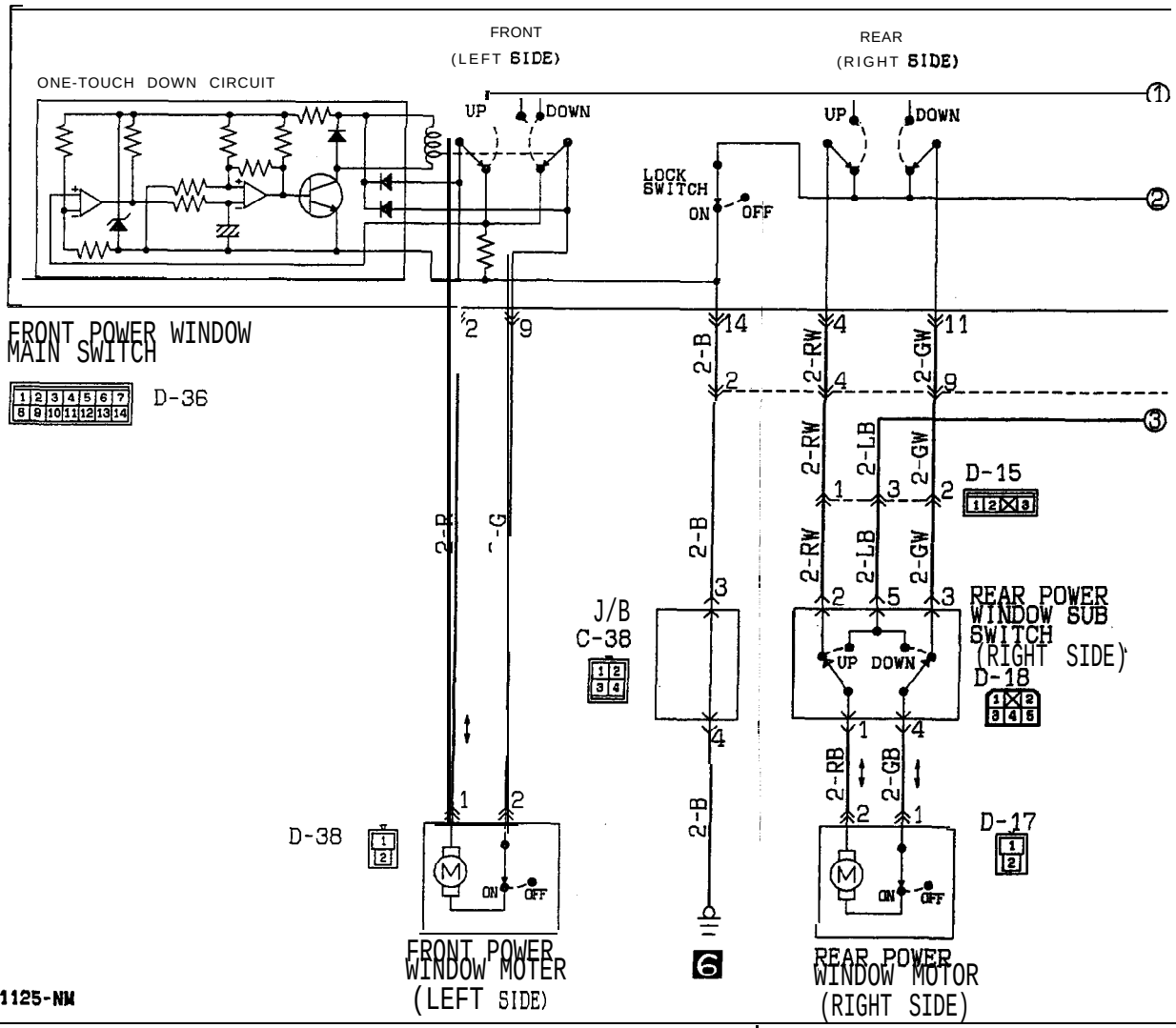
TSB Revision



TSB Revision

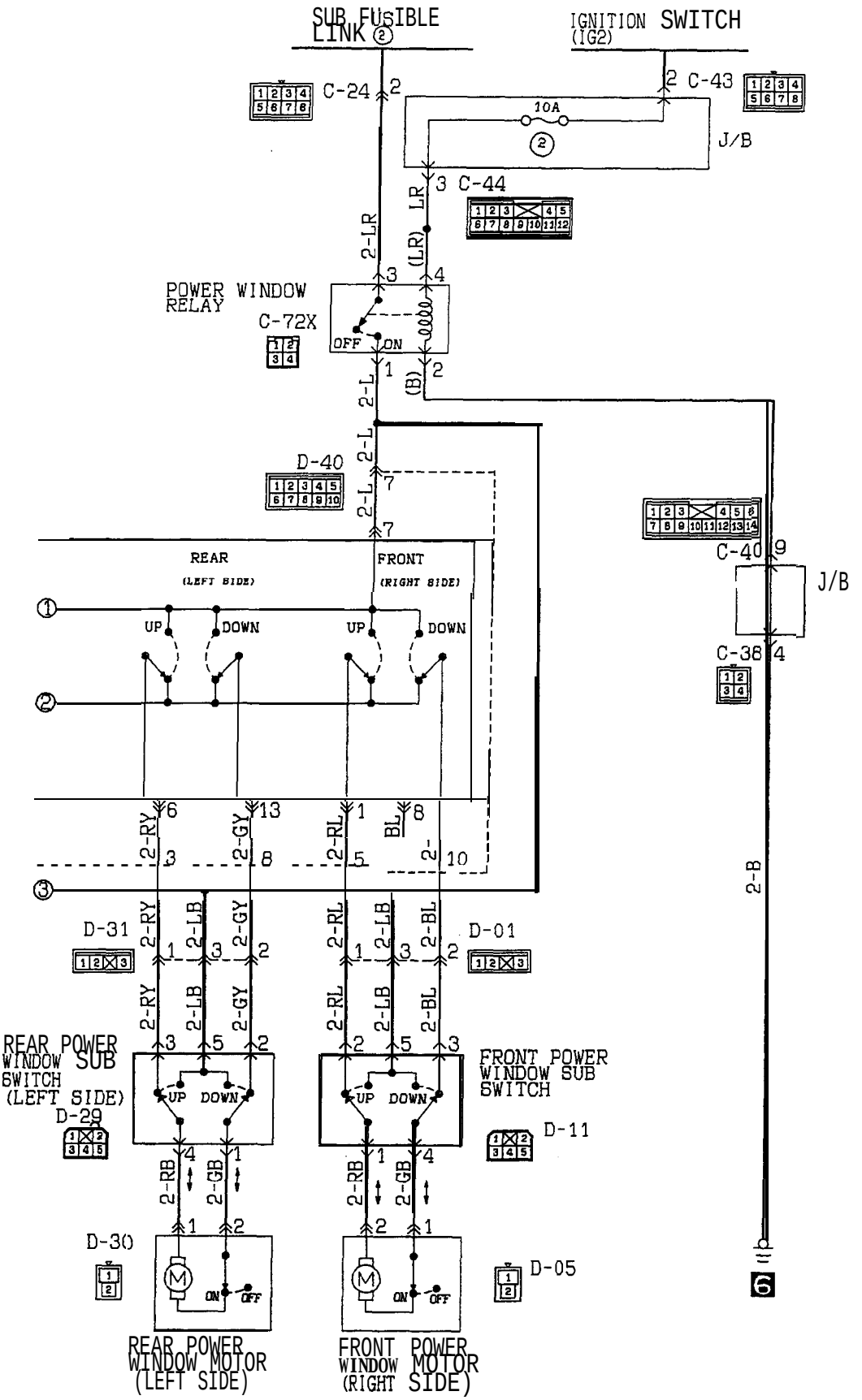
POWER WINDOW CIRCUIT

<Vehicles without ETACS (From 1991 models)>



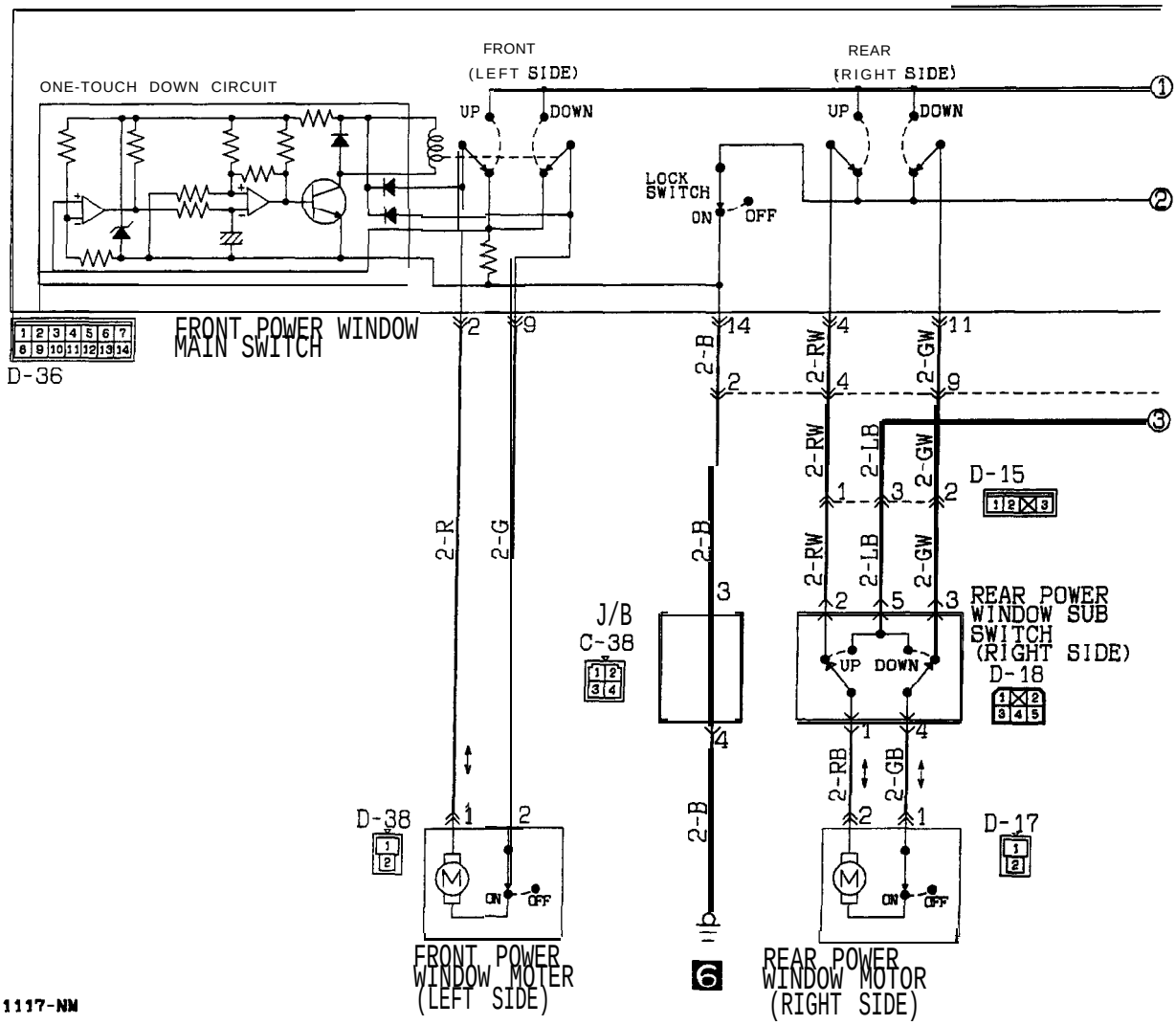
KX35-AC-H1125-NM

TSB Revision


SUB FUSIBLE LINK ②
IGNITION SWITCH (IG2)
C-24
C-43
10A
②
J/B
C-44
2-LR
(LR)
POWER WINDOW RELAY
C-72X
OFF
ON
2-L
(B)
D-40
REAR
(LEFT SIDE)
FRONT
(RIGHT SIDE)
UP
DOWN
C-40
J/B
C-38
2-B
2-RY
2-GY
2-RL
BL
2-LB
2-BL
D-31
D-01
REAR POWER WINDOW SUB SWITCH (LEFT SIDE)
D-29
FRONT POWER WINDOW SUB SWITCH
D-11
2-RB
2-GB
D-30
D-05
ON
OFF
REAR POWER WINDOW MOTOR (LEFT SIDE)
FRONT POWER WINDOW MOTOR (RIGHT SIDE)
6

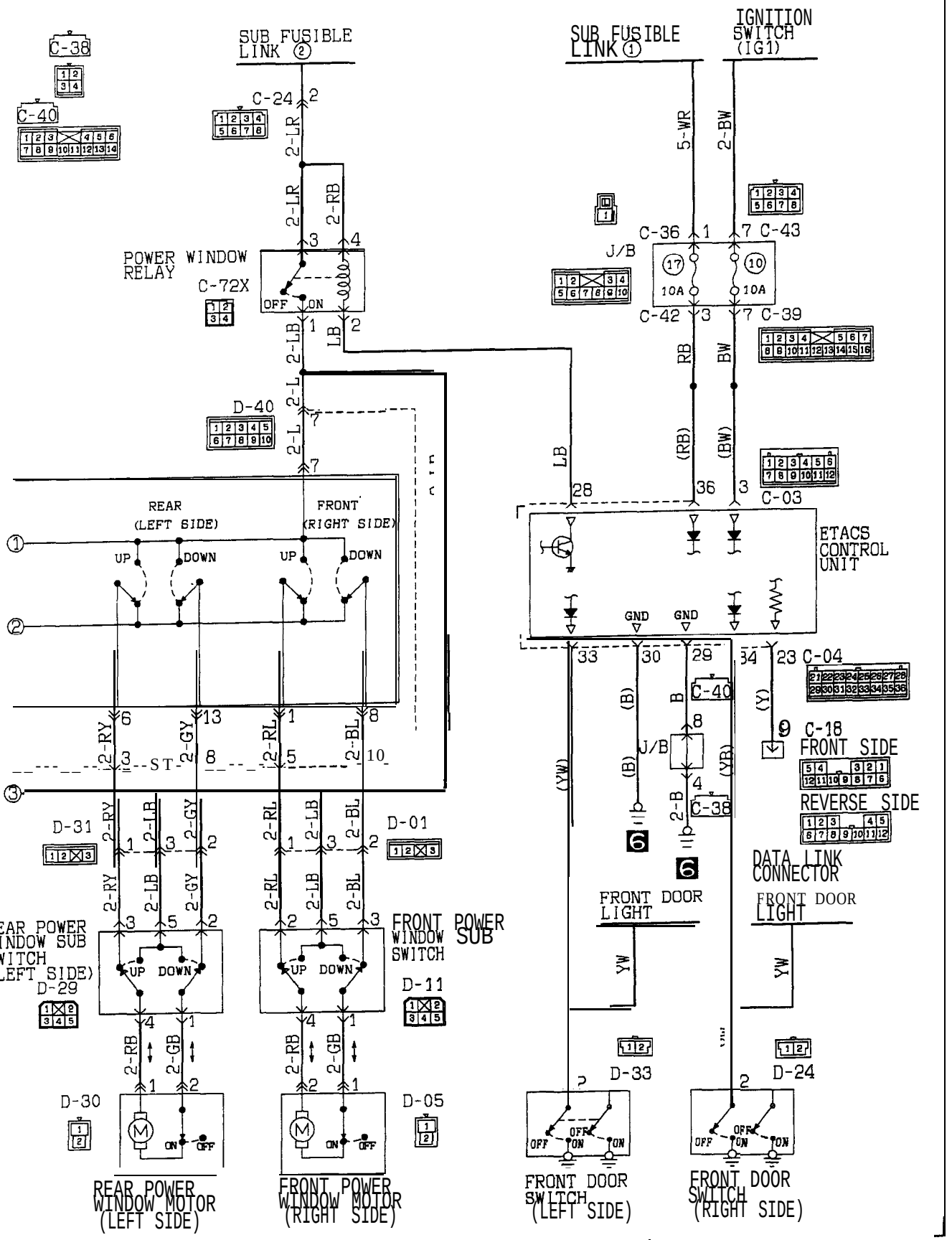
POWER WINDOW CIRCUIT

<Vehicles with ETACS (1989 models)>



KX35-AC-H1117-NM

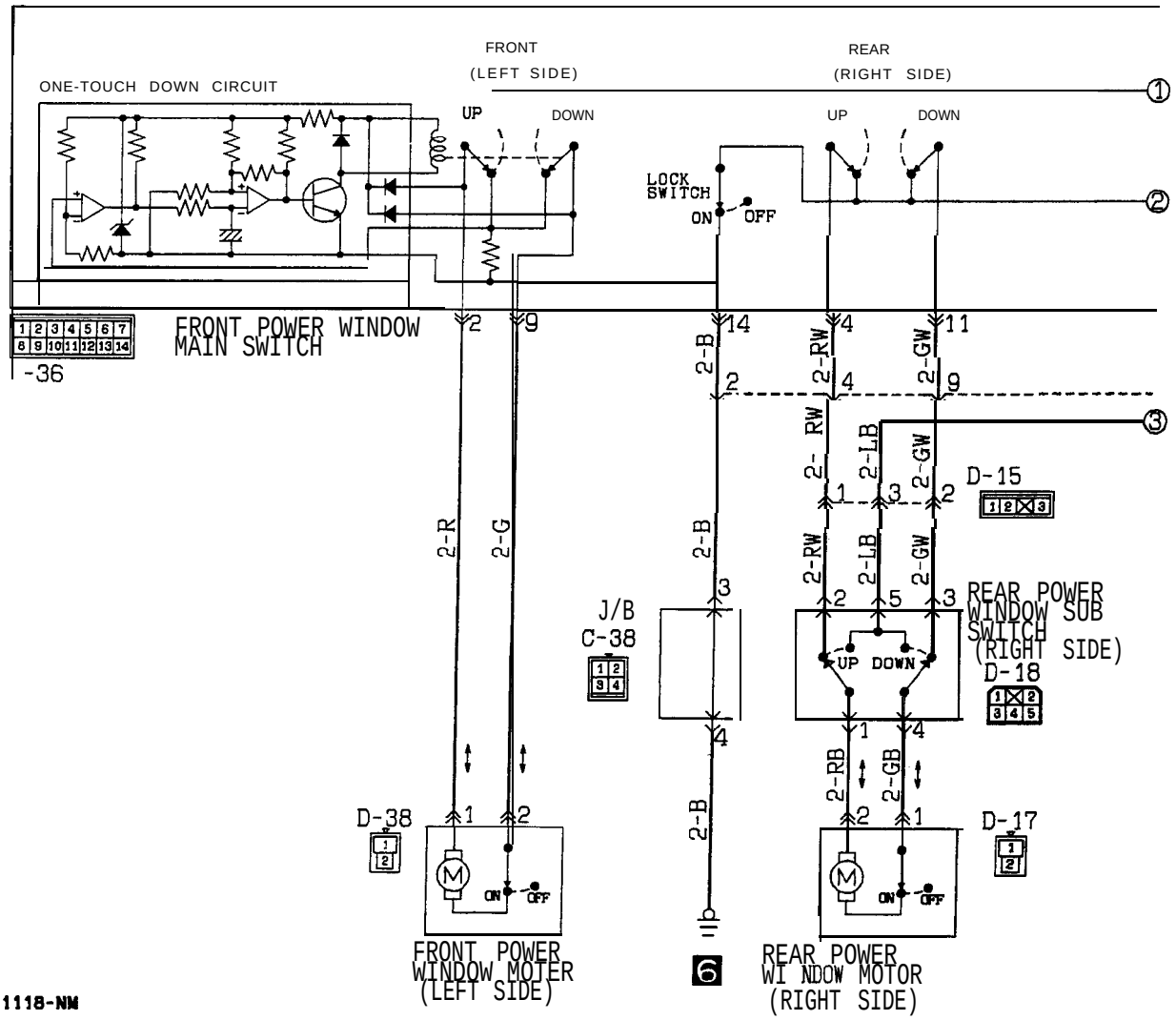
TSB Revision



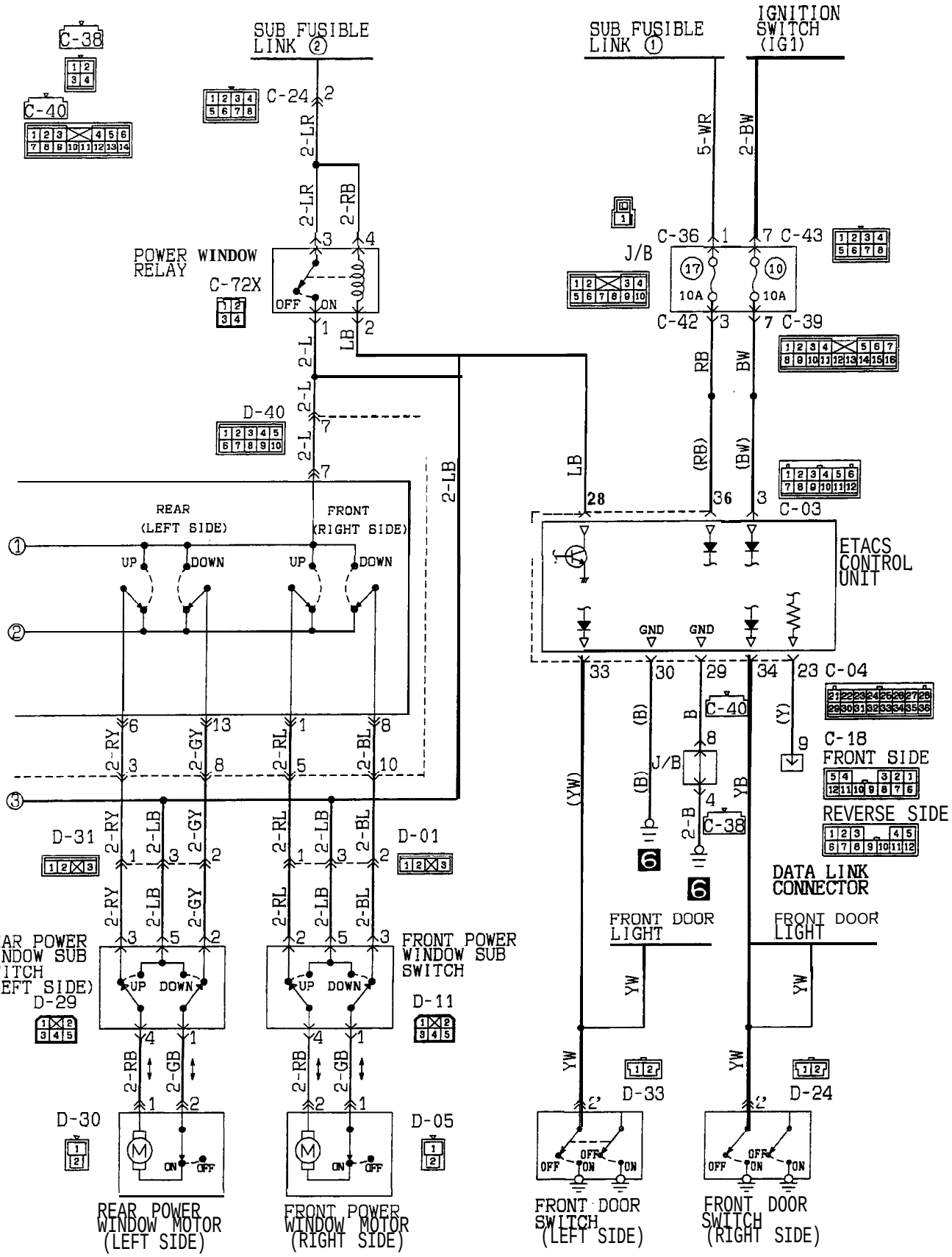
TSB Revision

POWER WINDOW CIRCUIT

<Vehicles with ETACS (1990 models)>



KX35-AC-H1118-NM

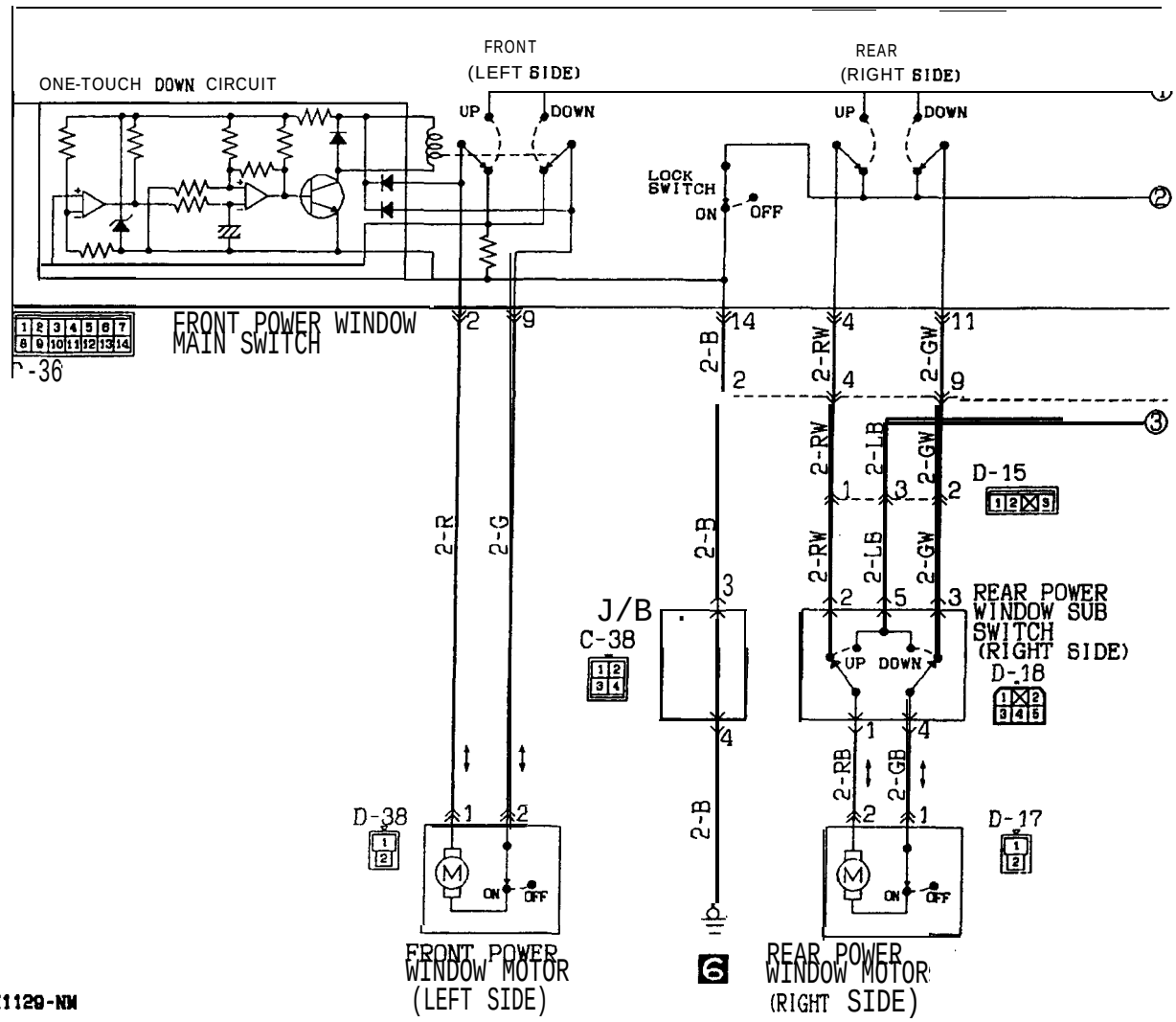


TSB Revision

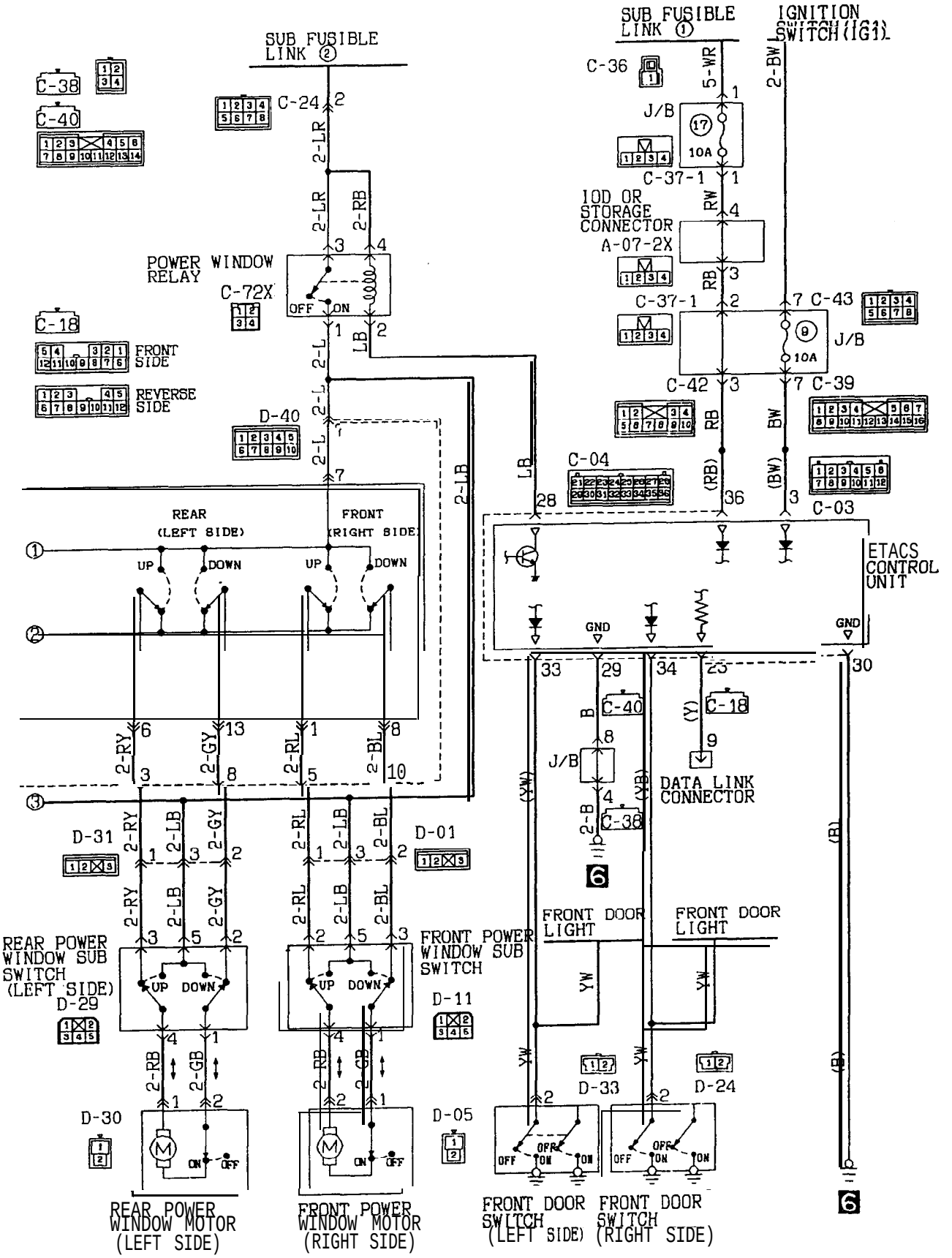
POWER WINDOW CIRCUIT

<Vehicles with ETACS (From 1991 models)>

Non-Turbo



TSB Revision

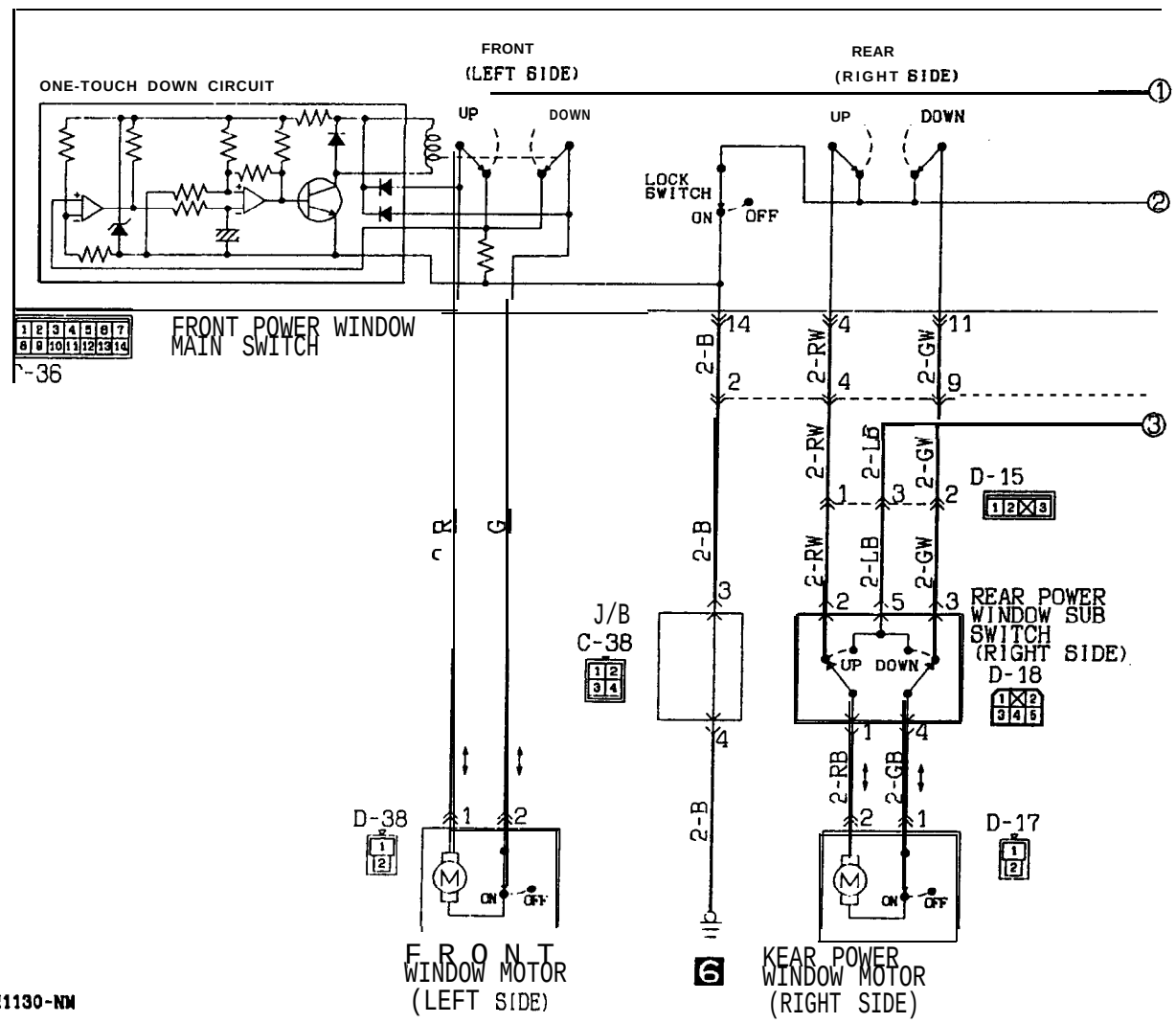


TSB Revision

POWER WINDOW CIRCUIT

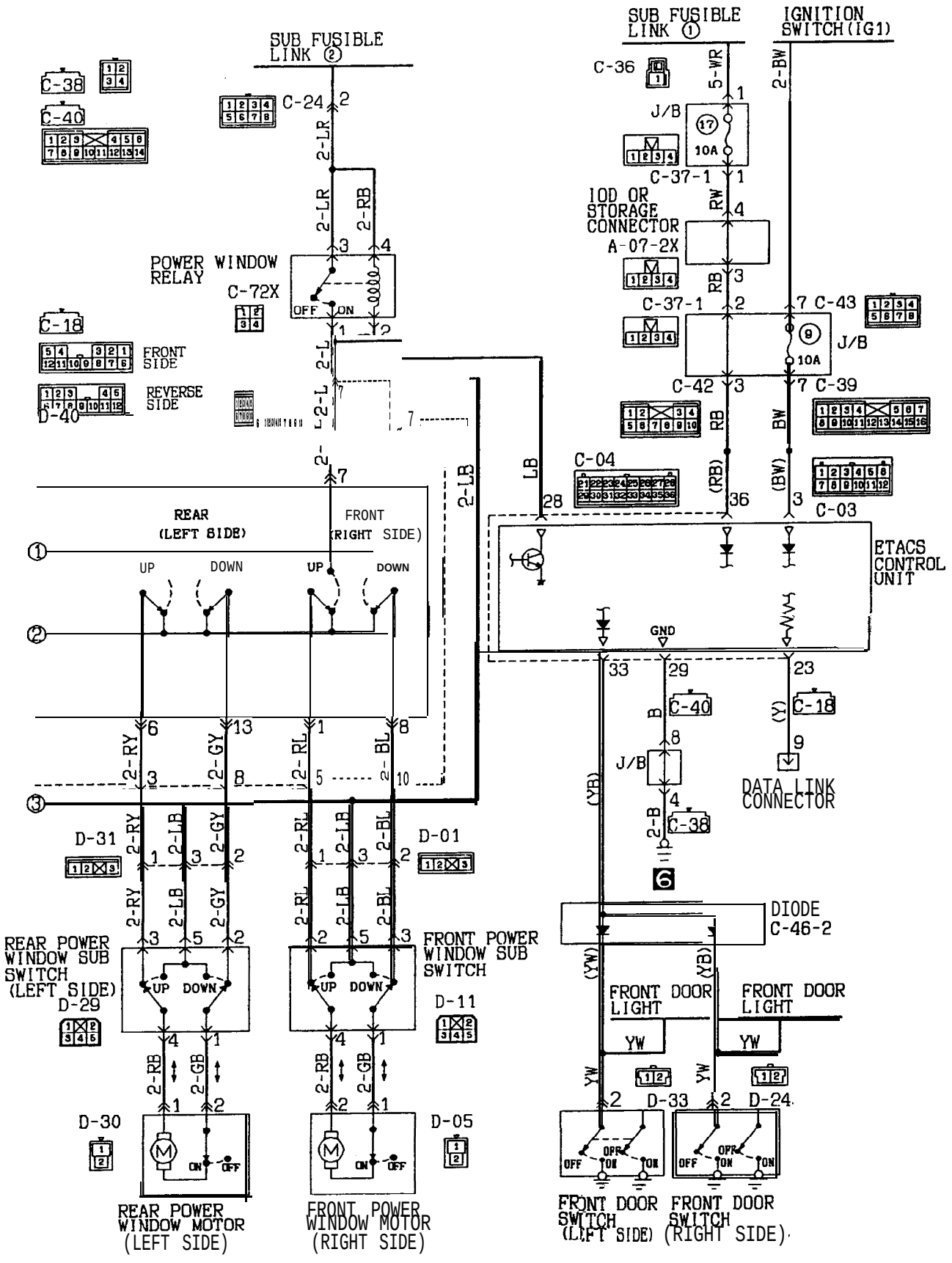
<Vehicles with ETACS (From 1991 models)>

Turbo



KX35-AC-H1130-NM

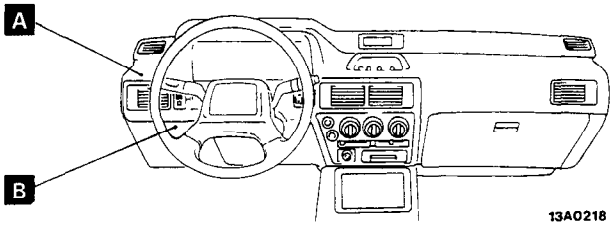
TSB Revision

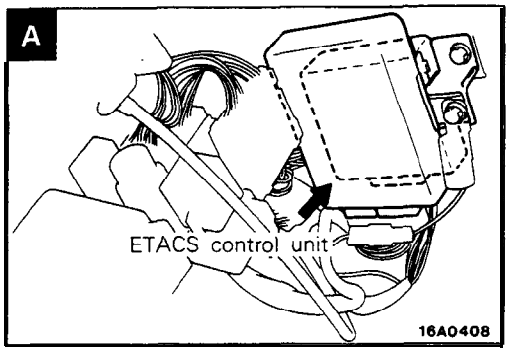


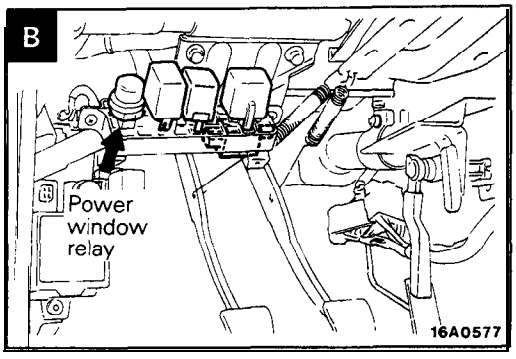
TSB Revision

COMPONENT LOCATION

Name	Symbol	Name	Symbol
ETACS control unit	A	Power window relay	B

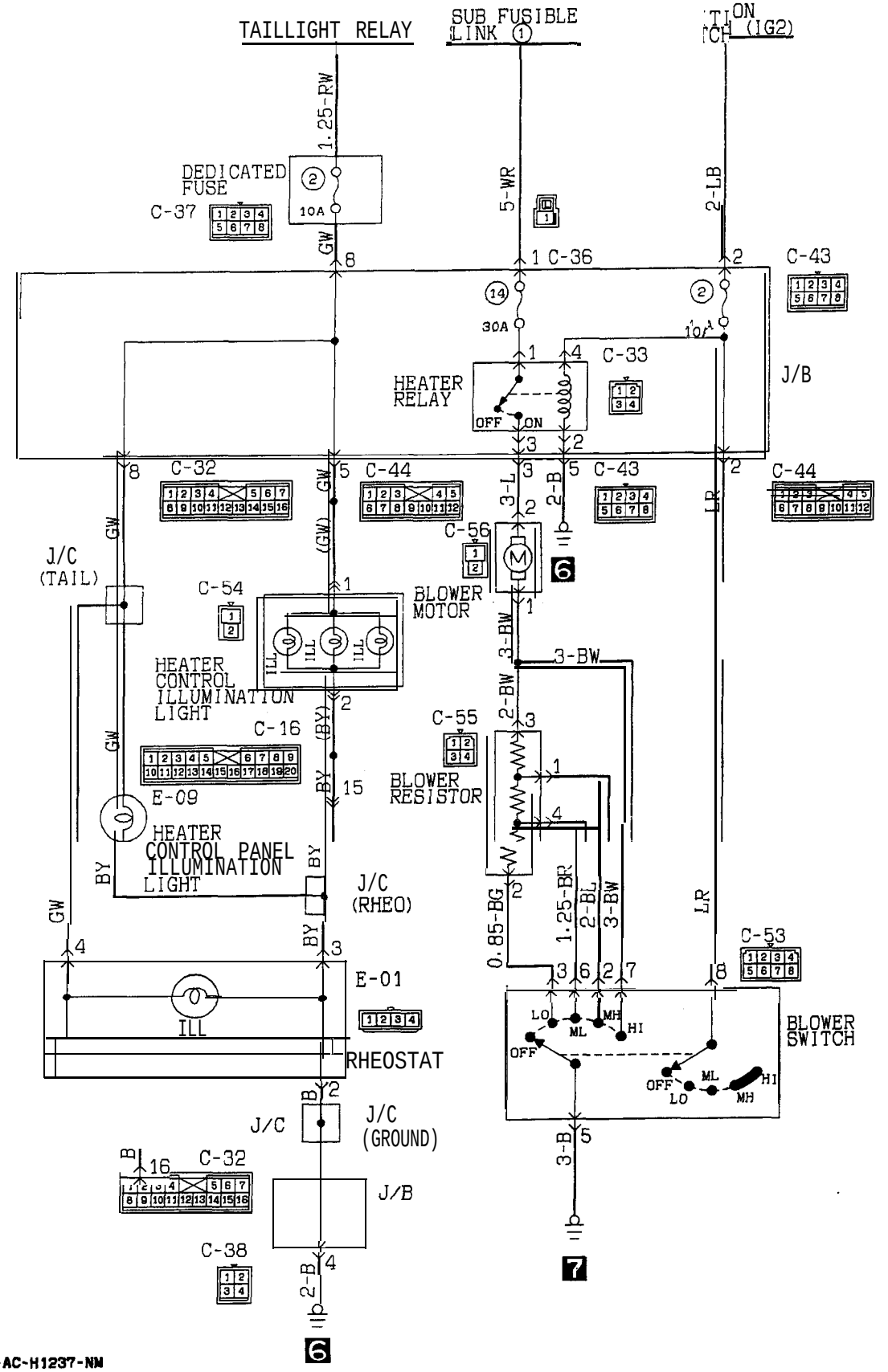






TSB Revision

HEATER CIRCUIT (Up to 1990 models)

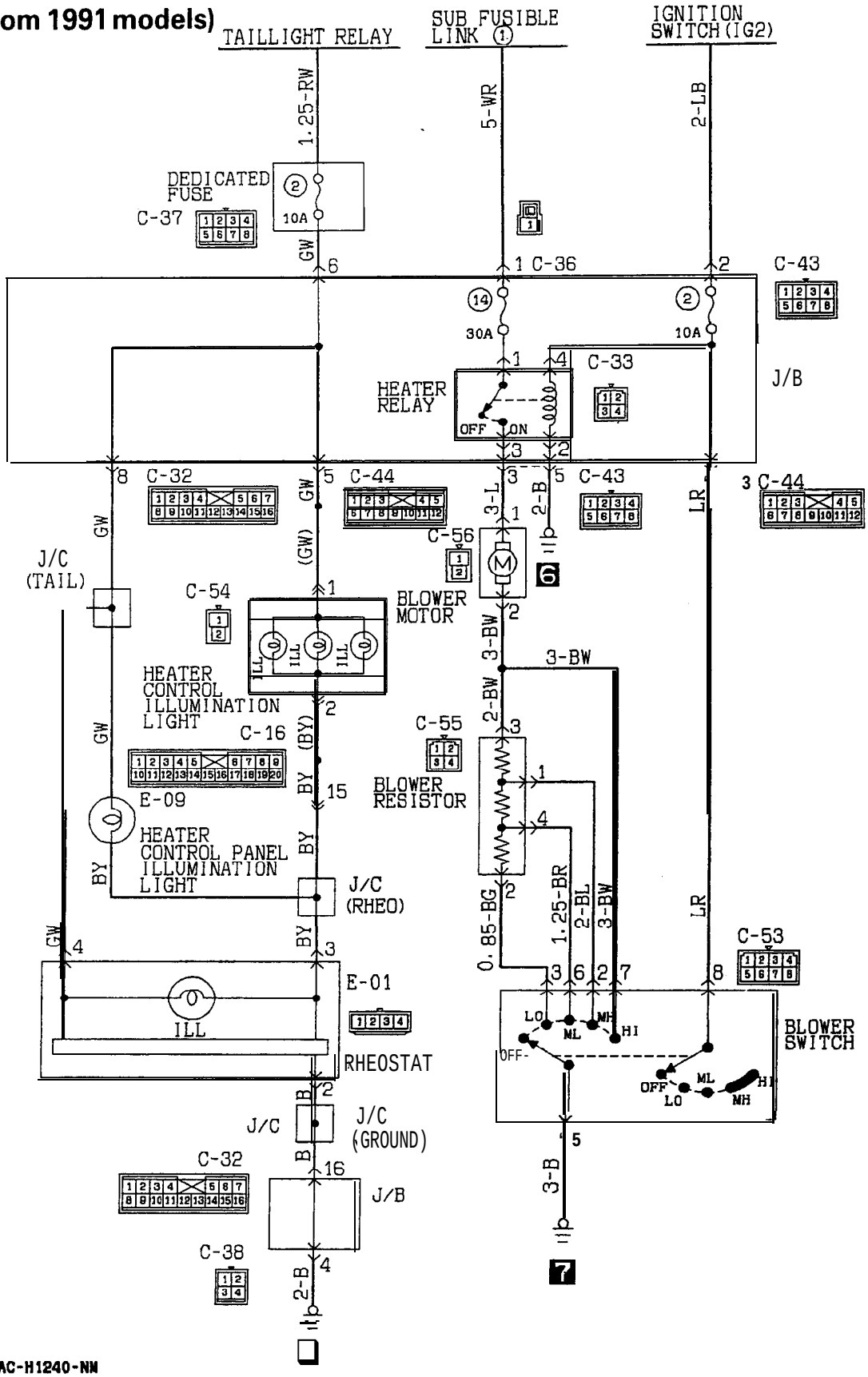


K35-AC-H1237-NM

TSB Revision

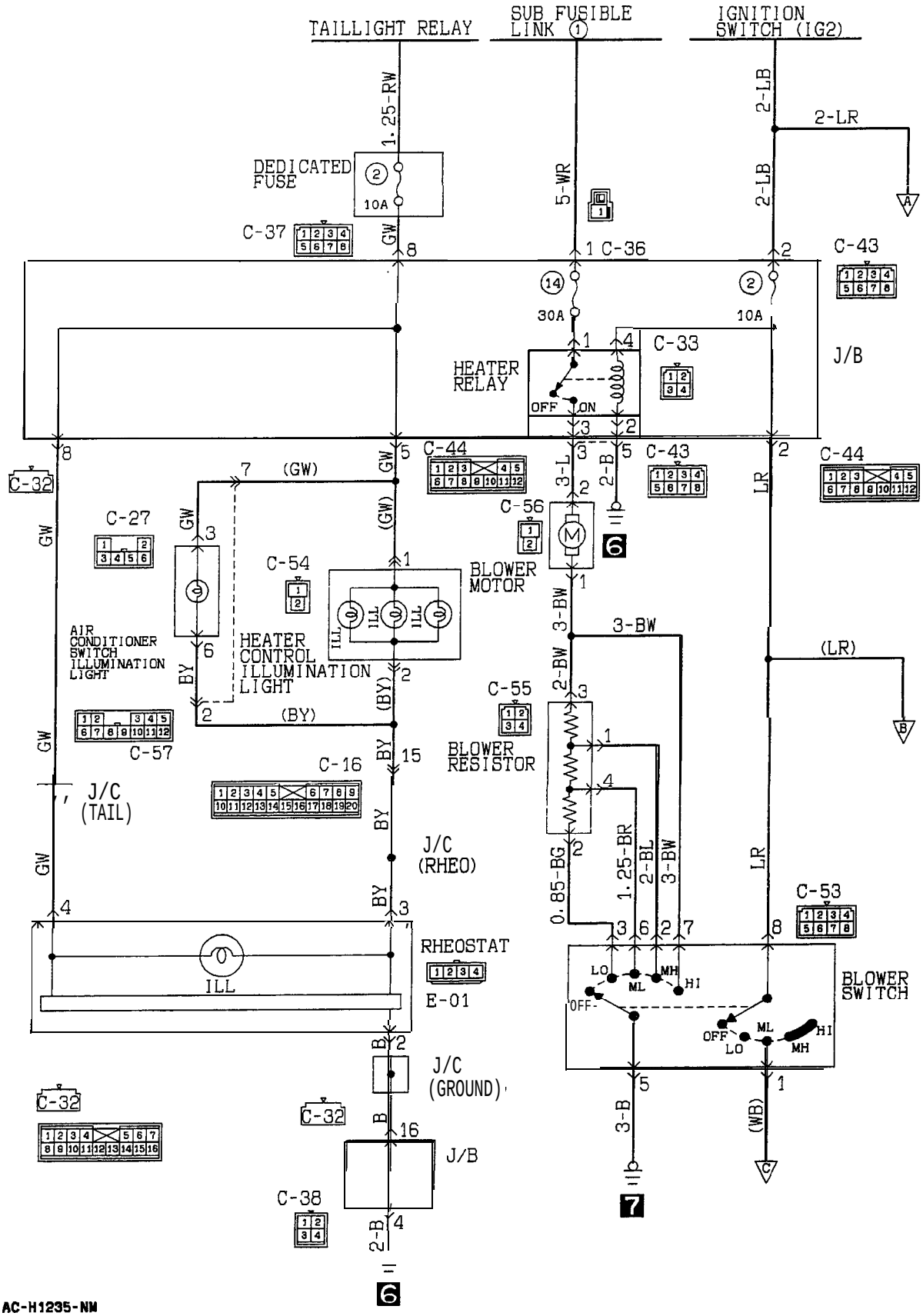
HEATER CIRCUIT

(From 1991 models)



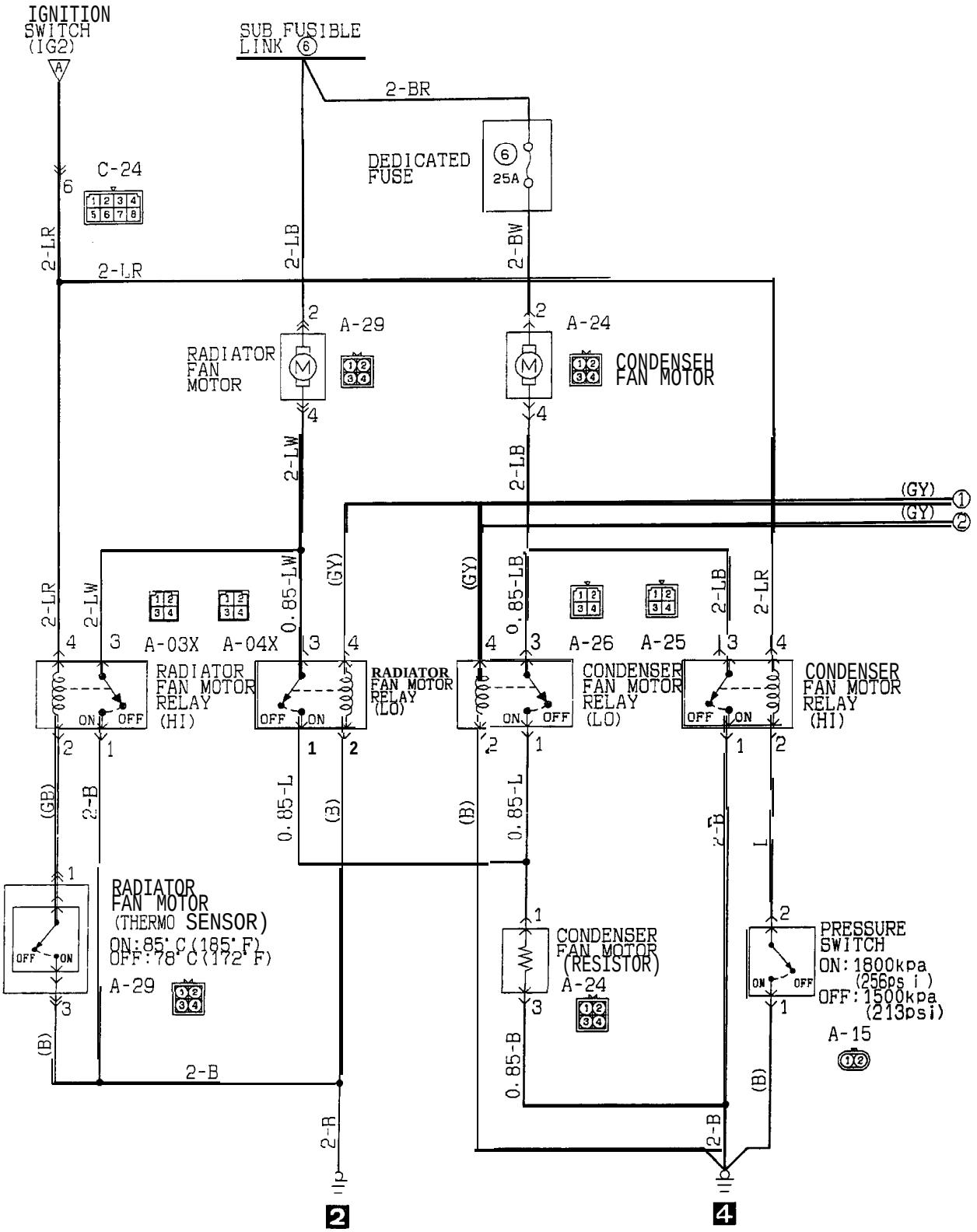
TSB Revision

AIR CONDITIONING CIRCUIT (1989 MODELS)

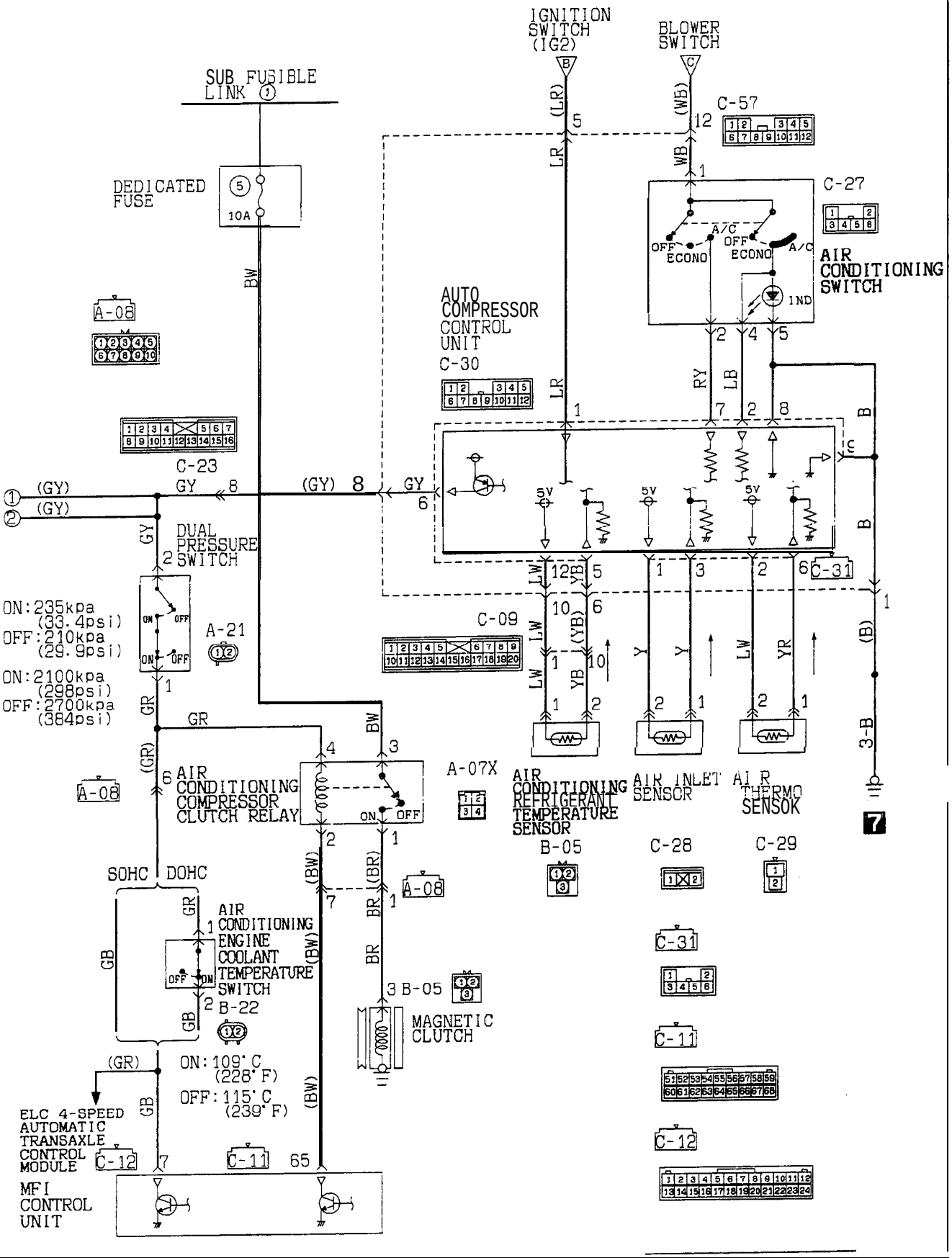


TSB Revision

AIR CONDITIONING CIRCUIT (1989 models) (CONTINUED)

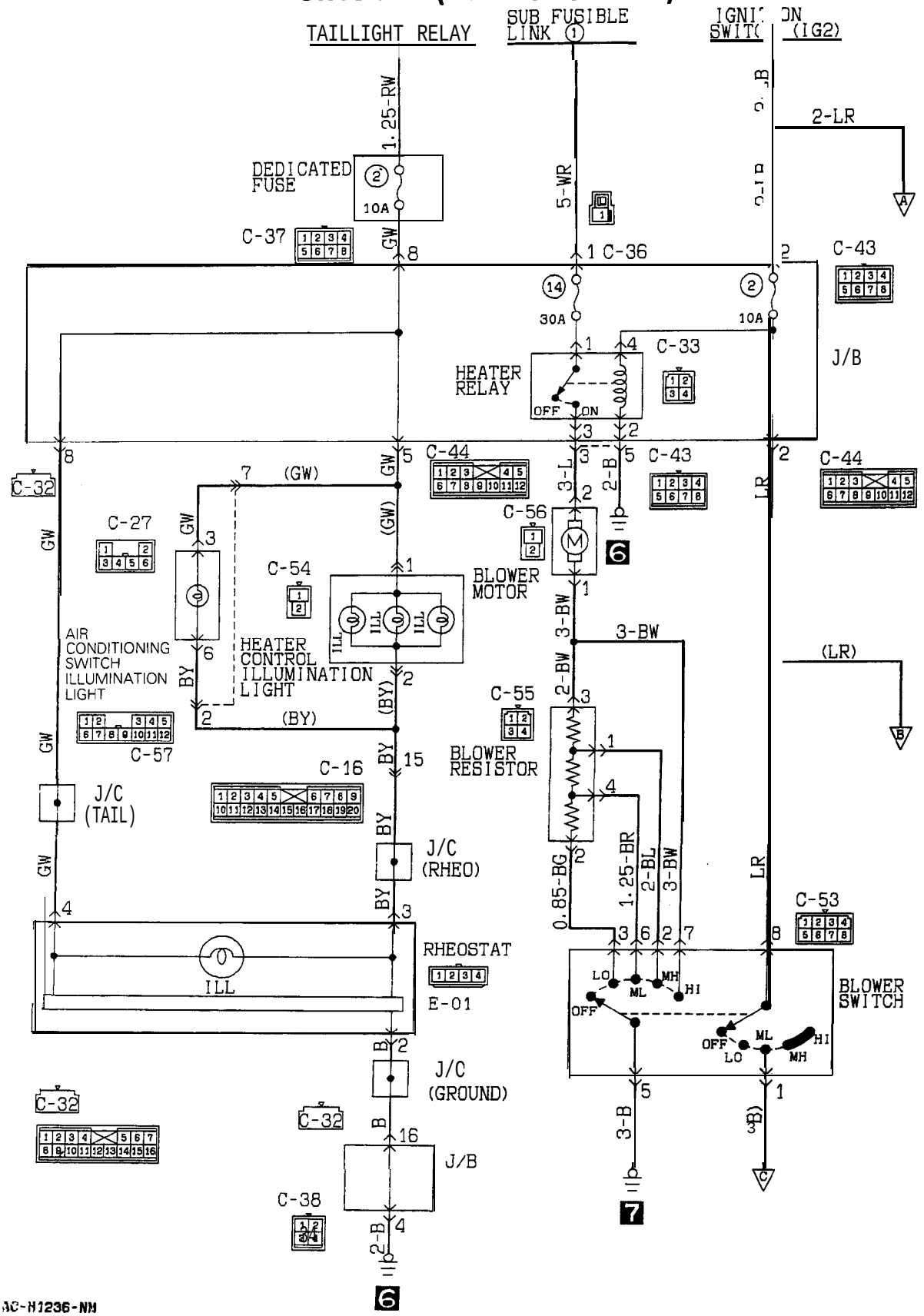


KY35-AC-H12345A-01

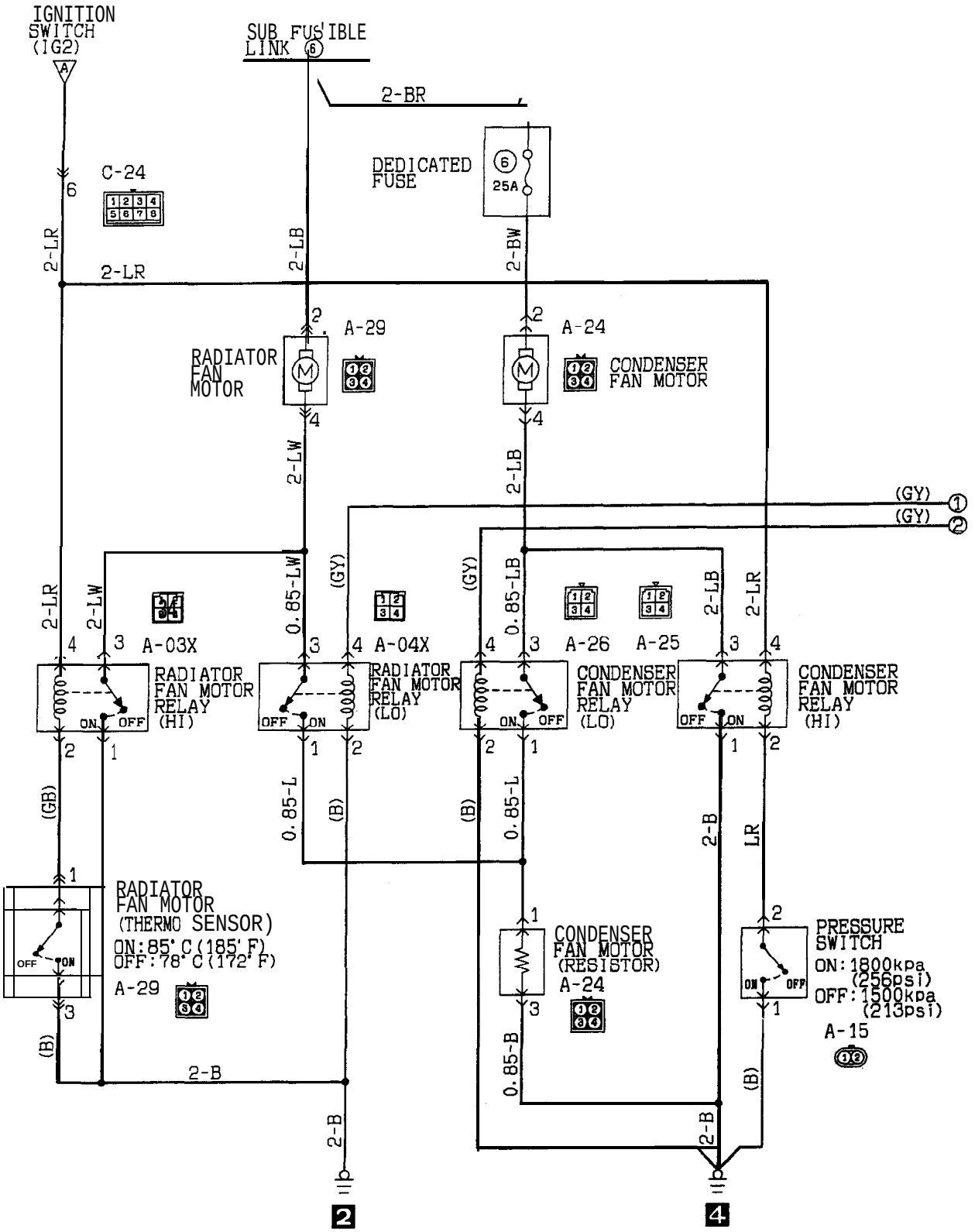


TSB Revision

AIR CONDITIONING CIRCUIT (1990 MODELS)



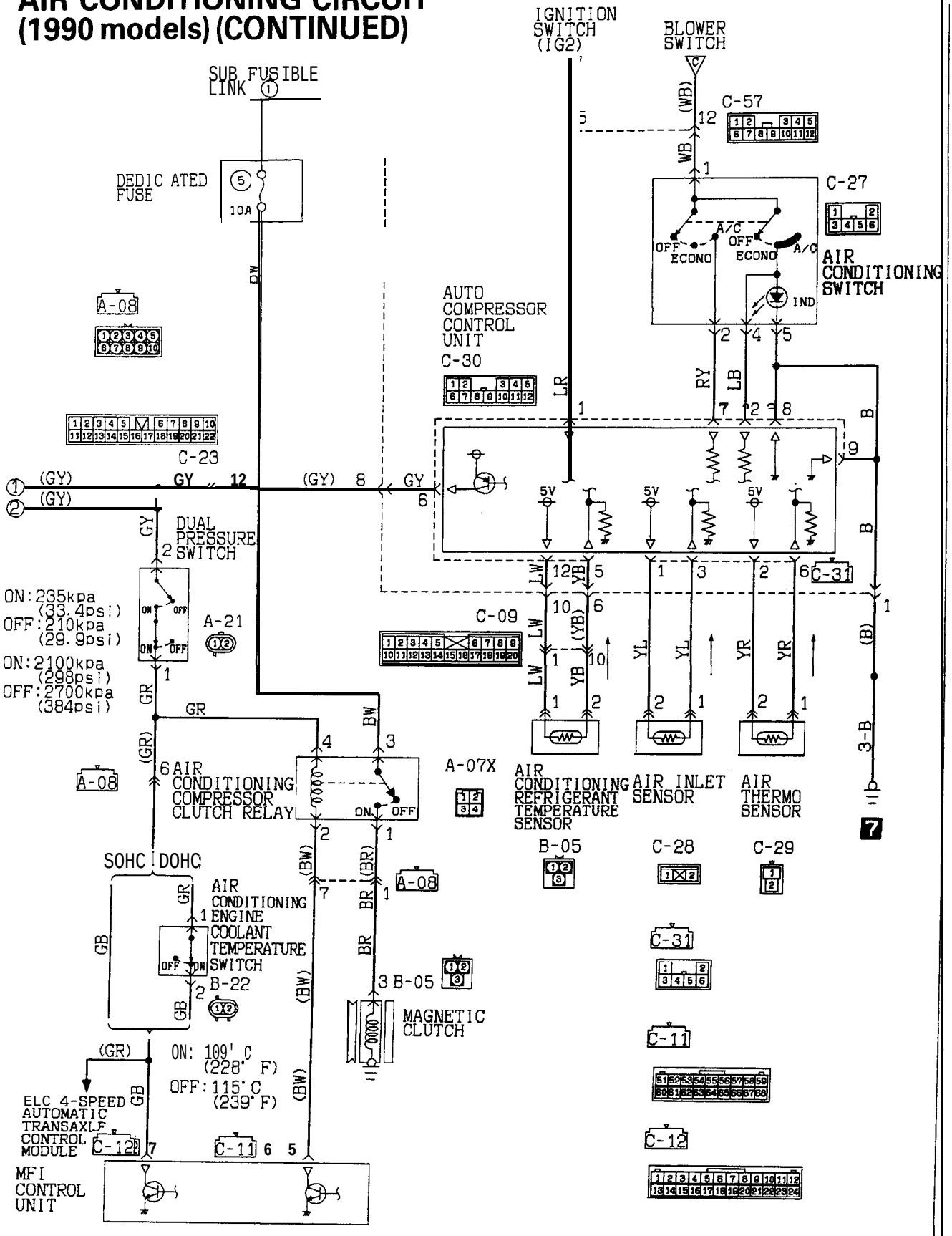
KX35-AC-H1236-NN



KX35-AC-H1236A-NM

TSB Revision

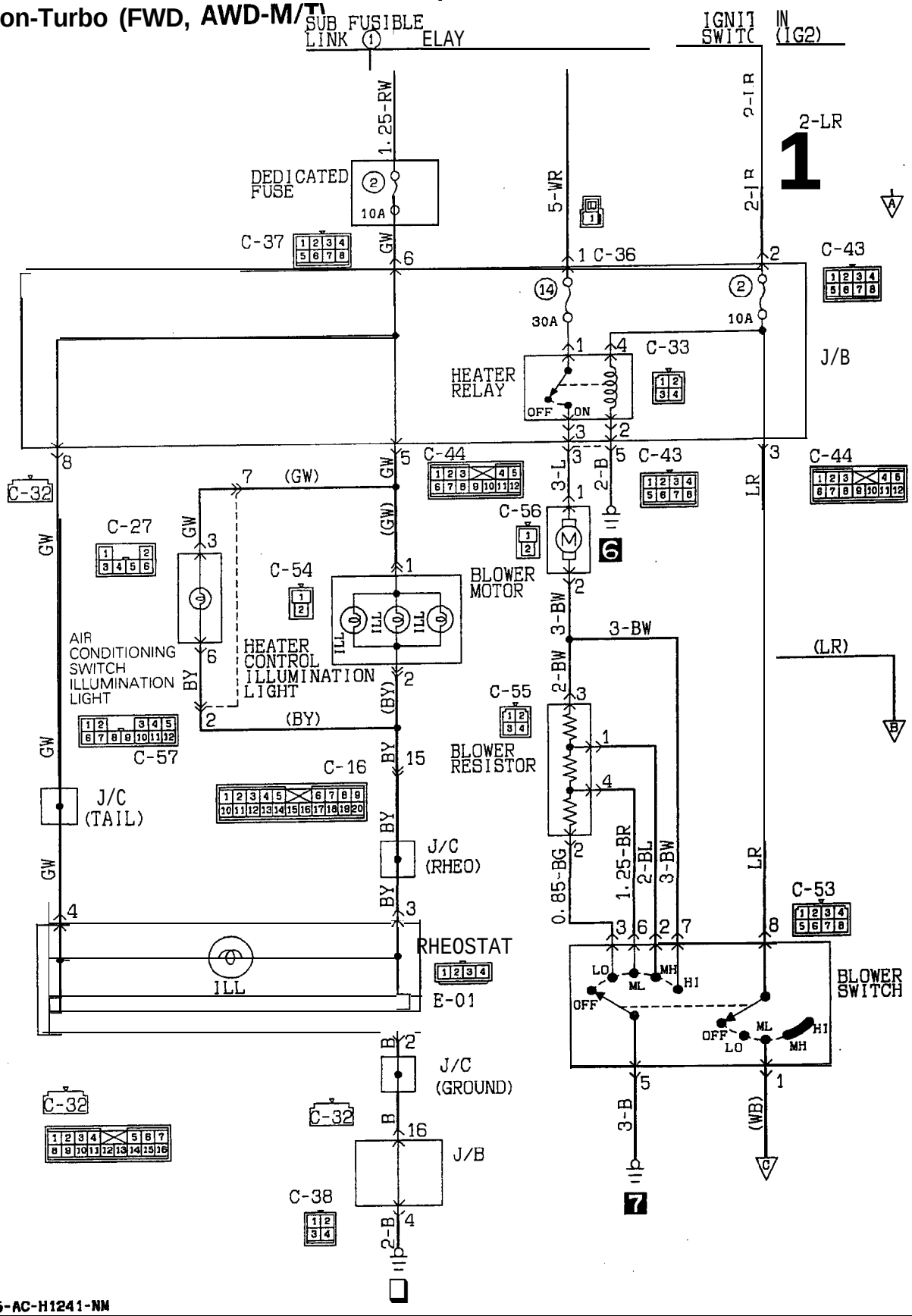
AIR CONDITIONING CIRCUIT (1990 models) (CONTINUED)



TSB Revision

AIR CONDITIONING CIRCUIT (From 1991 models)

Non-Turbo (FWD, AWD-M/T)

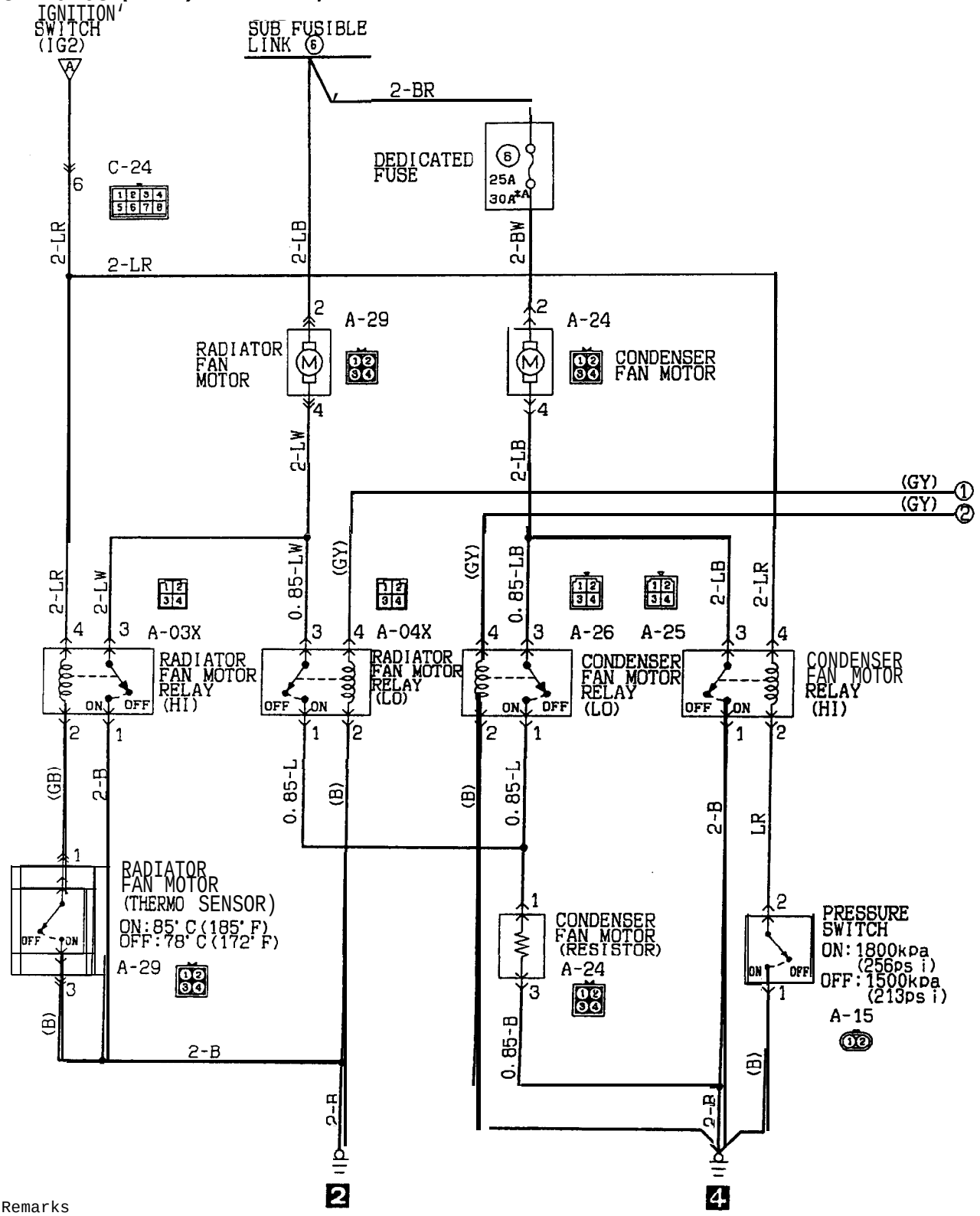


KX35-AC-H1241-NM

TSB Revision

AIR CONDITIONING CIRCUIT (From 1991 models) (CONTINUED)

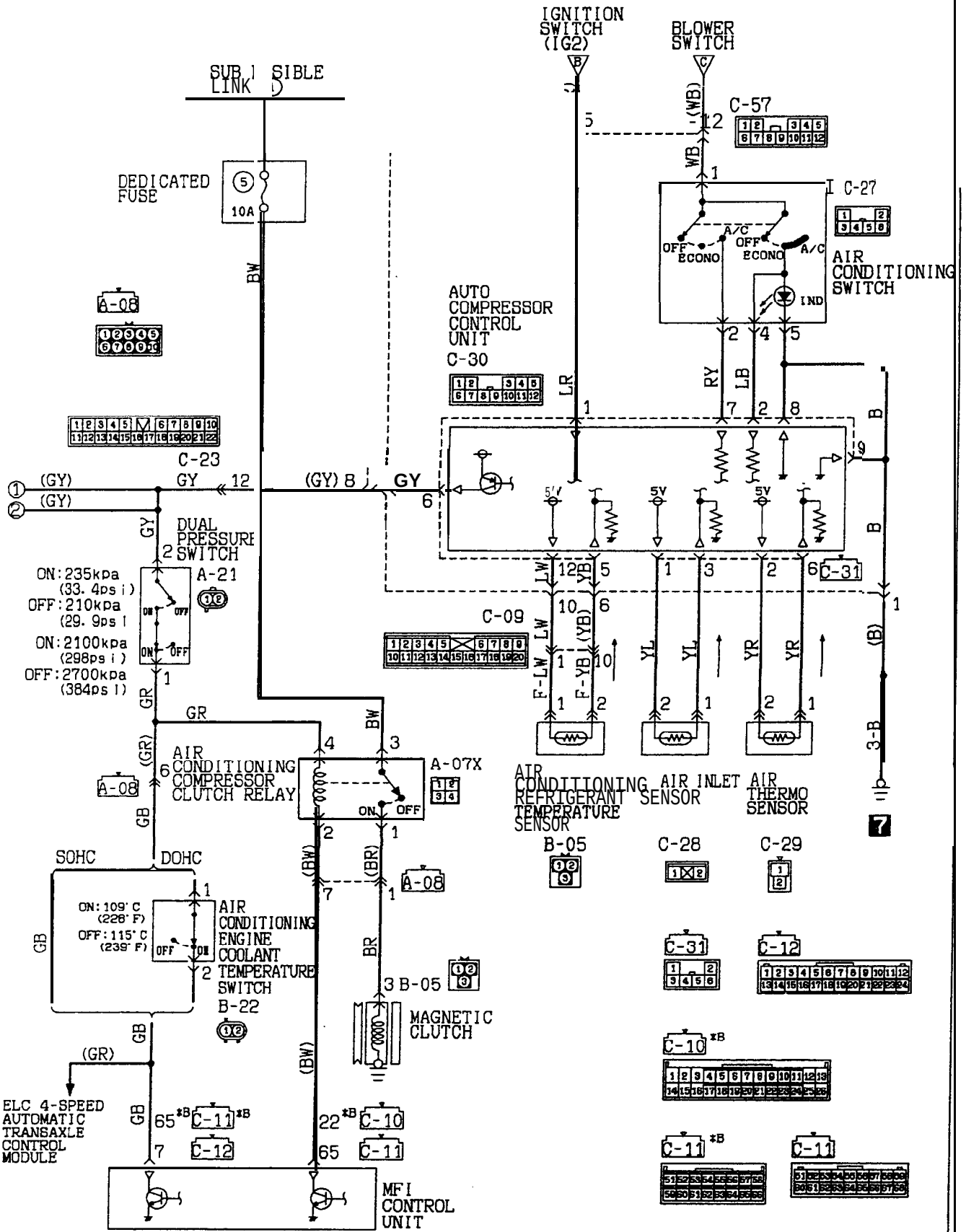
Non-Turbo (FWD, AWD-M/T)



Remarks
*A: DOHC (From 1992 models)
*B: SOHC (From 1993 models)

KX35-AC-H1243A-NM

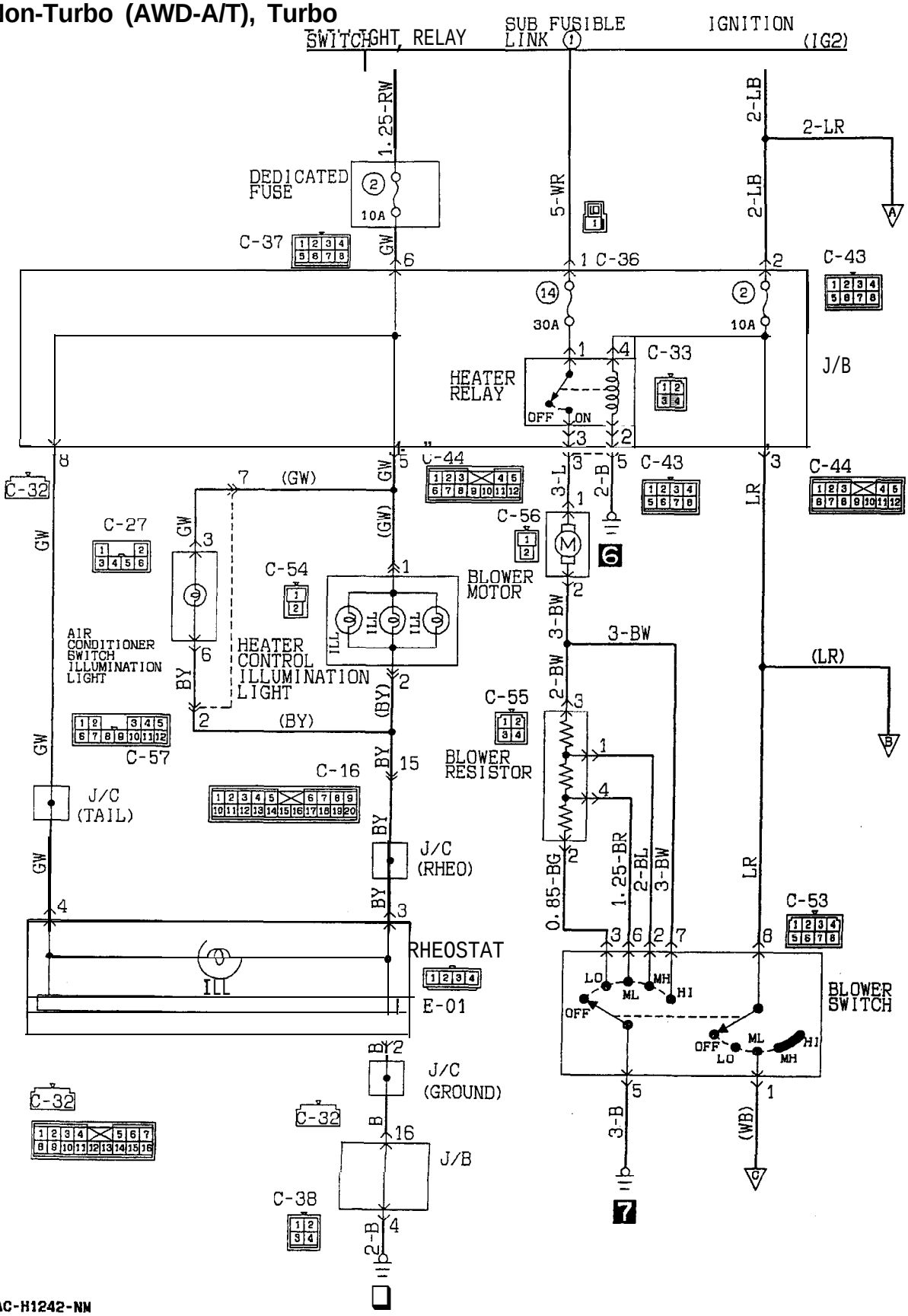
TSB Revision



TSB Revision

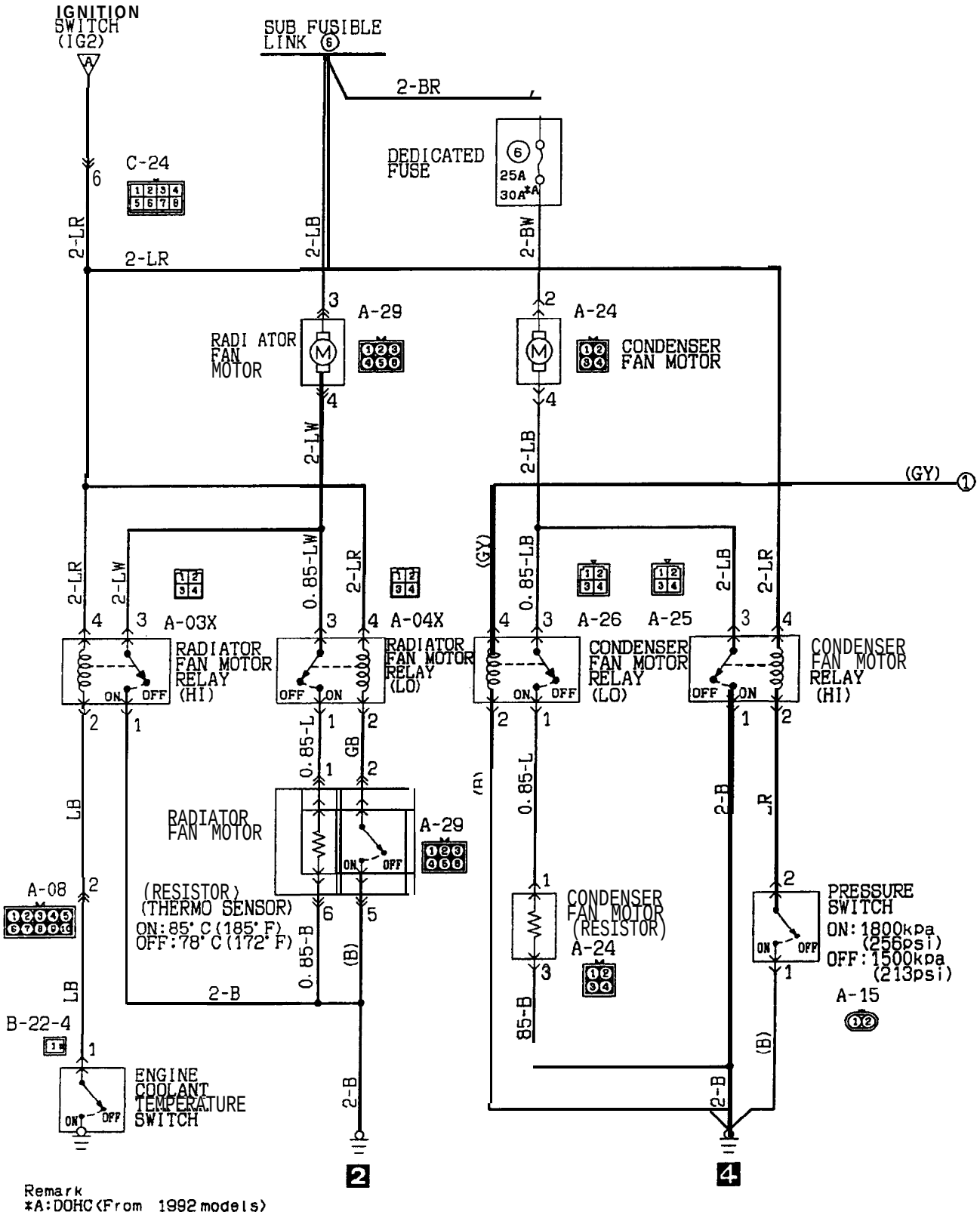
AIR CONDITIONING CIRCUIT (From 1991 models)

Non-Turbo (AWD-A/T), Turbo



KX35-AC-H1242-NN

TSB Revision

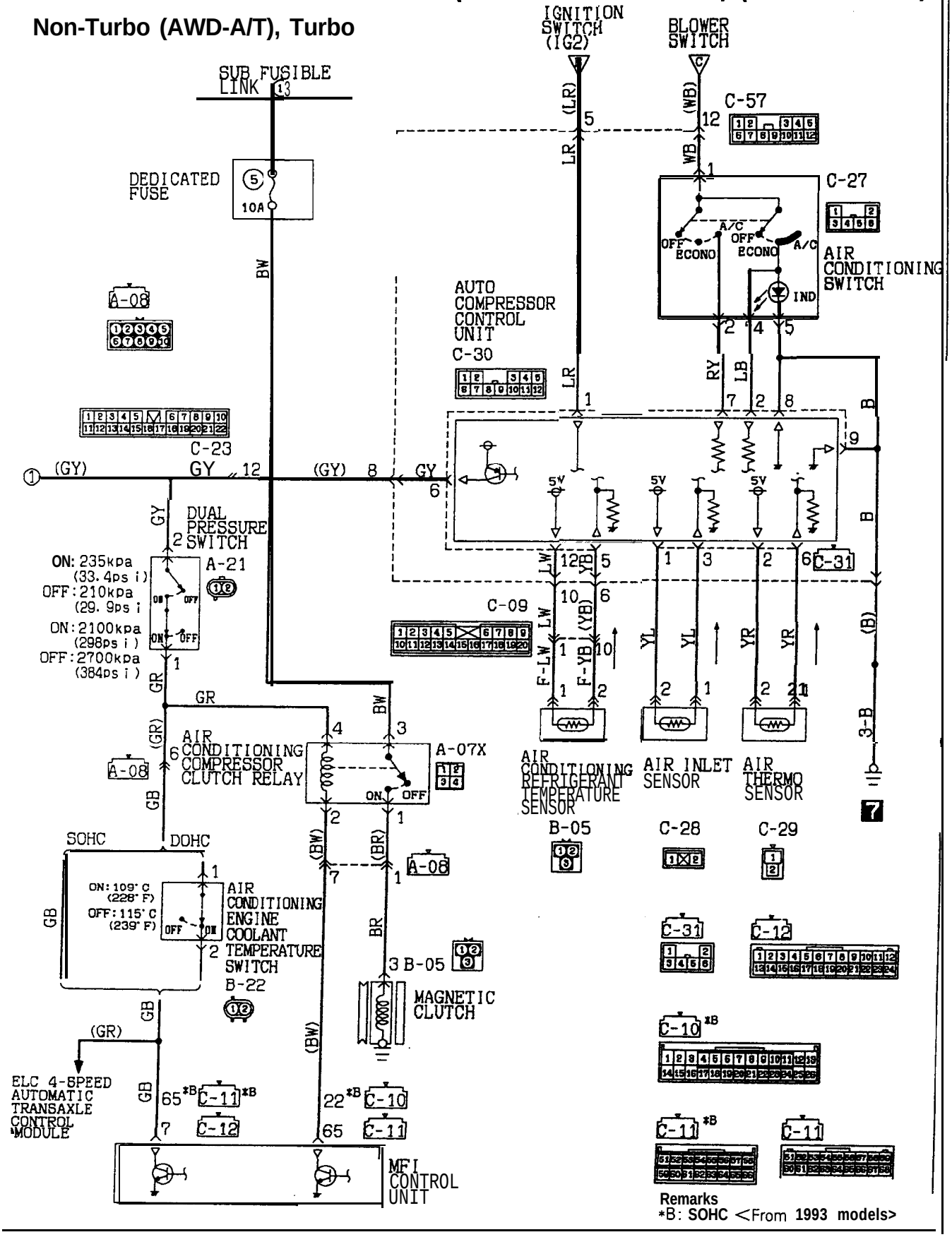


KX35-AC-H1244A-NM

TSB Revision

AIR CONDITIONING CIRCUIT (From 1991 models) (CONTINUED)

Non-Turbo (AWD-A/T), Turbo

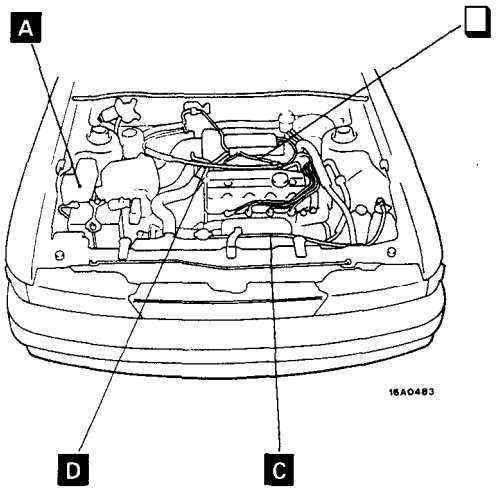


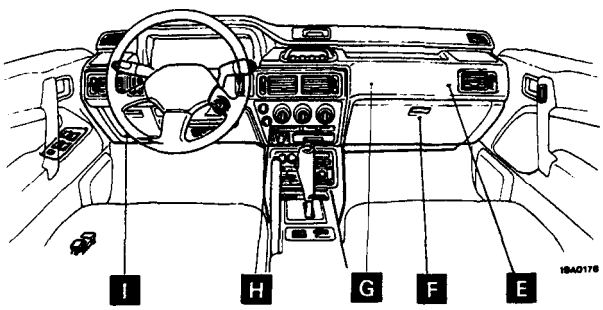
TSB Revision

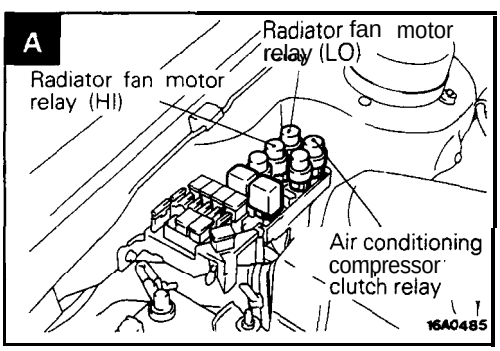
COMPONENT LOCATION

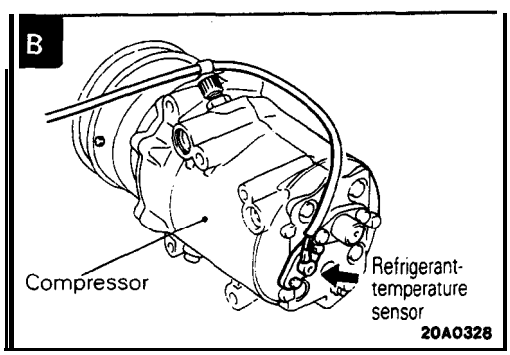
Name	Symbol	Name	Symbol
Air conditioning compressor clutch relay	A	Air conditioning engine coolant temperature switch (for compressor magnetic clutch)	D
Air conditioning switch	H	Engine coolant temperature switch (for radiator fan motor)	D
Air-inlet sensor	E	Radiator fan motor relay (LO, Hi)	A
Air-thermo sensor	G	Refrigerant-temperature sensor	B
Auto compressor control unit	F	Heater relay	I
Condenser fan motor relay (LO, HI)	C		

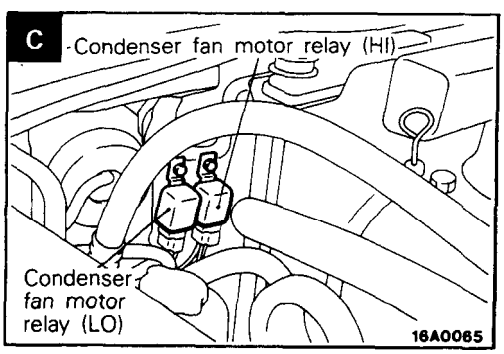
NOTE
The "Name" column is arranged in alphabetical order.

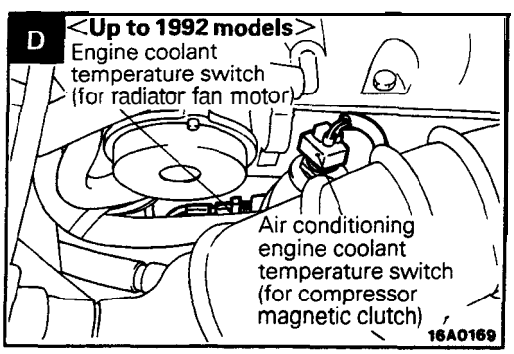






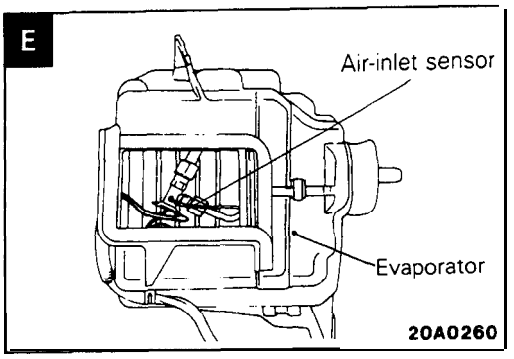




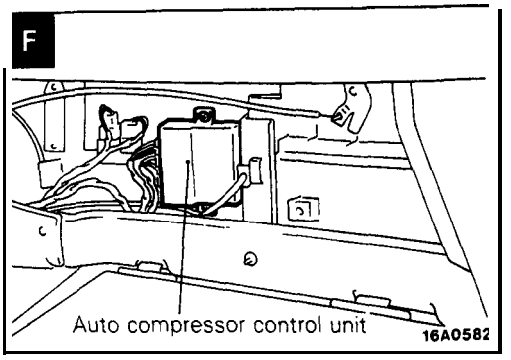


TSB Revision

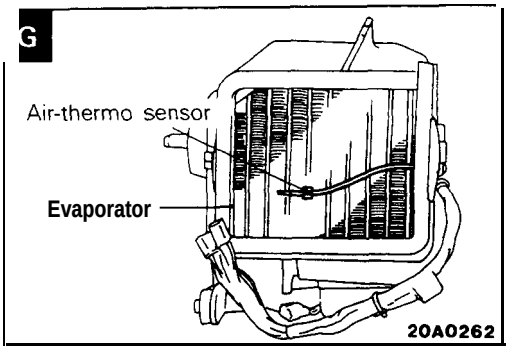
E



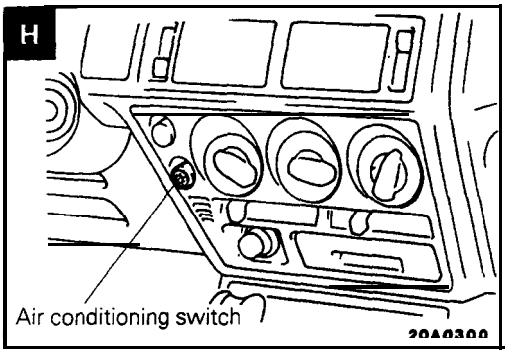
F



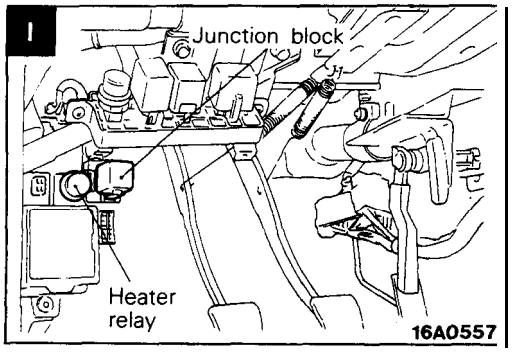
G



H



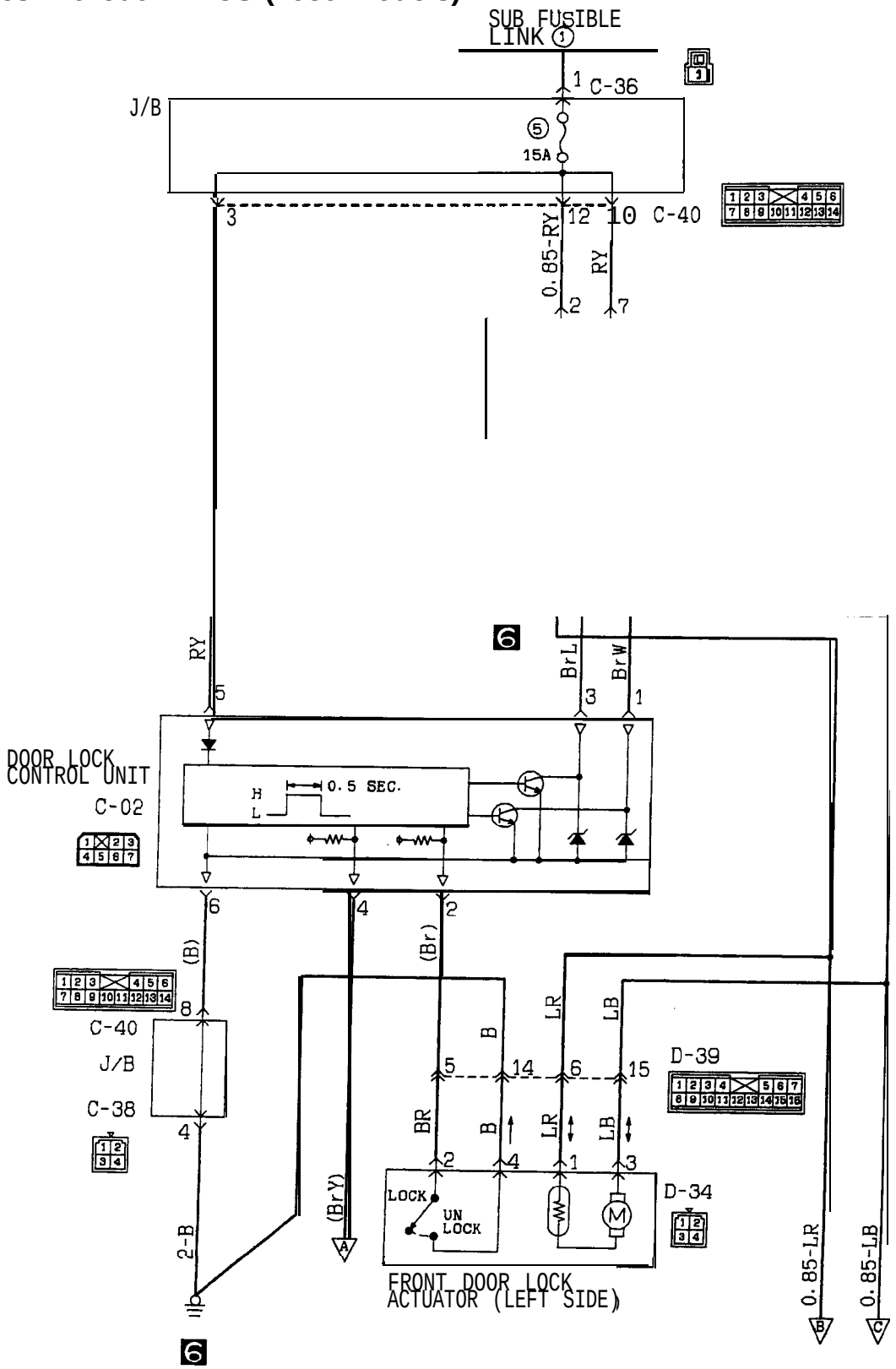
I



TSB Revision

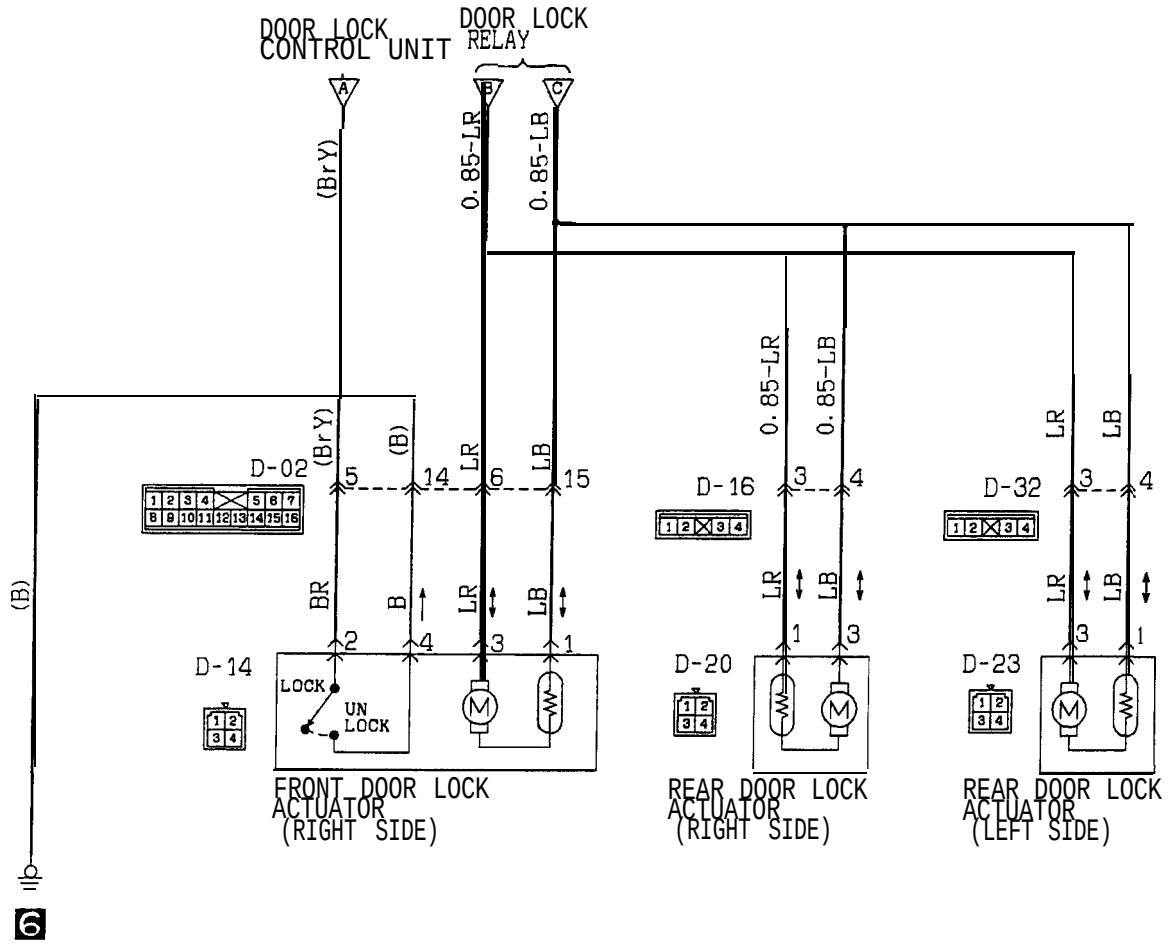
NOTES

CENTRAL DOOR LOCKING CIRCUIT
<Vehicles without ETACS (1989 models)>



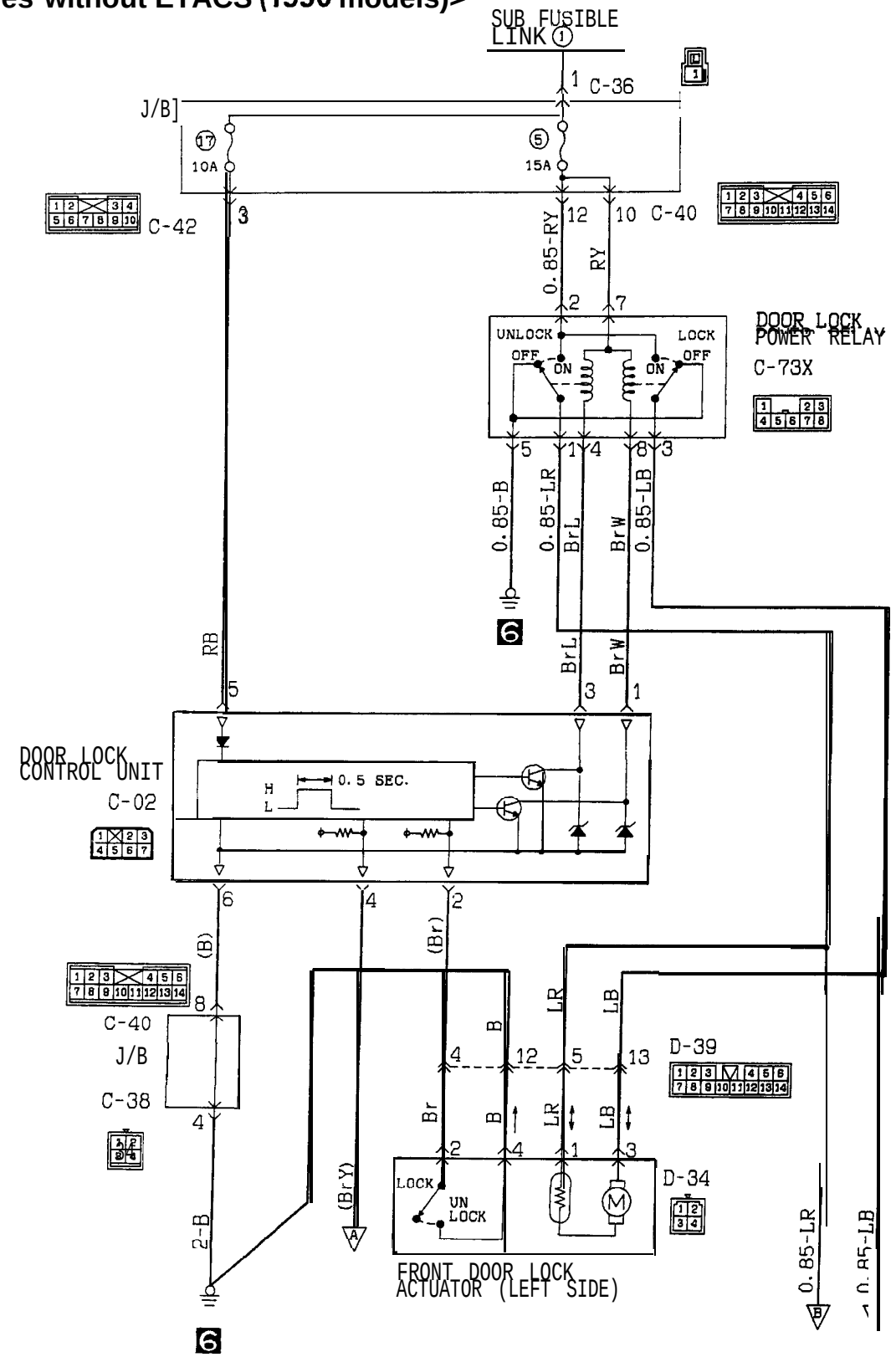
KX36-AC-H1104-N

TSB Revision


DOOR LOCK CONTROL UNIT
DOOR LOCK RELAY
A
B
C
(BrY)
0.85-LR
0.85-LB
(B)
D-02
5
14
6
15
BR
B
LR
LB
2
4
3
1
D-14
LOCK
UN LOCK
FRONT DOOR LOCK ACTUATOR (RIGHT SIDE)
D-16
3
4
1
3
D-20
REAR DOOR LOCK ACTUATOR (RIGHT SIDE)
D-32
D-23
REAR DOOR LOCK ACTUATOR (LEFT SIDE)
6

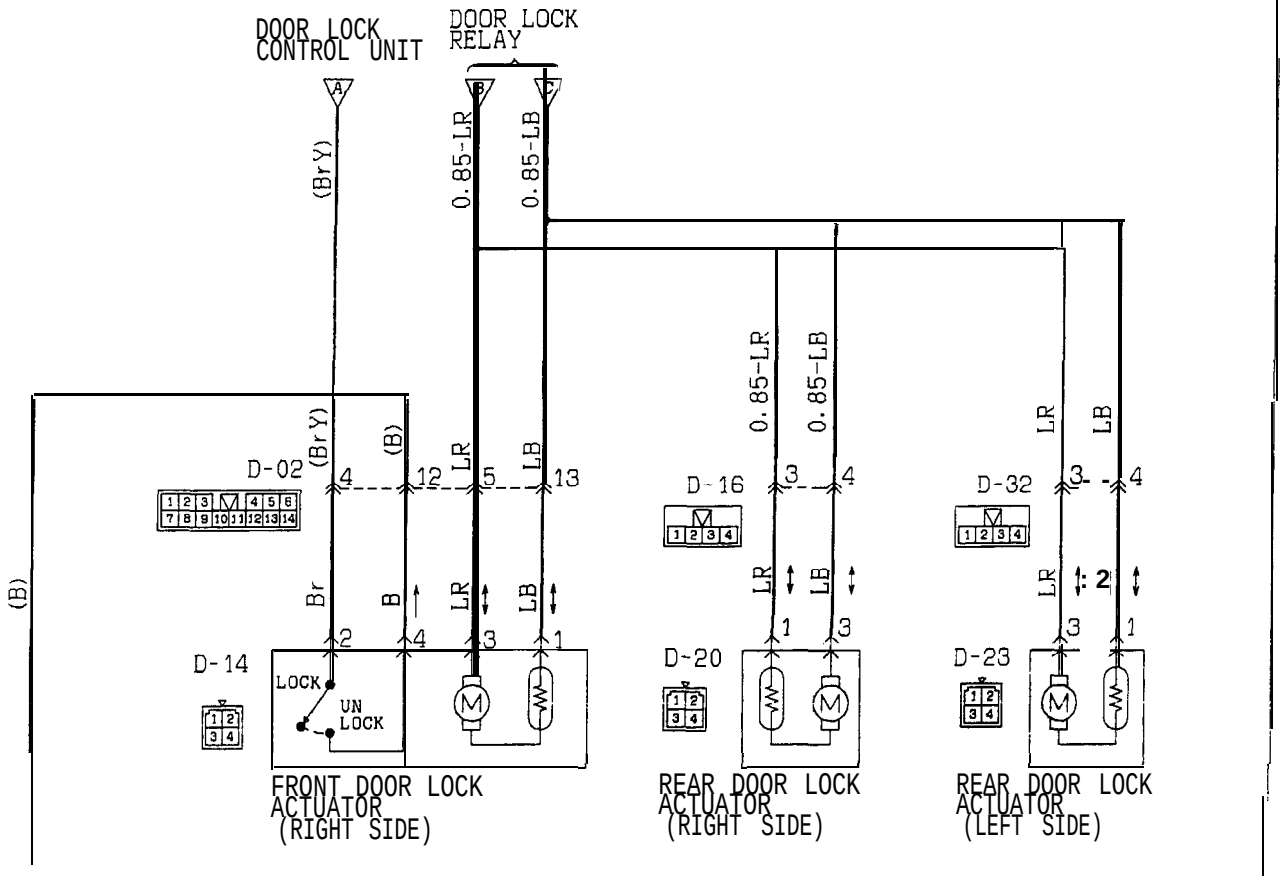
CENTRAL DOOR LOCKING CIRCUIT

<Vehicles without ETACS (1990 models)>



KX35-AC-H1112-NM

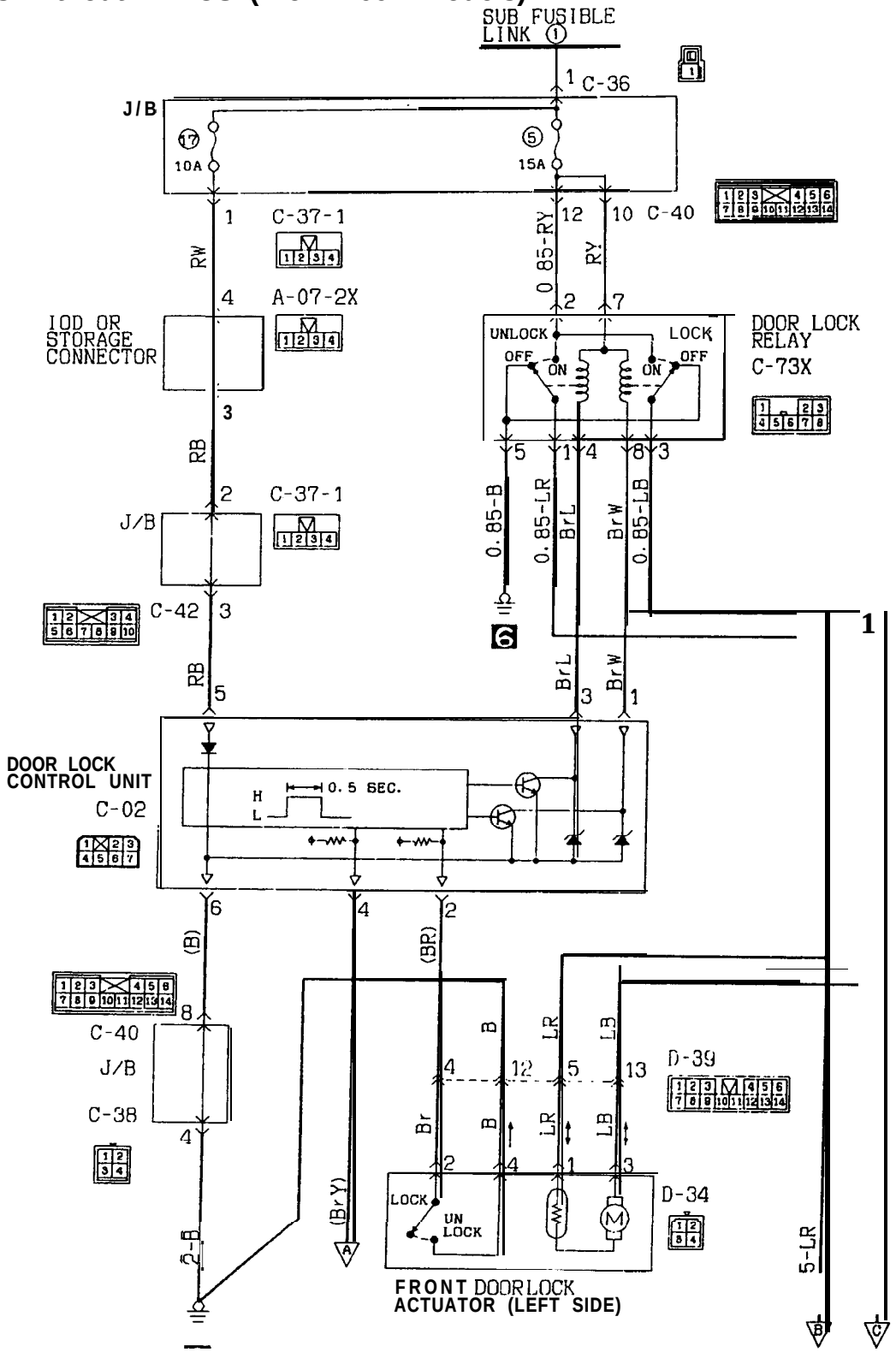
TSB Revision


DOOR LOCK CONTROL UNIT
DOOR LOCK RELAY
A
B
C
(BrY)
0.85-LR
0.85-LB
D-02
(BrY)
(B)
4
12
LR
5
LB
13
D-16
3
4
0.85-LR
0.85-LB
D-32
3
4
LR
LB
(B)
Br
B
LR
LB
2
4
3
1
LR
LB
1
3
LR
LB
3
1
D-14
LOCK
UN LOCK
D-20
D-23
FRONT DOOR LOCK ACTUATOR (RIGHT SIDE)
REAR DOOR LOCK ACTUATOR (RIGHT SIDE)
REAR DOOR LOCK ACTUATOR (LEFT SIDE)

6

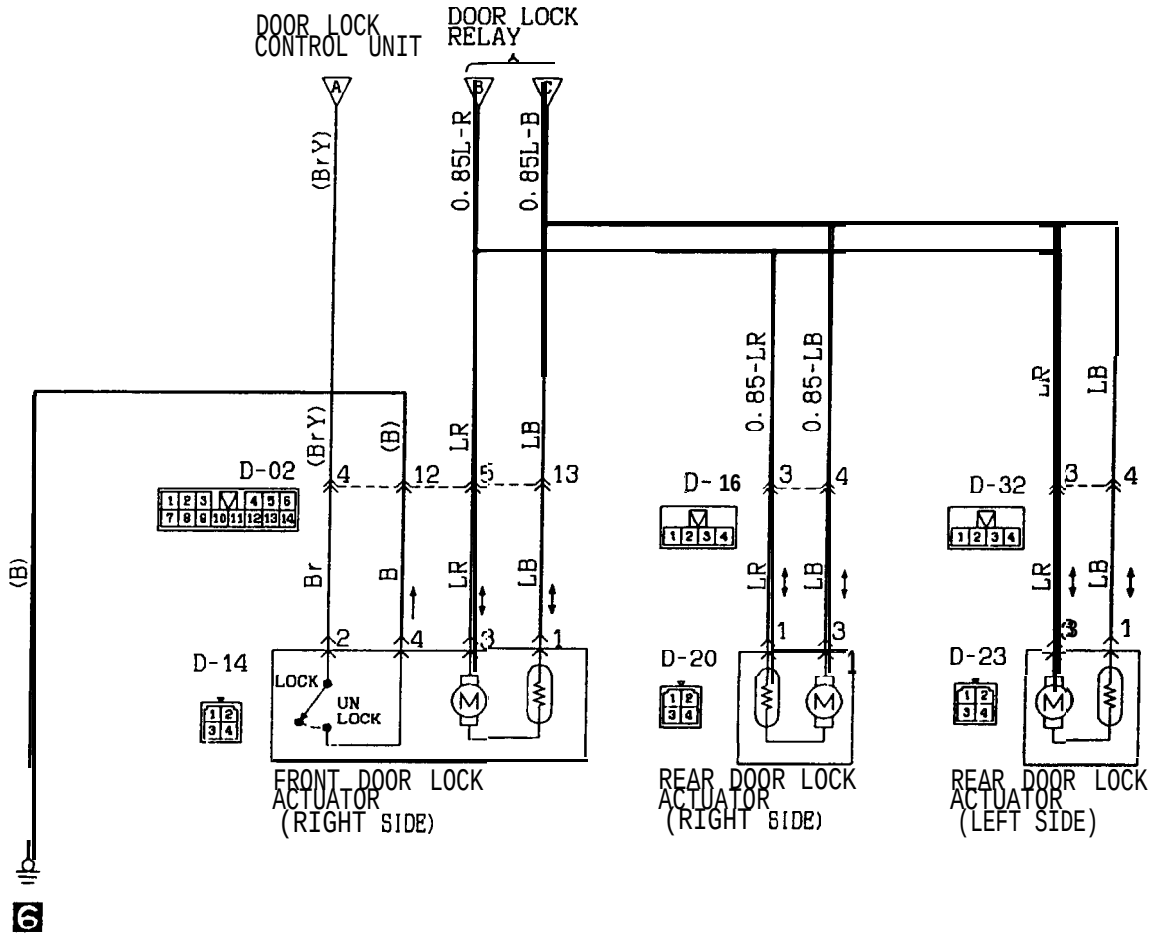
CENTRAL DOOR LOCKING CIRCUIT

<Vehicles without ETACS (From 1991 models)>



KX35-AC-H1131-NM

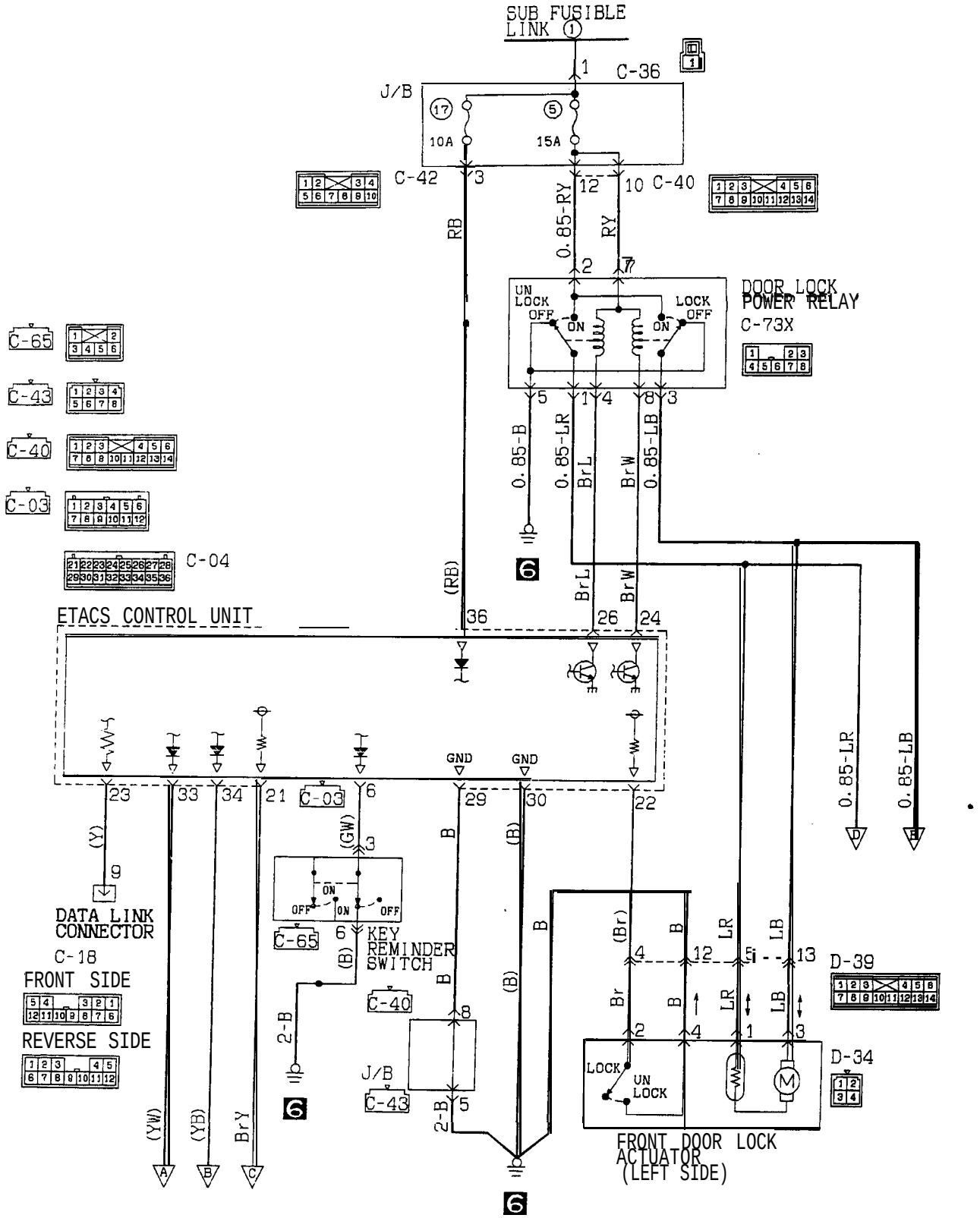
TSB Revision



TSB Revision

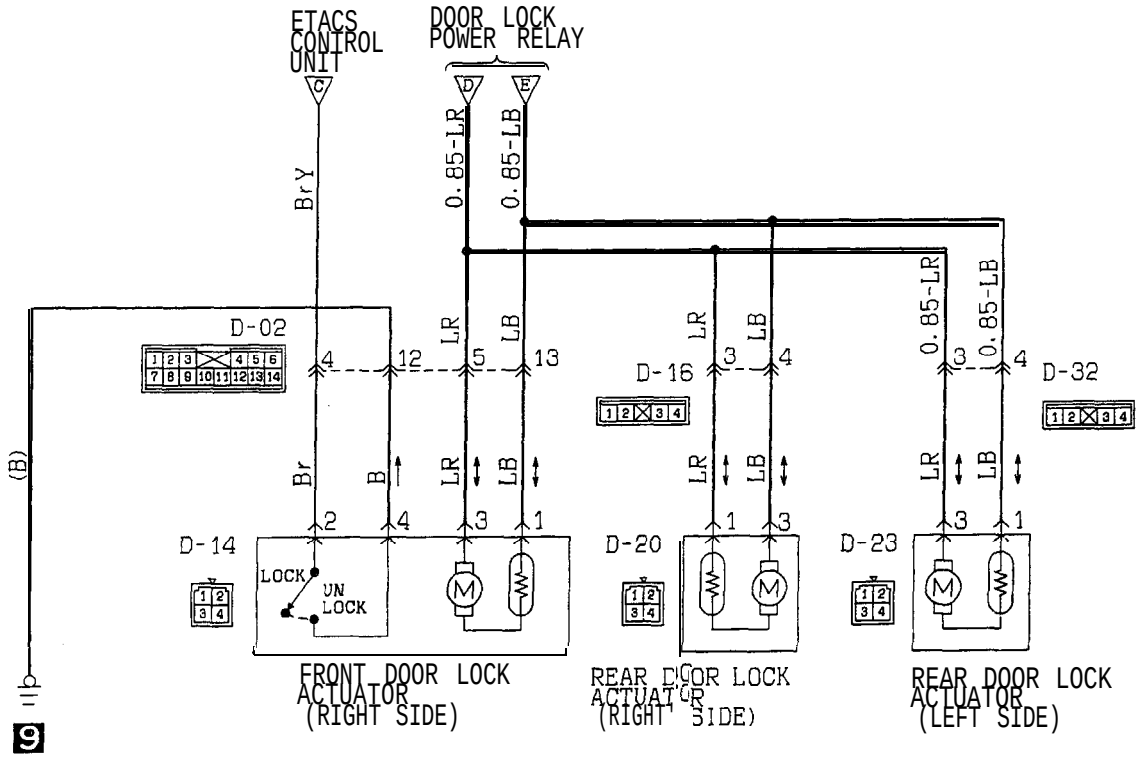
CENTRAL DOOR LOCKING CIRCUIT

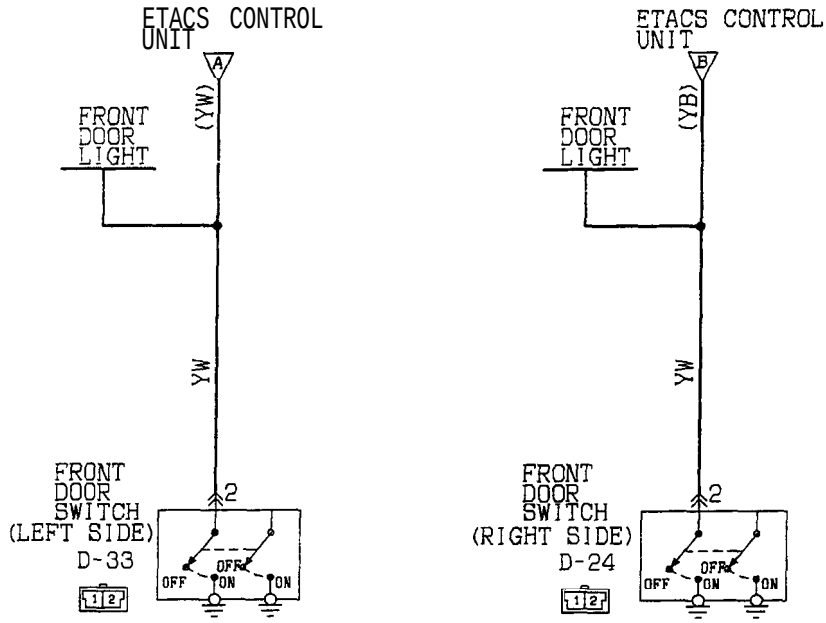
<Vehicles with ETACS (1989 models)>



K35-AC-H1113-NM

TSB Revision

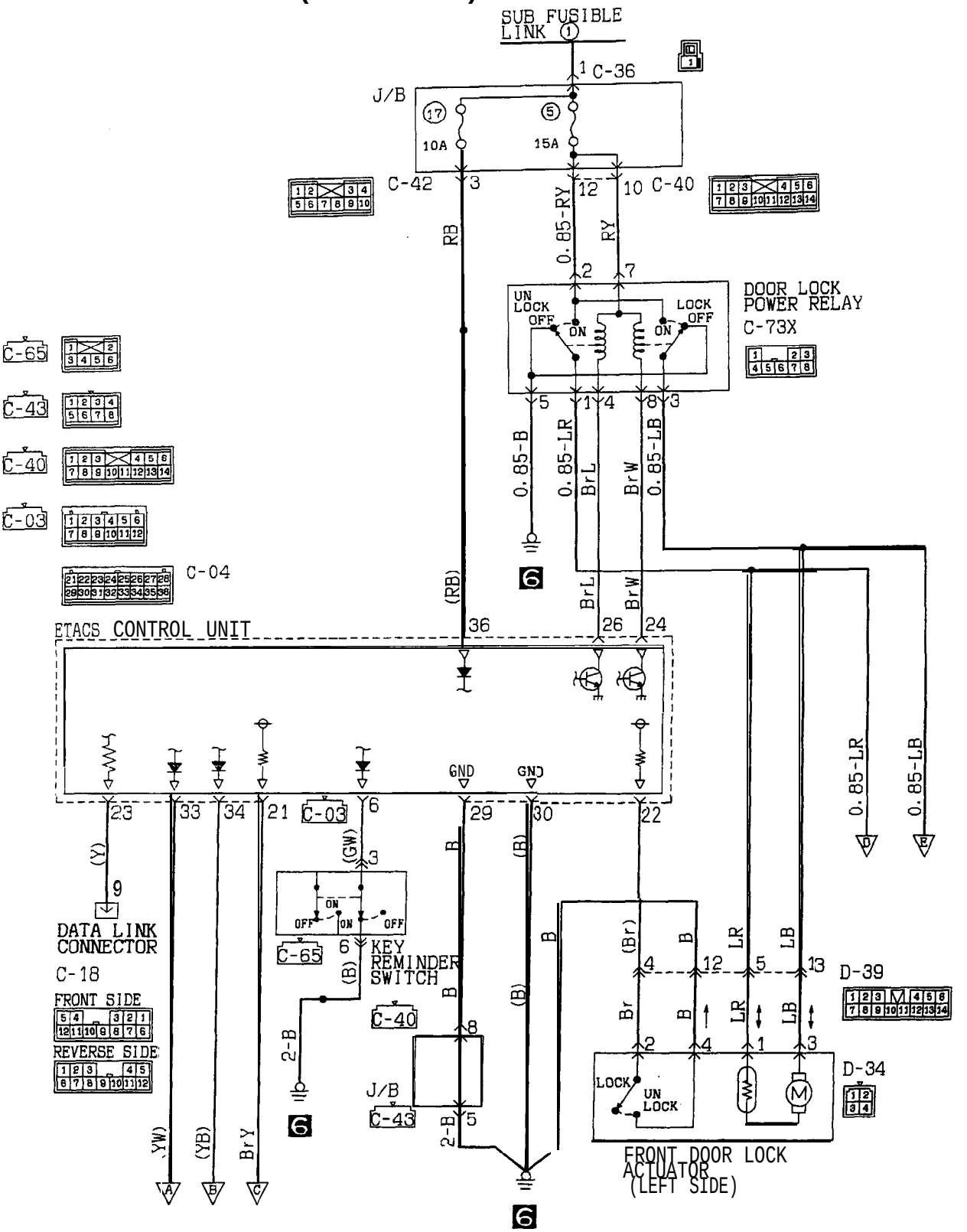




TSB Revision

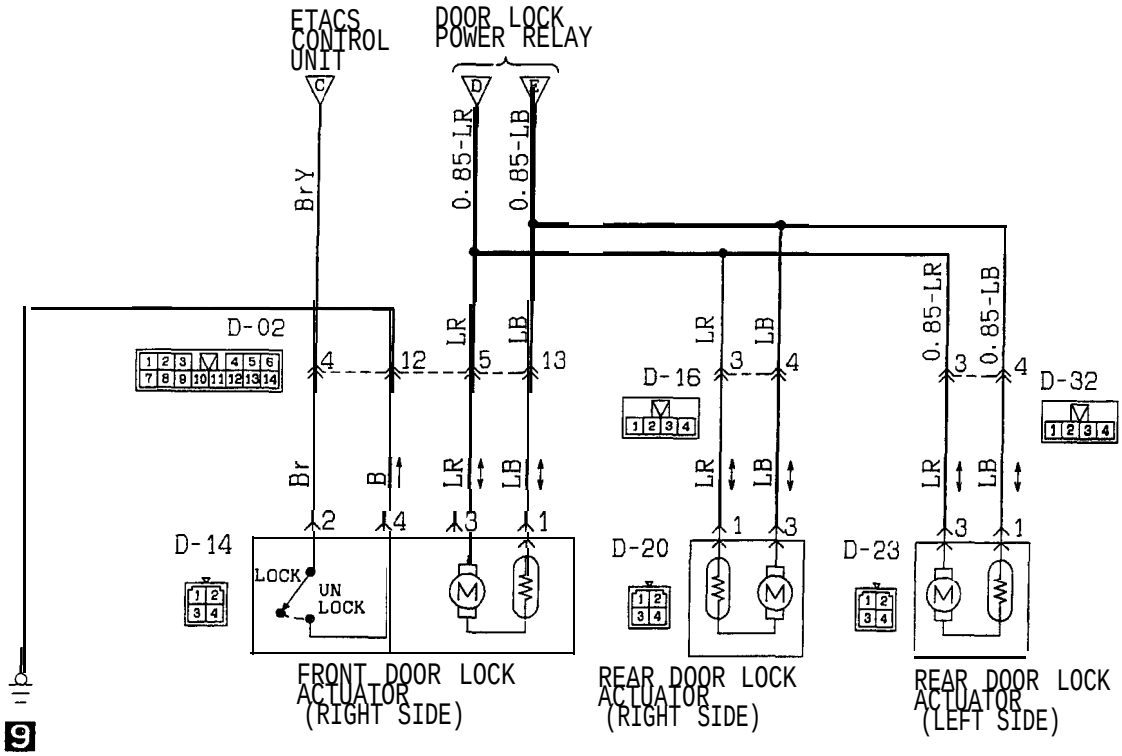
CENTRAL DOOR LOCKING CIRCUIT

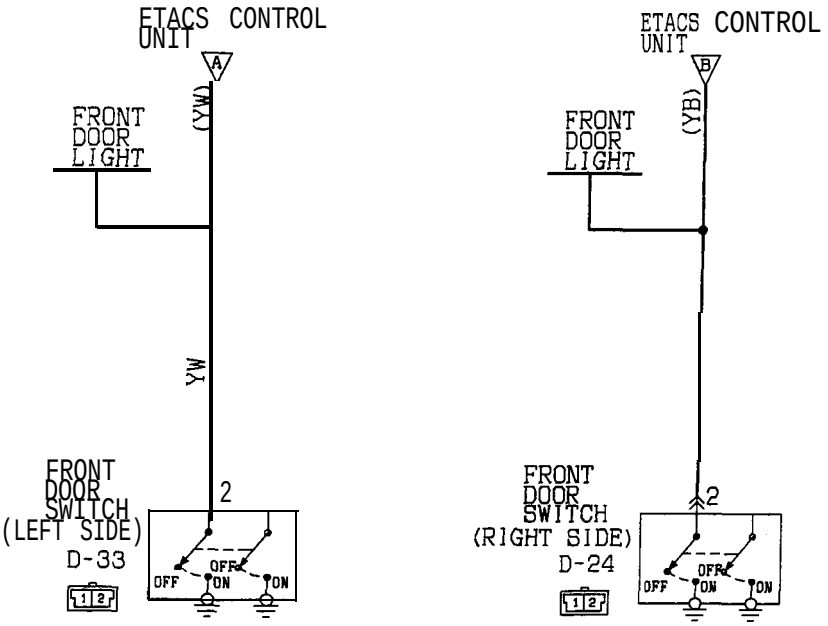
<Vehicles with ETACS (1990 models)>



K35-AC-H1114-NM

TSB Revision



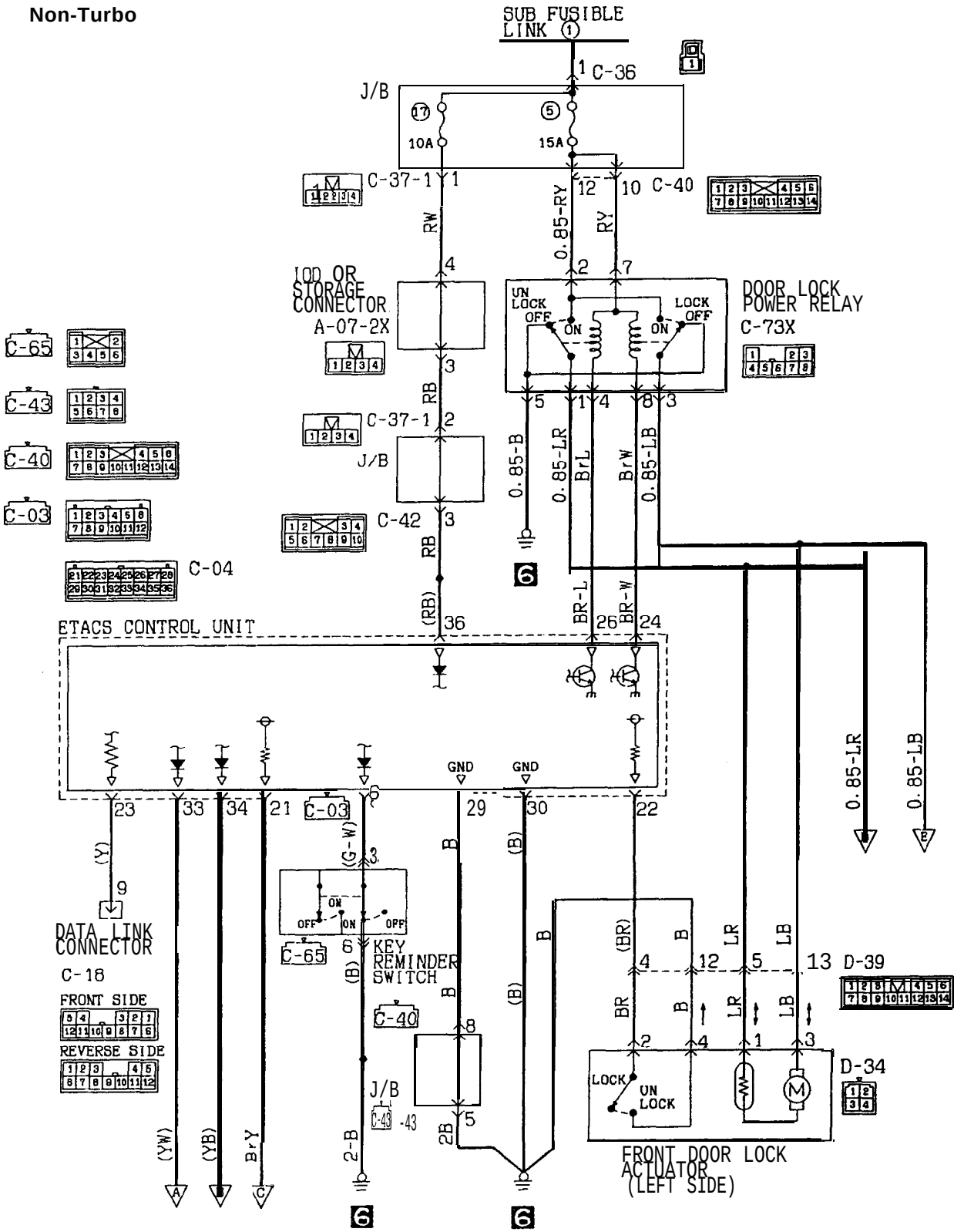


TSB Revision

CENTRAL DOOR LOCKING CIRCUIT

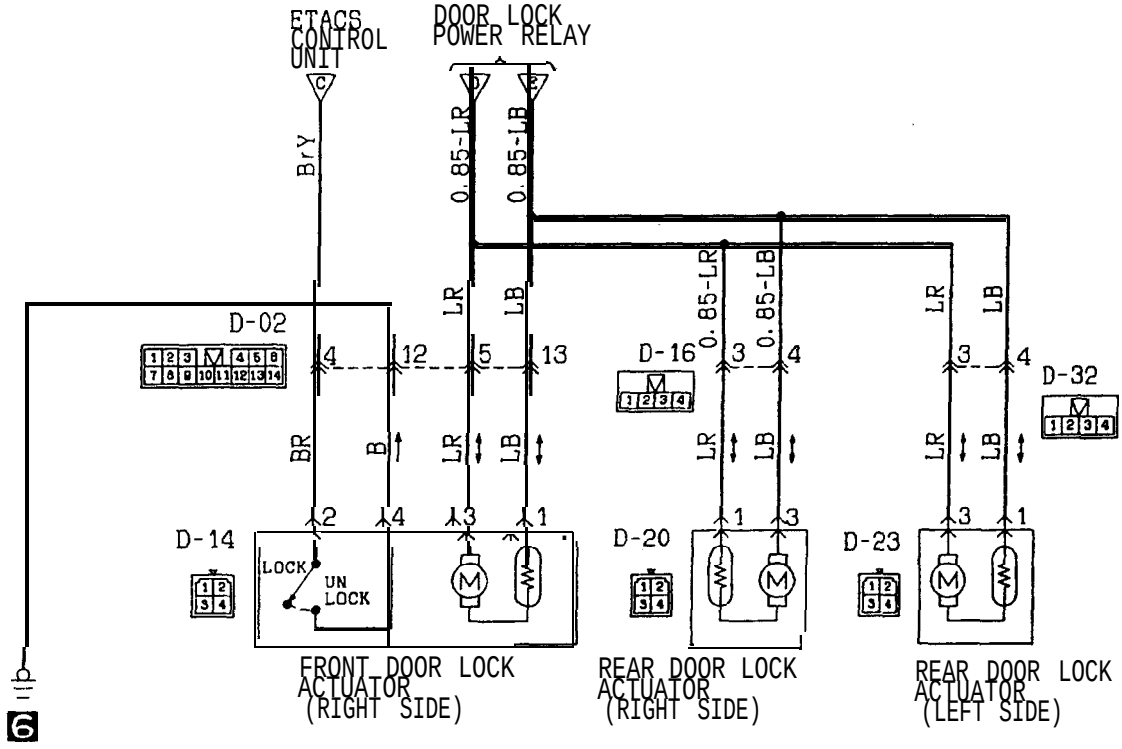
<Vehicles with ETACS (From 1991 models)>

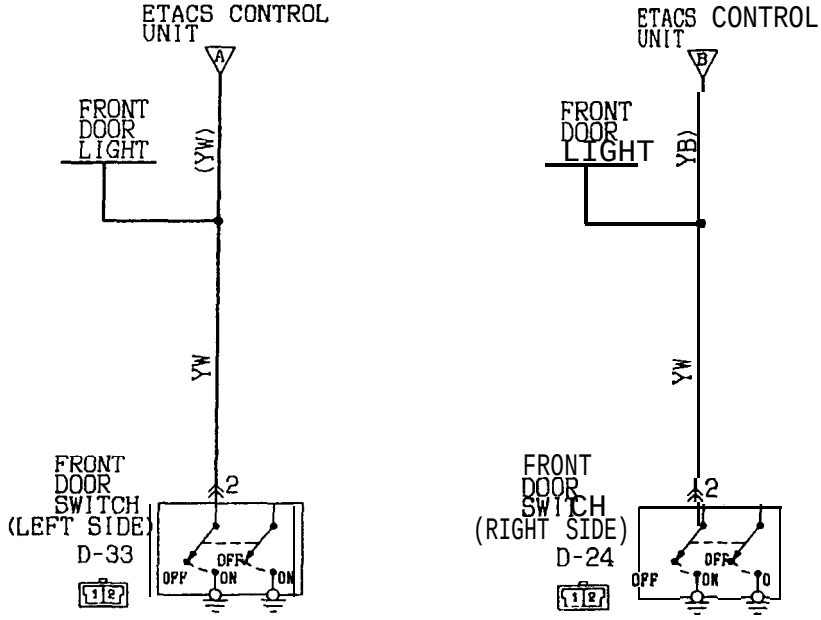
Non-Turbo



KX35-AC-H1132-NM

TSB Revision



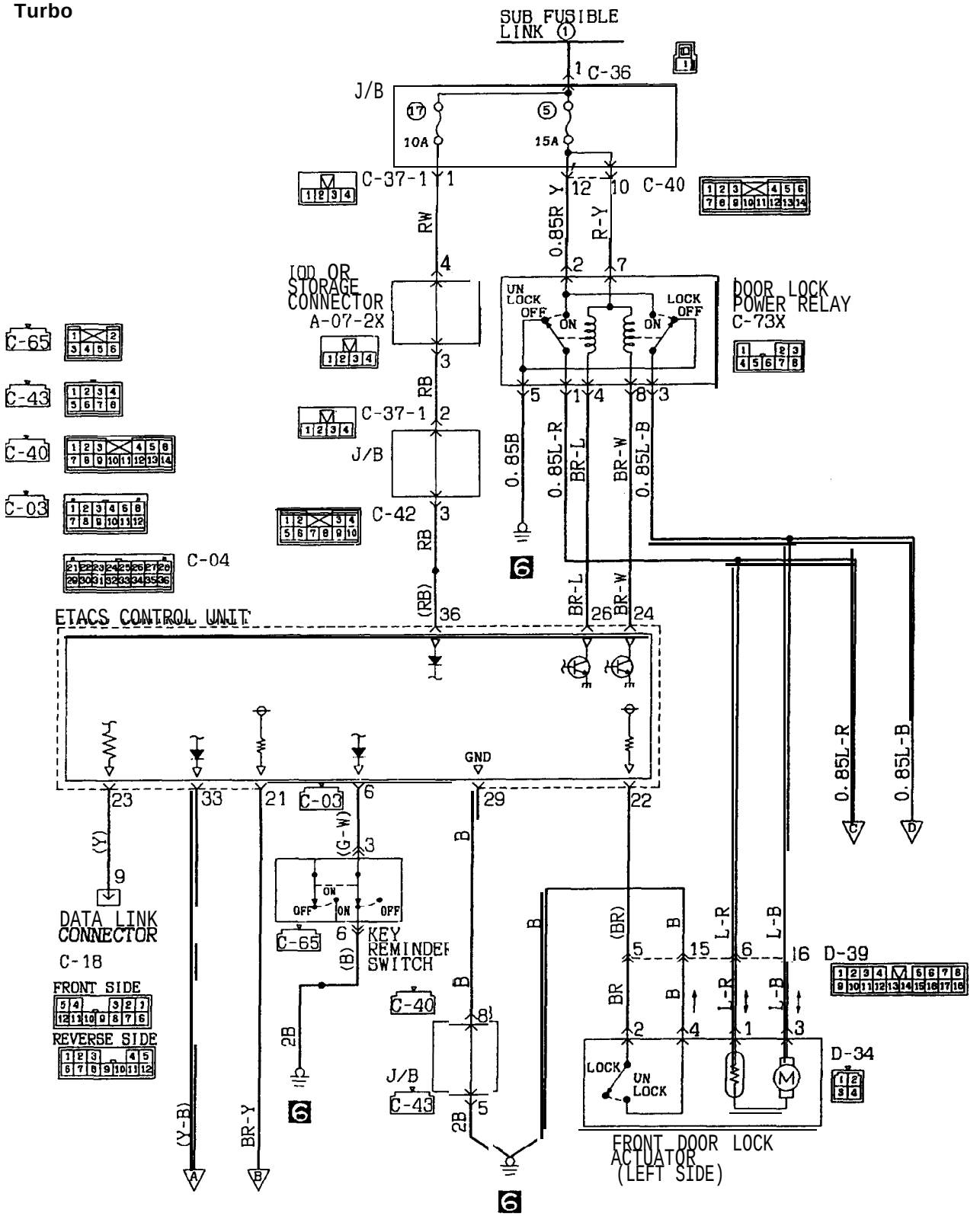


TSB Revision

CENTRAL DOOR LOCKING CIRCUIT

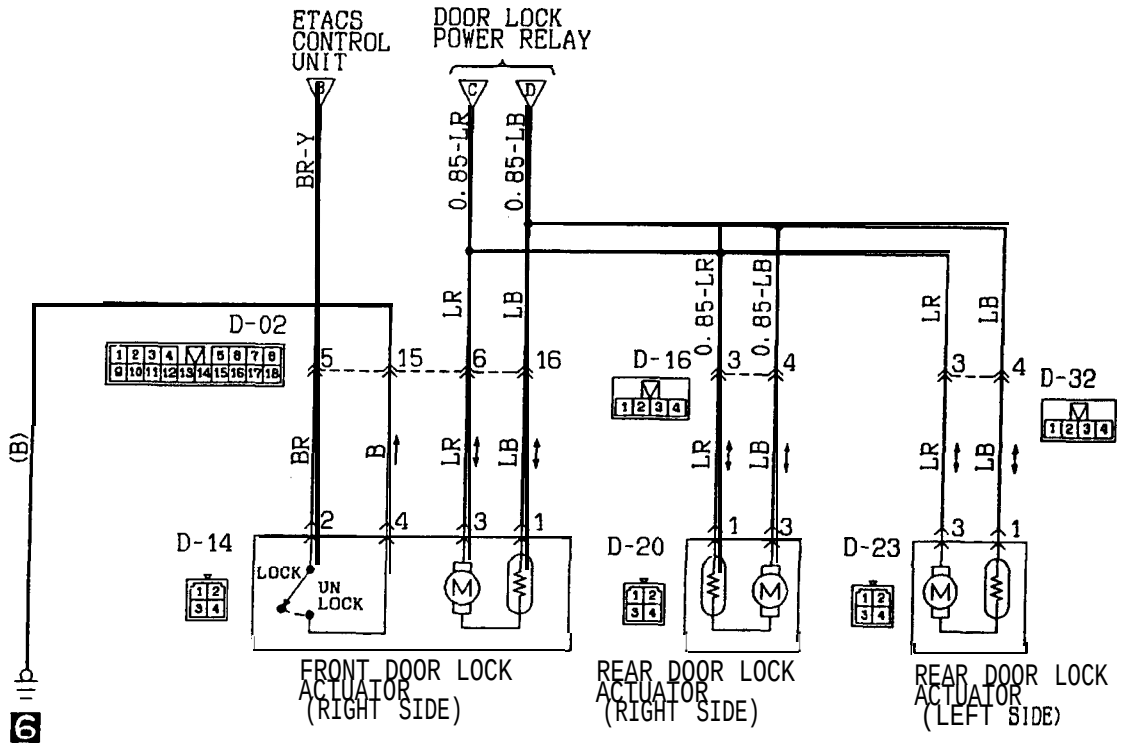
<Vehicles with ETACS (1991 and 1992 models)>

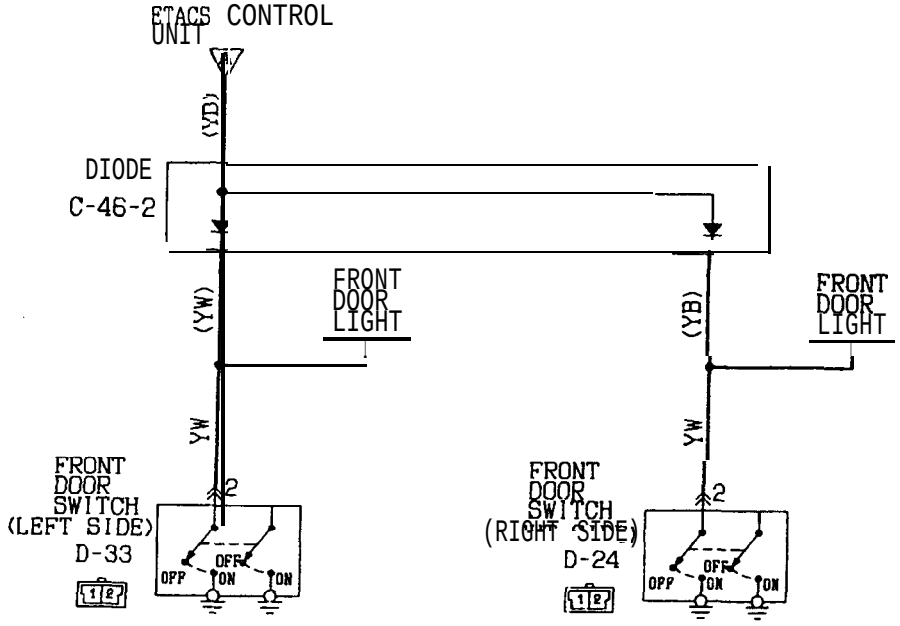
Turbo



KX35-AC-H1133-NM

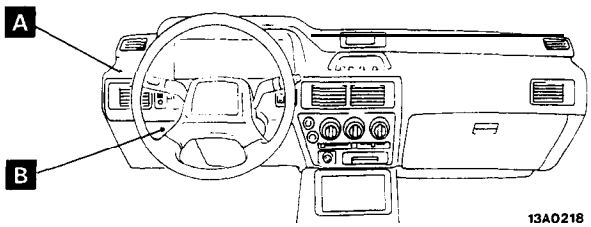
TSB Revision

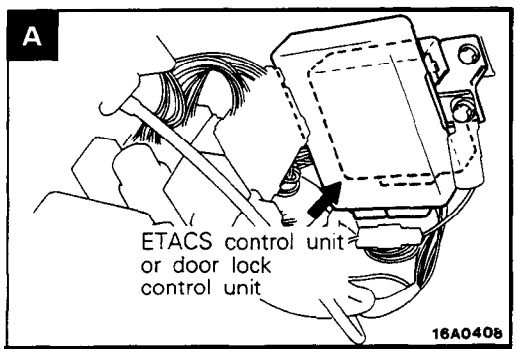

ETACS CONTROL UNIT
DOOR LOCK POWER RELAY
BR-Y
0.85-LR
0.85-LB
D-02
LR
LB
D-16
D-32
(B)
BR
B
D-14
D-20
D-23
LOCK
UN LOCK
FRONT DOOR LOCK ACTUATOR (RIGHT SIDE)
REAR DOOR LOCK ACTUATOR (RIGHT SIDE)
REAR DOOR LOCK ACTUATOR (LEFT SIDE)
6

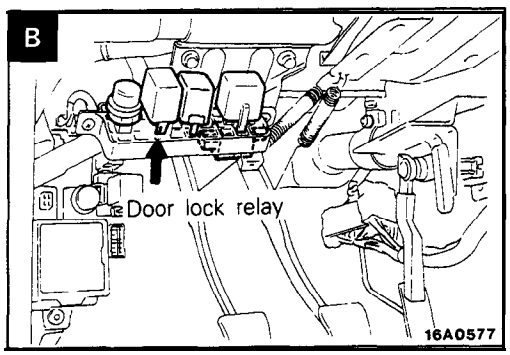

ETACS CONTROL UNIT
(YD)
DIODE
C-46-2
(YW)
(YB)
FRONT DOOR LIGHT
YW
FRONT DOOR SWITCH (LEFT SIDE)
D-33
FRONT DOOR SWITCH (RIGHT SIDE)
D-24
OFF
OPP
ON

COMPONENT LOCATION

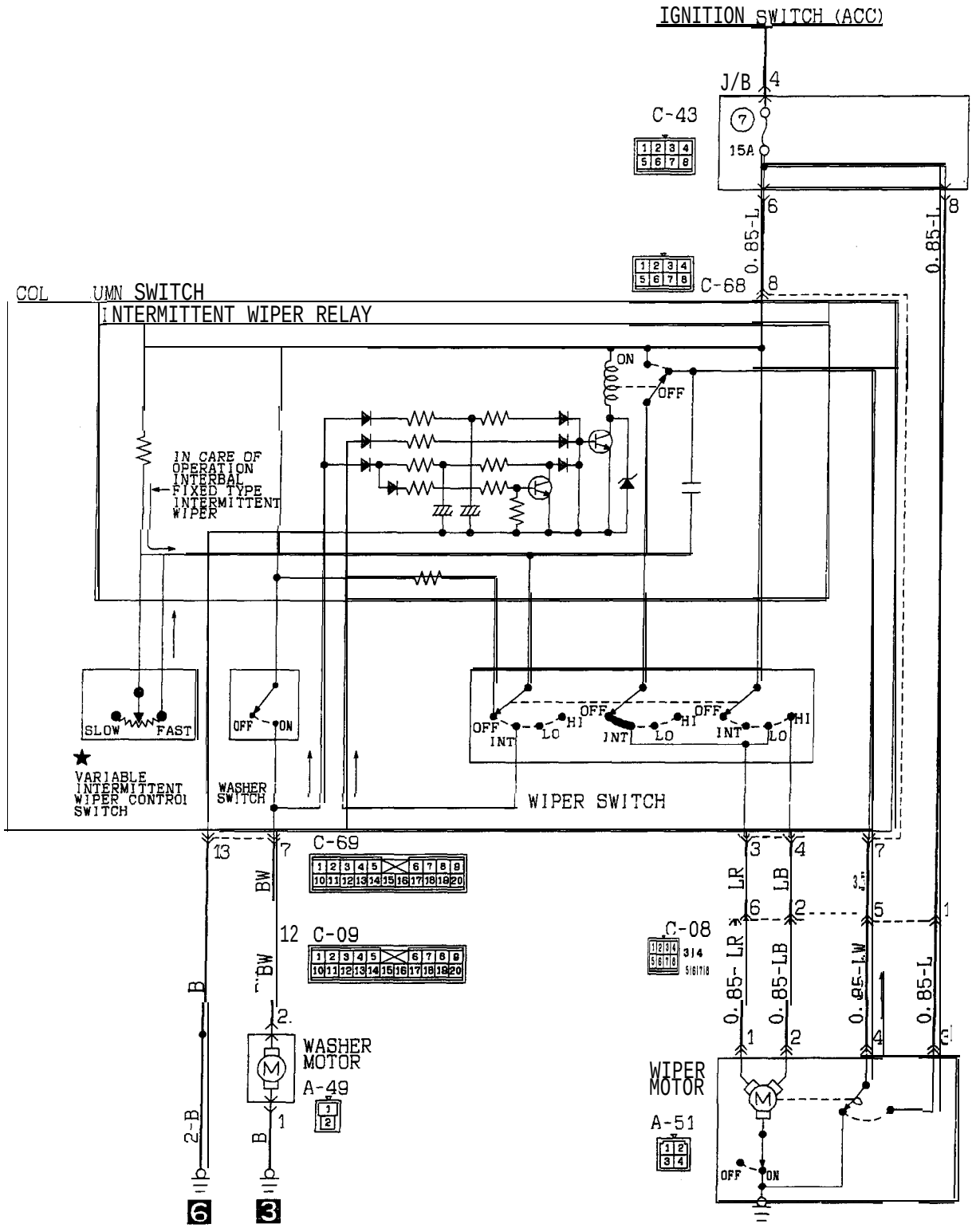
Name	Symbol	Name	Symbol
Door lock control unit <SOHC>	A	ETACS control unit <DOHC>	A
Door lock relay	B		







WIPER AND WASHER CIRCUIT
(Vehicles without ETACS)



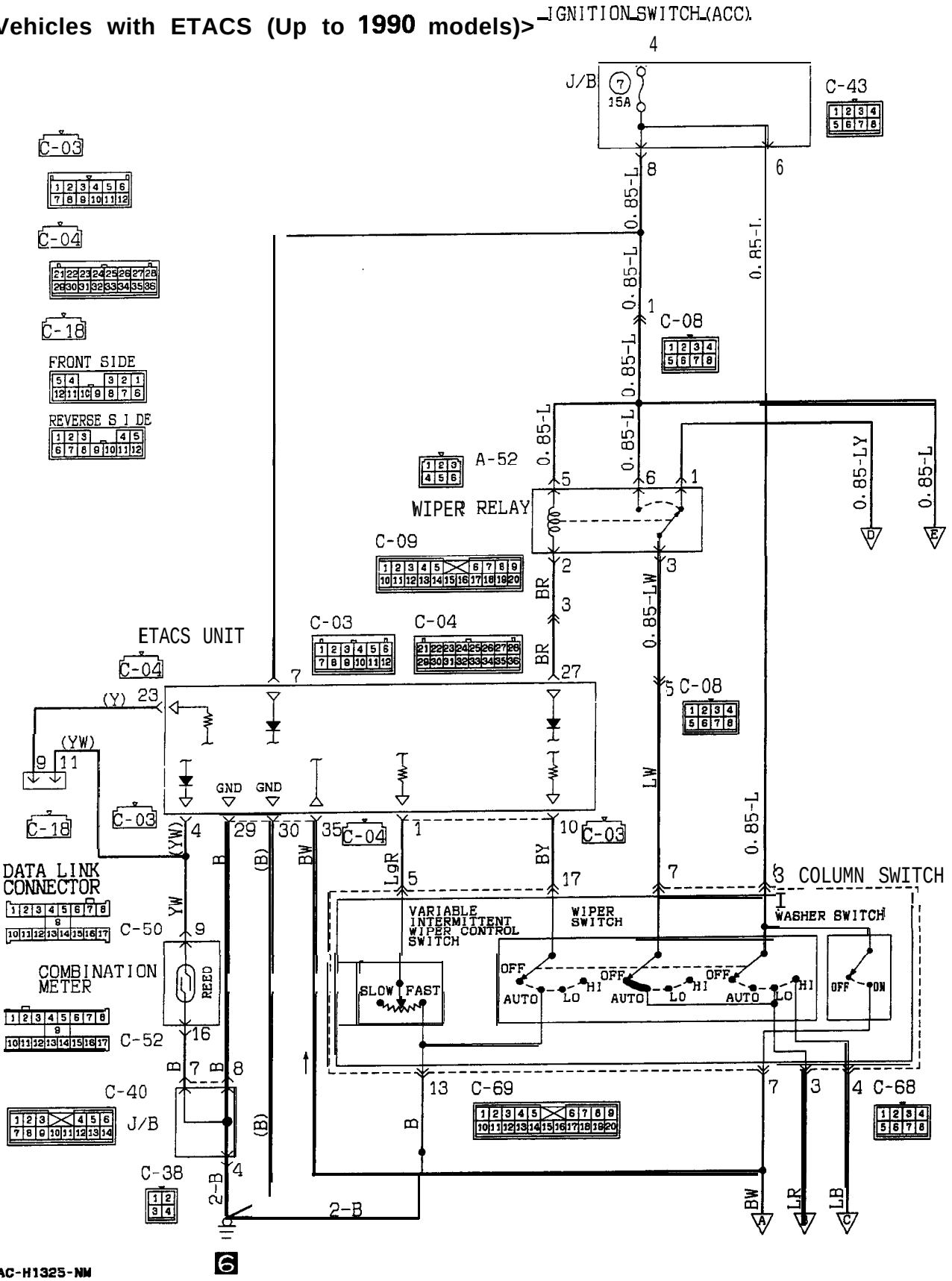
Remark
★indicates vehicles with variable intermittent wiper.

KX35-AC-H1324-NM

TSB Revision

WIPER AND WASHER CIRCUIT

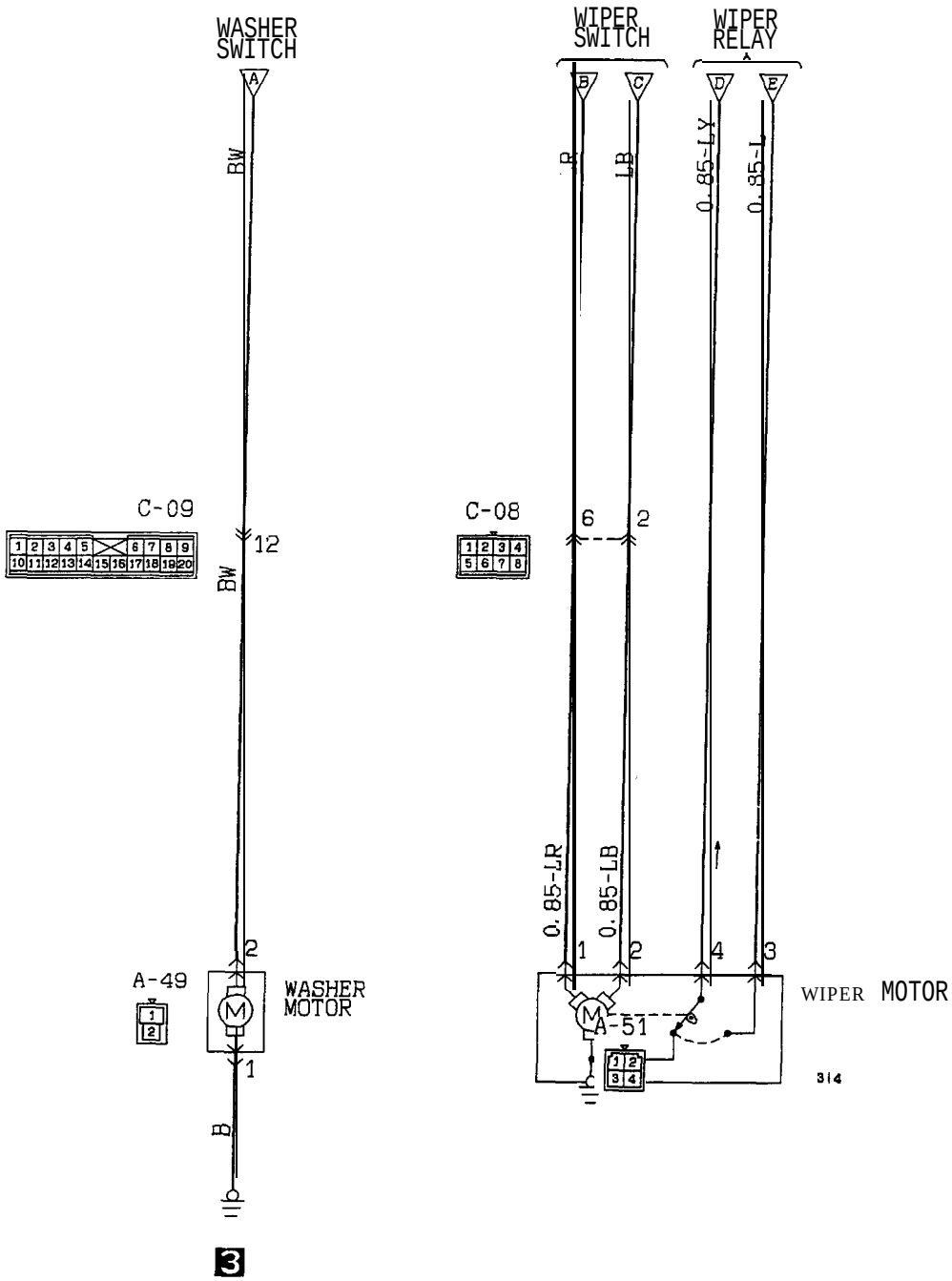
<Vehicles with ETACS (Up to 1990 models)>



6

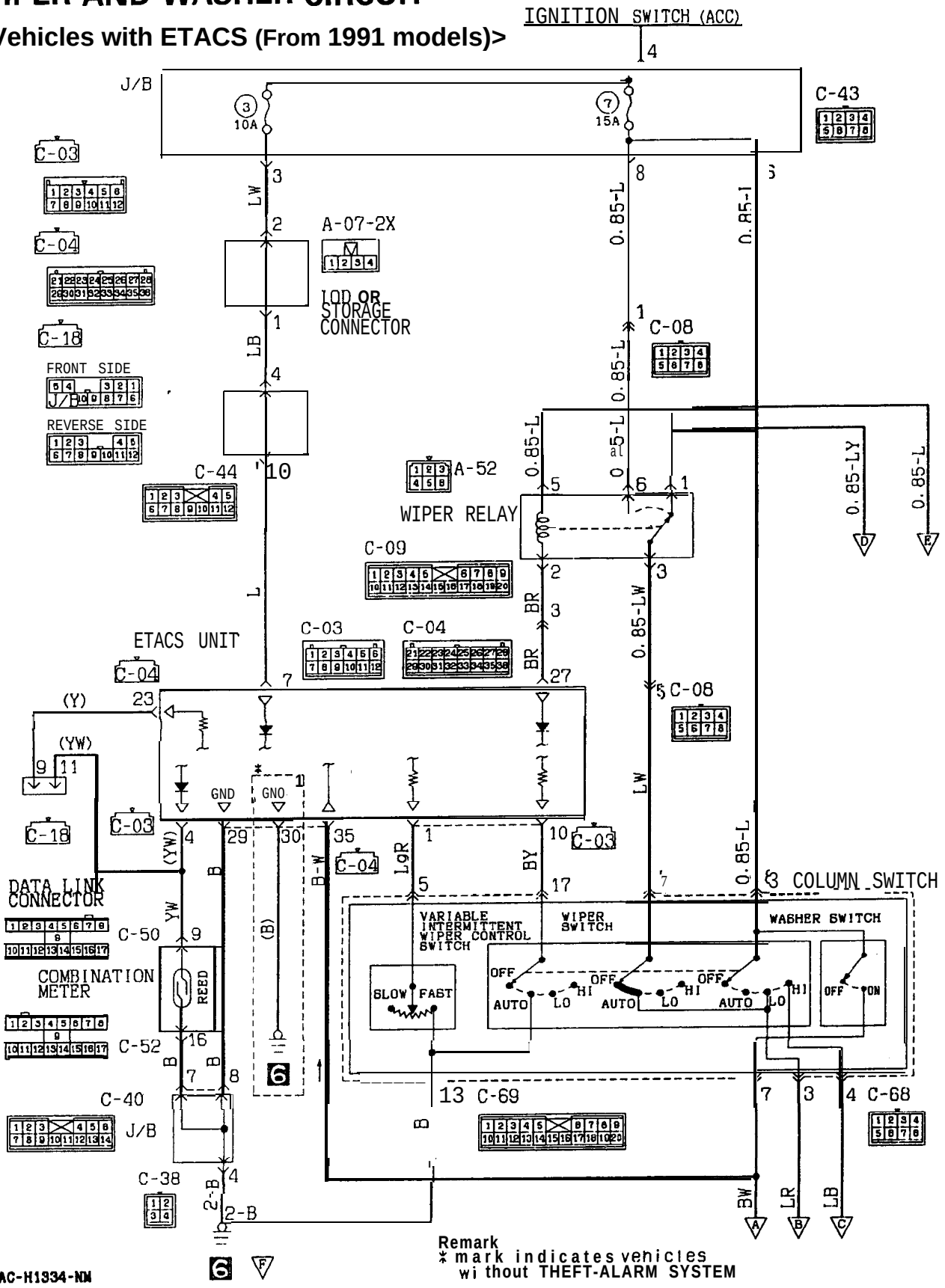
(35-AC-H1325-NM

TSB Revision


WASHER SWITCH
WIPER SWITCH
WIPER RELAY
A
B
C
D
E
BW
R
LB
0.85-LY
0.85-L
C-09
C-08
12
6
2
BW
0.85-LR
0.85-LB
2
1
2
4
3
A-49
WASHER MOTOR
WIPER MOTOR
A-51
1
B
314
3

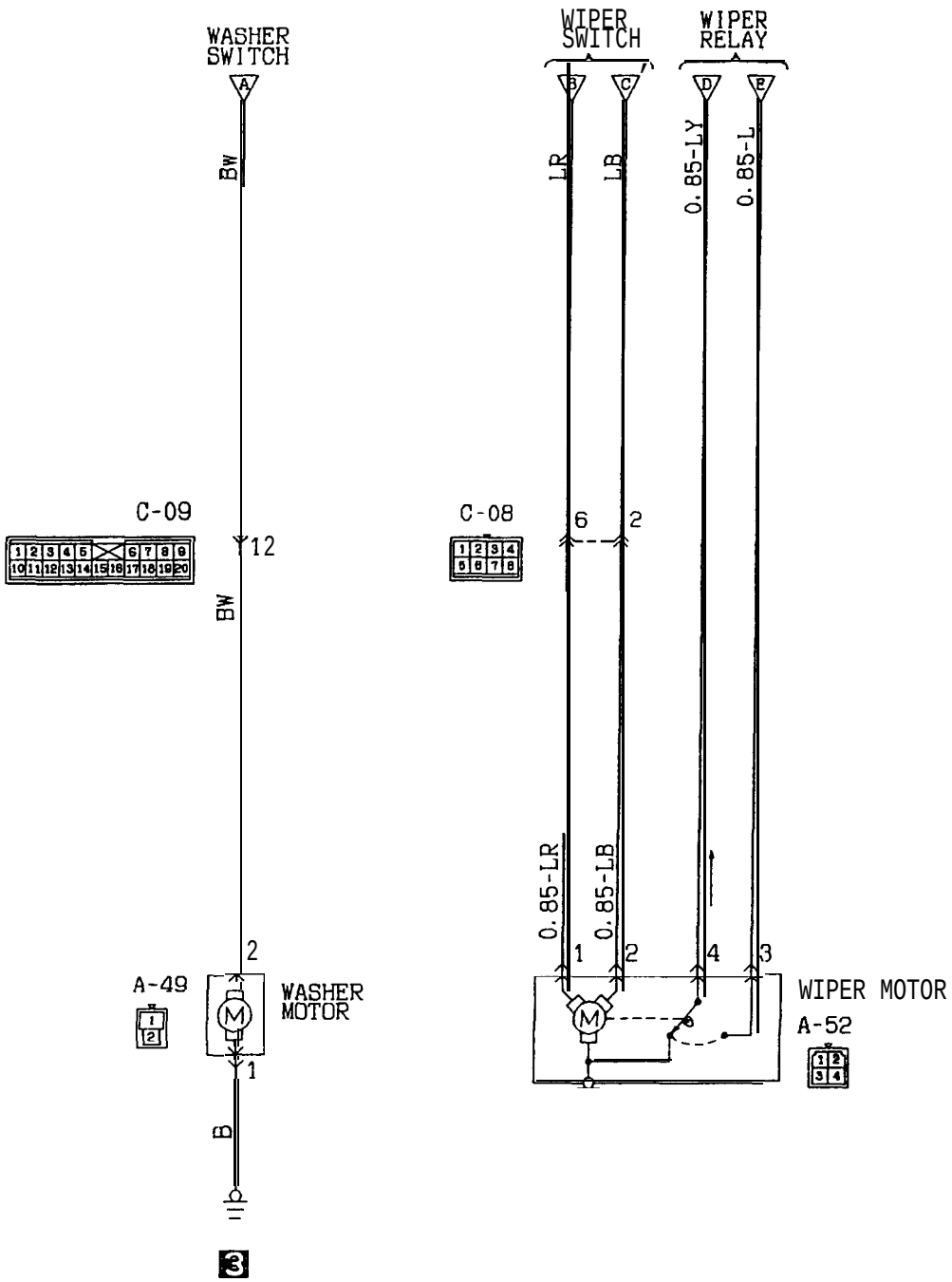
WIPER AND WASHER CIRCUIT

<Vehicles with ETACS (From 1991 models)>



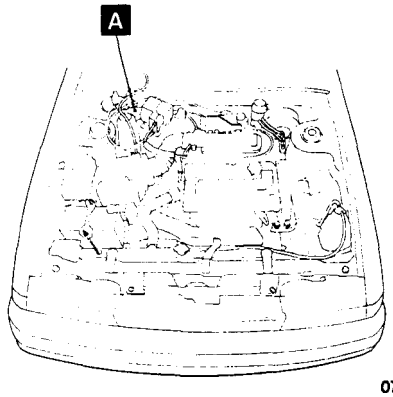
Remark
* mark indicates vehicles without THEFT-ALARM SYSTEM

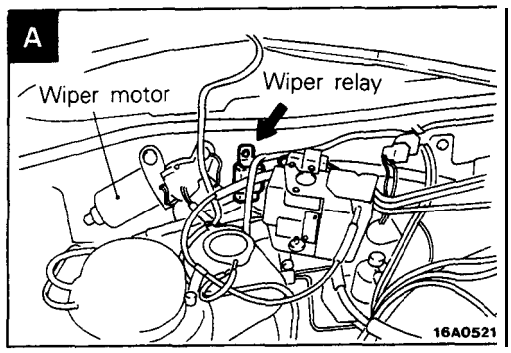
TSB Revision

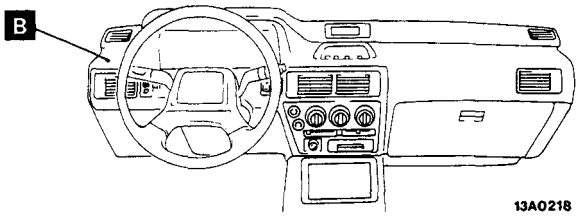

WASHER SWITCH
WIPER SWITCH
WIPER RELAY
A
B
C
D
E
BW
LR
LB
0.85-LY
0.85-L
C-09
C-08
12
6
2
BW
0.85-LR
0.85-LB
2
1
2
4
3
A-49
WASHER MOTOR
WIPER MOTOR
A-52
1
B
3

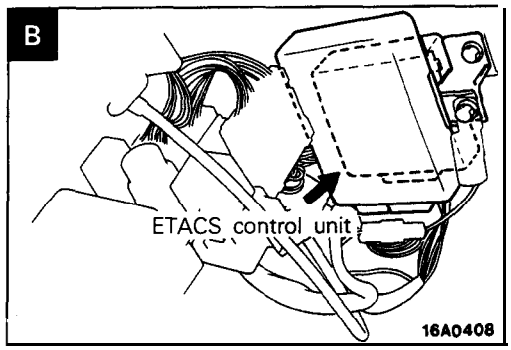
COMPONENT LOCATION

Name	Symbol	Name	Symbol
ETACS control unit	B	Wiper relay	A





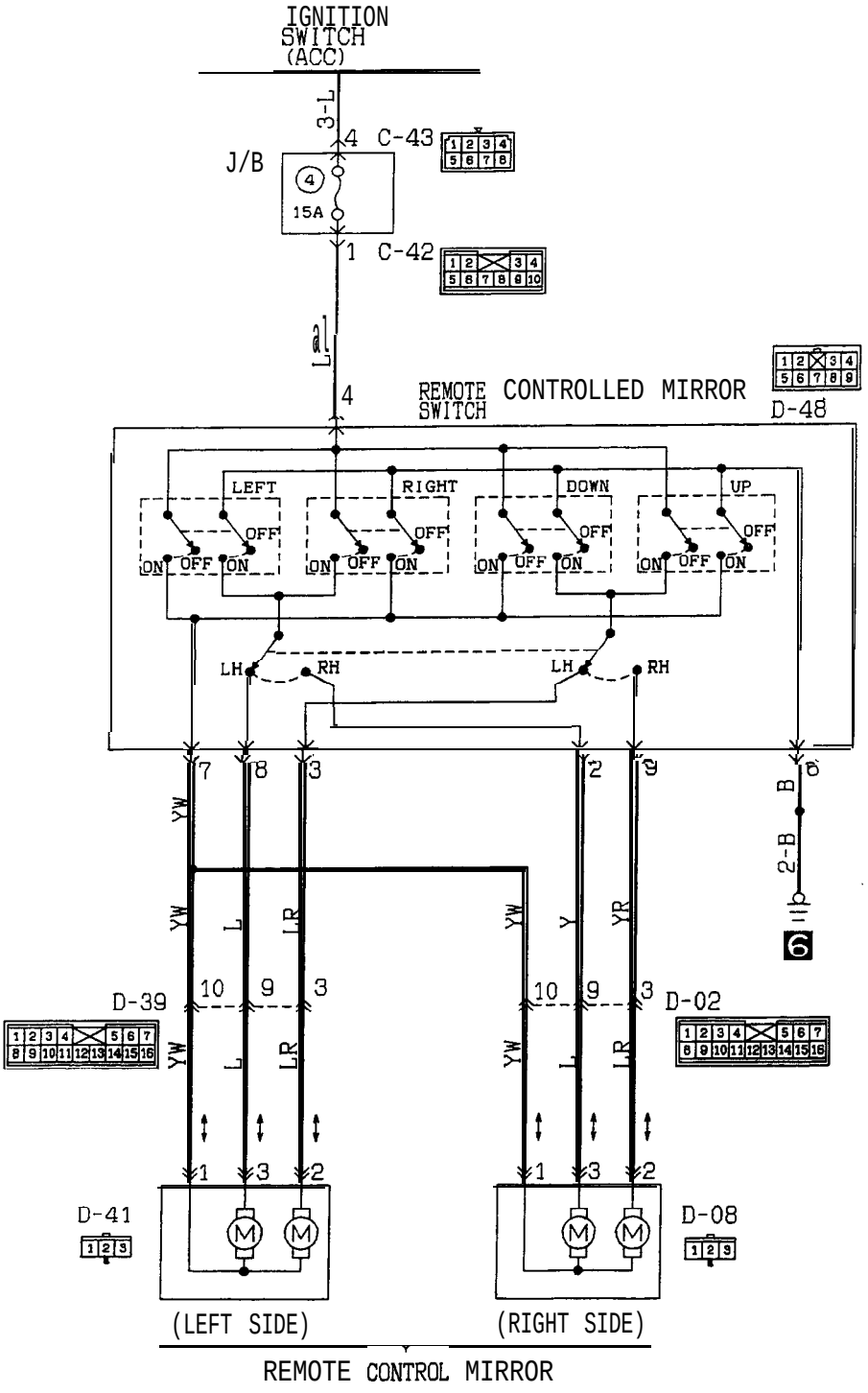




TSB Revision

REMOTE CONTROLLED MIRROR CIRCUIT

< 1989 models>

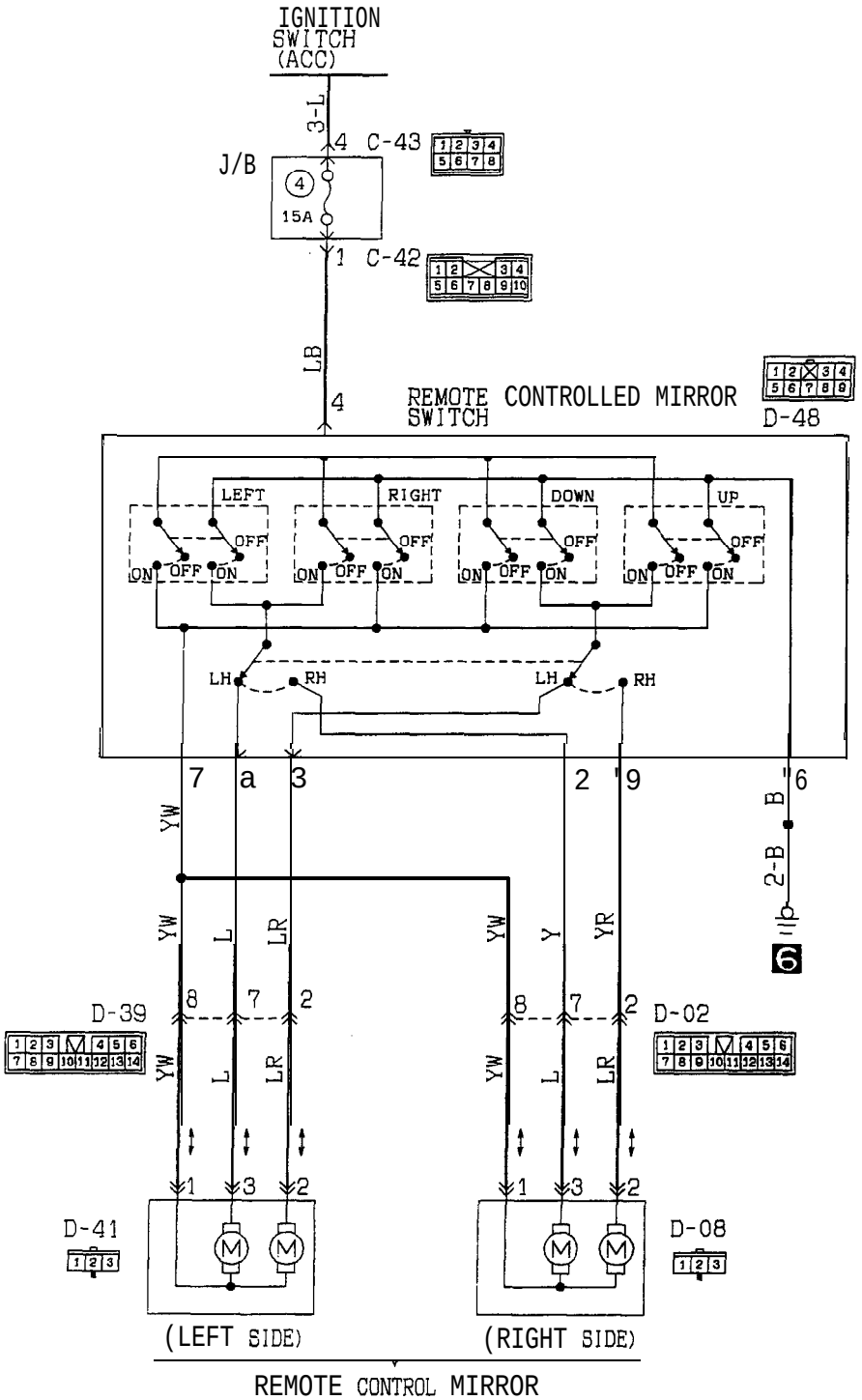


KX35-AC-H1306-N

TSB Revision

REMOTE CONTROLLED MIRROR CIRCUIT

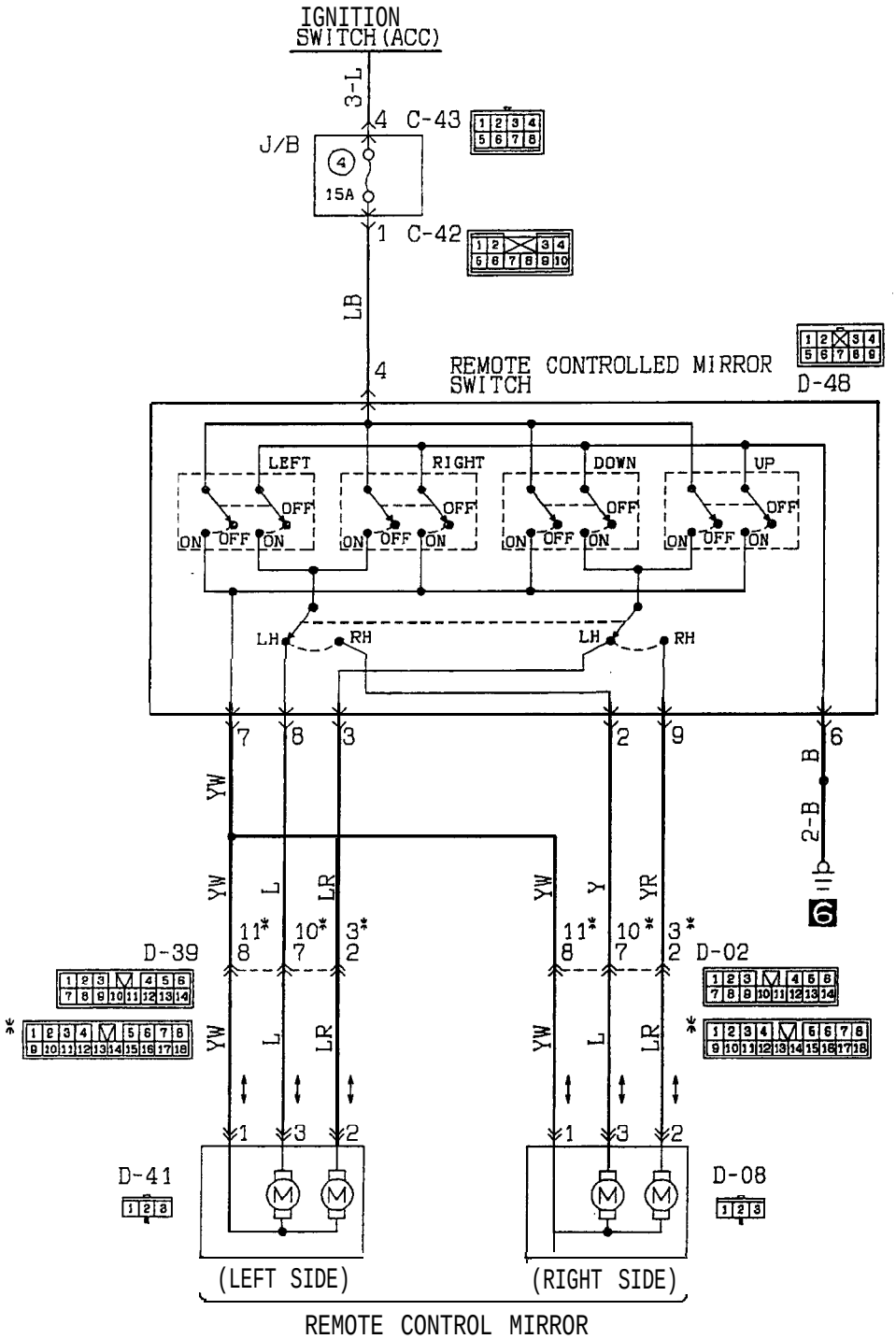
(1990 models)



KX35-AC-H1323-NM

TSB Revision

(From 1991 models)



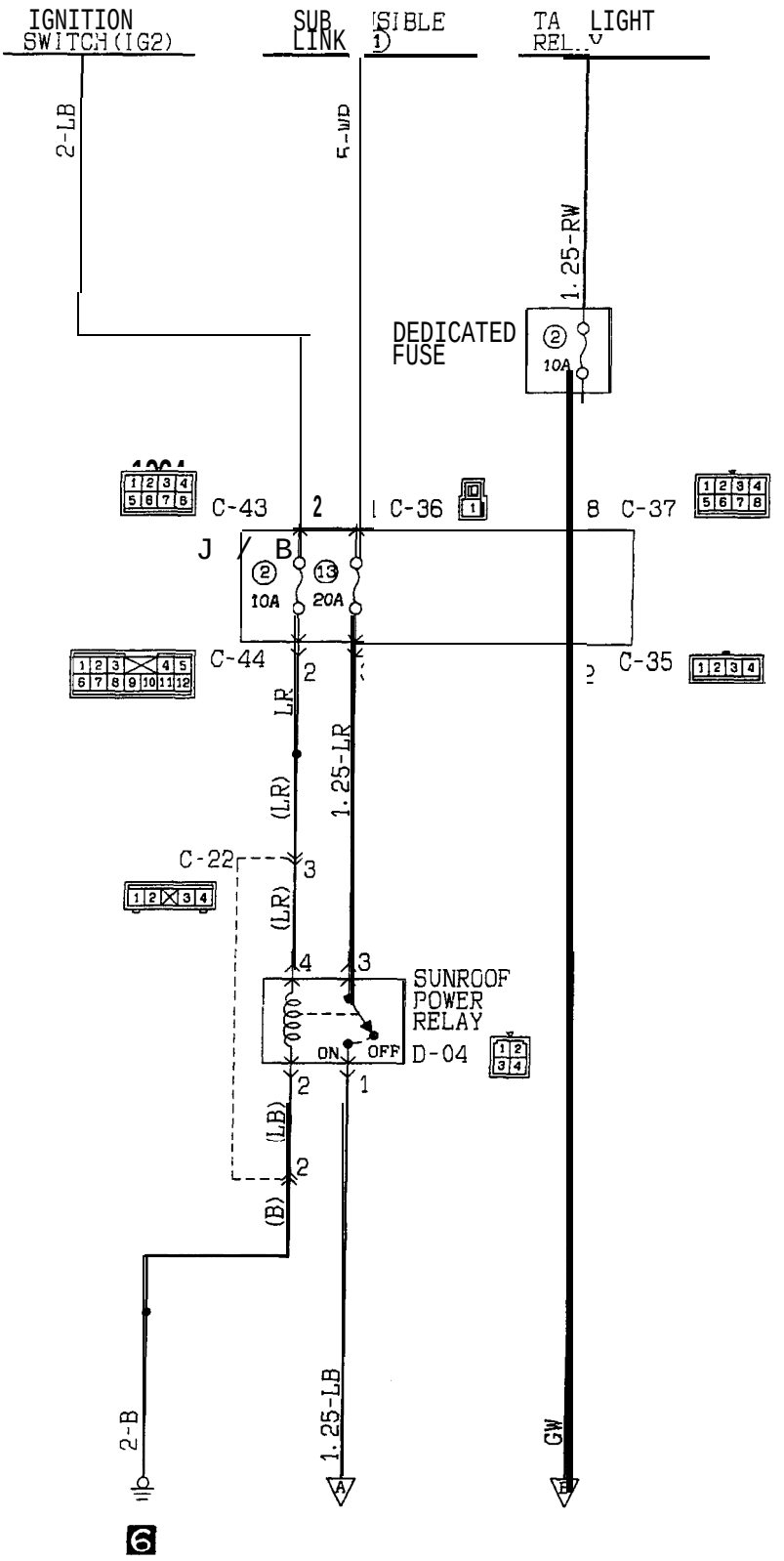
Remark
*Mark indicates vehicles with THEFT-ALARM SYSTEM

KX35-AC-H1330-NM

TSB Revision

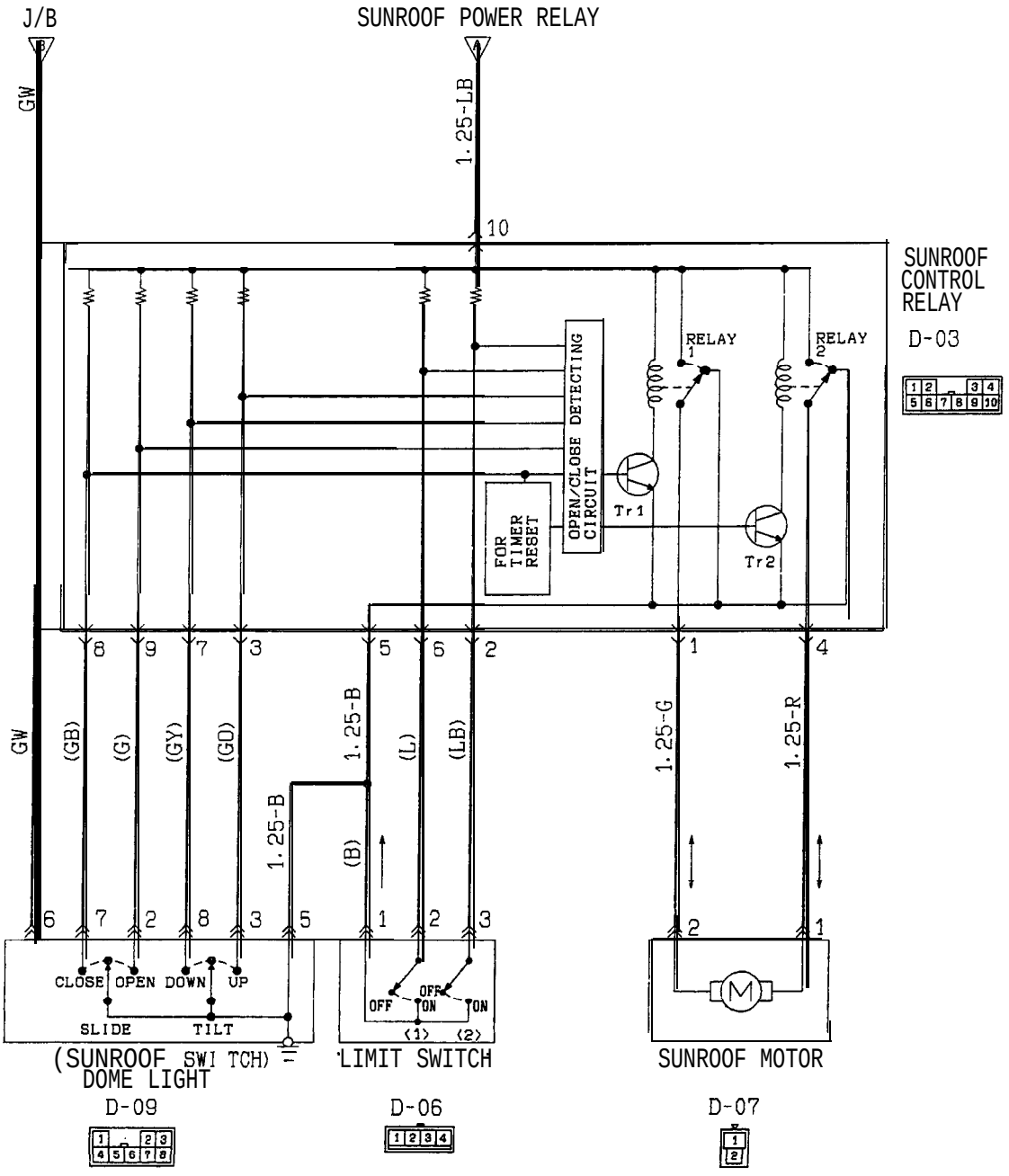
SUNROOF CIRCUIT

<Vehicles without ETACS (Up to 1990 models)>



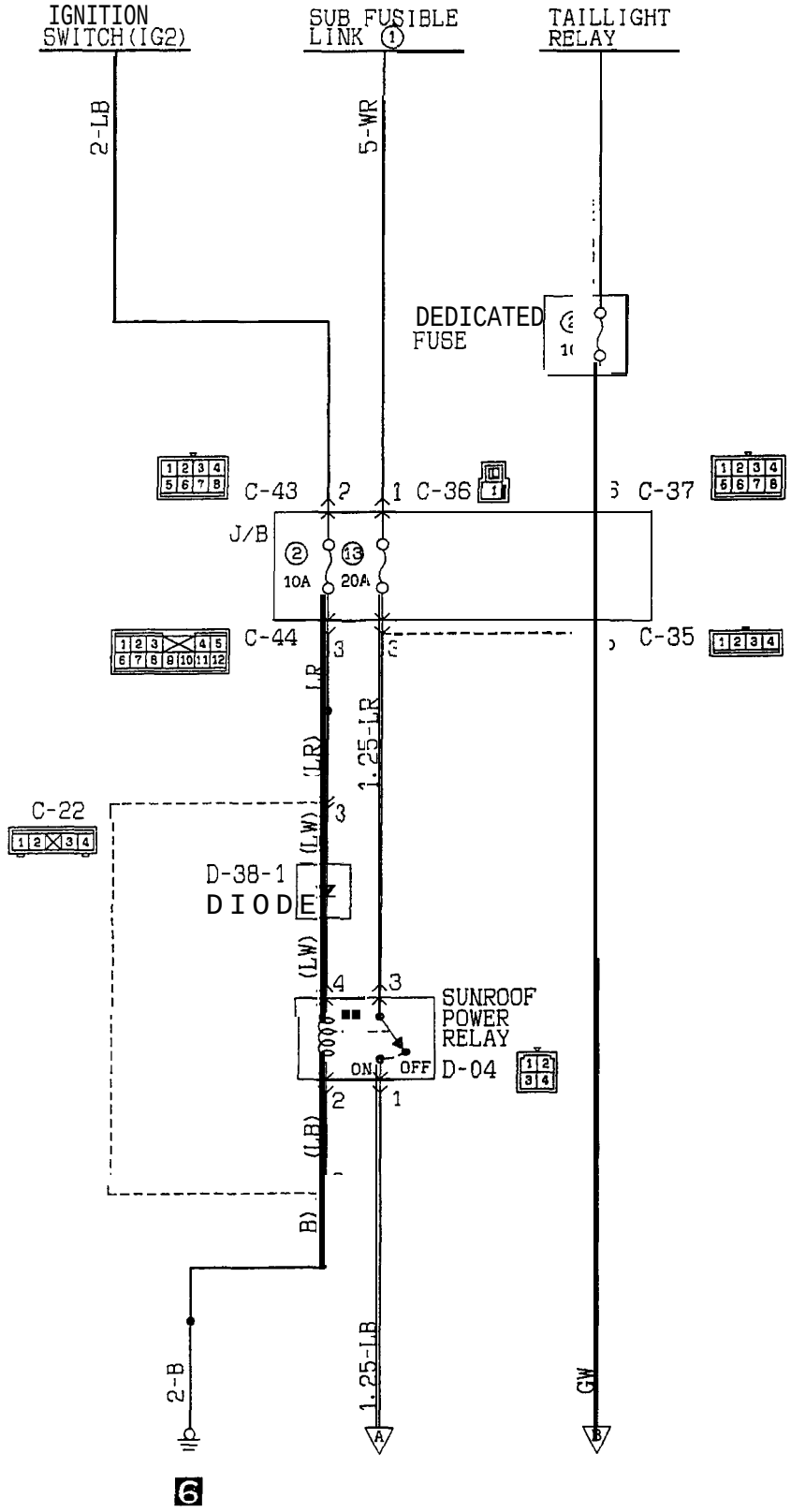
KX35-AC-H1427-NN

TSB Revision


J/B
SUNROOF POWER RELAY
GW
1.25-LB
10
SUNROOF CONTROL RELAY
D-03
RELAY 1
RELAY 2
OPEN/CLOSE DETECTING CIRCUIT
FOR TIMER RESET
Tr1
Tr2
8 9 7 3 5 6 2 1 4
GW
(GB) (G) (GY) (GD) 1.25-B (B) 1.25-B (L) (LB) 1.25-G 1.25-R
6 7 2 8 3 5 1 2 3 2 1
CLOSE OPEN DOWN UP
SLIDE TILT
OFF ON ON
(1) (2)
M
(SUNROOF SWITCH)
DOME LIGHT
LIMIT SWITCH
SUNROOF MOTOR
D-09
D-06
D-07

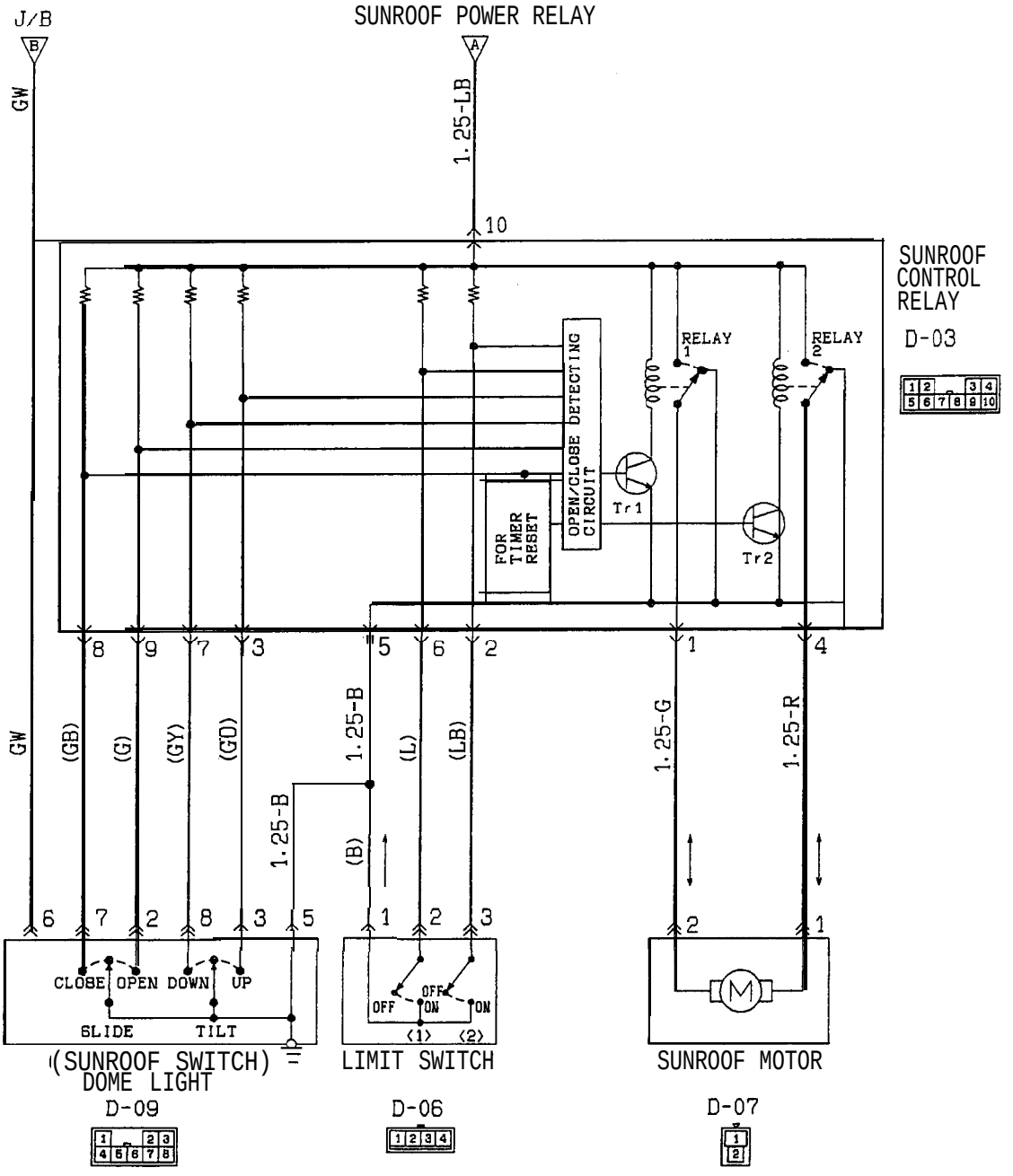
SUNROOF CIRCUIT

<Vehicles without ETACS (From 1991 models)>



KX35-AC-H1435-NM

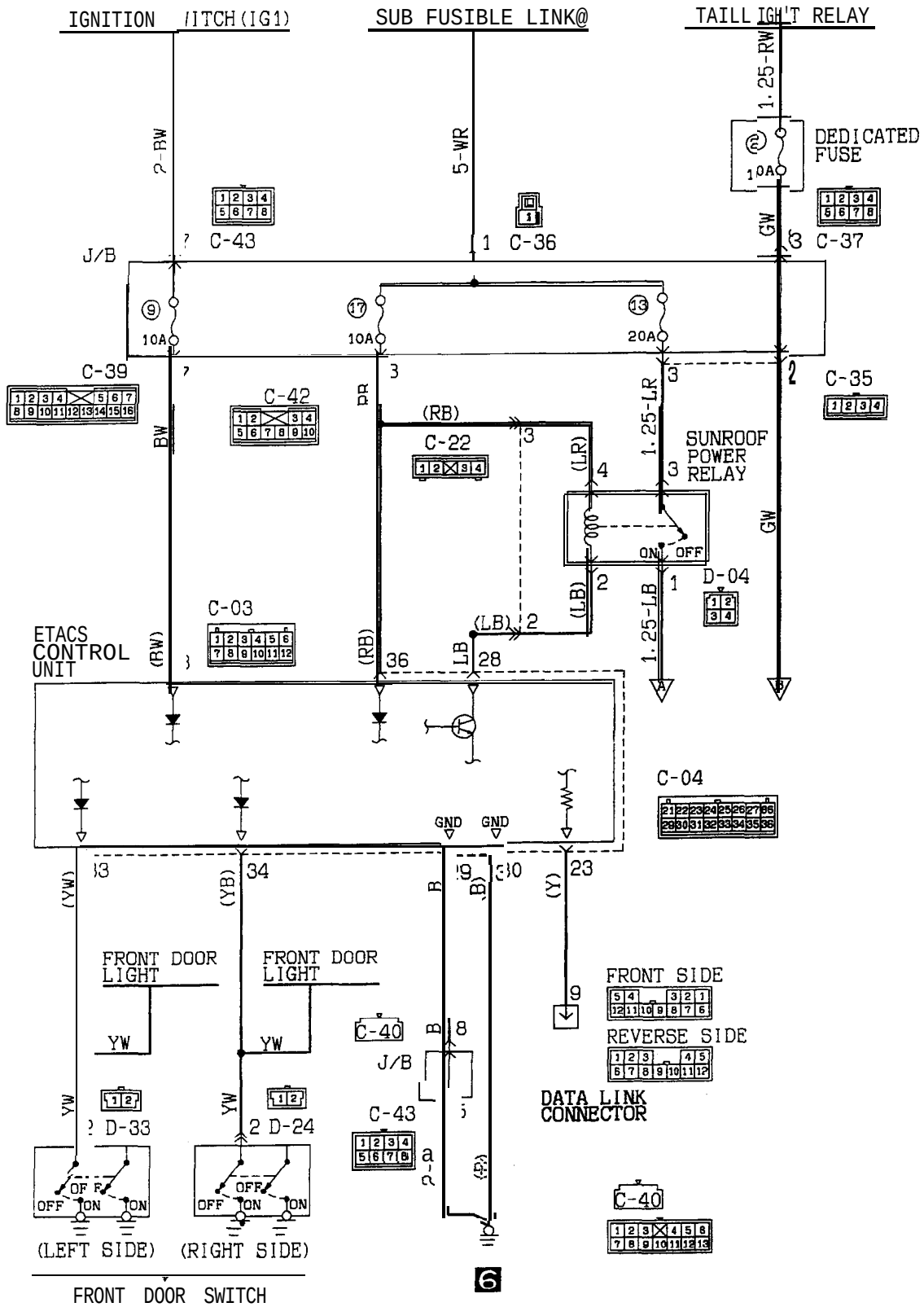
TSB Revision



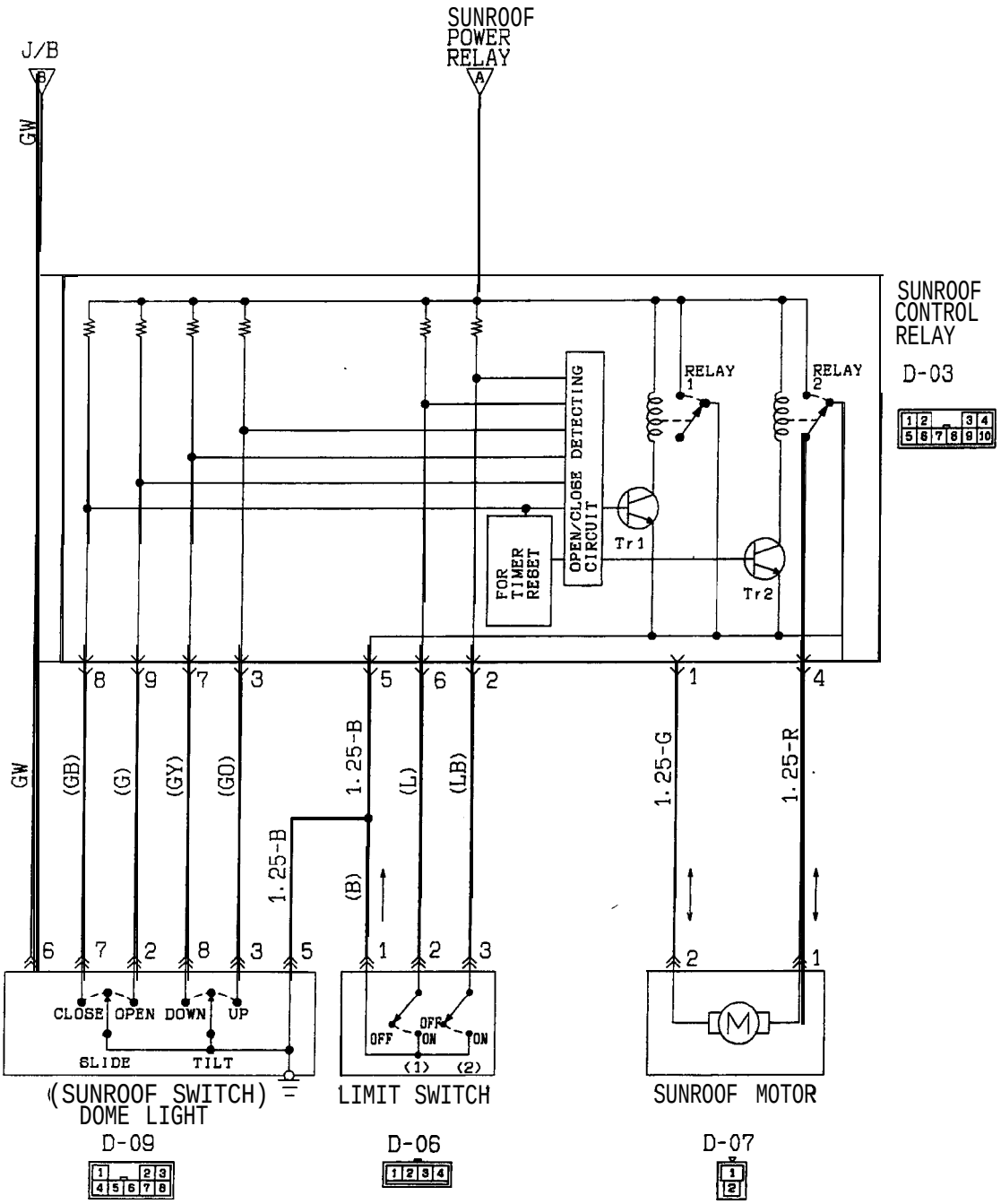
TSB Revision

SUNROOF CIRCUIT

<Vehicles with ETACS (Up to 1990 models)>



TSB Revision

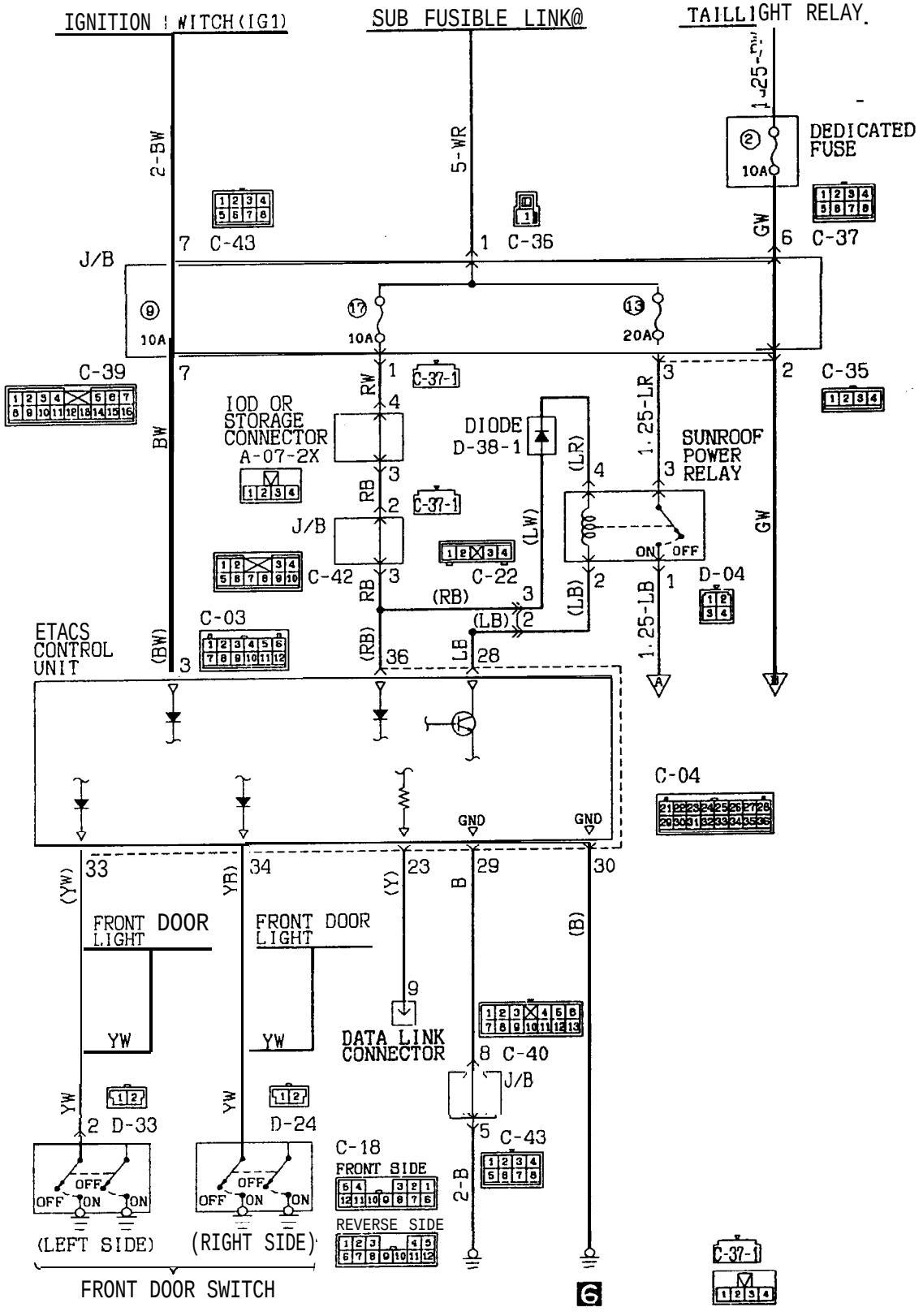


TSB Revision

SUNROOF CIRCUIT

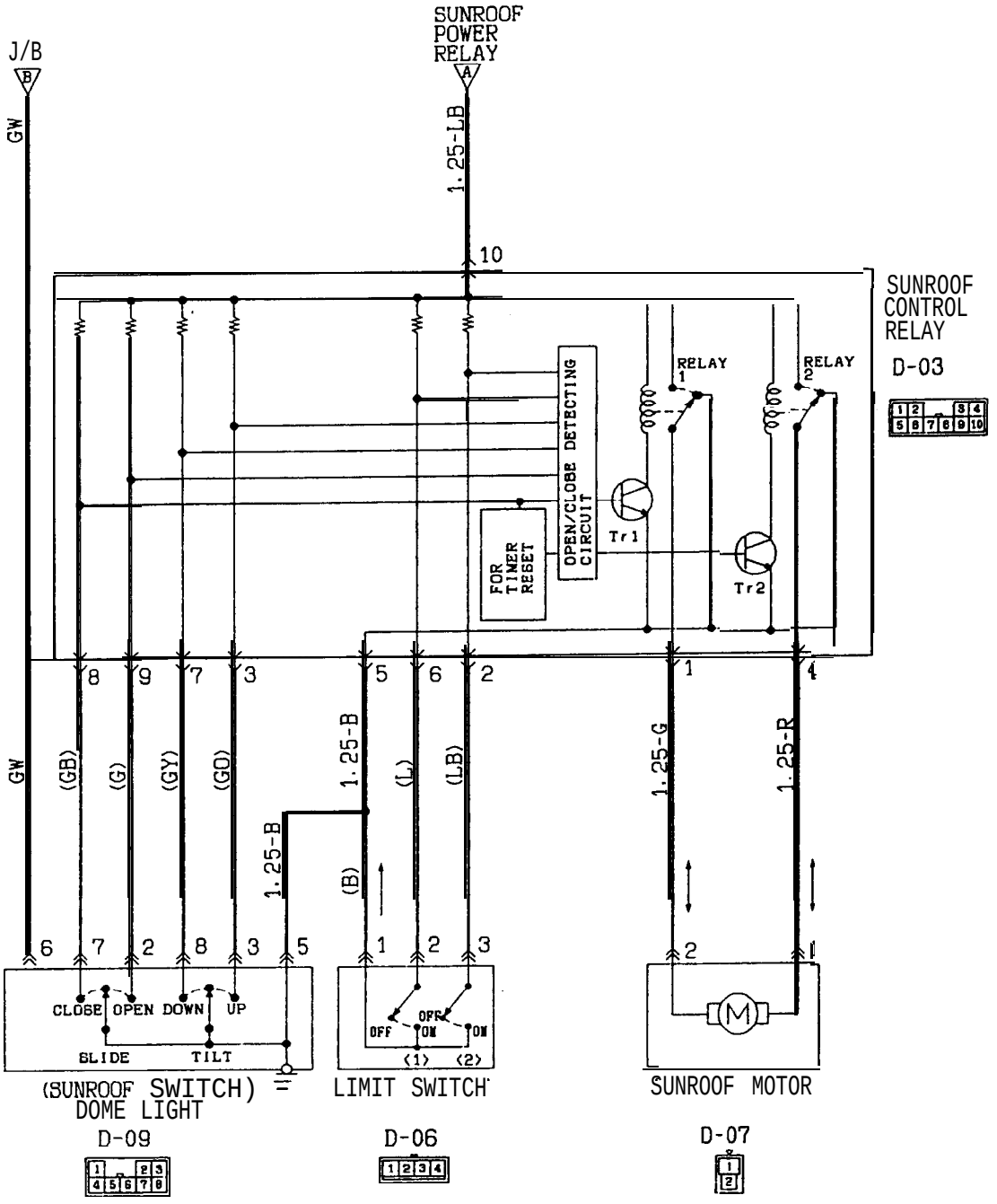
<Vehicles with ETACS (From 1991 models)>

Non-Turbo



KX35-AC-H1440-NM

TSB Revision

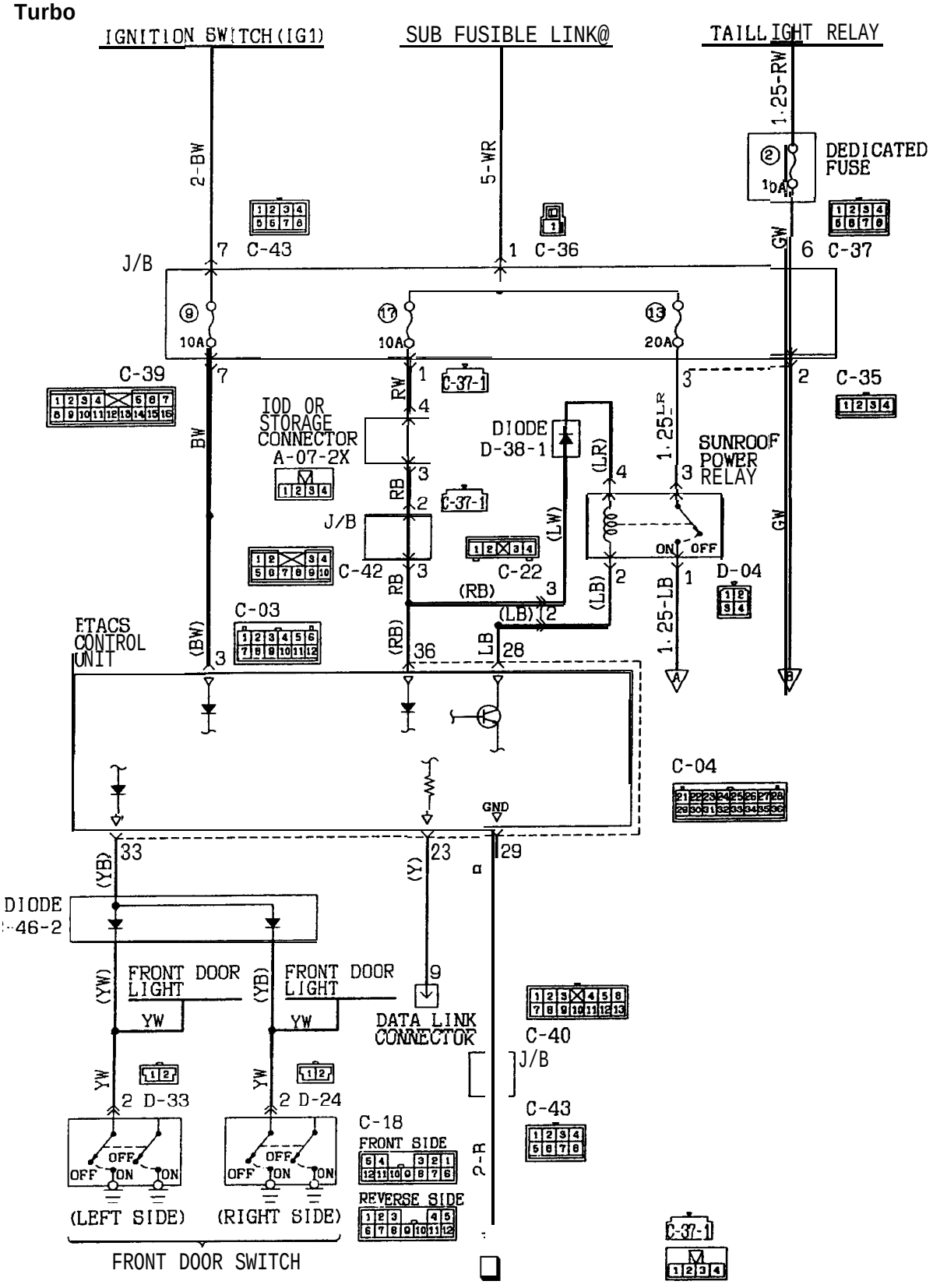


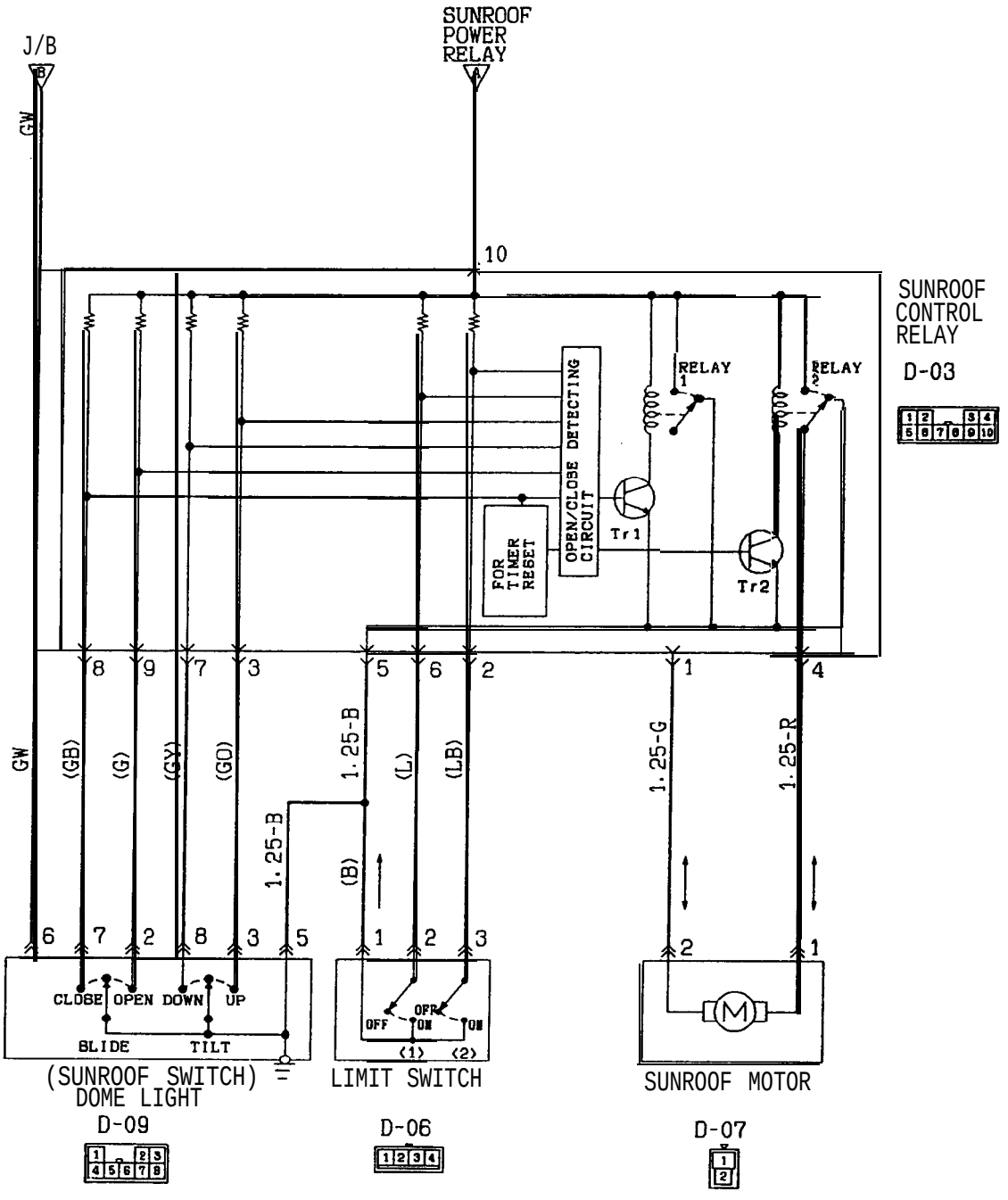
TSB Revision

SUNROOF CIRCUIT

<Vehicles with ETACS (From 1991 models)>

Turbo

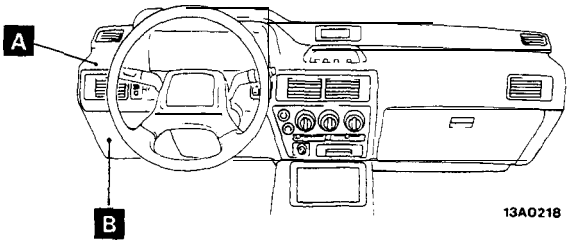


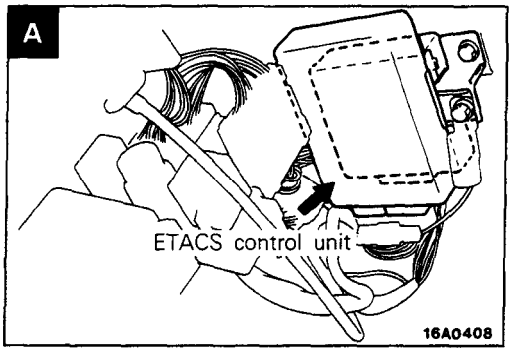


TSB Revision

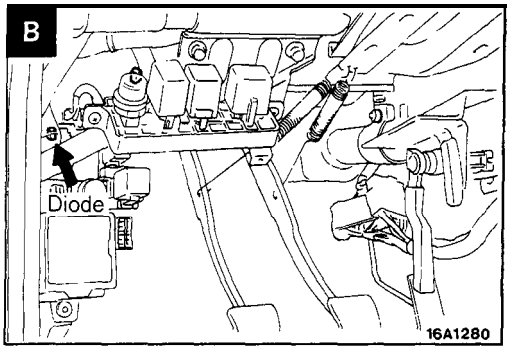
COMPONENT LOCATION

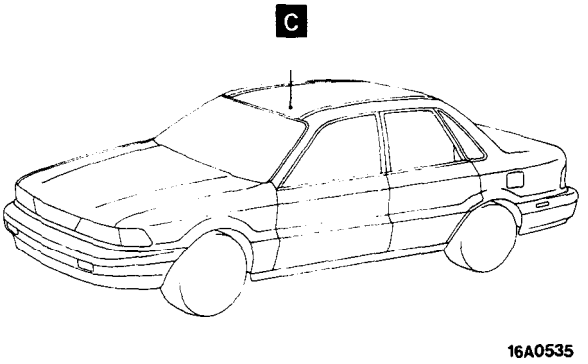
Name	Symbol	Name	Symbol
Diode (From 1991 models)	B	Sunroof control relay	C
ETACS control unit	A	Sunroof power relay	C

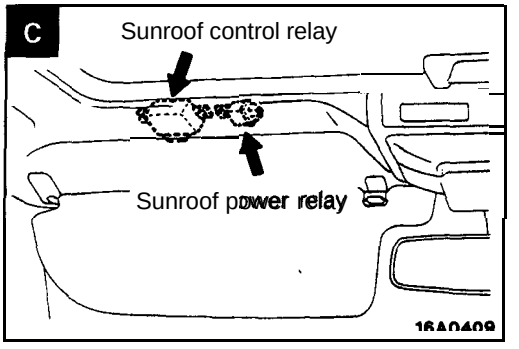




<From 1991 models>

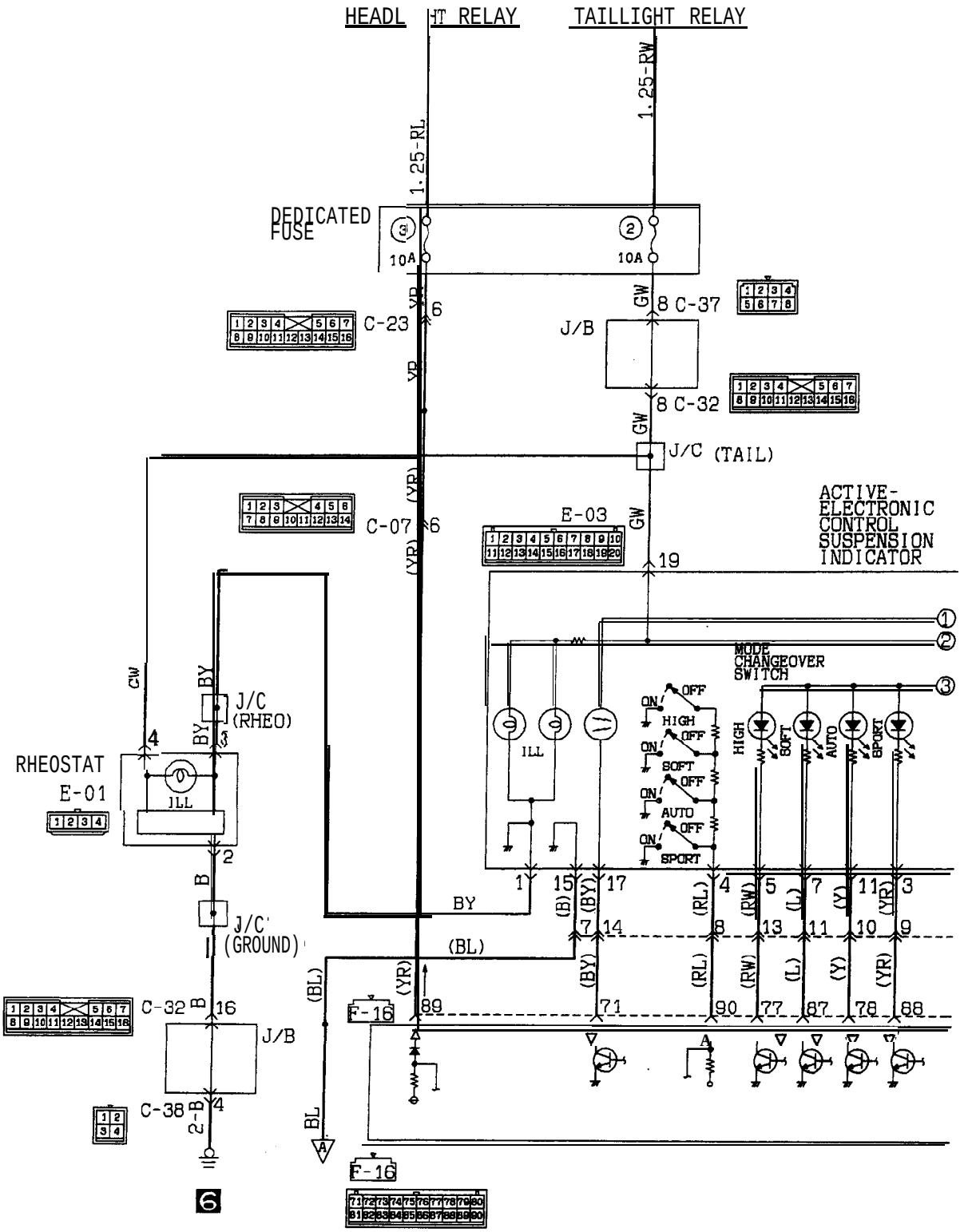






TSB Revision

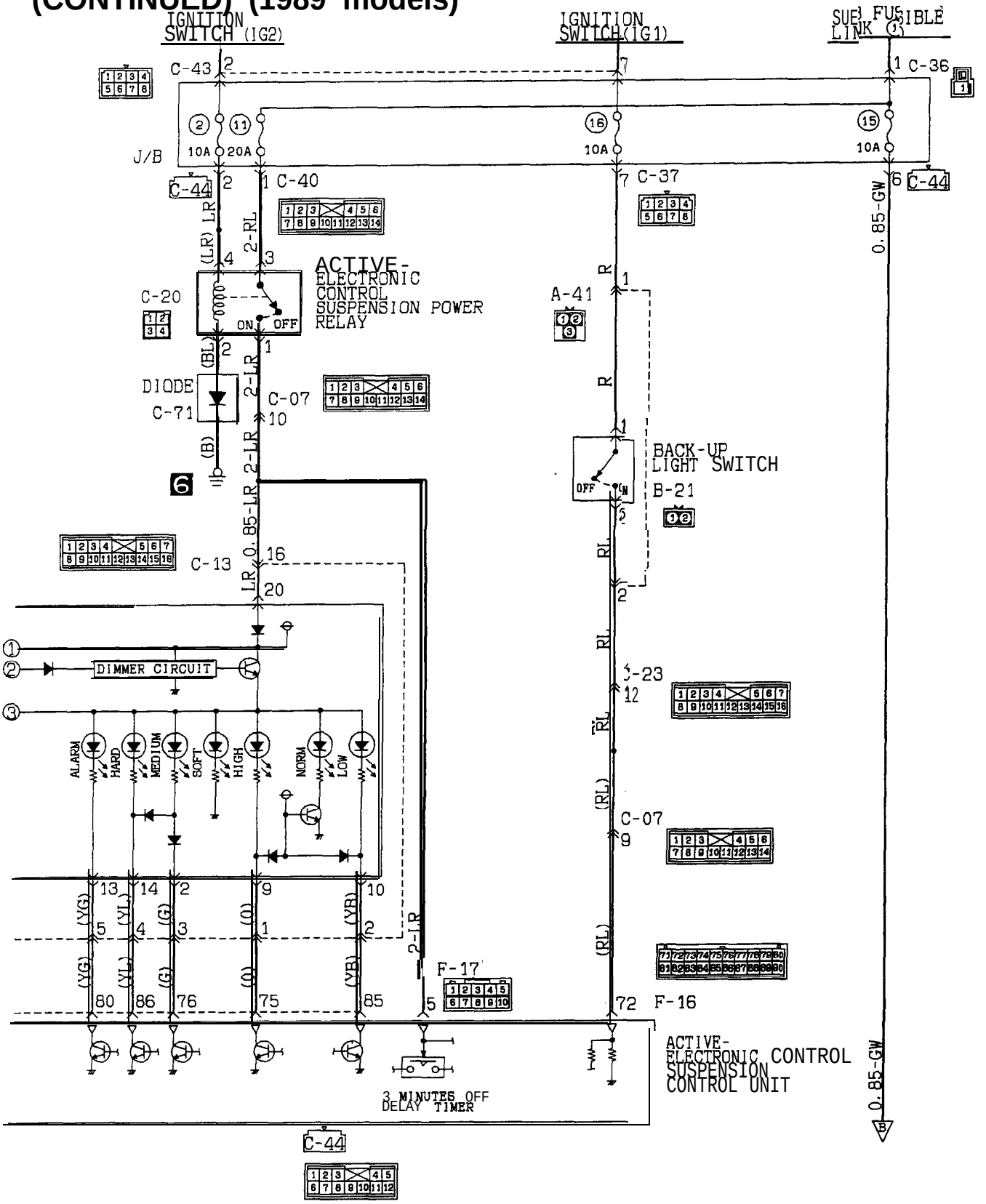
ACTIVE-ELECTRONIC CONTROL SUSPENTION(ECS) CIRCUIT(1989 MODELS)



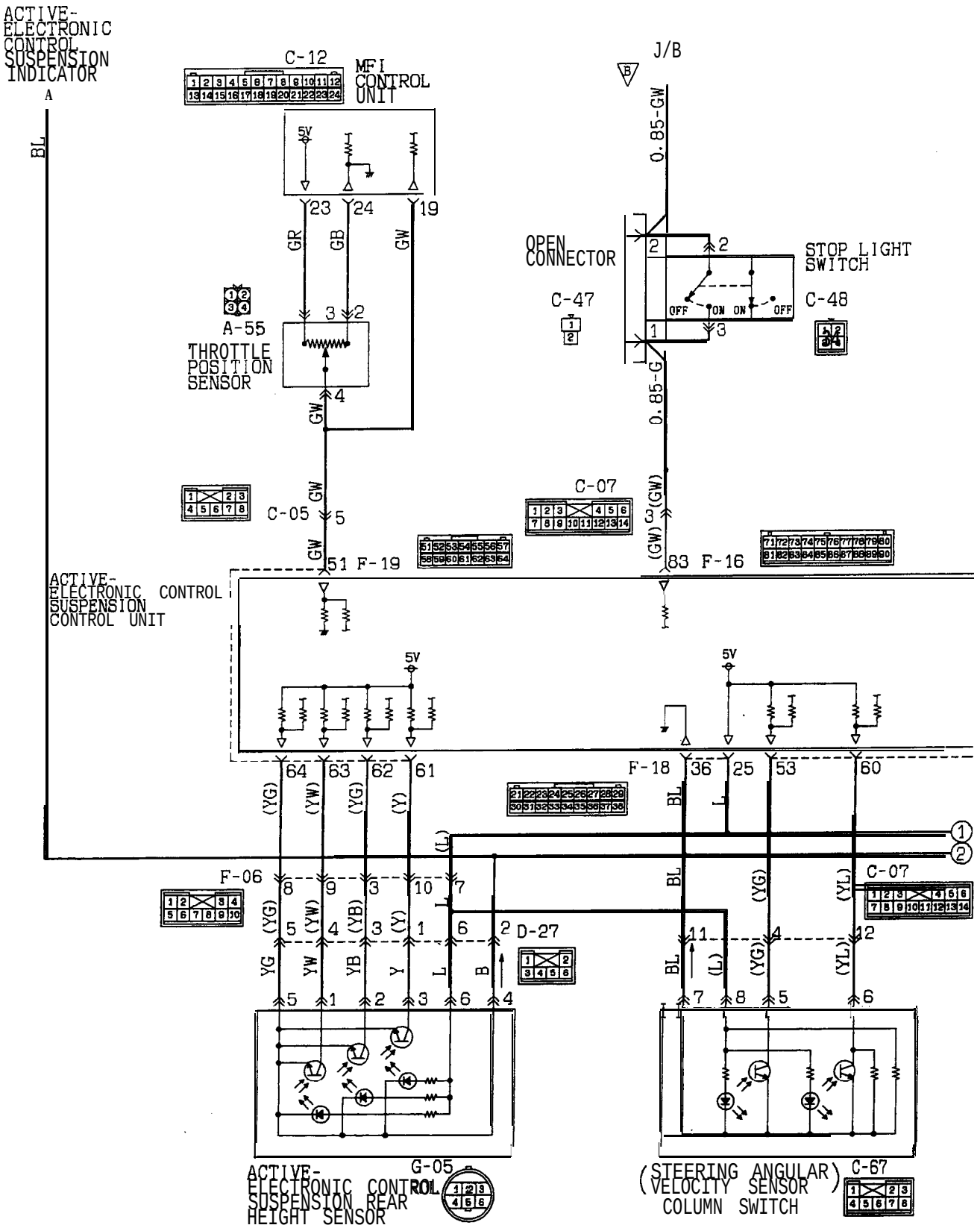
KX35-AC-H1526-NM

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (1989 models)



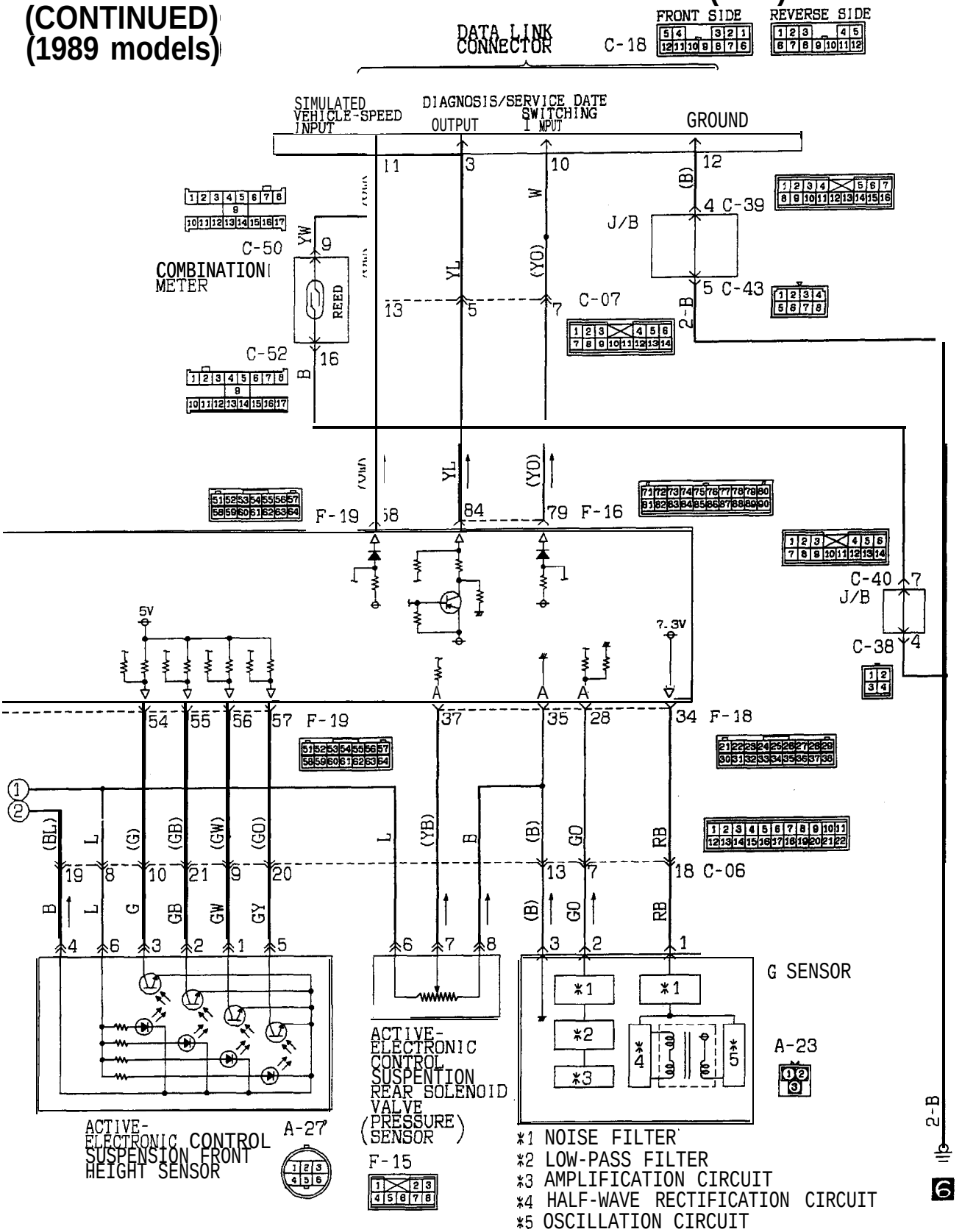
TSB Revision



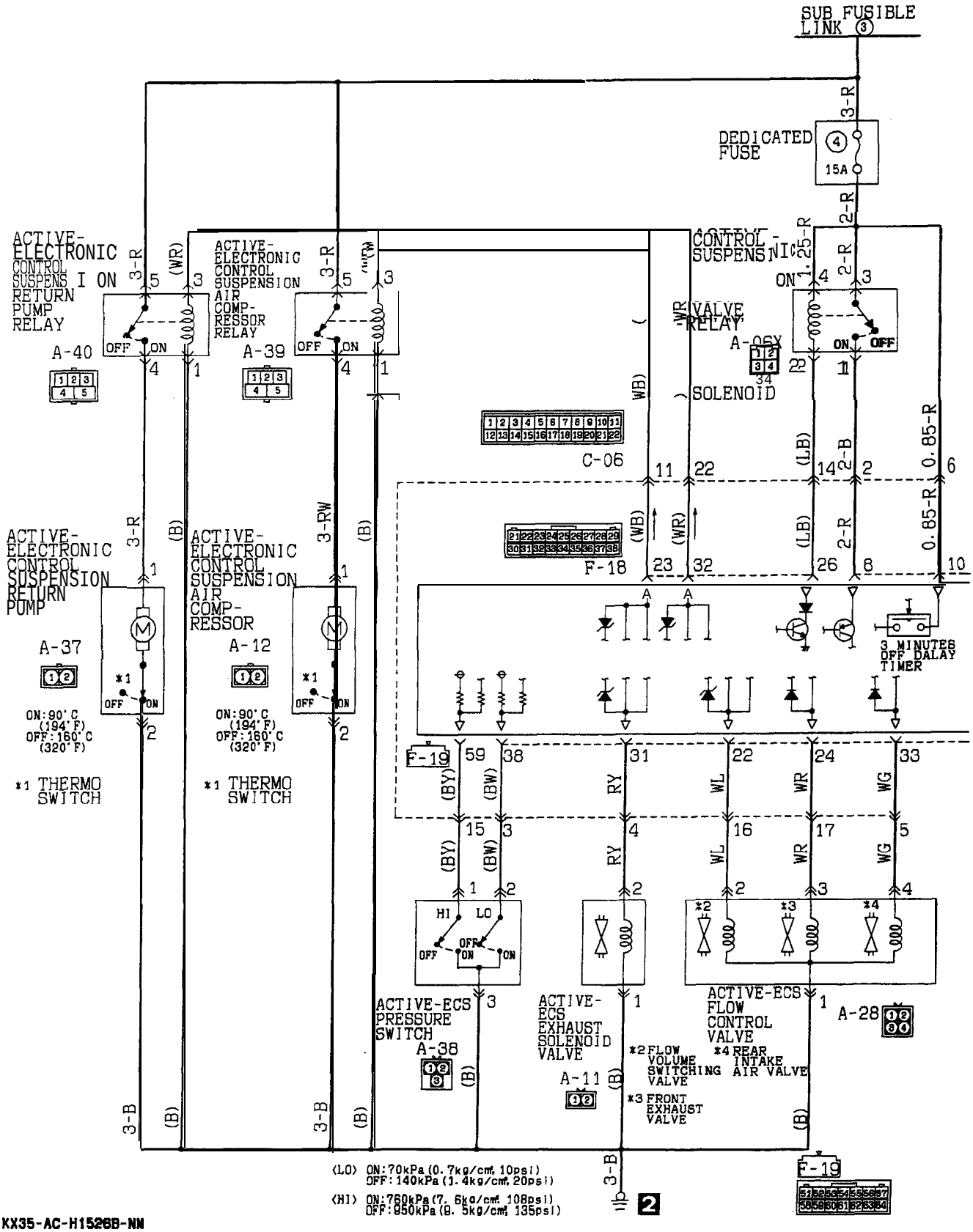
KX35-AC-H1526A-NN

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (1989 models)



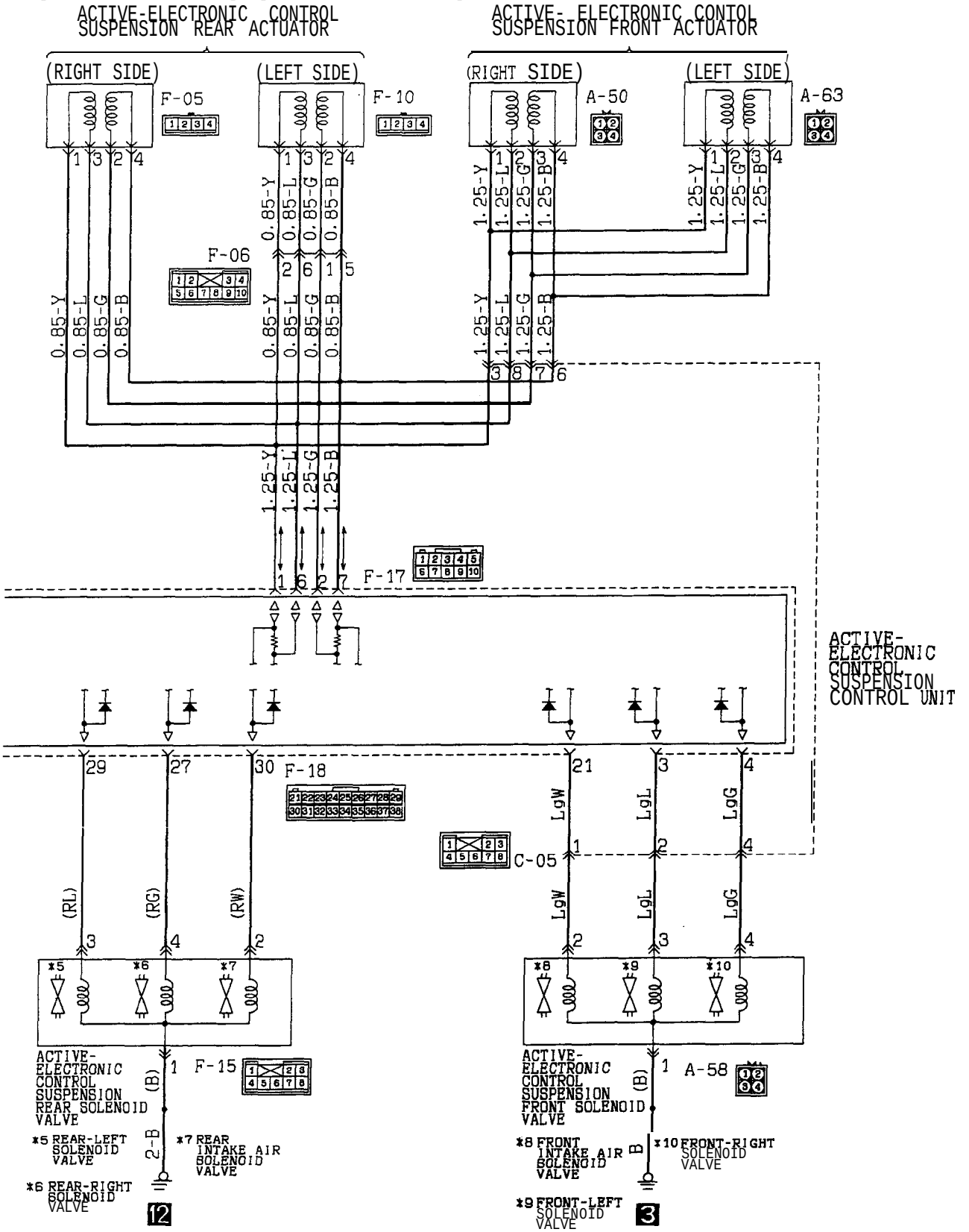
TSB Revision



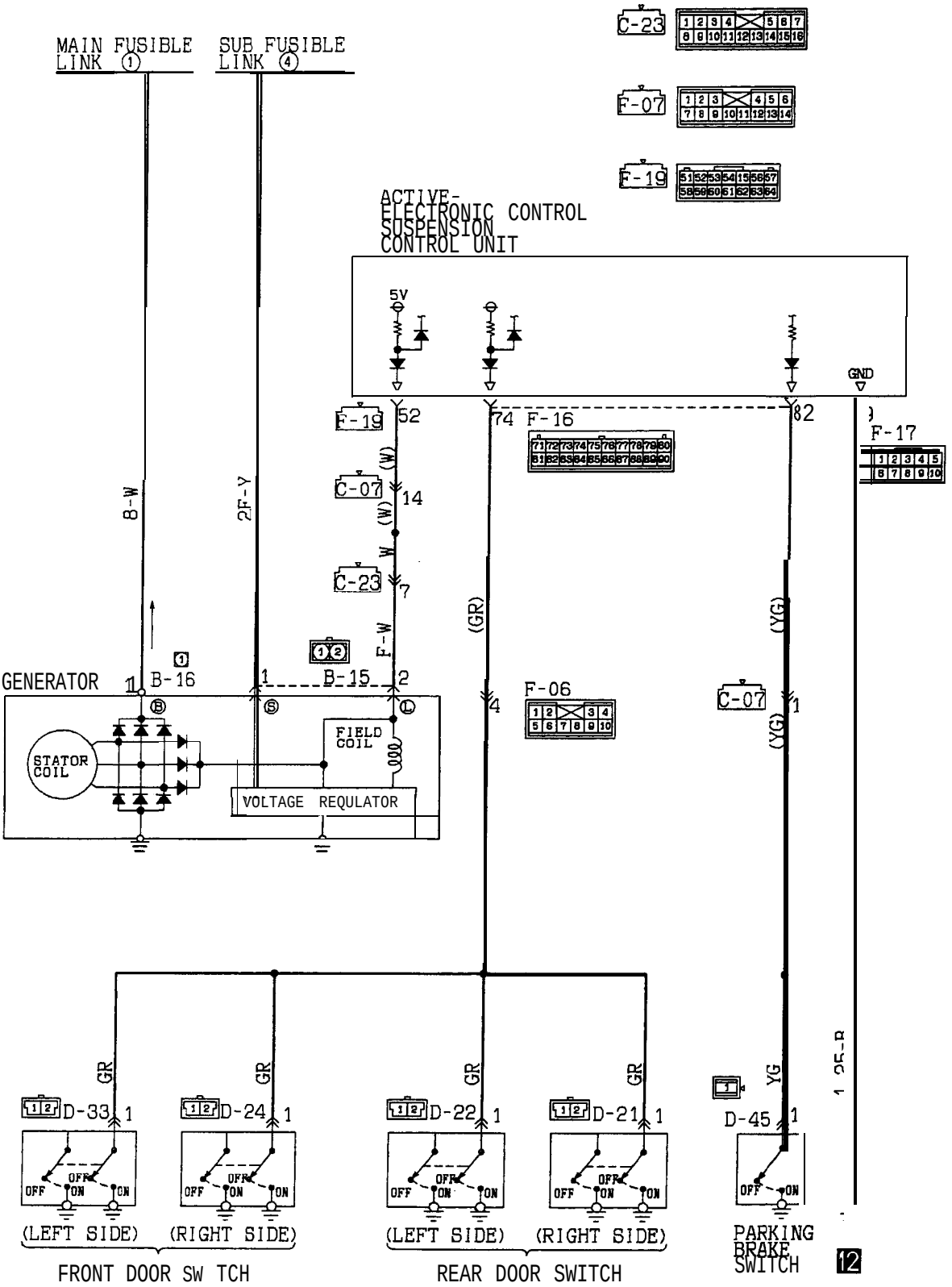
KX35-AC-H1526B-NN

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (1989 models)



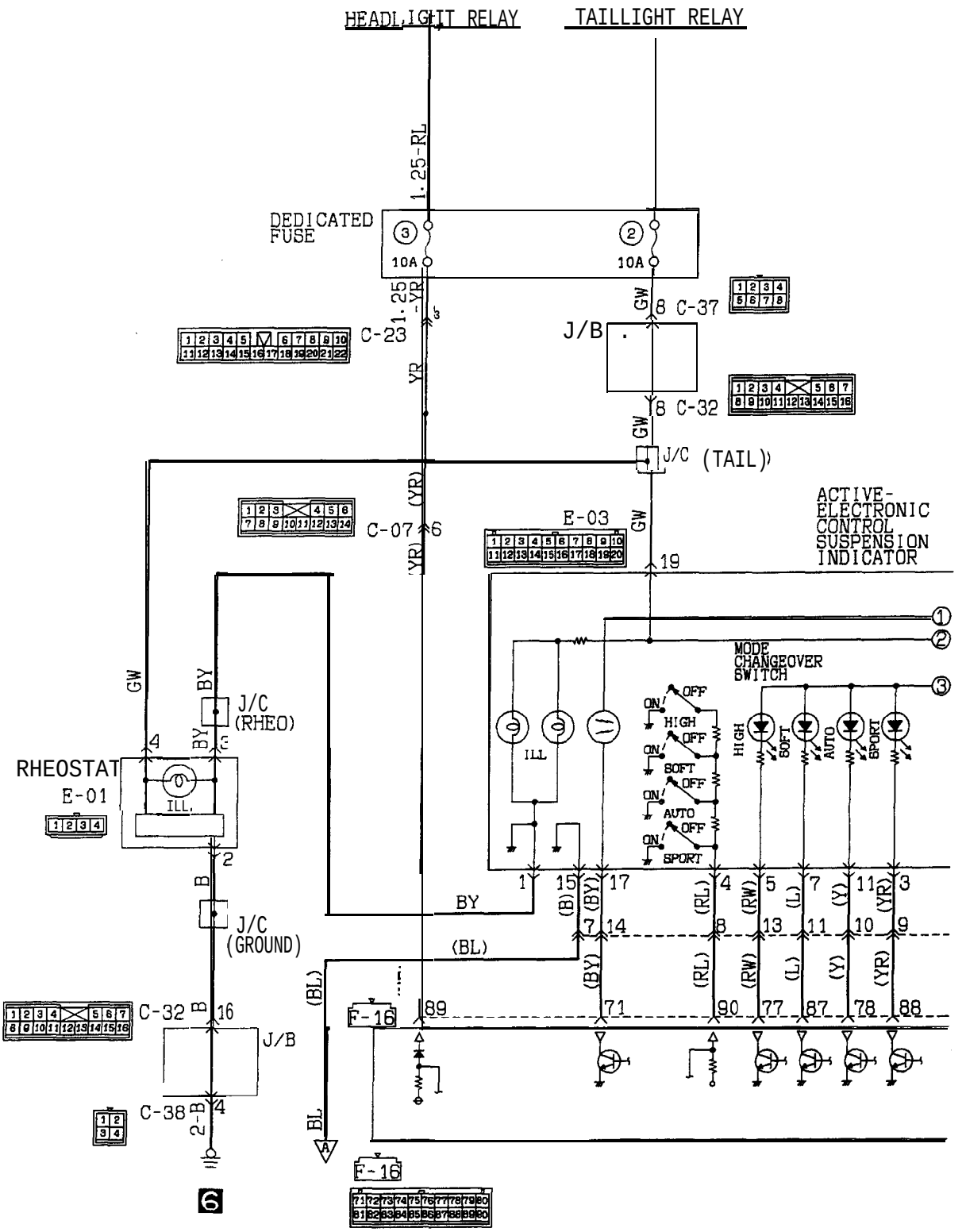
TSB Revision



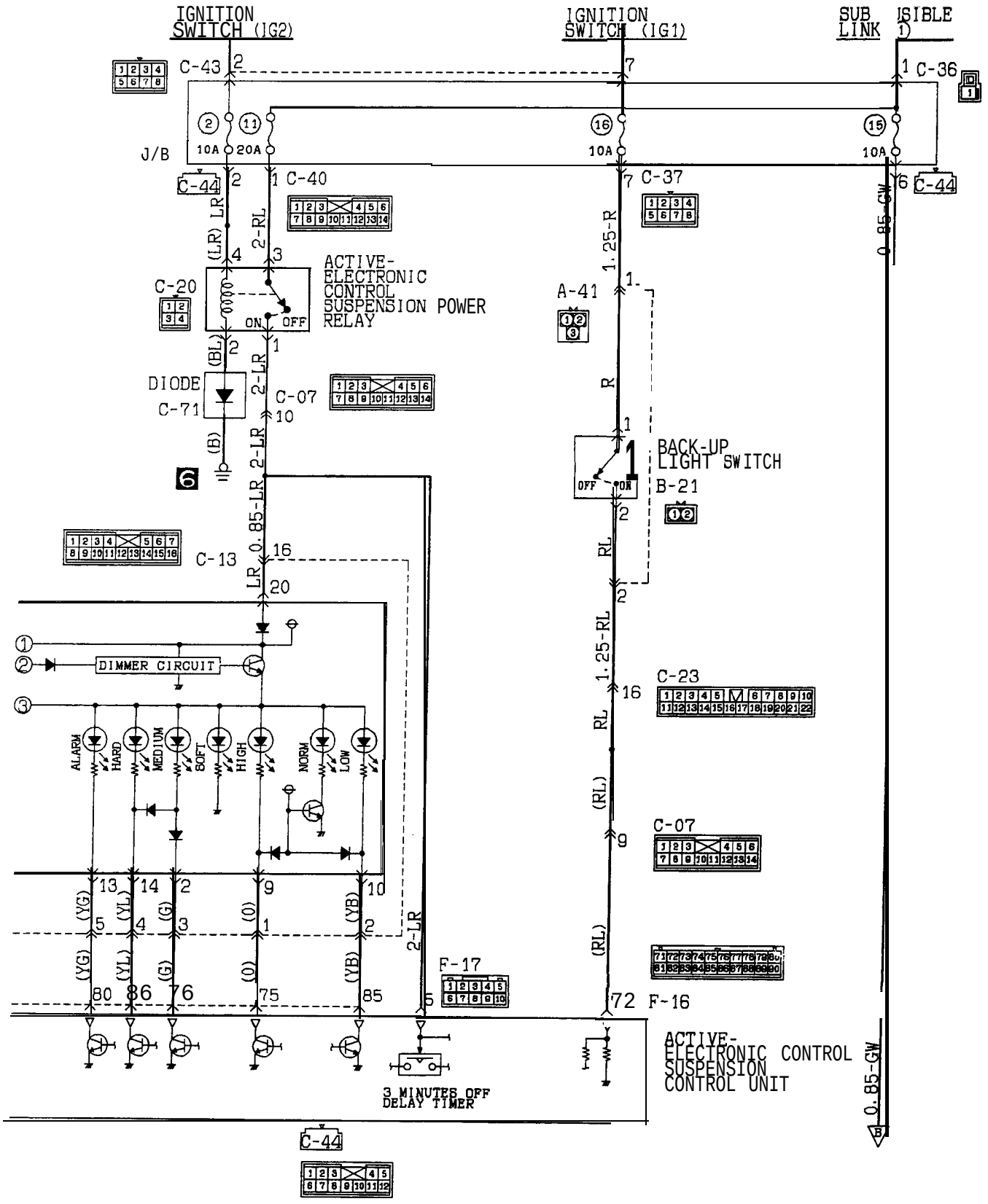
KX35-AC-H1526C-NM

TSB Revision

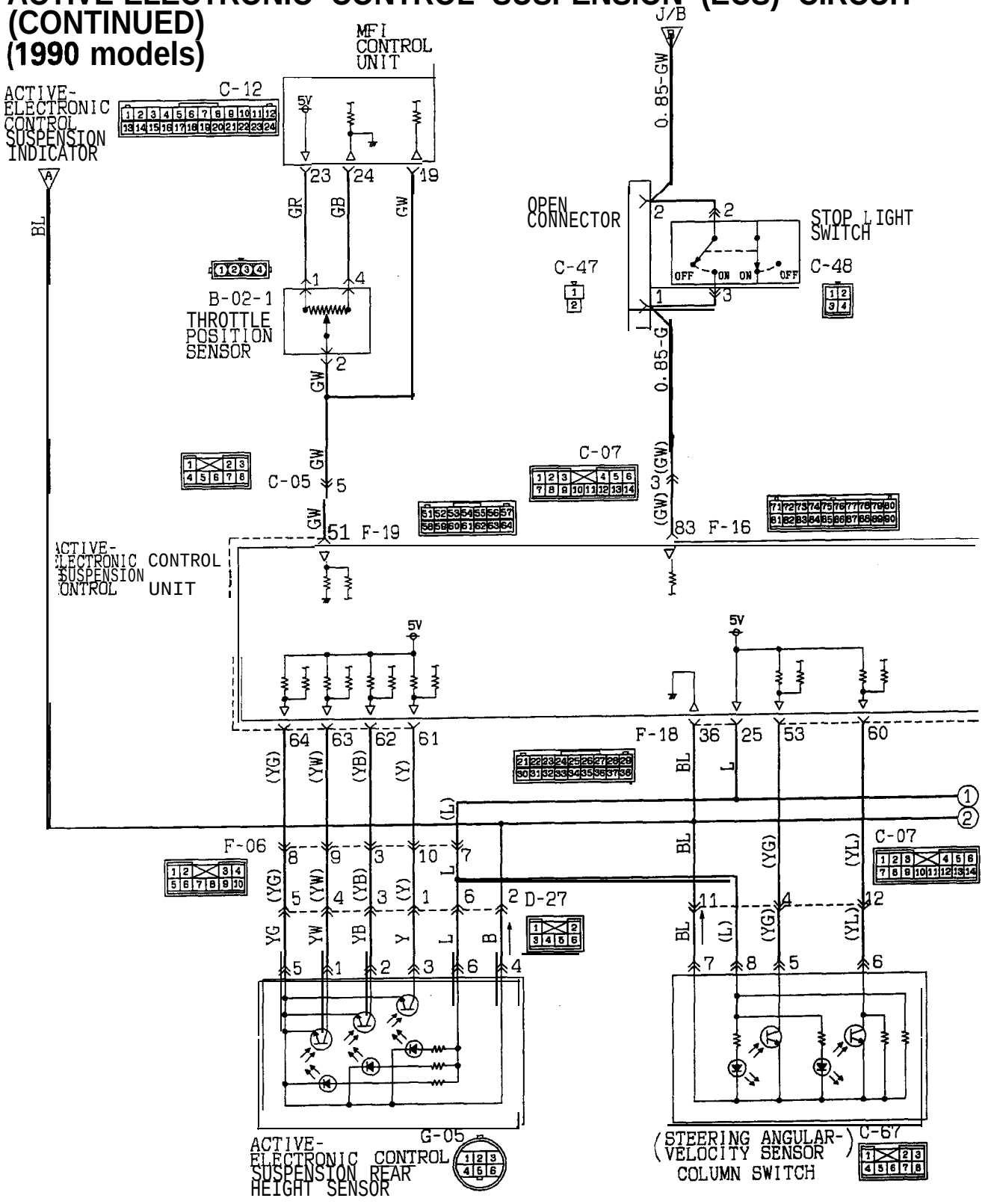
ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (1990 MODELS)



KX35-AC-H1527-NM

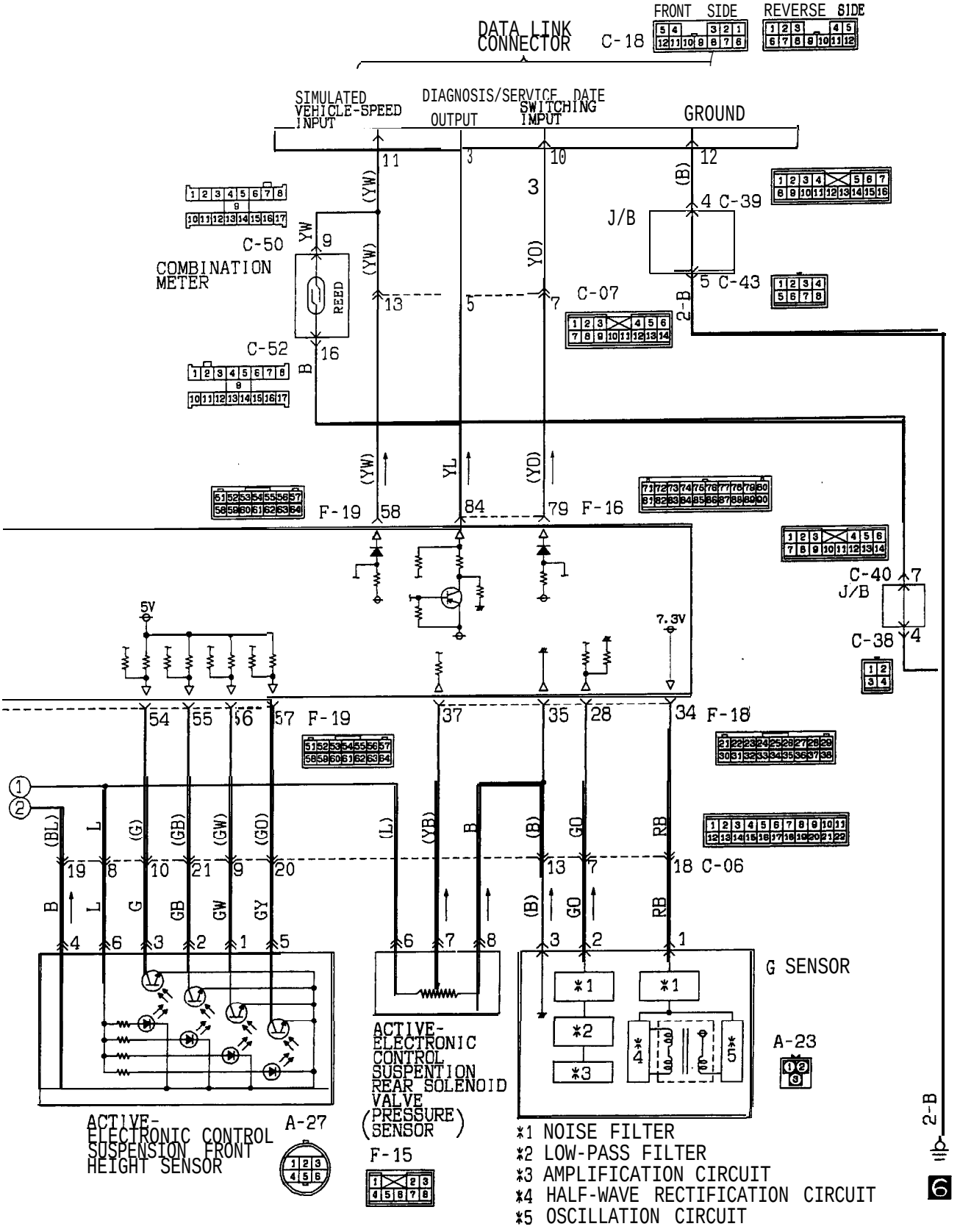

IGNITION SWITCH (IG2)
IGNITION SWITCH (IG1)
SUB LINK (ISIBLE 1)
C-43
C-36
J/B
10A
20A
10A
10A
C-44
C-40
C-37
C-44
LR
2-RL
1.25-R
0.85-GW
ACTIVE-ELECTRONIC CONTROL SUSPENSION POWER RELAY
C-20
ON
OFF
A-41
DIODE
C-71
C-07
2-LR
R
BACK-UP LIGHT SWITCH
B-21
OFF
ON
0.85-LR
C-13
RL
1.25-RL
C-23
DIMMER CIRCUIT
ALARM
HARD
MEDIUM
SOFT
HIGH
NORM
LOW
(YG)
(YL)
(G)
(O)
(YB)
(RL)
C-07
F-17
F-16
ACTIVE-ELECTRONIC CONTROL SUSPENSION CONTROL UNIT
3 MINUTES OFF DELAY TIMER
C-44

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (1990 models)



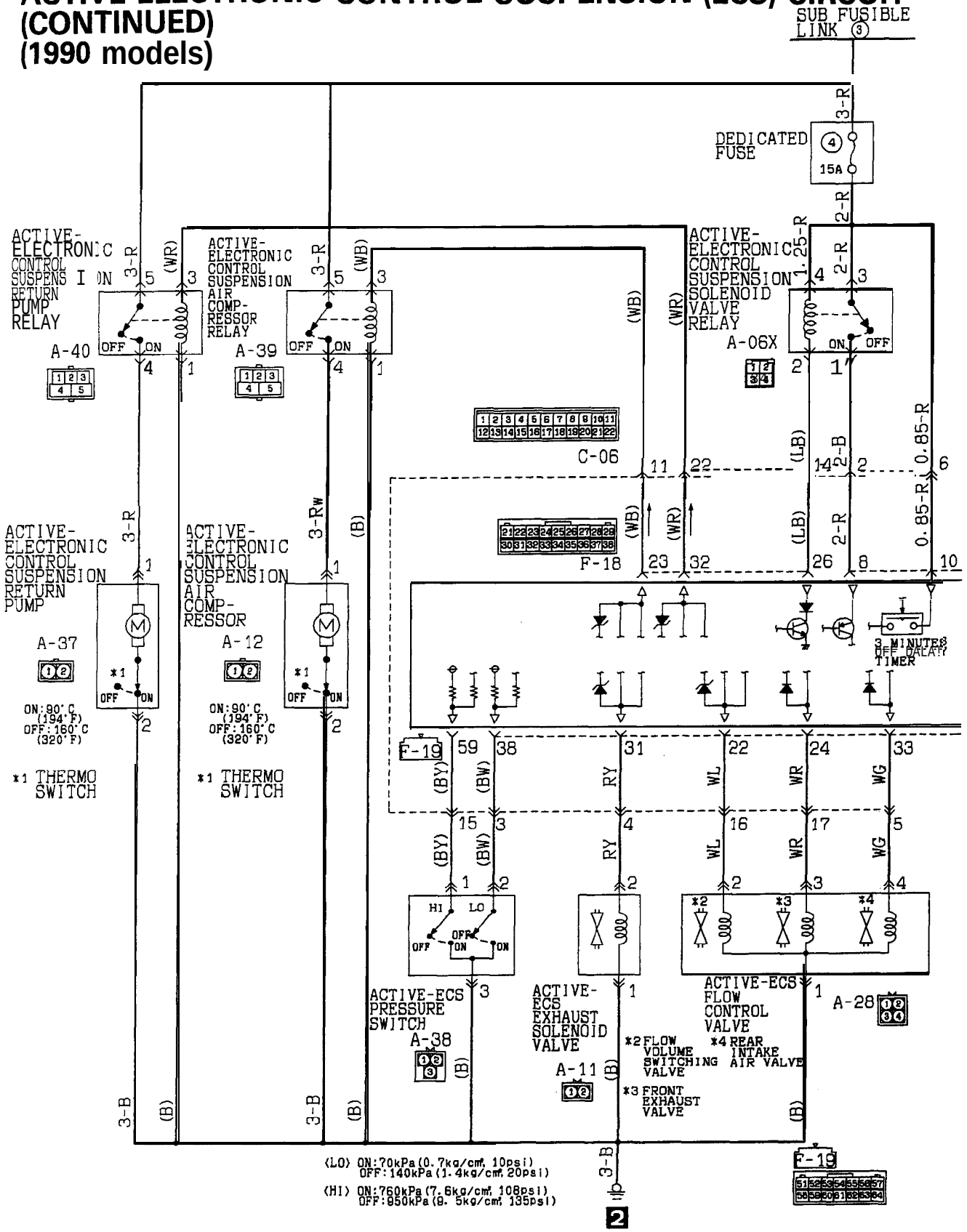
KX35-AC-H1527A-NM

TSB Revision



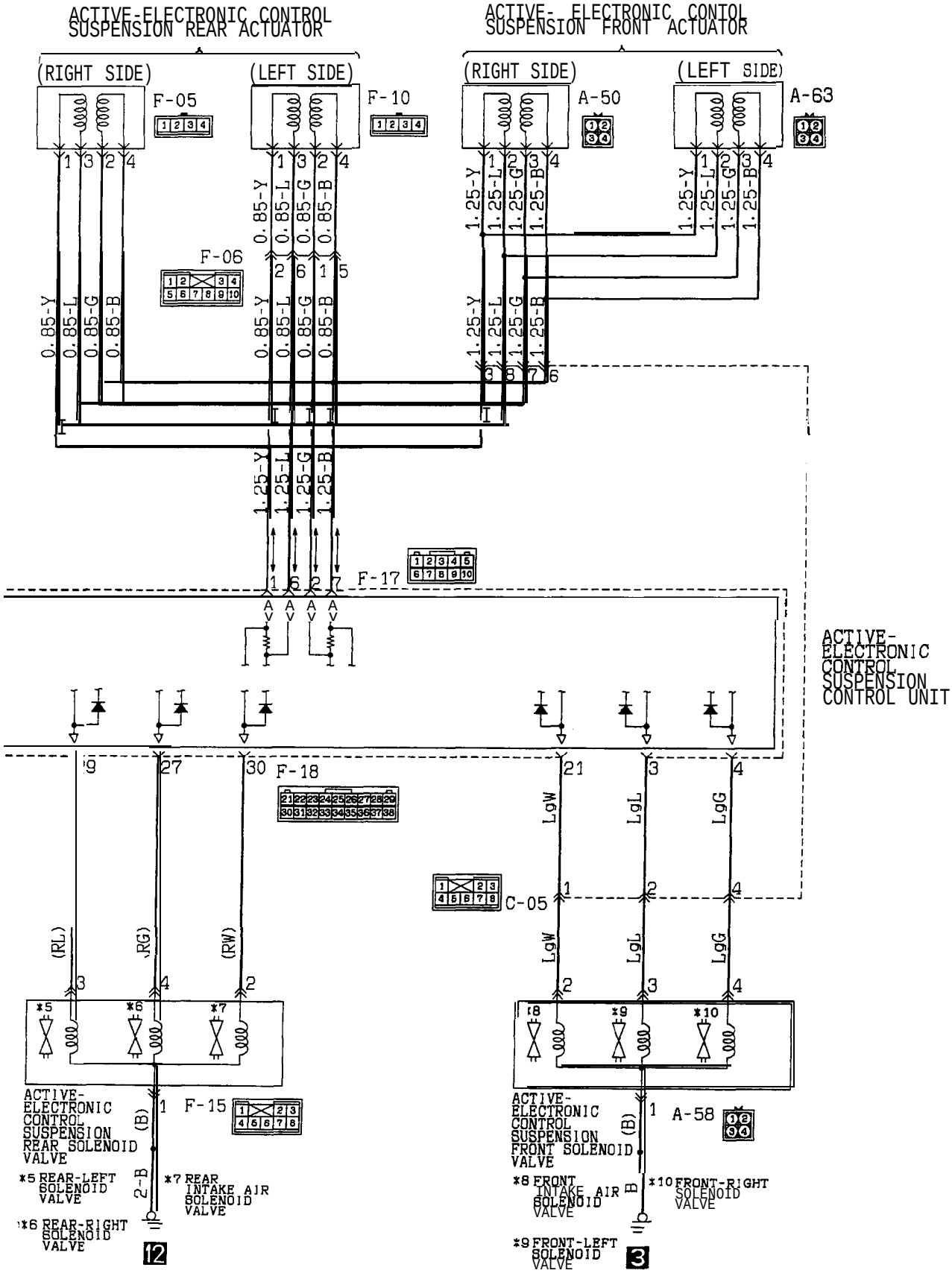
TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (1990 models)



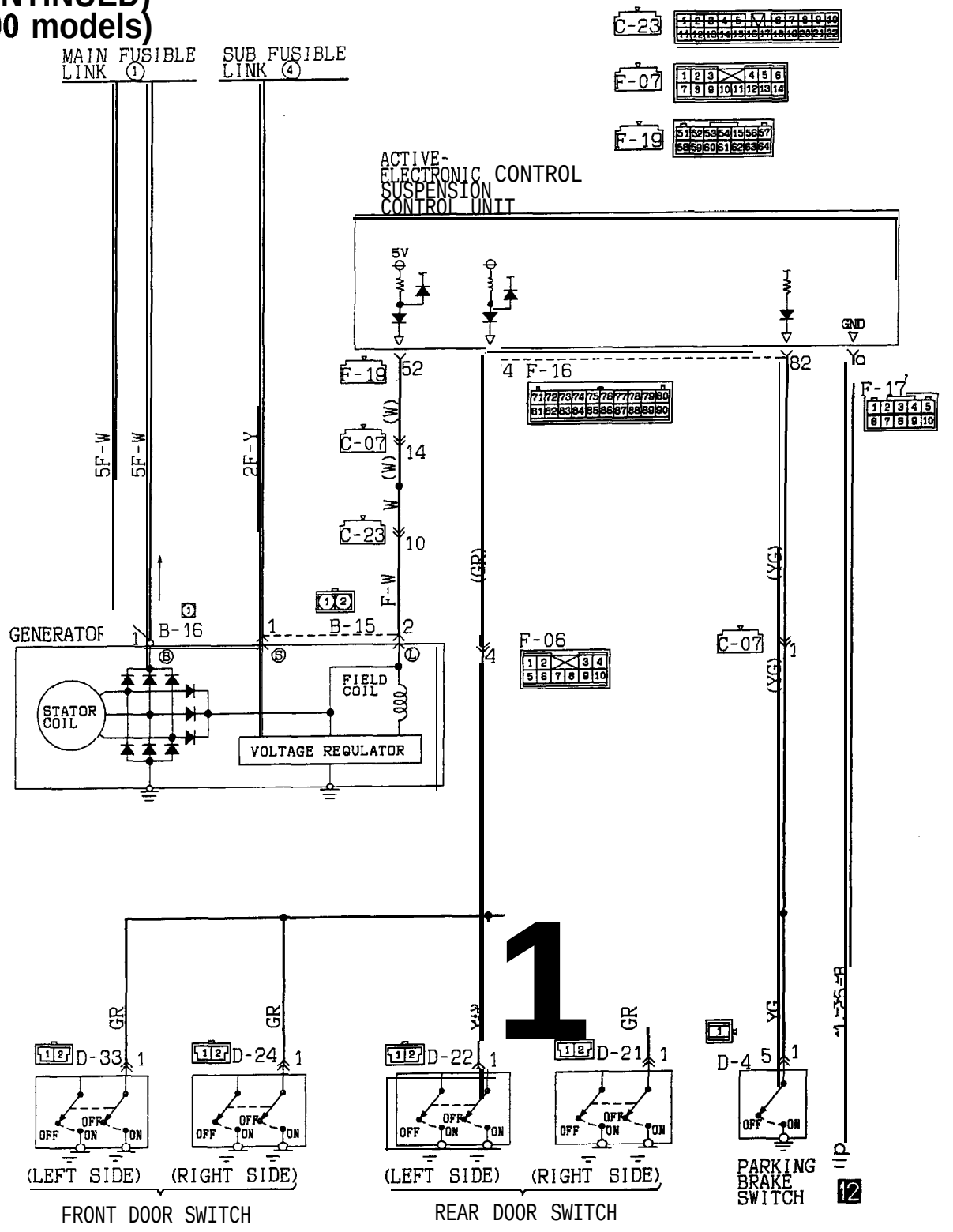
KX35-AC-H1527B-NM

TSB Revision



TSB Revision

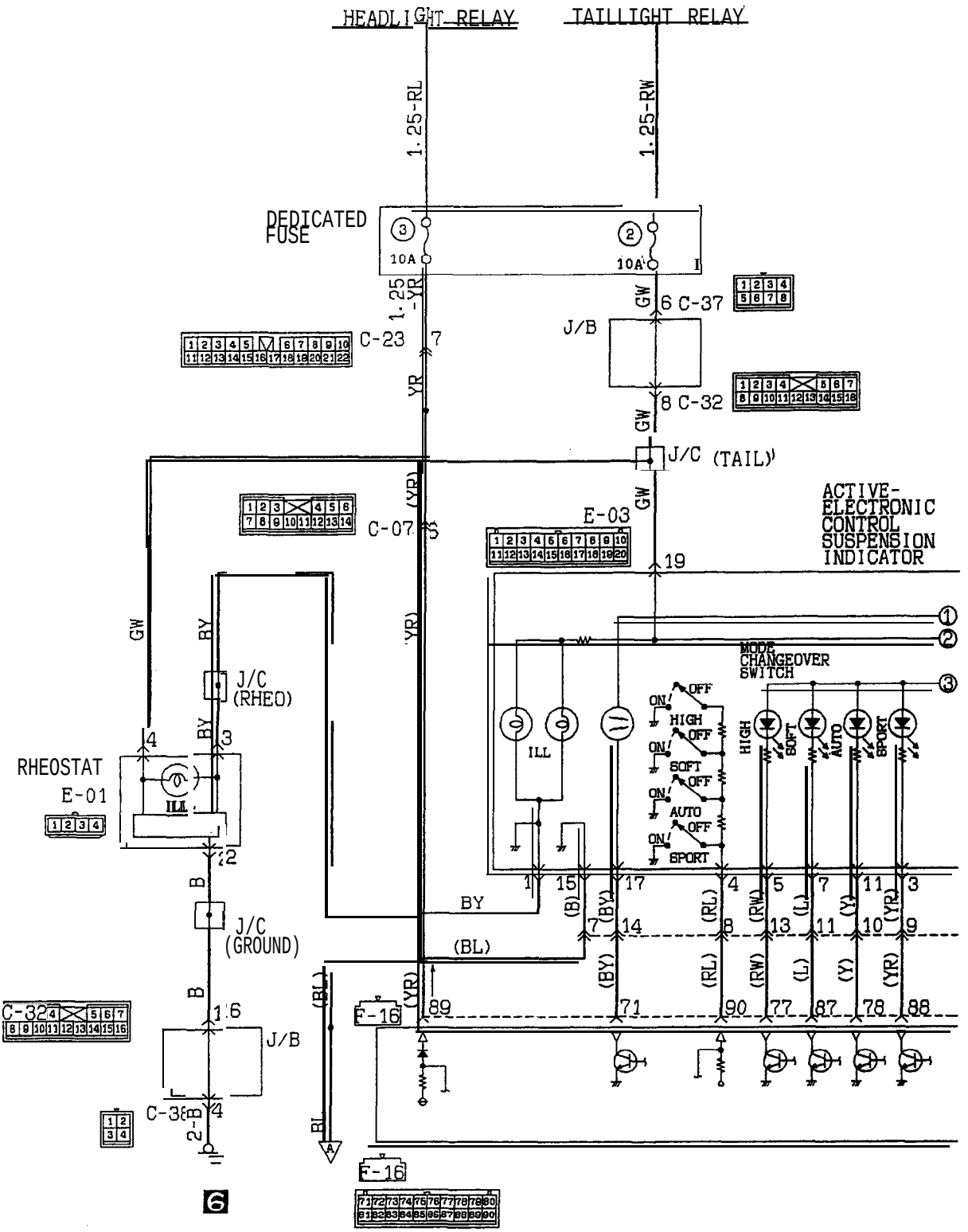
ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED)
(1990 models)



KX35-AC-H1527C-NM

TSB Revision

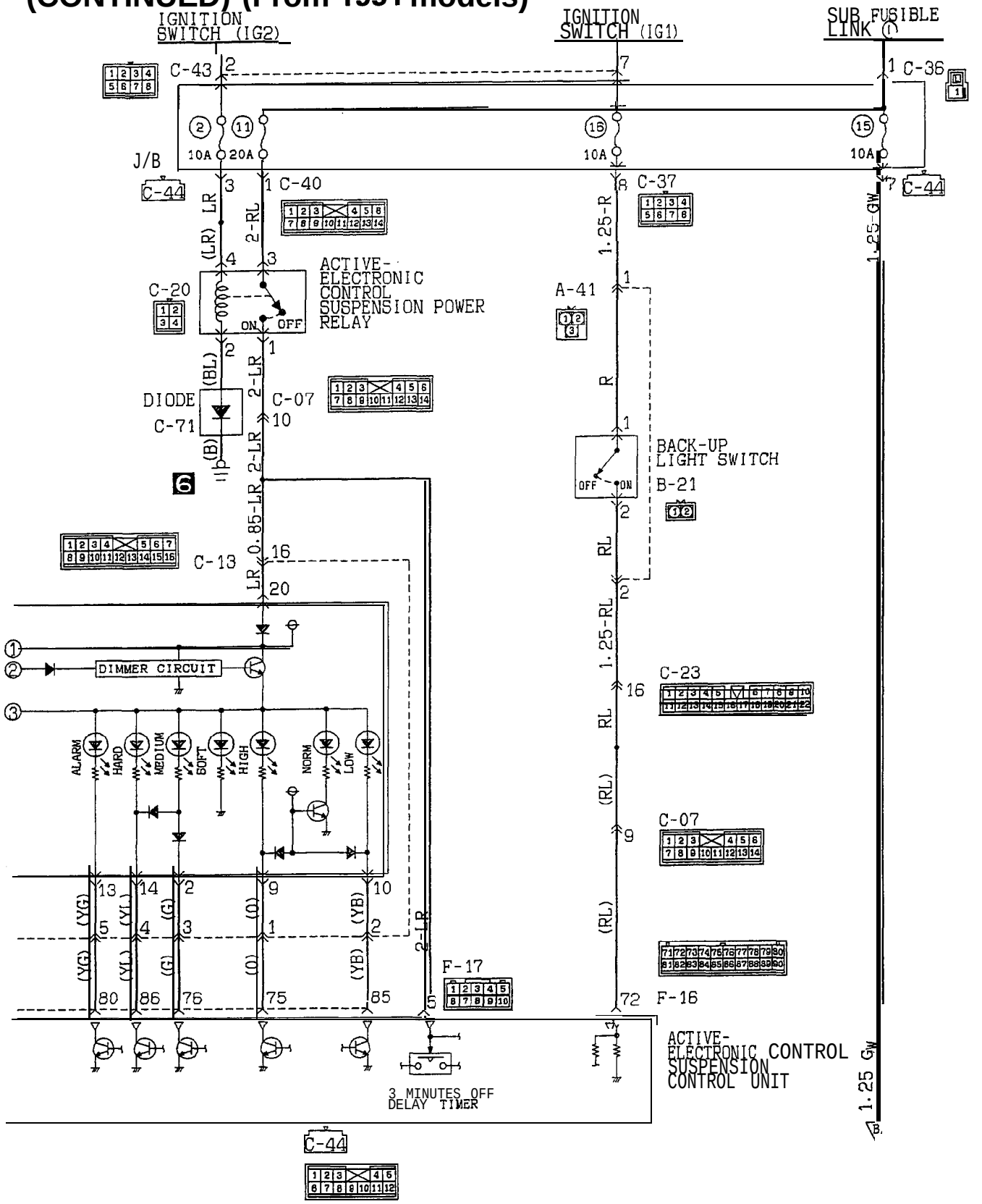
ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT <From 1991 models>



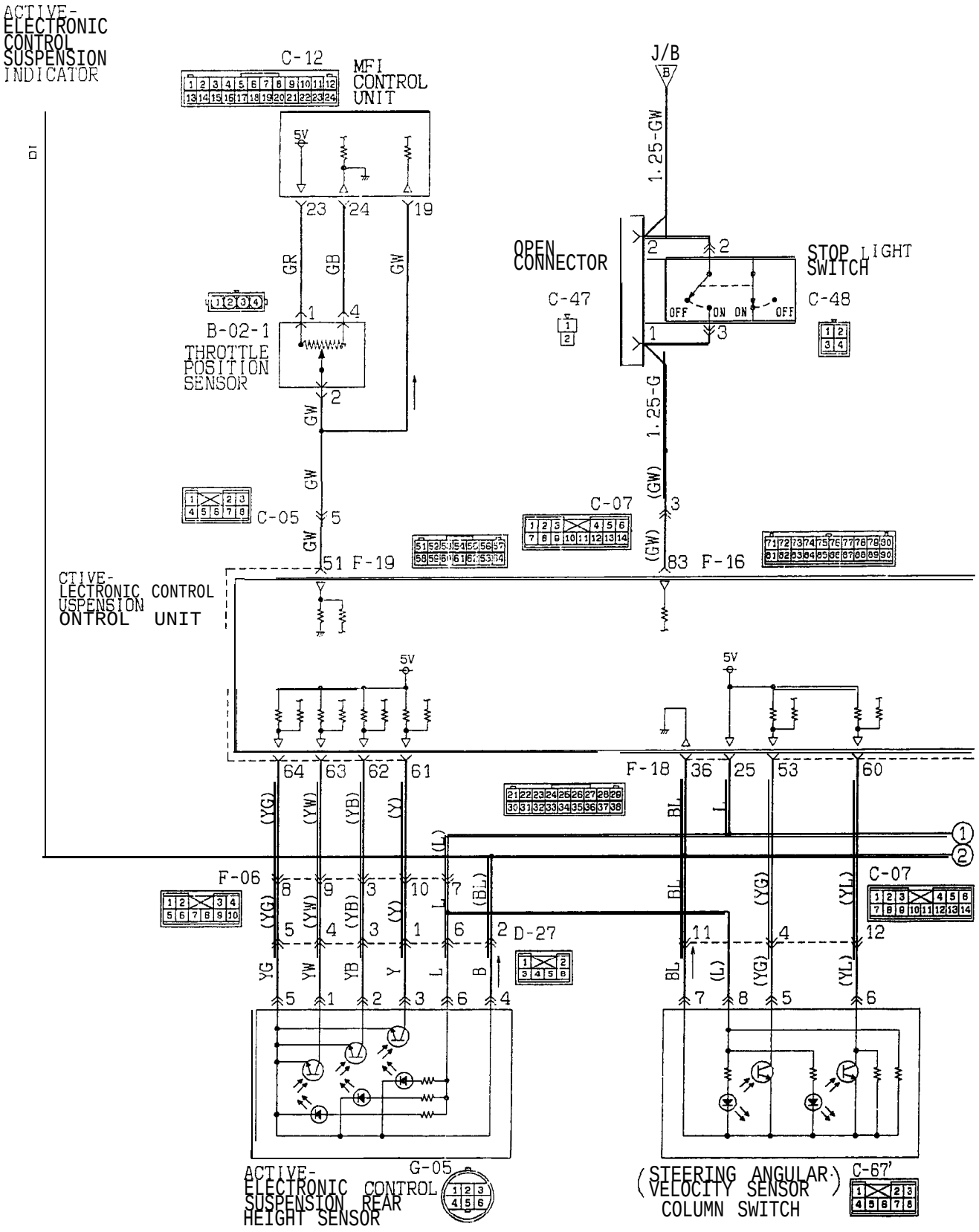
KX5-AC-H1544-NM

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (From 1991 models)



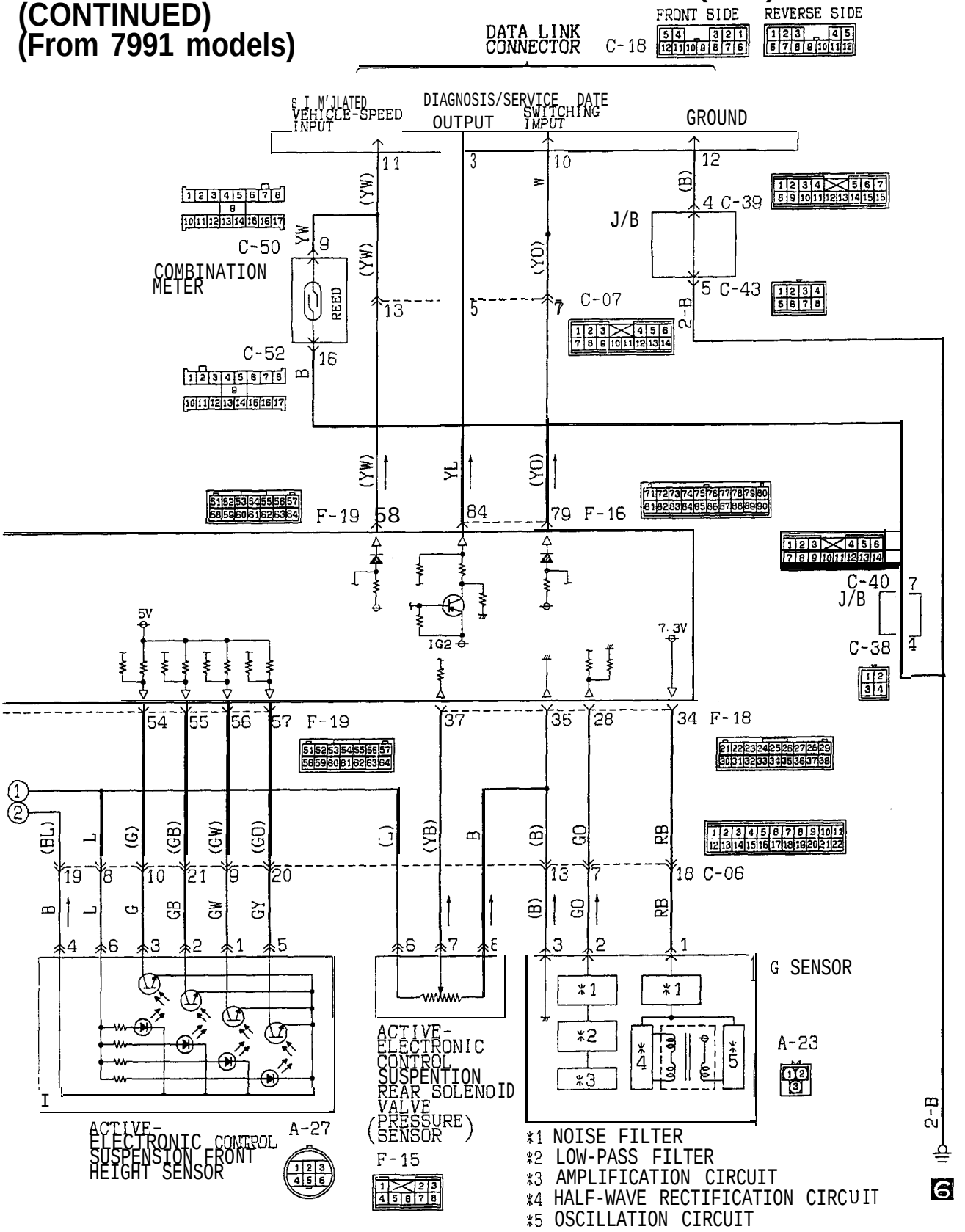
TSB Revision

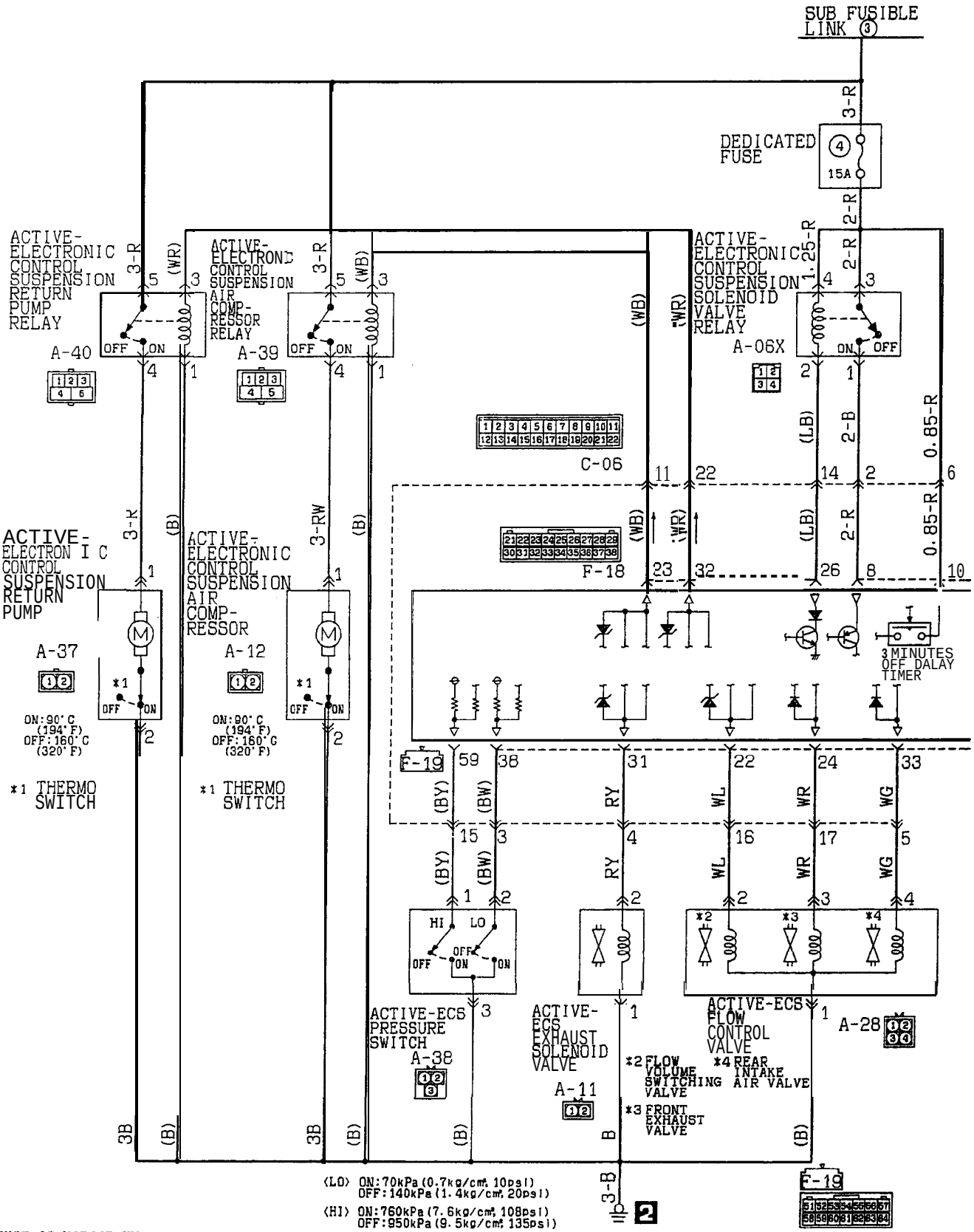


KX35-AC-H1544A-NM

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED)
(From 7991 models)

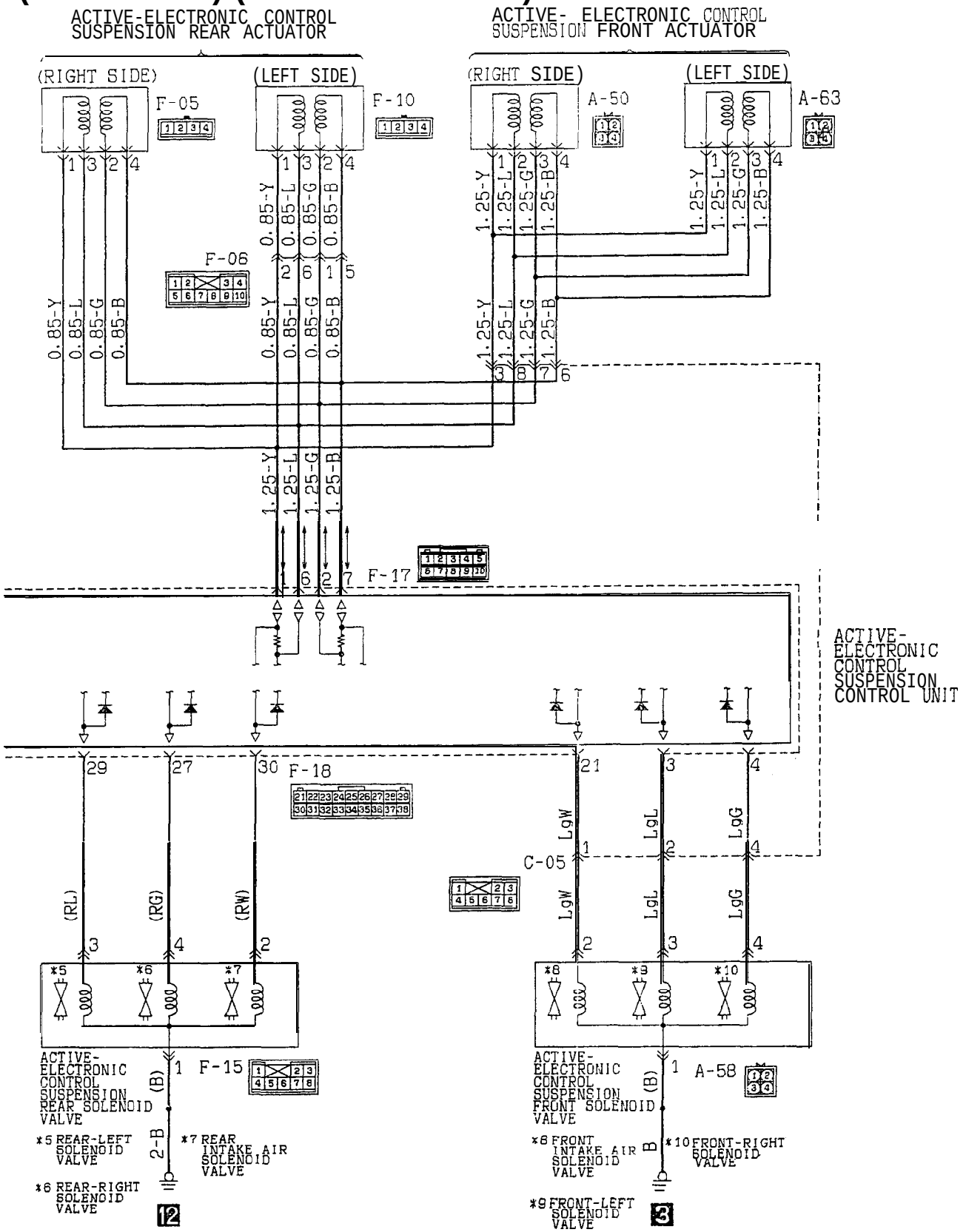




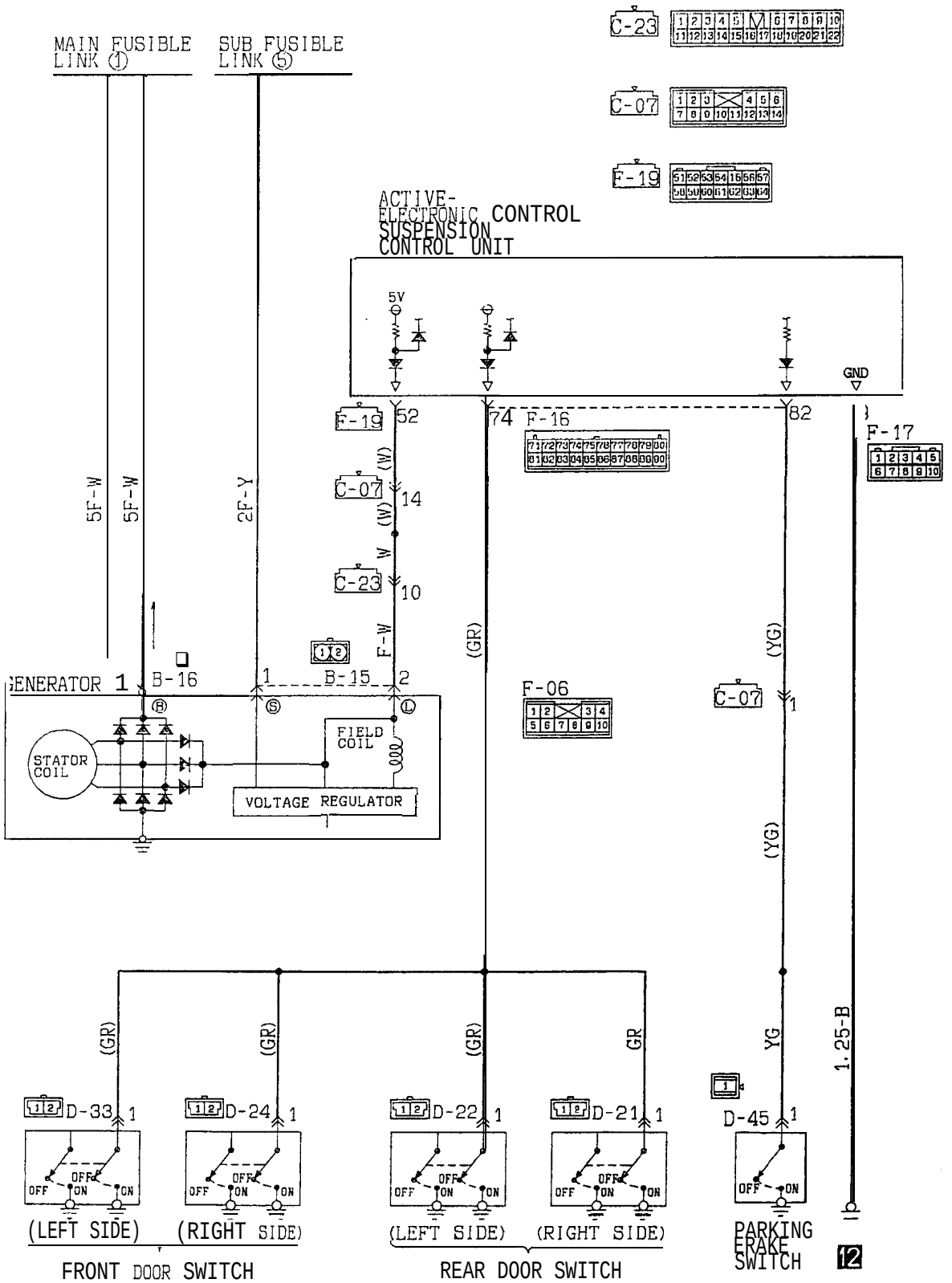
KX35-AC-H1544B-NW

TSB Revision

ACTIVE-ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (CONTINUED) (From 1991 models)



TSB Revision



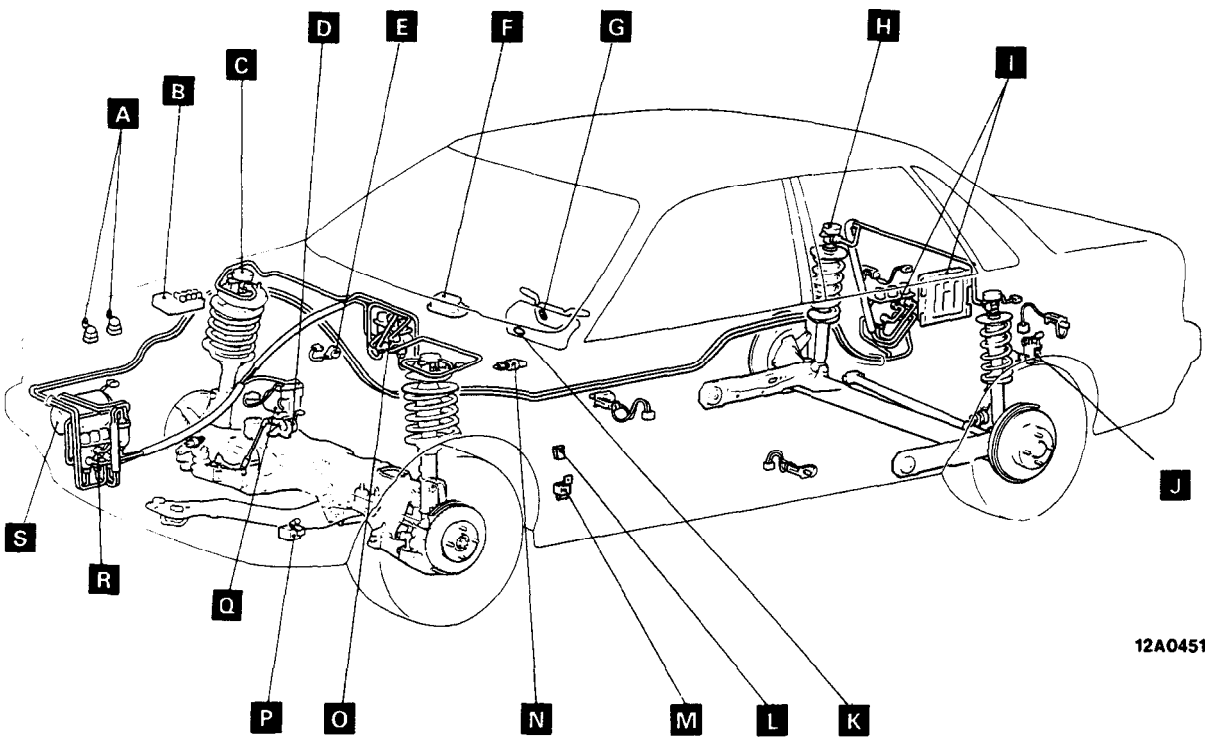
KX35-AC-H1544C-NN

TSB Revision

COMPONENT LOCATION

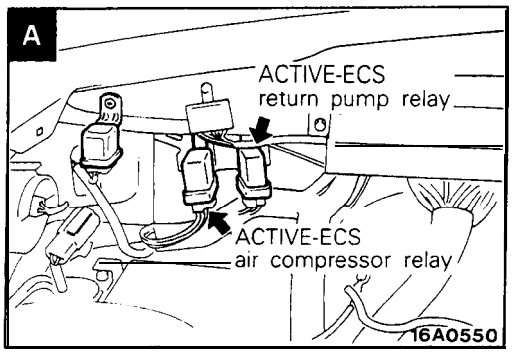
Name	Symbol	Name	Symbol
ACTIVE-ECS air compressor relay	A	G sensor	P
ACTIVE-ECS control unit	I	Headlight relay	B
ACTIVE-ECS indicator	F	High-pressure switch	S
ACTIVE-ECS power relay	M	Low-pressure switch	S
ACTIVE-ECS return pump relay	A	Rear actuator	H
ACTIVE-ECS solenoid valve power relay	B	Rear height sensor	J
Air compressor	Q	Rear pressure sensor	I
	L	Rear solenoid valve	I
Exhaust solenoid valve [for vehicle-height adjustment)	Q	Reserve tank (incorporated within the return pump)	S
		Steering wheel angular-velocity sensor	G
Flow control solenoid valve	R	Stop light switch	N
Front actuator	C	Throttle-position sensor	E
Front height sensor	D	Vehicle-speed sensor	K
Front solenoid valve	0		

NOTE
The "name" column is arranged in alphabetical order

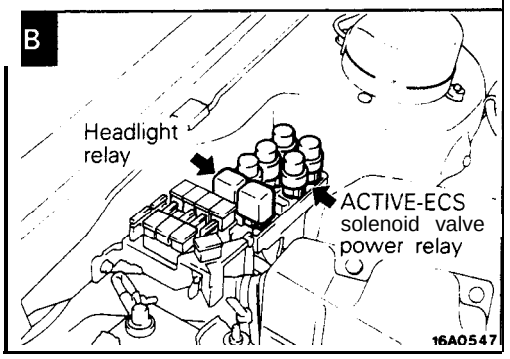


TSB Revision

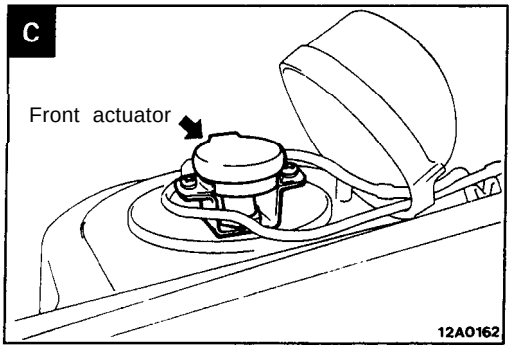
A



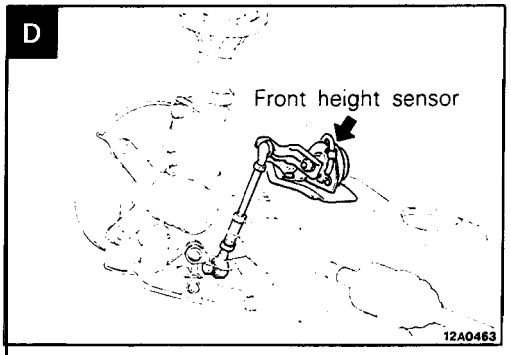
B



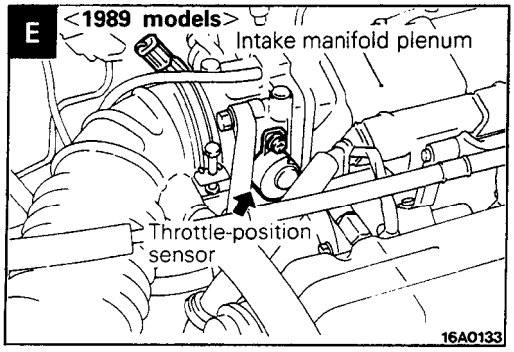
C



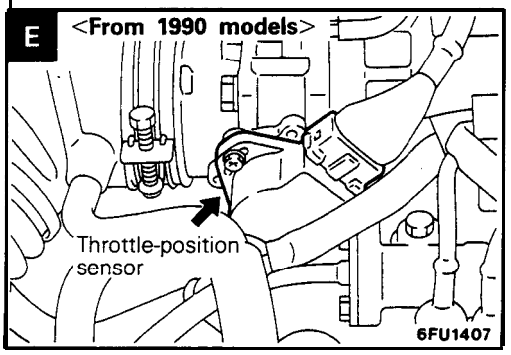
D



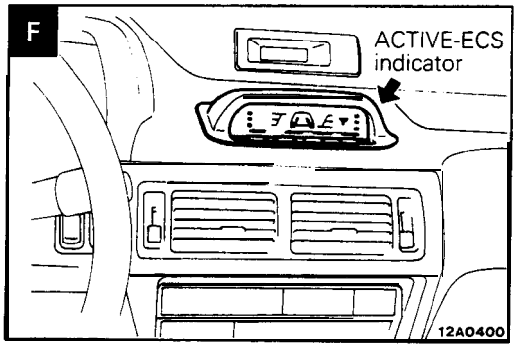
E <1989 models>



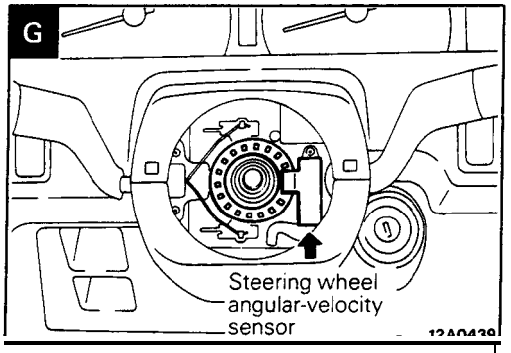
E <From 1990 models>



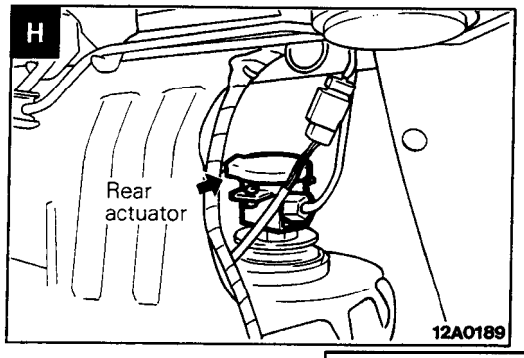
F



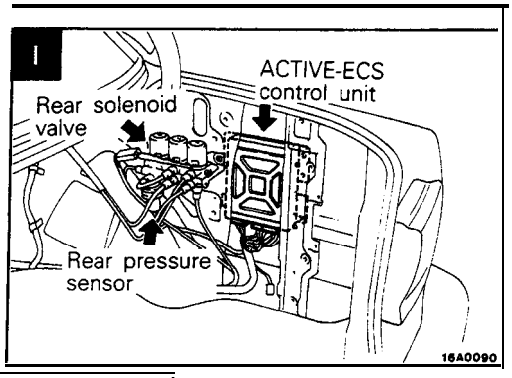
G



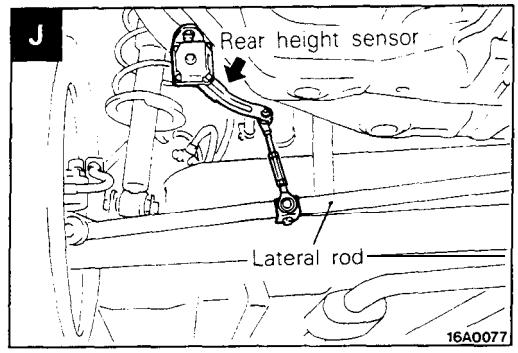
H



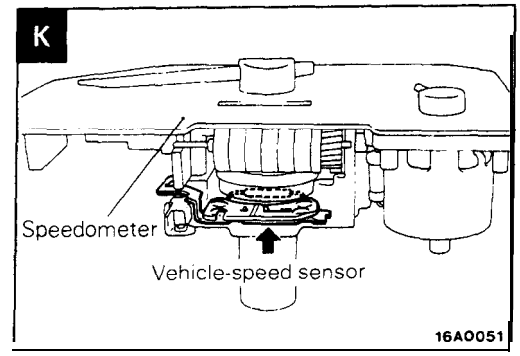
I



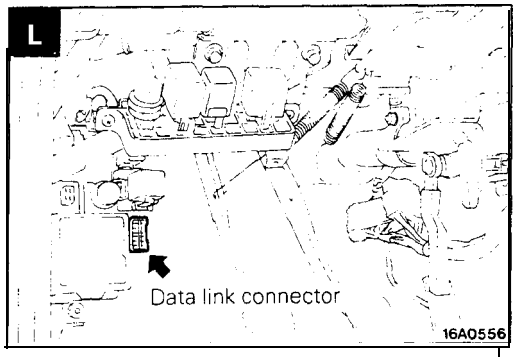
J



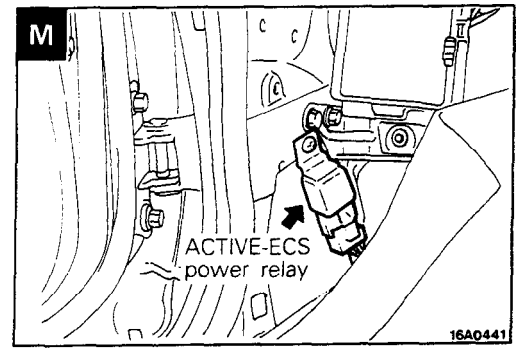
K



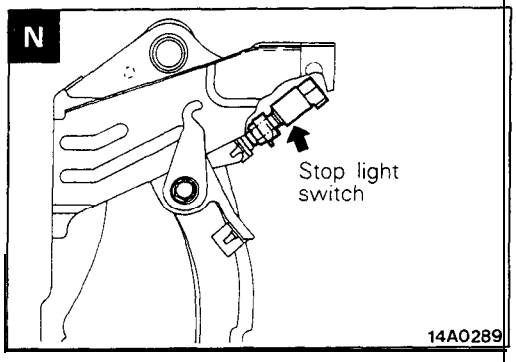
L



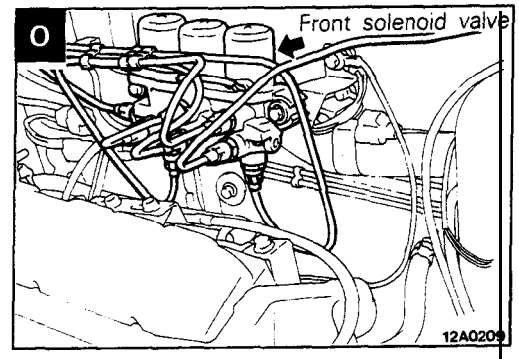
M



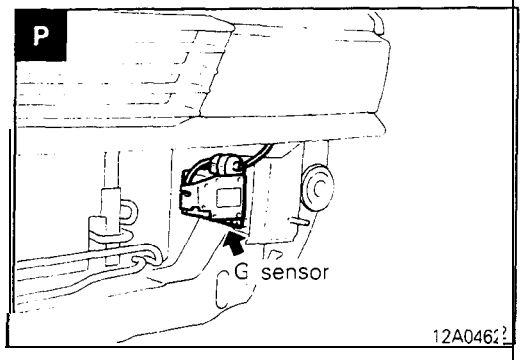
N



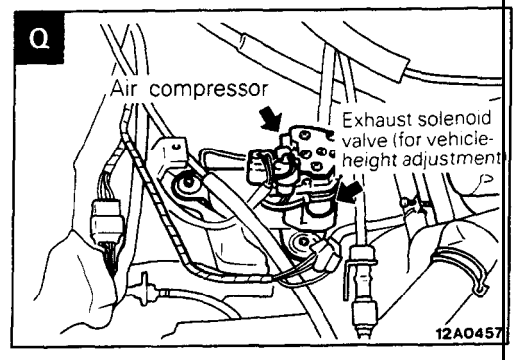
O



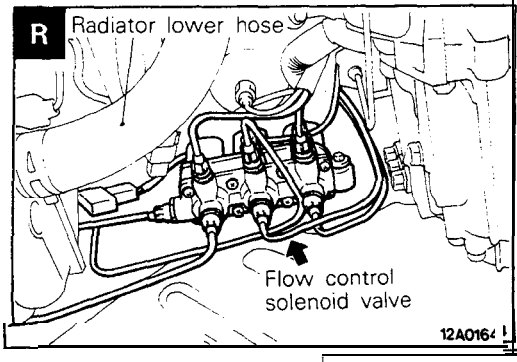
P



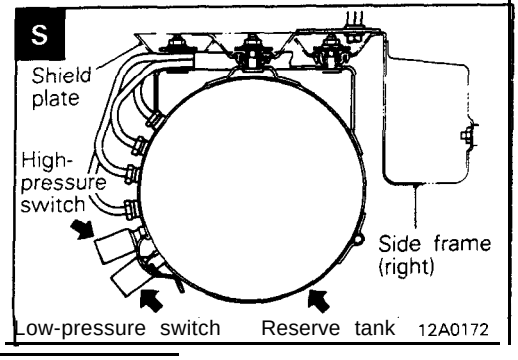
Q



R



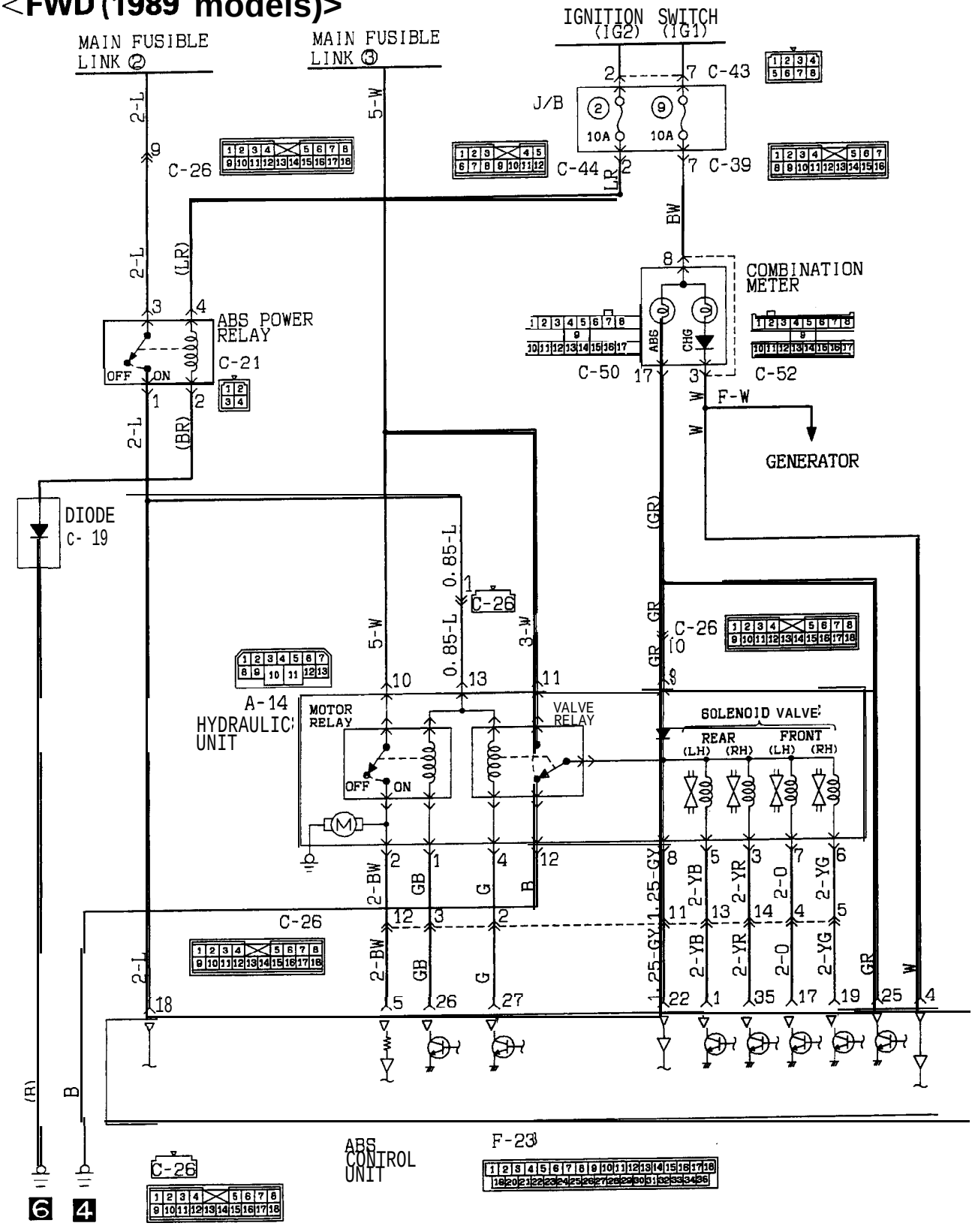
S



TSB Revision

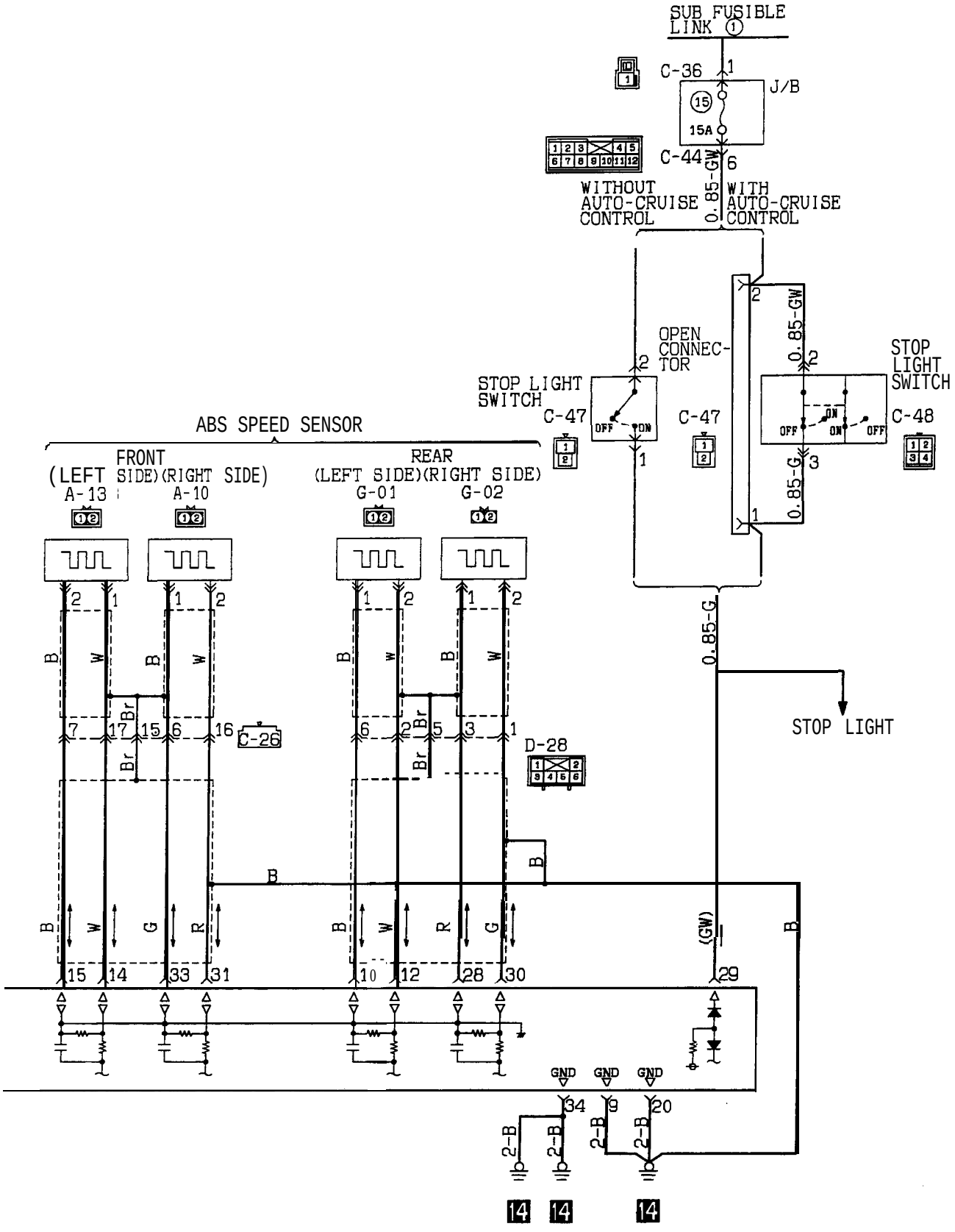
NOTES

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <FWD (1989 models)>

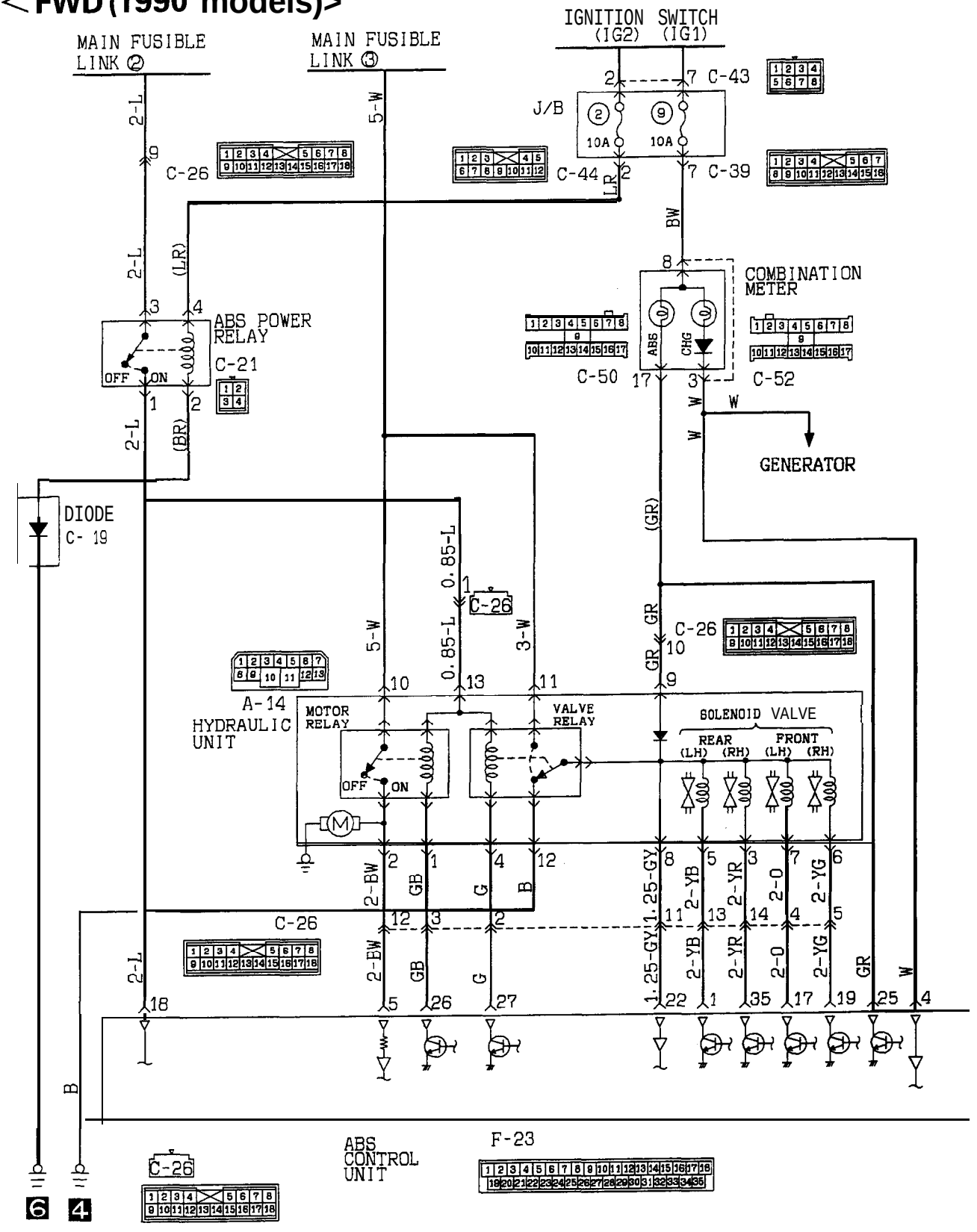


X35-AC-H1528-NM

TSB Revision

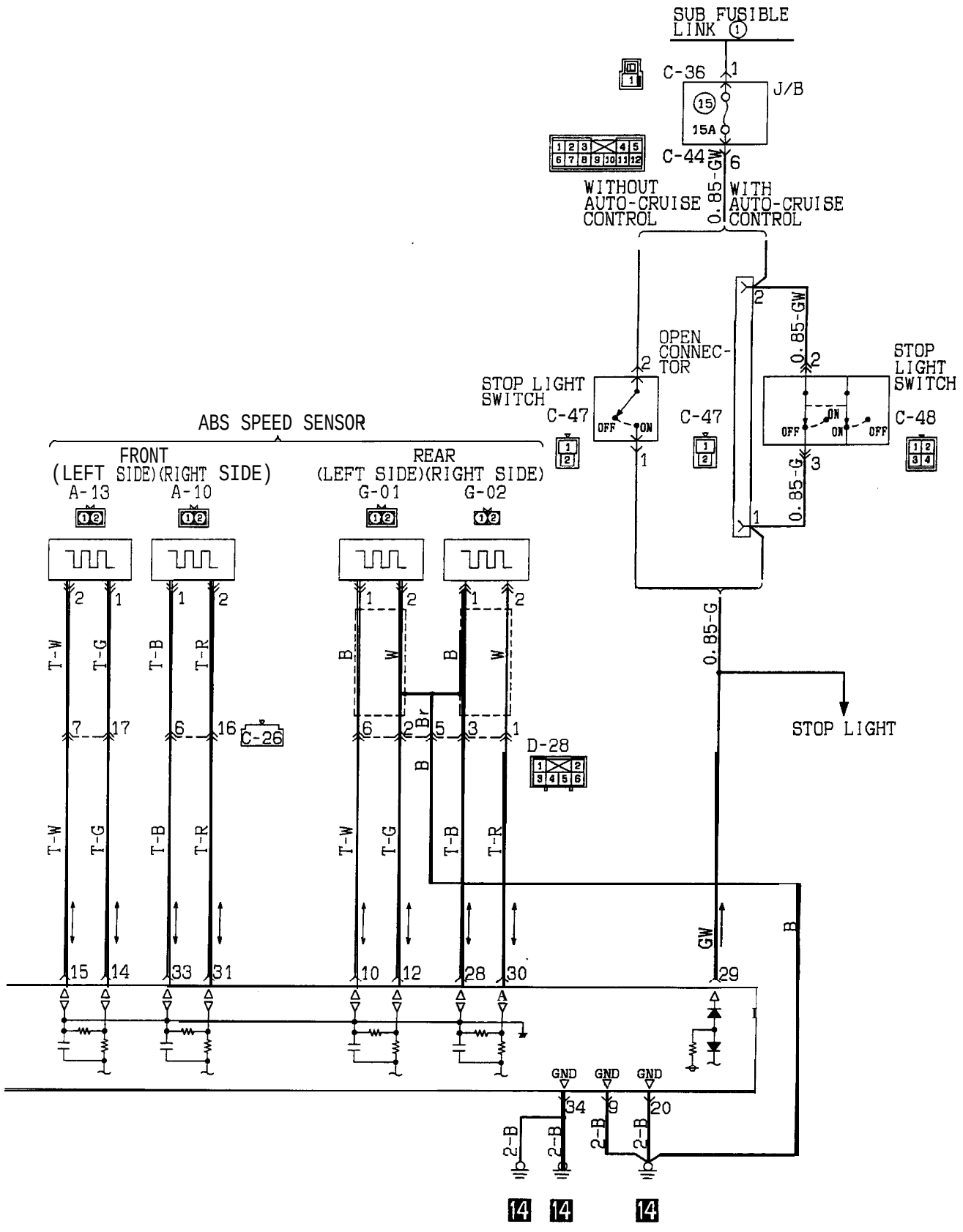

SUB FUSIBLE LINK ①
C-36
J/B
15A
C-44
0.85-GW
WITHOUT AUTO-CRUISE CONTROL
WITH AUTO-CRUISE CONTROL
OPEN CONNEC-TOR
STOP LIGHT SWITCH
C-47
C-48
ABS SPEED SENSOR
FRONT
(LEFT SIDE)(RIGHT SIDE)
A-13
A-10
REAR
(LEFT SIDE)(RIGHT SIDE)
G-01
G-02
C-26
D-28
0.85-G
STOP LIGHT
GND
2-B
14

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT
<FWD (1990 models)>



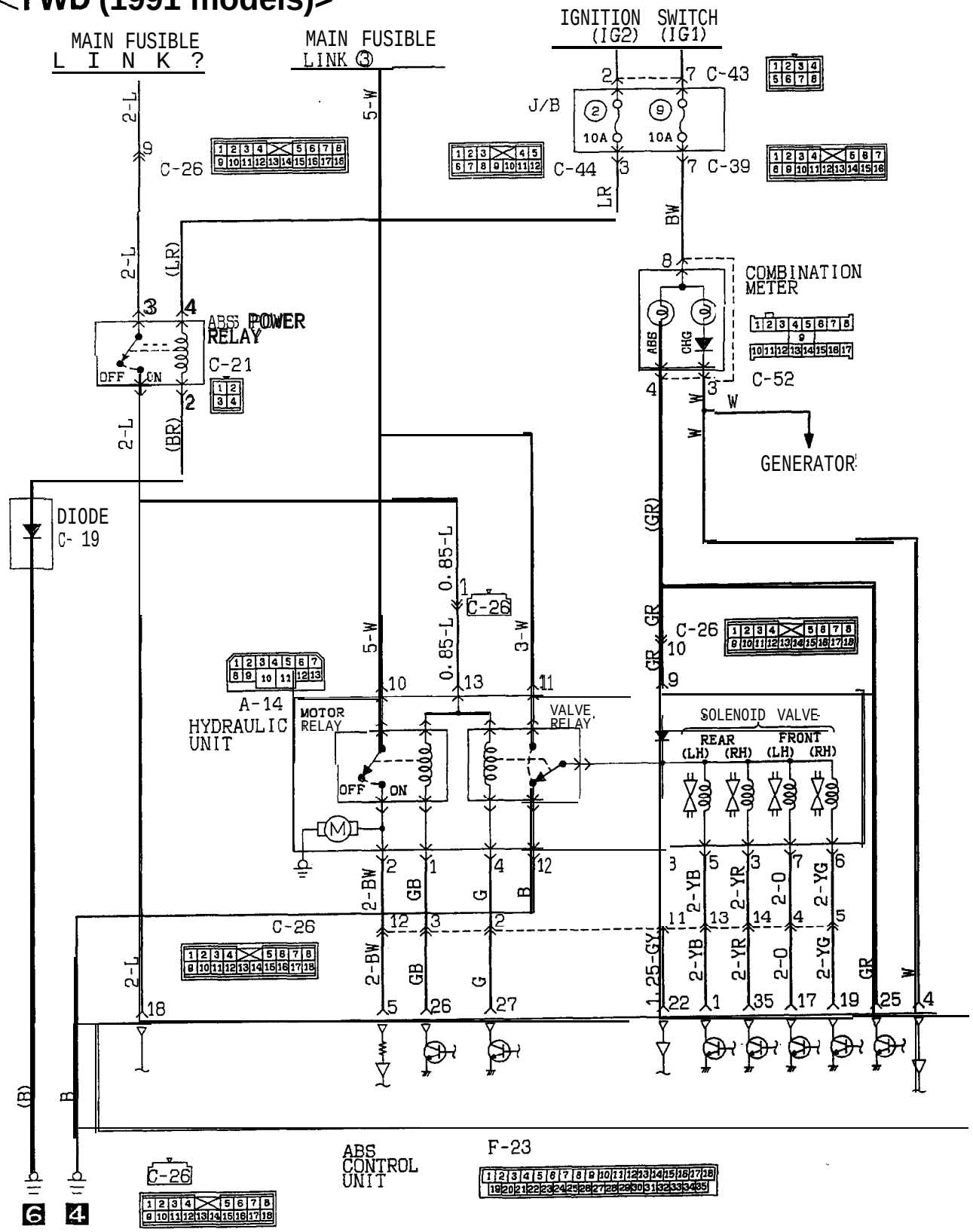
KX35-AC-H1529-NM

TSB **Revision**



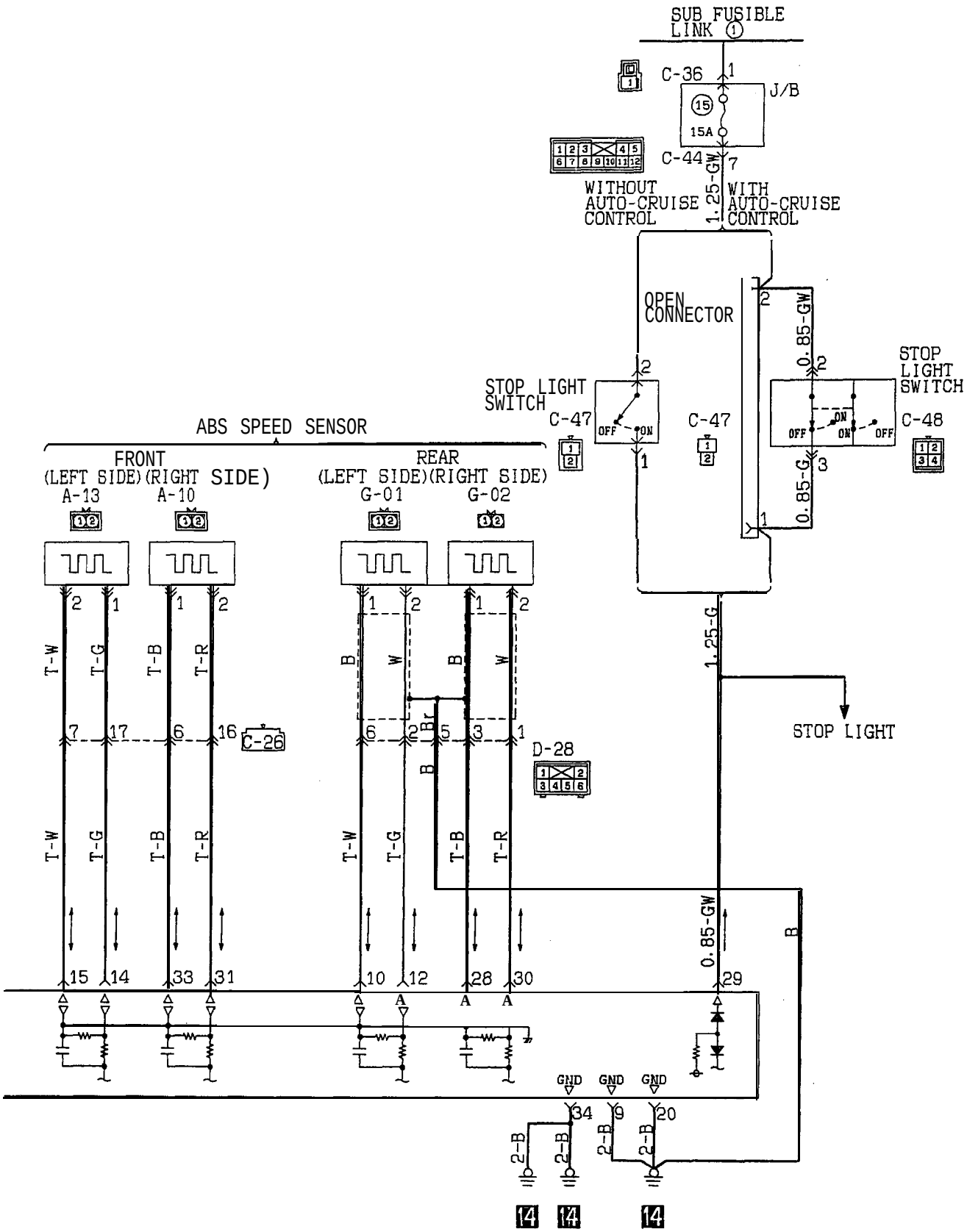
TSB Revision

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <FWD (1991 models)>



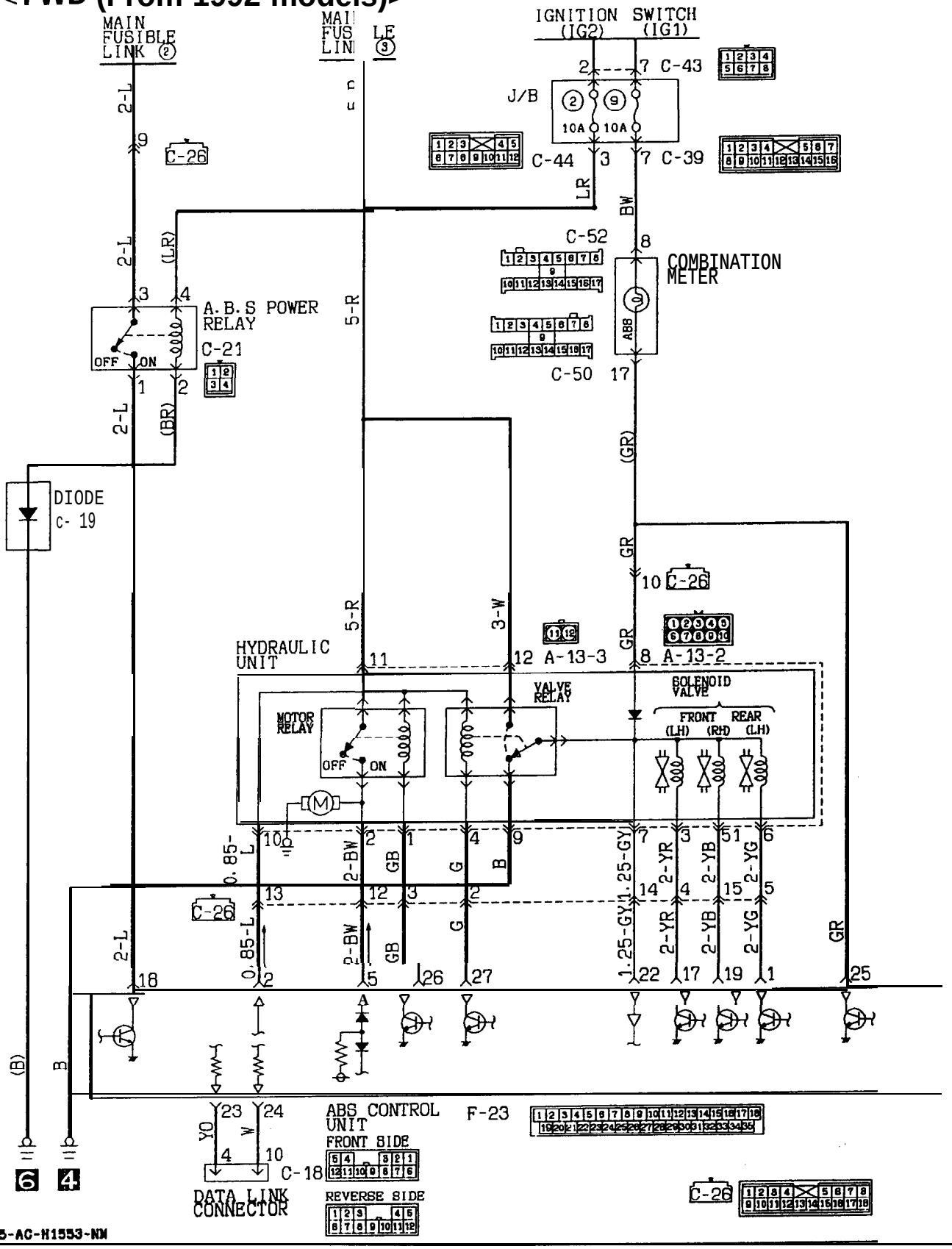
CX35-AC-H1548-NN

TSB Revision

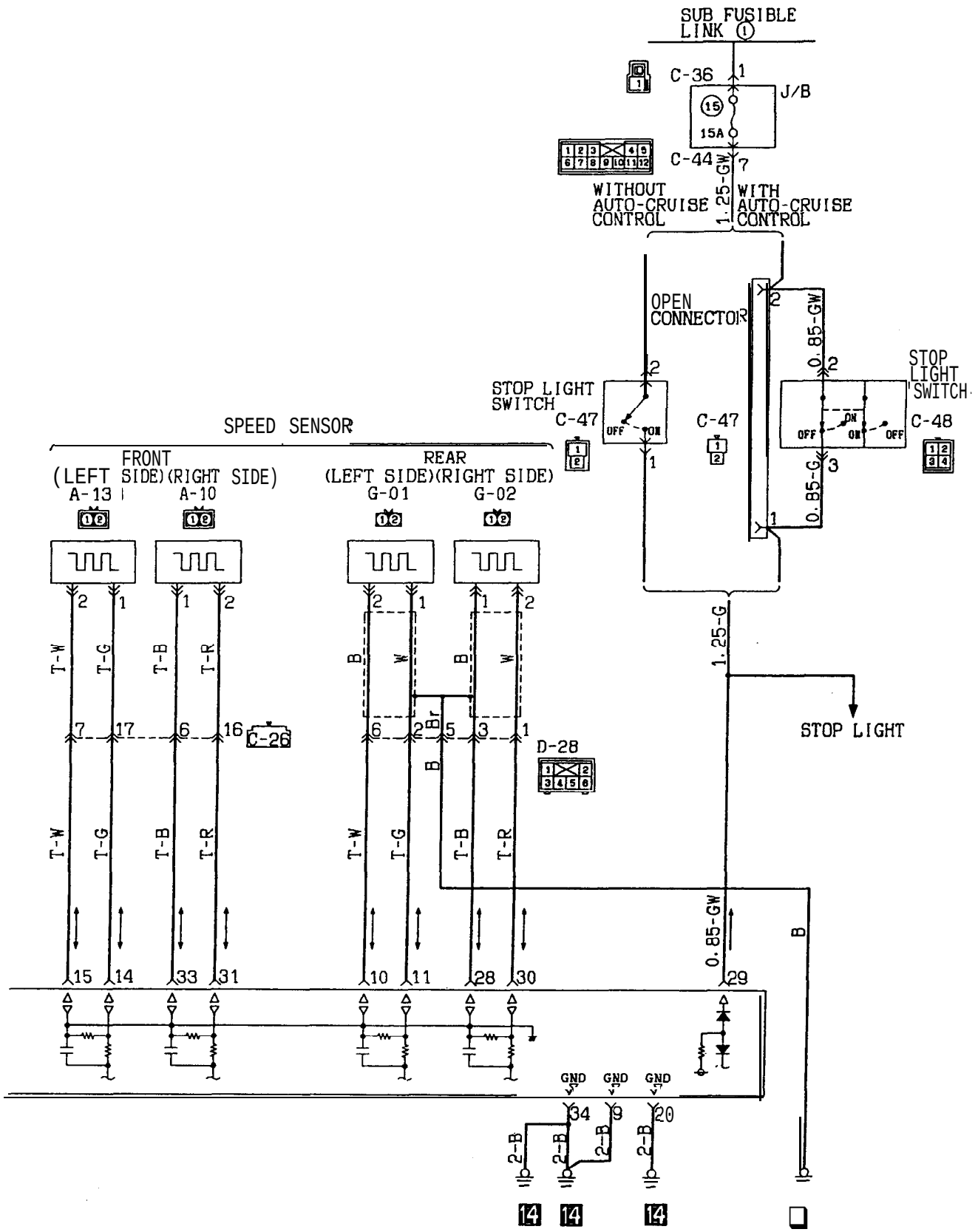


TSB Revision

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT
<FWD (From 1992 models)>

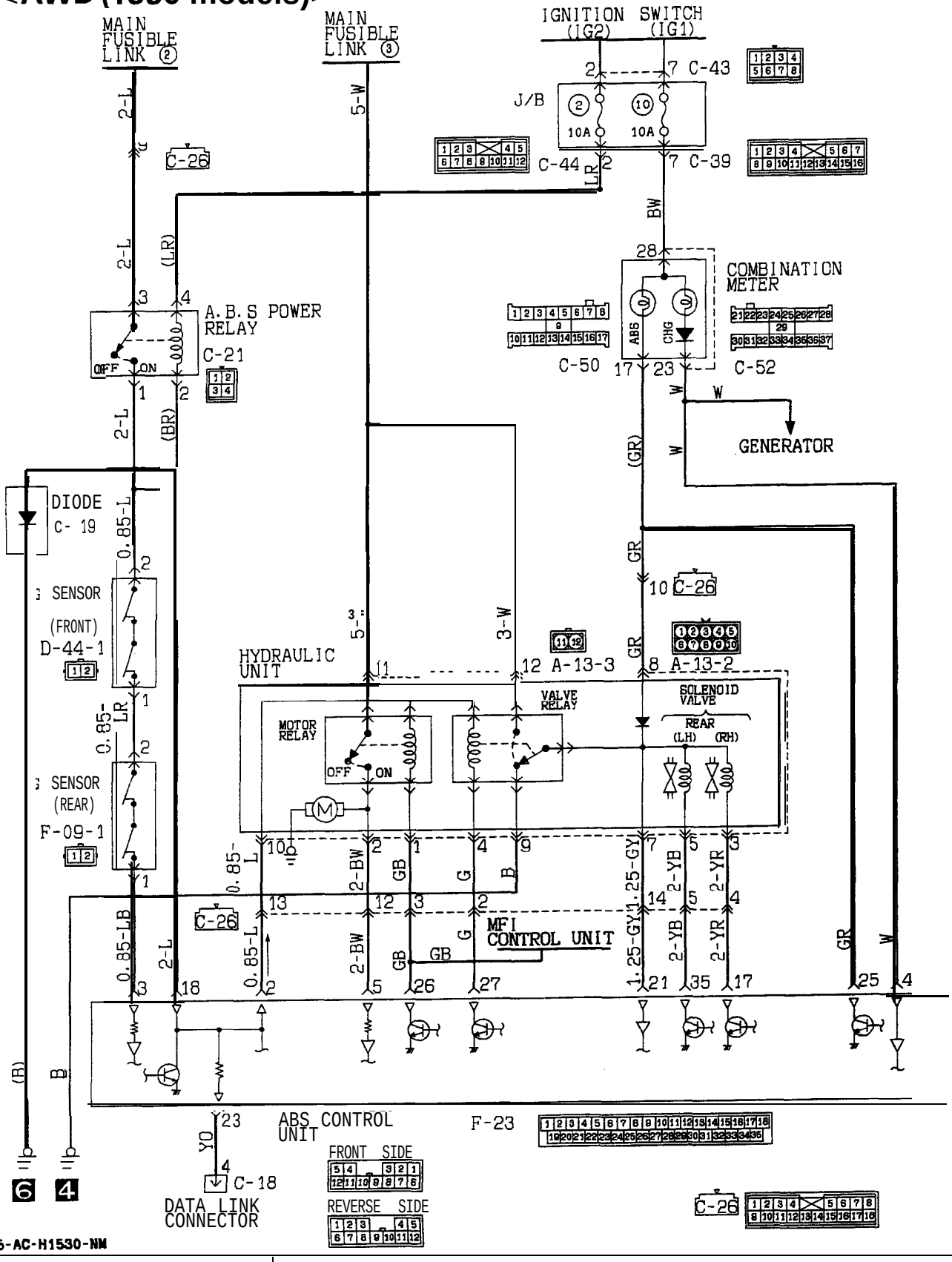


TSB Revision

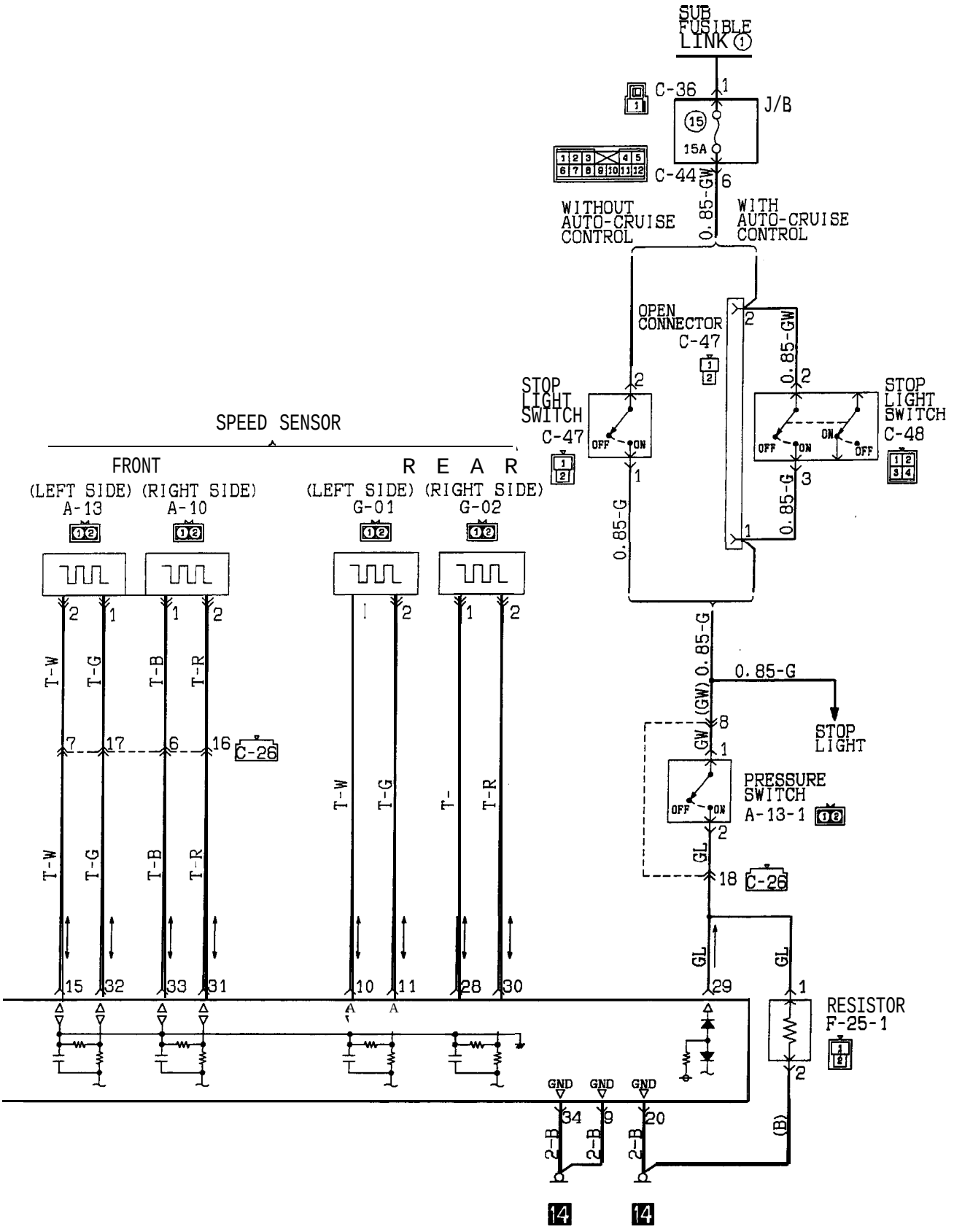


TSB Revision

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <AWD (1990 models)>

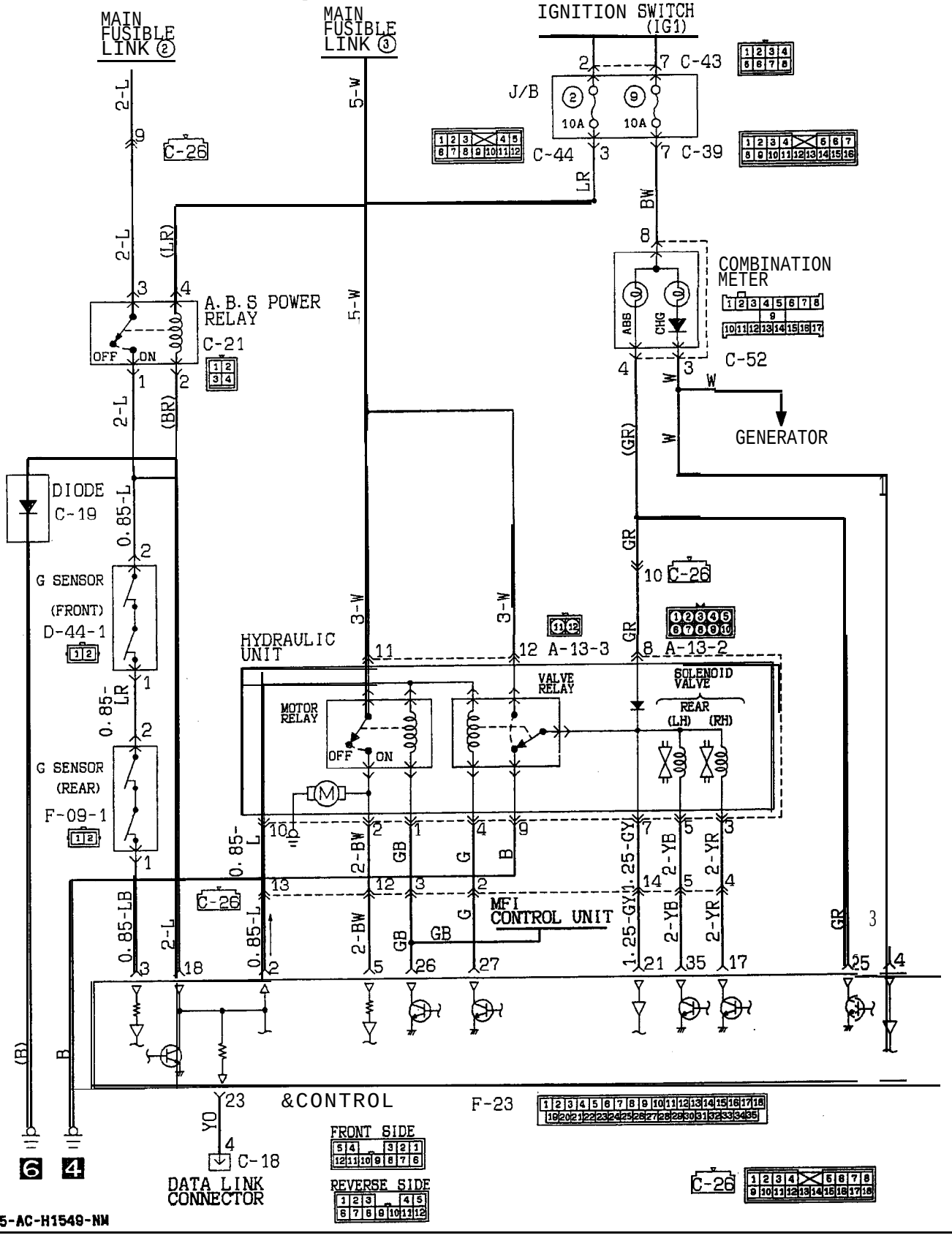


TSB Revision

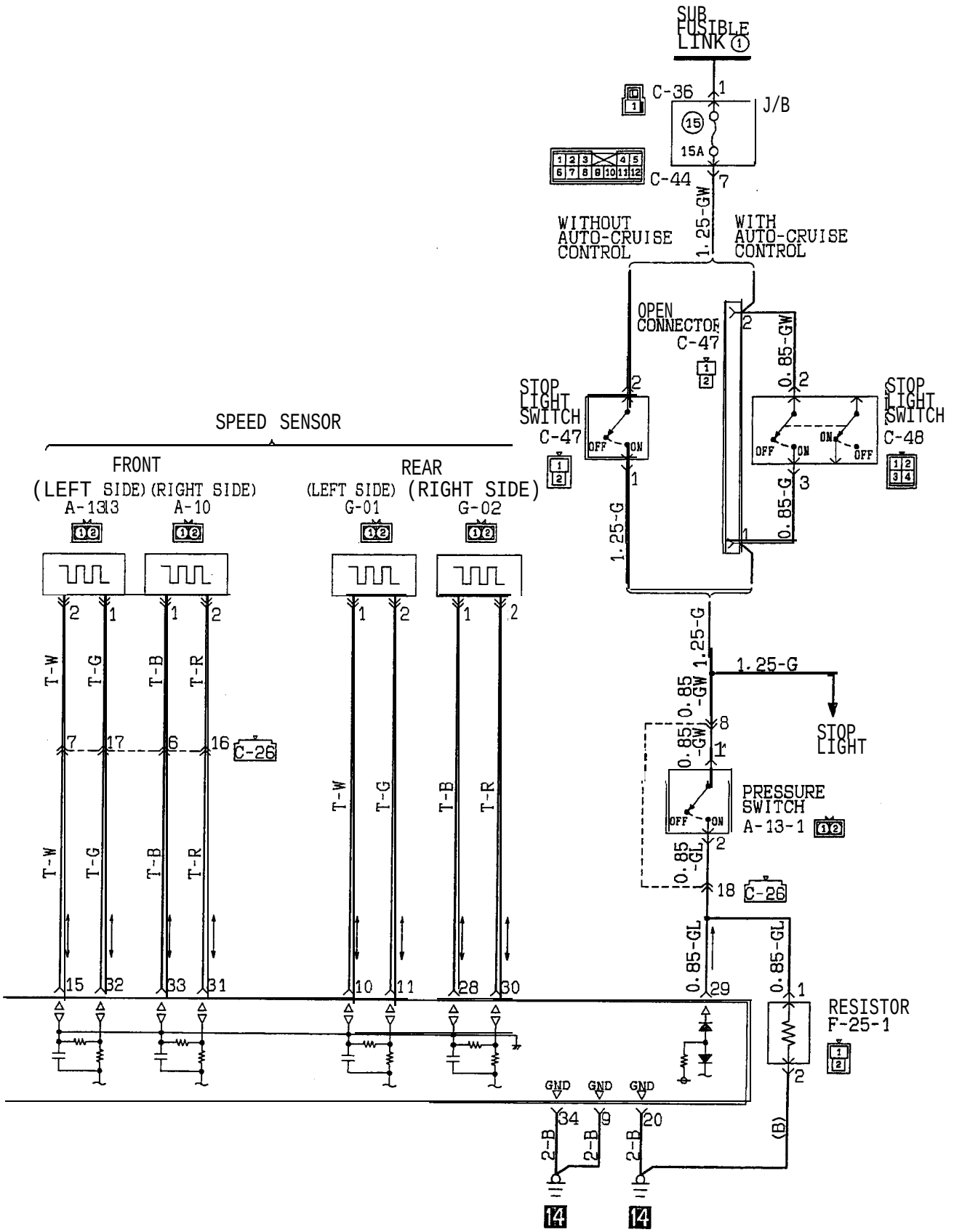


TSB Revision

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <AWD (1991 models)>

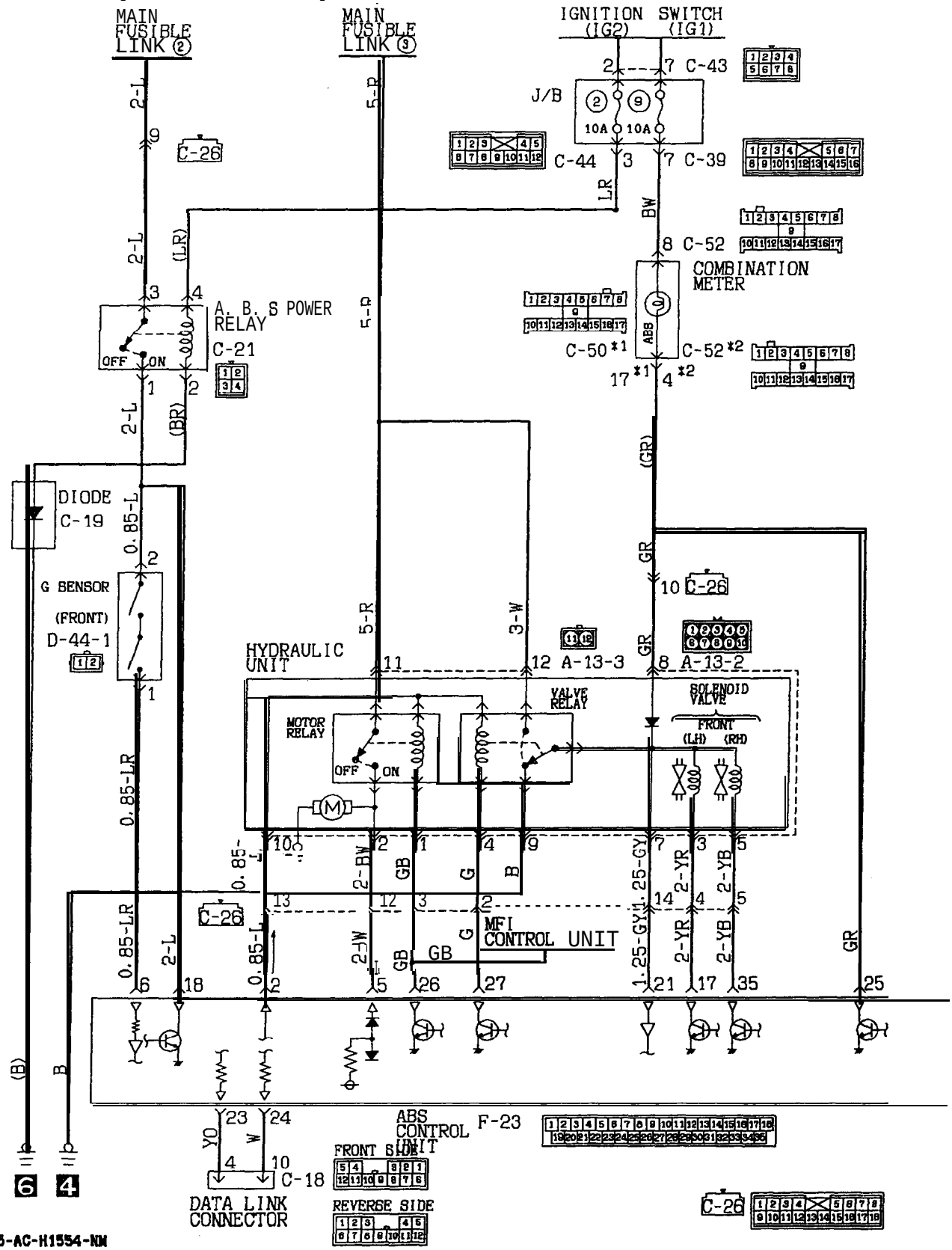


TSB Revision

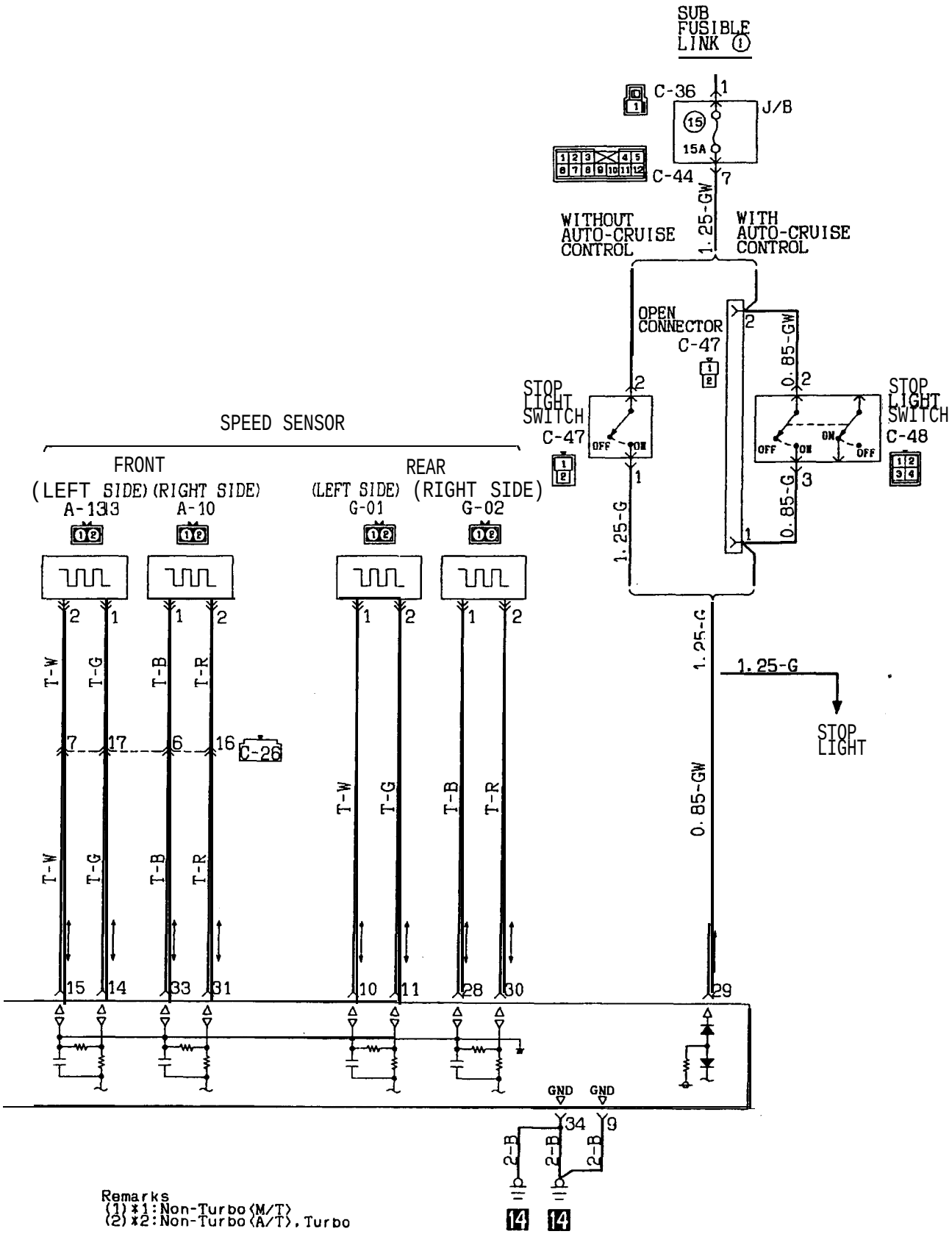


TSB Revision

ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT <AWD (1992 models)>



TSB Revision



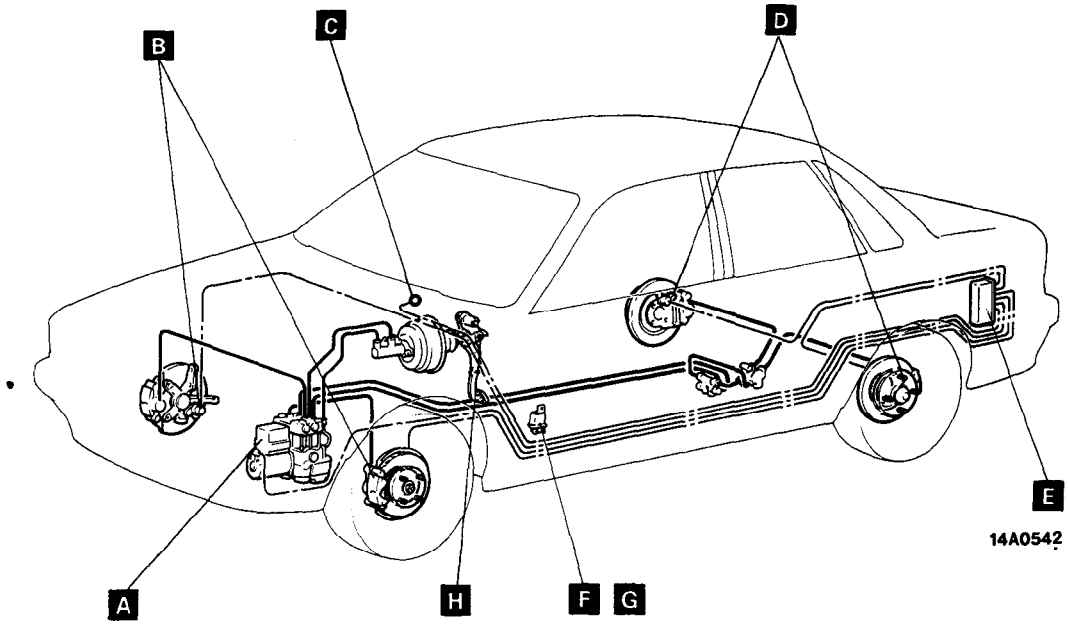
TSB **Revision**

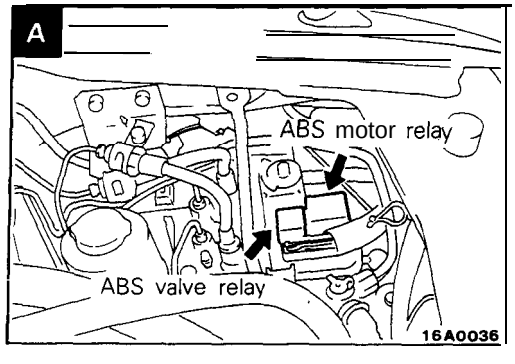
COMPONENT LOCATION

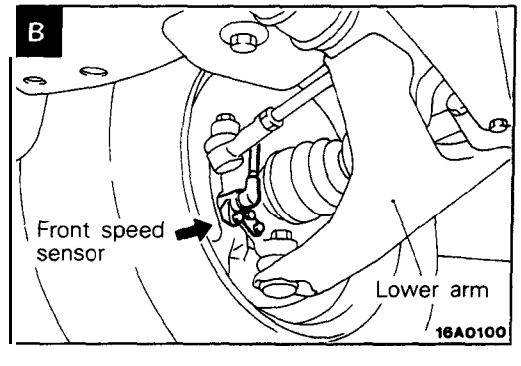
<FWD >

Name	Symbol	Name	Symbol
ABS control unit	E	Diode	G
ABS motor relay	A	Front speed sensor	B
ABS power relay	F	Rear speed sensor	D
ABS valve relay	A	Stop light switch	H
ABS warning light	C		

NOTE
The "name" column is arranged in alphabetical order.

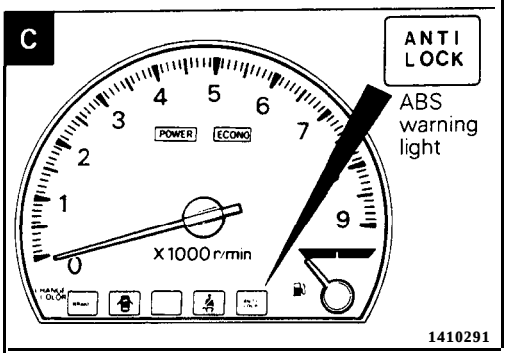




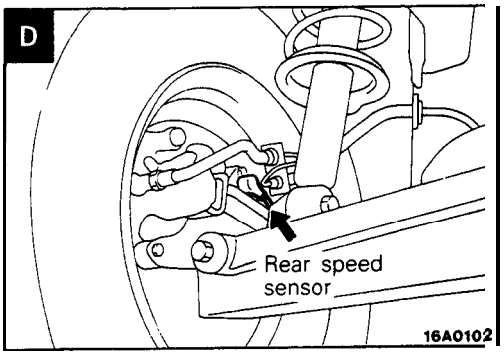


TSB Revision

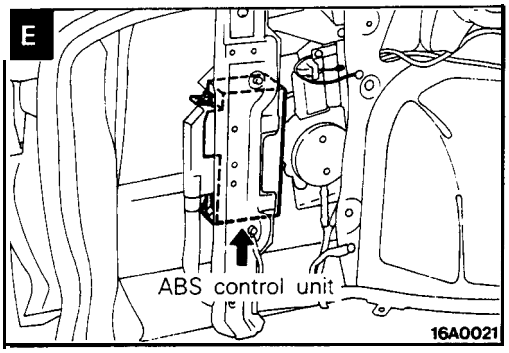
C


ANTI LOCK
ABS warning light
POWER
ECONO
X1000 r/min
1410291

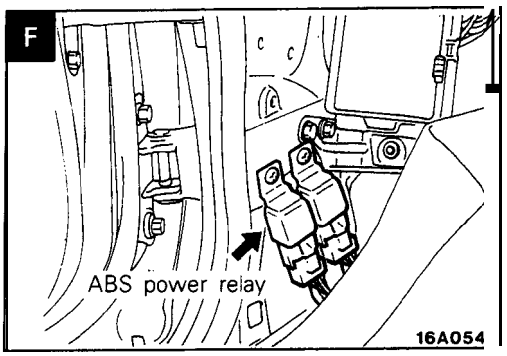
D


Rear speed sensor
16A0102

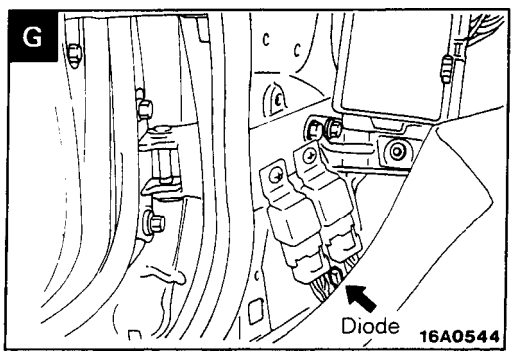
E


ABS control unit
16A0021

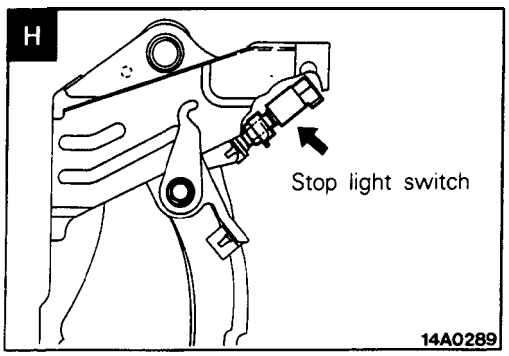
F


ABS power relay
16A054

G

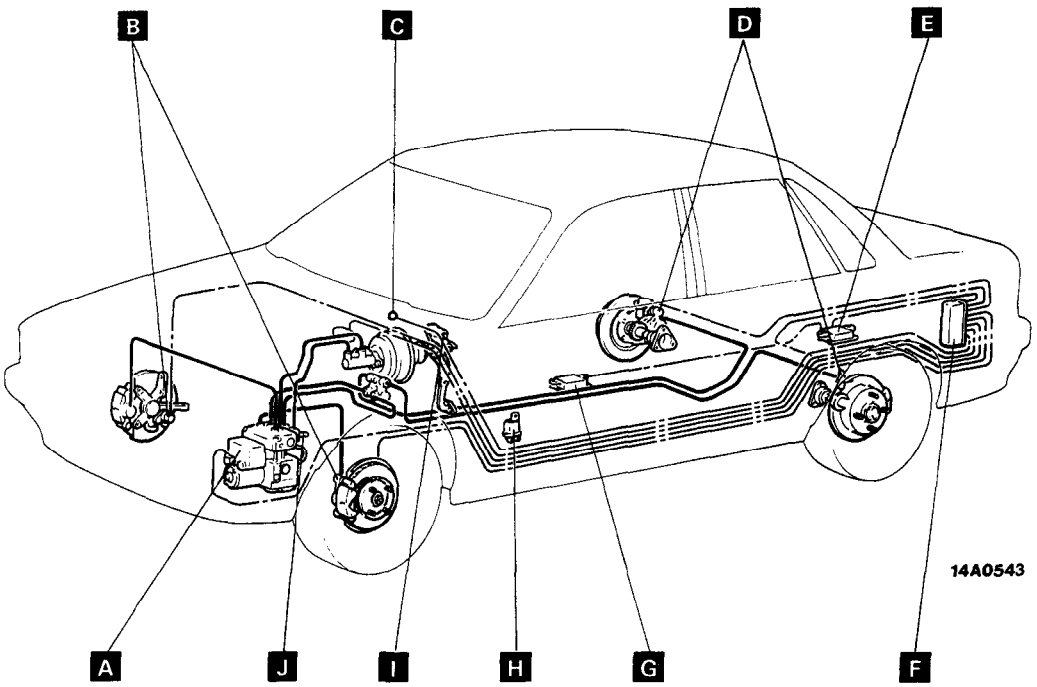

Diode
16A0544

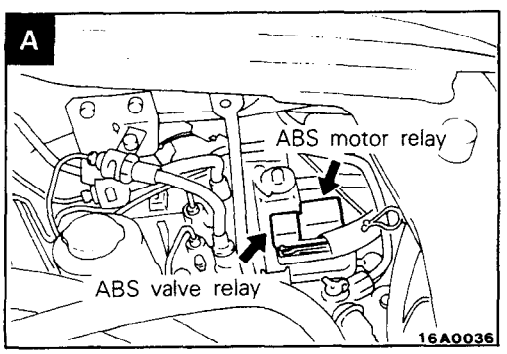
H

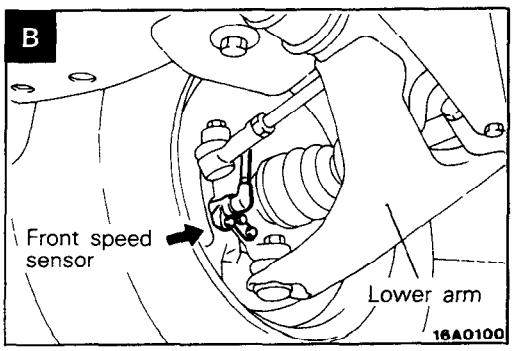

Stop light switch
14A0289

<AWD >

Name	Symbol	Name	Symbol
ABS control unit	F	Diode	H
ABS motor relay	A	Front speed sensor	B
ABS power relay	H	G-sensor (front)	G
ABS valve relay	A	G-sensor (rear)	E
ABS warning light	C	Rear speed sensor	D
Brake fluid pressure switch	J	Stop light switch	I

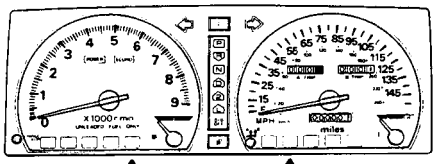






TSB Revision

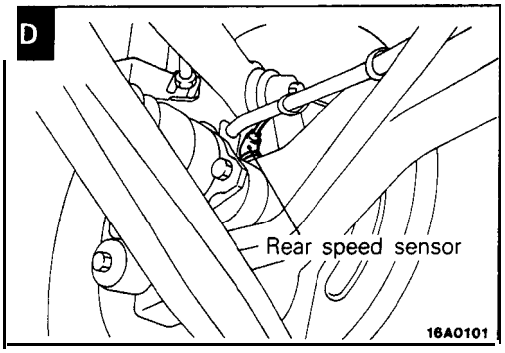
C



Non-Turbo Turbo

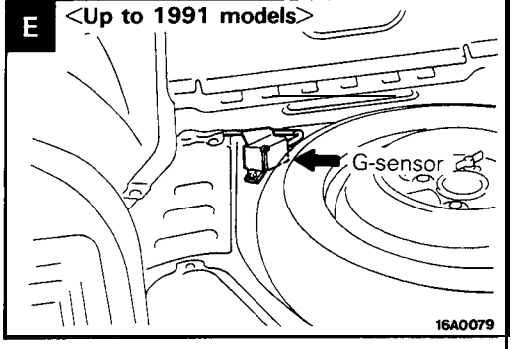
68A0093

D



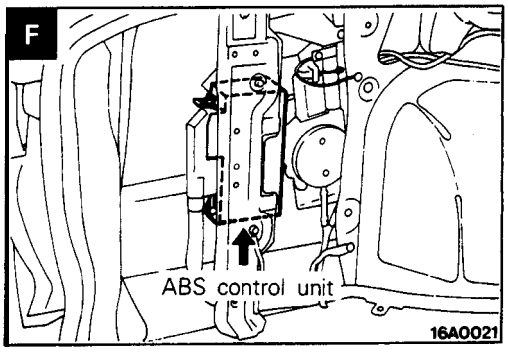
16A0101

E <Up to 1991 models>



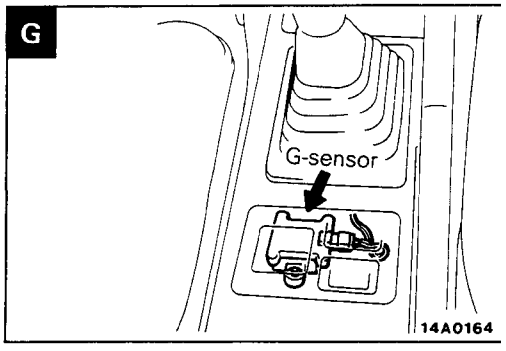
16A0079

F



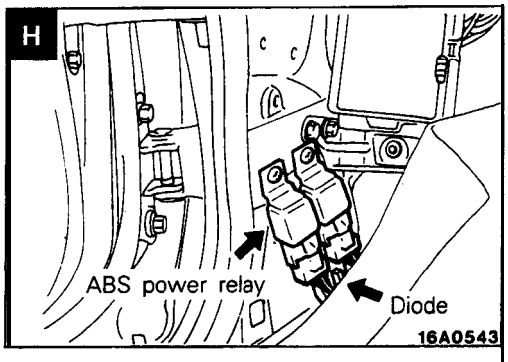
16A0021

G



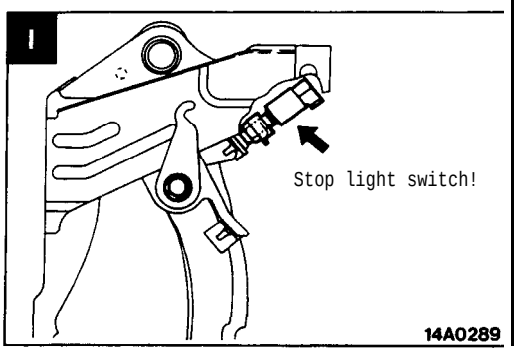
14A0164

H



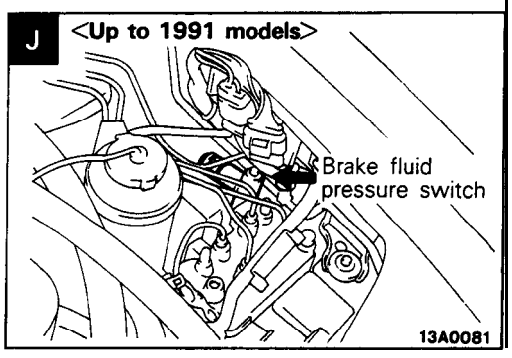
16A0543

I



14A0289

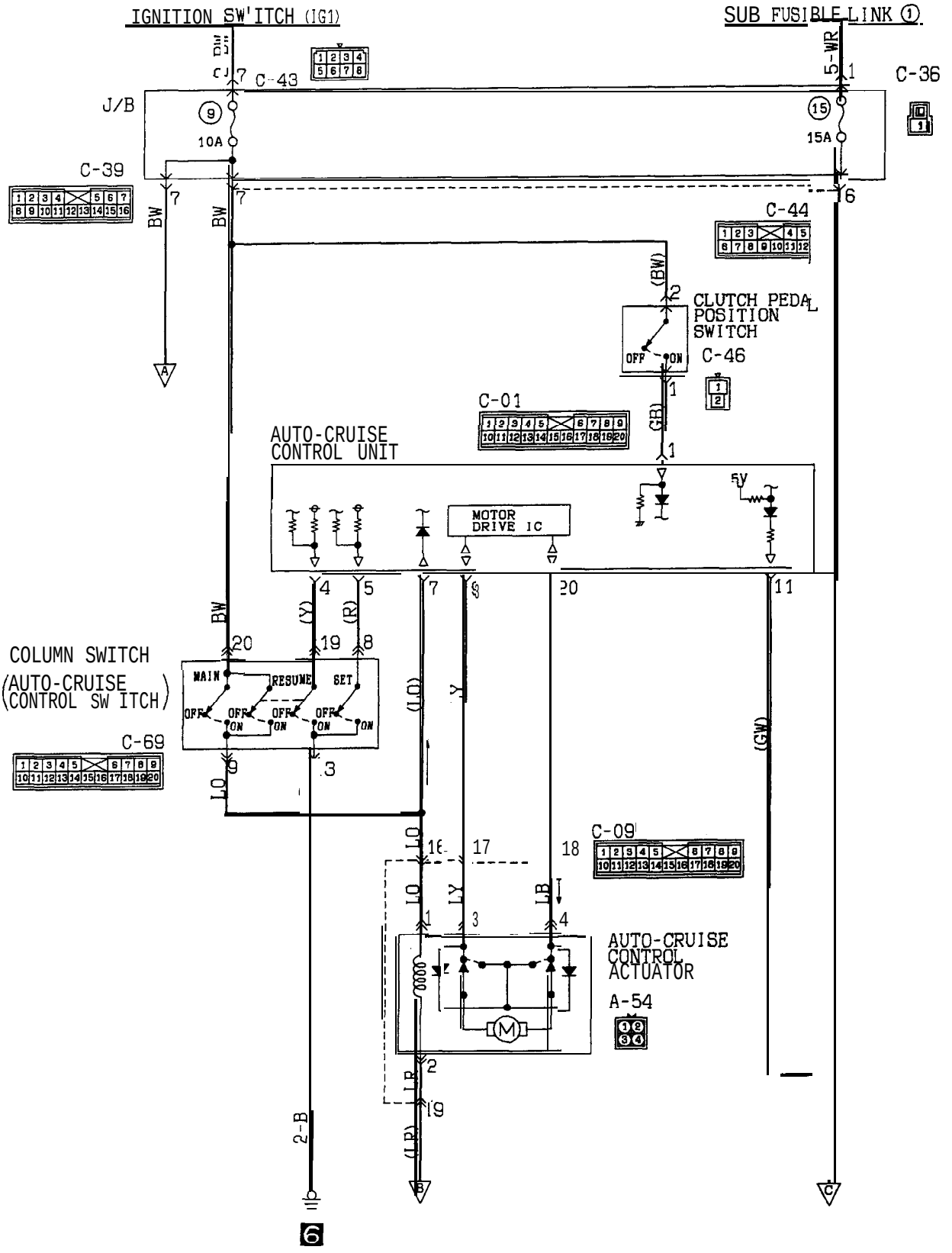
J <Up to 1991 models>



13A0081

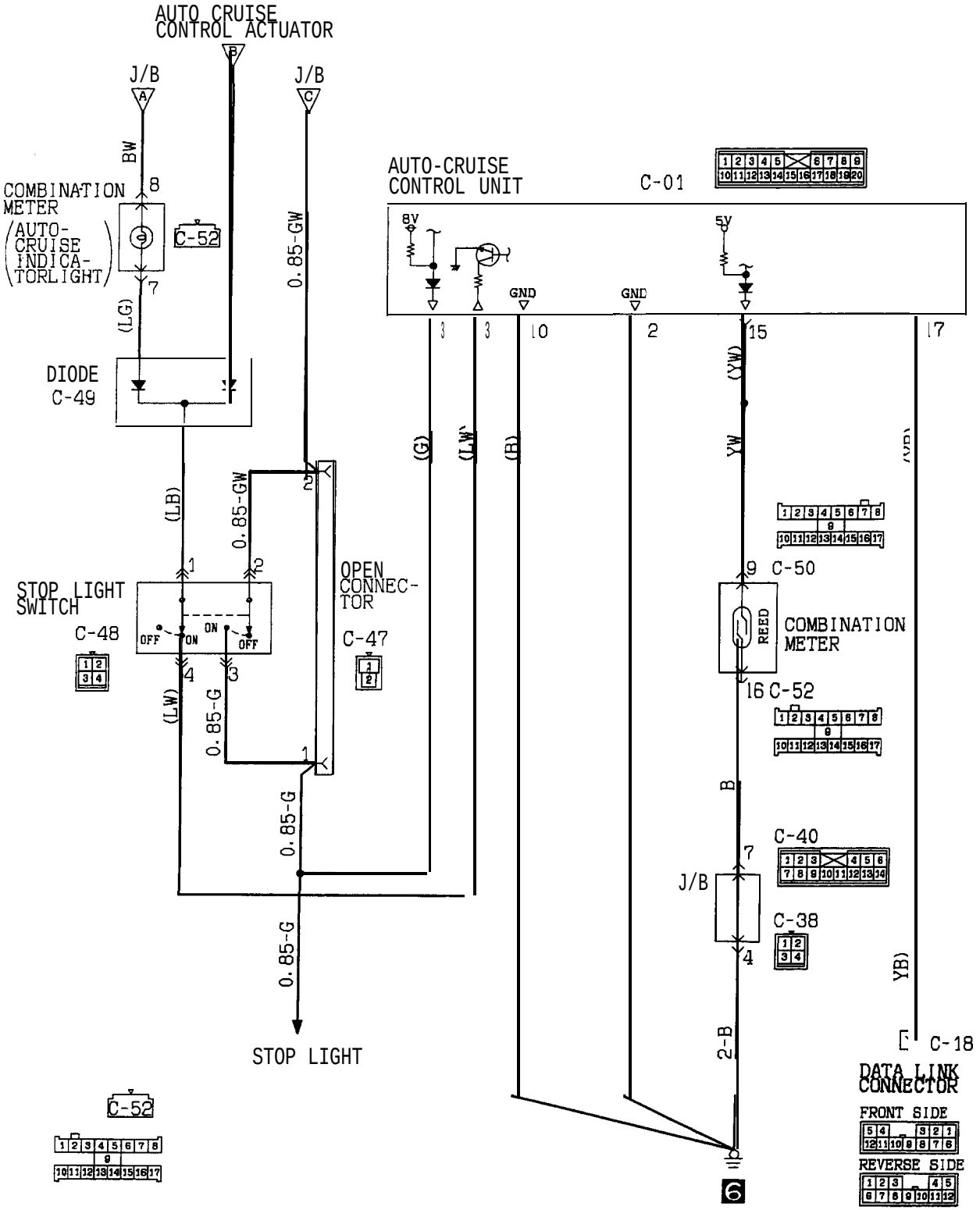
TSB Revision

AUTO-CRUISE CONTROL CIRCUIT
<M/T(1989 models)>

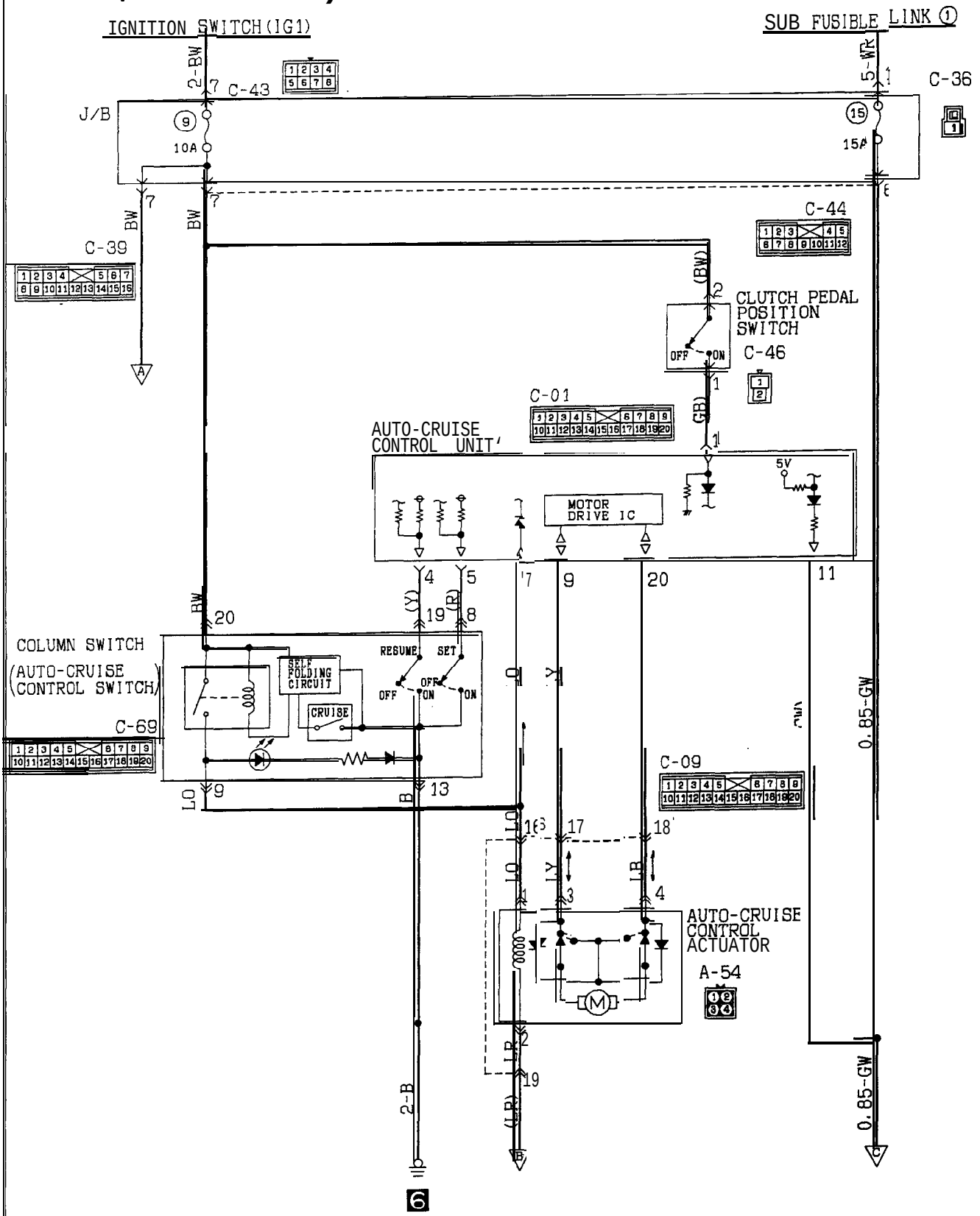


K35-AC-H1534-NM

TSB Revision

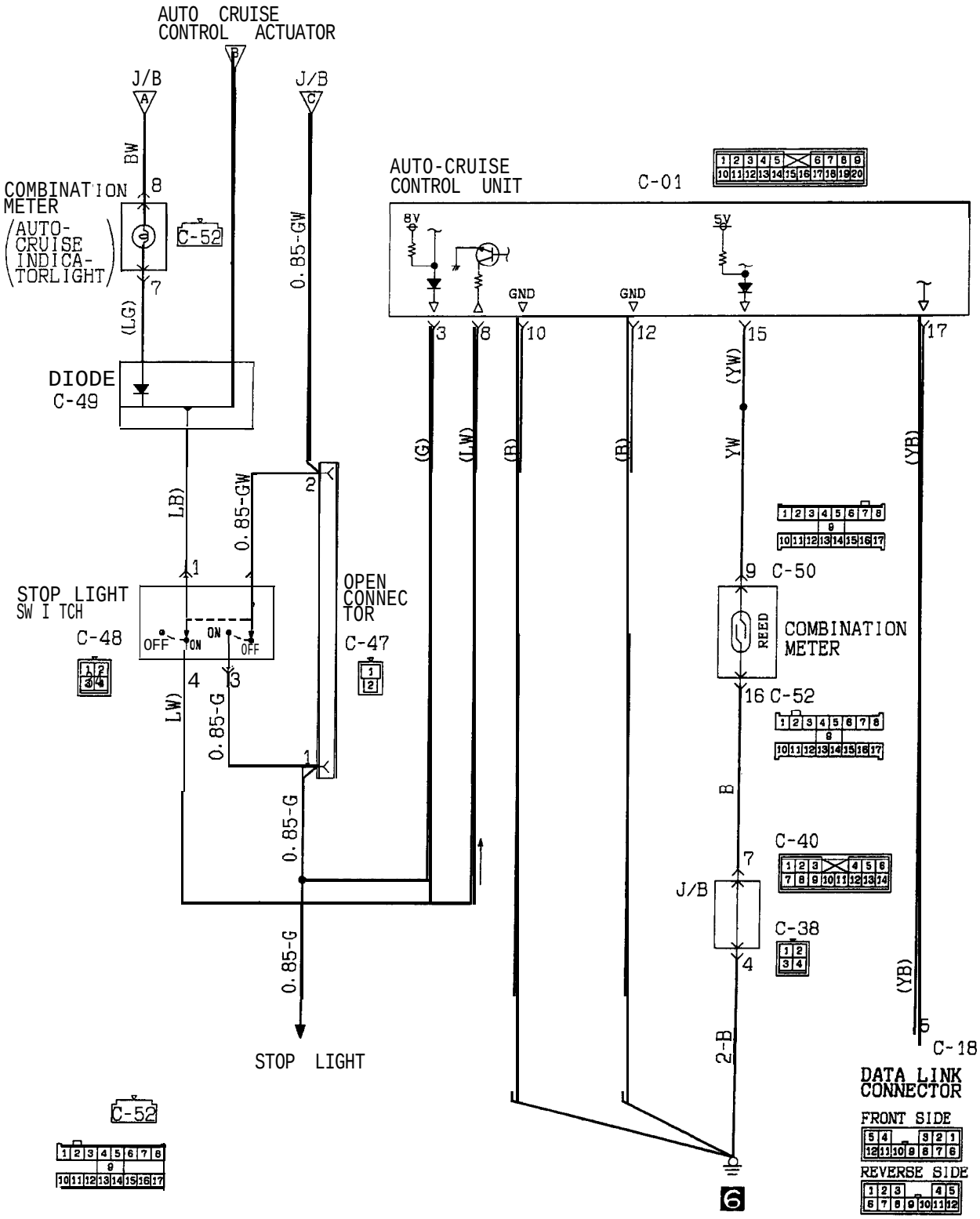

AUTO CRUISE CONTROL ACTUATOR
J/B
J/B
BW
COMBINATION METER
(AUTO-CRUISE INDICA-TORLIGHT)
C-52
(LG)
DIODE
C-49
0.85-GW
AUTO-CRUISE CONTROL UNIT
C-01
8V
5V
GND
GND
(G)
(LW)
(B)
(YW)
YW
(LB)
0.85-GW
STOP LIGHT SWITCH
C-48
OFF
ON
ON
OFF
OPEN CONNEC-TOR
C-47
(LW)
0.85-G
0.85-G
0.85-G
STOP LIGHT
C-50
REED
COMBINATION METER
C-52
B
C-40
J/B
C-38
YB)
2-B
C-18
DATA LINK CONNECTOR
FRONT SIDE
REVERSE SIDE
C-52
6

AUTO-CRUISE CONTROL CIRCUIT <M/T (1990 models)>



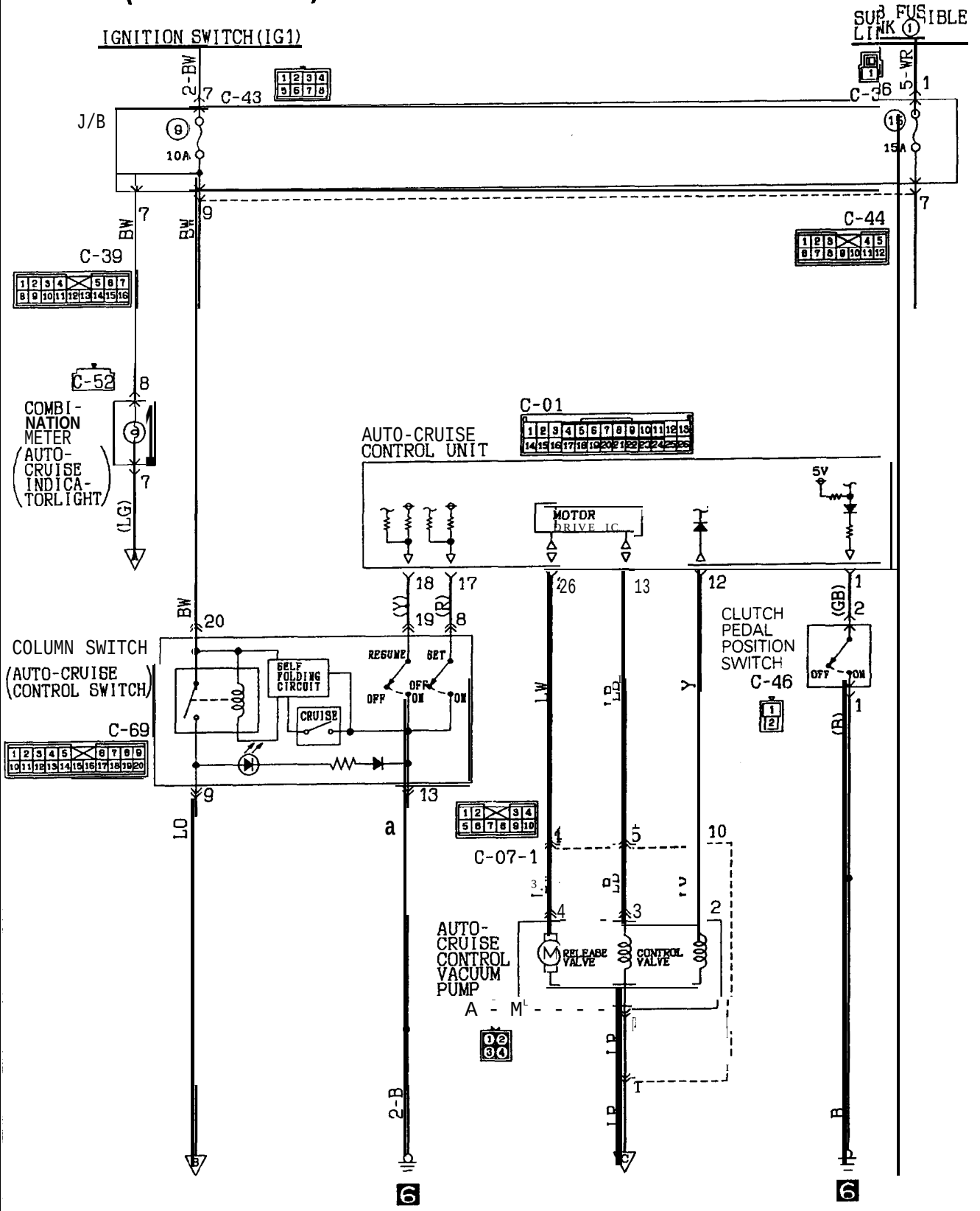
K35-AC-H1535-NM

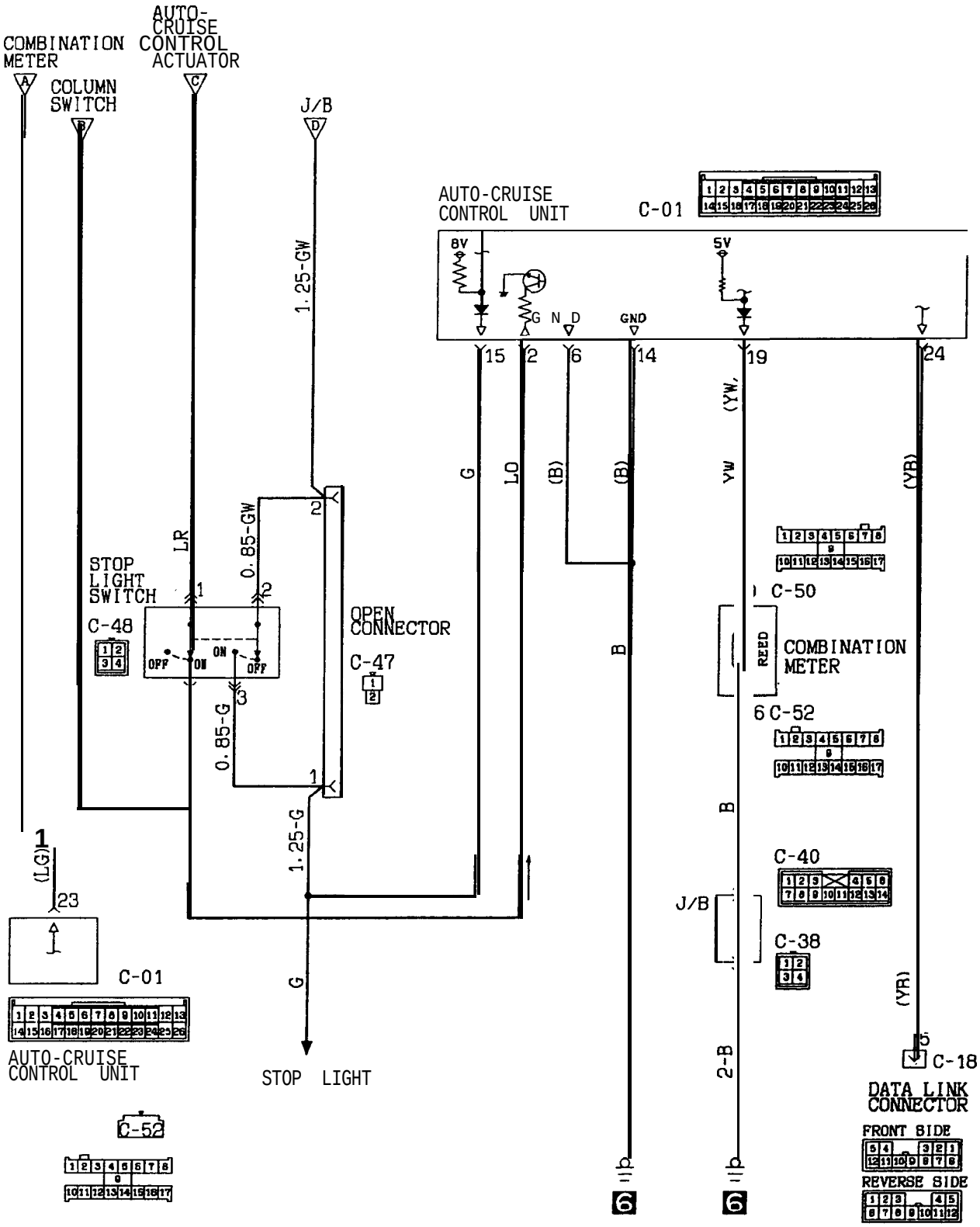
TSB Revision



TSB **Revision**

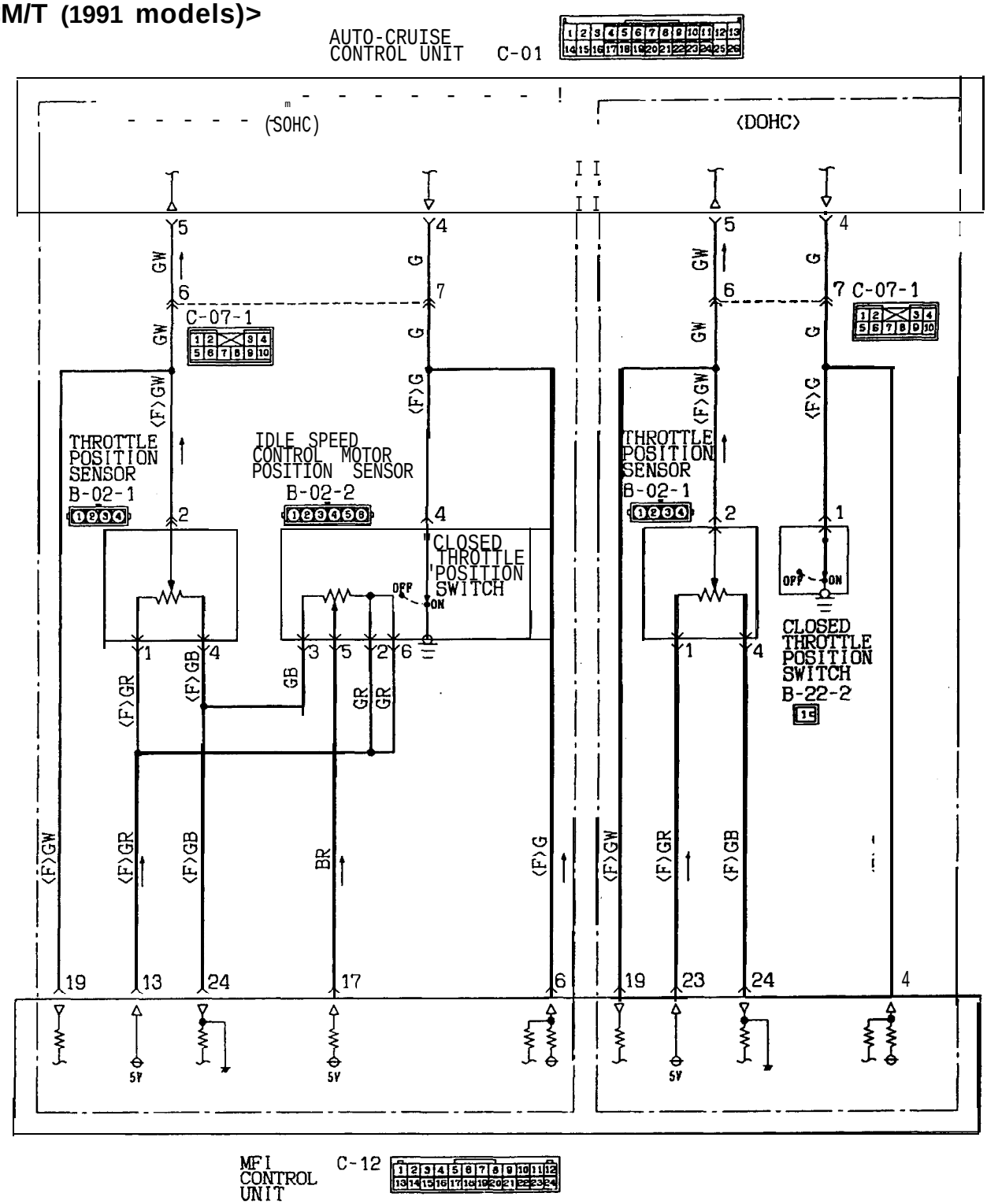
AUTO-CRUISE CONTROL CIRCUIT <M/T (1991 models)>




COMBINATION METER
AUTO-CRUISE CONTROL ACTUATOR
COLUMN SWITCH
J/B
AUTO-CRUISE CONTROL UNIT
C-01
8V
5V
G N D
GND
15
2
6
14
19
24
1.25-GW
G
LO
(B)
(B)
(YW)
YW
(YB)
LR
0.85-GW
STOP LIGHT SWITCH
C-48
OFF
ON
OFF
OPEN CONNECTOR
C-47
C-50
REED
COMBINATION METER
6 C-52
0.85-G
1.25-G
B
B
C-40
J/B
C-38
(LG)
23
C-01
AUTO-CRUISE CONTROL UNIT
G
STOP LIGHT
2-B
(YR)
5
C-18
DATA LINK CONNECTOR
FRONT SIDE
REVERSE SIDE
C-52
6
6

AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

<M/T (1991 models)>

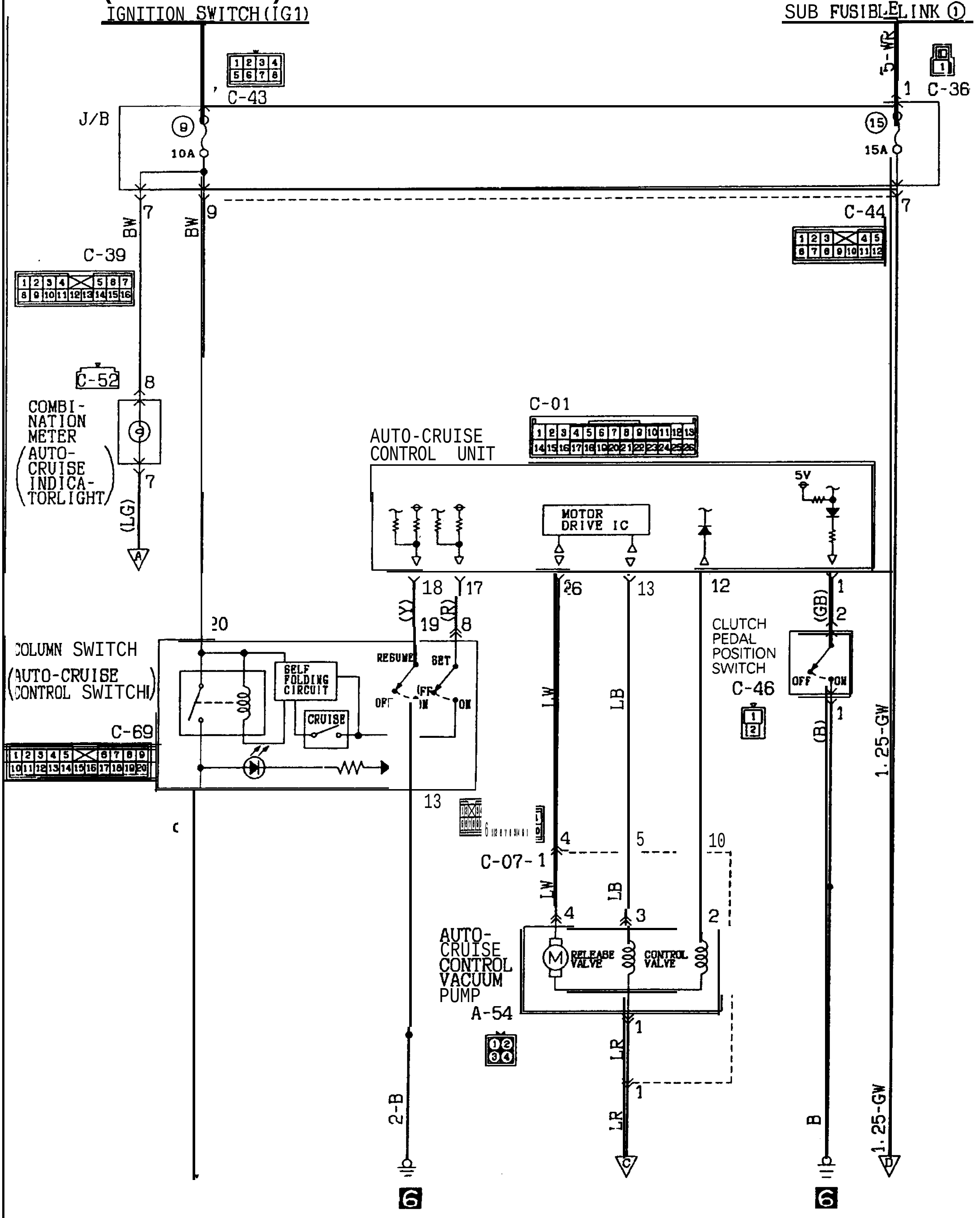


KX35-AC-H1555A-NM

TSB Revision

AUTO-CRUISE CONTROL CIRCUIT

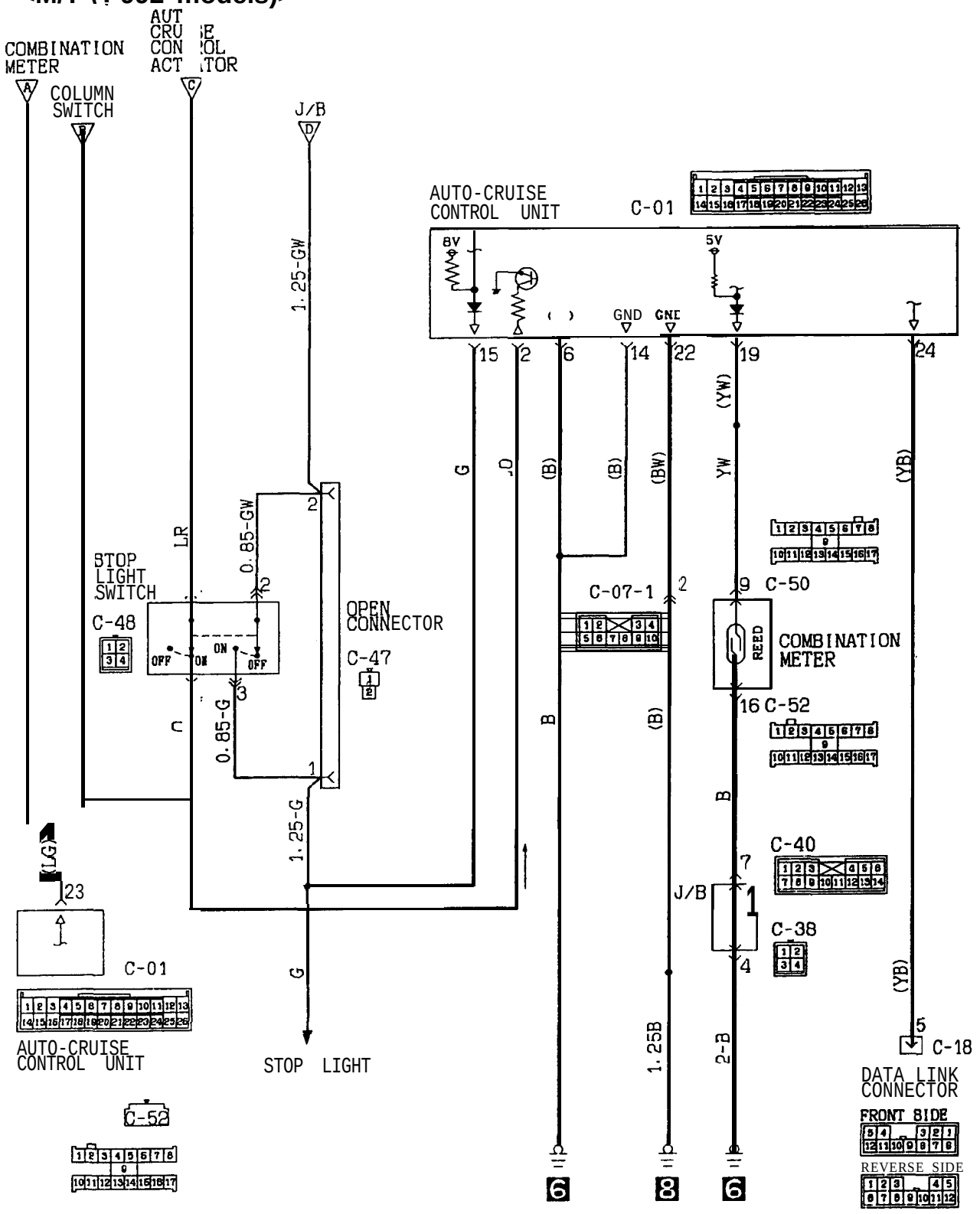
<M/T (1992 models)>

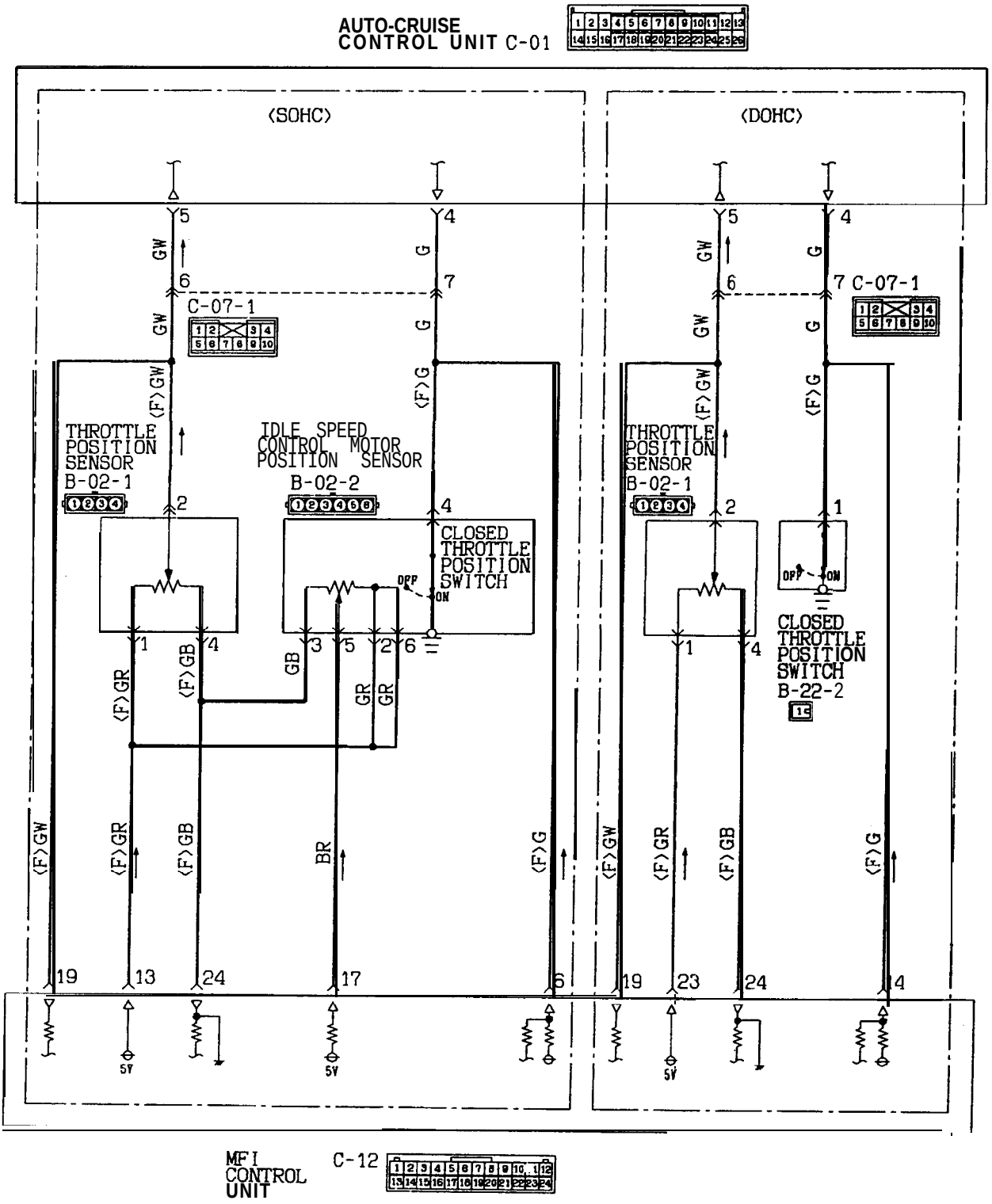


KX35-AC-H1558-NM

AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

<M/T (1 992 models)>

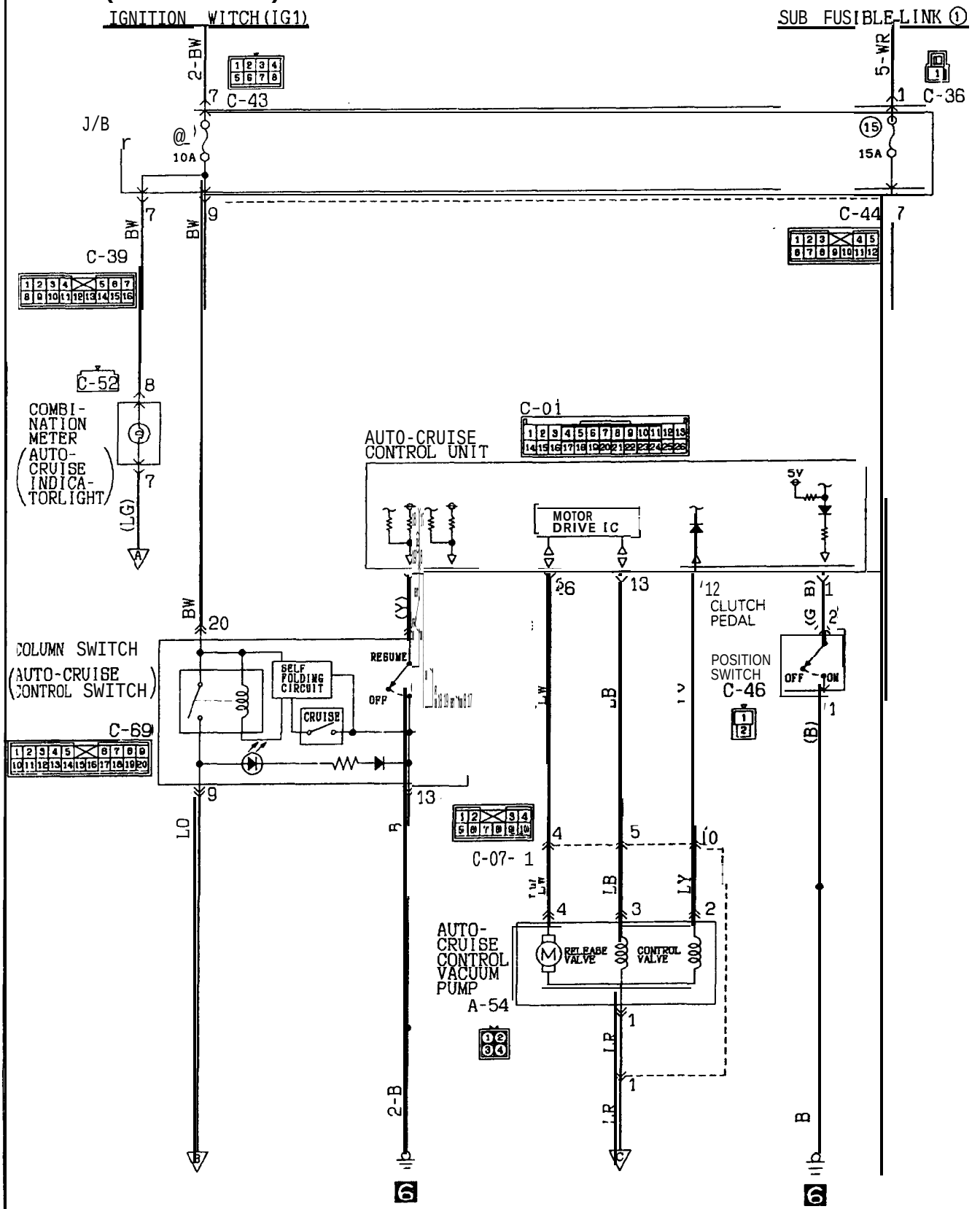




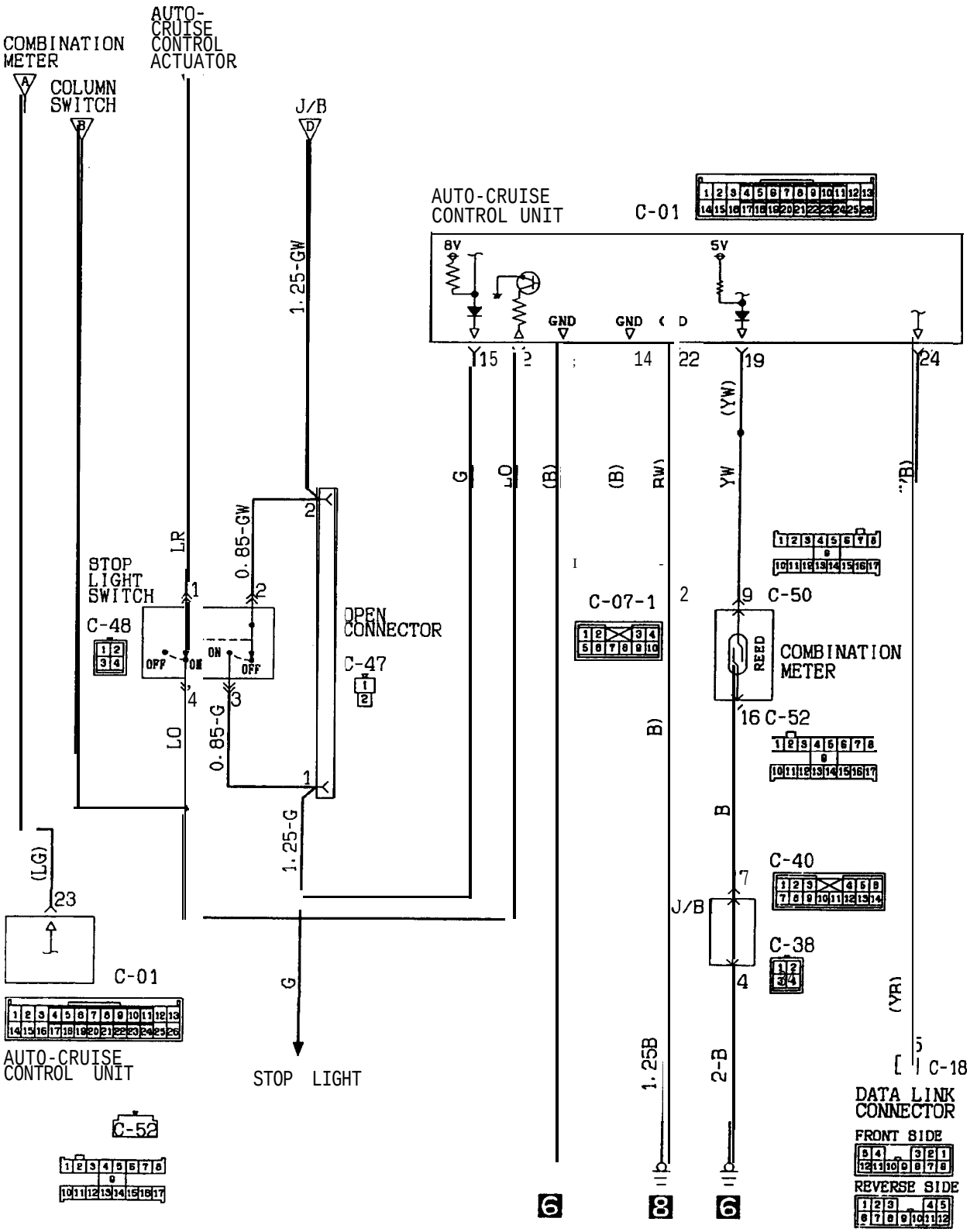
KX35-AC-H1558A-NM

AUTO-CRUISE CONTROL CIRCUIT

<M/T (1993 models)>

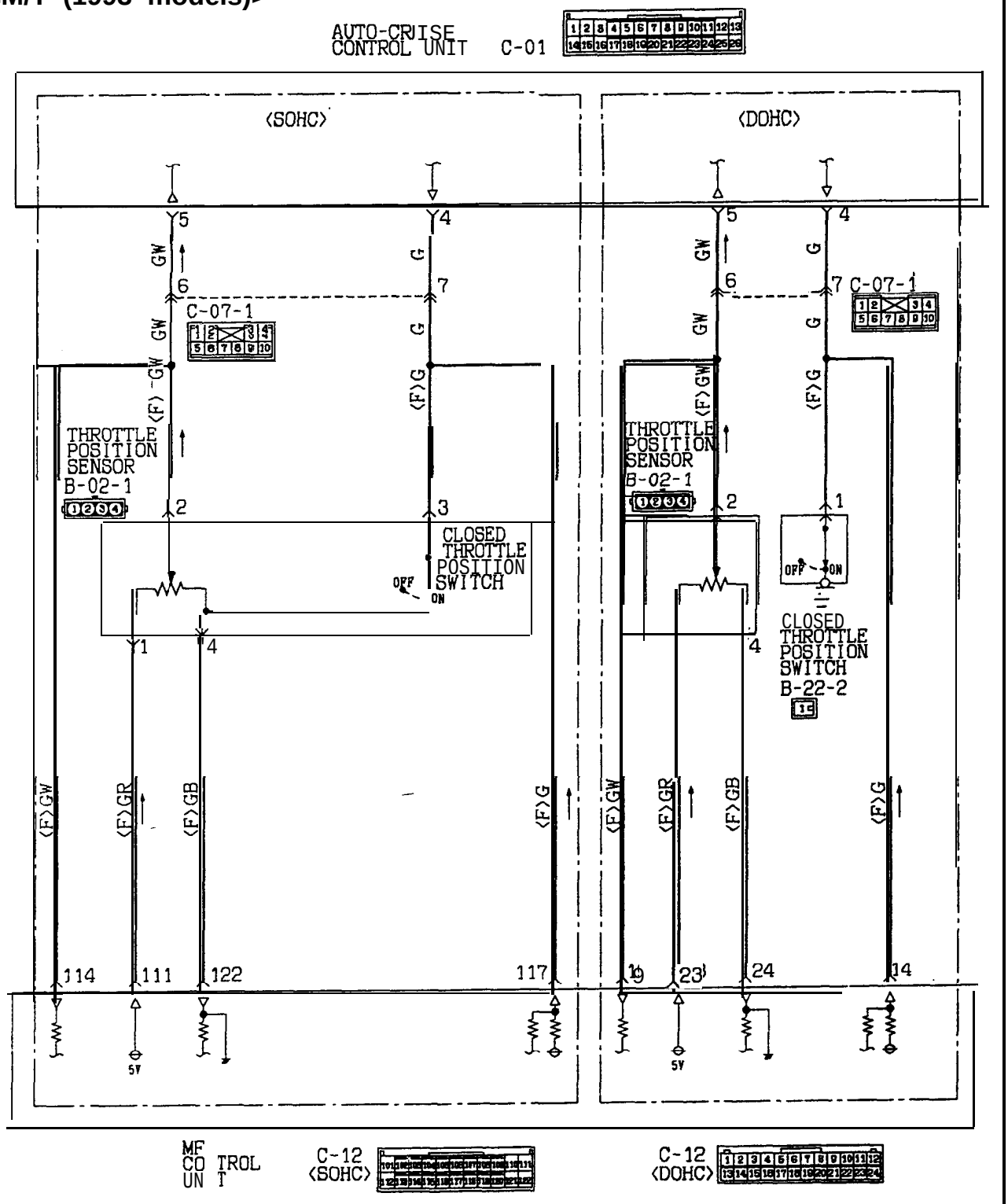


TSB **Revision**


COMBINATION METER
AUTO-CRUISE CONTROL ACTUATOR
COLUMN SWITCH
J/B
AUTO-CRUISE CONTROL UNIT
C-01
8V
5V
GND
GND
1.25-GW
STOP LIGHT SWITCH
C-48
LR
0.85-GW
OPEN CONNECTOR
C-47
LO
0.85-G
1.25-G
G
LO
(B)
(B)
RW)
YW
(YW)
"B)
C-07-1
C-50
REED
COMBINATION METER
C-52
B
C-40
J/B
C-38
(LG)
23
C-01
AUTO-CRUISE CONTROL UNIT
STOP LIGHT
C-52
B)
1.25B
2-B
(YR)
C-18
DATA LINK CONNECTOR
FRONT SIDE
REVERSE SIDE

AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

<M/T (1993 models)>



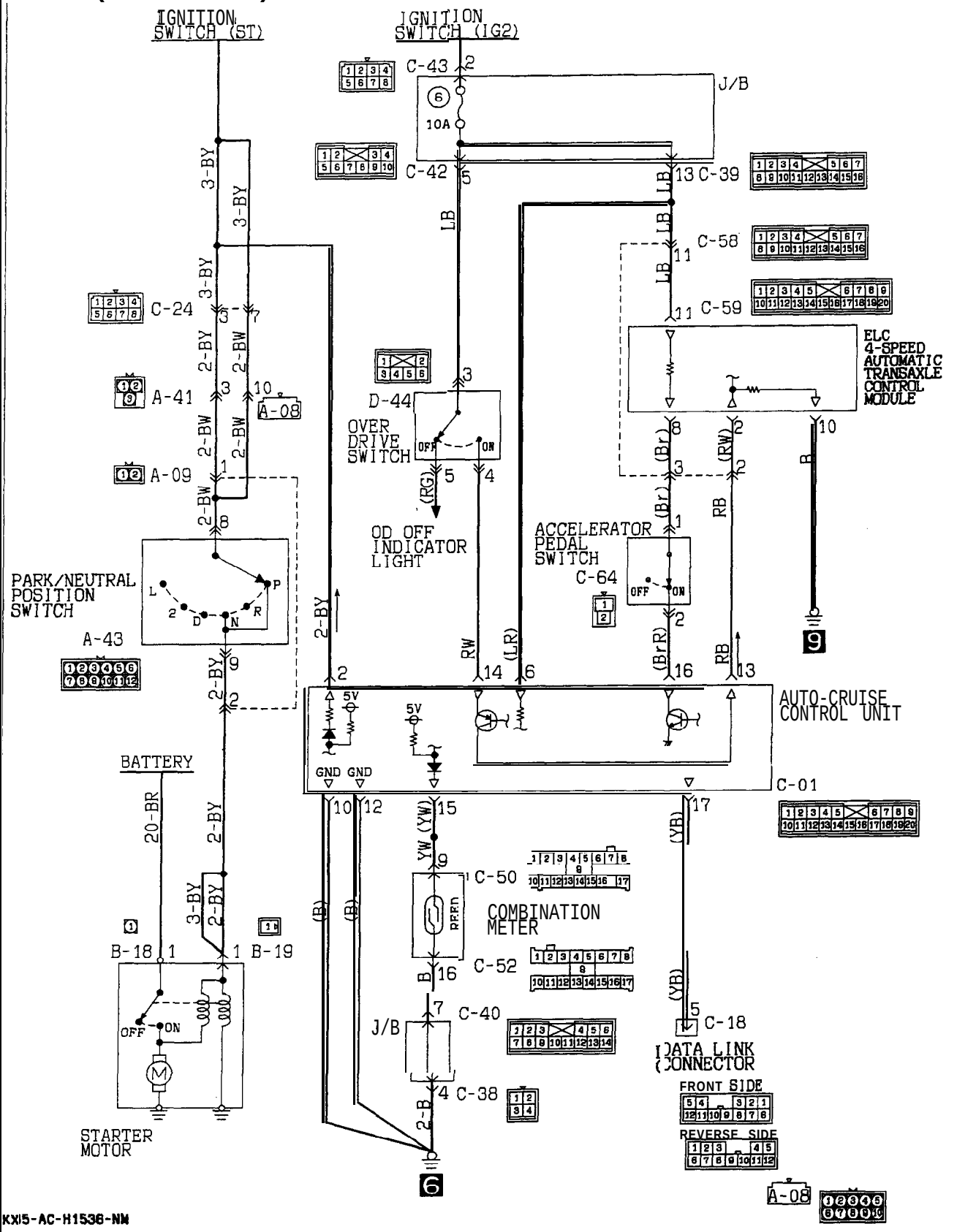
XX35-AC-H1561A-NM

TSB Revision

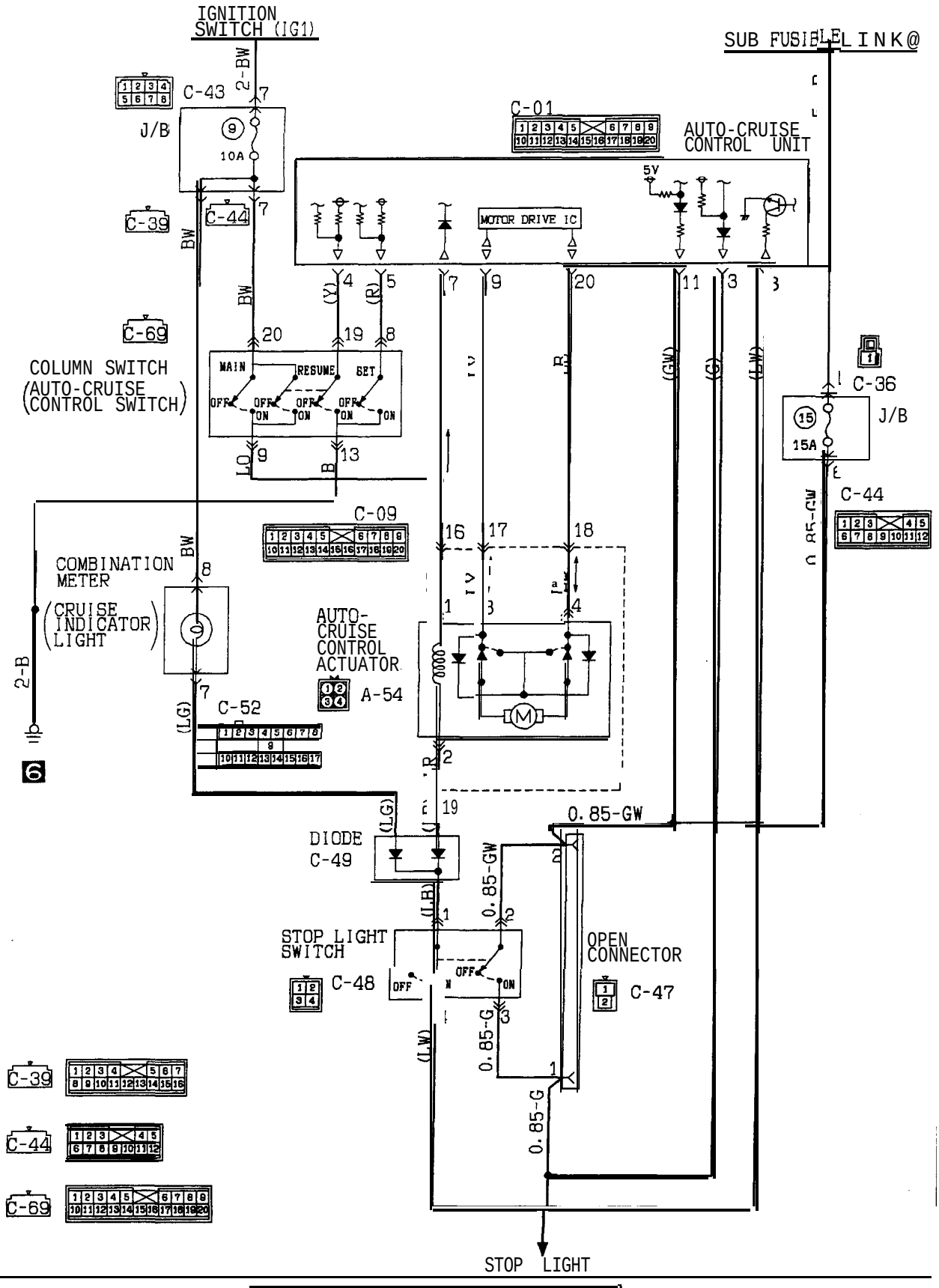
NOTES

AUTO-CRUISE CONTROL CIRCUIT

<A/T (1989 models)>



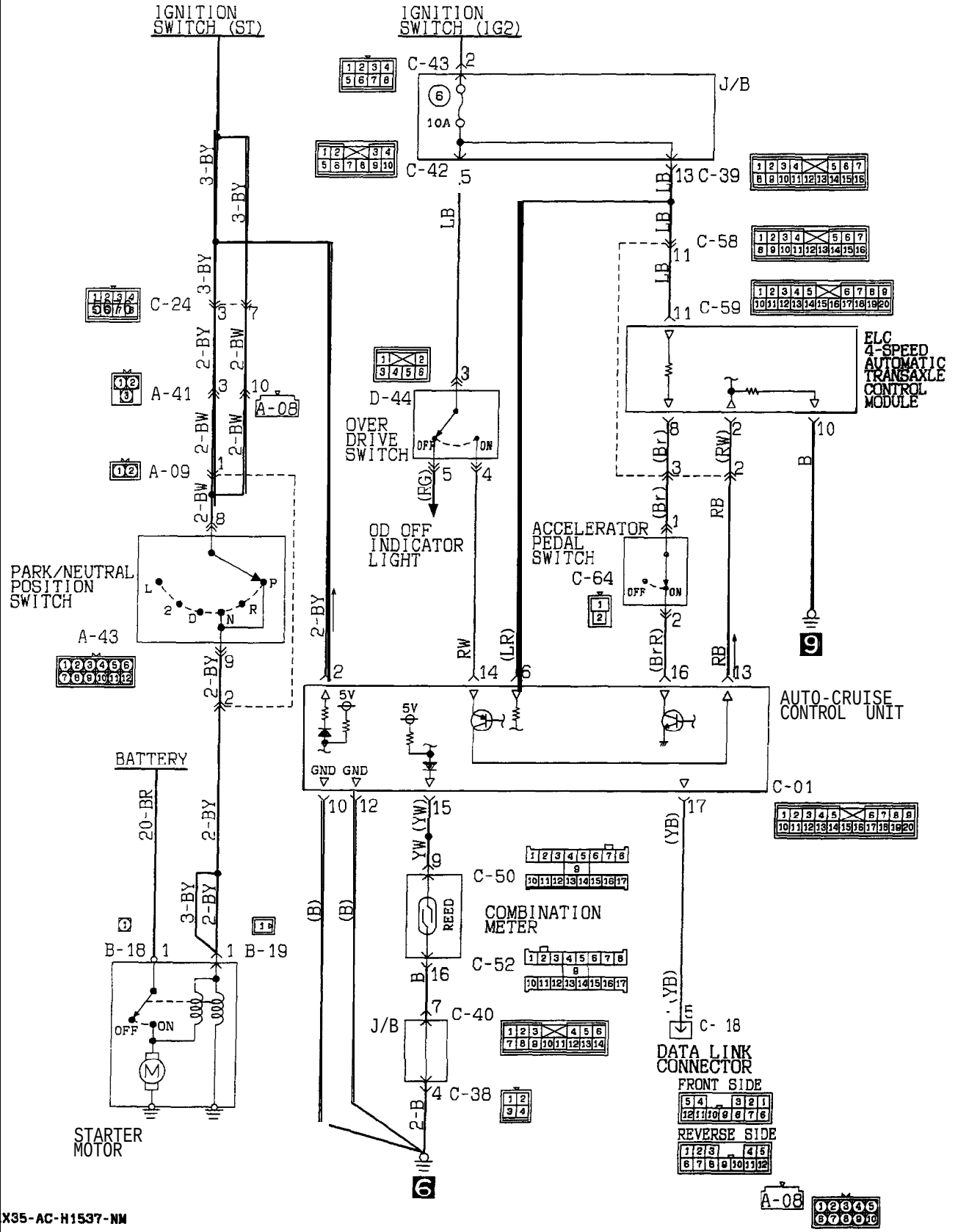
TSB Revision



TSB Revision

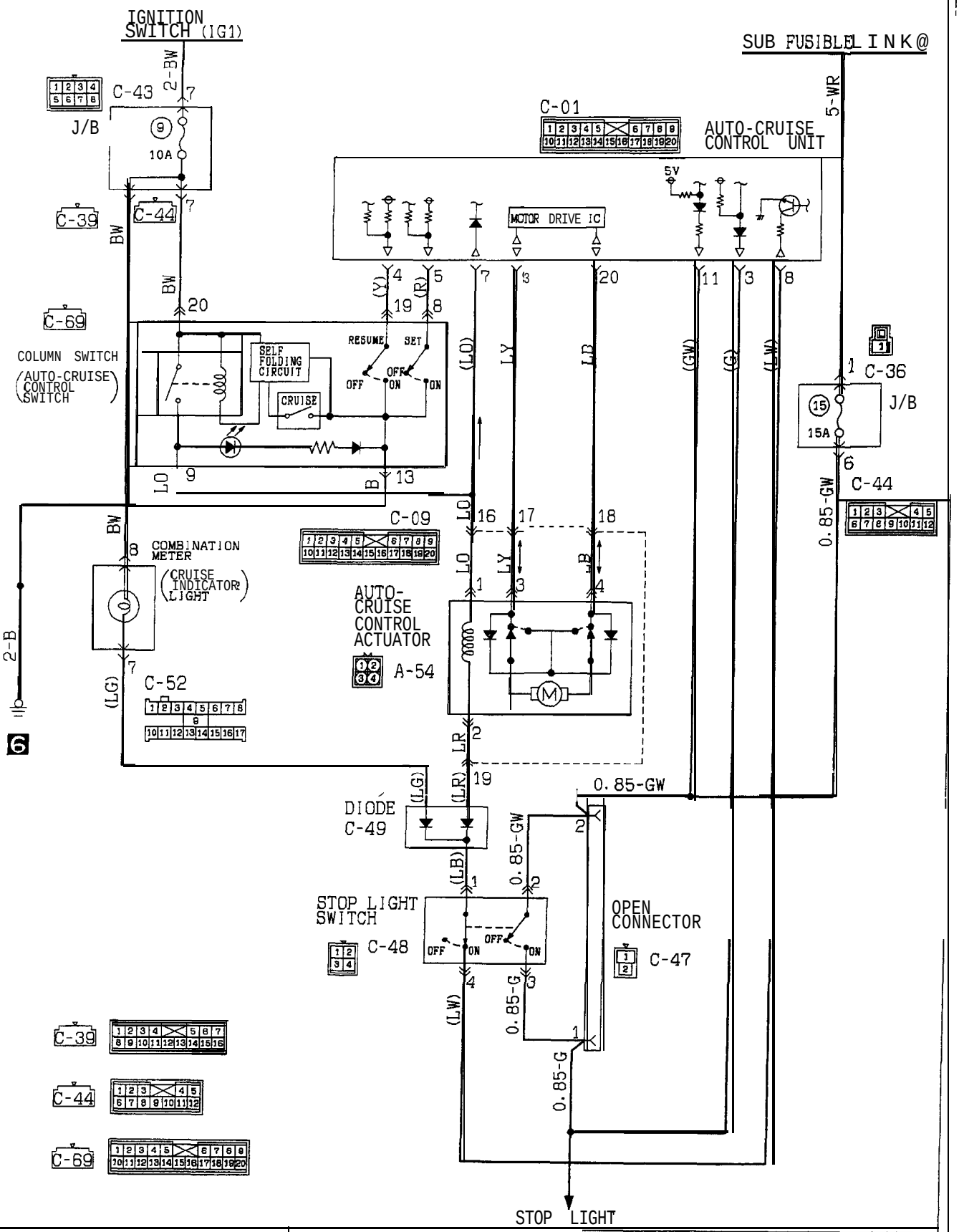
AUTO-CRUISE CONTROL CIRCUIT

<A/T (1990 models)>



KX35-AC-H1537-NM

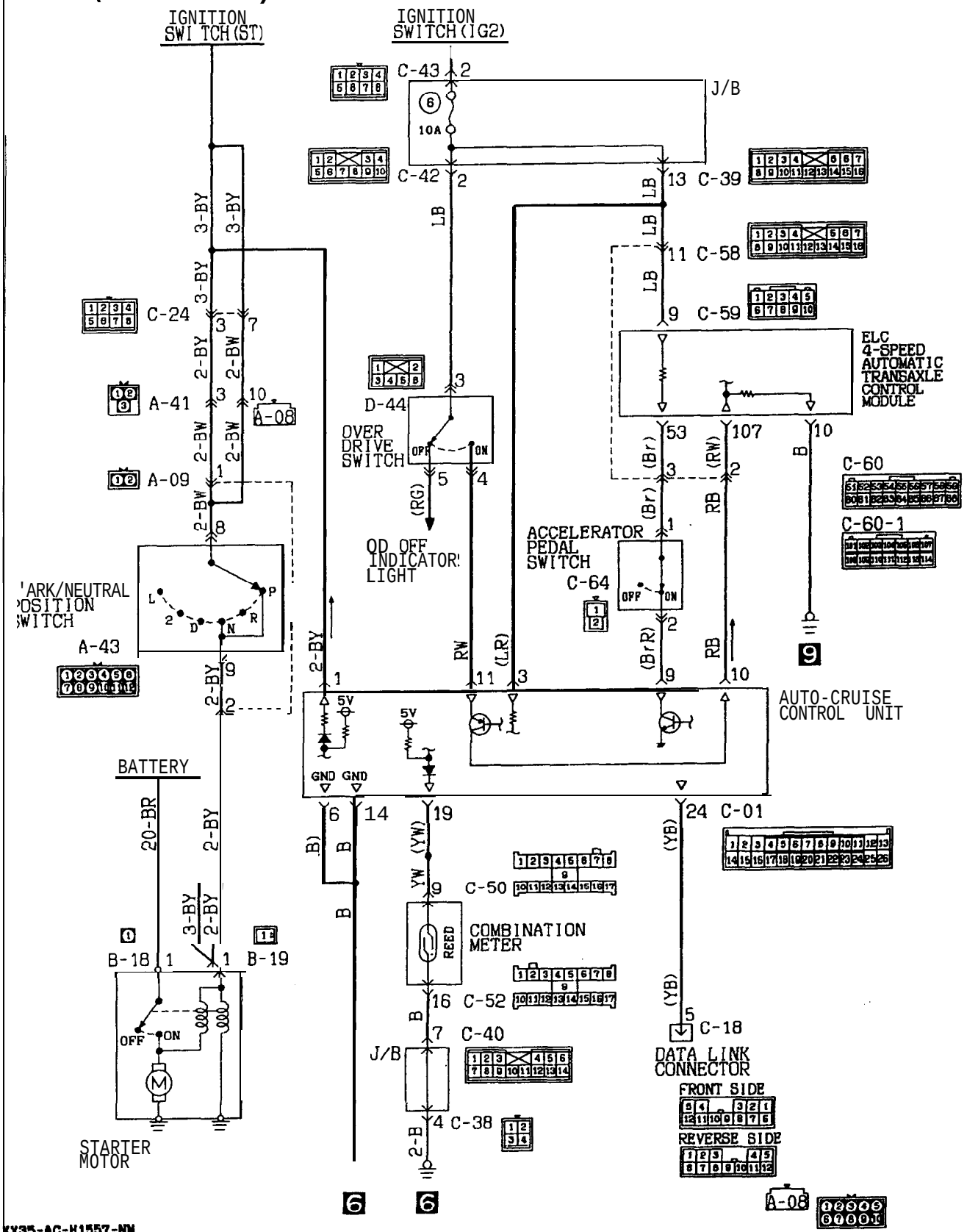
TSB Revision

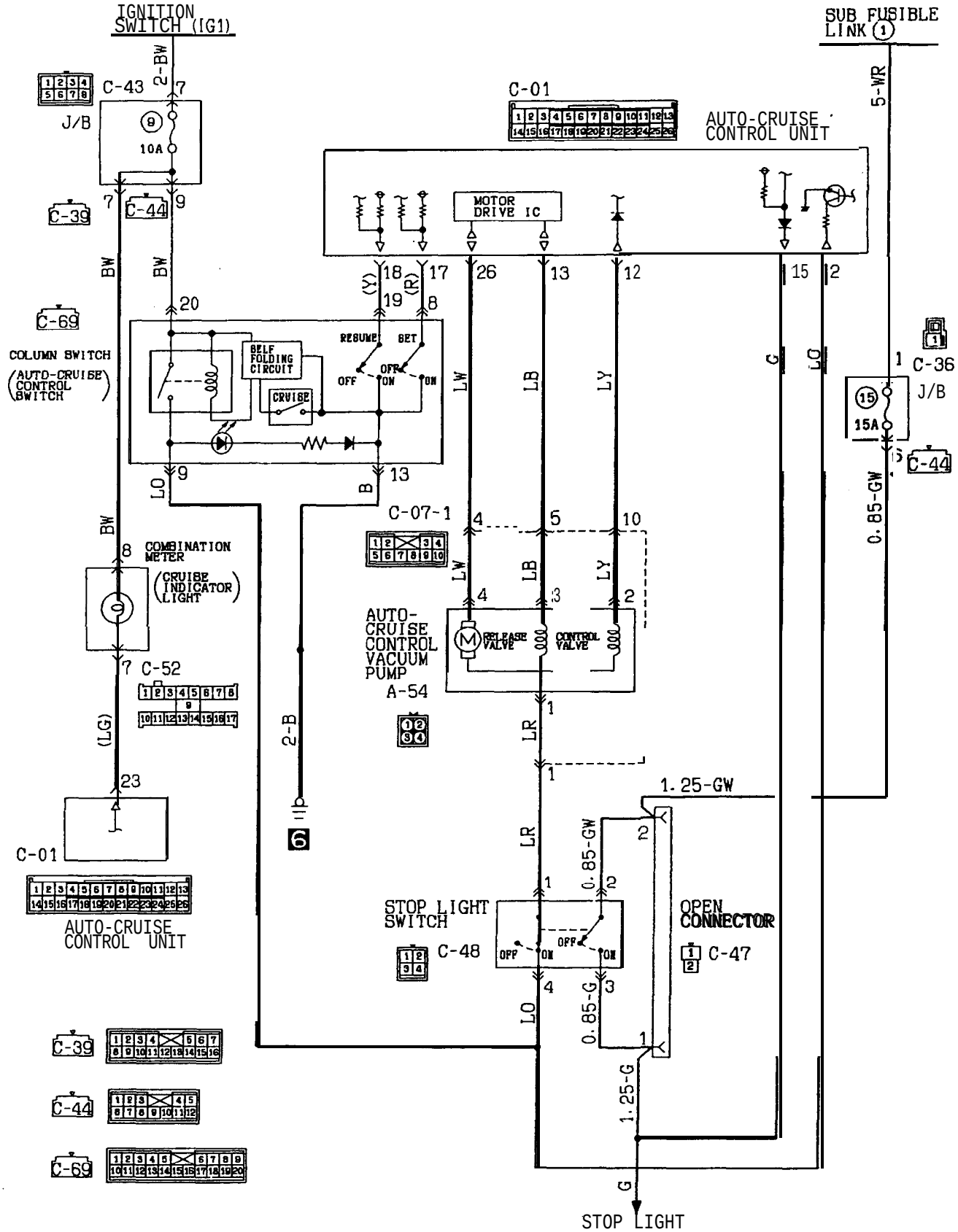


TSB Revision

AUTO-CRUISE CONTROL CIRCUIT

<A/T (1991 models)>

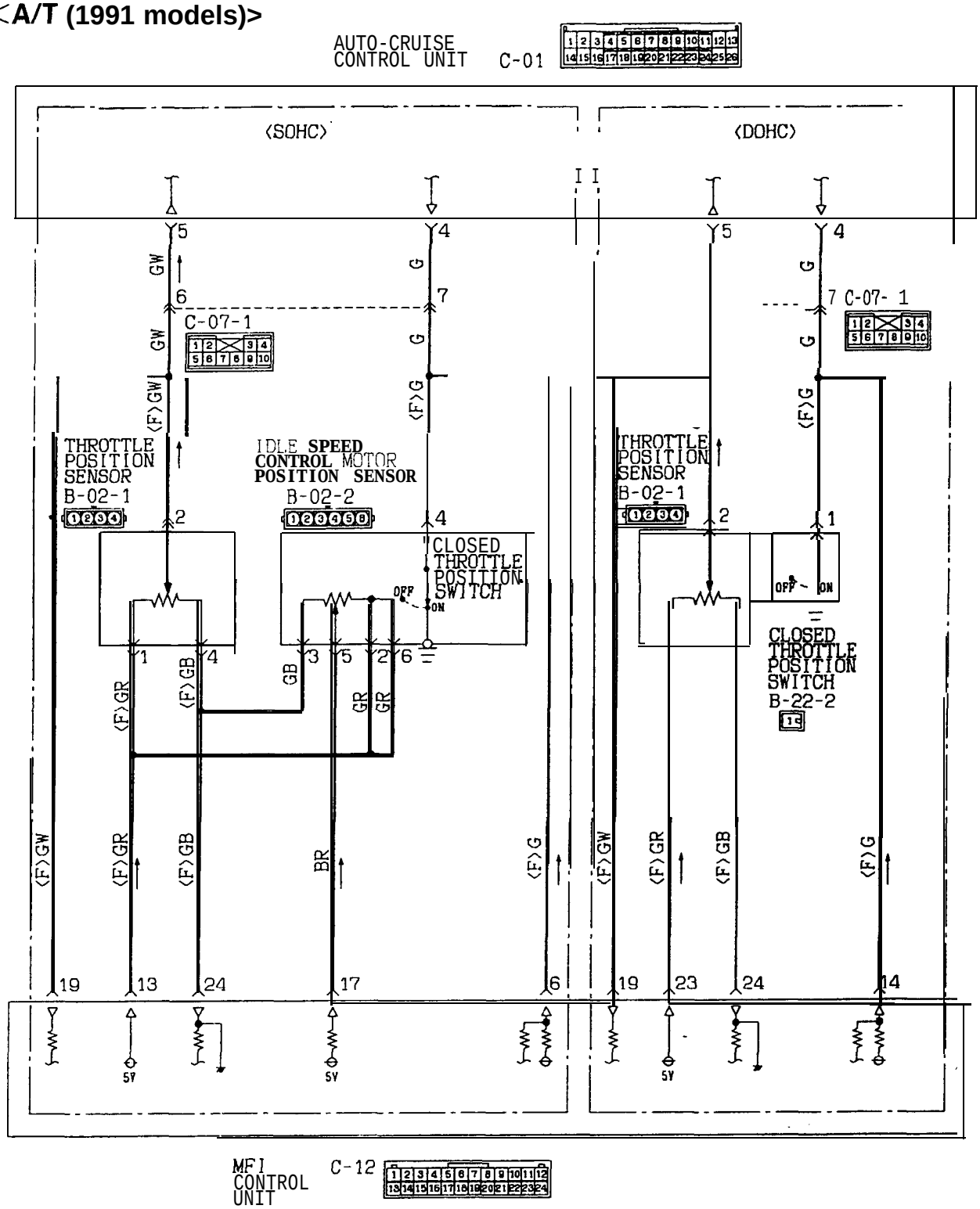




TSB Revision

AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

<A/T (1991 models)>

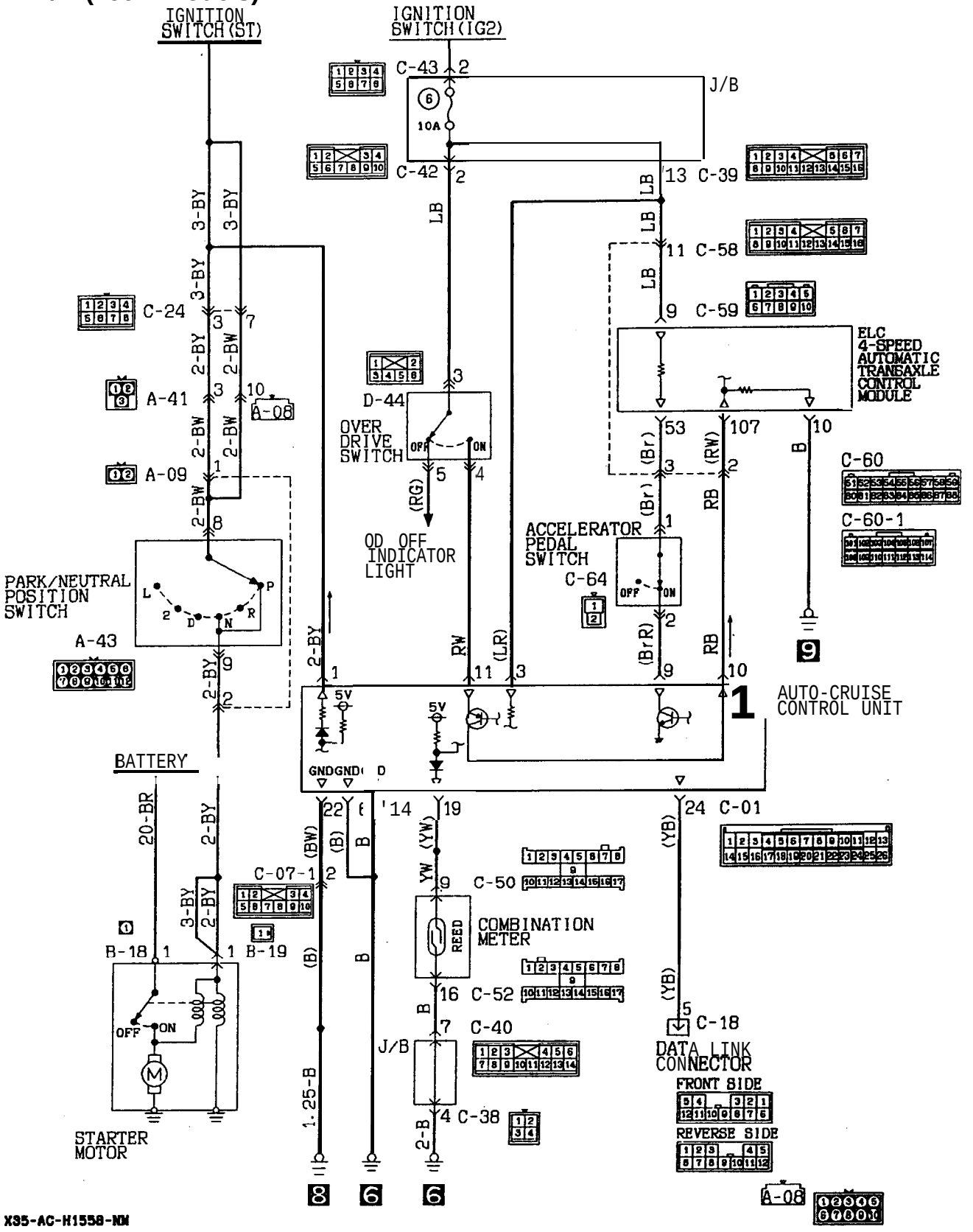


KX35-AC-H1557A-NW

TSB Revision

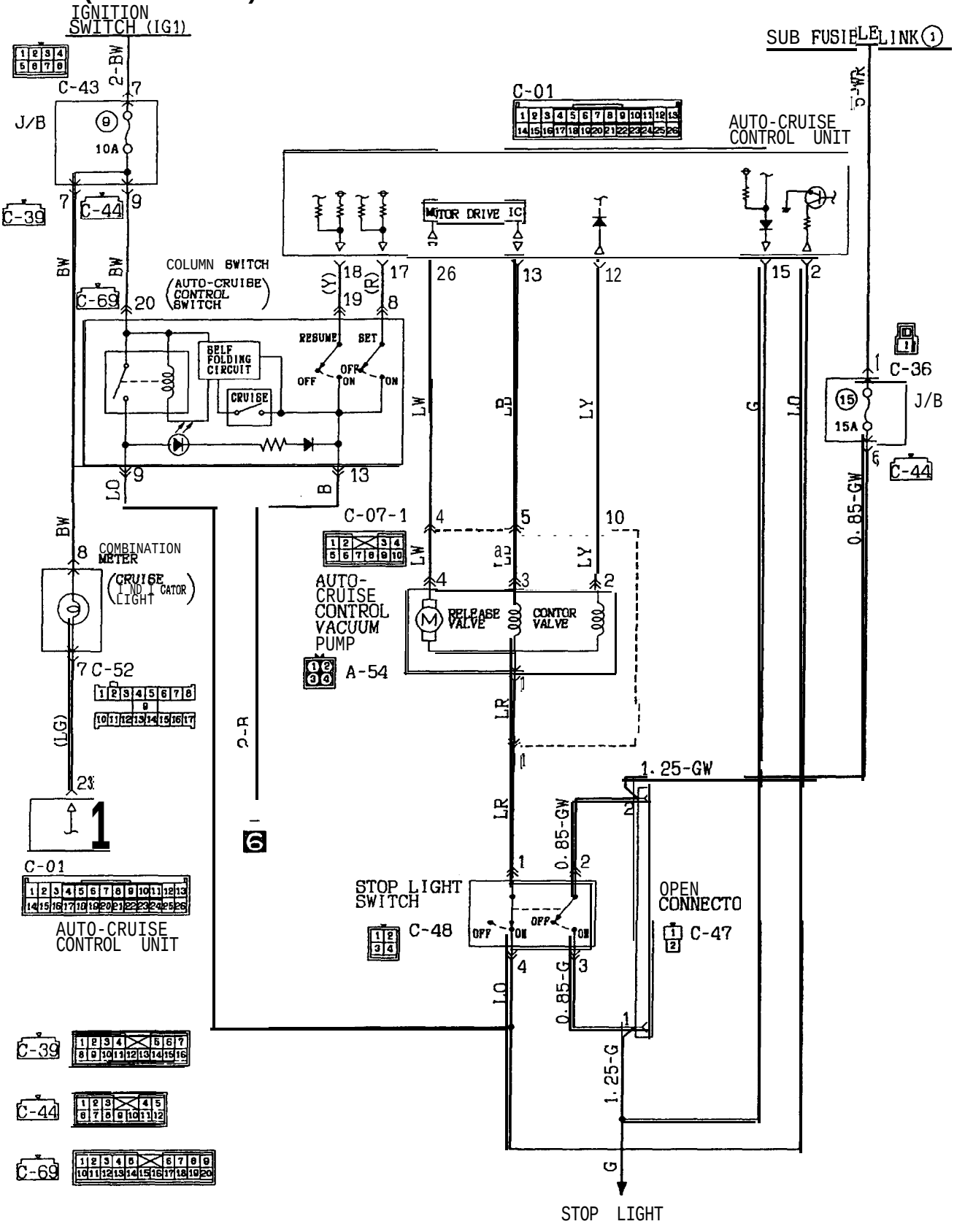
AUTO-CRUISE CONTROL CIRCUIT

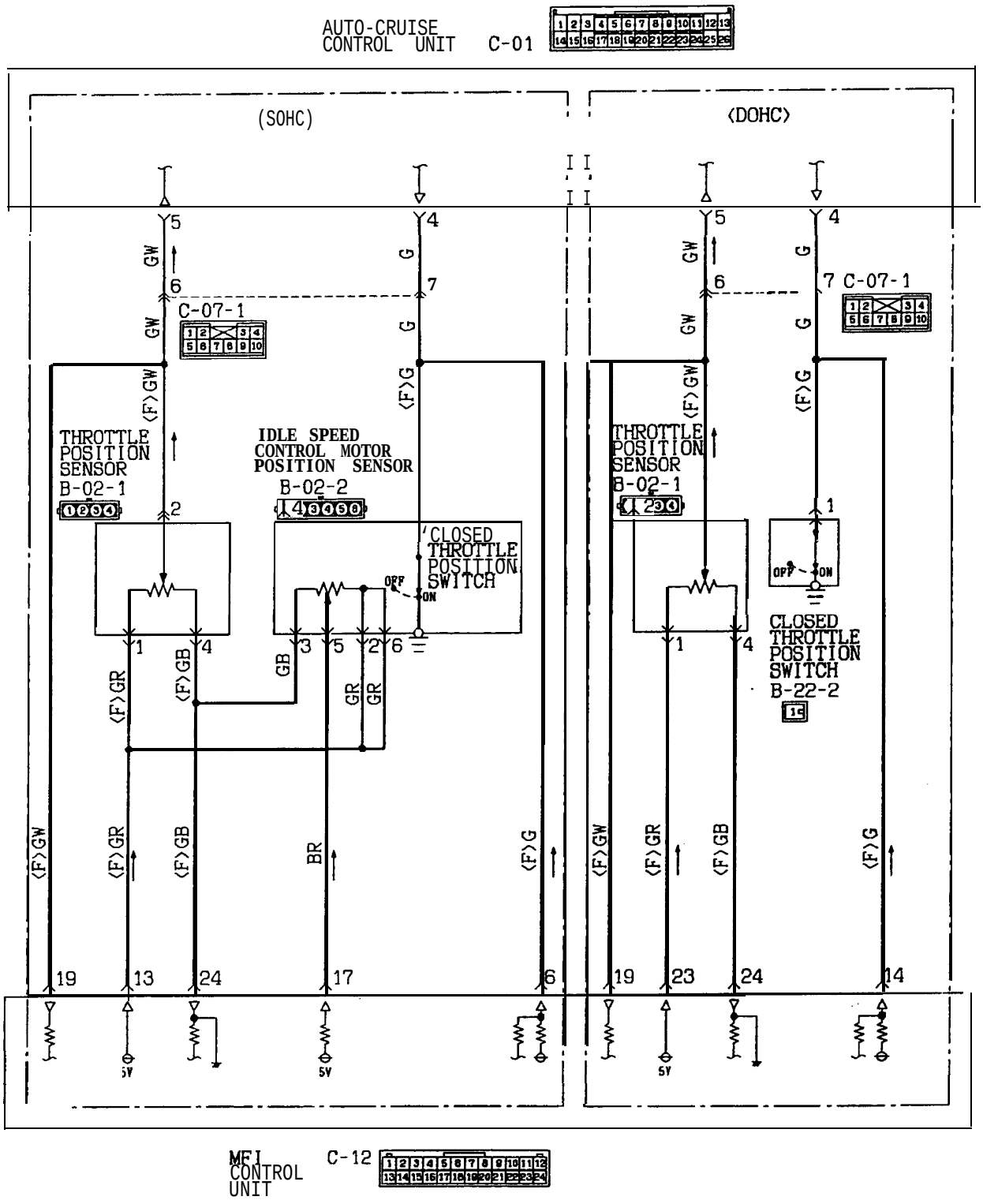
<A/T (1992 models)>



AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

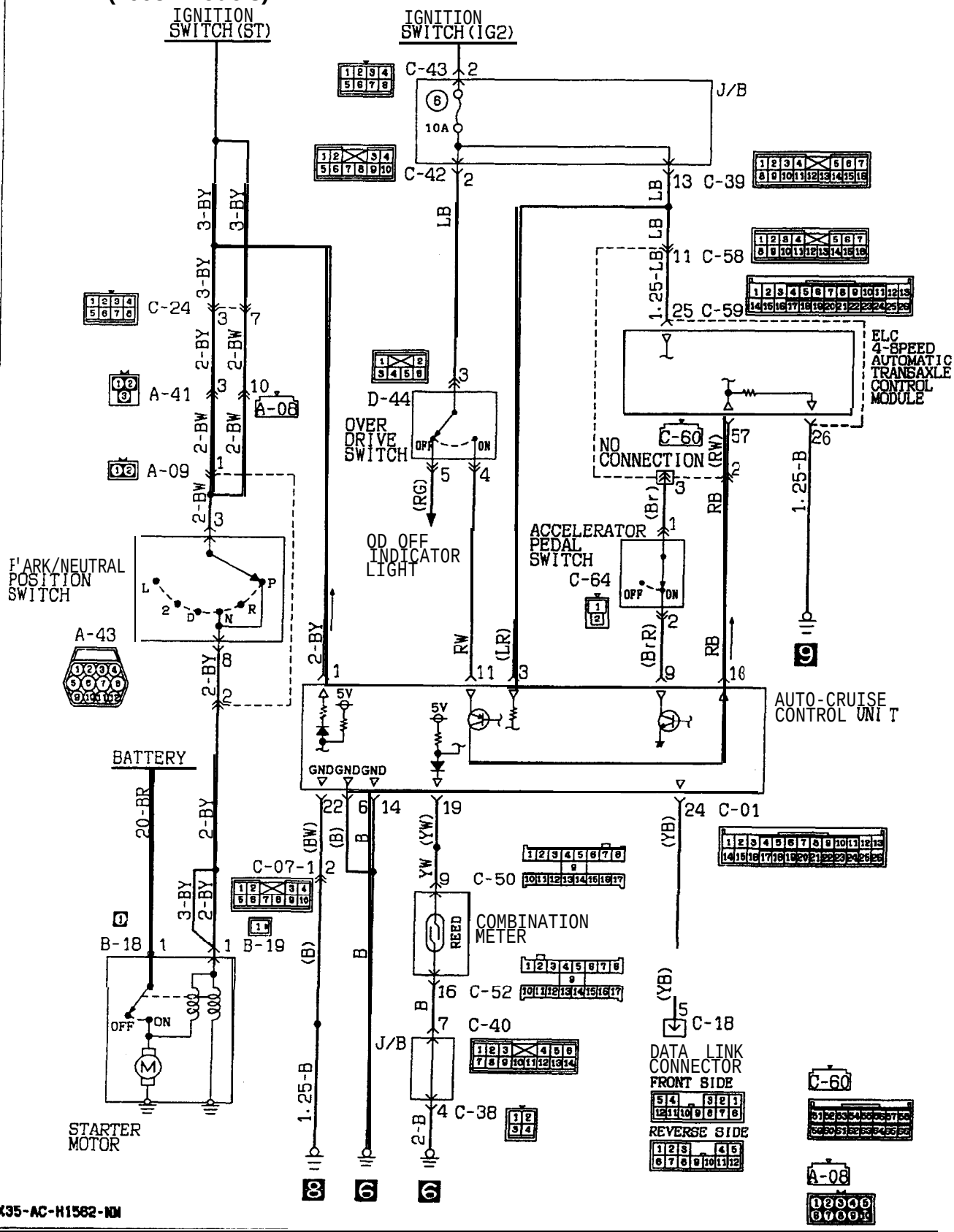
<A/T (1992 models)>



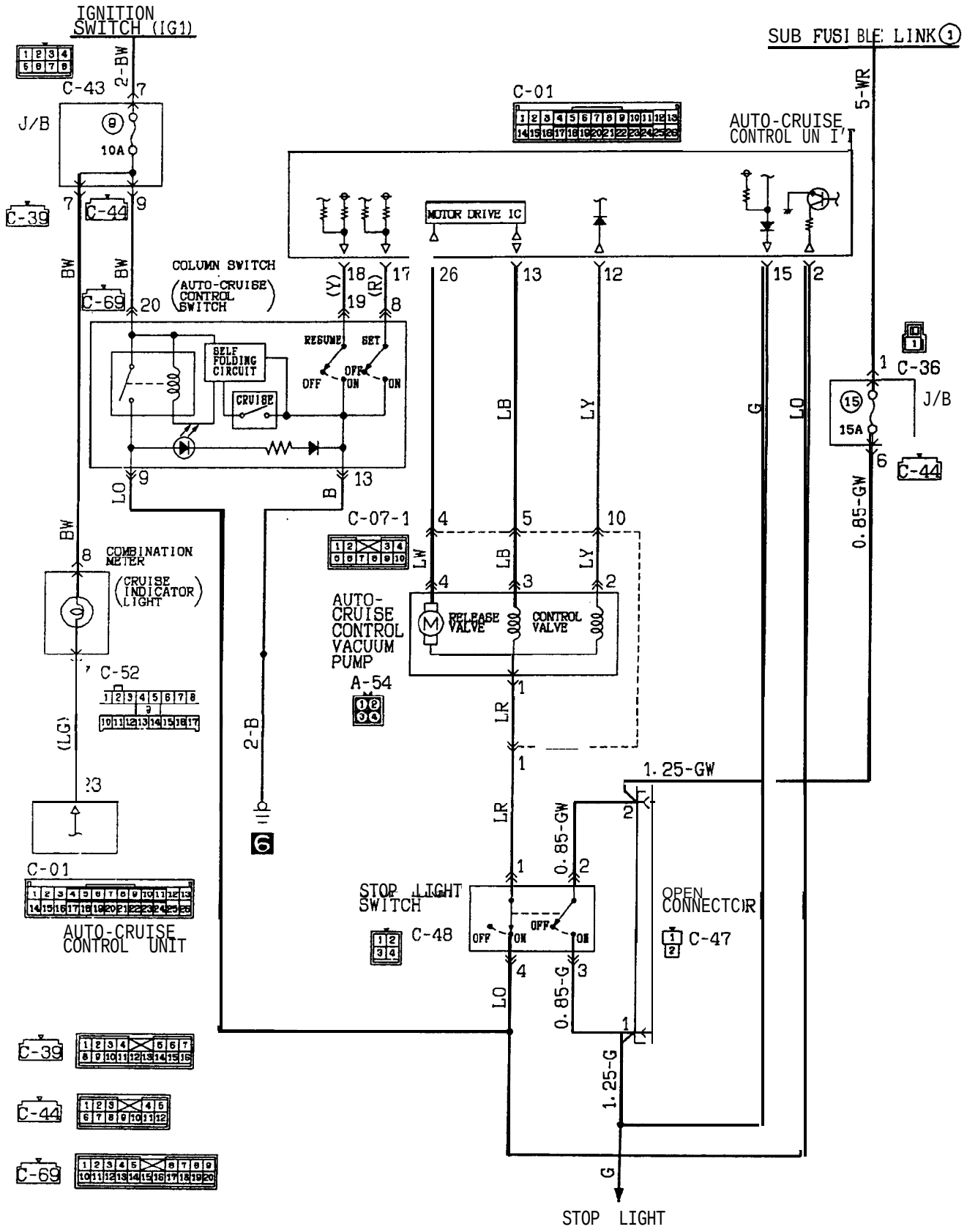

AUTO-CRUISE CONTROL UNIT C-01
(SOHC)
(DOHC)
C-07-1
THROTTLE POSITION SENSOR B-02-1
IDLE SPEED CONTROL MOTOR POSITION SENSOR B-02-2
CLOSED THROTTLE POSITION SWITCH
CLOSED THROTTLE POSITION SWITCH B-22-2
GW
G
(F)GW
(F)G
(F)GR
(F)GB
GB
GR
BR
OFF
ON
5V
MFI CONTROL UNIT C-12

AUTO-CRUISE CONTROL CIRCUIT

<A/T (1993 models)>



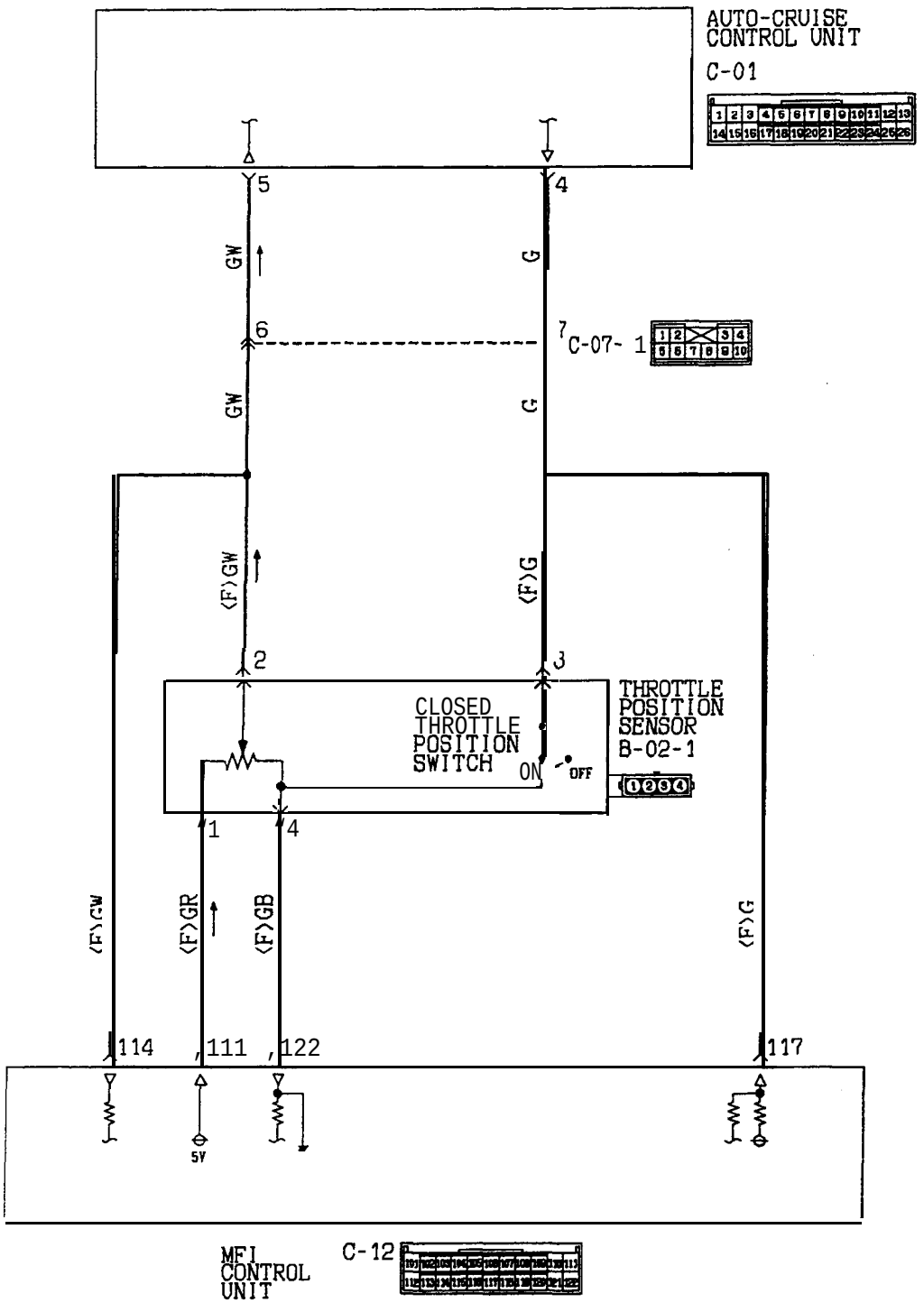
TSB Revision



TSB Revision

AUTO-CRUISE CONTROL CIRCUIT (CONTINUED)

<A/T (1993 models)>



KX35-AC-H1562A-NM

NOTES

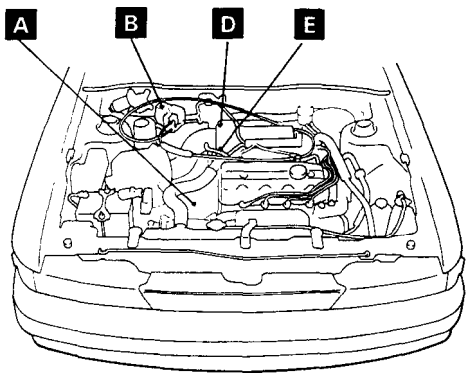
COMPONENT LOCATION

Name	Symbol	Name	Symbol
Accelerator pedal switch <A/T>	M	Closed throttle position switch (fixed SAS) <DOHC>	D
Auto-cruise control actuator <Electrical type>	C	Idle speed control motor (closed throttle position switch, idle speed control motor position sensor) <SOHC>	D
Auto-cruise control actuator <Vacuum type>	B		
Auto-cruise control switch	J	Park/neutral position switch <A/T>	A
Auto-cruise control unit	F	Overdrive switch <A/T>	L
Auto-cruise control vacuum pump <Vacuum type>	C	Stop light switch	N
		Throttle position sensor	E
Auto-cruise indicator light	I	Vehicle speed sensor (Reed switch)	H
Clutch pedal position switch <M/T>	0	4-speed automatic transaxle control module	K
Diode	G		

NOTE
The "Name" column is arranged in alphabetical order.

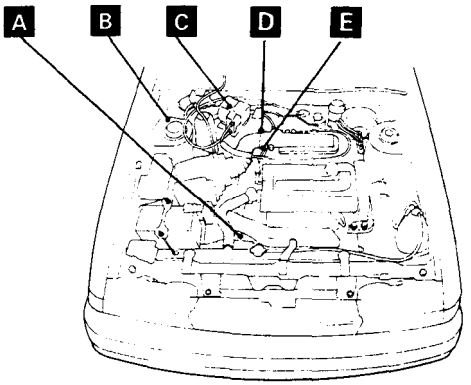
<Engine compartment>

SOHC



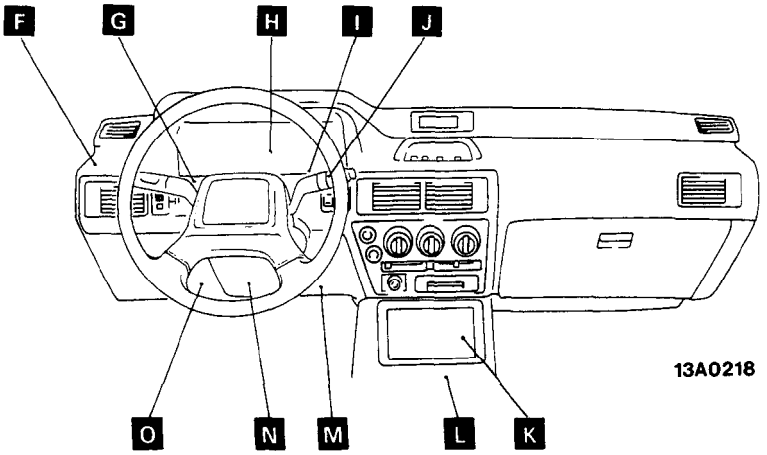
07A0034

DOHC



07A0035

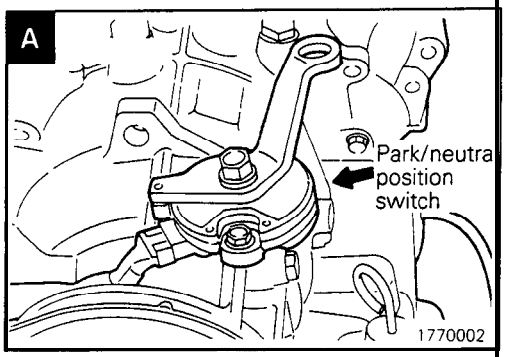
<Interior>



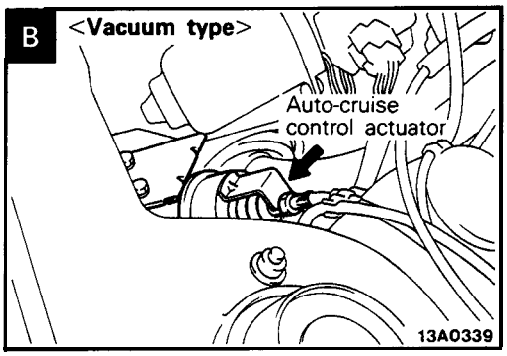
13A0218

TSB Revision

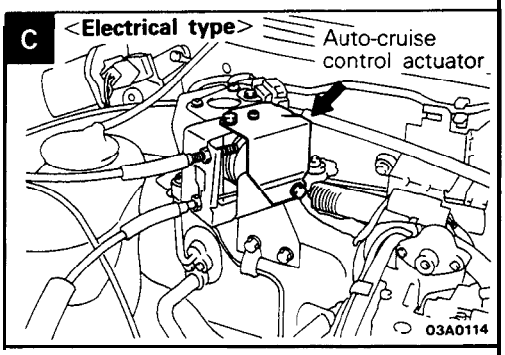
A



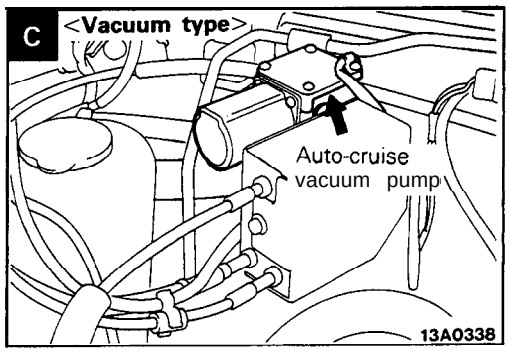
B <Vacuum type>



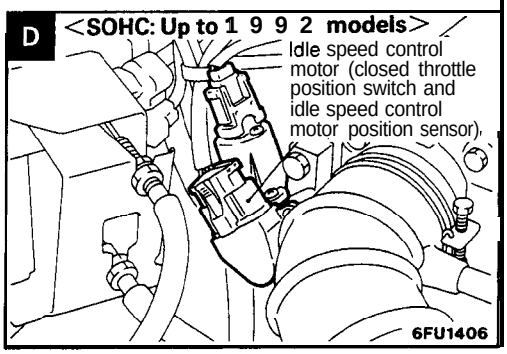
C <Electrical type>



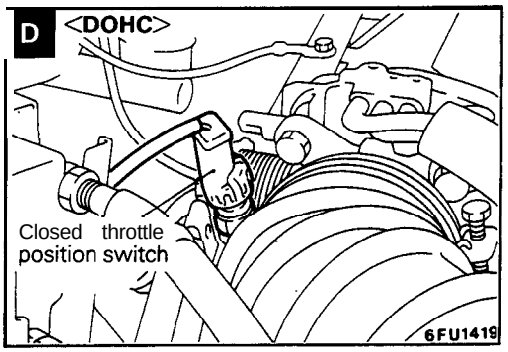
C <Vacuum type>



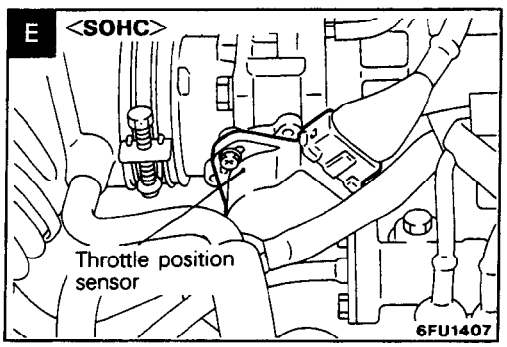
D <SOHC: Up to 1 9 9 2 models>



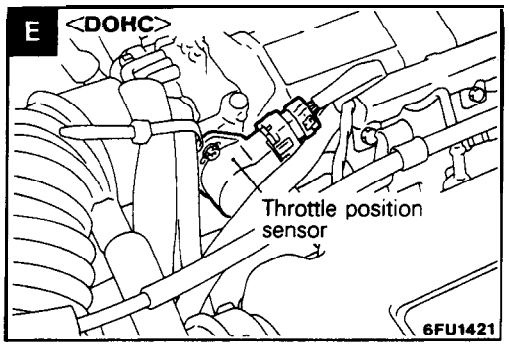
D <DOHC>



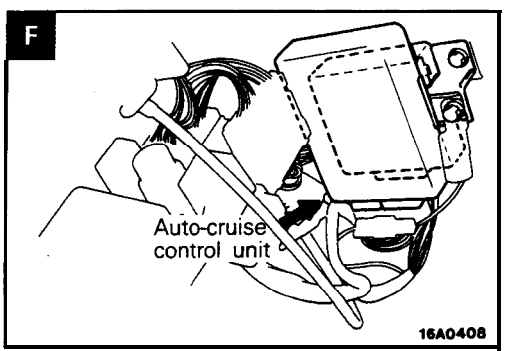
E <SOHC>



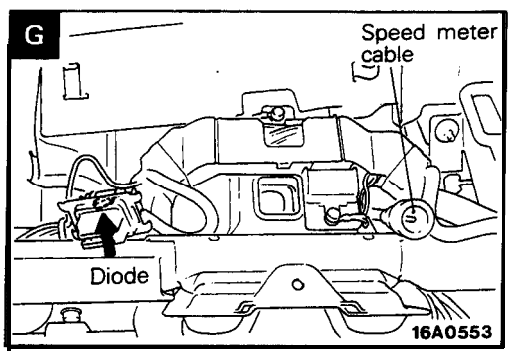
E <DOHC>



F

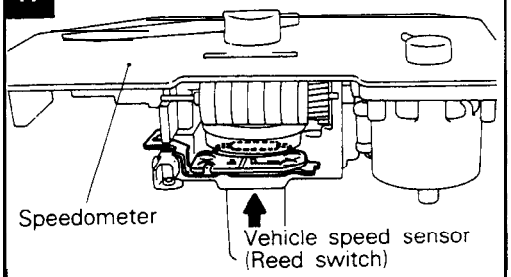


G

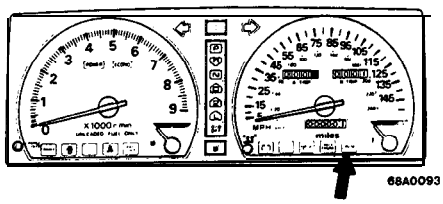


TSB Revision

H

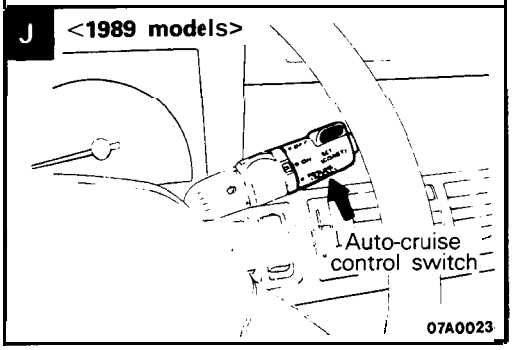


I

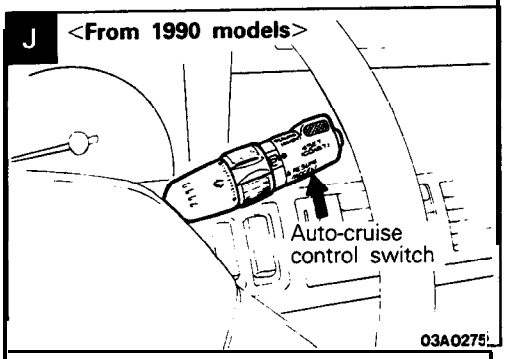


Auto-cruise indicator light

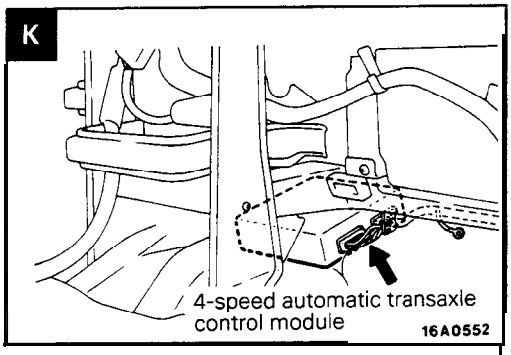
J <1989 models>



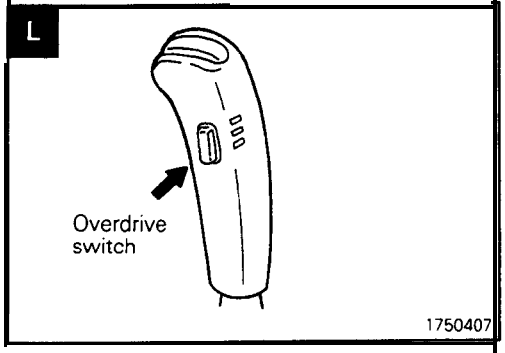
J <From 1990 models>



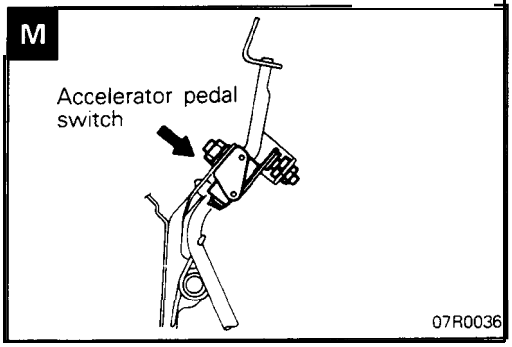
K



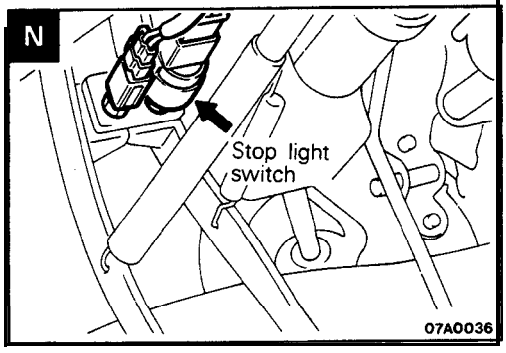
L



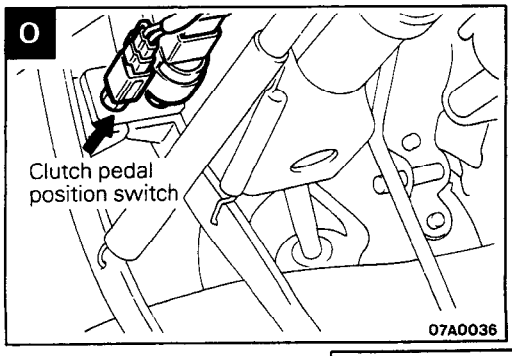
M



N



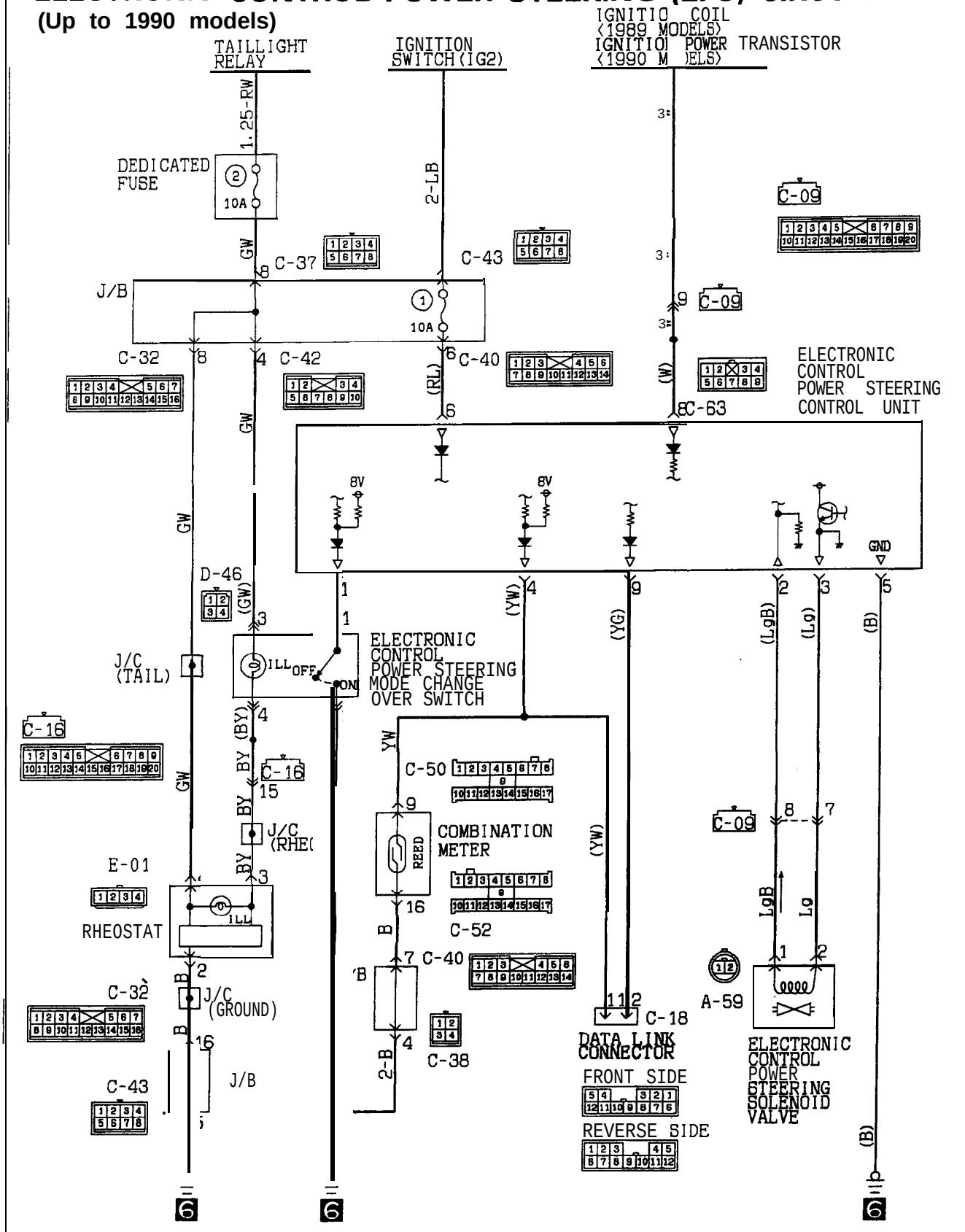
O



TSB Revision

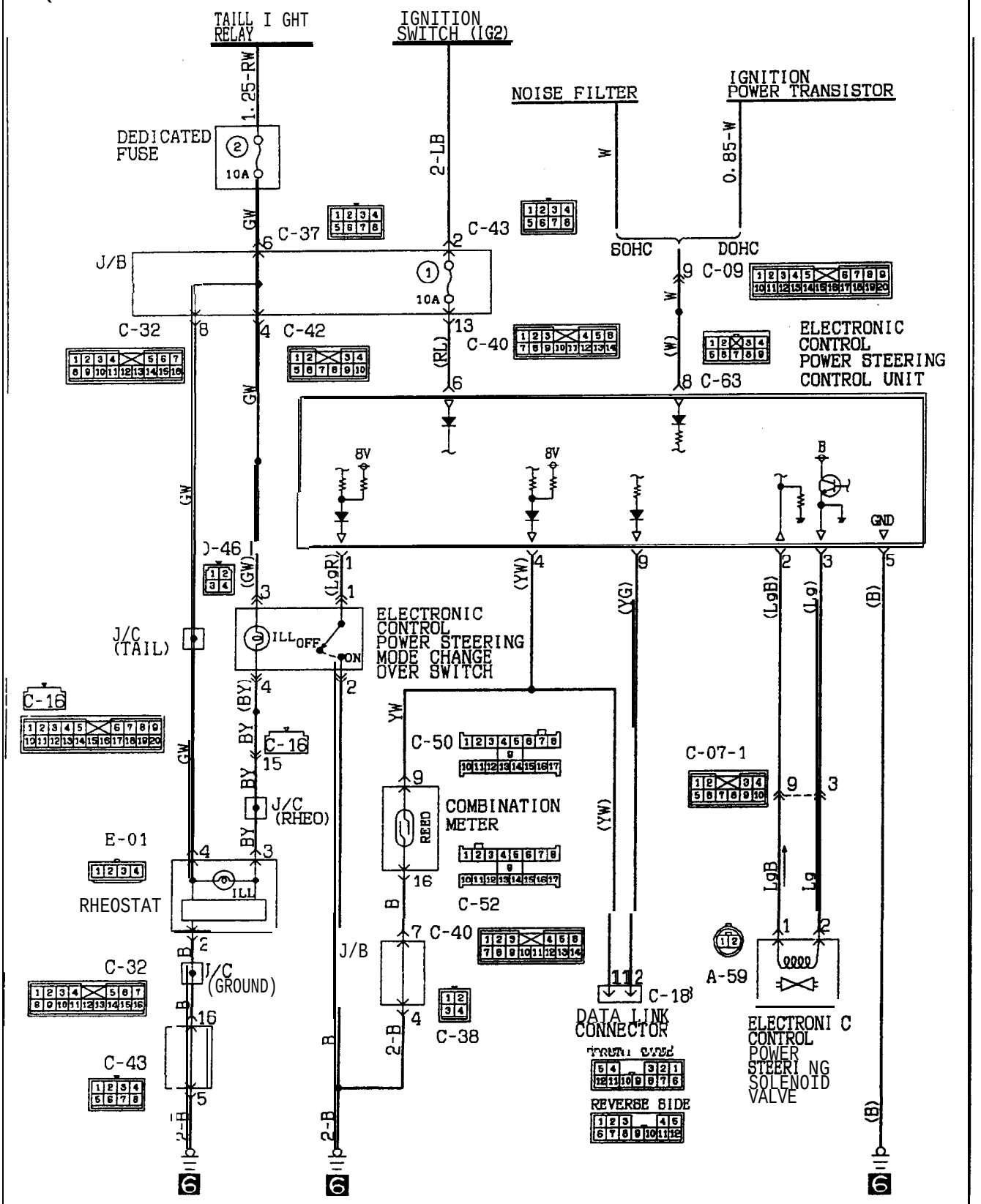
ELECTRONIC CONTROL POWER STEERING (EPS) CIRCUIT

(Up to 1990 models)



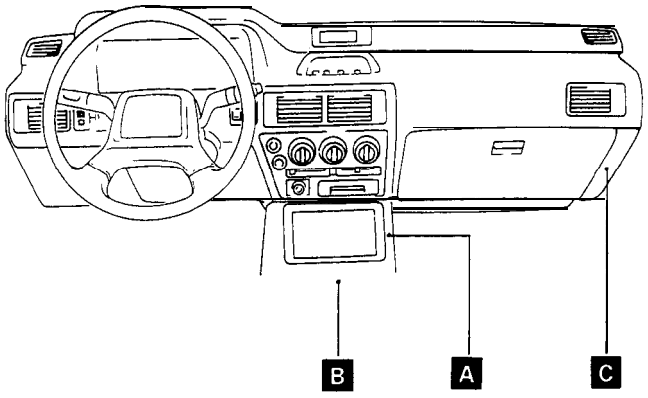
TSB Revision

ELECTRONIC CONTROL POWER STEERING CIRCUIT
(From 1991 models)

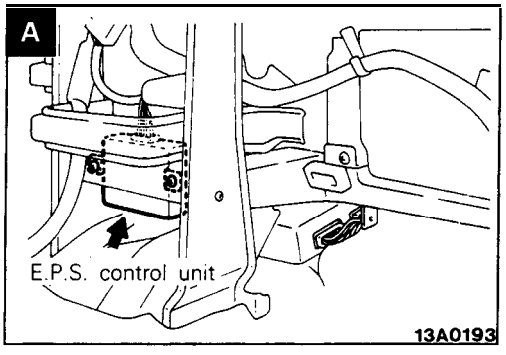


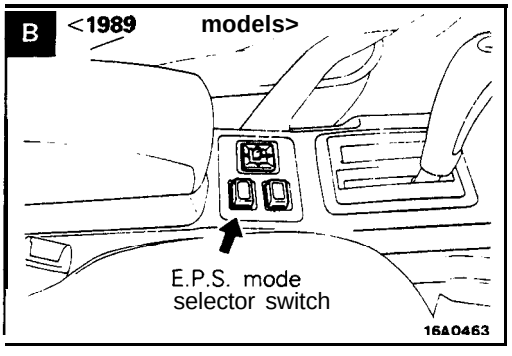
COMPONENT LOCATION

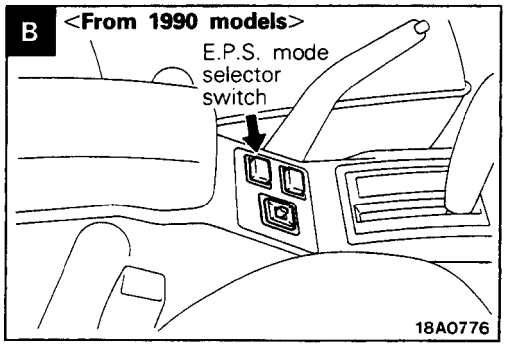
Name	Symbol
E.P.S. control unit	A
E.P.S. mode selector switch	B
Data link connector	C

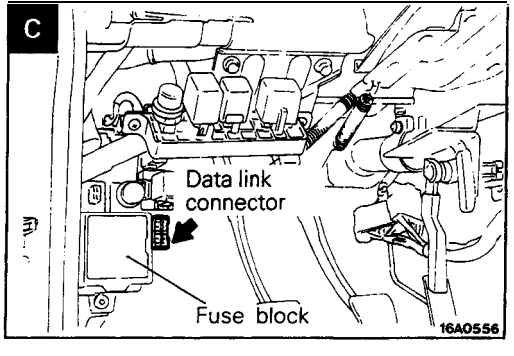


13A0218





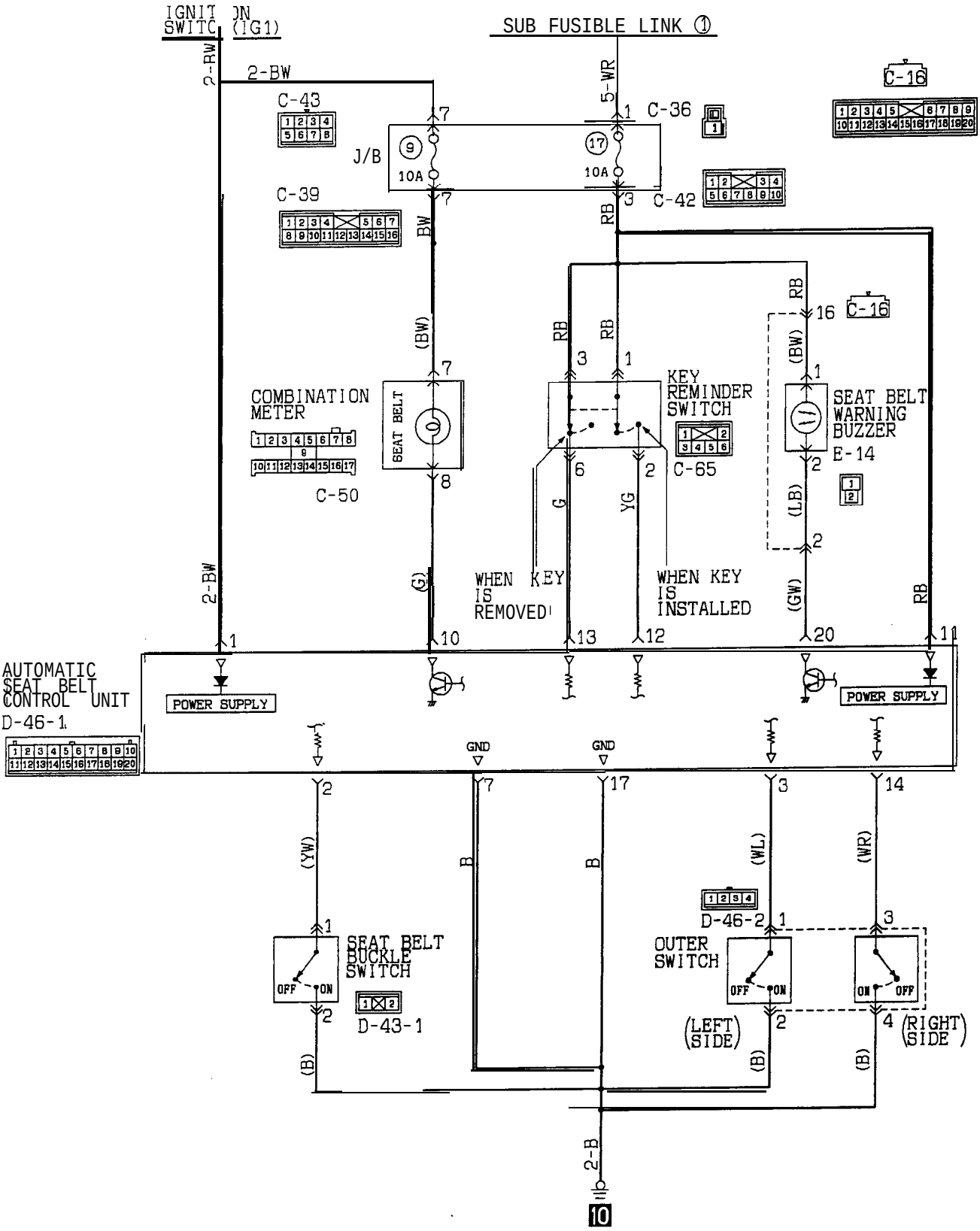




TSB Revision

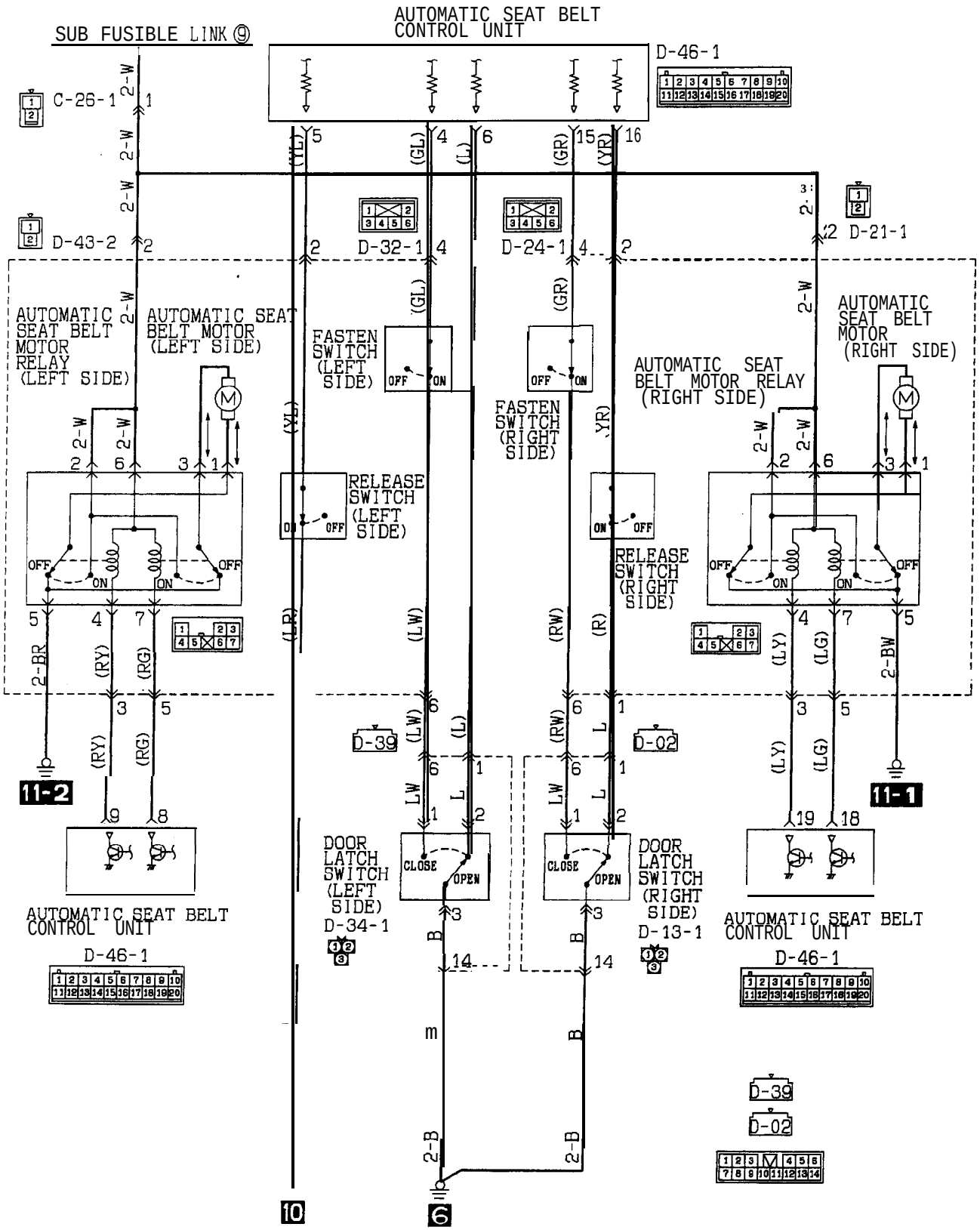
AUTOMATIC SEAT BELT CIRCUIT

(Up to 1990 models)



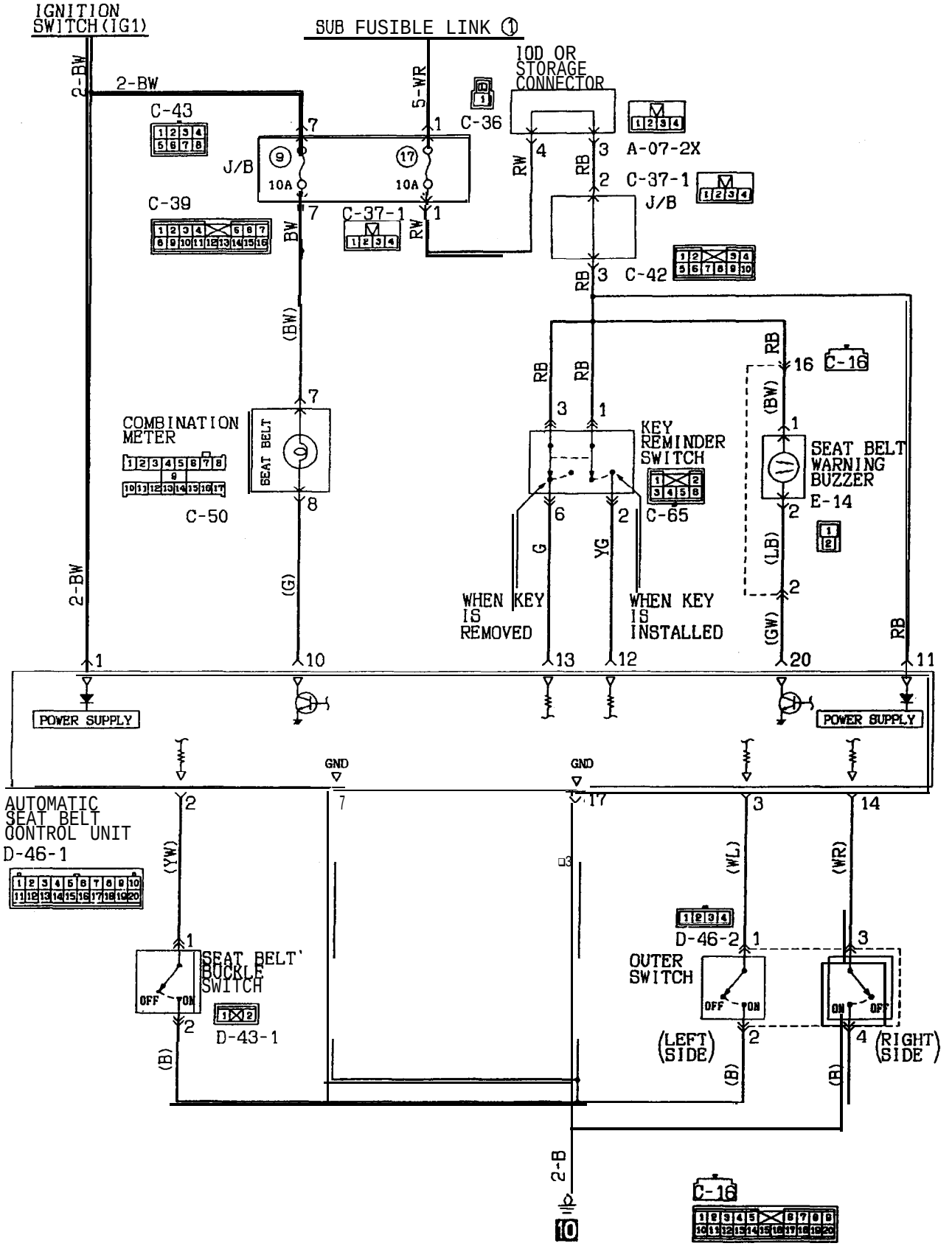
KX35-AC-H1532-NM

TSB Revision



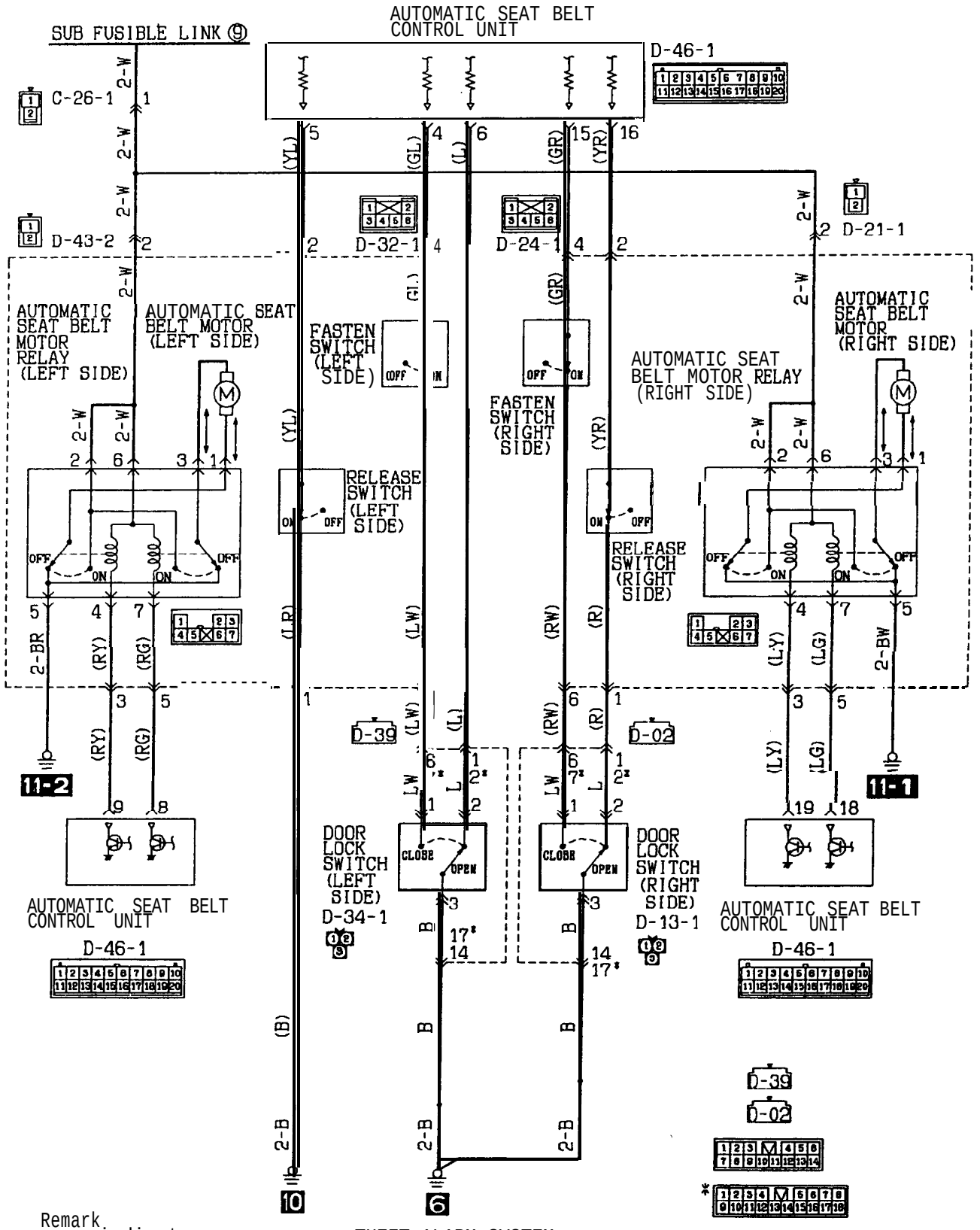
TSB Revision

AUTOMATIC SEAT BELT CIRCUIT (From 1991 models)



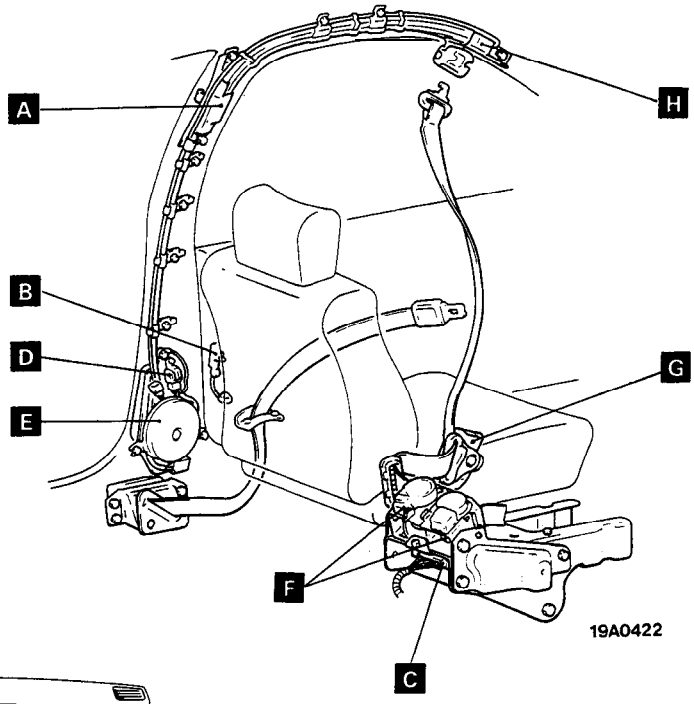
KX35-AC-H1559-NN

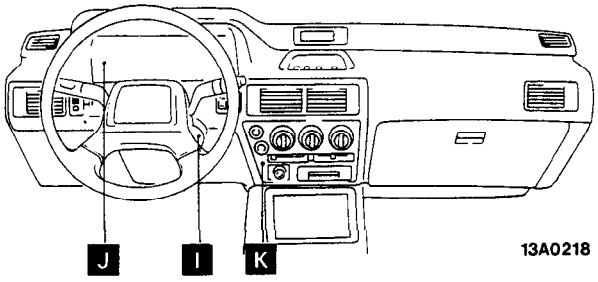
TSB Revision



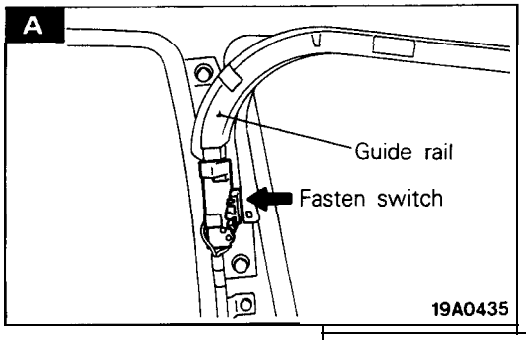
TSB Revision

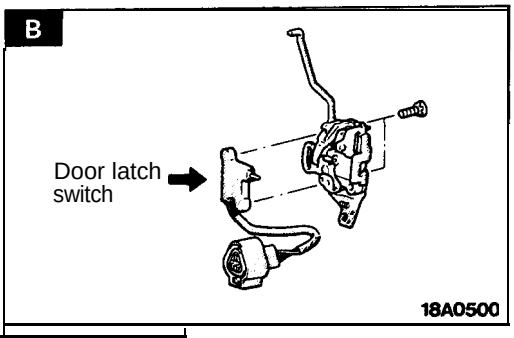
COMPONENT LOCATION





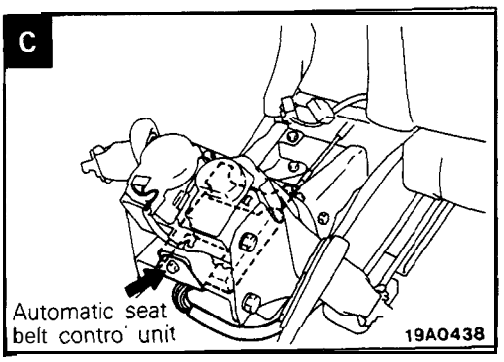
Name	Symbol	Name	Symbol
Automatic seat belt control unit	C	Fasten switch	A
Automatic seat belt motor	E	Key reminder switch	I
Automatic seat belt motor relay	D	Outer switch	F
Buckle switch	G	Seat belt warning light	J
Buzzer	K	Release switch	H
Door latch switch	B	I-	



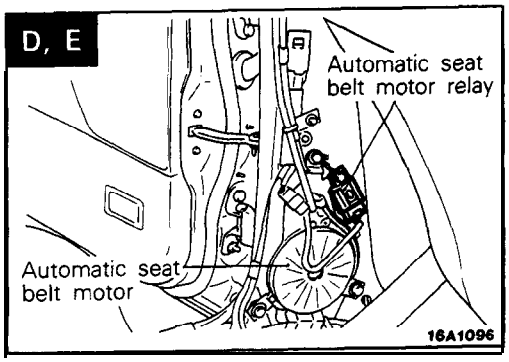


TSB Revision

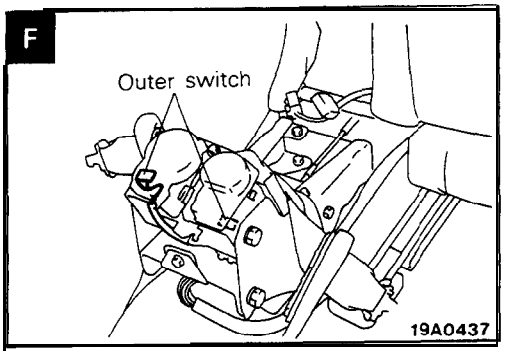
C



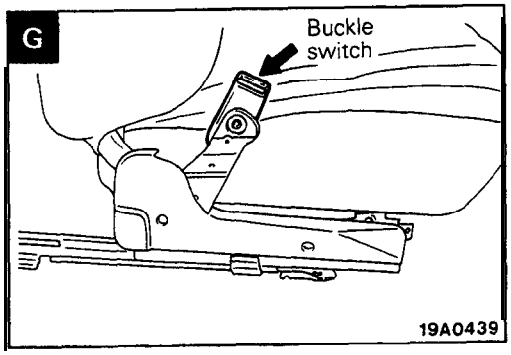
D, E



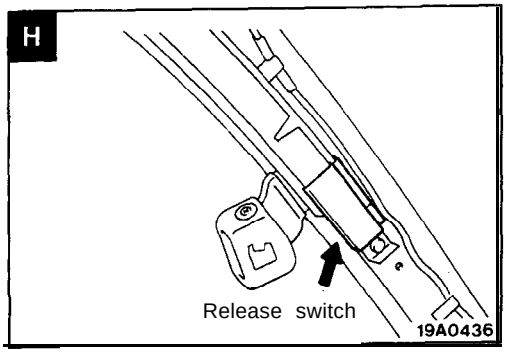
F



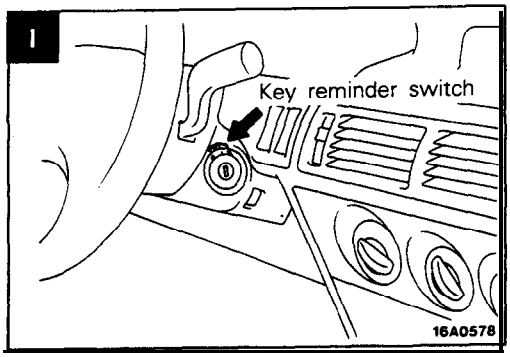
G



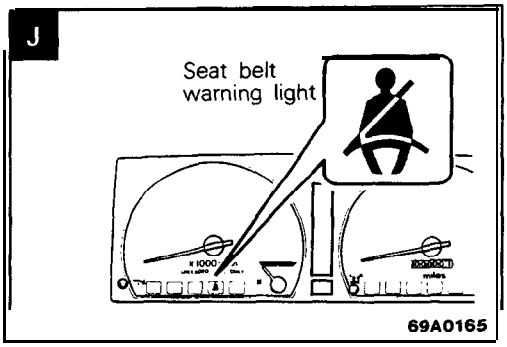
H



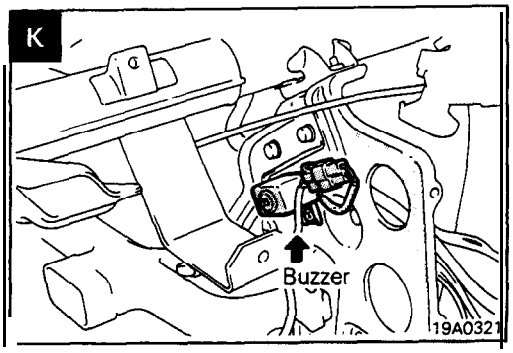
I



J

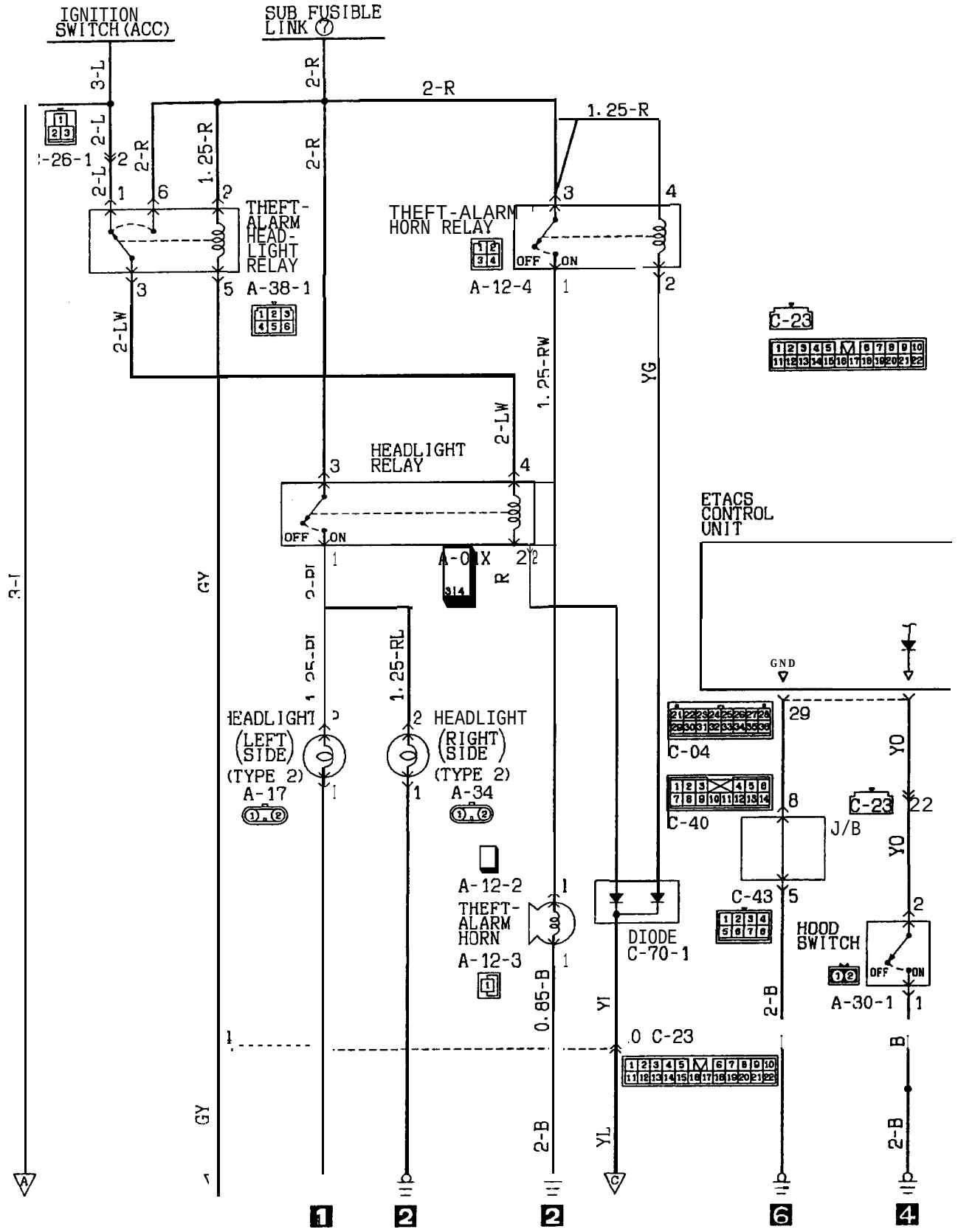


K



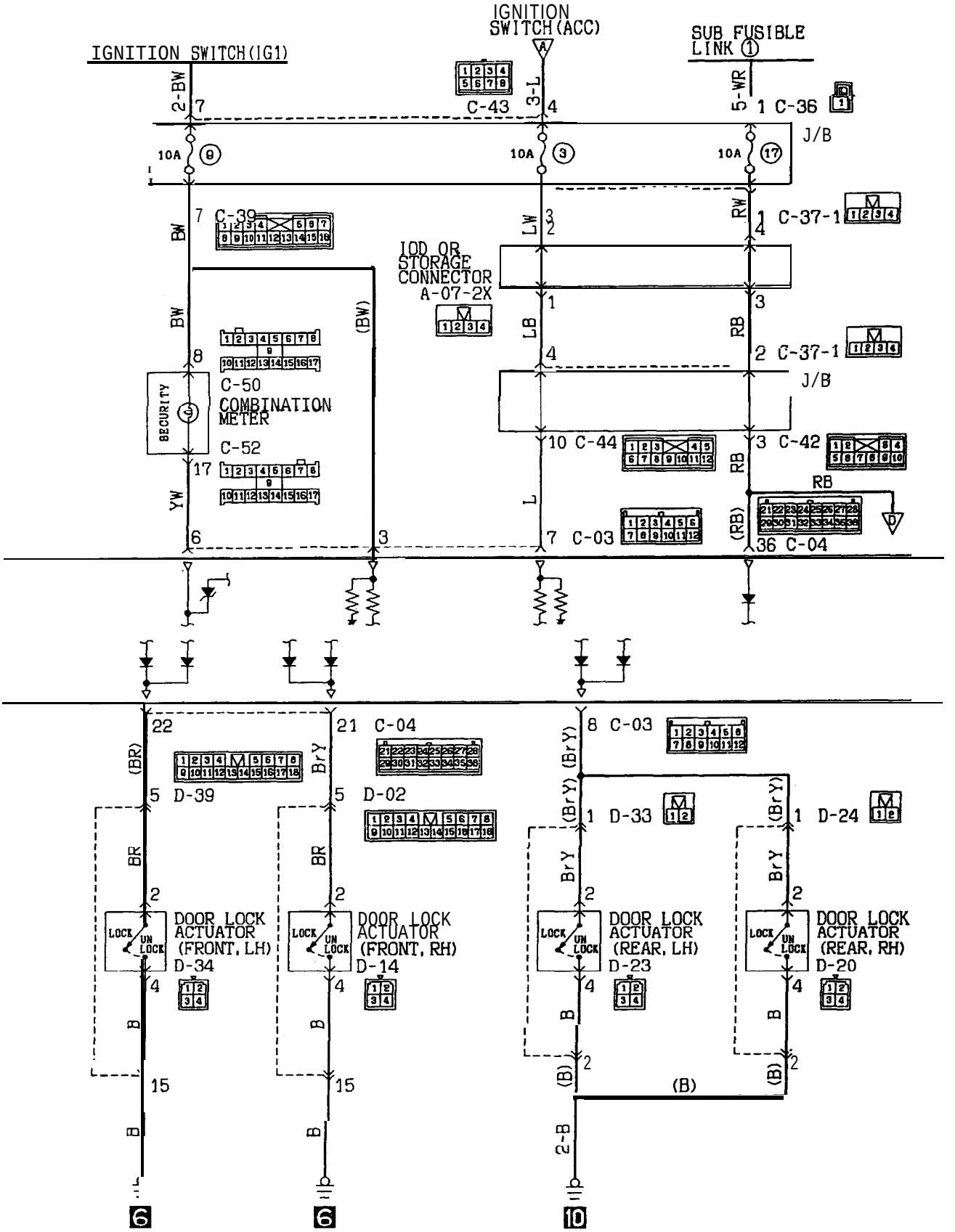
TSB Revision

THEFT-ALARM SYSTEM CIRCUIT



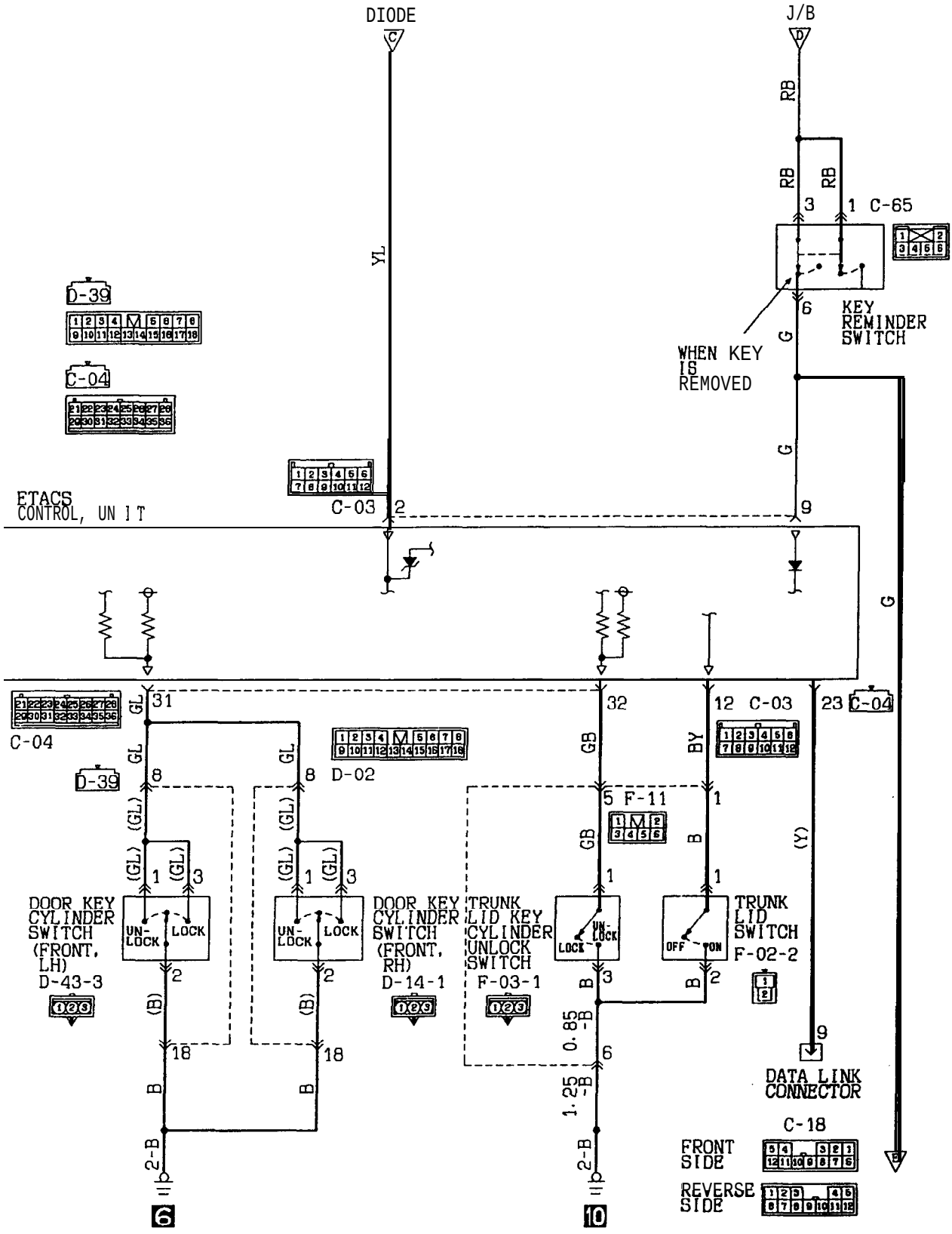
X35-AC-H1580-NM

TSB Revision



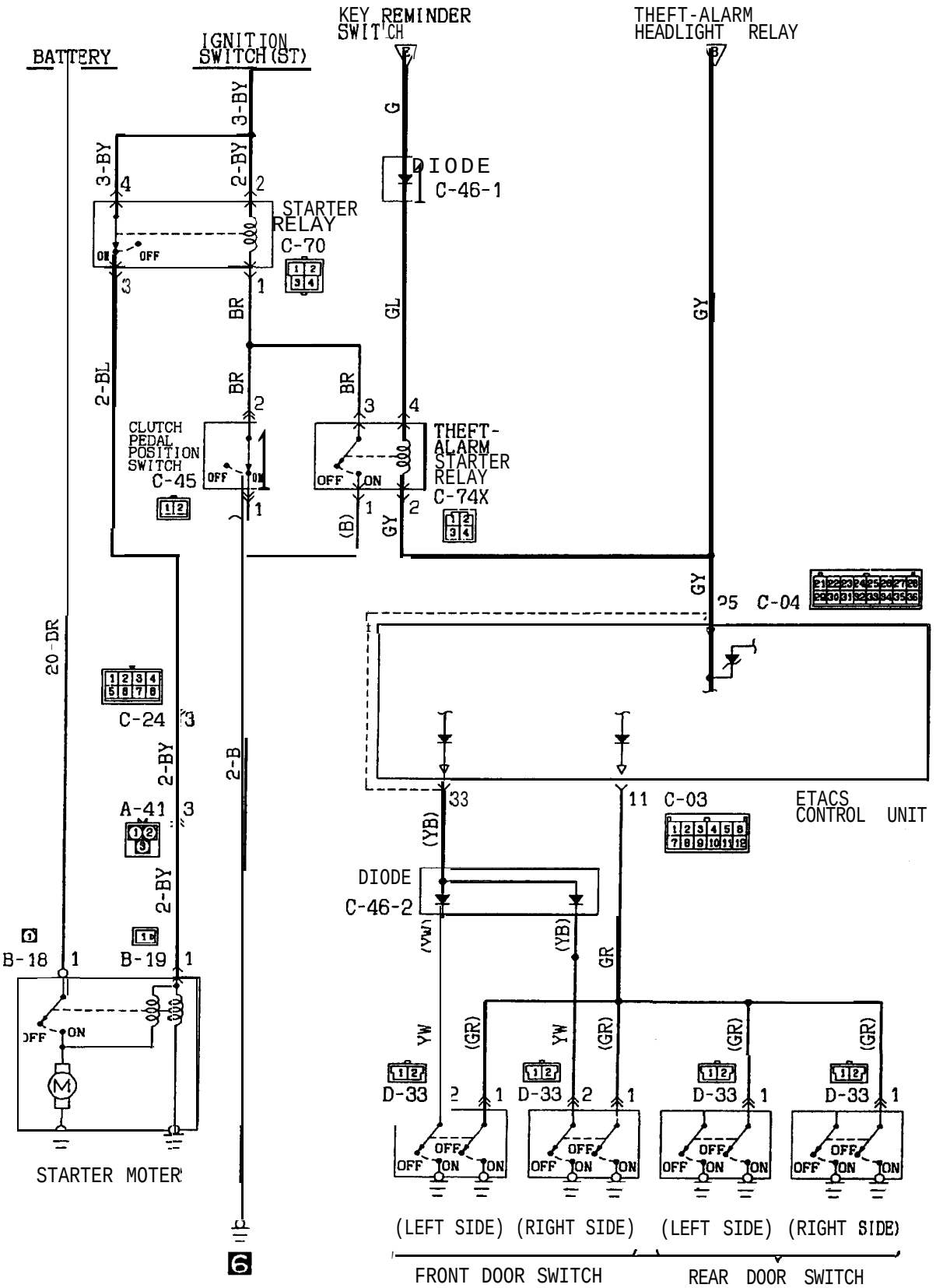
TSB Revision

THEFT-ALARM SYSTEM CIRCUIT (CONTINUED)



KX35-AC-H1580A-NM

TSB Revision



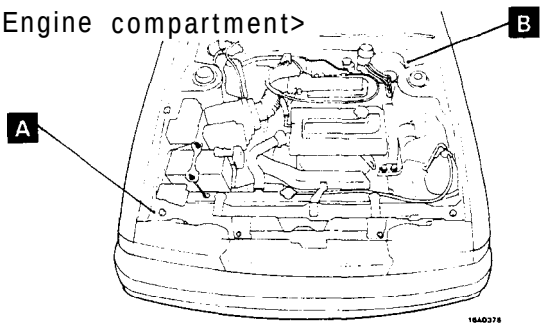
TSB Revision

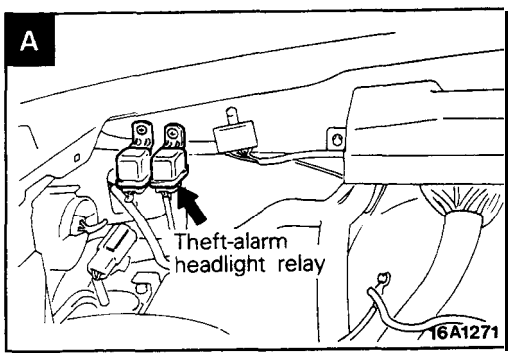
COMPONENT LOCATION

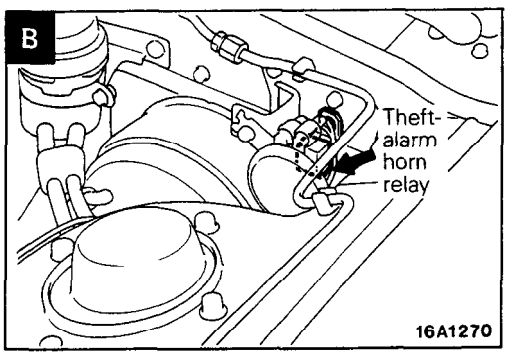
Name	Symbol	Name	Symbol
Diode	D	Security light	F
Diode	E	Theft-alarm headlight relay	A
Diode	E	Theft-alarm horn relay	B
ETACS control unit	C	Theft-alarm starter relay	D

NOTE
The "Name" column is arranged in alphabetical order.

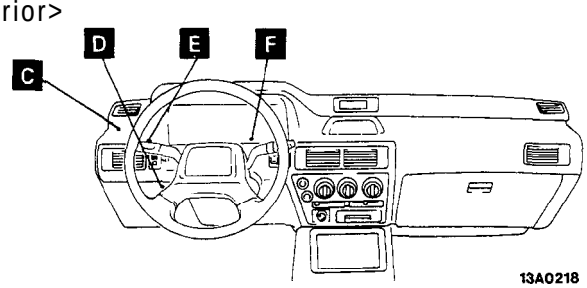
<Engine compartment>

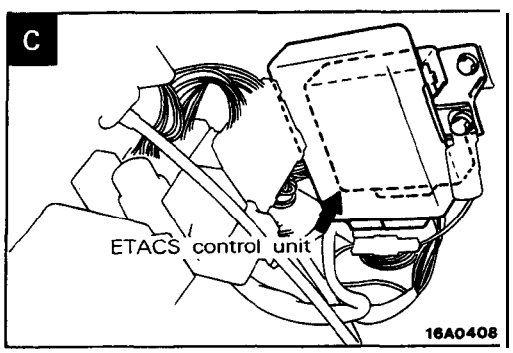


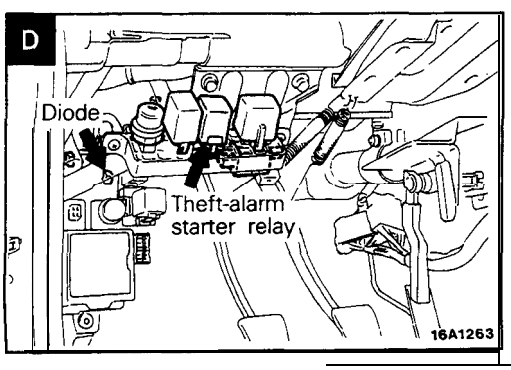


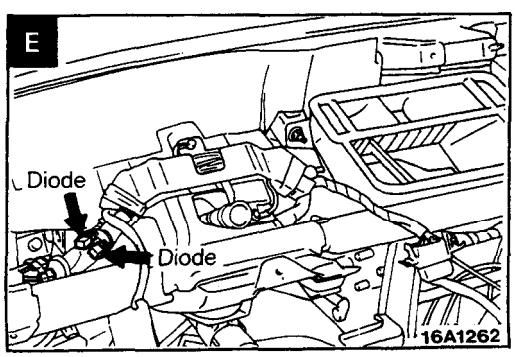


<Interior>



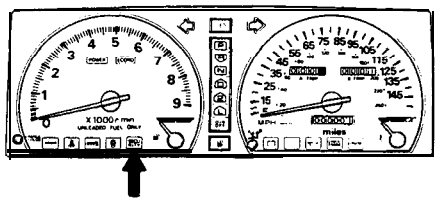






TSB Revision

F



Security light

68A0093

NOTES

STEERING

CONTENTS

M37AA--

E.P.S CONTROL UNIT AND E.P.S. MODE SELECTOR SWITCH 59

POWER STEERING GEAR BOX 32

POWER STEERING HOSES 58

POWER STEERING OIL PUMP 48

SERVICE ADJUSTMENT PROCEDURES..... 15

- Bleeding 22
- E.P.S. Solenoid Check 19
- Fluid Level Check 21
- Fluid Replacement 21
- Oil Pressure Switch Check 24
- Oil Pump Pressure Test 23
- Stationary Steering Effort Check 18
- Steering Angle Check 15
- Steering Wheel Centering 16
- Steering Wheel Free Play Check 15
- Steering Wheel Return to Center Check ... 19
- Tie Rod End Ball Joint Starting Torque Check 15
- Tie Rod End Ball Joint Variation Check 15
- V-Belt Tension Check 21

SPECIAL TOOLS 5

SPECIFICATIONS 2

- General Specifications 2
- Lubricants 4
- Sealants and Adhesives 4
- Service Specifications 2
- Torque Specifications 3

STEERING WHEEL AND SHAFT 25

TROUBLESHOOTING 6

- E.P.S. Circuit Diagram
- No Change of The Steering Effort Characteristic When The E.P.S. Mode-Select Switch is Used.
- Required Steering Effort is Always Great
- Steering Effort Remains Light at Moderate and High Speeds

SPECIFICATIONS

M37CA--

GENERAL SPECIFICATIONS

Items		Specifications
Gear box		
Steering gear type		Rack and pinion
Oil pump		
Oil pump type		Vane type
Displacement	cm^3/rev. (cu.in./rev.)	9.6 (.59)
Relief set pressure	MPa (psi)	8 (1,138)

SERVICE SPECIFICATIONS

M37CB--

Items		Specifications
Standard value		
Steering wheel free play (with engine stopped)	mm (in.)	11 (.43)
Steering angle		
Inner wheel		
FWD, AWD-M/T		37°30′±2
AWD-A/T		35°00′±2
Outer wheel		
FWD, AWD-M/T		30°40′
AWD-A/T		29°20′
Tie rod end ball joint starting torque	N m (in.lbs.)	0.5–2.5 (4-22)
Stationary steering effort	N (lbs.)	
Conventional power steering		37 (8)
4WS power steering		37 (8)
E.P.S.*		28 (6)
V-belt deflection	mm (in.)	6-9 (.24–.35)
Oil pump pressure	MPa (psi)	
Pressure gauge valve closed		7.5-8.2 (1,067–1,166)
Pressure gauge valve opened		0.8–1.0 (114-142)
EPS* solenoid current	A	0.9–1.1
Total pinion torque	N m (in.lbs.)	0.6–1.3 (5-11)
Tie-rod joint swing resistance	N (lbs.)	8–20 (1.9-4.6)
Tie-rod joint swing torque	N m (in.lbs.)	2-5 (17-43)
.imit		
Steering wheel free play (when hydraulic operation)	mm (in.)	30 (1.2)
Variation of tie rod end ball joint shaft direction	mm (in.)	1.5 (.059)
Oil pump pressure		
Pressure gauge valve opened	MPa (psi)	1.5 (213)
Space between vane and rotor	mm (in.)	0.06 (.0024)
Shaft backlash of pump body bushing and pulley assembly	mm (in.)	0.1 (.004)

NOTE
*: E.P.S.–Electronic-controlled Power Steering

TORQUE SPECIFICATIONS

M37CC--

Items	Nm	ft.lbs.
Steering wheel and shaft		
Steering wheel lock nut	35-45	25-33
Lower bracket	8-12	6-9
Tilt bracket installation bolt	8-12	6-9
Joint assembly	15–20	11-14
Column tube clamp	6-8	4-5
Steering gear box		
Joint assembly	15–20	11-14
Pressure hose to gear box	12-18	9-13
Return tube to gear box	12-18	9-13
Tie rod end to knuckle	24-34	17-25
Stay to crossmember	70–80	51-58
Stabilizer bar bracket	30–42	22–30
Front roll stopper insulator nut	50–65	36-47
Centermember to body	80–100	58-72
Front exhaust pipe to rubber hanger	10–15	7-11
Front exhaust pipe mounting bolt	30–40	22-29
Front exhaust pipe mounting nut		
<FWD>	40–50	29-36
<AWD>	30–40	22-29
Gear box mounting bracket to crossmember	60–80	43-58
Tie rod end lock nut	50–55	36–40
Tie rod to rack	80–100	58-72
Feed tubes	12-18	9-13
End plug	50–70	36-51
Pinion and valve assembly to self-locking nut	20–30	14-22
Rack support cover locking nut	50–70	36-51
Solenoid valve	15-22	11–16
PCV cap assembly	15-22	11–16
Valve housing installation bolts	17-26	12-19
4WS oil line to gear box	30–40	22-29
Connector	12-18	9-13
Feed tube clamp	4-6	3-4
)il pump		
Pressure hose to oil pump	14–21	10–15
Oil pump to oil pump bracket	35-45	25-33
Heat protector installation nut	9-14	7–10
Oil pump bracket to engine		
Front side	25-33	18-24
Left side	35-45	25-33
Oil reservoir installation bolt	9-14	7–10
Oil reservoir bracket installation bolt	9-14	7–10
Pump cover to pump body	18-22	13-16
Suction connector to pump body	6–10	4-7
Connector to pump body	50–70	36-51
Terminal assembly to pump body	25–30	18-22

TSB **Revision**

Items	Nm	ft.lbs.
eering Hoses		
Cooler tube to body	9-14	7–10
Cooler tube clamp	3.0–4.5	2-3
Return tube to body	9-14	7–10
Pressure tube to gear box	12-18	9-13
Return tube to gear box	12–18	9-13
Pressure hose to bcdy	9-14	7–10
Pressure hose to oil pump	14-21	10–15
Pressure hose to pressure tube	30–40	22-29
Pressure hose bracket	9-14	7–10

LUBRICANTS

M37CD--

Items		Specified lubricant	Quantity
Steering gear box	Bellows	Silicone grease	As required
	Rack and pinion	Repair kit grease	
	Bearing O-ring Oil seal Rack cover Pinion and valve assembly seal ring part	Automatic transmission fluid "DEXRON II"	
Oil pump	Flow control valve Friction surface of rotor, vane, cam ring and pump cover O-ring		
	Power steering fluid	Automatic transmission fluid "DEXRON II"	0.9 dm^3 (.95 qt.)

SEALANTS AND ADHESIVES

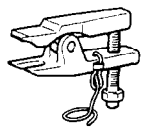
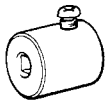
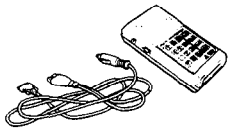
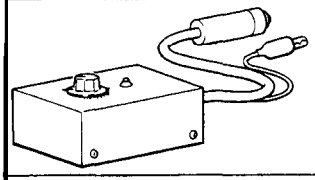
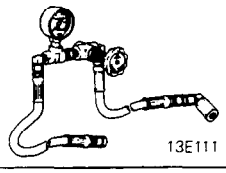
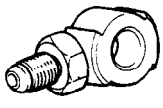
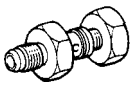
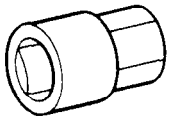
M37CE--

Items		Specified sealant and adhesive
Power steering gear box	End plug screw Power steering rack support cover screw	3M ATD Part No.8663 or equivalent

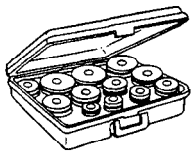
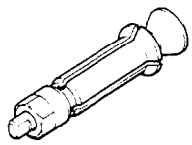
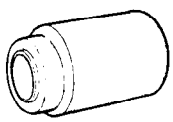
TSB Revision

SPECIAL TOOLS

M37DA--

Tool	Number	Name	Use
	MB991113-01 OPTIONAL: AVAILABLE FROM O.T.C.	Steering linkage puller	Disconnection of tie-rod end
	MB991006-01	Preload socket	Measurement of the pinion shaft preload
	MB991269 <1989 models> MB991341 <From 1990 models>	Scan tool (Multi-use tester <MUT>)	Checking the solenoid valve current control function
	(For the number, refer to GROUP 00- Precautions before service.)	ROM pack (for scan tool)	Checking the solenoid valve current control function
	MB991139	Dummy speed oscillator	Checking the solenoid valve current control function Checking of stationary steering effort during simulated high-speed driving
 13E111	MB990662-01	Oil pressure gauge assembly	Measurement of oil pressure
	MB990993 or MB991217	Power steering oil pressure gauge adapter (pump side)	Measurement of oil pressure
	MB990994	Power steering oil pressure gauge adapter (hose side)	Measurement of oil pressure
	MB991204	Torque wrench socket	Adjustment of rack support Removal of rack support cover

TSB Revision

Tool	Number	Name	Use
	GENERAL SERVICE TOOL	Bearing and oil seal installer set (Refer to GROUP 26)	Installation of the oil seal and bearing
	MB991120	Needle bearing puller	Removal of rack housing needle bearing
	MB991317	Seal ring installer	Compression of the seal rings after replacement of the pinion seal rings
	MB990776-01	Front axle base	Installation of the dust cover

TROUBLESHOOTING

M37EAAK

Symptom	Probable cause	Remedy
Steering operation is "hard" (at low speed and in all gears), or there is notable torque unevenness when the steering wheel is turned	Loose V-belt	Adjust
	Insufficient fluid *1	Replenish
	Fluid leakage *2	Retighten or replace
	Twisted or damaged hoses	Correct the routing or replace
	No increase in oil pump pressure	Repair or replace (oil pump, gear box)
	Incorrect mounting of the steering gear box on the crossmember	Retighten
	Twisted firewall cover with steering shaft	
	Malfunction of the E.P.S. control unit, related to wiring	Refer to troubleshooting guide related to E.P.S. control
	During operation of the E.P.S. control unit fail-safe function	
	Improper front wheel alignment	Adjust
	Damaged V-belt	Replace
	Excessive friction around steering linkage	
	Pinion and valve malfunction (seal damage, etc.)	
	Rack piston seal damage	
	Malfunction of ball joint(s) (excessive swinging torque or starting torque)	

TSB Revision

Symptom	Probable cause	Remedy	
The steering wheel does not return properly	Incorrect front wheel alignment	Adjust	
	Friction of steering shaft joint and/or body grommet	Correct or replace	
	Rough turning of tie rod end and/or ball joint	Apply grease or replace	
	Excessive turning resistance of tie rod ball joint	Replace	
	Gear sliding or rotating part if damaged		
	Bent rack		
	Incorrect installation of gear box cross-member	Replace	
		Retighten	
	Malfunction of the E.P.S. control unit, or related to wiring	Refer to troubleshooting guide related to E.P.S. control	
	During operation of the E.P.S. control unit fail-safe function		
Lack of driving stability	Loosened steering linkage ball joint	Retighten or replace	
	Malfunction of ball joint(s) (insufficient swinging torque or starting torque)	Replace	
	Loose installation of gear box and cross-member	Retighten	
Drifts to one side	Tires (Assuming that the tire inflation pressure, tire wear, front alignment, and front wheels are all normal)	Rotate	
Steering effort remains light at moderate and high speeds	Malfunction of control unit or wiring (The engine speed signal and vehicle-speed signal are both not being input)	Refer to "Trouble Symptom 1" of the flow-chart type troubleshooting guide	
	Malfunction of solenoid or P.C.V.	Check fluid in fluid reservoir for cleanliness	
Required steering effort is always great.	Damaged or disconnected harness between ground and the data link connector (E.P.S. terminal), or short-circuit	With the ignition key at the ON position, check whether or not the voltage between ground and the data link connector (E.P.S. terminal) is 0.7V.	Repair the harness.
	Malfunction of control unit		Replace the control unit.
Abnormal noise (hissing sound, whistling sound)	Air in system due to insufficient fluid	Replenish or bleed air	
	Air trapped in pipes	Retighten or replace or bleed air	
	Crushed suction hose	Replace	
Abnormal noise (creaking sound, squeaking sound)	Slipping V-belt	Adjust or replace	

Symptom	Probable cause	Remedy
Abnormal noise (creaking sound, squeaking sound)	Damaged V-belt	Replace
	Burned out oil pump	
Abnormal noise (rattling sound, clunking sound)	Loose gear box bracket mounting	Retighten
	Loose oil pump bracket and/or oil pump mounting bolts	
	Loose steering linkage or bail joint	
	Play in steering linkage or ball joint	Replace
	Interference between chassis and piping	Repair
Noticeable fluid low noise with vehicle stopped and steering wheel at neutral position	Malfunction of the E.P.S. control unit, related to wiring	Refer to troubleshooting guide related to E.P.S. control
	During operation of the E.P.S. control unit fail-safe function	
	Malfunction of solenoid valve or oil passage switching valve	Replace

NOTE
(1) *1 Because fluid leakage is a possible, check carefully. Especially check the inside of the gear bellows for leakage.
(2) *2 Because the gear-box-to-piping coupling is sealed by an O-ring, carefully check whether it is damaged before retightening.
(3) A soft humming sound can be heard from the oil pump when the steering wheel is turned while the vehicle is standing still. This sound is caused by the pulsing of the fluid inside the pump, and does not indicate a malfunction.
(4) If the steering wheel is turned while the brake pedal is being depressed, some sound may be heard from the brakes. This sound is caused by the sticking of the brake pads as the tires turn, and does not indicate a malfunction.
(5) When the steering wheel is turned while the vehicle is standing still, hissing sounds can be heard. These sounds are caused by the fluid flowing through the pressure control valve, and do not indicate a malfunction.
(6) Before replacing the steering gear box assembly, thoroughly check whether or not the electric system of the E.P.S. is normal.

TSB Revision

E.P.S. (related to control)

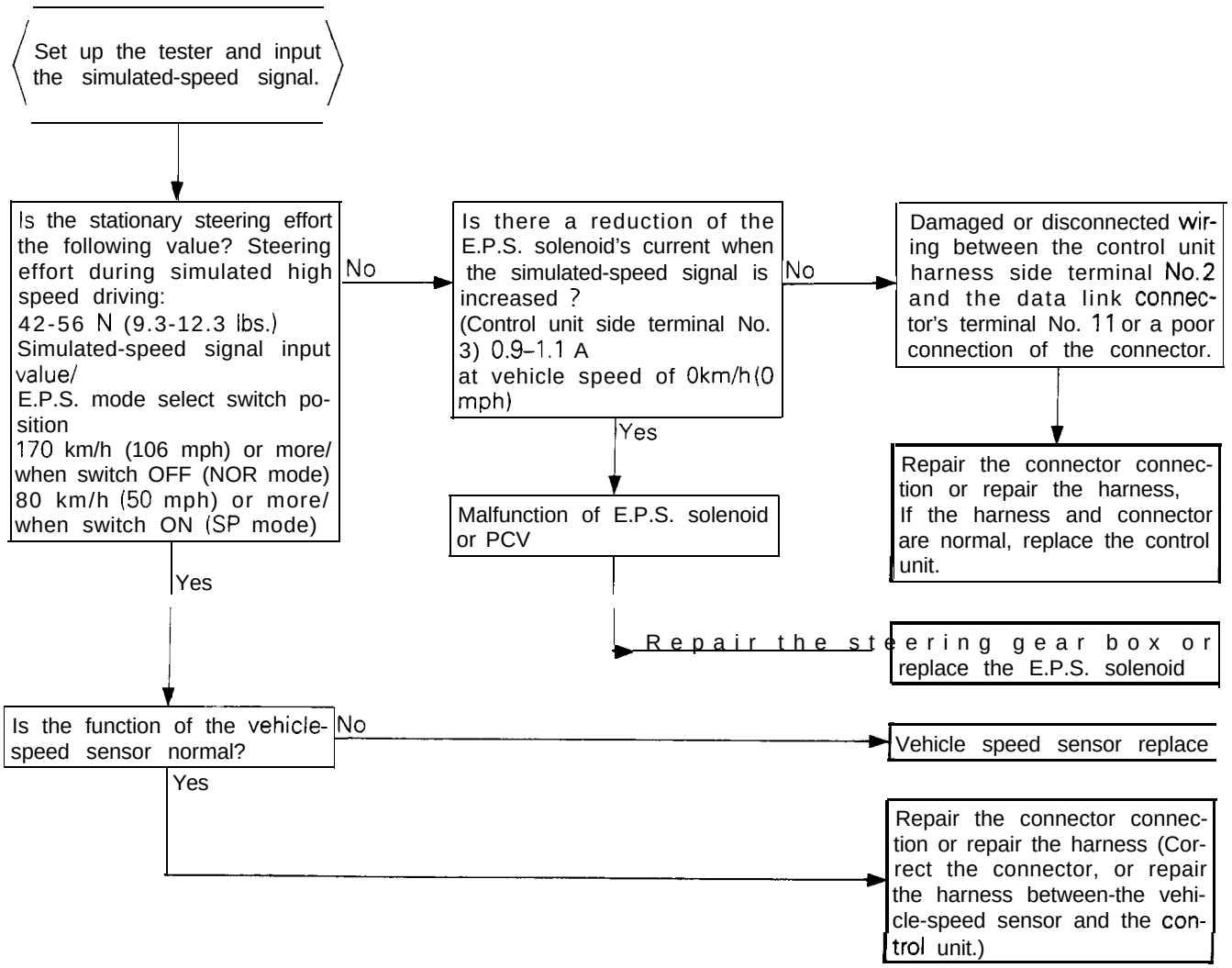
Symptom	Malfunction system	Check items,	Reference for check
1. Steering effort remains light at moderate and high speeds	Control unit	Steering effort (full turn simulated by tester)	37A-18
		E.P.S. solenoid current relative to vehicle speed change	37A-19
	Steering gear box	E.P.S. solenoid activation	37A-19
		P.C.V. activation	
	Vehicle speed sensor	Vehicle speed sensor operation	–
2. Required steering effort is always great.	Steering gear box	E.P.S. solenoid valve continuity	37A-19
		E.P.S. solenoid activation	37A-19
		P.C.V. activation	–
	Wiring harness or fuse	Fuse blown or not	
		E.P.S. solenoid harness	–
	Control unit	*Fail-safe system activation	–
		Each harness continuity, and control unit power supply circuit	–
		Control unit activation	37A-59
3. No change of the steering effort characteristic when the E.P.S. mode-select switch is used.	E.P.S. mode-select switch	Continuityof E.P.S. mode-select switch	37A-59
	Control unit	Each harness continuity, and control unit power supply circuit	–
		Control unit activation	37A-59

NOTE
(1) For checking procedures for each problem, refer to the flow-chart type of troubleshooting guide on the following page.
(2) To release the fail-safe system where indicated by the * symbol, set the ignition switch to the “ACC” or “LOCK” position, and then start the engine once again.
(3) P.C.V. = Pressure control valve

Trouble Symptom 1

Steering effort remains light at moderate and high speeds.

NOTE
(1) Checks to be made by using the special tool; dummy speed oscillator or scan tool. (Refer to P.37A-19.)
(2) Refer to the circuit diagram for terminal numbers at the harness side of the E.P.S. control unit.

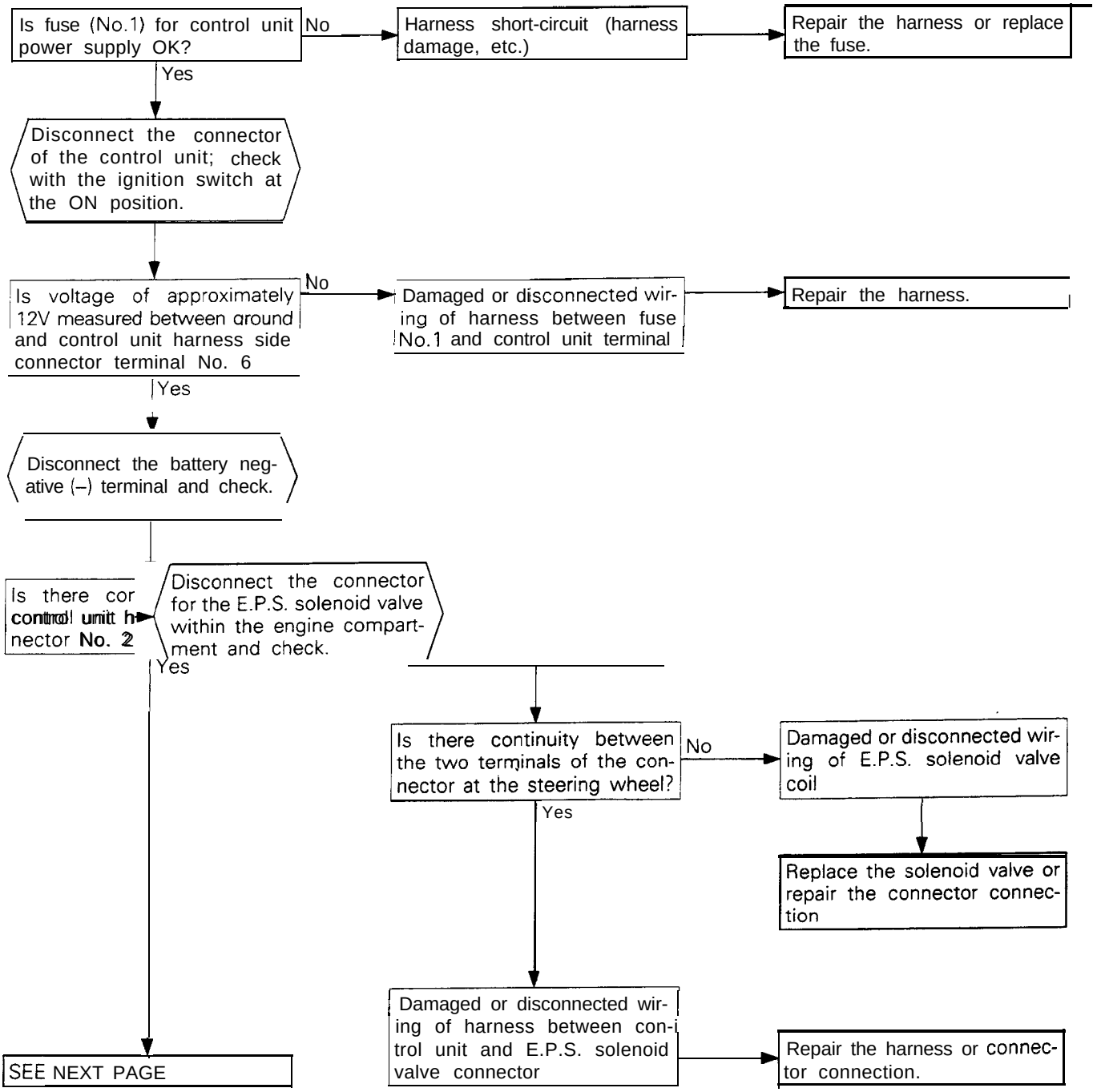


TSB Revision

Trouble Symptom 2

No flow of solenoid current (large steering effort required to turn steering wheel fully) when the ignition switch is at the ON position.

NOTE
(1) Before making the checks described below, check to be sure that the fail-safe system has not been activated by racing the engine.
(2) Refer to the circuit diagram for terminal numbers at the harness side of the E.P.S. control unit.



TSB Revision

CONTINUED FROM PREVIOUS PAGE

During the continuity check described above, was approximately 5.7 to 7.7 Ω of resistance [at 20°C (68°F)] measured between terminal No. 2 and terminal No. 3?

No → Poor E.P.S. solenoid valve connector contact → Repair the E.P.S. solenoid valve connector contact

Yes → Poor control unit connector contact, or control unit malfunction → Check the control unit connector contact part; or replace the control unit.

Trouble Symptom 3

No change of the steering effort characteristic when the E.P.S. mode-select switch is used.

NOTE
Refer to the circuit diagram for terminal numbers at the harness side of the E.P.S. control unit.

Is fuse (No. 1) for control unit power supply OK?

No → Harness short-circuit (harness damage, etc.) → Repair the harness or replace the fuse.

Yes → With the ignition switch OFF, disconnect and check the connector of the control unit.

Is there an alternately repeating condition of continuity and non-continuity between terminal No. 1 (of the connector for the control unit) and ground each time the E.P.S. mode selector switch is switched ON and OFF?

No → If always non-continuity:
- Disconnected switch connector, or damaged or disconnected harness wiring.
- Malfunction (damaged or disconnected wiring) of E.P.S. mode-select switch.

If always continuity:
- Short-circuit of the harness, or malfunction (short-circuit) of the E.P.S. mode-select switch.

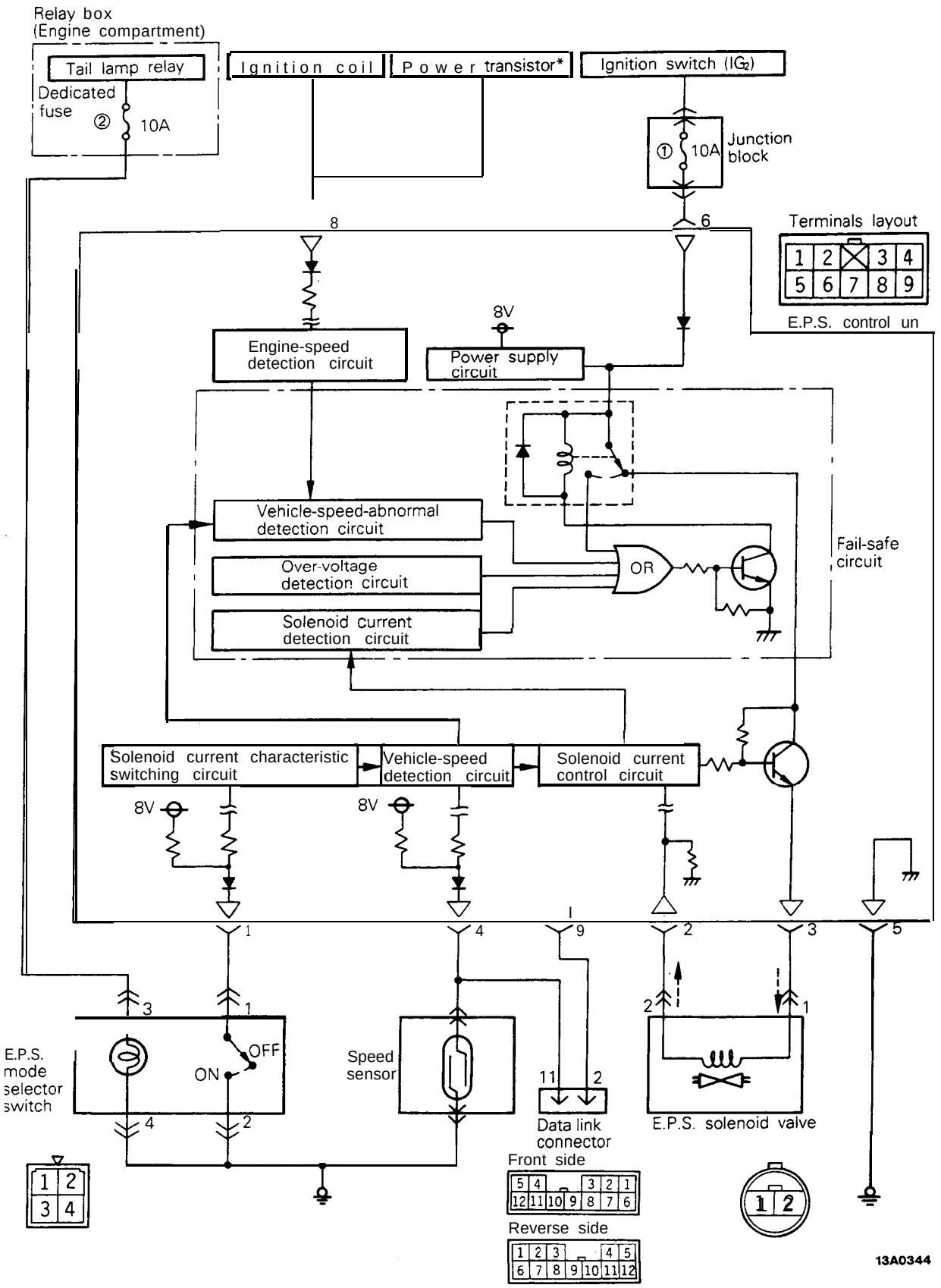
→ Repair the harness, or replace the E.P.S. mode selector switch

Yes → Poor control unit connector contact, or control unit malfunction → Check the control unit connector contact part; or repalce the control unit

TSB Revision

E.P.S. CIRCUIT DIAGRAM

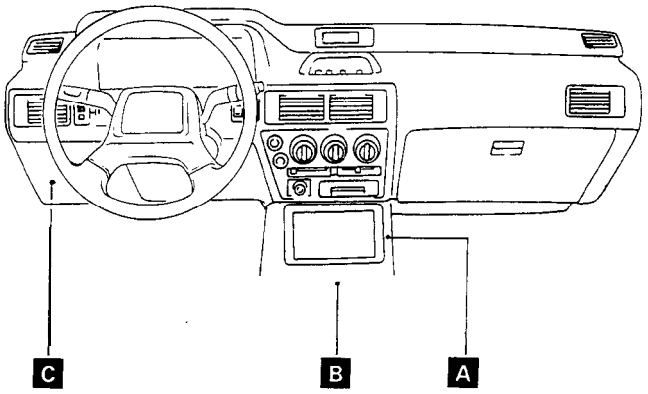
*: <From 1990 models>



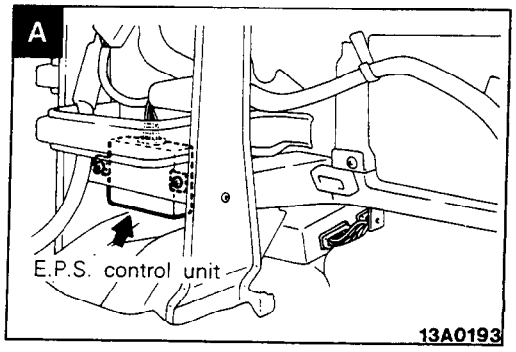
TSB Revision

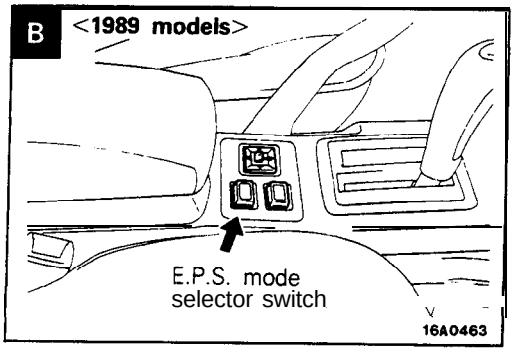
LOCATION OF E.P.S. CONTROL COMPONENTS

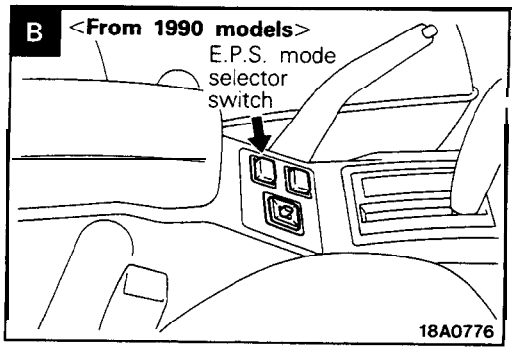
Name	Symbol
E.P.S. control unit	A
E.P.S. mode selector switch	B
Data link connector	C

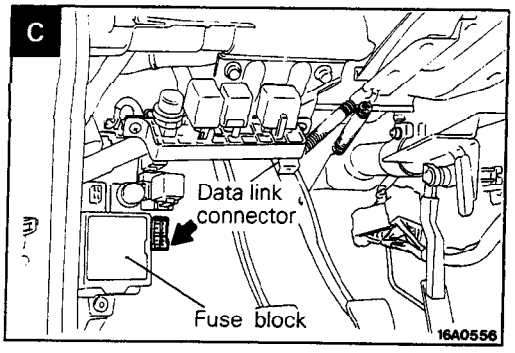


13A0218

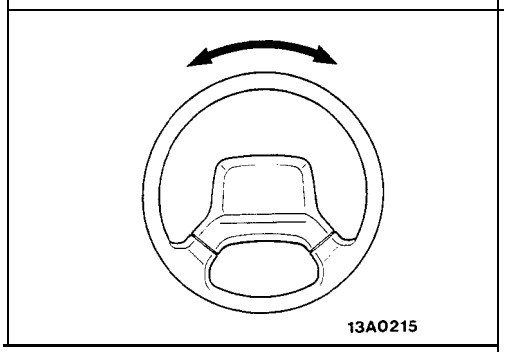


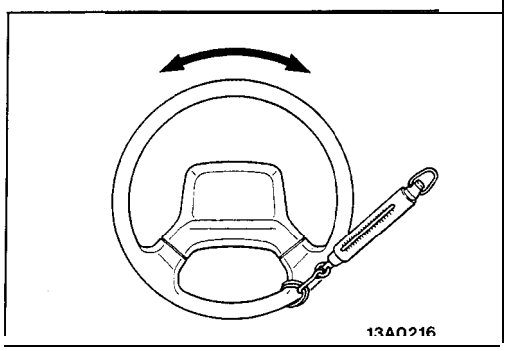


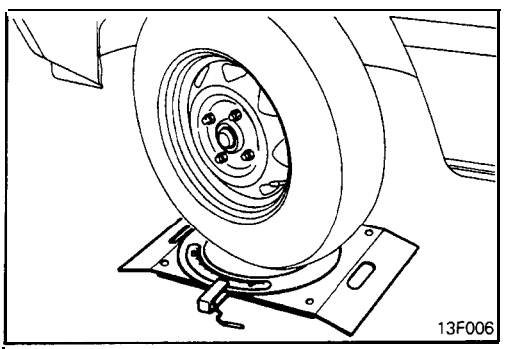


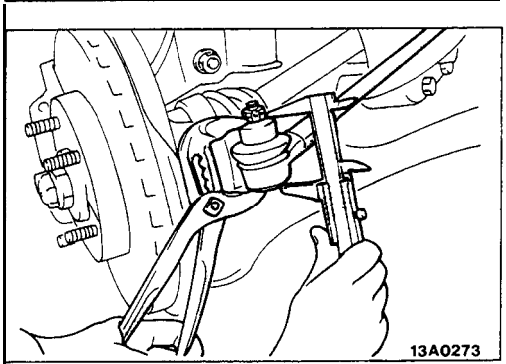


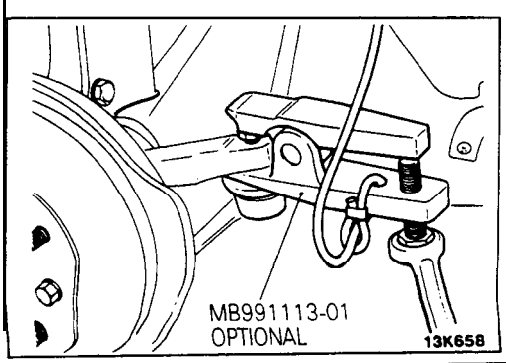
TSB Revision











SERVICE ADJUSTMENT PROCEDURES

M37FABH

STEERING WHEEL FREE PLAY CHECK

1. With engine running (hydraulic operation), set front wheels straight ahead.
2. Measure the play on steering wheel circumference before wheels start to move when slightly moving steering wheel in both directions.

   Limit: 30 mm (1.2 in.)
3. When play exceeds the limit, check for play on steering shaft connection and steering linkage. Correct or replace.
4. If the free play still exceeds the limit value set steering wheel straight ahead with engine stopped. Load 5 N (1 lb.) towards steering wheel circumference and check play.

   Standard value
   (steering wheel play with engine stopped): 11 mm (.43

   If the play exceeds the standard value, remove steering gear box and check total pinion torque.

M37FDBK

1. Set front wheels on turning radius gauge and measure steering angle.

   <FWD, AWD-M/T>
   Inner wheel 37°30′ ± 2"
   Outer wheel 30°40
   <AWD-A/T>
   Inner wheel 35°00′ ± 2"
   Outer wheel 29°20′
2. When not within the standard value, it is probably a toe problem. Adjust toe (Refer to GROUP 26–Service Adjustment Procedures) and recheck.

TIE ROD END BALL JOINT VARIATION CHECK (SHAFT DIRECTION)

M37FPAB

2. Set a caliper gauge as illustrated and measure the displacement with the ball stud compressed.

   (.059 in.)
3. If the measured displacement exceeds the limit, replace the tie-rod end.

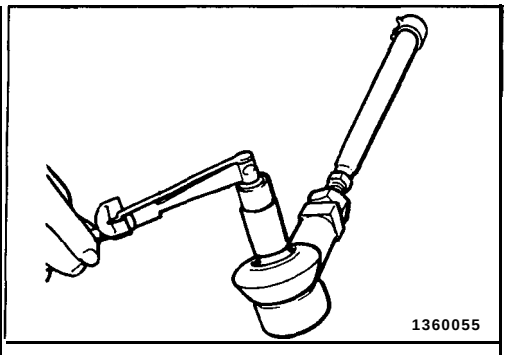
   Caution
   Even if the variation is within the limit, check ball joint starting torque.

TIE ROD END BALL JOINT STARTING TORQUE CHECK

M37FEBC

1. Disconnect tie rod and knuckle with special tool.

   Be sure to tie the cord of the special tool to the nearby part.



2. Move ball joint stud several times and install nut on stud. Measure ball joint starting torque.

   Standard value: 0.5–2.5 Nm (4-22 in.lbs.)

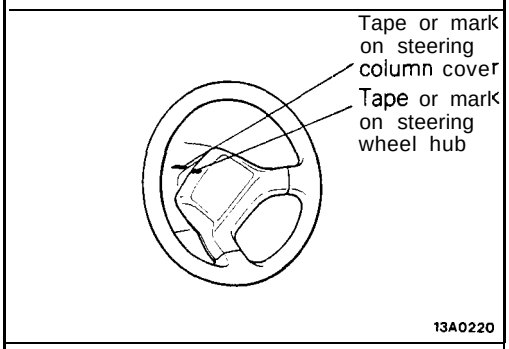
3. When starting torque exceeds the standard value, replace tie rod end.
4. When the starting torque is under the standard value, check for play or ratcheting in ball joint. If none of these, it is still serviceable.

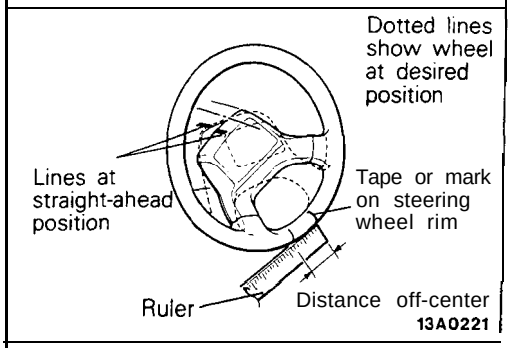
STEERING WHEEL CENTERING M37FNAC

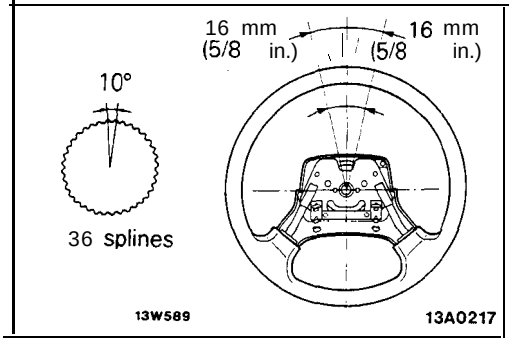
SIMPLIFIED STEERING WHEEL CENTERING

Determing Steering Wheel's off Center

1. for the road test, take along chalk or tape and a ruler.
2. Drive straight ahead on an uncambered level surface.
3. When the vehicle's wheels are pointing straight ahead, mark the steering wheel hub and column cover with a chalk or tape line.
4. Stop the vehicle and line up the marks on the hub and column cover.
5. Place a tape strip or mark on the steering wheel rim.
6. Hold a ruler next to the rim as shown in the illustration, and then steer the steering wheel until it is in the desired centered position.
7. Record the distance the strip or mark on the rim has moved. This is how far the steering wheel is off center. If it is more than 16 mm (5/8 in.) aff center, it can be centered by indexing it ten degrees towards the center.



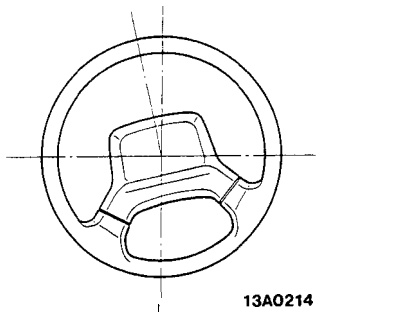




Indexing Steering Wheel to Center It

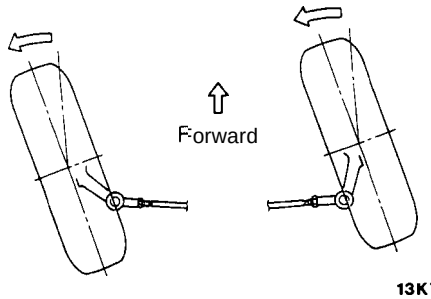
The steering wheel shaft has 36 splines, allowing the steering wheel to be indexed in ten-degree increments.

1. Remove the steering wheel.
2. Without disturbing the position of the steering wheel shaft, re-install the wheel as near on-center as possible.



13A0214

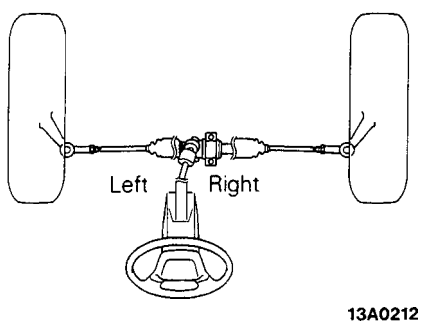
Steering wheel off center left



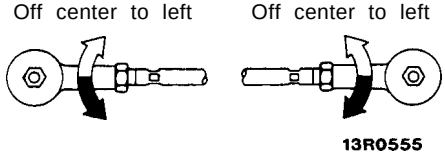
13K710

PRECISION STEERING WHEEL CENTERING

In general, the tie rods are adjusted to steer the front wheels in the same direction that the steering wheel is off center. If the steering wheel is off center to the left, center it by adjusting the tie rods to make the front wheels steer toward the left, and vice versa.



13A0212



13R0555

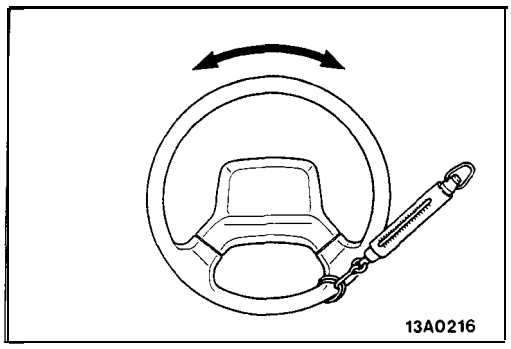
Turn both tie rods in the same direction.

1. Mark the tie rods and tie rod ends with chalk before loosening the lock nuts.
2. Hold the tie rod with a wrench and loosen the lock nut.
3. Hold the tie rod end with a wrench and turn the tie rod the desired number of turns.

   For 2" or 6 mm (.25 in.) at the steering wheel rim 1/5 turn of tie rods

4. Tighten the lock nut to the specified torque, taking care not to turn the tie rod.

TSB Revision



STATIONARY STEERING EFFORT CHECK M37FFAM

1. With the vehicle stopped on a flat, paved surface. turn the steering wheel to the straight ahead position.
2. Start the engine and set it to 1 ,000 ± 100 rpm.

Caution
After checking the engine rpm, there must be a return to the standard idling rpm.

3. Attach a spring balance to the outer circumference Of the steering wheel and measure the steering force required to turn the steering wheel from the straight ahead position to the left and right (within a range of 1.5 turns).
   Also check to be sure that there is no significant fluctuation of the required steering force.

Standard value:

Steering effort	
<Conventional Power Steering>	
<4WS Power Steering>	**37 N (8 lbs.) or less**
<E.P.S.>	**28 N (6 lbs.) or less**
Fluctuation allowance	**6 N (1.3 lbs.) or less**

4. If the measured force exceeds the standard value, refer to the troubleshooting (Refer to P.37A-9) and make the checks and adjustments described there.
5. For models equipped with the E.P.S., the vehicle speed is detected by the E.P.S. solenoid, thereby changing the required steering effort, and therefore, after checking the E.P.S. solenoid, a tester should be used to input simulated-speed signals so that the required stationary steering effort during simulated high speed driving can be checked.
   For information concerning the checking of the E.P.S. solenoid and the set up of the tester, refer to P.37A-19.

(1) Check whether or not the required steering effort when the turn is started is 1.5 to two times the standard value shown in item (3) when simulated-speed signals of the values indicated below are input.

<Reference value>

Stationary steering effort at simulated high speed

42-56 N (9.3-12.3 lbs.)

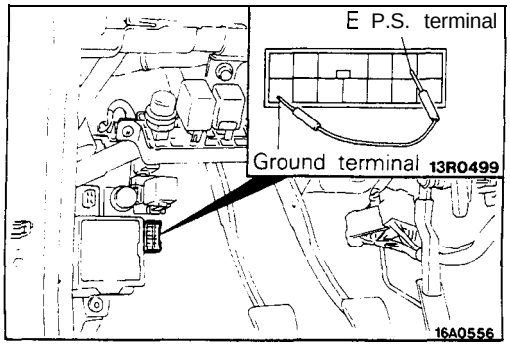
Input value of simulated-speed signals

When switch OFF (NOR mode):

170 km/h (106 mph) or more

When switch ON (SP mode):

80 km/h (50 mph) or more



(2) If there is no change of the required steering effort, refer to the troubleshooting guide (P.37A-9) for the procedures for checking the various components.

NOTE
It is also possible to make the check described in step (5), without using the tester, by short-circuiting the E.P.S. terminal and the ground terminal of the data link connector, as shown in the illustration at the left.

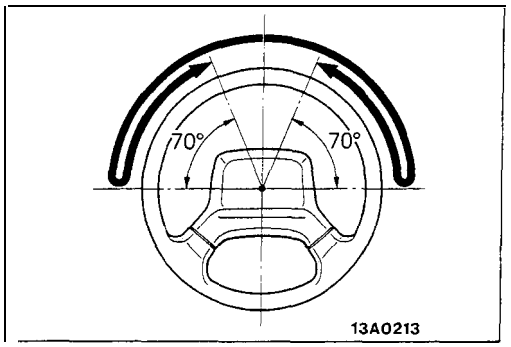
TSB Revision

(3) For 4-speed A/T models, when making the check in step (5), there will be a 3-speed hold by the fail-safe function. Therefore, be sure to disconnect the negative (–) terminal of the battery for ten seconds or longer in order to cancel the 3-speed hold after completion of checks by using the tester.

Caution

1. Never drive the vehicle with the tester connected or data link connector short circuit.

2. The driving test used for making checks while the vehicle is moving should be done in a safe place.



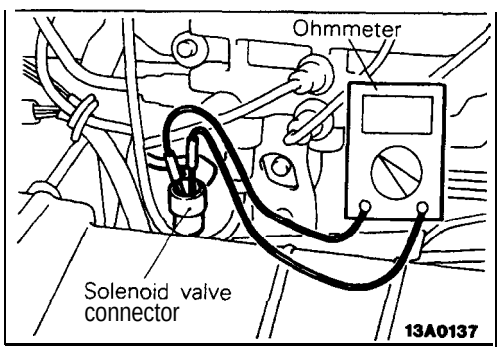
STEERING WHEEL RETURN TO CENTER CHECK M37FGAE

To make this test, conduct a road test and check as follows.

1. Make both gradual and sudden turns and check the steering "feeling" to be sure that there is no difference in the steering force required and the wheel return between left and right turns.
2. At a speed of 35 km/h (22 mph), turn the steering wheel 90°, and release the steering wheel after 1 or 2 seconds. If the steering wheel then returns 70° or more, the return can be judged to the satisfactory.

NOTE

There will be a momentary feeling or "heaviness" when the wheel is turned quickly, but this is not abnormal. (This is because the oil pump discharge amount is especially apt to be insufficient during idling.)



E.P.S. SOLENOID CHECK M37FRAB

SOLENOID CONTINUITY CHECK

Check for continuity, by using an ohmmeter, between the solenoid valve terminal and the disconnection of the solenoid valve connector.

SOLENOID CURRENT CHECK

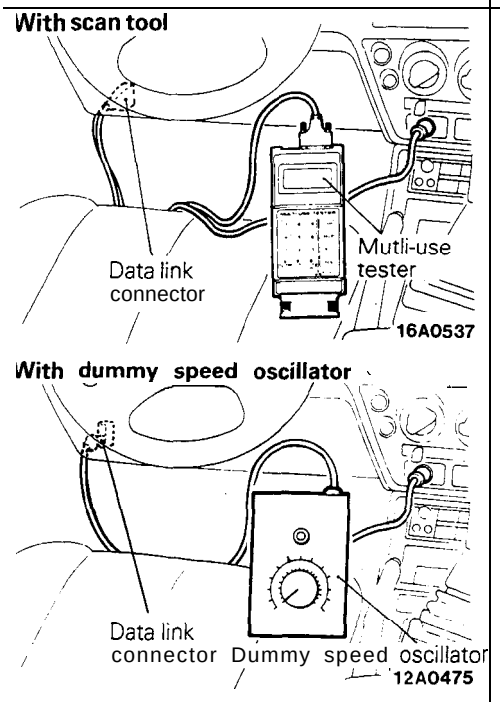
1. Set up the scan tool or dummy speed oscillator as follows.

(1) Turn the ignition switch to ACC or LOCK, and apply the parking brake.

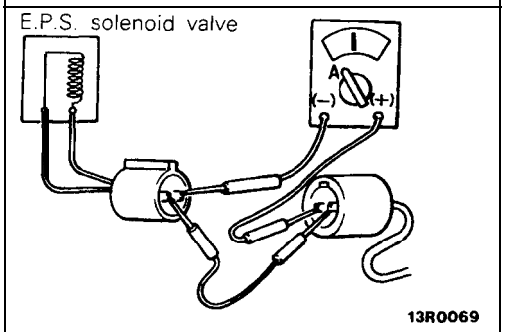
NOTE

The fail-safe system will be activated when the engine is raced for approximately 15 seconds at an engine speed of 2,300 rpm of higher, and the solenoid current will be cut, but the fail-safe system can be cancelled by switching OFF the engine and then restarting it.

TSB Revision

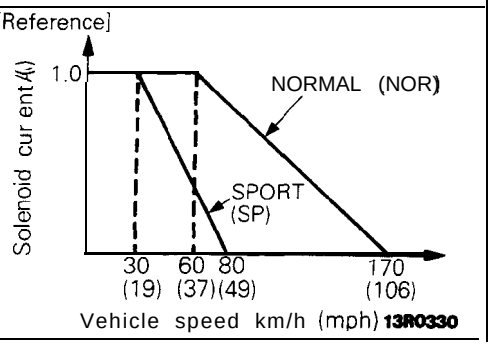


(2) For the dummy speed oscillator, set the speed-selection switch to 0 km/h (0 mph).
(3) Connect the connector of the tester to the data link connector at the side part of fuse block, and then connect the connector for the power supply to the cigarette lighter socket (chassis side).
For models equipped with the auto-cruise control system, the main switch must be switched OFF.
(4) Start the engine and let it idle.
(5) For the scan tool, input the simulated vehicle speed, using the vehicle-speed signal function. If the simulated vehicle speed cannot be input, a message will be displayed on the tester's display; move the vehicle ahead 0.3 to 0.4 m (.98 to 1.31 ft.) if such a message is displayed.
(6) For the dummy speed oscillator, set the vehicle-speed selection switch to 10–20 km/h (6–12 mph), and check to be sure that the monitor light is flashing. If it remains steadily illuminated rather that flashing, move the vehicle forward about 0.3–0.4 m (.98–1.31 ft.) until it begins flashing.



2. Disconnect the wiring harness connector (the waterproof connector in the engine compartment) of the E.P.S. solenoid valve, and then connect a voltmeter between the solenoid valve connector and the harness at the body side.

Caution
Do not ground the solenoid terminal.



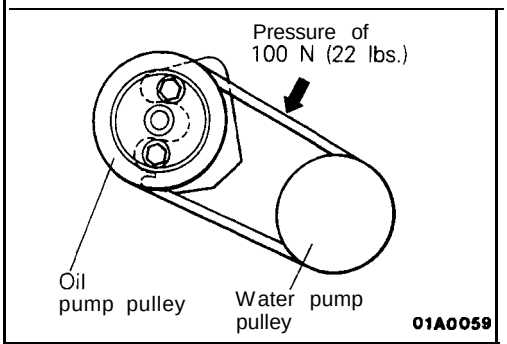
3. Check to be sure that the solenoid current is within the standard value range when the vehicle speed is 0 km/h (0 mph), and that it decreases as the vehicle speed is increased.

Standard value: 0.9–1.1A at vehicle speed of 0 km/h (0 mph)

4. If the solenoid current does not decrease when simulated-speed signals for an increased speed are input, refer to the troubleshooting guide (P.37A-9).
5. For 4-speed automatic transaxle models, when the tester is used, there will be a 3-speed hold by the fail-safe function.
Therefore, be sure to disconnect the negative (–) terminal of the battery for ten seconds or longer in order to cancel the 3-speed hold after completion of checks by using the tester.

Caution
1. Never drive the vehicle with the tester connected.
2. The driving test used for making checks while the vehicle is moving should be done in a safe place.

TSB Revision



V-BELT TENSION CHECK M37FHAI

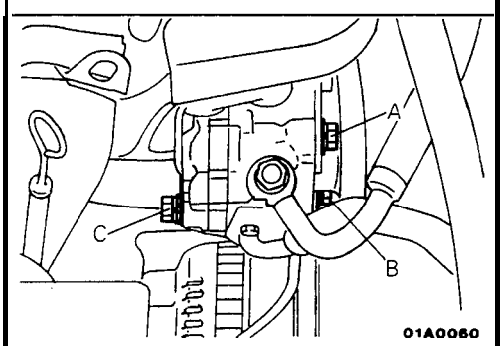
1. Check to be sure that the belt is not damaged and that the V-belt is correctly attached to the groove of the pulley.

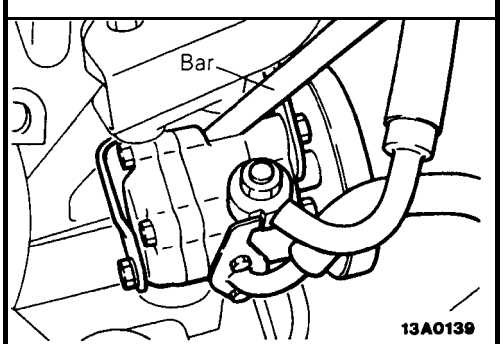
   NOTE
   If there is abnormal noise or belt slippage, check the belt tension and check for unusual wear or abrasion, or damage, of the pulley contact surface, and for scars or scratches on the pulley.

2. Press in V-belt at the illustrated position with about 100 N (22 lbs.) and measure deflection.

   Standard value: 6-9 mm (.24–.35 in.)

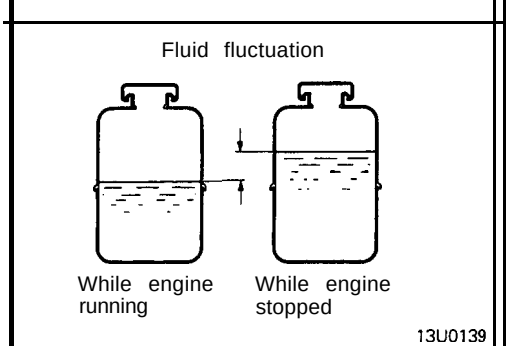
3. If there is a deviation from the standard value range, make an adjustment of the belt tension by following the procedures described below.
   (1) Loosen bolts A, B and C (for holding the oil pump).





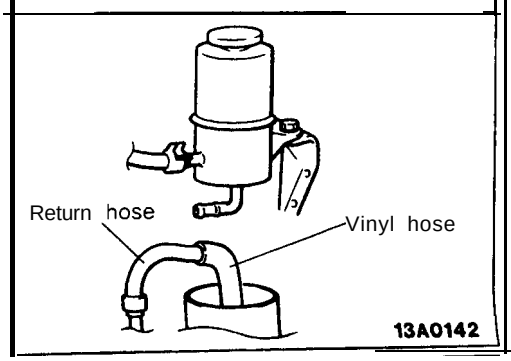
   (2) Place a bar or similar object against the body of the oil pump, and, while manually providing the suitable amount of tension, adjust the amount of flexion of the belt.
   (3) Tighten bolts A, B and C (for holding the oil pump).
   (4) Check the amount of flexion of the belt; readjust if necessary.

   Caution
   The check should be made after turning the engine one time or more in the regular direction of rotation (to the right).



FLUID LEVEL CHECK M37FIAI

1. Park the vehicle on a flat, level surface, start the engine, and then turn the steering wheel several times to raise the temperature of the fluid to approximatery 50–60°C (122–140°F).
2. With the engine running, turn the wheel all the way to the left and right several times.
3. Check the fluid in the oil reservoir for foaming or milkiness.
   Check the difference of the fluid level when the engine is stopped, and while it is running. If the fluid level changes considerably, air bleeding should be done.



FLUID REPLACEMENT M37FJAJ

1. Raise the front wheels on a jack, and then support them with rigid racks.
2. Disconnect the return hose connection.
3. Connect a vinyl hose to the return hose, and drain the oil into a container.

4. Disconnect the high-tension cable, and then while operating the starting motor intermittently, turn the steering wheel all the way to the left and right several times to drain all of the fluid.

Caution
Be careful not to position the high-tension cable near the carburettor or the delivery pipe.

5. Connect the return hoses securely, and then secure it with the clip.
6. Fill the oil reservoir with the specified fluid up to the lower position of the filter, and then bleed the air.

Specified fluid: Automatic transmission fluid "DEXRON II"

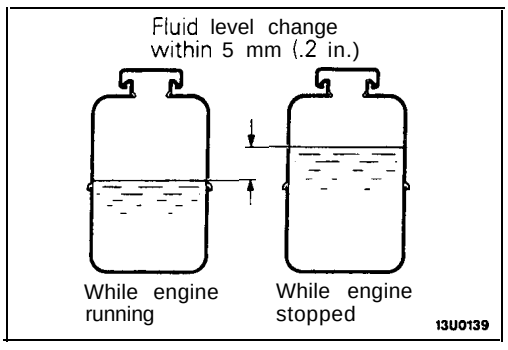
BLEEDING

M37FKAG

2. Manually turn the oil pump pulley a few times.
3. Turn the steering wheel all the way to the left and to the right five or six time.
4. ing the starting motor intermittently, turn the steering wheel all the way to the left and right five or six times (for

Caution
1. During air bleeding, replenish the fluid supply so that the level never falls below the lower position of the filter.
2. If air bleeding is done while engine is running, the air will be broken up and absorbed into the fluid; be sure to do the bleeding only while cranking.

5. Connect the ignition cable, and (idling).
6. no air bubbles in the oil reservoir.
7. to the specified position on the level gauge.
8. Confirm that there is very little change in the fluid level
9. Check wheter or not the change in the fluid level is less than 5 mm (.2 is running.

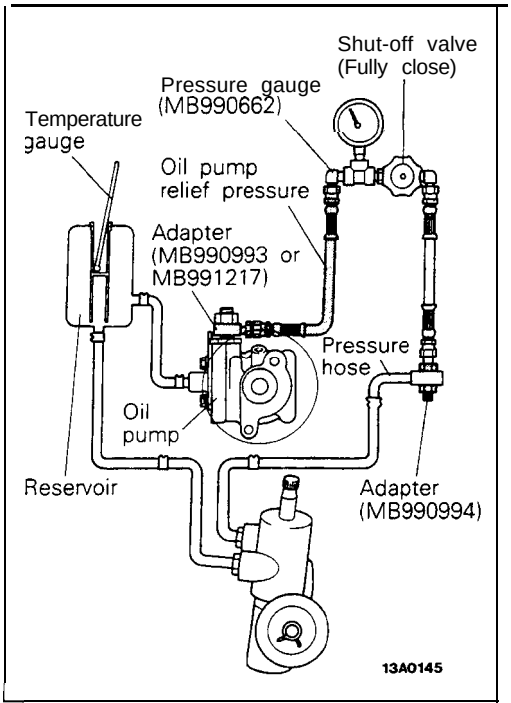


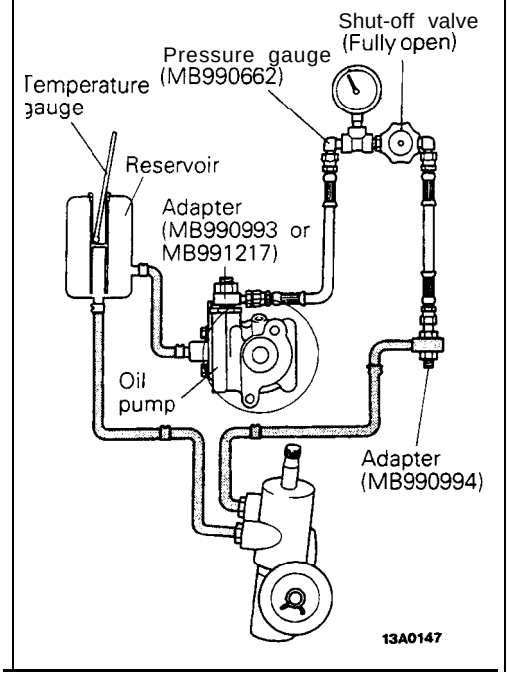
Caution
(.2 in.) or more, the air has not been completely bled from the

2. If the fluid level rises suddenly after the engine is stopped, the air has not been completely bled.
3. If air bleeding is not complete, there will be abnormal noises from the pump and the flow-control

the life of the pump, etc.

TSB Revision





OIL PUMP PRESSURE TEST M37FLAF

CHECKING THE OIL PUMP RELIEF PRESSURE

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximatelv 50–60°C(122–140°F).
3. Start the engine and idle it at 1 ,000 ± 100 rpm.
4. Fully close the shut-off valve of the pressure gauge and measure the oil pump relief pressure to confirm that it is within the standard value range.

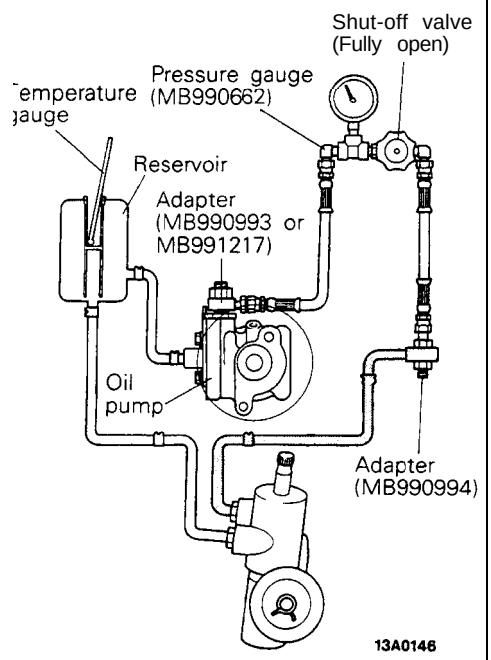
   Standard value: 7.5-8.2 MPa (1,067–1,166 psi)

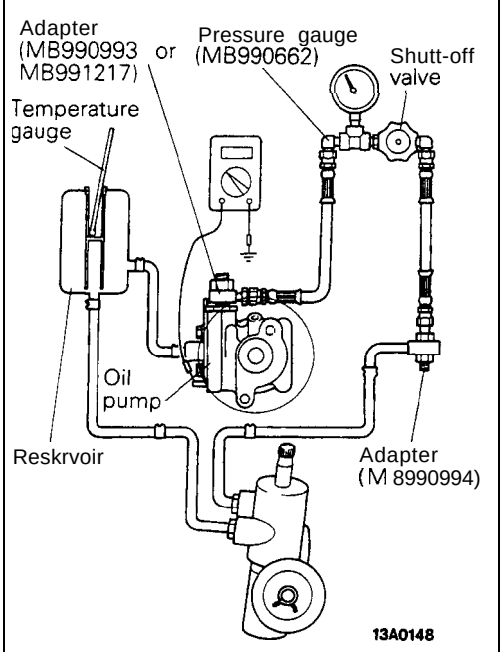
   Caution
   Pressure gauge shut-off valve must not remain closed for more than 10 seconds.
5. If it is not within the standard value, overhaul the oil pump.
6. Remove the special tools, and then tighten the pressure hose to the specified torque.
7. Bleed the system.

CHECKING THE PRESSURE UNDER NO-LOAD CONDITIONS

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C(122–140°F).
3. Start the engine and idle it at 1,000 ± 100 rpm.
4. Check whether or not the hydraulic pressure is the standard value when no-load conditions are created by fully opening the shut-off valve of the pressure gauge.

   Standard value: 0.8–1.0 MPa (114-142 psi)
   Limit: 1.5 MPa (213 psi)
5. If it is not within the standard value, the probable cause is a malfunction of the oil line or steering gear box, so check these parts and repair as necessary.
6. Remove the special tools, and then tighten the pressure hose to the specified torque.
7. Bleed the system.





CHECKING THE STEERING GEAR RETENTION HYDRAULIC PRESSURE

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C (122–140°F).
3. Start the engine and idle it at 1,000 ±100 rpm.
4. Fully close and fully open the shut-off valve of the pressure gauge.
5. Turn the steering wheel all the way to the left or right; then check whether or not the retention hydraulic pressure is the standard value.

   Standard value: 7.5–8.2 MPa (1,067–1,166 psi)
6. When not within the standard value, overhaul the steering gear box.
   Remeasure fluid pressure.
7. Remove the special tools, and then tighten the pressure hose to the specified torque.
8. Bleed the system.

OIL PRESSURE SWITCH CHECK M37FUAA

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C(122–140°F).
3. The engine should be idling.
4. Disconnect the connection of the connector for the oil-pressure switch, and place an ohmmeter in position.
5. Gradually close the shut-off valve of the pressure gauge and increase the hydraulic pressure then check whether or not the hydraulic pressure that activates the switch is the standard value.

   Standard value: 1.5–2.0 MPa (213-284 lbs.)
6. Gradually open the shut-off valve and reduce the hydraulic pressure; then check whether or not the hydraulic pressure that deactivates the switch is the standard value.

   Standard value: 0.7–1.2 MPa (100–171 lbs.)
7. Remove the special tools, and then tighten the pressure hose to the specified torque.
8. Bleed the system.

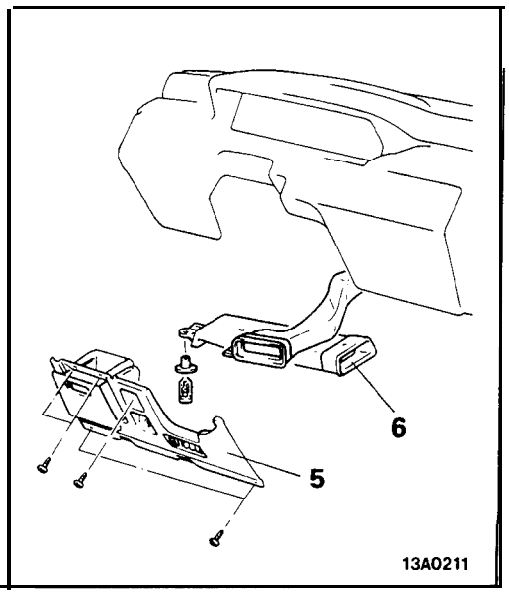
STEERING WHEEL AND SHAFT

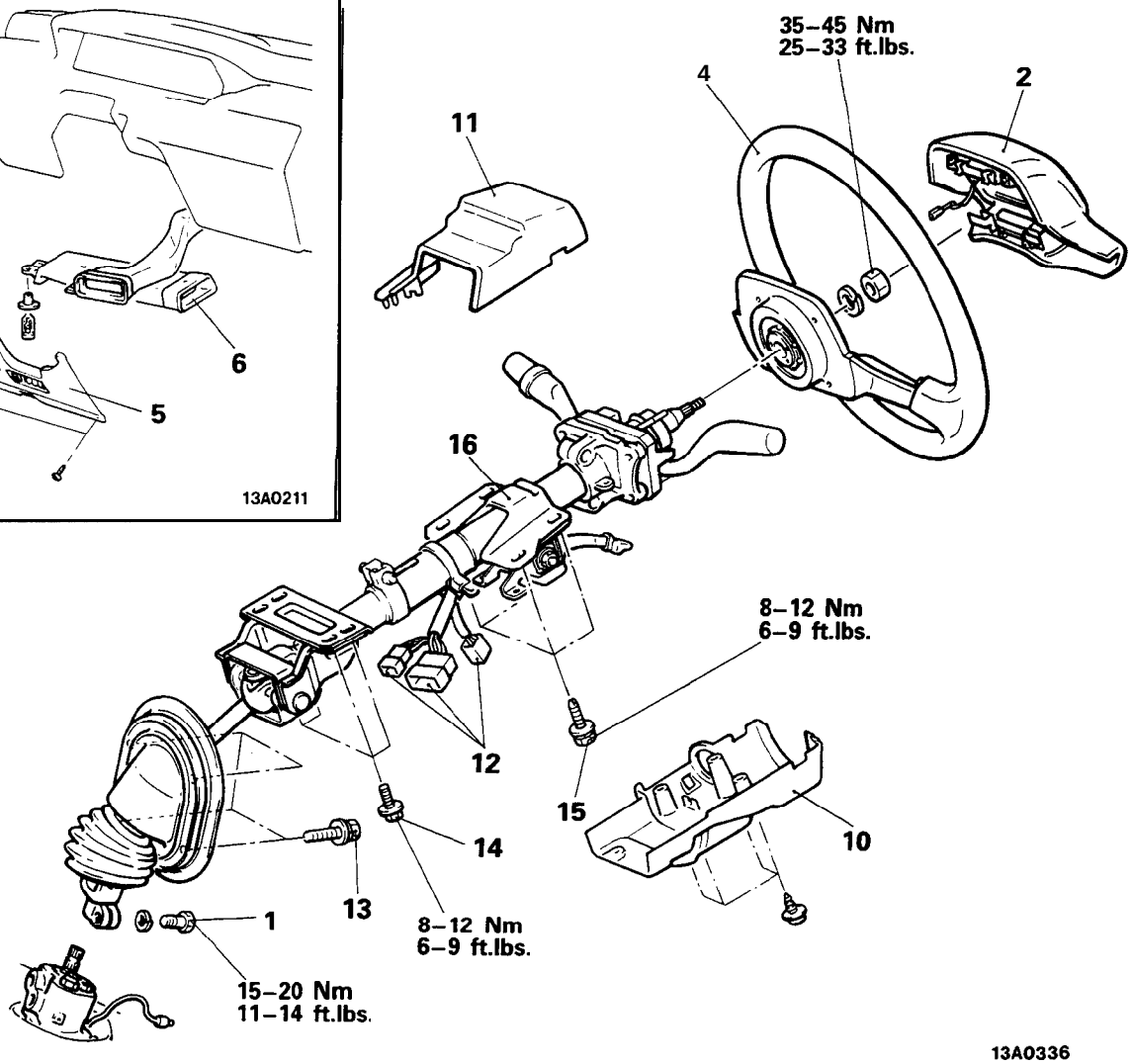
REMOVAL AND INSTALLATION

M37GA··

<1989 models>

Post-installation Operation
- Checking of Steering Wheel Position with Wheels Straight Ahead



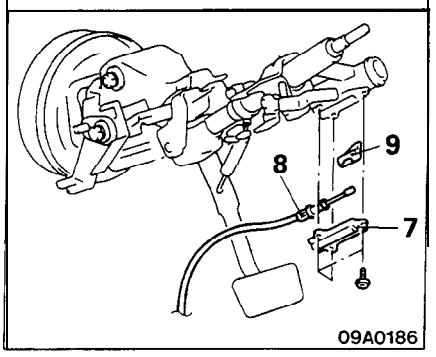


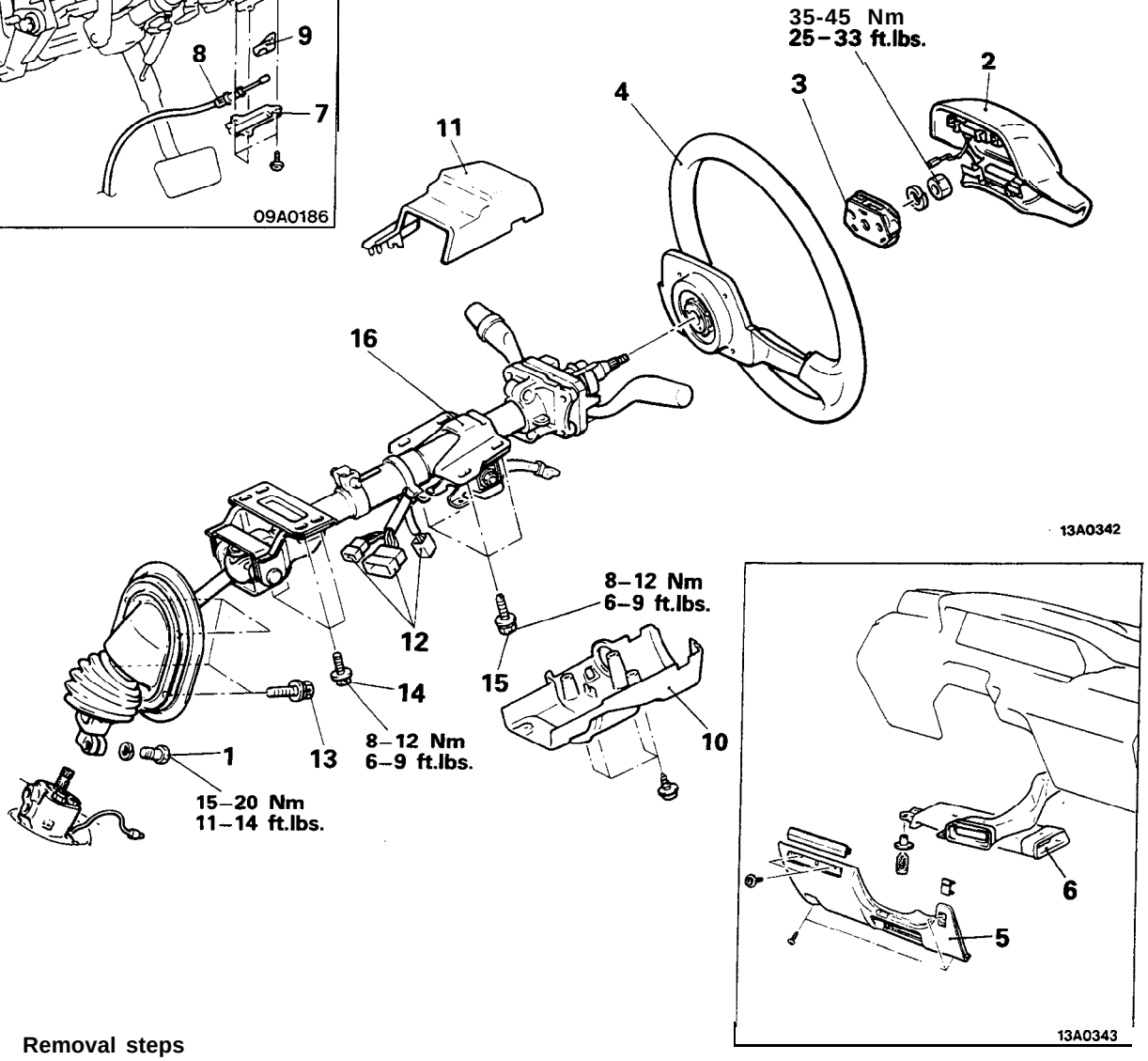
Removal steps

1. Joint assembly and gear box connecting bolt
2. Horn pad
4. Steering wheel
5. Instrument under cover (Refer to GROUP 52 – Instrument Panel.)
6. Foot shower duct and lap shower duct
10. Column cover lower
11. Column cover upper
12. Connector
13. Cover attaching bolt
14. Lower bracket installation bolt
15. Tilt bracket installtion bolt
16. Steering column assembly

<Up to 1991 models>

Post-installation Operation
- Checking of Steering Wheel Position with Wheels Straight Ahead





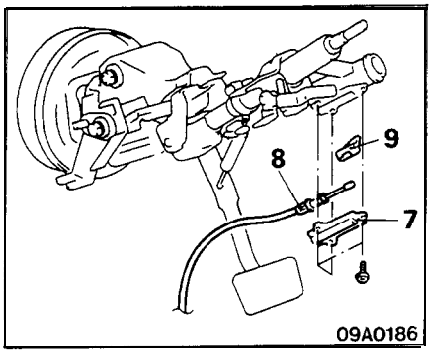
Removal steps

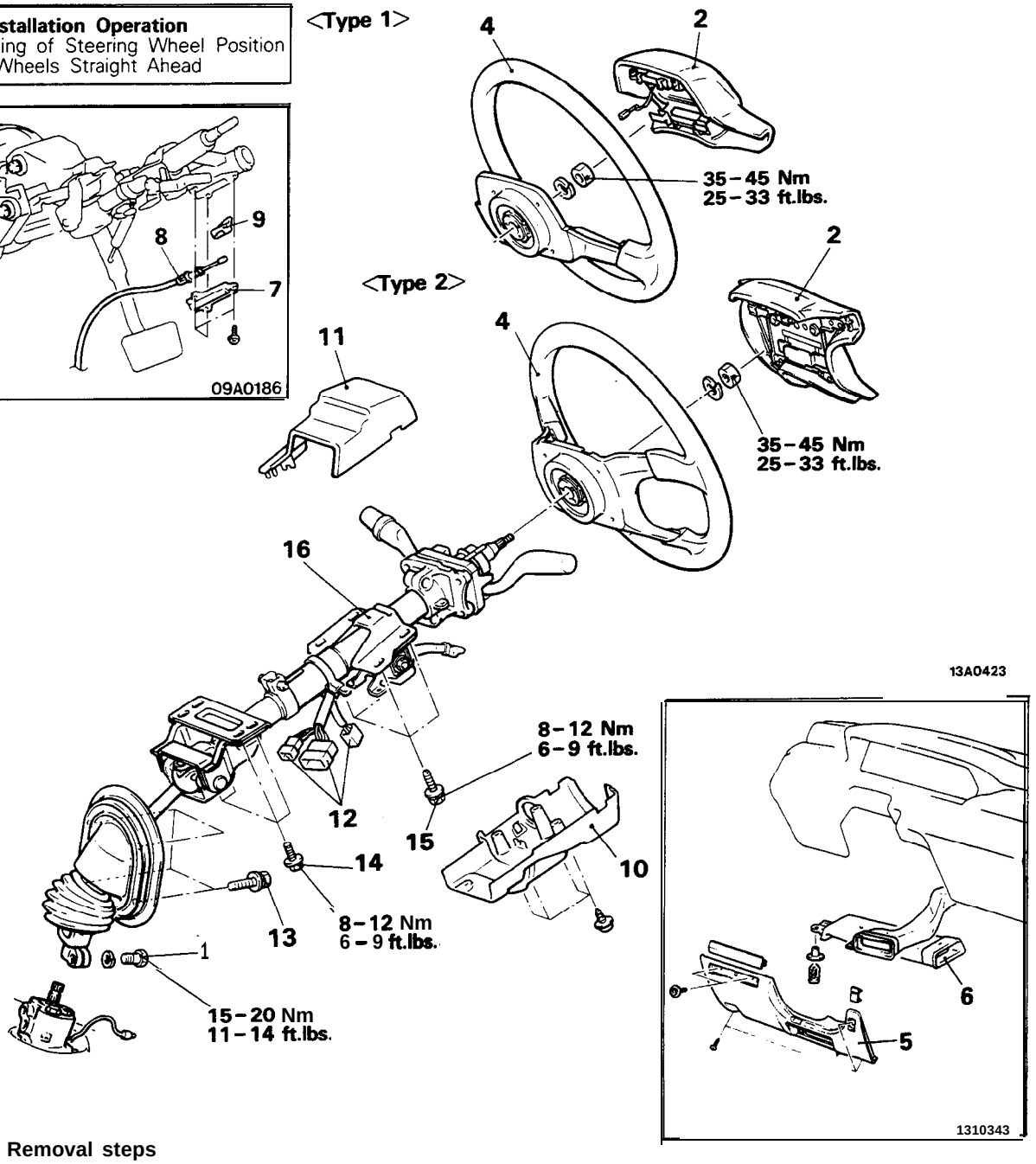
1. Joint assembly and gear box connecting bolt
◆◆ 2. Horn pad
3. Dynamic damper <DOHC- 1991 models>
◆◆ 4. Steering wheel
5. Knee protector (Refer to GROUP 52–Instrument Panel.)
6. Foot shower duct and lap shower duct
7. Cover <A/T>
8. Key-interlock cable (steering lock assembly side) <A/T> (Refer to GROUP 23–Transaxle Control.)
9. Slide lever <A/T> (Refer to GROUP 23–Transaxle Control.)
10. Column cover lower
11. Column cover upper
12. Connector
13. Cover attaching bolt
14. Lower bracket installation bolt
15. Tilt bracket installation bolt
16. Steering column assembly

TSB Revision

<From 1992 models>

Post-installation Operation
- Checking of Steering Wheel Position with Wheels Straight Ahead

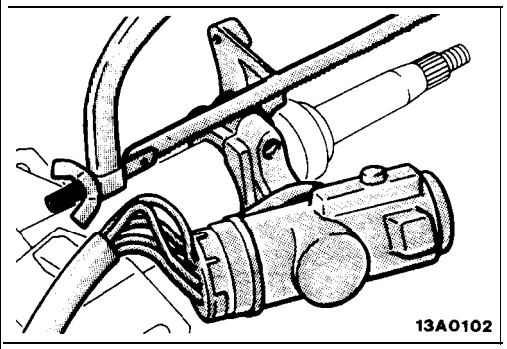




Removal steps

1. Joint assembly and gear box connecting bolt
◆◆▶◆ 2. Horn pad
◆◆ 4. Steering wheel
5. Knee protector (Refer to GROUP 52–Instrument Panel.)
6. Foot shower duct and lap shower duct
7. Cover <A/T>
8. Key-interlock cable (steering lock assembly side) <A/T> (Refer to GROUP 23–Transaxle Control.)
9. Slide lever <A/T> (Refer to GROUP 23–Transaxle Control.)
10. Column cover lower
11. Column cover upper
12. Connector
13. Cover attaching bolt
14. Lower bracket installation bolt
15. Tilt bracket installation bolt
16. Steering column assembly

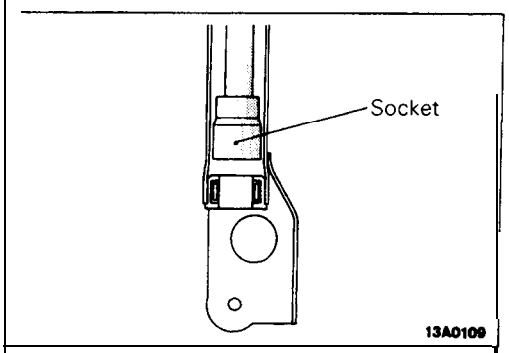
TSB Revision



SERVICE POINTS OF DISASSEMBLY M37GFAK

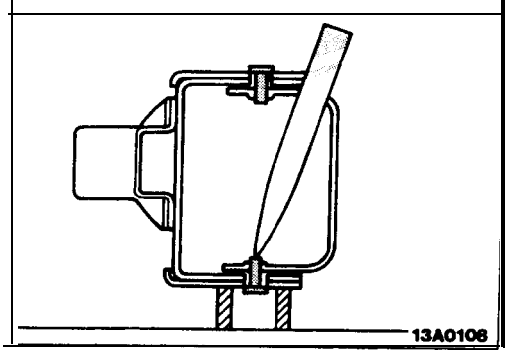
6. REMOVAL OF STEERING LOCK INSTALLATION SPECIAL BOLT/7. STEERING LOCK BRACKET/8. STEERING LOCK

If it is necessary to remove the steering lock, use a hacksaw to cut the special bolts at the steering lock bracket side.



18. REMOVAL OF BEARING

Using a socket wrench or similar tool [30 mm (1.2 in.) outer diameter], remove the bearing.

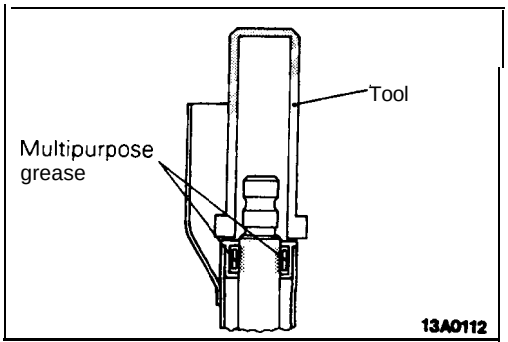


20. REMOVAL OF CLEVIS PIN

Remove the snap ring and then tap out the clevis pin from the inner side of the column tube lower.

INSPECTION M37GGAD

- Check the steering shaft for damage and deformation.
- Check the joints for play, damage, or rough movement.
- Check the joint bearing for wear and damage.
- Check the tilt bracket for cracks and damage.
- Check the column bushing for damage.
- Check the dust cover for damage.



SERVICE POINTS OF REASSEMBLY M37GHAW

18. APPLICATION OF GREASE TO BEARING

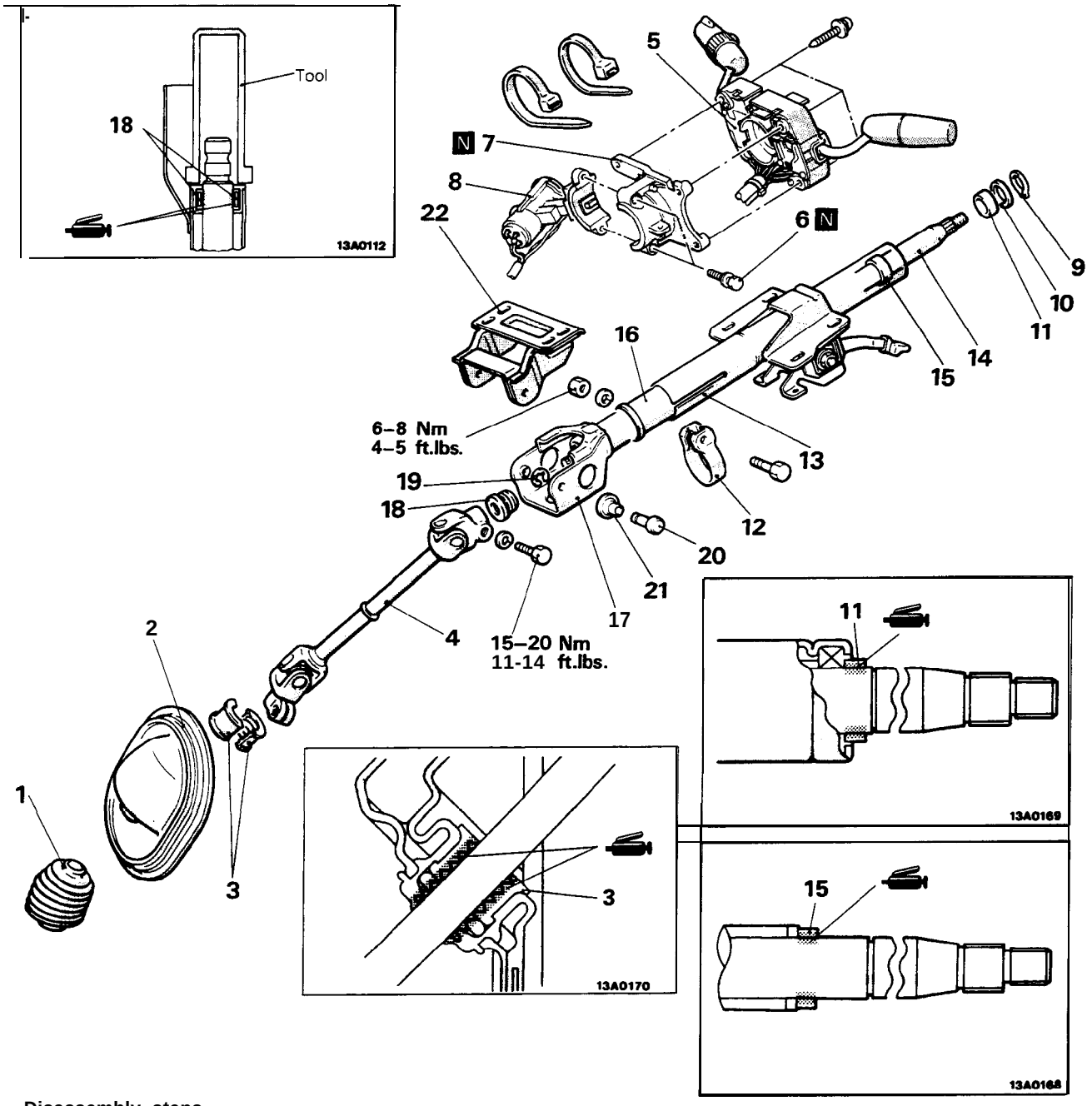
(1) Apply a coating of multipurpose grease to the sliding part of the bearing.

(2) Using a tool, press the oil seal into the column tube lower.

TSB Revision

DISASSEMBLY AND **REASSEMBLY**

M37GE--



Disassembly steps

1. Boot
- I 2. Cover assembly
- a 3. Bearing

◆◆ 4. Joint assembly
5. Column switch

◆◆ ◆◆ 6. Steering lock installation special bolt

◆◆ • 7. Steering lock bracket

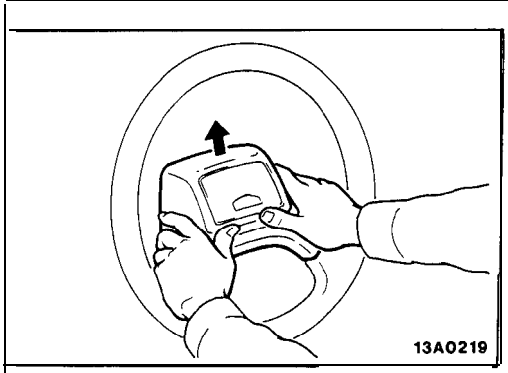
◆◆ • + 8. Steering lock
9. Snap ring
10. Stopper
11. Bearing spacer

◆◆ 12. Column tube clamp
13. Column tube upper
14. Steering shaft
15. Bearing spacer
16. Column bushing
17. Column tube lower

◆◆ • * 18. Bearing
19. Snap ring

◆◆ 20. Clevis pin
2 1. Bushing
22. Lower bracket

TSB Revision

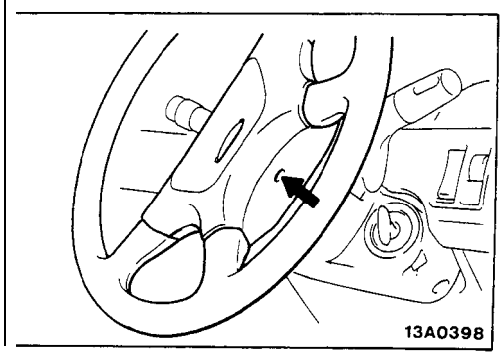


SERVICE POINTS OF REMOVAL M37GBAP

2. REMOVAL OF HORN PAD

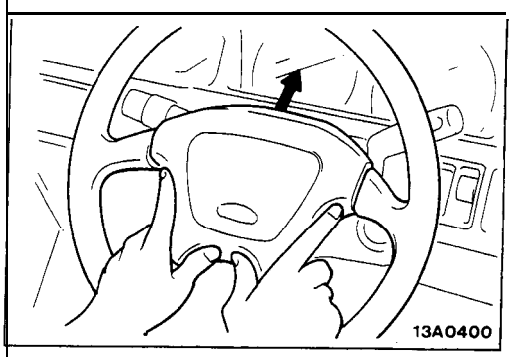
<Type 1>

The horn pad can be removed by pressing upward.



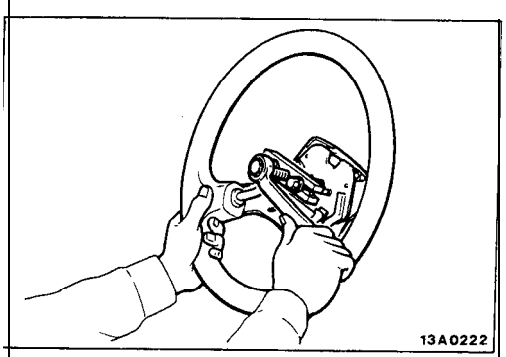
<Type 2>

(1) Remove the screws on the back of the steering wheel.



(2) Push up on the lower part of the horn pad, and the horn pad will come off upwards.

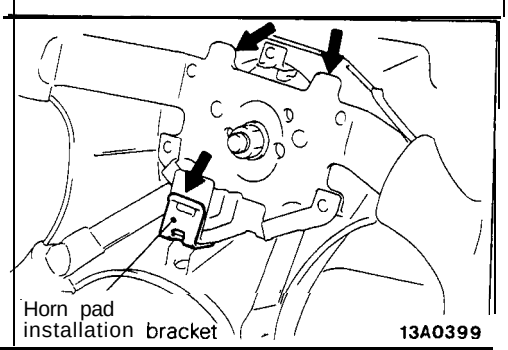
Caution
Take care when removing the horn pad as the horn switch harness is connected.



4. REMOVAL OF STEERING WHEEL

Remove the steering wheel by using a steering wheel puller.

Caution
Do not hammer on the steering wheel to remove it; doing so may damage the collapsible mechanism.

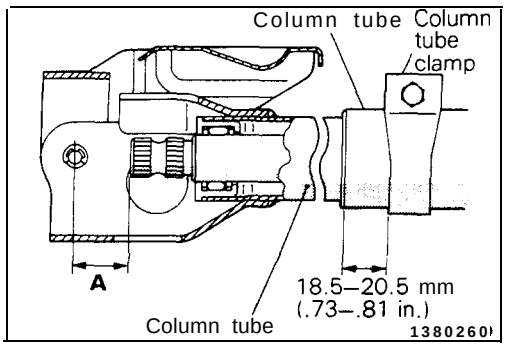


SERVICE POINTS OF INSTALLATION

2. INSTALLATION OF HORN PAD

<Type 2>

(1) Screw on the horn pad installation bracket.
(2) Push down on the horn pad from above so that it is accurately aligned with the direction arrows, and install the horn pad.

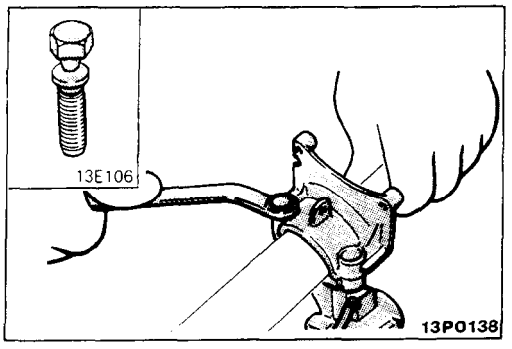


12. INSTALLATION OF COLUMN TUBE CLAMP

(1) Slide the colum tube and adjust so that dimension A in the figure is the standard value.

Standard value: 24.8-25.2 mm (.98–.99 in.)

(2) Install the column tube clamp at the position where the dimension shown in the figure is obtained.

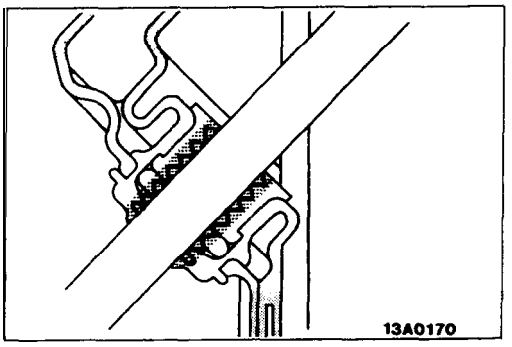


8. INSTALLATION OF STEERING LOCK/7. STEERING LOCK BRACKET/6. STEERING LOCK INSTALLATION SPECIAL BOLT

(1) When installing the steering lock and steering lock bracket to the column tube, temporarily install the steering lock in alignment with the column boss.

(2) After checking that the lock works properly, tighten the special bolts until the head twists off.

Caution
The steering lock bracket and blots must be replaced with new ones when the steering lock is installed.



4. INSTALLATION OF JOINT ASSEMBLY/3. BEARING/2. COVER ASSEMBLY

(1) Install the cover assembly on the joint assembly.

(2) Fill the inside of the bearing with multipurpose grease.

(3) Install the bearings to the shaft on the joint assembly.

(4) Wrap vinyl tape approximately one and one-half times around the concave circumferences of the bearings, and then press fit the bearings into the cover assembly.

(5) Apply multipurpose grease to the mating surfaces of the joint and cover assemblies.

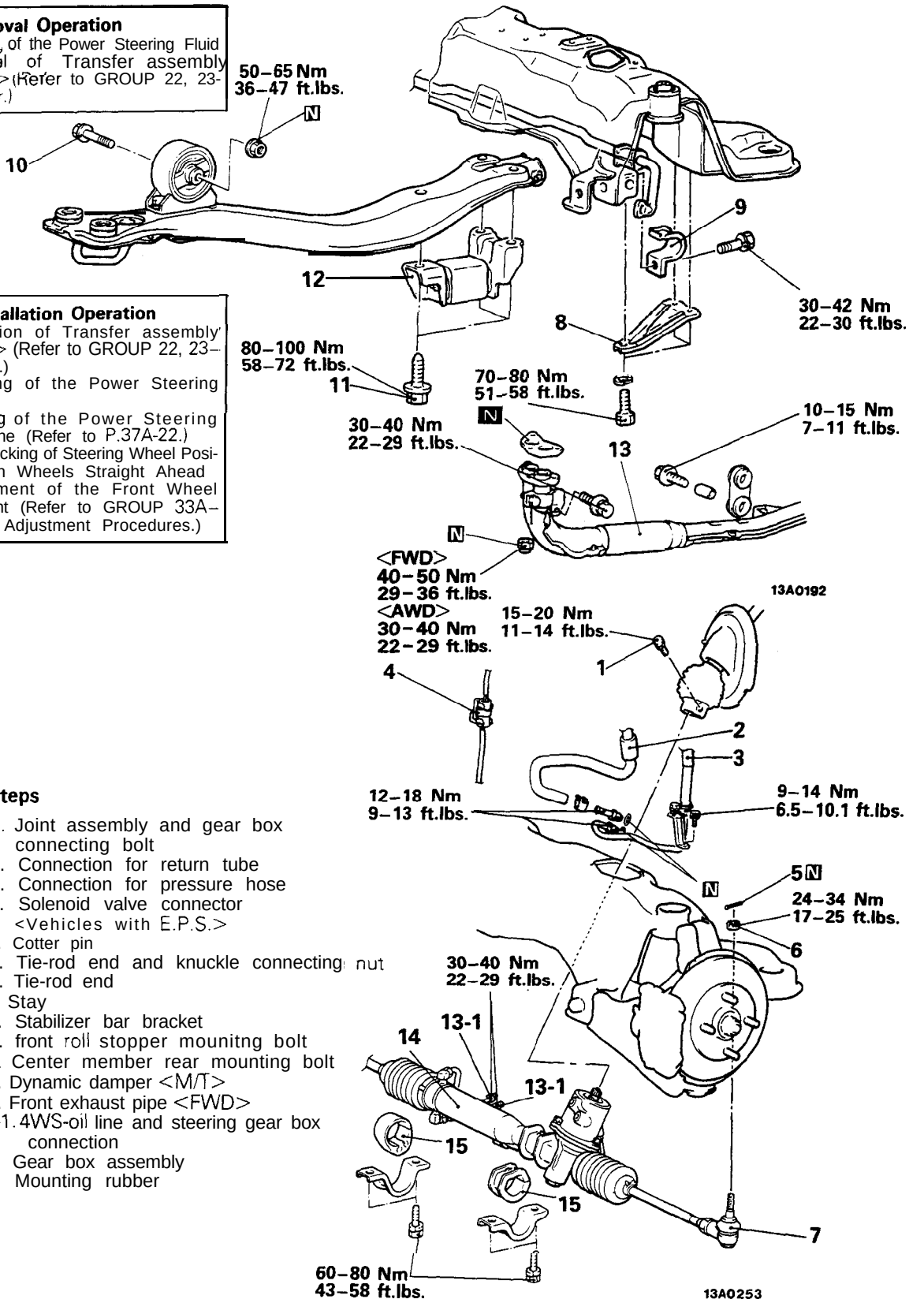
POWER STEERING GEAR BOX

M37PA--

REMOVAL AND INSTALLATION

Pre-removal Operation
- Draining of the Power Steering Fluid
- Removal of Transfer assembly <AWD> (Refer to GROUP 22, 23-Transfer.)

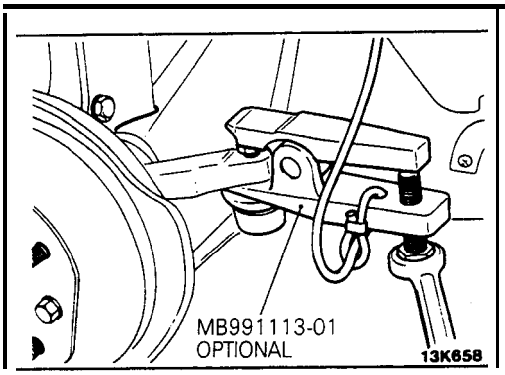
Post-installation Operation
- *Installation of Transfer assembly <AWD> (Refer to GROUP 22, 23–Transfer.)
- *Supplying of the Power Steering Fluid
- Bleeding of the Power Steering Fluid Line (Refer to P.37A-22.)
- Checking of Steering Wheel Position with Wheels Straight Ahead
- @Adjustment of the Front Wheel Alignment (Refer to GROUP 33A–Service Adjustment Procedures.)



Removal steps

1. Joint assembly and gear box connecting bolt
2. Connection for return tube
3. Connection for pressure hose
4. Solenoid valve connector <Vehicles with E.P.S.>
5. Cotter pin
6. Tie-rod end and knuckle connecting nut
7. Tie-rod end
8. Stay
9. Stabilizer bar bracket
10. front roll stopper mounitng bolt
11. Center member rear mounting bolt
12. Dynamic damper <M/T>
13. Front exhaust pipe <FWD>
13-1. 4WS-oil line and steering gear box connection
14. Gear box assembly
15. Mounting rubber

TSB Revision



SERVICE POINTS OF REMOVAL M37PBAB

7. DISCONNECTION OF TIE-ROD END

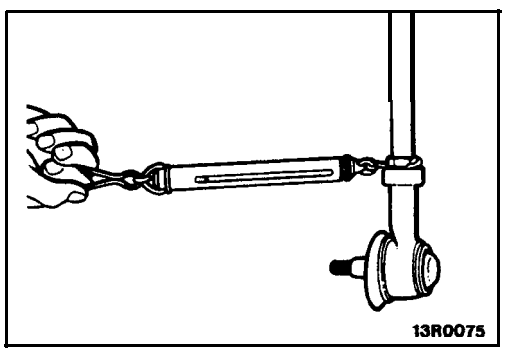
Using the special tool, disconnect the tie rod from the knuckle.

Caution
1. Be sure to tie the cord of the special tool to the nearby part.
2. Loosen the nut but do not remove it.

14. REMOVAL OF GEAR BOX ASSEMBLY

(1) Move the rack completely to the right and then remove the gear box from the crossmember.
(2) While tilting the gear box downward, remove it to the left.

Caution
When removing the gear box, pull it out carefully and slowly to avoid damaging the boots.



INSPECTION M37PCAB

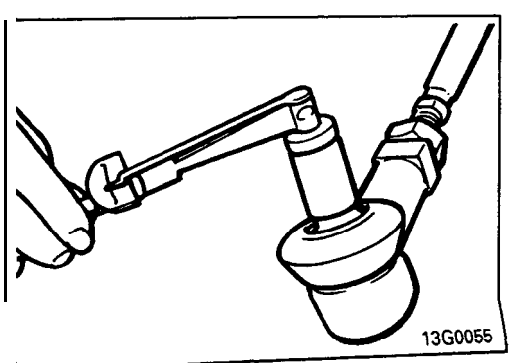
CHECK THE TIE ROD FOR SWING RESISTANCE

(1) Give 10 hard swings to the tie rod.
(2) Measure the tie rod swing resistance with a spring scale.

Standard value: 8–20 N (1.9-4.6 lbs.)
[2–5 N m (17–43 in.lbs.)]

(3) If the measured value exceeds the standard value, replace the tie rod assembly.

NOTE
Even if the measured value is below the standard value, the tie rod which swings smoothly without excessive play may be used.



TIE ROD END BALL JOINT FOR ROUGH ROTATION AND STARTING TORQUE

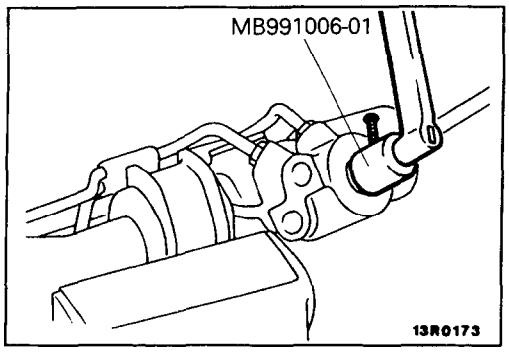
(1) Mount two nuts on the ball joint, and then measure the ball joint starting torque.

Standard value: 0.5–2.5 Nm (4-22 in.lbs.)

(2) If the starting torque exceeds the upper limit of the standard value, replace the tie rod end.

NOTE
Even if the startig torque is below the lower limit of the standard value, the ball joint may be reused unless it has drag and excessive play

TSB Revision



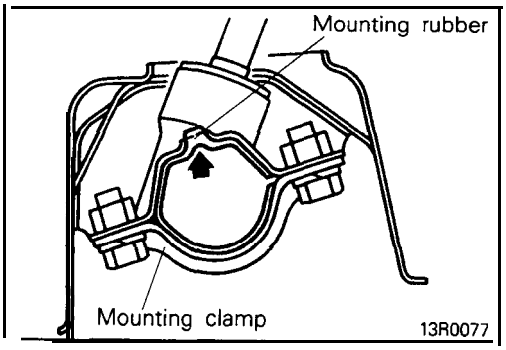
GEAR BOX FOR TOTAL PINION TORQUE

Using the special tool, rotate the pinion gear at the rate of one rotation in approximately 4 to 6 seconds to check the total pinion torque.

Standard value: 0.6–1.3 Nm (5-11 in.lbs.)

NOTE
Measure the pinion torque through the whole stroke of the rack.

If the measured value is not within the standard range, first adjust the rack support cover, and then check the total pinion torque again.
If the total pinion torque cannot be adjusted to within the standard value range by adjusting the rack support cover, check the rack support cover, rack support spring, rack support and replace any parts necessary.



SERVICE POINTS OF INSTALLATION M37PDAB

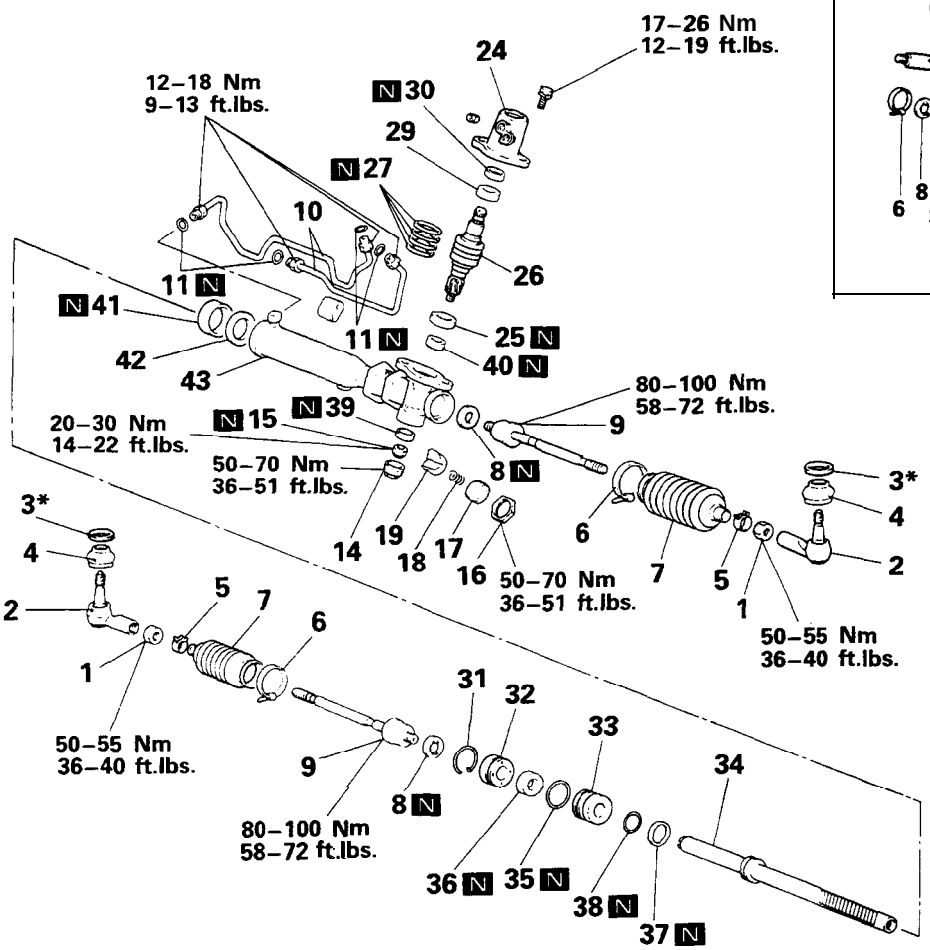
15. INSTALLATION OF MOUNTING RUBBER/14. GEAR BOX ASSEMBLY

When installing the mounting rubber, align the projection of the mounting rubber with the indentation in the crossmember to install the gear box.

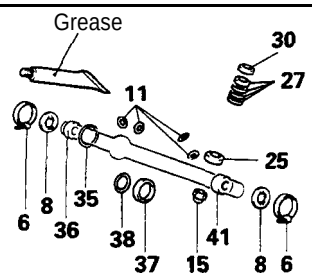
DISASSEMBLY AND REASSEMBLY

M37PE--

<Conventional power steering gear box>



Steering gear seal kit



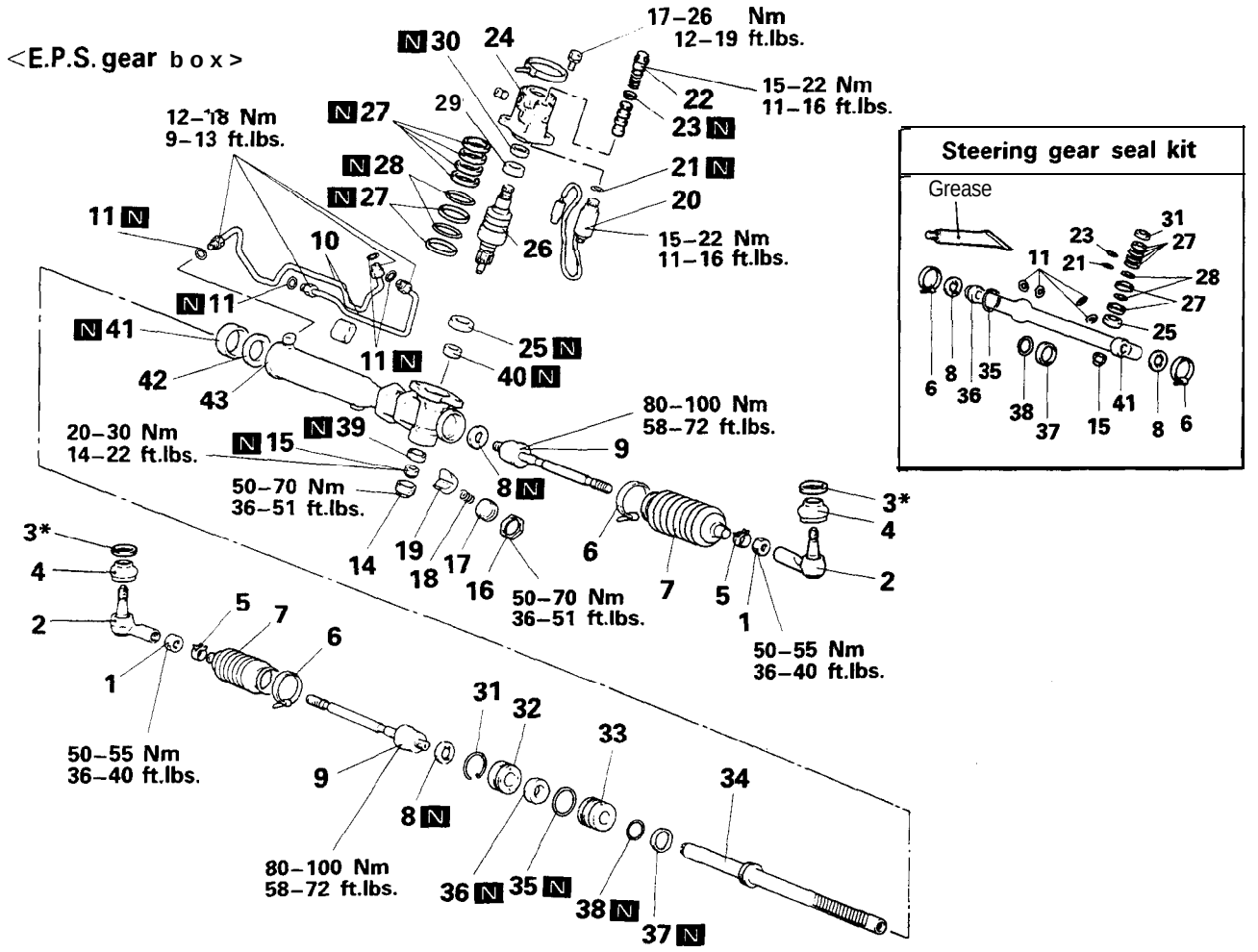
13A0205

Disassembly steps

- 1. Tie-rod end locking nut
- ● * 2. Tie-rod end
- 3. Clip ring*
- ◖ + 4. Dust cover
- 5. Bellow clip
- ◆◆ 6. Bellow band
- 7. Bellows
- ◖ ▯ 8. Tab washer
- ◆◆ 9. Tie-rod
- 10. Feed tube
- 11. O-ring
- ◖ ▨ Adjustment of total pinion torque
- ◆◆ ◆◆ 14. End plug
- 15. Self-locking nut
- 16. Locking nut
- ◆◆ 17. Rack support cover
- 18. Rack support spring
- 19. Rack support
- 24. Valve housing
- ◆◆ ◆◆ 25. Oil seal
- ● + 26. Pinion and valve assembly
- ● + 27. Seal ring
- ◆◆ ◖ + 29. Ball bearing
- ◆◆ ● * 30. Oil seal
- ● * ◆◆ 31. Circlip
- 32. Rack stopper
- ◆◆ 33. Rack bushing
- ◆◆ ◆◆ 34. Rack
- ● + 35. O-ring
- ◆◆ ◖ + 36. Oil seal
- 37. Seal ring
- 38. O-ring
- ◆◆ ◆◆ 39. Ball bearing
- ● * ● + 40. Needle roller bearing
- ◆◆ ● + 41. Oil seal
- ◖ , ◖ + 42. Back-up washer
- 43. Rack housing

NOTE
*: <1 989 models>

TSB Revision



13R0603

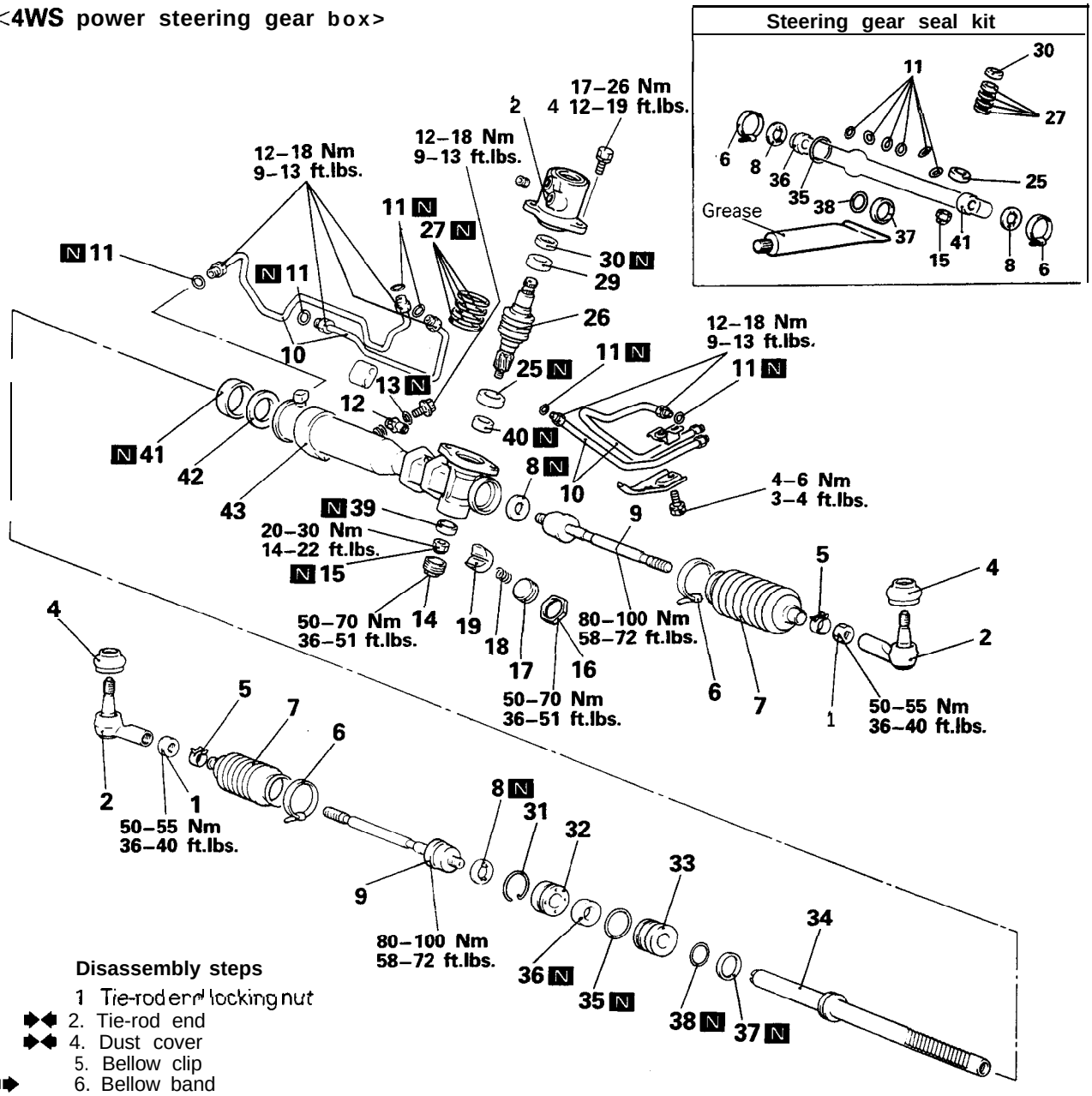
Disassembly steps

1. Tie-rod end locking nut
● + 2. Tie-rod end
3. Clip ring*
◆◆ 4. Dust cover
5. Bellow clip
◆◆ 6. Bellow band
7. Bellows
◆◆ 8. Tab washer
◆◆ 9. Tie-rod
10. Feed tube
11. O-ring
◆◆ Adjustment of total pinion torque
◆◆ ● + 14. End plug
15. Self-locking nut
16. Locking nut
◆◆ 17. Rack support cover
18. Rack support spring
19. Rack support
20. Solenoid valve
● 4 21. O-ring
◆◆ 22. P.C.V. cap assembly
23. O-ring
24. Valve housing
◆◆ ● 4 25. Oil seal
◆◆ 26. Pinion and valve assembly
● + 27. Seal ring
● + 28. O-ring
◆◆ ◆◆ 29. Ball bearing
◆◆ ● + 30. Oil seal
◆◆ ◆◆ 31. Circlip
32. Rack stopper
◆◆ 33. Rack bushing
◆◆ ◆◆ 34. Rack
◆◆ 35. O-ring
◆◆ ● + 36. Oil seal
37. Seal ring
38. O-ring
◆◆ ● + 39. Ball bearing
◆◆ ◆◆ 40. Needle roller bearing
◆◆ ● 4 41. Oil seal
◆◆ ● + 42. Back-up washer
43. Rack housing

NOTE
*: <1989 models>

TSB Revision

<4WS power steering gear box>

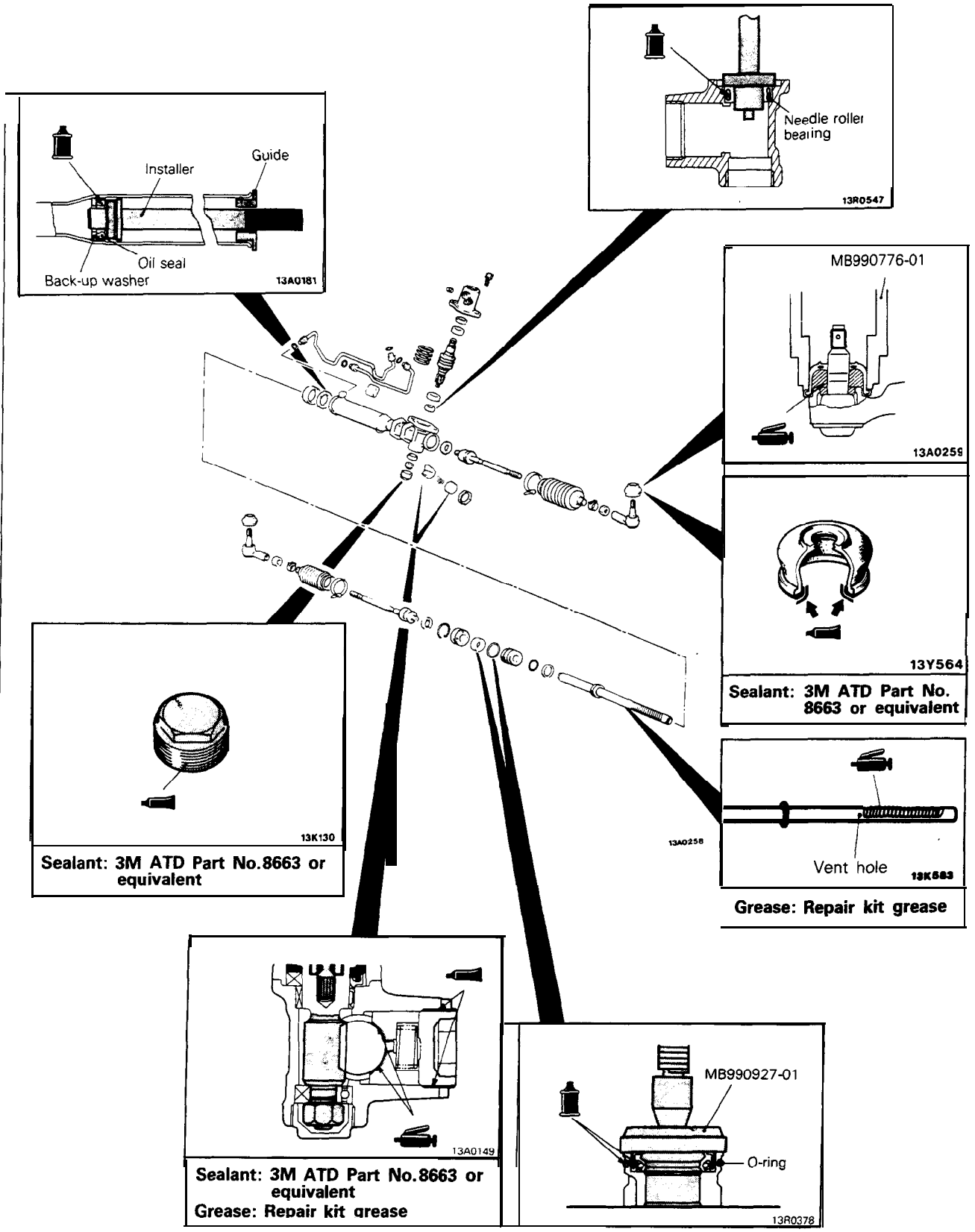


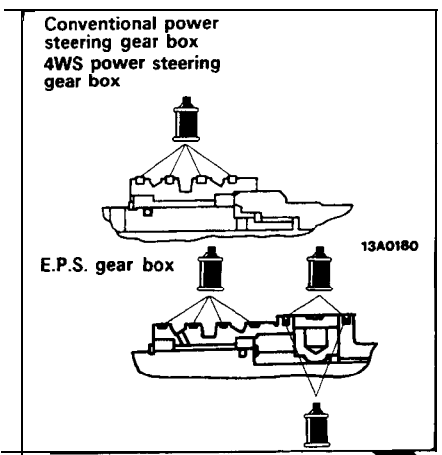
Disassembly steps

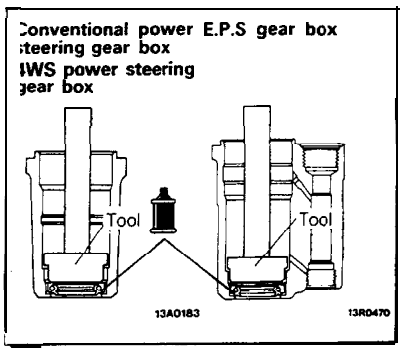
- 1 Tie-rod end locking nut
- ◆◆ 2. Tie-rod end
- ◆◆ 4. Dust cover
- 5. Bellow clip
- ◆◆ 6. Bellow band
- 7. Bellows
- ◆◆ 8. Tab washer
- ● + 9. Tie-rod
- 10. Feed tube
- 11. O-ring
- 12. Connector
- 13. O-ring
- Adjustment of total pinion torque
- ◆◆ ● a 14. End plug
- 15. Self-locking nut
- 16. Locking nut
- ◆◆ 17. Rack support cover
- 18. Rack support spring
- 19. Rack support
- 24. Valve housing
- ◆◆◆◆ 25. Oil seal
- ● + 26. Pinion and valve assembly
- ● + 27. Seal ring
- ◆◆ ● + 29. Ball bearing
- ◆◆ ● 4 30. Oil seal
- ◆◆ ● 4 31. Circlip
- 32. Rack stopper
- ● + 33. Rack bushing
- ◆◆ ● + 34. Rack
- ● 4 35. O-ring
- ◆◆ ● 4 36. Oil seal
- 37. Seal ring
- 38. O-ring
- ◆◆ ● + 39. Ball bearing
- ◆◆◆◆ 40. Needle roller bearing
- ◆◆ ● 4 41. Oil seal
- ● e ◆◆ 42. Back-up washer
- 43. Rack housing

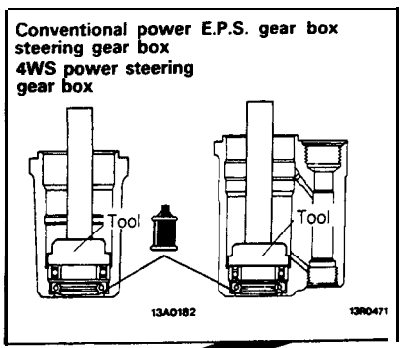
13A0341

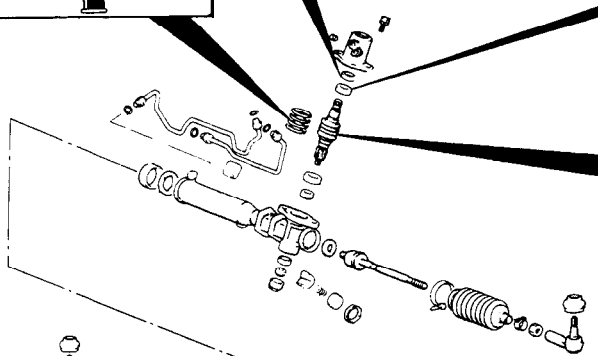
LUBRICATION AND SEALING POINTS

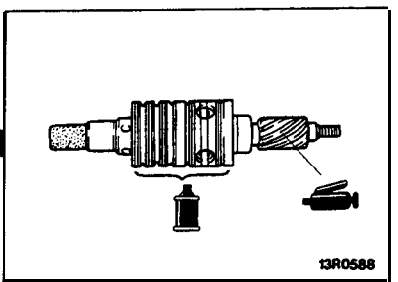




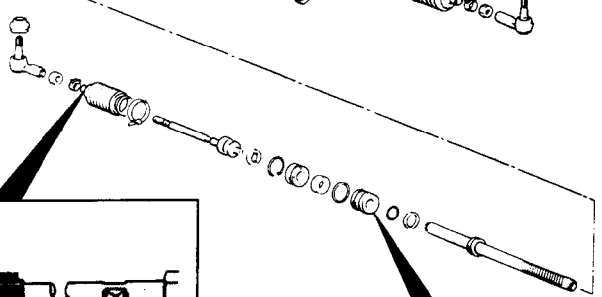


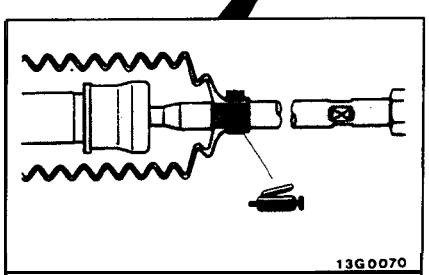




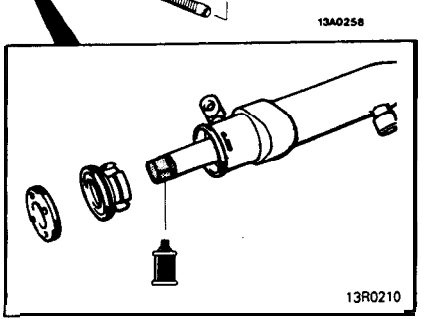


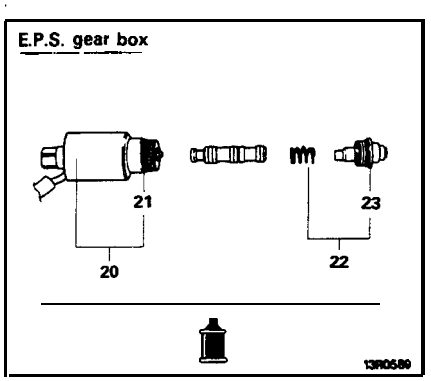
Grease: Repair kit grease



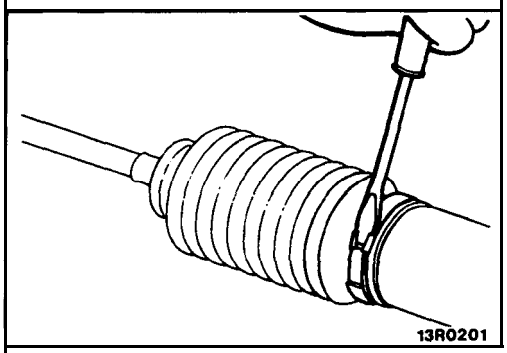


Grease: Silicone grease



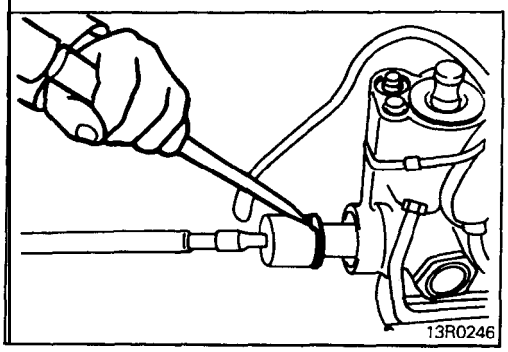


SERVICE POINTS OF DISASSEMBLY M37PFAN



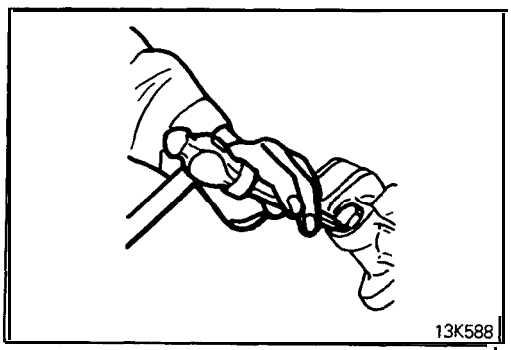
6. REMOVAL OF BELLOWS BANDS

Using a screwdriver or similar tool, loosen and then remove the bellows band.



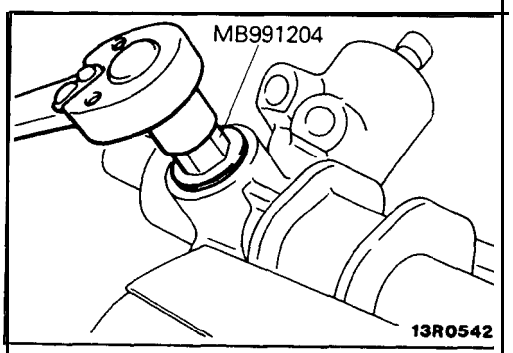
8. REMOVAL OF TAB WASHER

Unstake the tab washer which fixes the tie rod and rack with a chisel.



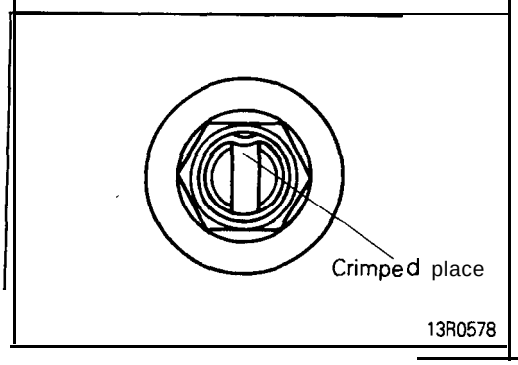
14. REMOVAL OF END PLUG

Disconnect end plug caulking and remove end plug.



17. REMOVAL OF RACK SUPPORT COVER

Using the special tool, remove the rack support cover from the gear box.

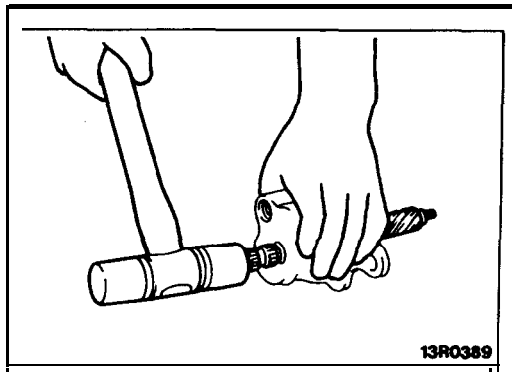


22. REMOVAL OF P.C.V. CAP ASSEMBLY <E.P.S.>

Remove the P.C.V. cap assembly from the valve housing.

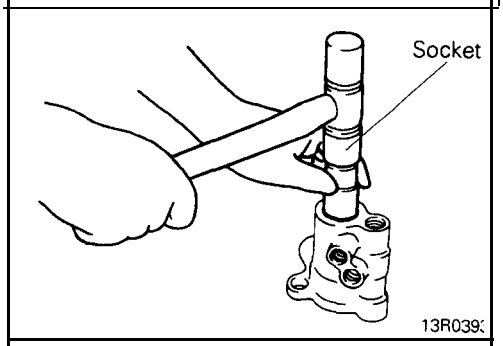
Caution
Do not uncrimp the upper crimp of the PCV cap assembly, because to do so will result in a change of the adjustment pressure.

TSB Revision



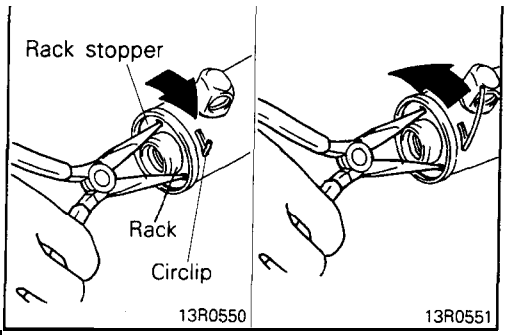
25. REMOVAL OF OIL SEAL

Using a plastic hammer, gently tap the pinion to remove it.



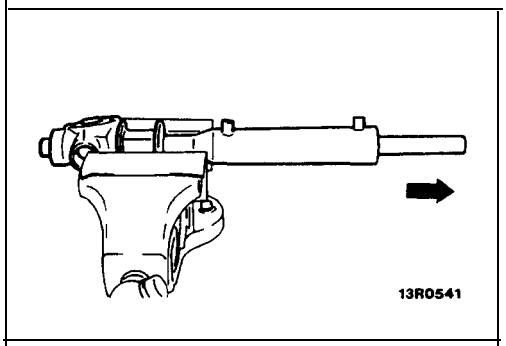
29. REMOVAL OF BALL BEARING/30. OIL SEAL

Using a socket, remove the oil seal and the ball bearing from the valve housing simultaneously.



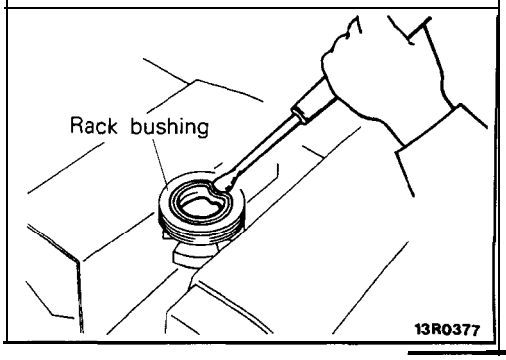
31. REMOVAL OF CIRCLIP

(1) Turn the rack stopper clockwise until the end of the circlip comes out of the slot in the rack housing.
(2) Turn the rack stopper counterclockwise to remove the circlip.



34. REMOVAL OF RACK

Pull out the rack slowly.
At this time also take out the rack stopper and the rack bushing simultaneously.

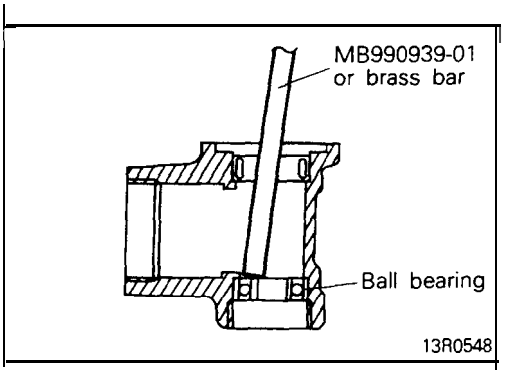


36. REMOVAL OF OIL SEAL

Partially bend oil seal and remove from rack bushing.

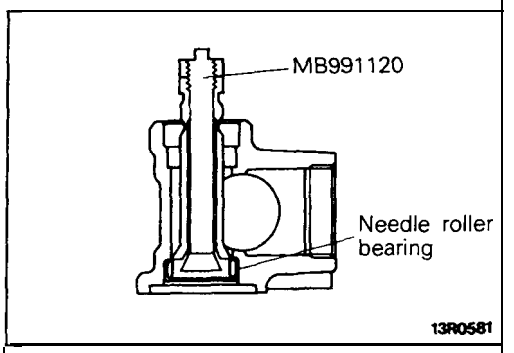
Caution
Do not damage oil seal press fitting surface.

TSB Revision



39. REMOVAL OF BALL BEARING

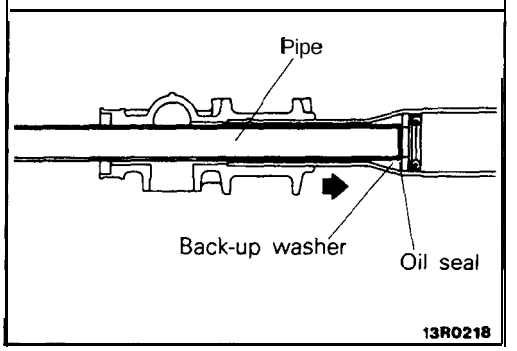
Use a brass bar or special tool to remove the ball bearing from the gear housing.



40. REMOVAL OF NEEDLE ROLLER BEARING

Use the special tool to remove the needle roller bearing from the rack housing.

Caution
Do not open special tool excessively to prevent damaging housing interior.



41. REMOVAL OF OIL SEAL/42. BACK-UP WASHER

Use a piece of pipe or similar tool to remove the back-up washer and oil seal from the gear housing.

Caution
Be careful not to damage the inner surface of the rack cylinder of the gear housing.

INSPECTION

M37PGAF

RACK

- Check the rack tooth surfaces for damage or wear.
- Check the oil seal contact surfaces for uneven wear.
- Check the rack for bends.

PINION AND VALVE ASSEMBLY

- Check the pinion gear tooth surfaces for damage or wear.
- Check for worn or defective seal ring.

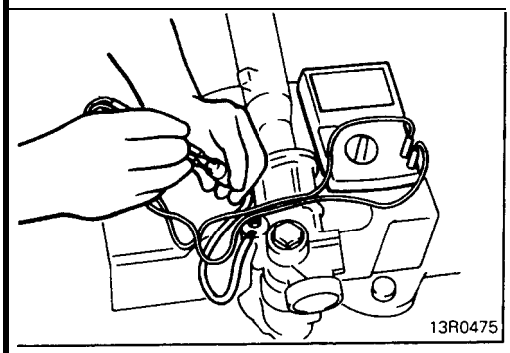
BEARING

- Check for roughness or abnormal noise during bearing operation.
- Check the bearing for play.
- Check the needle roller bearings for roller slip-off.

OTHERS

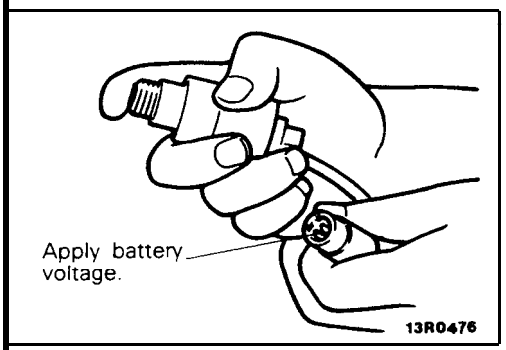
- Check the cylinder inner surface of the rack housing for damage.
- Check the bellows for damage, cracking or deterioration.
- Check the rack support for uneven wear or dents.
- Check the rack bushing for uneven wear or damage.

TSB Revision



SOLENOID VALVE

- Remove the solenoid valve connector, and then check whether or not there is continuity between the two terminals.



- While pressing the solenoid end inward by using a finger, connect to the battery and then check whether or not the solenoid is pushed out.

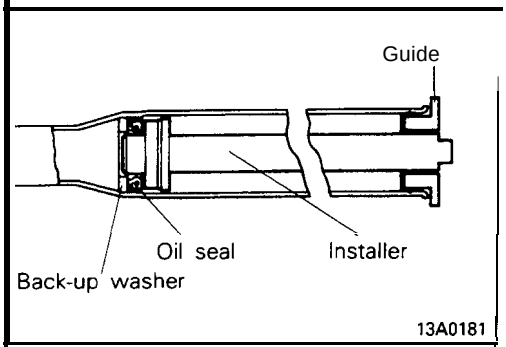
SERVICE POINTS OF REASSEMBLY M37PHAW

42. INSTALLATION OF BACK-UP WASHER/41. OIL SEAL

(1) Apply a coating of the specified fluid to the outside of the oil seal.

Specified fluid: Automatic transmission fluid "DEXRON II"

(2) Using a tool, press the back-up washer and the oil seat into the rack housing to the specified position (where the upper surface of the press-in guide coincides with the stepped part of the press-in tool).



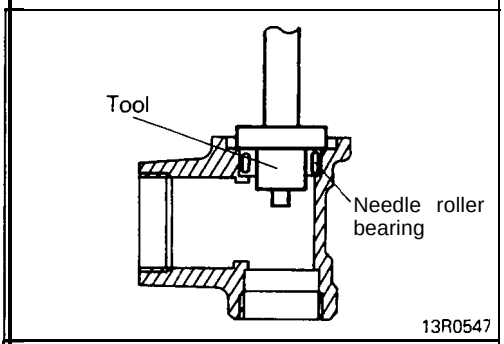
40. INSTALLATION OF NEEDLE ROLLER BEARING

(1) Apply specified fluid to housing, bearing and oil seal press fitting surface.

Specified fluid: Automatic transmission fluid "DEXRON II"

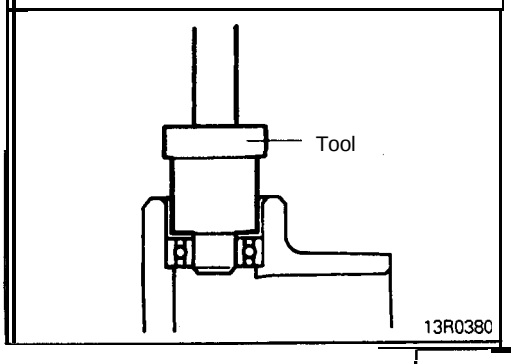
(2) Press fit needle roller bearing with a tool.

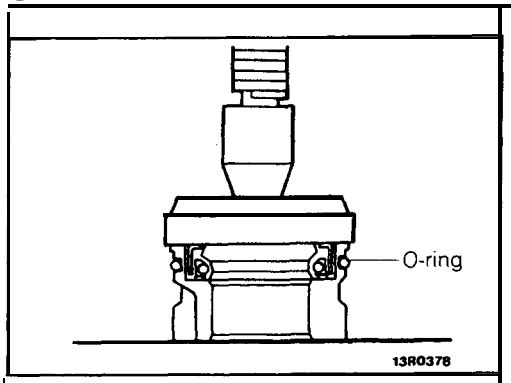
Caution
Press fit straight as valve housing is aluminum.



39. INSTALLATION OF BALL BEARING

Use a tool to press fil ball bearing.



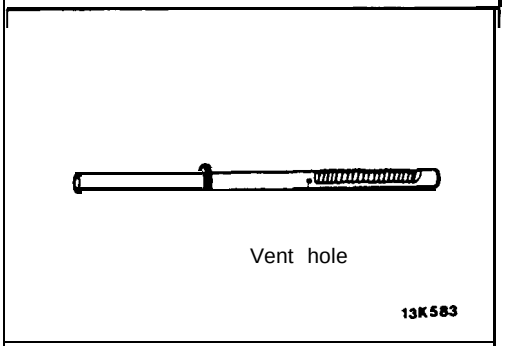


36. INSTALLATION OF OIL SEAL/35. O-RING

(1) Apply a coating of the specified fluid to the outside of the oil seal and o-ring.

Specified fluid: Automatic transmission fluid "DEXRON II"

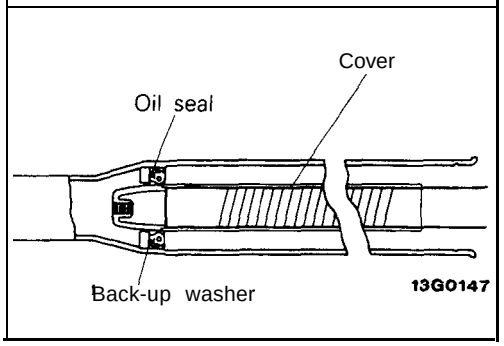
(2) Use the general service tool to press fit oil seal until it touches rack bush end.



34. INSTALLATION OF RACK ASSEMBLY

(1) Apply a coating of repair kit grease to the rack teeth face.

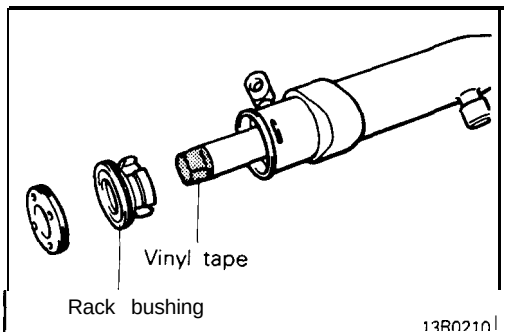
Caution
Do not close the vent hole in the rack with grease.



(2) Cover rack serrations.
(3) Apply specified fluid on cover.

Specified fluid: Automatic transmission fluid "DEXRON II"

(4) Match oil seal center with rack to prevent retainer spring from slipping and slowly insert rack from power cylinder side.

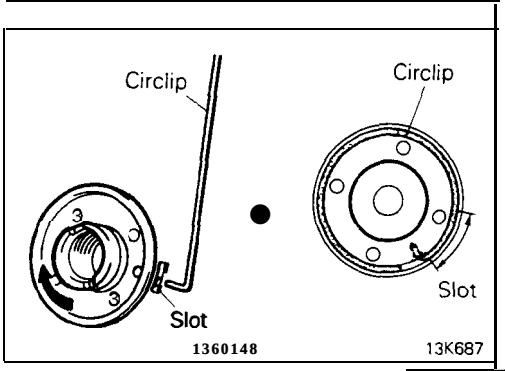


33. INSTALLATION OF RACK BUSHING ASSEMBLY

Wrap the rack end with vinyl tape, apply a coating of the specified fluid, and then install the rack bushing and rack stopper.

Specified fluid: Automatic transmission fluid "DEXRON II"

Caution
Do not allow oil seal retainer spring to slip out.



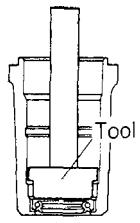
31. INSTALLATION OF CIRCLIP

Insert circlip to rack stopper hole through cylinder hole. Turn rack stopper clockwise and insert circlip firmly.

Caution
Insert circlip to rack stopper hole whilst turning rack stopper clockwise.

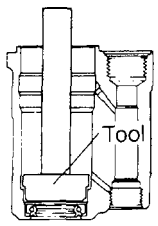
TSB Revision

Conventional power steering gear box
4WS power steering gear box



13A0183

E.P.S gear box



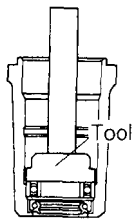
13R0470

30. INSTALLATION OF OIL SEAL

Apply a coating of the specified fluid to the outside of the oil seal. Using a tool, press the oil seal into the valve housing.

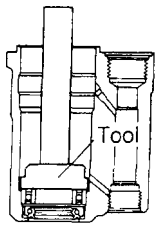
Specified fluid: Automatic transmission fluid "DEXRON II"

Conventional power steering gear box
4WS power steering gear box



13A0182

E.P.S. gear box



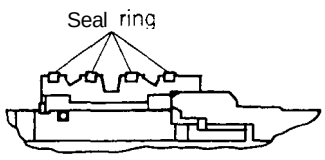
13R0471

28. INSTALLATION OF BALL BEARING

Apply a coating of the specified fluid to the outside of the ball bearing. Using a tool, press the oil seal into the valve housing.

Specified fluid: Automatic transmission fluid "DEXRON II"

Conventional power steering gear box
4WS power steering gear box



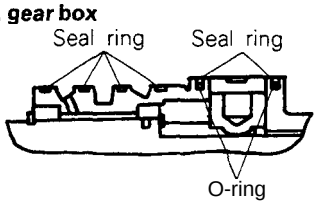
13A018

28. INSTALLATION OF O-RING <E.P.S.> / 27. SEAL RING / 26. PINION AND VALVE ASSEMBLY

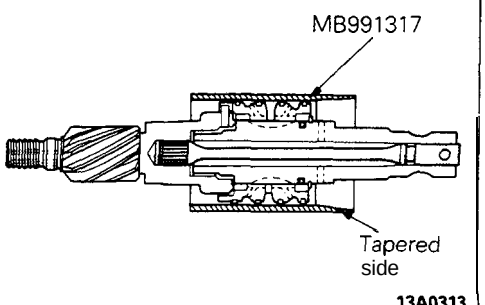
(1) When installing O-ring and seal ring, press firmly into valve groove.
Apply specified fluid.

Specified fluid: Automatic transmission fluid "DEXRON II"

E.P.S. gear box

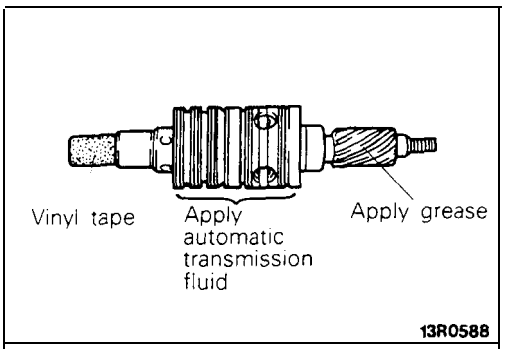


13R0588



13A0313

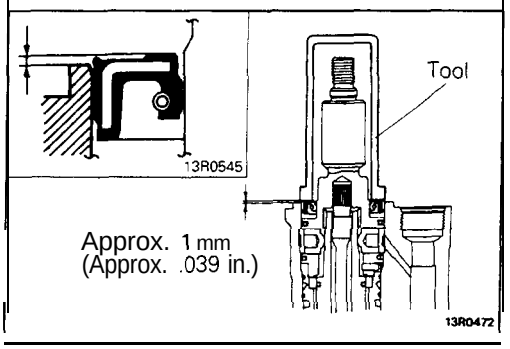
NOTE
Because the seal rings expand at the time of installation, use the special tool to compress the seal rings so that they are well seated.



(2) Apply repair kit grease to pinion gear and housing bearing.

(3) Wrap vinyl tape around the serrated part so that the oil seal won't be damaged when the pinion and valve assembly is installed to the valve housing.

(4) Mount the pinion and valve assembly to the valve housing.



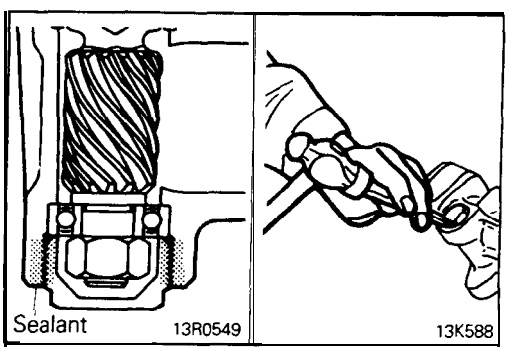
25. INSTALLATION OF OIL SEAL

Using a tool, press the oil seal into the valve housing.

Caution
In order to eliminate a seal malfunction at the valve housing alignment surface, the upper surface of the oil seal should project outward approximately 1 mm (.039 in.) from the housing edge surface.

21. INSTALLATION OF O-RING <EPS>

Caution
The O-ring for the solenoid valve is a thermal-resistant O-ring. It is painted white on its outer circumference to distinguish it from other O-rings, and care should be taken to use the correct one.

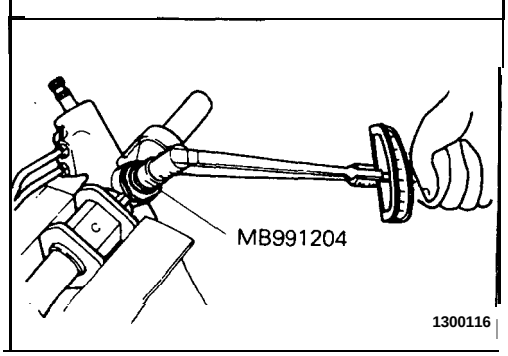


14. INSTALLATION OF END PLUG

(1) Apply the specified sealant to the threaded part of the end plug.

Specified sealant: 3M ATD Part No. 8663 or equivalent

(2) Secure the threaded portion of the end plug at two places by using a punch.

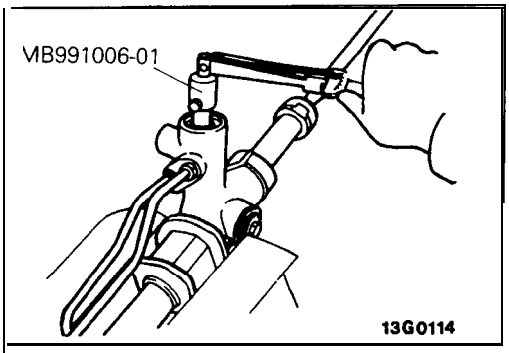


. ADJUSTMENT OF TOTAL PINION TORQUE

(1) Position rack at its centre. With special tool, tighten rack support cover to 15 Nm (11ft.lbs.).

(2) In neutral position, rotate pinion shaft clockwise one turn/4–6 seconds with special tool. Return rack support cover 30°–60° and adjust torque to the standard value.

Standard value: 0.6–1.3 Nm (5–11 in.lbs.)



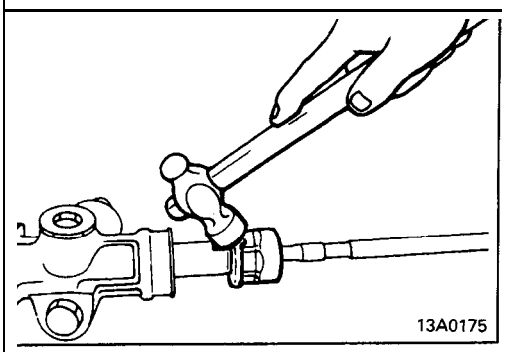
Caution

1. **When adjusting, set the standard value at its highest value.**
2. **Assure no ratcheting or catching when operating rack towards the shaft direction.**

NOTE

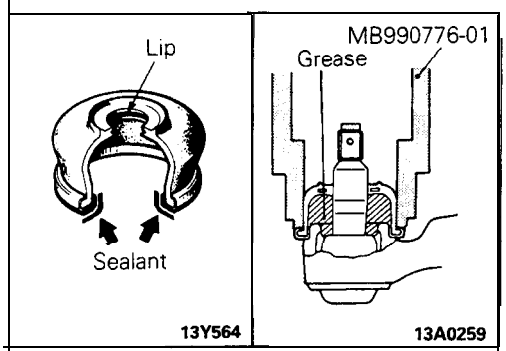
When it cannot be adjusted within the specified return angle, check rack support cover components or replace.

(3) After adjusting, lock rack support cover with lock nut.



9. INSTALLATION OF TIE ROD

After installing tie rod to rack, fold tab washer end (2 locations) to tie rod notch.



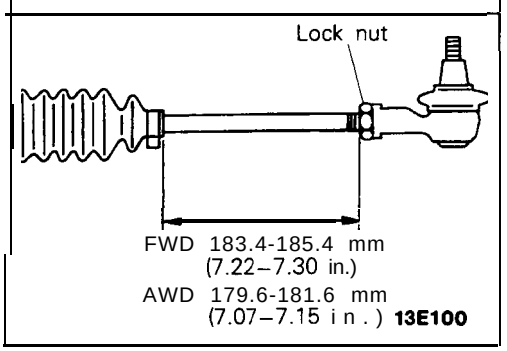
4. INSTALLATION OF DUST COVER

(1) Pack dust cover interior and lip with multipurpose grease.

(2) Apply specified sealant to dust cover.

Specified sealant: 3M ATD Part No. 8663 or equivalent

(3) Using the special tool, press dust cover to tie rod end.



2. INSTALLATION OF TIE ROD END

Screw in tie rod end to have its right and left length as illustrated. Lock with lock nut.

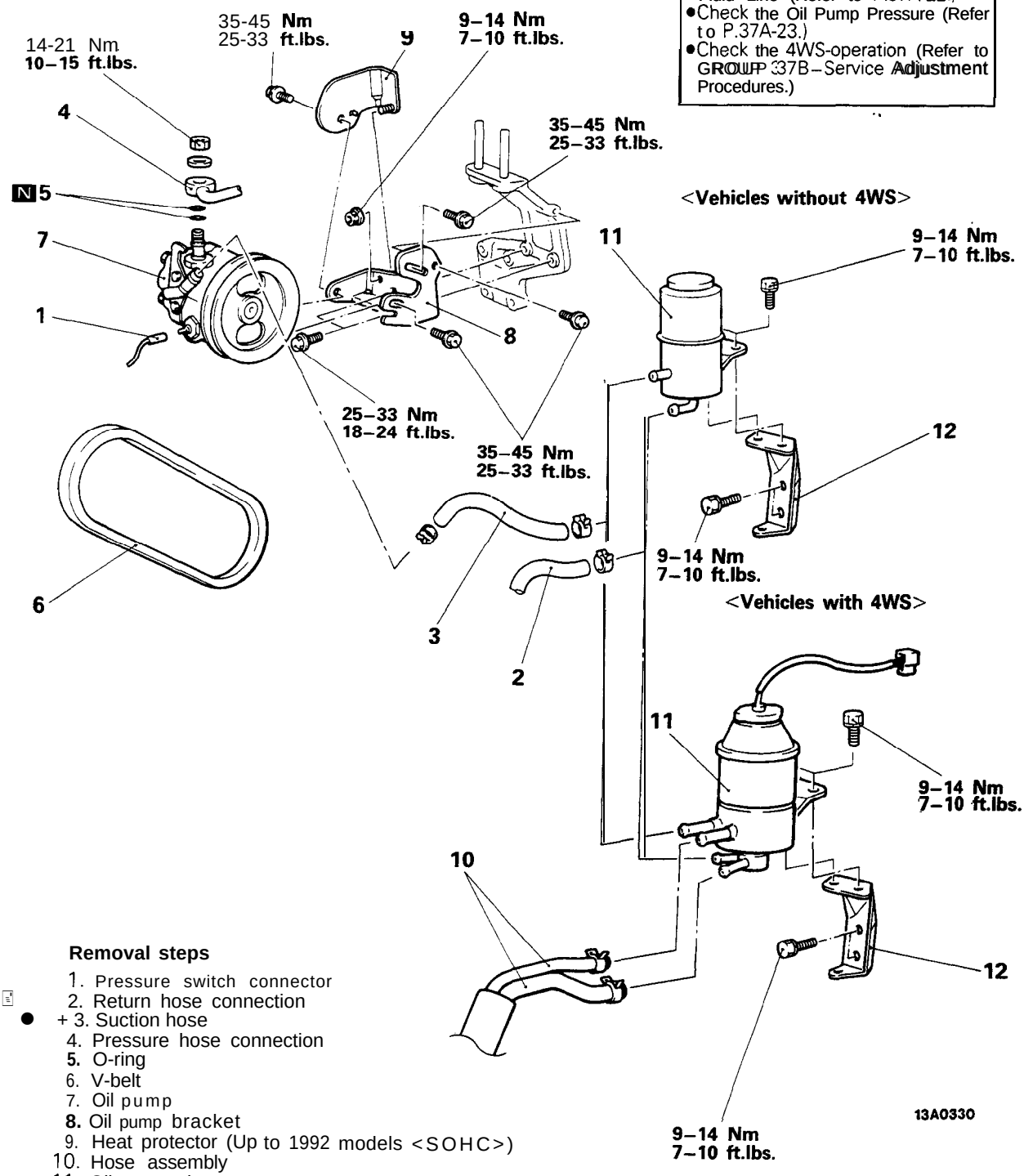
POWER STEERING OIL PUMP

M37RA-

REMOVAL AND INSTALLATION

Pre-removal Operation
*Draining of the Power Steering Fluid

Post-installation Operation
- Supplying of the Power Steering Fluid
*Bleeding of the Power Steering Fluid Line (Refer to P.37A-22.)
- Check the Oil Pump Pressure (Refer to P.37A-23.)
- Check the 4WS-operation (Refer to GROUP 37B – Service Adjustment Procedures.)



Removal steps

1. Pressure switch connector
2. Return hose connection
+ 3. Suction hose
4. Pressure hose connection
5. O-ring
6. V-belt
7. Oil pump
8. Oil pump bracket
9. Heat protector (Up to 1992 models <SOHC>)
10. Hose assembly
11. Oil reservoir
12. Reservoir bracket

TSB Revision

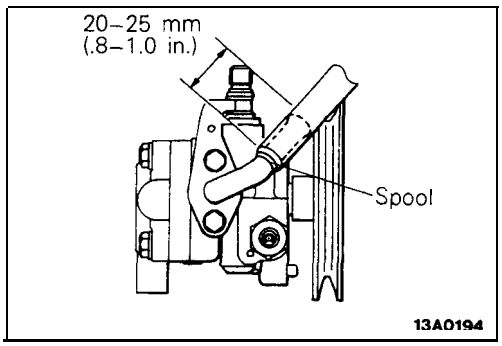
SERVICE POINTS OF REMOVAL M37RBAI

2. DISCONNECTION OF RETURN HOSE

(1) Remove the reservoir cap and disconnect the return hose from the reservoir to drain the fluid.
(2) Jack up the front wheels.
(3) Disconnect the high tension cable and turn the engine over several times to drain the fluid from the gear box.

INSPECTION M37RCAA

- Check the V-belt for cracks.
- Check the pulley assembly for uneven rotation.



SERVICE POINTS OF INSTALLATION M37RDAI

3. CONNECTION OF SUCTION HOSE

When connecting the suction hose to the oil pump, the amount of insertion should be as shown in the illustration.

NOTE
Install the hoses so that they are not twisted and so that they do not come in contact with any other parts.

(1) Replenish automatic transmission fluid. (Refer to P.37A-21.)

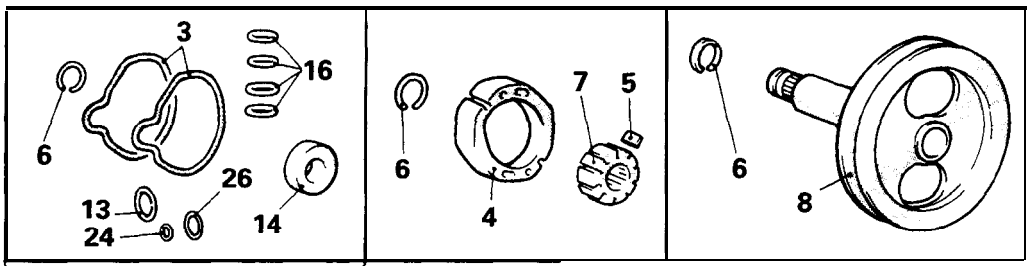
Specified fluid: Automatic transmission fluid "DEXRON II"

(2) Bleed air. (Refer to P.37A-22.)
(3) Check the oil pump pressure. (Refer to P.37A-23.)

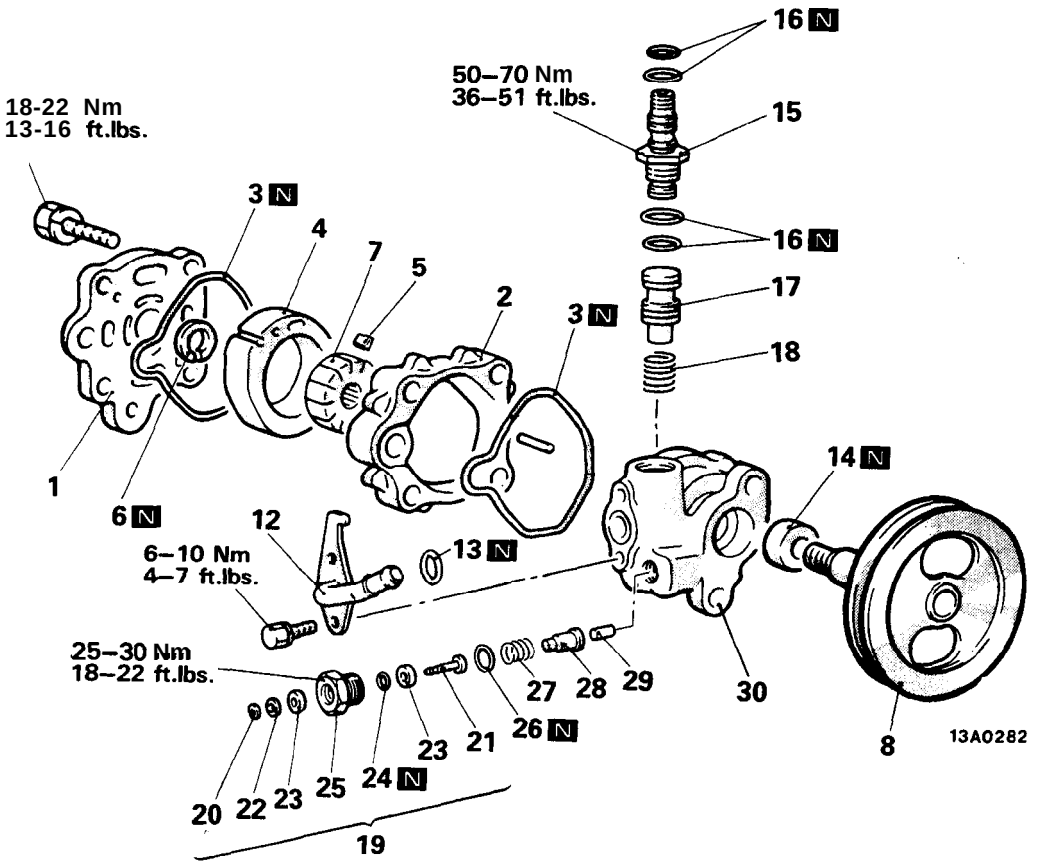
DISASSEMBLY AND REASSEMBLY

M37RE--

<Up to 1990 models>



Oil pump seal kit	Oil pump cartridge kit	Oil pump pulley and shaft kit



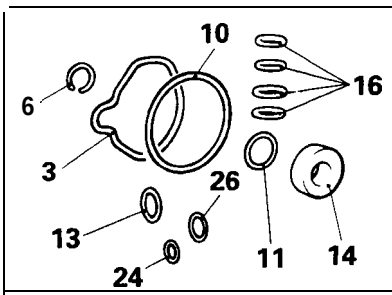
Disassembly steps

1. Pump cover
2. Cam case
3. O-ring
4. Cam ring
5. Vanes
6. Snap ring
7. Rotor
8. Pulley assembly
12. Suction connector
13. O-ring
14. Oil seal
15. Connector
16. O-rings
17. Flow control valve
18. Flow control spring
19. Terminal assembly
20. Snap ring
21. Terminal
22. Washer
23. Insulator
24. O-ring
25. Plug
26. O-ring
27. Spring
28. Plunger
29. Piston rod
30. Oil pump body

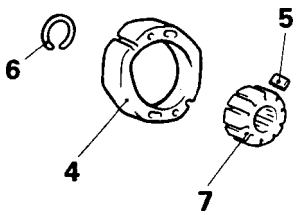
Caution

1. **Do not try to disassemble the pulley; it is press-fit onto the shaft.**
2. **Do not disassemble the flow control valve.**

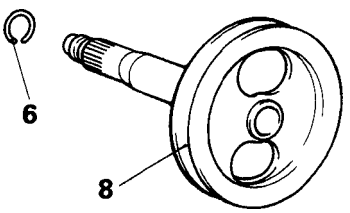
<From 1991 models>



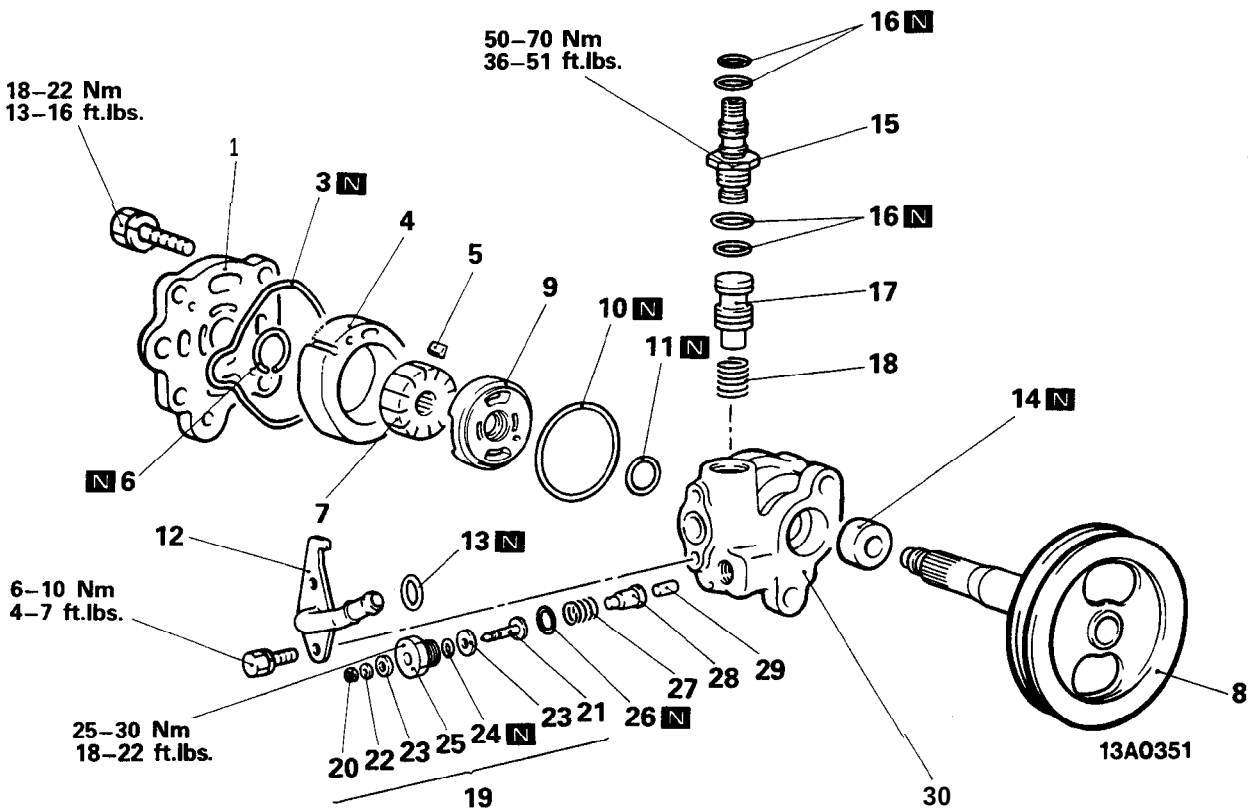
Oil pump seal kit



Oil pump cartridge kit



Oil pump pulley and shaft kit



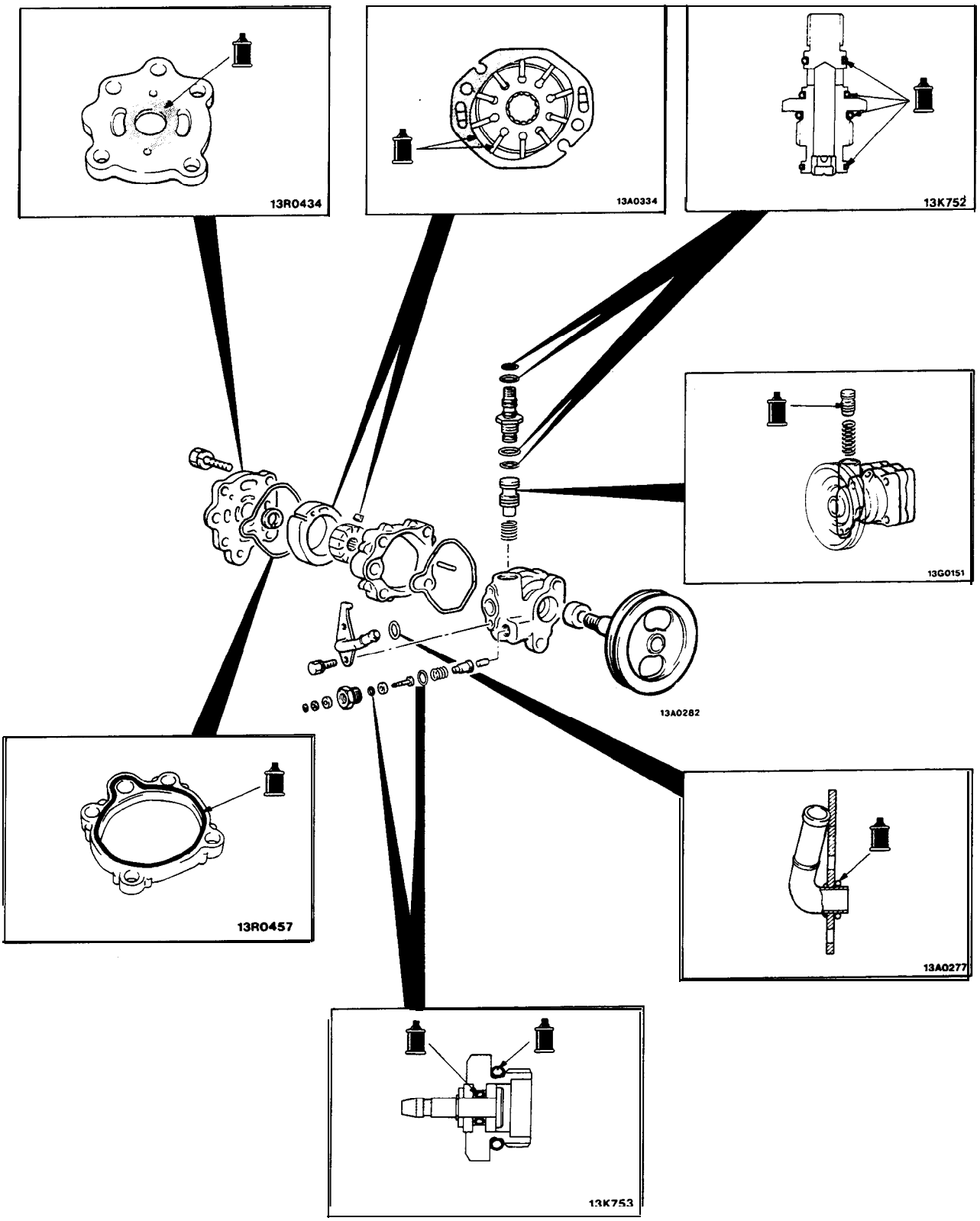
Disassembly steps

1. Pump cover
3. O-ring
● + 4. Cam ring
◆◆ 5. Vanes
● + 6. Snap ring
◆◆ 7. Rotor
● ☒ 8. Pulley assembly
◆◆ 9. Side plate
◆◆ 10. O-ring
● + 11. O-ring
12. Suction connector
◆◆ 13. O-ring
14. Oil seal
15. Connector
● + 16. O-rings
● + 17. Flow control valve
18. Flow control spring
19. Terminal assembly
20. Snap ring
21.
22. Washer
23. Insulator
◆◆ 24.
25. Plug
● * 26. O-ring
◆◆ 27. Spring
28. Plunger
29. Piston rod
30. Oil pump body

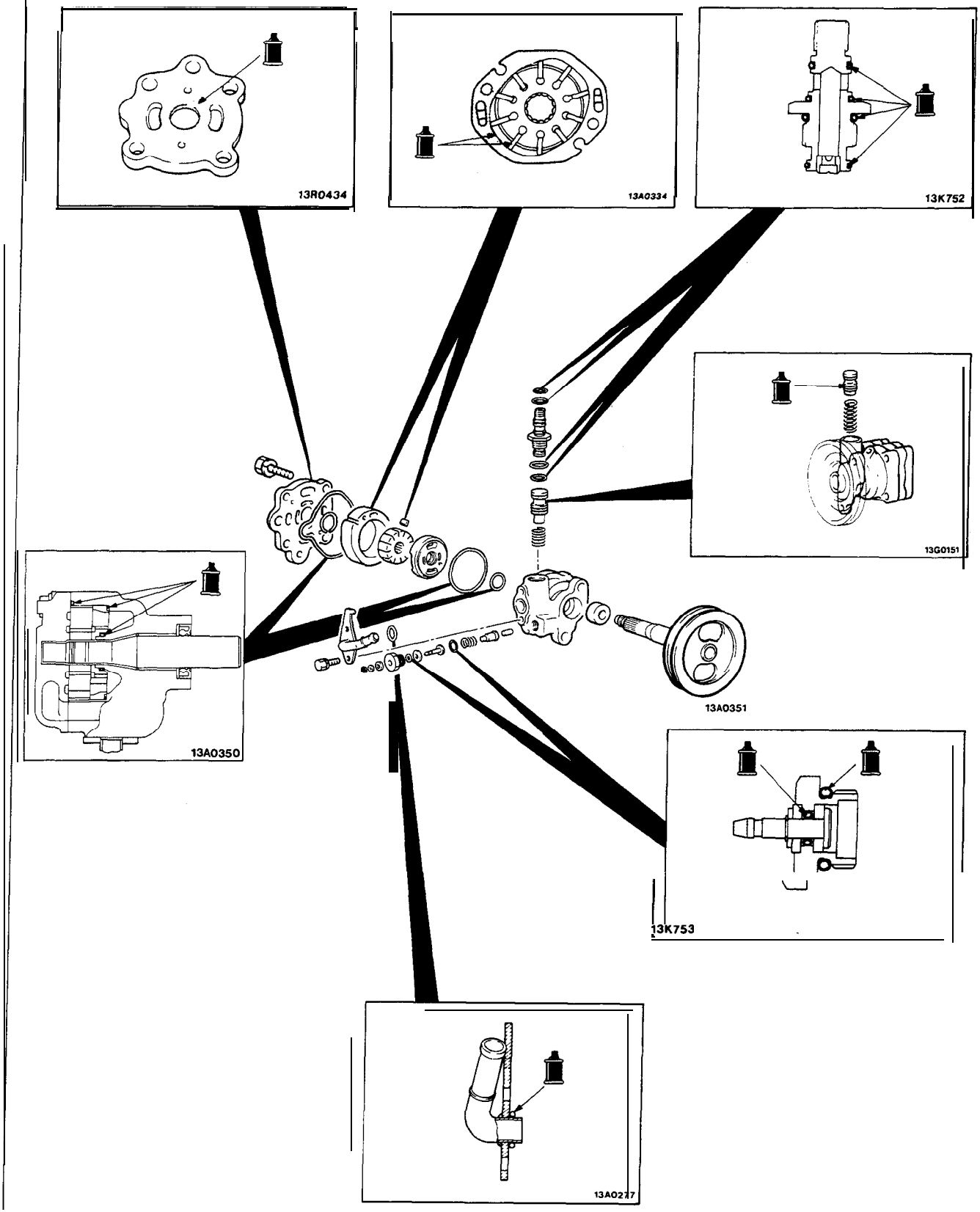
Caution

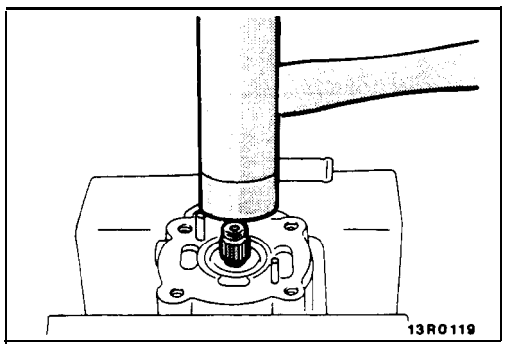
1. **Do not try to disassemble the pulley; it is pressfit onto the shaft.**
2. **Do not disassemble the flow control valve.**

LUBRICATION POINTS
<Up to 1990 models>



<From 1991 models>





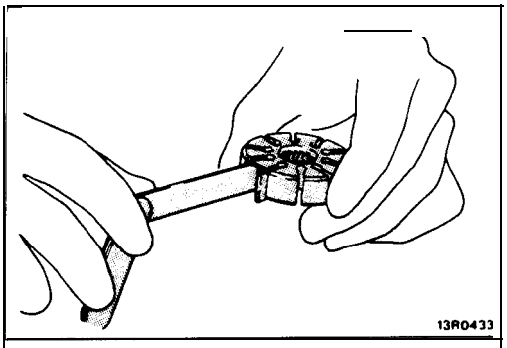
SERVICE POINTS OF DISASSEMBLY M37RFAM

8. REMOVAL OF PULLEY ASSEMBLY

Tap the rotor side of the shaft lightly with a plastic hammer, and take out the pulley assembly.

INSPECTION M37RGAK

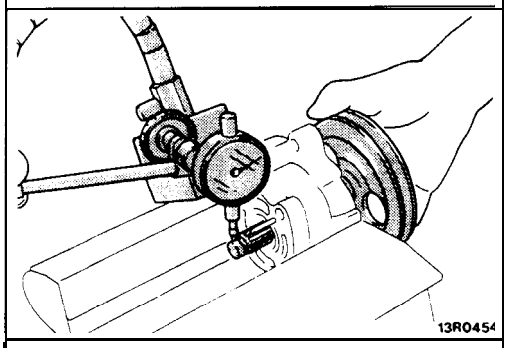
- Check the flow control spring for wear.
- Check the shaft of the pulley for wear and bend.
- Check the groove of rotor vane for "stepped" wear.
- Check the contact surface of cam ring and vanes for "stepped" wear.
- Check the vanes for breakage.



CHECK OF GAP BETWEEN VANE AND ROTOR GROOVE

Install vane to rotor groove as illustrated. Measure the gap between vane and rotor groove with thickness gauge.

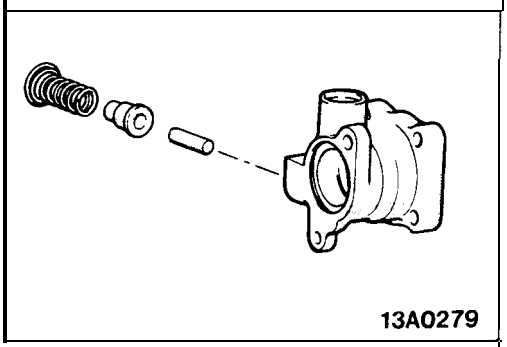
Limit: 0.06 mm (.0024 in.)



CHECK OF SHAFT BACKLASH OF PUMP BODY BUSHING AND PULLEY ASSEMBLY

(1) Place a dial gauge at the end of the shaft of the pulley assembly.
(2) Move the pulley assembly up and down, and measure the play.

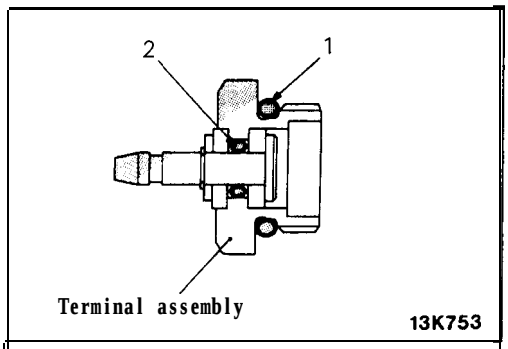
Limit: 0.1 mm (.004 in.)

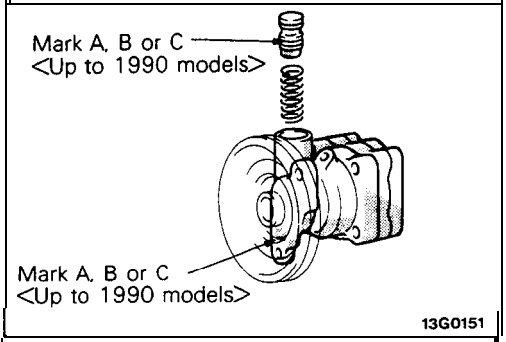


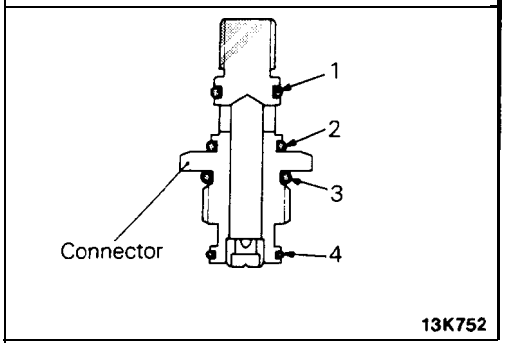
SERVICE POINTS OF REASSEMBLY M37RHBI

27. INSTALLATION OF SPRING

Fit the spring to the oil pump body with the larger-diameter end at the terminal assembly side.







26. /24. INSTALLATION OF O-RINGS

Apply specified fluid on O-rings to install.

Specified fluid: Automatic transmission fluid "DEXRON II"

No.	I.D. x Width mm (in.)	identification color
21	3.8 13 x x 1.9 1.9 (.51 (.15 x x .0748) .0748)	Blue –

17. INSTALLATION OF FLOW CONTROL VALVE

(1) If the flow control valve is to be replaced, install the flow control valve to the oil pump body corresponding with the body identification mark (A, B, C). <Up to 1990 models>

(2) Apply the specified fluid to the outside of the flow control valve.

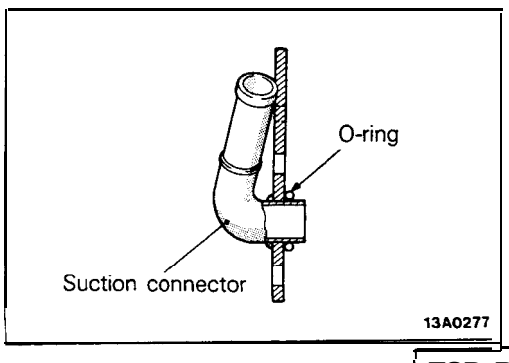
Specified fluid: Automatic transmission fluid "DEXRON II"

16. INSTALLATION OF O-RINGS

Apply specified fluid on O-rings to install.

Specified fluid: Automatic transmission fluid "DEXRON II"

No.	I.D. x Width mm (in.)	Identification color
1	11 x 1.9 (.43 x .0748)	Yellow
2	13 x 1.9 (.51 x .0748)	Blue
3	Up to 1990 models 15.8 x 2.4 (.62 x .0945)	–
	From 1991 models 17.8 x 2.4 (.70 x .0945)	–
4	13.5 x 1.5 (.53 x .0590)	Red



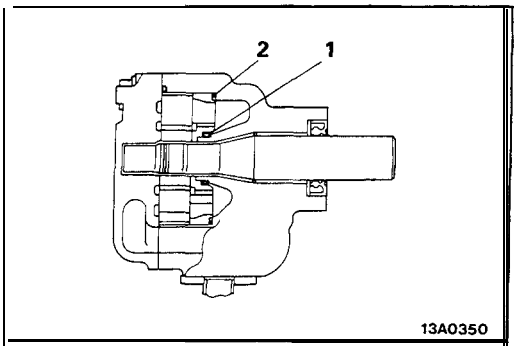
13. INSTALLATION OF O-RING

Apply specified fluid on O-ring to install.

Specified fluid: Automatic transmission fluid "DEXRON II"

I.D. x Width mm (in.)	identification color
Up to 1990 models 11.8 x 2.4 (.46 x .0945)	–
From 1991 models 17.8 x 2.4 (.70 x .0945)	–

TSB Revision

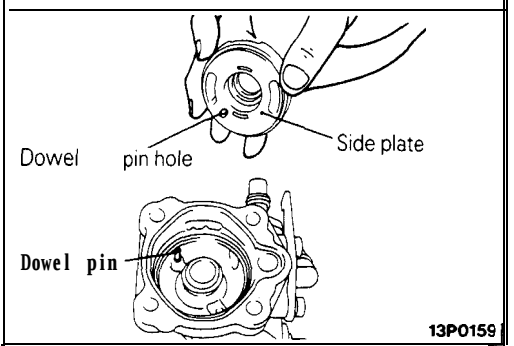


11. / 10. INSTALLATION OF O-RINGS

Apply specified fluid on O-rings to install.

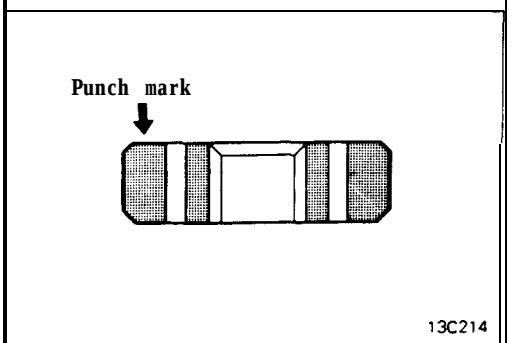
Specified fluid: Automatic transmission fluid "DEXRON II"

No.	I.D. x Width mm (in.)	Identification color
21	47.2 16.8 xx 2.4 2.4 (1.86 (.66 xx .0945).0945)	



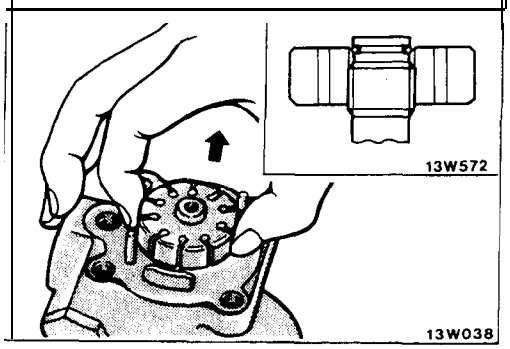
9. INSTALLATION OF SIDE PLATE

Align the dowel pin of the pump body with the dowel pin hole of the side plate to install the side plate.



7. INSTALLATION OF ROTOR

Install the rotor to the pulley assembly so that the rotor's punch mark is at the pump cover side.



6. INSTALLATION OF SNAP RING

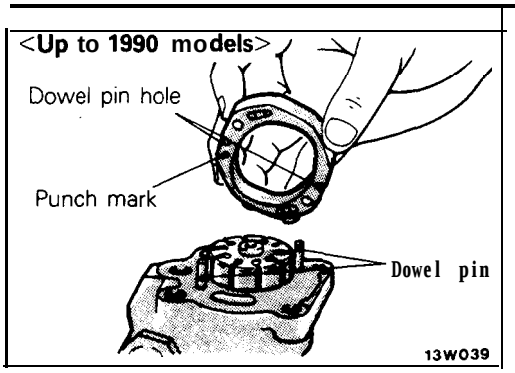
Lift the rotor and check to be sure that the snap ring is in the countersunk par-t.

5. INSTALLATION OF VANE/4. CAM RING

(1) Apply specified fluid to vane and cam ring friction surface.

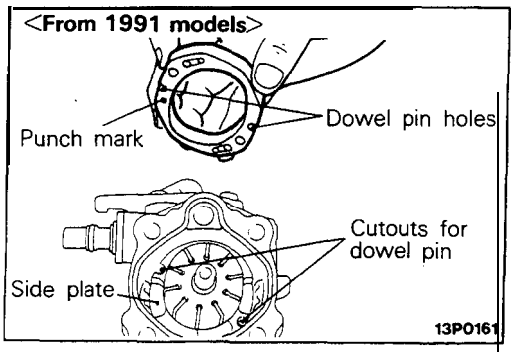
Specified fluid: Automatic transmission fluid "DEXRON II"

TSB Revision



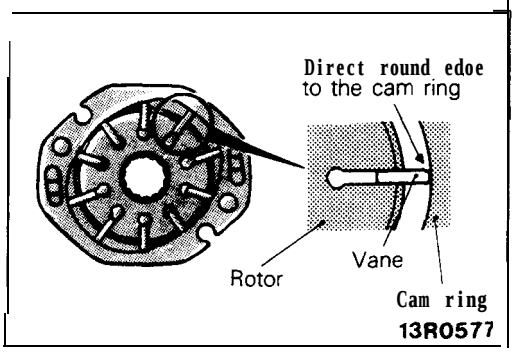
(2) <Up to 1990 models>

Align the dowel pins of the pump body with the dowel holes of the cam ring, and then install so that the cam ring's punch mark is at the pump body side.



<From 1991 models>

Align the dowel pin cutouts in the side plate with the dowel pin holes in the cam ring and direct the punch mark on the cam ring toward the pump body to install the cam ring.



(3) Apply specified fluid to the vanes and install the vanes on the rotor, paying close attention to the installation direction.

Specified fluid: Automatic transmission fluid "DEXRON II"

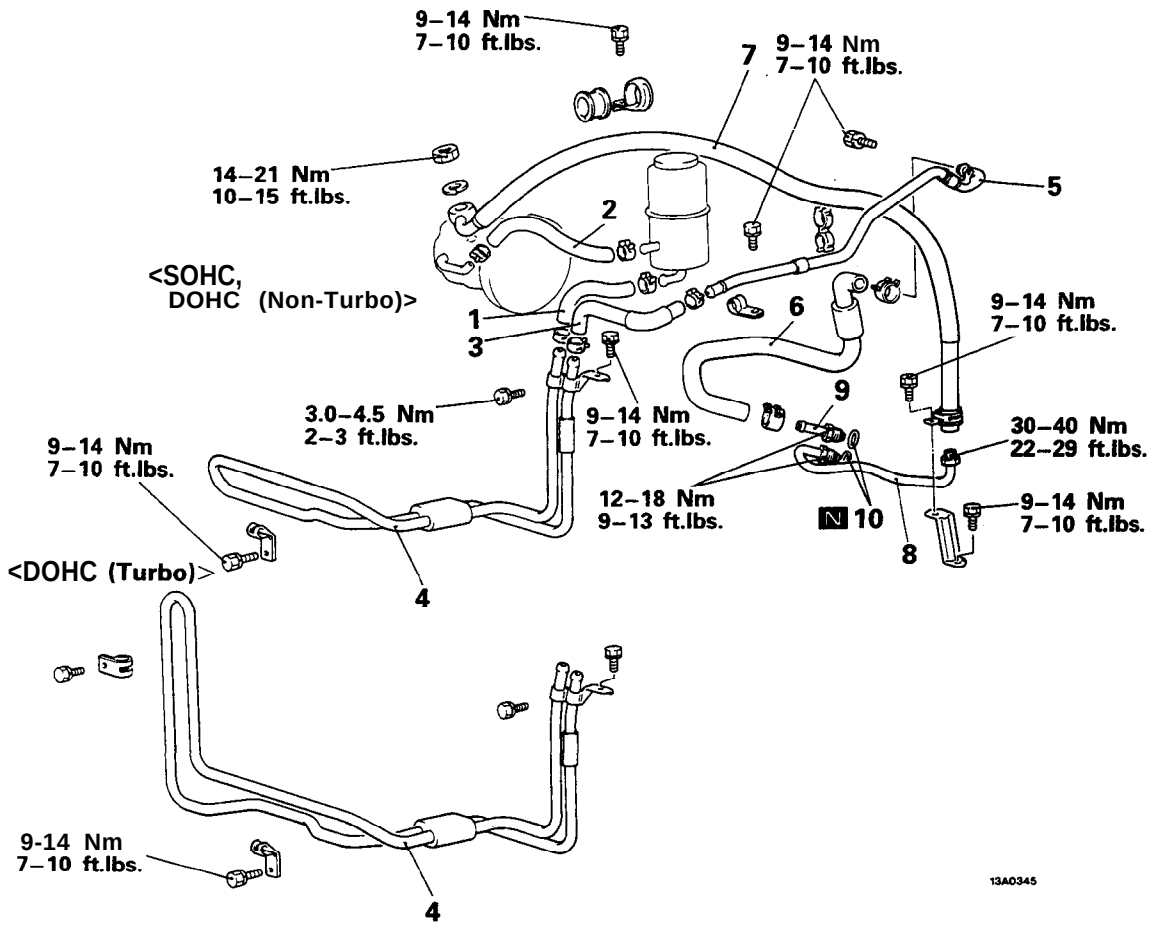
POWER STEERING HOSES

M37TA--

REMOVAL AND INSTALLATION

Pre-removal Operation
*Draining of the Power Steering Fluid

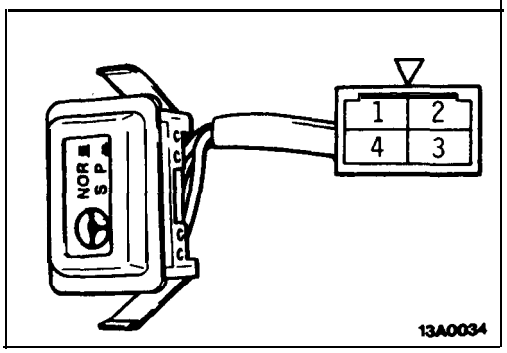
Post-installation Operation
•Supplying of the Power Steering Fluid
*Bleeding of the Power Steering Fluid Line (Refer to P.37A-22.)



Removal steps

1. Return hose
2. Suction hose
3. Return hose
4. Cooler tube
5. Return tube
6. Rubber hose
7. Pressure hose
8. Pressure tube
9. Return tube
10. O-ring

TSB Revision



E.P.S. CONTROL UNIT AND E.P.S. MODE SELECTOR SWITCH

INSPECTION

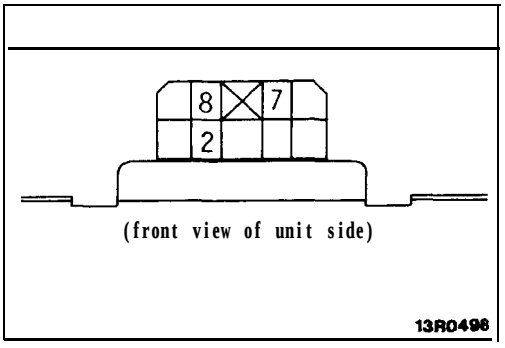
M37KACB

E.P.S. MODE SELECTOR SWITCH

Check for continuity between terminals when the switch is OFF and when ON.

	1	2	3	4
OFF (NOR)	0	0	0	○
ON (SP)	○	0	0	○

NOTE
○–○ indicates that there is continuity between the terminals.



E.P.S. CONTROL UNIT

To check the E.P.S. control unit, refer to the electronic-controlled power steering (control related) troubleshooting guide, and check by measuring the voltage or current of each terminal.

Caution
When checking terminal voltage when the ignition key is ON, never ground the No.2 terminal (IG_2 power supply), the No.7 terminal (solenoid valve positive side), or the No.8 terminal (solenoid valve negative side).

NOTES

4-WHEEL STEERING SYSTEM (4WS)

CONTENTS

M37AA-1

CONTROL VALVE 12

POWER CYLINDER 9

REAR OIL LINE 13

REAR OIL PUMP 15

SERVICE ADJUSTMENT PROCEDURES 4

- Ball Joint Rotation Starting Torque Check 8
- Bleeding 4
- Function Check 6
- Rear Oil Pump Discharge Flow Volume Check 6

SPECIAL TOOLS 3

SPECIFICATIONS 2

- General Specifications 2
- Lubricants 3
- Service Specifications 2
- Torque Specifications 2

TROUBLESHOOTING 4

SPECIFICATIONS

GENERAL SPECIFICATIONS

M37CA--1

items		Specifications
Power steering gear box		
Type		Rack and pinion
Oil pump		
Type		Vane type
Displacement	cm³/rev. (cu.in./rev.)	9.6 (.59)
Relief set pressure	MPa (psi)	8 (1,138)
Rear oil pump		
Type		Vane type
Displacement	cm³/rev. (cu.in./rev.)	3.3 (.20)
Relief set pressure	MPa (psi)	4 (569)
Power cylinder		
Type		Hydraulic double action type
Stroke	mm (in.)	20 (.78) [one side 10 (.39)]

SERVICE SPECIFICATIONS

M37CB--1

Items		Specifications
Standard value		
Rear oil pump displacement [at speedometer reading of 50 km/h (31 mph) for 30 seconds]	dm³ (qts.)	Approx. 1 .0 (1.06)
Power cylinder ball joint rotation starting torque	Nm (in.lbs.)	0.5 (4) or less
Power cylinder tie rod swing	N (lbs.)	9-55 (2–12)
Power cylinder slide resistance	N (lbs.)	67 (15) or less

TORQUE SPECIFICATIONS

M37CC--1

Items	Nm	ft.lbs.
Power cylinder to crossmember	34 – 50	25-36
Flared oil line nuts	12 – 18	9-13
Power cylinder to trailing arm	50 – 65	26-47
Tie rod end to cylinder assembly	34 – 50	25-36
Bleeder screw	6 - 8	4 - 6
Control valve to crossmember	9 – 14	7 – 10
Feed tube to rear oil pump	14 – 21	10 – 15
Pipe to No. 1 crossmember	4 - 6	3 - 4
Pipe clamp	9 – 14	7 – 10
Pipe clamp	4 - 6	3 - 4
Control pipe pressure tube	30 – 40	22-29
Rear oil pump to differential carrier	19 – 28	14 – 20

TSB Revision

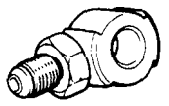
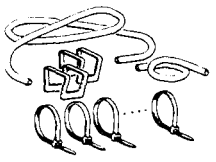
LUBRICANTS

M37CD--1

Items	Specified lubricants	Quantity
Power steering fluid	Automatic transmission fluid "DEXRON II"	1.45 dm^3 (1.53 qts.)
Dust cover	Silicone grease	As required

SPECIAL TOOLS

M37DA--1

Tool	Number	Name	Use
	M 8990993	Power steering oil pressure gauge adaptor	Measurement of fluid flow volume
	MB991230	Air bleeder set	Air bleed

TROUBLESHOOTING

M37EACA

Before inspecting, check the following items:

- Ensure that the suspension has not been modified
- Tire and wheel size, specifications, air pressure, balance and amount of wear
- Steering wheel type
- Wheel alignment
- Oil pump drive belt tension
- Power steering fluid level, and air in the system
- Engine idle speed and smooth even idle
- Oil leakage

Malfunction symptom	Malfunctioning system	Inspection item
4WS does not operate	Power cylinder	Tie rod swing torque
		Power cylinder slide resistance
	Rear oil pump	Flow volume check
	Control valve	
Poor steering feeling Feeling of friction in steering Poor steering return	Steering gears and linkage	Front rack and pinion assembly cracks or deformation
Steering wheel efforts excessive	Control valve	Oil leakage from control valve joint
	Power cylinder	Oil leakage from piston rod
	Oil line	Pressure hose breakage
	Oil reservoir	Oil reservoir deformation or oil leakage
Rear wheels cannot be steered Poor rear wheels return Hydraulic pressure for rear wheel is constantly high	Control valve	Stuck control valve spool
	Power cylinder	Stuck power cylinder
	Rear oil pump	Relief valve remains open
Long rear wheel steering delay Poor steering response Poor steering return	Power cylinder	Excessive power cylinder friction
		Looseness in power cylinder tie rod ball joint
		There may be ball joint damage
Poor rear wheel steering response Poor rear wheel steering range	Control valve	Oil leakage from control valve spool
	Power cylinder	Oil leakage from power cylinder
	Rear oil pump	Extreme oil pump internal wear
Poor steerability (extreme tire wear)	Power cylinder	Tie rod length improperly adjusted after toe-in adjustment

SERVICE ADJUSTMENT PROCEDURES

M37FBAA

BLEEDING

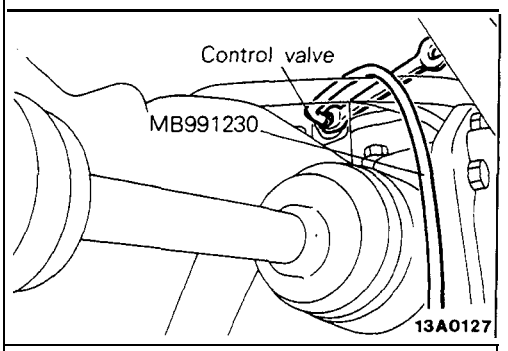
(1) Bleed air from power steering system. (Refer to GROUP 37A–Service Adjustment Procedures.)

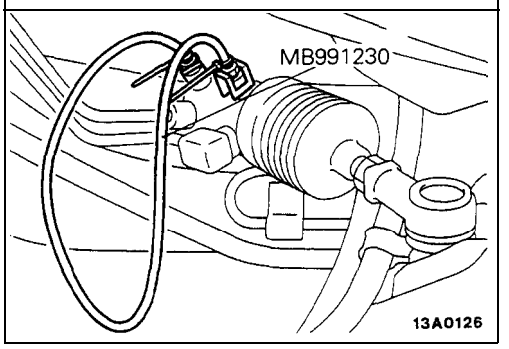
(2) Lift up the vehicle.

WARNING
All wheels must be off the ground.

(3) Start the engine and let it idle.

TSB Revision





(4) Loosen the bleeder screw on the left side of the control valve and set the special tool to the bleeder screw.

(5) Turn the steering wheel all the way to the left, immediately returning it half way back.
At this time confirm that air is discharged with the fluid.

NOTE
To keep the power steering reservoir full during the bleeding procedure.

(6) Repeat step (5) two or three times, then check to ensure that all air has been bled from the system.
Remove the special tool after tightening the bleeder screw.

(7) Repeat steps (4) through (6) for the right side bleeder screw, turning the steering wheel to the right this time.

(8) Loosen the power cylinder bleeder screw and place the special tool on the bleeder screw.

Caution
Loosen the bleeder screw about 30 to 45 degrees, and secure it with the special tool (rotation prevention metal fixtures) so as not to be loosened more.

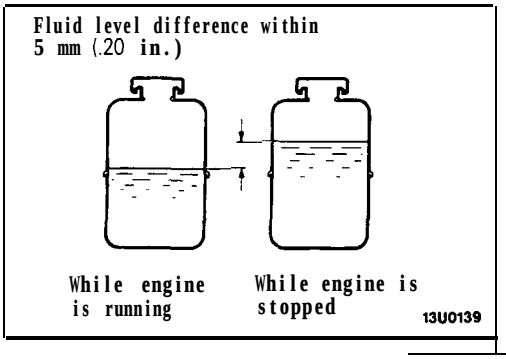
(9) Start the engine and raise the engine speed with the front wheels steered straight until the indicated speed is 70–80 km/h (43–50 mph) to operate the oil pump for the rear wheels.

Caution
Take special care as all four wheels will be rotating.

NOTE
The oil pump for the rear wheels will circulate when the engine speed is raised but the fluid will not circulate in the tube (special tool).

(10) Maintain an indicated speed of about 30–40 km/h (19-25 mph), turning the steering wheel all the way to both left and right.
Pressure will rise and air will circulate inside the tube (special tool). Check to ensure that this air is discharged into the oil reservoir.

(11) Repeat step (10) several times until all air in the system has been bleed.



(12) Ensure that the difference in the fluid levels at the power steering pump reservoir when the engine is running and when it is stopped are within 5 mm (.20 in.)
If the difference exceeds 5 mm (.20 in.), there is still air in the system and it must be bled again.

Caution
If air has not been completely bled from the system, the pump will make a humming sound or an unusual noise will come from the flow control valve; this also contributes to shortened pump life.

TSB Revision

FUNCTION CHECK

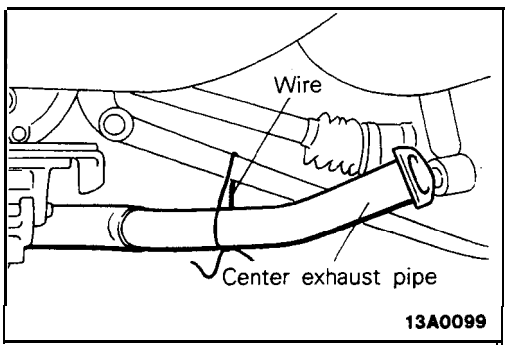
M37FBBA

(1) Raise the vehicle so that all four wheels may turn freely.
(2) Start the engine, running the vehicle at an indicated speed of about 80 km/h (50 mph).
(3) Rapidly turn the steering wheel all the way to left and right, checking to ensure that the rear wheels steer to the same directions as the front wheels.

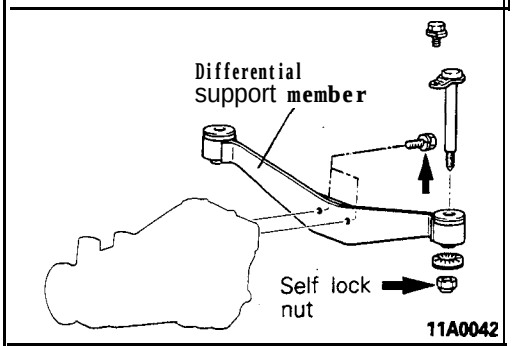
REAR OIL PUMP DISCHARGE FLOW VOLUME CHECK

M37FBCA

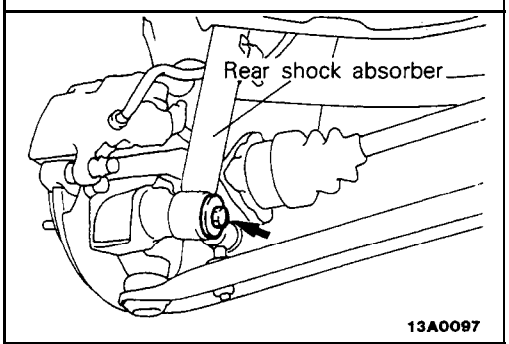
(1) Perform the following steps before removing the feed tube.
① Raise the vehicle, supporting the differential carrier with a transmission jack.
② Remove the center and rear exhaust pipes, suspending them from the body with wire.



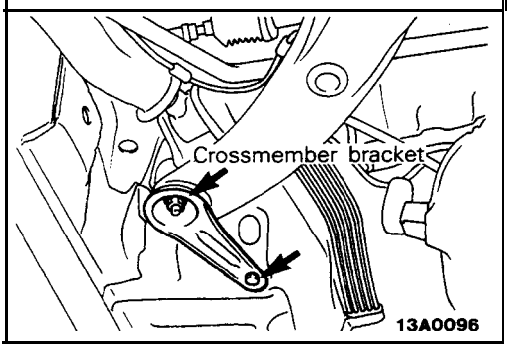
③ Remove the differential support member.



④ Remove the rear shock absorber Jower installation.



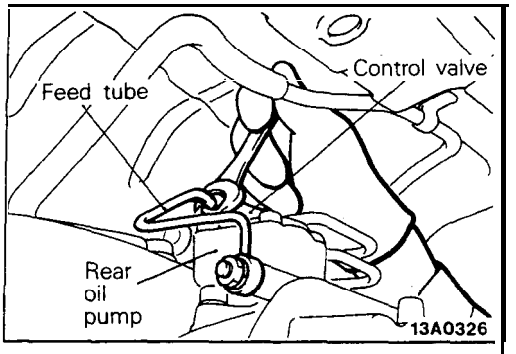
⑤ Remove the crossmember bracket.



(2) Verify there are no interferences, then carefully lower the rear suspension assembly.

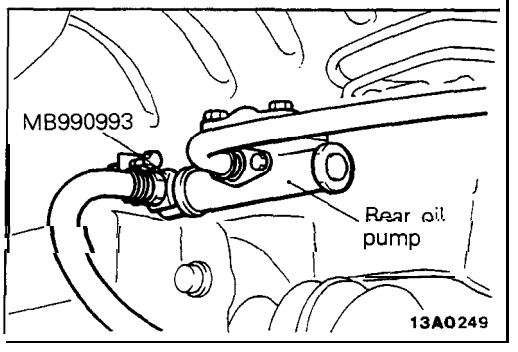
Caution
Use a transmission jack (lift) when lowering the rear suspension assembly.

TSB Revision



(3) Remove the nut at the rear oil pump and flare nut at the control valve, then remove the feed tube.

Caution
Place a plug in the control valve feed tube installation hole.

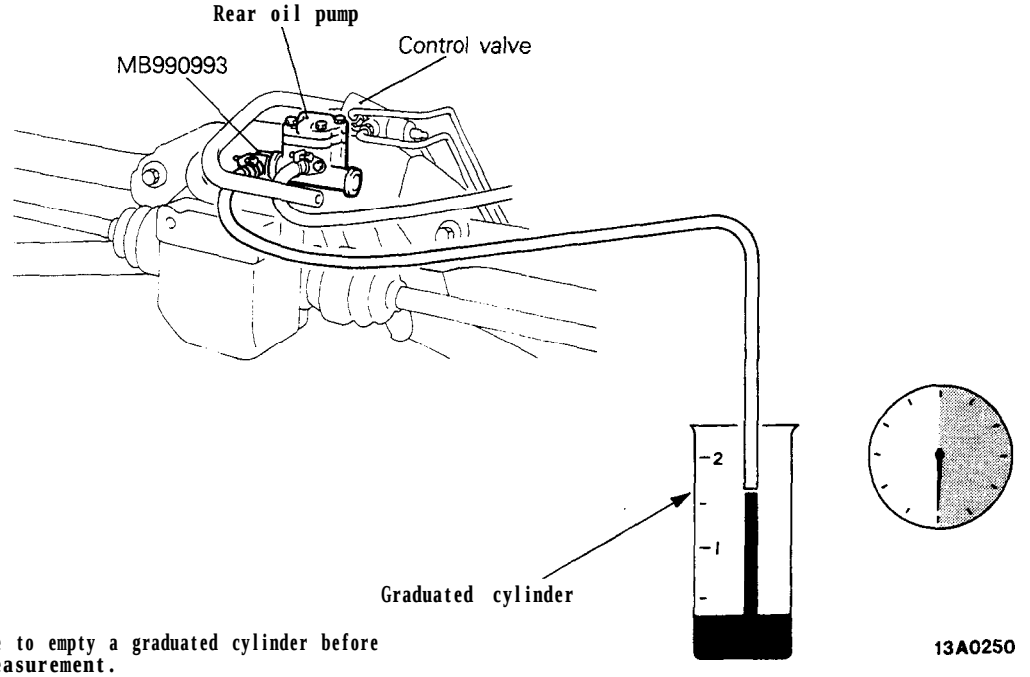


(4) Install the special tool onto the rear oil pump.
(5) Connect a rubber hose about 1.5 m (4.9 ft.) in length to the special tool, then place the other end into a container by which flow volume may be measured [a graduated cylinder of about 2 dm^3 (2.1 qts) capacity].
(6) Start the engine. increase speed slowly, then hold the indicated speed of 50 km/h (31 mph), measuring discharge flow volume for 30 seconds.

Caution
While performing this work, continuously add fluid into the oil reservoir.

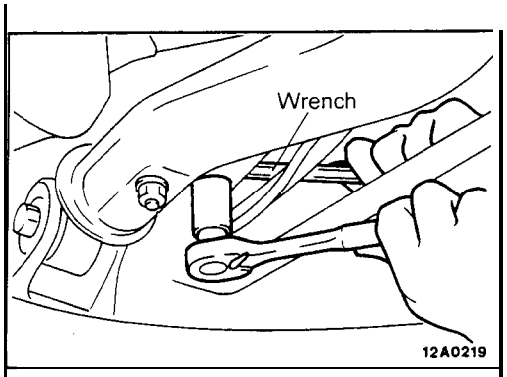
Standard value: Approximately 1 .0 dm^3 (1.06 qts.)

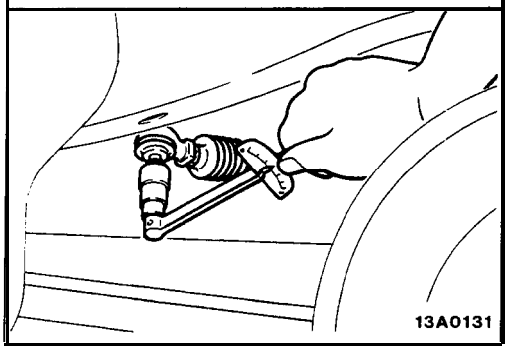
(7) If the discharge flow volume is extremely high or low, the rear oil pump should be replaced.



NOTE
Be sure to empty a graduated cylinder before the measurement.

TSB Revision





BALL JOINT ROTATION STARTING TORQUE CHECK

(1) Holding the power cylinder tie rod with a wrench, disconnect the tie rod and trailing arm.

(2) After swinging the ball joint stud several times, install the stud nut, then measure the ball joint rotation starting torque.

Standard value: 0.5 Nm (4 in.lbs.) or less

(3) If the rotation starting torque exceeds the standard value, replace the tie rod end.

(4) If the rotation starting torque is less than the standard value. check that the ball joint is not loose and operates smoothly. If not, replace the tie rod end.

POWER CYLINDER

REMOVAL AND INSTALLATION

M37KA–

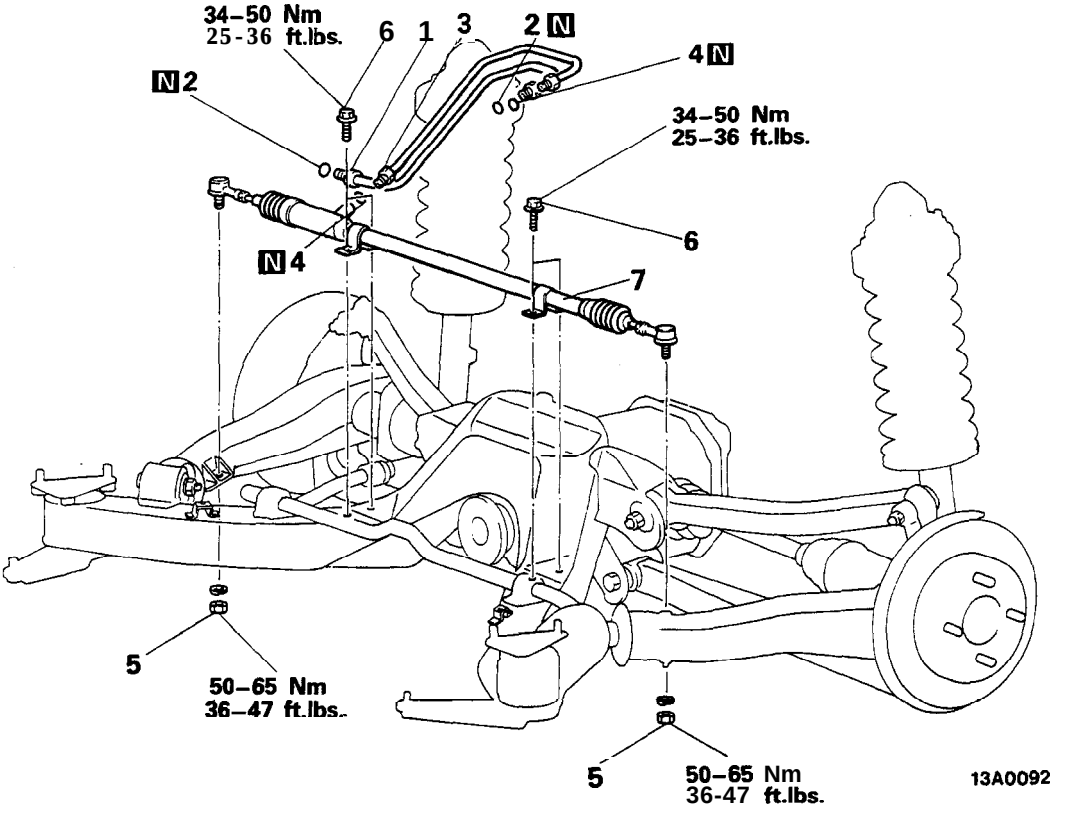
Pre-removal Operation
- Steam Clean Tubing
- Drain Power Steering Fluid

Post-installation Operation
- Refill Power Steering Fluid
- Bieed Power Steering Fluid Line (Refer to P.37B-5.)
- 4WS Function Check (Refer to P.37B-6.)

Fluid line flared nut

12–18 Nm
9–13 ft.lbs.

14F038

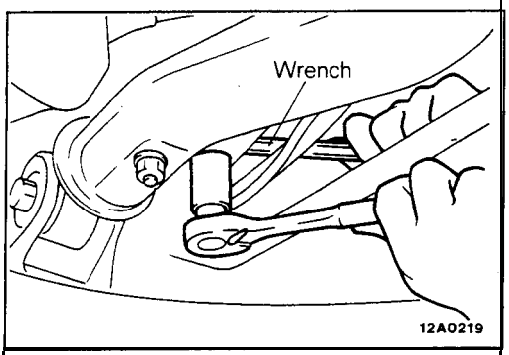


Removal steps

1. Pressure tube (rear right)
2. O-ring
3. Pressure tube (rear left)
4. O-ring

◆◆ ● + 5. Power cylinder installation nut
● * 6. Bolt
◆◆ 7. Power cylinder

TSB Revision



SERVICE POINTS OF REMOVAL M37KBAA

5. REMOVAL OF POWER CYLINDER INSTALLATION NUTS

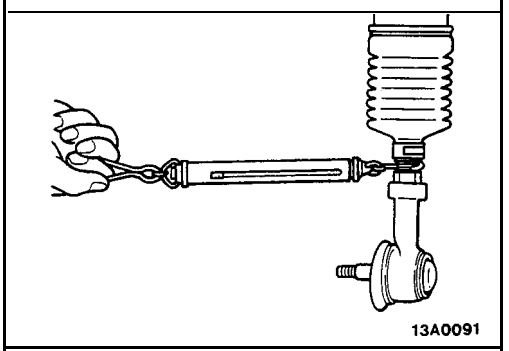
Holding the power cylinder tie rod with a wrench, remove the power cylinder installation nuts.

INSPECTION M37KCAA

TIE ROD SWING TORQUE INSPECTION

(1) Swing the tie rod ten times, hard.
(2) Point the tie rod end down, then attach a spring balance as shown in the illustration to measure swing resistance.

Standard value: 9-55 N (2-12 lbs.)

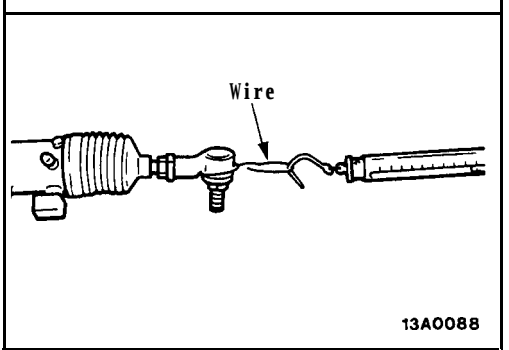


(3) If the swing resistance exceeds the standard value, replace the tie rod.
(4) If the swing resistance is less than the standard value, the ball joint may be reused as long as it is not loose and operates smoothly.

POWER CYLINDER SLIDE RESISTANCE CHECK

(1) Place the piston in a neutral position.
(2) Wrap a wire around the tie rod end, then measure slide resistance with a spring balance as shown in the illustration.

Standard value: 67 N (15 lbs.) or less



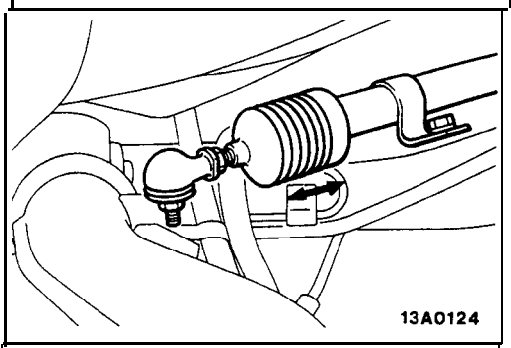
(3) If the slide resistance exceeds the standard value, replace the power cylinder.
(4) If the slide resistance is less than the standard value, the power cylinder may be reused as long as it is not loose and slides smoothly.

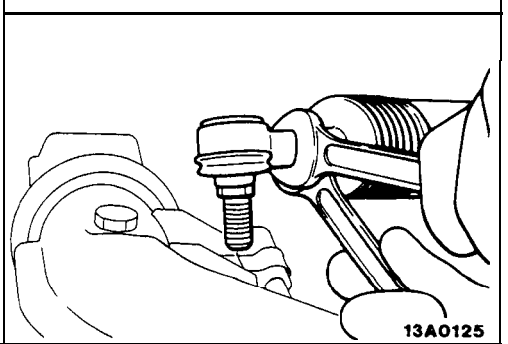
SERVICE POINTS OF INSTALLATION M37KDAA

7. INSTALLATION OF POWER CYLINDER/6. POWER CYLINDER INSTALLATION BOLTS

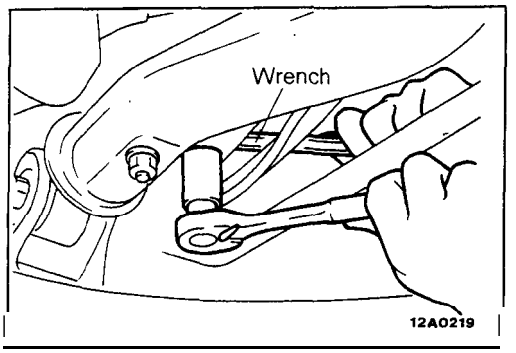
(1) Secure the power cylinder to the crossmember.
(2) Move the power cylinder piston rod over its full stroke to determine its neutral position.
(3) Align tie rod ends and the installation holes at trailing arm.
(4) When the tie rod ends and the installation holes at the trailing arm do not meet, loosen the tie rod end securing nut, then adjust the length. The dust cover fastener clip should be removed for this.
(5) The difference between the lengths of the left and right tie rods should be less than 1 mm (.039 in.).

NOTE
The threads of the tie rod ends may be used as a guide for this.





TSB Revision

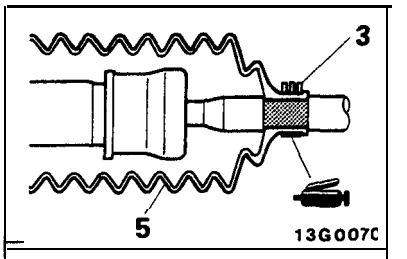


5. INSTALLATION OF POWER CYLINDER INSTALLATION NUTS

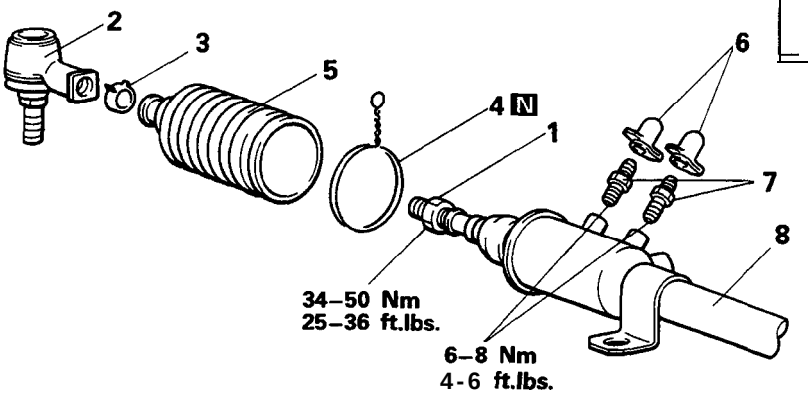
Holding the power cylinder tie rod with a wrench, install the power cylinder installation nuts.

DISASSEMBLY AND REASSEMBLY

M37KE-



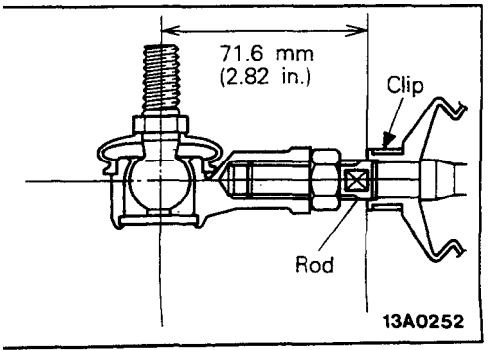
Specified grease:
Silicone grease



Disassembly steps

1. Nut
- \+ 2. Tie rod end assembly
3. Clip
4. Wire
5. Dust cover
6. Bleeder caps
7. Bleeder screws
8. Cylinder assembly

13A0128



SERVICE POINTS OF REASSEMBLY

M37KFAA

2. INSTALLATION OF TIE ROD END ASSEMBLY

Temporarily attach the tie rod end assembly to the cylinder assembly dimension as illustrated.

NOTE

To adjust the assembly dimensions of the tie rod end assembly, remove the dust cover clip and rotate the rod.

TSB Revision

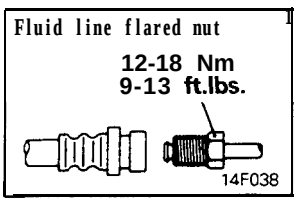
CONTROL VALVE

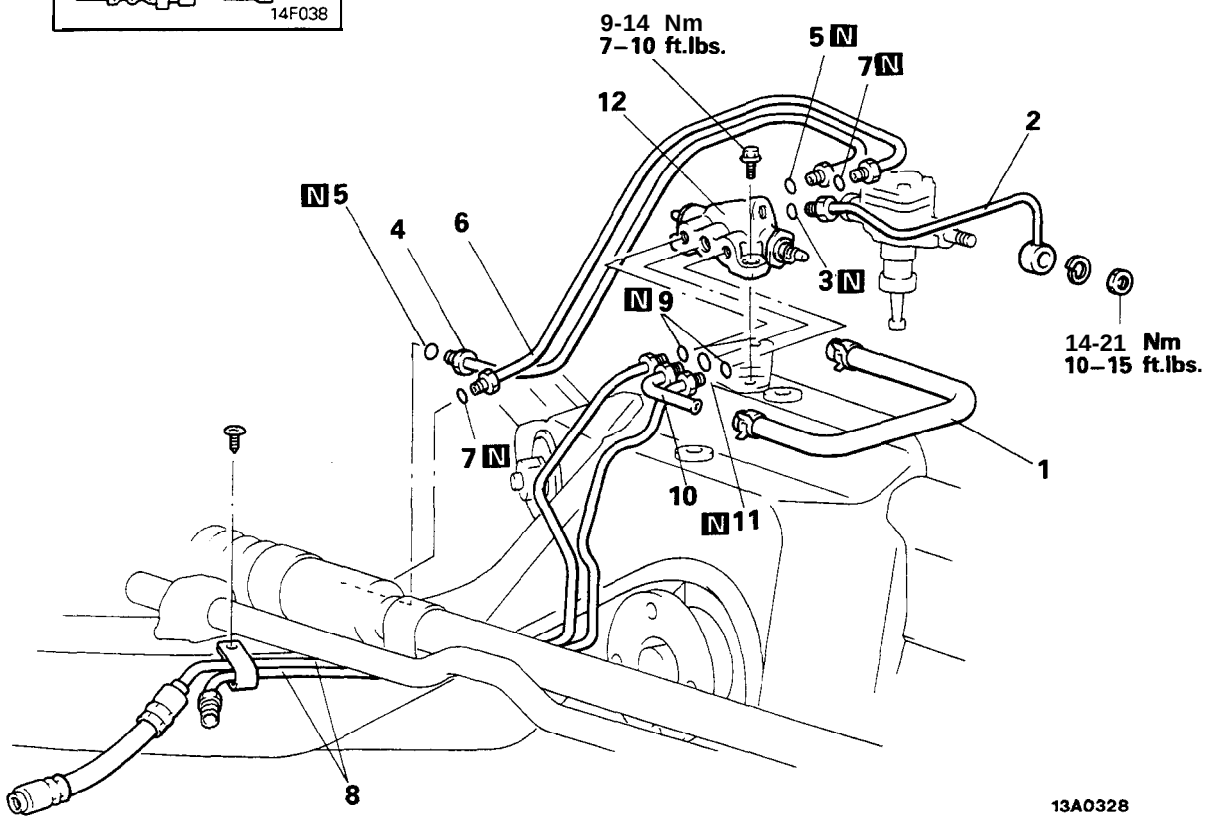
REMOVAL AND INSTALLATION

M37MA–

Pre-removal Operation
- Steam Clean Tubing
- Drain Power Steering Fluid
- Removal of Rear Suspension Assembly (Refer to GROUP 34–Rear Suspension Assembly.)

Post-installation Operation
- installation of Rear Suspension Assembly (Refer to GROUP 34–Rear Suspension Assembly.)
- Refill Power Steering Fluid
- Bleed Power Steering Fluid Line (Refer to P.37B-5.)
- 4WS Function Check (Refer to P.37B-6.)





Removal steps

1. Return hose
2. Feed tube
3. O-ring
4. Pressure tube (rear right)
5. O-ring
6. Pressure tube (rear left)
7. O-ring
8. Pressure tube (front left, front right)
9. O-ring
10. Return tube
11. O-ring
12. Control valve

TSB Revision

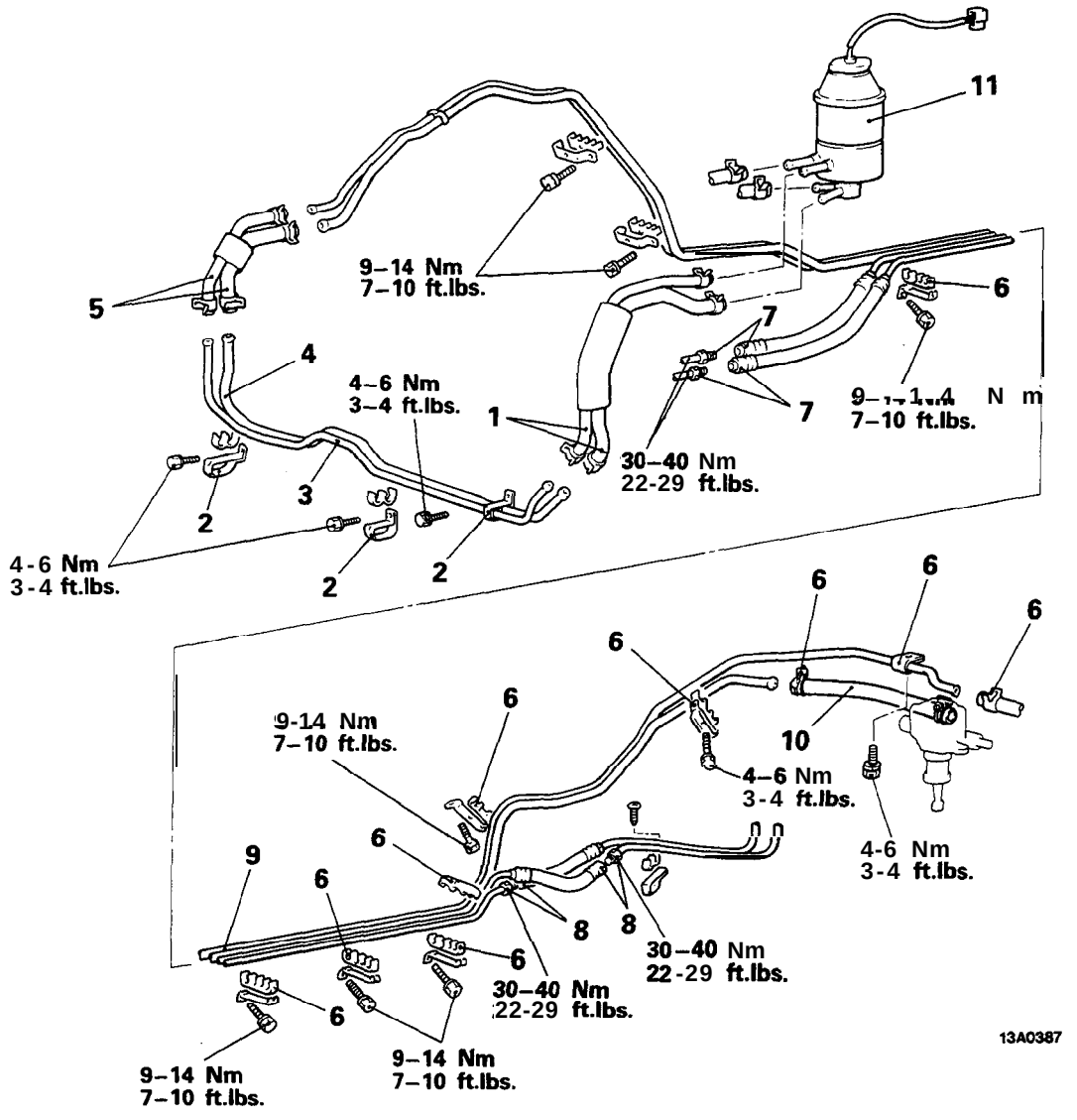
REAR OIL LINE

M370A–

REMOVAL AND INSTALLATION

Pre-removal Operation
- Steam Clean Tubing
- Drain Power Steering Fluid

Post-installation Operation
- Refill Power Steering Fluid
- Bleed Power Steering Fluid Line (Refer to P.37B-5.)
- 4WS Function Check (Refer to P.37B-6.)



Removal steps

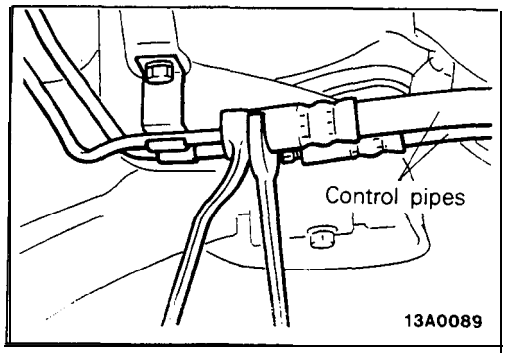
1. Hose assembly
2. Clamp
3. Return pipe (front right)
4. Feed pipe (front right)
5. Hose assembly
6. Clamp and clip

◀▶ ● + 7. Power steering gear box and control pipe connection

● *▶◀ 8. Control pipe and pressure tube connection

9. Pressure pipe assembly
10. Suction hose
11. Oil reservoir

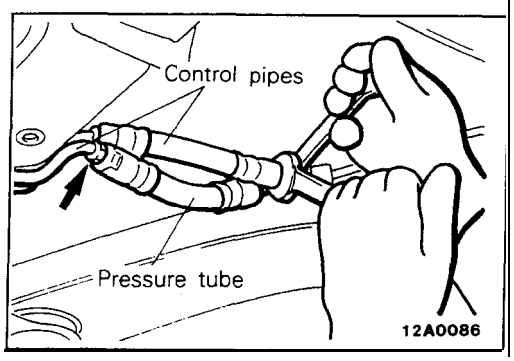
TSB Revision



SERVICE POINTS OF REMOVAL M370BAA

7. DISCONNECTION OF THE POWER STEERING GEAR BOX AND CONTROL PIPES

Hold the control pipe with a wrench, then disconnect the power steering gear box and control pipes.

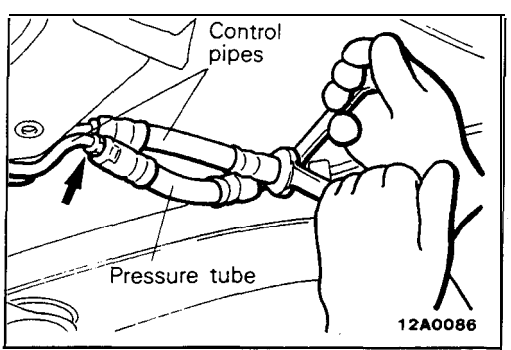


8. DISCONNECTION OF THE CONTROL PIPES AND PRESSURE TUBES

Hold the hose with a wrench, then disconnect the control pipe and pressure tube.

INSPECTION M370CAA

- Check tubes and pipes for cracking, damage or corrosion.
- Check hoses for cracking, damage, leakage or fluid seepage.
- Check flare nuts for damage.

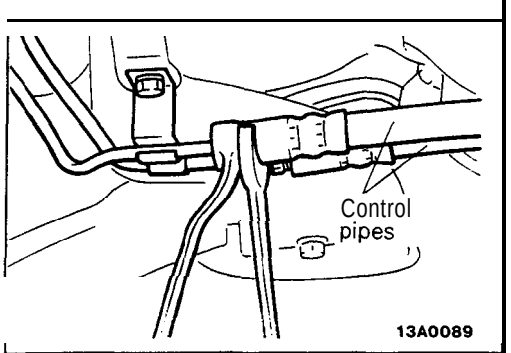


SERVICE POINTS OF INSTALLATION M370DAA

8. CONNECTION OF CONTROL PIPES AND PRESSURE TUBES

Hold the hose with a wrench, then connect the control pipes and pressure tubes.

Caution
Ensure that the hose is not twisted.



7. CONNECTION OF POWER STEERING GEAR BOX AND CONTROL PIPES

Hold the control pipe with a wrench, then connect the power steering gear box and control pipe.

Caution
Ensure that the hose is not twisted.

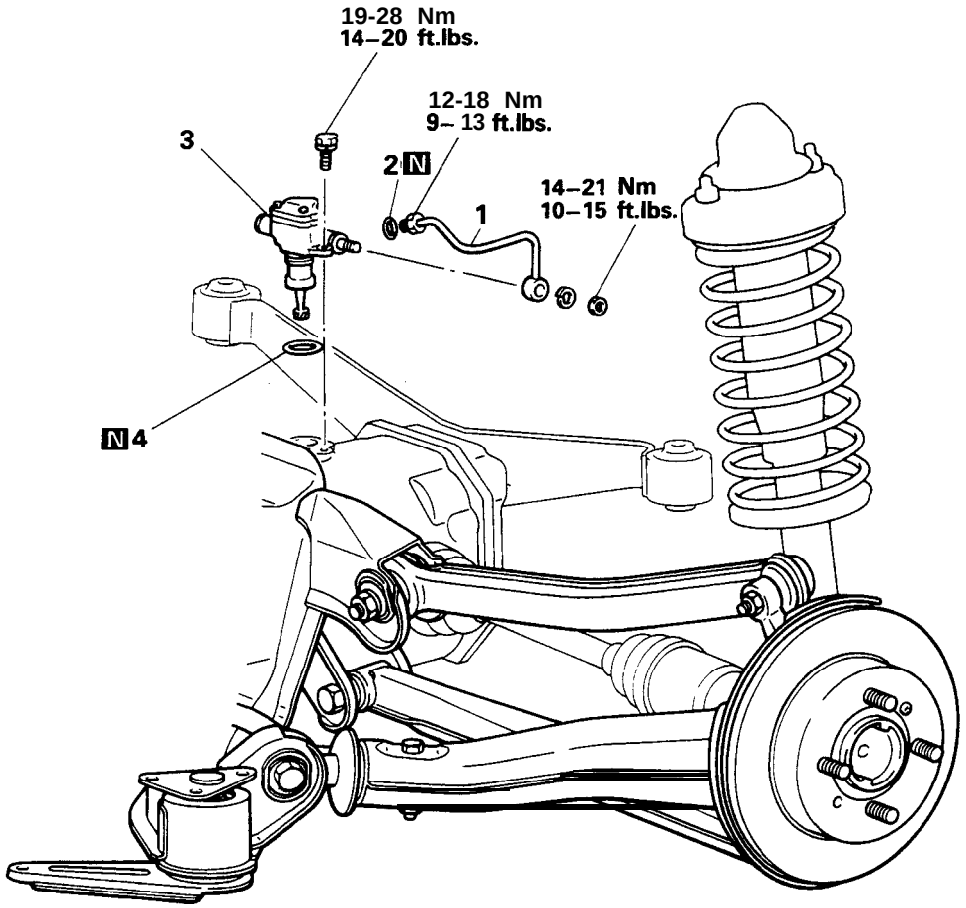
REAR OIL PUMP

M37QA--

REMOVAL AND INSTALLATION

Pre-removal Operation
- Steam Clean Tubing
- Drain Power Steering Fluid
- Removal of Rear Suspension Assembly (Refer to GROUP 34–Rear Suspension Assembly.)

Post-installation Operation
- *Installation of Rear Suspension Assembly (Refer to GROUP 34–Rear Suspension Assembly.)
- *Refill Power Steering Fluid
- Bleed Power Steering Fluid Line (Refer to P.37B-5.)
- 4WS Function Check (Refer to P.37B-6.)



13A0327

Removal steps

1. Feed tube
2. O-ring
3. Rear oil pump
4. O-ring

TSB Revision

NOTES

BODY

CONTENTS

M42AA--

CENTRAL DOOR LOCKING SYSTEM 101
DOOR ASSEMBLY 74
DOOR RUNCHANNEL 110
FENDER 61
FRONT DOOR GLASS AND REGULATOR 80
FRONT DOOR HANDLE AND LATCH 96
FRONT DOOR MOULDING AND DRIP LINE WEATHERSTRIP 112
FRONT DOOR TRIM AND WATER-PROOF FILM 76
FUEL TANK FILLER DOOR 60
HOOD 55
LOOSE PANEL 62
POWER WINDOW 86
QUARTER WINDOW GLASS 70
REAR DOOR GLASS AND REGULATOR... 83
REAR DOOR HANDLE AND LATCH 99
REAR DOOR MOULDING AND DRIP LINE WEATHERSTRIP 114
REAR DOOR TRIM AND WATER-PROOF FILM 78
REAR WINDOW GLASS 72
SERVICE ADJUSTMENT PROCEDURES..... 50
- Door Fit Adjustment 51
- Door Glass Adjustment 52
- Hood Alignment Adjustment 50
- Inside Handle Play Adjustment 52
- Sunroof Fit Adjustment 53
- Trunk Lid Adjustment 50
- Trunk Lid Torsion Bar Adjustment 51
- Water Test 52

SPECIAL TOOLS 5
SPECIFICATIONS 2
- General Specifications 2
- Sealants and Adhesives 4
- Service Specifications 4
- Torque Specifications 4

SUNROOF 116
TROUBLESHOOTING 6
TRUNK LID 57
WINDOW GLASS 63
WINDSHIELD GLASS 66

SPECIFICATIONS

GENERAL SPECIFICATIONS

M42CA--

Items	Specifications
Hood	
Type	Rear hinged, front opening type
Front door	
Construction	Front-hinged, sash construction
Regulator system	Wire type
Locking system	Pin-fork type
Rear door	
Construction	Front-hinged, sash construction
Regulator system	Wire type
Locking system	Pin-fork type
Trunk lid	
Hinge	Single-arm type (Torsion bar type)
Glass installation method	
Windshield glass	Adhesive type
Quarter window glass	Adhesive type
Rear window glass	Adhesive type
Glass thickness	
Windshield glass mm (in.)	5.3 (.21)
Rear window glass mm (in.)	3.5 (.14)
Front door glass mm (in.)	3.5 (.14)
Rear door glass mm (in.)	3.5 (.14)
Quarter window glass mm (in.)	3.5 (.14)
Roof glass lid mm (in.)	4.0 (.16)
Sunroof motor	
Type	DC ferrite (with built-in circuit breaker)
Speed at no load rpm	180 or less
Speed at load rpm At 1 Nm (.72 ft.lbs.)	130–150
Bound current A	35 or less
Turning direction	Both clockwise and counterclockwise
Sunroof switch	
Rated load current A	5
Bound current A	20

Items	Specifications
Power window motor	
Type	Permanent magnet type (built-in circuit breaker
Revolutions under no load rpm	75 or more
Revolutions under load rpm	
At 1 Nm (.72 ft.lbs.)	65-95
At 2 Nm (1.45 ft.lbs.)	50–80
Bound current A	34 or less
Direction of rotation	Clockwise and counterclockwise
Power window main switch	
Type	Automatic reset type
Rated load current A	
Lock switch	20
Power window switch	10
Power window sub switch	
Type	Automatic reset type
Rated load current A	10
Power window relay	
Maximum contact current A	22
Rated coil current A	0.135–0.215
Voltage drop between terminals V (At 12V and the rated load current)	0.2 or less
Door lock control unit	
Effective voltage V	10–16
Current consumption (when not in operation) mA	3 or less
Door lock power relay	
Range of voltage used V	8-16
Rated load current (at 13.5V) A	10
Rated coil current A	Max. 0.2
Voltage drop between terminals V	0.2 or less
Front door lock actuator	
Bound current (at 12V) A	2.5-4.5
Operating voltage range V	9-15
*Tripping time (at 12V) second	5–30
Rear door lock actuator	
Bound current (at 12V) A	2.5-4.5
Operating voltage range V	9-15
*Tripping time (at 12V) second	5–30

NOTE
*Tripping time is the time consumed until current reaches 0.5A after power connection.

TSB Revision

SERVICE SPECIFICATIONS

M42CB--

Items	Specifications
Standard Value	
Door inside handle play mm (in.)	4–10 (.16–.40)
Roof lid sliding resistance N (lbs.)	120 (26)
Slipping force of sunroof motor clutch N (lbs.)	35-44 (8–10)

TORQUE SPECIFICATIONS

M42CC--

Items	Nm	ft.lbs.
Hood latch to body	7-11	5-8
Hood hinge to body	9-14	7–10
Hood hinge to hood	9-14	7–10
Windshield wiper arm locking nut	10–16	7-12
Front and rear doors		
Door hinge to door	17-26	12-19
Door hinge to body	35-55	25–40

SEALANTS AND ADHESIVES

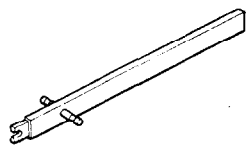
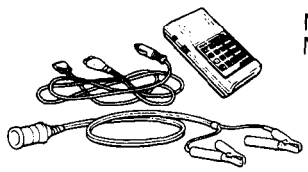
M42CE--

Items	Specified sealant and adhesive
Fender to body panel	3M ATD Part No. 8646 or equivalent
Splash shield to fender panel, front bumper and front skirt panel Door inner panel waterproof film fitting portion Sliding roof cable guide casing, guide rail	3M ATD Part No. 8625 or equivalent
Windshield glass, quarter window glass, rear window glass to body	3M Super Fast Urethan Part No. 8609 or equivalent

TSB Revision

SPECIAL TOOLS

M42DA--

Tool	Number	Name	Use
	MB990900-01 OPTIONAL: AVAILABLE FROM O.T.C.	Door adjusting wrench	Adjustment of door fit
	MB991244	Torsion bar remover and installer	Removal and installation of trunk lid torsion bar
	GENERAL SERVICE TOOL	Window moulding remover	Removal of the window moulding
	MB991269*1 MB991341*2	Scan tool (Multi-use tester <MUT>)	Checking the power-windows system, the central door-locking system and sunroof system (ETACS input check)
	[For the number, refer to GROUP 00–Precautions Before Service]	ROM Pack	Checking the power-windows system, the central door-locking system and sunroof system (ETACS input check)

NOTE
*1: <1 989 models>
*2: <1990, 1991, 1992, 1993 models>

TSB Revision

TROUBLESHOOTING

M42EAAP

HOOD, TRUNK LID, GLASS AND DOORS

Symptom		Probable cause	Remedy
Hood/ Trunk lid	Improper closure	Striker and latch not properly aligned	Adjust the alignment
	Difficult locking and unlocking	Striker and latch not properly aligned	Adjust the alignment
	Uneven body clearance	Incorrectly installed hood or trunk lid	Adjust the installation of hood or the trunk lid
	Uneven height	Incorrect hood bumper or trunk lid bumper height	Adjust the hood bumper or the trunk lid bumper height
Nindow glass	Water leak through windshield	Defective seal	Fill sealant
		Defective body flange	Correct
	Water leak through door window glass	Incorrect window glass installation	Adjust position
		Gap at upper window glass	Adjust position
	Water leak through quarter window	Defective seal	Fill sealant
		Defective body flange	Correct
	Water leak through rear window	Defective seal	Fill sealant
		Defective body flange	Correct
ront/ ear loors	Door window malfunction	Incorrect window glass installation	Adjust position
		Damaged or faulty regulator	Correct or replace
	Water leak through door edge	Cracked or faulty weatherstrip	Replace
	Water leak from door center	Drain hole clogged	Remove foreign objects
		Inadequate waterproof film contact or damgae	Correct or replace
	Door hard to open	Incorrect latch or striker adjustment	Adjust
	Door does not open or close completely	Incorrect door installation	Adjust position
		Defective door check strap	Correct or replace
		Door check strap and hinge required grease	Apply grease
	Uneven gap between body	Incorrect door installation	Adjust position
	Wind noise around door	Weatherstrip hot holding firmly	Adjust fit of door
		improperly installed weatherstrip or setting of weatherstrip	Repair or replace
		Improperly closed door	Adjust
		Improperly fit door	Adjust

TSB Revision

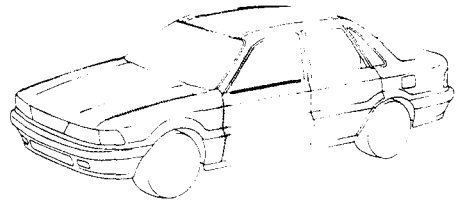
Symptom		Probable cause	Remedy
Front/ rear doors	Wind noise around door	improper clearance between door glass and door weatherstrip holder	Adjust
		Deformed door	Repair or replace

SUNROOF

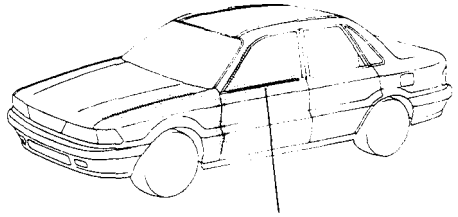
Symptom	Probable cause	Remedy
Water leaks	Dust accumulated in drainage of housing assembly	Keep off dust from inside of drain hose
	Clogged drain hose	Blow air into drain hose to remove dust
	Broken or dislocated drain hose, failed or cracked clip	Check hose installation and flange contact
	Worm roof lid weatherstrip	Replace
	Excessive roof lid-to-body clearance and improperly fitted weatherstrip	Adjust
Wind noise	Loose or deformed deflector	Retighten or replace
Roof lid makes noise when moved	Foreign matter lodged in guide rail	Check drive cable and guide rails for foreign matter
	Loose guide rails and lid	Retighten
Motor runs but lid does not move or moves only halfway	Foreign matter lodged in guide rail	Check drive cable and guide rails for foreign matter
	Incorrect engagement of motor pinion with drive cable	Check for loose motor installation and damaged pinion
	Decrease in clutch slipping force of motor	Adjust or replace
	Increased lid sliding resistance or interference of lid with drive cables, weatherstrip, etc. due to maladjustment of lid	Adjust or replace
Noise in motor (Clutch slipping noise made in motor when lid is fully opened or closed is not unusual noise.)	Incorrect engagement of motor pinion with drive cable	Check pinion installation and retighten motor
	Worn or damaged motor pinion bearing	Replace motor assembly
	Worn or deformed drive cable	Replace

HOW TO LOCATE WIND NOISES

(1) Attach cloth tape to every place which might conceivably be the source of wind noise, such as panel seams, projections, moulding seams, glass and body seams, etc.
(2) Then make a road test in order to determine that the places not covered by tape are not sources of wind noise.

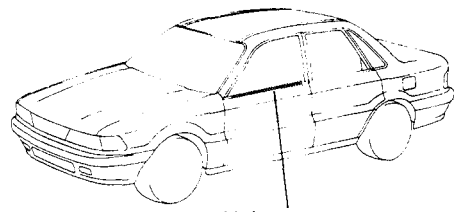

16A0335

(3) Then remove the strips of tape one by one, making a road test after each is removed, until a wind noise source is discovered.



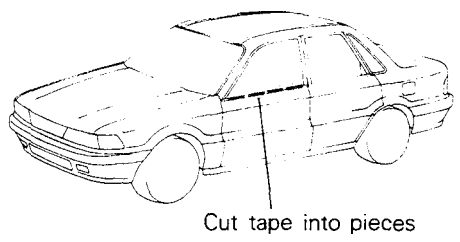
16A0335

(4) When such a place is found, cover it again and continue with the procedure so as to determine if there are any other noise sources.
(5) If no others are found, the last remaining tape is the only source.



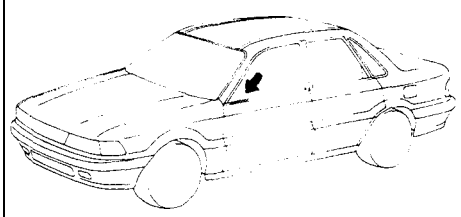
16A0334

(6) Cut the remaining piece of tape into smaller pieces, attach it again as it was before, and then remove the pieces one by one in the same way so as to narrow down the source.



16A0333

(7) Check to confirm that wind noise occurs when the last remaining tape is removed, and that noise does not occur when it is re-attached.
(8) When the source(s) of the wind noise is finally located, attach butyl tape, body sealer or similar material to obstruct this source as much as possible.


16A0332

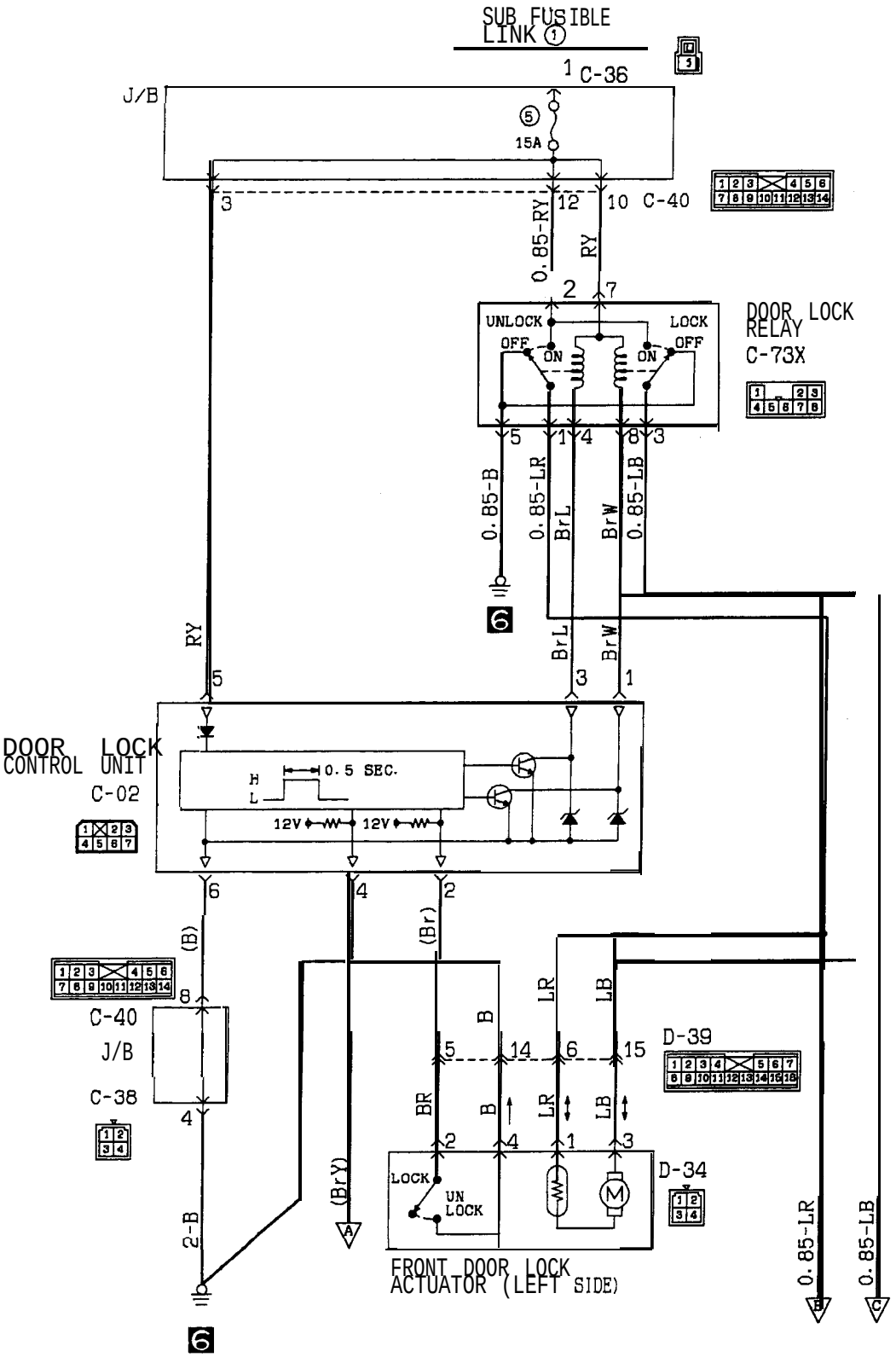
TSB Revision

CENTRAL DOOR LOCKING SYSTEM

M42EBFG

CIRCUIT DIAGRAM

<Vehicles without ETACS–1989 models>



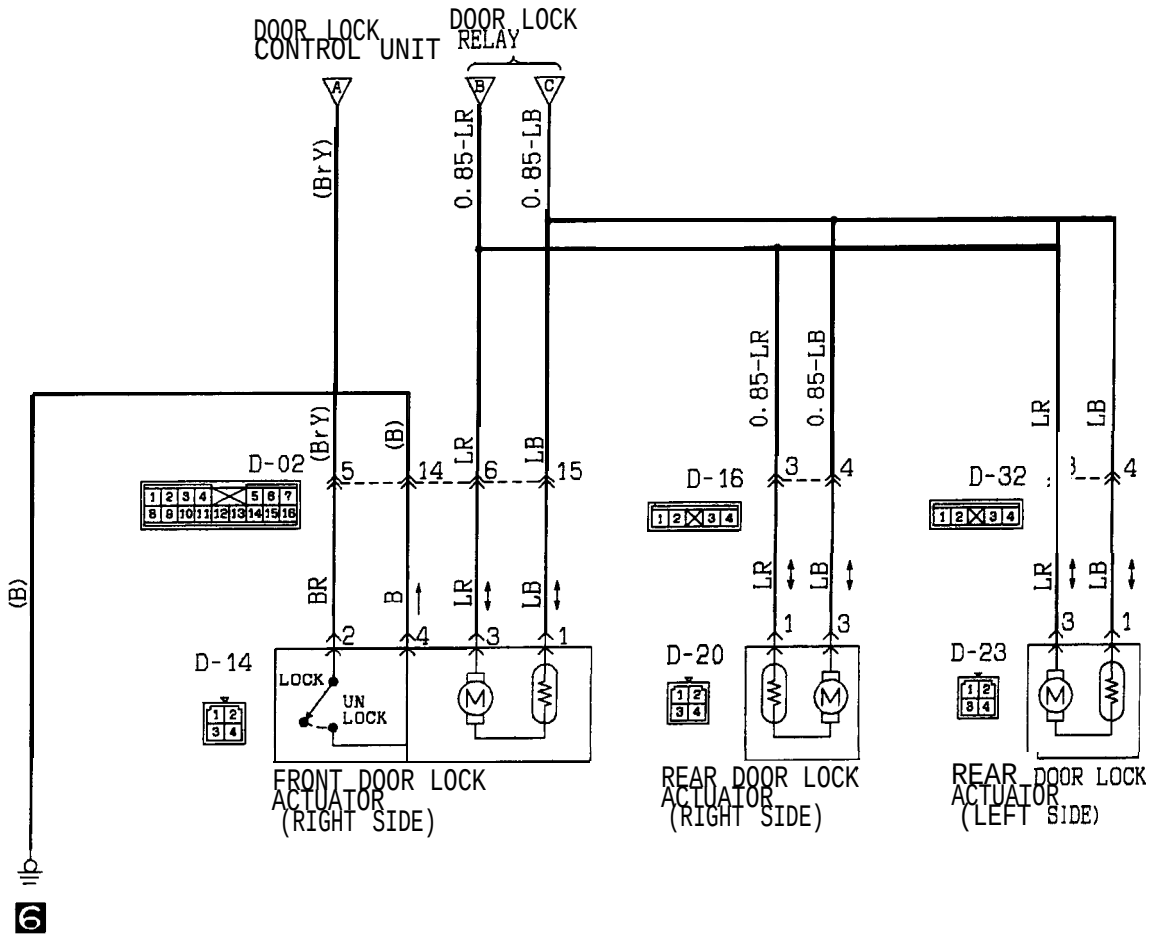
(35-AC-H1104-N

TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

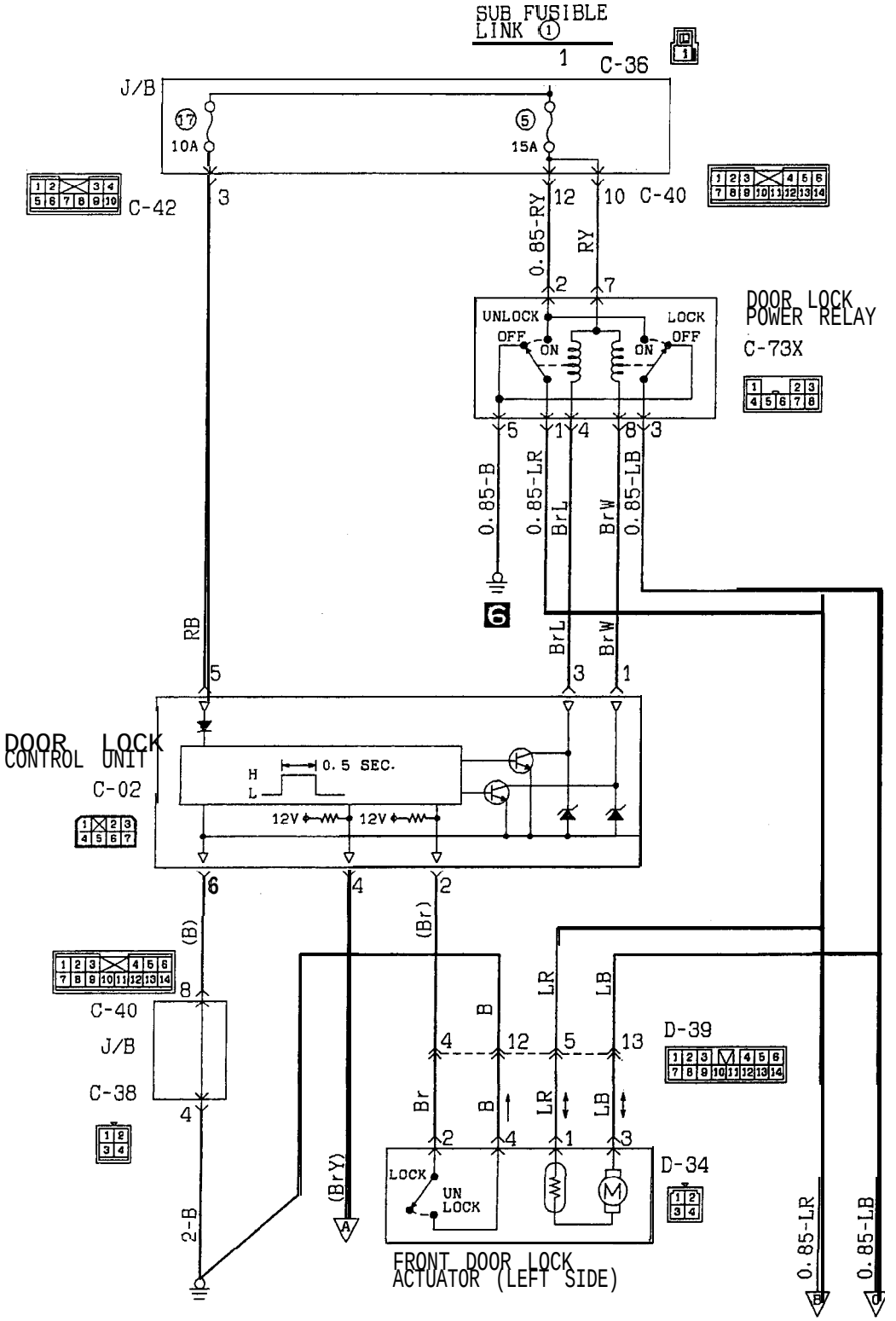
<Vehicles without ETACS–1989 models> (CONTINUED)



CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles without ETACS–1990 models>



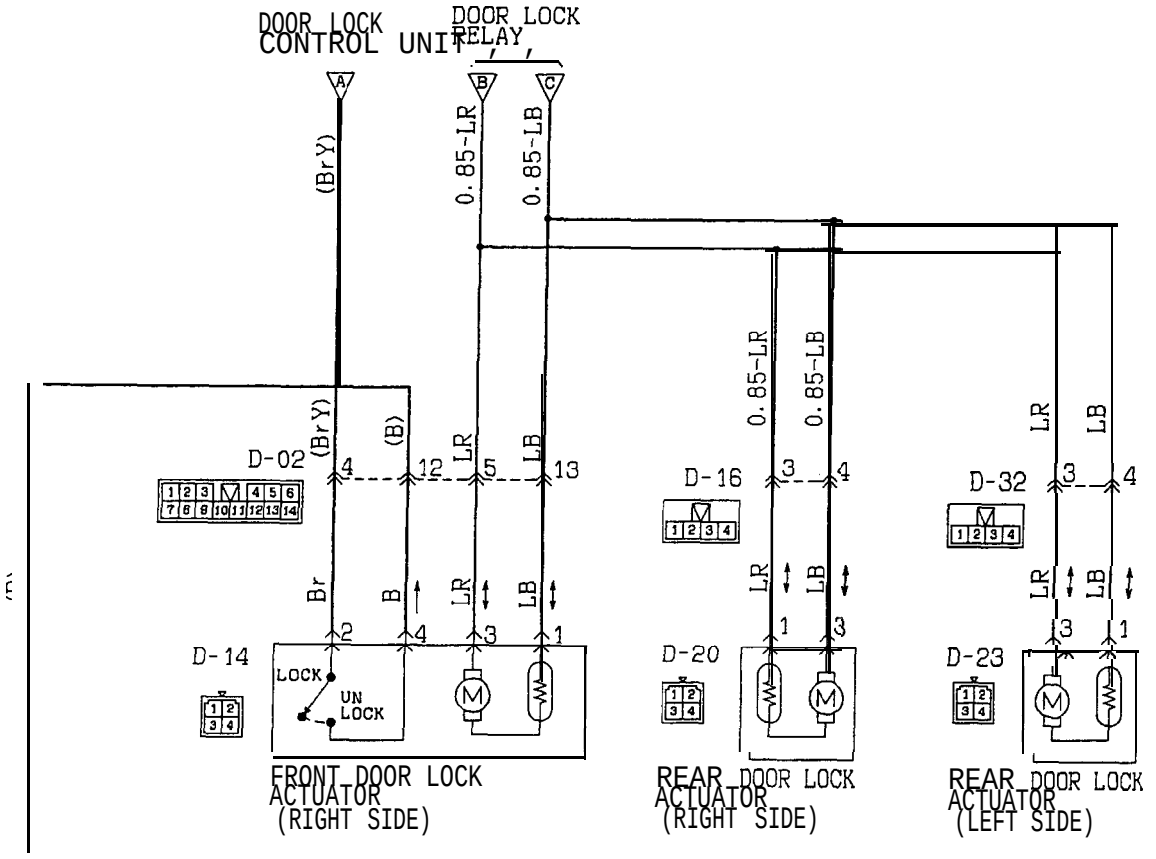
35-AC-H1112-NM

TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles without ETACS−1990 models> (CONTINUED)

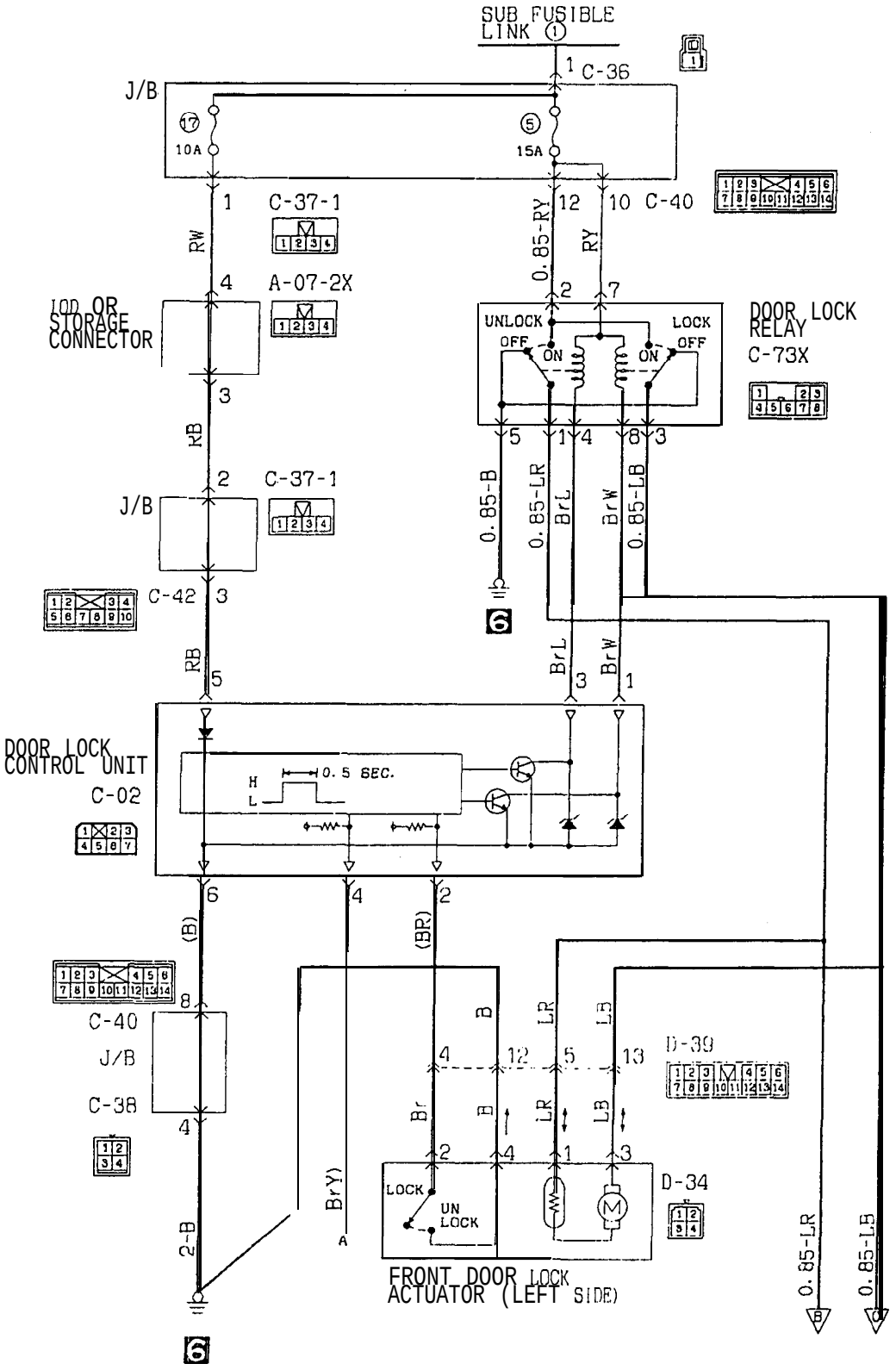


6

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles without ETACS-From 1991 models>



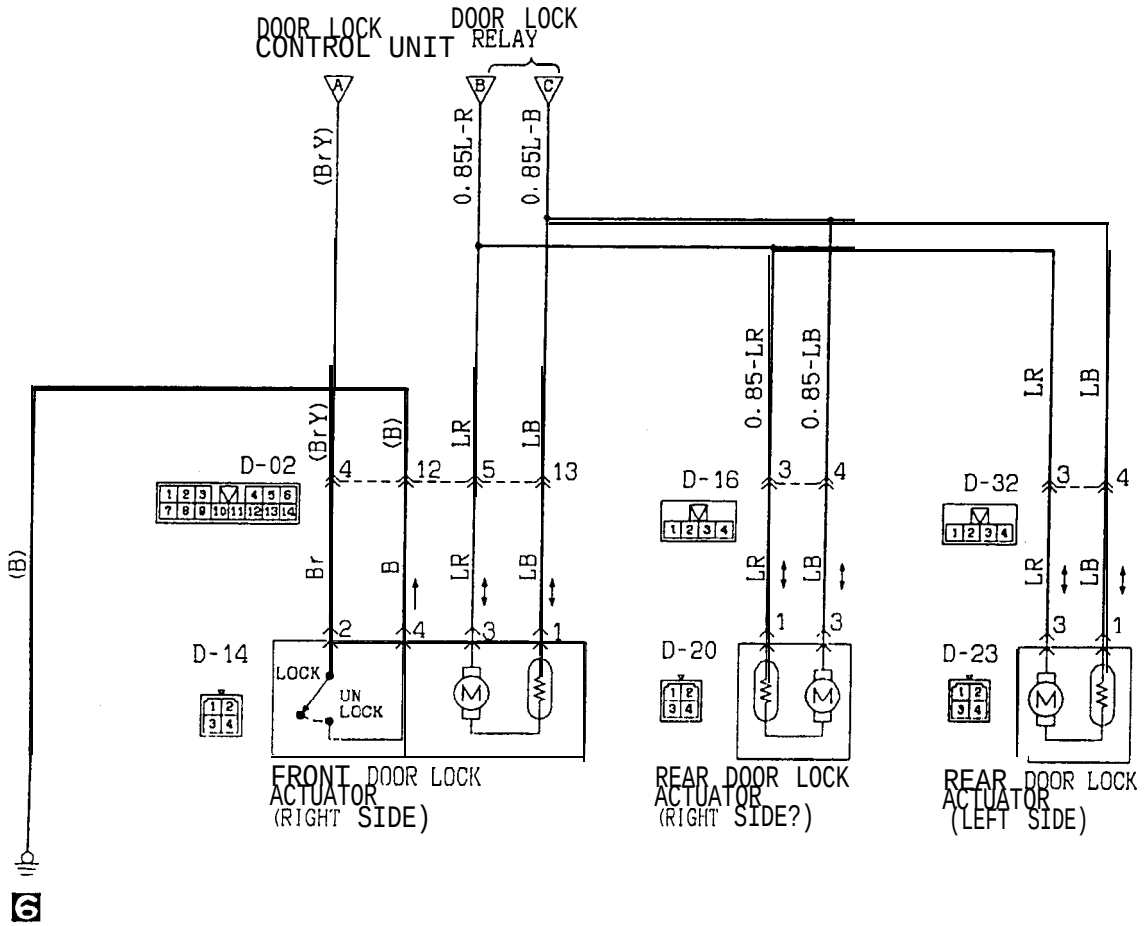
KX35-AC-H1131-NM

TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

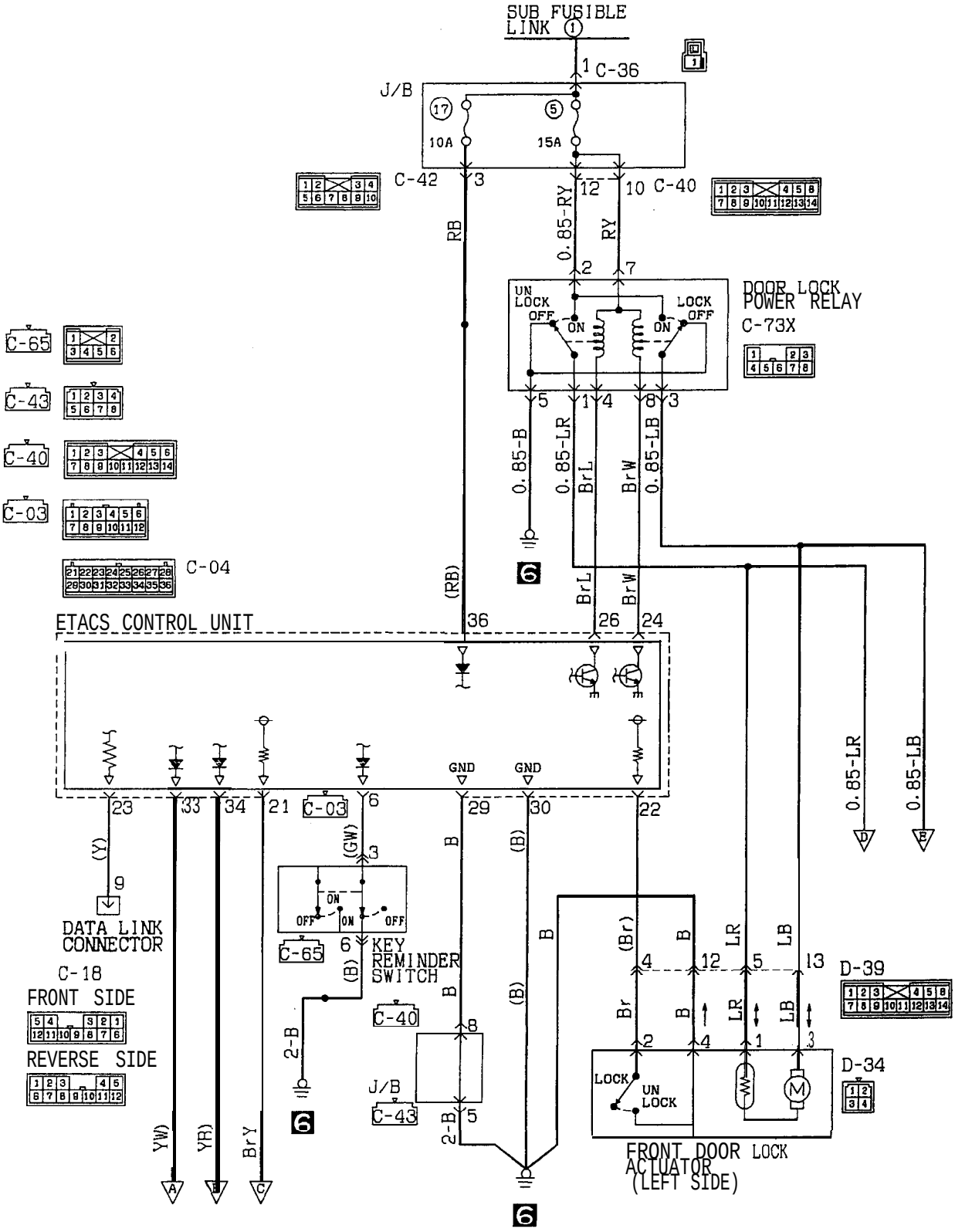
<Vehicles without ETACS-From 1991 models> (CONTINUED)



CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS- 1989 models>



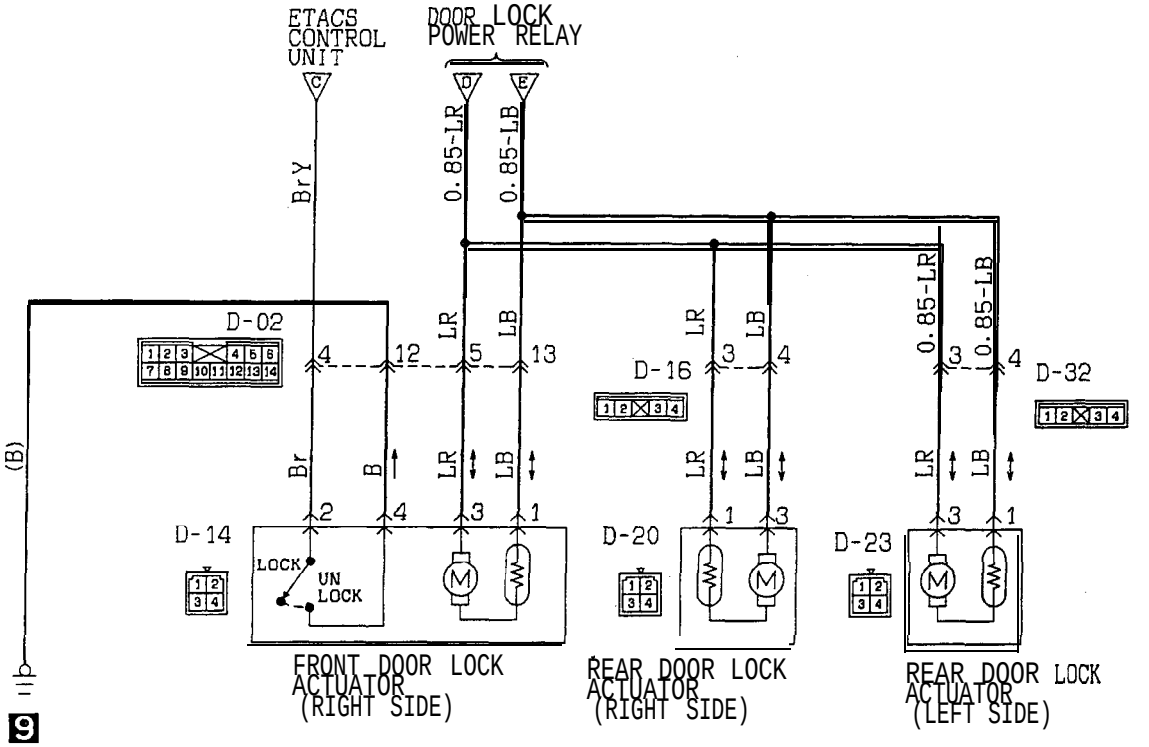
KX35-AC-H1113-NM

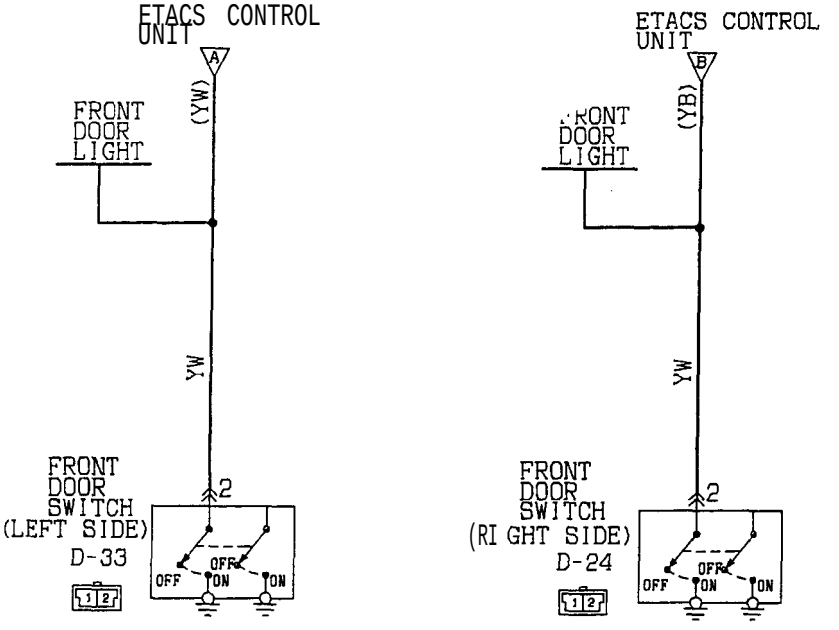
TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS−1989 models> (CONTINUED)

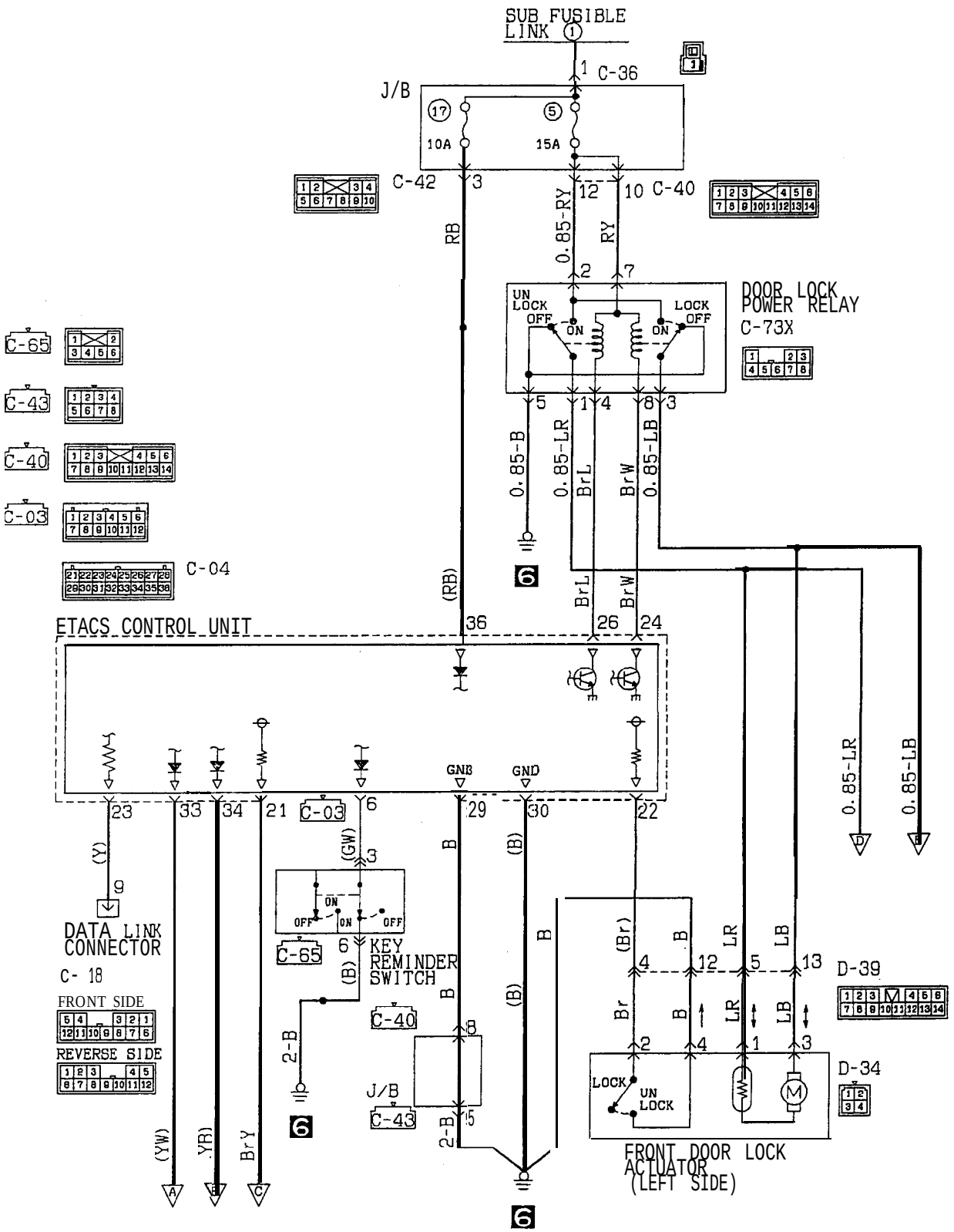




CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS−1990 models>



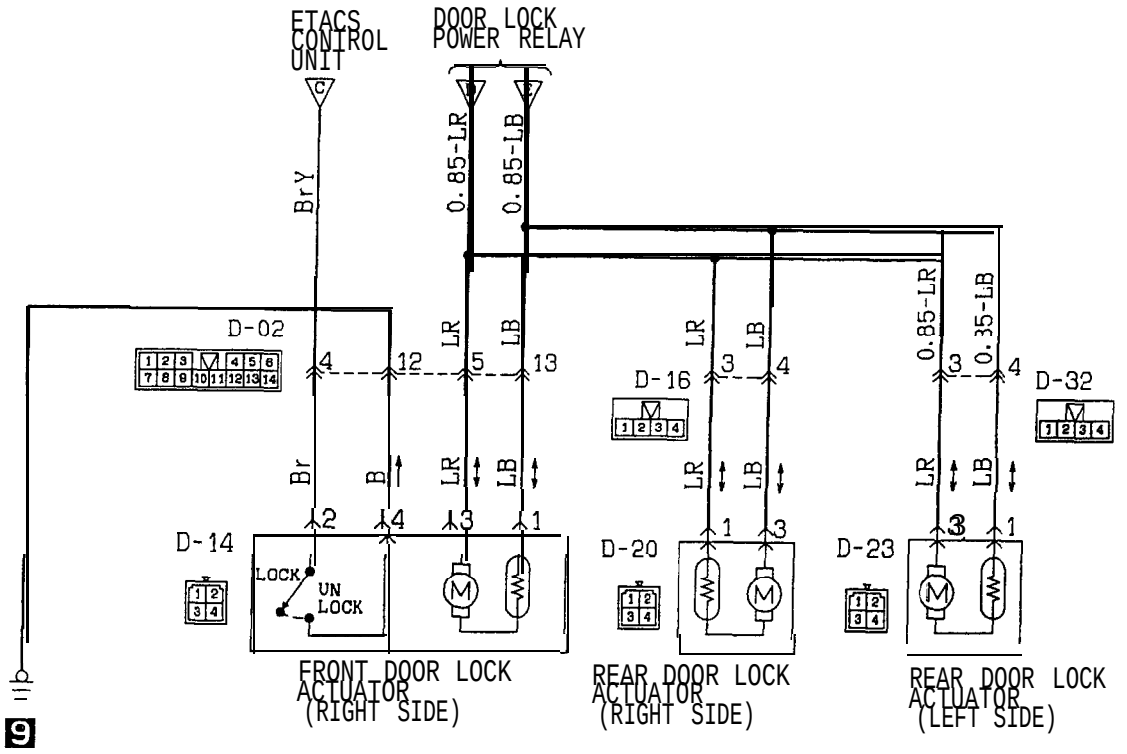
K35-AC-H1114-NN

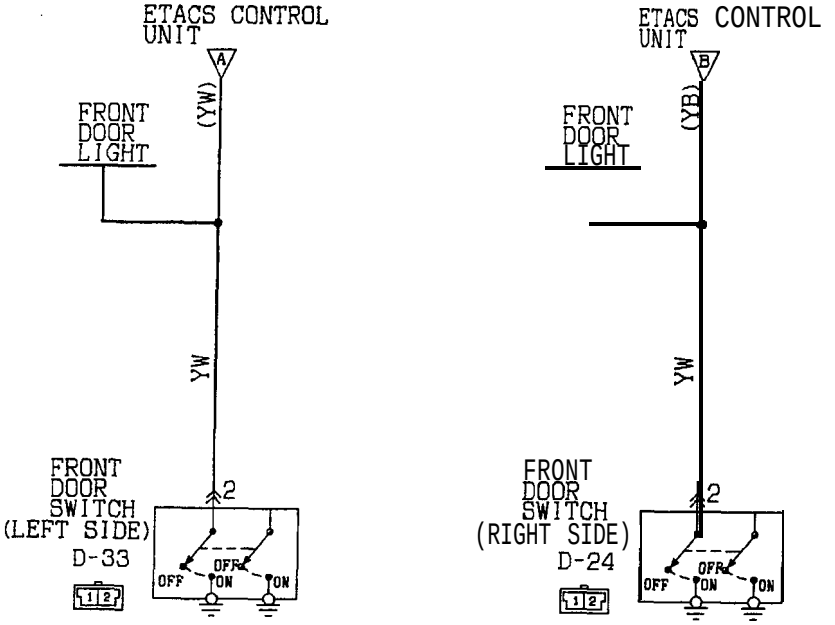
TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS−1990 models> (CONTINUED)

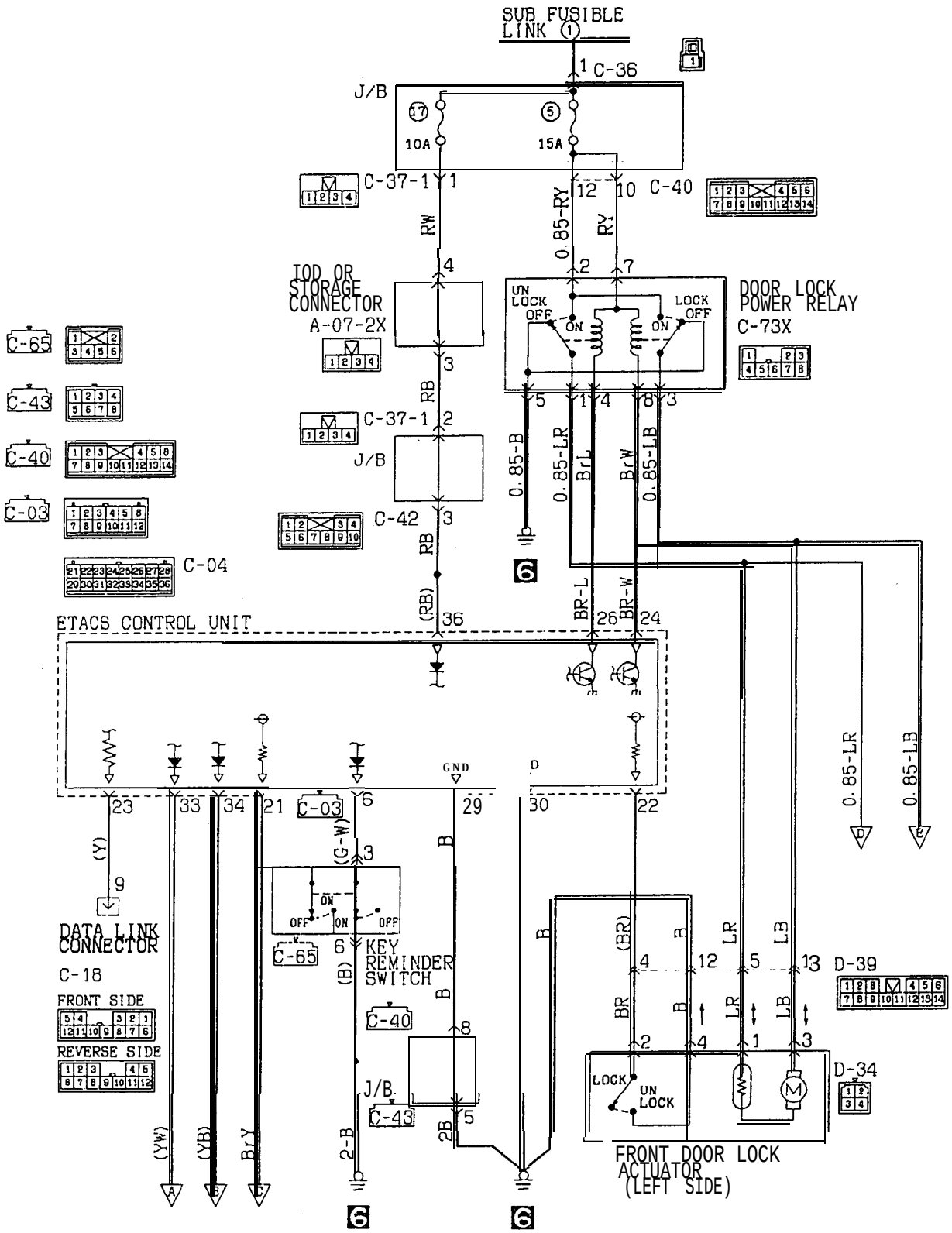




CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS (Non-Turbo)-From 1991 models>



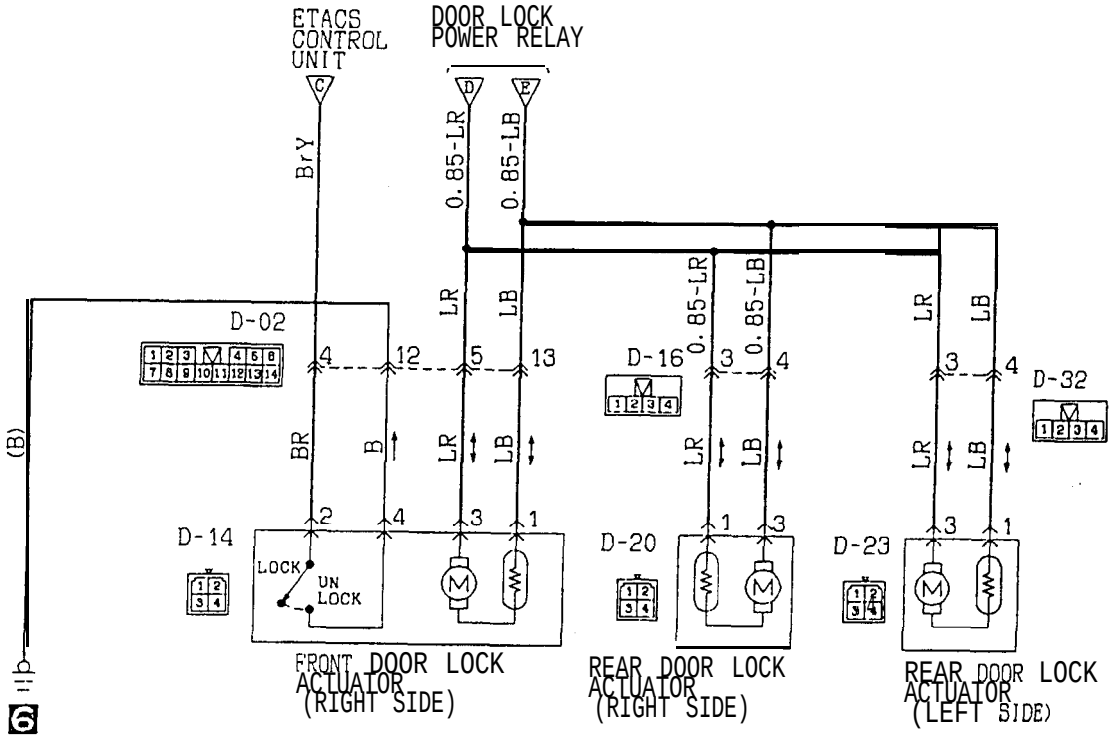
KX35-AC-H1132-NW

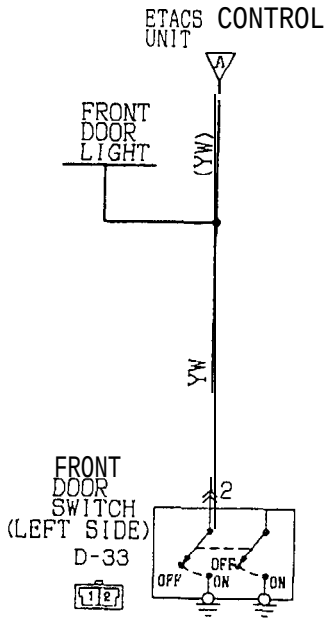
TSB Revision

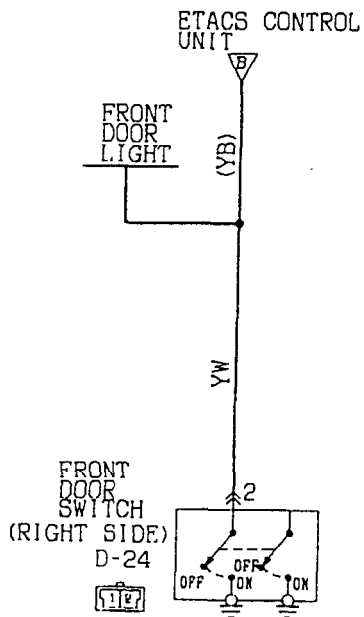
CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS (Non-Turbo)-From 1991 models> (CONTINUED)





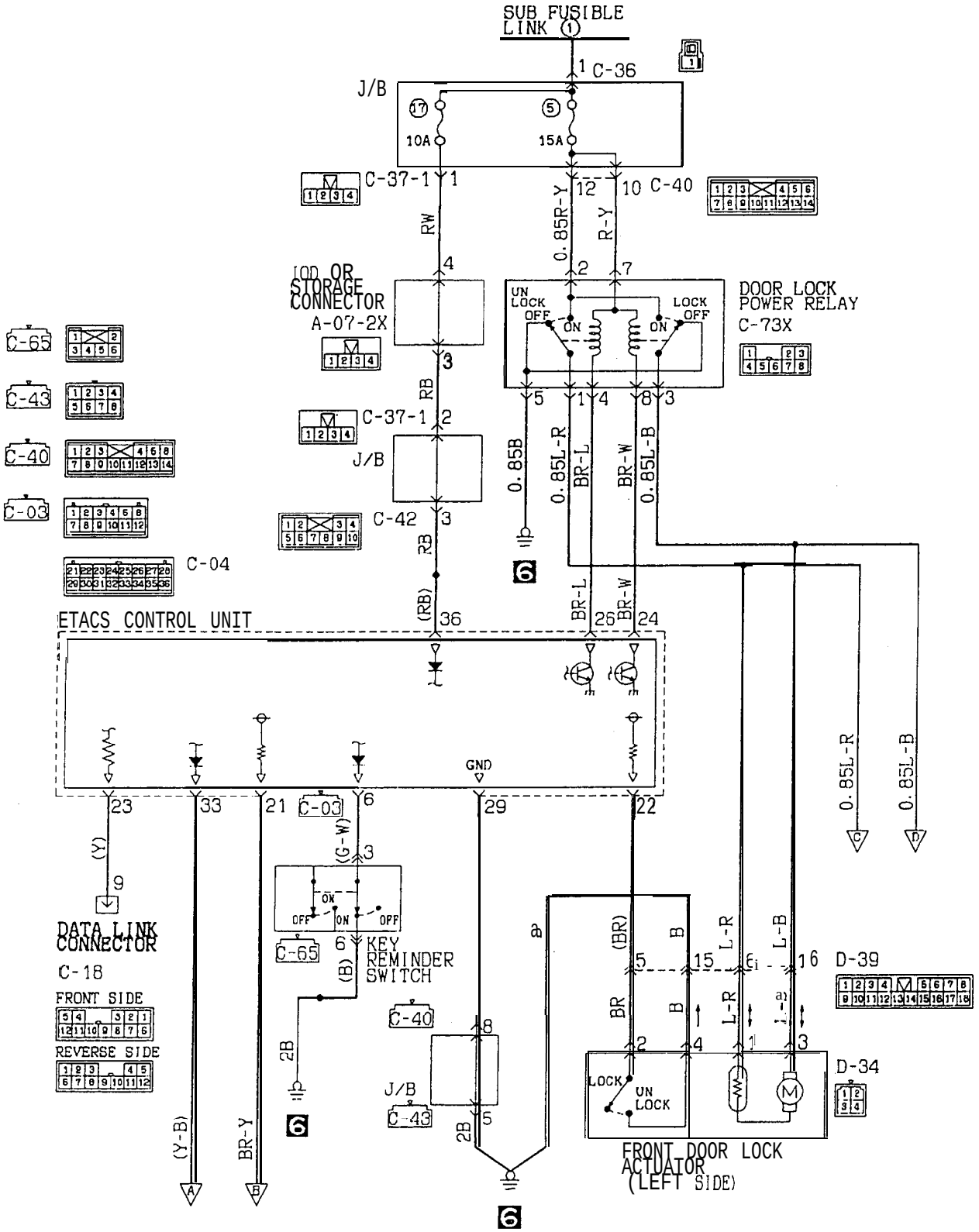


TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS (Turbo)-From 1991 models>



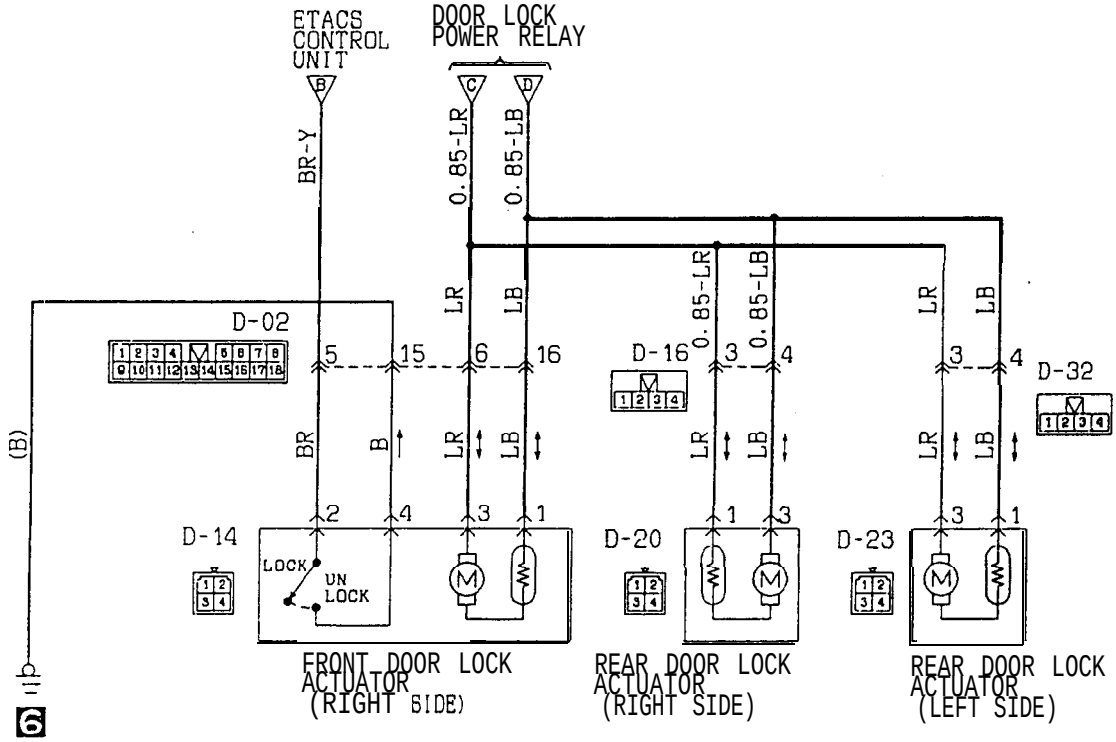
XX35-AC-H1133-NM

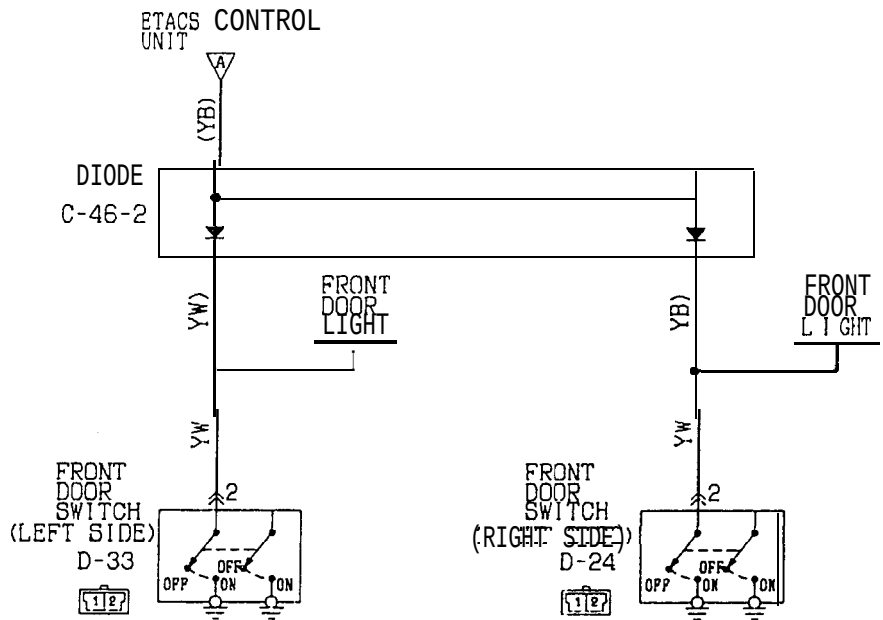
TSB Revision

CENTRAL DOOR LOCKING SYSTEM

CIRCUIT DIAGRAM

<Vehicles with ETACS (Turbo)-From 1991 models> (CONTINUED)





OPERATION

<Vehicles without ETACS>

- When the inside lock knob of the front doors is set to the locked (or unlocked) position, the switch within the door lock actuator is switched OFF (or ON), and the output transistor is switched ON for 0.5 second by the timer within the door lock control unit.
  As a result, there is a switch-ON at the lock (or unlock) side of the door lock relay, and the actuator for all doors is activated.

  NOTE
  The door lock actuator incorporates a PTC thermistor in order to prevent damage as a result of motor overheating.
  If the central door locking system is used frequently, therefore, it may not operate temporarily; there is no malfunction, however, if operation returns to normal in a few minutes.

TROUBLESHOOTING HINTS

1. One of the door lock actuators **does not** operate.
   - Check the door actuator that does not operate.
2. The driver's door or front seat passenger's door cannot be locked or unlocked by using the inside lock knob.
   - Check the switch within the actuator.
   - Check the door lock control unit.

Door control unit terminals' voltages (with connector connected)

Terminal No.	Signal	Condition	Terminal voltage
1	Door lock relay activation signal	Momentarily (approx. 0.5 second) when inside lock knob is pressed	0.5V
		Usual	Battery positive voltage
2	Inside door lock knob signal (driver's side)	When inside lock knob is locked	ov
		When inside lock knob is unlocked	Battery positive voltage
3	Door lock relay activation signal	Momentarily (approx. 0.5 second) when inside lock knob is pulled up	0.5V
		Usual	Battery positive voltage
4	Inside door lock knob signal (front seat passenger's side)	When inside lock knob is locked	ov
		When inside lock knob is unlocked	Battery positive voltage
5	Power-supply	At all times	Battery positive voltage
6	Ground	At all times	ov

*A voltage of 0.5V is normal (due to the internal resistance of the output transistor); if the indication is OV, there is probably damage or disconnection of the harness, or a short-circuit.

<Vehicles with ETACS>

OPERATION

- If, with the key left inserted in the ignition switch, the driver's door is opened and the inside lock knob for the driver's door is pressed, the operation of the ETACS unit will cause the circuit for the "unlock" side to be grounded, thus releasing the locked condition of all doors and preventing the key from being forgotten.
- Operations other than described above are the same as for models not equipped with the **ETACS.**

TROUBLESHOOTING HINTS

1. The ignition key reminder system does not function.
   - For information concerning **ETACS** control, refer to P.42-101.

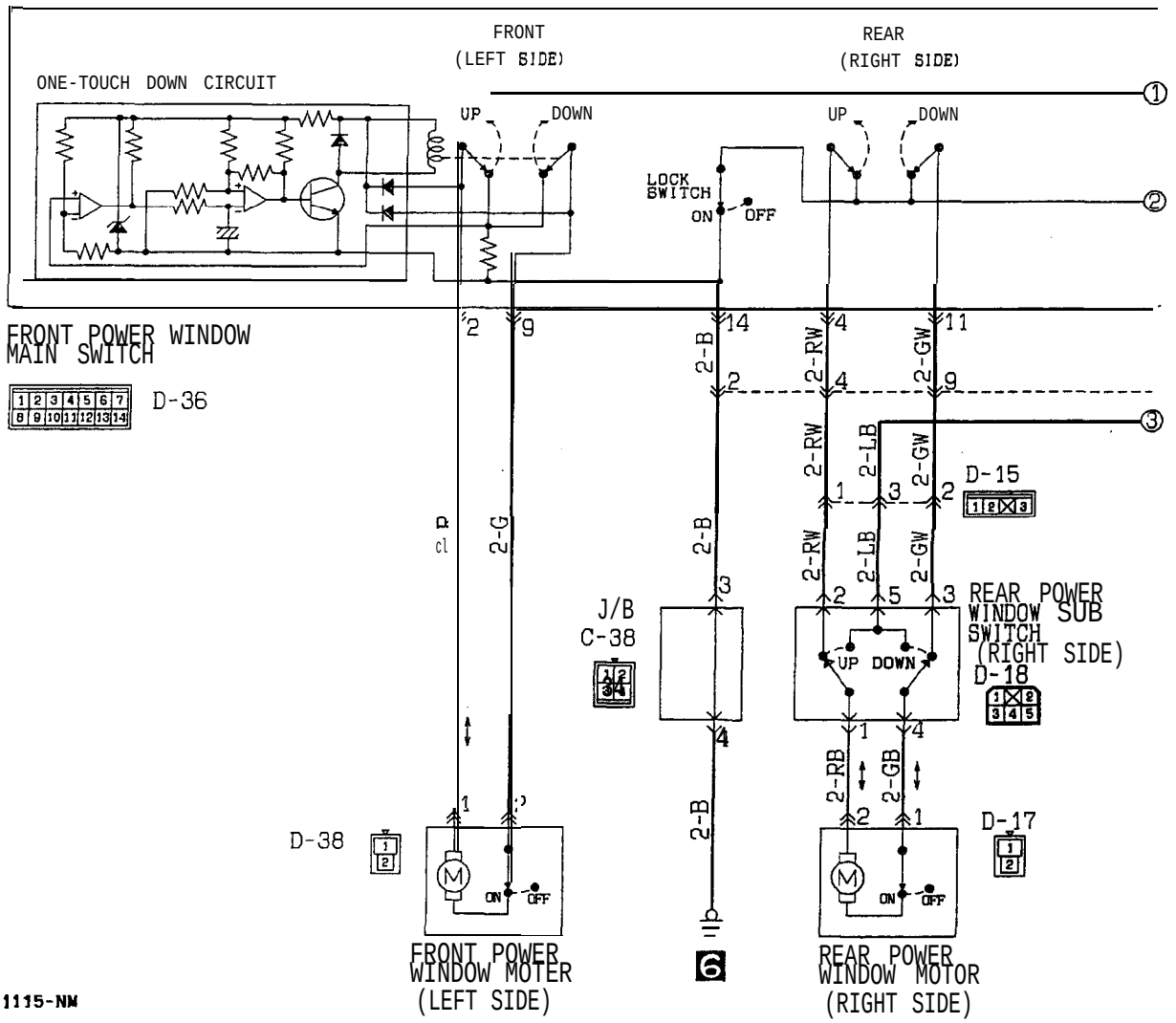
TSB Revision

POWER WINDOW

M42EBEF

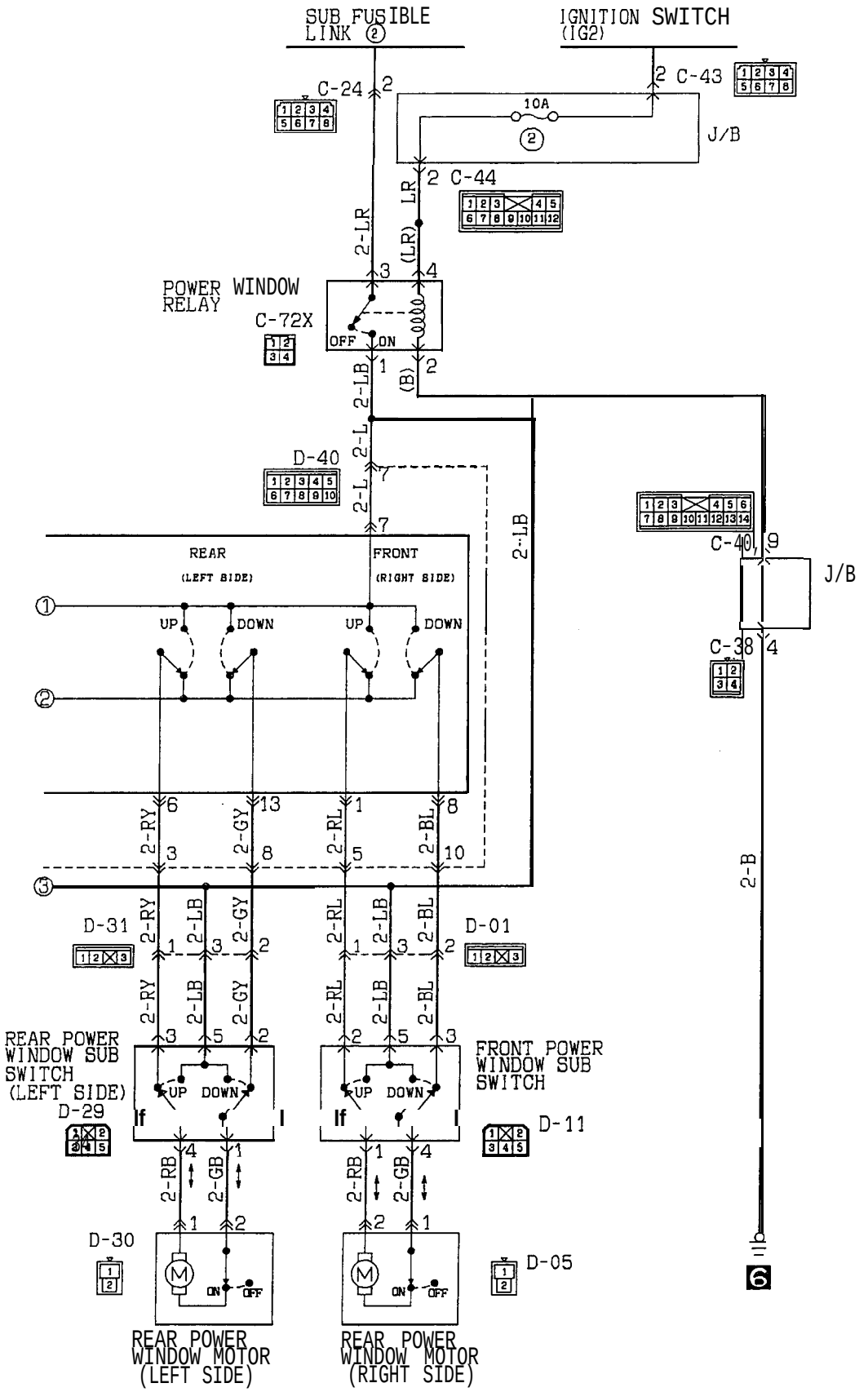
CIRCUIT DIAGRAM

<Vehicles without ETACS–1989 models>



KX35-AC-H1115-NM

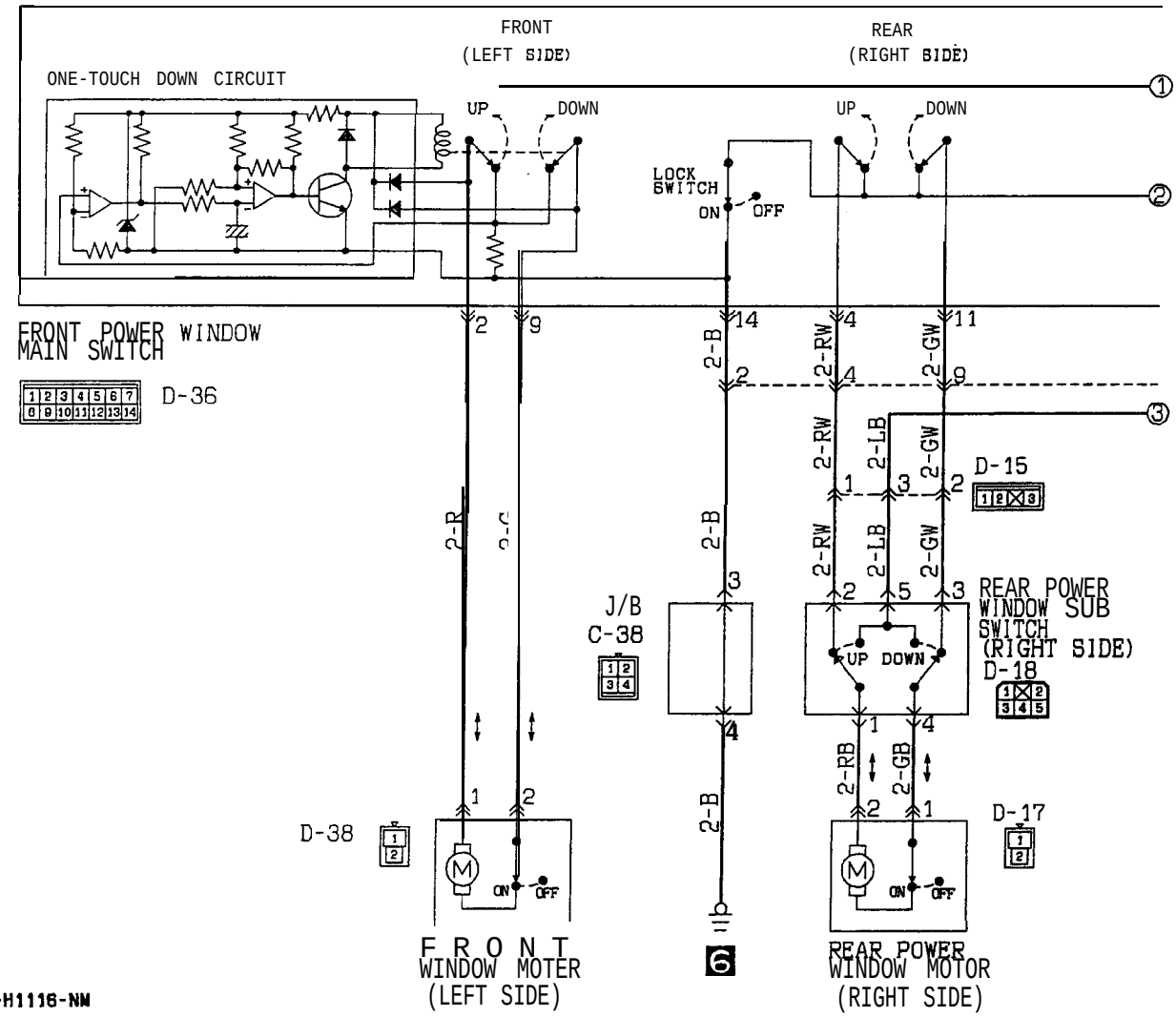
TSB Revision


SUB FUSIBLE LINK ②
IGNITION SWITCH (IG2)
C-24
C-43
10A
②
J/B
C-44
2-LR
LR
(LR)
POWER WINDOW RELAY
C-72X
OFF
ON
2-LB
(B)
2-L
D-40
REAR
(LEFT SIDE)
FRONT
(RIGHT SIDE)
UP
DOWN
2-RY
2-GY
2-RL
2-BL
2-LB
C-40
C-38
2-B
D-31
D-01
REAR POWER WINDOW SUB SWITCH (LEFT SIDE)
D-29
FRONT POWER WINDOW SUB SWITCH
D-11
2-RB
2-GB
D-30
D-05
REAR POWER WINDOW MOTOR (LEFT SIDE)
REAR POWER WINDOW MOTOR (RIGHT SIDE)

POWER WINDOW

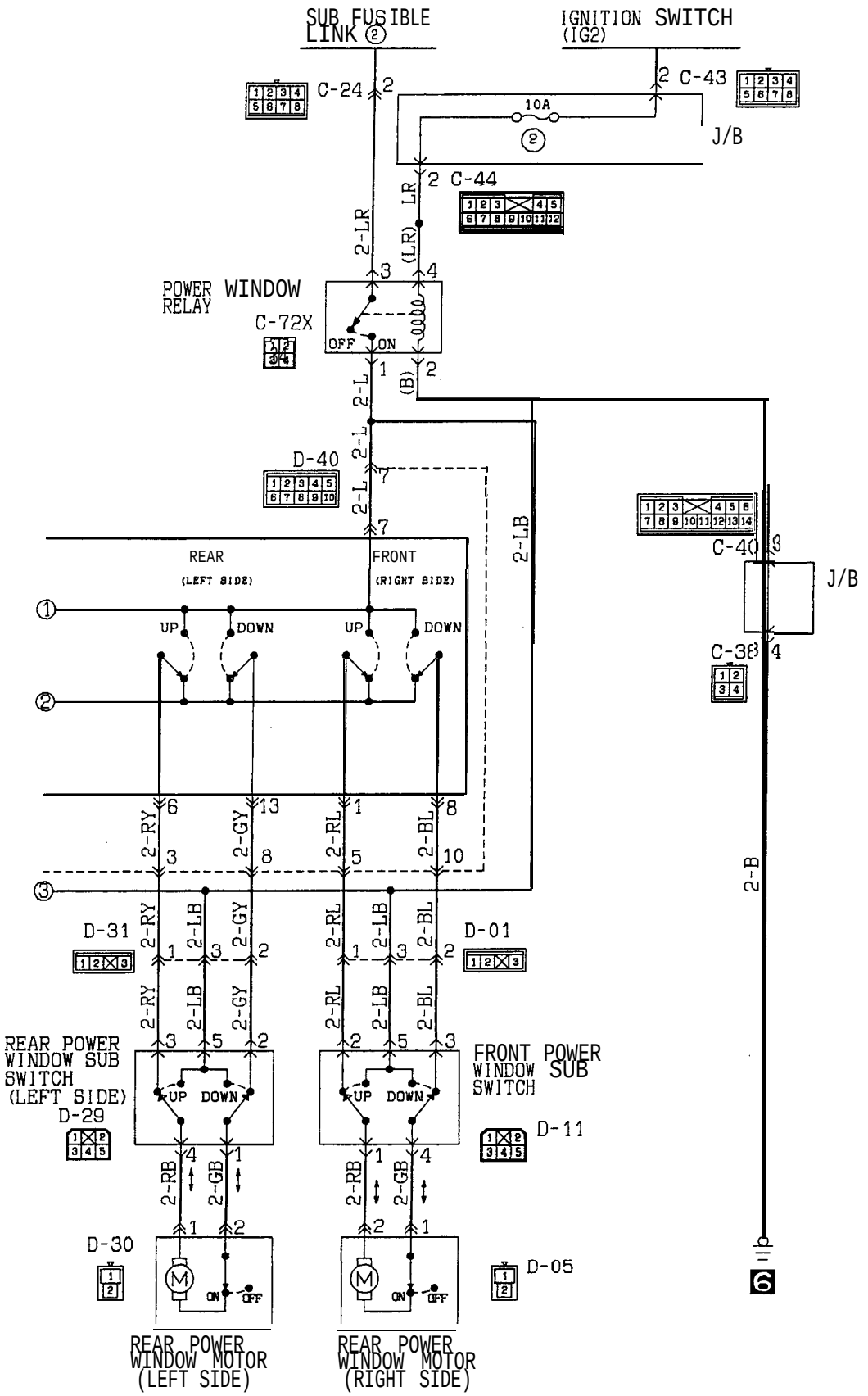
CIRCUIT DIAGRAM

<Vehicles without ETACS–1990 models>



35-AC-H1116-NM

TSB Revision

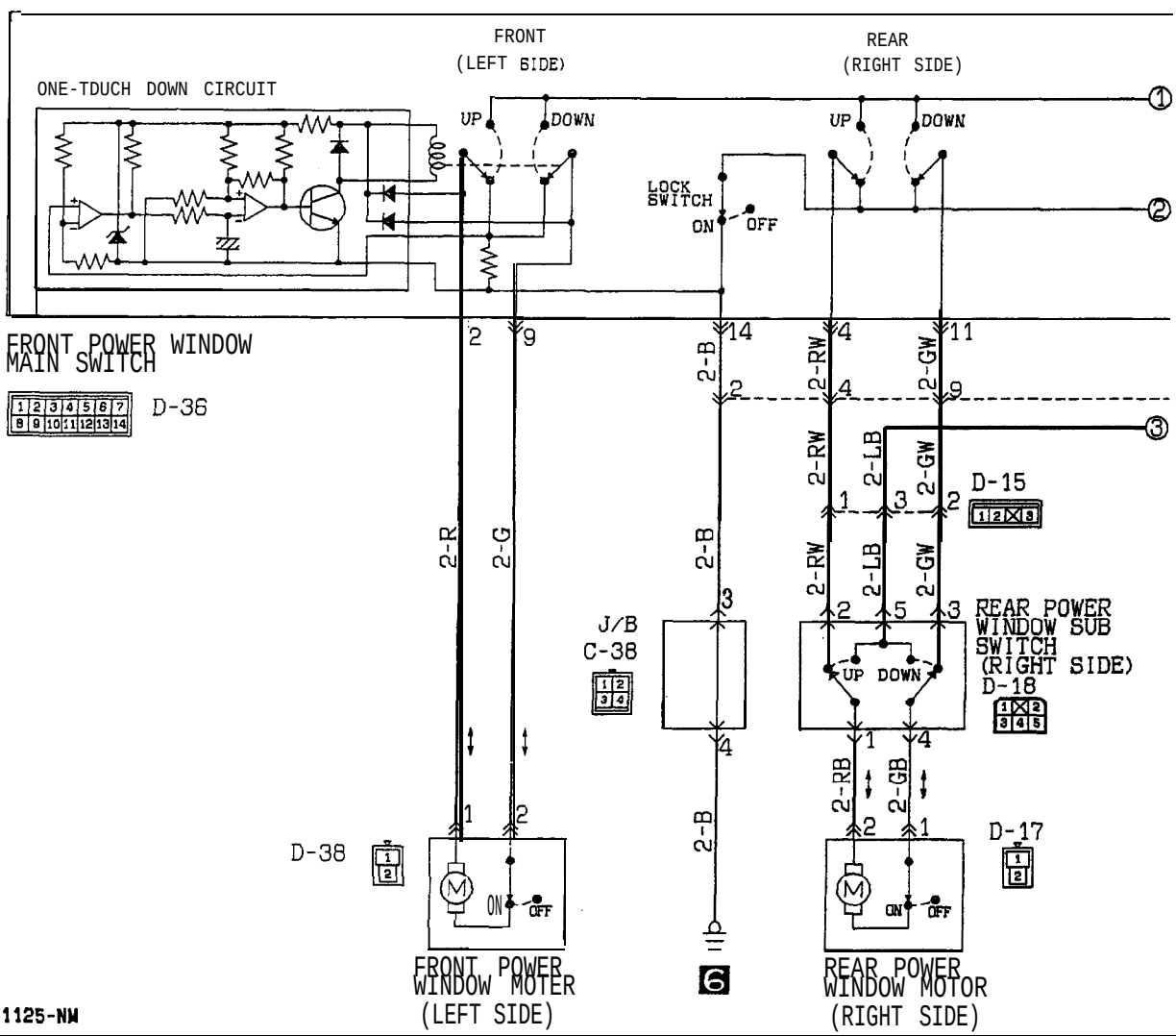


TSB Revision

POWER WINDOW

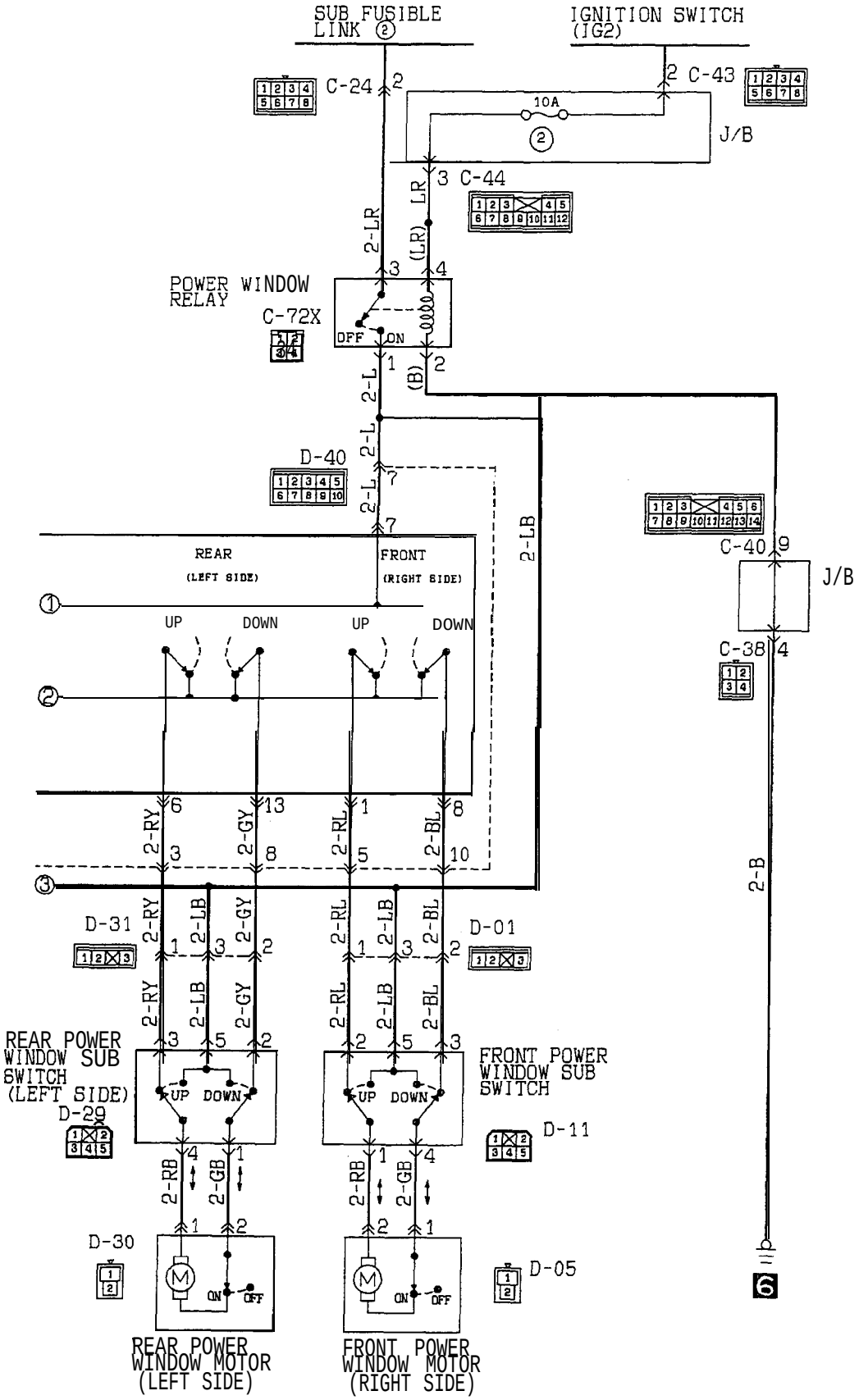
CIRCUIT DIAGRAM

<Vehicles without ETACS-From 1991 models>



EX35-AC-H1125-NM

TSB Revision

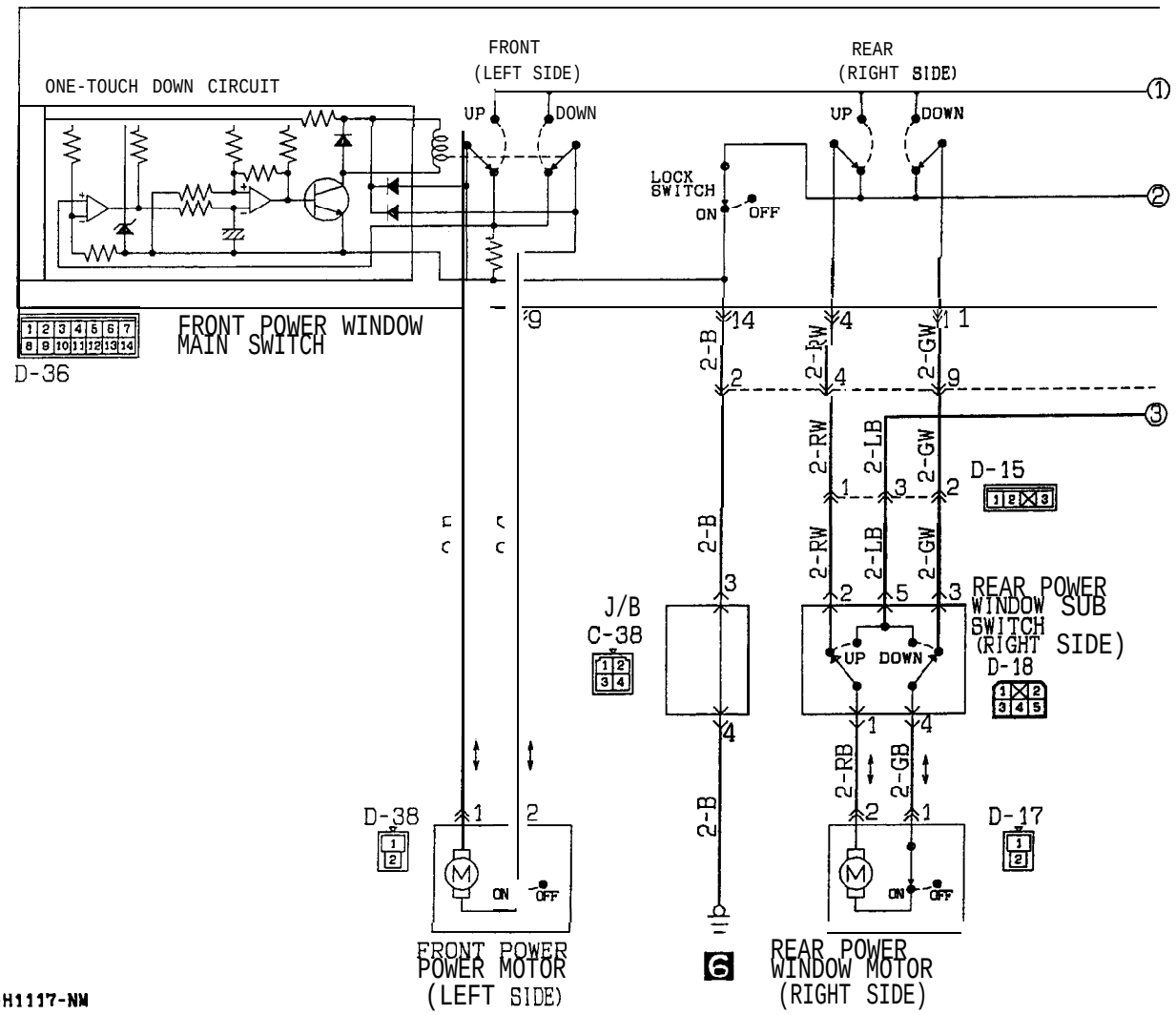


TSB Revision

POWER WINDOW

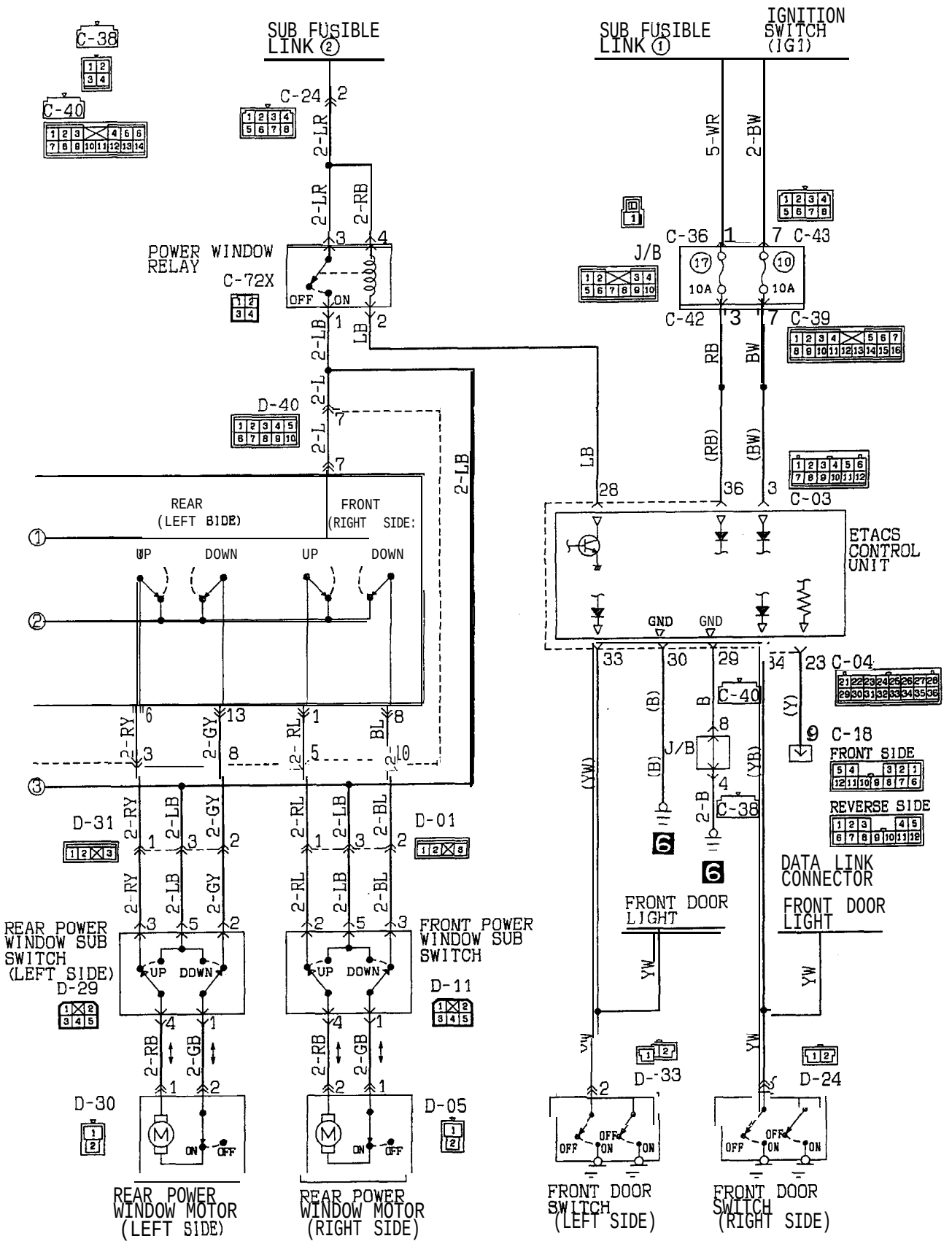
CIRCUIT DIAGRAM

<Vehicles with ETACS–1989 models>



KX35-AC-H1117-NM

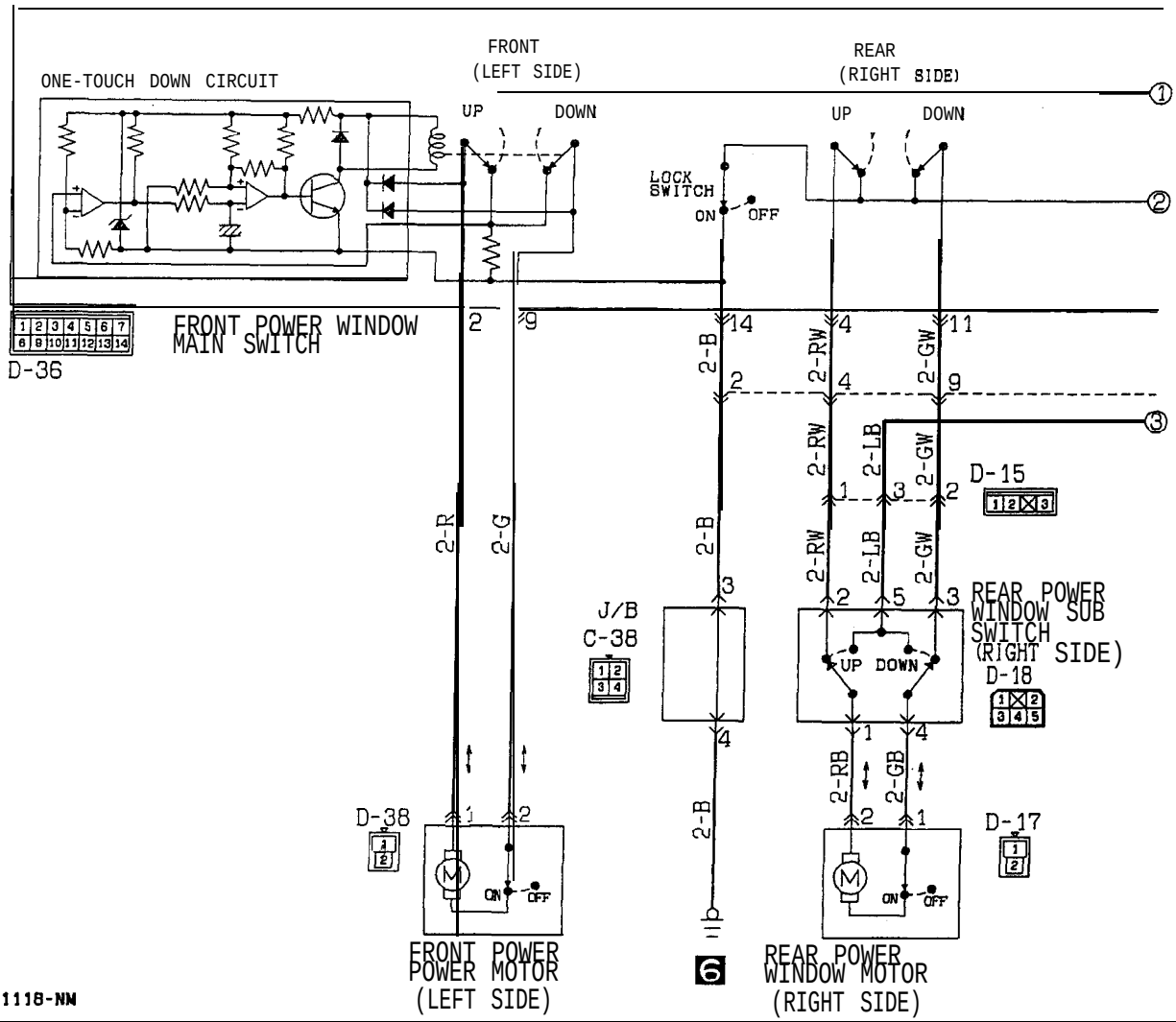
TSB Revision


C-38
C-40
SUB FUSIBLE LINK ②
C-24
2-LR
2-RB
POWER WINDOW RELAY
C-72X
OFF ON
2-LB
LB
D-40
2-L
SUB FUSIBLE LINK ①
IGNITION SWITCH (IG1)
5-WR
2-BW
J/B
C-36
C-43
10A
C-42
C-39
RB
BW
(RB)
(BW)
C-03
ETACS CONTROL UNIT
GND
REAR (LEFT SIDE)
FRONT (RIGHT SIDE)
UP DOWN UP DOWN
2-RY
2-GY
2-RL
BL
D-31
D-01
REAR POWER WINDOW SUB SWITCH (LEFT SIDE)
D-29
FRONT POWER WINDOW SUB SWITCH
D-11
2-GB
D-30
D-05
REAR POWER WINDOW MOTOR (LEFT SIDE)
REAR POWER WINDOW MOTOR (RIGHT SIDE)
C-04
C-18
FRONT SIDE
REVERSE SIDE
(B)
(Y)
(YW)
(YB)
2-B
C-38
DATA LINK CONNECTOR
FRONT DOOR LIGHT
YW
D-33
D-24
FRONT DOOR SWITCH (LEFT SIDE)
FRONT DOOR SWITCH (RIGHT SIDE)

POWER WINDOW

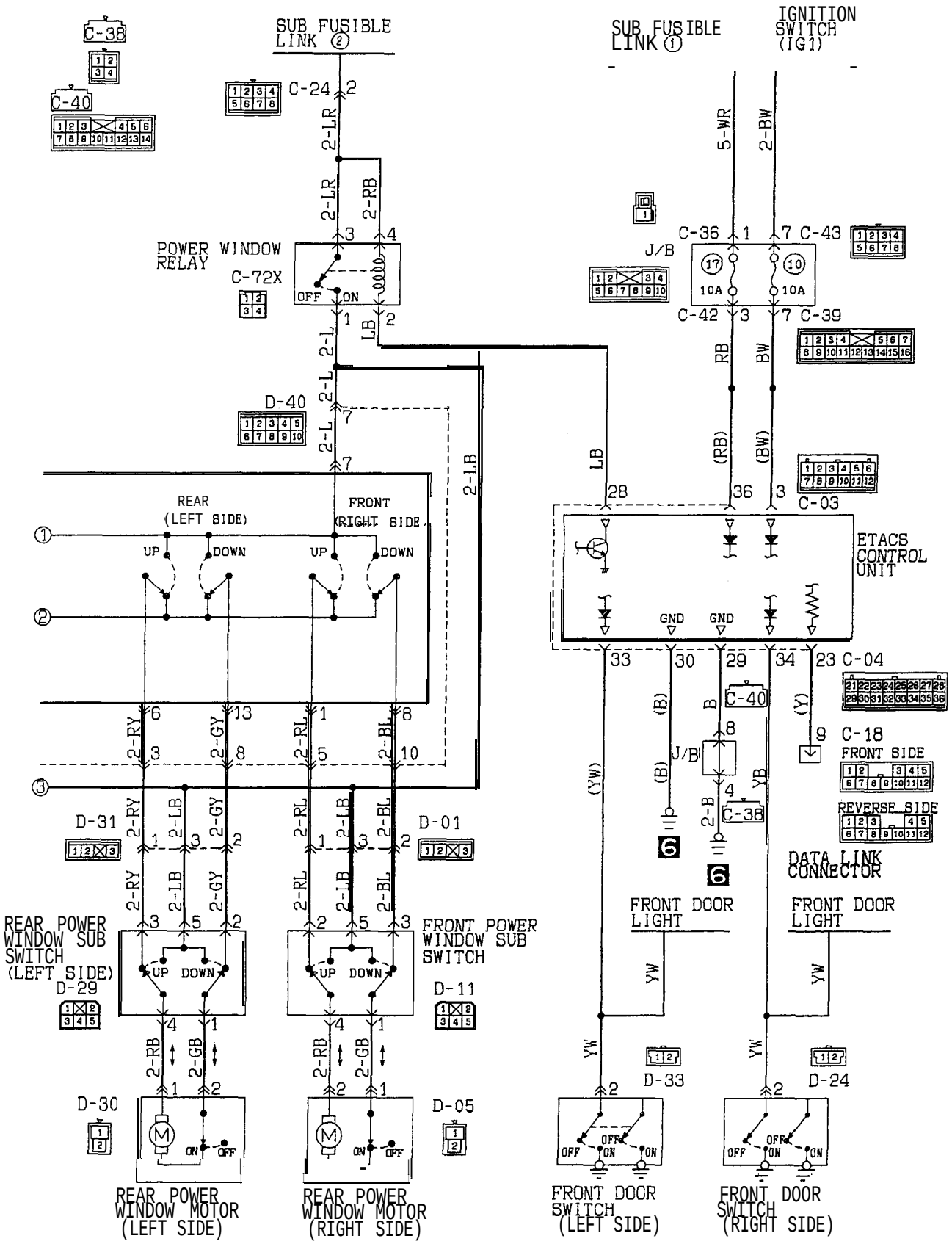
CIRCUIT DIAGRAM

<Vehicles with ETACS-1990 models>



KX35-AC-H1118-NN

TSB Revision

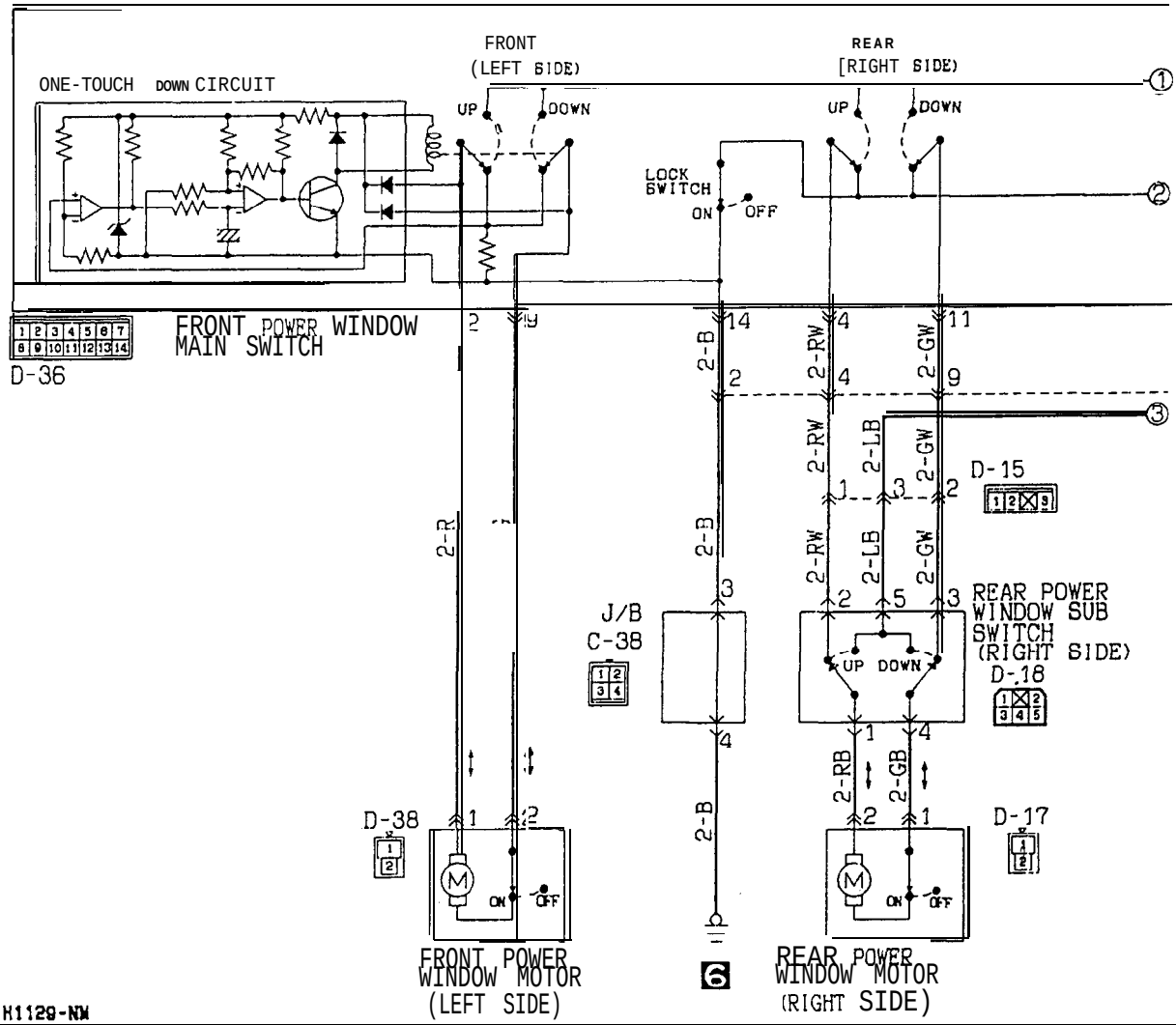


TSB Revision

POWER WINDOW

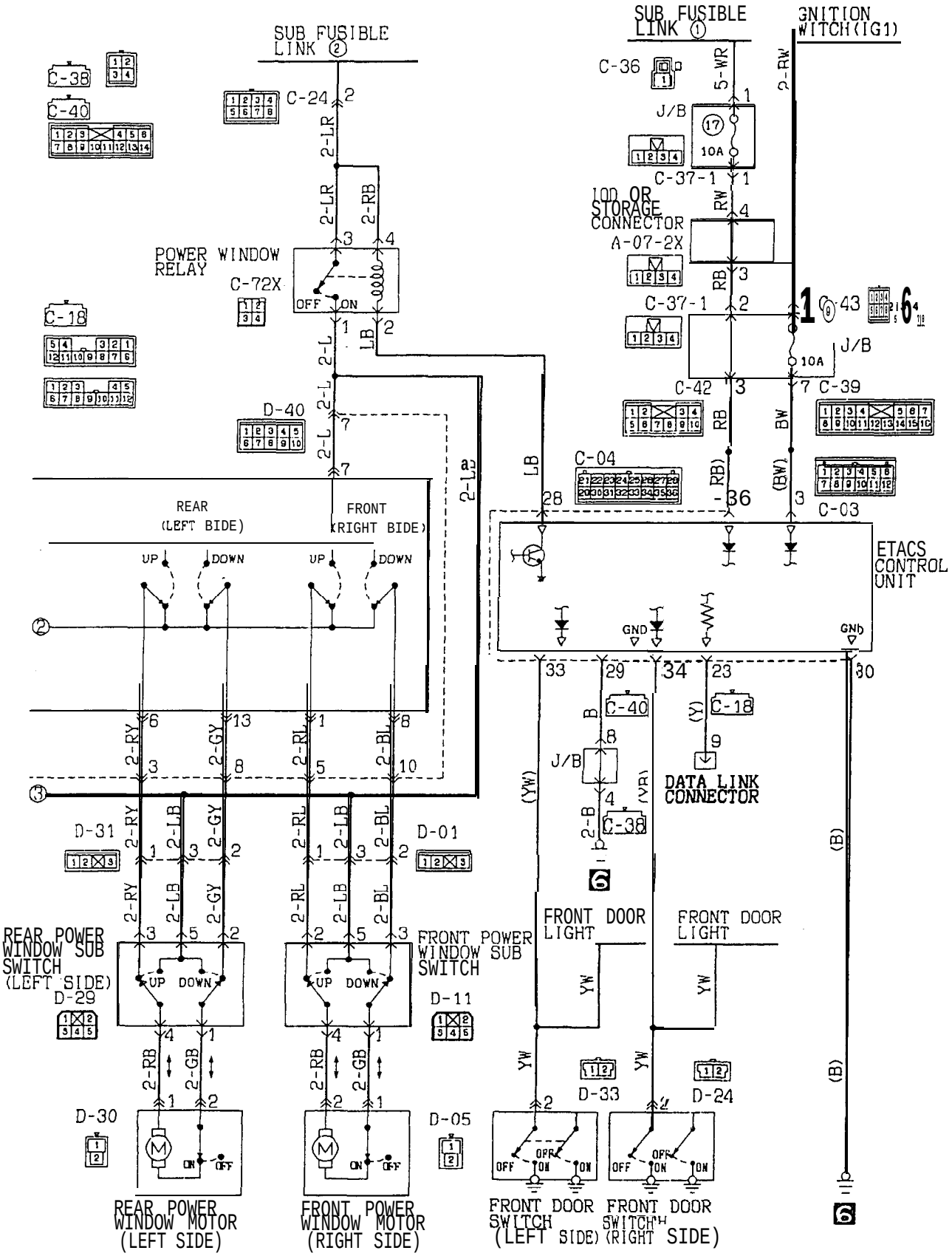
CIRCUIT DIAGRAM

<Vehicles with ETACS (Non-Turbo)-From 1991 models>



35-AC-H1128-NM

TSB Revision

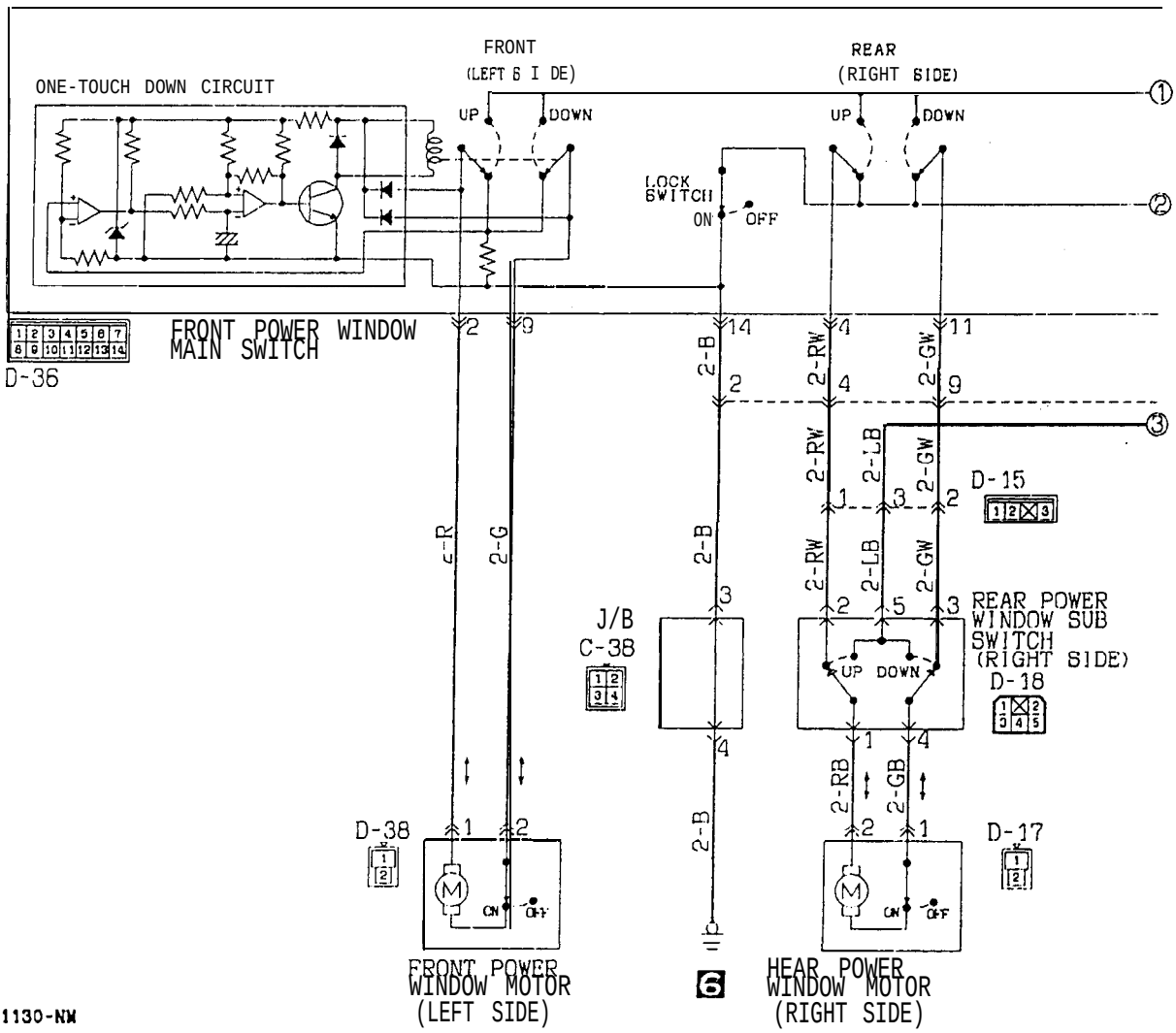


TSB Revision

POWER WINDOW

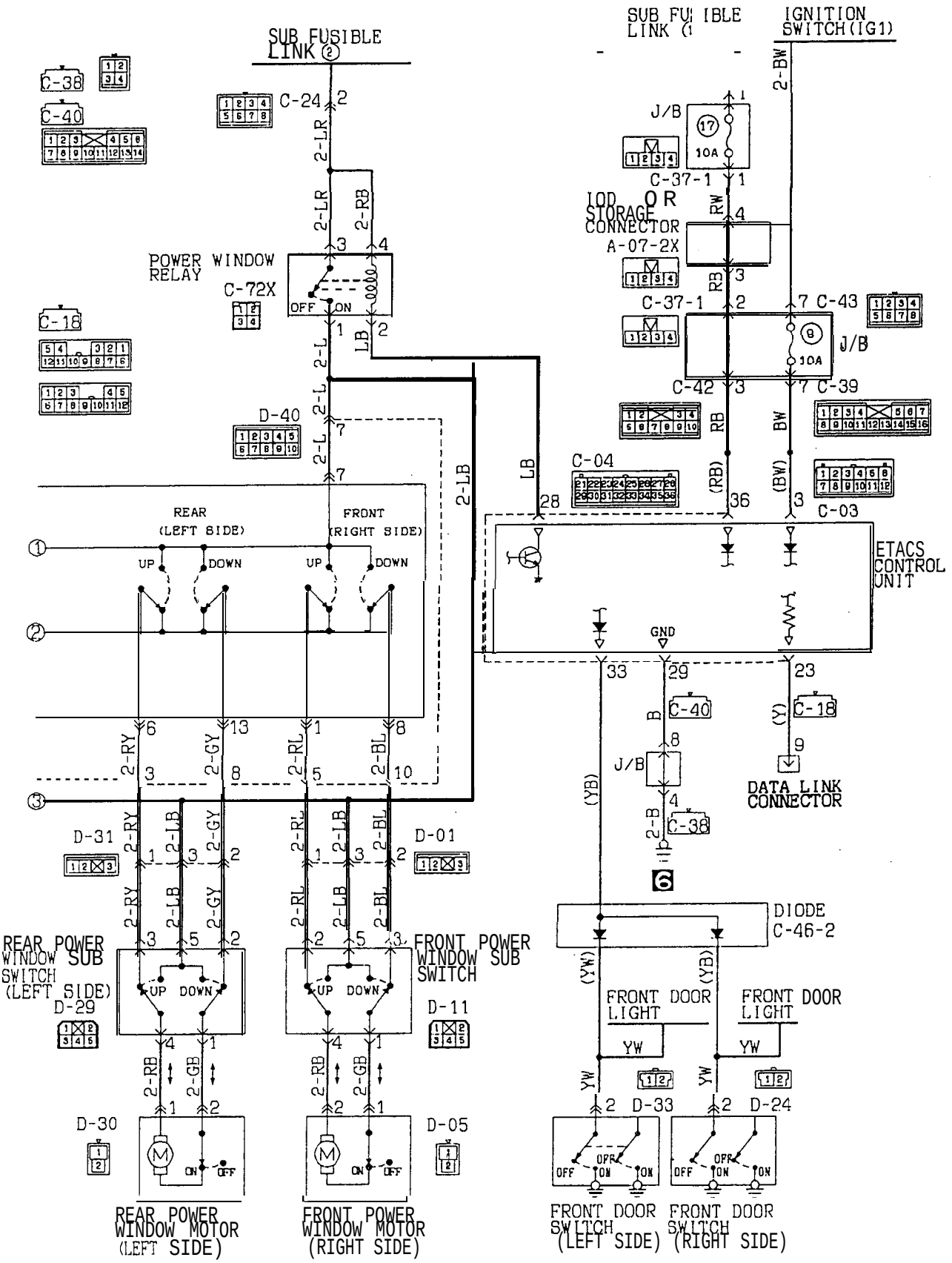
CIRCUIT DIAGRAM

<Vehicles with ETACS (Turbo)-From 1991 models>



MX35-AC-H1130-NW

TSB Revision



TSB Revision

OPERATION

<Vehicles without ETACS>

- When, with the ignition switch at the ON position, a power-window (main or sub) switch ("UP" side or "DOWN" side) is pressed, current flows through sub-fusible link No. 2 and to the power-window motor, thus causing the door window glass to close or open.
- When the "DOWN" side of the power-window main switch at the driver's side is pressed all the way, it is locked at the pressed-in position, and the power-window motor operates until the door glass is fully opened.
- When the power-window lock switch is set to the "LOCK (ON)" position, the power-window motor will not operate if any switch (main or sub) other than at the driver's side is operated.
- A circuit breaker is provided in the power-window motor in order to prevent damage to the motor as a result of excessive current.

  For reference: circuit breaker characteristics
  [Motor operation is restricted at high temperature [20–25°C (68–77°F)].
  Current flow is cut by an initial current flow time of four to 40 seconds; reset occurs within 60 seconds if then left as is.]

<Vehicles with ETACS>

- For models equipped with the ETACS, the timer function permits the power-window relay to remain ON for 30 seconds after the ignition switch is switched OFF.
  If, during that period of time, the driver's door is opened, the power-window relay is switched OFF, and the power windows can no longer be operated.
- Operations other than described above are the same as for models not equipped with the ETACS.

TROUBLESHOOTING HINTS

1. All door windows cannot be opened or closed.
   - Check sub-fusible link No. 2.
   - Check the power-window relay.
   - Check the power-window main switch.
2. One of the door windows cannot be opened or closed.
   (1) Neither of the power-window switches (main or sub) operates.
   - Check the power-window main switch.
   - Check the power-window motor for the power window that does not operate.

   (2) Either the power-window main switch or sub switch does not operate.
   - Check the power-window switch for the power window that does not operate.
3. The one-touch switch function only does not operate.
   - Replace the power-window main switch.
4. The power window operation by ETACS control after the ignition switch is switched OFF does not function.
   - Refer to P.42-86.

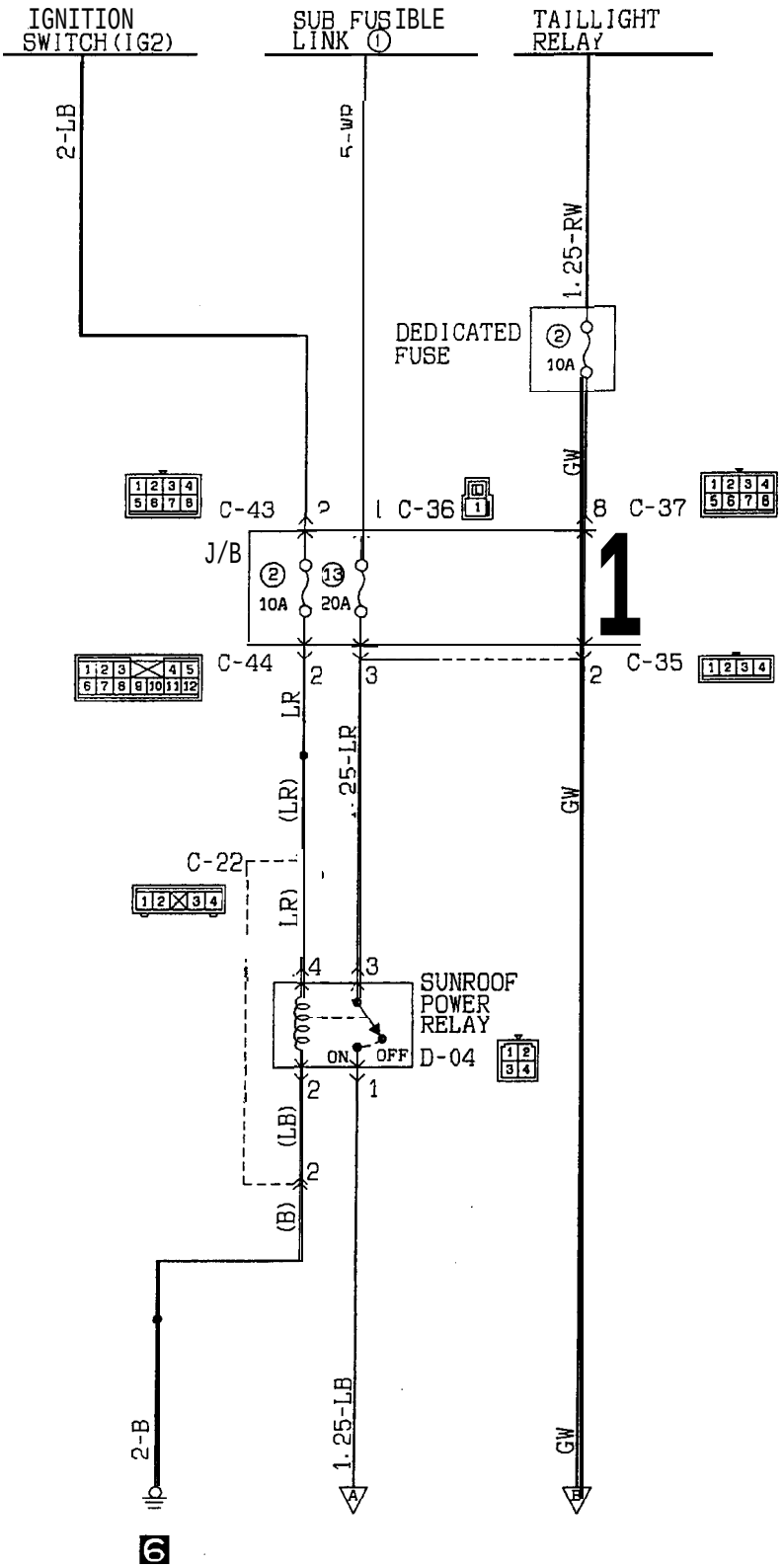
TSB Revision

SUNROOF

M42EBDC

CIRCUIT DIAGRAM

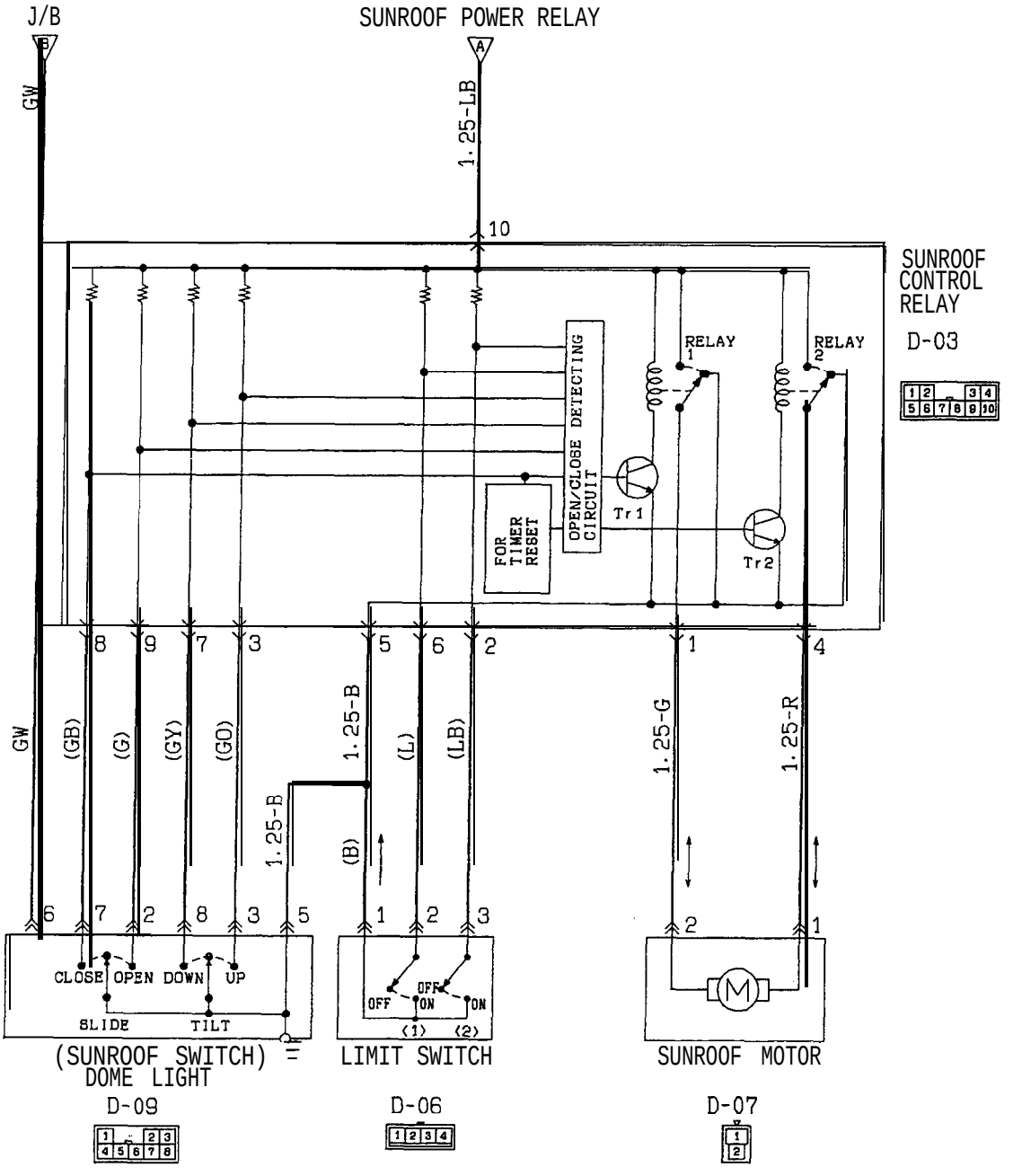
<Vehicles without ETACS-Up to 1990 models>



SUNROOF

CIRCUIT DIAGRAM

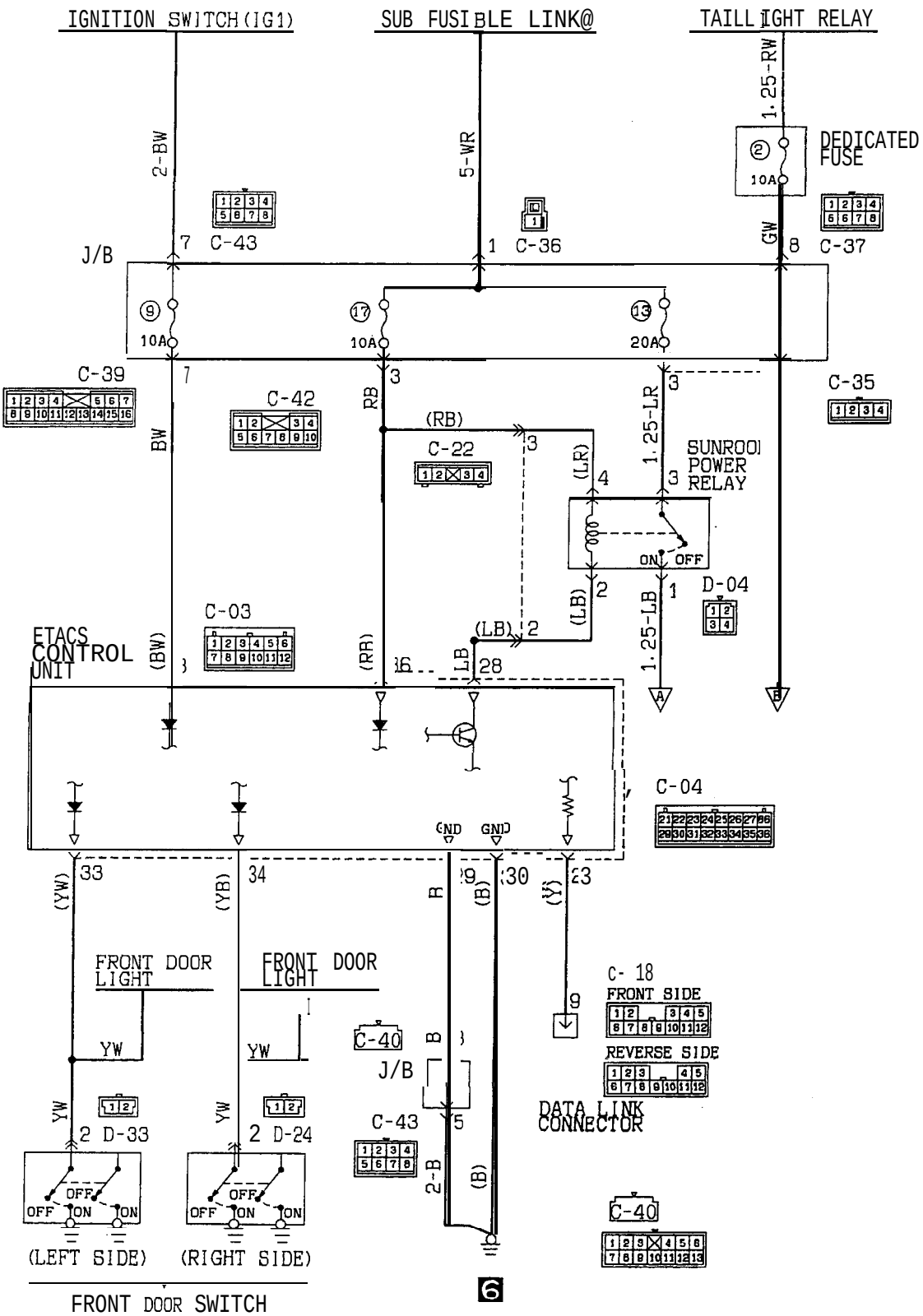
<Vehicles without ETACS-Up to 1990 models> (CONTINUED)



SUNROOF

CIRCUIT DIAGRAM

<Vehicles with ETACS-Up to 1990 models>



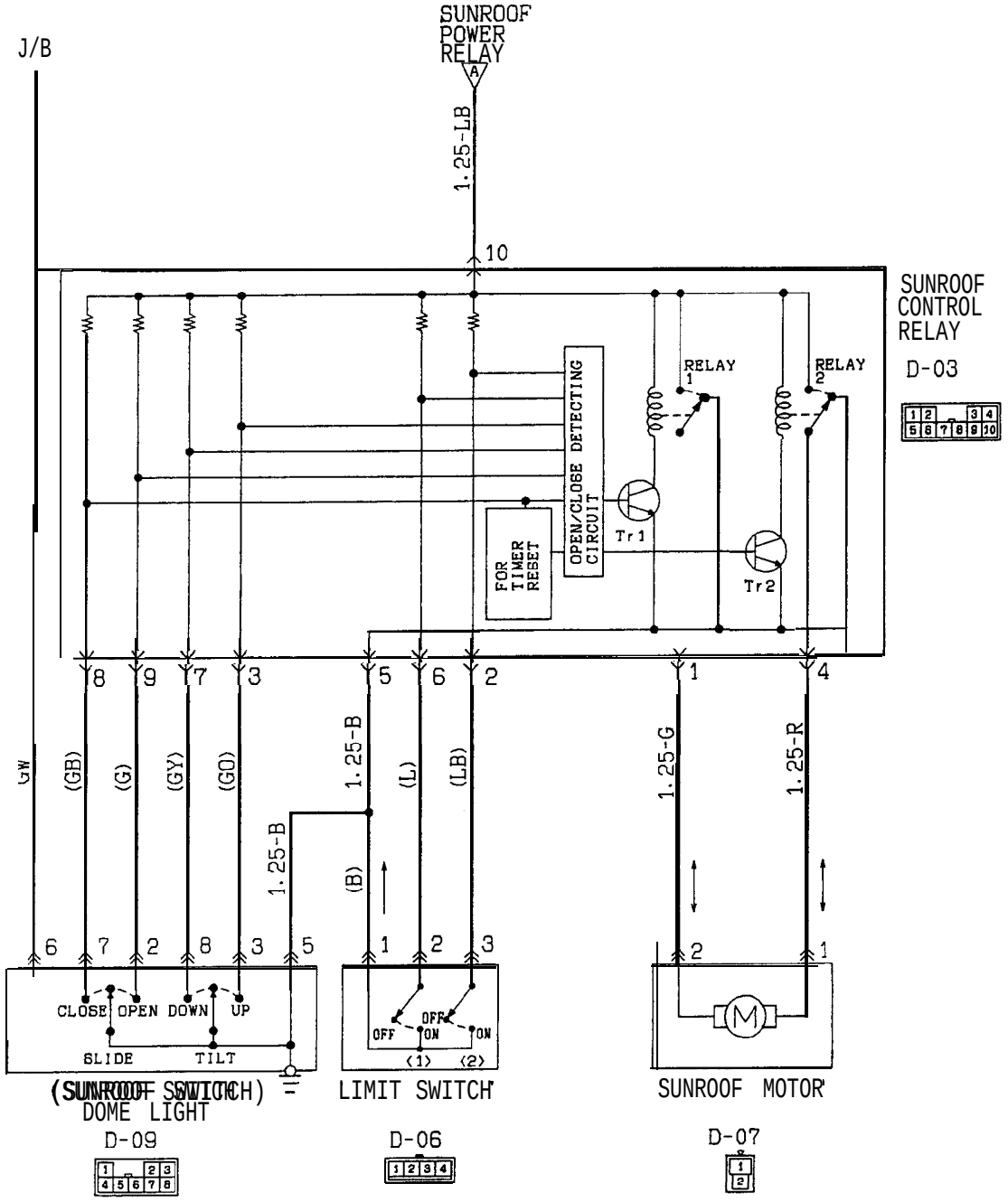
35-AC-H1428-NM

TSB Revision

SUNROOF

CIRCUIT DIAGRAM

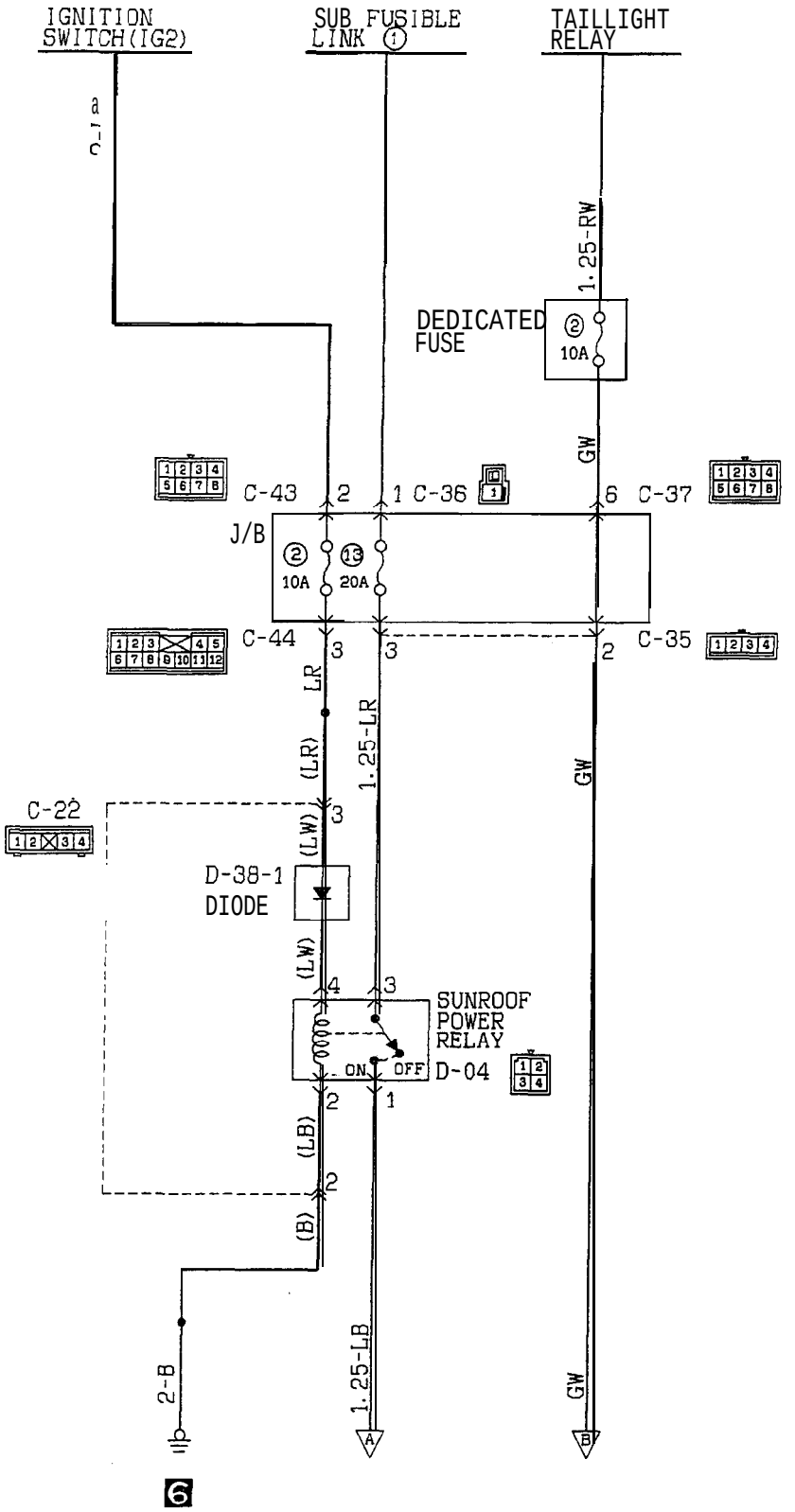
<Vehicles with ETACS-Up to 1990 models> (CONTINUED)



SUNROOF

CIRCUIT DIAGRAM

<Vehicles without ETACS-From 1991 models>



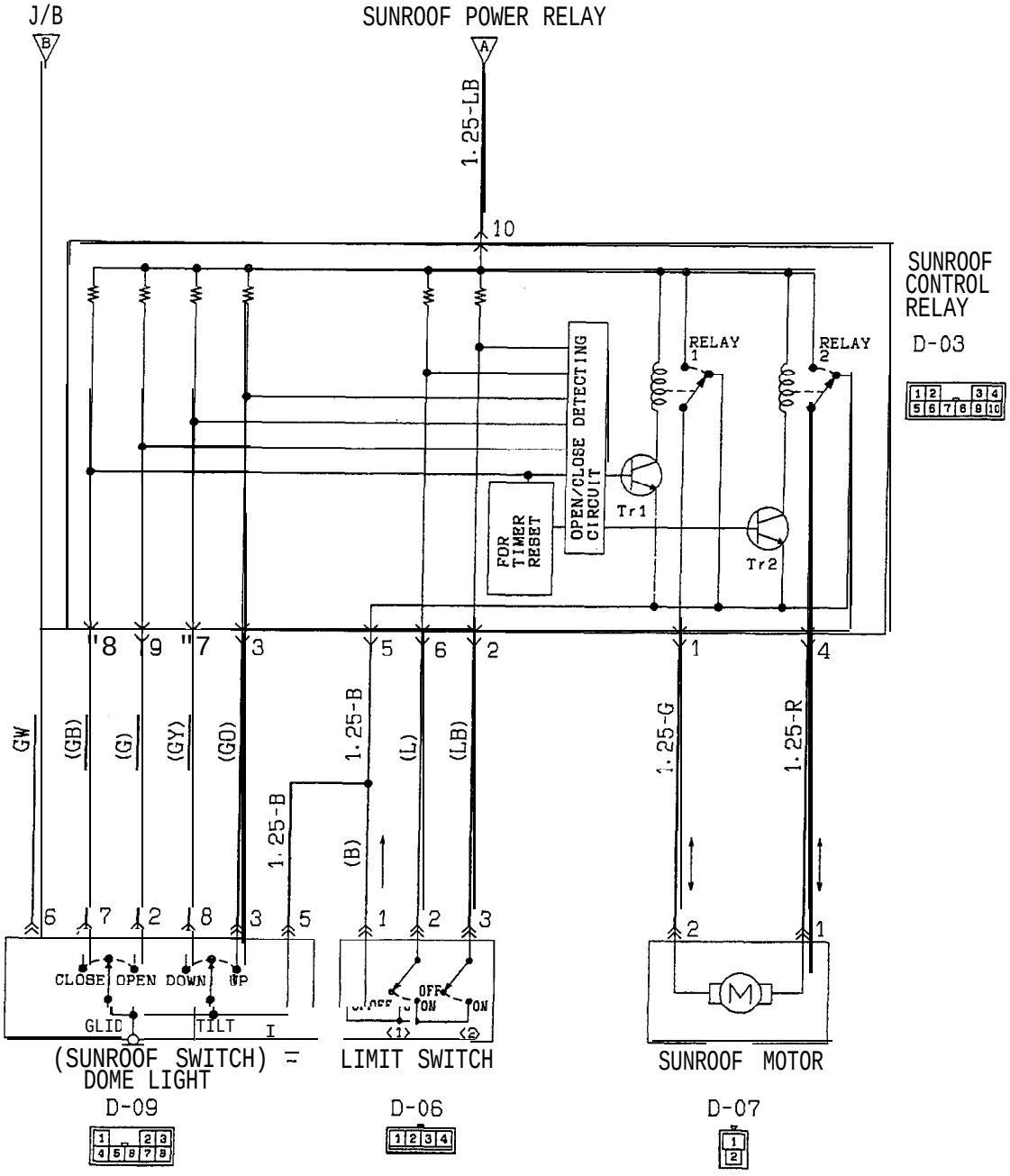
XX35-AC-H1435-NM

TSB Revision

SUNROOF

CIRCUIT DIAGRAM

<Vehicles without ETACS-From 1991 models> (CONTINUED)

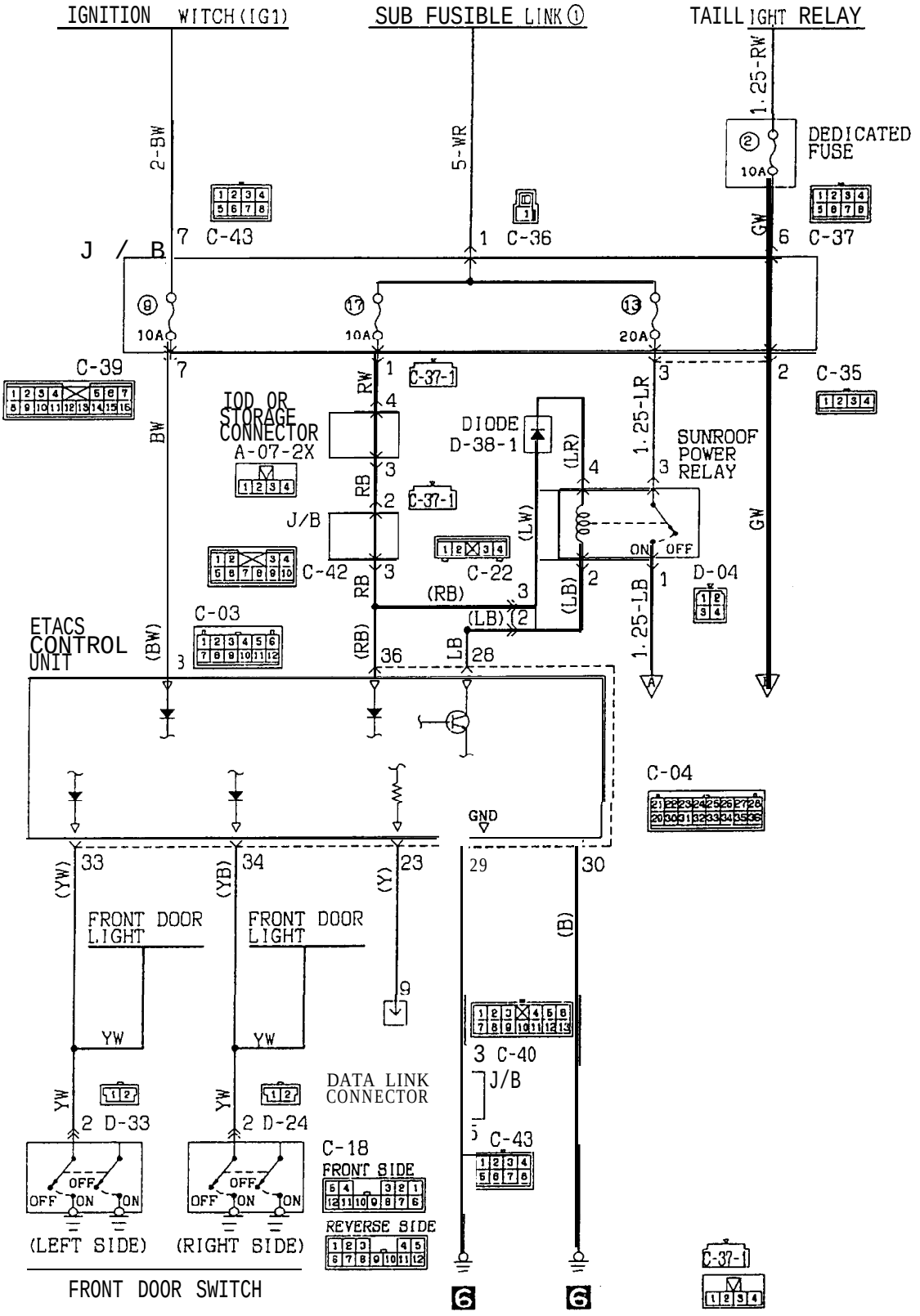


TSB Revision

SUNROOF

CIRCUIT DIAGRAM

<Vehicles with ETACS (Non-Turbo)-From 1991 models>



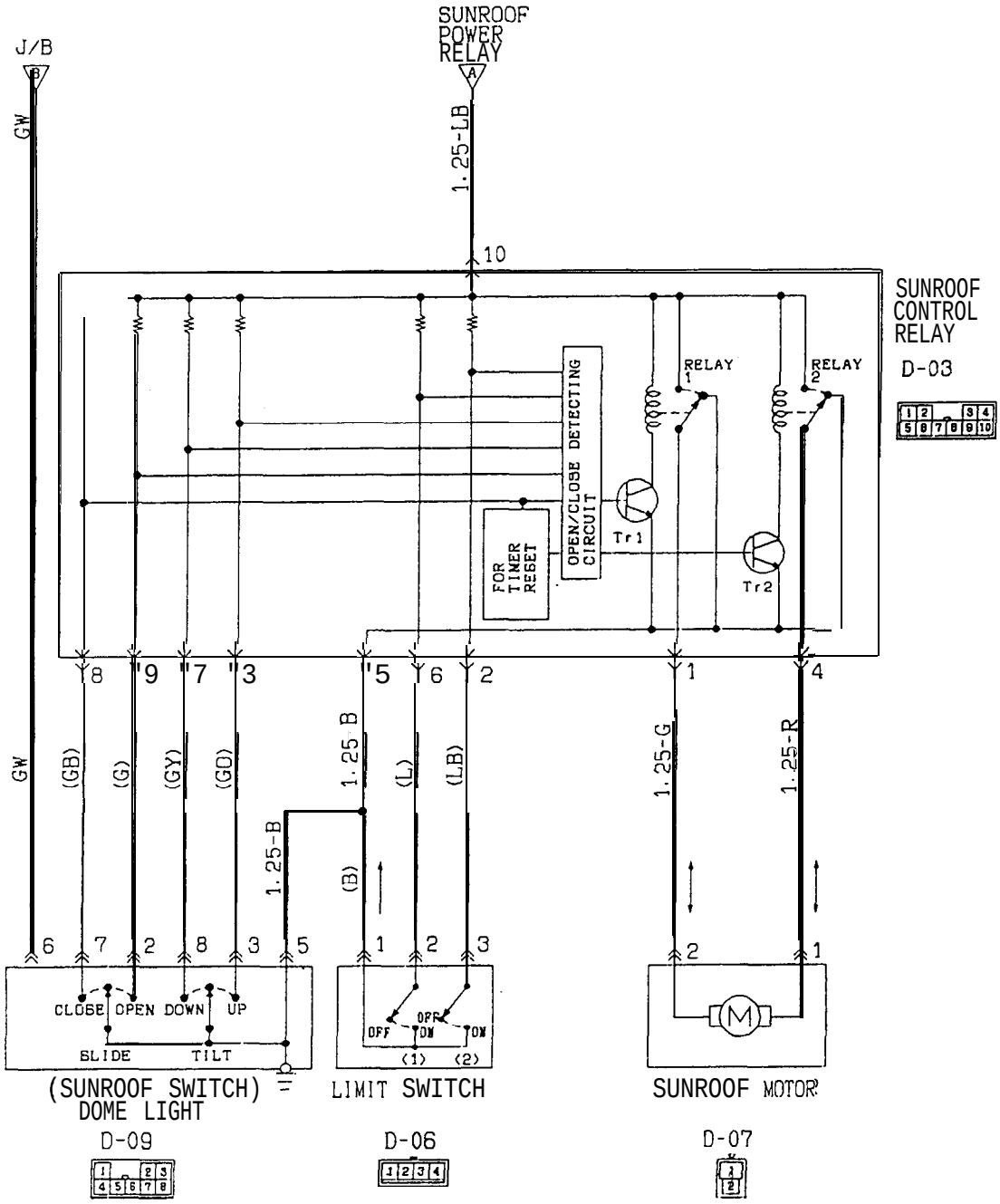
KX35-AC-H1440-NM

TSB Revision

SUNROOF

CIRCUIT DIAGRAM

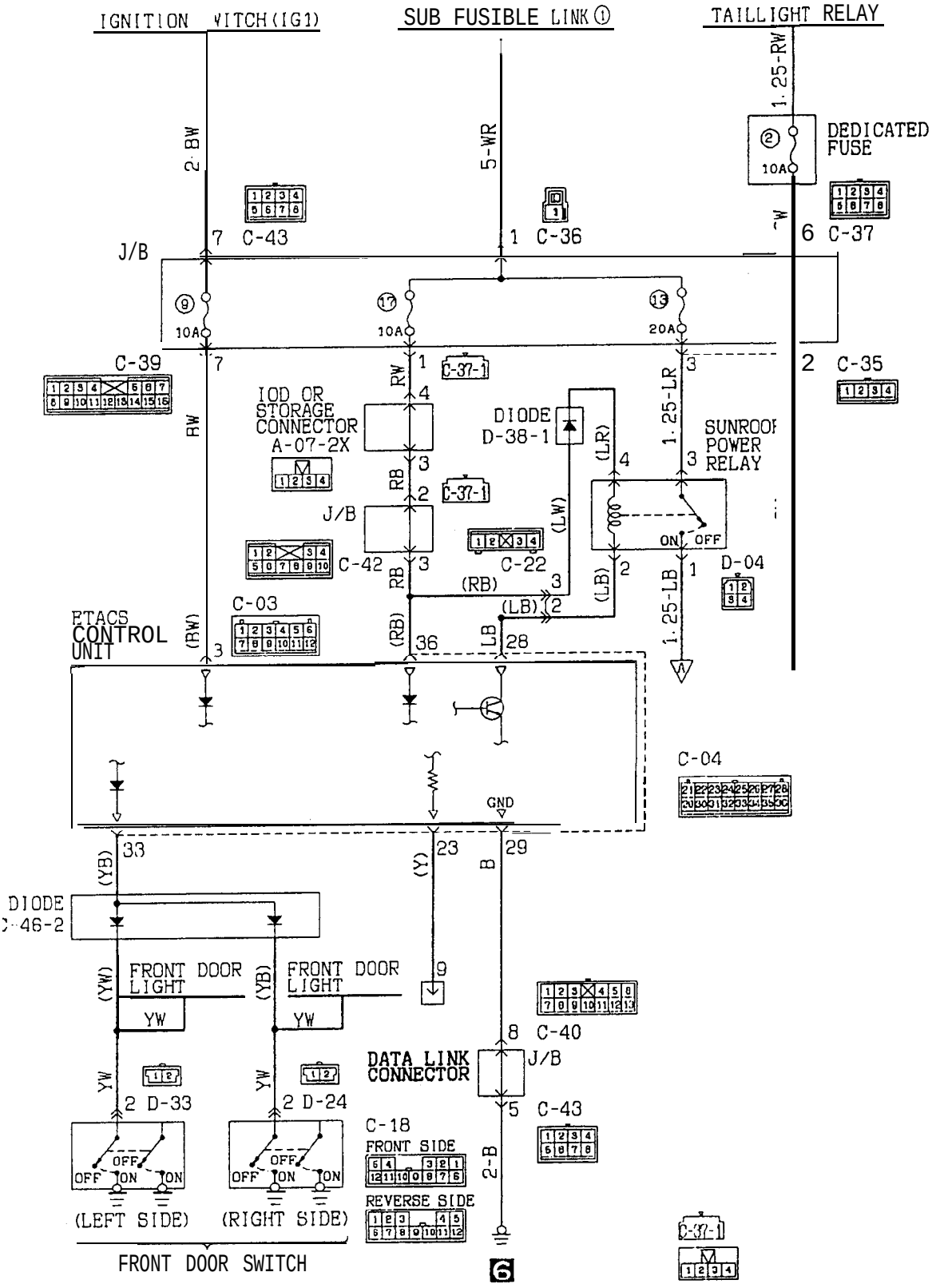
<Vehicles with ETACS (Non-Turbo)-From 1991 models> (CONTINUED)



SUNROOF

CIRCUIT DIAGRAM

<Vehicles with ETACS (Turbo)-From 1991 models>



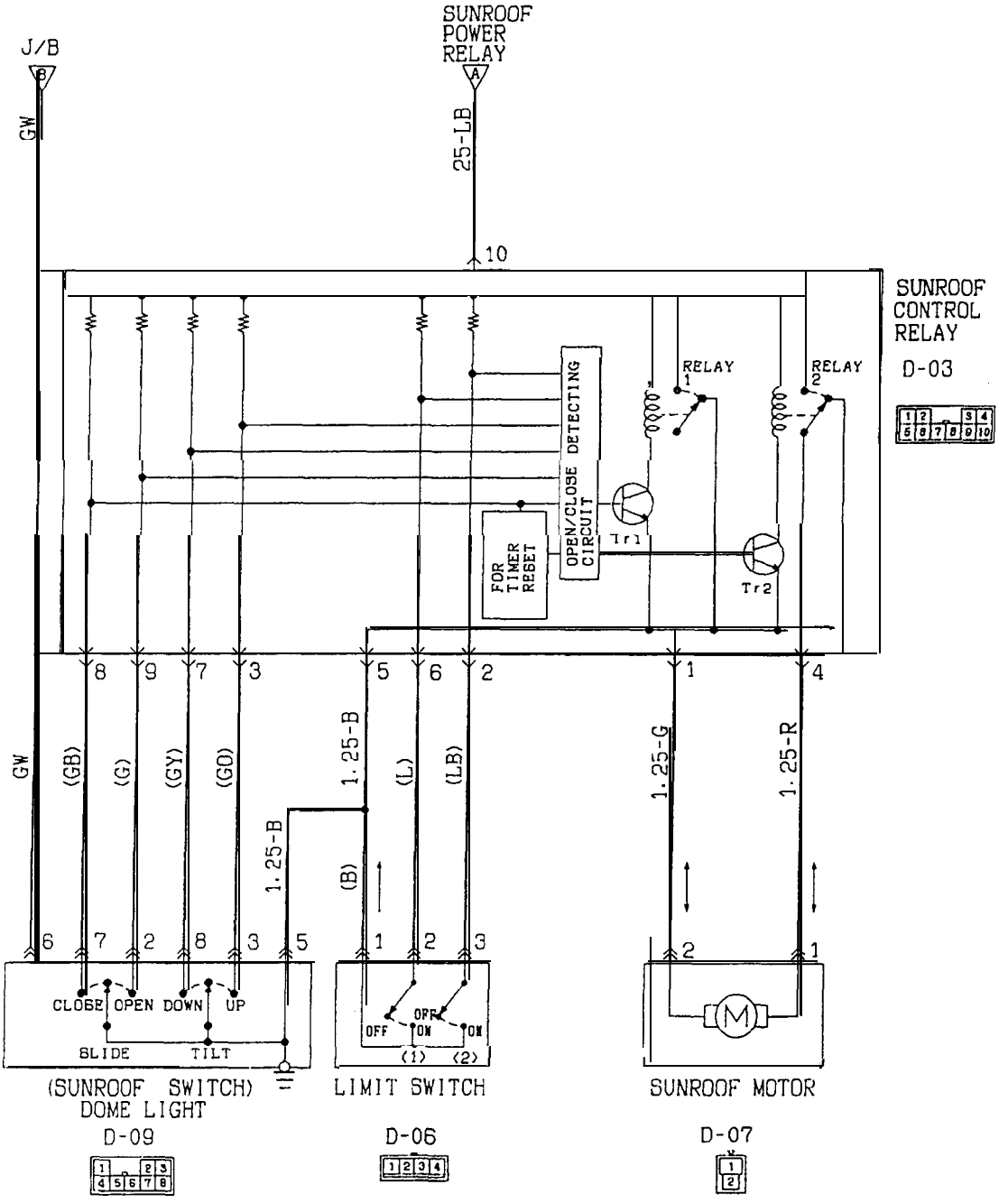
X35-AC-H1442-NM

TSB Revision

SUNROOF

CIRCUIT DIAGRAM

<Vehicles with ETACS (Turbo)-From 1991 models> (CONTINUED)



OPERATION

<Vehicles without ETACS>

Tilt operation

- When (with the sunroof fully closed and the ignition switch at the ON position) the left side of the tilt switch is pressed, the rear edge of the sunroof opens about 45 mm (1.8 in.).
- The sunroof will close when the right side of the tilt switch is pressed.

Slide operation

- When, with the ignition switch at the ON position, the right side of the slide switch is pressed, the sunroof will slide open while the switch is held.
- The sunroof will close while the left side of the slide switch is pressed.
  If the slide switch is pressed and held when the sunroof is half open or more, the sunroof closing movement will stop (as a safety precaution) at a point before fully closed, and will not continue closing. To close it fully, release the switch once, and then press and hold it again.

<Vehicles with ETACS>

- For models equipped with the ETACS, the timer function permits the sunroof power relay to remain ON for 30 seconds after the ignition switch is switched OFF.
  If, during that period of time, the driver's door is opened, the sunroof power relay is switched OFF, and the sunroof can no longer be operated.
- Operations other than described above are the same as for models not equipped with the ETACS.

TROUBLESHOOTING HINTS

1. The sunroof does not operate at all.
   (1) The power windows also do not operate.
   - Check multi-purpose fuse No. 2.

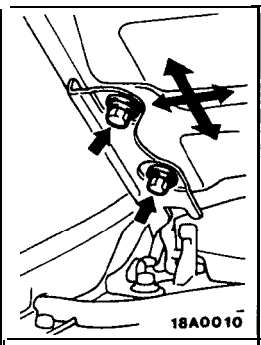
   (2) The power windows also do operate.
   - Check multi-purpose fuse No. 13.
   - Check the sunroof power relay.

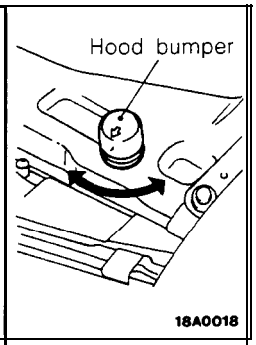
   NOTE
   For information concerning control by the sunroof power relay and control by the ETACS, refer to P.42-116.

TSB Revision

SERVICE ADJUSTMENT PROCEDURES

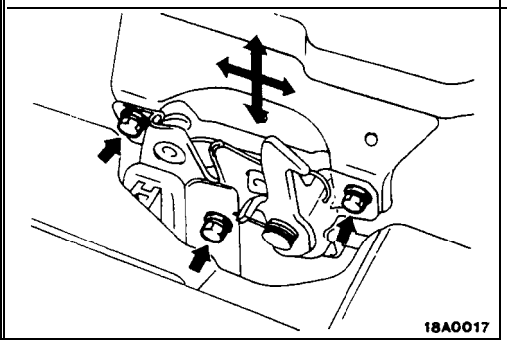
M42FAAD





HOOD ALIGNMENT ADJUSTMENT

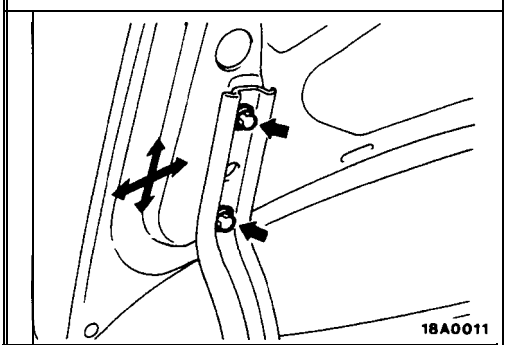
1. Adjust the longitudinal and lateral positions of the hood by utilizing the oblong holes in the hinge.
2. Turn the hood bumpers either left or right to adjust the height of the hood.



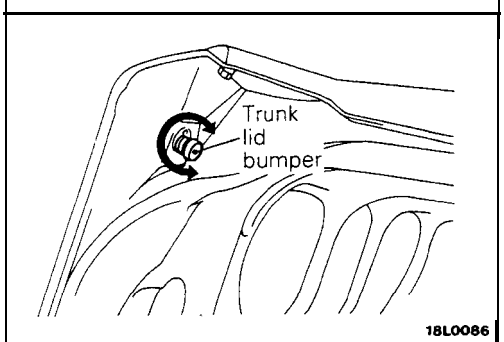
3. Loosen the hood latch mounting bolts.
4. Adjust the alignment of the hood striker and the hood latch by adjusting the horizontal and vertical position of the latch and the height of the hood.

TRUNK LID ADJUSTMENT

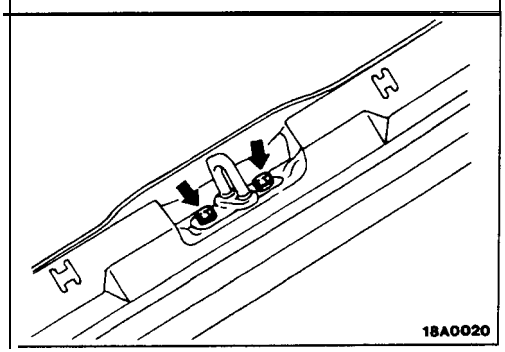
M42FBAC



1. Loosen the trunk lid mounting bolts, adjust the trunk lid by moving it so that the clearance is equal on all sides.

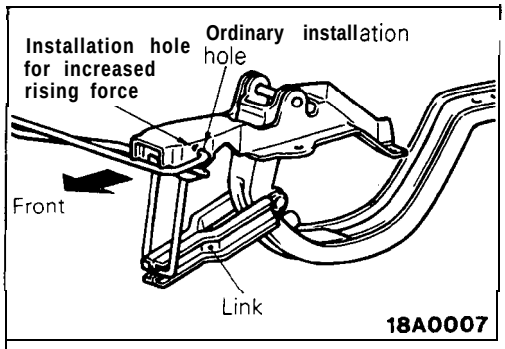


2. Turn the trunk lid bumpers either left or right to adjust the height of the trunk lid.



3. Loosen the trunk lid striker mounting bolts, and then adjust the alignment of the latch and striker by adjusting the horizontal and vertical positioning of the striker.

TSB Revision

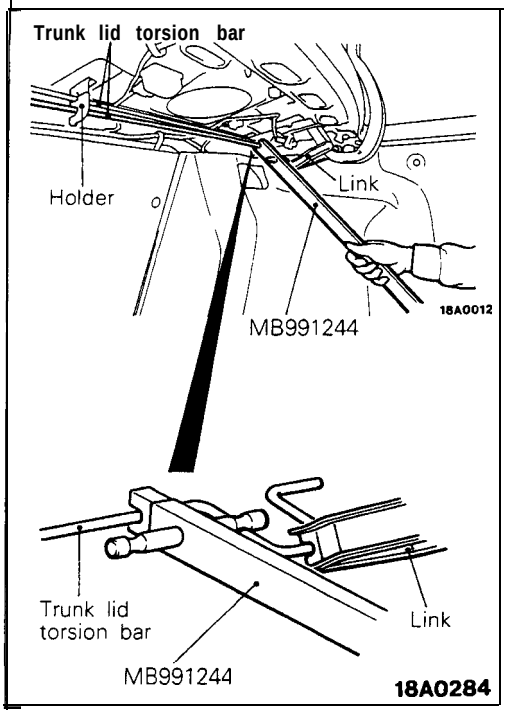


TRUNK LID TORSION BAR ADJUSTMENT M42FSAA

If rising force of the trunk lid has become weak as a result of lessened torsion of the trunk lid torsion bar, change the installation hole of the torsion bar (by following the procedures described below) so as to increase the rising force.

(1) Remove the luggage compartment light switch.

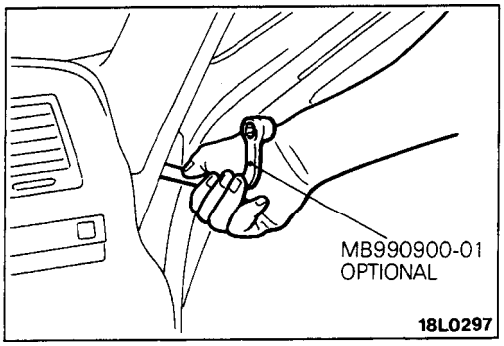
NOTE
The luggage compartment light switch should be removed because there is the possibility of damage to it when the other work is being done.



(2) Remove the trunk lid torsion bar from holder.
(3) Install the special tool as shown in the illustration, and then, while pressing the lower part, disconnect the trunk lid torsion bar from the link.

Caution
Be sure to install the special tool securely, because damage may be caused to the body or to other components, etc. if the trunk lid torsion bar separates from the special tool.

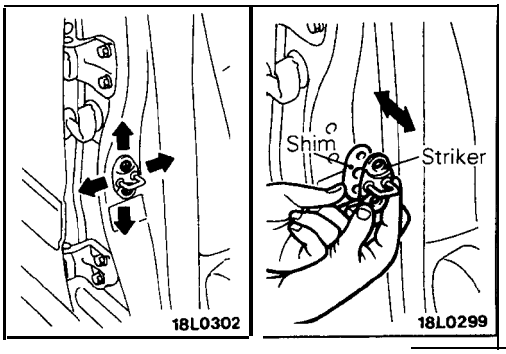
(4) Take out the trunk lid torsion bar from the trunk lid torsion bar holes in the trunk lid hinges.
(5) Change the installation hole and then install the trunk lid torsion bar.



DOOR FIT ADJUSTMENT M42FEAA

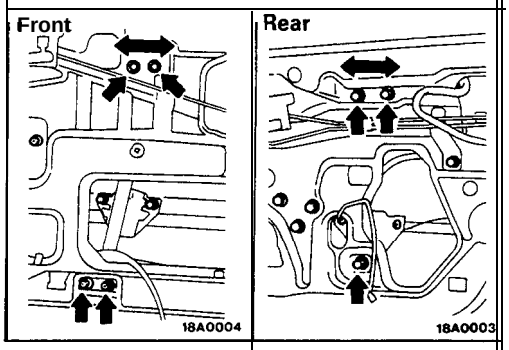
1. Use the special tool to loosen the hinge mounting bolts on the body side, and then adjust the clearance around the door so that it is uniform on all sides.

Caution
Attach protection tape to the fender edges where the hinge is installed.



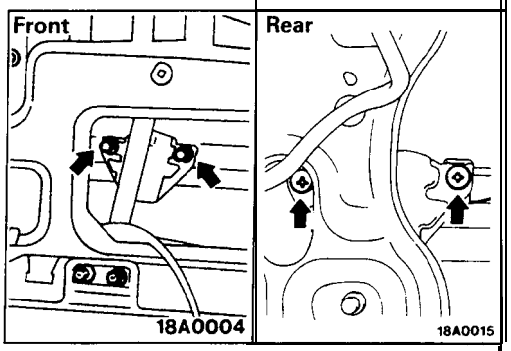
2. Loosen hinge mounting bolts on door side and adjust alignment of fender panel with front door panel.
3. Loosen door striker mounting screws to adjust alignment of door panel.
4. Increase or decrease the number of shims and move striker to adjust engagement of striker with door latch.

TSB Revision

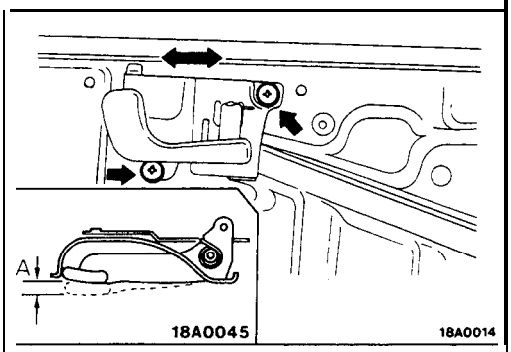


DOOR GLASS ADJUSTMENT M42FFAI

1. Remove the door trim and waterproof film. (Refer to P.42-76, 78.)
2. Loosen the installation bolt of the window regulator assembly: then move the upper installation back and forth and adjust the tilted angle of the glass.



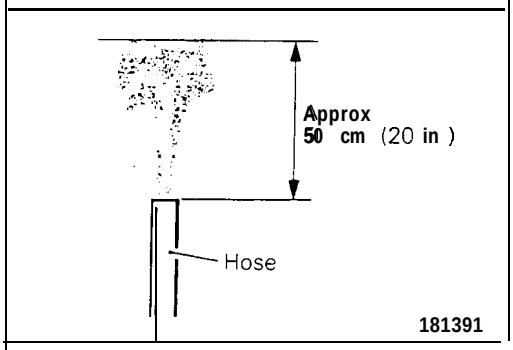
3. Lower the door window glass to the position of the access hole.
4. Loosen the door glass installation screw, and adjust the forward/backward position of the glass.



INSIDE HANDLE PLAY ADJUSTMENT M42FGAC

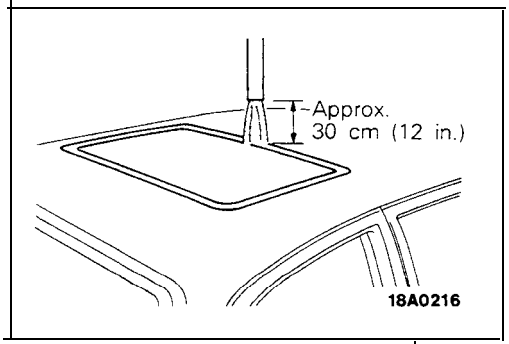
1. Remove the door trim and waterproof film. (Refer to P.42-76, 78.)
2. Move the door inside handle installation position back and forth to adjust so that the inside handle play allowance agrees with the standard value.

Standard value (A): 4–10 mm (.16–.40 in.)



WATER TEST M42FPAB

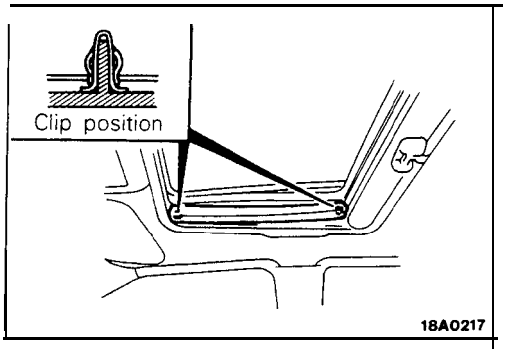
1. Close roof lid tightly.
2. Hold hose upward and adjust water fountain to about 50 cm (20 in.) high.



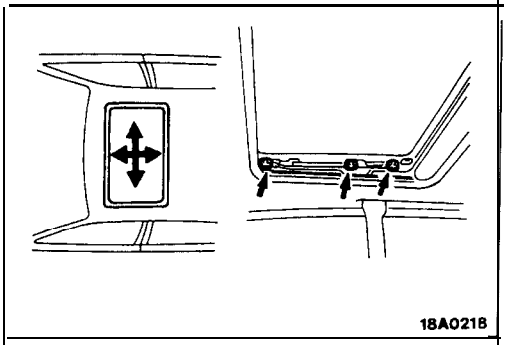
3. Pour water over the roof from about 30 cm (12 in.) above roof for more than 5 minutes.
4. While pouring water, check for leak around roof lid.
5. In the event of leakage, check drain pipe, weatherstrip contact and others.

TSB Revision

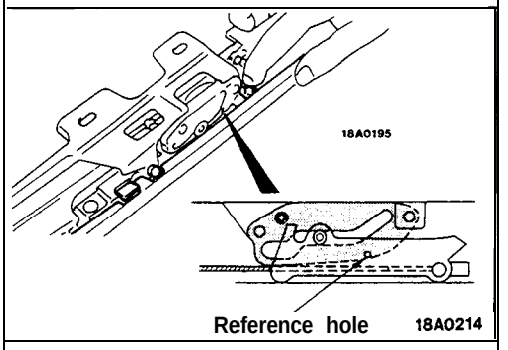
SUNROOF FIT ADJUSTMENT M42FTAA



1. If the roof glass lid must be adjusted forward/backward or to right/left, do so as follows.
   (1) Close the roof glass lid to the fully tilt closed position.
   (2) Open the sun shade completely.
   (3) Remove the side garnish.



(4) Loosen the nuts (six) and move the roof glass lid forward/backward or left/right.

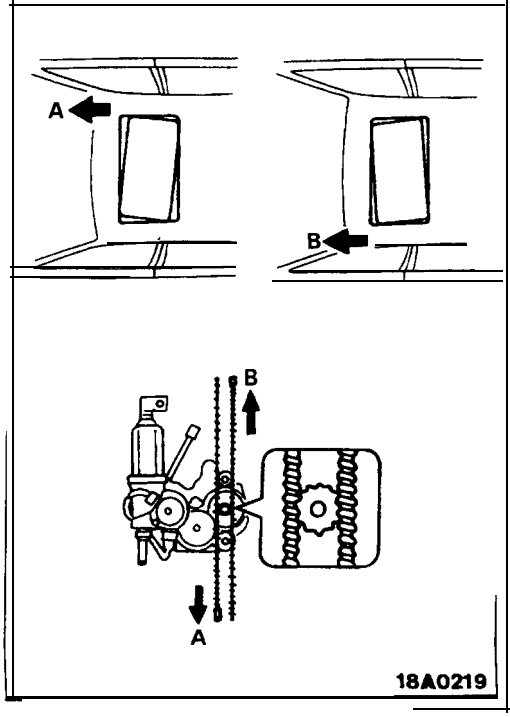


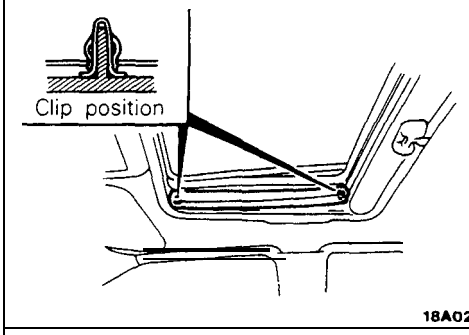
(5) If a forward/backward adjustment has been made, check to be sure that the sliding roof assembly's quide and the link's reference hole are positionally aligned.

NOTE
If the condition is not corrected by only an adjustment by the installation nut, there is a deviation of the fully closed position of the roof glass lid and the motor's fully closed position, so remove and check the motor.

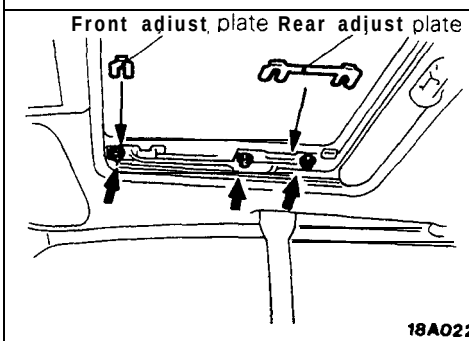
2. If the roof and roof glass lid are not parallel, correct as follows.
   (1) If the deviation is approximately 1 mm (.04 in.), make the forward/backward or left/right adjustment by the same procedure.
   (2) If the deviation is approximately 2 mm (.08 in.), remove the **motor** and advance **the cable (at the side where the** gap is larger) one pitch.

NOTE
There will be movement of 2.5 mm (.098 in.) for one pitch of the cable.





3. If the height of the roof and the roof glass lid must be adjusted, do so as follows.
   (1) Close the roof glass lid to the fully tilt closed position.
   (2) Open the sun shade completely.
   (3) Remove the side garnish.



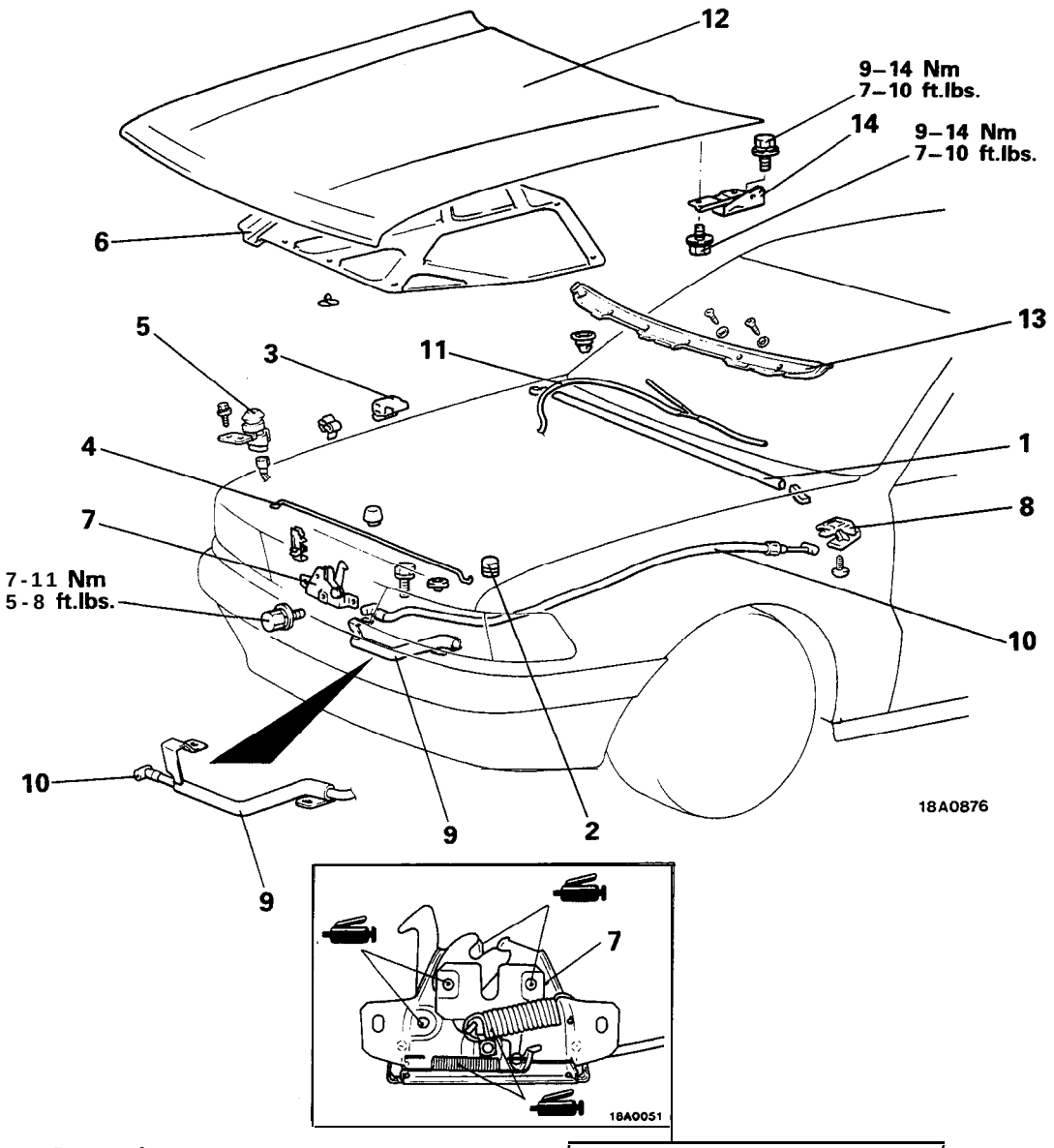
   (4) Loosen the six nuts.
   (5) Adjust by increasing or decreasing the number of adjustment plates.

TSB Revision

HOOD

M42HAAU

REMOVAL AND INSTALLATION



Removal steps

1. Hood weatherstrip
2. Hood bumper
3. Hood damper
4. Hood support rod
5. Hood switch <AWD Turbo>
6. Hood insulator
7. Hood latch
8. Hood lock release handle

Hood lock release cable removal steps

9. Hood lock release cable protector
10. Hood lock release cable

Hood removal steps

11. Connection for washer tube and nozzle
12. Hood

Post-installation Operation
- Hood Alignment Adjustment (Refer to P.42-50.)

Hood hinge removal steps

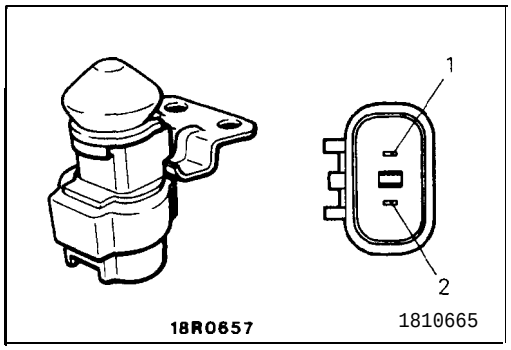
◆◆ 12. Hood
13. Front deck garnish (Refer to GROUP 51 -Garnishes.)
14. Hood hinge

SERVICE POINTS OF REMOVAL

12. REMOVAL OF HOOD

After using rags, a rubber cushion or similar items to protect the hood's edge part by preventing it from striking the lower edge of the windshield glass, remove the hood.

Caution
If the hood's edge part strikes the lower edge of the windshield glass forcefully, there is the danger of breaking the windshield glass, so the hood must be removed carefully.



INSPECTION

HOOD SWITCH

(1) Disconnect the hood switch connector.
(2) Check the continuity between the terminal.

Terminal	1	2
Hood switch unpressed	O	O
Hood switch depressed		

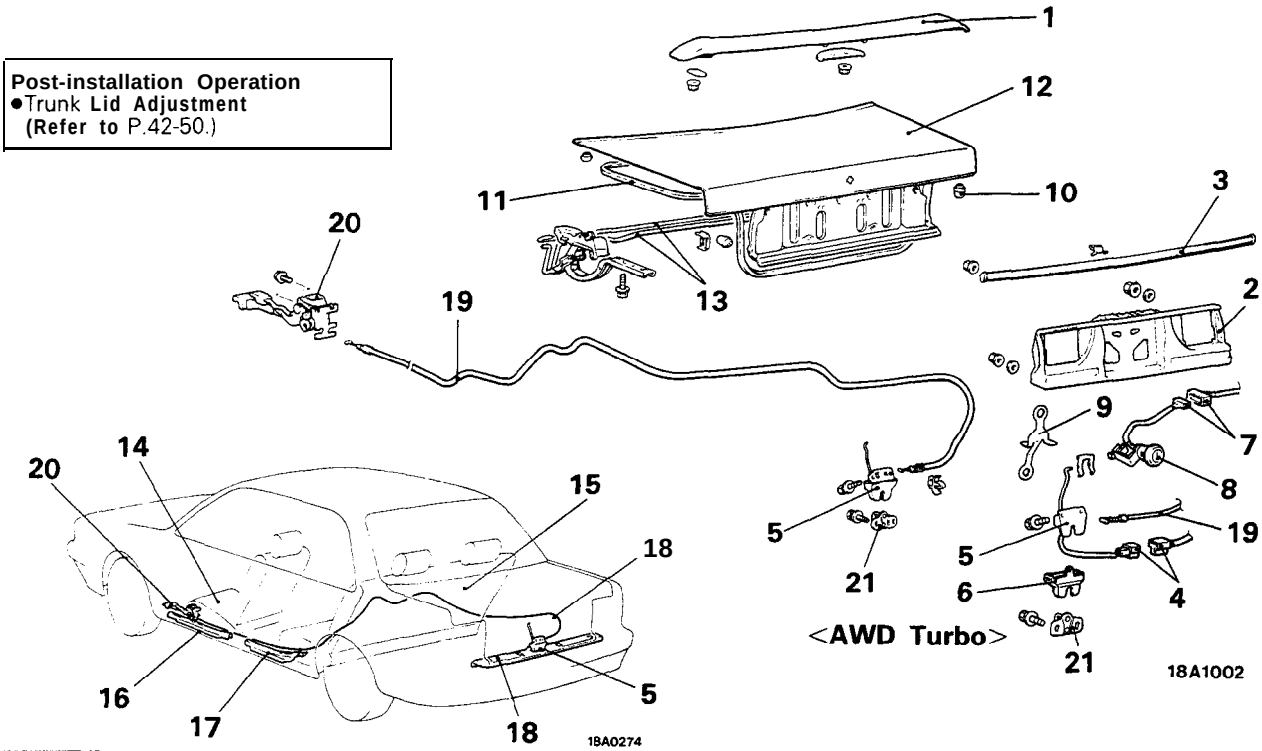
NOTE
O-O indicates that there is continuity between the terminals.

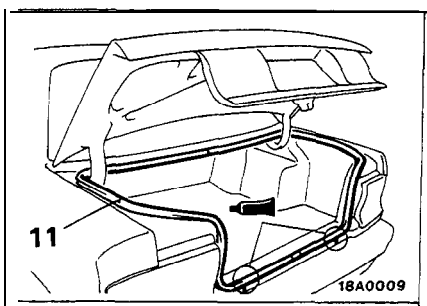
TRUNK LID

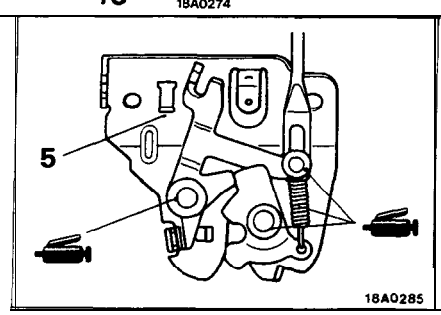
M42IAAI

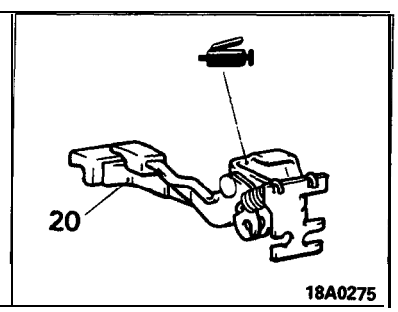
REMOVAL AND INSTALLATION

Post-installation Operation
●Trunk **Lid Adjustment**
(Refer to P.42-50.)









Sealant:
3M ATD Part No.8513 or equivalent

Removal steps

1. **Air spoiler** <DOHC> (Refer to GROUP 51 –Aero Parts.)
2. Rear panel garnish (Refer to GROUP 51 -Garnishes.)
3. Trunk lid moulding
4. Connection of trunk lid latch switch connector and trunk lid harness <AWD Turbo>
5. Trunk lid latch
6. Cover <AWD Turbo>
7. Connection of trunk lid lock cylinder switch connector and trunk lid harness <AWD Turbo>
8. Trunk lid lock cylinder <AWD Turbo>
9. Locking plate
- +10. Bumper
1 1. Trunk lid weatherstrip
12. Trunk lid
◆◆ 13 Trunk lid torsion bar

Trunk lid lock release cable removal steps

14. Front seat <driver's side> (Refer to GROUP 52–Front Seat.)
15. Rear seat (Refer to GROUP 52–Rear Seat.)
16. Front scuff plate <driver's side> } (Refer to GROUP 52–Trims.)
17. Rear scuff plate <driver's side> }
18. Rear end trim cover
19. Trunk lid lock release cable

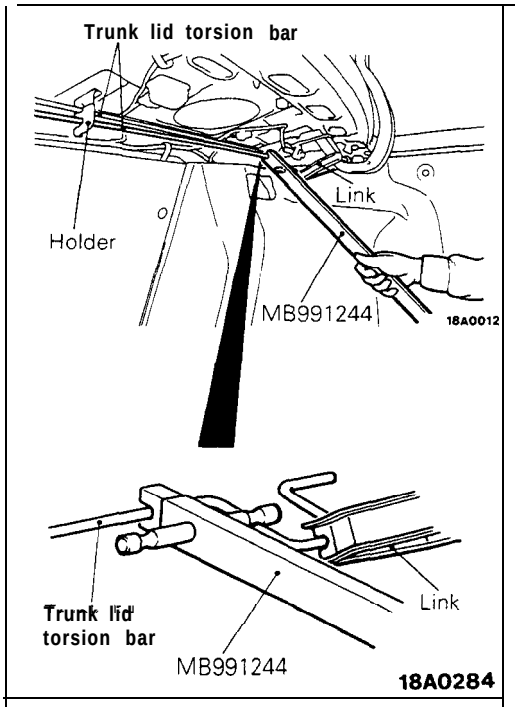
Trunk lid lock release handle removal steps

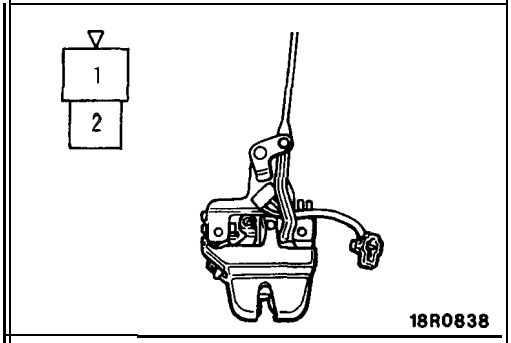
14. Front seat <driver's side> (Refer to GROUP 52–Front Seat.)
16. Front scuff plate <driver's side> (Refer to GROUP 52–Trims.)
◆◆ 20. Trunk lid lock release handle

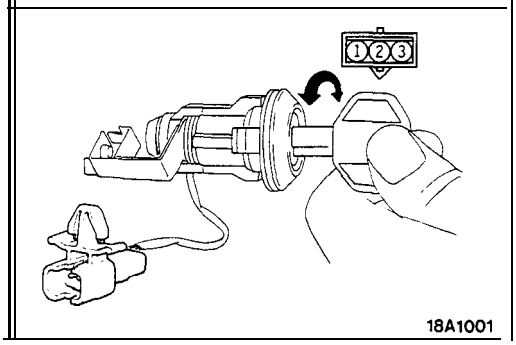
Trunk lid striker removal steps

18. Rear end trim cover (Refer to GROUP 52–Trims.)
2 1. Trunk lid striker

TSB Revision







SERVICE POINTS OF REMOVAL

13. REMOVAL OF TRUNK LID TORSION BAR

(1) Remove the luggage compartment light switch.

NOTE
The luggage compartment light switch should be removed because there is the possibility of damage to it when the other work is being done.

(2) Remove the trunk lid torsion bar from holder.

(3) Install the special tool as shown in the illustration, and then, while pressing the lower part, disconnect the trunk lid torsion bar from the link.

Caution
Be sure to install the special tool securely, because damage may be caused to the body or to other components, etc. if the trunk lid torsion bar separates from the special tool.

(4) Take out the trunk lid torsion bar from the trunk lid torsion bar holes in the trunk lid hinges.

INSPECTION

TRUNK LID LATCH SWITCH

(1) Unlock the trunk lid latch.
(2) Check the continuity between the terminals.

Terminal	1	2
Trunk lid latch locked		
Trunk lid latch unlocked	0	0

NOTE
O-O indicates that there is continuity between the terminals.

TRUNK LID LOCK CYLINDER SWITCH

(1) Turn the key and unlock or lock the lock cylinder.
(2) Check the continuity between the terminals.

Terminal	1	2	3
Trunk lid lock cylinder locked		○	○
Trunk lid lock cylinder unlocked	0	○	

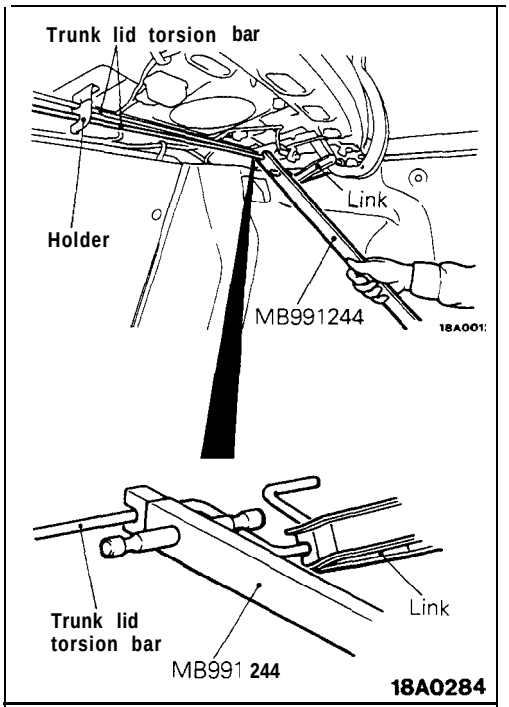
NOTE
○–○ indicates that there is continuity between the terminals.

SERVICE POINTS OF INSTALLATION

20. APPLICATION OF GREASE TO TRUNK LID LOCK RELEASE HANDLE

Apply a coating of multipurpose grease to the trunk lid lock release handle's turning part, sliding part, and spring.

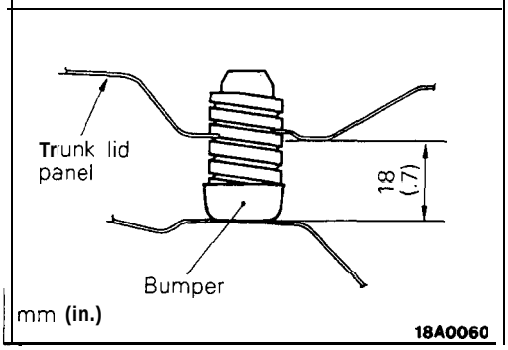
TSB Revision



13. INSTALLATION OF TRUNK LID TORSION BAR

(1) Apply a coating of multipurpose grease to the link and hinge's trunk lid torsion bar sliding part.
(2) Insert the ends of the trunk lid torsion bar into the installation holes.
(3) Install the special tool as shown in the illustration, and then, after hooking to the link by twisting the trunk lid torsion bar, hook to the holder.

Caution
Be sure to install the special tool securely, because damage may be caused to the body or to other components, etc. if the trunk lid torsion bar separates from the special tool.



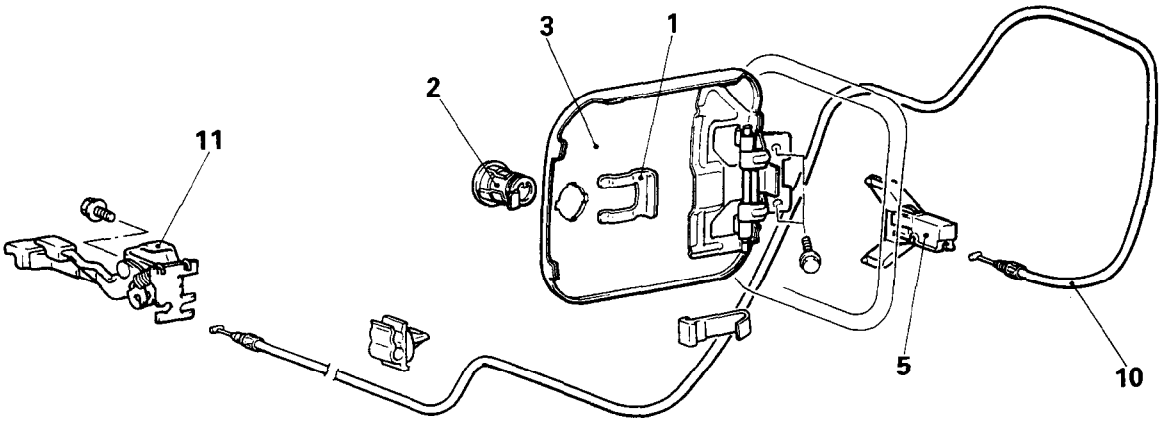
10. INSTALLATION OF BUMPER

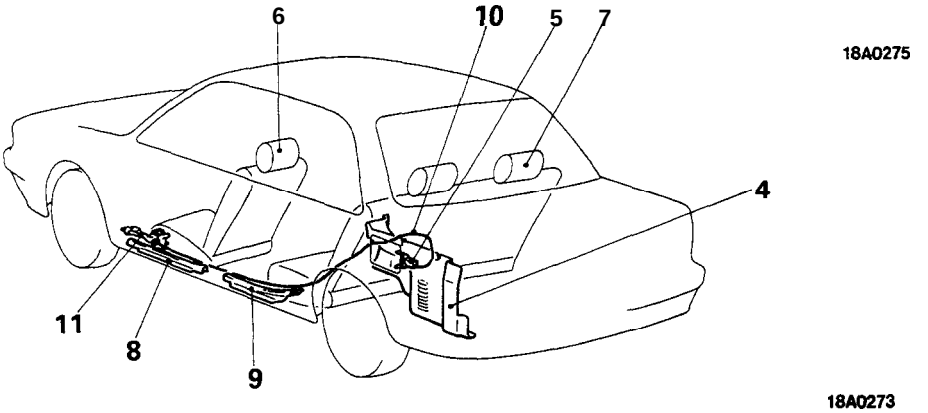
Install the bumper so that the amount of projection from the trunk lid panel is as shown in the illustration.

FUEL TANK FILLER DOOR

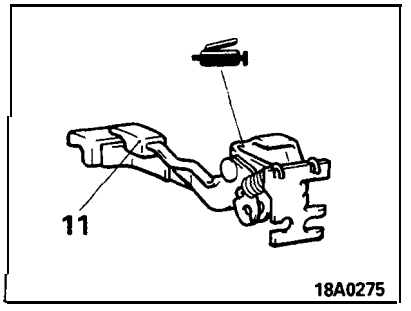
M42JAAR

REMOVAL AND INSTALLATION

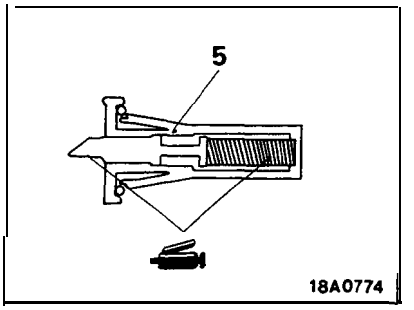




18A0273



18A0275



18A0774

Removal steps

1. Cylinder lock retainer
2. Fuel filler door lock cylinder
3. Fuel filler door

Fuel filler door hook removal steps

4. Trunk side trim (Refer to GROUP 52–Trims.)
5. Fuel filler door hook

Fuel filler door lock release cable removal steps

4. Trunk side trim (Refer to GROUP 52–Trims.)
6. Front seat <driver's side> (Refer to GROUP 52–Front Seat.)
7. Rear seat (Refer to GROUP 52–Rear Seat.)
8. Front scuff plate <driver's side>
9. Rear scuff plate <driver's side>

(Refer to GROUP 52–Trims.)

10. Fuel filler door lock release cable

Fuel filler door lock release handle removal steps

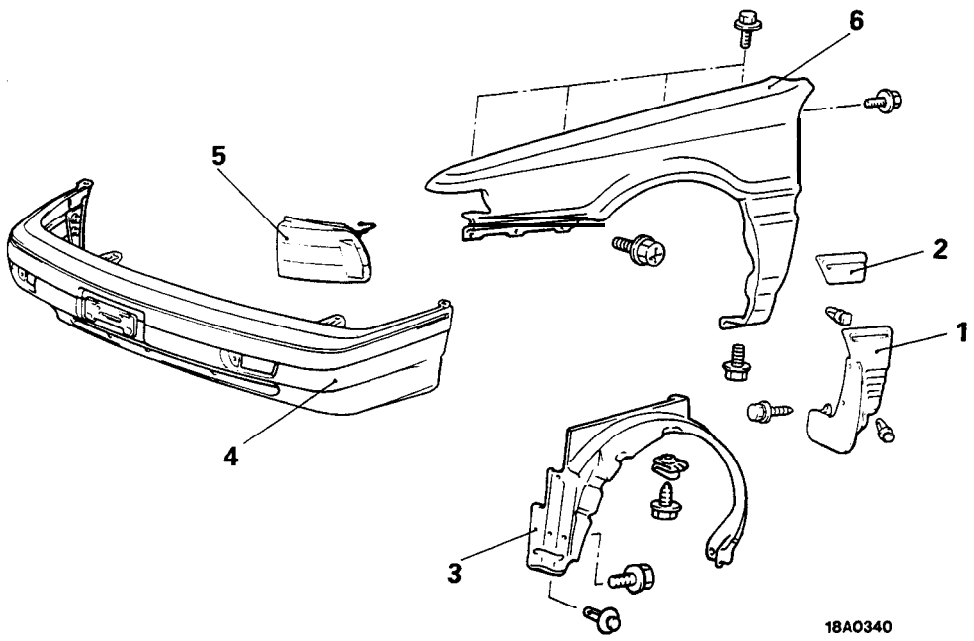
6. Front seat <driver's side> (Refer to GROUP 52–Front Seat.)
8. Front scuff plate <driver's side> (Refer to GROUP 52–Trims.)
11. Fuel filler door lock release handle

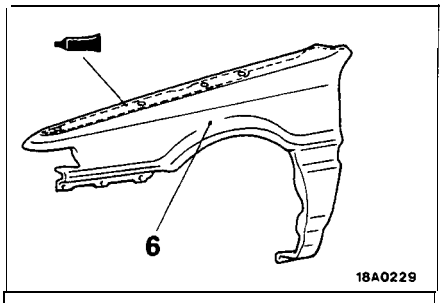
TSB Revision

FENDER

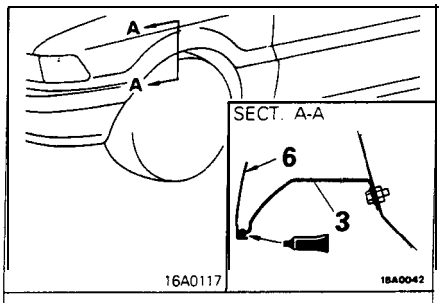
M42KAAW

REMOVAL AND INSTALLATION





Sealant:
3M ATD Part No.8646 or equivalent



Adhesive:
3M ATD Part No.8625 or equivalent

Removal steps

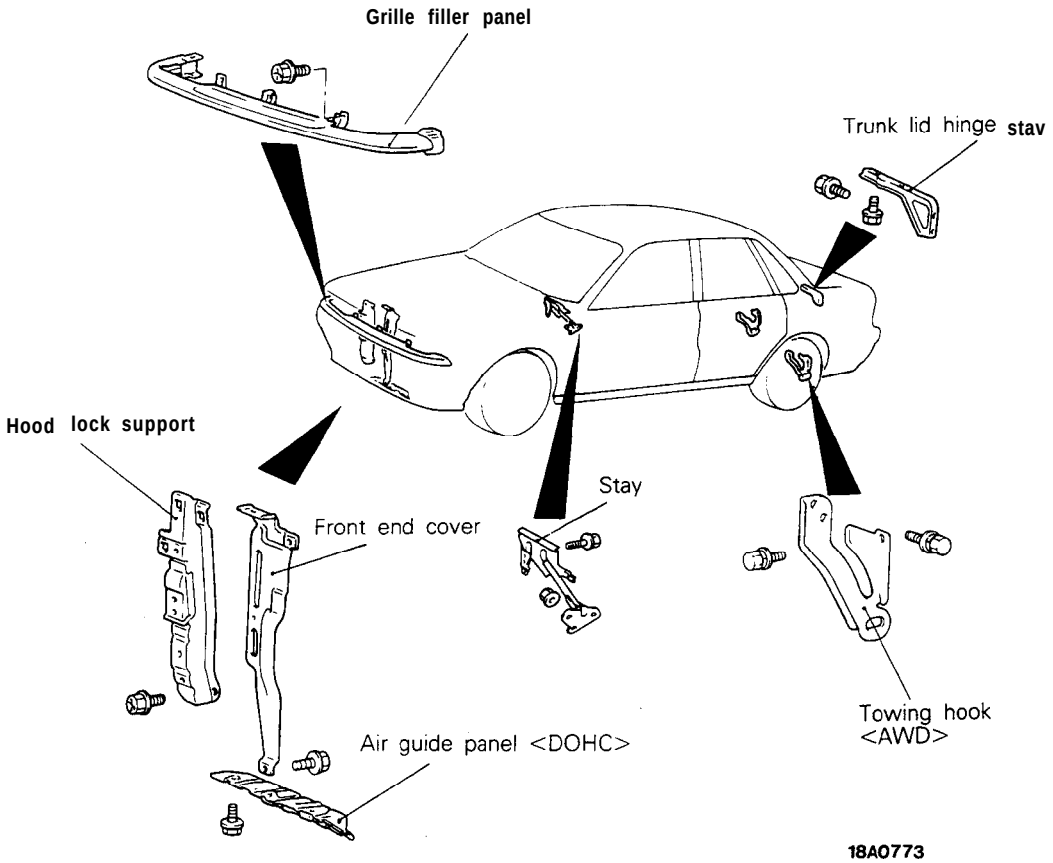
1. Fender garnish (Refer to GROUP 51– Garnishes.)
2. Side protect moulding (Refer to GROUP 51 –Mouldings.)
3. Splash shield
4. Front bumper (Refer to GROUP 51– Bumper.)
5. Front combination light
6. Front fender panel

TSB Revision

LOOSE PANEL

M42SAAI

REMOVAL AND INSTALLATION



WINDOW GLASS

M42LAABa

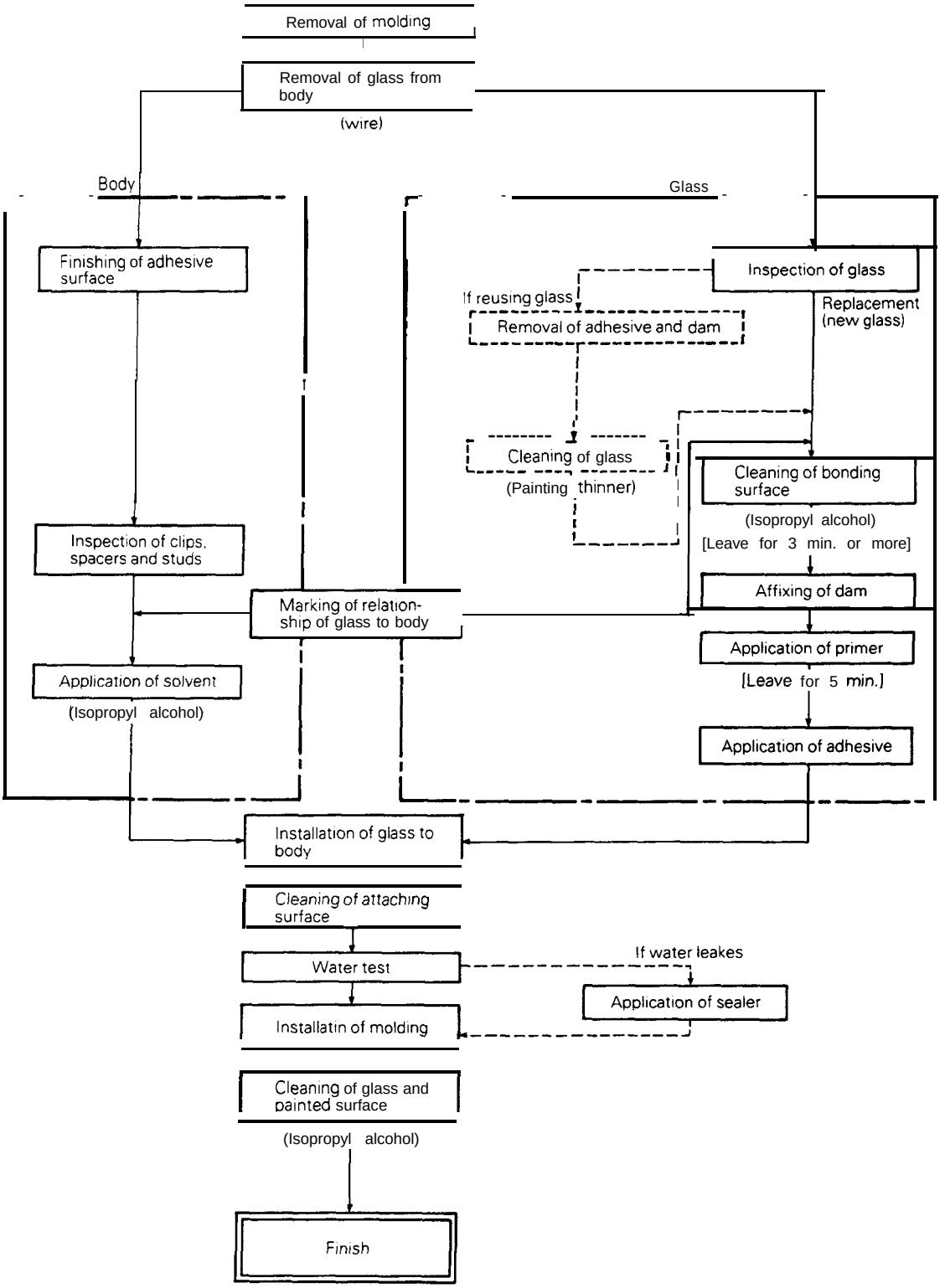
GENERAL

The windshield and the rear window glass are attached by an urethane-base adhesive to the window frame. This adhesive not only provides improved glass holding and sealing, but also permits use of body openings having a greater structural strength.

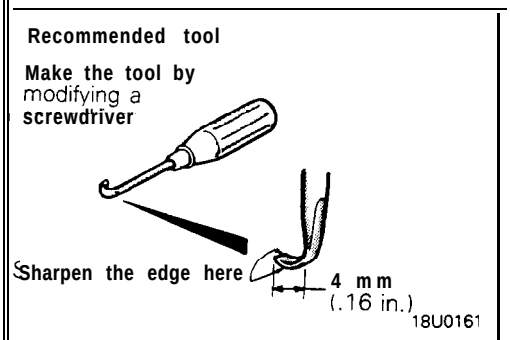
ADHESIVE, PRIMER AND RESERVE ITEMS

Items	Applications	Quantity
Adhesive, primer		
Adhesive		
3M Super Fast Urethane Part No. 8609 or equivalent		As required
Primer		
3M Super Fast Urethane Primer Part No. 8608 or equivalent		As required
Reserve items		
Dispensing nozzle		One
Wire (dia. × length)	for cutting adhesive	Five pieces of wire **0.6** mmx 1 m (.02 in. × 3.3 ft.)
Adhesive gun	for adhesive application	One
Isopropyl alcohol	for cleaning jointing surfaces	As required
Wiping rags		As required
Isopropyl alcohol	for cleaning	As required
Glass holder		Two
Spacers (Service Part)		As required
Window moulding assembly (Service Part)		One
Tectyl 506T (Valvoline Oil Company)		As required

WINDSHIELD INSTALLATION PROCEDURE

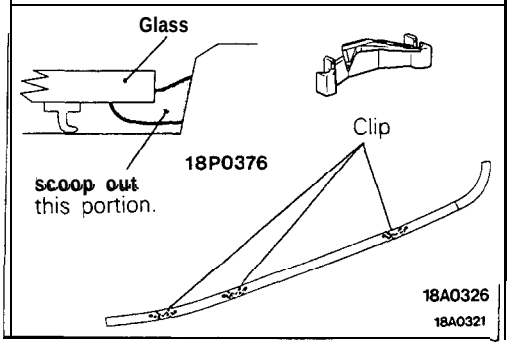


TSB Revision



REPLACEMENT OF MOULDINGS M42LABBb

1. To cut the existing adhesive, make a tool such as the one shown.



2. Using the recommended tool, scoop out the old adhesive material at the clip installation.

   Caution
   Be careful not to damage the glass and body.

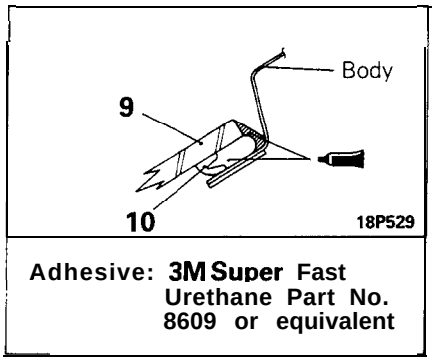
3. Apply the specified adhesive and install the moulding.

   Specified adhesive: 3M Super Fast Urethan Part No.8609 or equivalent

WINDSHIELD GLASS

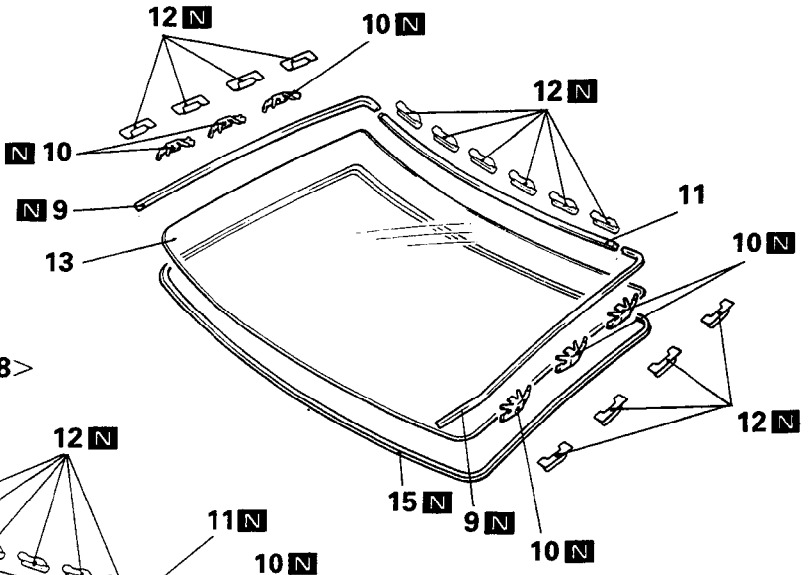
REMOVAL AND INSTALLATION

M42LBAUa

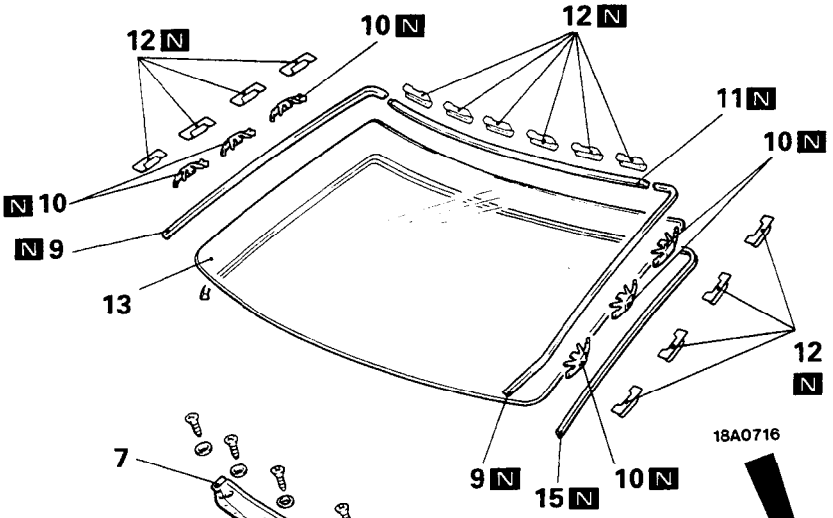


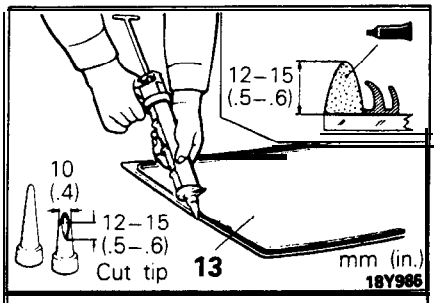
Adhesive: 3M Super Fast Urethane Part No. 8609 or equivalent

<Vehicles built up to October 1988>

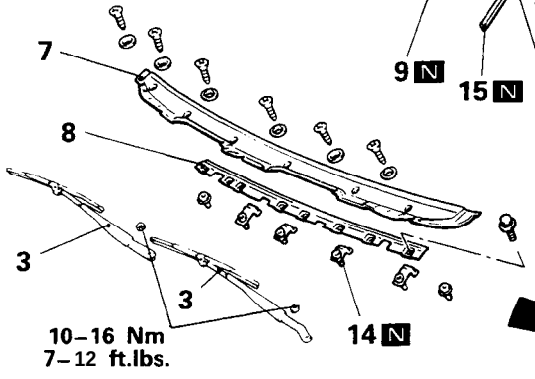


<Vehicles built from November 1988>

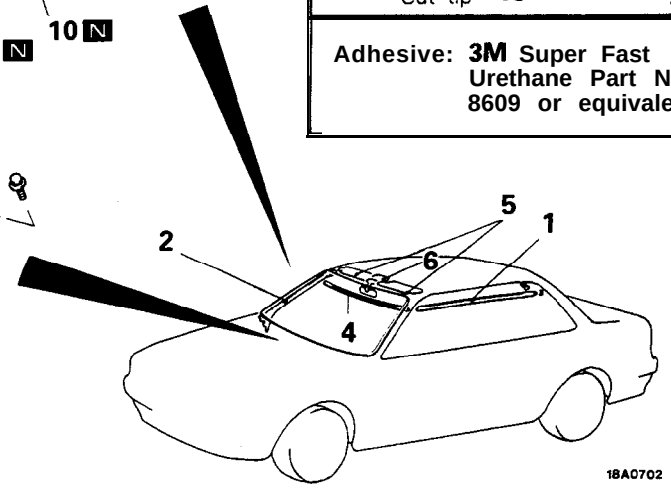




Adhesive: 3M Super Fast Urethane Part No. 8609 or equivalent



18A0716

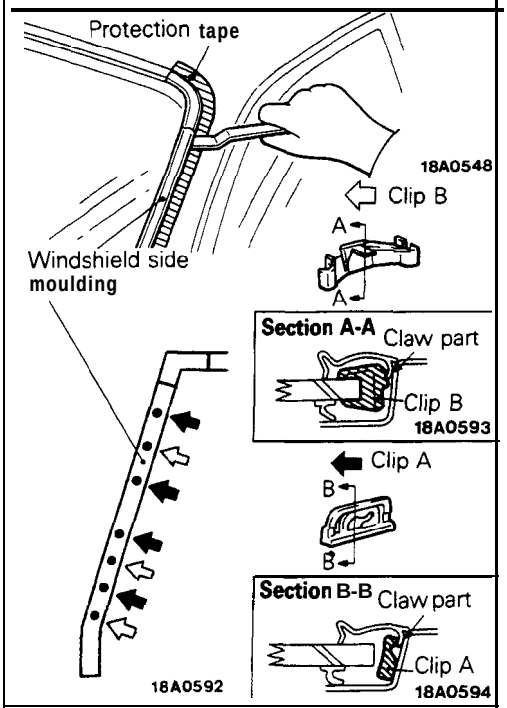


Removal steps

1. Roof rail trim (Refer to GROUP 52–Headlining.)
2. Front pillar trim (Refer to GROUP 52-Trims.)
3. Wiper blade and arm assemblies
4. Front headlining trim (Refer to GROUP 52–Headlining.)
5. Sunvisor
6. Inside rear view mirror
7. Front deck garnish
8. Glass holder plate

◆◆▶◆ 9. Windshield side moulding and corner joint assembly
10. Window moulding clip B
11. Windshield upper moulding
12. Window moulding clip A
● *● + 13. Windshield glass
14. Windshield glass spacer
▶◆ 15. Window dam

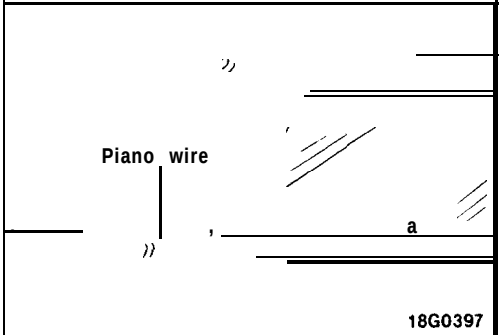
TSB Revision



SERVICE POINTS OF REMOVAL

9. REMOVAL OF WINDSHIELD SIDE MOULDING AND CORNER JOINT ASSEMBLY

(1) Attach protection tape to the body surface at the moulding installation area.
(2) Using the general service tool, remove and take out the claw part of the windshield side moulding clips, and then remove the corner joint.

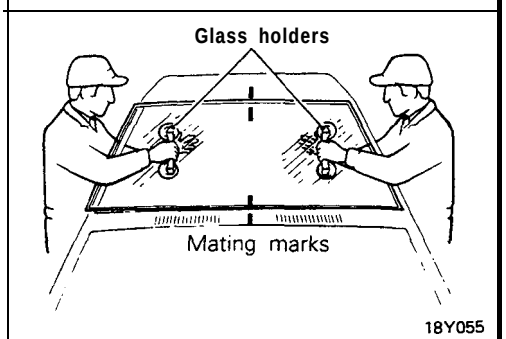


13. REMOVAL OF WINDSHIELD GLASS

Use piano wire to remove the windshield glass as described below.
(1) Using a sharp-point drill, make holes at 2 places at top and bottom in the windshield glass adhesive.
(2) Pass both ends of the piano wire from inside the vehicle through the 2 holes at top and bottom.
(3) Wrap both ends of the piano wire around a piece of wood.
(4) From the outside, pull the piano wire alternately along the windshield glass to cut the adhesive.

Caution
In order to protect the body from damage, apply cloth tape to all body areas around the installed glass before cutting the adhesive.

(5) Make mating marks on the glass and body.
(6) Take out the glass using glass holders.

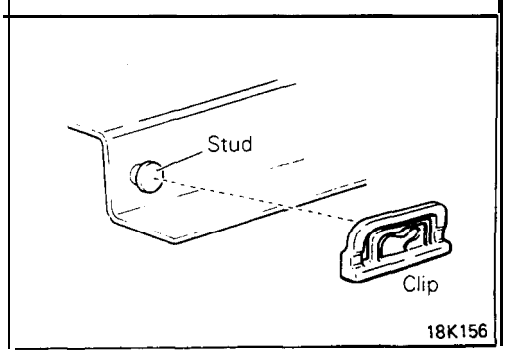


INSPECTION

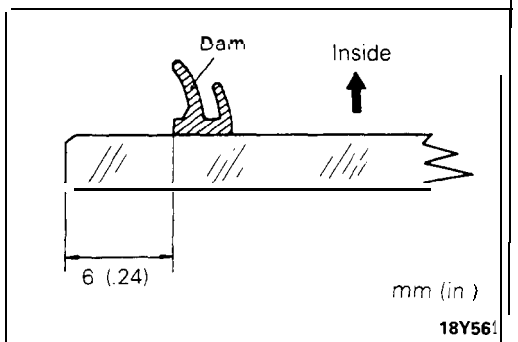
- Check the body flange for deformation.
- Check the window moulding clips and studs for damage.

NOTE
If the T-studs are broken, use a drill to make holes in the T-studs 3 mm (.12 in.) in diameter. fill the holes with adhesive, and then use screws to mount the window moulding clips.

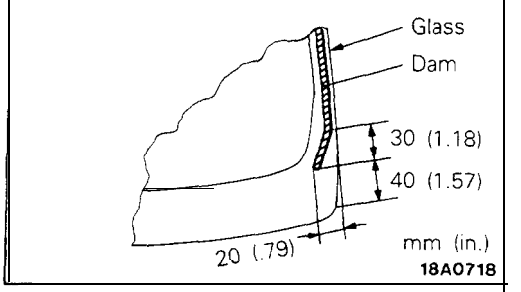
Caution
After installing the clip, apply antirust solvent to the screw head to protect them from rust.



TSB Revision



Window **dam end**
<Vehicles built **from November** 1988>



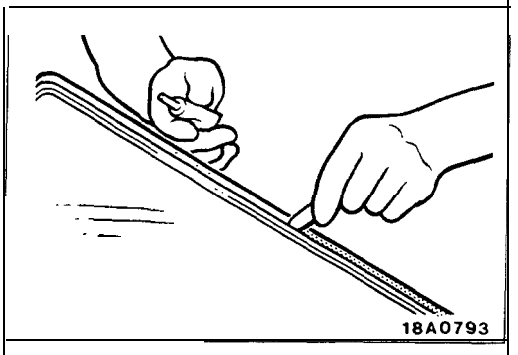
SERVICE POINTS **OF INSTALLATION**

15. INSTALLATION OF WINDOW DAM

(1) Using isopropyl alcohol, remove grease from the glass and body surface to which the adhesive will be applied.
After removing the grease, allow the cleaned parts to dry for more than three minutes.

(2) Remove the back paper from the window dam, and attach the window dam to the glass.

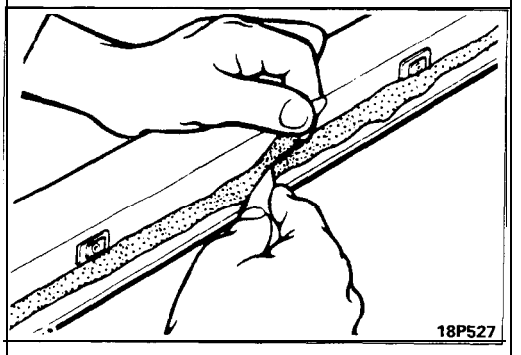
Caution
Do not touch the primer coated surface.



13. **INSTALLATION** OF WINDSHIELD GLASS

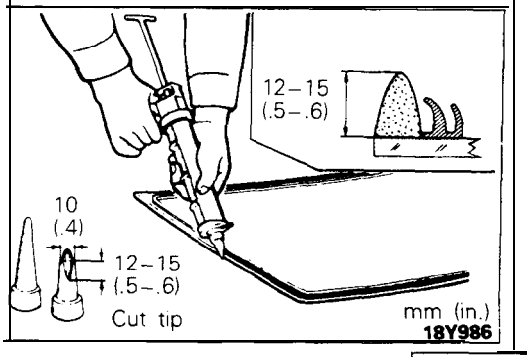
(1) Apply the specified primer to the entire bonding surface of the glass, both to the inside surface and the edge of the glass.
(2) Allow to dry for five minutes.

Specified primer: 3M Super Fast Urethane Primer Part No.8608 or equivalent



(3) Using a sharp knife, remove old adhesive on the body opening pinch-weld flange evenly to thickness of within 2 mm (.08 in.) all around.
(4) Finish the flange surface so that they are smooth.

Caution
Be careful not to remove more adhesive than necessary, and also not to damage the paint work on the body surface with the knife. If the paint work is damaged, repair the damaged area with touch-up paint or Tectyl.



(5) Using an adhesive gun, apply the specified adhesive to the window glass mounting surface.

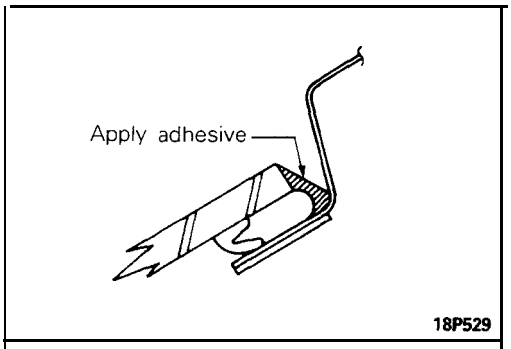
Specified adhesive: 3M Super Fast Urethane Part No. 8609 or equivalent

NOTE
Cut the nozzle tip into a V shape to facilitate adhesive application.

(6) Using a glass holder, place the windshield glass on the body opening.

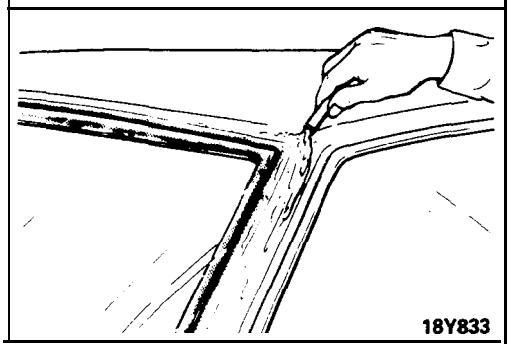
(7) Press the windshield glass gently so that no adhesive appears.

Caution
1. Do not move the windshield glass and mouldings after installing them to the body.
2. Place the windshield glass in the previously marked position.
3. Use care not to close the water groove (in the lower corner of the pinch weld flange) with adhesive.



(8) After bonding the windshield glass, apply specified adhesive all around the bonded area.

Specified adhesive: 3M Super Fast Urethane Part No. 8609 or equivalent



(9) Perform the water-test for the windshield glass. Use cold water spray, being careful not to direct a powerful stream of water on the new adhesive material. Allow water to spill over the edges of the glass. If there are leaks, apply sealant at the leak point(s).

Caution
If it is necessary to move the vehicle, move it slowly.

(10) Using a clean, lint-free cloth liberally dampened with isopropyl alcohol, wipe away dirt from the glass perimeter and the body.

INSTALLATION OF WINDSHIELD WITH NEW ADHESIVE ONLY

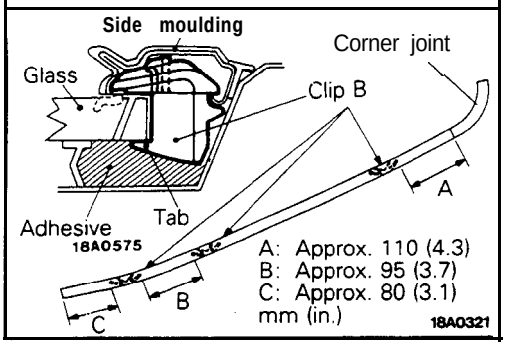
This method is recommended if there is considerable loss of adhesion between the old adhesive material and the body opening, or body opening requires repair. All adhesive material must be removed from the pinch-weld flanges.

1. Using a knife or similar tool, remove the old adhesive material from the pinch-weld flanges.
2. Using tape or some other suitable means, mark the bonded areas of the body and the glass at several positions.
3. Using a clean, lint-free cloth liberally dampened with isopropyl alcohol, prime the pinch-weld flange.
4. If the pinch-weld flange has been repainted, prime it with a paint finish primer.

Caution
If the pinch-weld flanges require painting, use a bake-on type paint.

5. For the rest of the service procedure, refer to Installation of WINDSHIELD on P.42-68.

TSB Revision



9. INSTALLATION OF WINDSHIELD SIDE MOULDING AND CORNER JOINT ASSEMBLY

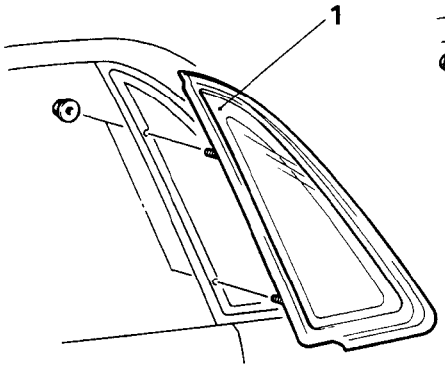
Install the moulding before the glass's adhesive hardens. For the side moulding, install moulding clip B at the position indicated in the illustration, installing securely so that the claw of clip B catches at the lower edge of the glass.

QUARTER WINDOW GLASS

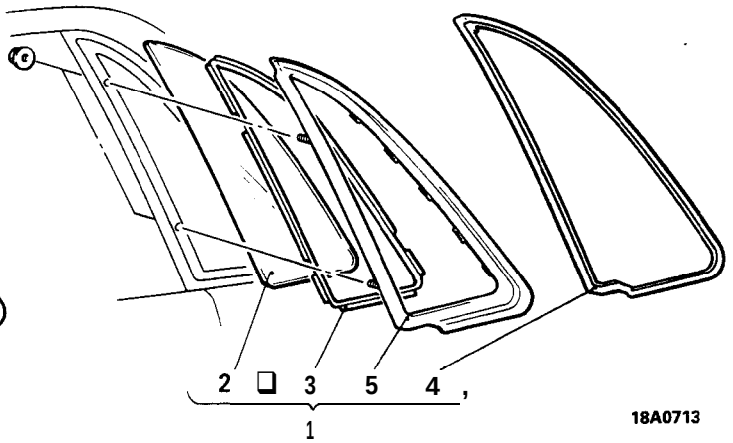
M42LEALa

REMOVAL AND INSTALLATION

<Models with black mouldings>



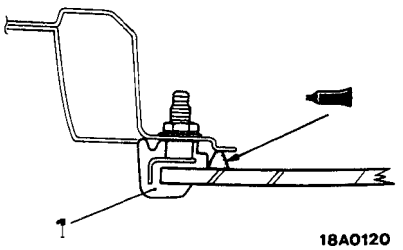
<Models with bright mouldings>



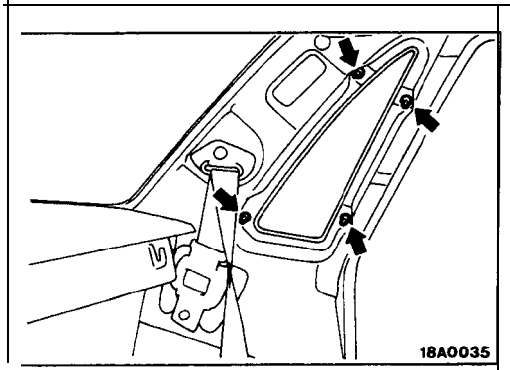
Pre-removal and Post-installation Operation
- Removal and Installation of Rear Pillar Trim (Refer to GROUP 52–Trims.)

Removal steps

◆◆ ● + 1. Quarter window glass moulding and glass assembly
2. Quarter window glass
● + 3. Protector B
4. Protector A
5. Quarter window glass moulding



Adhesive :
3M Super Fast Urethan Part No. 8889 or equivalent

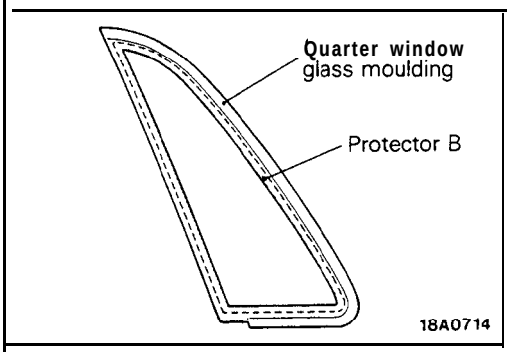


SERVICE POINTS OF REMOVAL

1. REMOVAL OF QUARTER WINDOW GLASS MOULDING AND GLASS ASSEMBLY

(1) Remove the nuts at the positions indicated in the illustration.
(2) While using a hair dryer or similar method to warm the adhesive part, push the quarter window glass forcefully (from the inside of the vehicle outward), and then slowly remove the quarter window glass moulding and glass assembly.

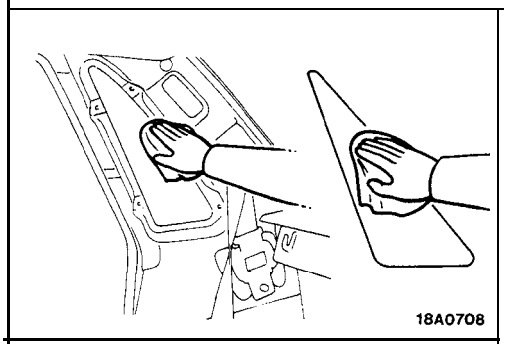
TSB Revision



SERVICE POINTS OF INSTALLATION

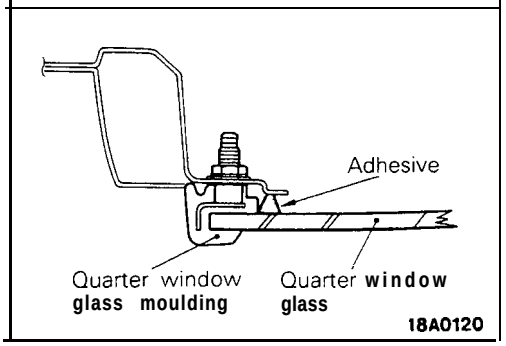
3. INSTALLATION OF PROTECTOR B

Peel off the paper of the both-side tape for protector B, and then attach protector B along the inner side of the quarter window glass moulding.



1. INSTALLATION OF QUARTER WINDOW GLASS MOULDING AND GLASS ASSEMBLY

(1) Remove any adhesive remaining on the body flange part and at the quarter window glass side, and then use isopropyl alcohol to remove any grease or oil at the body side and at the quarter window glass side.



(2) Apply a coating of the specified adhesive all around (at the place shown in the illustration) on the glass side, and then install to the body.

Specified adhesive: 3M Super Fast Urethan Part No. 8609 or equivalent

(3) Tighten the installation nut for the quarter window glass moulding and glass assembly.

(4) Test for water leakage.

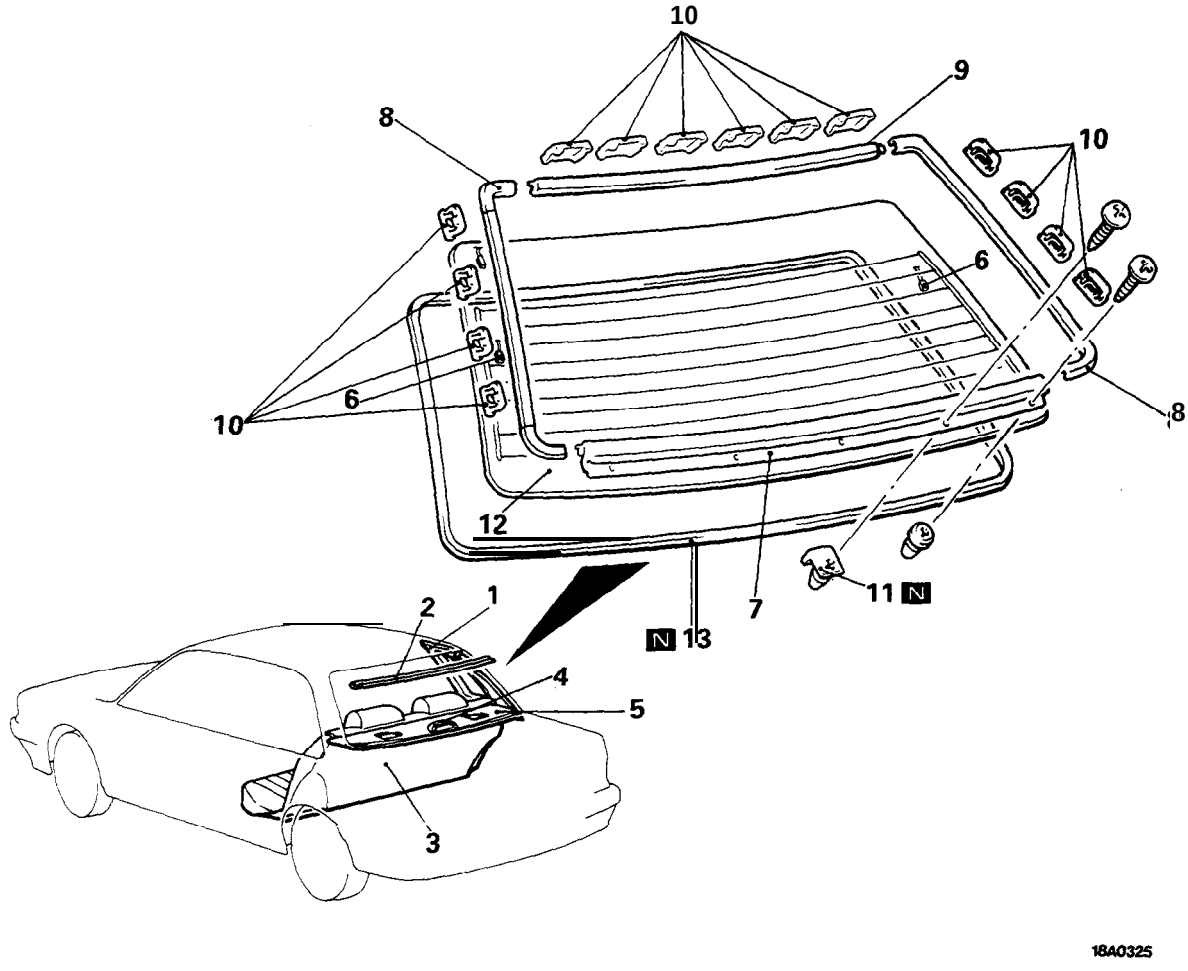
(5) If there is leakage, fill the leaking area with window weatherstrip sealant.

TSB Revision

REAR WINDOW GLASS

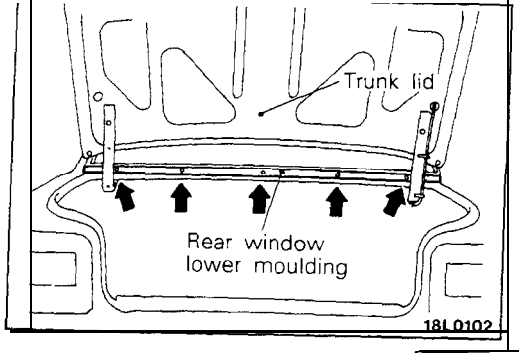
M42LCAJ

REMOVAL AND INSTALLATION



Removal steps

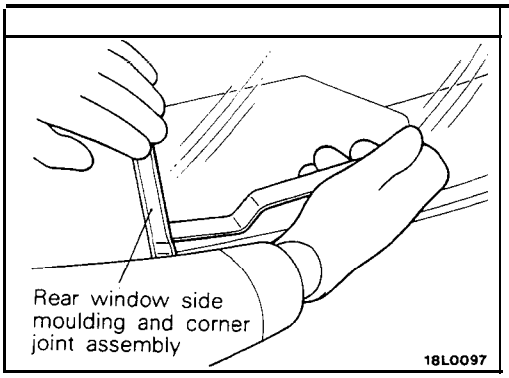
1. Rear pillar trim (Refer to **GROUP** 52–Trims.)
2. Rear headlining trim (Refer to GROUP 52–Headlining.)
3. **Rear seat (Refer to GROUP** 52–Rear Seat.)
4. High-'mounted stop light
5. Rear shelf trim (Refer to GROUP 52–Trims.)
6. Rear window defogger harness connector
7. Rear window lower moulding
8. Rear window side moulding and corner joint assembly
9. Rear window upper moulding
10. Window moulding clip
11. Window glass spacer
- ● **+ 12.** Rear window glass
13. Window dam



7. REMOVAL OF REAR WINDOW LOWER MOULDING

(1) Open the trunk lid and remove the rear window lower moulding installation screws.
(2) Separate the rear window lower moulding from the rear window side moulding while forming it in a curve.

TSB Revision



8. REMOVAL OF REAR WINDOW SIDE MOULDING AND CORNER JOINT ASSEMBLY/9. REAR WINDOW UPPER MOULDING

Using the general service tool, remove the rear window side moulding, the corner joint assembly, and the rear window upper moulding.

12. REMOVAL OF REAR WINDOW GLASS

Remove in the same way as the windshield glass. Refer to P.42-66.

SERVICE POINTS OF INSTALLATION

13. INSTALLATION OF WINDOW DAM

Install in the same way as the windshield glass. Refer to P.42-66.

12. INSTALLATION OF REAR WINDOW GLASS

Install in the same way as the windshield glass. Refer to P.42-66.

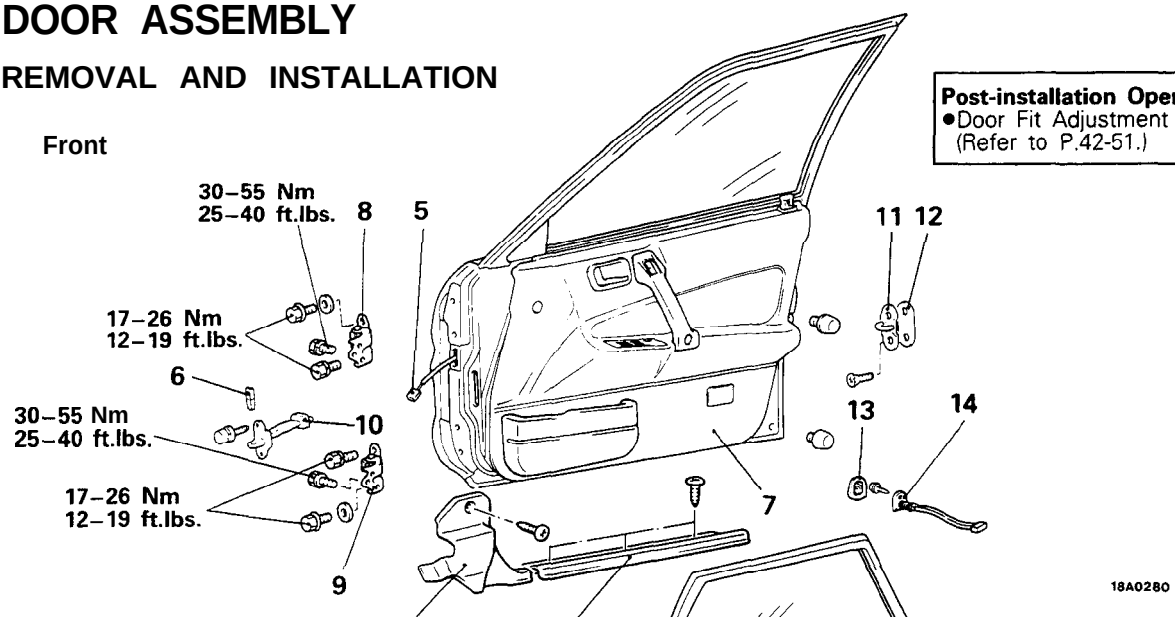
DOOR ASSEMBLY

M42MABB

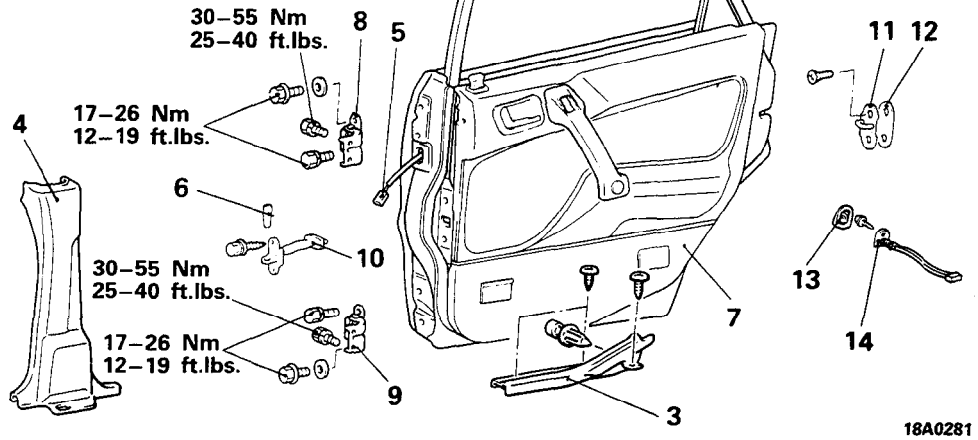
REMOVAL AND INSTALLATION

Post-installation Operation
- Door Fit Adjustment (Refer to P.42-51.)

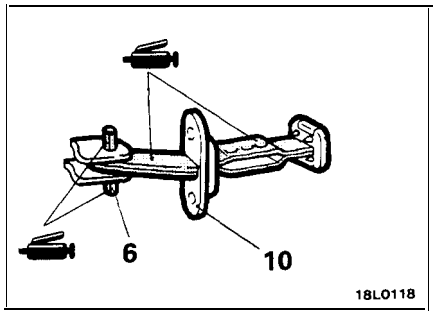
Front



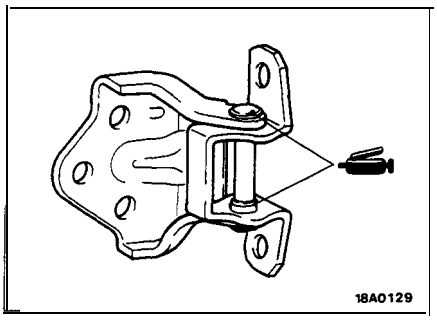
18A0280



18A0281



18L0118



18A0129

Door assembly removal steps

1. Front scuff plate <front door>
2. Cowl side trim <front door>
3. Rear scuff plate <rear door>
4. Center pillar lower trim <rear door>

(Refer to GROUP 52–Trims.)

5. Connection for door wiring harness connector
6. Spring pin
7. Door assembly
8. Upper hinge
9. Lower hinge
10. Door check strap

Striker removal steps

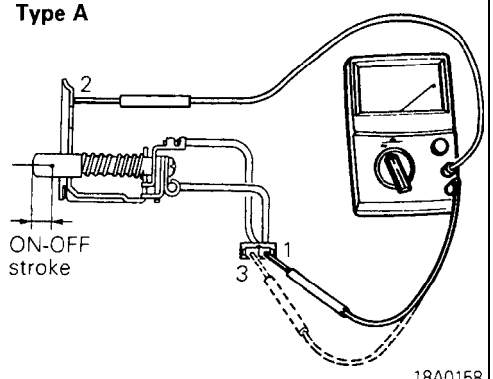
11. Striker
12. Striker shim

Door switch removal steps

13. Door switch cap
14. Door switch

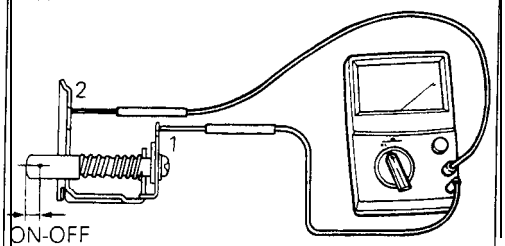
TSB Revision

Type A



18A0158

Type B



18A0159

INSPECTION

DOOR SWITCH

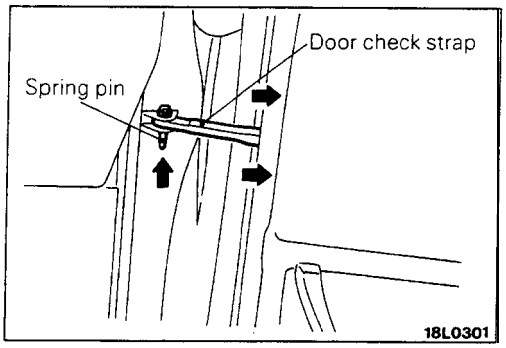
Operate the switch, and check the continuity between the terminals.

TYPE A

Switch position \ Terminal		1	2	3
Switch	Open (ON)	0	0	0
	Depressed (OFF)			

TYPE B

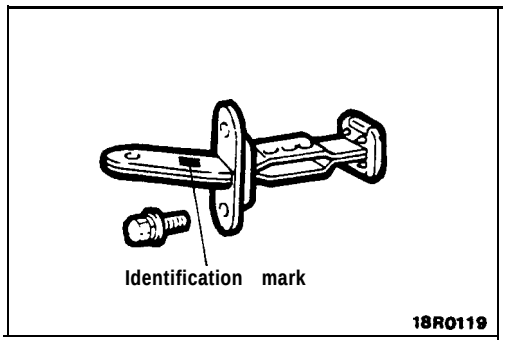
Switch position \ Terminal		1	2
Switch	Open (ON)	0	0
	Depressed (OFF)		



18L0301

DOOR CHECK STRAP REPLACEMENT

1. Press upward and remove spring pin.
2. Remove door check strap bolt. Remove door check strap.



18R0119

3. With the identification mark upward, install door check strap.

Applicable location		Identification mark
Front door	R.H.	KR
	L.H.	KL
Rear door	R.H.	MR
	L.H.	ML

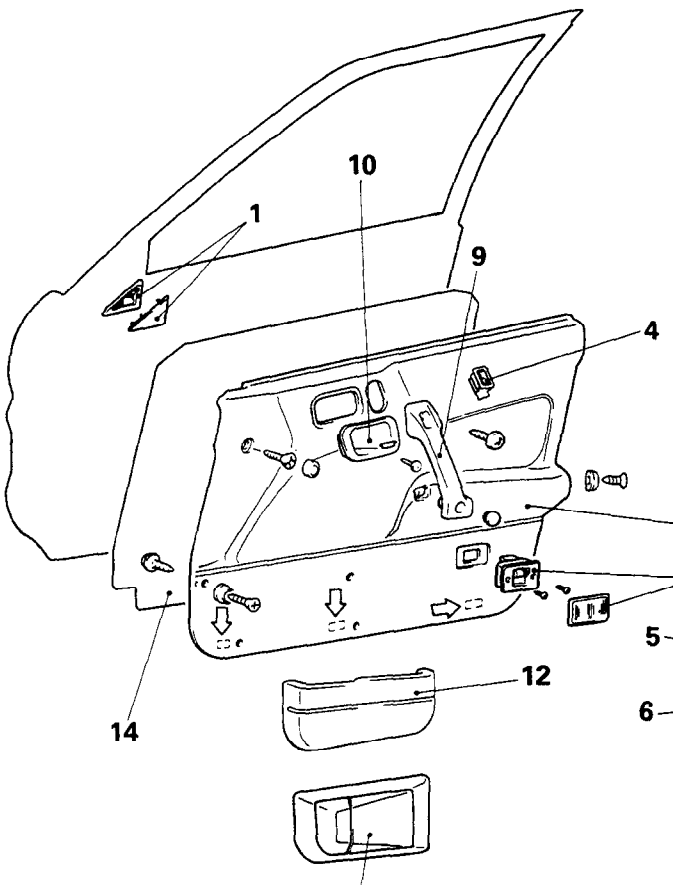
TSB Revision

FRONT DOOR TRIM AND WATERPROOF FILM

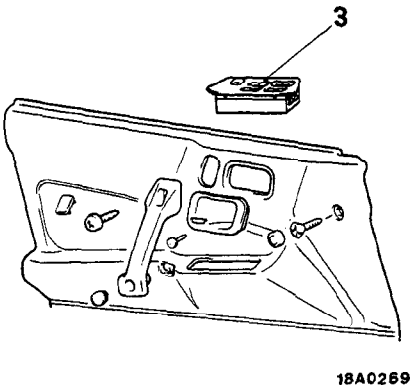
M42MBBB

REMOVAL AND INSTALLATION

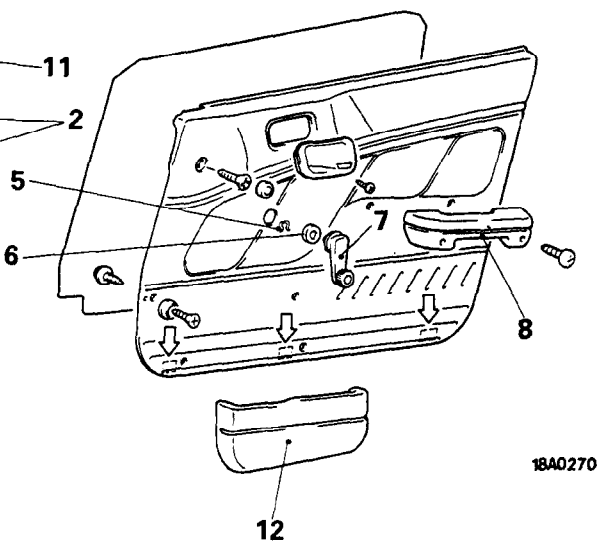
<Vehicles with power window>

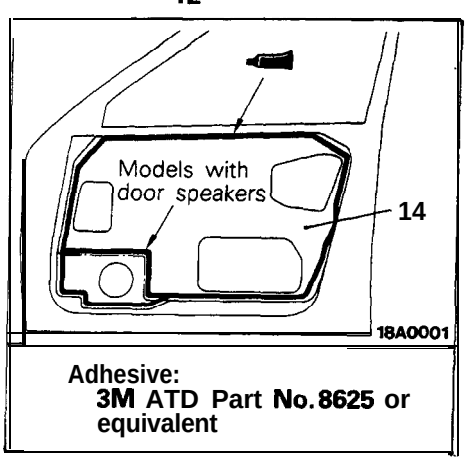


<Driver's side trim>



<Vehicles without power window>





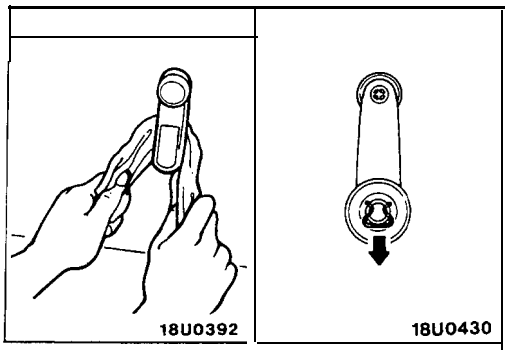
Adhesive:
3M ATD Part No.8625 or equivalent

Removal steps

1. Delta cover
2. Door light
3. Power window main switch
4. Power window sub switch
5. Clip
6. Escutcheon
7. Regulator handle
8. Armrest
9. Door grip
10. Inside handle cover
11. Door trim
12. Door pocket
13. Door speaker garnish (vehicles with door speaker)
14. Waterproof film

NOTE
⇦: Hook positions

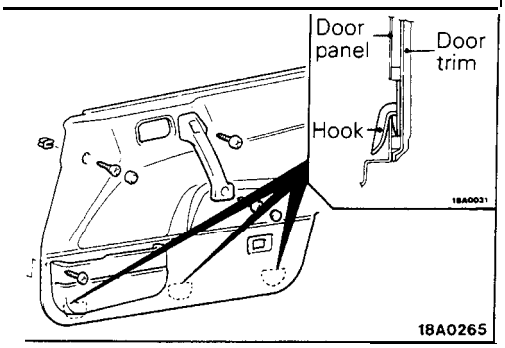
TSB Revision



SERVICE POINTS OF REMOVAL

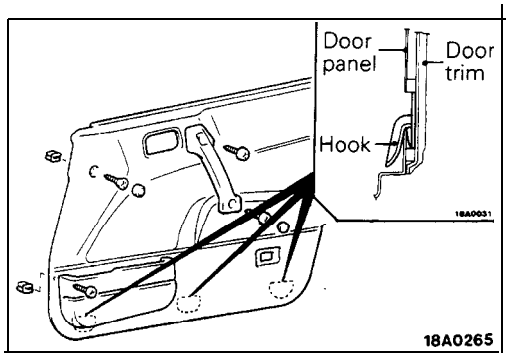
5. REMOVAL OF CLIP

Remove clip using a piece of cloth as illustrated.



11. REMOVAL OF DOOR TRIM

(1) Remove the door trim installation screw.
(2) To unhook the hooked part of the door trim, press the trim toward the door panel and while doing so pull upward to remove.



SERVICE POINTS OF INSTALLATION

11. INSTALLATION OF DOOR TRIM

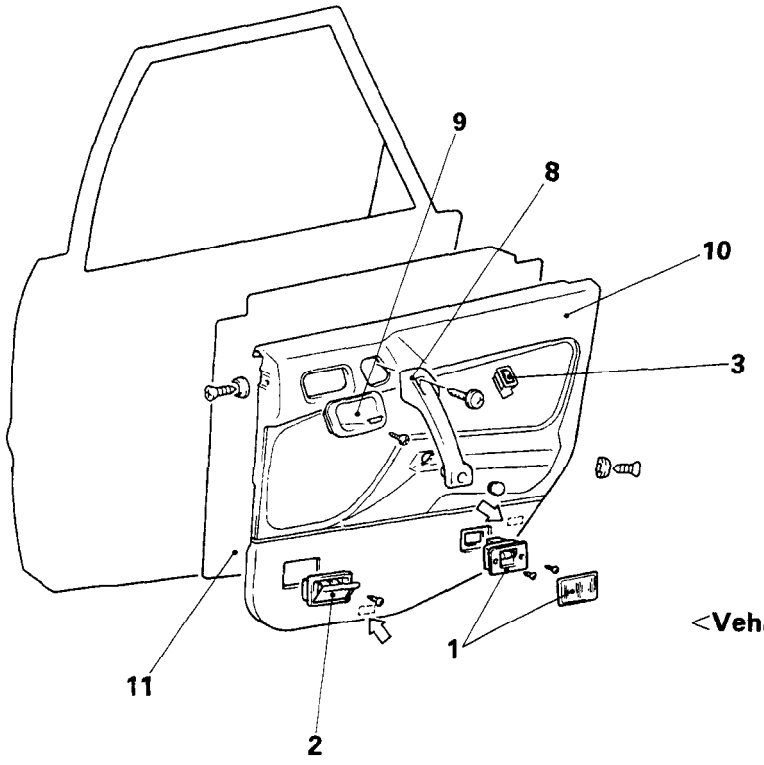
(1) While fitting the door trim upper edge (inner weather-strip clip) to the door panel, fit the hook part of the trim into the hole in the panel, and then move it downward to install.
(2) Install the door trim installation screw.

REAR DOOR TRIM AND WATERPROOF FILM

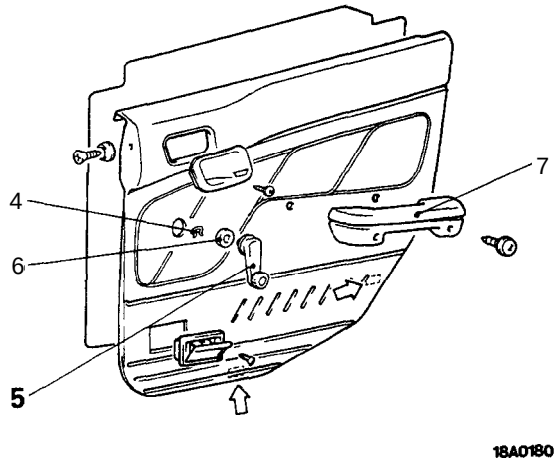
M42MBAC

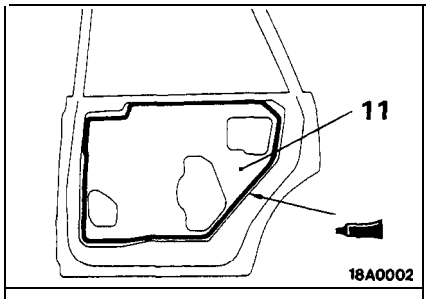
REMOVAL AND INSTALLATION

<Vehicles with power window>



<Vehicles without power window>





Adhesive:
3M ATD Part No.8625 or equivalent

Removal steps

1. Door light
2. Ashtray
3. Power window subswitch
4. Clip
5. Regulator handle
6. Escutcheon
7. Armrest
8. Door grip
9. Inside handle cover
10. Door trim
11. Waterproof film

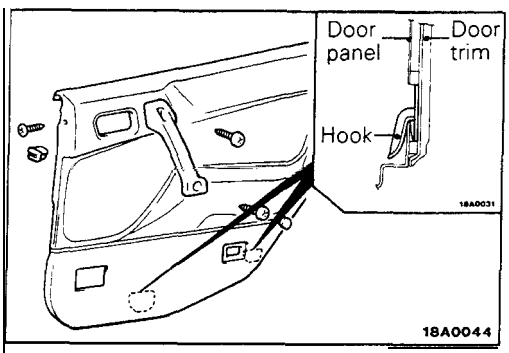
NOTE
⇦: Hook positions

TSB Revision

SERVICE POINTS OF REMOVAL

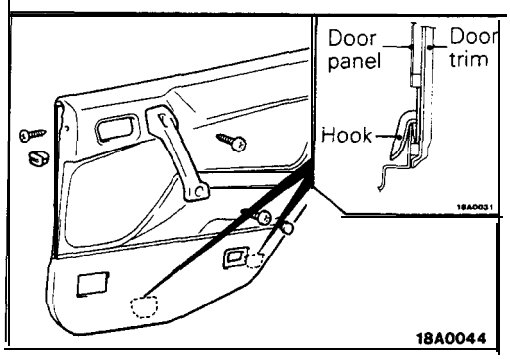
4. REMOVAL OF CLIP

Remove by following the same procedures as for the front door. (Refer to P.42-77.)



10. REMOVAL OF DOOR TRIM

(1) Remove the door trim installation screw.
(2) To unhook the hooked part of the door trim, press the trim toward the door panel and while doing so pull upward to remove.



SERVICE POINTS OF INSTALLATION

10. INSTALLATION OF DOOR TRIM

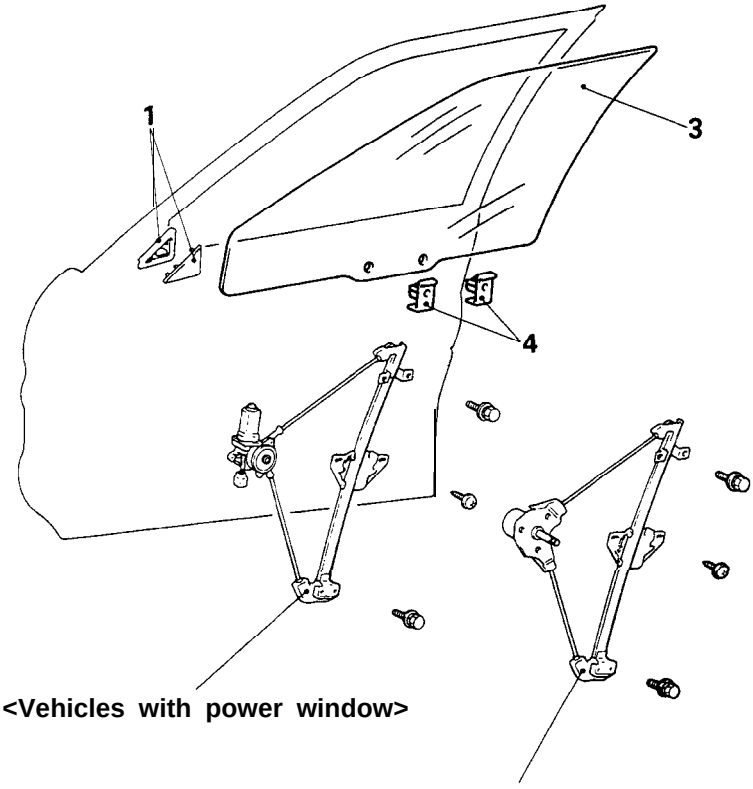
(1) While fitting the door trim upper edge (inner weather-strip clip) to the door panel, fit the hook part of the trim into the hole in the panel, and then move it downward to install.
(2) Install the door trim installation screw.

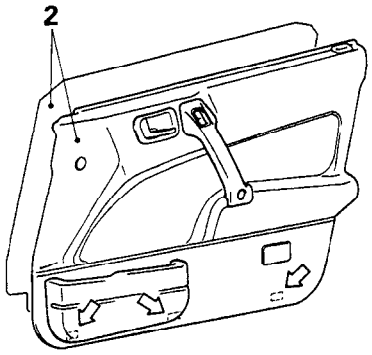
FRONT DOOR GLASS AND REGULATOR

M42MCAQa

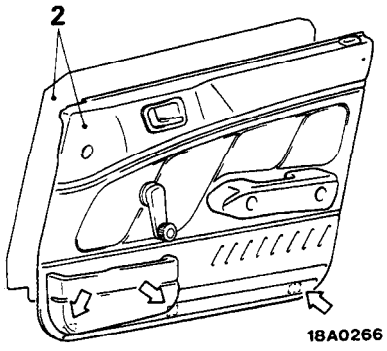
REMOVAL AND INSTALLATION

<Vehicles with power window>



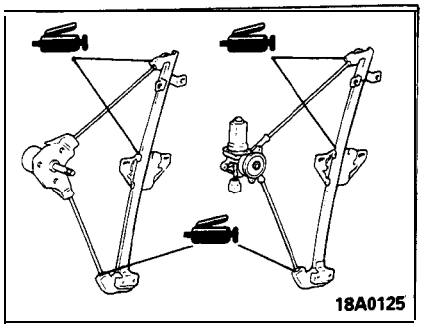


<Vehicles without power window>

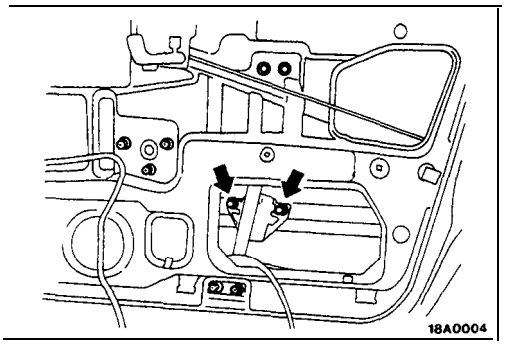


Removal steps

1. Delta cover
2. Door trim and waterproof film (Refer to P.42-76.)
   Door window glass adjustment
3. Door window glass
4. Door glass holder
5. Front window regulator



NOTE
⇦: Hook positions

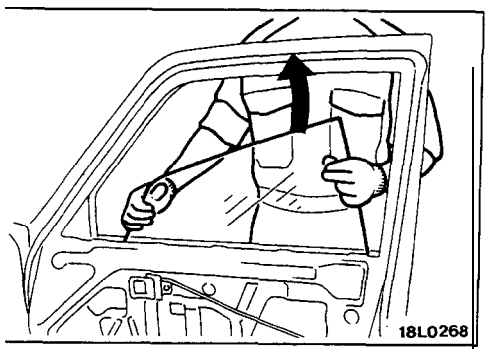


SERVICE POINTS OF REMOVAL

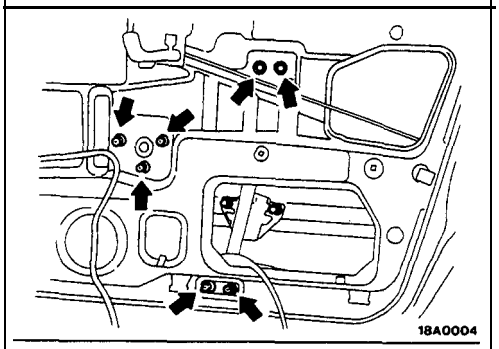
3. REMOVAL OF DOOR WINDOW GLASS

(1) Lower the door glass to the access hole position.
(2) Remove the glass installation screws from the front window regulator assembly.

NOTE
When removing the glass installation screws, support the glass to avoid dropping it.

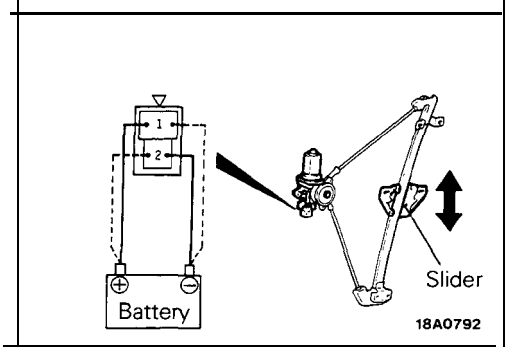


(3) Remove the front door window glass by pulling it upward.



5. REMOVAL OF FRONT WINDOW REGULATOR ASSEMBLY

Remove the regulator installation bolt, and then remove the regulator from the access hole in the door panel.



INSPECTION

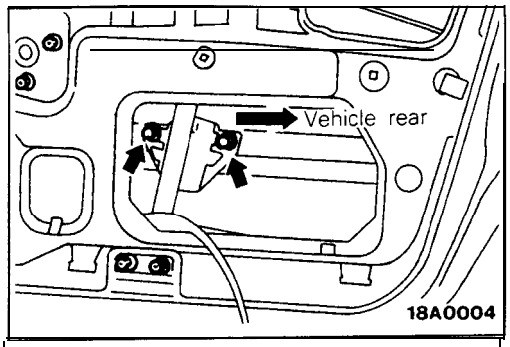
POWER WINDOW MOTOR

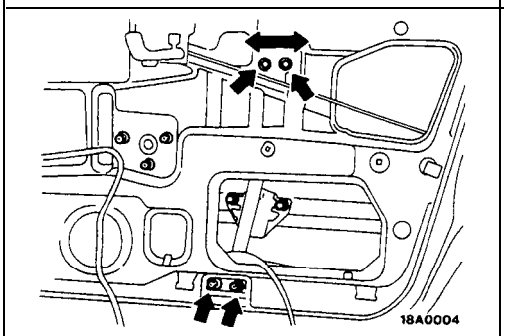
(1) Connect the battery directly to the motor terminals and check that the slider moves smoothly.
(2) Also, when the polarity of the battery is changed, check that the slider moves in the opposite direction.

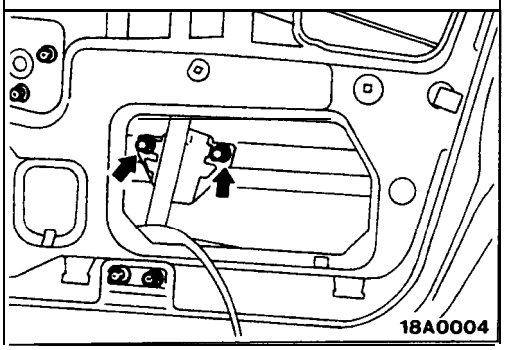
CIRCUIT BREAKER (INCORPORATED IN THE POWER WINDOW MOTOR)

(1) Press the UP switch to fully close the window glass, and continue to press the switch for 10 seconds.
(2) At the moment that the UP switch is released, press the DOWN switch. The circuit breaker can be considered good if at this time the door window glass begins to open within 60 seconds.

TSB Revision







SERVICE POINTS OF **INSTALLATION**

3. INSTALLATION OF DOOR WINDOW GLASS

To install the door window glass to the front window regulator assembly, push the door window glass toward the rear of the vehicle and then tighten.

- **DOOR WINDOW GLASS ADJUSTMENT**

Check to be sure that the door window glass correctly contacts the door glass runchannel when the door window glass is fully raised and lowered; if a problem is found, adjust by following the procedures described below.

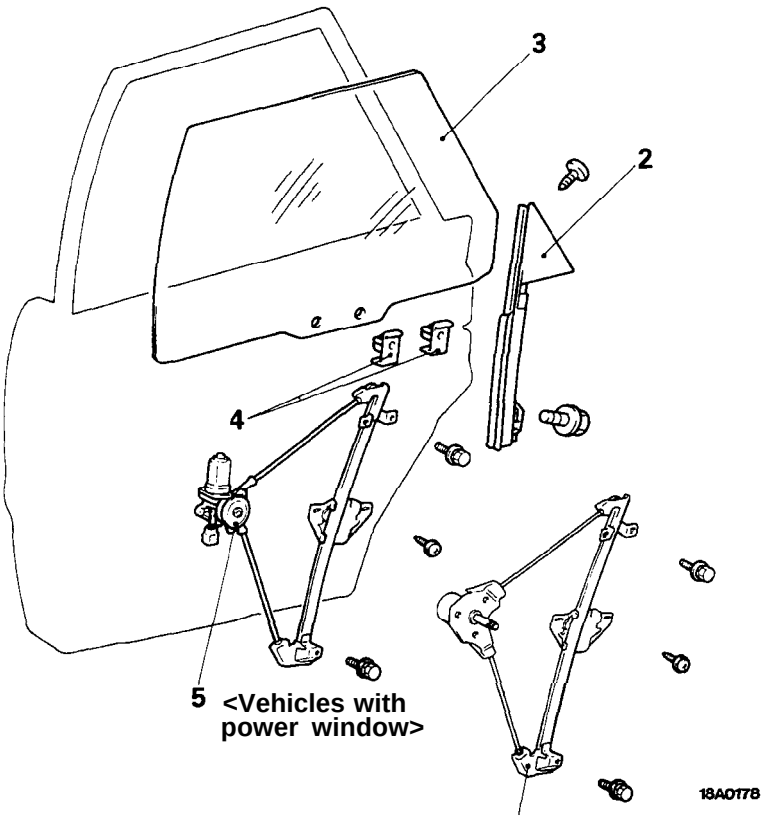
(1) Loosen the installation bolt of the front window regulator assembly.
(2) Move the upper installation part of the front window regulator assembly forward and backward to adjust the tilt angle of the glass.
(3) Lower the door window glass to the position of the access hole.
(4) Loosen the door glass installation screw, and adjust the forward/backward position of the glass.

TSB Revision

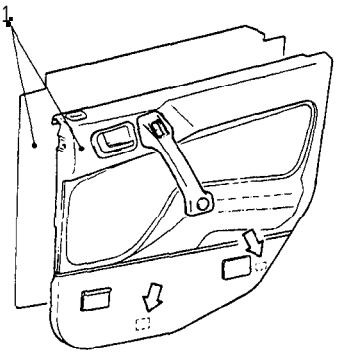
REAR DOOR GLASS AND REGULATOR

M42MCBGa

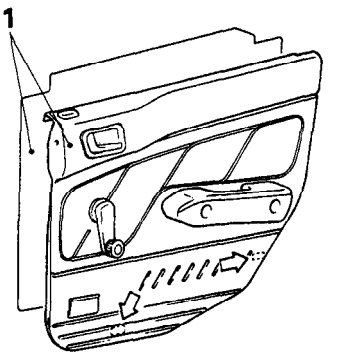
REMOVAL AND INSTALLATION

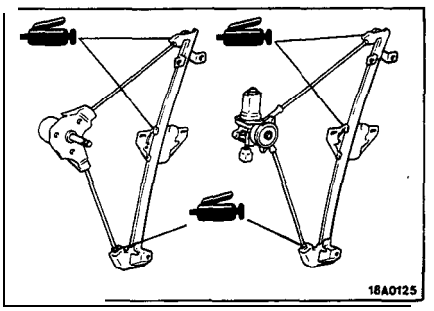


<Vehicles with power window>



<Vehicles without power window>

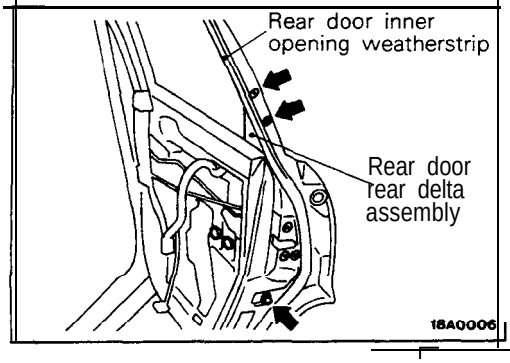




Removal steps

1. Door trim and waterproof film (Refer to P.42-78.)
- Door window glass adjustment
2. Rear door rear delta assembly
- c 3. Door window glass
4. Door glass holder
5. Rear window regulator assembly

NOTE
⇦ : Hook positions

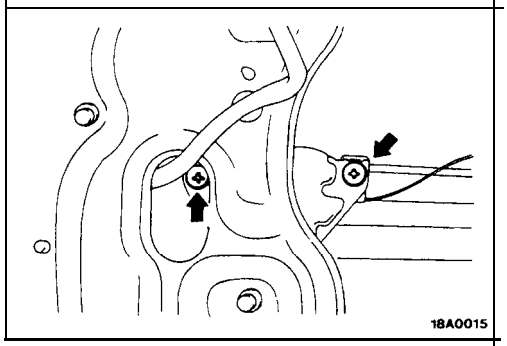


SERVICE POINTS OF REMOVAL

2. REMOVAL OF REAR DOOR REAR DELTA ASSEMBLY

(1) Remove the rear door inner opening weatherstrip (only at the rear door lower sash part).
(2) Remove the rear door lower sash installation screw; then remove the sash from the rear door panel.

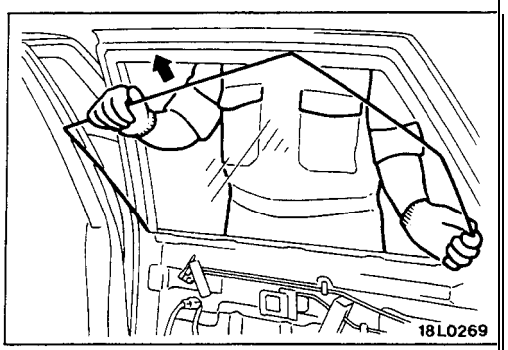
TSB Revision



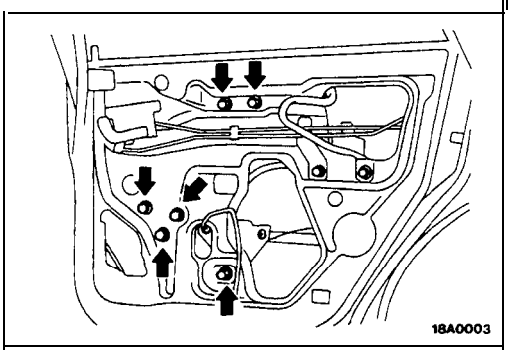
3. REMOVAL OF DOOR WINDOW GLASS

(1) Lower the door glass to the access hole position.
(2) Remove the glass installation screws from the rear window regulator assembly.

NOTE
When removing the glass installation screws, support the glass to avoid dropping it.

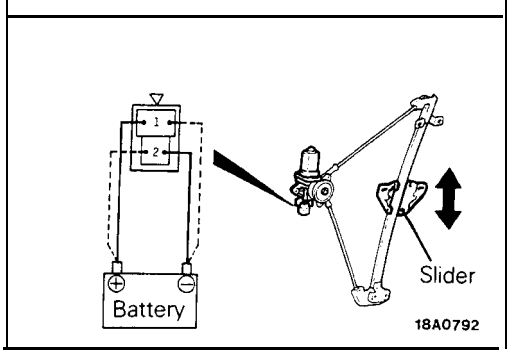


(3) Remove the rear door window glass by pulling it upward.



5. REMOVAL OF REAR WINDOW REGULATOR ASSEMBLY

Remove the regulator installation bolt, and then remove the regulator from the access hole in the door panel.



INSPECTION

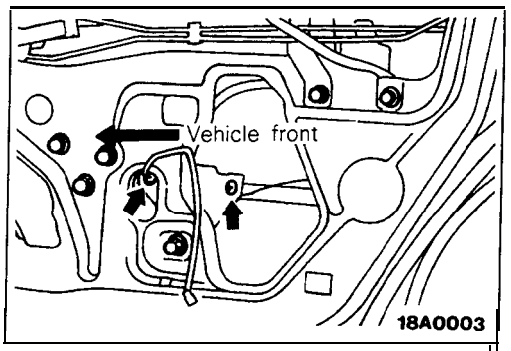
POWER WINDOW MOTOR

(1) Connect the battery directly to the motor terminals and check that the slider moves smoothly.
(2) Also, when the polarity of the batten/ is changed, check that the slider moves in the opposite direction.

CIRCUIT BREAKER (INCORPORATED IN THE POWER WINDOW MOTOR)

(1) Press the UP switch to fully close the window glass, and continue to press the switch for 10 seconds.
(2) At the moment that the UP switch is released, press the DOWN switch. The circuit breaker can be considered good if at this time the door window glass begins to open within 60 seconds.

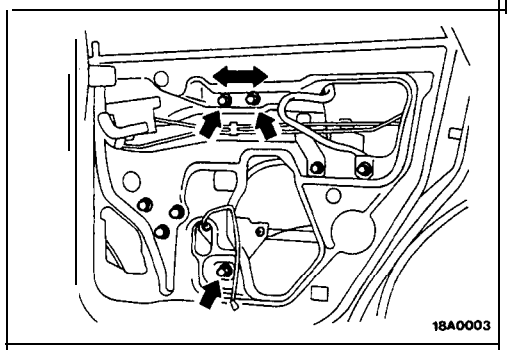
TSB Revision



SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF DOOR WINDOW GLASS

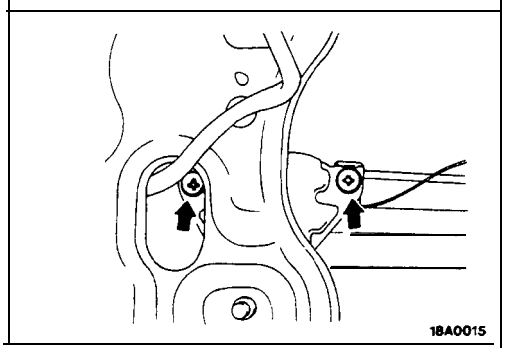
To install the door window glass to the rear window regulator assembly, push the door window glass toward the front of the vehicle and then tighten.



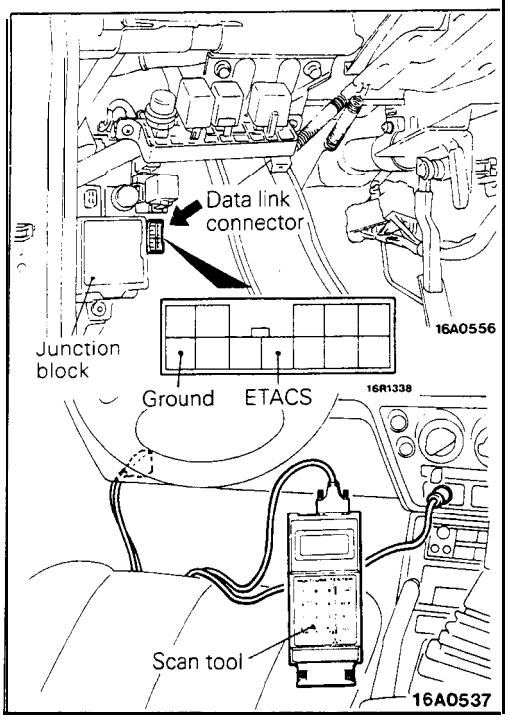
. DOOR WINDOW GLASS ADJUSTMENT

Check to be sure that the door window glass correctly contacts the door glass runchannel when the door window glass is fully raised and lowered; if a problem is found, adjust by following the procedures described below.

(1) Loosen the installation bolt of the rear window regulator assembly.
(2) Move the upper installation part of the rear window regulator assembly forward and backward to adjust the tilt angle of the glass.
(3) Lower the door window glass to the position of the access hole.
(4) Loosen the door glass installation screw, and adjust the forward/backward position of the glass.



TSB Revision



POWER WINDOW

M42MHAG

POWER WINDOW TIMER TROUBLESHOOTING GUIDE

INPUT CHECK (ETACS-EQUIPPED MODELS ONLY)

Using the scan tool, check whether or not the input signals from each switch are being input to the electronic control unit.

(1) Connect the scan tool to the data link connector (located at the right side of the junction block).
(2) With the ignition switch at the "ACC" position, set the scan tool to the special test setting.
(3) Check to be sure that the buzzer of the scan tool sounds one time when each switch noted below is operated.
If the buzzer sounds, the input signals are being input to the electronic control unit, so that switch can be considered to be functioning normally; if the buzzer does not sound, check for a malfunction of that switch or for damaged or disconnected wiring.
- Ignition switch
- Front door switch

TROUBLESHOOTING QUICK-REFERENCE TABLE (ETACS-RELATED PROBLEMS ONLY)

For information concerning the locations of electrical components, refer to P.42-93.

Problem	Probable cause	Check method	Remedy
The power windows do not operate when the ignition switch is at the "ON" position.	Damaged or disconnected wiring of the ignition switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 2 procedures (P.42-89).	Repair the wiring harness.
	Damaged or disconnected wiring of the power-window relay activation circuit	Check by following individual part and the circuit check No. 3 procedures (P.42-90).	Repair the wiring harness, or replace the power-window relay.
	Malfunction of the electronic control unit	–	Replace the electronic control unit.

TSB Revision

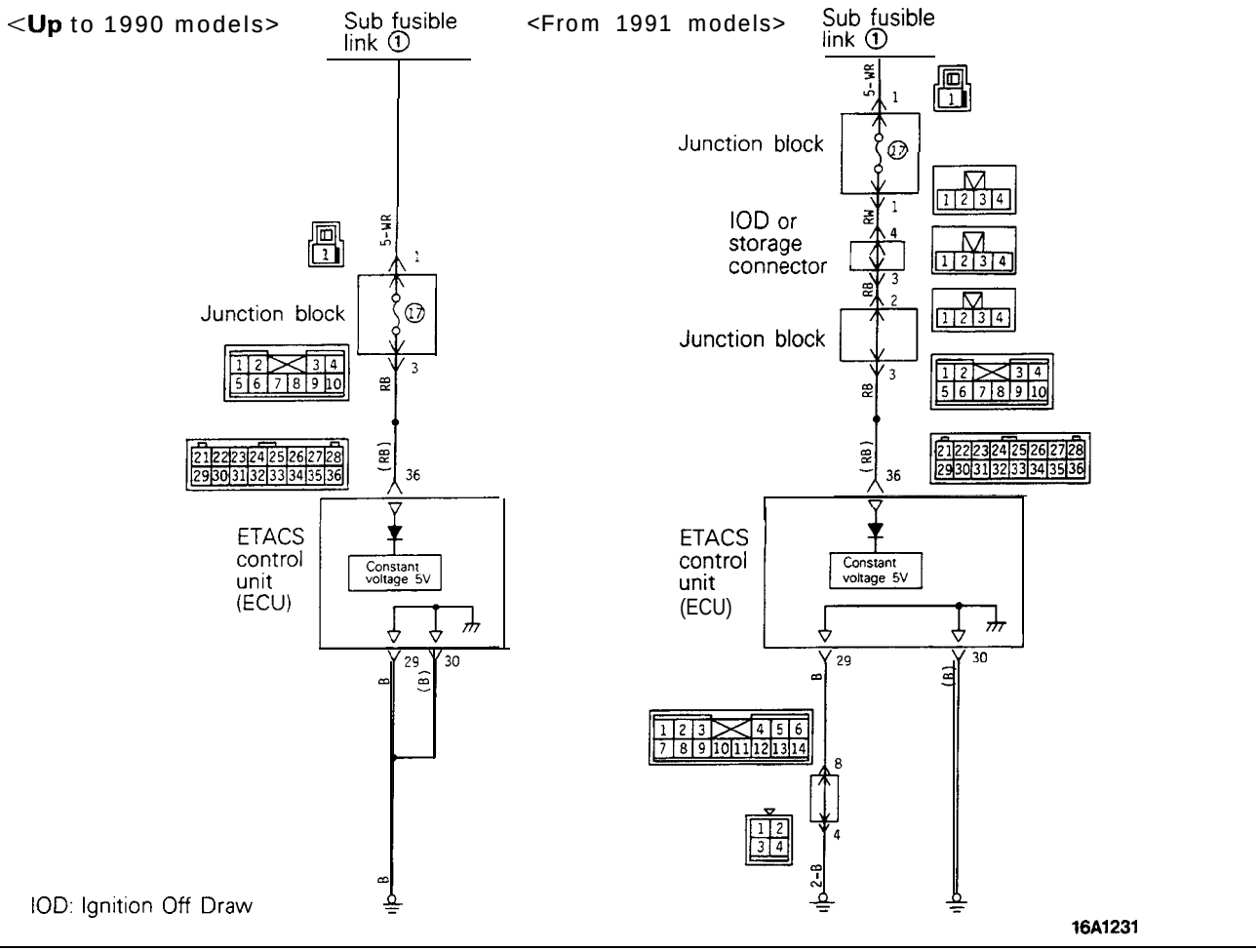
Problem	Probable cause	Check method	Remedy
The power windows can be opened and closed immediately after the ignition switch is switched OFF, but the power window operation does not stop if a front door is opened within 30 seconds.	Damaged or disconnected wiring of the front door switch input circuit	If a malfunction is indicated as a result of checking the input signals (P.42-86). check by following individual part and the circuit check No. 4 procedures (P.42-92).	Repair the wiring harness, or replace the front door switch.
	Malfunction of the front door switch		
	Malfunction of the electronic control unit	–	Replace the electronic control unit.
The opening and closing operations of the power windows are possible after the timer operation time has elapsed when the ignition switch is set to the "OFF" position.	Short-circuit of the power-window relay activation circuit	Check by following individual part and circuit check No. 3 procedures (P.42-92).	Repair the wiring harness, or replace the power-window relay.
	Malfunction of the power-window relay contacts		
	Malfunction of the electronic control unit ,	–	Replace the electronic control unit.

NOTE
"ECU" (electronic control unit) indicates the ETACS control unit.

TSB Revision

CHECKING INDIVIDUAL PART AND CIRCUIT

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS



Description of operation

The battery supplies a stabilized 5V power supply to the electronic control unit, via the constant-voltage circuit and terminal (36) directly connected to the battery.

If there is an abnormal condition of the power-supply circuit, other ETACS functions also will not operate.

Checking the ground circuit (Disconnect the connector and check the wiring harness side.)

ECU terminal No.	Signal	Condition	Terminal voltage
36	Electronic control unit power supply	At all times	B+

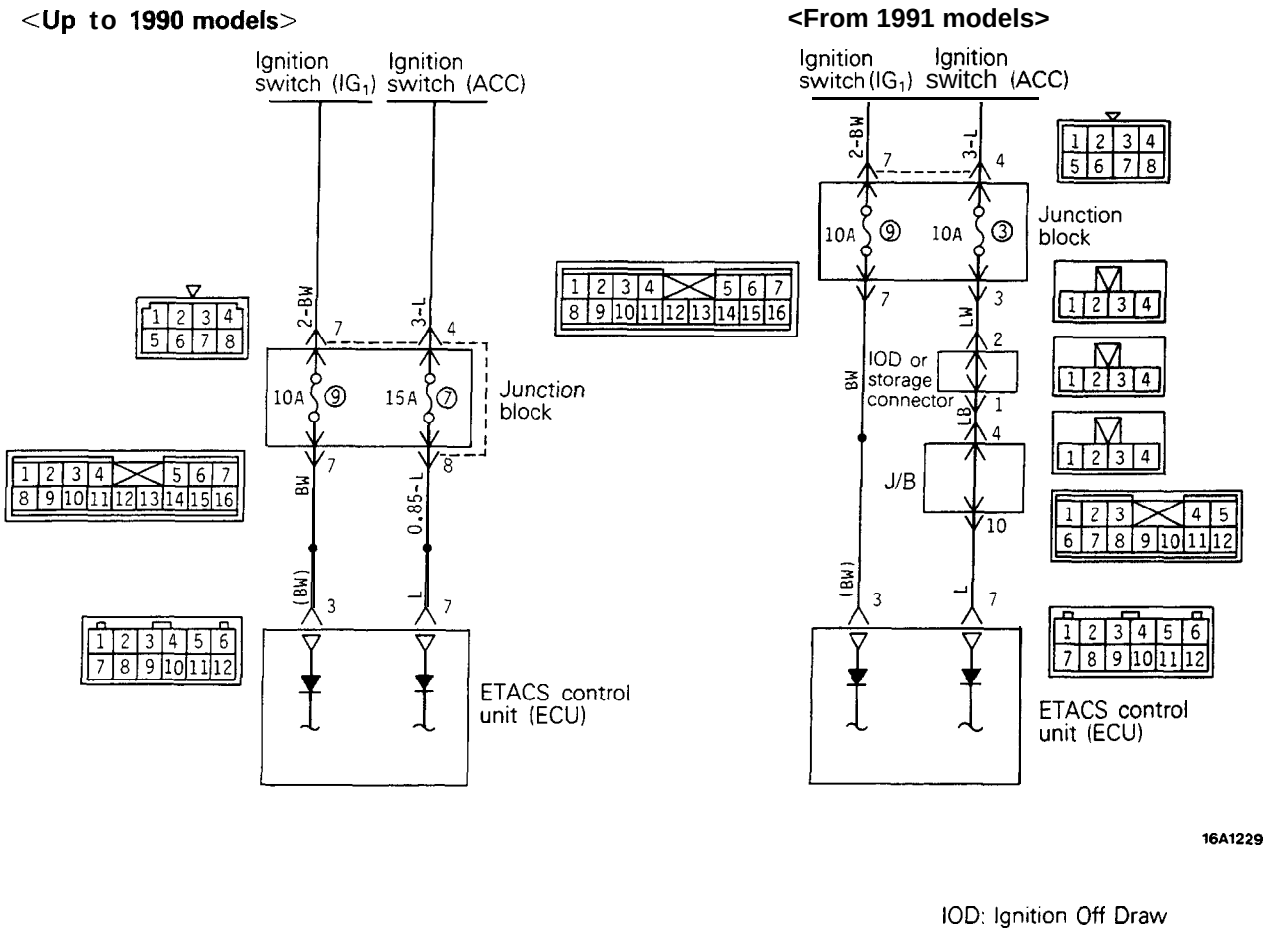
B+: Battery Positive Voltage

Checking the ground circuit (Disconnect the connector and check the wiring harness side.)

Terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions	Standard
29	Electronic control unit ground	Resistance	29-ground	At all times	Continuity
30	Electronic control unit ground	Resistance	30-ground	At all times	Continuity

TSB Revision

2. IGNITION SWITCH INPUT CIRCUIT



IOD: Ignition Off Draw

Description of operation

A condition for operation of this system is the sending of HIGH-level signals to the electronic control unit when the ignition switch is switched to the "ACC" position or the "ON" position.

Electronic control unit terminal voltage (Disconnect the connector of the electronic control unit and check the wiring harness side.)

ECU terminal No.	Signal	Condition		Standard
3	Ignition switch: "ON"	Ignition switch	OFF	0V
			ON	B+

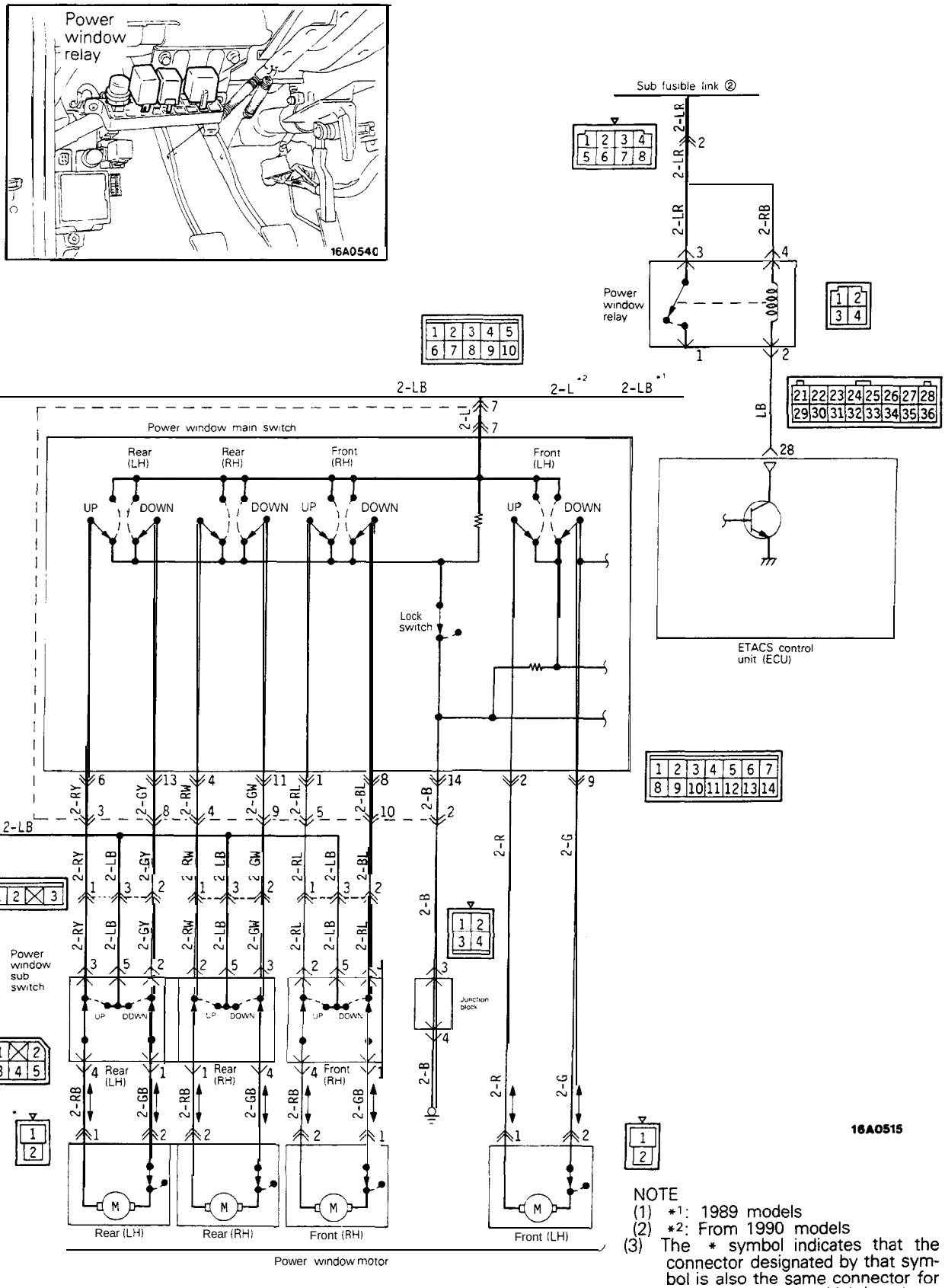
B+: Battery Positive Voltage

Checking the individual part

Ignition switch: Refer to GROUP 54–Ignition Switch.

TSB Revision

3. POWER WINDOW RELAY ACTIVATION CIRCUIT



NOTE
(1) *1: 1989 models
(2) *2: From 1990 models
(3) The * symbol indicates that the connector designated by that symbol is also the same connector for the front (right), rear (right), and rear (left).

TSB Revision

Description of operation

When the ignition switch is switched to the “ON” position, and also for a period of 30 seconds after the ignition switch is switched to the “OFF” position, the transistor of the electronic control unit is switched ON, and battery voltage is supplied from the battery (through sub-fusible link No. 2) to the power-window relay.
In addition, voltage is supplied (through sub-fusible link No. 2) to power-window switch and motor as a result of the switch-ON of the power-window relay.

NOTE
The power supply to the power window relay is stopped if a front door is opened within 30 seconds after the ignition switch is switched to OFF.

Electronic control unit terminal voltage (Disconnect the connector of the electronic control unit and check the wiring harness side.)

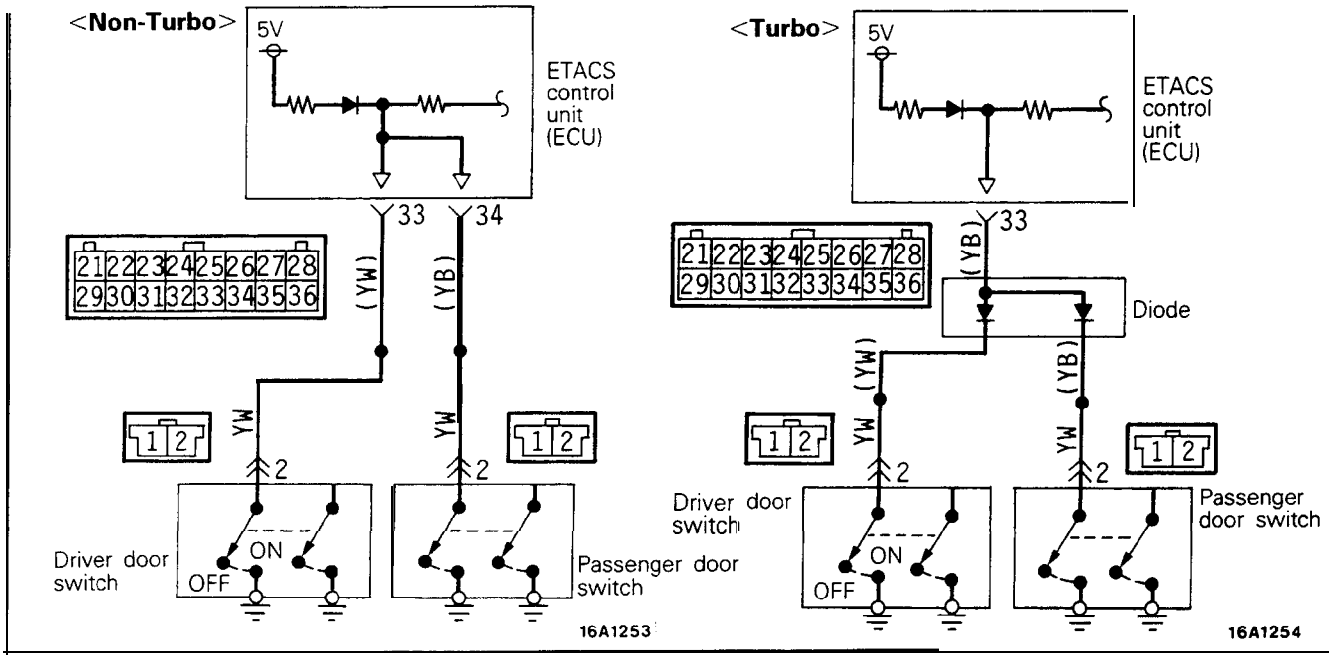
ECU terminal No.	Signal	Condition	Terminal voltage
28	Power-window relay signal	At all times	B+

B+: Battery Positive Voltage

Checking the individual part

Power window relay: Refer to P.42-95.

4. FRONT DOOR SWITCH INPUT CIRCUIT



Description of operation

When the front door is closed (the door switch is switched OFF), HIGH-level signals are sent to the electronic control unit; when the front door is opened (the door switch is switched ON), LOW-level signals are sent to the electronic control unit.

Electronic control unit terminal voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition		Terminal voltage
33	Driver door switch signal	Driver door	Open	10 V
			Closed	5 V
34	Passenger door switch signal	Passenger door	Open	0 V
			Closed	5 V

Checking the driver door switch circuit (Disconnect the connector of the electronic control unit and check the wiring harness side.)

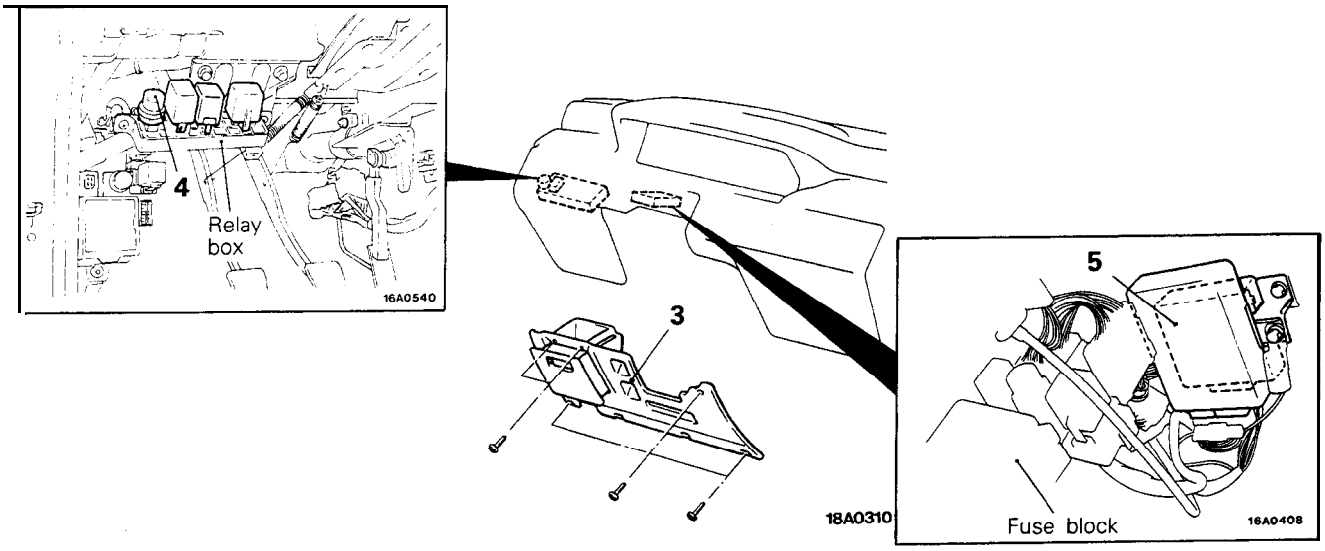
ECU terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions	Standard
33	Driver door switch	Resistance	33-ground	Driver door	Closed: No continuity
					Open: Continuity
34	Passenger door switch	Resistance	34-ground	Passenger door	Closed: No continuity
					Open: Continuity

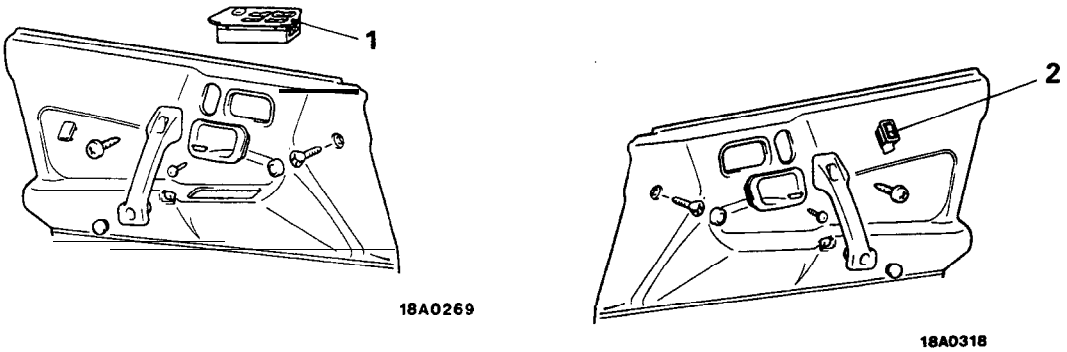
Checking the individual part

Door switch: Refer to P.42-75.

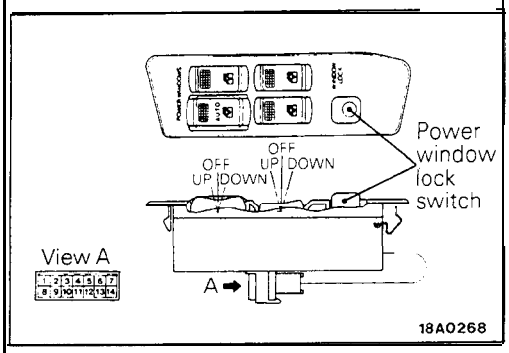
TSB Revision

REMOVAL AND INSTALLATION





1. Power window main switch
2. Power window sub switch
3. Instrument under cover assembly <1989 models> or knee protector assembly <From 1990 models> (Refer to GROUP 52 – Instrument Panel.)
4. Power window relay
5. ETACS control unit <DOHC>



INSPECTION

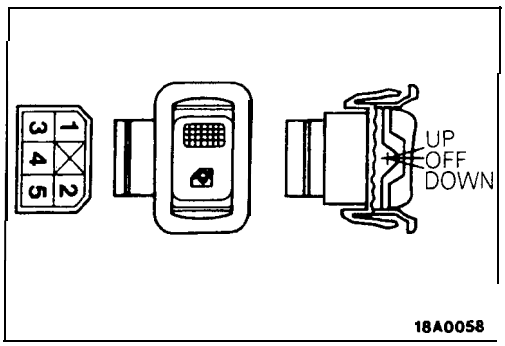
POWER WINDOW MAIN SWITCH

Check for continuity in accordance to the following connection table

Switch position / Terminal		Power window switch (normal)			Power window switch (lock)		
		UP	OFF	DOWN	UP	OFF	DOWN
Front (LH)	8	○		○	○		○
	13	○	○	○	○	○	○
	6	○	○	○	○	○	○
	1	○	○		○	○	
Front (RH)	8	○		○	○		○
	14	○	○	○	○	○	
	7	○	○	○		○	○
	1	○	○				
Rear (LH)	8	○		○	○		○
	9	○	○	○	○	○	
	2	○	○	○		○	○
	1			○			
Rear (RH)	8	○		0	○		0
	11		○	0		○	
	4	○		○			0
	1		○	0			

NOTE
○–○ indicates that there is continuity between the terminals.

TSB Revision

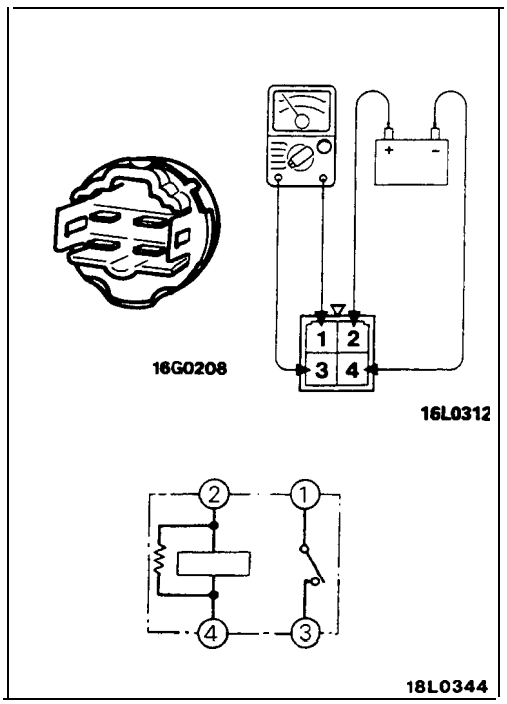


POWER WINDOW SUBSWITCH

Check for continuity in accordance to the following connection table.

Terminal \ Switch position		Sub switch		
		UP	OFF	DOWN
Sub switch	1	O	O	O
	2	O		
	3		O	O
	4	O		
	5			O

NOTE
O-O indicates that there is continuity between the terminals.



POWER WINDOW RELAY

Apply battery voltage to terminal 2, and check for continuity when terminal 4 is grounded.

Battery voltage \ Terminal	1	2	3	4
Continuity no voltage		0		0
Continuity with voltage	0		0	

NOTE
O-O indicates that there is continuity between the terminals.

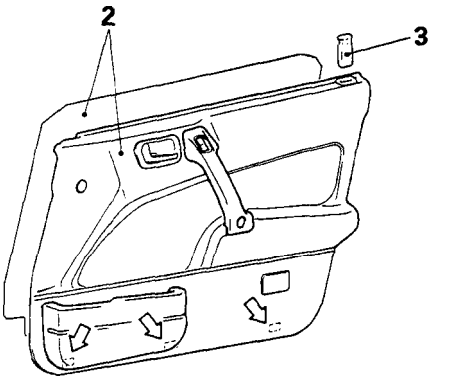
TSB Revision

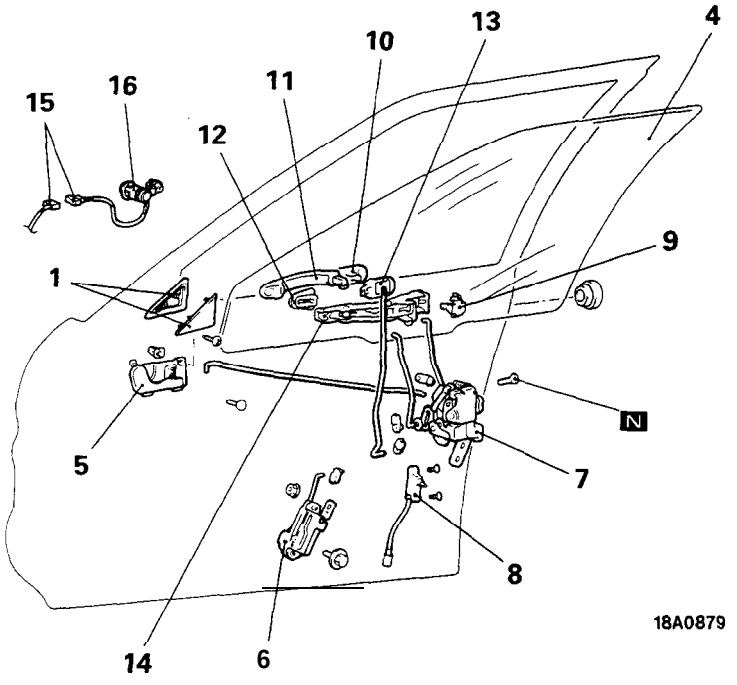
FRONT DOOR HANDLE AND LATCH

M42MDAZa

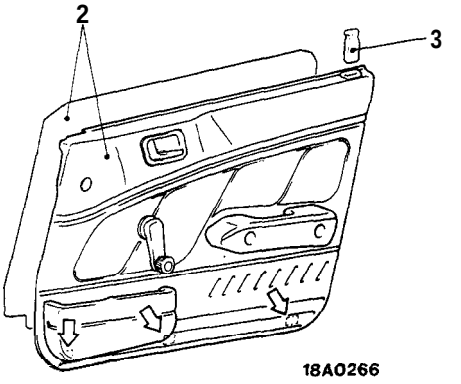
REMOVAL AND INSTALLATION

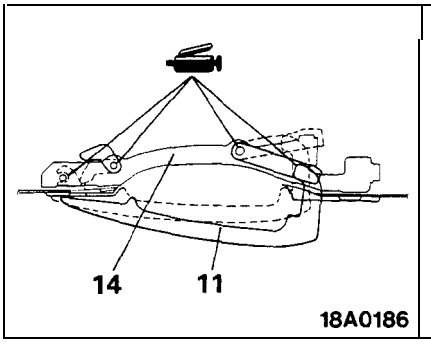
<Vehicles with power window>

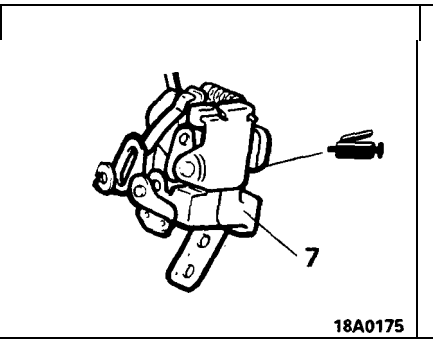


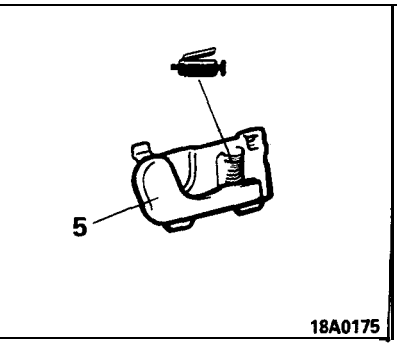


<Vehicles without power window>







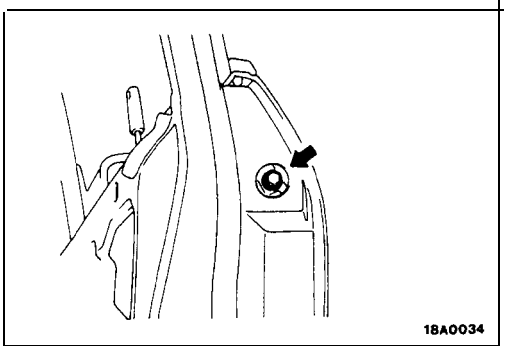


Removal steps

1. Delta cover
2. Door trim and waterproof film (Refer to P.42-76.)
3. Inside lock knob
- ⊠ Inside handle play adjustment
4. Door window glass (Refer to P.42-81.)
5. Door inside handle
6. Front door lock actuator
7. Door latch assembly
8. Door latch switch <From 1990 models>
◆◆ 9. Retainer
10. Door outside handle cover
◆◆ ● +11. Door outside handle
12. Packing A
13. Packing B
◆◆ 14. Door outside handle base
15. Connection of door harness and door lock cylinder <AWD–Turbo>
16. Door lock <AWD–Turbo>

NOTE
⇦ : Hook positions

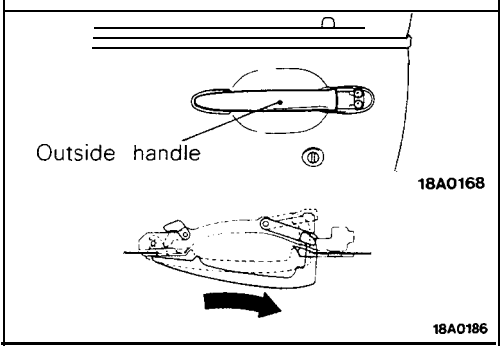
TSB Revision



SERVICE POINTS OF REMOVAL

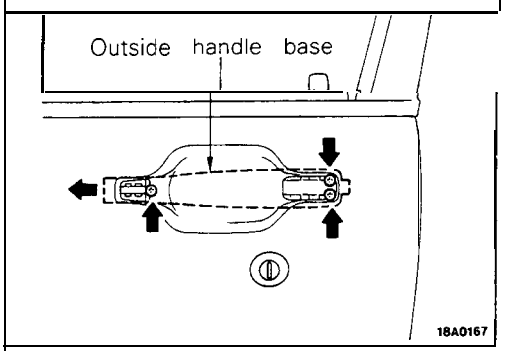
9. REMOVAL OF RETAINER

(1) Remove the plug from the door side surface, and then remove the retainer installation bolt.
(2) Remove the retainer.



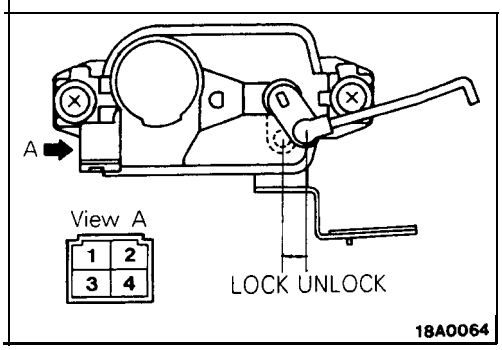
11. REMOVAL OF DOOR OUTSIDE HANDLE

Move the door outside handle slightly toward the rear, and then remove.



14. REMOVAL OF DOOR OUTSIDE HANDLE BASE

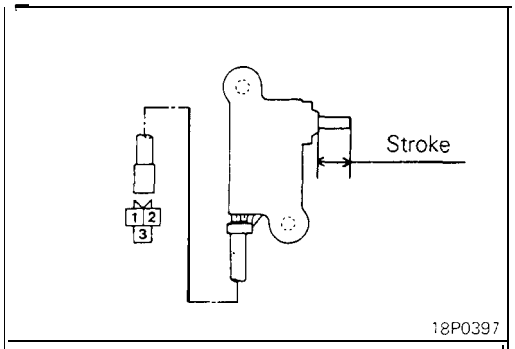
Loosen the door outside handle base installation screw; then move it slightly toward the front, and remove.

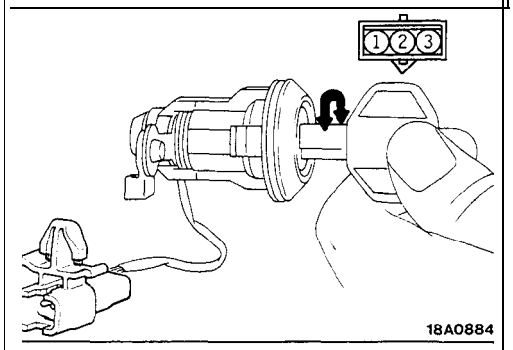


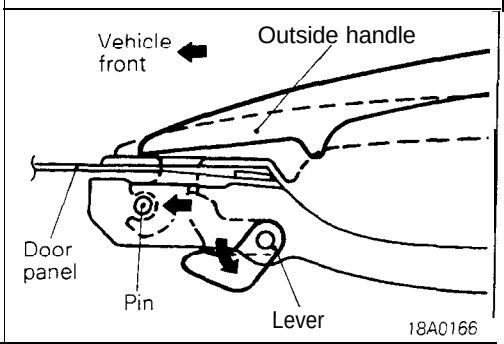
INSPECTION

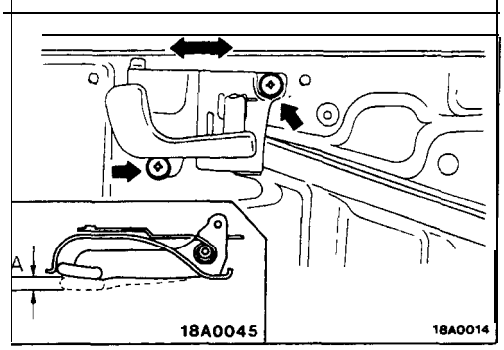
FRONT DOOR LOCK ACTUATOR

(1) Place the rod in the LOCK position, apply the battery power to the terminal (3) and check to see that when the terminal (1) is grounded, the rod moves to the UNLOCK position.
(2) Then place the rod in the UNLOCK position, apply the battery power to the terminal (1), and check to see that when the terminal (3) is grounded, the rod moves to the LOCK position.
(3) Check to ensure that when the rod is placed in the UNLOCK position, there is a continuity between the terminals (2) and (4), and that when the rod is placed in the LOCK position, there is no continuity.









INSPECTION

DOOR LATCH SWITCH <*From* 1990 models>

Operate the switch, and check the continuity between the terminals.

Switch position \ Terminal		1	2	3
Switch	Open (door open)		O	O
	Depressed (door close)	O		O

NOTE
O-O indicates that there is continuity between the terminals.

DOOR LOCK CYLNDER <Turbo>

(1) Turn the key and unlock or lock the door lock cylinder.
(2) Check the continuity between the terminals.

Terminal	1	2	3
Door lock cylinder unlocked	0	0	
Door lock cylinder locked		0	0

NOTE
C-O indicates that there is continuity between the terminals.

SERVICE POINTS OF INSTALLATION

11. INSTALLATION OF DOOR OUTSIDE HANDLE

Install the door outside handle by sliding it to the door outside handle base.

NOTE
When installing the fulcrum part of the door outside handle to the pin part of the door outside handle base, the work can be made easier by lifting the lever of the base upward.

- **INSIDE HANDLE PLAY ADJUSTMENT**

Move the door inside handle installation position back and forth to adjust so that the inside handle play allowance agrees with the standard value.

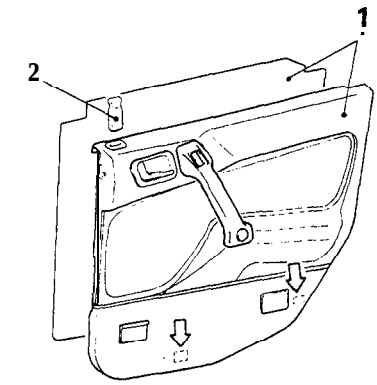
Standard value (A): 4–10 mm (.16–.40 in.)

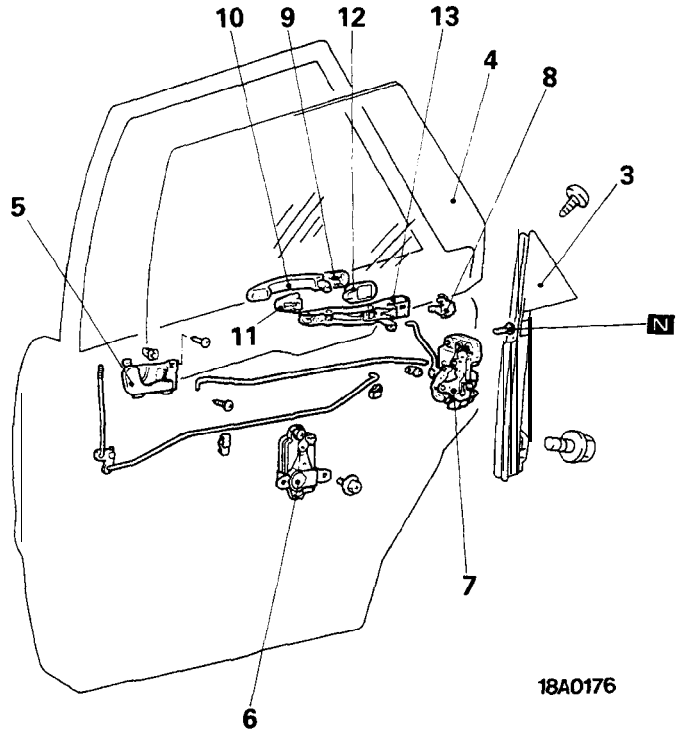
REAR DOOR HANDLE AND LATCH

M42MDBD

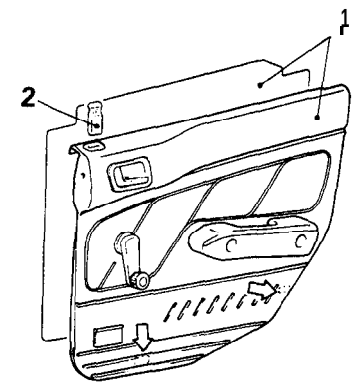
REMOVAL AND INSTALLATION

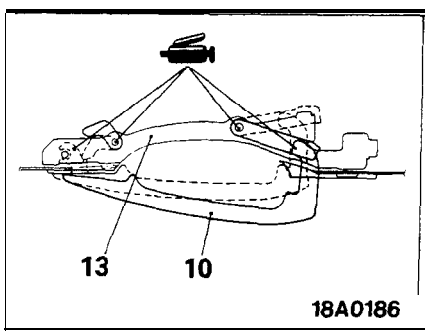
<Vehicles with power window>

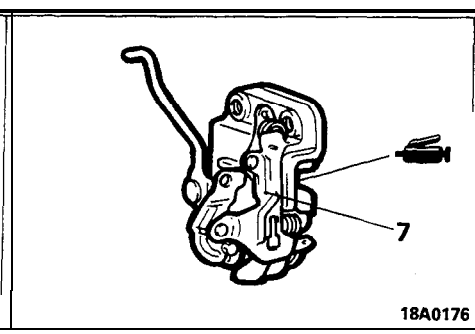


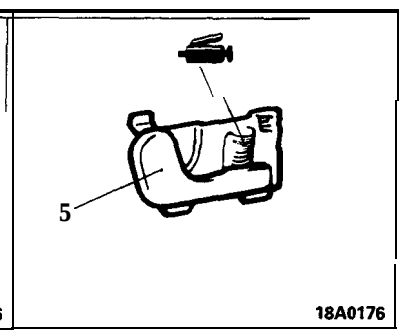


<Vehicles without power window>







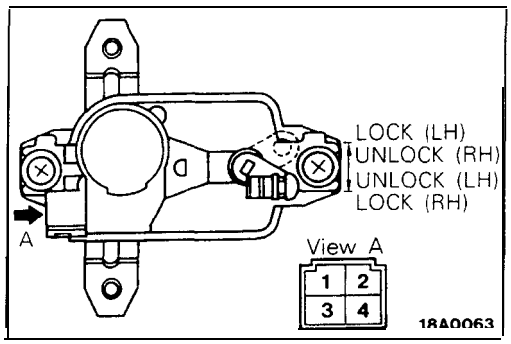


Removal steps

1. Door trim and waterproof film (Refer to P.42-78.)
2. Inside lock knob
◆◆ Inside handle play adjustment
3. Rear door rear delta assembly (Refer to P.42-83.)
4. Door window glass (Refer to P.42-84.)
5. Door inside handle
6. Front door lock actuator
7. Door latch assembly
◆◆ **8.** Retainer
9. Door outside handle cover
◆◆ ● +10. Door outside handle
11. Packing A
12. Packing B
◆◆ 13. Door outside handle base

NOTE
⇦: Hook positions

TSB Revision



SERVICE POINTS OF REMOVAL

8. REMOVAL OF RETAINER

Remove by following the same procedures as for the front door. (Refer to P.42-97.)

10. REMOVAL OF DOOR OUTSIDE HANDLE

Remove by following the same procedures as for the front door. (Refer to P.42-97.)

13. REMOVAL OF OUTSIDE HANDLE BASE

Remove by following the same procedures as for the front door. (Refer to P.42-97.)

INSPECTION

REAR DOOR LOCK ACTUATOR

(1) Place the rod in the LOCK position, apply the battery power to the terminal (3) and check to see that when the terminal (1) is grounded, the rod moves to the UNLOCK position.

(2) Then place the rod in the UNLOCK position, apply the battery power to the terminal (1), and check to see that when the terminal (3) is grounded, the rod moves to the LOCK position.

SERVICE POINTS OF INSTALLATION

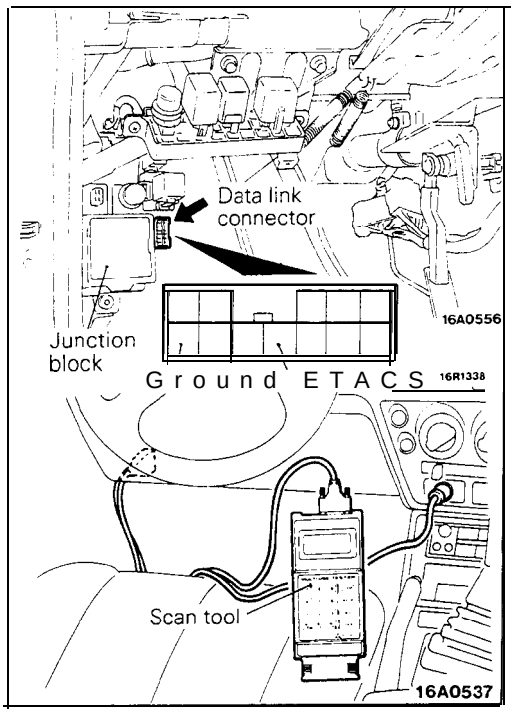
10. INSTALLATION OF DOOR OUTSIDE HANDLE

Install by following the same procedures as for the front door. (Refer to P.42-98.)

. INSIDE HANDLE PLAY ADJUSTMENT

Check and adjust by following the same procedures as for the front door. (Refer to P.42-98.)

TSB Revision



CENTRAL DOOR LOCKING SYSTEM

M42ZDAI

TROUBLESHOOTING OF CENTRAL DOOR LOCKING SYSTEM, DOOR LOCK PREVENTION WHEN KEY IS NOT REMOVED

INPUT CHECK (ETACS-EQUIPPED MODELS ONLY)

Using the scan tool, check whether or not the input signals from each switch are being input to the electronic control unit.

(1) Connect the scan tool to the data link connector (located at the right side of the junction block).
(2) With the ignition switch at the "ACC" position, set the scan tool to the special test setting.
(3) Check to be sure that the buzzer of the scan tool sounds one time when each switch noted below is operated.
If the buzzer sounds, the input signals are being input to the electronic control unit, so that switch can be considered to be functioning normally; if the buzzer does not sound, check for a malfunction of that switch or for damaged or disconnected wiring.

- Door lock actuator switch (front door)
- Front door switch
- Key reminder switch (removal/insertion of ignition key)

NOTE
When checking the key reminder switch, use the included battery harness to take power directly from the battery.

TROUBLESHOOTING QUICK-REFERENCE TABLE (ETACS-RELATED PROBLEMS ONLY)

For information concerning the locations of electrical components, refer to P.42-109.

CENTRAL DOOR LOCKING SYSTEM

Problem	Probable cause	Check method	Remedy
The central door locking function does not function correctly when the front door inside lock knob is pressed. [The problem does not occur, however, when the front door switch is ON and, moreover, the key reminder switch is OFF.]	Damaged or disconnected wiring, or a short-circuit, of the door lock actuator switch (front door) input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 2 procedures (P.42-104).	Repair the wiring harness, or replace the door lock actuator.
	Malfunction of the door lock actuator switch (front door)		

TSB Revision

Problem	Probable cause	Check method	Remedy
The central door locking function does not function correctly when the front door inside lock knob is pressed. [The problem does not occur, however, when the front door switch is ON and, moreover, the key reminder switch is OFF.]	Damaged or disconnected wiring of the door lock relay activation circuit	Check by following individual part and the circuit check No. 3 procedures (P.42-106).	Repair the wiring harness, or replace the door lock relay.
	Malfunction of the door lock relay		
	Malfunction of the electronic control unit		Replace the electronic control unit.

DOOR LOCK PREVENTION WHEN KEY IS NOT REMOVED

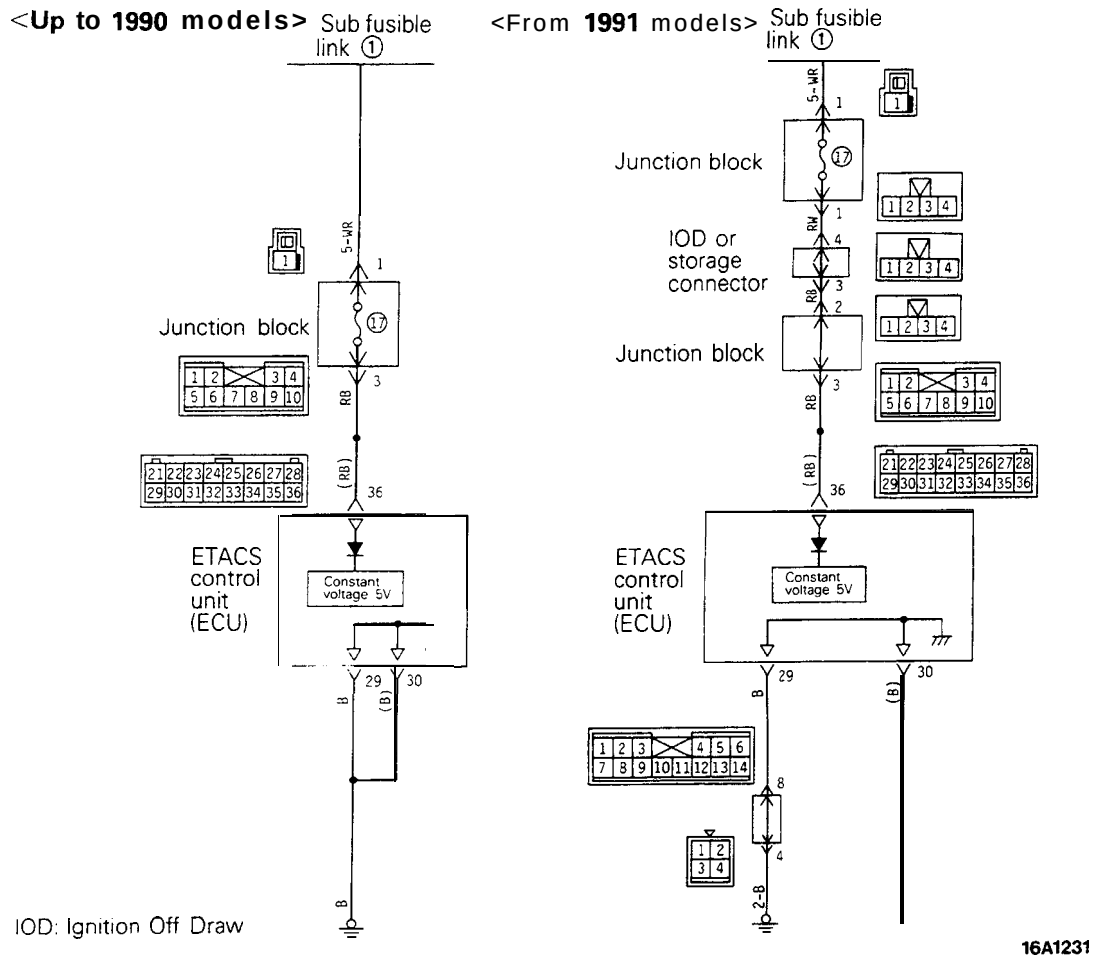
Problem	Probable cause	Check method	Remedy
The front door is not unlocked when the following conditions are satisfied and the front door lock knob is pushed. ● The key is inserted into the ignition switch. (Key reminder switch: OFF) ● A front door is open. (Front door switch: ON) [The central door locking function, however, functions normally.]	Short-circuit of the lighting-monitor switch input circuit	If a malfunction is indicated as a result of checking the input signals (P.42-101), check by following individual part and the circuit check No. 5 procedures (P.42-108).	Repair the wiring harness, or replace the key reminder switch.
	Shot--circuit of the lighting-monitor switch		
	Damaged or disconnected wiring of the front door switch input circuit	If a malfunction is indicated as a result of checking the input signals (P.42-101), check by following individual part and the circuit check No. 5 procedures (P.42-108).	Repair the wiring harness, or replace the front door switch.
	Damaged or disconnected wiring of the front door switch		
	Malfunction of the electronic control unit	-	Replace the electronic control unit.

NOTE
"ECU" (electronic control unit) indicates the ETACS control unit

TSB Revision

CHECKING INDIVIDUAL PART AND CIRCUIT

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS



Description of operation

The battery supplies a stabilized 5V power supply to the electronic control unit, via the constant-voltage circuit and terminal (36) directly connected to the battery.

If there is an abnormal condition of the power-supply circuit, other ETACS functions also will not operate.

Electronic control unit voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition	Terminal voltage
36	Electronic control unit power supply	At all times	B+

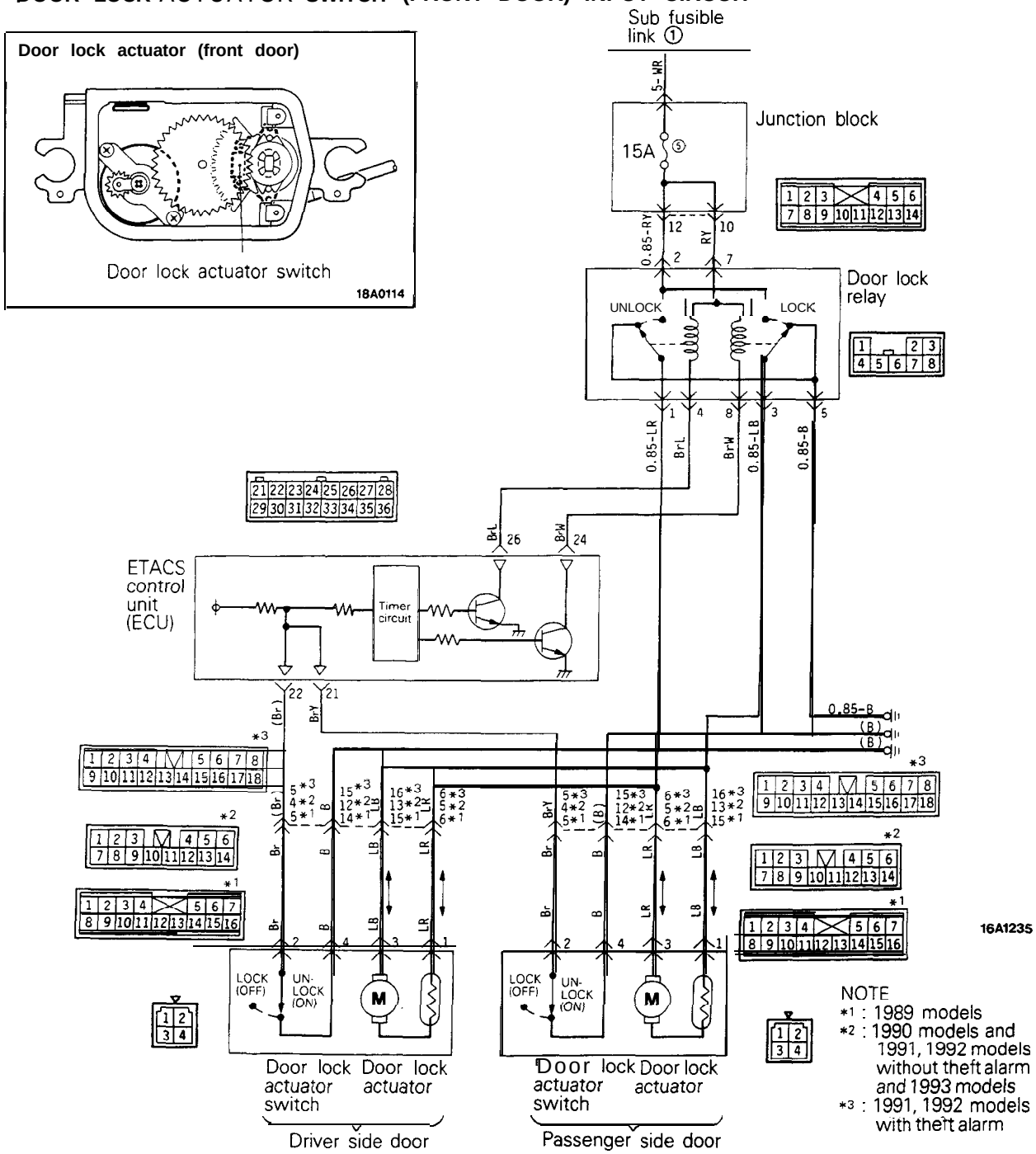
B+: Battery Positive Voltage

Checking the ground circuit (Disconnect the connector and check the wiring harness side.)

Terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions	Standard
29	Electronic control unit ground	Resistance	29-ground	At all times	Continuity
30	Electronic control unit ground	Resistance	30-ground	At all times	Continuity

TSB Revision

2. DOOR LOCK ACTUATOR SWITCH (FRONT DOOR) INPUT CIRCUIT



Description of operation

When a front door is locked by the lock knob or the key, the door lock actuator switch is switched OFF, and HIGH-level signals are sent to the electronic control unit.

These signal activate the timer circuit of the electronic control unit, thereby causing the activation circuit to function, thus activating the door lock actuator of all doors.

TSB Revision

Electronic control unit voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition		Terminal voltage
22	Door lock actuator switch (driver door) signal	Door lock actuator switch	Lock: OFF	5 V
			Unlock: ON	OV
21	Door lock actuator switch (passenger door) signal	Door lock actuator switch	Lock: OFF	5 V
			Unlock: ON	OV

Checking the door lock actuator switch circuit (Disconnect the connector of the electronic control unit and check the wiring harness side.)

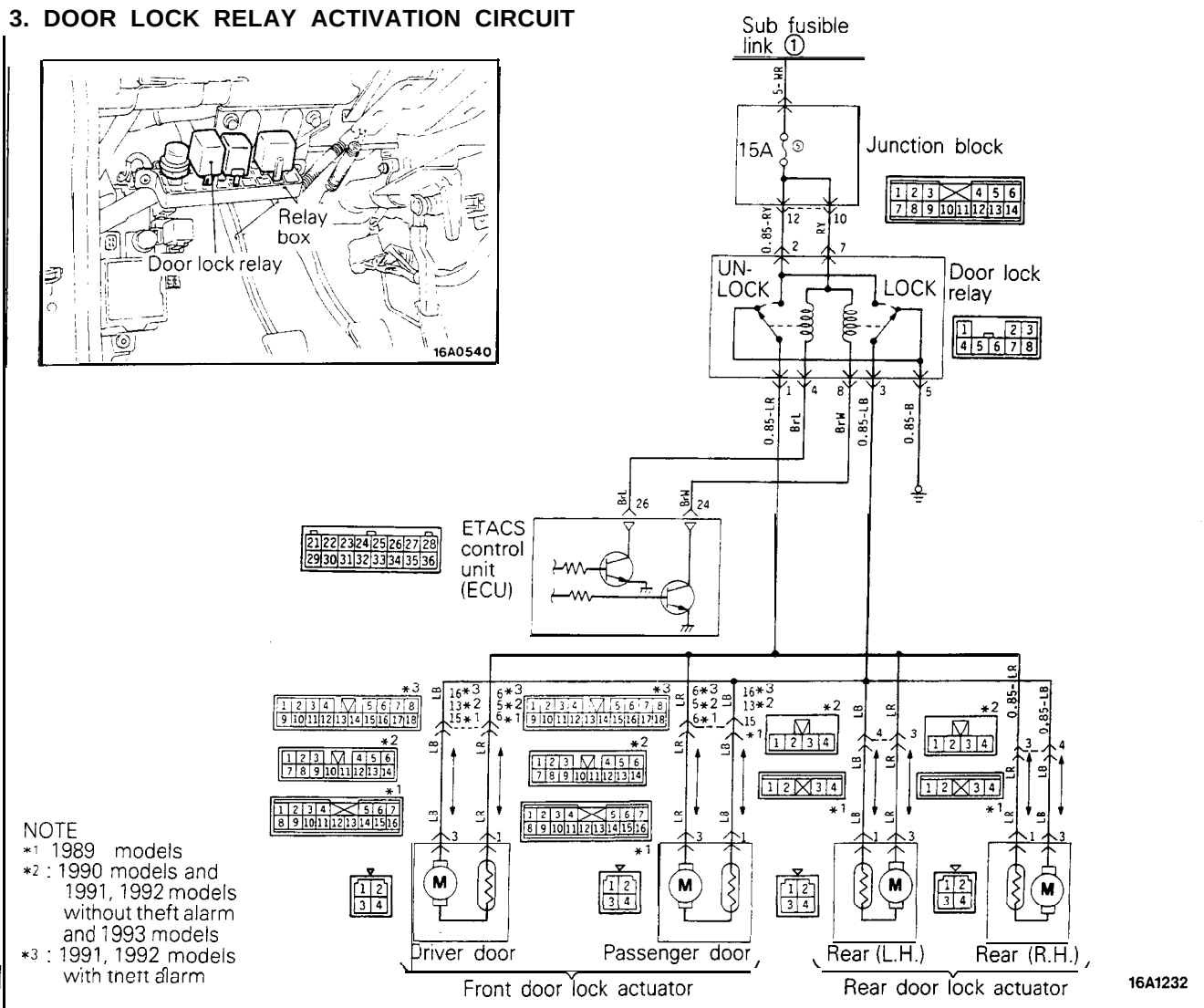
ECU terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions		Standard
22	Door lock actuator switch (driver door) signal	Resistance	22-ground	Door lock actuator switch	Lock: OFF	No continuity
					Unlock, ON	Continuity
21	Door lock actuator switch (passenger door) signal	Resistance	21-ground	Door lock actuator switch	Lock: OFF	No continuity
					Unlock: ON)	Continuity

Checking the individual part

Door lock actuator switch: Refer to P.42-97, 100.

TSB Revision

3. DOOR LOCK RELAY ACTIVATION CIRCUIT



Description of operation

When a front door is locked, transistor Tr1 (lock side) of the electronic control unit is switched ON, and the door lock relay is activated, thus locking the door lock actuator.

When, with the ignition key inserted, a front door is opened and is locked, transistor Tr2 (unlock side) of the electronic control unit is switched ON, and the door lock relay is activated, thus unlocking the door lock actuator.

Electronic control unit voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition	Terminal voltage
24	Door lock relay (lock side) signal	At all times (except during the door lock activation described above)	B+
26	Door lock relay (unlock side) signal	At all times (except during the door unlock activation described above)	B+

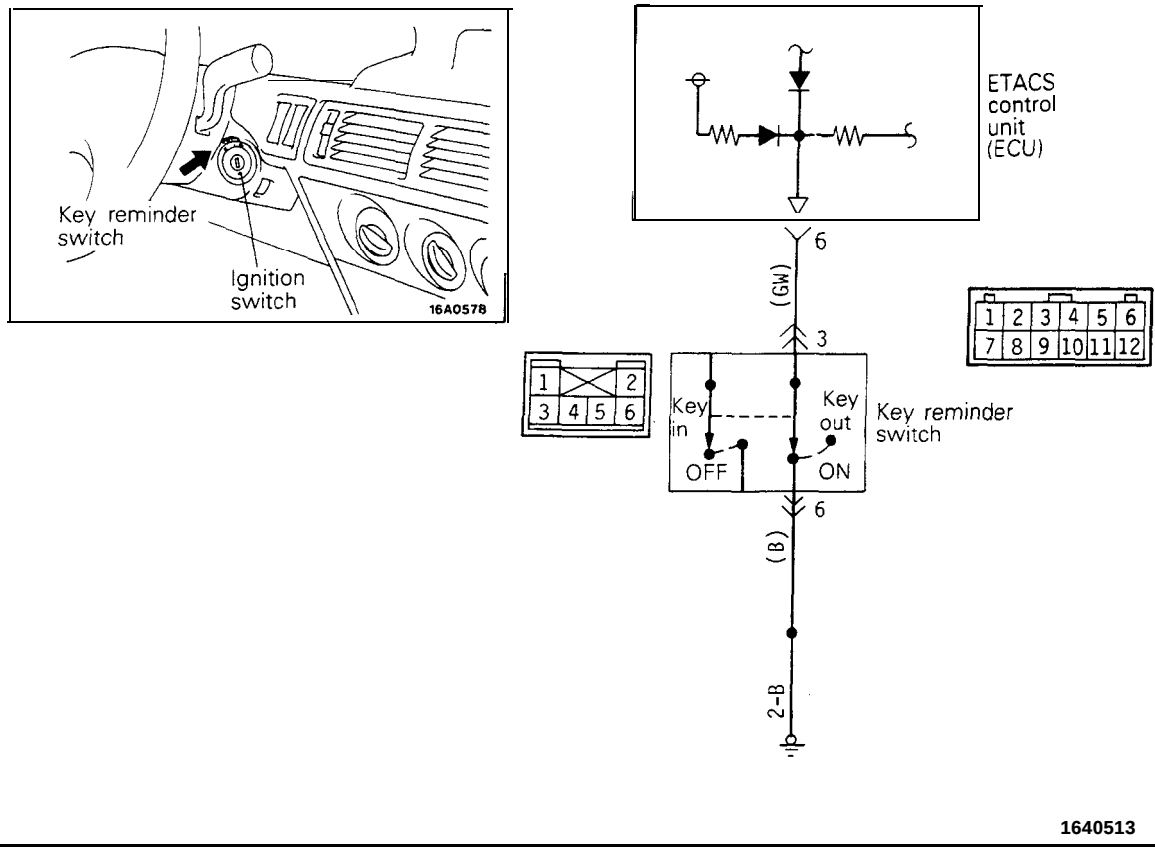
B+: Battery Positive Voltage

Checking the individual part

Door lock relay: Refer to P.42-109.

TSB Revision

4. LIGHTING-MONITOR SWITCH INPUT CIRCUIT



Description of operation

The key reminder switch is switched OFF and HIGH-level signals are sent to the electronic control unit when the key is inserted into the ignition key cylinder; when the key is removed, the key reminder switch is switched ON and LOW-level signals are sent to the electronic control unit.
If there is an abnormal condition of the key reminder switch input circuit, there will also be an abnormal condition of the key reminder buzzer.

Electronic control unit voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition	Terminal voltage
6	Key reminder switch signal	Key removed	0 V
		Key inserted	5 V

Checking the key reminder switch circuit (Disconnect the connector of the electronic control unit and check the wiring harness side.)

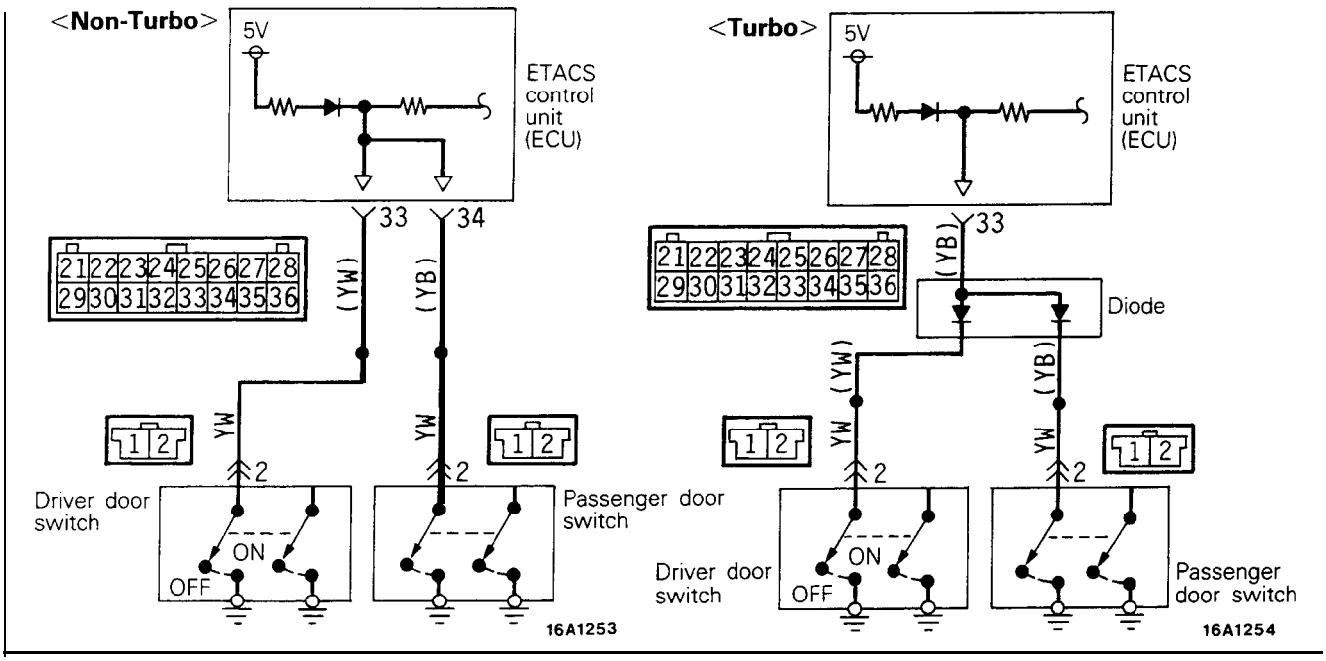
ECU terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions	Standard
6	Key reminder switch	Resistance	6-ground	Key removed	Continuity
				Key inserted	No continuity

Checking the individual part

Key reminder switch: Refer to GROUP 54–Ignition Switch.

TSB Revision

5. FRONT DOOR SWITCH INPUT CIRCUIT



Description of operation

When the front door is closed (the door switch is switched OFF), HIGH-level signals are sent to the electronic control unit; when the front door is opened (the door switch is switched ON), LOW-level signals are sent to the electronic control u'nit.

Electronic control unit terminal voltage (connection status of the electronic control unit connector)

ECU terminal No., Signal	Condition		Terminal voltage
3 — 3 Driver door switch signal	Driver door	Open	o v
		Closed	5 V
34 — Passenger door switch signal	Passenger door	Open	o v
		Closed	5 V

Checking the driver door switch circuit (Disconnect the connector of the electronic control unit and check the wiring harness side.)

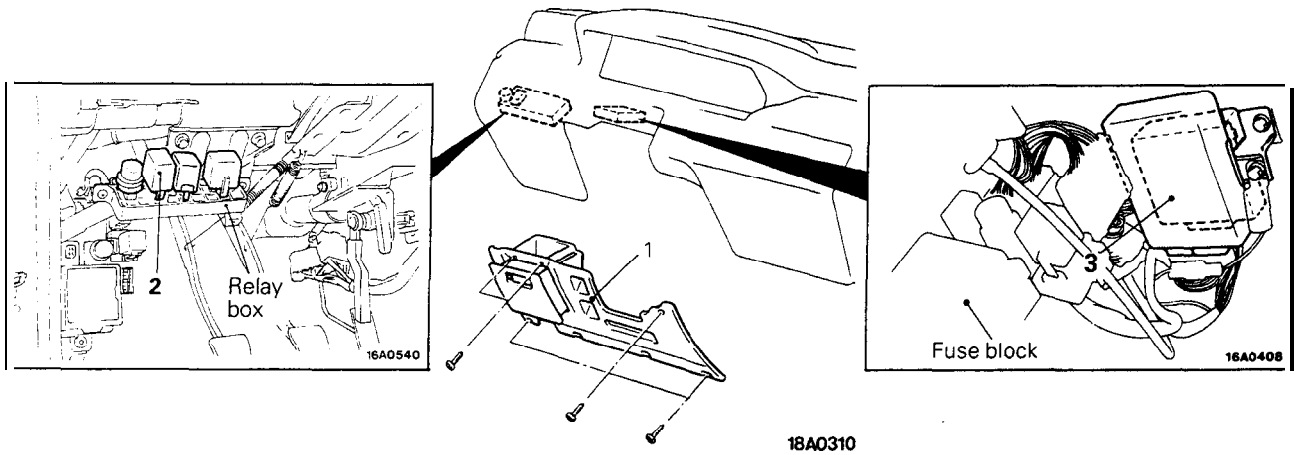
ECU terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions		Standard
33	Driver door switch	Resistance	33-ground	Driver door	Closed	No continuity
					Open	Continuity
34	Passenger door switch	Resistance	34-ground	Passenger door	Closed	No continuity
					Open	Continuity

Checking the individual part

Door switch: Refer to P.42-75.

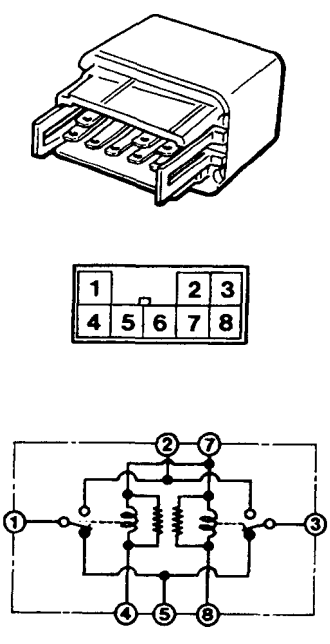
TSB Revision

REMOVAL AND INSTALLATION



Removal steps

1. Instrument under cover assembly <1989 models> or knee protector assembly <From 1990 models> (Refer to GROUP 52–Instrument Panel.!
2. Door lock relay
3. Door lock control unit or ETACS control unit



INSPECTION

DOOR LOCK RELAY

Check for continuity between terminals under the conditions described below.

Terminal / Battery voltage	1	2	3	4	5	7	8
Continuity no voltage	O				0	O	O
			O		0		
				0		O	
Continuity with voltage	O	O		⊖		⊕	
		O	O			⊕	⊖

NOTE
(1) O-O indicates that there is continuity between the terminals
(2) ⊕···⊖ indicates terminals to which battery voltage is applied.

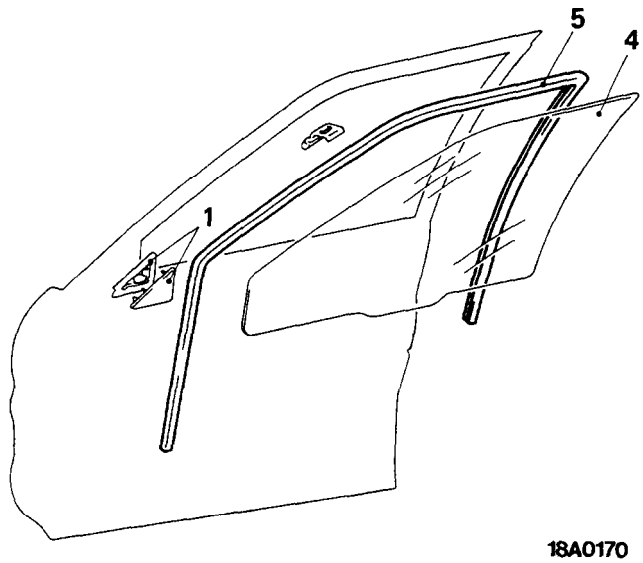
TSB Revision

DOOR RUNCHANNEL

M42MEAL

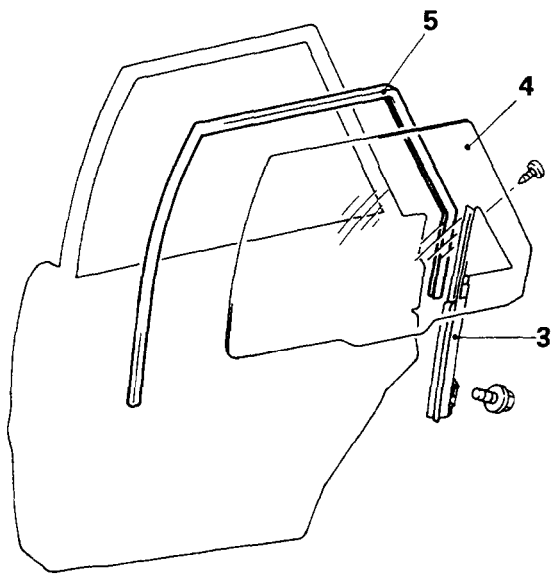
REMOVAL AND INSTALLATION

Front door



18A0170

Rear door

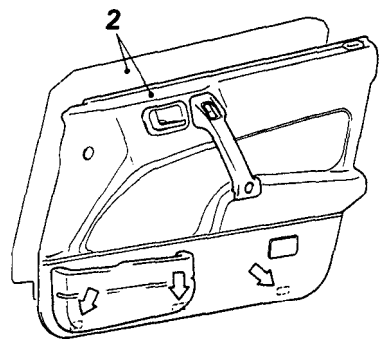


18A0171

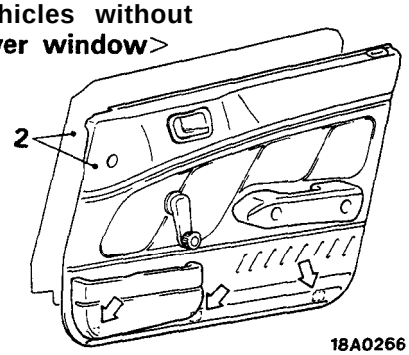
Removal steps

1. Delta cover
2. Door trim and waterproof film (Refer to P.42-76, **78.)**
3. Rear door delta assembly (Refer to P.42-**83.)**
4. Door window glass assembly (Refer to P.42-81, 84.)
- 5. Door window glass runchannel

<Vehicles with power window>

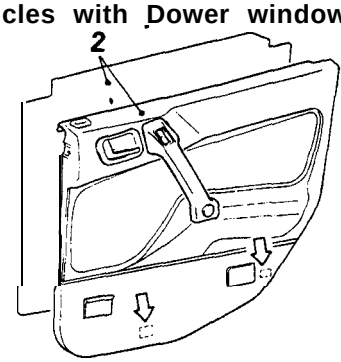


<Vehicles without power window>

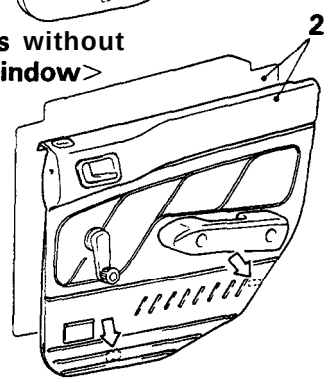


18A0266

<Vehicles with Dower window>



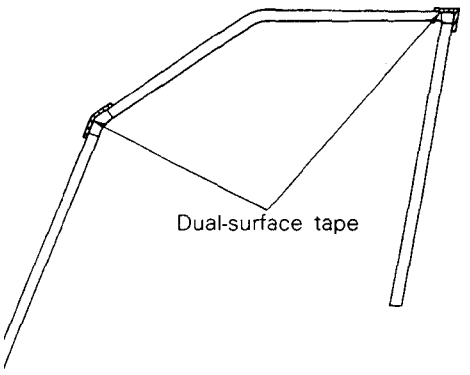
<Vehicles without power window>



18A0173

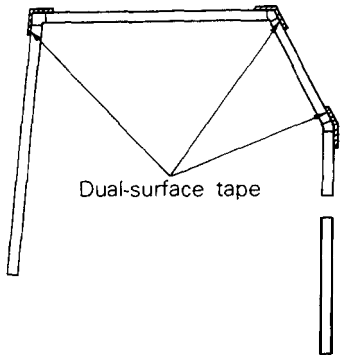
NOTE
⇦: Hook positions

Front door



18A016(

Rear door



18A0161

SERVICE **POINTS** OF **INSTALLATION**

5. INSTALLATION OF DOOR WINDOW GLASS RUNCHANNEL

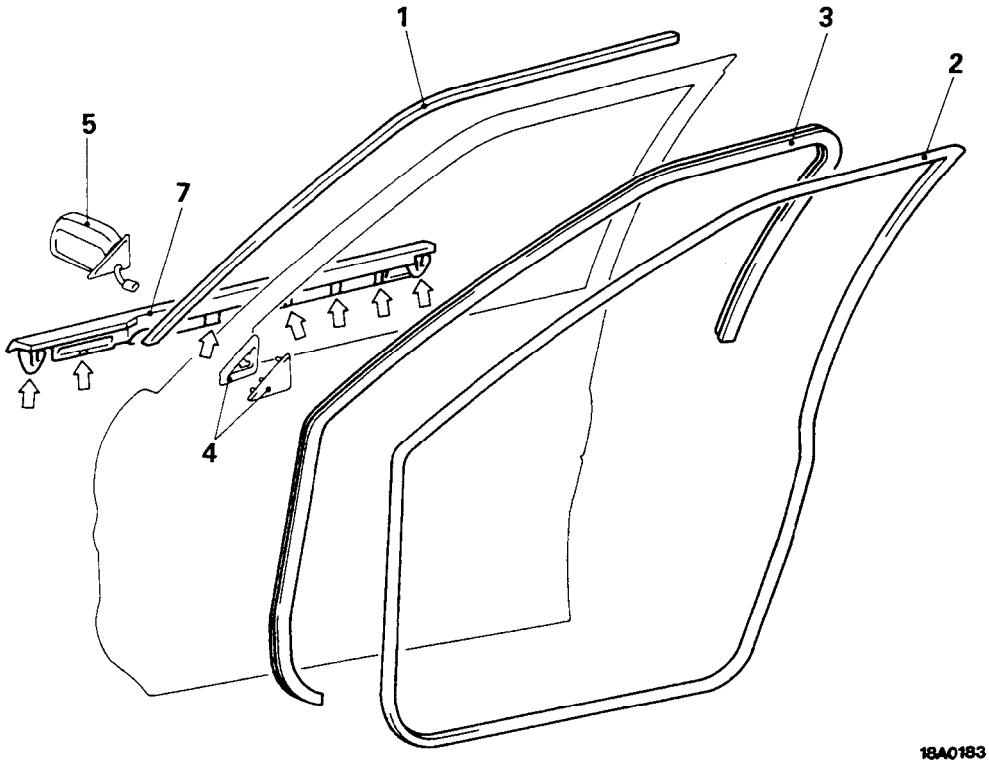
Remove the dual-surface tape from the places shown in the figure. Then attach new dual-surface tape [thickness 6 mm (.24 in.), width 10 mm (.4 in.), length 100 mm (4.0 in.)] and install the runchannel to the door.

TSB Revision

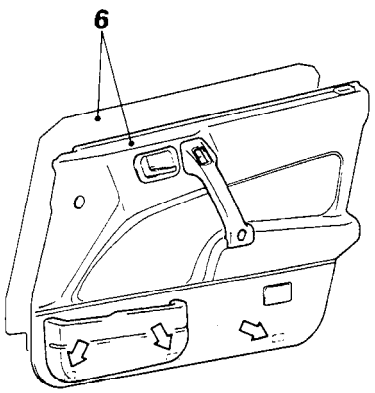
FRONT DOOR MOULDING AND DRIP LINE WEATHERSTRIP

M42MFAG

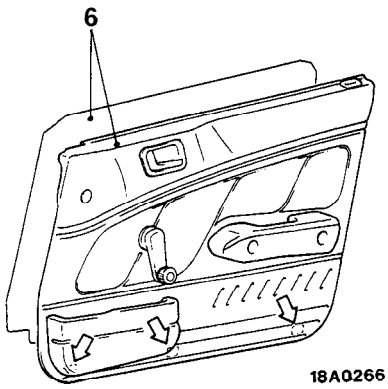
REMOVAL AND INSTALLATION



<Vehicles with power window>



<Vehicles without power window>



Opening weatherstrip removal steps

1. Door sash moulding
2. Door inner opening weatherstrip

● e ◆◀ 3. Door outer opening weatherstrip

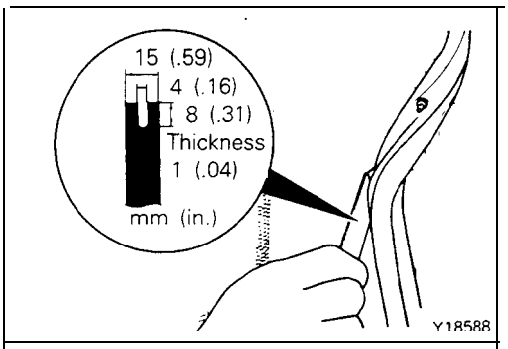
Belt line moulding removal steps

4. Delta cover
5. Door mirror
6. Door trim and waterproof film (Refer to P.42-76.)

◆▶ 7. Belt line moulding

NOTE
⇦: Clip or hook positions

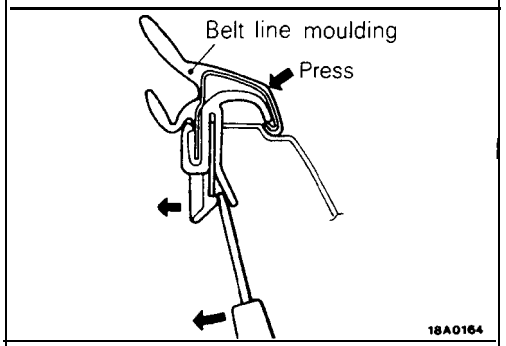
TSB Revision



SERVICE POINTS OF REMOVAL

3. REMOVAL OF DOOR OUTER OPENING WEATHERSTRIP

Make a tool as shown in the illustration to remove the door opening weatherstrip.

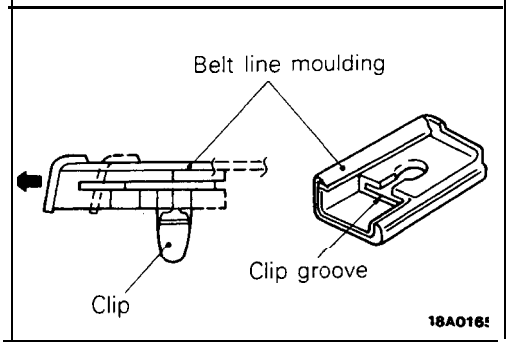


7. REMOVAL OF BELT LINE MOULDING

(1) Close the window glass completely.
(2) Remove the rear end clip from the door panel.
(3) Except for the front end clip, unhook the clips from the door panel.

NOTE
Unhook while pressing the moulding's clip places from the outside by a finger, or use a flat-tip (–) screwdriver or a similar tool to pry at the places shown in the illustration.

(4) Remove the belt line moulding by sliding it toward the front of the vehicle.



SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF DOOR OUTER OPENING WEATHERSTRIP

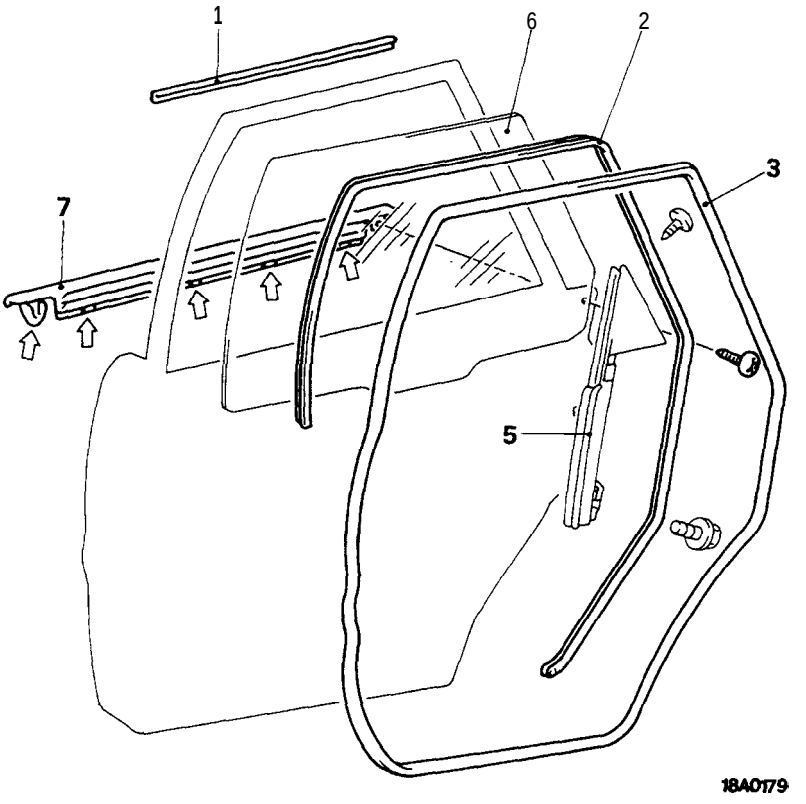
The clip colour identifies the left and right weatherstrips, so be sure to use the colours so as to install correctly.

Identification colour	Applicable side
White	Left door
Brown	Right door

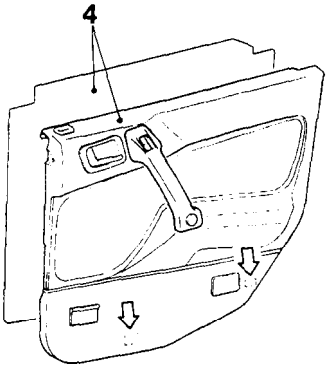
REAR DOOR MOULDING AND DRIP LINE WEATHERSTRIP

M42MFAH

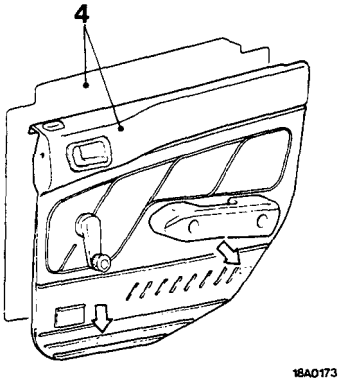
REMOVAL AND INSTALLATION



<Vehicles with power window>



<Vehicles without power window>



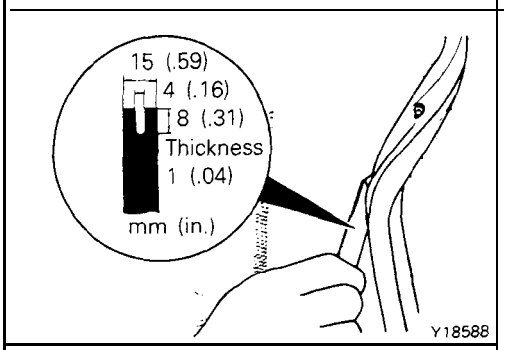
Opening weatherstrip removal steps

1. Door sash moulding
2. Door inner opening weatherstrip
3. Door outer opening weatherstrip

Belt line moulding removal steps

4. Door trim and waterproof film (Refer to P.42-78.)
5. Rear door delta assembly (Refer to P.42-83.)
6. Door window glass (Refer to P.42-84.)
7. Belt line moulding

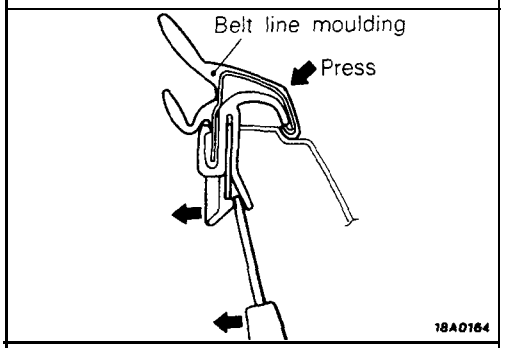
NOTE
⇦ : Clip or hook positions



SERVICE POINTS OF REMOVAL

3. REMOVAL OF DOOR OUTER OPENING WEATHERSTRIP

Make a tool as shown in the illustration to remove the door opening weatherstrip.

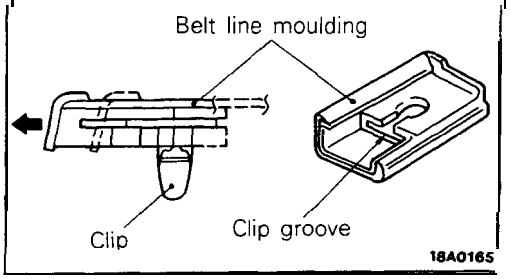


7. REMOVAL OF BELT LINE MOULDING

(1) Close the window glass completely.
(2) Remove the rear end clip from the door panel.
(3) Except for the front end clip, unhook the clips from the door panel.

NOTE
Unhook while pressing the moulding's clip places from the outside by a finger, or use a flat-tip (–) screwdriver or a similar tool to pry at the places shown in the illustration.

(4) Remove the belt line moulding by sliding it toward the front of the vehicle.



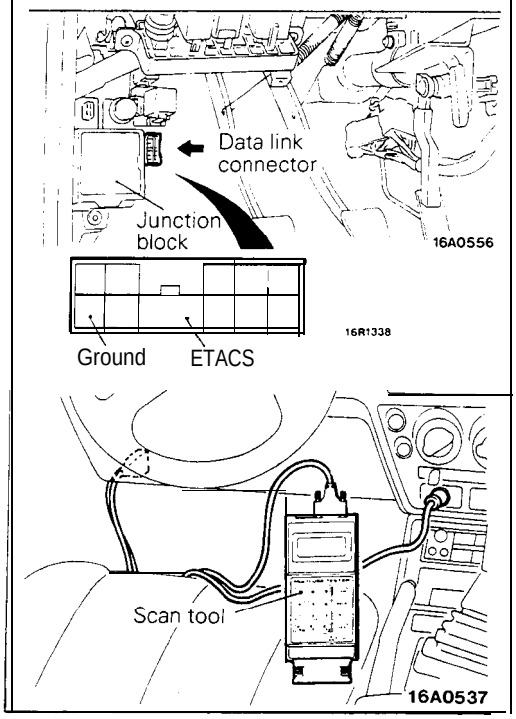
SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF DOOR OUTER OPENING WEATHERSTRIP

The clip colour identifies the left and right weatherstrips, so be sure to use the colours so as to install correctly.

Identification colour	Applicable side
White	Left door
Brown	Right door

TSB Revision



SUNROOF

M42TAAM

SUNROOF TIMER TROUBLESHOOTING GUIDE

INPUT CHECK (ETACS-EQUIPPED MODELS ONLY)

Using the scan tool, check whether or not the input signals from each switch are being input to the electronic control unit.

(1) Connect the scan tool to the data link connector (located at the right side of the junction block).
(2) With the ignition switch at the "ACC" position, set the scan tool to the special test setting.
(3) Check to be sure that the buzzer of the scan tool sounds one time when each switch noted below is operated.
If the buzzer sounds, the input signals are being input to the electronic control unit, so that switch can be considered to be functioning normally; if the buzzer does not sound, check for a malfunction of that switch or for damaged or disconnected wiring.

- Ignition switch
- Front door switch

TROUBLESHOOTING QUICK-REFERENCE TABLE (ETACS-RELATED PROBLEMS ONLY)

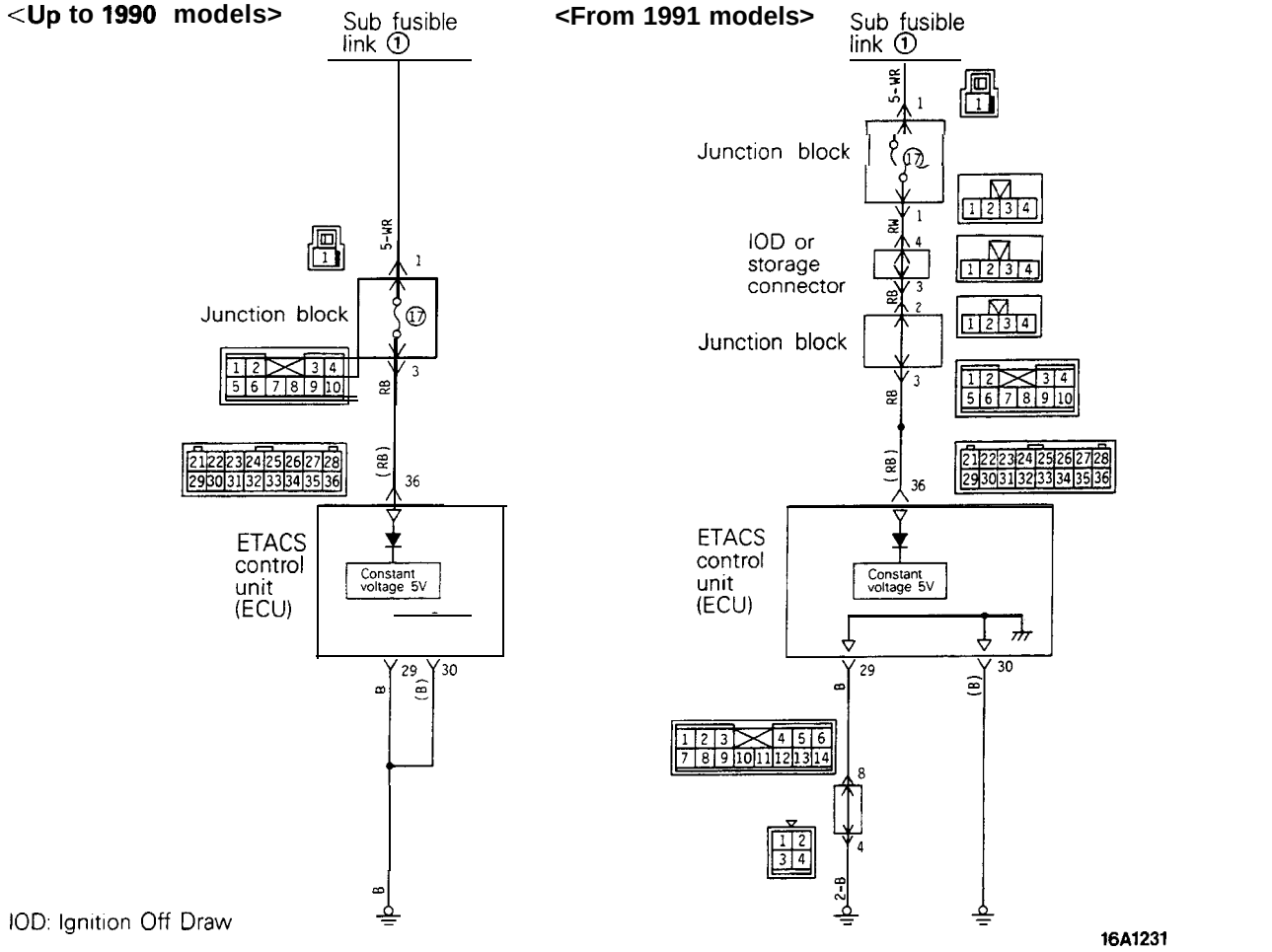
Problem	Probable cause	Check method	Remedy
The sunroof does not operate when the ignition switch is at the "ON" position.	Damaged or disconnected wiring of the ignition switch input circuit	If a malfunction is indicated as a result of the input check, check by following individual part and the circuit check No. 2 procedures (P.42-118).	Repair the wiring harness
	Damaged or disconnected wiring of the sunroof power relay activation circuit	Check by following individual part and the circuit check No. 3 procedures (P.42-119.)	Repair the wiring harness, or replace the sunroof power relay
	Malfunction of the electronic control unit	–	Replace the electronic control unit
The opening and closing operations of the sunroof is possible immediately after the ignition switch is set to the "OFF" position, but the sunroof does not stop when a front door is opened within 30 seconds after the ignition switch is switched to "OFF".	Damaged or disconnected wiring of the front door switch input circuit	If a malfunction is indicated as a result of the input check, check by following individual part and the circuit check No. 4 procedures (P.42-122).	Repair the wiring harness, or replace the front door switch
	Malfunction of the front door switch		
	Malfunction of the electronic control unit	–	Replace the electronic control unit
The opening and closing operations of the sunroof is possible after the timer operation time has elapsed when the ignition switch is set to the "OFF" position.	Short-circuit of the sunroof power relay activation circuit	Check by following individual part and the circuit check No. 3 procedures (P.42-119.)	Repair the wiring harness, or replace the sunroof power relay
	Malfunction of the sunroof power relay contacts		
	Malfunction of the electronic control unit	–	Replace the electronic control unit

NOTE
"ECU" (electronic control unit) indicates the ETACS control unit

TSB Revision

CHECKING INDIVIDUAL PART AND CIRCUIT

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS



Description of operation

The battery supplies a stabilized 5V power supply to the electronic control unit, via the constant-voltage circuit and terminal (36) directly connected to the battery.

If there is an abnormal condition of the power-supply circuit, other ETACS functions also will not operate.

Electronic control unit voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition	Terminal voltage
36	Electronic control unit power supply	At all times	B+

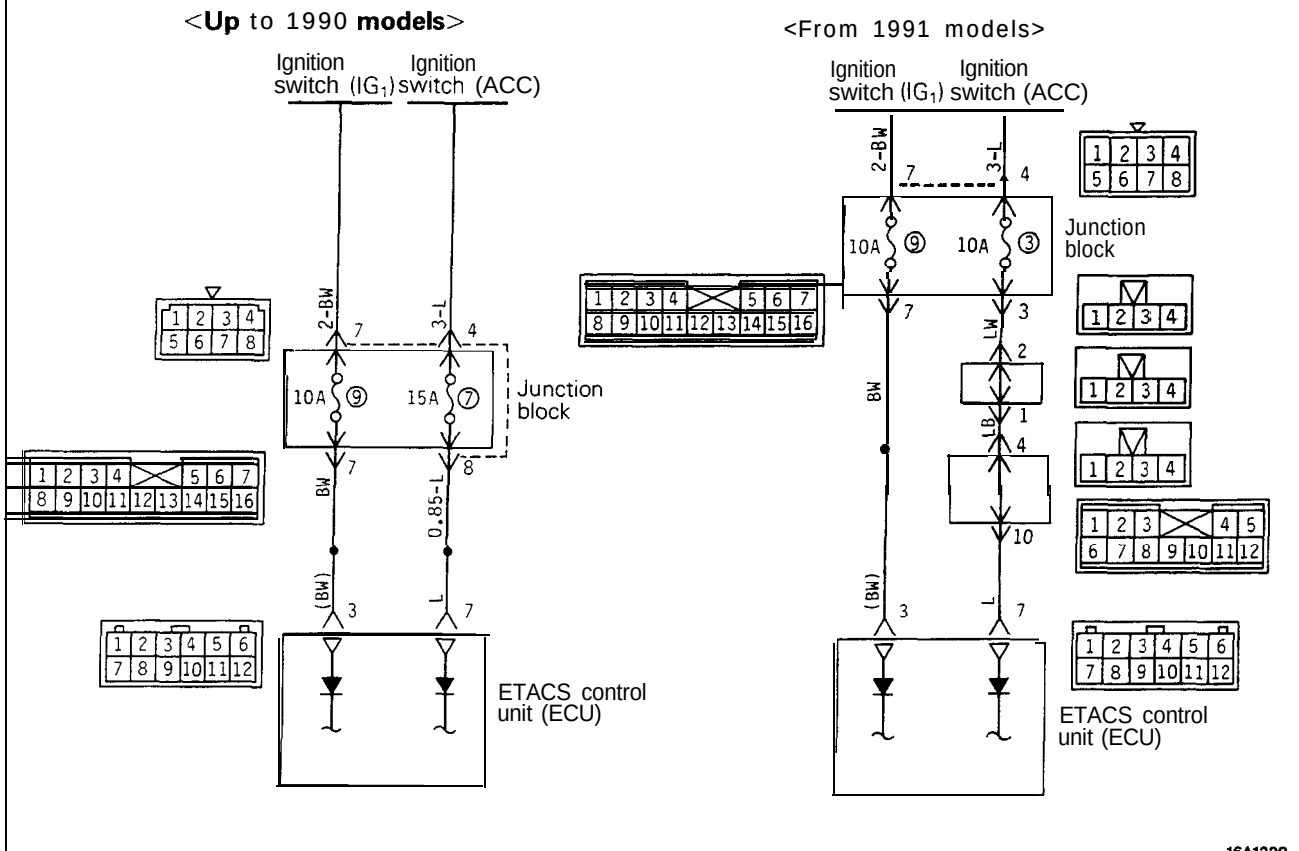
B+: Battery Positive Voltage

Checking the ground circuit (Disconnect the connector and check the wiring harness side.)

Terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions	Standard
29	Electronic control unit ground	Resistance	29-ground	At all times	Continuity
30	Electronic control unit ground	Resistance	30-ground	At all times	Continuity

TSB Revision

2. IGNITION SWITCH INPUT CIRCUIT



Description of operation

A condition for operation of this system is the sending of HIGH-level signals to the electronic control unit when the ignition switch is switched to the "ACC" position or the "ON" position.

Electronic control unit terminal voltage (Disconnect the connector of the electronic control unit and check the wiring harness side.)

ECU terminal No.	Signal	Condition		Terminal voltage
3	Ignition switch: "ON"	Ignition switch	OFF	ov
			ON	B+

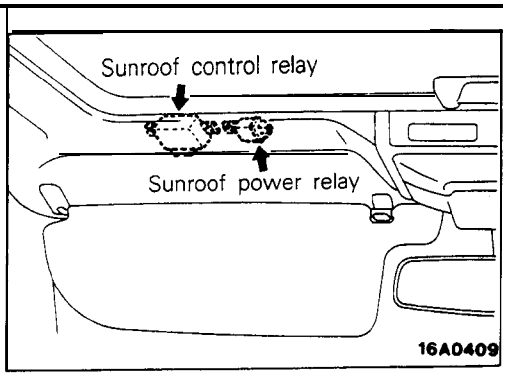
B+: Battery Positive Voltage

Checking the individual part

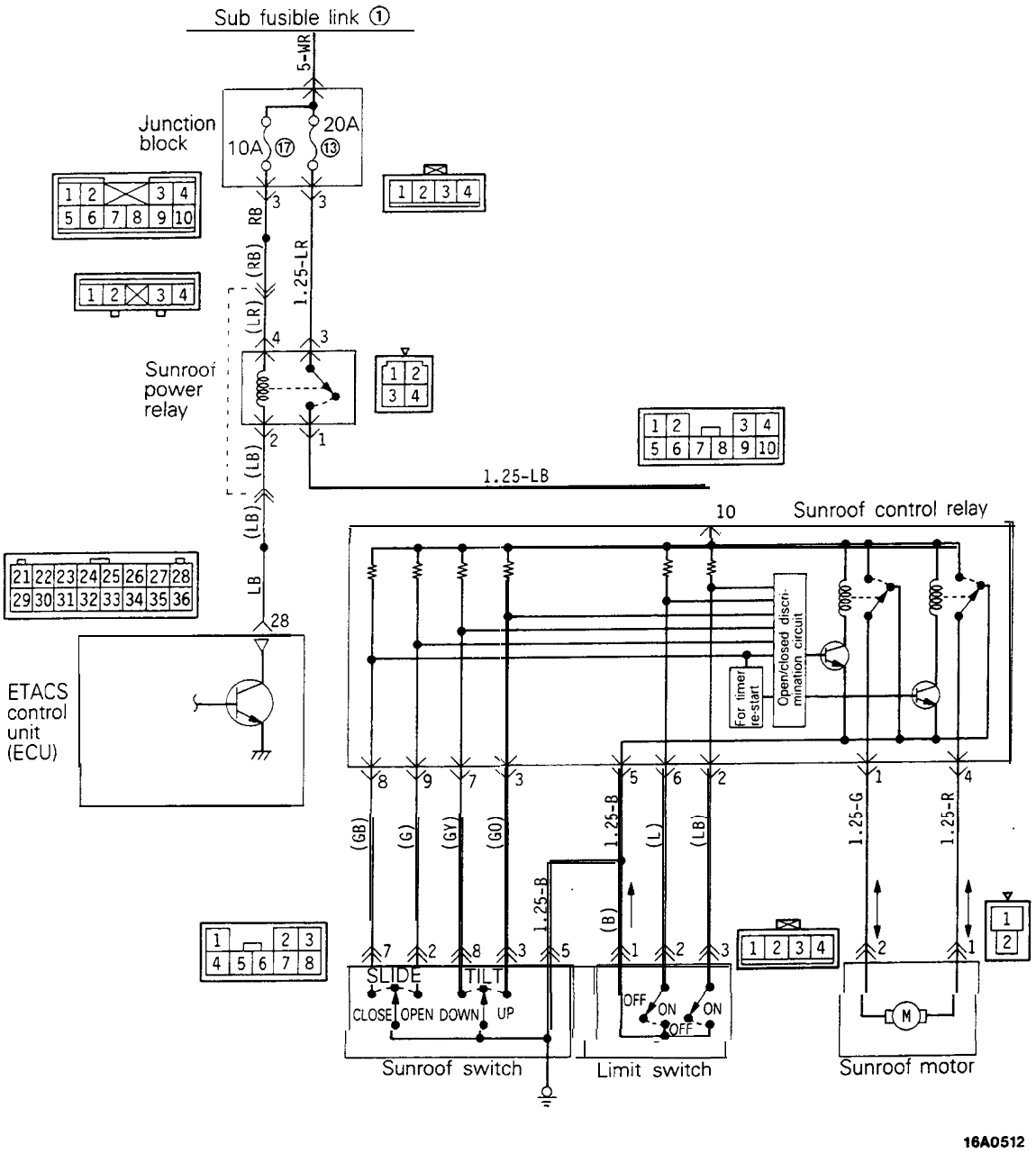
Ignition switch: Refer to GROUP 54–Ignition Swtich

TSB Revision

3. SUNROOF POWER RELAY ACTIVATION CIRCUIT

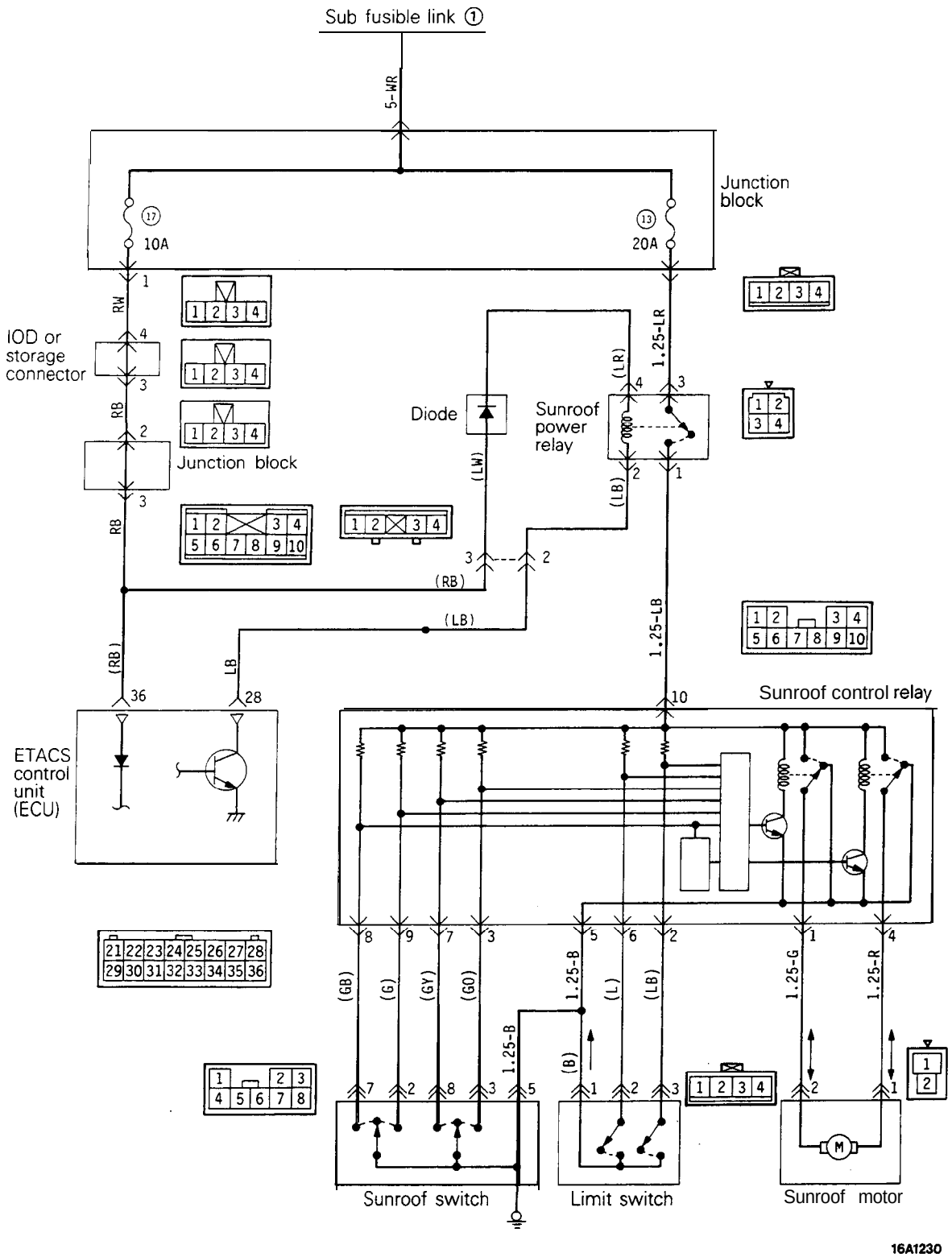


<**Up** to 1990 models>



TSB Revision

<From 1991 models>



IOD: Ignition Off Draw

TSB Revision

Description of operation

When the ianition switch is switched to the “ON” position, and also for a period of 30 seconds after the ignition switch is switched to the “OFF” position, the transistor of the electronic control unit is switched ON, and battery voltage is supplied from the battery (through sub-fusible link No. 1) to the sunroof power relay.

In addition, voltage is supplied (through sub-fusible link No. 1) to power-window switch and motor as a result of the switch-ON of the power-window relay.

NOTE
The power supply to the sunroof power relay is stopped if a front door is opened within 30 seconds after the ignition switch is switched to OFF.

Electronic control unit terminal voltage (Disconnect the connector of the electronic control unit and check the wiring harness side.)

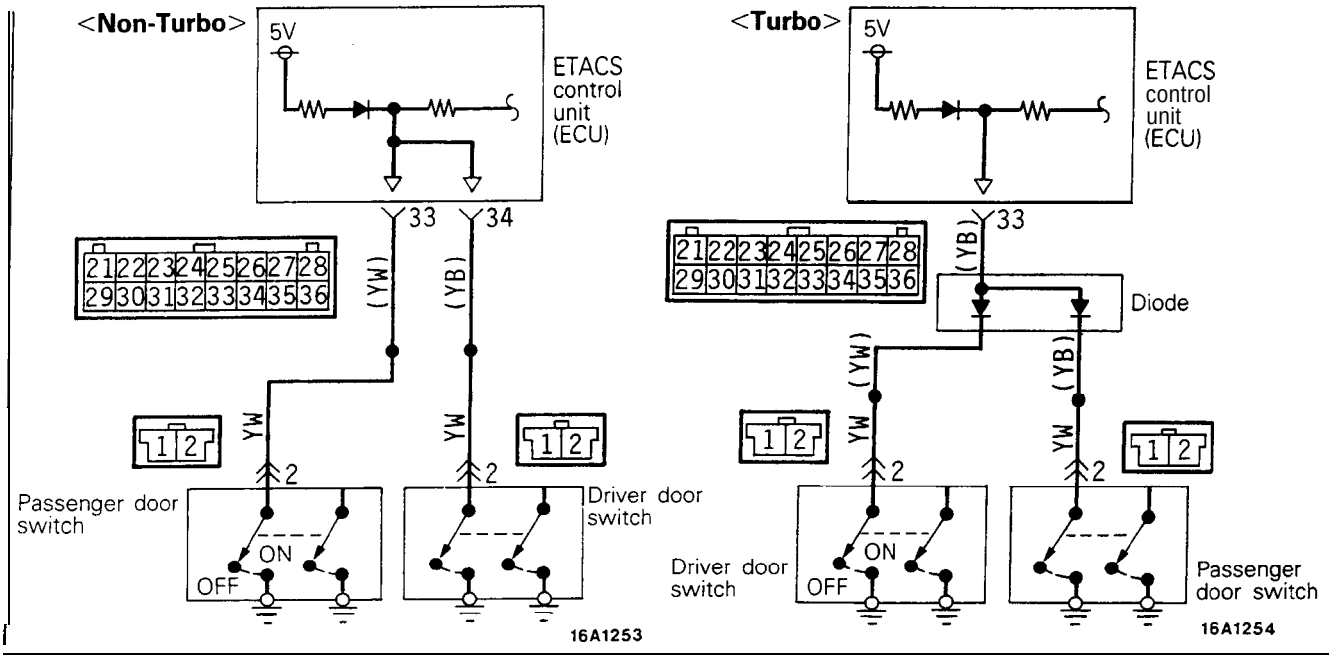
ECU terminal No.	Signal	Condition	Terminal voltage
28	Sunroof power relay signal	At all times	B+

B+: Battery Positive Voltage

Checking the individual part

Sunroof power relay: Refer to P.42-127

4. FRONT DOOR SWITCH INPUT CIRCUIT



Description of operation

When the driver door is closed (the door switch is switched OFF), HIGH-level signals are sent to the electronic control unit; when the front door is opened (the door switch is switched ON), LOW-level signals are sent to the electronic control unit.

Electronic control unit terminal voltage (connection status of the electronic control unit connector)

ECU terminal No.	Signal	Condition		Terminal voltage
33	Driver door switch signal	Driver door	Open	0 V
			Closed	5V
34	Passenger door switch signal	Passenger door	Open	0V
			Closed	5V

Checking the front door switch circuit (Disconnect the connector of the electronic control unit and check the wiring harness side.)

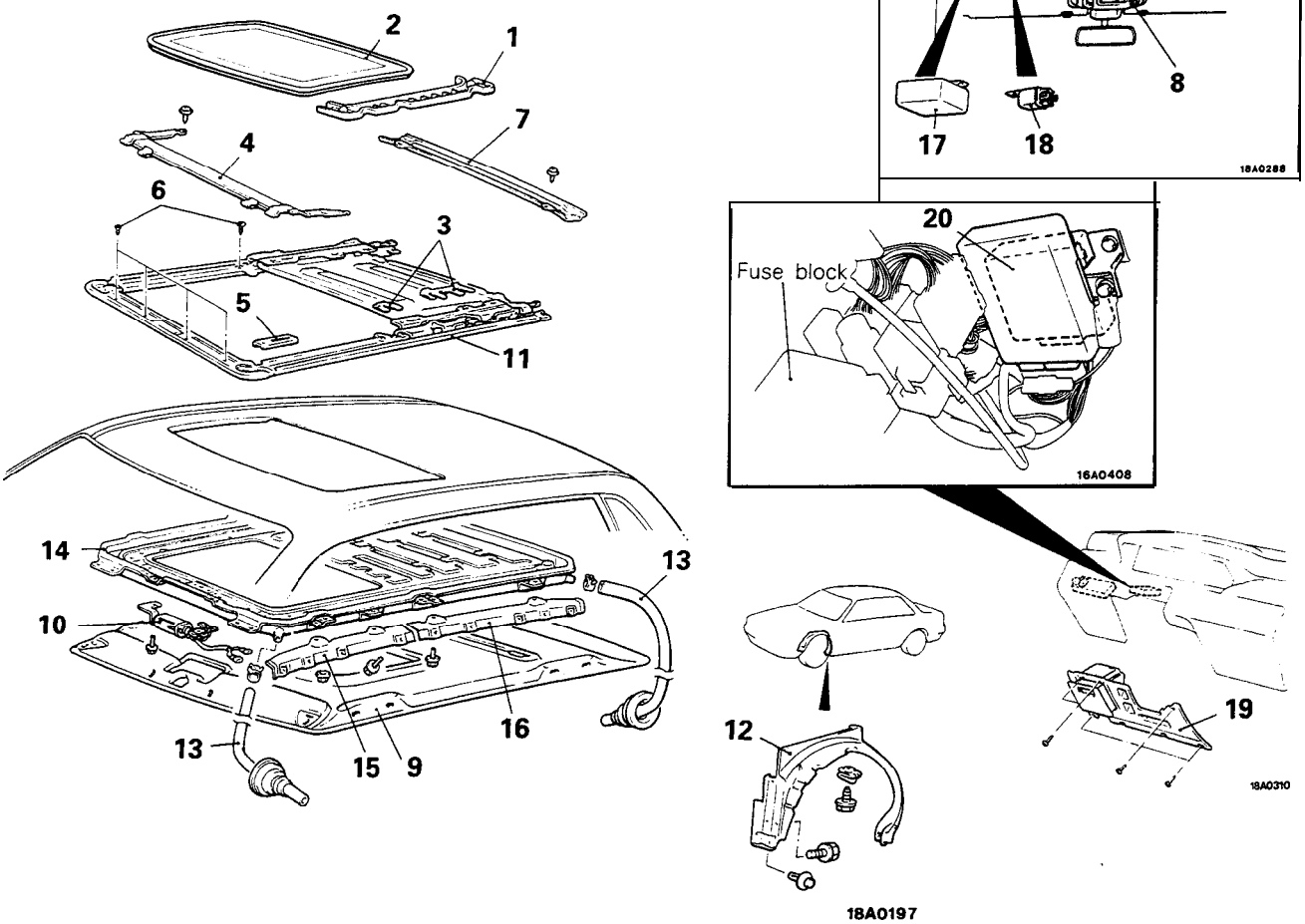
ECU terminal No.	Connected to/measured part	Measurement	Tester connection	Check conditions		Standard
33	Driver door switch	Resistance	33-ground	Driver door	Closed	No continuity
					Open	Continuity
34	Passenger door switch	Resistance	34-ground	Passenger door	Closed	No continuity
					Open	Continuity

Checking the individual part

Door switch: Refer to P.42-75.

TSB Revision

REMOVAL AND INSTALLATION



Roof glass lid removal steps

◀▶ 1. Side garnish
2. Roof glass lid
3. Adjust plate

Sliding roof assembly removal steps

◀▶ 1. Side garnish
2. Roof glass lid
3. Adjust plate
◀▶ 4. Deflector
5. Sliding roof guide rail cover
6. Screw
◀▶ 7. Roof drip rear channel
8. Sunroof switch and dome light assembly
◀▶ 9. Headlining (For installation, refer to GROUP 52–Headlining.)
◀▶▶◀ 10. Motor
◀▶ ● 4.1 1. Sliding roof assembly
◀▶▶◀ 13. Drain hose
14. Housing assembly
15. Front set bracket
16. Rear set bracket

Motor removal steps

8. Sunroof switch and dome light assembly
◀▶ 9. Headlining (For installation, refer to GROUP 52–Headlining.)
◀▶ ● 10. Motor

Post-installation Operation
- Sunroof Fit Adjustment (Refer to P.42-53.)
- Water Test (Refer to P.42-52.)

ETACS unit removal steps

19. Instrument under cover assembly <1989 models> or knee protector assembly <From 1990 models> (Refer to GROUP 52–Instrument Panel.)
20. ETACS unit

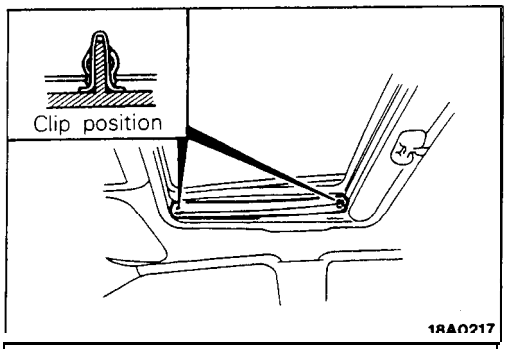
Power relay and sunroof control relay removal steps

8. Sunroof switch and dome light assembly
◀▶ 9. Headlining (For installation, refer to GROUP 52–Headlining.)
17. Sunroof power relay
18. Sunroof control relay

Drain hose removal steps

8. Sunroof switch and dome light assembly
◀▶ 9. Headlining (For installation, refer to GROUP 52–Headlining.)
◀▶ 12. Splash shield (For installation, refer to P.42-61.)
◀▶ ● + 13. Drain hose

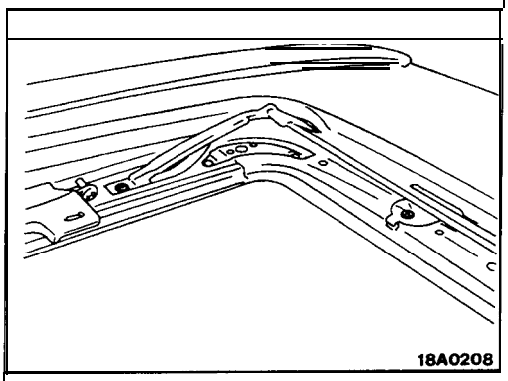
TSB **Revision**



SERVICE POINTS OF REMOVAL

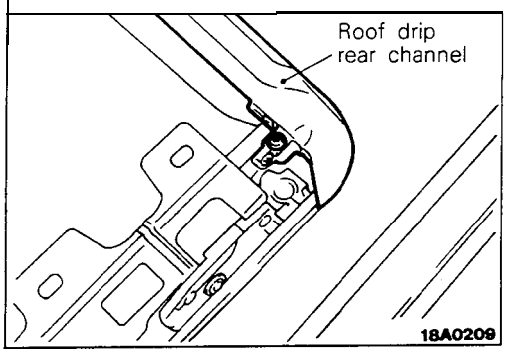
1. REMOVAL OF SIDE GARNISH

(1) Open the sunshade completely.
(2) Completely tilt close the roof glass lid.
(3) Remove the side garnish.



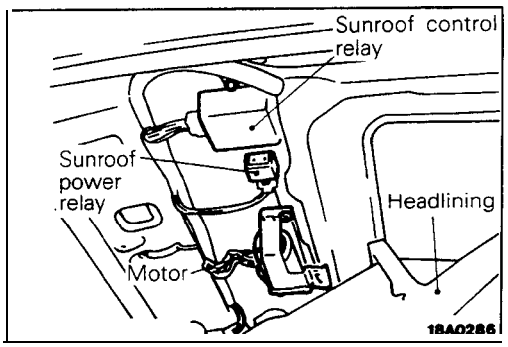
4. REMOVAL OF DEFLECTOR

(1) Operate the sunroof switch to bring the sliding roof drive cable assembly to the fully opened position.
(2) Remove the deflector.



7. REMOVAL OF ROOF DRIP REAR CHANNEL

(1) Operate the sunroof switch to bring the sliding roof drive cable assembly to the fully closed position.
(2) Remove the roof drip rear channel.



9. REMOVAL OF HEADLINING

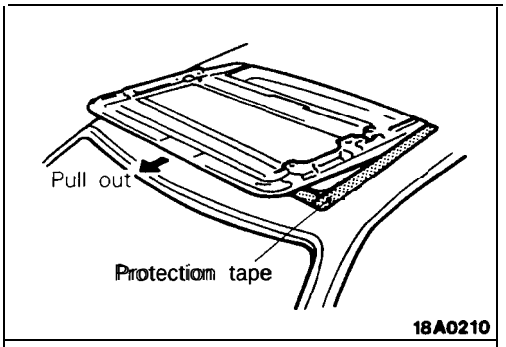
Refer to GROUP 52–Headlining.

NOTE
To remove the motor, sunroof power relay and sunroof control relay, remove after simply lowering the front part of the headlining.
If the housing assembly is also to be removed, remove the headlining.

10. REMOVAL OF MOTOR

Caution
If the motor is to be removed, be sure to first move the roof glass lid or the sliding roof drive cable assembly to the fully tilt closed position.
If the position of the roof glass lid and the motor's fully closed position do not correspond, the sunroof will not operate normally.

TSB Revision

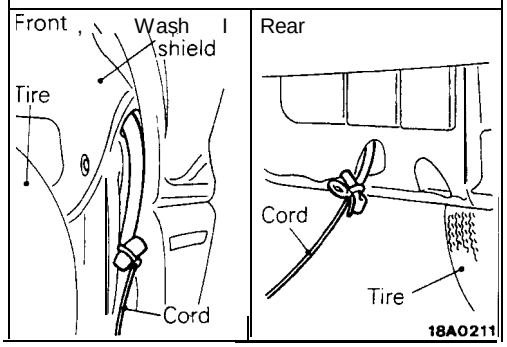


11. REMOVAL OF SLIDING ROOF ASSEMBLY

(1) Attach protection tape around the opening of the roof panel.
(2) Pull out, being careful not to strike the opening of the roof panel.

12. REMOVAL OF SPLASH SHIELD

If the drain hose at the front is to be disconnected, remove the splash shield to the extent that a hand can be inserted between the fender and the body.

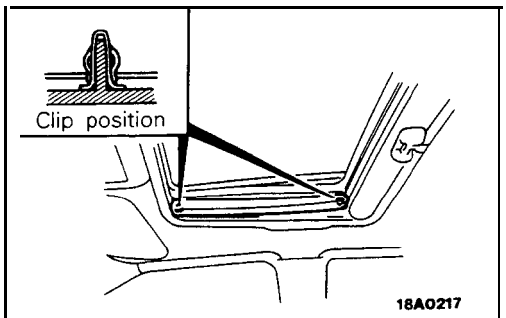


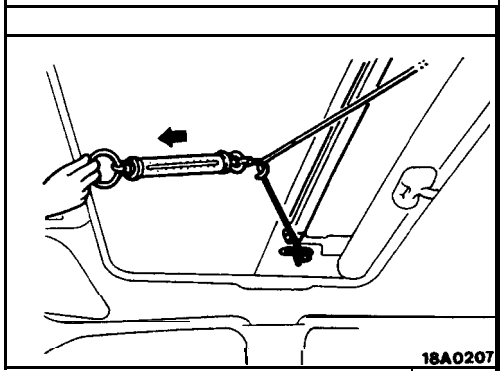
13. REMOVAL OF DRAIN HOSE

Tie a cord at the end of the drain hose and pull out the drain hose toward the vehicle interior.

INSPECTION

- Check each gear of the motor assembly for abrasion or wear.
- Check the guide rail assembly for clogging by foreign material.
- Check the operation of the deflector.





CHECKING THE SLIDING RESISTANCE OF THE GLASS LID

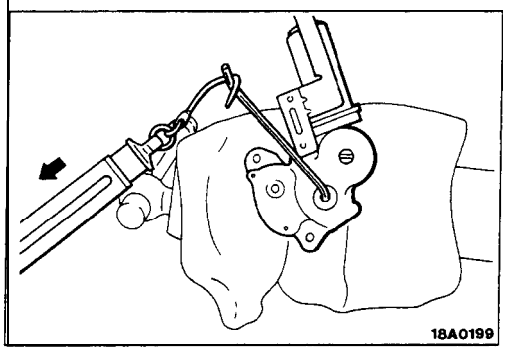
Check the sliding resistance of the roof glass lid by following the procedures below.

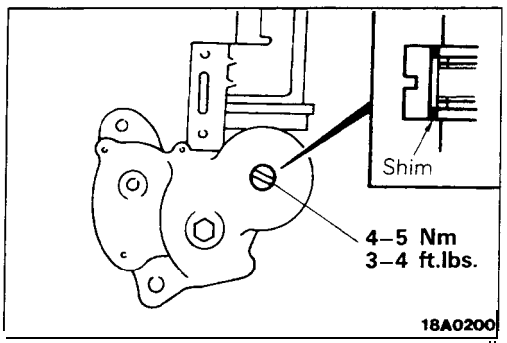
(1) Remove the side garnish.
(2) Loosen the nut at the front end of the roof glass lid installation, and then tie with a cord.
(3) Remove the motor after opening the roof glass lid.
(4) Using a spring scale, measure the sliding resistance of the roof glass lid.

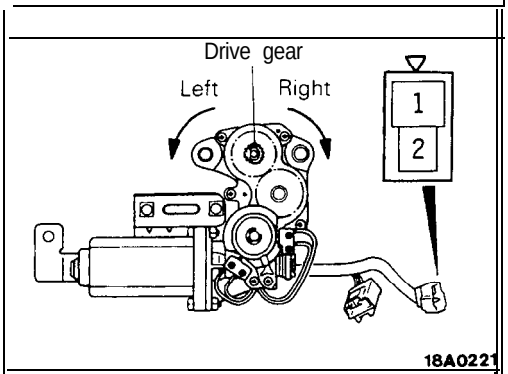
Standard value: 120 N (26 lbs.) or less

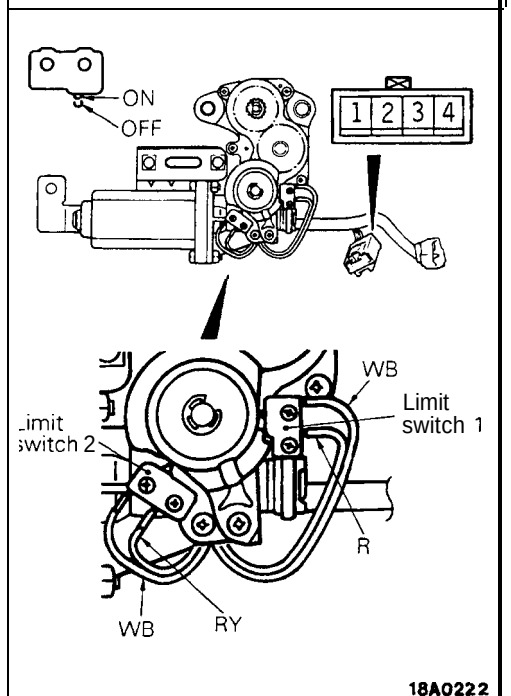
(5) If the sliding resistance of the roof glass lid exceeds the standard value, check for the following.
   ① Check the installation condition of the sliding roof assembly, and check for deformation or clogging by foreign material.
   ② Check for sticking of the drive cable.
   ③ Check for an offset position of the roof glass lid.
(6) When installing the motor, install after first aligning the fully tilt closed condition of the sliding roof assembly and of the motor.
(Refer to P.42-129.)

TSB Revision









CHECKING THE SLIDING FORCE OF THE MOTOR'S CLUTCH

(1) Insert one end of an allen wrench (provided in the tool bag) into the motor gear hole and hook a spring scale to the other end, and measure the force when the clutch starts to slip (when the allen wrench begins to turn).

Standard value: 35-44 N (8–10 lbs.)

Caution
Pull the spring scale in a direction at right angles to the wrench. Note that if a wrench other than the one provided in the tool bag is used, the measured value may not coincide with the standard value.

(2) If the sliding force of the motor's clutch is not within the standard value range, adjust by following one or the other of the procedures described below.
(1) Adjust the tightening torque of the bolt within the tightening torque range indicated in the illustration.
(2) Remove the bolt and reduce the number of shims.

CHECKING THE MOTOR

Check the direction of rotation of the drive gear when the battery is connected to the connector.

Terminal 1	Terminal 2	Drive gear rotation direction
+	–	Left
–	+	Right

CHECKING THE LIMIT SWITCH

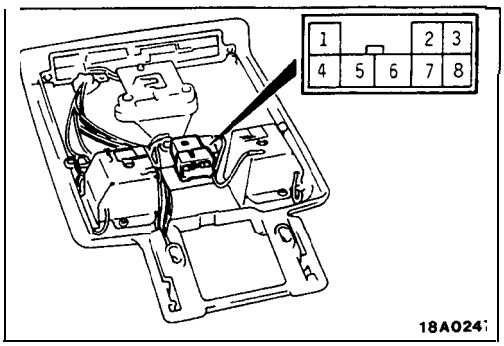
(1) Remove the limit switch from the motor; then operate the limit switch and check for continuity between the terminals.

Switch \ Terminal		1	2	3	4
Limit switch 1	ON	O	O		
	OFF				
Limit switch 2	ON	O		O	
	OFF				

NOTE
O-O indicates that there is continuity between the terminals.

(2) When installing the limit switch, install so that installation positions 1 and 2 and the inner and outer sides are as indicated in the illustration.

TSB Revision

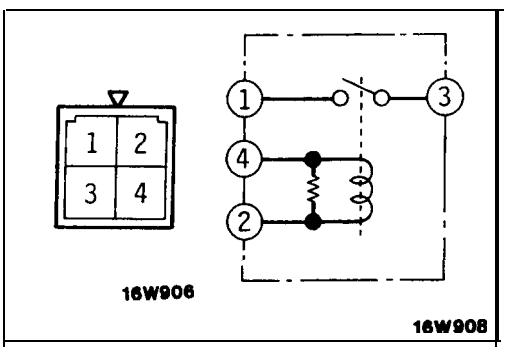


CHECKING THE SUNROOF SWITCH

Operate the switch and check for continuity between the terminals.

Switch		Terminal 2	3	5	7	8
Slide switch	Open	○		○		
	Closed			○	○	
Tilt switch	Up		○	○		
	Down			○		○

NOTE

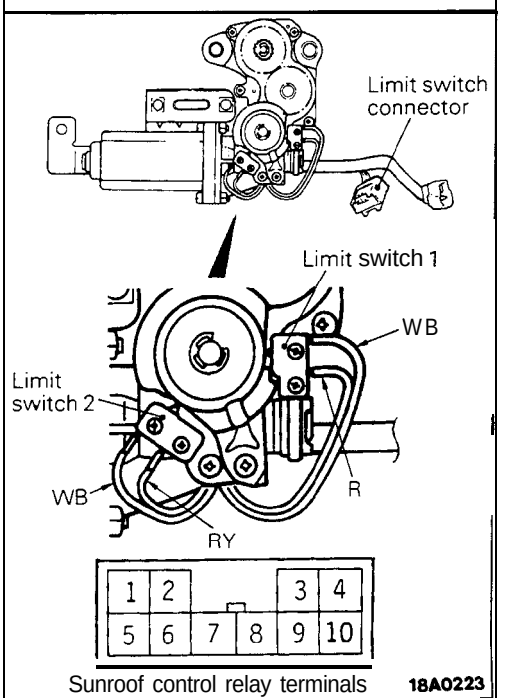


CHECKING THE SUNROOF POWER RELAY

Check for continuity between terminals under the conditions described below.

Battery voltage	Terminal 1	2	3	4
Continuity no voltage		○		○
Continuity with voltage	○	⊕	○	⊖

NOTE
(1) ○–○ indicates that there is continuity between the terminals.
(2) ⊕ ⊖ indicates terminals to which battery voltage is applied.



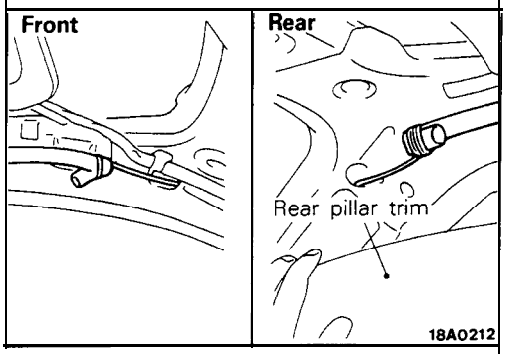
CHECKING THE SUNROOF CONTROL RELAY

(1) Remove the limit switch from the motor.
(2) Connect the limit switch and the wiring harness' connector.
(3) Switch ON the ignition switch.
(4) Connect the tester to each terminal and to body ground (as shown in the table below), and then check the voltage and check for continuity.
(5) When installing the limit switch, install so that installation positions 1 and 2 and the inner and outer sides are as indicated in the illustration.

TSB Revision

Check sequence	Tester connection terminal	Checking conditions: Always/Usually	Checking conditions: Limit switch	Checking conditions: Sunroof switch	Standard	Countermeasure if deviation from standard
1	5	Always			Continuity	Check the harness (between the control relay and ground).
2	10	Always			Battery Positive Voltage	Check the harness (between the control relay and the battery).
3	6		No. 1 OFF		Battery Positive Voltage	Replace the control relay or the motor
			No. 1 ON		0 V	Check the harness (between the control relay and ground).
4	2		No. 2 OFF		Battery Positive Voltage	Replace the control relay or the motor
			No.2 ON		0 V	Check the harness (between the control relay and ground).
5	3	Usually,			Battery Positive Voltage	Replace the control relay or the motor
				Tilt up	0 V	Check the harness (between the control relay and ground). Check the tilt switch.
6	7	Usually/			Batten/ Positive Voltage	Replace the control relay or the motor
				Tilt down	0 V	Check the harness (between the control relay and ground). Check the tilt switch.
7	9	Usually			Battery Positive Voltage	Replace the control relay or the motor
				Slide open	0 V	Check the harness (between the control relay and ground). Check the slide switch.
8	8	Usually			Battery Positive Voltage	Replace the control relay or the motor
				Slide close	0 V	Check the harness (between the control relay and ground). Check the slide switch.
9	4		No. 2 OFF	Tilt up	Battery Positive Voltage	Replace the control relay.
10	1		① No. 2 OFF	② Tilt down	–	–
			③ No. 1 OFF-ON		Battery Positive Voltage →0V	Replace the control relay.
11	1		① No. 1 ON	② Slide open	–	
			③ No. 2 ON		Battery Positive Voltage	Replace the control relay.
12	4		① No. 1 ON	② Slide close	–	–
			③ No. 2 ON – OFF		Battery Positive Voltage →0V	Replace the control relay.
13	4		① No. 1 OFF		–	-
			② No. 2 ON	③ Slide close	Battery Positive Voltage (for 0.5 sec.)	Replace the control relay.

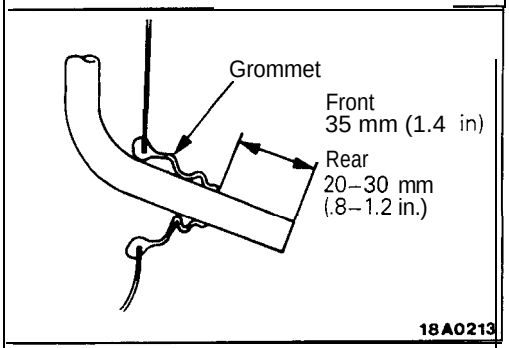
TSB Revision



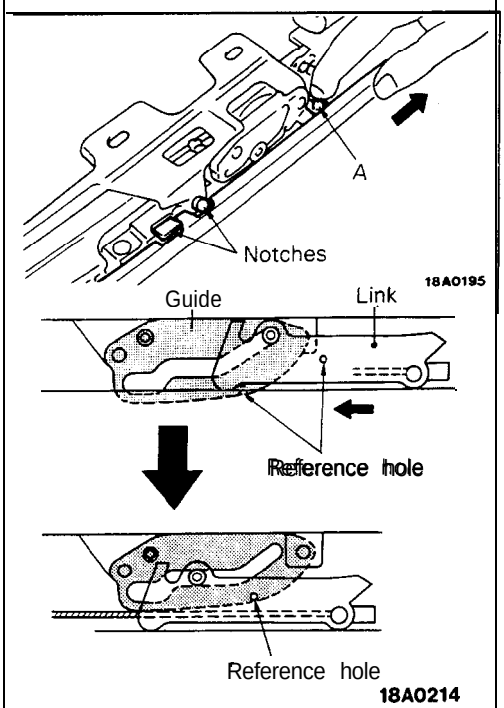
SERVICE POINTS OF INSTALLATION

13. INSTALLATION OF DRAIN HOSE

(1) Tie the cord (passed through at the time of removal) to the end of the drain hose.
(2) Pull the cord and pass the drain hose through.



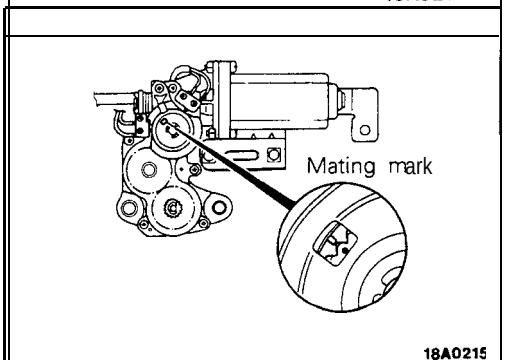
(3) Install the grommet, and install so that the amount of projection of the drain hose is as shown in the figure.



11. INSTALLATION OF SLIDING ROOF ASSEMBLY

Following the sequence described below, fully tilt close the left and right.

(1) Slide the sliding roof drive cable assembly so that the notches in the guide rail are as indicated in the illustration.
(2) With a finger at the place indicated by (A) in the illustration, slide the link forward and align the guide and the link's reference hole.

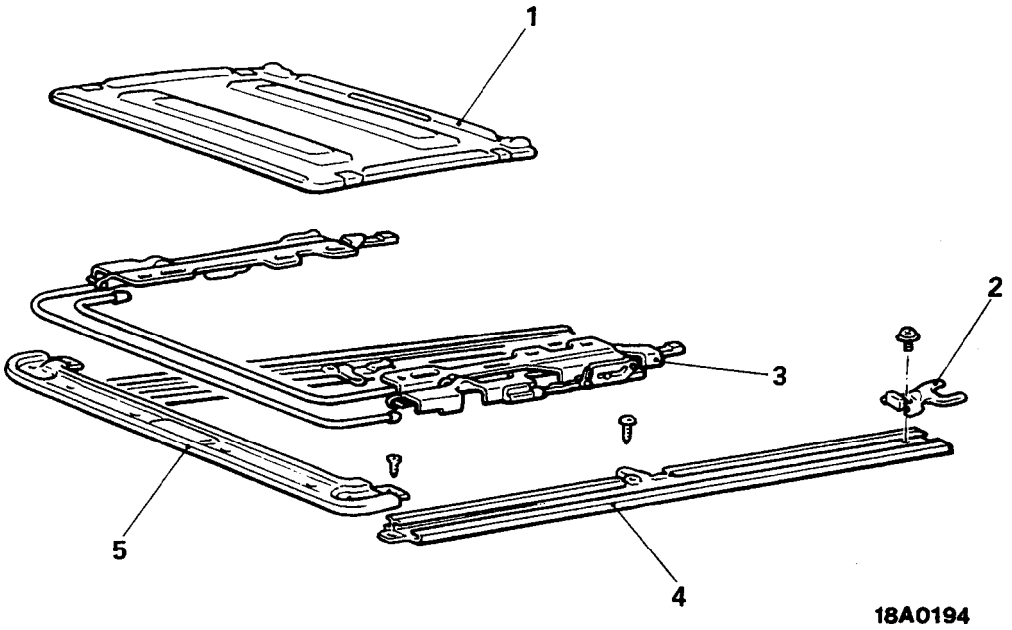


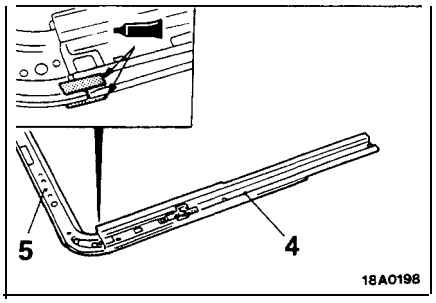
10. INSTALLATION OF MOTOR

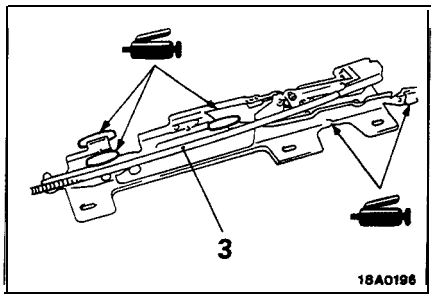
Following the sequence described below, set to the fully tilt closed condition.

(1) Remove the cam plate cover.
(2) With the hexagonal wrench (included with the vehicle) attached at the hexagonal hole of the motor drive shaft, turn the cam and align with the mating mark.

REASSEMBLY AND DISASSEMBLY

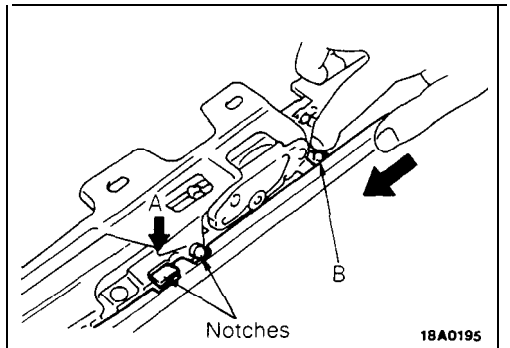


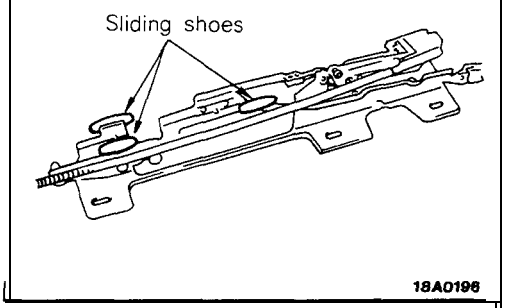


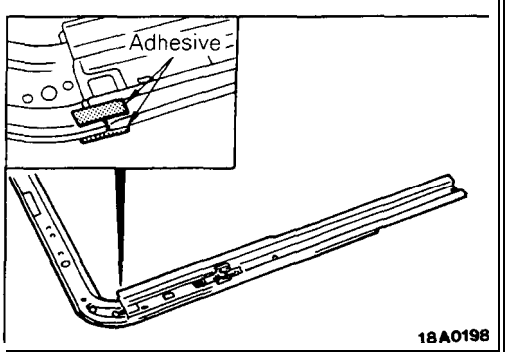


Disassembly steps

1. Sun shade
2. Stopper
- ◻ 3. Sliding roof drive cable assembly
- ● + 4. Guide rail
- ◆◆ 5. Sliding roof cable guide casing







SERVICE POINTS OF DISASSEMBLY

3. REMOVAL OF SLIDING ROOF DRIVE CABLE ASSEMBLY

Pull out the sliding roof drive cable assembly from the rear part of the guide rail.
If it won't slide (with the notches of the guide rail as indicated in the illustration), press the (A) part and, with a finger at the (B) part, slide toward the rear.

Caution
Be careful not to lose the sliding shoes (plastic).

SERVICE POINTS OF INSTALLATION

5. APPLICATION OF ADHESIVE TO SLIDING ROOF CABLE GUIDE CASING/4. GUIDE RAIL

Apply a coating of adhesive to the seal at the coupling and to the cut part of the weatherstrip.

Specified adhesive: 3M ATD Part No.8625 or equivalent

Caution
If too much adhesive is applied, adhesive will adhere to the roof panel at the time of installation to body, so don't apply too much.

TSB Revision

NOTES

EXTERIOR

CONTENTS

M51AA--

AERO PARTS 18

BUMPER 7

DOOR MIRROR 33

FRONT GRILLE 12

GARNISHES 13

MOULDINGS 15

REMOTE-CONTROLLED MIRROR SWITCH 34

SPECIAL TOOLS 3

SPECIFICATIONS 2

- General Specifications 2
- Sealant and Adhesives 3
- Service Specifications 3
- Torque Specifications 3

TROUBLESHOOTING 4

WINDSHIELD WIPER AND WASHER 20

SPECIFICATIONS

GENERAL SPECIFICATIONS

M51CA--

Items		Specifications
Wiper motor		
Type		Ferrite magnet type
Speed control system		Third brush system
Braking system		Dynamic brake system
Rpm at load of 1 Nm (0.72 ft.lbs.)	rpm	
Low speed		48 ± 4
High speed		68^{+9}_{-5}
Nominal torque	N m (ft.lbs.)	2 1 (15.5)
No-load current	A	3.7 or less
Wiper blade		
Wiping angle		
Driver's side		80" ± 2"
Passenger's side		97.3° ± 2°
Wiper blade length	mm (in.)	
Driver's side		475 (18.7)
Passenger's side		450 (17.7)
Window washer motor and pump		
Motor type		Direct current ferrite magnet type
Pump type		Centrifugal type
Power consumption	A	3.8 or less
Time of continuous use	sec.	
With washer fluid		Max. 60
Empty operation		Max. 20
Nozzle jet pressure	kPa (psi)	120 (17.1)
Tank capacity	dm^3 (qts.)	1 . 7 (1.8)
Wiper relay (Vehicles with ETACS)		
Range of voltage used	V	9 - 1 6
Voltage drop between terminals	V	0.15 or less
Remote control mirror		
Remote control mirror motor		
Bound current	mA	5 0 0
Door mirror control switch		
Rated load	mA	50

TSB Revision

SERVICE SPECIFICATIONS

M51C8--

Items	Specifications
Standard value Wiper blace stopping position mm (in.) (distance between blade tip and front deck garnish)	25-35 (1–1.4)

TORQUE SPECIFICATIONS

M51CC--

Items	Nm	ft.lbs.
Bumper reinforcement coupling bolt and nut	19-28	14–20
Windshield wiper linkage mounting bolt	4-6	2.9-4.3
Windshield wiper arm locking nut	10–16	7.2-12

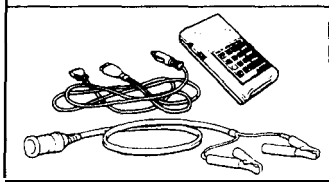
SEALANT AND ADHESIVES

M51CE--

Items	Specified sealant and adhesive
Side Garnish Side Protect Moulding	3M ATD Part No.6382 [width 12 mm (1/2in.)] or 3M ATD Part No.6383 [width 22 mm (7/8 in.)] or equivalent

SPECIAL TOOLS

M51DA--

Tool	Number	Name	Use
	MB991269*1 MB991341*2	Scan tool (Multi-use tester <MUT>)	ETACS input check
	[For the number, refer to GROUP 00–Precautions Before Service]	ROM pack	ETACS input check

NOTE
*1: <1 989 models>
*2: <1990, 1991, 1992, 1993 models>

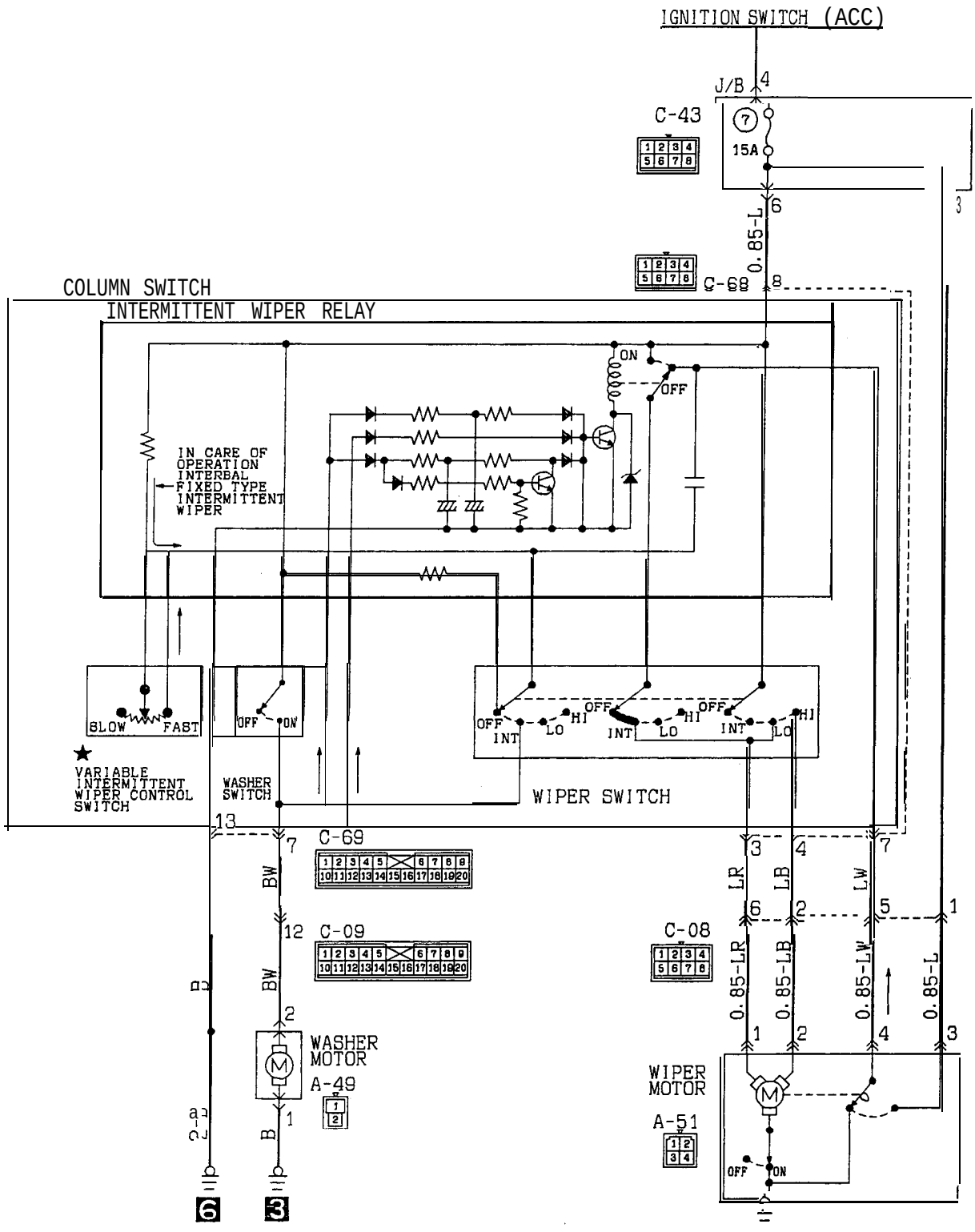
TSB **Revision**

TROUBLESHOOTING

M51KHBGa

WINDSHIELD WIPER AND WASHER <VEHICLES WITHOUT ETACS>

CIRCUIT DIAGRAM



Remark
*indicates vehicles with variable intermittent wiper.

KX35-AC-H1324-NM

TSB Revision

OPERATION

<Low-speed (and high-speed) wiper operation>

- When the wiper switch is placed in the LO position with the ignition switch in the ACC or ON position, wipers operate continuously at low speed.
- Placing the wiper switch in the HI position causes the wipers to operate at high speed.

<Auto wiper stop operation>

- When the wiper switch is placed in the OFF position, the cam contacts of wiper motor causes current to flow through the auto wiper stop circuit, allowing the wiper blades to cycle before they reach to the stop positions.

<Intermittent wiper operation>

- When the wiper switch is placed in the INT position with the ignition switch in ACC or ON position, the intermittent wiper relay is energized causing the intermittent wiper relay contacts to close and open repeatedly.
- When the contacts are closed, the wiper motor is energized.
- When the wiper motor is energized, the relay contacts open; however, the cam contacts keep the wiper motor energized until the wiper blades return to their stop position.

<Washer-wiper operation >

- When the washer switch is turned ON, the intermittent wiper relay contacts close causing wipers to cycle two to three times.

TROUBLESHOOTING HINTS

1. Wipers do not operate.
   1) Washer is not operative, either.
      - Check multi-purpose fuse No.⑦.
      - Check ground.
2. Low-speed (or high-speed) wiper operation only is inoperative.
   - Check wiper switch.
3. Wipers do not stop.
   - Check wiper motor.
   - Check intermittent wiper relay.
   - Check wiper switch.
4. intermittent wiper operation is inoperative.
   - Check terminal voltage of steering-column switch (with a built-in intermittent wiper relay) with the intermittent wiper relay energized.

Terminal No.	Voltage	Check
3	ov	intermittent wiper relay or wiper switch
	Battery positive voltage	Intermittent wiper relay
	0 ⟷ Battery positive voltage (alternating)	– (Normal)

5. The length of pause for intermittent operation cannot be varied.
   - Check variable intermittent wiper control switch.
   - Check intermittent wiper relay.
6. Washer is inoperative.
   1) Wiper is operative on washer-wiper operation.
      - Check washer motor.
   2) Washer-wiper operation is inoperative also.
      - Check washer switch.
7. Washer-wiper operation is inoperative.
   - Check intermittent wiper relay.

Remarks

- On vehicles with ETACS, refer to P.51-20.

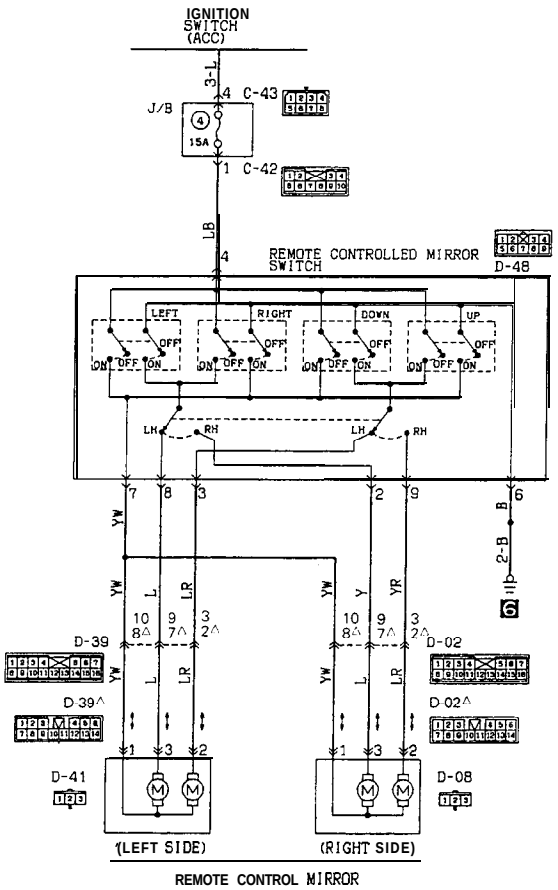
TSB Revision

REMOTE CONTROL MIRROR

M51EBBB

CIRCUIT DIAGRAM

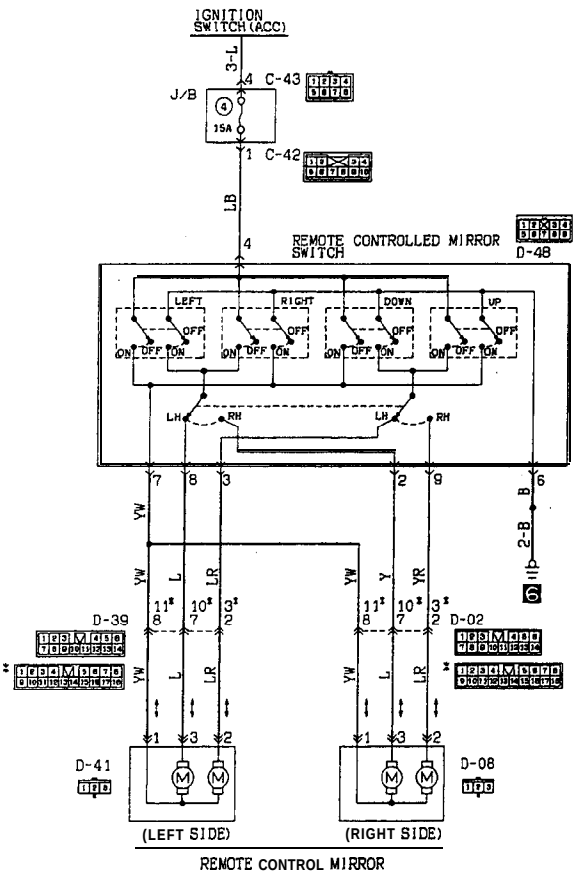
Up to 1990 models



△: 1990 models

KX36-AC-H1306-N

From 1991 models



Remark
*Mark indicates vehicles with THEFT-ALARM SYSTEM

KX35-AC-H1330-NN

OPERATION

- When the remote-controlled mirror switch is operated while the ignition key is in "ACC" or "ON" position, current flows through fuse No.④ remote-controlled mirror switch, remote-control mirror, remote-controlled mirror switch, and ground, causing the mirror to move.

TROUBLESHOOTING HINTS

Neither right nor left mirror operates

1) Also cigarette lighter does not operate
   - Check fuse.
2) Cigarette lighter operates
   - Check remote-controlled mirror switch.

TSB Revision

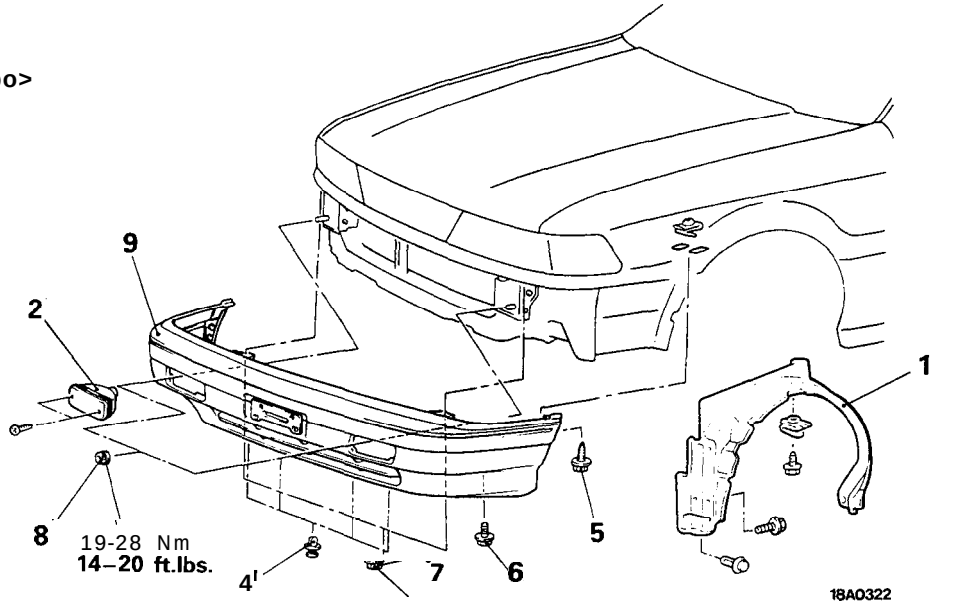
BUMPER

M51ZAANa

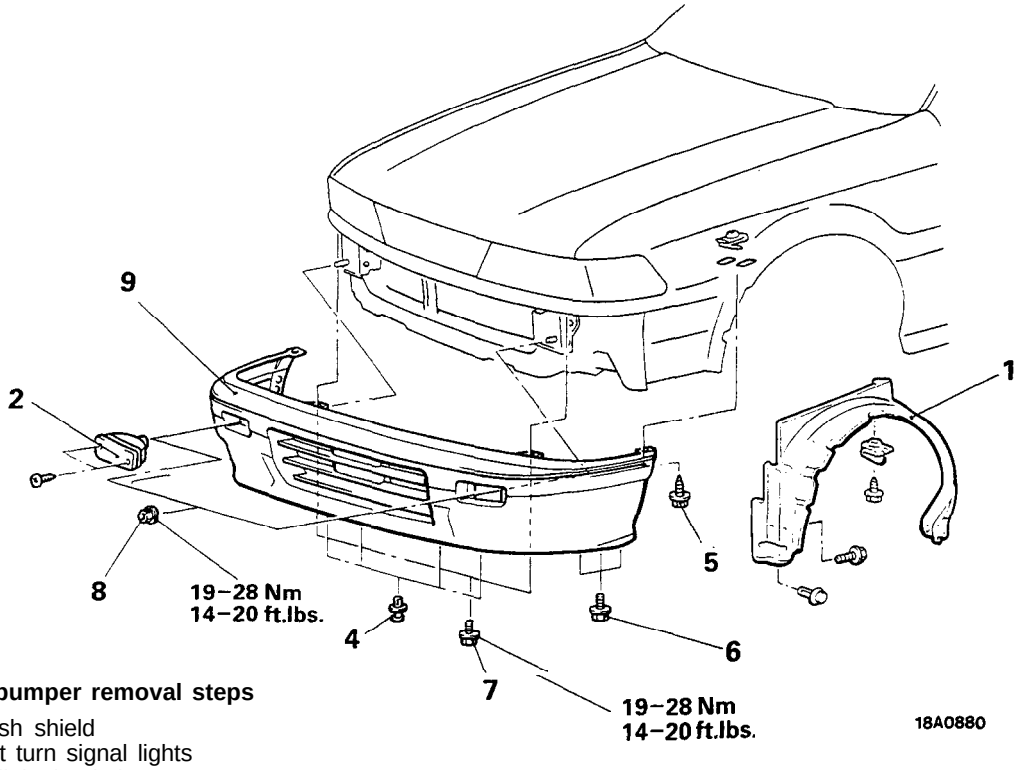
REMOVAL AND INSTALLATION

Front

<Non-Turbo>



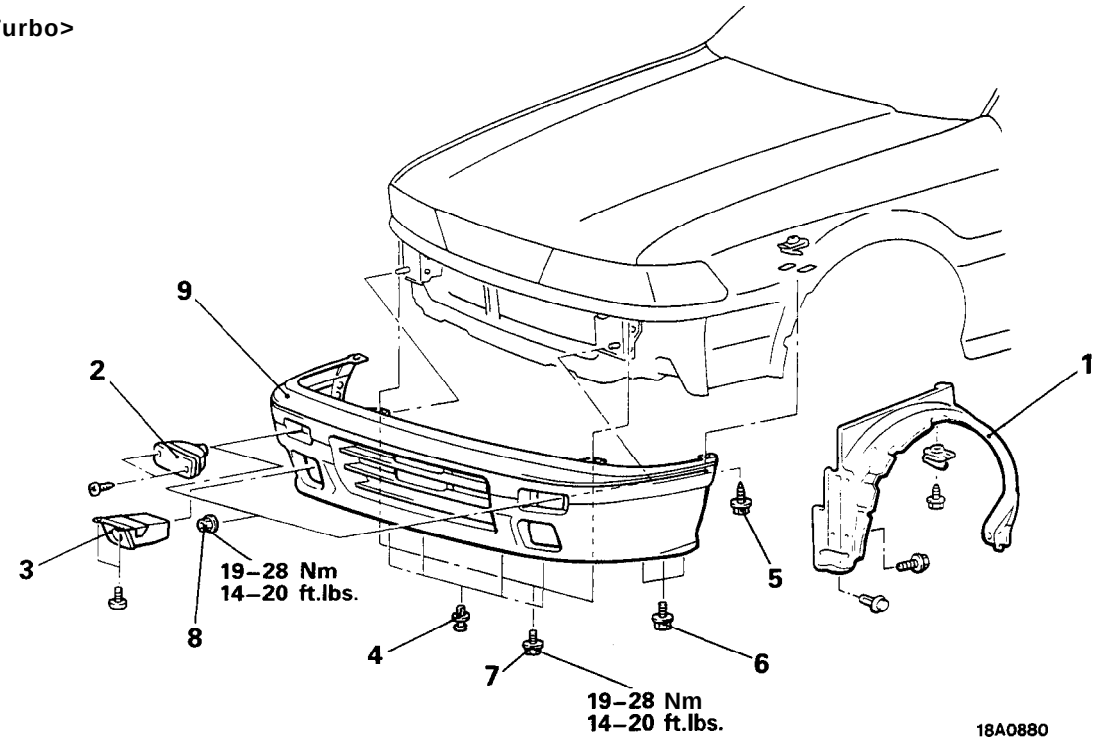
19-28 **Nm**
14–20 ft.lbs.



Front bumper removal steps

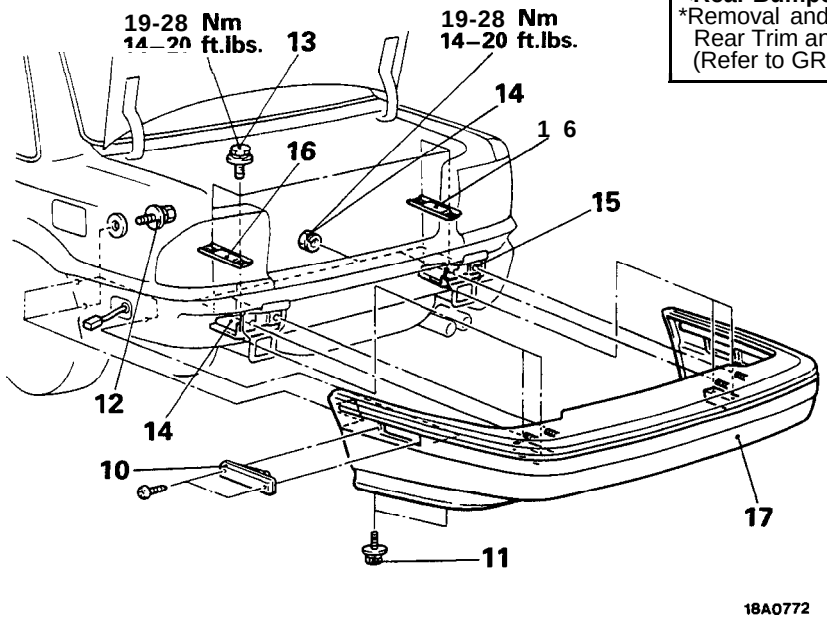
1. Splash shield
2. Front turn signal lights
3. Fog light (Turbo)
4. Front bumper face coupling clip
5. Front bumper face coupling screw
6. Front bumper face coupling bolt
7. Front bumper reinforcement coupling bolt
8. Front bumper reinforcement coupling nut
9. Front bumper assembly

<Turbo>



Rear

Pre-removal and Post-installation Operation
<Rear Bumper>
*Removal and Installation of Trunk Rear Trim and Trunk Side Trim (Refer to GROUP 52–Trims.)



Rear bumper removal steps

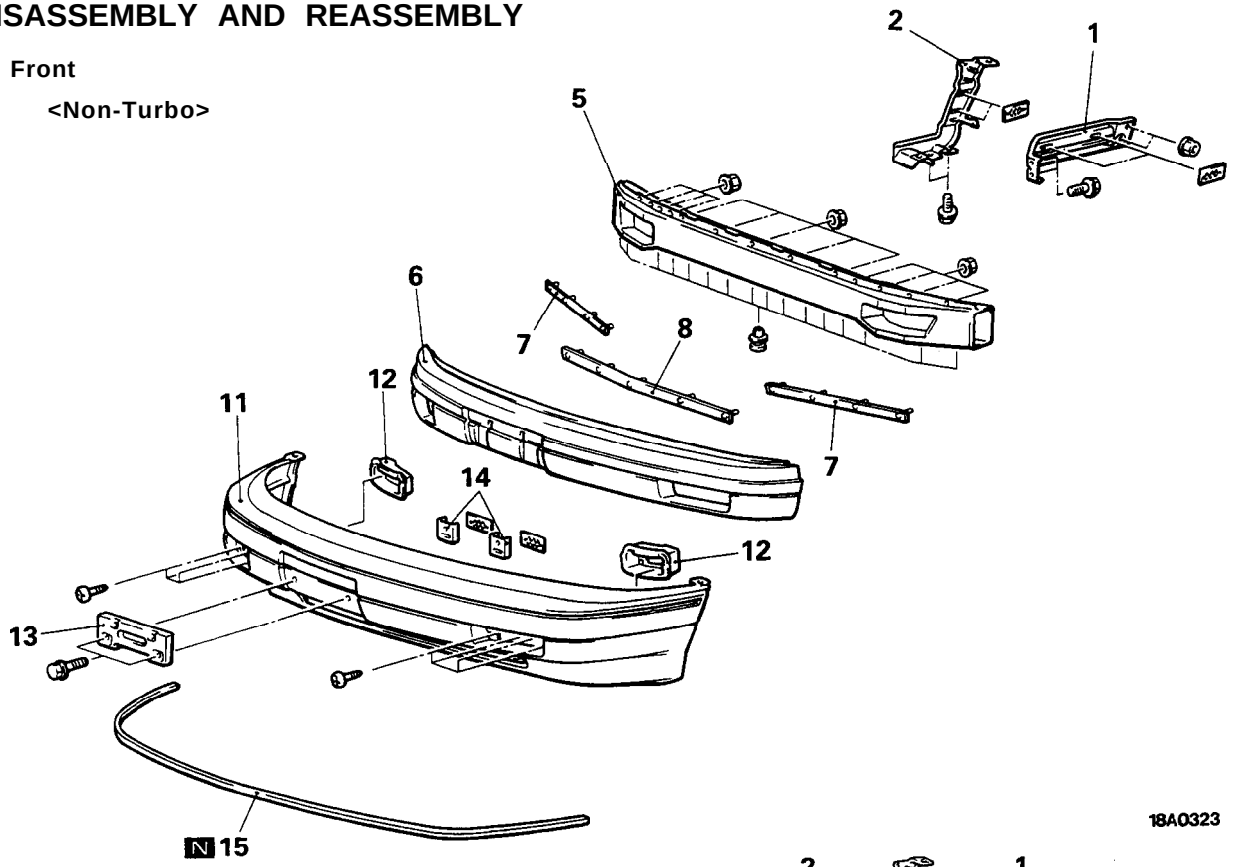
10. Rear side markers
11. Rear bumper face coupling bolt(s)
12. Rear bumper face coupling bolt(s)
13. Rear bumper reinforcement coupling bolt
14. Rear bumper reinforcement coupling nut <FWD>
15. Rear bumper stay plates <FWD>
16. Rear bumper stay reinforcement <AWD>
17. Rear bumper assembly

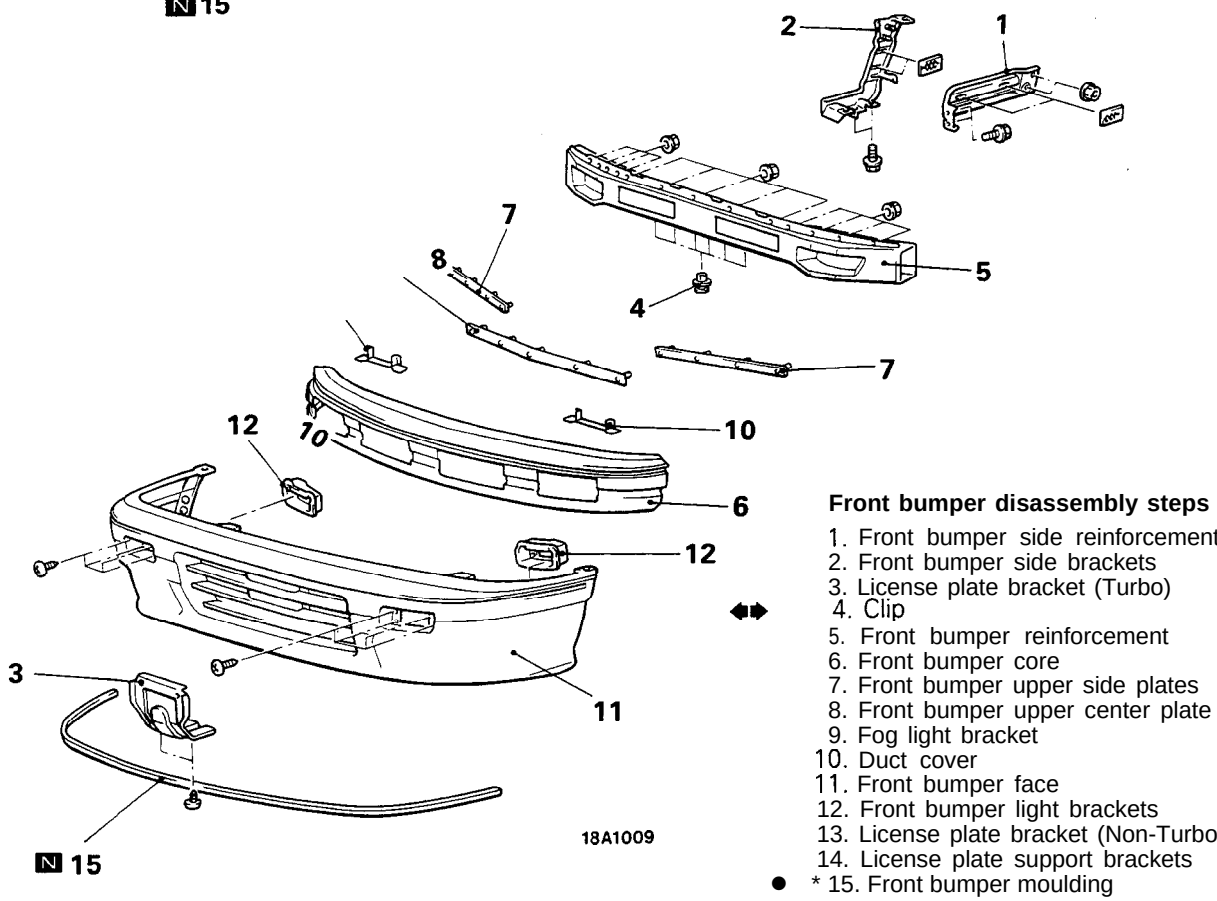
TSB Revision

DISASSEMBLY AND REASSEMBLY

Front

<Non-Turbo>



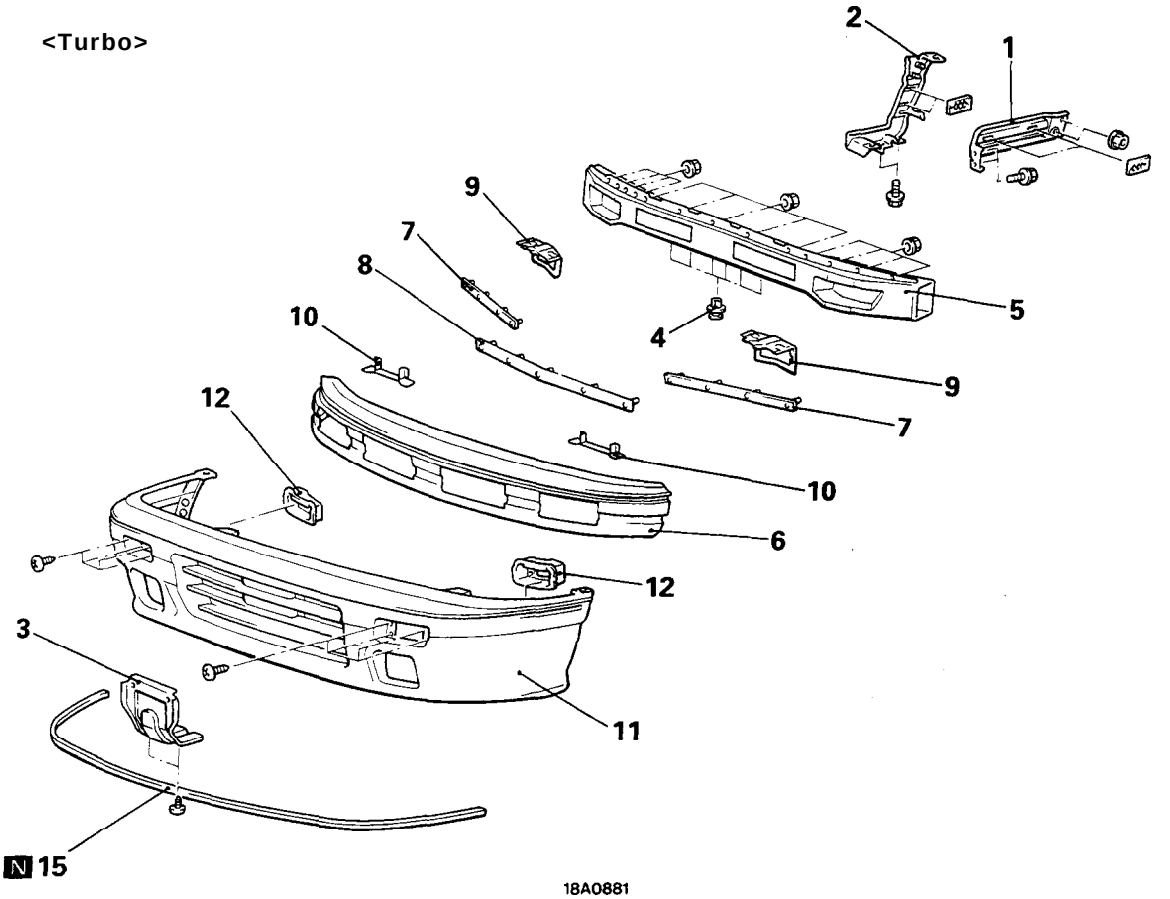


Front bumper disassembly steps

1. Front bumper side reinforcements
2. Front bumper side brackets
3. License plate bracket (Turbo)
4. Clip ◆◆
5. Front bumper reinforcement
6. Front bumper core
7. Front bumper upper side plates
8. Front bumper upper center plate
9. Fog light bracket
10. Duct cover
11. Front bumper face
12. Front bumper light brackets
13. License plate bracket (Non-Turbo)
14. License plate support brackets
- * 15. Front bumper moulding

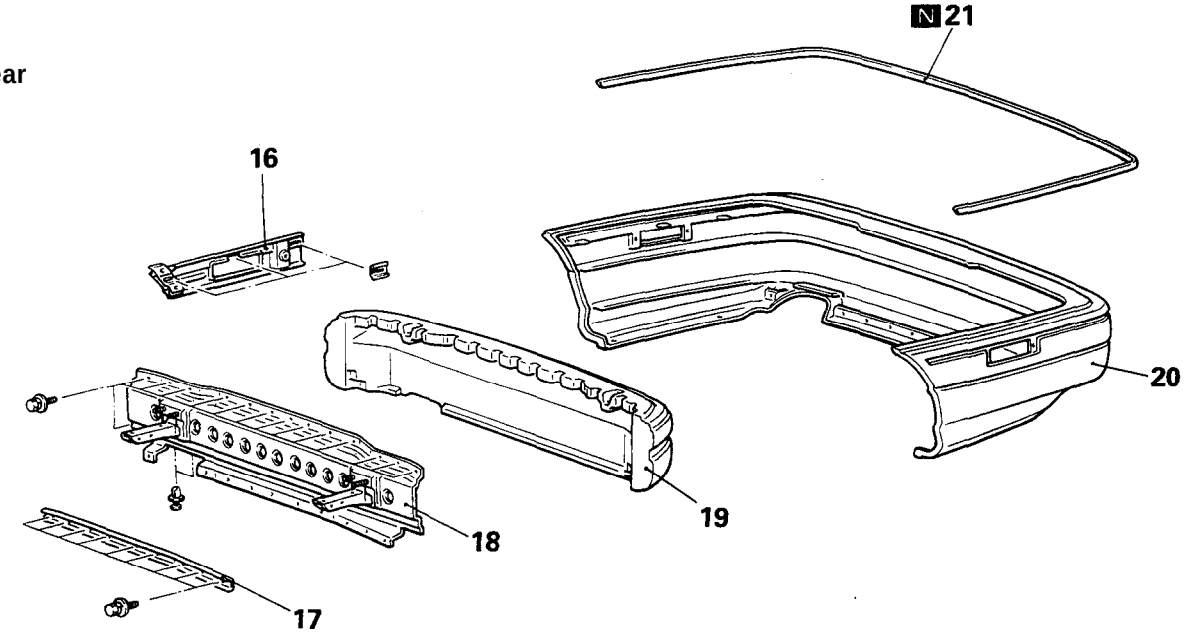
TSB Revision

<Turbo>



18A0881

Rear

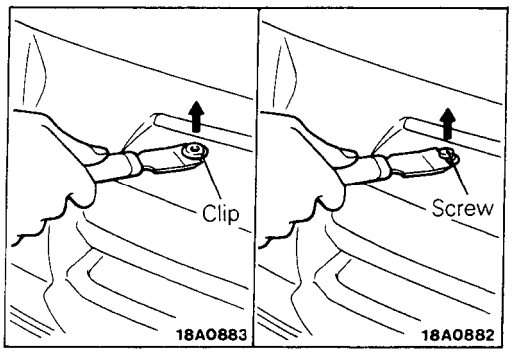


18A0331

Rear bumper disassembly steps

16. Rear bumper side reinforcement
17. Rear bumper lower plates
18. Rear bumper reinforcement
19. Rear bumper core
20. Rear bumper face
◆◆21. Rear bumper moulding

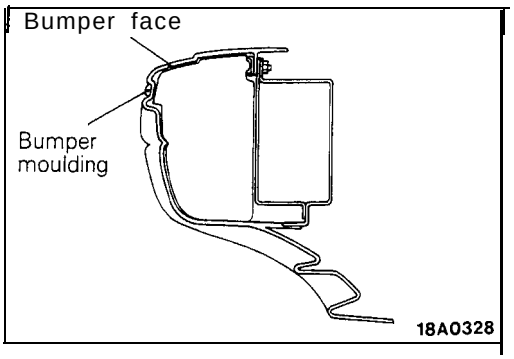
TSB Revision



SERVICE POINTS OF DISASSEMBLY

4. REMOVAL OF CLIP

Using a scraper or similar tool, slightly lift up the clip and then remove the screw to the top.



SERVICE POINTS OF REASSEMBLY

15. ADHESION OF FRONT BUMPER MOULDING/21. REAR BUMPER MOULDING

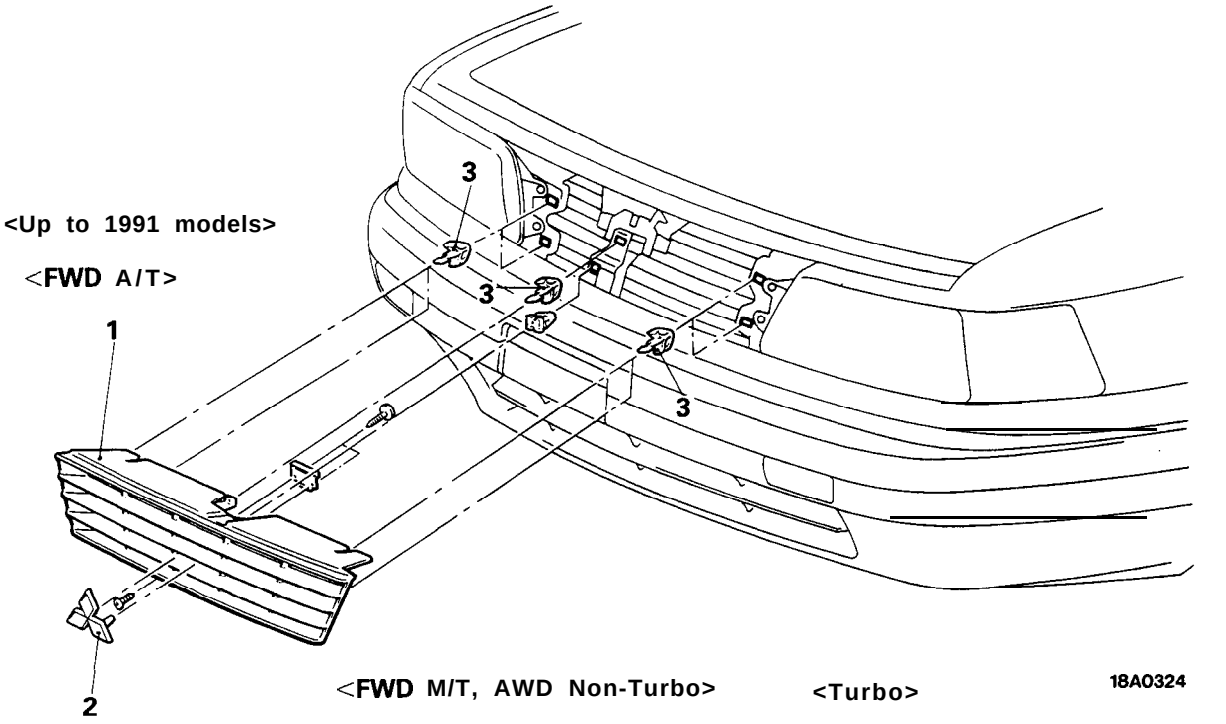
(1) Use isopropyl alcohol to clean away any oil or grease from the bumper moulding installation surface of the bumper.
(2) Peel away the paper from the bumper moulding, and then install the bumper moulding so that it is aligned with the groove for bumper moulding installation.

TSB Revision

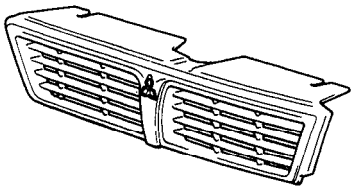
FRONT GRILLE

M51RCACa

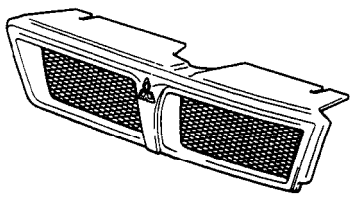
REMOVAL AND INSTALLATION



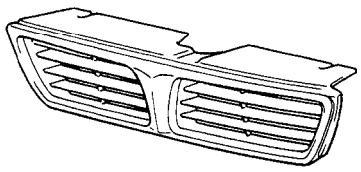
<FWD M/T, AWD Non-Turbo>



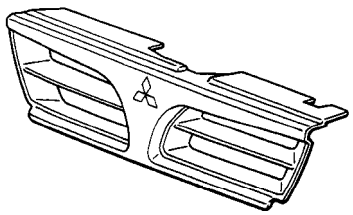
<Turbo>



<1992 models>

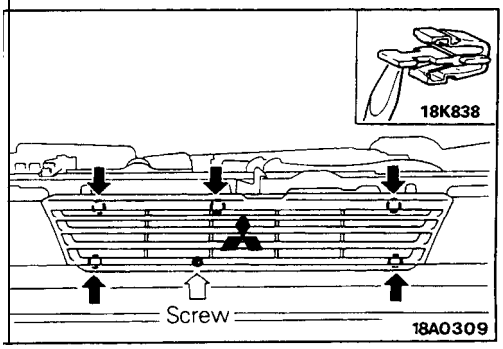


< 1993 models>



Removal steps

- ◻ Radrator grille
2. Top mark
3. Clips



SERVICE POINTS OF REMOVAL

1. REMOVAL OF RADIATOR GRILLE

While carefully pulling the radiator grille outward, use a flat-tip (–) screwdriver to push the tab part of the clips in the direction indicated by the arrow, and then remove the radiator grille.

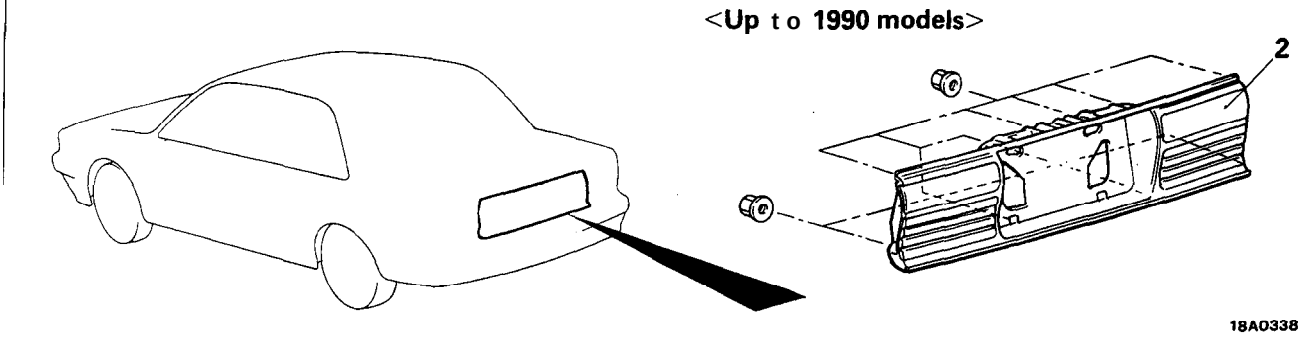
TSB Revision

GARNISHES

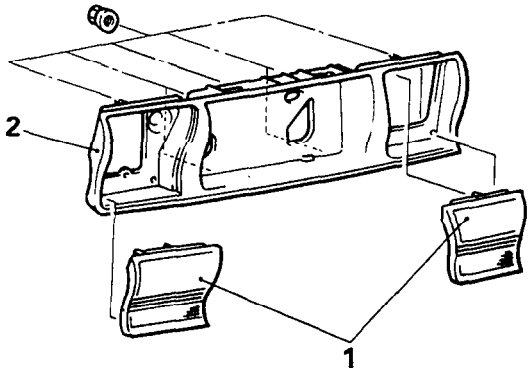
M51RDAEa

REMOVAL AND INSTALLATION

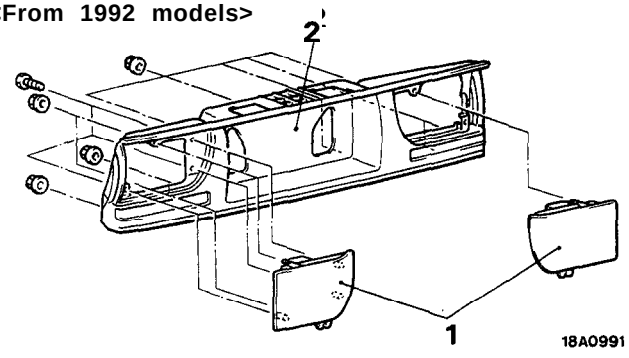
<Up to 1990 models>

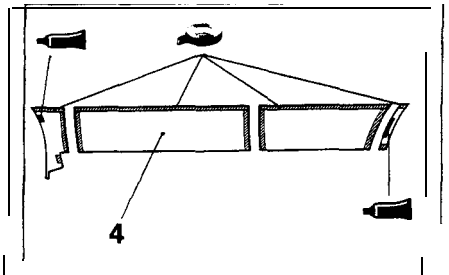


<1991 models>

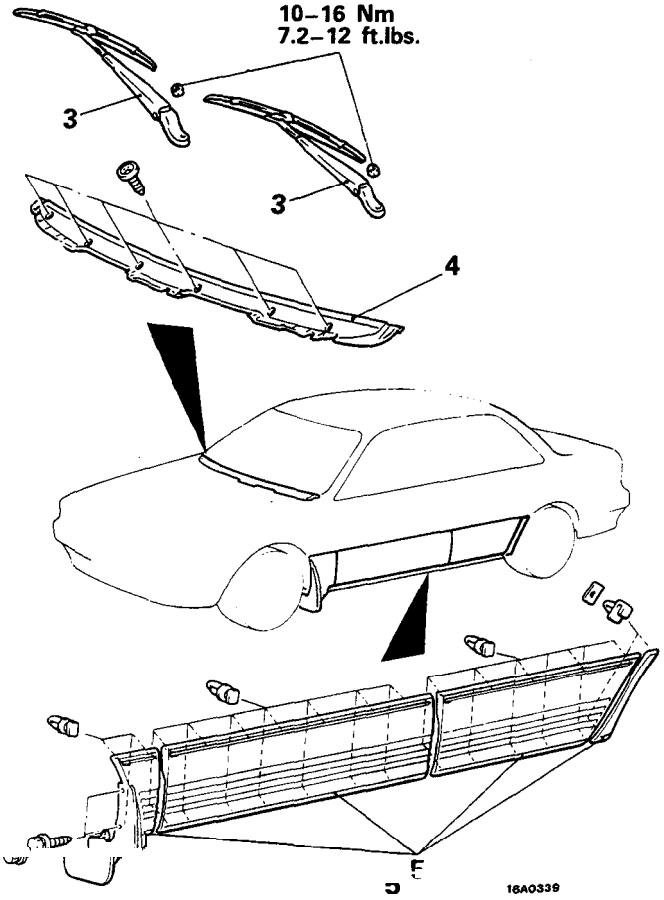


<From 1992 models>





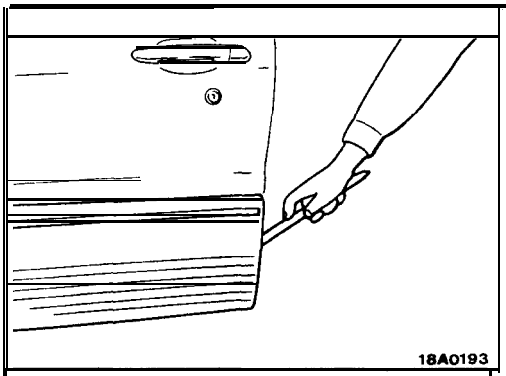
Both-side tape:
3M ATD Part No.6382 or
3M ATD Part No.6383 or
equivalent



Removal

1. Rear lid light
2. Rear panel garnish
3. Wiper blades and arm
4. Front deck garnish
5. Side garnish

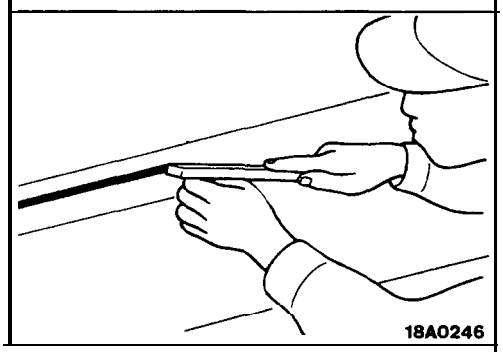
TSB Revision


18A0193

SERVICE POINTS OF REMOVAL

5. REMOVAL OF SIDE GARNISH

(1) Using a plastic trim tool, pry the side garnish to remove it.


18A0246

(2) Apply isopropyl alcohol to the adhesive adhering at the body side, and then remove the adhesive by using a plastic trim tool.

SERVICE POINTS OF INSTALLATION

5. INSTALLATION OF SIDE GARNISH

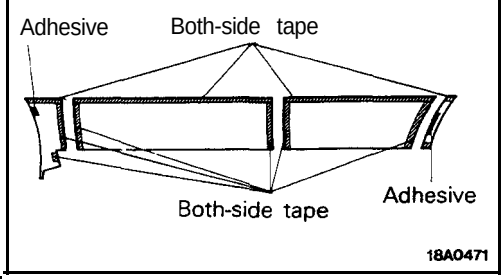
(1) Clean away oil and grease from the body side installation surfaces by using isopropyl alcohol.

(2) If the side garnish is to be reused, install by following the steps below.

① Remove the both-side tape remaining on the side garnish.

② Heat the adhesive surface of the both-side tape on the side garnish to about 40–80°C (104–176°F).

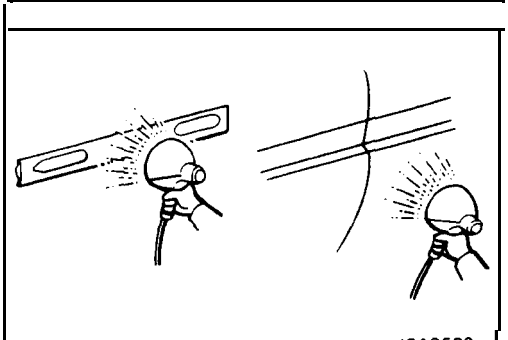
③ Attach the specified both-side tape to the side garnish where shown in the figure.



18A0471

Specified both-side tape:
3M ATD Part No.6382 or 3M ATD Part No. 6383 or equivalent

④ Apply a coating of dry adhesive to the adhesive-coated part where shown in the figure.


18A0582

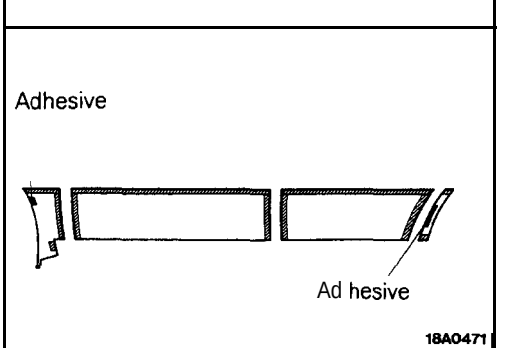
NOTE
Scrape off the old adhesive slightly and apply a coating of new adhesive on the remaining old adhesive.

⑤ Heat the side garnish and the surface of the body where it will be installed to about 40–80°C (104–176°F).

⑥ Install the side garnish to the body.

(3) If a new side garnish is to be used, install by following the steps below.

① Peel off the paper from the both-side tape of the side garnish, and apply a coating of dry adhesive where shown in the figure.



18A0471

② Heat the side garnish and the surface of the body where it will be installed to about 40–80°C (104–176°F).

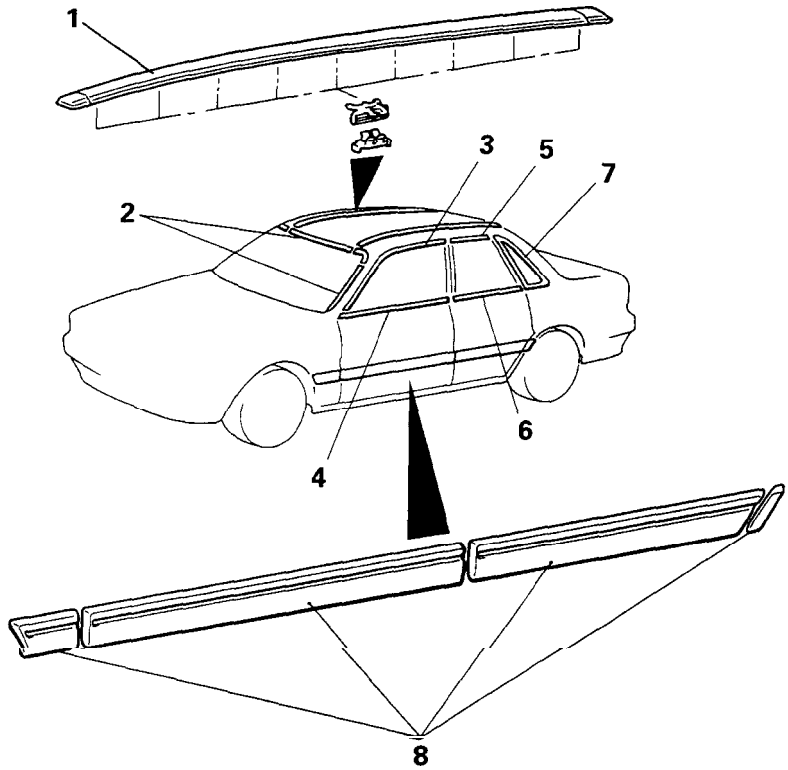
③ Install the side garnish to the body.

TSB Revision

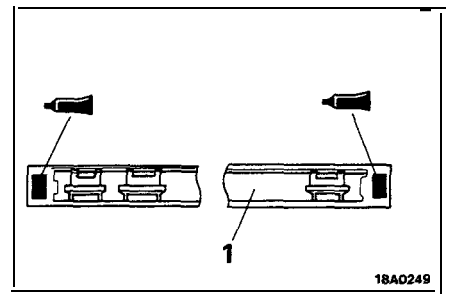
MOULDINGS

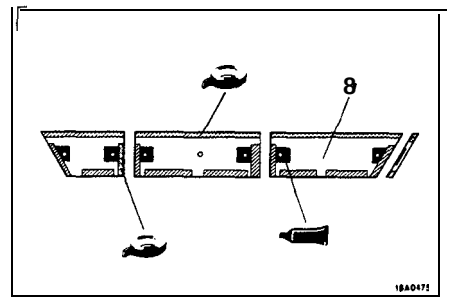
REMOVAL AND INSTALLATION

M51REAGa

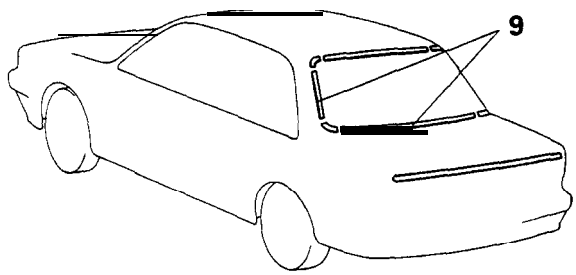


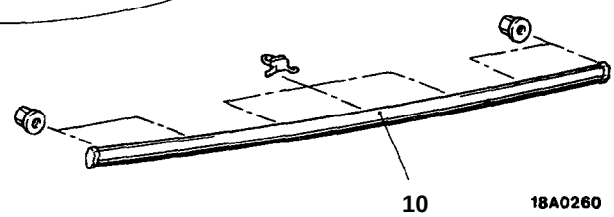
Pre-removal and Post-installation Operation
*Removal and Installation of Rear Panel Garnish
(Refer to P.51-13.)





Both-side tape:
3M ATD Part No.6382 or
3M ATD Part No.6383 or
equivalent

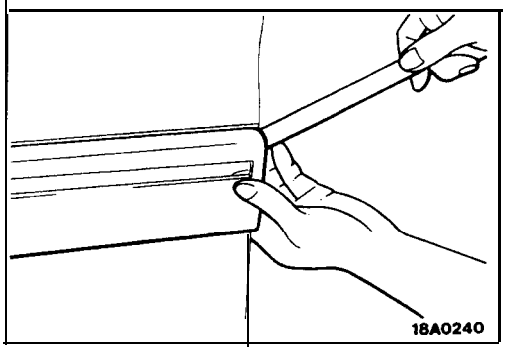




Removal

- ● + 1. Roof drip moulding
- ◆◆ 2. Front windshield moulding (Refer to GROUP 42–Windshield.)
- 3. Front door sash moulding
- 4. Front belt line moulding (Refer to GROUP 42–Front Door Moulding and Drip Line Weatherstrip.)
- 5. Rear door sash moulding
- 6. Rear belt line moulding (Refer to GROUP 42–Rear Door Moulding and Drip Line Weatherstrip.)
- 7. Quarter window glass moulding (Refer to GROUP 42–Quarter Window Glass.)
- ◆◆ ● + 8. Side protect moulding
- 9. Rear window moulding (Refer to GROUP 42–Rear Window Glass.)
- 10. Trunk lid moulding

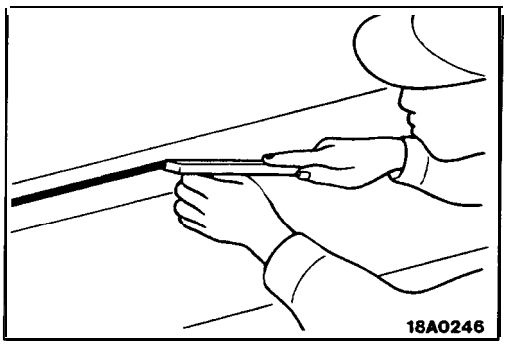
TSB Revision



SERVICE POINTS OF REMOVAL

8. REMOVAL OF SIDE PROTECT MOULDING

(1) Using a plastic trim tool, remove the side protect moulding.



(2) Apply isopropyl alcohol to the adhesive adhering at the body side, and then remove the adhesive by using a plastic trim tool.

SERVICE POINTS OF INSTALLATION

8. INSTALLATION OF SIDE PROTECT MOULDING

(1) Clean away oil and grease from the body side and protect moulding installation surfaces by using isopropyl alcohol.

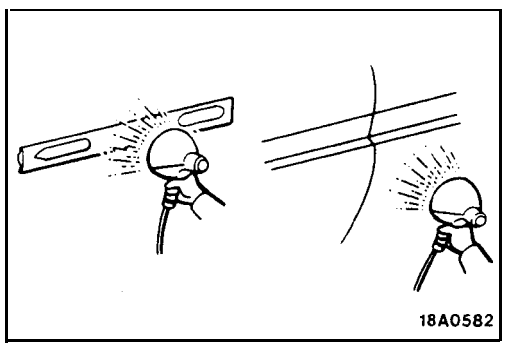
(2) If the side protect moulding is to be reused, install by following the steps below.

① Remove the both-side tape remaining on the side protect moulding.

② Heat the adhesive surface of the both-side tape on the side protect moulding to about 40–80°C (104–176°F).

③ Attach the specified both-side tape (of the size shown in the figure) to the side protect moulding where shown in the figure.

Specified both-side tape:
3M ATD Part No.6382 or 3M ATD Part No. 6383 or equivalent

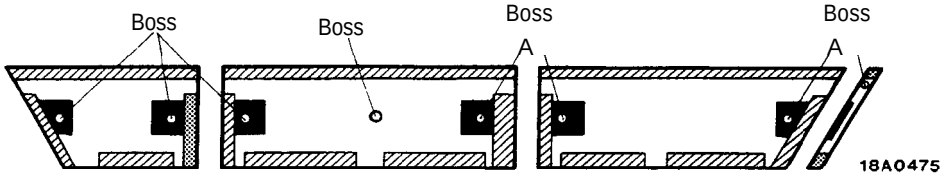


④ Apply a coating of dry adhesive to the adhesive-coated part where shown in the figure.

NOTE
Scrape off the old adhesive slightly and apply a coating of new adhesive on the remaining old adhesive.

⑤ Heat the side protect moulding and the surface of the body where it will be installed to about 40–80°C (104–176°F).

⑥ Install the side protect moulding to the body.

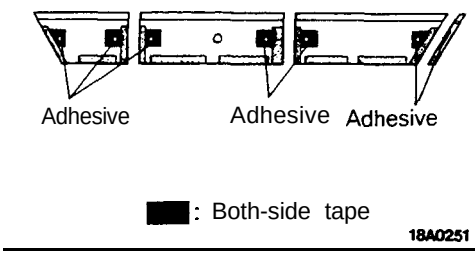


■: Adhesive

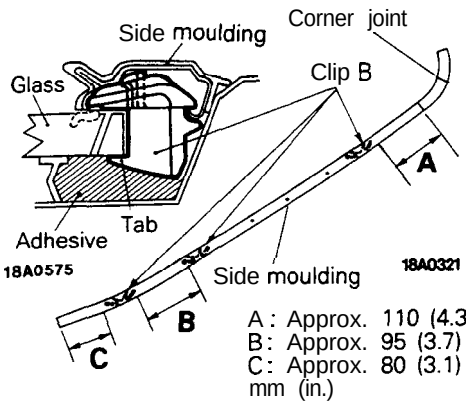
Both-side tape size mm (in.)

	Width	Thickness
▨	11 (.43)	1.2 (.05)
■	14 (.55)	1.2 (.05)

TSB Revision



(3) If a new side protect moulding is to be used, install by following the steps below.
① Peel off the paper from the both-side tape of the side protect moulding, and apply a coating of dry adhesive where shown in the figure.
② Heat the side protect moulding and the surface of the body where it will be installed to about 40–80°C (104–176°F).
③ Install the side protect moulding to the body.

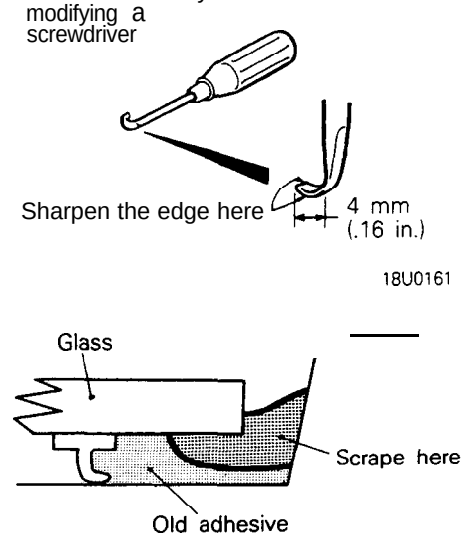


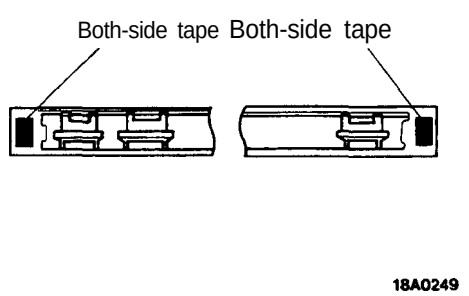
2. INSTALLATION OF FRONT WINDSHIELD MOULDING

Prepare a tool such as that shown in the figure and use it to scrape away the old adhesive from the clip installation locations and the corner joint parts; then apply a coating of new adhesive, and install the moulding.

NOTE
(1) At the clip A location, fit together the moulding and the tab of clip A; at the clip B location, pressing the clip B firmly so that the tab is securely attached at the lower edge of the glass, as shown in the figure.
(2) If the moulding clip stud is damaged, refer to GROUP 42–Windshield.

Caution
1. lake care not to damage the glass or the body.
2. For information concerning the adhesive, refer to GROUP 42–Windshield.





1. INSTALLATION OF ROOF DRIP MOULDING

Peel off the paper from the both-side tape, and install the roof drip moulding.

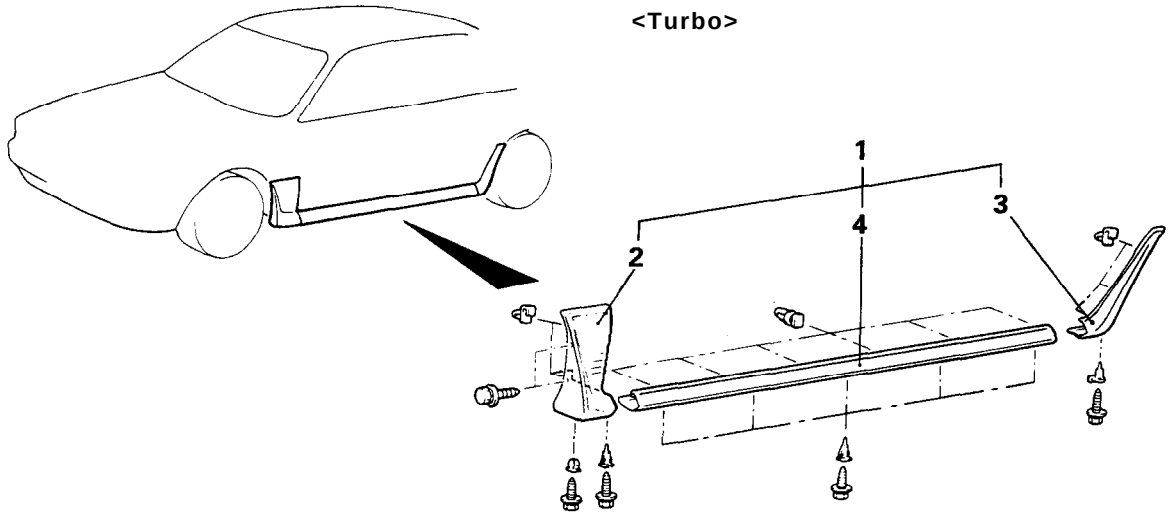
NOTE
The ends of the roof drip moulding tend to loosed easily, so apply manual pressure.

AERO PARTS

M51XAAI

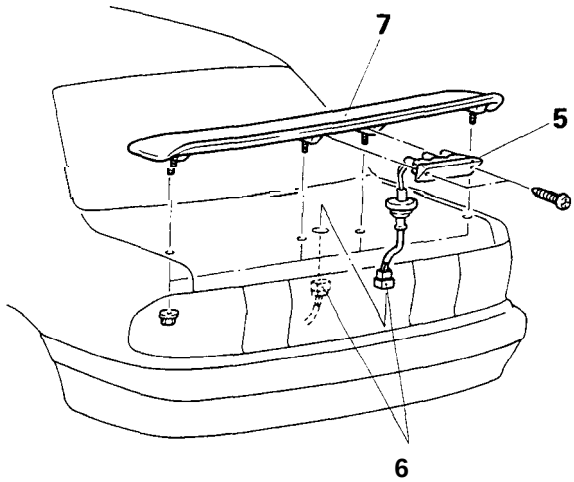
REMOVAL AND INSTALLATION

<Turbo>



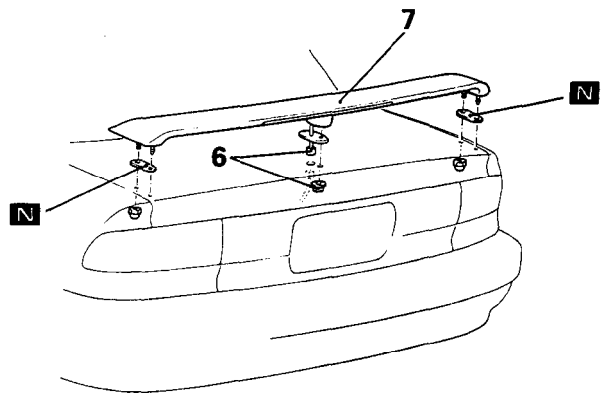
18A0873

<Non-Turbo-Up to 1992 models>



18A0336

<Turbo>,
<Non-Turbo–1993 models>



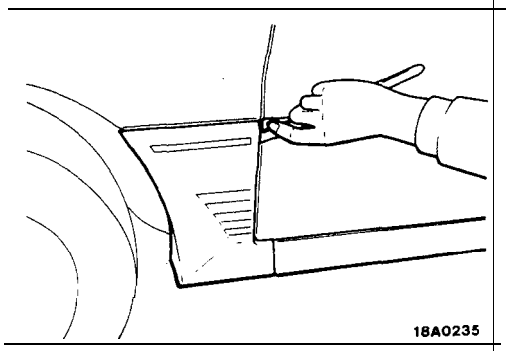
18A0875

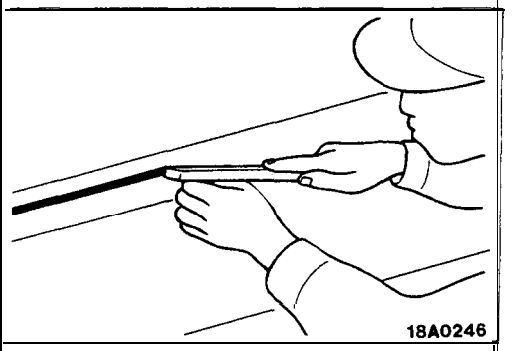
Side air dam removal

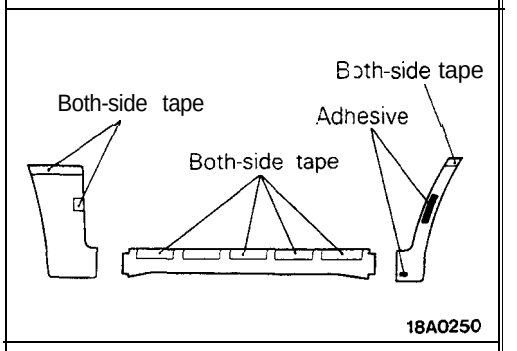
◆▶ ● + 1. Sideairdam
2. Front side air dam
3. Rear side air dam
4. Center side air dam

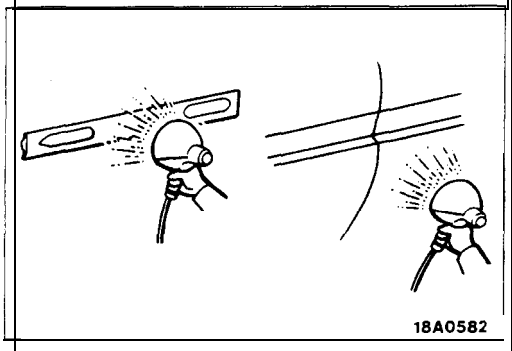
Air spoiler removal

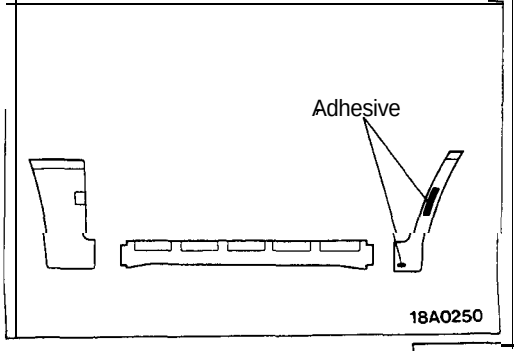
5. High-mounted stop light
6. Connection for high-mounted stop light connector and rear lid harness connector
7. Air spoiler











SERVICE POINTS OF REMOVAL

1. REMOVAL OF SIDE AIR DAM

(1) Using a plastic trim tool, remove the side air dam.

(2) Apply isopropyl alcohol to the adhesive adhering at the body side, and then remove the adhesive by using a plastic trim tool.

SERVICE POINTS OF INSTALLATION

1. INSTALLATION OF SIDE AIR DAM

(1) Clean away oil and grease from the body side installation surfaces by using isopropyl alcohol.

(2) If the side air dam is to be reused, install by following the steps below.

① Remove the both-side tape remaining on the side air dam.

② Heat the adhesive surface of the both-side tape on the side air dam to about 40–80°C (104–176°F).

③ Attach the specified both-side tape to the side air dam where shown in the figure.

Specified both-side tape:
3M ATD Part No. 6382 or 3M ATD Part No. 6383 or equivalent

④ Apply a coating of dry adhesive to the adhesive-coated part where shown in the figure.

NOTE
Scrape off the old adhesive slightly and apply a coating of new adhesive on he remaining old adhesive.

⑤ Heat the side air dam and the surface of the body where it will be installed to about 40–80°C (104-176°F).

⑥ Install the side air dam to the body.

(3) If a new side spoiler is to be used, install by following the steps below.

① Peel off the paper from the both-side tape of the side air dam, and apply a coating of dry adhesive where shown in the figure.

② Heat the side air dam and the surface of the body where it will be installed to about 40–80°C (104-176°F).

③ Install the side air dam to the body.

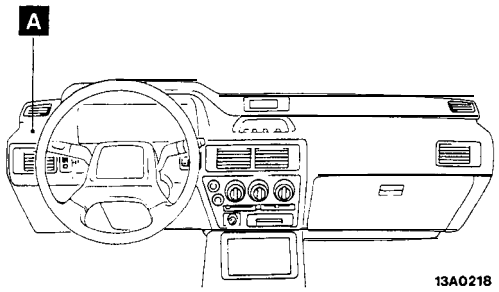
TSB Revision

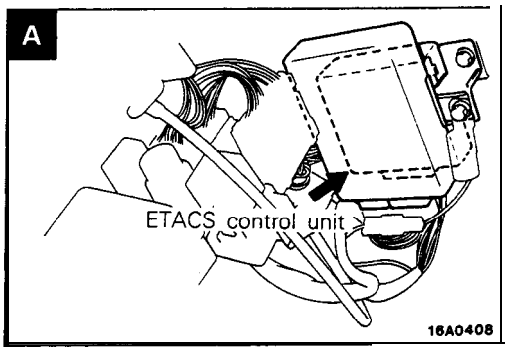
WINDSHIELD WIPER AND WASHER <MODELS EQUIPPED WITH ETACS>

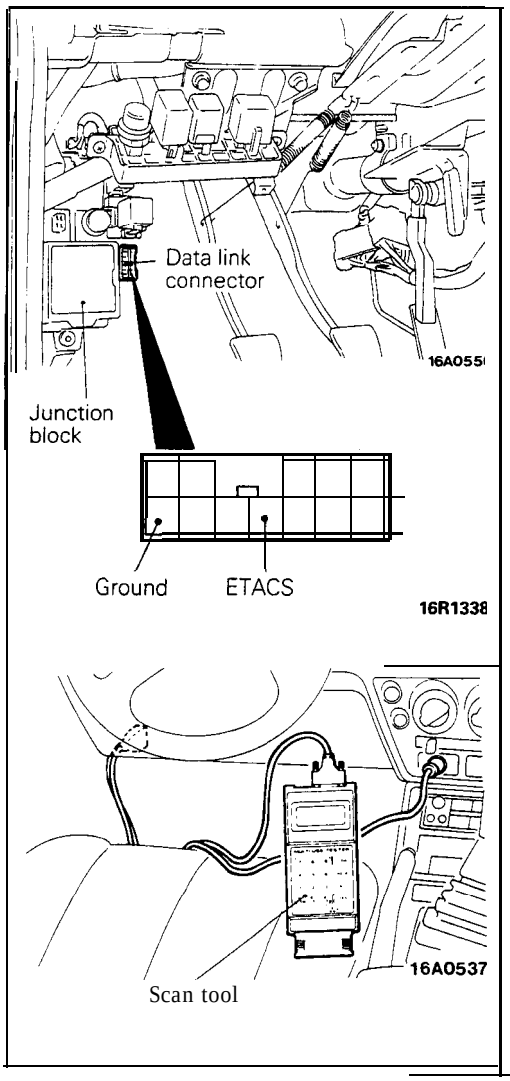
M51KJAPa

COMPONENTS LOCATION

Name	Symbol
ETACS control unit	A







TROUBLESHOOTING GUIDE (VEHICLE-SPEED-RESPONSE TYPE INTERMITTENT WIPERS, MIST WIPERS, AND WASHER-INTERLOCKED WIPERS)

INPUT CHECK (ETACS-EQUIPPED MODELS ONLY)

Using the scan tool, check whether or not the input signals from each switch are input to the electronic control unit.

(1) Connect the scan tool to the data link connector located at the right side of the junction block.

(2) With the ignition switch at the "ACC" position, select the special test of the tester.

(3) Check to be sure that the buzzer of the scan tool sounds one time when each of the switches or sensor listed below is activated.

If the buzzer sounds, the input signal is being input to the electronic control unit, so that switch or sensor can be considered to be functioning normally; if, however, the buzzer does not sound, there is an abnormal condition of that switch or sensor, or of the wiring, so a check should be made.

- Ignition switch
- Wiper switch (AUTO)
- Intermittent variable-volume switch
- Washer switch
- Vehicle-speed sensor

NOTE

When checking the vehicle-speed sensor, follow the sequence described below.

(1) Jack up the front end.

(2) Rotate the tyres in the forward direction.

TSB Revision

TROUBLESHOOTING QUICK-REFERENCE TABLE (PROBLEMS RELATED TO THE ETACS ONLY)

VEHICLE-SPEED-RESPONSE TYPE INTERMITTENT WIPERS

Problem	Probable cause (s)	Checking procedure	Remedy
The wipers don't operate when the wiper switch is set to the "AUTO" position. (The wipers do operate, however, when the wiper switch is set to the "1" (low speed) position.)	Damage or disconnection of the wiring of the wiper switch (AUTO) input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 3 (P.51-25) of the individual part and circuit.,	Repair the wiring harness, or replace the column switch.
	Damage or disconnection of the wiring of the wiper switch ("AUTO").		
	Damage or disconnection of the wiring of the ignition switch input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 2 (P.51-24) of the individual part and circuit.	Repair the wiring harness.
	Damage or disconnection of the wiring of the wiper relay activation circuit.	Conduct check No. 6 (P.51-28) of the individual part and circuit.	Repair the wiring harness, or replace the wiper relay.
	Malfunction of the wiper relay.		
	Malfunction of the electronic control unit.	—	Replace the electronic control unit.
The wipers don't stop when the wiper switch is switched OFF. This problem occurs at the low speed of the wipers.) NOTE If the wipers continue operating without stopping) at the "2" position (high speed) of the wiper switch, there is a short-circuit in the circuit at the wiper motor high-speed side.	Short-circuit in the wiper switch ("AUTO") input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 3 (P.51-25) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Short-circuit in the wiper switch ("AUTO").		
	Short-circuit in the wiper relay activation circuit.	Conduct check No. 6 (P.51-28) of the individual part and circuit.	Repair the wiring harness.
	Malfunction of the electronic control unit.	—	Replace the electronic control unit.
When the wiper switch is set to the "AUTO" position, the wipers operate continuously at low speed, not intermittent operation. The wipers stop, however, when the wiper switch is set to "OFF".)	Short-circuit in the wiper switch ("AUTO") input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 3 (P.51-25) of the individual part and circuit./	Repair the wiring harness, or replace the column switch.
	Short-circuit in the wiper switch ("AUTO").		
	Malfunction of the electronic control unit.	—	Replace the electronic control unit.

TSB Revision

Problem	Probable cause (s)	Checking procedure	Remedy
The intermittent time does not change when the intermittent variable volume switch setting is changed. (The vehicle speed is a constant speed.)	Damage or disconnection of the wiring of the intermittent variable volume switch input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 4 (P.51-26) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Damage or disconnection of the wiring of the intermittent variable volume switch.		
	Malfunction of the electronic control unit.		Replace the electronic control unit.
The wipers' intermittent time does not change according to changes in the vehicle speed. (The intermittent variable volume switch setting is fixed.)	Damage or disconnection of the wiring of the vehicle-speed sensor input circuit, or a short-circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 5 (P.51-27) of the individual part and circuit,	Repair the wiring harness, or replace the vehicle-speed sensor
	Malfunction of the vehicle-speed sensor.		
	Malfunction of the electronic control unit.	—	Replace the electronic control unit.

MIST WIPERS/WASHER-INTERLOCKED WIPERS

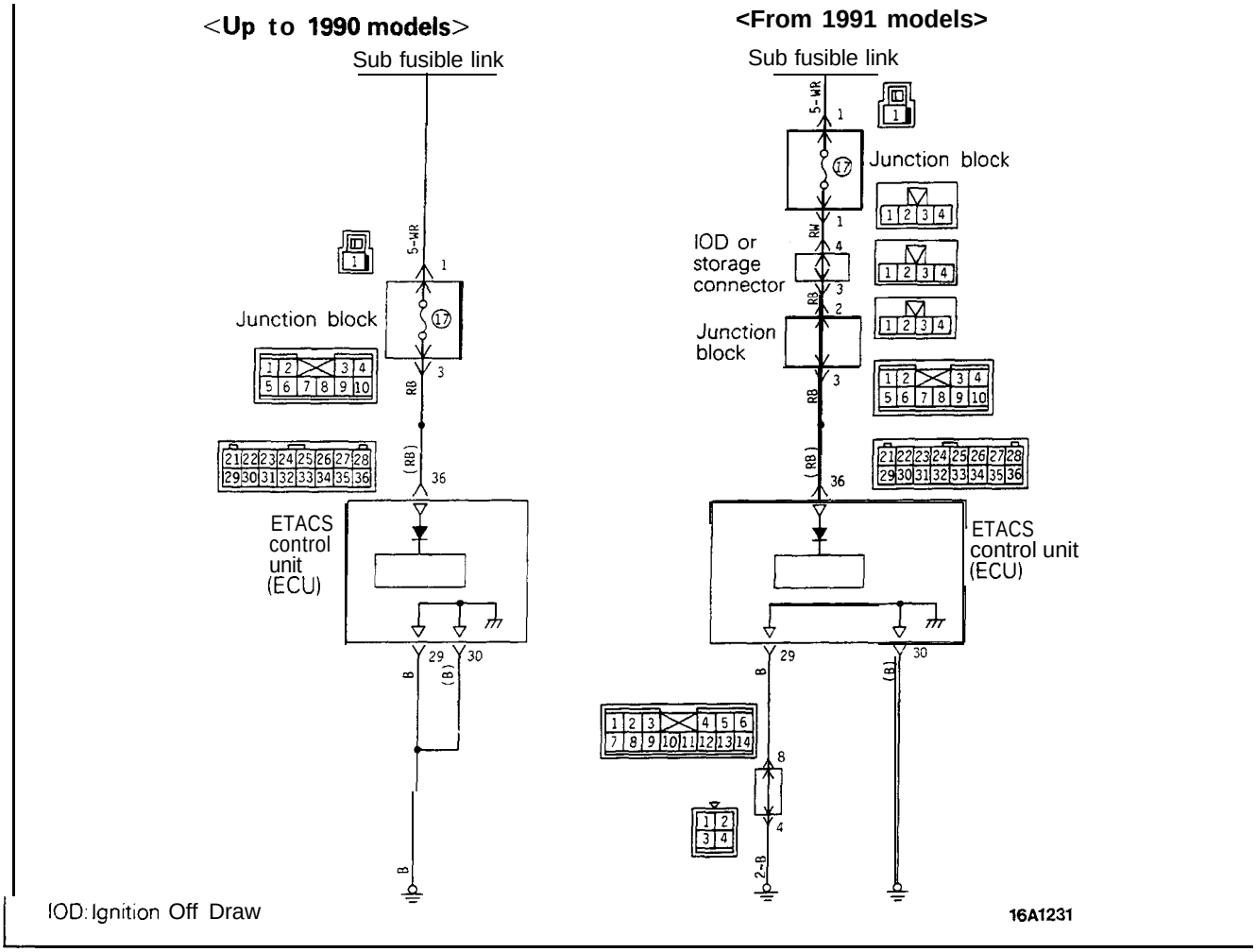
Problem	Probable cause (s)	Checking procedure	Remedy
The wipers do not function when the washer switch is switched ON for 0.6 second or longer. (With the wiper switch at the "AUTO" position, however, intermittent operation of the wipers is normal, and the washer function is normal.)	Damage or disconnection of the wiring of the washer switch input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-20), conduct check No. 7 (P.51-29) of the individual part and circuit.	Repair the wiring harness, or replace the washer switch.
	Damage or disconnection of the wiring of the washer switch.		
	Malfunction of the electronic control unit.	—	Replace the electronic control unit.
The wipers do not function when the washer switch is switched ON for less than 0.6 second. (The wipers and washer do function, however, when the washer switch is switched ON for 0.6 second or longer.)	Malfunction of the electronic control unit.	—	Replace the electronic control unit.

NOTE
The "ECU" (electronic control unit) indicates the ETACS control unit.

TSB Revision

CHECKING THE INDIVIDUAL PART AND CIRCUIT

1. ETACS POWER-SUPPLY AND GROUND CIRCUIT



Operation Description

The battery supplies a stabilized 5V power supply to the electronic control unit, via the constant-voltage circuit and terminal (36) (which is directly connected to the battery).

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
36	Electronic control unit power supply	At all times	Battery positive voltage

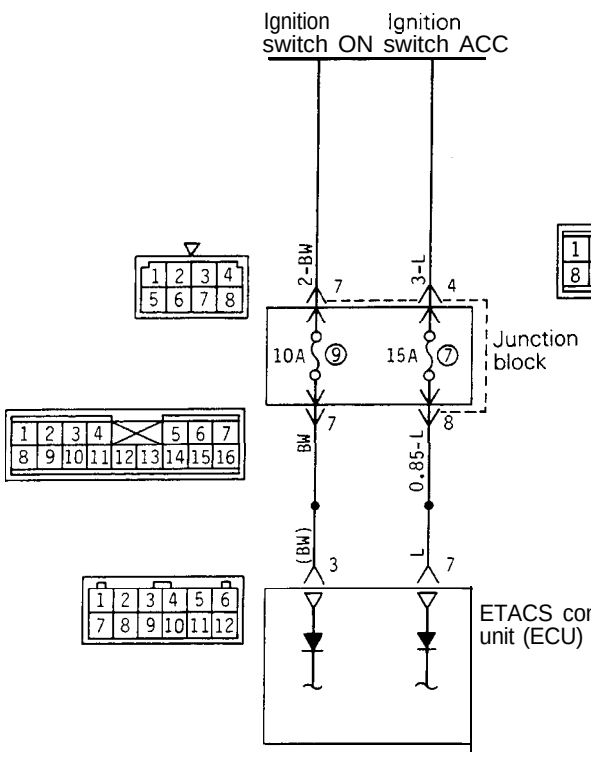
Checking the Ground Circuit (Disconnect the Connector and Check at the Wiring Harness Side)

ECU Terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
29	ECU ground	Resistance	29-ground	At all times	Continuity
30	ECU ground	Resistance	30-ground	At all times	Continuity

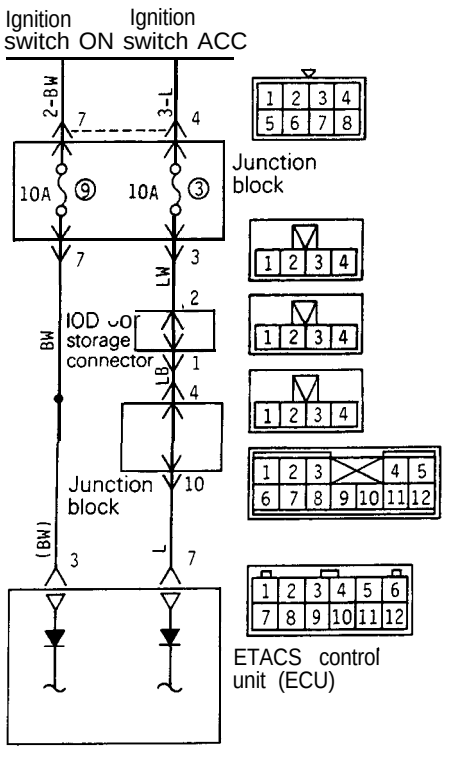
TSB Revision

2. IGNITION SWITCH INPUT CIRCUIT

<Up to 1990 models>



<From 1991 models>



16A1229

IOD: Ignition Off Draw

Operation Description

As the condition for operation of the system, HIGH-level signals are sent to the electronic control unit when the ignition switch is set to the "ACC" or "ON" position.

Electronic Control Unit Terminal Voltage (Disconnect the ECU Connector and Check at the Wiring Harness Side.)

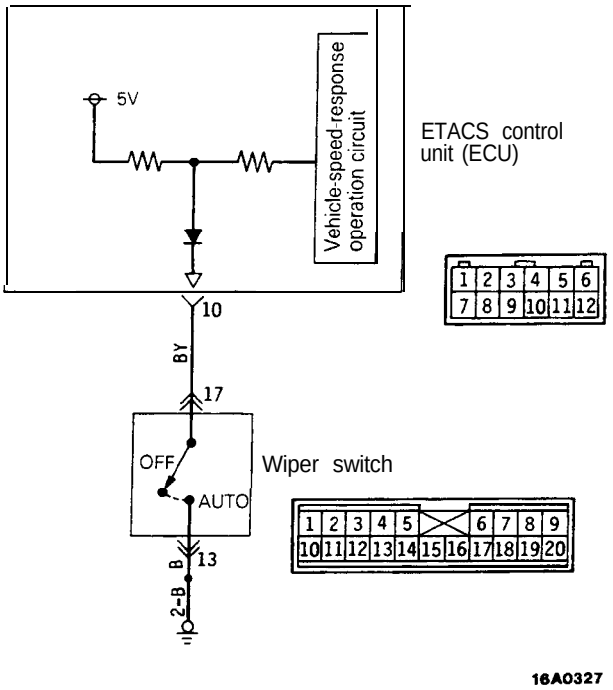
ECU terminal No.	Signal	Status		Standard
7	Ignition switch (ACC)	Ignition switch	OFF	0V
			ACC	Battery positive voltage

Checking Individual Part

Ignition switch: Refer to GROUP 54–Ignition switch.

TSB Revision

. WIPER SWITCH "AUTO" INPUT CIRCUIT



Operation Description

When the wiper switch is set to the "AUTO" position, LOW-level signals are input to the electronic control unit; the vehicle-speed-response operation circuit is then activated, and the wipers operate at the intermittent time interval according to the setting of the intermittent variable volume switch and the speed of the vehicle.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
10	Wiper switch "AUTO" signal	Wiper switch "OFF"	5V
		Wiper switch "AUTO"	0V

Checking the Wiper Switch ("AUTO" Position) Circuit (Disconnect the ECU Connector and Check at the Wiring Harness Side.)

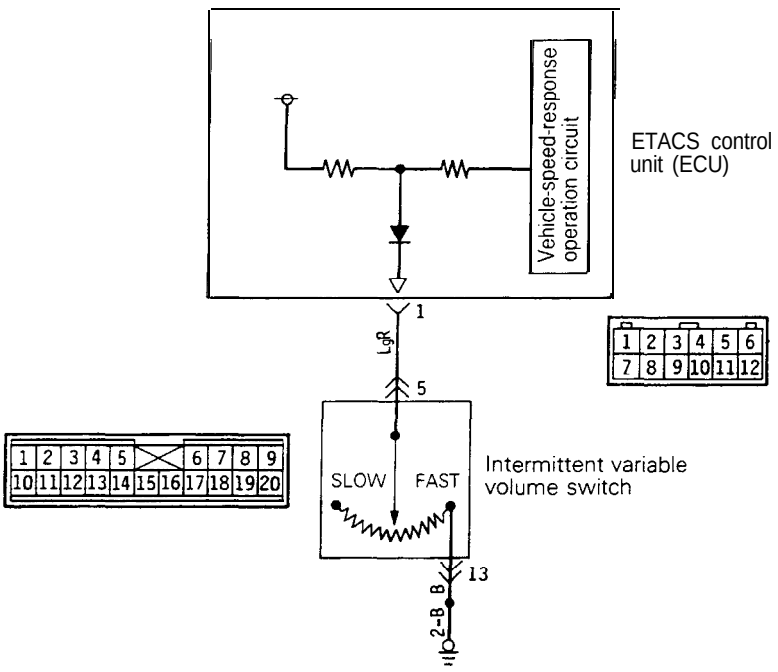
ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
10	Wiper switch "AUTO"	Resistance	10-ground	Wiper switch "OFF"	No continuity
				Wiper switch "AUTO"	Continuity

Checking Individual Part

Wiper switch: Refer to GROUP 54–Column Switch.

TSB Revision

4. INTERMITTENT VARIABLE VOLUME SWITCH INPUT CIRCUIT



Electronic Control Unit and Check at the Wiring Harness Side.)

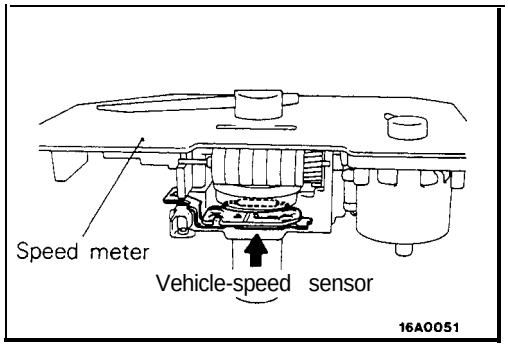
ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
1	Intermittent variable volume switch	Resistance	I-ground	"FAST" → "SLOW" (Should change in accordance with changes of the intermittent variable volume.)	0 → 1kΩ

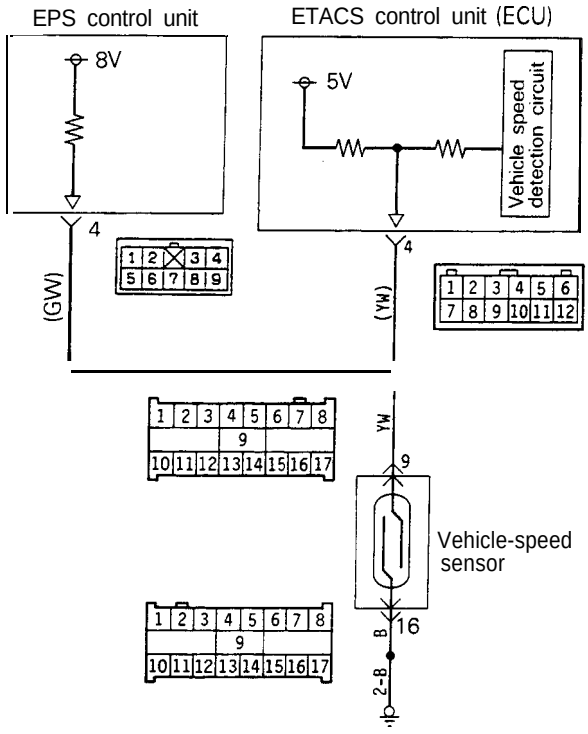
Checking Individual Part

Intermittent variable volume switch: Refer to GROUP 54–Column Switch.

TSB Revision

5. VEHICLE-SPEED SENSOR INPUT CIRCUIT





Operation Description

The vehicle-speed sensor is the reed-switch type of sensor; it outputs four pulse signals for each rotation of the transmission's output gear (speedometer cable) and inputs those pulses to the vehicle-speed detection circuit of the electronic control unit.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status		Terminal voltage
4	Vehicle-speed sensor signal	Vehicle-speed sensor	When ON	0V
			When OFF	8V

Checking the Vehicle-speed Sensor Circuit (Disconnect the Connector of the Electronic Control Unit and Check at the Wiring Harness Side.)

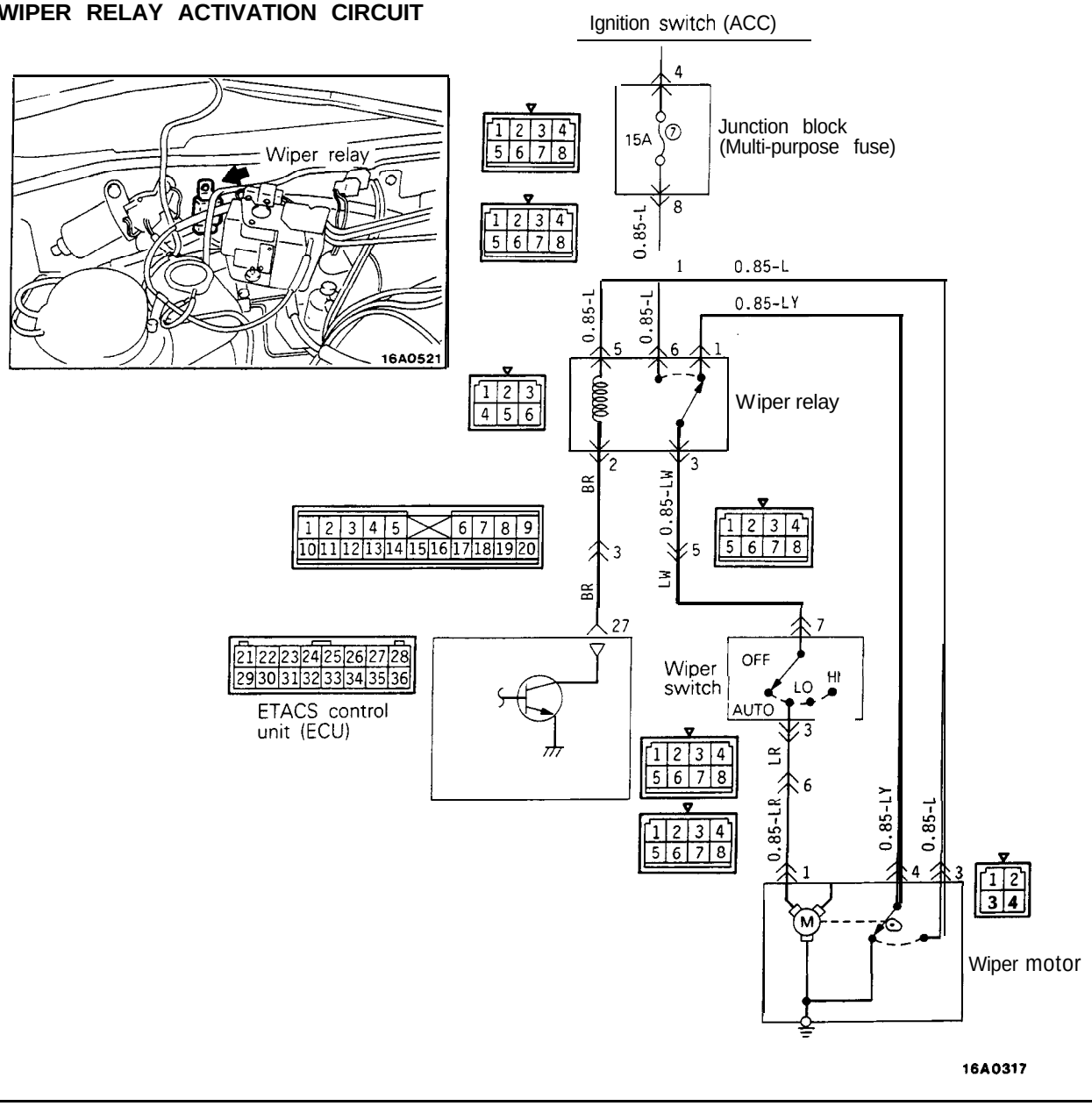
ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
4	Vehicle-speed sensor	Resistance	4-ground	(1) Jack up the front end. (2) Rotate the tyres in the forward direction.	Repeats "Continuity ↑↓ No continuity"

Checking Individual Part

Vehicle-speed sensor: Refer to GROUP 54–Meters and Gauges.

TSB Revision

6. WIPER RELAY ACTIVATION CIRCUIT



Operation Description

With the wiper switch at the "AUTO" position, switch ON the transistor (by the intermittent activation signal from the electronic control unit) in order to activate the wiper relay.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

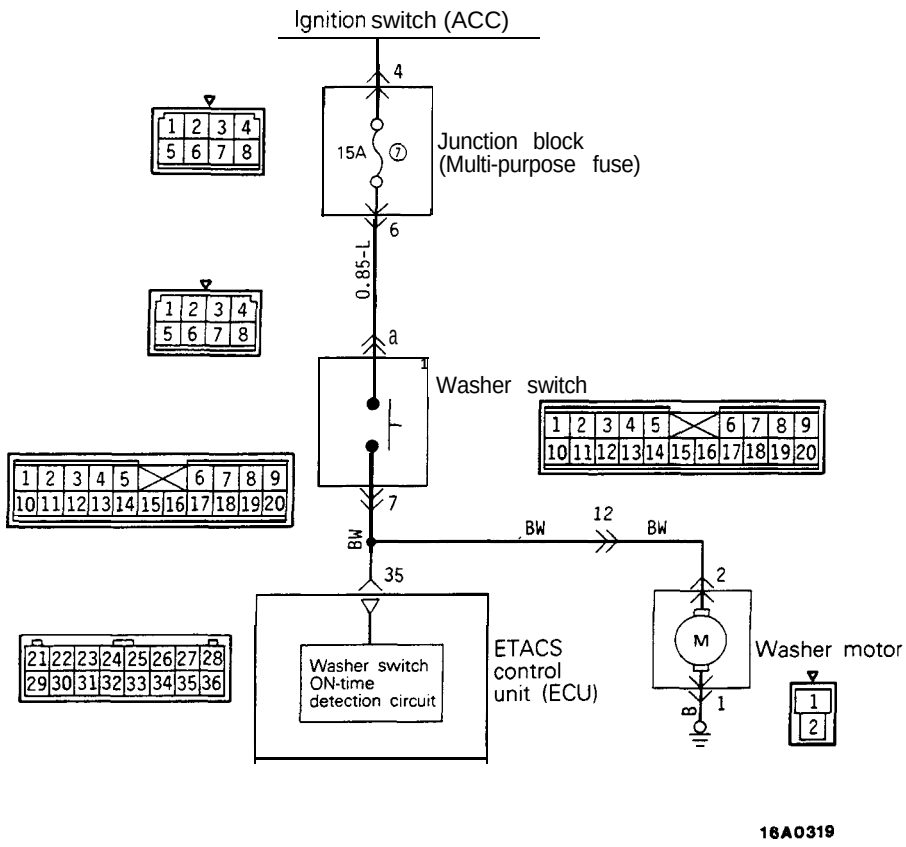
ECU terminal No.	Signal	Status		Terminal voltage
27	Wiper relay signal	Wiper switch "OFF"	Ignition switch "OFF"	0V
			Ignition switch "ACC"	Battery positive voltage

Checking Individual Part

Wiper relay: Refer to P.51-32.

TSB Revision

7. WASHER SWITCH INPUT CIRCUIT



Operation Description

While the washer switch is ON, HIGH-level signals are sent to the washer switch ON-time detection circuit simultaneous with the activation of the washer motor, thus causing the transistor to be switched ON and the wipers to be activated for a certain fixed time.'

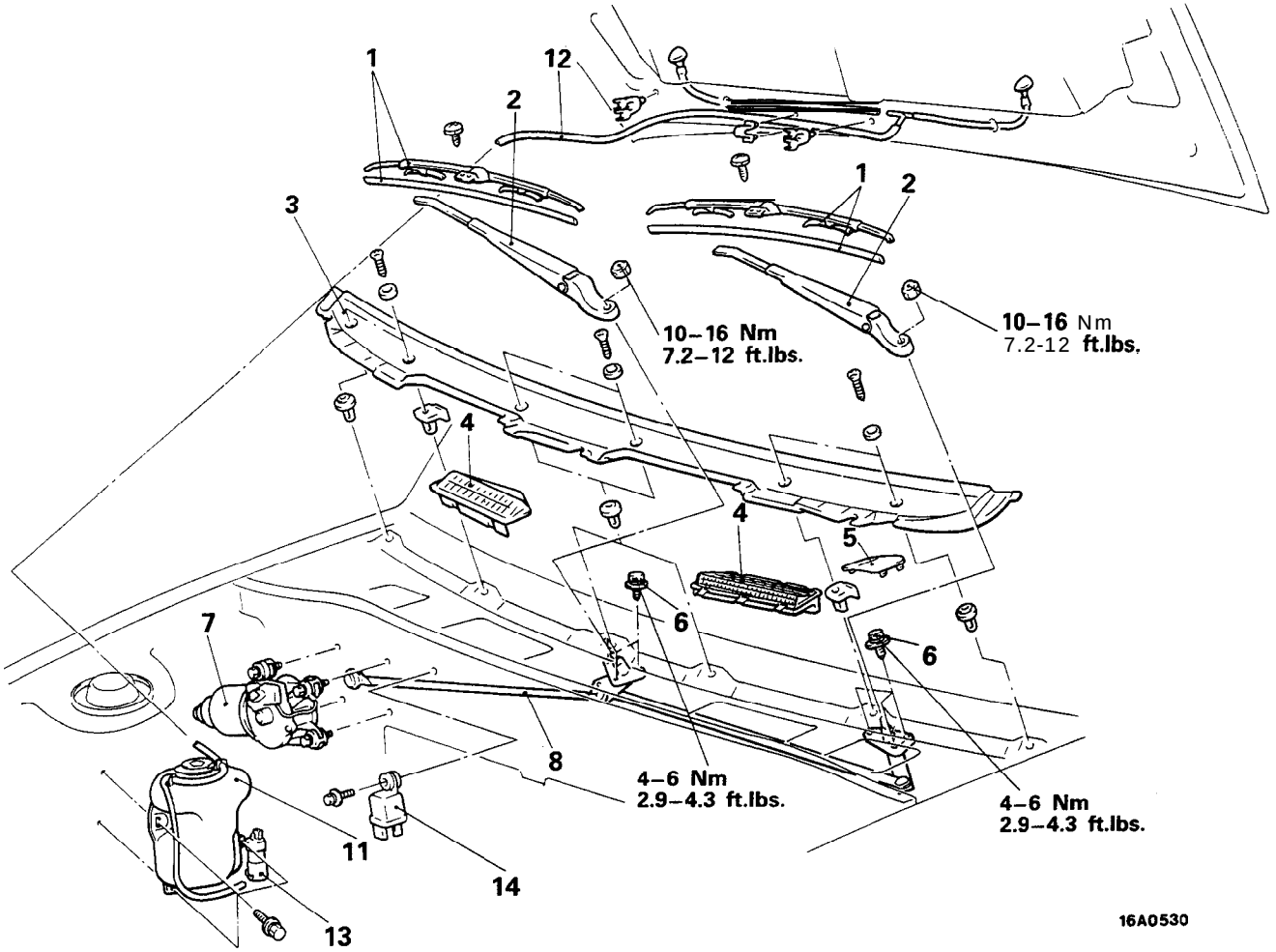
Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

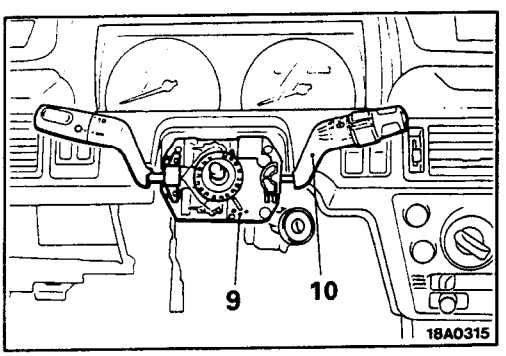
ECU terminal No.	Signal	Status		Terminal voltage
35	Washer switch signal	Ignition switch "ACC"	Washer switch "OFF"	ov
			Washer switch "ON"	Battery positive voltage

Checking Individual Part

Washer switch: Refer to GROUP 54–Column Switch.

REMOVAL AND INSTALLATION

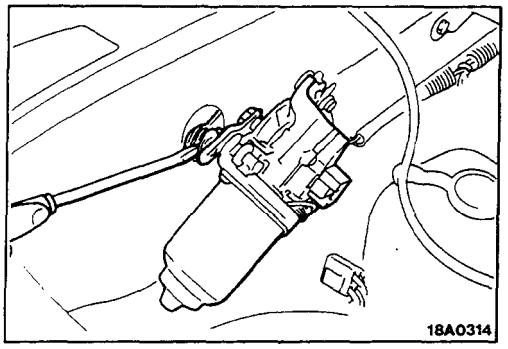




Removal steps

1. Wiper blades
2. Wiper arms
3. Front deck garnish
4. Air inlet garnishes
5. Hole cover
6. Linkage mounting bolts
7. Wiper motor
8. Linkage
9. Intermittent wiper relay (incorporated within the column switch) } (Refer to GROUP 54–Column Switch.)
10. Wiper and washer switch } (Refer to GROUP 54–Column Switch.)
11. Washer tank assembly
12. Washer nozzle assembly
13. Washer motor
14. Wiper relay <Vehicles with ETACS>

TSB Revision

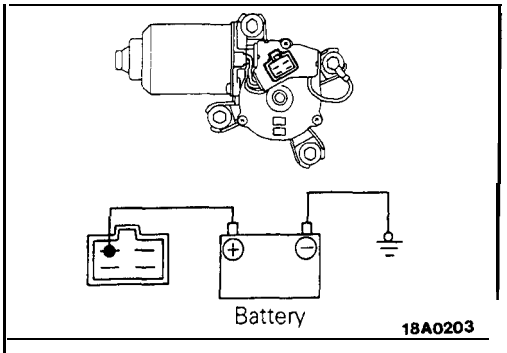


SERVICE POINTS OF REMOVAL

7. REMOVAL OF WIPER MOTOR

Loosen the wiper motor assembly mounting bolts, and then remove the wiper motor assembly.
Disconnect the linkage and the motor assembly, and then remove the linkage.

Caution
Because the installation angle of the crank arm and the motor has been set, do not remove them unless it is necessary to do so. If they must be removed, remove them only after marking their mounting positions.



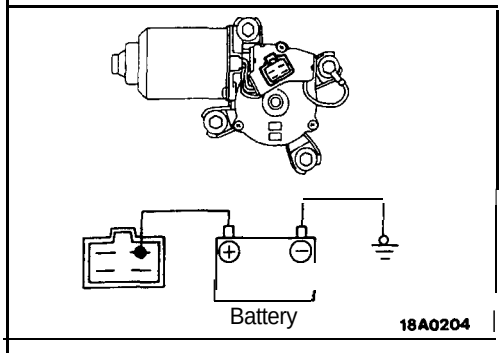
I N S P E C T I O N

WIPER MOTOR

Check the wiper motor after first disconnecting the wiring harness connector, and with the wiper motor remaining installed to the body.

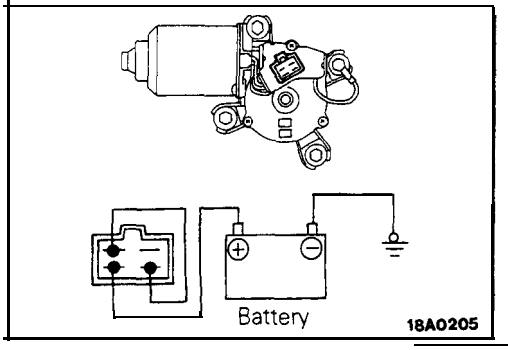
Operation of Wiper Motor at LOW speed

Connect a battery to the wiper motor as shown in the illustration and inspect motor operation at LOW speed.



Operation of Wiper Motor at HIGH speed

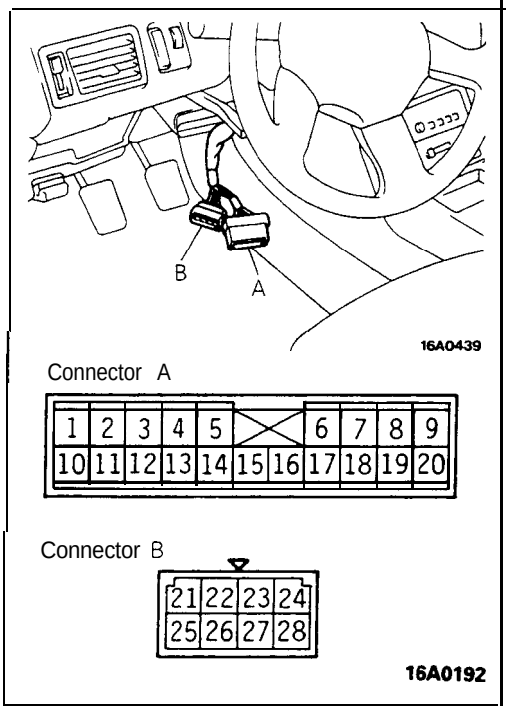
Connect a battery to the wiper motor as shown in the illustration and inspect motor operation at HIGH speed.



Operation of Wiper Motor at STOP Position

(1) Run the wiper motor at LOW speed, disconnect the battery, and stop the motor.
(2) Reconnect the battery as shown in the illustration, and confirm that after the motor starts turning at LOW speed, it stops at the automatic stop position.

TSB Revision

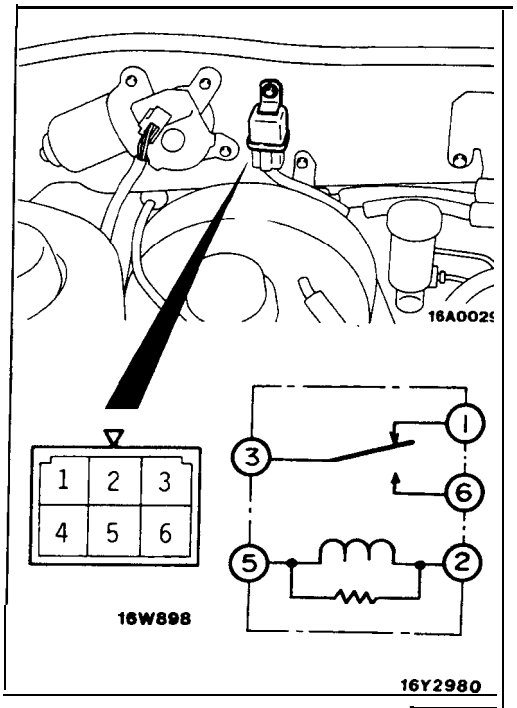


WIPER AND WASHER SWITCH

(1) Remove the instrument under cover and column cover.
(2) Disconnect the column switch connector and check the continuity between the terminals for each switch

Switch position \ Terminal	5	7	13	17	23	24	27	28
Wiper switch "OFF"					○		○	
Wiper switch "INT"*1					0		○	
Wiper switch "AUTO"*2			○	○			○	
Wiper switch LO					○		○	○
Wiper switch HI						○		○
Intermittent variable volume switch*2	0	○						
Washer switch ON								○

NOTE
(1) ○—○ indicates that there is continuity between the terminals.
(2) The *1 symbol indicates models equipped with the intermittent wipers.
(3) The *2 symbol indicates models equipped with the ETACS.



WIPER RELAY (models equipped with ETACS)

(1) Remove the wiper relay from the cowl top.
(2) Check for continuity between the terminals when battery voltage is applied between terminals (2) and (5).

Status \ Terminal	1	2	3	4	5	6
During no current flow		○			○	
During current flow		⊕			⊖	○

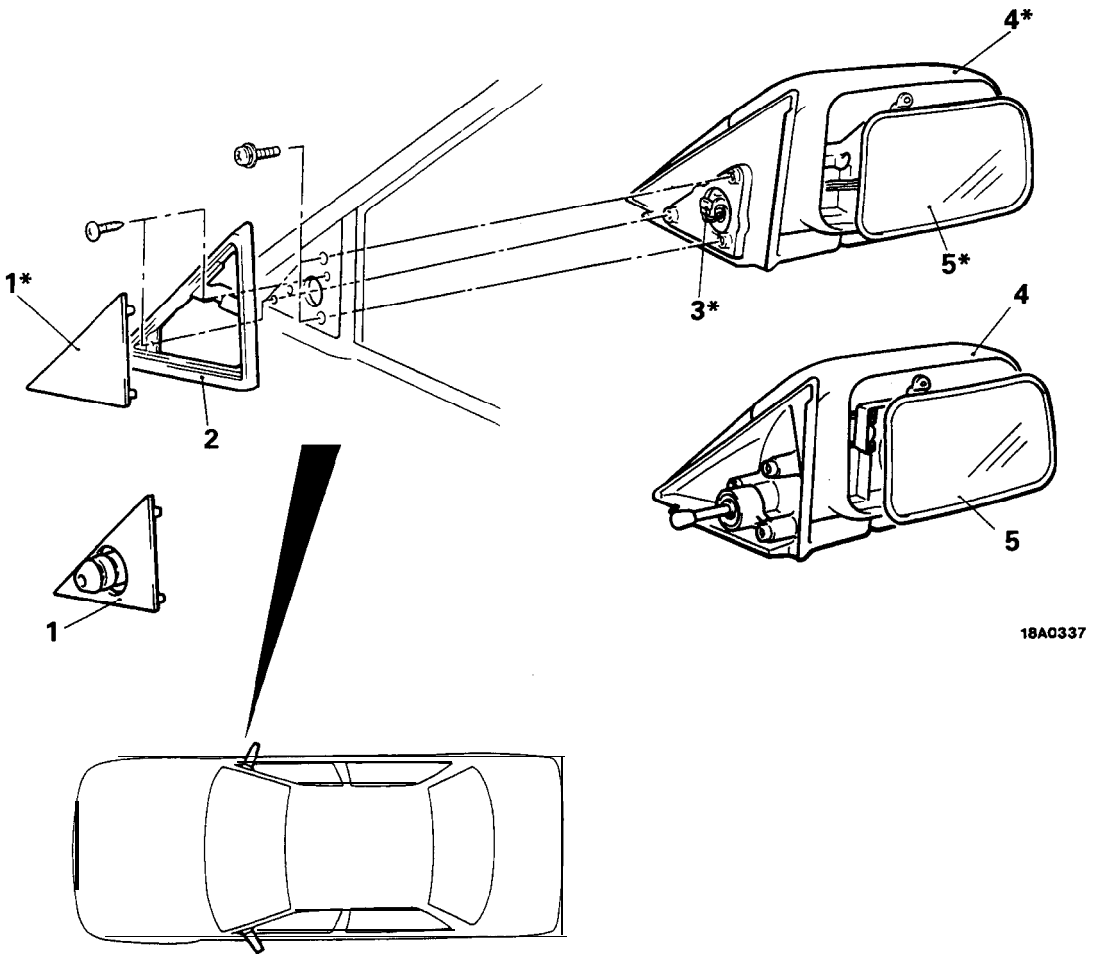
NOTE
(1) ○—○ indicates that there is continuity between the terminals.
(2) ⊕···⊖ indicates terminals to which battery voltage is applied.

TSB Revision

DOOR MIRROR

M51QAAH

REMOVAL AND INSTALLATION



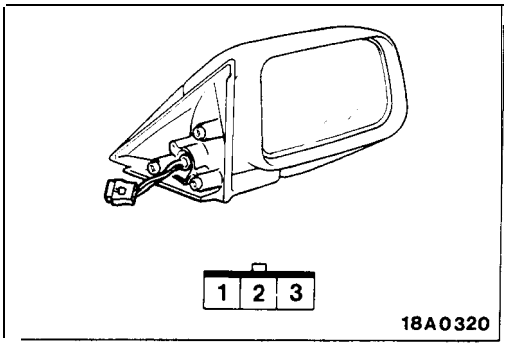
18A0293

Removal steps

1. Inner delta cover cap
2. Inner delta cover
3. Harness connector connection
4. Door mirror
5. Mirror

NOTE
*: Remote-controlled mirror

TSB Revision



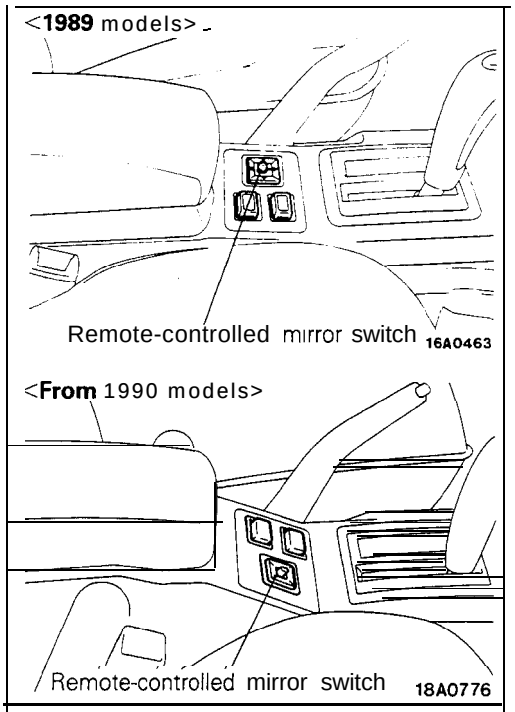
INSPECTION

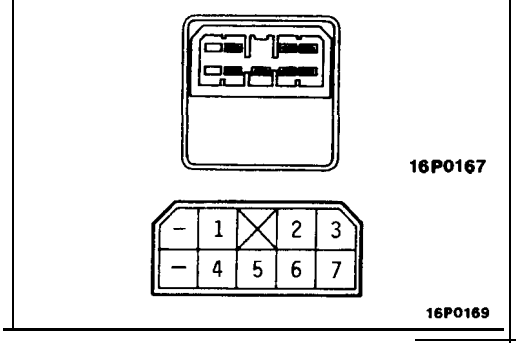
REMOTE-CONTROLLED MIRROR ASSEMBLY

1. Check to be sure that the mirror moves as described in the table when each terminal is connected to the battery.

Connection / Direction	Battery (+)	Battery (–)	Terminal 1	Terminal 2	Terminal 3
UP	○	○	○		○
DOWN	○	○	○		○
RIGHT	○	○		○	○
LEFT	○	○		○	○

NOTE
G-O indicates that each terminal is connected to the battery.





REMOTE-CONTROLLED MIRROR SWITCH

M51QAAQ

INSPECTION

REMOTE-CONTROLLED MIRROR SWITCH

Operate switches and check for continuity between terminals.

Terminal / Direction	Left side 2	Left side 3	Left side 4	Left side 5	Left side 6	Right side 1	Right side 3	Right side 4	Right side 5	Right side 7
UP		0	○	○	○	○	○	○	○	
DOWN		**0**	○	0		0	**0**	○	**0**	
LEFT	0	0	○	**0**			○	○	○	
RIGHT	○	○		○			0	○	0	

NOTE
G-O indicates that there is continuity between the terminals.

TSB Revision

INTERIOR

CONTENTS

M52AA--

FLOOR CONSOLE 29
FRONT SEAT 35
HEADLINING 31
INSTRUMENT PANEL 22
REAR SEAT 37
SEAT BELT 39
SPECIFICATIONS 2
Torque Specifications 2
TRIMS 33
TROUBLESHOOTING 3

SPECIFICATIONS

TORQUE SPECIFICATIONS

M52CC--

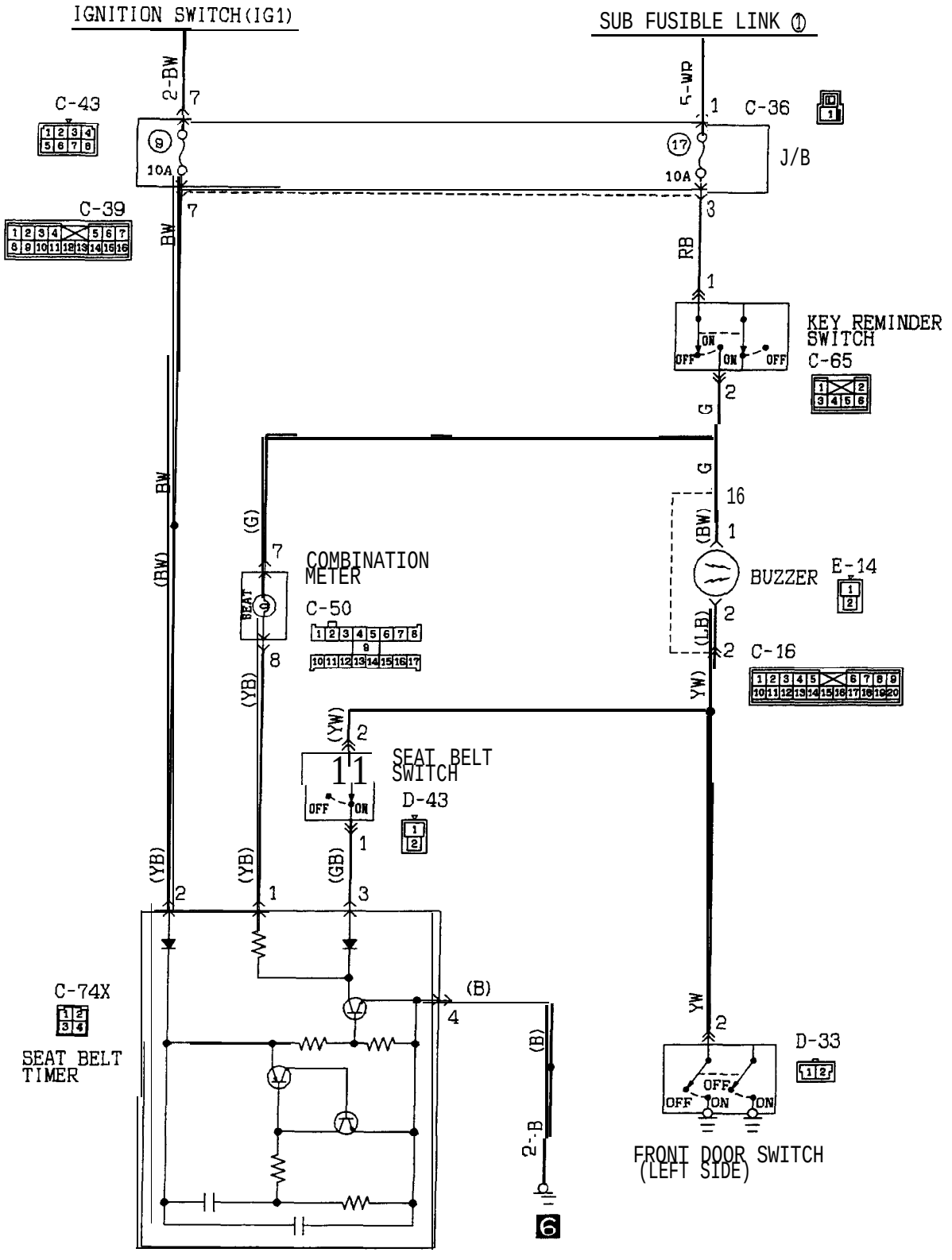
Items	Nm	ft.lbs.
Tilt bracket installation bolts	8-12	6-9
Front seat belt sash guide attaching bolt	35-55	25–40
Rear seat belt anchor plate attaching bolt	35-55	25–40
Front seat mounting bolts (rear)	35-55	25–40
Front seat mounting nuts (front)	24-36	17-26
Rear seatback attaching bolts (side)	4-6	3-4
Rear seatback attaching bolt (center)	17-26	12-19
Front seat belt retractor bracket and anchor bracket attaching bolt	35-55	25–40
Front seat inner belt attaching bolt (buckle side)	35-55	25–40
Automatic seat belt <From 1990 models>		
Guide rail mounting bolt (A), (B)	8–10	6-7
Guide rail mounting bolt (C)	35-55	25–40
Guide rail mounting bolt (D)	16-23	12-16
Outer casing mounting bolt	8–10	6-7
Motor mounting bolt	8–10	6-7
Retractor (for lap belt) mounting bolt	35-55	25–40
Guide ring mounting bolt	16-23	12-16
Buckle mounting bolt (8 × 20 mm bolt)	16-23	12-16
Buckle mounting bolt (7/16 in. × 25 mm bolt)	35-55	25–40
Control unit mounting bolt	4-6	3-4
Bracket mounting bolt (front)	16-23	12-16
Bracket mounting bolt (side)	35-55	25–40
Rear seat center belt mounting bolt	35-55	25–40
Rear seat belt sash guide attaching bolt	35-55	25–40

TROUBLESHOOTING

BUZZER <1989 models>

M52EBAB

CIRCUIT DIAGRAM



KX35-AC-H0909-N

TSB Revision

OPERATION

Key-reminder warning

- Battery voltage is always supplied, through sub fusible link No. 1, to the key-reminder switch.
- When the driver's seat door is opened while the ignition key is still in the key cylinder, the door switch is switched ON, electricity flows to sub fusible link No. 1, the key-reminder switch, the buzzer, the door switch, and ground, and the buzzer sounds.

Seat belt warning

- Battery voltage is applied, through fuse No. 9, to the seat belt timer when the ignition key is at the "ON" position.
- Electricity flows to sub fusible link No. 1, the key-reminder switch, the seat belt warning light, the seat belt timer, and ground, and the seat belt warning light illuminates for approx. 6 seconds.
- If the driver does not buckle the seat belt, the seat belt switch is switched ON, electricity flows to sub fusible link No. 1, the key-reminder switch, the buzzer, the seat belt switch, the seat belt warning timer, and ground, and the buzzer sounds for approx. 6 seconds.
- When the driver buckles the seat belt, the seat belt switch is switched OFF and the buzzer stops.

TROUBLESHOOTING HINTS

Key-reminder warning

The key-reminder warning doesn't sound.

(1) The seat belt warning function is OK.
- Check the door switch.

(2) The seat belt warning also doesn't function.
- Check the buzzer.

Seat belt warning

1. The seat belt warning doesn't function.
   (1) The seat belt warning light illuminates.
   - Check the seat belt switch.

   (2) The seat belt warning light also does not function (but the key-reminder warning functions normally).
   - Check the seat belt timer.

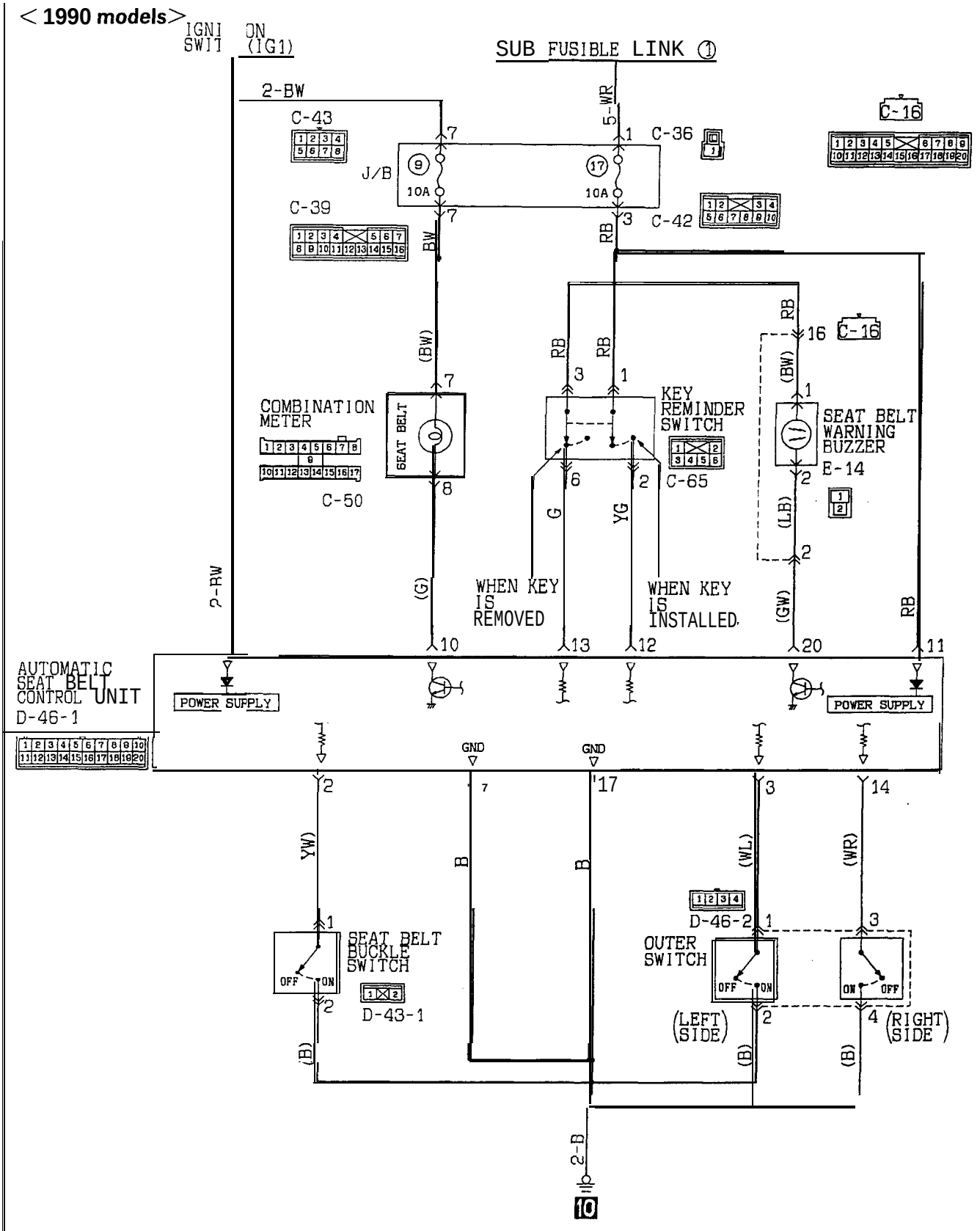
   (3) The seat belt warning light also does not function (and the key-reminder warning also does not function).
   - Check the key-reminder switch.
2. The buzzer doesn't stop even though the driver's seat belt has been buckled.
   - Check the seat belt switch.
3. The seat belt warning light doesn't illuminate (but the buzzer sounds).
   - Check the light bulb.

AUTOMATIC SEAT BELT

M52EBGE

CIRCUIT DIAGRAM

<1990 models>



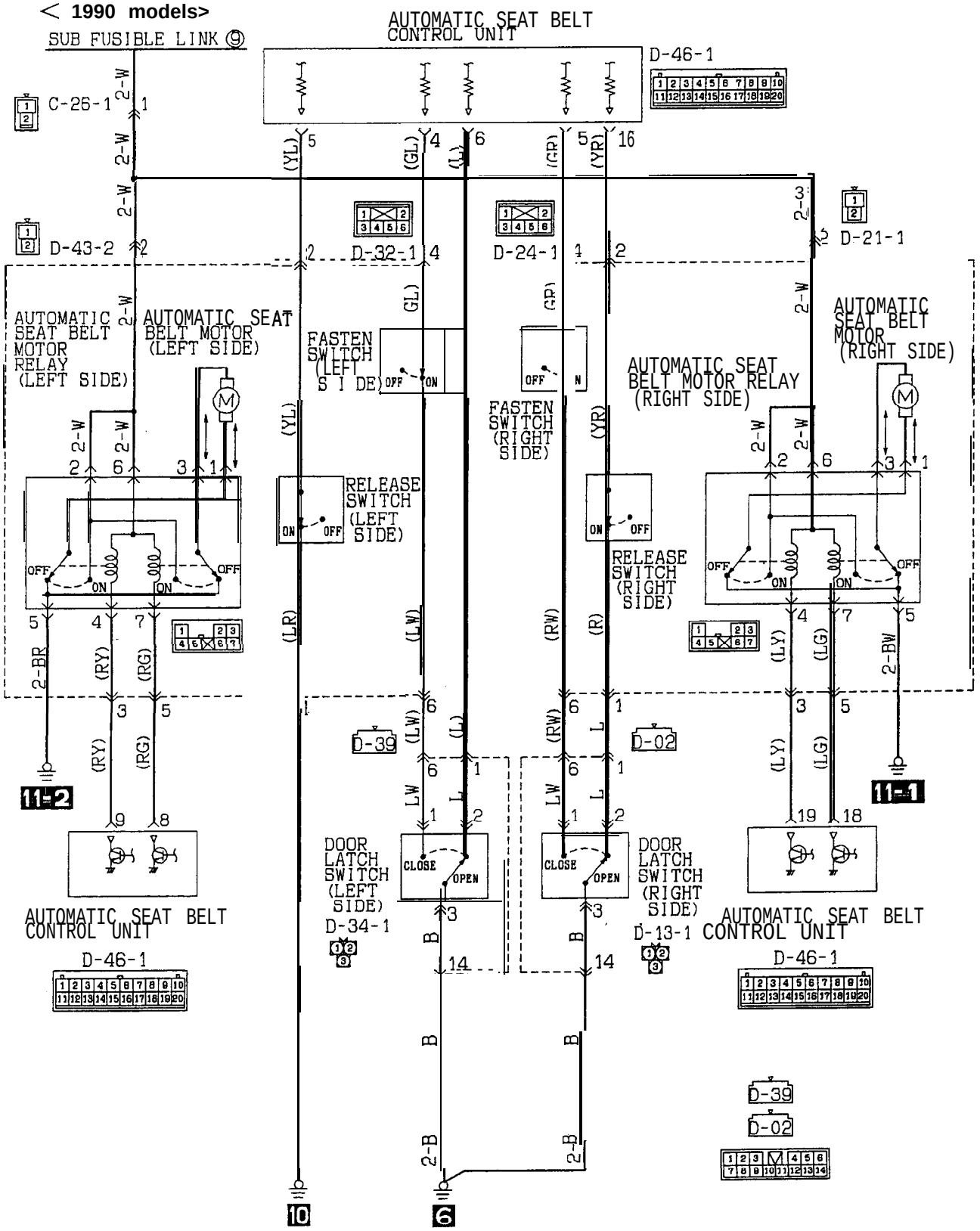
KX35-AC-H1532-NM

TSB Revision

AUTOMATIC SEAT BELT

CIRCUIT DIAGRAM (CONTINUED)

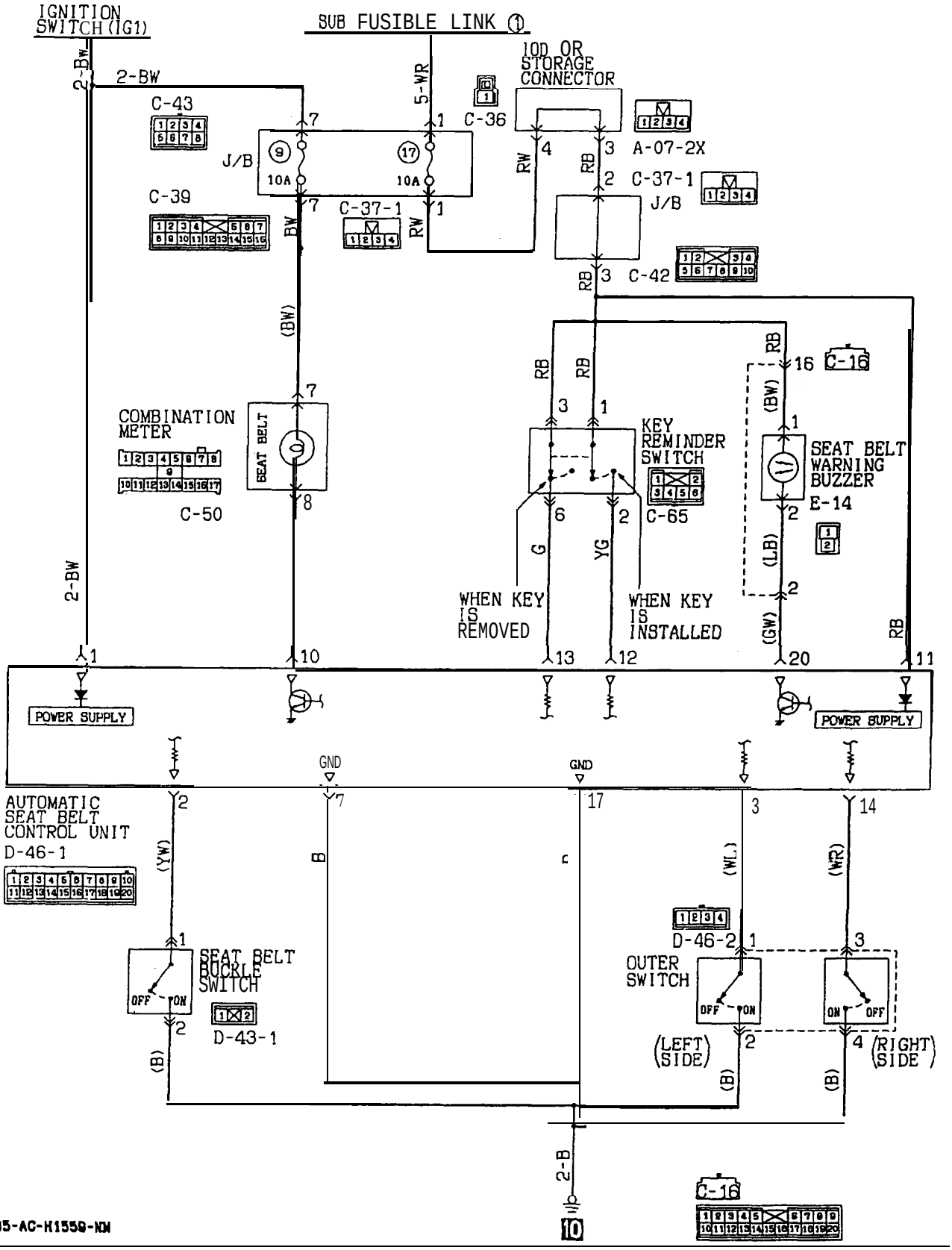
< 1990 models>



AUTOMATIC SEAT BELT

CIRCUIT DIAGRAM

<From 1991 models>

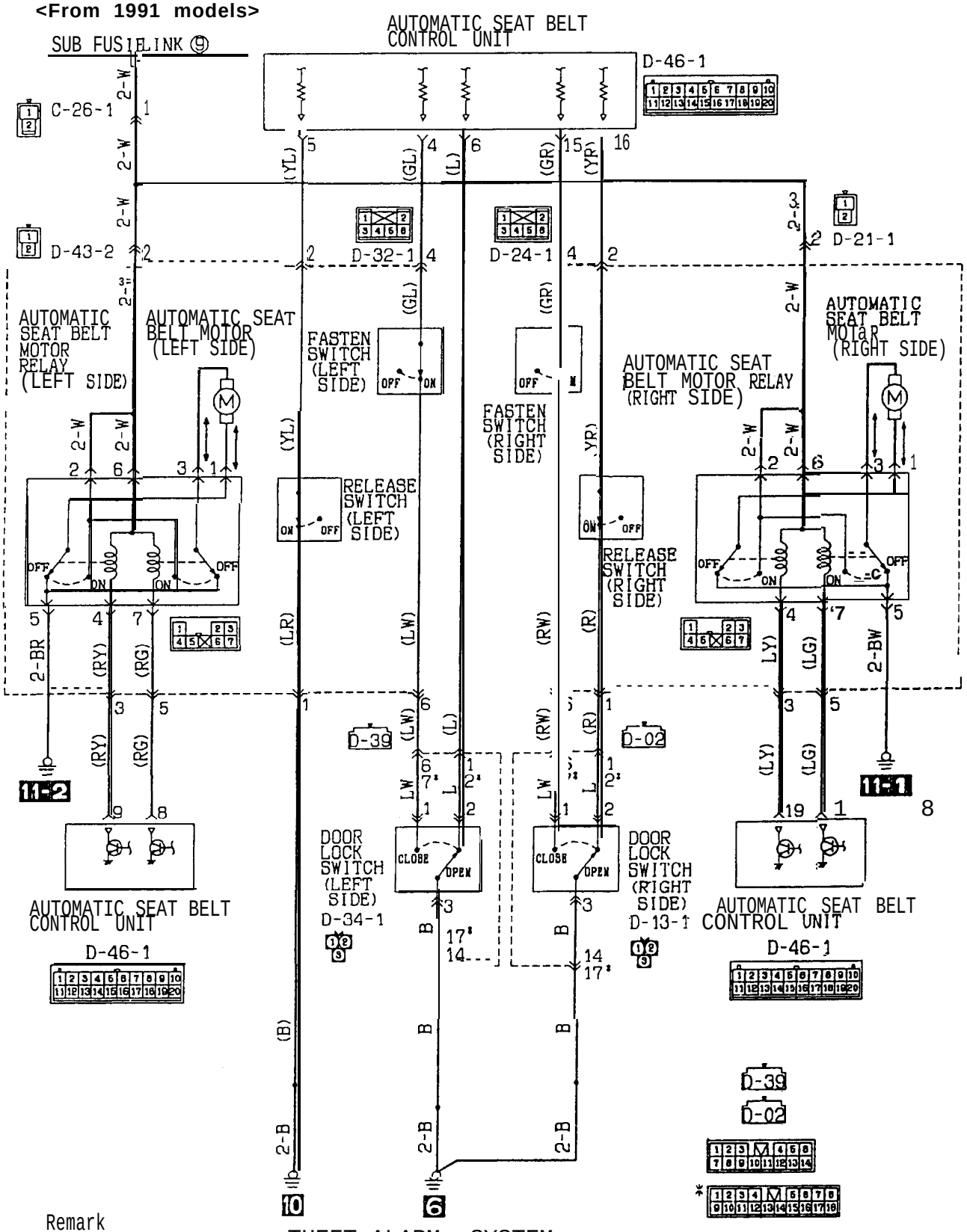


TSB Revision

AUTOMATIC SEAT BELT

CIRCUIT DIAGRAM (CONTINUED)

<From 1991 models>



Remark
*mark indicates vehicles with THEFT-ALARM SYSTEM

Trouble symptom	Cause	Check method	Remedy
Driver's and/or front passenger's system does not function	Fuse blown or disconnected	Check fuse ①	Replace or reconnect the fuse
	Open harness wire or disconnected connector	Check using check charts No. 1, 3 and 5	
	Defective switch	Check using check chart No. 5	
	Defective motor	Check using check chart No. 3	
	Defective relay	Check using check chart No. 3	
	Defective control unit	—	Replace the control unit
	Defective driving device	—	Replace the driving device assembly
Narning light ;loes not lluminate or lash	Fuse blown or disconnected	Check fuse ⑪	Replace or reconnect the fuse
	Open harness wire or disconnected connector	Check using check charts No. 1, 2, 4 and 5	
	Defective switch	Check using check charts No. 2, 4 and 5	
	Warning light bulb blown or in poor contact	Check using check chart No. 2	
	Defective control unit	—	Replace the control unit
3uzzer does not :ound	Fuse blown or disconnected	Check fuse ①	Replace or reconnect the fuse
	Defective buzzer	Refer to inspection section (P.52-45).	Replace the buzzer
	Open harness wire or disconnected connector	Check using check chart No. 2	
	Defective control unit	—	Replace the control unit
'he slide anchor ;oes not move from ne "fasten" range nto "release" ange, or from the 'release" range into ne "fasten" range	Defective driving device, or problem in electrical circuit	Try to move the slide anchor in both directions by hand	If the slide anchor does not move: Replace the driving device assembly If the slide anchor moves: Check using check charts No. 1, 2, 3 and 5
lide anchor moves)o slowly	Foreign matter in guide rail	—	Clean or replace the driving device assembly
lide anchor stops alfway	Defective retractor (remains in locked state)	Check retractor operation when both pulling out and retracting belt	Replace the retractor (for shoulder belt)
	Defective driving device or problem in electrical circuit	Try to move the slide anchor in both directions by hand	If the slide anchor does not move: Replace the driving device assembly If the slide anchor moves: Check using check charts No. 1, 3 and 5

TSB Revision

CHECKING CIRCUIT

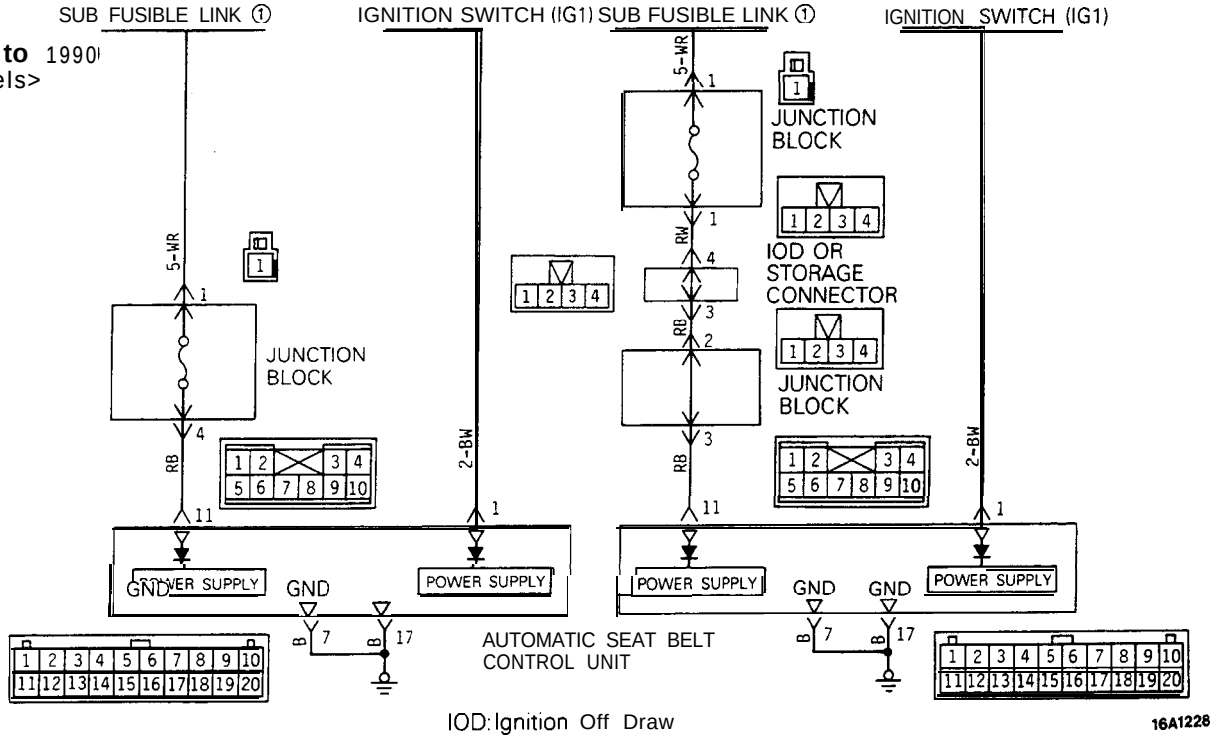
Index of Check Chart

Chart No.	Circuit name	Page No.
1	Control unit power supply and ground circuit	52-10
2	Warning light, key reminder switch, buzzer circuit	52-11
3	Release switch (driver's side), buckle switch, outer switch circuit	52-14
4	Door latch switch, fasten switch, release switch (passenger's side) circuit	52-16
5	Motor power supply and drive circuit	52-19

1. Control Unit Power Supply and Ground Circuit

<Up to 1990 models>

<From 1991 models>

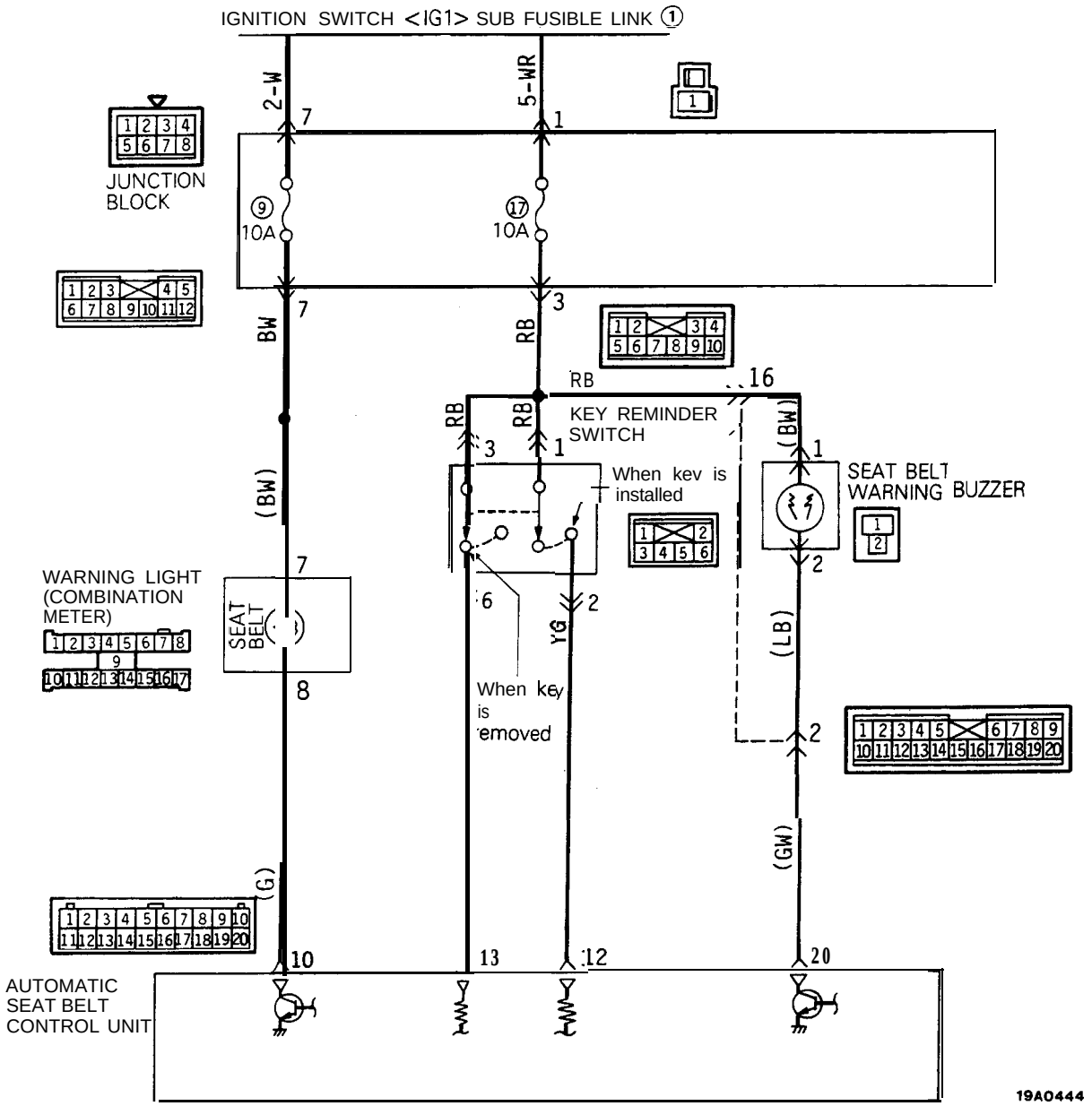


Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
1	Unplug the connector from the control unit.	Harness side terminal voltage of control unit connector (11 -Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between junction block and control unit	Repair the harness or plug in the connector correctly
2	Ignition switch: ON	Harness side terminal voltage of control unit connector (1 -Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between junction block and control unit	Repair the harness or plug in the connector correctly
3	Ignition switch: OFF	Terminal-to-ground continuity of control unit harness side connector (7–Ground, 17–Ground)	0 Ω	∞ Ω	Open harness wire between control unit and ground	Repair the harness
					Improper ground connection	Correctly connect to ground

TSB Revision

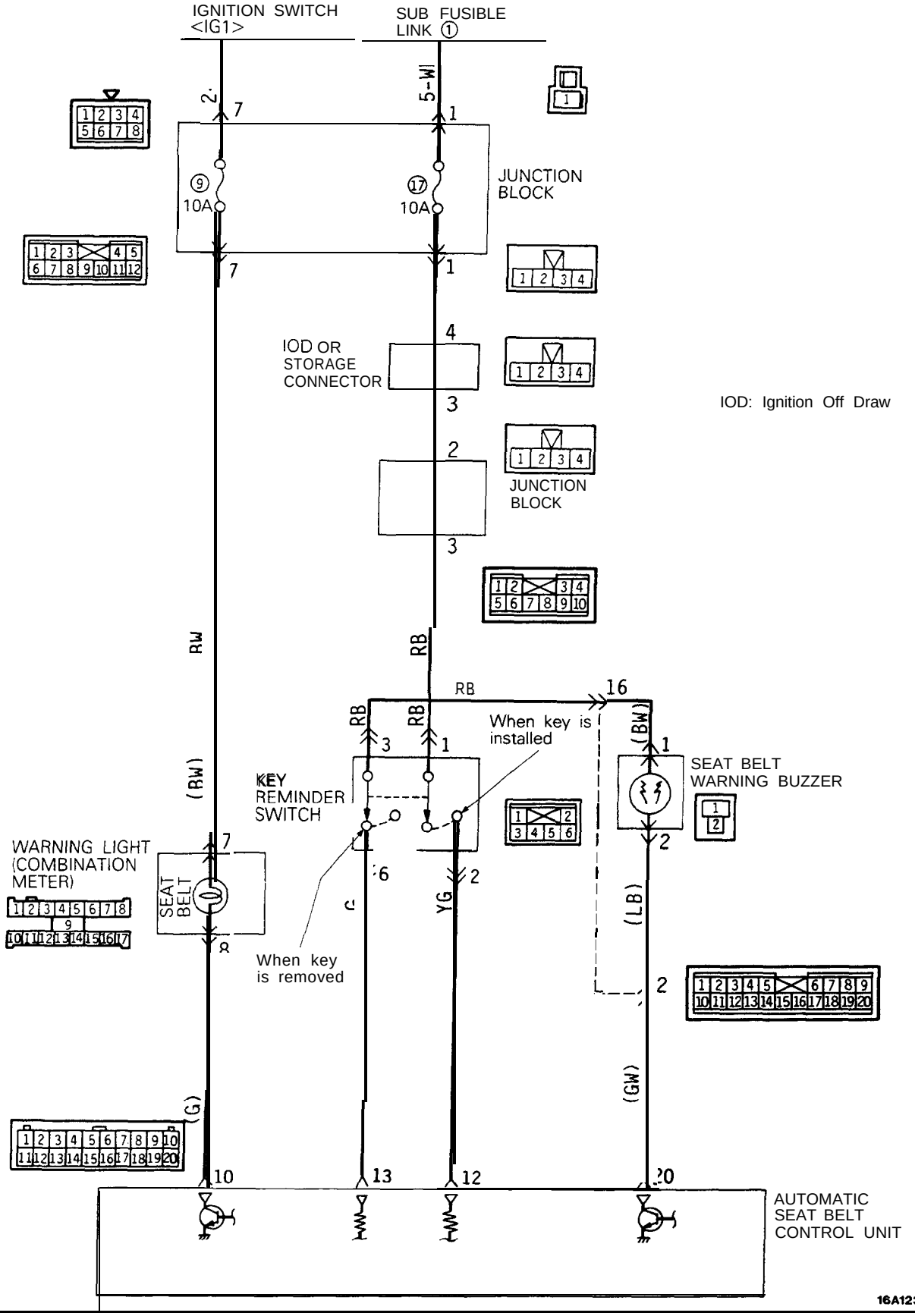
2. Warning Light, Key Reminder Switch, Buzzer Circuit

<Up to 1990 models>



TSB Revision

<From 1991 models>

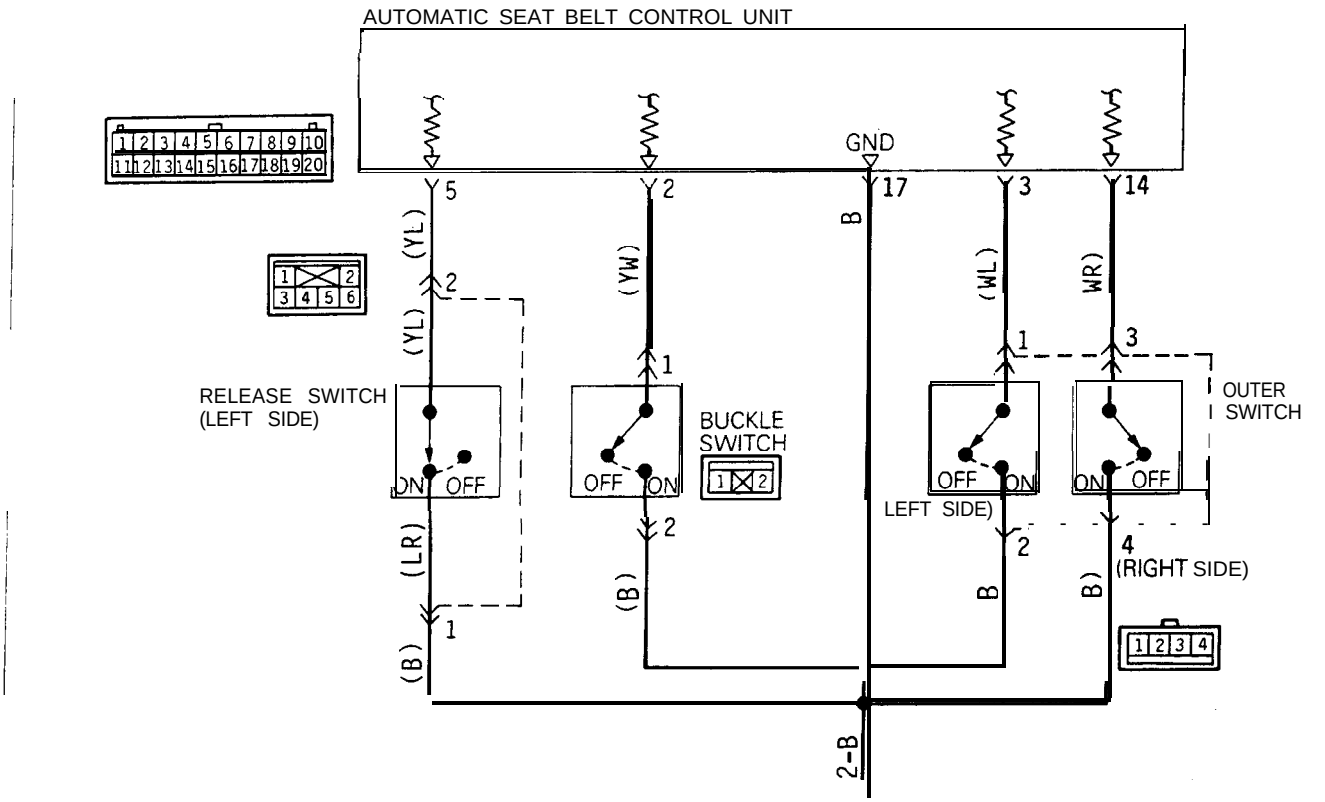


TSB Revision

Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
Warning light						
1	Unplug the warning light connector Ignition switch: ON	Terminal voltage of warning light harness side connector (10–Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between junction block and combination meter	Repair the harness or plug in the connector correctly
2	Connect the warning light connector. Unplug the connector from the control unit. Ignition switch: ON	Terminal voltage of control unit harness side connector (IO-Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between combination meter and control unit	Repair the harness or plug in the connector correctly
					Warning light bulb blown or in poor contact	Replace or correctly install the warning light
Key reminder switch						
1	Disconnect the key reminder switch connector.	Terminal voltage of key reminder switch harness side connector (1 -Ground, 3–Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between junction block and key reminder switch	Repair the harness or plug in the connector correctly
2	Plug the key reminder switch connector. Unplug the connector from the control unit. Remove the key from the ignition switch.	Terminal voltage of control unit harness side connector (13–Ground, 12–Ground)	13–Ground: Battery positive voltage	o v	Open harness wire or disconnected connector between key reminder switch and control unit	Repair the harness or plug in the connector correctly
			12–Ground: o v	A voltage same as or lower than battery positive voltage	Defective key reminder switch	Check the key reminder switch. (Refer to GROUP 54–Ignition Switch.)
3	Insert the key.	Terminal voltage of control unit harness side connector (13–Ground, 12–Ground)	13–Ground: o v	A voltage same as or lower than battery positive voltage	Defective key reminder switch	Check the key reminder switch. (Refer to GROUP 54–Ignition Switch.)
			12–Ground: Battery positive voltage	o v	Open harness wire or disconnected connector between key reminder switch and control unit	Repair the harness or plug in the connector correctly
uzzer						
1	Unplug the buzzer connector.	Terminal voltage of harness side connector (1-Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between junction block and buzzer	Repair the harness or plug in the connector correctly
2	Plug in the buzzer connector. Unplug the connector from the control unit	Terminal voltage of control unit harness side connector (20–Ground)	Battery positive voltage	0 V	Open harness wire or disconnected connector between buzzer and control unit	Repair the harness or plug in the connector correctly

TSB Revision

3. Release Switch (driver's side), Buckle Switch, Outer Switch Circuit



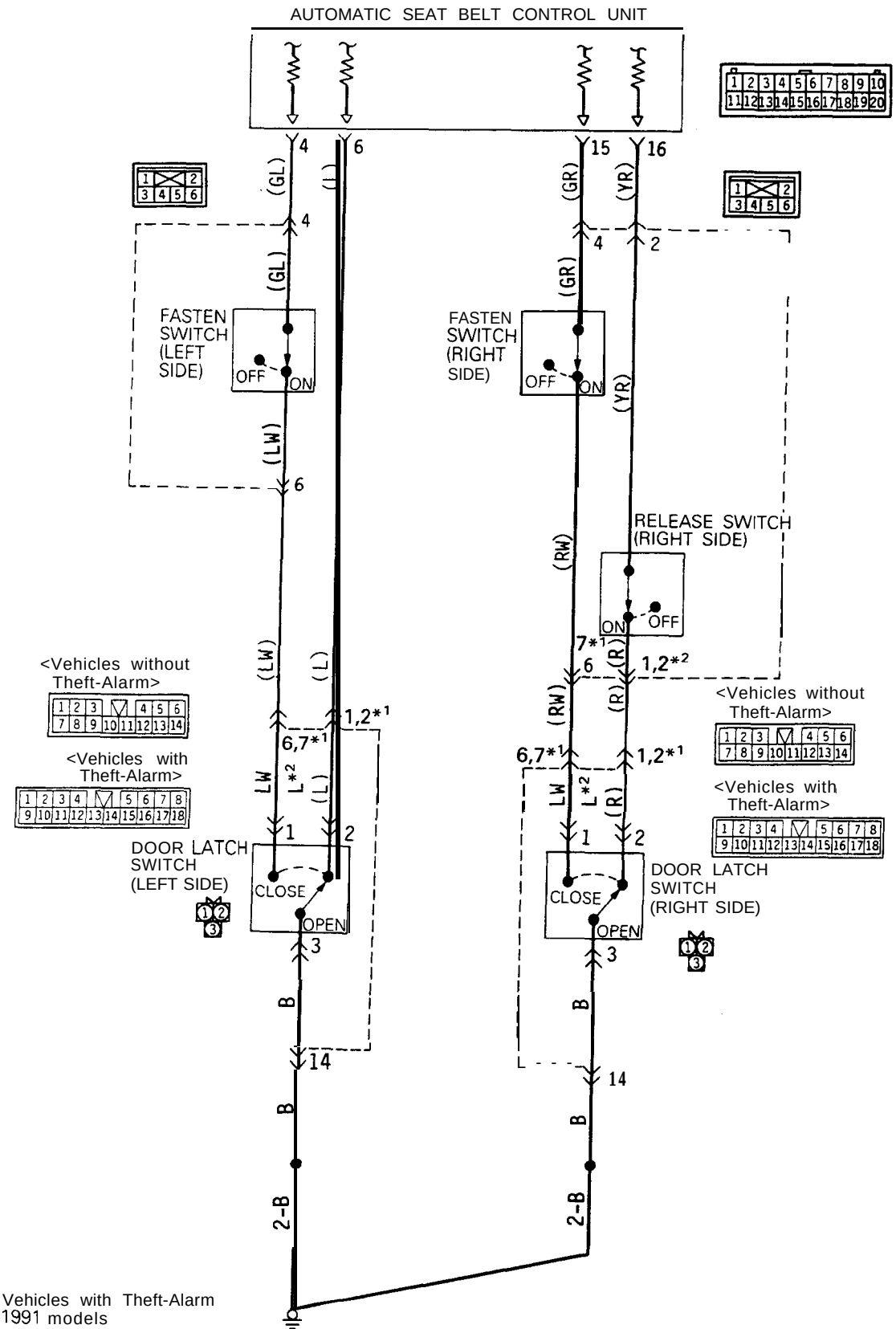
Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
Release switch (driver's side)						
1	Unplug the "release" switch connector.	Terminal-to-ground continuity of "release" switch harness side connector (1-Ground)	0 Ω	∞ Ω	Open harness wire or disconnected connector between "release" switch and ground	Repair the harness or plug in the connector correctly
					Improper ground connection	Correctly connect to ground
2	Plug in the "release" switch connector. Unplug the connector from the control unit. Move the slide anchor	Terminal-to-ground continuity of control unit harness side connector (5–Ground)	0 Ω when slide anchor is not in the "release" (switch ON) range. ∞ Ω when slide anchor is in the "release" (switch OFF) range.	Remains 0 Ω or ∞ Ω	Defective "release" switch	Replace the driving device assembly. (Refer to P.52-42.)
					Open harness wire or disconnected connector between control unit and "release" switch	Repair the harness or plug in the connector correctly.

TSB Revision

Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
Buckle switch						
1	Unplug the connector from the buckle switch.	Terminal-to-ground continuity of buckle switch harness side connector (2–Ground)	0 Ω	∞ Ω	Open harness wire between buckle switch and ground	Repair the harness
					Improper ground connection	Correctly connect to ground
2	Plug in the buckle switch connector. Unplug the connector from the control unit. Leave the lap belt unfastened (buckle switch ON).	Terminal-to-ground continuity of control unit harness side connector (2–Ground)	0 Ω	∞ Ω	Open harness wire between control unit and buckle switch	Repair the harness
					Defective buckle switch	Replace the buckle. (Refer to P.52-42.)
Outer switch						
1	Unplug the connector from the outer switch	Terminal-to-ground continuity of outer switch harness side connector L.H. (2–Ground) R.H. (4–Ground)	0 Ω	∞ Ω	Open harness wire between outer switch and ground	Repair the harness
					Improper ground connection	Correctly connect to ground
2	Pull out and retract the shoulder belt	Terminal-to-ground continuity of outer switch side connector L.H. (1–2) R.L. (3–4)	∞ Ω from the belt's fully retracted position until belt is pulled out approx. midway (outer switch OFF) 0 Ω from the approx. midway pulled out position until belt is pulled out fully (outer switch ON)	Resistance remains 0 Ω or ∞ Ω or changes from 0 Ω to ∞ Ω or from ∞ Ω to 0 Ω at points other than the approx. midway pulled out position	Defective outer switch	Replace the retractor (for shoulder belt) (Refer to P.52-43.)
3	Attach the shoulder belt to the slide anchor (outer switch ON). Plug in the connector to the outer switch. Unplug the connector from the control unit.	Terminal-to-ground continuity of control unit harness side connector L.H. (3–Ground) R.H. (14–Ground)	0 Ω	∞ Ω	Open harness wire between control unit and outer switch	Repair the harness

TSB Revision

4. Door Latch Switch, Fasten Switch, Release Switch (passenger's side) Circuit



TSB Revision

(1) Driver's side

Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
1	Unplug the door latch switch connector. Open and close the door	Continuity of door latch switch (2-3, 1–3)	Between terminals 2 and 3 0 Ω when door is open ∞ Ω when door is closed Between terminals 1 and 3 ∞ Ω when door is open 0 Ω when door is closed	Remains 0 Ω or ∞ Ω	Door latch switch damaged	Replace the door latch switch (Refer to P.52-42.)
2	—	Terminal-to-ground continuity of door latch switch harness side connector (3–Ground)	0 Ω	∞ Ω	Open harness wire or disconnected connector between door latch switch and ground	Repair the harness or plug in the connector correctly
					Improper ground connection	Correctly connect to ground
3	Connect the door latch switch connector. Unplug the connector from the control unit. Open and close the door.	Terminal-to-ground continuity of control unit harness side connector (6–Ground)	0 Ω when door is open ∞ Ω when door is closed	Remains 0 Ω or ∞ Ω	Open harness wire or disconnected connector between control unit and door latch switch	Replace the harness or plug in the connector correctly.
4	Unplug the "fasten" switch connector. Open and close the door.	Terminal-to-ground continuity of the "fasten" switch harness side connector (6–Ground)	∞ Ω when door is open 0 Ω when door is closed	Remains 0 Ω or ∞ Ω	Open harness wire or disconnected connector between "fasten" switch and door latch switch	Repair the harness or plug in the connector correctly
5	Plug in the "fasten" switch connector. Close the door.	Terminal-to-ground continuity of control unit harness side connector (4–Ground)	∞ Ω when slide anchor is in the "fasten" range ("fasten" switch OFF) 0 Ω when slide anchor is not in the "fasten" range ("fasten" switch ON)	Remains 0 Ω or ∞ Ω	Defective "fasten" switch	Replace the driving device assembly

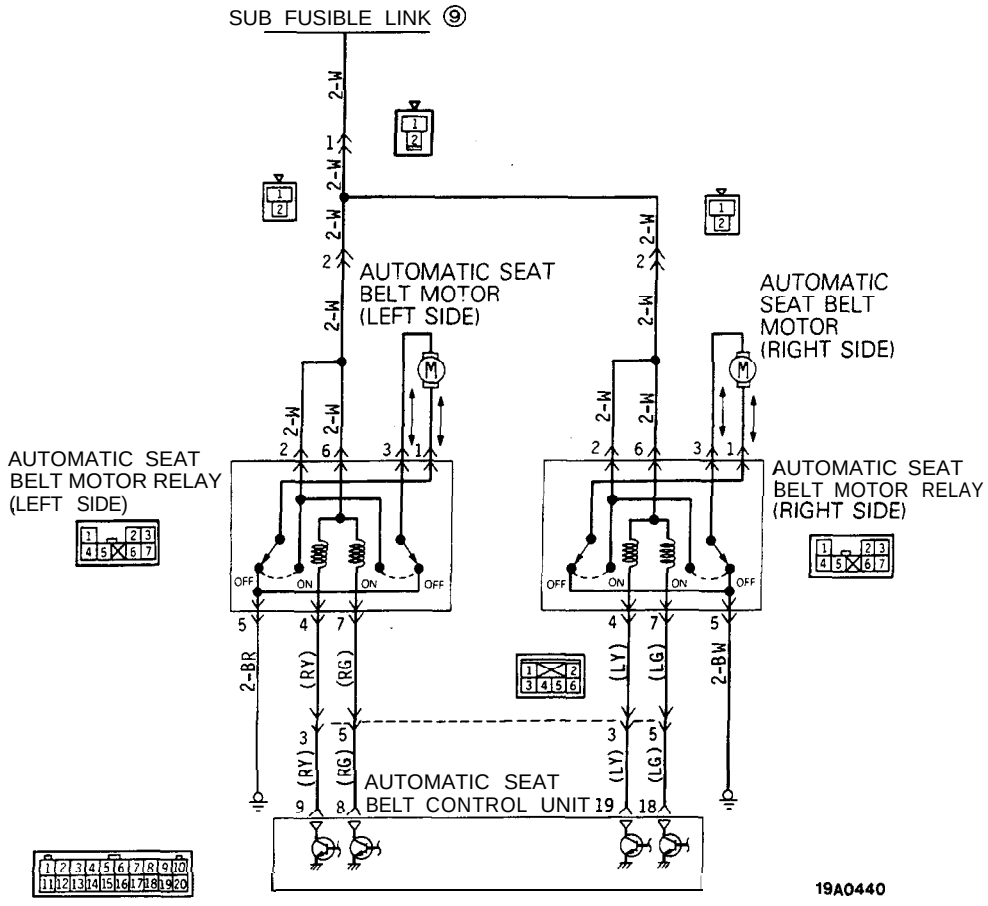
TSB Revision

(2) Passenger's side

Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
1	Unplug the door latch switch connector. Open and close the door	Continuity of door latch switch (2–3, 1–3)	Between terminals 2 and 3 0 Ω when door is open ∞ Ω when door is closed Between terminals 1 and 3 ∞ Ω when door is open 0 Ω when door is closed	Remains 0 Ω or ∞ Ω	Door latch switch damaged	Replace the door latch switch (Refer to P.52-42.)
2	—	Terminal-to-ground continuity of the door latch switch harness side connector (3–Ground)	0 Ω	∞ Ω	Open harness wire or disconnected connector between door latch switch and ground	Repair the harness or plug in the connector correctly
					Improper ground connection	Correctly connect to ground
3	Connect the door latch switch connector. Unplug the connector from the "release" switch. Open and close the door.	Terminal-to-ground continuity of the "release" switch harness side connector (1 -Ground)	0 Ω when door is open ∞ Ω when door is closed	Remains 0 Ω or ∞ Ω	Open harness wire or disconnected connector between "release" switch and door latch switch	Repair the harness or plug in the connector correctly
4	Connect the "release" switch connector. Unplug the connector from the control unit. Open and close the door.	Terminal-to-ground continuity of control unit harness side connector (16–Ground)	0 Ω when door is open and slide anchor is not in the "release" range ("release" switch ON) ∞ Ω when door is closed and slide anchor in the "release" range ("release" switch OFF)	Remains 0 Ω or ∞ Ω	Defective "release" switch	Replace the driving device assembly. (Refer to P.52-42.)
					Open harness wire or disconnected connector between control unit and "release" switch	Repair the harness or plug in the connector correctly
5	Unplug the "fasten" switch connector. Open and close the door.	Terminal-to-ground continuity of the "fasten" switch harness side connector (6–Ground)	∞ Ω when door is open 0 Ω when door is closed	Remains 0 Ω or ∞ Ω	Open harness wire or disconnected connector between "fasten" switch and door latch switch	Repair the harness or plug in the connector correctly.
6	Connect the "fasten" switch connector. Open and close the door.	Terminal-to-ground continuity of control unit harness side connector (15–Ground)	0 Ω when door is closed and slide anchor is not in the "fasten" range ("fasten" switch ON) ∞ Ω when door is closed and slide anchor is in the "fasten" range ("fasten" switch OFF)	Remains 0 Ω or ∞ Ω	Defective "fasten" switch	Replace the driving device assembly (Refer to P.52-42.)
					Open harness wire or disconnected connector between control unit and "fasten" switch	Repair the harness or plug in the connector correctly.

TSB Revision

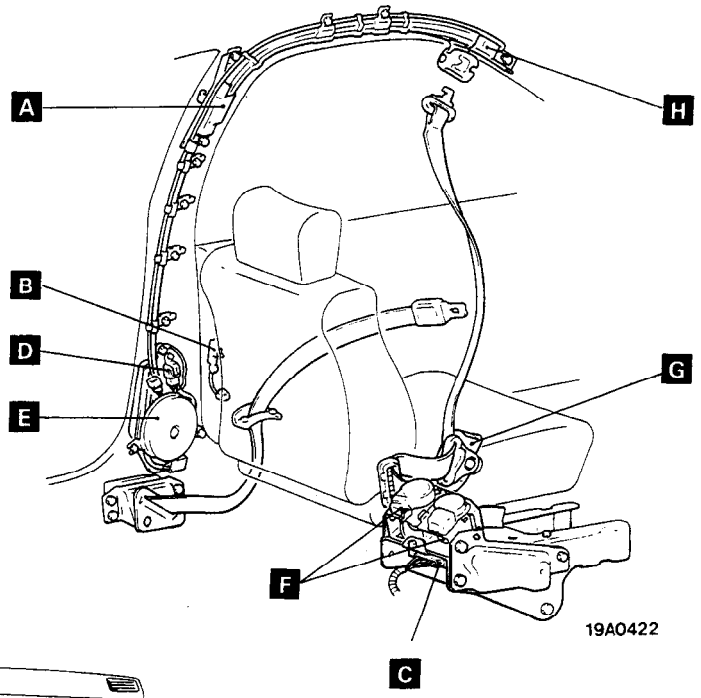
5. Motor Power Supply and Drive Circuit

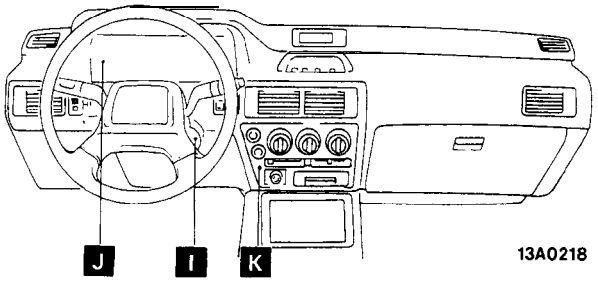


Step	Check method		Judgement		Cause	Remedy
	Operation	Check object	Normal	Malfunction		
1	Unplug the motor relay connector.	Terminal-to-ground continuity of harness side connector (5–Ground)	0 Ω	∞ Ω	Open harness wire between motor relay and ground	Repair the harness.
					Improper ground connection	Correctly connect to ground
2	—	Harness side terminal voltage of motor relay (2–Ground, 6–Ground)	Battery positive voltage	o v	Open harness wire or disconnected connector between fusible link and motor relay	Repair the harness or plug in the connector correctly.
3	Plug in the motor relay connector. Unplug the connector from control unit.	Terminal voltage of control unit harness side connector L.H. (8–Ground, 9–Ground) R.H. (18–Ground, 19–Ground)	Batten/ positive voltage	o v	Open harness wire or disconnected connector between motor relay and control unit	Repair the harness or plug in the connector correctly.
					Defective motor relay	Replace the driving device assembly. (Refer to P.52-42.)

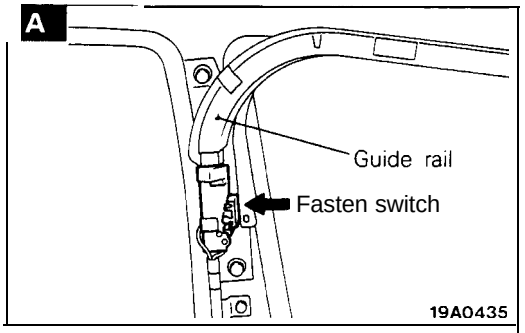
TSB Revision

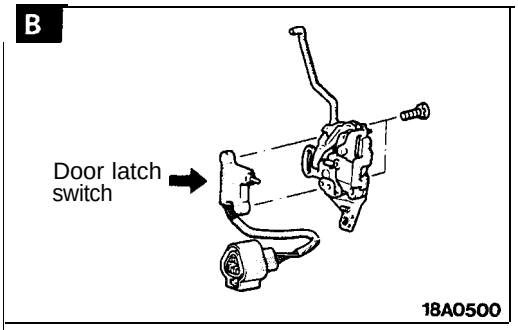
AUTOMATIC SEAT BELT COMPONENTS LOCATION





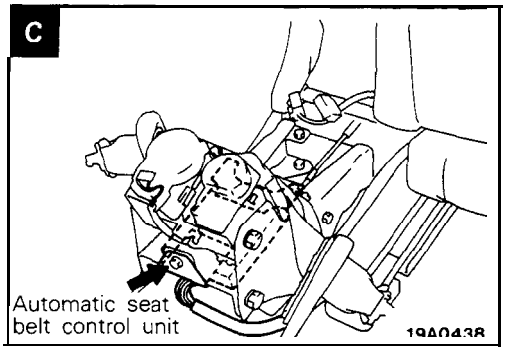
Name	Symbol	Name	Symbol
Automatic seat belt control unit	C	Fasten switch	A
Automatic seat belt motor	E	Key reminder switch	I
Automatic seat belt motor relay	D	Outer switch	F
Buckle switch	G	Seat belt warning light	J
Buzzer	K	Release switch	H
Door latch switch	B	–	–



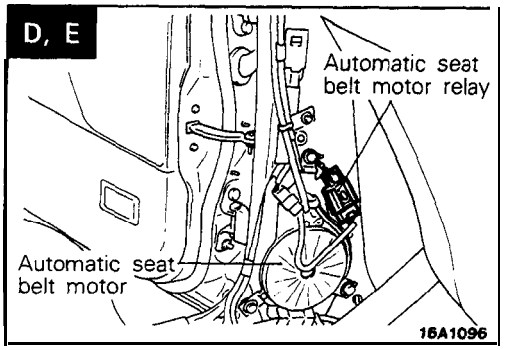


TSB Revision

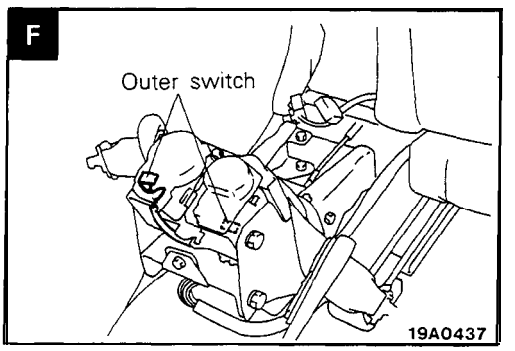
C



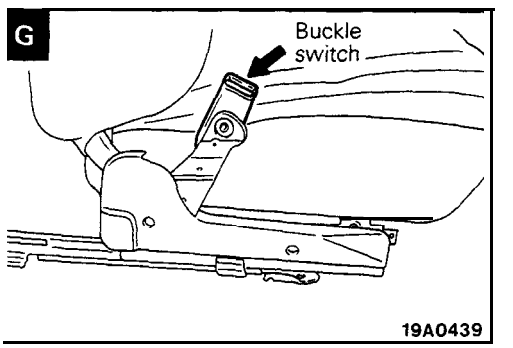
D, E



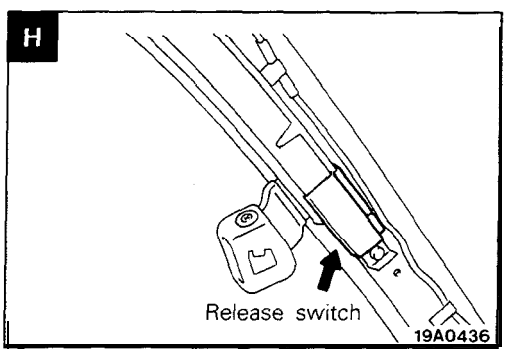
F



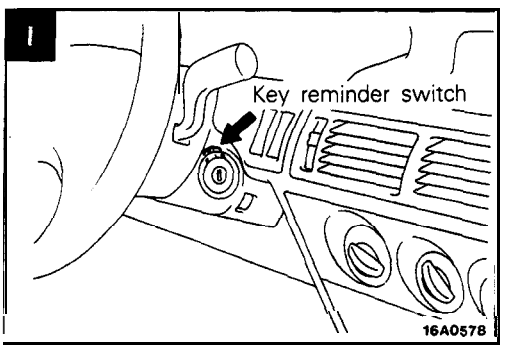
G



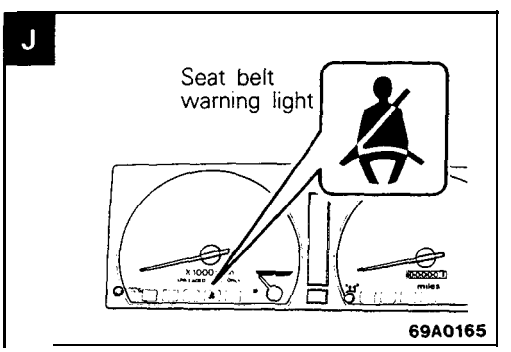
H



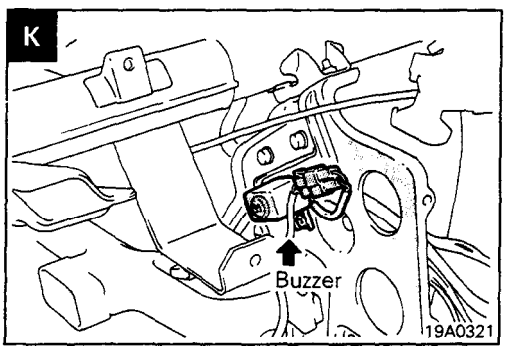
I



J



K

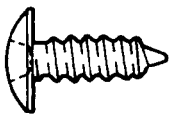
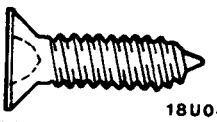
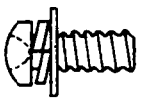
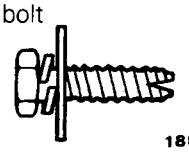
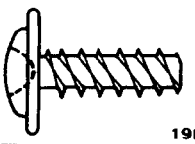
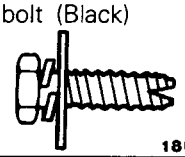
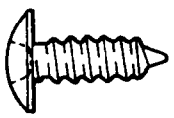
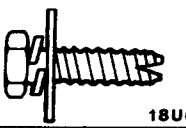
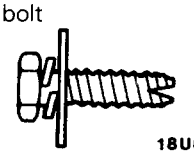
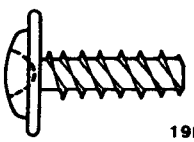
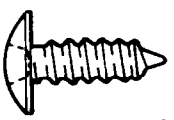
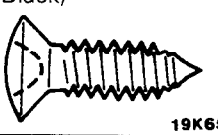
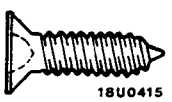


TSB Revision

INSTRUMENT PANEL

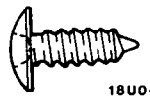
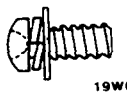
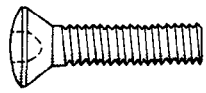
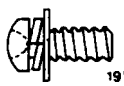
M52UAAS

For installation of the instrument panel, the bolts and screws described below are used. They are indicated by symbols in the illustration.

Symbol	Part name and shape	Size mm (in.)	Symbol	Part name and shape	Size mm (in.)
A	Tapping screw  18U0418	D=5 (.20) L=16 (.63)	H	Tapping screw (Black)  18U0415	D=5 (.20) L=20 (.79)
B	Washer assembled screw  19W654	D=5 (.20) L=16 (.63)	I	Washer assembled bolt  18U0420	D=6 (.24) L=16 (.63)
C	Tapping screw  19K653	D=5 (.20) L=25 (.98)	J	Washer assembled bolt (Black)  18U0420	D=6 (.24) L=20 (.79)
D	Tapping screw  18U0418	D=5 (.20) L=20 (.79)	K	Washer assembled bolt  18U0420	D=8 (.31) L=20 (.79)
E	Washer assembled bolt  18U0420	D=8 (.31) L=25 (.98)	L	Tapping screw  19K653	D=5 (.20) L=12 (.47)
F	Tapping screw  18U0418	D=5 (.20) L=16 (.63)	M	Tapping screw (Black)  18U0415	D=5 (.20) L=12 (.47)
G	Tapping screw (Black)  19K652	D=5 (.20) L=25 (.98)	N	Tapping screw (Black)  18U0415	D=4 (.16) L=12 (.47)

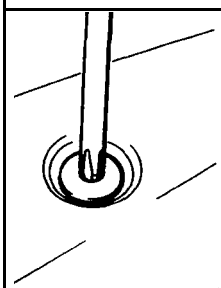
D=Thread diameter
L=Effective thread length

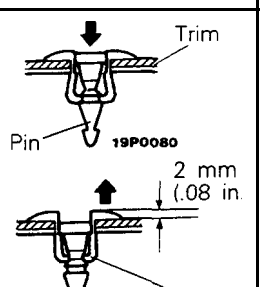
TSB Revision

Symbol	Part name and shape	Size mm (in.)	Symbol	Part name and shape	Size mm (in.)
O	Washer assembled bolt  19A0165	D=5 (.20) L=16 (.63)	R	Tapping screw  18U0418	D=5 (.20) L=12 (.47)
P	Washer assembled screw  19W654	D=5 (.20) L=12 (.47)	S	Machine screw (Black)  19L0128	D=4 (.16) L=10 (.39)
Q	Washer assembled screw (Black)  19W654	D=5 (.20) L=16 (.63)	T	Washer assembled screw  18U0419	D=5 (.20) L=20 (.79)

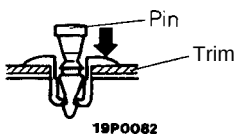
D=Thread diameter
L=Effective thread length


19P0070


19P0071



19P0081



19P0082

Gro
9P0080

TRIM CLIP REMOVAL/INSTALLATION PROCEDURES

The type of clip shown in the illustration, which is used for the installation of instrument panel, should be removed and installed by the following procedures described below.

REMOVAL

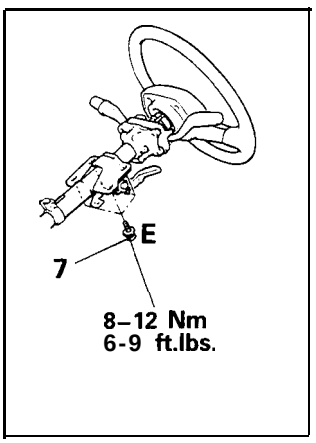
(1) Use a cross-tip (+) screwdriver to push inward the pin (at the centre of the trim clip) to a depth of about 2 mm (.08 in.).
(2) Pull the trim clip outward to remove it.

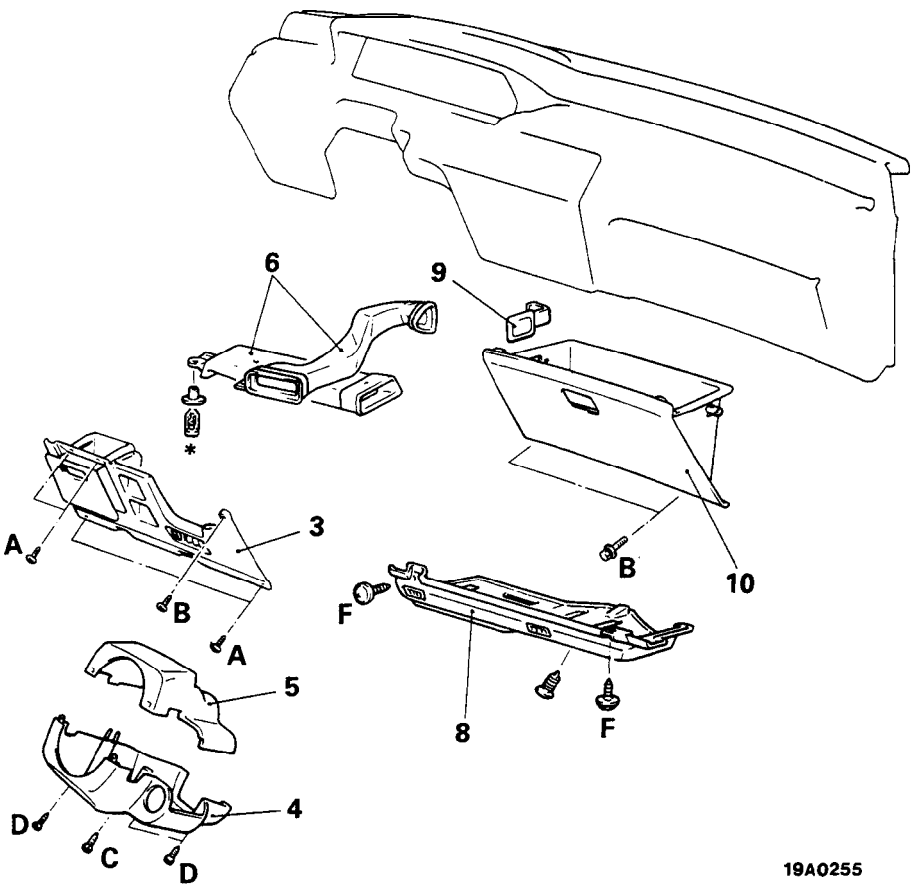
Caution
Do not push the pin inward more than necessary because it may damage the grommet, or the pin may fall in, if pushed too far.

INSTALLATION

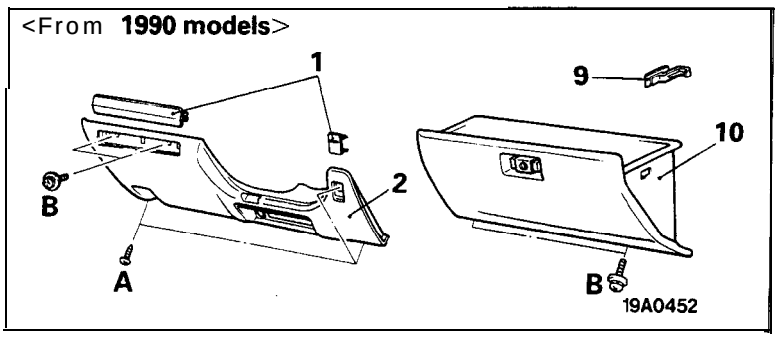
(1) With the pin pulled out, insert the trim clip into the hole in the trim.
(2) Push the pin inward until the pin's head *is* flush with the grommet.
(3) Check whether the trim is secure.

REMOVAL AND INSTALLATION





<From **1990 models**>



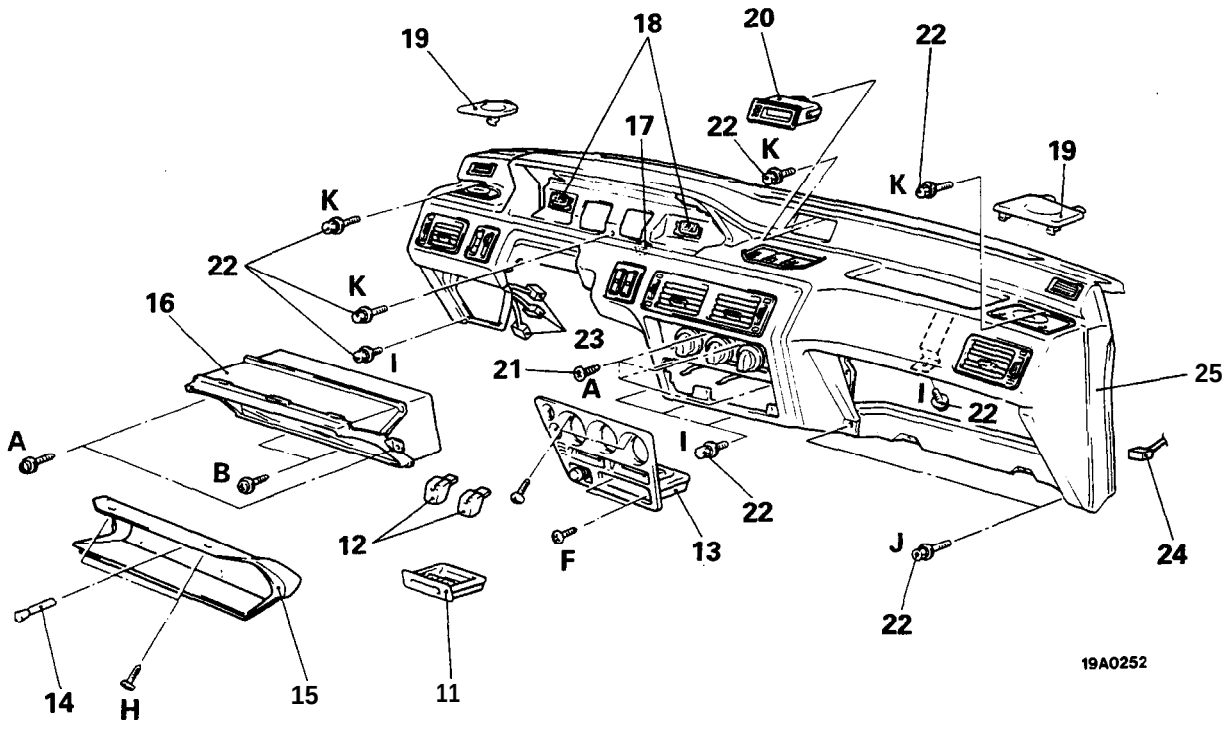
Pre-removal and Post-installation Operation
- Removal and Installation of Console Box (Refer to P.52-29.)
- Dsconnect and Connect the Connection of the Body Wiring Harness and the Instrument Panel Wiring Harness

*Disconnect and Connect the Connection of the Instrument Panel Wiring Harness and the Junction Block

Removal steps
1. Plug
2. Knee protector assembly
• ☒ 3. Instrument under cover assembly
4. Column cover, lower
5. Column cover, upper
6. Lap shower duct and foot shower nozzle
7. Tilt bracket installation bolts
8. Under cover
9. Stopper
10. Glove box assembly

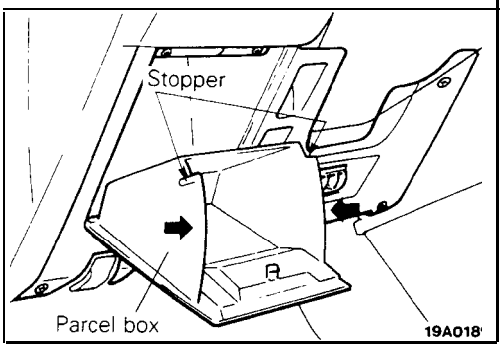
NOTE
The * symbol indicates a trim clip.
(Refer to P.52-23.)

TSB Revision



11. Ashtray
12. Knob
13. Heater control panel
14. Trip counter reset knob
15. Meter bezel
16. Combination meter
17. Speedometer cable adapter
18. Combination meter wiring harness connector connections
19. Speaker garnishes
20. Clock
21. Heater control assembly installation screws
22. Instrument panel mounting bolts
23. Coupling of the instrument panel wiring harness and the body wiring harness, and of the instrument panel wiring harness and the junction block
24. Coupling of the MFI control relay and the control wiring harness
25. Instrument panel assembly

TSB Revision

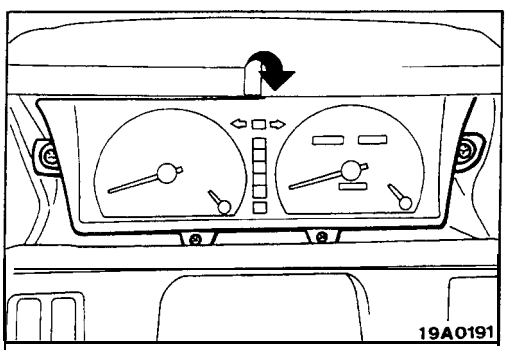


SERVICE POINTS OF REMOVAL

3. REMOVAL OF INSTRUMENT UNDER COVER ASSEMBLY <1989 models>

(1) Open the parcel box and apply force (by hand) at the inner side to remove the stopper; then tilt the parcel box forward.

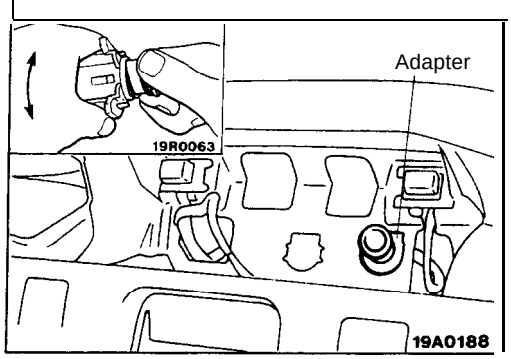
(2) Remove the instrument under cover attaching screws, and remove the instrument under cover.



16. REMOVAL OF COMBINATION METER

(1) Remove the installation screws, and then remove the combination meter by turning the upper part of the combination meter toward you.

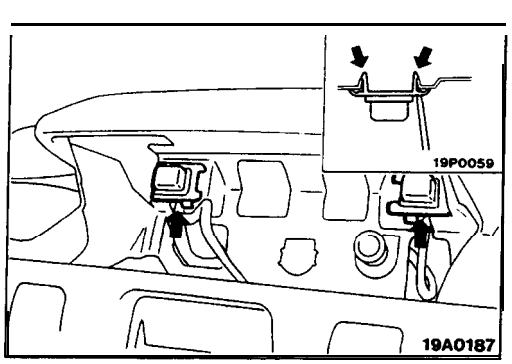
(2) For models with the automatic position indicator, remove the combination meter after first removing the harness connector.



17. REMOVAL OF SPEEDOMETER CABLE ADAPTER

(1) Disconnect the speedometer cable at the transaxle end of the cable.

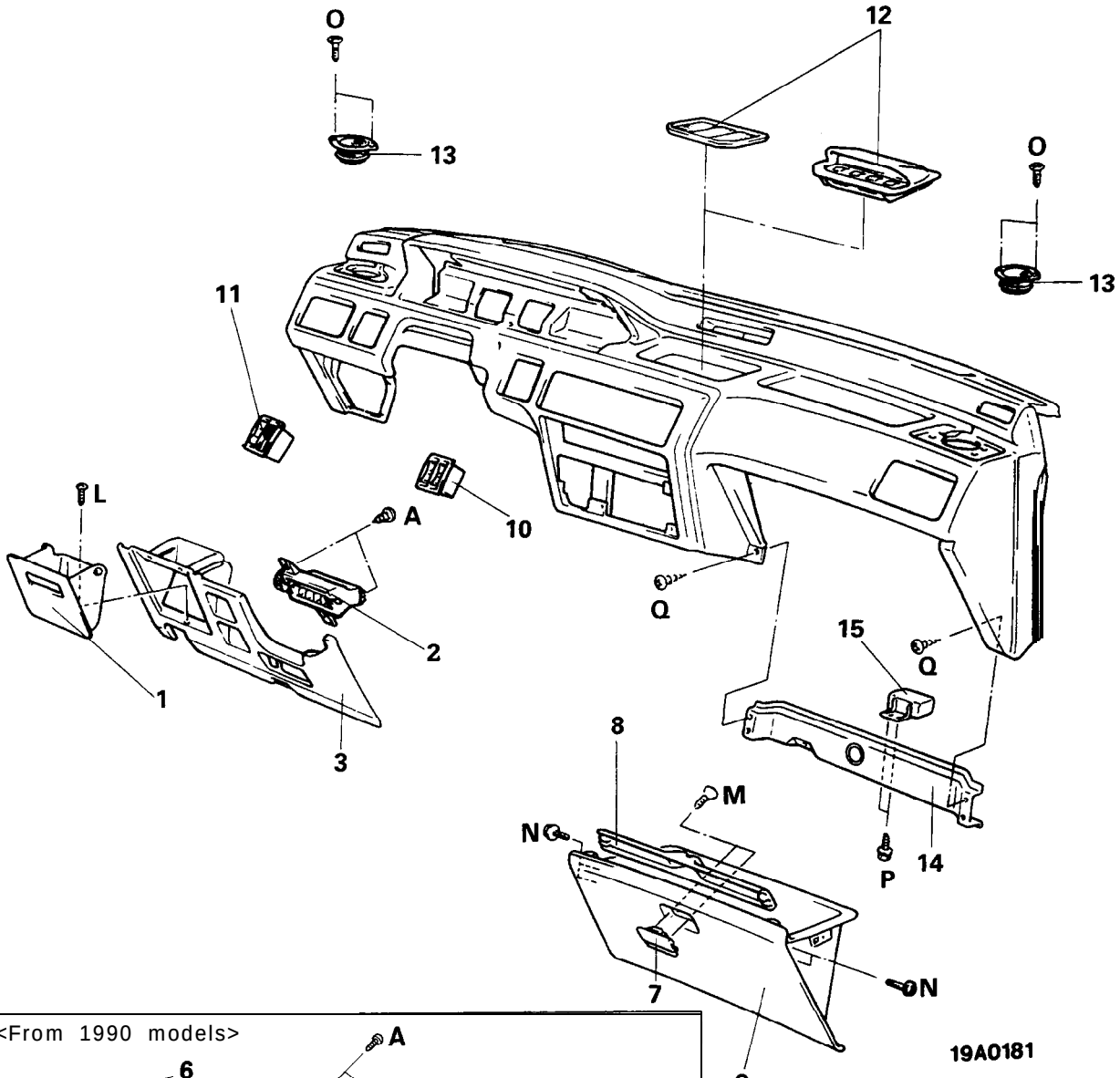
(2) Pull the speedometer cable slightly toward the vehicle interior, release the lock by turning the adapter to the left or right, and then remove the adapter.

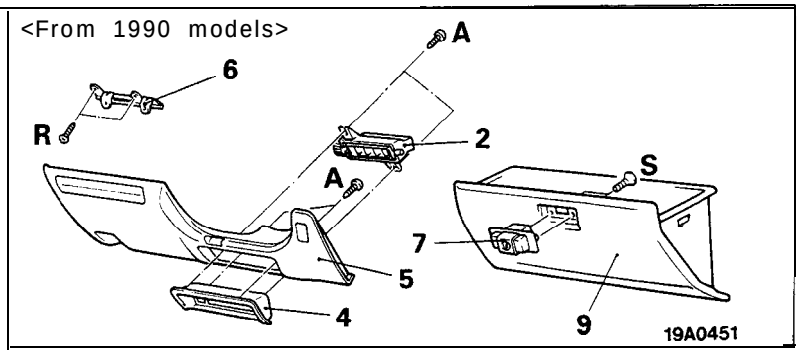


18. DISCONNECTION OF COMBINATION METER WIRING HARNESS CONNECTORS

Insert a flat-tip (–) screwdriver and open the tab of the connector, and then remove the harness connectors.

DISASSEMBLY AND REASSEMBLY

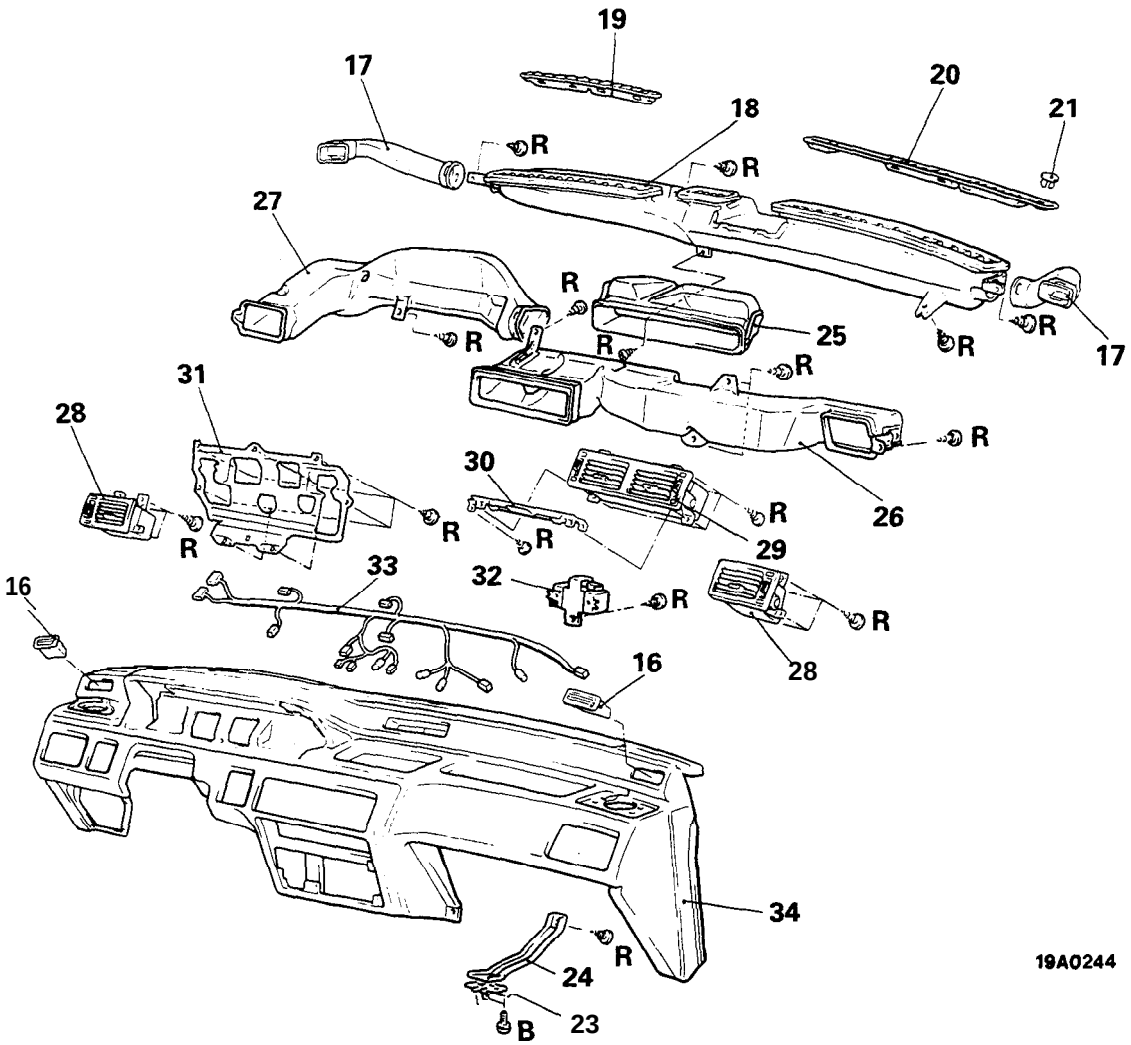


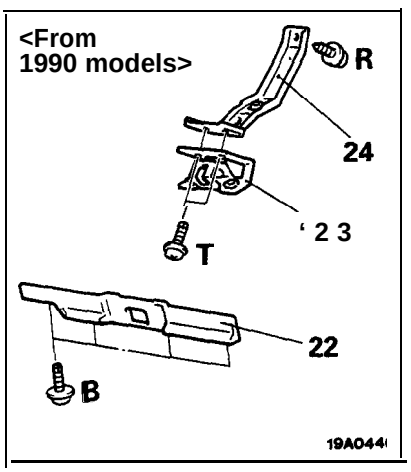


Disassembly steps

1. Parcel box
2. Lap shower grille
3. Instrument under cover
4. Outlet bezel
5. Knee protector
6. Knee protector bracket
7. Glove box lock
8. Glove box cover
9. Glove box
10. Defogger switch
11. Rheostat
12. Instrument panel mat or ACTIVE-Electronic Control Suspension indicator
13. Speakers
14. Glove box frame
15. MFI control relay

TSB Revision





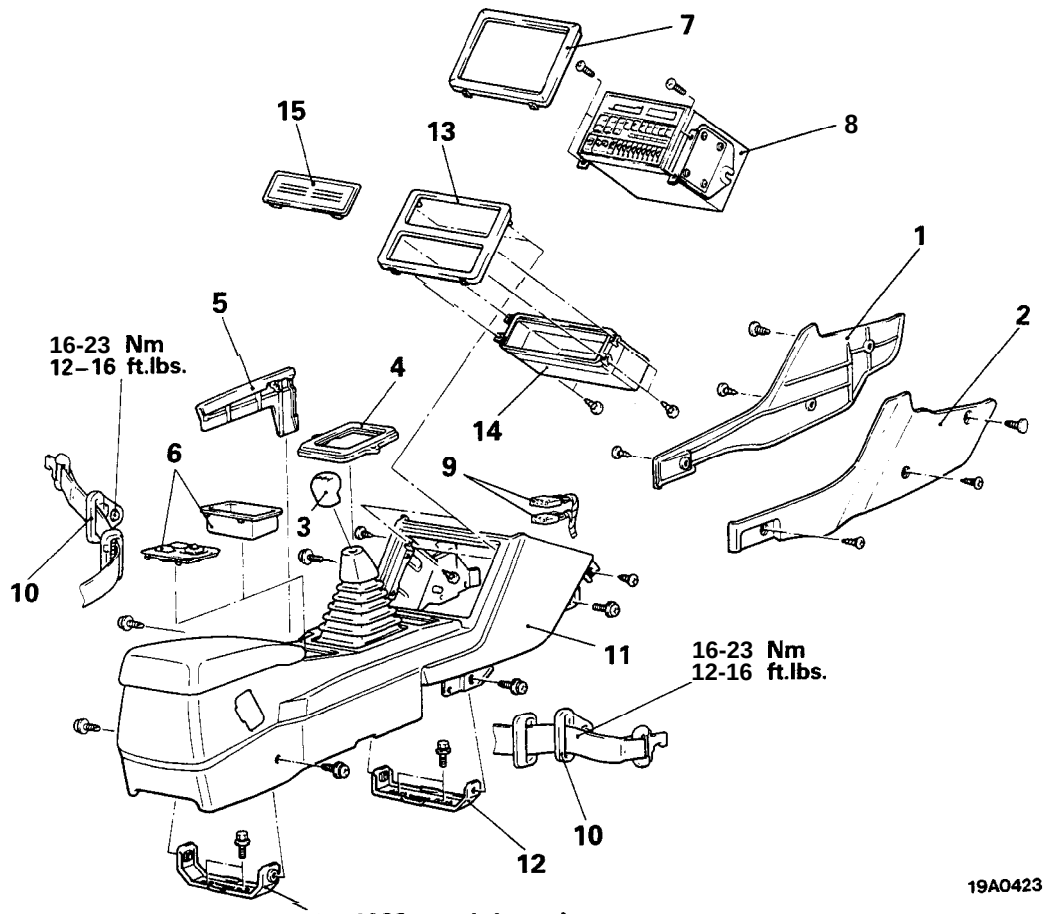
16. Demister outlets
17. Demister ducts
18. Defroster duct
19. Defroster garnish (L.H.)
20. Defroster garnish (R.H.)
21. Plug
22. Glove box reinfrocement assembly
23. Striker
24. Passenger side reinforcement
25. Center duct
26. Air duct (R.H.)
27. Air duct (L.H.)
28. Side air outlet assembly
29. Center air outlet assembly
30. Center reinforcement
31. Driver-side reinforcement
32. Buzzer
33. Instrument panel wiring harness
34. Instrument panel

TSB Revision

FLOOR CONSOLE

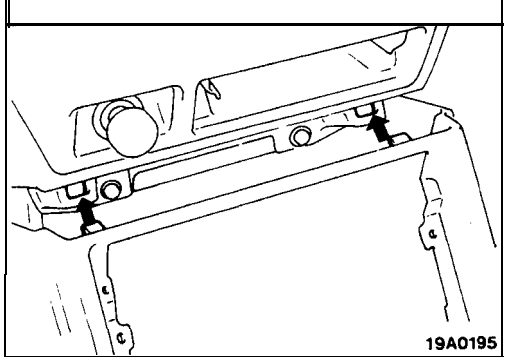
M52UBAR

REMOVAL AND INSTALLATION



Removal steps

1. Side cover (A)
2. Side cover(B)
3. Manual transaxle shift lever knob
4. Automatic transaxle spacer
5. Parking brake side panel
6. Switch panel or box
7. Radio panel (Vehicles with audio)
8. Audio (Refer to GROUP 54–Radio and tape player.)
9. Coupling of the audio and body wiring harness
10. Guide ring <From 1990 models>
12 <1989 models only>
- +11. Console box assembly
12. Console box bracket
13. Radio panel (Vehicles without audio)
14. Box (Vehicles without audio)
15. Radio plug (vehicles without audio)



SERVICE POINTS OF INSTALLATION

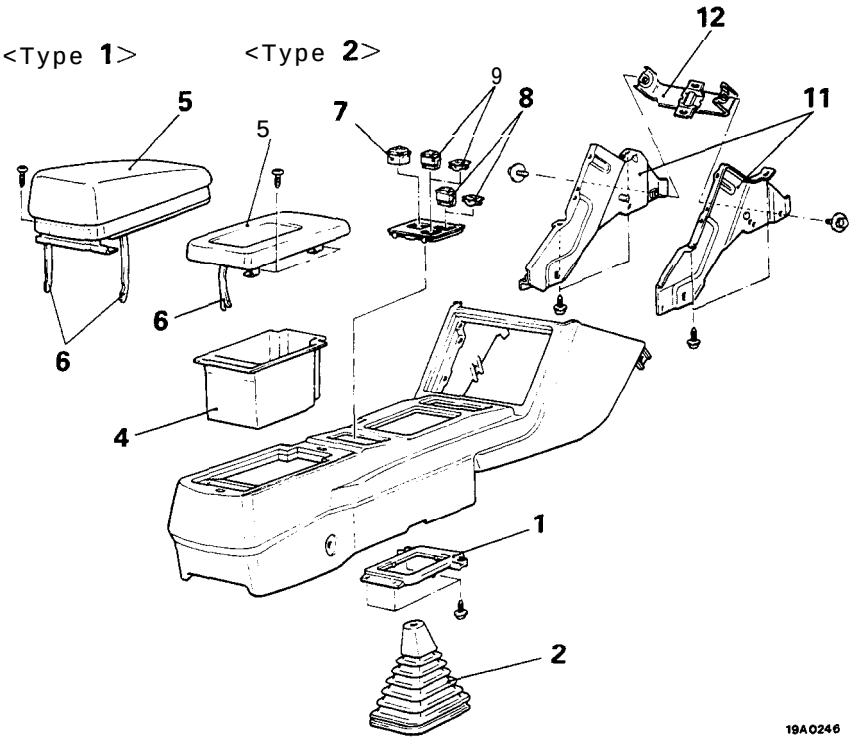
11. INSTALLATION OF CONSOLE BOX ASSEMBLY

Insert the tabs (of the console box) into the instrument panel part, and then tighten the installation screw.

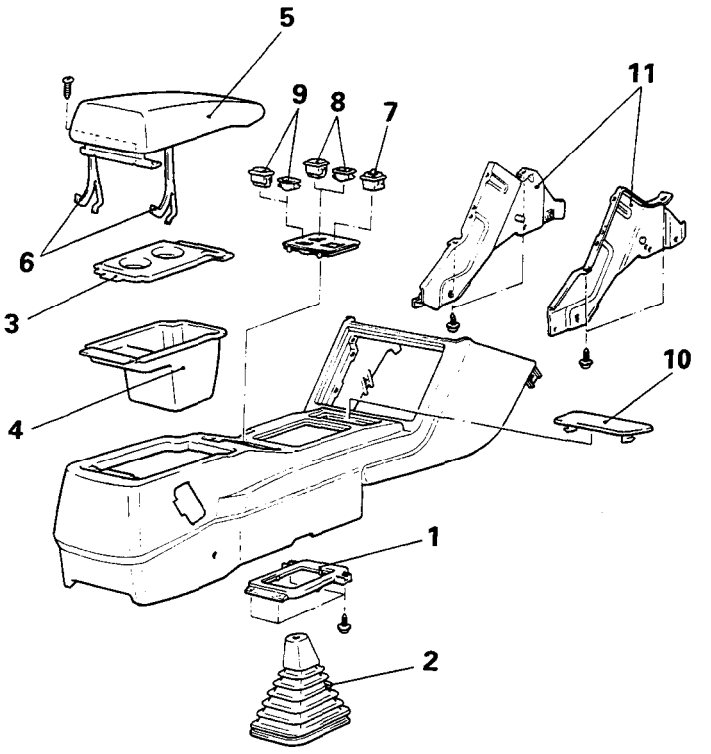
TSB Revision

DISASSEMBLY AND REASSEMBLY

<1989 models>



<From 1990 models>



Disassembly steps

1. Manual transaxle shift lever panel
2. Shift lever boot
3. Cup tray
4. Inner box
5. Lid assembly
6. Stopper
7. Remote controlled mirror switch
8. Power (PWR)/ECONO (ECO) changeover switch or plug
9. Electronic power steering switch or plug
10. Box plate
11. Bracket
12. Bracket (vehicles without audio)

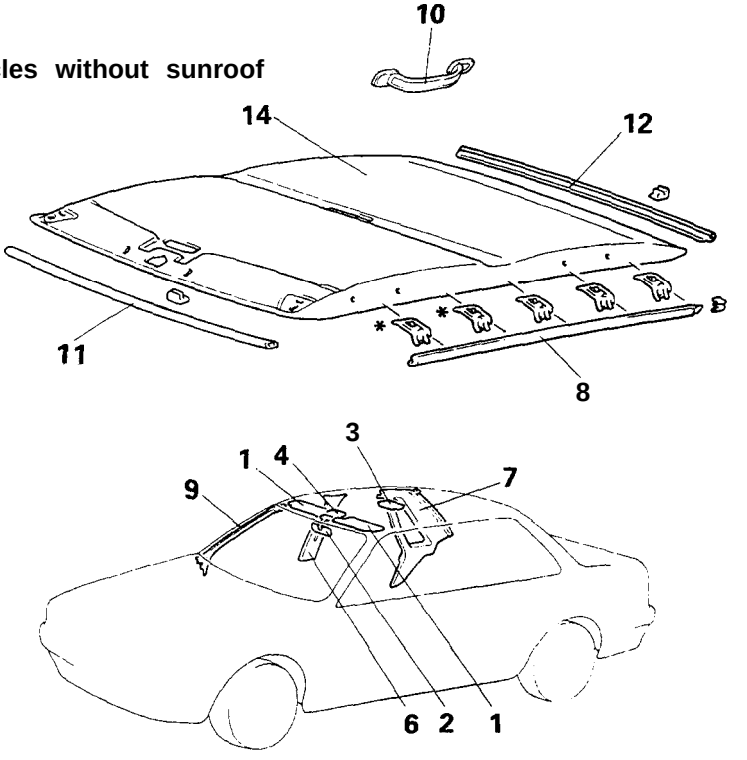
TSB Revision

HEADLINING

M52UDBB

REMOVAL AND INSTALLATION

Vehicles without sunroof

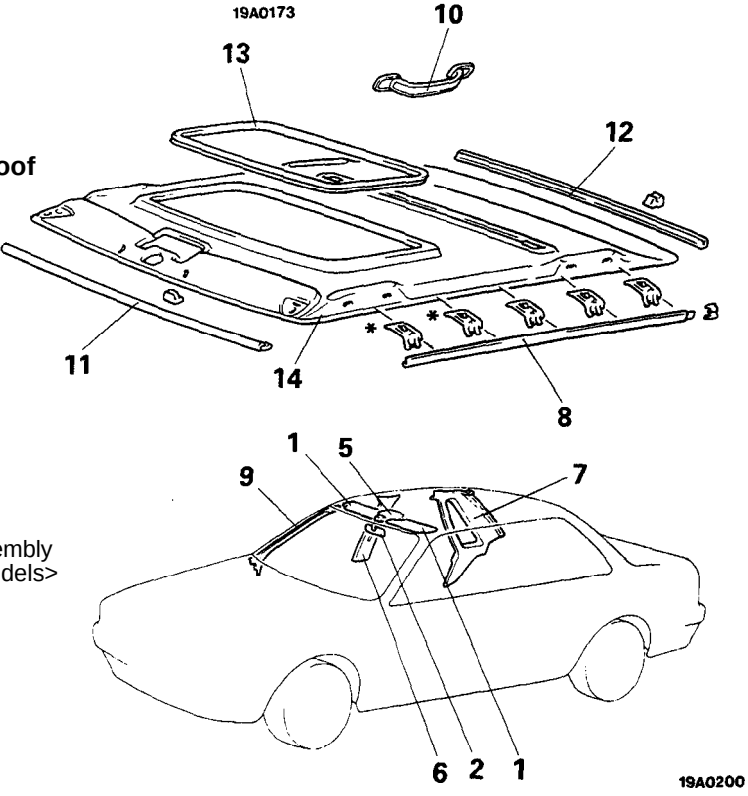


Pre-removal and Post-installation Operation
- Removal and Installation of Rear Seat (Refer to P.52-37.)

*Removal and Installation of Center Pillar Lower Trim (Refer to P.52-33.)

19A0173

Vehicles with sunroof



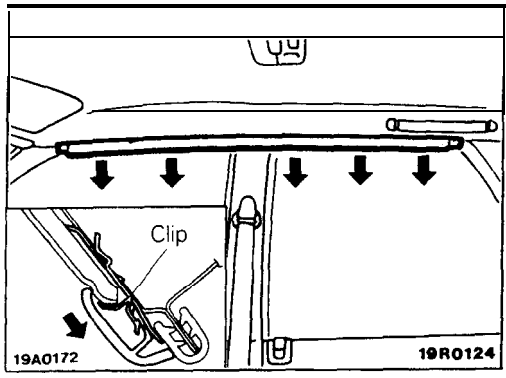
19A0200

Removal steps

1. Sunvisors
2. Inside rear view mirror
3. Dome light
4. Map light
5. Sunroof switch and dome light assembly
6. Center pillar upper trims <1 989 models> (Refer to P.52-33.)
7. Rear pillar trims (Refer to P.52-33.)
8. ◆◆ Roof rail trims
9. Front pillar trims (Refer to P.52-33.)
10. Assist grip
11. ◆◆ Front headlining trim
12. ◆◆ Rear headlining trim
13. Sunroof headlining trim
14. Headlining

NOTE
*: 1989 models

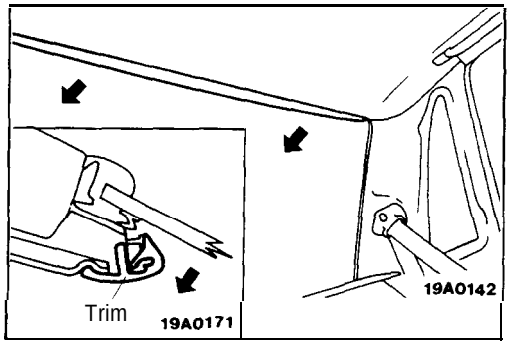
TSB Revision



SERVICE POINTS OF REMOVAL

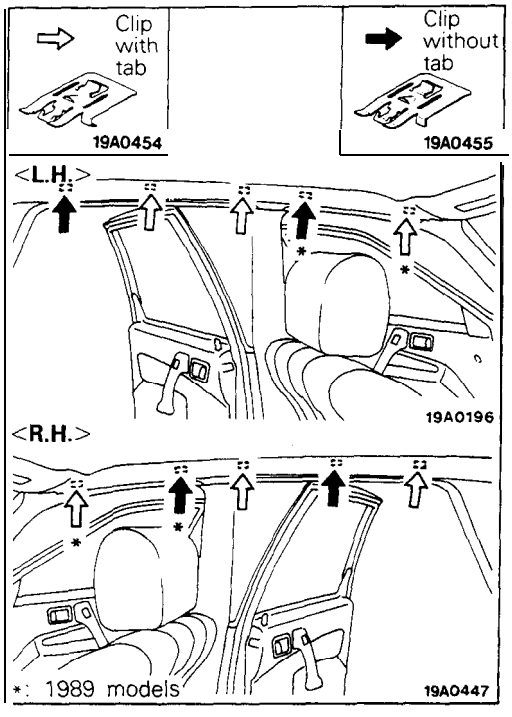
8. REMOVAL OF ROOF RAIL TRIMS

Manually press downward at the clip positions, and then remove the roof rail trims.



11. REMOVAL OF FRONT HEADLINING TRIM / 12. REAR HEADLINING TRIM

Manually turn lip part at the clip positions in the direction shown in the illustration, remove the front or rear headlining trim.



SERVICE POINTS OF INSTALLATION

8. INSTALLATION OF ROOF RAIL TRIMS

Install the clips to body and then install the roof rail trim.

TSB Revision

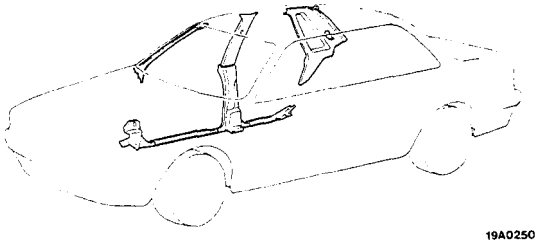
TRIMS

M52UCBI

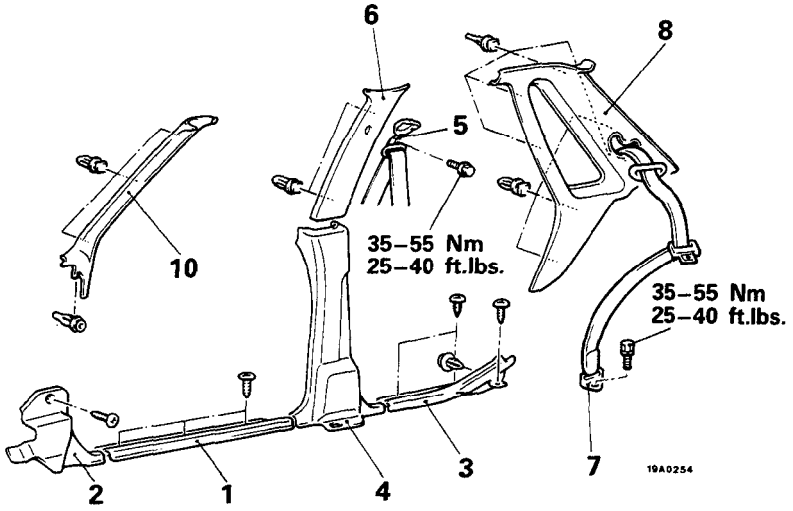
REMOVAL AND INSTALLATION

Interior

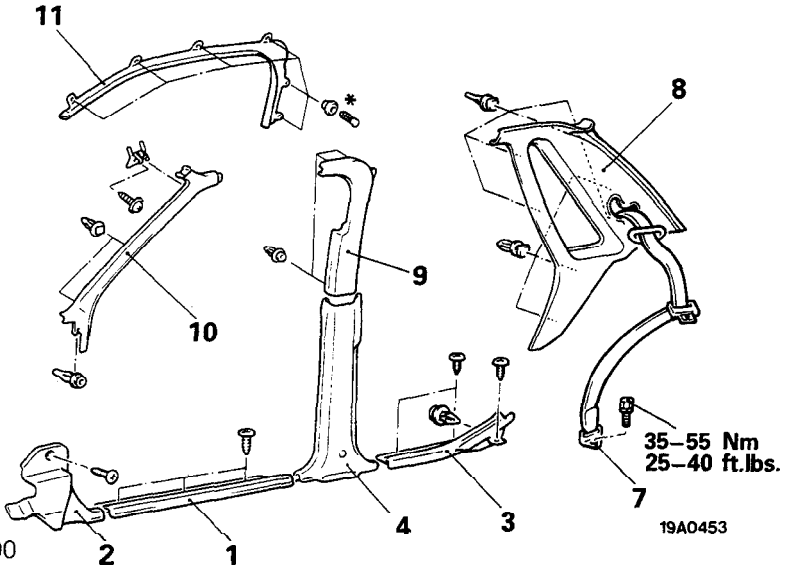
Pre-removal and Post-installation Operation
- Removal and Installation of Rear Seat
(Refer to P.52-37.)



<1989 models>



<From 1990 models>



Removal steps

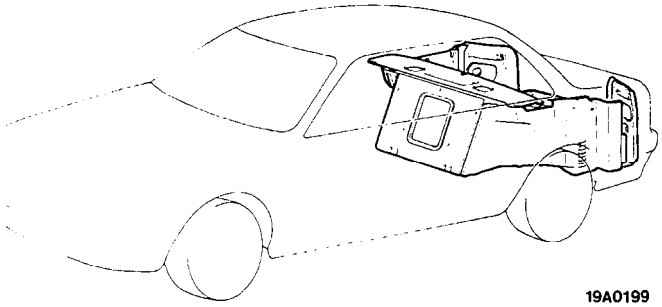
1. Front scuff plate
2. Cowl side trim
3. Rear scuff plate
4. Center pillar lower trim
5. Sash guide
6. Center pillar upper trim
   < 1989 models>
7. Rear seat belt anchor plate
8. Rear pillar trim
   Roof rail trim (Refer to P.52-31.)
9. Center pillar upper trim <From 1990 models>
10. Front pillar trim
    Driving device assembly (Refer to P.52-42.)
11. Belt rail trim

NOTE
The * symbol indicates the trim clip.
(Refer to P.52-23.)

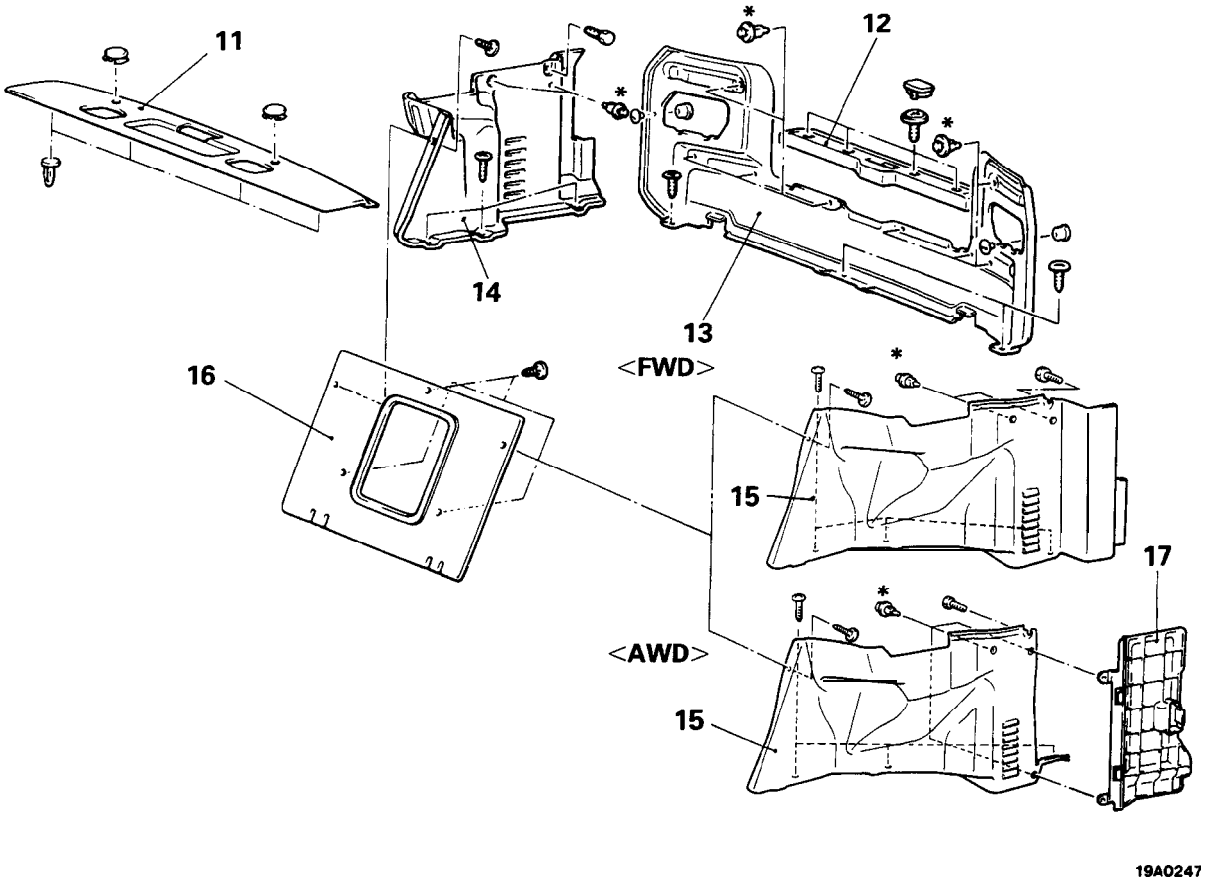
TSB Revision

Luggage compartment

Pre-removal and Post-installation Operation
- Removal and Installation of High Mounted Stop Light
  (Refer to GROUP 54–Lighting System.)
- Removal and Installation of Rear Speaker Garnish
  (Refer to GROUP 54–Audio System.)



19A0199



19A0247

11. Rear shelf trim
12. Rear end trim cover
13. Trunk rear trim
14. Trunk side trim (R.H.)
15. Trunk side trim (L.H.)
16. Trunk front trim
17. Jack cover

NOTE
The • symbol indicates the trim clip.
(Refer to P.52-23.)

TSB Revision

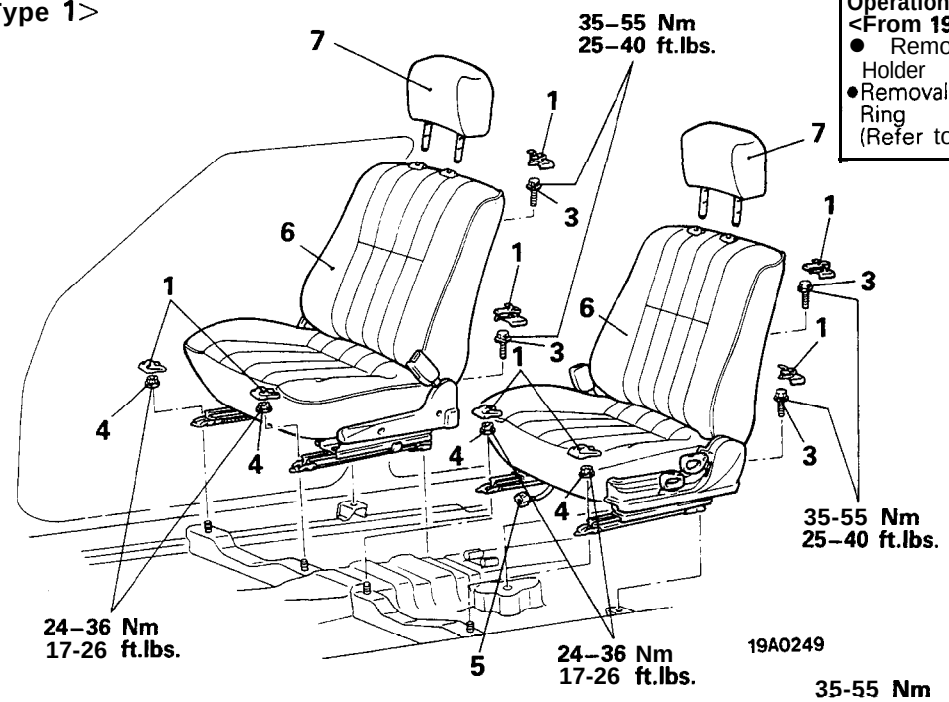
FRONT SEAT

M52UEALa

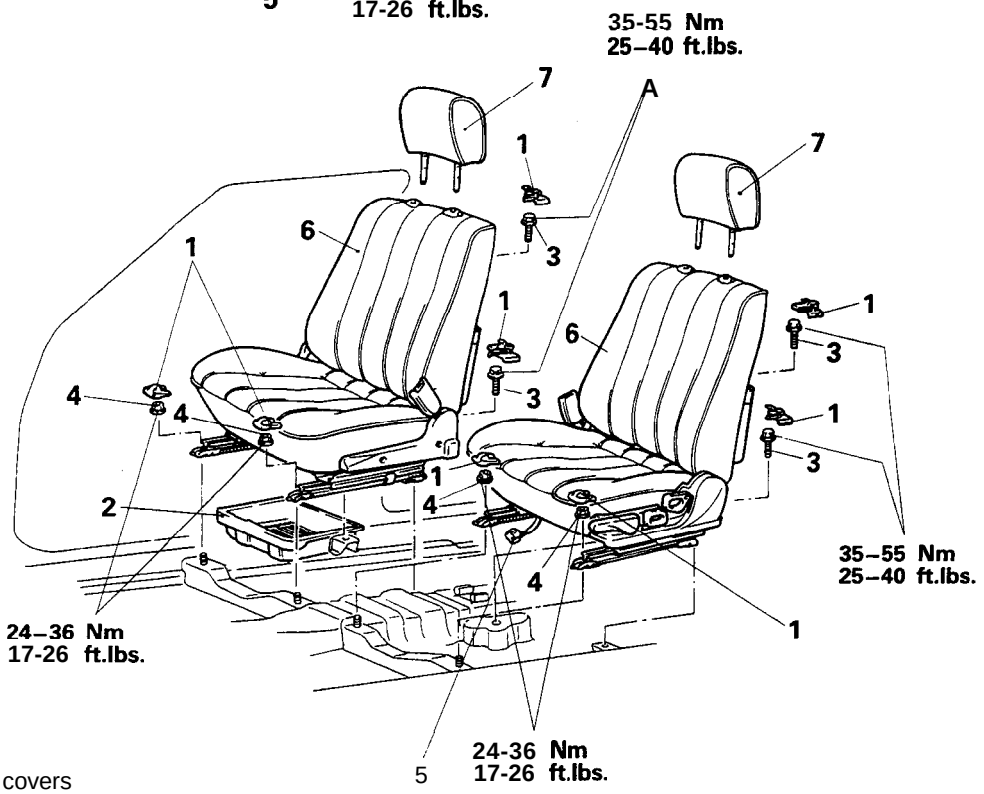
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
<From 1990 models>
- Removal and Installation of Belt Holder
- Removal and Installation of Guide Ring
(Refer to P.52-42.)

<Type 1>



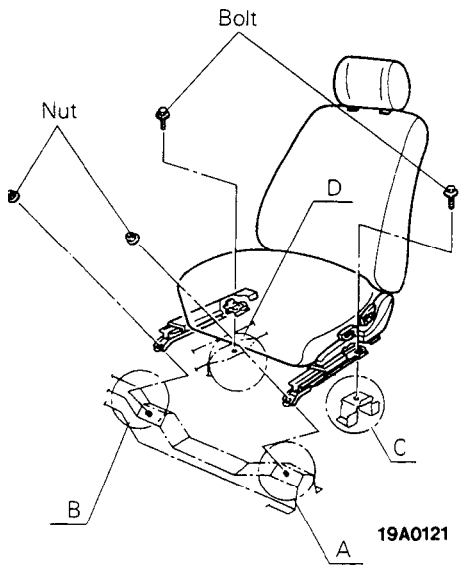
<Type 2>



Removal steps

- ● 1. Seat anchor covers
  2. Seat under tray
- ● + 3. Seat mounting bolts (rear)
- ● a 4. Seat mounting nuts (front)
  5. Connection for seat belt switch wiring harness
  6. Front seat assembly
  7. Headrestraints

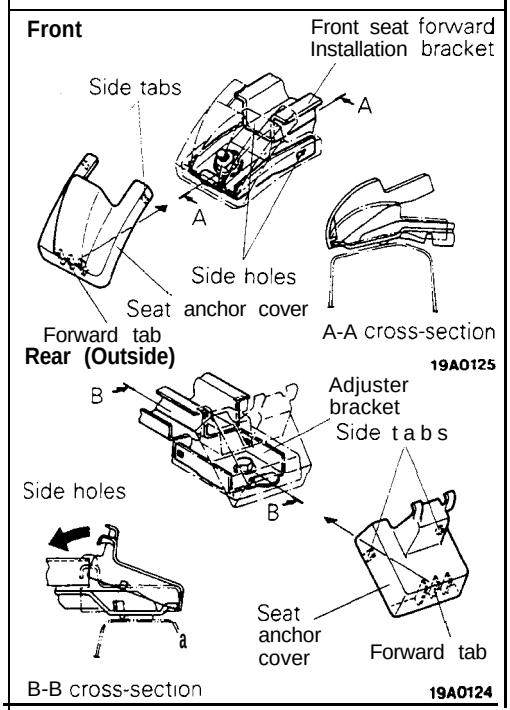
TSB Revision



SERVICE POINTS OF INSTALLATION

4. INSTALLATION OF SEAT MOUNTING NUT (FRONT) **/ 3. SEAT MOUNTING BOLT (REAR)**

After checking that the seat adjuster is locked at both sides, provisionally tighten (in the A,B,C and D sequence) the seat installation nuts and the seat installation bolts; then fully tighten at the specified torque.



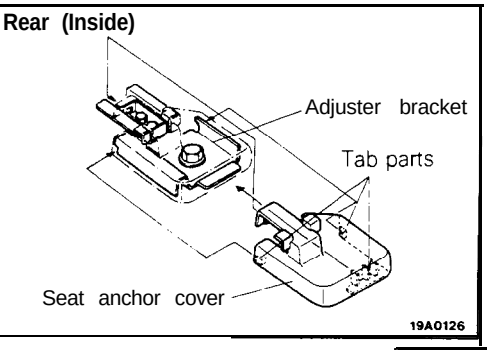
1. INSTALLATION OF SEAT ANCHOR COVERS

(1) Securely install the front side seat anchor forward tab to the front seat forward installation bracket.

(2) Turn the seat anchor cover in the direction indicated by the arrow, and install the tab at the side part to the hole in the bracket side part.

(3) Securely install the rear side seat anchor cover (outer side) rearward tab to the front seat rearward installation bracket (outer side).

(4) Turn the seat anchor cover in the direction indicated by the arrow and insert the side tabs into the holes in the front seat rearward installation bracket side part.



(5) Insert the rear side seat anchor cover (inner side) from the rear to the front seat rearward installation bracket, and then attach each tab of the seat anchor cover to the bracket.

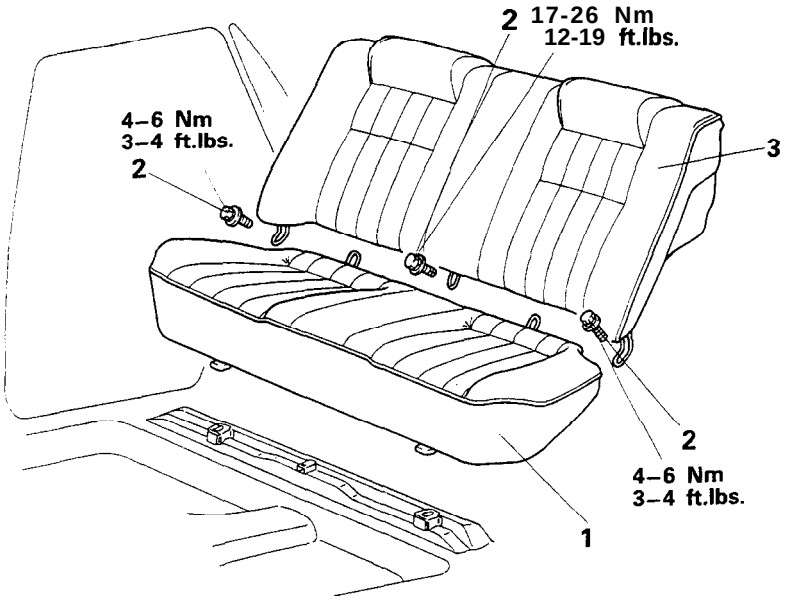
I TSB Revision

REAR SEAT

M52UFAKa

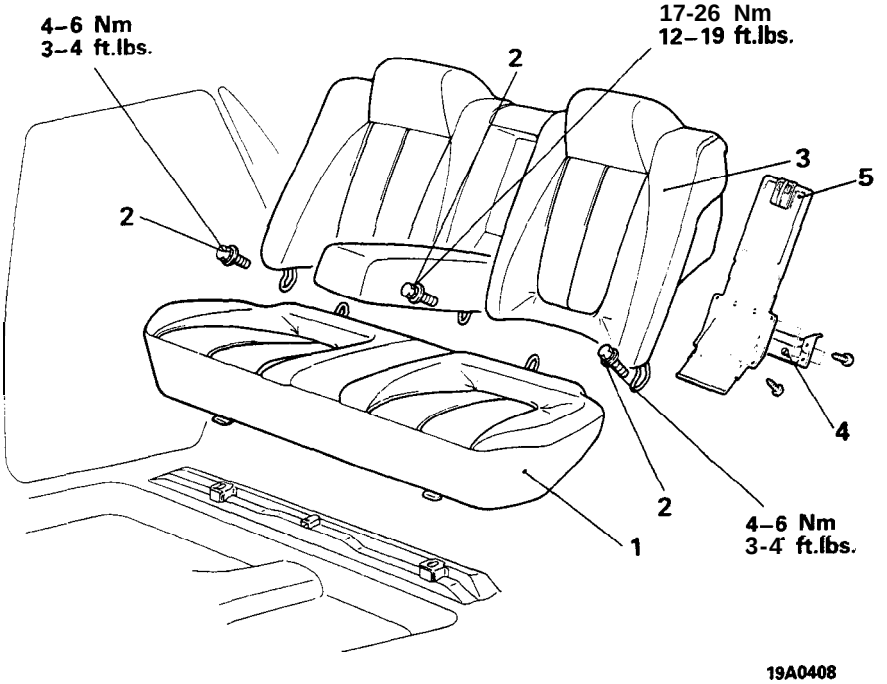
REMOVAL AND INSTALLATION

<Type 1>



19A0114

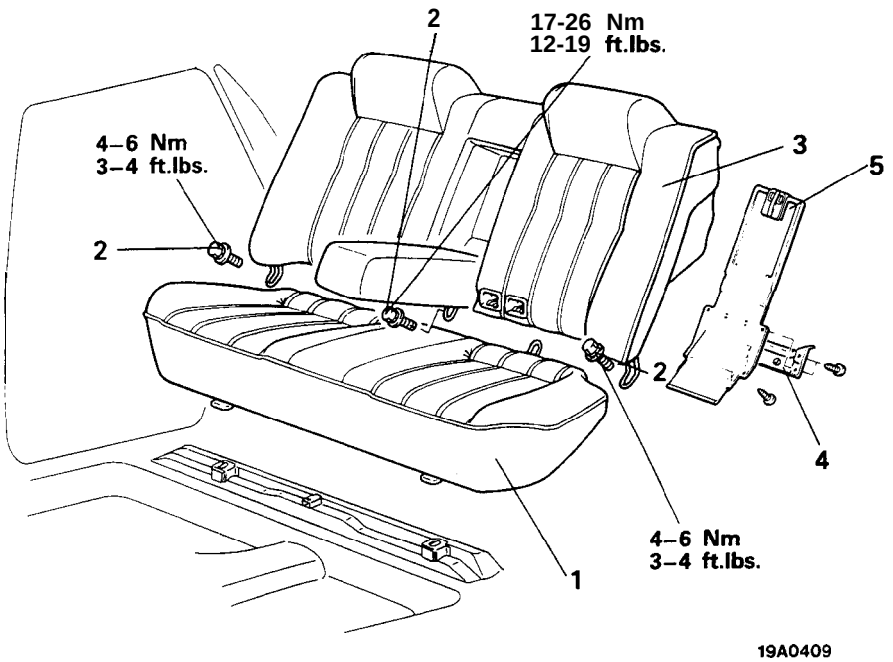
<Type 2>



19A0408

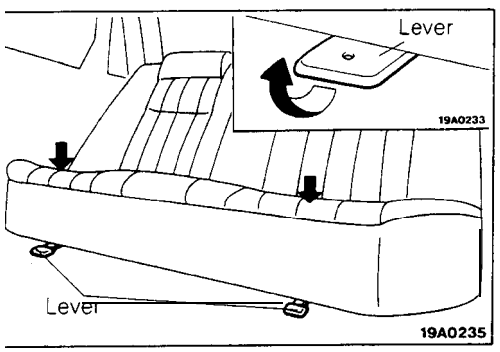
2. Seatback attaching bolt
● + 3. Seatback
4. Trunk-through plate
5. Rear seatback tray

<Type 3>



Removal steps

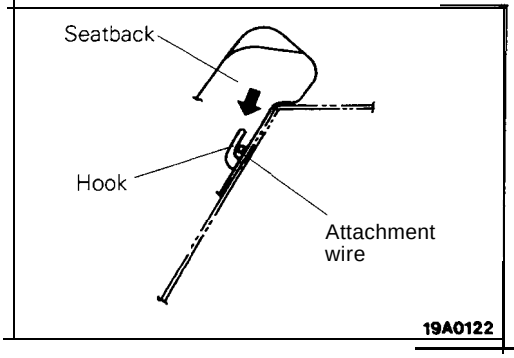
◆■▶ ▶◆ 1. Seatcushion
2. Seatback attaching bolt
▶◆ 3. Seatback
4. Trunk-through plate
5. Rear seatback tray



SERVICE POINTS OF REMOVAL

1. REMOVAL OF SEAT CUSHION

While pushing the front part of the seat cushion downward, pull the lever to release the lock.



SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF SEATBACK

Push the seatback in the direction indicated in the illustration; then securely attach the attachment wire to the body side hook and install the seatback.

1. INSTALLATION OF SEAT CUSHION

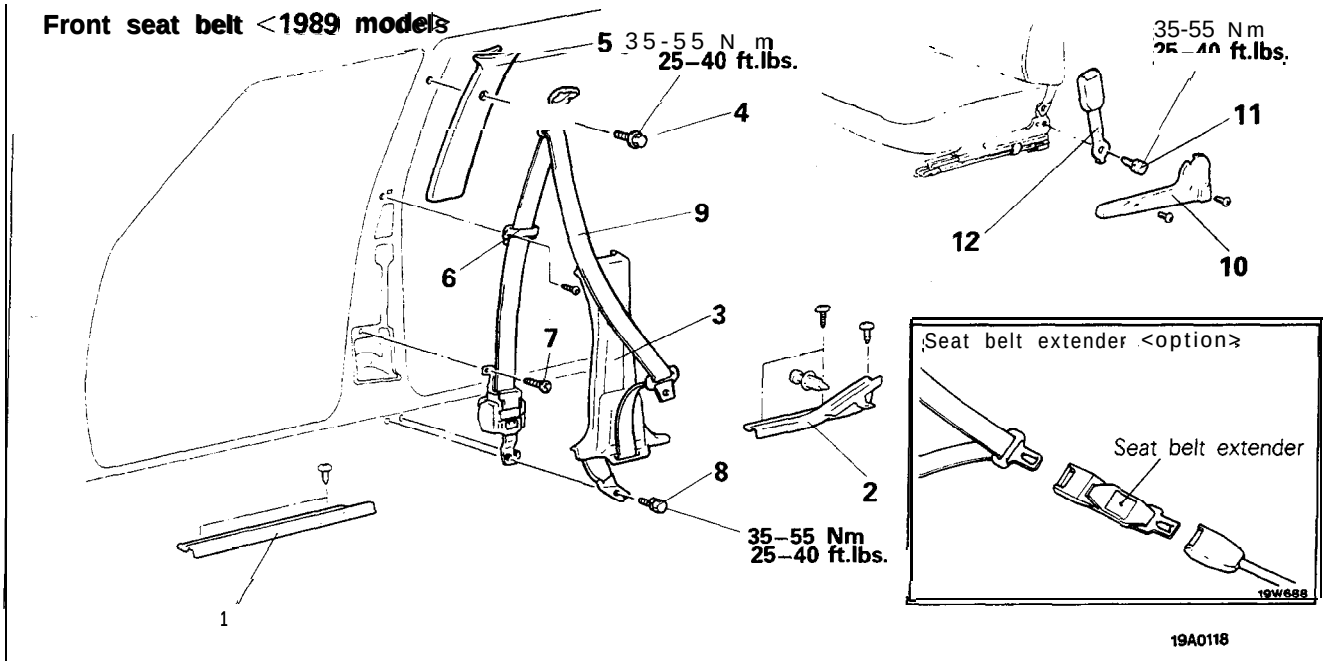
While pushing the seat cushion toward the rear, securely attach to the installation hole in the floor part.

TSB Revision

SEAT BELT

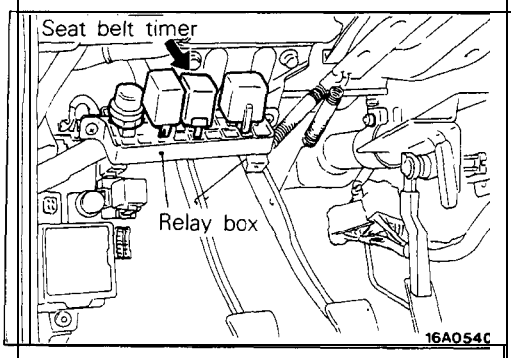
M52UGBG

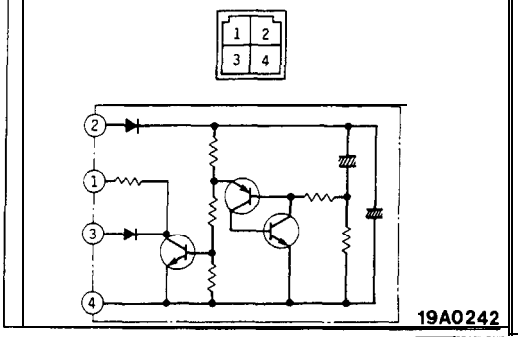
REMOVAL AND INSTALLATION



Removal steps

1. Front scuff plate
2. Rear scuff plate
3. Center pillar lower trim
4. Sash guide attaching bolt
5. Center pillar upper trim (Refer to P.52-33.)
- 4 6. Belt guide
- 7. Retractor bracket attaching screw
- 8. Retractor bracket and anchor bracket attaching bolt
9. Seat belt (tongue side)
10. Free hinge cover
11. Inner seat belt attaching bolt (buckle side)
- + 12. Inner seat belt (buckle side)



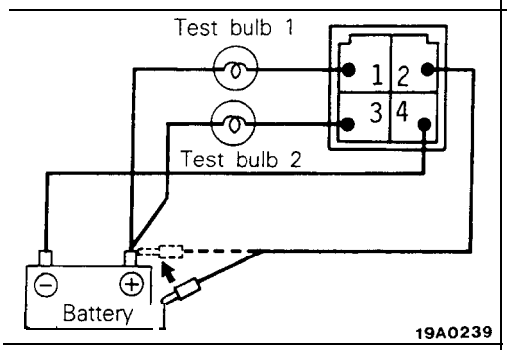


INSPECTION

SEAT BELT TIMER

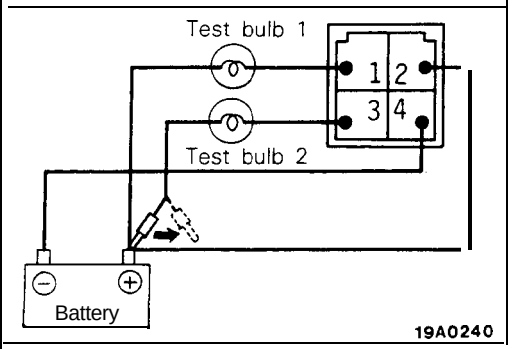
Remove the seat belt timer from the relay box.

* TSB Revision

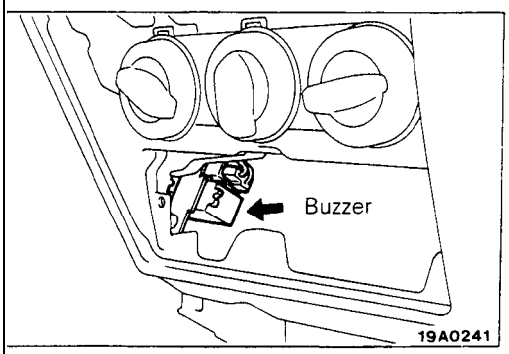


TIMER OPERATION CHECK

(1) Connect the battery and the test bulb to the timer, as shown in the illustration.
(2) Make sure that when terminal 2 is connected to the positive (+) terminal of the battery, test bulbs 1 and 2 are lighted for approx. 6 seconds.

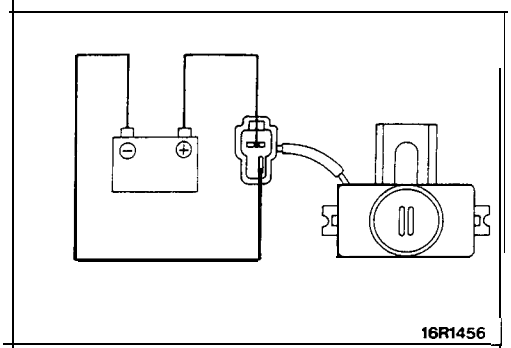


(3) Make sure that even when terminal 3 is disconnect while test bulbs 1 and 2 are lighted in (2) above, test bulb 1 remains lighted.

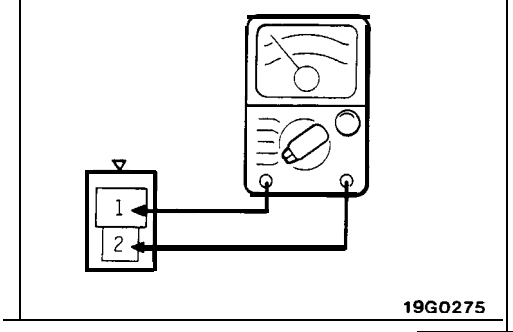


BUZZER

(1) Remove the buzzer from the instrument panel



(2) Remove the buzzer and check if it sounds when a battery voltage is applied across the buzzer terminals.



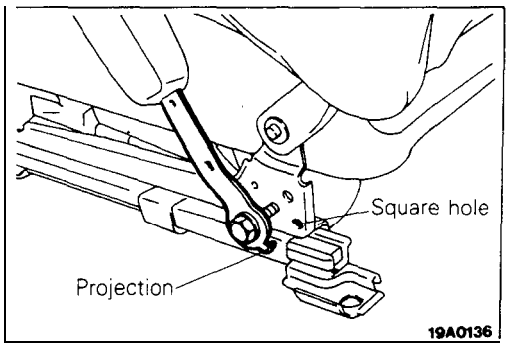
SEAT BELT SWITCH

(1) Disconnect the seat belt switch connector.
(2) Check the continuity between the terminals.

Terminal	1	2
Buckle unlock	0	0
Buckle lock		

NOTE
○—○ indicates that there is continuity between the terminals

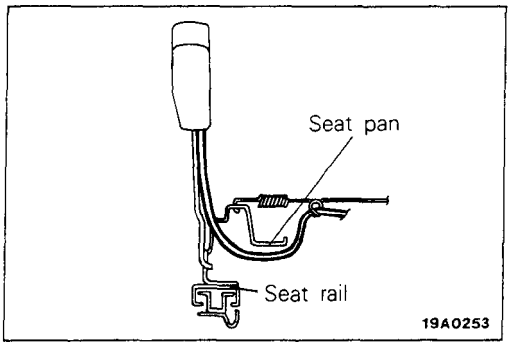
TSB Revision



SERVICE POINTS OF INSTALLATION

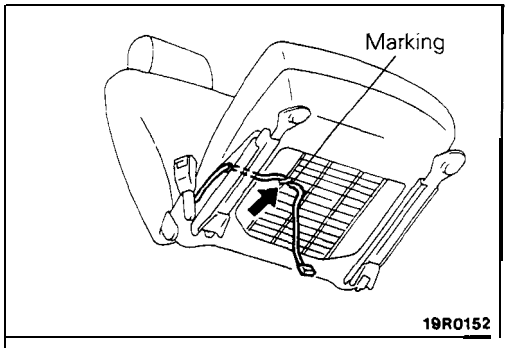
12. INSTALLATION OF INNER SEAT BELT

(1) When installing the buckle side seat belt to the front seat, securely fit the projection of the stopper into the square hole of the seat adjuster.



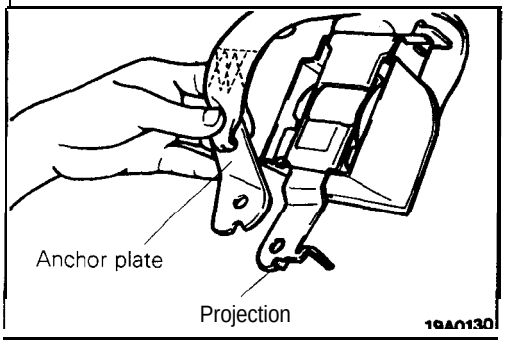
(2) For the driver's seat inner belt, secure the seat belt switch harness to the seat as follows.

① Pass the seat belt switch harness between the seat rail and seat pan.



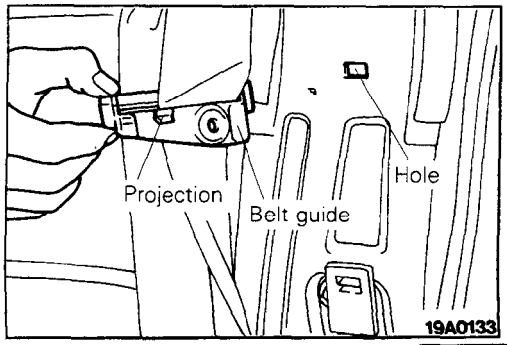
② Secure the seat belt switch harness to the seat by using the band.

Caution
The marked part of the seat belt switch harness should be connected by the band.



8. INSTALLATION OF RETRACTOR BRACKET AND ANCHOR BRACKET ATTACHING BOLT / 7. RETRACTOR BRACKET ATTACHING SCREW

(1) Pass the anchor plate through the hole of the center pillar lower trim.
(2) Securely fit the projection of the retractor's stopper into the hole at the body side.
(3) Securely fit the notched part of the anchor plate to the projection of the retractor.

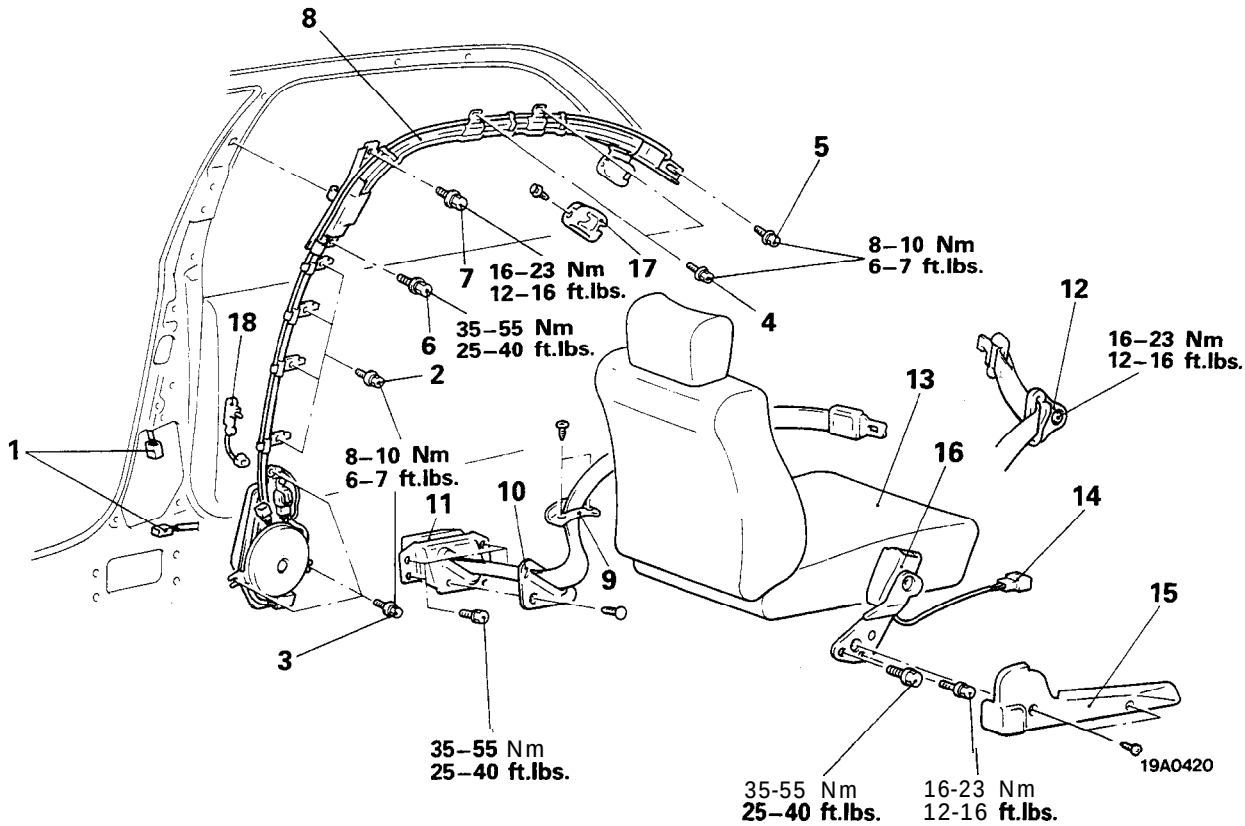


6. INSTALLATION OF BELT GUIDE

Securely fit the projection of the belt guide's stopper into the hole at the body side.

TSB Revision

Front Seat Belt-Automatic Seat Belt <From 1990 models>



Driving device assembly **removal** steps

Front scuff plate (Refer to P.52-33.)
Rear scuff plate (Refer to P.52-33.)
Roof rail trim (Refer to P.52-31.)
Center pillar lower trim (Refer to P.52-33.)
Center pillar upper trim (Refer to P.52-33.)

1. Automatic seat belt wiring harness connector
2. Outer casing mounting bolt
3. Motor mounting bolt
4. Guide rail mounting bolt (A)
5. Guide rail mounting bolt (B)
6. Guide rail mounting bolt(C)
7. Guide rail mounting bolt (D)
8. Driving device assembly

Lap belt removal steps

Front scuff plate (Refer to P.52-33.)
Rear scuff plate (Refer to P.52-33.)
Center pillar lower trim (Refer to P.52-33.)

9. Belt holder
10. Bezzel
11. Retractor (for lap belt)

Buckle removal steps

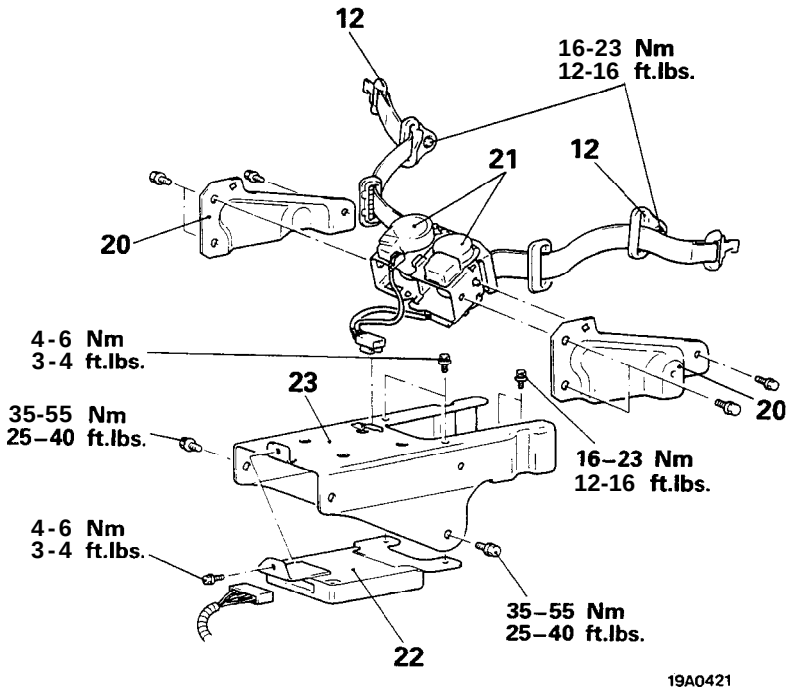
9. Belt holder
12. Guide ring
13. Front seat assembly (Refer to P.52-35.)
14. Seat belt switch connector (L.H. only)
15. Free hinge cover
16. Buckle

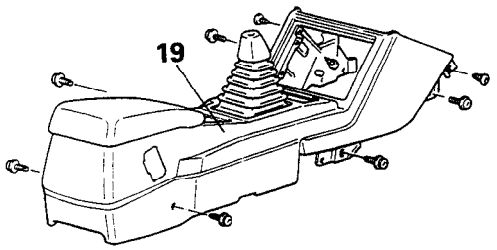
Buckle cover removal

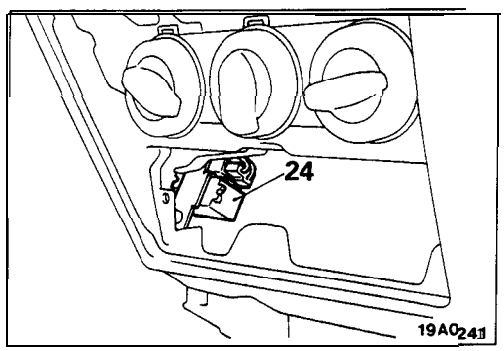
17. Buckle cover

Door latch switch removal

18. Door latch switch (Refer to GROUP 42– Front Door Handle and Latch.)







Shoulder belt removal steps

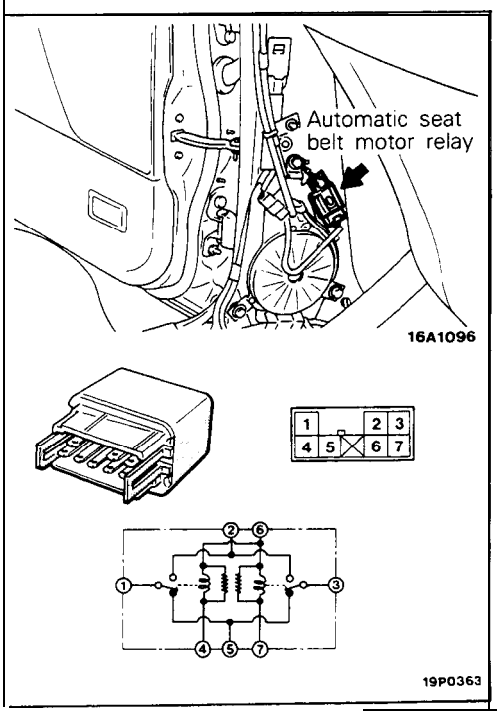
12. Guide ring
19. Console box assembly (Refer to P.52-29.)
20. Retractor bracket
21. Retractor assembly (for shoulder belt)
22. Automatic seat belt control unit
23. Retractor mounting bracket

Automatic seat belt control unit removal steps

12. Guide ring
19. Console box assembly (Refer to P.52-29.)
22. Automatic seat belt control unit

Buzzer removal steps

Heater control panel (Refer to P.52-25.)
24. Buzzer



INSPECTION

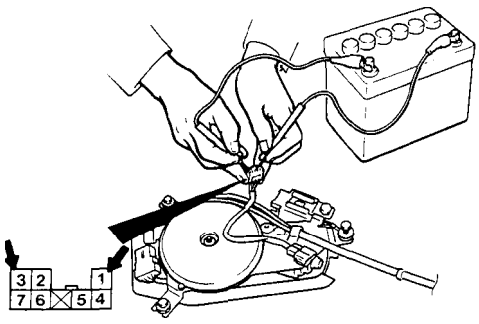
AUTOMATIC SEAT BELT MOTOR RELAY

(1) Remove the automatic seat belt motor relay.
(2) Check for continuity between terminals under the conditions described below.

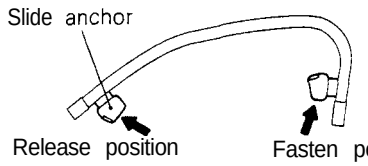
Terminal / Battery voltage	1	2	3	4	5	6	7
Continuity no voltage	○		○	○	○	○	○
						○	○
Continuity with voltage	○			⊖		⊕	
		○	○			⊕	⊖

NOTE
(1) O-O indicates that there is continuity between the terminals.
(2) ⊕---⊖ indicates terminals to which battery voltage is applied.

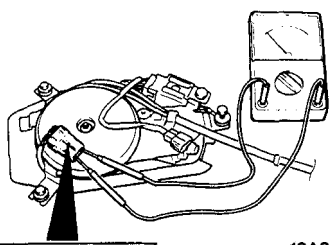
TSB Revision



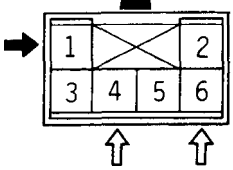
(Connector at automatic seat belt motor relay harness) 19A0450



19A0445



19A0449

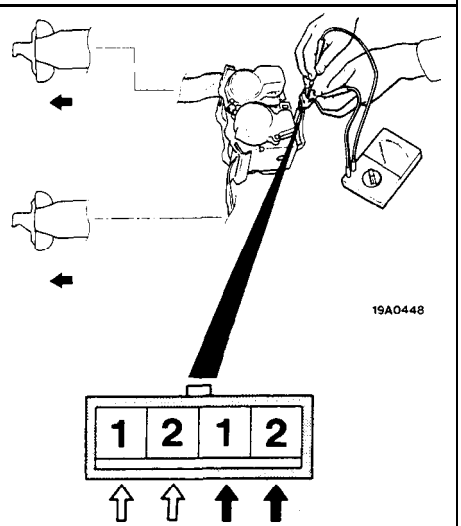


(Automatic seat belt connector)

19A0316

➡: Terminal to check the release switch

⇨: Terminal to check the fasten switch



19A0448

⇨: Terminal to check outer switch (L.H.)

➡: Terminal to check outer switch (R.H.)

19P0361

MOTOR, RELEASE SWITCH AND FASTEN SWITCH

(1) Disconnect the automatic seat belt motor relay connector.
(2) Connect the battery to the connector (shown in the figure) at the automatic seat belt motor relay harness side, and, as shown in the table below, check to be sure that the slide anchor functions normally, and also check for continuity of each switch.

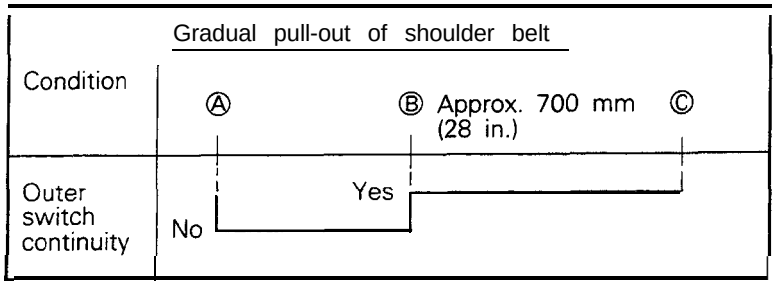
Terminal / Slide anchor operation	Motor (Connector at automatic seat belt motor relay harness)		Release switch (Automatic seat belt connector)		Fasten switch (Automatic seat belt connector)	
	1	3	1	2	4	6
Release position ⬇ Fasten position	⊖ ------ ⊕		0 ——— 0			
Fasten position ⬇ Release position	⊕ ------ ⊖				0 ——— ○	

Caution
The slide anchor must be activated all the way to the fasten position or the release position, without stopping part way on the guide rail.

NOTE
(1) ⊕----⊖ indicates terminals to which battery voltage is applied.
(2) O-O indicates that there is continuity between the terminals.

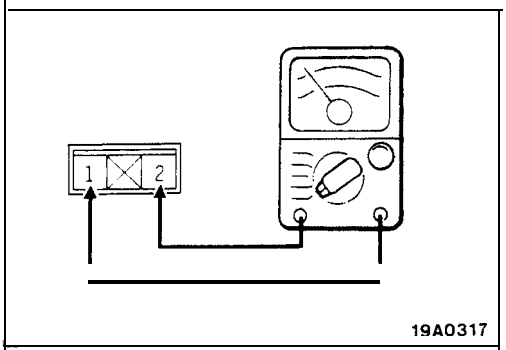
OUTER SWITCH

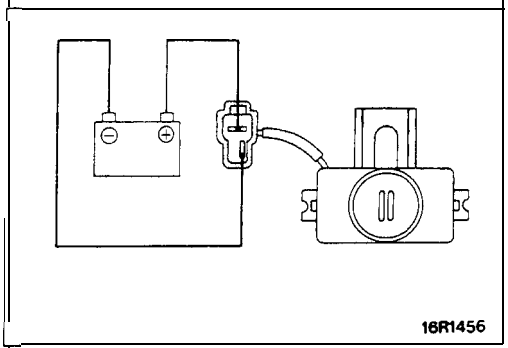
1) Disconnect the outer switch connector.
2) Check for continuity between terminals when the shoulder belt is pulled out approximately 700 mm (28 in.) or more.



Ⓐ: Point at which the shoulder belt is fully taken in.
Ⓑ: Point at which the outer switch is switched from OFF to ON.
Ⓒ: Point at which the shoulder belt is fully pulled out.

TSB Revision





DOOR LATCH SWITCH

Refer to GROUP 42–Front Door Handle and Latch.

BUCKLE SWITCH

(1) Disconnect the buckle switch connector (L.H. only).
(2) Check the continuity between the terminals.

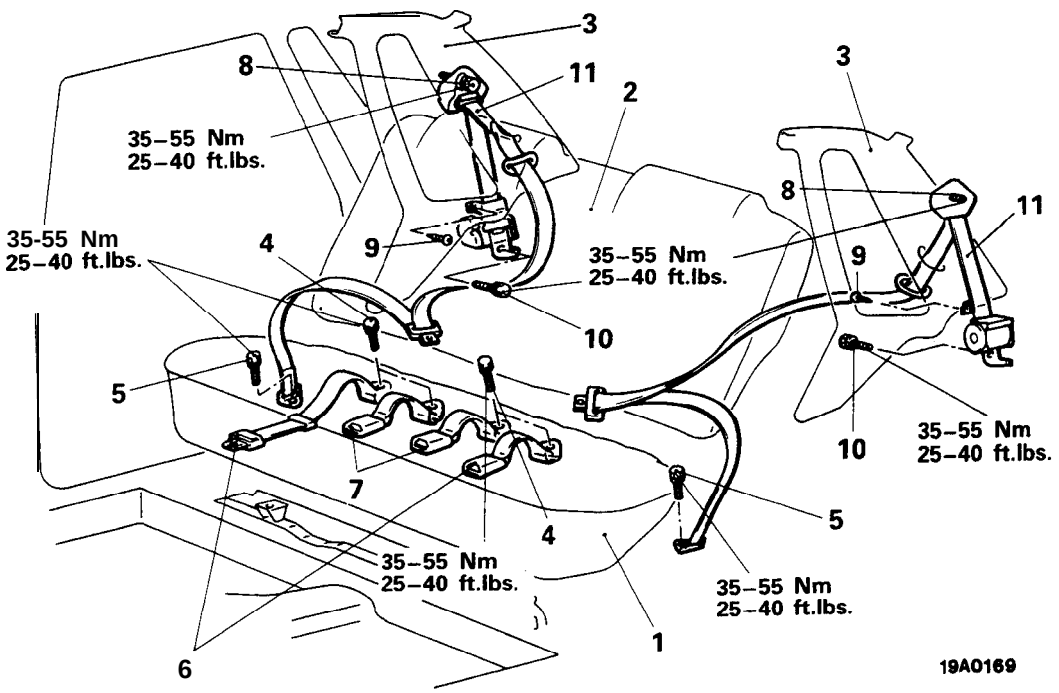
Terminal	1	2
Buckle unlock	0	—O
Buckle lock		

NOTE
O-O indicates that there is continuity between the terminal.

BUZZER

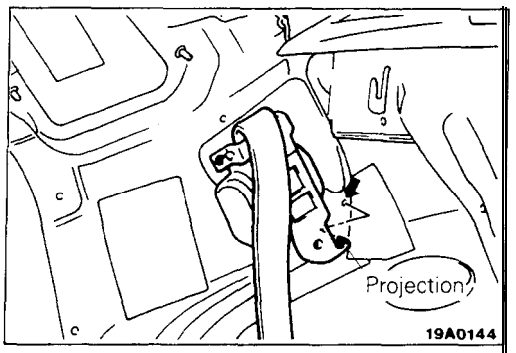
Check that buzzer sounds when battery voltage is applied to the buzzer terminal.

Rear seat belt



Removal steps

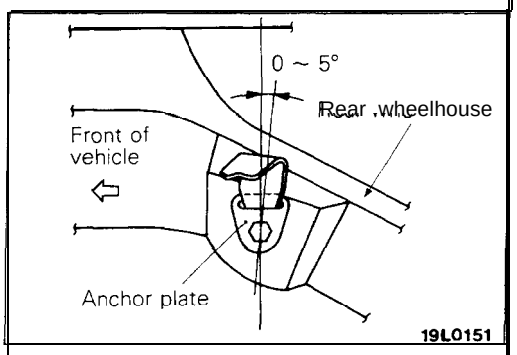
1. Rear seat cushion (Refer to P.52-37.)
2. Rear seatback (Refer to P.52-37.)
3. Rear pillar trims (Refer to P.52-33.)
4. Seat belt mounting bolts
- ◆ + 5. Seat belt anchor plate attaching bolts
6. Rear seat belt (center)
7. Seat belt (buckle side)
8. Sash guide attaching bolt
9. Retractor bracket attaching screws
10. Retractor bracket attaching bolt
- ◆◆ 11. Seat belt (tongue side)



SERVICE POINTS OF INSTALLATION

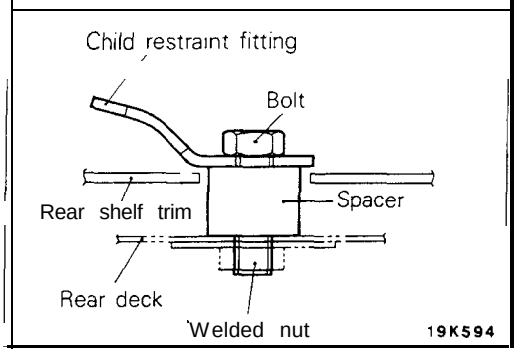
11. INSTALLATION OF SEAT BELT (TONGUE SIDE)

Securely fit the projection of the retractor into the body hole, and install the retractor to the body.



5. INSTALLATION OF SEAT BELT ANCHOR PLATE ATTACHING BOLTS

Install so that the anchor plate is within the range of the angle indicated in the illustration.



CHILD RESTRAINT FITTING

Install the anchorage for the child restraint system by removing the plug from the rear shelf trim and installing the child restraint fitting to the rear deck as shown in the illustration.

TSB Revision

HEATER, AIR CONDITIONING AND VENTILATION

CONTENTS

M55AA--

AIR CONDITIONING SWITCH 29
BLOWER ASSEMBLY 32
COMPRESSOR 38
CONDENSER AND CONDENSER FAN MOTOR 48
ENGINE COOLANT TEMPERATURE SWITCH 57
EVAPORATOR 34
HEATER CONTROL ASSEMBLY 25
HEATER UNIT 30
REFRIGERANT LINE 54
RESISTOR 28
SAFETY PRECAUTIONS 12
SERVICE ADJUSTMENT PROCEDURES 13
- Charging 17
- Compressor Drive Belt Adjustment 17
- Compressor Noise 23
- Discharging the System 20
- Handling Tubing and Fittings 22
- Idle-up Operation Check 24
- Performance Test 21
- Power Relay Check 24
- Refrigerant Leak Repair Procedure 21
- Test Procedures 13

SPECIAL TOOL 3
SPECIFICATIONS 2
- General Specifications 2
- Lubricants 3
- Sealant and adhesives 3
- Service Specifications 2
- Torque Specifications 3

TROUBLESHOOTING 4
VENTILATORS (AIR INLET AND AIR OUTLET) 56
VENTILATORS (INSTRUMENT PANEL AND FLOOR) 55

SPECIFICATIONS

M55CA--

GENERAL SPECIFICATIONS

Items		Specifications
Heater unit		
Type		Three-way-flow full-air-mix system
Heater control assembly		Dial type
Compressor		
Model		Scroll type (FX105V)
Refrigerant unit lubricant	cm^3 (cu.in.)	FREOL S-83 or SUNISO 5GS 150–170 (9.1–10.3)
V-ribbed belt size	mm (in.)	<A-Type>: 920 (36.2). <B-Type>: 910 (35.8)
Dual pressure switch		
High pressure switch	kPa (psi)	OFF: 2,700 (384) ON: 2,100 (299)
Low pressure switch	kPa (psi)	OFF: 210 (30) ON: 235 (33)
Freezer prevention	°C (°F)	Air temperature thermostat OFF: 3.2 (37.8) ON: 4.2 (39.6)
Fusible plug	°C (°F)	Burn out temperature 105 (221)
Refrigerant and quantrty	g (oz)	R-12 Approx. 936 (33.0)

SERVICE SPECIFICATIONS

M55CB--

Items		Specifications
Standard value		
Air thermo sensor and air inlet sensor standard resistance value	kΩ	
Air thermo sensor		
	0°C (32°F)	11.4
	10°C (50°F)	7.32
	20°C (68°F)	4.86
	30°C (86°F)	2.32
	40°C (104°F)	0.53
Air inlet sensor		
	0°C (32°F)	3.31
	10°C (50°F)	2.00
	20°C (68°F)	1.25
	30°C (86°F)	0.81
	40°C (104°F)	0.53
Air conditioning engine coolant temperature switch (for compressor magnetic clutch) OFF temperature	°C (°F)	112-118 (233-244)
Engine coolant temperature switch (for condenser fan motor) ON temperature	°C (°F)	100–104 (212-219)
Amount of V-ribbed belt deflection	mm (in.)	
When new belt installed		5-5.5 (.20–.21)
When used belt installed		6 - 7 (.23–.28)
Clutch clearance	mm (in.)	0.4–0.6 (.015–.023)

TSB Revision

TORQUE SPECIFICATIONS

M55CC--

Items	Nm	ft.lbs.
Shaft nut (compressor)	15-17	11-12
Front housing installation bolt	11–13	8-9.4
Compressor bracket tightening bolt	45-55	33-39
Compressor tightening bolt (MI 0)	23-27	17-19
Tension pulley holding nut	24-28	18–20
Tension pulley assembly installation bolt	23-27	17-19
Air conditioning engine coolant temperature switch (for compressor magnetic clutch)	30–40	22-28
Engine coolant temperature switch (for condenser fan motor)	10–14	8–10

LUBRICANTS

M55CD--

Items	Specified lubricants	Quantity
Each connection of refrigerant line Shaft seal of the compressor Shaft seal plate of the compressor	FREOL S-83 or SUNISO5GS	As required

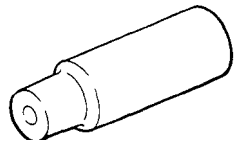
SEALANT AND ADHESIVES

M55CE--

Items	Specified sealant and adhesive
Engine coolant temperature switch threaded part	3M Nut Locking Part No.4171 or equivalent

SPECIAL TOOL

M55DA--

Tool	Number	Name	Use
	MB991 301	Felt installer	Installation of felt installation of bearing

TSB Revision

TROUBLESHOOTING

M55EBAT

Symptom	Probable cause	Remedy
Heater insufficient heat	Obstructed heater outlets	Correct
	Blend air dampers improperly adjusted or binding	
	Thermostat malfunction	Replace
	Obstructed heater hoses	
	Improperly adjusted control cables	Adjust
	Plugged or partially plugged heater core	Clean or replace
No ventilation even when mode selection knob is operated	Incorrect adjustment of mode selection dampers	Adjust
	Incorrect installation of mode selection control wire	
	Ducts are incorrectly/incompletely connected, crushed, bent or clogged.	Repair or replace
Blower motor inoperative	Poor grounding	Correct
	Burnt-out fuse	Replace
	Malfunction blower switch	
	Malfunction resister	
	Malfunction blower motor	
	Malfunction heater relay	

TROUBLESHOOTING QUICK-REFERENCE TABLE

Compressor doesn't operate.

Can the activation sound of the magnet clutch be heard when battery voltage is applied to the air conditioning compressor magnet clutch?
- No → Malfunction of the magnet clutch
- Yes

Ignition switch: ON
Blower switch: HI

Is the battery positive voltage between ground and terminal (4) of the air conditioning switch equivalent to battery voltage when the air conditioning switch is pressed in one step?
Is the battery positive voltage between ground and terminal (2) of the air conditioning switch equivalent to battery voltage when the air conditioning switch is pressed in two steps?
- No → Malfunction of the air conditioning switch. → Refer to P.55–7.
- Yes

Air conditioning switch: OFF

Yes

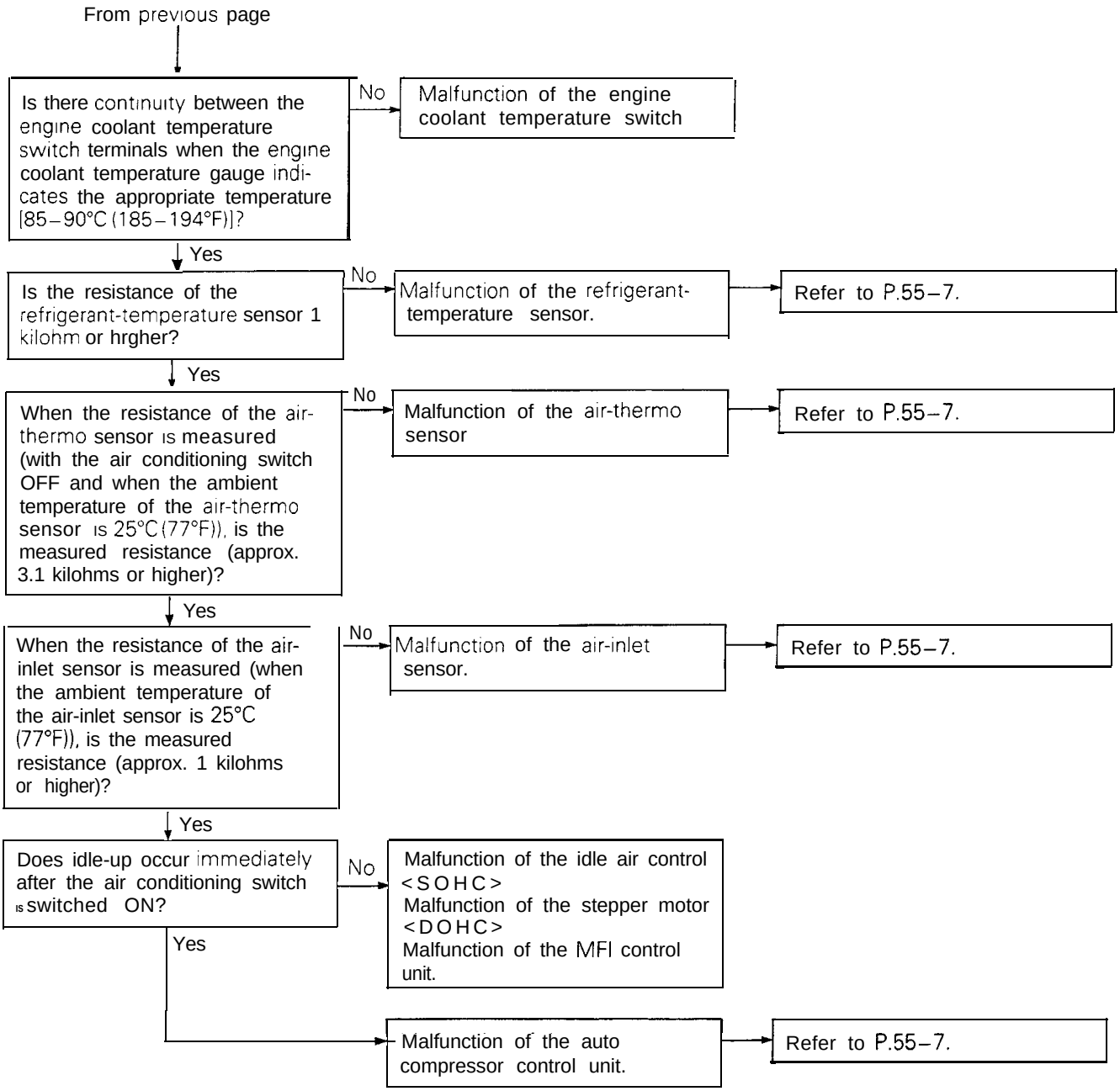
Is there continuity between terminals (2) and (4) of the air conditioning compressor clutch relay?
Is there continuity between terminals (1) and (3) when battery positive voltage is applied between terminals (2) and (4)?
- No → Malfunction of the air conditioning compressor clutch relay.
- Yes

Is the high-pressure side refrigerant pressure within the range of 210–2,700 kPa (29.9-384 psi) when a gauge manifold is connected to the service valve and the high-pressure side refrigerant pressure is measured?
- NO → Gas leakage or excess refrigerant.
- Yes

Is there continuity between the dual-pressure switch terminals?
- No → Malfunction of the dual-pressure switch.
- **Yes**

Continue to next page

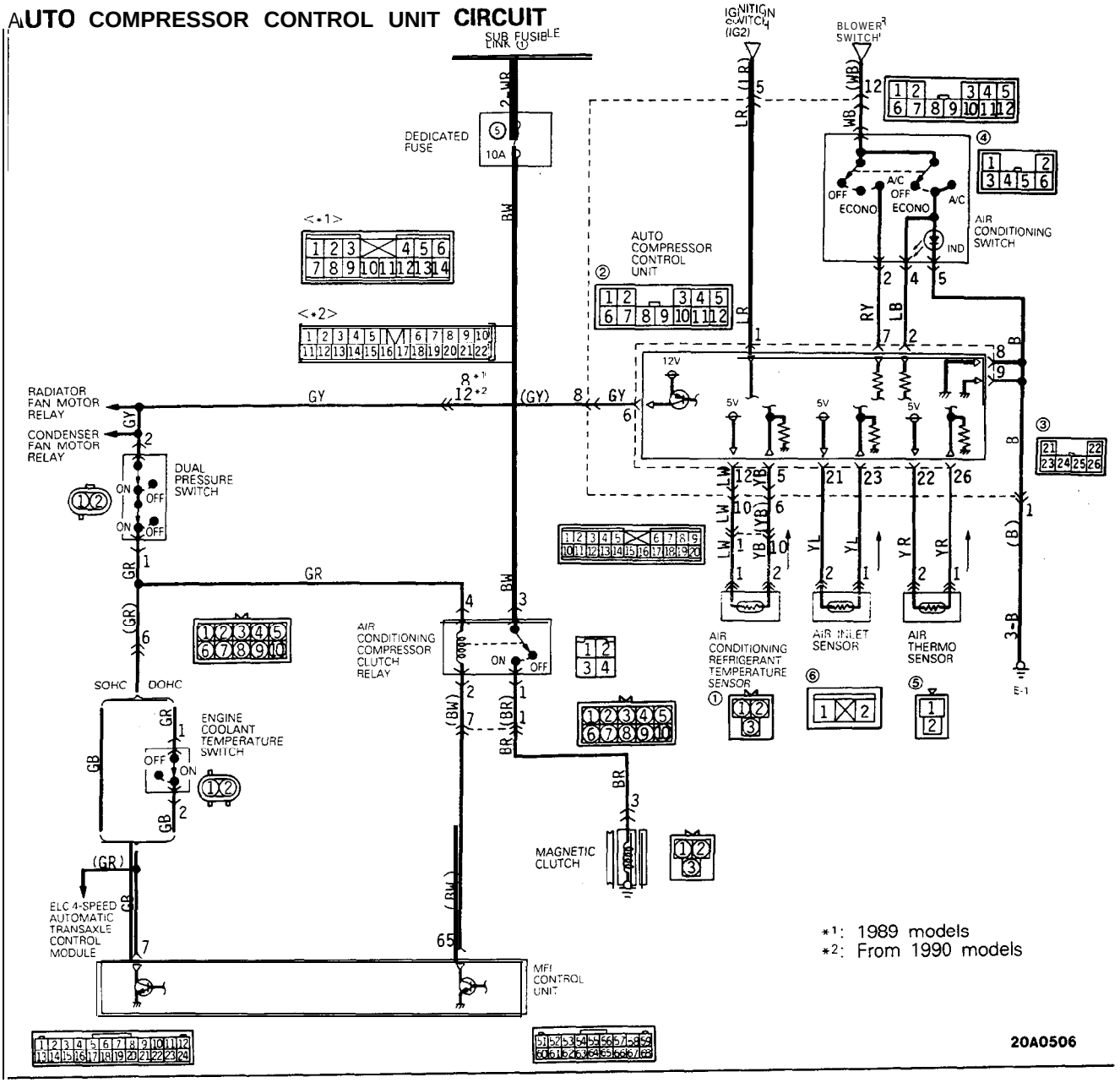
TSB Revision



TSB Revision

CIRCUIT CHECK

AUTO COMPRESSOR CONTROL UNIT CIRCUIT



Description of operation

(1) A negative-characteristic thermistor is employed for the refrigerant-temperature sensor, the air-thermo sensor and the air-inlet sensor in order to convert the ambient temperature at the sensor part to resistance.
The sensor power-supply voltage (5V) of the auto compressor control unit is applied to each sensor.
The terminal voltages (of terminal (5), (23) and (26) of the auto compressor control unit) become voltage-divided values by the resistance value of each sensor and by the resistance within the auto compressor control unit.

(2) The compressor operation mode changes (from OFF to ECONO to A/C...) each time the air conditioning switch is pressed.
When the air conditioning switch is pressed in to the first step, the mode is changed to the ECONO mode (the indicator illuminates in green), and the voltage at terminal (4) of the air conditioning switch becomes battery positive voltage.
When pressed in to the second step, the mode is changed to the air conditioning mode (the indicator illuminates in orange), and the voltage at terminal (2) of the air conditioning switch becomes battery positive voltage.

TSB Revision

(3) The output (terminal ⑥) of the auto compressor control unit is output when all of the following conditions are satisfied.
① The air conditioning switch is ON (ECONO or A/C mode).
② The air-thermo sensor ambient temperature (evaporator outlet air temperature) is 4°C (39°F) or higher.
③ The air-inlet sensor ambient temperature (evaporator intake air temperature) is 4°C (39°F) or higher.
④ The compressor discharge side refrigerant temperature is 175°C (347°F) or lower.

TROUBLESHOOTING HINTS

Auto Compressor Control Unit Terminal Voltage

Terminal No.	Signal	Conditions	Terminal voltage
8/9	Auto compressor control unit ground	At all times	0 V
1	Auto compressor control unit power supply	When ignition switch is ON	Battery positive voltage
5	Refrigerant-temperature sensor ⊖	When air conditioning switch is OFF [Sensor temperature 25°C (58°F)]	Approx. 0.15V
6	Air conditioning compressor clutch relay	When all conditions for switch-ON of the compressor are satisfied	Battery positive voltage
12	Refrigerant-temperature sensor ⊕	At all times	5V

Air Conditioning Switch Terminal Voltage

Terminal No.	Signal	Conditions	Terminal voltage
1	Air conditioning switch power supply	Ignition switch: ON; blower switch: ON	Battery positive voltage
2	Air conditioning switch: A/C	When air conditioning switch pressed in to second step	Battery positive voltage
4	Air conditioning switch: ECONO	When air conditioning switch pressed in to first step	Battery positive voltage
5	Air conditioning switch ground	At all times	0 V

Air-thermo Sensor Terminal Voltage

Terminal No.	Signal	Conditions	Terminal voltage
2	Air-thermo sensor ⊕	Ignition switch, blower switch and air conditioning switch: ON	5V

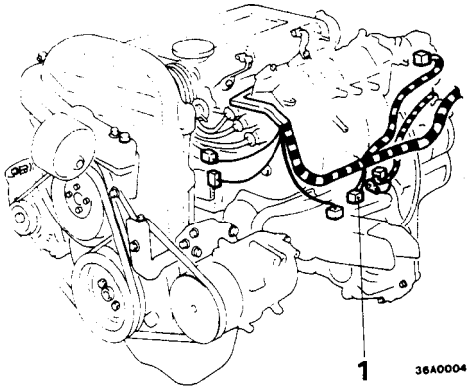
Air-Inlet Sensor Terminal Voltage

Terminal No.	Signal	Conditions	Terminal voltage
2	Air-inlet sensor ⊕	Ignition switch, blower switch and air conditioning switch: ON	5V

TSB Revision

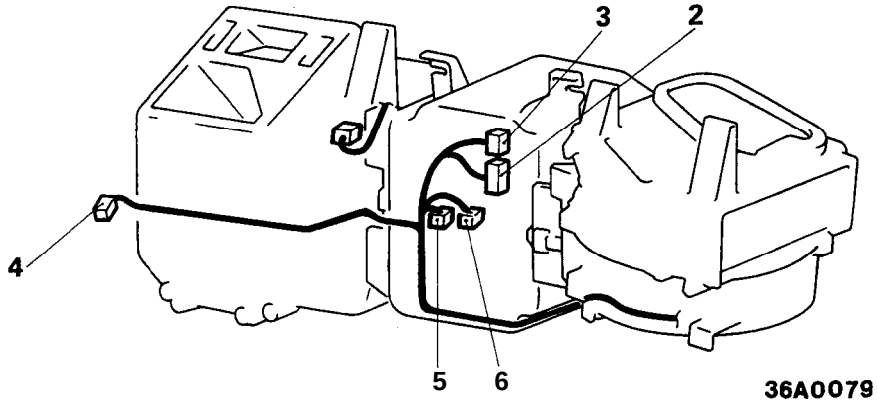
HARNESSES AND COMPONENTS LAYOUT DIAGRAM

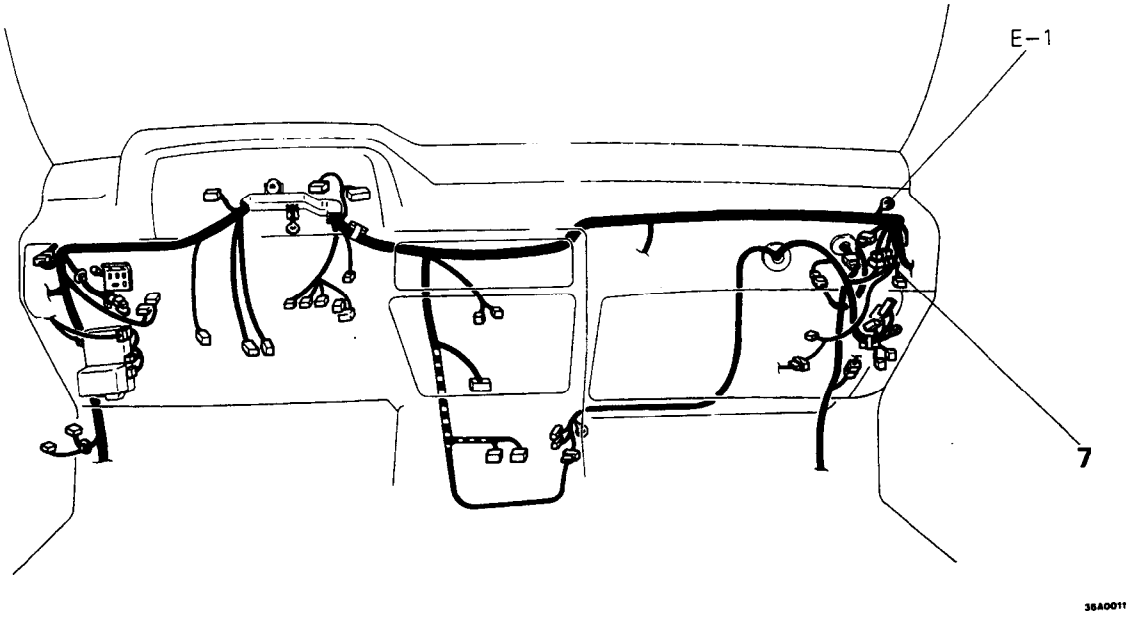
<Engine>



1. Refrigerant-temperature sensor
2. } Auto compressor control unit
3. }
4. Air conditioning switch
5. Air-thermo sensor
6. Air-inlet sensor
7. Control wiring harness and body wiring harness coupling

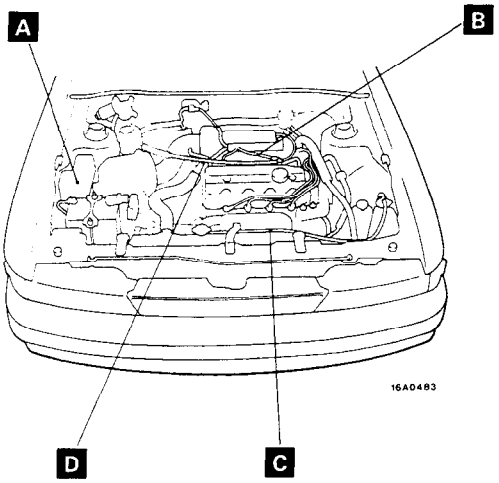
<Dash panel>

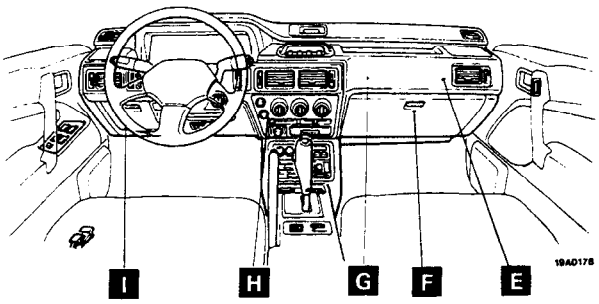


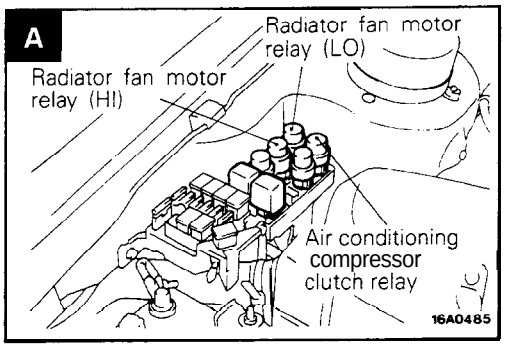


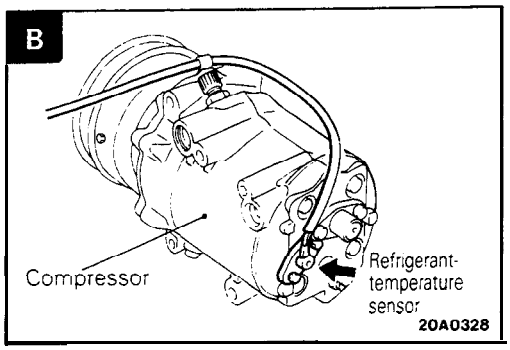
Name	Symbol	Name	Symbol
Air conditioning compressor clutch relay	A	Air conditioning engine coolant temperature switch (for compressor magnetic clutch)	D
Air conditioning switch	H	Engine coolant temperature switch (for condenser fan motor)	D
Air-inlet sensor	E	Radiator fan motor relay (LO, HI)	A
Air-thermo sensor	G	Refrigerant-temperature sensor	B
Auto compressor control unit	F	Heater relay	I
Condenser fan motor relay (LO, HI)	C		

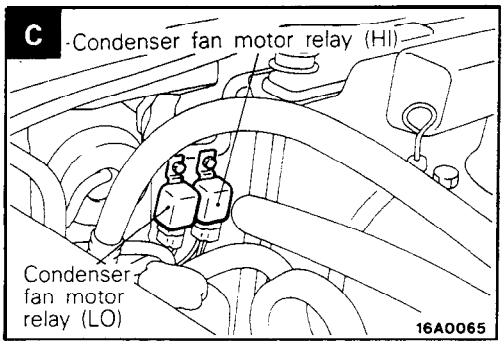
NOTE
The "Name" column is arranged in alphabetical order.

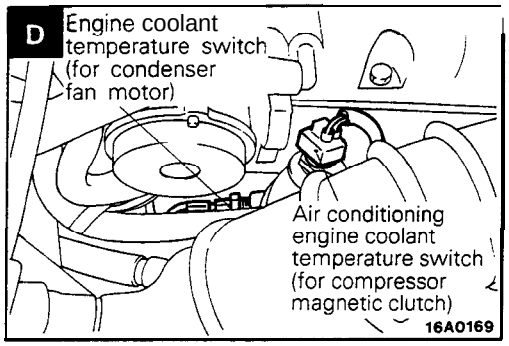






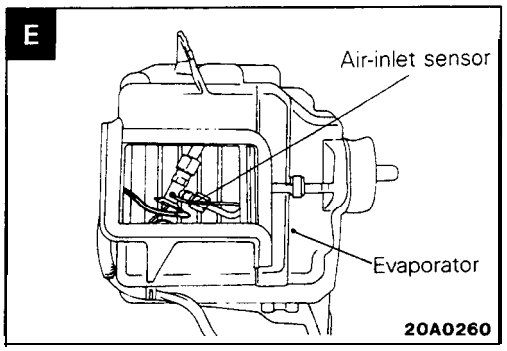




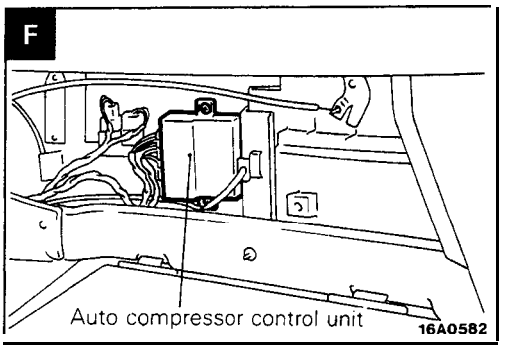


TSB Revision

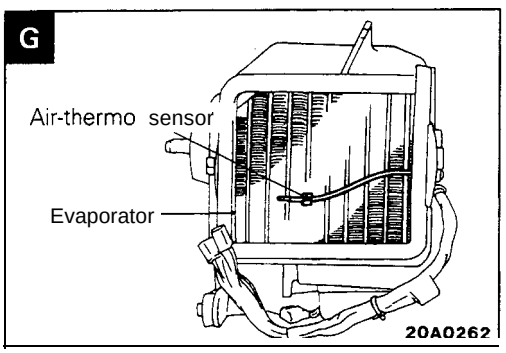
E



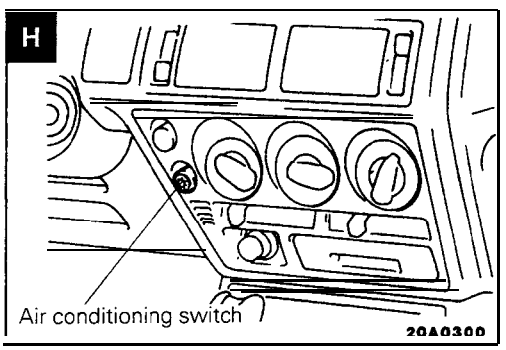
F



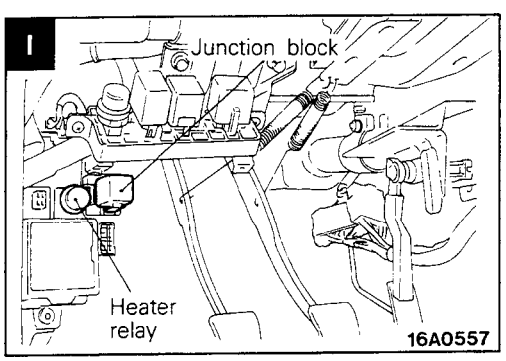
G



H



I



TSB Revision

SAFETY PRECAUTIONS M55PAAE

R-12 refrigerant is a chloro-floro-carbon (CFC) that can contribute to the depletion of the ozone layer in the upper atmosphere.

Ozone filters out harmful radiation from the sun. To assist in protecting the ozone layer, Mitsubishi Motor Sales of America, Inc. recommends that an R-12 refrigerant recycling device that meets SAE standard J1991 be used.

Contact an automotive service equipment supplier for refrigerant recycling equipment that is available in your area.

The refrigerant used in all air conditioning is R-I 2.

It is transparent and colorless in both the liquid and vapor state. Since it has a boiling point of –29.8°C (–21.7°F), at atmospheric pressure, it will be a vapor at all normal temperatures and pressures. The vapor is heavier than air, non-flammable, and nonexplosive. It is nonpoisonous except when it is in direct contact with open flame. It is noncorrosive except when combined with water. The following precautions must be observed when handling R-12.

Caution
Wear safety goggles when servicing the refrigeration system.

R-12 evaporates so rapidly at normal atmospheric pressures and temperatures that it tends to freeze anything it contacts. For this reason, extreme care must be taken to prevent any liquid refrigerant from contacting the skin and especially the eyes. Always wear safety goggles when servicing the refrigeration part of the air conditioning system. Keep a bottle of sterile mineral oil handy when working on the refrigeration system. Should any liquid refrigerant get into the eyes, use a few drops of mineral oil to wash them out. R-12 is rapidly absorbed by the oil. Next, splash the eyes with plenty of cold water. Call your doctor immediately even though irritation has ceased after treatment.

Caution
Do not heat R-12 above 40°C (104°F).

In most instances, moderate heat is required to bring the pressure of the refrigerant in its container above the pressure of the system when charging or adding refrigerant. A bucket or large pan of hot water not over 40°C (104°F) is all the heat required for this purpose. Do not heat the refrigerant container with a blow torch or any other means that would raise temperature and pressure above this temperature. Do not weld or steam clean on or near the system components or refrigerant lines.

Caution
Keep R-12 containers upright when charging the system.

When metering R-12 into the refrigeration system, keep the supply tank or cans in an upright position. If the refrigerant container is on its side or upside down, liquid refrigerant will enter the system and damage the compressor.

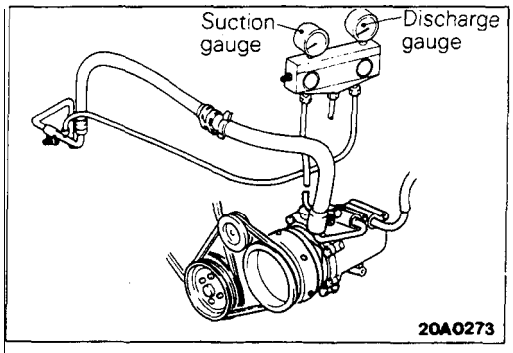
Caution
Always work in a well-ventilated room.

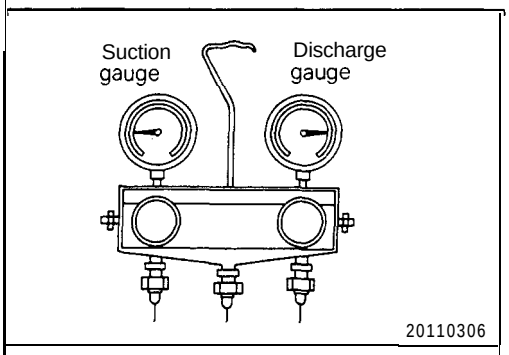
Good ventilation is vital in the working area. Although R-12 vapor is normally nonpoisonous, contact with an open flame can cause the vapor to become very poisonous. A poisonous gas is produced when using the flame-type leak detector. Avoid inhaling the fumes from the leak detector.

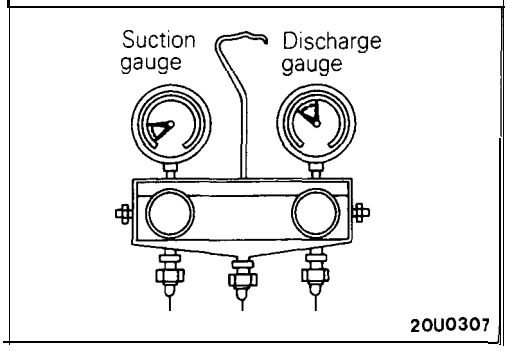
Caution
Do not allow liquid refrigerant to touch bright metal.

Refrigerant will tarnish bright metal and chrome surfaces, and in combination with moisture can severely corrode all metal surfaces.

TSB Revision







SERVICE ADJUSTMENT PROCEDURES

M55FEAS

TEST PROCEDURES

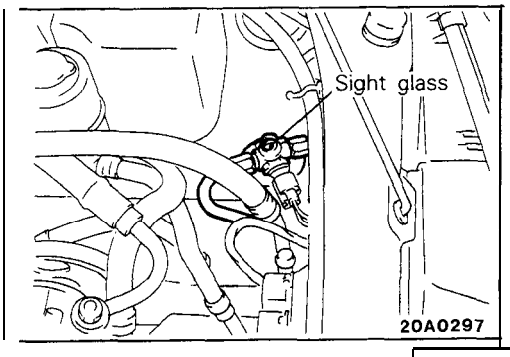
SYSTEM TEST

(1) Turn back the adaptor valve handle all the way and install each adaptor valve to the high and low pressure service valves.
(2) With the gauge manifold high and low pressure valves closed, connect the gauge manifold to the high and low pressure adaptor valves.
(3) Tighten the adaptor valve handle to open the service valves for checking the pressure.
(4) If a pressure of 294 to 392 kPa (43 to 59 psi) is indicated on the suction gauge side and a pressure of approx. 1,961 kPa (284 psi) is indicated on the discharge gauge side, it is suspected that air is present in the air conditioning system. Discharge the system, evacuate and recharge with specified amount of refrigerant.

(5) During operation of the air conditioning cold air may stop flowing after the elapse of time and this state is maintained before cold air flows out again. If cold air stops flowing out with negative pressure indicated on the suction gauge side and a pressure of 588 to 980 kPa (85 to 142 psi) indicated on the discharge gauge side, it is suspected that water is present in the air conditioning system.
Discharge the system. Replace receiver drier. Evacuate and check for leaks, and recharge with specified amount of refrigerant.

COMPRESSOR

(1) Turn back the adaptor valve handle all the way and install each adaptor valve to the high and low pressure service valves.
(2) With the gauge manifold high and low pressure valves closed, connect the gauge manifold to the high and low pressure adaptor valves.
(3) Tighten the adaptor valve handle to open the service valves for checking the pressure.
(4) If a pressure of approx. 490 kPa (71 psi) is indicated on the suction gauge side and a pressure of approx. 883 kPa (128 psi) is indicated on the discharge gauge side, the compressor has abnormal compression. Replace the compressor.



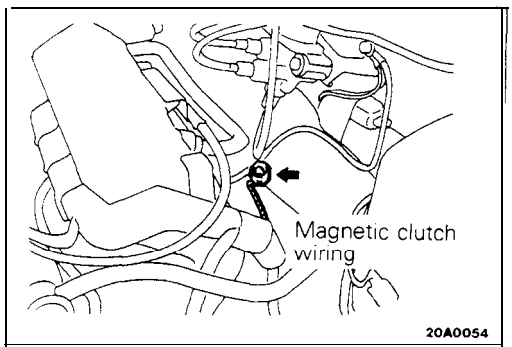
SIGHT GLASS REFRIGERANT LEVEL TEST

The sight glass is a refrigerant level indicator. To check the refrigerant level, clean the sight glass and start the vehicle engine. Push the air conditioning button to operate the compressor, place the blower switch to high and move the temperature control lever to extreme left. After operating for a few minutes in this manner, check the sight glass.
(1) If the sight glass is clear, the magnetic clutch is engaged, the compressor discharge line is warm and the compressor inlet line is cool; the system has a full charge.

TSB Revision

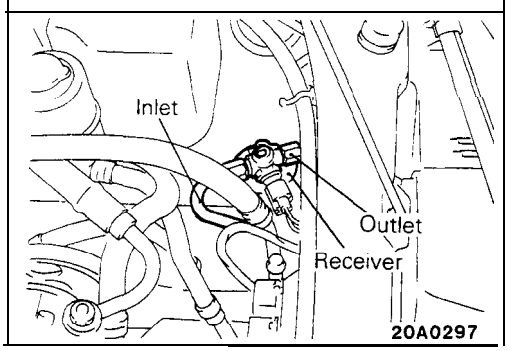
(2) If the sight glass is clear, the magnetic clutch is engaged and there is no significant temperature difference between compressor inlet and discharge lines; the system has lost some refrigerant.
(3) If the sight glass is clear and the magnetic clutch is disengaged; the clutch is faulty or, the system is out of refrigerant. Perform low pressure switch test to determine condition. Check low pressure switch, and clutch coil for electrical continuity.
(4) If the sight glass shows foam or bubbles, the system could be low on charge. Occasional foam or bubbles are normal when the ambient temperature is above 43°C (110°F) or below 21°C (70°F).
Adjust the engine speed to 1,500 rpm. Block the air-flow thru the condenser to increase the compressor discharge pressure to 1,422 to 1,520 kPa (206 to 220 psi). If sight glass still shows bubbles or foam, system charge level is low.

The refrigerant system will not be low on charge unless there is a leak. Find and repair the leak. If the leak can be repaired without discharging the system an oil level check is not necessary. Use the procedure for correcting low refrigerant level found in the Refrigerant System Service Procedure Section.



MAGNETIC CLUTCH

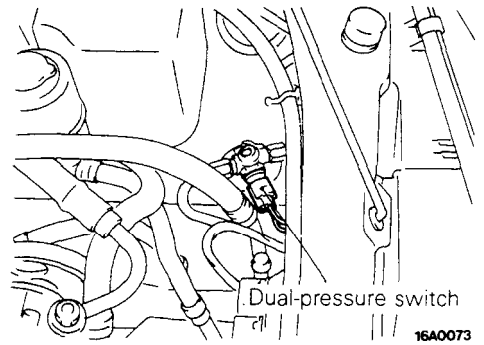
(1) Disconnect the wiring to the magnetic clutch.
(2) Connect battery (+) voltage directly to the wiring for the magnetic clutch.
(3) If the magnetic clutch is normal, there will be a “click”. If the pulley and armature do not make contact (“click”), there is a malfunction.

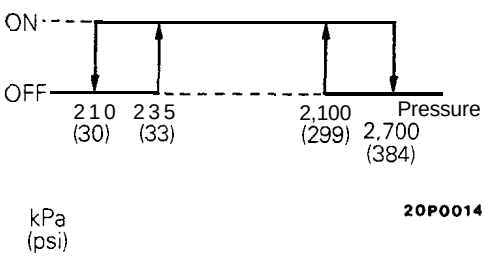


RECEIVER DRIER

(1) Operate the unit and check the piping temperature by touching the receiver drier outlet and inlet.
(2) If there is a difference in the temperatures, the receiver drier is restricted.
Replace the receiver drier.

TSB **Revision**

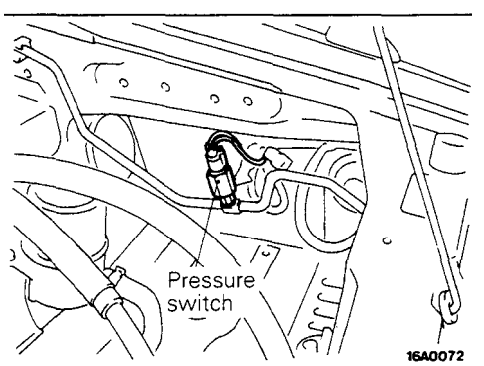


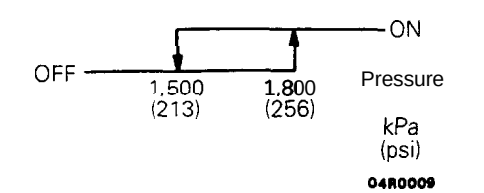


DUAL PRESSURE SWITCH

The dual-pressure switch is a combination of the low-pressure switch (for checking the quantity of refrigerant) and the high-pressure switch (for prevention of overheating); it is installed in the receiver, and, when the pressure becomes approximately 210 kPa (30 psi) or lower, the compressor stops, thus preventing the compressor from being damaged by heat. When the pressure reaches 2,700 kPa (384 psi) or higher, the compressor stops, thus preventing overheating. There is generally no necessity for inspection; if, however, an unusual condition, such as non-operation of the compressor is encountered, check by following the procedures below.

(1) Turn back the adaptor valve handle all the way and install it to the high pressure side service valve.
(2) With the gauge manifold low pressure service valve closed, connect the gauge manifold low pressure side charging hose to the adaptor valve.
(3) Tighten the adaptor valve handle and open the service valve.
(4) If there is continuity between the dual pressure switch terminals when the high pressure side pressure is at level of dual pressure switch ON condition shown to the left, the switch is functioning normally. If not, replace the switch.





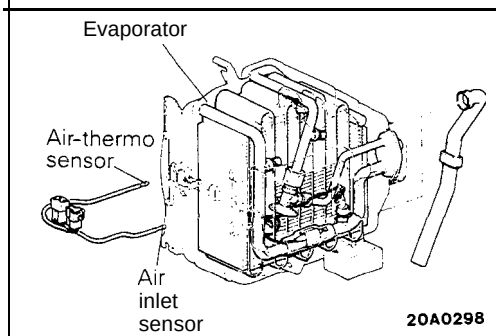
PRESSURE SWITCH

The pressure switch (installed above the high-pressure pipe) is for control of the condenser and the radiator fan; it regulates the fan in two steps (LO and HI).
If there is a problem such as non-operation of the condenser fan, check by following the procedures described below.

(1) Install the gauge manifold, and then switch the air conditioning to the operation mode.
(2) Check for continuity of the pressure switch.

Less than 1,500 kPa (213 psi)	No continuity
1,800 kPa (256 psi) or higher	Continuity

NOTE
If the pressure will not decrease to less than the standard value, cool by employing an electric fan; if the pressure will not increase to the standard value or higher, place a cover on the condenser so as to adjust the pressure by regulating the air ventilation.

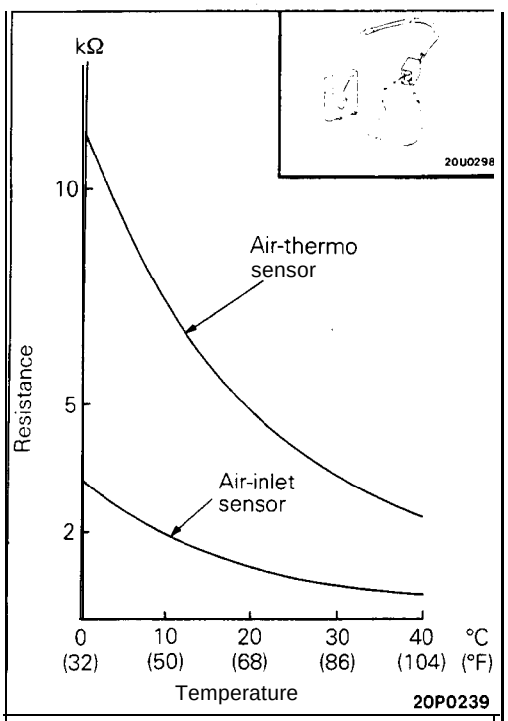


AIR-THERMO SENSOR AND AIR-INLET SENSOR

If frost forms on the surfaces of the evaporator fins, the cause might be a malfunction of air thermo sensor.
The temperature of the air-flowing from the evaporator's outlet is sensed by the thermistor, and the signals conveying this data are input to the auto compressor control unit, thus switching the compressor's clutch ON or OFF.
This functions when the evaporator's air-flow is low, or the evaporator's fins are clogged by dust, etc., or when the amount of refrigerant is insufficient.
These sensors detect the temperature within the passenger

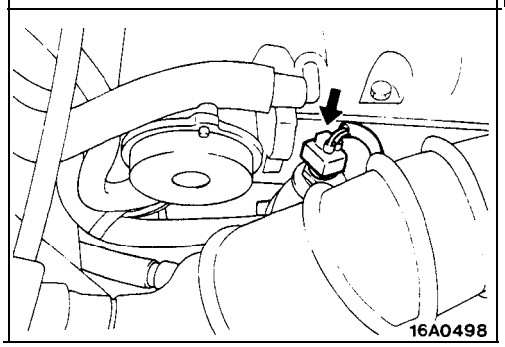
TSB Revision

compartment and the temperature at the cooling unit inlet, thus causing changes of the resistance value, and this data is provided to the auto compressor control unit as input.



How to Test the Air Thermo Sensor and Air Inlet Sensor

(1) Disconnect the sensor's connector at the evaporator case, and by using an ohmmeter, measure the resistance. If the resistance is within ±10% of valve of the characteristic curve, the sensor is functioning normally.
(2) If the sensor is normal, there is a malfunction of the auto compressor control unit, and it should be replaced.



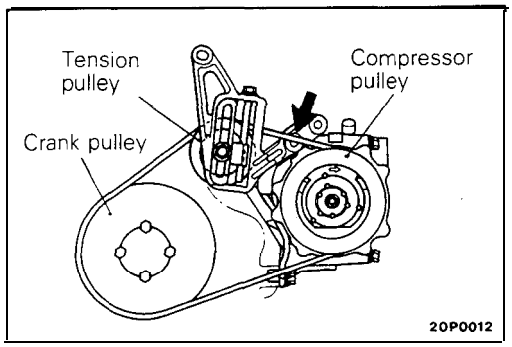
AIR CONDITIONING ENGINE COOLANT TEMPERATURE SWITCH (for compressor magnetic clutch) <DOHC>

The air conditioning engine coolant temperature switch is connected in series with the compressor magnetic clutch power relay.

It disengages the compressor when the temperature of radiator coolant rises above 115°C (239°F).

This is designed to prevent engine overheating when cooling air is not sufficient for the condenser and radiator. If the air conditioning engine coolant temperature switch operates to disengage the compressor, check for the condenser and radiator surface conditions, belt tension and radiator coolant level and correct, if necessary.

TSB Revision

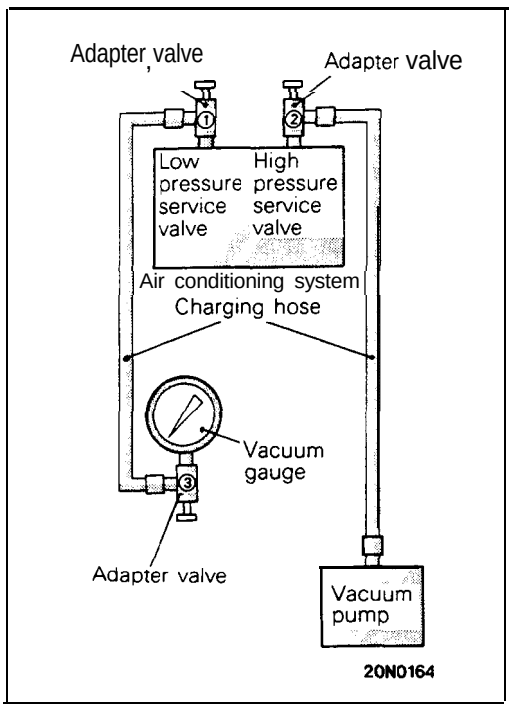


COMPRESSOR DRIVE BELT ADJUSTMENT M55FJAE

Satisfactory performance of the air-conditioning system is dependent upon drive belt condition and tension. If the proper tensions are not maintained, belt slippage will greatly reduce air-conditioning performance and drive belt life. To avoid such adverse effects, the following service procedure should be followed:

(1) Any belt that has operated for a minimum of one half-hour is considered to be a "used" belt. Adjust air-conditioning drive belt at the time of new-car preparation.
(2) Check drive belt tension at regular service intervals and adjust as needed.

Standard value:
When new belt installed 5-5.5 mm (.20–.22 in.)
When used belt installed 6-7 mm (.23–.27 in.)



CHARGING

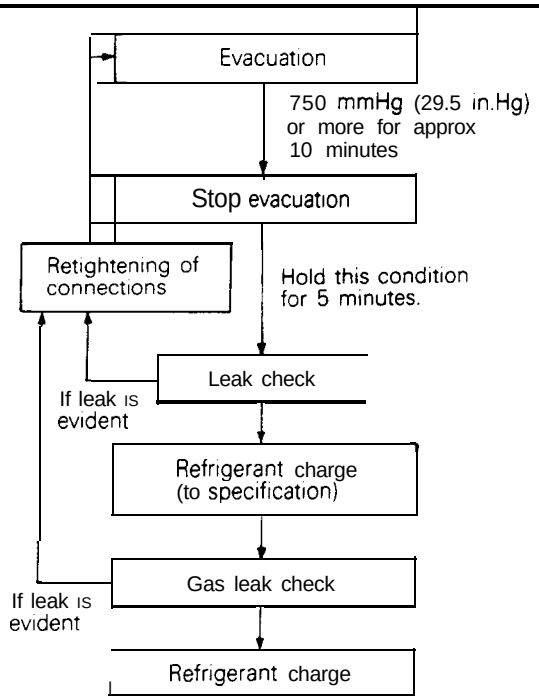
CHARGING THE SYSTEM

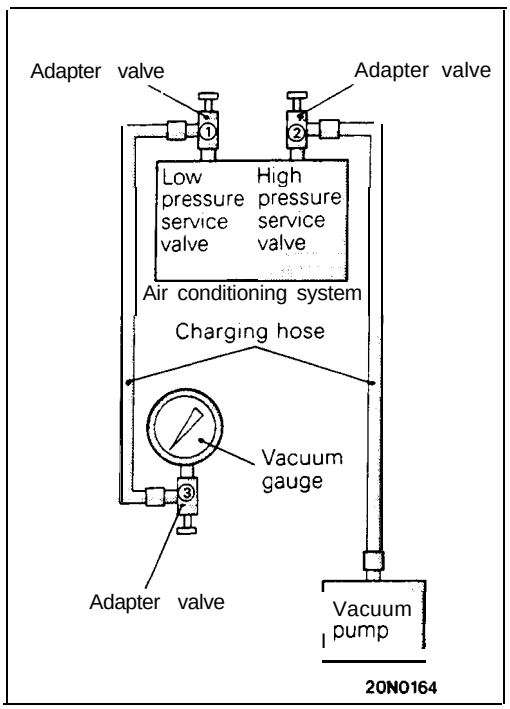
(1) Keeping the handle completely returned to the original position (The valve is closed.), mount adapter valves ① and ② on the service valves of the high and low pressures.

NOTE
Install the high pressure service valve to the discharge port of discharge hose, and the low pressure service valve to the suction port of compressor.

(2) Screw in the handles of the adapter valves ① and ② . (The valve is opened.)
(3) Connect the charging hoses to the adapter valves ① and ② .
(4) When the handle is screwed in (The valve is opened), mount the adapter valve ③ on the charge hose on the low pressure side.
(5) Mount the vacuum gauge on the adapter valve ③ .
(6) Mount the vacuum gauge on the charging hose of the high pressure side.

TSB Revision



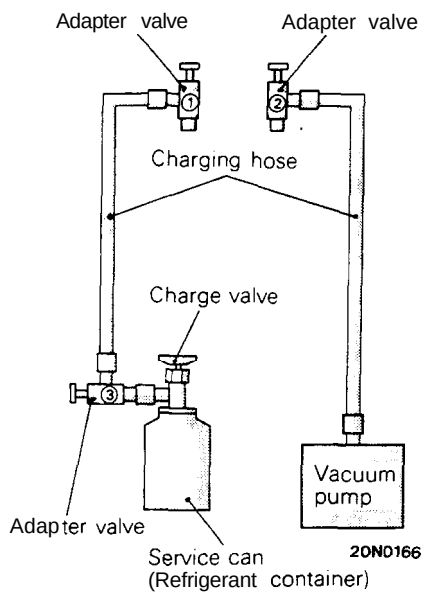


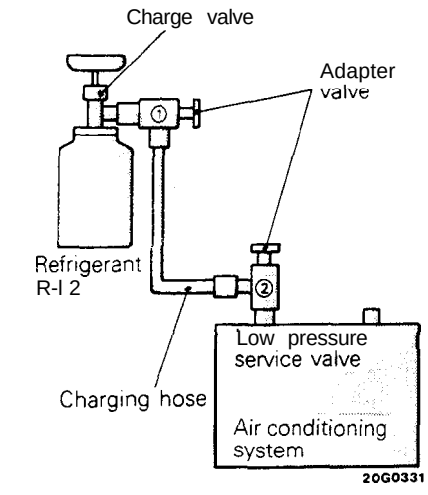
(7) Start up the vacuum pump.
(8) Evacuate to a vacuum reading of 750 mmHg (29.5 in.Hg) or higher (approx. 10 minutes).

Caution
Since the indication goes wrong, read the scale with the vacuum gauge placed vertically.

(9) Completely return the handle of the high-pressure side adapter valve ② to the original position. (The valve is closed.)
(10) Stop the vacuum pump and allow to stand for 5 minutes.
(11) Check for leaks. (Good if the vacuum is held.)
(12) Keeping the handle completely returned to the original position (The valve is opened.), mount the charge valve on the service can.
(13) Keeping the handle of the adapter valve @completely returned to the original position (The valve is closed.). remove the vacuum gauge and mount the service can.
(14) Screw in the handle of the charge valve (The valve is closed.) to make a hole in the service can.
(15) Return the handle of the charge valve (The valve is opened.), screw in the handle of the adapter valve ③ (The valve is opened.) and charge the refrigerant.
(16) If refrigerant is no longer sucked, completely return the handle of the adapter valve ① to the original position. (The valve is closed.)
(17) Check for gas leaks using a leak detector.
(18) Start the engine.
(19) Operate the air conditioning and set at the lowest temperature (MAX. COOL).
(20) Fix the engine speed at 1,500 rpm.
(21) Screw in the handle of the adapter valve @(The valve is opened.). and charge the refrigerant to the specified amount.

TSB Revision





Caution
If the service can is inverted, liquid refrigerant may be drawn into the compressor damaging it by liquid compression. Keep the service can upright to ensure that refrigerant is charged in gas state.

(22) After charging the refrigerant, completely return the handle of the adapter valve ① to the original position. (The valve is closed .)
(23) Screw in the handle of the charge valve. (The valve is closed.)
(24) Remove the adapter valves ① and @from the high and low pressure service valves.
(25) Remove the service can.

NOTE
If any refrigerant remains, close the charge valve and adapter valves ① and ③, and store them as they are till the next work.

CORRECTING LOW REFRIGERANT LEVEL

Method by using the service can

(1) Keeping the handle completely returned to the original position (The valve is closed.), install the service can.
(2) Keeping the handle screwed in (The valve is opened.), install the adapter valve ① to the charge valve.
(3) Connect the charging hose to the adapter valve ①.
(4) Keeping the handle completely returned to the original position (The valve is closed.), connect the adapter valve ② to the charging hose.
(5) Screw in the handle of the charge valve (The valve is closed.) to make a hole in the service can.
(6) Completely return the handle of the charging valve to the original position (The valve is opened.).
Operate the handle of the adapter valve ② to release air.
(7) Attach the adapter valve ② to the service valve on the low pressure side.

Caution
If the high pressure side is used, refrigerant will counterflow and sometimes break the service can or charging hose. Never attempt to use the high pressure side.

(8) Start the engine.
(9) Operate the air (conditioning and set at the lowest temperature (MAX. COOL).
(10) Fix the engine speed at 1,500 rpm.
(11) Screw in the handle of the adapter valve ② (The valve is opened.), and observing the amount through the sight glass, refill refrigerant.
(12) After refilling, completely return the handle of the adapter valve ② to the original position (The valve is closed.), and remove the adapter valve ②.

NOTE
If any refrigerant remains, close the charge valve and adapter valves ① and ②, and store them as they are till the next work.

TSB Revision

Method by using refrigerant recovery and recycling unit

Using the refrigerant recovery and recycling unit, refill the refrigerant.

NOTE
Refer to that Refrigerant Recovery and Recycling Unit Instruction Manual for ooeration of the unit.

DISCHARGING SYSTEM

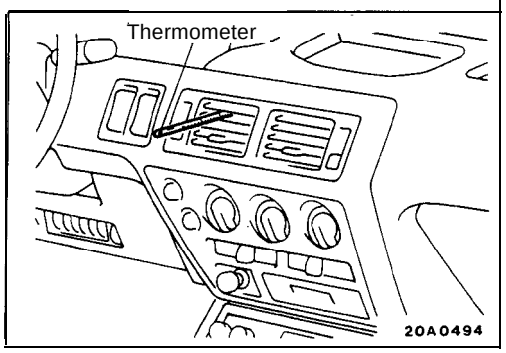
Use the refrigerant recovery unit to discharge refrigerant gas from the system.

NOTE
Refer to that Refrigerant Recovery and Recycling Unit Instruction Manual for operation of the unit.

REFILLING OF OIL IN THE AIR CONDITIONING SYSTEM

Too little oil will provide inadequate compressor lubrication and cause a compressor failure. Too much oil will increase discharge air temperature.
When a FX105V compressor is installed at the factory, it contains 150 cm^3 (9.2 cu.in.) of refrigerant oil. While the air conditioning system is in operation, the oil is carried through the entire system by the refrigerant.
Some of this oil will be trapped and retained in various parts of the system.
When the following system components are charged, it is necessary to add oil to the system to replace the oil being removed with the component.

Condenser: 15 cm^3 (.9 cu.in.)
Evaporator: 50 cm^3 (3.1 cu.in.)
Piping: 10 cm^3 (.6 cu.in.)
Receiver drier: 5 cm^3 (.3 cu.in.)



PERFORMANCE TEST

(1) Park the tested vehicle at the area which is not exposed to the direct sunlight.
(2) Connect a tachometer.
(3) Turn back the adaptor valve handle all the way and install the adaptor valves to the high pressure and low pressure service valves.
(4) Connect the gauge manifold to the adaptor valves.
(5) Tighten the adaptor valve handle and open the service valves.
(6) Start the engine.
(7) Set the controls to the air conditioning as follows:

Air conditioning switch: A/C-ON position
Mode selection lever: Face position
Temperature control lever: Max. cooling position
Air selection lever: Recirculation position
Blower switch: HI (Fast) position

(8) Adjust engine rpm to 1,000 with air conditioning clutch engaged.
(9) Engine should be warmed up with doors, windows close and hood open.
(10) Insert a thermometer in the left center air conditioning **Out**-let and operate the engine for 20 minutes.
(11) Note the discharge air temperature.

NOTE
If the clutch cycles, take the reading before the clutch disengages.

PERFORMANCE TEMPERATURE CHART

Garage ambient temperature °C (°F)	21 (70)	26.7 (80)	32.2 (90)	37.8 (100)	43.3 (110)
Discharge air temperature °C (°F)	2.8-4.4 (37–40)	3.3–5.0 (38–41)	3.9-5.6 (39–42)	4.4-7.2 (40–45)	4.4-7.8 (40–46)
Compressor discharge pressure kPa (psi)	758–1,310 (110–190)	896–1,517 (130–220)	1,103–1,793 (160–260)	1,310–1,999 (190–290)	1,517–2,206 (220–320)
Evaporator suction pressure kPa (psi)	131-165 (19–24)	138-179 (20–26)	145-186 (21–27)	152-193 (22–28)	159–200 (23-29)

REFRIGERANT LEAK REPAIR PROCEDURE M55FHAJ

LOST CHARGE

If the system has lost all charge due to a leak:
(1) Evacuate the system. (See procedure.)
(2) Charge the system with approximately one pound of refrigerant.
(3) Check for leaks.
(4) Discharge the system.
(5) Repair leaks.
(6) Replace receiver drier.

Caution
Replacement filter-drier units must be sealed while in storage. The drier used in these units will saturate water quickly upon exposure to the atmosphere. When installing a drier, have all tools and supplies ready for quick reassembly to avoid keeping the system open any longer than necessary.

(7) Evacuate and charge the system.

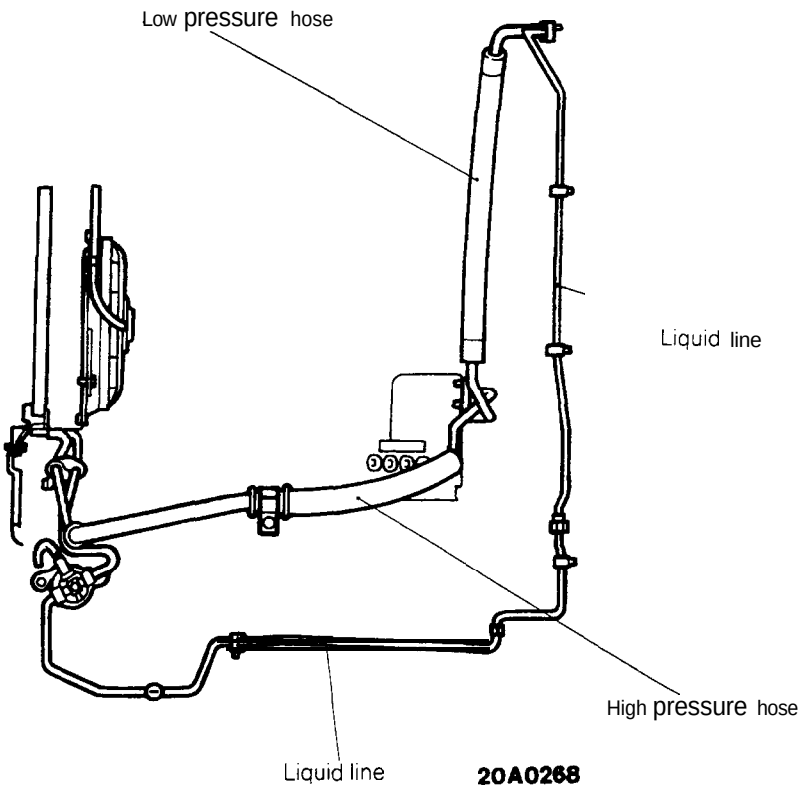
TSB Revision

LOW CHARGE

If the system has not lost all of its refrigerant eharge; locate and repair all leaks. if it is necessary to increase the system pressure to find the leak (because of an especially low charge) add of refrigerant. If it is possible to repair the leak without discharging the refrigerant system, use the procedure for correcting low refrigerant level.

HANDLING TUBING AND FITTINGS

M55FIAE



Kinks in the refrigerant tubing or sharp bends in the refrigerant hose lines will greatly reduce the capacity of the entire system. High pressures are produced in the system when it is operating. Extreme care must be exercised to make sure that all connections are pressure tight. Dirt and moisture can enter the system when it is opened for repair or replacement of lines or components. The following precautions must be observed.

The system must be completely discharged before opening any fitting of connection in the refrigeration system. Open fittings with caution even after the system has been discharged. If any pressure is noticed as a fitting is loosened, allow trapped pressure to bleed off very slowly.

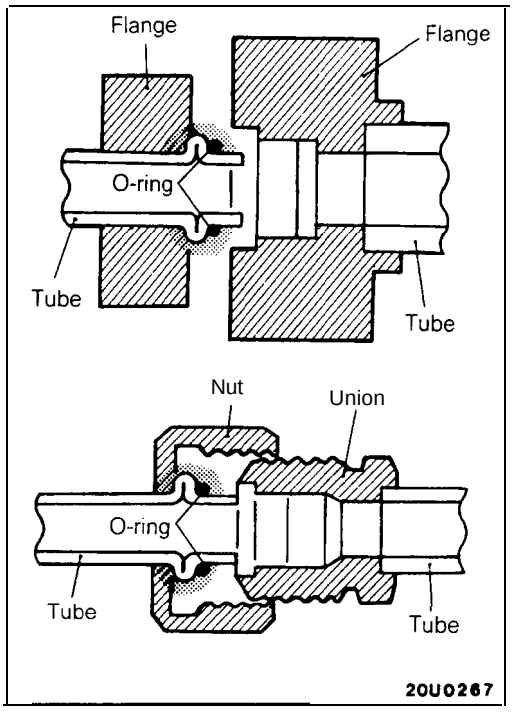
Never attempt to rebend formed lines to fit. Use the correct line for the installation you are servicing. A good rule for the flexible hose lines is to keep the radius of all bends at least 10 times the diameter of the hose.

Sharper bends will reduce the flow of refrigerant. The flexible hose lines should be routed so that they are at least 80 mm (3 in.) from the exhaust manifold.

It is good practice to inspect all flexible hose lines at least once a year to make sure they are in good condition and properly routed.

Unified plumbing connections with O-rings. These O-rings are not reusable.

TSB **Revision**



O-RING INSTALLATION <Up to 1990 models>

(1) Clean sealing surface.
(2) Make sure O-ring does not have any scratches.
(3) Connect fitting, install fastener, and torque to amount shown in the illustration.

The internal parts of the refrigeration system will remain in a state of chemical stability as long as pure-moisture-free R-12 and refrigerant oil is used. Abnormal amounts of dirt, moisture or air can upset the chemical stability and cause operational troubles or even serious damage if present in more than minute quantities.

When it is necessary to open the refrigeration system, have everything you will need to service the system ready so the system will not be left open any longer than necessary. Cap or plug all lines and fittings as soon as they are opened to prevent the entrance of dirt and moisture. All lines and components in parts stock should be capped or sealed until they are ready to be used.

All tools, including the refrigerant dispensing manifold, the gage set manifold and test hoses should be kept clean and dry.

COMPRESSOR NOISE M55FLAC

When investigating an air conditioning related noise, you must first know the conditions when the noise occurs. These conditions are: weather, vehicle speed, in gear or neutral, engine temperature or any other special conditions.

Noises that develop during air-conditioning operation can often be misleading. For example: what sounds like a failed front bearing or connecting rod, may be caused by loose bolts, nuts, mounting brackets, or a loose clutch assembly. Verify accessory drive belt tension (power steering, or generator).

Improper accessory drive belt tension can cause a misleading noise when the compressor is engaged and little or no noise when the compressor is disengaged.

Drive belts are speed sensitive. That is, at different engine speeds, and depending upon belt tension, belts can develop unusual noises that are often mistaken for mechanical problems within the compressor.

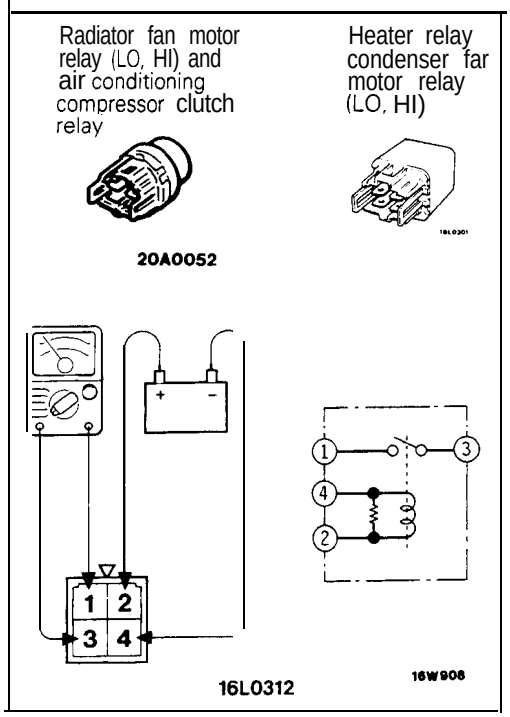
Adjustment Procedures

(1) Select a quiet area for testing. Duplicate conditions as much as possible. Switch compressor on and off several times to clearly identify compressor noise.

To duplicate high ambient conditions (high head pressure), restrict air flow through condenser. Install manifold gauge set to make sure discharge pressure doesn't exceed 2,070kPa (300 psi).

(2) Tighten all compressor mounting bolts, clutch mounting bolt, and compressor drive belt. Check to assure clutch coil is tight (no rotation or wobble).
(3) Check refrigerant hoses for rubbing or interference that can cause unusual noises.
(4) Check refrigerant charge (See "Charging the System").
(5) Recheck compressor noise as in Step 1.
(6) If noise still exists, loosen compressor mounting bolts and retorque. Repeat Step 1.
(7) If noise continues, replace compressor and repeat Step 1.

TSB **Revision**



POWER RELAY CHECK

M55FNAJ

NOTE
For information concerning the installation of each relay, refer to P.55-10.

Check for continuity between the terminals when the battery power-supply is applied to terminal (2), and terminal (4) is grounded.

When current flows	Between terminals 1–3	Continuity
When no current flows	Between terminals 1–3	No continuity
	Between terminals 2–4	Continuity

IDLE-UP OPERATION CHECK

M55FOAA

(1) Before inspection and adjustment set vehicle in the following condition:
- Engine coolant temperature: 80–90°C (176–194°F)
- Lights, electric cooling fan and accessories: Set to OFF
- Transaxle: Neutral (N or P for vehicles with A/T)
- Steering wheel: Straightforward

(2) Check whether or not the idling speed is the standard value.

Standard value: 750 rpm

NOTE
There is no necessity to make an adjustment, because the idling speed is automatically adjusted by the IAC system.
If, however, there occurs a deviation from the standard value for some reason, check the IAC system.

(3) Check to be sure that the idling speed becomes the standard value when the air conditioning switch is switched ON and the air conditioning is activated.

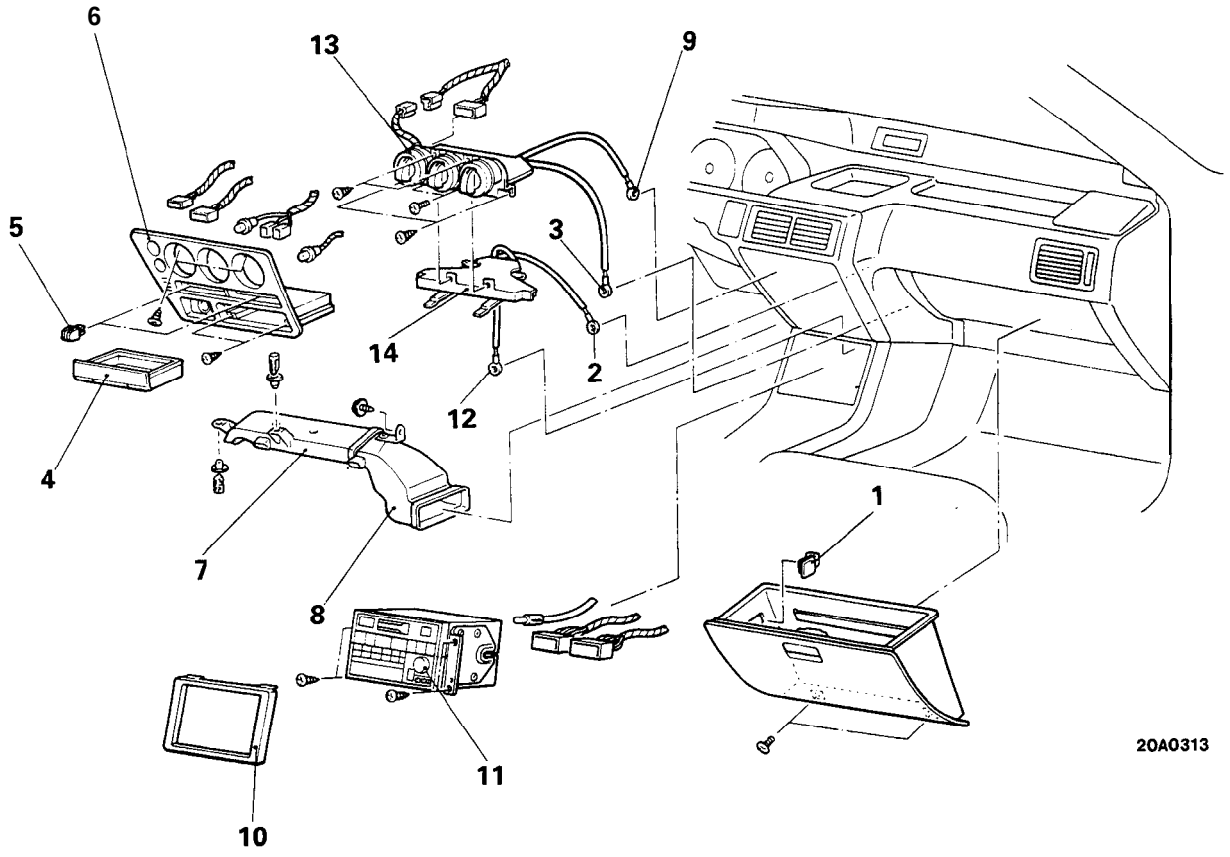
Standard value: 850 rpm

NOTE
There is no necessary to make an adjustment, because the idling speed is automatically adjusted by the IAC system.
If, however, there occurs a deviation from the standard value for some reason, check the IAC system.

HEATER CONTROL ASSEMBLY

M55GA--

REMOVAL AND INSTALLATION



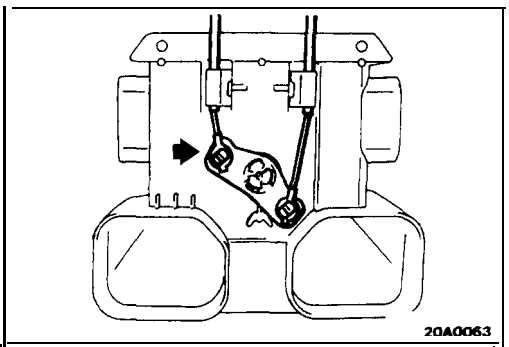
Removal steps

1. Stopper
2. Connection for the air-selection control wire
3. Connection for the temperature control wire
4. Ashtray
5. Knobs
6. Heater control panel
7. Foot shower nozzle
8. Foot shower duct
9. Connection for the mode selection control wire
10. Radio panel
11. Radio and tape player
12. Connection for the left/right air-volume control wire
13. Heater control assembly
14. Control lever assembly

SERVICE POINTS OF REMOVAL M55GBAH

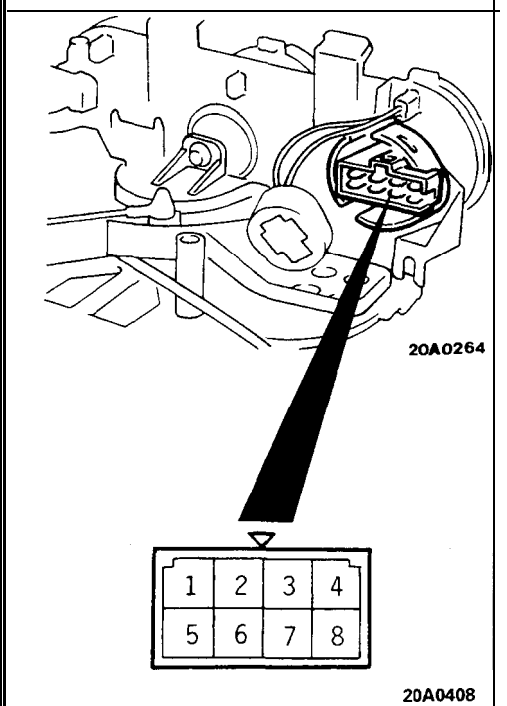
6. REMOVAL OF HEATER CONTROL PANEL

Remove the installation screws and pull the heater control panel toward you; then disconnect the connection of each connector and light.



12. DISCONNECTION OF LEFT/RIGHT AIR-VOLUME CONTROL WIRE

Disconnect the wire connected at the left side of the lever of the foot distribution duct.



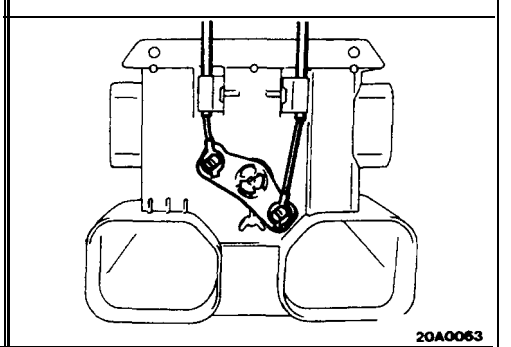
INSPECTION M55GCAG

BLOWER SWITCH

Operate the switch, and check the continuity between the terminals

Switch position \ Terminal	5	3	6	2	7	1	8	4
OFF								
· (Low)	○—○					○—○		
• (Medium first step)	○—		—○			○—○		
● (Medium second step)	○—			—○		○—○		—○
● (High)	○—				—○	○—○		—○

NOTE
○—○ indicates that there is continuity between the terminals

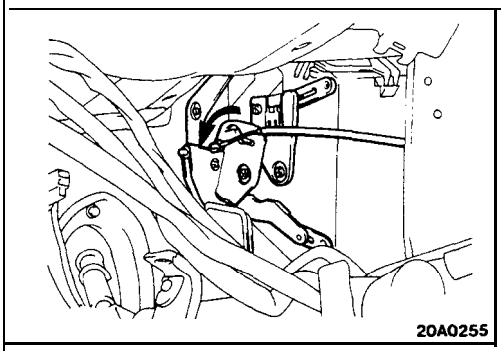


SERVICE POINTS OF INSTALLATION M55GDAM

12. CONNECTION OF LEFT/RIGHT AIR-VOLUME CONTROL WIRE

(1) Move the left/right air-volume control lever (in the heater control assembly) to the "L" position.
(2) Move the foot distribution duct's lever to the position indicated in the illustration, and then connect the left/right air-volume control wire.

TSB Revision

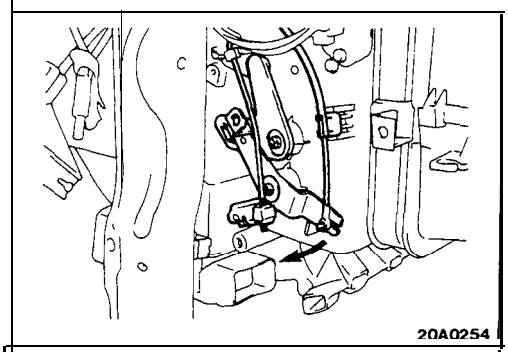


9. INSTALLATION OF MODE SELECTION CONTROL WIRE

Connect the mode selection control wire to the mode selection damper lever by following the steps below.

(1) Move the mode selection lever to the position.

(2) With the mode selection damper lever pressed inward in the direction indicated by the arrow, connect the inner cable of the mode selection control wire to the end of the mode selection lever, and then secure the outer cable by using a clip.

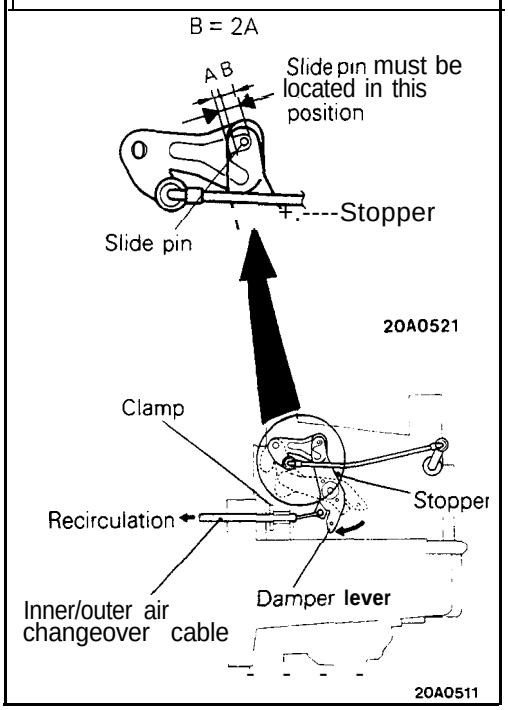


3. INSTALLATION OF TEMPERATURE CONTROL WIRE

Connect the temperature control wire to the blend air damper lever by following the steps below.

(1) Move the temperature control lever to the leftmost position. ("COOL" position)

(2) With the blend air damper lever pressed completely downward in the direction indicated by the arrow. connect the inner cable of the temperature control wire to the end of the blend air damper lever, and then secure the outer cable by using a clip.



2. INSTALLATION OF AIR SELECTION CONTROL WIRE

Connect the air selection control wire to the air selection damper lever by following the steps below.

(1) Set the inner/outer air changeover knob or lever to the inner air circulation position.

(2) Turn the inner/outer air changeover damper lever in the direction of the arrow, and contact it with the stopper.

(3) Connect the inner wires for the inner/outer air changeover cable to the damper lever.

(4) Lightly pull the outer cable for the inner/outer air changeover cable to the heater control assembly side, push into the outer cable clamp and fix.

(5) Operate the inner/outer air changeover knob or lever two to three times and set it at the inner air circulation position.

At this time, confirm that the damper lever is in contact with the stopper.

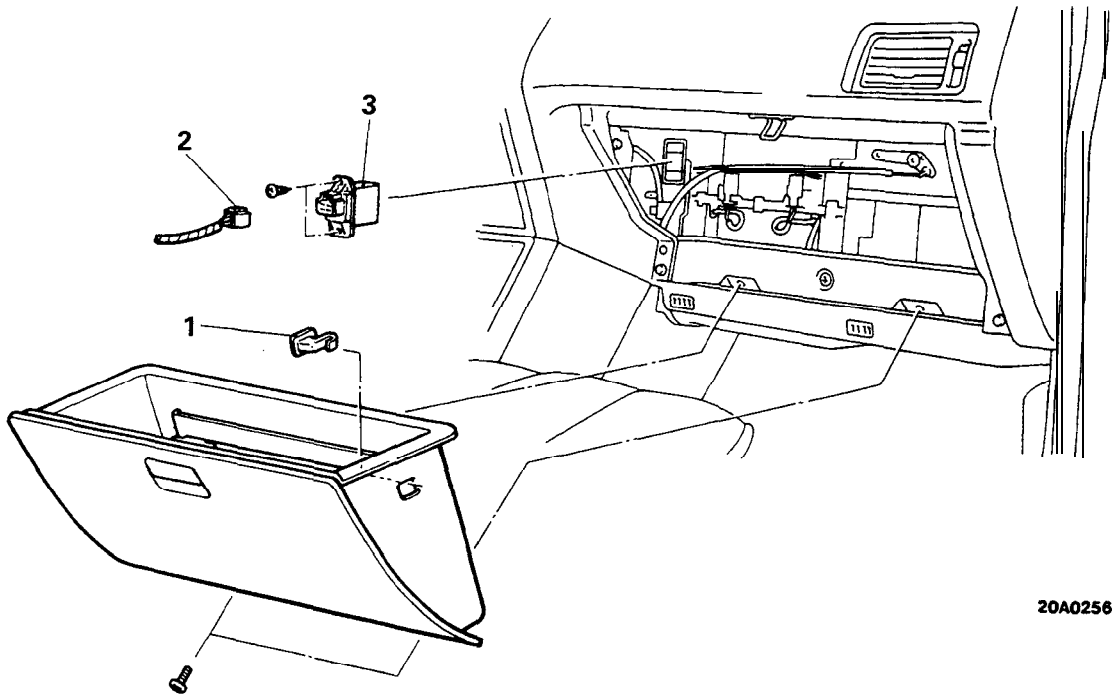
When the damper lever is not in contact with the stopper, readjust the cable.

(6) Confirm that the damper lever pin is within the shown B range when the inner/outer air changeover lever is set to the inner air circulation position, When it is not with shown B range, readjust the cable.

RESISTOR

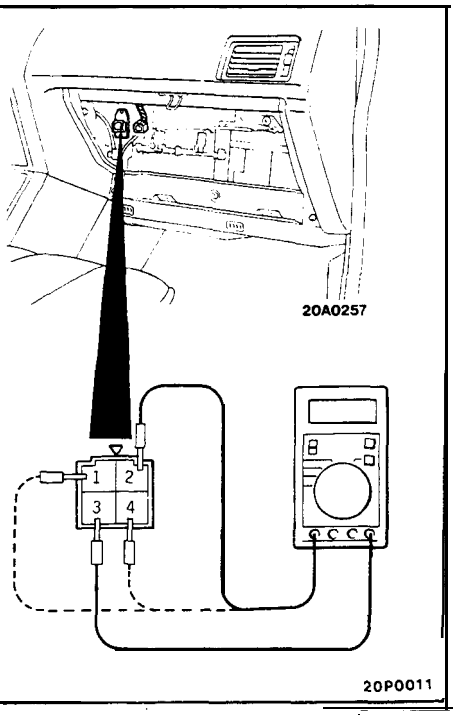
M55JA--

REMOVAL AND INSTALLATION



Removal steps

1. Stopper
2. Connector for the resistor
3. Resistor



INSPECTION

M55JCAA

RESISTOR CHECK

(1) Remove the stopper and tilt the glove box downward and forward.
(2) Disconnect the connector for the resistor.
(3) Using a circuit tester, measure the resistance between the terminals' indicated below.
The condition can be considered satisfactory if the value measured at this time is equivalent to the standard value.

Standard value

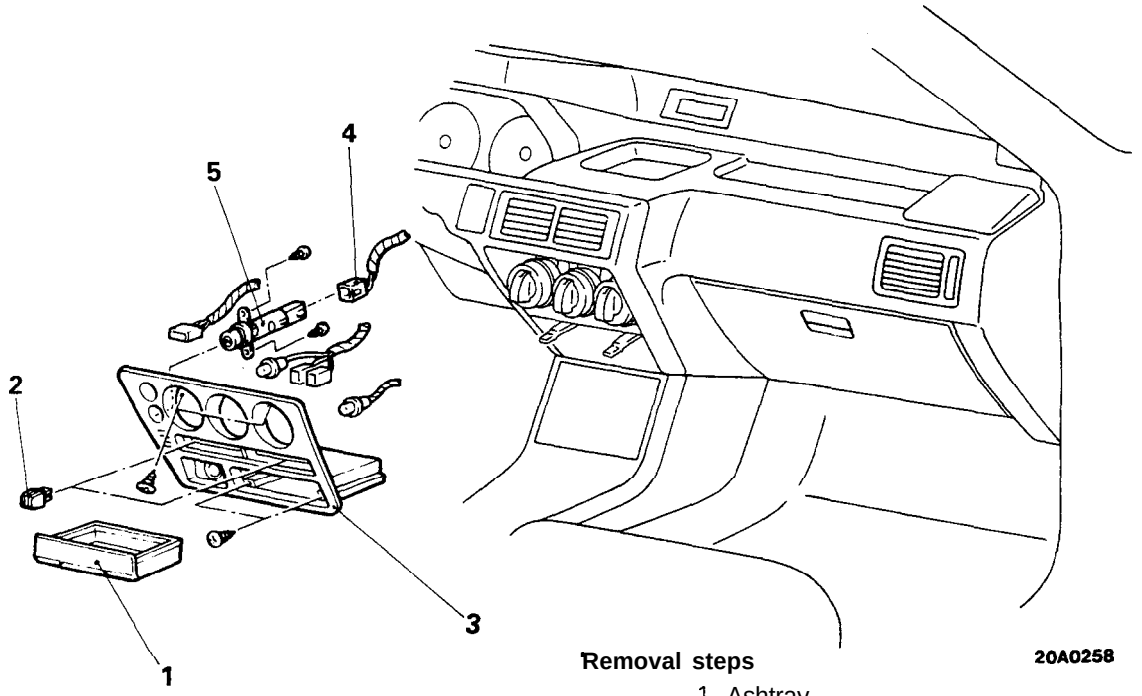
Terminals measured	Standard value Ω
Between terminals ③–②	Approx. 1.7– 1.96
Between terminals ③–④	Approx. 0.81–0.93
Between terminals ③–①	Approx. 0.29–0.33

TSB Revision

AIR CONDITIONING SWITCH

M55QA--

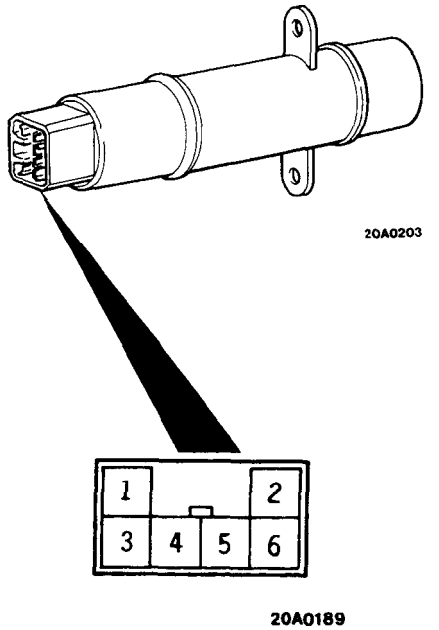
REMOVAL AND INSTALLATION



20A0258

Removal steps

1. Ashtray
2. Knobs
3. Heater control panel
4. Connector for the air conditioning switch
5. Air conditioning switch



20A0203

20A0189

INSPECTION

M55QCAB

AIR CONDITIONING SWITCH CHECK

(1) Remove the heater control panel.
(2) Remove the connector for the air conditioning switch, and then check for continuity as described below.

Switch position \ Terminal		,		2	4	5	3	6
OFF								
If pressed 1 step (ECONOMY)	0							
If pressed 2 steps (A/C)	○	○	○					

Illumination light

NOTE
(1) The ○–○ symbol indicates continuity.
(2) ∗: <Indication light>

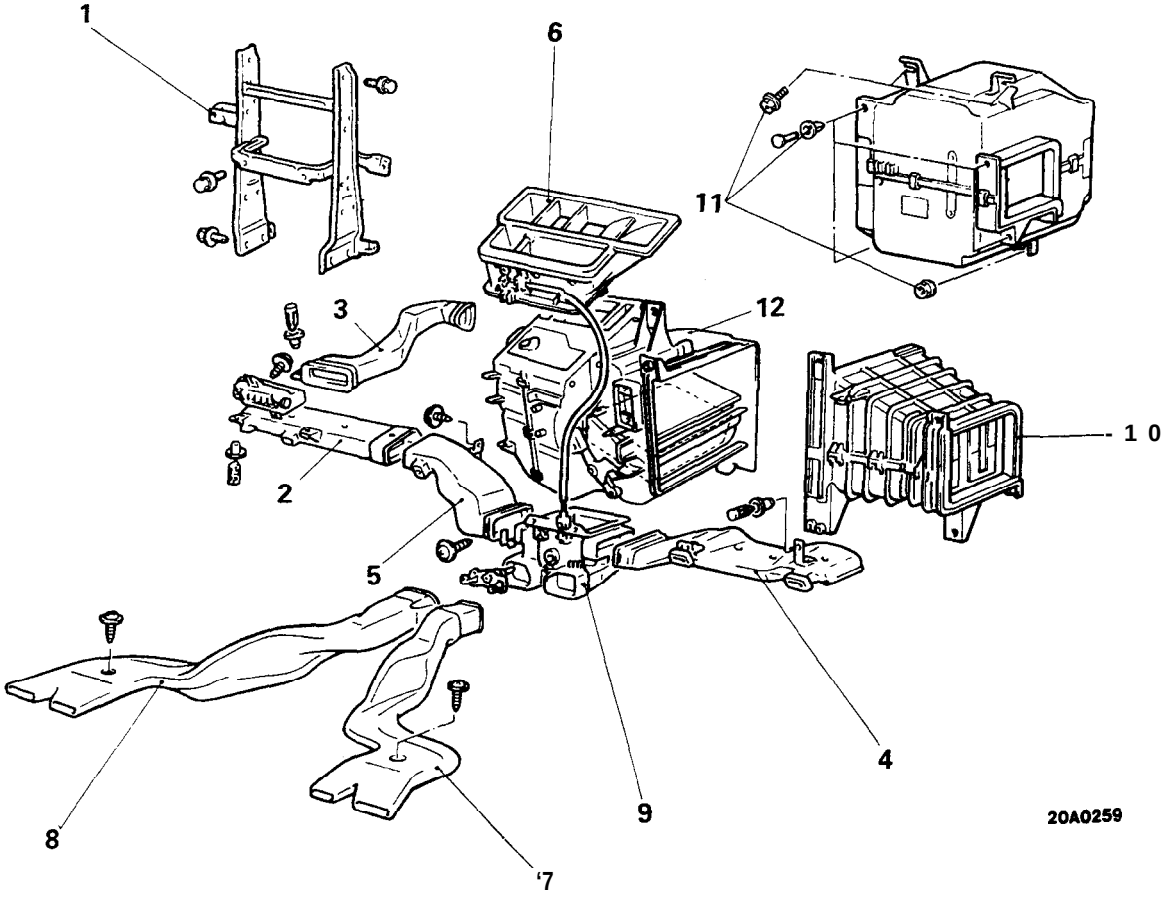
TSB Revision

HEATER UNIT

M55IA--

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Draining and Refilling of the Engine Coolant (Refer to GROUP 00–Maintenance Service.)
- @Removal and Installation of the Front Seats, Floor Console and Instrument Panel (Refer to GROUP 52–Front Seat. Floor Console and Instrument Panel.)



Removal steps

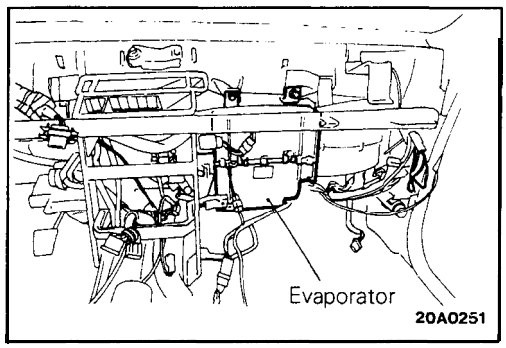
1. Instrument panel center stay
2. Foot shower nozzle
3. Lap shower duct
4. Foot shower duct, RH
5. Foot shower duct, LH
6. Center duct
7. Rear heater duct, B
8. Rear heater duct, C
9. Foot distribution duct
10. Duct <Vehicles without air conditioning>
11. Evaporator installation bolts, nuts and clips <Vehicles with air conditioning>
12. Heater unit

SERVICE POINTS OF REMOVAL M55IBAK

12. REMOVAL OF HEATER UNIT
<Vehicles with air conditioning>

(1) Remove the evaporator installation bolts and nuts, and the heater unit installation bolts and nuts.

NOTE
In order to prevent bolts from falling into the blower assembly, set the inside/outside air-selection damper to the position that permits outside air introduction.

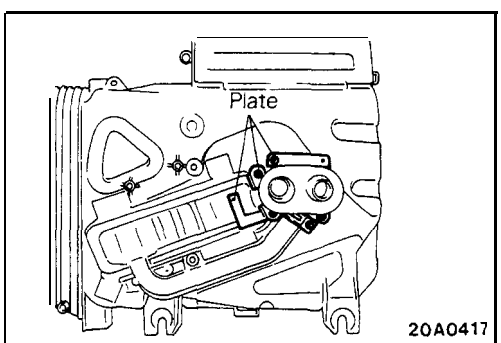


(2) With the evaporator pulled outward (to the cabin side), remove the heater unit.

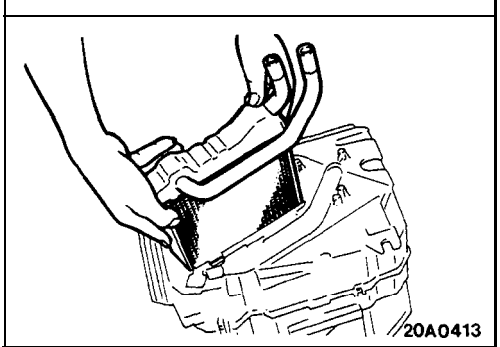
INSPECTION M55ICAG

- Check the operation of dampers and link mechanism.
-

HEATER CORE REPLACEMENT M55IDAH



(2) Remove the plate.



(3) Pull out the heater core from the heater unit.
(4) Insert the heater core into the heater unit.

NOTE

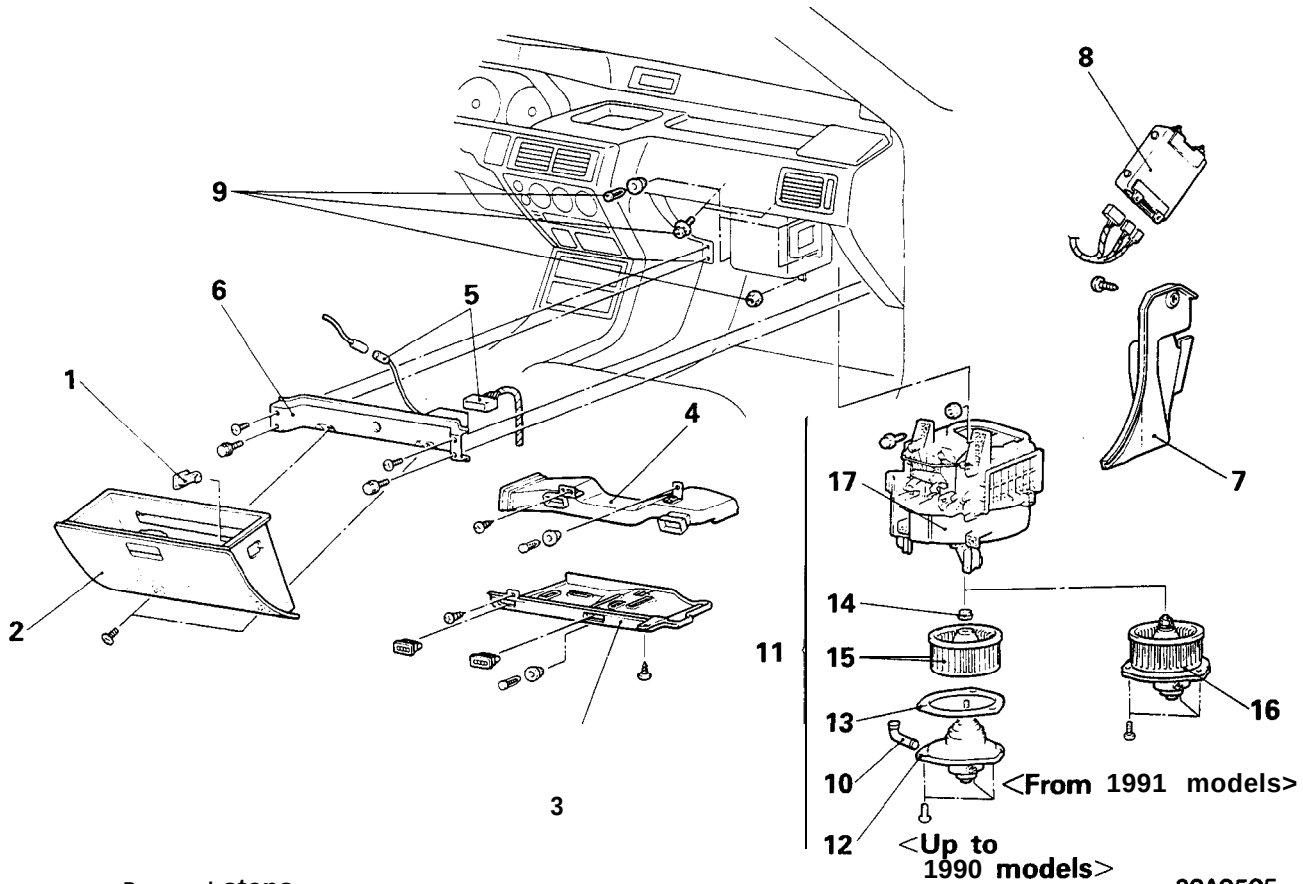
the fin part or the pad part.

(5) Install the plate.
(6) Install the heater unit.

BLOWER ASSEMBLY

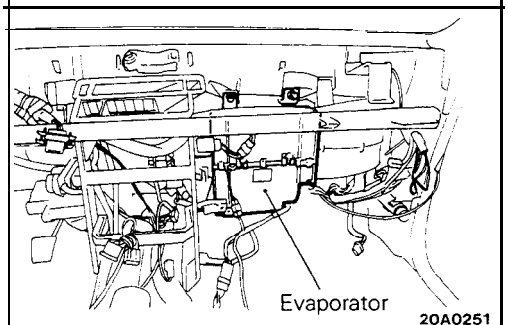
M55KA--

REMOVAL AND INSTALLATION



Removal steps

1. Stopper
2. Glove box
3. Under cover
4. Foot shower duct
5. Connector for MFI control relay and connector for glove box switch
6. Glove box frame
7. Cowl side trim
8. Engine control module
9. Evaporator installation bolts, nuts and clips <vehicles with air conditioning> or duct mounting clips <vehicles without air conditioning>
10. Hose
11. Blower assembly
12. Blower motor assembly
13. Packing
14. Fan installation nut
15. Fan
16. Blower motor and fan assembly
17. Blower case



SERVICE POINTS OF REMOVAL

M55KBAL

11. REMOVAL OF BLOWER ASSEMBLY

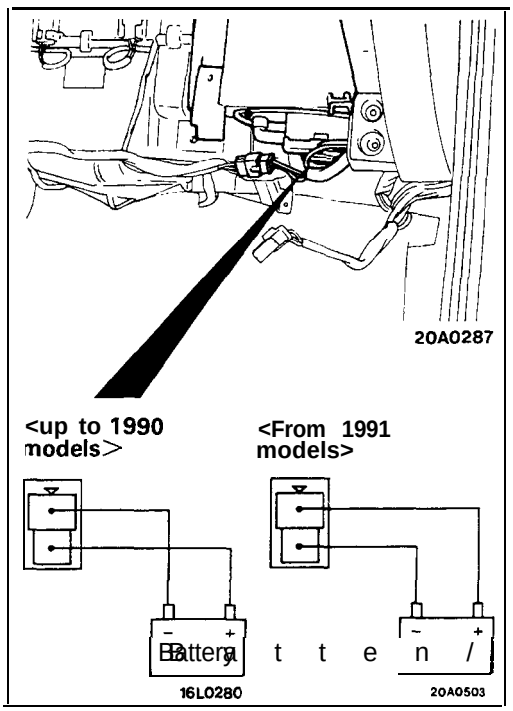
With the evaporator pulled outward (to the cabin side), remove the blower assembly (vehicles with air conditioning).

TSB Revision

INSPECTION

M55KCAM

- Check for bending or abnormal deflection of the rotating shaft of the blower motor assembly.
- Check for cracking or deterioration of the packing.
  Check for damage to the fan.
-
- Check the operation of the inside/outside air-selection



BLOWER MOTOR ASSEMBLY <Up to 1990 models>
BLOWER MOTOR AND FAN ASSEMBLY <From 1991 models>

(1) Remove the under cover.
(2) Connect the blower motor terminals directly to the battery and check that the blower motor operates smoothly.
(3) Next, reverse the polarity and check that the blower motor operates smoothly in the reverse direction.

SERVICE POINTS OF INSTALLATION

M55KDAH

13. INSTALLATION OF PACKING

If the packing is cracked, replace with a new one.

12. INSTALLATION OF BLOWER MOTOR ASSEMBLY

Before installing the blower motor assembly, carefully clean away any dust, dirt, etc. adhering to the inner surface of the blower case.

16. INSTALLATION OF BLOWER MOTOR AND FAN ASSEMBLY

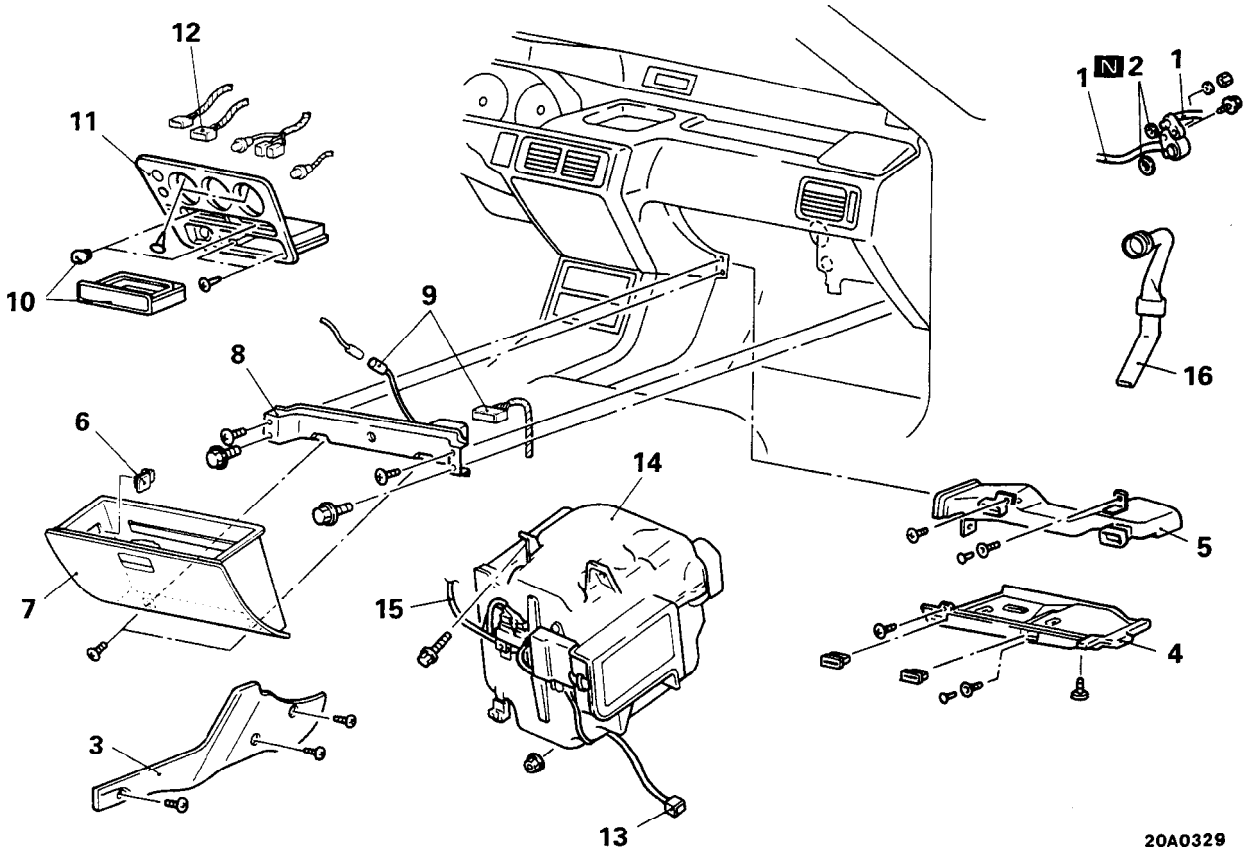
Before installing the blower motor and fan assembly, carefully clean away any dust, dirt, etc. adhering to the inner surface of the blower case.

TSB Revision

EVAPORATOR

M55RA--

REMOVAL AND INSTALLATION



Removal steps

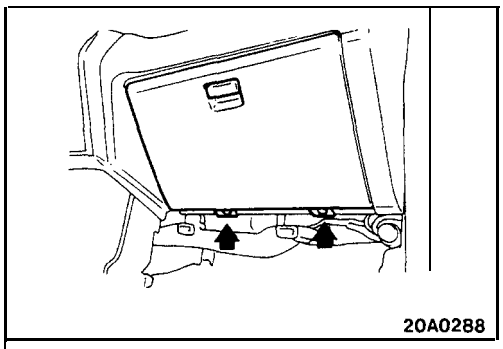
- ◆◆ ● ▣ 1. Liquid pipe and suction hose connection
- 2. O-rings
- 3. Instrument panel side cover
- 4. Under cover
- 5. Foot shower duct
- 6. Stopper
- ◆◆ 7. Glove box
- 8. Glove box frame
- 9. Connector for MFI control relay and connector for glove box switch
- 10. Ashtray and knobs
- 11. Heater control panel
- 12. Air conditioning switch connector
- 13. Body wiring harness and air conditioning wiring harness connection
- ◆◆ 14. Evaporator
- 15. Air conditioning wiring harness
- 16. Drain hose

Pre-removal Operation
- ●Discharge of Refrigerant (Refer to P.55-20.)

*Charging of Refrigerant (Refer to P.55-17.)
- ● Checking for Refrigerant Gas Leakage
@Performance Test (Refer to P.55-21.)

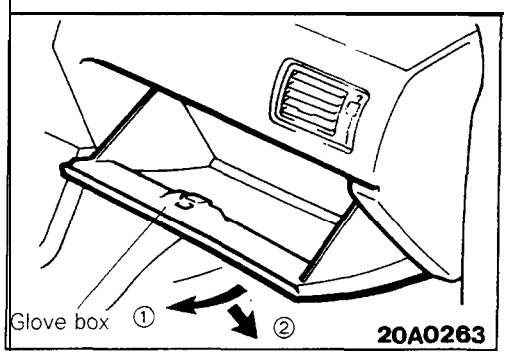
SERVICE POINTS OF REMOVAL M55RBAF

1. DISCONNECTION OF LIQUID PIPE AND SUCTION HOSE

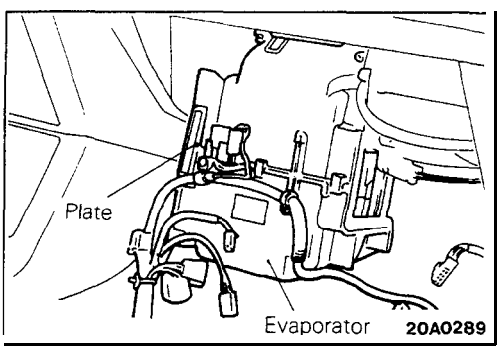


7. REMOVAL OF GLOVE BOX

(1) After removing the stopper, remove the glove box installation screws.



(2) Pull ① the glove box right side toward you, and then remove ② the glove box from the instrument panel.



14. REMOVAL OF EVAPORATOR

(1) Remove the evaporator's plate.
(2) Clear the instrument panel at the notched part of the evaporator (after the plate has been removed), and then remove the evaporator.

Caution
Do this work carefully so as not to damage the insulator.

INSPECTION M55RCAA

- Check for damage of the evaporator fin part.
- Check for damage or collapse of the drain hose.
- Check for peeling or cracking of the insulator.

AIR-THERMOSTAT SENSOR AND AIR-INLET SENSOR CHECK

For information concerning the checking procedures, refer to P.55-16.

SERVICE POINTS OF INSTALLATION M55RDAK

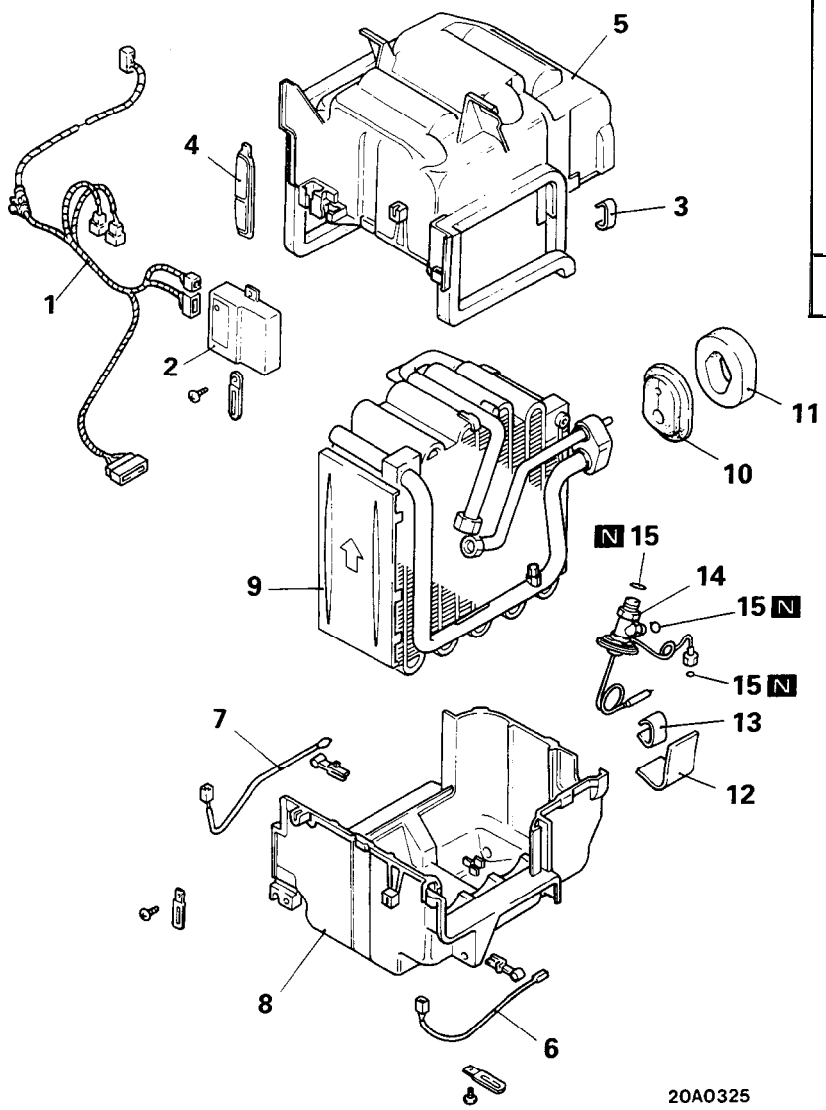
1. INSTALLATION OF LIQUID PIPE AND SUCTION HOSE

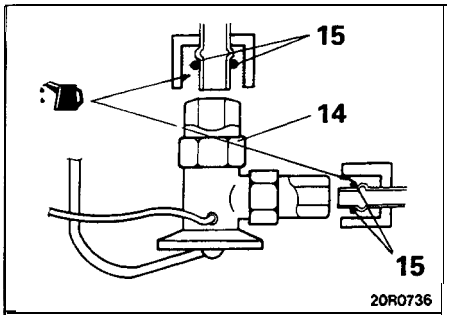
For information concerning the installation procedures, refer to P.55-22.

TSB Revision

DISASSEMBLY AND REASSEMBLY

M55RE--



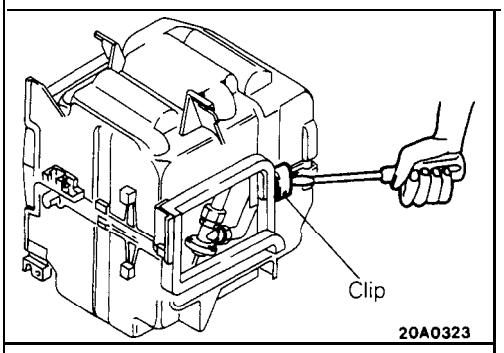


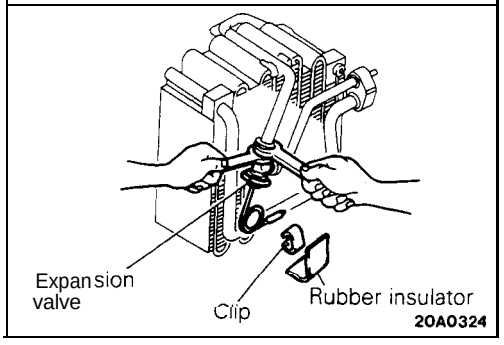
Compressor oil:
FREOL S-83 or SUNISO 5GS

Disassembly steps

1. Wiring harness
2. Auto compressor control unit
◆◆ 3. Clips
4. Plate
5. Evaporater case (upper)
6. Air inlet sensor
7. Air thermo sensor
8. Evaporater case (lower)
9. Evaporater assembly
10. Grommet
11. Insulator
12. Rubber insulator
13. Clip
◆◆ 14. Expansion valve
15. 0 ring

TSB Revision





SERVICE POINTS OF DISASSEMBLY M55RFAE

3. REMOVAL OF CLIPS

Remove the clips with a flat-blade screwdriver covered with a shop towel to prevent damage to case surfaces.

14. REMOVAL OF EXPANSION VALVE

Loosen the flare nut by using two wrenches. (for both the inlet and outlet.)

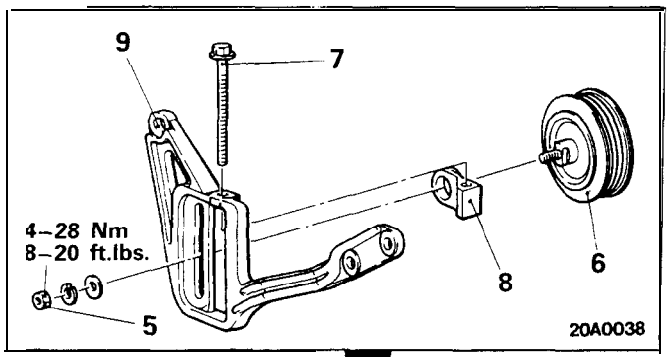
COMPRESSOR

M55SA--

REMOVAL AND INSTALLATION

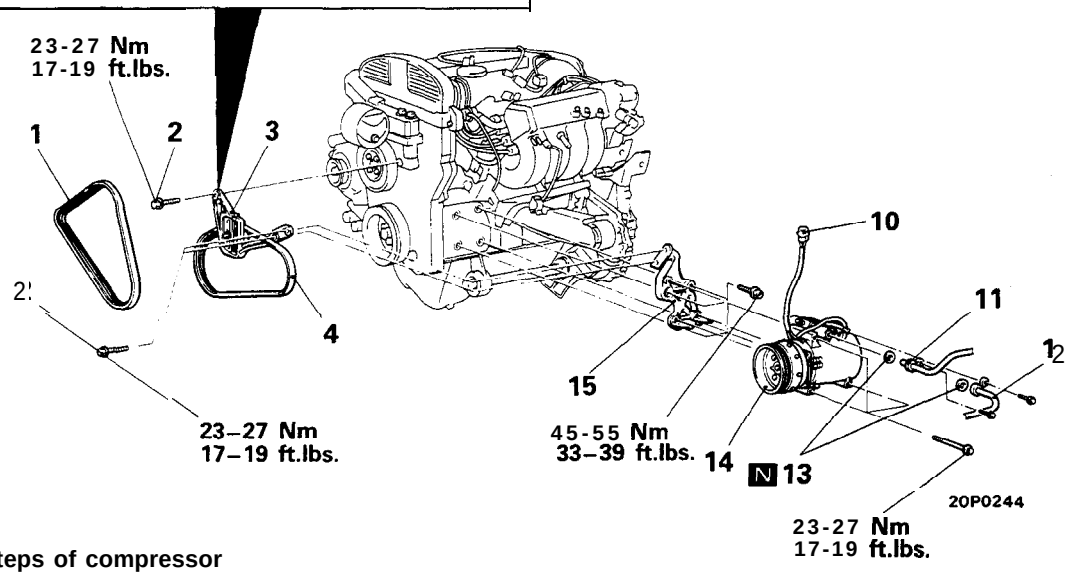
Pre-removal Operation
*Discharge of Refrigerant
(Refer to P.55-20.)
*Removal of Center Bearing Bracket Mounting Bolt <AWD>
(Refer to GROUP 26–Drive Shaft.)

Post-installation Operation
*Installation of Center Bearing Bracket Mounting Bolt <AWD>
(Refer to GROUP 26–Drive Shaft.)
●Charging of Refrigerant
(Refer to P.55-17.)
*Adjustment of the Compressor Drive Belt
(Refer to P.55-17.)
*Checking for Gas Leakage
*Performance Test
(Refer to P.55-21.)



Removal steps of compressor drive belt and tension pulley

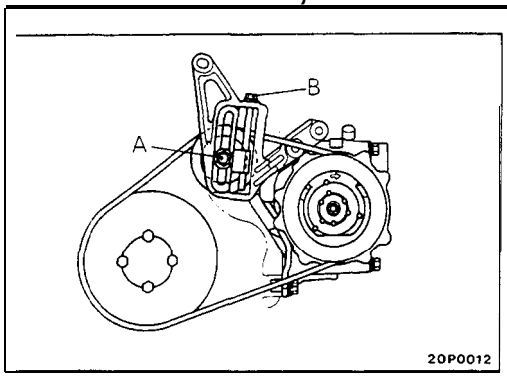
1. Generator drive belt
◆◆ 2. Tension pulley assembly installation bolt
● + 3. Tension pulley assembly
● + 4. Compressor drive belt
5. Nut
6. Tension pulley
7. Bolt
8. Adjust plate
9. Tension pulley bracket



Removal steps of compressor

1. Generator drive belt
◆◆ 2. Tension pulley assembly installation bolt
◆◆ 3. Tension pulley assembly
◆◆ 4. Compressor drive belt
10. Compressor harness connector
◆◆ 11. Suction hose connection
(Refer to P.55-22.)
12. Liquid hose connection
(Refer to P.55-22.)
13. O-rings
(Refer to P.55-22.)
● *● + 14. Compressor
15. Compressor bracket

TSB Revision



SERVICE POINTS OF REMOVAL M55SBAA

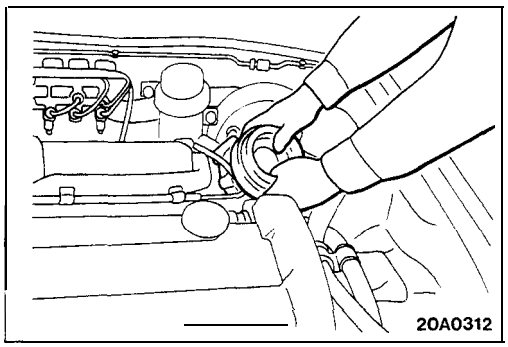
2. REMOVAL OF TENSION PULLEY ASSEMBLY INSTALLATION BOLTS

(1) After loosening nut A (for holding the tension pulley), loosen bolt B (for adjustment) and reduce the tension of the compressor drive belt to zero.

(2) Remove the tension pulley assembly installation bolts, and then remove the tension pulley assembly together with the compressor drive belt.

11. REMOVAL OF SUCTION HOSE CONNECTION

Plug the disconnected hose and the compressor opening to prevent dust, dirt and other foreign material from entering.



14. REMOVAL OF COMPRESSOR

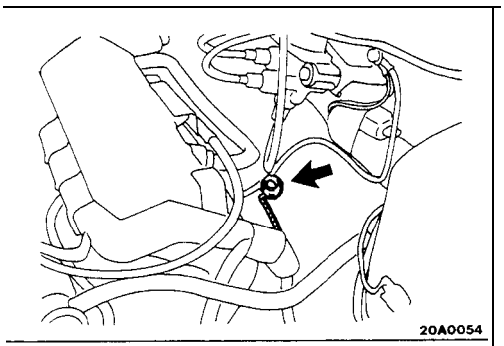
This work must be done carefully so as not to spill the compressor oil.

TSB Revision

INSPECTION

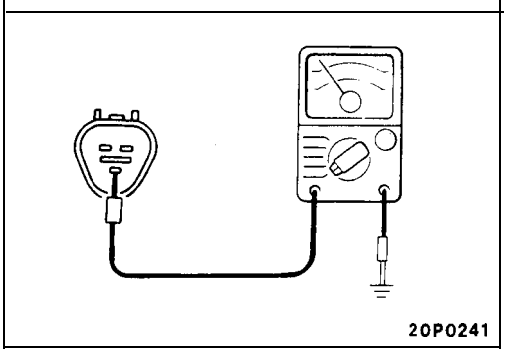
M55SCAA

- Checking for heat damage of the tension pulley.
- Check for excessive play or deflection of the tension pulley.
- Check for unusual wear of the tension pulley.
- Check for hardening of the air conditioning belt.
- Check for unusual wear or abrasion of the air conditioning belt.

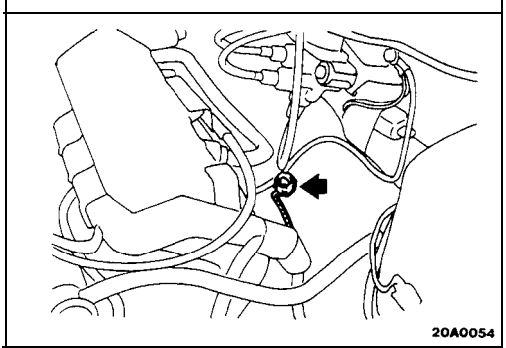


. CONTINUITY CHECK OF THE COMPRESSOR'S MAGNETIC CLUTCH

(1) Disconnect the compressor's connector.

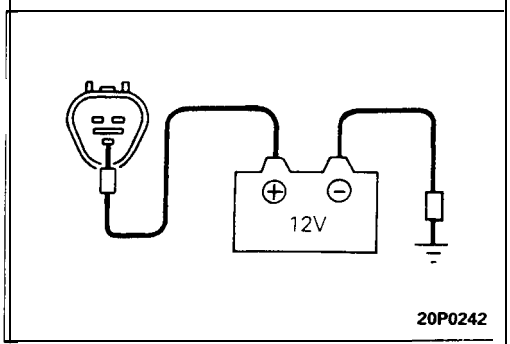


(2) Check to be sure that there is continuity between body ground and terminal ① at the compressor side.



. OPERATION CHECK OF THE COMPRESSOR'S MAGNETIC CLUTCH

(1) Disconnect the compressor's connector



(2) Connect terminal ① at the compressor side to the positive (+) terminal of the battery, and ground the negative (–) terminal of the battery to the compressor.

(3) The condition of the compressor's magnetic clutch can be considered satisfactory if the operation sound (a "click" sound) of the magnetic clutch can be heard when this check is made.

TSB Revision

SERVICE POINTS OF INSTALLATION M55SDAA

14. INSTALLATION OF COMPRESSOR

If a new compressor is installed, first adjust the amount of oil according to the procedures described below, and then install the compressor.

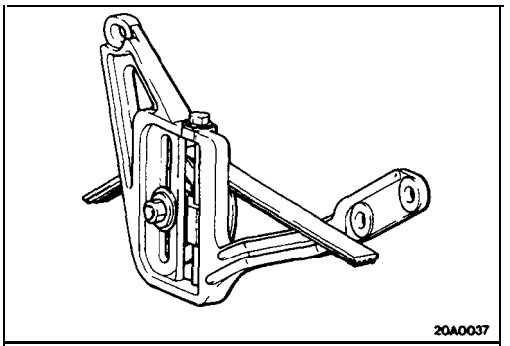
(1) Measure the amount (X cm^3) of oil within the removed compressor.

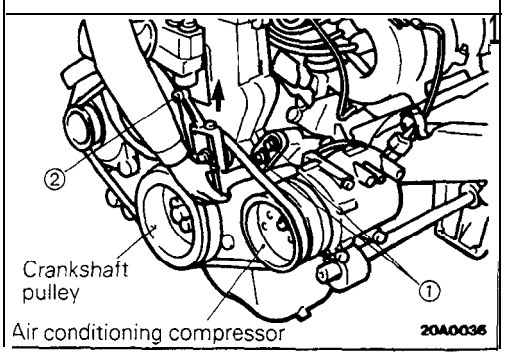
(2) Wipe away (from the new compressor) the amount of oil calculated according to the following formula, and then install the new compressor.

New compressor oil amount 150 cm^3 (9.1 cu.in.)– X cm^3 = Y cm^3

NOTE

Y cm^3 indicates the amount of oil in the refrigerant line, the condenser, the cooling unit, etc.





4. INSTALLATION OF COMPRESSOR DRIVE BELT/S. TENSION PULLEY ASSEMBLY INSTALLATION BOLT

(1) Attach the compressor drive belt to the tension pulley assembly as shown in the figure.

(2) Attach the compressor drive belt to the crankshaft pulley and the compressor's pulley, and then install the tension pulley assembly.

NOTE

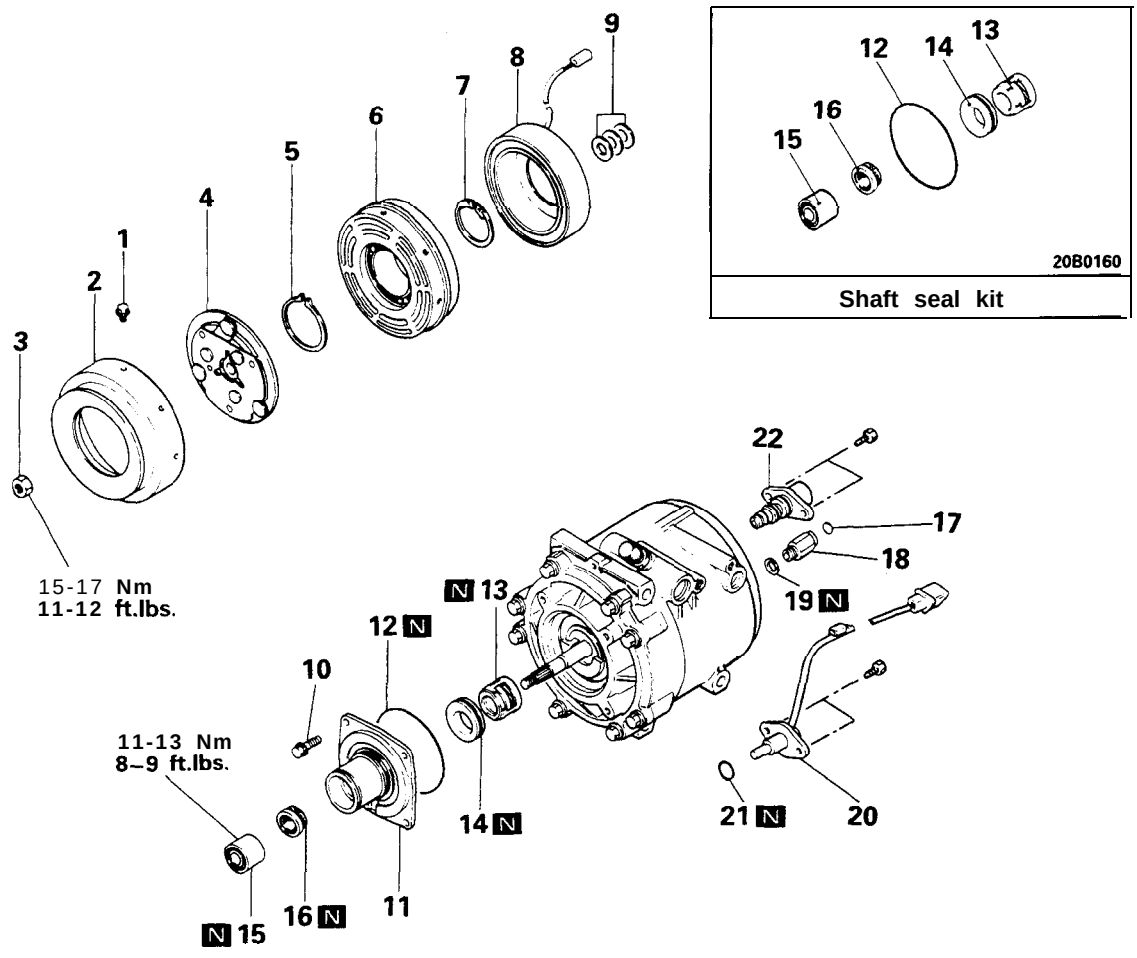
(1) Hold the tension pulley assembly so that the compressor drive belt does not slip out of place; and while doing so install the tension pulley assembly.

(2) Install the tension pulley assembly installation bolts in the ① → ② sequence.

TSB Revision

DISASSEMBLY AND REASSEMBLY

M55SE--



Magnetic clutch disassembly steps

1. Bolts
2. Pulley
3. Nut
4. Armature plate
5. Snap ring
6. Rotor
7. Snap ring
8. Clutch coil
9. Shims

Shaft seal disassembly steps

10. Bolts
11. Front housing
12. O-ring
13. Shaft seal
14. Seal plate
15. Bearing
16. Felt

High pressure relief valve disassembly steps

17. Dust cover
18. High pressure relief valve
19. Packing

Shaft seal reassembly steps

13. Shaft seal
14. Seal plate
12. O-ring
11. Front housing
16. Felt
15. Bearing

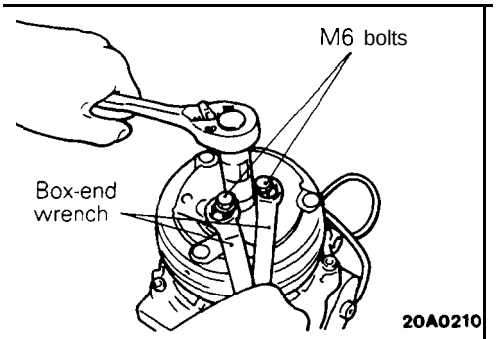
Refrigerant temperature sensor disassembly steps

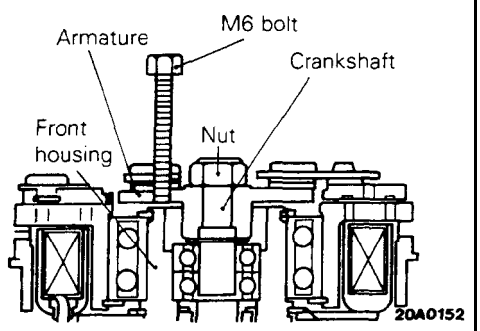
20. Refrigerant temperatue sensor
21. O-ring

Control valve disassembly

22. Control valve

NOTE
Reverse the disassembly procedures to reassemble all the parts except the shaft seal

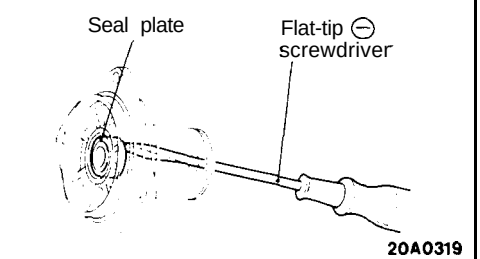


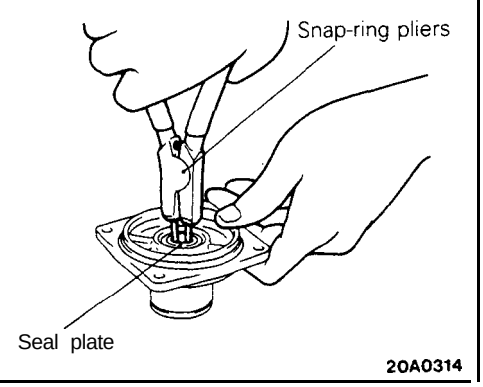


SERVICE POINTS OF DISASSEMBLY M55SFAB

3. REMOVAL OF NUT

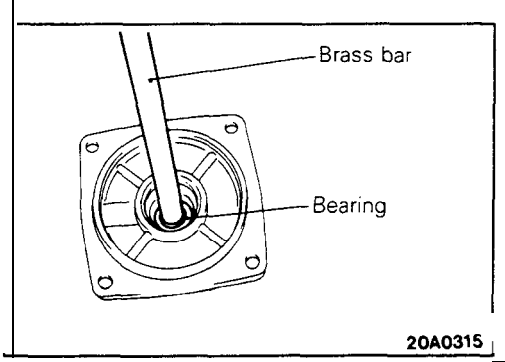
(1) Provisionally install two M6 bolts [length 25 mm (.98 in.) or longer] in the bolt holes of the armature plate.
NOTE
Provisionally install the M6 bolts in the armature plate so that the ends of the M6 bolts do not contact the front housing.
(2) Use box-end wrenches to hold the provisionally installed bolts (so as to prevent the armature plate from turning), and then remove the nut.
(3) Remove the armature plate from the crankshaft.





14. REMOVAL OF SEAL PLATE

Use a flat-tip ⊖ screwdriver or snap-ring pliers to remove the seal plate from the front housing.



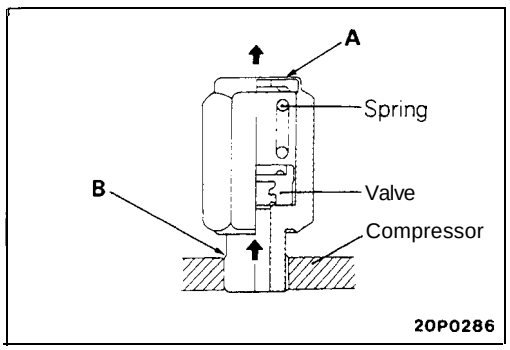
15. REMOVAL OF BEARING

Use a brass bar to remove the bearing from the front housing.

INSPECTION

M55TGAF

- Check the surface of the armature for scoring or bluing.
- Check the surface of the rotor for scoring or bluing.
- Check the sealing surfaces for cracks, scratches and deformation.
- Check the front housing for cracks or scoring on the sealing surfaces.
- Check the compressor shaft for scoring.



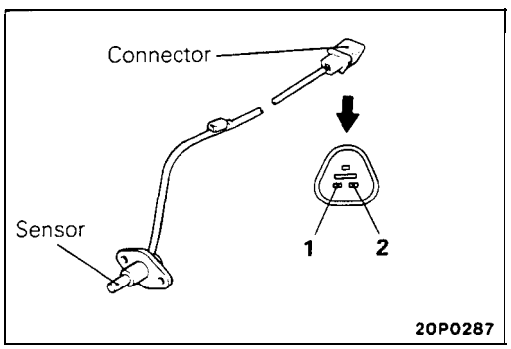
HIGH PRESSURE RELIEF VALVE CHECK

The high pressure relief valve is a safety feature which releases part of the refrigerant inside the system into the atmosphere when the high pressure level exceeds 3,550 kPa (505 psi) during air conditioning operation.

Once the pressure inside the system has been reduced to 2,400 kPa (341 psi) or lower, the high pressure relief valve closes, thus allowing continued operation.

(1) If a leak is detected at section A, replace the high pressure relief valve. The valve can be used unless there is a leak from that section.

(2) If a leak is detected at section B, retighten the valve. If the leak still persists after retightening the valve, replace the packing.



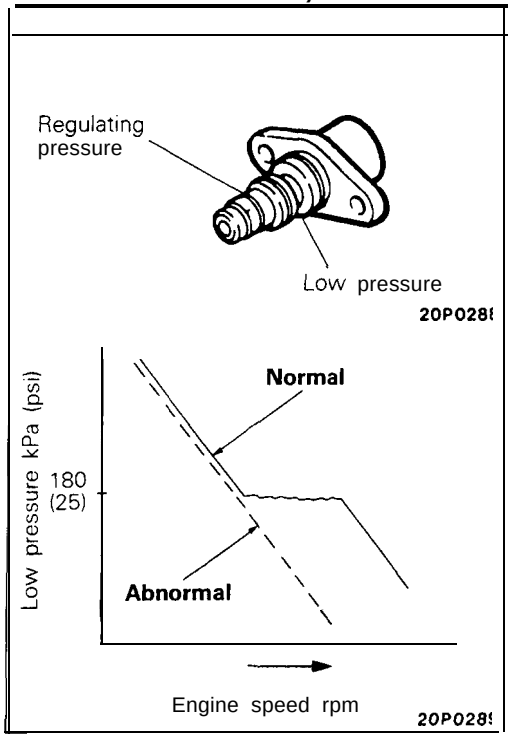
REFRIGERANT TEMPERATURE SENSOR CHECK

The refrigerant temperature sensor detects the temperature of the refrigerant delivered from the compressor during the operation of the air conditioning, and deenergizes the magnetic clutch to stop the compressor when the temperature exceeds 175°C (347°F), due to a problem in the system.

(1) Measure the resistance between terminals ① and ② of the connector.

Normal resistance: 80.47 kΩ when ambient temperature is 25°C (77°F)

If the measurement deviates greatly from the above resistance, replace the refrigerant temperature sensor assembly.



CONTROL VALVE CHECK

The control valve detects a low pressure level during the operation of the air conditioning and adjusts the amount of refrigerant to be bypassed.

(1) Operate the air conditioning under a high temperature load condition (when vehicle interior temperature is high).
(2) Connect a low pressure gauge to the air compressor.
(3) Operate the air conditioning with the engine running at idle.
(4) Gradually increase the engine speed while observing the low pressure gauge.

If the valve is normal, the low pressure drops slowly as the engine speed increases until a pressure of 180 kPa (25 psi) is reached, at which point the pressure temporarily ceases to drop. Then, the pressure again starts dropping as the engine speed further increases.

If the valve is abnormal, the low prssure drops in direct proportion to the increase in engine speed without a temporary leveling off at the 180 kPa (25 psi) pressure level.

If the low pressure drops like this, replace the control valve.

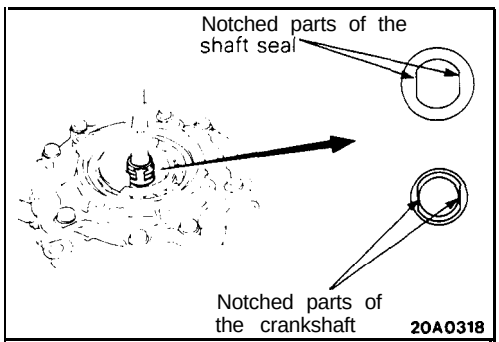
SERVICE POINTS OF REASSEMBLY M55SHAB

13. INSTALLATION OF SHAFT SEAL

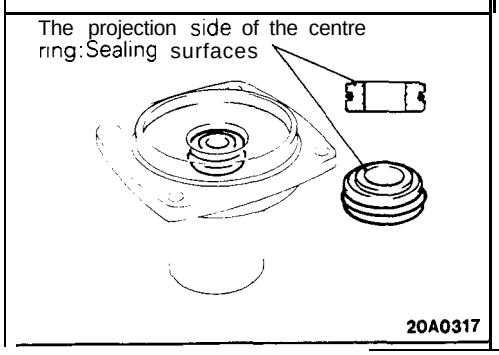
Caution
Do not touch the sealing surfaces of shaft seal carbon ring and shaft seal plate.

(1) Lubricate the shaft seal with specified compressor oil.

Specified compressor oil:
FREOL S-83 or SUNISO 5GS



(2) Align the notched parts of the shaft seal with the notched parts of the crankshaft, and then install the shaft seal onto the crankshaft, positioning at the base of the crankshaft.



14. INSTALLATION OF SEAL PLATE

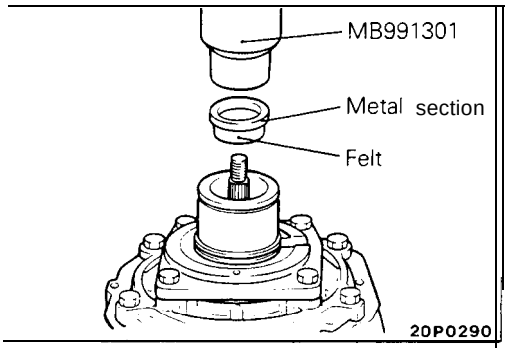
Caution
Do not touch the sealing surfaces of shaft seal carbon ring and shaft seal plate.

(1) Lubricate the seal plate with specified compressor oil.

Specified compressor oil:
FREOL S-83 or SUNISO 5GS

(2) Install the shaft seal plate to the front housing so that the surface (the projection side of the centre ring) of the shaft seal plate is at the shaft seal side.

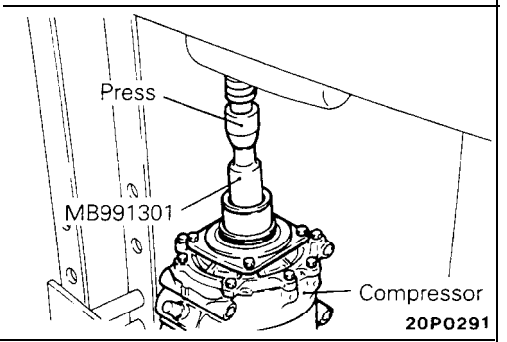
TSB Revision



16. INSTALLATION OF FELT

Using the special tool, insert the felt into the front housing.

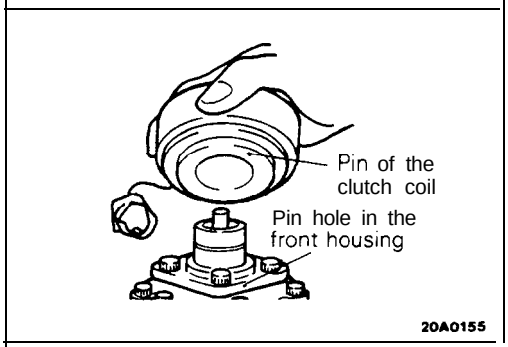
NOTE
Install the felt with its metal section facing as shown.



15. INSTALLATION OF BEARING

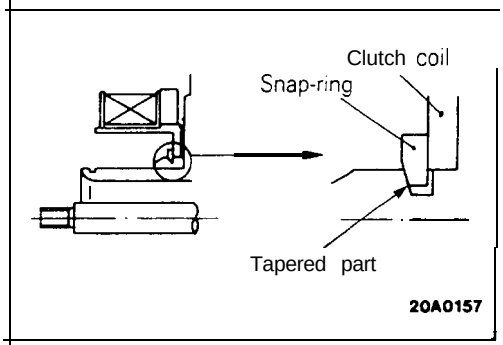
Using the special tool and a press, force the bearing into the front housing.

Caution
(1) Avoid applying force suddenly to the compressor body.
(2) Set up the compressor in the press so that no force is applied to the sensor or valves.

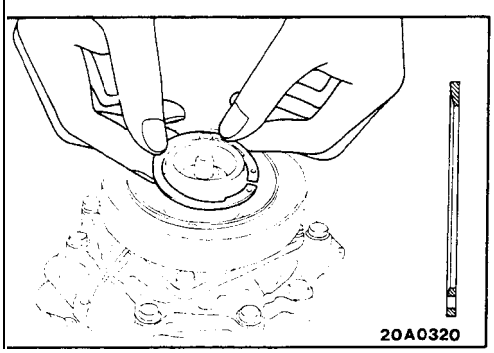


8. INSTALLATION OF CLUTCH COIL

(1) Align the pin of the clutch coil with the pin hole in the front housing, and then fit it into the hole.



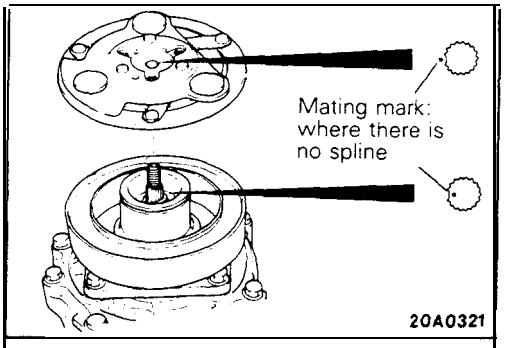
(2) Install the snap ring so that the tapered surface is at the outer side.



6. INSTALLATION OF ROTOR

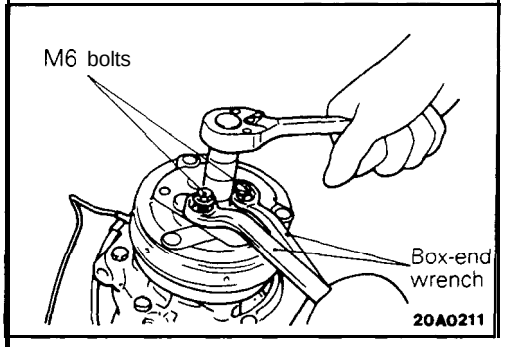
install the snap ring so that the tapered surface is at the outer side.

TSB Revision



4. INSTALLATION OF ARMATURE PLATE

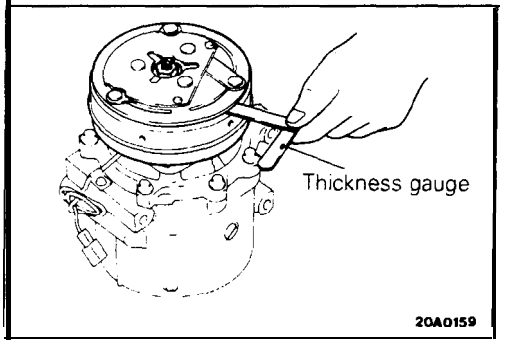
Align the mating mark of the crankshaft spline and the mating mark of the armature plate, and then fit them together



3. INSTALLATION OF NUT

(1) Provisionally install two M6 bolts [length 25 mm (.98 in or longer] in the bolt holes of the armature plate.
NOTE
Provisionally install the M6 bolts in the armature plate so that the ends of the M6 bolts do not contact the front housing.

(2) Use box-end wrenches to hold the provisionally installed bolts (so as to prevent the armature plate from turning), and then tighten the nut.



(3) Check whether or not the air gap of the clutch is within the standard value.
Standard value: 0.4–0.6 mm (.015–.023 in.)
NOTE
If there is a deviation of the air gap from the standard value, make the necessary adjustment by adjusting the number of shims.

CONDENSER AND CONDENSER FAN MOTOR

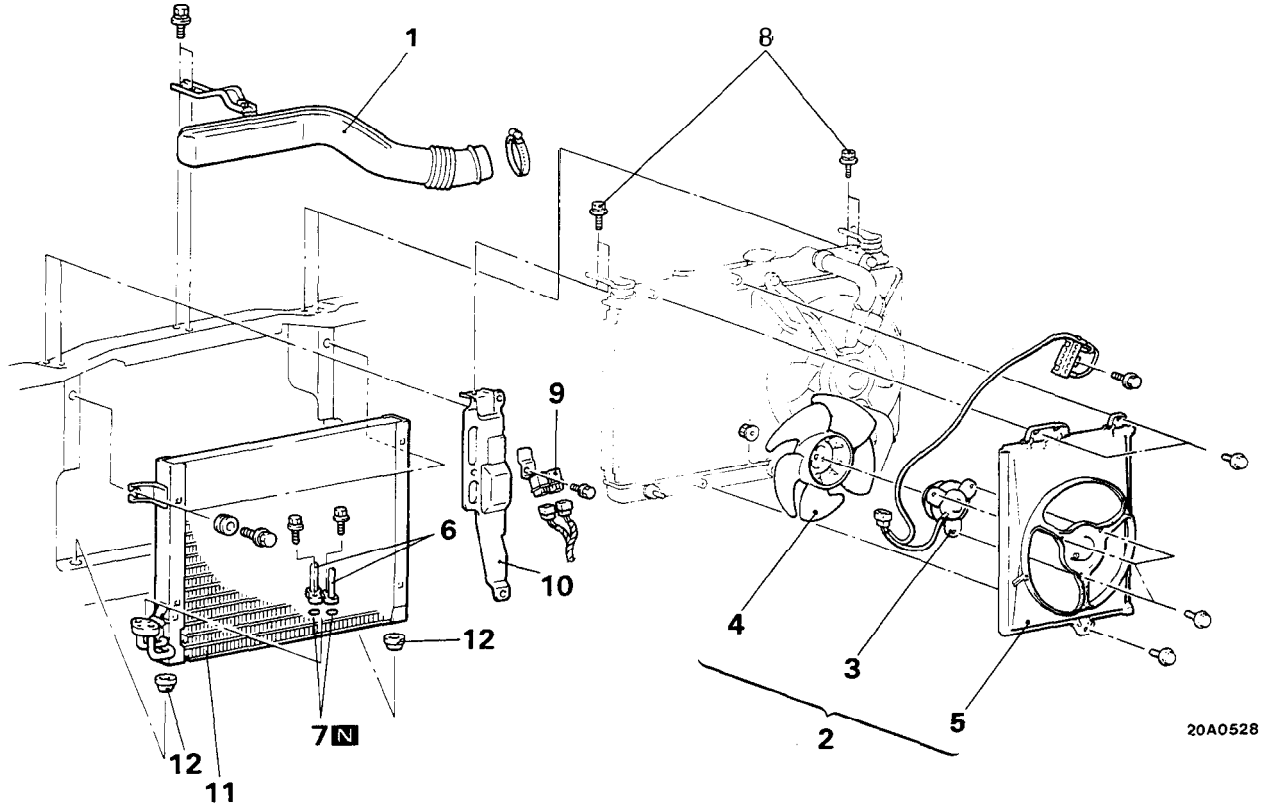
M55TA--

REMOVAL AND INSTALLATION

<Non-Turbo (FWD, AWD-M/T)>

Pre-removal Operation of Condenser
- Discharge of Refrigerant (Refer to P.55-20.)

Post-installation Operation of Condenser
- Charging of Refrigerant (Refer to P.55-17.)
- Checking for Gas Leakage
- Performance Test (Refer to P.55-21.)



Condenser fan removal steps

1. Branch tube
2. Condenser fan motor
3. Motor and resistor assembly
4. Fan
5. Shroud

Removal of condenser

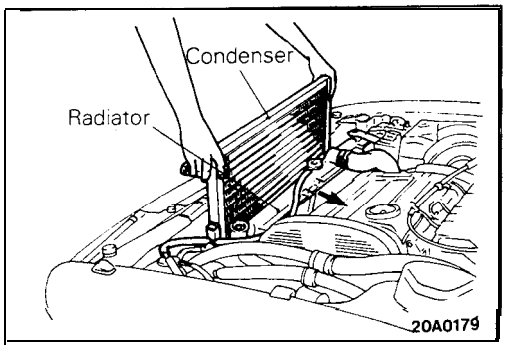
1. Branch tube
2. Condenser fan motor
◆◆ 6. Liquid pipe and liquid hose connection (Refer to P.55-22.)
7. O-rings
8. Insulator installation bolts
9. Power relay assembly
10. Front end cover
◆◆ 11. Condenser
12. Bushings

TSB Revision

SERVICE POINTS OF REMOVAL M55TBAC

6. REMOVAL OF LIQUID PIPE AND LIQUID HOSE CONNECTION

Plug the disconnected hose and pipes and the openings of the condenser in order to prevent dust, dirt and other foreign materials from entering.

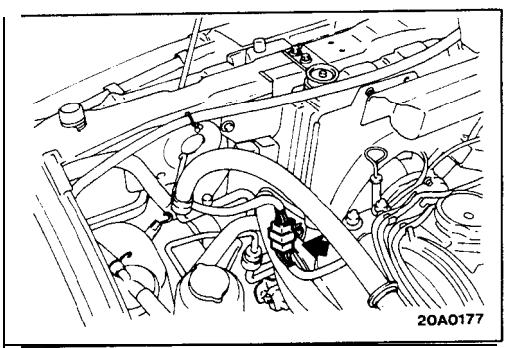


11. REMOVAL OF CONDENSER

Move the radiator toward the engine, and then remove the condenser upward.

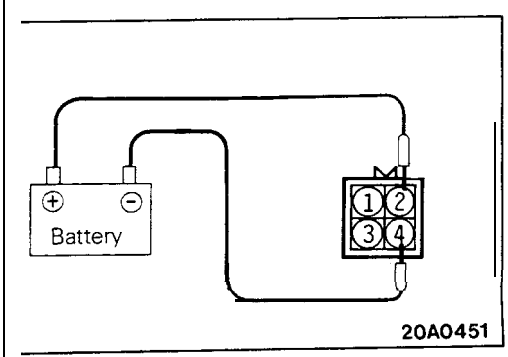
INSPECTION M55TCAG

- Check the condenser fin for crushing or other damage.
- Check the condenser's high-pressure hose and pipe installation parts for damage or deformation.
- Check the condenser fan shroud for damage.



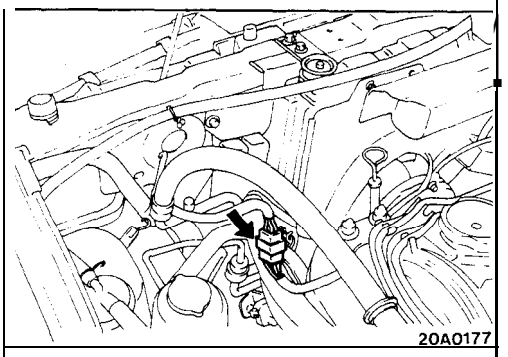
. CONDENSER FAN MOTOR CHECK

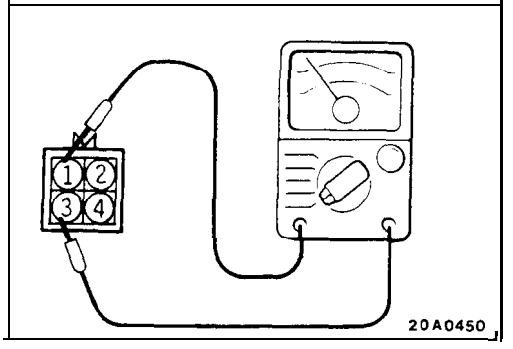
(1) Disconnect the connection of the connector for the condenser fan motor.



(2) Check to be sure that the condenser fan motor operates when battery voltage is applied to terminal ② and terminal ④ is grounded.

TSB Revision





. RESISTOR CHECK

(1) Disconnect the connection of the connector for the resistor, and then measure the resistance between terminals.

(2) The condition can be considered satisfactory if the measured resistance is within the range noted below.

Standard value: 0.6Ω ±10%

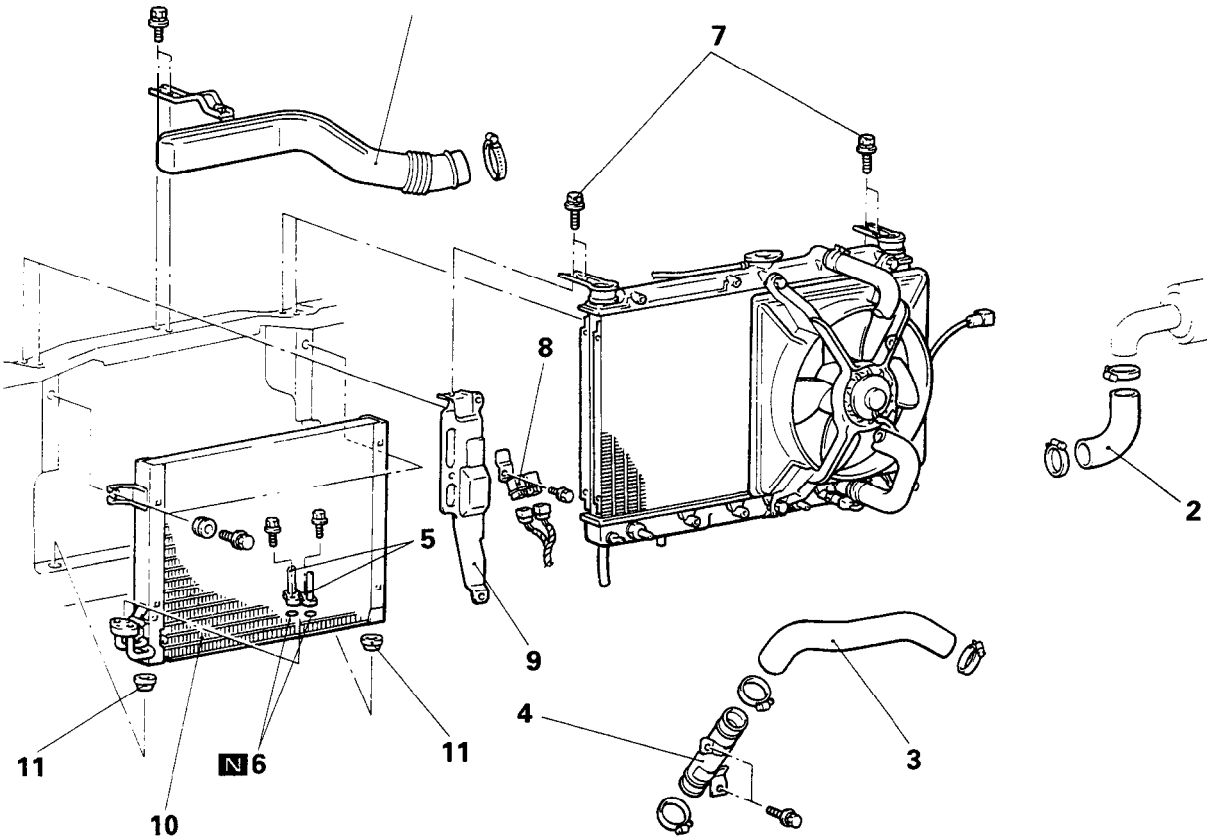
TSB Revision

<Non-Turbo (AWD-A/T), Turbo>

M55TA--a

Pre-removal Operation of Condenser
- Discharge of Refrigerant (Refer to P.55-20.)

Post-installation Operation of Condenser
- Charging of Refrigerant (Refer to P.55-17.)
- Checking for Gas Leakage
*Performance Test (Refer to P.55-21.)

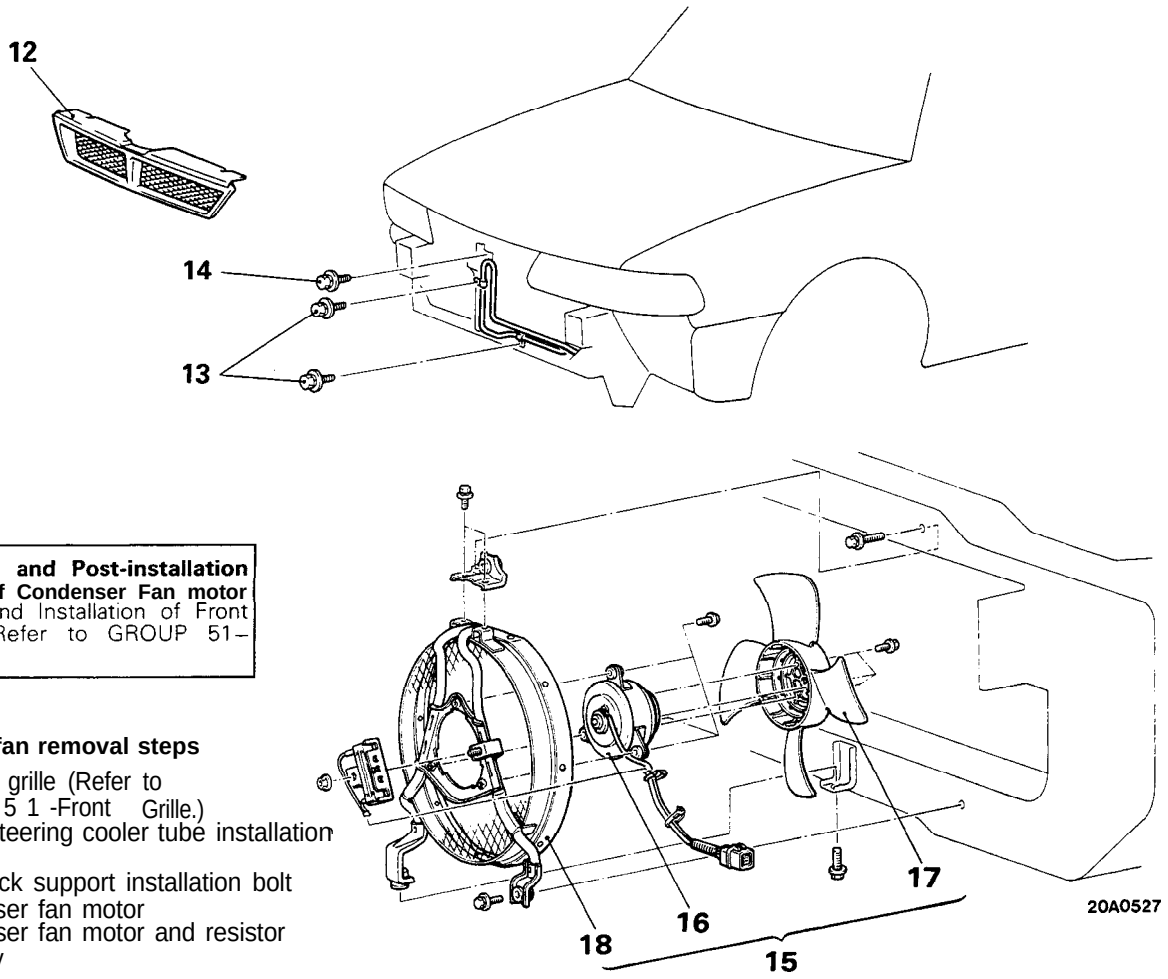


20A0209

Removal of condenser

1. Branch tube <Non-Turbo>
2. Air duct <Turbo>
3. Air hose <Turbo>
4. Air pipe <Turbo>
◆◆ 5. Liquid pipe and liquid hose connection (Refer to P.55-22.)
6. O-rings
7. Insulator installation bolts
8. Power relay assembly
9. Front end cover
◆◆ 10. Condenser
11. Bushings

TSB Revision



Pre-removal and Post-installation Operation of Condenser Fan motor
- Removal and Installation of Front Bumper (Refer to GROUP 51– Bumper.)

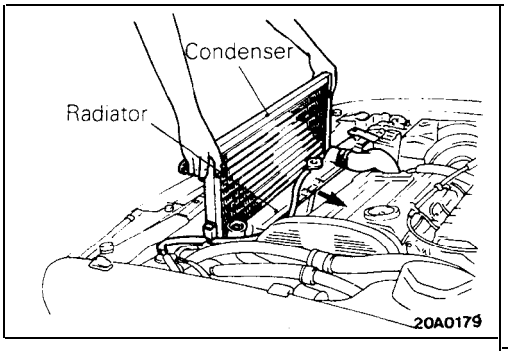
Condenser fan removal steps

12. Radiator grille (Refer to GROUP 5 1 -Front Grille.)
13. Power steering cooler tube installation bolts
14. Hood lock support installation bolt
15. Condenser fan motor
16. Condenser fan motor and resistor assembly
17. Fan
18. Shroud

SERVICE POINTS OF REMOVAL M55TBAC

5. REMOVAL OF LIQUID PIPE AND LIQUID HOSE CONNECTION

Plug the disconnected hose and pipes and the openings of the condenser in order to prevent dust, dirt and other foreign materials from entering.



10. REMOVAL OF CONDENSER

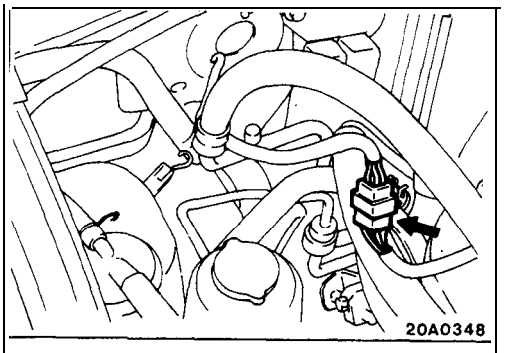
Move the radiator toward the engine, and then remove the condenser upward.

TSB Revision

INSPECTION

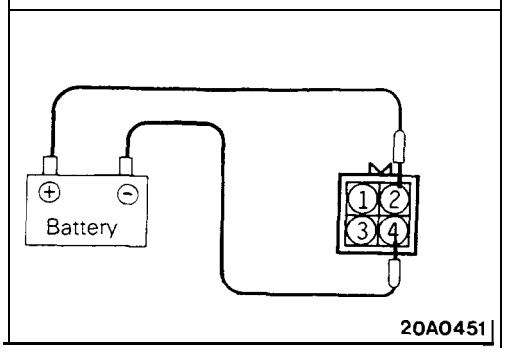
M55TCAG

- Check the condenser fin for crushing or other damage.
- Check the condenser's high-pressure hose and pipe installation parts for damage or deformation.
- Check the condenser fan shroud for damage.

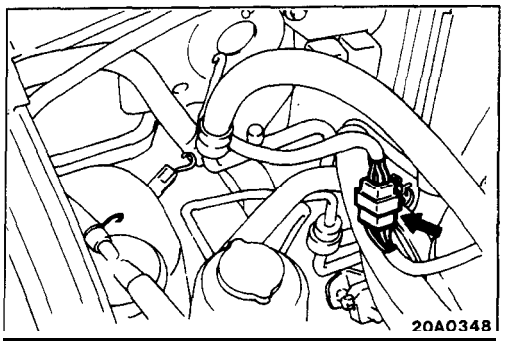


. CONDENSER FAN MOTOR CHECK

(1) Disconnect the connection of the connector for the condenser fan motor.

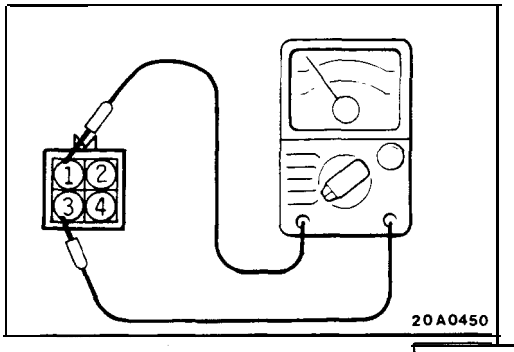


(2) Check to be sure that the condenser fan motor operates when battery voltage is applied to terminal ② and terminal ④ is grounded.



. RESISTOR CHECK

(1) Disconnect the connection of the connector for the resistor, and then measure the resistance between terminals.



(2) The condition can be considered satisfactory if the measured resistance is within the range noted below.

Standard value: 0.6Ω ± 10%

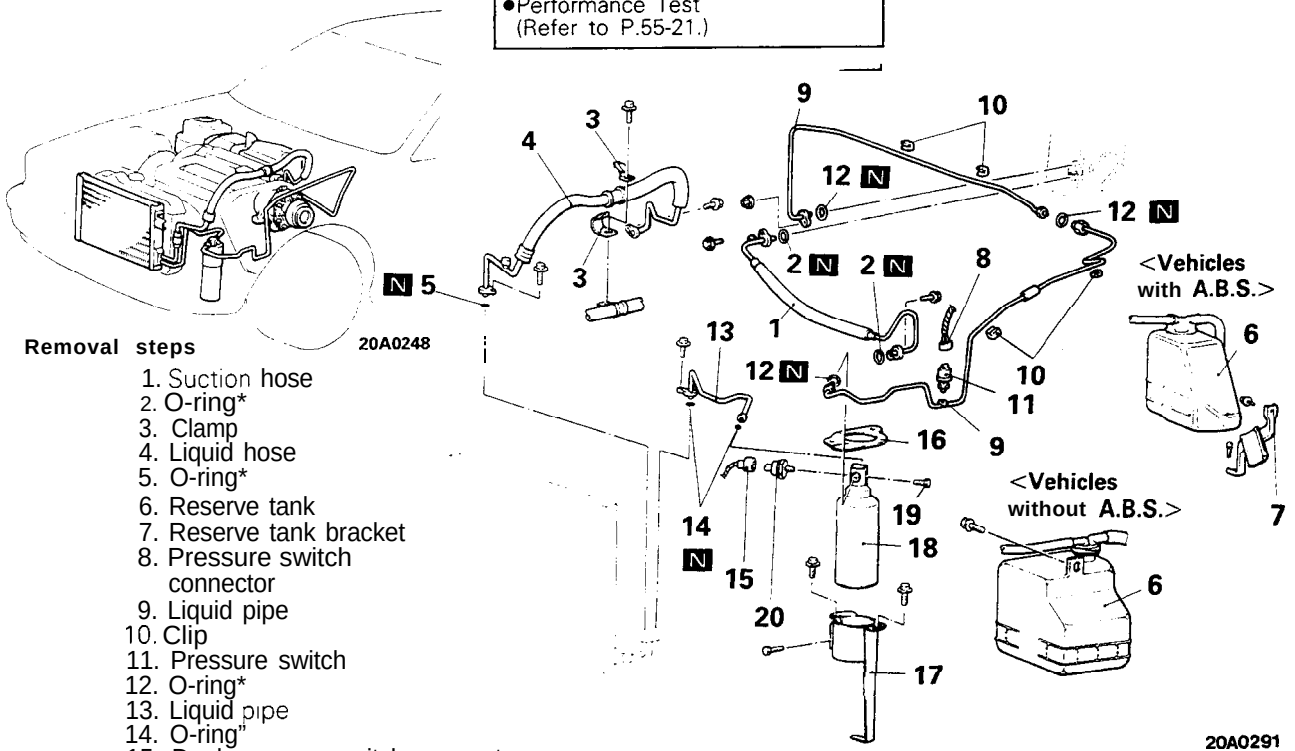
TSB Revision

REFRIGERANT LINE

M55UA--

Pre-removal Operation
- Discharge of Refrigerant (Refer to P.55-20.)

Post-installation Operation
- Charging of Refrigerant (Refer to P.55-17.)
- Checking for Gas Leakage
- Performance Test (Refer to P.55-21.)



Removal steps

1. Suction hose
2. O-ring*
3. Clamp
4. Liquid hose
5. O-ring*
6. Reserve tank
7. Reserve tank bracket
8. Pressure switch connector
9. Liquid pipe
10. Clip
11. Pressure switch
12. O-ring*
13. Liquid pipe
14. O-ring*
15. Dual-pressure switch connector
16. Receiver cover
17. Receiver bracket
18. ◆◆ Receiver
19. Meltable bolt
20. Dual-pressure switch

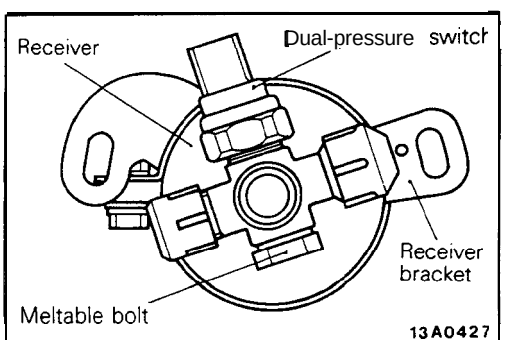
NOTE
(1) For information concerning O-rings indicated by the * symbol, refer to P.55-23.
(2) Plug the disconnected hose, pipe, etc. to prevent dust, dirt, foreign material, etc. from entering the openings.
(3) A.B.S.. Anti-lock braking system

INSPECTION

M55UCAB

- **CHECKING DUAL SWITCH AND THE PRESSURE SWITCH**

For information concerning the checking procedures of the dual switch and the pressure switch, refer to Service Adjustment Procedures on P.55-15.



SERVICE POINTS OF INSTALLATION

M55UDAB

18. INSTALLATION OF RECEIVER

Install the receiver to the receiver bracket so that the direction is indicated in the illustration.

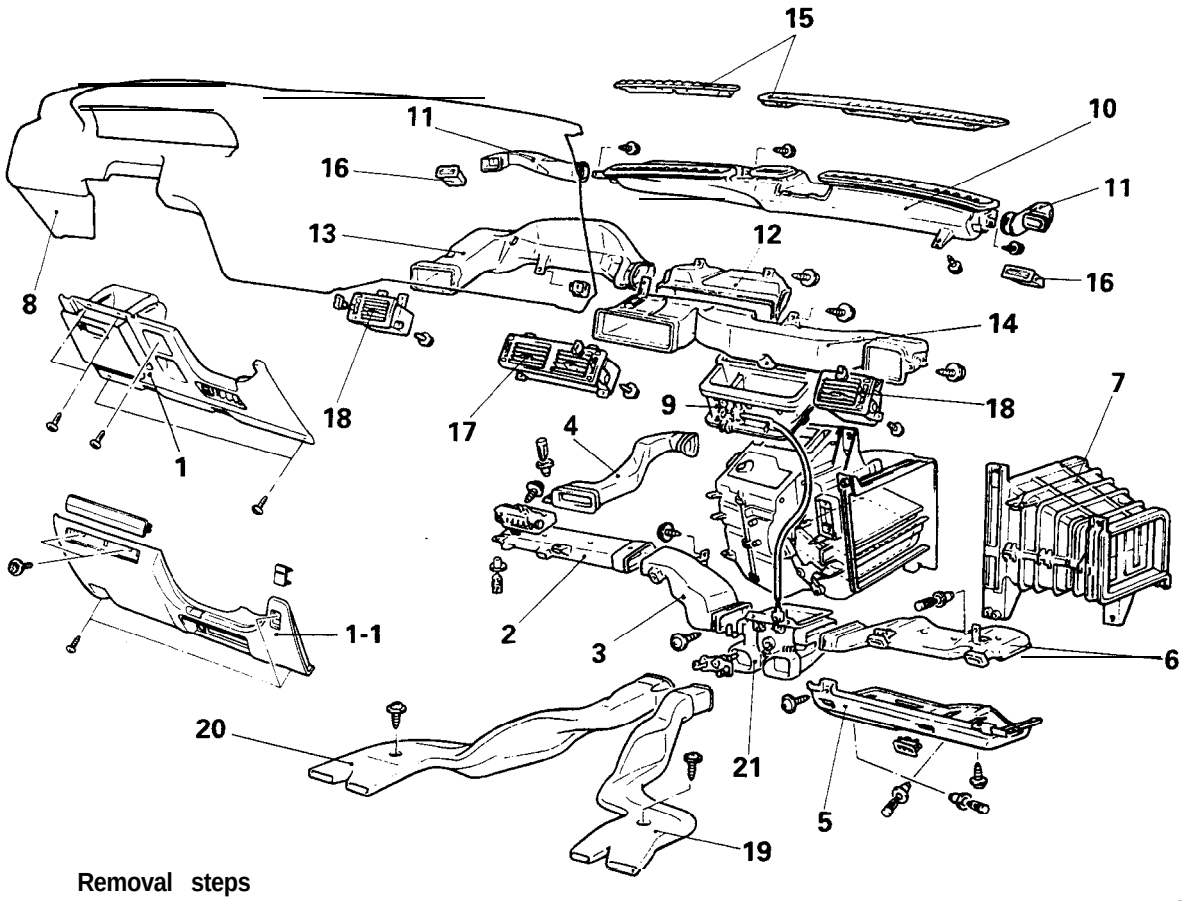
TSB Revision

VENTILATORS (INSTRUMENT PANEL AND FLOOR)

M55YA--

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
*Removal and Installation of Front Seat (Refer to GROUP 52–Front Seat.)
● Removal and Installation of Floor Console (Refer to GROUP 52–Floor Console.)
●Remove and Installation of Front Scuff Plate and the Cowl Side Trim, and then Pull up the Carpet (Refer to GROUP 52–Trim.)

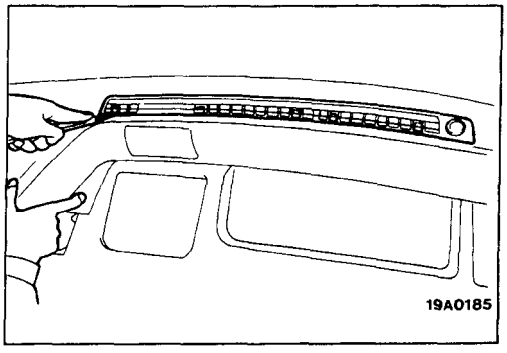


20A0293

Removal steps

1. Instrument panel under cover [1989 models] (Refer to GROUP 52–Instrument Panel.)
1-1. Knee protector [From 1990 models] (Refer to GROUP 52–Instrument Panel.)
2. Foot shower nozzle
3. Foot shower duct (right side)
4. Lap shower duct
5. Under cover
6. Foot shower duct (left side)
7. Duct <Vehicles without air conditioning>
8. Instrument panel
9. Center duct assembly
10. Defroster duct
11. Demister ducts
12. Distribution duct
13. Air duct A
14. Air duct B
15. Defroster garnishes
16. Demister outlets
17. Center outlet assembly
18. Side outlet assembly
19. Rear heater duct B
20. Rear heater duct C
21. Distribution duct assembly

TSB Revision



SERVICE POINTS OF REMOVAL

M55YBAB

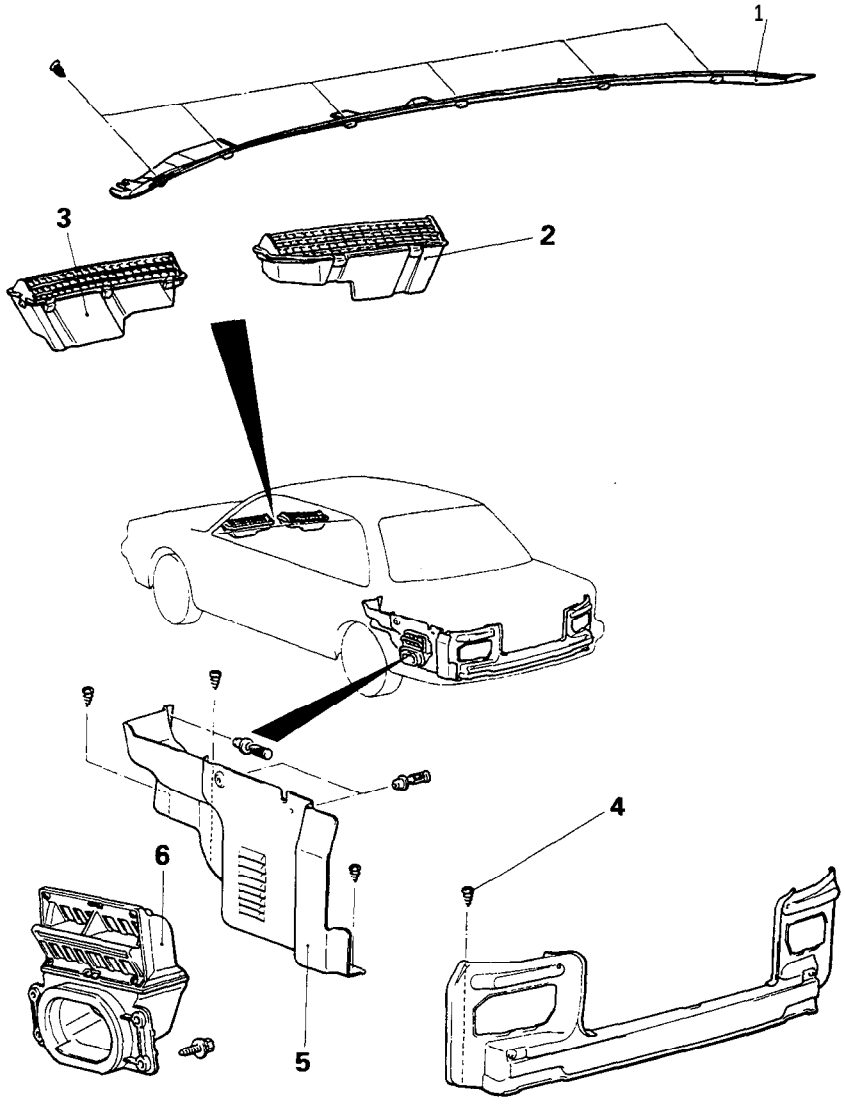
15. REMOVAL OF DEFROSTER GARNISHES

Using the trim stick, remove the defroster garnishes from the instrument panel.

VENTILATORS (AIR INLET AND AIR OUTLET)

M55YD--

REMOVAL AND INSTALLATION



20A0060

Inlet garnishes removal steps

1. Front deck garnish
2. Inlet garnish (right)
3. Inlet garnish (left)

Rear ventilation duct removal steps

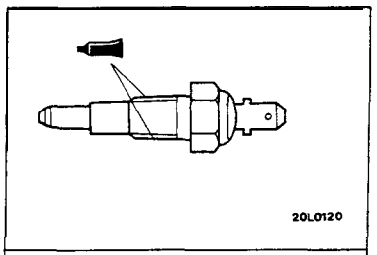
4. Rear trunk trim installation screw
5. Trunk side trim (left)
6. Rear ventilation duct

TSB Revision

ENGINE COOLANT TEMPERATURE SWITCH

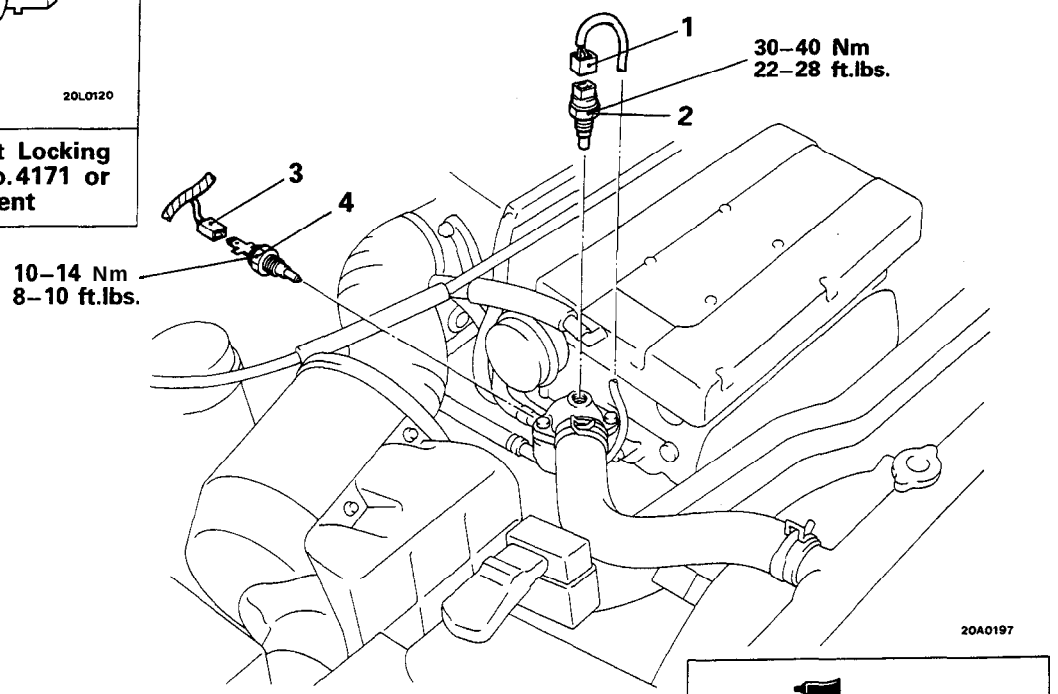
M55XA--

REMOVAL AND INSTALLATION

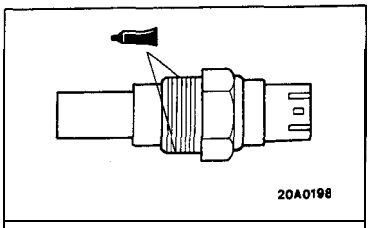


Sealant: 3M Nut Locking Part No.4171 or equivalent

Pre-removal and Post-installation Operation
- Draining and Refilling of Engine Coolant (Refer to GROUP 00–Maintenance Service.)



Removal steps
1. Air conditioning engine coolant temperature switch connector
2. Air conditioning engine coolant temperature switch (for compressor magnetic clutch)
3. Engine coolant temperature switch connector
4. Engine coolant temperature switch (for condenser fan motor)



Sealant: 3M Nut Locking Part No.4171 or equivalent

INSPECTION

M55XCAC

. AIR CONDITIONING ENGINE COOLANT TEMPERATURE SWITCH (for compressor magnetic clutch)

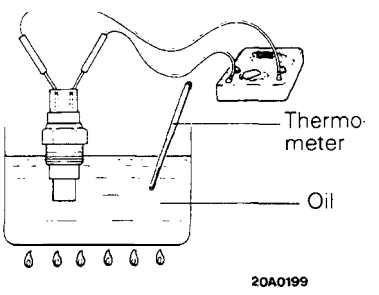
(1) Remove the air conditioning engine coolant temperature switch from the water outlet fitting.

(2) Immerse the air conditioning engine coolant temperature switch in oil and heat by a gas stove or similar method so as to increase the oil temperature.

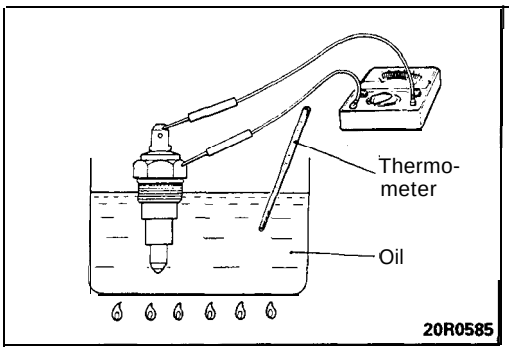
(3) Check to be sure that the air conditioning engine coolant temperature switch is switched OFF when the oil temperature reaches the standard value.

Standard value: 112–118°C (233–244°F)

Caution
Use engine oil for this test; stir it well while heating, and do not heat more than necessary.



TSB Revision



- **ENGINE COOLANT TEMPERATURE SWITCH (for condenser fan motor)**
  (1) Remove the engine coolant temperature switch from the water outlet fitting.
  (2) Immerse the engine coolant temperature switch in oil and heat by a gas stove or similar method so as to increase the oil temperature.
  (3) Check to be sure that the engine coolant temperature switch is switched ON when the oil temperature reaches the standard value.

  Standard value: 100–104°C (212–219°F)

  Caution
  Use engine oil for this test; stir it well while heating, and do not heat more than necessary.

TSB Revision

ENGINE ELECTRICAL

CONTENTS

M16AA--

CHARGING SYSTEM 2
GENERATOR 9
SERVICE ADJUSTMENT PROCEDURES 5
Charging System Inspection 5
SPECIFICATIONS 2
General Specifications 2
Service Specifications 2
TROUBLESHOOTING 3
IGNITION SYSTEM 32
DISTRIBUTOR 55
IGNITION SYSTEM 43
SERVICE ADJUSTMENT PROCEDURES 39
Camshaft Position Sensor Inspection ..... Refer to GROUP 13 (ON-VEHICLE INSPECTION OF MFI COMPONENTS)
Crankshaft Position Sensor Inspection ..... Refer to GROUP 13 (ON-VEHICLE INSPECTION OF MFI COMPONENTS)
High Tension Cable Spark Test <SOHC-8 VALVE> 42
Ignition Timing Adjustment for DOHC Engine 40
Ignition Timing Adjustment for SOHC Engine 39
Spark Plug Cable Test 42
Spark Plug Test 42
SPECIFICATIONS 31
General Specifications 31
Service Specifications 32
TROUBLESHOOTING 33
STARTING SYSTEM 14
SPECIFICATIONS 14
General Specifications 14
Service Specifications 16
STARTER MOTOR 19
TROUBLESHOOTING 17

CHARGING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

M16EB--

GENERATOR

Items	SOHC
Type	Battery voltage sensing
Identification No.	A3T03393
Part No.	MD136839
Rated output V / A	12/75
Voltage regulator	Electronic built-in type

Items	DOHC-A/T	DOHC-FWD, M/T	DOHC-AWD, M/T
Type	Battery voltage sensing	Battery voltage sensing	Battery voltage sensing
Identification No.	A3T45694	A3T03392	A3T03393
Part No.	MD149750	MD133171	MD136839
Rated output V / A	12/90	12/75	12/75
Voltage regulator	Electronic built-in type	Electronic built-in type	Electronic built-in type

SERVICE SPECIFICATIONS

M16EC--

Items	Specifications
Generator	
Standard value	
Regulated voltage	
Ambient temp. at voltage regulator V	
−20°C (−4°F)	14.2-15.4
20°C (68°F)	13.9-14.9
60°C (140°F)	13.4-14.6
80°C (176°F)	13.1−14.5
Slip ring O.D. mm (in.)	23 (.906)
Rotor coil resistance Ω	Approx. 3-5
Limit	
Output current A	Min. 52.5
Slip ring O.D. mm (in.)	22.4 (.882)

TSB Revision

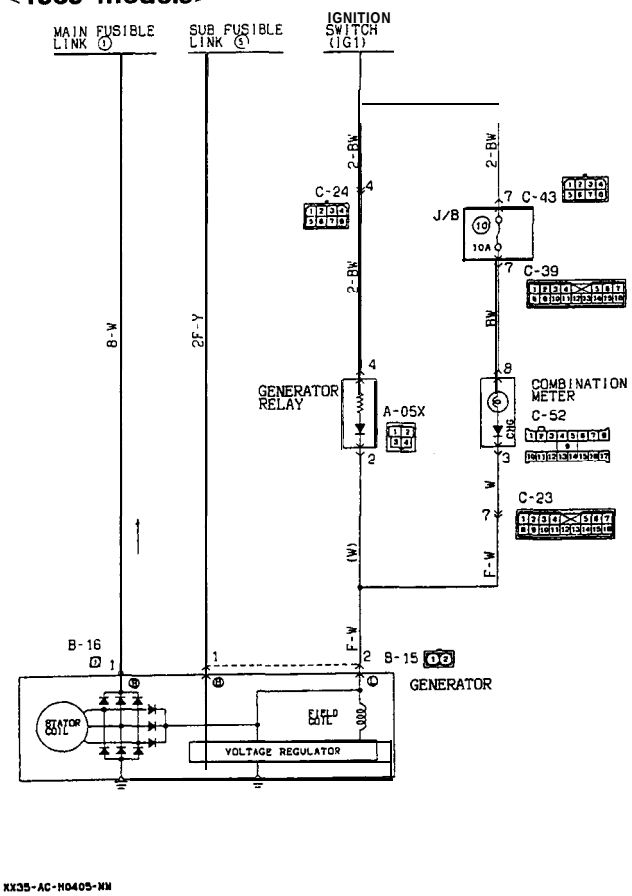
TROUBLESHOOTING

M16EHAWb

CHARGING CIRCUIT

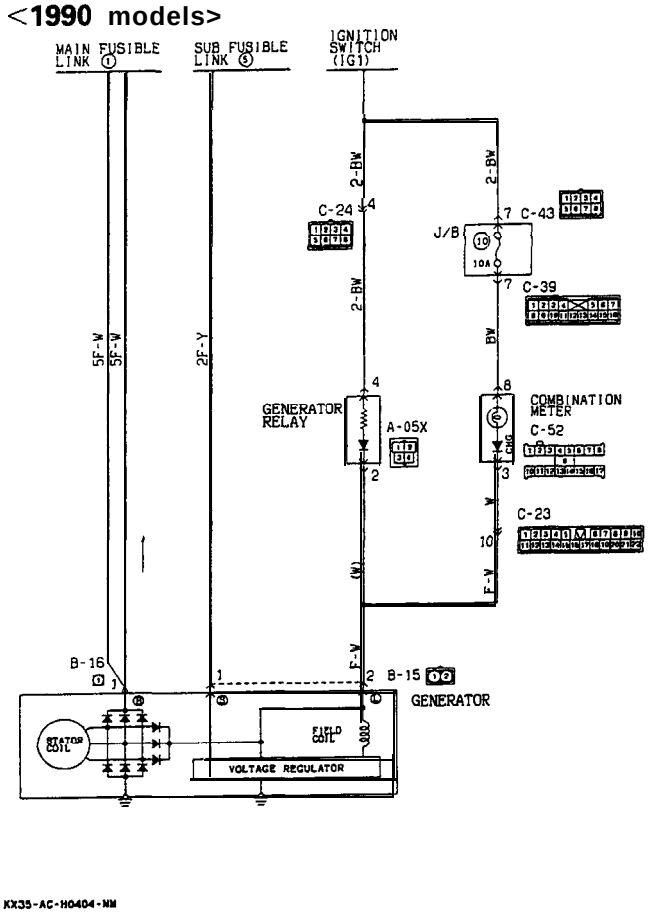
CIRCUIT DIAGRAM

<1989 models>



KX35-AC-H0405-NM

<1990 models>



KX35-AC-H0404-NM

OPERATION

When engine is stopped

When the ignition switch is switched to the "ON" position, electricity flows from the "L" terminal of the generator to the field coil, and at the same time the charging warning light illuminates.

When engine is being started/has started

When the engine is started, charging voltage is applied to the "L" terminal of the generator, with the result that the charging warning light is extinguished. In addition, because battery voltage is applied to the "S" terminal of the generator, this battery voltage is monitored at the IC voltage regulator, thus switching ON and OFF the current to the field coil and thereby controlling the amount of generation by the generator.
Power is supplied to each load from the "B" terminal of the generator.

NOTE
The generator relay functions as a back-up for the flow of electricity to the field coil if there is a disconnection or damaged wiring of the charging warning light.

TROUBLESHOOTING HINTS

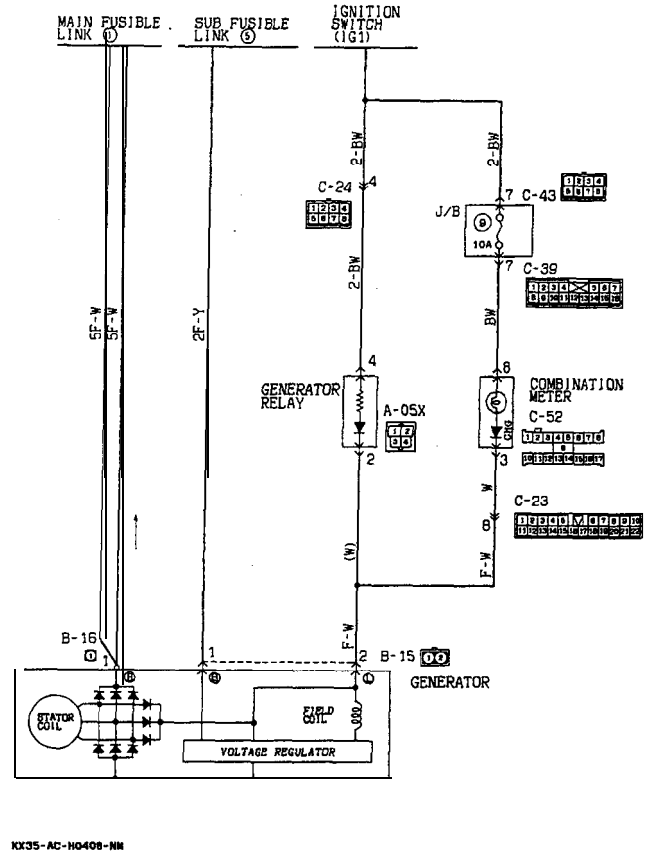
1. Charging indicator light does not go on when the ignition switch is turned to "ON", before the engine starts.
   - Check the bulb
2. Charging indicator light fails to go off once the engine starts.
   - Check the IC voltage regulator (located within the generator).
3. Discharged or overcharged battery.
   - Check the IC voltage regulator (located within the generator).
4. The charging warning light illuminates dimly.
   - Check the diode (within the combination meter) for a short-circuit.

TSB Revision

CHARGING CIRCUIT

CIRCUIT DIAGRAM

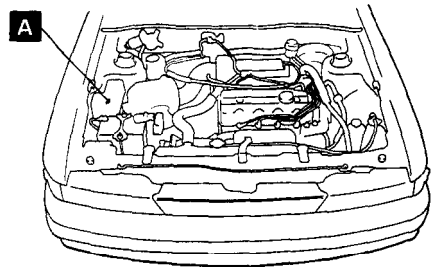
< From 1991 models>

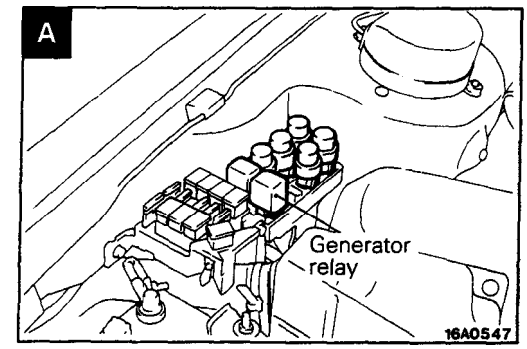


KX35-AC-H0408-NM

COMPONENT LOCATION

Name	Symbol
Generator relay	A





TSB Revision

SERVICE ADJUSTMENT PROCEDURES

CHARGING SYSTEM INSPECTION M16EIAWa

VOLTAGE DROP TEST OF GENERATOR OUTPUT WIRE

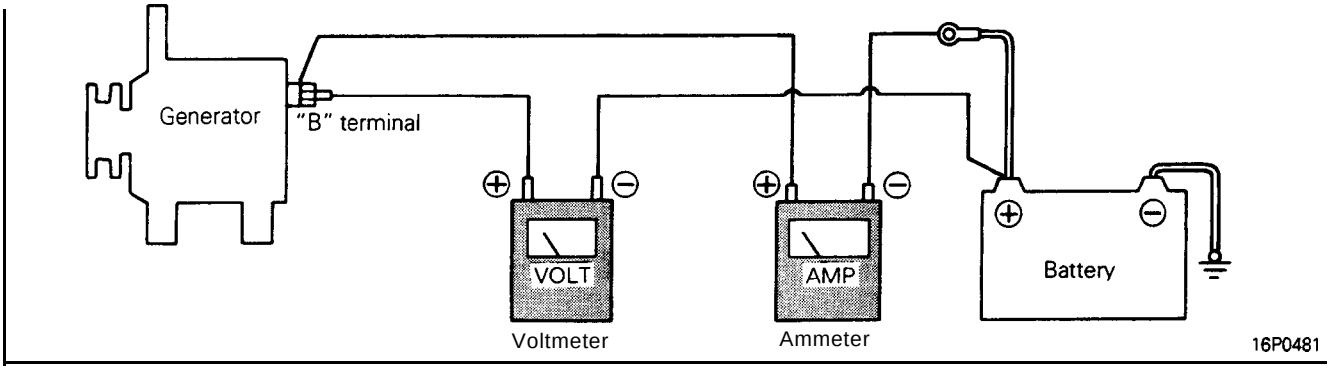
This test judges whether or not the wiring (including the fusible link) between the generator B terminal and the battery (+) terminal is sound by the voltage drop method.

Preparation

(1) Turn the ignition switch to "OFF".
(2) Disconnect the battery ground cable.
(3) Disconnect the generator output lead from the generator "B" terminal.
(4) Connect a DC ammeter (0 to 100A) in series to the "B" terminal and the disconnected output lead. Connect the (+) lead of the ammeter to the "B" terminal and the (−) lead to the disconnected output wire.

NOTE
Use of a clamp type ammeter that can measure current without disconnecting the harness is preferred. The reason is that when checking a vehicle that has a low output current due to poor connection of the generator "B" terminal, such poor connection is corrected as the "B" terminal is loosened and a test ammeter is connected in its place and as a result, causes for the trouble may not be determined.

(5) Connect a digital voltmeter between the generator "B" terminal and battery (+) terminal. Connect the (+) lead wire of the voltmeter to the "B" terminal and the (−) lead wire to the battery (+) terminal.
(6) Connect the battery ground cable.
(7) Leave the hood open.



Test

(1) Start the engine.
(2) Turn on or off the headlights and small lights and adjust the engine speed so that the ammeter reads 20A and read off the voltmeter indication under this condition.

Result

(1) It is okay if the voltmeter indicates the standard value.

Standard value: 0.2 V max.

(2) If the voltmeter indicates a value that is larger than the standard value, poor wiring is suspected, in which case check the wiring from the generator "B" terminal to fusible link to battery (+) terminal. Check for loose connection, color change due to overheated harness, etc. and correct them before testing again.

(3) Upon completion of the test, set the engine speed at idle.
Turn off the lights and turn off the ignition switch.
(4) Disconnect the battery ground cable.
(5) Disconnect the ammeter and voltmeter that have been connected for the test purpose.
(6) Connect the generator output wire to the generator "B" terminal.
(7) Connect the battery ground cable.

OUTPUT CURRENT TEST

This test judges whether or not the generator gives an output current that is equivalent to the nominal output.

Preparation

(1) Prior to the test, check the following items and correct as necessary.
  (a) Check the battery installed in the vehicle to ensure that it is in sound state*. The battery checking method is described in "BATTERY ''.

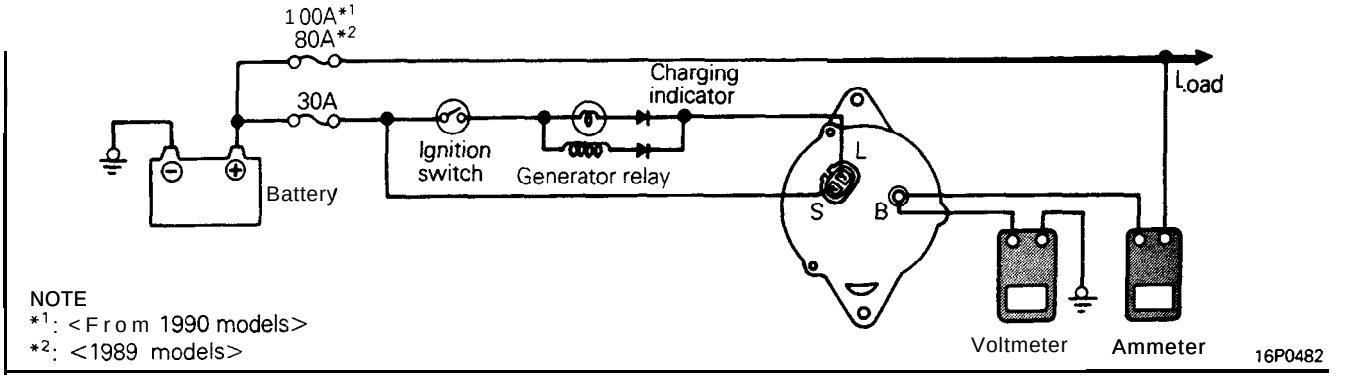
  NOTE
  *The battery that is used to test the output current should be one that has been rather discharged. With a fully charged battery, the test may not be conducted correctly due to an insufficient load.

  (b) Check tension of the generator drive belt. The belt tension check method is described in "GROUP 11 -Service Adjustment Procedures".

(2) Turn off the ignition switch.
(3) Disconnect the battery ground cable.
(4) Disconnect the generator output wire from the generator "B" terminal.
(5) Connect a DC ammeter (0 to 100A) in series between the "B" terminal and the disconnected output wire. Connect the (+) lead of the ammeter to the ''B'' terminal and connect the (–) lead wire to the disconnected output wire.

  NOTE
  Tighten each connection by bolt and nut securely as a heavy current will flow. Do not relay on clips.

(6) Connect a voltmeter (0 to 20V) between the "B" terminal and ground. Connect the (+) lead wire to the generator "B" terminal and (–) lead wire to a sound ground.
(7) Set the engine tachometer and connect the battery ground cable.
(8) Leave the engine hood open.



NOTE
*1: <From 1990 models>
*2: <1989 models>

Test

(1) Check to see that the voltmeter reads the same value as the battery voltage.
  If the voltmeter reads OV, an open circuit in the wire between the generator "B" terminal and battery (–) terminal, a blown fusible link or poor grounding is suspected.
(2) Turn on the headlight switch and start the engine.
(3) Set the headlight at high beam and the heater blower switch at HIGH, quickly increase the engine speed to 2,500 rpm and read the maximum output current value indicated by the ammeter.

  NOTE
  After the engine start up, the charging current quickly drops, therefore, above operation must be done quickly to read maximum current value correctly.

TSB Revision

Result

(1) The ammeter reading must be higher than the limit value. If it is lower but the generator output wire is normal, remove the generator from the vehicle and check it.

Limit value: 52.5A min.

Caution

(a) The nominal output current value is shown on the nameplate affixed to the generator body.

(b) The output current value changes with the electrical load and the temperature of the generator itself.
Therefore, the nominal output current may not be obtained if the vehicle electrical load at the time of test is small.
In such a case, keep the headlights on to cause discharge of the battery or use lights of another vehicle as a load to increase the electrical load. The nominal output current may not be obtained if the temperature of the generator itself or ambient temperature is too high. In such a case, reduce the temperature before testing again.

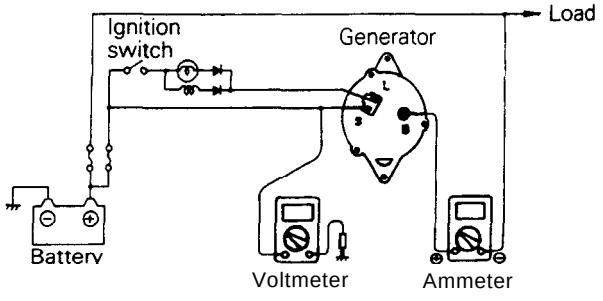
(2) Upon completion of the output current test, lower the engine speed to the idle speed and turn off the ignition switch.
(3) Disconnect the battery ground cable.
(4) Remove the test ammeter and voltmeter and the engine tachometer.
(5) Connect the alternator output wire to the generator "B" terminal.
(6) Connect the battery ground cable.

REGULATED VOLTAGE TEST

The purpose of this test is to check that the electronic voltage regulator controls the voltage correctly.

Preparation

(1) Prior to the test, check the following items and correct if necessary.
(a) Check the battery installed on the vehicle to see that it is fully charged. For battery checking method, see "BATTERY".
(b) Check the generator drive belt tension. For belt tension check, see "GROUP 11 -Service Adjustment Procedures".
(2) Turn the ignition switch to "OFF".
(3) Disconnect the battery ground cable.
(4) Connect a digital voltmeter between the "S" terminal of the generator and ground. Connect the (+) lead of the voltmeter to the "S" terminal of the generator, inserting from the wire side of the 2-way connector and connect the (-) lead to sound ground or battery (-) terminal.



6EL252

(5) Disconnect the generator output wire from the generator "B" terminal.
(6) Connect a DC ammeter (0 to 100A) in series between the "B" terminal and the disconnected output wire. Connect the (+) lead of the ammeter to the "B" terminal and connect the (-) lead wire to the disconnected output wire.
(7) Set the engine tachometer and connect the battery ground cable.

Test

(1) Turn on the ignition switch and check that the voltmeter indicates the following value.

Voltage: Battery voltage

If it reads OV, there is an open circuit in the wire between the generator "S" terminal and the battery (+) or the fusible link is blown.
(2) Start the engine. Keep all lights and accessories Off.
(3) Run the engine at a speed of about 2,500 rpm and read the voltmeter when the generator output current drops to 1 OA or less.

TSB Revision

Result

(1) If the voltmeter reading agrees with the value listed in the regulating voltage table below, the voltage regulator is functioning correctly. If the reading is other than the standard value, the voltage regulator or the generator is faulty.

Regulating voltage table

Voltage regulator ambient temperature °C (°F)	Regulating voltage V
−20 (−4)	14.2–15.4
20 (68)	13.9-14.9
60 (140)	13.4-14.6
80 (176)	13.1-14.5

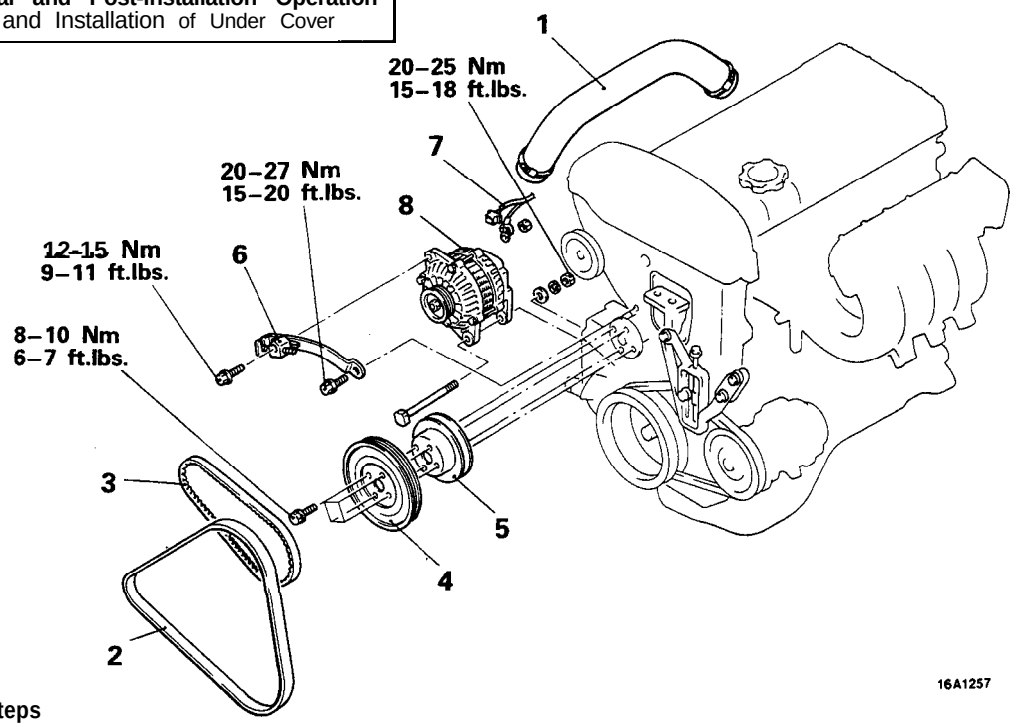
(2) Upon completion of the test, set the engine speed at idle and turn off the ignition switch.
(3) Disconnect the battery ground cable.
(4) Remove the test voltmeter and ammeter and the engine tachometer.
(5) Connect the generator output wire to the generator "B" terminal.
(6) Connect the battery ground cable.

GENERATOR

M16EJAUa

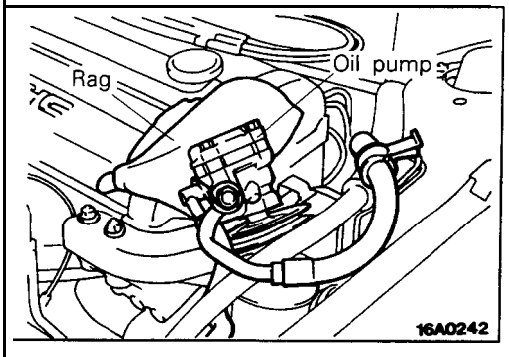
REMOVAL AND INSTALLATION

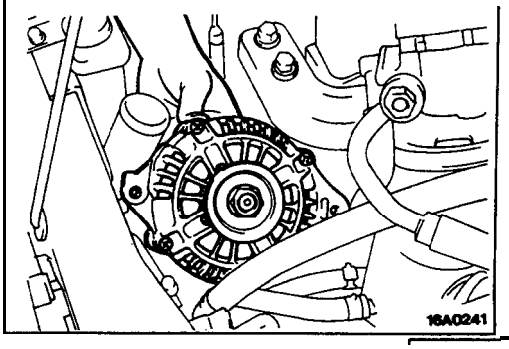
Pre-removal and Post-installation Operation
- Removal and Installation of Under Cover



Removal steps

1. Air hose A (Turbo)
2. Drive belt
   (Refer to GROUP 11 -Service Adjustment Procedures.)
3. Drive belt (Power steering)
   (Refer to GROUP 11 -Service Adjustment Procedures.)
4. Water pump pulley
5. Water pump pulley
6. Generator brace assembly
7. Generator connector connection
8. Generator





SERVICE POINTS OF REMOVAL

8. REMOVAL OF GENERATOR

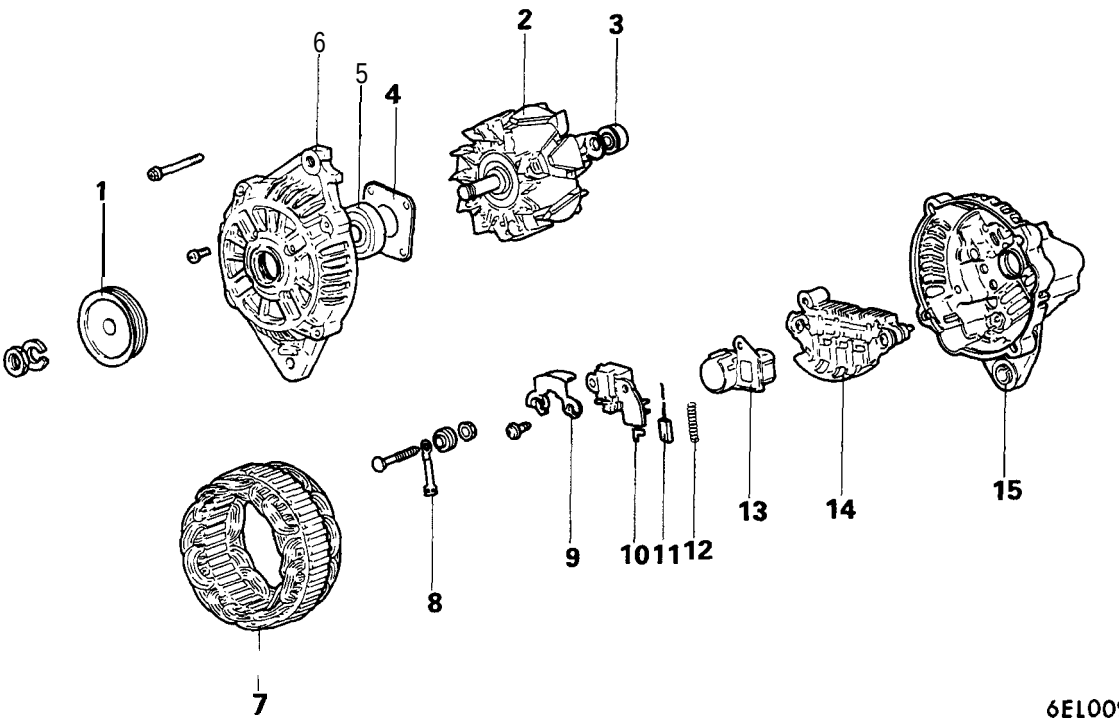
(1) Remove the installation bolt of the power steering oil pump, and hold the oil pump above the engine mount bracket.
Use rags, etc. to prevent scarring or scratching of the rocker cover.

NOTE
Do not disconnect the oil pump hose.

(2) With the generator facing as shown in the figure, remove upward.

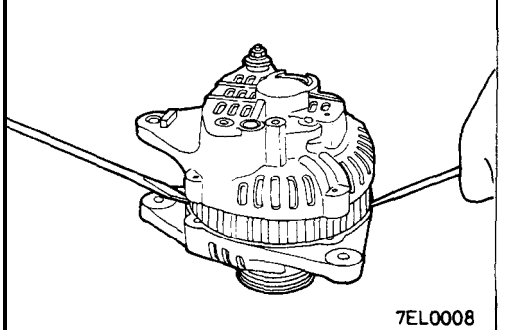
TSB Revision

DISASSEMBLY AND REASSEMBLY



Disassembly steps

- ◆ ☒ 1. Generator pulley
- ◆◆ 2. Rotor assembly
- 3. Rear bearing
- 4. Bearing retainer
- 5. Front bearing
- 6. Front bracket
- ◆ ☒ 7. Stator
- 8. Terminal
- 9. Plate
- 10. Regulator and brush holder
- 11. Brush
- 12. Brush spring
- 13. Slinger
- 14. Rectifier
- 15. Rear bracket



SERVICE POINTS OF DISASSEMBLY

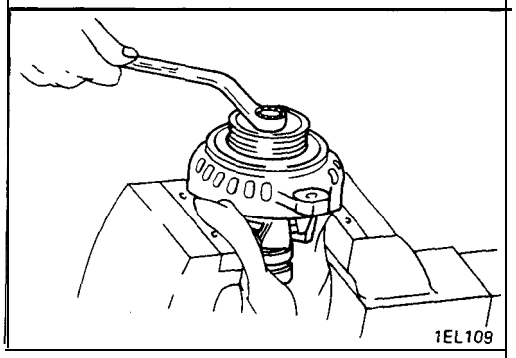
SEPARATION OF THE STATOR AND FRONT BRACKET

Insert plain screwdriver between front bracket and stator core and pry downward.

Caution

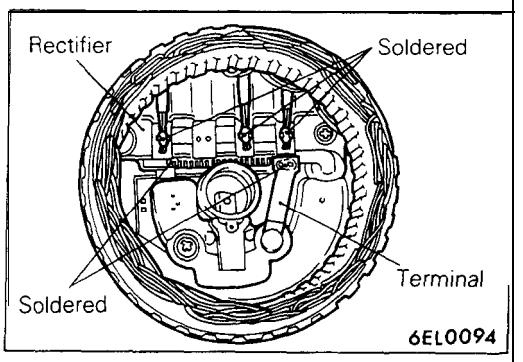
Do not insert screwdriver too deep, as there is danger of damage to stator coil.

TSB Revision



1. REMOVAL OF GENERATOR PULLEY

(1) Clamp the rotor in a vise with soft jaws.
(2) After removing the nut, remove the pulley and front bracket from the rotor.



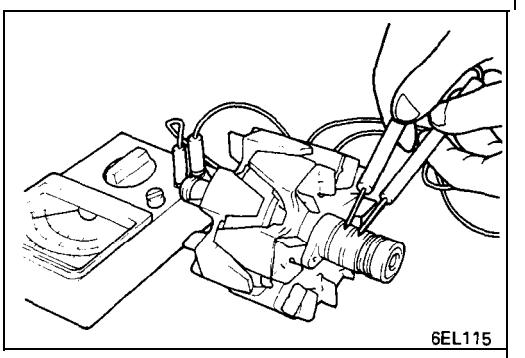
7. REMOVAL OF STATOR

(1) When removing stator, unsolder three stator leads soldered to main diodes on rectifier.
(2) When removing rectifier from brush holder, unsolder two soldered points to rectifier.

Caution

(1) When soldering or unsoldering, use care to make sure that heat of soldering iron is not transmitted to diodes for a long period. Finish soldering or unsoldering in as short a time as possible.

(2) Use *care* that no undue force is exerted to leads of diodes.

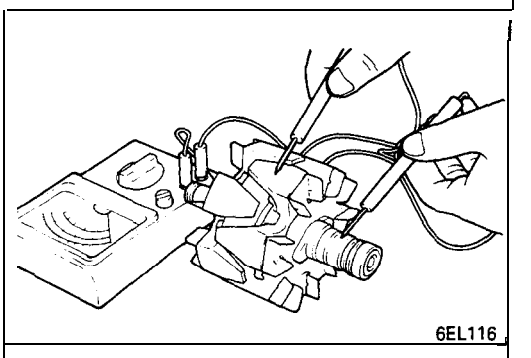


INSPECTION

ROTOR

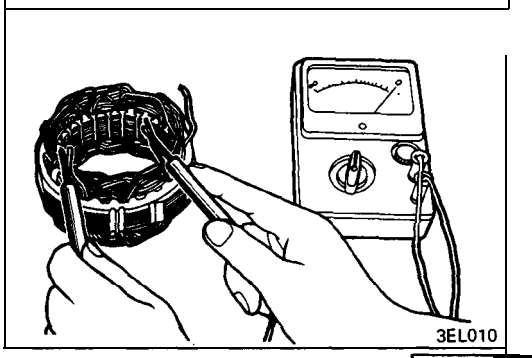
(1) Check rotor coil for continuity. Check to ensure that there is continuity between slip rings.
If resistance is extremely small, it means that there is a short. If there is no continuity or if there is short circuit, replace rotor assembly.

Resistance value: Approx. 3–5Ω

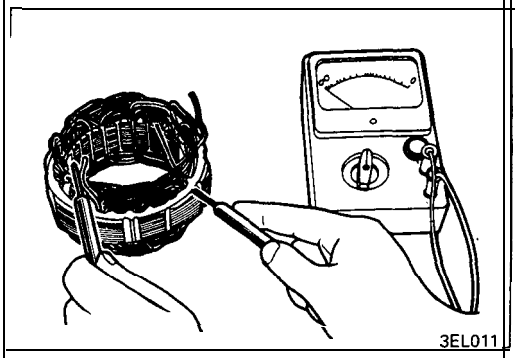


(2) Check rotor coil for grounding. Check to ensure that there is no continuity between slip ring and core. If there is continuity, replace rotor assembly.

STATOR



(1) Make continuity test on stator coil. Check to ensure that there is continuity between coil leads.
If there is no continuity, replace stator assembly.

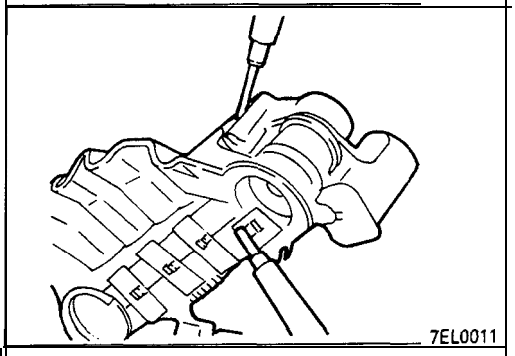


(2) Check coil for grounding. Check to ensure that there is no continuity between coil and core. If there is continuity, replace stator assembly.

RECTIFIERS

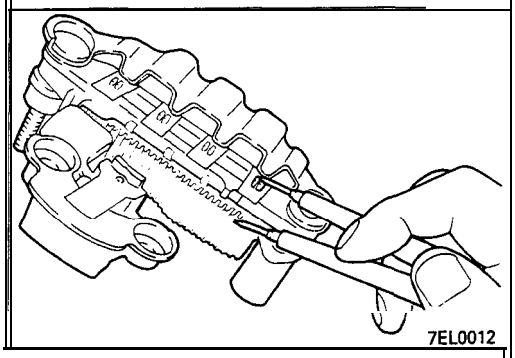
(1) Positive Rectifier Test

Check for continuity between positive rectifier and stator coil lead connection terminal with a circuit tester. If there is continuity in both directions, diode is shorted. Replace rectifier assembly.



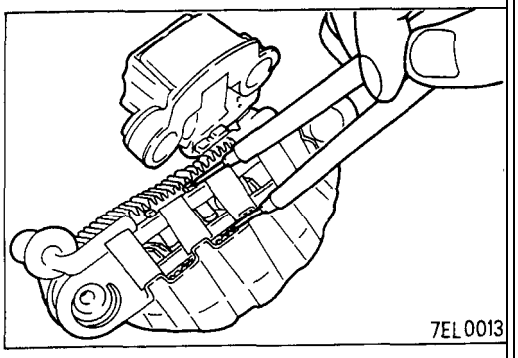
(2) Negative Rectifier Test

Check for continuity between negative rectifier and stator coil lead connection terminal. If there is continuity in both direction, diode is shorted, and rectifier assembly must be replaced.



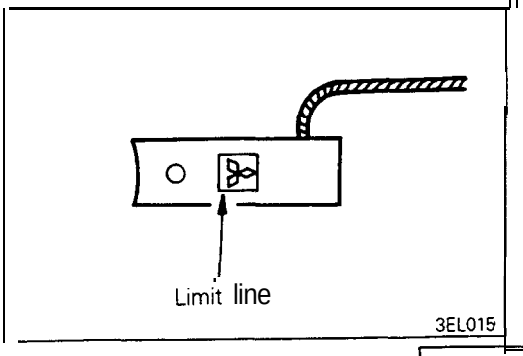
(3) Diode Trio Test

Check three diodes for continuity by connecting an ammeter to both ends of each diode. If there is no continuity in both directions, diode is faulty and heatsink assembly must be replaced.

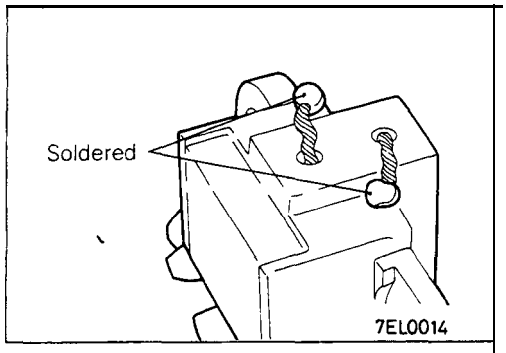


BRUSH REPLACEMENT

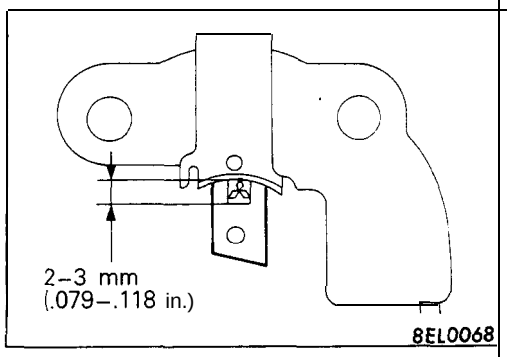
(1) Replace brush by the following procedures if it has been worn to limit line.



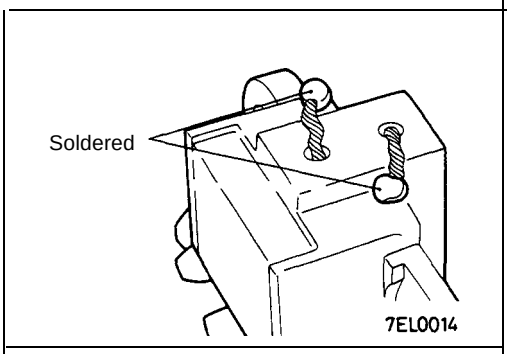
TSB Revision



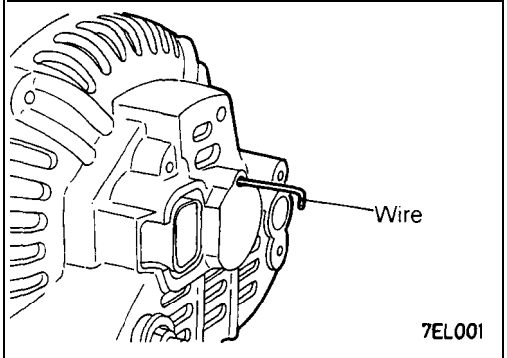
(2) Unsolder pigtail and remove old brush and spring.

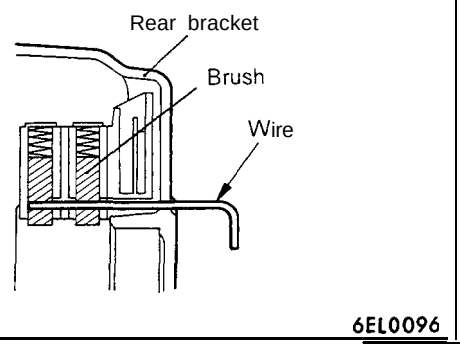


(3) Install brush spring and new brush in brush holder.
(4) Insert the brush to where there is a space 2 to 3 mm (.079 to .118 in.) between the limit line and the end of the brush holder.



(5) Solder pigtail to brush holder as shown in the illustration.





SERVICE POINTS OF REASSEMBLY

2. INSTALLATION OF ROTOR ASSEMBLY

Before rotor is attached to rear bracket, insert wire through small hole made in rear bracket to lift brush. After rotor has been installed, remove the wire.

STARTING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

M16FB--

STARTER MOTOR

Up to 1990 models

Items	SOHC-M/T	SOHC-A/T, DOHC
Type	Direct drrve	Reduction drive (with planetary gear)
Identification No.	M3T41081	M1T70481
Part No.	MD100431	MD099667
Rated output kW/V	0.9/1 2	1.2/12
No. of pinion teeth	8	8

1991 models

SOHC

Items	M/T	A/T
Type	Direct drive	Reduction drive (with planetary gear)
Identification No.	M3T41083	M1T73381*1/M1T73383*2
Part No	MD1 62837	MD162840*1/MD172861*2
Rated output kW/V	0.9/12	1.2/12
No of pinion teeth	8	8

DOHC

Items	M/T	A/T
Type	Reduction drive (with planetary gear)	Reduction drive (with planetary gear)
Identification No.	M3T70481*1/M1T70483*2	M1T73381*1/M1T73383*2
Part No.	MD162839*1/MD172860*2	MD162840*1/MD172861*2
Rated output kW/V	1.2/12	1.2/12
No of pinion teeth	8	8

NOTE
- I: Vehicles built up to Dec. 1990
- Vehicles built from Jan. 1991

TSB Revision

1992 models
SOHC

Items		M/T	A/T
Type		Reduction drive (with planetary gear)	Reduction drive (with planetary gear)
Identification No.		M3T41083	M1T73383
Part No.		MD1 62837	MD1 72861
Rated output	kW/V	1.2/12	1.2/12
No. of pinion teeth		8	8

DOHC

Items		M/T	A/T
Type		Reduction drive (with planetary gear)	Reduction drive (with planetary gear)
Identification No.		M1T70483	M1T73383
Part No.		MD1 72860	MD1 72861
Rated output	kW/V	1.2/ 1 2	1.2/12
No. of pinion teeth		8	8

1993 models
SOHC

Items		MIT	A/T
Type		Reduction drive (with planetary gear)	Reduction drive (with planetary gear)
Identification No.		M1T70483	M1T73383
Part No.		MD172860	MD1 72861
Rated output	kW/V	1.2/1 2	1.2/12
No. of pinion teeth		8	8

DOHC

Items		M/T
Type		Reduction drive (with planetary gear)
Identification No.		M1T70483
Part No.		MD172860
Rated output	kW/V	1.2/1 2
No. of pinion teeth		8

TSB Revision

SERVICE SPECIFICATIONS

M16FC--

Items	Specifications
Standard value	
Starter motor	
Direct drive type	
Free running characteristics	
Terminal voltage V	11.5
Current A	60 or less
Speed rpm	6,600 or more
Pinion gap mm (in.)	0.5–2.0 (.020–.079)
Commutator runout mm (in.)	0.05 (.002)
Commutator diameter mm (in.)	32 (1.26)
Undercut depth mm (in.)	0.5 (.020)
Reduction drive type	
Free running characteristics	
Terminal voltage V	11
Current A	90 or less
Speed rpm	3,000 or more
Pinion gap mm (in.)	0.5–2.0 (.020–.079)
Commutator runout mm (in.)	0.05 (.002)
Commutator diameter mm (in.)	29.4 (1.158)
Undercut depth mm (in.)	0.5 (.020)
Limit	
Direct drive type	
Commutator runout mm (in.)	0.1 (.004)
Commutator diameter mm (in.)	31 (1.22)
Reduction drive type	
Commutator runout mm (in.)	0.1 (.004)
Commutator diameter mm (in.)	28.4 (1.118)

TSB Revision

TROUBLESHOOTING

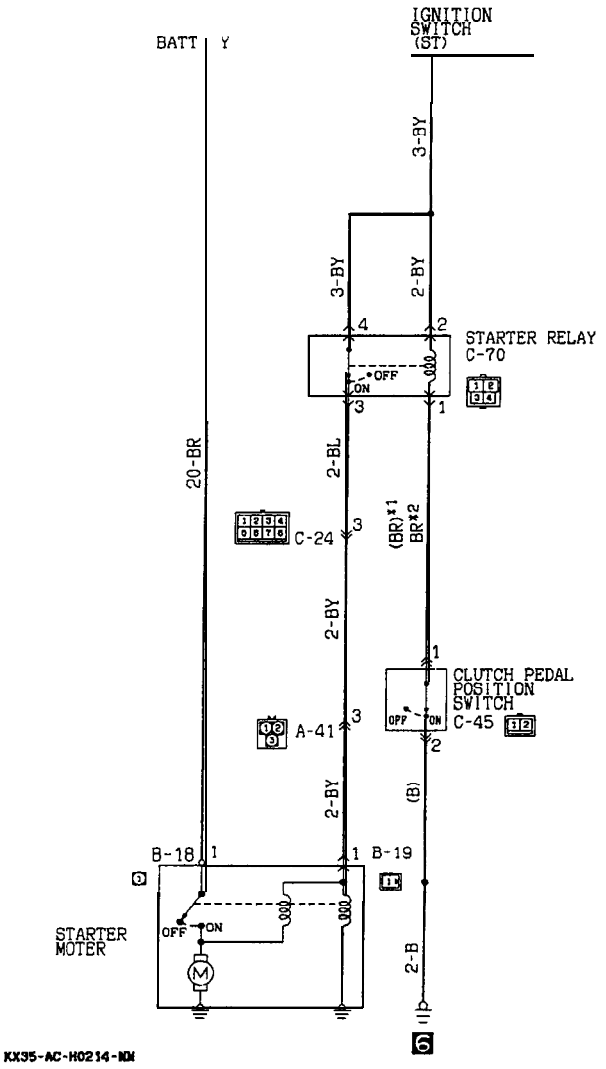
M16FHALa

STARTING CIRCUIT

CIRCUIT DIAGRAM

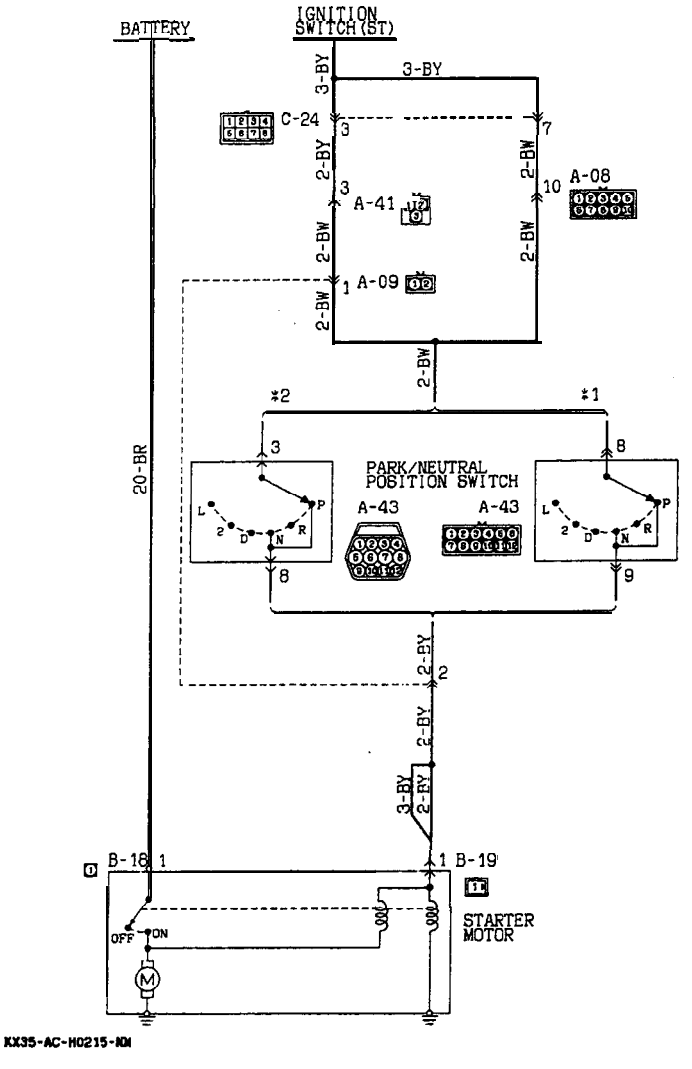
Vehicles without theft-alarm system

<M/T>



*1: <Up to 1990 models>
*2: <From 199 1 models>

<A/T>



*1 : <Up to 1992 models>
*2: <From 1993 models>

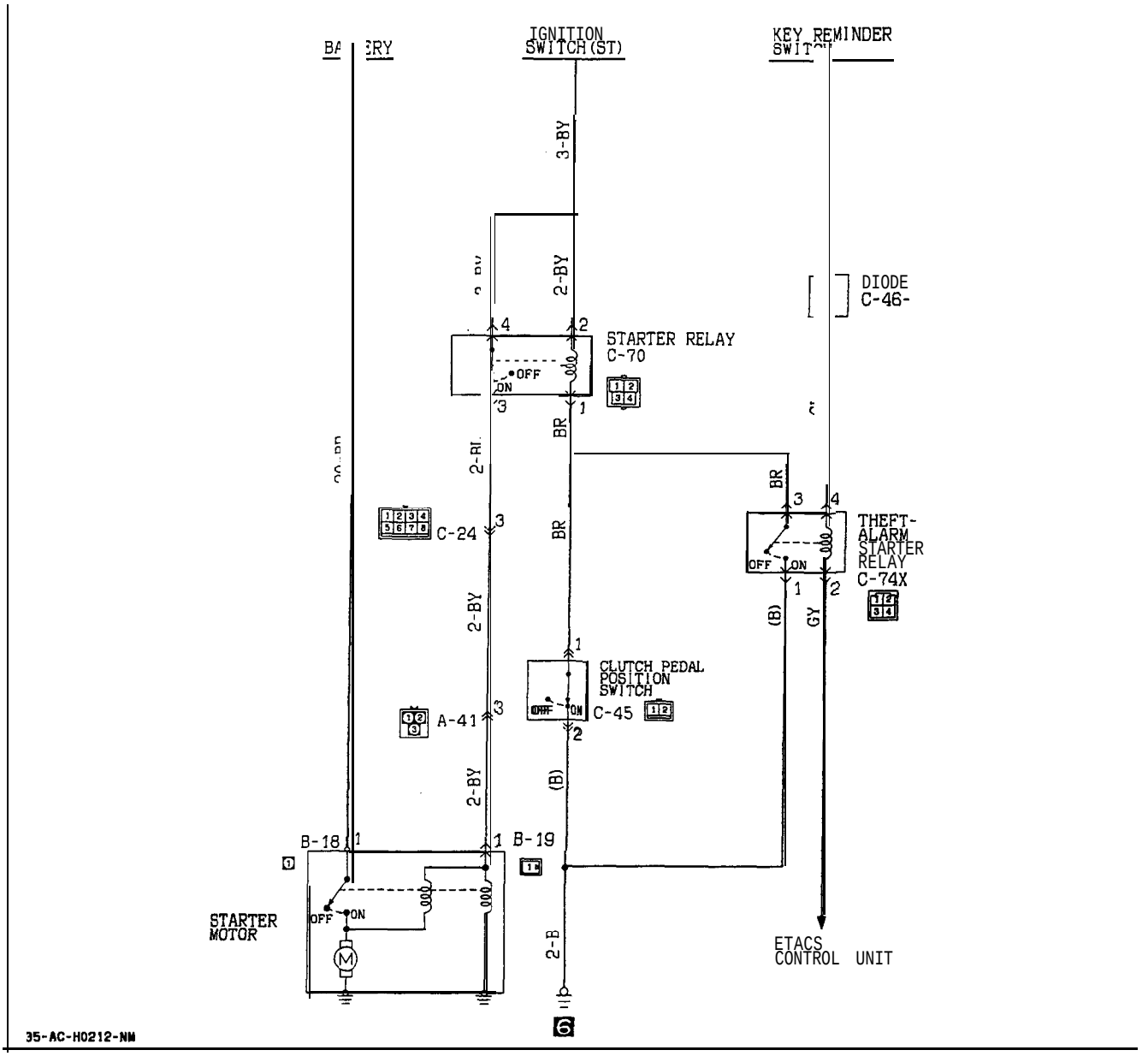
OPERATION

- For models equipped with the M/T, the clutch pedal position switch contact is switched OFF when the clutch pedal is depressed; when the ignition switch is then switched to the "ST" position, electricity flows to the starter relay and the starter motor, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

  NOTE
  If the ignition switch is switched to the "ST" position without the clutch pedal being depressed, electricity flows to the starter relay (coil), the clutch pedal position switch (contacts) and to ground, with the result that the contacts of the starter relay are switched OFF, and, because the power to the starter motor is thereby interrupted, the starter motor is not activated.
- For models equipped with the A/T, when the ignition switch is switched to the "ST" position while the selector lever is at the "P" or "N" position, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

TSB Revision

Vehicles with theft-alarm system



TROUBLESHOOTING HINTS

1. The starter motor does not operate at all.
   - Check the starter (coil).
   - Check for poor contact at the battery terminals.
2. The starter motor doesn't stop.
   - Check the starter (magnetic switch).

NOTE
For information concerning the starter relay and theft-alarm starter relay, refer to P.16-21, 22 and for the theft-alarm system, refer to P.54-165.

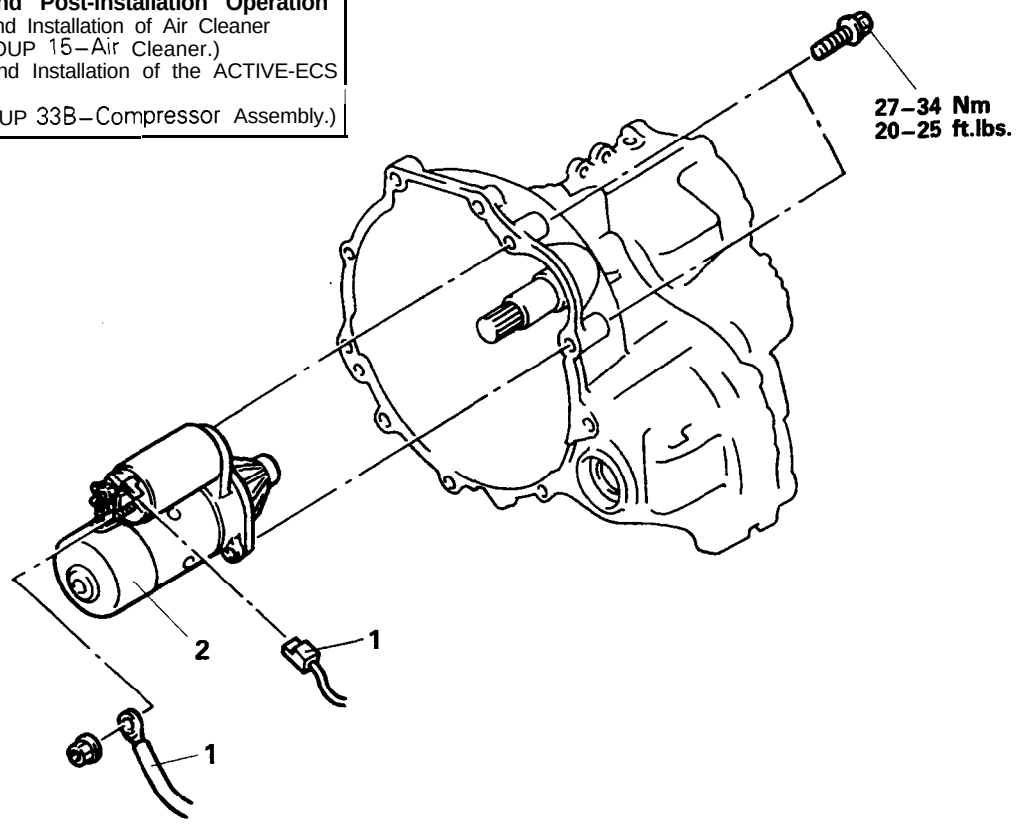
TSB Revision

STARTER MOTOR

M16FJAW

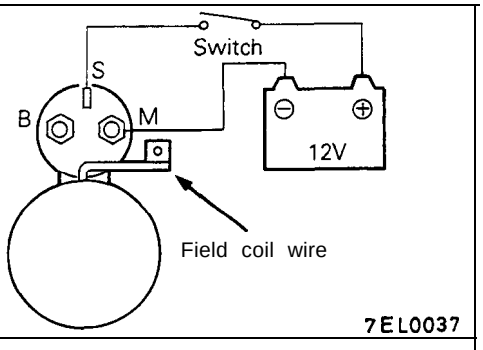
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Removal and Installation of Air Cleaner (Refer to GROUP 15–Air Cleaner.)
- Removal and Installation of the ACTIVE-ECS Compressor (Refer to GROUP 33B–Compressor Assembly.)

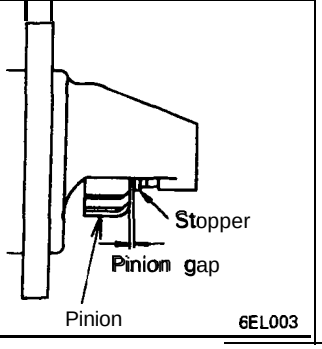


16A0219

Removal steps
1. Starter connector
- * 2. Starter motor



7EL0037



6EL003

INSPECTION

PINION GAP ADJUSTMENT

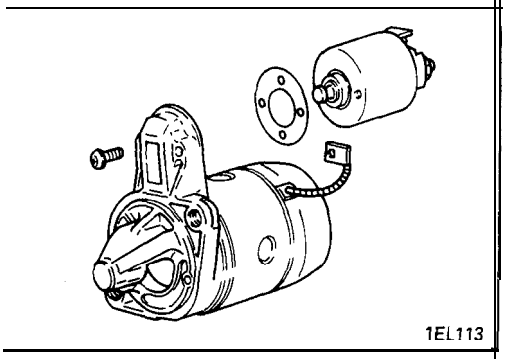
(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and M-terminal.
(3) Set switch to "ON", and pinion will move out.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

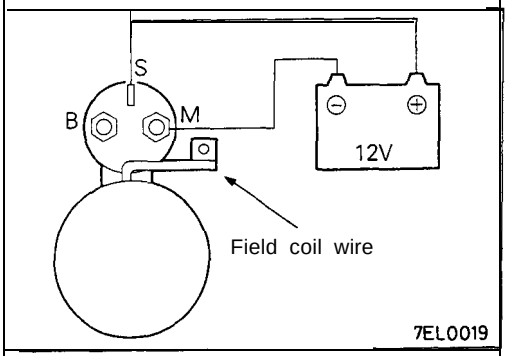
(4) Check pinion to stopper clearance (pinion gap) with a feeler gauge.

Pinion gap: 0.5–2.0 mm (.020–.079 in.)

TSB Revision


1EL113

(5) If pinion gap is out of specification, adjust by adding or removing gaskets between magnetic switch and front bracket.



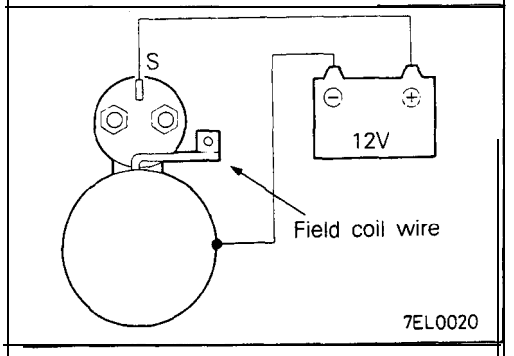
7EL0019

PULL-IN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and M-terminal.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) If pinion moves out, then pull-in coil is good. If it doesn't, replace magnetic switch.



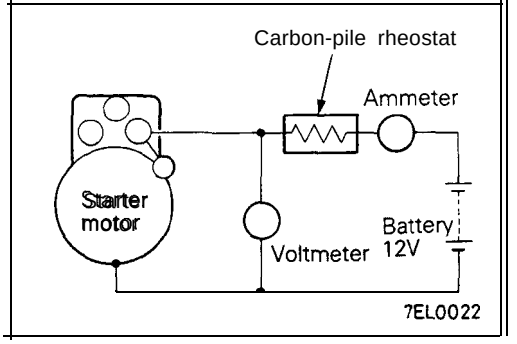
7EL0020

HOLD-IN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V battery between S-terminal and body.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) If pinion remains out, everything is in order. If pinion moves in, hold-in circuit is open. Replace magnetic switch.



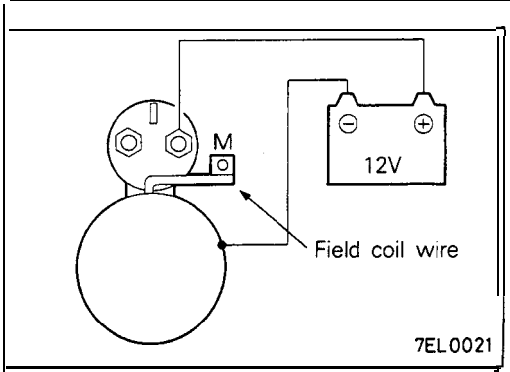
7EL0022

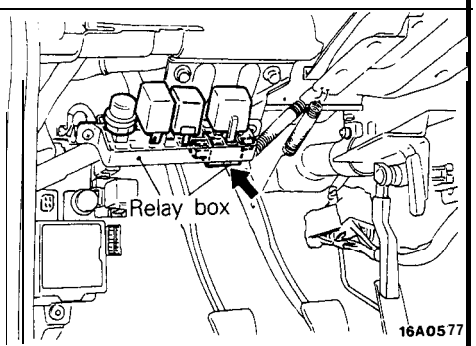
FREE RUNNING TEST

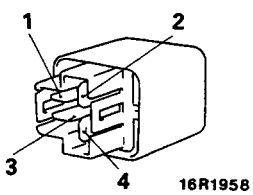
(1) Place starter motor in a vise equipped with soft jaws and connect a fully-charged 12-volt battery to starter motor as follows:
(2) Connect a test ammeter (100-ampere scale) and carbon pile rheostat in series with battery positive post and starter motor terminal.
(3) Connect a voltmeter (15-volt scale) across starter motor.
(4) Rotate carbon pile to full-resistance position.
(5) Connect battery cable from batten/ negative post to starter motor body.
(6) Adjust the rheostat until the battery voltage shown by the voltmeter is 11.5V (for the direct-drive type) or 11V (for the reduction-drive type).
(7) Confirm that the maximum amperage is within the specifications and that the starter motor turns smoothly and freely.

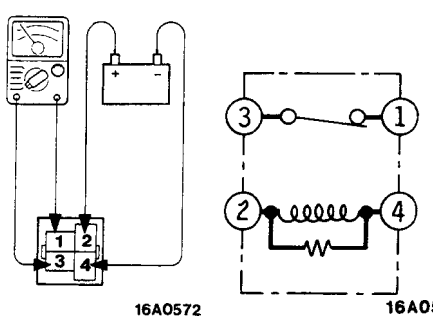
Current: Max. 60 Amps (Direct drive type)
Max. 90 Amps (Reduction drive type)

TSB Revision









RETURN TEST OF MAGNETIC SWITCH

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12V

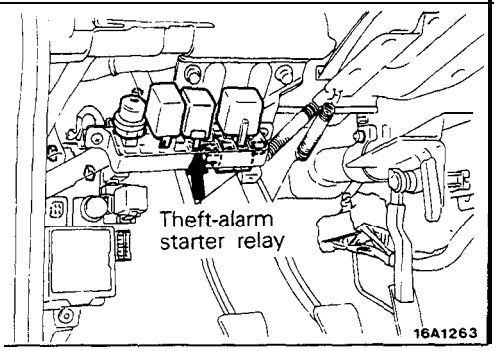
Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

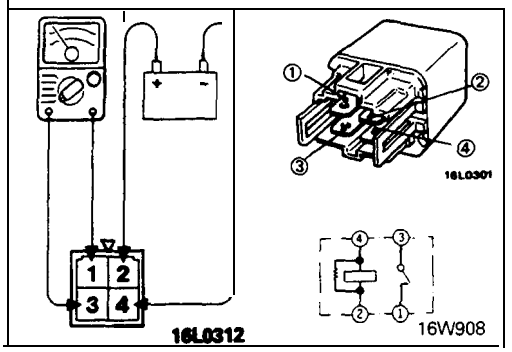
(3) Pull pinion out and release. If pinion quickly returns to its original position, everything is in order. If it doesn't, replace magnetic switch.

STARTER RELAY

(1) Remove the starter relay from the underside of the relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1–3 terminals	No continuity
Power is not supplied	1–3 terminals	Continuity
	2–4 terminals	Continuity





THEFT-ALARM STARTER RELAY

(1) Remove the theft-alarm starter relay from the indoor relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1-3 terminals	Continuity
Power is not supplied	1–3 terminals	No continuity
	2-4 terminals	Continuity

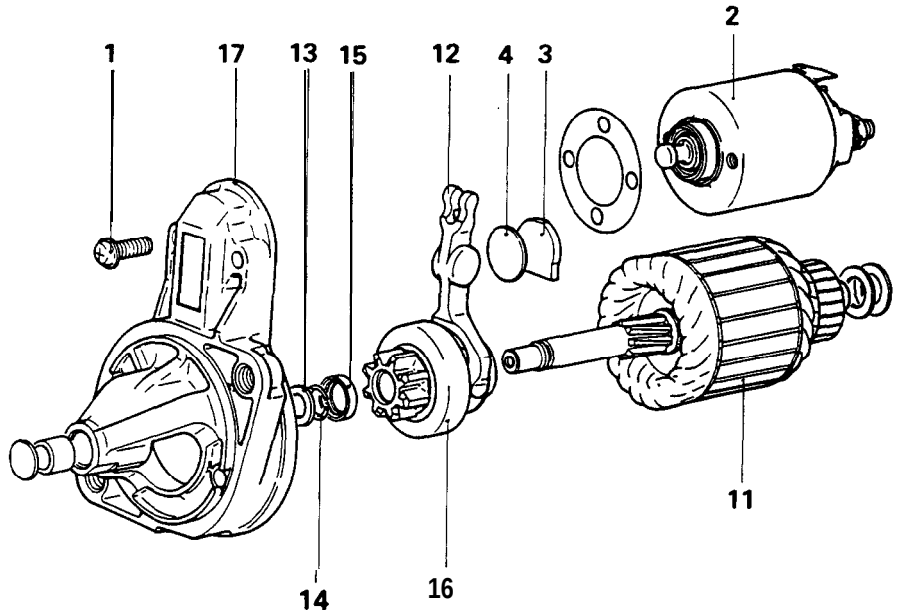
SERVICE POINTS OF INSTALLATION

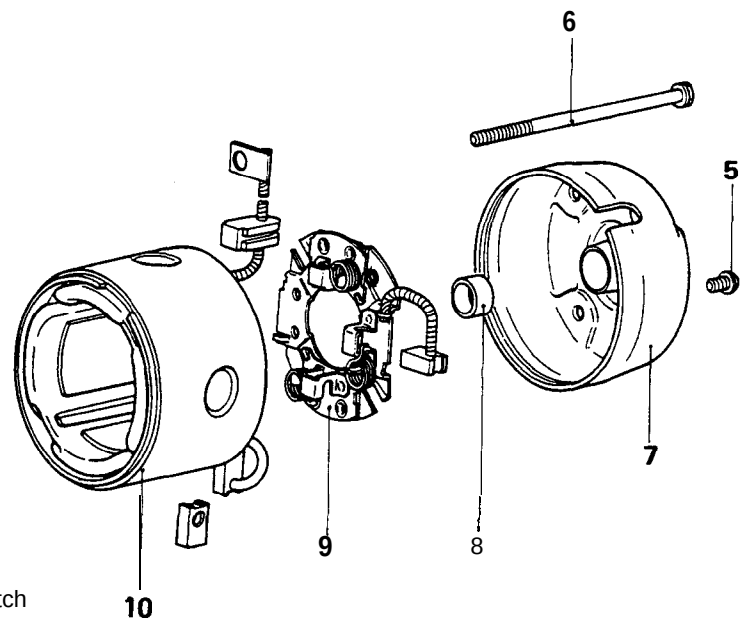
2. INSTALLATION OF STARTER MOTOR

Clean both surfaces of starter motor flange and rear plate.

STARTER MOTOR (DIRECT DRIVE TYPE)

DISASSEMBLY AND REASSEMBLY



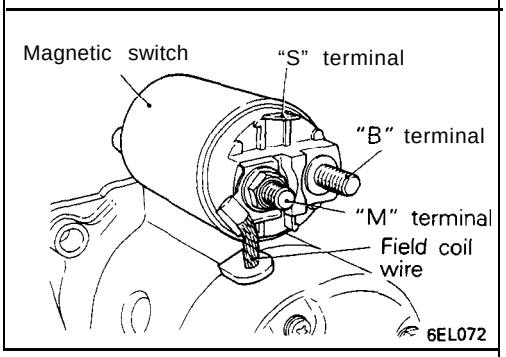


1EL098

Disassembly steps

1. Screw
◆■◆ 2. Magnetic switch
3. Packing
4. Plate
5. Screw
6. Through bolt
7. Rear bracket
8. Rear bearing
● ☒ 9. Brush holder assembly
10. Yoke assembly
11. Armature
12. Lever
13. Washer
● *● * 14. Snap ring
◆■◆■◆ 15. Stop ring
16. Overrunning clutch
17. Front bracket

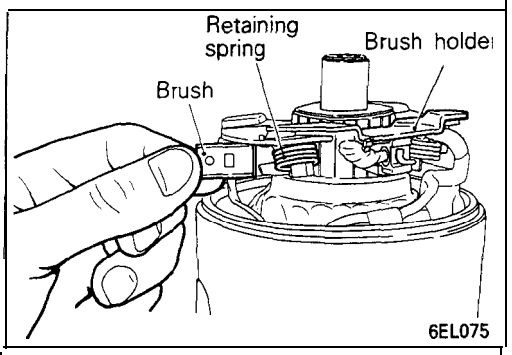
TSB Revision



SERVICE POINTS OF DISASSEMBLY

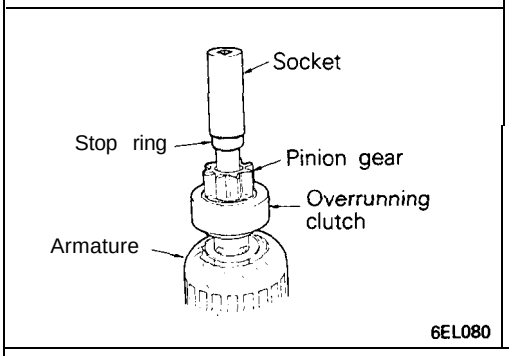
2. REMOVAL OF MAGNETIC SWITCH

Disconnect field coil wire from "M" terminal of magnetic switch.



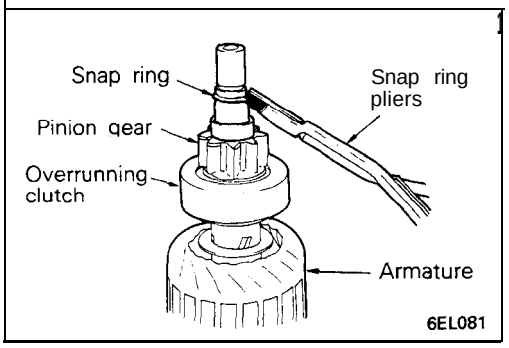
9. REMOVAL OF BRUSH HOLDER ASSEMBLY

Slide the two brushes from brush holder by prying retaining springs back.



14. REMOVAL OF SNAP RING / 15. STOP RING

(1) Press stop ring off snap ring with a suitable socket.

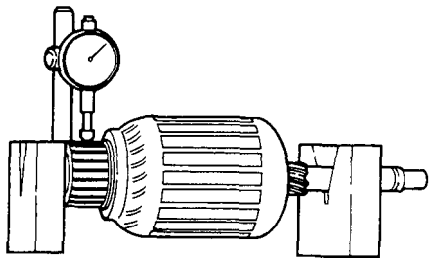


(2) Remove snap ring with snap ring pliers and then remove stop ring and overrunning clutch.

CLEANING STARTER MOTOR PARTS

1. Do not immerse parts in cleaning solvent. Immersing the yoke and field coil assembly and/or armature will damage insulation. Wipe these parts with a cloth only.
2. Do not immerse drive unit in cleaning solvent. Overrunning clutch is pre-lubricated at the factory and solvent will wash lubrication from clutch.
3. The drive unit may be cleaned with a brush moistened with cleaning solvent and wiped dry with a cloth.

TSB Revision

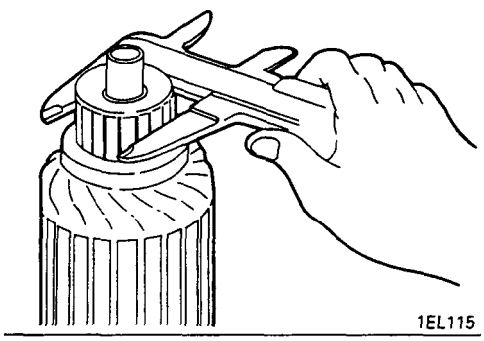

1EL107

INSPECTION

INSPECTION OF COMMUTATOR

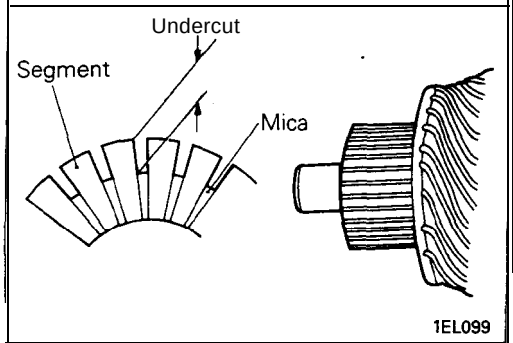
(1) Place the armature in a pair of "V" blocks and check the runout with a dial indicator.

Standard value: 0.05 mm (.002 in.)
Limit: 0.1 mm (.004 in.)


1EL115

(2) Measure the commutator outer diameter.

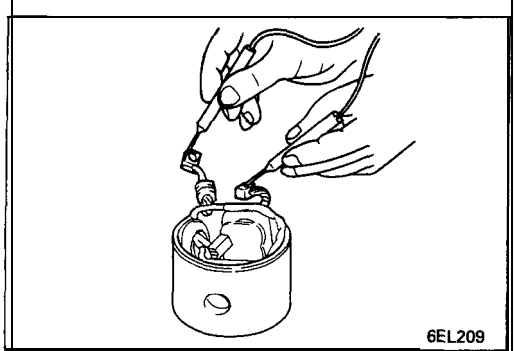
Standard value: 32 mm (1.26 in.)
Limit: 31 mm (1.22 in.)



1EL099

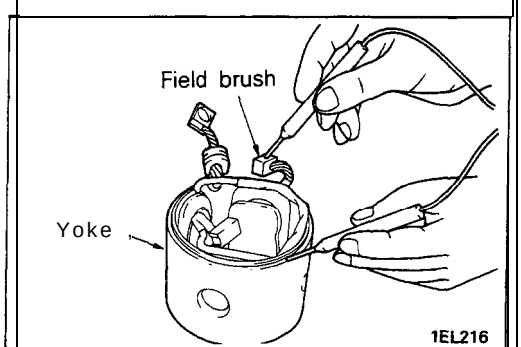
(3) Check the undercut depth between segments.

Standard value: 0.5 mm (.020 in.)


6EL209

TESTING FIELD COILS FOR GROUNDING

Check the continuity between field, brushes. If there is continuity, the field coil is in order.

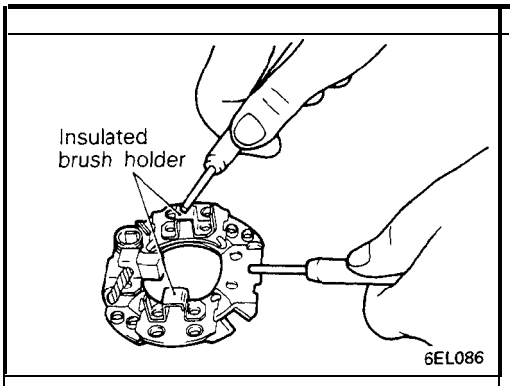


1EL216

TESTING FIELD COIL FOR GROUNDING

Check the continuity between field coil brush and yoke. If there is no continuity, the field coil is free from grounding.

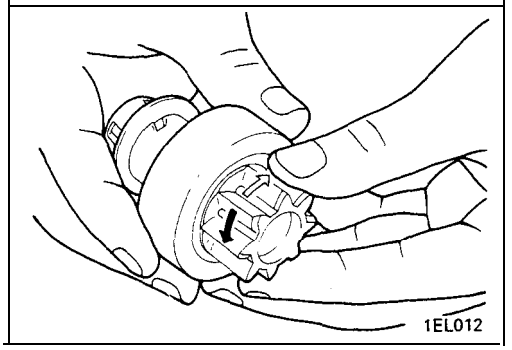
TSB Revision



BRUSH HOLDER

Check the continuity between brush holder plate and brush holder.

If there is no continuity, the brush holder is in order.

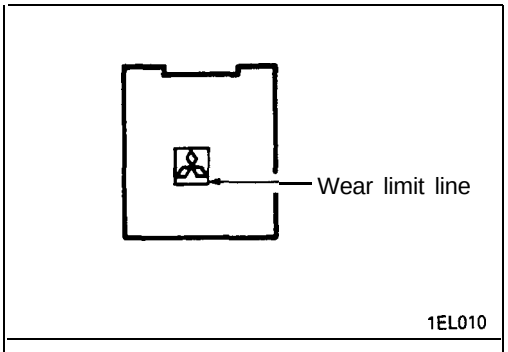


OVERRUNNING CLUTCH

1. While holding clutch housing, rotate the pinion. Drive pinion should rotate smoothly in one direction, but should not rotate in opposite direction. If clutch does not function properly, replace overrunning clutch assembly.
2. Inspect pinion for wear or burrs. If pinion is worn or burred, replace overrunning clutch assembly. If pinion is damaged, also inspect ring gear for wear or burrs.

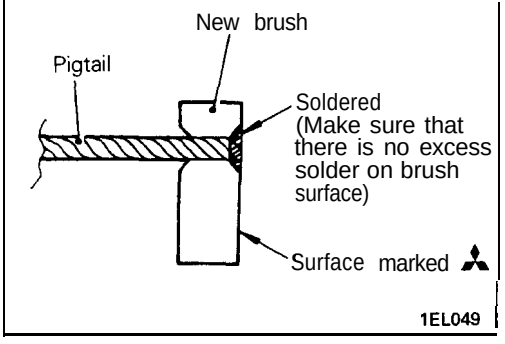
FRONT AND REAR BRACKET BUSHING

Inspect bushing for wear or burrs. If bushing is worn or burred, replace front bracket assembly or rear bracket assembly.



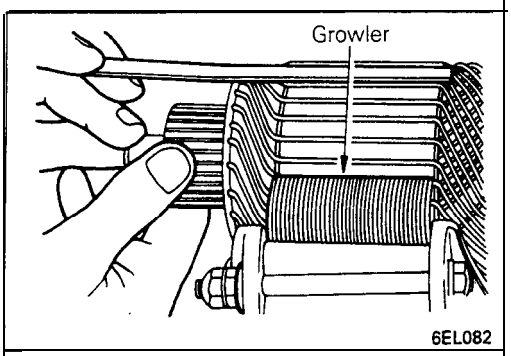
BRUSHES AND SPRINGS-REPLACEMENT

1. Brushes that are worn beyond wear limit line, or are oil-soaked, should be replaced.
2. When replacing field coil brushed, crush worn brush with pliers, taking care not to damage pigtail.



3. Sand pigtail end with sandpaper to ensure good soldering.
4. Insert pigtail into hole provided in new brush and solder it. Make sure that pigtail and excess solder do not come out onto brush surface.
5. When replacing ground brush, slide the brush from brush holder by prying retaining spring back.

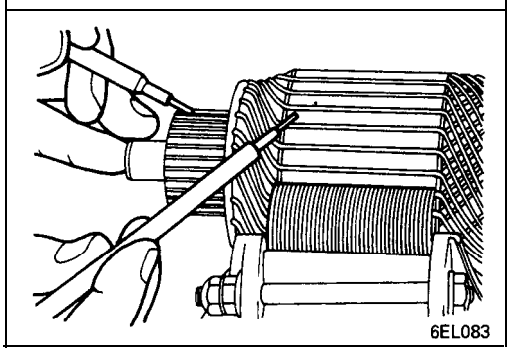
TSB Revision



TESTING ARMATURE

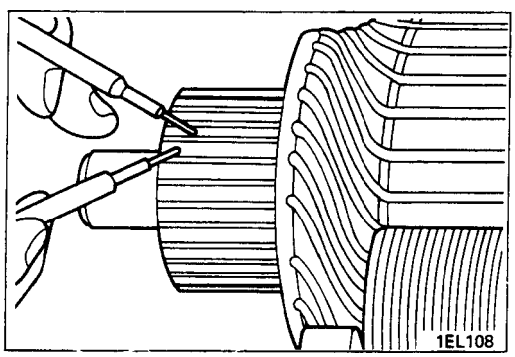
TESTING ARMATURE FOR SHORT-CIRCUIT

1. Place armature in a growler.
2. Hold a thin steel blade parallel and just above while rotating armature slowly in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace shot-ted armature.



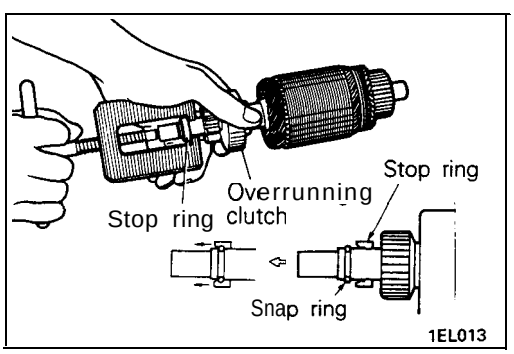
TESTING ARMATURE COIL FOR GROUNDING

Check the insulation between each commutator segment and armature coil core.
If there is no continuity, the insulation is in order.



INSPECTION OF ARMATURE COIL CONTINUITY

Check the continuity between segments. If there is continuity, the coil is in order.



SERVICE POINTS OF REASSEMBLY

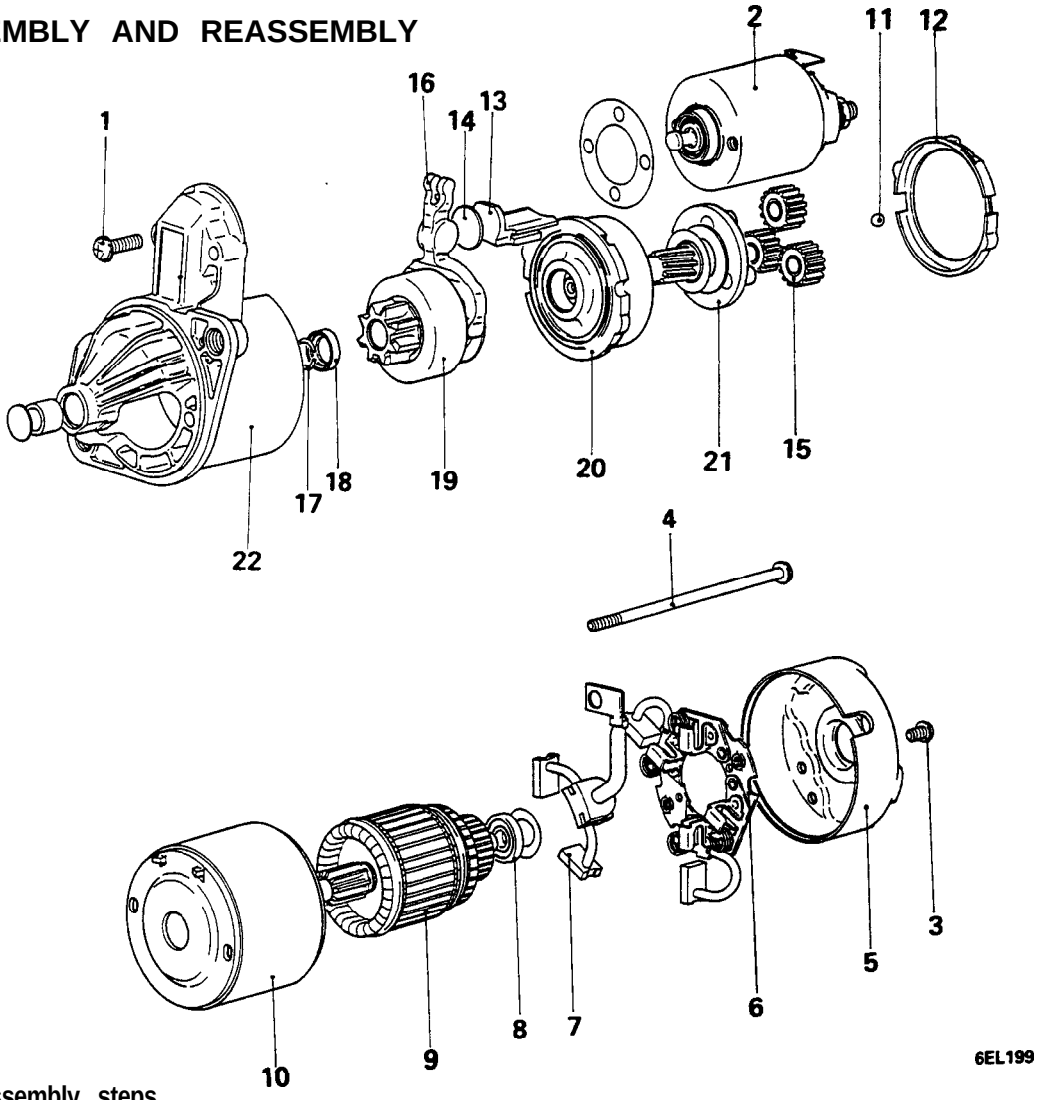
15. INSTALLATION OF STOP RING / 14. SNAP RING

Using a suitable pulling tool, pull overrunning clutch stop ring over snap ring.

TSB Revision

STARTER MOTOR (REDUCTION DRIVE TYPE)

DISASSEMBLY AND REASSEMBLY



Disassembly steps

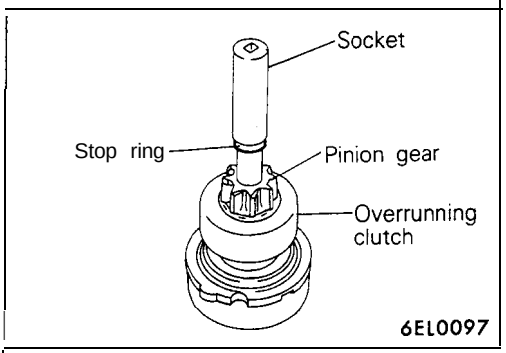
1. Screw
2. Magnetic switch
3. Screw
4. Screw
5. Rear bracket
6. Brush holder
7. Brush
8. Rear bearing
◆◆ 9. Armature
10. Yoke assembly
◆◆ 11. Ball
12. Packing A
13. Packing B
14. Plate
15. Planetary gear
16. Lever
● * ● + 17. Snap ring
◆◆ ● + 18. Stop ring
19. Overrunning clutch
20. Internal gear
21. Planetary gear holder
22. Front bracket

SERVICE POINTS OF DISASSEMBLY

9. REMOVAL OF ARMATURE/ 11. BALL

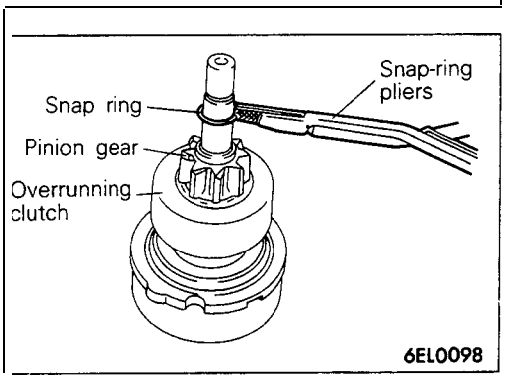
Caution
When removing the armature, take care not to lose the ball (which is used as a bearing) in the armature end.

TSB Revision



17. REMOVAL OF SNAP RING / 18. STOP RING

(1) Press the stop ring, by using an appropriate socket wrench, to the snap ring side.



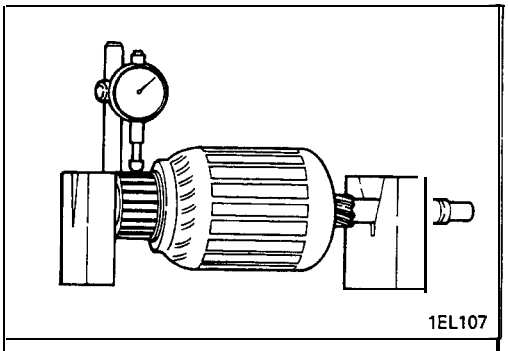
(2) After removing the snap ring (by using snap-ring pliers), remove the stop ring and the overrunning clutch.

CLEANING STARTER MOTOR PARTS

1. Do not immerse parts in cleaning solvent. Immersing the yoke and field coil assembly and/or armature will damage insulation. Wipe these parts with a cloth only.
2. Do not immerse drive unit in cleaning solvent. Overrunning clutch is pm-lubricated at the factory and solvent will wash lubrication from clutch.
3. The drive unit may be cleaned with a brush moistened with cleaning solvent and wiped dry with a cloth.

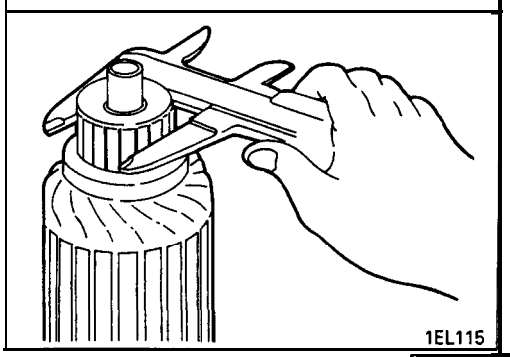
INSPECTION

CHECKING THE COMMUTATOR



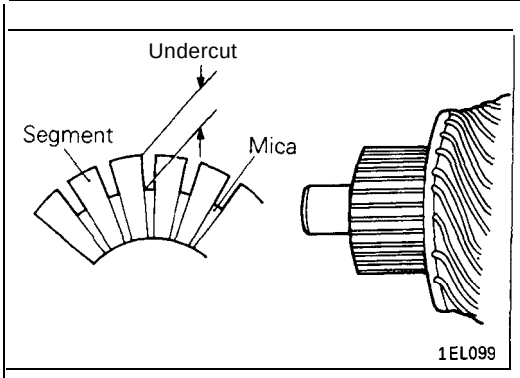
(1) Place the armature on a pair of V-blocks, and check the deflection by using a dial gauge.

Standard value: 0.05 mm (.0020 in.)
Limit: 0.1 mm (.0040 in.)

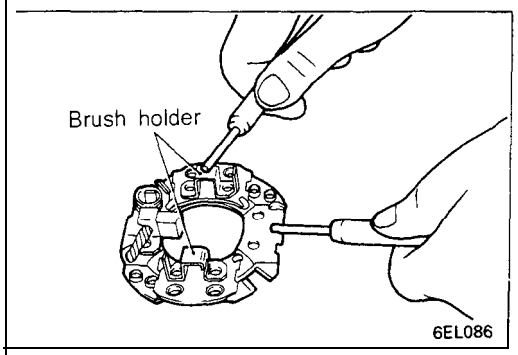


(2) Check the outer diameter of the commutator

Standard value: 29.4 mm (1.158 in.)
Limit: 28.4 mm (1.118 in.)

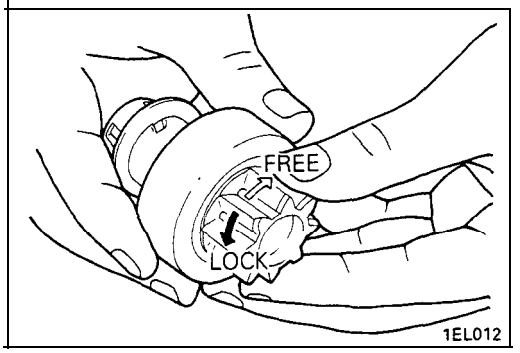


(3) Check the depth of the undercut between segments.
Standard value: 0.5 mm (.020 in.)



BRUSH HOLDER

Check for continuity between the brush holder plate and the brush holder.
The normal condition is non-continuity.

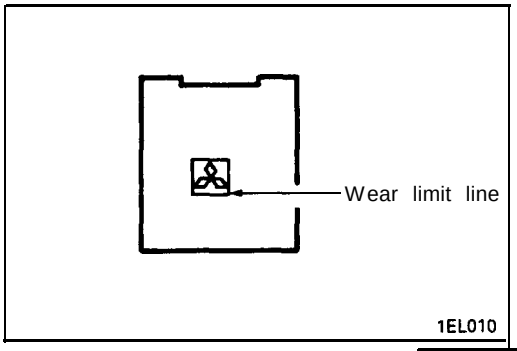


OVERRUNNING CLUTCH

1. While holding clutch housing, rotate the pinion. Drive pinion should rotate smoothly in one direction, but should not rotate in opposite direction. If clutch does not function properly, replace overrunning clutch assembly.
2. Inspect pinion for wear or burrs. If pinion is worn or burred, replace overrunning clutch assembly. If pinion is damaged, also inspect ring gear for wear or burrs.

FRONT AND REAR BRACKET BUSHING

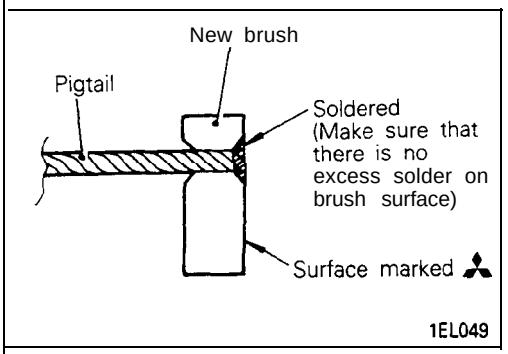
Inspect bushing for wear or burrs. If bushing is worn or burred, replace front bracket assembly or rear bracket assembly.



REPLACEMENT OF BRUSHES AND SPRINGS

1. Brushes that are worn beyond wear limit line, or oil-soaked, should be replaced.
2. When replacing field coil brushes, crush worn brush with pliers, taking care not to damage pigtail.

TSB Revision

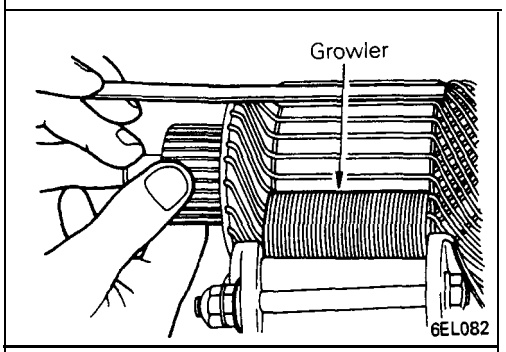


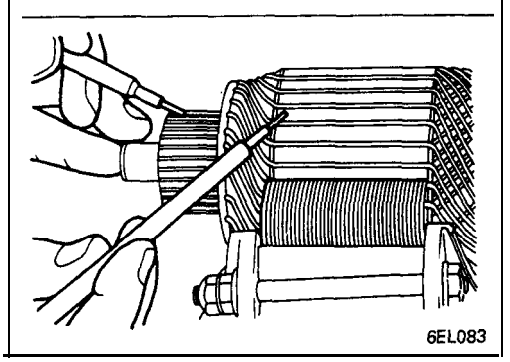
3. Sand pigtail end with sandpaper to ensure good soldering.
4. Insert pigtail into hole provided in new brush and solder it. Make sure that pigtail and excess solder do no come out onto brush surface.
5. When replacing ground brush, slide the brush from brush holder by prying retaining spring back.

TESTING ARMATURE

TESTING ARMATURE FOR SHORT-CIRCUIT

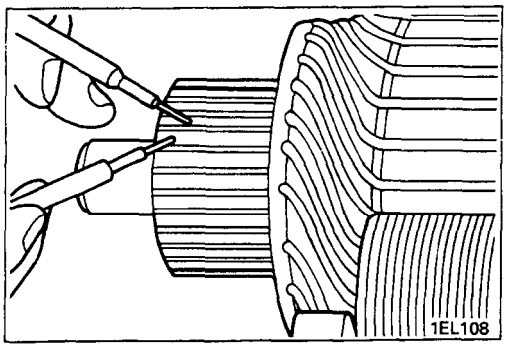
1. Place armature in a growler.
2. Hold a thin steel blade parallel and just above while rotating armature slowly in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace shorted armature.





TESTING ARMATURE FOR GROUNDING

Check the insulation between the armature coil cores and the commutator segments. They are normal if there is no continuity.



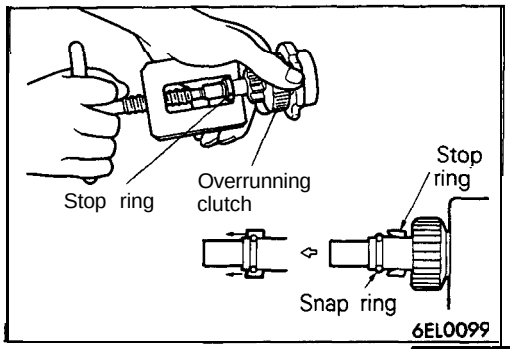
CHECKING FOR ARMATURE COIL WIRING DAMAGE/ DISCONNECTION

Check for continuity between segments. The condition is normal if there is continuity.

SERVICE POINTS OF REASSEMBLY

18. INSTALLATION OF STOP RING / 17. SNAP RING

Using a suitable pulling tool, pull overrunning clutch stop ring over snap ring.



TSB Revision

IGNITION SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

M16GB--

DISTRIBUTOR

Items	SOHC 16 VALVE	SOHC 8 VALVE
Type	With a built-in crankshaft position sensor and ignition coil	Contact pointless type
Identification No.	T6T58271	T3T64174/T2T53372*
Part No.	MD188610	MD125516/MD156722*
Advance mechanism	Controlled by engine control module	Controlled by engine control module
Firing order	1–3–4–2	1–3–4–2

*: <From 1991 models>

CRANKSHAFT POSITION SENSOR

Items	DOHC
Type	Contact pointless type
Identification No.	T1T49071/T1T49571*
Part No.	MD121786/MD148855*
Advance mechanism	Controlled by engine control module
Firing order	1–3–4–2

*: <From 1991 models>

IGNITION COIL

Items	SOHC 8 VALVE	DOHC
Type	Mold single-coil	Mold dual-coil
Identification No.	F-088	F-089
Part No.	MD104696	MD126461/MD149766*1 MD158956*2

*1: <1 990 models>
*2: <From 1991 models>

IGNITION POWER TRANSISTOR

Items	SOHC 8 VALVE	DOHC
Identification No.	J121	J122/J722T*
Part No.	MD104697	MD127742/MD149768*

*: <From 1990 models>

SPARK PLUG

Manufacturer	SOHC 16 VALVE	SOHC 8 VALVE, DOHC-Non turbo	DOHC-Turbo
NGK	BKR5E-11	BPR6ES-11	BPR6ES
NIPPON DENSO	K16PR-U11	W20EPR-11	W20EPR
CHAMPION	RC12YC4	RN9YC4	RN9YC

TSB Revision

SERVICE SPECIFICATIONS

M16GC-

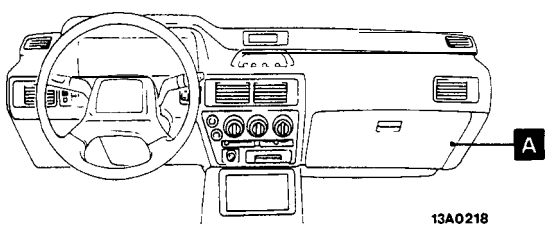
Items	Specifications
Standard value	
Basic ignition timing at curb idle speed	5°BTDC ± 2°
Actual ignition timing at curb idle speed	
<SOHC>	10°BTDC
<DOHC>	8°BTDC Non-turbo 12°BTDC Turbo
Ignition coil	
Primary coil resistance at 20°C (68°F) Ω	
<SOHC>	0.72–0.88
<DOHC>	0.77–0.95
Secondary coil resistance at 20°C (68°F) kΩ	
<SOHC>	10.89–13.31
<DOHC>	10.3–13.9
Spark plug gap mm (in.)	1.0–1.1 (.39–.43)

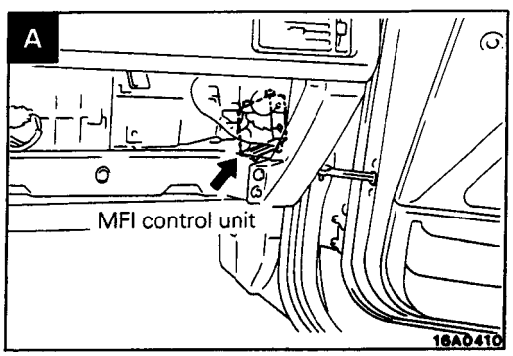
TROUBLESHOOTING

M16GHANb

COMPONENT LOCATION

Name	Symbol
MFI control unit	A



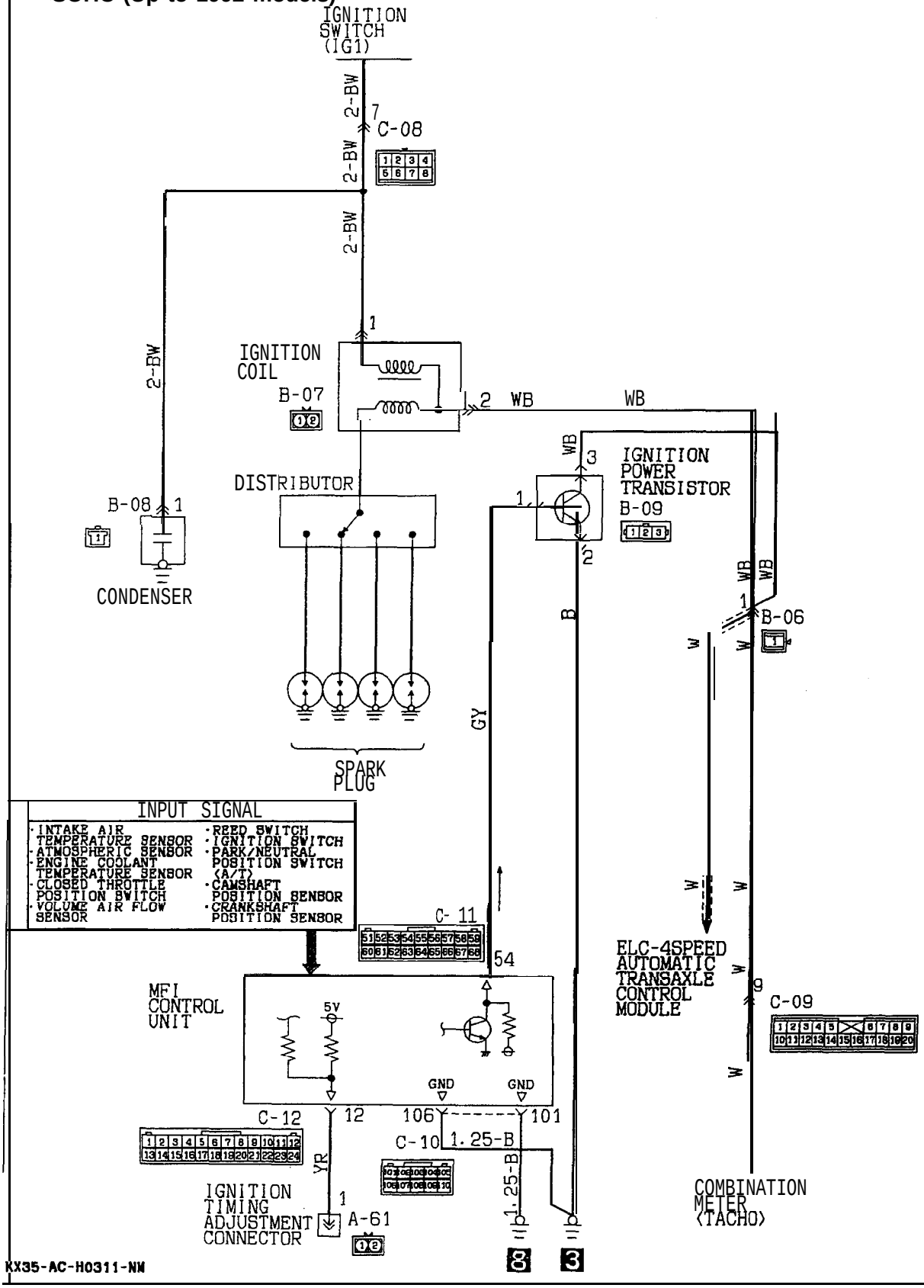


TSB Revision

IGNITION CIRCUIT

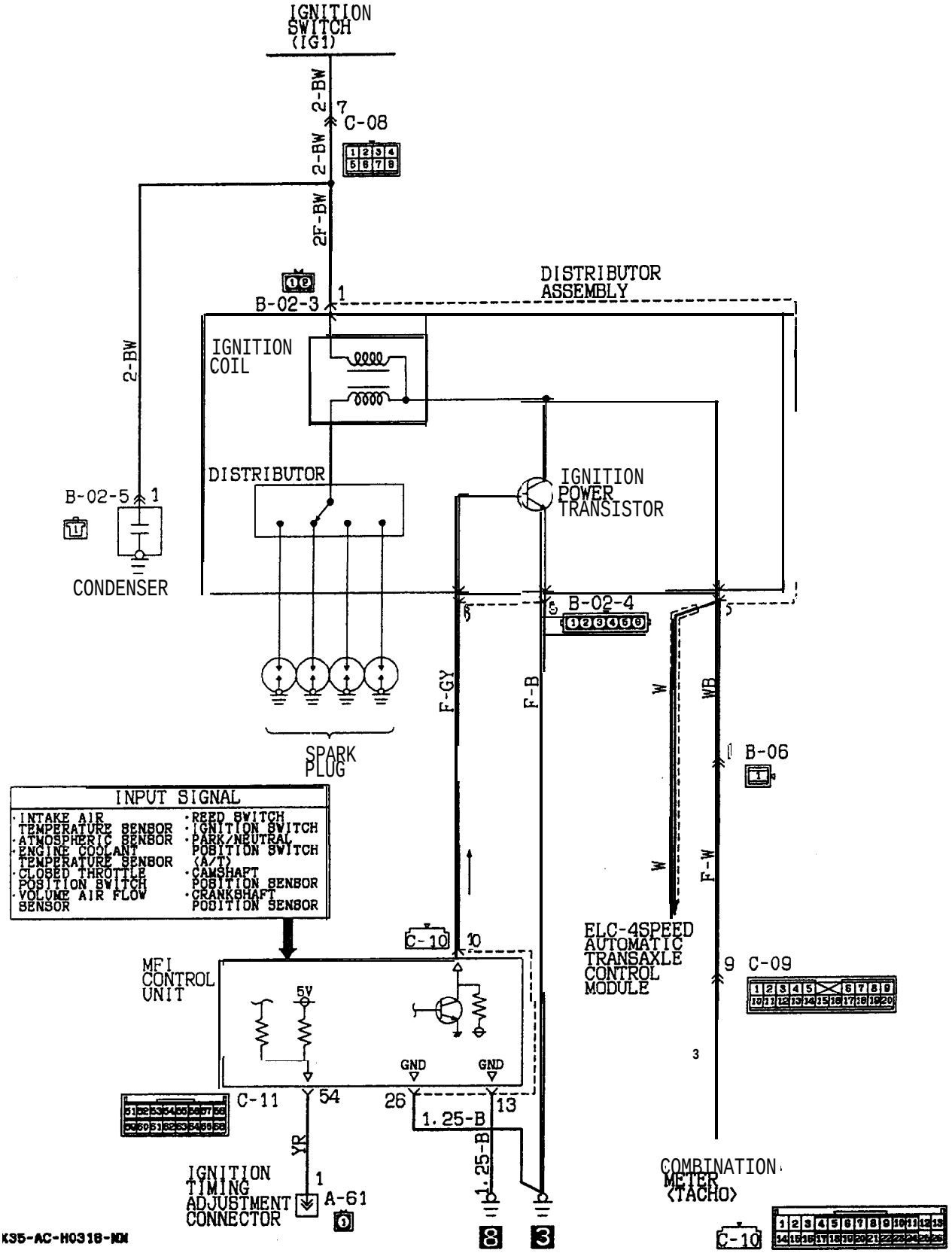
CIRCUIT DIAGRAM

<SOHC (Up to 1992 models)>



TSB Revision

<SOHC (From 1993 models)>

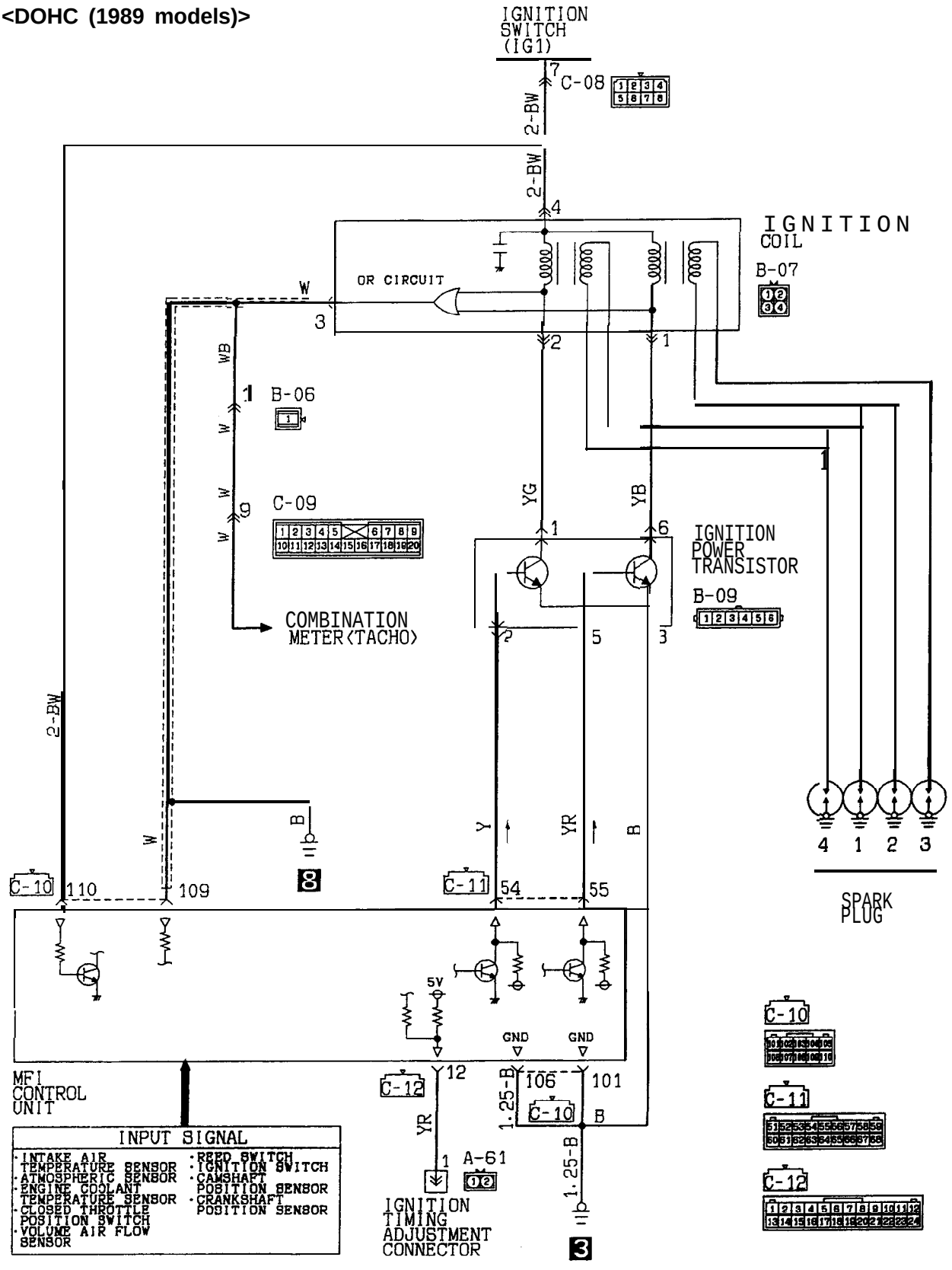


TSB Revision

IGNITION CIRCUIT

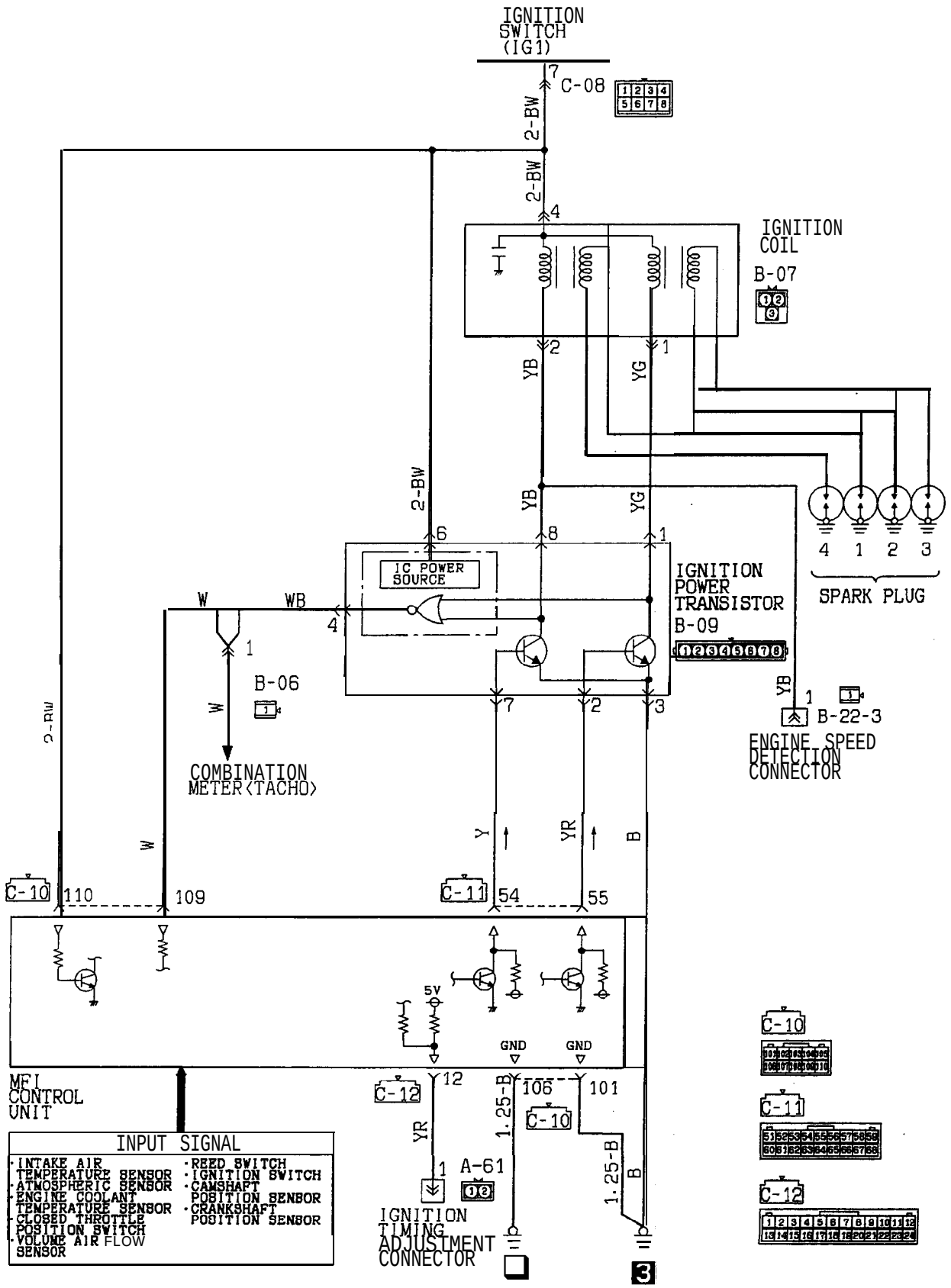
CIRCUIT DIAGRAM

<DOHC (1989 models)>



TSB Revision

<DOHC (1990 models)>



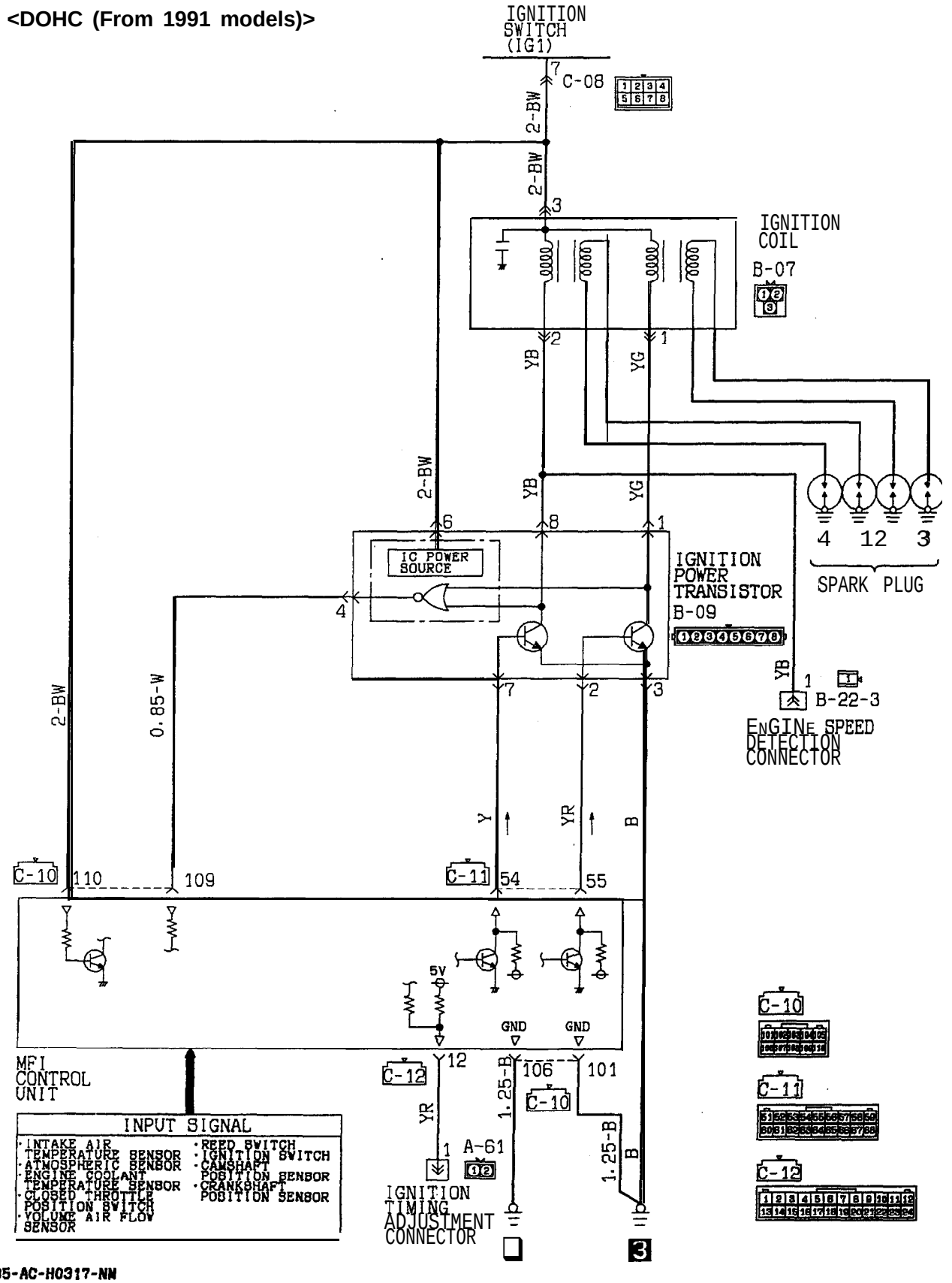
KX35-AC-H0312-NN

TSB Revision

IGNITION CIRCUIT

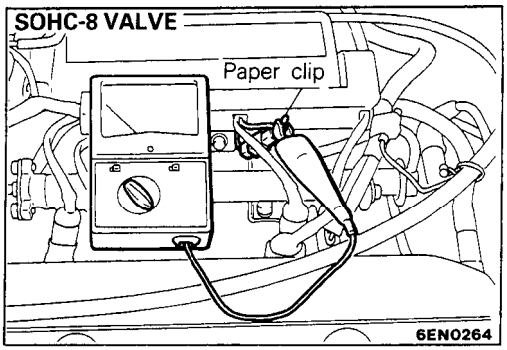
CIRCUIT DIAGRAM

<DOHC (From 1991 models)>



KX35-AC-H0317-NN

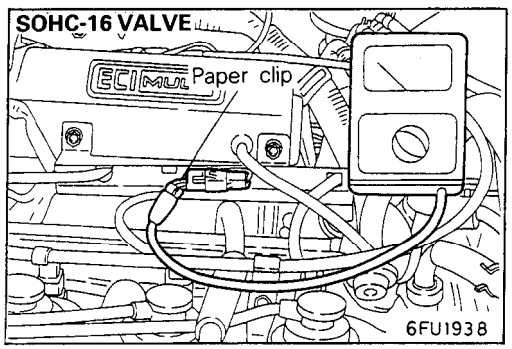
TSB Revision



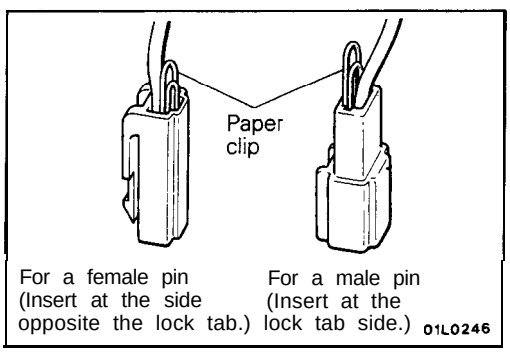
SERVICE ADJUSTMENT PROCEDURES

IGNITION TIMING ADJUSTMENT FOR SOHC ENGINE M16GIIJa

1. The vehicle should be prepared as follows before the inspection and adjustment.
- Engine coolant temperature: 85–95°C (185–205°F)
- Lights, electric cooling fan and accessories: OFF
- Steering wheel: neutral position
- Transaxle: neutral (N of P for A/T)

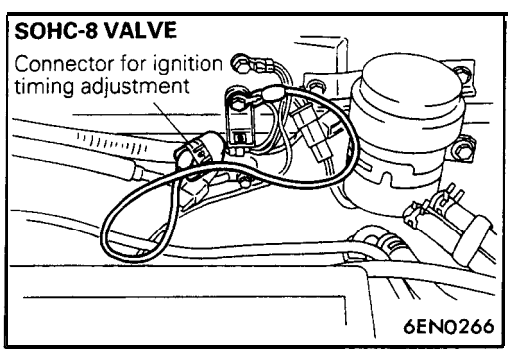


2. Insert the paper clip from wire side of the connector and connect a tachometer to the paper clip.
   Or connect the scan tool to the data link connector.
3. Connect a timing light.



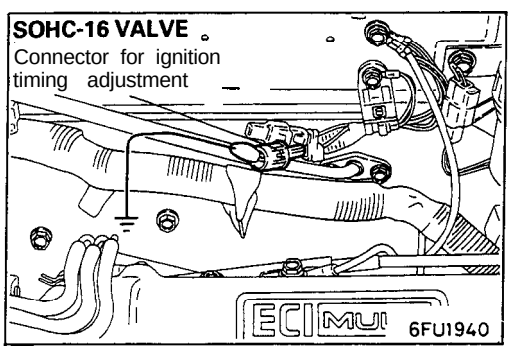
Caution
1. The connector contact should not be separated.
2. The paper clip should be inserted along the terminal surface.
3. The paper clip should be inserted at the correct side. If it is inserted incorrectly, the paper clip may become caught and cannot be removed.

For male pin: Insert to the lock tab side.
For female pin: Insert to the side opposite the lock tab side.



4. Start and run the engine at curb idle speed.
5. Check curb idle speed.

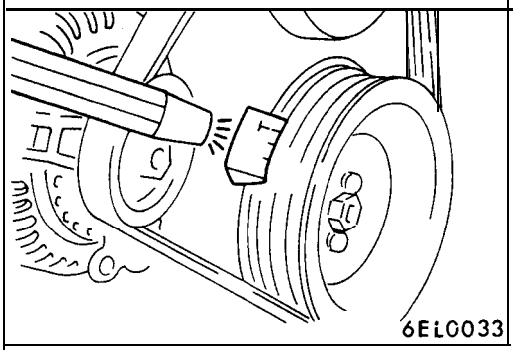
Curb idle speed: 750 ± 100 rpm (8 VALVE)
700 ± 100 rpm (16 VALVE)



6. Turn the ignition switch OFF.
7. With the engine stopped, connect a jumper wire clips to the terminal for ignition-timing adjustment and ground it.

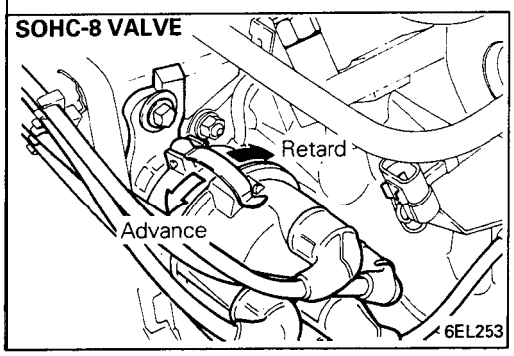
NOTE
Grounding the terminal for ignition timing adjustment will cause the ignition timing to enter the basic state.

TSB Revision



8. Start and run the engine at curb idle speed.
9. Check basic ignition timing and adjust if necessary.

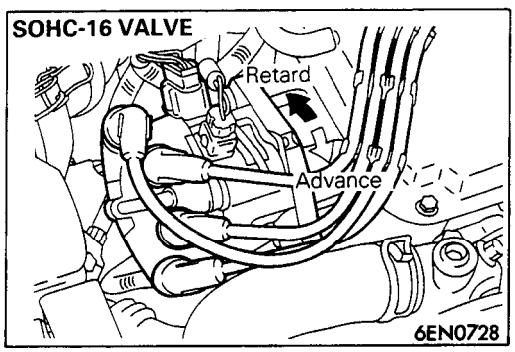
Basic ignition timing: 5°BTDC ± 2°



10. If not within the standard value range, loosen the distributor mounting nut and adjust by turning the distributor. Turning it clockwise retards the timing and turning it counterclockwise advances it.
11. After adjustment make sure that the distributor is secure. Be sure to tighten the fastening nut properly.
12. Stop the engine.
13. Disconnect the lead wire connected at step 7.
14. Start and run the engine at curb idle speed.
15. Check to be sure that the idling ignition timing is the correct timing.

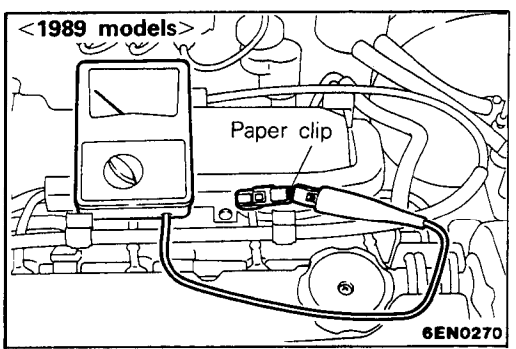
Actual ignition timing: 10°BTDC

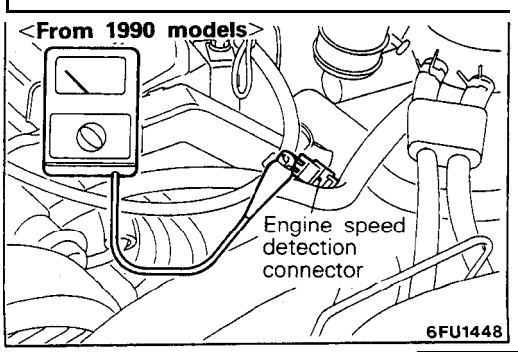
NOTE
1. Ignition timing may vary slightly but this is not a problem.
2. There may be more spark advance at high altitudes, but this is not a problem.



IGNITION TIMING ADJUSTMENT FOR DOHC ENGINE M16GIIIa

1. The vehicle should be prepared as follows before the inspection and adjustment.
- Engine coolant temperature: 85–95°C (185–205°F)
- Lights, electric cooling fan and accessories: OFF
- **Steering wheel: neutral position**
- Transaxle: neutral



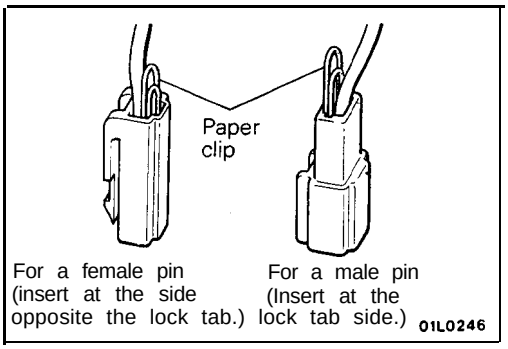


2. Insert the paper clip from wire side of the connector and connect a tachometer to the paper clip.

NOTE
1. Don't use the scan tool.
2. If the scan tool is left attached to the data link connector, ignition timing will become normal ignition timing. It will not enter the basic ignition timing.

3. Connect a timing light.

TSB Revision



Caution

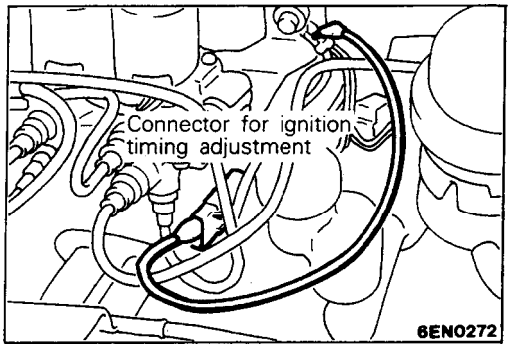
1. **The connector contact should not be separated.**
2. **The paper clip should be inserted along the terminal surface.**
3. **The paper clip should be inserted at the correct side. If it is inserted incorrectly, the paper clip may become caught and cannot be removed.**

   For male pin: Insert to the lock tab side.
   For female pin: Insert to the side opposite the lock tab side.

4. Start and run the engine at curb idle speed.
5. Check curb idle speed.

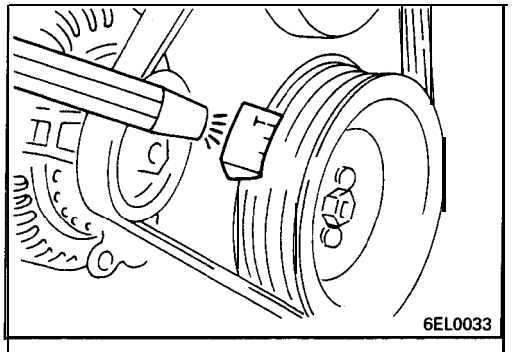
   Curb idle speed: 750 ± 100 rpm

   NOTE
   <From 1990 models>
   For rpm, one-half of the actual engine rpm is indicated, so the actual engine rpm in two times the indicated value shown by the tachometer.



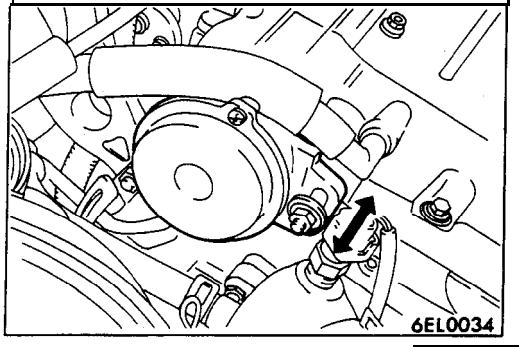
6. Turn the ignition switch OFF.
7. With the engine stopped, connect a jumper wire clips to the terminal for ignition-timing adjustment and ground it.

   NOTE
   Grounding the terminal for ignition timing adjustment will cause the ignition timing to enter the basic state.



8. Start and run the engine at curb idle speed.
9. Check basic ignition timing and adjust if necessary.

   Basic ignition timing: 5°BTDC ± 2"



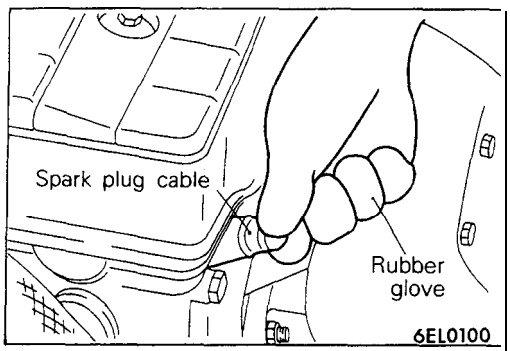
10. If not within the standard value range, loosen the crankshaft position sensor mounting nut and adjust by turning the crankshaft position sensor. Turning it clockwise advances the timing and turning it counterclockwise retards it.
11. After adjustment make sure that the distributor is secure. Be sure to tighten the fastening nut properly.
12. Stop the engine.
13. Disconnect the lead wire connected at step 7.

TSB Revision

14. Start and run the engine at curb idle speed.
15. Check to be sure that the idling ignition timing is the correct timing.

Actual ignition timing: 8°BTDC Non-turbo
12°BTDC Turbo

NOTE
1. Ignition timing may vary slightly but this is not a problem.
2. There may be more spark advance at high altitudes, but this is not a problem.

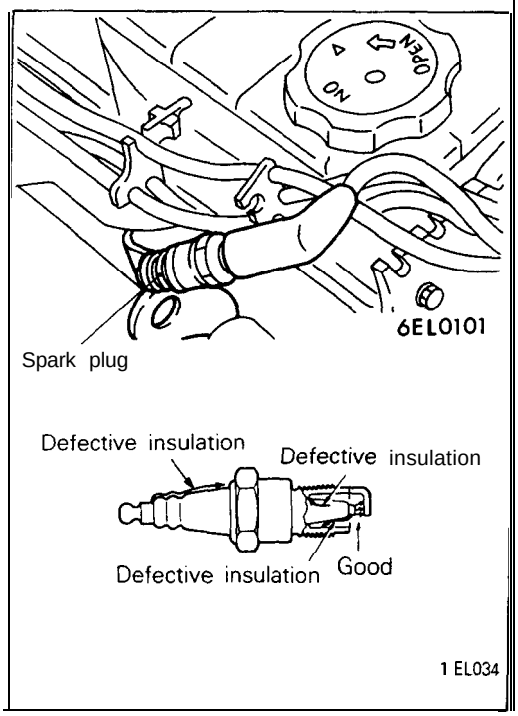


SPARK PLUG CABLE TEST M16GIGJa

(1) Disconnect, one at a time, each of the spark plug cables while the engine is idling to check whether the engine's running performance changes or not.

Caution
Wear rubber gloves while doing so.

(2) If the engine performance does not change, check the resistance of the spark plug cable, and check the spark plug itself.



SPARK PLUG TEST

(1) Remove the spark plug and connect to the spark plug cable.
(2) Ground the spark plug outer electrode (body), and crank the engine.
Check to be sure that there is an electrical discharge between the electrodes at this time.

HIGH TENSION CABLE SPARK TEST <SOHC-8 VALVE>

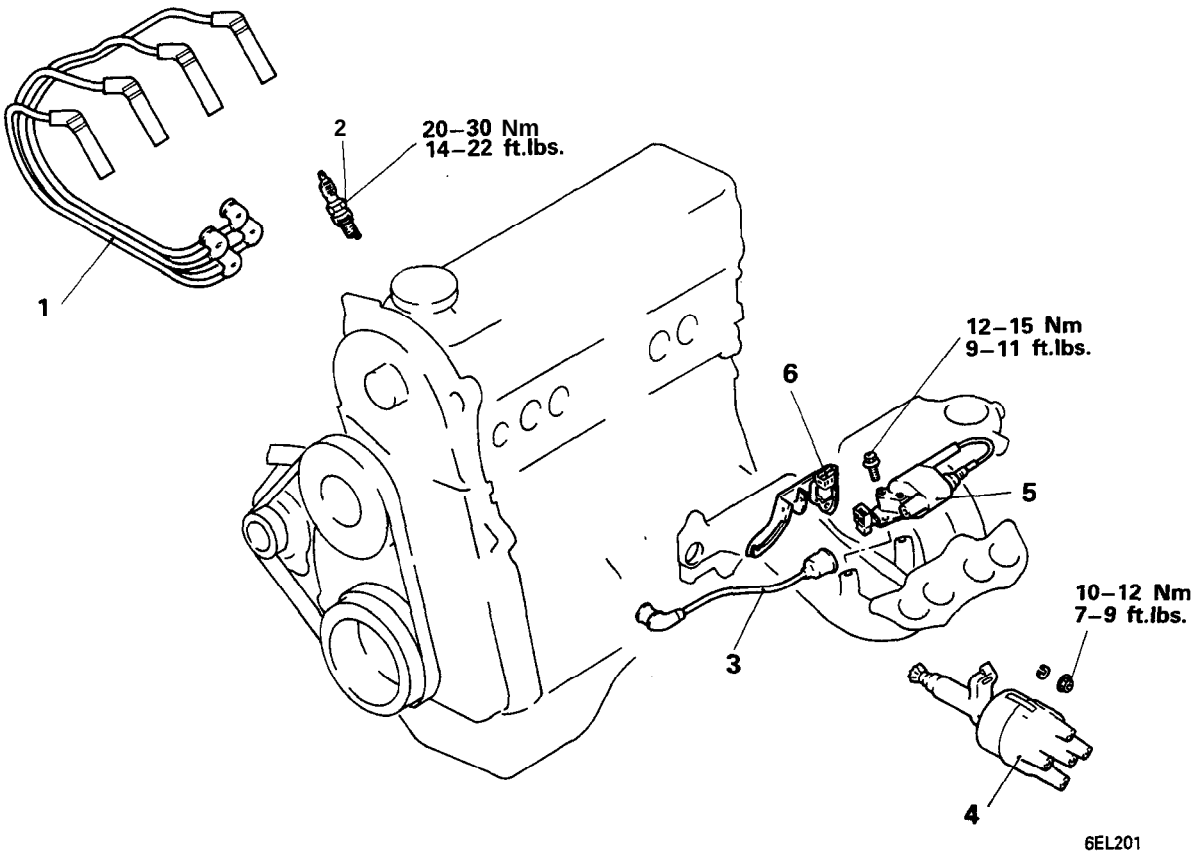
(1) Disconnect the high-tension cable from the distributor cap.
(2) Hold the high tension cable about 6-8 mm (.24–.31 in.) away from engine proper (grounding portion such as cylinder block) and crank engine to verify that sparks are produced.

TSB Revision

IGNITION SYSTEM

M16GJAPa

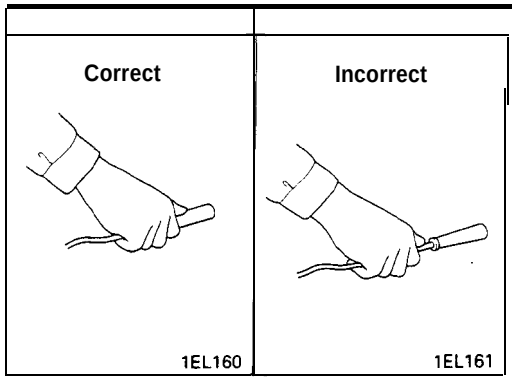
REMOVAL AND INSTALLATION <SOHC-8 VALVE>



Removal steps

- ◆◆◆◆ 1. Spark plug cable
- 2. Spark plug
- ◆◆ 3. High tension cable
- ◆◆ 4. Distributor
- 5. Ignition coil
- 6. ignition power transistor

TSB Revision



SERVICE POINTS OF REMOVAL

1. REMOVAL OF SPARK PLUG CABLE/3. HIGH TENSION CABLE

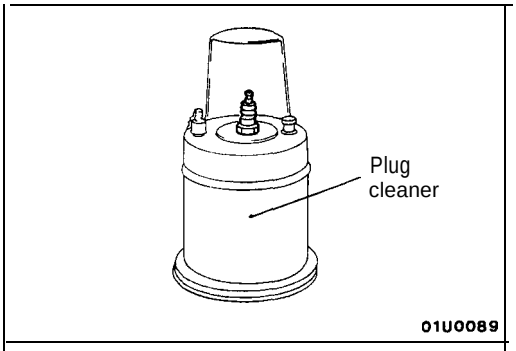
When disconnecting cable, hold cap.

INSPECTION

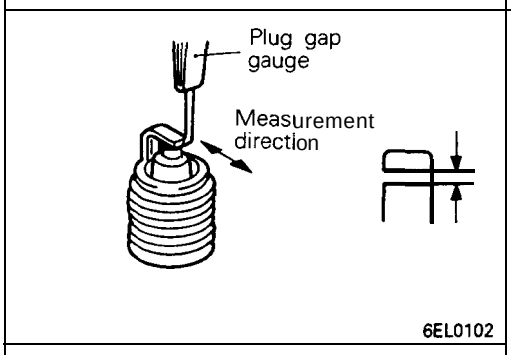
SPARK PLUG

(1) Check the following items to see that electrodes are not burnt, and insulators are not broken, and how porcelain insulator is burnt.

- Broken insulators
- Wearing electrodes
- Deposited carbon
  For cleaning, use a plug cleaner or wire brush. Clean porcelain insulator above shell as well.
- Damaged or broken gasket.
- Burnt condition of porcelain insulator at spark gap.
  Dark deposit of carbon indicates too rich a fuel mixture or extremely low air intake. Also, misfiring due to excessive spark gap is suspected.
  White burn indicates too lean a fuel mixture or excessively advanced ignition timing. Also insufficient plug tightening is suspected.

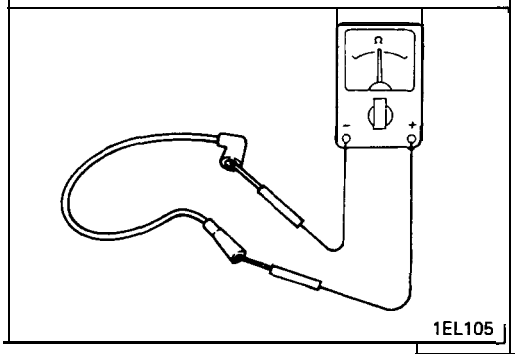


(2) Clean with a plug cleaner.
Use an air gun to remove dust deposited on plug threads.



(3) Check plug gap using a plug gap gauge and adjust if it is not as specified.

Standard value: 1.0–1.1 mm (.039–.043 in.)



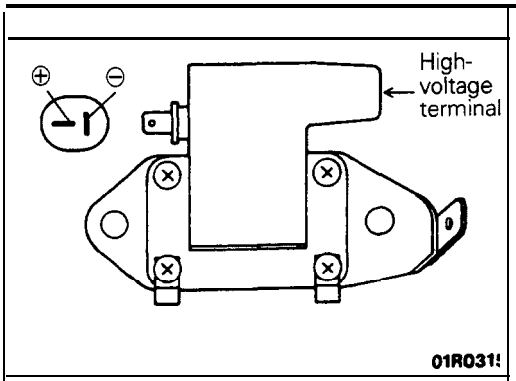
SPARK PLUG CABLE

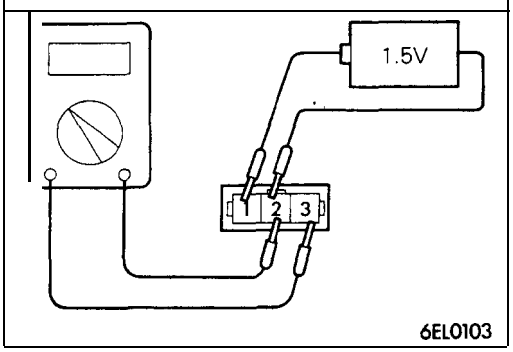
(1) Check cap and coating for cracks.
(2) Measure resistance.

Unit: kΩ

High tension cable	Spark plug cable			
	No. 1	No. 2	No. 3	No. 4
Approx. 2.7	10.1	11.8	11.8	14.2

TSB Revision





IGNITION COIL

(1) Measurement of the primary coil resistance
Measure the resistance of the positive (+) terminal and negative (–) terminal of the ignition coil.

Standard value: 0.72–0.88 Ω

(2) Measurement of the secondary coil resistance
Measure the resistance of the positive (+) terminal and the high-voltage terminal.

Standard value: 10.89– 13.31 kΩ

IGNITION POWER TRANSISTOR

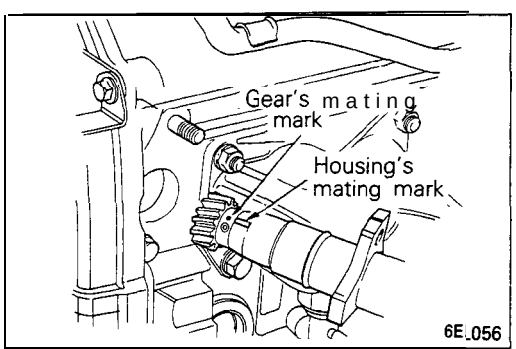
NOTE
An analog-type circuit tester should be used.

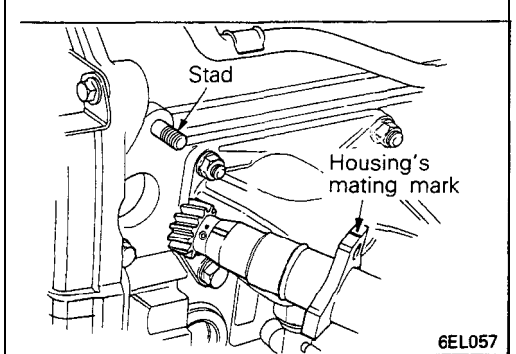
(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ② of the ignition power transistor; then check whether there is continuity between terminal ③ and terminal ② when terminal ① and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (–) probe of the circuit tester to terminal ③.

Terminal ① and (+) terminal	Terminal ③ and terminal ②
Connected	Continuity
Unconnected	No continuity

(2) Replace the ignition power transistor if there is a malfunction.





SERVICE POINTS OF INSTALLATION

4. INSTALLATION OF DISTRIBUTOR

(1) Turn the crankshaft so that the No. 1 cylinder is at top dead center.
(2) Align the distributor housing and gear mating marks.

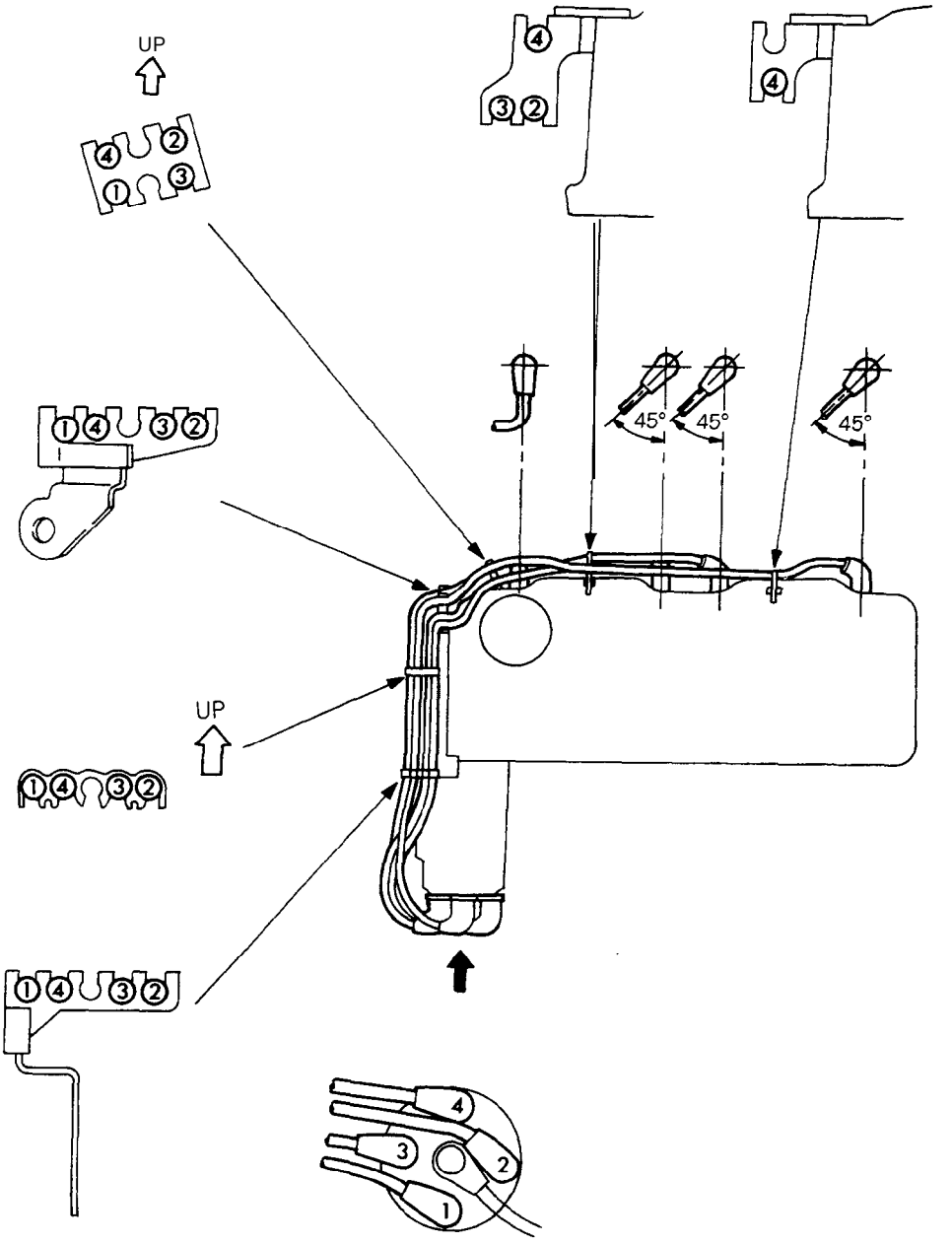
(3) Install the distributor to the engine while aligning the fine cut (groove or projection) of the distributor's installation flange with the center of the distributor installation stud.

TSB Revision

1. INSTALLATION OF SPARK PLUG CABLE

Improper arrangement of spark plug cables will induce voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.

1. Install the spark plug cable clamps as shown in the illustration.
2. The numerals on the support and clamp indicate the spark plug cable No.
3. Pay attention to the following items when the spark plug cables are installed.
   (1) Install the cables securely to avoid possible contact with metal parts.
   (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.

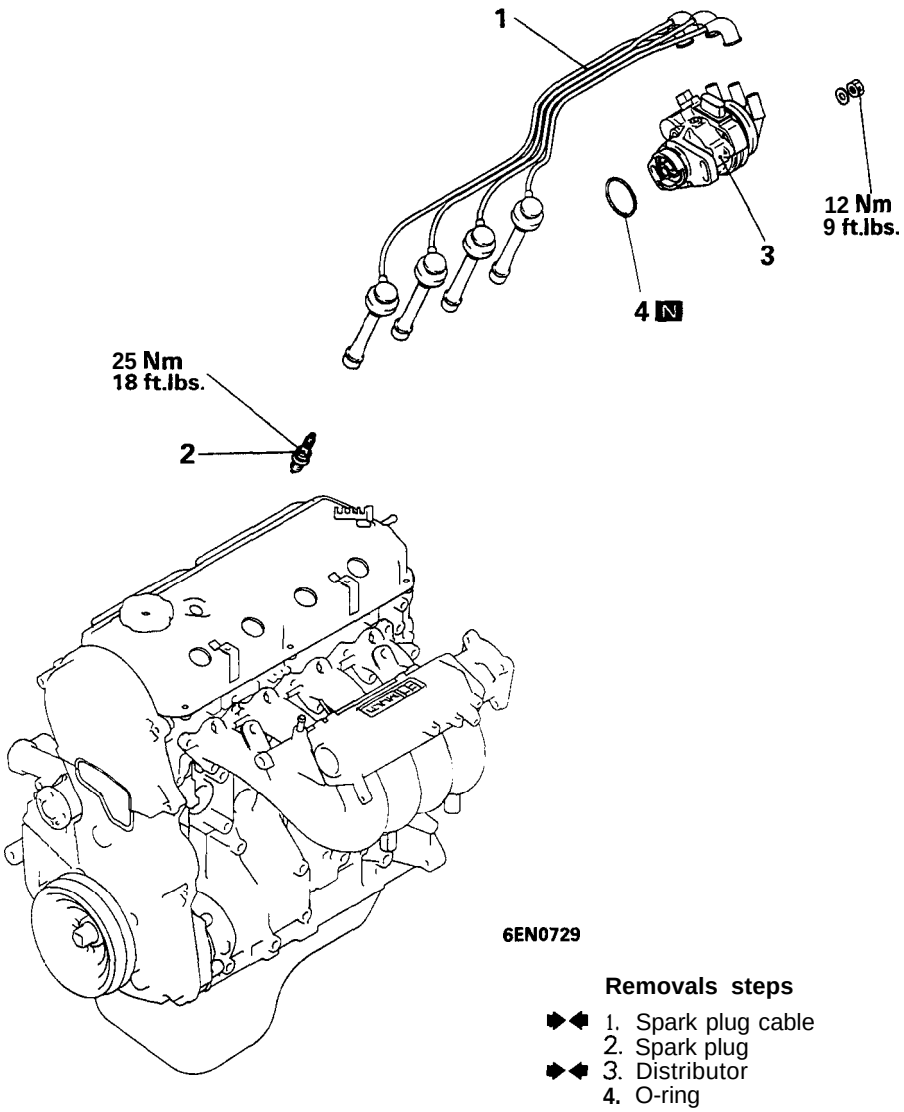


6EL0104

TSB Revision

IGNITION SYSTEM

REMOVAL AND INSTALLATION <SOHC-16 VALVE>



Removals steps

1. Spark plug cable
2. Spark plug
3. Distributor
4. O-ring

INSPECTION

SPARK PLUG

Refer to P.16-45 for inspection procedures.

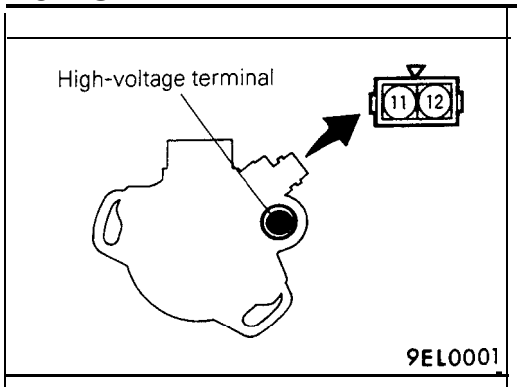
SPARK PLUG CABLE

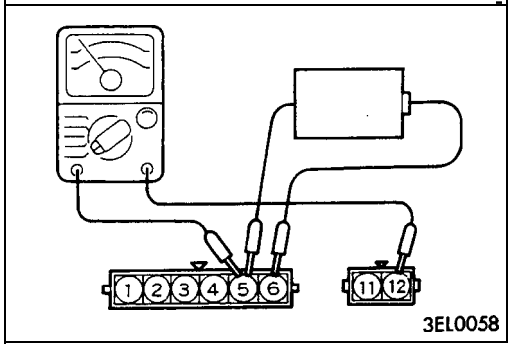
(1) Check cap and coating for cracks.
(2) Measure resistance.

Unit: kΩ

Spark plug cable			
No.1	No.2	No.3	No.4
12.6	11.7	9.4	8.5

TSB Revision





IGNITION COIL

(1) Measurement of the primary coil resistance
Measure the resistance of the positive terminal ⑪ and negative terminal ⑫ of the ignition coil.

Standard value: 0.9–1.2 Ω

(2) Measurement of the secondary coil resistance
Measure the resistance of the positive terminal ⑪ and the high-voltage terminal.

Standard value: 20–29 kΩ

IGNITION POWER TRANSISTOR

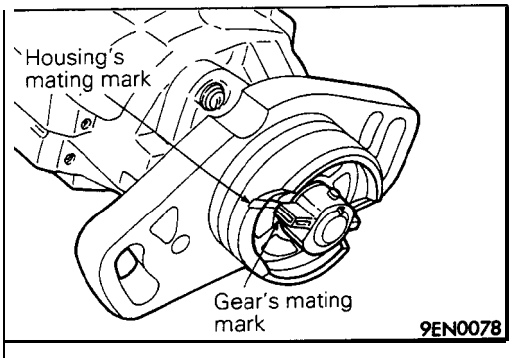
NOTE
An analog-type circuit tester should be used.

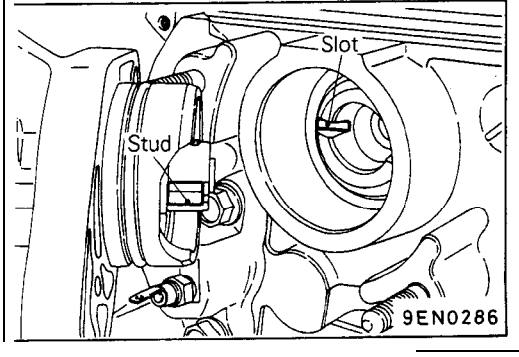
(1) Connect the negative (–) terminal of the 1.5V power supply to terminal ⑤ of the ignition power transistor; then check whether there is continuity between terminal ⑤ and terminal ⑫ when terminal ⑥ and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (–) probe of the circuit tester to terminal ⑫.

Terminal ⑤ and terminal ⑫inal	
Continuity	
No continuity	

(2) Replace the ignition power transistor if there is a malfunction.





SERVICE POINTS OF INSTALLATION

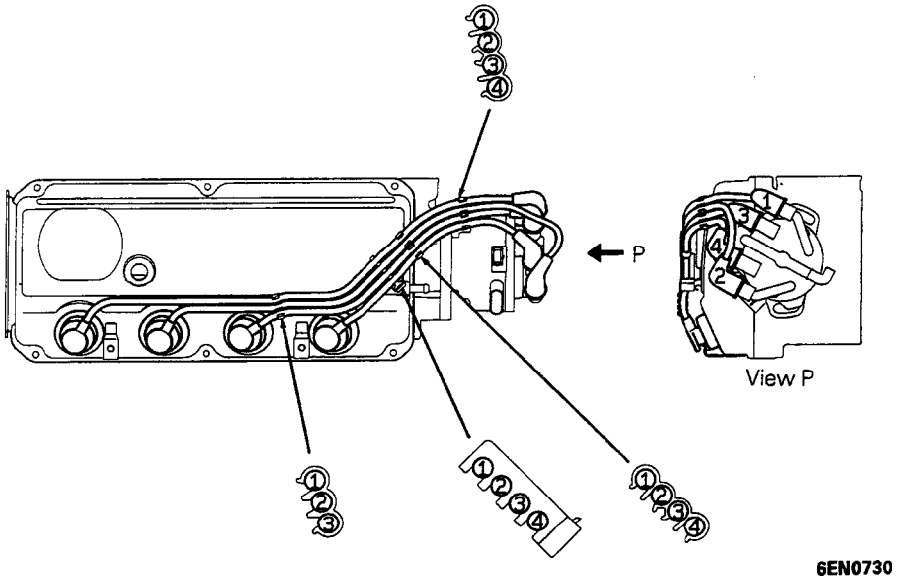
3. INSTALLATION OF DISTRIBUTOR

(1) Turn the crankshaft so that the No. 1 cylinder is at top dead center.
(2) Align the distributor housing and gear mating marks.
(3) Install the distributor to the engine while aligning the slot or groove of the distributor's installation flange with the distributor installation stud.

1. INSTALLATION OF SPARK PLUG CABLE

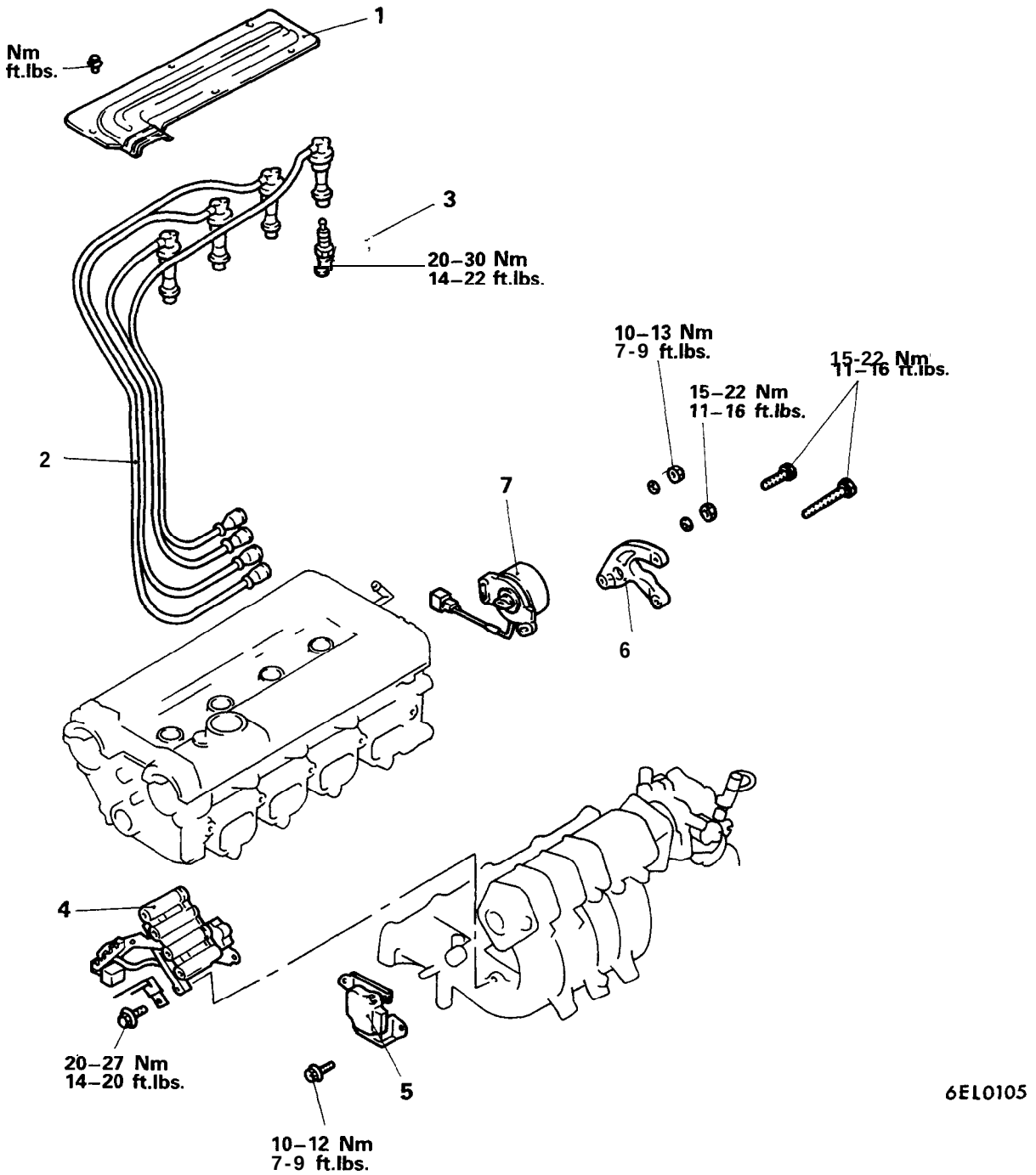
Improper arrangement of spark plug **cables will induce** voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.

1. Install the spark plug cable clams as shown in the illustration.
2. The numerals on the support and clamp indicate the spark plug cable No.
3. Pay attention to the following items when the spark plug cables are installed.
   (1) Install the cables securely to avoid possible contact with metal parts.
   (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.



TSB Revision

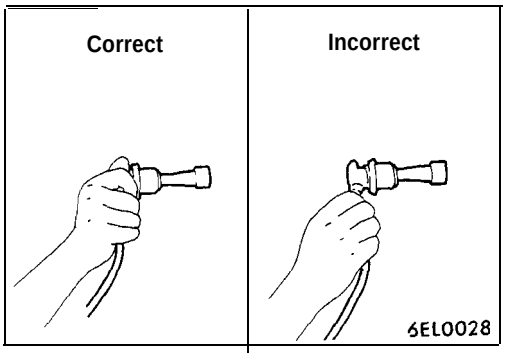
REMOVAL AND INSTALLATION <DOHC>



Removal steps

1. Center cover
2. Spark plug cable
3. Spark plug
4. ignition coil
5. Ignition power transistor
6. Throttle body stay
7. Crankshaft position sensor

TSB Revision



SERVICE POINTS OF REMOVAL

2. REMOVAL OF SPARK PLUG CABLE

When disconnecting cable, hold cap.

INSPECTION

SPARK PLUG

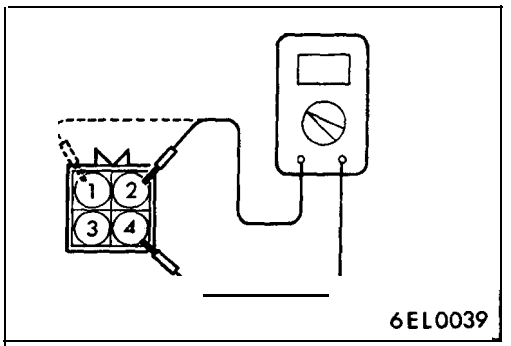
Refer to P.16-44 for inspection procedures.

SPARK PLUG CABLE

(1) Check cap and coating for cracks.
(2) Measure resistance.

Unit: kΩ

Spark plug cable			
No. 1	No. 2	No. 3	No. 4
5.8	8.4	10.6	9.7

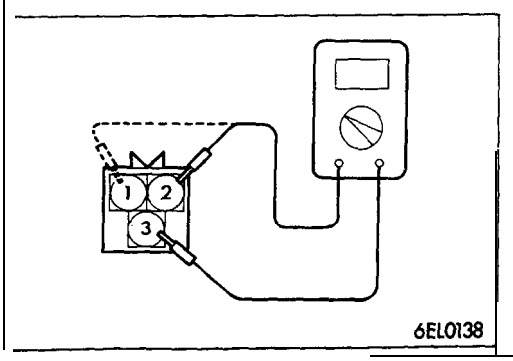


IGNITION COIL

1989 models

(1) Measurement of the primary coil resistance.
(2) Measure the resistance between connector terminals 4 and 2 (the coils at the No. 1 and No. 4 cylinder sides) of the ignition coil, and between terminals 4 and 1 (the coils at the No. 2 and No. 3 cylinder sides).

Standard value: 0.77–0.95 Ω

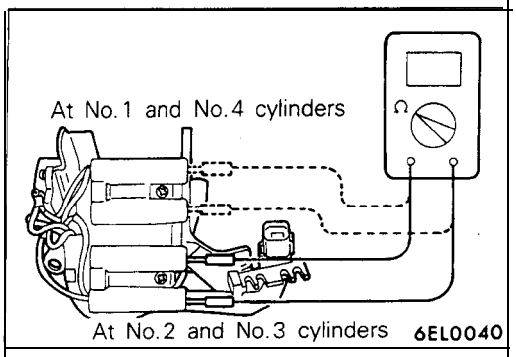


From 1990 models

(1) Measurement of the primary coil resistance.
(2) Measure the resistance between connector terminals 3 and 2 (the coils at the No. 1 and No. 4 cylinder sides) of the ignition coil, and between terminals 3 and 1 (the coils at the No. 2 and No. 3 cylinder sides).

Standard value: 0.77–0.95 Ω

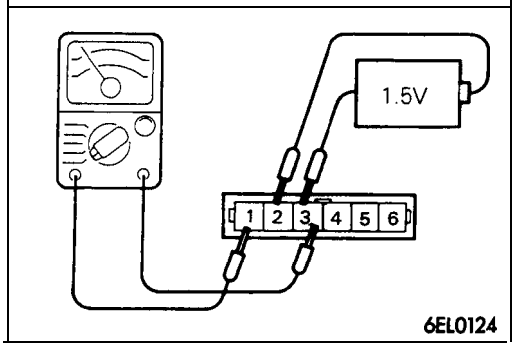
TSB Revision



(3) Measurement of secondary coil resistance.
(4) Measure the resistance between the high-voltage terminals for the No. 1 and No. 4 cylinders, and between the high-voltage terminals for the No. 2 and No. 3 cylinders.

Standard value: 10.3–13.9 kΩ

Caution
Be sure, when measuring the resistance of the secondary coil, to disconnect the connector of the ignition coil.



IGNITION POWER TRANSISTOR

1989 models

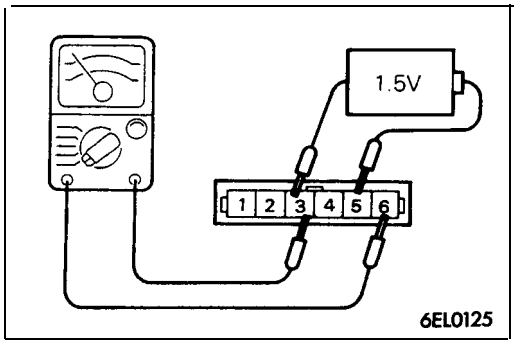
NOTE
An analog-type circuit tester should be used

No. l-No. 4 coil side

(1) Connect the negative (−) terminal of the 1.5V power supply to terminal ③ of the ignition power transistor; then check whether there is continuity between terminal ① and terminal ③ when terminal ② and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (−) probe of the circuit tester to terminal ①.

Terminal ② and (+) terminal	Terminal ① and terminal ③
Connected	Continuity
Unconnected	No continuity



No. 2–No. 4 coil side

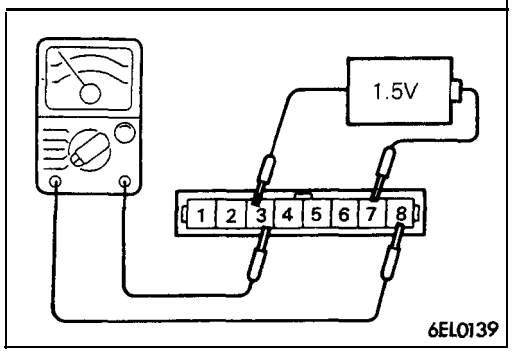
(1) Connect the negative (−) terminal of the 1.5V power supply to terminal ③ of the ignition power transistor; then check whether there is continuity between terminal ⑥ and terminal ③ when terminal ⑤ and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (−) probe of the circuit tester to terminal ⑥.

Terminal ⑤ and (+) terminal	Terminal ⑥ and terminal ③
Connected	Continuity
Unconnected	No continuity

If the problem is still evident after checking as described above, replace the ignition power transistor.

TSB Revision



From 1990 models

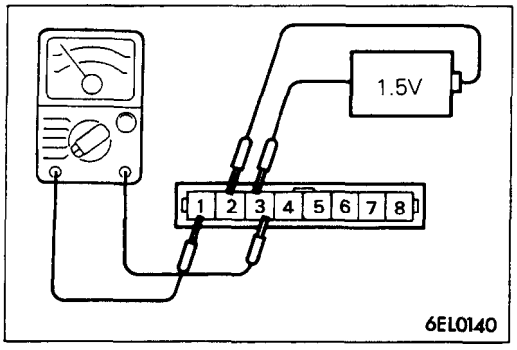
NOTE
An analog-type circuit tester should be used.

No. 1–No. 4 coil side

(1) Connect the negative (−) terminal of the 1.5V power supply to terminal ③ of the ignition power transistor; then check whether there is continuity between terminal ③ and terminal ⑧ when terminal ⑦ and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (−) probe of the circuit tester to terminal ⑧.

Terminal ⑦ and (+) terminal	Terminal ③ and terminal ⑧
Connected	Continuity
Unconnected	No continuity



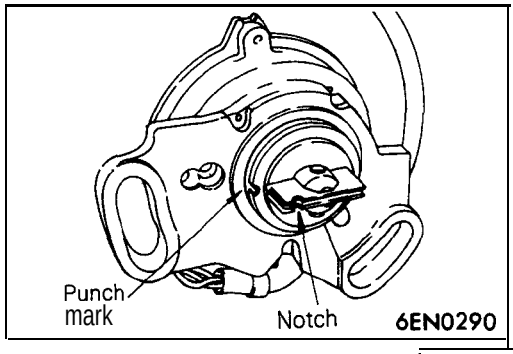
No. 2–No. 4 coil side

(1) Connect the negative (−) terminal of the 1.5V power supply to terminal ③ of the ignition power transistor; then check whether there is continuity between terminal ① and terminal ③ when terminal ② and the positive (+) terminal are connected and disconnected.

NOTE
Connect the negative (−) probe of the circuit tester to terminal ①.

Terminal ② and (+) terminal	Terminal ① and terminal ③
Connected	Continuity
Unconnected	No continuity

If the problem is still evident after checking as described above, replace the ignition power transistor.



SERVICE POINTS OF INSTALLATION

7. INSTALLATION OF CRANKSHAFT POSITION SENSOR

(1) Turn the crankshaft so that the No. 1 cylinder is at top dead center.
(2) Align the punch mark on the crankshaft position sensor housing with the notch in plate.
(3) Install the crankshaft position sensor on the cylinder head.

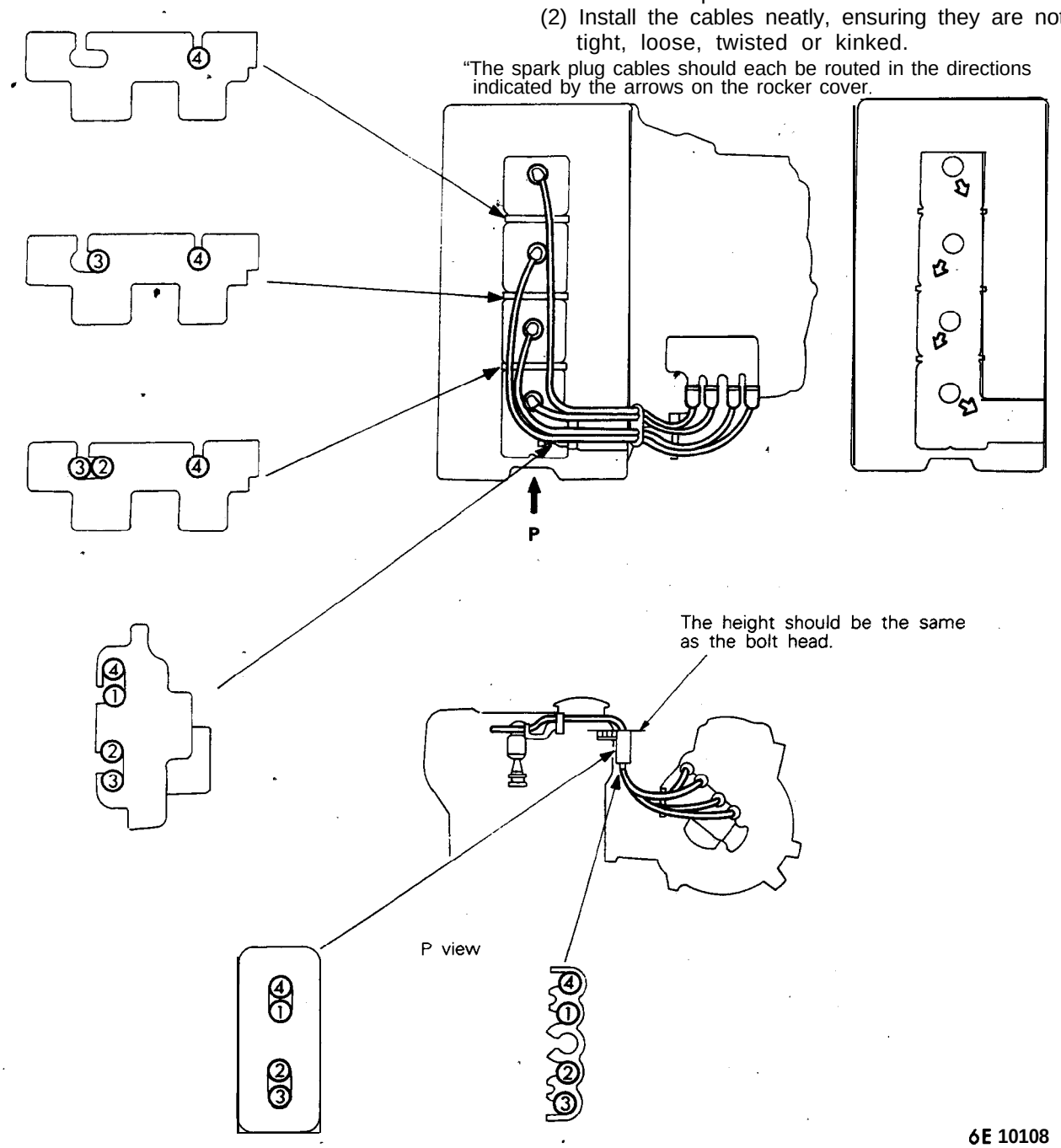
TSB Revision

2. INSTALLATION OF SPARK PLUG CABLE

Improper arrangement of spark plug cables will induce voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.

1. Install the spark plug cable clamps as shown in the illustration.
2. The numerals on the support and clamp indicate the spark plug cable No.
3. Pay attention to the following items when the spark plug cables are installed.
   (1) Install the cables securely to avoid possible contact with metal parts.
   (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.

"The spark plug cables should each be routed in the directions indicated by the arrows on the rocker cover.



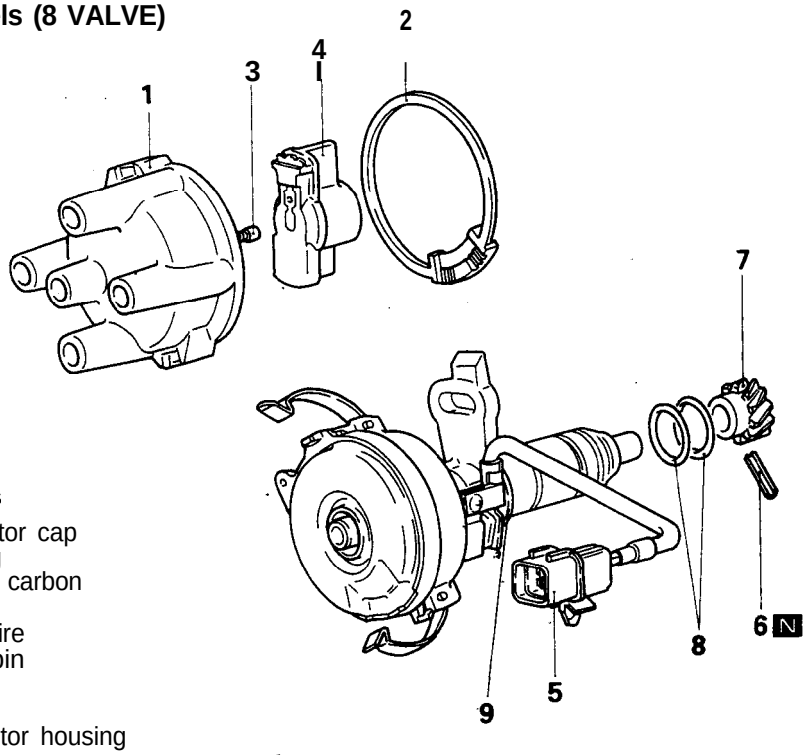
TSB Revision

DISTRIBUTOR <SOHC>

M16GKCDa

DISASSEMBLY AND REASSEMBLY

Up to 1990 models (8 VALVE)

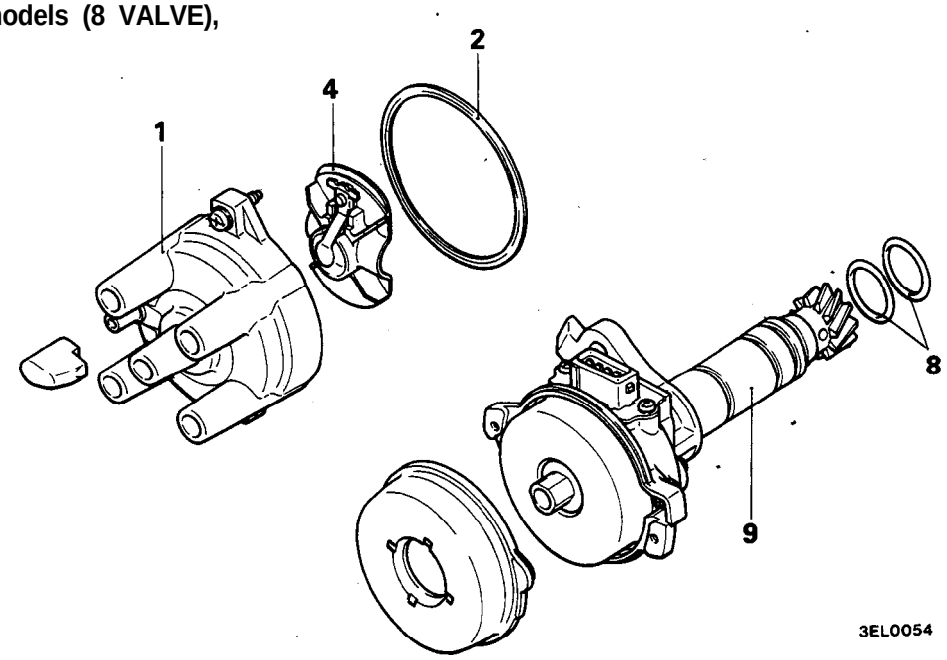


6EL0109

Disassembly steps

1. Distributor cap
2. Packing
3. Contact carbon
4. Rotor
5. Lead wire
6. Spring pin
◆◆ ◆◆ **7.** Gear
8. O-ring
9. Distributor housing

From 1991 models (8 VALVE),



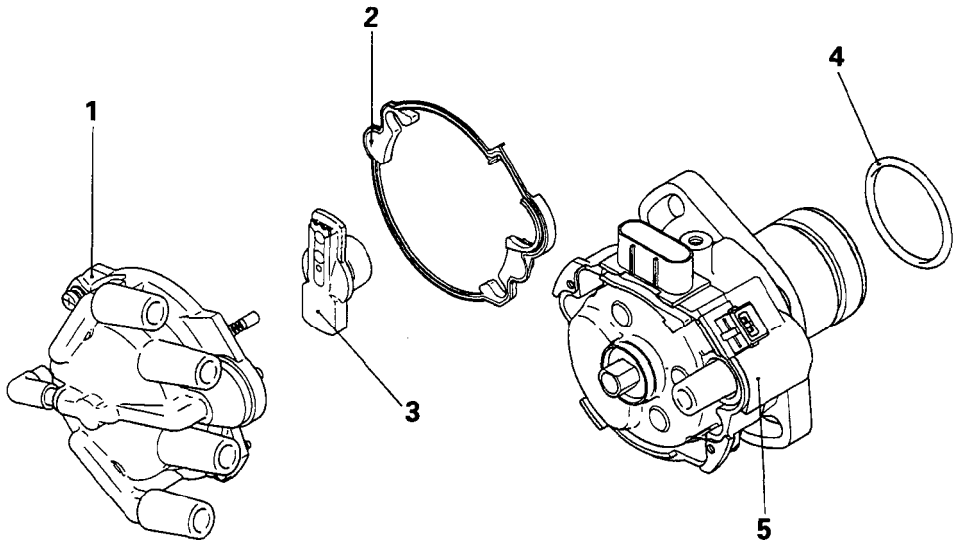
3EL0054

Disassembly steps

1. Distributor cap
2. Packing
4. Rotor
8. O-ring
9. Distributor housing

TSB Revision' .

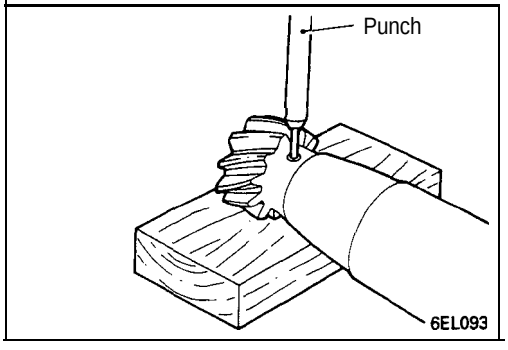
From 1993 Models (16 VALVE)



6EN0731

Disassembly steps

1. Distributor cap
2. Packing
3. Rotor
4. O-ring
5. Distributor housing



SERVICE POINTS OF DISASSEMBLY

7. DISASSEMBLY OF GEAR

(1) Make a position identification mark (for the drive gear) on the distributor shaft.
(2) Place the gear on a soft base (wooden block) so that the spring pin can come out.
(3) Punch out the spring pin by using a pin punch.

INSPECTION

Check the following points; repair or replace if a problem is found.

CAP ROTOR

(1) There must be no cracking in the cap.
(2) There must be no damage to the cap's electrode or the rotor's electrode.
(3) Clean away any dirt from the cap and rotor.

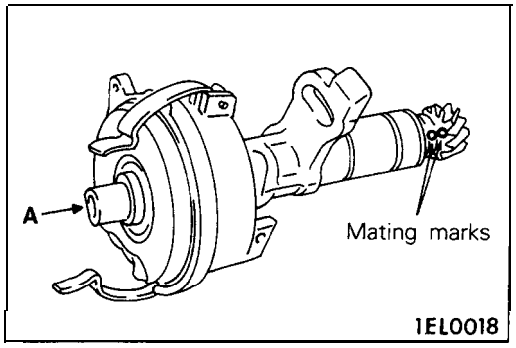
TSB Revision

SERVICE POINTS OF REASSEMBLY

Take out and clean the disassembled parts. Do not use cleaning oil or similar products for cleaning.

7. REASSEMBLY OF GEAR

(1) Align with the mark made at the time of disassembly, and install the gear to the distributor shaft.



(2) When aligning the driven gear's mating mark and the housing's mating marks, make the combination so that notch "A" at the shaft end is at the position shown in the figure, and then align the spring pin hole and drive in a new spring pin.

Caution
Drive in the spring pin so that the slits are at a right angle relative to the shaft.

NOTES

CHASSIS ELECTRICAL

CONTENTS

M54AA--

AUDIO SYSTEM **112**
- Antenna Assembly 153
- Feeder Cable 155
- Power Amplifier 151
- Radio and Tape Player 49
- Service Adjustment Procedures 148
- Speaker 151
- Specifications 112
  - Torque Specifications 112
- Troubleshooting 112

BATTERY **2**
- Service Adjustment Procedures 4
- Specifications 2
  - General Specifications 2
- Troubleshooting 3

CIGARETTE LIGHTER **106**
- Cigarette Lighter 108
- Specifications 106
  - General Specifications 106
- Troubleshooting 106

CLOCK **109**
- Specifications 109
  - General Specifications 109
- Troubleshooting 109

COLUMN SWITCH **100**
- Column Switch 101
- Specifications 100
  - General Specifications 100
  - Torque Specifications 100

HORN **103**
- Horn 105
- Relay 105
- Specifications 103
  - General Specifications 103
- Troubleshooting 104

IGNITION SWITCH **6**
- Ignition Switch 6

LIGHTING SYSTEM **36**
- Fog Light 94
- Fog Light Switch 99
- Hazard Switch 98
- Headlights 92
- High Mounted Stop Light 96
- Rear Combination Light 95
- Relay 97
- Rheostat 99
- Service Adjustment Procedures 89
- Special Tools 40
- Specifications 38
  - General Specifications 38
  - Sealants and Adhesives 40
  - Service Specifications 40
- Troubleshooting 41

METERS AND GAUGES **8**
- Meters and Gauges 33
- Service Adjustment Procedures 29
  - Inspection 29
- Specifications 8
  - General Specifications 8
  - Sealants and Adhesives 10
  - Service Specifications 9
  - Torque Specifications 10
- Troubleshooting 12

REAR WINDOW DEFOGGER **156**
- Defogger Relay 163
- Defogger Timer 164
- Rear Window Defogger Switch 163
- Service Adjustment Procedures 162
- Troubleshooting 156

THEFT-ALARM SYSTEM **165**
- Special Tools 165
- Troubleshooting 165

ACTIVE-ELECTRONIC CONTROL SUSPENSION ..... **REFER TO GROUP 33B**
AIR CONDITIONING ..... **REFER TO GROUP 55**
ANTI-LOCK BRAKING SYSTEM ..... **REFER TO GROUP 35**
AUTO-CRUISE CONTROL SYSTEM ..... **REFER TO GROUP 13**
CENTRAL DOOR LOCKING SYSTEM ..... **REFER TO GROUP 42**
ELECTRONIC CONTROL DOOR MIRROR ..... **REFER TO GROUP 51**
HEATER ..... **REFER TO GROUP 55**
POWER WINDOW ..... **REFER TO GROUP 42**
RADIATOR FAN MOTOR ..... **REFER TO GROUP 14**
SEAT BELT (AUTOMATIC SEAT BELT) ..... **REFER TO GROUP 52**
SUNROOF ..... **REFER TO GROUP 42**
WINDSHIELD WIPER AND WASHER ..... **REFER TO GROUP 51**

BATTERY

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54EB--

BATTERY

Items	Specifications
Type	55B24R(S)-MF
Ampere hours (5HR) Ah	40
Cranking rating [at −17.8°C (0°F)] A	433
Reserve capacity min.	79

NOTES
1. CRANKING RATING is the current a battery can deliver for 30 seconds and maintain a terminal voltage of 7.2 or greater at a specified temperature.
2. RESERVE CAPACITY RATING is the amount of time a battery can deliver 25A and maintain a minimum terminal voltage of 10.5 at 26.7°C (80°F).

TROUBLESHOOTING

M54EHAT

BATTERY TESTING PROCEDURE

TEST STEP	RESULT	ACTION TO TAKE
A0 VISUAL INSPECTION • Remove negative cable, then positive cable. • Check for dirty or corroded connections.	(OK) ▶ (OK) ▶	CLEAN terminals and clamps. GO to Al. GO to A1.
A1 LOOSE BATTERY POST • Check for loose battery post.	(OK) ▶ (OK) ▶	REPLACE battery. GO to A2.
A2 CRACKED BATTERY 'COVER • Remove holddowns and shields. • Check for broken/cracked case or cover.	(OK) ▶ (OK) ▶	REPLACE battery. GO to A3.
A3 TEST INDICATOR/OPEN CIRCUIT VOLTAGE TEST • Turn headlights on for 15 seconds • Turn headlights off for 2 minutes to allow battery voltage to stabilize. • Disconnect cables. • Read open circuit voltage.	(OK) ▶ Blue dot invisible and' open circuit voltage under 12.4 volts (OK) ▶	CHARGE battery at 5 amps then GO to A3. GO to A4.
A4 LOAD TEST • Connect a load tester to the battery. • Load the battery at the recommended discharge rate (see LOAD TEST RATE CHART) for 15 seconds. • Read voltage after 15 seconds, then remove load.	(OK) ▶ Voltage is less than minimum listed (white indicator). (OK) ▶ Voltage is more than minimum listed.	REPLACE battery. Battery OK.

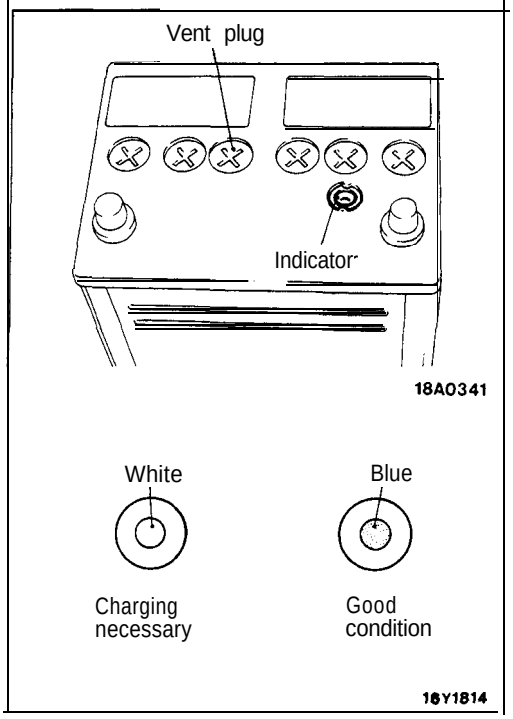
LOAD TEST CHART

Minimum Voltage	Temperature °F	Temperature °C
9.6	70 and above	21 and above
9.5	60	16
9.4	50	10
9.3	40	4
9.1	30	–1
8.9	20	–7
8.7	10	–12
8.5	0	–18

LOAD TEST RATE CHART

Load Test (Amps)	Cranking Rating 0°F	Reserve Capacity	Application
210 amps	433 amps	79 minutes	55B24R(S)-MF

TSB Revision



SERVICE ADJUSTMENT PROCEDURES

BATTERY INSPECTION M54EIBN

BATTERY VISUAL INSPECTION (1)

The battery contains a visual test indicator which gives blue signal when an adequate charge level exists, and white signal when charging is required.

BATTERY VISUAL INSPECTION (2)

Make sure ignition switch is in Off position and all battery feed accessories are Off.

1. Disconnect ground cable from battery before disconnecting (+) cable.
2. Remove battery from vehicle.

Caution
Care should be taken in the event battery case is cracked or leaking to protect hands from the electrolyte. A suitable pair of rubber gloves (not the household type) should be worn when removing battery by hand.

3. Inspect battery carrier for damage caused by loss of acid from battery. If acid damage is present, it will be necessary to clean area with a solution of clean warm water and baking soda. Scrub area with a stiff bristle brush and wipe off with a cloth moistened with ammonia or baking soda in water.
4. Clean top of battery with same solutions as described in Step (3).
5. Inspect battery case and cover for cracks. If cracks are present, battery must be replaced.
6. Clean the battery post with a suitable battery post cleaning tool.
7. Clean the inside surfaces of the terminal clamps with a suitable battery terminal cleaning tool. Replace damaged or frayed cables and broken terminals clamps.
8. Install the battery in vehicle.
9. Connect (+) and (−) cables to battery in the order of mention.
10. Tighten the clamp nut securely.

LOAD TEST RATE CHART			
Load Test (Amps)	Cranking Rating 0°F	Reserve Capacity	Application
210 amps	433 amps	79 minutes	55B24R(S)-MF

LOAD TEST CHART		
Minimum Voltage	Temperature	
	°F	°C
9.6	70 and above	21 and above
9.5	60	16
9.4	50	10
9.3	40	4
9.1	30	- 1
8.9	20	- 7
8.7	10	- 1 2
8.5	0	- 1 8

Note
The temperature is an ambient temperature of the battery that has been exposed to for the preceding few hours.

OPEN CIRCUIT VOLTAGE TEST (3)

1. Turn headlights on for 15 seconds.
2. Turn headlights off for 2 minutes to allow battery voltage to stabilize.
3. Disconnect cables.
4. Read open circuit voltage.
5. If the open circuit voltage is under 12.4 volts, charge the battery. (See BATTERY CHARGING)

LOAD TEST (4)

1. Connect a load tester to the battery.
2. Load the battery at 15 amps for 15 seconds to remove surface charge.
3. Load the battery at the recommended discharge rate. (See LOAD TEST RATE CHART)
4. Read voltage after 15 seconds and then remove the load.
5. If the voltage is not maintained at the minimum voltage in the LOAD TEST CHART throughout the test, the battery should be replaced.

BATTERY CHARGING M54EICL

Caution
When batteries are being charged, an explosive gas forms beneath the cover of each cell. Do not smoke near batteries on charge or which have recently been charged.
Do not break live circuits at the terminals of the batteries on charge. A spark will occur where the live circuit is broken.
Keep all open flames away from the battery.

Battery electrolyte temperature may temporarily be allowed to rise to 55°C (131 °F). Increase of electrolyte temperature above 55°C (131 °F) is harmful to the battery, causing deformation of battery cell, decrease in life of battery, etc.

CHARGE RATE

If the test indicator is white, the battery should be charged as outlined below.

When the dot appears or when maximum charge shown below is reached, charging should be stopped.

NOTE
When the charging is performed at 5 amps, charging is virtually 100% three hours after the indicator's indication changes from white to blue. Use fast charging only in an emergency.
If the indicator does not turn to blue even after the battery is charged, the battery should be replaced; do not overcharge.

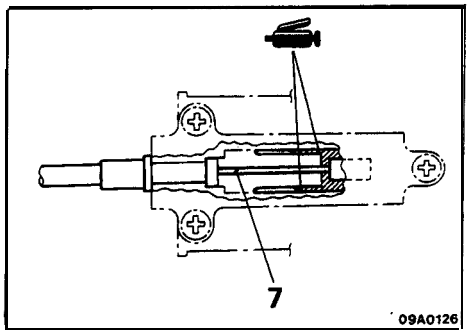
Charge Rate Chart

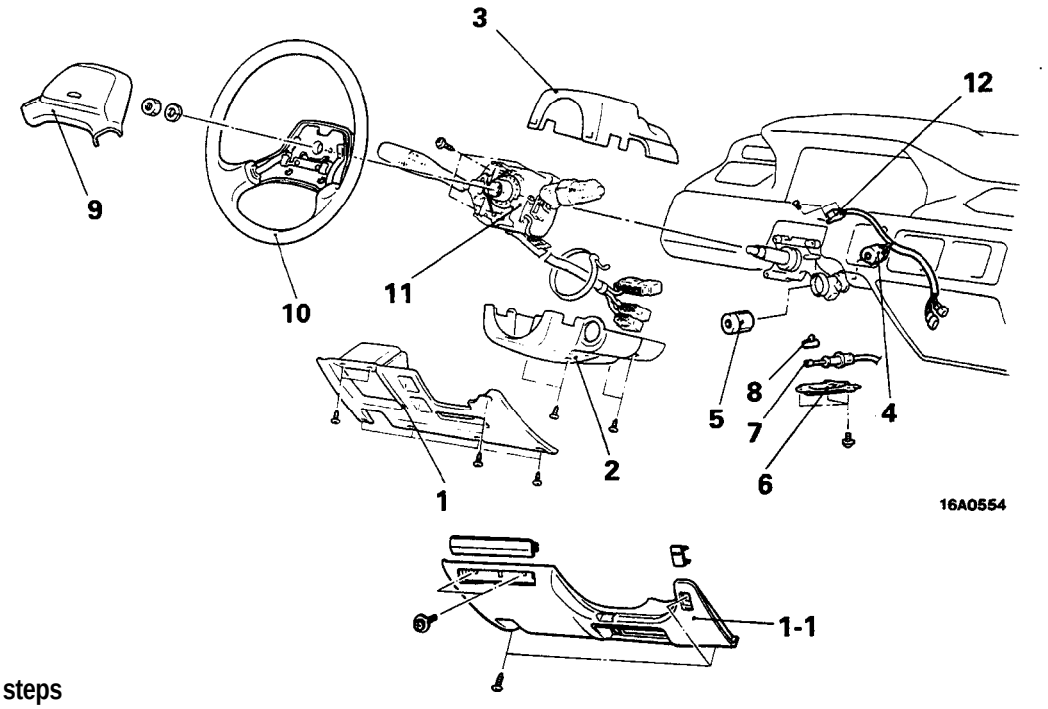
Battery	Slow Charging		Fast Charging	
55B24R (S)-MF (433 amps)	5 amps 10 hrs.	10 amps 5 hrs.	20 amps 2.5 hrs.	30 amps 1.5 hrs.

IGNITION SWITCH

M54GLAT

REMOVAL AND INSTALLATION

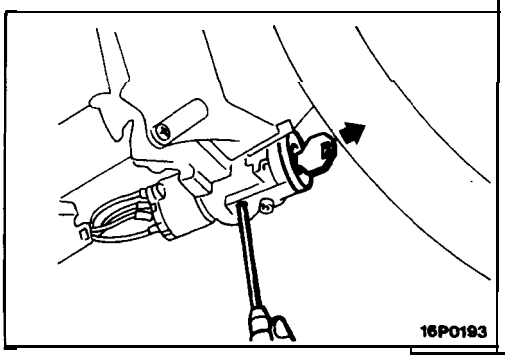




Removal steps

1. Instrument panel under cover (1989 models] (Refer to GROUP 52- Instrument Panel.)
1-1 Knee protector [From 1990 models] (Refer to GROUP 52–Instrument Panel.)
2. Column cover lower
3. Column cover upper
4. ignition switch segment
◆◆ Steering lock cylinder
:: Cover*
● 4 7. Key interlock cable*
● 4 8. Slide lever*
9. Horn pad (Refer to P.54-101.)
10. Steering wheel (Refer to P.54-101.)
11. Column switch
12. Key reminder switch segment

NOTE
* indicates vehicles with A/T safety-lock system.

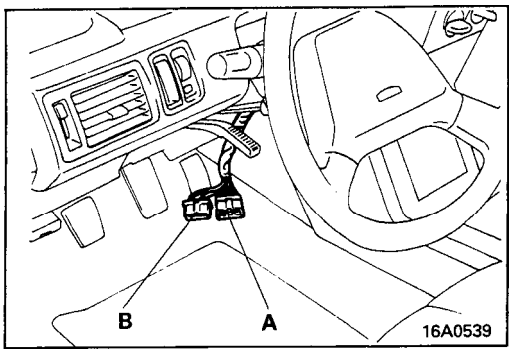


SERVICE POINTS OF REMOVAL

5. REMOVAL OF THE STEERING LOCK CYLINDER

(1) Insert the key in the steering lock cylinder and turn it to the "ACC" position.
(2) Using a cross-tip (+) screwdriver (small) or a similar tool, push the lock pin of the steering lock cylinder inward and then pull the steering lock cylinder toward you.

TSB Revision

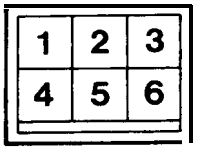


INSPECTION

IGNITION SWITCH INSPECTION

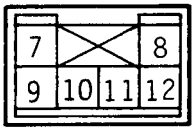
(1) Remove the instrument panel under cover (or knee protector), the column cover (lower), and the column cover (upper).
(Refer to GROUP 52–Instrument Panel).
(2) Disconnect the wiring connector from the ignition switch and key reminder switch, and connect an ohmmeter to the switch side connector.
(3) Operate the switch, and check the continuity between the terminals.

Connector A



16A0570

Connector B



16A0542

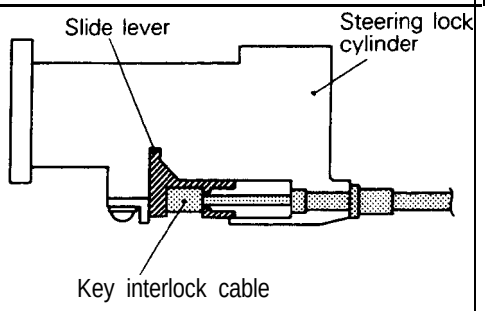
Position	Key	Terminal: 6	3	4	2	5	1	Key reminder switch: 7	8	9	12
LOCK	Removed									O	O
ACC	Inserted	O	O								
ON	Inserted	O		O		O		O	O		
START	Inserted	O		O		O					

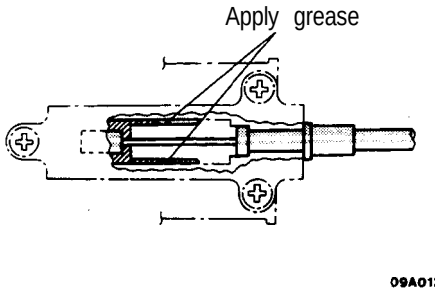
NOTE
(1) O—O indicates that there is continuity between the terminals.
(2) O---O indicates vehicles with ETACS.

SERVICE POINTS OF INSTALLATION

8. INSTALLATON OF THE SLIDE LEVER/7. KEY INTERLOCK CABLE (STEERING LOCK ASSEMBLY SIDE)

(1) With the ignition key either at the “LOCK” position or removed, install the slide lever to the steering lock cylinder.
(2) Connect, as shown in the figure, the key interlock cable to the slide lever and the steering lock cylinder.
(3) Apply a light coating of multi-purpose grease where shown in the figure.
(4) Check whether or not the key interlock system is functioning normally.
(Refer to GROUP 23–Service Adjustment Procedures.)





METERS AND GAUGES

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54HB--

Meters and Gauges

Items	Specifications
Speedometer	
Type	Rotary magnet type
Tachometer	
Type	Pulse type
Fuel gauge	
Type	Cross coil type fixed needle gauge
Fuel gauge unit	
Type	Variable resistance type (with fuel level warning sensor)
Engine coolant temperature gauge	
Type	Cross coil type
Engine coolant temperature gauge unit	
Type	Thermistor type

Indicators and Warning Lights

Items	Specifications
Indicator lights	
Turn signal indicator light W	3.4 (158)
High beam indicator light W	3.4 (158)
Charging warning light W	1.4 (74)
Oil pressure warning light W	1.4 (74)
Door ajar indicator light W	1.4 (74)
Brake warning light W	1.4 (74)
Fuel level warning light W	3.4 (158)
Seat belt indicator light W	1.4 (74)
Auto-cruise control indicator light W	1.4 (74)
*1Anti-lock brake warning light W	1.4 (74)
Check engine/malfunction indicator lamp W	1.4 (74)
*2Power indicator light W	1.4 (74)
**Economy indicator light W	1.4 (74)
*2Overdrive OFF indicator light W	1.4 (74)
*2A/T shift position indicator light W	
Park	1.4 (74)
Reverse	1.4 (74)
Neutral	1.4 (74)
Drive	1.4 (74)
Second	1.4 (74)
Low	1.4 (74)

NOTE
1. The values in parentheses denote SAE trade numbers.
2. The *1 symbol indicates vehicles with anti-lock braking system.
3. The *2 symbol indicates vehicles with AA.

TSB Revision

Items	Specifications
*1 A/T fluid temperature warning light W	1.4 (74)
*2 SECURITY light W	1.4 (74)
4WS (4-wheel steering system) warning light W	1.4 (74)

NOTE
1. The value in parentheses denote SAE trade numbers
2. The *1 symbol indicates AWD-AK.
3. The *2 symbol indicates vehicles with theft-alarm system.

SERVICE SPECIFICATIONS

M54HC–

Items	Specifications
Standard value	
Speedometer indication error mph	
20	19-22
40	38-44
60	57-66
80	76-88
100	94–110
Tachometer indication error rpm	
Type 1 (8,000 rpm indication)	
700	±100
3,000	±150
6,000	±300
Type 2 (9,000 rpm indication)*	
700	±100
3,000	+225 -100
7,000	+400 -100
Operation range of fuel gauge unit mm (in.)	
<FWD>	
Point F	45.6±2.5 (1.79±.1)
Point E	177.5±2 (6.98±.08)
<AWD>	
Point F	43 (1.69)
Point E	174 (6.85)
Fuel gauge unit resistance Ω	
Point F	3±2
Point E	110±7
Engine coolant temperature gauge unit resistance [at 70°C (158°F)] Ω	104±13.5
Fuel gauge resistance Ω	
Between A-B	Approx. 203
Between A-C	Approx. 102
Between B-C	Approx. 102

NOTE
The * symbol indicates DOHC models.

Items	Specifications
Engine coolant temperature gauge resistance Ω	
<Vehicles built up to Dec. 1988>	
Between A-B	Approx. 130
Between A-C	Approx. 53
Between B-C	Approx. 162
<Vehicles built from Jan. 1989>	
Between A–B	Approx. 146
Between A-C	Approx. 60
Between B-C	Approx. 206

TORQUE SPECIFICATIONS

M54HD--

Items	Nm	ft.lbs.
Engine coolant temperature gauge unit	10–12	7-8

SEALANTS AND ADHESIVES

M54HF--

Items	Specified sealant and Adhesive
Engine coolant temperature gauge unit	3M ATD Part No. 8660 or equivalent

NOTES

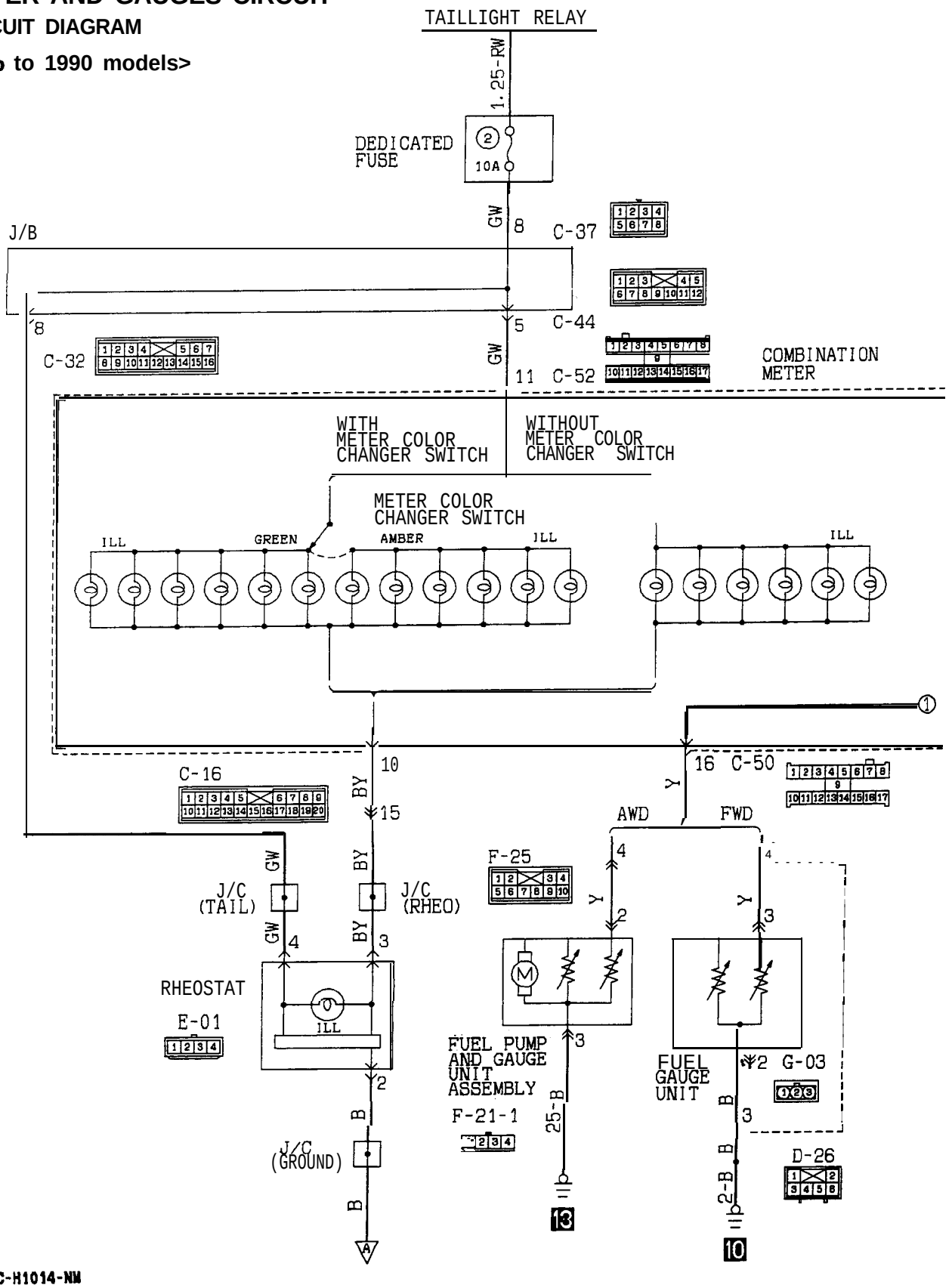
TROUBLESHOOTING

M54HHAQb

METER AND GAUGES CIRCUIT

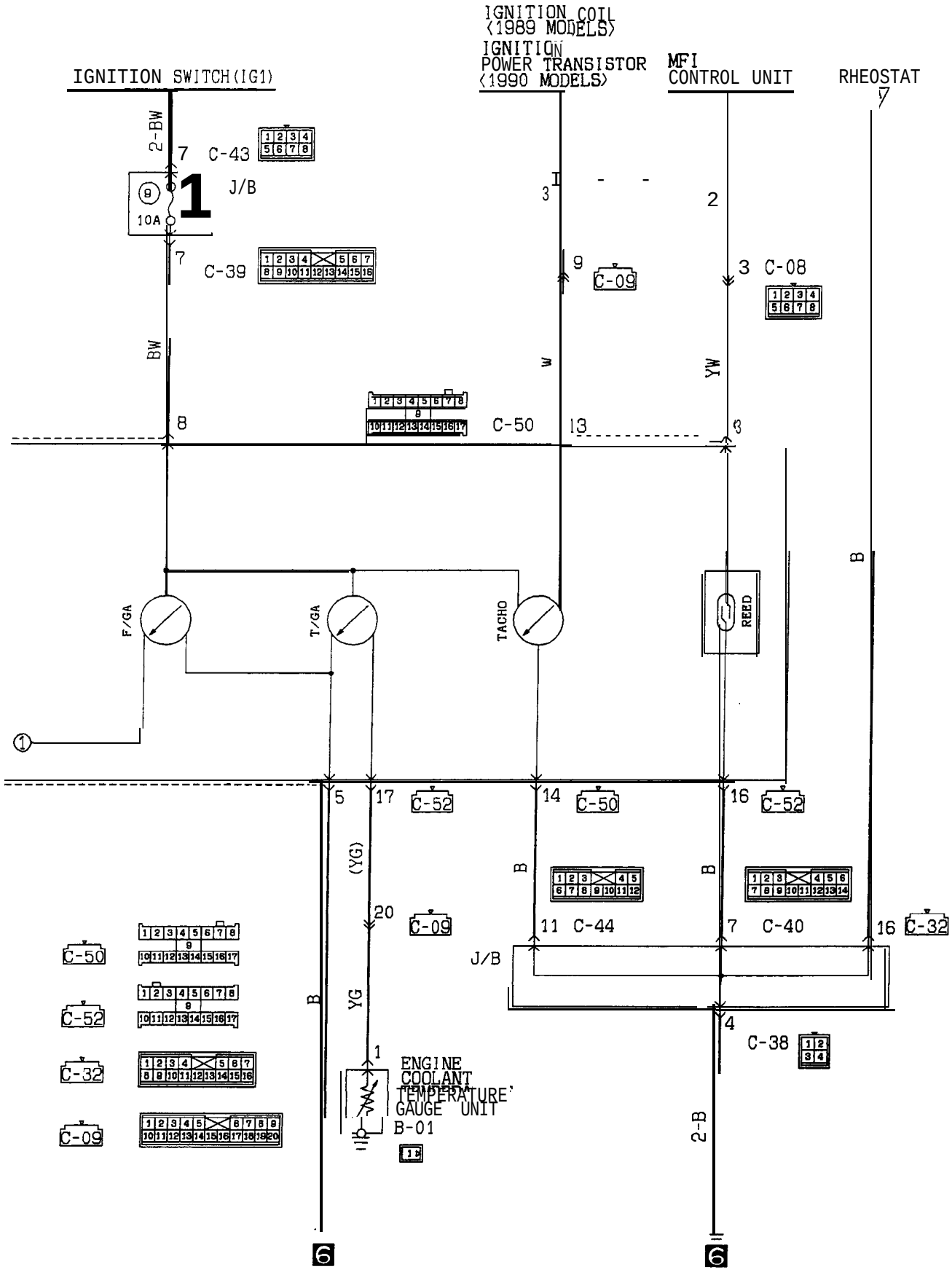
CIRCUIT DIAGRAM

<Up to 1990 models>



KX35-AC-H1014-NM

TSB Revision

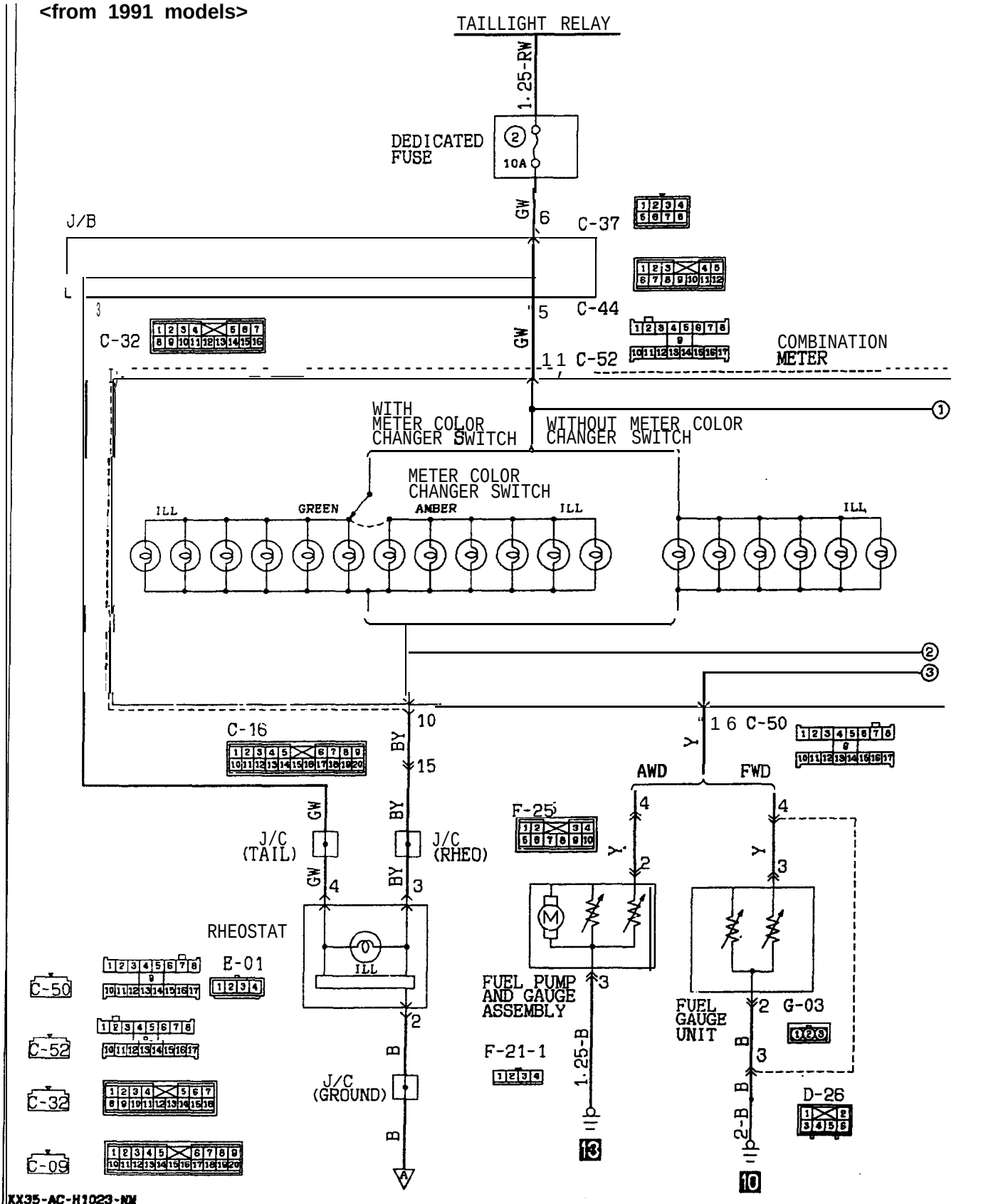


TSB Revision

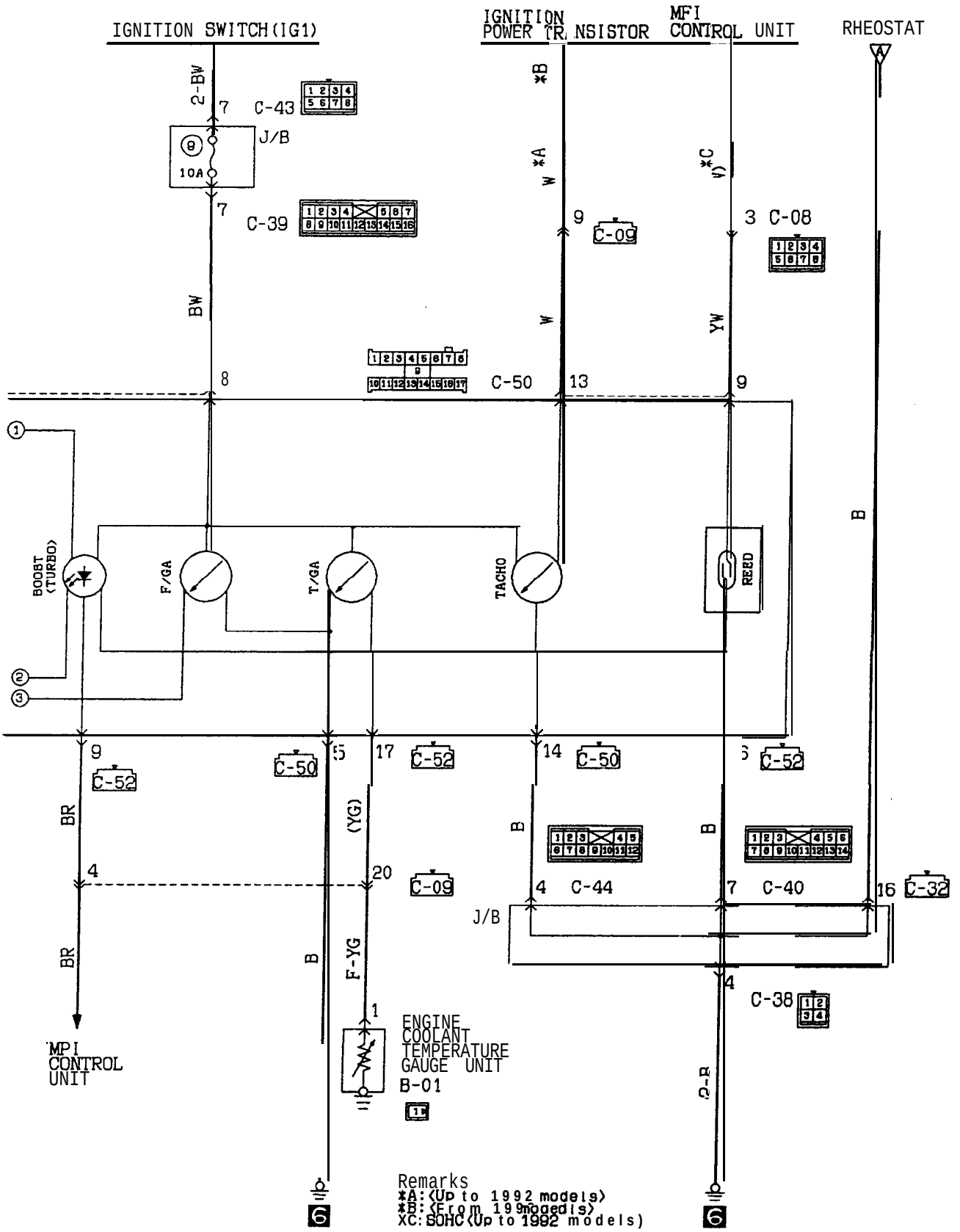
METER AND GAUGES CIRCUIT

CIRCUIT DIAGRAM

<from 1991 models>



TSB Revision

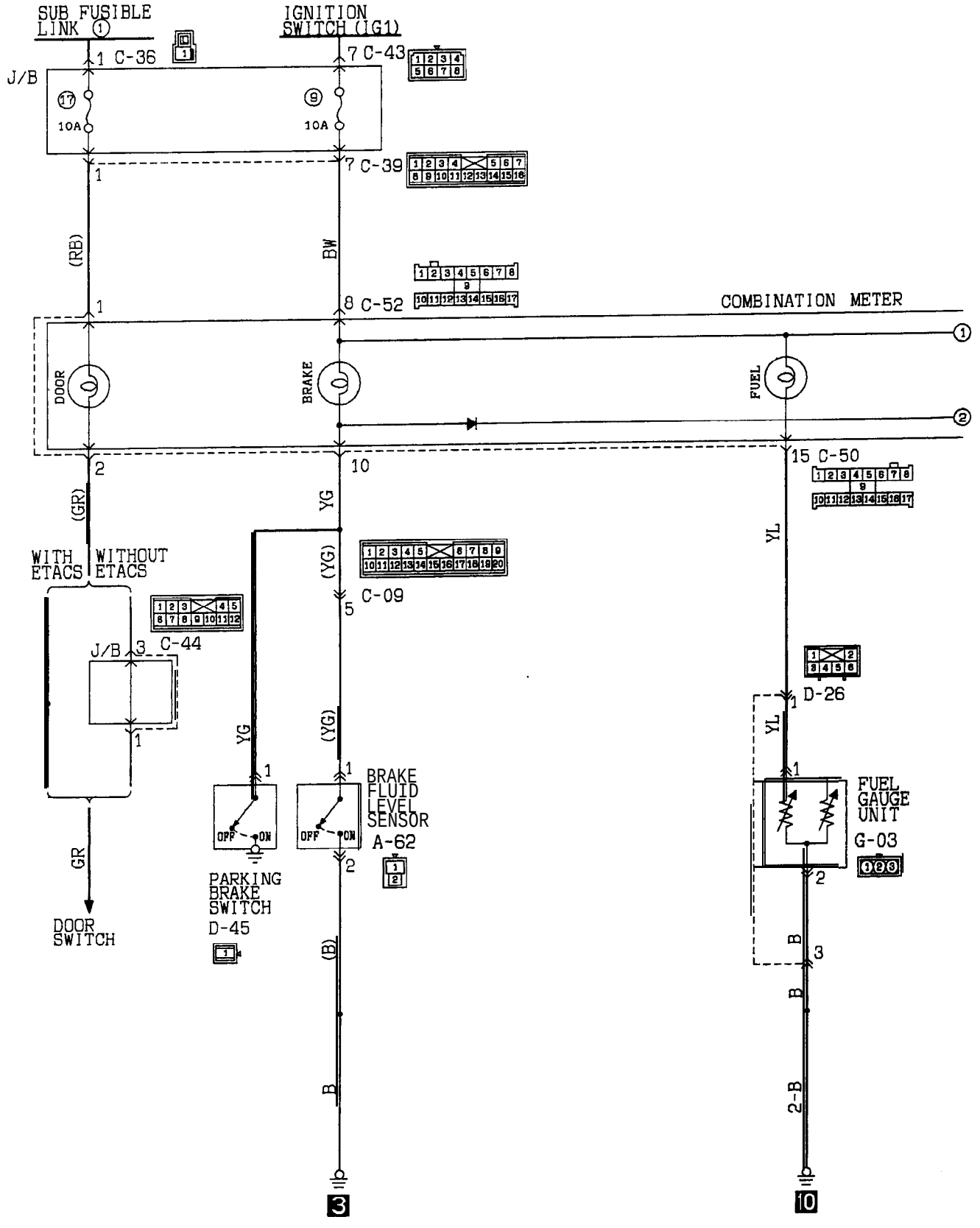


TSB Revision

WARNING LIGHT CIRCUIT

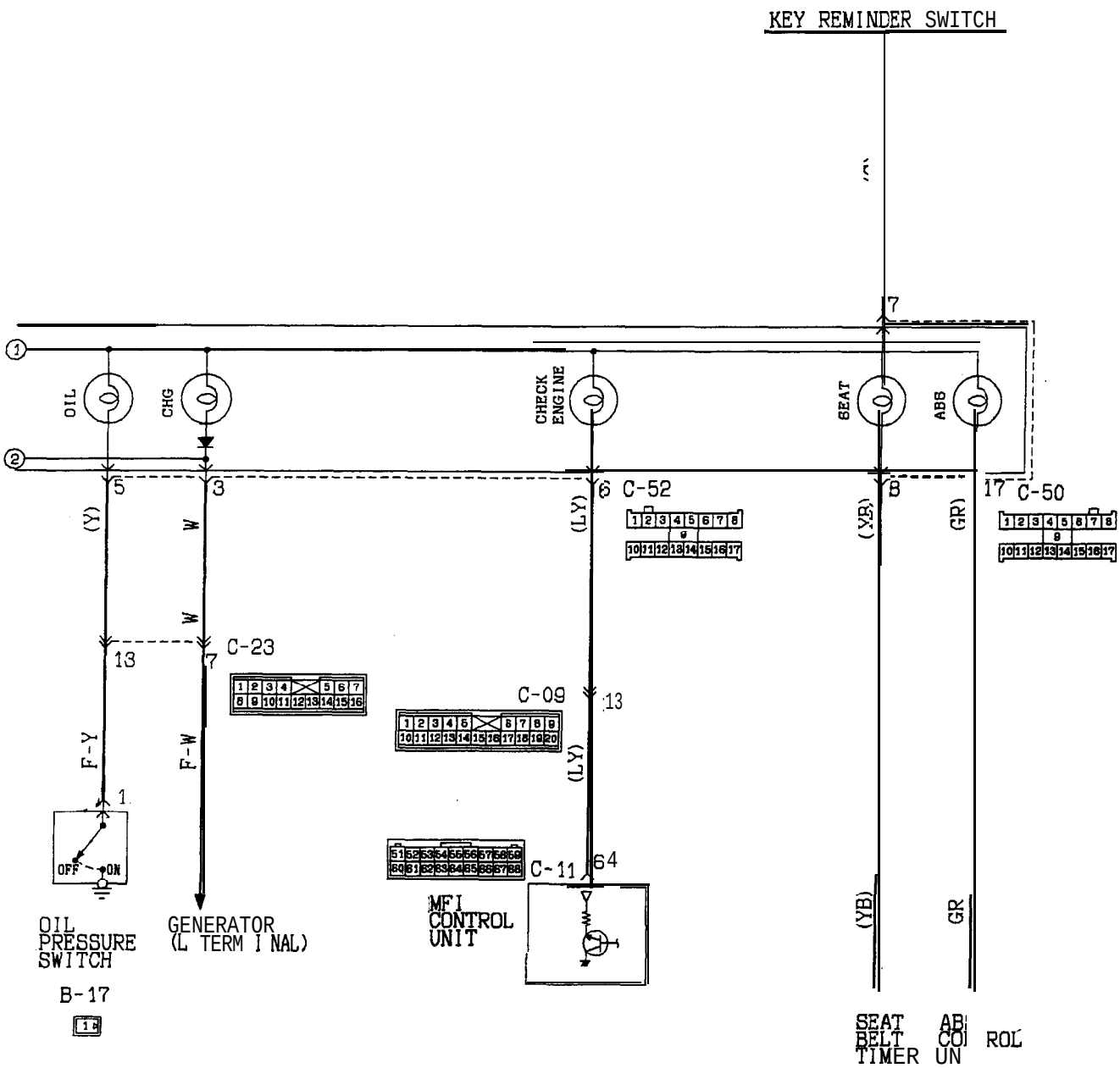
CIRCUIT DIAGRAM

<1989 models>



K35-AC-H1002-N

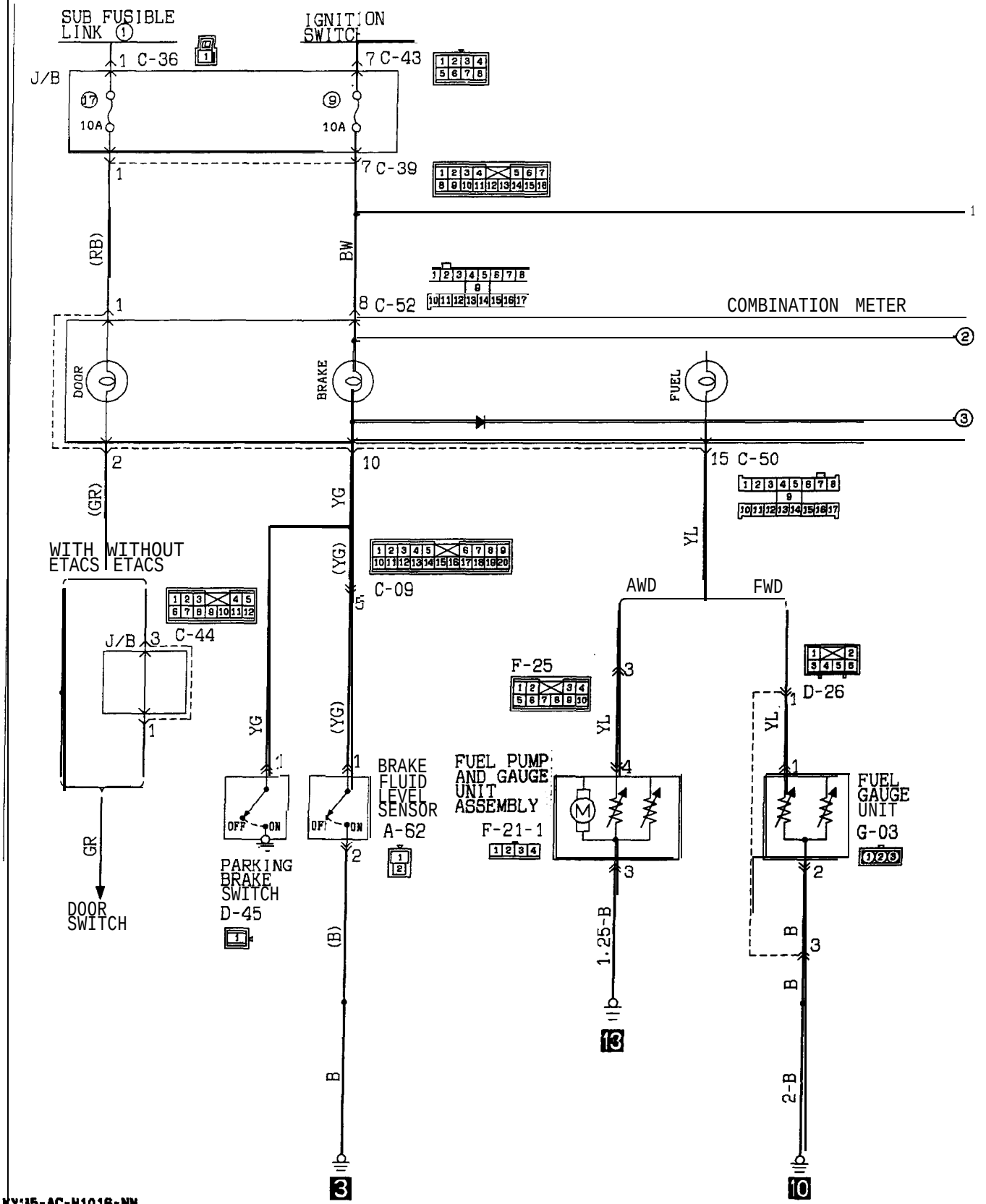
TSB Revision


KEY REMINDER SWITCH
OIL
CHG
CHECK ENGINE
SEAT
ABB
(Y)
W
W
(LY)
(YB)
(GR)
F-Y
F-W
(LY)
(YB)
GR
C-23
C-09
C-11
C-52
C-50
OFF
ON
OIL PRESSURE SWITCH
B-17
GENERATOR (L TERM I NAL)
MFI CONTROL UNIT
SEAT BELT TIMER UN
ROL

WARNING LIGHT CIRCUIT

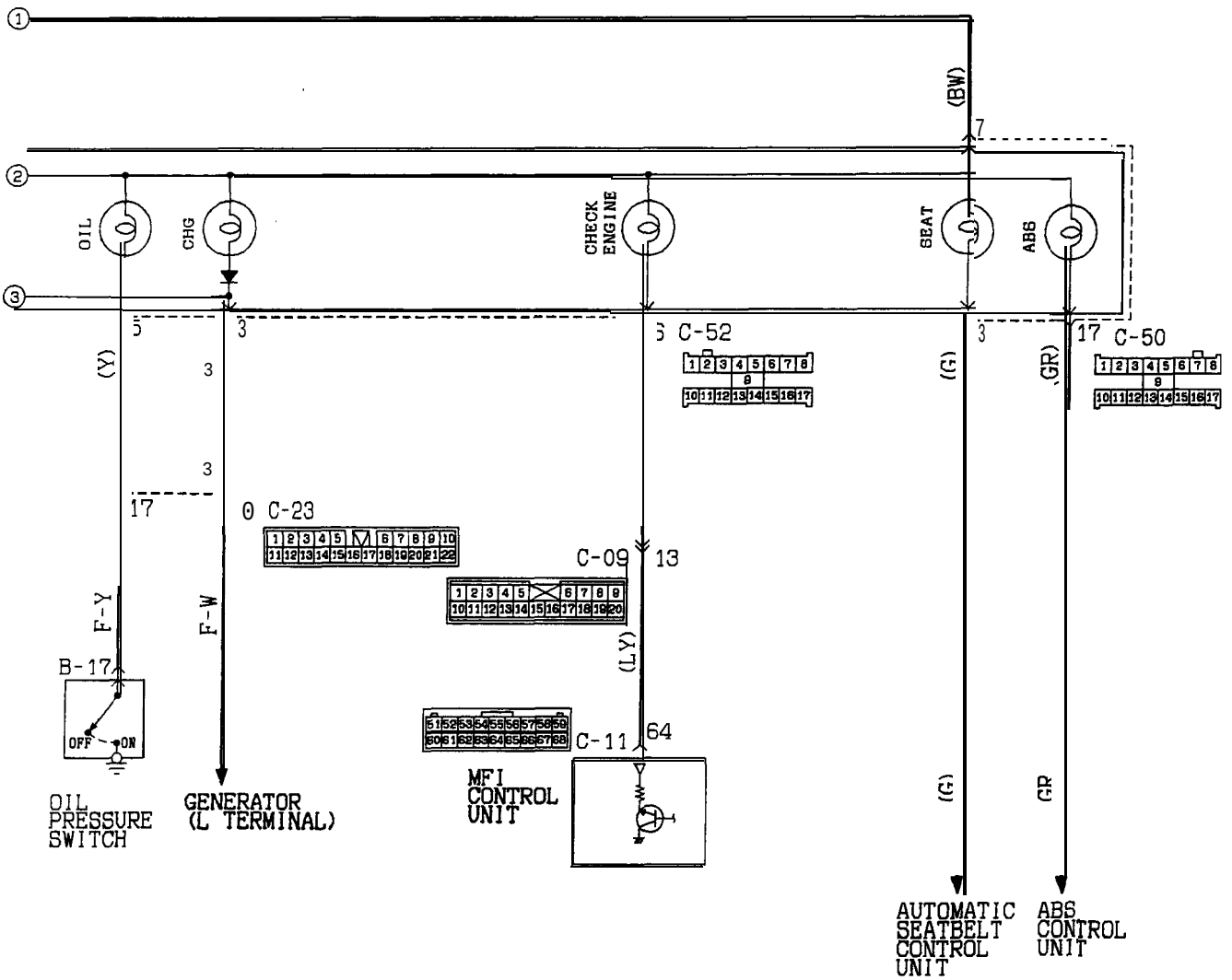
CIRCUIT DIAGRAM

< 1990 models>



KX35-AC-H1016-NM

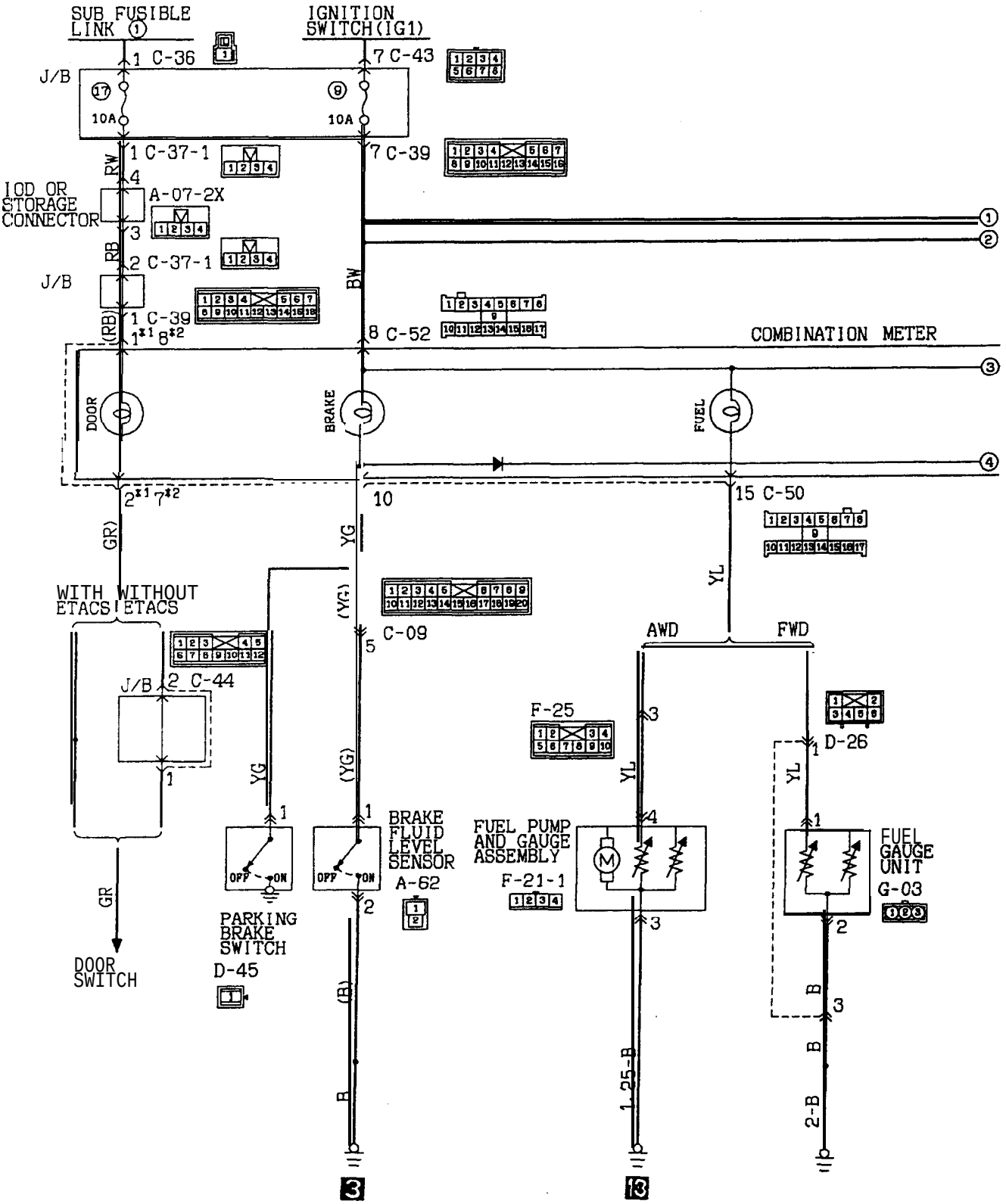
TSB Revision


①
②
③
(BW)
7
OIL
CHG
CHECK ENGINE
SEAT
ABS
5
3
3
C-52
3
17
C-50
(Y)
(G)
(GR)
3
3
17
0 C-23
C-09
13
F-Y
F-W
(LY)
B-17
OFF
ON
C-11
64
OIL PRESSURE SWITCH
GENERATOR (L TERMINAL)
MFI CONTROL UNIT
(G)
GR
AUTOMATIC SEATBELT CONTROL UNIT
ABS CONTROL UNIT

WARNING LIGHT CIRCUIT

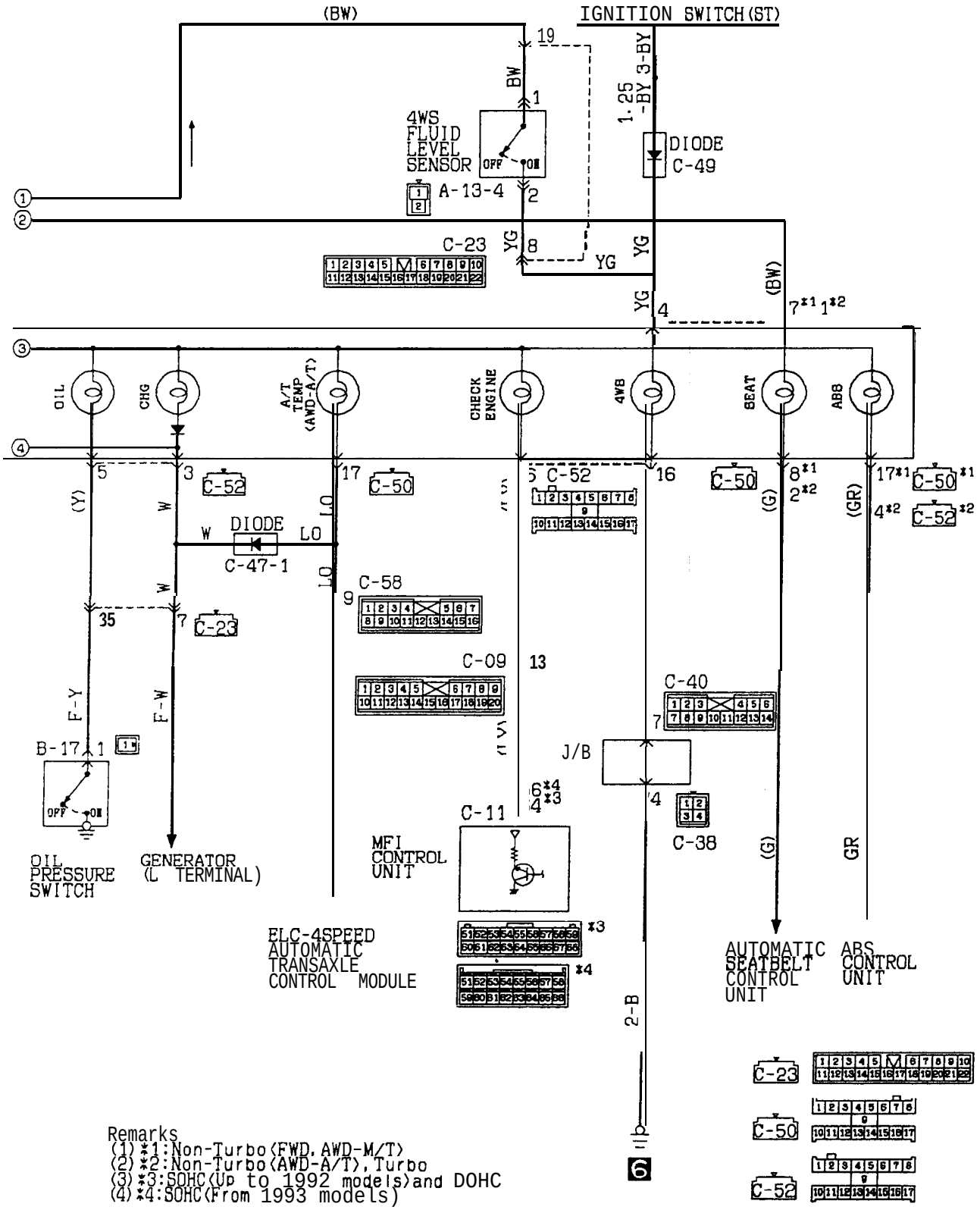
CIRCUIT DIAGRAM

<From 1991 models>



XX35-AC-H1024-NN

TSB Revision

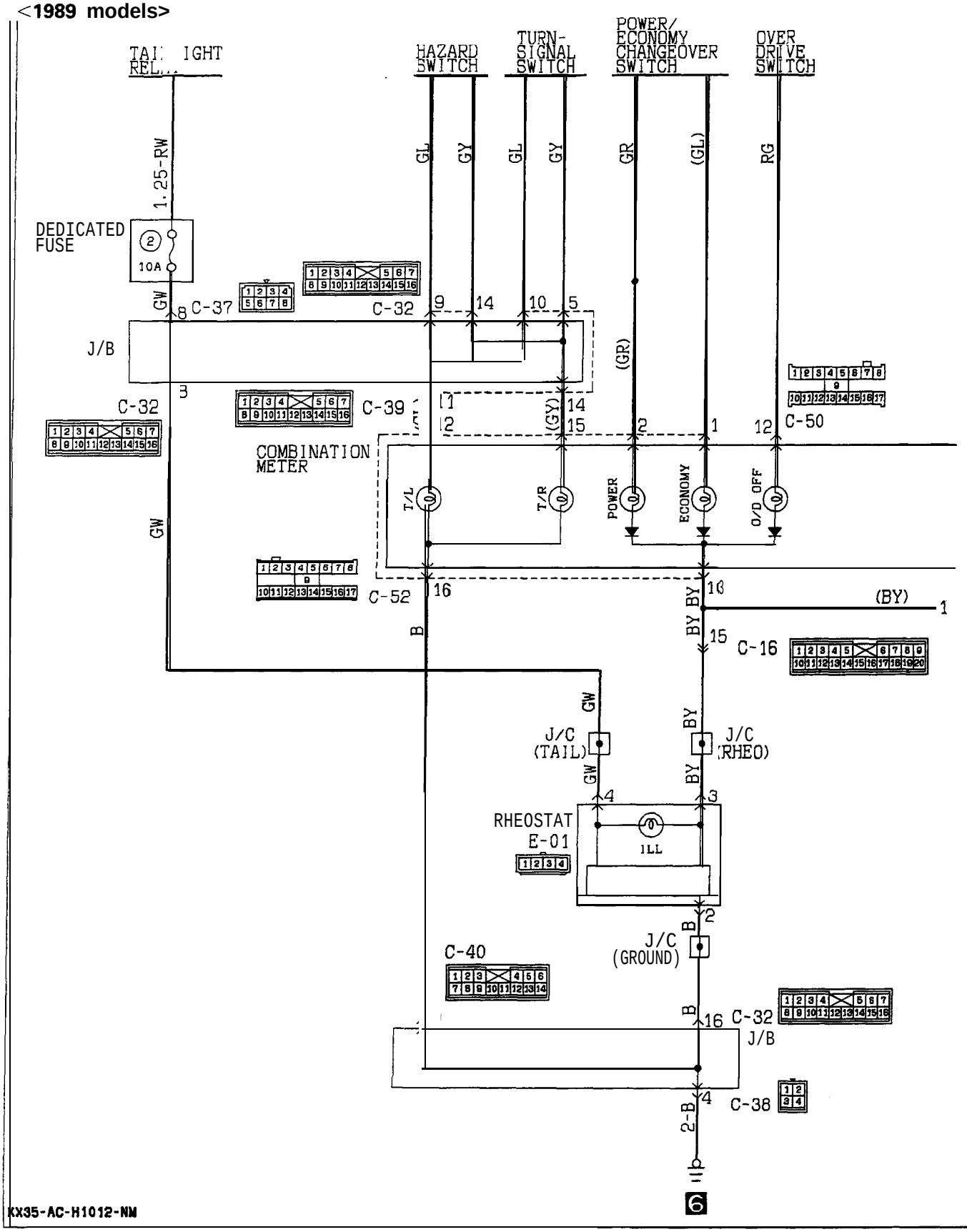


Remarks
(1) *1:Non-Turbo(FWD, AWD-M/T)
(2) *2:Non-Turbo(AWD-A/T), Turbo
(3) *3:SOHC(Up to 1992 models)and DOHC
(4) *4:SOHC(From 1993 models)

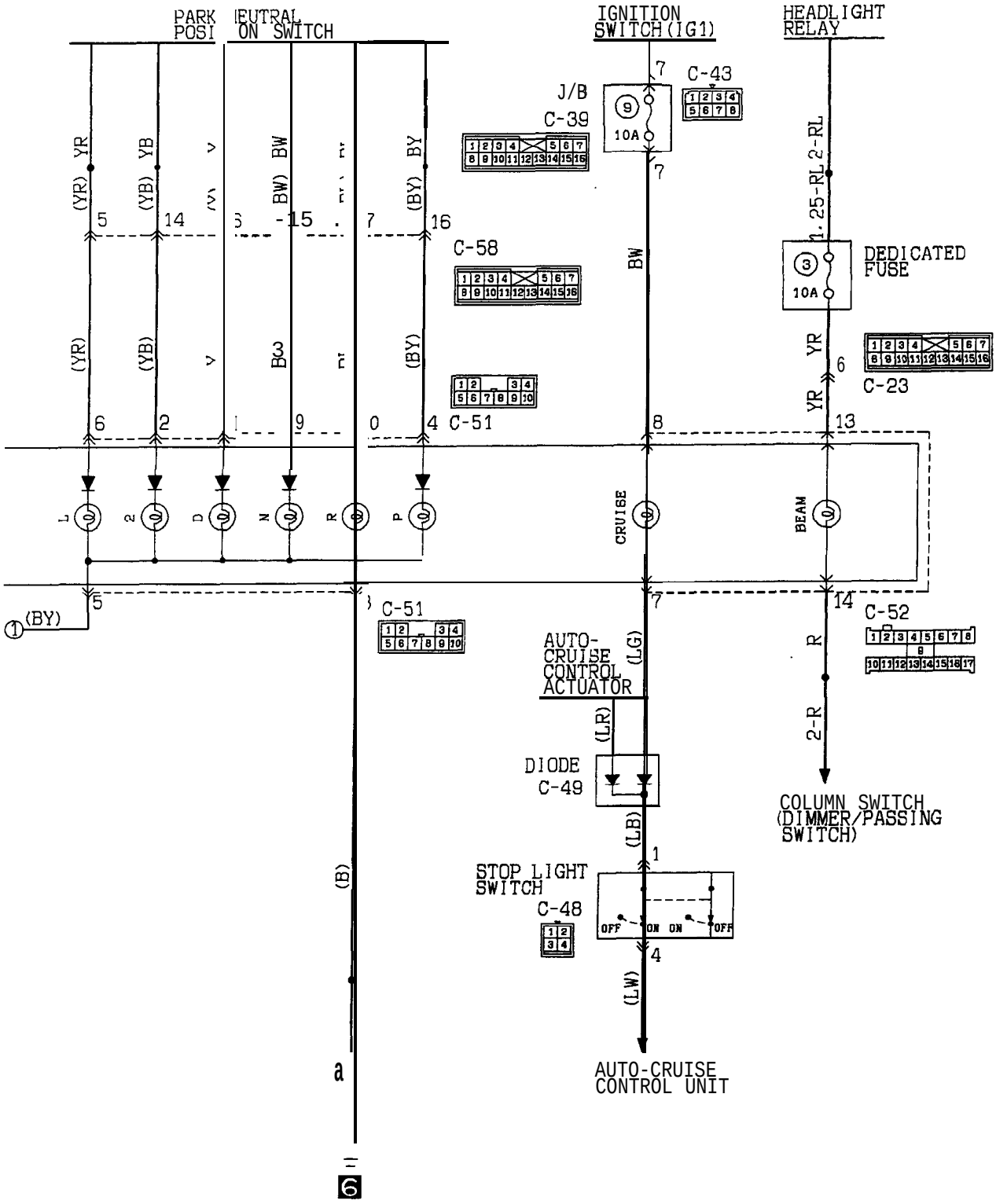
TSB Revision

INDICATOR LIGHT CIRCUIT

CIRCUIT DIAGRAM
<1989 models>



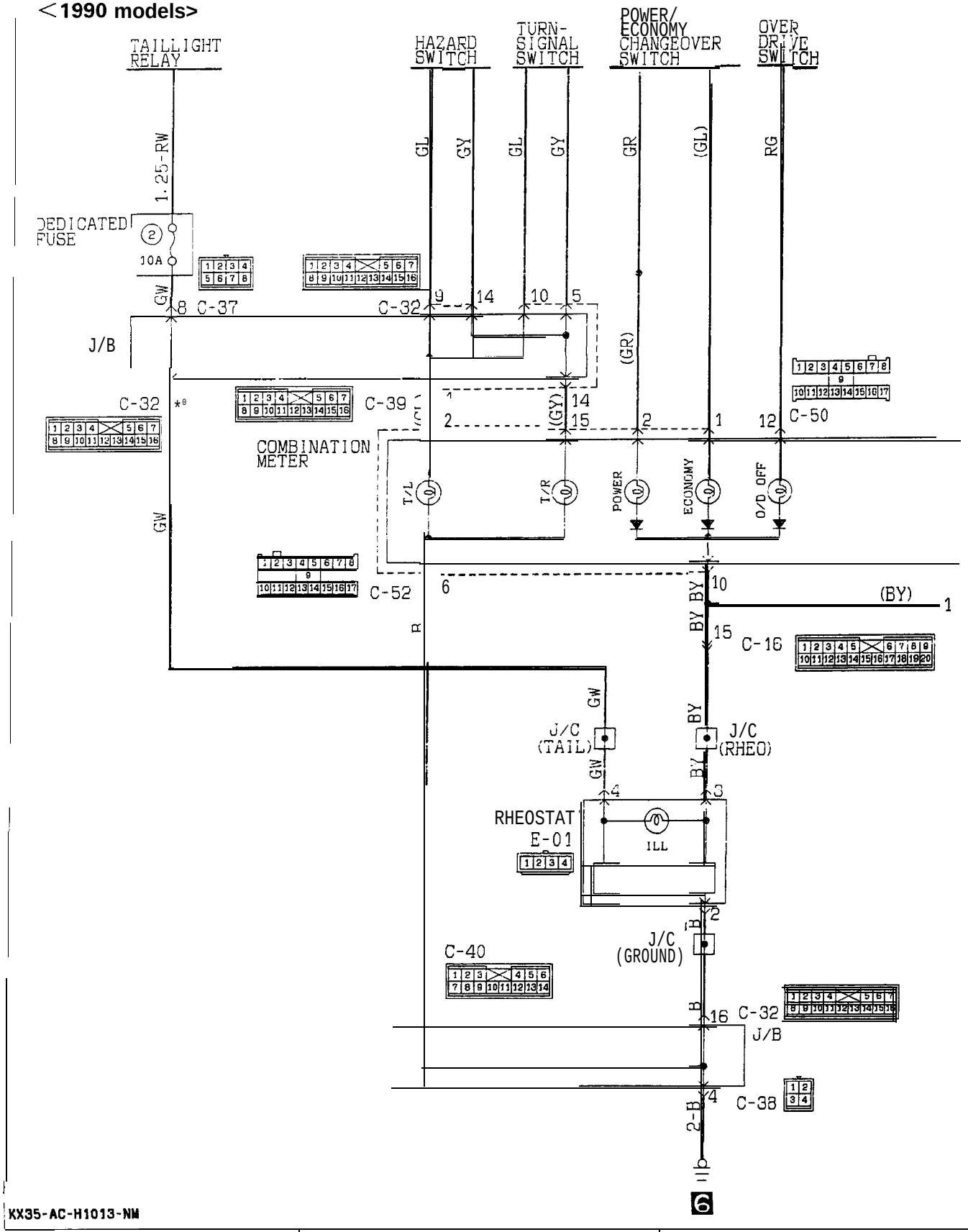
TSB Revision


PARK NEUTRAL POSITION SWITCH
IGNITION SWITCH (IG1)
HEADLIGHT RELAY
J/B C-39
C-43
10A
DEDICATED FUSE
C-58
C-23
C-51
C-52
CRUISE
BEAM
AUTO-CRUISE CONTROL ACTUATOR
DIODE C-49
COLUMN SWITCH (DIMMER/PASSING SWITCH)
STOP LIGHT SWITCH C-48
OFF ON ON OFF
AUTO-CRUISE CONTROL UNIT
(YR)
(YB)
(BW)
(BY)
(LG)
(LR)
(LB)
(LW)
(B)
1.25-RL
2-RL
2-R
BW
YR
R
L
2
D
N
R
P

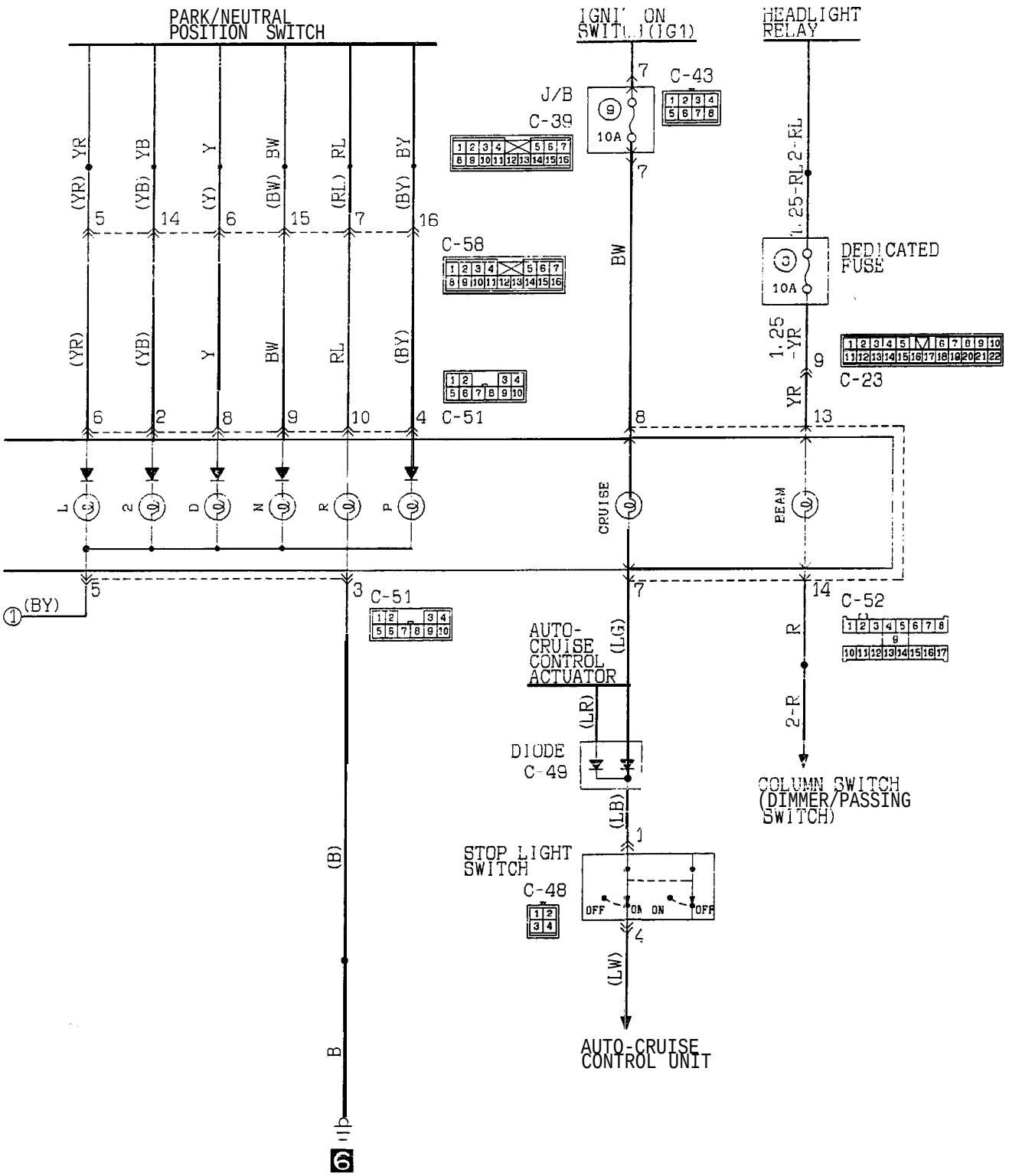
INDICATOR LIGHT CIRCUIT

CIRCUIT DIAGRAM

<1990 models>



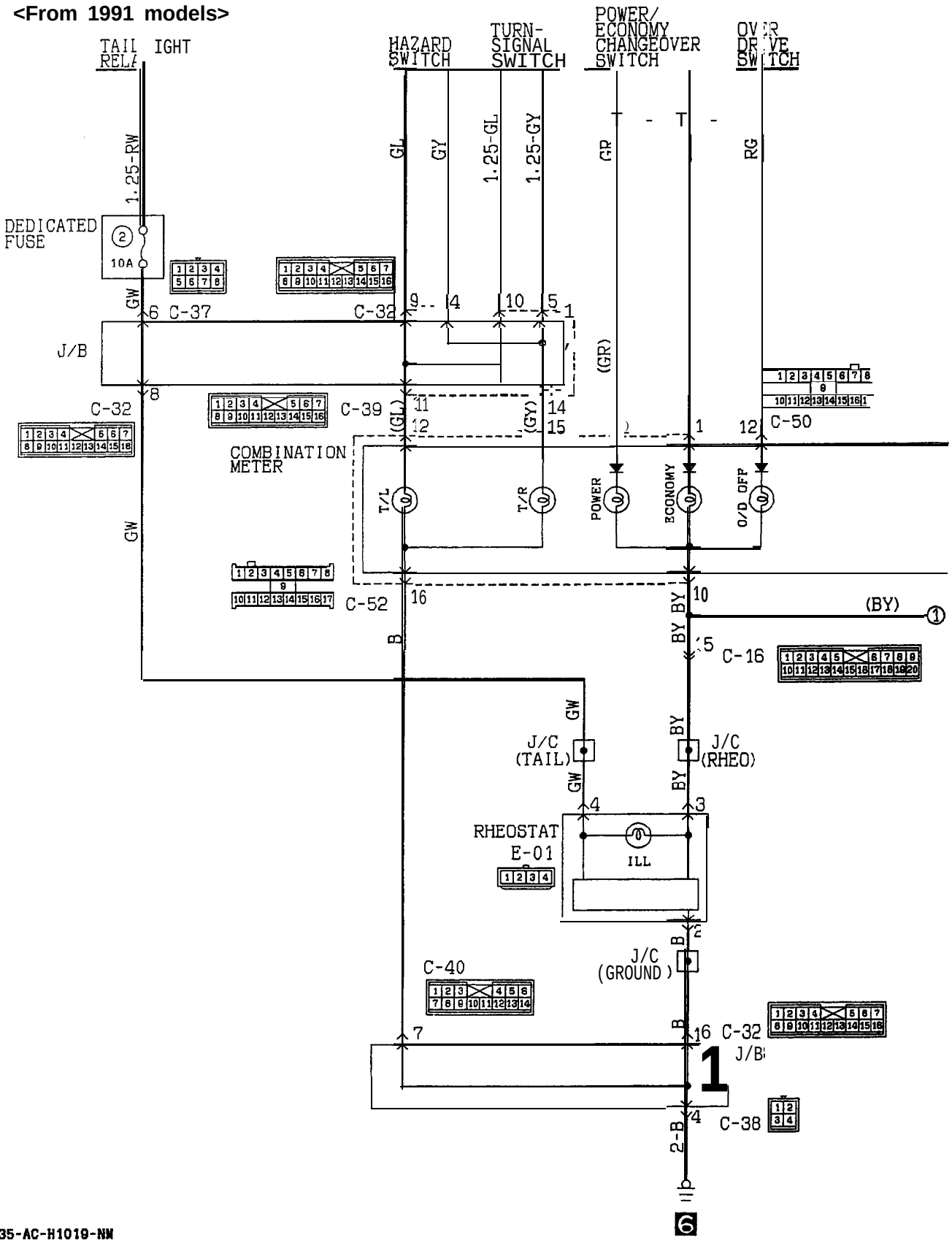
TSB Revision


PARK/NEUTRAL POSITION SWITCH
IGNITION SWITCH (IG1)
HEADLIGHT RELAY
J/B C-39
C-43
10A
DEDICATED FUSE
C-58
C-51
C-23
C-52
CRUISE
BEAM
AUTO-CRUISE CONTROL ACTUATOR
DIODE C-49
STOP LIGHT SWITCH C-48
COLUMN SWITCH (DIMMER/PASSING SWITCH)
AUTO-CRUISE CONTROL UNIT
OFF
ON
ON
OFF

INDICATOR LIGHT CIRCUIT

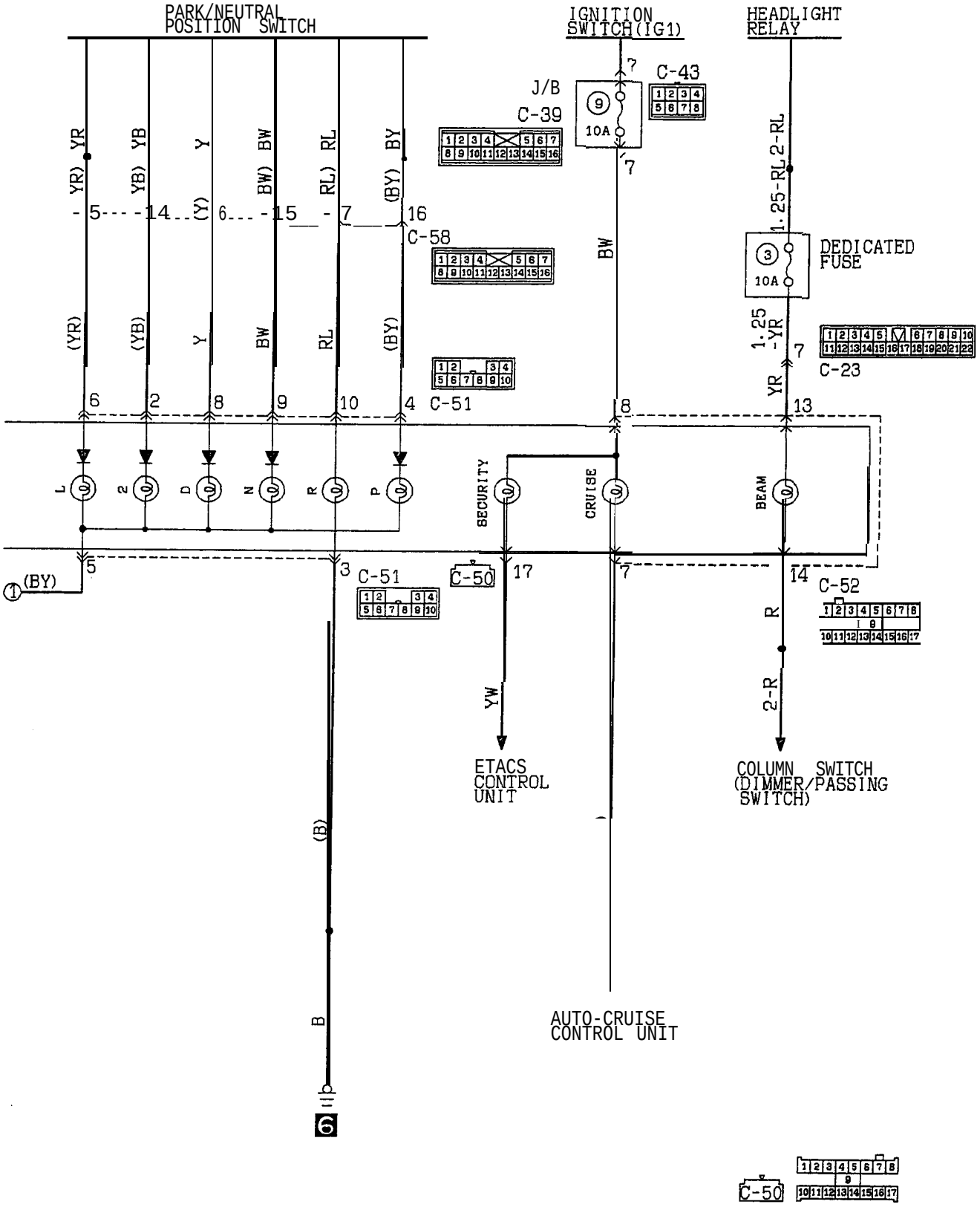
CIRCUIT DIAGRAM

<From 1991 models>



KX35-AC-H1010-NW

TSB Revision


PARK/NEUTRAL POSITION SWITCH
IGNITION SWITCH(IG1)
HEADLIGHT RELAY
J/B
C-39
C-43
10A
C-58
C-51
C-23
DEDICATED FUSE
C-50
C-52
SECURITY
CRUISE
BEAM
ETACS CONTROL UNIT
COLUMN SWITCH (DIMMER/PASSING SWITCH)
AUTO-CRUISE CONTROL UNIT
(YR)
(YB)
Y
BW
RL
(BY)
(B)
B
YW
R
2-R
1.25-RL
1.25-YR
YR
L
2
D
N
R
P

OPERATION

<Fuel gauge>

- When the ignition key is at the "ON" position, the fuel gauge is activated.
- When there is much fuel, the unit's resistance is small and the current flowing in the circuit is great, so the gauge's indicator indicates in the "F" area.
- When there is little fuel, the unit's resistance is high and the current flowing in the circuit is small, so the gauge's indicator indicates in the "E" area.

<Engine coolant temperature gauge>

- When the ignition key is at the "ON" position, the engine coolant temperature gauge is activated.
- When the engine coolant temperature is high, the unit's resistance is low and there is a great flow of current in the circuit, so the gauge's indicator indicates in the "H" area.
- When the engine coolant temperature is low, the unit's resistance is high and there is a small flow of current in the circuit, so the gauge's indicator indicates in the "C" area.

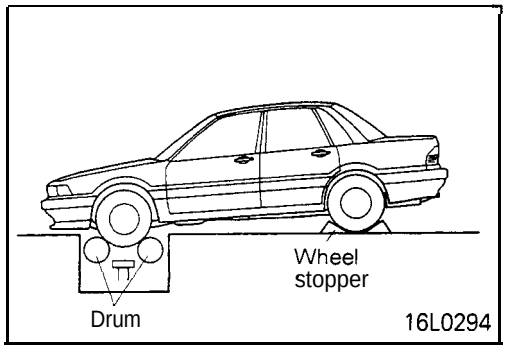
<Reed switch>

- Pulses are produced in accordance with the vehicle speed, and vehicle-speed signals are input to systems (the transaxle-control system, etc.) that regulate according to the vehicle speed.

NOTE
For operation of warning light and indicator light, refer to P.54-36.

TROUBLESHOOTING HINTS

1. The fuel gauge doesn't function, or shows the incorrect indication.
   (1) Disconnect the connector of the fuel gauge unit; the "F" side is indicated when terminal 3 (FWD) or 2 (AWD) is then grounded.
   - Check the fuel gauge.
2. The engine coolant temperature gauge doesn't function, or shows the incorrect indication.
   (1) The "H" side is indicated when the connector of the engine coolant temperature gauge unit is disconnected and then grounded.
   - Check the engine coolant temperature gauge unit.
3. Systems dependent upon control according to the vehicle speed do not function correctly.
   - Check the reed switch (located within the speedometer).
4. The meter illumination light does not illuminate.
   (1) The tail lights illuminate.
   - Check the rheostat.



SERVICE ADJUSTMENT PROCEDURES

INSPECTION

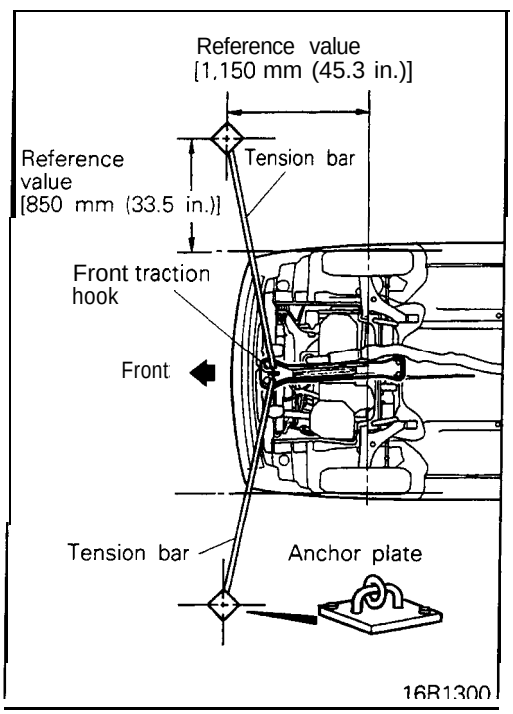
SPEEDOMETER INSPECTION M54HIAX

NOTE
For AWD models, refer to the section concerning special handling instructions for AWD models in GROUP 00.

Take note of the following before inspection:
(1) Assure tire pressure at standard value.
(Refer to GROUP 31 -Specifications.)
(2) When placing the vehicle on a speedometer tester drum, make sure the center line of the vehicle is at right angles to the center line of the drum. Also, make sure the drum is positioned so as to center between the front tires.

Rear wheel safety procedures

(1) Be sure to chock both rear wheels to prevent the vehicle from moving. Secure the stoppers to the floor, or take measures to prevent the stoppers from slipping.
(2) Make sure the parking brake has been set.



Front wheel away prevention procedure

(1) Attach tension bars to the front traction hook. Secure the ends of both bars to anchor plates.
(2) Make sure the tension on the right and left bars is the same. Also be sure there is enough tension on each bar.

Accident prevention procedures

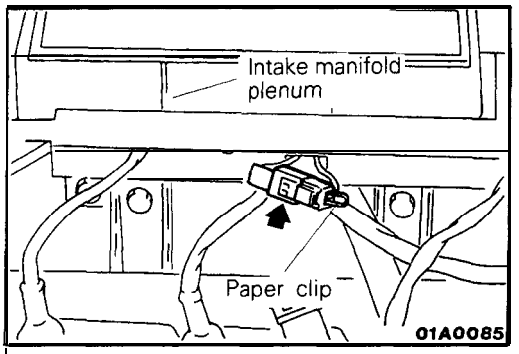
(1) Attach a chain or wire to the rear traction hook. Make sure the end of the wire or chain is secured firmly.
(2) Take all other necessary precautions.

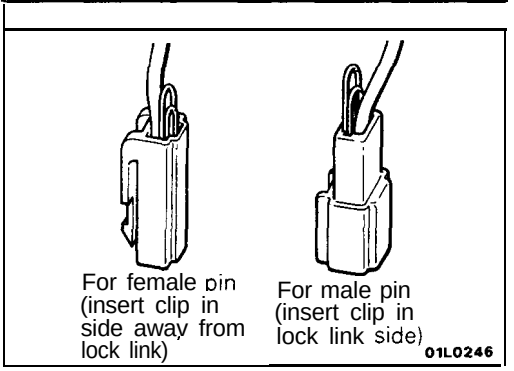
Use a speedometer tester to measure the speedometer's indication error.

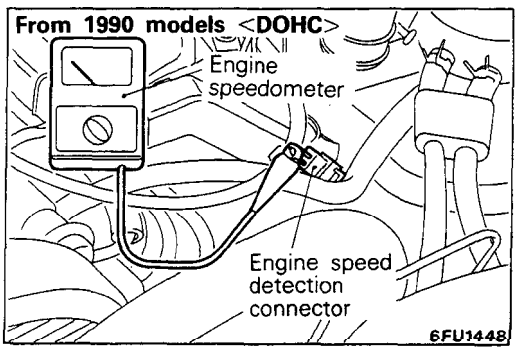
Standard value:

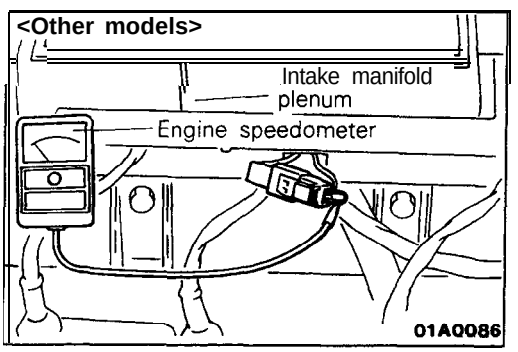
Standard indication mph	Allowable range mph
20	19–22
40	38-44
60	57-66
80	76-88
100	94–110

TSB Revision









TACHOMETER INSPECTION

M54HIBN

Connect engine speedometer and compare the engine speedometer and tachometer readings. Replace tachometer if difference is excessive.

Standard value:

Type 1 (8,000 rpm indication)	
700 rpm	**±100 rpm**
3,000 rpm	**±150 rpm**
6,000 rpm	**±300 rpm**
Type 2 (9,000 rpm indication)	
700 rpm	**±100 rpm**
3,000 rpm	**$^{+225}_{-100}$ rpm**
7,000 rpm	**$^{+400}_{-100}$ rpm**

Caution

As the tachometer is negative grounded, do not connect battery conversely to prevent damaging transistor and diode.

Connect the engine speedometer.

(1) Insert the paper clip from behind the connector.

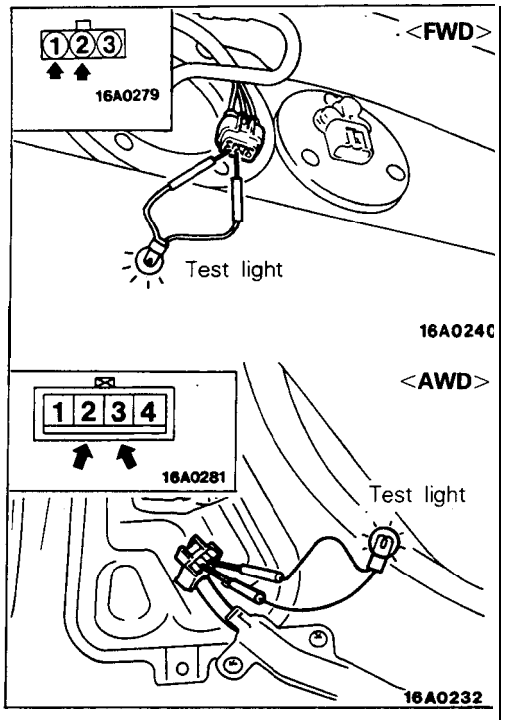
Caution

Insert the paper clip parallel to the terminal surface as shown in the figure at left.

(2) Connect the engine speedometer to the inserted clip.

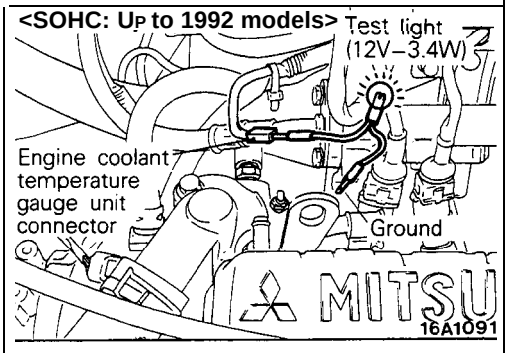
NOTE (From 1990 models <DOHC>)

For rpm, one-half of the actual engine rpm is indicated, so the actual engine rpm is two times the indicated value shown by the tachometer.



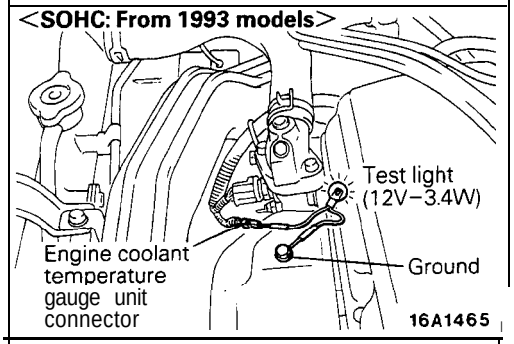
FUEL GAUGE SIMPLE INSPECTION M54HICI

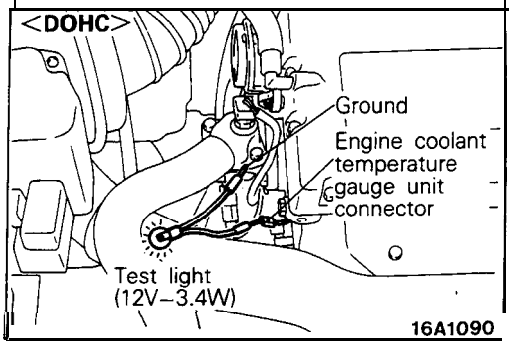
(1) Remove connector from fuel gauge unit in fuel tank.
(2) Ground the harness side connector via a test light (12V–3.4W).
(3) Turn ON ignition key.
(4) Assure test light goes on and gauge needle moves.
(5) If test light goes on but gauge needle does not move, replace fuel gauge.
If test light does not go on (and gauge needle does not move), check fuse for broken wire, or resistance between gauge terminals (refer to P.54-34), or break in harness. Replace or repair defective parts.



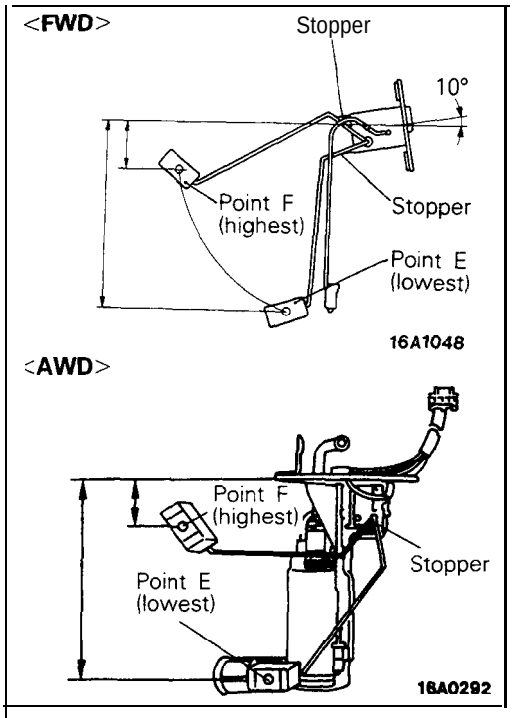
ENGINE COOLANT TEMPERATURE GAUGE SIMPLE INSPECTION M54HIDK

(1) Remove connector from engine coolant temperature gauge unit in engine compartment.
(2) Ground harness side connector via test light (12V–3.4W).
(3) Turn ON ignition key.
(4) Check that test light goes on and gauge needle moves.
(5) If test light goes on but the gauge needle does not move, replace engine coolant temperature gauge.
If test light does not go on (and gauge needle does not move), check fuse for broken wire, or resistance between gauge terminals (refer to P.54-34), or break in harness. Replace or repair defective part.





TSB Revision



FUEL GAUGE UNIT INSPECTION

M54HIIQ

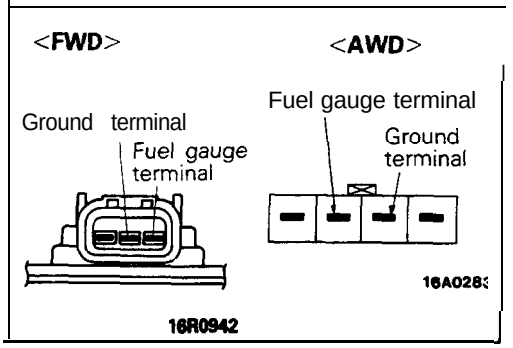
To check, remove fuel gauge unit from fuel tank (Refer to GROUP 13–Fuel Tank.)

Float Height of Fuel Gauge Unit

Move float and measure the height at point F (highest) and point E (lowest) with float arm touching stopper.

Standard value:

<FWD>	**Point F**	**45.6±2.5 mm (1.79±.1 in.)**
	Point E	**177.5±2 mm (6.98±.08 in.)**
<AWD>	**Point F**	43 **mm (1.69 in.)**
	Point E	**174 mm (6.85 in.)**

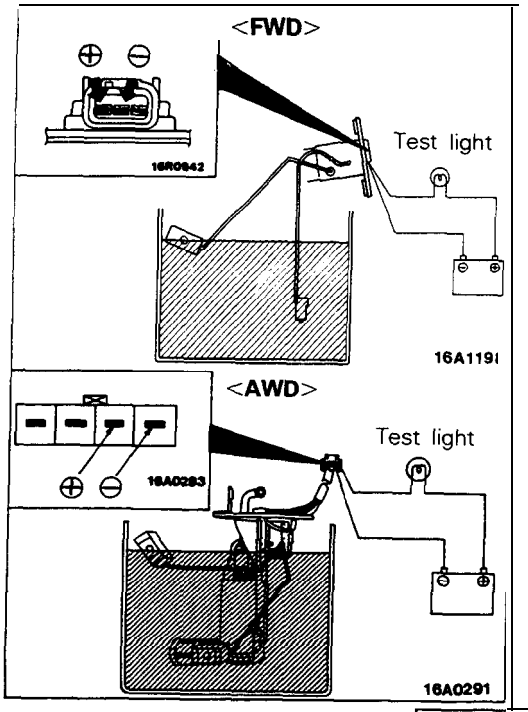


Standard Resistance of Fuel Gauge Unit

(1) Check that resistance value between the fuel gauge terminal and ground terminal is at standard value when fuel gauge unit float is at point F (highest) and point E (lowest).

Standard value: Point F 3±2 Ω
Point E 110±7 Ω

(2) Check that resistance value changes smoothly when float moves slowly between point F (highest) and point E (lowest).

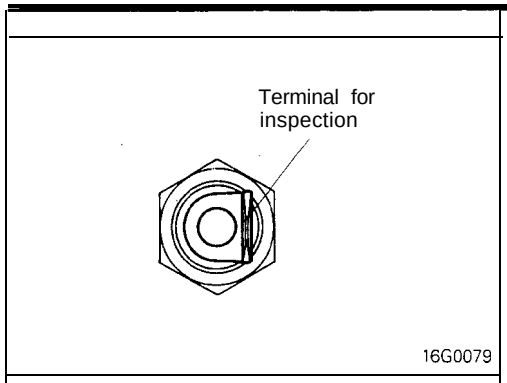


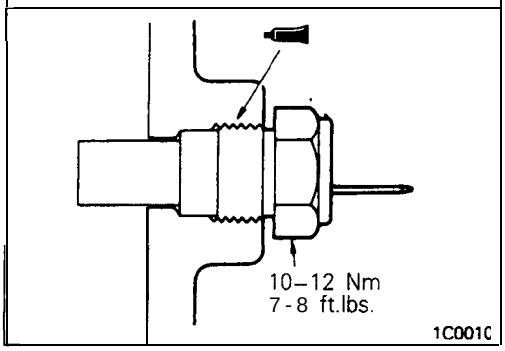
FUEL SENSOR INSPECTION

Connect fuel gauge unit 'to battery via test light (12V–3.4W). Immerse in water. Condition good if light goes off when unit thermistor is in water and lights when unit is removed from water.

Caution
After completing this test, wipe the unit dry and install it in the fuel tank.

TSB Revision





ENGINE COOLANT TEMPERATURE GAUGE UNIT INSPECTION

M54HIITa

To check, remove engine coolant temperature gauge unit from intake manifold. ,

Standard Resistance of Engine Coolant Temperature Gauge Unit

(1) Immerse unit in 70°C (158°F) water to measure resistance.

Standard value: 104 ± 13.5 Ω

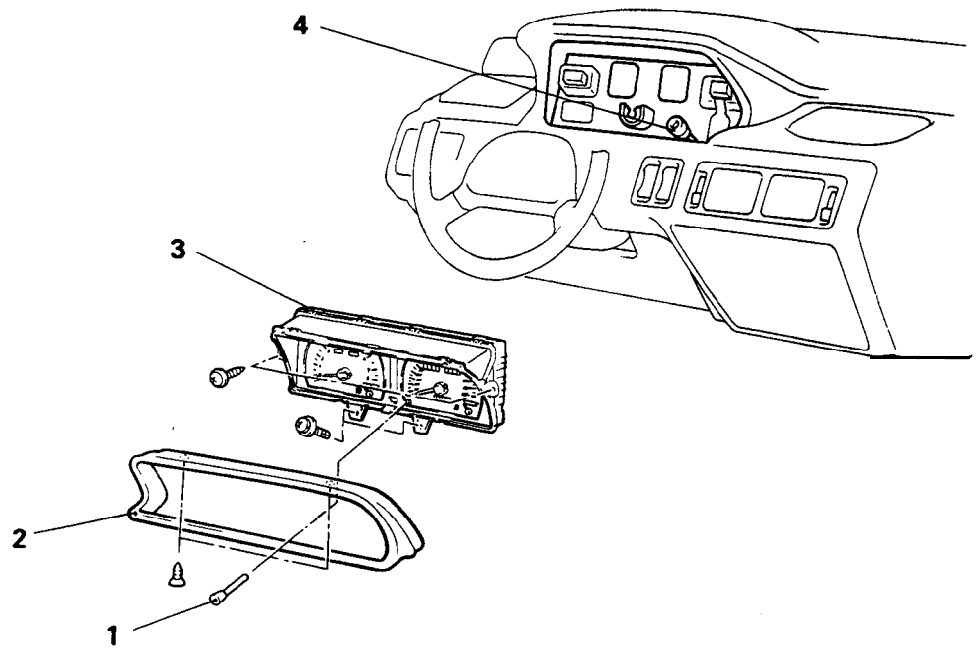
(2) After checking, apply the specified sealant around the thread of engine coolant temperature gauge unit and install on the intake manifold.

Specified sealant: 3M ATD Part No. 8660 or equivalent

METERS AND GAUGES

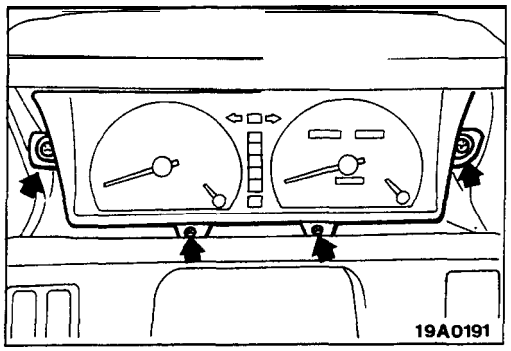
M54HJAR

REMOVAL AND INSTALLATION



Removal steps

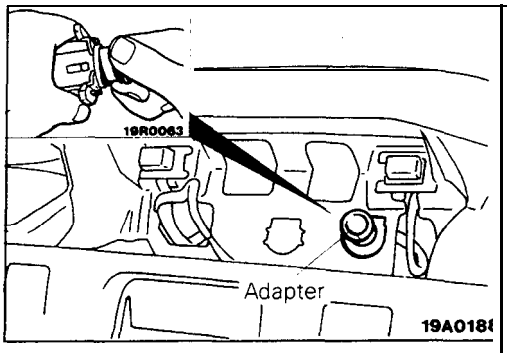
1. Trip counter reset knob
2. Meter bezel
3. Combination meter
4. Adapter



SERVICE POINTS OF REMOVAL

3. REMOVAL OF THE COMBINATION METER

(1) Remove the mounting screws; then remove the combination meter by turning the upper part of it toward the front.
(2) For models equipped with the automatic position indicator, disconnect the harness connector before removing the combination meter.



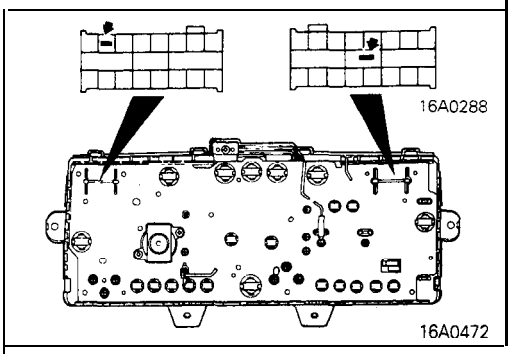
4. REMOVAL OF ADAPTER

(1) Disconnect the speedometer cable at the transmission end of the cable.
(2) Pull the speedometer cable slightly toward the vehicle interior, release the lock by turning the adapter to the left or right, and then remove the adapter.

INSPECTION

REED SWITCH INSPECTION

Use circuit tester to check circuit repeats off/on between terminals when speedometer shaft turned several times.

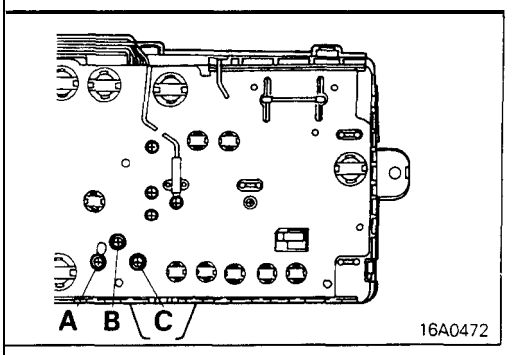


FUEL GAUGE CIRCUIT INSPECTION

Measure resistance between terminals with circuit tester.

Standard value:

A-B	**Approx. 203 Ω**
A-C	**Approx. 102 Ω**
B-C	**Approx. 102 Ω**



ENGINE COOLANT TEMPERATURE GAUGE CIRCUIT INSPECTION

Measure resistance between terminals with circuit tester.

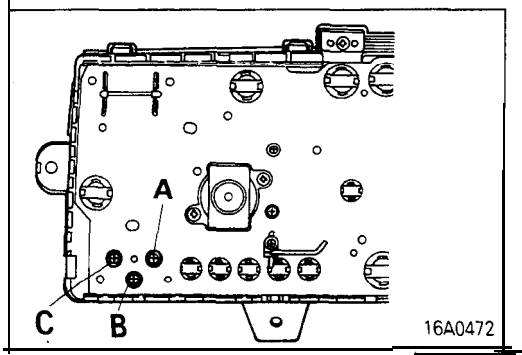
Standard value:

Vehicles built up to Dec. 1988

A-B	**Approx. 130 Ω**
A-C	**Approx. 53 Ω**
B-C	**Approx. 162 Ω**

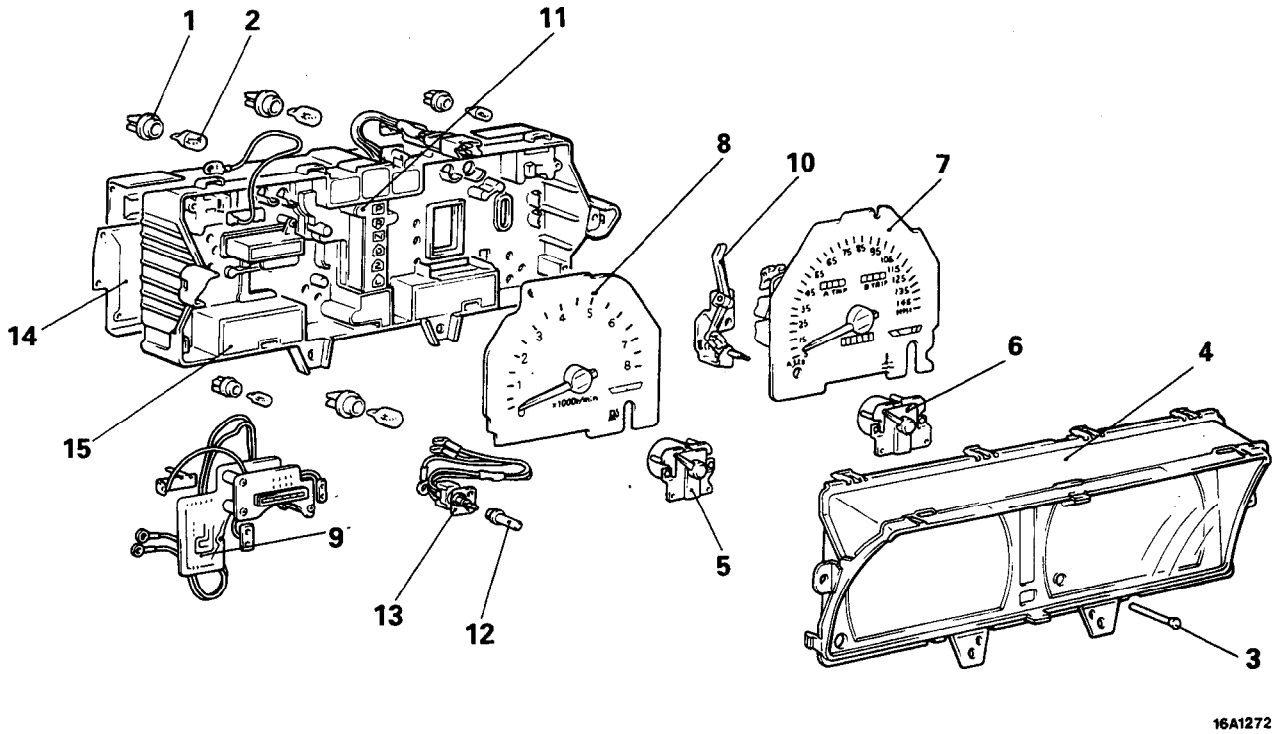
Vehicles built from Jan. 1989

A-B	**Approx. 146 Ω**
A-C	**Approx. 60 Ω**
B-C	**Approx. 206 Ω**



TSB Revision

DISASSEMBLY AND REASSEMBLY



16A1272

Disassembly steps

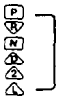
1. Bulb socket
2. Bulb
3. Twin trip counter reset knob
4. Meter panel
5. Fuel gauge
6. Engine coolant temperature gauge
7. Speedometer
8. Tachometer
9. Turbo boost gauge <DOHC-Turbo>
10. Twin trip holder
11. A/T indicator lens
12. Meter color changer switch knob <DOHC>
13. Meter color changer switch <DOHC>
14. Printed-circuit board
15. Meter case

INDICATORS

M54HKAXa

Symbol		Operation
⇦⇨	Turn signal indicator	This indicator flashes, as do the same side of turn-signal light flashes. If the turn-signal light is burnt out, the indicator flashes faster than normal indicator. This indicator is common with hazard light.
≡D	High beam indicator	This indicator illuminates when the headlights are on high beam.
	Door-ajar warning	This indicator comes on when the door is either open or not completely closed.

TSB Revision

Symbol		Operation
	Seat belt warning	<Vehicles with automatic seatbelt> This warning light warns the driver and front passenger to fasten their seat belts. If one or more seat belts are not fastened, the automatic seat belt control unit detects that fact and causes the warning light to be illuminated or flash. How long the light is illuminated or how many times it flashes depends on whether only one, or both of the belts remain unfastened. <Vehicles without automatic seatbelt> The seat belt warning light will flash for about six seconds when the ignition key is turned to the ON position. If at this time the driver's seat belt is not buckled, the alarm buzzer will sound four times in synchronism with the flashing of the warning light.
BRAKE	Brake warning	This indicator comes on when the ignition key is in "ON" position, and goes off after the engine has started. This indicator comes on when the parking brake is applied or brake fluid level falls less than the specific level.
	Fuel warning	This indicator comes on when the fuel in the fuel tank falls less than approx. 8 liters (2.1 gals.).
	Charging warning	This indicator comes on when the ignition key is in "ON" position, and goes off after the engine has started. This indicator comes on when the drive belt breaks or the trouble occurs in the charging system.
	Oil pressure warning	This indicator comes on when the ignition key is in "ON" position, and goes off after the engine has started. This indicator comes on when the oil fails or the trouble occurs in the oil circulating system while driving.
OD OFF	Overdrive OFF indicator	The light will light up when the overdrive switch is off.
	Automatic transaxle-position indicator	This indicator light illuminates to indicate the position at which the selector lever is set.
ANTI LOCK	Anti-lock brake warning light	This light illuminates when the ignition switch is switched ON; then, when the ignition key is returned from the "ST" position to the "ON" position, it extinguishes about 0.6 second later, thus providing a check of the anti-lock brake warning light circuit. This light illuminates when a malfunction is discovered in the anti-lock braking system.
CHECK ENGINE	Check engine/malfunction indicator lamp	This lamp illuminates when the ignition key is turned to the "ON" position, but should go out in a few seconds. If the lamp illuminates while the vehicle is moving, there is a malfunction of a component related to exhaust gases.
CRUISE	Auto-cruise control indicator light	The light illuminates when the auto-cruise control switch is switched ON, and the auto-cruise control system is activated.

Symbol		Operation
A/T TEMP 68W068	AA fluid temperature warning light <AWD-A/T>	This A/T fluid temperature warning light comes on when automatic transmission fluid temperature becomes abnormally high.
SECU RITY	SECURITY light (Vehicles with theft-alarm system)	Illuminates for about 20 seconds when the theft-alarm system can be set, and then the illumination stops.
4WS 68A0012	4WS (4-wheel steering system) fluid level warning light	With the ignition switch in the "ON" position the warning light is illuminated if the 4WS fluid level falls less than the specific level.

LIGHTING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS <Up to 1990 models>

M54IB--

items	Specifications
Exterior lights	
Headlight	
Type I W	65
Type II W	55
Front turn-signal light W	27
Front combination light	
Side marker light CP	3.8
Position light CP	5
Rear side marker light CP	3
Rear combination light	
Turn-signal light CP	32
Stop and tail light CP	32/2
Back-up light CP	32
License plate light CP	3
High-mounted stop light CP	*1 4 or *2 21
Interior lights	
Front dome light	
Dome light W	*3 10
Spot light W	8
*4 Rear dome light	
Dome light W	8
Spot light W	8
Door light W	5
Luggage compartment light W	5

NOTE
*1 : DOHC
*2 : SOHC
*3 : Vehicles with sunroof.
*4 : Vehicles without sunroof

GENERAL SPECIFICATIONS <From 1991 models>

Items		Specifications
Exterior light		
Headlight		
Type I	W	65
Type II	W	55
Front turn-signal light	W	
<Non-turbo>		27*3 27/8*4
<Turbo>		27/8
Front combination light		
Side marker light	W	3.8
Position light	W	5
Fog light	W	55
Rear side marker light	CP	3
Rear combination light		
Turn signal light	CP	32
Stop and tail light	C P	32/2
Back-up light	CP	32
Rear lid light		
Stop and tail light	C P	32/2
License plate light	CP	3
High-mounted stop light		
Non-turbo (Vehicles without air spoiler)	CP	21
Non-turbo (Vehicles with air spoiler)	CP	4*3 60 pieces (Light Emitting Diode)*4
Turbo		60 pieces (Light Emitting Diode)
nterior lights		
Front dome light		
Dome light	W	10*1
Spot light	W	8
Rear dome light*2		
Dome light	W	8
Spot light	W	8
Door light	W	5
Luggage compartment light	W	5

NOTE
*1: Vehicles with sunroof.
*2: Vehicles without sunroof.
*3: Vehicles built up to 1992 models.
*4: Vehicles built from 1993 models.

TSB Revision

SERVICE SPECIFICATIONS

M54IC--

Items		Specifications
Limit		
Headlight intensity		
Type I	cd	18,000 or more
Type II	cd	7,000 or more

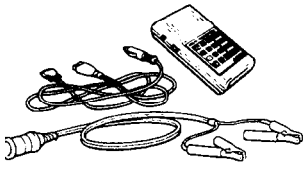
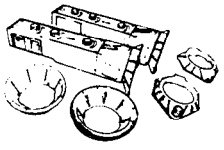
SEALANTS AND ADHESIVES

M54IH--

Item	Specified sealant
Connection of rear combination light and body	3M ATD Part No. 8625 or equivalent

SPECIAL TOOLS

M54IG--

Tool	Number	Name	Use
	MB991269 <1989 models> MB991341 <From 1990 models>	Scan tool (Multi-use tester <MUT>)	ETACS input check
	(For the number, refer to GROUP 00–Precautions Before Service)	ROM pack	ETACS input check
	C-4466	Headlight aimer	Aiming of headlight

TSB Revision

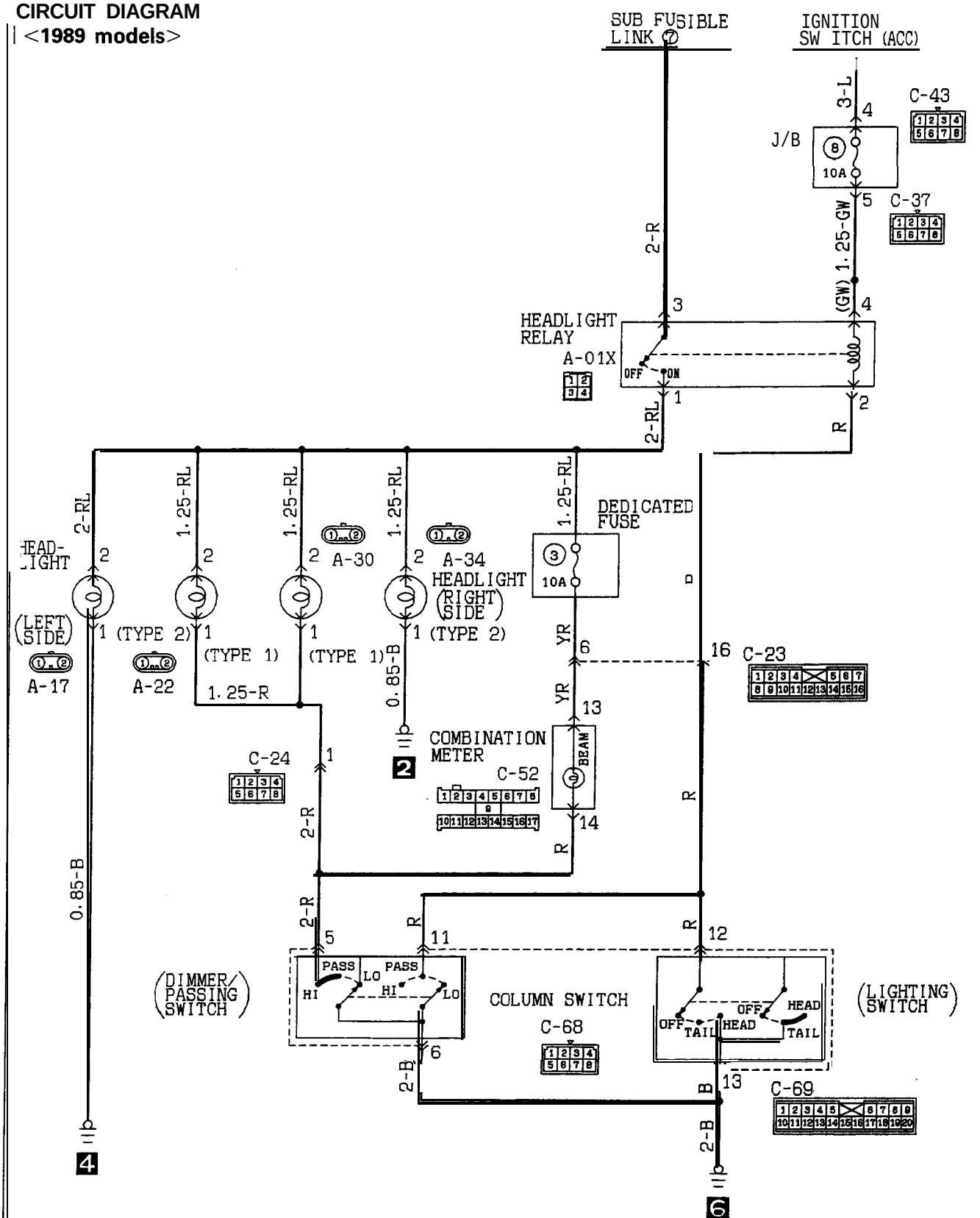
TROUBLESHOOTING

M541HB0b

HEADLIGHT CIRCUIT

CIRCUIT DIAGRAM

<1989 models>

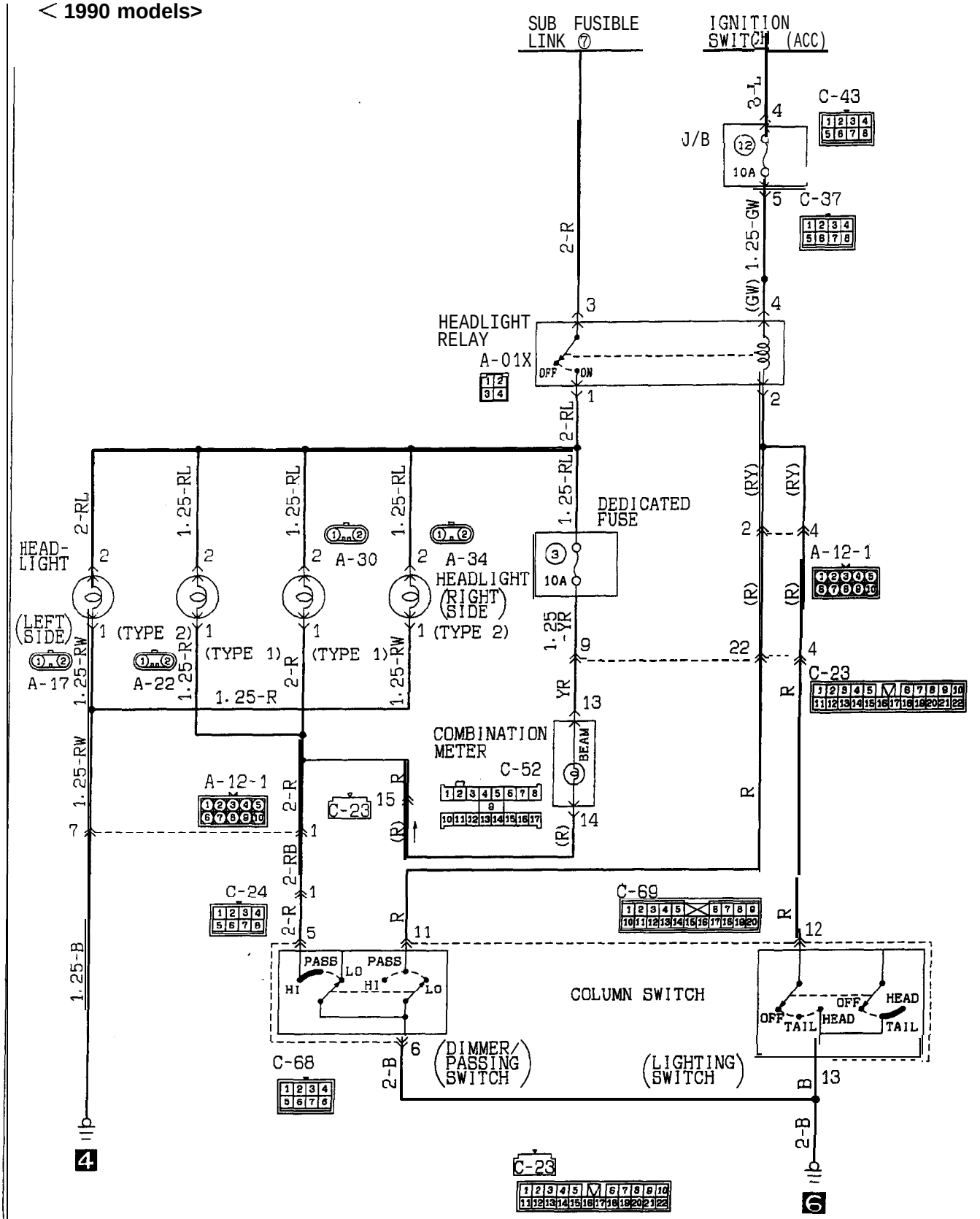


TSB Revision

HEADLIGHT CIRCUIT

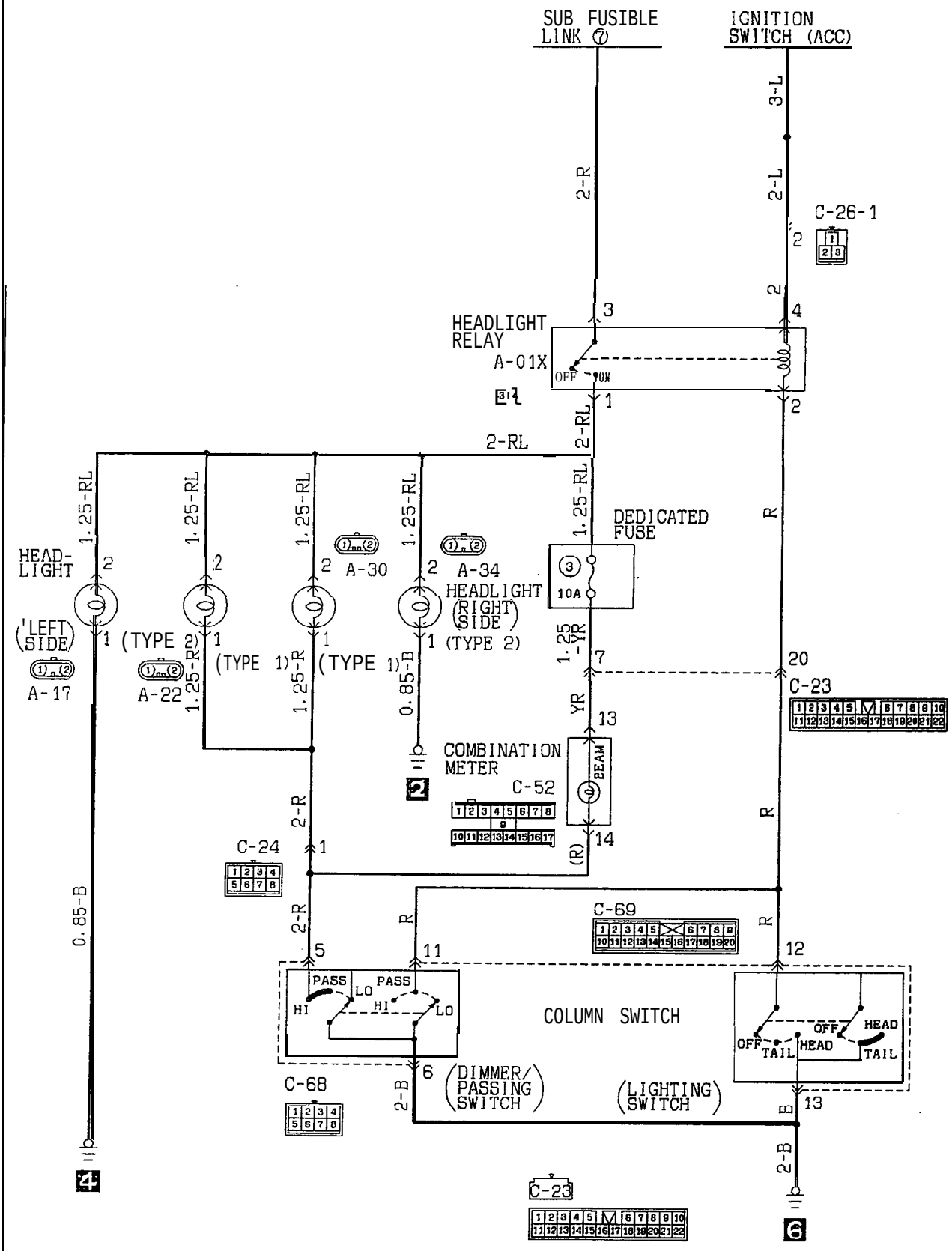
CIRCUIT DIAGRAM

< 1990 models>



TSB Revision

<From 1991 models>
Vehicles without theft-alarm system



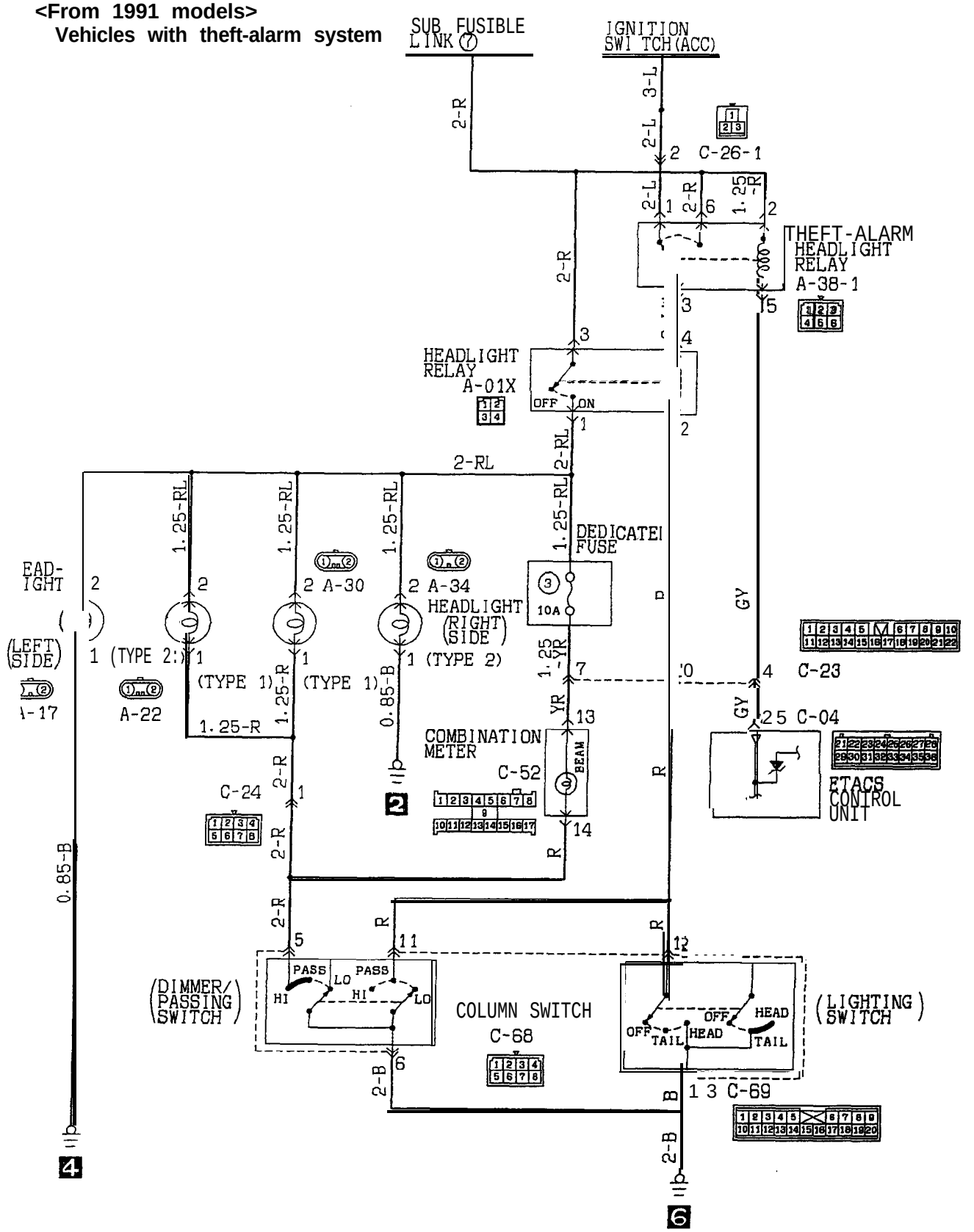
TSB Revision

HEADLIGHT CIRCUIT

CIRCUIT DIAGRAM

<From 1991 models>

Vehicles with theft-alarm system



MX35-AC-H0863-NM

OPERATION

Conditions for switch-ON of headlight relay

Ignition switch	Lighting switch	Dimmer-passing switch	Headlight relay
"ACC" or "ON"	"HEAD"	—	ON
"ACC" or "ON"	—	"PASS"	ON

<Low-beam operation>
- The headlight relay is switched ON when the lighting switch is set to the "HEAD" position.
- The low beam of the headlights will illuminate when, in this condition, the dimmer/passing switch is set to the "LO" position.

<High-beam operation>
- The headlight relay is switched ON when the lighting switch is set to the "HEAD" position.
- The high beam of the headlights will illuminate when, in this condition, the dimmer/passing switch is set to the "HI" position.

<High-beam indicator light>
- This indicator illuminates during use of the high beam of the headlights, and when the passing signal (high beam) is activated, thus indicating that the headlights' high beam is illuminated.

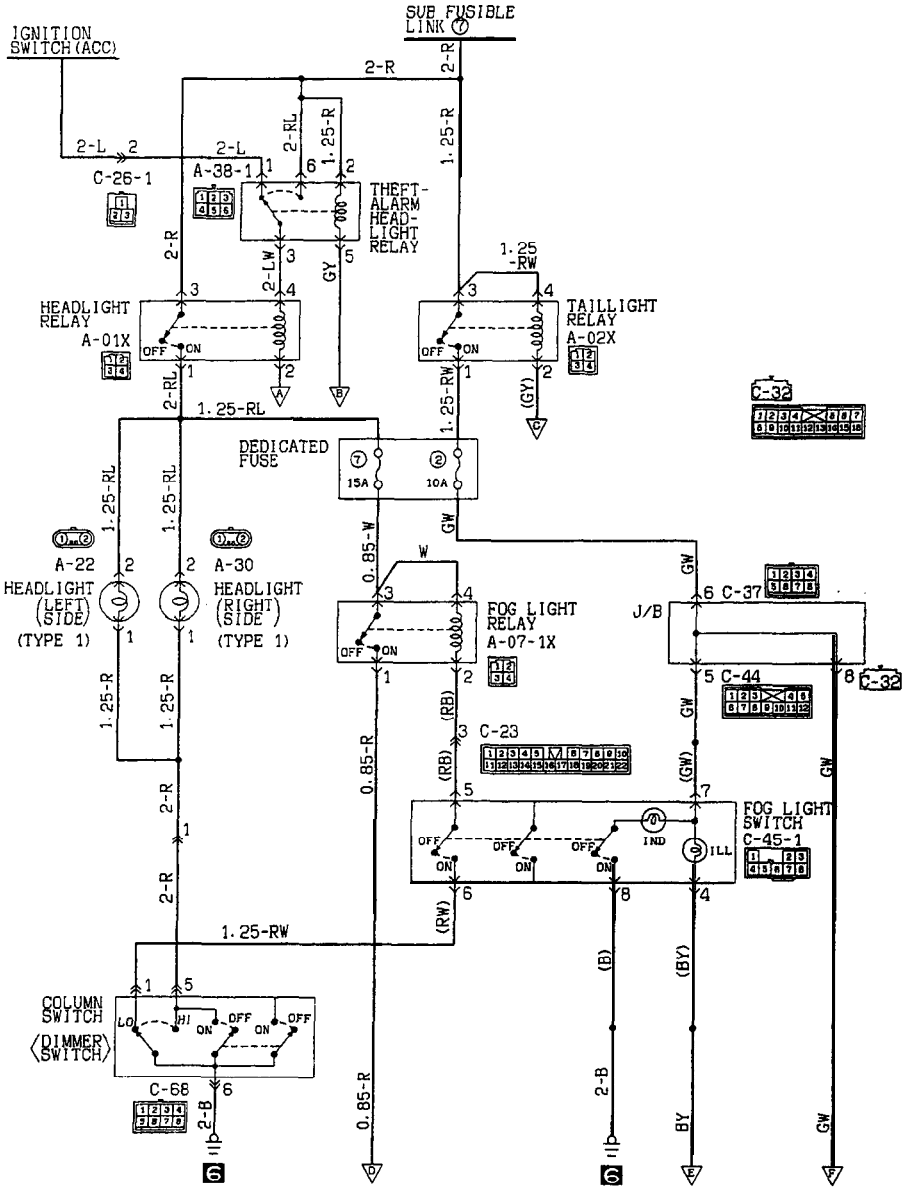
TROUBLESHOOTING HINTS

1. Headlights don't come on.
   1) But the tail lights do illuminate.
      - Check the headlight relay.
      - Check the lighting switch.
   2) The tail lights also don't illuminate.
      - Check the sub-fusible link No.⑦.
2. The low beam at both sides doesn't illuminate.
   - Check the ground.
3. The upper beam at both sides doesn't illuminate.
   1) The passing signal functions OK.
      - Check the "HI" contacts of the dimmer switch.
   2) The passing signal doesn't function.
      - Check the dimmer switch.
4. One headlight doesn't illuminate.
   - Check the bulb.
5. Can't switch from low to high beam or vice-versa.
   - Check the dimmer switch
6. The high beam indicator light doesn't illuminate.
   1) The high beam of the headlights is normal.
      - Check dedicated fuse No.③.
      - Check the bulb.

NOTE
(1) For information concerning the headlight relay and theft-alarm headlight relay, refer to P.54-97, 98.
(2) For vehicles equipped with the theft-alarm system, refer to P.54-165.

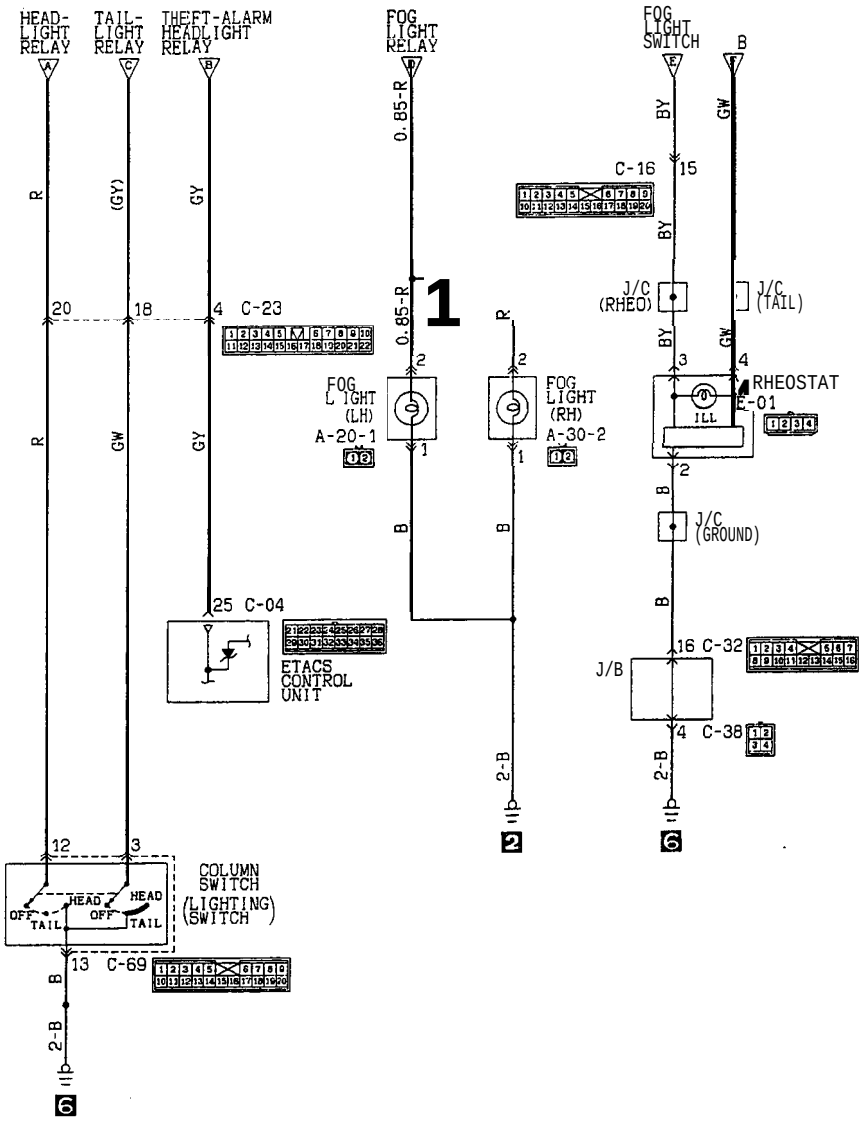
FOG LIGHT

CIRCUIT DIAGRAM



35-AC-H0862-NN

TSB Revision



OPERATION

- Set the lighting switch to the “HEAD” position.
- If the fog light switch is set at the “ON” position when the dimmer switch is at the “low” position, current flows through the dedicated fuse, fog light relay, fog light switch, dimmer switch and ground, causing the fog light relay contacts to close.
- Once the fog light relay contacts have closed, current flows through the dedicated fuse, fog **light relay (contacts), fog lights, and ground,** causing the fog lights to go on.

TROUBLESHOOTING HINTS

1. The right or left fog lights only go on.
   - Check the bulb.
2. Fog lights do not go on when the fog light switch is set at “ON”.
   - Check the dedicated fuse ⑦.

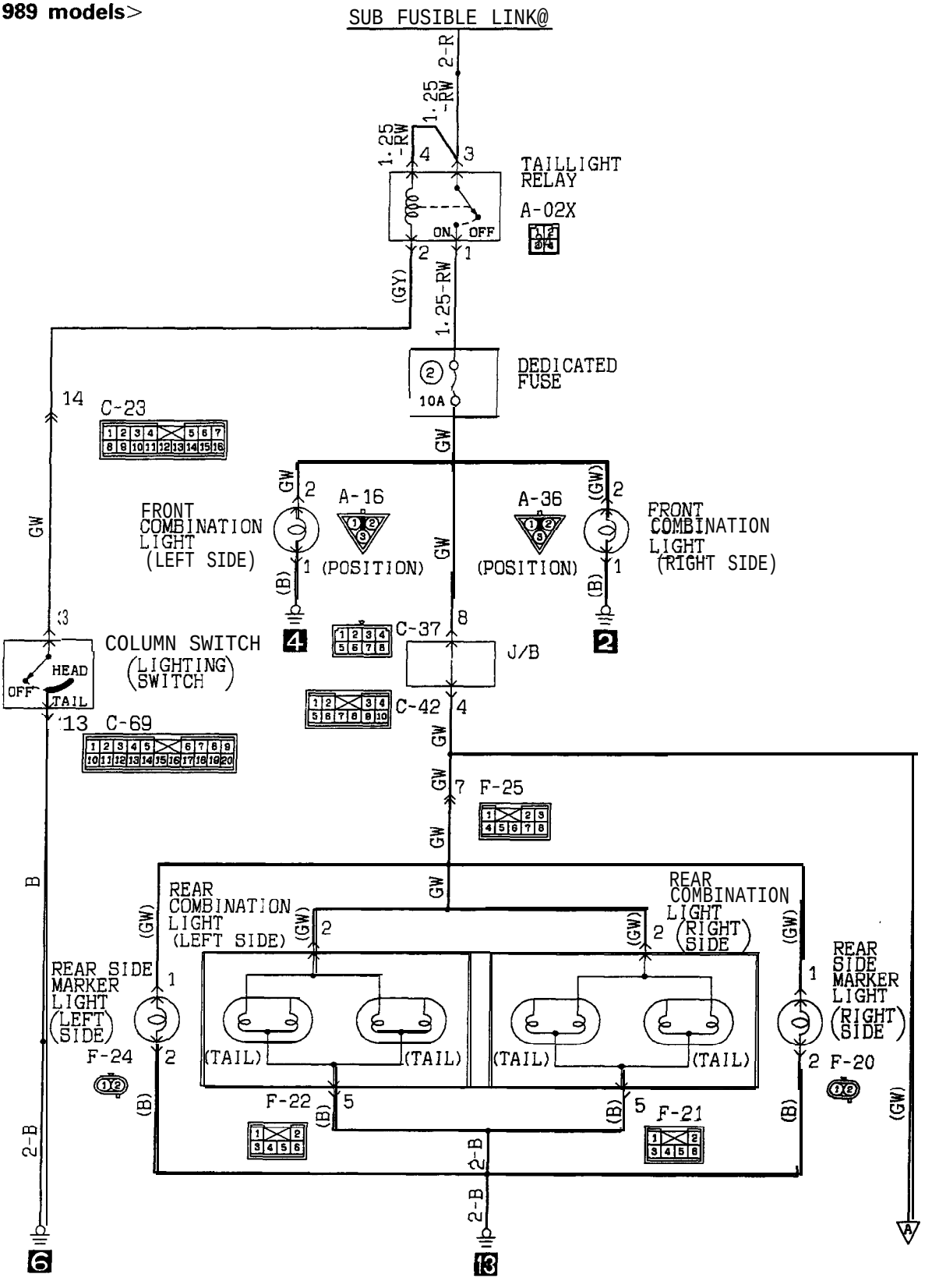
NOTE
For information concerning the fog light relay, refer to P.54-97.

TSB Revision

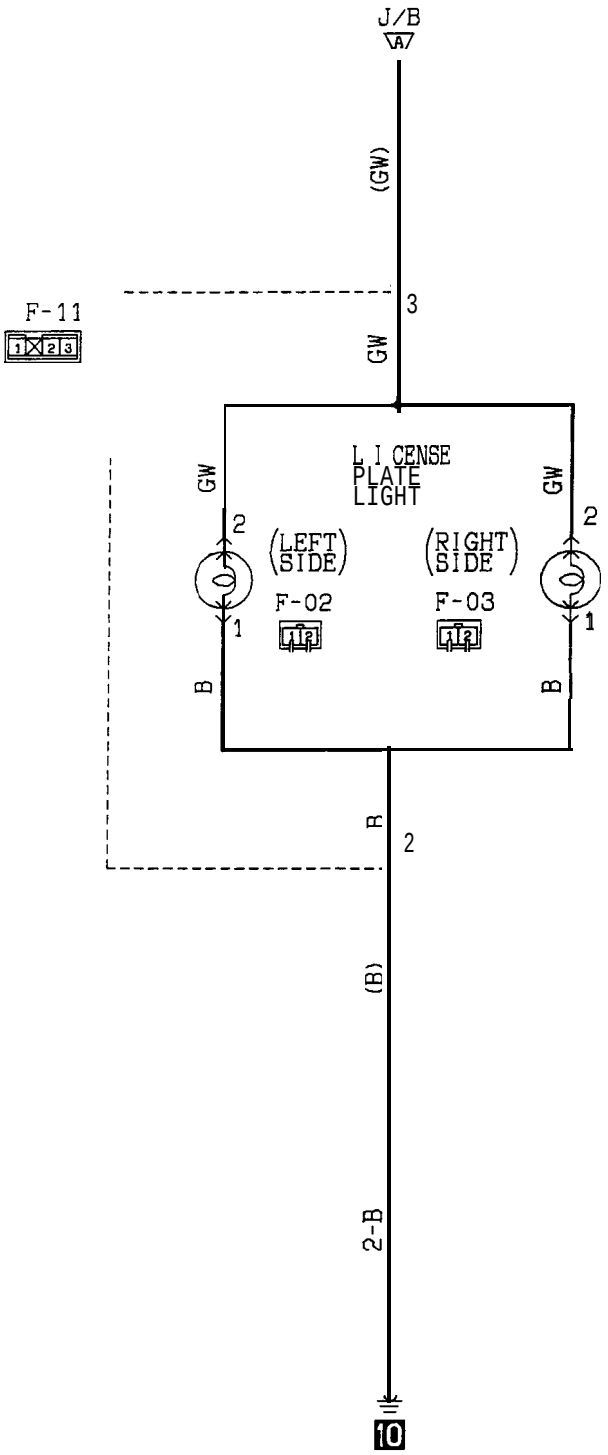
TAIL LIGHT, POSITION LIGHT, SIDE MARKER. LIGHT AND LICENCE PLATE LIGHT CIRCUIT

CIRCUIT DIAGRAM

<1989 models>



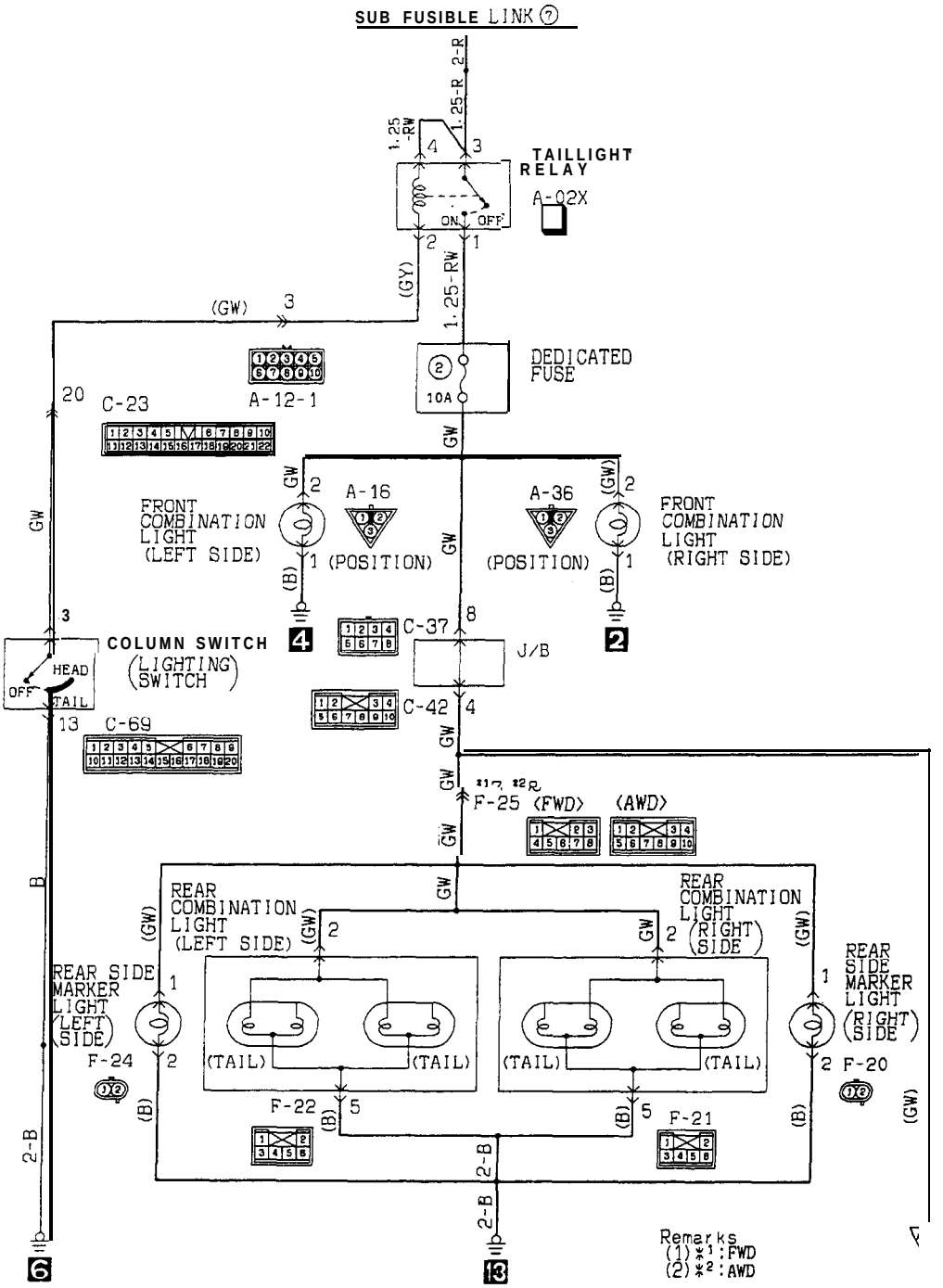
TSB Revision


J/B
A
(GW)
3
F-11
1 2 3
GW
LICENSE PLATE LIGHT
GW
GW
2
2
(LEFT SIDE)
(RIGHT SIDE)
F-02
F-03
1 2
1 2
1
1
B
B
R
2
(B)
2-B
10

TAIL LIGHT, POSITION LIGHT, SIDE MARKER LIGHT AND LICENSE PLATE LIGHT CIRCUIT

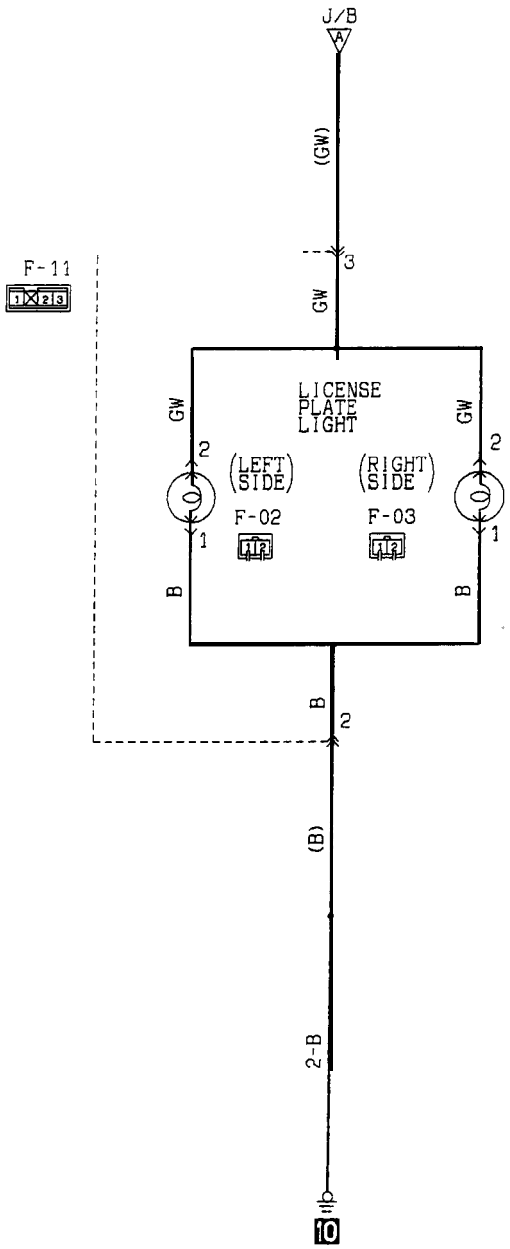
CIRCUIT DIAGRAM

< 1990 models>



35-AC-H0847-NM

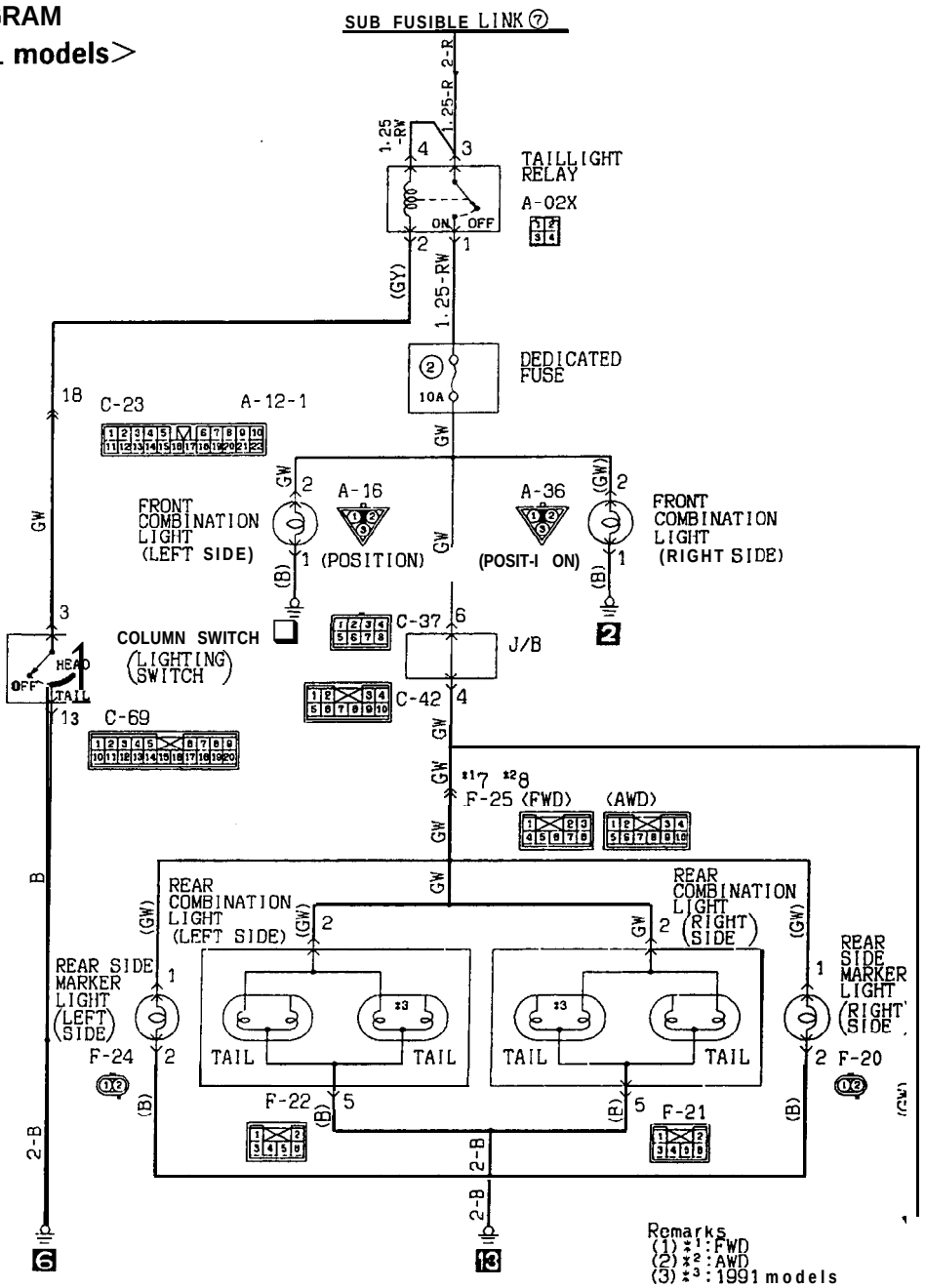
TSB Revision


J/B
A
(GW)
3
F-11
1 2 3
GW
LICENSE
PLATE
LIGHT
GW
GW
2
2
(LEFT
SIDE)
(RIGHT
SIDE)
F-02
F-03
1
1
B
B
B
2
(B)
2-B
10

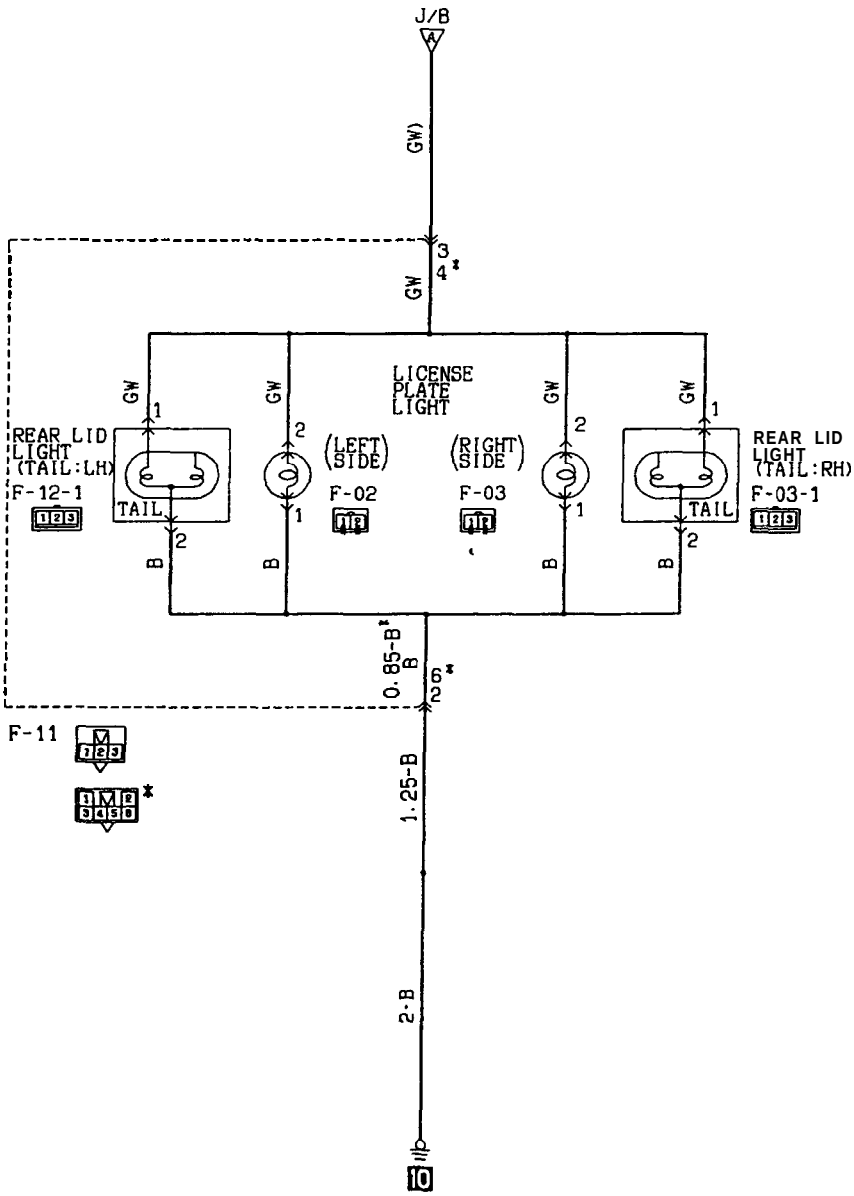
TAIL LIGHT, POSITION LIGHT, SIDE MARKER LIGHT AND LICENSE PLATE LIGHT CIRCUIT

CIRCUIT DIAGRAM

<From 1991 models>



TSB Revision



Remark
* mark indicates Vehicles with THEFT-ALARM SYSTEM

OPERATION

- The tail light relay is switched ON when the lighting switch is set to the "TAIL" or "HEAD" position.
- As a result, electricity flows via dedicated fuse No.② to each light, and *each* light illuminates.

TROUBLESHOOTING HINTS

1. All lights do not illuminate.
   (1) The headlights also do not illuminate.
   - Check sub-fusible link No.⑦.

   (2) The headlights illuminate.
   - Check the tail light relay.
   - Check dedicated fuse No.②.

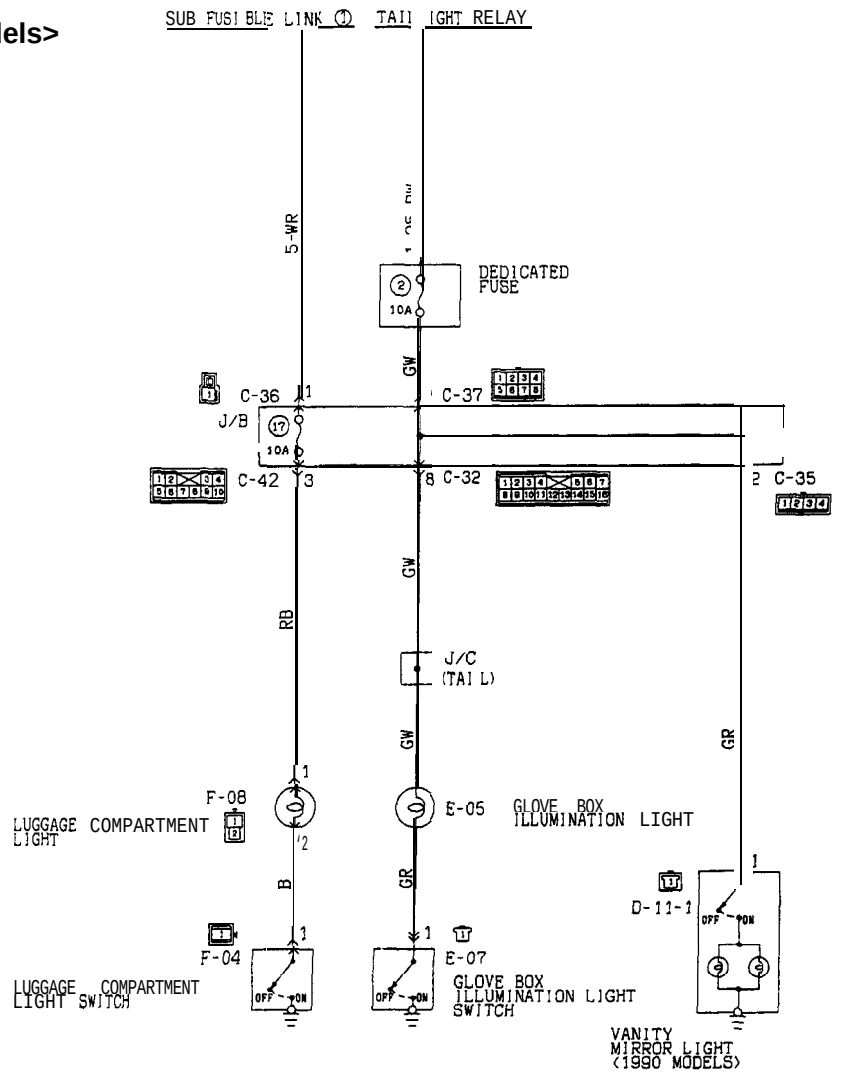
TSB Revision

LIGHT AND VANITY

MIRROR LIGHT CIRCUIT

CIRCUIT DIAGRAM

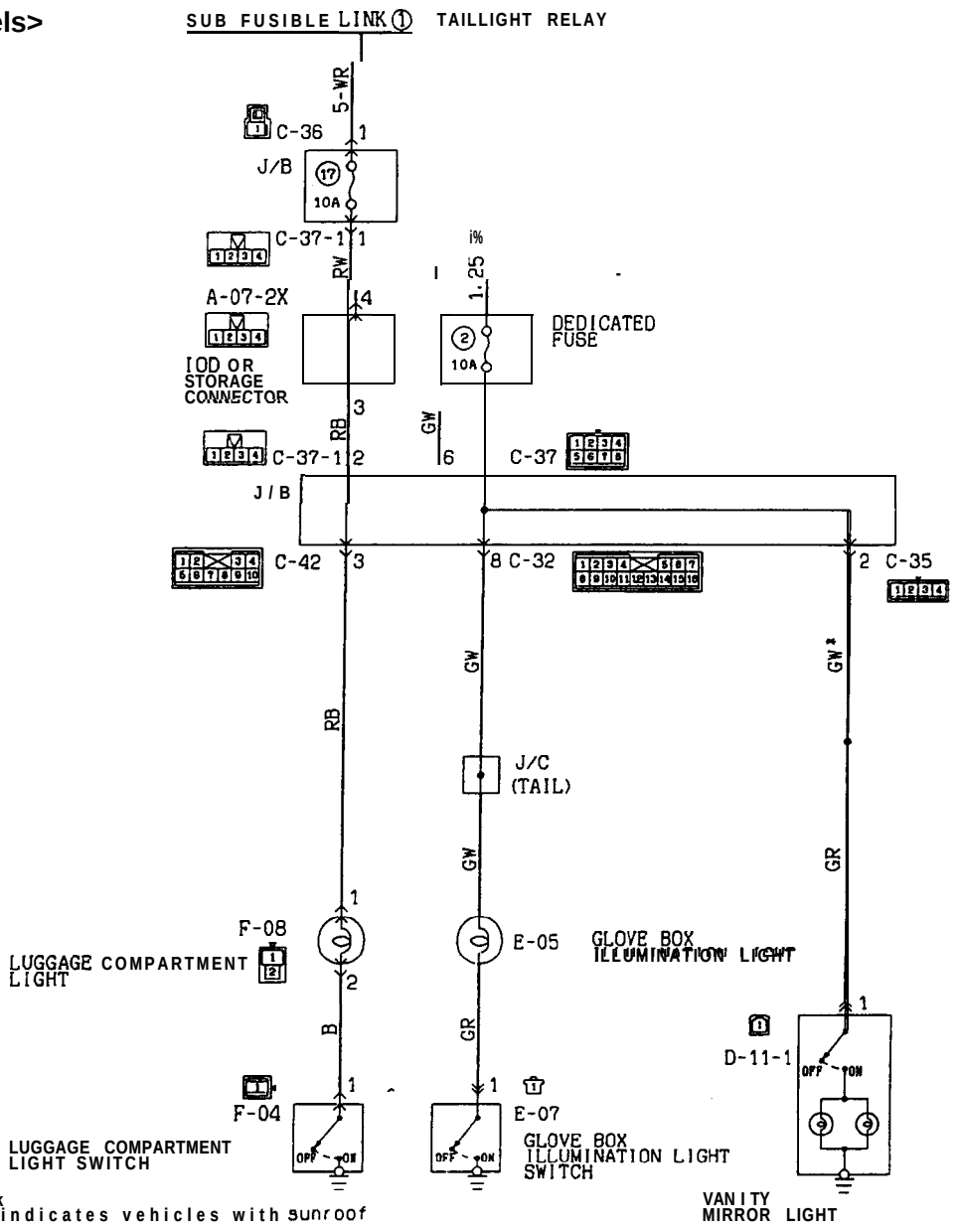
<Up to 1990 models>



I35-AC-H0845-NN

TSB Revision

<From 1991 models>



OPERATION

<Luggage compartment light>

- Battery voltage is always applied (via sub-fusible link No.① and multipurpose fuse No.⑰ to the luggage compartment light.
- When the trunk lid is opened, the luggage compartment light switch is switched ON and the luggage compartment light illuminates.

<Glove compartment light>

- The tail light relay is switched ON when the lighting switch is set to the "TAIL" or "HEAD" position.
- When, with the lighting switch at the "TAIL" or "HEAD" position, the glove compartment is opened, the glove compartment light switch is switched ON, and the glove compartment light is illuminated.

TROUBLESHOOTING HINTS

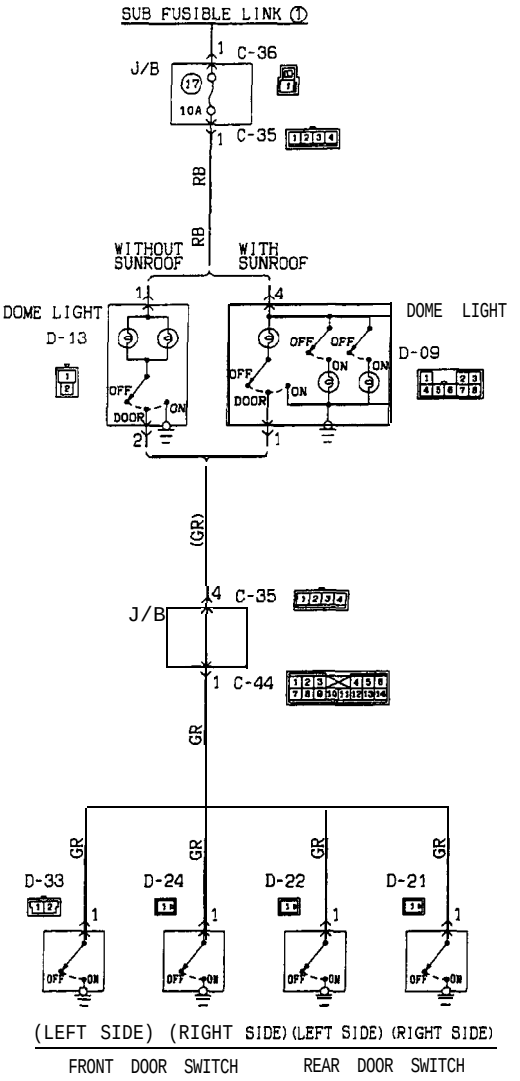
1. The luggage compartment light does not illuminate.
   (1) The dome light also does not illuminate.
   - Check multipurpose fuse No.⑰.

TSB Revision

DOME LIGHT CIRCUIT

CIRCUIT DIAGRAM

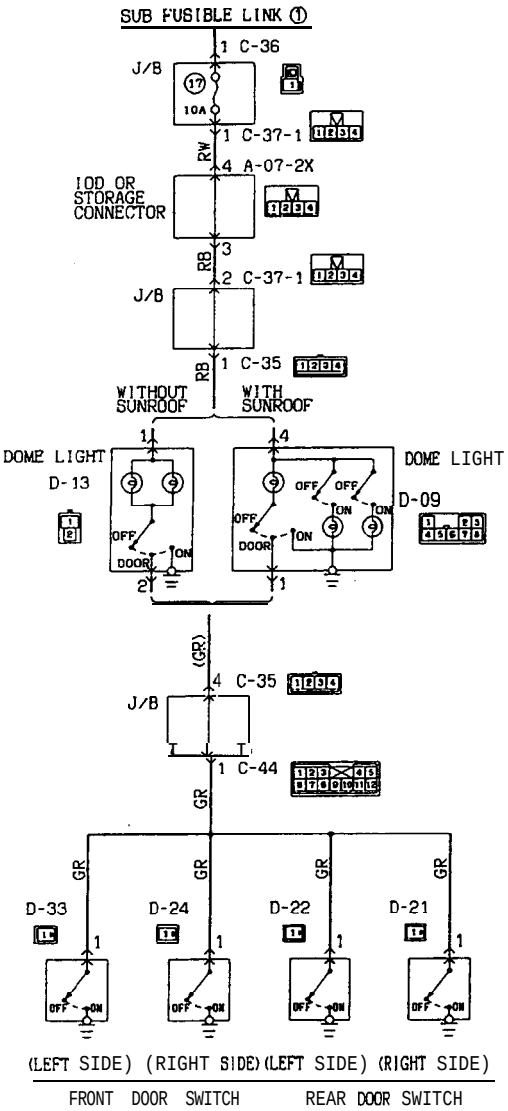
<Vehicles without ETACS and door light (Up to 1990 models)>



KX35-AC-H0840-NM

TSB Revision

<Vehicles without ETACS and door light (From 1991 models)>



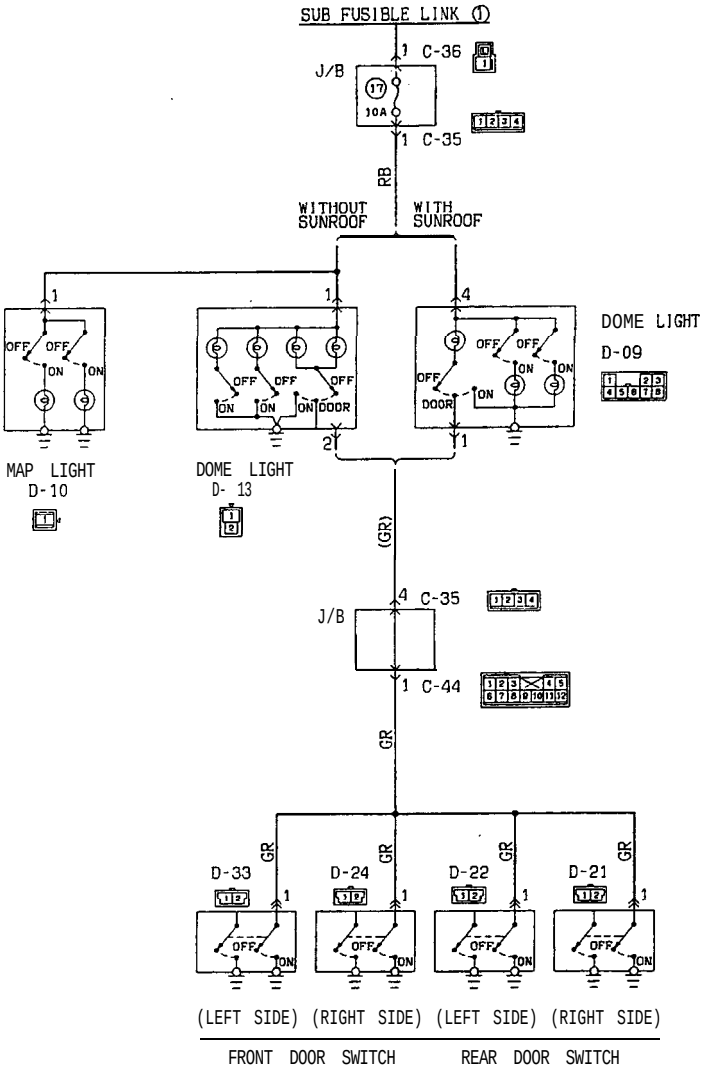
KX35-AC-H0867-KM

TSB Revision

DOME LIGHT CIRCUIT

CIRCUIT DIAGRAM

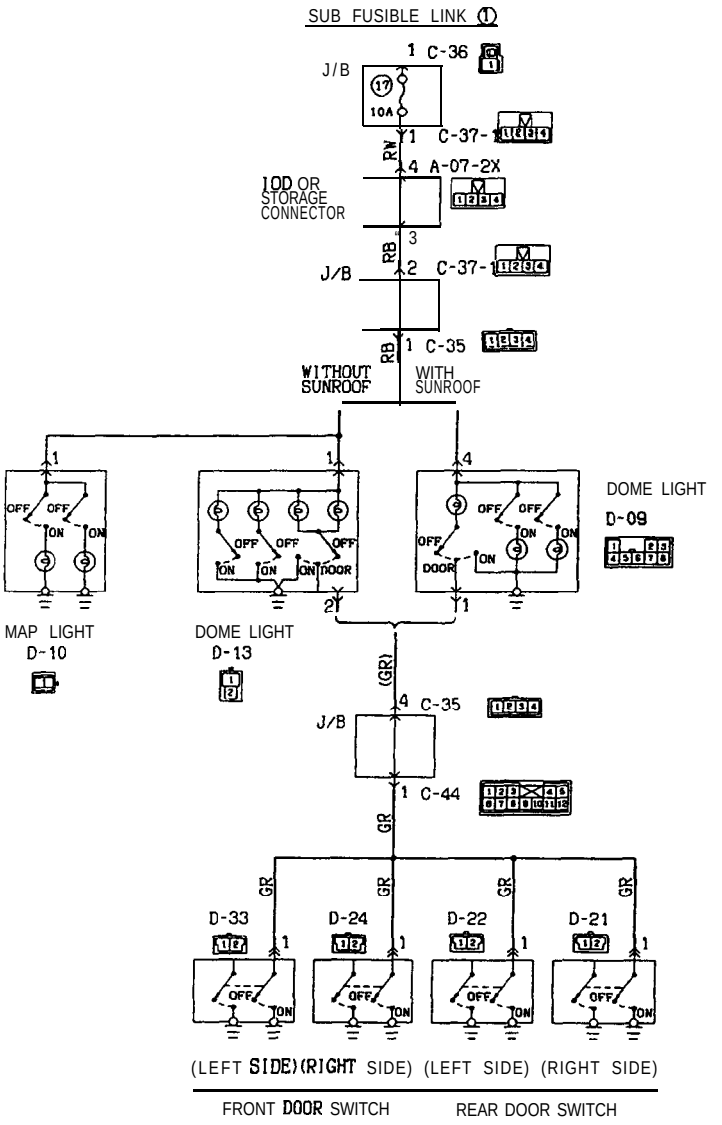
<VEHICLES WITHOUT ETACS (WITH DOOR LIGHT) (Up to 1990 models)>



KX35-AC-H0854-NM

TSB Revision

<VEHICLES WITHOUT ETACS (WITH DOOR LIGHT) (From 1991 models)>



35-AC-H0858-RM

OPERATION

- The dome light is always illuminated when the dome light switch is at the "ON" position.
- The dome light illuminates when any door is opened while the dome light switch is at the "DOOR" position.

TROUBLESHOOTING HINTS

1. The dome light does not illuminate.
   (1) The clock is stopped also.
   - Check multipurpose fuse No.⑰.

   (2) The dome light does not illuminate when, with the dome' light switch at the "DOOR" position, any door is opened.
   - Check the bulb.
   - Check the dome light switch.
   - The dome light switches OFF when all doors are closed.

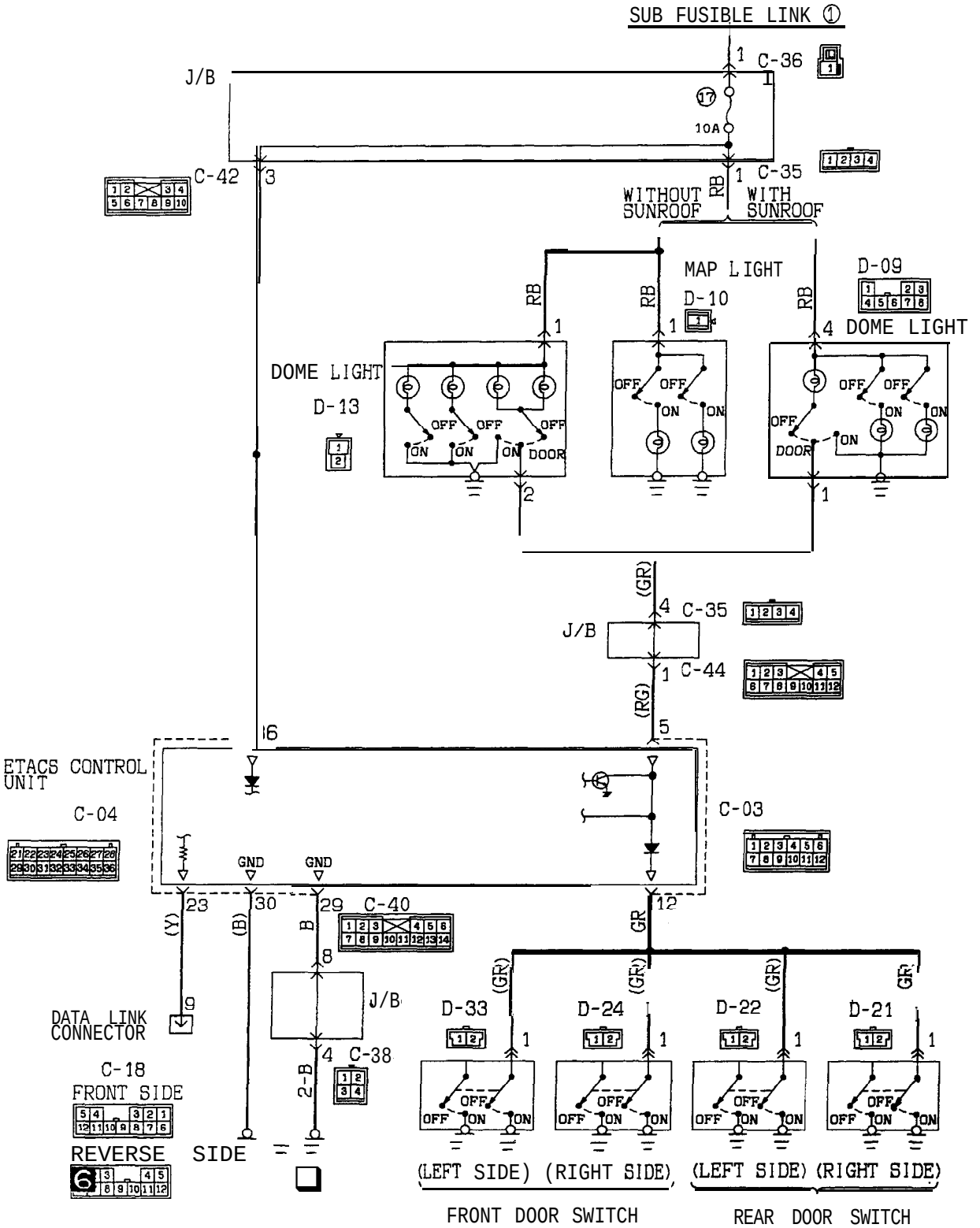
   (3) The dome light does not illuminate when, with the dome light switch at the "DOOR" position, a certain door or doors is/are opened.
   - Check the door switch [the door switch(es) for the door(s) that does not activate the dome light when opened].

TSB Revision

DOME LIGHT CIRCUIT

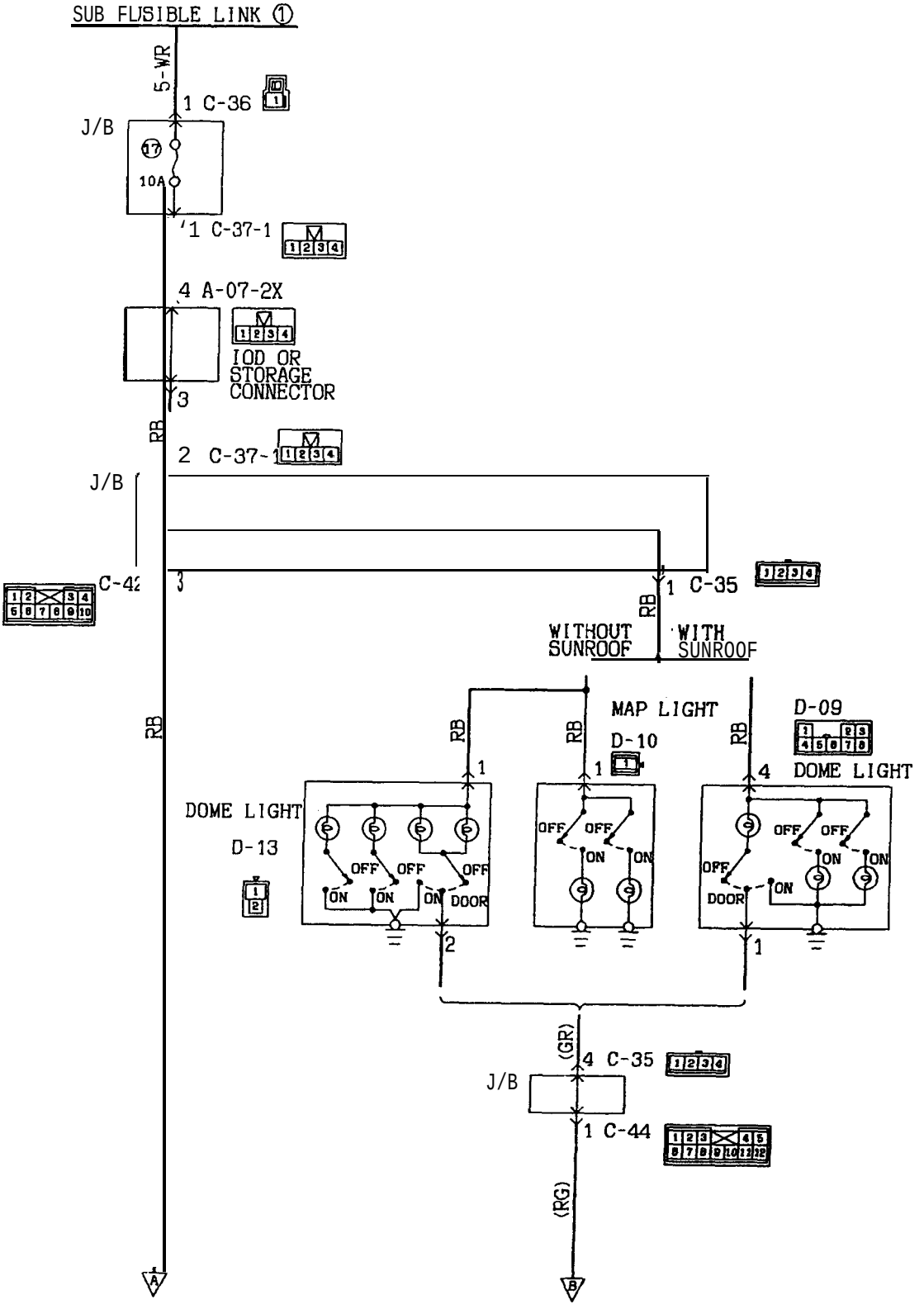
CIRCUIT DIAGRAM

<VEHICLES WITH ETACS (Up to 1990 models)>



MX35-AC-H0841-NM

<VEHICLES WITH ETACS (Non-Turbo) (From 1991 models)>

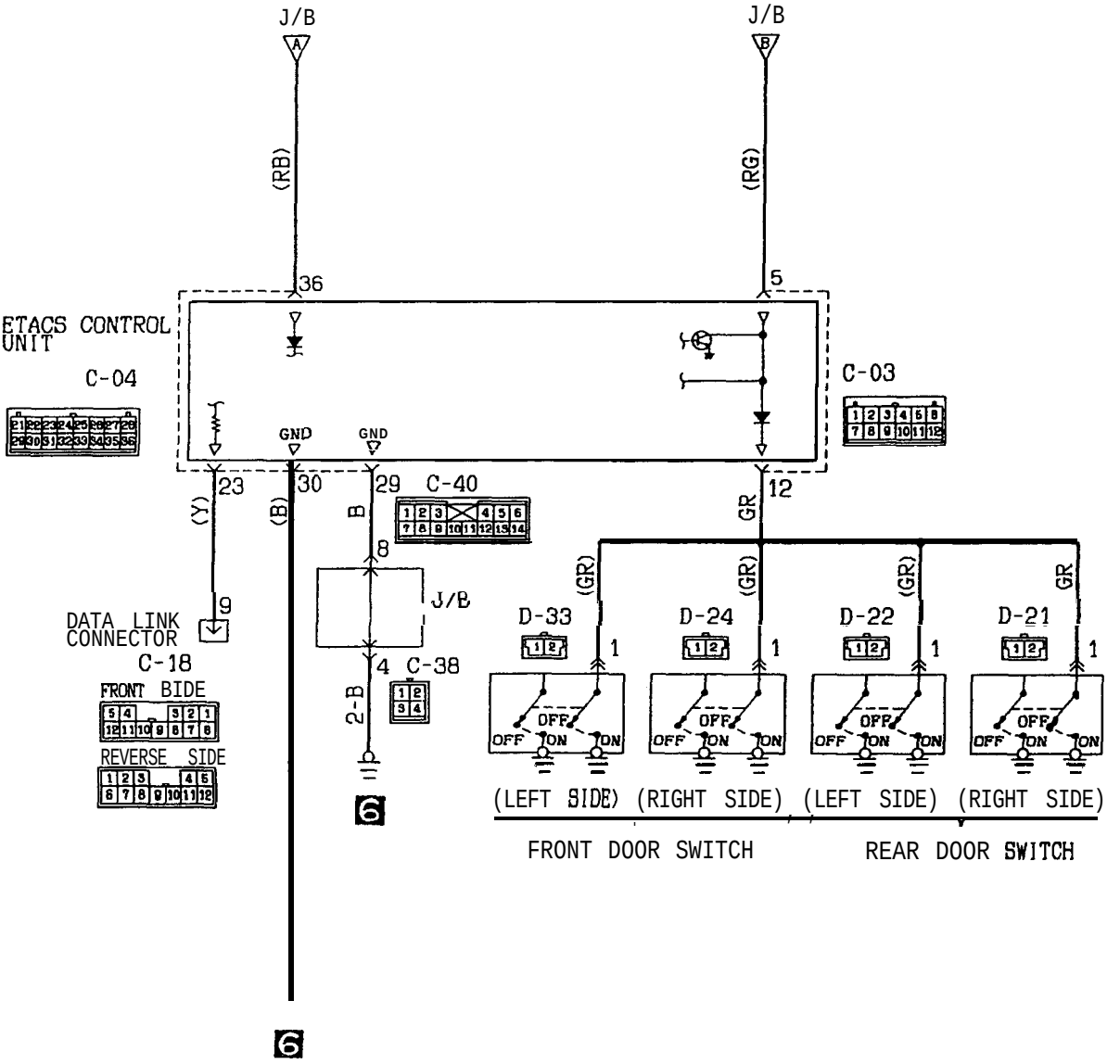


KX35-AC-H0869-NM

TSB Revision

DOME LIGHT CIRCUIT

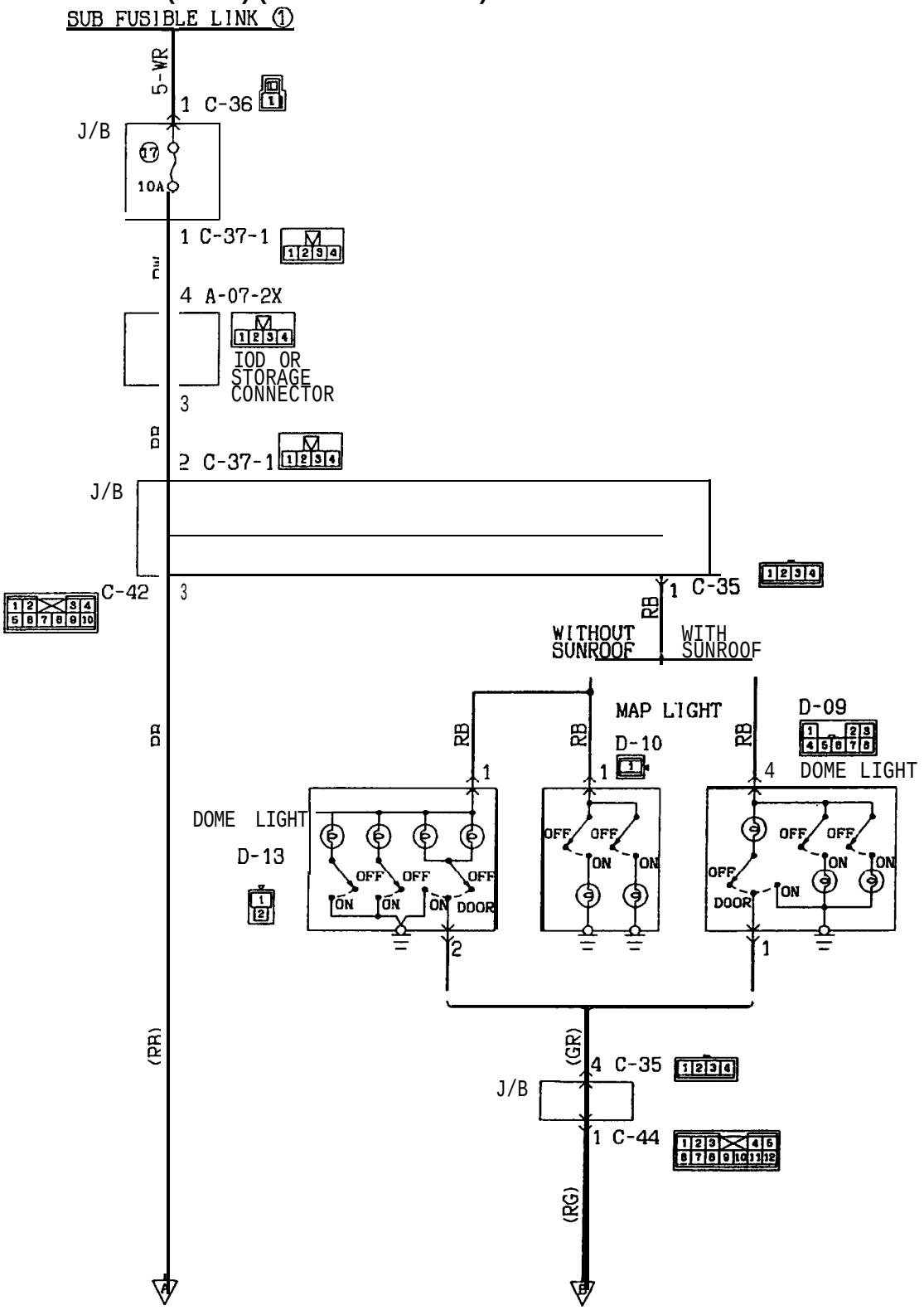
<VEHICLES WITH ETACS (Non-Turbo) (From 1991 models)> (CONTINUED)



DOME LIGHT CIRCUIT

CIRCUIT DIAGRAM

<VEHICLES WITH ETACS (Turbo) (From 1991 models)>

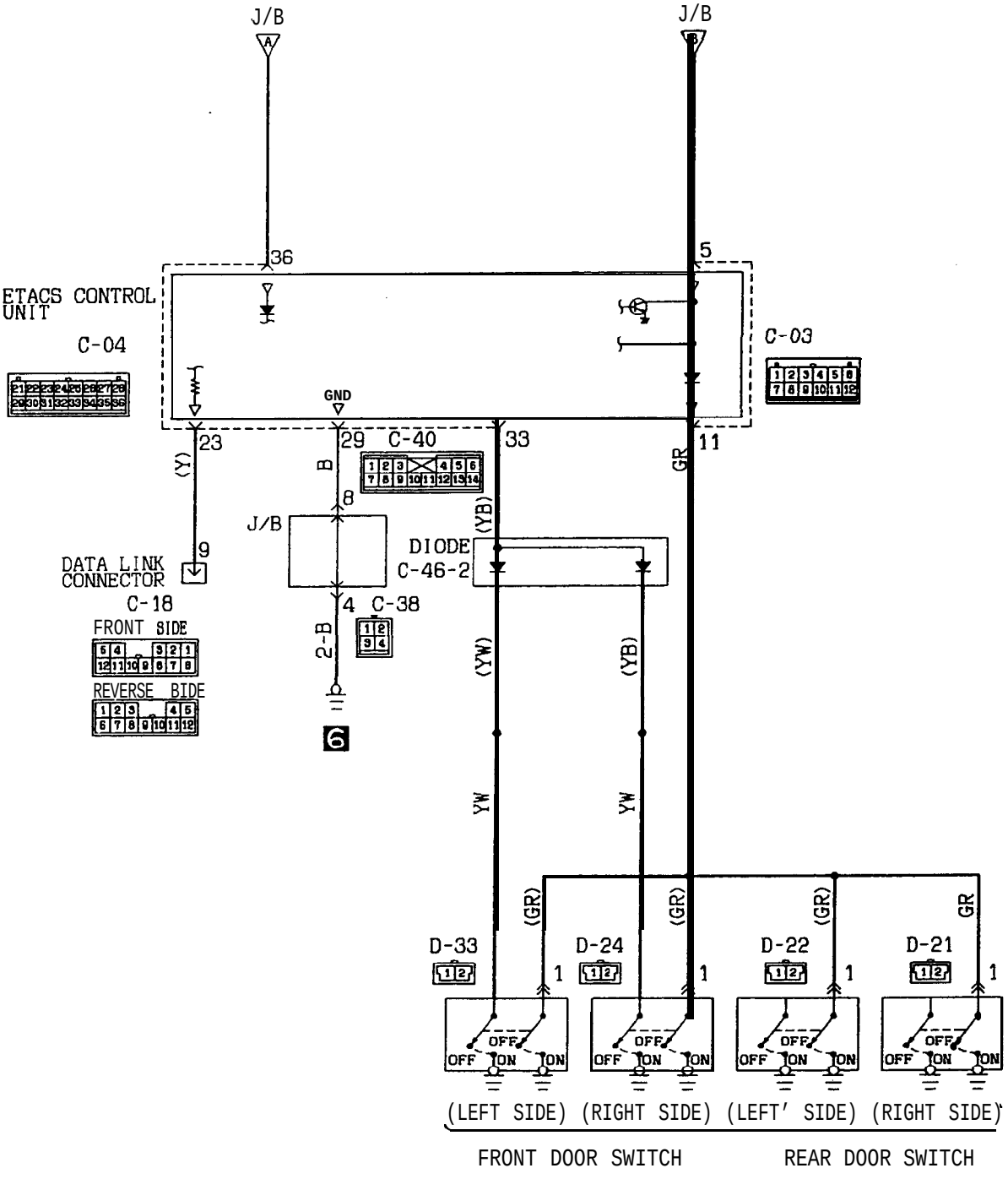


X35-AC-H0870-KM

TSB Revision

DOME LIGHT CIRCUIT

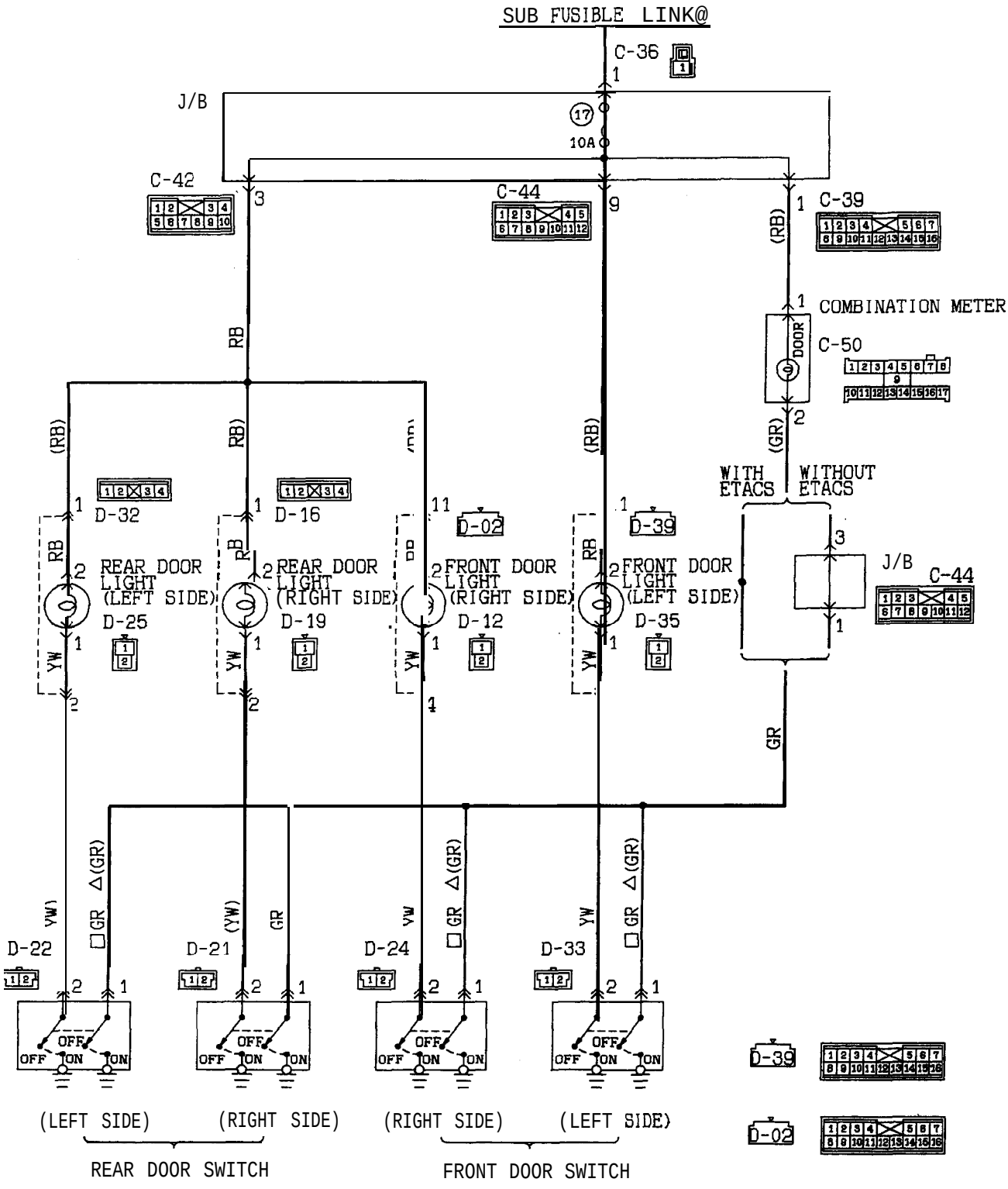
<VEHICLES WITH ETACS (Turbo) (From 1991 models)> (CONTINUED)



DOOR LIGHT CIRCUIT

CIRCUIT DIAGRAM

<1989 models>



Remarks
(1) The wire cross-section area and colors indicated by the ❑ sYmbol are Vehicles without ETACS.
(2) The wire cross-section area and colors indicated by the △symbol are Vehicles with ETACS.

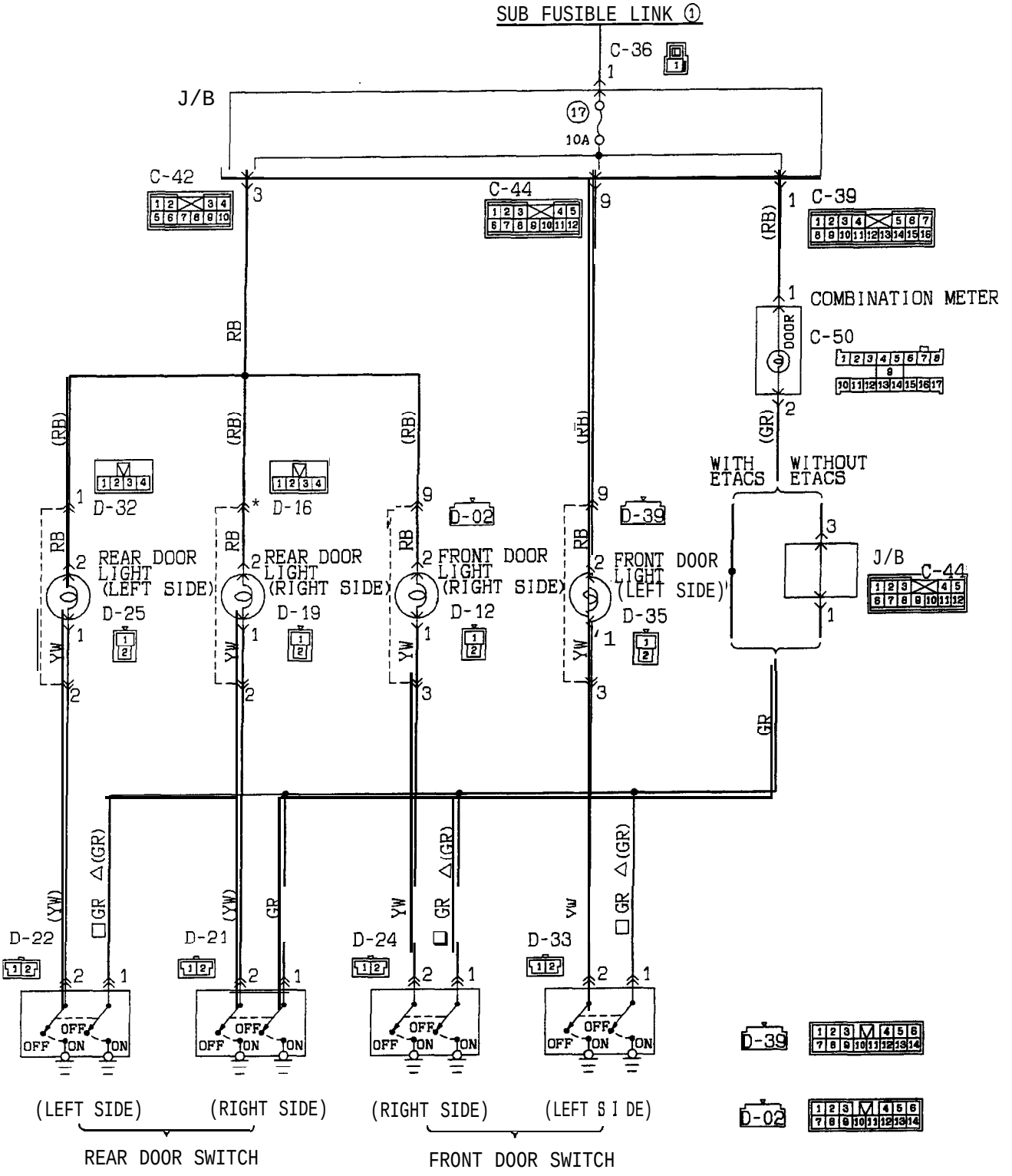
KX35-AC-H0813-N

TSB Revision

DOOR LIGHT CIRCUIT

CIRCUIT DIAGRAM

< 1990 models>

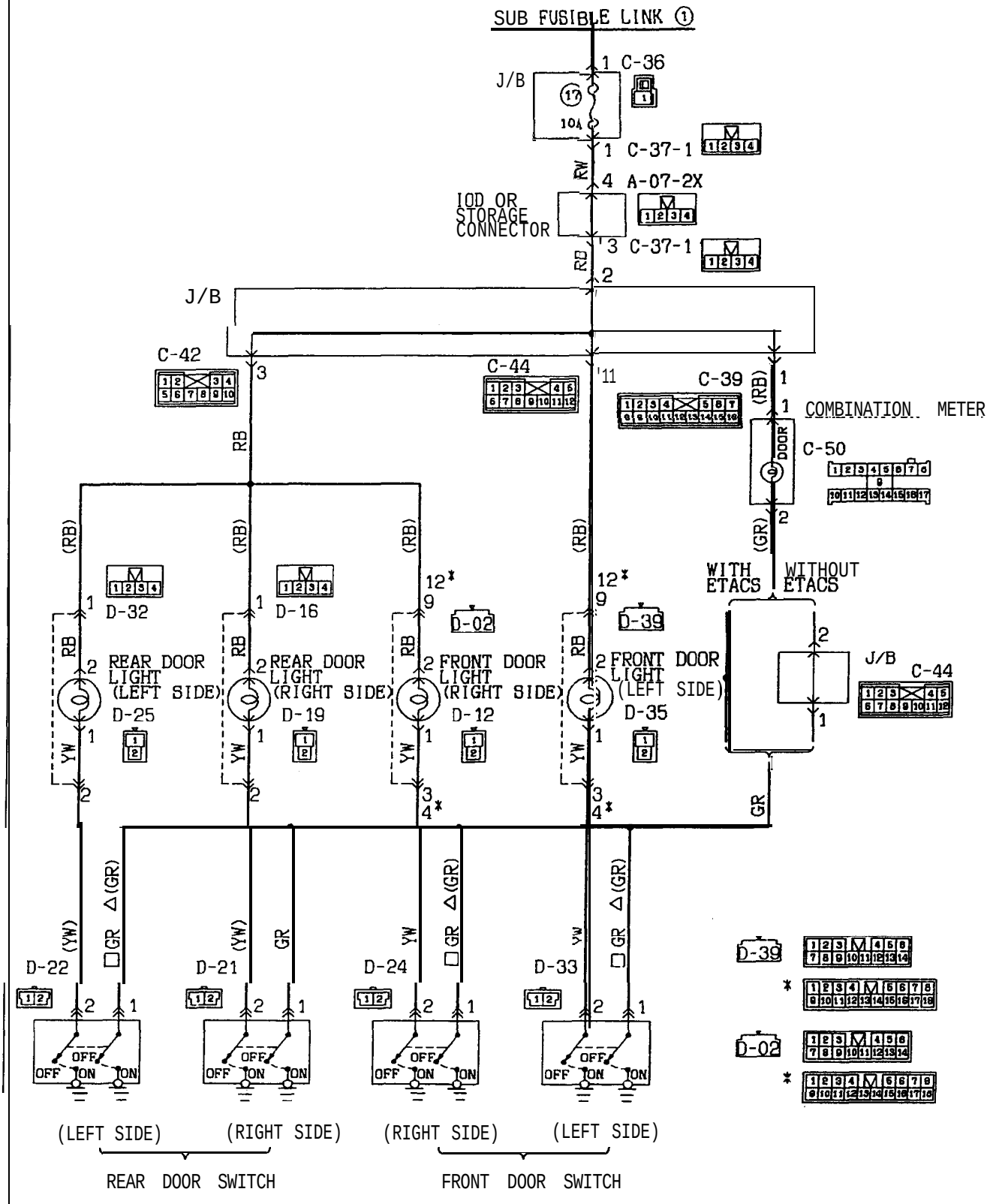


Remarks
(1) The wire cross-section area and colors indicated by the □ symbol are Vehicles without ETACS.
(2) The wire cross-section area and colors indicated by the △ symbol are Vehicles with ETACS.

KX35-AC-H0842-NN

TSB Revision

<From 1991 models>



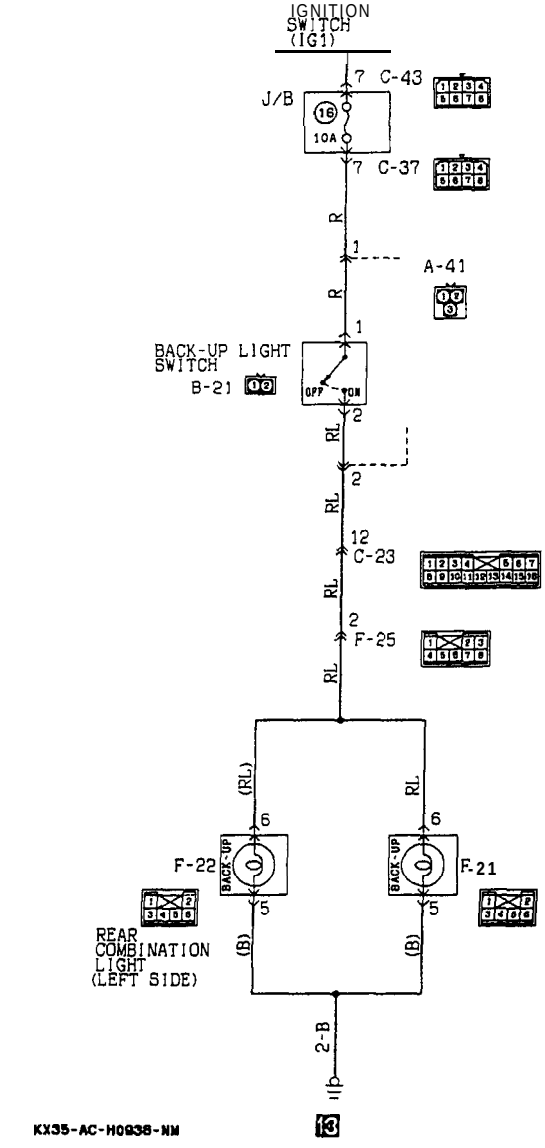
Remarks
(1) The wire cross-section area and colors indicated by the ❑ symbol are Vehicles without ETACS.
(2) The wire cross-section area and colors indicated by the △symbol are Vehicles with ETACS.
(3) * mark indicates Vehicles with THEFT-ALARM SYSTEM.

KX|35-AC-H0871-NM

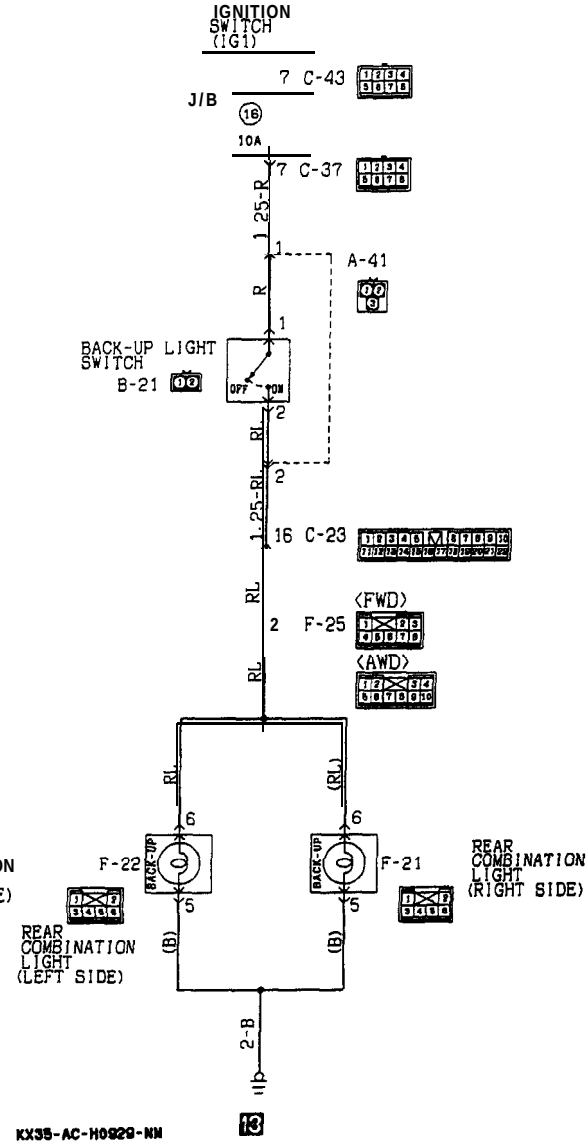
BACK-UP LIGHT CIRCUIT

CIRCUIT DIAGRAM

<M/T (1989 models)>

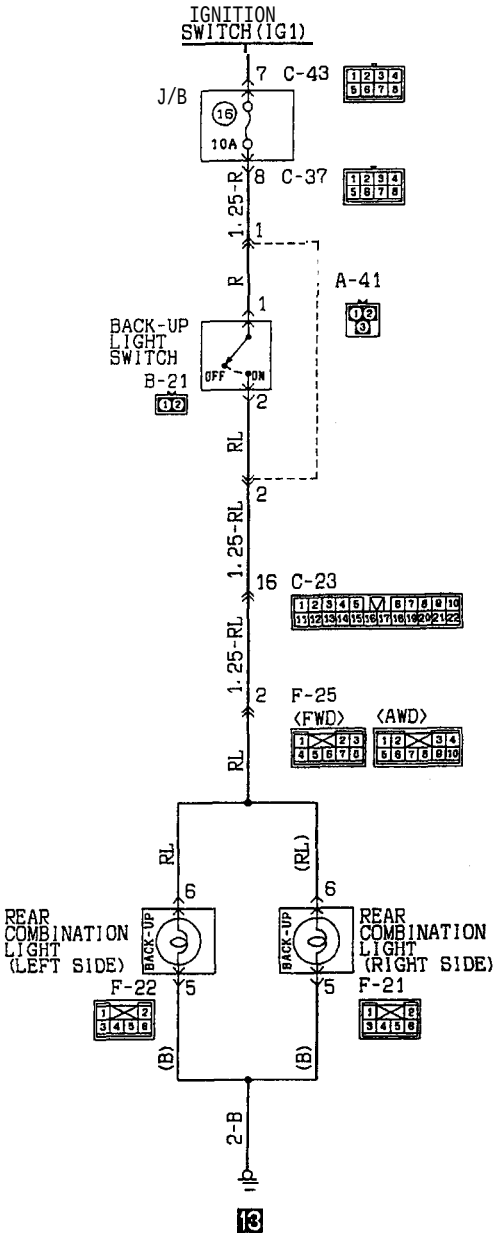


<M/T (1990 models)>



TSB Revision

<M/T (From 1991 models)>



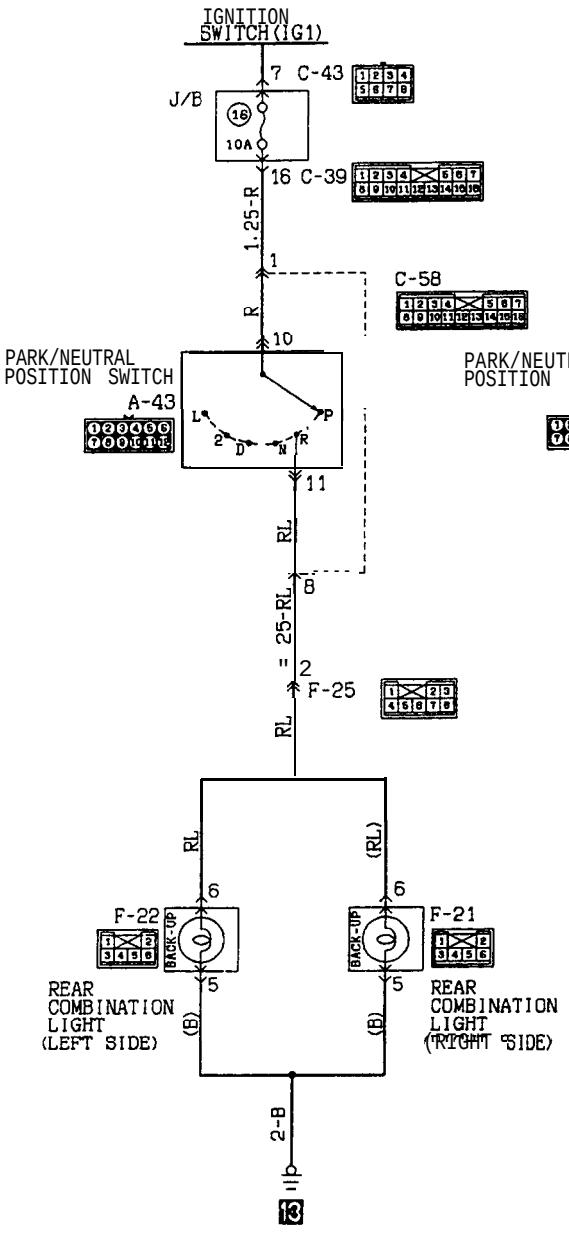
K35-AC-H0845-NM

TSB Revision

BACK-UP LIGHT CIRCUIT

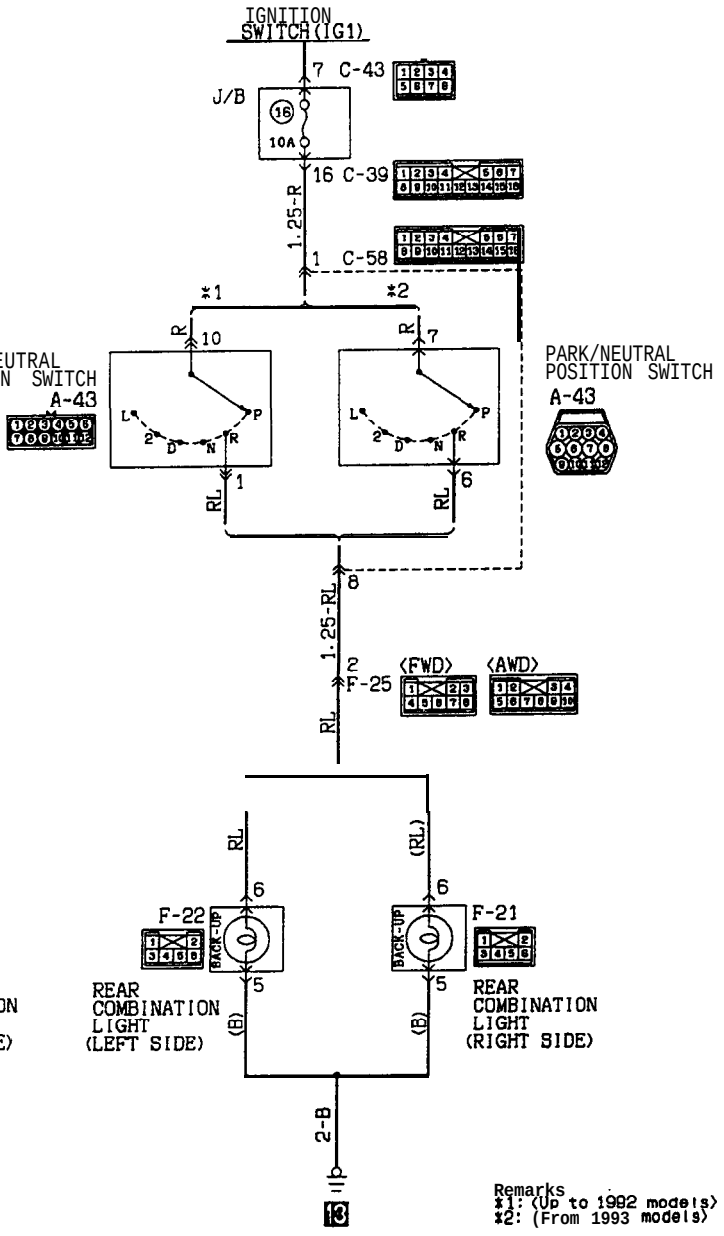
CIRCUIT DIAGRAM

<A/T (Up to 1990 models)>



35-AC-H0954-NN

<A/T (From 1991 models)>



XX35-AC-H0955-NN

OPERATION

- When, with the ignition switch at the “ON” position, the shift lever (or the selector lever) is moved to the “R” position, the backup light switch (M/T) is switched ON (or the park/neutral position switch (A/T) is switched to the “R” position), and the backup light illuminates.

TSB Revision

TURN-SIGNAL LIGHT AND HAZARD LIGHT CIRCUIT

OPERATION

<Turn-signal lights>

1 When operation is normal

- When the ignition switch is switched to the "ON" position, battery voltage is applied (via the hazard-flasher switch) to the turn-signal and hazard-flasher unit.
- When the turn-signal switch is switched to the "LH" (or "RH") position, Trl (within the flasher unit) is switched ON and the relay contact (also within the flasher unit) is switched ON. As a result, the "LH" (or "RH") turn-signal lights and turn-signal indicator light illuminate.
- At the same time, charging to the capacitor (via R2) begins, and charging continues until the lower-limit potential (set by COM3) is reached.
- When the capacitor becomes fully charged, the COM3 output reverses and Trl is switched OFF; the relay contact is also switched OFF, and, as a result, the "LH" (or "RH") turn-signal lights and turn-signal indicator light are switched OFF.
- At the same time that Trl is switched OFF, the capacitor begins discharging, and, when discharging finishes, the output of COM3 once again reverses and Trl is switched ON, after which the "LH" (or "RH") turn-signal lights and turn-signal indicator light illuminate.
- As a result of the continued repetition of the steps described above, the "LH" (or "RH") turn-signal lights and turn-signal indicator light flash ON and OFF repeatedly.

2. If one light's wiring is damaged or disconnected

- If the bulb for one turn-signal light is damaged on disconnected, the result is an overall increase of the resistance for the entire light circuitry, resulting is a decrease of the voltage at the R1 part within the flasher unit.
- As a result of this being detected, the lower-limit potential set by COM3 is increased, with the result that the time required for charging of the capacitor becomes shorter.
- As a result, the ON and OFF cycles of Tr1 also become shorter, and thus the number of flashes of the lights becomes greater.

<Hazard-warning lights>

- When the hazard-warning switch is switched to the "ON" position, the relay contact of the flasher unit is switched ON and OFF repeatedly, in the same manner as for the operation of the turn-signal lights, and the left and right turn-signal lights and turn-signal indicator lights simultaneously flash repeatedly.

NOTE

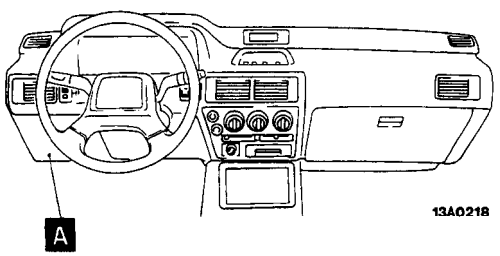
- The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected wiring of one light.

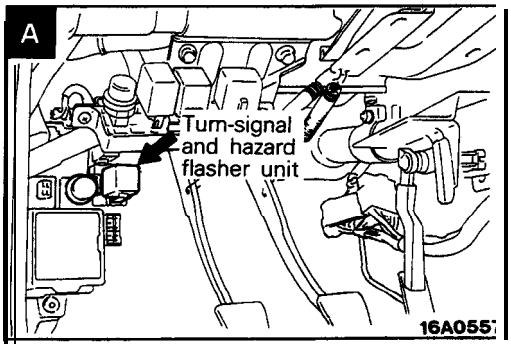
TROUBLESHOOTING HINTS

1. The turn-signal lights and hazard-warning lights do not operate at all.
   - Check the hazard-warning switch contact (power supply side).
   - Check the flasher unit.
2. All turn-signal lights at the left (or right) side do not function.
   (1) The hazard-warning lights function normally.
   - Check the hazard-warning switch contact (turn-signal side).
   - Check the turn-signal switch.
3. The number of flashes of the turn-signal lights is excessive.
   - Check the bulbs.
4. The hazard-warning lights do not function.
   (1) The turn-signal lights function normally.
   - Check the hazard-warning switch contact (hazard-warning light side).

COMPONENT LOCATION

Name	Symbol
Turn signal and hazard flasher unit	A



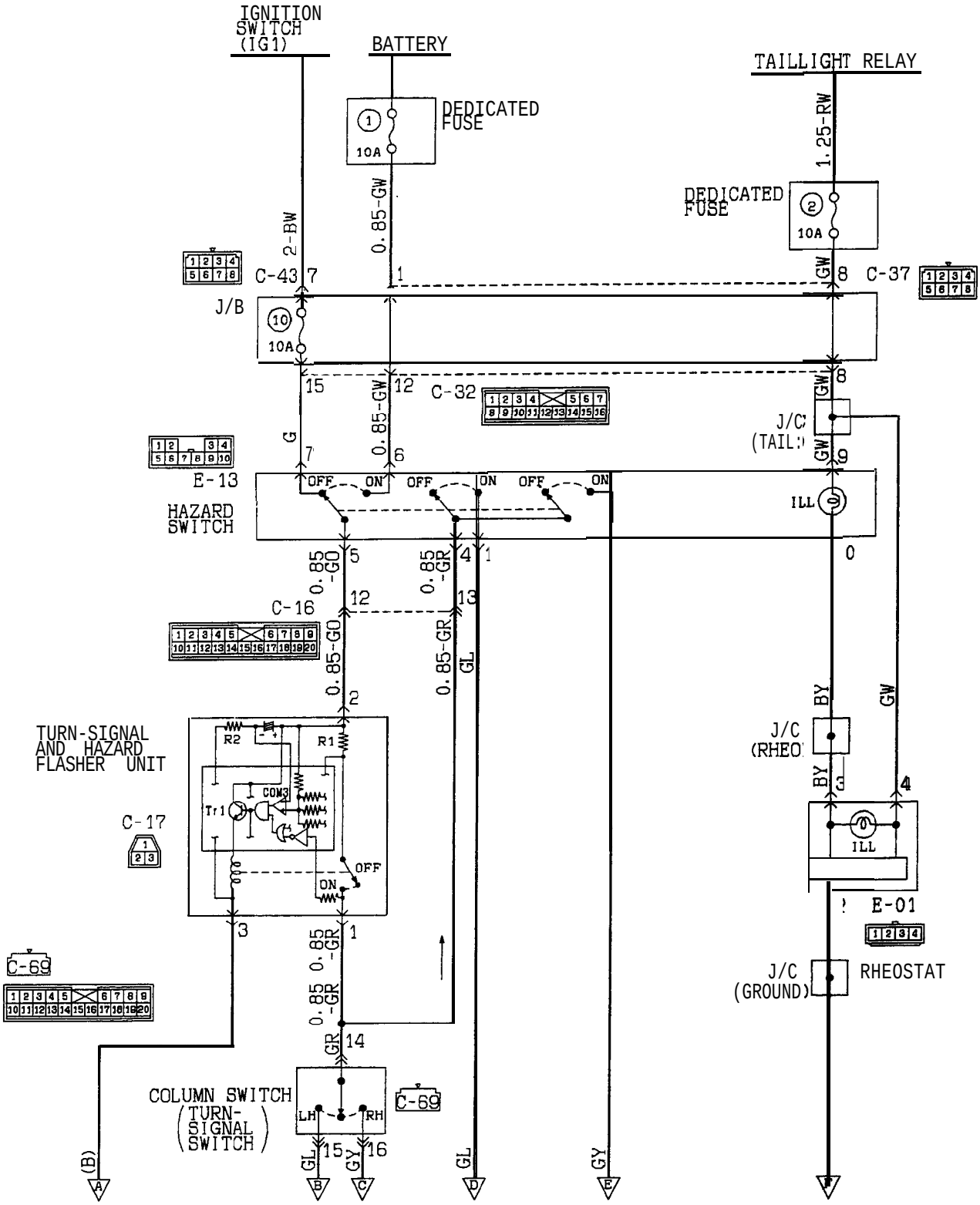


TSB Revision

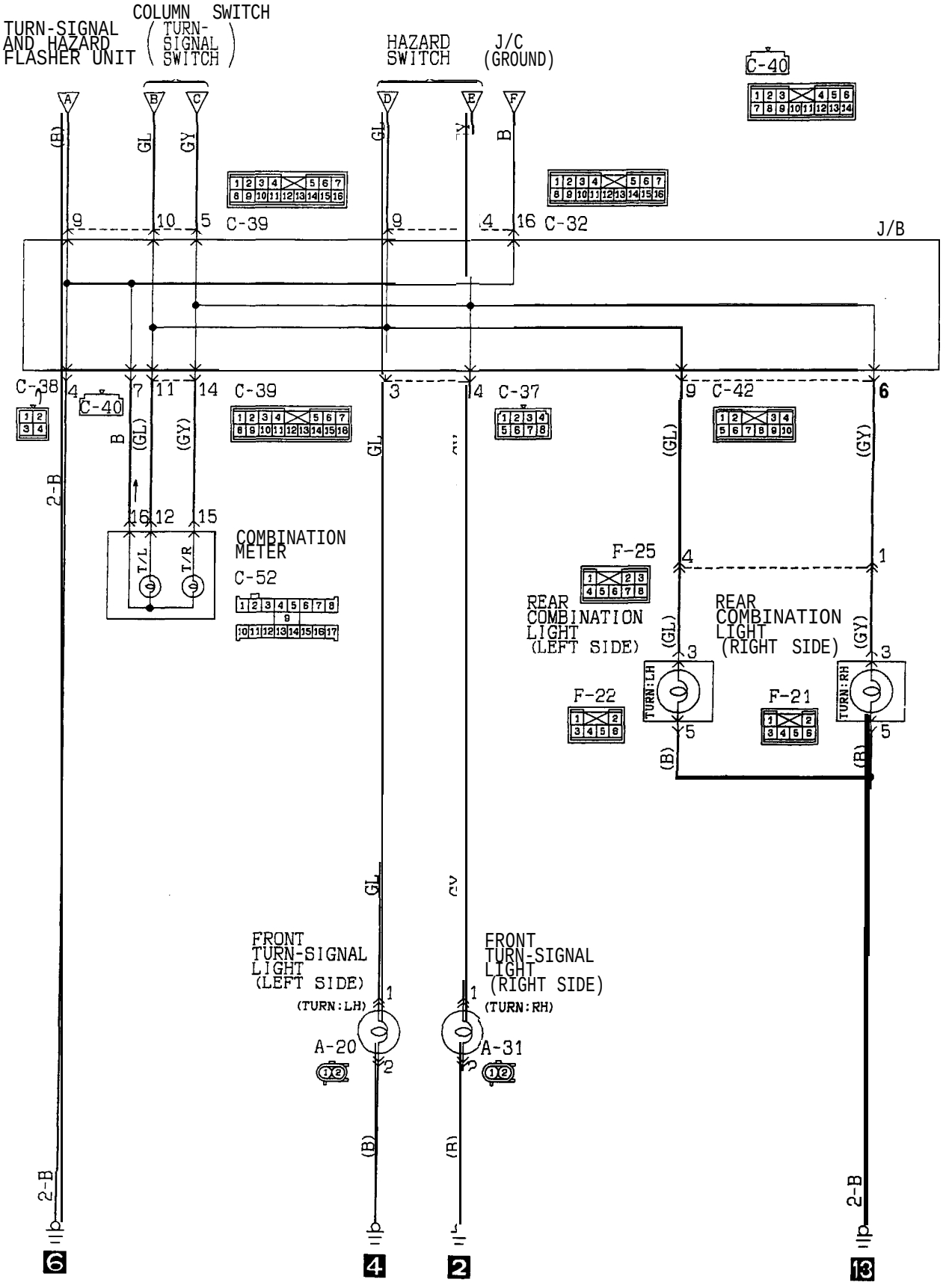
TURN SIGNAL LIGHT AND HAZARD LIGHT CIRCUIT

CIRCUIT DIAGRAM

＜1989 models>



TSB Revision

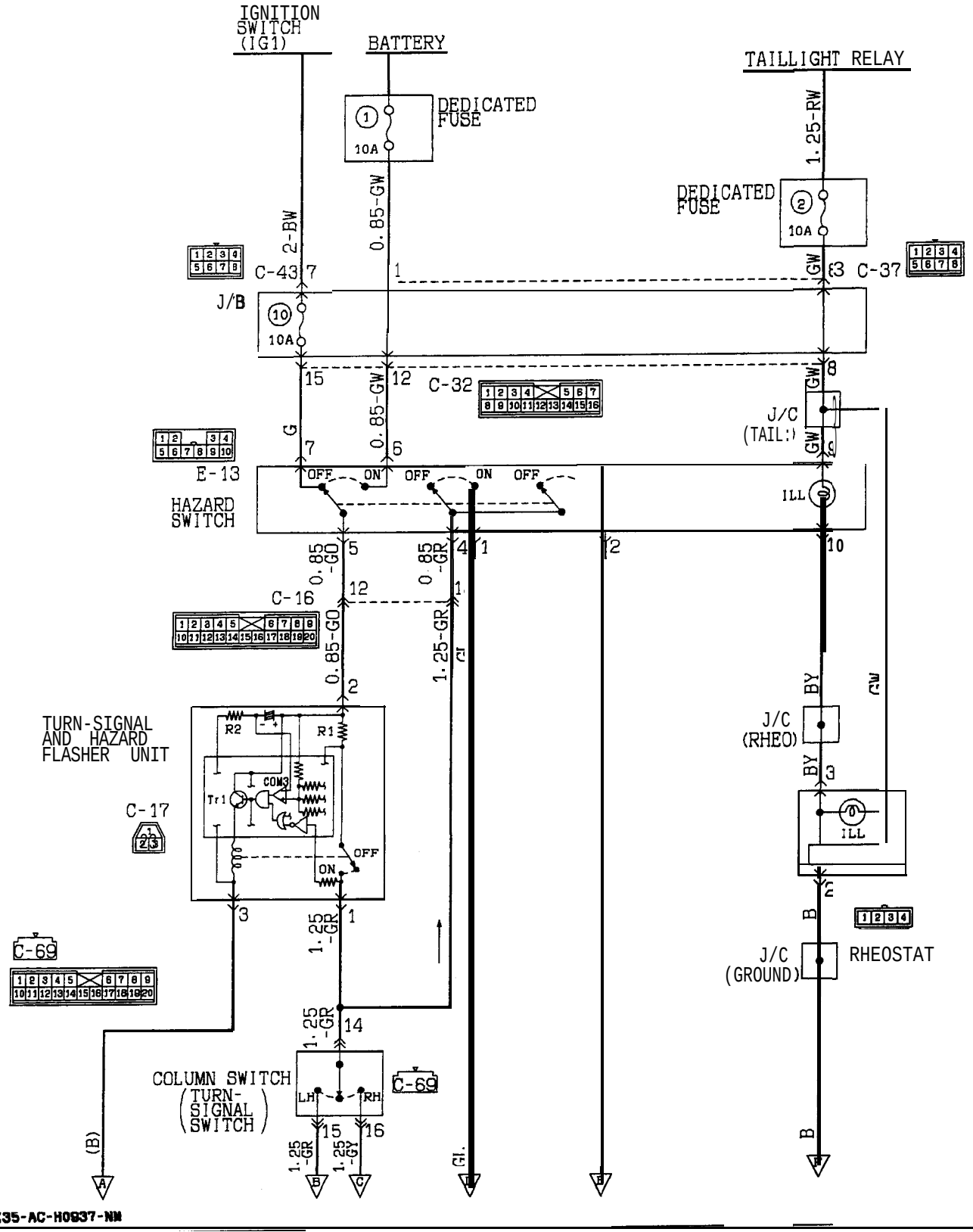


TSB Revision

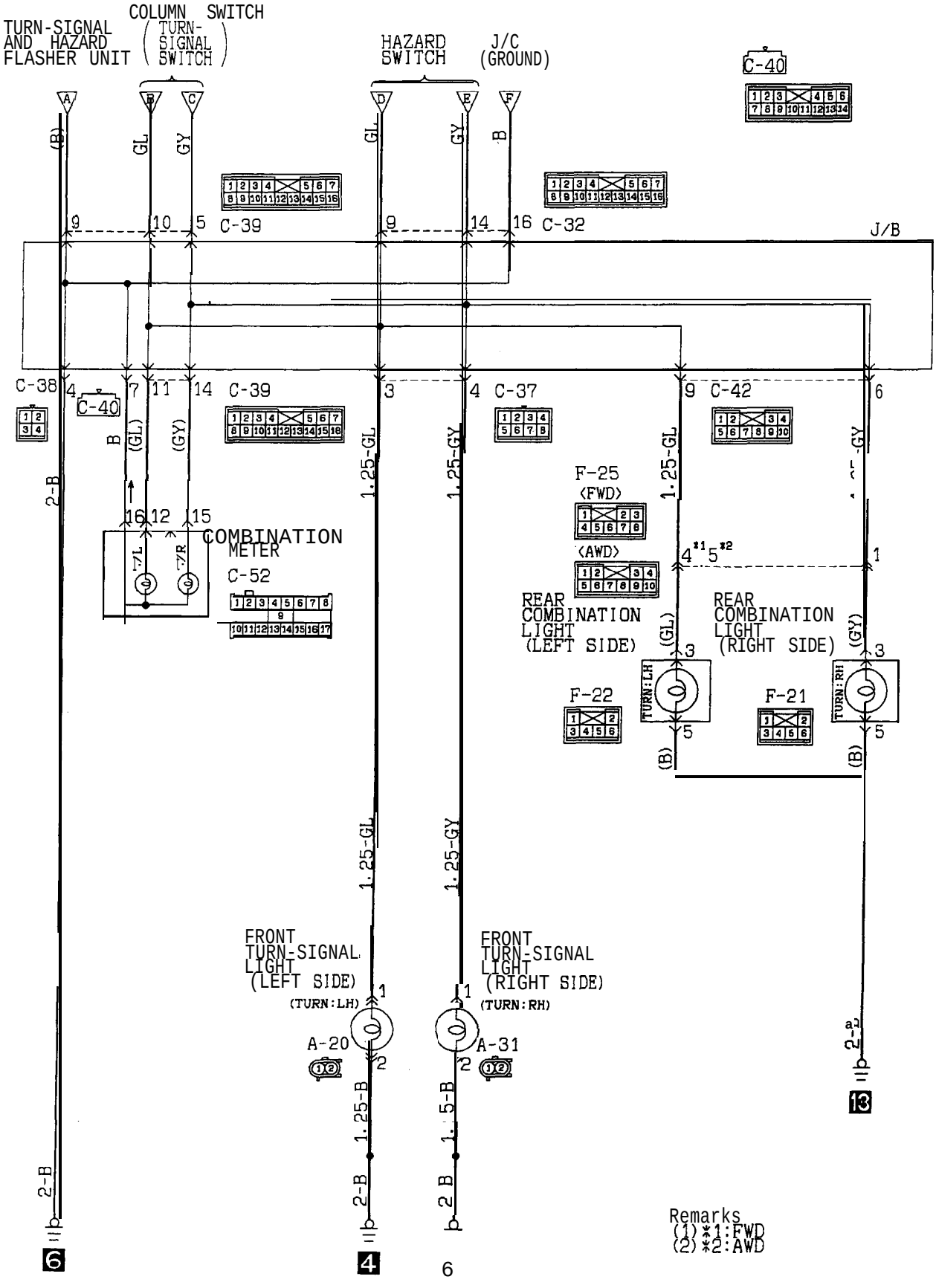
TURN SIGNAL LIGHT AND HAZARD LIGHT CIRCUIT

CIRCUIT DIAGRAM

< 1990 models>



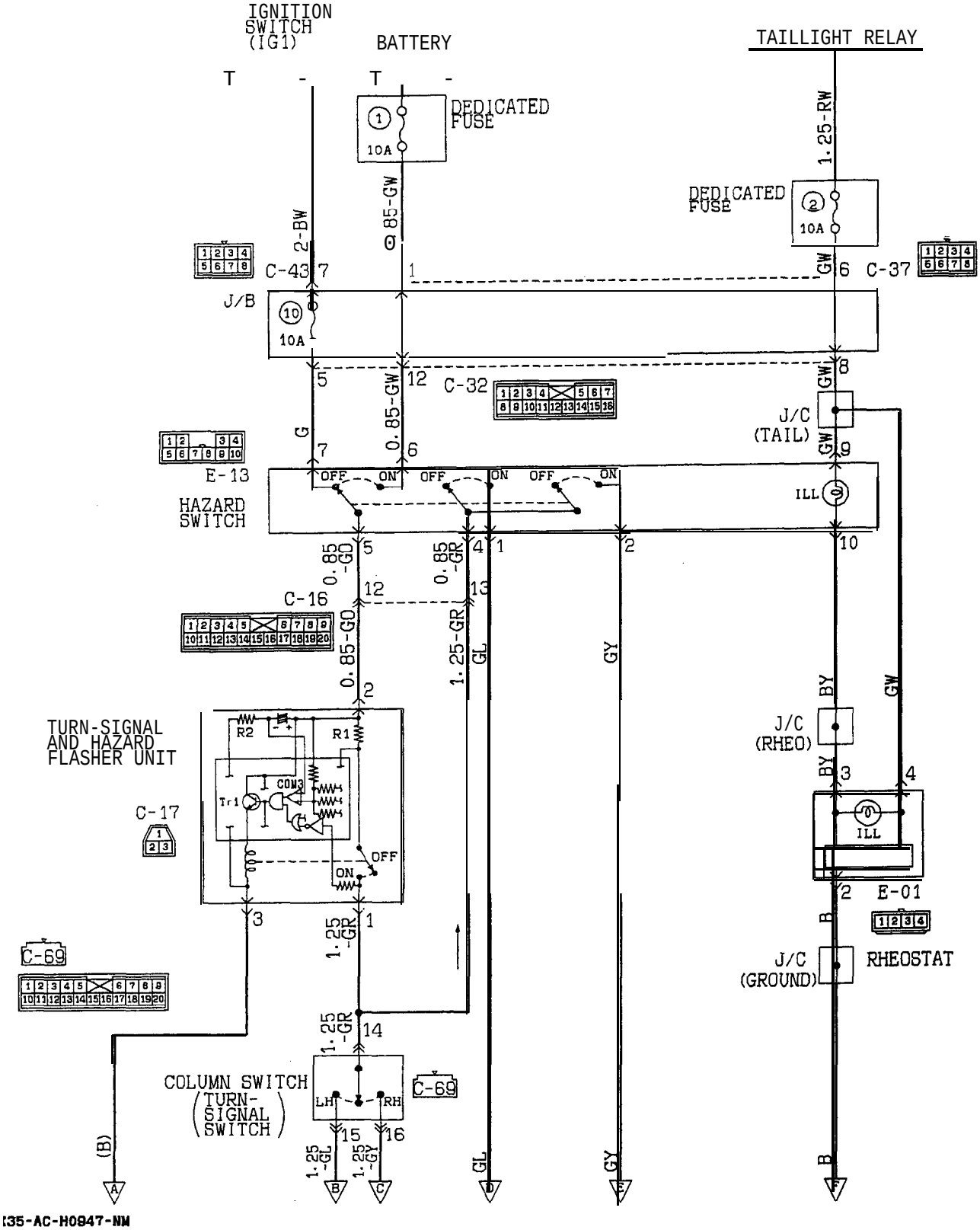
TSB Revision


TURN-SIGNAL AND HAZARD FLASHER UNIT
COLUMN SWITCH (TURN-SIGNAL SWITCH)
HAZARD SWITCH
J/C (GROUND)
C-40
C-39
C-32
J/B
C-38
C-37
C-42
COMBINATION METER
C-52
F-25 (FWD)
(AWD)
REAR COMBINATION LIGHT (LEFT SIDE)
REAR COMBINATION LIGHT (RIGHT SIDE)
F-22
F-21
FRONT TURN-SIGNAL LIGHT (LEFT SIDE)
FRONT TURN-SIGNAL LIGHT (RIGHT SIDE)
(TURN:LH)
(TURN:RH)
A-20
A-31
2-B
1.25-GL
1.25-GY
1.5-B
Remarks
(1) *1:FWD
(2) *2:AWD

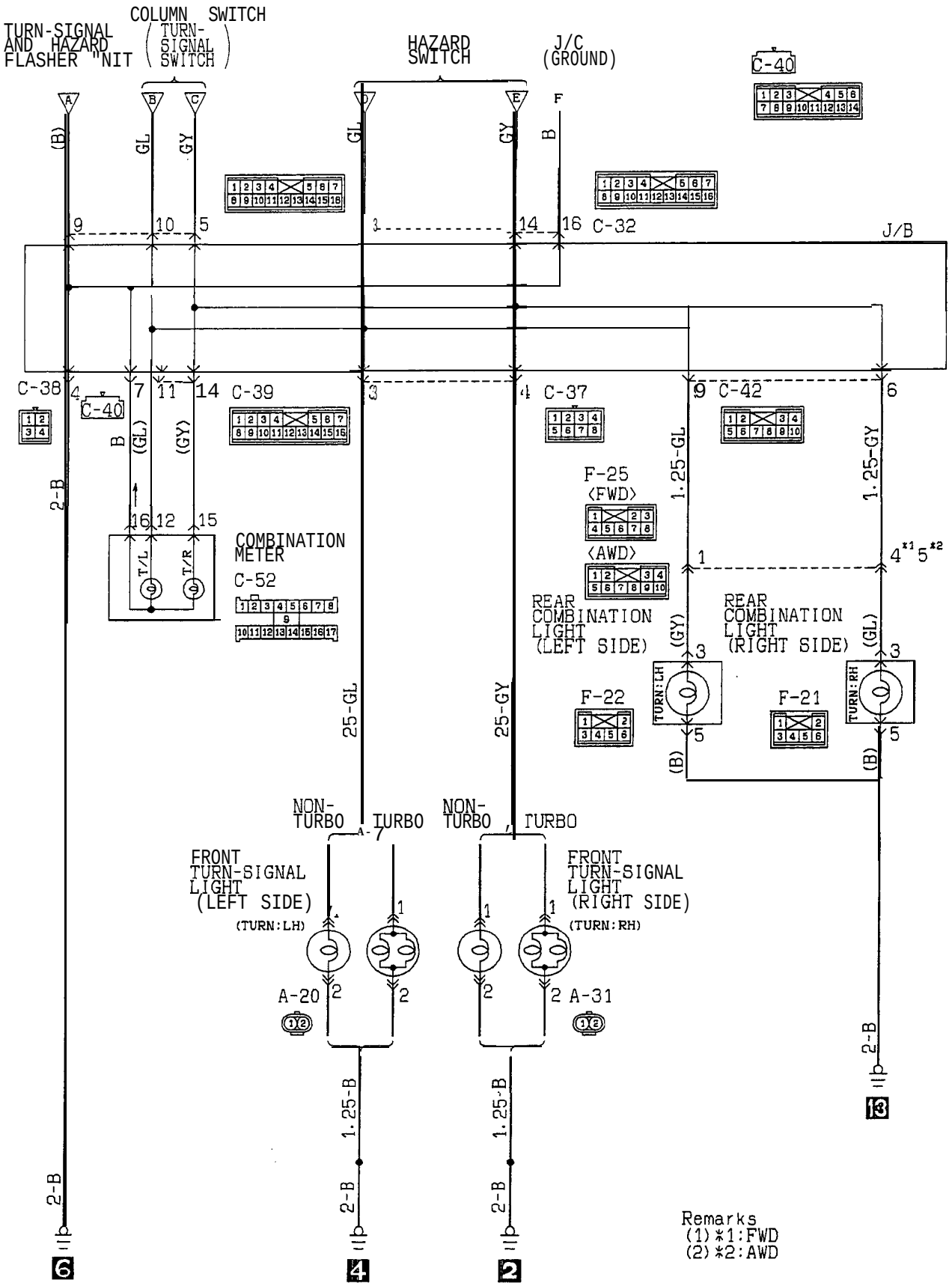
TURN SIGNAL LIGHT AND HAZARD LIGHT CIRCUIT

CIRCUIT DIAGRAM

<From 1991 models>



TSB Revision

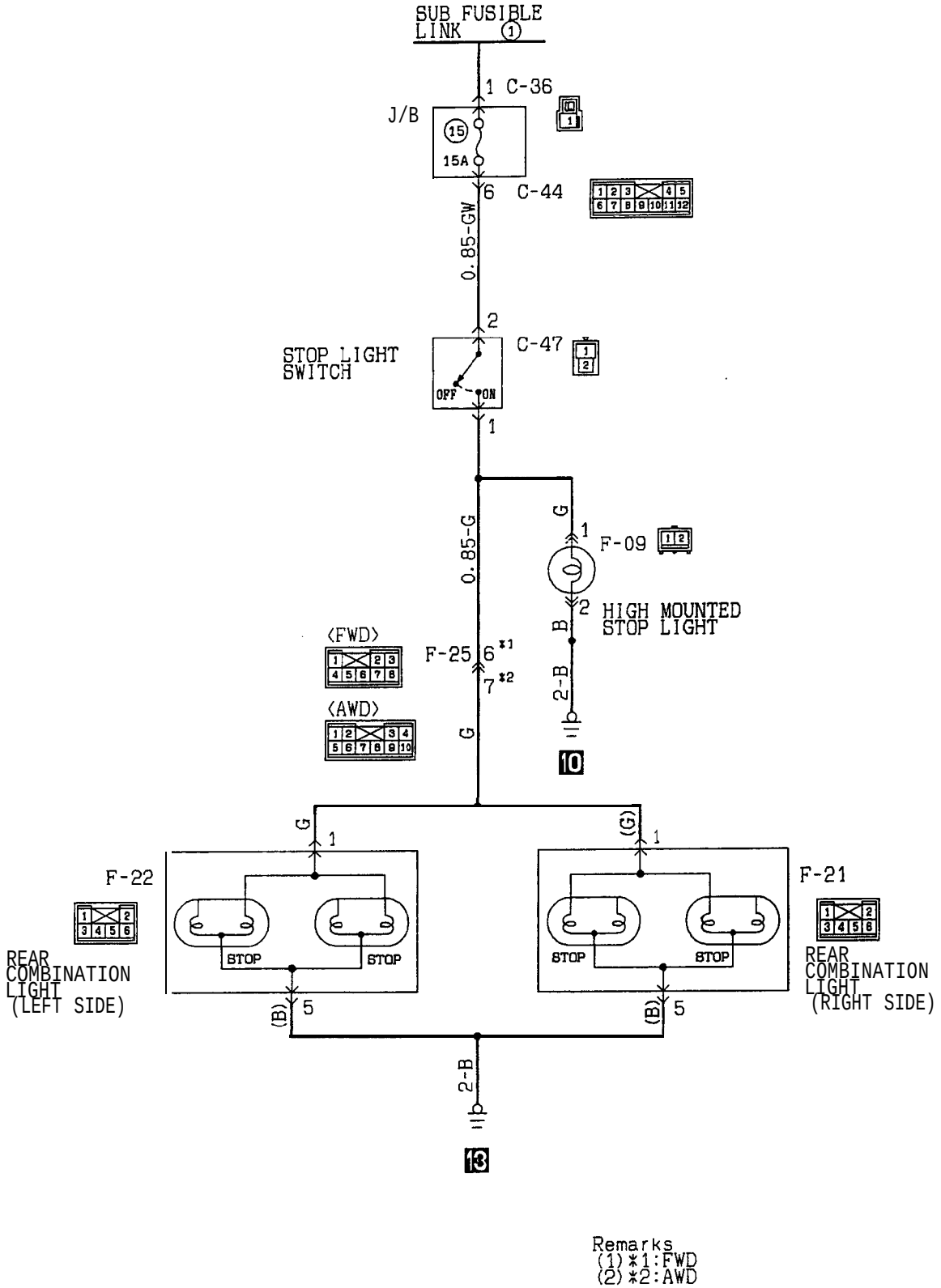


TSB Revision

STOP LIGHT CIRCUIT

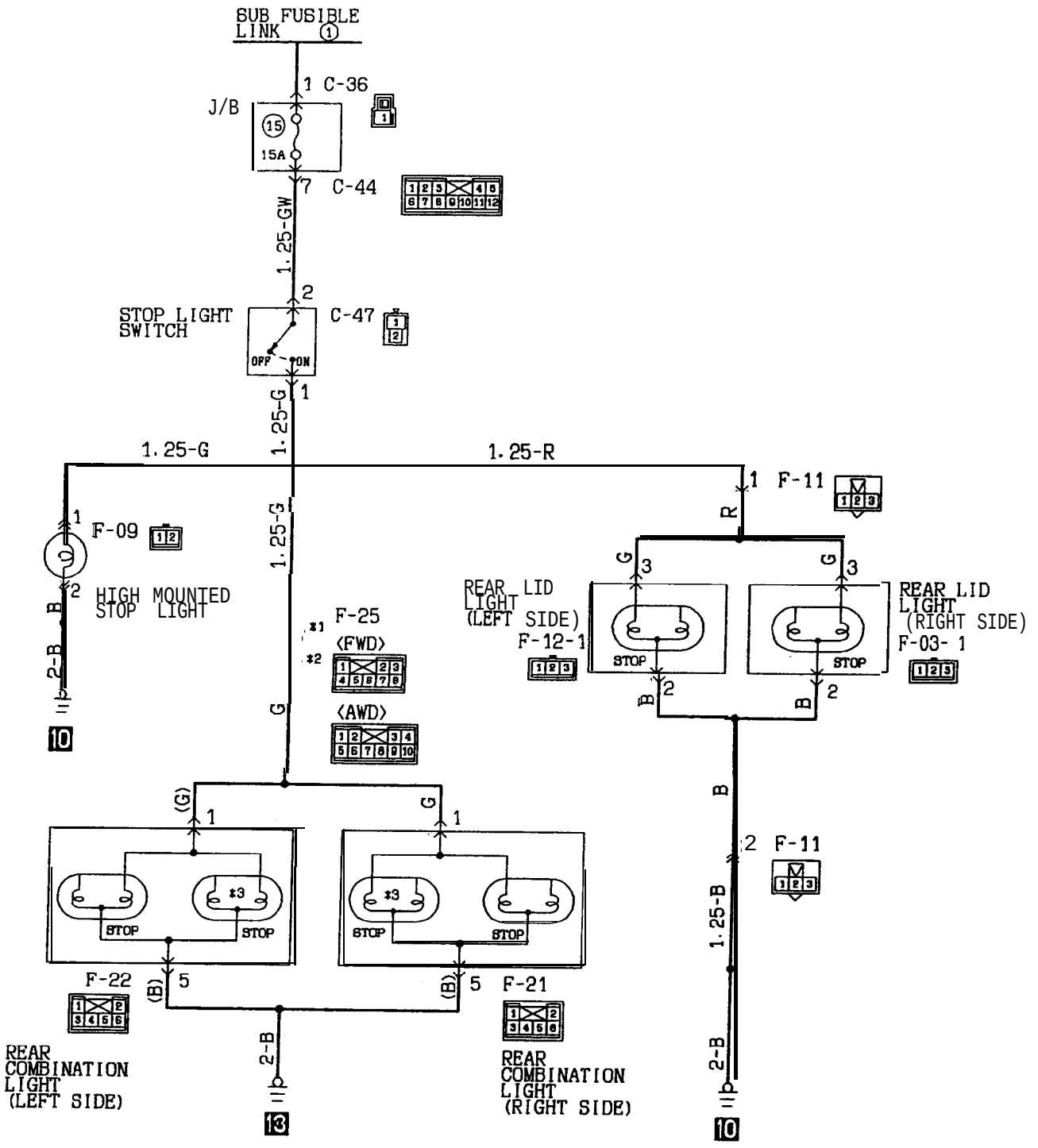
IRCUIT DIAGRAM

<VEHICLES WITHOUT AUTO-CRUISE CONTROL (Up to 1990 models)>



K35-AC-H0934-NM

<VEHICLES WITHOUT AUTO-CRUISE CONTROL (From 1991 models)>



Remarks
(1) *1: FWD
(2) *2: AWD
(3) *3: 1991 models

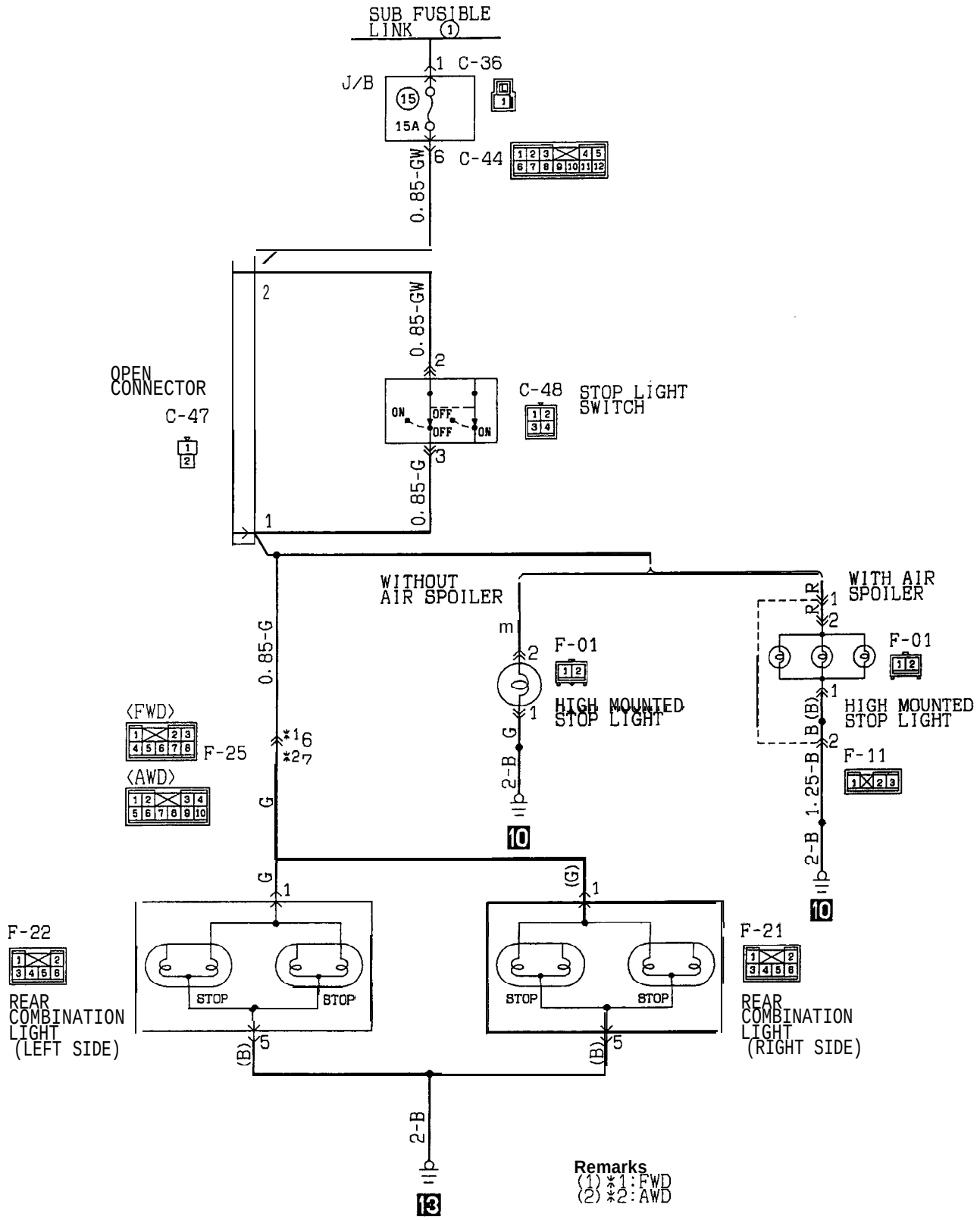
MX35-AC-H0952-N

TSB Revision

STOP LIGHT CIRCUIT

CIRCUIT DIAGRAM

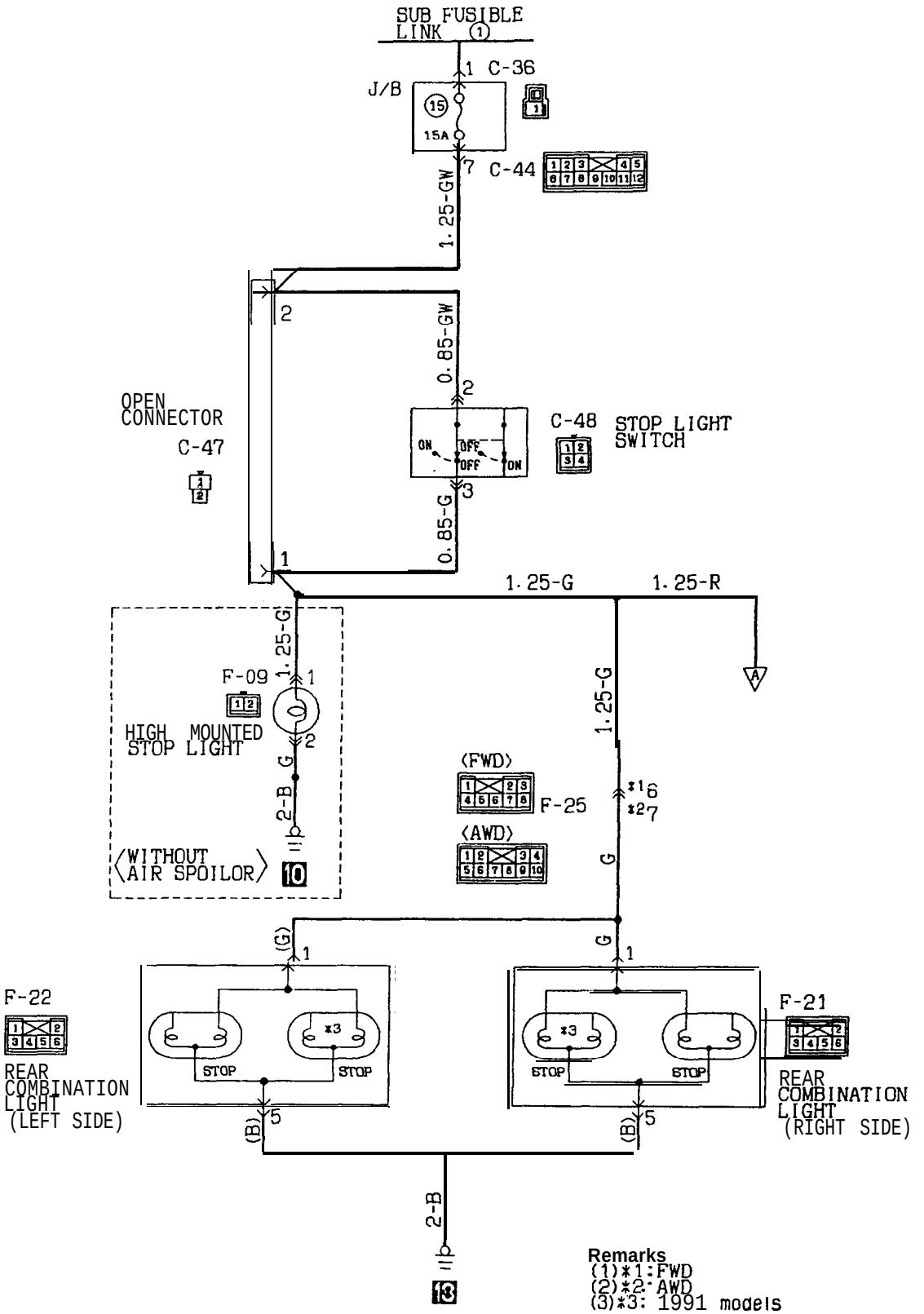
<VEHICLES WITH AUTO-CRUISE CONTROL (Up to 1990 models)>



X35-AC-H0935-NM

TSB Revision

<VEHICLES WITH AUTO-CRUISE CONTROL (From 1991 models)>

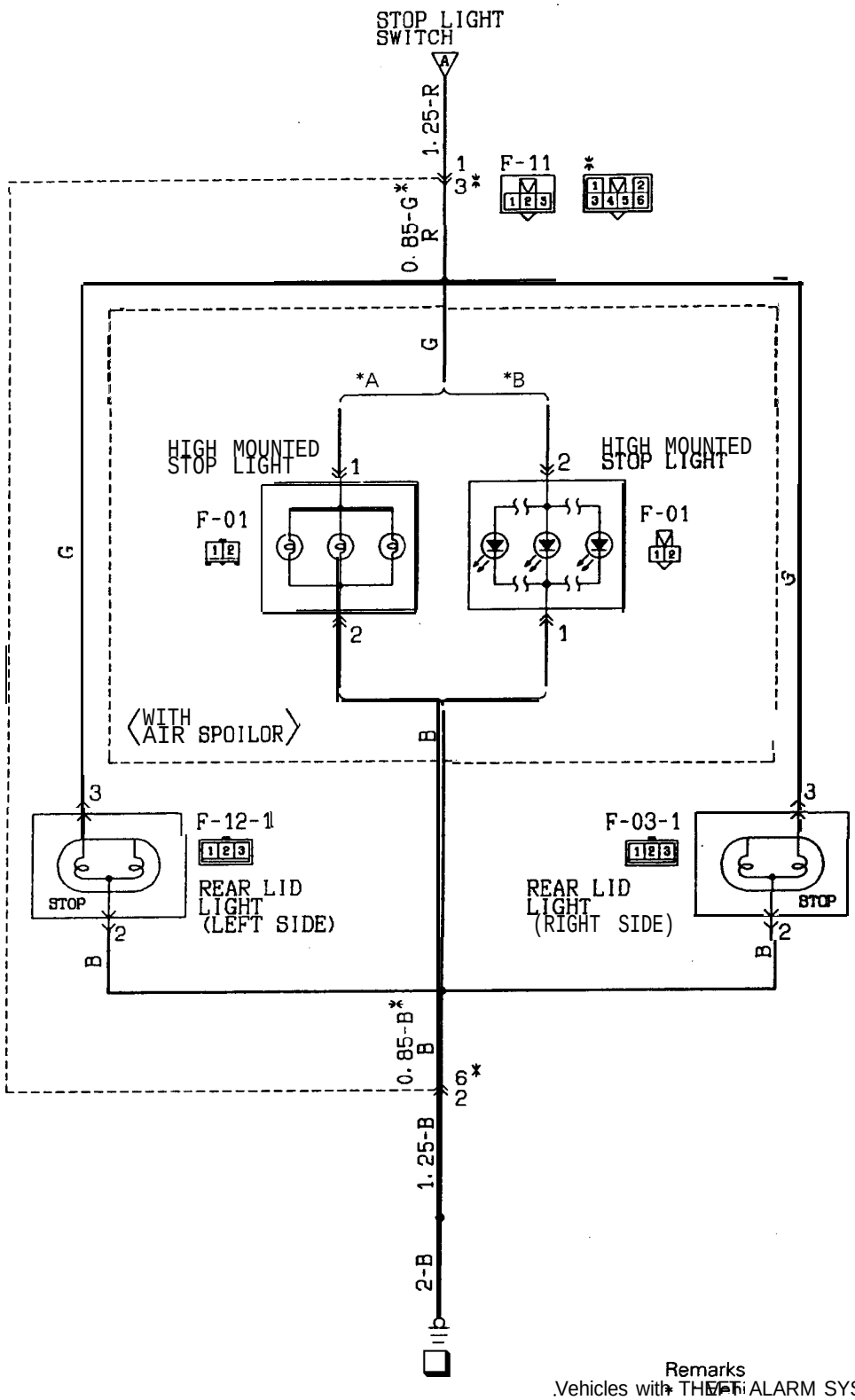


(X35-AC-H0953-NN

TSB Revision

STOP LIGHT CIRCUIT

<VEHICLES WITH AUTO-CRUISE CONTROL (From 1991 models)> (CONTINUED)



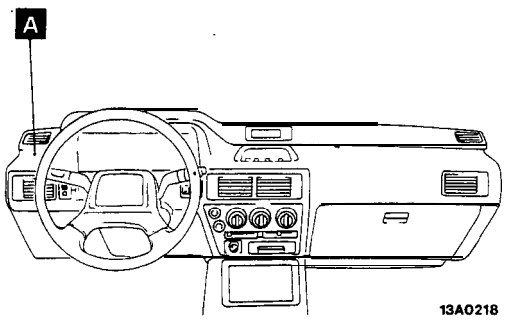
Remarks
.Vehicles with * THEFT ALARM SYSTEM
*A: NON-TURBO <Up to 1992 models>
*B: TURBO and NON-TURBO <From 1993 models>

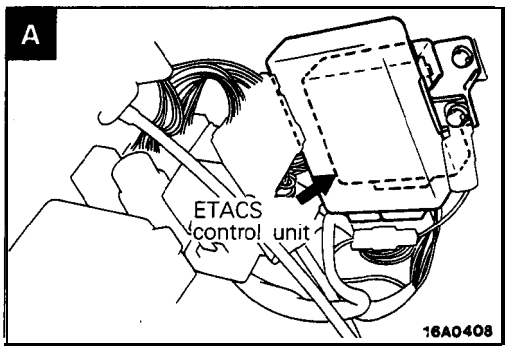
DELAYED SWITCH-OFF DOME LIGHT <ETACS-EQUIPPED MODELS>

M541HICb

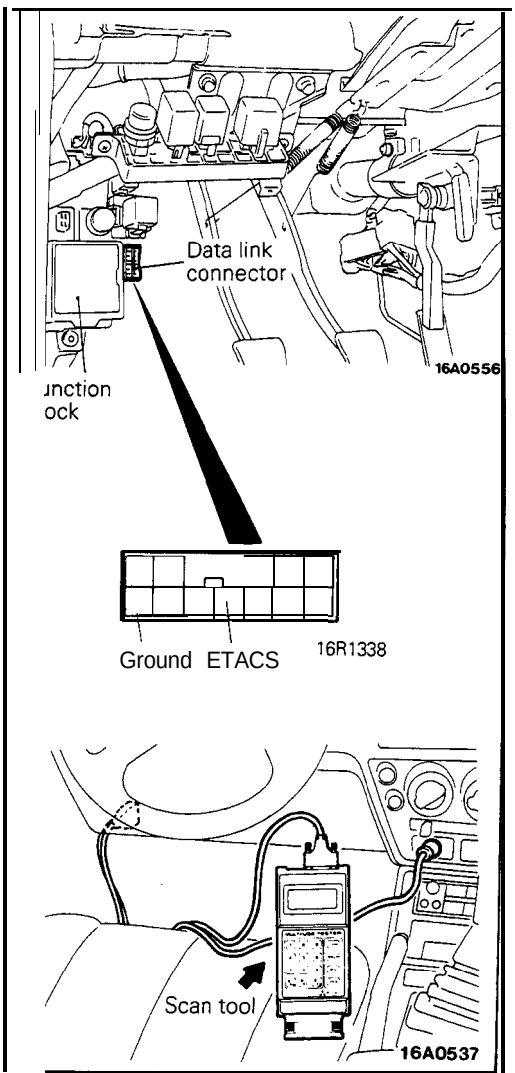
COMPONENT LOCATION

Name	Symbol
ETACS control unit	A





INPUT CHECK



Using a scan tool, check whether or not input signals are being input from each switch to the electronic control unit.

(1) Connect the scan tool to the data link connector (located at the right side of the junction block).
(2) With the ignition switch at the "ACC" position, set the scan tool to the special test setting.
(3) Check whether the buzzer of the scan tool sounds one time when each of the switches noted below is operated.
Input signals are being input to the electronic control unit if the buzzer sounds, so the operation of that switch can be considered satisfactory; if the buzzer does not sound, check that switch or the wiring for an abnormal condition.

- Ignition switch
- Door switches for all doors

TSB Revision

TROUBLESHOOTING GUIDE-REFERENCE TABLE

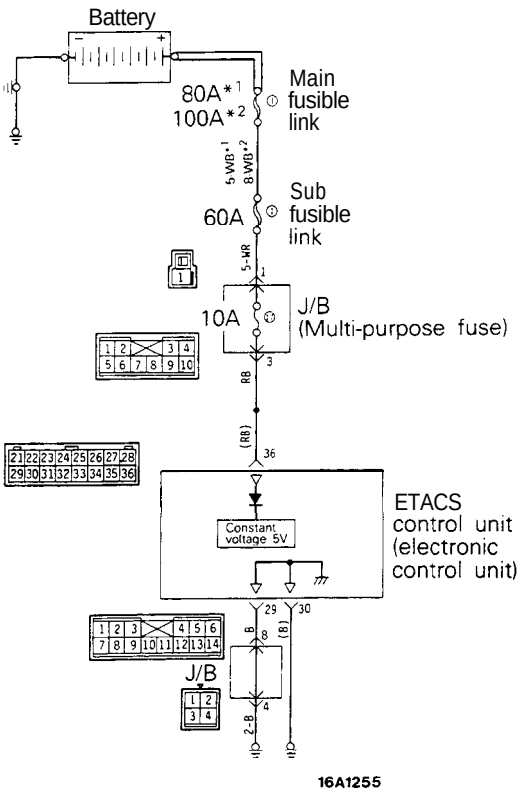
Problem	Probable cause	Check method	Remedy
With the dome light switch at the door-interlocked position, the dome light does not illuminate when any door is opened. (The dome light does illuminate, however, when the dome light switch is set to the "ON" position.)	Damage or disconnection of the door switch (all doors) input circuit.	If a malfunction is indicated as a result of the input check (P.54-83), make the circuit and individual part check No.3 (P.54-87).	Replace the door switch, or repair the wiring harness.
	Damage or disconnection of the dome light activation circuit.	Make the circuit and individual part check No.4 (P.54-88).	Replace the dome light, or repair the wiring harness.
	Malfunction of the electronic control unit.	–	Replace the electronic control unit.
When the ignition switch is switched to the "ON" position while the dome light illumination is at the dimmed setting, the dome light does not switch OFF.	Damage or disconnection of the ignition switch input circuit.	If a malfunction is indicated as a result of the input check (P.54-83), make the circuit and individual part check No.2 (P.54-86).	Repair the wiring harness.
	Malfunction of the electronic control unit.	–	Replace the electronic control unit.

NOTE
The "ECU" (electronic control unit) indicates the ETACS control unit

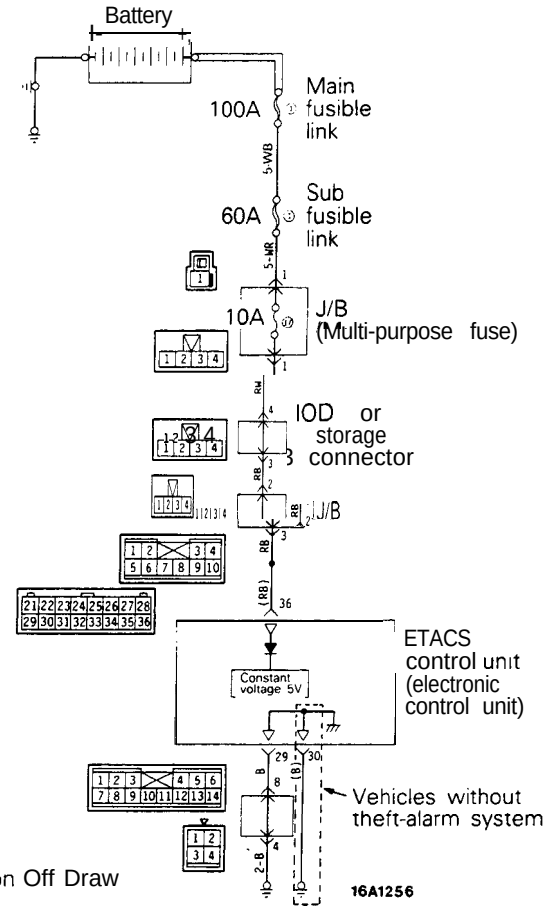
CHECKING THE CIRCUIT AND INDIVIDUAL COMPONENT

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS

<Up to 1990 models>



<From 1991 models>



NOTE
*1: < 989 models>
*2: < 990 models>

IOD: Ignition Off Draw

Description of operation

The battery supplies a stabilized 5V power supply to the electronic control unit, via the constant-voltage circuit and terminal (36) directly connected to the battery.

If there is an abnormal condition of the power-supply circuit, the other ETACS systems also will not function.

Electronic control unit terminal voltage (status of the electronic control unit connector)

ECU terminal No.	Signal	Conditions	Terminal voltage
36	Electronic control unit power supply	At all times	Battery positive voltage

Checking the ground circuit (Disconnect the connector and check the wiring harness side.)

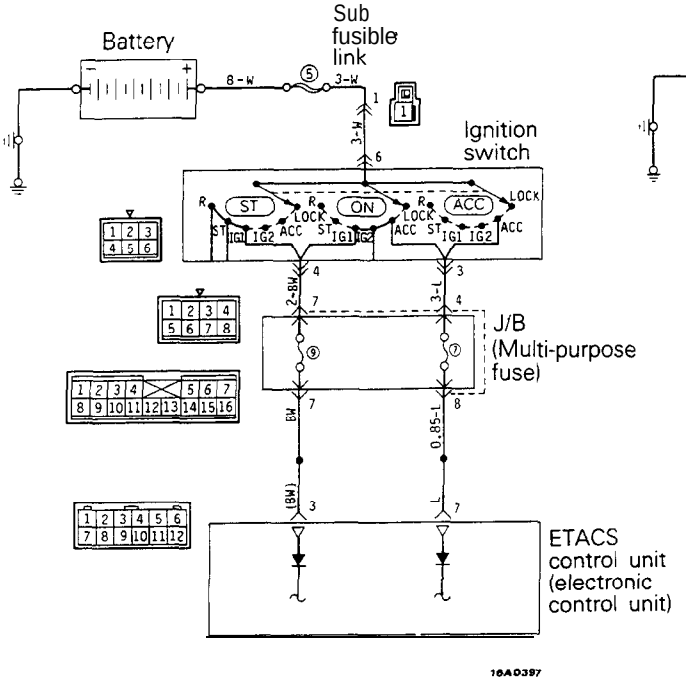
Terminal	Connected to/measured component	Measurement	Tester connection	Check conditions	Standard
29	Electronic control unit ground	Resistance	29-ground	At all times	Continuity
30"	Electronic control unit ground	Resistance	30-ground	At all times	Continuity

NOTE
*: Vehicles without theft-alarm system

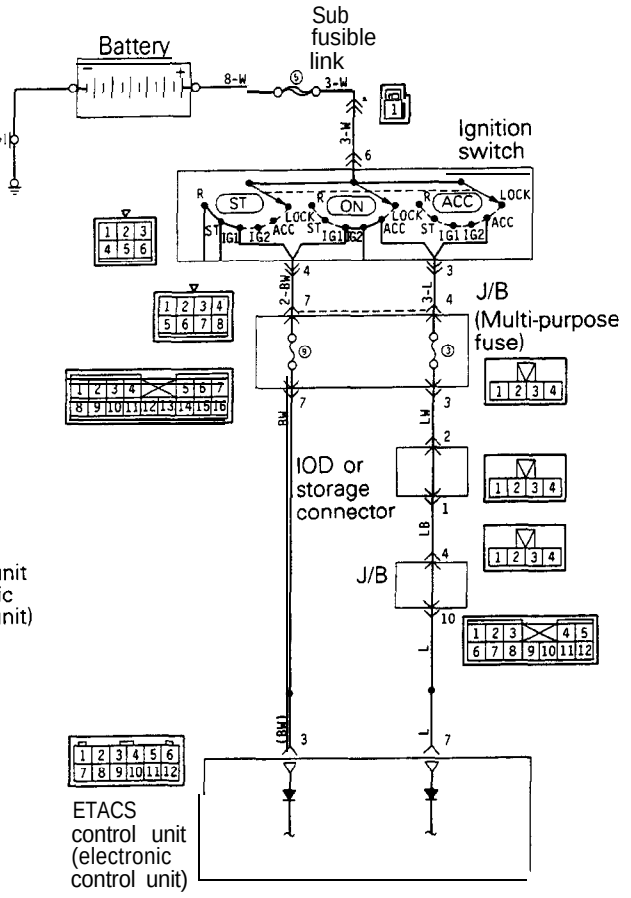
TSB Revision

2. **IGNITION SWITCH INPUT CIRCUIT**

<Up to 1990 models>



<From 1991 models>



IOD: Ignition Off Draw

Description of operation

With the ignition switch at the "ON" position, send HIGH-level signals to the electronic control unit to switch OFF the timer circuit and interrupt the dimmed-light condition.

Electronic control unit terminal voltage

(Disconnect the electronic control unit connector and check the wiring harness side.)

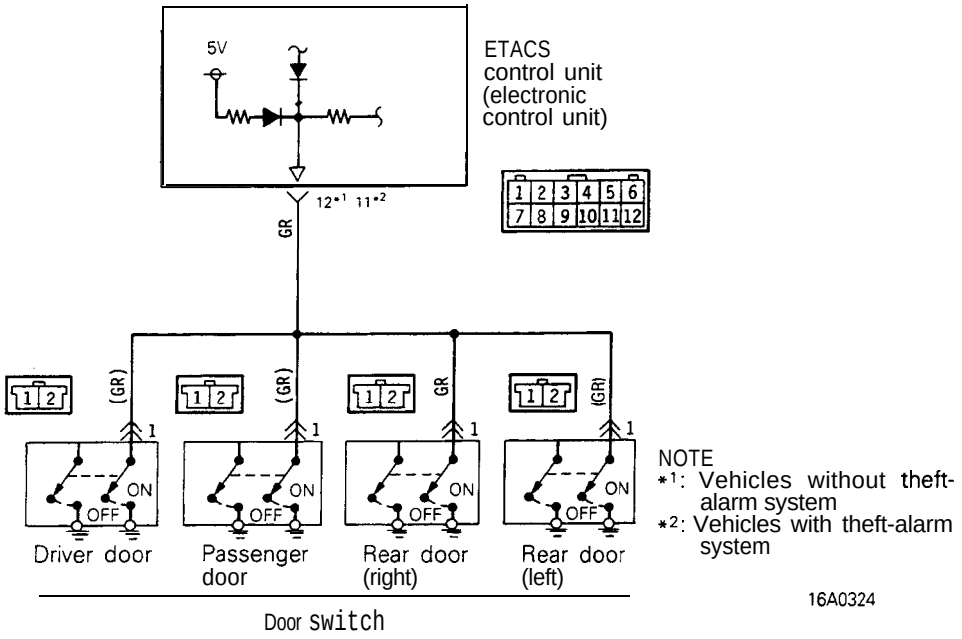
ECU terminal No.	Signal	Conditions		Terminal voltage
3	Ignition switch: "ON"	Ignition switch	OFF	0 V
			ON	Battery positive voltage

Individual part check

Ignition switch . . . Refer to P.54-6.

TSB Revision

3. DOOR SWITCH (ALL DOORS) INPUT CIRCUIT



Description of operation

When, with the dome light illuminated (with the ignition switch at the "ACC" or "OFF" position), HIGH-level signals are sent to the electronic control unit, the timer circuit is activated and the dimmed-light function of the dome light is started.

If there is an abnormal condition of the door switch system, the dome light will not function normally at the door-interlocked setting of its switch.

Electronic control unit terminal voltage (status of the electronic control unit connector)

ECU terminal No.	Signal	Conditions	Terminal voltage
12*1 11*2	Door switch signal	*Door is opened (door switch: **ON**).	ov
		All doors are closed (door switch: OFF).	5V

Checking the door switch circuit (Disconnect the electronic control unit connector and check the wiring harness side.)

Terminal	Connected to/measured component	Measurement	Tester connection	Check conditions	Standard
12*1 11*2	Door switch	Resistance	12-ground*1 11 -ground*2	All doors are closed	No continuity
				*Door is opened.	Continuity

NOTE
*1: Vehicles without theft-alarm system
*2: Vehicles with theft-alarm system

Individual part check

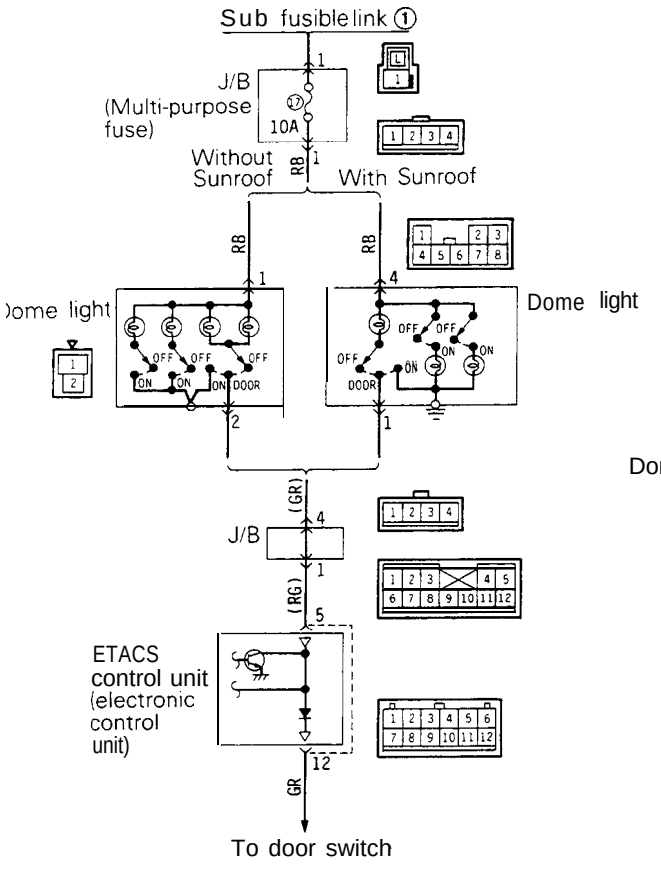
Door switch . . . Refer to GROUP 42–Front and Rear Doors.

NOTE
When making the checks indicated by the * symbol, conduct the check for each individual door, checking to be sure that only the door being checked is open.

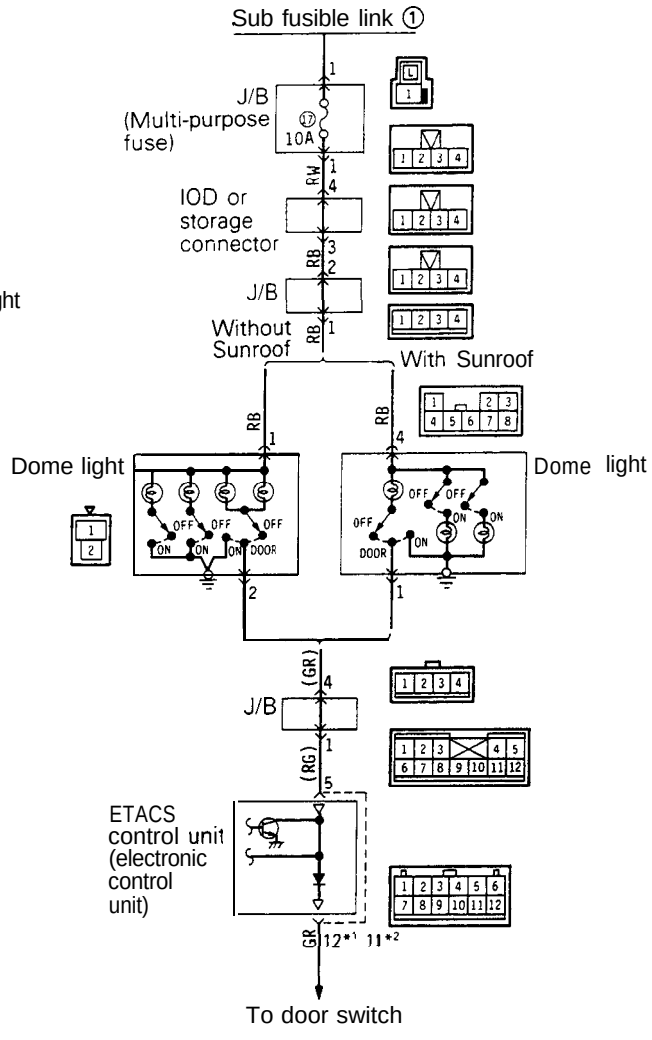
TSB Revision

4. DOME LIGHT ACTIVATION CIRCUIT

<Up to 1990 models>



<From 1991 models>



NOTE
*1: Vehicles without theft-alarm system
*2: Vehicles with theft-alarm system

IOD: Ignition Off Draw

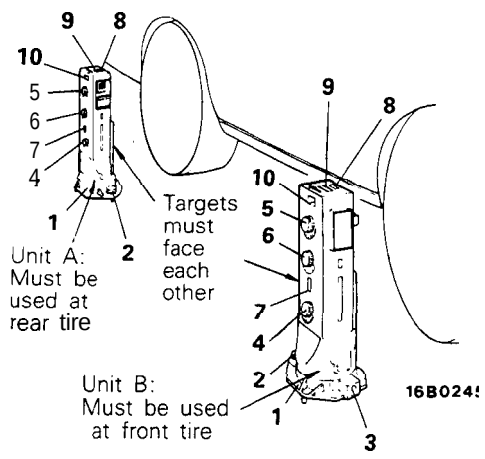
Description of operation

When a door is opened while the dome light switch is at the door-interlocked setting, the door switch is grounded via the electronic control unit. When, in that condition, the door is then closed, the electronic control unit causes grounding, and the dimmed-light function is activated.

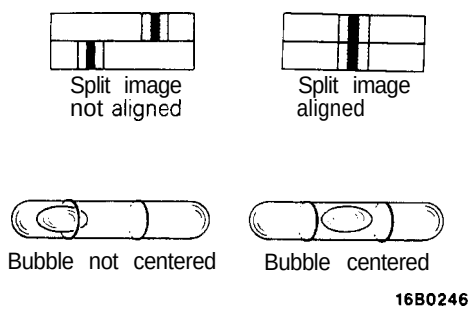
Electronic control unit terminal voltage (status of the electronic control unit connector)

ECU terminal No.	Signal	Conditions			Terminal voltage
5	Dome light signal	All doors closed	Dome light switch position	Any position except "DOOR"	0V
				DOOR	Battery positive voltage

TSB Revision



1. Calibration fixture
2. Thumb adjusting screws
3. Level vial
4. Floor level offset dial
5. Horizontal dial knob
6. Vertical dial knob
7. Aimer level vial
8. Level vial bubble
9. Top port hole
10. Viewing port



SERVICE ADJUSTMENT PROCEDURES

M54IIBE

HEADLIGHTS AIMING

PRE-AIMING INSTRUCTIONS

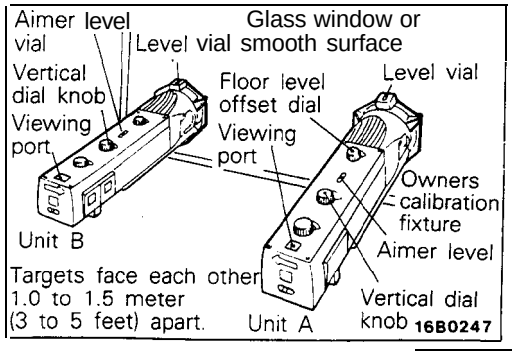
1. Test dimmer switch operation.
2. Observe operation of high beam light mounted in instrument cluster.
3. Inspect for badly rusted or faulty headlight assemblies. These conditions must be corrected before a satisfactory adjustment can be made.
4. Place vehicle on a level floor.
5. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
6. Inspect tire inflation.
7. Rock vehicle sideways to allow vehicle to assume its normal position.
8. If fuel tank is not full, place a weight in trunk of vehicle to simulate weight of a full tank [3 kg (6.5 lbs.) per gallon].
9. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 lbs.) placed in driver's position.
10. Thoroughly clean headlight lenses.

COMPENSATING THE AIMERS (C-4466) FOR FLOOR SLOPE

The floor level offset dial must coincide with the floor slope for accurate aiming. Calibration fixtures are included with the aimers.

1. Attach one calibration fixture to each aimer. Fixtures will easily snap into position on aimer when properly positioned.
2. Place aimers at **center line** of each wheel on one side of vehicle. Unit A must be placed at rear wheel with target facing forward. Unit B must be placed at front wheel with target facing rearward.
3. Adjust thumb adjusting screw on each calibration fixture by turning either clockwise or counterclockwise until level vial bubble registers in a centered, level position.
4. Look into top port hole of Unit A. Turn horizontal knob until split image is aligned.
5. Transfer plus or minus reading indicated on horizontal dial **to floor level offset dial on each aimer. Press floor level dial** inward to set reading.
6. Remove calibration fixtures from both units.

TESTING AIMER CALIBRATION



The aimer calibration may be off due to extended use. Calibration fixtures used in conjunction with aimers can be used to check and adjust aimers.

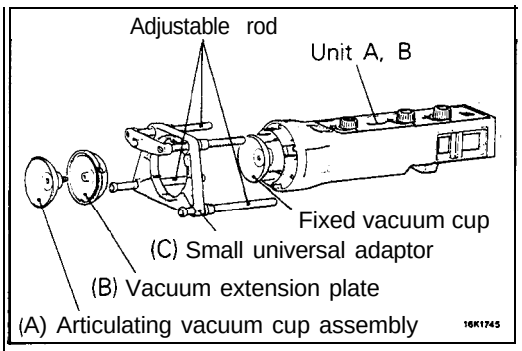
1. Turn thumb adjusting screw on each calibration fixture until it is approximately the same distance as the supporting posts.
2. Attach calibration fixtures to each unit with level vials on top.
3. Locate a true vertical plate glass window or smooth surface and secure aimers three to five feet apart so split image targets can be located in viewing ports

4. Set floor level dial at zero.
5. Rotate thumb adjusting screws on **each calibration fixture** until level vials on fixtures are centered.
6. With both calibration level vials centered, turn vertical dial knobs on each aimer until aimer level vials are centered. If aimer vertical dial pointers read between 1/2 up and 1/2 down, aimers are within allowable vertical tolerance. Recalibrate units if beyond these limits.

   Vertical dial pointer reading (on each aimer): 1/2 up to 1/2 down

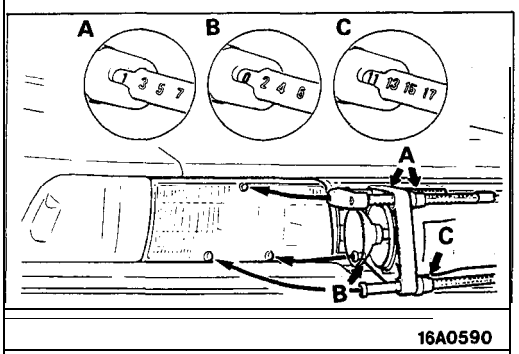
7. Adjust horizontal dial knob on each aimer until split image targets align. If aimer horizontal dial pointers read between 1 left and 1 right, the aimers are within allowable tolerance limits. Recalibrate units if beyond these limits.

   Horizontal dial pointer reading (on each aimer): 1 left to 1 right

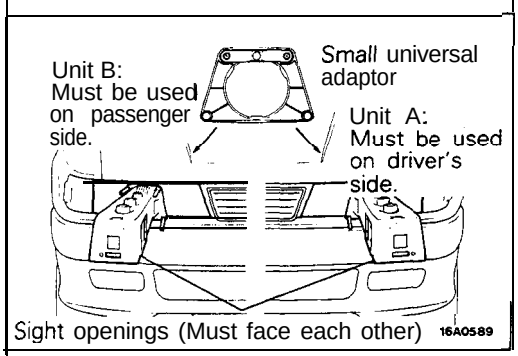


MOUNTING AIMERS

1. Remove the calibration fixture from each unit.
2. As shown in the figure, install the articulating vacuum cup assembly (A), vacuum extension plate (B) and small universal adaptor (C) to each unit.

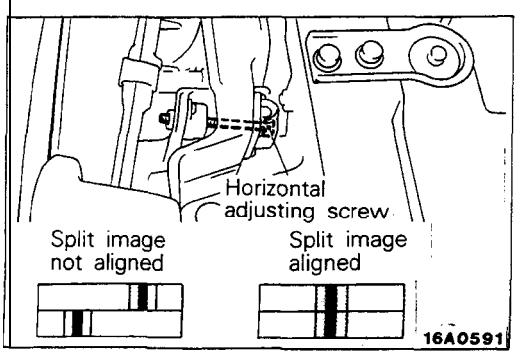


3. Make the length of the adjustable rod as shown in the figure.



4. Position aimers on headlights by pushing piston handle forward, engaging rubber suction cup. Immediately pull back piston handle until it locks in place.

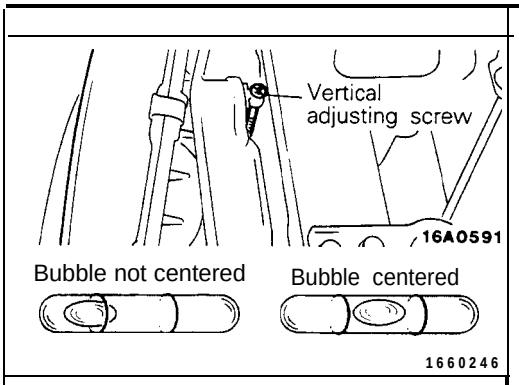
   NOTE
   Steel inserts are molded into position on the adaptor to insure accuracy. These inserts must be in contact with the three guide **points** on the lights when the aimers are properly positioned.

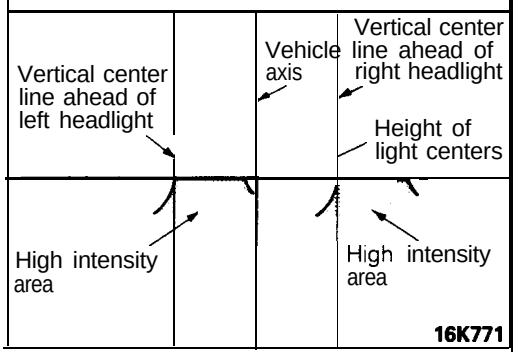


HORIZONTAL ADJUSTMENT

1. Set horizontal dial to zero.
2. Check to see that the split image target lines are visible in the viewing port. If necessary, rotate each aimer slightly to locate the target.
3. Turn horizontal screw on side of headlight until split image of target line appears in mirrors as one solid line. To remove "backlash", make final adjustment by turning adjusting screw in a clockwise direction.
4. Repeat the last three steps on opposite headlight.

TSB Revision





VERTICAL ADJUSTMENT

1. The vertical dial should be set at zero. (For passenger vehicles an "0" setting is generally required. For special settings, consult local state laws).
2. Turn vertical adjusting screw until the level bubble is centered between the lines.
3. Repeat the last two steps on the opposite headlight.
4. Re-check target alignment on both aimers and readjust horizontal aim if necessary.
5. Remove aimers by pressing "vacuum release" button located on piston handle.

AIMING WITH SCREEN

HEADLIGHT AIM PREPARATION

Place vehicle on a known level floor 7.6 m (25 feet) from aiming screen or light colored wall. Four lines of adhesive tape or like are required on screen or wall:

1. Position a vertical tape so that it is aligned with the vehicle center line.
2. Position a horizontal tape with reference to center line of headlight.
3. Position a vertical tape on the screen with reference to the center line of each of headlights.

VISUAL HEADLIGHT ADJUSTMENT

1. A properly aimed lower beam will appear on the aiming screen 7.6 m (25 feet) in front of the vehicle. The shaded area as shown in the illustration indicates high intensity zone.
2. Adjust low beam of headlights to match the low beam pattern of the right and left headlights.

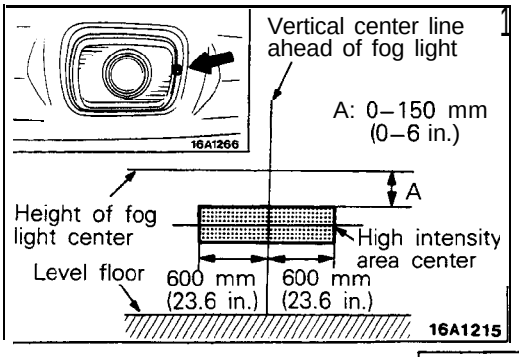
NOTE
If the visual headlight adjustment at low beam is made, the adjustment at high beam is not necessary.

LUMINOUS INTENSITY MEASUREMENT

Measure the luminous intensity of headlights with a photometer in accordance with the instruction manual prepared by the manufacturer of the photometer and make sure that the luminous intensity is within the following limit.

Limit: Type I 18,000 cd or more
Type II 7,000 **cd or more**

NOTES
(1) When measuring the luminous intensity of headlight, keep the engine at 2,000 rpm and have the battery charged.
(2) If there are specific regulations for luminous intensity of headlights in the region where the vehicle is operated, make sure that the intensity conforms to the requirements of such regulations.



FOG LIGHT AIMING M54IIEA

1. Place vehicle on a known level floor 7.6 m (25 feet) from aiming screen or light colored wall.
2. Use adjusting screw to adjust the top end of high intensity zone to dimension A.

TSB Revision

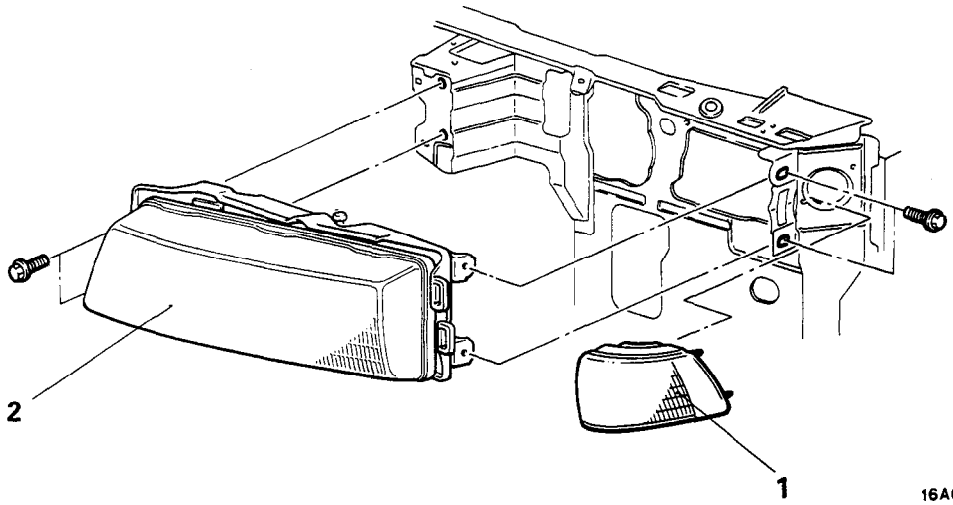
HEADLIGHTS

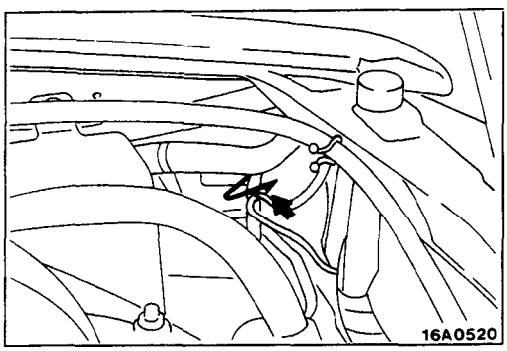
M54IJAK

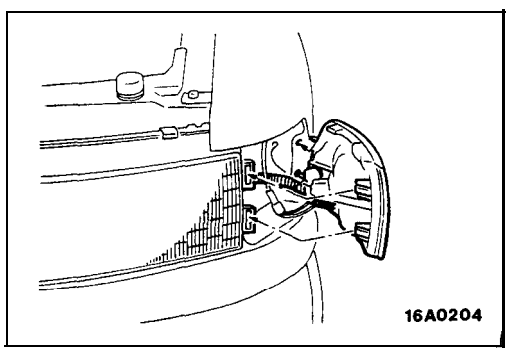
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Removal and Installation of Front Grilles (Refer to GROUP 51–Grille.)

Removal steps
1. Front combination light
2. Headlight







SERVICE POINTS OF REMOVAL

1. REMOVAL OF FRONT COMBINATION LIGHT

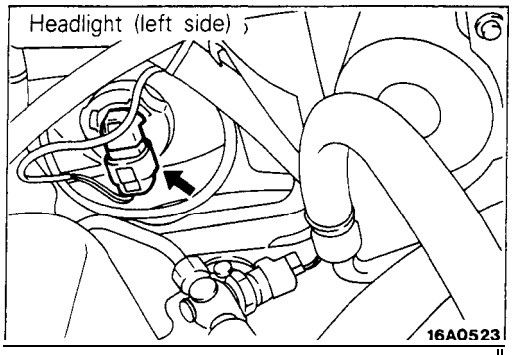
(1) Disconnect the front combination light setting spring in the engine compartment.
(2) Pull forward and remove the front combination light.

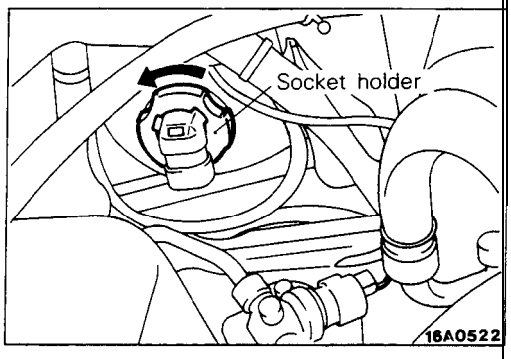
SERVICE POINTS OF INSTALLATION

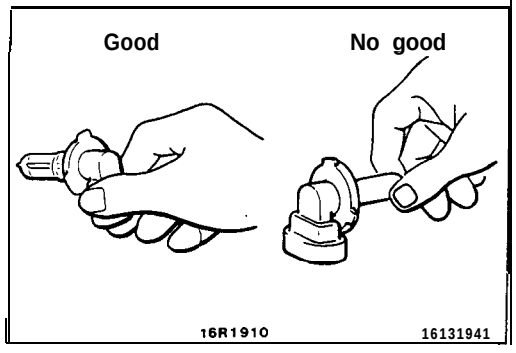
1. INSTALLATION OF FRONT COMBINATION LIGHT

(1) Align the projection part of the front combination light with the hole, and then install by pushing toward the rear.
(2) Pull the setting spring into the engine compartment, twist it 90°, and secure it to the body.

TSB Revision







REPLACEABLE BULB REPLACEMENT

(1) Disconnect the headlight harness connector.
(2) Detach the socket holder by turning it anticlockwise, and then take out the bulb and socket assembly.

Caution

1. **Never hold the halogen light bulb with a bare hand, dirty glove, etc.**
2. **If the glass surface is dirty, be sure to clean it with alcohol, paint thinner, etc., and install it after drying it thoroughly.**
   Be sure to attach the socket cover.

NOTE

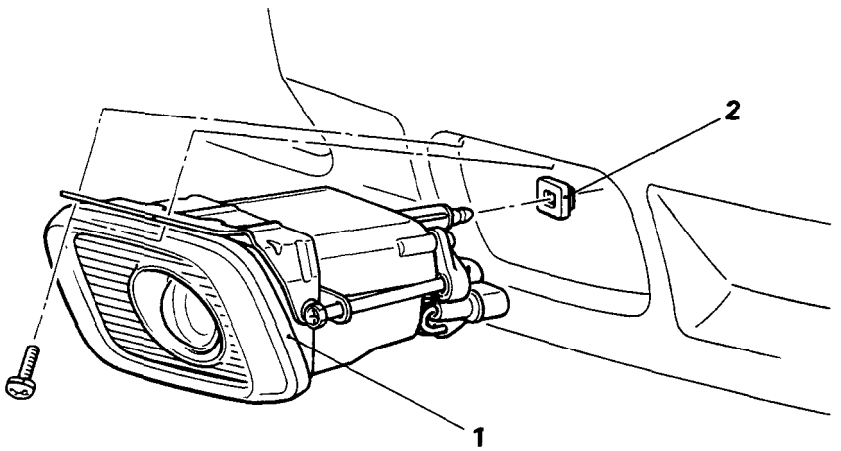
Be sure to install the socket cover securely because, if it is not, an insecure installation could cause such problems as clouding of the lens, or intrusion of moisture to inside the light unit.

TSB Revision

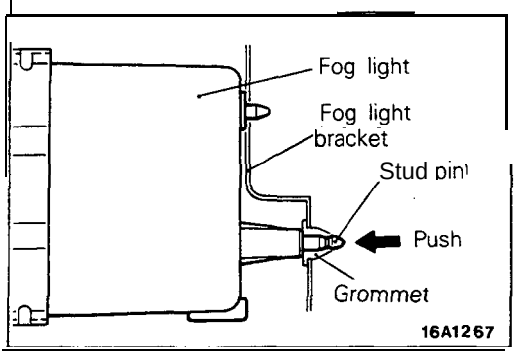
FOG LIGHT

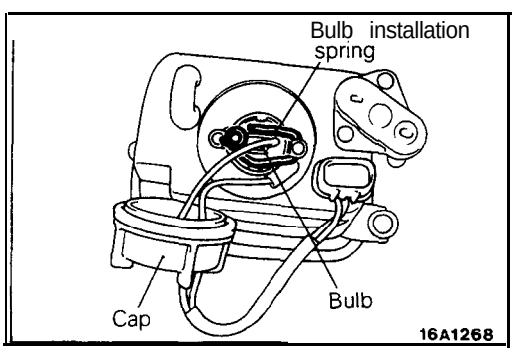
M54INAA

REMOVAL AND INSTALLATION



Removal steps
1. Fog light
2. Grommet





SERVICE POINTS OF REMOVAL

1. REMOVAL OF FOG LIGHT

The fog light assembly can be removed by pressing the stud pin from the reverse side of the bumper.

REPLACEABLE BULB REPLACEMENT

(1) Remove the fog light assembly, and then remove the cap.
(2) Remove the bulb installation spring, and pull out the bulb.

Caution
1. **Never hold the halogen light bulb with a bare hand, dirty glove, etc.**
2. **If the glass surface is dirty, be sure to clean it with alcohol, paint thinner, etc., and install it after drying it thoroughly.**
   Be sure to attach the socket cover.

NOTE
Be sure to install the socket cover securely because, if it is not, an insecure installation could cause such problems as clouding of the lens, or intrusion of moisture to inside the light unit.

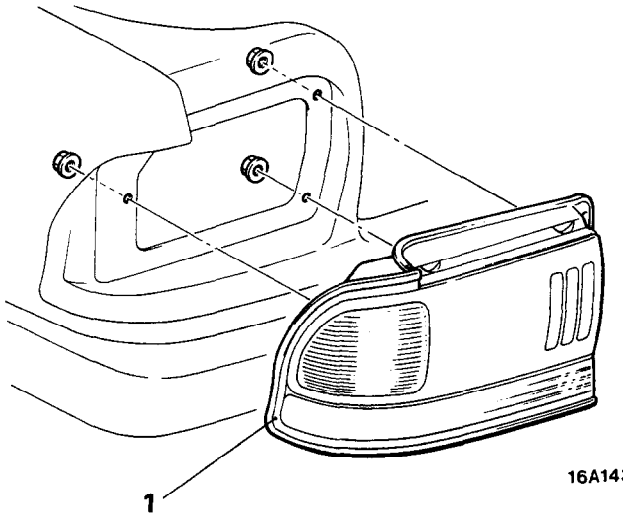
TSB Revision

REAR COMBINATION LIGHT

M54IMAJa

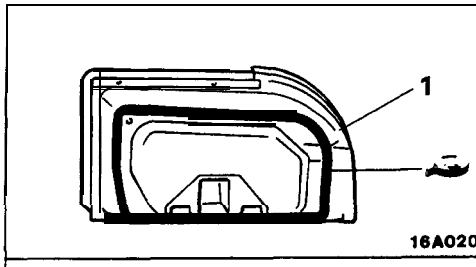
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
@Removal and Installation of Trunk Room Trim (Refer to GROUP 52–Trim.)



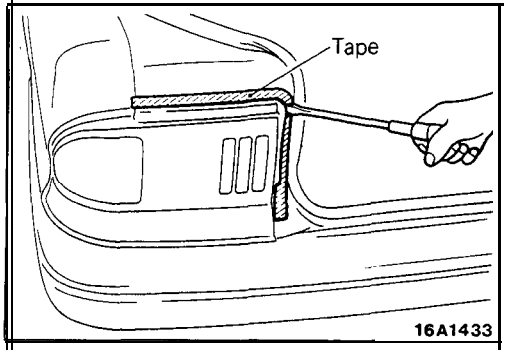
16A1432

◆■▶▶◆1. **Rear combination light**

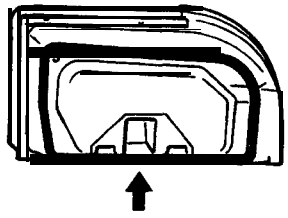


16A0206

Sealant:
3M ATD Part No.8625 or equivalent



16A1433



16A0206

SERVICE POINTS OF REMOVAL

1. REMOVAL OF REAR COMBINATION LIGHT

(1) Attach tape (cloth adhesive tape) or similar material around the rear combination light.
(2) Using a flat-tip (–) screwdriver, slowly pry the rear combination light part while pulling the rear combination light toward you in order to remove it.

Caution
Take particular care when prying the rear combination light because excessive force or careless prying might cause scarring of the rear combination light or of the body surface.

SERVICE POINTS OF INSTALLATION

1. INSTALLATION OF REAR COMBINATION LIGHT

(1) Remove any remaining adhesive material from the body surface and the rear combination light, and then use unleaded petrol to remove any grease or oil from the body side adhesive area.
(2) Apply sealant to the area indicated in the illustration.

Specified sealant: 3M ATD Part No.8625 or equivalent

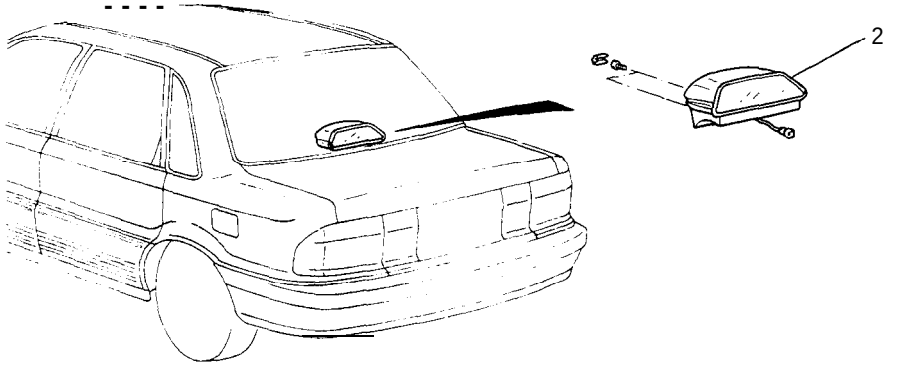
(3) Install the rear combination light.

TSB Revision

HIGH MOUNTED STOP LIGHT

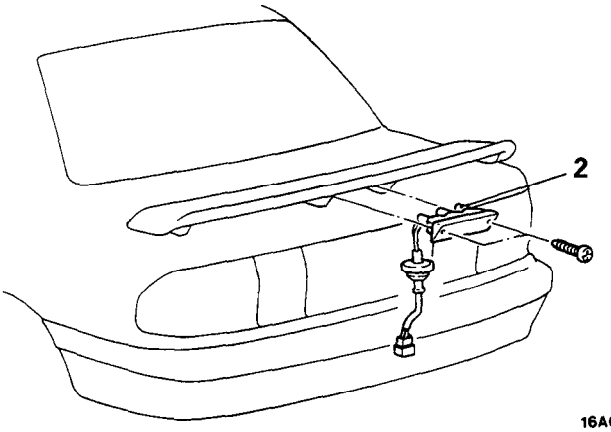
M54IKAMa

<Non-turbo (Vehicles without air spoiler)>



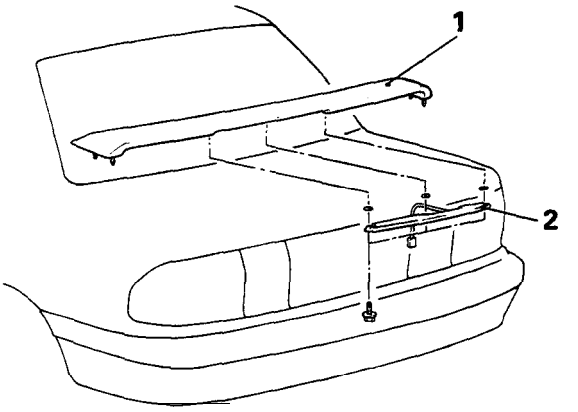
16A1278

<Non-turbo (Vehicles with air spoiler-Up to 1992 models)>



16A0533

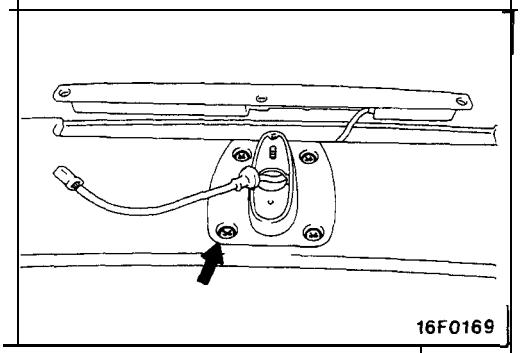
<Turbo and Non-turbo (Vehicles with air spoiler-From 1993 models]>



Removal steps

1. Air spoiler
   (Refer to GROUP 51 – Aero Parts.)
- ☒ 2. High mounted stop light

16A1277



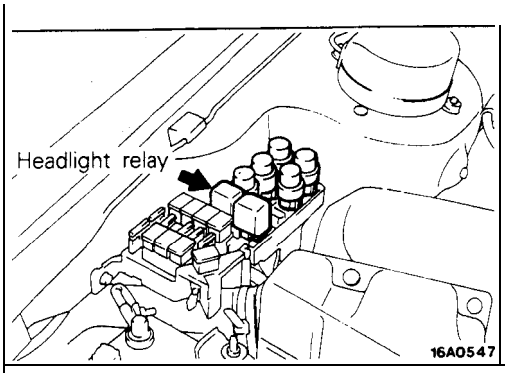
16F0169

SERVICE POINTS OF REMOVAL

2. HIGH MOUNTED STOP LIGHT <Turbo and Non-turbo (Vehicles with air spoiler-From 1993 models)>

To remove the high mounted stop light, first remove the air spoiler center stay installation screws.

TSB Revision



RELAY

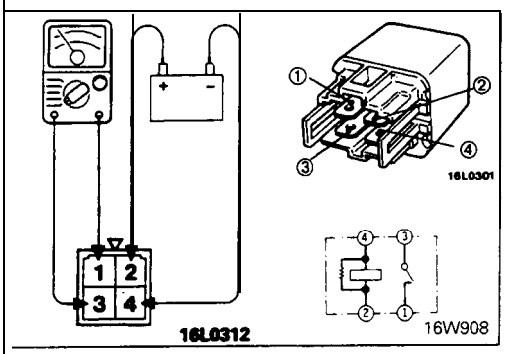
M541SAG

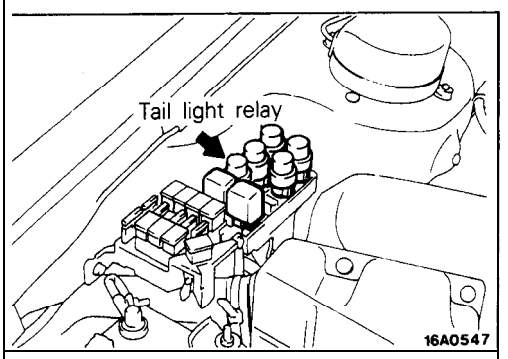
INSPECTION

HEADLIGHT RELAY

(1) Take out the headlight relay from the engine compartment relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1 – 3 terminals	Continuity
Power is not supplied	1 – 3 terminals	No continuity
	2-4 terminals	Continuity

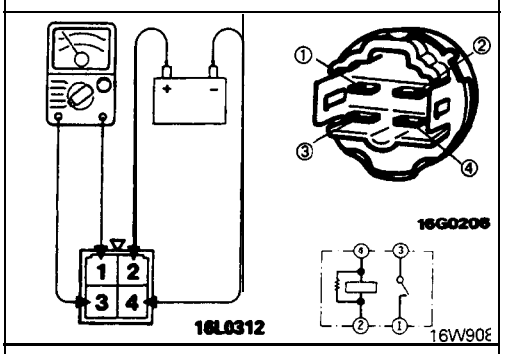


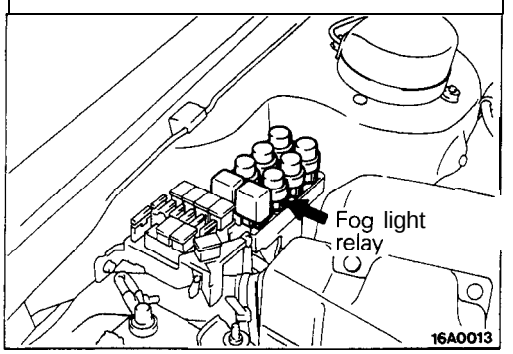


TAILLIGHT RELAY

(1) Take out the taillight relay from the engine compartment relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1 – 3 terminals	Continuity
Power is not supplied	1 – 3 terminals	No continuity
	2-4 terminals	Continuity

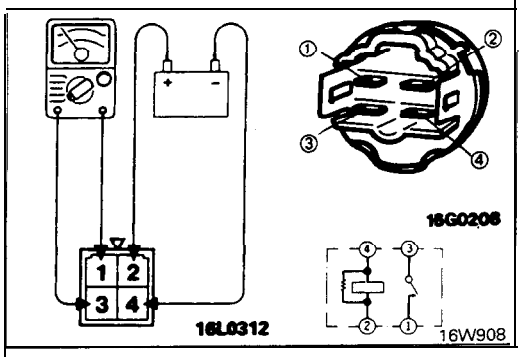




FOG LIGHT RELAY

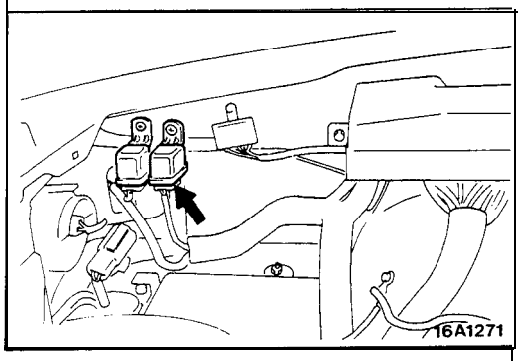
(1) Take out the fog light relay from the engine compartment relay box.

TSB Revision



(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

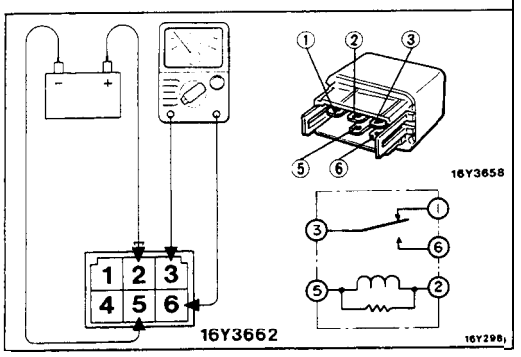
Power is supplied	1–3 terminals	Continuity
Power is not supplied	1–3 terminals	No continuity
	2–4 terminals	Continuity



THEFT-ALARM HEADLIGHT RELAY

(1) Remove theft-alarm headlight relay.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 5 grounded.

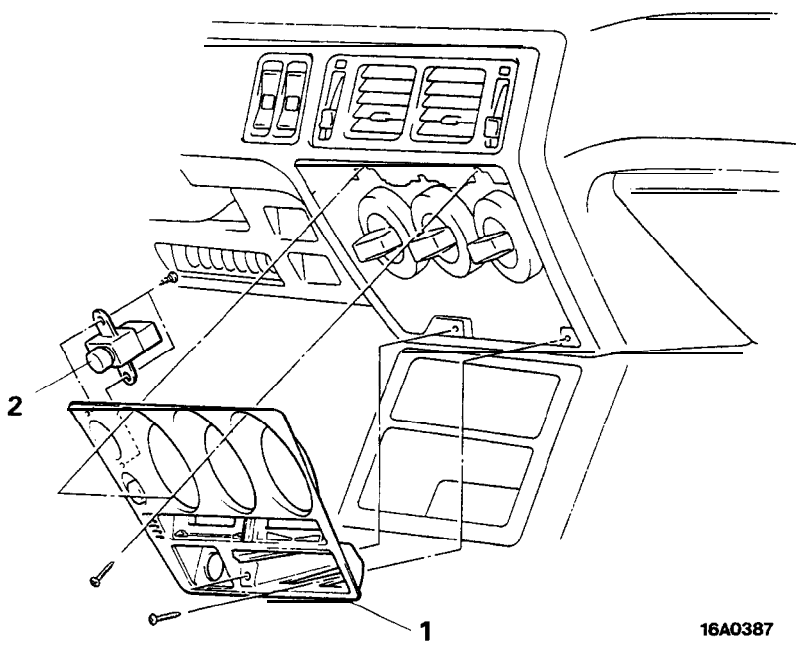
Power is supplied	3-6 terminals	Continuity
Power is not supplied	3-6 terminals	No continuity
	1–3 terminals	Continuity
	2-5 terminals	



HAZARD SWITCH

REMOVAL AND INSTALLATION

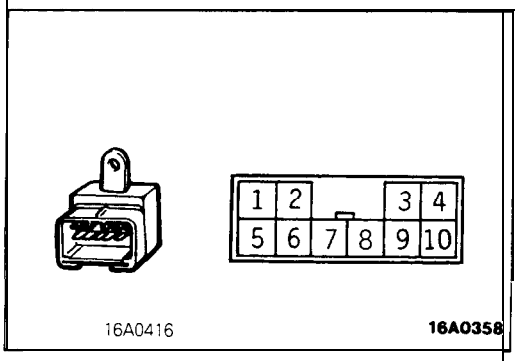
M5410AI



Removal steps

1. Heater control panel assembly (Refer to P.54-108.)
2. Hazard switch

TSB Revision



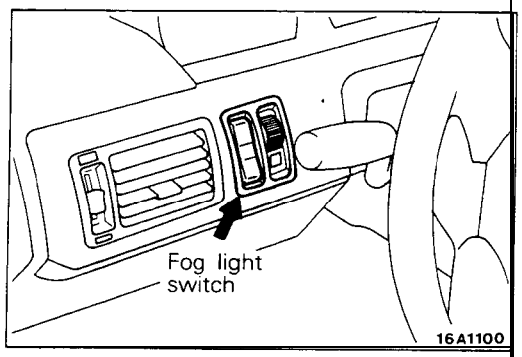
16A0416 16A0358

INSPECTION

Operate the switch to check for continuity between terminals.

Switch position \ Terminal	1	2	3	4	5	6	7	9	10
OFF					o	o		Illumination	
ON	o	o	o	o	o	o			

NOTE
o-o indicates that there is continuity between the terminals



16A1100

FOG LIGHT SWITCH

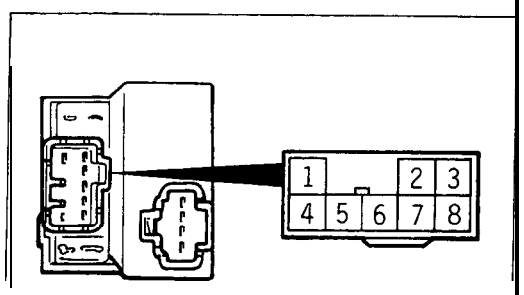
M54IYAA

INSPECTION

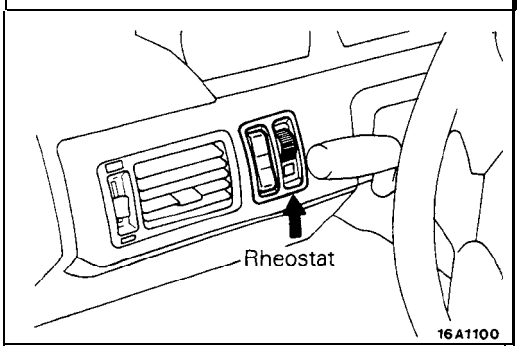
Operate the switch to check for continuity between terminals.

Switch Position \ Terminal	1	3	4	5	Illumination	6	7	Indication	8
OFF			o		o		o		
ON	o	o	o	o	o	o	o	o	o

NOTE
o-o indicates that there is continuity between the terminals.



16A0235 16A0195



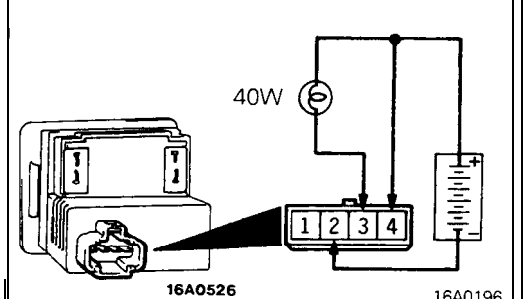
16A1100

RHEOSTAT

M54IRAK

INSPECTION

(1) Connect the battery and a test bulb (40W) as shown in the figure.
(2) The function of the rheostat is normal if the intensity of illumination changes smoothly, without flashing or flickering, when the rheostat is operated.



16A0526 16A0196

TSB Revision

COLUMN SWITCH

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54JBAC

Items	Specifications
Column switch	
Lighting switch	
Rated load A	0.22 ± 0.05
Voltage drop V	0.2 or less
Turn-signal switch	
Rated load A	6.6 ± 0.5
Voltage drop V	0.2 or less
Dimmer/Passing switch	
Rated load A	
High beam	10.7 ± 0.8
Low beam	9.8 ± 0.7
Voltage drop V	0.2 or less
Windshield wipers and washer switch	
Rated load A	
Wiper switch	4
Washer switch	Max. 4
Intermittent wiper switch	
Operation mode	
Type 1	Fixed-timing intermittent wipers
Type 2	Adjustable-timing intermittent wipers
Type 3 <Vehicles with ETACS>	Vehicle speed-sensing intermittent wipers with interval varying function
Intermittent interval sec	
Type 1	4
Type 2	Approx. 3– 12
Type 3	2-21
Auto cruise control switch	
Rated load A	
SET	0.1–0.3
RESUME	0.1–0.3
Voltage drop V	0.2 or less
Horn switch	
Rated load A	Max. 6

TORQUE SPECIFICATIONS

M54JC--

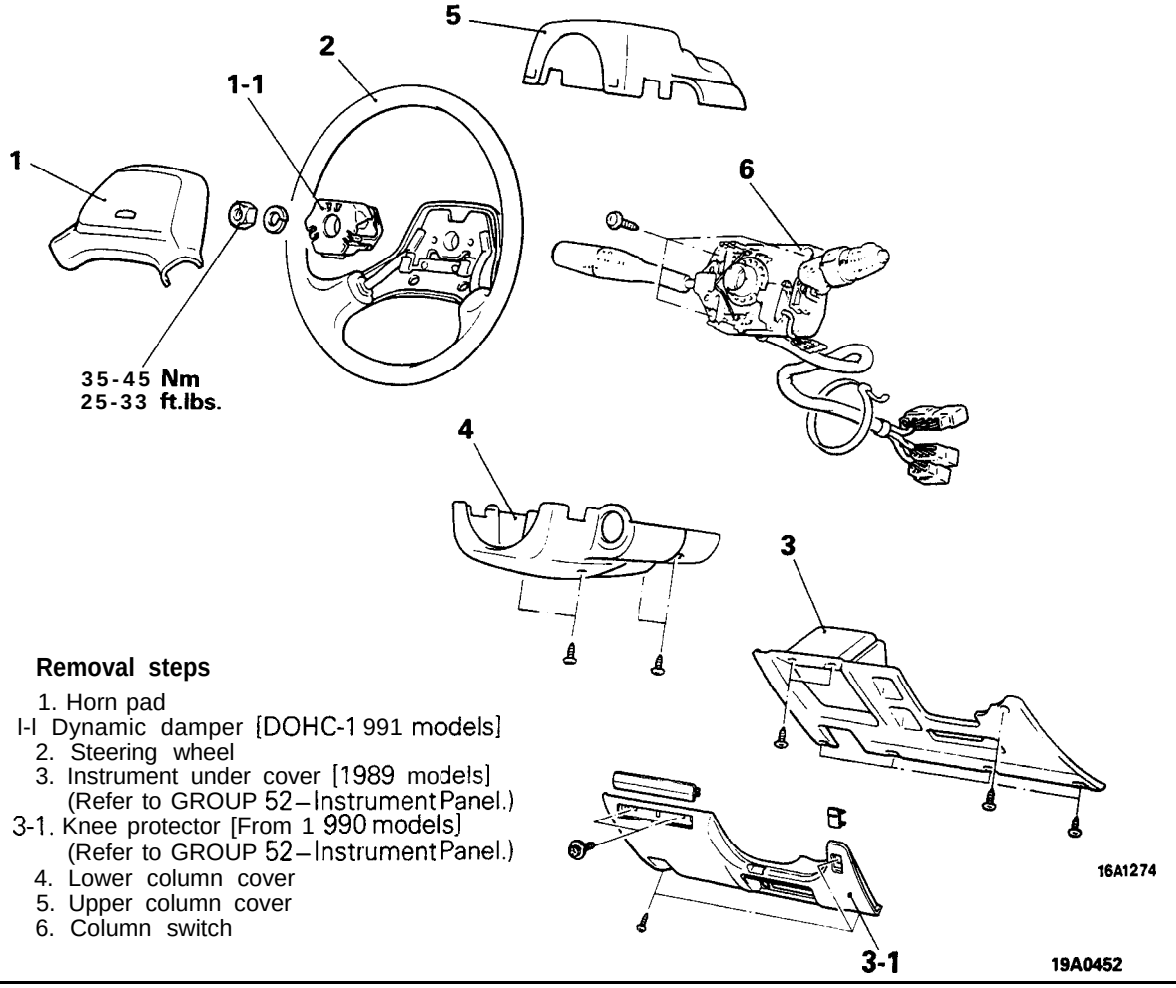
Items	Nm	ft.lbs.
Steering wheel lock nut	35-45	25-33

TSB Revision

COLUMN SWITCH

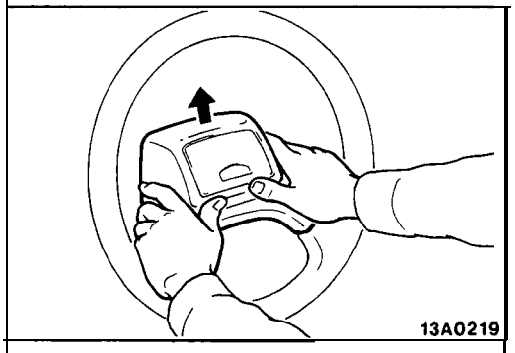
M54JJAK

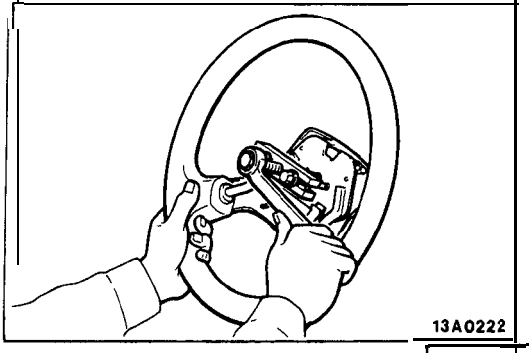
REMOVAL AND INSTALLATION



Removal steps

◆◆ 1. Horn pad
I-I Dynamic damper [DOHC-1 991 models]
◆◆ 2. Steering wheel
3. Instrument under cover [1989 models]
(Refer to GROUP 52–Instrument Panel.)
3-1. Knee protector [From 1 990 models]
(Refer to GROUP 52–Instrument Panel.)
4. Lower column cover
5. Upper column cover
6. Column switch





SERVICE POINTS OF REMOVAL

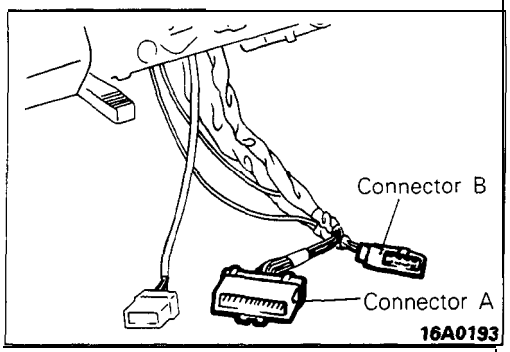
1. REMOVAL OF HORN PAD

The horn pad can be removed by pressing upward.

2. REMOVAL OF STEERING WHEEL

Use a steering wheel puller to remove the steering wheel

TSB Revision

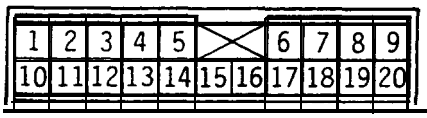


INSPECTION

(1) Remove the knee protector or instrument under cover and the lower column cover.
(2) Disconnect the column switch connector and check the continuity between the terminals for each switch.

LIGHTING SWITCH

Operate the switch and check the continuity between the terminals



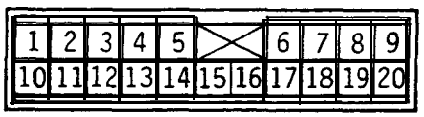
Connector A
16A0192

Switch position \ Terminal	3	12	13
OFF			
≡DO≡	o		o
≡D	o		o

NOTE
c-o indicates that there is continuity between the terminals.

TURN SIGNAL SWITCH

Operate the switch and check the continuity between the terminals.



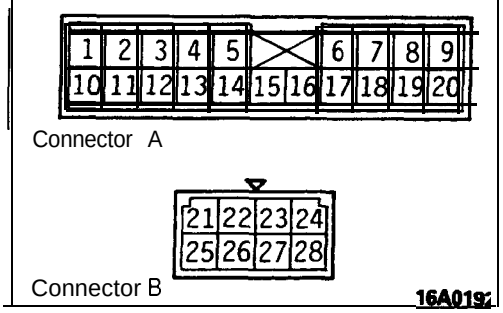
Connector A
16A0192

Switch position \ Terminal	14	15	16
Left	o	o	
Neutral			
Right	o		o

NOTE
o-o indicates that there is continuity between the terminals.

DIMMER/PASSING SWITCH

Operate the switch and check the continuity between the terminals.



Switch position \ Terminal		11	21	25	26
Dimmer switch	High			o	o
	Low		o		o
Passing switch		o		o	o

NOTE
o-o indicates that there is continuity between the terminals.

WIPER/WASHER SWITCH

Refer to GROUP 51–Wiper and Washer System.

AUTO-CRUISE CONTROL SWITCH

Refer to GROUP 13–Auto-cruise Control System.

TSB Revision

HORN

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54LB--

Items		Specifications
Type		Flat type
Effective sounding voltage	V	11.5-15
Power consumption	A	
Horn		3.0
Theft-alarm horn		3.5
Sound level	dB	
Horn		
"low" sound		100–112
"High" sound		100–112
Theft-alarm horn		105–115
Fundamental frequency	HZ	
Horn		
"low" sound		370
"High" sound		415
Theft-alarm horn		430

TSB Revision

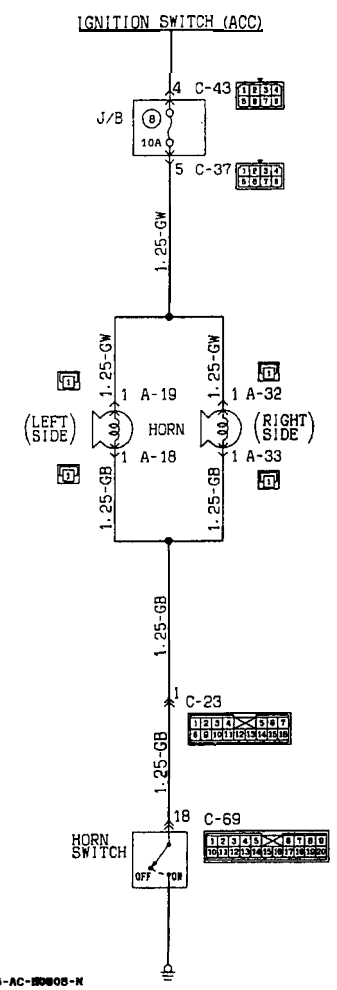
TROUBLESHOOTING

M54LHAH

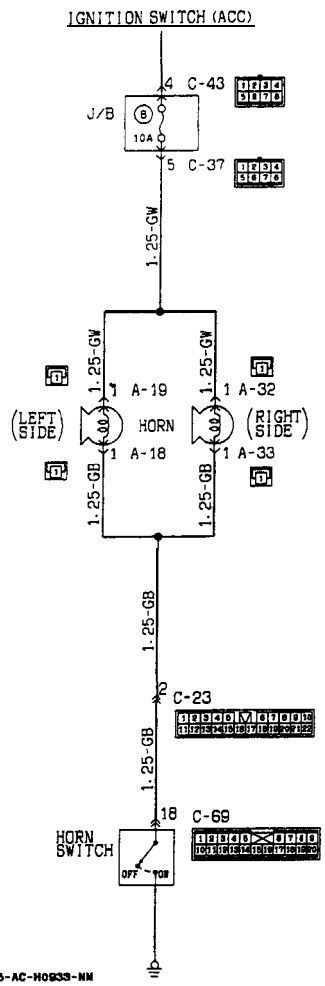
HORN CIRCUIT

CIRCUIT DIAGRAM

<1989 models>



<From 1990 models>



OPERATION

- When the ignition key is turned to the "ACC" or the "ON" position, battery voltage is constantly applied to the horn.
- When the horn switch is switched ON, electricity flows to multi-purpose fuse ⑧, the horn, the horn switch and ground.
- In this condition, electricity flows to multi-purpose fuse ⑧, the horn, the horn switch and ground, and horn sounds.

TROUBLESHOOTING HINTS

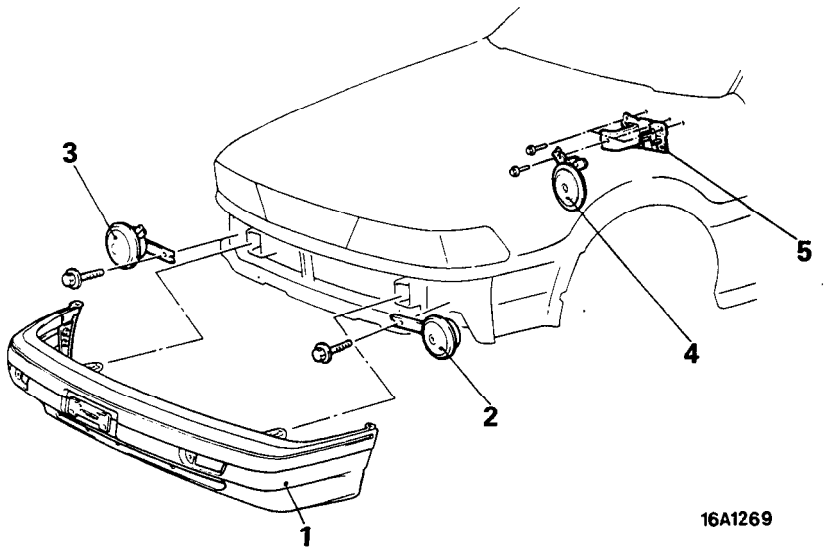
1. One of the horns does not sound.
   - Check the horn.
2. Horns do not sound.
   - Check the horn switch.
   - Check the multi-purpsoe fuse ⑧.

TSB Revision

HORN

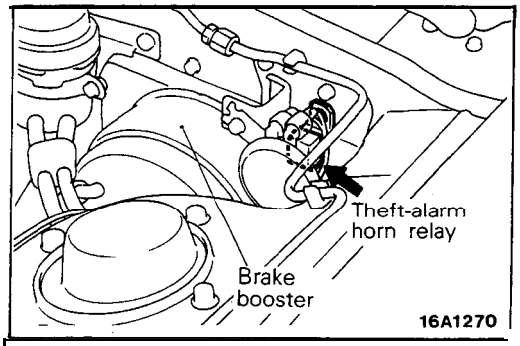
M54LJAN

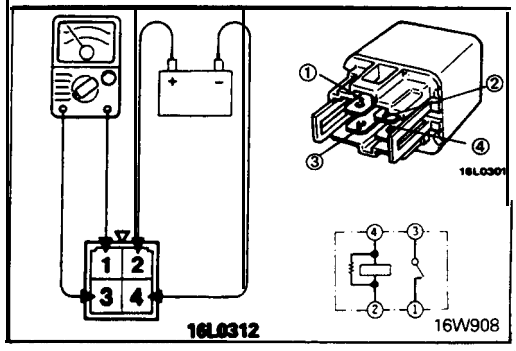
REMOVAL AND INSTALLATION



Removal steps

1. Front bumper
   (Refer to GROUP 51 -Bumper.)
2. Horn (high sound)
3. Horn (low sound)
4. Theft-alarm horn
5. Theft-alarm horn bracket





RELAY

INSPECTION

THEFT-ALARM HORN RELAY

(1) Take out the theft-alarm horn relay from theft-alarm horn bracket.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

Power is supplied	1–3 terminals	Continuity
Power is not supplied	1–3 terminals	No continuity
	2–4 terminals	Continuity

TSB Revision

CIGARETTE LIGHTER

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54MB-A

Items	Specifications
Max. input W	120
Reset time second	Within 18
Thermal fuse fusion temperature °C (°F)	180–250 (356–482)

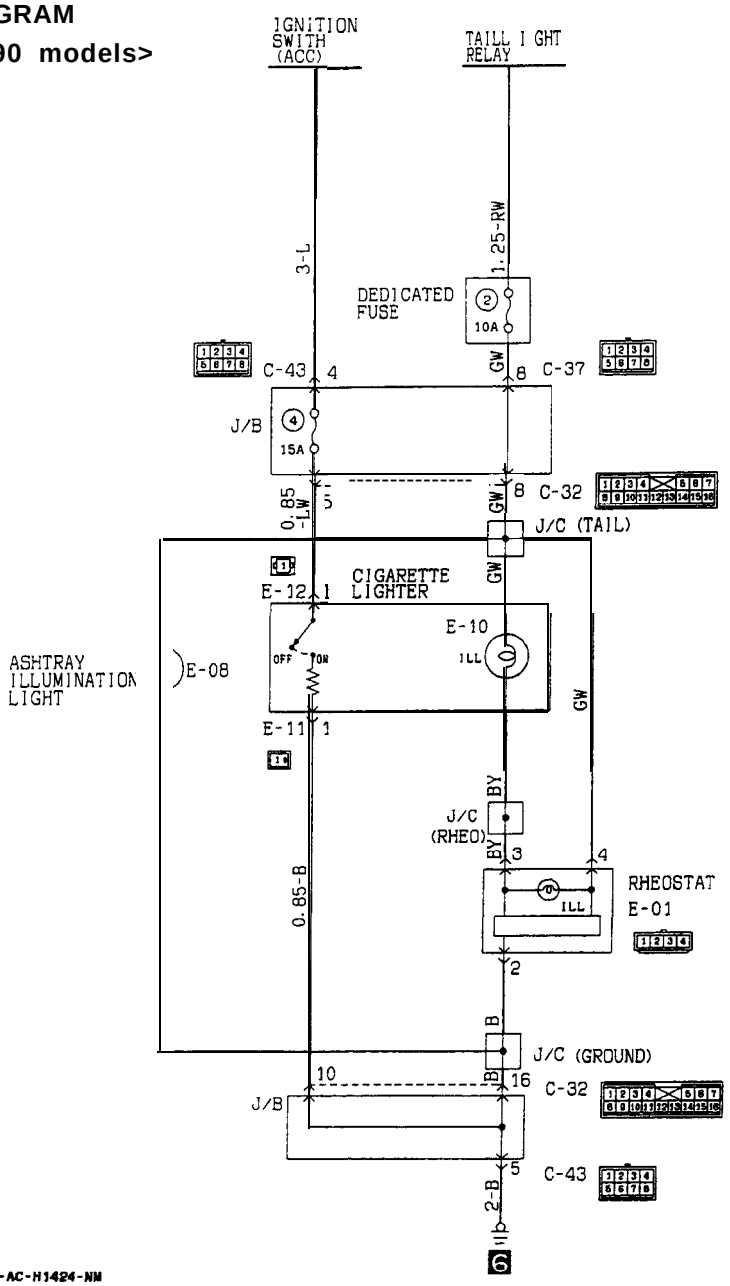
TROUBLESHOOTING

M54MHCB

CIGARETTE LIGHTER CIRCUIT

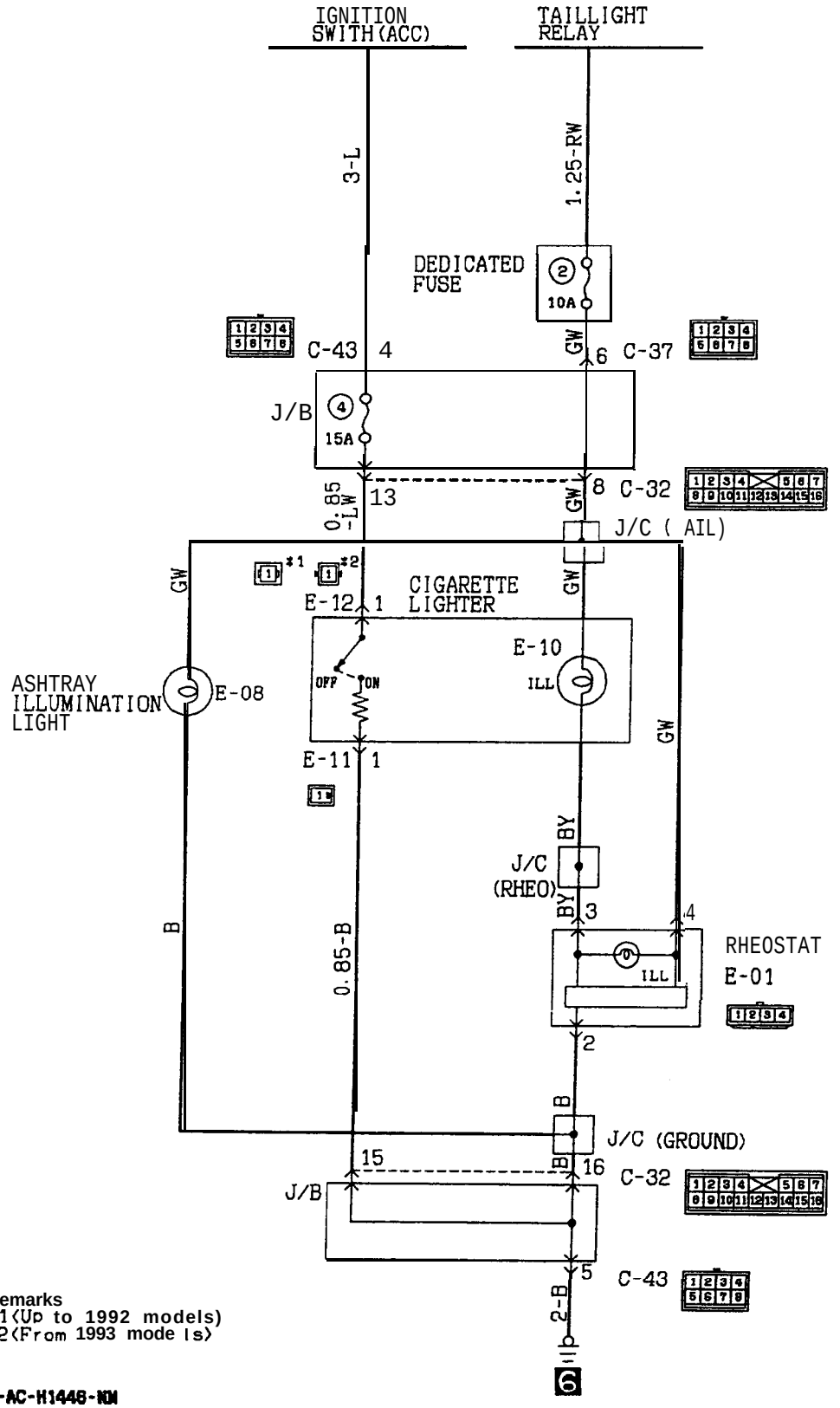
CIRCUIT DIAGRAM

<Up to 1990 models>



TSB Revision

<From 1.991 models>



Remarks
*1(Up to 1992 models)
*2(From 1993 models)

KX35-AC-H1448-KM

TSB Revision

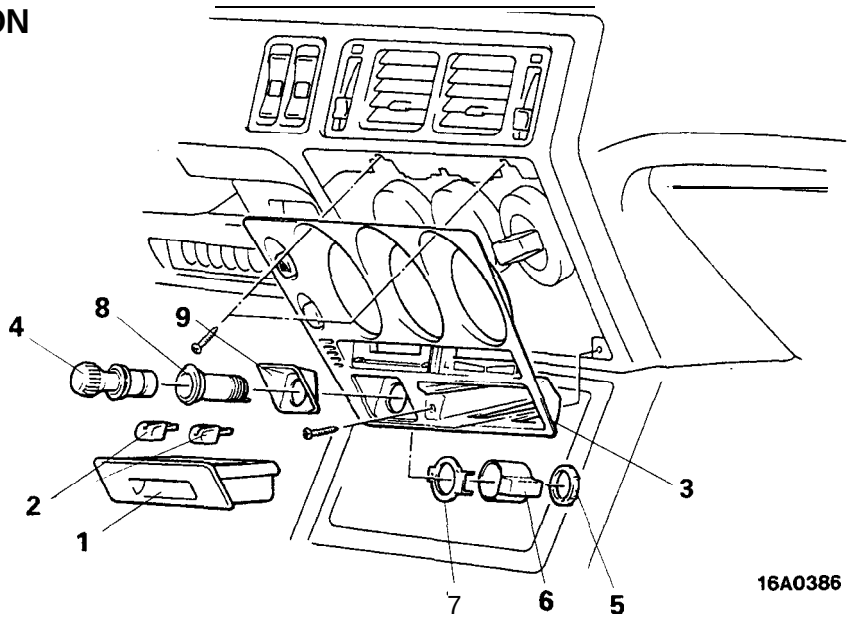
CIGARETTE LIGHTER

M54MJAI

REMOVAL AND INSTALLATION

Removal steps

1. Ashtray
2. Heater control knob
3. Heater panel
4. Plug
5. Fixing ring
6. Socket case
7. Plate
8. Socket
9. Protector



INSPECTION

- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check the continuity of the element.

CAUTIONS FOR USE OF THE CIGARETTE LIGHTER SOCKET AS AUXILIARY POWER SOURCE

1. **When using a "plug-in" type of accessory, do not use anything with a load of more than 120W.**
2. **It is recommended that only the lighter be inserted in the receptacle.**
   Use of "plug-in" type accesories may damage the receptacle and result in poor retention of the lighter.

   NOTE
   The specified load should be strictly observed, because overloaded cord burns the ignition switch and harness.

TSB Revision

CLOCK

SPECIFICATIONS

GENERAL SPECIFICATIONS

M54MB--

Item	Specification
Type	Crystal oscillator
Display method	Fluorescent digital display
Standard error (seconds/day)	±2 [at 20°C (68°F)]

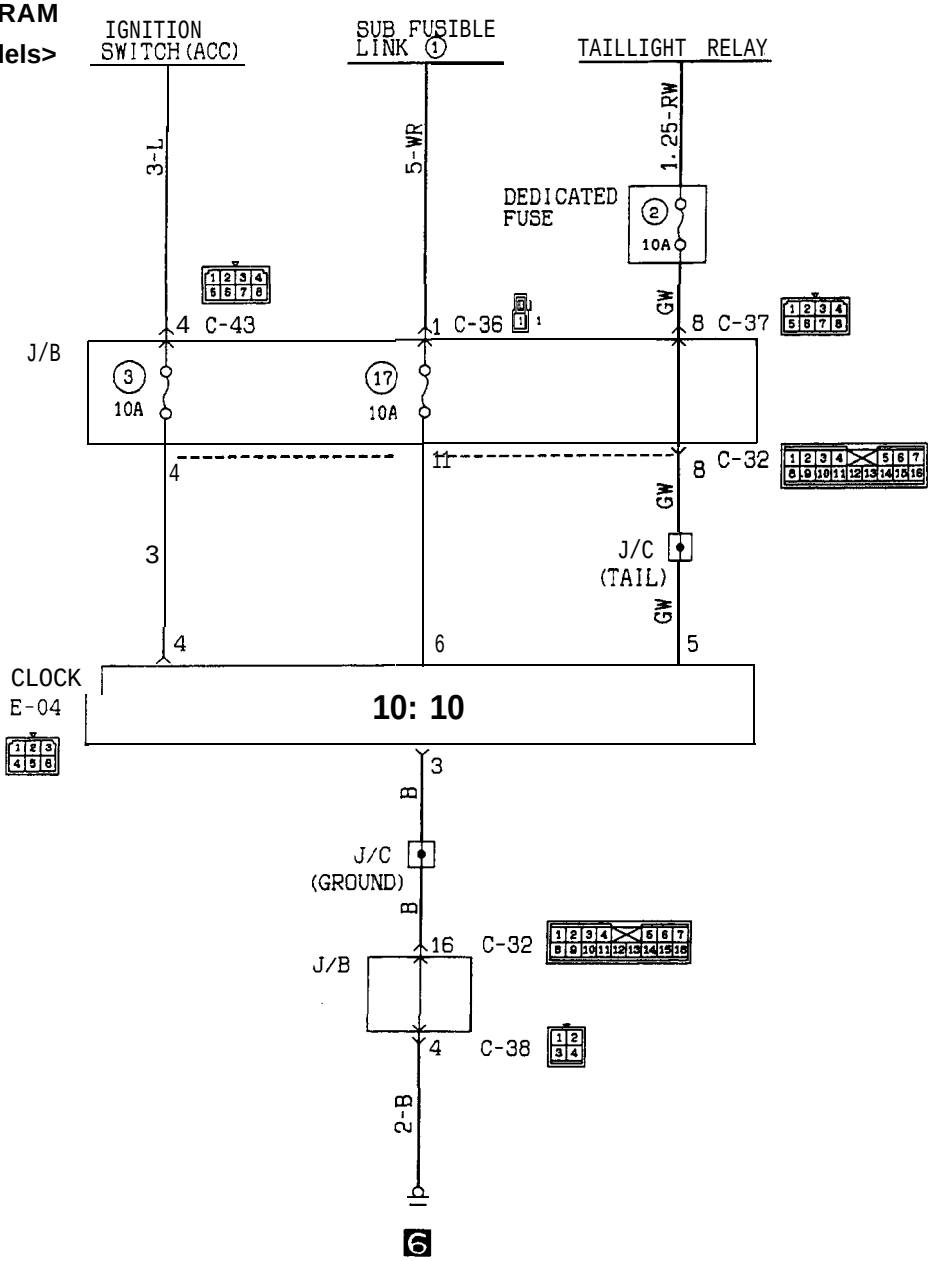
TROUBLESHOOTING

M54MHAEa

CLOCK CIRCUIT

CIRCUIT DIAGRAM

< 1989 models>



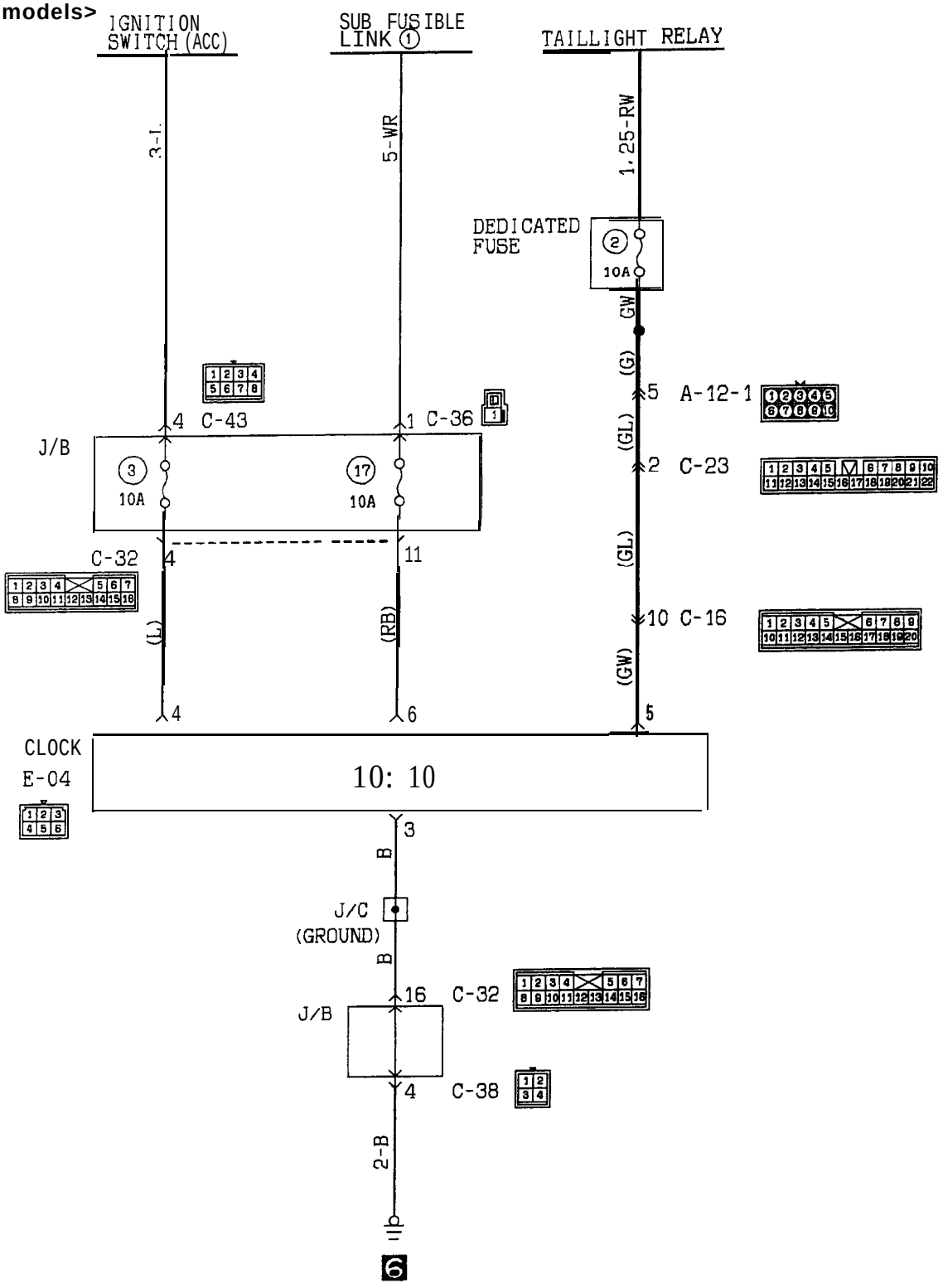
KX35-AC-H1406-N

TSB Revision

CLOCK CIRCUIT

CIRCUIT DIAGRAM

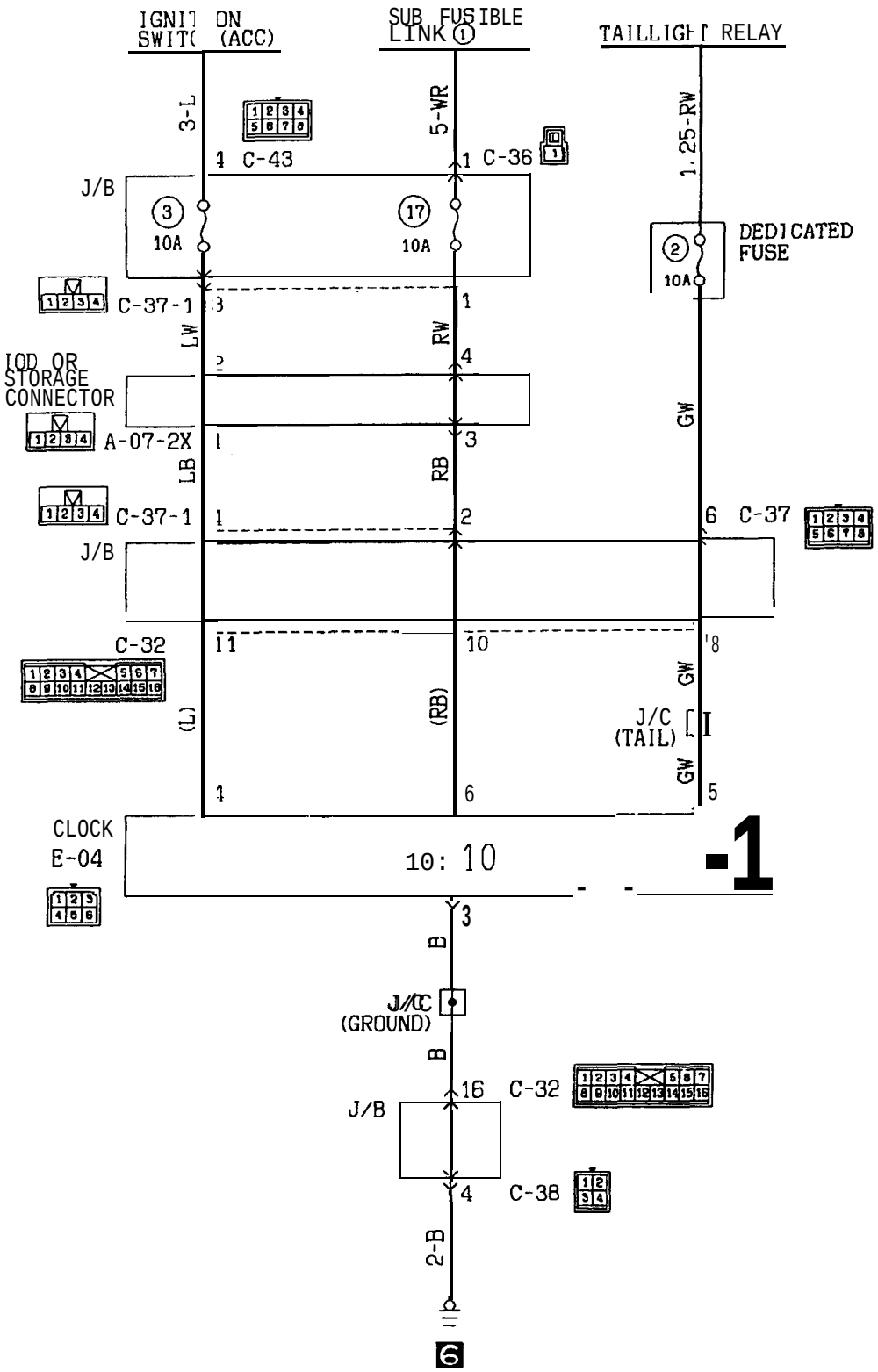
<1990 models>



KX35-AC-H1425-NN

TSB Revision

<From 1991 models>



KX35-AC-H1443-NN

AUDIO SYSTEM

SPECIFICATIONS

TORQUE SPECIFICATIONS

M54ND--

items	Nm	ft.lbs.
Motor antenna ring nut	1.5-2.5	1.1-1.8
Pole antenna mast	5-6	3.7-4.3

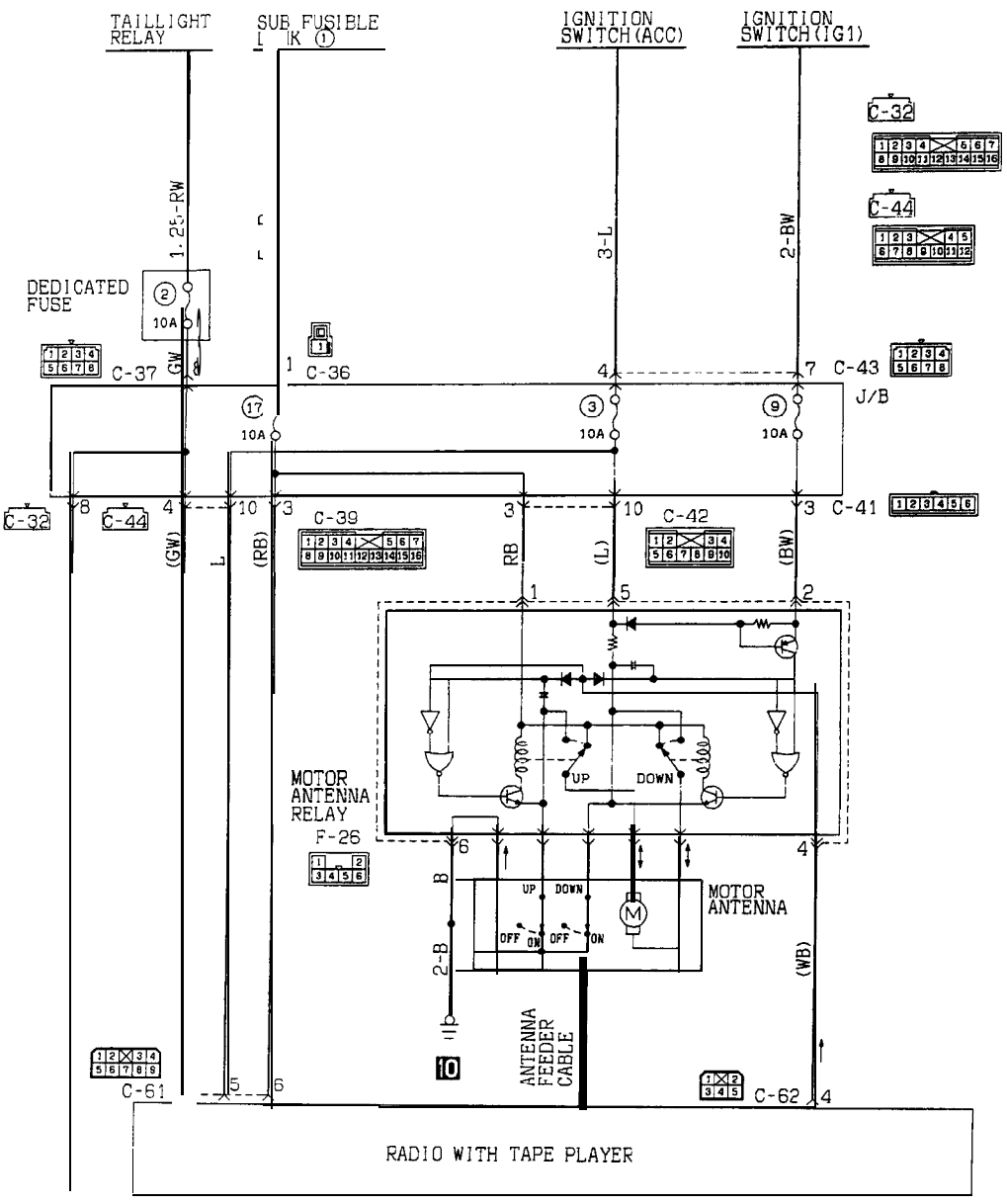
TROUBLESHOOTING

M54NHAQb

AUDIO SYSTEM

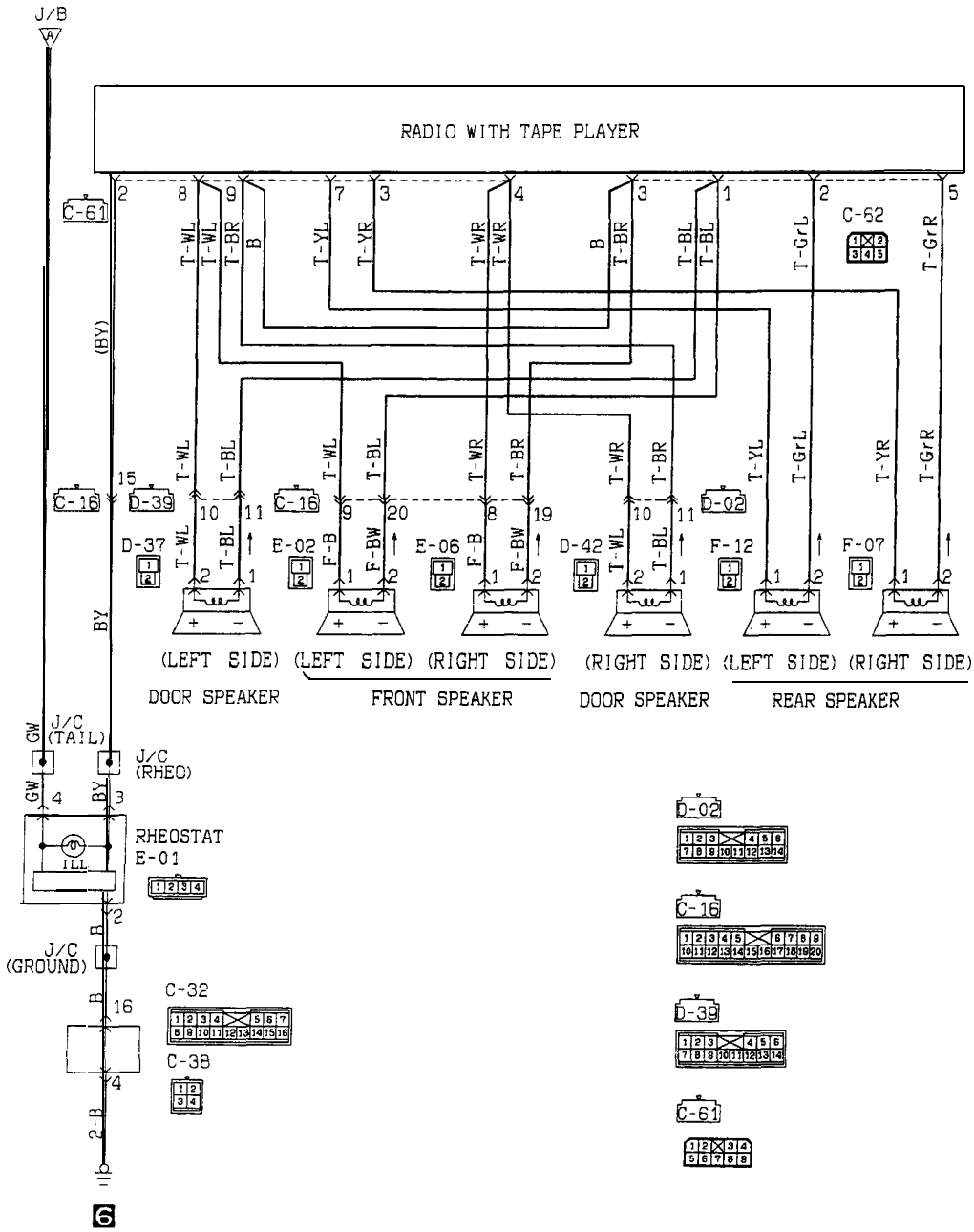
CIRCUIT DIAGRAM

<Vehicles without CD player (1989 models)>



35-AC-H1422-NM

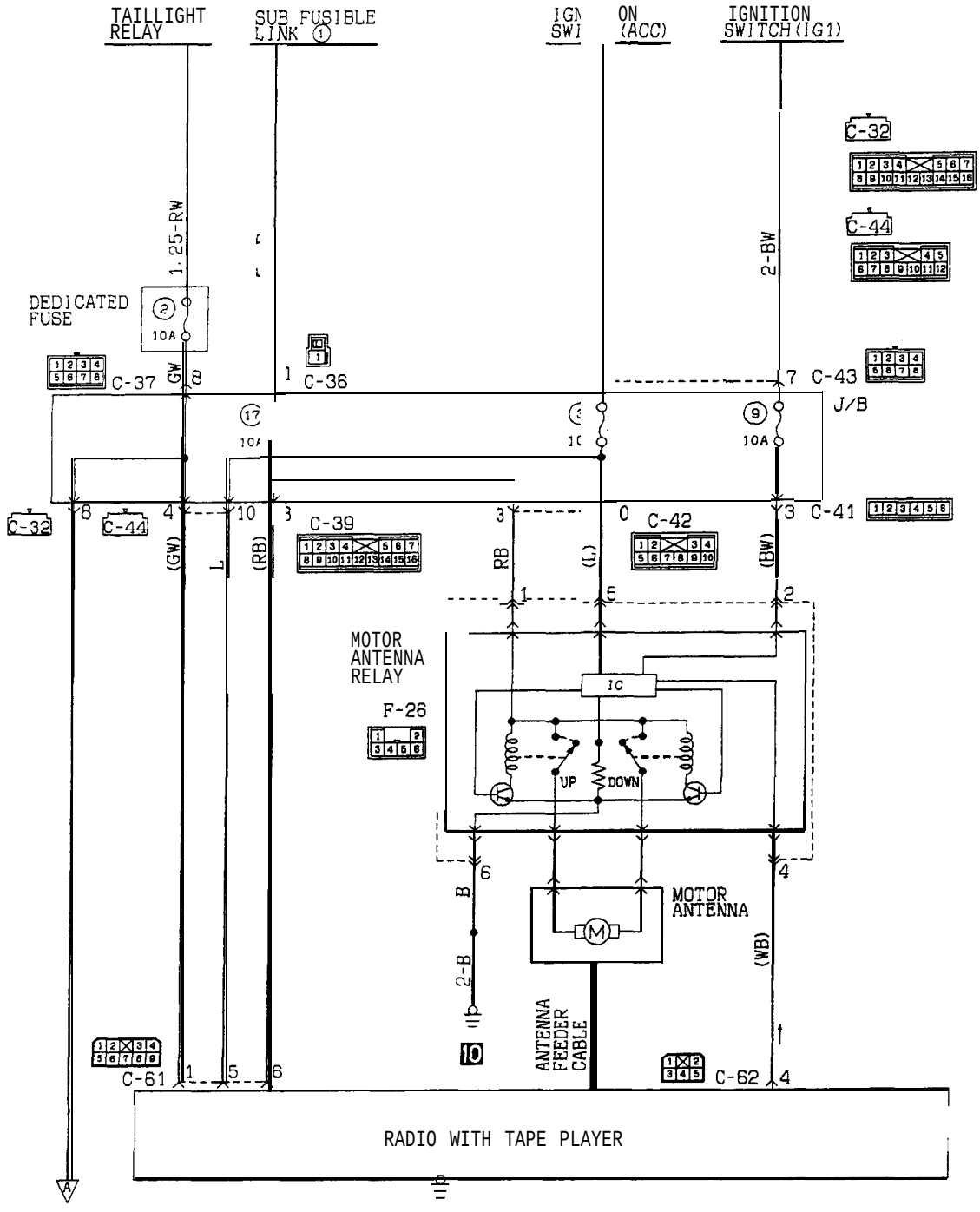
TSB Revision


J/B
RADIO WITH TAPE PLAYER
C-61
C-62
C-16
D-39
D-37
E-02
E-06
D-42
D-02
F-12
F-07
(LEFT SIDE) (LEFT SIDE) (RIGHT SIDE) (RIGHT SIDE) (LEFT SIDE) (RIGHT SIDE)
DOOR SPEAKER
FRONT SPEAKER
DOOR SPEAKER
REAR SPEAKER
J/C (TAIL)
J/C (RHEO)
RHEOSTAT E-01
ILL
J/C (GROUND)
C-32
C-38
6

AUDIO SYSTEM

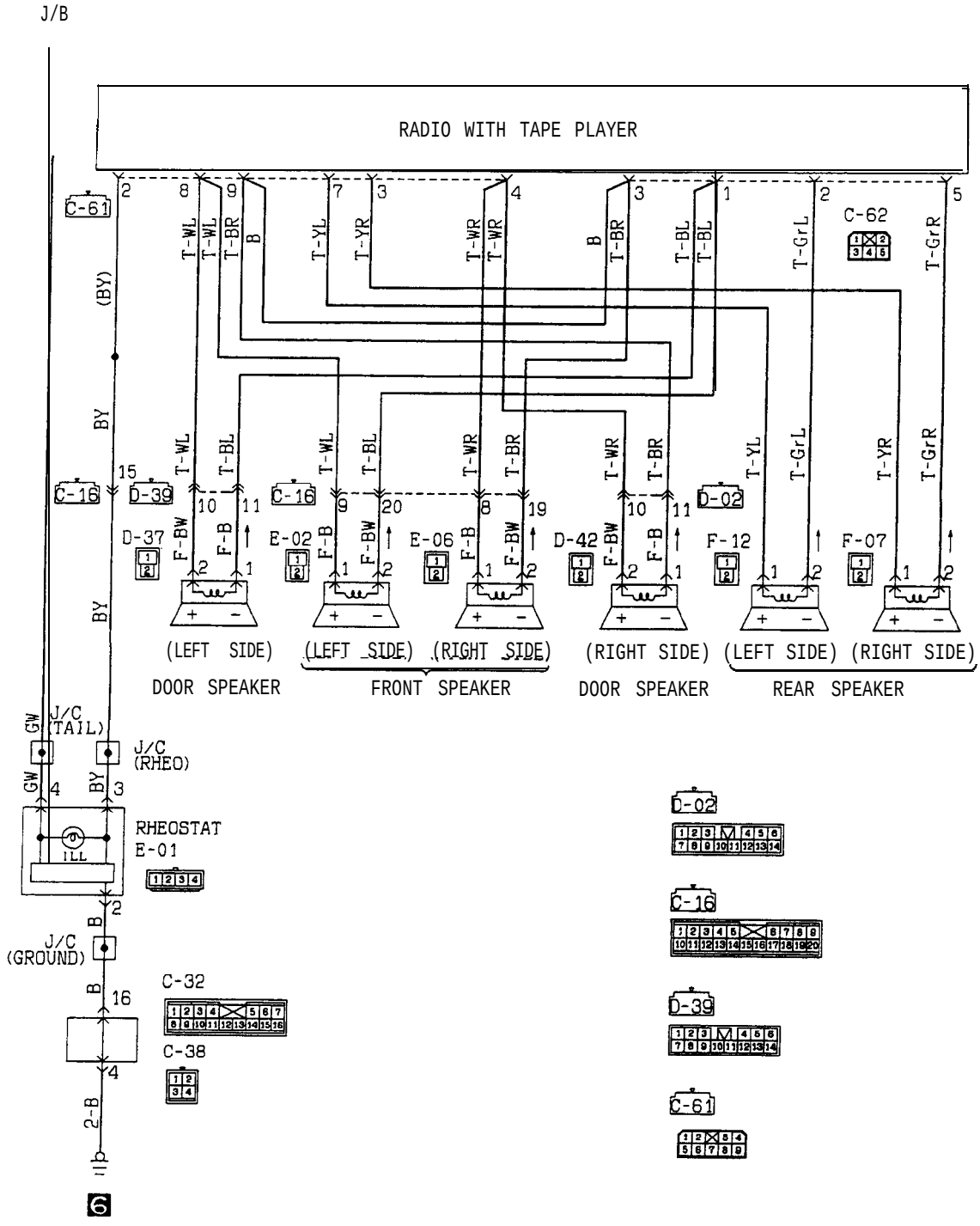
CIRCUIT DIAGRAM

<Vehicles without CD player (1990 models)>



KX35-AC-H1423-NM

TSB Revision

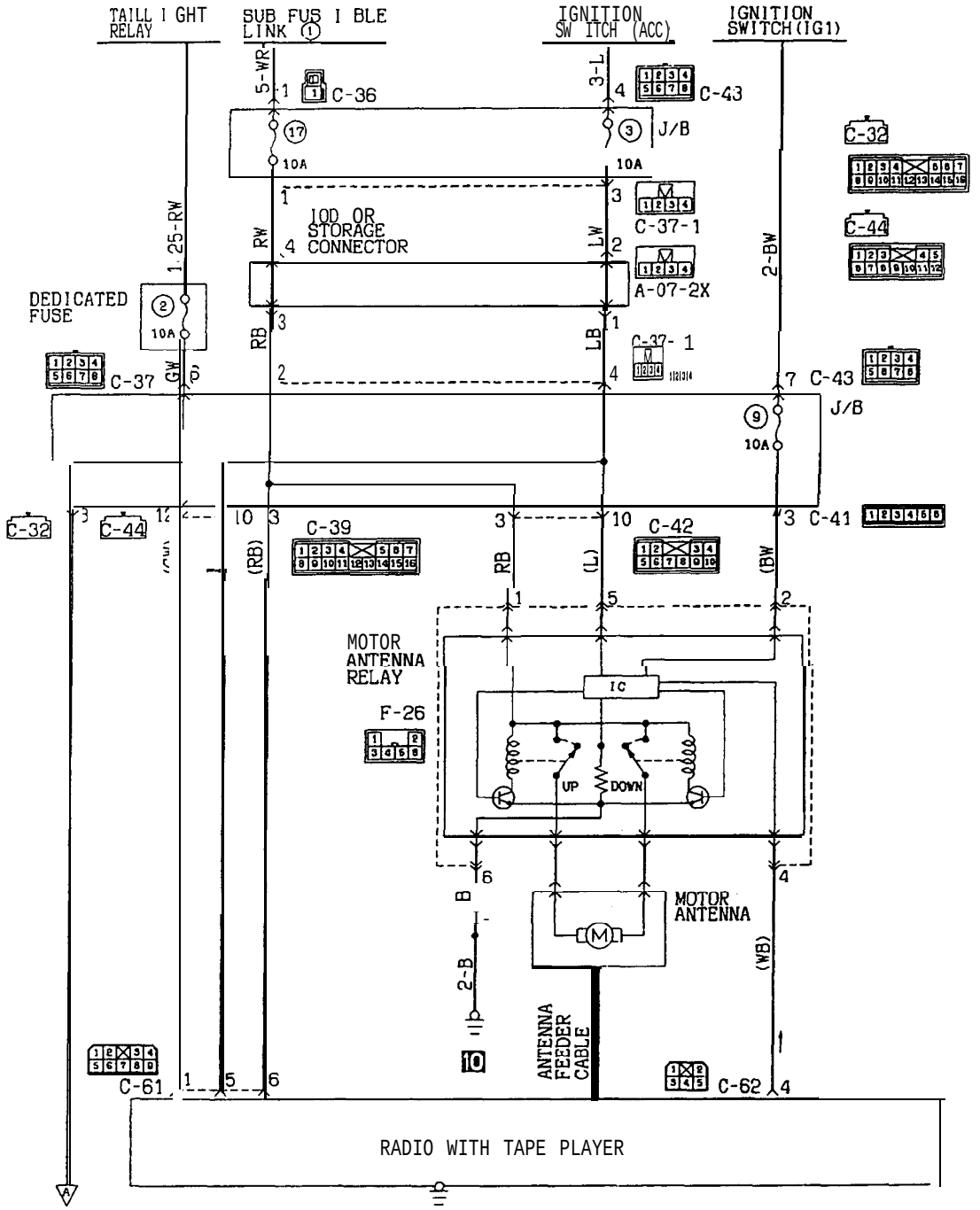


TSB Revision

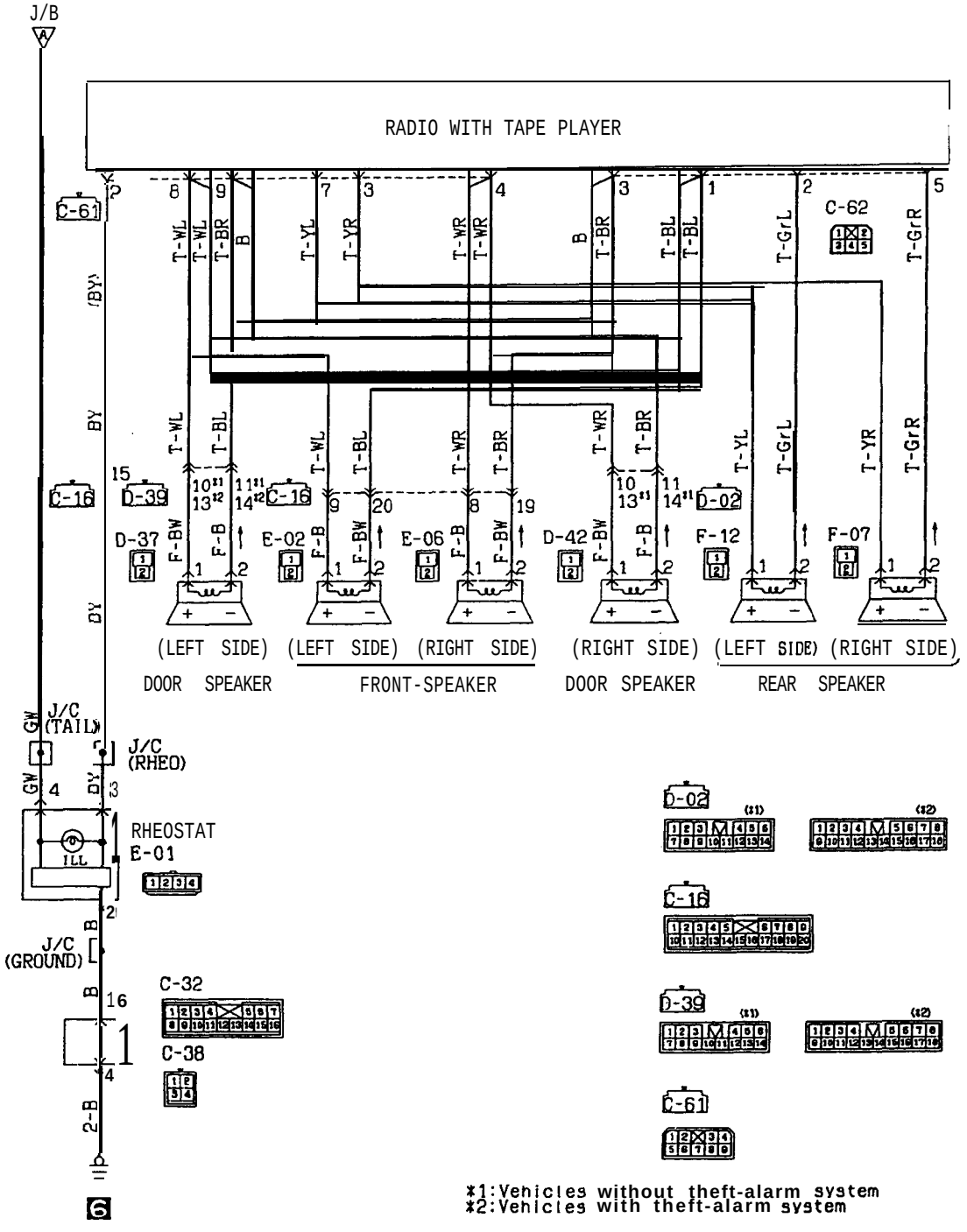
AUDIO SYSTEM

CIRCUIT DIAGRAM

<Vehicles without CD player (1991 and 1992 models)>



TSB Revision

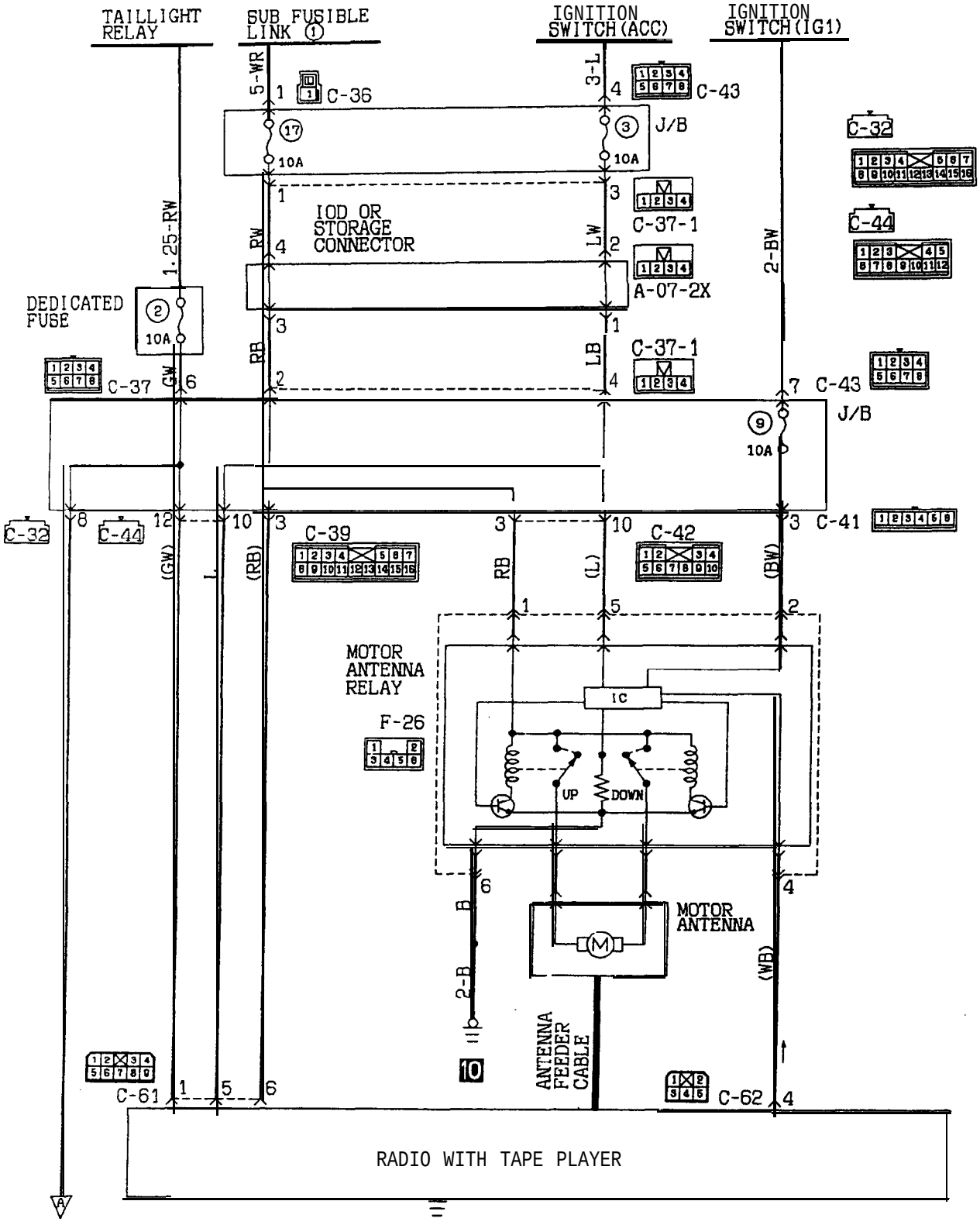


TSB Revision

AUDIO SYSTEM

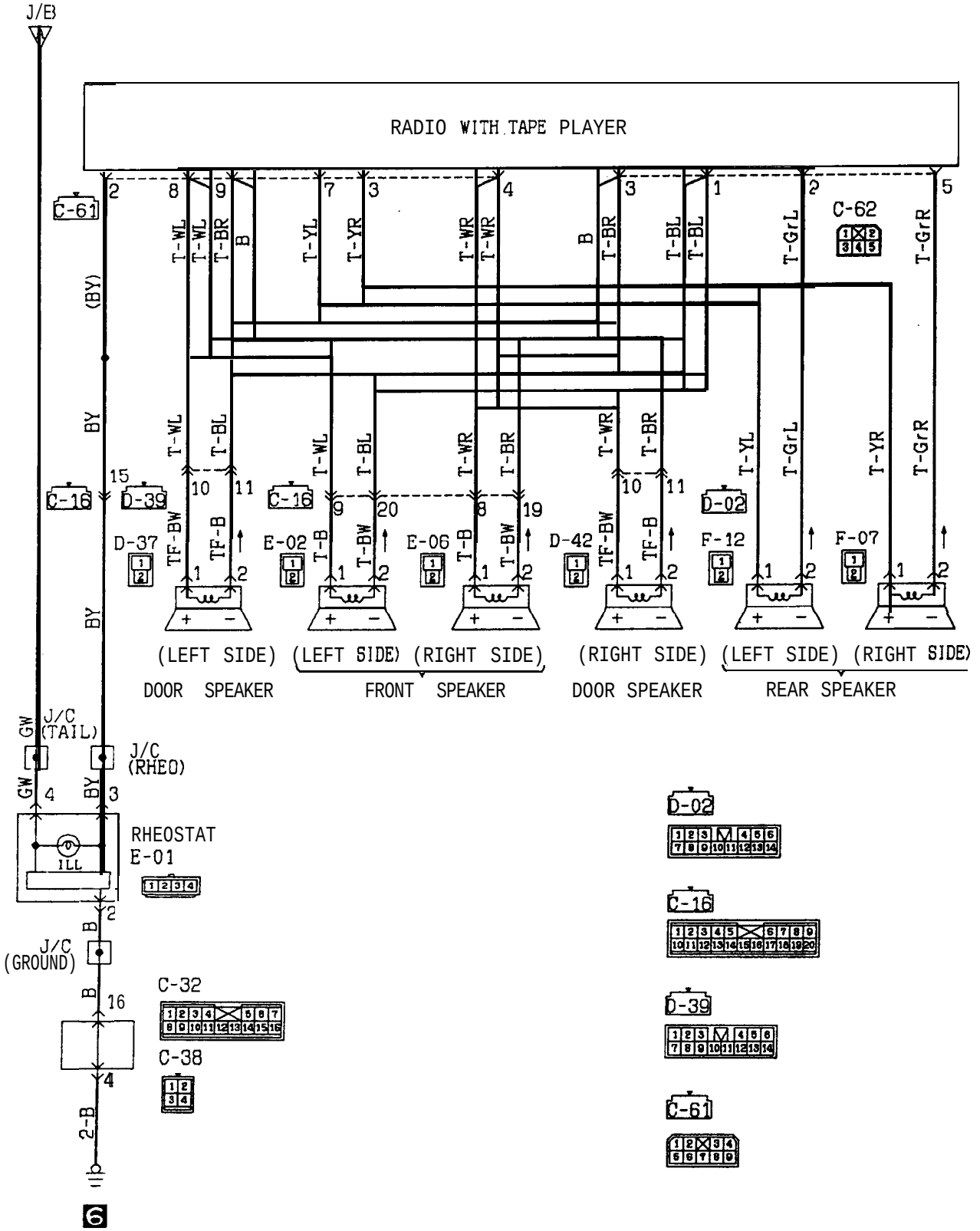
CIRCUIT DIAGRAM

<Vehicles without CD player (From 1993 models)>



XX35-AC-H1447-NN

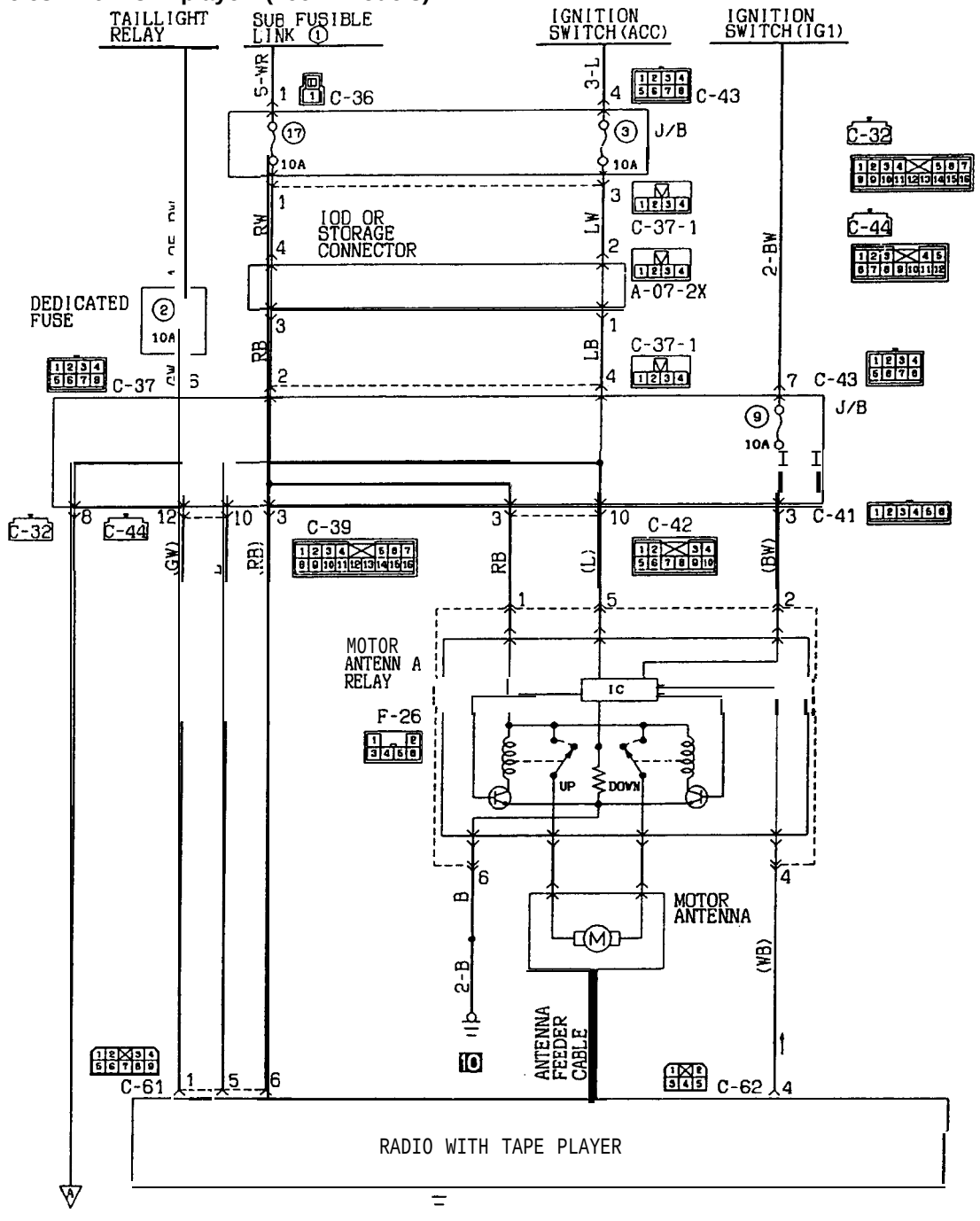
TSB Revision


J/B
RADIO WITH TAPE PLAYER
C-61
C-62
C-16
D-39
D-37
E-02
E-06
D-42
D-02
F-12
F-07
(BY)
BY
T-WL
T-BL
T-BR
B
T-YL
T-YR
T-WR
T-GrL
T-GrR
TF-BW
TF-B
T-B
T-BW
(LEFT SIDE) DOOR SPEAKER
(LEFT SIDE) (RIGHT SIDE) FRONT SPEAKER
(RIGHT SIDE) DOOR SPEAKER
(LEFT SIDE) (RIGHT SIDE) REAR SPEAKER
J/C (TAIL)
J/C (RHEO)
GW
RHEOSTAT E-01
ILL
J/C (GROUND)
C-32
C-38
2-B
6

AUDIO SYSTEM

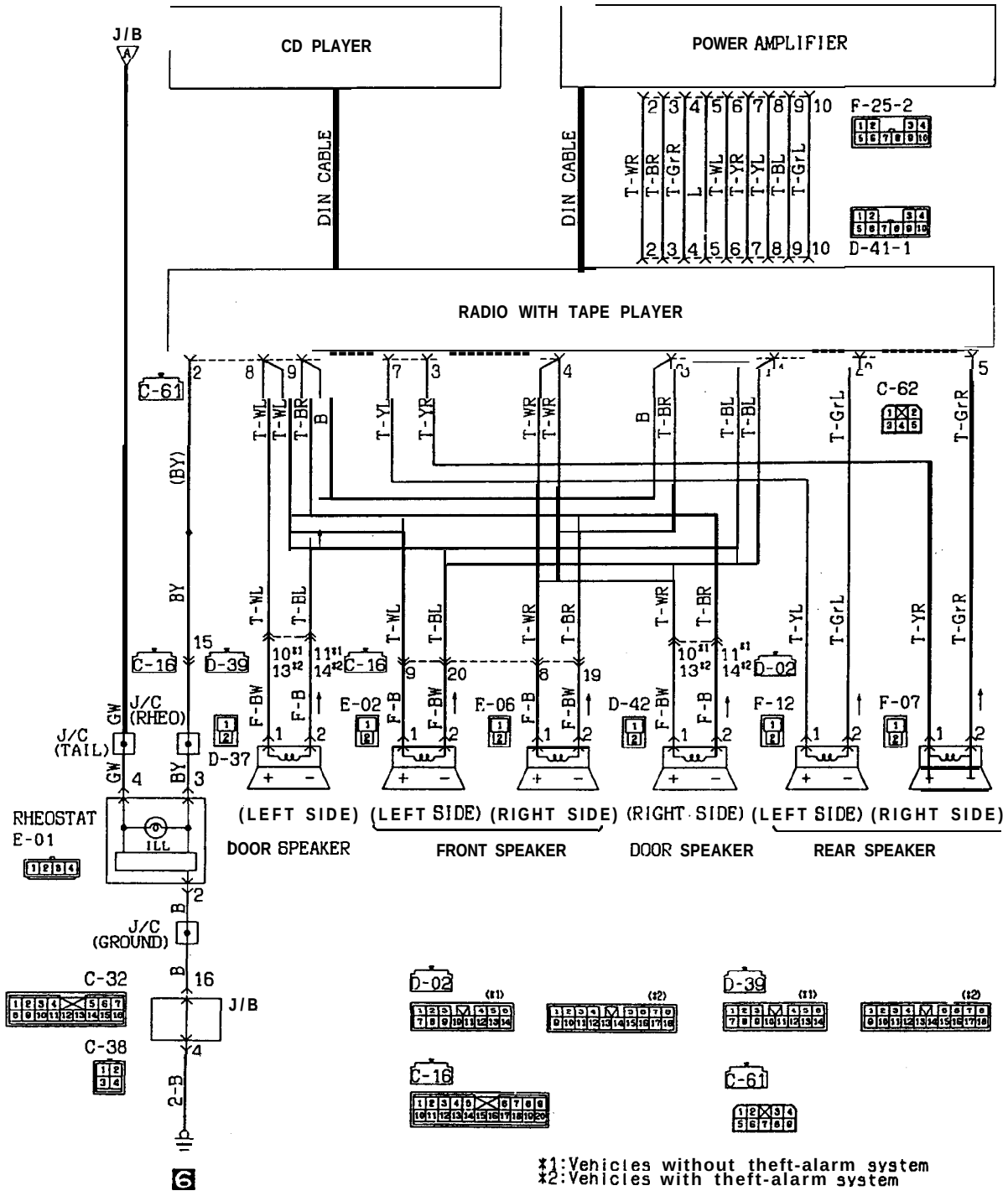
CIRCUIT DIAGRAM

<Vehicles with CD player (1991 models)>



KX35-AC-H1444-NX

TSB Revision

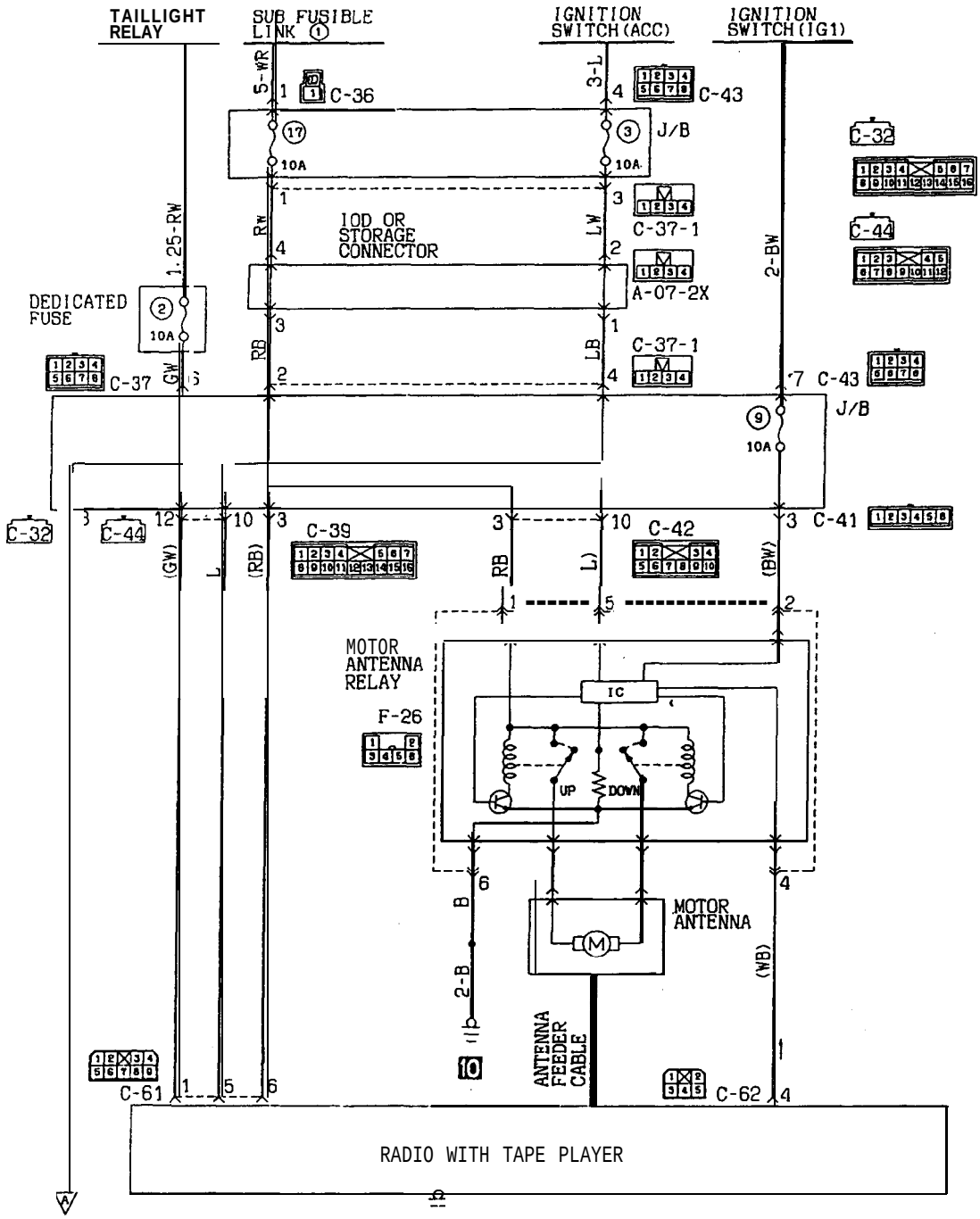


TSB Revision

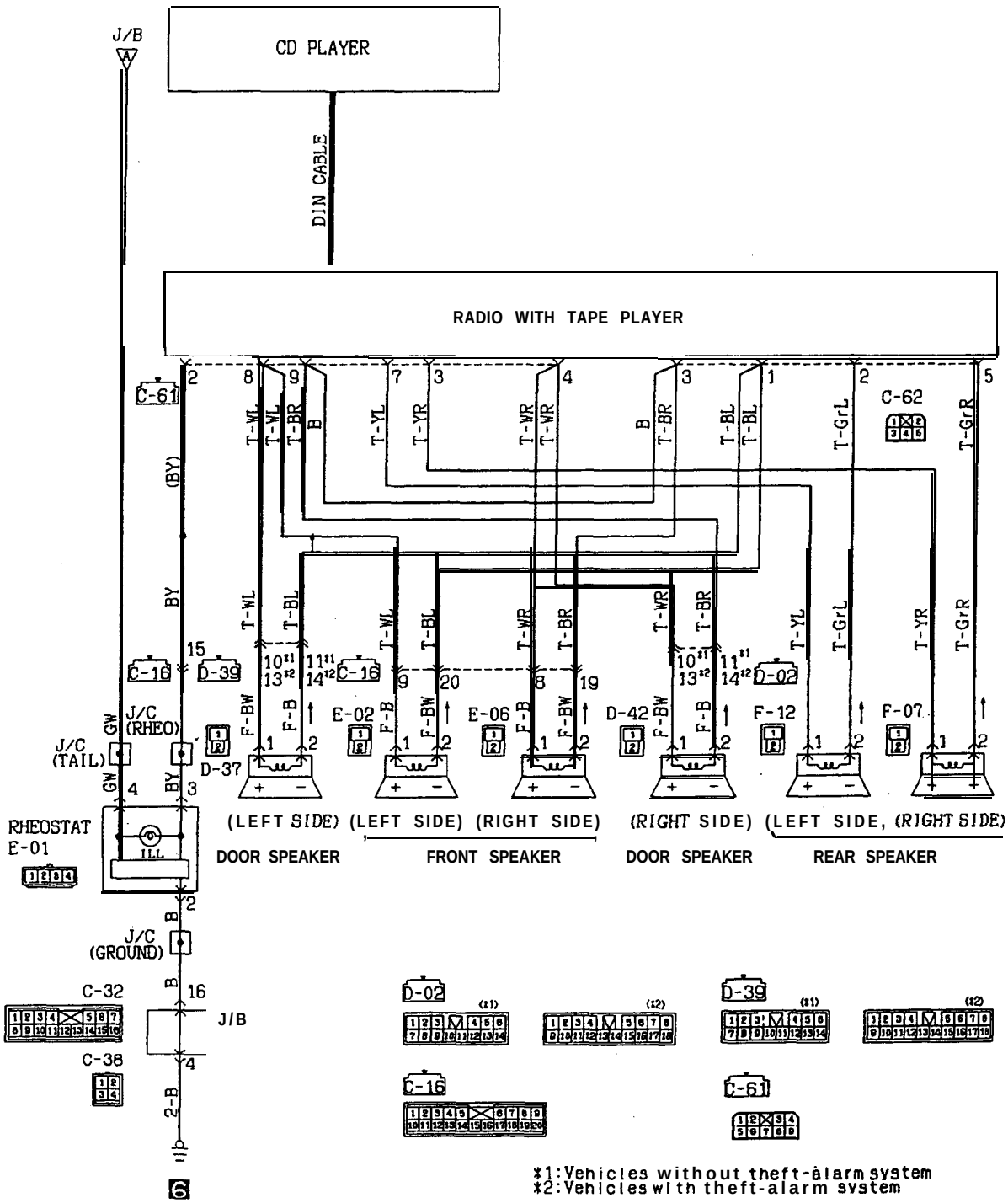
AUDIO SYSTEM

CIRCUIT DIAGRAM

<Vehicles with CD player (1992 models)>



TSB Revision



OPERATION

- When the radio power switch. is turned on with the ignition switch at “ACC” or “ON”, current flows through fuse No.3 radio, and ground, causing the radio to operate.
- For an electronically tuned radio, battery voltage is always supplied for use of the memory and other functions in the radio.

TSB Revision

TROUBLESHOOTING CHART

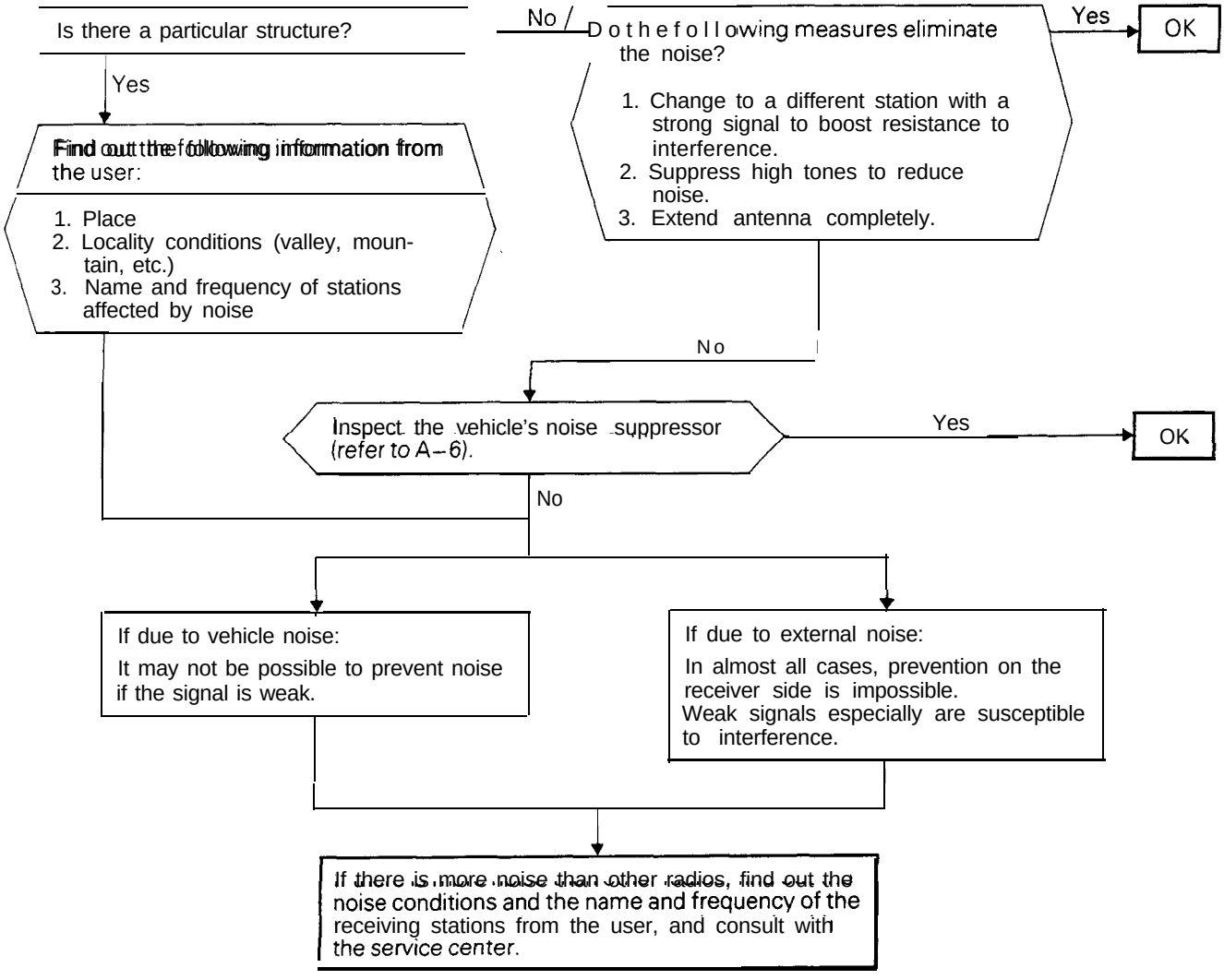
Item	Problem symptom	Relevant chart
A. Noise	1. Noise appears at certain places when traveling (AM).	A - I
	2. Noise appears at certain places when traveling (FM).	A–2
	3. Mixed with noise, only at night (AM).	A–3
	4. Broadcasts can be heard but both AM and FM have a lot of noise.	A–4
	5. There is more noise either on AM or on FM.	A–5
	6. There is noise when starting the engine.	A–6
	7. Some noise appears when there is vibration or shocks during traveling.	A–7
	8. Noise sometimes appears on FM during traveling.	A–8
	9. Ever-present noise.	A–9
B. Radio	1. No sound.	B - I
	2. No sound from one speaker.	B–2
	3. There is noise but no reception for both AM and FM.	B–3
	4. No sound from AM, or no sound from FM.	B–4
	5. Insufficient sensitivity.	B–5
	6. Distortion on AM or on both AM and FM.	B–6
	7. Distortion on FM only.	B–7
	8. Too few automatic select stations.	B–8
	9. Insufficient memory (preset stations are erased).	B–9
C. Cassette player	1. Cassette tape will not insert.	C–1
	2. No sound.	C–2
	3. No sound from one speaker.	C–3
	4. Sound quality is poor, or sound is weak.	C–4
	5. Cassette tape will not eject.	C–5
	6. Uneven revolution. Tape speed is fast or slow.	C–6
	7. Automatic search does not work (only for models with automatic search function).	C–7
	8. Faultv auto reverse.	C–8
	9. Tape gets caught in mechanism.	C–9
D. CD player	1. CD will not be accepted.	D - I
	2. No sound.	D–2
	3. CD sound skips.	D–3
	4. Sound quality is poor.	D–4
	5. CD will not be ejected.	D–5
	6. No sound from one speaker.	D–6
E. Motor antenna	1. Motor antenna won't extend or retract.	E–1
	2. Motor antenna extends and retracts but does not receive.	E–2

TSB Revision

CHART

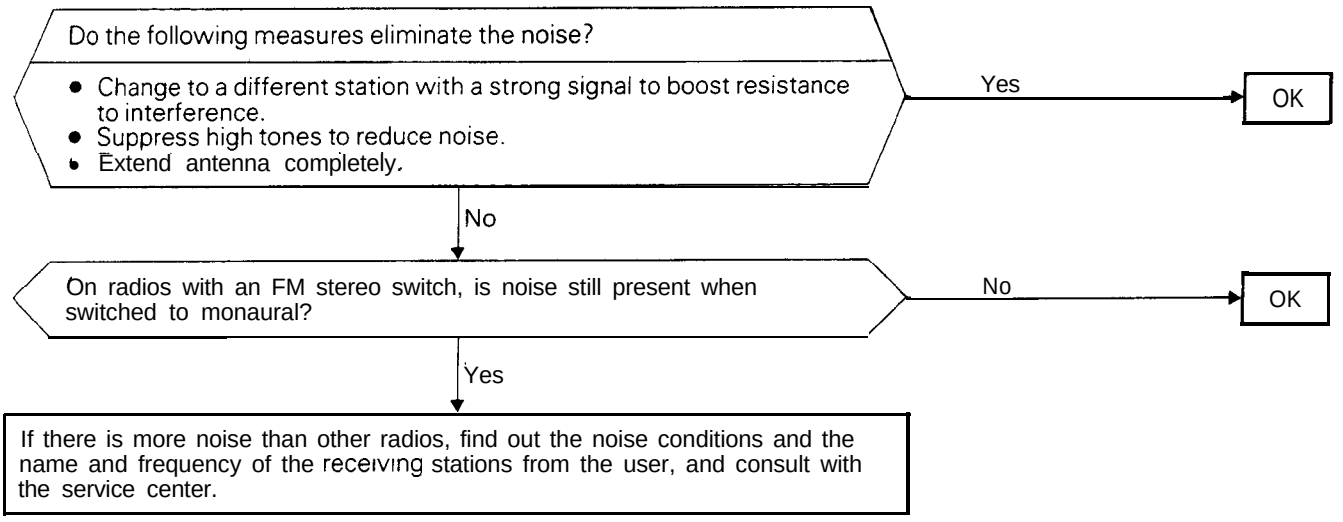
A. NOISE

A-l Noise appears at certain places when traveling (AM).



TSB Revision

A–2 Noise appears at certain places when traveling (FM).



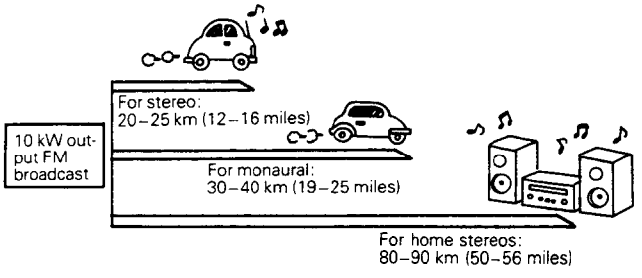
NOTE

About FM waves:

FM waves have the same properties as light, and can be deflected and blocked. Wave reception is not possible in the shadow of obstructions such as buildings or mountains.

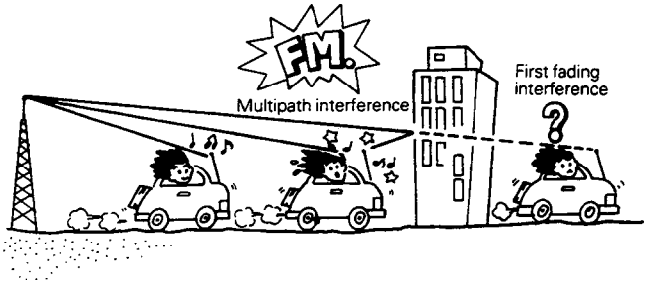
1. The signal becomes weak as the distance from the station's transmission antenna increases. Although this may vary according to the signal strength of the transmitting station and intervening geographical formations or buildings, the area of good reception is approx. 20–25 km (12–16 miles) for stereo reception, and 30–40 km (19-25 miles) for monaural reception.
2. The signal becomes weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains or buildings between the antenna and the car), and noise will appear. <This is called first fading, and gives a steady buzzing noise.>
3. If a direct signal hits the antenna at the same time as a signal reflected by obstructions such as mountains or buildings, interference of the two signals will generate noise. During traveling, noise will appear each time the vehicle's antenna passes through this kind of obstructed area. The strength and interval of the noise varies according to the signal strength and the conditions of deflection. <This is called multipath noise, and is a repetitious buzzing.>
4. Since FM stereo transmission and reception has a weaker field than monaural, it is often accompanied by a hissing noise.

FM Broadcast Good Reception Areas



16A0663

FM Signal Characteristics and Signal Interference



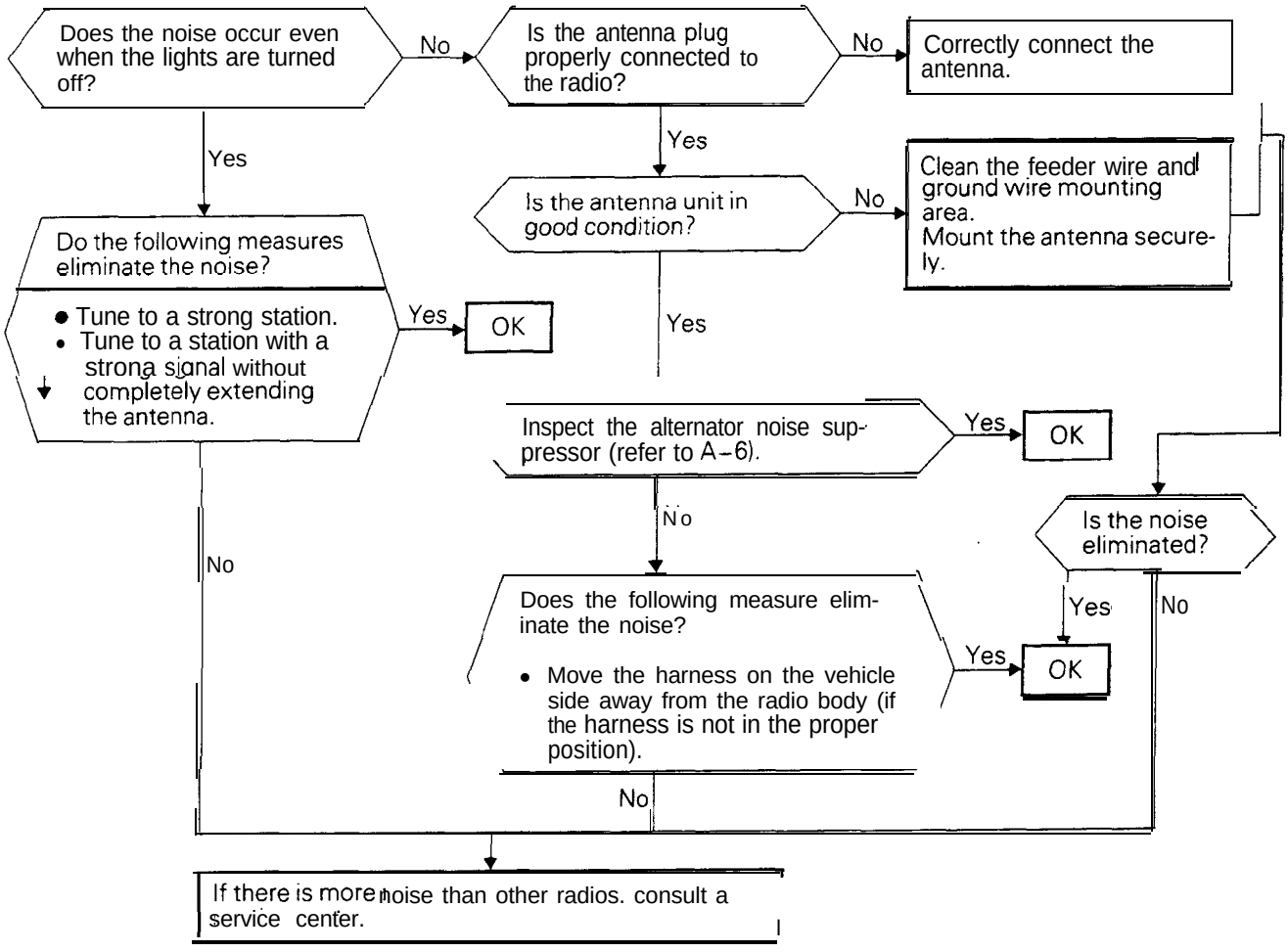
1610664

TSB Revision

A–3 Mixed with noise, only at night (AM).

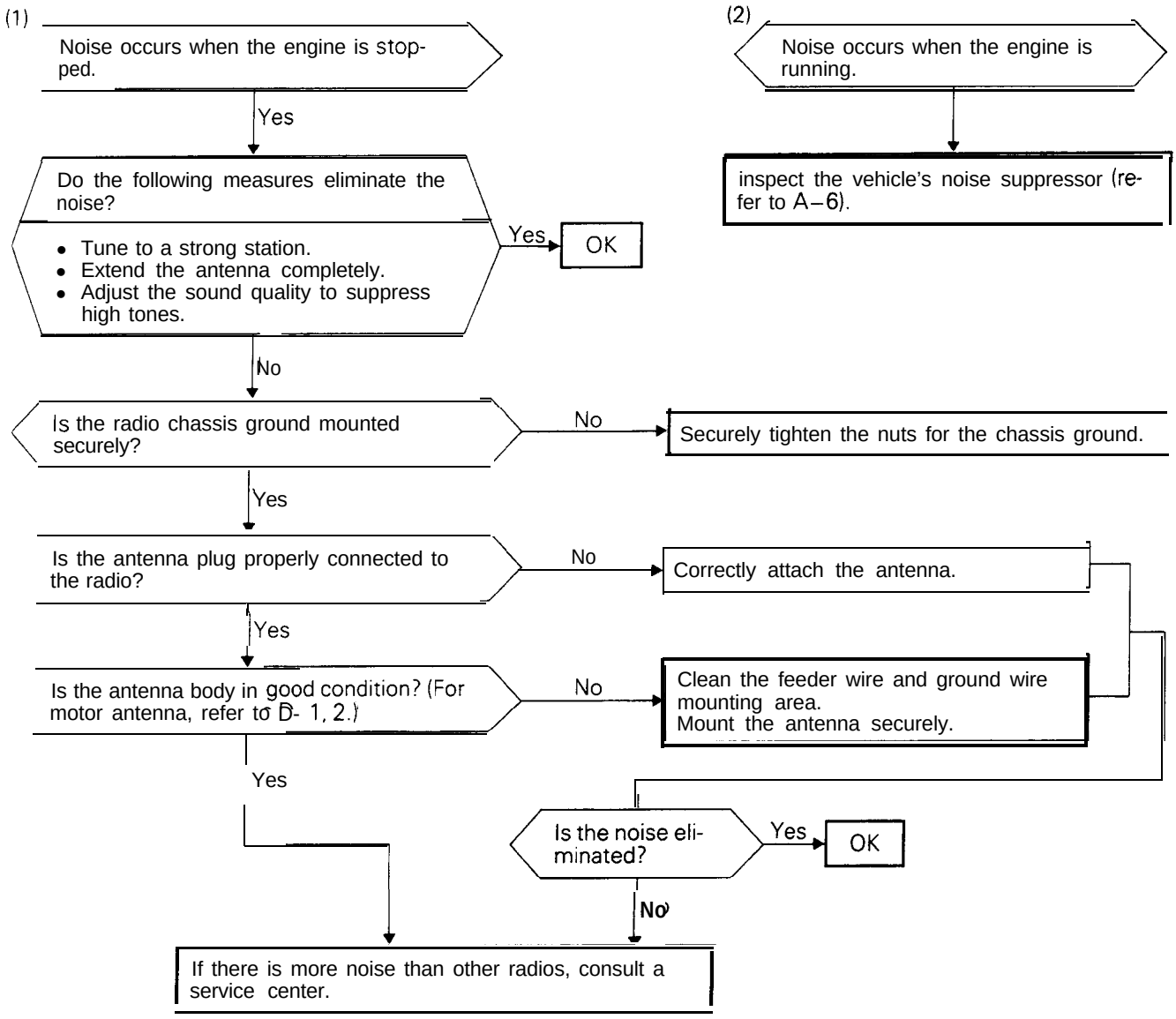
The following factors can be considered as possible causes of noise appearing at night.

1. Factors due to signal conditions:
   Due to the fact that long-distance signals are more easily received at night, even stations that are received without problem during the day may experience intereference in a general worsening of reception conditions The weaker a station is the more susceptible it is to interference, and a change to a different station or the appearance of a beating sound* may occur.
   *Beat sound: Two signals close in frequency interfere with each other, creating a repetitious high-pitched sound. This sound is generated not only by sound signals but by electrical waves as well.
2. Factors due to vehicle noise:
   Alternator noise may be a cause.



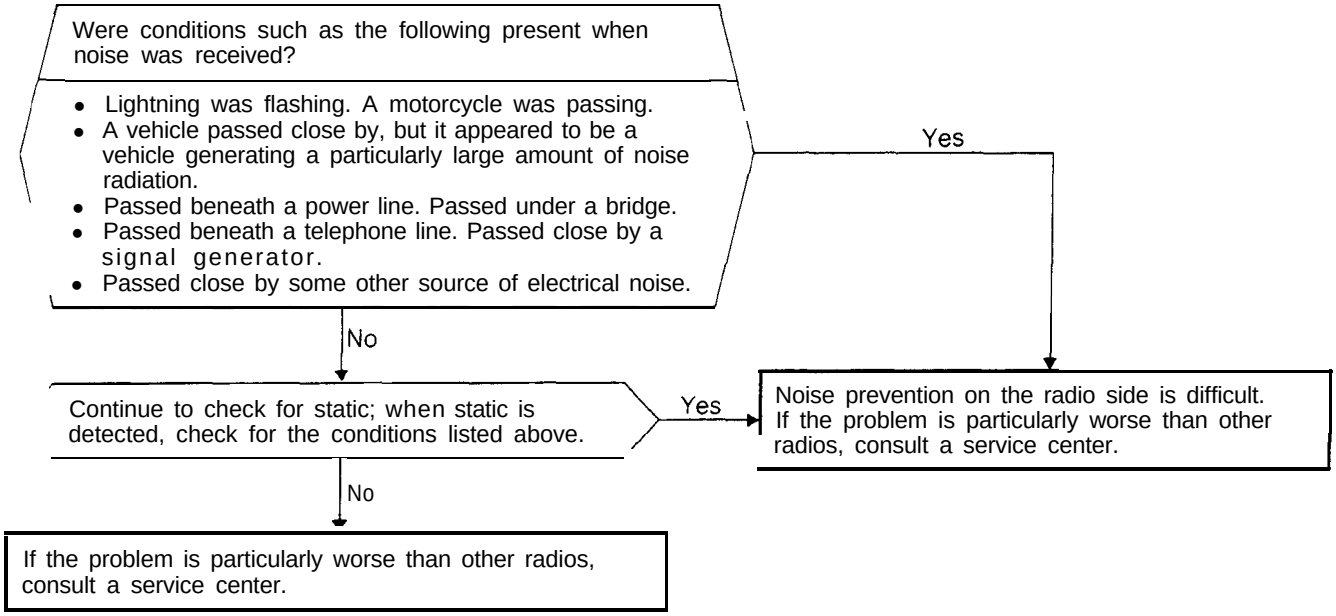
TSB Revision

A–4 Broadcasts can be heard but both AM and FM have a lot of noise.



A–5 There is more noise either on AM or on FM.

1. There is much noise only on AM
Due to differences in AM and FM systems, AM is more susceptible to noise interference.



2. There is much noise only on FM
Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lightning, etc. On the other hand, there are cases due to the characteristics of FM waves of noise or distortion generated by typical noise interference (first fading and multipath). (Refer to A–2.)
<Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>

TSB Revision

A–6 There is noise when starting the engine.

Noise type Sounds are in parenthese [ ].	Conditions	Cause	Response
AM, FM: Ignition noise [Popping, Snapping, Cracking, Buzzing]	• Increasing the engine speed causing the popping sound to speed up, and volume decreases. • Disappears when the ignition switch is turned to ACC.	• Mainly due to the spark plugs. • Due to the engine noise.	• Noise filter • Noise condenser • Ground cable
Other electrical components	–	Noise may appear as electrical components become older.	Repair or replace electrical components.
Static electricity [Cracking, Crinkling]	• Disappears when the vehicle is completely stopped. • Severe when the clutch is engaged.	Occurs when parts or wiring move for some reason and contact metal parts of the body.	Return parts or wiring to their proper position.
	• Various noises are produced depending on the body part of the vehicle.	Due to detachment from the body of the front hood, bumpers, exhaust pipe and muffler, suspension, etc.	Ground parts by bonding. Cases where the problem is not eliminated by a single response to one area are common, due to several body parts being imperfectly grounded.

Caution

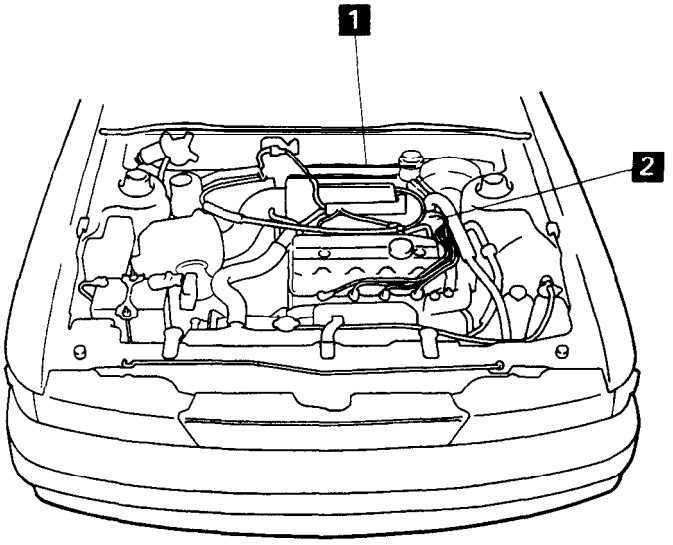
1. **Connecting a high tension cable to the noise filter may destroy the noise filter and should never be done.**
2. **Check that there is no external noise. Since failure due this may result in misdiagnosis due to inability to identify the noise source, this operation must be performed.**
3. **Noise prevention should be performed by suppressing strong sources of noise step by step.**

NOTE

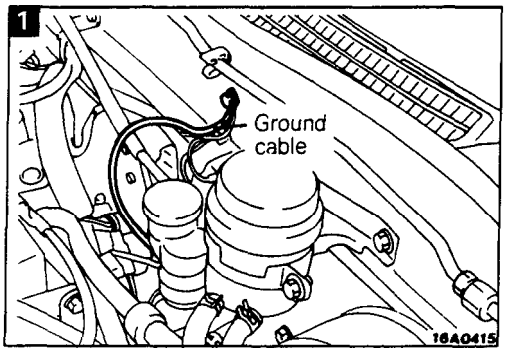
1. Condenser
   The condenser does not pass **D.C.** current, but as the number of waves increases when it passes A.C. current, impedance (resistance against A.C.) decreases, and current flow is facilitated. A noise suppressing condenser which takes advantage of this property is inserted between the power line for the noise source and the ground. This suppresses noise by grounding the noise component (A.C. or pulse signal) to the body of the vehicle.
2. Coil
   The coil passes D.C. current, but impedance rises as the number of waves increases relative to the A.C. current. A noise suppressing coil which takes advantage of this property is inserted into the power line for the noise source, and works by preventing the noise component from flowing or radiating out of the line.

NOISE SUPPRESSOR LOCATION

<SOHC>

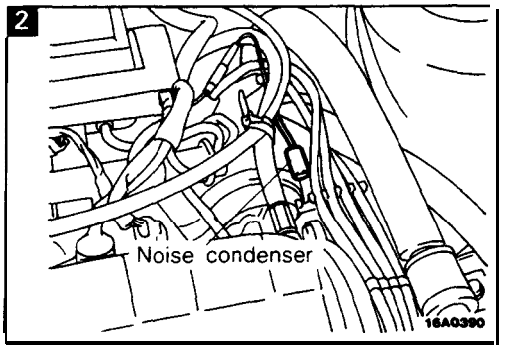


16A0483



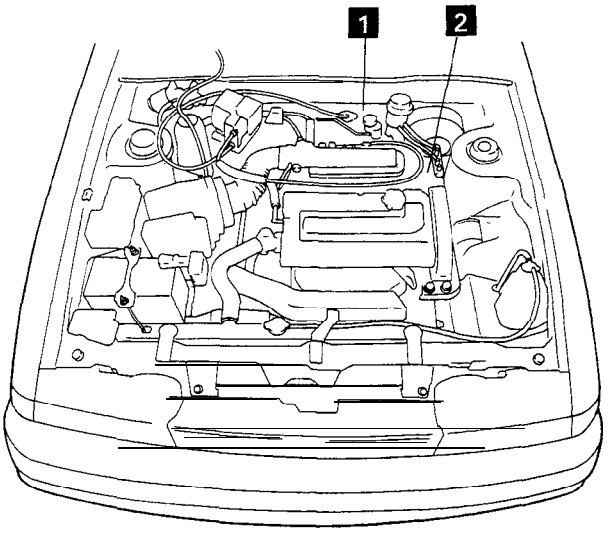
16A0415

Models equipped with the AM/FM radio

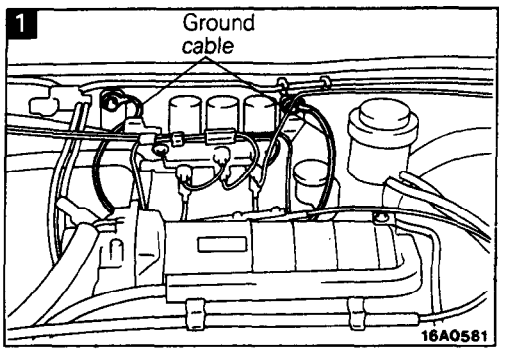


16A0390

<DOHC>

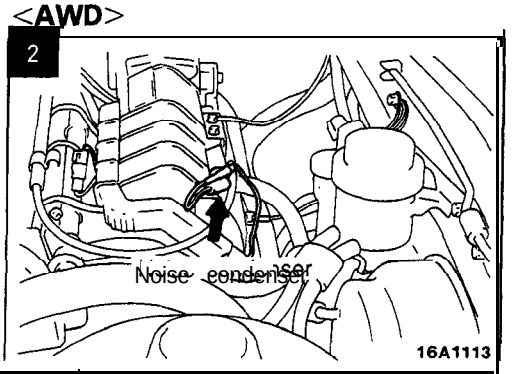


07A0035



16A0581

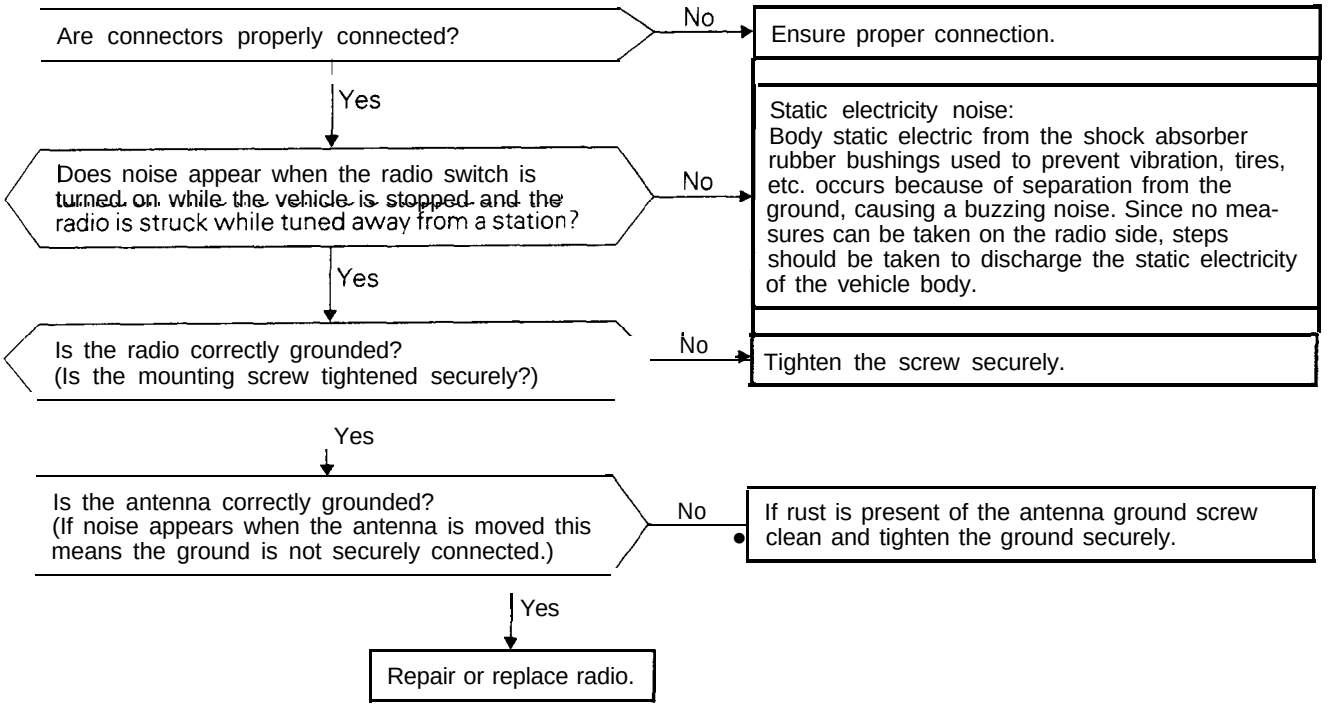
<AWD>



16A1113

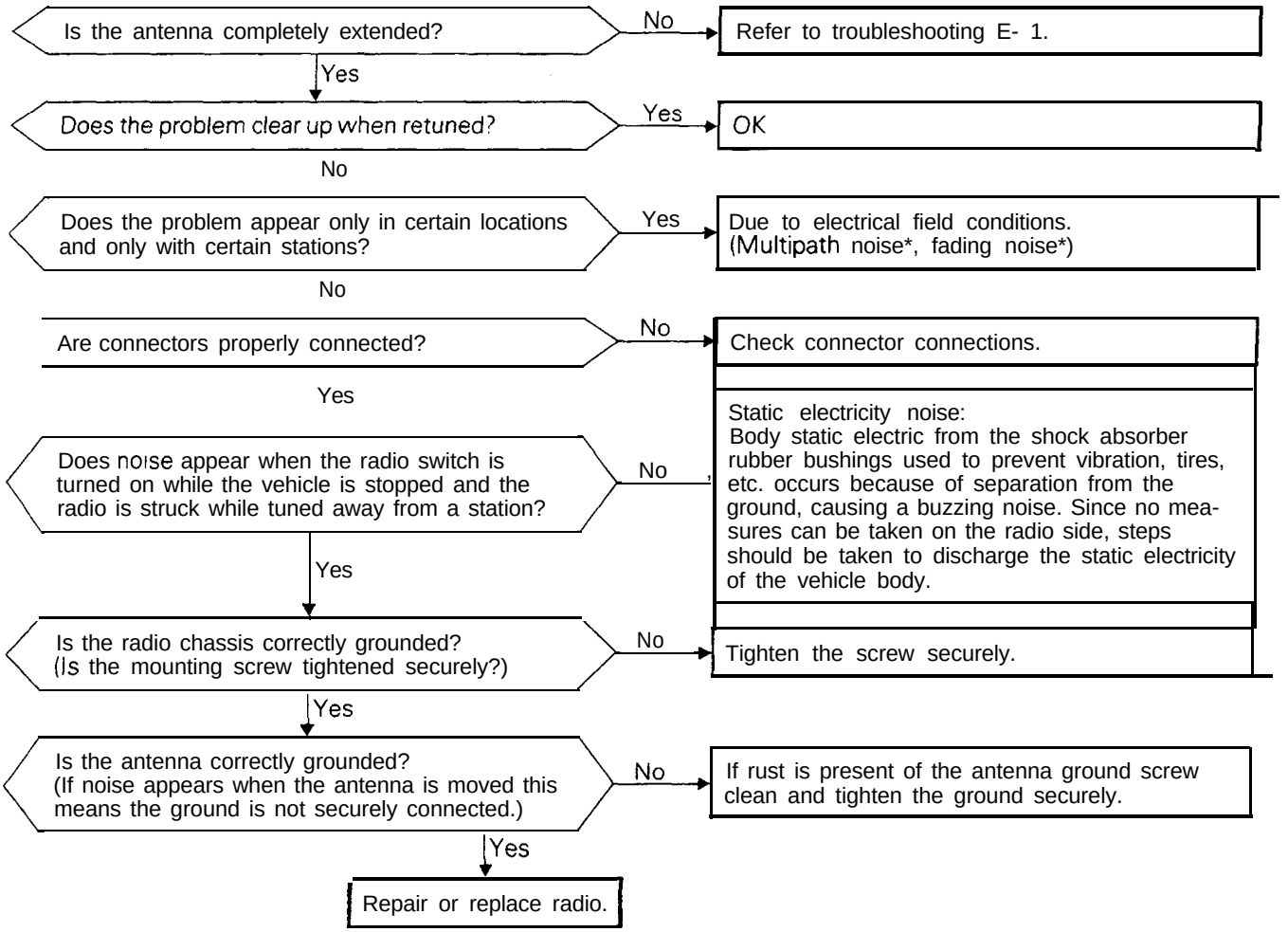
TSB Revision

A–7 Some noise appears when there is vibration or shocks during traveling.



TSB Revision

A–8 Noise sometimes appears on FM during traveling.



*About multipath noise and fading noise

Because the frequency of FM waves is extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.

- Multipath noise
  This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the dierct signal (repetitious buzzing).
- Fading noise
  This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.

TSB Revision

A–9 Ever-present noise.

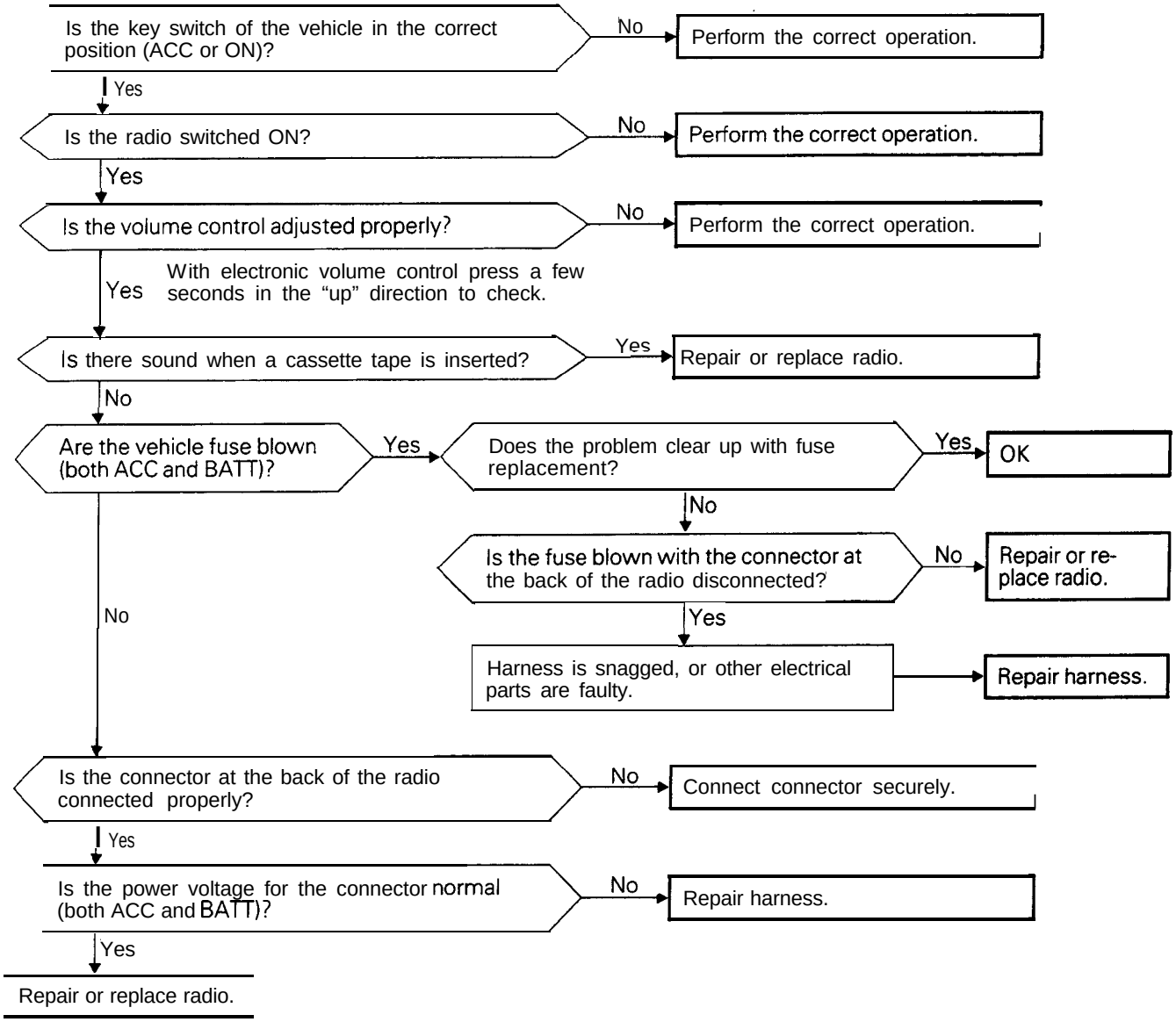
Noise is often created by the following factors, and often the radio is OK when it is checked individually.

- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

For this reason, if there are still problem with noise even after the measures described in steps A-I to A–8 have been taken, get information on the factors listed above as well as determining whether the problem occurs with AM or FM, the station names, frequencies, etc., and contact a service center.

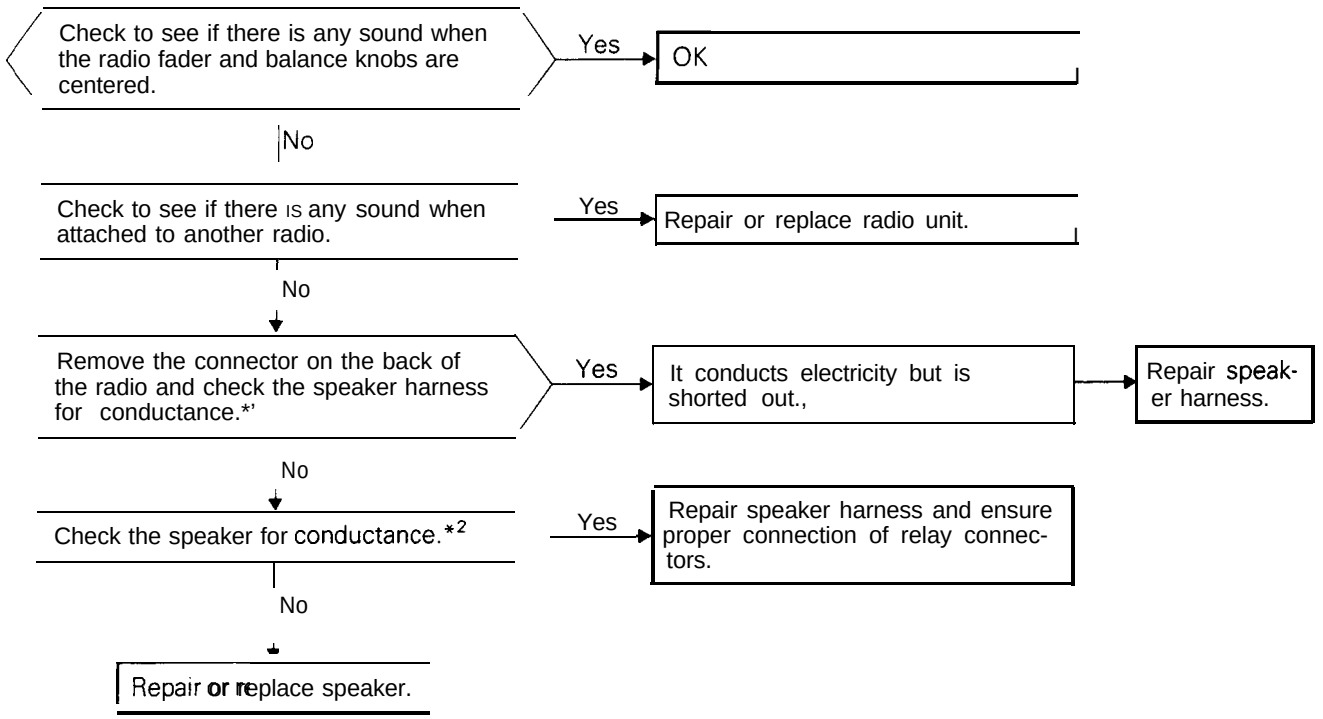
B. RADIO

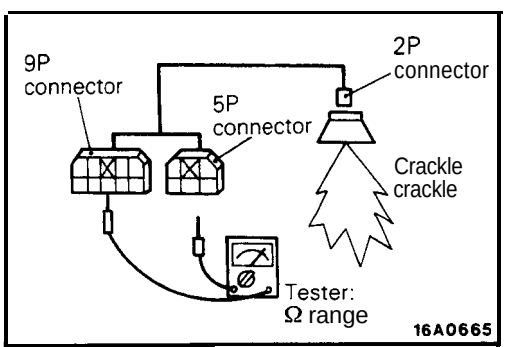
B-I No sound.

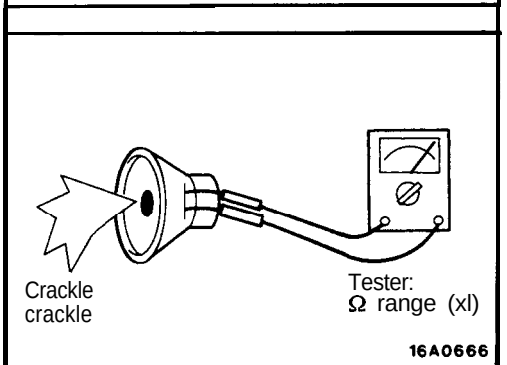


TSB Revision

B–2 No sound from one speaker.







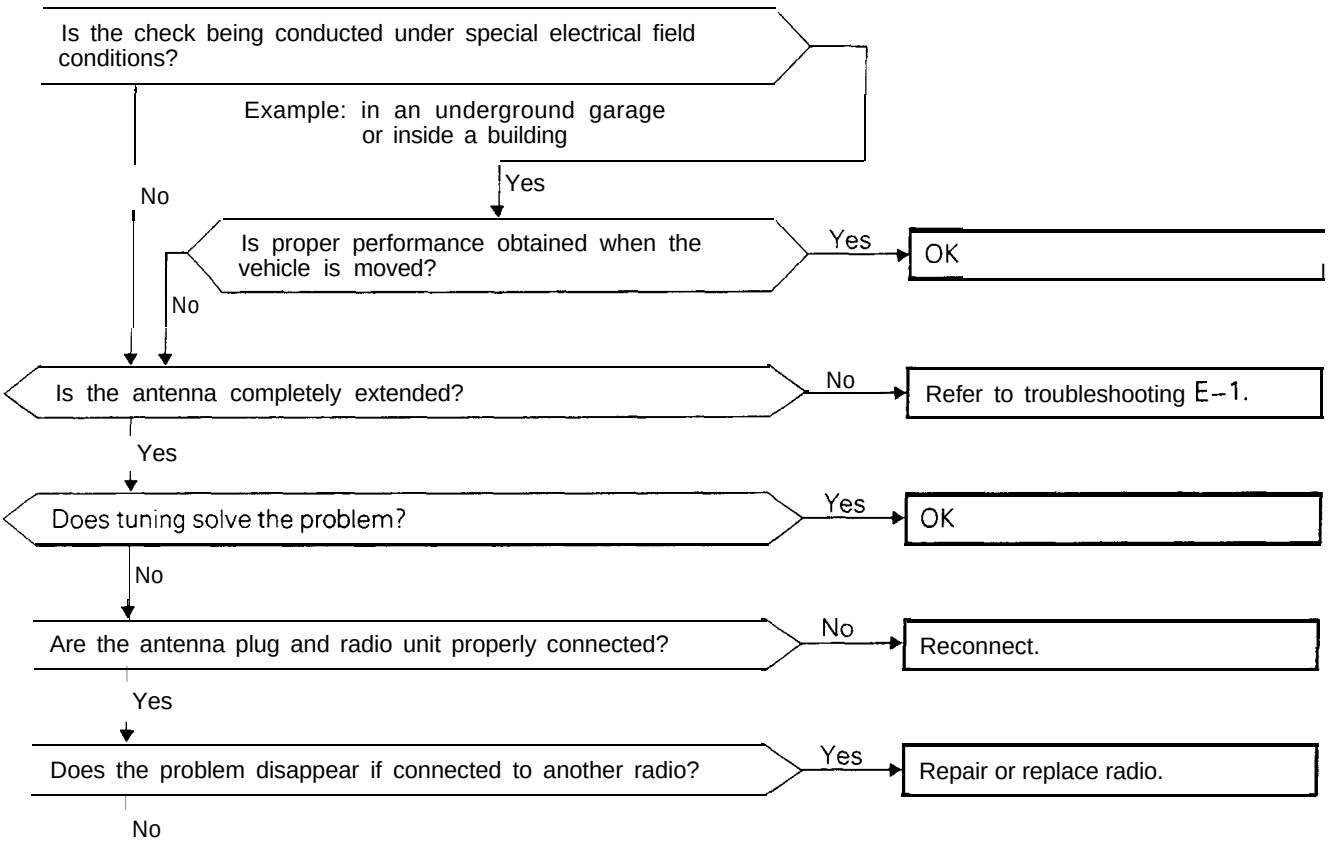
*1 Conductance check method 1
(1) Remove 9P and 5P connectors from radio.
(2) Insert test probe into connector terminal.
(Concerning speaker connector, refer to P.54-113, 115, 117, 119, 121 and 123.)

	Check result		
Determination	Normal	Malfunction	Malfunction
Resistance (Ω)	4	Near 0	Test needle doesn't move.
Condition	Speaker crackles.	When there is no sound from the speaker, it is shorted out.	No sound from speaker, burns out.

*2 Conductance check method 2
(1) Remove the speaker 2P connector.
(2) Insert the test probe into the connector terminal.
(3) Refer the results to the above chart.

TSB Revision

B–3 There is noise but no reception for both AM and FM.



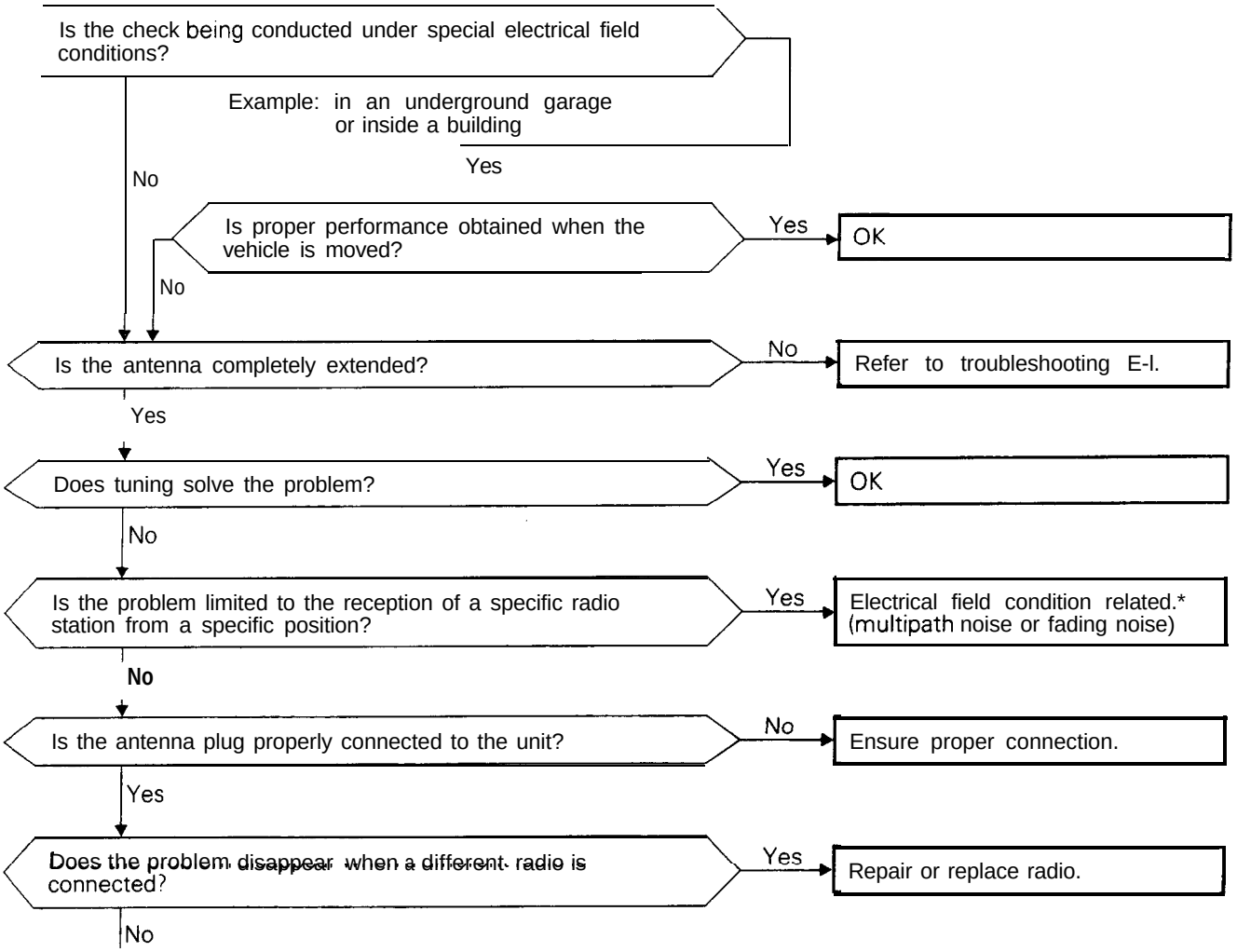
Antenna malfunction
(For motor antenna, refer to E-l, 2.)

B–4 No sound from AM, or no sound from FM.

Refer to B–3.

TSB Revision

B–5 Insufficient sensitivity.

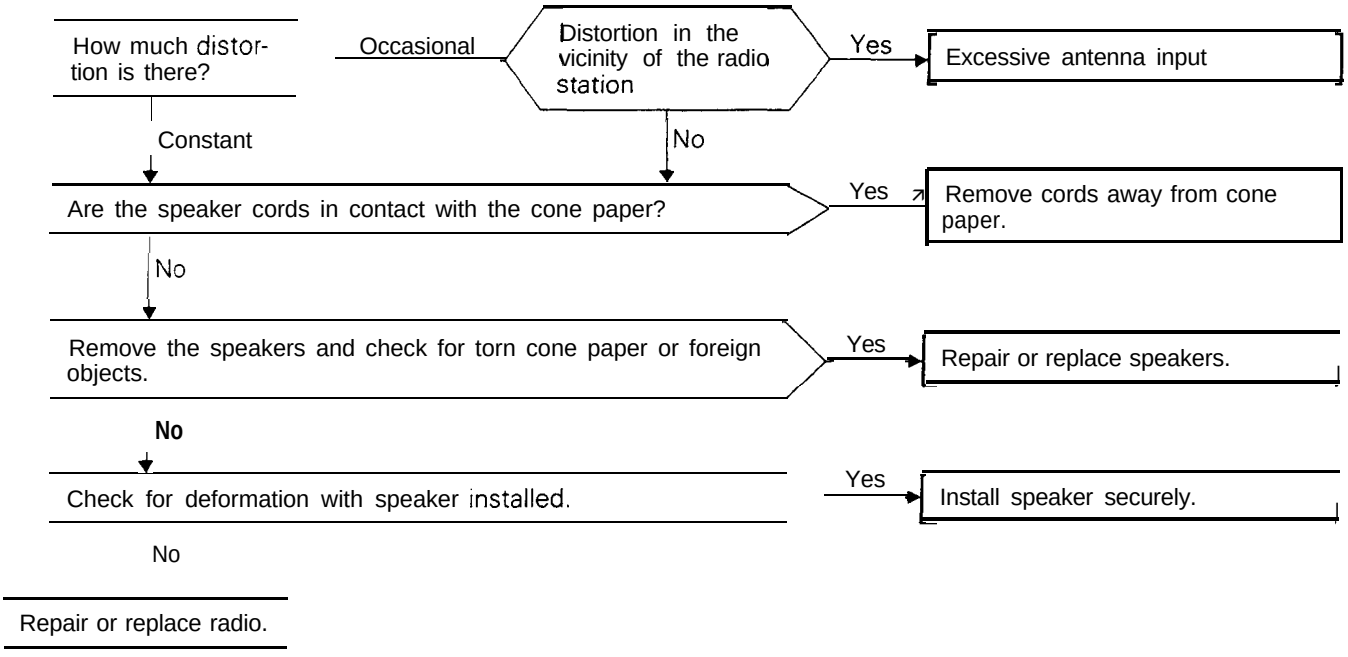


Antenna malfunction
(For motor antenna, refer to E- 1, 2.)

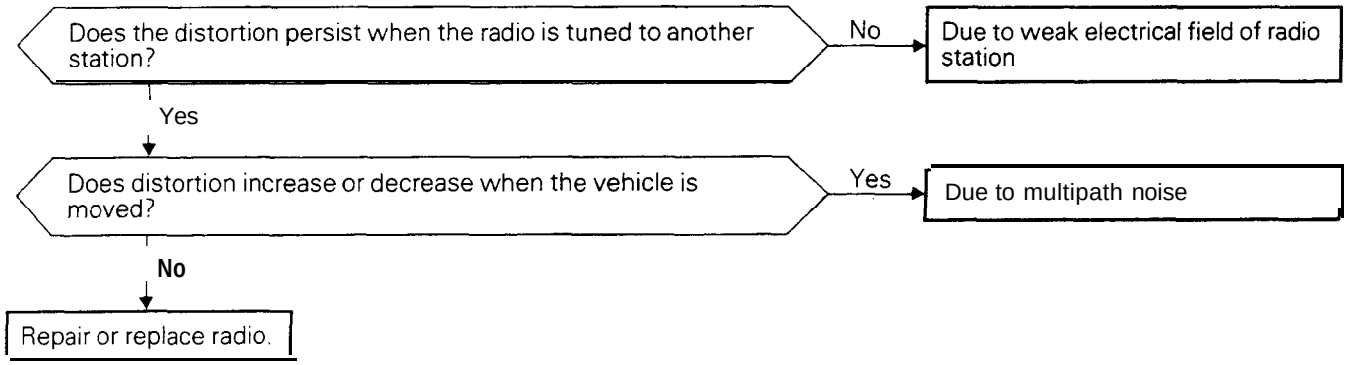
*For multipath noise and fading noise problems, refer P.54-133.

TSB Revision

B–6 Distortion on AM or on both AM and FM.

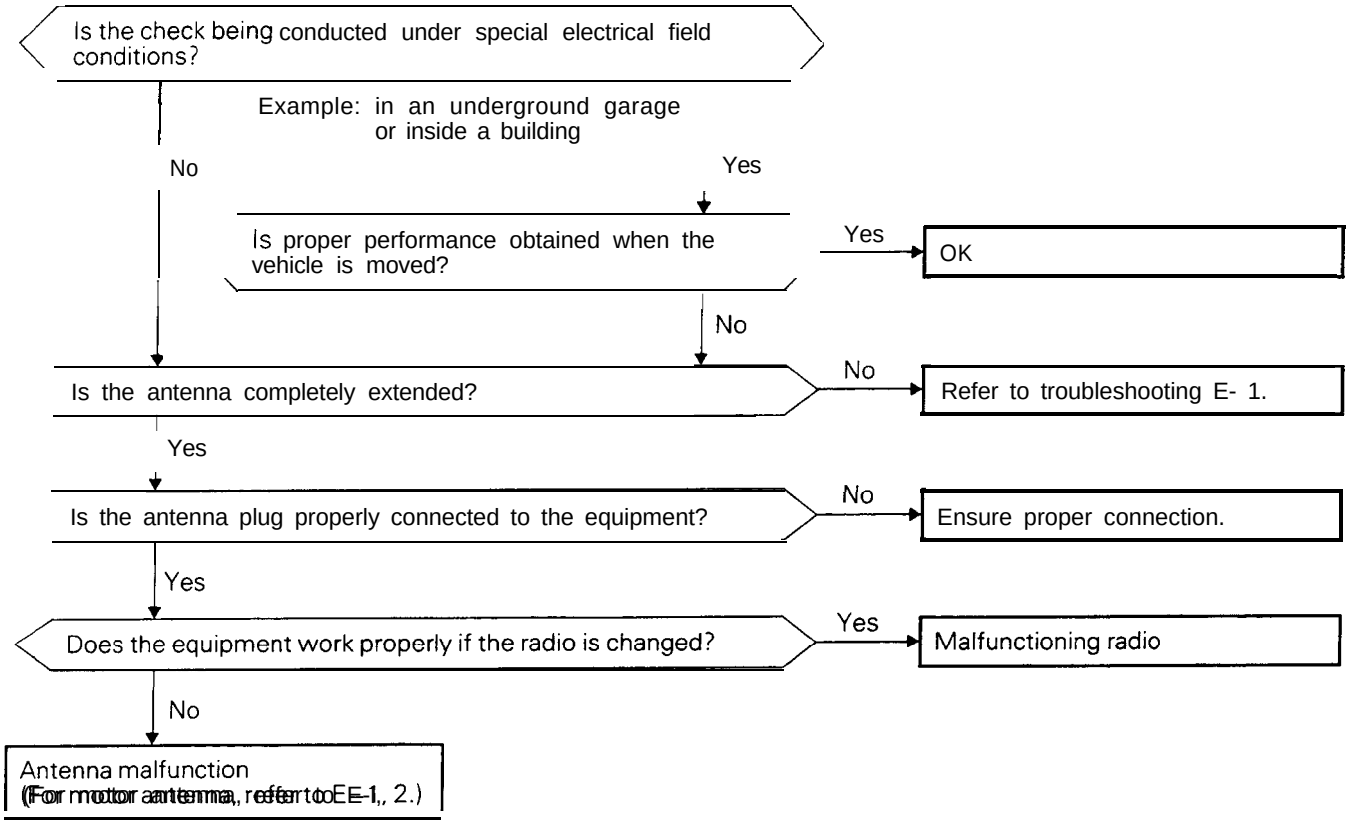


B–7 Distortion on FM only.

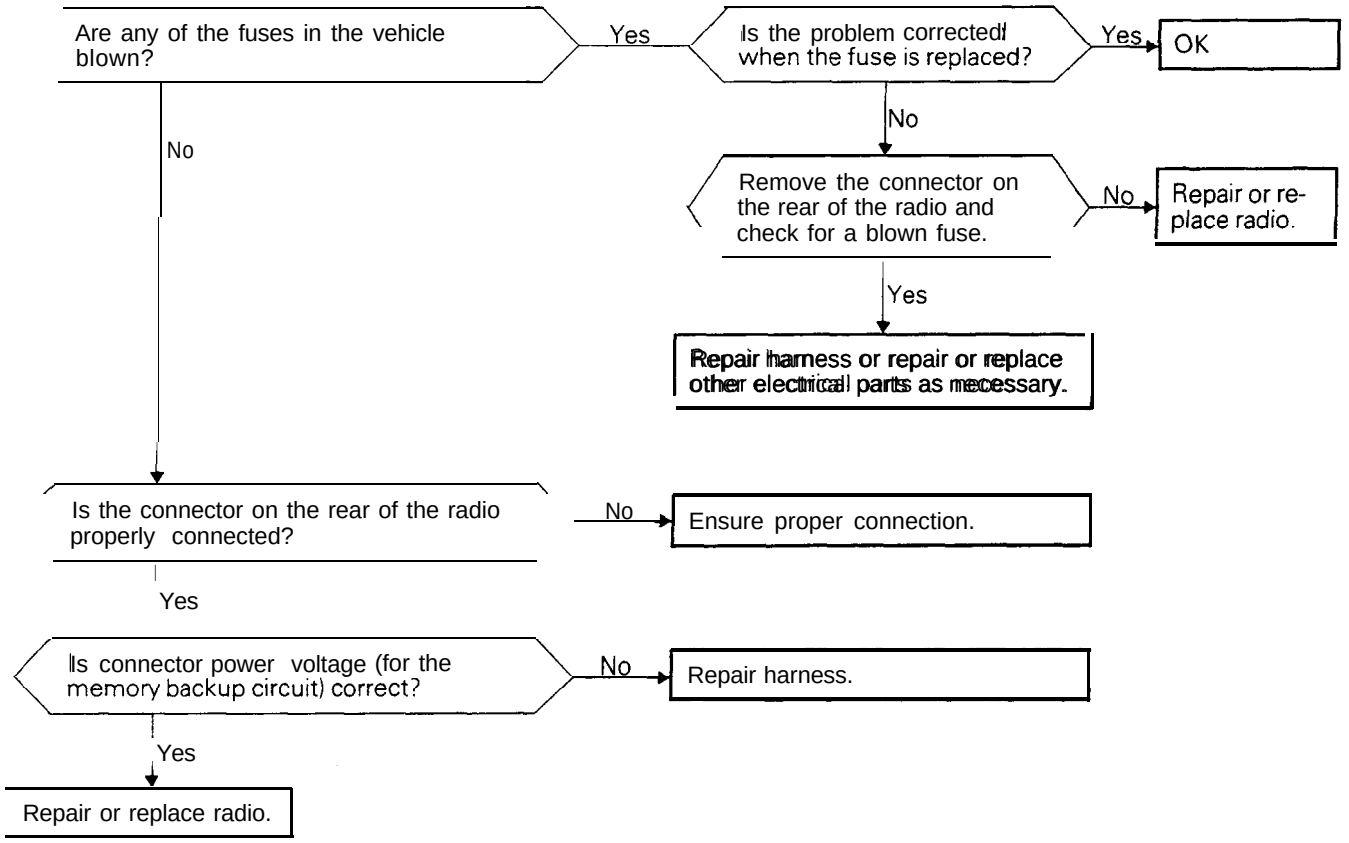


TSB Revision

B–8 Too few automatic select stations.

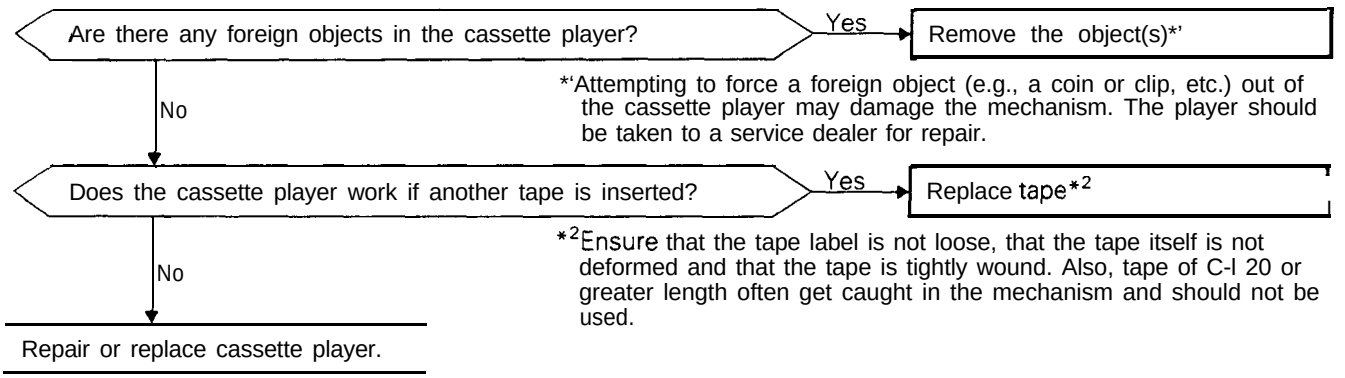


B–9 Insufficient memory (preset stations are erased).



C. CASSETTE PLAYER

C-I Cassette tape will not insert.



*1 Attempting to force a foreign object (e.g., a coin or clip, etc.) out of the cassette player may damage the mechanism. The player should be taken to a service dealer for repair.

*2 Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tape of C-I 20 or greater length often get caught in the mechanism and should not be used.

TSB Revision

C-Z No sound (even after a tape has been inserted).

Check the position of the ignition switch, ensuring that it is at ACC or ON.
- No → Try again after correcting.
- Yes

Is the unit power switch ON?
- No → Try again after correcting.
- Yes

Is the volume switch in the proper position?
- No → Try again after correcting.
- Yes

Check the electronic volume by pushing the volume up button for a few seconds.

Is sound coming from the radio?
- Yes → Repair or replace cassette player.
- No

See the inspection items following B- 1 vehicle fuses.

C–3 No sound from one speaker.

Is there any sound when the balance or fader buttons are centered?
- Yes → OK
- No

Does the radio produce any sound?
- Yes

When sound comes from only left or rrght channel of the deck.

Change the tape and check for sound.*
- Yes → OK

*
- A prerecorded tape should be used on both channels.
- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound.
- Tapes of C-l 20 or greater length often get caught in the mechanism and should not be used.

Clean the cassette player head and check again.
- Yes → OK
- No

No

Replace the cassette player and check again.
- Yes → Repair or replace cassette player.
- No

See the inspection items following B–2 connector.

TSB Revision

C–4 Sound quality is poor, or sound is weak.

Does the player play properly when another tape* is inserted?
- Yes → OK
- No → *● Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound.
  • Tapes of C-l 20 or greater length often get caught in the mechanism and should not be used.

Does the player play properly when the tape player head is cleaned?
- Yes → OK
- No

Is proper operation obtained when the cassette player is replaced?
- Yes → Repair or replace cassette player.
- No

Repair or replace speaker.

C–5 Cassette tape will not eject.

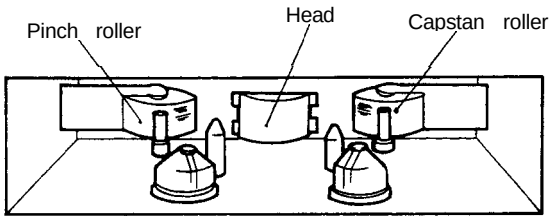
The problems covered here are all the result of the use of a bad tape (deformed or not properly tightened) or of a malfunction of the cassette player itself. Malfunctions involving the tape becoming caught in the mechanism and ruining the case are also possible, and attempting to force the tape out of the player can cause damage to the mechanism. The player should be taken to a service dealer for repair.

C–6 Uneven revolution. Tape speed is fast or slow.

Does the player play OK if the tape is changed?
- Yes → OK
- No

Are there any foreign objects inside the cassette player?
- Yes → Remove foreign object(s).
- No

Is the head or capstan roller dirty?



- Yes → Clean.
- No

Repair or replace cassette player.

TSB Revision

C–7 Automatic search does not work (only for models with the automatic search function).

Does the MSS (automatic search) button depress properly?
- No → Button improperly operated.
- Yes ↓

Does the player play OK if the tape* is changed?
- No → Tape used is bad.
- Yes ↓

*● When the time between songs on a tape is less than three seconds, or when there is a three second period in the middle of a song in which the volume level is extremely low, the automatic search function may not work properly.
• Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound Also, tapes of C-I 20 or greater length often get caught in the mechanism and should not be used.

Malfunction of the cassette player unit

C–8 Faulty auto reverse.

Does the player play OK if the tape is changed?
- Yes → OK
- No ↓

*● Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound.
● Tapes of C-I 20 or greater length often get caught in the mechanism and should not be used.

Does the problem only occur while the vehicle is being driven?
- No → Repair or replace cassette player.
- Yes ↓

Is the cassette player properly installed to the vehicle?
- No → Ensure cassette player installation.
- Yes ↓

Repair or replace cassette player.

C–9 Tape gets caught in mechanism.*'

*[1]When the tape is caught in the mechanism, the case may not eject. When this occurs, do not try to force the tape out as this may damage the tape player mechanism. Take the cassette to a service dealer for repair.

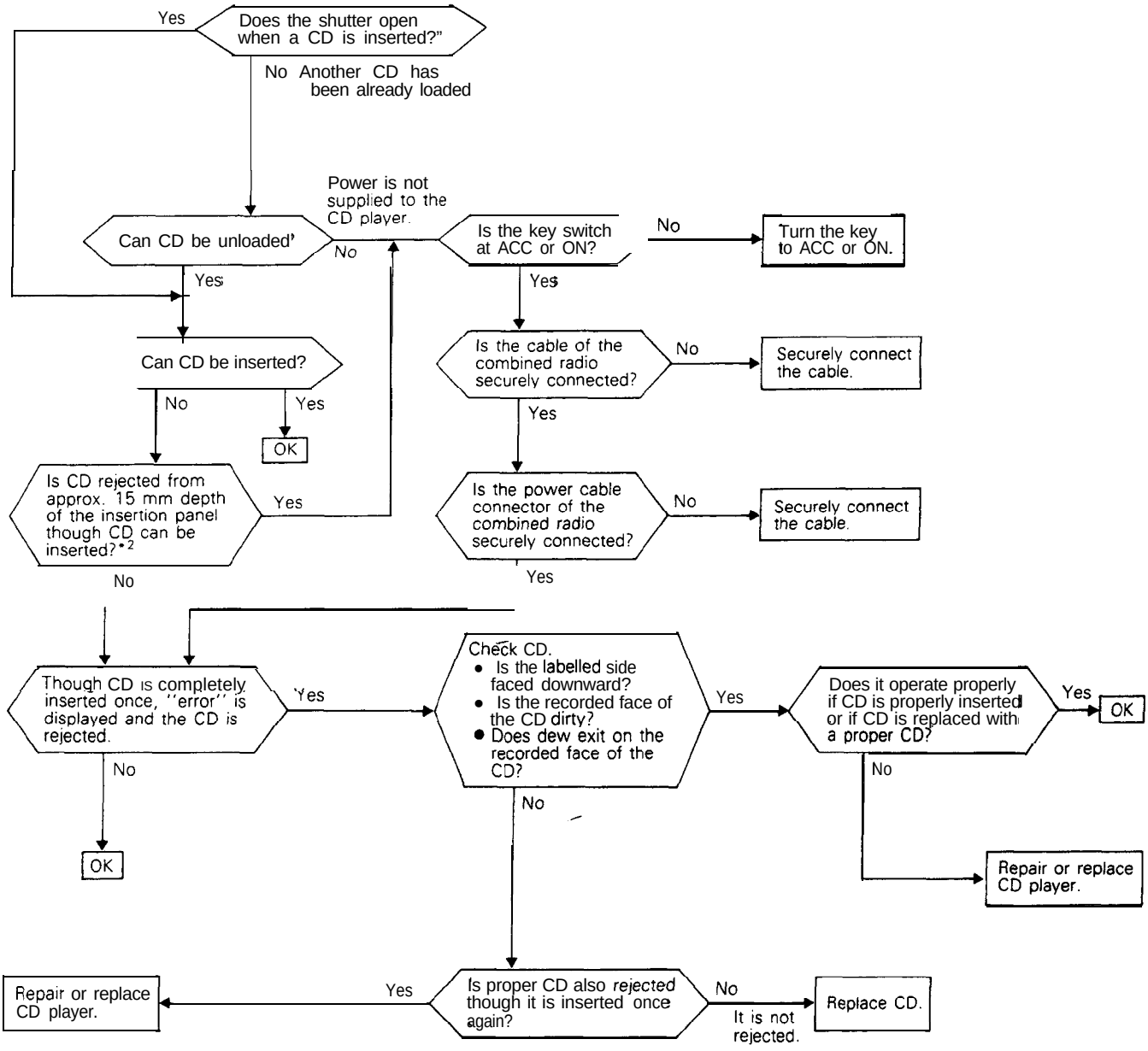
Does the player play OK if the tape*[2] is changed?
- Yes → Tape used is bad.
- No ↓

*[2]Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tapes of C-I 20 or greater length often get caught in the mechanism and should not be used.

Repair or replace cassette player.

TSB Revision

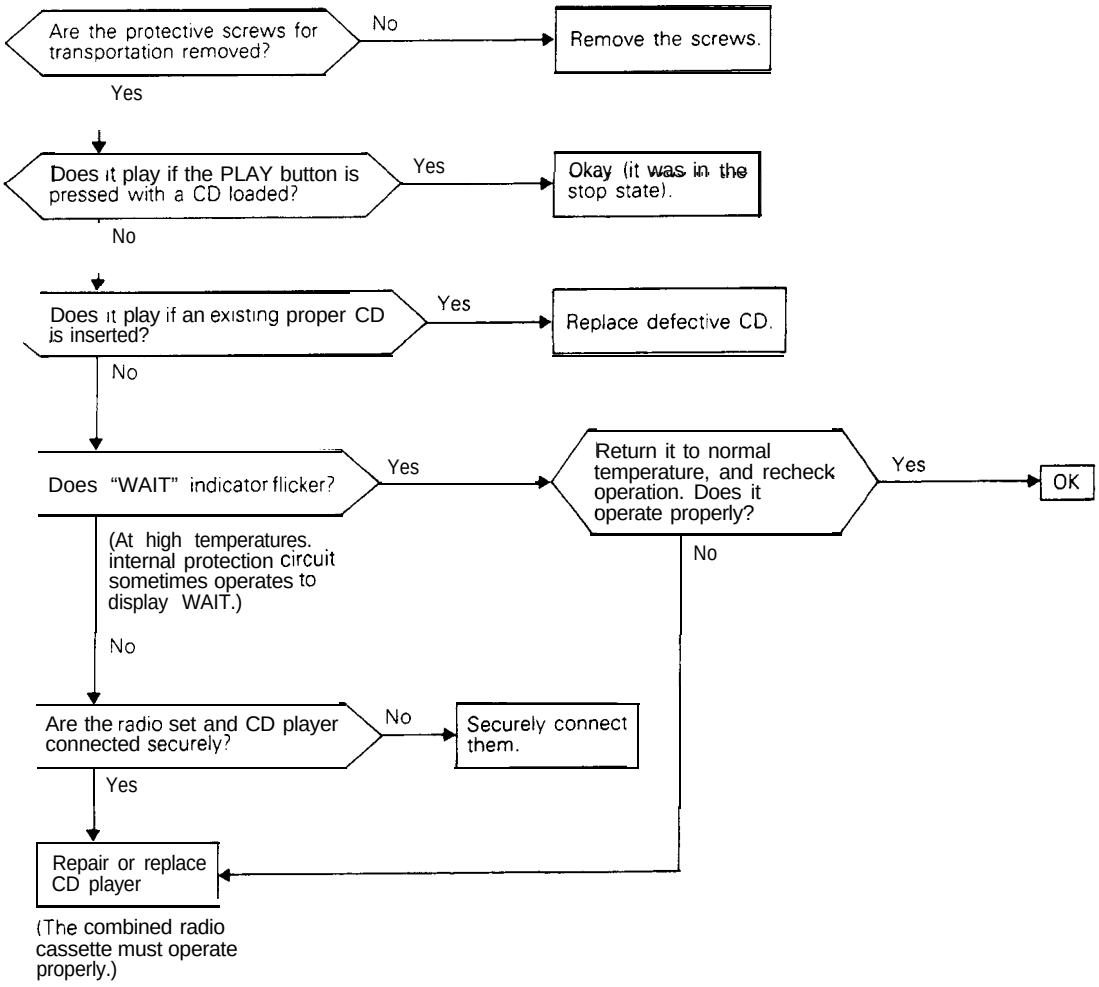
D - I | CD will not be accepted.



*1 If the CD is already loaded, doesn't the shutter open to allow insertion when another CD is inserted?
*2 If the key switch is not at ACC or ON, the CD stops at depth of 15 mm below the panel surface even when it is inserted. and it will be rejected when pushed farther?
*3 Even though the CD is loaded, E terror) is sometimes displayed with the CD rejected because of vibration/shock or dew on the CD face or optical lens.

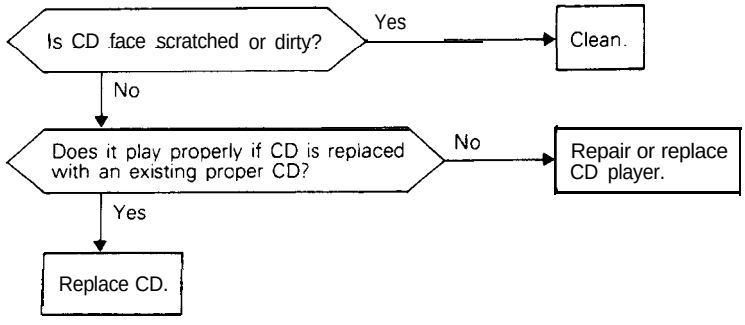
TSB Revision

D–2 No sound.

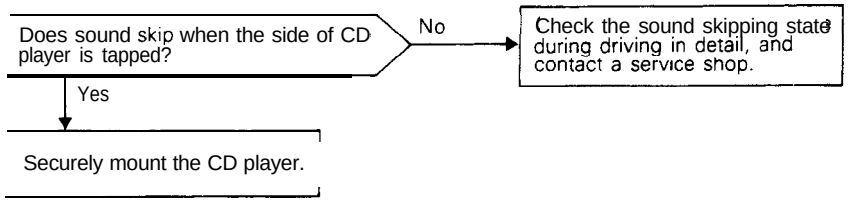


D–3 CD sound skips.

1 Sound sometimes skips during parking

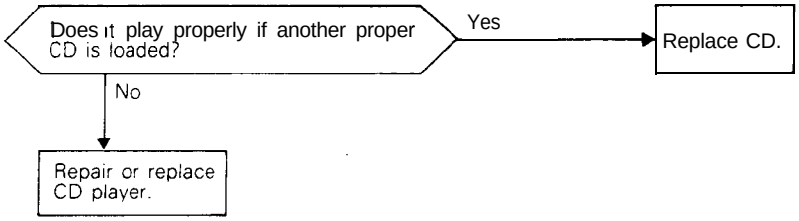


2. Sound sometimes skips during driving.
(Stop vehicle, and check it.)
(Check it by using a proper CD which is free of scratch, dirt or other abnormality.)

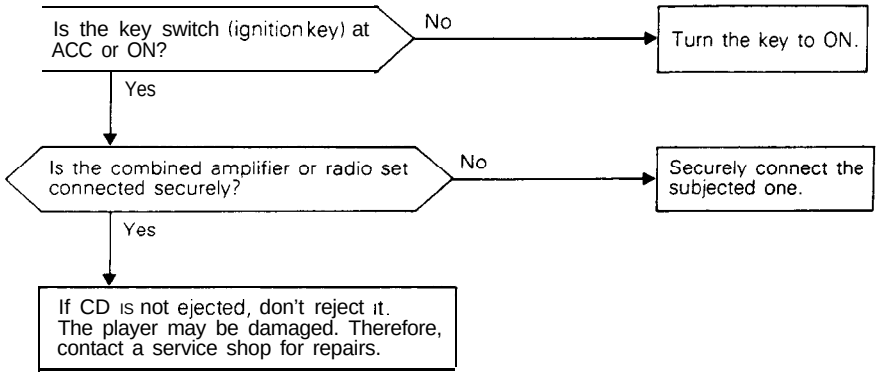


TSB Revision

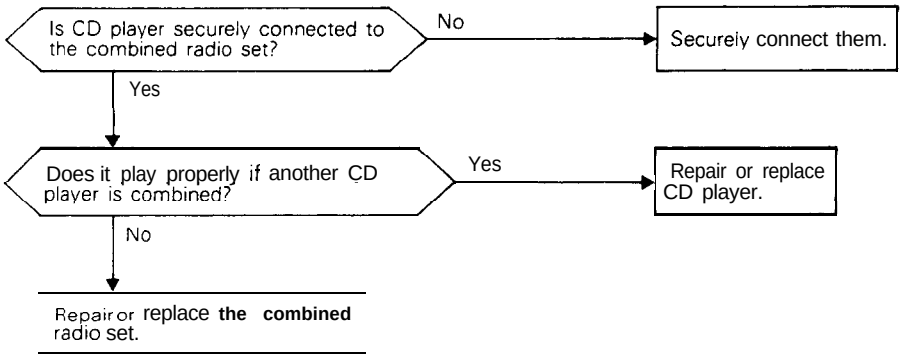
D–4 Sound quality is poor.



D–5 CD will not be ejected.



D–6 No sound from one speaker.



TSB Revision

E. MOTOR ANTENNA

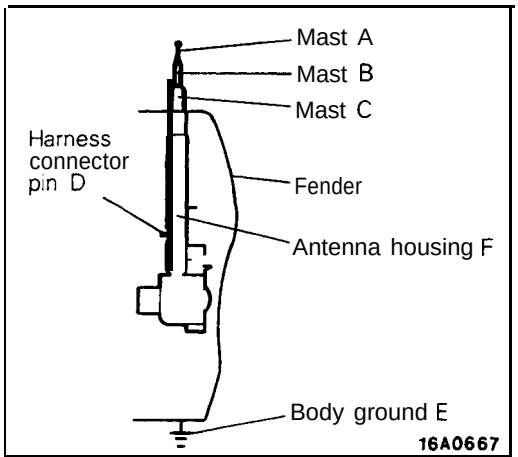
E-1 Motor antenna won't extend or retract.

Clean and polish the surface of the antenna rod.

- Is the radio power switch ON?
  - No → Switch it ON.
  - Yes ↓
- Is voltage (approx. 12V) emitted to the radio's motor antenna terminal?
  - No → Repair or replace the radio.
  - Yes ↓
- Is the antenna bent?
  - Yes → Repair the bend, or replace the antenna mast.
  - No ↓
- Is the antenna relay OK?
  - No → Replace the antenna relay.
  - Yes ↓
- Is the motor OK?
  - No → Replace the motor.
  - Yes ↓
- Repair the harness.

E-2 Motor antenna extends and retracts but does not receive.

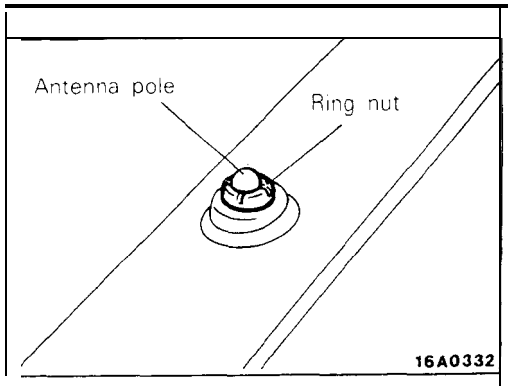
- Is the antenna itself OK?
  - No → Repair or replace it.
  - Yes ↓
- Is operation normal when a new antenna assembly is directly installed to the radio?
  - No → Refer to B. "Radio troubleshooting".
  - Yes ↓
- Replace the feeder cable.



Checking the antenna*

Ohmmeter measurement locations	Result
A and D	Continuity
B and D	Continuity
C and D	Continuity
E and F	Continuity
A and E	No continuity
B and E	No continuity
C and E	No continuity

TSB Revision

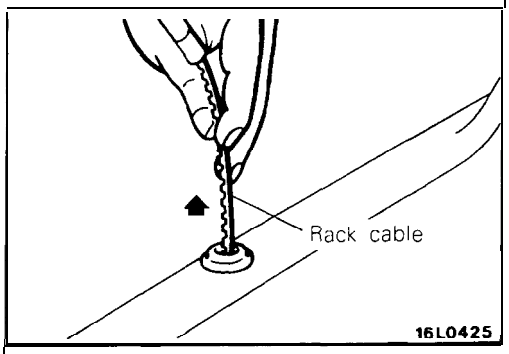


SERVICE ADJUSTMENT PROCEDURES

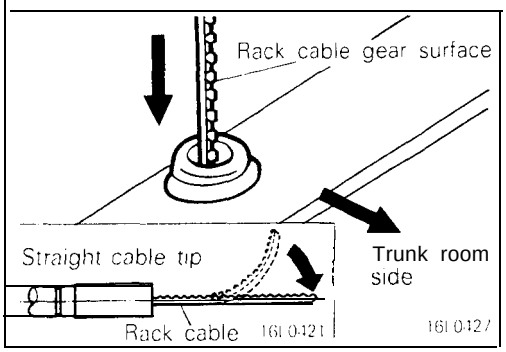
M54NIBB

MAST ASSEMBLY WITH CABLE REPLACEMENT (Motor antenna)

(1) Remove the ring nut.

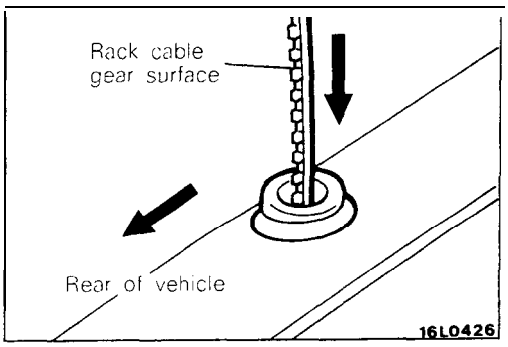


(2) Switch ON the radio and operate the power antenna.
(3) Pull it out with the mast assembly fully extended.



(4) With the antenna fully extended, turn the rack cable gears toward the trunk room as shown at left. Next, insert the rack cable into the motor assembly.

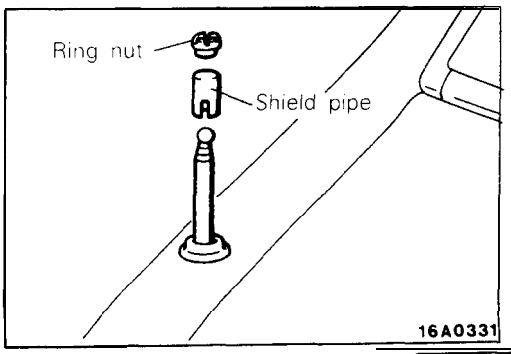
NOTE
Be sure the rack cable tip is straight before inserting it into the motor assembly, If the tip is not straight, correct as shown.



(5) Turn the rack cable gears toward the rear of the vehicle (90° to the right) and engage the cable with the motor gears.

NOTE
Pull the rack cable up gently. The rack cable gears are not engaged with the motor gears if the cable comes out smoothly. If the gears are not engaged, check the cable tip again to be sure it is straight, then repeat (4) and (5).

(6) Raise the antenna pole vertically. Switch OFF the radio switch and wind in the rack cable. Insert the antenna pole to the motor side as the cable is being wound in.



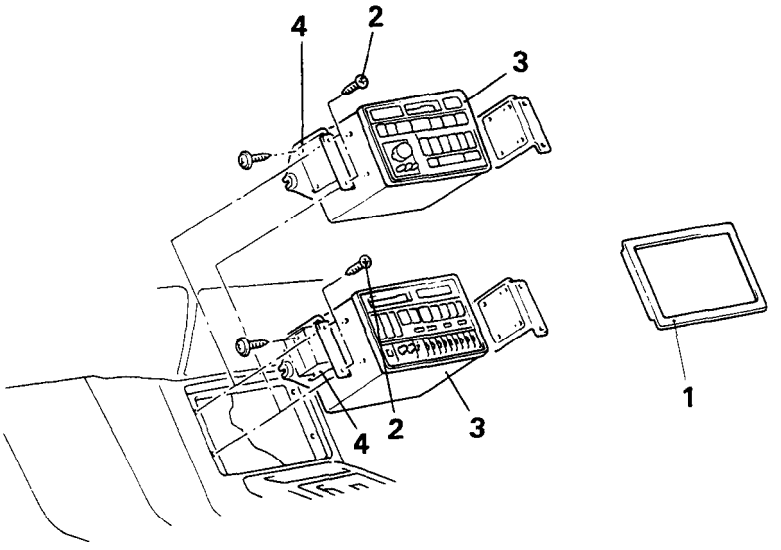
(7) Mount the shield pipe onto the antenna pole.
(8) Insert and mount the ring nut onto the shield pipe. Then, after tightening the ring nut at the specified torque (refer to P.54-153), switch the radio switch ON and OFF to house the antenna pole.

TSB Revision

RADIO AND TAPE PLAYER <Up to 1990 models>

M54NJAQb

REMOVAL AND INSTALLATION

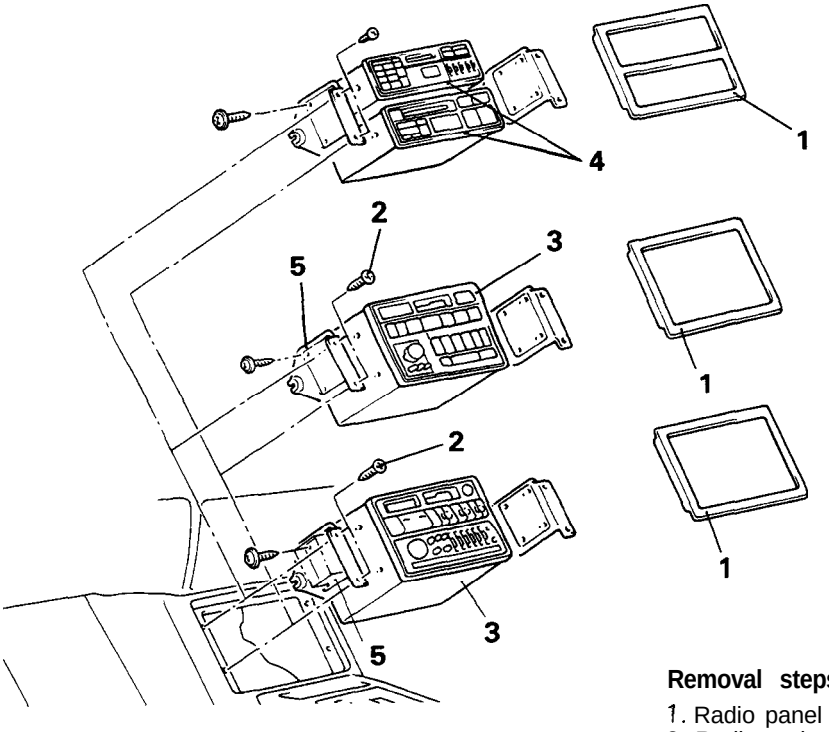


Removal steps

1. Radio panel
2. Radio and tape player mounting screw
3. Radio with tape player
4. Radio bracket

RADIO AND TAPE PLAYER <1991 models>

REMOVAL AND INSTALLATION



16A1275

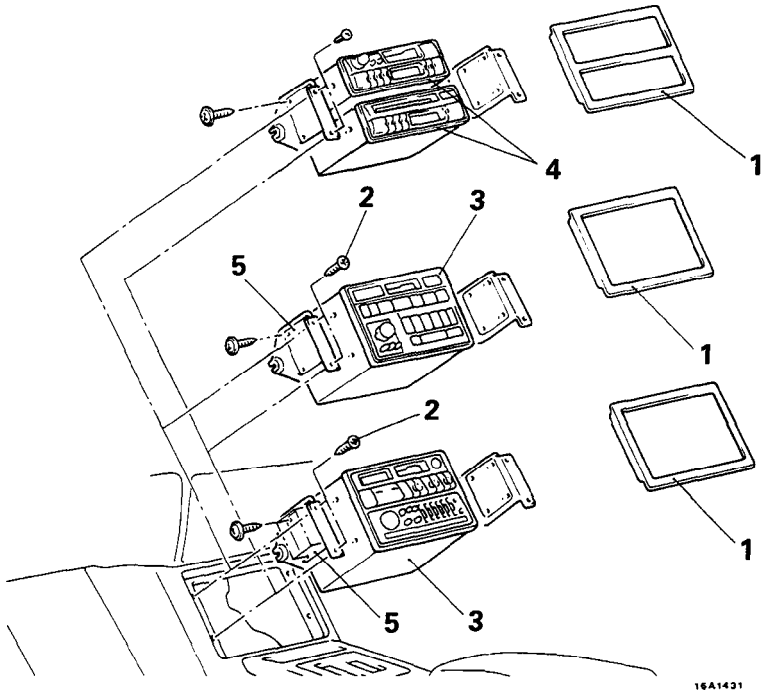
Removal steps

1. Radio panel
2. Radio and tape player mounting screw
3. Radio with tape player
4. Radio with tape player and CD player
5. Radio bracket

TSB Revision

RADIO AND TAPE PLAYER <1992 models>

REMOVAL AND INSTALLATION

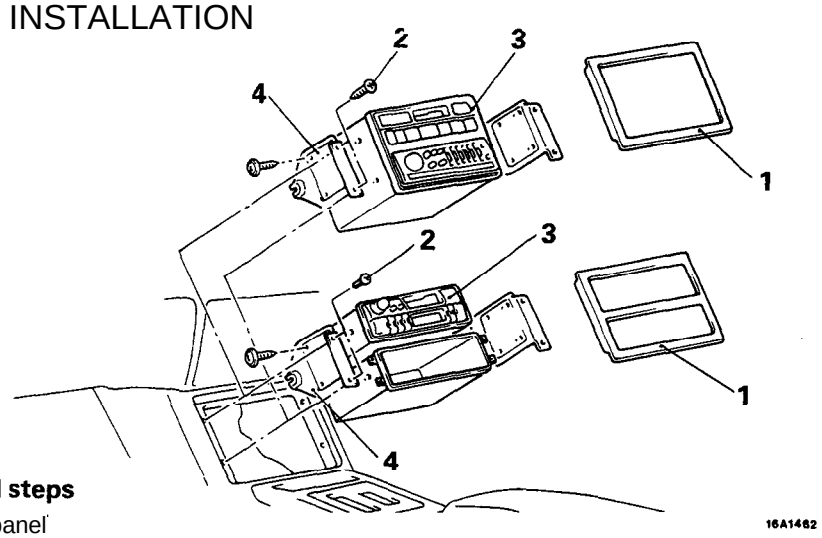


Removal steps

1. Radio panel
2. Radio and tape player mounting screw
3. Radio with tape player
4. Radio with tape player and CD player
5. Radio bracket

RADIO AND TAPE PLAYER <1993 models>

REMOVAL AND INSTALLATION



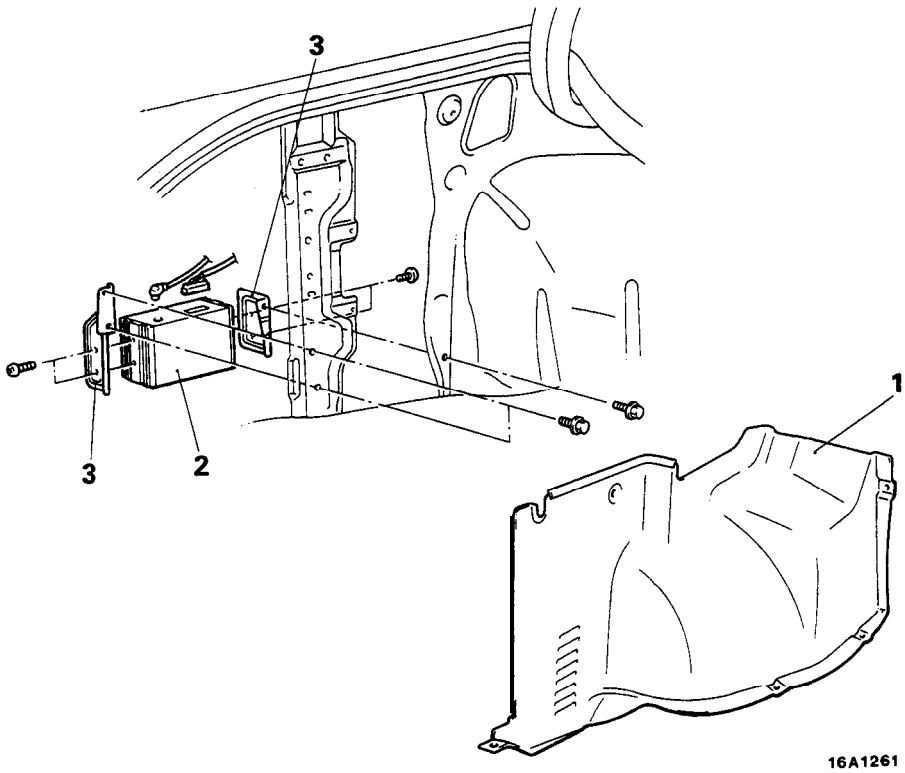
Removal steps

1. Radio panel
2. Radio and tape player mounting screw
3. Radio with tape player
4. Radio bracket

TSB Revision

POWER AMPLIFIER <1991 models (Vehicles with CD player)> M54NUAAa

REMOVAL AND INSTALLATION



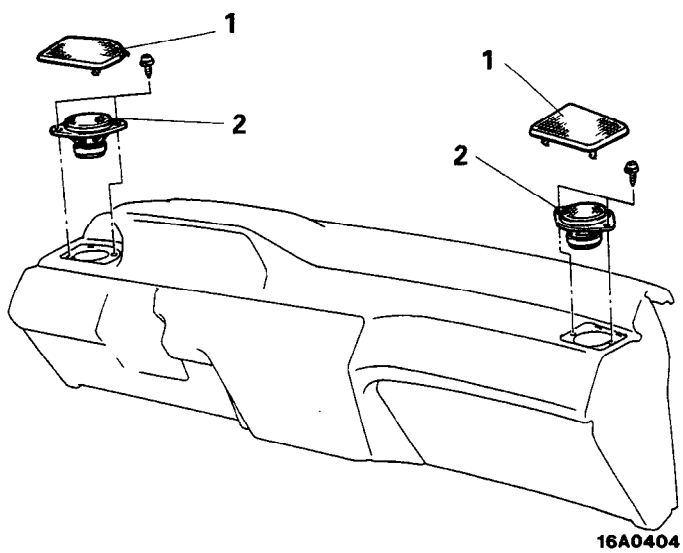
Removal steps

1. Trunk room side trim (Refer to GROUP 52–Trim.)
2. Power amplifier
3. Bracket

SPEAKER M54NMAH

<Front speaker>

REMOVAL AND INSTALLATION



Removal steps

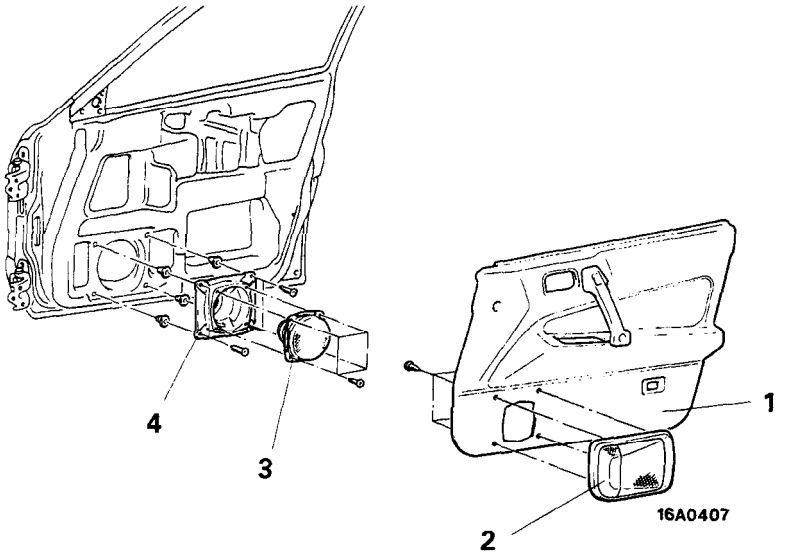
1. Front speaker garnish
2. Front speakers

TSB Revision

<Door speaker>

M54NNAE

REMOVAL AND INSTALLATION



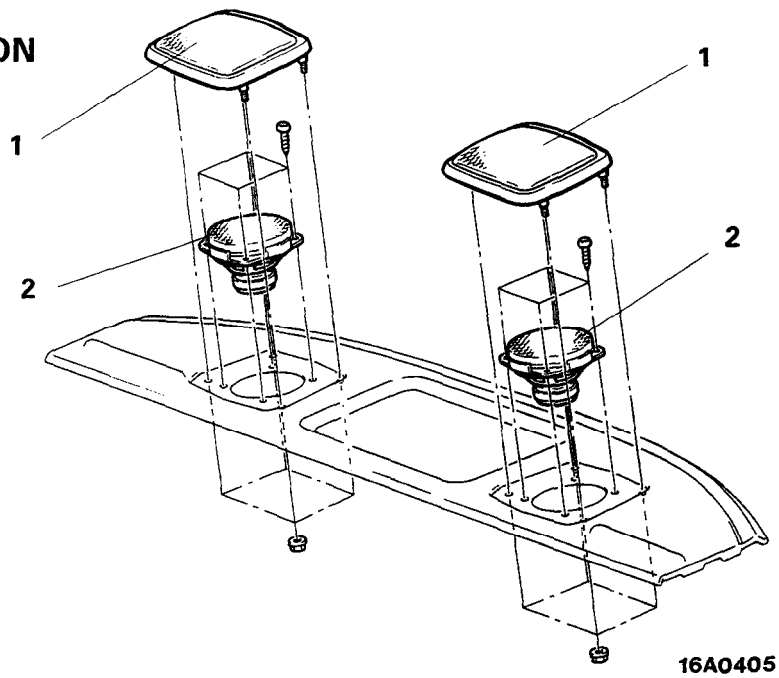
Removal steps

1. Door trim
   (Refer to GROUP 52–Trim.)
2. Speaker garnish
3. Door speaker
4. Speaker cover

<Rear speaker>

M54NOAH

REMOVAL AND INSTALLATION



Removal steps

◆◆ 1. Speaker garnish
2. Rear speaker

SERVICE POINTS OF REMOVAL

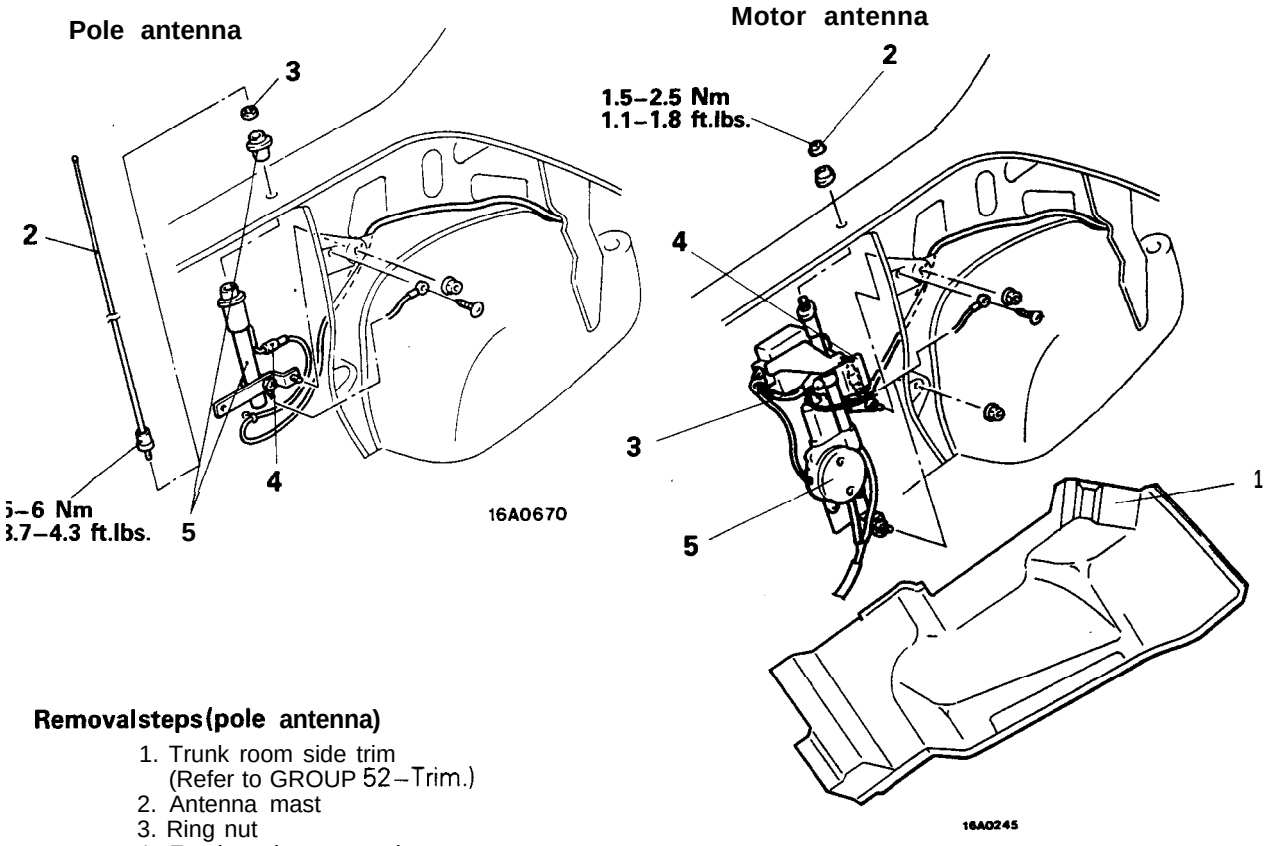
1. REMOVAL OF SPEAKER GARNISH

Remove (from the luggage compartment side) the garnish installation nut.

TSB Revision

ANTENNA ASSEMBLY

M54NPBG

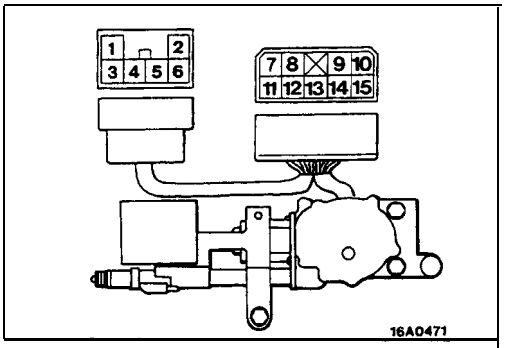


Removal steps (pole antenna)

1. Trunk room side trim (Refer to GROUP 52–Trim.)
2. Antenna mast
3. Ring nut
4. Feeder wire connection
5. Antenna base

Removal steps (motor antenna)

1. Trunk room side trim (Refer to GROUP 52–Trim.)
2. Ring nut
3. Harness connection
4. Feeder wire connection
5. Motor antenna assembly



INSPECTION

<Vehicles built up to June 1988>

MOTOR ANTENNA ASSEMBLY

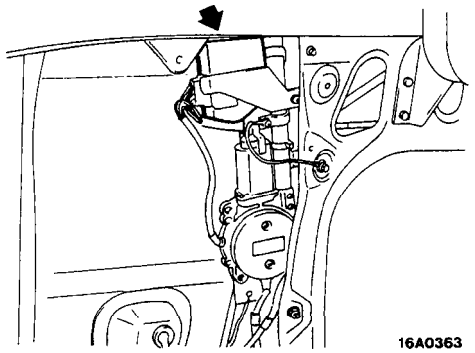
Following inspections should be made with the harness connector disconnected from the power antenna relay.

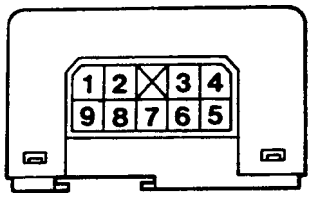
(1) With the (+) power connected to the terminal (10) and the (–) power to the terminal (7), check that the antenna mast extends. With the connection reversed, check that the antenna mast retracts.

(2) Check for continuity between the terminals.

When the antenna mast is retracted
Between 6–9 .....continuity
When the antenna mast is extended
Between 6–8 .....continuity

TSB Revision


16A0363

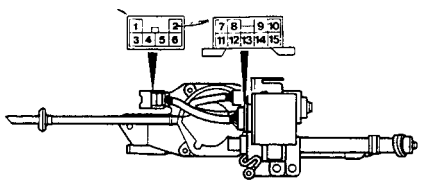


16R0443

ANTENNA RELAY

With the harness connector connected and the antenna mast extending/ retracting, check the antenna relay voltage.

Antenna mast extending
Terminal (1) ..... -1 to +1V
Terminal (4) ..... 10 to 13V
Antenna mast retracting
Terminal (1) ..... 10 to 13V
Terminal (4) ..... -1 to +1V



16A0885

<Vehicles built from July 1988>

MOTOR ANTENNA ASSEMBLY

Following inspections should be made with the harness connector disconnected from the power antenna relay.
With the (+) power connected to the terminal (10) and the (–) power to the terminal (7), check that the antenna mast extends. With the connection reversed, check that the antenna mast retracts.

ANTENNA RELAY

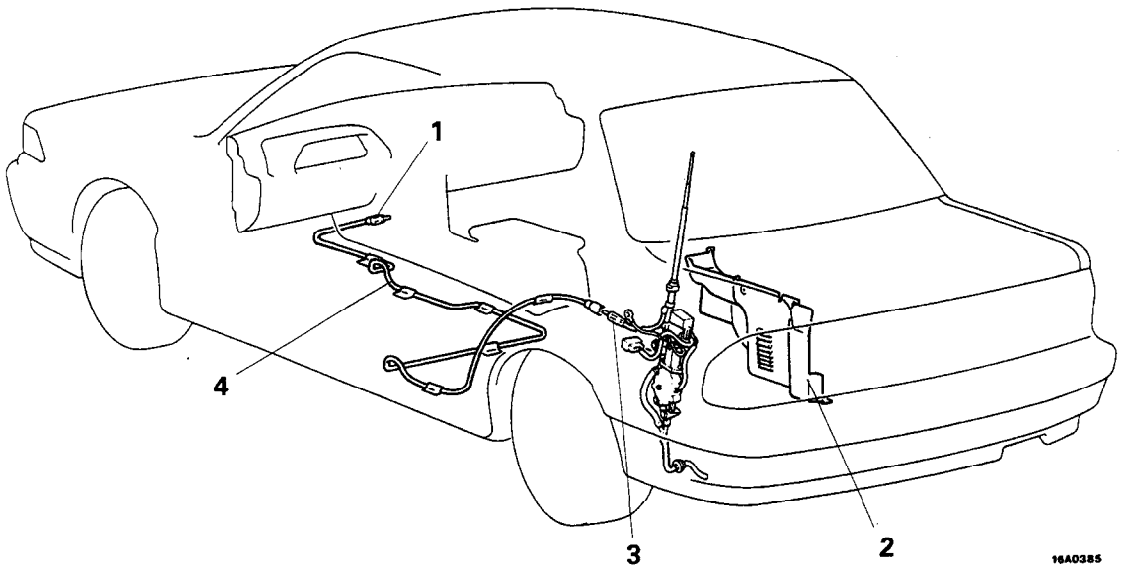
With the harness connector connected and the antenna mast extending/retracting, check the antenna relay voltage.

Measurement terminals	Measurement conditions	Voltage (V)
Between 1 and 6 Between 2 and 6 Between 5 and 6 Between 8 and 6	Ignition key at "ON" Radio switch at "ON"	10 – 13
Between 1 and 7 Between 1 and 9	When antenna extended	10 – 13
Between 1 and 10 Between 1 and 9	When antenna retracted	10 – 13
Between 7 and 10	During antenna operation → stop	10 – 13 → 0

TSB Revision

FEEDER CABLE

REMOVAL AND INSTALLATION



Removal steps

1. Feeder cable and radio connections
2. Trunk room side trim
3. Motor antenna (or whip antenna) and feeder cable connections
4. Feeder cable

Pre-removal and Post-installation Operation

- Removal and Installation of Front Seat, Rear Seat, and Floor Console (Refer to GROUP 52–Seat and Floor Console.)

TSB Revision

REAR WINDOW DEFOGGER

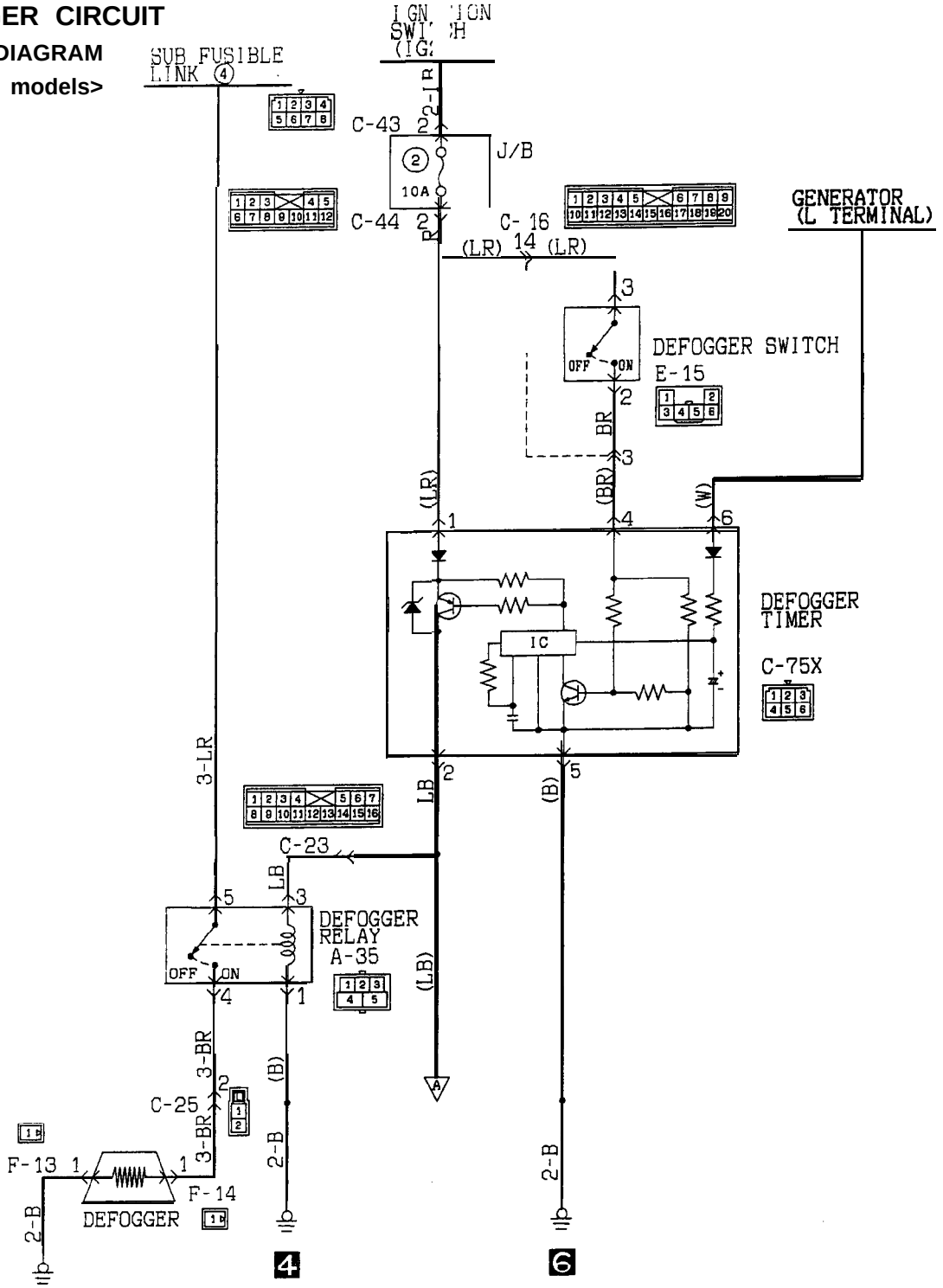
TROUBLESHOOTING

M54PHBDb

DEFOGGER CIRCUIT

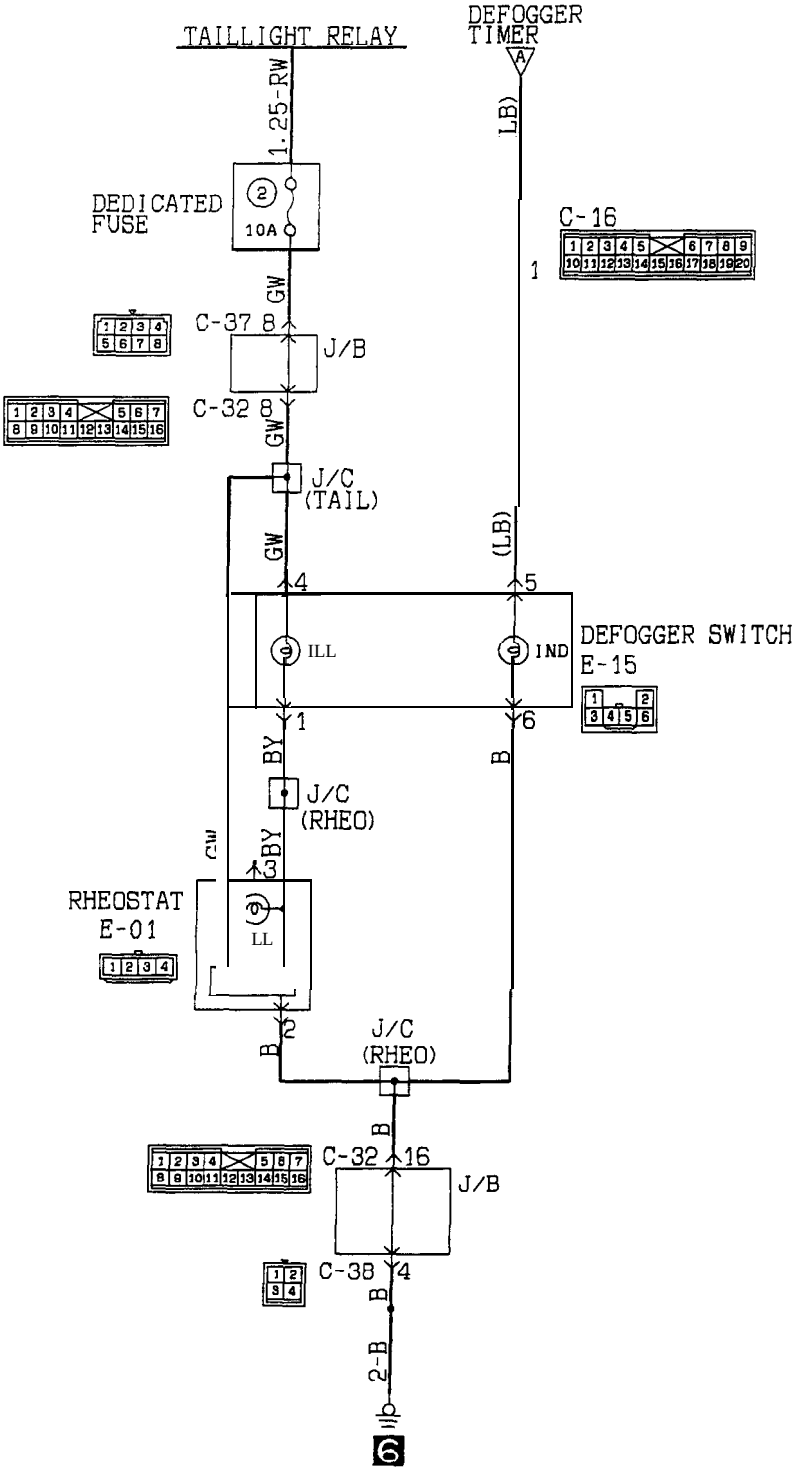
CIRCUIT DIAGRAM

< 1989 models>



XX35-AC-H1321-NM

TSB Revision

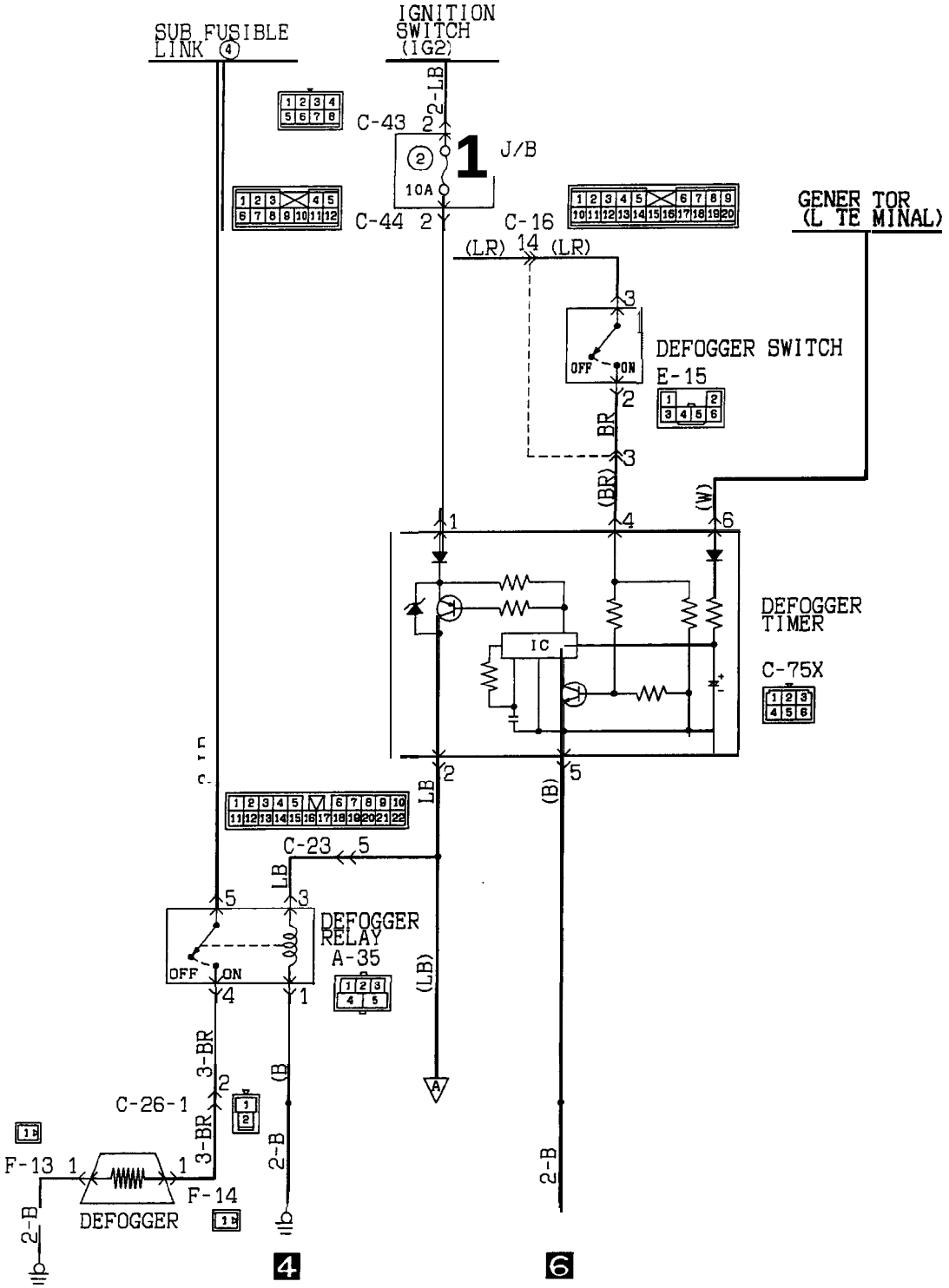


TSB Revision

DEFOGGER CIRCUIT

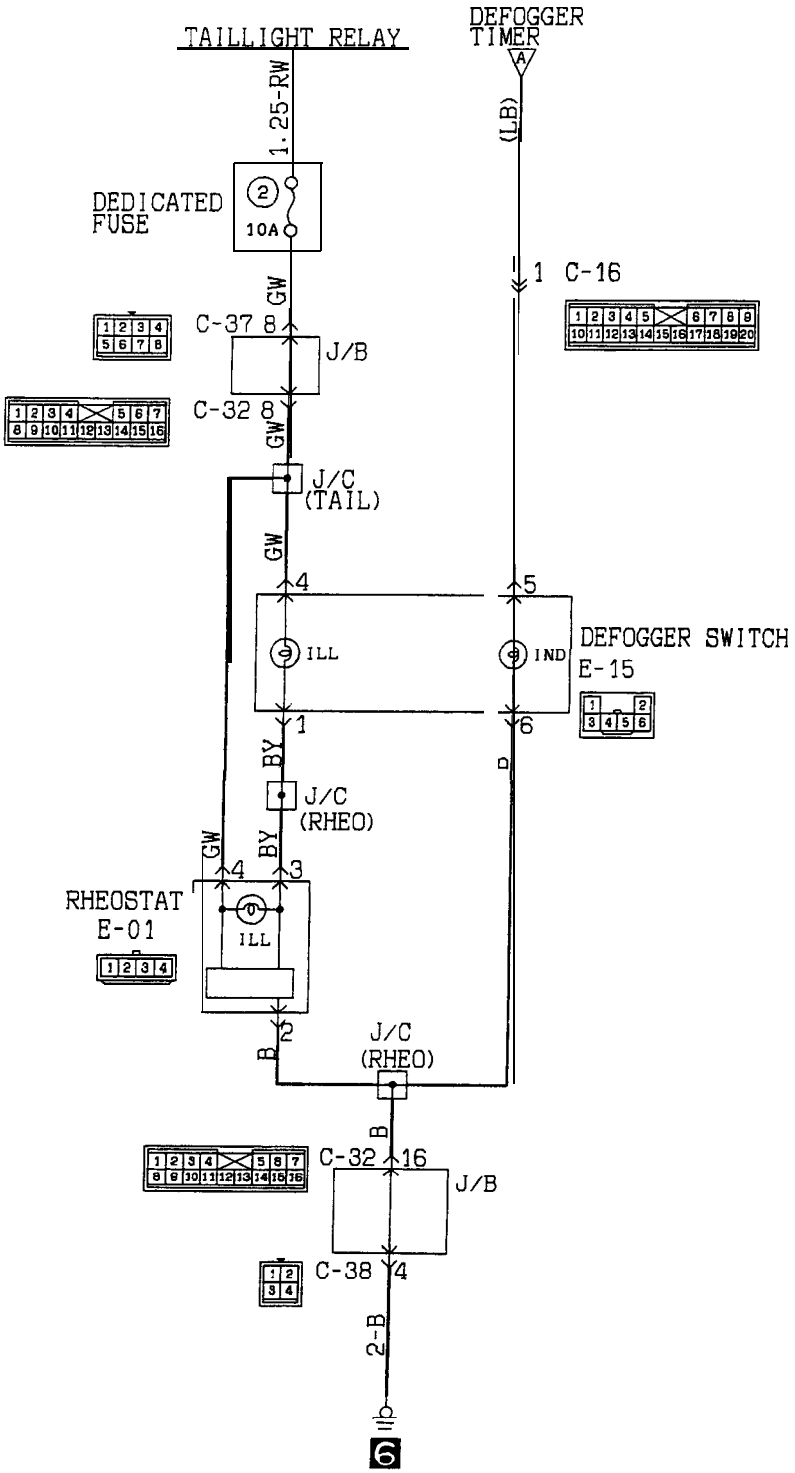
CIRCUIT DIAGRAM

< 1990 models>



KX35-AC-H1322-NM

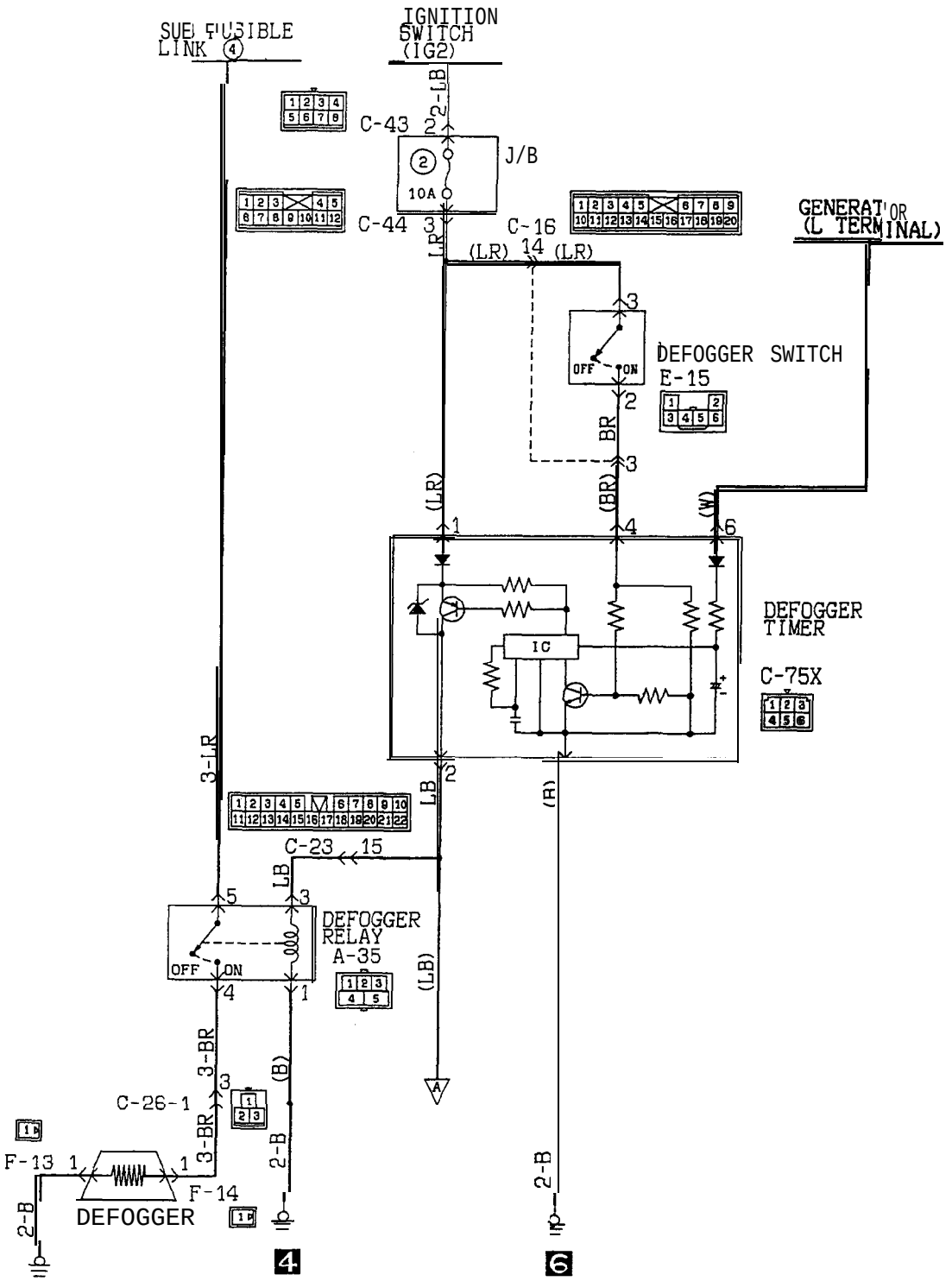
TSB Revision


TAILLIGHT RELAY
DEFOGGER TIMER
1.25-RW
(LB)
DEDICATED FUSE
10A
1 C-16
GW
C-37 8
J/B
C-32 8
GW
J/C (TAIL)
GW
4
5
ILL
IND
DEFOGGER SWITCH E-15
1
6
BY
B
J/C (RHEO)
GW
BY
4
3
RHEOSTAT E-01
ILL
B
2
J/C (RHEO)
B
C-32 16
J/B
C-38 4
2-B
6

DEFOGGER CIRCUIT

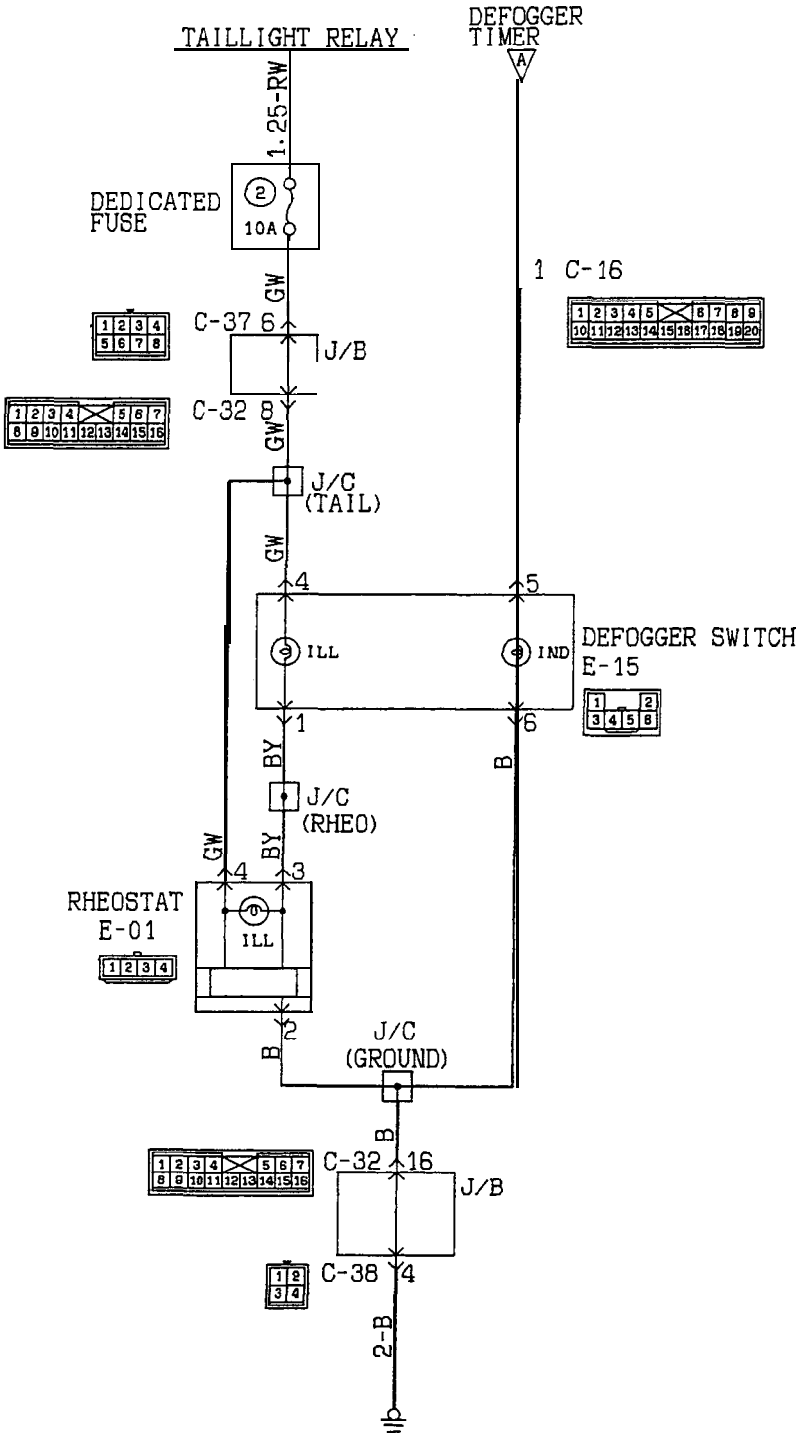
CIRCUIT DIAGRAM

<From 1991 models>



KX35-AC-H1332-NM

TSB Revision


TAILLIGHT RELAY
DEFOGGER TIMER
A
1.25-RW
DEDICATED FUSE
2
10A
GW
C-37 6
J/B
C-32 8
GW
J/C (TAIL)
GW
4
5
ILL
IND
DEFOGGER SWITCH E-15
1
6
BY
B
J/C (RHEO)
GW
BY
4
3
RHEOSTAT E-01
ILL
2
B
J/C (GROUND)
B
C-32 16
J/B
C-38 4
2-B
1 C-16

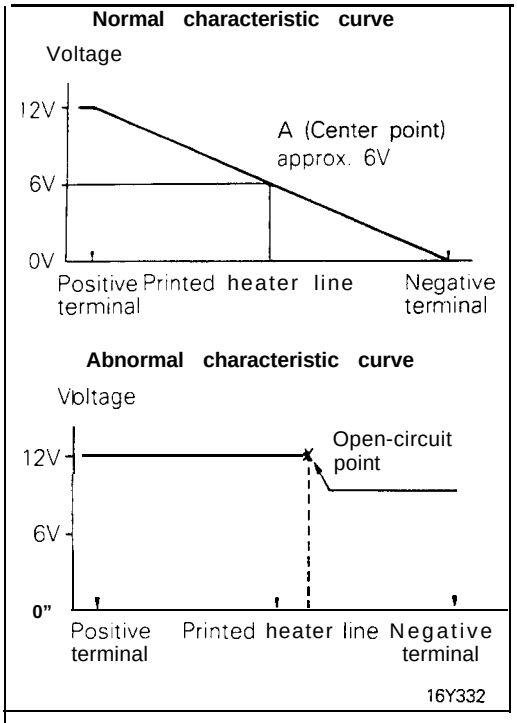
OPERATION

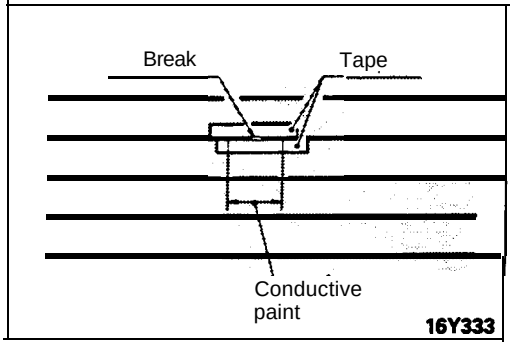
- When the defogger switch is turned ON with the ignition switch in ON position, the defogger relay is energized causing defogger to operate.
- At the same time, the defogger indicator light lights up indicating that the defogger is in operation.
- The defogger timer keeps the defogger relay remaining energized for 10 minutes after the defoaaer switch has been turned ON. If the defogger switch is pushed a second time during this 10-min. period, timer is cancelled and the defogger is turned off.

TROUBLESHOOTING HINTS

1. Defogger is inoperative.
   1) Indicator does not come on, either.
      - Check multi-purpose fuse No.②.
      - Check defogger relay.
   2) Indicator comes on.
      - Check defogger.
2. Defogger timer is inoperative.
   - Check defogger timer.

NOTE
For information concerning the defogger relay and defogger timer, refer to P.54-163 and 54-164. --





SERVICE ADJUSTMENT PROCEDURES

M54POAA

THE PRINTED-HEATER LINES CHECK

(1) Run engine at 2,000 rpm. Check heater element with battery at full.
(2) Turn ON rear window defogger switch. Measure heater element voltage with circuit tester at rear window glass center A.
Condition good if indicating about 6V.
(3) If 12 V is indicated at A, there is a break in the negative terminals from A.
Move test bar slowly to negative terminal to detect where voltage changes suddenly (0 V).
(4) If 0 V is indicated at A, there is a break in the positive terminals from A. Detect where the voltage changes suddenly (12 V) with the same method described.

THE PRINTED-HEATER LINES REPAIR

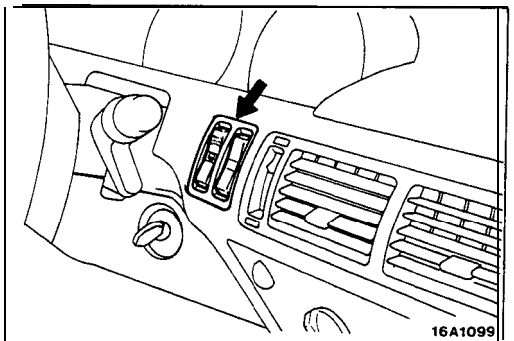
REQUIRED MATERIALS

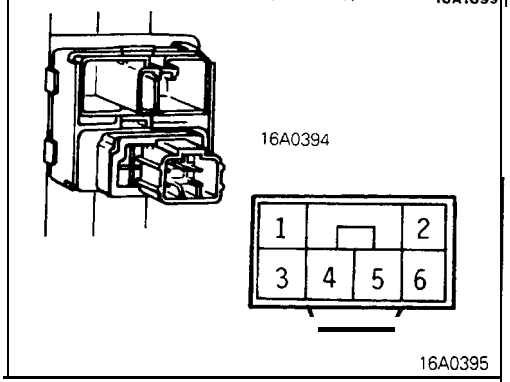
- Thinner
- Tape
- Conductive paint
- Lead-free gasoline
- Fine brush

(1) Clean disconnected area with lead-free gasoline. Tape along both sides of heater element.
(2) Mix conductive paint thoroughly. Thin the required amount of paint in a separate container with a small amount of thinner and paint break three times at 15 minute intervals.
(3) Remove tape and leave for a while before use (circuit complete).
(4) When completely dry (after 24 hours) finish exterior with a knife.

Caution
Clean glass with a soft cloth (dry or damp) along defogger heater element.

TSB Revision





REAR WINDOW DEFOGGER SWITCH

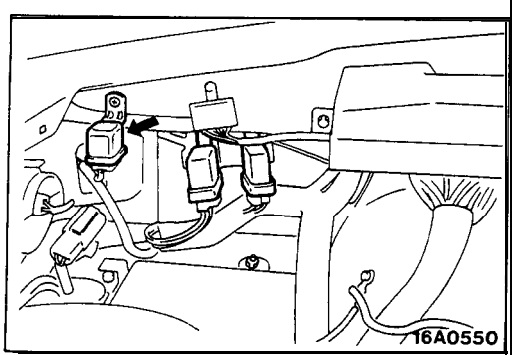
M54PJBH

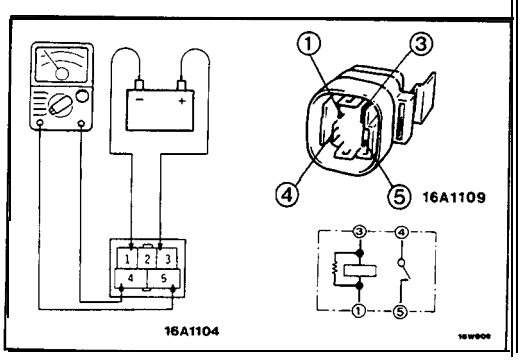
INSPECTION

Operate the switch and check the continuity between the terminals.

Switch position \ Terminal	3	2	1	4	5	6
OFF						
ON	O—O		Illumination light		Indicator light	

NOTE
O-O indicates that there is continuity between the terminals.





DEFOGGER RELAY

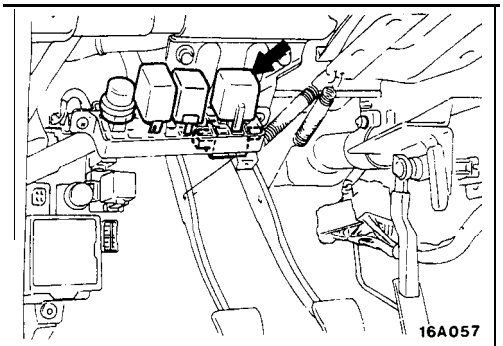
M54PLAB

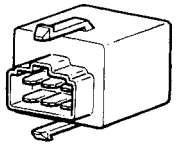
INSPECTION

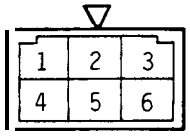
(1) Remove defogger relay.
(2) Connect battery power source to terminal 3. Check circuit between terminals with terminal 1 grounded.

Power is supplied	4–5 terminals	Continuity
Power is not supplied	4-5 terminals	No continuity
	1–3 terminals	Continuity

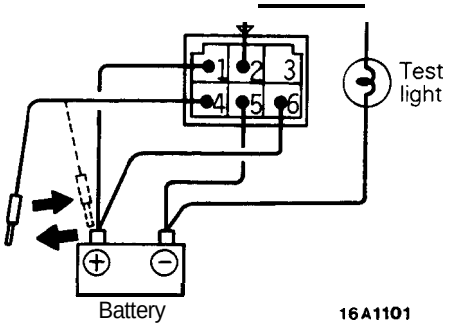
TSB Revision


16A057


16A0406



1611102



16A1101

DEFOGGER TIMER

M54PPAD

INSPECTION

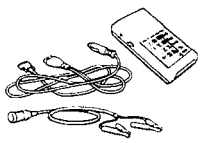
(1) Remove the defogger timer from indoor relay box.
(2) Connect the battery and the test light to the timer as shown in the figure.
(3) Check to be sure that the test lamp illuminates for approximately eleven seconds when battery voltage is applied to terminal ④ for a few seconds.
(4) Check to be sure that the test light switches OFF when battery voltage is again applied, during the test described above, to terminal ④.

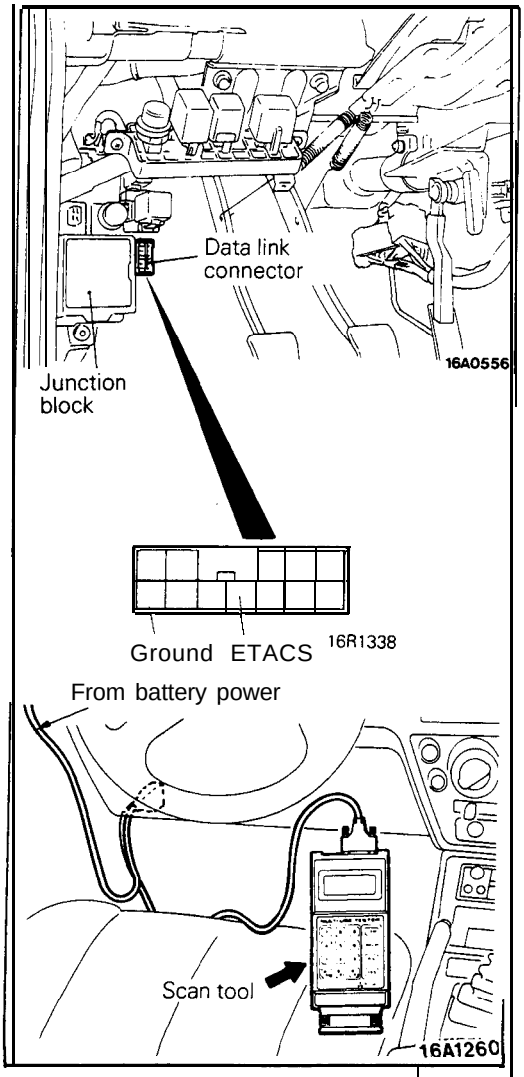
TSB Revision

THEFT-ALARM SYSTEM

M54CPACb

SPECIAL TOOLS

Tool	Number	Name	Use
	MB991341	Scan tool (Multi-use tester <MUT>)	To check the input of the theft-alarm system
		ROM pack {For the number, refer to GROUP 00–Precautions Before Service}	



TROUBLESHOOTING

M54CNAGa

INPUT CHECK

Using a scan tool, check whether or not input signals are being input from each switch to the electronic control unit.

1. Connect the scan tool to the data link connector (located at the right side of the junction block).
2. Check to be sure that voltage should be output with the ignition key "OFF", door switch "ON" (door opening) **and** the following switch "ON".
   - Key-reminder switch
   - Hood switch
   - Door switch
   - Door lock actuator switch
   - Door and liftgate key cylinder switch
   - Trunk lid switch

   If the buzzer does not sound, check for a malfunction of that switch or for damaged or disconnected wiring.

TSB Revision

TROUBLESHOOTING QUICK-REFERENCE TABLE (ETACS-RELATED PROBLEMS ONLY)

For information concerning the locations of electrical components, refer to GENERAL.

1. ARMING/DISARMING RELATIONSHIP

Problem	Probable cause	Check method	Remedy
The system is not armed even though the arming procedures are followed. (The SECURITY light doesn't illuminate, and the alarm doesn't function.) [The central door locking system, however, should function normally. If the central locking system does not function normally, refer to GROUP 42 – Troubleshooting.]	Damaged or disconnected wiring of ECU power supply circuit	Check by the circuit check No. 1 procedures. (P.54-169)	Replace the fuse No. 17 or repair the harness.
	Malfunction of the door lock actuator switch	Check by following individual part and the circuit check No. 6 procedures. (P.54-174)	Replace the door lock actuator or repair the harness.
	Short-circuit of door lock actuator switch input circuit		
	Damaged or disconnected wiring of left-front and right-front door switch input circuit	Check by following individual part and circuit check No. 5 procedures. (P.54-173)	Repair the harness or replace the door switch.
	Malfunction of the ECU	–	Replace the ECU.
The arming procedures are followed, but the SECURITY light doesn't illuminate. (There is an alarm, however, when an alarm test is conducted after about 20 seconds have passed.)	Damaged or disconnected wiring of SECURITY light power supply or drive circuit.	Check by following individual part and circuit check No. 9 procedures. (P.54-176)	Replace the fuse No. 9 or repair the harness.
	Damaged or disconnected wiring of SECURITY light bulb		Replace the light bulb.
	Malfunction of the ECU	–	Replace the ECU.
The armed condition is not maintained when a door is unlocked while the SECURITY light is illuminated (after the arming procedures are completed).	Damaged or disconnected wiring of door lock actuator input circuit	Check by following individual part and the circuit check No. 6 procedures. (P.54-174)	Repair the harness or replace the door lock actuator.
	Malfunction of the door lock actuator switch		
	Malfunction of the ECU	–	Replace the ECU.
The alarm sounds in error when, while the system is armed, the trunk lock is unlocked by using the key.	Damaged or disconnected wiring of trunk lid key cylinder unlock switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 7 procedures. (P.54-175)	Repair the harness or replace the trunk lid key cylinder.
	Malfunction of the trunk lid key cylinder unlock switch		
	Malfunction of the ECU	–	Replace the ECU.

NOTE
The "ECU" (electronic control unit) indicates the ETACS control unit.

TSB Revision

Problem	Probable cause	Check method	Remedy
The system is not disarmed when, while armed, a left and/or right door is opened by using the key. (Alarm sounds in error.)	Damaged or disconnected wiring of key cylinder switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 7 procedures. (P.54-175)	Repair the harness or replace the key cylinder.
	Malfunction of the key cylinder switch		
	Malfunction of the ECU	–	Replace the ECU.

2. ACTIVATION/DEACTIVATION RELATIONSHIP

Problem	Probable cause	Check method	Remedy
There is no alarm when, as an alarm test, a door is opened without using the key. (The arming and disarming are normal, however, and the alarm is activated when the trunk lid or hood is opened.)	Damaged or disconnected wiring of door switch (all doors) input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 4. (P.54-172)	Repair the harness or replace the door switch.
	Malfunction of the door switch		
	Malfunction of the electronic control unit	–	Replace the electronic control unit.
There is no alarm when, as an alarm test, the trunk lid is opened without using the key. (The alarm is activated, however, by the opening of a door.)	Damaged or disconnected wiring of trunk lid switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 8 procedures. (P.54-176)	Repair the harness or replace the trunk lid switch.
	Malfunction of the trunk lid switch		
	Malfunction of the ECU	–	Replace the ECU.
There is no alarm when, as an alarm test, the hood is opened from within the vehicle. (The alarm is activated, however, by the opening of a door.)	Damaged or disconnected wiring of hood switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 3 procedures. (P.54-171)	Repair the harness or replace the hood switch.
	Malfunction of the hood switch		
	Malfunction of the ECU	–	Replace the ECU.
Engine can't be started. Engine starting should be possible, however, when the starter relay is in the switched-off (normally closed) condition, with the ECU harness connector disconnected, etc.)	There is a short-circuit of the starter relay drive circuit and a short-circuit of the key-reminder switch at the same time.	Check by following individual part and the circuit check No. 14 procedures. (P.54-180)	Repair the harness and replace the key-reminder switch.
There is no alarm when, as an alarm test, all doors and the deck lid are opened without using the key and the hood is opened from within the vehicle. The headlights can, however, be switched ON in the usual way by using the lighting switch.)	Damaged or disconnected wiring of headlight relay or horn relay drive circuit	Check by following individual part and the circuit check No. 10, 12 procedures. (P.54-177, 178)	Repair the harness or replace the diode.
	Damaged or disconnected wiring of diode		
	Malfunction of the ECU	–	Replace the ECU.

TSB Revision

Problem	Probable cause	Check method	Remedy
The headlights flash during an alarm test, but the theft-alarm horn does not sound.	Damaged or disconnected wiring of horn relay drive circuit	Check by following individual part and the circuit check No. 10,11 procedures. (P.54-177)	Repair the harness or replace the diode or the horn relay.
	Damaged or disconnected wiring of diode		
	Malfunction of the theft-alarm horn relay		
The system is not deactivated when, during an alarm test in which the alarm is intentionally activated, the door or trunk is unlocked by using the key. (The system also cannot be disarmed.)	Damaged or disconnected wiring of key cylinder switch input circuit	If a malfunction is indicated as a result of checking the input signals, check by following individual part and the circuit check No. 7 procedures. (P.54-175)	Repair the harness or replace the key cylinder.
	Malfunction of the key cylinder switch		
	Malfunction of the ECU	–	Replace the ECU.

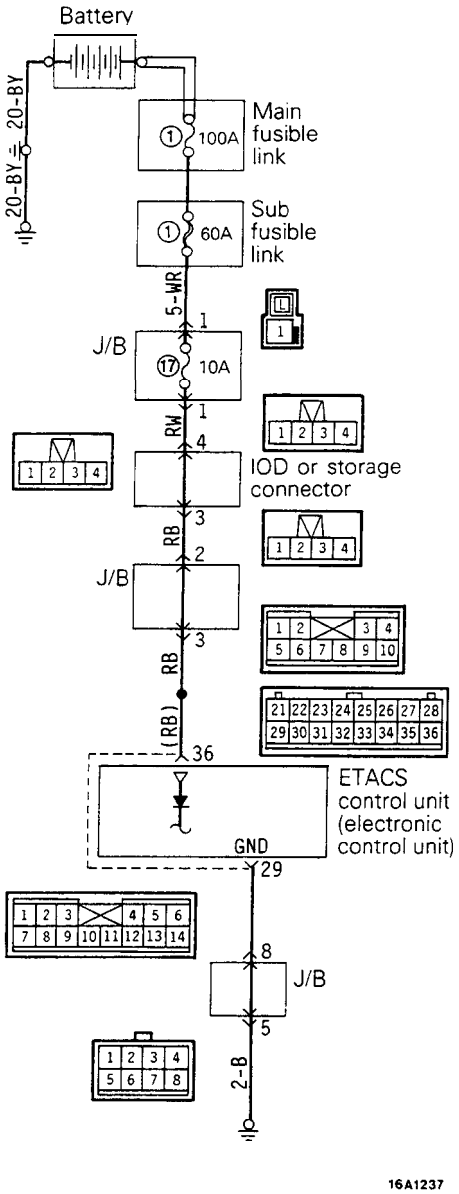
NOTE

1. If there is abnormally excessive play in the installation of the key cylinder switch of the trunk and for doors, or if there is improper installation, or if there is a malfunction of the switch itself, the signals to disarm the system and to deactivate the alarm won't be sent to the ECU.
   In this instance, after the system has been armed, the alarm will be activated even if the door is opened by using the key.
   If, however, there is a short-circuit malfunction of key cylinder switch of door, the electronic control unit will judge that there is a malfunction of the detection switch if the ignition switch is switched ON, and the alarm will not be set thereafter until the short-circuit malfunction is reset.
2. If there is a malfunction of the key cylinder switch system (damaged or disconnected wiring, or short-circuit), thus making it necessary to prevent an incorrect (accidental) alarm, the system should not be armed by using the key to lock when all the doors are closed.

TSB Revision

CHECKING THE CIRCUIT AND INDIVIDUAL PART

1 ETACS POWER-SUPPLY AND GROUND CIRCUITS



IOD:Ignition Off Draw

Description of operation

The battery supplies a stabilized 5V power supply to the ECU, via the constant-voltage circuit and terminal ㊱ (which is directly connected to the battery).

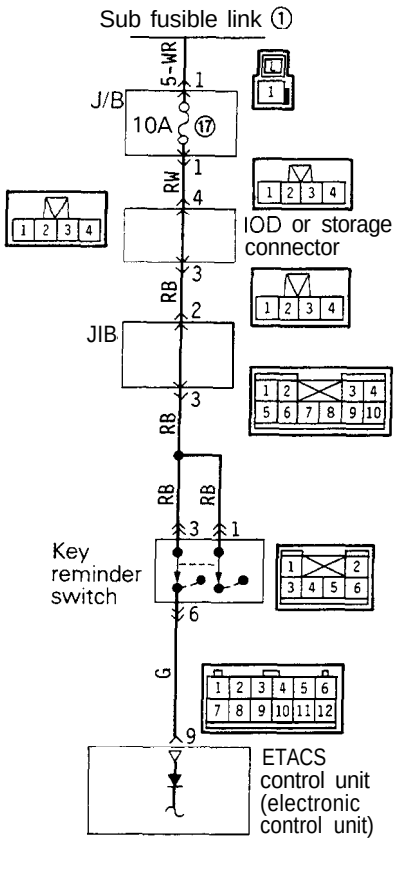
ECU terminal voltage (Connection condition of the ECU connector)

ECU terminal No.	Signal	Condition	Terminal voltage
㊱	ECU power supply	At all times	Battery positive voltage

Checking the ground circuit (Disconnect the connector and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition	Standard
㉙	ECU ground	Resistance	㉙–ground	At all times	Continuity

2. KEY-REMINDER SWITCH INPUT CIRCUIT



IOD: Ignition Off Draw

Description of operation

The key-reminder switch is switched OFF and HIGH-level signals are sent to the ECU when the key is inserted into the ignition key cylinder: when the key is removed, the key-reminder switch is switched ON and LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector)

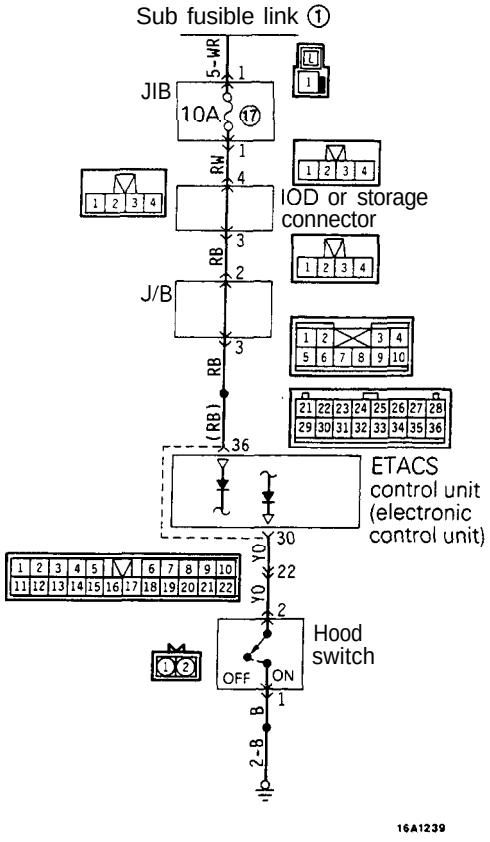
ECU terminal No.	Signal	Condition	Terminal voltage
⑨	Key-reminder switch	Key removed	Battery positive voltage
		Key inserted	ov

Checking the key-reminder switch circuit (Disconnect the connector of the ECU and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition	Standard
⑨	Key-reminder switch	Resistance	⑨–ground	Key removed	Continuity
				Key inserted	No continuity

Checking individual part:
Key-reminder switch – Refer to P.54-6.
Ignition switch – Refer to P.54-6.

3. HOOD SWITCH INPUT CIRCUIT



IOD: Ignition Off Draw

Description of operation

When the hood is closed (the hood switch is switched OFF), HIGH-level signals are 'sent to the ECU:
When the hood is opened (the hood switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector)

ECU terminal No.	Signal	Condition		Terminal voltage
㉚	Hood switch	Hood	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

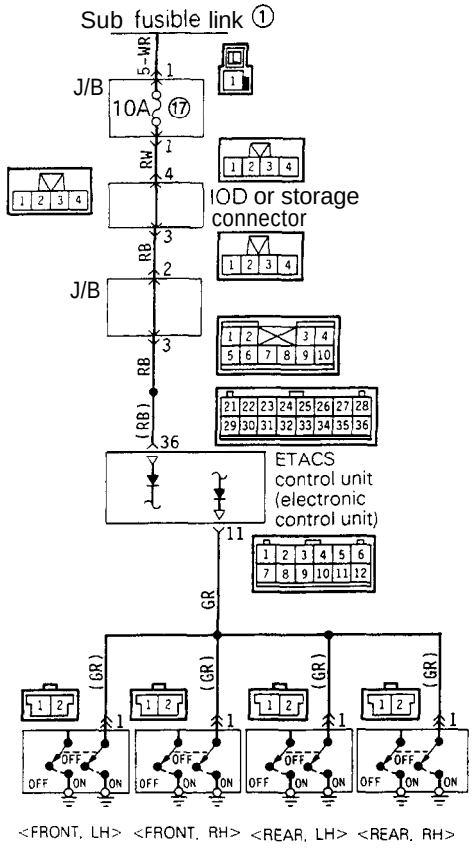
Checking the hood switch circuit (Disconnect the connector of the ECU and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
㉚	Hood switch	Resistance	㉚–ground	Hood	Closed	No continuity
					Open	Continuity

Checking individual part:
Hood switch – Refer to GROUP 42–Hood.

TSB Revision

4. DOOR SWITCH (ALL DOORS) INPUT CIRCUIT



Description of operation

When the door is closed (the door switch is switched OFF), HIGH-level signals are sent to the ECU:
When the door is opened (the door switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU)

ECU terminal No.	Signal	Condition		Terminal voltage
⑪	All door switches	All doors	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

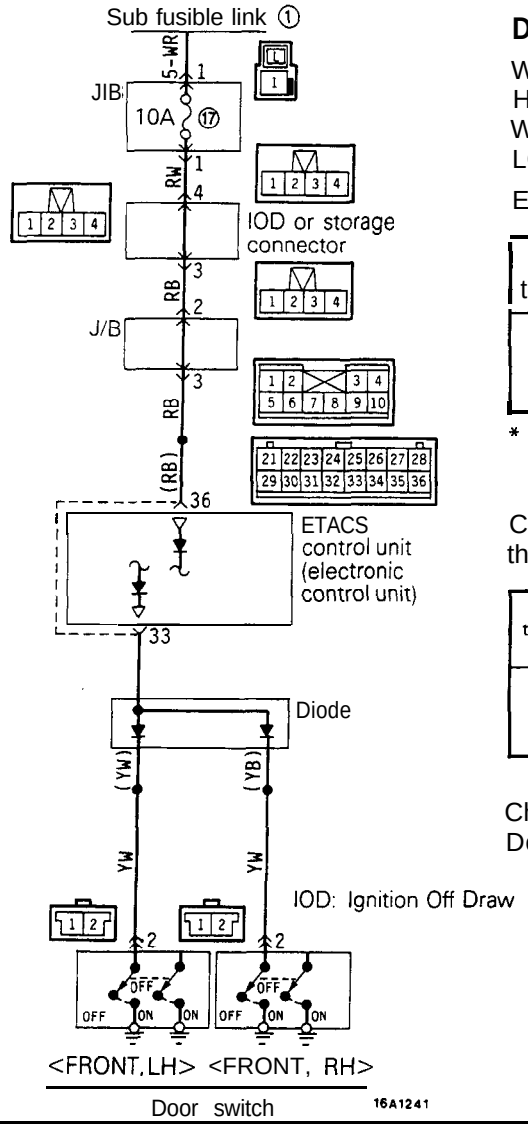
Checking the door switch circuit (Disconnect the connector of the ECU and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
⑪	All door switches	Resistance	⑪-ground	All doors	Closed	No continuity
					Open	Continuity

Checking individual part:
Door switch – Refer to GROUP 42–Door Assembly.

TSB Revision

5. DOOR SWITCH (LEFT-FRONT DOOR AND RIGHT-FRONT DOOR) INPUT CIRCUIT



Description of operation

When the door is closed (the door switch is switched OFF), HIGH-level signals are sent to the ECU:
When the door is opened (the door switch is switched ON). LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU)

ECU terminal No.	Signal	Condition		Terminal voltage
㉝	Front door switch	Front door	Open	0V
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

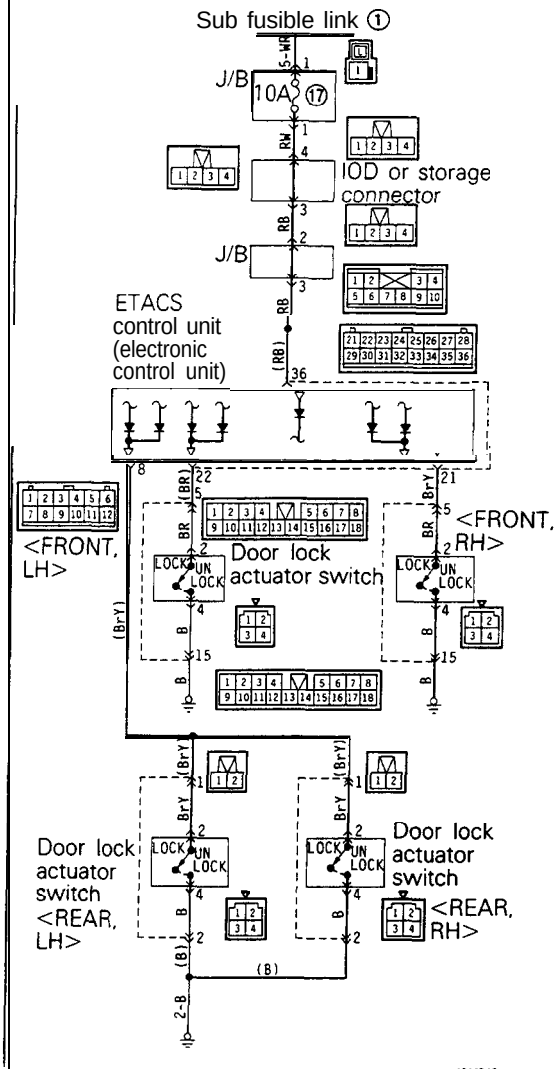
Checking the door switch circuit (Disconnect the connector of the ECU and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
㉝	Front door switch	Resistance	㉝–ground	Front door	Closed	No continuity
					Open	Continuity

Checking individual part:
Door switch – Refer to GROUP 42–Door Assembly.

TSB Revision

6. DOOR LOCK ACTUATOR SWITCH INPUT CIRCUIT



IOD: Ignition Off Draw

Description of operation

When a door is locked by the lock knob or the key, the door lock actuator switch is switched OFF, and HIGH-level signals are sent to the ECU. These signals activate the timer circuit of the ECU, there by causing the activation circuit to function, thus activating the door lock actuator of all doors.

ECU terminal voltage (Connection condition of the ECU connector)

ECU terminal No.	Signal	Condition		Terminal voltage
㉒	Door lock actuator switch (front, LH)	Door lock actuator switch	Lock: OFF	5V*
			Unlock: ON	0V
㉑	Door lock actuator switch (front, RH)	Door lock actuator switch	Lock: OFF	5V*
			Unlock: ON	0V
⑧	Door lock actuator switch (rear door)	Door lock actuator switch	Lock: OFF	5V*
			Unlock: ON	ov

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

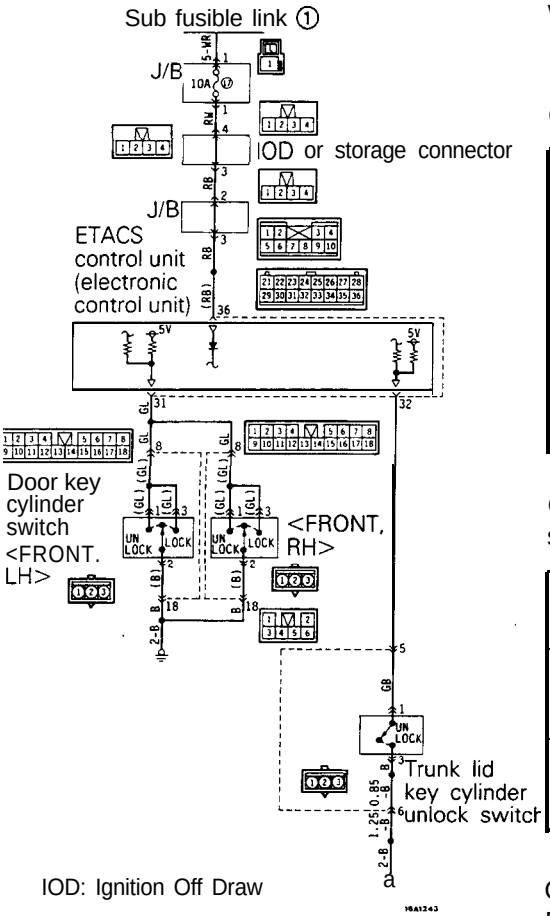
Checking the door switch circuit (Disconnect the connector of the ECU and check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
㉒	Door lock actuator switch	Resistance	@-ground	Door lock actuator switch	Lock: OFF	No continuity
					Unlock: ON	Continuity
㉑	Door lock actuator switch	Resistance	@-ground	Door lock actuator switch	Lock: OFF	No continuity
					Unlock: ON	Continuity
⑧	Door lock actuator switch	Resistance	@-ground	Door lock actuator switch	Lock: OFF	No continuity
					Unlock: ON	Continuity

Checking individual part:
Door lock actuator switch – Refer to GROUP 42–Central door locking system.

TSB Revision

7. DOOR KEY CYLINDER AND TRUNK LID UNLOCK SWITCH INPUT CIRCUIT



Description of operation

When the door key is rotated or the trunk lid key is unlocked, LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector)

ECU terminal No.	Signal	Condition		Terminal voltage
㉛	Door key cylinder switch (front, LH)	Door key cylinder	Not rotate	5V
			Rotate	ov
㉜	Trunk lid key cylinder unlock switch	Trunk lid key cylinder	Lock	5V
			Unlock	ov

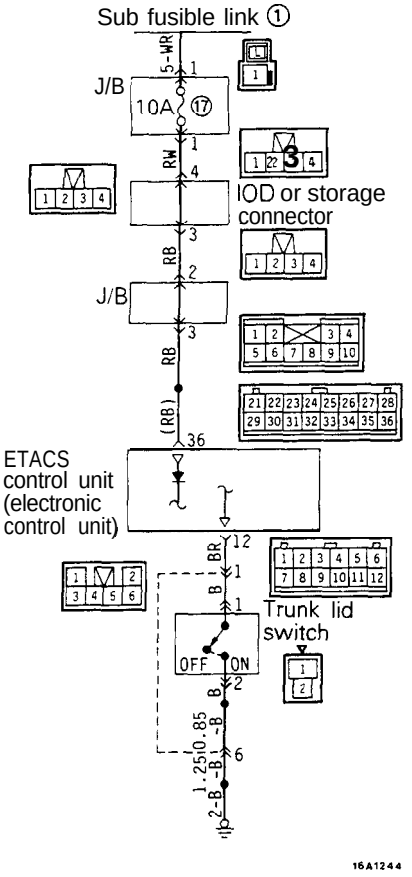
Checking the door key cylinder and trunk lid key cylinder unlock switch circuit

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
㉛	Door key cylinder switch	Resistance	@-ground	Door key cylinder	Not rotate	No continuity
					Rotate	Continuity
㉜	Trunk lid key cylinder unlock switch	Resistance	㉜–ground	Trunk lid key cylinder	Lock	No continuity
					Unlock	Continuity

Checking individual part:
Door key cylinder switch – Refer to GROUP 42–Door Handle and Latch.

TSB Revision

8. TRUNK LID SWITCH INPUT CIRCUIT



IOD: Ignition Off Draw

Description of operation

When the trunk lid is closed (the trunk lid switch is switched OFF), HIGH-level signals are sent to the ECU.
When the trunk lid is opened (the trunk lid switch is switched ON), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector)

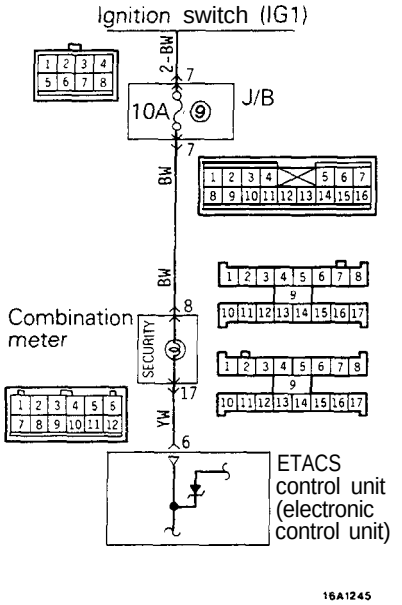
ECU terminal No.	Signal	Condition		Terminal voltage
⑫	Trunk lid switch	Trunk lid	Open	ov
			Closed	5V*

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

Checking the trunk lid switch circuit (Disconnect the connector of the ECU and Check at the wiring harness side)

ECU terminal No.	Connected to measured component	Measurement	Tester connection	Check condition		Standard
⑫	Trunk lid switch	Resistance	⑫–ground	Trunk lid	Closed	No continuity
					Open	Continuity

9. SECURITY LIGHT ACTIVATION CIRCUIT



Description of operation

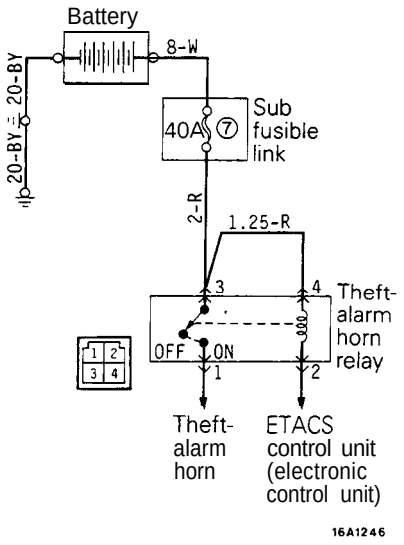
If all doors are in locked state after key locking or key-less locking, the ECU transistor is turned ON and the security light comes on.

Checking the security light activation circuit (Disconnect the connector of the ECU and check at the wiring harness side)

Step	Check object	Judgement: Normal	Judgement: Malfunction	Cause	Remedy
1	Combination meter connector terminal voltage (terminal No. 8)	Battery positive voltage	0V	Fuse ⑨ damaged or disconnected	Replace the fuse
				Harness damaged or disconnected, or short-circuit	Repair the harness
2	Combination meter connector terminal voltage (terminal No. 17)	Battery positive voltage	OV	Damaged or disconnected wiring of SECURITY light bulb	Replace the bulb
				Harness damaged or disconnected	Repair the harness
3	ECU terminal voltage	Battery positive voltage	OV	Harness damaged or disconnected. or short-circuit	Repair the harness

TSB Revision

10. THEFT-ALARM HORN RELAY POWER-SUPPLY CIRCUIT



Description of operation

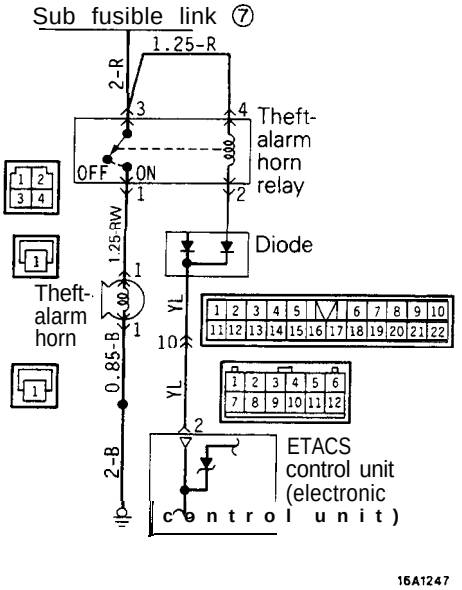
Power voltage is always supplied to the theft-alarm horn relay.

Checking the theft-alarm horn relay power-supply circuit (Disconnect the theft-alarm horn relay)

Check object	Judgement		Cause	Remedy
	Normal	Malfunction		
(Wiring harness side) terminal voltage (4–Ground)	Battery positive voltage	ov	Sub fusible link ⑦ blown	Replace the sub fusible link
			Damaged or disconnected harness	Repair the harness

Checking individual part:
Theft-alarm horn relay – Refer to P.54-105.

11. HORN ACTIVATION CIRCUIT



Description of operation

The ECU transistor is turned ON if the vehicle door, etc. are opened without use of the key.

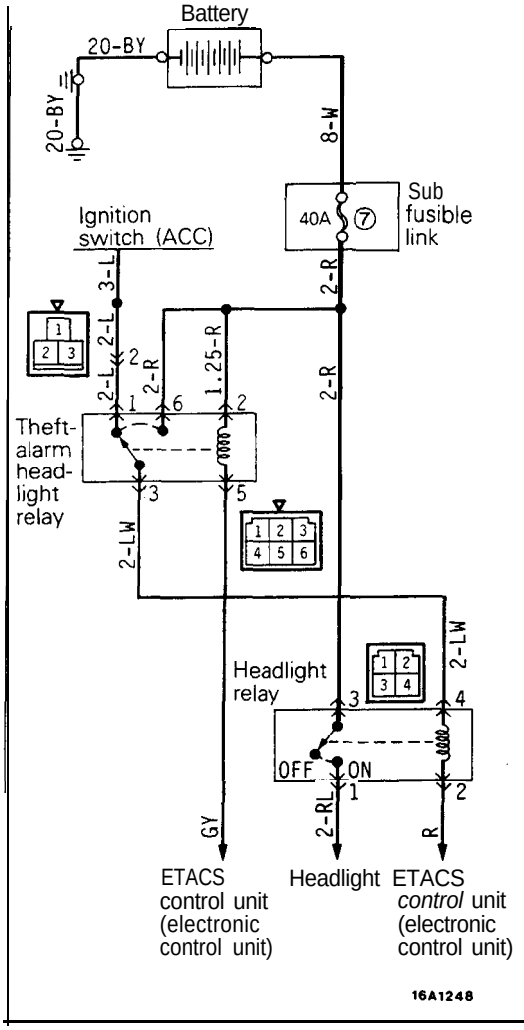
This energizes the theft-alarm horn relay to activate the theft-alarm horn.

Checking the theft-alarm horn activation circuit (Disconnect the connector of the ECU, then short-circuit terminal No. 2 (YL line), and activate the theft-alarm horn relay)

Step	Check object	Judgement		Cause	Remedy
		Normal	Malfunction		
1	Theft-alarm horn relay terminal voltage (I-Ground)	Battery positive voltage	ov	Malfunction of the theft-alarm horn relay	Check the theft-alarm horn relay (Refer to P.54-105.)
2	Theft-alarm horn terminal voltage (Battery side terminal–ground)	Battery positive voltage	OV	Harness damaged or disconnected	Repair the harness
3	Theft-alarm horn terminal voltage (Ground side terminal–Ground)	Theft-alarm horn sounds (0V)	Theft-alarm horn doesn't sound (0V)	Malfunction of the theft-alarm horn	Replace the theft-alarm horn
			Battery positive voltage	Damaged or disconnected wiring of ground circuit	Repair the harness

TSB Revision

12. HEADLIGHT POWER-SUPPLY CIRCUIT



Description of operation

Power voltage is always supplied to the headlight relay.

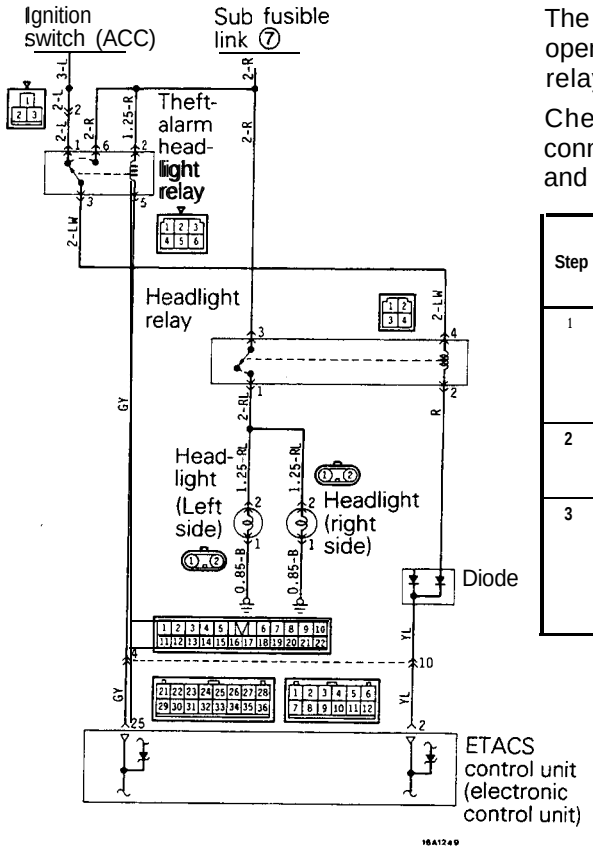
Checking the headlight power-supply circuit (Disconnect the headlight relay)

Check object	Judgement		Cause	Remedy
	Normal	Mal-function		
(Wiring harness side) terminal voltage (3–Ground)	Battery positive voltage	0 V	Sub fusible link ⑦ blown	Replace the sub fusible link
			Damaged or disconnected harness	Repair the harness

Checking individual part:
Headlight relay – Refer to P.54-97.

TSB Revision

13. HEADLIGHT ACTIVATION CIRCUIT



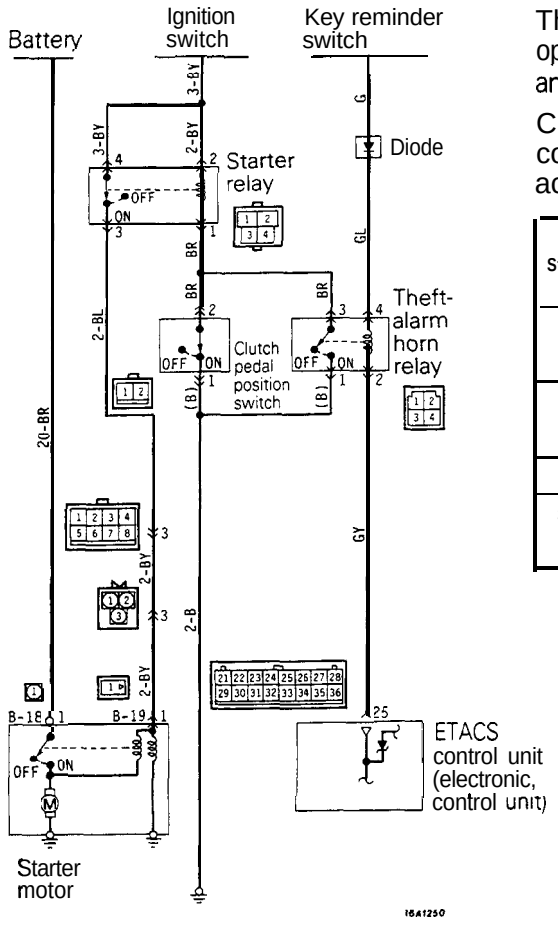
Description of operation

The ECU transistor is turned **ON** if the vehicle door, etc. are opened without use of the key. This energizes the headlight relay to activate the headlight.

Checking the headlight activation circuit (Disconnect the connector of the ECU, then short-circuit terminal No. 2 (YL line) and activate the headlight relay)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	**Headlight relay terminal voltage (1 -Ground)**	Battery positive voltage	0V	Malfunction of the headlight relay	Check the headlight relay (Refer to P.54-97.)
2	**Headlight terminal voltage (2–Ground)**	**Battery positive voltage**	**ov**	**Harness damaged or disconnected**	**Repair the harness**
3	**Headlight terminal voltage (1 -Ground)**	Battery positive voltage	The head-light isn't turned on.	**Malfunction of the headlight. Harness damaged or disconnected. Malfunction of Dimmer switch**	**Replace the headlight or dimmer switch Repair the harness**

14. STARTER RELAY ACTIVATION CIRCUIT



Description of operation

The ECU transistor is turned ON if the vehicle door etc. are opened without use of the key. This turns OFF the starter relay and power ceases to be supplied to the starter magnet switch.

Checking the starter relay activation circuit (Disconnect the connector of the ECU, depress fully the clutch pedal and activate the starter relay)

Step	Check object	Judgement		Cause	Remedy
		Normal	Mal-function		
1	Starter relay terminal voltage (3–Ground)	Battery positive voltage	ov	Malfunction of the starter relay	Check the starter relay
2	Starter motor terminal (1 -Ground)	Battery positive voltage	0V	Harness damaged or disconnected	Repair the harness
	(Starter motor connector B-19:Separation)				
3	Continuity between "B-19" connector and ground	0Ω	∞Ω	Damaged magnet switch	Replace magnet switch

TSB Revision

A

ABS
Checking by the ABS Warning Light 35-68-I
Troubleshooting 35-15-I
ABS POWER RELAY, Check 35-74-I
ACCELERATOR CABLE
Inspection and Adjustment <Auto-cruise control> 13-398-I
Inspection and Adjustment <Engine control> 13-329-I
ACCELERATOR SWITCH, Inspection and Adjustment 13-329-I
A/C COMPRESSOR CLUTCH RELAY
On-vehicle Inspection <DOHC> 13-285-I
On-vehicle Inspection <SOHC-8VALVE> 13-83-I
On-vehicle Inspection <SOHC-16VALVE> 13-176-I
ACTIVE-ECS ON-BOARD DIAGNOSTIC, Check 33B-88-I
ACTIVE-ECS RELAY 33B-141-I
ACTIVE-ECS SENSOR 33B-138-I
ACTIVE-ECS SYSTEM
Checking by Using Alarm Light 33B-87-I
Operation Check 33B-90-I
AERO PARTS 51-18-I
AIR CLEANER 15-9-I
AIR CLEANER ELEMENT
inspection and Replacement 15-6-I
Maintenance 00-39-I
AIR COMPRESSOR 33B-125-I
AIR CONDITIONING SWITCH
Emission control 17-21-I
Heater, Air Conditioning and Ventilation 55-29-I
On-vehicle Inspection <DOHC> 13-285-I
On-vehicle Inspection <SOHC-8VALVE> 13-83-I
On-vehicle Inspection <SOHC-16VALVE> 13-176-I
AIR TUBE 33B-133-I
ALARM LIGHT, Check. 33B-87-I
ALARM SYSTEM, Theft 54-165-II
ALIGNMENT
Front Wheel, Adjustment 33A-5-I
Rear Wheel, Inspection <AWD> 34-23-I
Rear Wheel, Inspection <FWD> 34-5-I
ANTENNA 54-153-II
ANTI-LOCK BRAKING SYSTEM, Troubleshooting 35-15-I
ARM
Lower <Active-ECS> 33B-103-I
Lower <Front Suspension> 33A-10-I
Lower <Rear Suspension-AWD> 34-28-I
Torsion <Active-ECS> 33B-119-I
Torsion <Rear Suspension-FWD> 34-15-I
Trailing <Rear Suspension-AWD> 34-31-I
Upper <Rear Suspension-AWD> 34-28-I
AUDIO SYSTEM 54-112-II
AUTO-CRUISE CONTROL. 13-408-I
AUTO-CRUISE CONTROL INDIVIDUAL PARTS, Inspection 13-401-I
AUTO-CRUISE CONTROL SYSTEM 13-332-I
AUTO-CRUISE CONTROL SYSTEM, Inspection 13-397-I
AUTOMATIC TRANSAXLE, Maintenance 00-43-I
AXLE
Rear, Maintenance 00-45-I
Torsion <Active-ECS> 33B-119-I
Torsion <FWD> 34-15-I
AXLE HUB
Rear <FWD-Rear Disc Brakes> 27-8-I
Rear <FWD-Rear Drum Brakes> 27-6-I
AXLE SHAFT <AWD> 27-17-I

B

BACKLASH, Total, Rear Axle, Check <AWD> 27-15-I
BALL JOINT
Rotation Starting Torque Check 37B-8-I
Tie Rod End, Starting Torque Check 37A-15-I
Tie Rod End, Variation Check 37A-15-I
BALL JOINT SEALS, Maintenance 00-45-I
BAR
Stabilizer <Active-ECS> 33B-106-I
Stabilizer <Front Suspension> 33A-13-I
Stabilizer <Rear Suspension-AWD> 34-37-I
BAROMETRIC PRESSURE SENSOR
On-vehicle Inspection <DOHC> 13-266-I
On-vehicle Inspection <SOHC-8VALVE> 13-53-I
On-vehicle Inspection <SOHC-16VALVE> 13-154-I
BASIC IDLE SPEED
Adjustment <DOHC> 13-245-I
Adjustment <SOHC-8VALVE> 13-33-I
Adjustment <SOHC-16VALVE> 13-133-I
BATTERY. 54-2-II
BATTERY, Flat Remedy. 35-75-I
BEARING
Wheel, Adjustment <Active-ECS> 33B-87-I
Wheel, Adjustment <Front Suspension> 33A-5-I
BELT
Drive, Compressor, Adjustment 55-17-I
Drive (For Water Pump and Generator), Maintenance 00-41-I
Drive, Tension Adjustment <DOHC> 11-61-I
Drive, Tension Adjustment <SOHC> 11-12-I
Seat 52-39-I
Timing <DOHC> 11-80-I
Timing <SOHC> 11-34-I
Timing, Maintenance 00-40-I
Timing, Tension Adjustment <SOHC> 11-10-I
BLEEDING
Clutch 21-6-I
4WS 37B-4-I
Service Brakes 35-57-I
Steering 37A-22-I
BLOWER.. ..... 55-32-I
BOOSTER
Brake 35-85-I
Brake, Operating Inspection 35-54-I
BOOST METER, On-vehicle Inspection <DOHC-Turbo> ... 13-31 I-I
BOOTS, Drive Shaft, Maintenance 00-45-I
BRAKE
Disc, Front 35-94-I
Disc, Rear 35-114-I
BRAKE BOOSTER 35-85-I
BRAKE BOOSTER, Operating Inspection 35-54-I
BRAKE DISC
Front, Run-out Check. 35-63-I
Front, Run-out Correction 35-64-I
Front, Thickness Check 35-65-I
Rear, Run-out Check 35-66-I
Rear, Run-out Correction. 35-66-I
Rear, Thickness Check 35-66-I
BRAKE DRUM, Inside Diameter, Check 35-67-I
BRAKE FLUID LEVEL SENSOR, Check 35-54-I
BRAKE FLUID PRESSURE SWITCH
AWD-ABS (Up to 1991 Models) 35-133-I
AWD-ABS (Up to 1991 models). Check 35-75-I
BRAKE HOSES, Maintenance 00-45-I
BRAKE LINE 35-87-I

BRAKE LINING
Thickness Check 35-67-I
Drum, Rear, Maintenance 00-44-I
BRAKE LINING AND BRAKE DRUM, Connection Check. 35-67-I
BRAKE PAD
Disc, Front, Check and Replacement 35-59-I
Disc, Rear, Check and Replacement 35-65-I
BRAKE PEDAL 35-76-I
BRAKE PEDAL, inspection and Adjustment 35-53-I
BUMPER 51-7-I

C

CABLE
Accelerator, Inspection and Adjustment <Auto-cruise Control> 13-398-I
Accelerator, Inspection and Adjustment <Engine Control> 13-329-I
High Tension, Spark Test <SOHC-8VALVE> 16-42-II
Parking Brake 36-5-I
Spark Plug, Test., 16-42-II
Speedometer, Replacement <A/T> 23-93-I
Speedometer, Replacement <M/T-AWD> 22-19-I
Speedometer, Replacement <M/T-FWD> 22-5-I
CAMSHAFT
DOHC 11-68-I
SOHC 11-19-I
CAMSHAFT OIL SEALS
DOHC 11-68-I
SOHC 11-19-I
CAMSHAFT POSITION SENSOR
On-vehicle Inspection <DOHC> 13-277-I
On-vehicle Inspection <SOHC-8VALVE> 13-69-I
On-vehicle Inspection <SOHC-16VALVE> 13-165-I
CANISTER, Evaporative Emission 17-21-I
CATALYTIC CONVERTER 17-24-I
CENTERMEMBER 32-8-I
CENTRAL DOOR LOCKING SYSTEM 42-101-I
CHARGE AIR COOLER 15-12-I
CHARGING 55-17-I
CHARGING SYSTEM. 16-2-II
CHARGING SYSTEM, Inspection 16-5-II
CHECK VALVE, Operation Check 35-54-I
CIGARETTE LIGHTER 54-106-II
CLOCK 54-109-II
CLOSED THROTTLE POSITION SWITCH
Adjustment <SOHC-16VALVE> 13-136-I
Fixed SAS, Adjustment <DOHC> 13-250-I
On-vehicle Inspection <DOHC> 13-274-I
On-vehicle inspection <SOHC-8VALVE> 13-61-I
On-vehicle Inspection <SOHC-16VALVE> 13-160-I
CLUTCH CONTROL 21-10-I
CLUTCH MASTER CYLINDER 21-12-I
CLUTCH PEDAL 21-7-I
CLUTCH PEDAL, Inspection and Adjustment 21-5-I
CLUTCH RELAY, A/C Compressor, On-vehicle Inspection <DOHC> 13-285-I
CLUTCH RELEASE CYLINDER 21-13-I
COIL
Ignition. On-vehicle Inspection <DOHC> 13-302-I
Ignition, On-vehicle Inspection <SOHC-8VALVE> 13-96-I
Ignition, On-vehicle Inspection <SOHC-16VALVE> 13-186-I
COLUMN SWITCH 54-100-II
COMBINATION LIGHT, Rear. 54-95-II
COMPRESSION PRESSURE
Check <DOHC> 11-59-I
Check <SOHC> 11-8-I
COMPRESSOR 55-38-I
COMPRESSOR, Air 33B-125-I
COMPRESSOR DRIVE BELT, Adjustment. 55-17-I
COMPRESSOR NOISE, Adjustment 55-23-I
CONDENSER, 55-48-I
CONDENSER FAN MOTOR 55-48-I
CONSOLE, Floor 52-29-I
CONTROL
Engine 13-328-I
Transaxle <A/T> 23-94-I
Transaxle <M/T-AWD> 22-19-I
Transaxle <M/T-FWD> 22-6-I
CONTROL SYSTEM
Evaporative Emission 17-15-I
Intake Charge Pressure, Inspection 15-7-I
Mixture (MFI) 17-29-I
Purge, Inspection <Non-Turbo> 17-17-I
Purge, Inspection <Turbo> 17-18-I
CONTROL UNIT
ABS 35-134-I
Active-ECS 33B-140-I
EPS 37A-59-I
CONTROL VALVE <4WS> 37B-12-I
COOLANT
Engine, Concentration Test 14-8-I
Engine, Leak Check 14-8-I
Engine, Maintenance. 00-44-I
Engine, Replacement 14-8-I
CRANKCASE VENTILATION SYSTEM, Inspection 17-14-I
CRANKSHAFT POSITION SENSOR
On-vehicle Inspection <DOHC> 13-280-I
On-vehicle Inspection <SOHC-8VALVE> 13-73-I
On-vehicle Inspection <SOHC-16VALVE> 13-167-I
CROSSMEMBER 32-8-I
CURB IDLE SPEED
Inspection <DOHC> 13-245-I
Inspection <SOHC-8VALVE> 13-32-I
Inspection <SOHC-16VALVE> 13-133-I
CYLINDER
Master 35-81-I
Power 37B-9-I
Wheel, Rear Brake 35-111-I
Wheel. Rear, Maintenance 00-44-I
CYLINDER HEAD GASKET
DOHC 11-73-I
SOHC 11-25-I

D

DASH POT, Inspection and Adjustment <DOHC> 11-58-I
DEFOGGER, Rear Window 54-156-II
DEFOGGER RELAY 54-163-II
DEFOGGER SWITCH, Rear Window. 54-163-II
DEFOGGER TIMER 54-164-II
DELAY VALVE, Check <FWD-ABS> 35-74-I
DIAPHRAGM, Rolling, Check 33B-89-I
DIFFERENTIAL CARRIER <AWD> 27-26-I
DISC
Brake, Front, Run-out Check 35-63-I
Brake, Front, Run-out Correction 35-64-I
Brake, Front, Thichness Check 35-65-I
Brake, Rear, Run-out Check 35-66-I
Brake, Rear, Run-out Correction 35-66-I
Brake, Rear, Thichness Check 35-66-I

DISC BRAKE
Front 35-94-I
Rear 35-114-I
DISC BRAKE PADS, Maintenance 00-44-I
DISCHARGING SYSTEM 55-20-I
DISTRIBUTOR 16-55-II
DOOR 42-74-I
DOOR, Fit Adjustment ..... 42-51 -I
DOOR DRIP LINE WEATHERSTRIP
Front 42-112-I
Rear 42-114-I
DOOR GLASS
Adjustment 42-52-I
Front 42-80-I
Rear,. 42-83-I
DOOR HANDLE
Front 42-96-I
Rear 42-99-I
DOOR INSIDE HANDLE, Play Check 42-52-I
DOOR LATCH
Front 42-96-I
Rear 42-99-I
DOOR MIRROR 51-33-I
DOOR MOULDING
Front 42-112-I
Rear 42-114-I
DOOR REGULATOR
Front 42-80-I
Rear. 42-83-I
DOOR RUNCHANNEL 42-110-I
DOOR TRIM
Front 42-76-I
Rear.. ..... 42-78-I
DOOR WATERPROOF FILM
Front 42-76-I
Rear 42-78-I
DRIVE BELT
Compressor, Adjustment 55-17-I
Tension Adjustment <DOHC> 11-61-I
Tension Adjustment <SOHC> 11-12-I
Water Pump and Generator, Maintenance 00-41-I
DRIVE SHAFT
Front Axle 26-12-I
Rear Axle <AWD> 27-20-I
DRIVE SHAFT BOOTS, Maintenance 00-45-I
DRIVE SHAFT OIL SEALS
Replacement <A/T> 23-92-I
Replacement <M/T-AWD> 22-18-I
Replacement <M/T-FWD> 22-4-I
DRUM
Brake, inside Diameter, Check 35-67-I
Brake, Rear 35-108-I
DRUM BRAKE, Rear 35-108-I
DRUM BRAKE LININGS, Rear, Maintenance 00-44-I
DRYER, ... 33B-127-I

E

EGR SOLENOID <California>
Emission Control 17-28-I
On-vehicle Inspection <DOHC> 13-307-I
On-vehicle Inspection <SOHC-8VALVE> 13-101-I
On-vehicle Inspection <SOHC-16VALVE> 13-191-I
EGR SYSTEM
Inspection <California> 17-25-I
inspection <Federal> 17-25-I
EGR TEMPERATURE SENSOR <California>
Emission Control 17-28-I
On-vehicle Inspection <DOHC> 13-288-I
On-vehicle Inspection <SOHC-8VALVE> 13-85-I
On-vehicle Inspection <SOHC-16VALVE> 13-177-I
EGR VALVE 17-27-I
EGR VALVE CONTROL VACUUM 17-26-I
ELECTRONIC CONTROL UNIT <ABS> 35-134-I
ELEMENT
Air Cleaner, Inspection and Replacement 15-6-I
Air Cleaner, Maintenance 00-39-I
END PLAY
Hub, Inspection <Active-ECS> 33B-86-I
Hub, Inspection <Front Axle> 26-5-I
Rear, Wheel Bearing, Adjustment <FWD> 27-3-I
Rear Wheel Bearing, Check <AWD> 27-15-I
ENGINE
DOHC 11-63-I
SOHC 11-14-I
ENGINE CONTROL 13-328-I
ENGINE CONTROL MODULE POWER GROUND
On-vehicle Inspection <DOHC> 13-257-I
On-vehicle Inspection <SOHC-8VALVE> 13-45-I
On-vehicle Inspection <SOHC-16VALVE> 13-146-I
ENGINE CONTROL MODULE TERMINAL VOLTAGE
On-vehicle Inspection <DOHC> 13-315-I
On-vehicle Inspection <SOHC-8VALVE> 13-105-I
On-vehicle Inspection <SOHC-16VALVE> 13-192-I
ENGINE COOLANT
Concentration Test 14-8-I
Leak Check 14-8-I
Maintenance 00-44-I
Replacement 14-8-I
ENGINE COOLANT TEMPERATURE GAUGE UNIT 14-31-I
ENGINE COOLANT TEMPERATURE SENSOR
Cooling 14-31-I
Emission Control 17-21-I
On-vehicle Inspection <DOHC> 13-268-I
On-vehicle Inspection <SOHC-8VALVE> 13-55-I
On-vehicle Inspection <SOHC-16VALVE> 13-155-I
ENGINE COOLANT TEMPERATURE SWITCH
Cooling 14-31-I
Heater, Air Conditioning and Ventilation 55-57-I
ENGINE MOUNTING 32-4-I
ENGINE OIL
Check <DOHC> 11-57-I
Check <SOHC> 11-7-I
Maintenance 00-41-I
ENGINE OIL FILTER, Maintenance 00-41-I
ENGINE ROLL STOPPER 32-6-I
EPS CONTROL UNIT 37A-59-I
EPS MODE SELECTOR SWITCH 37A-59-I
EPS SOLENOID, Check 37A-19-I
EVAPORATIVE EMISSION CANISTER 17-21-I
EVAPORATIVE EMISSION CONTROL SYSTEM 17-15-I
EVAPORATIVE EMISSION PURGE SOLENOID
Emission Control 17-21-I
On-vehicle Inspection <DOHC> 13-307-I
On-vehicle Inspection <SOHC-8VALVE> 13-99-I
On-vehicle Inspection <SOHC-16VALVE> 13-189-I
EVAPORATOR 55-34-I
EXHAUST GAS RECIRCULATION (EGR) SYSTEM 17-22-I
EXHAUST MANIFOLD
DOHC-Non-Turbo 15-30-I

DOHC-Turbo 15-31-I
SOHC-8VALVE 15-27-I
SOHC-1 6VALVE 15-28-I
EXHAUST PIPE
DOHC 15-33-I
SOHC 15-32-I
EXHAUST SYSTEM, Maintenance 00-45-I

F

FAN MOTOR
Condenser 55-48-I
Radiator 14-12-I
FEEDER CABLE 54-155-II
FENDER ..... 42-61 -I
FILLER DOOR, Fuel Tank 42-60-I
FILLER TUBE CAP, Fuel Tank, Inspection 17-21-I
FILTER
Engine Oil, Maintenance ..... 00-41 -I
Fuel <DOHC> 13-327-I
Fuel <SOHC-8VALVE> 13-115-I
Fuel <SOHC-16VALVE> 13-195
FITTINGS, Handling 55-22-I
FIXED SAS
Adjustment <DOHC> 13-250-I
Adjustment <SOHC-16VALVE> 13-138-I
FLAT BATTERY, Remedy 35-75-I
FLOOR CONSOLE 52-29-I
FLUID
Power Steering, Level Check 37A-21-I
Power Steering, Replacement 37A-21-I
Transaxle, Replacement 23-82-I
FLUID LEVEL, Transaxle, Inspection 23-82-I
FOG LIGHT 54-94-II
FOG LIGHT SWITCH 54-99-II
4WS, Function Check 37B-6-I
FRONT BRAKE DISC
Run-out Check 35-63-I
Run-out Correction 35-64-I
Thickness Check 35-65-I
FRONT DISC BRAKE 35-94-I
FRONT DISC BRAKE PAD, Check and Replacement 35-59-I
FRONT DOOR DRIP LINE WEATHERSTRIP 42-112-I
FRONT DOOR GLASS 42-80-I
FRONT DOOR HANDLE 42-96-I
FRONT DOOR LATCH 42-96-I
FRONT DOOR MOULDING 42-112-I
FRONT DOOR REGULATOR 42-80-I
FRONT DOOR TRIM 42-76-I
FRONT DOOR WATERPROOF FILM 42-76-I
FRONT GRILLE 51-12-I
FRONT SEAT 52-35-I
FRONT WHEEL ALIGNMENT
Adjustment <Active-ECS> 33B-86-I
Adjustment <Front Suspension> 33A-5-I
FUEL FILTER
DOHC 13-327-I
SOHC-8VALVE 13-115-I
SOHC-16VALVE 13-195-I
FUEL HOSES, Maintenance 00-39-I
FUEL LINE
DOHC-AWD 13-326-I
DOHC-FWD 13-324-I
SOHC-8VALVE 13-113-I
SOHC-16VALVE 13-195-I
FUEL PRESSURE
On-vehicle Inspection <DOHC> 13-312-I
On-vehicle Inspection <SOHC-8VALVE> 13-102-I
On-vehicle Inspection <SOHC-16VALVE> 13-192-I
FUEL PRESSURE SOLENOID <Turbo>.
On-vehicle Inspection <DOHC> 13-307-I
FUEL PUMP
On-vehicle Inspection <DOHC> 13-258-I
On-vehicle Inspection <SOHC-8VALVE> 13-46-I
On-vehicle inspection <SOHC-16VALVE> 13-147-I
FUEL SYSTEM, Maintenance 00-39-I
FUEL TANK
DOHC-AWD 13-322-I
DOHC-FWD 13-318-I
SOHC-8VALVE 13-109-I
SOHC-16VALVE 13-195-I
FUEL TANK FILLER DOOR 42-60-I
FUEL TANK FILLER TUBE CAP, Inspection . 17-21-I
FUEL TANK PRESSURE CONTROL VALVE. 17-21-I

G

GARNISHES 51-13-I
GASKET
Cylinder Head <DOHC> 11-73-I
Cylinder Head <SOHC> 11-25-I
GAUGE UNIT. Engine Coolant Temperature 14-31-I
GEAR BOX, Power Steering 37A-32-I
GEAR OIL, Level Check <AWD> 27-15-I
GENERATOR 16-9-II
GLASS
Door, Adjustment 42-52-I
Door, Front 42-80-I
Door, Rear 42-83-I
Quarter Window 42-70-I
Window 42-63-I
Window, Rear 42-72-I
GRILLE, Front 51-12-I
G-SENSOR
Service Brakes <AWD-ABS> 35-132-I
Output Voltage, Check 33B-96-I

H

HANDLE
Door, Front 42-96-I
Door, Rear 42-99-I
Door Inside. Play Check 42-52-I
HAZARD SWITCH 54-98-II
HEADLIGHTS 54-92-II
HEADLINING 52-31-I
HEATED OXYGEN SENSOR, On-vehicle Inspection <DOHC> 13-290-I
HEATER CONTROL . . 55-25-I
HEATER UNIT 55-30-I
HEIGHT SENSOR 33B-135-I
HIGH MOUNTED STOP LIGHT 54-96-II
HIGH PRESSURE SWITCH (HIGH-PRESSURE TANK SIDE), Actuation Pressure Check. 33B-94-I
HIGH TENSION CABLE, Spark Test <SOHC-8VALVE> 16-42-II
HOOD.. ..... 42-55-I
HOOD, Alignment Adjustment 42-50-I
HORN 54-103-II
HORN RELAY 54-105-II
HOSE
Brake, Maintenance. 00-45-I

Fuel, Maintenance 00-39-I
Power Steering 37A-58-I
Transaxle Oil Cooler 23-100-I
Vacuum.. ..... 17-4-I
Water <DOHC (Non-Turbo)> 14-26-I
Water <DOHC (Turbo)> 14-28-I
Water <SOHC> 14-23-I
HUB
End Play Inspection <Active-ECS> 33B-86-I
End Play. Inspection <Front Axle> 26-5-1
Front Axle 26-1-I
Rear Axle <FWD-Rear Disc Brakes> 27-8-I
Rear Axle <FWD-Rear Drum Brakes> 27-6-I
HYDRAULIC UNIT 35-121-I
HYDRAULIC UNIT, Inspection 35-70-I

I

IAC VALVE POSITION SENSOR, On-vehicle Inspection <SOHC-16VALVE> 13-162-I
IDLE AIR CONTROL MOTOR
DC Motor, On-vehicle Inspection <SOHC-I 6VALVE> 13-184-I
Stepper Motor, On-vehicle Inspection <DOHC> 13-298-I
IDLE SPEED
Basic, Adjustment <DOHC> 13-245-I
Basic, Adjustment <SOHC-8VALVE> 13-33-I
Basic, Adjustment <SOHC-16VALVE> 13-133-I
Curb, Inspection <DOHC> 13-245-I
Curb, Inspection <SOHC-8VALVE> 13-32-I
Curb, Inspection <SOHC-16VALVE> 13-133-I
IDLE SPEED CONTROL MOTOR (DC Motor), On-vehicle Inspection <SOHC-8VALVE> 13-93-I
IDLE SPEED CONTROL MOTOR POSITION SENSOR, On-vehicle inspection <SOHC-8VALVE> 13-64-I
IDLE-UP OPERATION, Check 55-24-I
IGNITION COIL
On-vehicle Inspection <DOHC> 13-302-I
On-vehicle Inspection <SOHC-8VALVE> 13-96-I
On-vehicle Inspection <SOHC-16VALVE> 13-186-I
IGNITION POWER TRANSISTOR
On-vehicle Inspection <DOHC> 13-302-I
On-vehicle Inspection <SOHC-8VALVE> 13-96-I
On-vehicle Inspection <SOHC-I 6VALVE> 13-186-I
IGNITION SWITCH
Chassis Electrical 54-6-II
On-vehicle inspection <DOHC> 13-284-I
On-vehicle inspection <SOHC-8VALVE, A/T> 13-78-I
On-vehicle Inspection <SOHC-8VALVE, M/T> 13-77-I
On-vehicle Inspection <SOHC-16VALVE, A/T> 13-172-I
On-vehicle Inspection <SOHC-16VALVE, M/T> 13-171-I
IGNITION SYSTEM 16-32-II
IGNITION TIMING
Adjustment <DOHC> 16-40-II
Adjustment <SOHC> 16-39-II
INDICATOR .. 33B-140-I
INDIVIDUAL PARTS, Auto-cruise Control, Inspection 13-401-I
INFLATION PRESSURE, Tire, Check 31-4-I
INJECTORS
On-vehicle Inspection <DOHC> 13-295-I
On-vehicle Inspection <SOHC-8VALVE> 13-90-I
On-vehicle Inspection <SOHC-16VALVE> 13-181-I
INSTRUMENT PANEL 52-22-I
INTAKE AIR TEMPERATURE SENSOR
Emission Control 17-21 -I
On-vehicle Inspection <DOHC> 13-263-I
On-vehicle Inspection <SOHC-8VALVE> 13-51 -I
On-vehicle Inspection <SOHC-16VALVE> 13-152-I
INTAKE CHARGE PRESSURE CONTROL SYSTEM, Inspection 15-7-I
INTAKE MANIFOLD
DOHC 15-21-I
SOHC-8VALVE 15-14-I
SOHC-16VALVE 15-18-I

K

KEY INTERLOCK MECHANISM, Check. 23-83-I
KICKDOWN SERVO, Adjustment 23-86-I
KNOCK SENSOR, On-vehicle Inspection <DOHC-Turbo and DOHC (1992 From models)> 13-287-I
KNUCKLE 26-6-I

L

LASH ADJUSTERS
Check <DOHC> 11-57-I
Check <SOHC> 11-7-I
LATCH
Door, Front 42-96-I
Door, Rear 42-99-I
LATERAL ROD
Active-ECS 33B-117-I
Rear Suspesion <FWD> 34-14-I
LEAK, Refrigerant, Repair Procedure 55-21-I
LEVEL
Fluid, Transaxle, Inspection 23-82-I
Oil, Transfer, Inspection. 23-82-I
LEVER
Parking Brake 36-4-I
Parking Brake, Stroke Check 36-2-I
Selector, Operation Check. 23-83-I
Shift <AWD> 22-19-I
Shift <FWD> 22-9-I
LID
Trunk 42-57-I
Trunk, Adjustment 42-50-I
LIGHT
Alarm, Check 33B-87-I
Rear Combination 54-95-II
Stop, High Mounted 54-96-II
LIGHTING SYSTEM 54-38-II
LINE
Brake 35-87-I
Fuel <DOHC-AWD> 13-326-I
Fuel <DOHC-FWD> 13-324-I
Fuel <SOHC-8VALVE> 13-113-I
Fuel <SOHC-16VALVE> 13-195-I
Refrigerant 55-54-I
Vapor <DOHC-AWD> 13-326-I
Vapor <DOHC-FWD> 13-324-I
Vapor <SOHC-8VALVE> 13-113-I
Vapor <SOHC-I 6VALVE> 13-195-I
LINE PRESSURE, Adjustment 23-88-I
LINING
Brake, Thickness Check. 35-67-I
Rear Drum Brake, Maintenance 00-44-I
LOOSE PANEL 42-62-I
LOWER ARM
Active-ECS 33B-103-I
Front Suspension 33A-10-I
Rear Suspesion <AWD> 34-28-I

LOw PRESSURE SWITCH (LOW-PRESSURE TANK SIDE), Actuation Pressure Check, ... 33B-95-I

M

MAIN MUFFLER
D O H C 15-33-I
SOHC 15-32-I
MANIFOLD
Exhaust <DOHC-Non-Turbo> 15-30-I
Exhaust <DOHC-Turbo> 15-31-I
Exhaust <SOHC-8VALVE> 15-27-I
Exhaust <SOHC-16VALVE> 15-28-I
Intake <DOHC> 15-21-I
Intake <SOHC-8VALVE> 15-14-I
Intake <SOHC-16VALVE> 15-18-I
Vacuum Inspection <DOHC> 11-60-I
Vacuum Inspection <SOHC> 11-9-I
MANUAL TRANSAXLE
AWD 22-15-I
FWD 22-2-I
Maintenance 00-42-I
MASTER CYLINDER
Clutch 21-12-I
Service Brakes ..... 35-81 -I
METER, Boost, On-vehicle Inspection <DOHC-Turbo> 13-311-I
METERS AND GAUGES 54-8-II
MIRROR, Door 51-33-I
MIRROR SWITCH, Remote Controlled 51-34-I
MIXTURE CONTROL (MFI) SYSTEM 17-29-I
MODE SELECTOR SWITCH EPS 37A-59-I
MOTOR
Idle Air Control (DC Motor), On-vehicle Inspection <SOHC-16VALVE> 13-184-I
Idle Air Control (Stepper Motor), On-vehicle Inspection <DOHC> 13-298-I
Idle Speed Control (DC Motor), On-vehicle inspection <SOHC-8VALVE> 13-93-I
Starter 16-19-II
MOULDING
Door, Front 42-112-I
Door, Rear 42-114-I
Exterior 51-15-I
MOUNTING
Engine 32-4-I
Transaxle. 32-5-I
MUFFLER
Main <DOHC> 15-33-I
Main <SOHC> 15-32-I

N

NOISE, Compressor, Adjustment 55-23-I
NORMAL VEHICLE HEIGHT, Check and Adjustment 33B-88-I

0

OIL
Engine, Check <DOHC> 11-57-I
Engine, Check <SOHC> 11-7-I
Engine, Maintenance 00-41-I
Transaxle. Replacement <AWD> 22-18-I
Transaxle, Replacement <FWD> 22-4-I
Transfer, Replacement 23-82-I
OIL COOLER HOSES, Transaxle 23-100-I
OIL FILTER, Engine, Maintenance 00-41-I
OIL LEVEL
Gear, Check <AWD> 27-15-I
Transaxle, Inspection <AWD> 22-17-I
Transaxle, Inspection <FWD> 22-4-I
Transfer, Inspection 23-82-I
OIL LINE, Rear, ... 37B-13-I
OIL PAN
DOHC 11-71-I
SOHC 11-23-I
OIL PRESSURE SWITCH, Power Steering, Check. 37A-24-I
OIL PUMP
Power Steering 37A-48-I
Power Steering, Pressure Test 37A-23-I
Rear.. ..... 37B-15-I
Rear, Discharge Flow Volume Check 37B-6-I
OIL SCREEN
DOHC 11-71-I
SOHC 11-23-I
OIL SEALS
Camshaft <DOHC> 1 1-68-I
Camshaft <SOHC> 11-19-I
Drive Shaft, Replacement <A/T> 23-92-I
Drive Shaft, Replacement <AWD> 22-18-I
Drive Shaft, Replacement <FWD> 22-4-I
Transfer, Replacement <AWD> 22-19-I
OUTPUT VOLTAGE, G sensor, Check 33B-96-I
OXYGEN SENSOR
On-vehicle Inspection <SOHC-8VALVE> ... 13-87-I
On-vehicle Inspection <SOHC-16VALVE> 13-179-I

P

PAD
Disc Brake, Front, Check and Replacement ... 35-59-I
Disc Brake, Maintenance. 00-44-I
Disc Brake, Rear, Check and Replacement 35-65-I
PANEL, Loose 42-62-I
PARKING BRAKE CABLE 36-5-I
PARKING BRAKE LEVER 36-4-I
PARKING BRAKE LEVER, Stroke Check 36-2-I
PARKING BRAKE SWITCH, Check 36-3-I
PARK/NEUTRAL POSITION SWITCH
Adjustment 23-84-I
On-vehicle Inspection <DOHC, A/T> 13-284-I
On-vehicle Inspection <SOHC-8VALVE, A/T> 13-78-I
On-vehicle Inspection <SOHC-16VALVE, A/T> 13-172-I
PCV VALVE, Inspection 17-14-I
PEDAL
Brake.. ..... 35-76-I
Brake, Inspection and Adjustment 35-53-I
Clutch 21-7-I
Clutch, Inspection and Adjustment 21-5-I
PERFORMANCE TEST 55-21-I
PIPE
Exhaust <DOHC> 15-33-I
Exhaust <SOHC> 15-32-I
Water <DOHC (Non-Turbo)> 14-26-I
Water <DOHC (Turbo)> 14-28-I
Water <SOHC> 14-23-I
PLAY
End, Hub, Inspection <Active-ECS> 33B-86-I
End, Hub, Inspection <Front Axle> 26-5-I
End, Rear Wheel Bearing, Check <AWD> 27-15-I
End, Wheel Bearing, Adjustment <FWD> 27-3-I

PLUG
Spark, Maintenance 00-40-I
Spark, Test 16-42-II
POSITIVE CRANKCASE VENTILATION SYSTEM 17-13-I
POSITIVE CRANKCASE VENTILATION (PCV) VALVE, Inspection 17-14-I
POWER AMPLIFIER 54-151-II
POWER CYLINDER 37B-9-I
POWER GROUND
Engine Control Module, On-vehicle Inspection <DOHC> 13-257-I
Engine Control Module, On-vehicle Inspection <SOHC-8VALVE> 13-45-I
Engine Control Module, On-vehicle Inspection <SOHC-16VALVE> 13-146-I
POWER RELAY
ABS, Check 35-74-I
Air Conditioning and Ventilation, Check 55-24-I
POWER STEERING, Stationary Steering Effort Check 37A-18-I
POWER STEERING FLUID
Level Check 37A-21-I
Replacement 37A-21-I
POWER STEERING GEAR BOX. 37A-32-I
POWER STEERING HOSES 37A-58-I
POWER STEERING OIL PUMP 37A-48-I
POWER STEERING OIL PUMP, Pressure Test 37A-23-I
POWER STEERING PRESSURE SWITCH
Check 37A-24-I
On-vehicle inspection <DOHC> 13-284-I
On-vehicle Inspection <SOHC-8VALVE> 13-81-I
On-vehicle Inspection <SOHC-I 6VALVE> 13-175-I
POWER SUPPLY
On-vehicle Inspection <DOHC> 13-255-I
On-vehicle inspection <SOHC-8VALVE> 13-42-I
On-vehicle Inspection <SOHC-16VALVE> 13-143-I
POWER TRANSISTOR
Ignition. On-vehicle Inspection <DOHC> 13-302-I
Ignition, On-vehicle Inspection <SOHC-8VALVE> 13-96-I
Ignition, On-vehicle Inspection<SOHC-16VALVE> 13-186-I
POWER WINDOW 42-86-I
PRESSURE
Compression, Check <DOHC> 11-59-I
Compression, Check <SOHC> 11-8-I
Fuel, On-vehicle Inspection <DOHC> 13-312-I
Fuel, On-vehicle Inspection <SOHC-8VALVE> 13-102-I
Fuel, On-vehicle Inspection <SOHC-16VALVE> 13-192-I
Inflation, Tire, Check 31-4-I
Line, Adjustment 23-88-I
Reducing, Adjustment ..... 23-91 -I
PRESSURE SWITCH
Brake Fluid <AWD-ABS: Up to 1991 Models> 35-133-I
Brake Fluid, Check AWD-ABS: Up to 1991 Models> 35-75-I
PROPELLER SHAFT 25-4-I
PROPORTIONING VALVE, Function Test 35-56-I
PUMP
Fuel, On-vehicle Inspection <DOHC> 13-258-I
Fuel. On-vehicle Inspection <SOHC-8VALVE> 13-46-I
Fuel, On-vehicle Inspection <SOHC-16VALVE> 13-147-I
Oil, Rear 37B-15-I
Water <DOHC> 14-20-I
Water <SOHC> 14-15-I
PURGE CONTROL SYSTEM
Inspection <Non-Turbo> 17-17-I
Inspection <Turbo> 17-18-I
PURGE CONTROL VALVE <Turbo> 17-20-I
PURGE PORT VACUUM 17-19-I

Q

QUARTER WINDOW GLASS 42-70-I

R

RADIATOR 14-9-I
RADIATOR CAP, Pressure Test 14-8-I
RADIATOR FAN MOTOR 14-12-I
RADIO AND TAPE PLAYER 54-149-II
REAR AXLE
Maintenance 00-45-I
Total Backlash Check <AWD> 27-15-I
REAR AXLE HUB
FWD-Rear Disc Brakes 27-8-I
FWD-Rear Drum Brakes 27-6-I
REAR BRAKE DISC
Run-out Check 35-66-I
Run-out Correction 35-66-I
Thickness Check 35-66-I
REAR BRAKE WHEEL CYLINDER ..... 35-11 I-I
REAR COMBINATION LIGHT 54-95-II
REAR DISC BRAKE 35-114-I
REAR DISC BRAKE PAD, Check and Replacement. 35-65-I
REAR DOOR DRIP LINE WEATHERSTRIP 42-114-I
REAR DOOR GLASS 42-83-I
REAR DOOR HANDLE 42-99-I
REAR DOOR LATCH 42-99-I
REAR DOOR MOULDING 42-114-I
REAR DOOR REGULATOR 42-83-I
REAR DOOR TRIM 42-78-I
REAR DOOR WATERPROOF FILM 42-78-I
REAR DRUM BRAKE. 35-108-I
REAR DRUM BRAKE LININGS, Maintenance 00-44-I
REAR HUB, Rotary-sliding Resistance (Torque) Adjustment <FWD> 27-5-I
REAR OIL LINE 37B-13-I
REAR OIL PUMP
Discharge Flow Volume Check 37B-6-I
4WS 37B-15-I
REAR SEAT 52-37-I
REAR SUSPENSION
Active-ECS 33B-114-I
A W D 34-24-I
FWD 34-6-I
REAR WHEEL ALIGNMENT
Inspection <AWD> 34-23-I
Inspection <FWD> 34-5-I
REAR WHEEL BEARING
End Play Check <AWD> 27-15-I
Rotation Sliding Resistance Check <AWD> 27-16-I
REAR WHEEL CYLINDERS, Maintenance, ... 00-44-I
REAR WINDOW DEFFOGER 54-156-II
REAR WINDOW DEFOGGER SWITCH 54-163-II
REAR WINDOW GLASS 42-72-I
REDUCING PRESSURE, Adjustment. 23-91-I
REFRIGERANT, Leak Repair Procedure 55-21-I
REFRIGERANT LINE 55-54-I
REGULATOR
Door, Front 42-80-I
Door, Rear 42-83-I
RELAY
A/C Compressor Clutch, On-vehicle Inspection <SOHC-8VALVE> 13-83-I
A/C Compressor Clutch, On-vehicle Inspection <SOHC-I 6VALVE> 13-1 76-I

ACTIVE-ECS 33B-141-I
Defogger 54-163-II
Horn 54-105-II
Lighting System. 54-97-II
Power, Check 55-24-I
RELEASE CYLINDER. Clutch. 21-13-I
REMOTE CONTROLLED MIRROR SWITCH 51-34-I
RESERVETANK..... 33B-122-I
RESISTANCE
Rotary-sliding, Rear Hub, Adjustment <FWD> 27-5-I
Rotation Sliding. Rear Wheel Bearing, Check <AWD> 27-16-I
RESISTOR
Heater, Air Conditioning and Ventilation 55-28-I
On-vehicle Inspection <DOHC-Turbo> 13-298-I
RHEOSTAT 54-99-II
ROD
Lateral <Active-ECS> 33B-117-I
Lateral <Rear Suspesion-FWD> 34-14-I
ROLLING DIAPHRAGM, Check. 33B-89-I
ROLL STOPPER, Engine 32-6-I
ROTARY-SLIDING RESISTANCE (TORQUE), Rear Hub, Adjustment <FWD> 27-5-I
ROTATION SLIDING RESISTANCE, Rear Wheel Bearing, Check <AWD> 27-16-I
RUNCHANNEL, Door 42-110-I
RUN-OUT
Front Brake Disc, Correction 35-64-I
Rear Brake Disc, Check 35-66-I
Rear Brake Disc, Correction 35-66-I
Wheel, Check 31-4-I

S

SAFETY PRECAUTIONS 55-12-I
SEALS
Ball Joint, Maintenance 00-45-I
Steering Linkage, Maintenance. 00-45-I
SEAT
Front 52-35-I
Rear..... 52-37-I
SEAT BELT 52-39-I
SELECTOR LEVER, Operation Check 23-83-I
SENSOR
ACTIVE-ECS 33B-138-I
Barometric Pressure, On-vehicle Inspection <DOHC> 13-266-I
Barometric Pressure, On-vehicle Inspection <SOHC-8VALVE> 13-53-I
Barometric Pressure, On-vehicle Inspection <SOHC-16VALVE> 13-154-I
Brake Fluid Level, Check 35-54-I
Camshaft Position, On-vehicle Inspection <DOHC> 13-277-I
Camshaft Position, On-vehicle Inspection <SOHC-8VALVE> 13-69-I
Camshaft Position, On-vehicle Inspection <SOHC-16VALVE> 13-165-I
Crankshaft Position, On-vehicle Inspection <DOHC> 13-280-I
Crankshaft Position, On-vehicle Inspection <SOHC-8VALVE> 13-73-I
Crankshaft Position, On-vehicle Inspection <SOHC-16VALVE> 13-167-I
EGR Temperature California 17-28-I
EGR Temperature California, On-vehicle Inspection <DOHC> 13-288-I
EGR Temperature California, On-vehicle Inspection <SOHC-8VALVE> 13-85-I
EGR Temperature California, On-vehicle Inspection <SOHC-16VALVE> 13-177-I
Engine Coolant Temperature <Cooling> 14-31-I
Engine Coolant Temperature <Emission Control> 17-21-I
Engine Coolant Temperature, On-vehicle Inspection <DOHC> 13-268-I
Engine Coolant Temperature, On-vehicle Inspection <SOHC-8VALVE> 13-55-I
Engine Coolant Temperature, On-vehicle Inspection <SOHC-I 6VALVE> 13-1 55-I
G <AWD-ABS> 35-132-I
Heated Oxygen, On-vehicle Inspection <DOHC> 13-290-I
Height 33B-135-I
IAC Valve Position, On-vehicle Inspection <SOHC-I 6VALVE> 13-162-I
Idle Speed Control Motor Position, On-vehicle Inspection <SOHC-8VALVE> 13-64-I
intake Air Temperature ..... 17-21 -I
Intake Air Temperature, On-vehicle Inspection <DOHC> .. 13-263-I
Intake Air Temperature, On-vehicle Inspection <SOHC-8VALVE> 13-51 -I
Intake Air Temperature, On-vehicle Inspection <SOHC-I 6VALVE> 13-1 52-I
Knock, On-vehicle Inspection <DOHC-Turbo and DOHC (1992 From models)> 13-287-I
Oxygen, On-vehicle Inspection <SOHC-8VALVE> 13-87-I
Oxygen, On-vehicle Inspection <SOHC-16VALVE> 13-179-I
Throttle Position, Adjustment <A/T> 23-92-I
Throttle Position, Adjustment <DOHC> 13-248-I
Throttle Position, Adjustment <SOHC-8VALVE> 13-35-I
Throttle Position, Adjustment <SOHC-16VALVE> 13-136-I
Throttle Position, On-vehicle Inspection <DOHC> 13-270-I
Throttle Position, On-vehicle Inspection <SOHC-8VALVE> 13-57-I
Throttle Position, On-vehicle Inspection <SOHC-I 6VALVE> 13-1 57-I
Vehicle Speed, On-vehicle Inspection <DOHC> 13-284-I
Vehicle Speed, On-vehicle Inspection <SOHC-8VALVE> 13-80-I
Vehicle Speed, On-vehicle Inspection <SOHC-16VALVE> 13-173-I
Volume Air Flow, Emission Control 17-21 -I
Volume Air Flow, On-vehicle Inspection <DOHC> 13-261-I
Volume Air Flow, On-vehicle Inspection <SOHC-8VALVE> 13-49-I
Volume Air Flow, On-vehicle Inspection <SOHC-16VALVE> 13-150-I
Wheel Speed <ABS> 35-126-I
Wheel Speed, Output Voltage Measurement ... 35-69-I
SERVO, Kickdown, Adjustment 23-86-I
SHAFT
Axle <AWD> 27-17-I
Drive 26-12-I
Drive <AWD> 27-20-I
Propeller 25-4-I
Steering..... 37A-25-I
SHIFT LEVER
AWD 22-19-I
FWD 22-9-I
SHIFT LOCK MECHANISM, Check 23-84-I
SHOCK ABSORBER
Active-ECS 33B-110-I
Rear Suspension <AWD> 34-35-I
Rear Suspension <FWD> 34-11-I
SOLENOID VALVE
Active-ECS 33B-127-I
EGR <California> 17-28-I
EGR <California>, On-vehicle Inspection <DOHC> 13-307-I
EGR <California>, On-vehicle Inspection <SOHC-8VALVE> 13-101-I

EGR <California>, On-vehicle Inspection <SOHC-16VALVE> 13-191-I
EPS, Check 37A-19-I
Evaporative Emission Purge 17-21-I
Evaporative Emission Purge, On-vehicle Inspection <DOHC> 13-307-I
Evaporative Emission Purge, On-vehicle Inspection <SOHC-8VALVE> 13-99-I
Evaporative Emission Purge, On-vehicle Inspection <SOHC-16VALVE> 13-189-I
Fuel Pressure <Turbo>, On-vehicle Inspection <DOHC> 13-307-I
Turbocharger Waste Gate, Inspection 15-8-I
Turbocharger Waste Gate, On-vehicle Inspection <DOHC-Turbo> 13-309-I
SPARK PLUG
Maintenance 00-40-I
Test 16-42-II
SPARK PLUG CABLE, Test 16-42-II
SPEAKER. ... . 54-151 -II
SPEED SENSOR
Wheel <ABS> 35-126-I
Wheel, Output Voltage Measurement 35-69-I
SPEEDOMETER CABLE
Replacement <A/T> 23-93-I
Replacement <M/T-AWD> 22-19-I
Replacement <M/T-FWD> 22-5-I
STABILIZER BAR
Active-ECS 33B-106-I
Front Suspension 33A-13-I
Rear Suspension <AWD> 34-37-I
STARTER MOTOR 16-19-II
STARTING SYSTEM 16-14-II
STEERING GEAR BOX, Power 37A-32-I
STEERING LINKAGE SEALS, Maintenance 00-45-I
STEERING SHAFT 37A-25-I
STEERING WHEEL 37A-25-I
STEERING WHEEL
Angle Check 37A-15-I
Centering 37A-16-I
Free Play Check. 37A-15-I
Return to Center Check. 37A-19-I
STOP LIGHT, High Mounted 54-96-II
STOPPER, Roil, Engine 32-6-I
STRUT
Active-ECS 33B-97-I
Front Suspension 33A-6-I
SUNROOF
Body 42-116-I
Fit Adjustment 42-53-I
SUPERCHARGING PRESSURE, Turbocharger, inspection 15-7-I
SUSPENSION
Rear <Active-ECS> 33B-114-I
Rear <AWD> 34-24-I
Rear <FWD> 34-6-I
SWITCH
Accelerator, Inspection and Adjustment 13-329-I
Air Conditioning <Emission Control> ..... 17-21 -I
Air Conditioning <Heater, Air Conditioning and Ventilation> 55-29-I
Air Conditioning, On-vehicle Inspection <DOHC> 13-285-I
Air Conditioning, On-vehicle Inspection <SOHC-8VALVE> 13-83-I
Air Conditioning, On-vehicle Inspection <SOHC-16VALVE> 13-176-I
Brake Fluid Pressure <AWD-ABS: Up to 1991 Models> 35-133-I
Brake Fluid Pressure, Check <AWD-ABS: Up to 1991 Models> 35-75-I
Closed Throttle Position, Adjustment <DOHC> 13-250-I
Closed Throttle Position, Adjustment <SOHC-16VALVE> 13-136-I
Closed Throttle Position, On-vehicle Inspection <DOHC> 13-274-I
Closed Throttle Position, On-vehicle Inspection <SOHC-8VALVE> 13-61-I
Closed Throttle Position, On-vehicle Inspection <SOHC-16VALVE> 13-160-I
Column 54-100-II
Engine Coolant Temperature <Cooling> 14-31-I
Engine Coolant Temperature <Heater, Air Conditioning and ventilation> 55-57-I
Fog Light 54-99-II
Hazard 54-98-II
High-Pressure (High-Pressure Tank Side), Actuation Pressure Check 33B-94-I
Ignition, Chassis Electrical 54-6-II
Ignition, On-vehicle Inspection <DOHC-A/T> 13-284-I
Ignition, On-vehicle Inspection <DOHC-M/T> 13-284-I
Ignition. On-vehicle Inspection <SOHC-8VALVE, A/T> 13-78-I
Ignition, On-vehicle Inspection <SOHC-8VALVE, M / T > 13-77-I
Ignition. On-vehicle Inspection <SOHC-16VALVE, A/T> 13-172-I
Ignition, On-vehicle Inspection <SOHC-16VALVE, M/T> .. 13-171-I
Ignition, Power Supply, On-vehicle Inspection <DOHC> 13-255-I
Low-Pressure (Low-Pressure Tank Side), Actuation Pressure Check 33B-95-I
Parking Brake, Check. 36-3-I
Park/Neutral Position, Adjustment <A/T> 23-84-I
Park/Neutral Position, On-vehicle Inspection < D O H C - A / T > 13-284-I
Park/Neutral Position, On-vehicle Inspection <SOHC-8VALVE, A/T> 13-78-I
Park/Neutral Position, On-vehicle Inspection <SOHC-16VALVE, A/T> 13-172-I
Power Steering Pressure, Check, Steering 37A-24-I
Power Steering Pressure, On-vehicle Inspection <DOHC> 13-284-I
Power Steering Pressure, On-vehicle Inspection <SOHC-8VALVE> 13-81-I
Power Steering Pressure, On-vehicle Inspection <SOHC-16VALVE> 13-175-I
Rear Window Defogger 54-163-II
Remote Controlled Mirror 51-34-I

T

TANK
Fuel <DOHC-AWD> 13-322-I
Fuel <DOHC-FWD> 13-318-I
Reserve 33B-122-I
TENSION
Drive Belt Adjustment <DOHC> 11-61-I
Drive Belt Adjustment <SOHC> 11-1 2-I
Timing Belt Adjustment <SOHC> 11-10-I
TERMINAL VOLTAGE
Engine Control Module, On-vehicle Inspection <DOHC> 13-315-I
Engine Control Module, On-vehicle Inspection <SOHC-8VALVE> 13-105-I
Engine Control Module, On-vehicle Inspection <SOHC-16VALVE> . 13-192-I
TEST PROCEDURES 55-13-I
THEFT ALARM SYSTEM 54-165-II
THERMAL VACUUM VALVE <Federal> 17-27-I

THERMOSTAT 14-13-I
THICKNESS
Brake Lining, Check 35-67-I
Front Brake Disc, Check 35-65-I
Rear Brake Disc, Check 35-66-I
THROTTLE BODY (THROTTLE VALVE AREA)
Cleaning <DOHC> 13-248-I
Cleaning <SOHC-8VALVE> 13-35-I
Cleaning <SOHC-16VALVE> 13-136-I
THROTTLE POSITION SENSOR
Adjustment <A/T> 23-92-I
Adjustment <DOHC> 13-248-I
Adjustment <SOHC-8VALVE> 13-35-I
Adjustment <SOHC-16VALVE> 13-136-I
On-vehicle Inspection <DOHC> 13-270-I
On-vehicle Inspection <SOHC-8VALVE> 13-57-I
On-vehicle Inspection <SOHC-16VALVE> 13-157-I
TIE ROD END BALL JOINT
Starting Torque Check. 37A-15-I
Variation Check 37A-15-I
TIMER, Defogger 54-164-II
TIMING
Ignition, Adjustment <DOHC> 16-40-II
Ignition, Adjustment <SOHC> 16-39-II
TIMING BELT
DOHC 11-80-I
Maintenance 00-40-I
SOHC 11-34-I
Tension Adjustment <SOHC> 11-10-I
TIRE. 31-5-I
TIRE, Wear Check 31-4-I
TIRE INFLATION PRESSURE, Check., ... 31-4-I
TORSION ARM
Active-ECS 33B-1 19-I
Rear Suspension <FWD> 34-15-I
TORSION AXLE
Active-ECS 33B-1 19-I
Rear Suspension <FWD> 34-15-I
TORSION BAR. Trunk Lid, Adjustment ..... 42-51 -I
TOTAL BACKLASH, Rear Axle, Check <AWD> 27-15-I
TRAILING ARM <AWD> 34-31-I
TRANSAXLE
Automatic <AWD> 23-105-I
Automatic <FWD> 23-101-I
Automatic, Maintenance 00-43-I
Manual <AWD> 22-20-I
Manual <FWD> 22-10-I
Manual, Maintenance 00-42-I
TRANSAXLE CONTROL
A/T 23-94-I
M/T <AWD> 22-19-I
M/T <FWD> 22-6-I
TRANSAXLE FLUID
Level Inspection 23-82-I
Replacement 23-82-I
TRANSAXLE MOUNTING 32-5-I
TRANSAXLE OIL
Replacement <AWD> 22-18-I
OIL. Replacement <FWD> 22-4-I
TRANSAXLE OIL COOLER HOSES 23-100-I
TRANSAXLE OIL LEVEL
Inspection <AWD> 22-17-I
Inspection <FWD> 22-4-I
TRANSFER
A/T 23-108-I
M/T-AWD 22-23-I
TRANSFER OIL, Replacement 23-82-I
TRANSFER OIL Level Inspection 23-82-I
TRANSFER OIL SEAL, Replacement <AWD> 22-19-I
TRANSISTOR, Ignition Power, On-vehicle Inspection <DOHC> 13-302-I
TRIM
Door, Front 42-76-I
Door, Rear 42-78-I
Interior 52-33-I
TRUNK LID 42-57-I
TRUNK LID. Adjustment 42-50-I
TRUNK LID TORSION BAR, Adjustment ..... 42-51 -I
TUBE, air 33B-133-I
TUBING, Handling 55-22-I
TURBOCHARGER 15-24-I
TURBOCHARGER BYPASS VALVE, Inspection 15-8-I
TURBOCHARGER SUPERCHARGING PRESSURE, Inspection ... 15-7-I
TURBOCHARGER WASTE GATE SOLENOID
Inspection 15-8-I
On-vehicle Inspection <DOHC-Turbo> 13-309-I

U

UPPER ARM <AWD> 34-28-I

V

VACUUM
EGR Valve Control 17-26-I
Manifold Inspection <DOHC> 11-60-I
Manifold Inspection <SOHC> 11-9-I
Purge Port 17-19-I
VACUUM HOSES 17-4-I
VACUUM HOSES, Routing 17-4-I
VALVE
Bypass, Turbocharger, Inspection 15-8-I
Check, Operation Check 35-54-I
Control 37B-12-I
Delay, Check <FWD-ABS> 35-74-I
EGR 17-27-I
Fuel Tank Pressure control 17-21-I
Positive Crankcase Ventilation (PCV), Inspection 17-14-I
Proportioning, Function Test 35-56-I
Purge Control <Turbo> 17-20-I
Thermal Vacuum <Federal> 17-27-I
VAPOR LINE
DOHC-AWD 13-326-I
DOHC-FWD 13-324-I
SOHC-8VALVE 13-113-I
SOHC-16VALVE 13-195-I
V-BELT, Tension Check. 37A-21-I
VEHICLE HEIGHT, Normal, Check and Adjustment 33B-88-I
VEHICLE SPEED SENSOR
On-vehicle Inspection <DOHC> 13-284-I
On-vehicle Inspection <SOHC-8VALVE> 13-80-I
On-vehicle Inspection <SOHC-16VALVE> 13-173-I
VENTILATION SYSTEM
Crankcase, Inspection 17-14-I
Positive Crankcase 17-13-I
VENTILATORS
Air Inlet and Air Outlet 55-56-I
Instrument Panel and Floor 55-55-I
VOLUME AIR FLOW SENSOR
Emission Control 17-21-I

On-vehicle Inspection <DOHC> 13-261-I
On-vehicle Inspection <SOHC-8VALVE> 13-49-I
On-vehicle Inspection <SOHC-16VALVE> 13-150-I

W

WASHER, Windshield 51-20-I
WATER HOSE
DOHC (Non-Turbo) 14-26-I
DOHC (Turbo) 14-28-I
SOHC. 14-23-I
WATER PIPE
DOHC (Non-Turbo) 14-26-I
DOHC (Turbo) 14-28-I
SOHC 14-23-I
WATERPROOF FILM
Door, Front 42-76-I
Door, Rear 42-78-I
WATER PUMP
DOHC 14-20-I
SOHC 14-15-I
WATER TEST 42-52-I
WEAR, Tire, Check 31-4-I
WEATHERSTRIP
Front Door Drip Line 42-112-I
Rear Door Drip Line 42-114-I
WHEEL 31-5-I
WHEEL
Runout Check 31-4-I
Steering 37A-25-I
WHEEL ALIGNMENT
Front, Adjustment <Active-ECS> 33B-86-I
Front, Adjustment <Front Suspension> 33A-5-I
Rear, Inspection <AWD> 34-23-I
Rear, Inspection <FWD> 34-5-I
WHEEL BEARING
Adjustment <Active-ECS> 33B-87-I
Adjustment <Front Suspension> 33A-5-I
End Play Adjustment <FWD> 27-3-I
WHEEL CYLINDER
Rear Brake ..... 35-11 I-I
Rear, Maintenance 00-44-I
WHEEL SPEED SENSOR
ABS 35-126-I
Output Voltage Check 35-68-I
Output Voltage Measurement 35-69-I
WINDOW, Power 42-86-I
WINDOW GLASS 42-63-I
WINDOW GLASS
Quarter 42-70-I
Rear 42-72-I
WINDSHIELD 42-66-I
WINDSHIELD WASHER 51-20-I
WINDSHIELD WIPER 51-20-I

NOTES