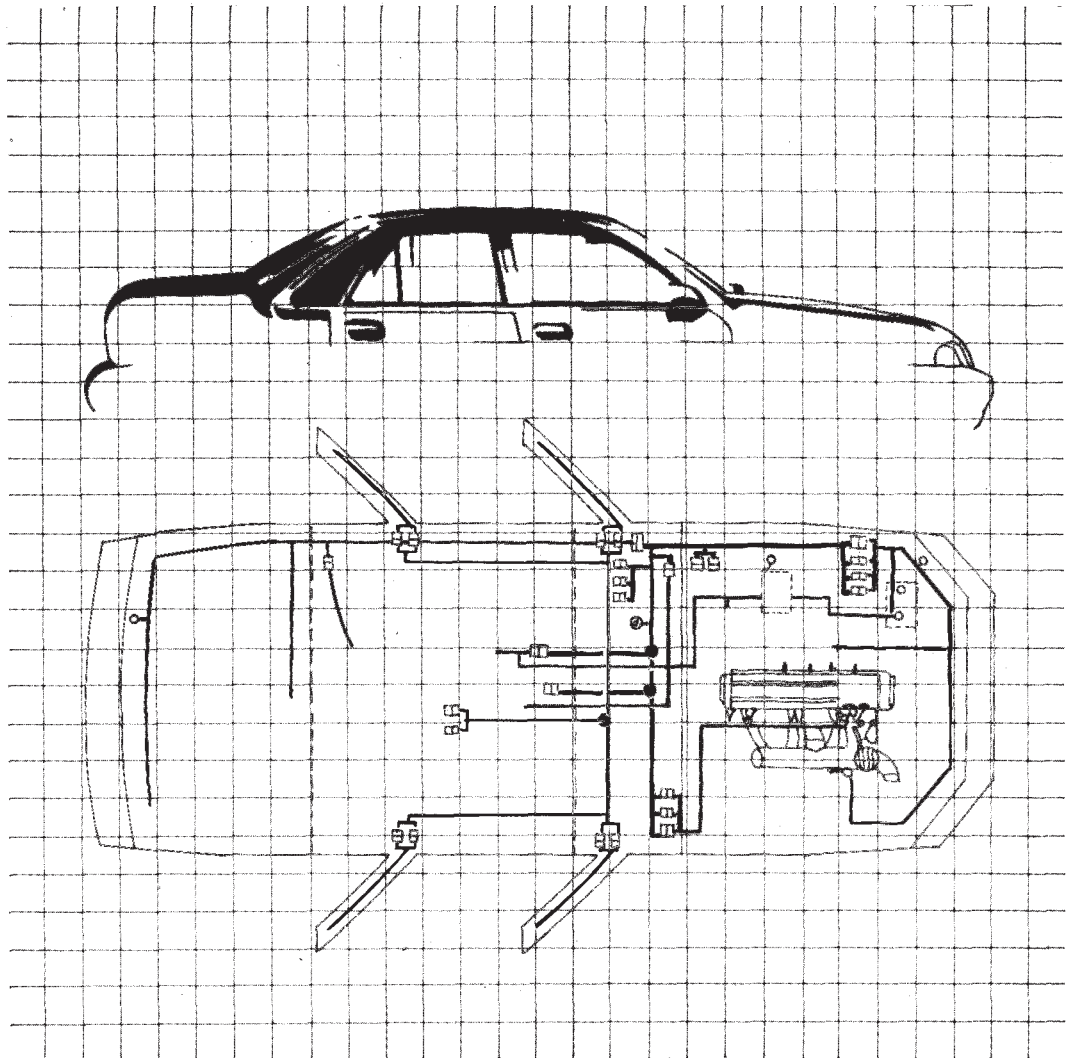


# ELECTRICAL WIRING DIAGRAM

**ESPERO ■**  
**ARANOS ■**



**DAEWOO MOTOR CO., LTD.**



# **ELECTRICAL WIRING DIAGRAM**

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ARANOS** 



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## FOREWORD

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of manual approval.  
The right is reserved to make changes at any time without notice.



**DAEWOO MOTOR CO., LTD.**

SEOUL, KOREA

## A. GENERAL DESCRIPTION

### 1. HOW TO READ WIRING DIAGRAM

Ex) E1: Head Lamp(Left)  
E2: Head Lamp(Right)  
K7: Head Lamp Relay

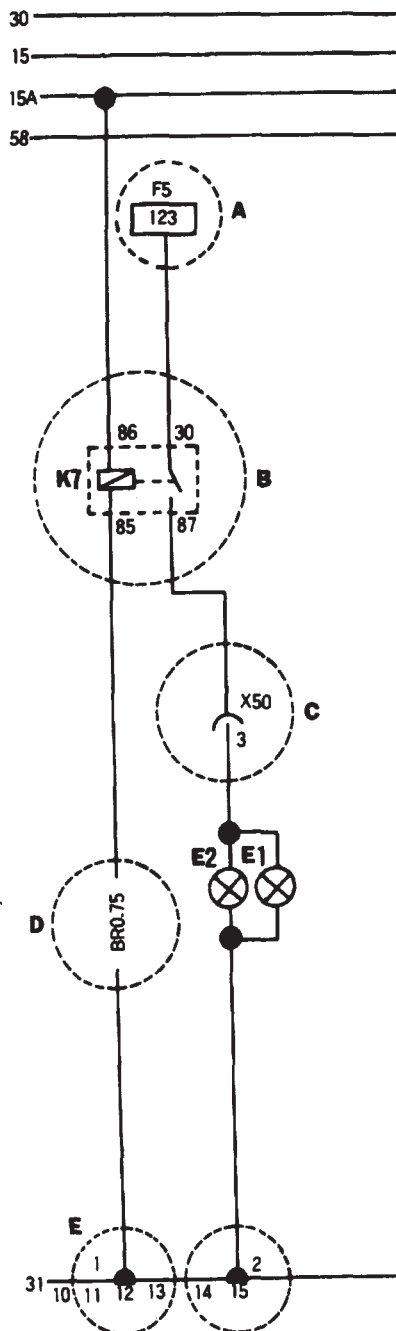
"30" Line: Battery Positive(+) Line

"15" Line: Ignition ON

"15A" Line: Ignition ON

(But, when cranking engine(Ignition 3 position), power is not supplied.)

"58" Line: Light Switch ON



A. 123: A number(123) indicates the location of connecting wiring in this diagram.  
F5: Component connected with this wiring

B. Components and Terminal Number.  
K7: Head lamp Relay  
86, 30, 85, 87: Terminal Number

C. Connector No. and Terminal No. of the two connecting harness.  
– Terminal #3 of X 50 Connector

D. Cable Color and Wiring Sectional Area  
First Letter: Basic Color  
Second Letter: Identification Color  
Figure: Cross Sectional Area

E. Ground Location

"B  $\xrightarrow{A}$  ": A and B lines are connected.

"B  $\xrightarrow{A}$  ": A and B lines are not connected, but different lines.

## 2. CIRCUIT IDENTIFICATION CODE

| IDENTIFICATION | COMPONENT    | PART NAME(EXAMPLE)              |
|----------------|--------------|---------------------------------|
| E              | Lamp         | Head Lamp, Fog Lamp             |
| F              | Protector    | Fuse                            |
| G              | Power Supply | Alternator, Battery             |
| H              | Transfer     | Horn, Speaker, Turn Signal Lamp |
| K              | Relay        | Relay                           |
| L              | Sensor       | Ignition Coil                   |
| M              | Motor        | Wiper Motor, Window Motor       |
| D              | Meter        | Tachometer, Volt Meter          |
| R              | Resistor     | Blower Resistor                 |
| S              | Switch       | Wiper Switch: Defroster Switch  |
| X              | Connector    | Connectors Between Harnesses    |
| Y              | Electrical   | Driving Unit Solenoid Valve     |

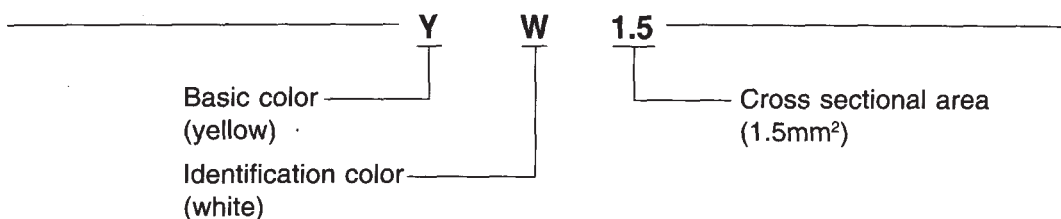
## 3. WIRING COLOR

As the wiring harness includes a large number of cables to complete individual circuits, the insulator of each cable is color coded to prevent wrong wiring. The alphabetical symbols in the following table represent the color of cables and the same symbols are also used the wiring. The cable identification symbol consists of a figure and letters.

| Symbol | Color  | Symbol | Color |
|--------|--------|--------|-------|
| L      | blue   | Br     | brown |
| Y      | yellow | Gr     | grey  |
| G      | green  | R      | red   |
| W      | white  | B      | black |
| VIO    | violet |        |       |

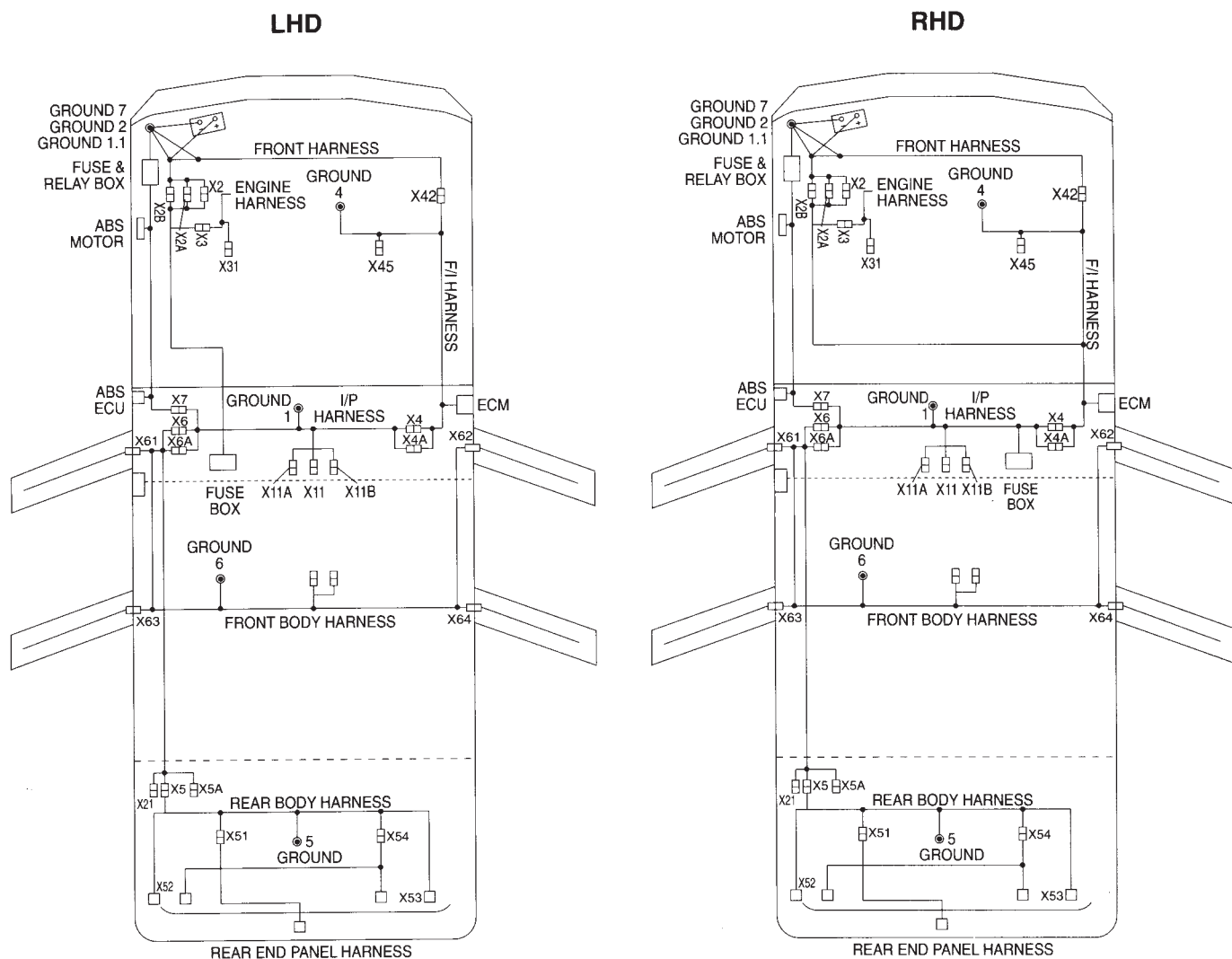
The figure indicates the size of wire and the first and second letters denote the basic color and identification color, respectively.

The size of wire is indicated in terms of sectional area.



## B. HARNESS CONNECTORS AND FUSE, RELAYS

### 1. HARNESS CONNECTOR LOCATION VIEWS (1.5 DOHC/1.8, 2.0 MPFI)



#### \* LEGEND

I/P (Instrument panel)

F/I (Fuel injection)

H.REF. (Harness reference)

**1-1. EVERY CONNECTOR DESCRIPTION**

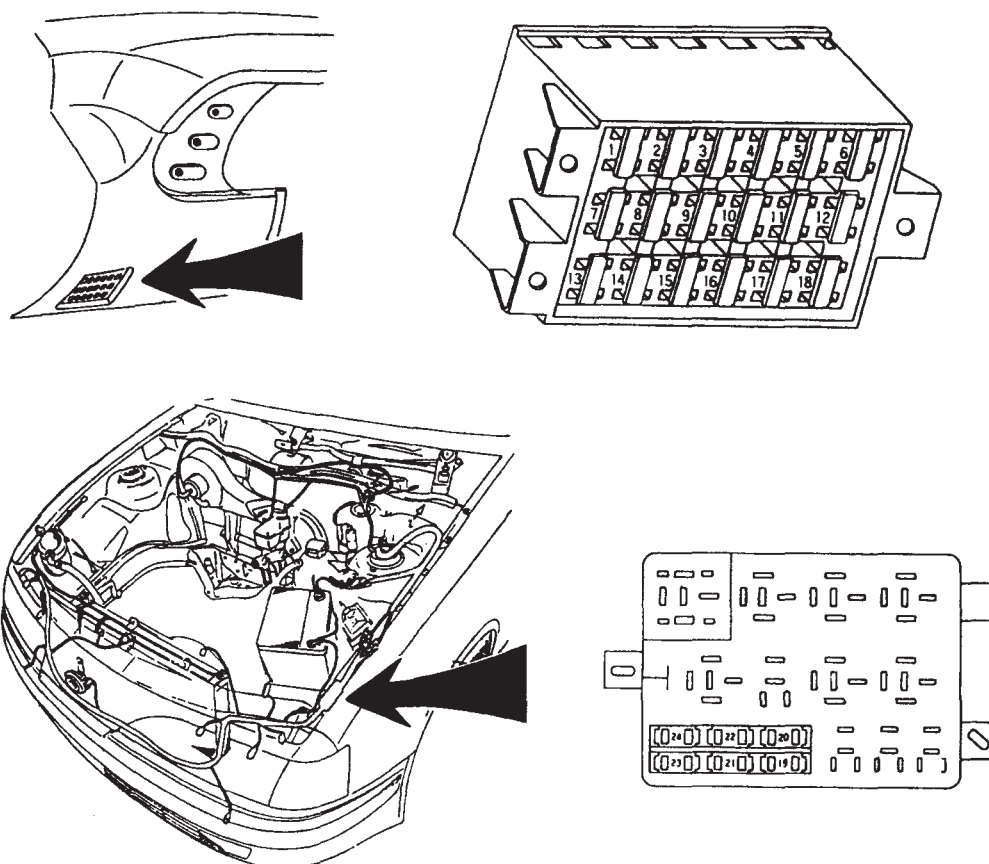
|      |                                                                                           |                      |
|------|-------------------------------------------------------------------------------------------|----------------------|
| X2   | Connector for I/P and Front Harness(14 pin)                                               |                      |
| X2A  | Connector for I/P and Front Harness(12 pin)                                               |                      |
| X2B  | Connector for I/P and Front Harness(4 pin)                                                |                      |
| X3   | Connector for I/P and Engine Harness(10 pin)                                              |                      |
| X31  | Connector for Engine Harness and Selector Position Switch(11 pin A/T)                     |                      |
| X32  | Connector for I/P and Air Bag Harness(4 pin)                                              |                      |
| X4   | Connector for I/P and F/I Harness(20 pin)                                                 |                      |
| X4A  | Connector for I/P and F/I Harness(9 pin A/T)                                              |                      |
| X5   | Connector for Front Body and Rear Body Harness(14 pin)                                    |                      |
| X5A  | Connector for Front Body and Rear Body Harness(1 pin)                                     |                      |
| X51  | Connector for Rear Body Harness and Trunk LID Harness(8 pin)                              |                      |
| X52  | Connector for Rear Body Harness and Left Combination Lamp(4 pin)                          |                      |
| X53  | Connector for Rear Body Harness and Right Combination Lamp(4 pin)                         |                      |
| X54  | Connector for Rear Body Harness and Rear End Panel Harness(3 pin)                         |                      |
| X6   | Connector for I/P and Front Body Harness(21 pin)                                          |                      |
| X6A  | Connector for I/P and Front Body Harness(9 pin)                                           |                      |
| X61  | Connector for Front Body Harness and Front-Left Door Harness(14 pin)<br>female Connector  | * only L.H.D vehicle |
| X61A | Connector for Front Body Harness and Front-Left Door Harness(14 pin)<br>male Connector    |                      |
| X62  | Connector for Front Body Harness and Front-Right Door Harness(14 pin)                     |                      |
| X63  | Connector for Front Body Harness and Rear-Left Door Harness(7 pin)                        |                      |
| X64  | Connector for Front Body Harness and Rear-Right Door Harness(7 pin)                       |                      |
| X61  | Connector for Front Body Harness and Front-Right Door Harness(14 pin)<br>female Connector | * only R.H.D vehicle |
| X62  | Connector for Front Body Harness and Front-Right Door Harness(14 pin)<br>male Connector   |                      |
| X62A | Connector for Front Body Harness and Front-Right Door Harness(14 pin)<br>male Connector   |                      |
| X63  | Connector for Front Body Harness and Rear-Right Door Harness(7 pin)                       |                      |
| X64  | Connector for Front Body Harness and Rear-Left Door Harness(7 pin)                        |                      |
| X42  | Connector for F/I Harness and Front Harness(3 pin)                                        |                      |
| X43  | Connector for ALDL(12 pin)                                                                |                      |
| X45  | Connector for F/I Harness and Selector Position Switch(4 pin A/T)                         |                      |
| X48  | Connector for F/I Harness and Injector(2 pin, DOHC)                                       |                      |

- X7 Connector for F/I Harness and ABS Harness(8 pin)
- X11 Connector for Analog I/P(16 pin)
- X11A Connector for Analog I/P(14 pin)
- X11B Connector for Analog I/P(10 pin, A/T)
- X12 Connector for IP and Center Console Harness(5 pin)
- X21 Connector for Front Body and Antenna Harness(3 pin)

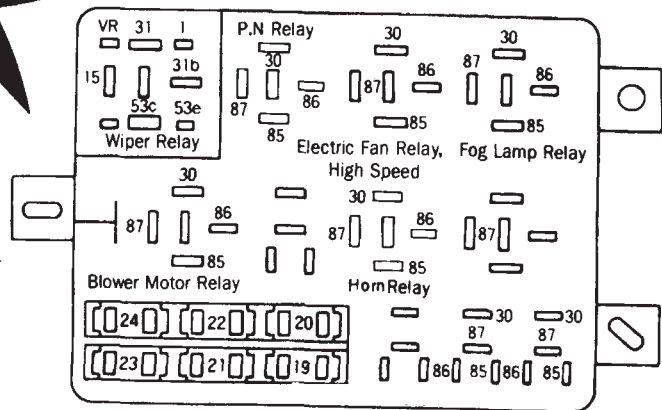
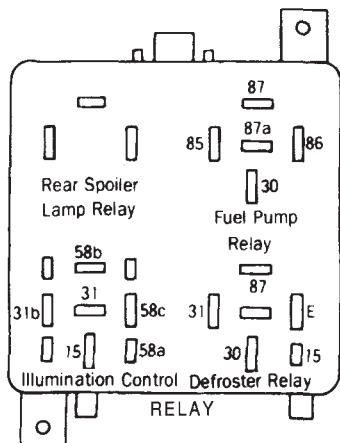
## **1-2. GROUND LOCATION**

1. I/P Harness Ground - I/P Rear Side
- 1.1 Battery Main Ground - End part of Front-Left Fender
2. Battery Main Ground - End part of Front-Left Fender
4. F/I Harness Ground - Intake Manifold
5. Rear Body Harness Ground - License Plate of the Trunk Inside
6. Front Body Harness Ground - under the Driver Seat
7. ABS Ground - Front Left Fender End

## 2. FUSE LOCATION AND USAGE(1.5 DOHC/1.8, 2.0 MPFI)



| Fuse No. | Capacity | Usage                                                                                                   | Fuse No. | Capacity | Usage                                                                                                              | Fuse No. | Capacity | Usage                                           |
|----------|----------|---------------------------------------------------------------------------------------------------------|----------|----------|--------------------------------------------------------------------------------------------------------------------|----------|----------|-------------------------------------------------|
| 1        | 10A      | ECM Power, TCM Power(A/T)                                                                               | 9        | 20A      | OSRV mirror and Rear Window Defroster D.R.L Relay                                                                  | 17       | 10A      | ABS Power, IMMO unit                            |
| 2        | 20A      | Fuel Pump Relay, Oil Pressure Switch, IMMO. unit                                                        | 10       | 30A      | Radiator Electric Fan Relay(High Speed)<br>Radiator Electric Fan Relay(Low Speed)                                  | 18       | 30A      | Horn, Central Locking Device, Auto Trunk Switch |
| 3        | 20A      | Brake Switch, Turn Signal Lamp, Electric OSRV Mirror Switch, Selector Position Switch                   | 11       | 10A      | Illumination Lamp                                                                                                  | 19       | 20A      | Front Fog Lamp Relay                            |
| 4        | 30A      | Wiper                                                                                                   | 12       | 10A      | ECM IG Power, Speed Sensor, Injector, TCM Power                                                                    | 20       | 30A      | Blower Motor Relay                              |
| 5        | 30A      | Radiator Temperature Switch                                                                             | 13       | 20A      | Alternator F Terminal, D.R.L unit, Rear Spoiler Control Lamp, Defroster, Digital Clock, Chime Bell, Cigar Lighter. | 21       | 10A      | Head Lamp High Beam(Left)                       |
| 6        | 20A      | Fan cycling switch, A/C mode switch, Compressor Cut-off Relay, Electric Fan Relay high Speed, ABS Power | 14       | 10A      | Analog I/P                                                                                                         | 22       | 10A      | Head Lamp High Beam(Right)                      |
| 7        | 30A      | Power Window                                                                                            | 15       | 20A      | D.R.L unit, Reading Lamp, Hazard Lamp, Digital Clock, Room Lamp, Auto Antenna, Car Audio, Chime Bell, Trunk Lamp   | 23       | 10A      | Head Lamp Low Beam(Left)                        |
| 8        | 10A      | Car Audio                                                                                               | 16       | 10A      | Air Bag                                                                                                            | 24       | 10A      | Head Lamp Low Beam(Right)                       |
|          |          |                                                                                                         |          |          |                                                                                                                    | 25       | 40A      | ABS Main Power                                  |



RELAY

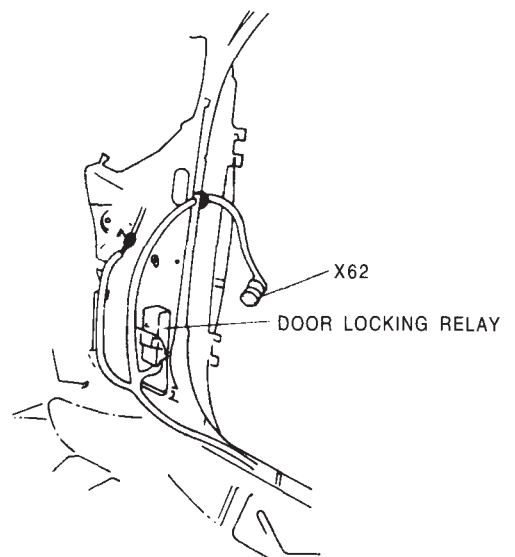
X63

FRONT WHEEL HOUSE RELAY BOX

X5

X5A

X7



### o Engine Room Fuse Box

| PART NAME                     | PART NO.   | REMARKS     |
|-------------------------------|------------|-------------|
| Wiper Time Relay              | 94788146   |             |
| Electric Fan Relay High Speed | 90244312-A |             |
| Fog Lamp Relay                | 90057745   |             |
| Blower Motor Relay            | 90244312-A |             |
| Horn Relay                    | 90376920   |             |
| Compressor Cut-off Relay      | 90244312-A | Micro Relay |
| Electric Fan Relay Low Speed  | 90229206   | Micro Relay |

### o Inside of driver side panel

| PART NAME                                       | PART NO.   | REMARKS    |
|-------------------------------------------------|------------|------------|
| Fuel Pump Relay                                 | 90191753-A | 5 pin      |
| Illumination Control Relay                      | 96098561   | Blue Case  |
| Defroster and OSR V Mirror Defroster Time Relay | 96116223   | Brown Case |
| Rear Spoiler Lamp Relay                         | 96149299   | 3 pin      |

### o Inside of driver door

| PART NAME             | PART NO. | REMARKS |
|-----------------------|----------|---------|
| One Touch Power Relay | 96149297 |         |

### o Left side of Kaul Panel(coolant auxiliary tank cap left side)

| PART NAME | PART NO. | REMARKS |
|-----------|----------|---------|
| ABS Relay | 12135010 |         |

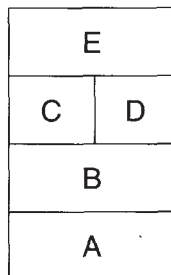
### o Inside of co-driver side panel

| PART NAME                  | PART NO. | REMARKS |
|----------------------------|----------|---------|
| Central Door Locking Relay | 90191825 |         |
|                            |          |         |

### o Lower side of Glove Box: T.C.M

| PART NAME          | PART NO.  | REMARKS |
|--------------------|-----------|---------|
| 1.5 DOHC/SOHC MPFI | N96160086 | DF      |
| 1.8, 2.0 SOHC MPFI | 96111009  | DC      |

### o Relay Box at the upper side of a Clutch Pedal



| NO | PART NAME               | PART NO.   | REMARKS |
|----|-------------------------|------------|---------|
| A  | Chime Bell              | 96187783   |         |
| B  | Turn Signal Lamp Relay  | 90240050-A |         |
| C  | Illumination Lamp Relay | 90229206   |         |
| D  | Head Lamp Relay         | 90229206   |         |
| E  | DRL Relay               | 90340520   |         |
|    | ABS Computer(EBCM)      | 16207489   |         |

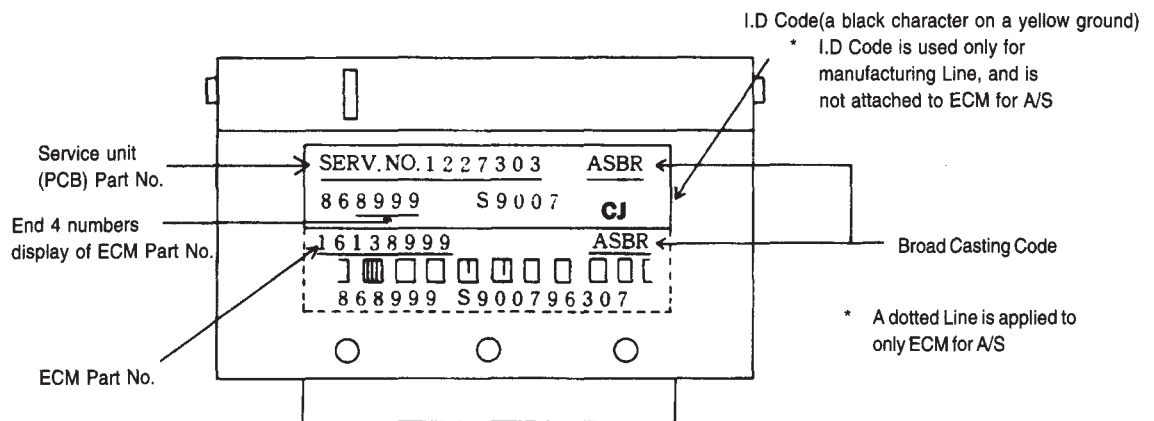
\* Note that the relay location may be changed without notice.

## 3. ECM CLASSIFICATION

○ ECM Part Number

| ENGINE      | EMIS-<br>SION | T/M | E C M  |          |      | LOOP  | IMMO. | AREA                   |
|-------------|---------------|-----|--------|----------|------|-------|-------|------------------------|
|             |               |     | TYPE   | PART/NO. | I. D |       |       |                        |
| 1.5<br>DOHC | Leaded        | M/T | IEFI—6 | 16219839 | GR   | CLOSE |       | Intense cold area      |
|             |               | A/T | IEFI—6 | 16219339 | NM   | CLOSE |       | Intense cold area      |
|             | Unleaded      | M/T | IEFI—S | 16214609 | PH   | CLOSE |       | General area           |
|             |               |     | IEFI—6 | 16216539 | JF   | CLOSE | O     | Europe IMMO.           |
|             |               |     |        | 16216699 | NC   | CLOSE |       | Europe non immo.       |
|             |               | A/T | IEFI—6 | 16216589 | JG   | CLOSE | O     | Europe IMMO.           |
|             |               |     |        | 16216599 | ND   | CLOSE |       | Europe non immo.       |
|             |               |     |        |          |      |       |       |                        |
| 1.8 MPI     | Unleaded      | M/T | IEFI—6 | 16216609 | QG   | CLOSE | O     | Europe IMMO.           |
|             |               |     |        | 16220109 | HR   | CLOSE |       | High altitude area     |
|             |               |     |        | 16216619 | QJ   | CLOSE |       | Europe, General area   |
|             |               | A/T | IEFI—6 | 16216629 | QF   | CLOSE | O     | Europe IMMO.           |
|             |               |     |        | 16220099 | HS   | CLOSE |       | High altitude area     |
|             |               |     |        | 16216639 | QK   | CLOSE |       | Europe General area    |
| 2.0 MPI     | Leaded        | M/T | IEFI—6 | 16209819 | XD   | OPEN  |       | High altitude area     |
|             |               |     |        | 16209839 | XG   | OPEN  |       | Intense heat/cold area |
|             |               | A/T | IEFI—6 | 16209829 | XE   | OPEN  |       | High altitude area     |
|             |               |     |        | 16209849 | XH   | OPEN  |       | General area           |
|             | Unleaded      | M/T | IEFI—S | 16199999 | DH   | CLOSE |       | Guatemala              |
|             |               |     |        | 16200019 | DF   | CLOSE |       | Chile                  |
|             |               |     | IEFI—6 | 16199749 | EE   | CLOSE |       | Brazil                 |
|             |               |     |        | 16216659 | QL   | CLOSE |       | Israel, Australia      |
|             |               |     |        | 16216649 | QC   | CLOSE | O     | Europe IMMO.           |
|             |               | A/T | IEFI—S | 16200009 | EH   | CLOSE |       | Guatemala              |
|             |               |     |        | 16200029 | DG   | CLOSE |       | Chile                  |
|             |               |     | IEFI—6 | 16199729 | DE   | CLOSE |       | Brazil                 |
|             |               |     |        | 16216729 | GN   | CLOSE |       | Europe non immo.       |
|             |               |     |        | 16216669 | QB   | CLOSE | O     | Europe IMMO.           |

# ◦ ECM Identification Method



◦ You can not exchange IEFI-S ECM, and IEFI-6 ECM each other because those are different.

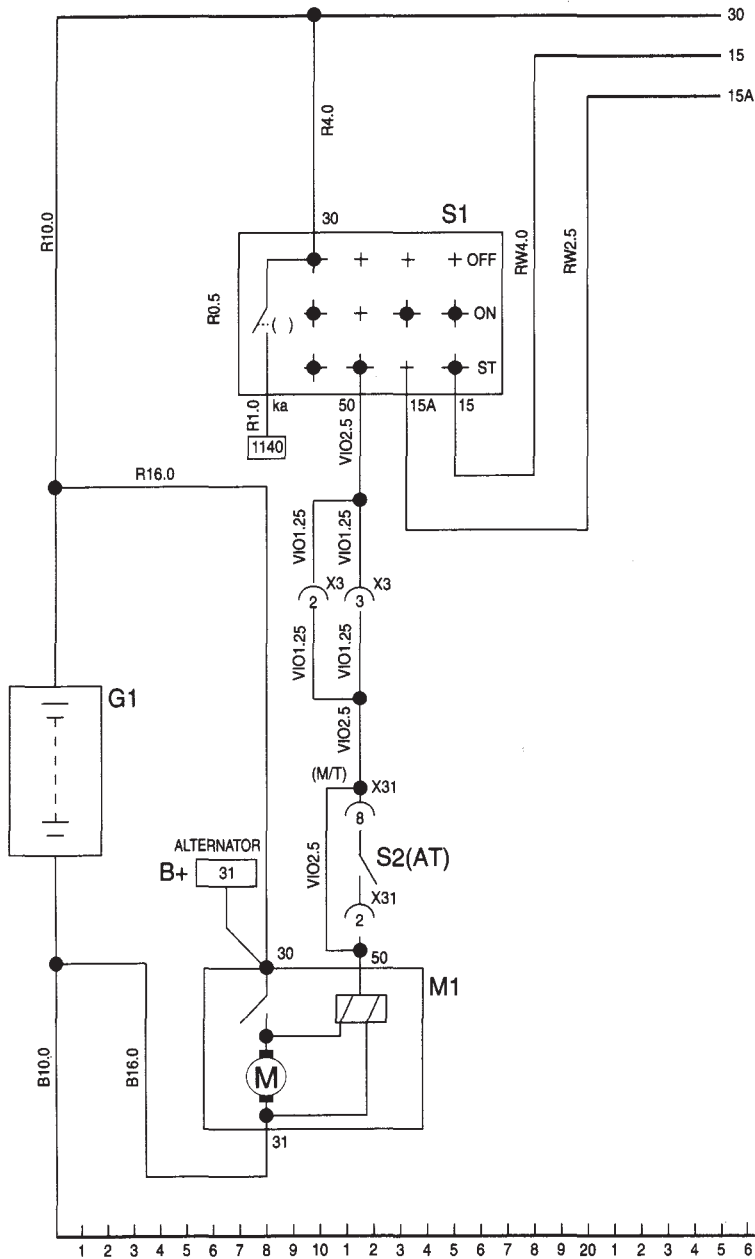
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| 5) Sensor and ECM wiring(1.5 DOHC, IEFI-S Type) .....                               | 24 |
| 6) "Service Engine Soon" Light, Fuel Pump Wiring(1.5 DOHC, IEFI-S Type) .....       | 26 |
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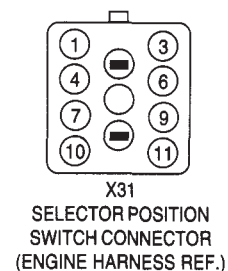
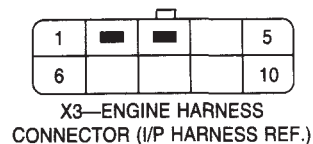
|                                                                |    |
|----------------------------------------------------------------|----|
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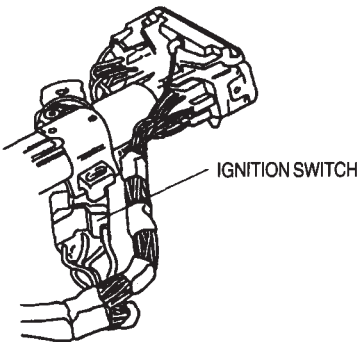
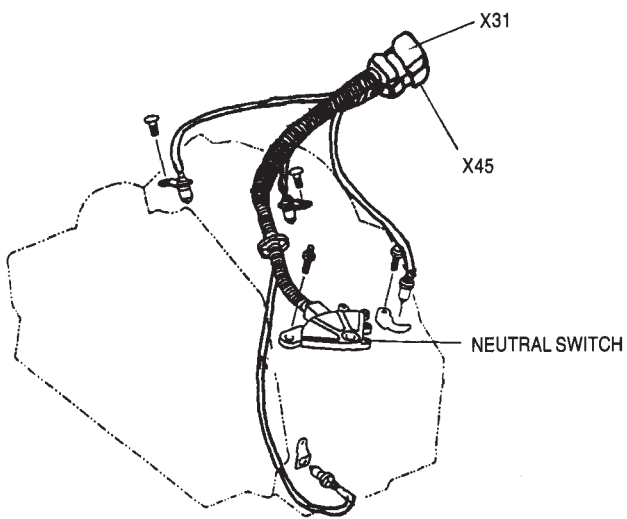
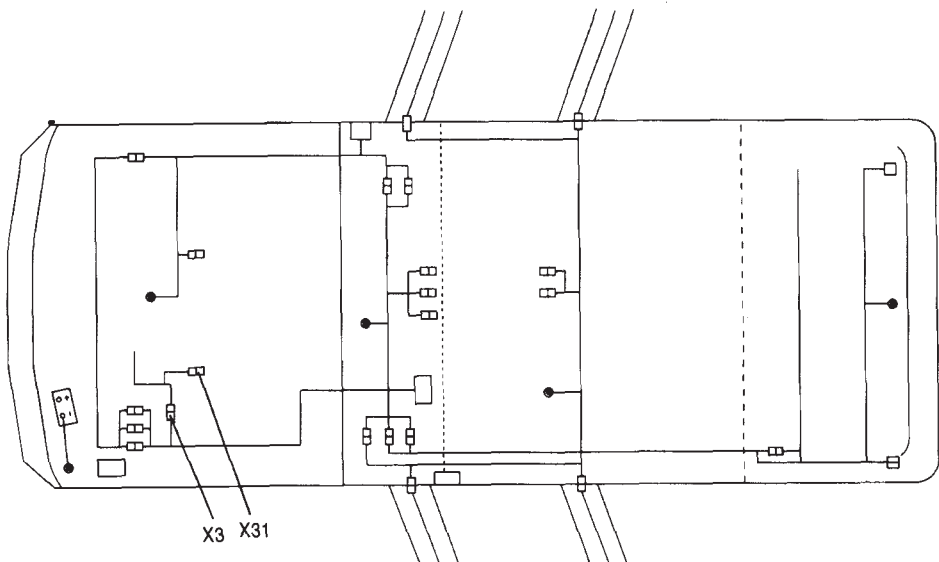
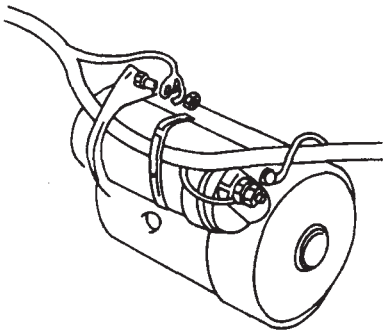
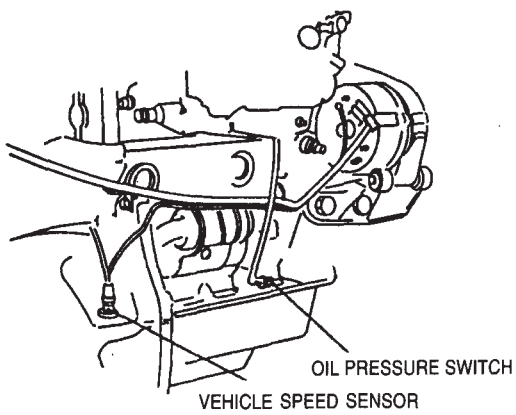
# 1) IGNITION SWITCH AND STARTER WIRING(1.5 DOHC/1.8, 2.0 MPFI)

G1 BATTERY  
M1 STARTING MOTOR  
S1 IGNITION SWITCH  
S2 P/N SWITCH



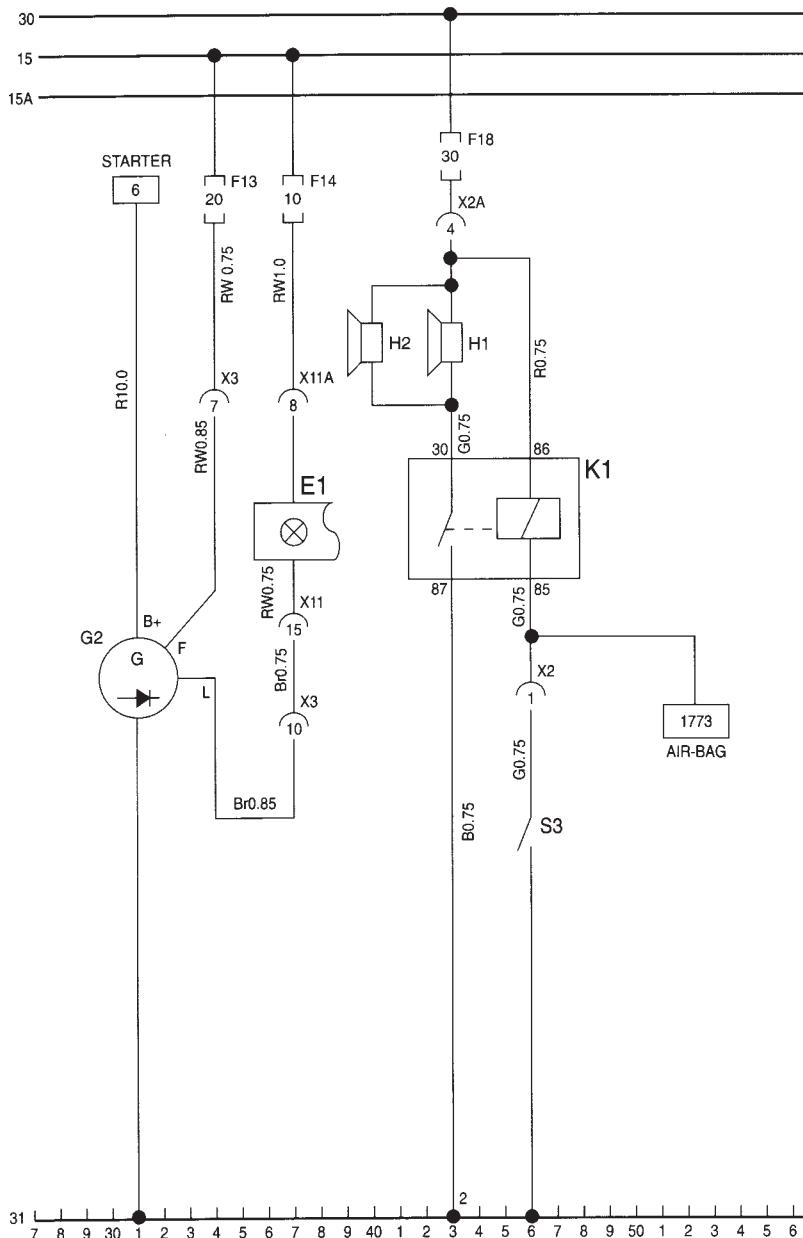
- Number 30, 15A, 15, Ka and 50 are indexed on the S1 ignition switch.
- S2 P.N Switch(Selector Position Switch) and X31 Connector are for only A/T Vehicle When the PN Switch 2 is at the position of P or N.  
PN switch S2 is contacted so that starter motor operates because the current is feeded to the terminal 50 of the ignition motor when the PN switch is at the driving position(R,D,3,L) the starter motor stops because the switch is off.





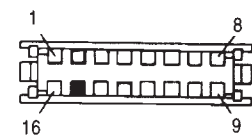
## 2) CHARGING AND HORN WIRING(1.5 DOHC/1.8, 2.0 MPFI)

E1 CHARGING WARN LAMP  
 G2 ALTERNATOR  
 H1 HORN  
 H2 HORN  
 K1 HORN RELAY  
 S3 HORN SWITCH

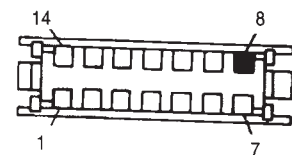


**E1** is connected to the battery charging lamp on I/P (refer to I/P wiring)

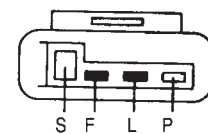
- If the alternator connector is connected normally, the power of "L" terminal is 0.6V~2V when an ignition switch is ON and is equal to the battery charging voltage on operating an engine (over about 800 rpm)
- When a terminal "L" is disconnected or cut off, the terminal "F" is an compensating circuit to magnetize a rotor coil instead of the terminal "L".
- H1 and H2 are for low tone and high tone.



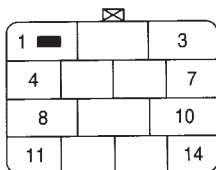
X11  
ANALOG I/P  
(I/P HARNESS REFERENCE,  
NO. INDEXED)



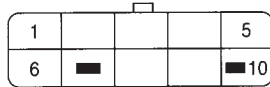
X11A  
ANALOG I/P  
(I/P HARNESS REFERENCE,  
NO. INDEXED)



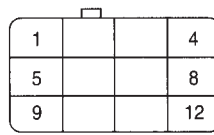
ALTERNATOR CONNECTOR  
(ENGINE HARNESS REF.)



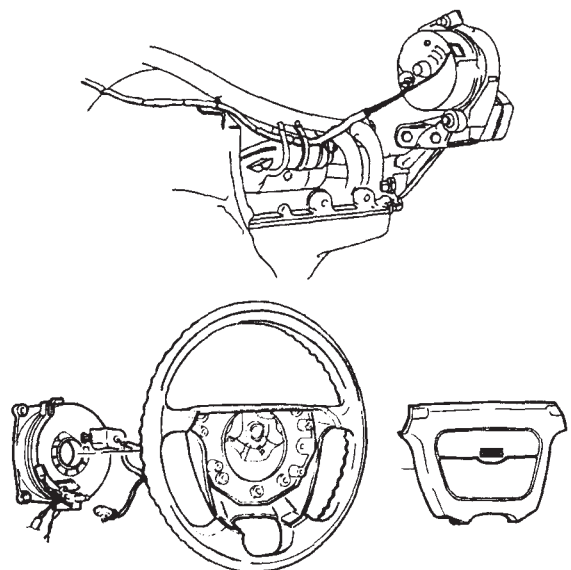
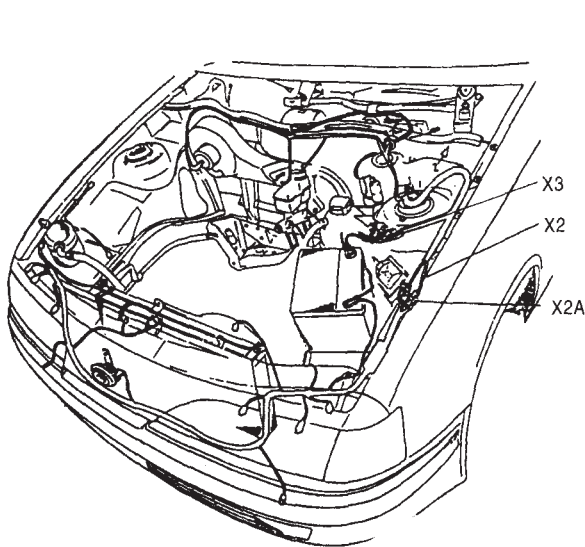
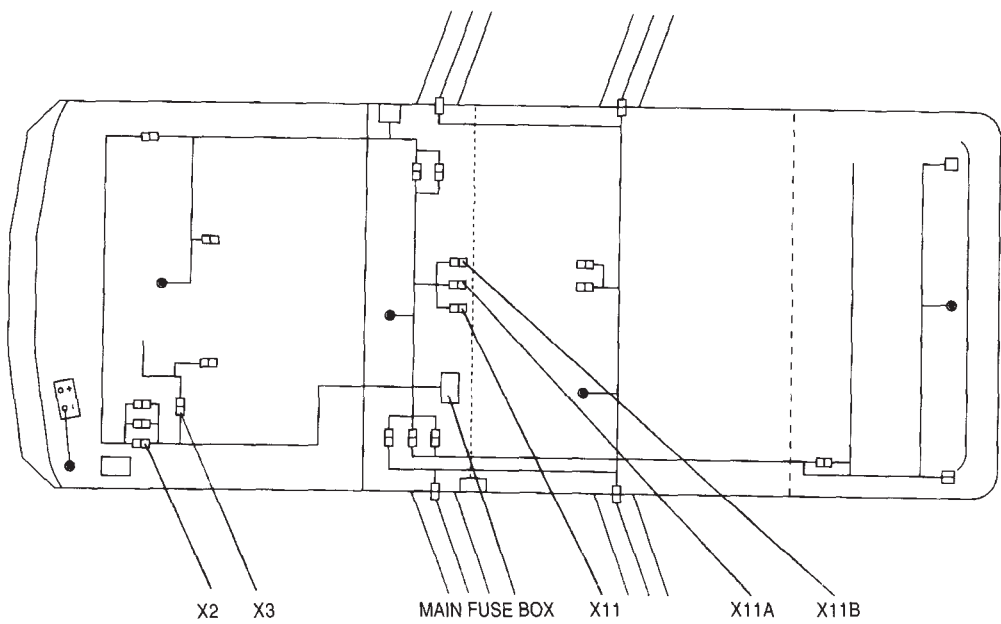
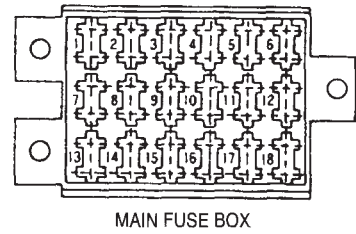
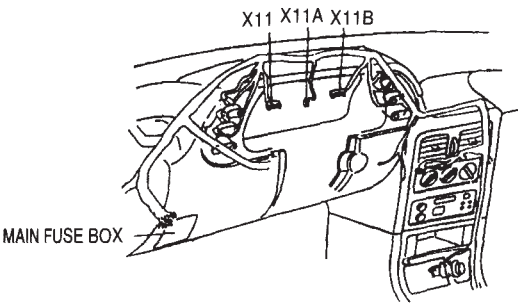
X2  
FRONT HARNESS CONNECTOR  
(I/P HARNESS REF.)



X3  
ENGINE HARNESS CONNECTOR  
(I/P HARNESS REF.)

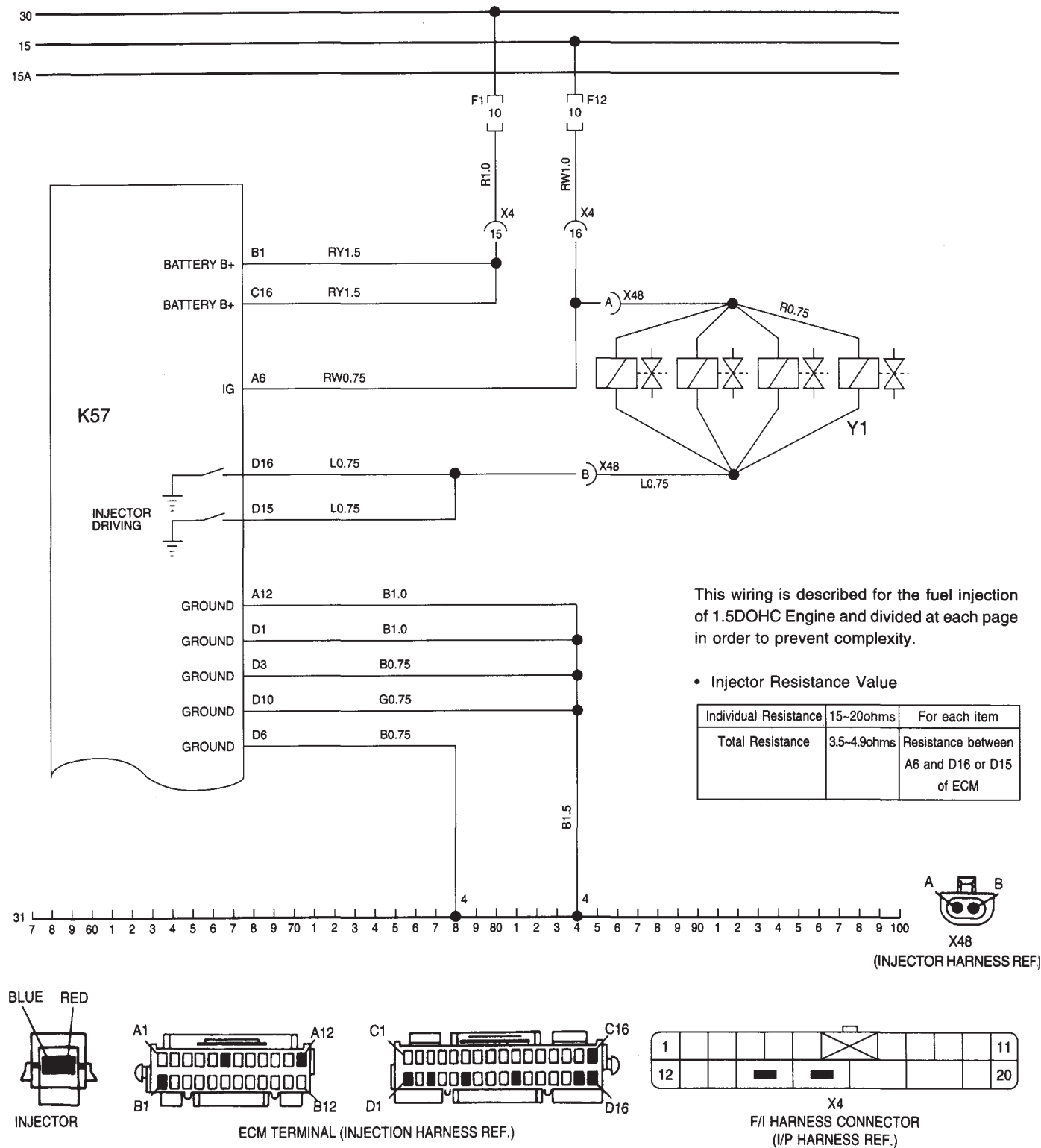


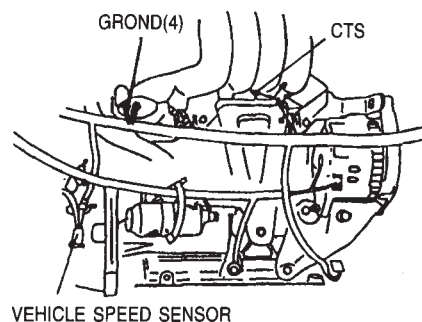
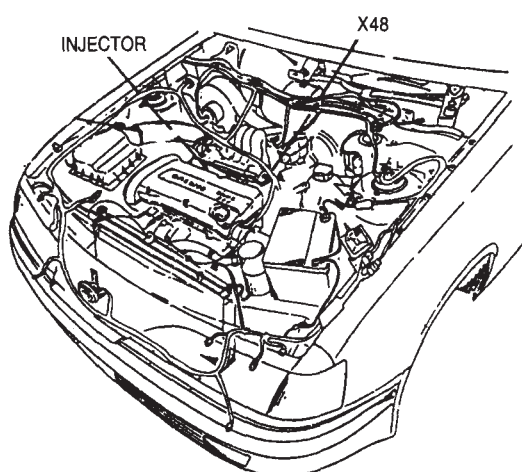
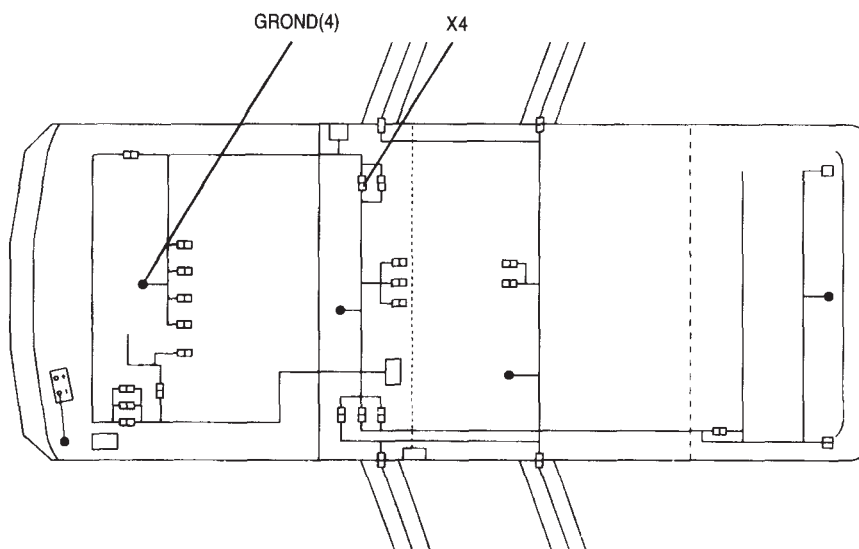
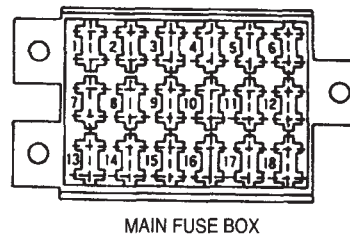
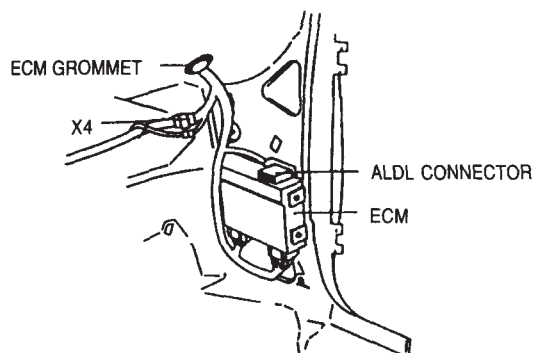
X2A  
FRONT HARNESS CONNECTOR  
(I/P HARNESS REF.)



3) ECM MAIN POWER AND GROUND, INJECTOR WIRING(1.5 DOHC, IEFI-S TYPE)

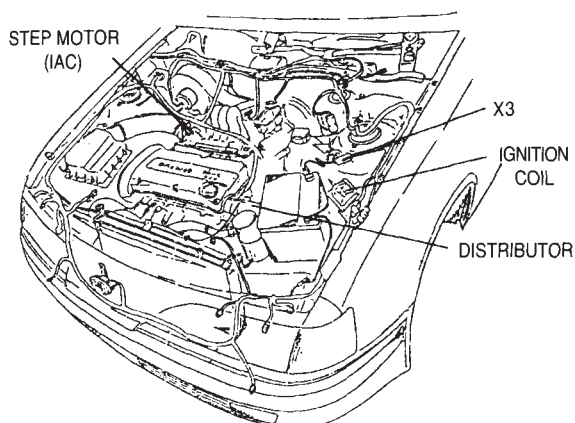
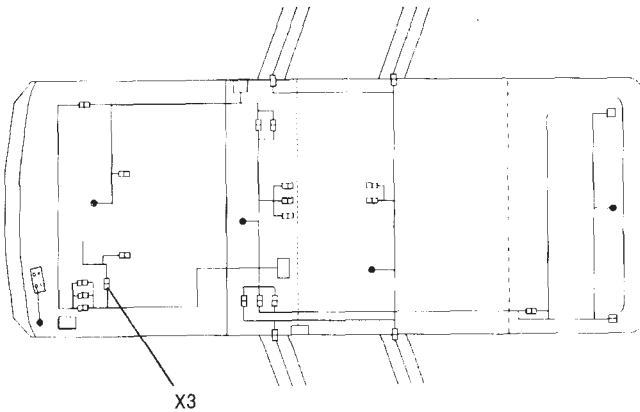
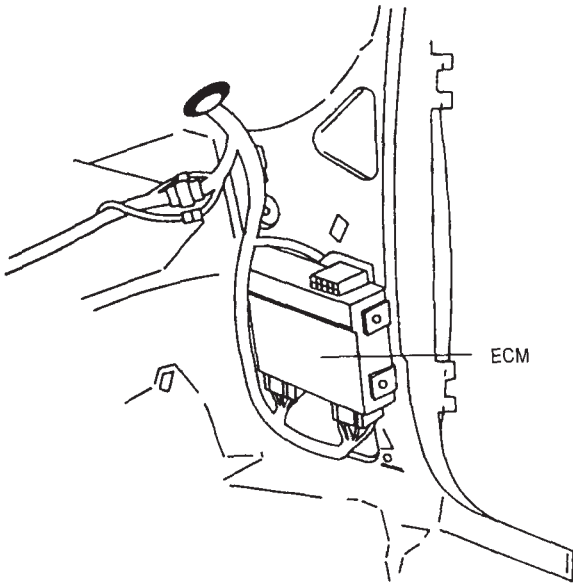
K57 ECM(CONTROL UNIT)  
Y1 INJECTOR





- This diagram is for a power supply to operate-ECM. That is, when an ignition switch is "ON", B<sup>+</sup> power should be measured at the ECM terminal B<sub>1</sub>, C<sub>16</sub>, A<sub>6</sub>, D<sub>15</sub> and D<sub>16</sub>; and the following terminals are connected to the engine ground; D<sub>1</sub>, D<sub>3</sub>, D<sub>6</sub>, D<sub>10</sub>, A<sub>12</sub> terminals.





- Pick-up Oil

|                       |                 |
|-----------------------|-----------------|
| Resistance            | 500 ~ 1500 ohms |
| Insulation resistance | $\infty$        |

- Ignition Coil

|                       |             |
|-----------------------|-------------|
| 1st Resistance        | 0.35 ~ 0.45 |
| 2nd Resistance        | 7.5 ~ 9.5   |
| Insulation resistance | $\infty$    |

- Step motor M2 controls air quantity to be by-passed to inlet manifold in order to keep an appropriate engine RPM a in accordance with the engine operating condition.

- Step motor resistance

|              |                                |
|--------------|--------------------------------|
| 40 ~ 80 ohms | A $\leftrightarrow$ B terminal |
|              | C $\leftrightarrow$ D terminal |

|                       |                       |
|-----------------------|-----------------------|
| Idle Revolution speed | 800 ~ 850RPM(Heating) |
|-----------------------|-----------------------|

- A distributor has a two pin connector and a four pin connector. Because a two pin connector is connected to an "+" and "-" terminals. "B+" voltage should be measured when an ignition switch is "ON". A four pin connector is connected to ECM and supply the most appropriate ignition timing in accordance with the operating condition the regular voltage between each terminal connected to ECM and vehicle ground is as follows;

| ECM<br>TERMINAL | DISTRIBUTOR<br>TERMINAL | CHECK CONDITION                      |                |                   |
|-----------------|-------------------------|--------------------------------------|----------------|-------------------|
|                 |                         | IGNITION SWITCH<br>"ON"(ENGINE STEP) | ON<br>STARTING | AFTER<br>STARTING |
| B3              | A(Ground)               | 0V                                   | 0V             | 0V                |
| D5              | B(by-pass)              | 0V                                   | 0V             | 4.5-5V            |
| B5              | C(REF)                  | below 0.3V                           | 0.5-1.5V       | 0.7-2.7V          |
| D4              | D(EST)                  | below 0.3V                           | below 0.3V     | 1-3V              |

## 5) SENSOR AND ECM WIRING(1.5 DOHC, IEFI-S TYPE)

P30 COOLANT TEMPERATURE SENSOR(CTS)

P31 INTAKE MANIFOLD AIR TEMPERATURE SENSOR(MAT)

P32 INTAKE MANIFOLD AIR PRESSURE SENSOR(MAP)

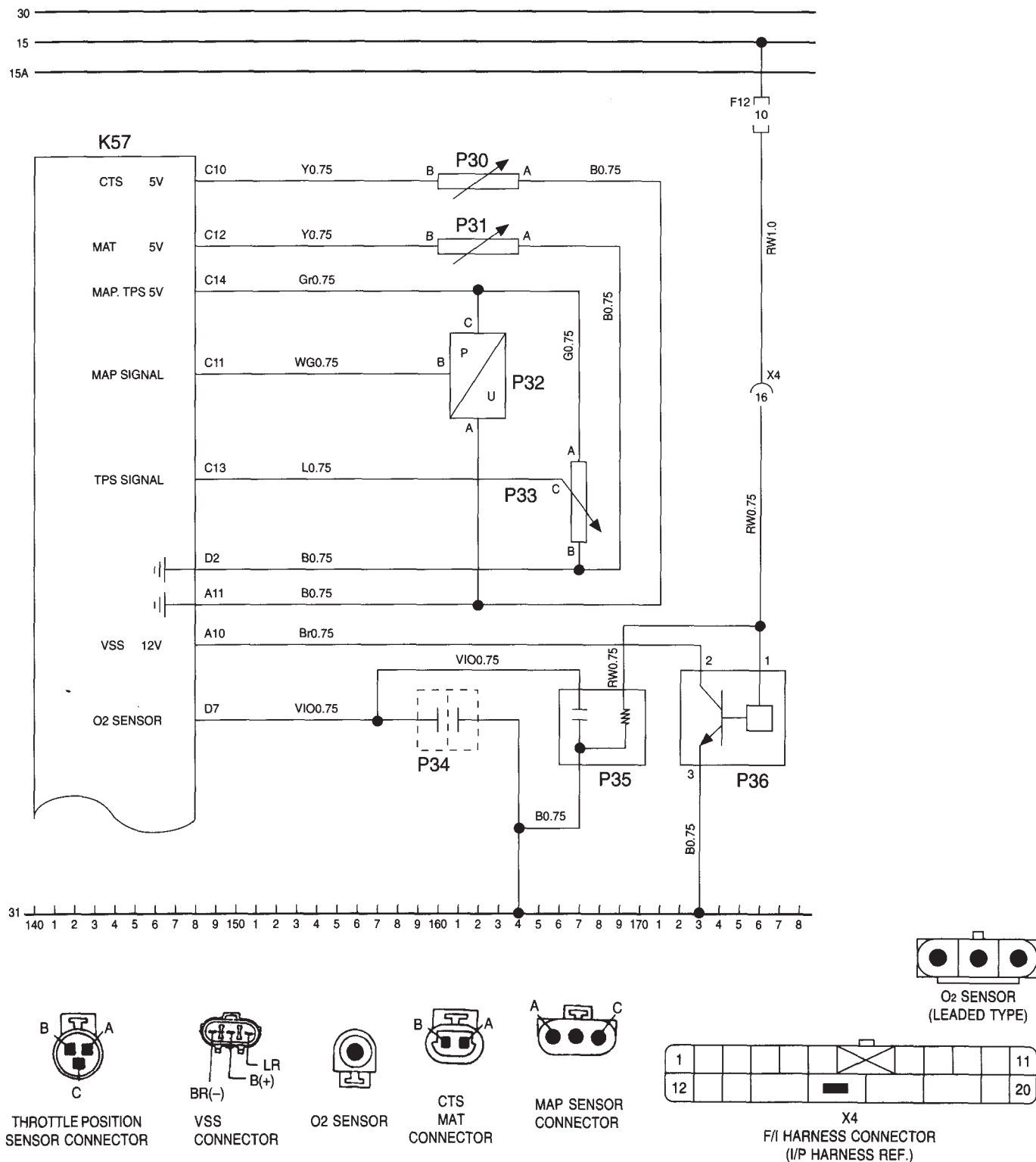
P33 THROTTLE POSITION SENSOR(TPS)

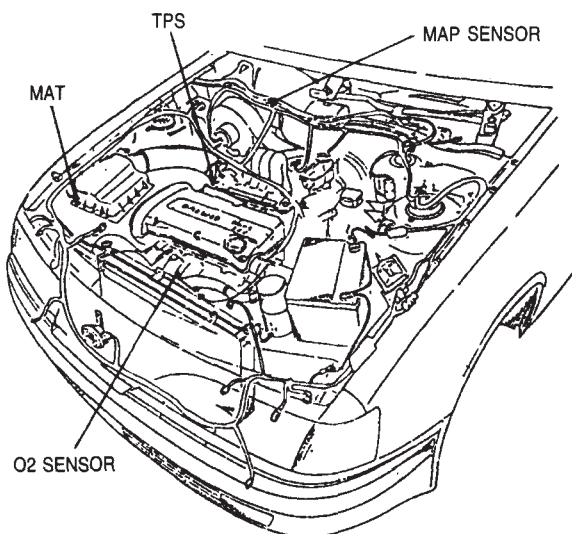
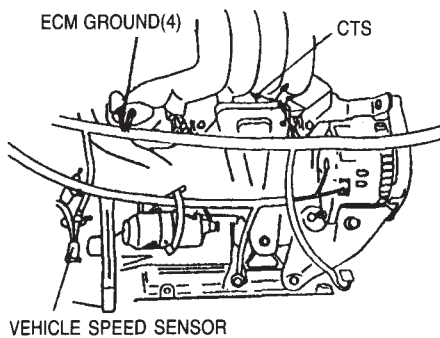
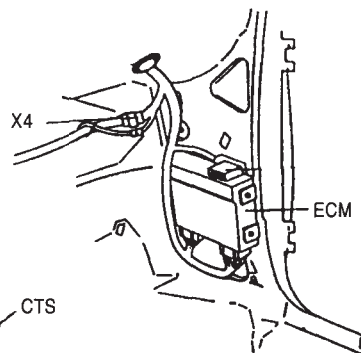
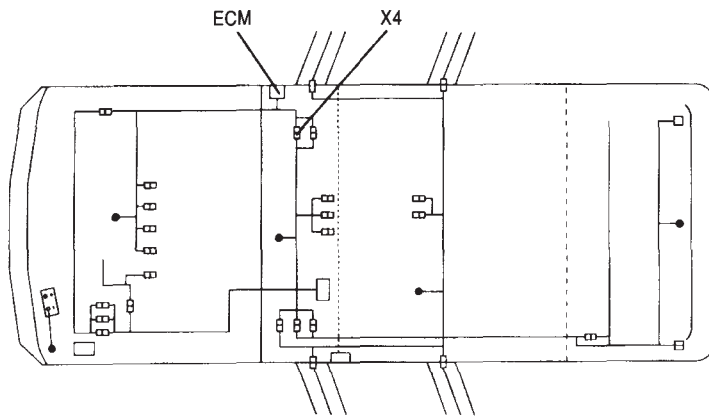
P34 OXYGEN SENSOR(UNLEADED TYPE)

P35 OXYGEN SENSOR(LEADED TYPE)

P36 VEHICLE SPEED SENSOR(VSS)

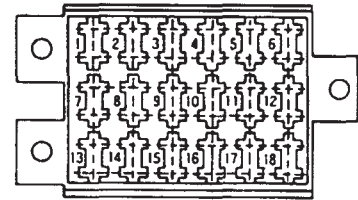
K57 ECM





# Resistance for CTS and MAT sensor

|       |                 |
|-------|-----------------|
| 100°C | 0.185 Kilo-ohms |
| 90°C  | 0.240 Kilo-ohms |
| 80°C  | 0.332 Kilo-ohms |
| 70°C  | 0.450 Kilo-ohms |
| 40°C  | 1.46 Kilo-ohms  |
| 20°C  | 3.4 Kilo-ohms   |
| 10°C  | 5.67 Kilo-ohms  |
| -10°C | 16.1 Kilo-ohms  |



MAIN FUSE BOX

- Temperature Sensor: Temperature Sensor voltage supplied +5V through ECM inner resistor is as follows and ECM check this voltage to notice the engine temperature;

| Engine Temp. | Resistance | Signal Voltage |
|--------------|------------|----------------|
| Cooling      | Higher     | Rising         |
| Heating      | Lower      | Falling        |

- MAP Sensor: This sensor has a function converting the inlet manifold pressure change to voltage and measure the voltage between the MAP sensor "B" terminal and the vehicle body ground.

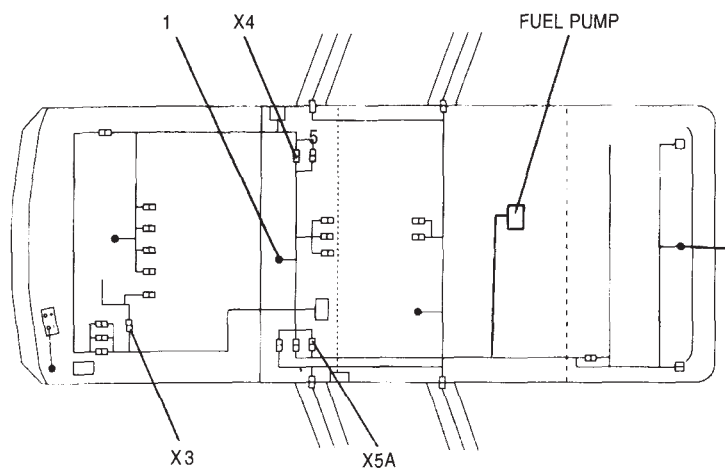
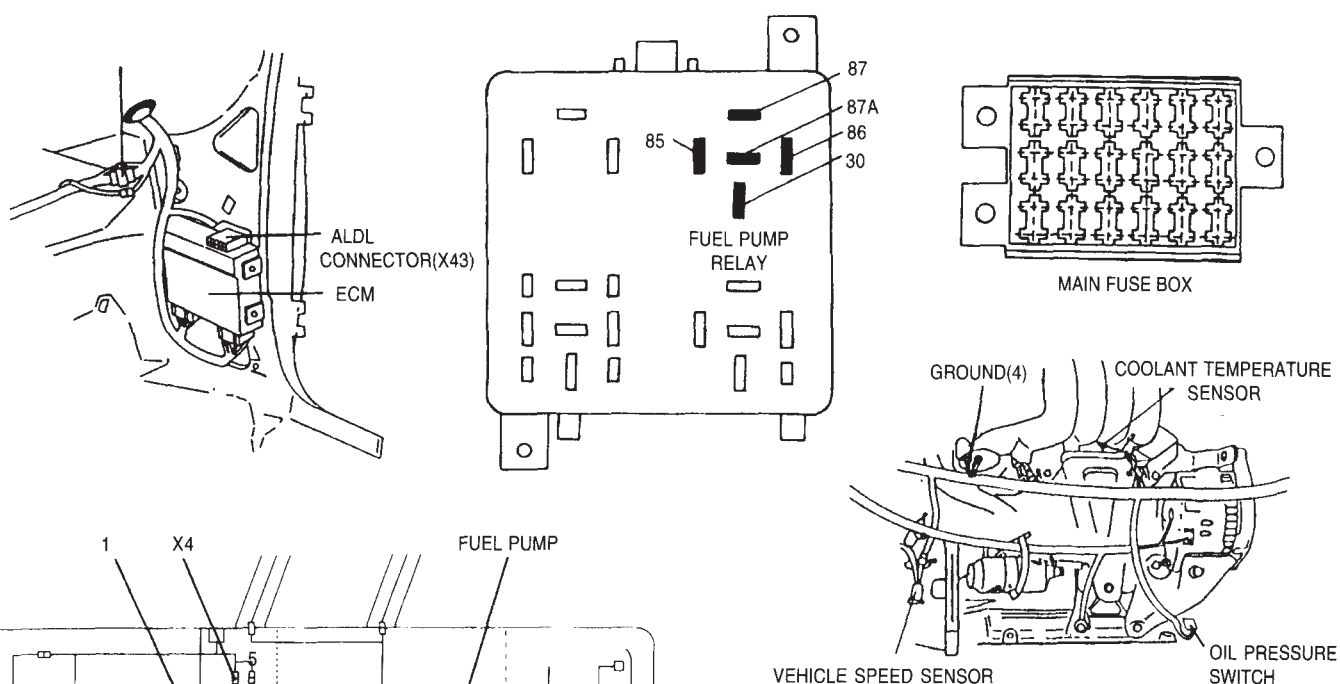
| Inlet manifold pressure | Signal voltage |
|-------------------------|----------------|
| Air pressure (IG "ON")  | 4.8~5.2 V      |
| -0.2 bar                | 3.5~3.9 V      |
| -0.4 bar                | 2.3~2.7 V      |
| -0.6 bar                | 1.3~1.7 V      |
| -0.8 bar                | 0.3~0.7 V      |

- TPS(Throttle Position Sensor): Measure the voltage between TPS "C" terminal and the vehicle body ground.

|                        |           |
|------------------------|-----------|
| Throttle valve closing | 0.4~0.8 V |
| 100% opening           | 4.1~4.5 V |

- VSS(Vehicle Speed Sensor): It uses the hall sensor theory so that below 0.5 V is detected when a current flows by closing the transistor and 12V is detected by opening.
- Oxygen Sensor: is to detect the mixed ratio and voltage should be changed between 0.1 and 0.9 V when an engine is warming-up fully. (when the harness is connected normally)





A1: B+ power is feeded to K3 fuel pump relay for 2 seconds when on ignition switch is "ON"

- The operating status of fuel pump relay

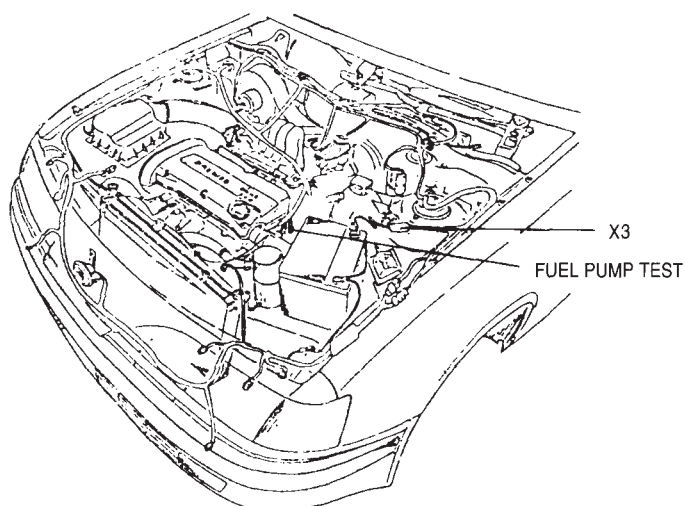
| Engine status                        | ECM terminal V                  | Pump operation         |
|--------------------------------------|---------------------------------|------------------------|
| Ignition switch is "ON"(engine stop) | A1: over 10V<br>(For 2 seconds) | 2 seconds of operation |
| On starting                          | A1: over 10V                    | Continuously operating |
| After starting                       | A1: over 10V                    | Continuously operating |

- The regular pressure of fuel line

|                          |                              |
|--------------------------|------------------------------|
| Idle RPM                 | 2.3 ~ 2.7 kg/cm <sup>2</sup> |
| Engine Stop(Wire jumped) | 2.8 ~ 3.2 kg/cm <sup>2</sup> |

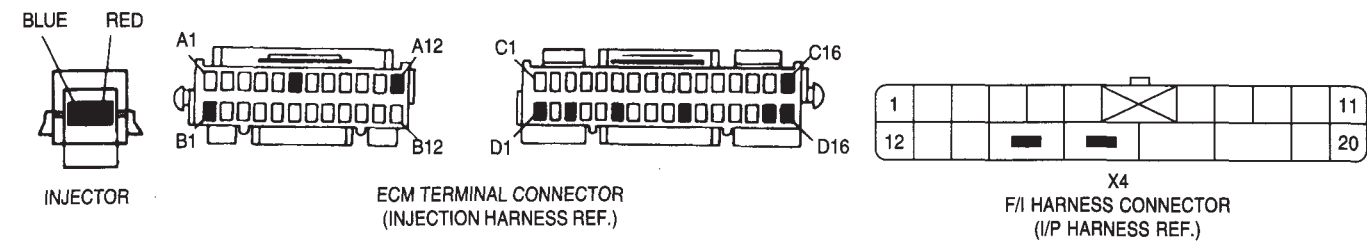
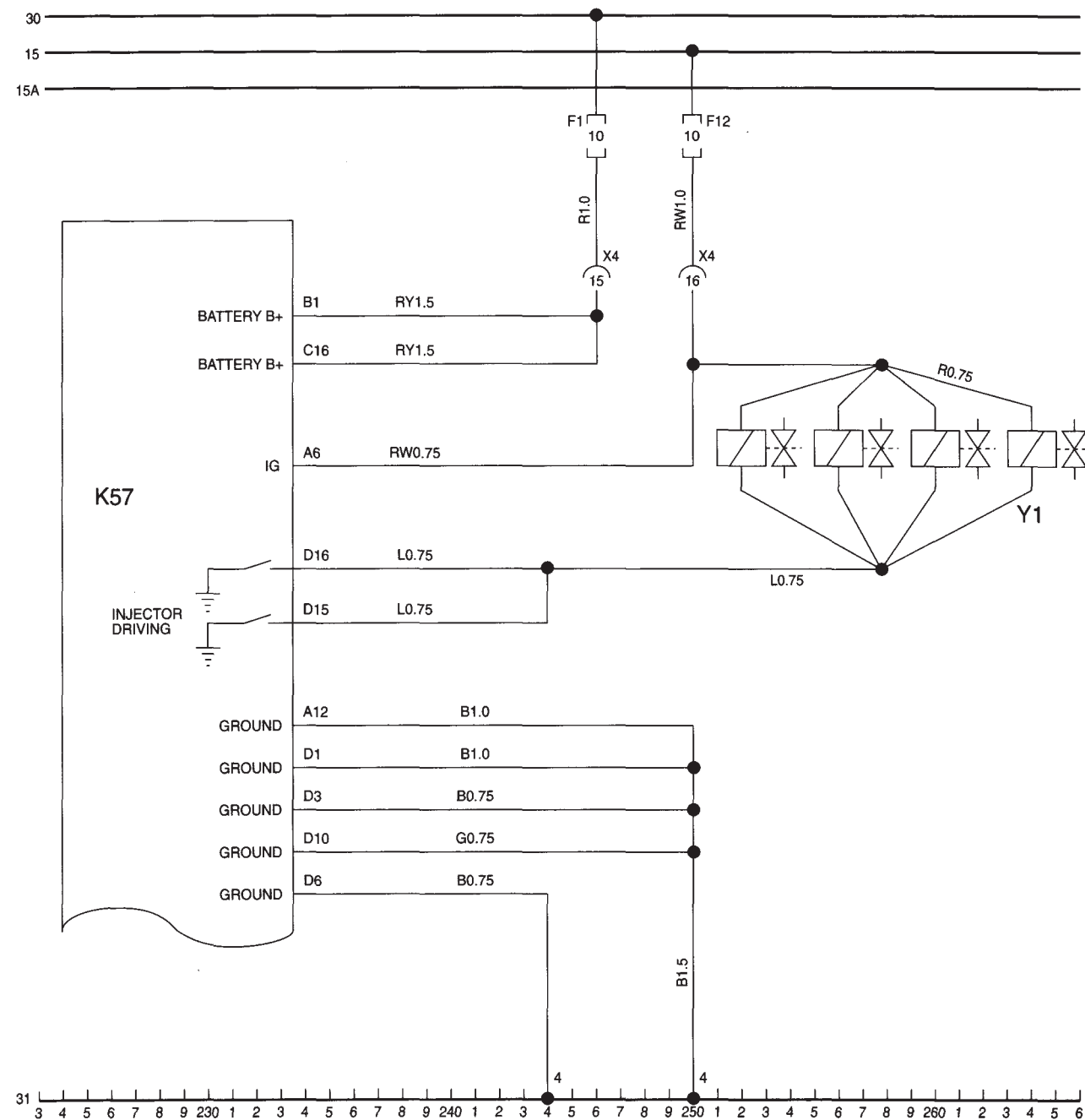
- At the A/T vehicle. P-N switch is installed on the upper side of auto transmission and ECM detects the driving position(D, R, 3, L) from the switch and compensates the idle rpm reduction generated from load increase.
- ECM terminal voltage when ignition switch "ON" or idle rpm.

| Selector lever | ECM "B10" terminal         |
|----------------|----------------------------|
| P-N            | 0 V                        |
| D, R, 3, L     | Battery voltage(over 12 V) |



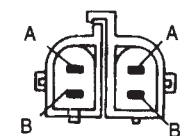
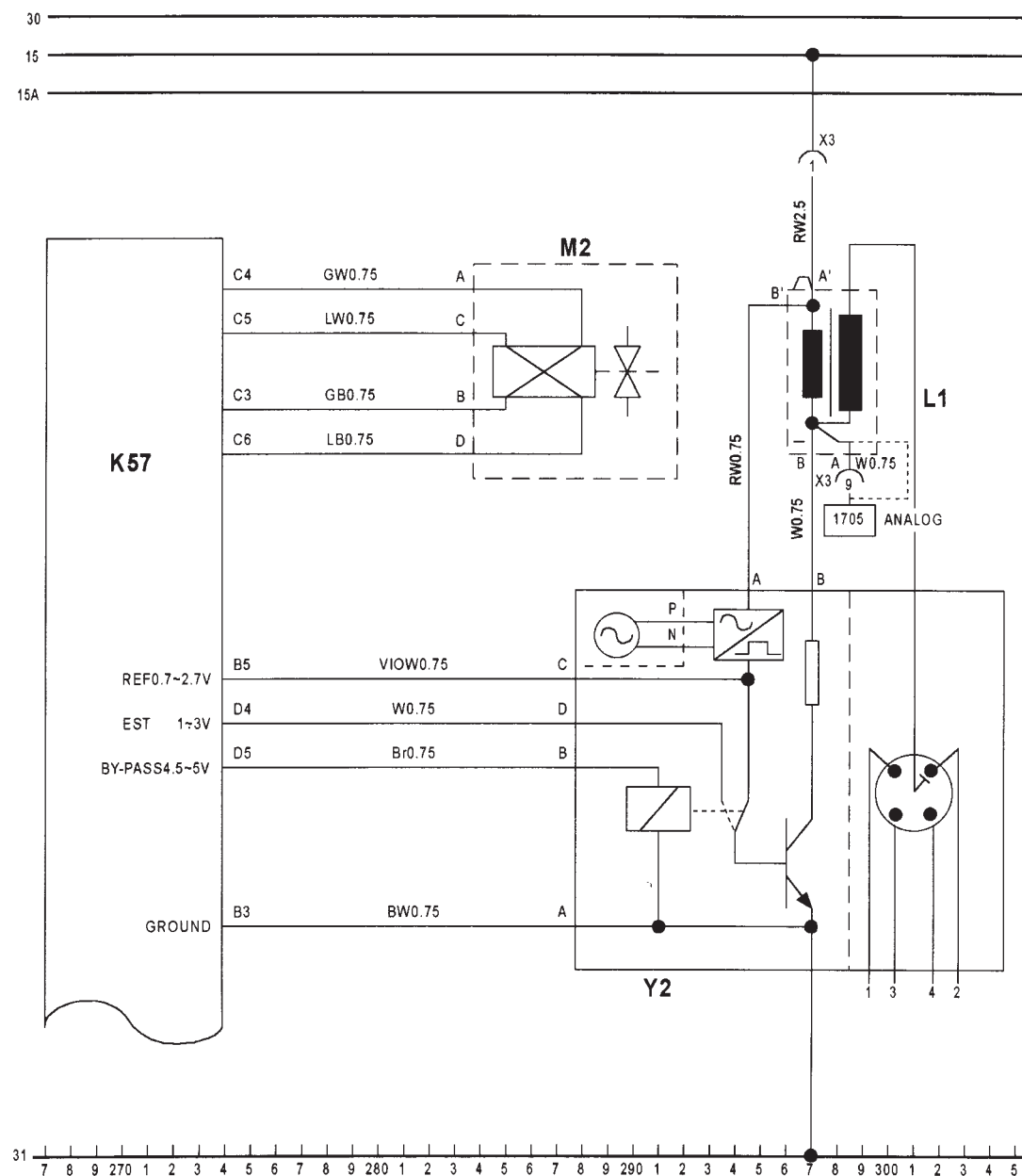
7) ECM MAIN POWER AND GROUND(1.8/2.0 L MPFI, IEFI-S TYPE)

K57 ECM  
Y1 INJECTOR



## 8) STEP MOTOR, IGNITION COIL, DISTRIBUTOR WIRING(1.8/2.0 L MPFI, IEFI-S TYPE)

L1 IGNITION COIL  
M2 STEP MOTOR  
K57 ECM  
Y2 DISTRIBUTOR



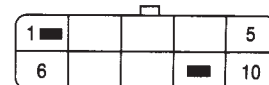
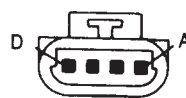
IGNITION COIL  
CONNECTOR  
(E/G HARNESS REF.)



DISTRIBUTOR CONNECTOR  
(E/G HARNESS REF.) (F/I HARNESS REF.)

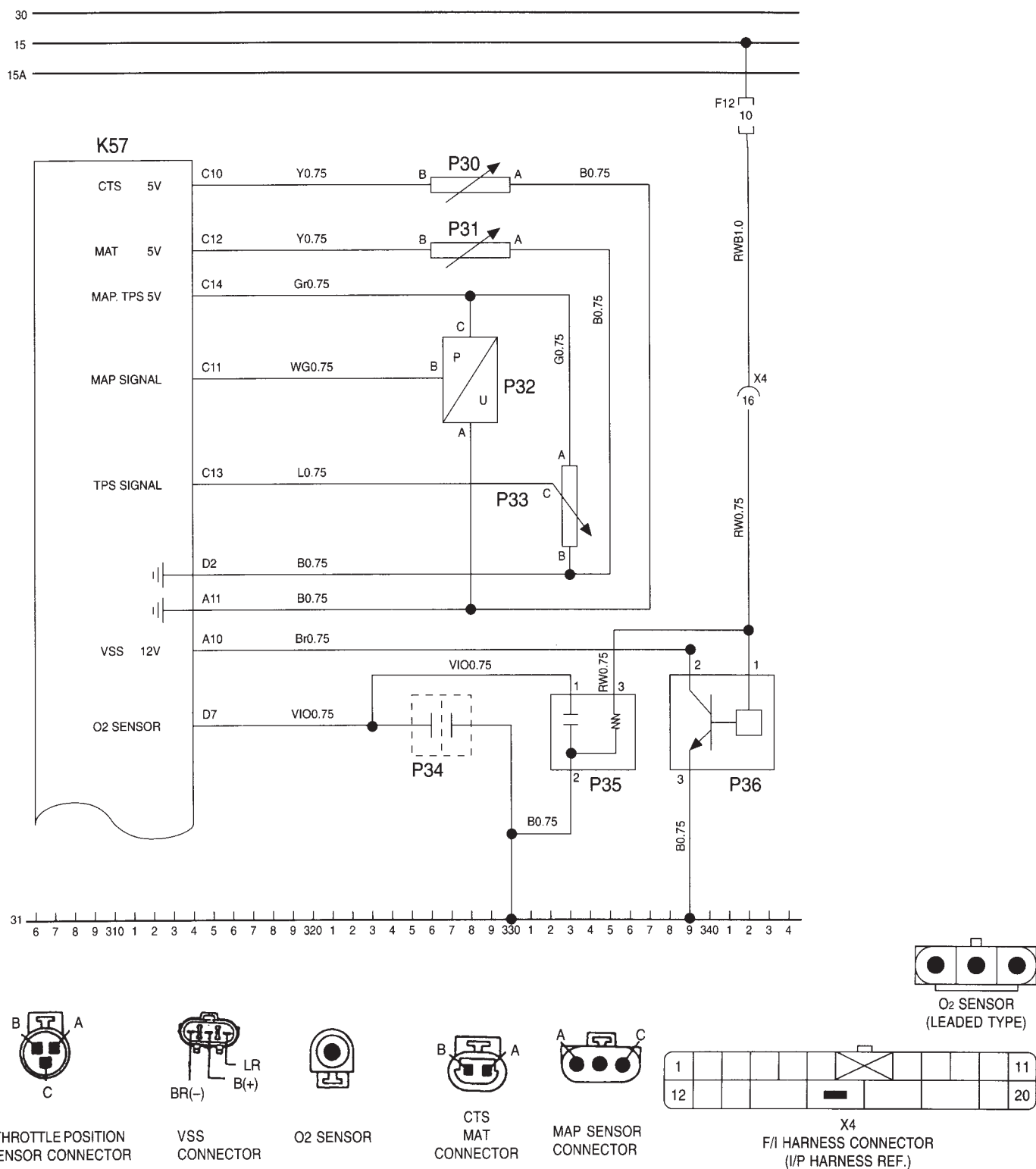


STEP MOTOR(IAC) CONNECTOR  
(F/I HARNESS REF.)



X3  
ENGINE HARNESS  
(I/P HARNESS REF.)

P34 OXYGEN SENSOR(UNLEADED TYPE)  
P35 OXYGEN SENSOR(LEADED TYPE)  
P36 VEHICLE SPEED SENSOR(V.S.S)  
K57 ECM



## 10) "SERVICE ENGINE SOON" LIGHT, FUEL PUMP WIRING(1.8/2.0 L MPFI, IEFI-S TYPE)

E2 "SERVICE ENGINE SOON" LIGHT

K2 P-N RELAY(AT)

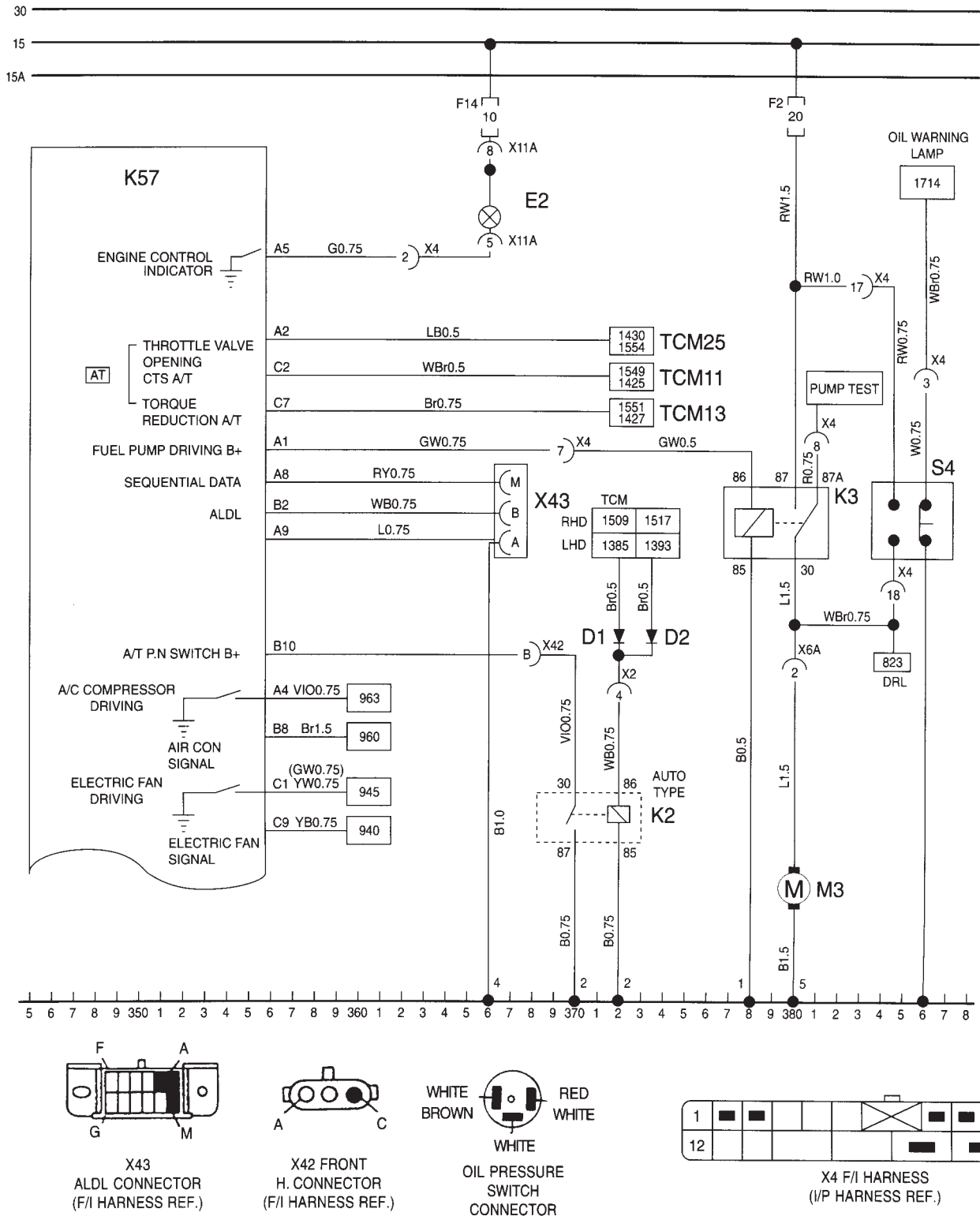
K3 FUEL PUMP RELAY

K57 ECM

M3 FUEL PUMP

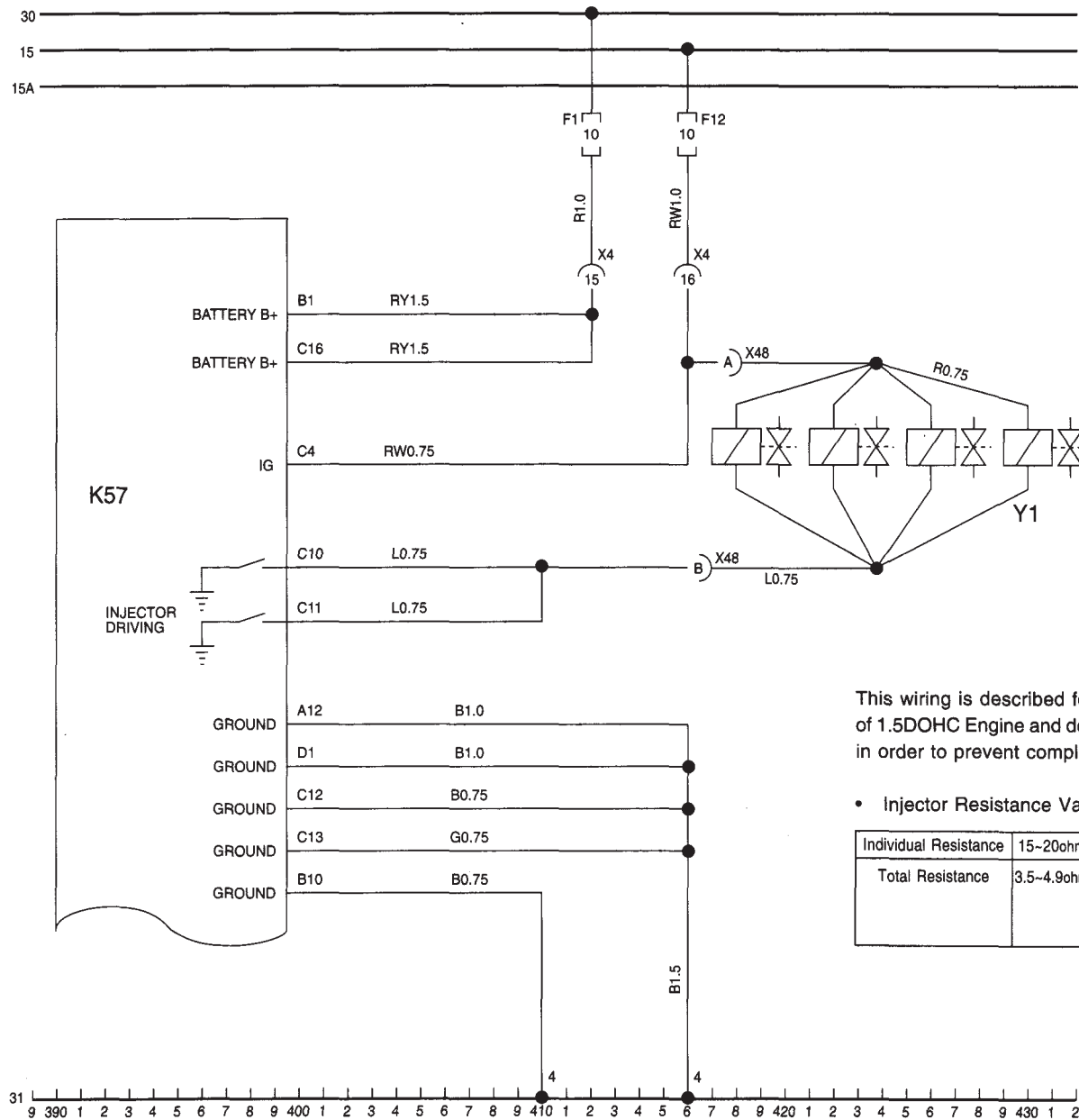
S4 OIL PRESSURE SWITCH

X43 ALDL CONNECTOR



11) ECM MAIN POWER AND GROUND(1.5 DOHC, IEFI-6 TYPE)

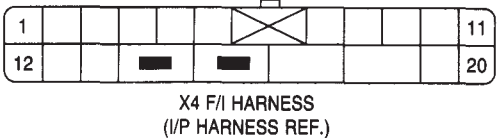
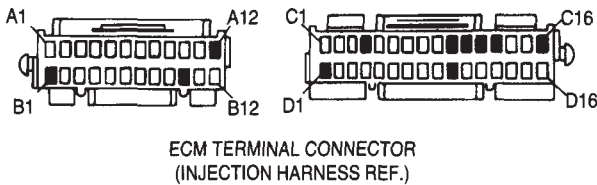
K57 ECM  
Y1 INJECTOR

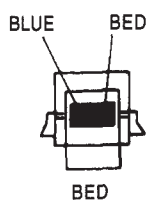
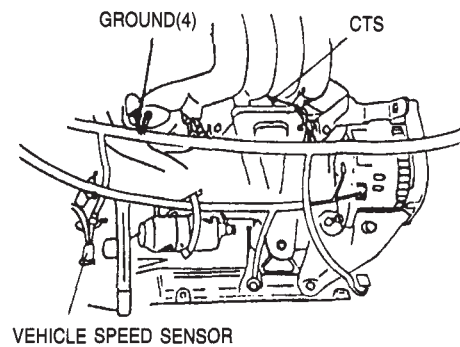
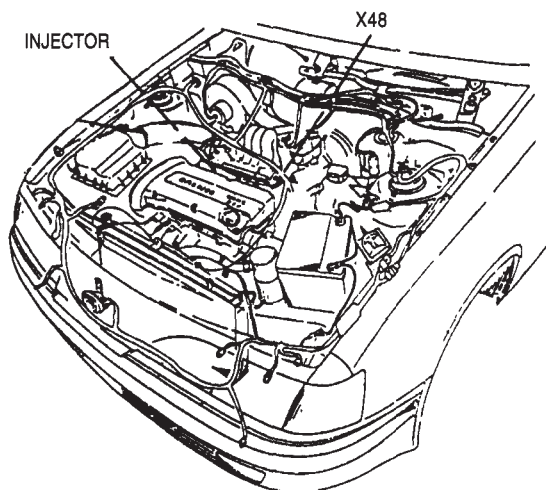
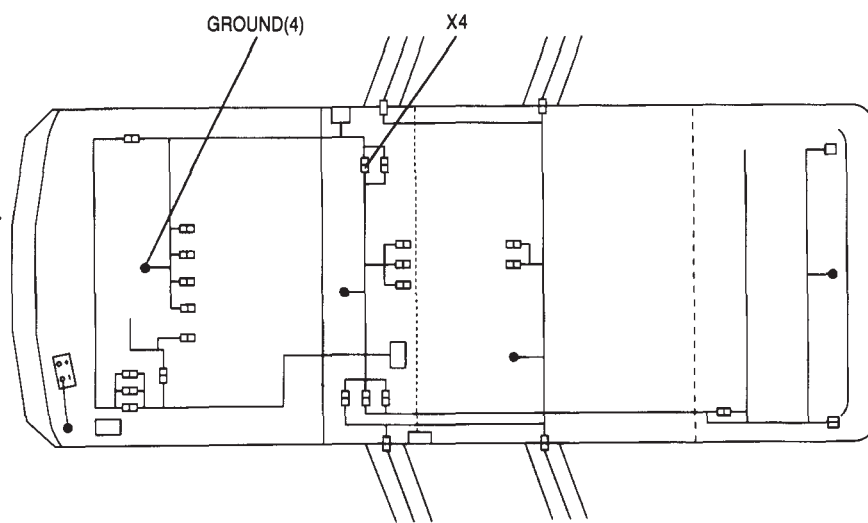
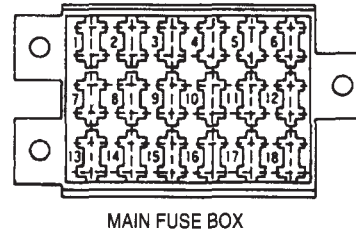
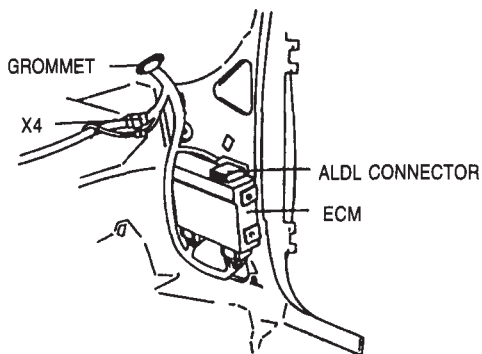


This wiring is described for the fuel injection of 1.5DOHC Engine and divided at each page in order to prevent complexity.

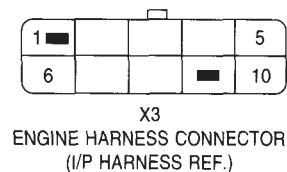
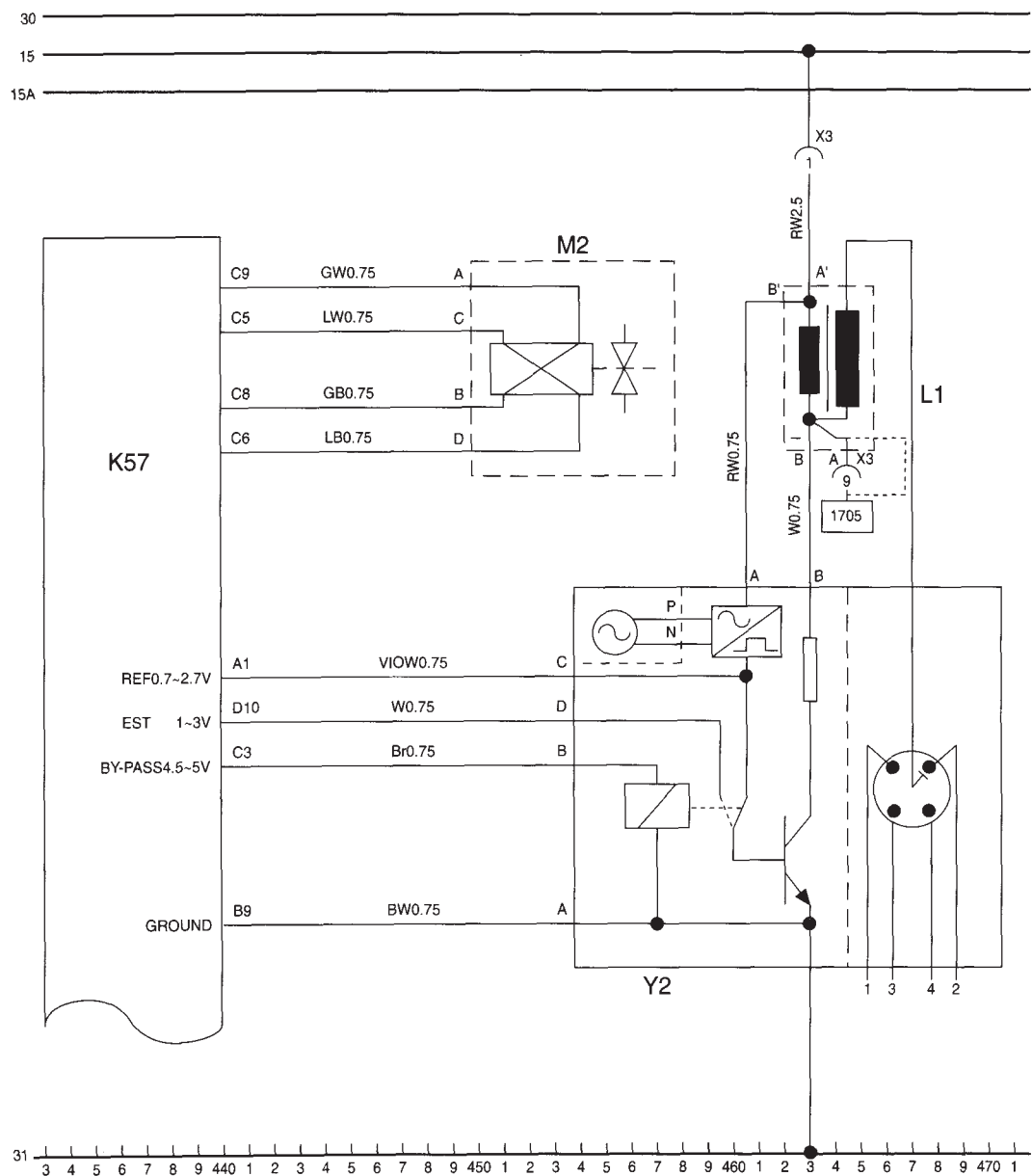
• Injector Resistance Value

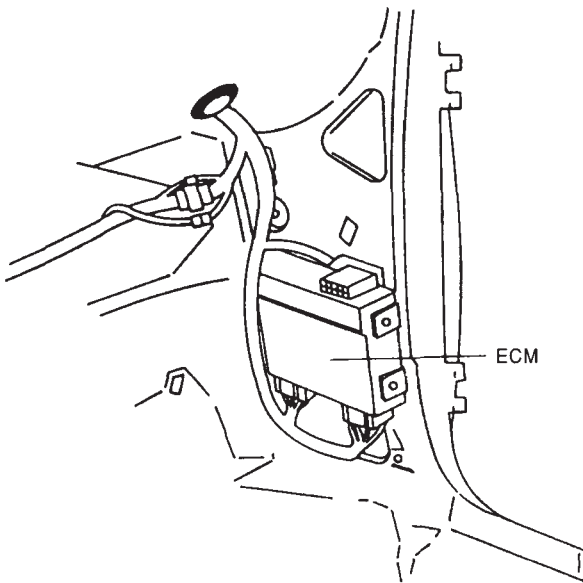
|                       |             |                                             |
|-----------------------|-------------|---------------------------------------------|
| Individual Resistance | 15~20ohms   | For each item                               |
| Total Resistance      | 3.5~4.9ohms | Resistance between A6 and 216 or D15 of ECM |





- This diagram is for a power supply to operate-ECM. That is, when an ignition switch is "ON". B+ power should be measured at the ECM terminal B<sub>1</sub>, C<sub>16</sub>, C<sub>4</sub>, C<sub>11</sub> and C<sub>10</sub>; and the following terminals are connected to the engine ground; D<sub>1</sub>, C<sub>13</sub>, C<sub>13</sub>, B<sub>10</sub>, A<sub>12</sub> terminals.





- Pick-up Coil

|                       |                 |
|-----------------------|-----------------|
| Resistance            | 500 ~ 1500 ohms |
| Insulation resistance | $\infty$        |

- Ignition Coil

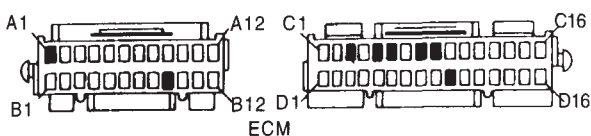
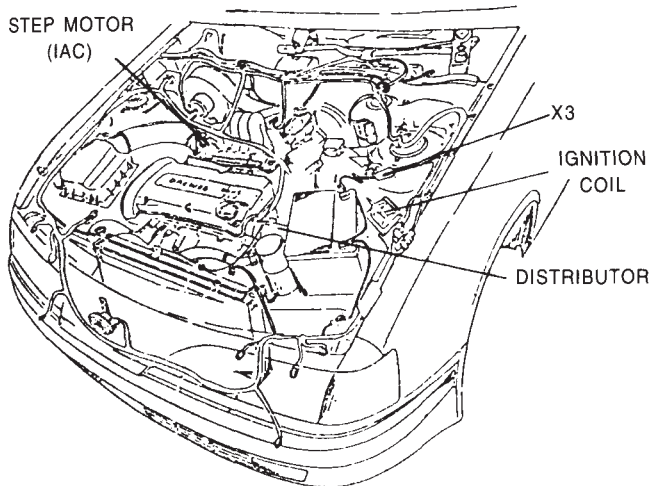
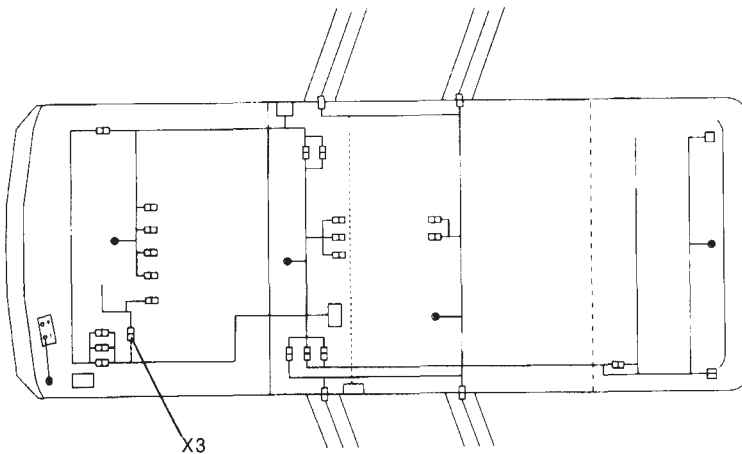
|                       |                  |
|-----------------------|------------------|
| 1st Resistance        | 0.35 ~ 0.45 ohms |
| 2nd Resistance        | 7.5 ~ 9.5 ohms   |
| Insulation resistance | $\infty$         |

- Step motor M2 controls air quantity to be by-passed to inlet manifold in order to keep an appropriate engine RPM in accordance with the engine operating condition.

- Step motor resistance

|              |                                |
|--------------|--------------------------------|
| 40 ~ 80 ohms | A $\leftrightarrow$ B terminal |
|              | C $\leftrightarrow$ D terminal |

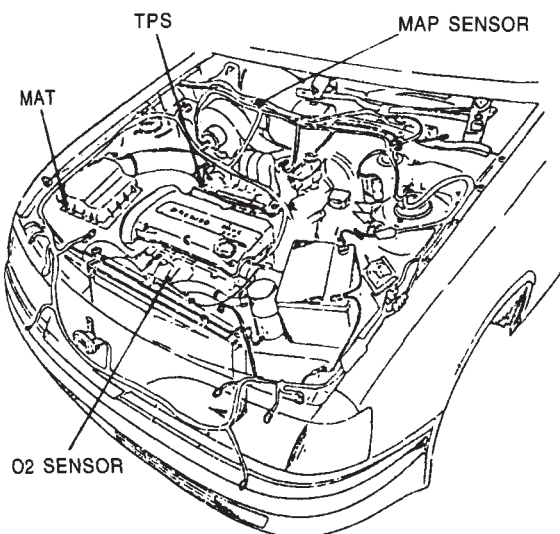
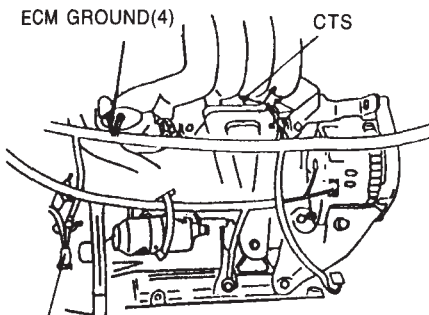
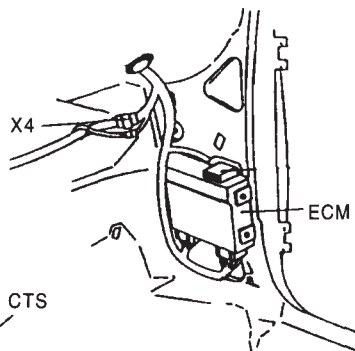
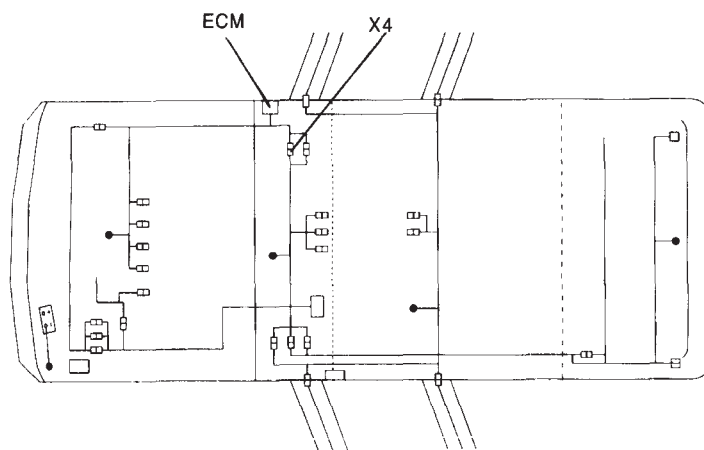
|                       |                       |
|-----------------------|-----------------------|
| Idle Revolution speed | 800 ~ 850RPM(Heating) |
|-----------------------|-----------------------|



- A distributor has a two pin connector and a four pin connector. Because a two pin connector is connected to an "+" and "-" terminals, "B+" voltage should be measured when an ignition switch is "ON". A four pin connector is connected to ECM and supply the most appropriate ignition timing in accordance with the operating condition the regular voltage between each terminal connected to ECM and vehicle ground is as follows;

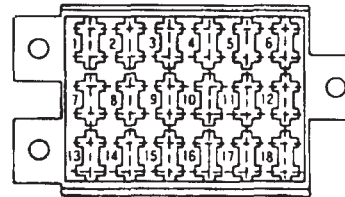
| ECM<br>TERMINAL | DISTRIBUTOR<br>TERMINAL | CHECK CONDITION                      |                |                   |
|-----------------|-------------------------|--------------------------------------|----------------|-------------------|
|                 |                         | IGNITION SWITCH<br>"ON"(ENGINE STEP) | ON<br>STARTING | AFTER<br>STARTING |
| B9              | A(Ground)               | 0V                                   | 0V             | 0V                |
| C3              | B(by-pass)              | 0V                                   | 0V             | 4.5~5V            |
| A1              | C(REF)                  | below 0.3V                           | 0.5~1.5V       | 0.7~2.7V          |
| D10             | D(EST)                  | below 0.3V                           | below 0.3V     | 1~3V              |





- Resistance for CTS and MAT sensor

|       |                 |
|-------|-----------------|
| 100°C | 0.185 Kilo-ohms |
| 90°C  | 0.240 Kilo-ohms |
| 80°C  | 0.332 Kilo-ohms |
| 70°C  | 0.450 Kilo-ohms |
| 40°C  | 1.46 Kilo-ohms  |
| 20°C  | 3.4 Kilo-ohms   |
| 10°C  | 5.67 Kilo-ohms  |
| -10°C | 16.1 Kilo-ohms  |



MAIN FUSE BOX

- Temperature Sensor: Temperature Sensor voltage supplied +5V through ECM inner resistor is as follows and ECM check this voltage to notice the engine temperature;

| Engine Temp. | Resistance | Signal Voltage |
|--------------|------------|----------------|
| Cooling      | Higher     | Rising         |
| Heating      | Lower      | Falling        |

- MAP Sensor: This sensor has a function converting the inlet manifold pressure change to voltage and measure the voltage between the MAP sensor "B" terminal and the vehicle body ground.

| Inlet manifold pressure | Signal voltage |
|-------------------------|----------------|
| Air pressure (IG "ON")  | 4.8 ~ 5.2 V    |
| -0.2 bar                | 3.5 ~ 3.9 V    |
| -0.4 bar                | 2.3 ~ 2.7 V    |
| -0.6 bar                | 1.3 ~ 1.7 V    |
| -0.8 bar                | 0.3 ~ 0.7 V    |

- TPS(Throttle Position Sensor): Measure the voltage between TPS "C" terminal and the vehicle body ground.

|                        |           |
|------------------------|-----------|
| Throttle valve closing | 0.4~0.8 V |
| 100% opening           | 4.1~4.5 V |

- VSS(Vehicle Speed Sensor):  
It uses the hole sensor theory so that below 0.5 V is detected when a current flows by closing the transistor and 12V is detected by opening.
- Oxygen Sensor:  
is to detect the mixed ratio and voltage should be changed between 0.1 and 0.9 V when an engine is warming-up fully. (when the harness is connected normally)

14) "SERVICE ENGINE SOON" LIGHT, FUEL PUMP WIRING(1.5 DOHC, IEFI-6 TYPE)

- E2 "SERVICE ENGINE SOON" LIGHT

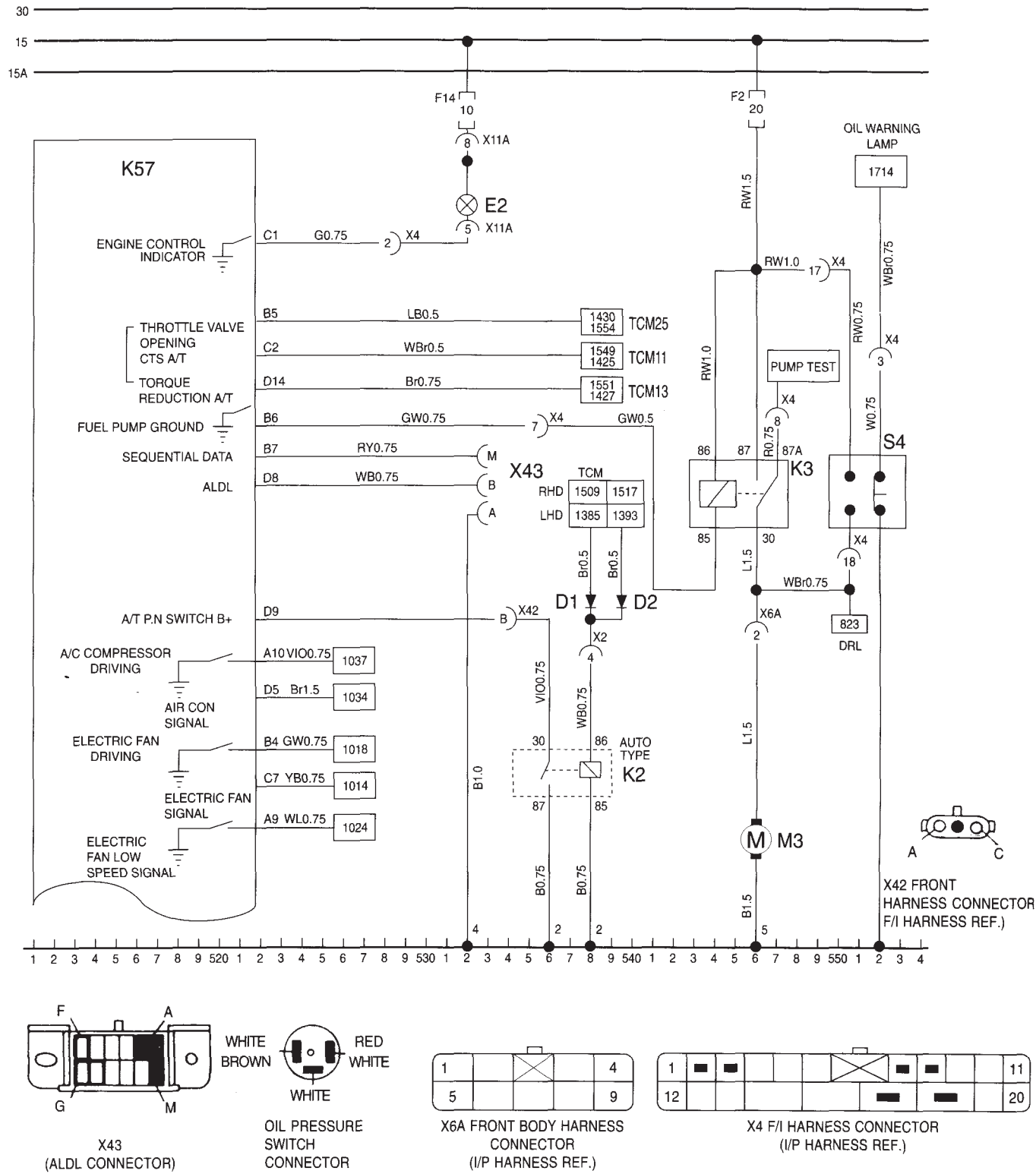
K2 P-N RELAY(AT)

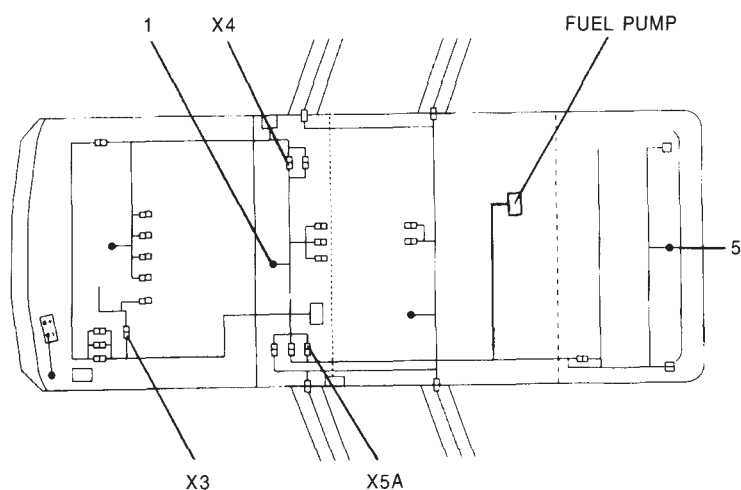
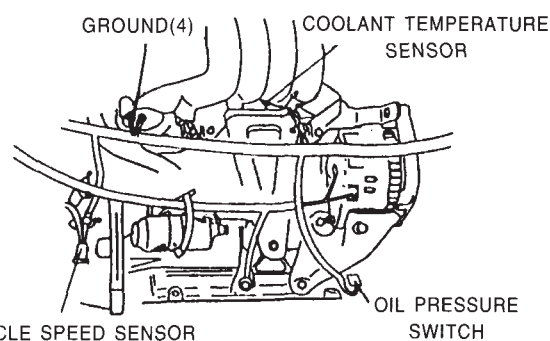
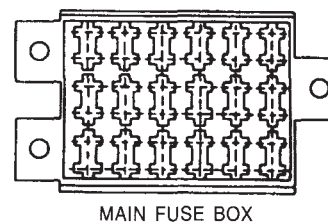
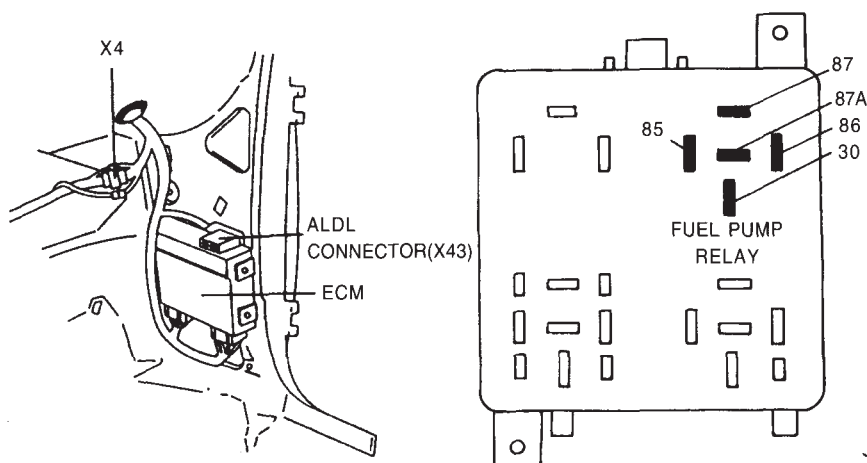
K3 FUEL PUMP RELAY

K57 ECM
- M3 FUEL PUMP

S4 OIL PRESSURE SWITCH

X43 ALDL CONNECTOR





- B6: Ter B6 is grounded from K3 fuel pump relay Ter, 85 for 2 seconds when an ignition switch is "ON".

- The operating status of fuel pump relay

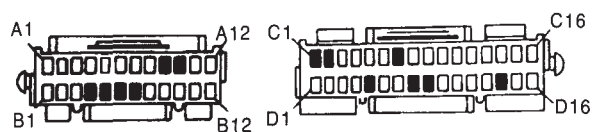
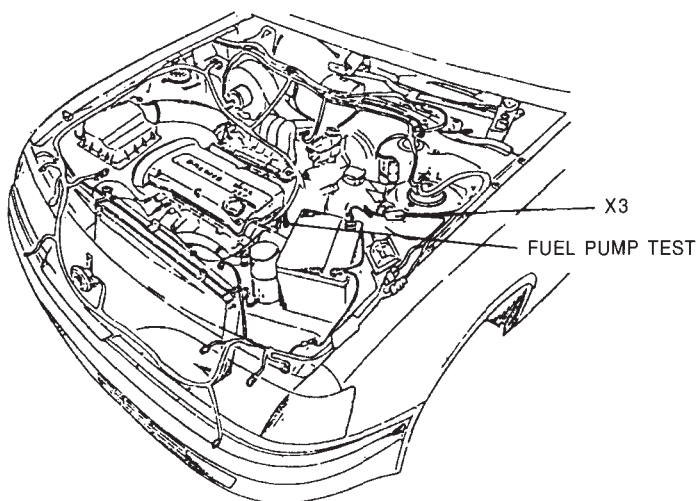
| Engine status                        | ECM terminal V                 | Pump operation         |
|--------------------------------------|--------------------------------|------------------------|
| Ignition switch is "ON"(engine stop) | B6: over 0V<br>(For 2 seconds) | 2 seconds of operation |
| On starting                          | B6: over 0V                    | Continuously operating |
| After starting                       | B6: over 0V                    | Continuously operating |

- The regular pressure of fuel line

|                          |                              |
|--------------------------|------------------------------|
| Idle RPM                 | 2.3 ~ 2.7 kg/cm <sup>2</sup> |
| Engine Stop(Wire jumped) | 2.8 ~ 3.2 kg/cm <sup>2</sup> |

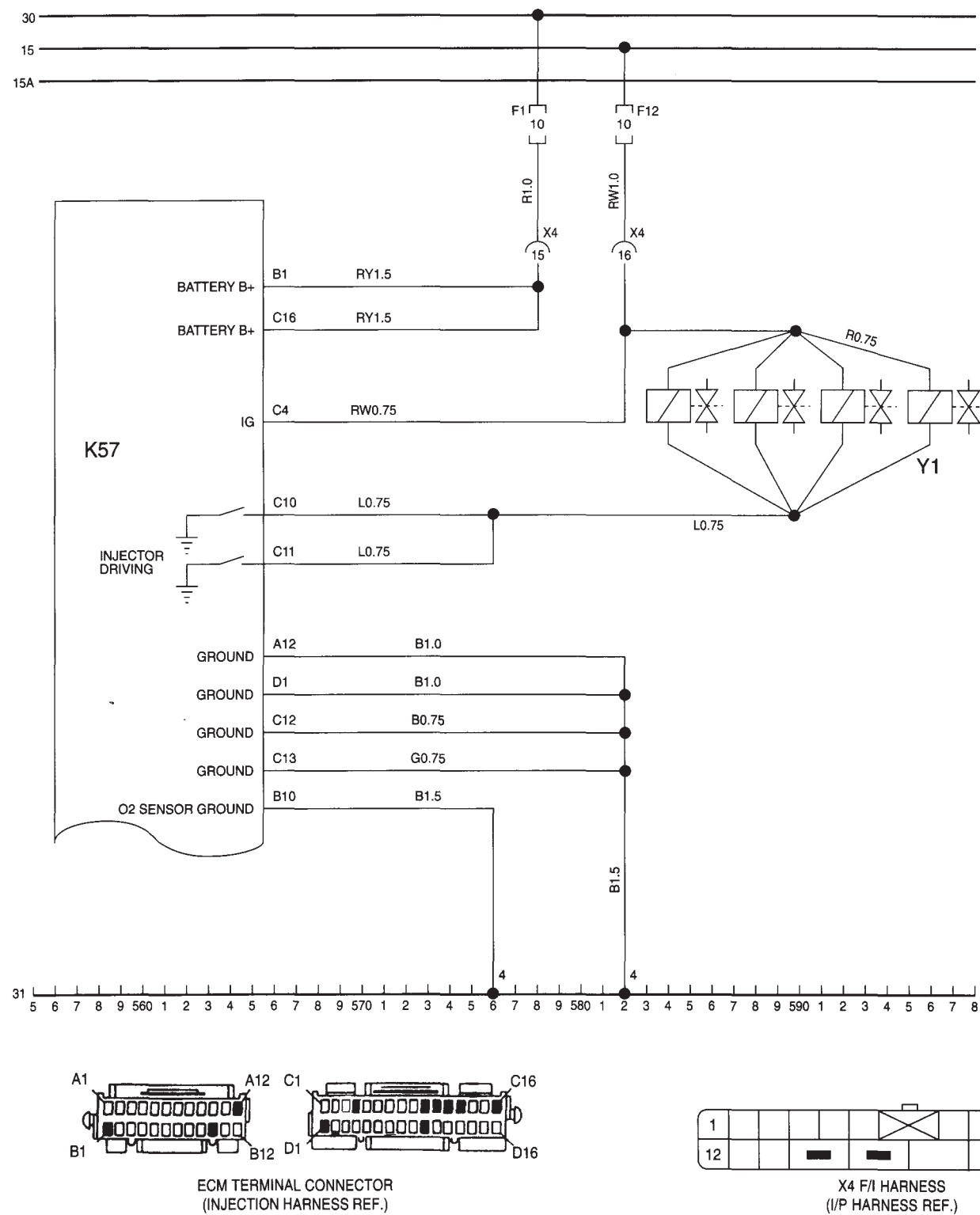
- At the A/T vehicle. P-N switch is installed on the upper side of auto transmission and ECM detects the driving position(D, R, 3, L) from the switch and compensates the idle rpm reduction generated from load increase.
- ECM terminal voltage when ignition switch "ON" or idle rpm.

| Selector lever | ECM "B10" terminal         |
|----------------|----------------------------|
| P.N            | 0 V                        |
| D, R, 3, L     | Battery voltage(over 12 V) |



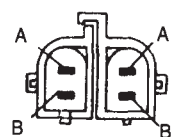
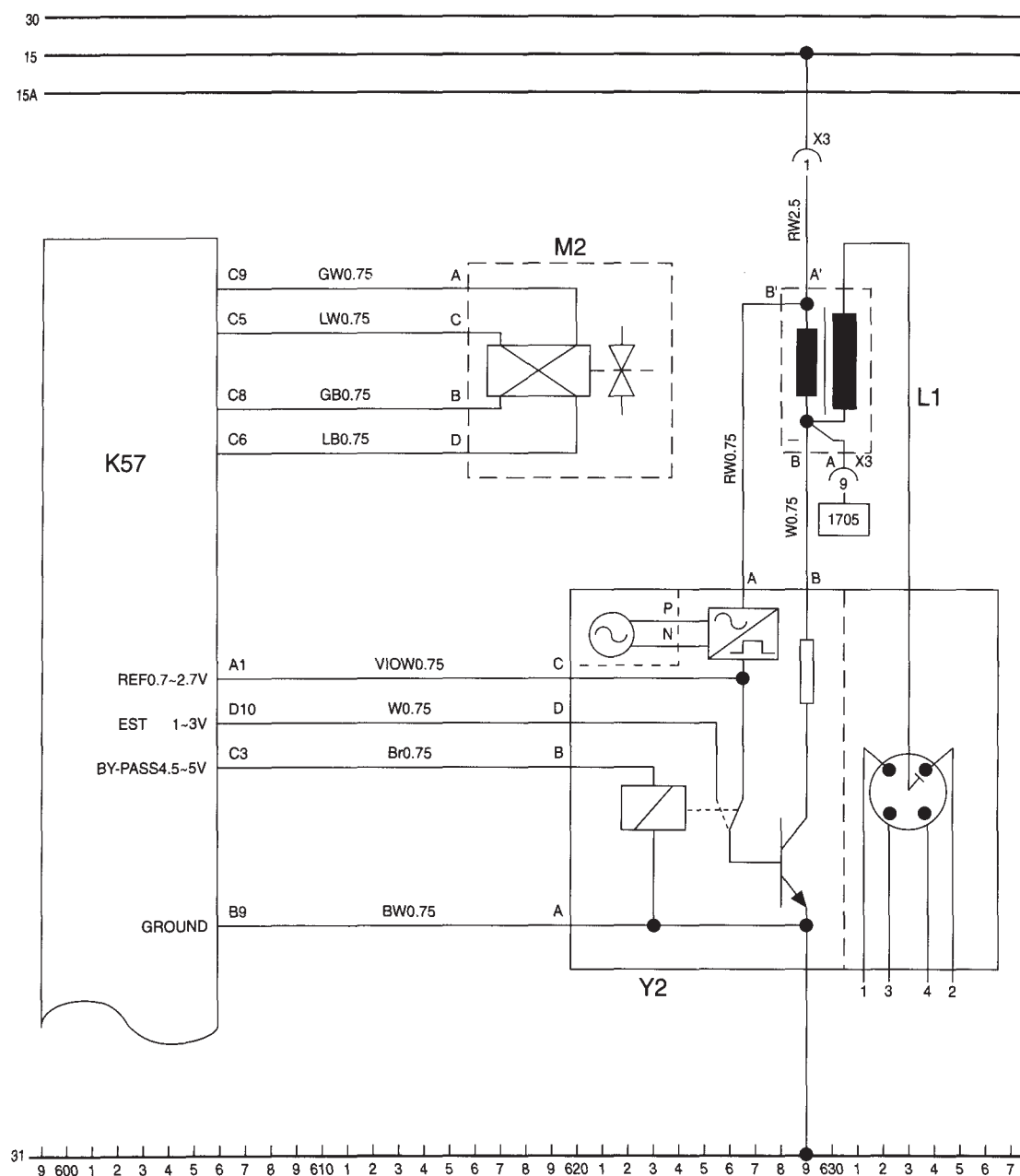
15) ECM MAIN POWER AND GROUND(1.8/2.0 L MPFI, IEFI-6 TYPE)

K57 ECM  
Y1 INJECTOR



## 16) STEP MOTOR, IGNITION COIL, DISTRIBUTOR WIRING(1.8/2.0 L MPFI, IEFI-6 TYPE)

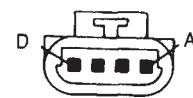
L1 IGNITION COIL  
M2 STEP MOTOR  
K57 ECM  
Y2 DISTRIBUTOR



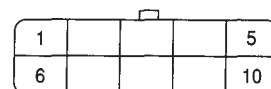
IGNITION COIL  
(E/G HARNESS REF.)



DISTRIBUTOR CONNECTOR  
(E/G HARNESS REF. ) (F/I HARNESS REF.)



STEP MOTOR(IAC)  
(F/T HARNESS REF.)



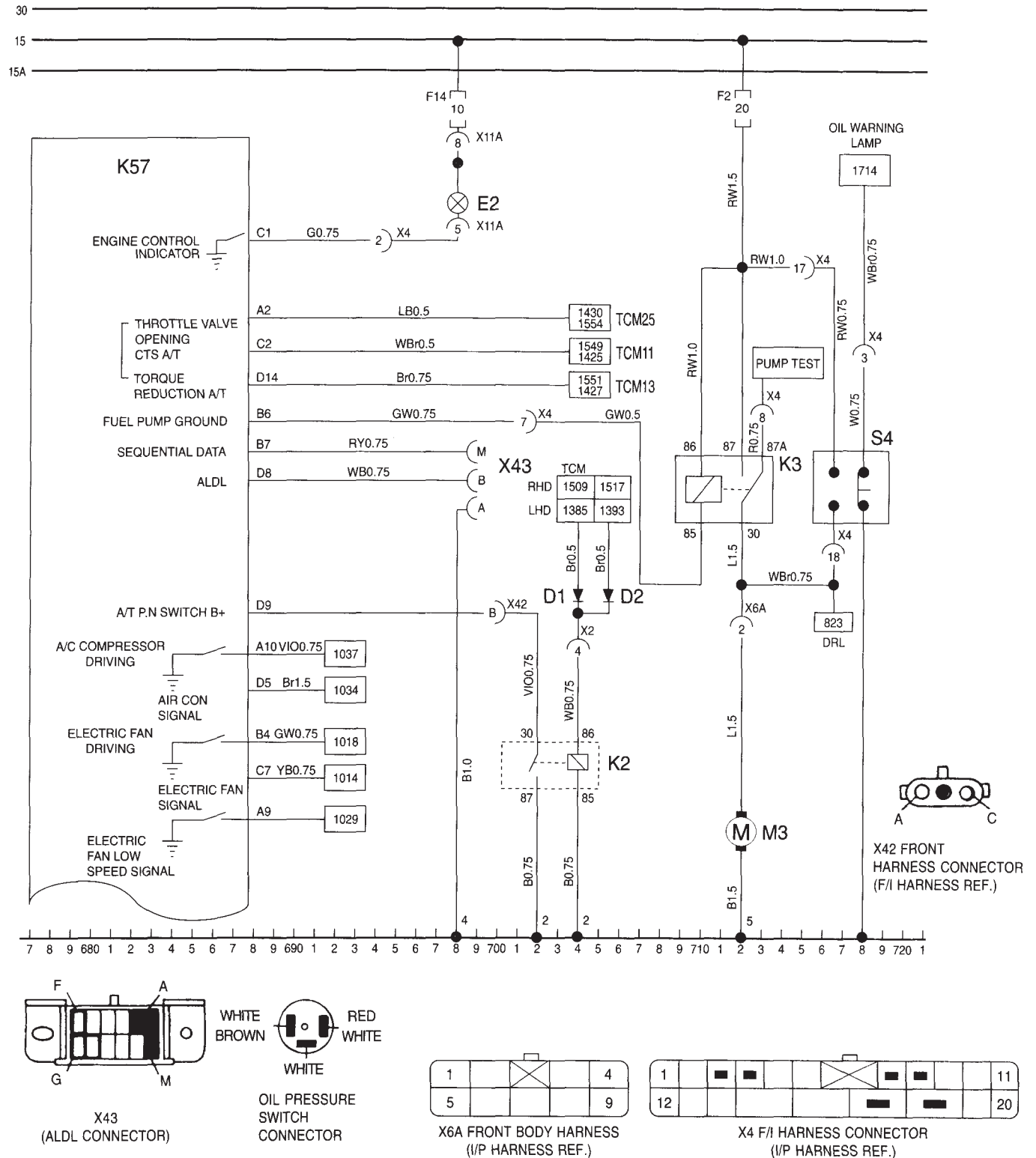
X3  
ENGINE HARNESS  
(I/P HARNESS REF.)



# 18) "SERVICE ENGINE SOON" LIGHT, FUEL PUMP WIRING(1.8/2.0 L MPFI, IEFI-6 TYPE)

E2 "SERVICE ENGINE SOON" LIGHT  
K2 P-N RELAY(AT)  
K3 FUEL PUMP RELAY  
K57 ECM

M3 FUEL PUMP  
S4 OIL PRESSURE SWITCH  
X43 ALDL CONNECTOR

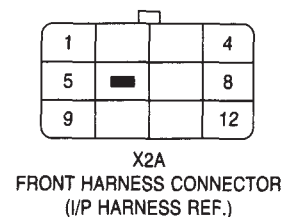
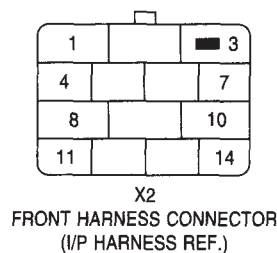
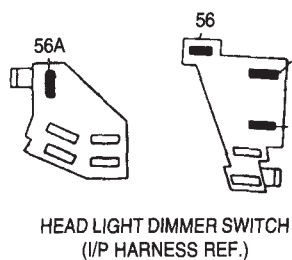
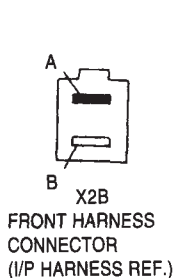
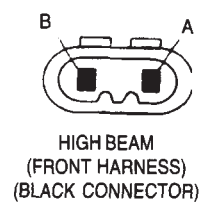
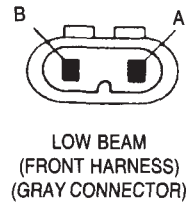
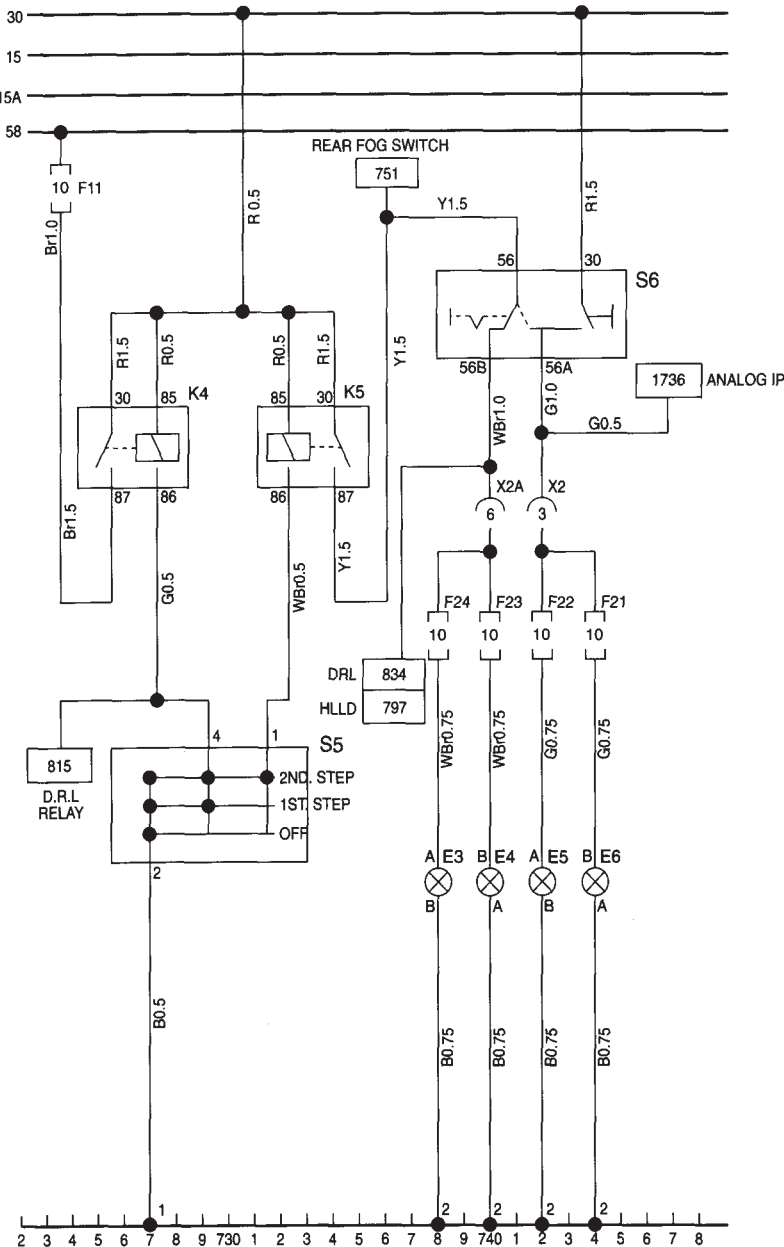


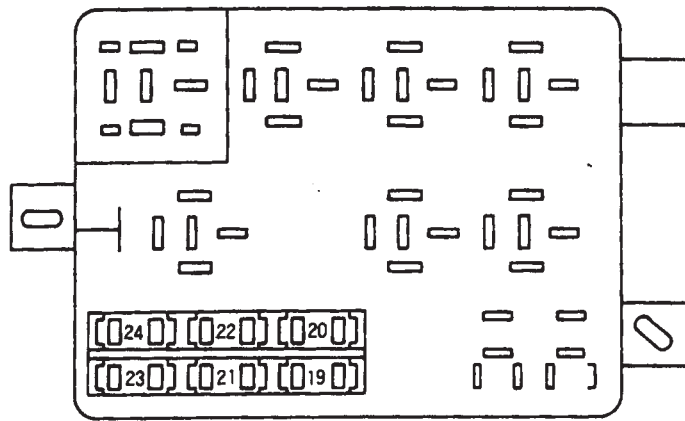
## 19) HEAD LAMP WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

E3 HEAD LAMP LOW BEAM RH  
E4 HEAD LAMP LOW BEAM LH  
E5 HEAD LAMP HIGH BEAM RH  
E6 HEAD LAMP HIGH BEAM LH

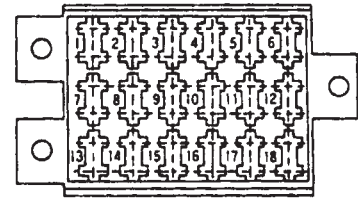
K4 ILLUMINATION LAMP RELAY  
K5 HEAD LAMP RELAY  
S5 LIGHT SWITCH  
S6 DIMMER SWITCH

- 58 Line  
After a light switch is set to 1st or 2nd step, a illumination relay is operating to feed power to fuse 11. The line connect to F2 is called a 58 line. The 58 line feeds power to various illumination lamps and clearance lamps, etc.
- S5 switch, S6 dimmer switch  
A light switch and A dimmer switch are displayed respectively on the wiring diagram.  
But these are assembled physically in a device.

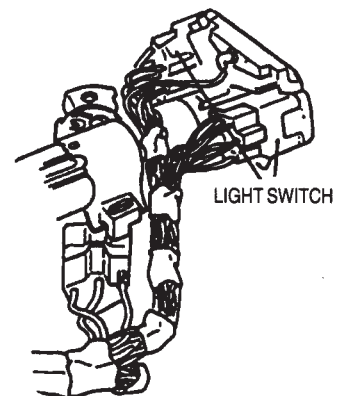
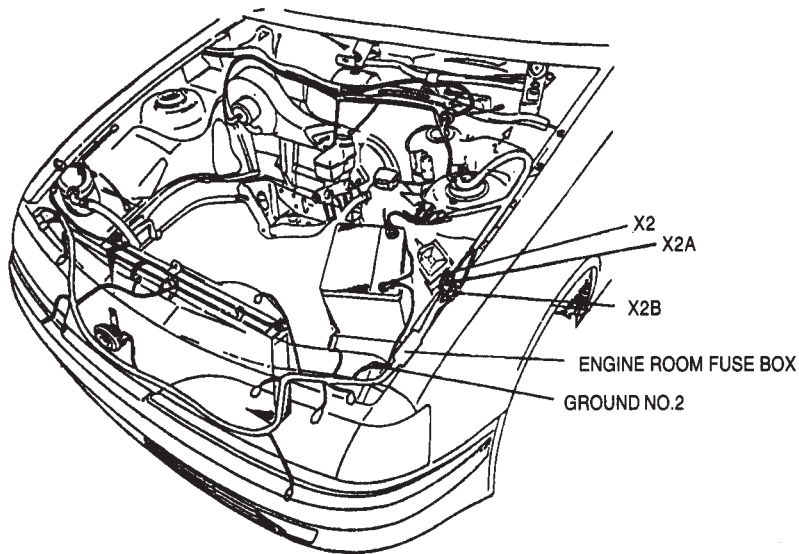
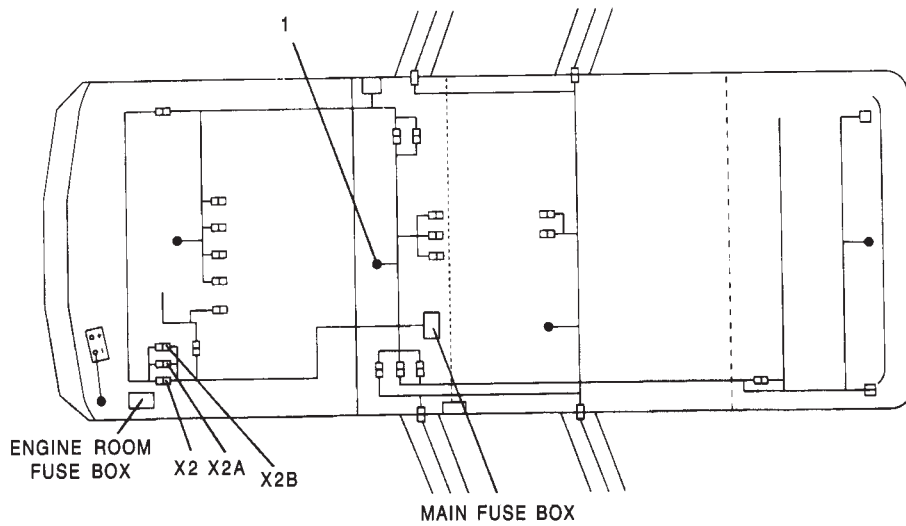




ENGINE ROOM FUSE BOX



MAIN FUSE BOX



20) FRONT FOG AND REAR FOG LAMP WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

- E7

REAR FOG LAMP LH
- E8

REAR FOG LAMP RH
- E9

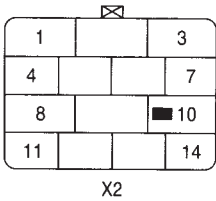
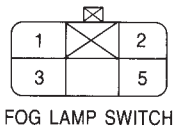
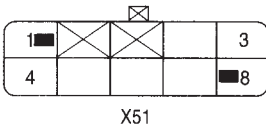
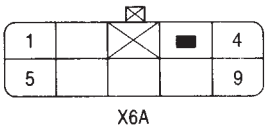
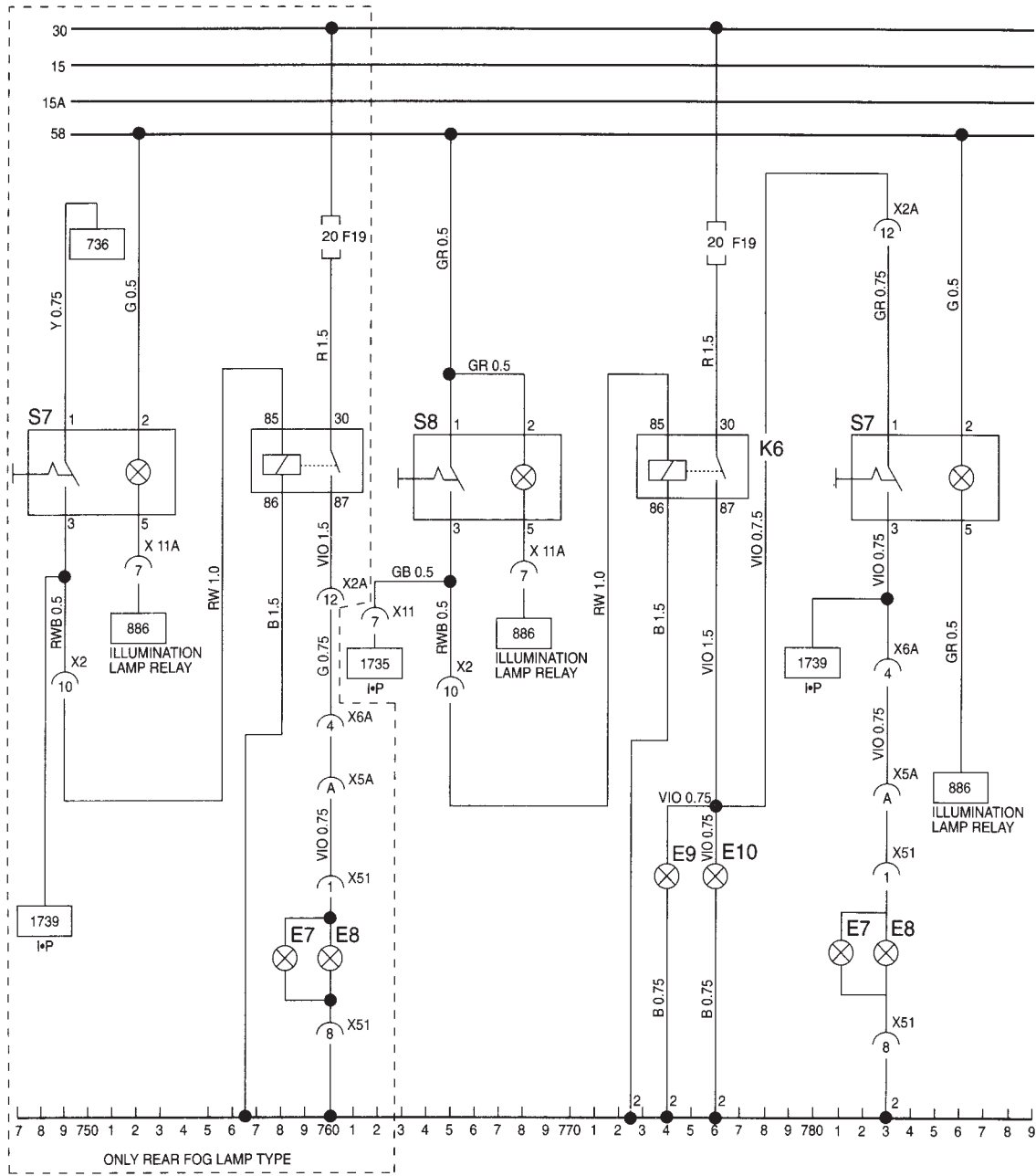
FRONT FOG LAMP LH
- E10

FRONT FOG LAMP RH
- K6

FRONT FOG LAMP RELAY
- S7

REAR FOG SWITCH
- S8

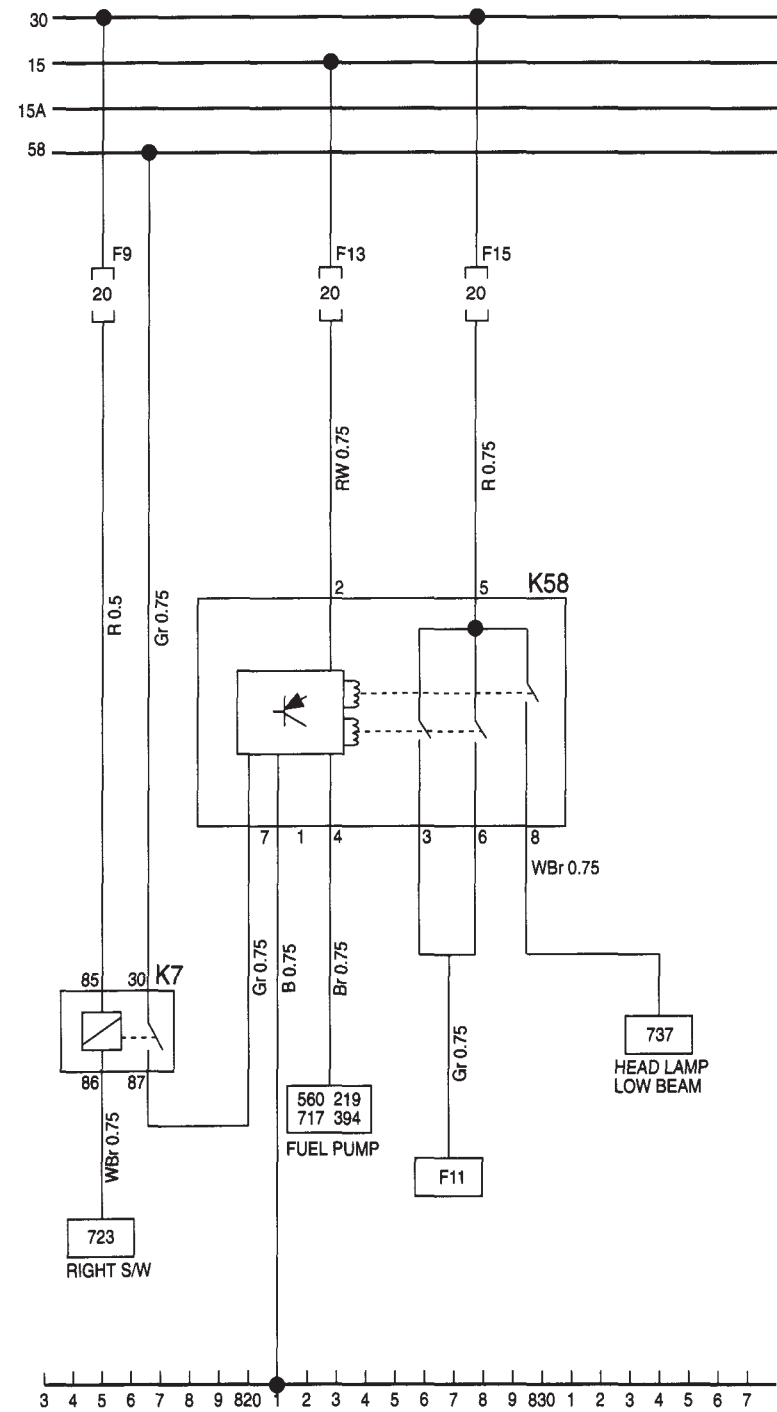
FRONT FOG SWITCH





22) DAY TIME RUNNING LIGHT(DRL) WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

K7 DRL RELAY  
K58 DRL UNIT

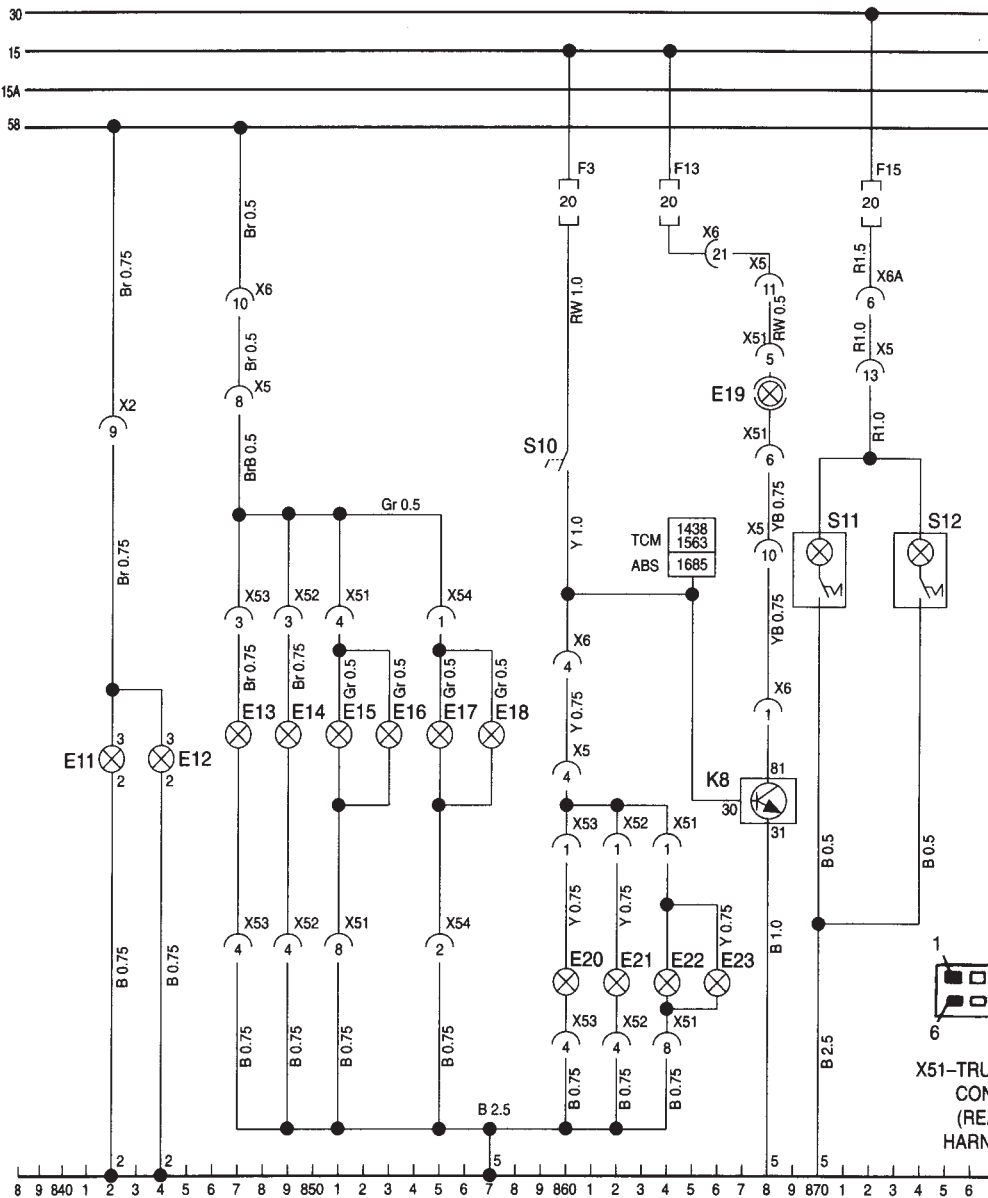


**23) CLEARANCE LAMP, BRAKE SYSTEM LAMP, READING LAMP WIRING(1.5 DOHC/1.8, 2.0 L MPFI)**

E11 CLEARANCE LAMP(FR, LH)  
 E12 CLEARANCE LAMP(FR, RH)  
 E13 TAIL LAMP(RR, RH)  
 E14 TAIL LAMP(RR, LH)  
 E15 TAIL LAMP; TRUNK  
 E16 TAIL LAMP; TRUNK

E17 LICENCE PLATE LAMP  
 E18 LICENCE PLATE LAMP  
 E19 REAR SPOILER CONTROL LAMP  
 E20 BRAKE SYSTEM LAMP(RR, RH)  
 E21 BRAKE SYSTEM LAMP(RR, LH)  
 E22 BRAKE SYSTEM LAMP(TRUNK)

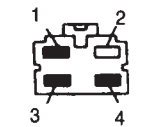
E23 BRAKE SYSTEM LAMP(TRUNK)  
 K8 REAR SPOILER RELAY  
 S10 BRAKE SYSTEM LAMP SWITCH  
 S11 READING LAMP(RR, LH)  
 S12 READING LAMP(RR, RH)



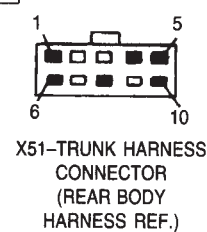
- **1438, 1563** This supplies TCM "26" terminal with 12V when braking on the A/T vehicle and notice TCM that the vehicle is braked now.



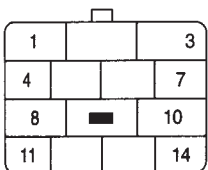
X54-REAR END HARNESS CONNECTOR (REAR BODY HARNESS REF.)



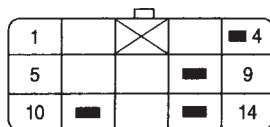
X52, 53 TAIL LAMP CONNECTOR(LR) (REAR BODY HARNESS REF.)



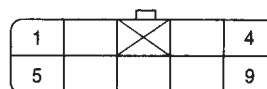
X51-TRUNK HARNESS CONNECTOR (REAR BODY HARNESS REF.)



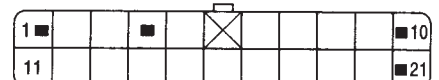
X2 FRONT HARNESS CONNECTOR (I/P HARNESS REF.)



X5 REAR BODY HARNESS CONNECTOR (I/P HARNESS REF.)



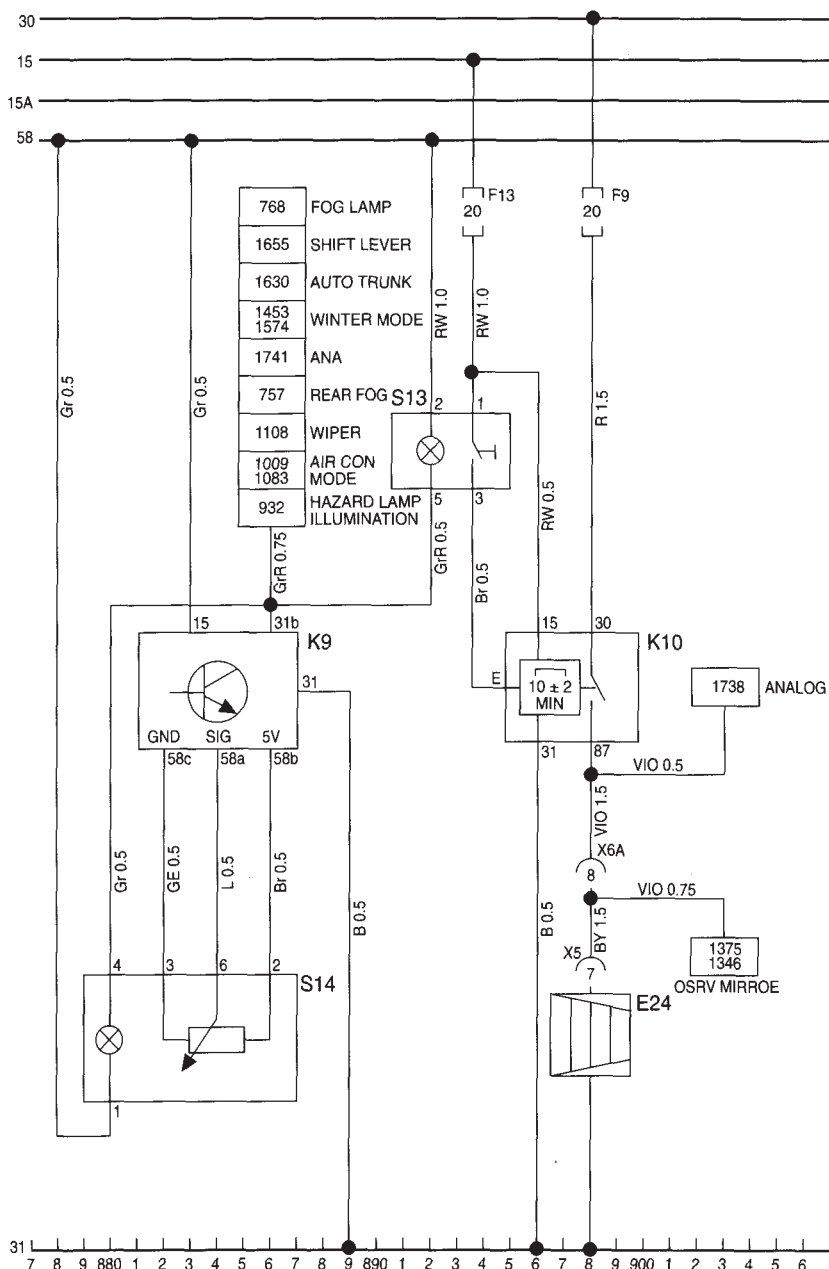
X6A-FRONT BODY HARNESS CONNECTOR (I/P HARNESS REF.)



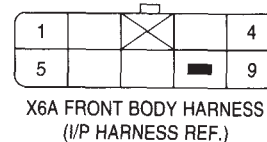
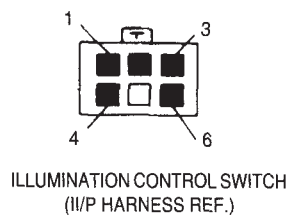
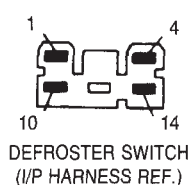
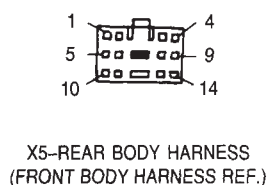
X6 FRONT BODY HARNESS CONNECTOR (I/P HARNESS REF.)

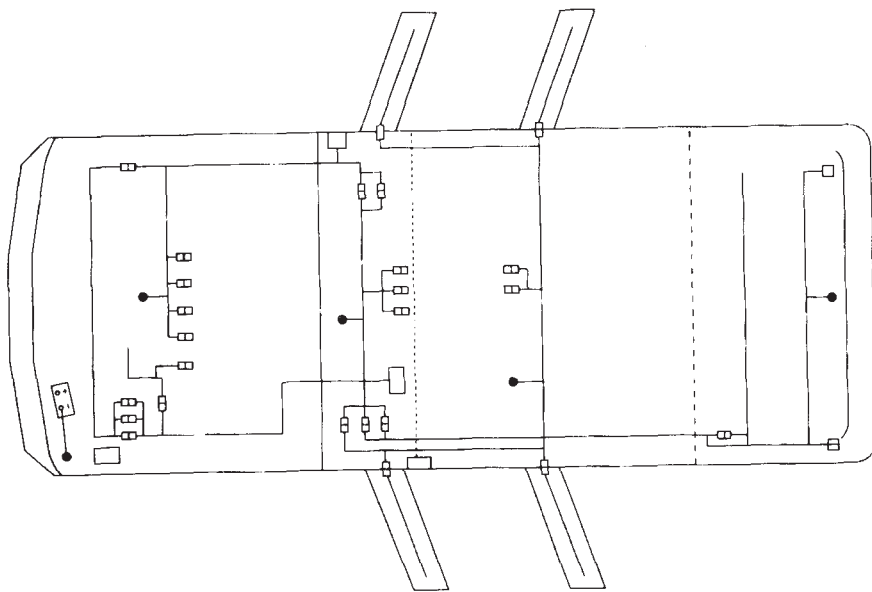
## 24) ILLUMINATION CONTROL AND REAR WINDOW DEFROSTER WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

E24 REAR WINDOW DEFROSTER  
 K9 ILLUMINATION CONTROL RELAY  
 K10 DEFROSTER TIME RELAY  
 S13 DEFROSTER SWITCH  
 S14 ILLUMINATION CONTROL SWITCH



- Illumination control relay K9 controls the lightness of location indicator lamps on the IP and each switch according to the signal voltage of illumination control switch S14.
- All lamps connected to the 31b terminal of the illumination control relay should be routed to the ground only through the illumination control relay. That is, the current from the relay 31b to 31(ground) is controlled.
- The resistance between the illumination control switch terminal 2 and 3 is about 9kΩ. It is constant at any switch location.
- When the light switch is operated, the illumination control relay 58b terminal general about 5V and 58c terminal is connected to the ground through the inner relay. The signal voltage of the illumination control relay 58a terminal changes according to the switch position(the most light position is 5V, the most dark position is 0V).
- The defroster switch S13 is a one touch type. That is, when it operates one time, the defroster time relay K10 is "ON" and the time relay operates for 10 minutes to be OFF automatically. If reoperating the switch during operating(within 10 minutes), the defroster time relay is OFF.
- [1738] notice that the defroster is operating on IP
- [1375], [1346] is a defroster wiring diagram of electric back mirror

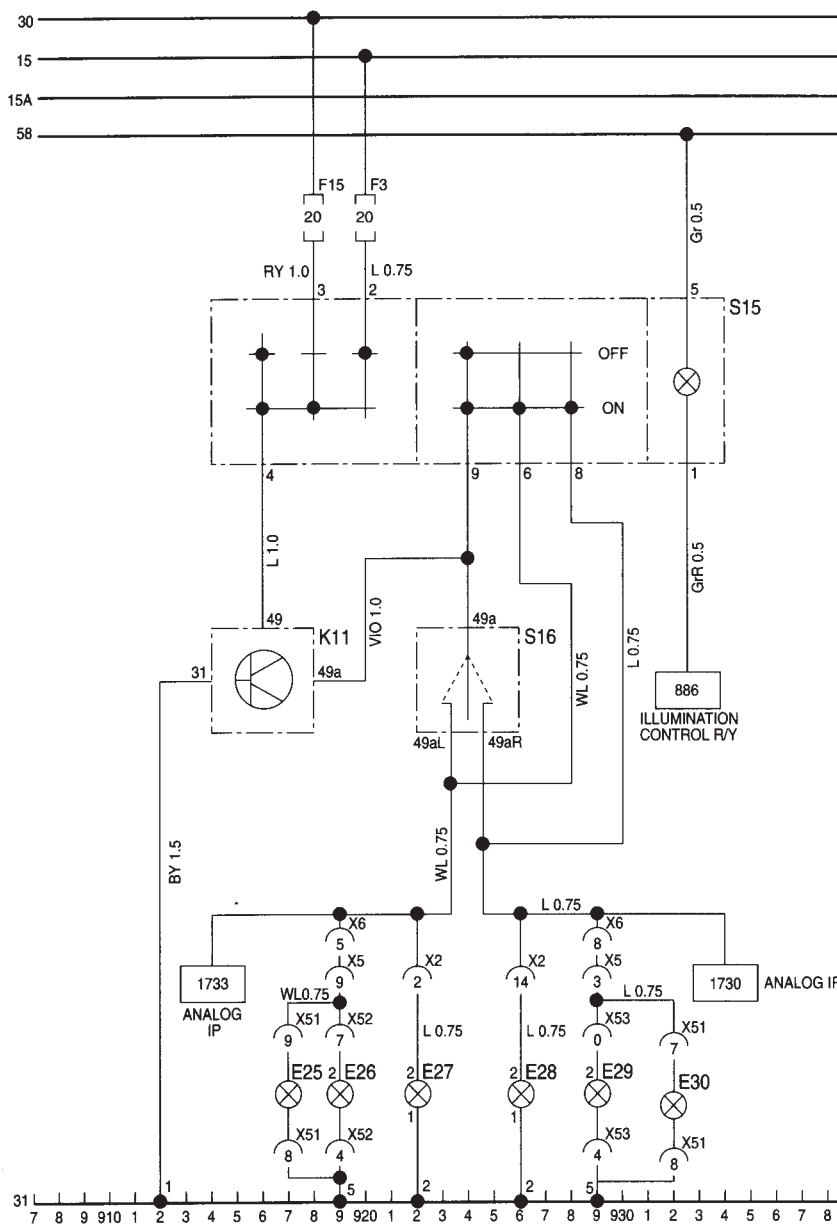




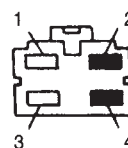
## 25) HAZARD LAMP AND TURN SIGNAL LAMP WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

E25 TURN SIGNAL LAMP(TRUNK, L)  
 E26 TURN SIGNAL LAMP(R, L)  
 E27 TURN SIGNAL LAMP(F, L)  
 E28 TURN SIGNAL LAMP(F, R)  
 E29 TURN SIGNAL LAMP(R, R)

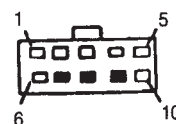
E30 TURN SIGNAL LAMP(TRUNK, R)  
 K11 TURN SIGNAL LAMP RELAY  
 S15 HAZARD LAMP SWITCH  
 S16 TURN SIGNAL LAMP SWITCH



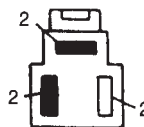
- When an hazard lamp switch is OFF, terminal 2 and 4 is connected and the other is disconnected.
- When an hazard lamp switch is On, terminal 6, 8, 9 are connected.
- [886] is connected to the illumination control relay 31b terminal.
- On the cover of turn signal lamp relay and switch a terminal no, like diagram are indexed.
- The current supplied to a turn signal lamp relay 49 terminal is feeded through an hazard lamp switch.
- Notice that an hazard lamp and a turn signal lamp is connected through individual fuse.
- Notice that a turn signal lamp switch S15 is drawn individually on the diagram but it is assembled in a unit actually.
- [1733], [1730] are connected to the operating indicator for LH, RH turn signal lamp on the IP.



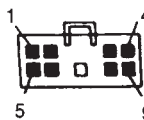
X52,X53  
TAIL LAMP CONNECTOR  
(REAR BODY HARNESS REF.)



X51-TRUNK HARNESS  
(CONNECTOR (REAR BODY HARNESS))



FRONT TURN SIGNAL LAMP  
(FRONT HARNESS REF.)



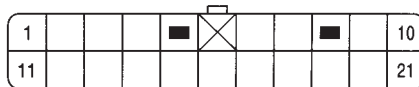
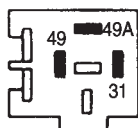
HAZARD LAMP SWITCH  
(I/P HARNESS REF.)



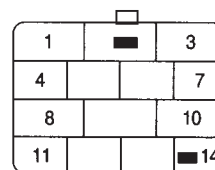
TURN SIGNAL LAMP SWITCH  
(I/P HARNESS REF.)



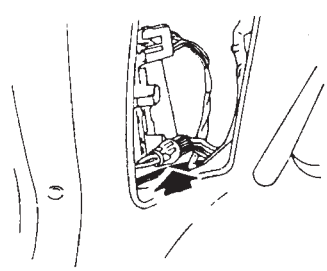
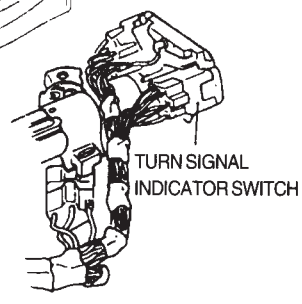
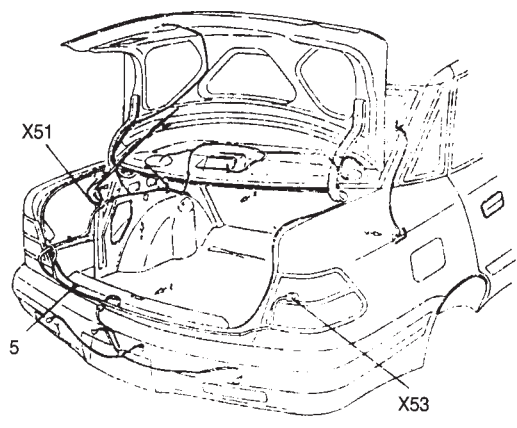
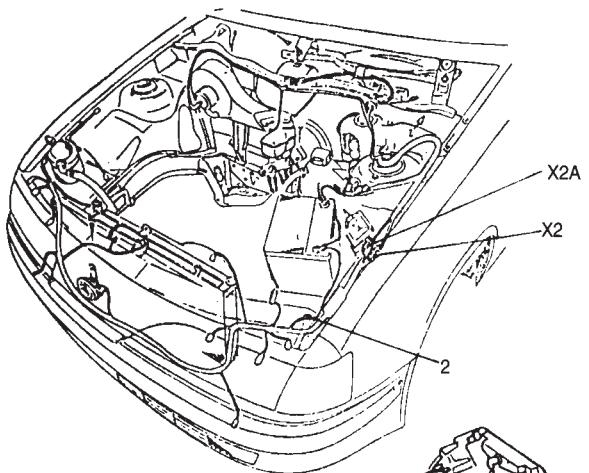
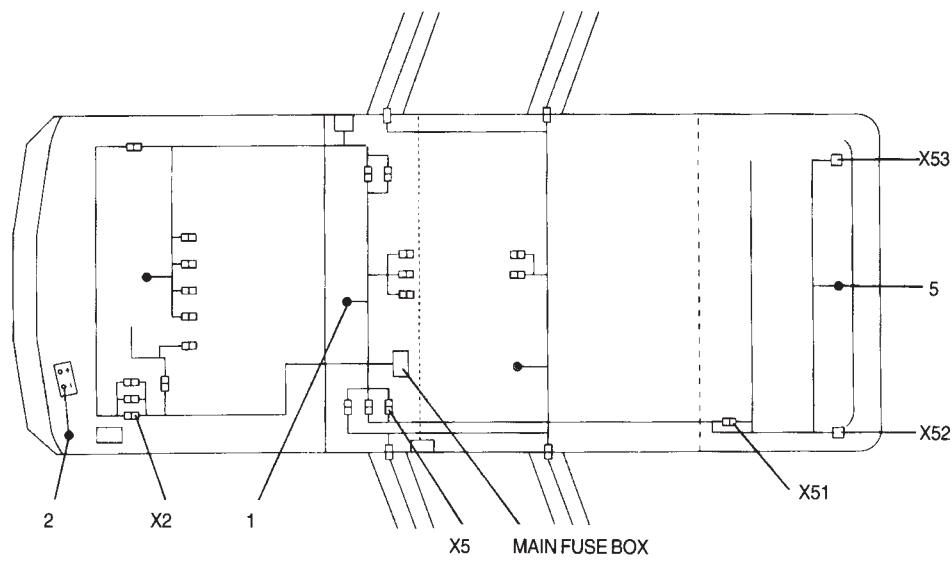
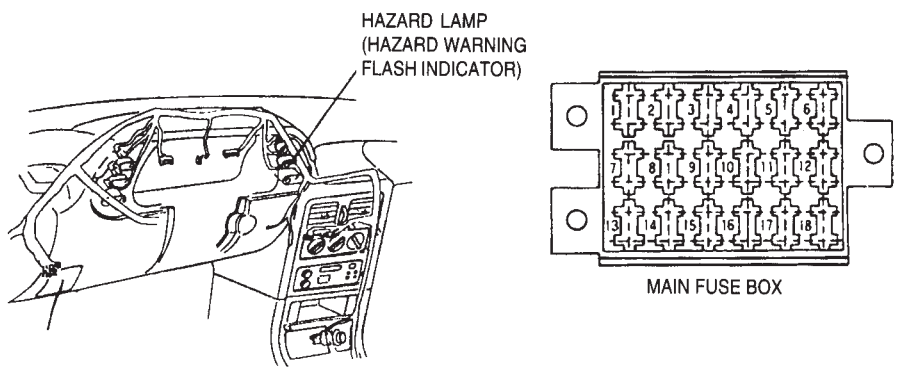
BLINKER UNIT  
(I/P HARNESS REF.)



X6 FRONT BODY HARNESS CONNECTOR  
(I/P HARNESS REF.)



X2  
FRONT HARNESS CONNECTOR  
(I/P HARNESS REF.)

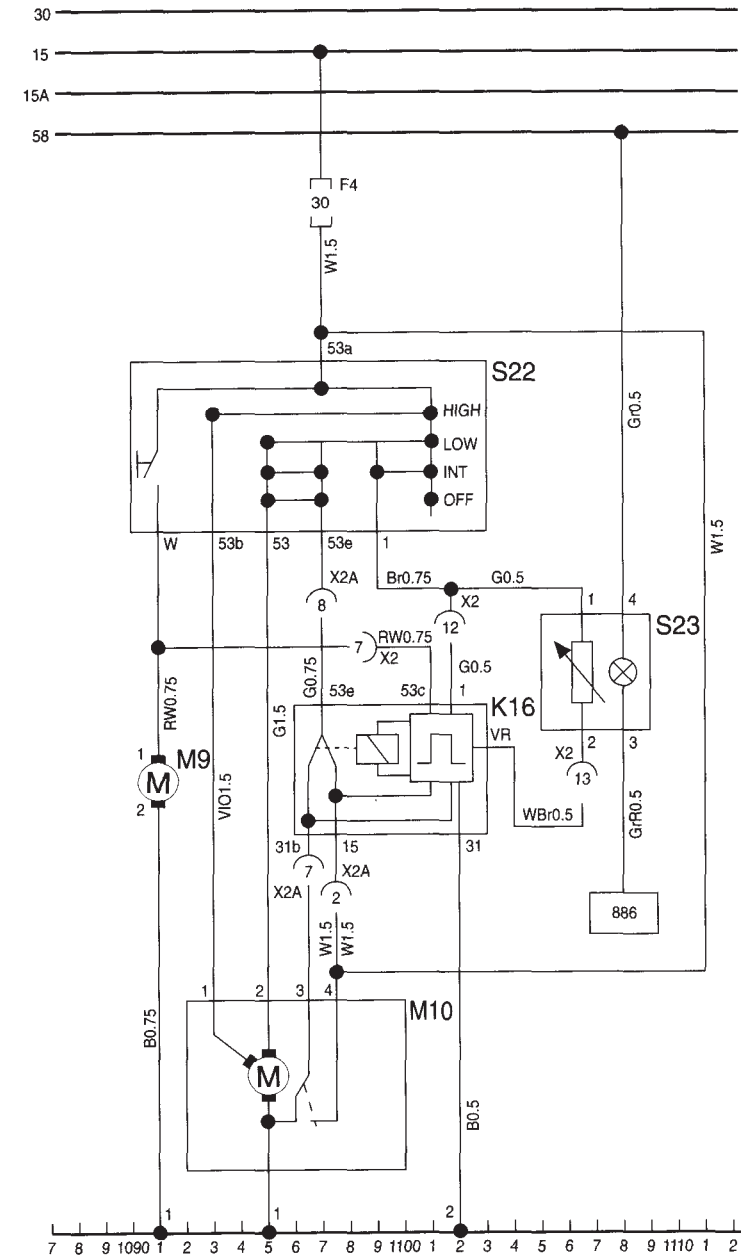




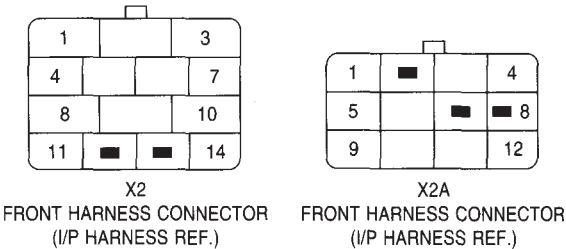
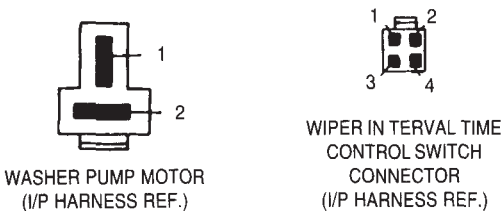
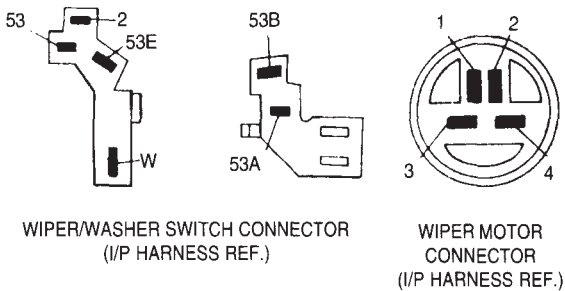


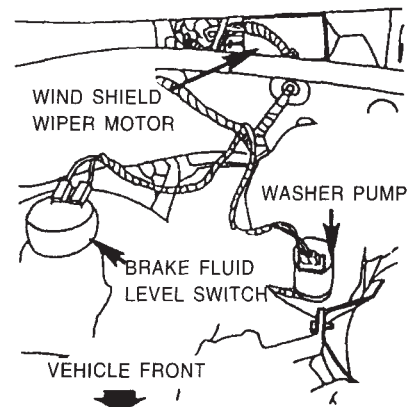
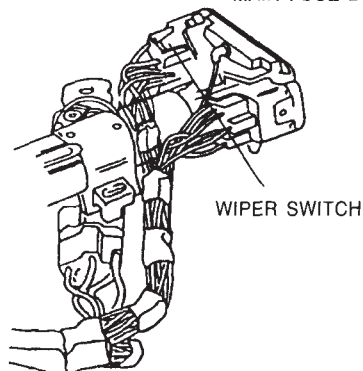
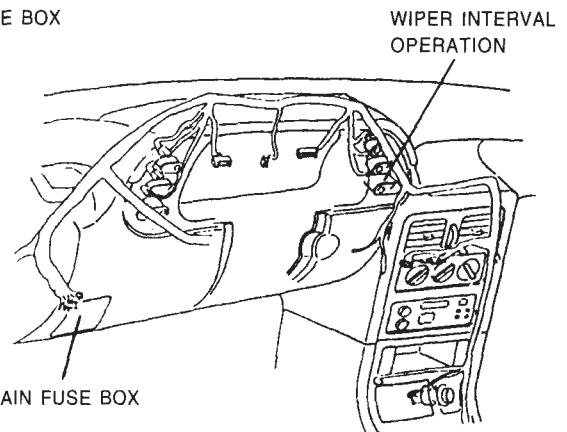
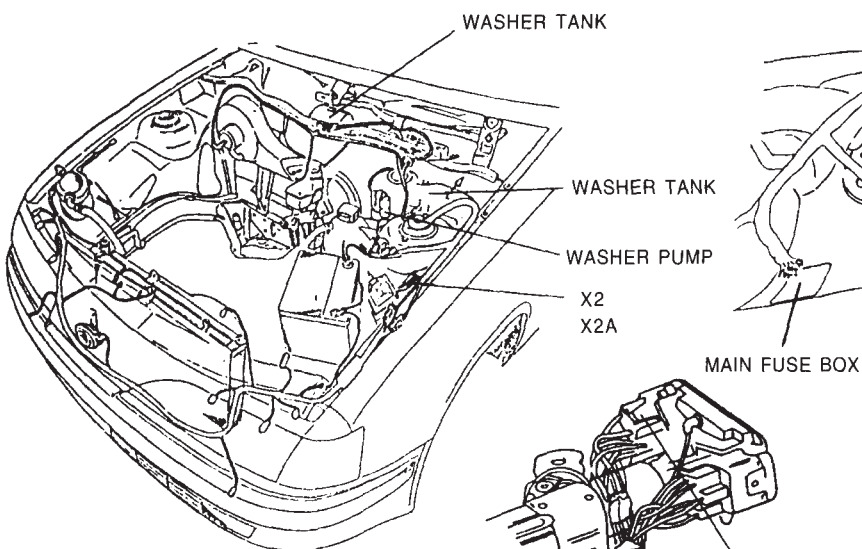
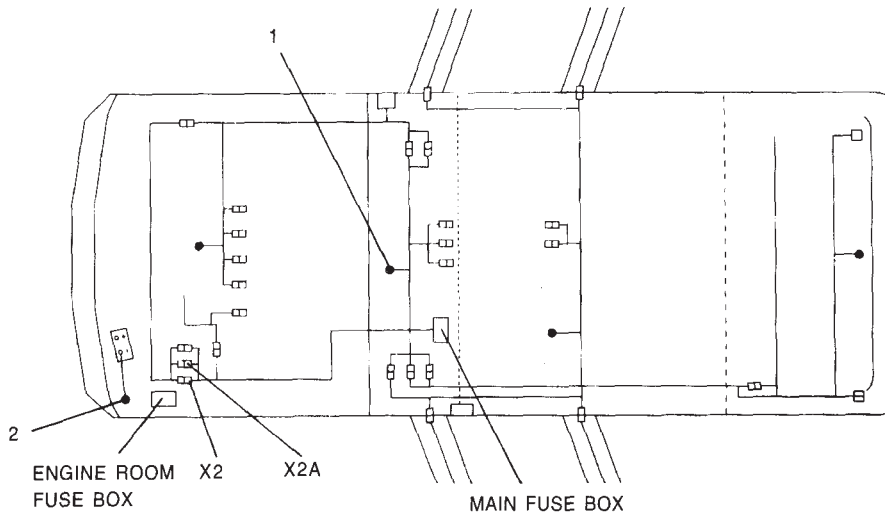
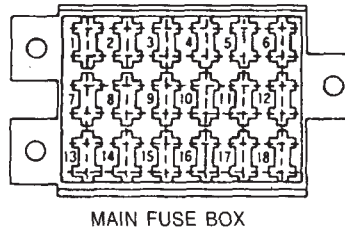
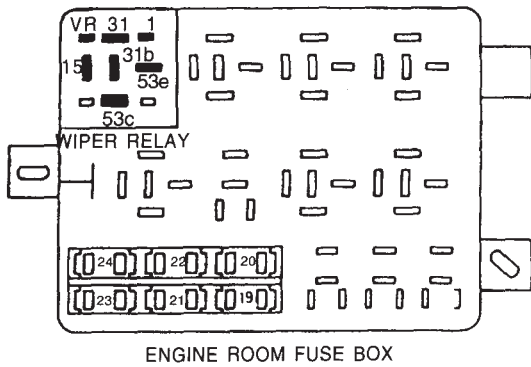
28) WIPER WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

- K16 WIPER RELAY
- M9 WASHER PUMP MOTOR
- M10 WIPER MOTOR
- S22 WIPER SWITCH
- S23 WIPER INTERVAL TIME CONTROL SWITCH



- Notice that low speed and high speed of an wiper motor have no relation with an wiper relay because these low and high speed is operated when a power is supplied from an wiper switch to wiper motor.
- The terminal number of an wiper switch is indexed on the switch cover and terminal 53, 53e are connected in case of "OFF" position and terminal 53, 53e, 53a are connected in case of "INT" position and etc.
- When an wiper switch is put at the "INT" position, an wiper switch terminal 53a and an terminal I are connected to supply a power to terminal I and operate an wiper relay for 4 to 21 seconds at one time according to a signal voltage feeded from an wiper interval control switch so that operate an wiper motor intervally.
- When an washer switch operates, an washer motor operates and a signal voltage is feeded to an wiper relay terminal 53c, after the switch is "OFF" an wiper relay is operated for about 4 seconds.

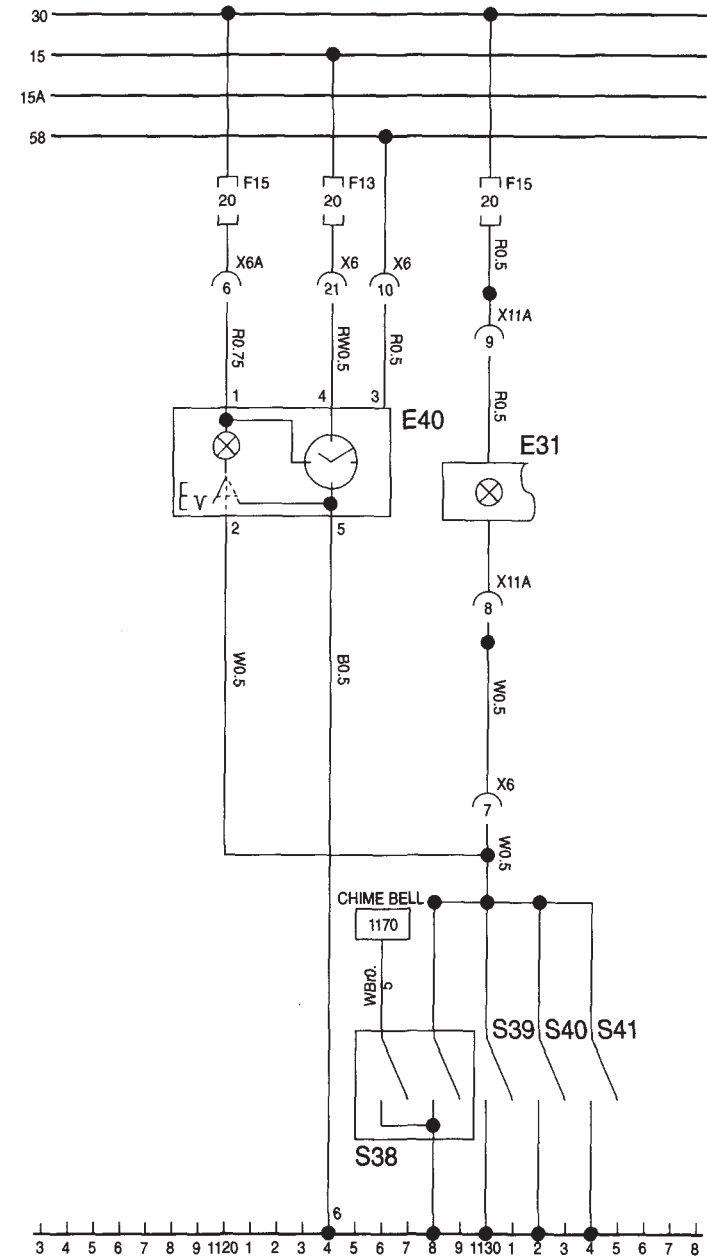




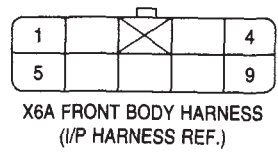
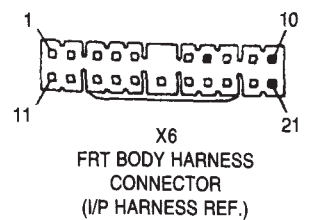
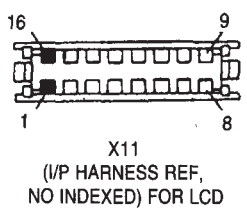
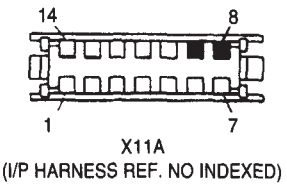
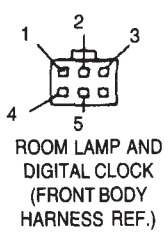
29) ROOM LAMP AND DIGITAL CLOCK WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

E31 DOOR WIRING LAMP  
E40 ROOM LAMP AND DIGITAL CLOCK  
S38 DOOR SWITCH(FRONT, LEFT)

S39 DOOR SWITCH(FRONT, RIGHT)  
S40 DOOR SWITCH(REAR, LEFT)  
S41 DOOR SWITCH(REAR, RIGHT)

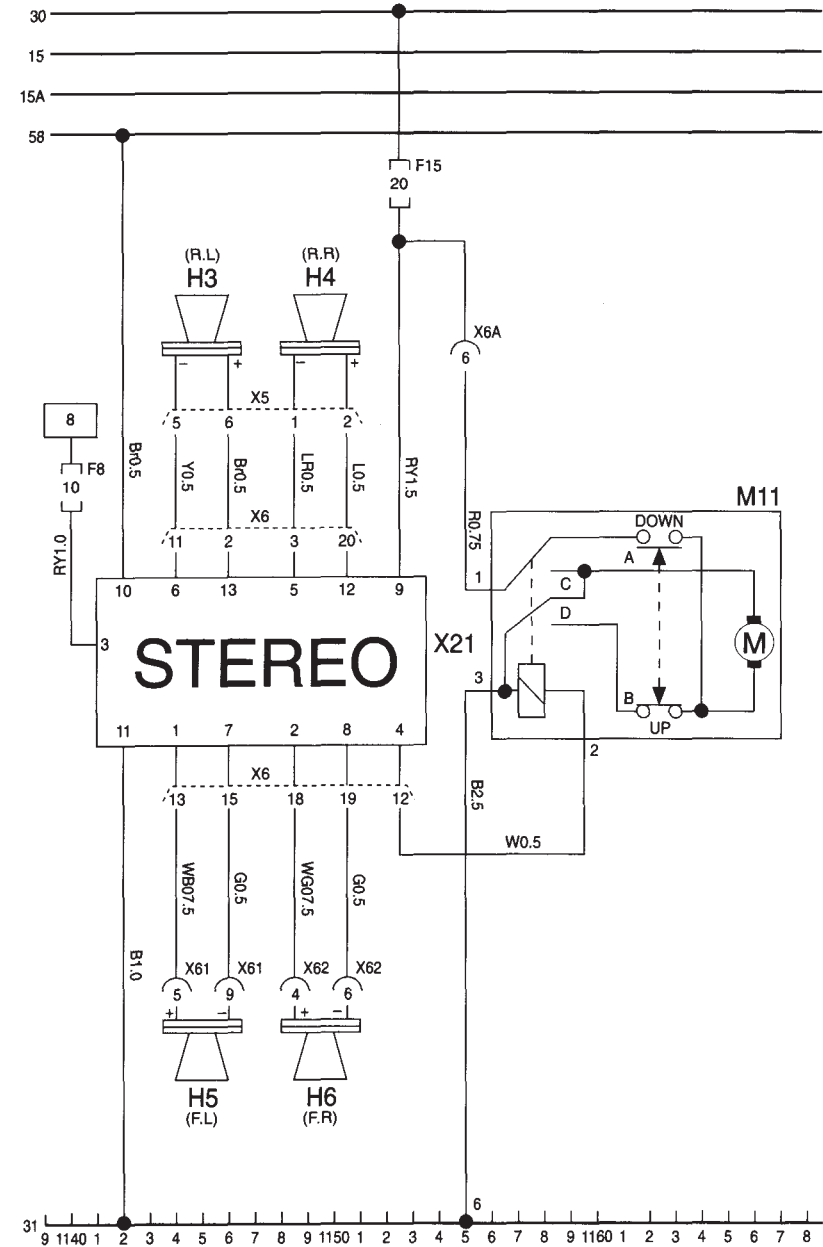


- A room lamp and a digital clock are assembled in a body.
- On the digital clock wiring a terminal No. 3 is for controlling the lightness of an illumination lamp darker when a light lamp switch is "ON".
- Terminal No.4 and a terminal No. 3 is only for illumination the power operating an watch is terminal 1 and 5.



30) CAR AUDIO WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

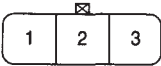
- H3 SPEAKER(R.L)  
H4 SPEAKER(R.R)  
H5 SPEAKER(F.L)
- H6 SPEAKER(F.R)  
M1 AUTO ANTENNA MOTOR



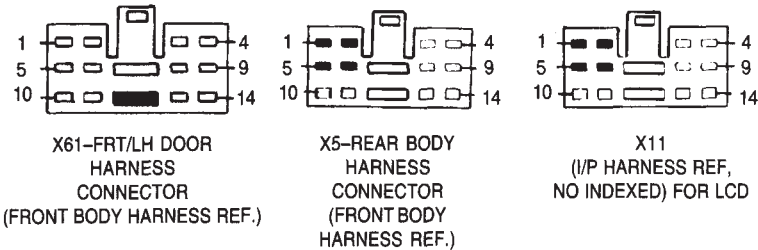
- When a radio switch is ON, an auto antenna inner relay is operated by 12V power supplied from a radio terminal 4. At this time, because a contact point of "C" is connected to "+", and a contact point of "D" is connected to "-", an antenna motor is operated.
- When an antenna arrives at the end part, a contact point of "A" is connected and at the same time a contact point of "B" is disconnected. So that the motor stop to operate and the antenna is kept on.
- When a radio switch is OFF, the power of the radio terminal 4 disappears so that the auto antenna inner relay is off and the contact point of "C" is connected to "C" and the contact point of "A" is connected.
- At this time, an antenna motor operates and the antenna falls.
- When the antenna arrive at the button, the contact point of A is disconnected and the contact point of B is connected to stop the antenna motor.



CAR AUDIO CONNECTOR  
(I/P HARNESS REF.)



AUTO ANTENNA  
CONNECTOR  
(FRONT BODY HARNESS REF.)



### 31) CHIME BELL AND REVERSE LAMP WIRING(1.5 DOHC/1.8, 2.0 L MPFI)

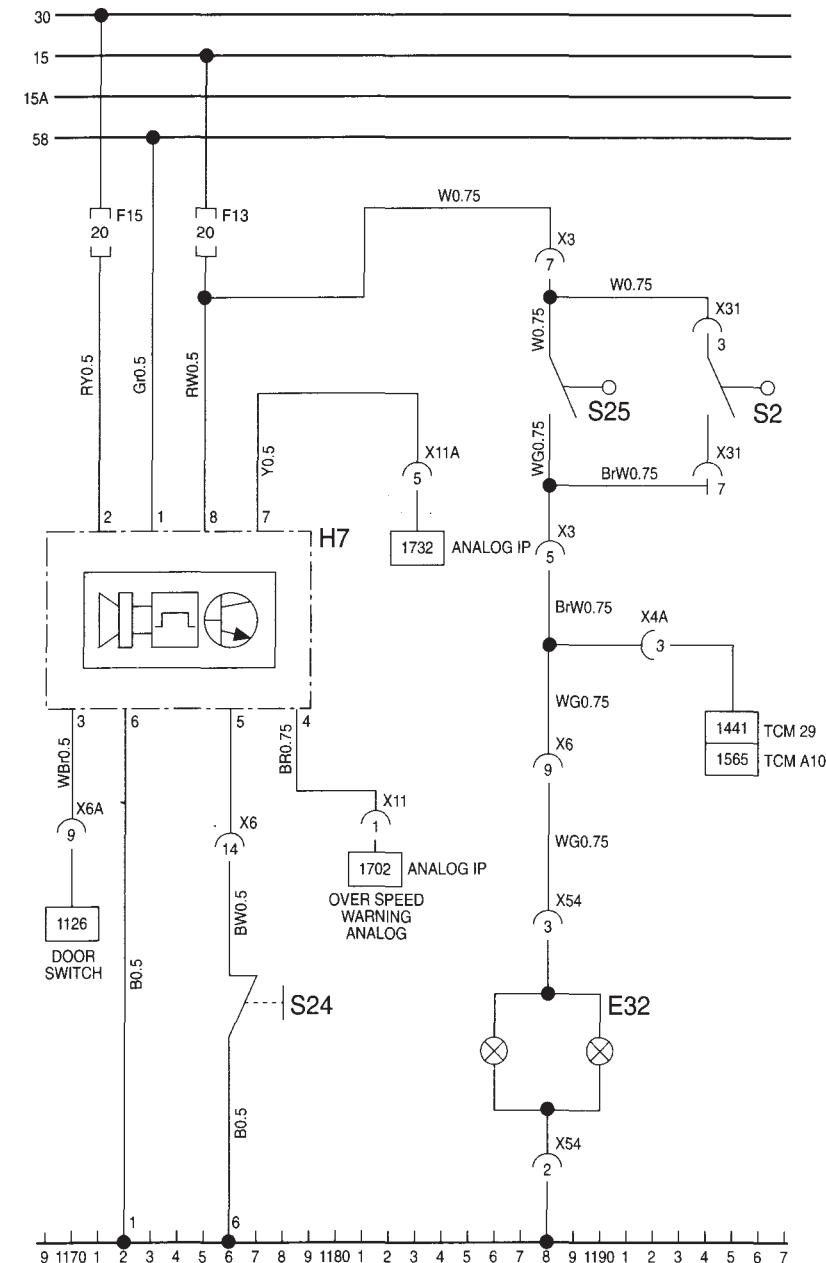
E32 REVERSE LAMP

H7 CHIME BELL

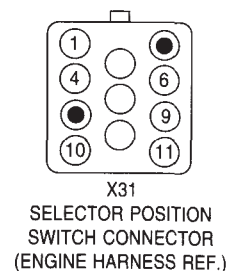
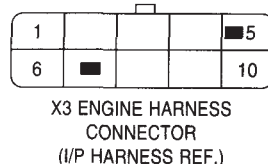
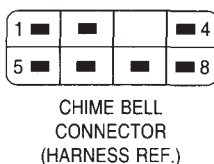
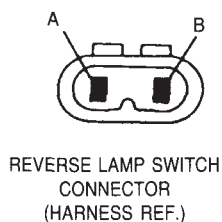
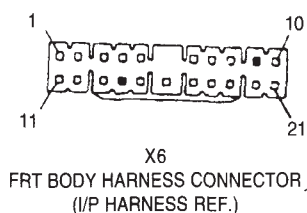
S2 SELECTOR POSITION SWITCH(A/T)

S25 REVERSE LAMP SWITCH(M/T)

S24 SEAT BELT SWITCH



- A seat belt switch S24 is ON when not wearing it and off when wearing it.
- When an ignition switch is ON (power supplied to a terminal 8) and a seat belt is not worn (terminal is connected to the ground), 12V power is output to the chime bell terminal 7 to stir up a seat belt warning lamp on and operate it 5 times for 1 second per one time.
- 1732 is connected to a seat belt warning lamp ON IP.
- When an ignition switch is off (a terminal 8 has no power), a chime bell announces quickly at the 1st step of a light switch (supply power to terminal 1) and opening of driver's door.
- The chime bell will sound when the vehicle speed exceeds above the specified speed. (supply power to terminal 4)
- The reverse lamp switch S25 is installed at the M/T vehicle and S2 is installed at the A/T vehicle. 1441, 1565 supplies 12V to TCM 29 terminal on reversely driving to notice a reverse signal is generated.



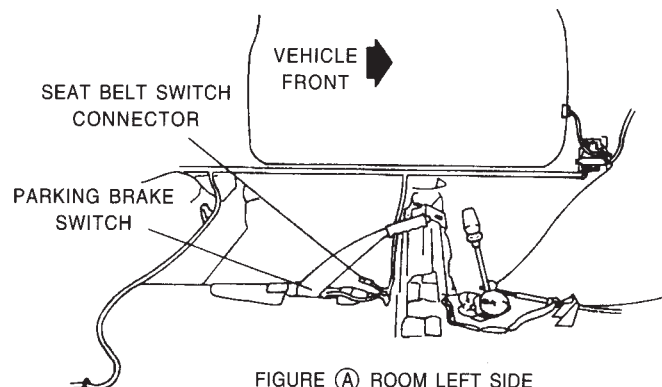
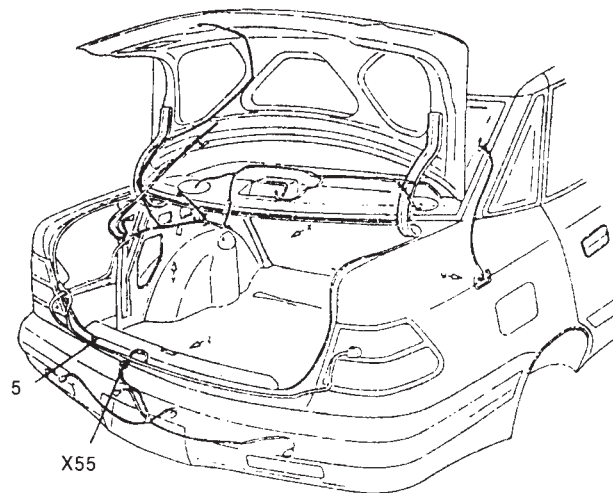
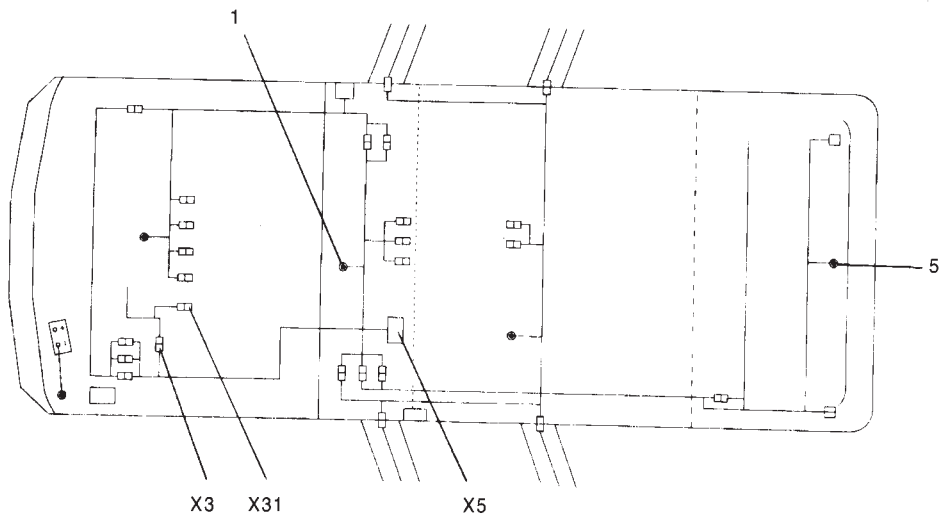
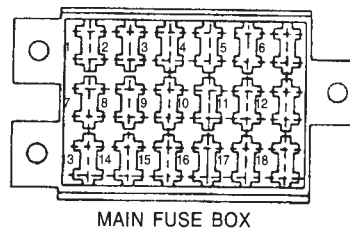
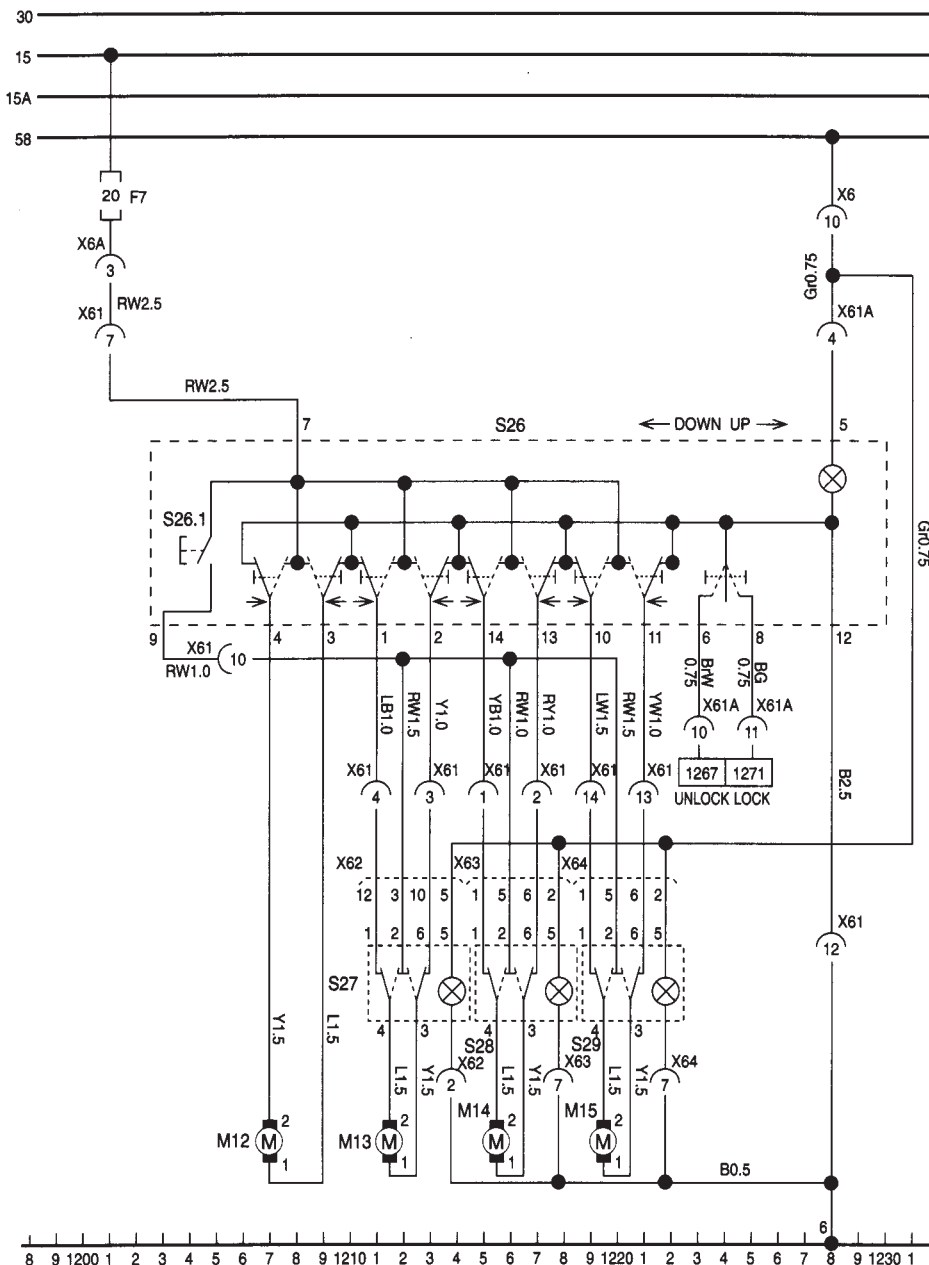


FIGURE (A) ROOM LEFT SIDE

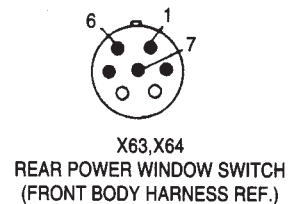
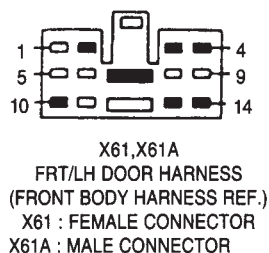
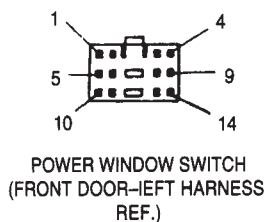
**32) POWER WINDOW WIRING – LHD(1.5 DOHC/1.8, 2.0 L MPFI)**

M12 POWER WINDOW MOTOR(FR, LH)  
 M13 POWER WINDOW MOTOR(FR, RH)  
 M14 POWER WINDOW MOTOR(RR, LH)  
 M15 POWER WINDOW MOTOR(RR, RH)

S26 POWER WINDOW MAIN SWITCH  
 S26.1 REAR POWER WINDOW LOCKING SWITCH  
 S27 POWER WINDOW SWITCH(FR, RH)  
 S28 POWER WINDOW SWITCH(RR, LH)  
 S29 POWER WINDOW SWITCH(RR, RH)



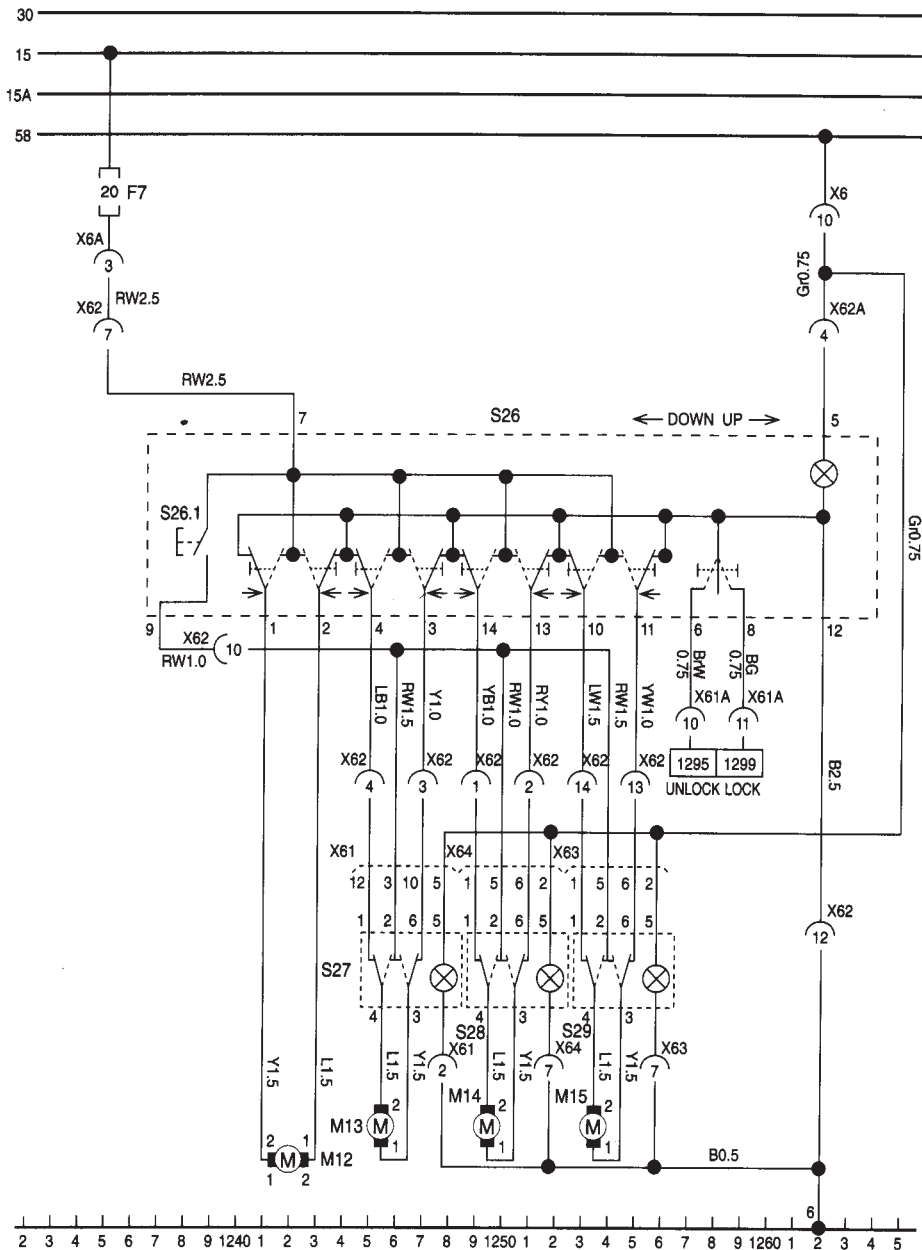
- When the power window main switch is not operated, All contact points are connected to a ground(12). When the front driver power window switch is set to down position, terminal 15 is connected to B+ and terminal 9 is connected to the ground of terminal 12 so that the power window falls down.
- The rear power window locking switch S26.1 make the main power of the rear power window switch on and off so that it be protected from solitary operating at the rear seat.(for example; when children seats at the rear seat, the rear power window switch does not operate if the switch is off)



**33) POWER WINDOW WIRING – RHD(1.5 DOHC/1.8, 2.0 L MPFI)**

M12 POWER WINDOW MOTOR(FR, RH)  
 M13 POWER WINDOW MOTOR(FR, LH)  
 M14 POWER WINDOW MOTOR(RR, RH)  
 M15 POWER WINDOW MOTOR(RR, LH)

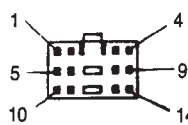
S26 POWER WINDOW MAIN SWITCH(FR, RH)  
 S26.1 REAR POWER WINDOW LOCKING SWITCH  
 S27 POWER WINDOW SWITCH(FR, LH)  
 S28 POWER WINDOW SWITCH(RR, RH)  
 S29 POWER WINDOW SWITCH(RR, LH)



X61-FRT/LH DOOR H.  
 (FRONT BODY  
 HARNESS REF.)



X63, X64



POWER WINDOW SWITCH  
 (FRONT DOOR-RIGHT HARNESS  
 REF.)



X62, 62A  
 FRT/RH DOOR HARNESS  
 (FRT BODY HARNESS REF.)  
 X62 : FEMALE CONNECTOR  
 X62A : MALE CONNECTOR

## 34) CENTRAL DOOR LOCKING WIRING – LHD(1.5 DOHC/1.8, 2.0 L MPFI)

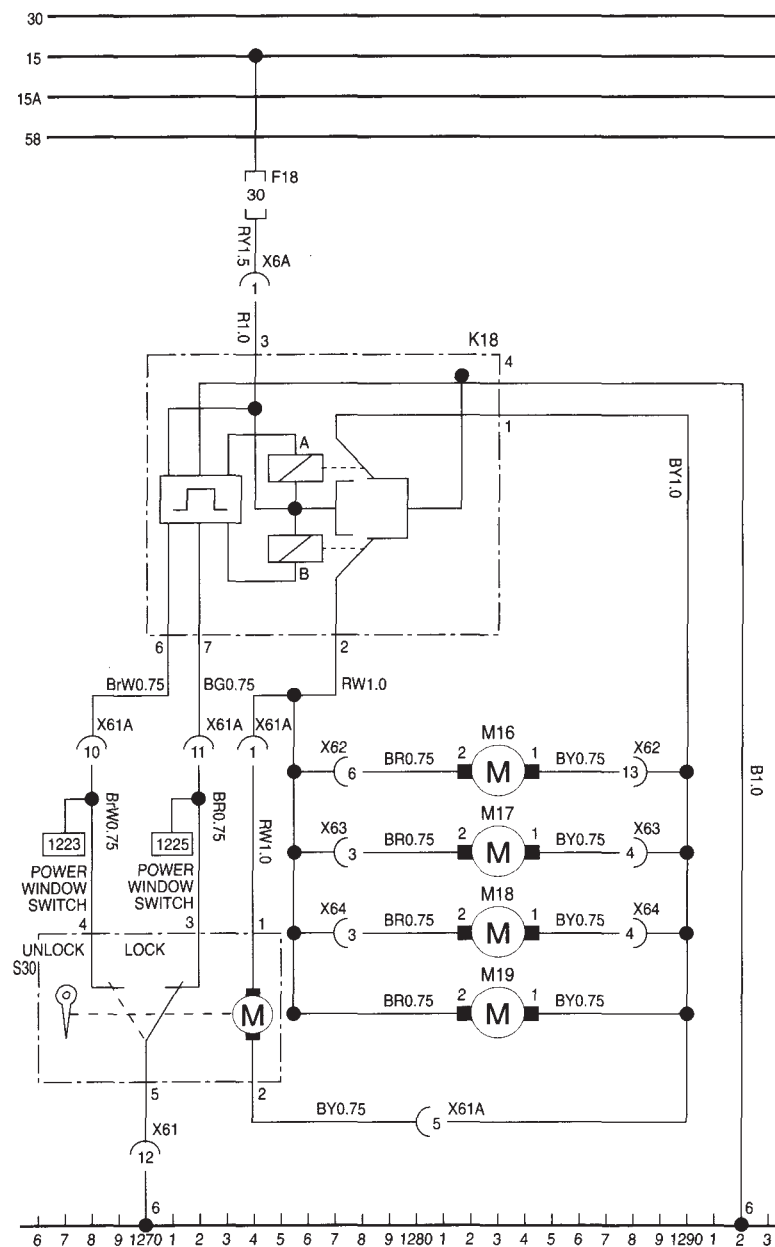
K18 CENTRAL DOOR LOCKING RELAY

M16 ACTUATOR(FR, RH)

M17 ACTUATOR(RR, LH)

M18 ACTUATOR(RR, RH)

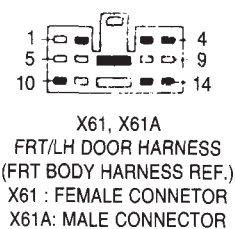
M19 ACTUATOR(FUEL INLET CAP)

S30 CENTRAL DOOR LOCKING SWITCH AND ACTUATOR  
(FR, LH)

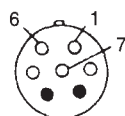
- When the central door locking relay K18 does not operate, the terminal 1 and 2 are connected to the ground 4.

When the central door locking switch S30 is set to the locking position, the relay terminal 7 is connected to the ground and the inner relay "A" operates for 0.75 second. Therefore, because the relay terminal 1 is connected to "+", and the relay terminal 2 is connected to "-", four actuators operate simultaneously to be locked.

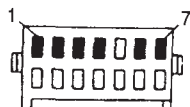
When opening, the central door locking relay terminal 6 is connected to the ground and the inner relay "B" operate for 0.75 second so that because the terminal 1 is connected to "-" and the terminal 2 is connected to "+", four actuators operate simultaneously to be open.



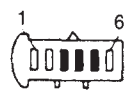
X64 FRT BODY HARNESS  
(I/P HARNESS REF.)



X63, X64  
(FRONT BODY HARNESS REF.)



DOOR LOCKING RELAY  
(FRONT BODY HARNESS REF.)



DOOR LOCKING SWITCH  
(FRONT BODY HARNESS REF.)



DOOR ACTUATOR  
(FRONT BODY HARNESS REF.)



X62  
FRT/RH DOOR H.  
(FRONT BODY HARNESS REF.)

### 35) CENTRAL DOOR LOCKING WIRING – RHD(1.5 DOHC/1.8, 2.0 L MPFI)

K18 CENTRAL DOOR LOCKING RELAY

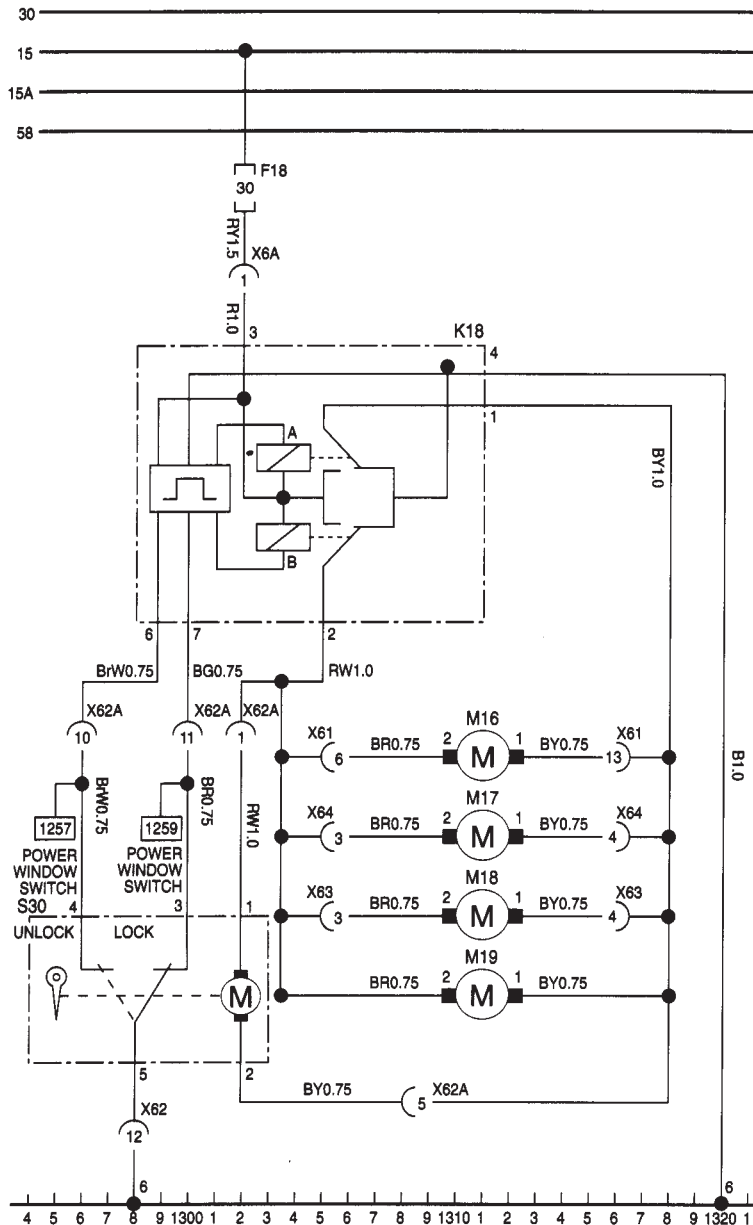
M16 ACTUATOR(FR, LH)

M17 ACTUATOR(RR, RH)

M18 ACTUATOR(RR, LH)

M19 ACTUATOR(FUEL INLET CAP)

S30 CENTRAL DOOR LOCKING SWITCH AND ACTUATOR  
(FR, RH)



- When the central door locking relay K18 does not operate, the terminal 1 and 2 are connected to the ground 4.

When the central door locking switch S30 is set to the locking position, the relay terminal 7 is connected to the ground and the inner relay "A" operates for 0.75 second. Therefore, because the relay terminal 1 is connected to "+", and the relay terminal 2 is connected to "-", four actuators operate simultaneously to be locked.

When opening, the central door locking relay terminal 6 is connected to the ground and the inner relay "B" operate for 0.75 second so that because the terminal 1 is connected to "-" and the terminal 2 is connected to "+", four actuators operate simultaneously to be open.



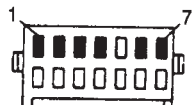
X62, X62A  
FRT/LH DOOR HARNESS  
(FRT BODY HARNESS REF.)  
X62 : FEMALE CONNECTOR  
X62A: MALE CONNECTOR



X64 FRT BODY  
HARNESS  
(I/P HARNESS REF.)



X63,X64  
(FRONT BODY HARNESS REF.)



DOOR LOCKING RELAY  
(FRONT BODY HARNESS REF.)



DOOR LOCKING  
SWITCH  
(FRONT BODY HARNESS REF.)



DOOR ACTUATOR  
(FRONT BODY HARNESS REF.)



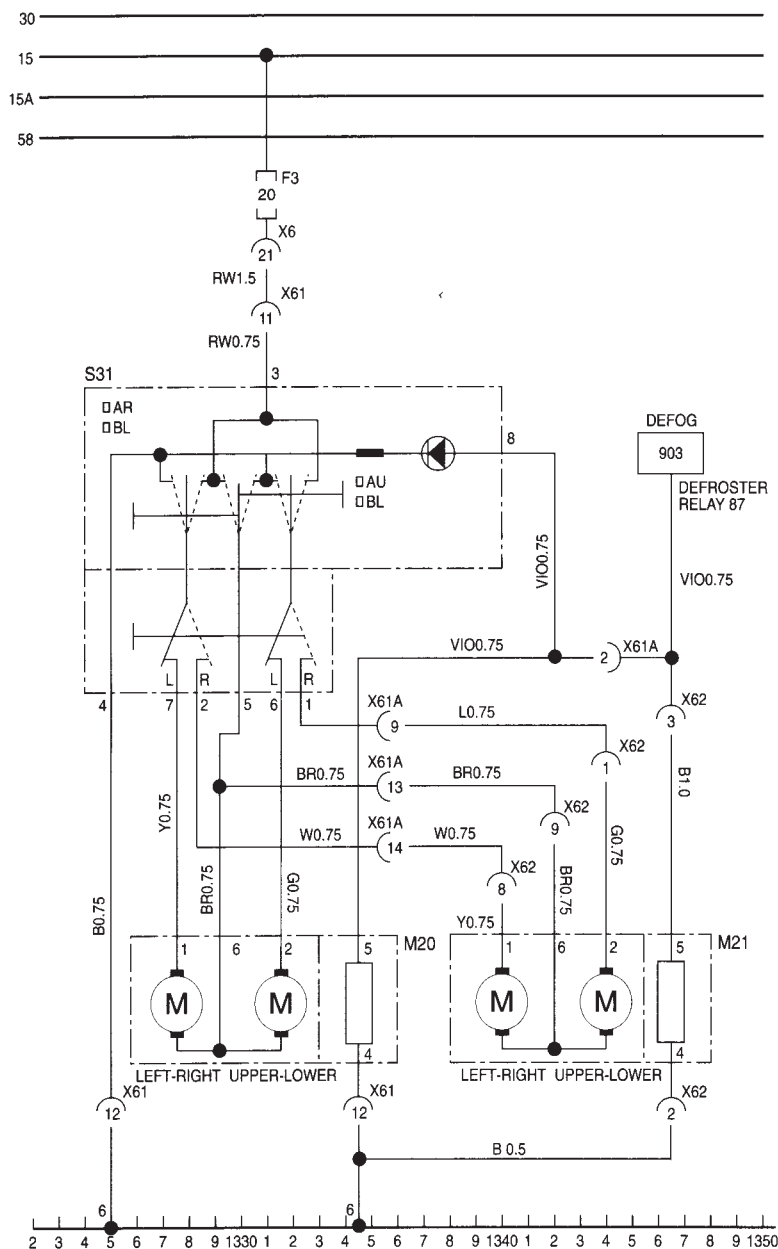
X61  
FRT/RH DOOR H.  
(FRONT BODY HARNESS  
REF.)

### 36) ELECTRIC OSRV MIRROR WIRING – LHD(1.5 DOHC/1.8, 2.0 L MPFI)

M20 ELECTRIC OSRV MIRROR(LEFT)

M21 ELECTRIC OSRV MIRROR(RIGHT)

S31 ELECTRIC OSRV MIRROR SWITCH

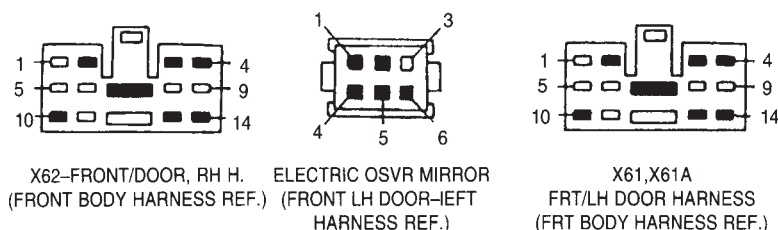
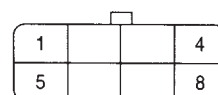


- This is the wiring that the electric OSRV mirror switch S31 is at the LH side.
- The electric OSRV mirror has two motors; One connected to yellow wiring is for controlling the horizontal angle and the other connected to green wiring is for controlling the vertical angle.
- When pushing the angle control switch to the right side, the terminal 7 is connected to "-" ground and the terminal 5 is connected to "+" so that the motor operate to the reverse side.
- When pushing the angle control switch to the upper side, the switch terminal 5 connected to "-" ground and the terminal 6 is connected to "+" so that the motor operate to the upper side.
- When pushing the switch to the lower side, the switch terminal 5 is connected to "+" and the terminal 6 is connected to "-" ground so that the motor operate to the reverse side.
- 903 is connected to a defroster time relay 87 so that the rear window defroster and the electric OSRV mirror defroster operate simultaneously.
- The switch checking is as follows; when the left to right conversion switch is at the "L" position.

| Switch operation | Terminal connected to the terminal 5(+) | Terminal connected to the terminal 8(-) |
|------------------|-----------------------------------------|-----------------------------------------|
| Upper            | terminal 4(green)                       | terminal 5(black/green)                 |
| Lower            | terminal 5(black/GE)                    | terminal 4(green)                       |
| Left             | terminal 5(black/yellow)                | terminal 7(yellow)                      |
| Right            | terminal 7(yellow)                      | terminal 5(black/yellow)                |

- Left-right transfer switch is at "R" position.

| Switch operation | Terminal connected to the terminal 5(+) | Terminal connected to the terminal 8(-) |
|------------------|-----------------------------------------|-----------------------------------------|
| Upper            | terminal 3(blue)                        | terminal 5(black/red)                   |
| Lower            | terminal 5(black/red)                   | terminal 3(blue)                        |
| Left             | terminal 5(blue)                        | terminal 6(gray)                        |
| Right            | terminal 6(gray)                        | terminal 5(blue)                        |

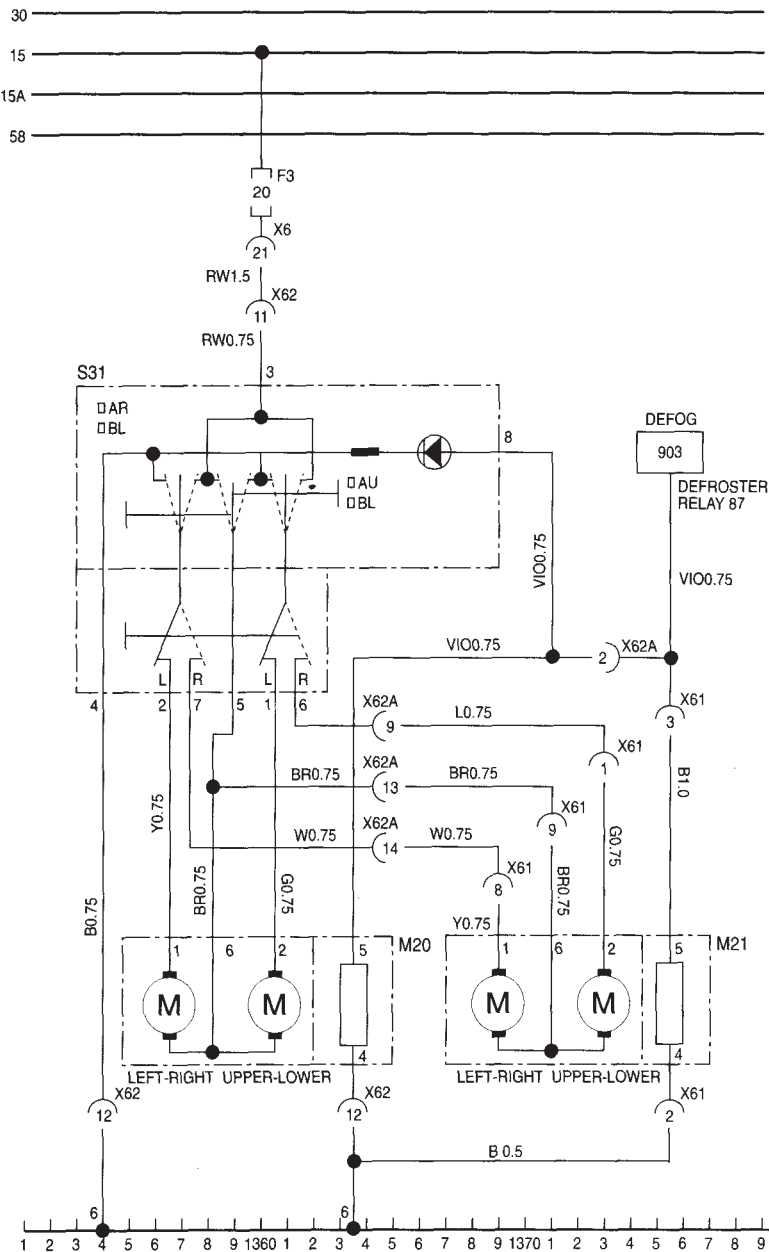
X61 : FEMALE CONNECTOR  
X61A : MALE CONNECTORMIRROR CONTROL SWITCH  
(FRONT DOOR-LEFT HARNESS REF.)

### 37) ELECTRIC OSRV MIRROR WIRING – RHD(1.5 DOHC/1.8, 2.0 L MPFI)

M20 ELECTRIC OSRV MIRROR(RIGHT)

M21 ELECTRIC OSRV MIRROR(LEFT)

S31 ELECTRIC OSRV MIRROR SWITCH

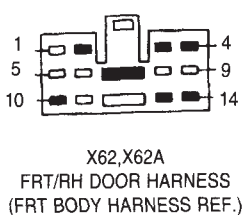


- This is the wiring that the electric OSRV mirror switch S31 is at the RH side.
- The electric OSRV mirror has two motors; One connected to yellow wiring is for controlling the horizontal angle and the other connected to green wiring is for controlling the vertical angle.
- When pushing the angle control switch to the right side, the terminal 2 is connected to "-" ground and the terminal 5 is connected to "+" so that the motor operate to the reverse side.
- When pushing the angle control switch to the upper side, the switch terminal 5 connected to "-" ground and the terminal 1 is connected to "+" so that the motor operate to the upper side.
- When pushing the switch to the lower side, the switch terminal 5 is connected to "+" and the terminal 6 is connected to "-" ground so that the motor operate to the reverse side.
- [883] is connected to a defroster time relay 87 so that the rear window defroster and the electric OSRV mirror defroster operate simultaneously.
- The switch checking is as follows; when the left to right conversion switch is at the "L" position.

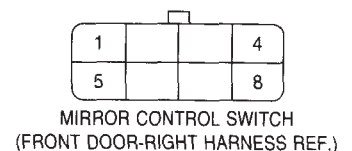
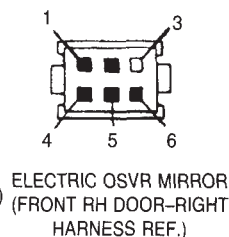
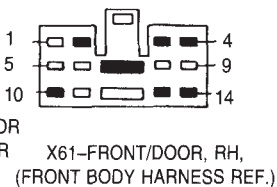
| Switch operation | Terminal connected to the terminal 5(+) | Terminal connected to the terminal 8(-) |
|------------------|-----------------------------------------|-----------------------------------------|
| Upper            | terminal 1(green)                       | terminal 5(black/green)                 |
| Lower            | terminal 5(black/GE)                    | terminal 1(green)                       |
| Left             | terminal 5(black/yellow)                | terminal 2(yellow)                      |
| Right            | terminal 2(yellow)                      | terminal 5(black/yellow)                |

- Left-right transfer switch is at "R" position.

| Switch operation | Terminal connected to the terminal 5(+) | Terminal connected to the terminal 8(-) |
|------------------|-----------------------------------------|-----------------------------------------|
| Upper            | terminal 6(blue)                        | terminal 5(black/red)                   |
| Lower            | terminal 5(black/red)                   | terminal 6(blue)                        |
| Left             | terminal 5(blue)                        | terminal 7(gray)                        |
| Right            | terminal 7(gray)                        | terminal 5(blue)                        |



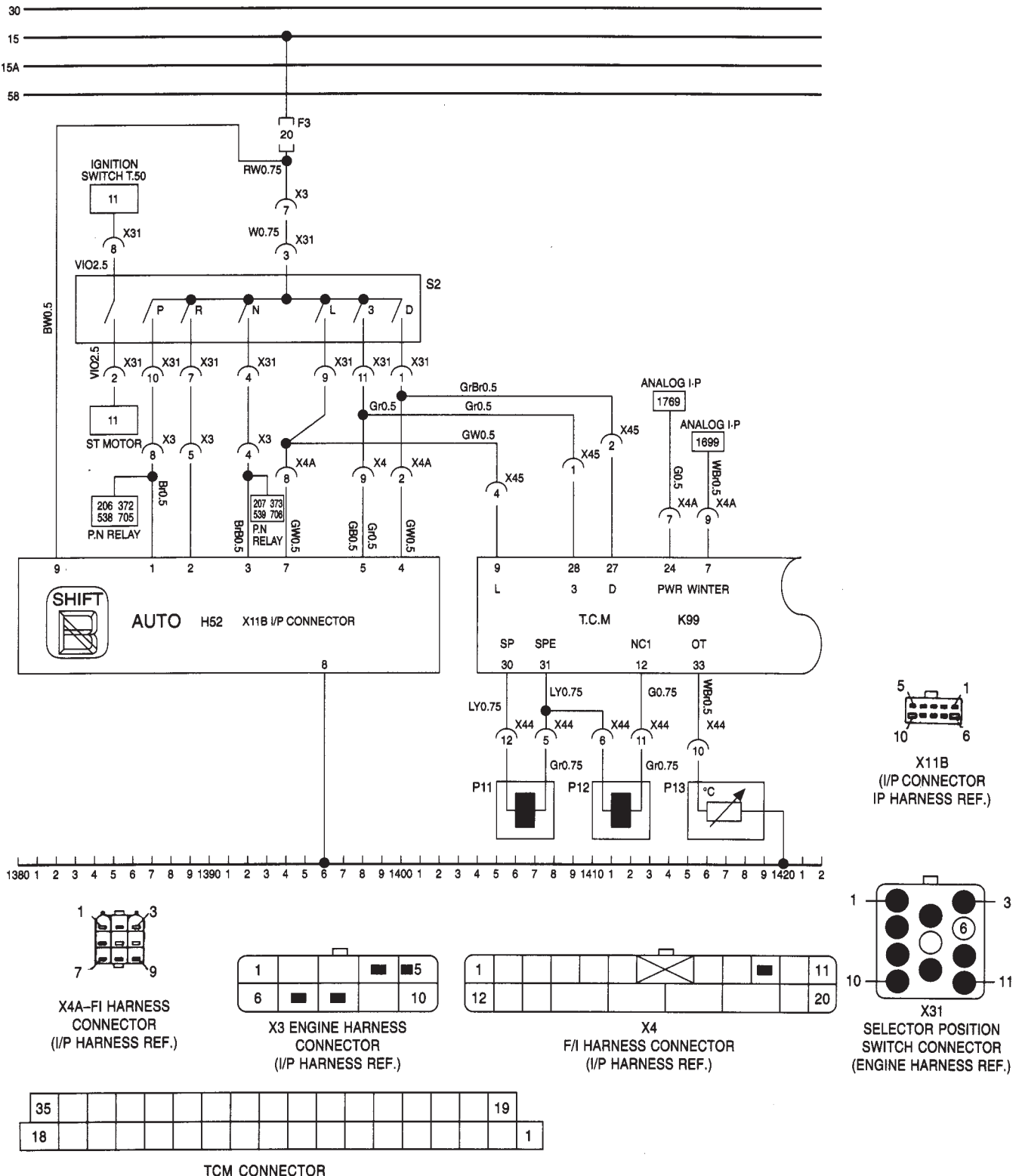
X61 : FEMALE CONNECTOR  
X61A : MALE CONNECTOR



**38) SHIFT-UP LEVER LOCATION LAMP AND SENSOR WIRING – LHD(1.5 DOHC/1.8, 2.0 L MPFI)**

E31 POWER MODE INDICATOR  
 E32 WINTER MODE INDICATOR  
 H52 SHIFT-UP LEVER POSITION INDICATOR  
 K99 CONTROL UNIT T.C.M

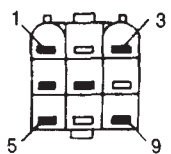
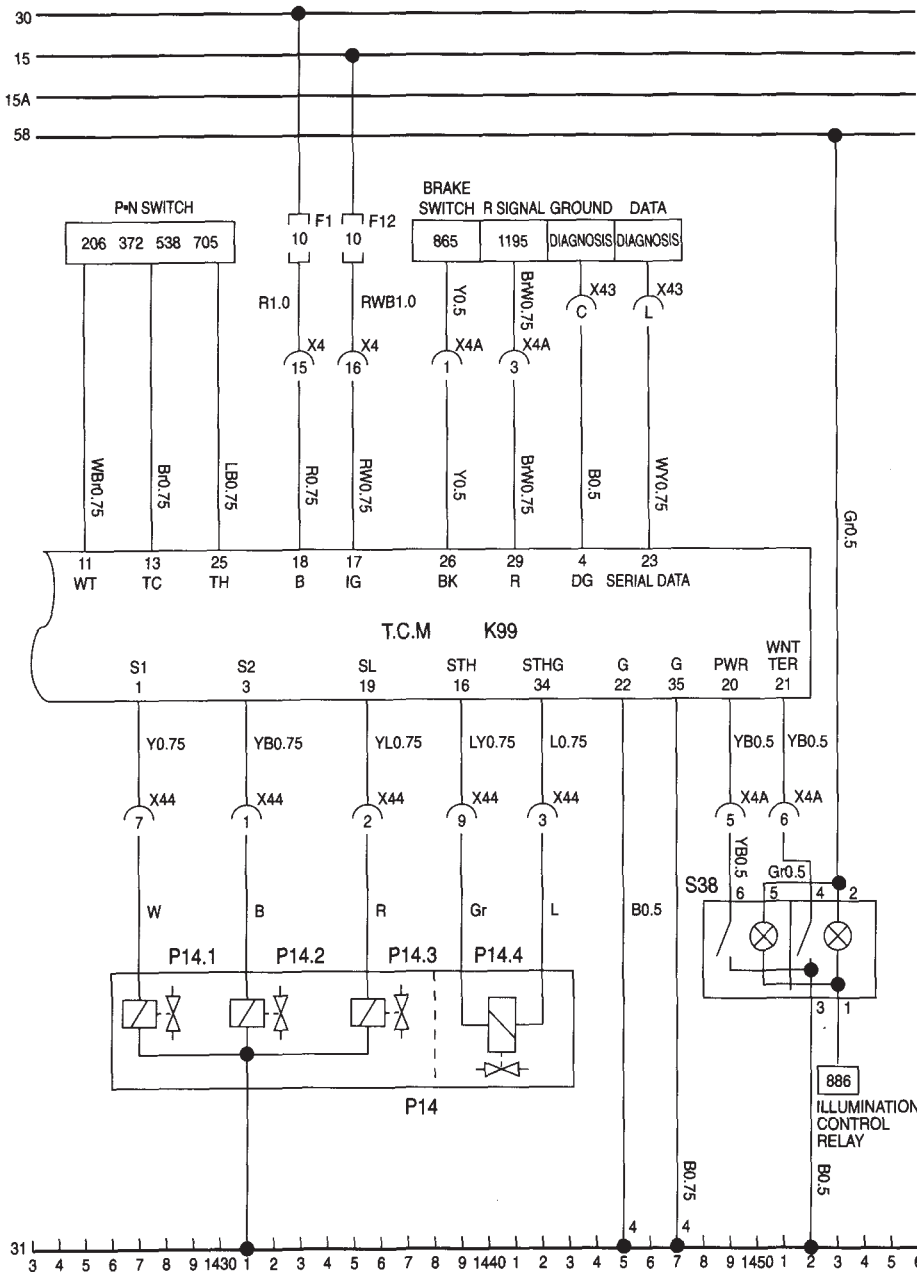
P11 OUTPUT PULSE PICK-UP(OUTPUT SENSOR)  
 P12 INPUT PULSE PICK-UP(INPUT SENSOR)  
 P13 OIL TEMPERATURE SENSOR  
 S2 SELECTOR POSITION SWITCH



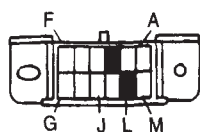
### 39) T.C.M AND SOLENOID VALVE WIRING – LHD(1.5 DOHC/1.8, 2.0 L MPFI)

K99 CONTROL UNIT T.C.M  
P14 SOLENOID VALVE  
P14.4 NO. 1 SOLENOID VALVE  
P14.2 NO. 2 SOLENOID VALVE

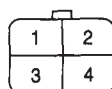
P14.3 LOCK-UP SOLENOID VALVE  
P14.4 OIL PRESSURE CONTROL SOLENOID VALVE  
S38 POWER AND WINTER MODE SWITCH



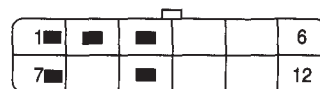
X4A-F.I. HARNESS  
(I/P HARNESS REF.)



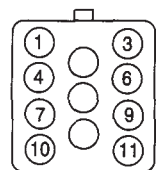
X43 ALDL CONNECTOR  
(F/I HARNESS REF.)



X45  
SELECTOR POSITION  
SWITCH CONNECTOR  
(I/P HARNESS REF.)



X44 A/T CONNECTOR  
(I/P HARNESS REF.)



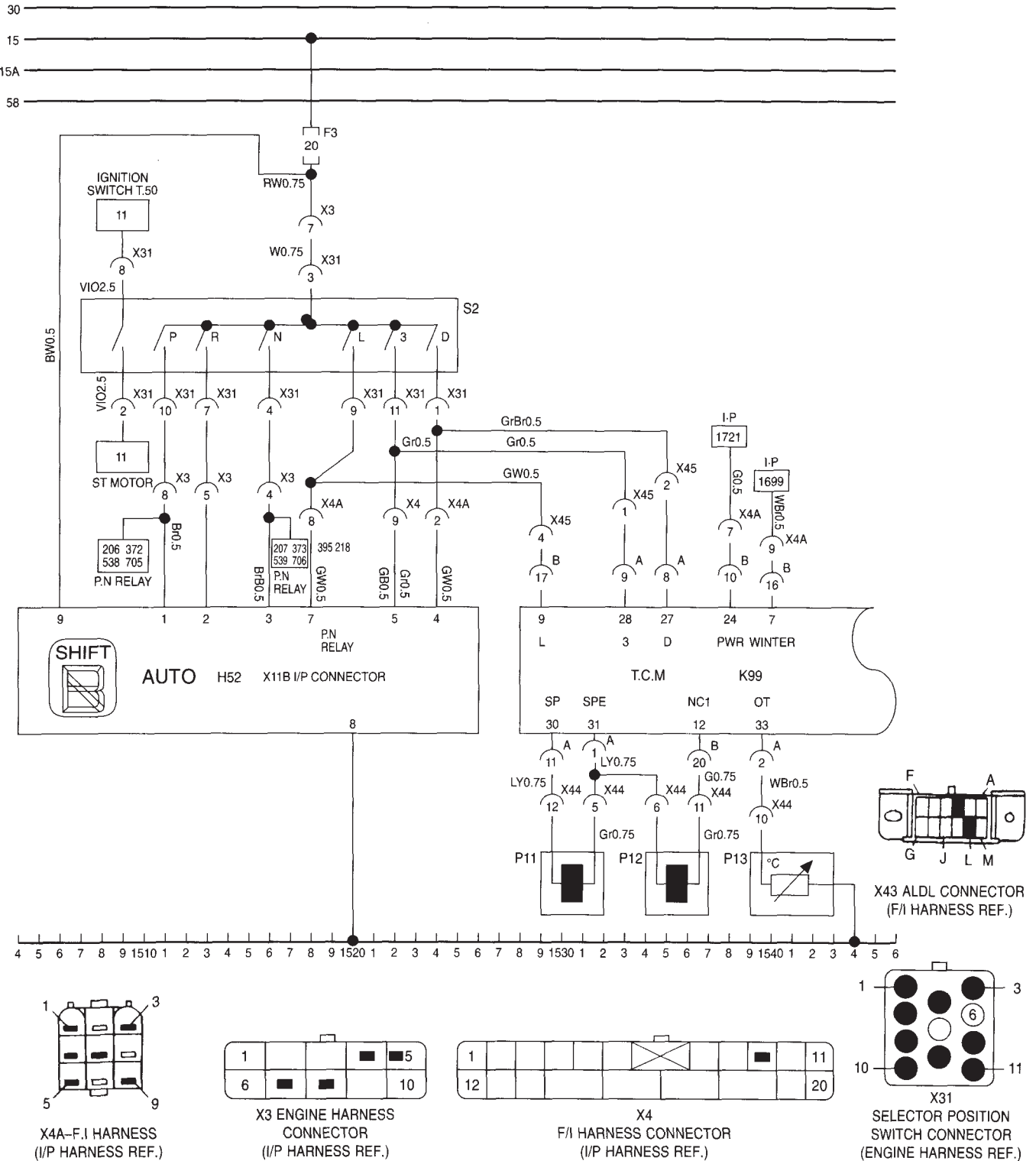
X31  
SELECTOR POSITION  
SWITCH CONNECTOR  
(ENGINE HARNESS REF.)



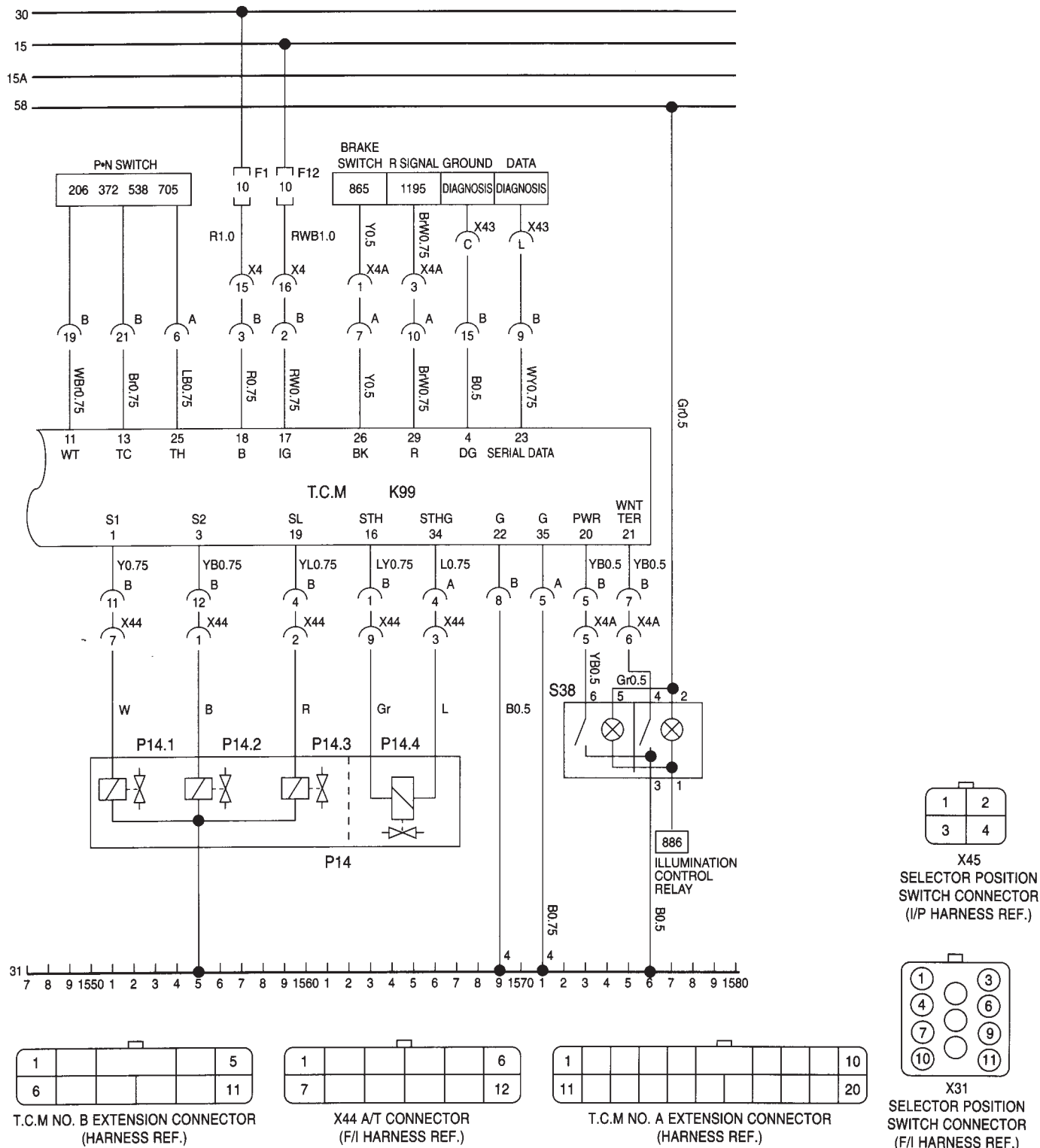
# 41) SHIFT-UP LEVER LOCATION LAMP AND SENSOR WIRING – RHD(1.5 DOHC/1.8, 2.0 L MPFI)

E31 POWER MODE INDICATOR  
E32 WINTER MODE INDICATOR  
H52 SHIFT-UP LEVER POSITION INDICATOR  
K99 CONTROL UNIT T.C.M

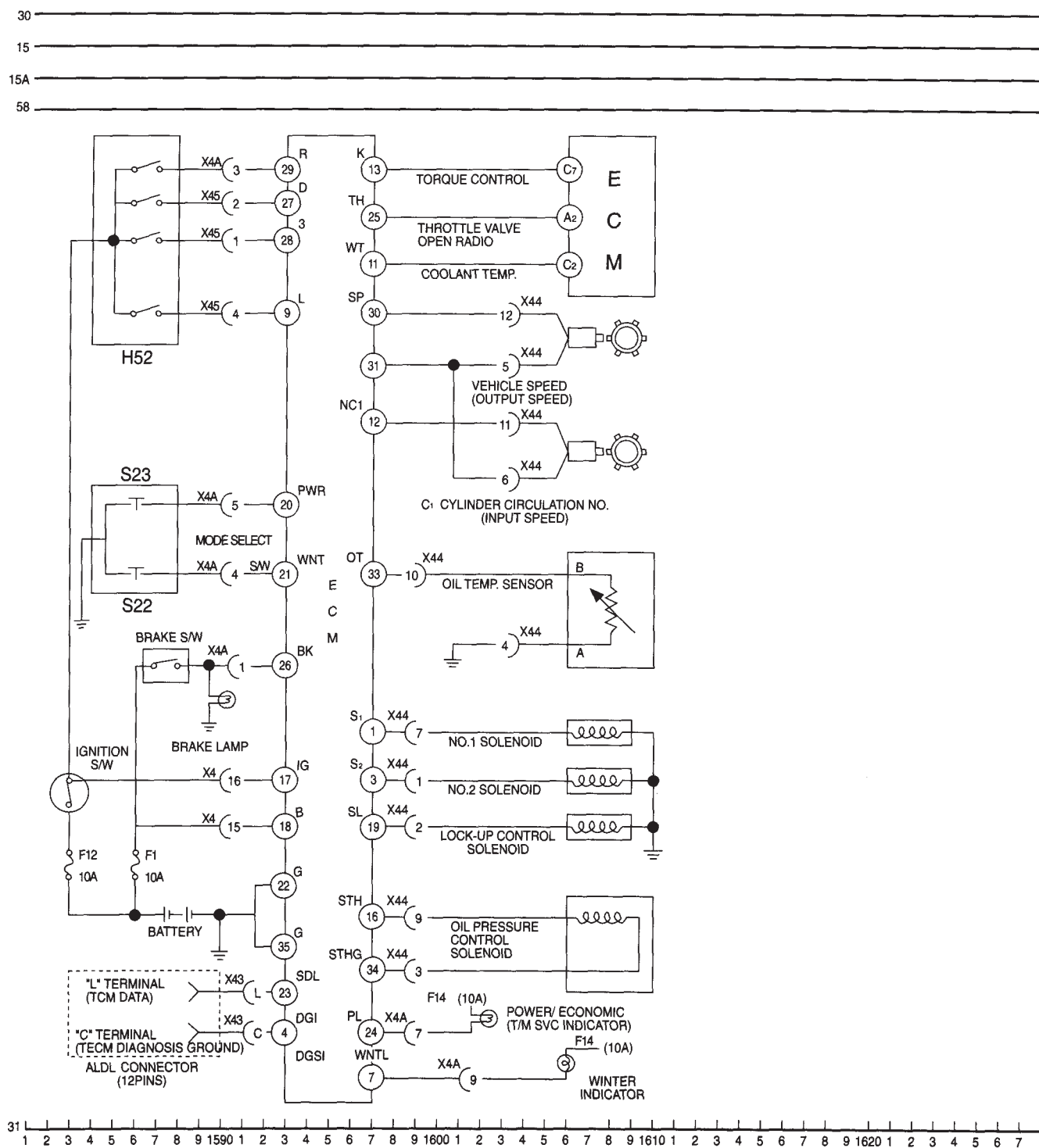
P11 OUTPUT PULSE PICK-UP(OUTPUT SENSOR)  
P12 INPUT PULSE PICK-UP(INPUT SENSOR)  
P13 OIL TEMPERATURE SENSOR  
S2 SELECTOR POSITION SWITCH



P14.3 LOCK-UP SOLENOID VALVE  
P14.4 OIL PRESSURE CONTROL SOLENOID VALVE  
S38 POWER AND WINTER MODE SWITCH



## 43) T.C.M DIAGRAM – RHD



|   |  |  |  |    |
|---|--|--|--|----|
| 1 |  |  |  | 5  |
| 6 |  |  |  | 11 |

T.C.M EXTENSION CONNECTOR "A"

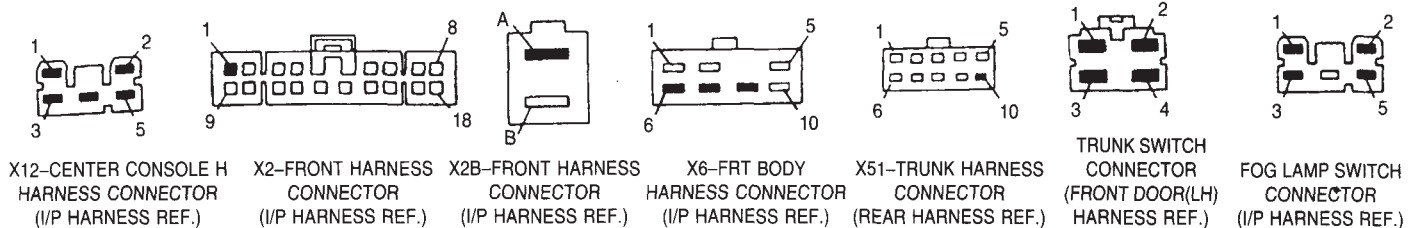
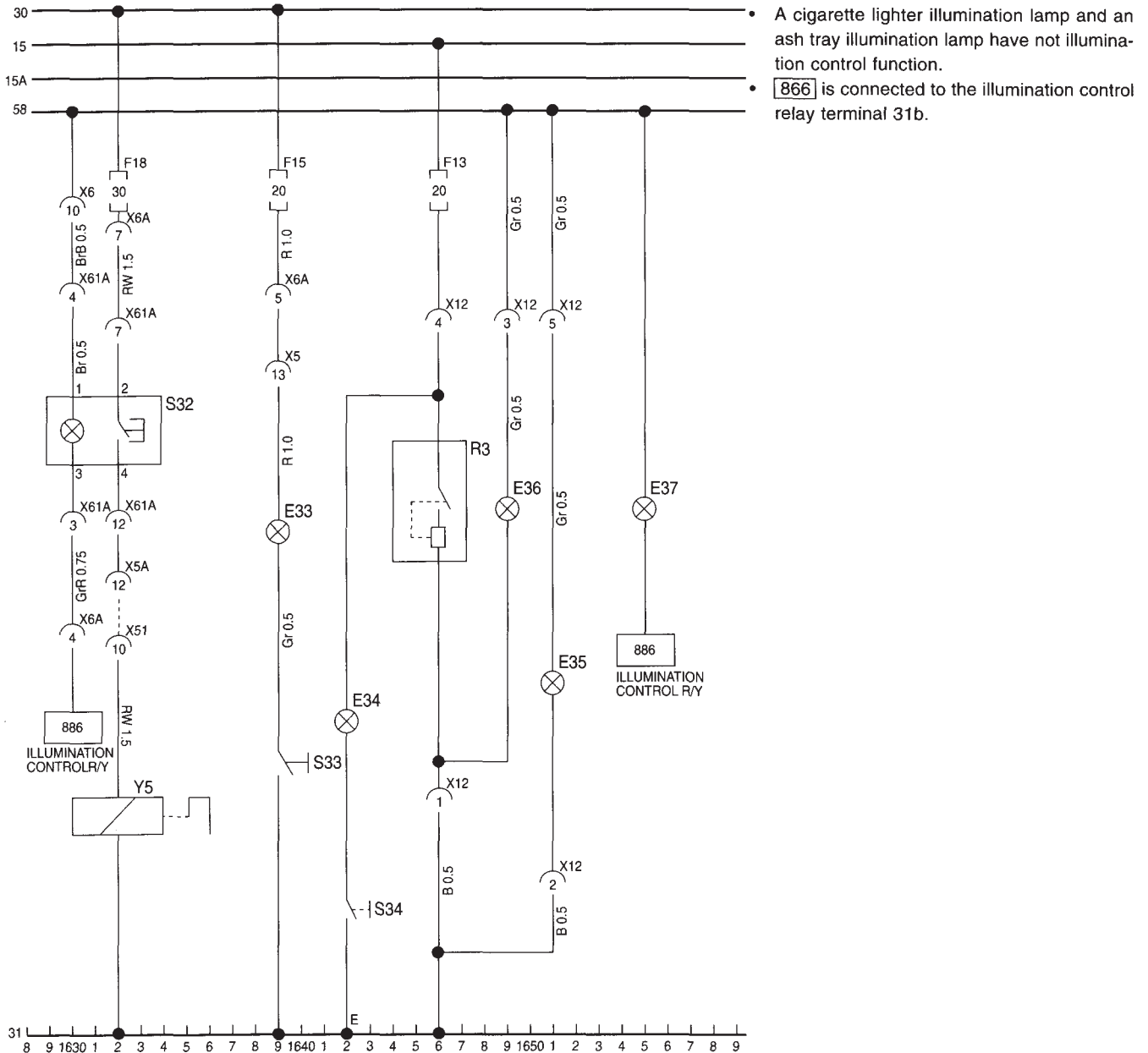
|    |  |  |  |  |  |  |  |  |    |
|----|--|--|--|--|--|--|--|--|----|
| 1  |  |  |  |  |  |  |  |  | 10 |
| 11 |  |  |  |  |  |  |  |  | 20 |

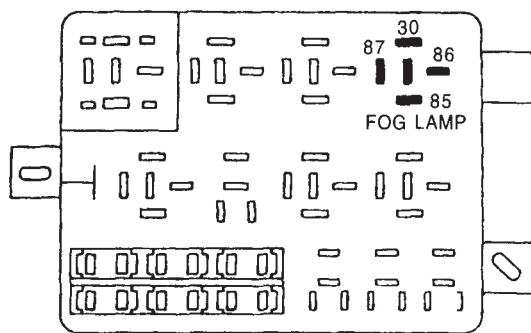
T.C.M EXTENSION CONNECTOR "B"

## 44) AUTO TRUNK, CIGARETTE LIGHTER, WIRING

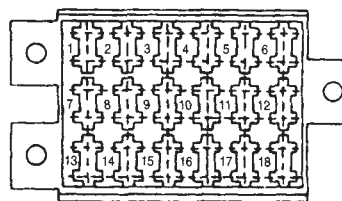
E33 TRUNK ILLUMINATION LAMP  
 E34 GLOVE BOX ILLUMINATION LAMP  
 E35 ASHTRAY ILLUMINATION LAMP  
 E36 CIGARETTE LIGHTER ILLUMINATION LAMP  
 E37 SELECTOR LEVER ILLUMINATION LAMP

S32 TRUNK SWITCH  
 S33 TRUNK ILLUMINATION LAMP SWITCH  
 S34 GLOVE BOX ILLUMINATION SWITCH  
 R3 CIGARETTE LIGHTER  
 Y5 AUTO TRUNK SOLENOID

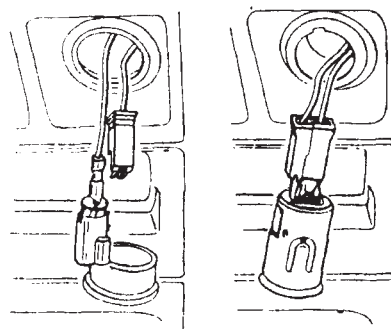
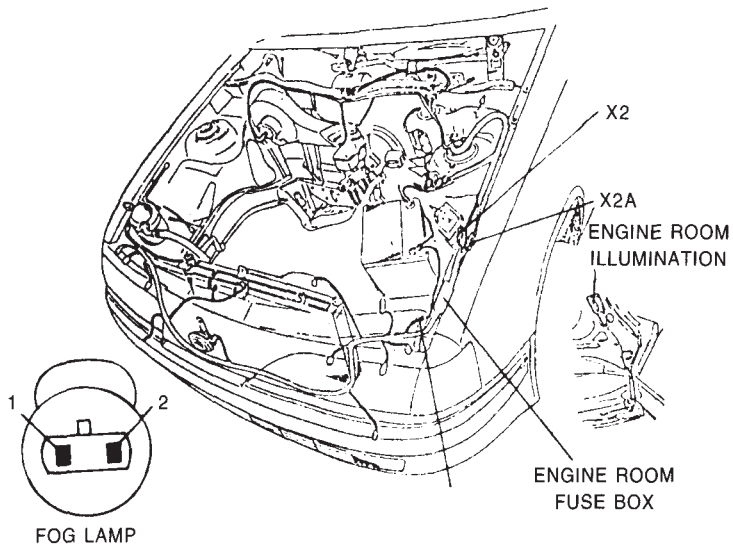
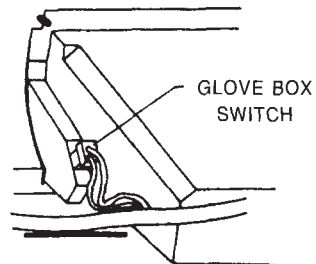
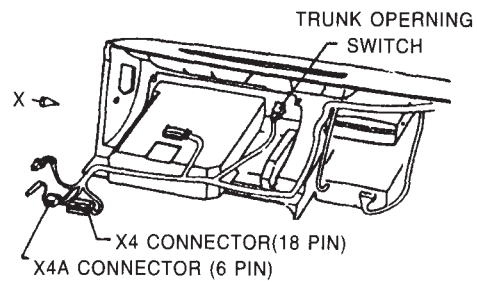
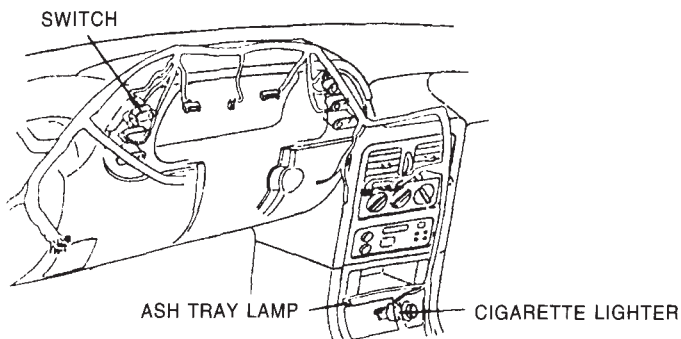
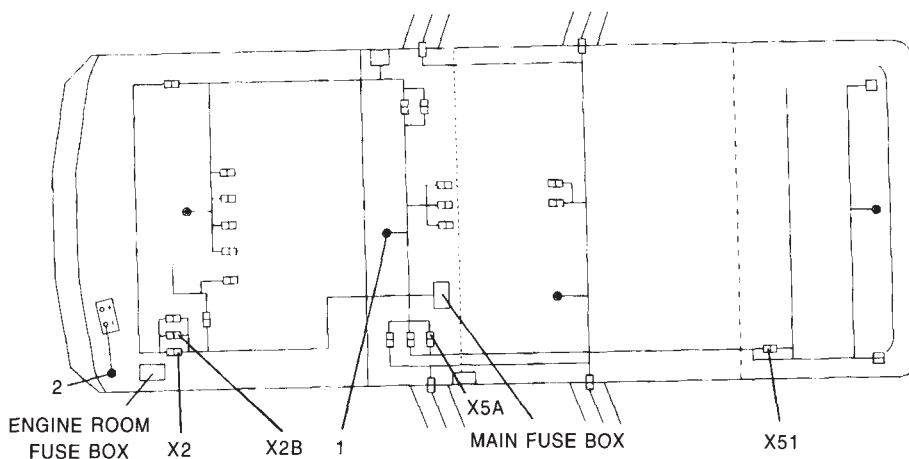




ENGINE ROOM FUSE BOX



MAIN FUSE BOX



**45) ABS WIRING(1.5 DOHC/1.8, 2.0 MPFI)**E38 PARKING BRAKE AND BRAKE FLUID SHORTAGE  
WIRING LAMP

E39 ABS WARNING LAMP

K19 ABS WARNING LAMP MODULE

K20 ABS RELAY

K80 ABS-ECM(EBCM)

M22 ABS MOTOR(FRONT, LEFT)

M23 ABS MOTOR(FRONT, RIGHT)

M24 ABS MOTOR(REAR)

P17 WHEEL SPEED SENSOR(FRONT, LEFT)

P18 WHEEL SPEED SENSOR(FRONT, RIGHT)

P19 WHEEL SPEED SENSOR(REAR, LEFT)

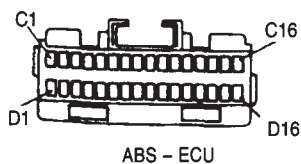
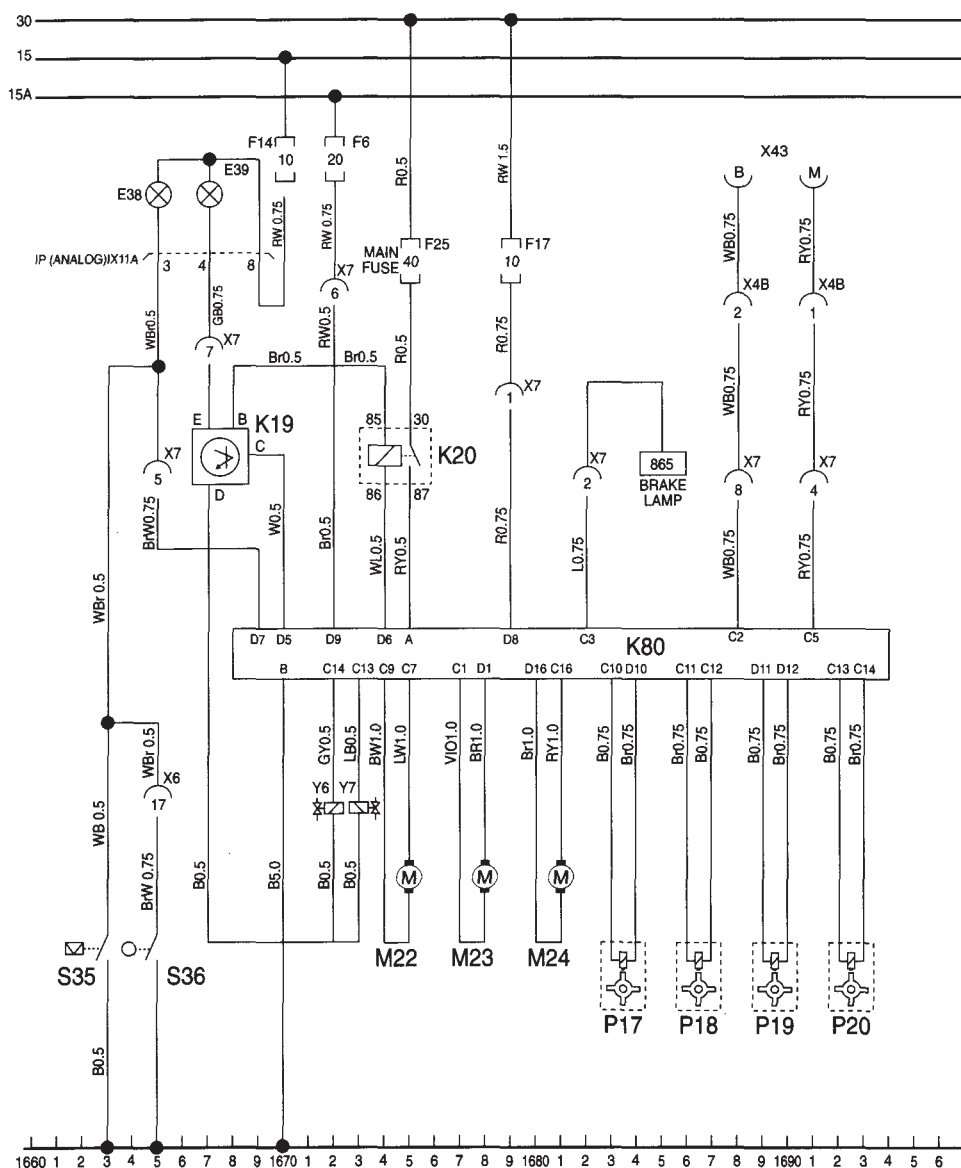
P20 WHEEL SPEED SENSOR(REAR, RIGHT)

S35 BRAKE FLUID WARNING LAMP SWITCH

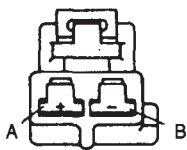
S36 PARKING BRAKE SWITCH

Y6 SOLENOID(FRONT, LEFT)

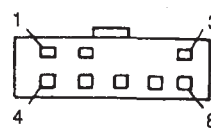
Y7 SOLENOID(FRONT, RIGHT)



ABS - ECU  
(ABS HARNESS REF.)



ABS - ECU POWER END GROUND  
(ABS HARNESS REF.)

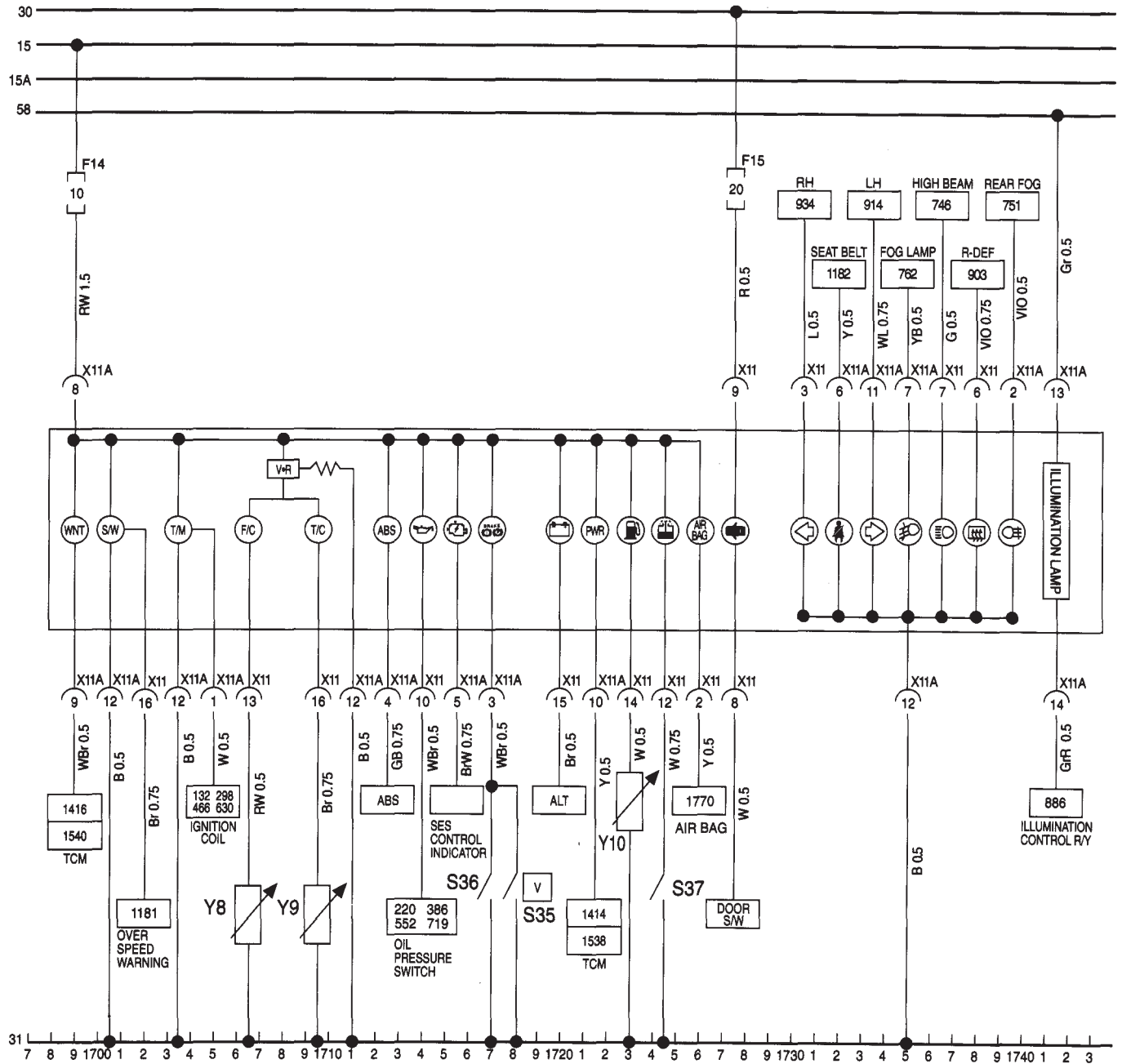


ABS CONNECTOR  
(I/P HARNESS REF.)

## 46) ANALOG I-P WIRING(1.5 DOHC/1.8, 2.0 MPFI)

S35 BRAKE FLUID SWITCH  
 S36 PARKING BRAKE SWITCH  
 S37 WASTE FLUID LEVEL SWITCH

Y8 FUEL UNIT  
 Y9 COOLANT UNIT  
 Y10 FUEL LEVEL WARNING SENSOR



47) IMMOBILIZER, AIR BAG WIRING

- H8 CONTACT COIL & HORN SWITCH
- K59 IMMOBILIZER CONTROL UNIT
- K60 AIR BAG CONTROL UNIT
- Y11 TRANSPONDER DETECTION COIL
- S3 HORN SWITCH

