SECTION DI
DRIVER INFORMATION SYSTEM

CONTENTS

PRECAUTIONS

PFP:00001

Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

NKS001AX

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.
Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

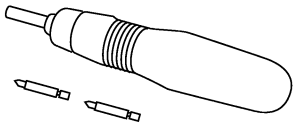
- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

PREPARATION

PFP:00002

Commercial Service Tools

NKS001AZ

Tool name	Description
Power tool  PBIC0191E	Loosening bolts and nuts

COMBINATION METERS

PFP:24814

System Description

NKS001B0

UNIFIED METER CONTROL UNIT

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by unified meter control unit built in combination meter.
- Digital meter is adopted for odo/trip meter.
- Odo/trip meter, A/T indicator and ICC system display segments can be checked in self-diagnosis mode.
- Meter/gauge can be checked in self-diagnosis mode.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 10A fuse [No. 6, located in the fuse block (J/B) No. 1]
- to combination meter terminal 57.

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 9, located in the fuse block (J/B) No. 1]
- to combination meter terminal 59.

With the ignition switch in the ACC or ON position, power is supplied

- through 10A fuse [No. 21, located in the fuse block (J/B) No. 1]
- to combination meter terminal 1.

Ground is supplied

- to combination meter terminals 60, 61 and 62
- through grounds M24 and M114.

SPEEDOMETER

VDC/TCS/ABS control unit provides the vehicle speed signal to combination meter for the speedometer with CAN communication line.

TACHOMETER

ECM provides the engine speed signal to combination meter for tachometer with CAN communication line.

WATER TEMPERATURE GAUGE

ECM provides the engine coolant temperature signal to combination meter for water temperature gauge with CAN communication line.

FUEL GAUGE

Combination meter reads a resistor signal from fuel level sensor unit.

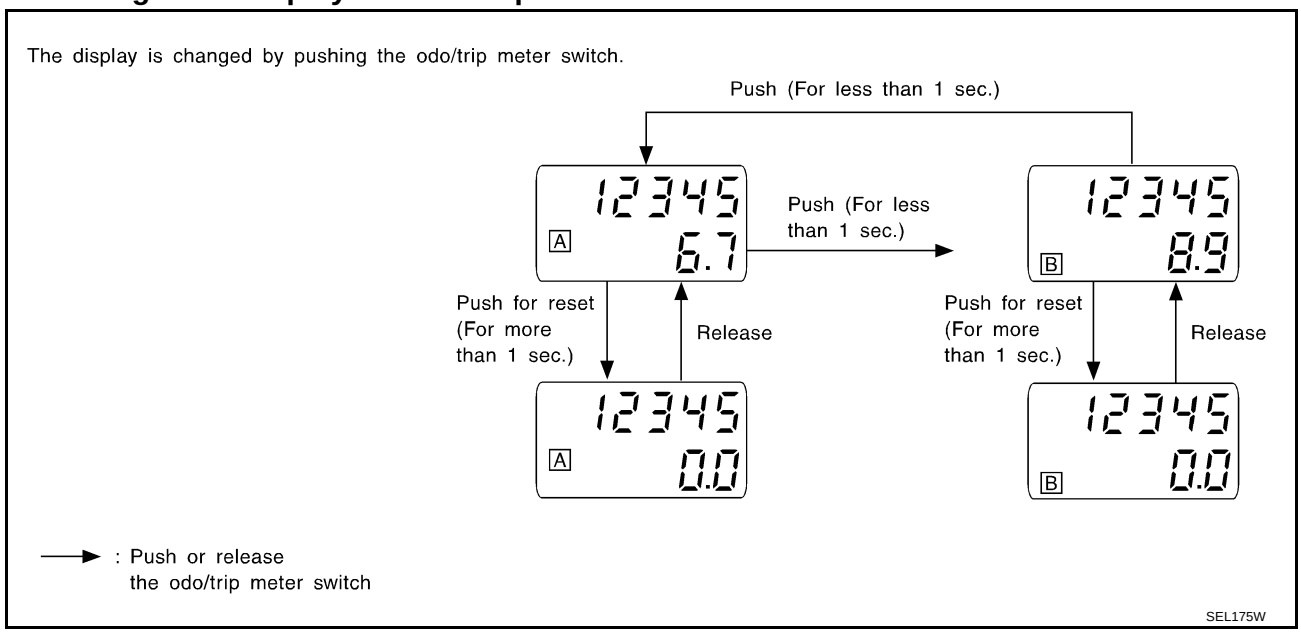
Signal is supplied

- from combination meter terminal 30
- through fuel level sensor unit terminal 5 and 6
- to combination meter terminal 29.

ODO/TRIP METER

- VDC/TCS/ABS control unit provides the vehicle speed signal to combination meter with CAN communication line.
- Combination meter uses the vehicle speed signal and the memory signals to calculate the mileage, and displays it.

How to Change The Display For Odo/trip Meter



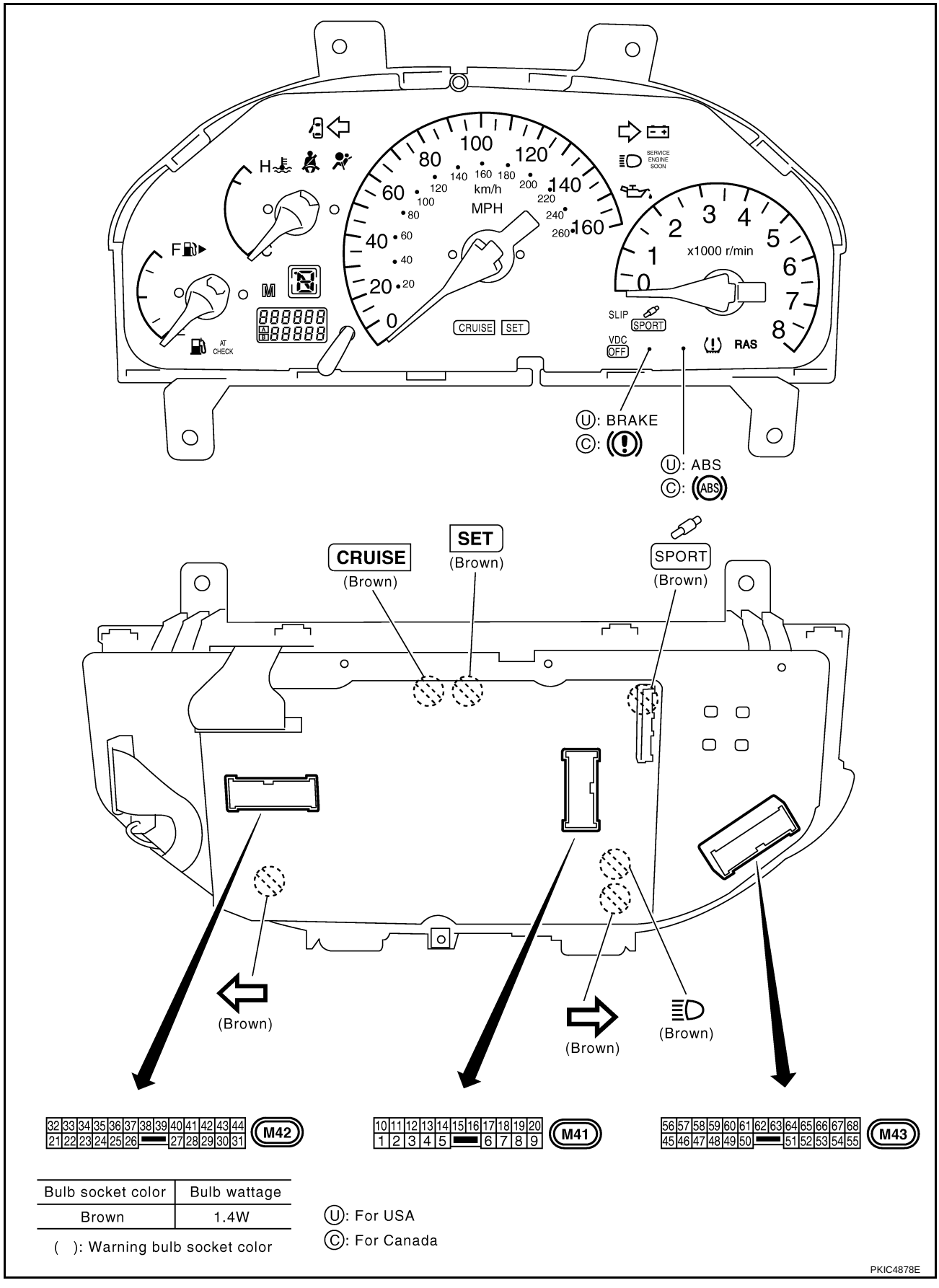
- The odo/trip meter display switching and trip display resetting can be identified by the time from pressing the odo/trip meter switch to releasing it.
- When resetting with “trip A” displayed, only “trip A” is reset. (The same way for “trip B”.)

NOTE:
The record of the odo meter is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.

Arrangement of Combination Meter

NKS001B2

WITHOUT ICC SYSTEM



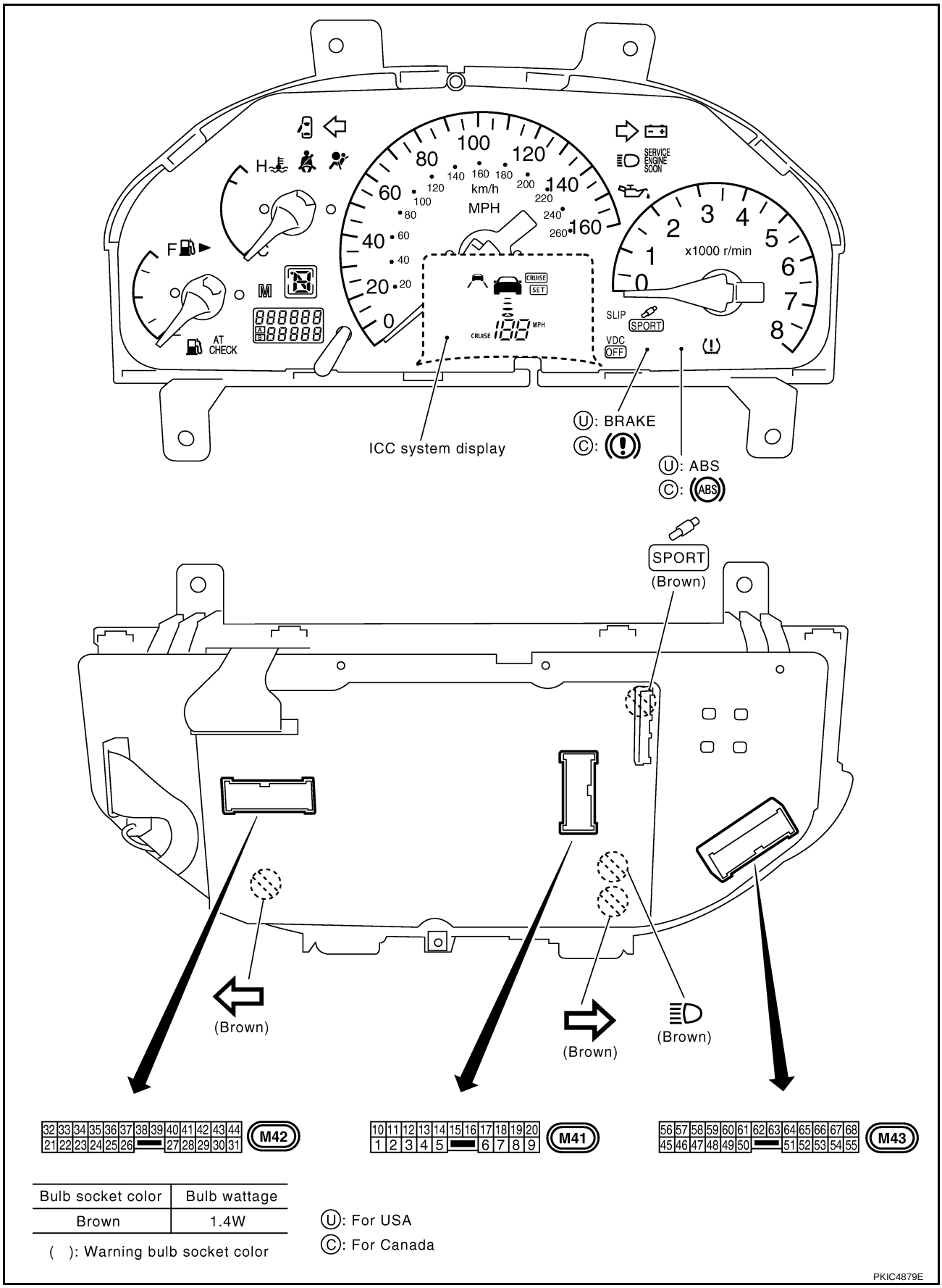
Bulb socket color	Bulb wattage
Brown	1.4W

( ): Warning bulb socket color

Ⓤ: For USA
Ⓒ: For Canada

PKIC4878E

WITH ICC SYSTEM



Bulb socket color	Bulb wattage
Brown	1.4W

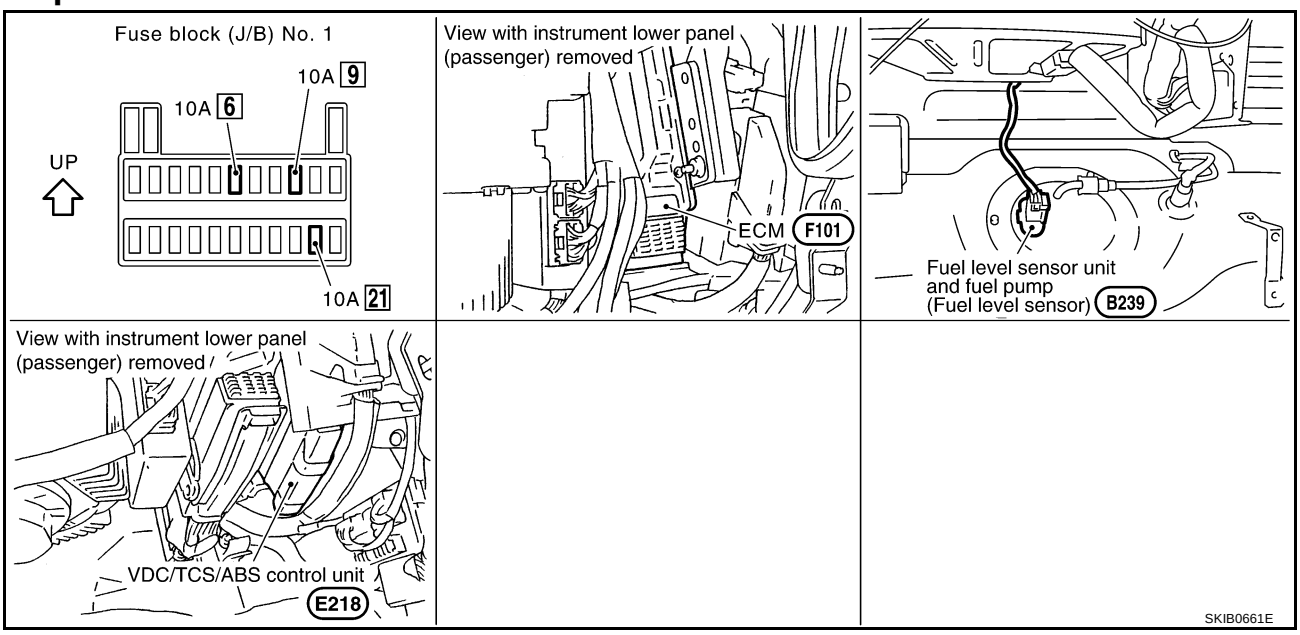
( ): Warning bulb socket color

Ⓤ: For USA
Ⓒ: For Canada

PKIC4879E

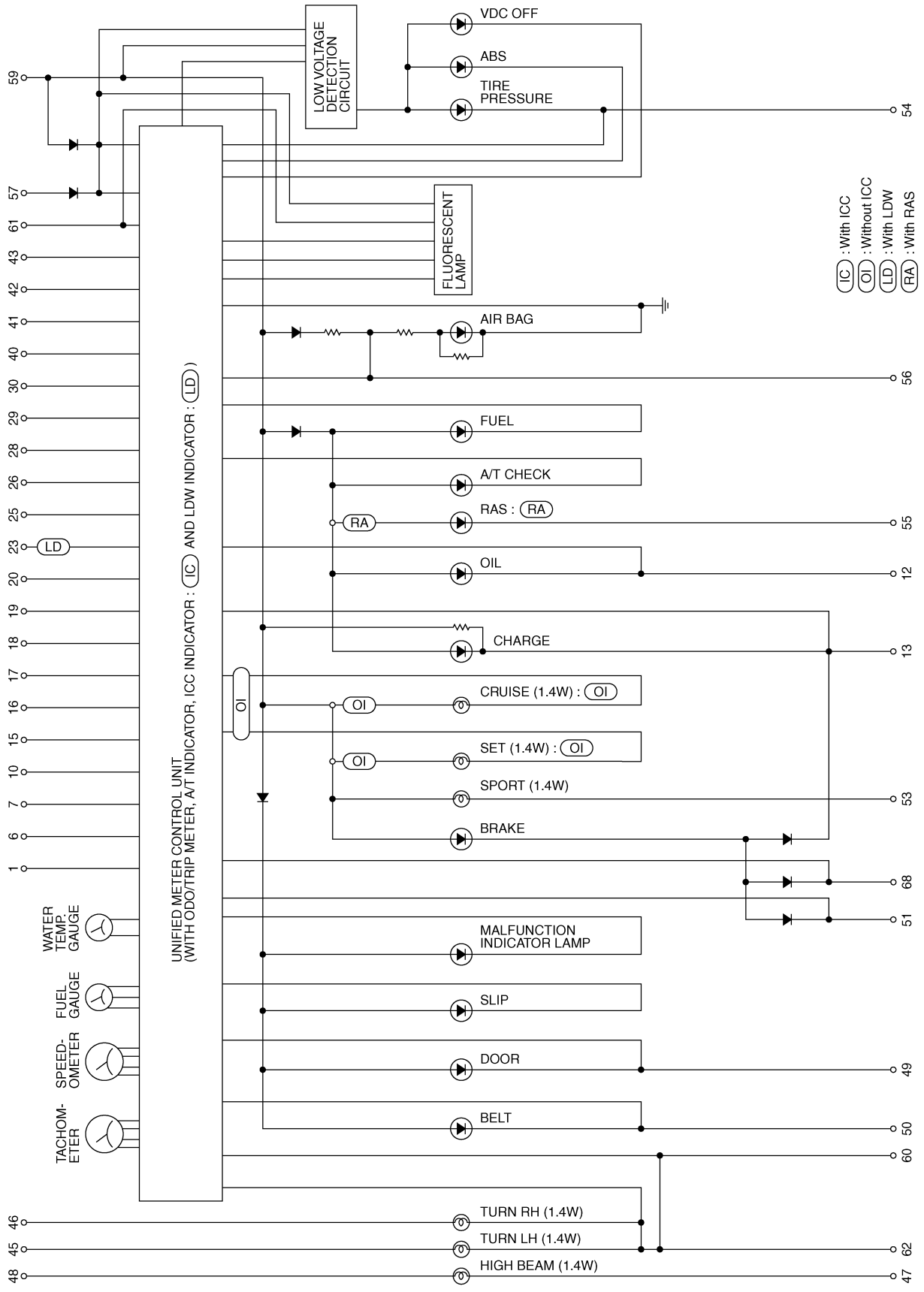
Component Parts and Harness Connector Location

NKS001B3



Internal Circuit

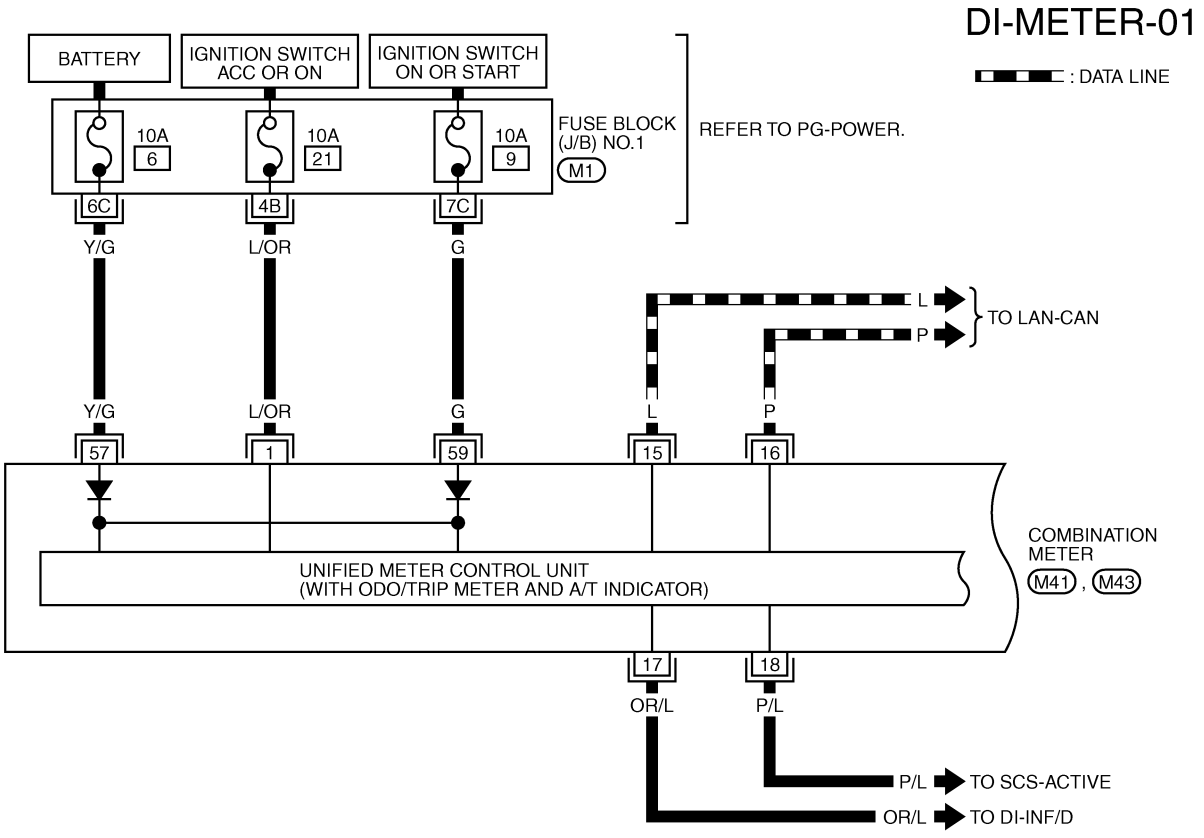
NKS001B4

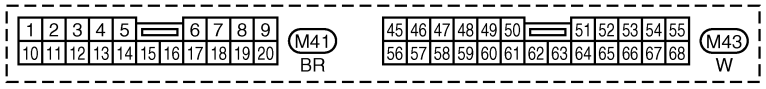


TKWM3723E

Wiring Diagram — METER —

NKS001B5

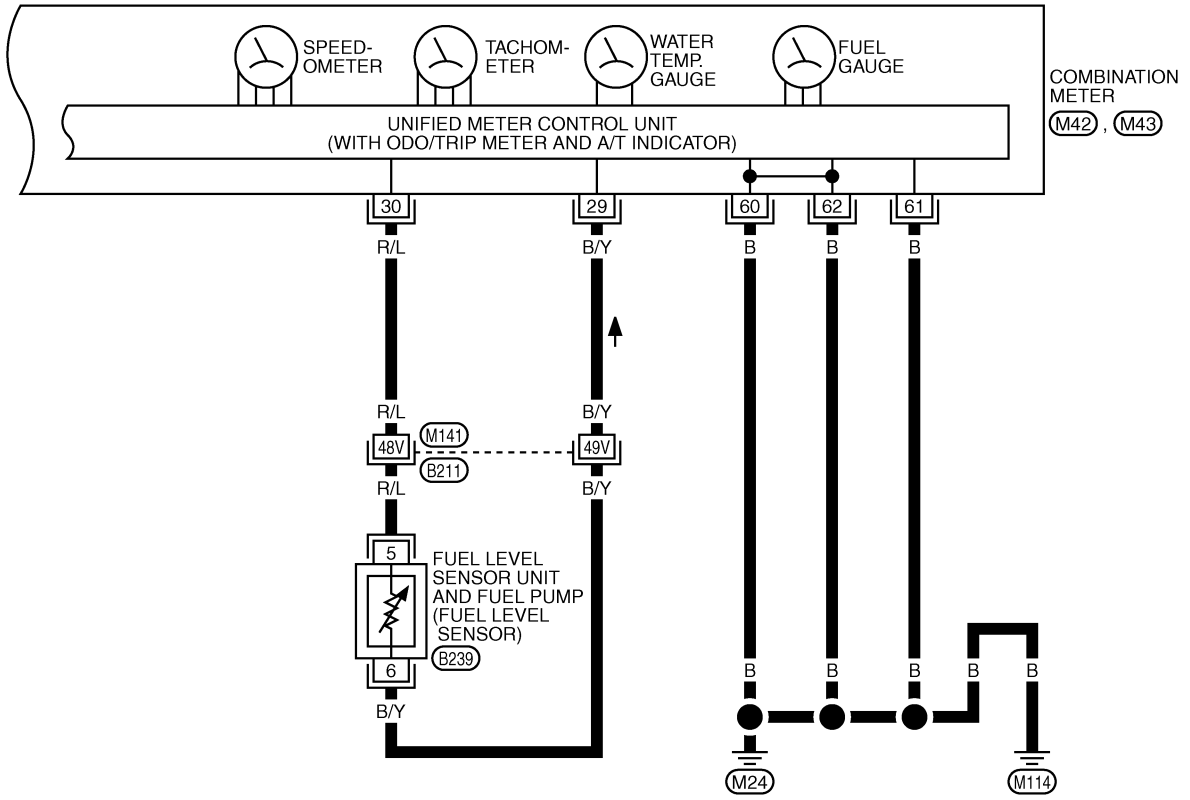


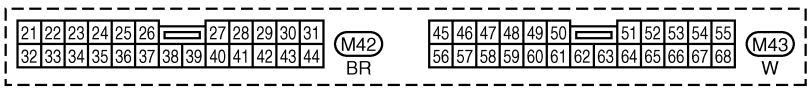


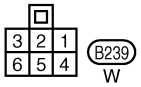
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3724E

DI-METER-02





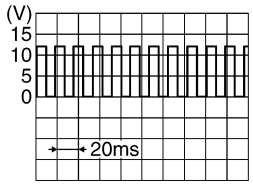
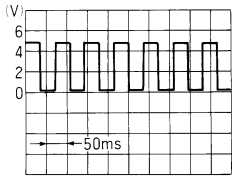


REFER TO THE FOLLOWING.
B211 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3725E

Terminals and Reference Value for Combination Meter

NKS001B6

Terminal No.	Wire color	Item	Condition		Reference value (Approx.)
			Ignition switch	Operation or condition	
1	L/OR	ACC power supply	ACC	–	Battery voltage
15	L	CAN-H	–	–	–
16	P	CAN-L	–	–	–
17	OR/L	Vehicle speed signal output (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	 PKIA1935E
18	P/L	Vehicle speed signal output (2-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)].	 ELF1080D
29	B/Y	Fuel level sensor ground	–	–	–
30	R/L	Fuel level senor signal	ON	–	Refer to DI-22, "CHECK FUEL LEVEL SENSOR UNIT" .
57	Y/G	Battery power supply	OFF	–	Battery voltage
59	G	Ignition power supply	ON	–	Battery voltage
60	B	Ground	ON	–	0 V
61					
62					

Self-Diagnosis Mode of Combination Meter

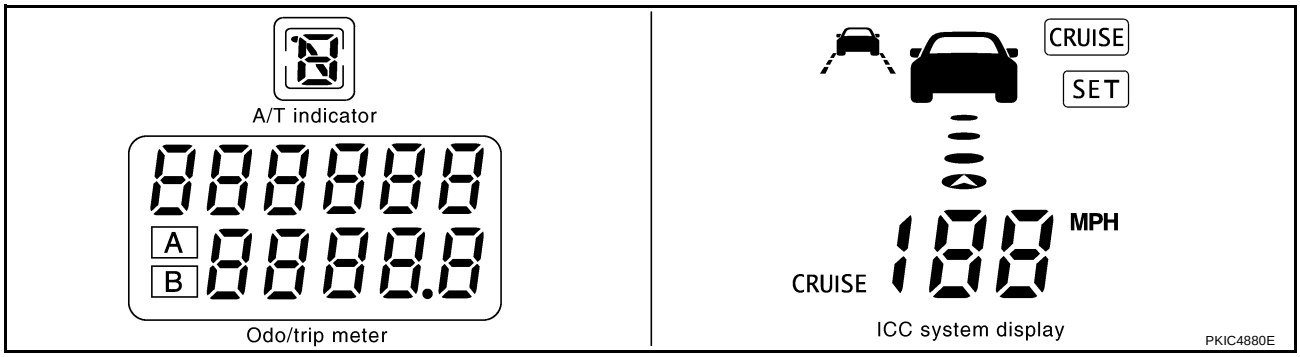
NKS001B7

SELF–DIAGNOSIS MODE FUNCTION

- Odo/trip meter segment, A/T indicator segment and ICC system display segment can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

OPERATION PROCEDURE

1. Turn ignition switch ON, and switch the odo/trip meter to “trip A” or “trip B”.
   NOTE:
   If the diagnosis function is activated with the trip meter displayed, the mileage on the trip meter is reset.
2. Turn ignition switch OFF.
3. While pushing the odo/trip meter switch, turn ignition switch ON again.
4. Make sure that the trip meter displays “0000.0”.
5. Push the odo/trip meter switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
6. All the segments on the odo/trip meter, A/T indicator, ICC system display.
   And simultaneously the low-fuel warning lamp illuminate.
   At this time, the unified meter control unit is turned to diagnosis mode.



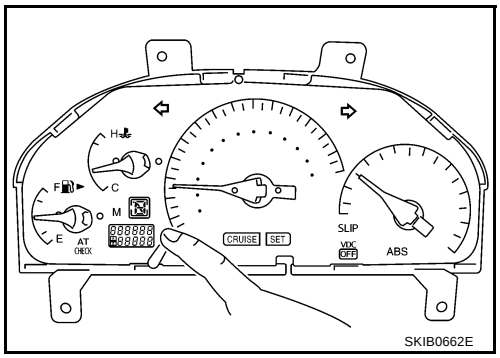
NOTE:

- If any of the segments is not displayed, replace combination meter.
- The following lamps may illuminate in self-diagnosis mode:
  Malfunction indicator lamp, ASCD indicator lamp (SET lamp, CRUSE lamp), A/T CHECK indicator lamp, ABS warning lamp, VDC OFF indicator lamp and SLIP indicator lamp.

7. Push the odo/trip meter switch. Indication of each meter/gauge should be as shown in the right during pushing odo/trip meter switch if there is no malfunctioning. (At this time, the low-fuel warning lamp goes off).

   NOTE:

   - If any of meter/gauge is not sweeped, replace combination meter.
   - The figure is reference.



Trouble Diagnosis

NKS001B8

HOW TO PROCEED WITH TROUBLE DIAGNOSIS

1. Confirm the symptom or customer complaint.
2. Perform the preliminary check. Refer to DI-17, "PRELIMINARY CHECK" .
3. According to the trouble diagnosis chart, repair or replace the cause of the symptom. Refer to DI-17, "SYMPTOM CHART" .
4. Does the meter operate normally? If so, GO TO 5. If not, GO TO 2.
5. INSPECTION END

PRELIMINARY CHECK

1. CHECK COMBINATION METER (SELF-DIAGNOSIS MODE)

Activate self-diagnosis mode of combination meter. Refer to DI-16, "OPERATION PROCEDURE" .

Does self-diagnosis mode operate normally?

OK >> INSPECTION END
NG >> GO TO 2.

2. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit. Refer to DI-17, "Power Supply and Ground Circuit Inspection" .

OK or NG

OK >> Replace combination meter.
NG >> Repair power supply and ground circuit of combination meter.

SYMPTOM CHART

Symptom	Possible cause
Speedometer and odo/trip meter indication is irregular.	Refer to DI-18, "Vehicle Speed Signal Inspection" .
Tachometer indication is malfunction.	Refer to DI-18, "Engine Speed Signal Inspection" .
Water temperature gauge indication is malfunction.	Refer to DI-19, "Engine Coolant Temperature Signal Inspection" .
Low-fuel warning lamp indication is irregular.	Refer to DI-20, "Fuel Level Sensor Signal Inspection" .
Fuel gauge indication is malfunction.	
ICC system display is malfunction.	Refer to DI-22, "ICC System Display Does Not Illuminate" .
A/T indicator is malfunction.	Refer to DI-50, "A/T Indicator Does Not Illuminate" .

Power Supply and Ground Circuit Inspection

NKS001B9

1. CHECK FUSE

Check for blown combination meter fuses.

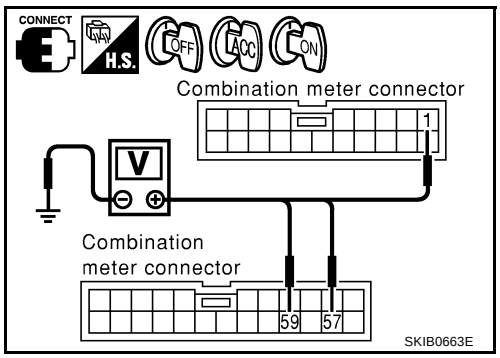
Unit	Power source	Fuse No.
Combination meter	Battery	6
	Ignition switch ON or START	9
	Ignition switch ACC or ON	21

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector terminals and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal				
M43	57	Ground	Battery voltage	Battery voltage	Battery voltage
M41	1		0 V	Battery voltage	Battery voltage
M43	59		0 V	0 V	Battery voltage

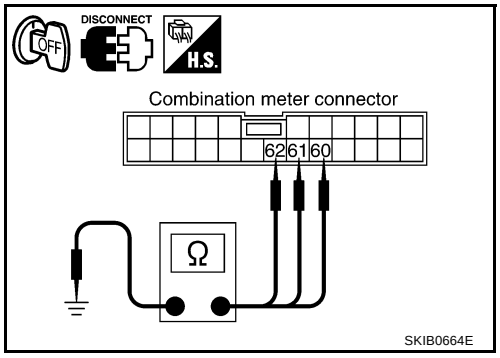
OK or NG

OK >> GO TO 3.
NG >> Check harness between combination meter and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector M43 terminals 60, 61, 62 and ground.

60 – Ground
61 – Ground : Continuity should
62 – Ground



OK or NG

OK >> Power supply and ground circuit are OK.
NG >> Check ground harness.

Vehicle Speed Signal Inspection

NKS001BA

1. CHECK VDC/TCS/ABS CONTROL UNIT SYSTEM

Perform VDC/TCS/ABS control unit self-diagnosis. Refer to BRC-23, "CONSULT-II Functions (VDC)" .

OK or NG

OK >> Replace combination meter.
NG >> Check VDC/TCS/ABS control unit.

Engine Speed Signal Inspection

NKS001BB

1. CHECK VISUAL

At the engine start, the pointer on the tachometer fluctuates.

Is the fluctuation acceptable?

YES >> GO TO 2.
NO >> GO TO 3.

2. CHECK ENGINE SPEED

Compare the engine speed and the values indicated in tachometer.

Does the engine speed correspond to the speed indicated?

YES >> Tachometer is OK.
NO >> Replace combination meter.

3. CHECK ECM SYSTEM

Perform ECM self-diagnosis. Refer to EC-115, "CONSULT-II Function (ENGINE)" .

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic Procedure” for displayed DTC.

Engine Coolant Temperature Signal Inspection

NKS001BC

1. CHECK ECM SYSTEM

Perform ECM self-diagnosis. Refer to EC-115, "CONSULT-II Function (ENGINE)" .

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnostic Procedure” for displayed DTC.

Fuel Level Sensor Signal Inspection

NKS001BD

NOTE:
The following symptoms do not indicate a malfunction.

Fuel level sensor unit

- Depending on vehicle posture or driving circumstance, the fuel level in the tank various, and the pointer may fluctuate.
- If the vehicle is fueled with the ignition switch ON, the pointer will move slowly.

Low-fuel warning lamp

- Depending on vehicle posture or driving circumstance, the fuel level in the tank varies, and the warning lamp ON timing may be changed.

1. CHECK HARNESS CONNECTOR

Check combination meter, fuel level sensor unit and terminals (meter side, module side, lead side, and harness side) for poor connection and bend.

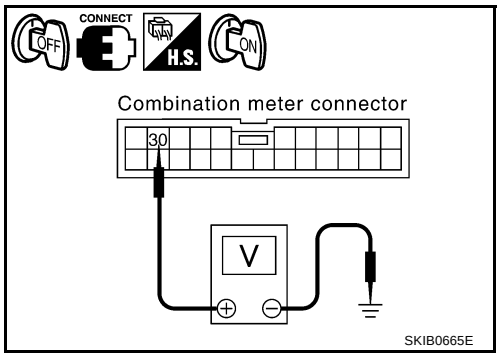
OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS CONNECTOR OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect fuel level sensor unit connector.
3. Turn ignition switch ON.
4. Check voltage between combination meter harness connector M42 terminal 30 and ground.

30 – Ground : Approx. 5 V



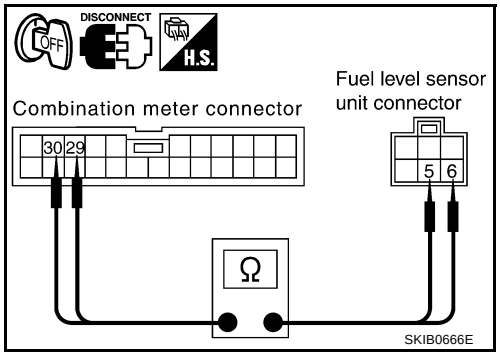
OK or NG

OK >> GO TO 3.
NG >> Replace combination meter.

3. CHECK FUEL LEVEL SENSOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector M42 terminals 29, 30 and fuel level sensor unit harness connector B239 terminals 6, 5.

29 – 6
30 – 5 **: Continuity should exist.**



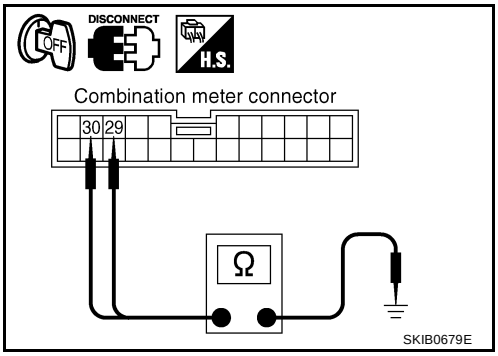
OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

4. CHECK FUEL LEVEL SENSOR SHORT CIRCUIT

Check continuity between combination meter harness connector M42 terminals 29, 30 and ground.

29 – Ground
30 – Ground **: Continuity should not exist.**



OK or NG

OK >> GO TO 5.
NG >> Repair harness or connector.

5. CHECK FUEL LEVEL SENSOR UNIT

Check the components. Refer to DI-22, "CHECK FUEL LEVEL SENSOR UNIT" .

OK or NG

OK >> GO TO 6.
NG >> Replace fuel level sensor unit.

6. CHECK INSTALLATION CONDITION

Check fuel level sensor unit installation, and check whether the float arm interferes or binds with any components inside the arm.

OK or NG

OK >> Replace combination meter.
NG >> Install fuel level sensor unit properly.

Fuel Gauge Pointer Fluctuates, Indicator Wrong Value, or Varies

NKS001BE

1. CHECK THE FUEL GAUGE POINTER FOR FLUCTUATION

Does the indication value fluctuate during driving or just before/after stop?

YES >> The pointer fluctuation may be caused by fuel level change in the fuel tank.
NO >> Ask the customer about the situation when the symptom occurs in detail, and perform the trouble diagnosis.

Fuel Gauge Does Not Move to FULL Position

NKS001BF

1. QUESTION 1

Does it take a long time for the pointer to move to FULL position?

YES >> GO TO 2.
NO >> GO TO 3.

2. QUESTION 2

Was the vehicle fueled with the ignition switch ON?

YES >> Be sure to fuel the vehicle with the ignition switch OFF. Otherwise it will take a long time to move to FULL position because of the characteristic of the fuel gauge.
NO >> GO TO 3.

3. QUESTION 3

Is the floor or the vehicle inclined?

YES >> It may not be filled fully.
NO >> GO TO 4.

4. QUESTION 4

During driving, does the fuel gauge pointer move gradually toward EMPTY position?

YES >> Check the components. Refer to DI-22, "CHECK FUEL LEVEL SENSOR UNIT" .
NO >> The float arm may interfere or bind with any of the components in the fuel tank.

ICC System Display Does Not Illuminate

NKS001BG

1. CHECK OPERATION OF ICC SYSTEM DISPLAY

Activate self-diagnosis mode of combination meter. Refer to DI-16, "OPERATION PROCEDURE" .

Does all of ICC system display illumination?

YES >> GO TO 2.
NO >> Replace combination meter.

2. CHECK ICC SYSTEM

Perform ICC system trouble diagnosis. Refer to ACS-32, "TROUBLE DIAGNOSIS - GENERAL DESCRIPTION" .

OK or NG

OK >> Replace combination meter.
NG >> Repair as need.

Electrical Components Inspection

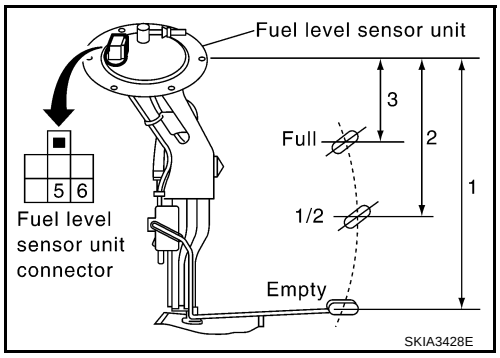
NKS001BH

CHECK FUEL LEVEL SENSOR UNIT

- For removal, refer to FL-3, "FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY" .
- Check resistance between terminals 5 and 6.

Terminal		Float position [mm (in)]		Resistance value [Ω]
5	6	Full (3)*1	Approx. 78 (3.1)	Approx. 6
		1/2 (2)	Approx. 200 (7.87)	Approx. 33
		Empty (1)*2	Approx. 341 (13.43)	Approx. 90

*1 and *2: When float rod is in contact with stopper.

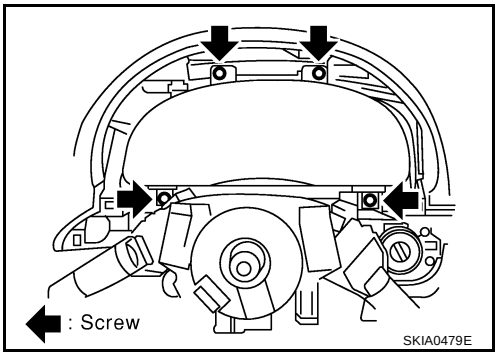


Removal and Installation for Combination Meter

NKS001BI

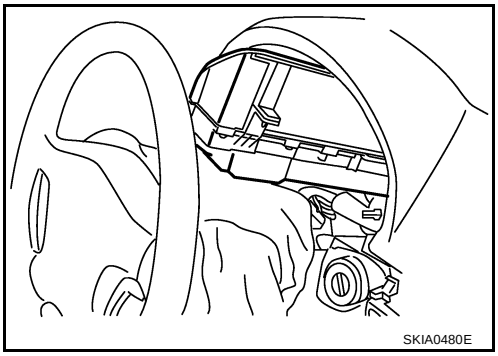
REMOVAL

1. Remove the cluster lid A. Refer toIP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screws (4), and disconnect connectors.

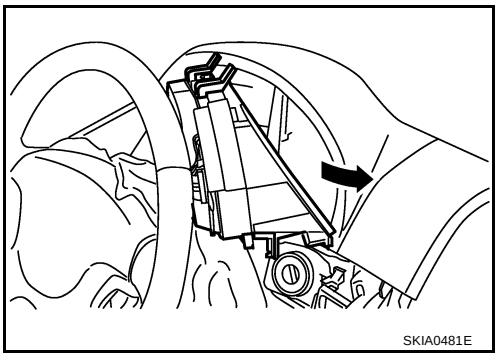


3. Rotating the combination meter so that the left side is in front, turn it until the meter face comes to the top.

   CAUTION:
   To prevent it from being damaged by interference with the meter bracket, protect the meter with waste rags.



4. While pulling combination meter forward, pull it out to the right (combination meter back side shall be in front).



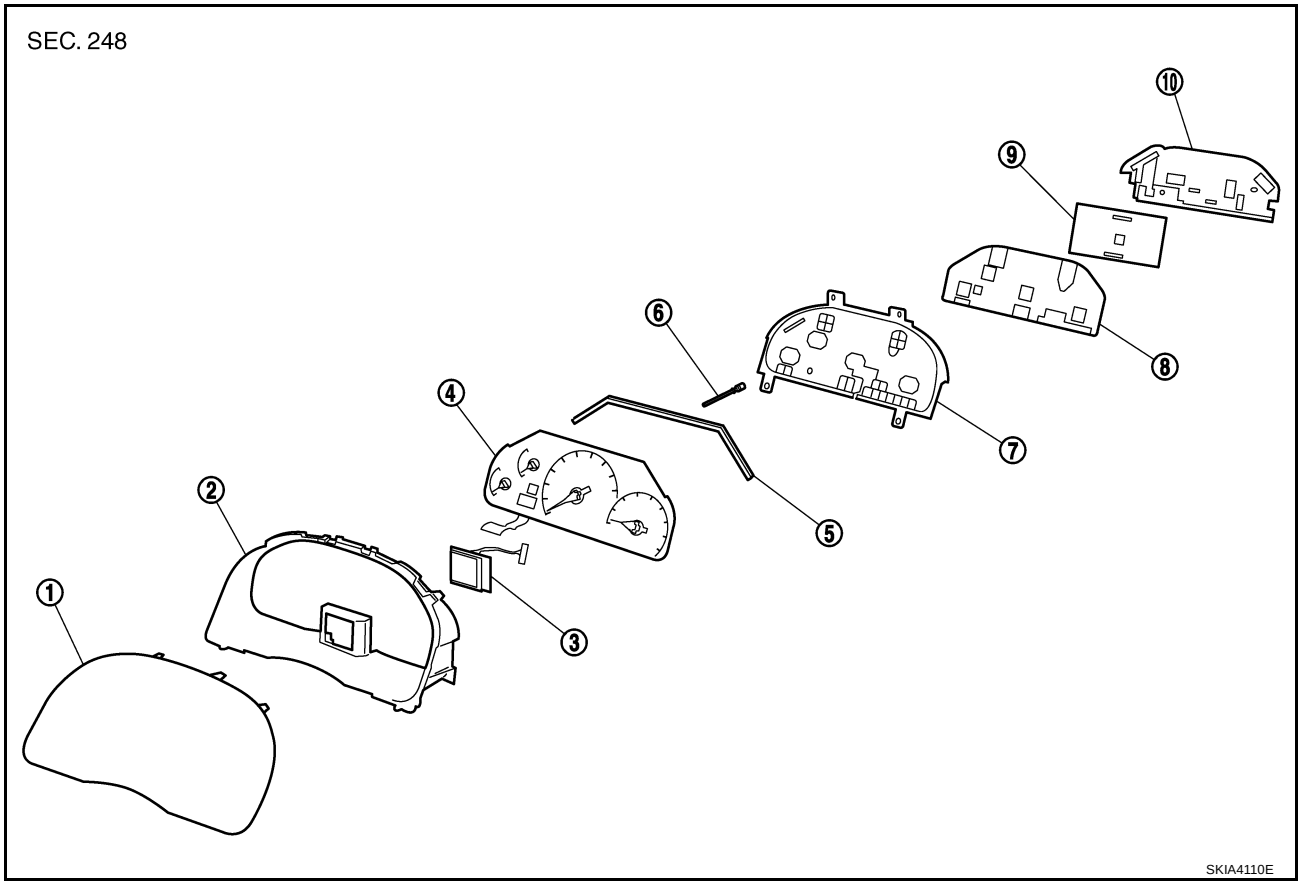
INSTALLATION

Installation is the reverse order of removal.

Disassembly and Assembly for Combination Meter

NKS001BJ

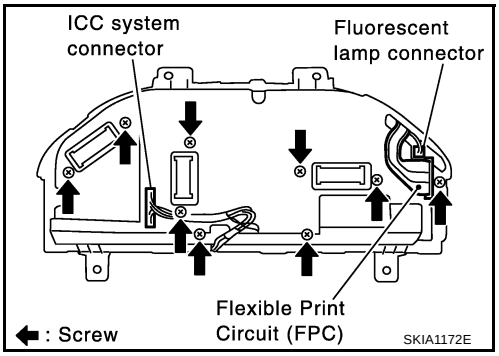
SEC. 248



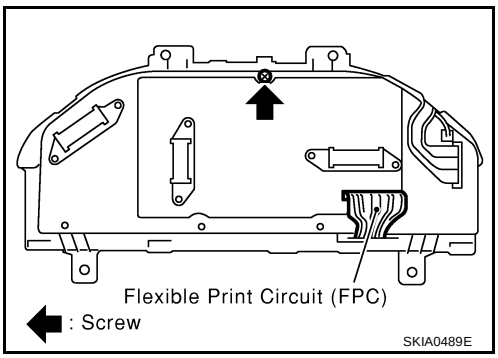
1. Front cover
2. Upper housing
3. ICC system display
4. Meter and gauge assembly
5. Fluorescent lamp
6. Odo/trip meter switch shaft
7. Lower housing
8. Unified meter control unit (main)
9. Unified meter control unit (sub)
10. Meter cover

DISASSEMBLY

1. Disconnect ICC system display connector if equipped.
2. Remove the screws (9) to separate meter cover.
3. Separate the connectors for fluorescent lamp connector and flexible print circuit for fluorescent lamp.
4. Separate the flexible print circuit for odo/trip meter.



5. Remove the screw (1) to separate unified meter control unit (main and sub).
6. Disengage the tabs (8) to separate upper housing.
7. Remove the screw (1) to separate meter and gauge assembly.
8. Disengage the tabs (7) to separate front cover.
9. Separate unified meter control unit (main) from unified meter control unit (sub).



ASSEMBLY

Assembly is the reverse order of disassembly.

WARNING LAMPS

PFP:24814

System Description

NKS001BN

AIR BAG WARNING LAMP

When an air bag malfunction occurs, the ground circuit is interrupted

- from the air bag diagnosis sensor unit terminal 15
- to combination meter terminal 56.

Ground is supplied

- through combination meter terminals 60, 61 and 62.

When power and ground are supplied, the air bag warning lamp (LED) illuminates.

NOTE:
The air bag warning lamp stays on when air bag diagnosis sensor unit has malfunction or the circuit is open. For further information, refer to SRS-8, "TROUBLE DIAGNOSIS" .

DOOR WARNING LAMP

Door waning lamp is controlled by BCM.
When one of the doors is opened, ground is supplied to the BCM terminals 33, 37, 142 and 143.
And then ground is supplied

- to combination meter terminal 49
- from BCM terminal 111.

When power and ground are supplied, the door warning lamp illuminates.

DOOR WARNING MESSAGE ON DISPLAY

When a door warning lamp illuminate, signal is sent

- from combination meter terminals 6 and 7
- through AV control unit terminals 35 and 34 (without NAVI)
- through AV and NAVI control unit terminals 32 and 33 (with NAVI)
- to display.

Then warning message appears display.

ACTIVE DAMPER INDICATOR LAMP (SPORT)

When an active damper suspension system malfunction occurs, or “SPORT” mode is selected by active damper suspension select switch, ground is supplied at signal

- to combination meter terminal 53
- from active damper suspension control unit terminal 16.

When power and ground are supplied, the active damper indicator lamp (SPORT) blinks or illuminates.

LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal 1 to provide ground to combination meter terminal 12.
When power and ground are supplied, the low oil pressure warning lamp illuminates.

CHARGE WARNING LAMP

When an alternator malfunction occurs, ground is supplied at signal

- to combination meter terminal 13
- from alternator terminal 3.

When power and ground are supplied, the charge warning lamp illuminate.

LOW WASHER LEVEL WARNING MESSAGE ON DISPLAY

When the washer fluid level is low, ground is supplied at signal

- to combination meter terminal 26
- from washer level switch terminal 1.

When power and ground are supplied, the signal is sent

- from combination meter terminals 6 and 7
- through AV control unit terminals 35 and 34 (without NAVI)
- through AV and NAVI control unit terminals 32 and 33 (with NAVI)
- to display.

Then warning message appears display.

A/T CHECK INDICATOR LAMP

When an A/T system malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from TCM (transmission control module) with CAN communication line.

When signal is received, the A/T CHECK indicator lamp blinks or illuminates.
For further information, refer to AT-179, "A/T INDICATOR CIRCUIT" .

LOW-FUEL WARNING LAMP

The amount of fuel in the fuel tank is determined by the fuel level sensor in the fuel tank. A signal is sent

- from fuel level sensor unit terminal 5
- to combination meter terminal 30
- through fuel level sensor unit terminal 6
- to combination meter terminal 29.

After receiving the signal, if the combination meter judges that the fuel level is low, the combination meter illuminates the low-fuel warning lamp.

ABS WARNING LAMP

When an ABS malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from VDC/TCS/ABS control unit with CAN communication line.

When signal is received, the ABS warning lamp illuminates.

NOTE:
The ABS warning lamp stays on when combination meter does not receive CAN communication signal.
For further information, refer to BRC-35, "ABS WARNING LAMP, VDC OFF INDICATOR LAMP, AND SLIP INDICATOR LAMP" .

VDC OFF INDICATOR LAMP

When VDC OFF switch is in OFF position, or a VDC/TCS/ABS malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from VDC/TCS/ABS control unit with CAN communication line.

When signal is received, the VDC OFF indicator lamp illuminates.

NOTE:
The VDC OFF indicator lamp stays on when combination meter does not receive CAN communication signal. For further information, refer to BRC-35, "ABS WARNING LAMP, VDC OFF INDICATOR LAMP, AND SLIP INDICATOR LAMP" .

SLIP INDICATOR LAMP

When VDC is in operation, or a VDC malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from VDC/TCS/ABS control unit with CAN communication line.

When signal is received, the SLIP indicator lamp illuminates.

NOTE:
The SLIP indicator lamp stays on when combination meter does not receive CAN communication signal. For further information, refer to BRC-35, "ABS WARNING LAMP, VDC OFF INDICATOR LAMP, AND SLIP INDICATOR LAMP" .

SEAT BELT WARNING LAMP

When one of the following conditions causing,

- When the driver seat belt is unfastened, ground is supplied
  - to combination meter terminal 50
  - from pre-crash seat belt control unit terminal 7
  - When the seat belt warning lamp illuminates.
- When pre-crash seat belt system malfunction occurs, ground is supplied
  - to combination meter terminal 50
  - from pre-crash seat belt control unit terminal 7
  - When the seat belt warning lamp blinks.

For further information, refer to SB-11, "System Description" in pre-crash seat belt.

- When the passenger seat belt is unfastened and occupant is on passenger seat, ground is supplied. (With passenger seat belt warning system)
  - to combination meter terminal 50
  - from air bag diagnosis sensor unit terminal 24
  - When the seat belt warning lamp illuminates.

BRAKE WARNING LAMP

When one of the following conditions causing,

- When the parking brake is applied, ground is supplied
  - to combination meter terminal 68
  - from parking brake switch terminal 1
- When the brake fluid level is low, ground is supplied
  - to combination meter terminal 51
  - from brake fluid level switch terminal 1
- When the alternator malfunction occurs, ground is supplied
  - to combination meter terminal 13
  - from alternator terminal 3

power and ground are supplied, and then the brake warning lamp illuminates.

MALFUNCTION INDICATOR LAMP

When an engine control malfunction occurs, signal is sent

- to combination meter terminals 15 and 16

- from ECM with CAN communication line.

When signal is received, the malfunction indicator lamp illuminates.
For further information, refer to EC-757, "MIL AND DATA LINK CONNECTOR" .

LOW TIRE PRESSURE WARNING LAMP

When a low tire pressure warning control malfunction occurs, ground is supplied at signal

- to combination meter terminal 54
- from low tire pressure warning control unit terminal 3.

When power and ground are supplied, the low tire pressure warning lamp illuminates.

NOTE:
The low tire pressure warning lamp stays on when air bag diagnosis sensor unit has malfunction or the circuit is open.
For further information, refer to WT-40, "TROUBLE DIAGNOSIS FOR SYMPTOMS" .

ASCD INDICATOR LAMP (SET LAMP)

When an ASCD malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from ECM with CAN communication line.

When signal is received, the SET lamp will blink quickly.

ICC SYSTEM DISPLAY (ICC SYSTEM WARNING LAMP)

When an ICC system malfunction occurs, signal is sent

- to combination meter terminals 15 and 16
- from ICC unit with CAN communication line.

When signal is received, the ICC system warning lamp illuminates.

RAS WARNING LAMP

When RAS system malfunction occurs, ground is supplied at signal

- to combination meter terminal 55
- from RAS control unit terminal 26.

When power and ground are supplied, the RAS warning lamp illuminates.

LDW INDICATOR LAMP (ON THE ICC SYSTEM DISPLAY)

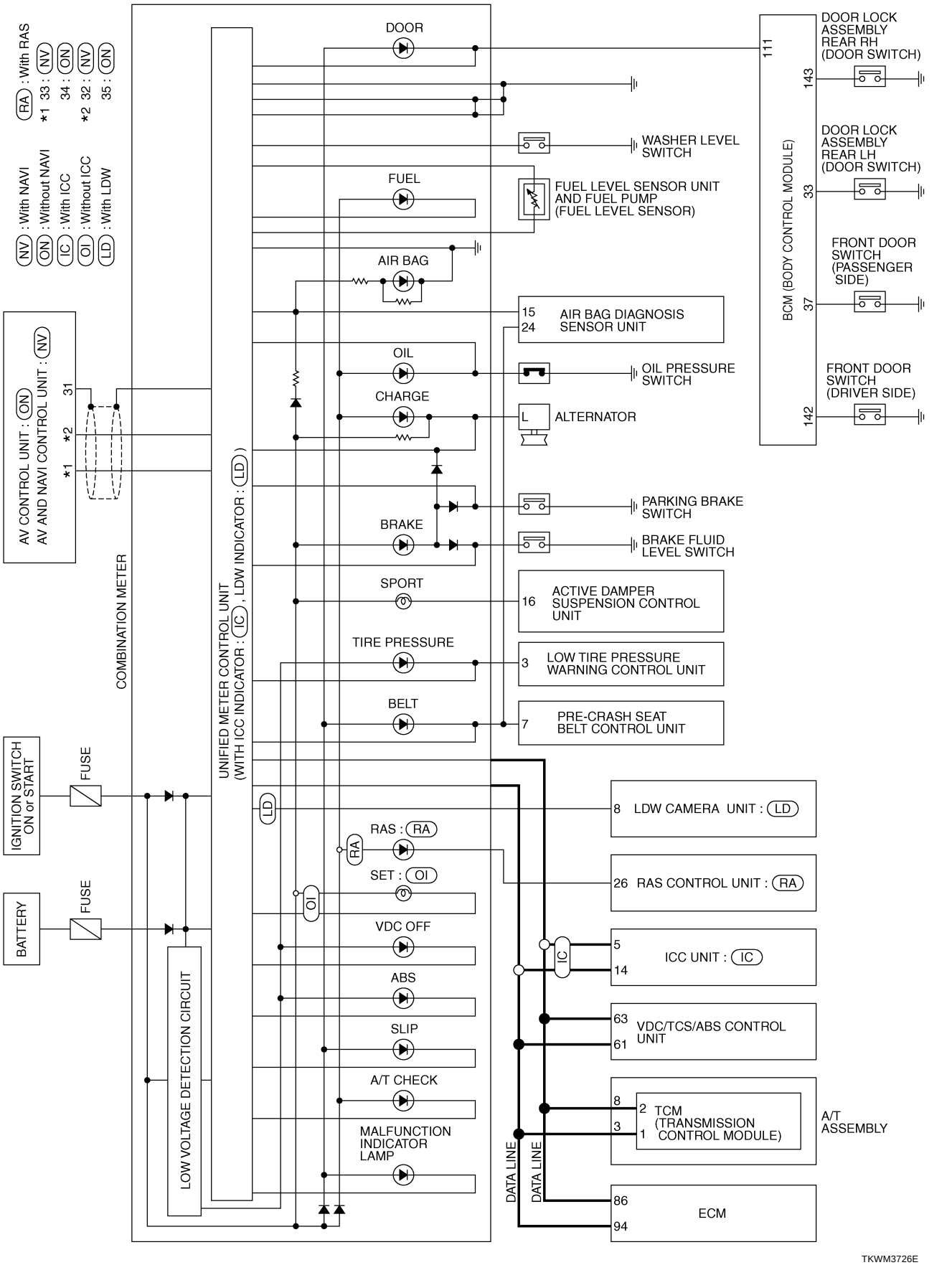
When LDW system is in operation or a LDW system malfunction occurs, signal is sent

- to combination meter terminal 23
- from LDW camera unit terminal 8.

When signal is received, the LDW indicator lamp illuminates.

Schematic

NKS001BO

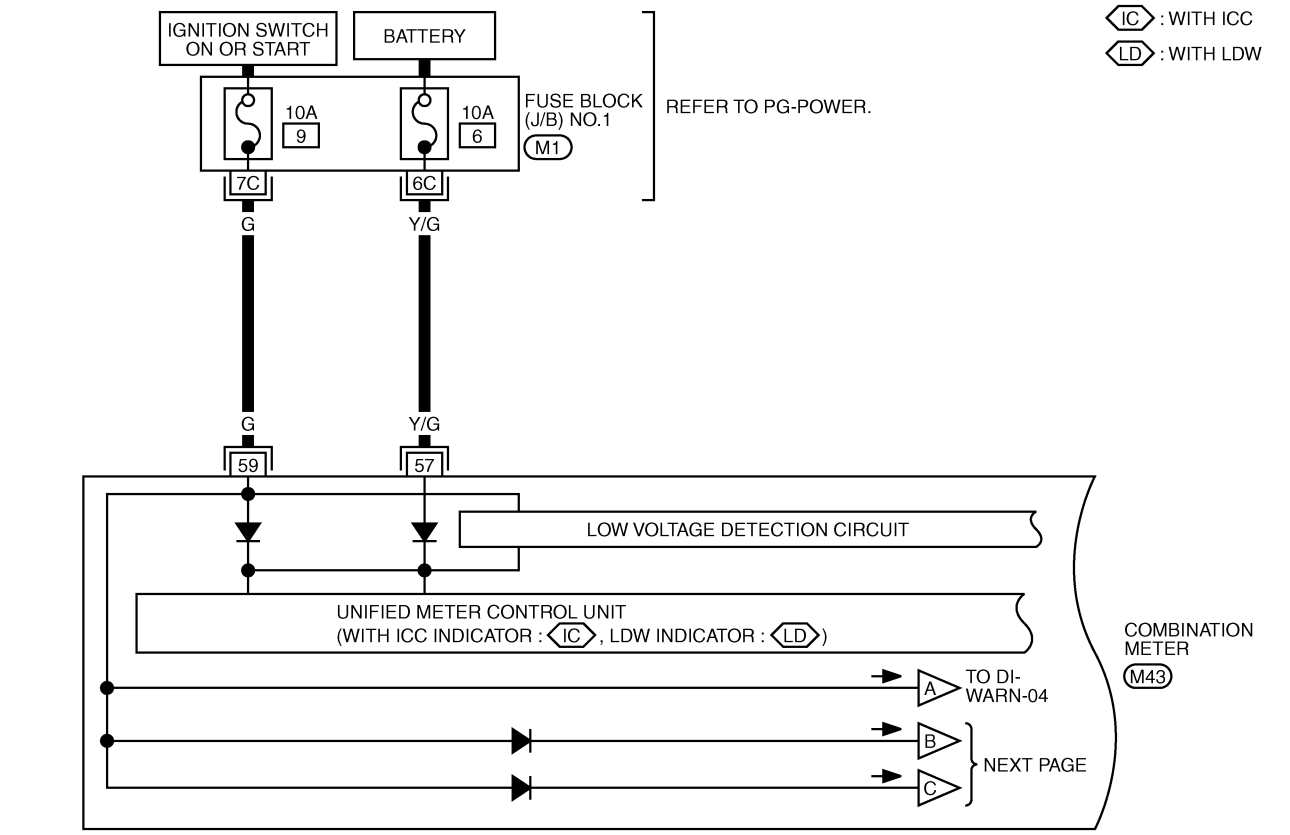


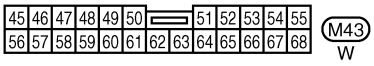
TKWM3726E

Wiring Diagram — WARN —

NKS001BP

DI-WARN-01

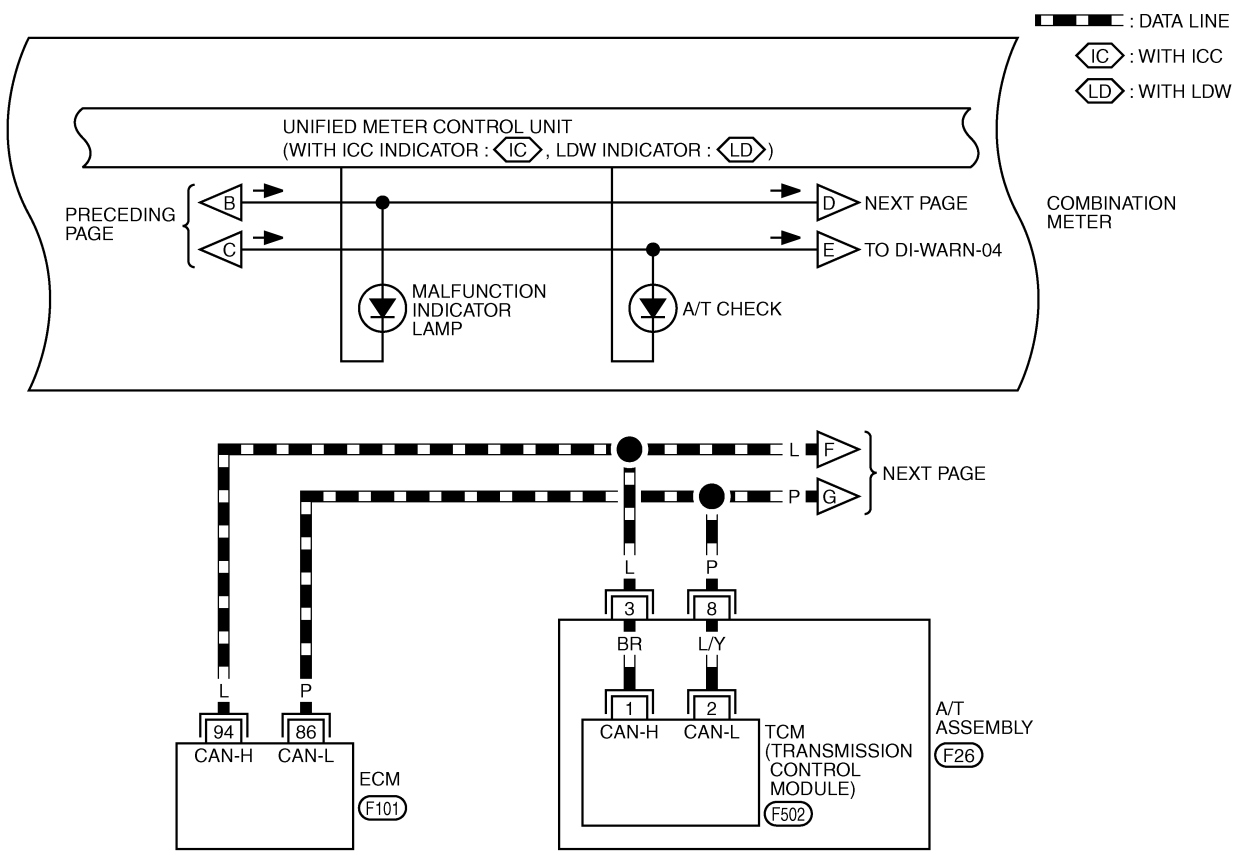


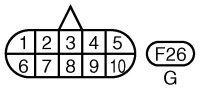


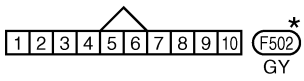
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3727E

DI-WARN-02





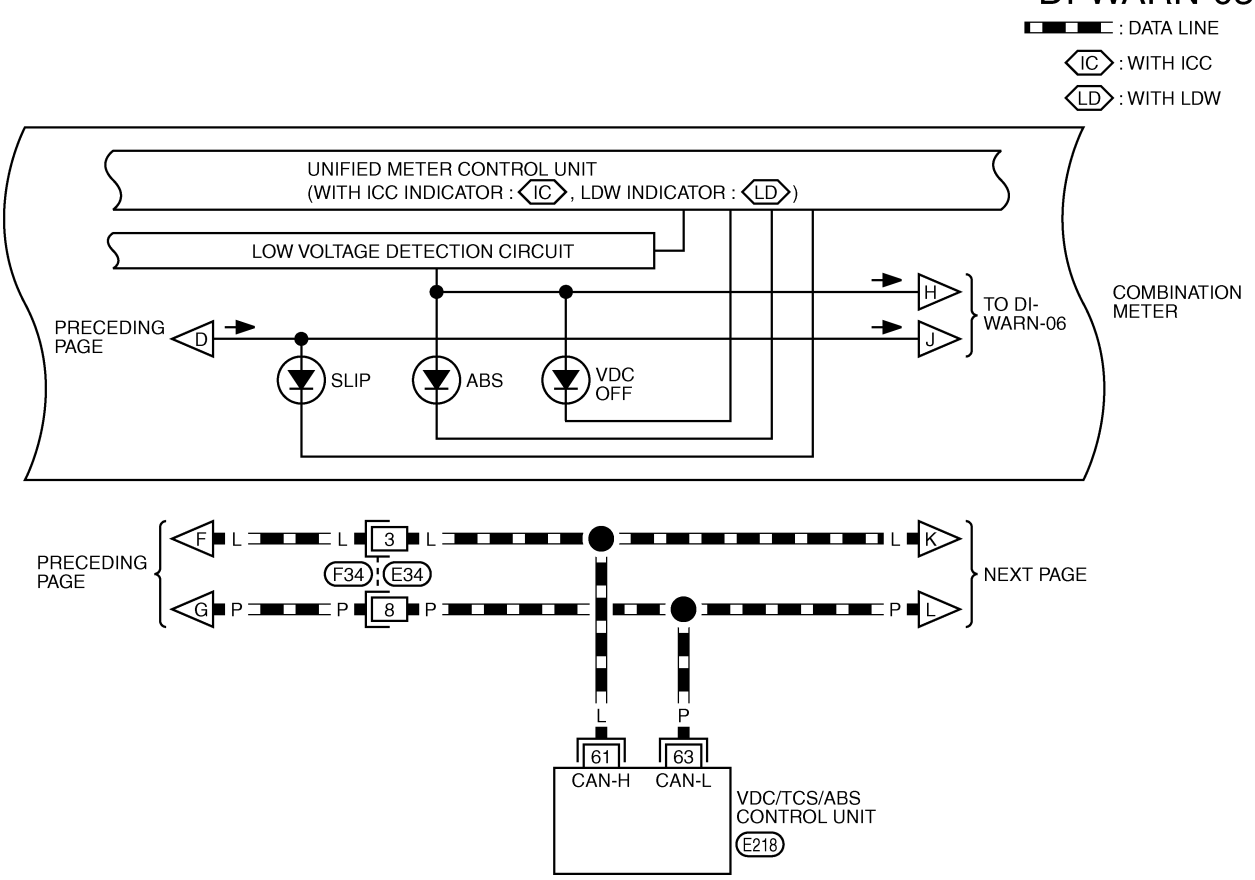


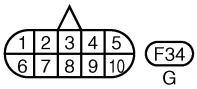
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
F101 -ELECTRICAL UNITS

TKWM3728E

DI-WARN-03

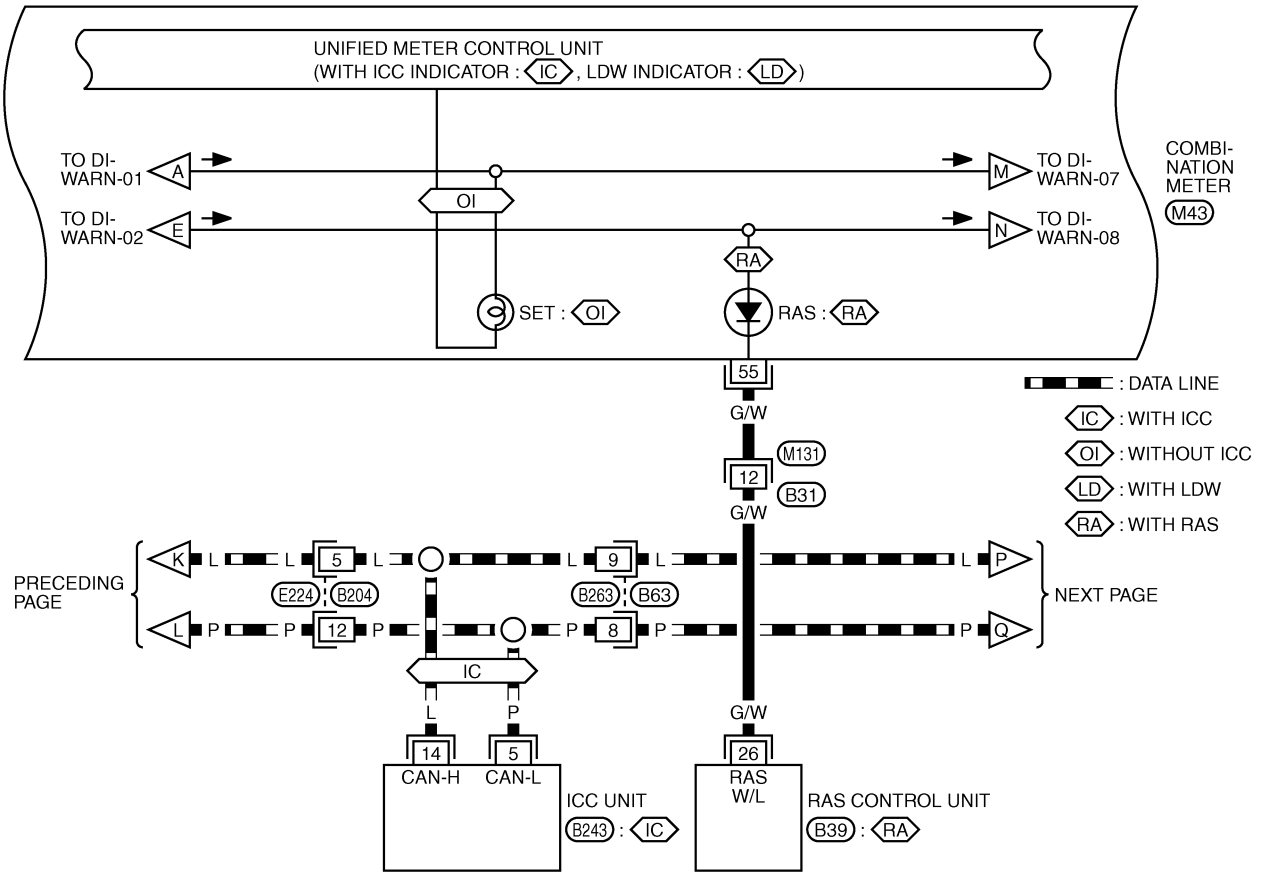


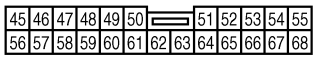


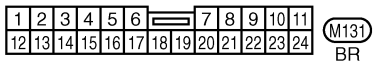
REFER TO THE FOLLOWING.
E218 -ELECTRICAL UNITS

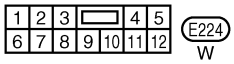
TKWM3729E

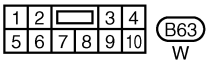
DI-WARN-04





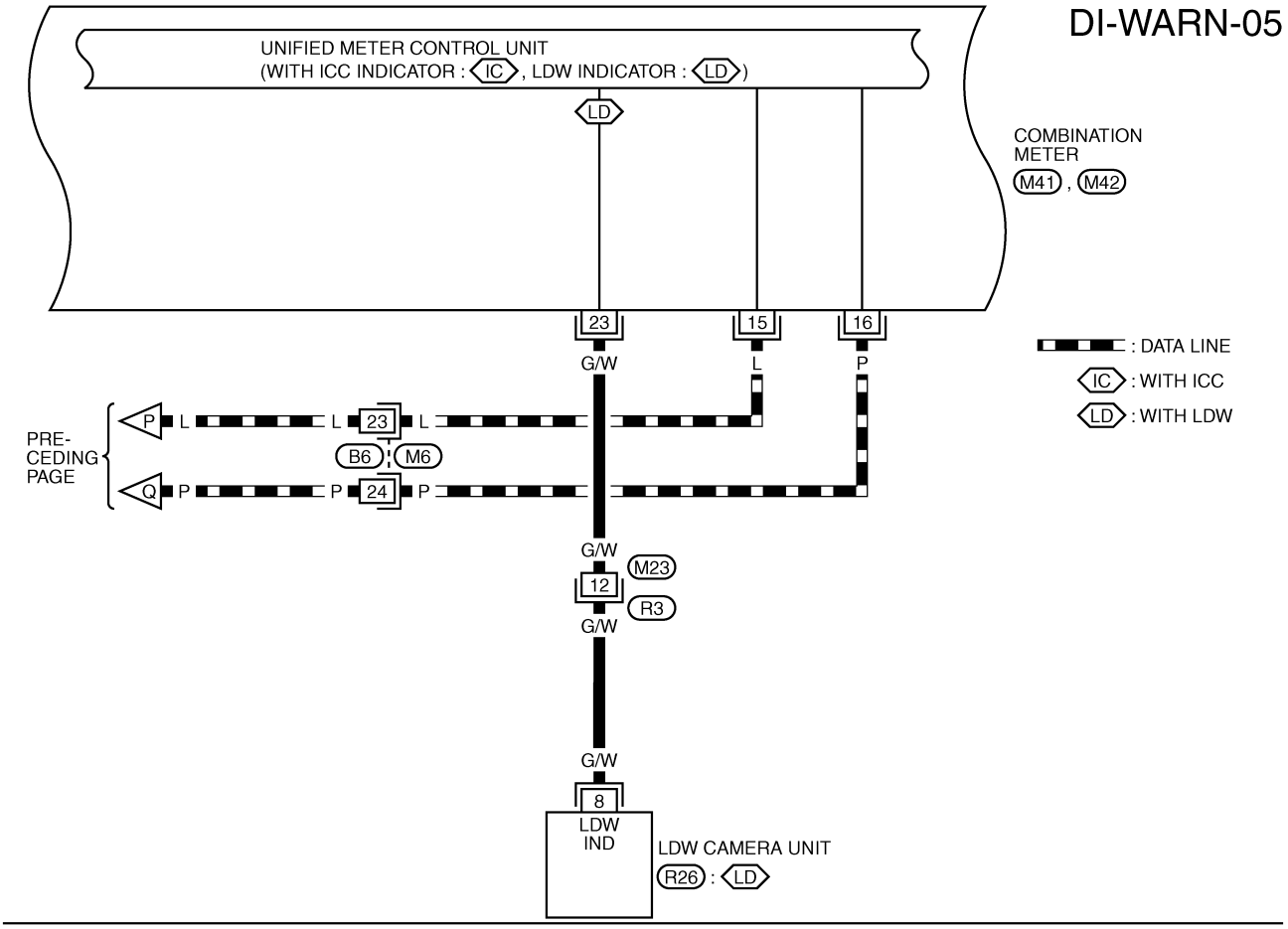


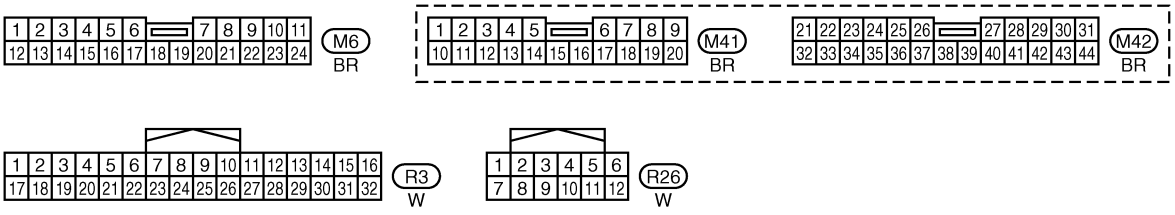




REFER TO THE FOLLOWING.
B39, B243 -ELECTRICAL UNITS

TKWM3730E

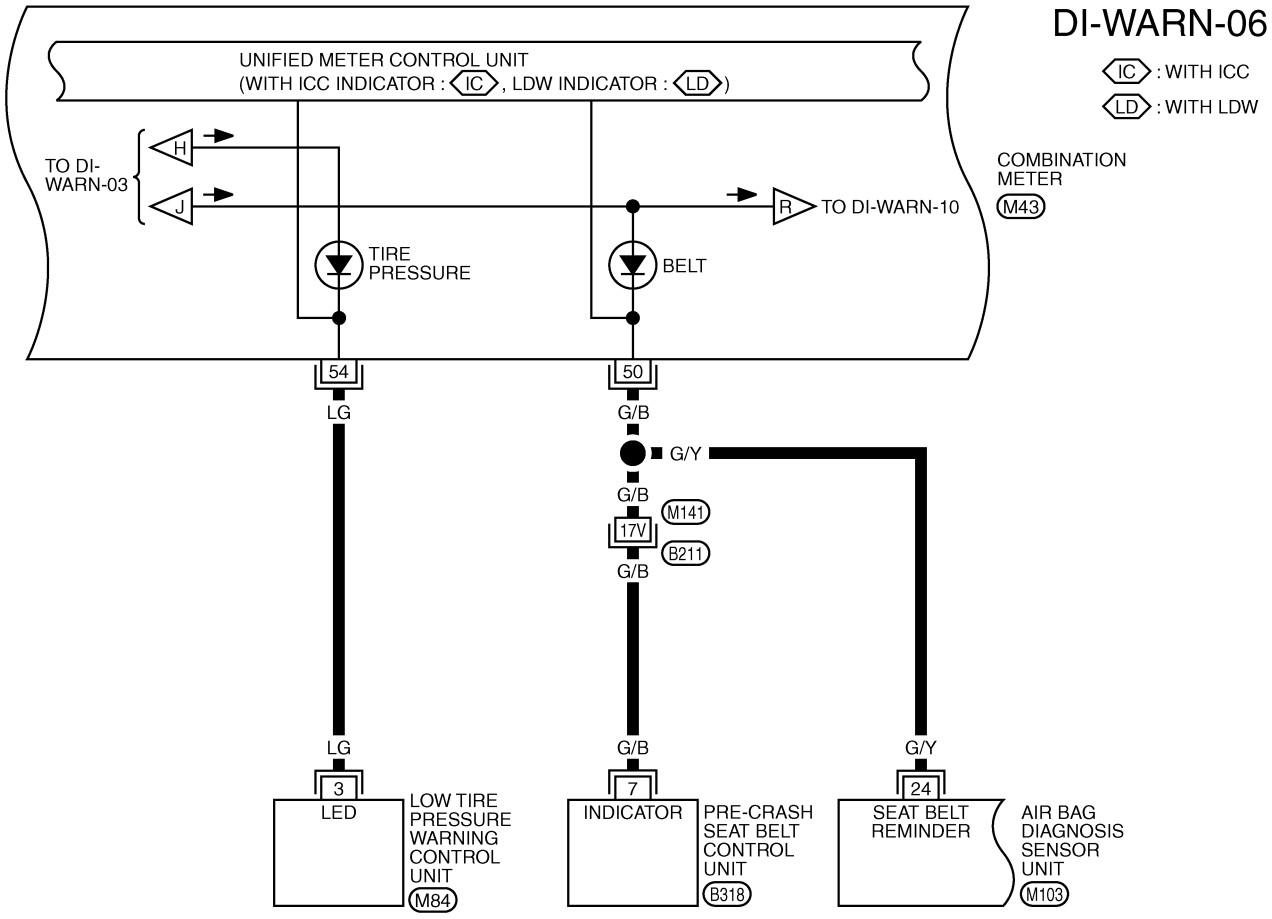

DI-WARN-05
UNIFIED METER CONTROL UNIT
(WITH ICC INDICATOR : IC , LDW INDICATOR : LD)
LD
COMBINATION METER
M41 , M42
23
15
16
G/W
L
P
: DATA LINE
IC : WITH ICC
LD : WITH LDW
PRE-CEDING PAGE
P
Q
L
P
23
24
B6
M6
G/W
M23
12
R3
G/W
G/W
8
LDW IND
LDW CAMERA UNIT
R26 : LD

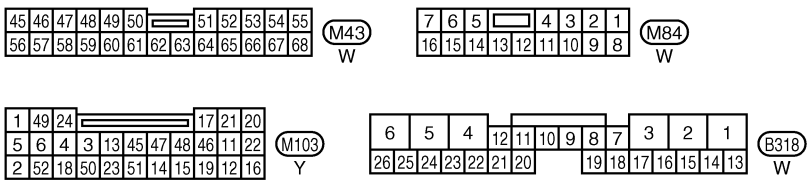

M6
BR
M41
BR
M42
BR

R3
W
R26
W

TKWM3731E

DI-WARN-06

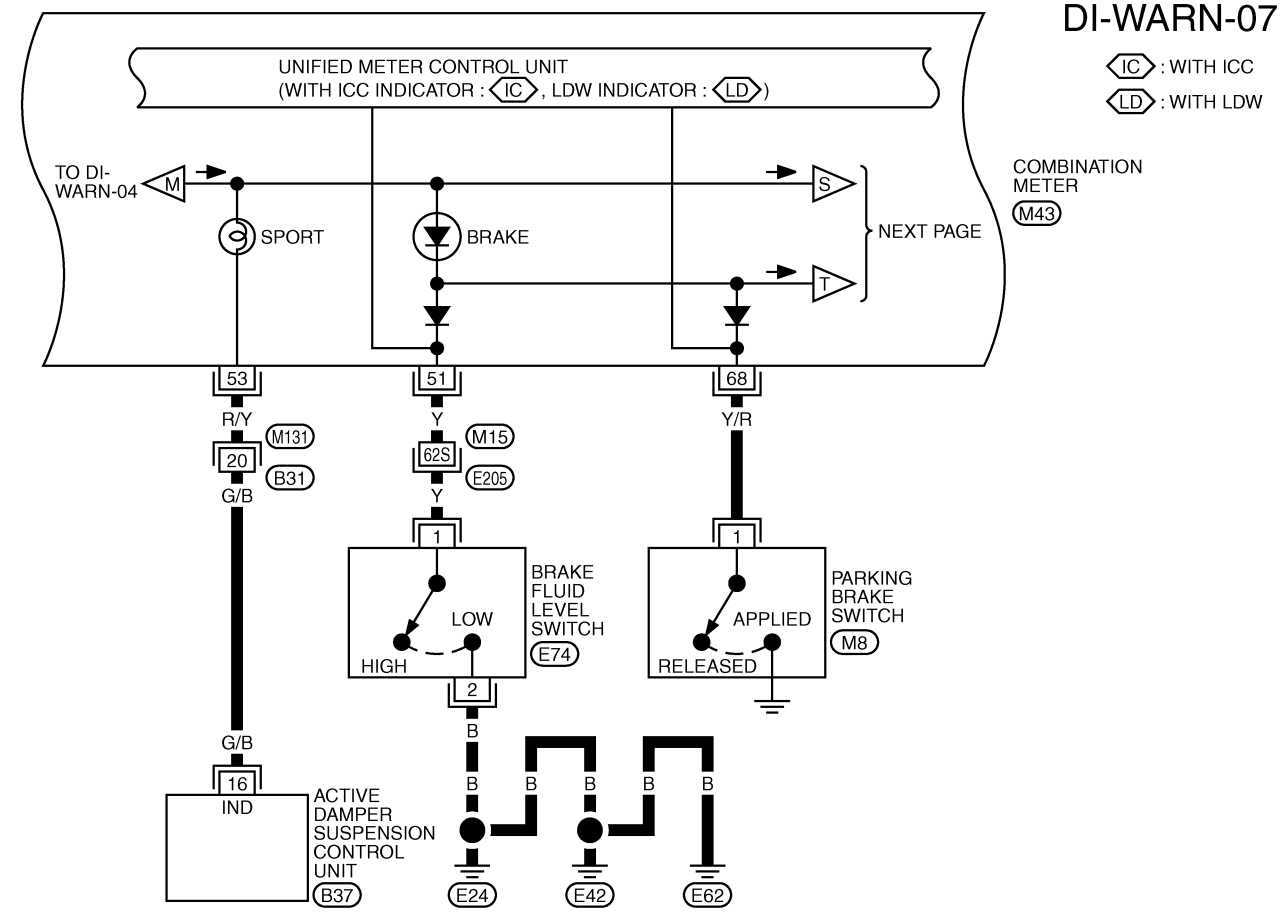


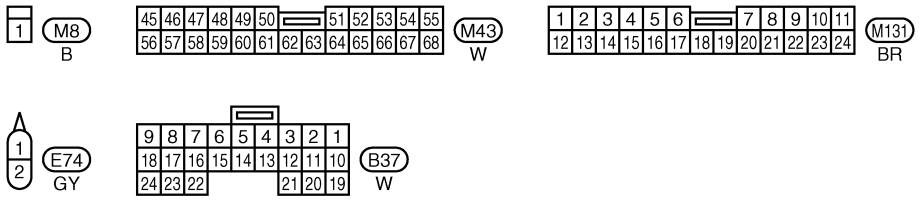


REFER TO THE FOLLOWING.
B211 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3732E

DI-WARN-07

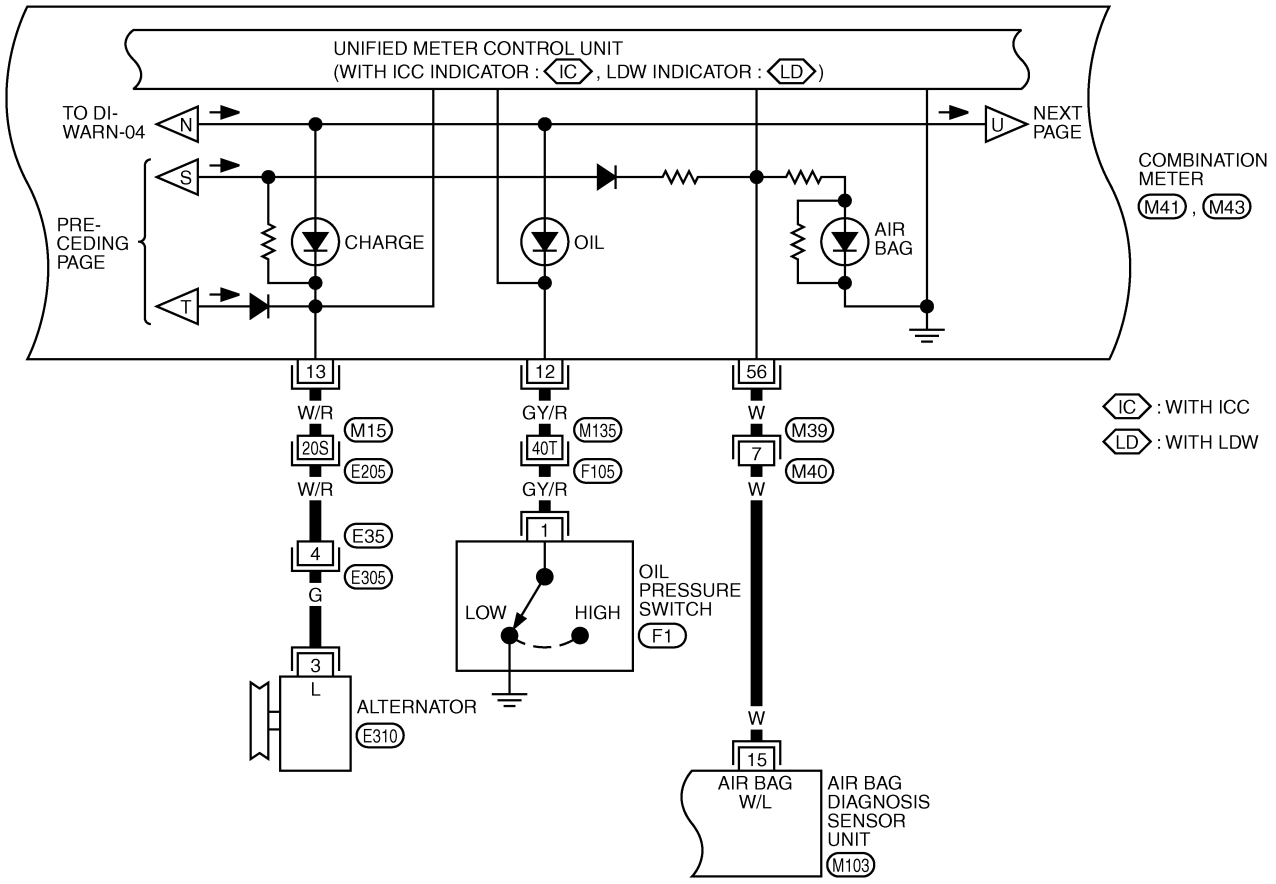


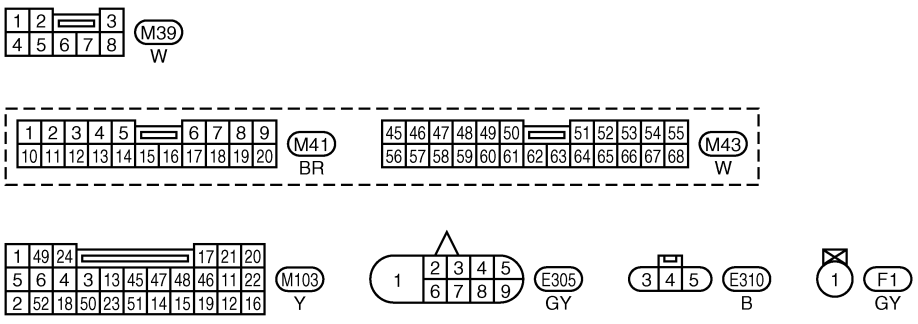


REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3733E

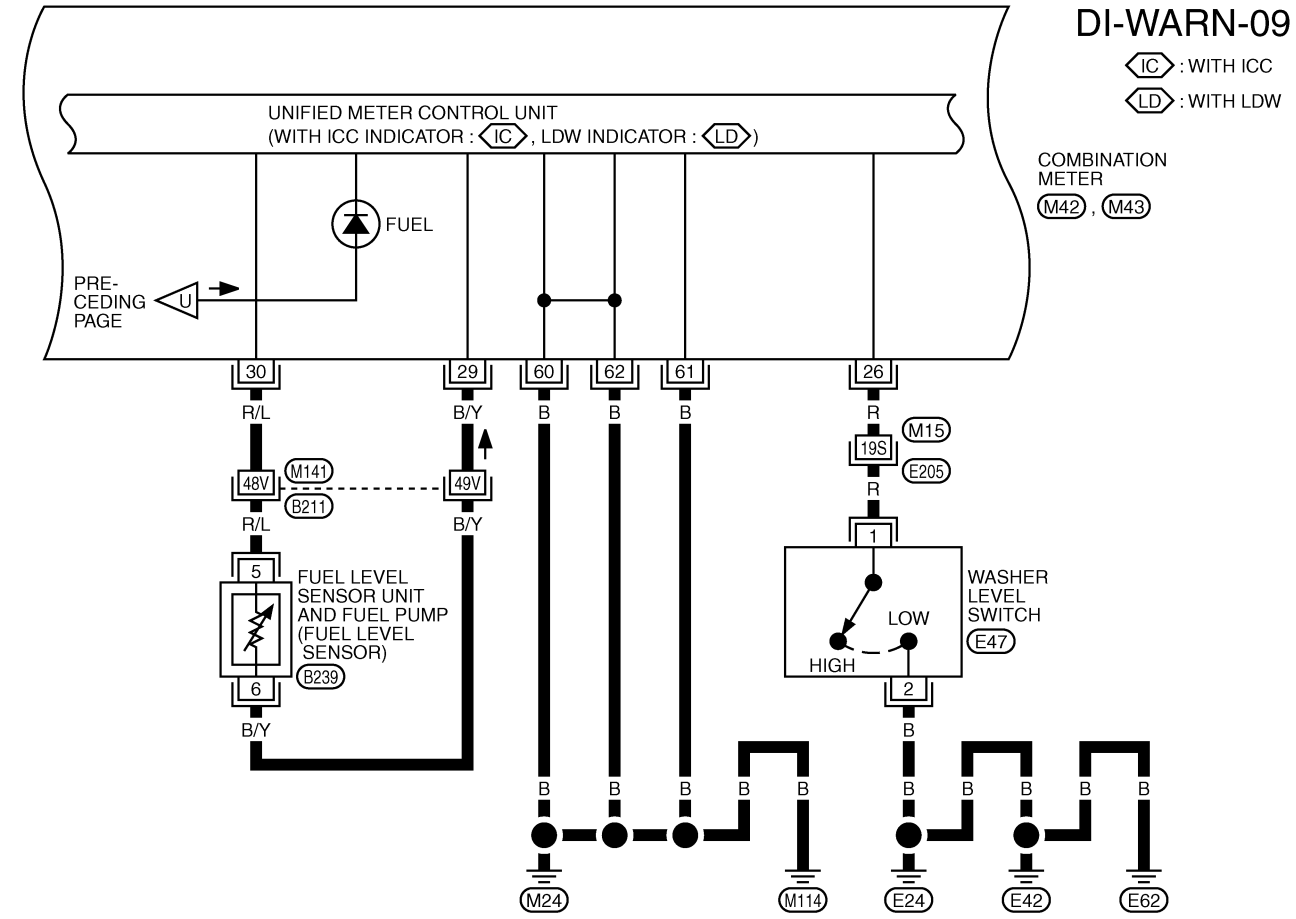
DI-WARN-08

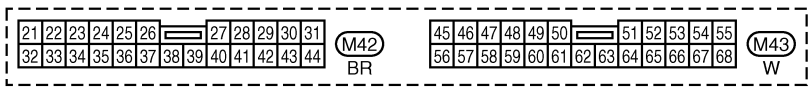


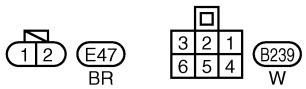


REFER TO THE FOLLOWING.
E205 , F105 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3734E

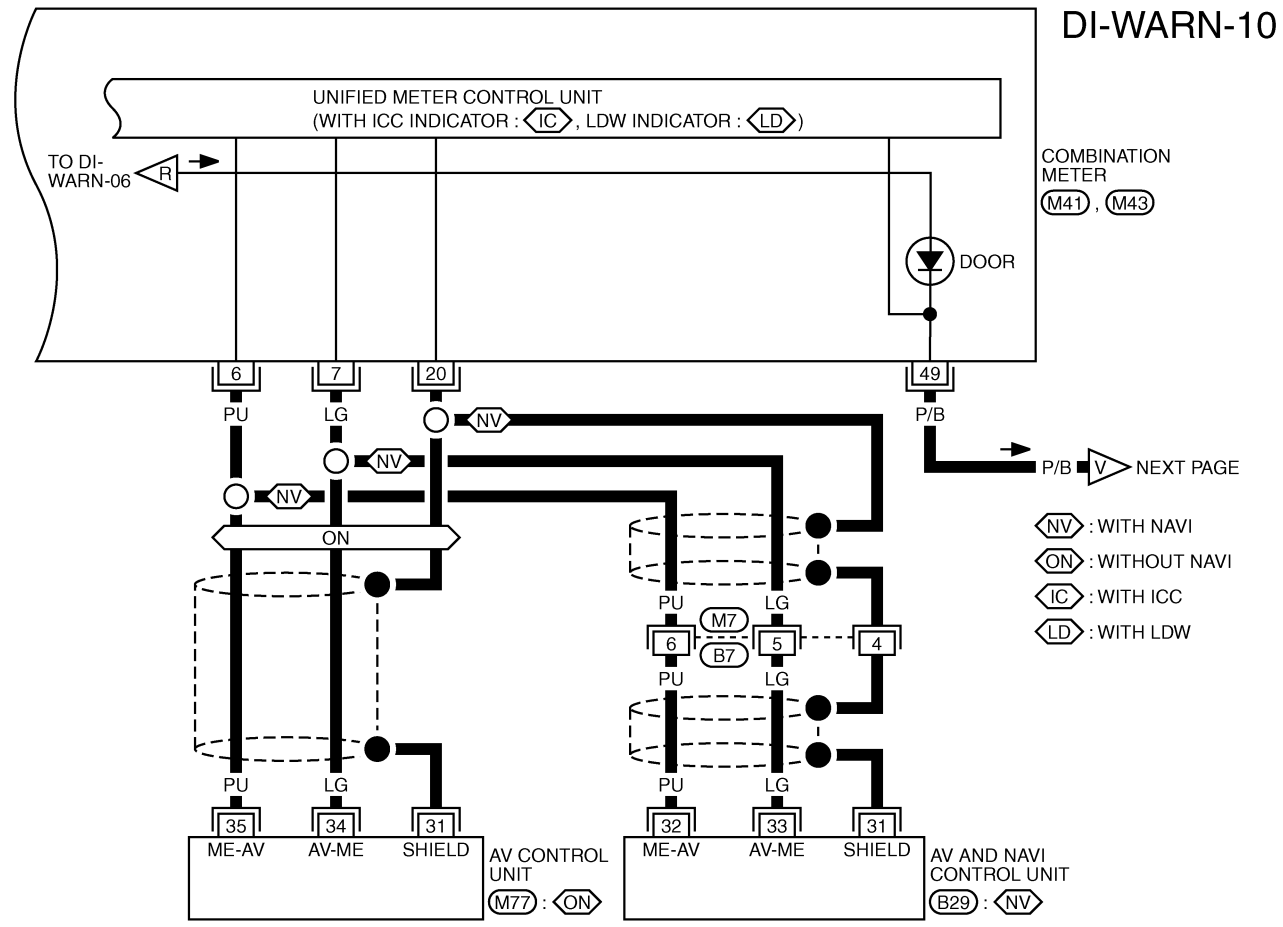


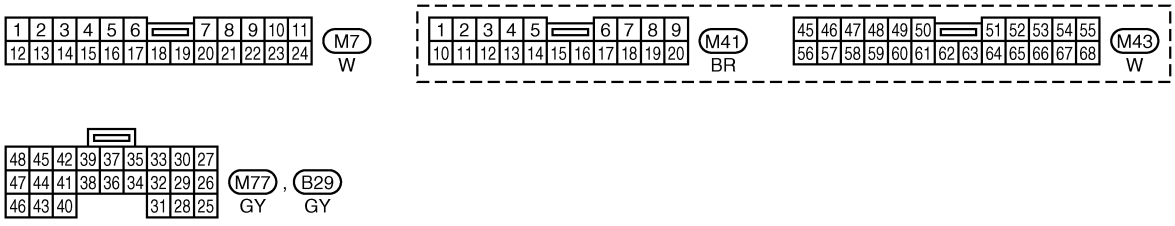




REFER TO THE FOLLOWING.
E205, B211 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3735E

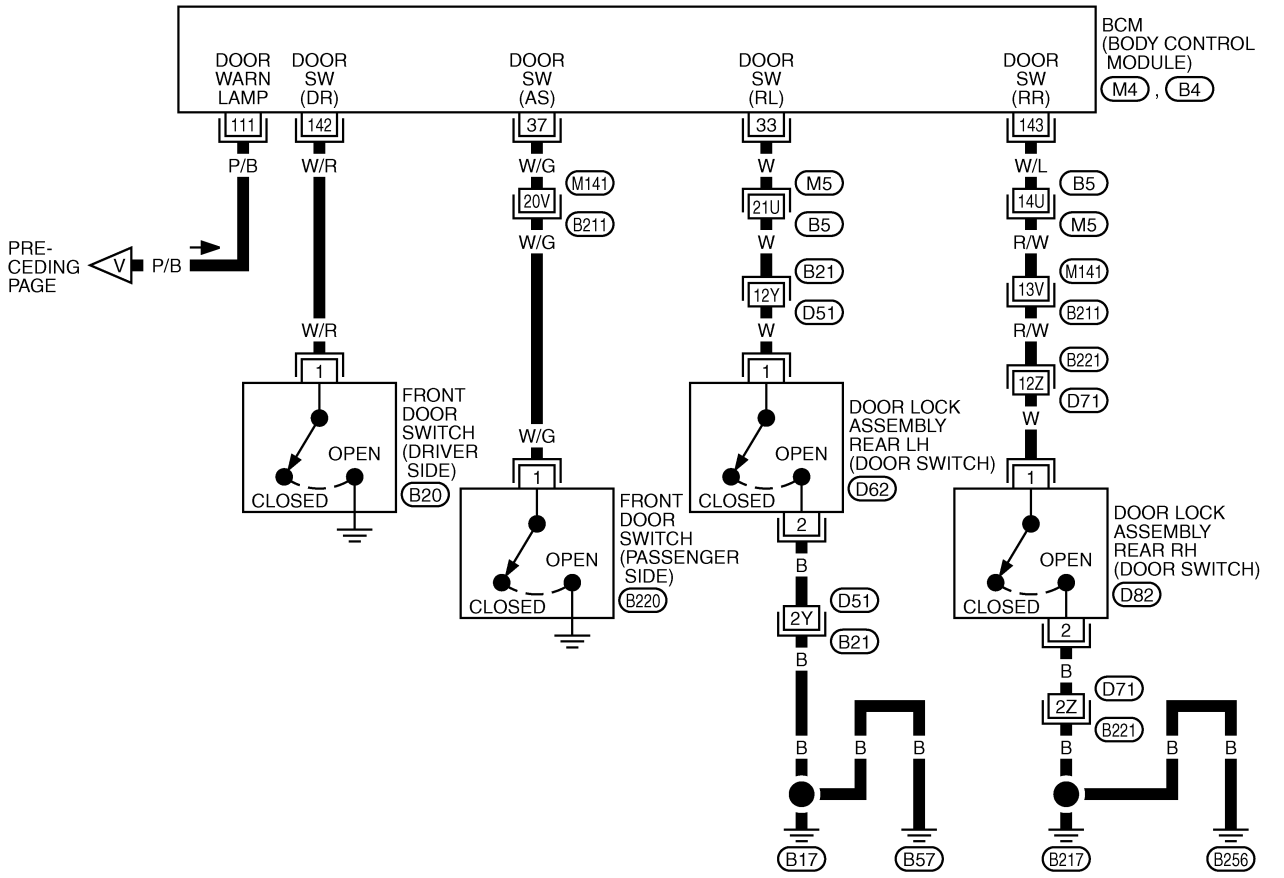

DI-WARN-10
UNIFIED METER CONTROL UNIT
(WITH ICC INDICATOR : IC, LDW INDICATOR : LD)
TO DI-WARN-06
R
COMBINATION METER
M41 , M43
DOOR
6
7
20
49
PU
LG
NV
P/B
P/B V NEXT PAGE
NV : WITH NAVI
ON : WITHOUT NAVI
IC : WITH ICC
LD : WITH LDW
ON
M7
B7
35
34
31
32
33
ME-AV
AV-ME
SHIELD
AV CONTROL UNIT
M77 : ON
AV AND NAVI CONTROL UNIT
B29 : NV

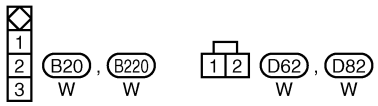

M7
W
M41
BR
M43
W

M77 , B29
GY GY

TKWM3736E

DI-WARN-11





REFER TO THE FOLLOWING.
M5 , B21 , B211 , B221
-SUPER MULTIPLE JUNCTION (SMJ)
M4 , B4 -ELECTRICAL UNITS

TKWM3737E

Terminals and Reference Value for BCM

NKS001BQ

Terminal No.	Wire color	Item	Condition		Reference value (Approx.)
			Ignition switch	Operation	
33	W	Rear door switch (LH)	OFF	Rear door LH is open.	0 V
				Rear door LH is closed.	12 V
37	W/G	Passenger door switch	OFF	Passenger door is open.	0 V
				Passenger door is closed.	12 V
111	P/B	Door warning lamp	OFF	Any door is open.	0 V
				Any door is closed.	12 V
142	W/R	Driver door switch	OFF	Driver door is open.	0 V
				Driver door is closed.	12 V
143	W/L	Rear door switch (RH)	OFF	Rear door RH is open.	0 V
				Rear door RH is closed.	12 V

CONSULT-II Function (IVMS)

NKS001BR

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

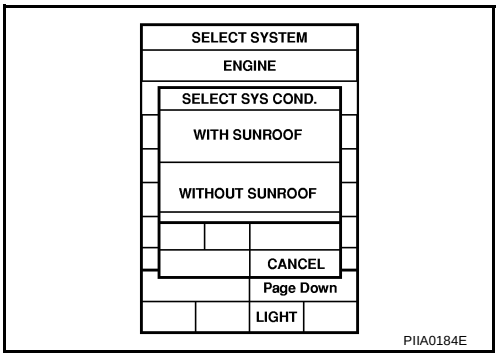
DIAGNOSTIC ITEMS DESCRIPTION

IVMS diagnosis position	Diagnosis mode	Description
DOOR OPEN WARNING	DATA MONITOR	The input data to the BCM control unit is displayed in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM PART NUMBER		Displays BCM part number.

CONSULT-II OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

1. Check the model specification, touch either “WITH SUNROOF” or “WITHOUT SUNROOF”.
2. Touch “OK”. If the selection is wrong, touch “CANCEL”.
3. Select the desired part to be diagnosed on the “SELECT TEST ITEM” screen.



DATA MONITOR

Operation Procedure

1. Touch “DOOR OPEN WARNING” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	Monitors the all items.
SELECTION FROM MENU	Selects and monitors the items.

4. If “SELECTION FROM MENU” is selected, touch the desired monitor item. If “ALL SIGNALS” is selected, the main item required to control is monitored.
5. Touch “START”.
6. During monitoring, touching “COPY” can start recording the monitor item status.

Data Monitor Item

Monitored item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch (driver side).
DOOR SW-AS	Indicates [ON/OFF] condition of front door switch (passenger side).
DOOR SW-RL	Indicates [ON/OFF] condition of rear door switch LH.
DOOR SW-RR	Indicates [ON/OFF] condition of rear door switch RH.

ACTIVE TEST

Operation Procedure

1. Touch “DOOR OPEN WARNING” on “SELECT TEST ITEM” screen.
2. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch the item to be tested, and check the operation.
4. During the operation check, touching “OFF” deactivates the operation.

Active Test Item

Test item	Description
DR OPN WARN LAMP	This test is able to check door warning lamp operation. Door warning lamp indicate when touch “ON” on CONSULT-II screen.

On Board Diagnosis

NKS001BS

ON BOARD DIAGNOSTIC RESULTS INDICATOR LAMP

- Map lamps and step lamps (all seats) act as the indicators for the on board diagnosis.

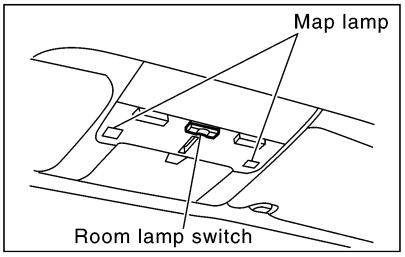
DIAGNOSIS ITEM

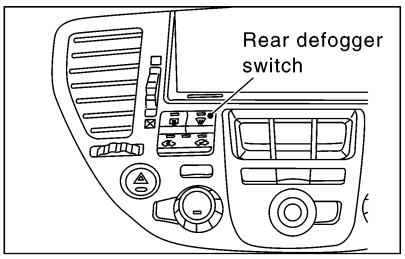
Diagnosis item	Description
Switch monitor	Monitoring conditions of switches connected to BCM.

SWITCH MONITOR

- Perform the diagnosis on the switch system to each control unit.

How to Perform Switch Monitor





Close all doors.

↓

Turn the room lamp switch to “NEUTRAL” position and put the selector lever in “P” position.

↓

Turn the ignition switch ON.

↓

Turn the ignition switch from ON to ACC.

↓

Press the rear defogger switch 10 times or more within 10 seconds after the ignition switch is turned to ACC.

↓

Indicator lamps (map lamp and step lamp) illuminate and stay on for 5 seconds to carry out bulb check.

↓

Turn the ignition switch from ACC to ON with the rear defogger switch held down while the indicator lamps are on.

↓

Diagnosis starts up.

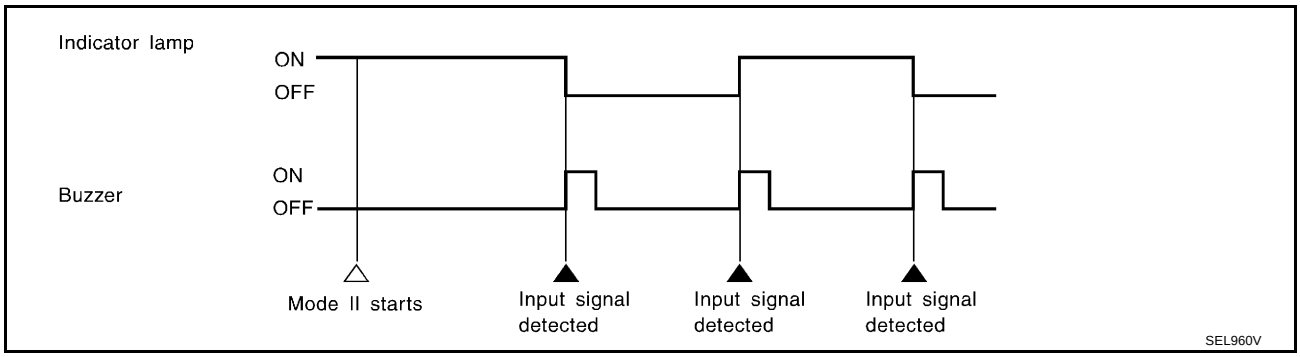
↓

Operate the switch to be checked.

PKIA7882E

Description

- In this mode, when BCM detects the input signal from a switch in IVMS as shown below, the detection is indicated by the map lamp and front step lamps with buzzer.



Switch Monitor Item

- The status of the switch (except the ignition switch, interior lamp switch, and map lamp switch) as input to each control unit can be monitored.

unit	monitored item
BCM	Front door switch (driver side)
	Front door switch (passenger side)
	Rear door switch LH
	Rear door switch RH

Cancel of Switch Monitor

- Turn ignition switch OFF.
- Drive the vehicle speed more than 7 km/h (4 MPH).

Trouble Diagnosis

NKS001BT

HOW TO PROCEED WITH TROUBLE DIAGNOSIS

1. Confirm the symptom or customer complaint.
2. Understand the outline of system. Refer to DI-26, "System Description" .
3. Referring to trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to DI-44, "SYMPTOM CHART" .
4. Does warning lamp system operate normally? If it operates normally, GO TO 5. If not, GO TO 3.
5. INSPECTION END

SYMPTOM CHART

Symptom	Diagnoses/Service procedure
● Door warning lamp does not illuminate with any of doors opened. ● Door warning lamp illuminates constantly.	Perform the following inspections. 1. DI-45, "Combination Meter Circuit Inspection" 2. DI-45, "Front Door Switch Inspection" 3. DI-47, "Rear Door Switch Inspection" Replace BCM, found normal function in the above inspections.

Combination Meter Circuit Inspection

NKS001BU

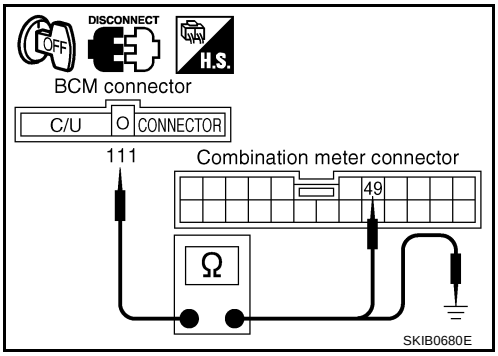
1. CHECK DOOR WARNING LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and combination meter connector.
3. Check continuity between BCM harness connector M4 terminal 111 and combination meter harness connector M43 terminal 49.

111 – 49 : Continuity should exist.

4. Check continuity between BCM harness connector M4 terminal 111 and ground.

111 – Ground : Continuity should not exist.



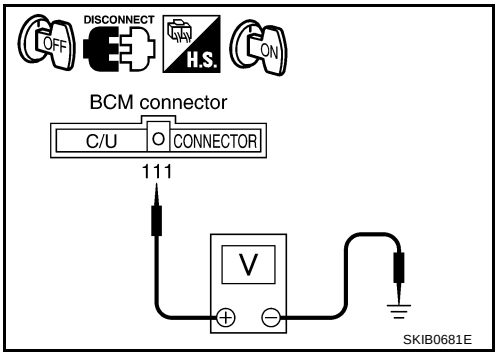
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK VOLTAGE OF COMBINATION METER

1. Connect combination meter connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M4 terminal 111 and ground.

111 – Ground : Approx. 12 V



OK or NG

OK >> Combination meter circuit is OK. Return to DI-44, "SYMPTOM CHART" .
NG >> Replace combination meter.

Front Door Switch Inspection

NKS001BV

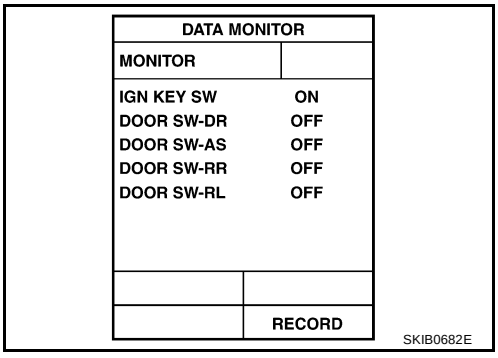
1. CHECK FRONT DOOR SWITCH OPERATION

With CONSULT-II

- Check front door switch “DOOR SW” in “DATA MONITOR” mode with CONSULT-II.

“DOOR SW-DR”
When driver door is open : ON
When driver door is closed : OFF

“DOOR SW-AS”
When passenger door is open : ON
When passenger door is closed : OFF



Without CONSULT-II

- Check front door switches in switch monitor mode. Refer to DI-43, "On Board Diagnosis" .

OK or NG

OK >> Front door switch is OK. Return to DI-44, "SYMPTOM CHART" .
NG 1: Driver door switch signal is irregular.>>GO TO 2.
NG 2: Passenger door switch signal is irregular.>>GO TO 3.

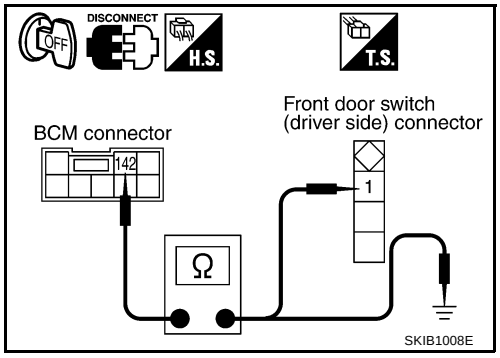
2. CHECK FRONT DOOR SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and front door switch (driver side) connector.
3. Check continuity between BCM harness connector B4 terminal 142 and front door switch (driver side) harness connector B20 terminal 1.

142 – 1 : Continuity should exist.

4. Check continuity between BCM harness connectors B4 terminal 142 and ground.

142 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

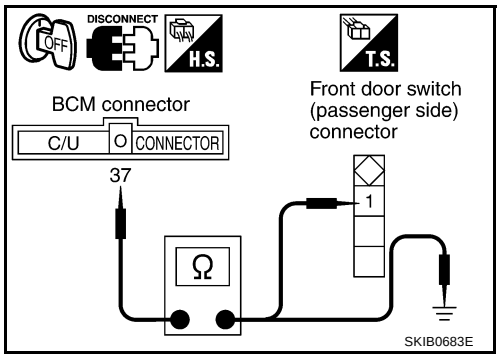
3. CHECK FRONT DOOR SWITCH (PASSENGER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and front door switch (passenger side) connector.
3. Check continuity between BCM harness connector M4 terminal 37 and front door switch (passenger side) harness connector B220 terminal 1.

37 – 1 : Continuity should exist.

4. Check continuity between BCM harness connectors M4 terminal 37 and ground.

37 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

4. CHECK FRONT DOOR SWITCH

Check front door switch. Refer to DI-48, "FRONT DOOR SWITCH" .

OK or NG

OK >> Replace BCM.
NG >> Replace front door switch.

Rear Door Switch Inspection

NKS001BW

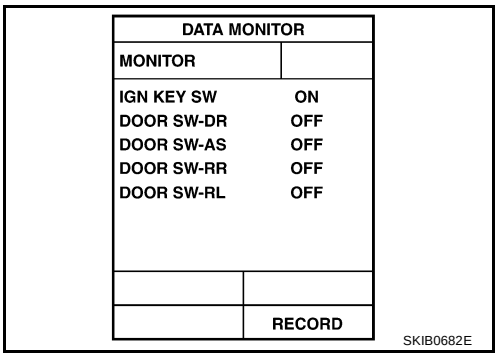
1. CHECK REAR DOOR SWITCH OPERATION

With CONSULT-II

- Check rear door switch “DOOR SW” in “DATA MONITOR” mode with CONSULT-II.

“DOOR SW-RR”
When rear door RH is open : ON
When rear door RH is closed : OFF

“DOOR SW-RL”
When rear door LH is open : ON
When rear door LH is closed : OFF



Without CONSULT-II

- Check rear door switches in switch monitor mode. Refer to DI-43, "On Board Diagnosis" .

OK or NG

OK >> Rear door switch is OK. Return to DI-44, "SYMPTOM CHART" .
NG 1: Rear door switch RH signal is irregular.>>GO TO 2.
NG 2: Rear door switch LH signal is irregular.>>GO TO 3.

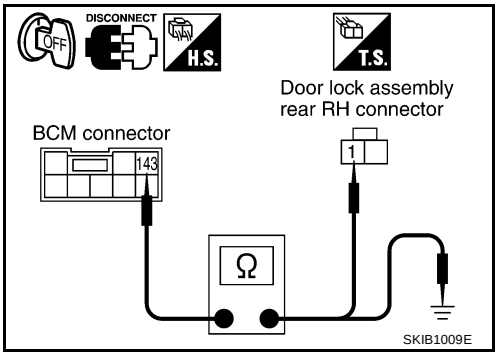
2. CHECK REAR DOOR SWITCH (RH) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and door lock assembly rear RH (door switch) connector.
3. Check continuity between BCM harness connector B4 terminal 143 and door lock assembly rear RH (door switch) harness connector D82 terminal 1.

143 – 1 : Continuity should exist.

4. Check continuity between BCM harness connector B4 terminal 143 and ground.

143 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

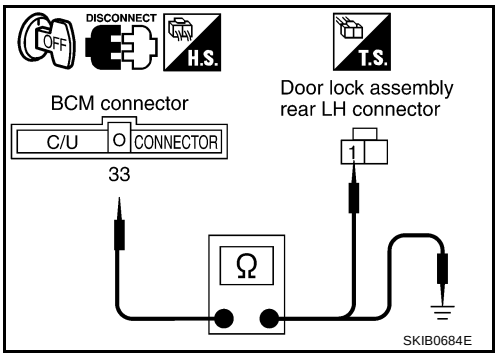
3. CHECK REAR DOOR SWITCH (LH) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and door lock assembly rear LH (door switch) connector.
3. Check continuity between BCM harness connector M4 terminal 33 and door lock assembly rear LH (door switch) harness connector D62 terminal 1.

33 – 1 : Continuity should exist.

4. Check continuity between BCM harness connector M4 terminal 33 and ground.

33 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

4. CHECK REAR DOOR SWITCH

Check continuity between door lock assembly rear (door switch) connector D62 or D82 terminals 1 and 2.

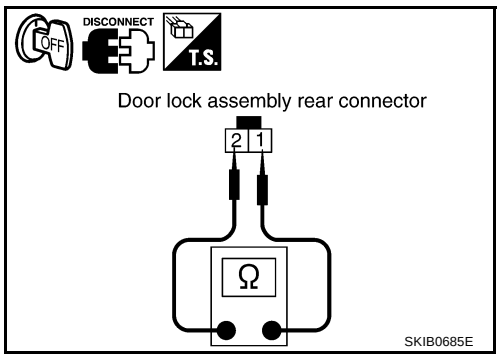
1 – 2

When rear door is open : Continuity should exist.

When rear door is close : Continuity should not exist.

OK or NG

OK >> GO TO 5.
NG >> Replace door lock assembly rear (door switch).



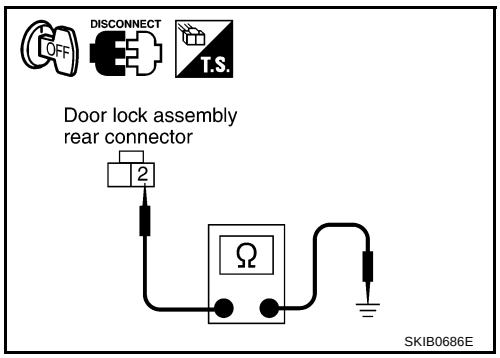
5. CHECK REAR DOOR SWITCH GROUND CIRCUIT

Check continuity between door lock assembly rear (door switch) harness connector D62 or D82 terminal 2 and ground.

2 – Ground : Continuity should exist.

OK or NG

OK >> Replace BCM.
NG >> Check ground harness.



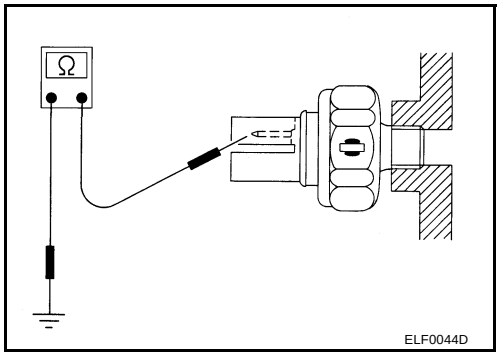
Electrical Components Inspection

NKS001BX

OIL PRESSURE SWITCH

Check continuity between the oil pressure switch and ground.

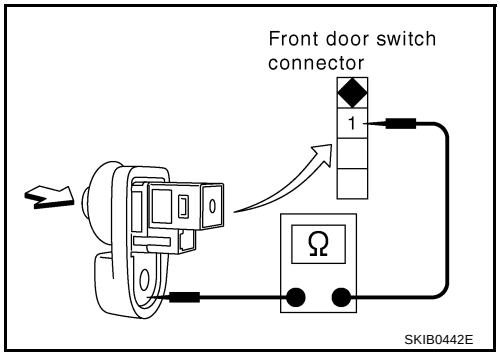
Condition	Oil pressure kPa (kg/cm^2 , psi)	Continuity
Engine stopped	Less than 29 (0.3, 4)	Yes
Engine running	More than 29 (0.3, 4)	No



FRONT DOOR SWITCH

Check continuity between terminal 1 and door switch case ground.

terminal		Condition	Continuity
1	Door switch case ground	When door switch is released	Yes
		When door switch is pressed	No

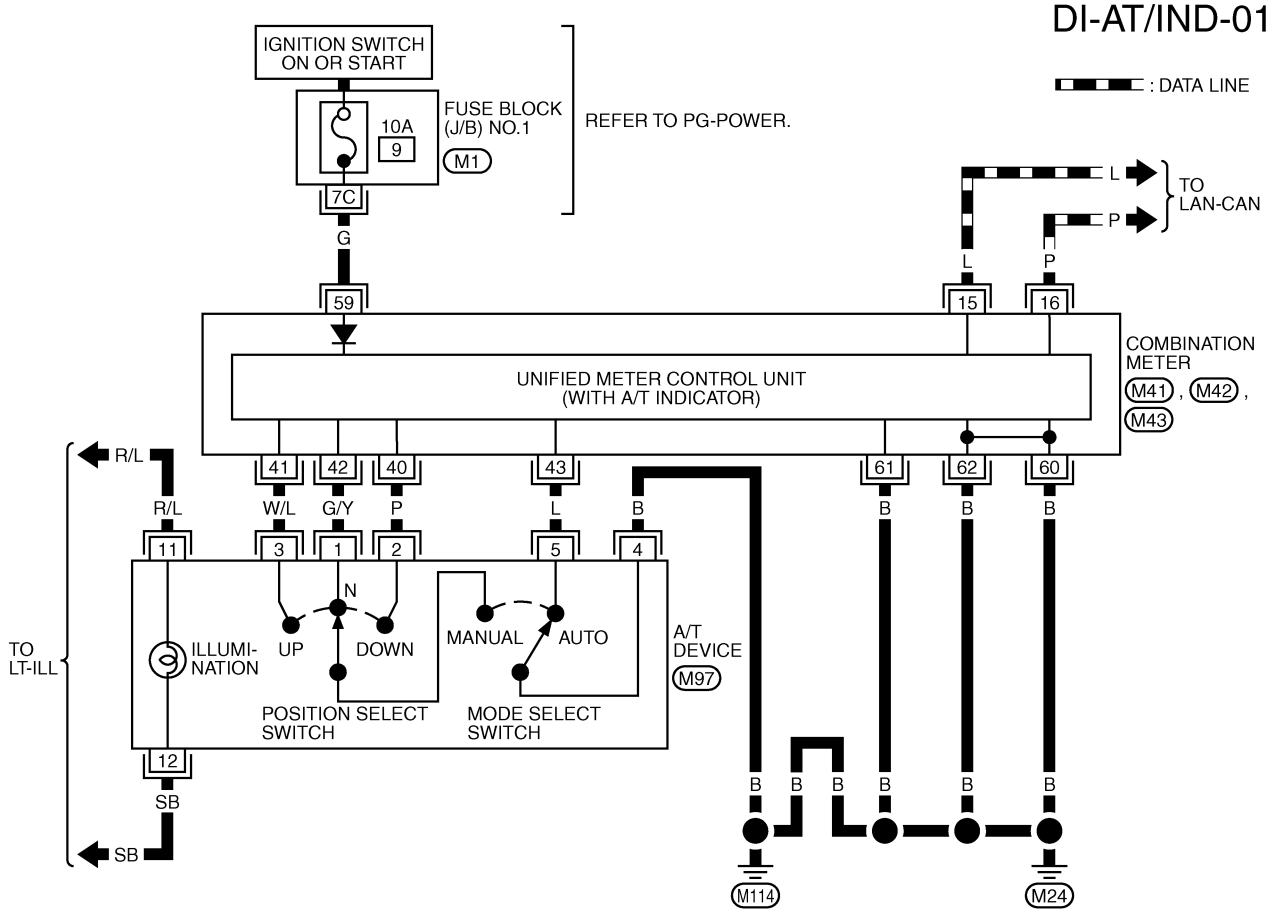


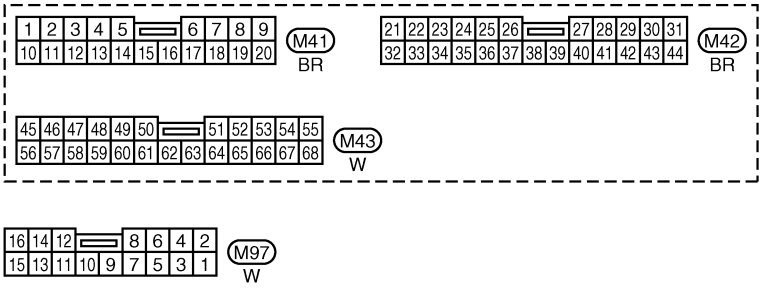
A/T INDICATOR

PFP:24814

Wiring Diagram — AT/IND —

NKS001BY





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1551E

A/T Indicator Does Not Illuminate

NKS001BZ

1. CHECK OPERATION OF A/T INDICATOR SEGMENT

Activate self-diagnosis mode of combination meter. Refer to DI-16, "Self-Diagnosis Mode of Combination Meter" .

Are all A/T indicator segments displayed?

YES >> GO TO 2.
NO >> Replace combination meter.

2. CHECK TCM SYSTEM

Perform TCM self-diagnosis. Refer to AT-85, "CONSULT-II Function (A/T)" in AT section.

OK or NG

OK >> Replace combination meter.
NG >> Perform “Diagnosis Procedure” for displayed DTC.

WARNING CHIME

PFP:24814

System Description

NKS001C0

FUNCTION

Item	Description
Ignition key warning chime	Sounds warning chime when driver door is opened with key in ignition key cylinder (ignition switch “OFF” or “ACC” position).
Light warning chime	Sounds warning chime when driver door is opened with lighting switch in the 1st or 2nd position and ignition switch “OFF” or “ACC” position.
Seat belt warning chime	Sounds warning chime for about 6 seconds if ignition switch is turned “ON” when driver seat belt is unfastened.

MAJOR COMPONENT PARTS AND FUNCTION

Components	Functions
BCM	It operates the warning chime intermittently by signals from the ignition switch, key-in detection switch, lighting switch, or front door switch (driver side).
Warning chime	It generates intermittent sounds by signals from the BCM.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 10A fuse [No. 3, located in the fuse block (J/B) No. 1]
- to BCM terminal 105,
- through 10A fuse [No. 6, located in the fuse block (J/B) No. 1]
- to warning chime terminal 1
- through warning chime terminal 3
- to BCM terminal 12,
- through 10A fuse [No. 32, located in the fuse block (J/B) No. 2]
- to key switch and key lock solenoid (key switch) terminal 3,
- through 15A fuse [No. 54, located in the fuse, fusible link and relay block (J/B)]
- to tail lamp relay terminals 2 and 6 [located in fuse, fusible link and relay block (J/B)].

With ignition switch in ON or START position, power is supplied

- through 10A fuse [No. 1, located in the fuse block (J/B) No. 1]
- to BCM terminal 68.

Ground is supplied

- to BCM terminals 56 and 113
- through grounds M24 and M114.

IGNITION KEY WARNING CHIME

- BCM reads ON/OFF signals from key switch and key lock solenoid (key switch).

Signal is supplied

- from key switch and key lock solenoid (key switch) terminal 4
- to BCM terminal 69.

- BCM reads ON/OFF signals from front door switch (driver side).

Signal is supplied

- from front door switch (driver side) terminal 1.
- to BCM terminal 142

- BCM detects key switch ON, front door switch (driver side) ON and ignition switch OFF or ACC. And then BCM outputs the ignition key warning chime signal to the warning chime.

Signal is supplied

- from BCM terminal 12
- to warning chime terminal 3.

LIGHT WARNING CHIME

- BCM reads ON/OFF signals from tail lamp relay.

Signal is supplied

- from tail lamp relay terminal 7
- to BCM terminal 3.

- BCM reads ON/OFF signals from front door switch (driver side).

Signal is supplied

- from front door switch (driver side) terminal 1.
- to BCM terminal 142

- BCM detects tail lamp ON, front door switch (driver side) ON and ignition switch OFF or ACC. And then BCM outputs the light warning chime signal to the warning chime.

Signal is supplied

- from BCM terminal 12
- to warning chime terminal 3.

SEAT BELT WARNING CHIME

- BCM reads ON/OFF signals from seat belt buckle switch (driver side).

Signal is supplied

- from seat belt buckle switch (driver side) terminal 41
- to BCM terminal 147.

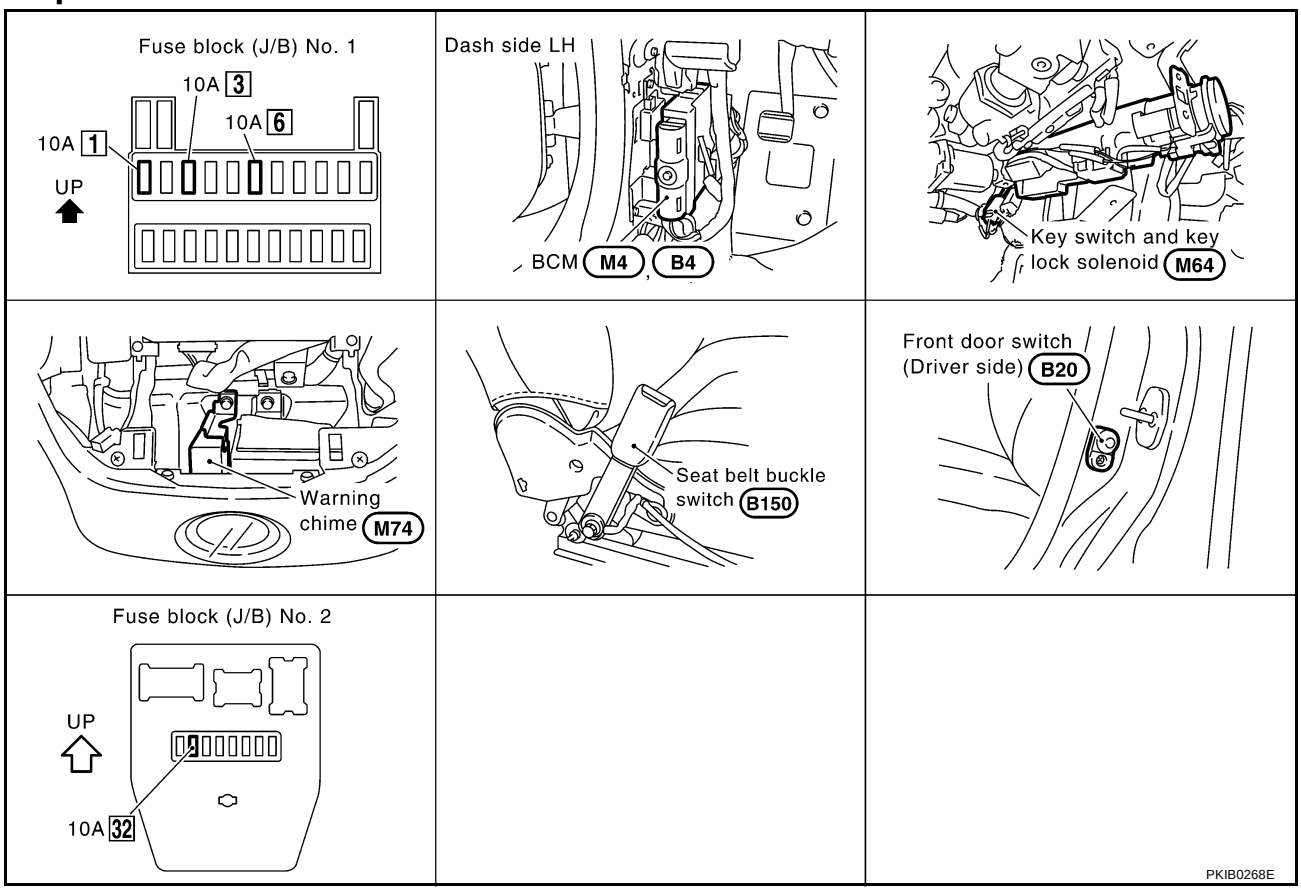
- When ignition switch turned ON, BCM detects the driver side seat belt unfastened (seat belt switch ON). And then BCM outputs the seat belt warning chime signal to the warning chime.

Signal is supplied

- from BCM terminal 12
- to warning chime terminal 3.

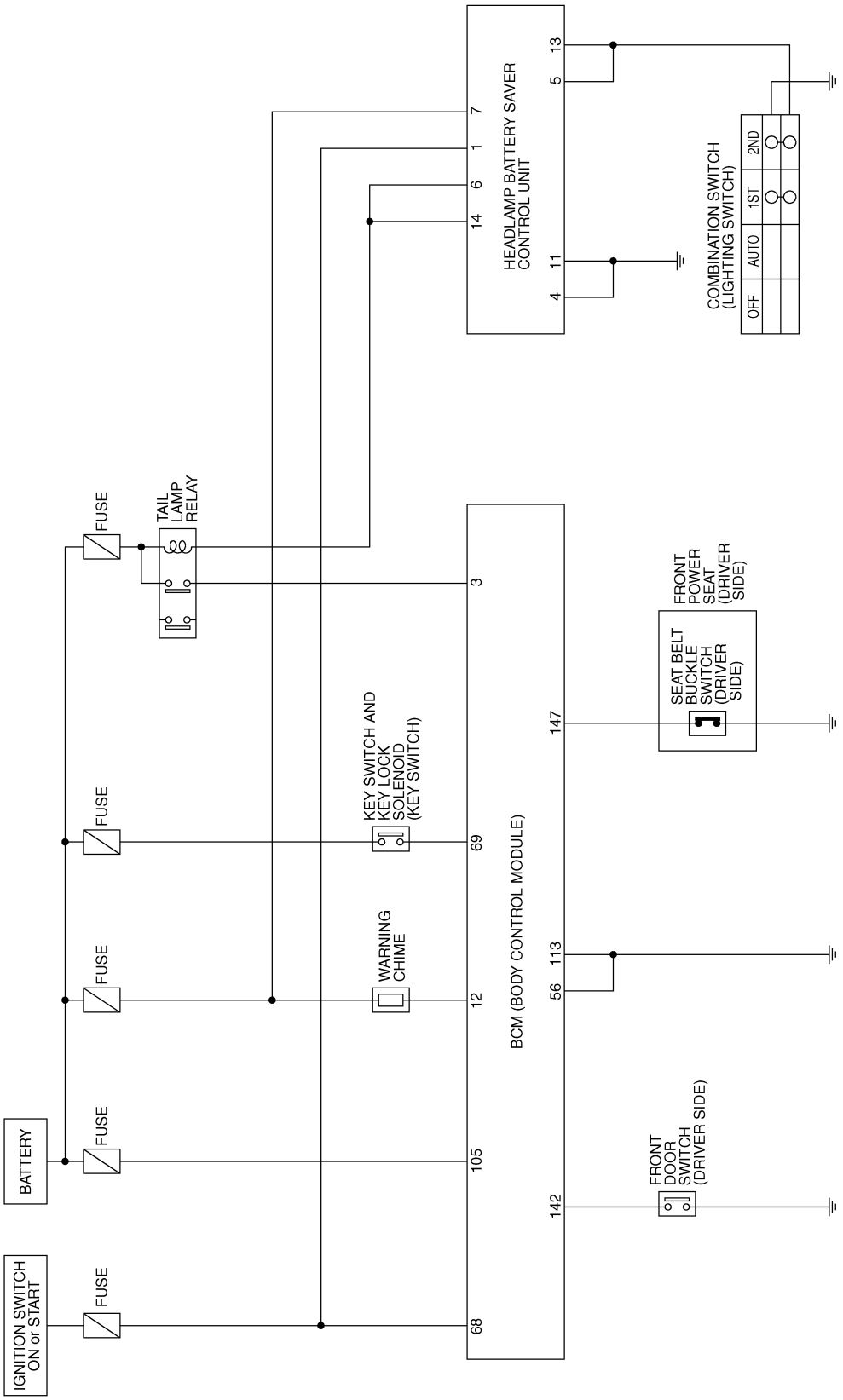
Component Parts and Harness Connector Location

NKS001C1



Schematic

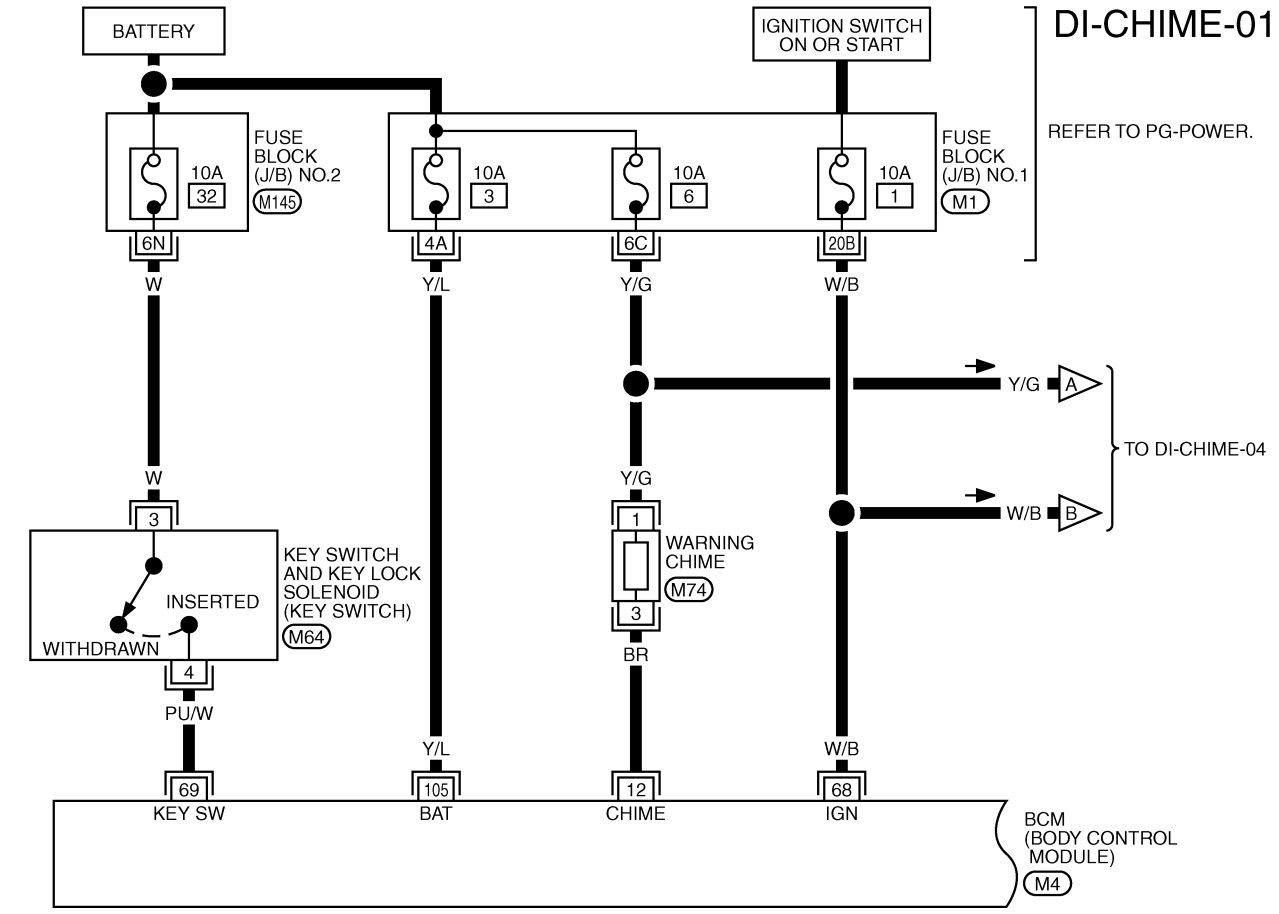
NKS001C2



TKWM0533E

Wiring Diagram — CHIME —

NKS001C3



REFER TO THE FOLLOWING.

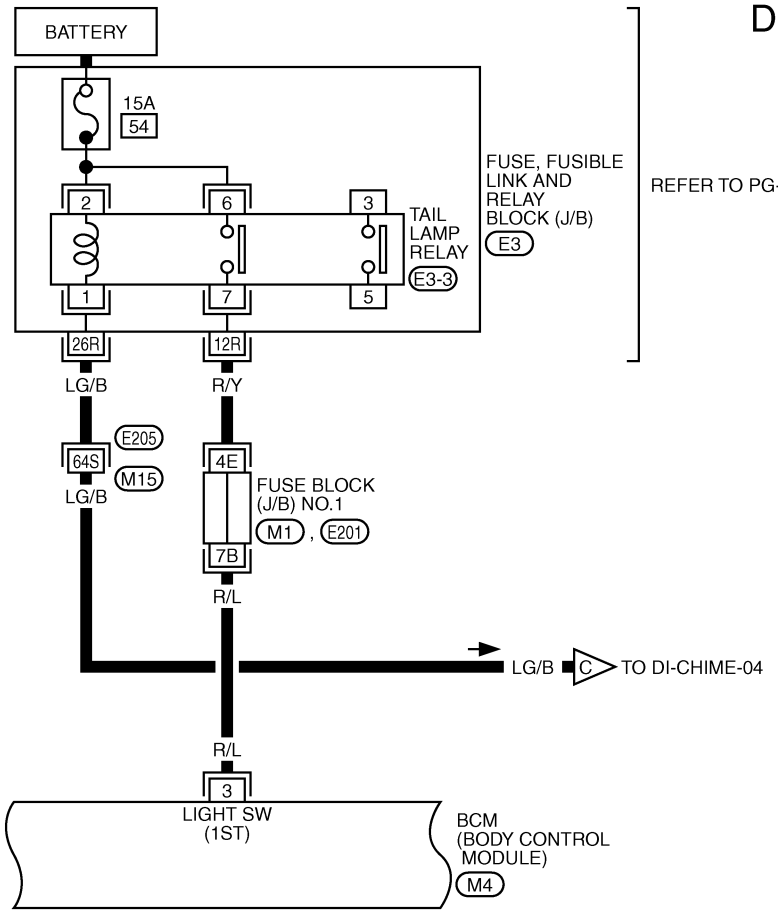
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

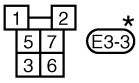
M145 -FUSE BLOCK-JUNCTION BOX (J/B) NO.2

M4 -ELECTRICAL UNITS

TKWM3738E

DI-CHIME-02





*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

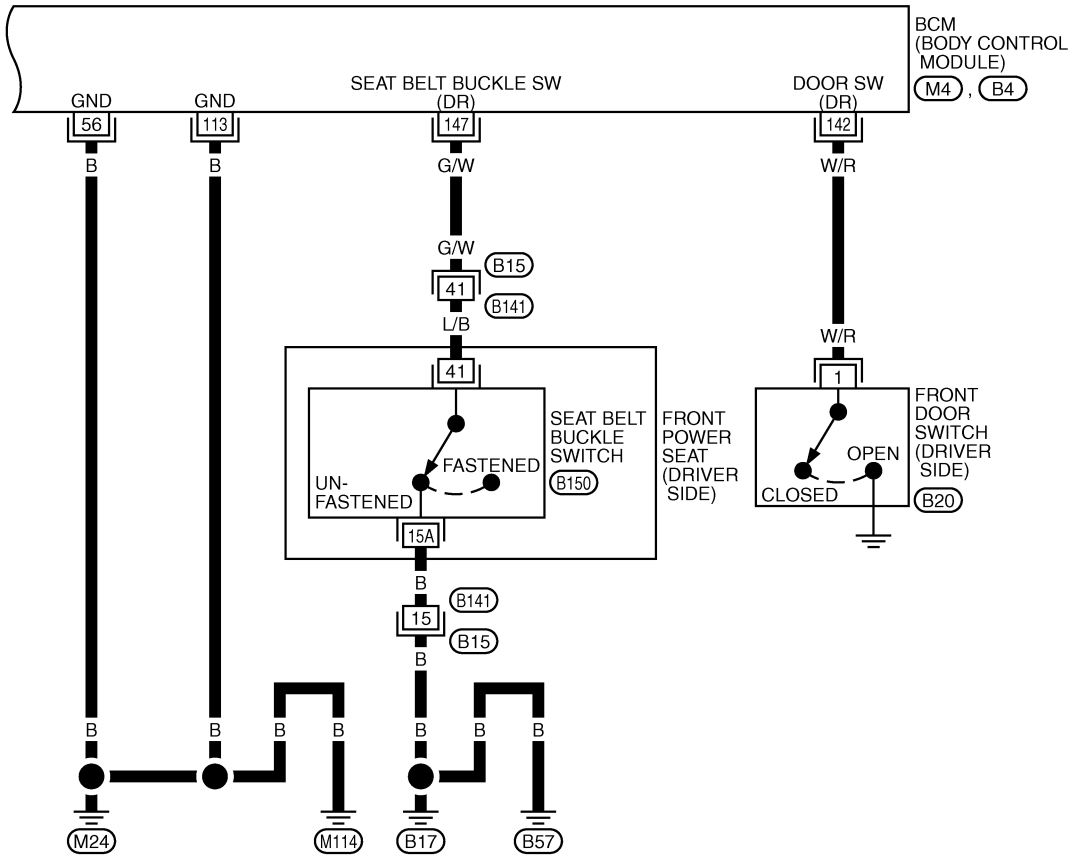
M1 , E201 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

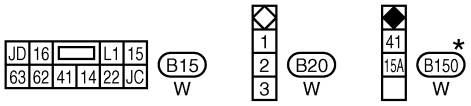
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

M4 -ELECTRICAL UNITS

TKWM1553E

DI-CHIME-03



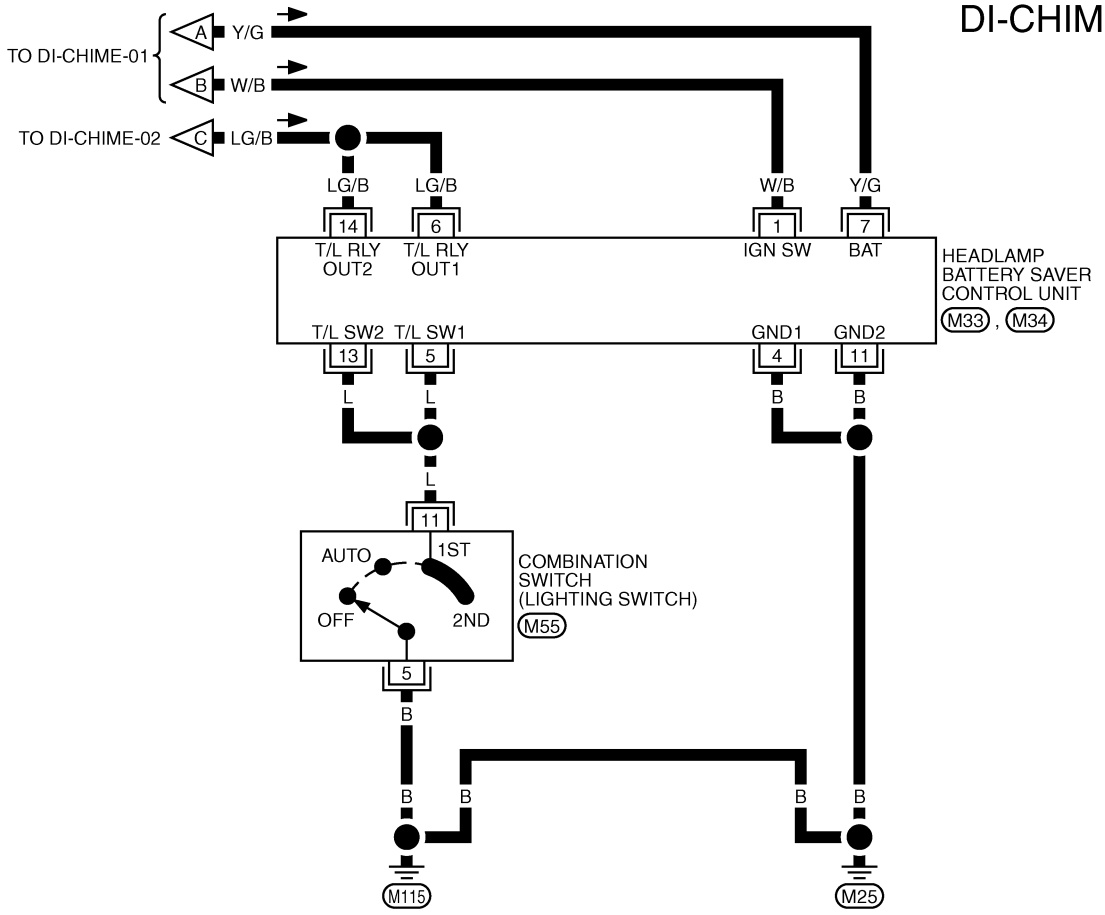


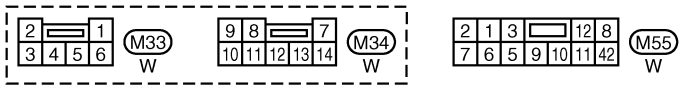
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
M4 , B4 -ELECTRICAL UNITS

TKWM1554E

DI-CHIME-04

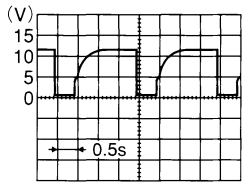
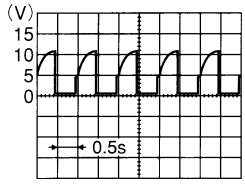




TKWM3739E

Terminals and Reference Value Chart for BCM

NKS001C4

Terminal No.	Wire color	Item	Condition			Reference value (Approx.)
			Ignition switch	Operation		
3	R/L	Lighting switch signal	OFF	Lighting switch is 1ST or 2ND position.		12 V
				Lighting switch is OFF position.		0 V
12	BR	Warning chime signal	OFF	[Ignition key warning chime] Driver door is open. Lighting switch is OFF position.	Key is inserted.	 ELN0529D
					Key is removed.	12 V
				[Light warning chime] Lighting switch is 1ST or 2ND position.	Driver door is open.	 ELN0530D
					Driver door is closed.	12 V
56	B	Ground	ON	–		0 V
68	W/B	Ignition switch (ON)	ON	–		Battery voltage
69	PU/W	Key switch and key lock solenoid (key switch)	OFF	Key is removed.		0 V
				Key is inserted.		12 V
105	Y/L	Battery power supply	OFF	–		Battery voltage
113	B	Ground	ON	–		0 V
142	W/R	Front door switch (driver side)	OFF	Driver door is open.		0 V
				Driver door is closed.		12 V
147	G/W	Seat belt buckle switch (driver side)	ON	Fasten.		5 V
				Unfasten.		0 V

CONSULT-II Function (IVMS)

NKS001C5

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

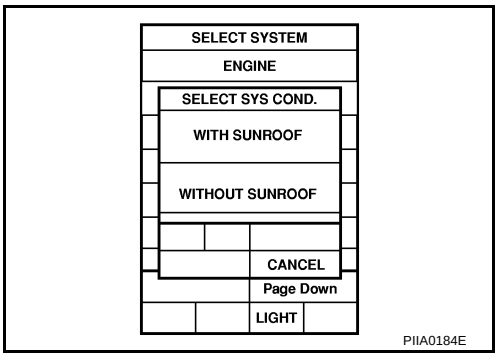
DIAGNOSTIC ITEMS DESCRIPTION

IVMS diagnosis position	Diagnosis mode	Description
IGN KEY WARN ALM	DATA MONITOR	The input data to the BCM control unit is displayed in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
LIGHT WARN ALM	DATA MONITOR	The input data to the BCM control unit is displayed in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
SEAT BELT TIMER	DATA MONITOR	The input data to the BCM control unit is displayed in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM PART NUMBER		Displays BCM part number.

CONSULT-II OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

1. Check the model specification, touch either “WITH SUNROOF” or “WITHOUT SUNROOF”.
2. Touch “OK”. If the selection is wrong, touch “CANCEL”.
3. Select the desired part to be diagnosed on the “SELECT TEST ITEM” screen.



DATA MONITOR

Operation Procedure

1. Touch “IGN KEY WARN ALM”, “LIGHT WARN ALM” or “SEAT BELT TIMER” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch “ALL SIGNALS” or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	Monitors the all items.
SELECTION FROM MENU	Selects and monitors the items.

4. If “SELECTION FROM MENU” is selected, touch the desired monitor item. If “ALL SIGNALS” is selected, the main item required to control is monitored.
5. Touch “START”.
6. During monitoring, touching “COPY” can start recording the monitor item status.

Data Monitor Item (Key Warning Chime)

Monitored item	Description
IGN KEY SW	Indicates [ON/OFF] condition of electronic key switch.
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch LH.

Data Monitor Item (Light Warning Chime)

Monitored item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch LH.
HD/LAMP 1ST SW	Indicates [ON/OFF] condition of lighting switch.

Data Monitor Item (Seat Belt Warning Chime)

Monitored item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
SEAT BELT SW	Indicates [ON/OFF] condition of fastening belt buckle switch.

ACTIVE TEST

Operation Procedure

1. Touch “IGN KEY WARN ALM”, “LIGHT WARN ALM” or “SEAT BELT TIMER” on “SELECT TEST ITEM” screen.
2. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch the item to be tested, and check the operation.
4. During the operation check, touching “OFF” deactivates the operation.

Active Test Item (Key Warning Chime)

Test item	Description
CHIME	This test is able to check key warning chime operation. Key warning chime sounds for 2 seconds after touching “ON” on CONSULT-II screen.

Active Test Item (Light Warning Chime)

Test item	Description
CHIME	This test is able to check light warning chime operation. Light warning chime sounds for 2 seconds after touching “ON” on CONSULT-II screen.

Active Test Item (Seat Belt Warning Chime)

Test item	Description
CHIME	This test is able to check seat belt warning chime operation. Seat belt warning chime sounds for 2 seconds after touching “ON” on CONSULT-II screen.

On Board Diagnosis

NKS001C6

ON BOARD DIAGNOSTIC RESULTS INDICATOR LAMP

- Map lamps and step lamps (all seats) act as the indicators for the on board diagnosis.

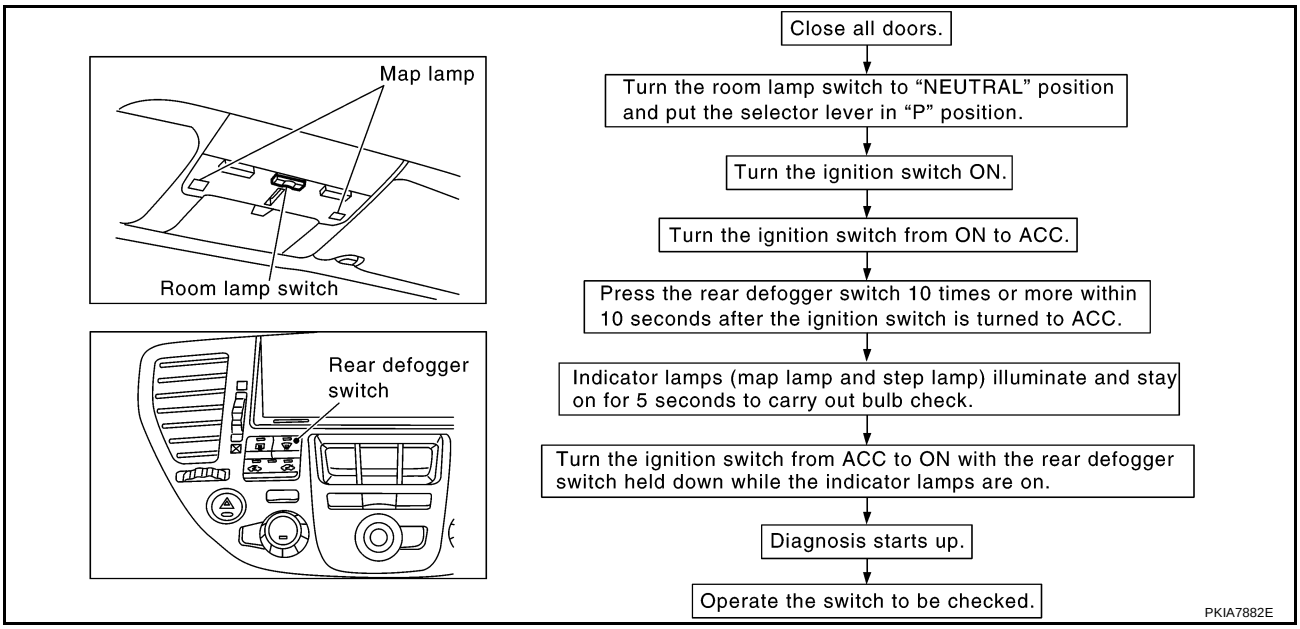
DIAGNOSIS ITEM

Diagnosis item	Description
Switch monitor	Monitoring conditions of switches connected to BCM.

SWITCH MONITOR

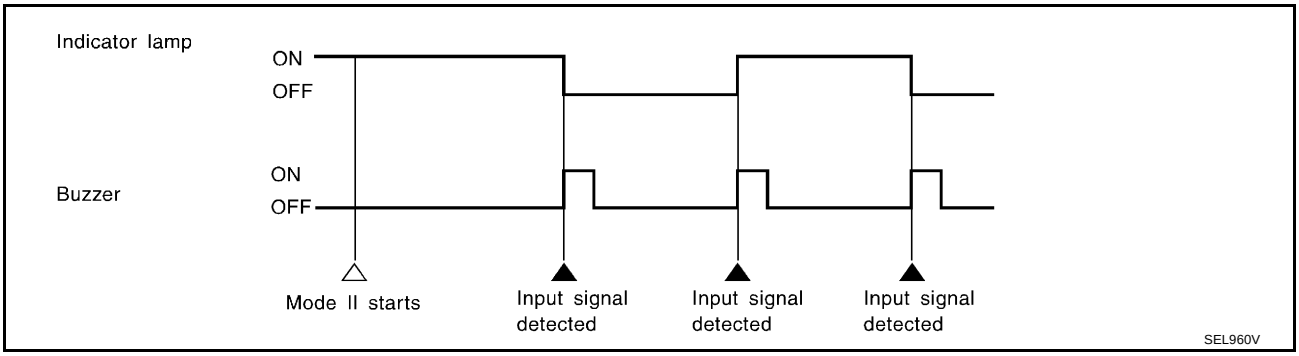
- Perform the diagnosis on the switch system to each control unit.

How to Perform Switch Monitor



Description

- In this mode, when BCM detects the input signal from a switch in IVMS as shown below, the detection is indicated by the map lamp and front step lamps with buzzer.



Switch Monitor Item

- The status of the switch (except the ignition switch, interior lamp switch, and map lamp switch) as input to each control unit can be monitored.

unit	monitored item
BCM	Driver door switch
	Lighting switch (1ST)
	Seat belt buckle switch

Cancel of Switch Monitor

- Turn ignition switch OFF.
- Drive the vehicle at more than 7 km/h (4 MPH).

Trouble Diagnosis

NKS001C7

HOW TO PROCEED WITH TROUBLE DIAGNOSIS

1. Confirm the symptom and customer complaint.
2. Understand the outline of system. Refer to DI-51, "System Description" .
3. Referring to symptom chart, repair or replace the cause of the malfunction. Refer to DI-62, "SYMPTOM CHART" .
4. Does warning chime system operate normally? If so, GO TO 5. If not, GO TO 3.
5. INSPECTION END

SYMPTOM CHART

Symptom	Diagnoses/Service procedure
All warning chime does not activate.	Perform the following inspections. 1. DI-62, "Power Supply and Ground Circuit Inspection" 2. DI-63, "Warning Chime Circuit Inspection" Replace BCM, found normal function in the above inspections.
Light warning chime and key warning chime does not activate. (Seat belt warning chime does activate.)	DI-64, "Front Door Switch (Driver Side) Input Signal Inspection" Replace BCM, found normal function in the above inspection.
Light warning chime does not activate. (head lamp system is normal).	DI-65, "Lighting Switch Input Signal Inspection" Replace BCM, found normal function in the above inspection.
Key warning chime does not activate.	DI-66, "Key Switch Insert Signal Inspection" Replace BCM, found normal function in the above inspection.
Seat belt warning chime does not activate.	DI-67, "Seat Belt Buckle Switch Input Signal Inspection" Replace BCM, found normal function in the above inspection.

Power Supply and Ground Circuit Inspection

NKS001C8

1. CHECK FUSE

Check for blown BCM and warning chime fuses.

Unit	Power source	Fuse No.
BCM	Battery	3
	Ignition switch ON or START	1
Warning chime	Battery	6

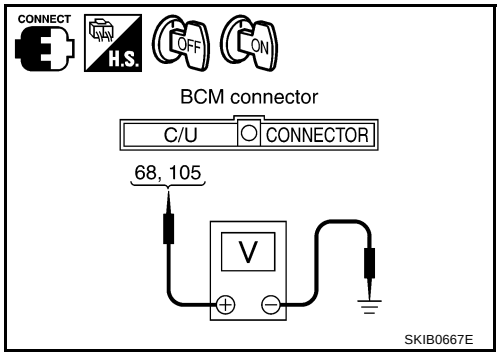
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between BCM harness connector M4 terminals 68, 105 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
M4	68	Ground	0V	Battery voltage
	105		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.
NG >> Repair harness between BCM and fuse.

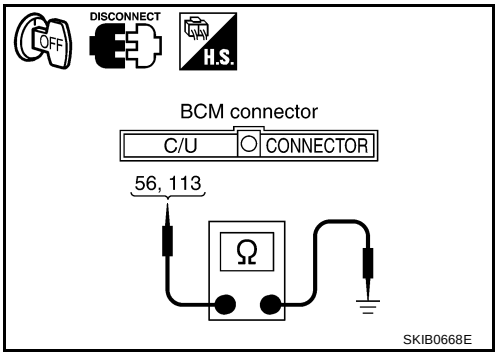
3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector M4 terminals 56, 113 and ground.

56 – Ground
113 – Ground **: Continuity should exist.**

OK or NG

OK >> Power supply and ground circuit are OK. Return to DI-62, "SYMPTOM CHART" .
NG >> Repair ground harness.



Warning Chime Circuit Inspection

NKS001C9

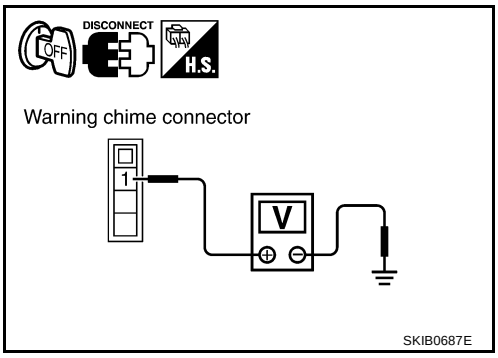
1. CHECK POWER SUPPLY CIRCUIT OF WARNING CHIME

1. Turn ignition switch OFF.
2. Disconnect warning chime connector.
3. Check voltage between warning chime harness connector M74 terminal 1 and ground.

1 – Ground **: Battery voltage**

OK or NG

OK >> GO TO 2.
NG >> Repair harness between fuse and warning chime.



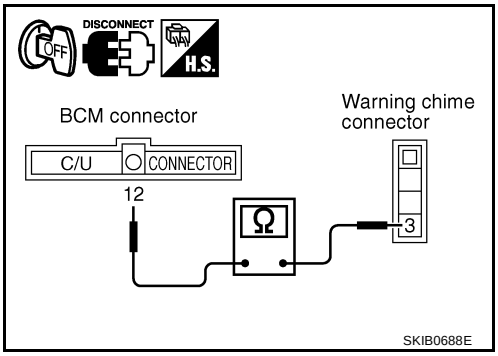
2. CHECK WARNING CHIME OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between warning chime harness connector M74 terminal 3 and BCM harness connector M4 terminal 12.

3 – 12 **: Continuity should exist.**

OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.



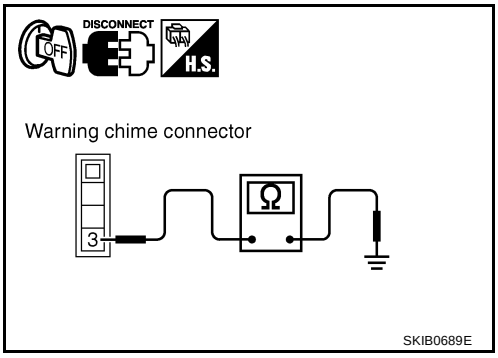
3. CHECK WARNING CHIME SHORT CIRCUIT

Check continuity between warning chime harness connector M74 terminal 3 and ground.

3 – Ground **: Continuity should not exist.**

OK or NG

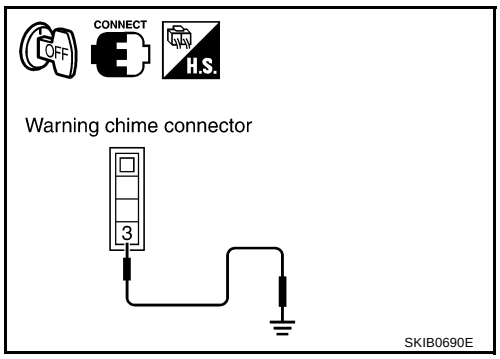
OK >> GO TO 4.
NG >> Repair harness or connector.



4. CHECK WARNING CHIME OPERATION

1. Connect warning chime connector.
2. Ground warning chime harness connector M74 terminal 3.

3 – Ground : Warning chime should operate.



OK or NG

OK >> Warning chime circuit is OK. Return to DI-62, "SYMPTOM CHART" .
NG >> Replace warning chime.

Front Door Switch (Driver Side) Input Signal Inspection

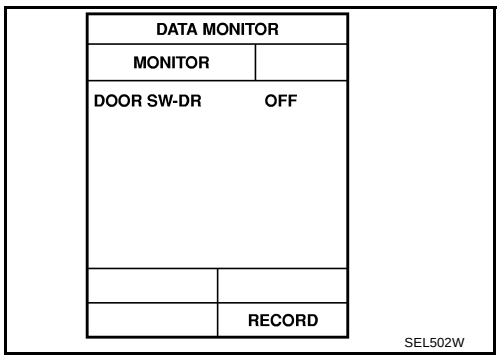
NKS001CA

1. CHECK FRONT DOOR SWITCH (DRIVER SIDE) INPUT SIGNAL

With CONSULT-II

- Check front door switch “DOOR SW-DR” in “DATA MONITOR” mode with CONSULT-II.

“DOOR SW-DR”
When driver door is open : ON
When driver door is closed : OFF



Without CONSULT-II

- Check front door switch (driver side) in “SWITCH MONITOR” mode, refer to DI-60, "On Board Diagnosis" .

OK or NG

OK >> Front door switch (driver side) input signal is OK. Return to DI-62, "SYMPTOM CHART" .
NG >> GO TO 2.

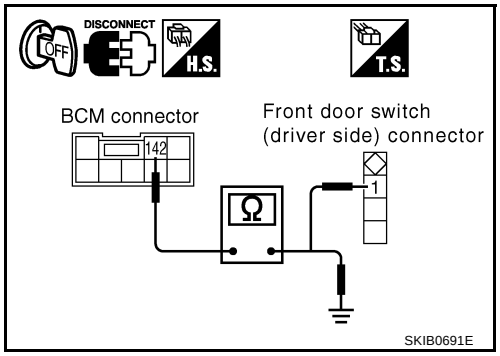
2. CHECK FRONT DOOR SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and front door switch (driver side) connector.
3. Check continuity between BCM harness connector B4 terminal 142 and front door switch (driver side) connector B20 terminal 1.

142 – 1 : Continuity should exist.

4. Check continuity between BCM harness connector B4 terminal 142 and ground

142 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK DOOR SWITCH (DRIVER SIDE)

Check front door switch (driver side). Refer to DI-68, "FRONT DOOR SWITCH (DRIVER SIDE)" .

OK or NG

OK >> Replace BCM.
NG >> Replace front door switch (driver side).

Lighting Switch Input Signal Inspection

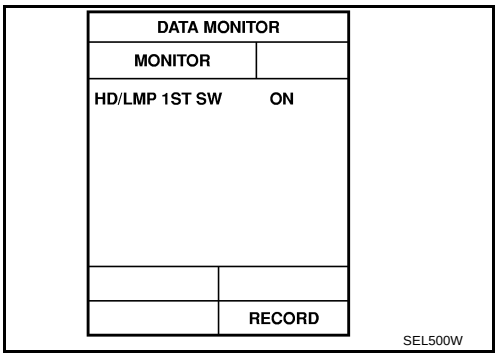
NKS001CB

1. CHECK LIGHTING SWITCH INPUT SIGNAL

With CONSULT-II

- Check lighting switch “HD/LMP 1ST SW” in “DATA MONITOR” mode with CONSULT-II.

“HD/LMP 1ST SW”
When lighting switch is 1ST or 2ND : ON
When lighting switch is OFF : OFF



Without CONSULT-II

- Check lighting switch in switch monitor mode, refer to DI-60, "On Board Diagnosis" .

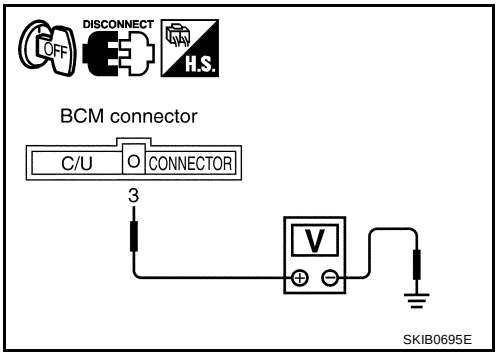
OK or NG

OK >> Lighting switch input signal is OK. Return to DI-62, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK TAIL LAMP RELAY CONTROL SIGNAL

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector M4 terminal 3 and ground.

3 – Ground
When lighting switch is 1ST or 2ND : Approx. 12 V
When lighting switch is OFF : Approx. 0 V



OK or NG

OK >> Replace BCM.
NG >> Repair harness between BCM and tail lamp relay.

Key Switch Insert Signal Inspection

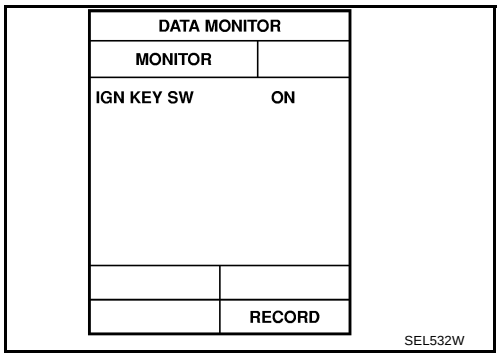
NKS001CC

1. CHECK KEY SWITCH INPUT SIGNAL

With CONSULT-II

- Check key switch “IGN KEY SW” in “DATA MONITOR” mode with CONSULT-II.

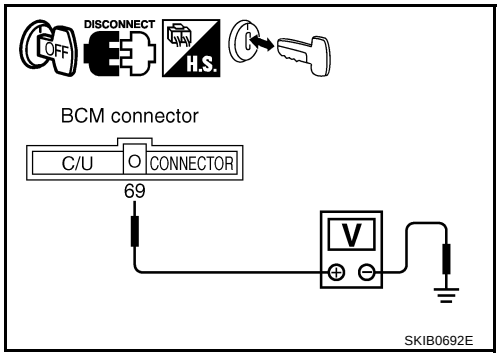
“IGN KEY SW”
When key is inserted to ignition key cylinder : ON
When key is removed to ignition key cylinder : OFF



Without CONSULT-II

1. Disconnect BCM connector.
2. Check voltage between BCM harness connector M4 terminal 69 and ground.

69 – Ground
When key is inserted to ignition key cylinder : Approx. 12 V
When key is removed to ignition key cylinder : Approx. 0 V



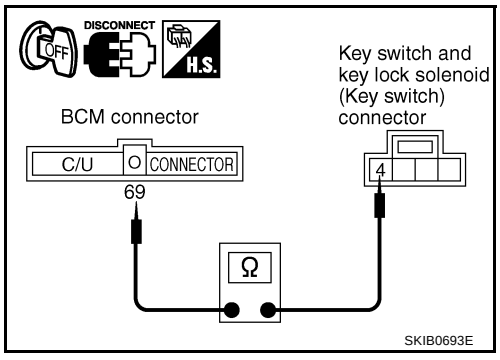
OK or NG

OK >> Key switch insert signal is OK. Return to DI-62, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK KEY SWITCH CIRCUIT

1. Remove key from the ignition key cylinder.
2. Disconnect key switch and key lock solenoid (key switch) connector.
3. Check continuity between BCM harness connector M4 terminal 69 and key switch and key lock solenoid (key switch) harness connector M64 terminal 4.

69 – 4 : Continuity should exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

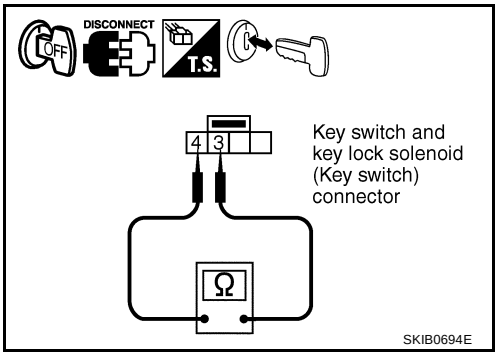
3. CHECK KEY SWITCH (INSERT)

Check continuity between key switch and key lock solenoid (key switch) connector M64 terminals 3 and 4.

3 – 4

When key is inserted to ignition key cylinder : Continuity should exist.

When key is removed to ignition key cylinder : Continuity should not exist.



OK or NG

OK >> Check harness between fuse and key switch.
NG >> Replace key switch and key lock solenoid (key switch).

Seat Belt Buckle Switch Input Signal Inspection

NKS001CD

1. CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL

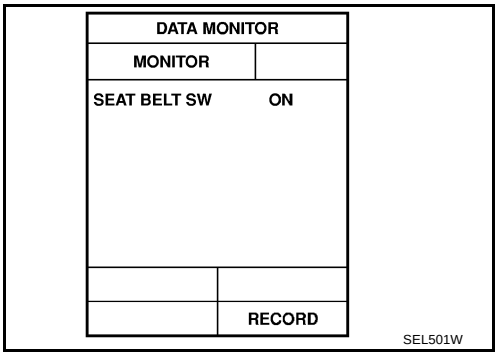
With CONSULT-II

Check seat belt buckle switch “SEAT BELT SW” in “DATA MONITOR” mode with CONSULT-II.

“SEAT BELT SW”

When seat belt is fastened : ON

When seat belt is unfastened : OFF



Without CONSULT-II

Check seat belt buckle switch in switch monitor mode, refer to DI-60, "On Board Diagnosis" .

OK or NG

OK >> Seat belt buckle switch Input signal is OK. Return to DI-62, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

1. Turn ignition switch OFF.
2. Disconnect seat belt buckle switch connector.
3. Check seat belt buckle switch (driver side). Refer to DI-68, "SEAT BELT BUCKLE SWITCH (DRIVER SIDE)" .

OK or NG

OK >> GO TO 3.
NG >> Replace seat belt buckle switch.

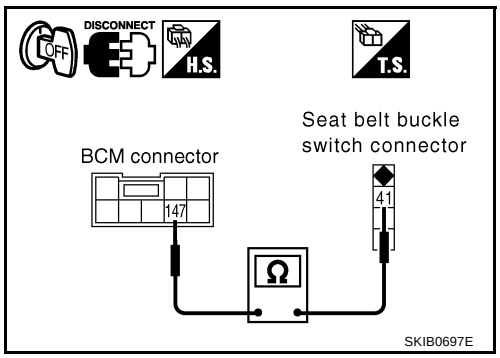
3. CHECK SEAT BELT BUCKLE SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector B4 terminal 147 and seat belt buckle switch harness connector B150 terminal 41.

147 – 41 : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.



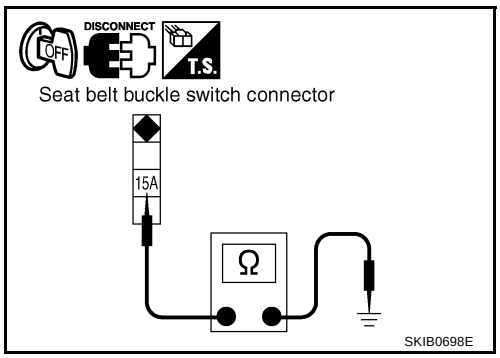
4. CHECK SEAT BELT BUCKLE SWITCH GROUND CIRCUIT

Check continuity between seat belt buckle switch harness connector B150 terminal 15A and ground.

15A – Ground : Continuity should exist.

OK or NG

OK >> Replace BCM.
NG >> Repair harness or connector.



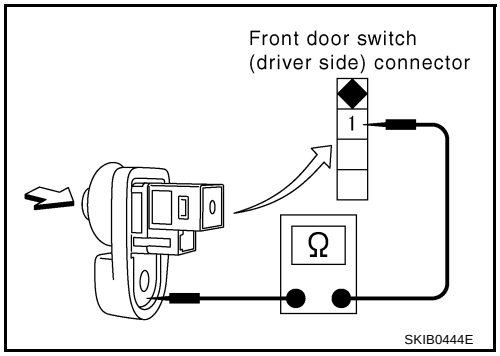
Electrical Component Inspection

NKS002JF

FRONT DOOR SWITCH (DRIVER SIDE)

Check continuity between terminal 1 and door switch case ground.

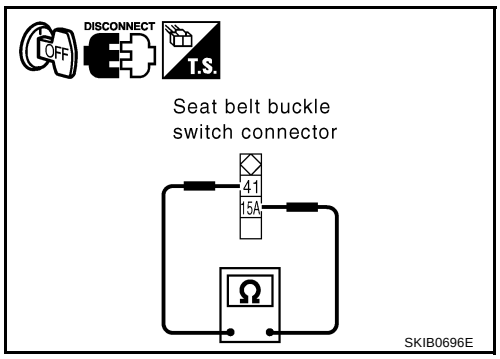
terminal		Condition	Continuity
1	Door switch case ground	When door switch is released	Yes
		When door switch is pressed	No



SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

Check continuity between terminals 41 and 15A.

terminal		Condition	Continuity
41	15A	When seat belt is fastened	No
		When seat belt is unfastened	Yes

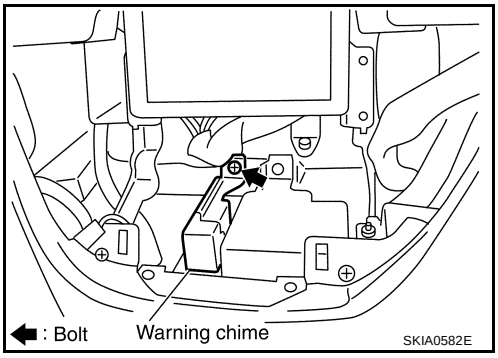


Removal and Installation of Warning Chime

NKS001CE

REMOVAL

1. Remove cluster lid C. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove bolt (1), and remove warning chime.



INSTALLATION

Installation is the reverse order of removal.

CAN COMMUNICATION

PFP:23710

System Description

NKS002BR

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Unit

NKS002BS

Refer to LAN-40, "CAN Communication Unit" in “LAN SYSTEM”.

LANE DEPARTURE WARNING SYSTEM

PFP:28442

Precautions for Lane Departure Warning (LDW) system

NKS002BT

WARNING:

Lane Departure Warning (LDW) is only a warning device to inform the driver of an unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.

- **LDW system does not operate under the following conditions:**
  - **At speeds below approx. 72 km/h (45 MPH).**
  - **If it cannot detect lane markers.**
- **LDW system may not function properly under the following conditions:**
  - **On roads where a water puddle, dirt or snow is covering the lane markers.**
  - **On roads where the lane markers are faded or are not painted clearly.**
  - **On roads where the lane markers are painted yellow.**
- **LDW system may not monitor the lane markers in certain road, weather or driving conditions.**
  - **On roads where there are sharp curves.**
  - **Where the traveling lane merges or separates.**
  - **On roads where the discontinued lane markers are present, such as near tollgates, etc.**
  - **On roads where there are not general lane markers.**
  - **On roads where the lane width is too narrow.**
  - **During bad weather (rain, fog, snow, etc.).**
  - **When strong light (for example, at sunrise or sunset) is directly shining on the front of the vehicle.**
  - **When entering or exiting a tunnel where sudden changes in brightness occur.**
  - **When traveling close to the vehicle in front of you, which causes obstruction of the camera unit range.**
  - **When the vehicle's traveling direction does not align with the lane marker.**
  - **When rain, snow or dirt adhere to the windshield in front of the camera unit.**
- **Excessive noise interferes with warning system chime sound and the chime may not be heard.**

CAUTION:

To keep the LDW system operating properly, be sure to observe the following:

- **Always keep the windshield clean. The sensing capability of the camera unit depends on the condition of the windshield. See “Appearance and care” for cleaning instruction.**
- **Never strike or damage the areas around the camera unit.**
- **Never touch the camera lens.**
- **Never attach a sticker (including transparent material) or install an accessory near the camera unit.**
- **Never place reflective materials, such as a white paper or mirrors on the instrument panel. Reflection of the sunlight may adversely affect the camera unit's lane marker detection capability.**

System Description

NKS002BU

LDW SYSTEM OPERATION

- The Lane Departure Warning (LDW) system warns the driver when the vehicle is traveling close to either the left or the right of the traveling lane.
- The system monitors lane markers of the traveling lane using the LDW camera unit. When the LDW camera unit detects that the vehicle is traveling close to either the left or the right of the traveling lane, the LDW indicator lamp flashes and a chime sounds to alert the driver.

  NOTE:
  When activating turn signal, LDW system does not give a warning to the lane marker on the turn signal side.
- The LDW system can be turned on or off by pressing the LDW switch. When the system is on, the LDW system ON indicator illuminates.
- The LDW system has an automatic mode and manual mode.

In the automatic mode

- LDW system automatically turns on, when the ignition switch is turned to the ON position.
- LDW system ON indicator located on the LDW switch illuminates, indicating that the system is on.
- To cancel LDW system, push the LDW switch to turn off LDW system ON indicator.
- To turn on the system, push LDW switch again.

In the manual mode

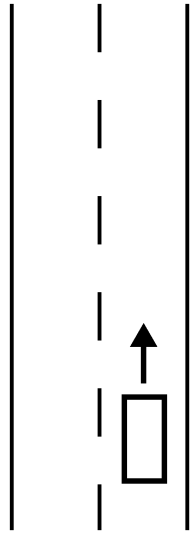
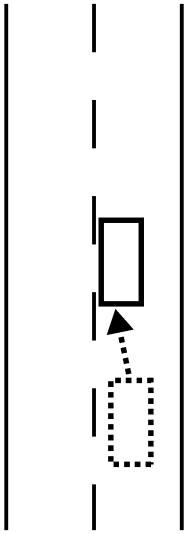
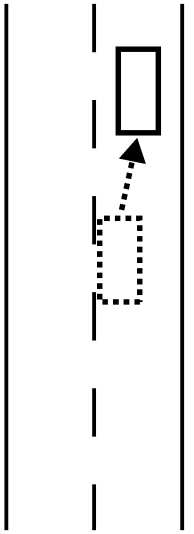
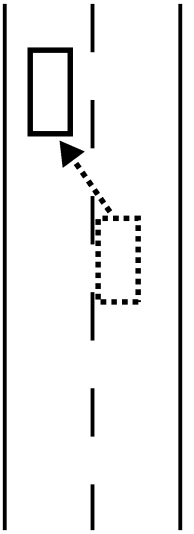
- LDW system is still off when the ignition switch is turned to the ON position.
- The LDW switch must be pushed to turn on the system.

To the change modes

- Push and hold LDW switch for more than 4 seconds, when LDW system ON indicator is off.
- Then LDW chime sounds and blinking of LDW system ON indicator informs that the mode change is completed.

- Temporary disabled status at high temperature
- If the vehicle is parked in direct sunlight under high temperature conditions [approximately over 104 °F (40 °C)] and then started, the LDW system may sound a chime and cancel automatically. Then LDW system ON indicator will blink.
- When the interior temperature is reduced, the system will resume to operate automatically and the LDW system ON indicator illuminates.

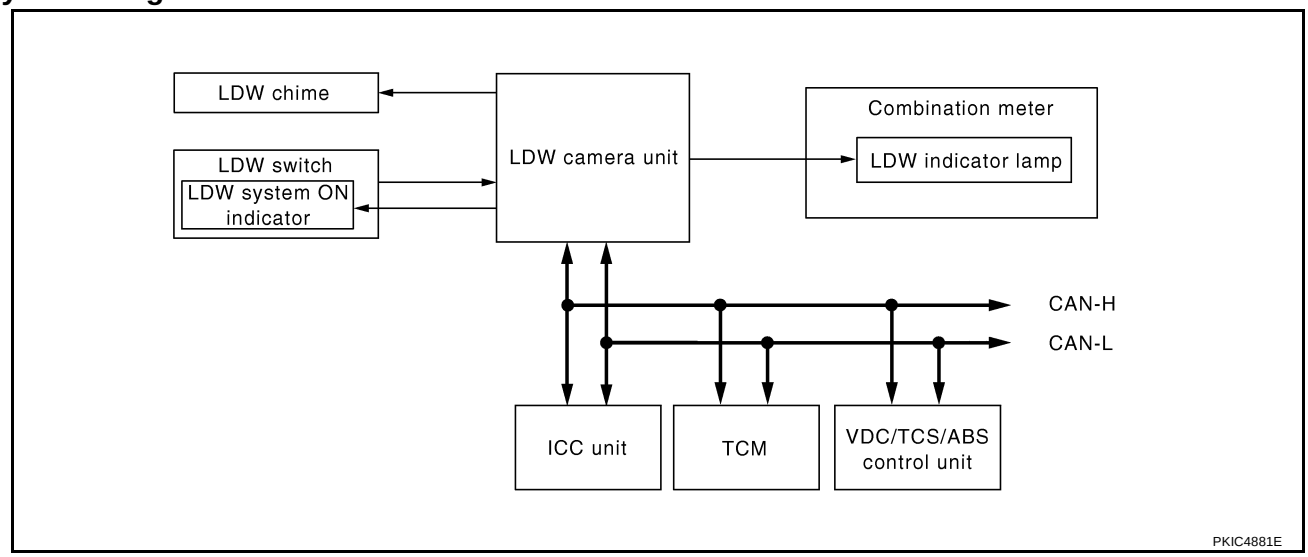
Warning Function

Driving Condition	Normal Driving	Entering into the warning range	Getting out of the warning range	Pass the warning range. (Going across the lane)
Warning	–	Give a warning* (Continue warning when vehicle edge is in the warning range.)	Stop the warning	Stop the warning
Example				

*: No warning when changing the course to the turn signal direction.

SKIB1783E

System Diagram



Components Description

Component	Description
LDW camera unit	Detects the lane marker by the built-in camera, gives judgement for the warning according to the result of detection and signals from each unit, and transmits the operation signal to LDW chime and LDW indicator lamp.
LDW switch	● Selects ON/OFF of the system. ● Indicates ON/OFF of the signal with LDW system ON indicator.
LDW chime	Gives a warning chime according to the direction from LDW camera unit.
LDW indicator lamp	Installed in combination meter, and indicates the system condition. ● Blinks when LDW system is functioning to alert the driver. ● Stays on when LDW system is malfunctioning.*
ICC unit	Transmits turn indicator signal to LDW camera unit with CAN communication signal.
VDC/TCS/ABS control unit	Transmits vehicle speed signal to LDW camera unit with CAN communication signal.
TCM	Transmits vehicle speed signal to LDW camera unit with CAN communication signal. (For detecting incorrect speed.)

NOTE:
*: This indicates in a few seconds for the system check during ignition switch ON.

POWER SUPPLY AND GROUND CIRCUIT

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to LDW camera unit terminal 1.

Ground is supplied

- to LDW camera unit terminals 6 and 12
- through grounds E24, E42 and E62.

Action Test

NKS002BV

LDW SYSTEM RUNNING TEST

WARNING:

- **Be careful when performing road test.**
- **Understand “Precautions” and “System Description” well before the road test. Refer to DI-71, "Precautions for Lane Departure Warning (LDW) system" and DI-71, "System Description" .**

Function Check

Check the LDW system operation according to the condition that the warning function works. Refer to DI-71, "LDW SYSTEM OPERATION" .

Camera Aiming Adjustment

NKS002BW

OUTLINE

Adjust the camera aiming every time the LDW camera unit is removed or installed.

CAUTION:

- **Place the vehicle on the level ground when the camera aiming adjustment is operated.**
- **Follow the CONSULT-II when adjusting the camera aiming. (Camera aiming adjustment cannot be operated without CONSULT-II.)**

PREPARATION

- Keep all tires inflated to correct pressures. Adjust the tire pressure to the specified pressure value.
- There is no-load in vehicle. Check if coolant, engine oil are filled up to correct level and fuel tank is full.
- Shift the gear into “P” position and release the parking brake.
- Clean the windshield.

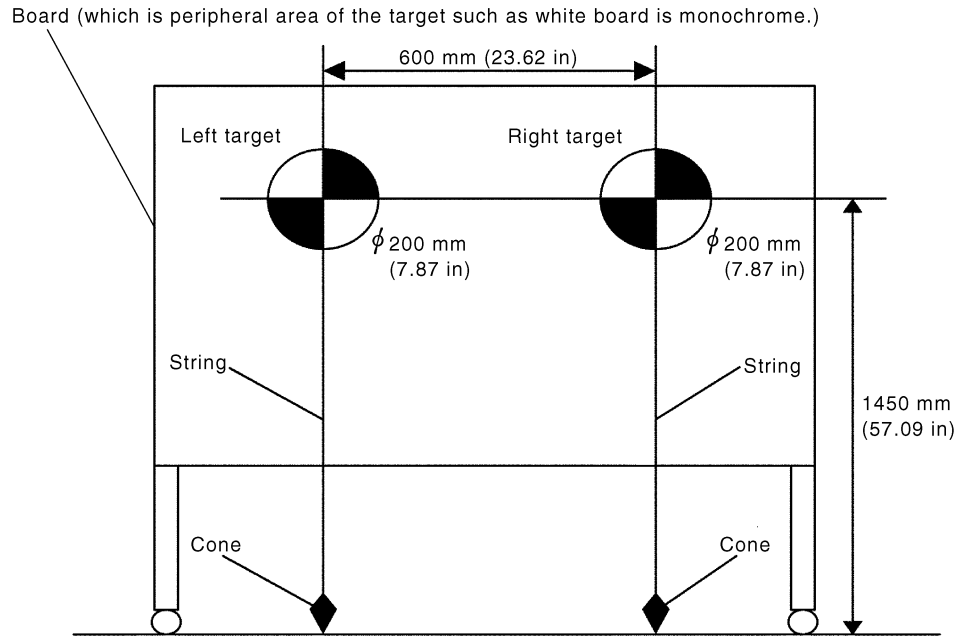
NOTE:

Do not place anything reflective on the upper surface of instrument panel.

TARGET SETTING

Preparation Aiming Adjustment Jig

For aiming adjustment, prepare the following jigs and targets.



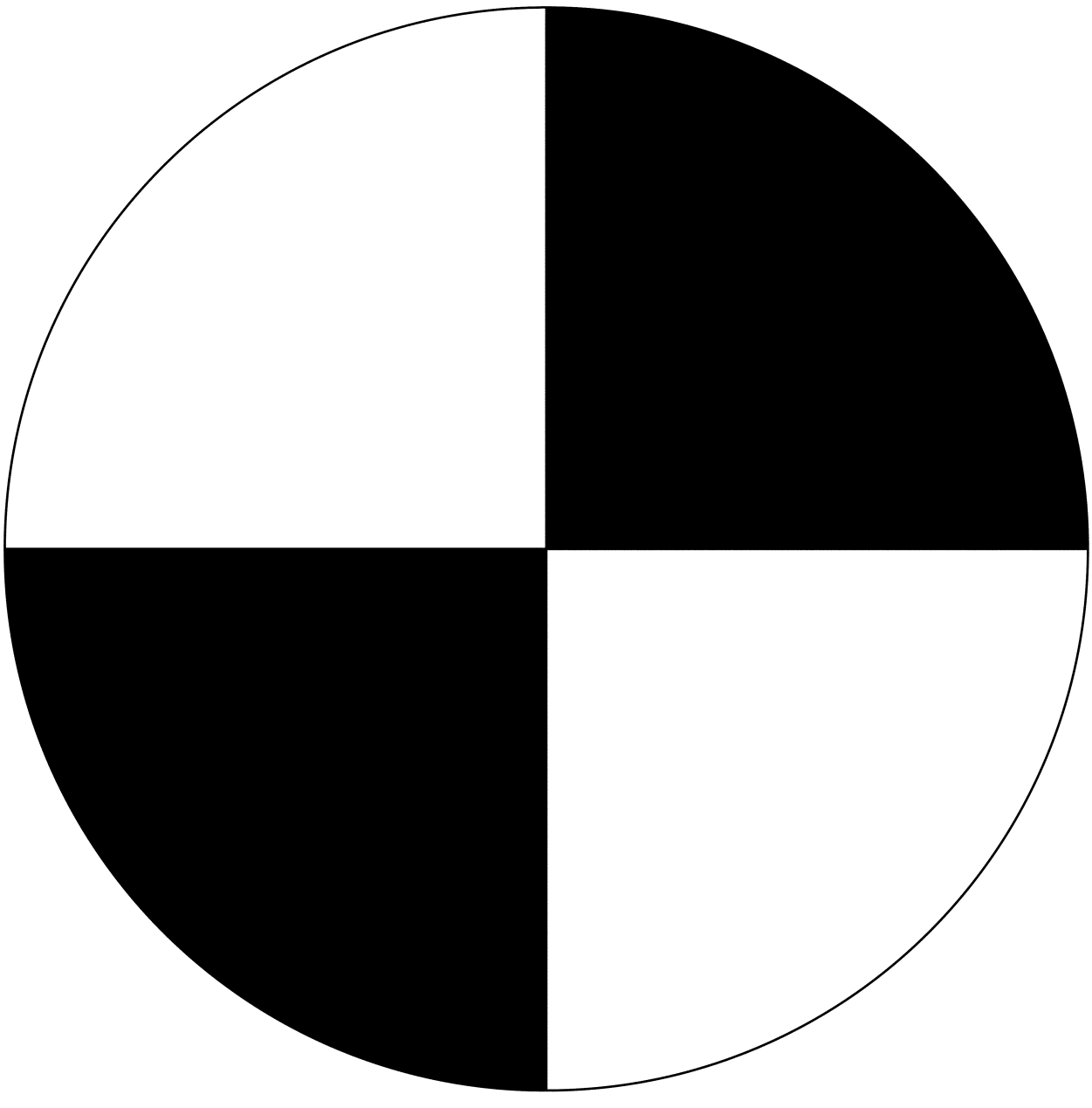
Enlarge the target mark attached in this SM (Next page) to 122%.
And stick the enlarged mark on a board with a scotch tape or a double-faced tape.
Notice that the cross of target is horizontal and vertical.

PKIB4693E

Target

NOTE:

Enlarge this page to 122% size and print it out.

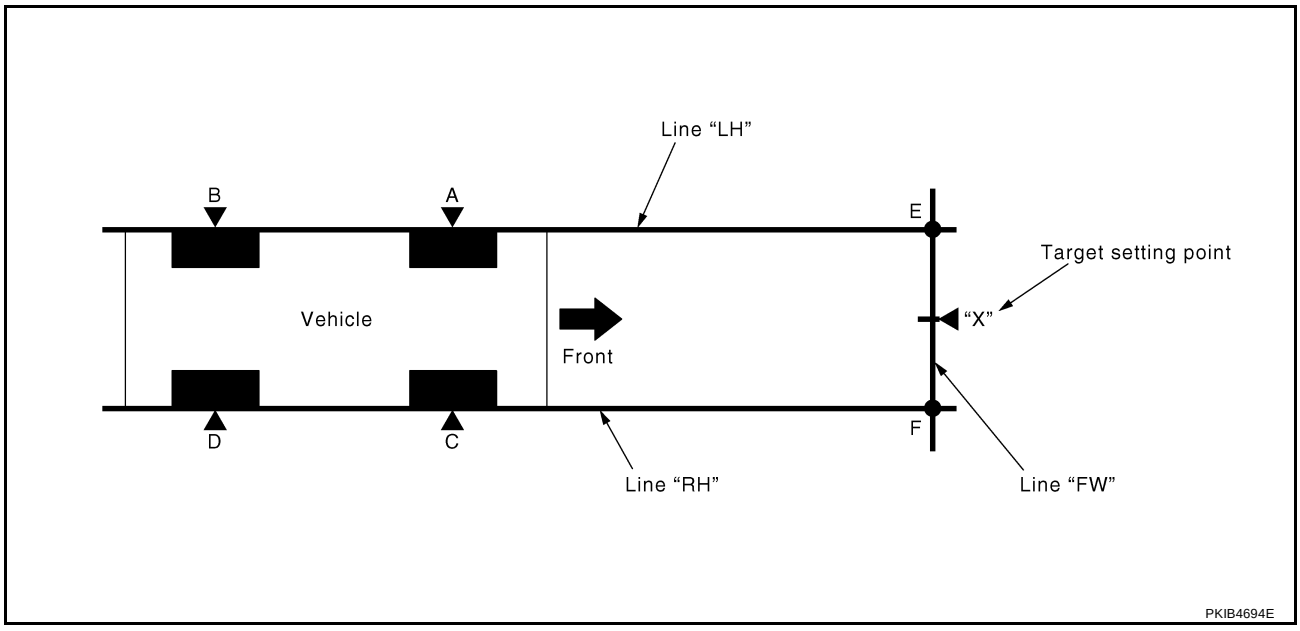


PGIA0105J

Target Setting

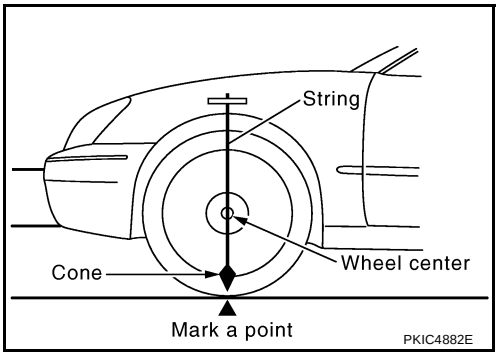
CAUTION:

- **Perform this operation in a horizontal position where there is a clear view for 5 m (16.4 ft) forward and 3 m (9.84 ft) wide.**
- **Place the target at a well-lighted location. (Poor lighting may make it hard to adjust.)**
- **The target may not be detected when there is a light source within 1.5 m (4.92 ft) from either side and within 1 m (3.28 ft) upward/downward from the target.**
- **Make sure location of the sun. (Sunlight should not shine directly on front of the vehicle.)**
- **The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 1 m (3.28 ft) from either side and upward/downward position from the target. (It is desirable that the vehicle is positioned on the opposite side of a single-color wall.)**



1. Mark a point at the center of lateral surface of each wheels (“A”, “B”, “C” and “D”).

   NOTE:
   Dangle a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of lateral surface of wheels.



2. Draw a line passing through points “A” and “B” on the left side of vehicle (line “LH”).

   NOTE:
   Approximately 4 m (13.12 ft) or more from the forward end of vehicle.

3. Mark points on the line “LH”, at the positions 3850 mm (151.57 in) from the point “A” (“E”).
4. Draw a line passing through the points “C” and “D” on the right side of vehicle as with the step 2 (line “RH”).

   NOTE:
   Approximately 4 m (13.12 ft) or more from the forward end of vehicle.

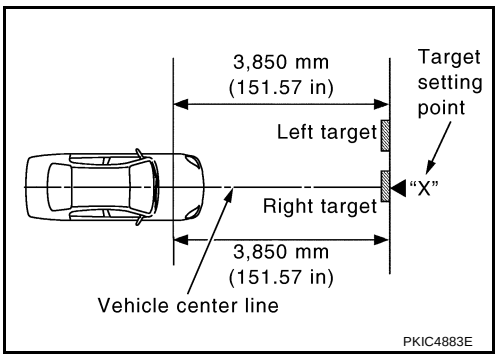
5. Mark points on the line “RH”, at the positions 3850 mm (151.57 in) from the point “C” (“F”).
6. Draw a line passing through the points “E” and “F” (line “FW”).

7. Mark point at the center of the point “E” and “F”, on the line “FW”.

CAUTION:

Make sure that “E” through “X” is equal to “F” through “X”.

8. Position the center of the right target to the point of “X”.



VEHICLE HEIGHT CHECK

Measure the wheel arch height. And calculate “Dh”.

Dh [mm] = (Hfl + Hfr) ÷ 2 – 739

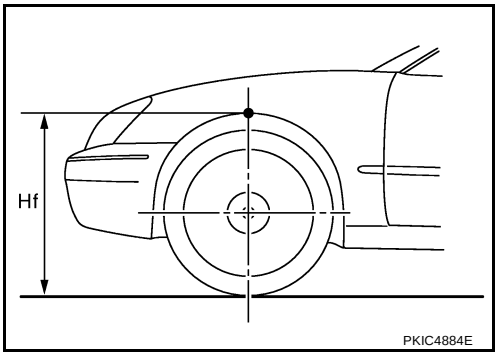
where,

Hfl: Front left wheel arch height [mm]

Hfr: Front right wheel arch height [mm]

NOTE:

“Dh” may be calculated as a minus value.



AIMING ADJUSTMENT

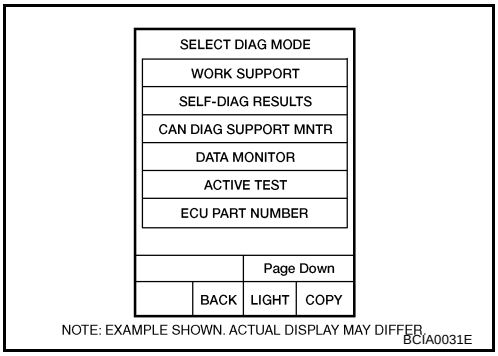
Operation Procedure

CAUTION:

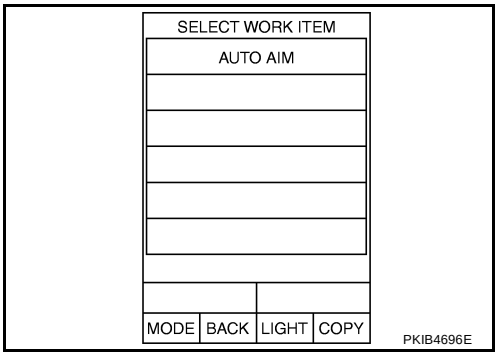
- **Perform the adjustment under unloaded vehicle condition.**
- **LDW indicator is turned off after the removal/installation, and blinks after replacement.**

1. Start CONSULT-II, and touch “LDW” on “SELECT SYSTEM” screen. Refer to GI-36, "CONSULT-II Start Procedure" .
   If “LDW” is not displayed, go to GI-37, "CONSULT-II Data Link Connector (DLC) Circuit" .

2. Touch “WORK SUPPORT”.

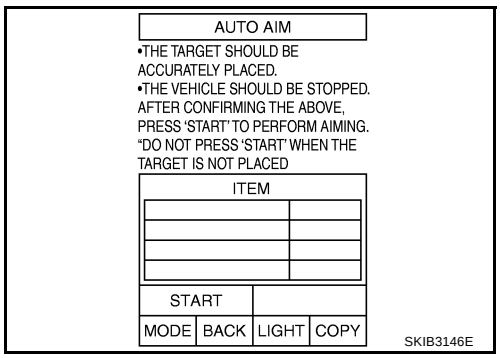


3. Touch “AUTO AIM”.



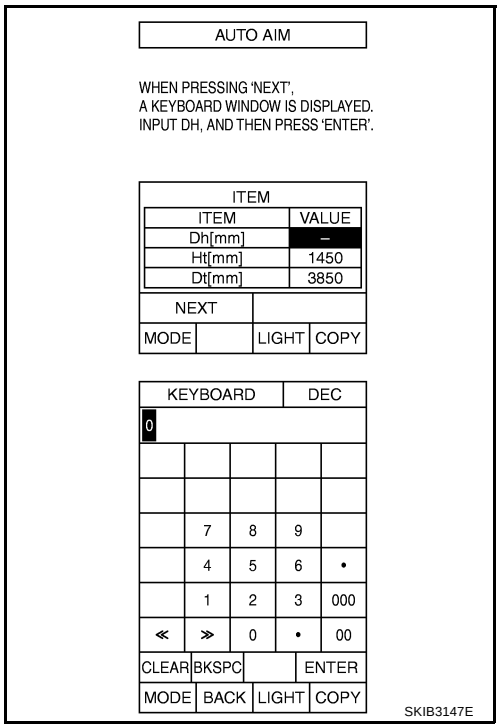
4. The target should be accurately placed.
The vehicle should be stopped.
After confirming the above, touch “START” to perform aiming.

CAUTION:
Never touch “START” when the target is not placed.



5. Touch “NEXT”, then a keyboard window is displayed. Input “Dh”, and then touch “ENTER”.

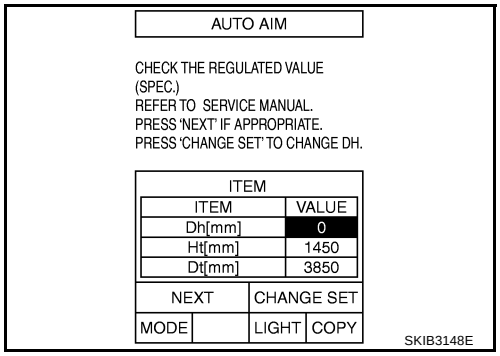
NOTE:
Check the value “Dh”. Refer to DI-77, "VEHICLE HEIGHT CHECK" .



6. Check the regulated value. (Spec.)

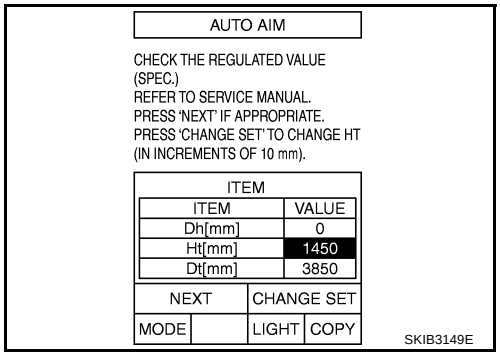
NOTE:
Check the value input at step 8.

a. Touch “NEXT” if appropriate.
b. Touch “CHANGE SET” to change “Dh”.



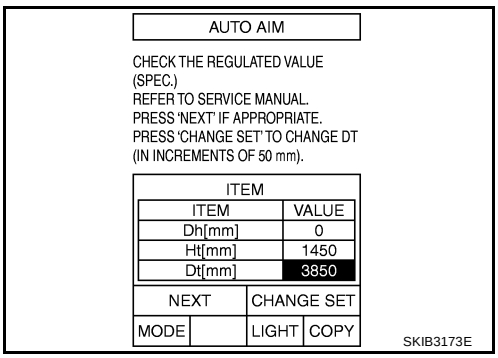
7. Touch “NEXT”.

CAUTION:
Never change “Ht”.

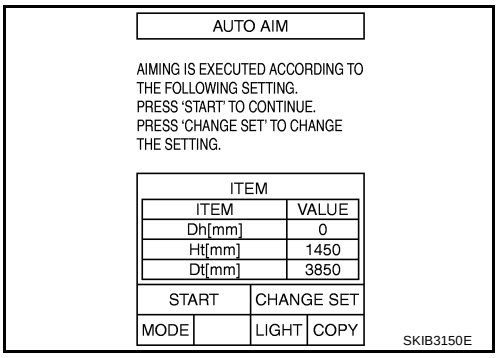


8. Touch “NEXT”.

CAUTION:
Never change “Dt”.

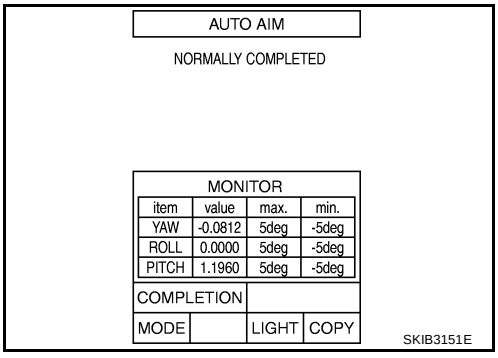


9. Touch “START”.

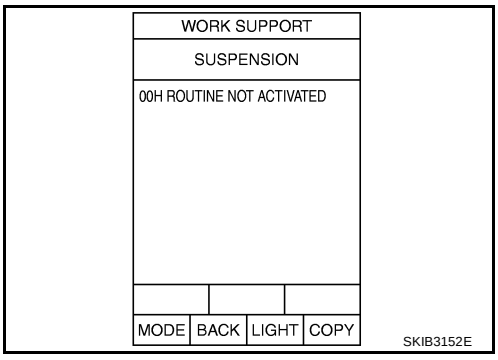


10. Check the display item.

a. When “NORMALLY COMPLETED” is displayed, touch “COMPLETION”.



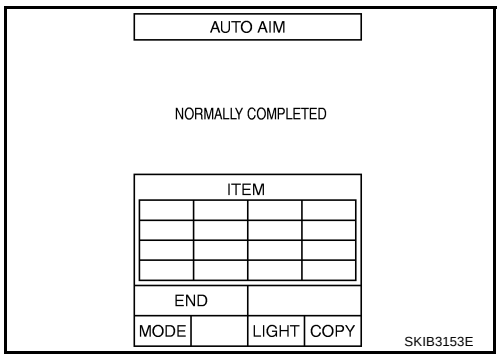
b. Perform the following services when displayed “SUSPENSION” or “ABNORMALLY COMPLETED”.



Displays item		Service procedure
SUSPENSION	00H Routine not activated	Position the target appropriately, and perform the aiming again. Refer to DI-74, "Camera Aiming Adjustment" .
	10H Writing error	
ABNORMALLY COMPLETED	—	

NOTE:
Replace camera unit if “suspension” is repeatedly indicated though the above two service is performed.

11. Check if “NORMALLY COMPLETED” is displayed and close the aiming adjustment procedure by touching “END”.

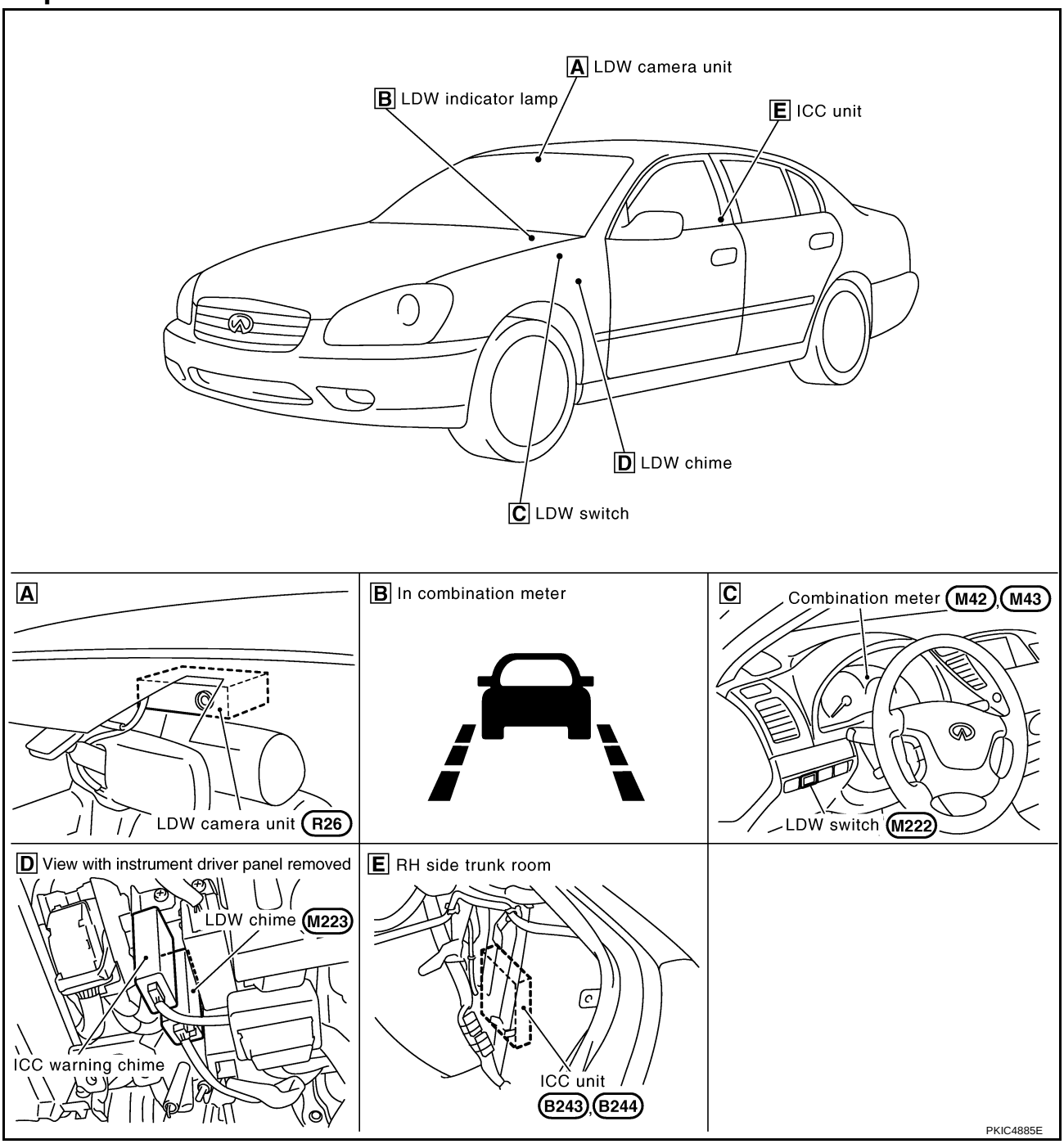


Check After The Adjustment

1. Perform the LDW camera unit self-diagnosis. Refer to DI-87, "CONSULT-II Function (LDW)" .
2. Test the LDW system operation by running test. Refer to DI-73, "LDW SYSTEM RUNNING TEST" .

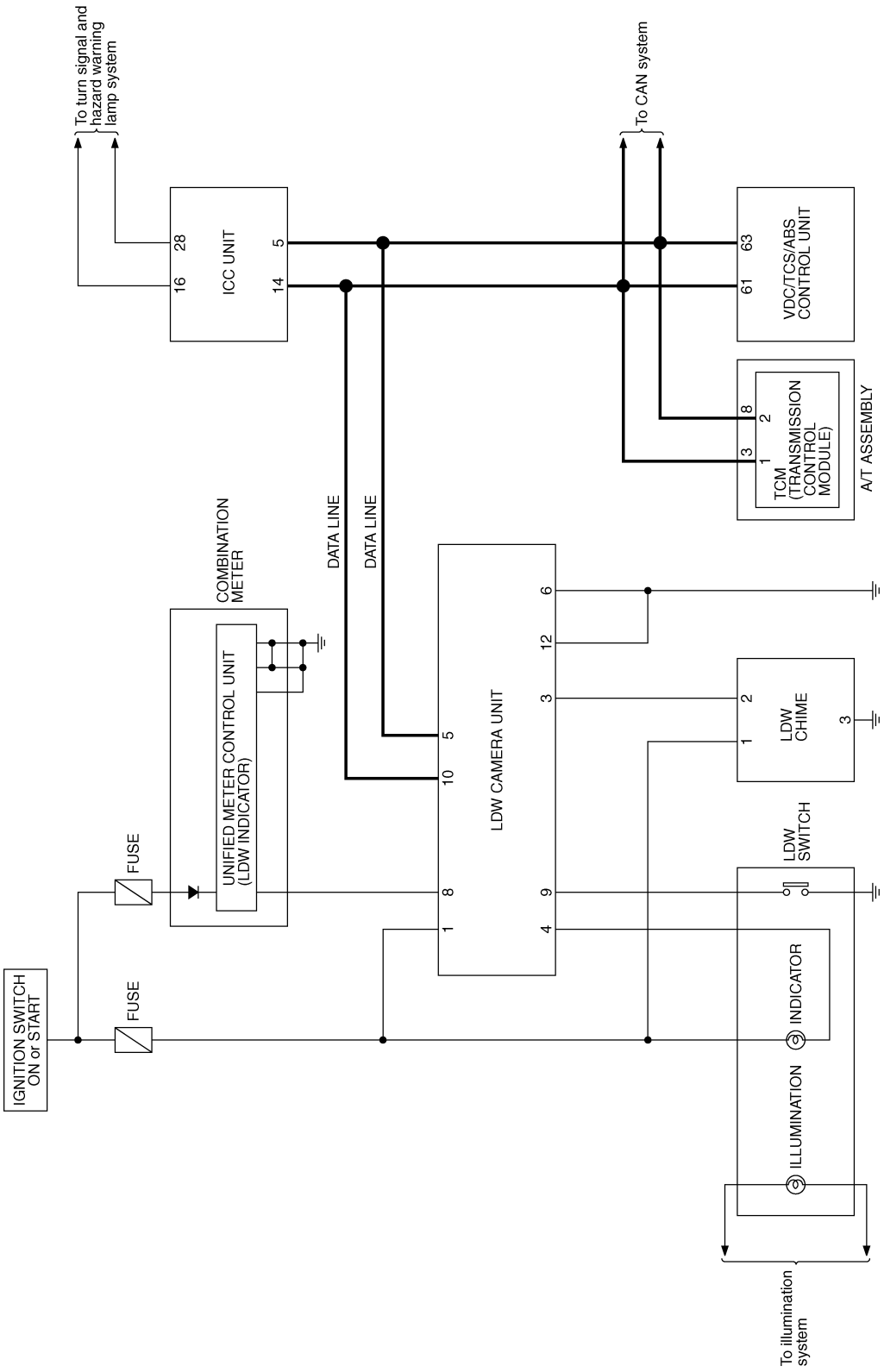
Component Parts and Harness Connector Location

NKS002BX



Schematic

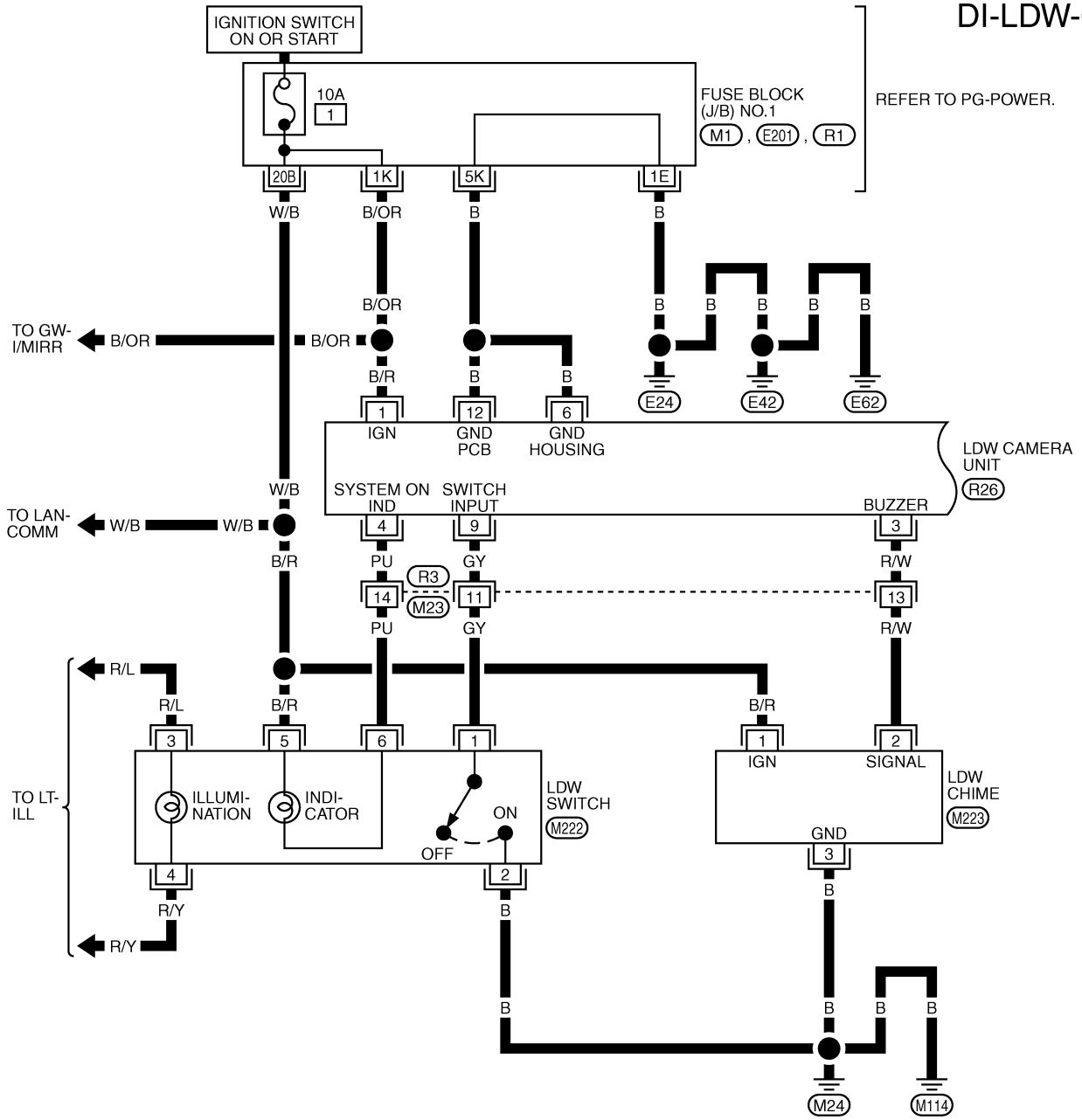
AKS00C7L

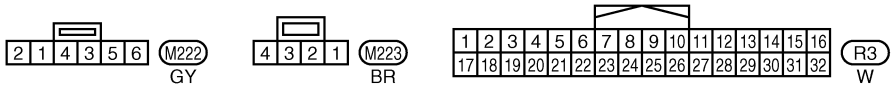


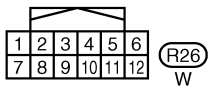
TKWM3769E

Wiring Diagram — LDW —

NKS002BY

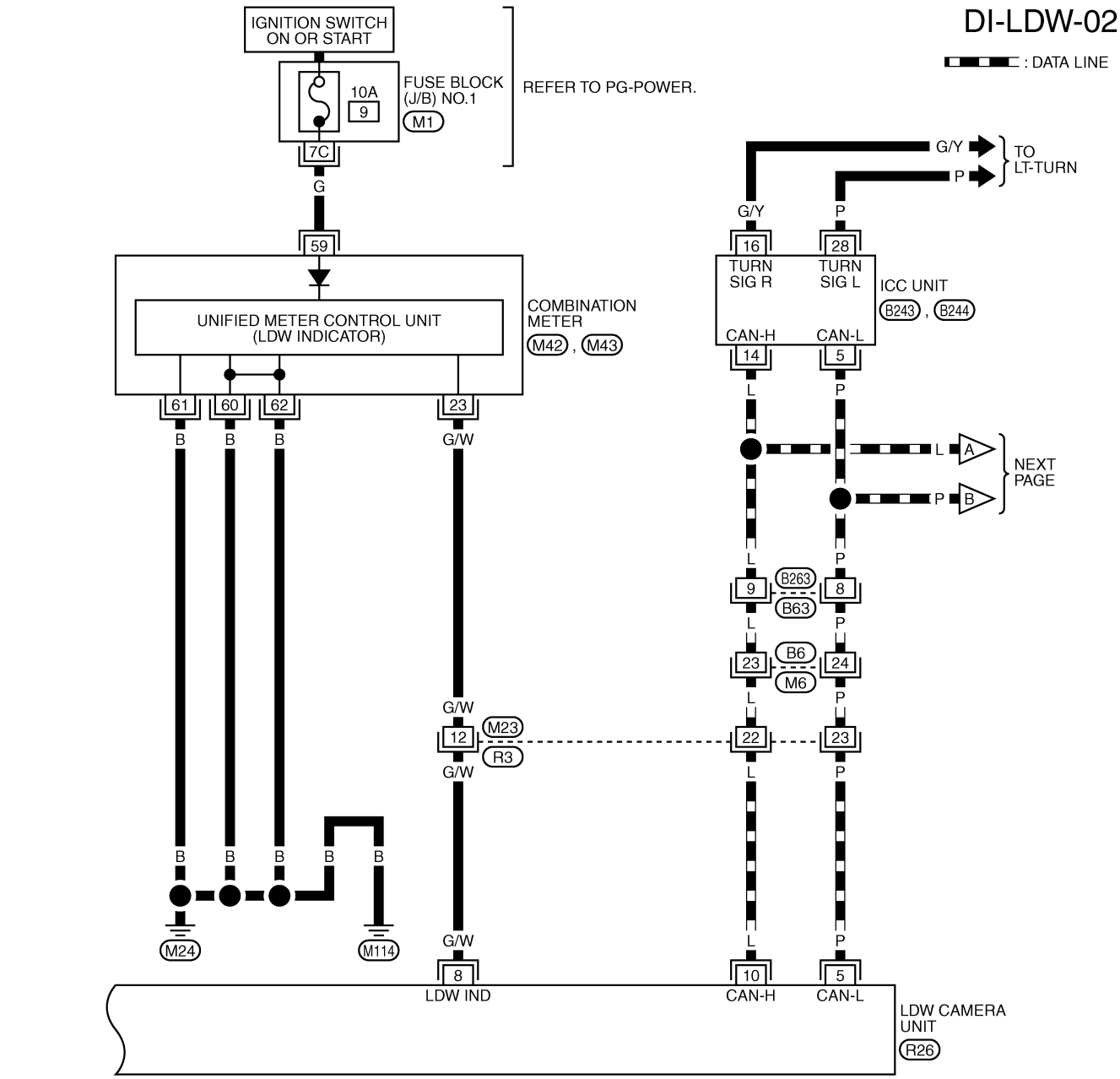


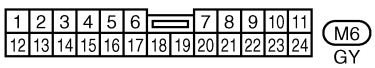


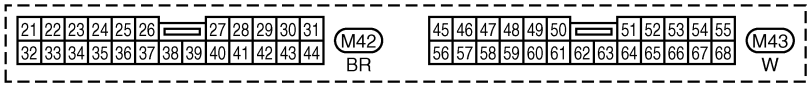


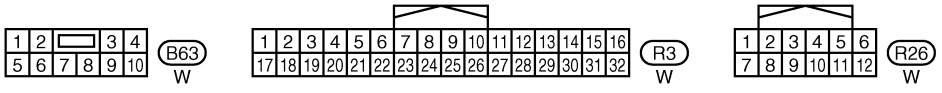
REFER TO THE FOLLOWING.
M1 , E201 , R1
-FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3770E









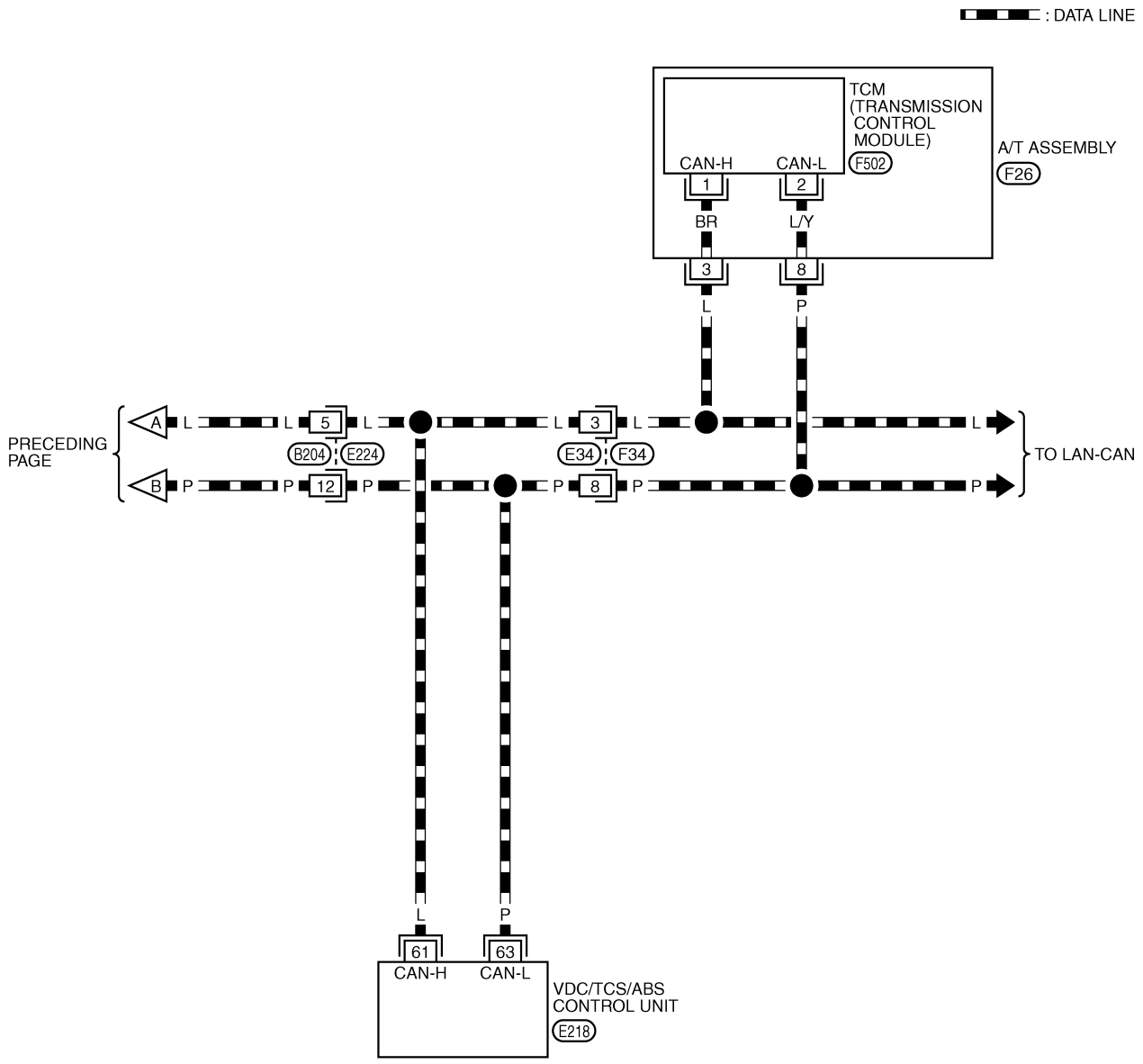
REFER TO THE FOLLOWING.

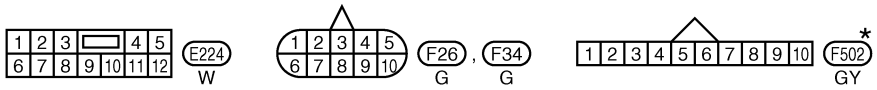
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

B243 , B244 -ELECTRICAL UNITS

TKWM3771E

DI-LDW-03





REFER TO THE FOLLOWING.
E218 -ELECTRICAL UNITS

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3772E

Terminals and Reference Value for LDW Camera Unit

NKS002BZ

Terminal No.	Wire color	Item	Condition			Reference value (Approx.)
			Ignition switch	Operation or condition		
1	B/R	Ignition power supply	ON	—		Battery voltage
3	R/W	LDW chime	ON	LDW chime	Activated*	0 V
					Not activated	12 V
4	PU	System ON indicator	ON	LDW system	ON	0 V
					OFF	12 V
5	P	CAN-L	—	—		—
6	B	Ground	ON	—		0 V
8	G/W	LDW indicator lamp	ON	LDW indicator lamp	Illuminated*	0 V
					Turned OFF	12 V
9	GY	LDW switch	ON	LDW switch	Pushed	0 V
					Released	5 V
10	L	CAN-H	—	—		—
12	B	Ground	ON	—		0 V

NOTE:

*: Perform “ACTIVE TEST” with CONSULT-II. Refer to DI-89, "ACTIVE TEST" .

Terminals and Reference Value for ICC Unit

NKS002JG

Terminal No.	Wire color	Item	Condition			Reference value (Approx.)
			Ignition switch	Operation or condition		
5	P	CAN-L	—	—		—
14	L	CAN-H	—	—		—
16	G/Y	Turn signal (RH)	ON	Turn signal lamp (RH)	Illuminated	12 V
					Not illuminated	0 V
28	P	Turn signal (LH)	ON	Turn signal lamp (LH)	Illuminated	12 V
					Not illuminated	0 V

CONSULT-II Function (LDW)

NKS002C0

DESCRIPTION

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

System	Diagnosis mode	Description	Reference page
LDW	WORK SUPPORT	Displays causes of automatic cancellation of the LDW system.	DI-87
	SELF-DIAG RESULTS	Displays malfunctioning system memorized in LDW camera unit.	DI-87
	DATA MONITOR	Displays real-time input/output data of LDW camera unit.	DI-88
	CAN DIAG SUPPORT MNTR	Displays the results of transmit/receive diagnosis of CAN communication.	LAN-17
	ACTIVE TEST	Enables operation check of electrical loads by sending driving signal to them.	DI-89
	ECU PART NUMBER	Displays part number of LDW camera unit.	—

CONSULT-II OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.

Display Item List

Operation	Function	Reference page
AUTO AIM	LDW camera unit calculates dislocation of the camera. Adjustment direction is displayed.	DI-74

SELF-DIAG RESULTS

Operation Procedure

1. Touch “SELF-DIAG RESULTS” on “SELECT DIAG MODE” screen.
2. See the displayed result of self-diagnosis.

Display Item List

Display item [Code]		Malfunction is detected when...	Reference page
CAMERA UNIT MALF	[C1B00]	LDW camera unit internal malfunction	DI-92
CAM AIMING INCMP	[C1B01]	LDW camera aiming is not adjusted.	DI-92
VHCL SPD DATA MALF	[C1B02]	LDW camera unit detected different vehicle speed signal from TCM and ABS actuator and electric unit (control unit).	DI-92
ABNRML TEMP DETECT	[C1B03]	Temperature around LDW camera unit is excessively high.	DI-92
CAN COMM CIRCUIT	[U1000]	LDW camera unit detected CAN communication malfunction.	DI-93
CONTROL UNIT (CAN)	[U1010]	LDW camera unit detected internal CAN communication circuit malfunction.	DI-93

NOTE:

- When a DTC is detected, the LDW system dose not operate.
- When the DTC except “ABNRML TEMP DETECT [C1B03] ” is detected, the LDW indicator lamp turns ON.
- When the DTC “ABNRML TEMP DETECT [C1B03] ” is detected, the LDW system ON indicator lamp blinks.

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Touch any of “ALL SIGNALS” and “SELECTION FROM MENU” on selection screen.
3. Touch “START”.
4. Display the data monitor.
5. If necessary, touch “COPY” in turn, and print data.

Display Item List

Display item [Unit]		Description
MAIN SW	[ON/OFF]	Displays [ON/OFF] status as judged from LDW switch signal.
SW ON LAMP	[ON/OFF]	Displays [ON/OFF] status of LDW system ON indicator signal output.
INDICATE LAMP	[ON/OFF]	Displays [ON/OFF] status of LDW indicator signal output.
BUZZER OUTPUT	[ON/OFF]	Displays [ON/OFF] status of LDW chime operation signal output.
LDW INACCURAT	[ON/OFF]	Displays LDW camera unit status.
VHCL SPD SE	[km/h] or [mph]	Displays vehicle speed calculated by LDW camera unit through CAN communication [ABS actuator and electric unit (control unit) transmits wheel sensor signal through CAN communication].
VHCL SPD AT	[km/h] or [mph]	Displays vehicle speed calculated from A/T vehicle speed sensor by LDW camera unit through CAN communication (TCM transmits A/T vehicle speed sensor signal through CAN communication).
TURN SIGNAL	[OFF/LH/RH]	Displays “Turn signal” status, determined from ICC unit through CAN communication. **NOTE:** It dose not display when hazard switch turns ON.
LANE DETCT LH	[ON/OFF]	Displays left lane marker is detected.
LANE DETCT RH	[ON/OFF]	Displays right lane marker is detected.
CROSS LANE LH	[ON/OFF]	Displays vehicle is crossing left lane.
CROSS LANE RH	[ON/OFF]	Displays vehicle is crossing right lane.
WARN LANE LH	[ON/OFF]	Displays warning for left lane.
WARN LANE RH	[ON/OFF]	Displays warning for right lane.
VALID POS LH	[VLD/INVLD]	Displays lateral position for left lane marker is valid.
VALID POS RH [VLD/INVLD]	[VLD/INVLD]	Displays lateral position for right lane marker is valid.
AIMING DONE	[OK/NG]	Displays camera aiming done.
AIMING RESULT	[OK/NOK]	Displays camera aiming result.
FCTRY AIM YAW	[deg]	Displays camera unit installation condition.
FCTRY AIM ROLL	[deg]	Displays camera unit installation condition.
FCTRY AIM PIT	[deg]	Displays camera unit installation condition.
XOFFSET	[pixel]	Displays camera unit installation condition.

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while LDW indicator lamp is illuminated.**

1. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen. Refer to DI-87, "CONSULT-II OPERATION" .
2. Touch any field, “BUZZER DRIVE ”, “SYSTEM ON LAMP DRIVE” and “INDICATOR LAMP DRIVE”, on selection screen.
3. Touch necessary item and “START”.
4. Active test screen will be shown.

Display Item List

Display item	Operation item	Function	Reference page
BUZZER DRIVE	LDW chime	Checks LDW chime operation.	DI-89
SYSTEM ON LAMP DRIVE	LDW system ON indicator	Checks LDW system ON indicator operation.	DI-89
INDICATOR LAMP DRIVE	LDW indicator lamp	Checks LDW indicator lamp operation.	DI-89

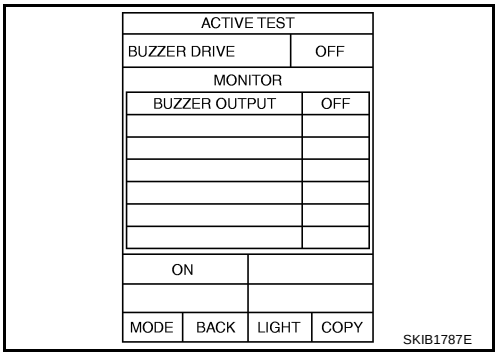
BUZZER DRIVE

Touch “ON” and “OFF” to check if LDW chime operates as follows.

“BUZZER DRIVE”

Touch “ON” : LDW chime is activated.

Touch “OFF” : LDW chime is not activated.



SYSTEM ON LAMP DRIVE

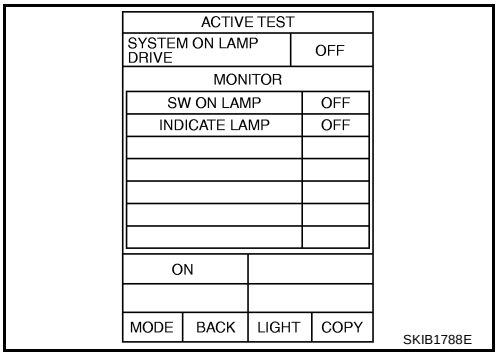
Touch “ON” and “OFF” to check if LDW system ON indicator operates as follows.

“SYSTEM ON LAMP DRIVE”

Touch “ON” : LDW system ON indicator illuminates.

Touch “OFF” : LDW system ON indicator turns OFF.

NOTE:
Perform “SYSTEM ON LAMP DRIVE” when LDW system ON indicator turns OFF.



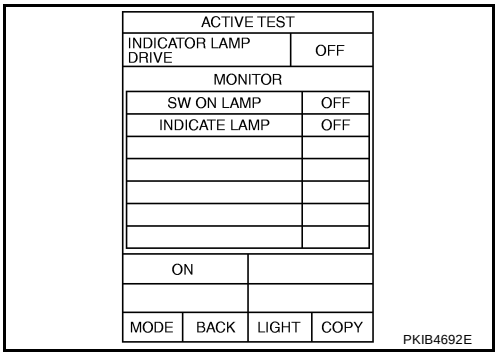
INDICATOR LAMP DRIVE

Touch “ON” and “OFF” to check that LDW indicator lamp operates as follows.

“INDICATOR LAMP DRIVE”

Touch “ON” : LDW indicator lamp illuminates.

Touch “OFF” : LDW indicator lamp OFF.



Trouble Diagnosis

NKS002C1

HOW TO PERFORM TROUBLE DIAGNOSIS

1. Check the symptom and customer complaint.
2. Understand the outline of system. Refer to DI-71, "System Description" .
3. Perform the preliminary inspection. Refer to DI-90, "PRELIMINARY INSPECTION" .
4. Referring to symptom chart, make sure the cause of the malfunction and repair or replace applicable parts. Refer to DI-91, "SYMPTOM CHART" .
5. Erase DTC and perform self-diagnosis of LDW system again. Then perform LDW system running test. Refer to DI-87, "CONSULT-II Function (LDW)" and DI-73, "LDW SYSTEM RUNNING TEST" .
6. Does LDW system operate normally? If yes, GO TO 7. If no, GO TO 3.
7. INSPECTION END

PRELIMINARY INSPECTION

1. CHECK CAMERA LENS AND WINDSHIELD

Are camera lens and windshield contaminated with foreign materials?

YES >> Clean camera lens and windshield.
NO >> GO TO 2.

2. CHECK CAMERA UNIT INSTALLATION CONDITION

Check camera unit installation condition (installation position, properly tightened, a bent bracket).

OK or NG

OK >> GO TO 3.
NG >> Install camera unit properly, and adjust camera aiming. Refer to DI-74, "Camera Aiming Adjustment" .

3. CHECK VEHICLE HEIGHT

Check vehicle height. Refer to MA-28, "SERVICE DATA AND SPECIFICATIONS (SDS)" .

Is vehicle height appropriate?

OK >> GO TO 4.
NG >> Repair vehicle to appropriate height.

4. CHECK LDW CAMERA UNIT (CONSULT-II)

Perform self-diagnosis of LDW camera unit. Refer to DI-87, "CONSULT-II Function (LDW)" .

Self-diagnostic results content

No malfunction detected>>GO TO 5.
Malfunction detected>>Check applicable parts, and repair or replace corresponding parts.

5. CHECK COMBINATION METER

Check combination meter function.

Do speedometer and turn signal indicator function normally?

YES >> INSPECTION END
NO >> Check combination meter. Refer to DI-16, "Trouble Diagnosis" .

SYMPTOM CHART

Symptom	Diagnosis/Service procedure
LDW system is not activated. (LDW system ON indicator turns ON/OFF.)	Perform the following inspections. 1. DI-93, "LDW Chime Circuit Inspection" 2. DI-97, "LDW Indicator Lamp Circuit Inspection" Replace LDW camera unit, found normal function in the above inspections.
LDW system does not turn ON/OFF. (LDW system ON indicator does not turn ON/OFF.)	Perform DI-94, "LDW Switch Circuit Inspection" . Replace LDW camera unit, found normal function in the above inspection.
Warning functions are untimely. (Example) ● Warning does not function when driving on lane markers. ● Warning functions when driving in a lane. ● Differs position from actual condition functions.	Perform DI-74, "Camera Aiming Adjustment" .
Functions when changing the course to the turn signal direction.	Perform DI-98, "Turn Signal Input Inspection" . Replace LDW camera unit, found normal function in the above inspection.
LDW indicator lamp does not illuminate with ignition switch ON.	Perform DI-97, "LDW Indicator Lamp Circuit Inspection" . Replace LDW camera unit, found normal function in the above inspection.

Power Supply and Ground Circuit Inspection

NKS002C2

1. CHECK FUSE

Check for blown LDW camera unit fuse.

Unit	Power source	Fuse No.
LDW camera unit	Ignition switch ON or START	1

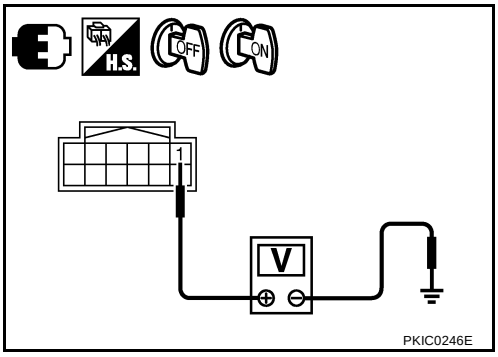
OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between LDW camera unit and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
LDW camera unit connector	Terminal			
R26	1	Ground	0 V	Battery voltage

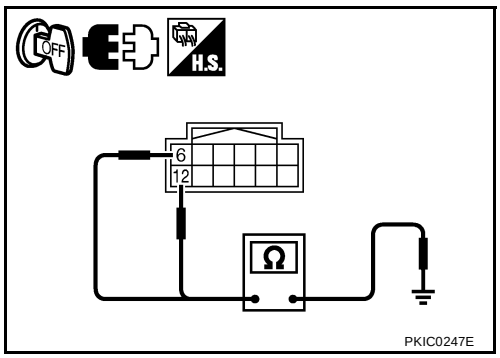


OK or NG

OK >> GO TO 3.
NG >> Repair harness between LDW camera unit and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW camera unit connector.
3. Check continuity between LDW camera unit harness connector and ground.



LDW camera unit connector	Terminal	Ground	Continuity
R26	6		Yes
	12		

OK or NG

OK >> Power supply and ground circuit are OK.
NG >> Repair ground harness.

DTC [C1B00] CAMERA UNIT MALF

NKS002C3

1. CHECK LDW CAMERA UNIT

1. Perform self-diagnosis of LDW camera unit.
2. Check if any item other than “[C1B00] CAMERA UNIT” is displayed on self-diagnosis display.

Is any displayed?

YES >> Repair or replace applicable item.
NO >> Replace LDW camera unit.

DTC [C1B01] CAM AIMING INCMP

NKS002C4

1. PREFORM CAMERA AIMING ADJUSTMENT

1. Preform camera aiming adjustment. Refer to DI-74, "Camera Aiming Adjustment" .
2. Erase DTC and perform LDW camera unit self-diagnosis.

Self-diagnostic results content

No malfunction detected>>INSPECTION END
Malfunction detected>>Replace LDW camera unit.

DTC [C1B02] VHCL SPD DATA MALF

NKS002C5

1. CHECK VDC/TCS/ABS CONTROL UNIT (CONSULT-II)

Perform VDC/TCS/ABS control unit self-diagnosis. Refer to BRC-23, "CONSULT-II Functions (VDC)" .

Self-diagnostic results content

No malfunction detected>>GO TO 2.
Malfunction detected>>Check applicable parts, and repair or replace corresponding parts.

2. CHECK TCM (CONSULT-II)

Perform TCM self-diagnosis. Refer to AT-85, "CONSULT-II Function (A/T)" .

Self-diagnostic results content

No malfunction detected>>Replace LDW camera unit.
Malfunction detected>>Check applicable parts, and repair or replace corresponding parts.

DTC [C1B03] ABNRML TEMP DETECT

NKS002C6

1. COOLING CAMERA UNIT

1. Cooling camera unit.
2. Erase DTC and perform LDW camera unit self-diagnosis.

Self-diagnostic results content

No malfunction detected>>INSPECTION END
Malfunction detected>>Replace LDW camera unit.

DTC [U1000] CAN COMM CIRCUIT

NKS002C7

1. CHECK CAN COMMUNICATION

1. Select “SELF-DIAG RESULTS” mode for “LDW” with CONSULT-II.
2. Print out CONSULT-II screen.

>> Go to “LAN SYSTEM”. Refer to LAN-17, "Precautions When Using CONSULT-II" .

DTC [U1010] CONTROL UNIT (CAN)

NKS002C8

Replace LDW camera unit, when “[U1010] CONTROL UNIT (CAN)” is displayed on self-diagnosis display.

LDW Chime Circuit Inspection

NKS002C9

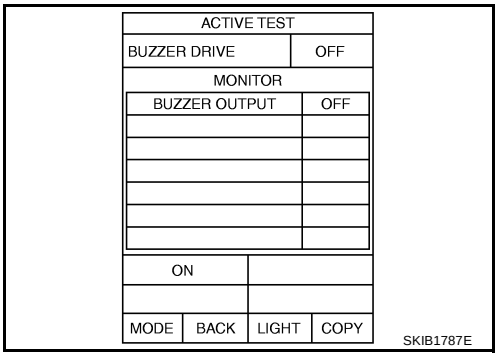
1. CHECK OPERATION OF LDW CHIME

Check LDW chime operation “BUZZER DRIVE” in “ACTIVE TEST” mode with CONSULT-II.

“BUZZER DRIVE”

Touch “ON” : LDW chime is activated.

Touch “OFF” : LDW chime is not activated.



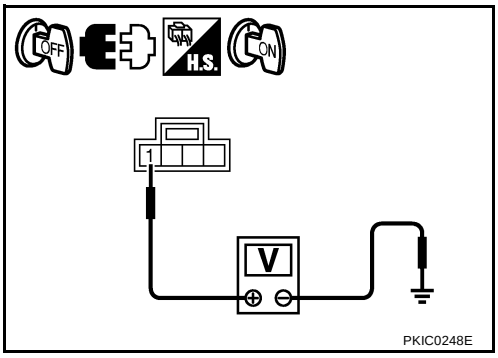
OK or NG

OK >> LDW chime is OK. Return to DI-91, "SYMPTOM CHART" .

NG >> GO TO 2.

2. CHECK LDW CHIME POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW chime connector.
3. Turn ignition switch ON.
4. Check voltage between LDW chime harness connector and ground.



Terminals			Voltage (Approx.)
(+)		(–)	
LDW chime connector	Terminal		
M223	1	Ground	Battery voltage

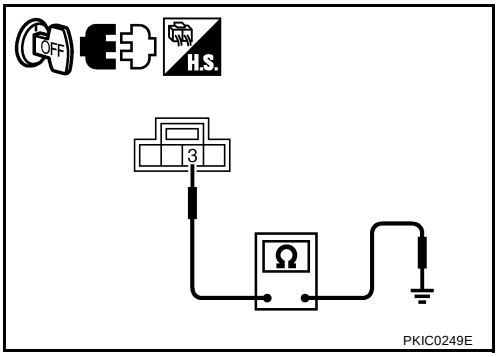
OK or NG

OK >> GO TO 3.

NG >> Check harness between fuse and LDW chime.

3. CHECK LDW CHIME GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between LDW chime harness connector and ground.



LDW chime connector	Terminal	Ground	Continuity
M223	3		Yes

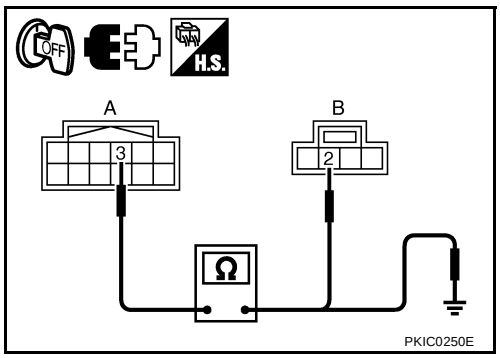
OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.

4. CHECK LDW CHIME SIGNAL CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector (A) and LDW chime harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
R26	3	M223	2	Yes

3. Check continuity between LDW camera unit harness connector (A) and ground.

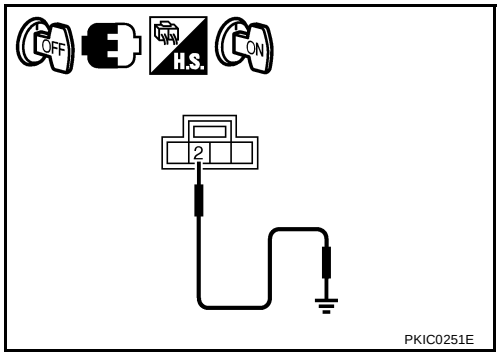
A		Ground	Continuity
Connector	Terminal		
R26	3		No

OK or NG

OK >> GO TO 5.
NG >> Repair harness or connector.

5. CHECK LDW CHIME

1. Connect LDW chime connector.
2. Turn ignition switch ON.
3. Apply ground to LDW chime terminal.
4. Check condition of the LDW chime.



LDW chime connector	Terminal	Ground	Condition
M223	2		LDW chime should operate.

OK or NG

OK >> Replace LDW camera unit.
NG >> Replace LDW chime.

LDW Switch Circuit Inspection

NKS002CA

1. CHECK OPERATION OF LDW SYSTEM ON INDICATOR

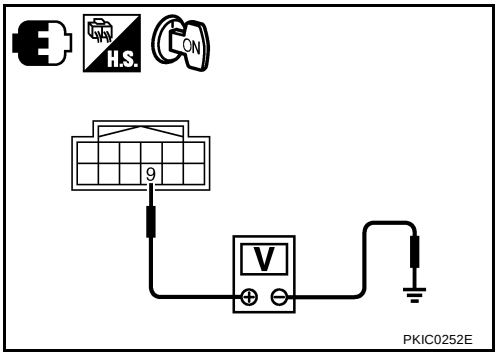
1. Turn ignition switch ON.
2. Check LDW system ON indicator operation when LDW switch is ON/OFF.

OK or NG

OK >> LDW system ON indicator is OK. Return to DI-91, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK LDW SWITCH SIGNAL INPUT

Check voltage between LDW camera unit harness connector and ground.



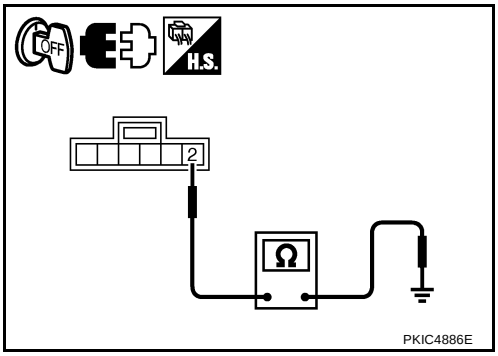
Terminals			Condition	Voltage (Approx.)
(+)		(–)		
LDW camera unit connector	Terminal		LDW switch:	
R26	9	Ground	Push	0 V
			Release	5 V

OK or NG

OK >> GO TO 6.
NG >> GO TO 3.

3. CHECK LDW SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW switch connector.
3. Check continuity between LDW switch connector and ground.



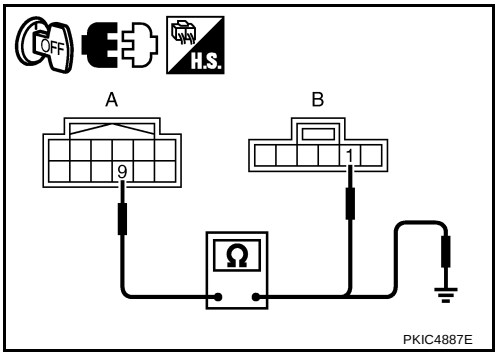
LDW switch connector	Terminal	Ground	Continuity
M222	2		Yes

OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

4. CHECK LDW SWITCH SIGNAL INPUT CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector (A) and LDW switch harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
R26	9	M222	1	Yes

3. Check continuity between LDW camera unit harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
R26	9		No

OK or NG

OK >> GO TO 5.
NG >> Repair harness or connector.

5. CHECK LDW SWITCH

Check LDW switch. Refer to DI-99, "LDW SWITCH" .

OK or NG

OK >> Replace LDW camera unit.
NG >> Replace LDW switch.

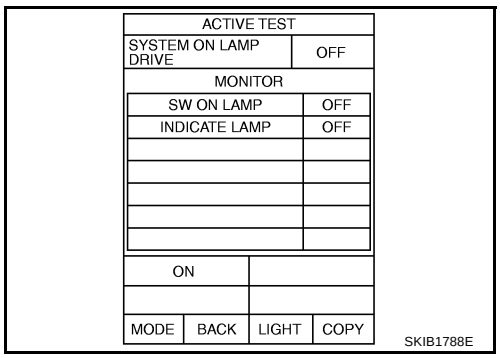
6. CHECK OPERATION OF LDW SYSTEM ON INDICATOR

Check LDW system ON indicator operation “SYSTEM ON LAMP DRIVE” in “ACTIVE TEST” mode with CONSULT-II.

“SYSTEM ON LAMP DRIVE”

Touch “ON” : LDW system ON indicator illuminates.

Touch “OFF” : LDW system ON indicator turns OFF.



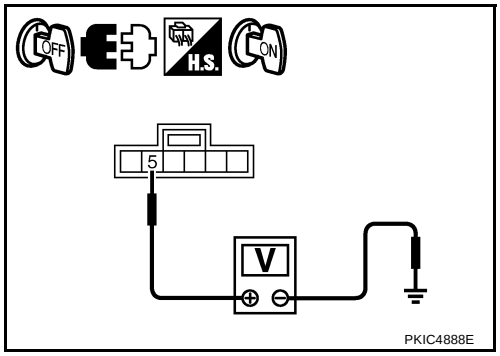
NOTE:
Perform “SYSTEM ON LAMP DRIVE” when LDW system ON indicator turns OFF.

OK or NG

OK >> Replace LDW camera unit.
NG >> GO TO 7.

7. CHECK LDW SYSTEM ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW switch connector.
3. Turn ignition switch ON.
4. Check voltage between LDW switch harness connector and ground.



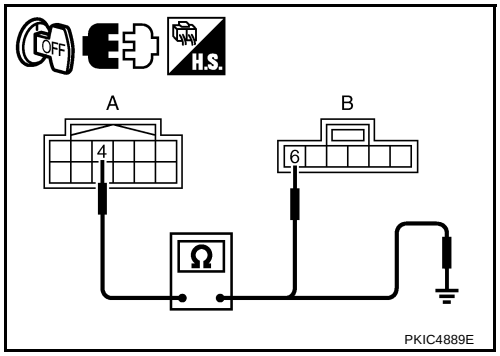
Terminals			Voltage (Approx.)
(+)		(–)	
LDW switch connector	Terminal		
M222	5	Ground	Battery voltage

OK or NG

OK >> GO TO 8.
NG >> Check harness between fuse and LDW switch.

8. CHECK LDW SYSTEM ON INDICATOR SIGNAL CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector (A) and LDW switch harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
R26	4	M222	6	Yes

3. Check continuity between LDW camera unit harness connector (A) and ground.

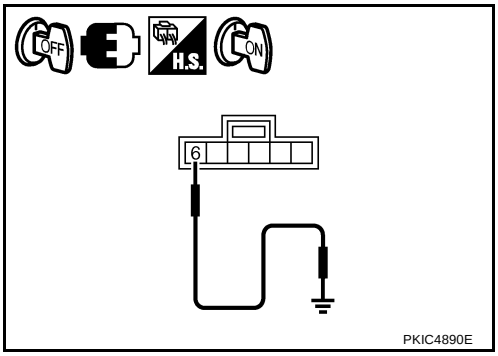
A		Ground	Continuity
Connector	Terminal		
R26	4		No

OK or NG

OK >> GO TO 9.
NG >> Repair harness or connector.

9. CHECK LDW SYSTEM ON INDICATOR

1. Connect LDW switch connector.
2. Turn ignition switch ON.
3. Apply ground to LDW switch terminal.
4. Check condition of the LDW system ON indicator.



LDW switch connector	Terminal	Ground	Condition
M222	6		LDW system ON indicator should illuminate.

OK or NG

OK >> Replace LDW camera unit.
NG >> Replace LDW switch.

LDW Indicator Lamp Circuit Inspection

NKS002CB

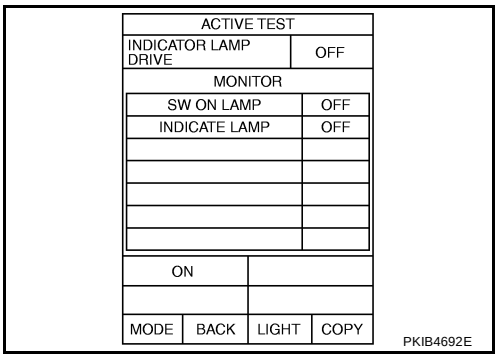
1. CHECK OPERATION OF LDW INDICATOR LAMP

Check LDW indicator operation “INDICATOR LAMP DRIVE” in “ACTIVE TEST” mode with CONSULT-II.

“INDICATOR LAMP DRIVE”

Touch “ON” : LDW indicator lamp illuminates.

Touch “OFF” : LDW indicator lamp OFF.



OK or NG

OK >> LDW indicator is OK. Return to DI-91, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK LDW INDICATOR LAMP

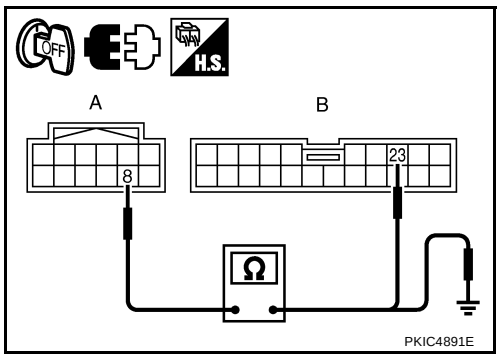
Activate self-diagnosis mode of combination meter. Refer toDI-16, "Self-Diagnosis Mode of Combination Meter" .

Does LDW indicator lamp illuminate?

YES >> GO TO 3.
NO >> Replace combination meter.

3. CHECK LDW INDICATOR LAMP SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW camera unit connector and combination meter connector.
3. Check continuity between LDW camera unit harness connector (A) and combination meter harness connector (B).



A		B		Continuity
Connector	Terminal	Connector	Terminal	
R26	8	M42	23	Yes

4. Check continuity between LDW camera unit harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
R26	8		No

OK or NG

OK >> Replace LDW camera unit.
NG >> Repair harness or connector.

Turn Signal Input Inspection

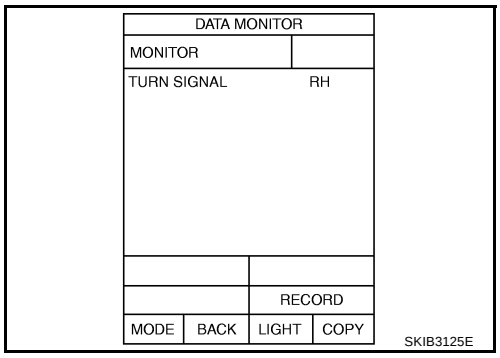
NKS002CC

1. CHECK TURN SIGNAL INPUT (LDW CAMERA UNIT)

Check turn signal input “TURN SIGNAL” in “DATA MONITOR” mode with CONSULT-II.

“TURN SIGNAL”
When lighting switch is in TURN RH position : RH
When lighting switch is in TURN LH position : LH

NOTE:
It dose not display when hazard switch turns ON.



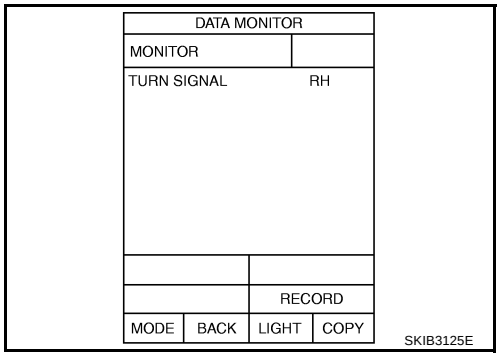
OK or NG

OK >> Turn signal input is OK. Return to DI-91, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK TURN SIGNAL INPUT (ICC UNIT)

1. Select “ICC” on “SELECT SYSTEM” screen. Refer to ACS-33, "CONSULT-II Function (ICC)" .
2. Check turn signal input “TURN SIGNAL” in “DATA MONITOR” mode.

“TURN SIGNAL”
When lighting switch is in TURN RH position : RH
When lighting switch is in TURN LH position : LH
When hazard switch is turned ON : RH/LH



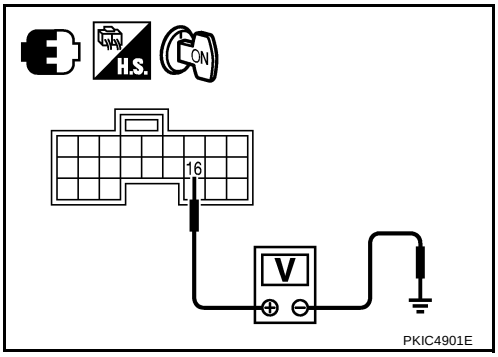
OK or NG

OK >> Replace LDW camera unit.
NG >> GO TO 3.

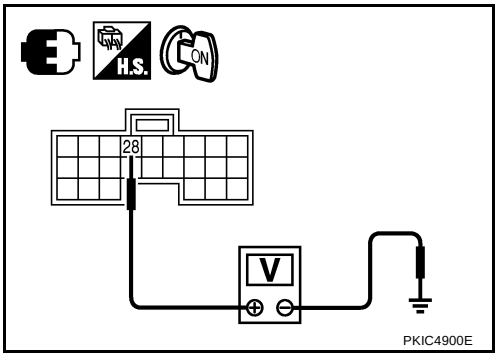
3. CHECK VOLTAGE OF TURN SIGNAL

Check voltage between ICC unit harness connector and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
ICC unit connector	Terminal		Turn signal lamp (RH):	
B243	16	Ground	Illuminate	12 V
			Not illuminate	0 V



Terminals			Condition	Voltage (Approx.)
(+)		(–)		
ICC unit connector	Terminal		Turn signal lamp (LH):	
B244	28	Ground	Illuminate	12 V
			Not illuminate	0 V



OK or NG

OK >> Replace ICC unit.

NG >> Repair harness between ICC unit and combination flasher unit. Refer to LT-94, "Wiring Diagram — TURN —" .

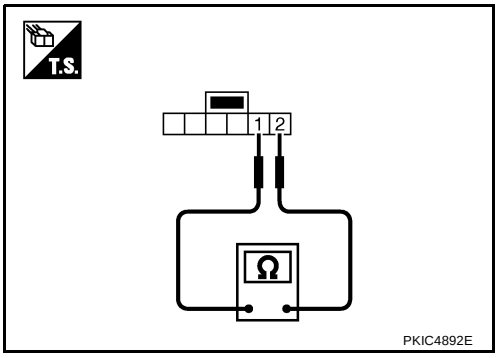
Electrical Component Inspection

NKS002CD

LDW SWITCH

Check continuity between terminals 1 and 2.

Terminal		Condition	Continuity
1	2	When LDW switch is pushed.	Yes
		When LDW switch is released.	No

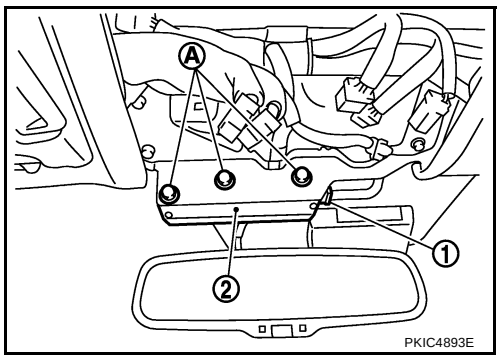


Removal and Installation for LDW Camera Unit

NKS002CE

REMOVAL

1. Remove map lamp cover. Refer to EI-58, "HEADLINING" .
2. Disconnect LDW camera unit connector (1).
3. Remove the bolts (A), and remove LDW camera unit (2).



INSTALLATION

Installation is the reverse order of removal.

CAUTION:

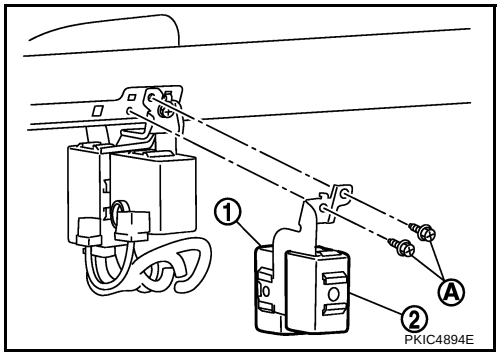
- **Remove the camera lens cap for replacement.**
- **Never give an impact to the LDW camera unit.**
- **Adjust the camera aiming every time the LDW camera unit is removed or installed. Refer to DI-74, "Camera Aiming Adjustment" .**

Removal and Installation for LDW Chime

NKS002CF

REMOVAL

1. Remove instrument driver panel. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Disconnect LDW chime connector and ICC warning chime connector.
3. Remove the bolts (A).
4. Remove LDW chime (1) and ICC warning chime (2) with the bracket.
5. Separate LDW chime (1) and ICC warning chime (2) from the bracket.



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation for LDW Switch

NKS002CG

Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .

VEHICLE INFORMATION AND INTEGRATED SWITCH SYSTEM /WITHOUT NAVIGATION SYSTEM

PFP:28395

Precautions for AV Control Unit Replacement

NKS001CG

The AV control unit has the following information stored in its memory. Record the memory contents before replacing the control unit, and input them in the new unit as necessary.

<Radio>	• **Preset frequency**
	• **Area for indicating station, selection of overlapped stations**
<CD>	• **Program status**
<Sound quality>	• **Volume balance memory set values**
	• **Equalizer memory set values**
<Image quality>	• **Brightness of light when ON/OFF**
	• **Dimming switching**
	• **Display color switching**

NOTE:
Only removing the battery does not erase the memory.

Precautions for LCD Monitor

NKS002JH

- When passenger compartment temperature is low, the LCD monitor sometimes dims because of the brightness of the back light (small fluorescent light) integrated into the LCD monitor decrease. In this case, the refreshing rate of the picture also becomes low because of the low response of the LCD monitor. When passenger compartment becomes warm, however, the LCD recovers the normal display.
- Sometimes, black or bright dots peculiar to LCD monitor can be seen on the display.
- Back light sometimes flickers or darkens according to the total consumption hours and the number of ON and OFF switching. In this case, the back light should be replaced (LCD monitor assembly).

System Description

NKS001CF

VEHICLE INFORMATION SYSTEM

- AV control unit is received vehicle information system of signals from combination meter.
- AV control unit is communicating with BCM and combination meter.

Here is an example of functions. For details, refer to the Owner's Manual.

INTEGRATED SWITCH SYSTEM

Using the multifunction switch at the center of the instrument panel, the controls of the following systems are centralized:

- Auto A/C system
- Vehicle information system
- Audio system

The multifunction switch can operate and check the vehicle condition and each setting (vehicle electrical system).

AV COMMUNICATION LINE

AV control unit is connected to the following units with AV communication line.

- Display
- Multifunction switch
- Audio unit
- BOSE speaker amp. (audio amp.)
- Low tire pressure warning control unit
- Voice activated control module

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 15A fuse [No. 52, located in fuse, fusible link and relay block (J/B)]
- to AV control unit terminals 2 and 3,
- to display terminals 21 and 23.

When ignition switch is in ACC or ON position, power is supplied

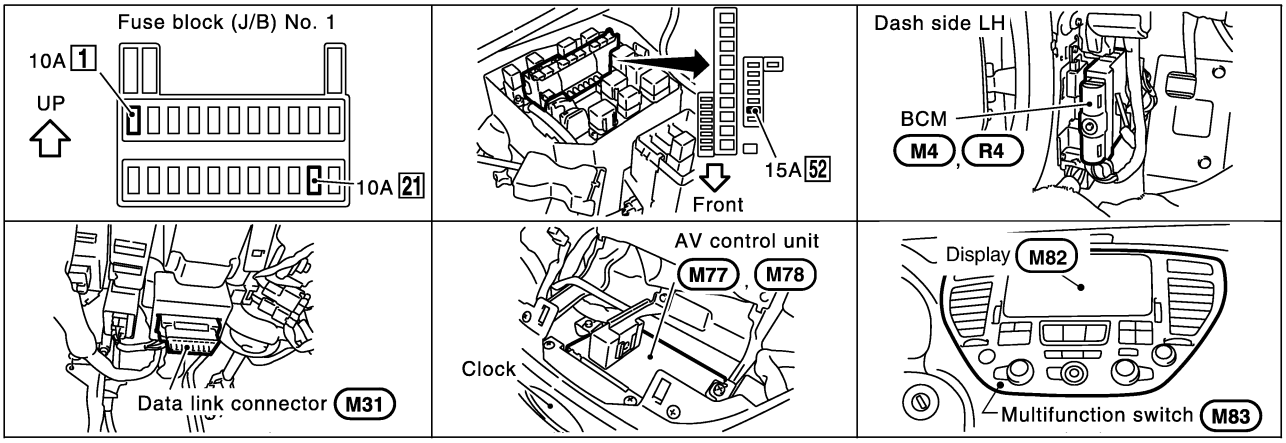
- through 10A fuse [No. 21, located in fuse block (J/B) No. 1]
- to AV control unit terminal 6
- to display terminal 19
- to multifunction switch terminal 1.

Ground is supplied

- to AV control unit terminals 1 and 4
- through grounds M25 and M115, and
- to multifunction switch terminal 2
- to display terminals 22 and 24
- through grounds M24 and M114.

Component Parts and Harness Connector Location

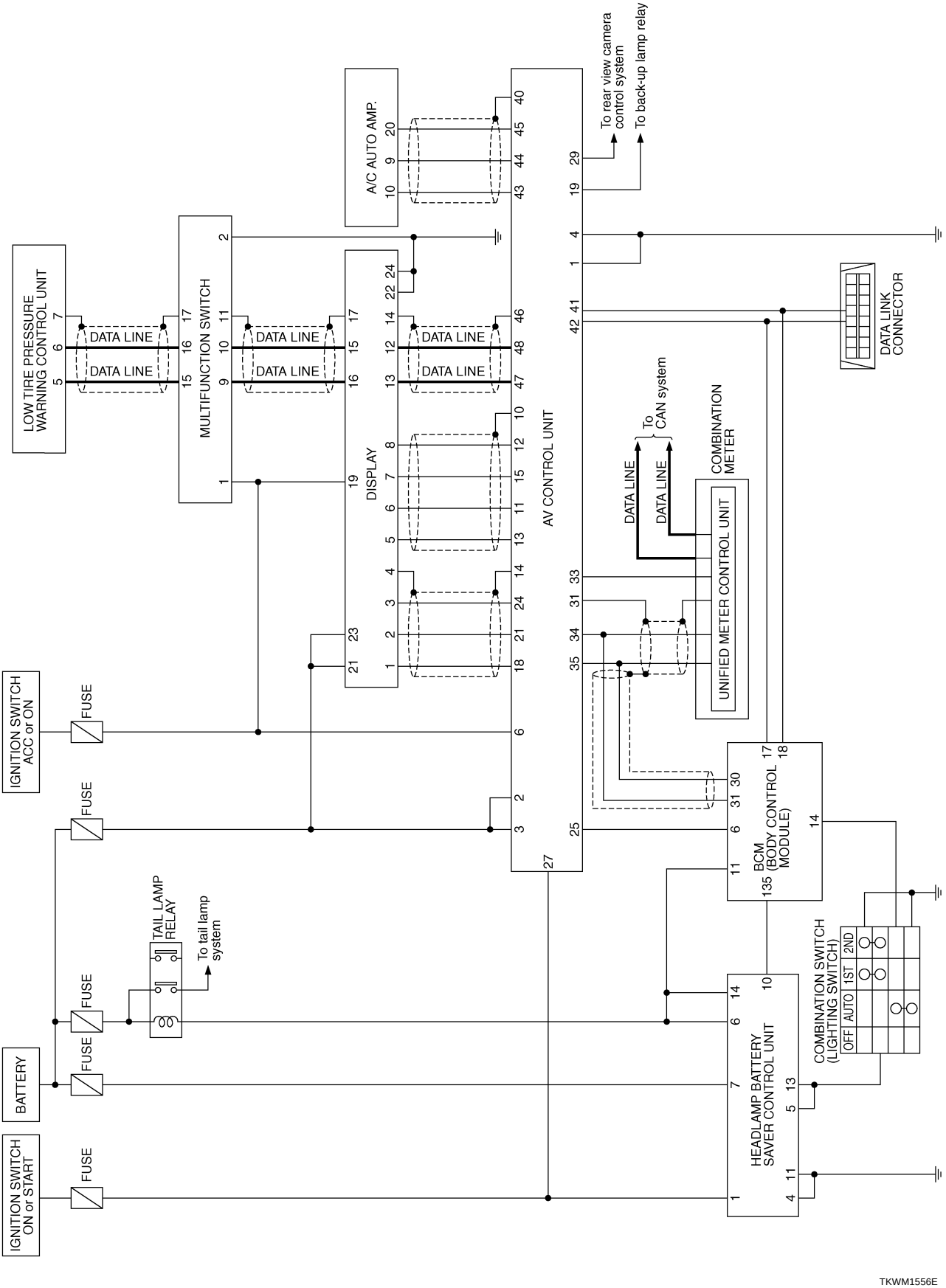
NKS001CH



PKIA6792E

Schematic — INF/D —

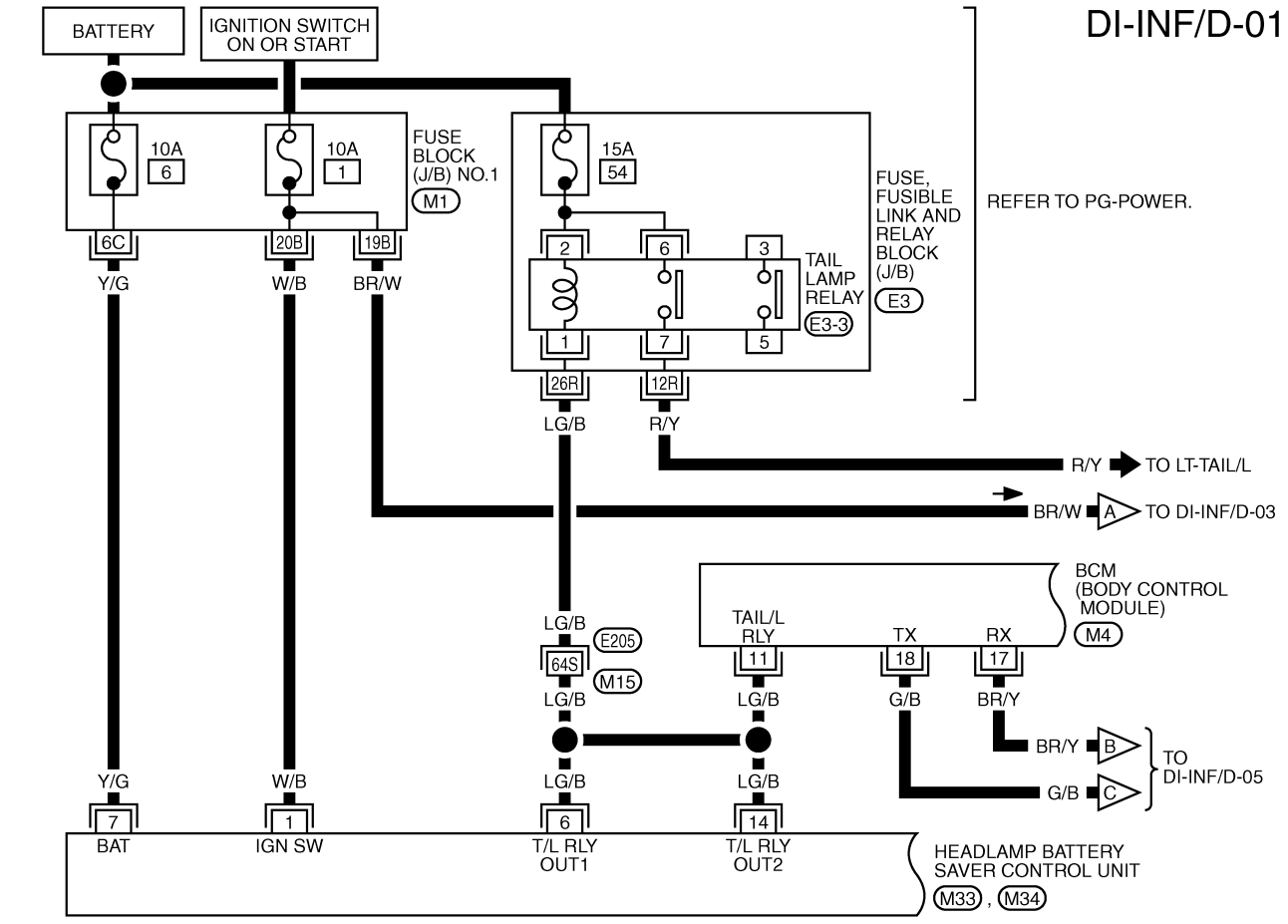
NKS001CI

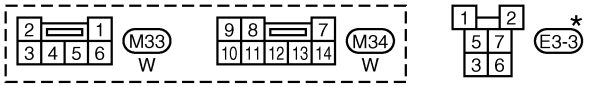


TKWM1556E

Wiring Diagram — INF/D —

NKS001CJ





*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

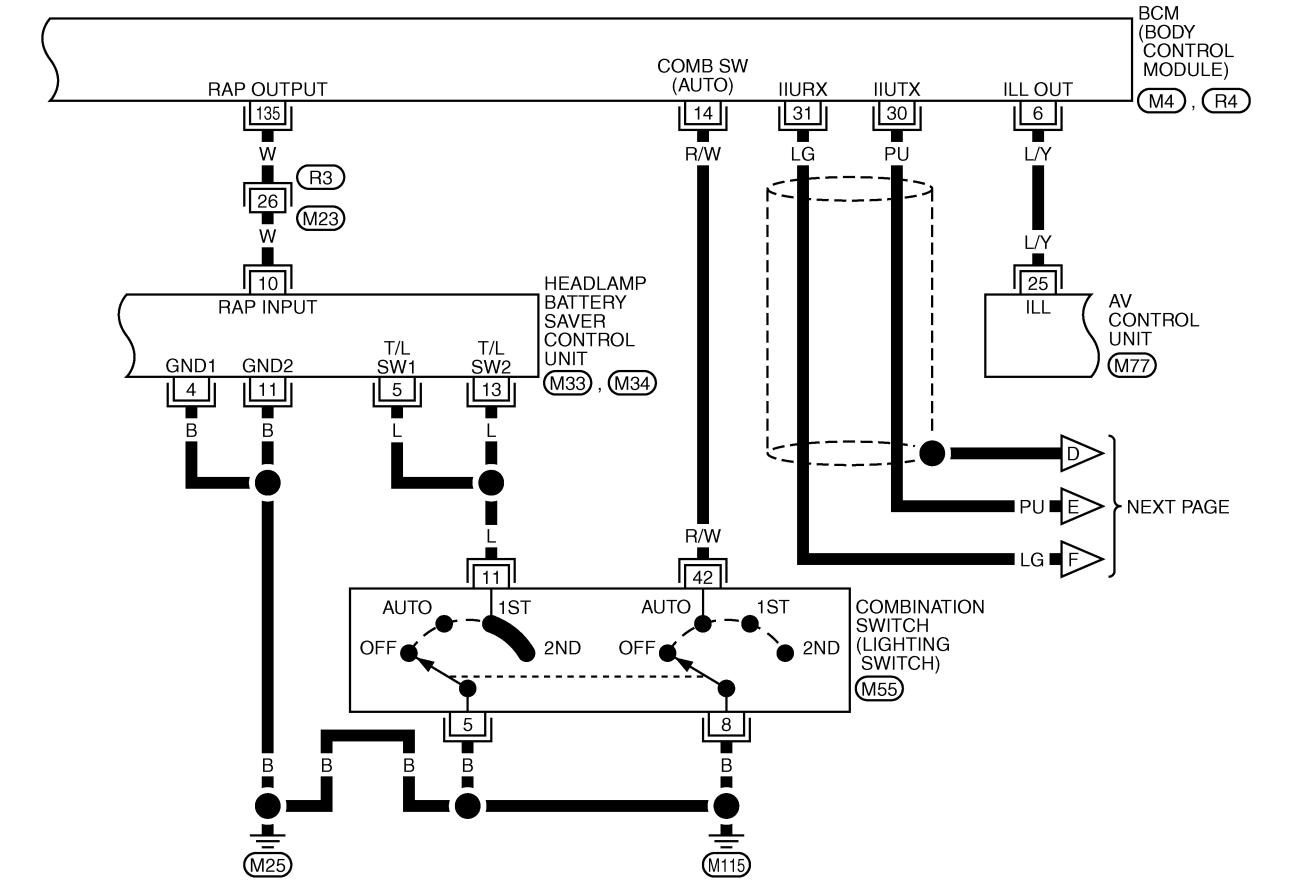
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

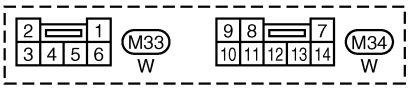
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

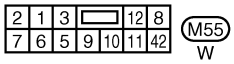
M4 -ELECTRICAL UNITS

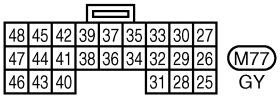
TKWM3740E

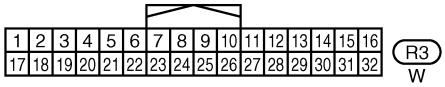
DI-INF/D-02







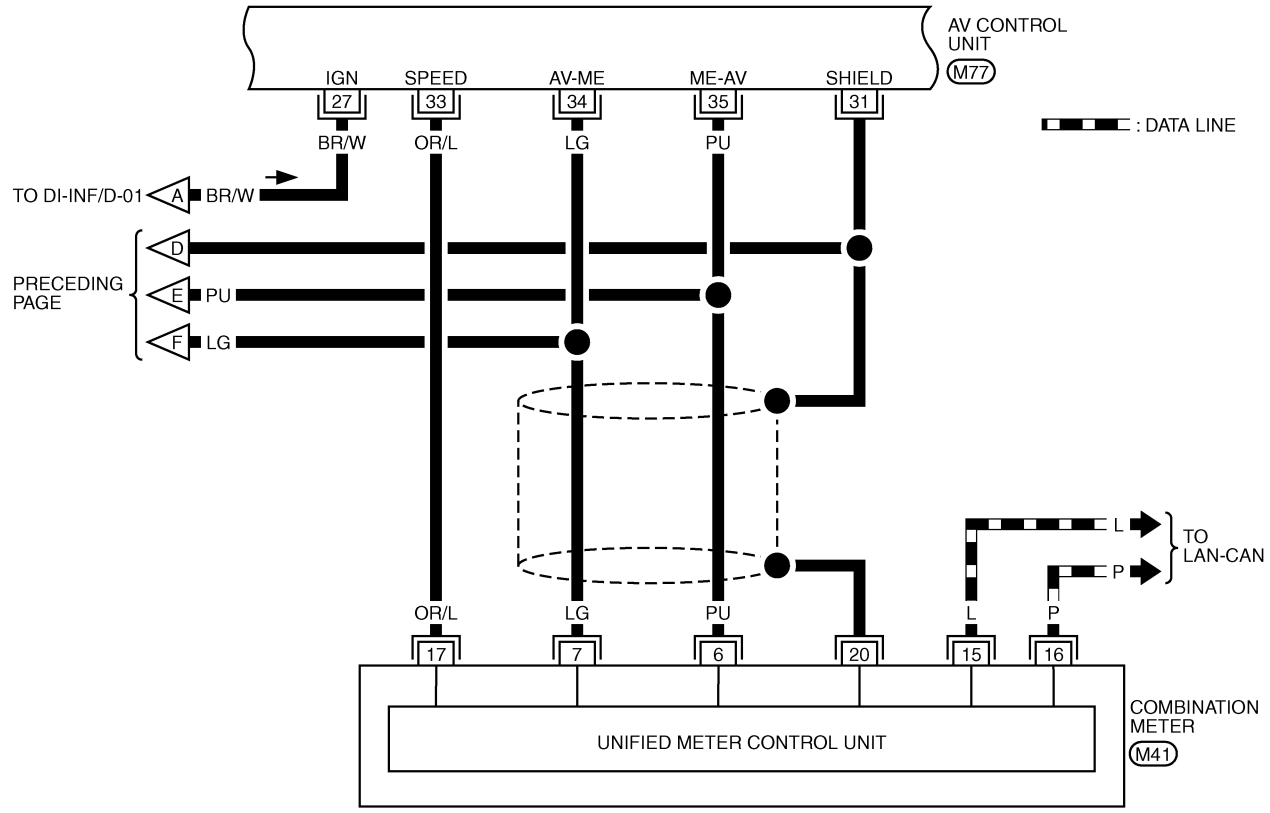


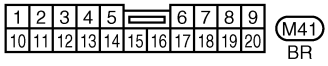


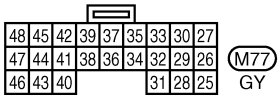
REFER TO THE FOLLOWING.
M4 , R4 -ELECTRICAL UNITS

TKWM3741E

DI-INF/D-03

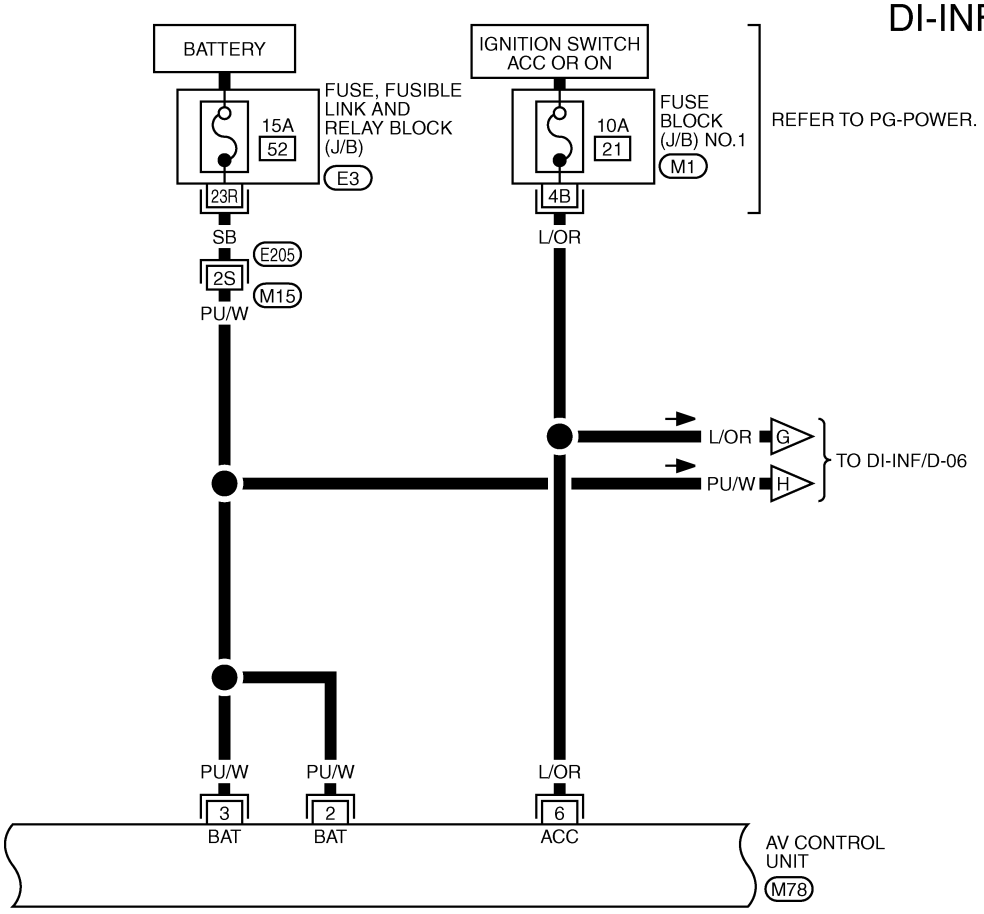


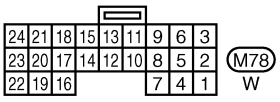




TKWM1559E

DI-INF/D-04





REFER TO THE FOLLOWING.

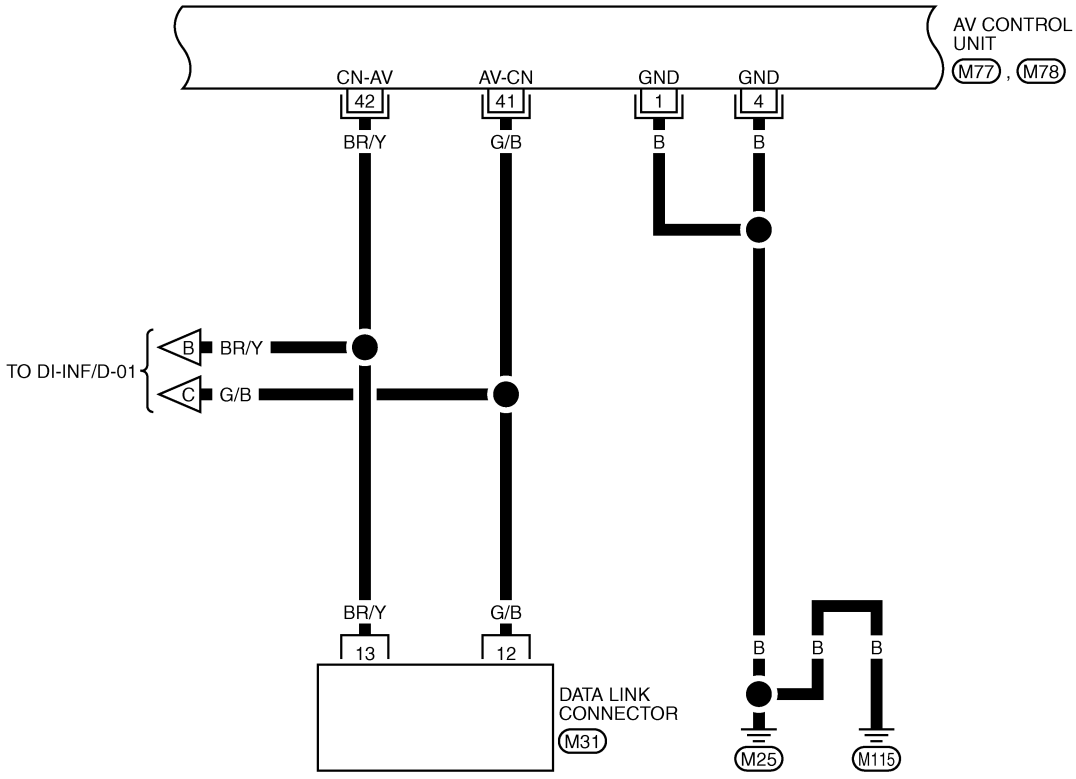
E205 -SUPER MULTIPLE JUNCTION (SMJ)

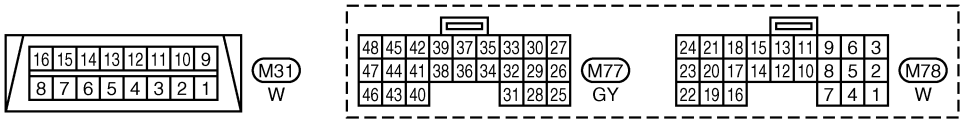
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3742E

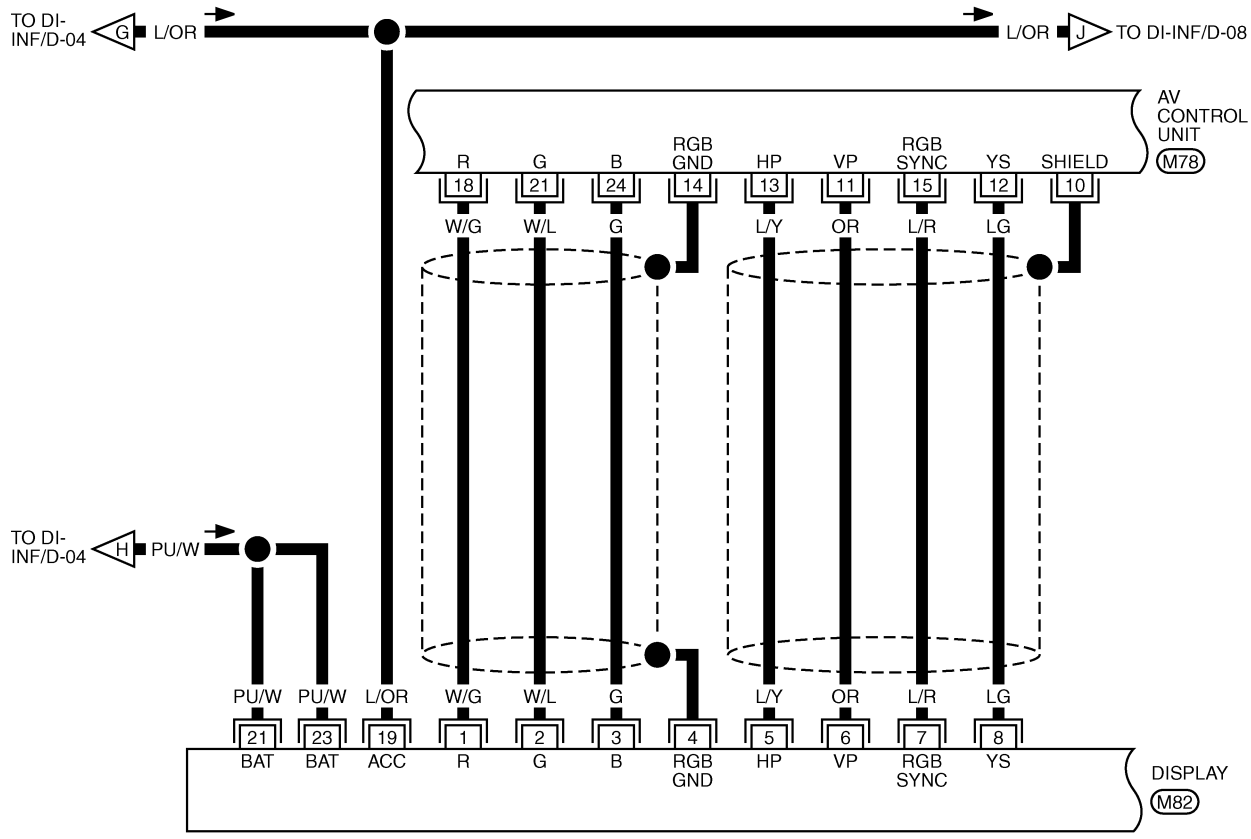
DI-INF/D-05

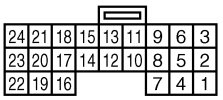


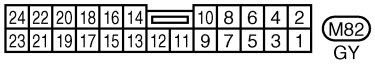


TKWM3743E

DI-INF/D-06

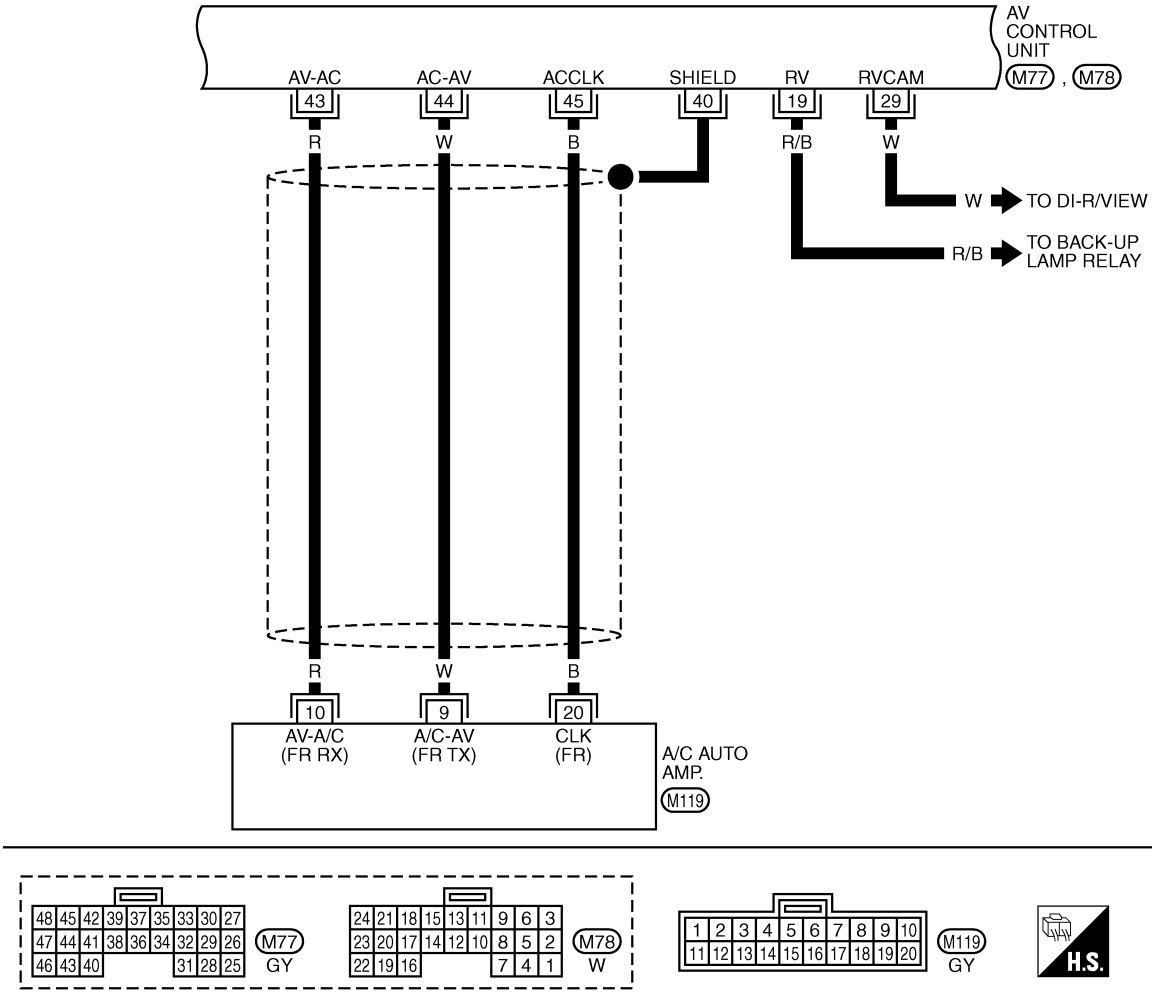






TKWM3744E

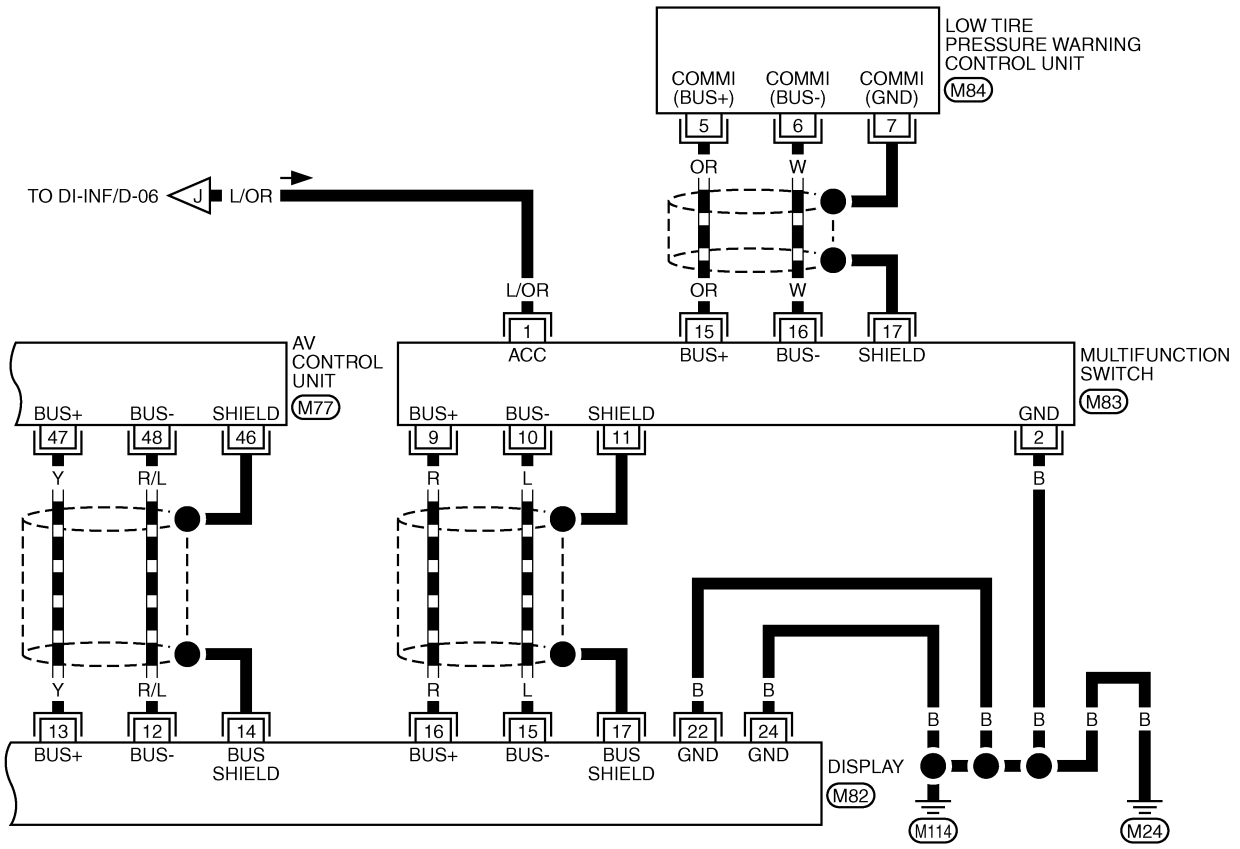
DI-INF/D-07

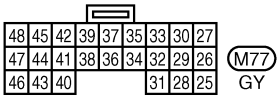


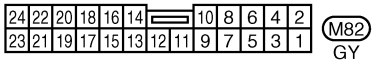
TKWM1563E

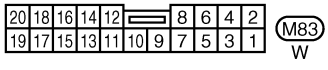
DI-INF/D-08

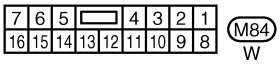
: DATA LINE









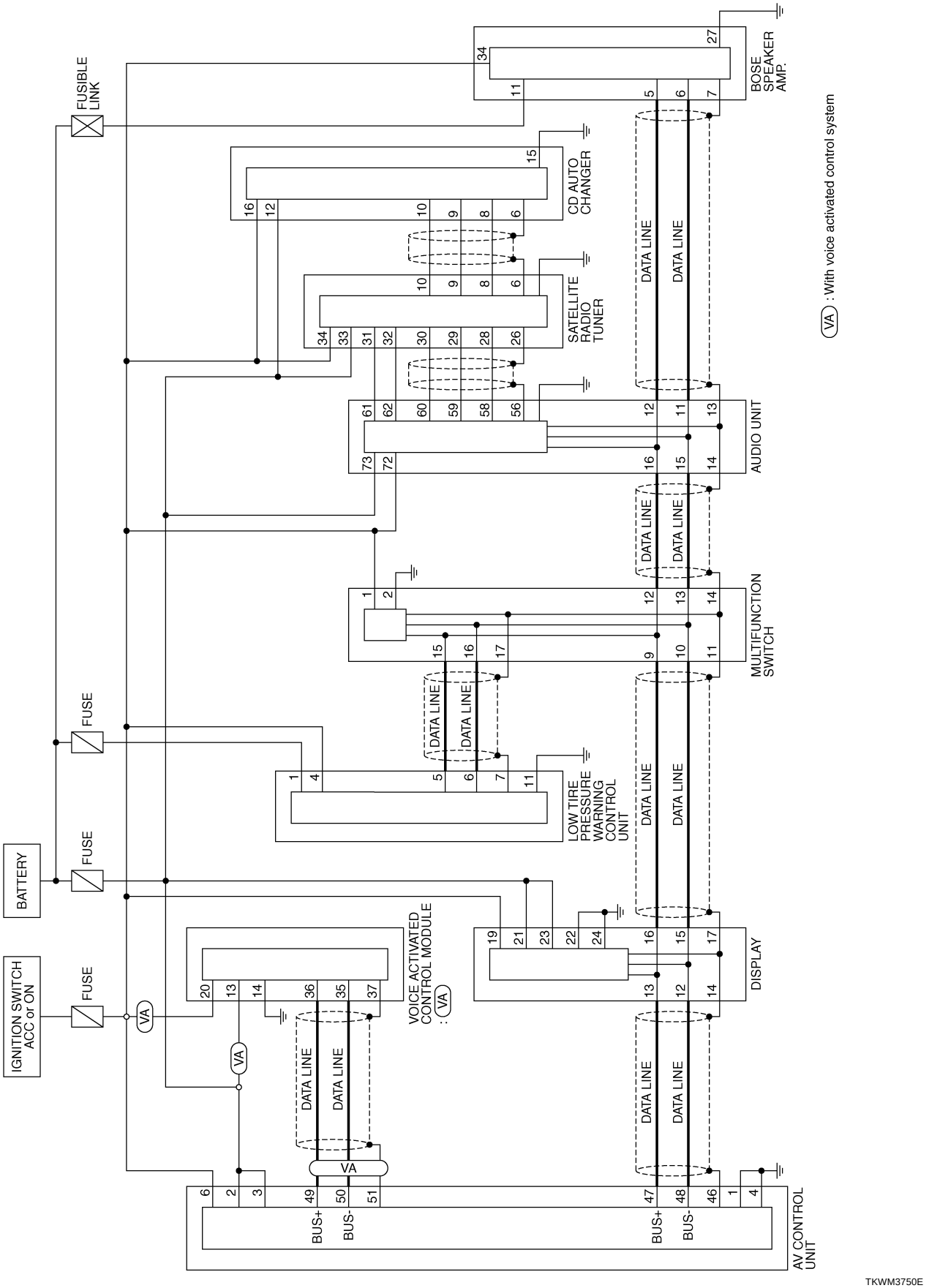


TKWM1564E

Schematic — COMM —

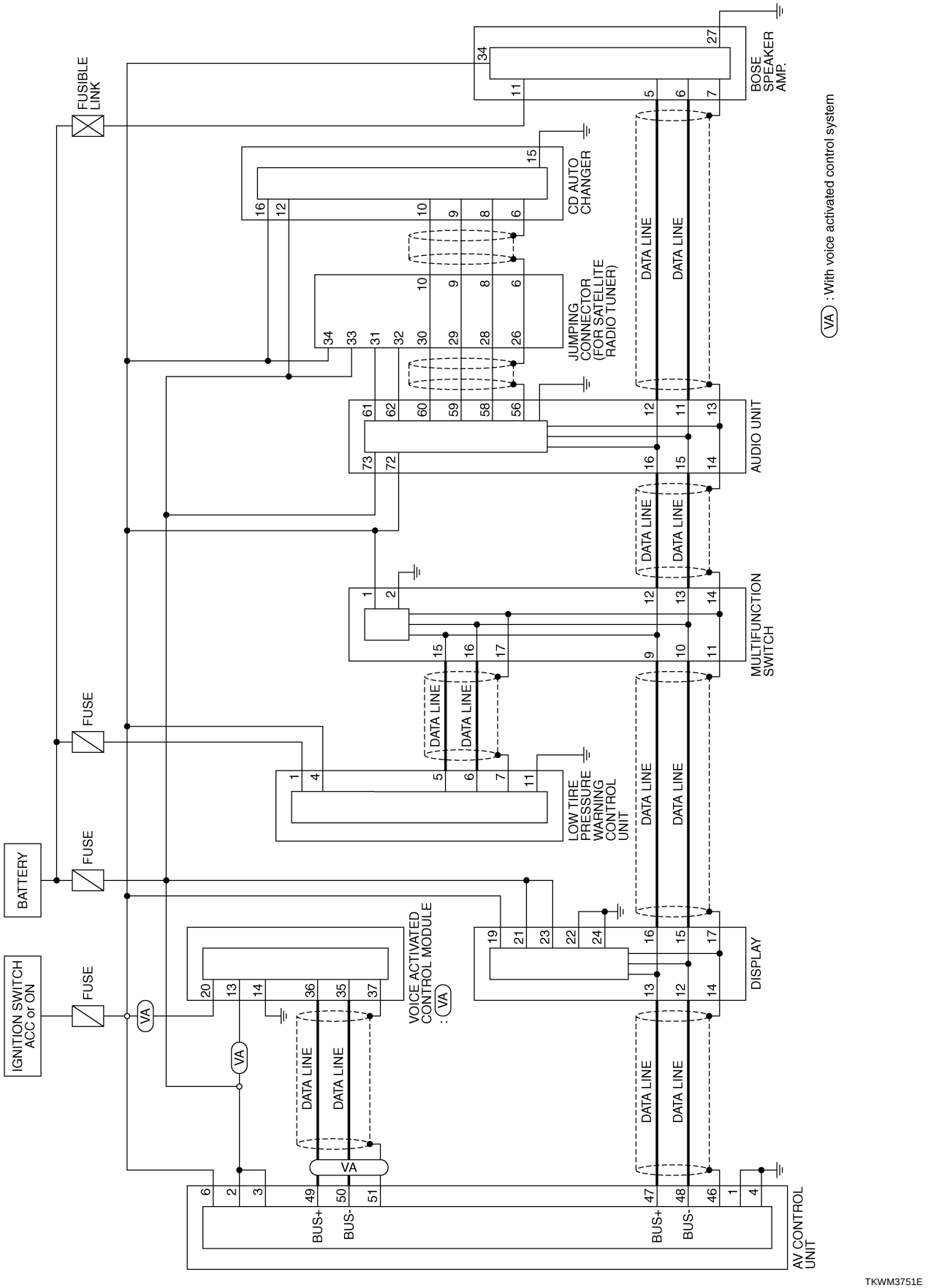
NKS001CK

WITH SATELLITE RADIO SYSTEM



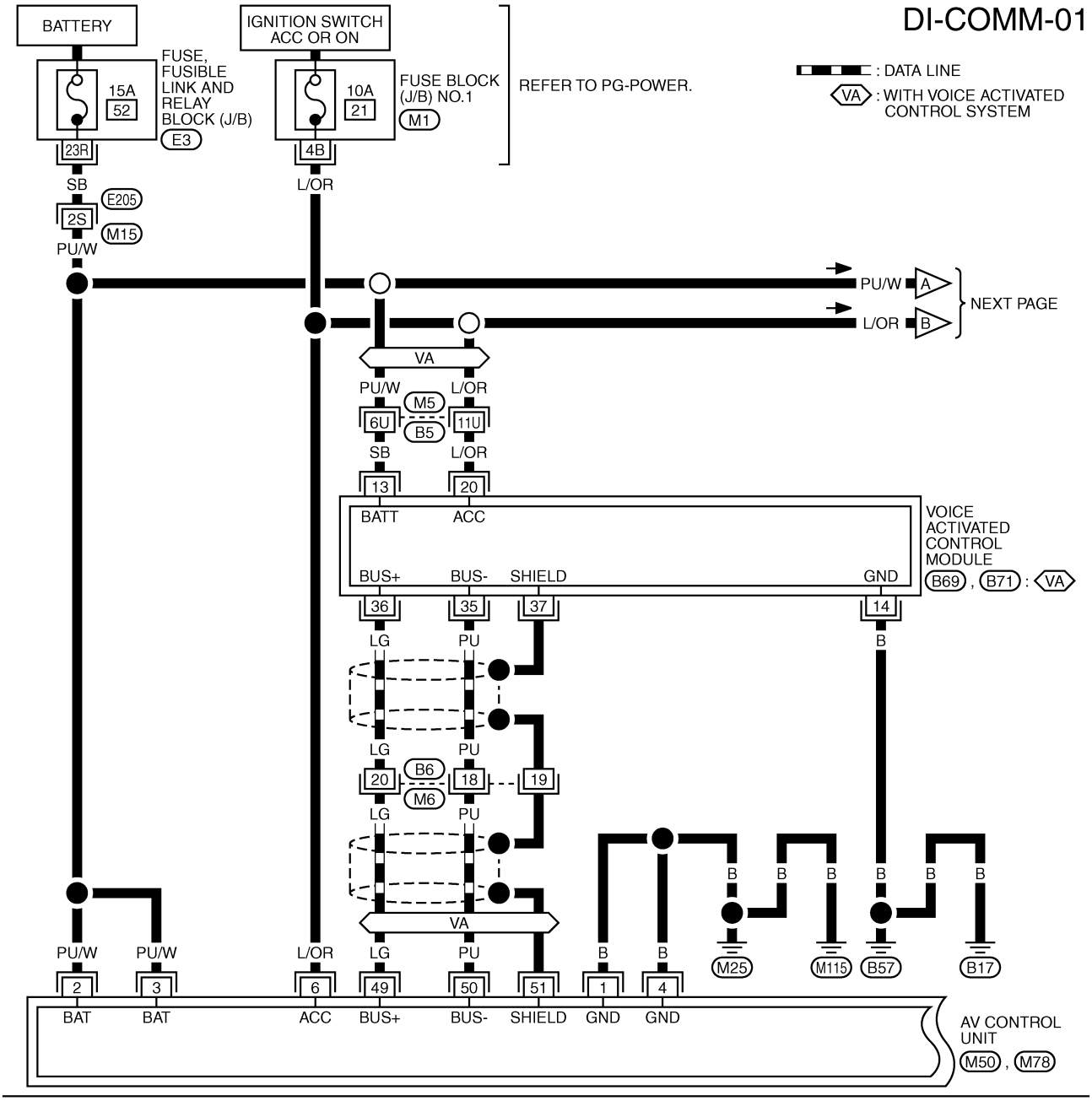
TKWM3750E

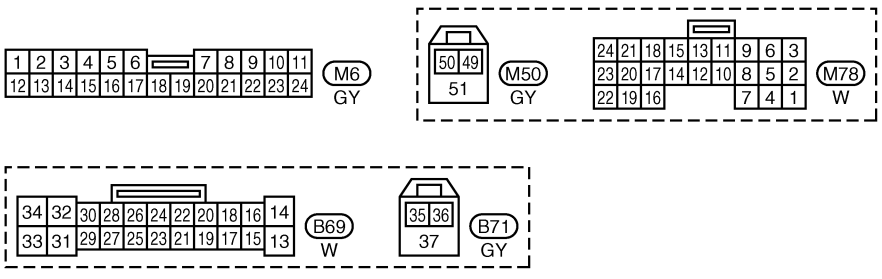
WITHOUT SATELLITE RADIO SYSTEM



Wiring Diagram — COMM —

NKS001CL





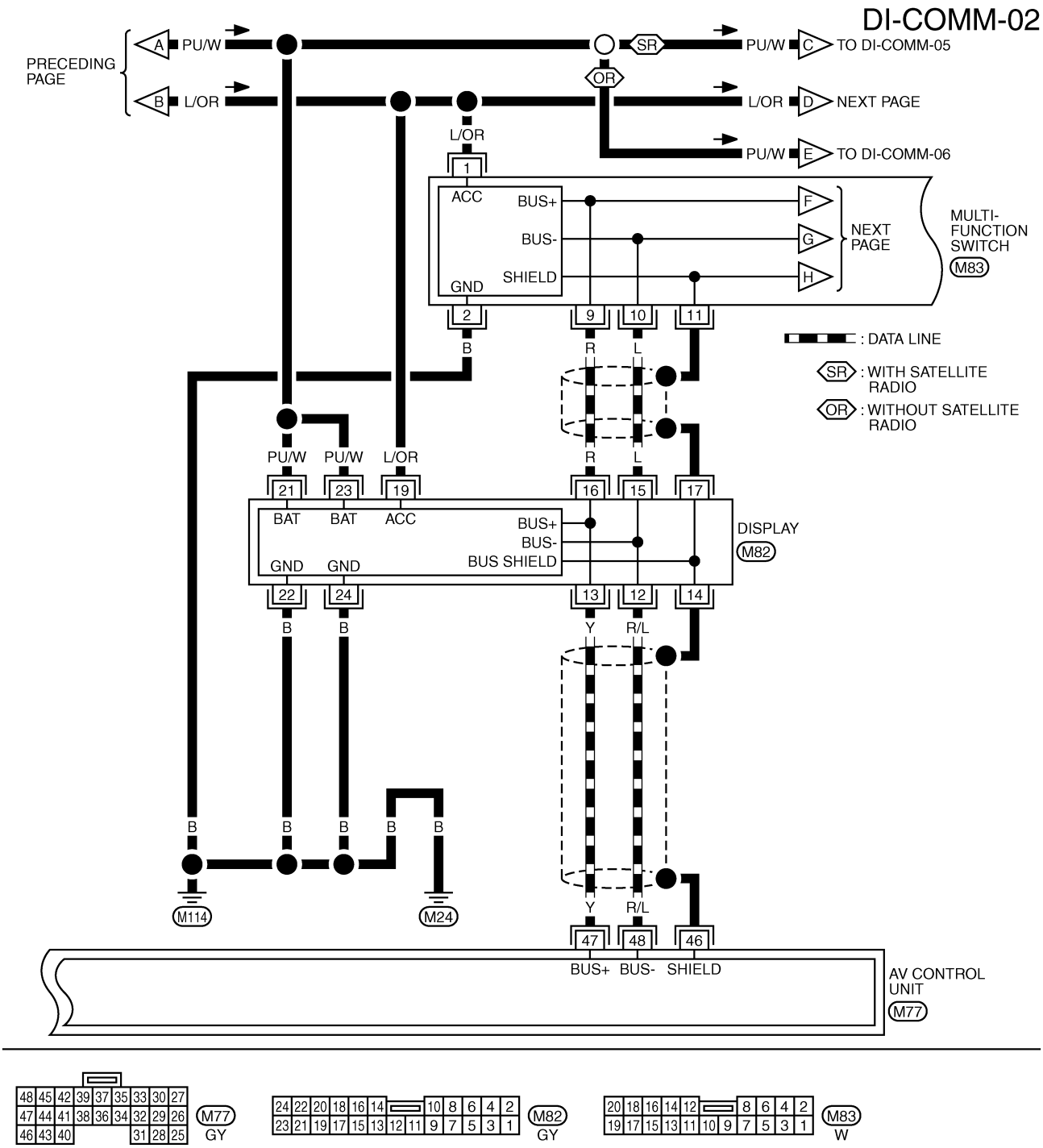
REFER TO THE FOLLOWING.

M5 , E205 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

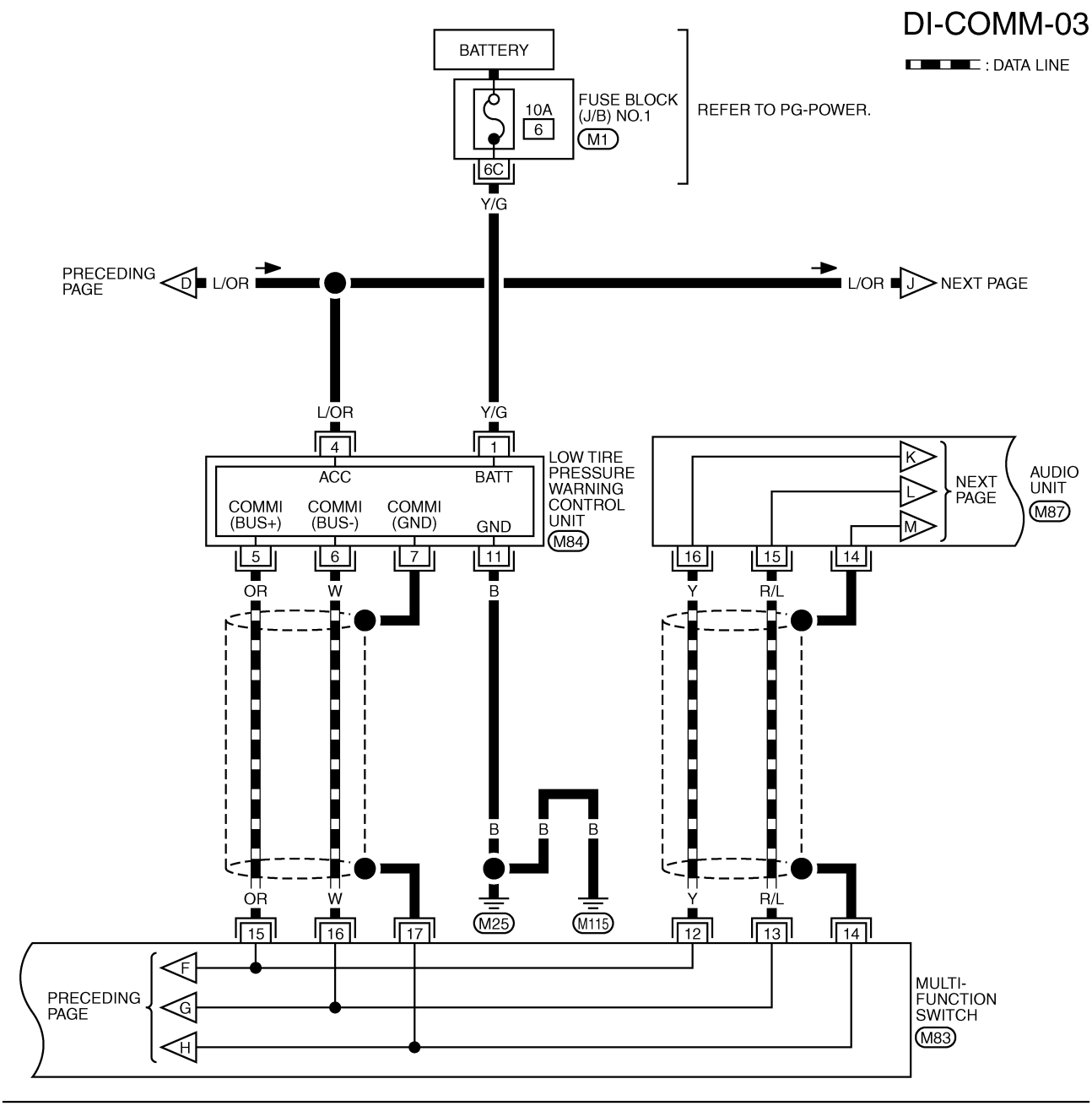
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

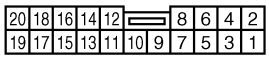
TKWM3752E

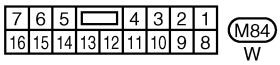

DI-COMM-02
PRECEDING PAGE
A PU/W
B L/OR
SR
OR
PU/W C TO DI-COMM-05
L/OR D NEXT PAGE
PU/W E TO DI-COMM-06
L/OR
1
ACC
BUS+
BUS-
SHIELD
GND
F
G
H
NEXT PAGE
MULTI-FUNCTION SWITCH
M83
2
9
10
11
B
R
L
: DATA LINE
SR : WITH SATELLITE RADIO
OR : WITHOUT SATELLITE RADIO
PU/W
PU/W
L/OR
21
23
19
16
15
17
BAT
BAT
ACC
GND
GND
BUS+
BUS-
BUS SHIELD
DISPLAY
M82
22
24
13
12
14
B
B
Y
R/L
B
B
B
B
B
M114
M24
Y
R/L
47
48
46
BUS+
BUS-
SHIELD
AV CONTROL UNIT
M77

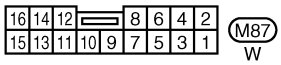
48 45 42 39 37 35 33 30 27
47 44 41 38 36 34 32 29 26
46 43 40 31 28 25
M77
GY
24 22 20 18 16 14 10 8 6 4 2
23 21 19 17 15 13 12 11 9 7 5 3 1
M82
GY
20 18 16 14 12 8 6 4 2
19 17 15 13 11 10 9 7 5 3 1
M83
W

TKWM3753E





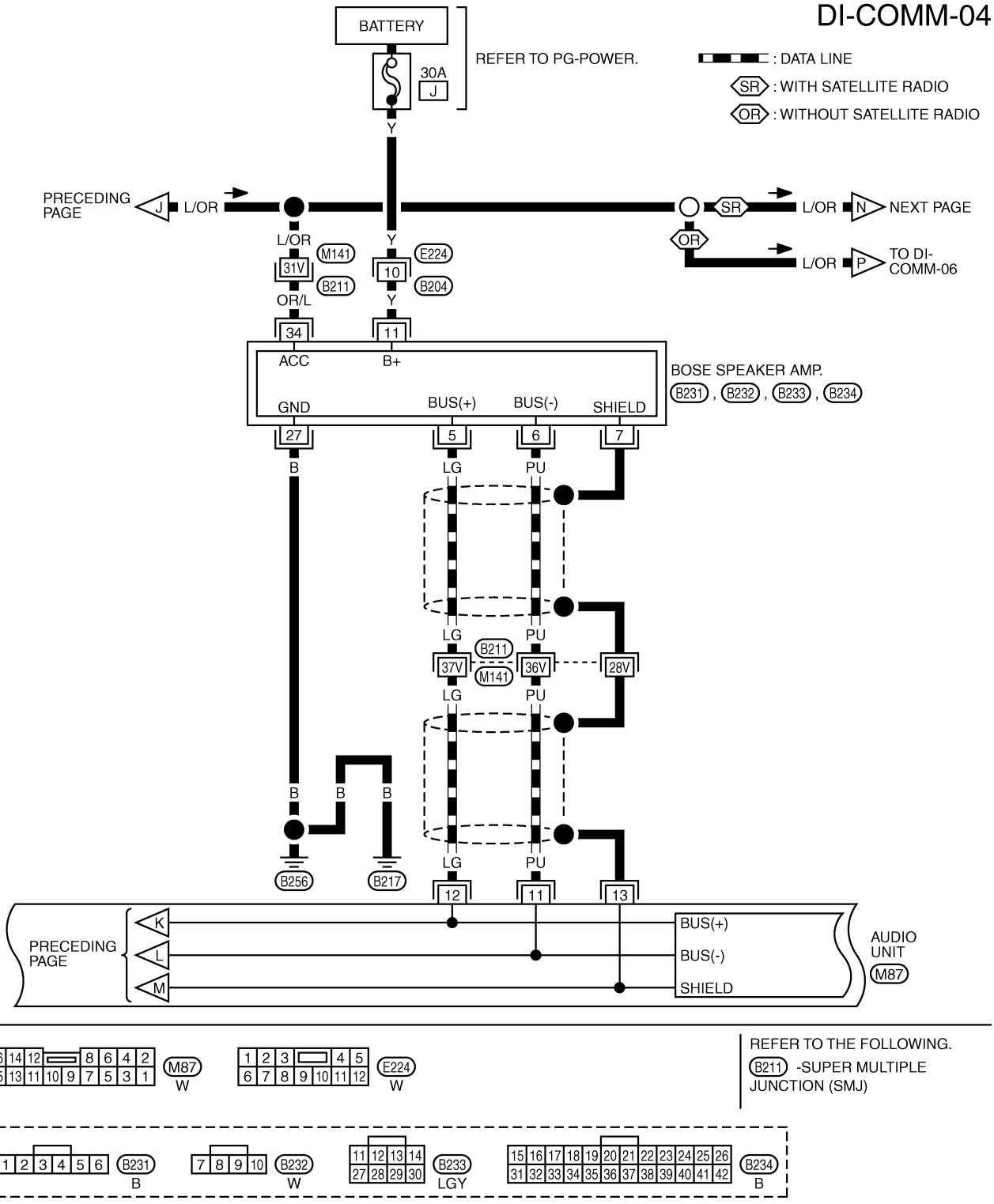




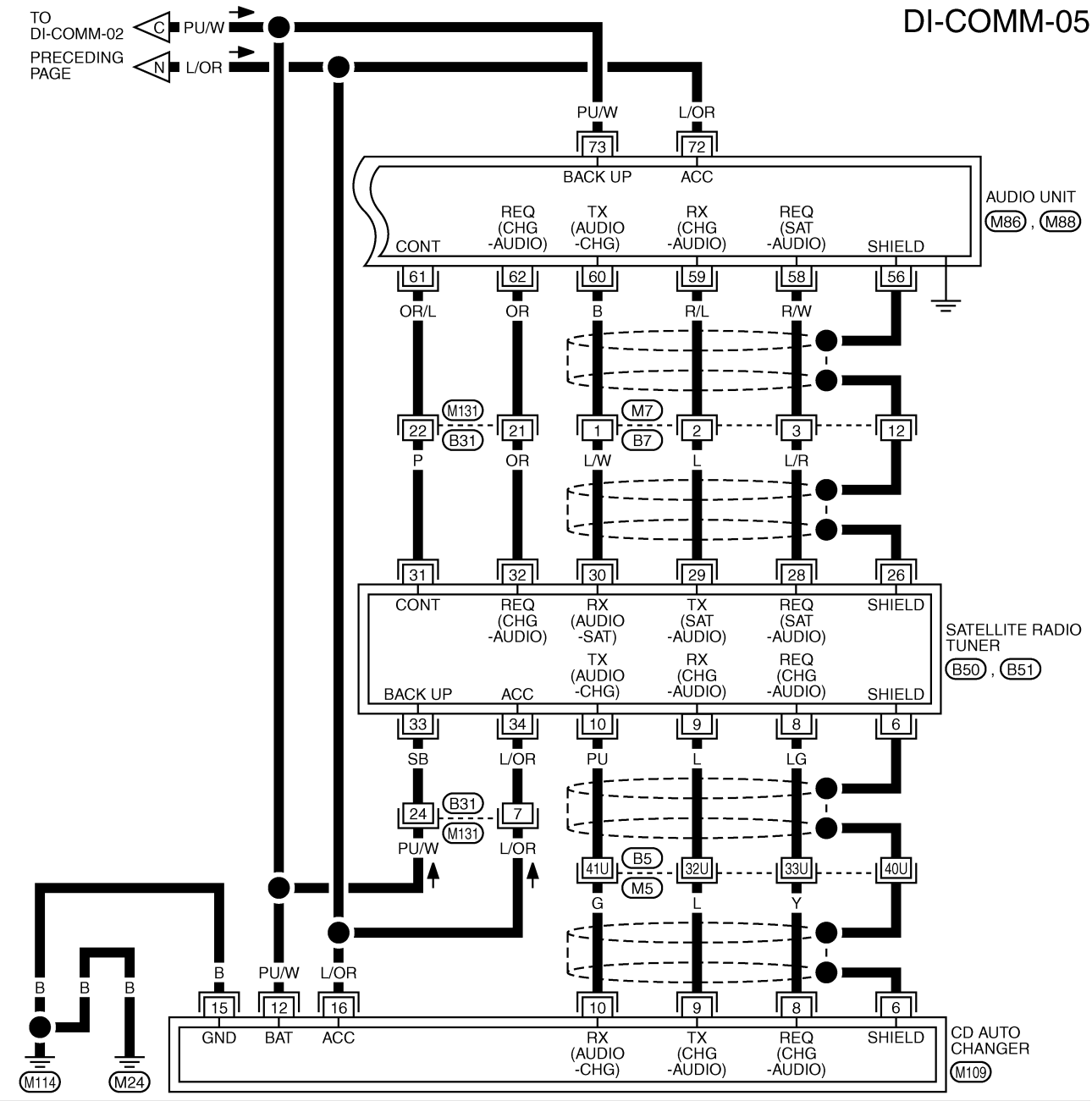
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

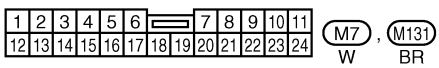
TKWM3754E

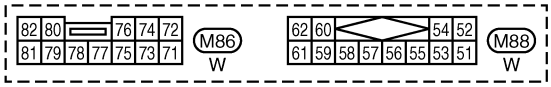
DI-COMM-04

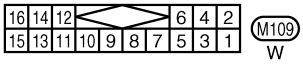


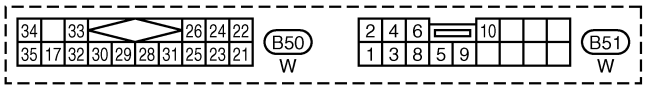
TKWM3755E







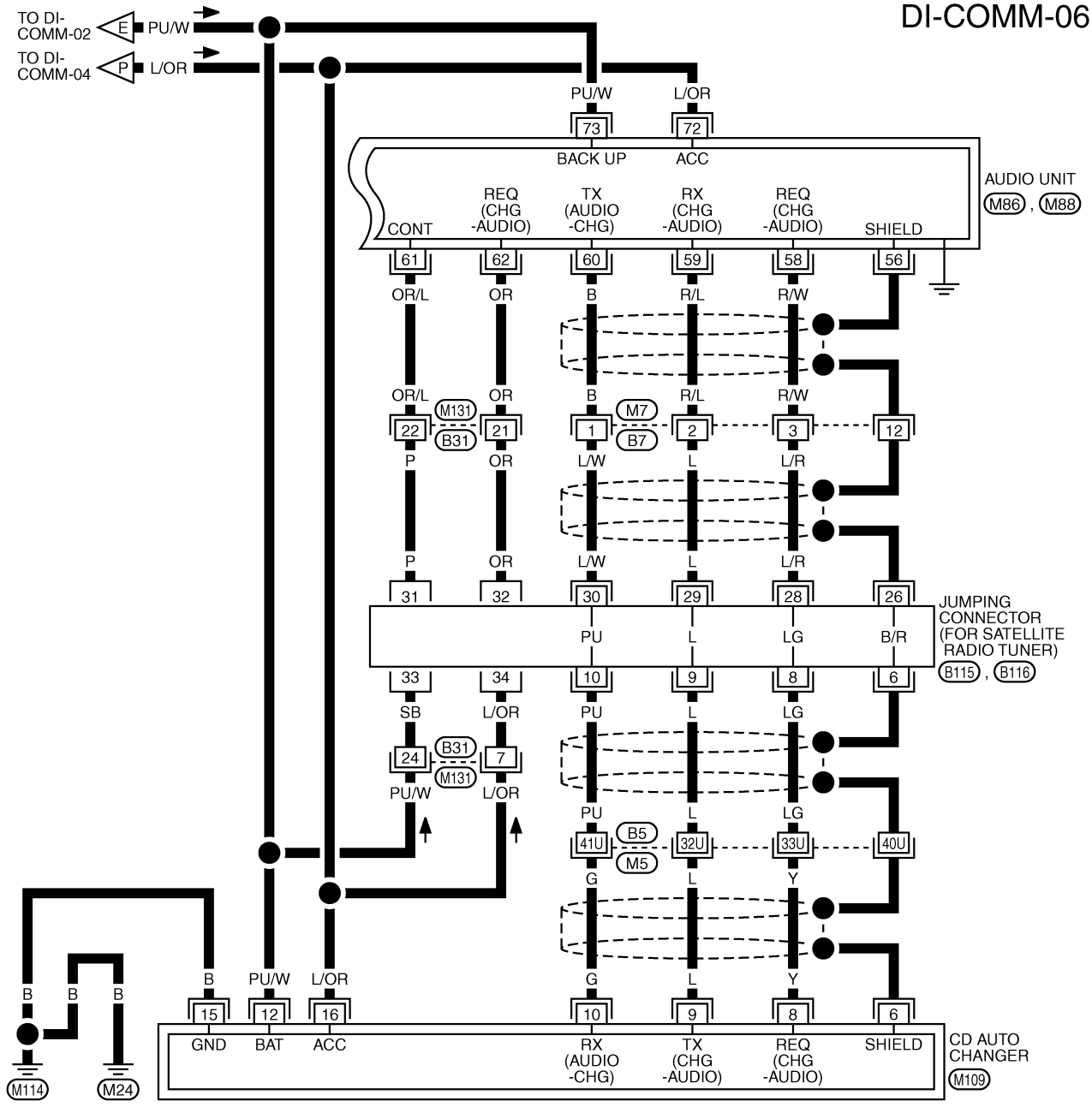


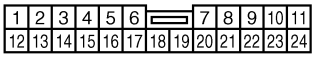


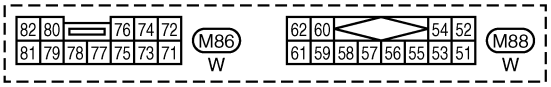
REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

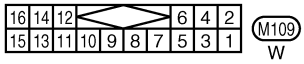
TKWM3756E

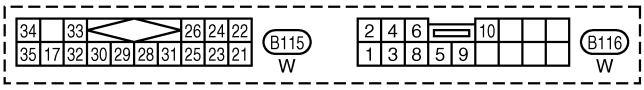
DI-COMM-06









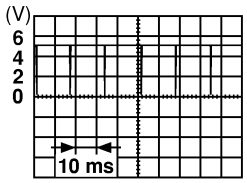
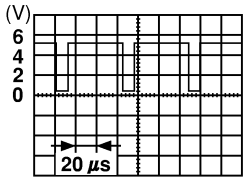
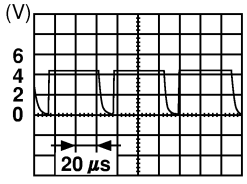
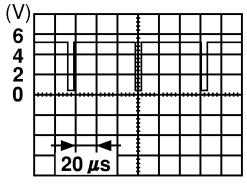
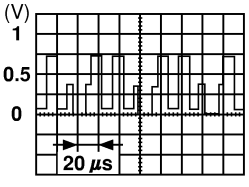


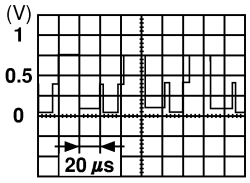
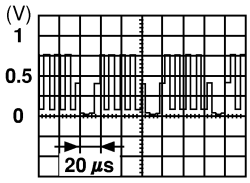
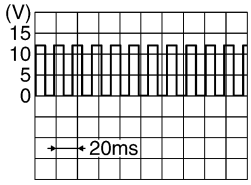
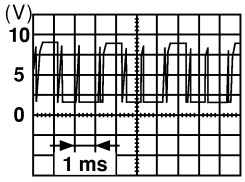
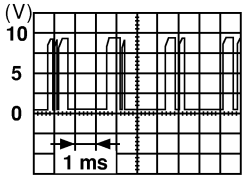
REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

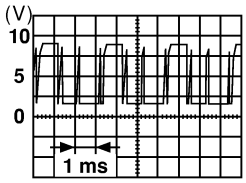
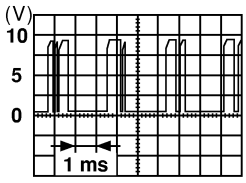
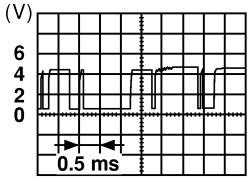
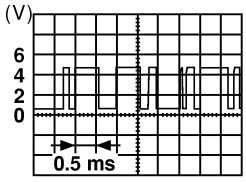
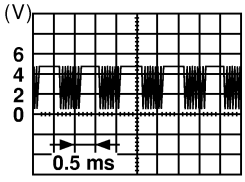
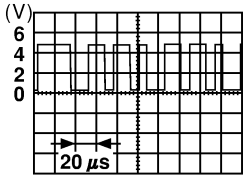
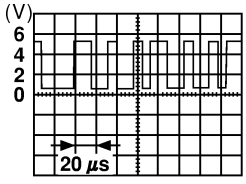
TKWM3757E

Terminals and Reference Value for AV Control Unit

NKS001CM

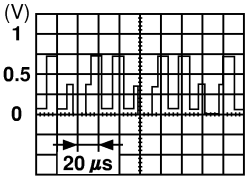
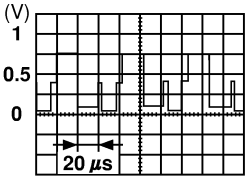
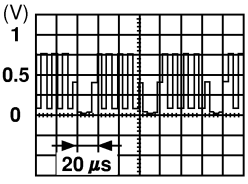
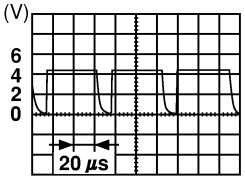
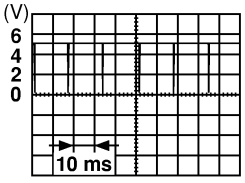
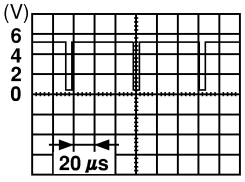
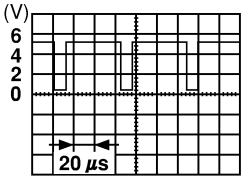
Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (PU/W)		Battery power supply	Input	OFF	—	Battery voltage
3 (PU/W)						
4 (B)		Ground	—	ON	—	0 V
6 (L/OR)		ACC power supply	Input	ACC	—	Battery voltage
10		Shield	—	ON	—	0 V
11 (OR)	10	Vertical synchronizing signal	Input	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rearview image on the screen.	 SKIA0161E
12 (LG)	10	RGB area signal	Output	ON	Press the “INFO” switch.	 SKIA0162E
13 (L/Y)	10	Horizontal synchronizing signal	Input	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rearview image on the screen.	 SKIA0163E
14	Ground	RGB ground	—	ON	—	0 V
15 (L/R)	10	RGB synchronizing signal	Output	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0164E
18 (W/G)	14	RGB signal (R: red)	Output	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0165E
19 (R/B)	Ground	Reverse signal	Input	ON	A/T selector lever in “R” position	12 V
					A/T selector lever not in “R” position	0 V

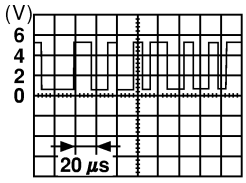
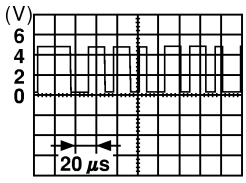
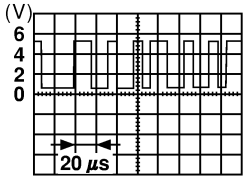
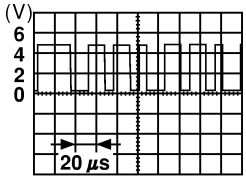
Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
21 (W/L)	14	RGB signal (G: green)	Output	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0166E
24 (G)	14	RGB signal (B: blue)	Output	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0167E
25 (L/Y)	Ground	Illumination control signal	Input	ON	Lighting switch ON (1st position)	12 V
					Lighting switch OFF	0 V
27 (BR/W)		Ignition switch (ON) signal	Input	ON	—	Battery voltage
29 (W)		Rear view camera recognition signal	input	ON	Connect rear view camera control unit connector.	0 V
					Disconnect rear view camera control unit connector.	5 V
31		Shield	—	ON	—	0 V
33 (OR/L)		Vehicle speed signal (8-pulse)	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 PKIA1935E
34 (LG)		Communication signal (AV - ME)	Output	ON	Perform various settings on the “Vehicle Electric Systems” screen.	 SKIA0169E
35 (PU)		Communication signal (ME - AV)	Input	ON	Perform various settings on the “Vehicle Electric Systems” screen.	 SKIA0170E
40		Shield	—	ON	—	Approx. 0

Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
41 (G/B)	Ground	CONSULT-II communication signal (AV - CN)	Output	ON	Perform CONSULT-II.	 SKIA0169E
42 (BR/Y)		CONSULT-II communication signal (CN - AV)	Input	ON	Perform CONSULT-II.	 SKIA0170E
43 (R)		A/C communication signal (AV-AC)	Output	ON	—	 SKIA0172E
44 (W)		A/C communication signal (AC-AV)	Input	ON	—	 SKIA0173E
45 (B)		A/C clock signal	Input	ON	—	 SKIA0174E
46		Shield	—	ON	—	0 V
47 (Y)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
48 (R/L)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E

Terminals and Reference Value for Display

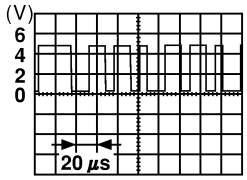
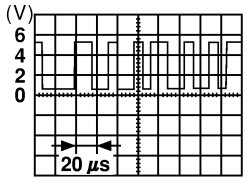
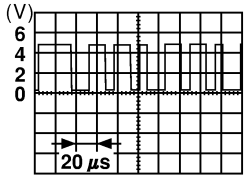
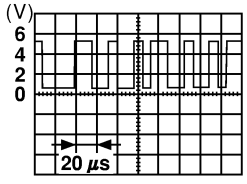
NKS001CN

Terminal No. (Wire color) (+)	Terminal No. (Wire color) (–)	Item	Signal input/ output	Condition: Ignition switch	Condition: Operation	Reference value (Approx.)
1 (W/G)	4	RGB signal (R: Red)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0165E
2 (W/L)	4	RGB signal (G: Green)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0166E
3 (G)	4	RGB signal (B: Blue)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0167E
4	Ground	RGB ground	—	ON	—	0 V
5 (L/Y)		Horizontal synchronizing signal	Output	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rearview image on the screen.	 SKIA0163E
6 (OR)		Vertical synchronizing signal	Output	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rearview image on the screen.	 SKIA0161E
7 (L/R)		RGB synchronizing signal	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0164E
8 (LG)		RGB area signal	Input	ON	Press the “INFO” switch.	 SKIA0162E

Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
12 (R/L)	Ground	Communication signal (–)	Input/ output	ON	—	 SKIA0176E
13 (Y)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
14		Shield	—	ON	—	0 V
15 (L)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
16 (R)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
17		Shield	—	ON	—	0 V
19 (L/OR)		ACC power supply	Input	ACC	—	Battery voltage
21 (PU/W)		Battery power supply	Input	OFF	—	Battery voltage
23 (PU/W)						
22 (B)		Ground	—	ON	—	0 V
24 (B)						

Terminals and Reference Value for Multifunction Switch

NKS001CO

Terminal No. (Wire color)		Signal	Signal input/ output	Condition		Reference value [V]
(+)	(–)			Ignition switch	Operation	
1 (L/OR)	Ground	Ignition switch (ACC)	Input	ACC	—	Battery voltage
2 (B)		Ground	—	ON	—	Approx. 0
9 (R)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
10 (L)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
11		Shield	—	ON	—	Approx. 0
15 (OR)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
16 (W)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
17		Shield	—	ON	—	Approx. 0

On Board Self-Diagnosis Function (Without CONSULT-II)

NKS001CQ

DESCRIPTION

- Diagnosis function consists of the self-diagnosis mode performed automatically and the CONFIRMATION/ ADJUSTMENT mode operated manually.
- Self-diagnosis mode checks for connections between the units constituting this system, analyzes each individual unit at the same time, and displays the results on the LCD screen.
- CONFIRMATION/ADJUSTMENT mode is used to perform trouble diagnosis that require operation and judgment by an operator (malfunction that cannot be automatically judged by the system), to check/ change the set value.

DIAGNOSIS ITEM

Mode		Description	Reference page
SELF-DIAGNOSIS		● AV control unit diagnosis. ● Analyzes connection between the AV control unit and each unit, and operation of each unit.	DI-126
CONFIRMATION/ ADJUSTMENT	Display Diagnosis	Color tone and shading of the screen can be checked by the display of a color bar and a gray scale.	DI-131
	Vehicle Signals	Analyzes the following vehicle signals: Vehicle speed signal, parking brake signal, light signal, ignition switch signal, and reverse signal.	DI-132
	Rearview	Changes position of the aiming line overlapped on the rear view image.	DI-185
	Auto Climate Control	Turns all A/C screens on display and A/C switch indicator lamp on.	ATC-104
	History of errors *	Malfunctioning component and number of errors occurred	—
	Speaker Test	Checks the connection of each speaker using a test tone.	AV-40

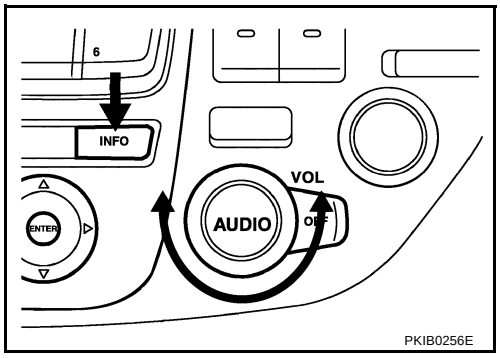
NOTE:

*: Although this item is shown on the screen, impracticable. Because, this item is not applied.

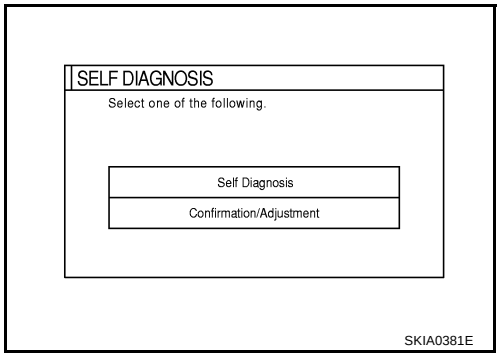
SELF-DIAGNOSIS MODE

Operation Procedure

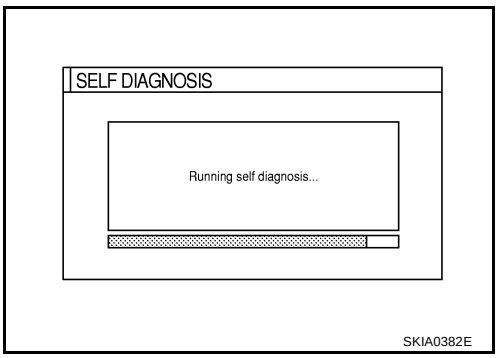
1. Start the engine.
2. Turn the audio system off.
3. While pressing the “INFO” switch, turn the volume control dial clockwise or counterclockwise for 30 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
   - Shifting from current screen to previous screen is performed by pressing “PREV” switch.



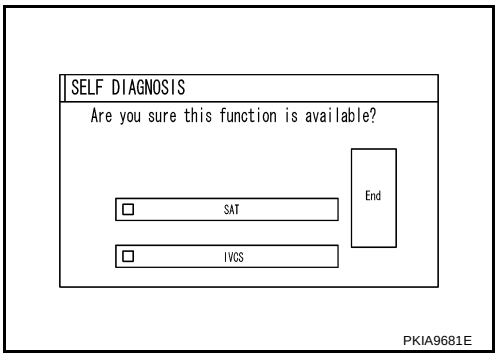
4. The initial trouble diagnosis screen will be shown, and items “Self Diagnosis” and “Confirmation/Adjustment” will become selective.



5. Perform self-diagnosis by selecting the “SELF DIAGNOSIS”.
   - Self-diagnosis subdivision screen will be shown and the operation enters the self-diagnosis mode.
   - A bar graph shown below the self-diagnosis subdivision screen indicates progress of the diagnosis.



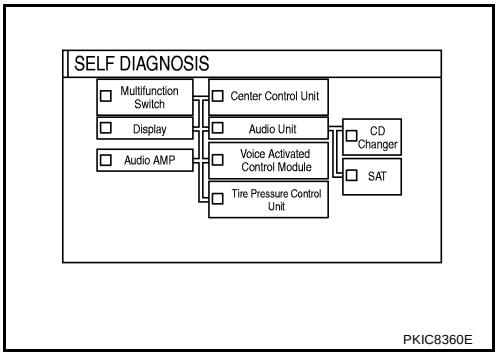
6. When the self-diagnosis completes, optional part confirmation screen will be shown.
   - When connection of an optional part is judged error, a screen to check if the optional part is actually fitted on the vehicle or not will be shown. When fitted, select the switch of the part on the screen and press “End”. Then the “SELF DIAGNOSIS” screen will be shown.
   - When the optional part is connected normally, the switch for the part will not appear on the screen.



7. On the “SELF DIAGNOSIS” screen, each unit name will be colored according to the diagnosis result, as follows.

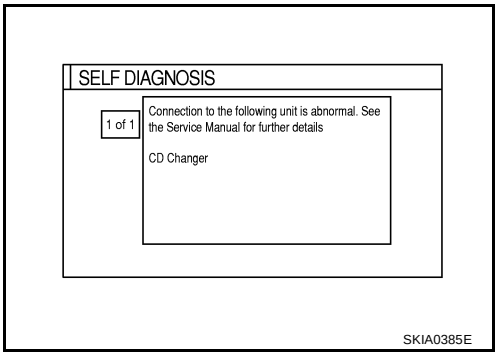
   Green : No malfunctioning.
   Yellow : Cannot be judged by self-diagnosis results.
   Red : Unit is malfunctioning.
   Gray : Diagnosis has not been done.

   - If several malfunctions are present in a unit, color of its switch on the screen will be either red, yellow, or gray, determined by the malfunction of the highest priority.



CAUTION:
“Tire Pressure Control Unit” on the screen will be illuminated in yellow when performing self-diagnosis with ignition switch in ACC position.

8. Select a switch on the “SELF DIAGNOSIS” screen and comments for the diagnosis results will be shown.
   - When the switch is green, the following comment will be shown. “Self-diagnosis was successful. Further diagnosis and adjustments are recommended. Follow the “confirmation and adjustments” menu or refer to the service manual.”.
   - When the switch is yellow, the following comment will be shown. “Connection to the following unit is abnormal. See the Service Manual for further details”.
   - When the switch is red, the following comment will be shown “Center Control Unit is abnormal”.



SELF-DIAGNOSIS RESULT

Quick Reference Table

1. Select the applicable diagnosis number in the quick reference table of diagnosis result.
2. Confirm the possible malfunction with the diagnosis table, and then perform inspection.
3. Turn ignition switch OFF and perform self-diagnosis again.

Switch color	Screen switch							Diagnosis No.
	Audio AMP	Center Control Unit	Audio Unit	Voice Activated Control Module	Tire Pressure Control Unit	CD Changer	SAT	
Red		×						1
Yellow	×	×	×			× (Gray)	× (Gray)	2
		×			×			3
	×	×						4
		×	×			× (Gray)	× (Gray)	5
			×			×		6
			×			×	×	7
			×				×	8
Screen switch not displayed*				×				9

NOTE:

- Audio AMP = BOSE speaker amp.
- Center Control Unit = AV control unit
- SAT = Satellite radio tuner

*: In a case that screen switch (on the self-diagnosis result screen) is not displayed though the vehicle has voice activated control module.

Self-diagnosis Codes

Diagnosis No.	Possible cause	Action to take
1	AV control unit malfunction is detected	Replace AV control unit
2	Malfunction is detected on communication signal between multifunction switch and audio unit	1. Check communication circuit between multifunction switch and audio unit. 2. If the results from the above checkup show no malfunction, replace either multifunction switch or audio unit, and then start self-diagnosis. 3. If self-diagnosis results still show any malfunction, replace the other unit.
3	● Low tire pressure warning control unit power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between multifunction switch and low tire pressure warning control unit	1. Check low tire pressure warning control unit power supply and ground circuit. 2. Check communication circuit between multifunction switch and low tire pressure warning control unit. 3. If the results from the above checkup show no malfunction, replace either multifunction switch or low tire pressure warning control unit, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.

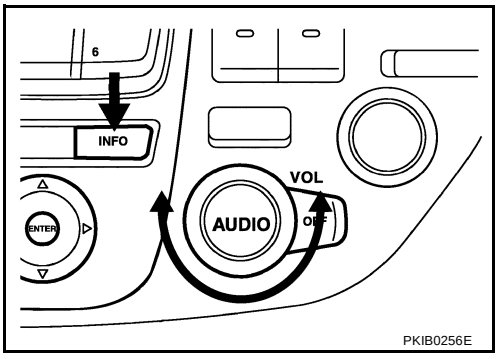
Diagnosis No.	Possible cause	Action to take
4	● BOSE speaker amp. power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between audio unit and BOSE speaker amp.	1. Check BOSE speaker amp. power supply and ground circuit. 2. Check communication circuit between audio unit and BOSE speaker amp. 3. If the results from the above checkup show no malfunction, replace either audio unit or BOSE speaker amp., and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.
5	Audio unit power supply and ground circuit malfunction is detected	1. Check audio unit power supply circuit. 2. If the results from the above checkup show no malfunction, replace audio unit.
6	**Without satellite radio** ● Malfunction is detected on communication signal [REQ (CHG-AUDIO)] between audio unit and CD auto changer	1. Check communication circuit [REQ (CHG-AUDIO)] between audio unit and CD auto changer. 2. Check communication signal [REQ (CHG-AUDIO)] between audio unit and CD auto changer. 3. If the results from the above checkup show no malfunction, replace either audio unit or CD auto changer, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.
	With satellite radio ● Malfunction is detected on communication signal [REQ (CHG-AUDIO)] between audio unit and satellite radio tuner ● Malfunction is detected on control signal (CONT) between audio unit and satellite radio tuner ● Malfunction is detected on communication signal [REQ (CHG-AUDIO)] between satellite radio tuner and CD auto changer	1. Check communication circuit [REQ (CHG-AUDIO)] between audio unit and satellite radio tuner. 2. Check control signal circuit (CONT) between audio unit and satellite radio tuner. 3. Check communication circuit [REQ (CHG-AUDIO)] between satellite radio tuner and CD auto changer. 4. Check communication signal [REQ (CHG-AUDIO)] between audio unit and satellite radio tuner. 5. Check control signal (CONT) between audio unit and satellite radio tuner. 6. Check communication signal [REQ (CHG-AUDIO)] between satellite radio tuner and CD auto changer. 7. If the results from the above checkup show no malfunction, replace audio unit, satellite radio tuner, or CD auto changer, and then start self-diagnosis. 8. If self-diagnosis results still show any malfunction, replace one of the two units that is not replaced yet. 9. If self-diagnosis results still show any malfunction, replace the other unit.

Diagnosis No.	Possible cause	Action to take
7	● Satellite radio tuner power supply and ground circuit malfunction is detected ● CD auto changer power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner ● Malfunction is detected on control signal (CONT) between audio unit and satellite radio tuner ● Malfunction is detected on communication signal [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer	1. Check satellite radio tuner power supply and ground circuit. 2. Check CD auto changer power supply and ground circuit. 3. Check communication circuit [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner. 4. Check control signal circuit (CONT) between audio unit and satellite radio tuner. 5. Check communication circuit [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer. 6. Check communication signal [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner. 7. Check control signal (CONT) between audio unit and satellite radio tuner. 8. Check communication signal [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer. 9. If the results from the above checkup show no malfunction, replace audio unit, satellite radio tuner, or CD auto changer, and then start self-diagnosis. 10. If self-diagnosis results still show any malfunction, replace one of the two units that is not replaced yet. 11. If self-diagnosis results still show any malfunction, replace the other unit.
8	Malfunction is detected on communication signal [REQ (SAT-AUDIO)] between audio unit and satellite radio tuner	1. Check communication circuit [REQ (SAT-AUDIO)] between audio unit and satellite radio tuner. 2. Check communication signal [REQ (SAT-AUDIO)] between audio unit and satellite radio tuner. 3. If the results from the above checkup show no malfunction, replace either audio unit or satellite radio tuner, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.
9	● Voice activated control module power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between AV control unit and voice activated control module	1. Check voice activated control module power supply and ground circuit. 2. Check communication circuit between AV control unit and voice activated control module. 3. If the results from the above checkup show no malfunction, replace either AV control unit or voice activated control module, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.

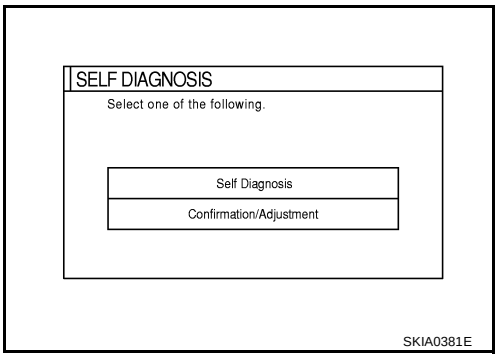
CONFIRMATION/ADJUSTMENT MODE

Operation Procedure

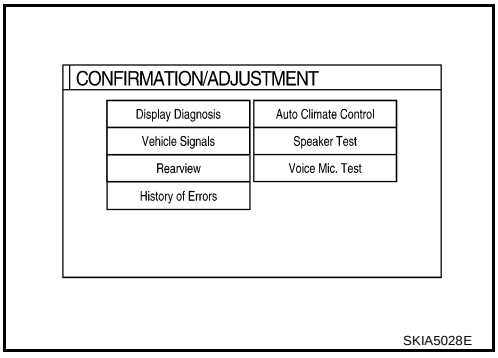
1. Start the engine.
2. Turn the audio system off.
3. While pressing the “INFO” switch, turn the volume control dial clockwise or counterclockwise for 30 clicks or more. (When the self-diagnosis mode is started, a short beep will be heard.)
   - Shifting from current screen to previous screen is performed by pressing “PREV” switch.



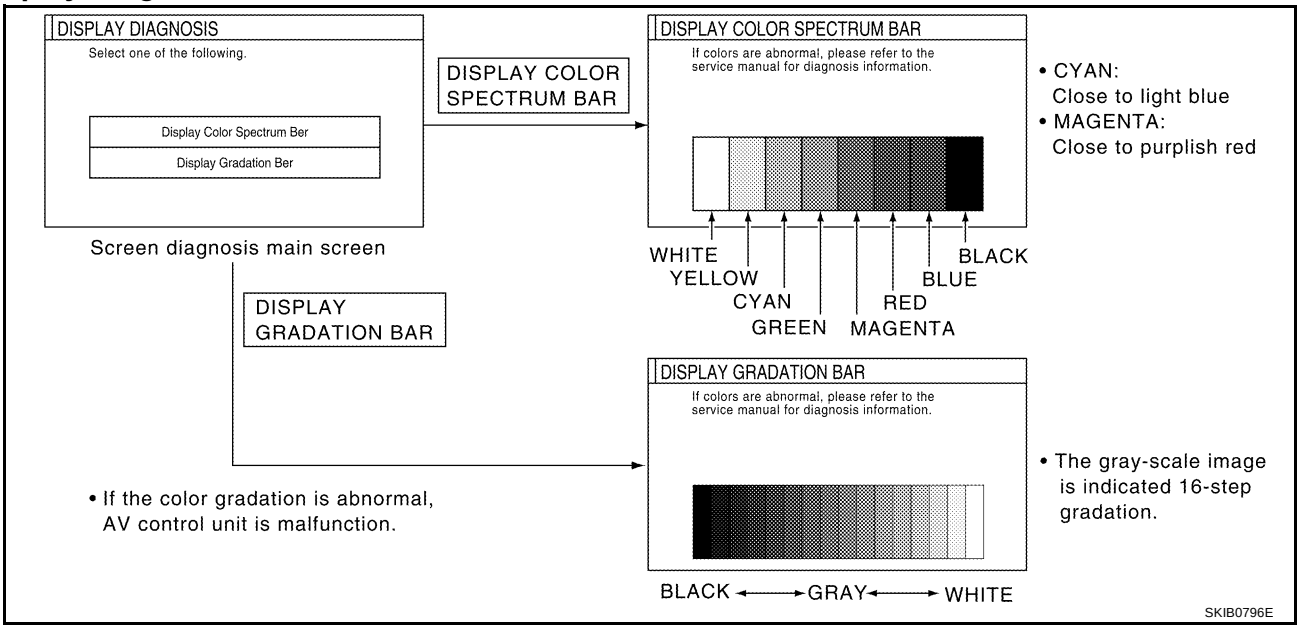
4. The initial trouble diagnosis screen will be shown, and items “Self Diagnosis” and “Confirmation/Adjustment” will become selective.



5. When “Confirmation/Adjustment” is selected on the initial trouble diagnosis screen, the operation will enter the CONFIRMATION/ ADJUSTMENT mode. In this mode, check and adjustment of each item will become possible.
6. Select each switch on “Confirmation/Adjustment” screen to display the relevant diagnosis screen.



Display Diagnosis



CAUTION:

When DISPLAY COLOR SPECTRUM BAR screen is completed after “PREV” switch is pressed, the screen color changes once. This is normal.

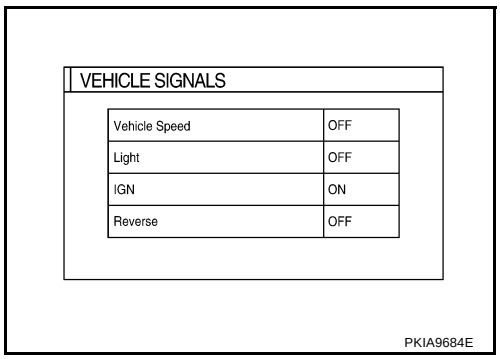
- When RGB signal error occurred in the RGB system, tone of the color bar will change as follows.

R (red) signal error : Screen looks bluish
G (green) signal error : Screen looks yellowish
B (blue) signal error : Screen looks reddish

- When the color of the screen looks unusual, refer to DI-142, "Color of RGB Image Is Not Proper" .

Vehicle Signals

- A comparison check can be made of each actual vehicle signal and the signals recognized by the system.



Diagnosis item	Display	Condition	Remarks
Vehicle Speed	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed by approx. 1.5 seconds. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
	–	Ignition switch in ACC position	
Light	ON	Lighting switch ON	–
	OFF	Lighting switch OFF	
IGN	ON	Ignition switch ON	–
	OFF	Ignition switch ACC or OFF	
Reverse	ON	A/T selector lever “R” position	–
	OFF	A/T selector lever in other “R” position	
	–	Ignition switch in ACC position	

Rear View Camera

Refer to DI-185, "Side Distance Guideline Correction" for the details.

Auto Climate Control

Refer to ATC-53, "Self-diagnosis Function" in ATC section for the details.

Speaker Test

Refer to AV-40, "Confirmation/Adjustment Mode" for the details.

CONSULT-II Function (MULTI AV)

NKS001CP

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

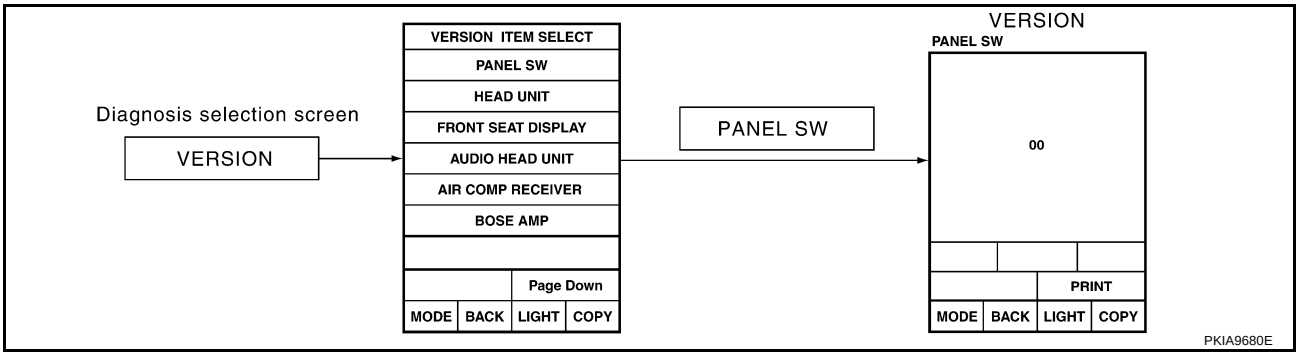
System part	Check item, diagnosis mode	Description
MULTI AV	VERSION	Displays unit version.
	SELF-DIAG RESULTS	● Checks for the connections AV communication line. ● Performs the unit diagnosis.
	SIGNAL MONITOR	Displays unified AV control unit. Input date in real time.

CONSULT-II OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

VERSION

Displays version of each unit connected to the AV control unit.



Version display	Remarks
“PANEL SW”	Multifunction switch
“HEAD UNIT”	AV control unit
“REAR VIEW CAMERA”	–
“FRONT SEAT DISPLAY”	Display
“AUDIO HEAD UNIT”	–
“AIR COMP RECEIVER”	Low Tire Pressure Warning Control Unit
“BOSE AMP”	–
“IVCS”	**NOTE:** Although these items are shown on the CONSULT-II screen, impracticable. Because, these items are not applied.
“VOICE UNIT”	

SELF-DIAGNOSIS RESULTS

The self-diagnosis is started and self-diagnosis results are displayed by touching “START” after selecting “SELF-DIAG RESULTS”.

Display Item of SELF-DIAG RESULTS

Self-diagnosis results may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items.

NOTE:
When “IVCS [ABNORMAL CONNECTION]” is indicated, this is not malfunction.

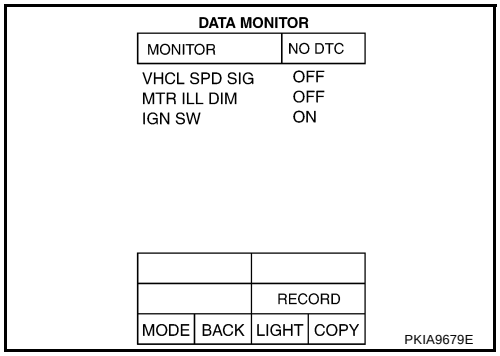
Error item	Possible cause	Action to take
HEAD UNIT [ABNORMAL]	AV control unit malfunction is detected	Replace AV control unit
VOICE UNIT [ABNORMAL]	Voice activated control module malfunction is detected	Replace voice activated control module
● PANEL SW [ABNORMAL CONNECTION] ● AUDIO HEAD UNIT [ABNORMAL CONNECTION] ● AIR COMP RECEIVER [ABNORMAL CONNECTION] ● VOICE UNIT [ABNORMAL CONNECTION] ● BOSE AMP [ABNORMAL CONNECTION] ● FRONT SEAT DISPLAY [ABNORMAL CONNECTION]	Malfunction is detected on communication signal	Check all communication circuits composing AV system. Repair malfunctioning parts.

Error item	Possible cause	Action to take
● PANEL SW [ABNORMAL CONNECTION] ● AUDIO HEAD UNIT [ABNORMAL CONNECTION] ● AIR COMP RECEIVER [ABNORMAL CONNECTION] ● BOSE AMP [ABNORMAL CONNECTION] ● FRONT SEAT DISPLAY [ABNORMAL CONNECTION]	Malfunction is detected on communication signal between AV control unit and display	1. Check communication circuit between AV control unit and display. 2. If the results from the above checkup show no malfunction, replace either AV control unit or display, and then start self-diagnosis. 3. If self-diagnosis results still show any malfunction, replace the other unit.
● PANEL SW [ABNORMAL CONNECTION] ● AUDIO HEAD UNIT [ABNORMAL CONNECTION] ● AIR COMP RECEIVER [ABNORMAL CONNECTION] ● BOSE AMP [ABNORMAL CONNECTION]	Malfunction is detected on communication signal between display and multifunction switch	1. Check communication circuit between display and multifunction switch. 2. If the results from the above checkup show no malfunction, replace either display or display, and then start self-diagnosis. 3. If self-diagnosis results still show any malfunction, replace the other unit.
PANEL SW [ABNORMAL CONNECTION]	Multifunction switch power supply and ground circuit malfunction is detected	1. Check multifunction switch power supply and ground circuit. 2. If the results from the above checkup show no malfunction, replace multifunction switch.
● AUDIO HEAD UNIT [ABNORMAL CONNECTION] ● BOSE AMP [ABNORMAL CONNECTION]	Malfunction is detected on communication signal between multifunction switch and audio unit	1. Check communication circuit between multifunction switch and audio unit. 2. If the results from the above checkup show no malfunction, replace either multifunction switch or audio unit, and then start self-diagnosis. 3. If self-diagnosis results still show any malfunction, replace the other unit.
AIR COMP RECEIVER [ABNORMAL CONNECTION]	● Low tire pressure warning control unit power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between multifunction switch and low tire pressure warning control unit	1. Check low tire pressure warning control unit power supply and ground circuit. 2. Check communication circuit between multifunction switch and low tire pressure warning control unit. 3. If the results from the above checkup show no malfunction, replace either multifunction switch or low tire pressure warning control unit, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.
BOSE AMP [ABNORMAL CONNECTION]	● BOSE speaker amp. power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between audio unit and BOSE speaker amp.	1. Check BOSE speaker amp. power supply and ground circuit. 2. Check communication circuit between audio unit and BOSE speaker amp. 3. If the results from the above checkup show no malfunction, replace either audio unit or BOSE speaker amp., and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.
AUDIO HEAD UNIT [ABNORMAL CONNECTION]	Audio unit power supply and ground circuit malfunction is detected	1. Check audio unit power supply circuit. 2. If the results from the above checkup show no malfunction, replace audio unit.

Error item	Possible cause	Action to take
CD CHANGER [ABNORMAL CONNECTION]	**Without satellite radio** ● CD auto changer power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal [REQ (CHG-AUDIO), Tx and RX] between audio unit and CD auto changer	1. Check CD auto changer power supply and ground circuit. 2. Check communication circuit [REQ (CHG-AUDIO), Tx and RX] between audio unit and CD auto changer. 3. Check communication signal [REQ (CHG-AUDIO), Tx and RX] between audio unit and CD auto changer. 4. If the results from the above checkup show no malfunction, replace either audio unit or CD auto changer, and then start self-diagnosis. 5. If self-diagnosis results still show any malfunction, replace the other unit.
	With satellite radio ● CD auto changer power supply and ground circuit malfunction is detected ● Satellite radio tuner power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner ● Malfunction is detected on control signal (CONT) between audio unit and satellite radio tuner ● Malfunction is detected on communication signal [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer	1. Check CD auto changer power supply and ground circuit. 2. Check satellite radio tuner power supply and ground circuit. 3. Check communication circuit [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner. 4. Check control signal circuit (CONT) between audio unit and satellite radio tuner. 5. Check communication circuit [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer. 6. Check communication signal [REQ (CHG-AUDIO), REQ (SAT-AUDIO), Tx and RX] between audio unit and satellite radio tuner. 7. Check control signal (CONT) between audio unit and satellite radio tuner. 8. Check communication signal [REQ (CHG-AUDIO), Tx and Rx] between satellite radio tuner and CD auto changer. 9. If the results from the above checkup show no malfunction, replace audio unit, satellite radio tuner, or CD auto changer, and then start self-diagnosis. 10. If self-diagnosis results still show any malfunction, replace one of the two units that is not replaced yet. 11. If self-diagnosis results still show any malfunction, replace the other unit.
FRONT SEAT DISPLAY [ABNORMAL CONNECTION]	Display power supply and ground circuit malfunction is detected	1. Check display power supply and ground circuit. 2. If the results from the above checkup show no malfunction, replace display.
VOICE UNIT [ABNORMAL CONNECTION]	● Voice activated control module power supply and ground circuit malfunction is detected ● Malfunction is detected on communication signal between AV control unit and voice activated control module	1. Check voice activated control module power supply and ground circuit. 2. Check communication circuit between AV control unit and voice activated control module. 3. If the results from the above checkup show no malfunction, replace either AV control unit or voice activated control module, and then start self-diagnosis. 4. If self-diagnosis results still show any malfunction, replace the other unit.

DATA MONITOR

- Displays status of the vehicle signal input to the AV control unit. (Refer to DI-131, "CONFIRMATION/ADJUSTMENT MODE" for operation conditions for the connections to be indicated.)



- For each signal, a comparison of actual operating status and the status recognized by the system can be checked.

Data monitor item		Condition	Remarks
VHCL SPD SIG	ON	Vehicle speed > 0 km/h (0 MPH)	Changes in indication may be delayed by approx. 1.5 seconds. This is normal.
	OFF	Vehicle speed = 0 km/h (0 MPH)	
	–	Ignition switch in ACC position	
MTR ILL DIM	ON	Lighting switch ON	–
	OFF	Lighting switch OFF	
IGN SW	ON	Ignition switch ON	–
	OFF	Ignition switch ACC or OFF	

Multifunction Switch Self-Diagnosis Function

NKS001CR

It can check ON/OFF operation of each switch in the multifunction switch and diagnose the input signals to the rear control switch (audio) and steering switch (audio).

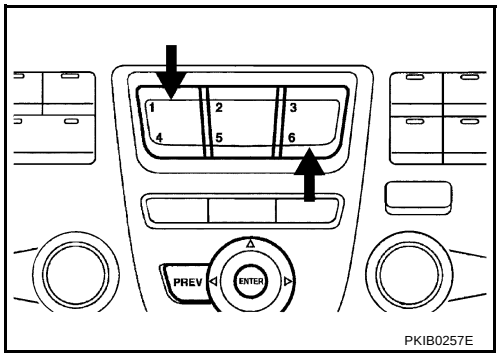
DIAGNOSIS FUNCTION

- It can illuminate all the indicators (LED) in the multifunction switch.
- It can check for continuity of the switches by sounding the buzzer when the multifunction switch is pressed.
- It can check for continuity of harness between multifunction switch and rear control switch (audio), or steering switch (audio).

  NOTE:
  When it check continuity of harness between multifunction switch and rear control switch (audio), rear control cancel switch is OFF position.

STARTING THE SELF-DIAGNOSIS MODE

1. Turn ignition switch from OFF to ACC.
2. Within 10 seconds, press and hold the function switches “1” and “6 ”simultaneously for 5 seconds or more, when the buzzer sounds at once.
3. Release the function switches, when the buzzer sounds. And self-diagnosis mode is started.



EXITING THE SELF-DIAGNOSIS MODE

- Turn ignition switch OFF, or press and hold the function switches “1” and “6” simultaneously for 5 seconds. Then the self-diagnosis ends.

Power Supply and Ground Circuit Inspection for AV Control Unit

NKS001CS

1. CHECK FUSE

Check for blown AV control unit fuses.

Unit	Power source	Fuse No.
AV control unit	Battery	52
	Ignition switch ACC or ON	21

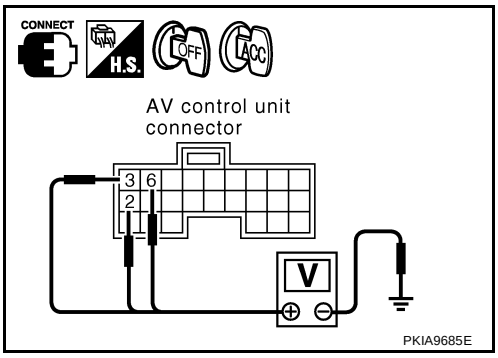
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between AV control unit harness connector M78 terminals 2, 3, 6 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
M78	2	Ground	Battery voltage	Battery voltage
	3		Battery voltage	Battery voltage
	6		0 V	Battery voltage



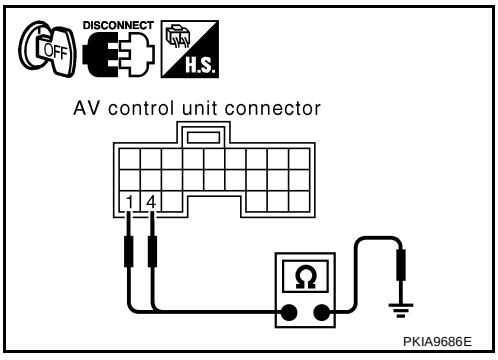
OK or NG

OK >> GO TO 3.
NG >> Check harness between AV control unit and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Check continuity between AV control unit harness connector M78 terminals 1, 4 and ground.

1 – Ground
4 – Ground **: Continuity should exist.**



OK or NG

OK >> INSPECTION END
NG >> Check ground harness.

Power Supply and Ground Circuit Inspection for Display

NKS001CT

1. CHECK FUSE

Check for blown display fuses.

Unit	Power souse	Fuse No.
Display	Battery	52
	Ignition switch ACC or ON	21

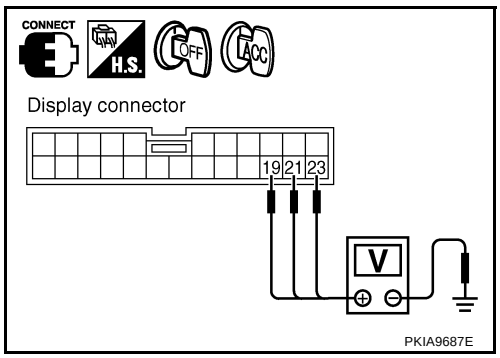
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between display harness connector M82 terminals 19, 21, 23 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
M82	19	Ground	0 V	Battery voltage
	21		Battery voltage	Battery voltage
	23		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.
NG >> Check harness between display and fuse.

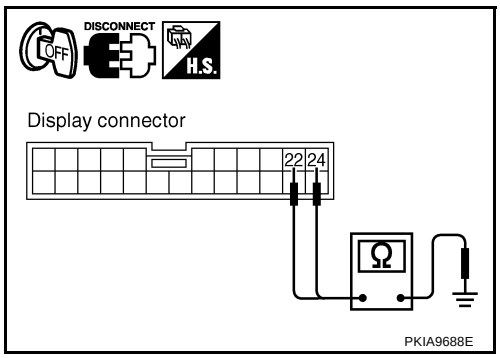
3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect display connector.
3. Check continuity between display harness connector M82 terminals 22, 24 and ground.

22 – Ground
24 – Ground **: Continuity should exist.**

OK or NG

OK >> INSPECTION END
NG >> Check ground harness.



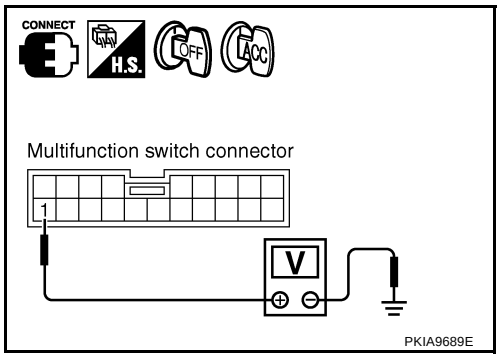
Power Supply and Ground Circuit Inspection for Multifunction Switch

NKS001CU

1. CHECK POWER SUPPLY CIRCUIT

Check voltage between multifunction switch harness connector M83 terminal 1 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
M83	1	Ground	0 V	Battery voltage



OK or NG

OK >> GO TO 2.
NG >> Check harness between multifunction switch and fuse.

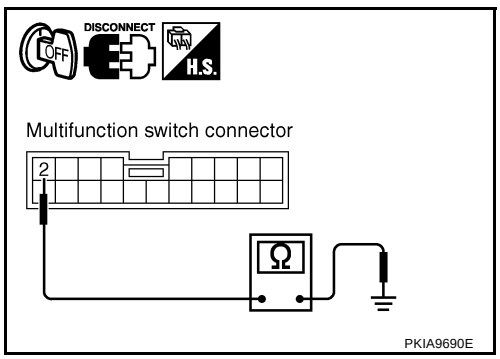
2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect multifunction switch connector.
3. Check continuity between multifunction switch harness connector M83 terminal 2 and ground.

2 – Ground **: Continuity should exist.**

OK or NG

OK >> INSPECTION END
NG >> Check ground harness.



Vehicle Speed Signal Inspection

NKS001CV

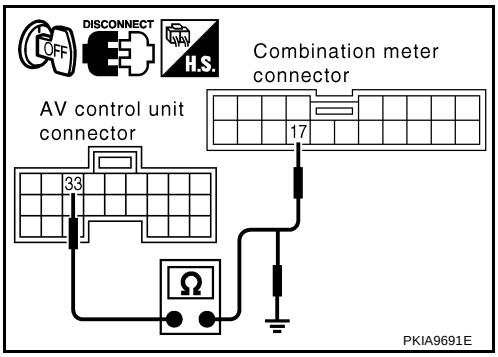
1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and combination meter connector.
3. Check continuity between AV control unit harness connector M77 terminal 33 and combination meter harness connector M41 terminal 17.

33 – 17 : Continuity should exist.

4. Check continuity between AV control unit harness connector M77 terminal 33 and ground.

33 – Ground : Continuity should not exist.



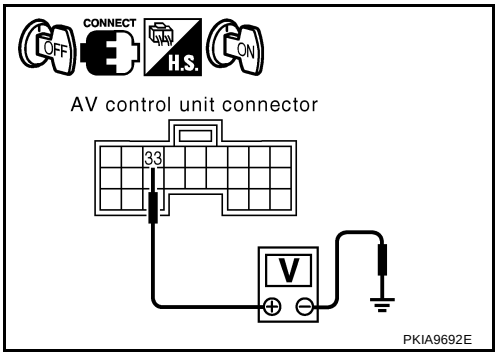
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK OUTPUT VOLTAGE

1. Connect AV control unit connector.
2. Turn ignition switch ON.
3. Check voltage between AV control unit harness connector M77 terminal 33 and ground.

33 – Ground : Approx. 3.5 V or more



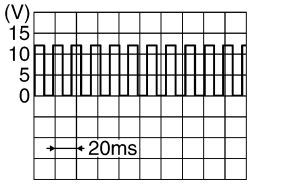
OK or NG

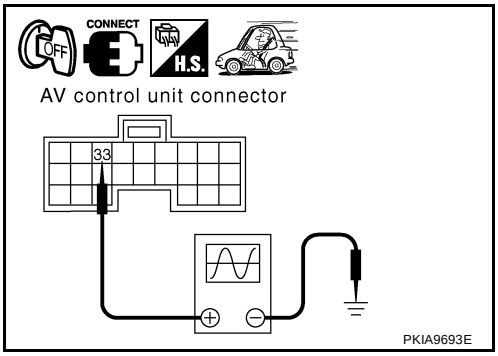
OK >> GO TO 3.
NG >> Replace AV control unit.

3. CHECK VEHICLE SPEED SIGNAL

1. Turn ignition switch OFF and connect combination meter connector.
2. Start engine and drive vehicle at approximately 40 km/h (25 MPH).
3. Check voltage signal between AV control unit harness connector M77 terminal 33 and ground.

33 – Ground:





OK or NG

OK >> Replace AV control unit.
NG >> Check combination meter. Refer to DI-18, "Vehicle Speed Signal Inspection" .

Illumination Control Signal Inspection

NKS001CW

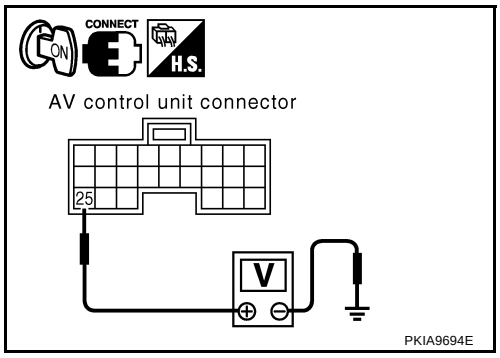
1. CHECK ILLUMINATION CONTROL SIGNAL

1. Turn ignition switch ON.
2. Check voltage between AV control unit harness connector M77 terminal 25 and ground.

25 – Ground

Lighting switch ON (1st position) : Approx. 12 V

Lighting switch OFF : Approx. 0 V



OK or NG

OK >> Replace AV control unit.
NG >> Check harness between AV control unit and BCM.

Ignition Signal Inspection

NKS001CX

1. CHECK FUSE

Check for blown AV control unit fuses.

Unit	Power souse	Fuse No.
AV control unit	Ignition switch ON or START	1

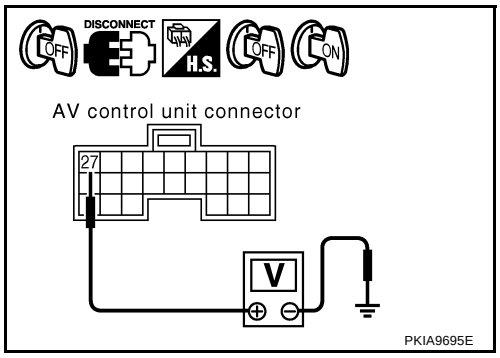
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK IGNITION SIGNAL

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Check voltage between AV control unit harness connector M77 terminal 27 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
M77	27	Ground	0 V	Battery voltage



OK or NG

OK >> Replace AV control unit.
NG >> Check harness between AV control unit and fuse.

RGB Screen Is Not Shown

NKS001CY

1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and display connector.
3. Check continuity between AV control unit harness connector M78 terminal 12 and display harness connector M82 terminal 8.

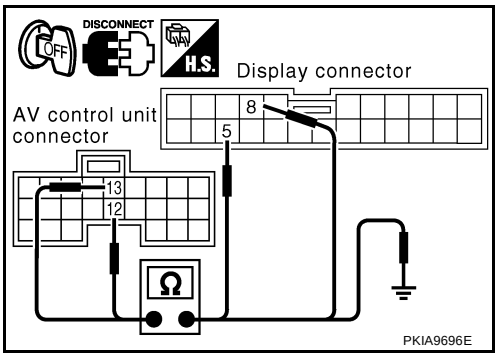
   12 – 8 : Continuity should exist.

4. Check continuity between AV control unit harness connector M78 terminal 13 and display harness connector M82 terminal 5.

   13 – 5 : Continuity should exist.

5. Check continuity between AV control unit harness connector M78 terminals 12, 13 and ground.

   12 – Ground
   13 – Ground **: Continuity should not exist.**



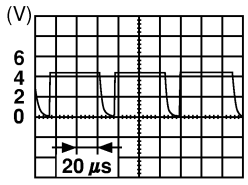
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

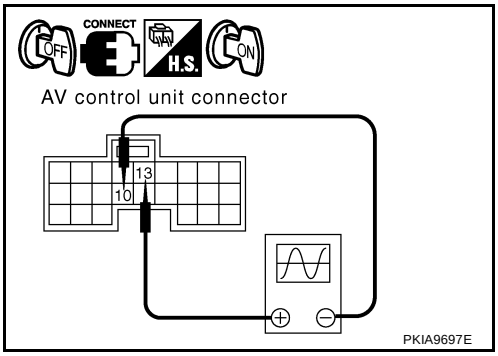
2. CHECK HORIZONTAL SYNCHRONIZATION SIGNAL

1. Connect AV control unit connector and display connector.
2. Turn ignition switch ON.
3. Select “Rearview” in “Confirmation/Adjustment” mode and display the rearview image on the screen.
4. Check voltage signal between AV control unit harness connector M78 terminals 13 and 10.

13 – 10:



SKIA0163E

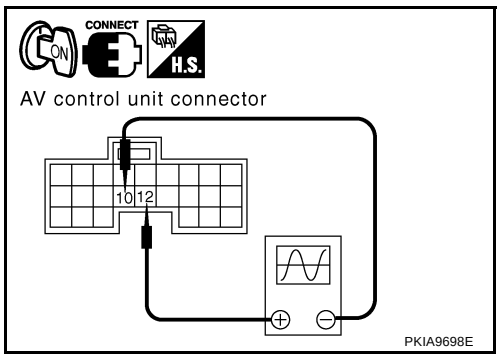


OK or NG

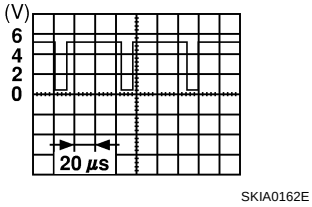
OK >> GO TO 3.
NG >> Replace display.

3. CHECK RGB AREA SIGNAL

1. Press “INFO” switch.
2. Check voltage signal between AV control unit harness connector M78 terminals 12 and 10.



12 – 10:



OK or NG

OK >> Replace display.
NG >> Replace AV control unit.

Color of RGB Image Is Not Proper

NKS001CZ

1. CHECK COLOR BAR DIAGNOSIS

Check color tone by “SCREEN ADJUSTMENT” of “CONFIRMATION/ADJUSTMENT” function.

OK or NG

OK >> INSPECTION END
NG >> GO TO 2.

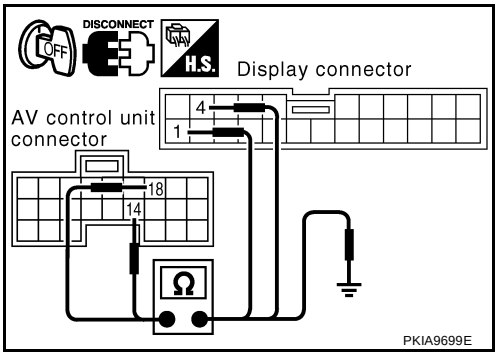
2. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and display connector.
3. Check continuity as follows.

- **When the screen looks bluish**

Terminals				Continuity
AV control unit		Display		
Connector	Terminal	Connector	Terminal	
M78	18	M82	1	Yes
M78	14	M82	4	

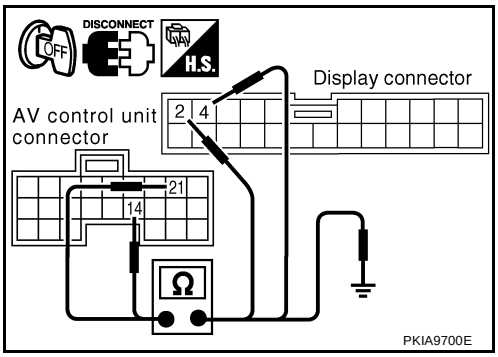
Terminals			Continuity
(+)		(–)	
Connector	Terminal		
M78	14, 18	Ground	No



- **When the screen looks reddish**

Terminals				Continuity
AV control unit		Display		
Connector	Terminal	Connector	Terminal	
M78	21	M82	2	Yes
M78	14	M82	4	

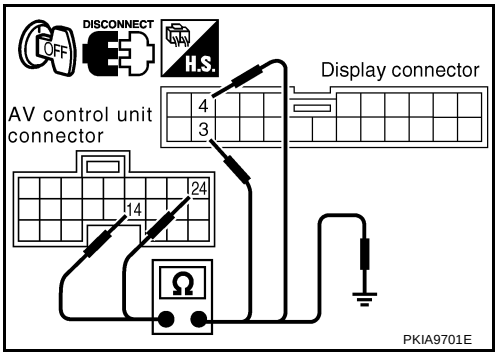
Terminals			Continuity
(+)		(–)	
Connector	Terminal		
M78	14, 21	Ground	No



- **When the screen looks yellowish**

Terminals				Continuity
AV control unit		Display		
Connector	Terminal	Connector	Terminal	
M78	24	M82	3	Yes
M78	14	M82	4	

Terminals			Continuity
(+)		(–)	
Connector	Terminal		
M78	14, 24	Ground	No



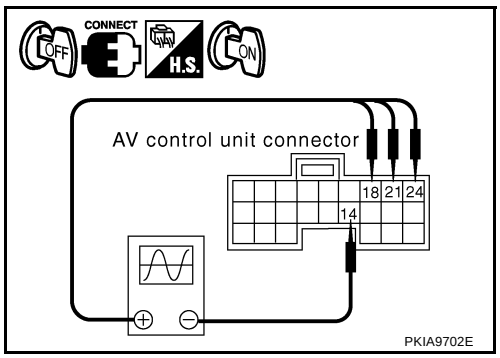
OK or NG

OK >> GO TO 3.

NG >> ● Check connector housings for disconnected or loose terminals.
● Repair harness or connector.

3. CHECK RGB SIGNAL

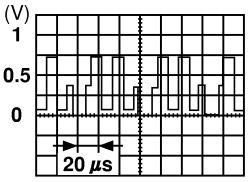
1. Connect AV control unit connector and display connector.
2. Turn ignition switch ON.
3. Display “Color bar” by “CONFIRMATION/ADJUSTMENT” mode.
4. Check the following.



- **When the screen looks bluish**

Voltage signal between AV control unit harness connector M78 terminals 18 and 14

18 – 14:

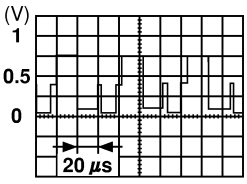


SKIA0165E

- **When the screen looks reddish**

Voltage signal between AV control unit harness connector M78 terminals 21 (Y) and 14

21 – 14:

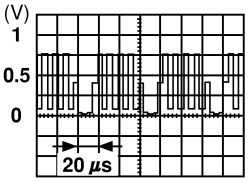


SKIA0166E

- **When the screen looks yellowish**

Voltage signal between AV control unit harness connector M78 terminals 24 (G) and 14

24 – 14:



SKIA0167E

OK or NG

OK >> Replace display.
NG >> Replace AV control unit.

RGB Screen Is Rolling

NKS001D0

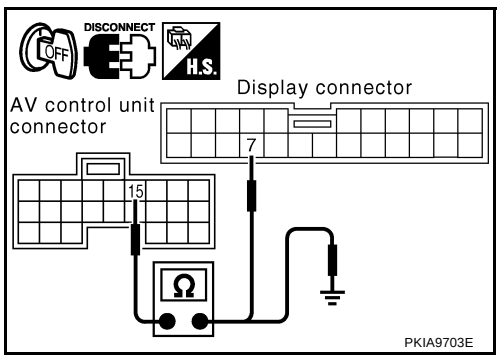
1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and display connector.
3. Check continuity between AV control unit harness connector M78 terminal 15 and display harness connector M82 terminal 7.

15 – 7 : Continuity should exist.

4. Check continuity between AV control unit harness connector M78 terminal 15 and ground.

15 – Ground : Continuity should not exist.

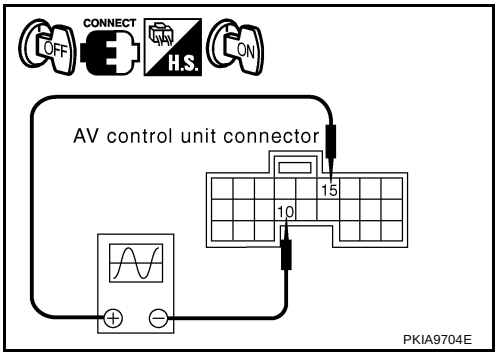


OK or NG

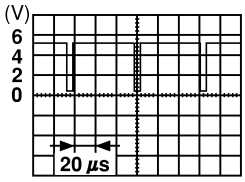
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK RGB SYNCHRONIZING SIGNAL

1. Connect AV control unit connector and display connector.
2. Turn ignition switch ON.
3. Check voltage signal between AV control unit harness connector M78 terminals 15 and 10.



15 – 10:



SKIA0164E

OK or NG

OK >> Replace display.
NG >> Replace AV control unit.

No A/C Display is Shown

NKS001D1

Refer to ATC-107, "A/C Display is Malfunctioning" in ATC section.

A/C Operation Is Not Possible

NKS001D2

Refer to ATC-108, "A/C Operation is Malfunctioning" in ATC section.

No Fuel Information Is Displayed/No Warning Message Is Displayed

NKS001D3

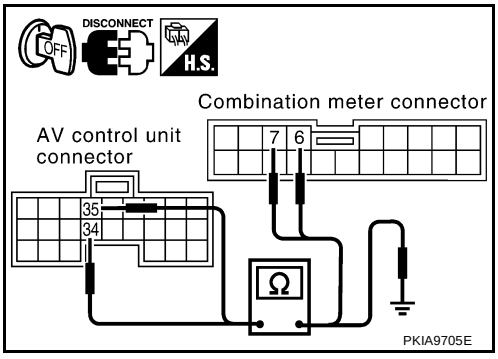
1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect connectors of AV control unit, combination meter and BCM.
3. Check continuity between AV control unit harness connector M77 terminal 34 and combination meter harness connector M41 terminal 7.

34 – 7 : Continuity should exist.

4. Check continuity between AV control unit harness connector M77 terminal 35 and combination meter harness connector M41 terminal 6.

35 – 6 : Continuity should exist.



5. Check continuity between AV control unit harness connector M77 terminals 34, 35 and ground.

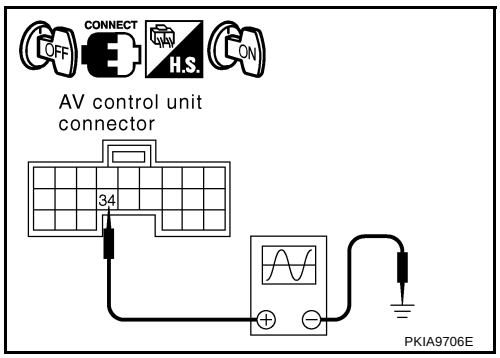
34 – Ground
35 – Ground
: Continuity should not exist.

OK or NG

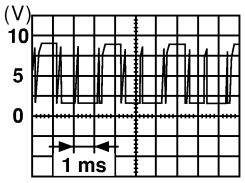
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL (AV-ME)

1. Connect connectors of combination meter, BCM and AV control unit.
2. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
3. Check voltage signal between AV control unit harness connector M77 terminal 34 and ground.



34 – Ground:



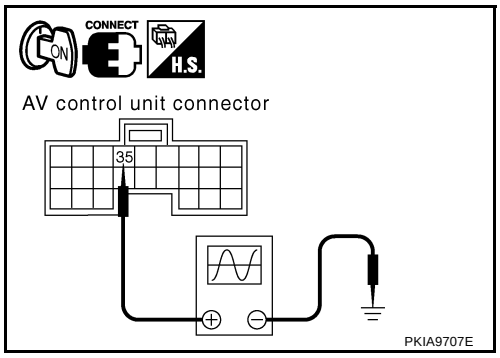
SKIA0169E

OK or NG

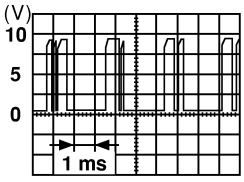
OK >> GO TO 3.
NG >> Replace AV control unit.

3. CHECK COMMUNICATION SIGNAL (MEAV)

1. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
2. Check voltage signal between AV control unit harness connector M77 terminal 35 and ground.



35 – Ground:



SKIA0170E

OK or NG

OK >> Replace AV control unit.
NG >> Replace combination meter.

Vehicle Condition Setting Is Not Possible

NKS001D4

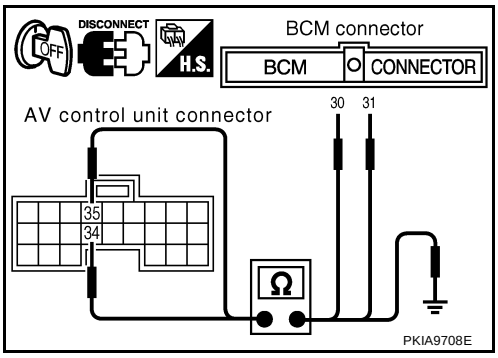
1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect connectors of AV control unit, combination meter and BCM.
3. Check continuity AV control unit harness connector M77 terminal 34 and BCM harness connector M4 terminal 31.

   34 – 31 : Continuity should exist.

4. Check continuity AV control unit harness connector M77 terminal 35 and BCM harness connector M4 terminal 30.

   35 – 30 : Continuity should exist.



5. Check continuity between AV control unit harness connector M77 terminals 34, 35 and ground.

   34 – Ground
   35 – Ground **: Continuity should not exist.**

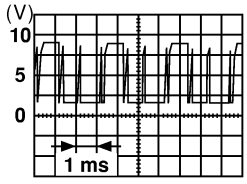
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

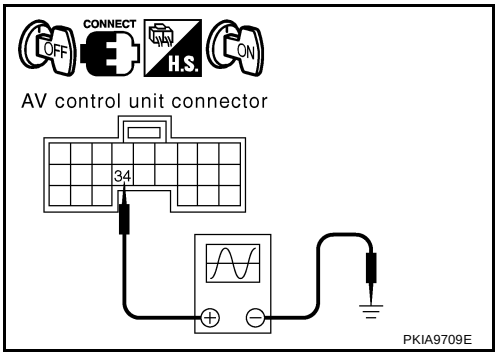
2. CHECK COMMUNICATION SIGNAL (AV-ME)

1. Connect connectors of AV control unit, combination meter and BCM.
2. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
3. Check voltage signal between AV control unit harness connector M77 terminal 34 and ground.

34 – Ground:



SKIA0169E



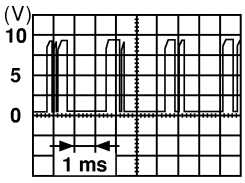
OK or NG

OK >> GO TO 3.
NG >> Replace AV control unit.

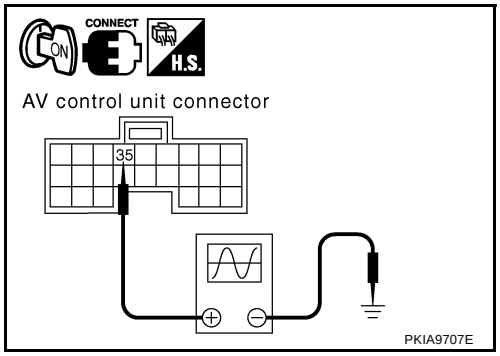
3. CHECK COMMUNICATION SIGNAL (ME-AV)

1. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
2. Check voltage signal between AV control unit harness connector M77 terminal 35 and ground.

35 – Ground:



SKIA0170E



PKIA9707E

OK or NG

OK >> Replace AV control unit.
NG >> Replace BCM.

Multifunction Switch Does Not Operate

NKS001DB

1. MULTIFUNCTION SWITCH SELF-DIAGNOSIS

Perform multifunction switch self-diagnosis. Refer to DI-136, "Multifunction Switch Self-Diagnosis Function" .

Does multifunction switch self-diagnosis mode operate?

YES >> With the self-diagnosis results, check the malfunctioning part.
NO >> GO TO 2.

2. COMMUNICATION CIRCUIT SELF-DIAGNOSIS

Perform the self-diagnosis with CONSULT-II. Refer to DI-132, "CONSULT-II Function (MULTI AV)" .

Is self-diagnosis result OK?

YES >> Replace display.
NO >> With the self-diagnosis results, check the malfunctioning part.

Removal and Installation of Multifunction Switch

NKS001DC

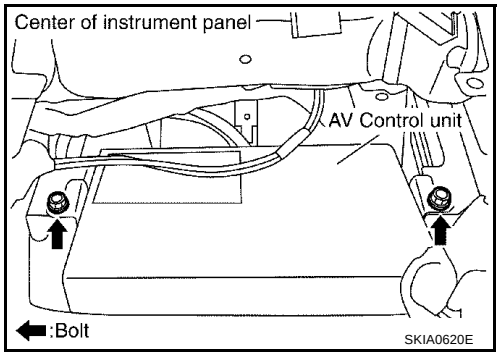
Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .

Removal and Installation of AV Control Unit

NKS001DD

REMOVAL

1. Remove cluster lid C. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove warning chime. Refer to DI-69, "Removal and Installation of Warning Chime" .
3. Remove low tire pressure warning control unit. Refer to WT-7, "LOW TIRE PRESSURE WARNING CONTROL UNIT" .
4. Remove the Bolts (2) , and remove AV control unit.



SKIA0620E

INSTALLATION

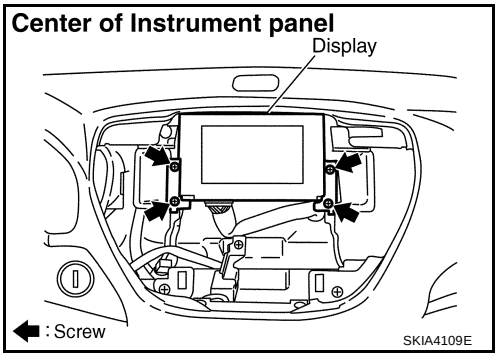
Installation is the reverse order of removal.

Removal and Installation of Display

NKS001DE

REMOVAL

1. Remove the cluster lid C. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screws (4), and remove the display.

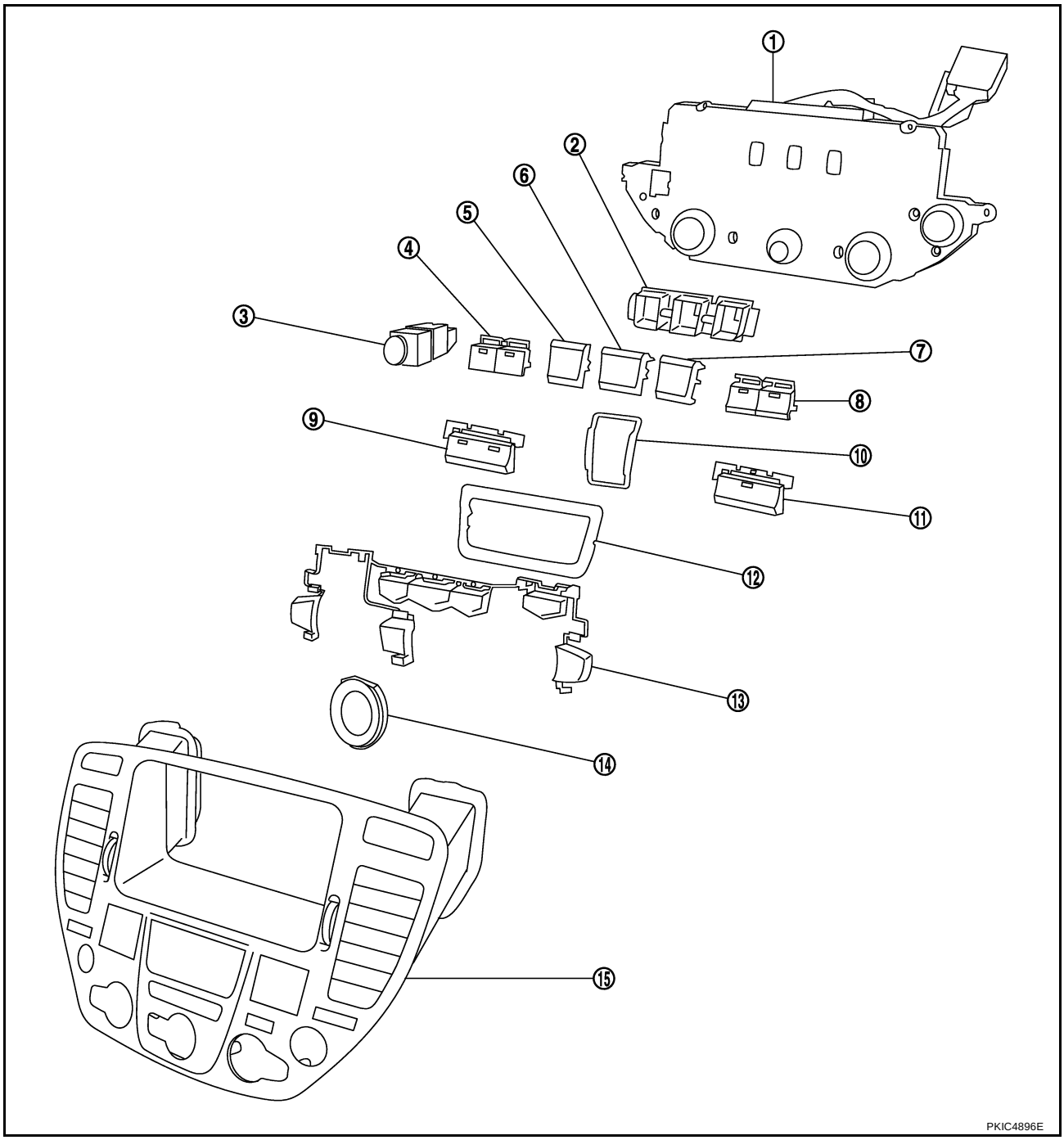


INSTALLATION

Installation is the reverse order of removal.

Disassembly and Assembly for Multifunction Switch

NKS001DF



1. Multifunction switch
2. Escutcheon
3. Hazard switch
4. Defroster, rear window defogger switch
5. Function switch
6. Function switch
7. Function switch
8. TAPE and DISC switch
9. A/C switch
10. Escutcheon
11. Radio switch
12. Escutcheon
13. Switch assembly
14. Escutcheon
15. Cluster lid C

DISASSEMBLY

1. Remove the screws (7).
2. Remove the switches.

ASSEMBLY

Assembly is the reverse order of disassembly.

VEHICLE INFORMATION AND INTEGRATED SWITCH SYSTEM /WITH NAVIGATION SYSTEM

PFP:28395

Precautions for AV and NAVI Control Unit Replacement

NKS001DH

- When replacing the AV and NAVI control unit, eject the map DVD-ROM before disconnecting the battery.
- The AV and NAVI control unit has the following information stored in its memory. Record the memory contents before replacing the control unit, and input them in the new unit as necessary.

<Radio>	• **Preset frequency**
	• **Area for indicating station, selection of overlapped stations**
<CD>	• **Program status**
<Sound quality>	• **Volume balance memory set values**
	• **Equalizer memory set values**
<Image quality>	• **Brightness of light when ON/OFF**
	• **Dimming switching**
	• **Display color switching**
<Navigation mode>	• **Latest status (MAP screen/BIRD VIEW™, reduced scale, rotation angle of map screen, route guide ON/OFF, track ON/OFF, etc.)**
	• **Current position**
	• **Destination, passing point 1 - 5**
	• **Registered places, their names, etc.**

NOTE:
Only removing the battery does not erase the memory.

Precautions for LCD Monitor

NKS002JJ

- When passenger compartment temperature is low, the LCD monitor sometimes dims because of the brightness of the back light (small fluorescent light) integrated into the LCD monitor decrease. In this case, the refreshing rate of the picture also becomes low because of the low response of the LCD monitor. When passenger compartment becomes warm, however, the LCD recovers the normal display.
- Sometimes, black or bright dots peculiar to LCD monitor can be seen on the display.
- Back light sometimes flickers or darkens according to the total consumption hours and the number of ON and OFF switching. In this case, the back light should be replaced. (LCD monitor assembly)

System Description

NKS001DG

VEHICLE INFORMATION SYSTEM

- AV and NAVI control unit is received vehicle information system of signals from combination meter.
- AV and NAVI control unit is communicating with BCM and combination meter.

Here is an example of functions. For details, refer to the Owner's Manual.

INTEGRATED SWITCH SYSTEM

Using the multifunction switch at the center of the instrument panel, the controls of the following systems are centralized:

- Auto A/C system
- Vehicle information system
- Audio system
- Navigation system

The multifunction switch can operate and check the vehicle condition and each setting (vehicle electrical system).

AV COMMUNICATION LINE

AV and NAVI control unit is connected to the following units by AV communication line. Each unit transmits/receives data with AV communication line.

- Display
- Multifunction switch
- Audio unit
- BOSE speaker amp. (audio amp.)
- Low tire pressure warning control unit
- Voice activated control module

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times

- through 15A fuse [No. 52, located in fuse, fusible link and relay block (J/B)]
- to AV and NAVI control unit terminals 2 and 3
- to display terminals 21 and 23.

When ignition switch is in ACC or ON position, power is supplied

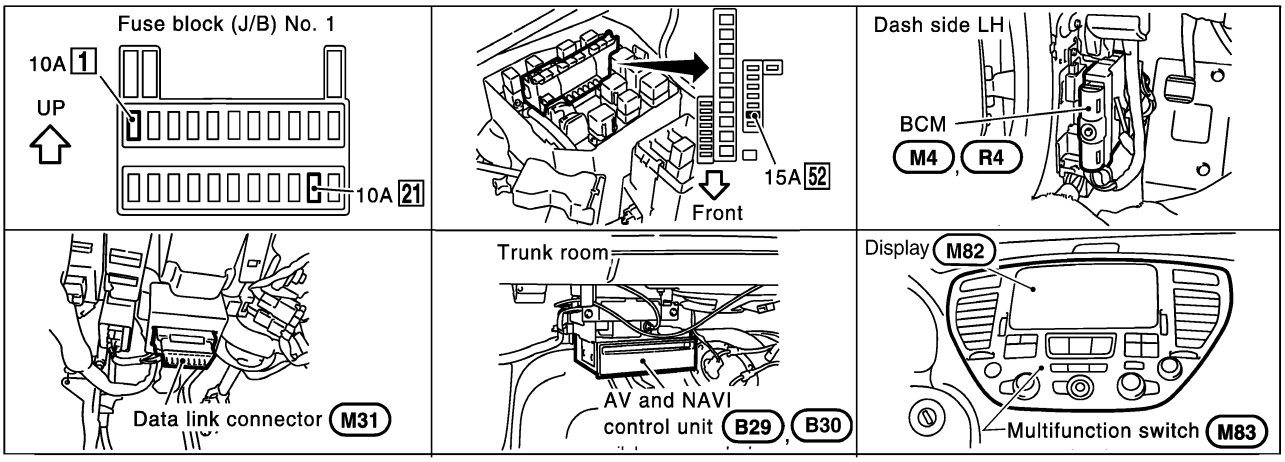
- through 10A fuse [No. 21, located in fuse block (J/B) No. 1]
- to AV and NAVI control unit terminal 6
- to display terminal 19
- to multifunction switch terminal 1.

Ground is supplied

- to AV and NAVI control unit terminals 1 and 4
- through grounds B17 and B57, and
- to multifunction switch terminal 2
- to display terminals 22 and 24
- through grounds M24 and M114.

Component Parts and Harness Connector Location

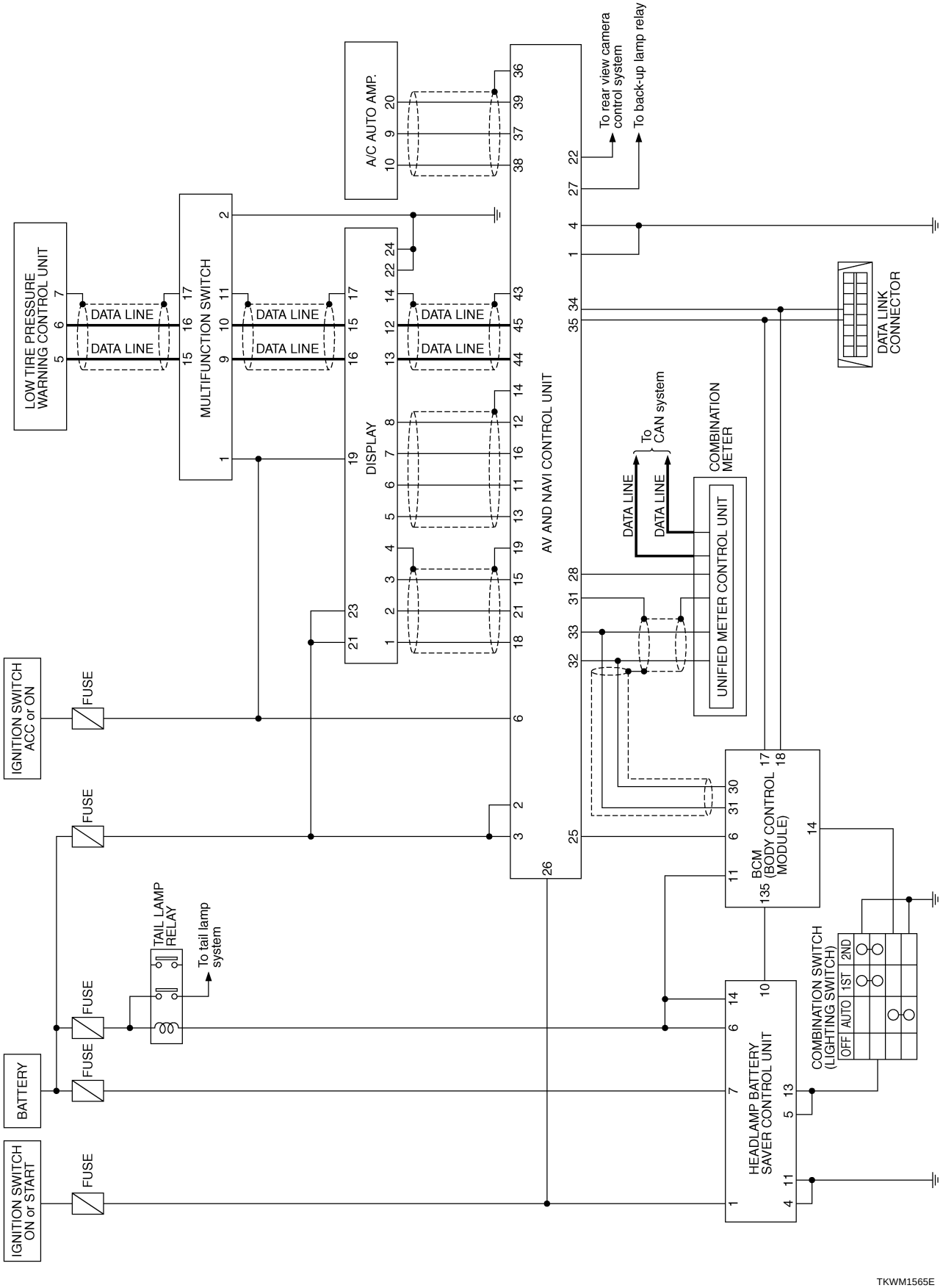
NKS001DI



PKIA6800E

Schematic — INF/D —

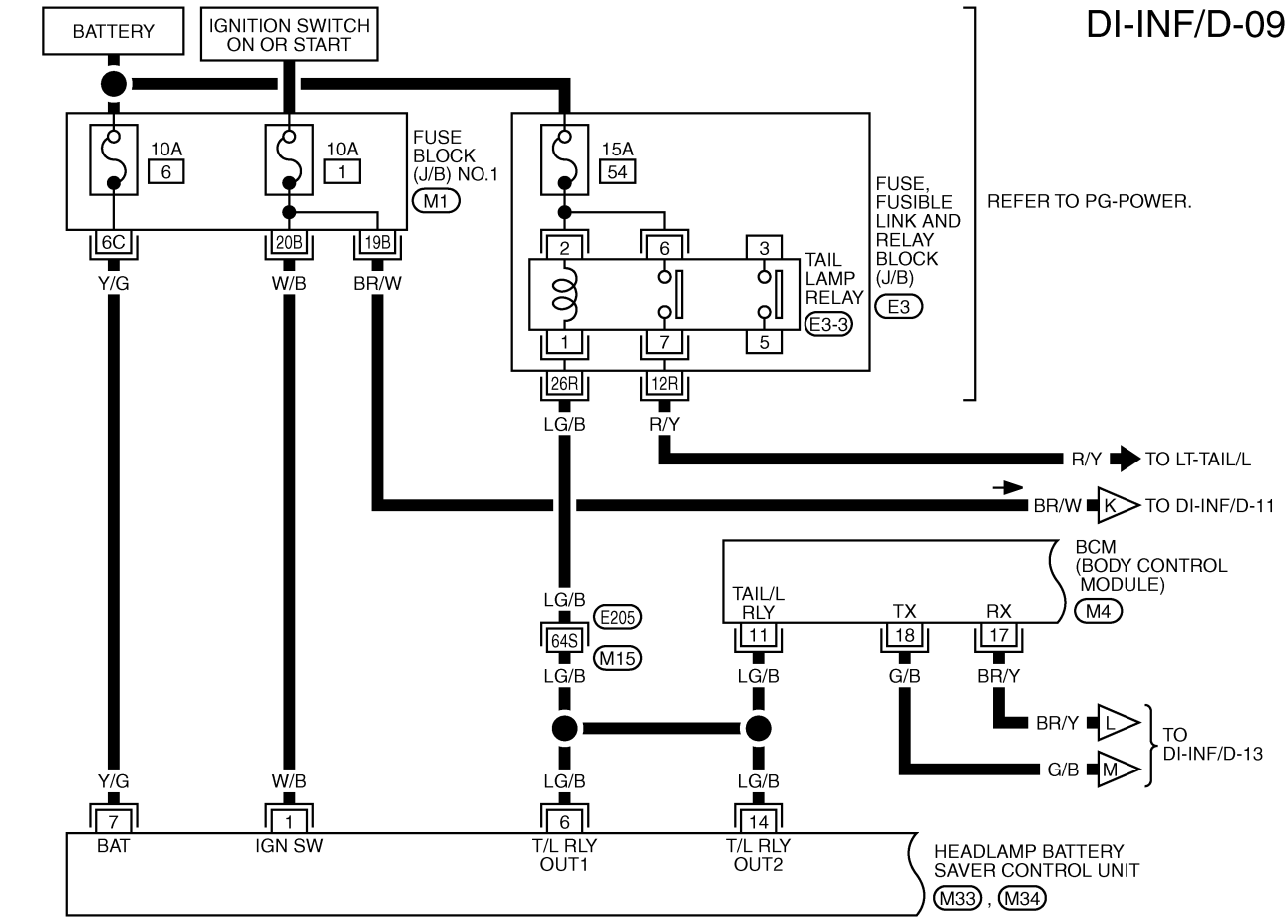
NKS001DJ

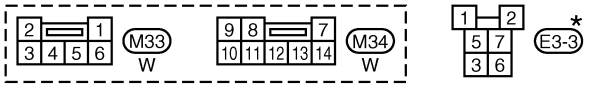


TKWM1565E

Wring Diagram — INF/D —

NKS001DK





*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

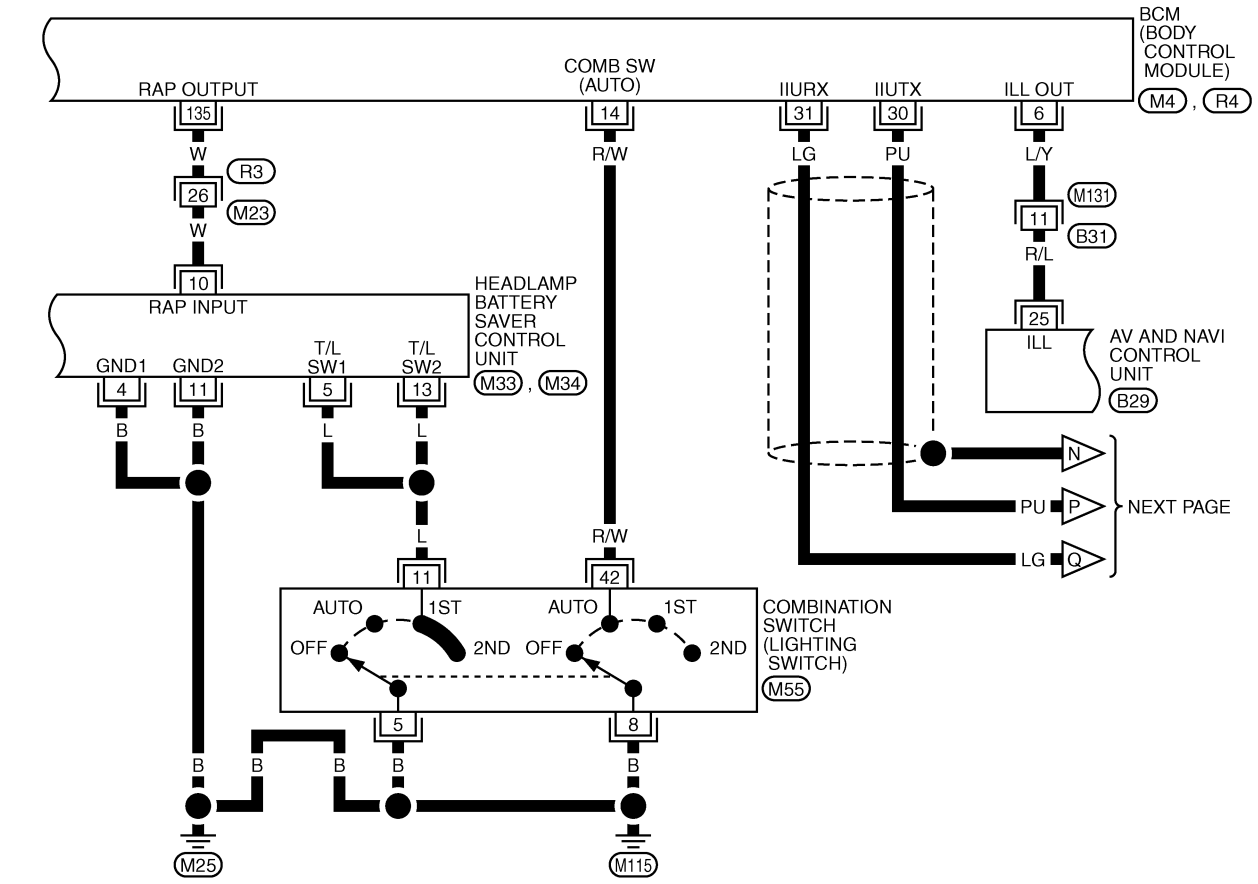
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

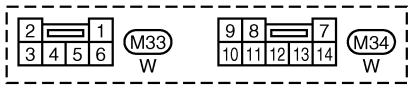
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

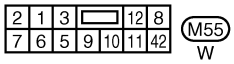
M4 -ELECTRICAL UNITS

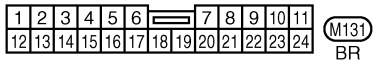
TKWM3745E

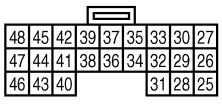
DI-INF/D-10

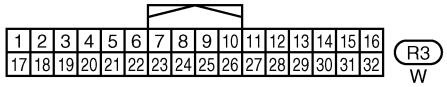






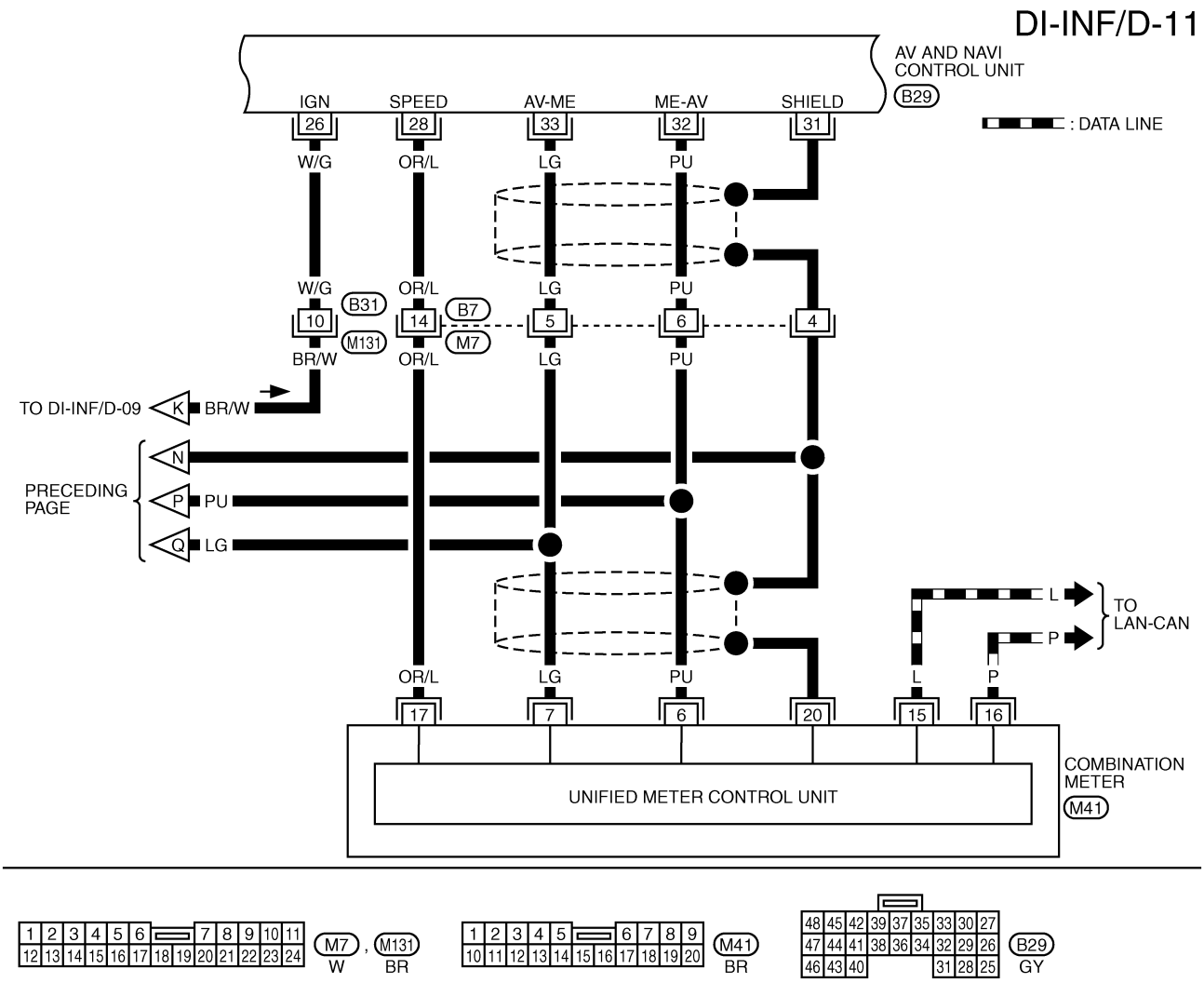






REFER TO THE FOLLOWING.
M4 , R4 -ELECTRICAL UNITS

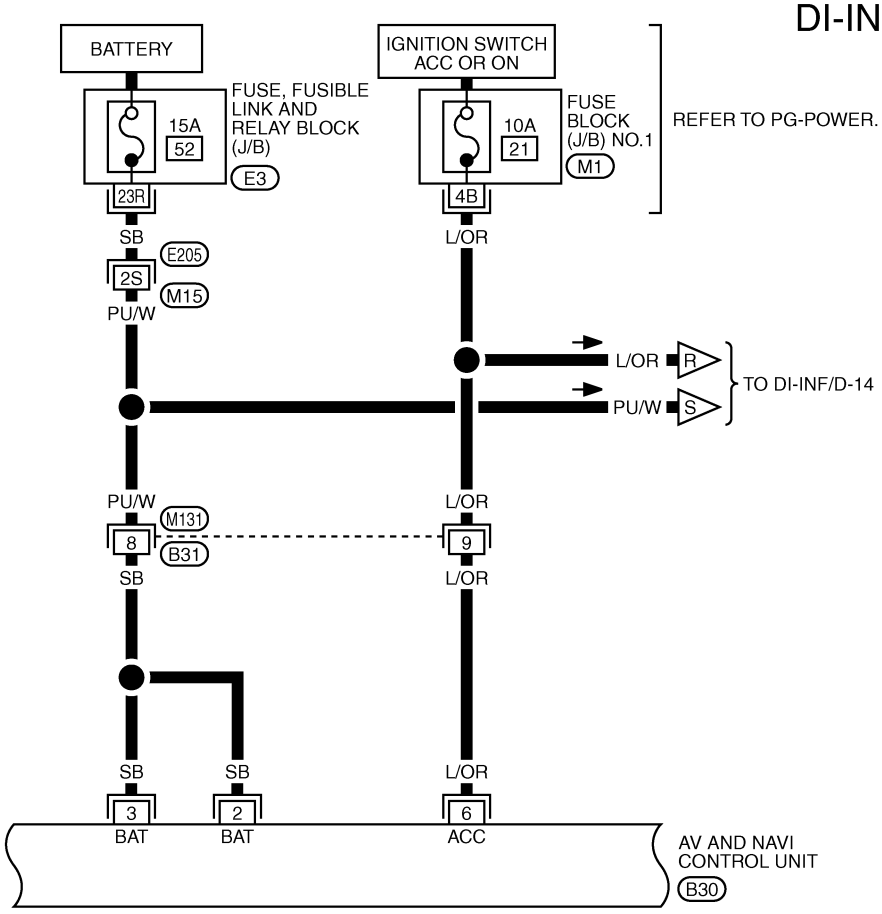
TKWM3746E

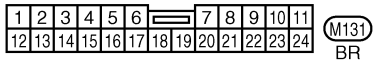

DI-INF/D-11
AV AND NAVI CONTROL UNIT
B29
: DATA LINE
IGN
SPEED
AV-ME
ME-AV
SHIELD
26
28
33
32
31
W/G
OR/L
LG
PU
B31
B7
M131
M7
10
14
5
6
4
BR/W
TO DI-INF/D-09
K
BR/W
PRECEDING PAGE
N
P
PU
Q
LG
L
P
TO LAN-CAN
17
7
6
20
15
16
COMBINATION METER
M41
UNIFIED METER CONTROL UNIT

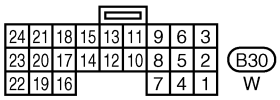
M7
W
M131
BR
M41
BR
B29
GY

TKWM1568E

DI-INF/D-12







REFER TO THE FOLLOWING.

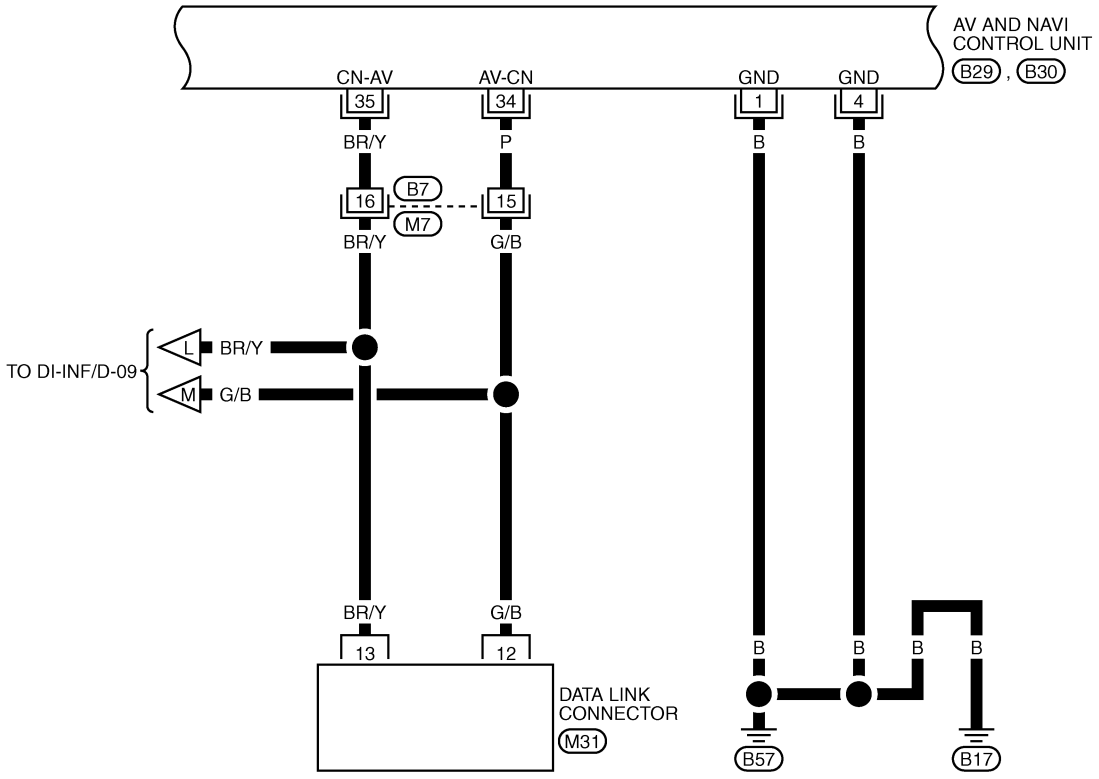
E205 -SUPER MULTIPLE JUNCTION (SMJ)

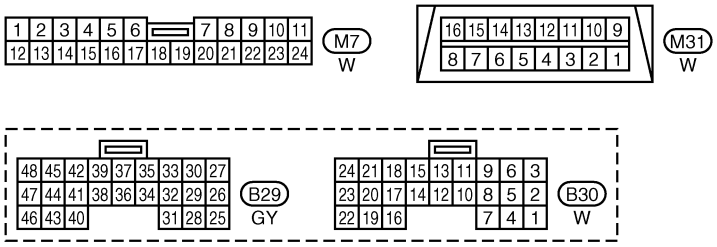
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3747E

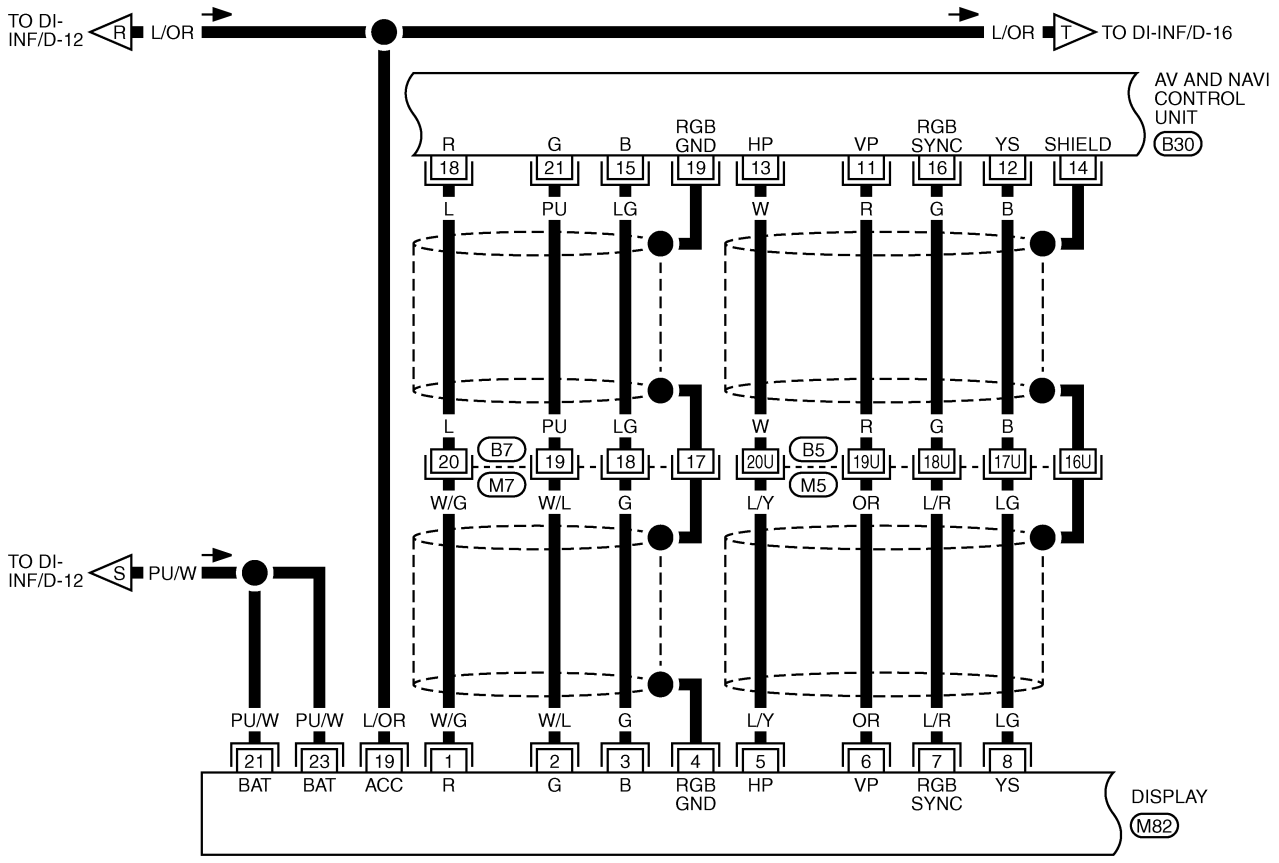
DI-INF/D-13

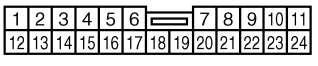


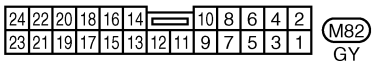


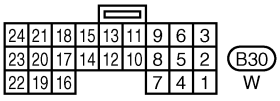
TKWM3748E

DI-INF/D-14



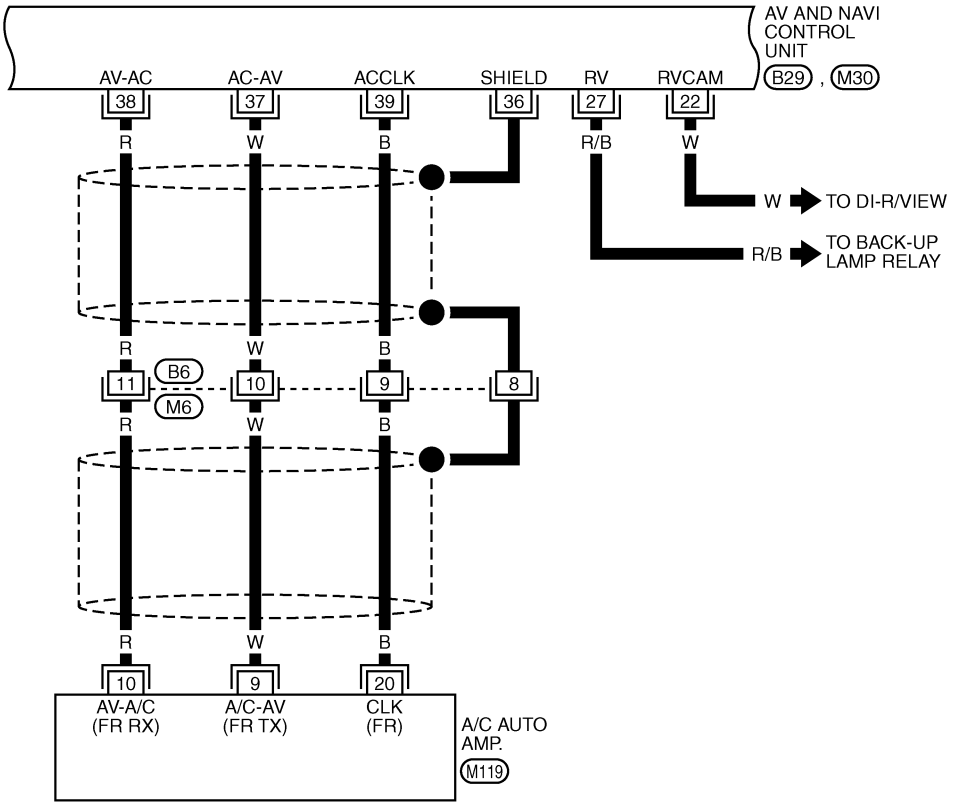


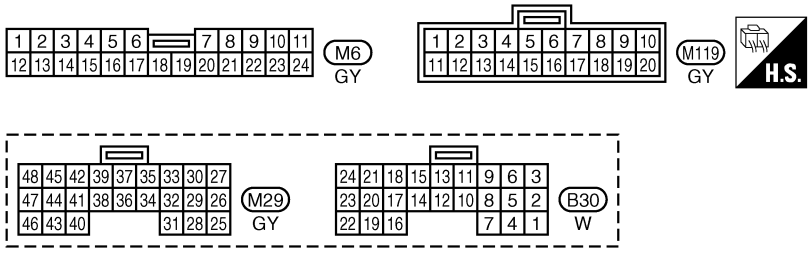




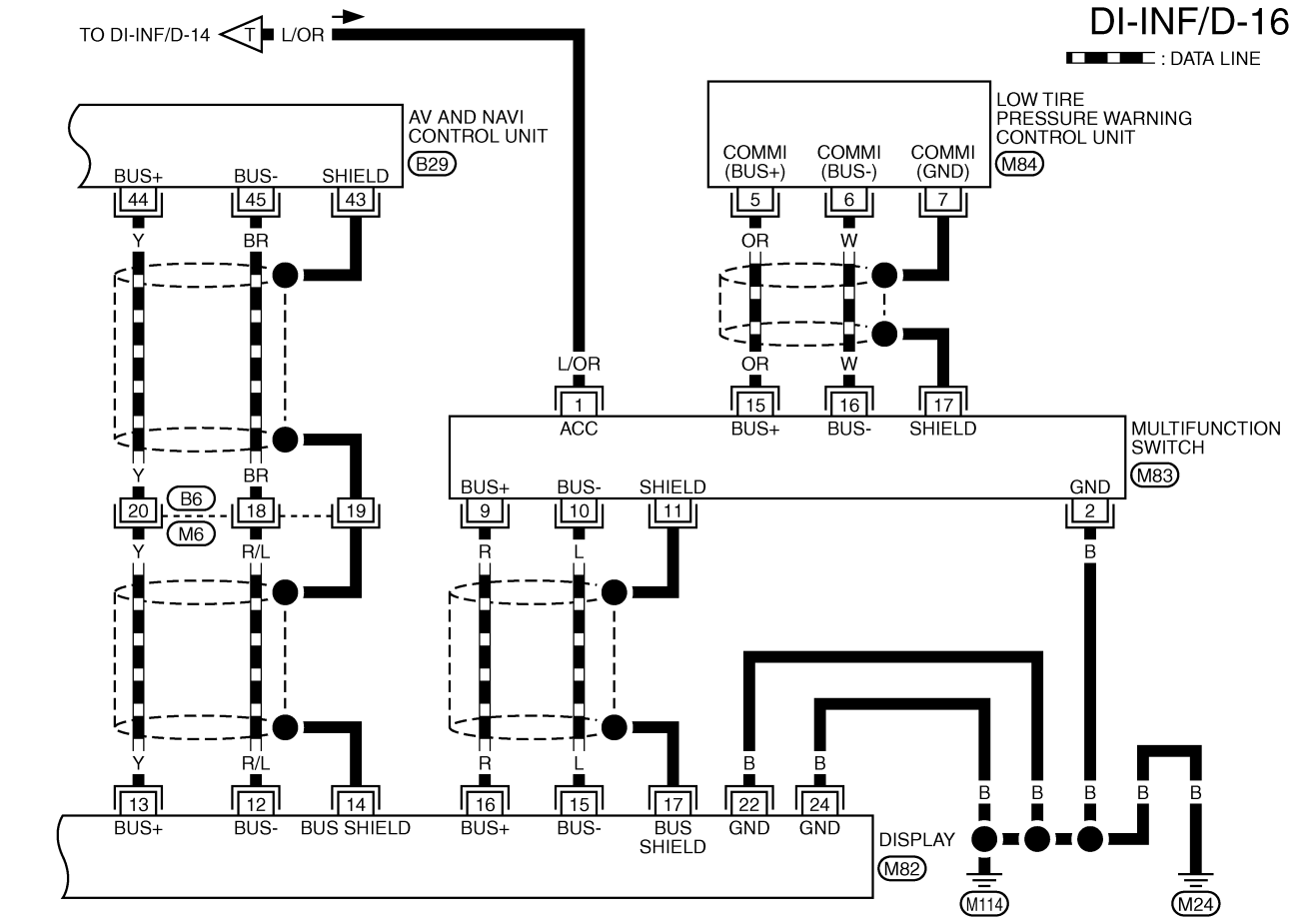
REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3749E


AV AND NAVI CONTROL UNIT
B29 , M30
AV-AC
AC-AV
ACCLK
SHIELD
RV
RVCAM
38
37
39
36
27
22
R
W
B
R/B
W
W
TO DI-R/VIEW
R/B
TO BACK-UP LAMP RELAY
B6
M6
11
10
9
8
10
9
20
AV-A/C (FR RX)
A/C-AV (FR TX)
CLK (FR)
A/C AUTO AMP.
M119


M6
GY
M119
GY
H.S.
M29
GY
B30
W

TKWM1572E



TKWM1573E

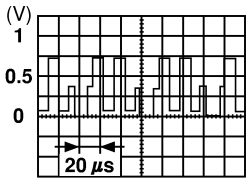
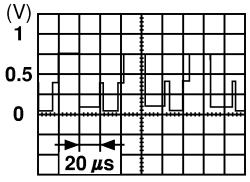
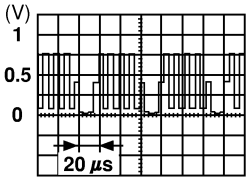
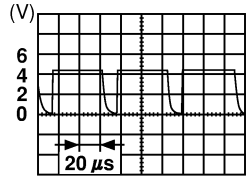
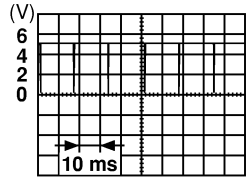
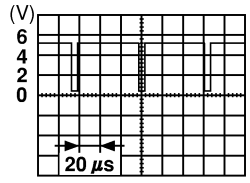
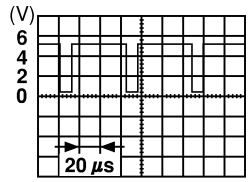
Terminals and Reference Value for AV and NAVI Control Unit

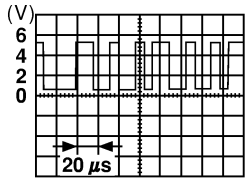
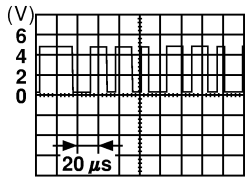
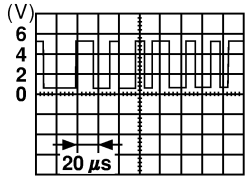
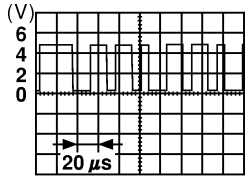
NKS001DL

Refer to AV-97, "Terminals and Reference Value for AV and NAVI Control Unit" in AV section.

Terminals and Reference Value for Display

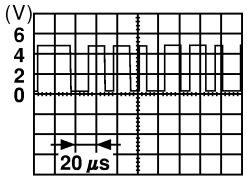
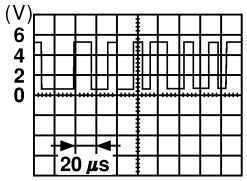
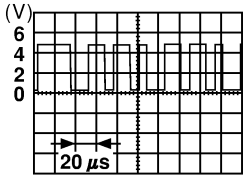
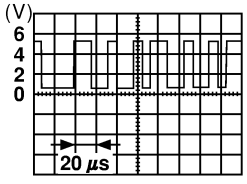
NKS001DM

Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
1 (W/G)	4	RGB signal (R: Red)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0165E
2 (W/L)	4	RGB signal (G: Green)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0166E
3 (G)	4	RGB signal (B: Blue)	Input	ON	Select “Display Color Spectrum Bar” of “Display Diagnosis” in Confirmation/Adjustment mode function.	 SKIA0167E
4	Ground	RGB ground	—	ON	—	0 V
5 (L/Y)		Horizontal synchronizing signal	Output	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rear view image on the screen.	 SKIA0163E
6 (OR)		Vertical synchronizing signal	Output	ON	Select “Rearview” in “Confirmation/Adjustment” mode and display the rear view image on the screen.	 SKIA0161E
7 (L/R)		RGB synchronizing signal	Input	ON	Press the “MAP” switch.	 SKIA0164E
8 (LG)		RGB area signal	Input	ON	Press the “INFO” switch.	 SKIA0162E

Terminal No. (Wire color)		Item	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
12 (R/L)	Ground	Communication signal (–)	Input/ output	ON	—	 SKIA0176E
13 (Y)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
14		Shield	—	ON	—	0 V
15 (L)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
16 (R)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
17		Shield	—	ON	—	0 V
19 (L/OR)		ACC power supply	Input	ACC	—	Battery voltage
21 (PU/W)		Battery power supply	Input	OFF	—	Battery voltage
23 (PU/W)						
22 (B)		Ground	—	ON	—	0 V
24 (B)						

Terminals and Reference Value for Multifunction Switch

NKS001DN

Terminal No. (Wire color)		Signal	Signal input/ output	Condition		Reference value (Approx.)
(+)	(–)			Ignition switch	Operation	
1 (L/OR)	Ground	ACC power supply	Input	ACC	—	Battery voltage
2 (B)		Ground	—	ON	—	0 V
9 (R)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
10 (L)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
11		Shield	—	ON	—	Approx. 0
15 (OR)		Communication signal (+)	Input/ output	ON	—	 SKIA0175E
16 (W)		Communication signal (–)	Input/ output	ON	—	 SKIA0176E
17		Shield	—	ON	—	Approx. 0

On Board Self-Diagnosis Function (Without CONSULT-II)

NKS001DP

Refer to AV-101, "On Board Self-Diagnosis Function (Without CONSULT-II)" in AV section.

CONSULT-II Function (MULTI AV)

NKS001DO

Refer to AV-115, "CONSULT-II Function (MULTI AV)" .

Multifunction Switch Self-Diagnosis Function

NKS001DQ

It can check ON/OFF operation of each switch in the multifunction switch and diagnose the input signals to the rear control switch (audio) and steering switch (audio).

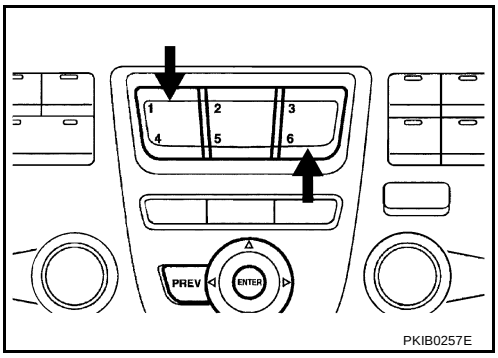
DIAGNOSIS FUNCTION

- It can illuminate all the indicators (LED) in the multifunction switch.
- It can check for continuity of the switches by sounding the buzzer when the multifunction switch is pressed.
- It can check for continuity of harness between multifunction switch and rear control switch (audio), or steering switch (audio).

  NOTE:
  When it checks continuity of harness between multifunction switch and rear control switch (audio), rear control cancel switch is in OFF position.

STARTING THE SELF-DIAGNOSIS MODE

1. Turn ignition switch from OFF to ACC.
2. Within 10 seconds, press and hold the function switches “1” and “6 ”simultaneously for 5 seconds or more, when the buzzer sounds at once.
3. Release the function switches, when the buzzer sounds. And self-diagnosis mode is started.



PKIB0257E

EXITING THE SELF-DIAGNOSIS MODE

- Turn ignition switch OFF, or press and hold the function switches “1” and “6” simultaneously for 5 seconds. Then the self-diagnosis ends.

Power Supply and Ground Circuit Inspection for Display

NKS001DS

1. CHECK FUSES

Check for blown display fuses.

Unit	Power source	Fuse No.
Display	Battery	52
	Ignition switch ACC or ON	21

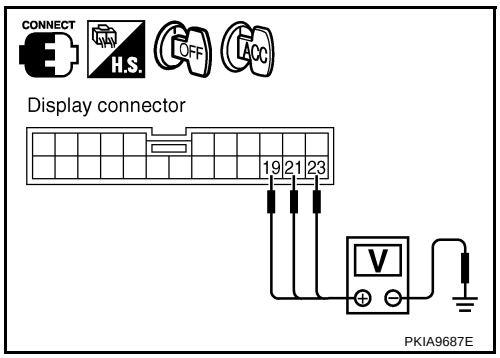
OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between display harness connector M82 terminals 19, 21, 23 and ground.



Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
M82	19	Ground	0 V	Battery voltage
	21		Battery voltage	Battery voltage
	23		Battery voltage	Battery voltage

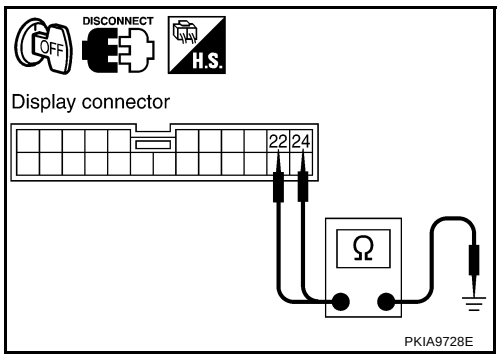
OK or NG

OK >> GO TO 3.
NG >> Check harness between display and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect display connector.
3. Check continuity between display harness connector M82 terminals 22, 24 and ground.

22 – Ground
24 – Ground **: Continuity should exist.**



OK or NG

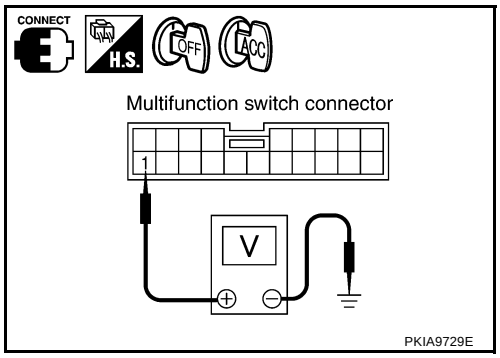
OK >> INSPECTION END
NG >> Check ground harness.

Power Supply and Ground Circuit Inspection for Multifunction Switch

NKS001DT

1. CHECK POWER SUPPLY CIRCUIT

Check voltage between multifunction switch harness connector M83 terminal 1 and ground.



Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
M83	1	Ground	0 V	Battery voltage

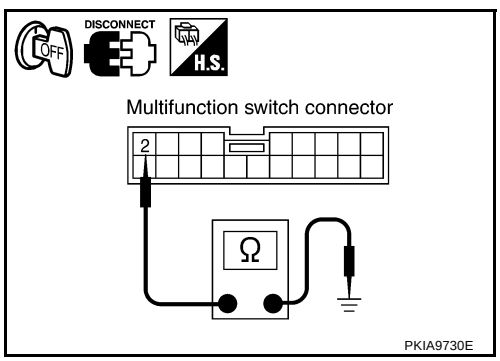
OK or NG

OK >> GO TO 2.
NG >> Check harness between multifunction switch and fuse.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect multifunction switch connector.
3. Check continuity between multifunction switch harness connector M83 terminal 2 and ground.

2 – Ground **: Continuity should exist.**



OK or NG

OK >> INSPECTION END
NG >> Check ground harness.

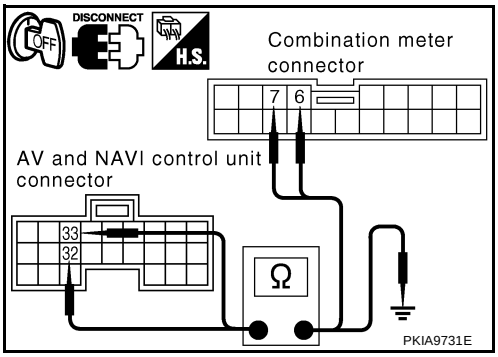
Fuel Information Is Not Displayed/Warning Message Is Not Displayed

NKS001DU

1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect connectors of combination meter, BCM, and AV and NAVI control unit.
3. Check continuity between AV and NAVI control unit harness connector B29 terminals 33, 32 and combination meter harness connector M41 terminals 7, 6.

Terminals				Continuity
AV and NAVI control unit (+)		Combination meter (–)		
Connector	Terminal	Connector	Terminal	
B29	33	M41	7	Yes
	32		6	



4. Check continuity between AV and NAVI control unit harness connector B29 terminals 33, 32 and ground.

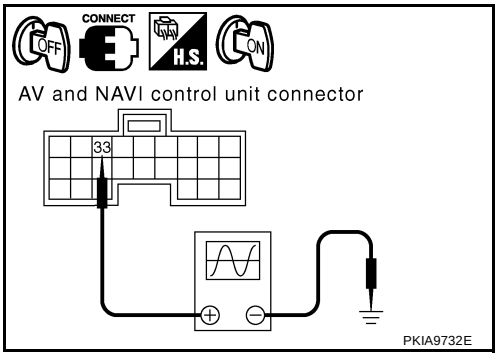
Terminals			Continuity
AV and NAVI control unit (+)		(–)	
Connector	Terminal		
B29	33	Ground	No
	32		

OK or NG

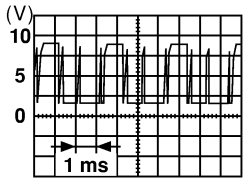
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL (AV–ME)

1. Connect connectors of combination meter, BCM, and AV and NAVI control unit.
2. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
3. Check voltage signal between AV and NAVI control unit harness connector B29 terminal 33 and ground.



33 – Ground:



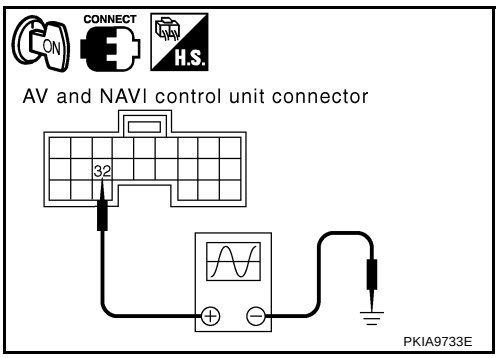
SKIA0169E

OK or NG

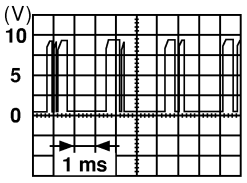
OK >> GO TO 3.
NG >> Replace AV and NAVI control unit.

3. CHECK COMMUNICATION SIGNAL (ME–AV)

1. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
2. Check voltage signal between AV and NAVI control unit harness connector B29 terminal 32 and ground.



32 – Ground:



SKIA0170E

OK or NG

OK >> Replace AV and NAVI control unit.
NG >> Replace combination meter.

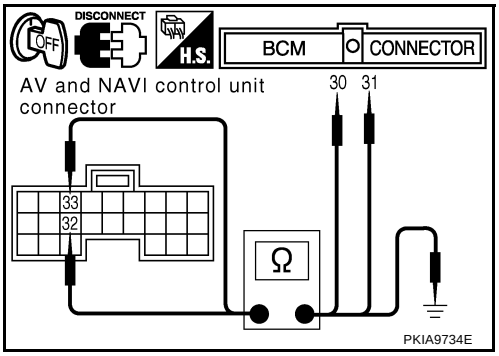
Vehicle Condition Setting Is Not Possible

NKS001DV

1. CHECK HARNESS

1. Turn ignition switch OFF.
2. Disconnect connectors of combination meter, BCM, and AV and NAVI control unit.
3. Check continuity AV and NAVI control unit harness connector B29 terminals 33, 32 and BCM harness connector M4 terminals 31, 30.

Terminals				Continuity
AV and NAVI control unit		BCM		
Connector	Terminal	Connector	Terminal	
B29	33	M4	31	Yes
	32		30	



4. Check continuity between AV and NAVI control unit harness connector B29 terminals 33, 32 and ground.

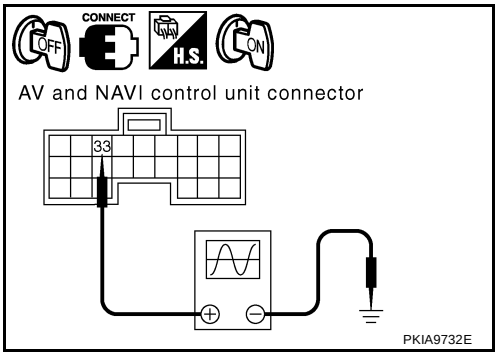
Terminals			Continuity
AV and NAVI control unit (+)		(–)	
Connector	Terminal		
B29	33	Ground	No
	32		

OK or NG

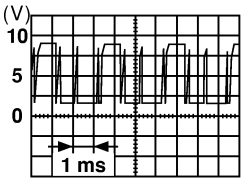
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK COMMUNICATION SIGNAL (AV–ME)

1. Connect connectors of combination meter, BCM, and AV and NAVI control unit.
2. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
3. Check voltage signal between AV and NAVI control unit harness connector B29 terminal 33 and ground.



33 – Ground:



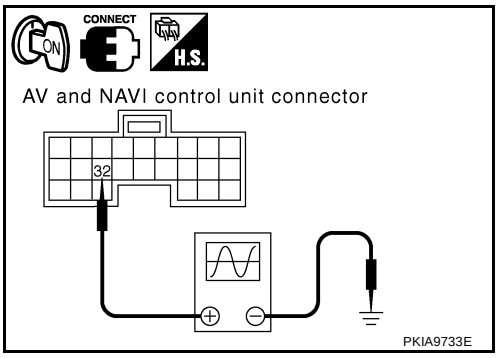
SKIA0169E

OK or NG

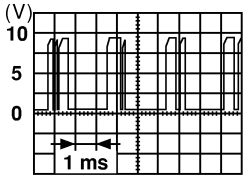
OK >> GO TO 3.
NG >> Replace AV and NAVI control unit.

3. CHECK COMMUNICATION SIGNAL (ME–AV)

1. Turn ignition switch ON and display “VEHICLE ELECTRONIC SYSTEMS” screen.
2. Check voltage signal between AV and NAVI control unit harness connector B29 terminal 32 and ground.



32 – Ground:



SKIA0170E

OK or NG

OK >> Replace AV and NAVI control unit.
NG >> Replace BCM.

Multifunction Switch Does Not Operate

NKS001DW

1. MULTIFUNCTION SWITCH SELF-DIAGNOSIS

Perform multifunction switch self-diagnosis. Refer to DI-165, "Multifunction Switch Self-Diagnosis Function" .

Does multifunction switch self-diagnosis mode operate?

YES >> With the self-diagnosis results, check the malfunctioning part.
NO >> GO TO 2.

2. COMMUNICATION CIRCUIT SELF-DIAGNOSIS

Perform the self-diagnosis with CONSULT-II. Refer to AV-115, "CONSULT-II Function (MULTI AV)" .

Is self-diagnosis result OK?

YES >> Replace multifunction switch.
NO >> With the self-diagnosis results, check the malfunctioning part.

Removal and Installation of Multifunction Switch

NKS001DX

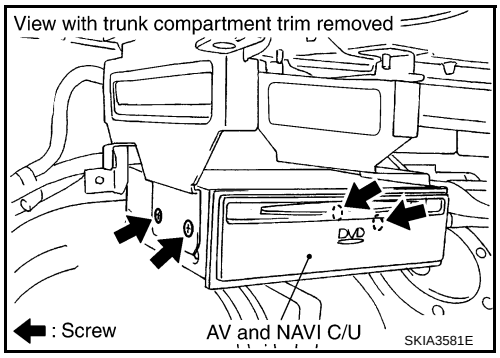
Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .

Removal and Installation of AV and NAVI Control Unit

NKS001DY

REMOVAL

1. Remove the trunk compartment trim. Refer to EI-60, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Remove the screws (4) and remove the AV and NAVI control unit.



INSTALLATION

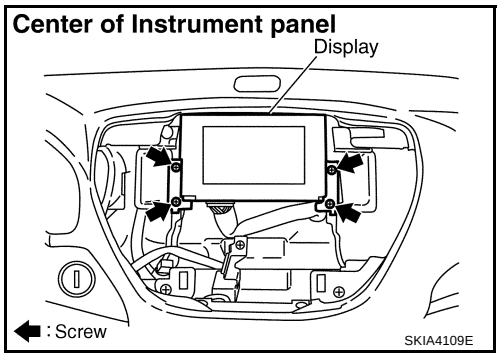
Installation is the reverse order of removal.

Removal and Installation of Display

NKS001DZ

REMOVAL

1. Remove the cluster lid C. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screws (4), and remove the display.

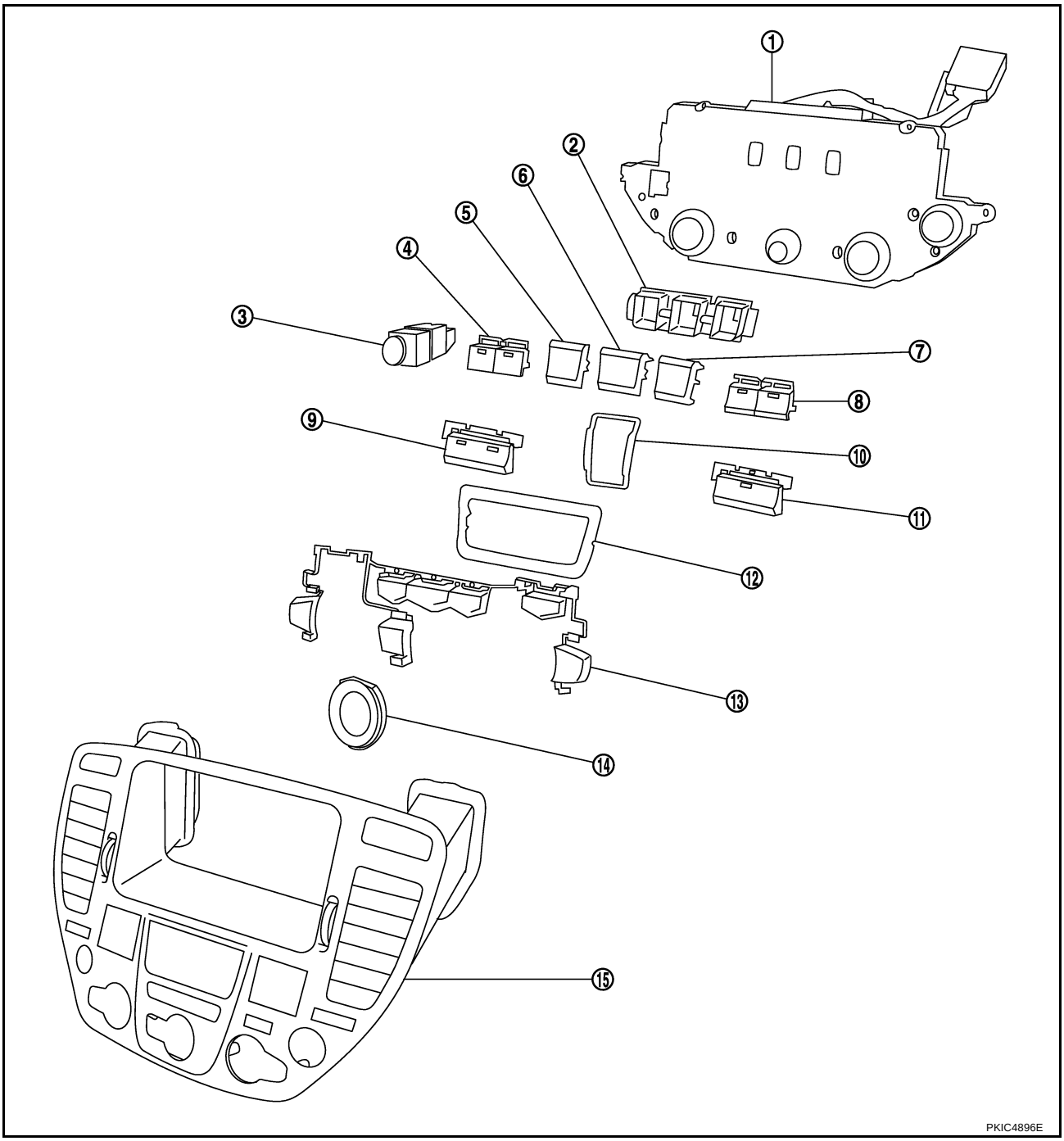


INSTALLATION

Installation is the reverse order of removal.

Disassembly and Assembly for Multifunction Switch

NKS001E0



1. Multifunction switch
2. Escutcheon
3. Hazard switch
4. Defroster, rear window defogger switch
5. Function switch
6. Function switch
7. Function switch
8. TAPE and DISC switch
9. A/C switch
10. Escutcheon
11. Radio switch
12. Escutcheon
13. Switch assembly
14. Escutcheon
15. Cluster lid C

DISASSEMBLY

1. Remove the screws (7).
2. Remove the switches.

ASSEMBLY

Assembly is the reverse order of disassembly.

REAR VIEW MONITOR

PFP:28260

System Description

NKS001E1

- The rear view monitor is equipped to check the backward of the vehicle with display when A/T selector lever is in reverse position.
- The lines of vehicle sides and the distance from the rear end of the vehicle are provided on display as a guide. It allows the driver to know the distance between the vehicle and a backward object, and the width of the vehicle much easier.

POWER SUPPLY AND GROUND

Power is supplied at all time

- through 15A fuse [No. 52, located in fuse, fusible link and relay block (J/B)]
- to rear view camera control unit terminal 1.

When ignition switch is ACC or ON position, power is supplied

- through 10A fuse [No. 21, located in fuse block (J/B) No. 1]
- to rear view camera control unit terminal 2.

When ignition switch is ON or START position, power is supplied

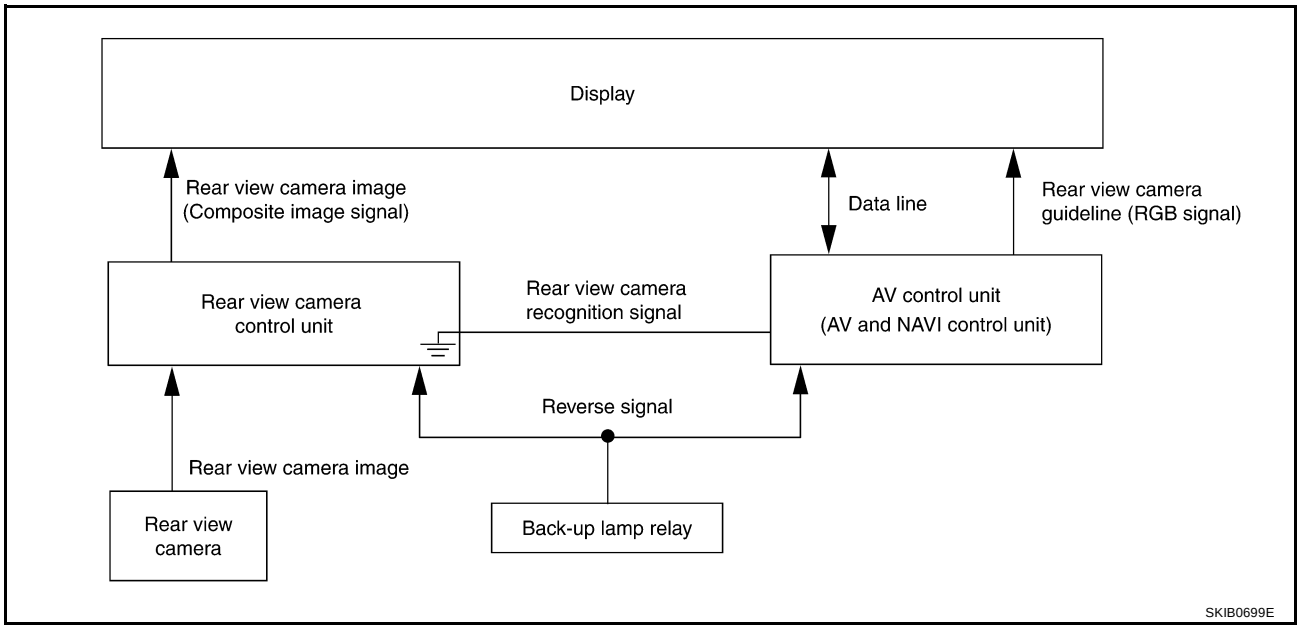
- through 10A fuse [No. 9, located in fuse block (J/B) No. 1]
- to back-up lamp relay terminals 2 and 5.

Ground is supplied

- to rear view camera control unit terminal 3
- through grounds B217 and B256,
- to rear view camera terminal 2
- through grounds B217 and B256.

REAR VIEW CAMERA OPERATION

AV control unit (AV and NAVI control unit) switches the display to rear view camera image when input reverse signal by AV communication line.
Display shows image from rear view camera image and rear view camera guideline.



Rear View Camera Image

When A/T selector lever is reverse position, power is supplied

- through backup lamp relay terminal 1
- to A/T assembly terminal 7.

Then back-up lamp relay is energized

- from backup lamp relay terminal 3
- to rear view camera control unit terminal 4.

Then, rear view camera control unit is sent camera ON signal

- through rear view camera control unit terminal 8
- to rear view camera terminal 1.

An image taken by rear view camera is sent

- through rear view camera terminals 3 and 4
- to rear view camera control unit terminals 10 and 9.

Then an image is sent

- through rear view camera control unit terminals 11 and 12
- to display terminals 11 and 9.

Then composite synchronizing signal is sent

- through rear view camera control unit terminal 14
- to display terminal 10
- for the display and the image.

An image of rear view will be projected on the display.

Rear View Camera Guide Line

When A/T selector lever is reverse position, power is supplied

- through back-up lamp relay terminal 1
- to A/T assembly terminal 7.

Then back-up lamp relay is energized

- from back-up lamp relay terminal 3
- to AV control unit terminal 19 (without NAVI)
- to AV and NAVI control unit terminal 27 (with NAVI).

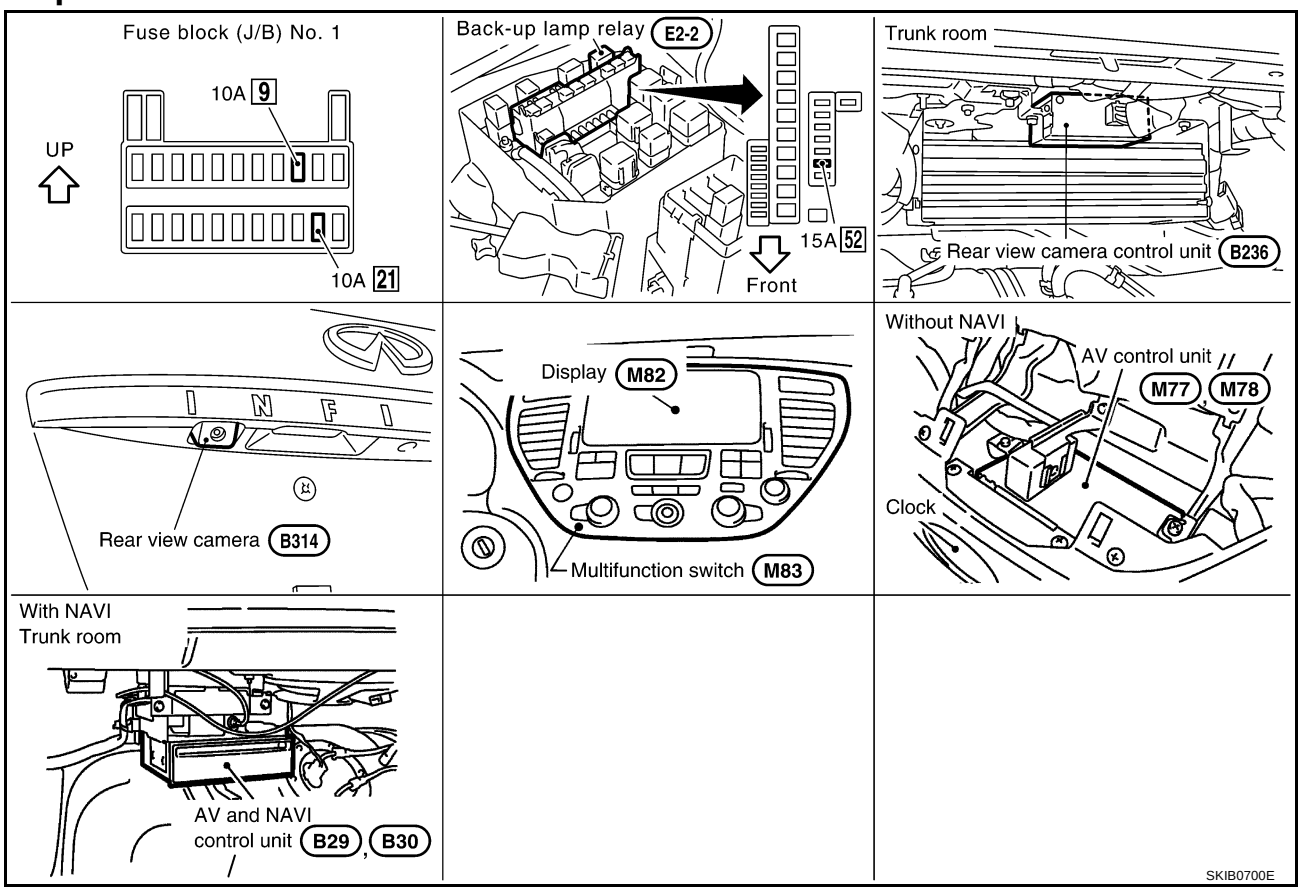
Then AV control unit (AV and NAVI control unit) is sent rear view camera guideline image

- through AV control unit terminals 18, 21 and 24 (without NAVI)
- through AV and NAVI control unit terminals 18, 21 and 15 (with NAVI)
- to display terminals 1, 2 and 3.

Rear view camera guide line will be projected on the display.

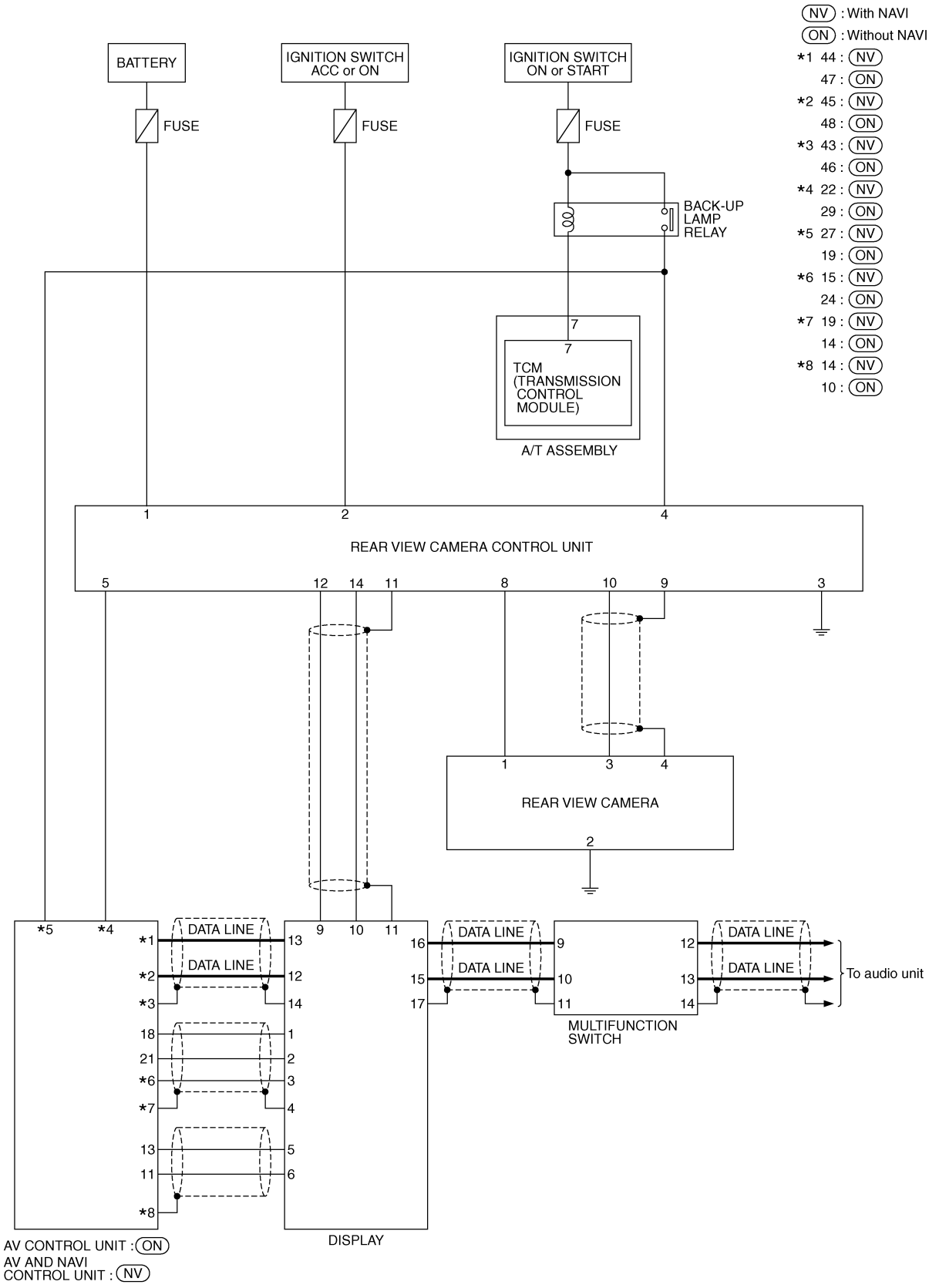
Component Parts and Harness Connector Location

NKS001E2



Schematic

NKS001E3

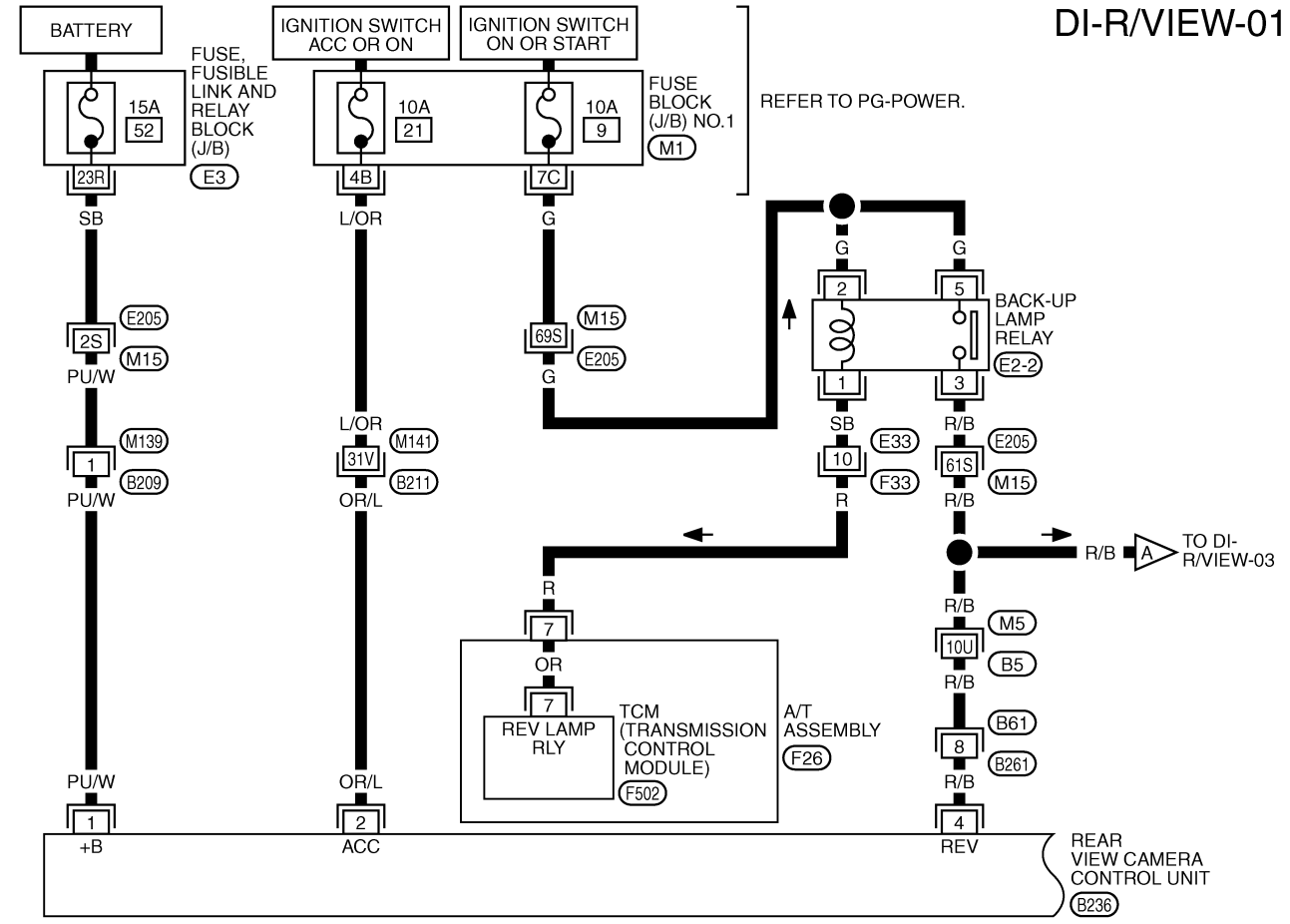


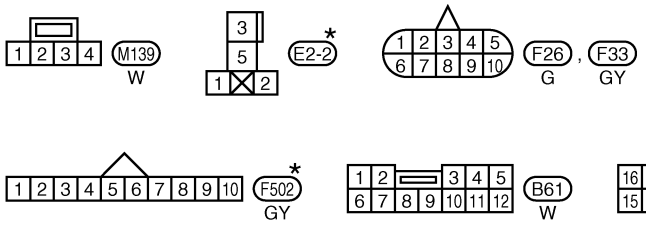
TKWM1581E

Wiring Diagram — R/VIEW —

NKS001E4

WITHOUT NAVI





REFER TO THE FOLLOWING.

M5 , E205 , B211 -SUPER MULTIPLE JUNCTION (SMJ)

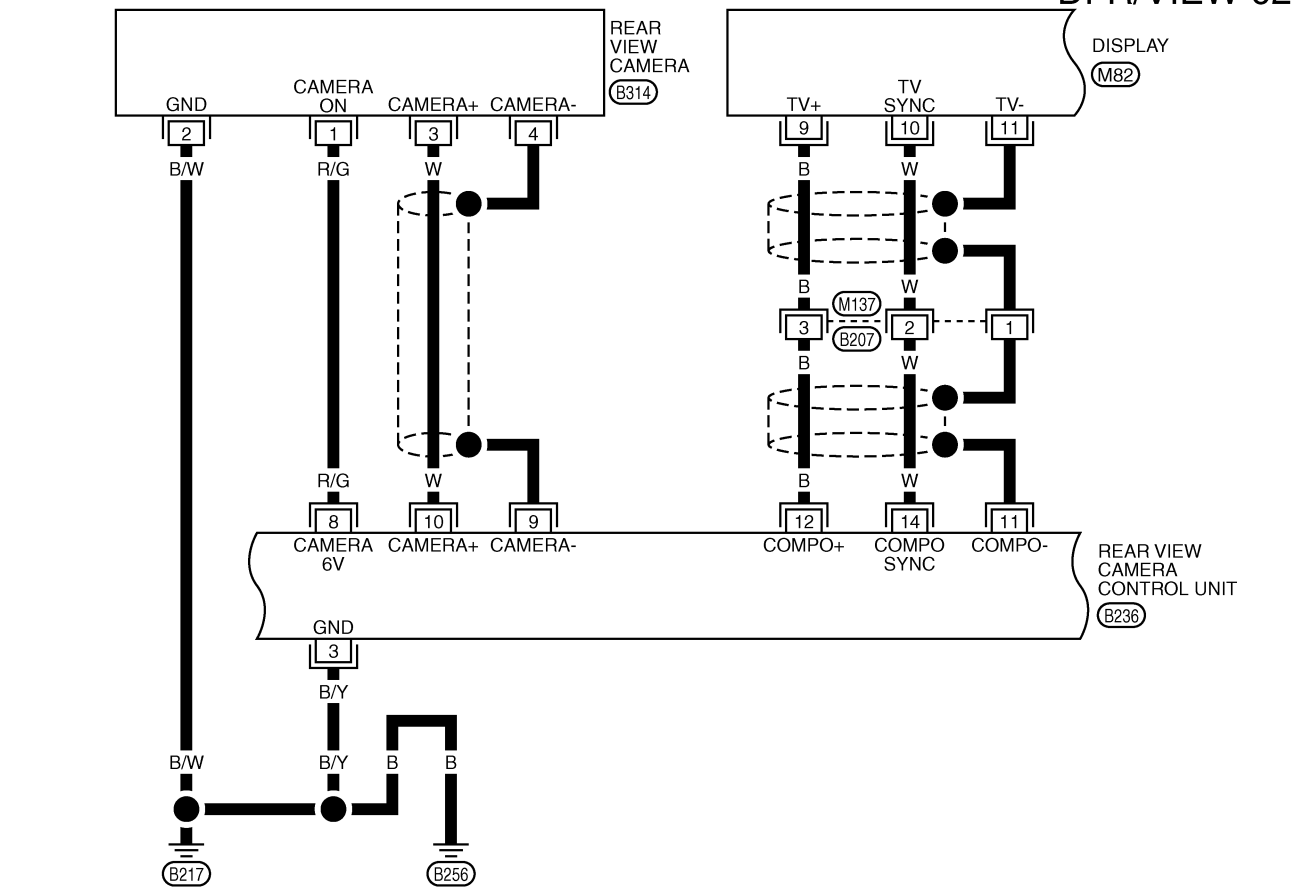
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

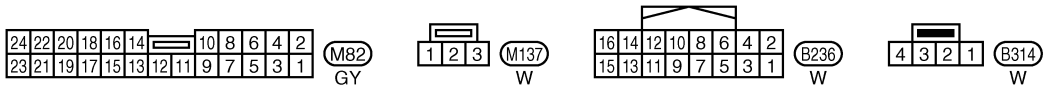
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

★: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

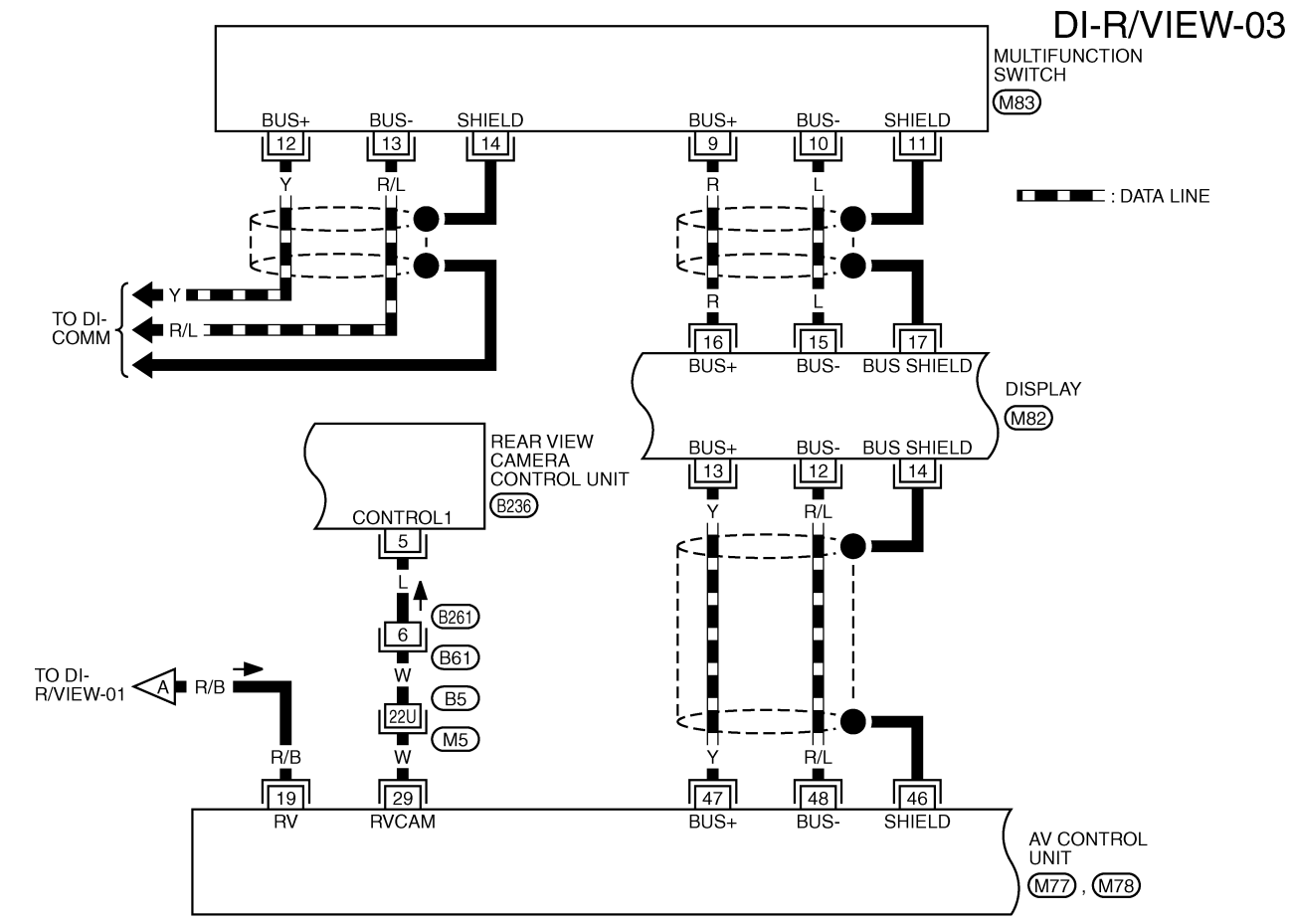
TKWM3758E

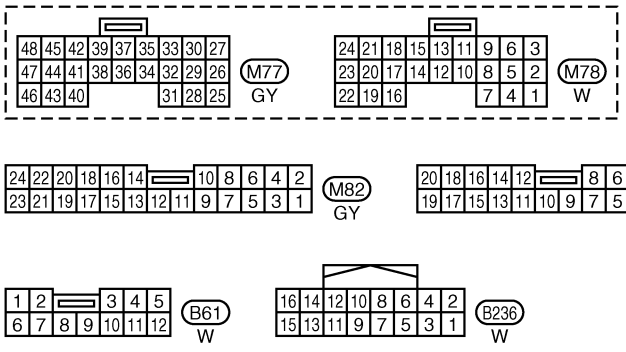
DI-R/VIEW-02





TKWM3759E

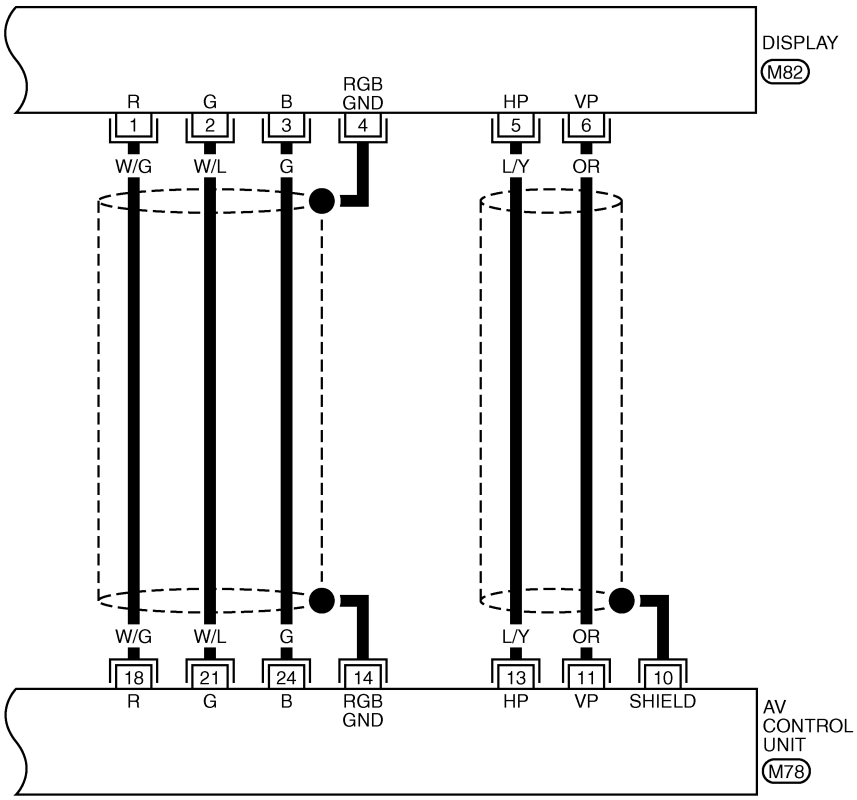


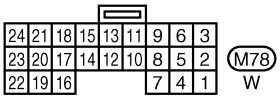


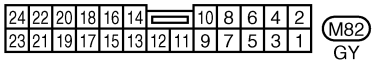
REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3221E

DI-R/VIEW-04



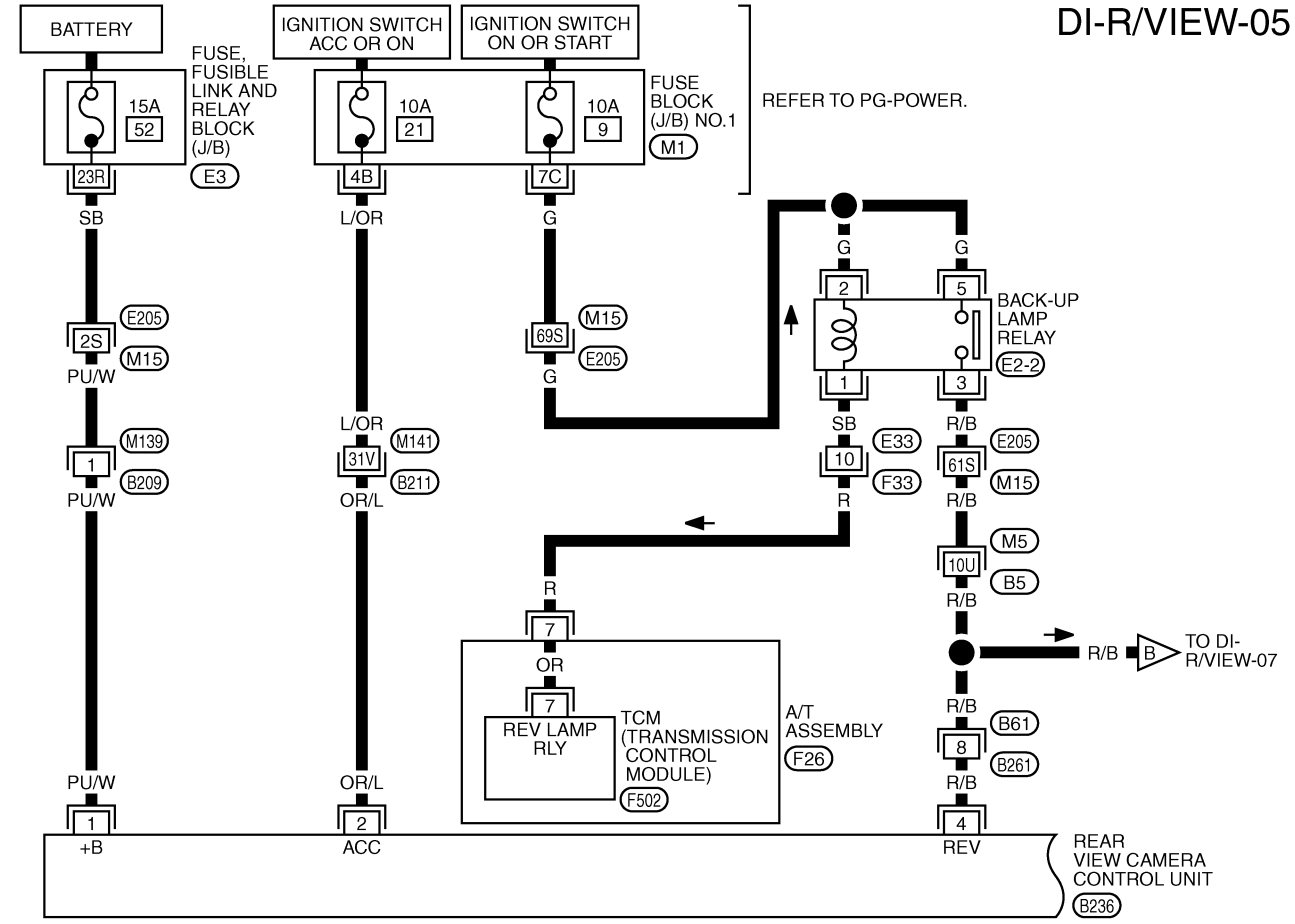


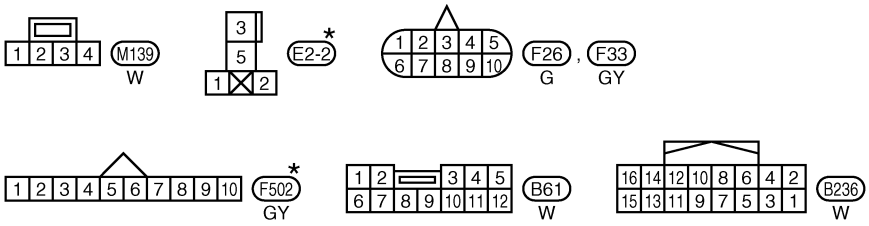


TKWM3760E

WITH NAVI

DI-R/VIEW-05





∗: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

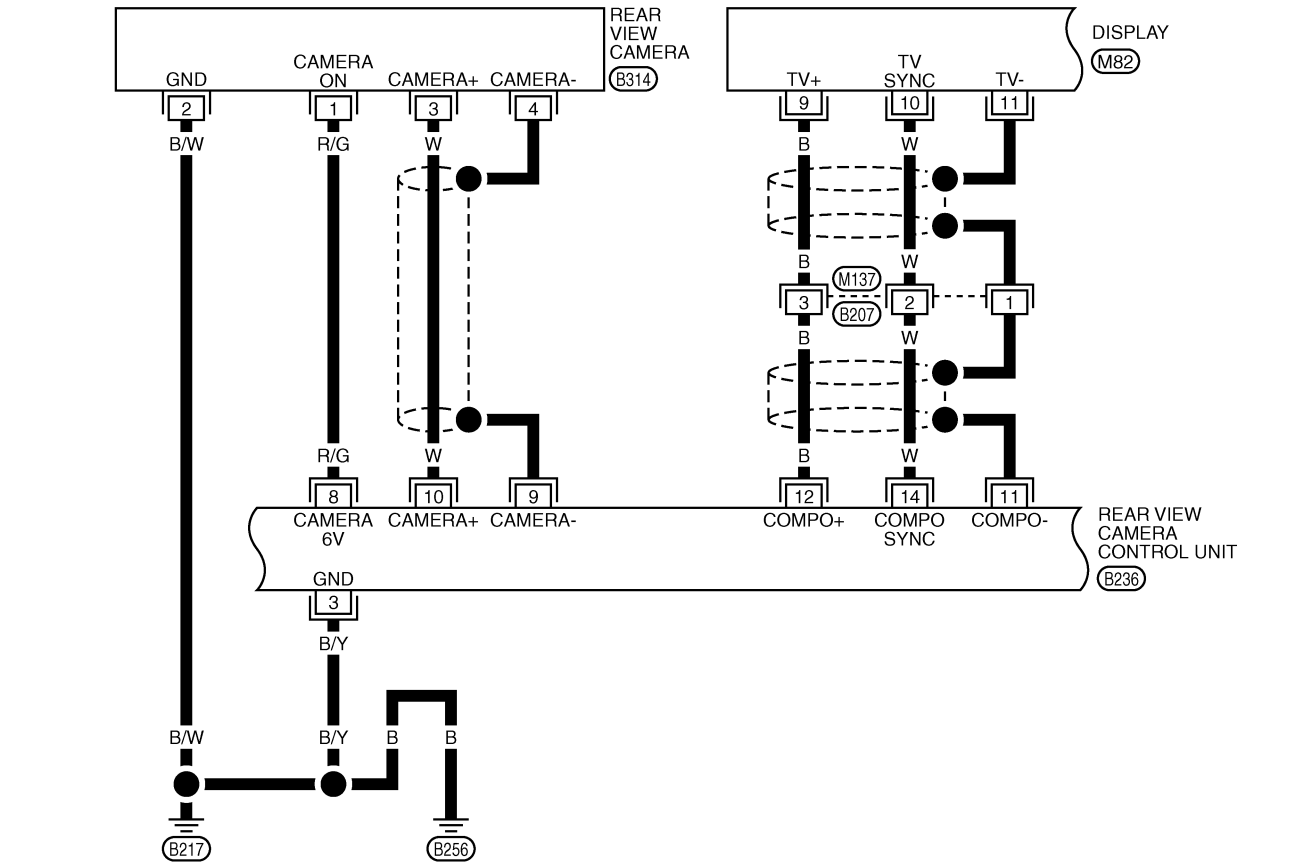
M5 , E205 , B211 -SUPER MULTIPLE JUNCTION (SMJ)

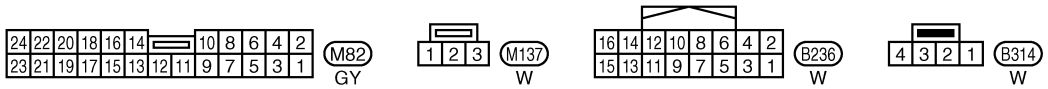
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

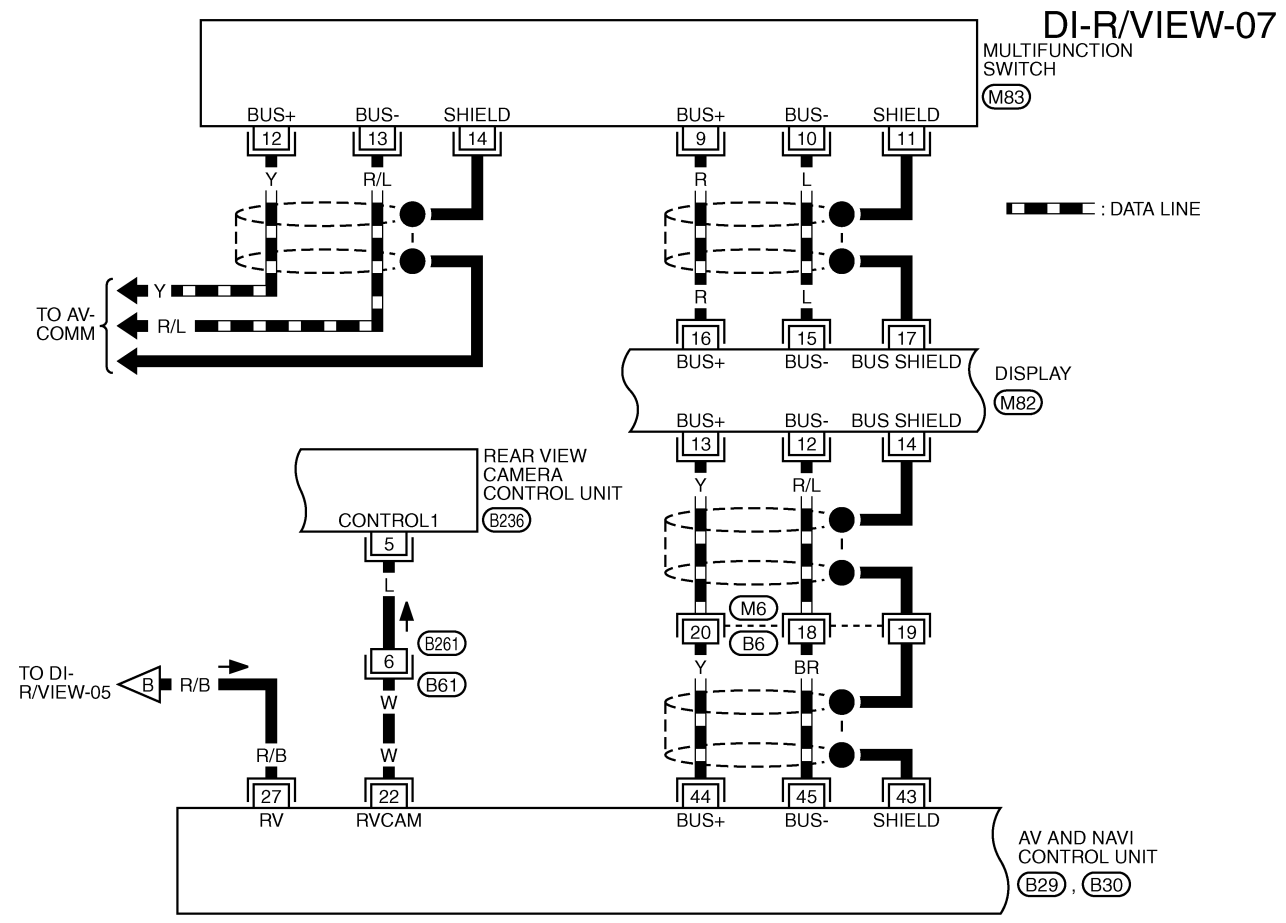
TKWM3761E

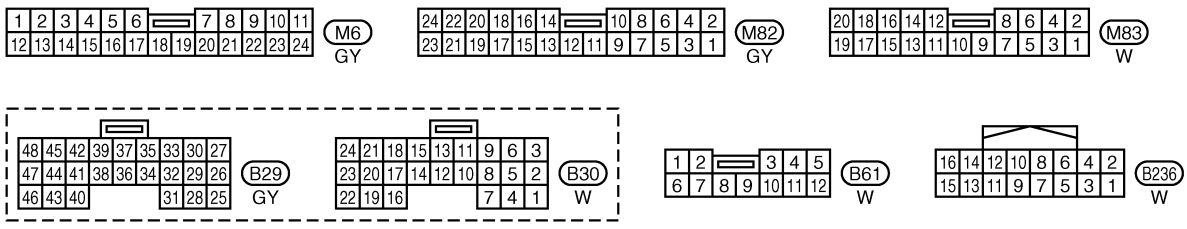
DI-R/VIEW-06





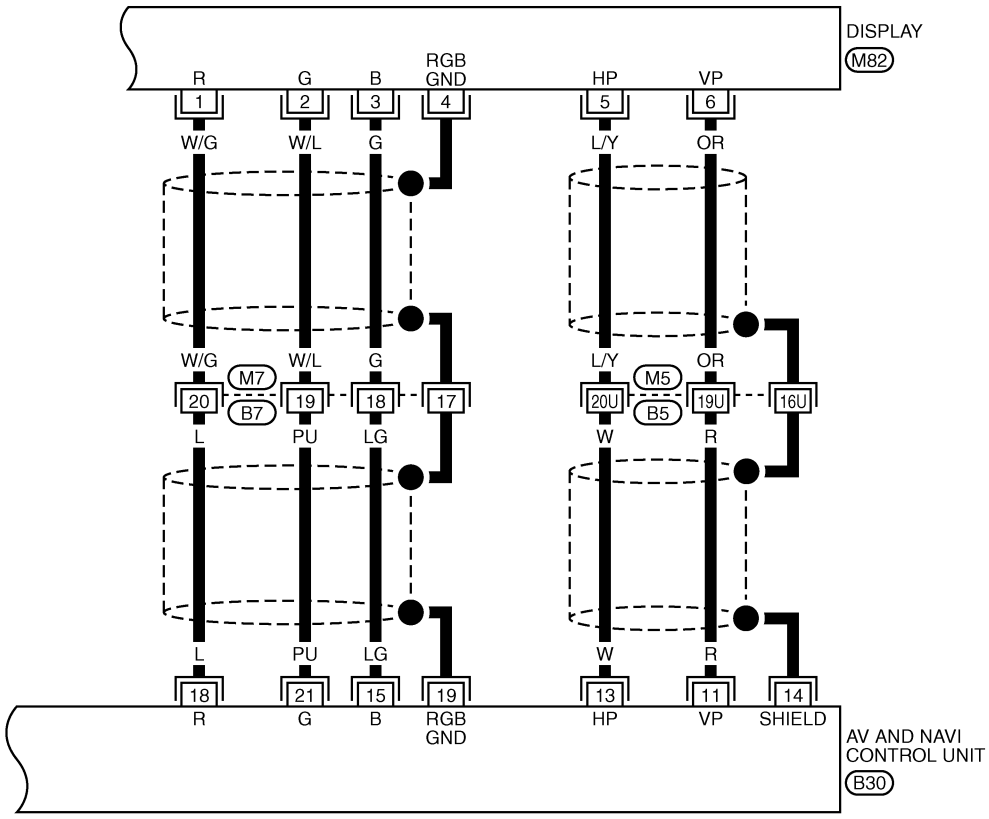
TKWM3762E

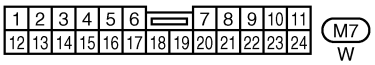

DI-R/VIEW-07
MULTIFUNCTION SWITCH
M83
BUS+ BUS- SHIELD
12 13 14
9 10 11
Y R/L
R L
: DATA LINE
TO AV-COMM
Y
R/L
16 15 17
BUS+ BUS- BUS SHIELD
DISPLAY
M82
BUS+ BUS- BUS SHIELD
13 12 14
REAR VIEW CAMERA CONTROL UNIT
CONTROL1
B236
5
L
M6
20 18 19
B6
6
B261
B61
W
TO DI-R/VIEW-05
B
R/B
Y BR
R/B W
27 22 44 45 43
RV RVCAM BUS+ BUS- SHIELD
AV AND NAVI CONTROL UNIT
B29 , B30

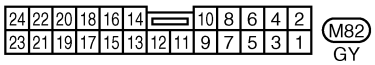

M6 GY
M82 GY
M83 W
B29 GY
B30 W
B61 W
B236 W

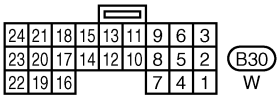
TKWM3224E

DI-R/VIEW-08







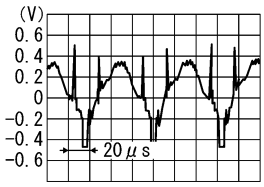
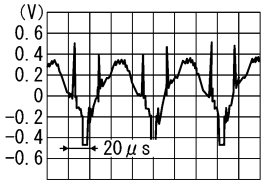
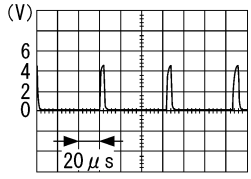


REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3763E

Terminals and Reference Value for Rear View Camera Control Unit

NKS001E5

Terminal No. (Wire color)		Item	Condition		Reference value (Approx.)
(+)	(–)		Ignition switch	Operation	
1 (PU/W)	Ground	Battery power supply	OFF	–	Battery voltage
2 (OR/L)		ACC power supply	ACC	–	Battery voltage
3 (B/Y)		Ground	ON	–	0 V
4 (R/B)		Reverse signal input	ON	A/T selector lever “R” position	12 V
				A/T selector lever in other than “R” position	0 V
5 (L)		Rear view camera recognition signal	ON	–	0 V
8 (R/G)		Camera power output	ON	A/T selector lever “R” position	6 V
9		Camera image input (–)	ON	–	0 V
10 (W)	9	Camera image input (+)	ON	A/T selector lever “R” position	 SKIA4894E
11	Ground	Composite ground	ON	–	0 V
12 (B)	11	Composite image output	ON	A/T selector lever “R” position	 SKIA4894E
14 (W)	11	Composite image synchronization signal output	ON	A/T selector lever “R” position	 SKIA5896E

Terminals and Reference Value for Display

NKS002JK

Refer to DI-162, "Terminals and Reference Value for Display" (with NAVI).
Refer to DI-123, "Terminals and Reference Value for Display" (without NAVI).

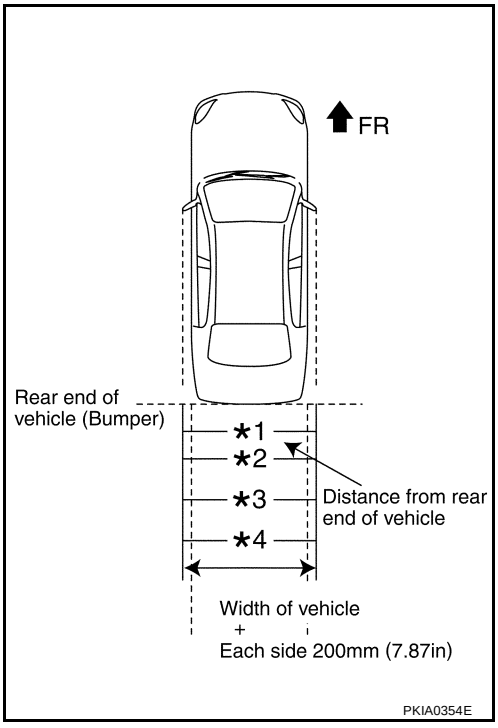
Side Distance Guideline Correction

NKS001E6

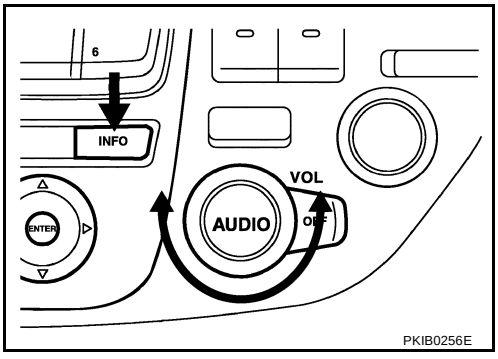
- This mode is used to modify the side distance guidelines if they are dislocated from the rear view monitor image, because of variations of body/camera mounting conditions.

1. Create a correction line to modify the screen.
   Draw lines on the backward of the vehicle passing through the following points: 0.2 m (7.87 inch) from both sides of the vehicle, and
   - *1: 0.5 m (1.64 feet)
   - *2: 1.0 m (3.28 feet)
   - *3: 2.0 m (6.56 feet)
   - *4: 3.0 m (9.84 feet)

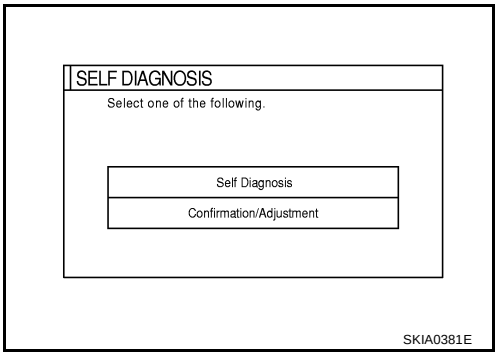
   from the rear end of the bumper.



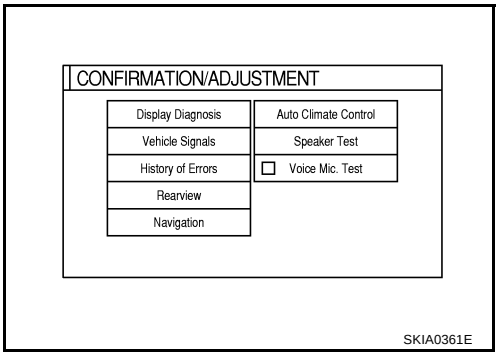
2. Turn ignition switch ON.
3. Turn OFF the audio system.
4. While pressing the “INFO” switch, turn volume control dial clockwise or counterclockwise for 30 clicks or more. (When self-diagnosis mode is activated, a short beep will be heard.)
   - To return to the previous screen, press “PREV” switch.



5. The initial trouble diagnosis screen is displayed for selecting “Confirmation/Adjustment” mode.

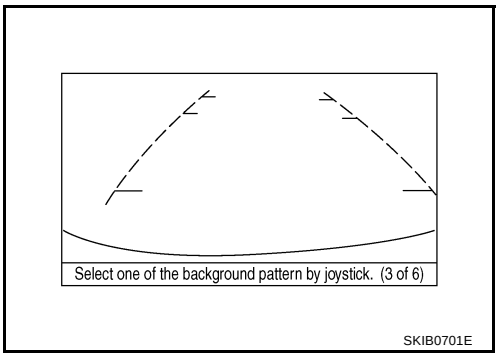


6. Select “Rearview” in “CONFIRMATION/ADJUSTMENT”.
7. Shift the A/T selector lever to “R” position.



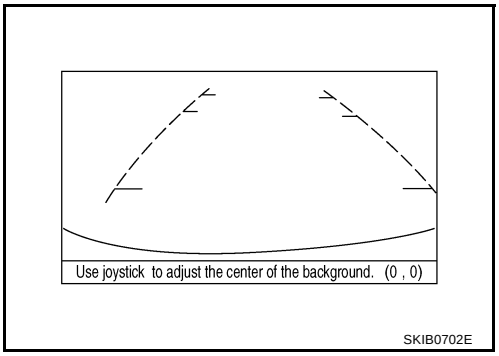
SKIA0361E

8. Using the joy stick, select the pattern closest to the prepared correction line among the 6 guideline patterns, then press “ENTER” button.



SKIB0701E

9. Carefully adjust the center of the background vertically and horizontally in the range of 8 - 8. Align it with the prepared line, and press the “ENTER” button.
10. The adjustment is completed.



SKIB0702E

Trouble Diagnosis

NKS001E7

HOW TO PROCEED WITH TROUBLE DIAGNOSIS

1. Confirm the symptom and customer complaint.
2. Perform the preliminary inspection. Refer to DI-187, "Preliminary Inspection" .
3. Understand the outline of system. Refer to DI-172, "System Description" .
4. Referring to trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to DI-62, "SYMPTOM CHART" .
5. Does rear view monitor system operate normally? If it operates normally, GO TO 6. If not, GO TO 4.
6. INSPECTION END

SYMPTOM CHART

Symptom	Diagnoses/Service procedure
Rear view image is not displayed with the A/T selector lever in “R” position. (Rear view camera guide line is displayed only.)	Perform the following inspections. 1. DI-187, "Power Supply and Ground Circuit Inspection" 2. DI-188, "Rear View Camera Control Unit Reverse Signal Inspection" 3. DI-189, "Rear View Camera Circuit Inspection" 4. DI-190, "Composite Image Signal Circuit Inspection" Replace display, found normal function in the above inspections.
Display does not switch rear view image with the A/T selector lever in “R” position.	**Without NAVI** Perform the following inspections. 1. DI-191, "AV Control Unit Reverse Signal Inspection [Without NAVI]" 2. DI-192, "Rear View Camera Recognition Signal Inspection [Without NAVI]" Replace AV control unit, found normal function in the above inspections.
	With NAVI Perform the following inspections. 1. DI-193, "AV and NAVI Control Unit Reverse Signal Inspection [With NAVI]" 2. DI-193, "Rear View Camera Recognition Signal Inspection [With NAVI]" Replace AV and NAVI control unit, found normal function in the above inspections.
Rear view image is distorted.	DI-194, "Rear View Image is Distorted".

Preliminary Inspection

NKS001E8

1. CHECK BACK-UP LAMP

1. Turn ignition switch ON.
2. Shift A/T selector lever to “R” position.

Does back-up lamp illuminate?

YES >> GO TO 2.
NO >> Check back-up lamp system. Refer to LT-104, "BACK-UP LAMP" in LT section.

2. CHECK AV COMMUNICATION SYSTEM

Perform self-diagnosis in the self-diagnosis mode. Refer to DI-126, "SELF-DIAGNOSIS MODE" (without NAVI) or AV-102, "Self-Diagnosis Mode" (with NAVI).

OK or NG

OK >> INSPECTION END
NG >> Check applicable parts.

Power Supply and Ground Circuit Inspection

NKS001E9

1. CHECK FUSE

Check for blown rear view camera control unit fuses.

Unit	Power source	Fuse No.
Rear view camera control unit	Battery	52
	Ignition switch (ACC)	21

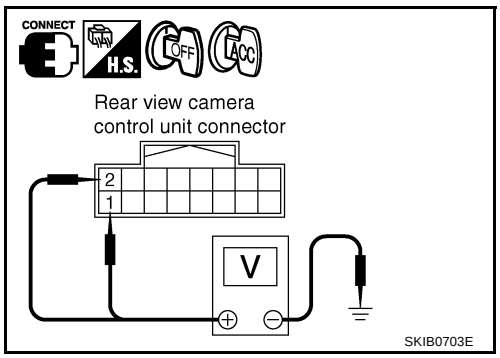
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between rear view camera control unit harness connector B236 terminals 1, 2 and ground.

Terminals			OFF	ACC
(+)		(–)		
Connector	Terminal			
B236	1	Ground	Battery voltage	Battery voltage
	2		0 V	Battery voltage



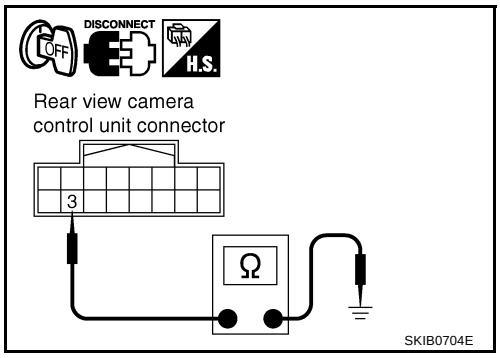
OK or NG

OK >> GO TO 3.
NG >> Check harness between rear view camera control unit and fuse.

3. CHECK REAR VIEW CAMERA CONTROL UNIT GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector.
3. Check continuity between rear view camera control unit harness connector B236 terminal 3 and ground.

3 – Ground : Continuity should exist.



OK or NG

OK >> Power supply and ground circuit are OK. Return to DI-187, "SYMPTOM CHART" .
NG >> Repair ground harness.

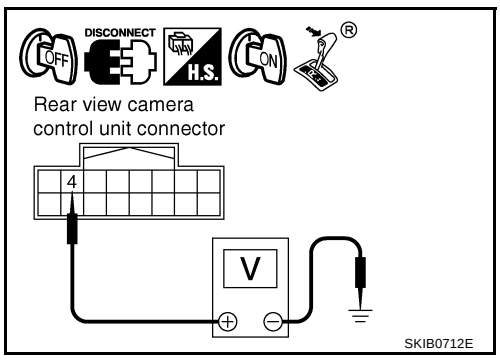
Rear View Camera Control Unit Reverse Signal Inspection

NKS001EA

1. CHECK REVERSE POSITION INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector.
3. Turn ignition switch ON.
4. Shift A/T selector lever to “R” position.
5. Check voltage between rear view camera control unit harness connector B236 terminal 4 and ground.

4 – Ground : Approx. 12 V



OK or NG

OK >> Reverse signal is OK. Return to DI-187, "SYMPTOM CHART" .
NG >> Check harness between rear view camera control unit and back-up lamp relay.

Rear View Camera Circuit Inspection

NKS001EB

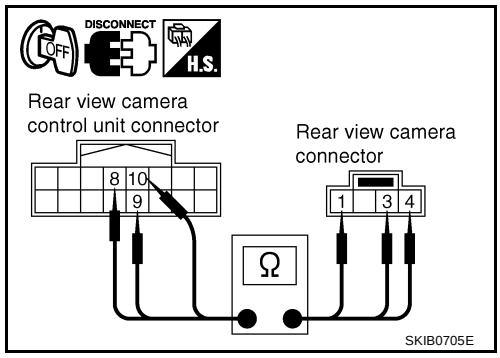
1. CHECK REAR VIEW CAMERA OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera connector and rear view camera control unit connector.
3. Check continuity between rear view camera harness connector B314 terminal 1 and rear view camera control unit harness connector B236 terminal 8.

1 – 8 : Continuity should exist.

4. Check continuity between rear view camera harness connector B314 terminal 3 and rear view camera control unit harness connector B236 terminal 10.

3 – 10 : Continuity should exist.



5. Check continuity between rear view camera harness connector B314 terminal 4 and rear view camera control unit harness connector B236 terminal 9.

4 – 9 : Continuity should exist.

OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

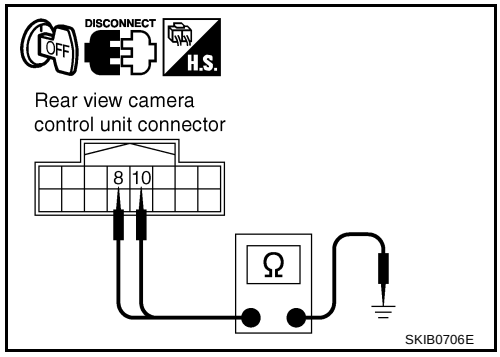
2. CHECK REAR VIEW CAMERA SHORT CIRCUIT

1. Check continuity between rear view camera control unit harness connector B236 terminal 8 and ground.

8 – Ground : Continuity should not exist.

2. Check continuity between rear view camera control unit harness connector B236 terminal 10 and ground.

10 – Ground : Continuity should not exist.



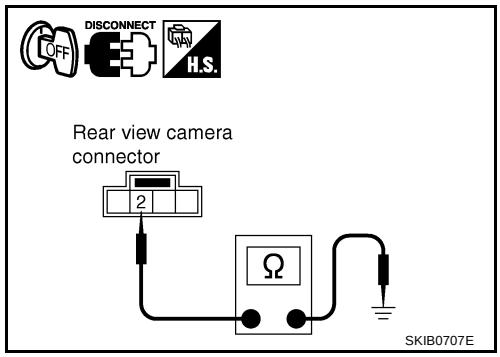
OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK REAR VIEW CAMERA GROUND CIRCUIT

Check continuity between rear view camera harness connector B314 terminal 2 and ground.

2 – Ground : Continuity should exist.



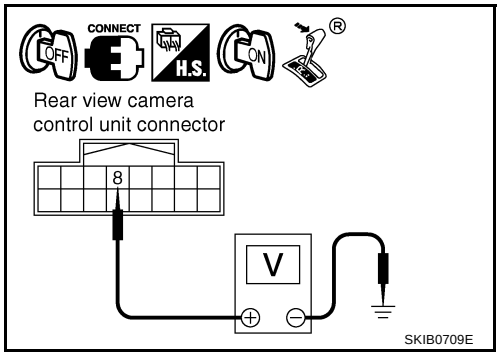
OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

4. CHECK REAR VIEW CAMERA POWER OUTPUT

1. Connect rear view camera control unit connector.
2. Turn ignition switch ON.
3. Shift A/T selector lever to “R” position.
4. Check voltage between rear view camera control unit harness connector B236 terminal 8 and ground.

8 – Ground : Approx. 6 V



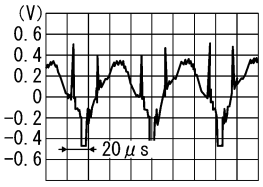
OK or NG

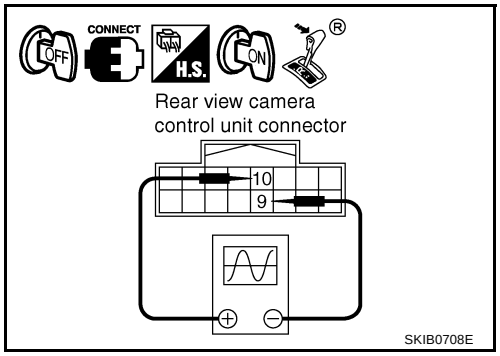
OK >> GO TO 5.
NG >> Replace rear view camera control unit.

5. CHECK REAR VIEW CAMERA IMAGE INPUT SIGNAL

1. Turn ignition switch OFF.
2. Connect rear view camera connector.
3. Turn ignition switch ON.
4. Shift A/T selector lever to “R” position.
5. Check voltage signal between rear view camera control unit harness connector B236 terminals 10 and 9.

10 – 9:





OK or NG

OK >> Rear view camera is OK. Return to DI-187, "SYMPTOM CHART" .
NG >> Replace rear view camera.

Composite Image Signal Circuit Inspection

NKS001EC

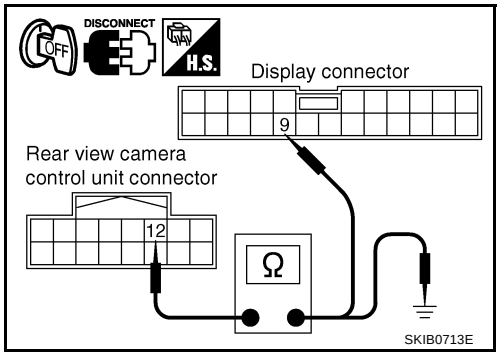
1. CHECK COMPOSITE IMAGE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector and display connector.
3. Check continuity between rear view camera control unit harness connector B236 terminal 12 and display harness connector M82 terminal 9.

12 – 9 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector B236 terminal 12 and ground.

12 – Ground : Continuity should not exist.



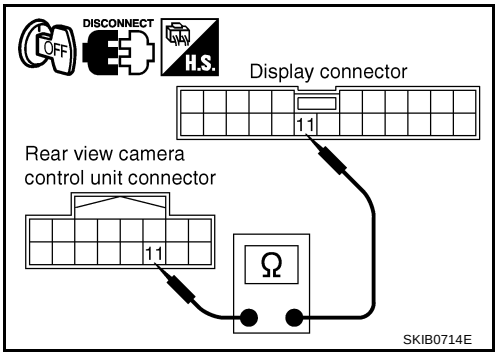
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK COMPOSITE SIGNAL GROUND CIRCUIT

Check continuity between rear view camera control unit B236 harness connector terminal 11 and display harness connector M82 terminal 11.

11 – 11 : Continuity should exist.

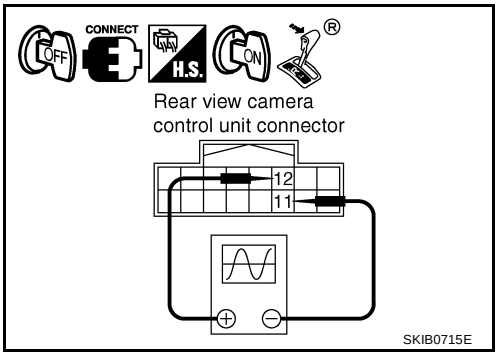


OK or NG

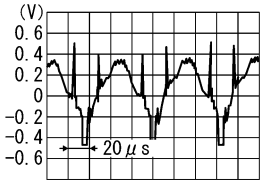
OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK COMPOSITE IMAGE OUTPUT SIGNAL

1. Connect rear view camera connector and display connector.
2. Turn ignition switch ON.
3. Shift A/T selector lever to “R” position.
4. Check voltage signal between rear view camera control unit harness connector B236 terminals 12 and 11.



12 – 11:



OK or NG

OK >> Composite image signal circuit is OK. Return to DI-187, "SYMPTOM CHART" .
NG >> Replace rear view camera control unit.

AV Control Unit Reverse Signal Inspection [Without NAVI]

NKS001ED

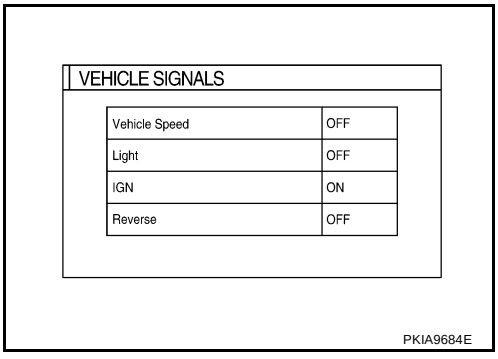
1. CHECK REVERSE SIGNAL INPUT

Make sure vehicle signals by “VEHICLE SIGNALS” of “CONFIRMATION/ADJUSTMENT” function. Refer to DI-132, "Vehicle Signals" .

“Reverse”

A/T selector lever “R” position : ON

A/T selector lever in other “R” position : OFF



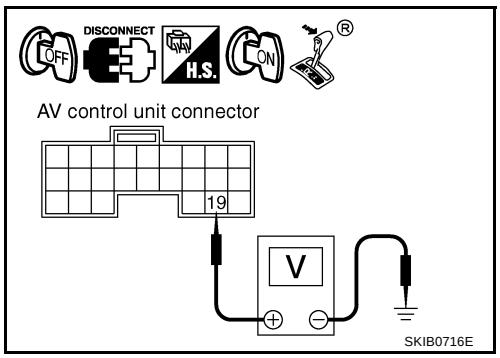
OK or NG

OK >> Reverse signal is OK. Return to DI-187, "SYMPTOM CHART" .
NG >> GO TO 2.

2. CHECK REVERSE POSITION INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Turn ignition switch ON.
4. Shift A/T selector lever to “R” position.
5. Check voltage between AV control unit harness connector M78 terminal 19 and ground.

19 – Ground : Approx. 12 V



OK or NG

OK >> Replace AV control unit.
NG >> Check harness between AV control unit and back-up lamp relay.

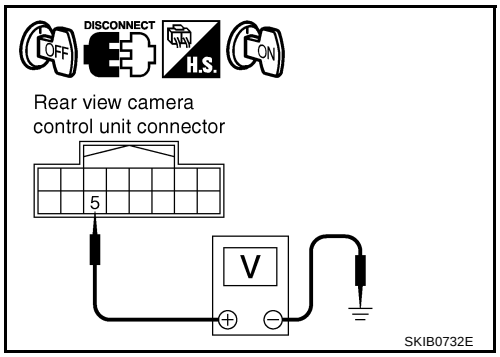
Rear View Camera Recognition Signal Inspection [Without NAVI]

NKS001EE

1. CHECK AV CONTROL UNIT SIGNAL OUTPUT

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector.
3. Turn ignition switch ON.
4. Check voltage between rear view camera control unit harness connector B236 terminal 5 and ground.

5 – Ground : Approx. 5 V



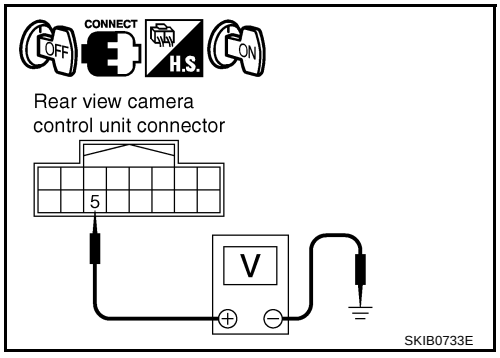
OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

2. CHECK REAR VIEW CAMERA RECOGNITION SIGNAL INPUT

1. Turn ignition switch OFF.
2. Connect rear view camera control unit connector.
3. Turn ignition switch ON.
4. Check voltage between rear view camera control unit harness connector B236 terminal 5 and ground.

5 – Ground : Approx. 0 V



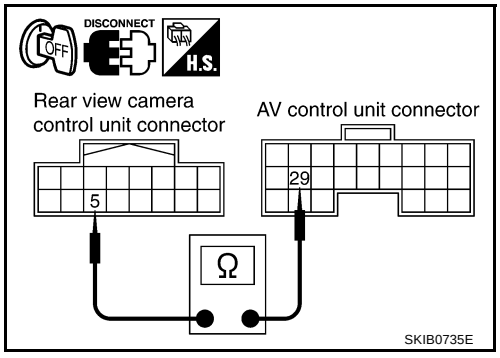
OK or NG

OK >> Rear view camera recognition signal is OK. Return to DI-187, "SYMPTOM CHART" .
NG >> Replace rear view camera control unit.

3. CHECK REAR VIEW CAMERA RECOGNITION SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector.
3. Check continuity between rear view camera control unit harness connector B236 terminal 5 and AV control unit harness connector M77 terminal 29.

5 – 29 : Continuity should exist.



OK or NG

OK >> Replace AV control unit.
NG >> Repair harness or connector.

AV and NAVI Control Unit Reverse Signal Inspection [With NAVI]

NKS001EF

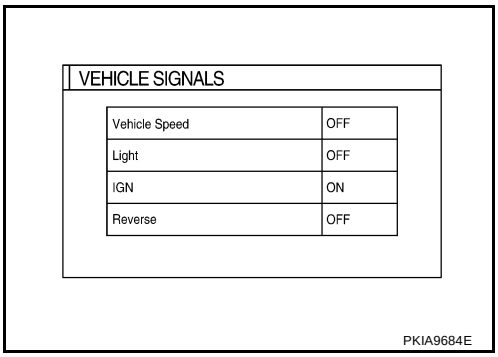
1. CHECK REVERSE SIGNAL INPUT

Make sure vehicle signals by “VEHICLE SIGNALS” of “CONFIRMATION/ADJUSTMENT” function. Refer to AV-110, "VEHICLE SIGNALS" .

“Reverse”

A/T selector lever “R” position : ON

A/T selector lever in other “R” position : OFF



OK or NG

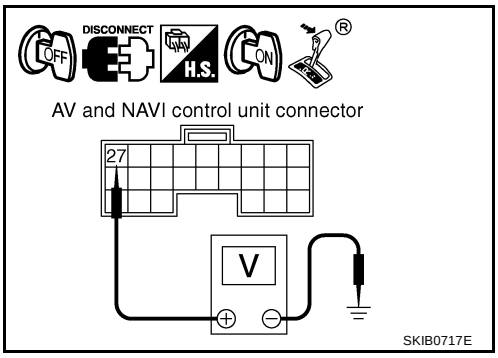
OK >> Reverse signal is OK. Return to DI-187, "SYMPTOM CHART" .

NG >> GO TO 2.

2. CHECK REVERSE POSITION INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect AV and NAVI control unit connector.
3. Turn ignition switch ON.
4. Shift A/T selector lever to “R” position.
5. Check voltage between AV and NAVI control unit harness connector B29 terminal 27 and ground.

27 – Ground : Approx. 12 V



OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Check harness between AV and NAVI control unit and back-up lamp relay.

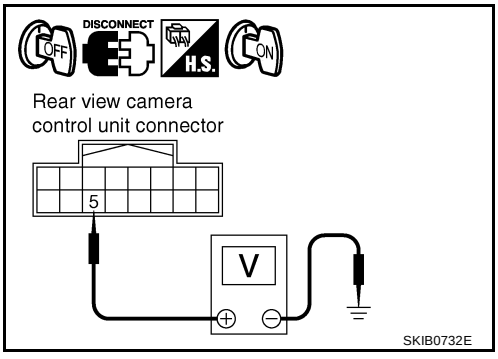
Rear View Camera Recognition Signal Inspection [With NAVI]

NKS001EG

1. CHECK AV AND NAVI CONTROL UNIT SIGNAL OUTPUT

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector.
3. Turn ignition switch ON.
4. Check voltage between rear view camera control unit harness connector B236 terminal 5 and ground.

5 – Ground : Approx. 5 V



OK or NG

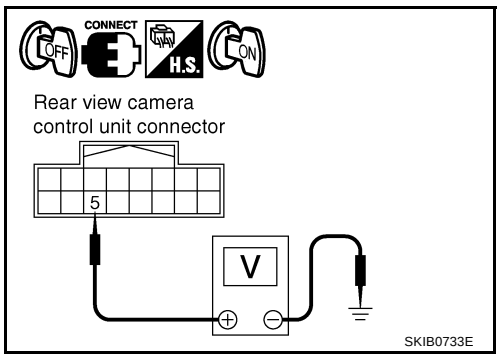
OK >> GO TO 2.

NG >> GO TO 3.

2. CHECK REAR VIEW CAMERA RECOGNITION SIGNAL INPUT

1. Turn ignition switch OFF.
2. Connect rear view camera control unit connector.
3. Turn ignition switch ON.
4. Check voltage between rear view camera control unit harness connector B236 terminal 5 and ground.

5 – Ground : Approx. 0 V



OK or NG

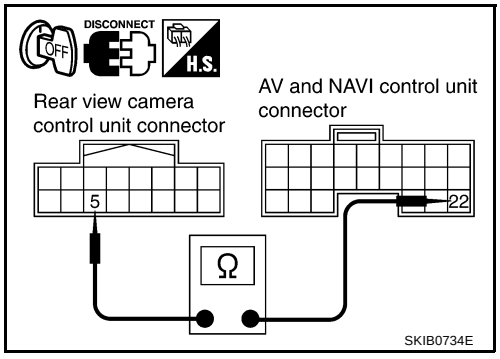
OK >> Rear view camera recognition signal is OK. Return to DI-187, "SYMPTOM CHART" .

NG >> Replace rear view camera control unit.

3. CHECK REAR VIEW CAMERA RECOGNITION SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV and NAVI control unit connector.
3. Check continuity between rear view camera control unit harness connector B236 terminal 5 and AV and NAVI control unit harness connector B30 terminal 22.

5 – 22 : Continuity should exist.



OK or NG

OK >> Replace AV and NAVI control unit.

NG >> Repair harness or connector.

Rear View Image is Distorted

NKS001EH

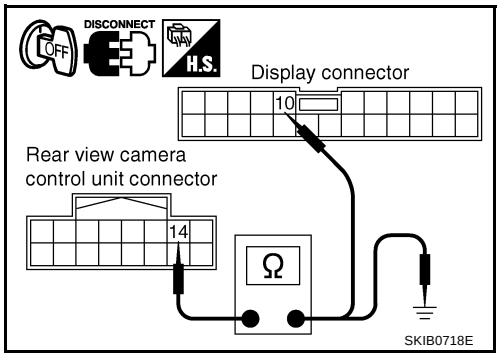
1. CHECK REAR VIEW CAMERA CONTROL UNIT COMPOSITE SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera control unit connector and display connector.
3. Check continuity between rear view camera control unit harness connector B236 terminal 14 and display harness connector M82 terminal 10.

14 – 10 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector M236 terminal 14 and ground.

14 – Ground : Continuity should not exist.



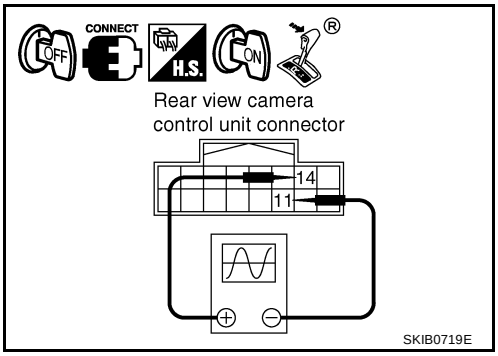
OK or NG

OK >> GO TO 2.

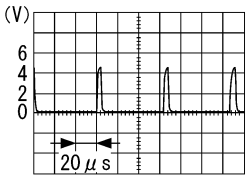
NG >> Repair harness or connector.

2. CHECK REAR VIEW CAMERA CONTROL UNIT COMPOSITE SYNCHRONIZING SIGNAL

1. Connect rear view camera control unit connector and display connector.
2. Turn ignition switch ON.
3. Shift A/T selector lever to “R” position.
4. Check voltage signal between rear view camera control unit harness connector B236 terminals 14 and 11.



14 – 11:



OK or NG

OK >> ● GO TO 3 (without NAVI).
● GO TO 7 (with NAVI).

NG >> Replace rear view camera control unit.

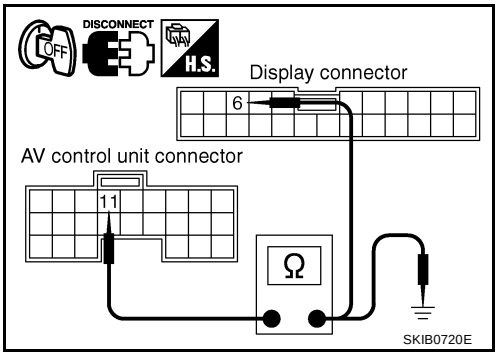
3. CHECK AV CONTROL UNIT VERTICAL SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector and display connector.
3. Check continuity between AV control unit harness connector M78 terminal 11 and display harness connector M82 terminal 6.

11 – 6 : Continuity should exist.

4. Check continuity between AV control unit harness connector M78 terminal 11 and ground.

11 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Repair harness or connector.

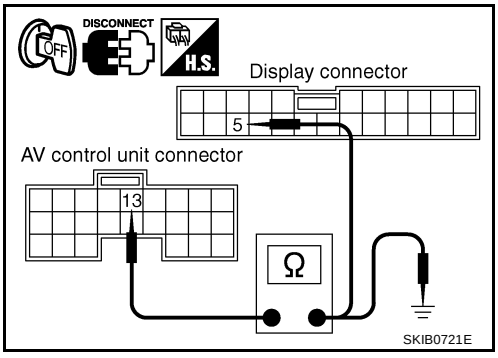
4. CHECK AV CONTROL UNIT HORIZONTAL SYNCHRONIZING SIGNAL CIRCUIT

1. Check continuity between AV control unit harness connector M78 terminal 13 and display harness connector M82 terminal 5.

13 – 5 : Continuity should exist.

2. Check continuity between AV control unit harness connector M78 terminal 13 and ground.

13 – Ground : Continuity should not exist.

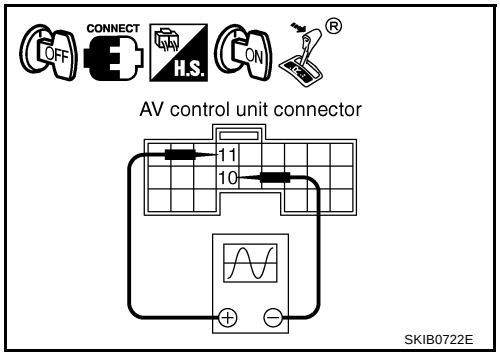


OK or NG

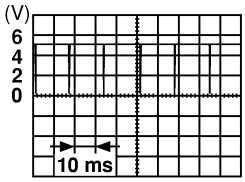
OK >> GO TO 5.
NG >> Repair harness or connector.

5. CHECK AV CONTROL UNIT VERTICAL SYNCHRONIZING SIGNAL

1. Connect AV control unit connector and display connector.
2. Turn ignition switch ON.
3. Shift A/T selector lever to “R” position.
4. Check voltage signal between AV control unit harness connector M78 terminals 11 and 10.



11 – 10:



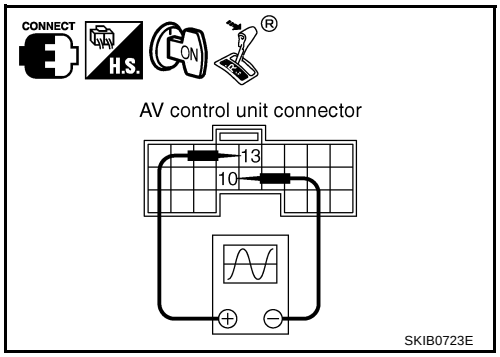
SKIA0161E

OK or NG

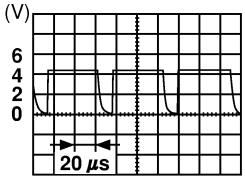
OK >> GO TO 6.
NG >> Replace AV control unit.

6. CHECK AV CONTROL UNIT HORIZONTAL SYNCHRONIZING SIGNAL

1. Turn ignition switch ON.
2. Shift A/T selector lever to “R” position.
3. Check voltage signal between AV control unit harness connector M78 terminals 13 and 10.



13 – 10:



SKIA0163E

OK or NG

OK >> Replace display.
NG >> Replace AV control unit.

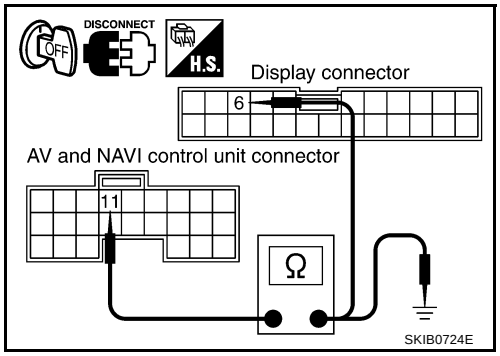
7. CHECK AV AND NAVI CONTROL UNIT VERTICAL SYNCHRONIZING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV and NAVI control unit connector and display connector.
3. Check continuity between AV and NAVI control unit harness connector B30 terminal 11 and display harness connector M82 terminal 6.

11 – 6 : Continuity should exist.

4. Check continuity between AV and NAVI control unit harness connector B30 terminal 11 and ground.

11 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.
NG >> Repair harness or connector.

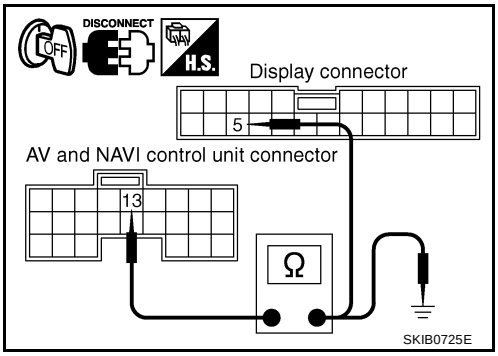
8. CHECK AV AND NAVI CONTROL UNIT HORIZONTAL SYNCHRONIZING SIGNAL CIRCUIT

1. Check continuity between AV and NAVI control unit harness connector B30 terminal 13 and display harness connector M82 terminal 5.

13 – 5 : Continuity should exist.

2. Check continuity between AV and NAVI control unit harness connector B30 terminal 13 and ground.

13 – Ground : Continuity should not exist.

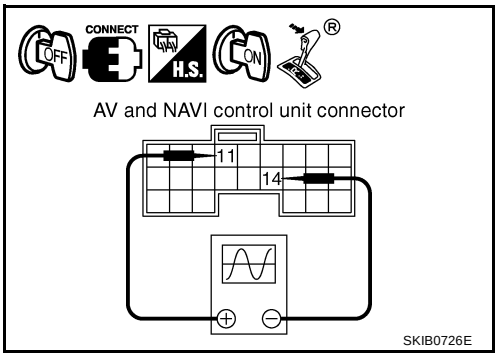


OK or NG

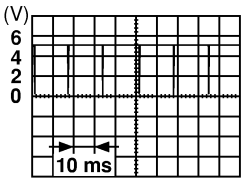
OK >> GO TO 9.
NG >> Repair harness or connector.

9. CHECK AV AND NAVI CONTROL UNIT VERTICAL SYNCHRONIZING SIGNAL

1. Connect AV and NAVI control unit connector and display connector.
2. Turn ignition switch ON.
3. Shift A/T selector lever to “R” position.
4. Check voltage signal between AV and NAVI control unit harness connector B30 terminals 11 and 14.



11 – 14:



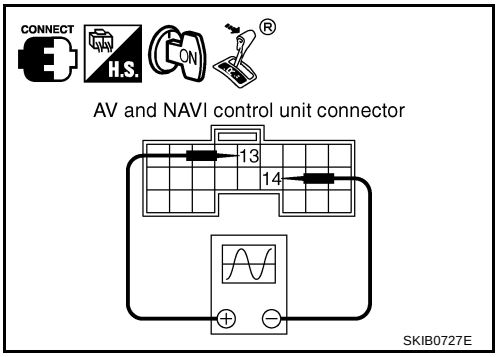
SKIA0161E

OK or NG

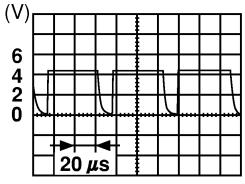
OK >> GO TO 10.
NG >> Replace AV and NAVI control unit.

10. CHECK AV AND NAVI CONTROL UNIT HORIZONTAL SYNCHRONIZING SIGNAL

1. Turn ignition switch ON.
2. Shift A/T selector lever to “R” position.
3. Check voltage signal between AV and NAVI control unit harness connector B30 terminals 13 and 14.



13 – 14:



SKIA0163E

OK or NG

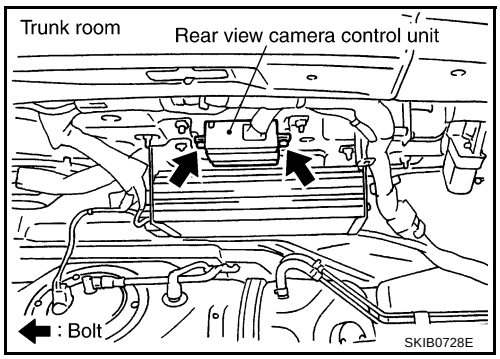
OK >> Replace display.
NG >> Replace AV and NAVI control unit.

Removal and Installation of Rear View Camera Control Unit

NKS001EI

REMOVAL

1. Remove trunk front finisher. Refer to EI-60, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Disconnect rear view camera control unit connector.
3. Remove bolts (2), and remove rear view camera control unit.



INSTALLATION

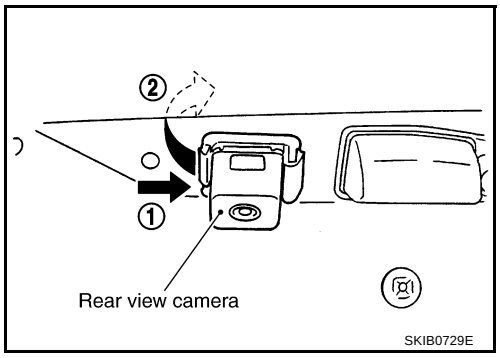
Installation is the reverse order of removal.

Removal and Installation of Rear View Camera

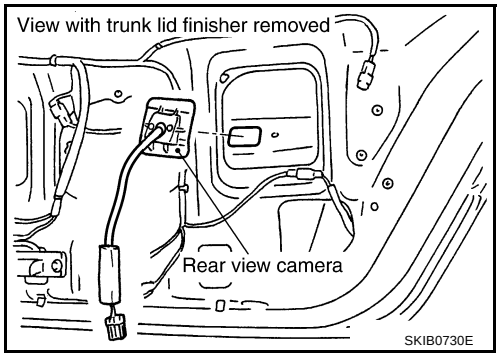
NKS001EJ

REMOVAL

1. Remove trunk lid finisher. Refer to EI-34, "TRUNK LID FINISHER" .
2. Disengage the tabs of rear view camera as shown in the figure.



3. Disconnect rear view camera connector.
4. Remove rear view camera from trunk lid.



INSTALLATION

Installation is the reverse order of removal.

VOICE ACTIVATED CONTROL SYSTEM

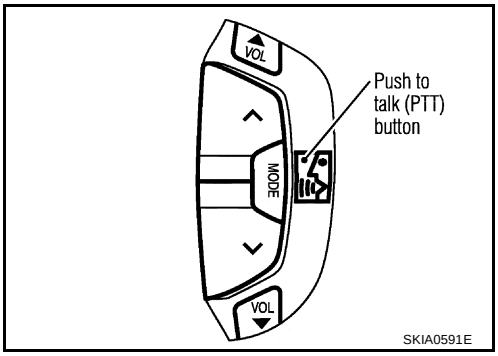
PFP:28337

System Description

NKS001EK

OUTLINE

- The VACS (Voice-Activated Control System) provides a safe and convenient way of controlling vehicle systems such as the audio, auto A/C and navigation (if so equipped). The system is controlled by the PTT (Push to talk) button. Voice commands are picked up by a microphone. When giving a command, voice feedback will be heard through the speaker, and messages will be shown on the display. Voice feedback can be turned off. Personal directories of nametags for radio station presets can be created, and spoken command help is provided.
- Refer to Owner's Manual for voice activated control system operating instructions.



Power is supplied at all times

- through 15A fuse [No. 52, located in fuse, fusible link and relay block (J/B)]
- to voice activated control module terminal 13.

With the ignition switch in the ACC or ON position, power is supplied

- through 10A fuse [No. 21, located in the fuse block (J/B) No. 1]
- to voice activated control module terminal 20.

Ground is also supplied

- to voice activated control module terminal 14
- through grounds B57 and B17.

VOICE ACTIVATED CONTROL FUNCTION

When PTT switch pushed ON, signal is sent

- from steering switch terminal 2
- to multifunction switch terminal 7,
- via multifunction switch, display and AV and NAVI control unit (with NAVI), or AV control unit (without NAVI) with AV communication line
- to voice activated control module terminals 35 and 36.

Voice activated control module displays "LISTENING" on screen when PTT switch is ON.
When any voice is input into microphone, voice signal is sent

- from microphone terminals 6 and 10 (with NAVI), or microphone terminals 10 and 11 (without NAVI)
- to voice activated control module terminals 33 and 34.

When voice activated control module identifies voice signal as a command, it sends the signal

- form voice activated control module terminals 35 and 36
- to AV and NAVI control unit (with NAVI) terminals 47 and 48, or AV control unit (without NAVI) terminals 49 and 50 with AV communication line.

Then AV and NAVI control unit (with NAVI) or AV control unit (without NAVI) sends operational signal

- to display and audio unit and performs the voice command.

While voice activated control system is in operation, voice activated control module sends voice signal

- from voice activated control module terminals 25 and 26
- to BOSE speaker amp. terminals 26 and 42, and guides various operations.

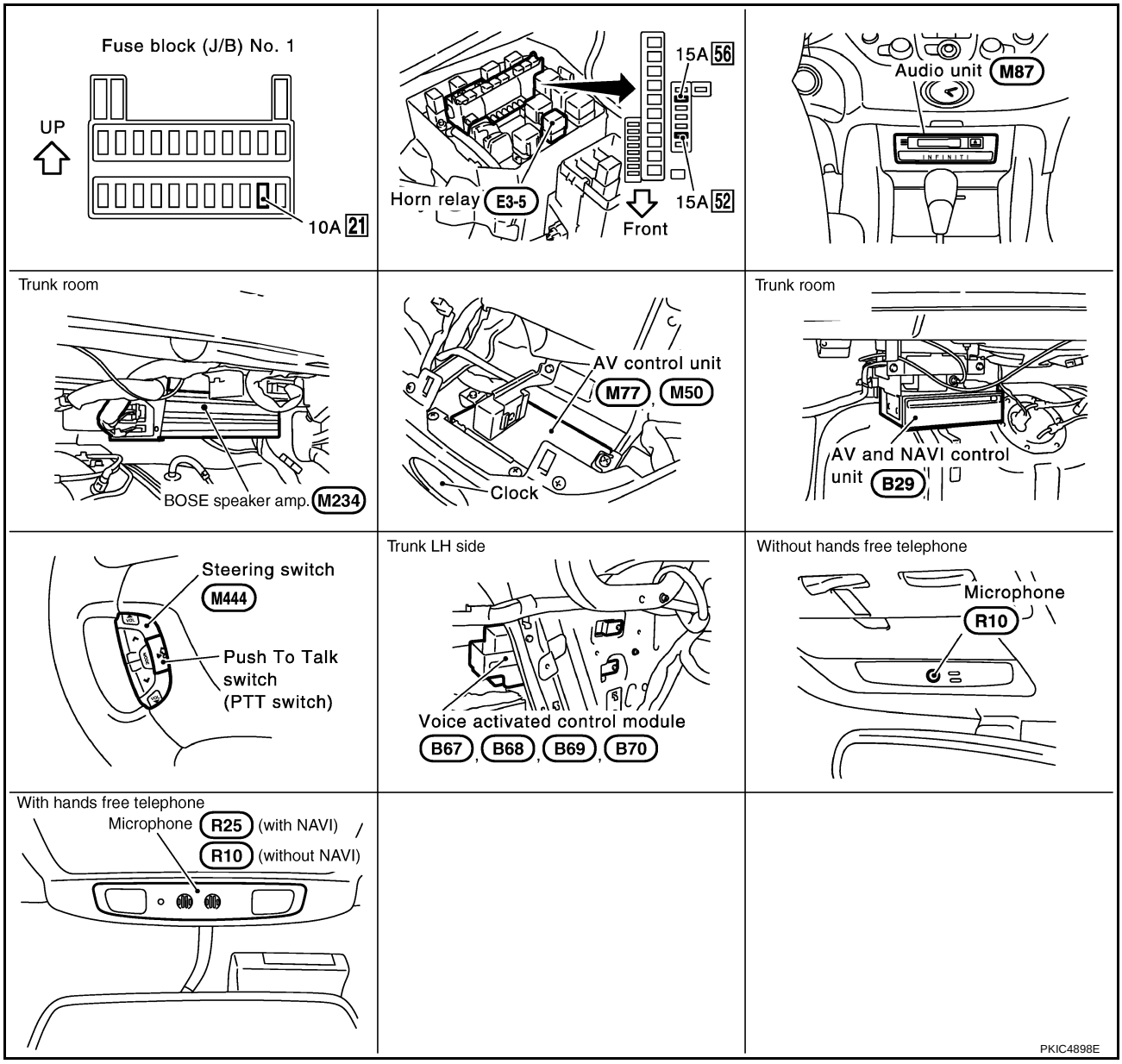
Also at the same time voice activated control module sends mute signal

- from voice activated control module terminal 27
- to audio unit terminal 9

in order to prevent any noise input into microphone.

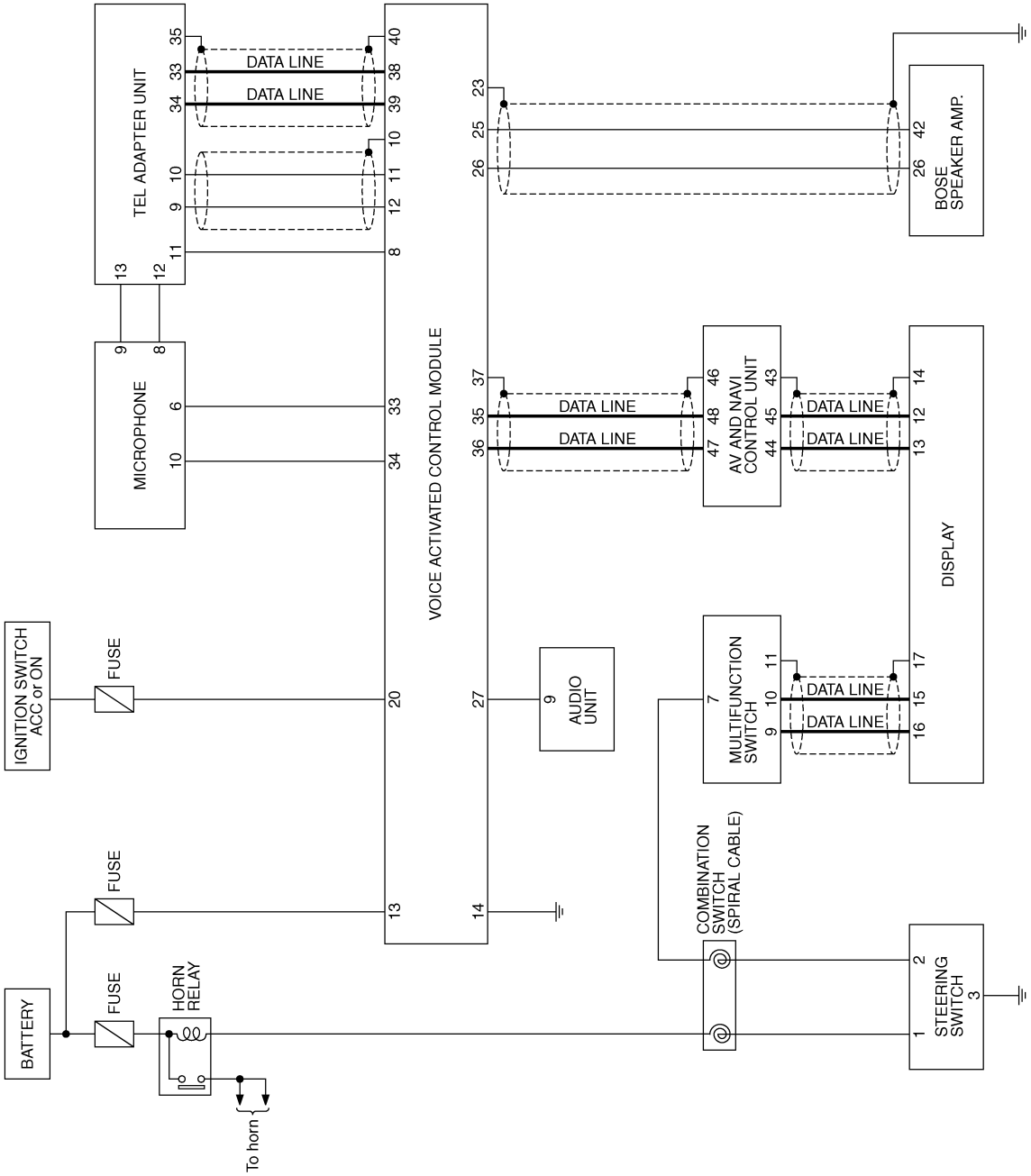
Component Parts and Harness Connector Location

NKS001EL



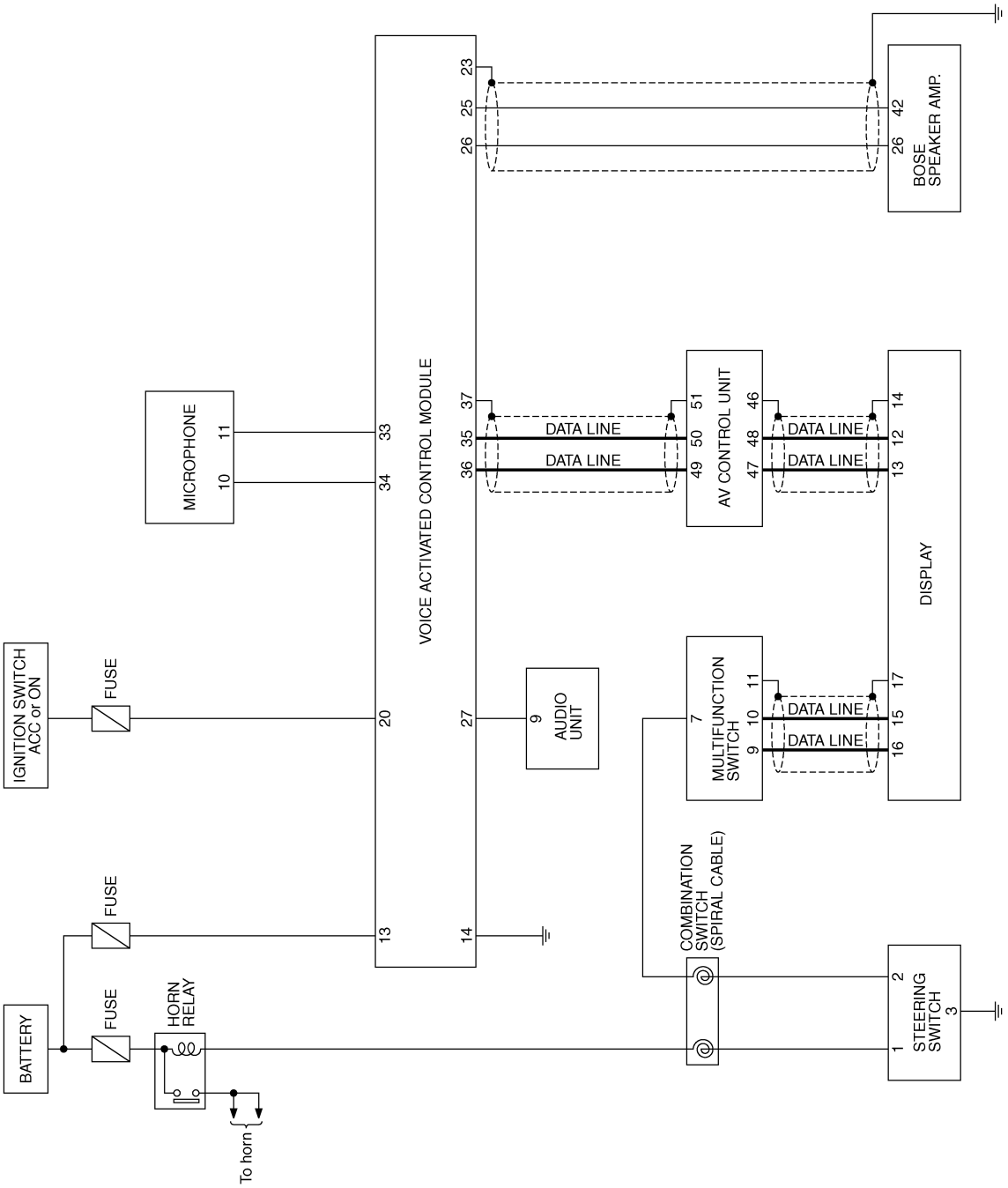
Schematic
WITH NAVI

NKS001EM



TKWM3764E

WITHOUT NAVI



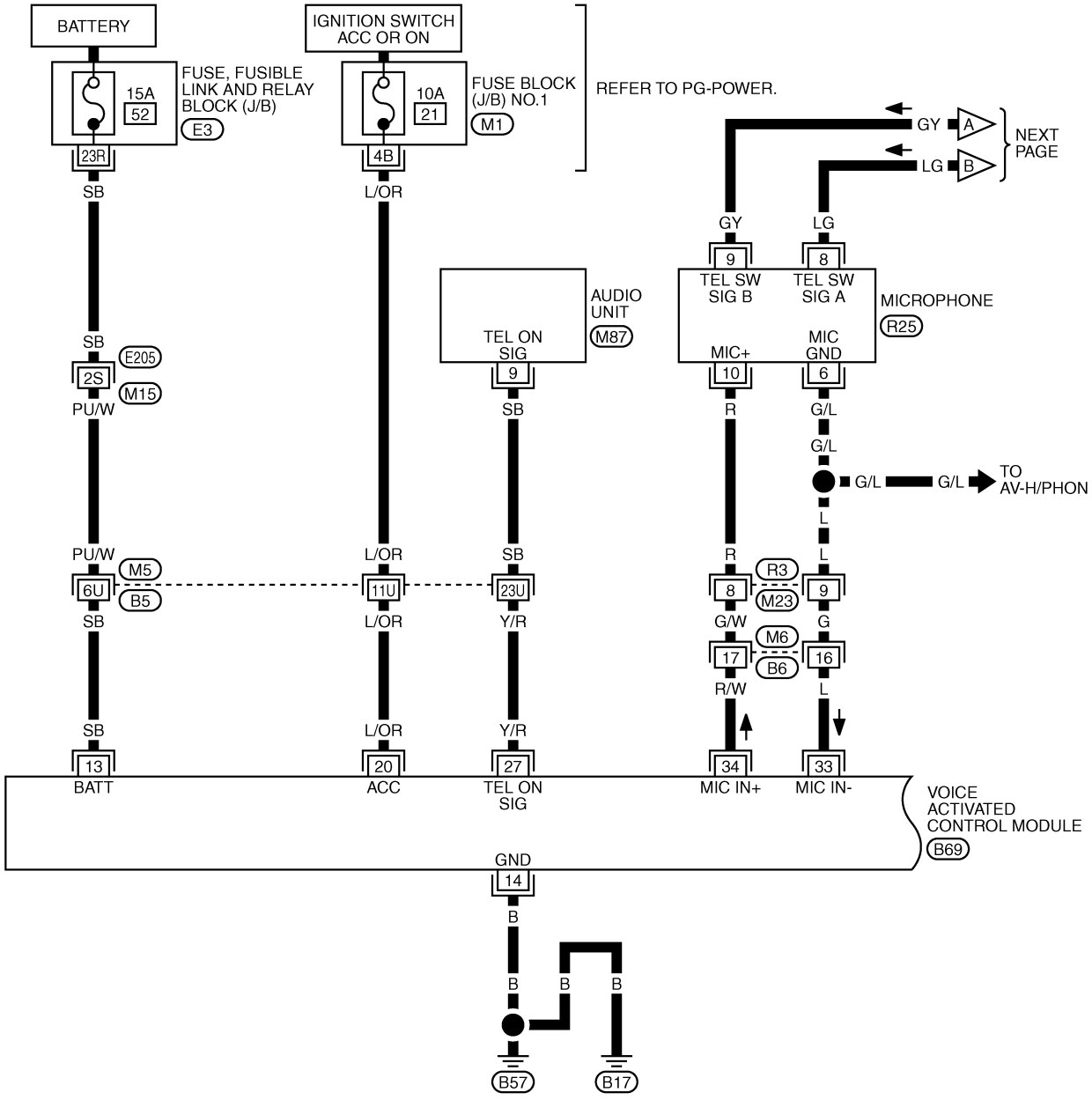
TKWM3910E

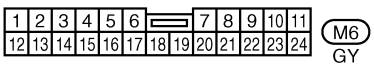
Wiring Diagram — VOICE —

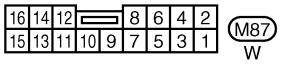
NKS001EN

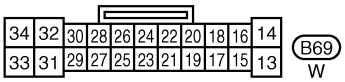
WITH NAVI

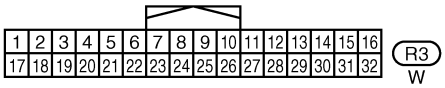
DI-VOICE-01

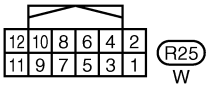












REFER TO THE FOLLOWING.

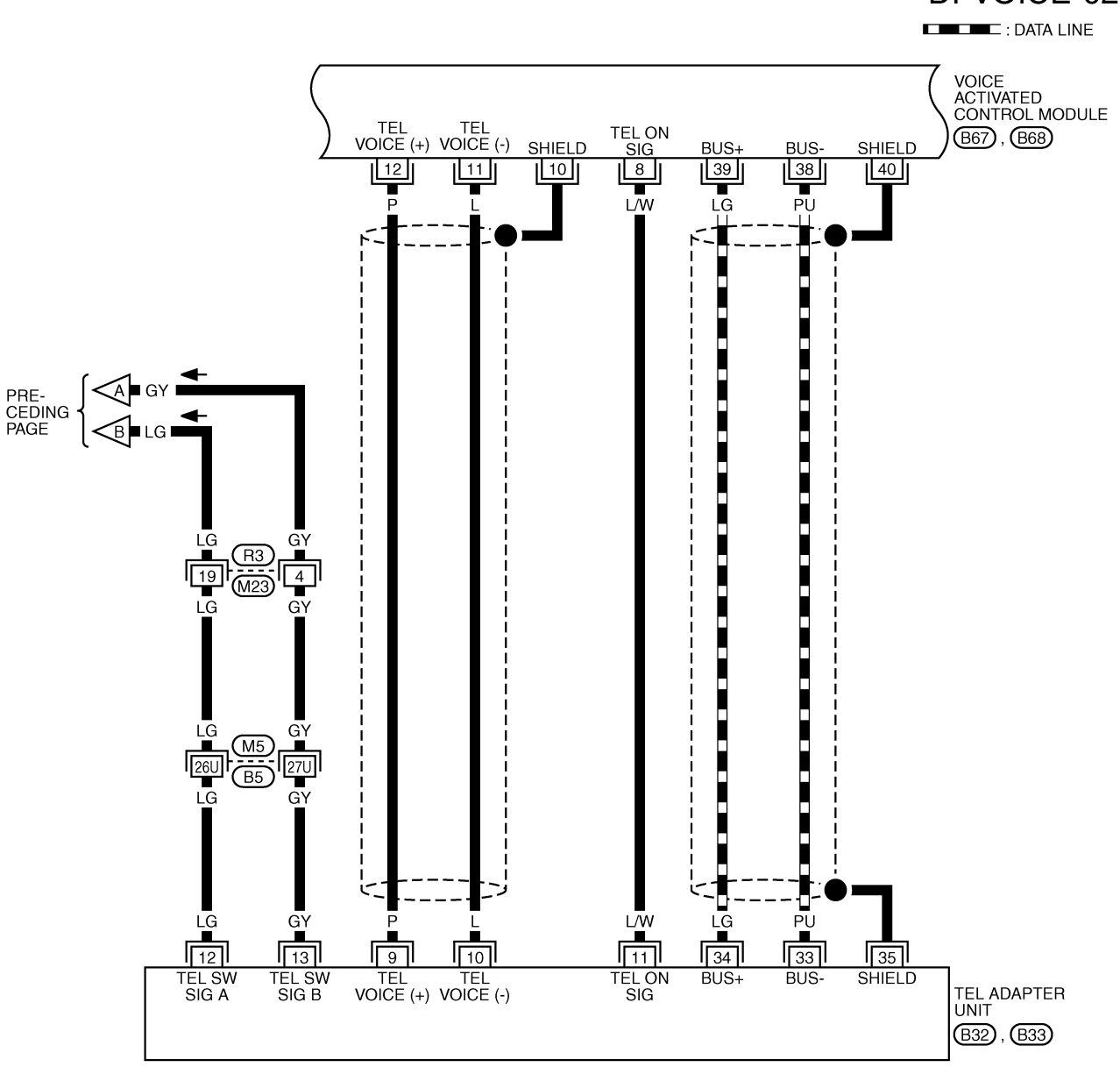
M5 , E205 -SUPER MULTIPLE JUNCTION (SMJ)

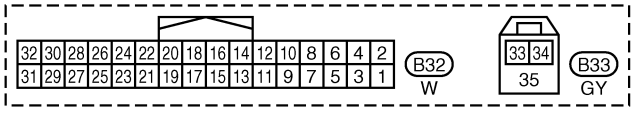
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

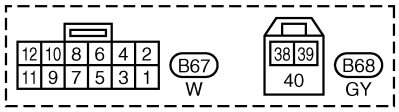
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

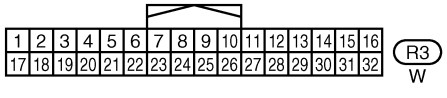
TKWM3765E

DI-VOICE-02







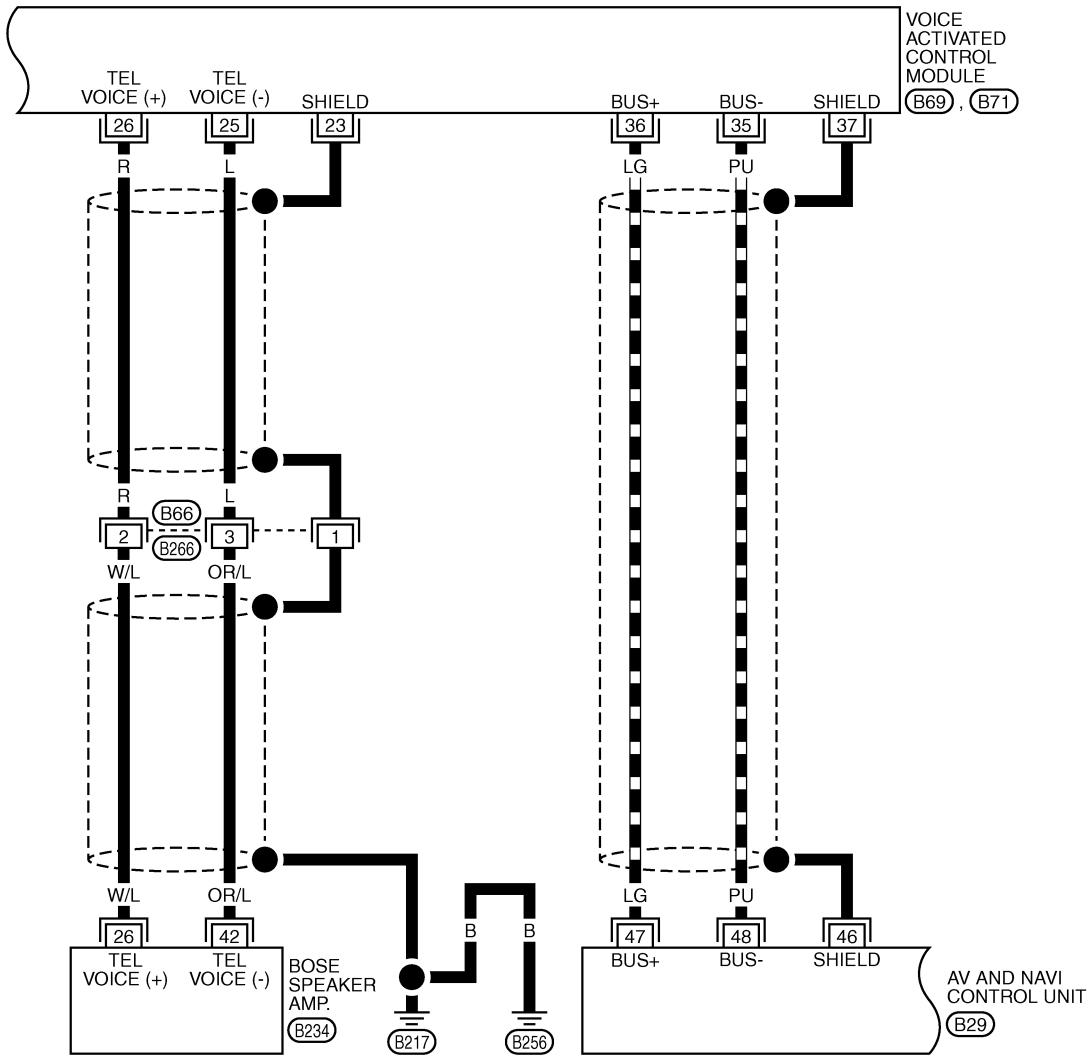


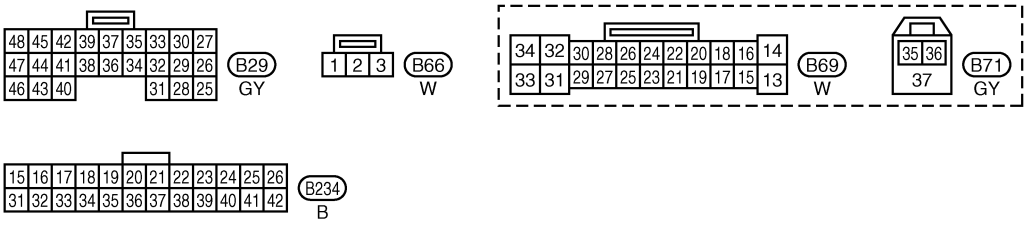
REFER TO THE FOLLOWING.
M5 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3766E

DI-VOICE-03

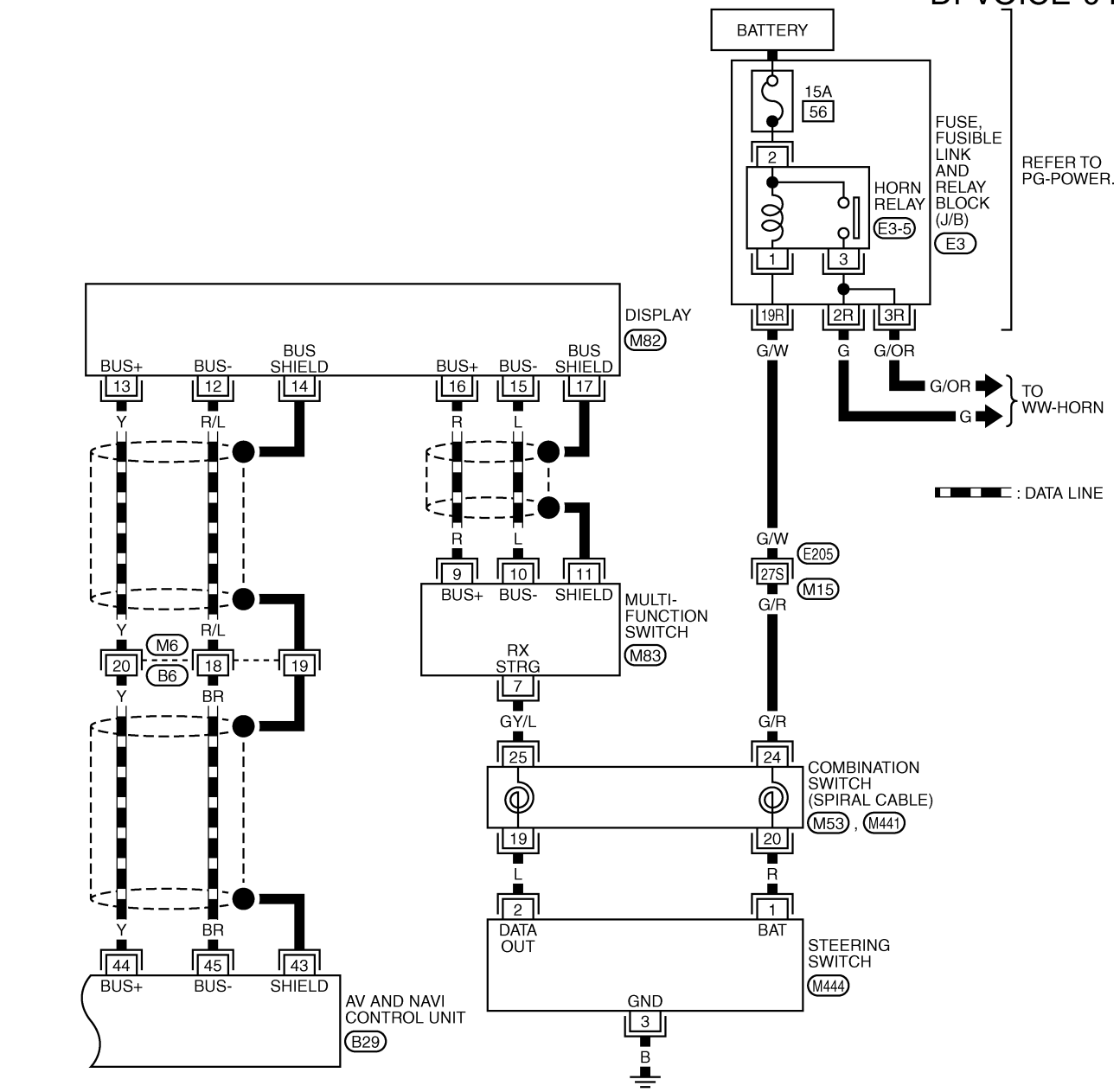
: DATA LINE

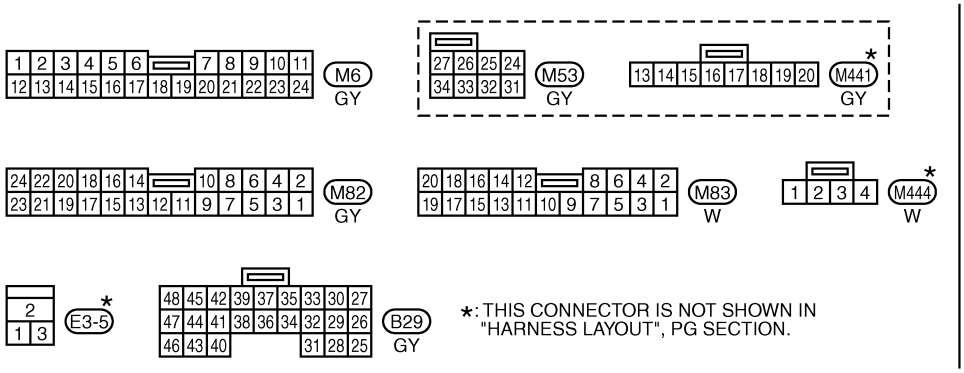




TKWM3767E

DI-VOICE-04





*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

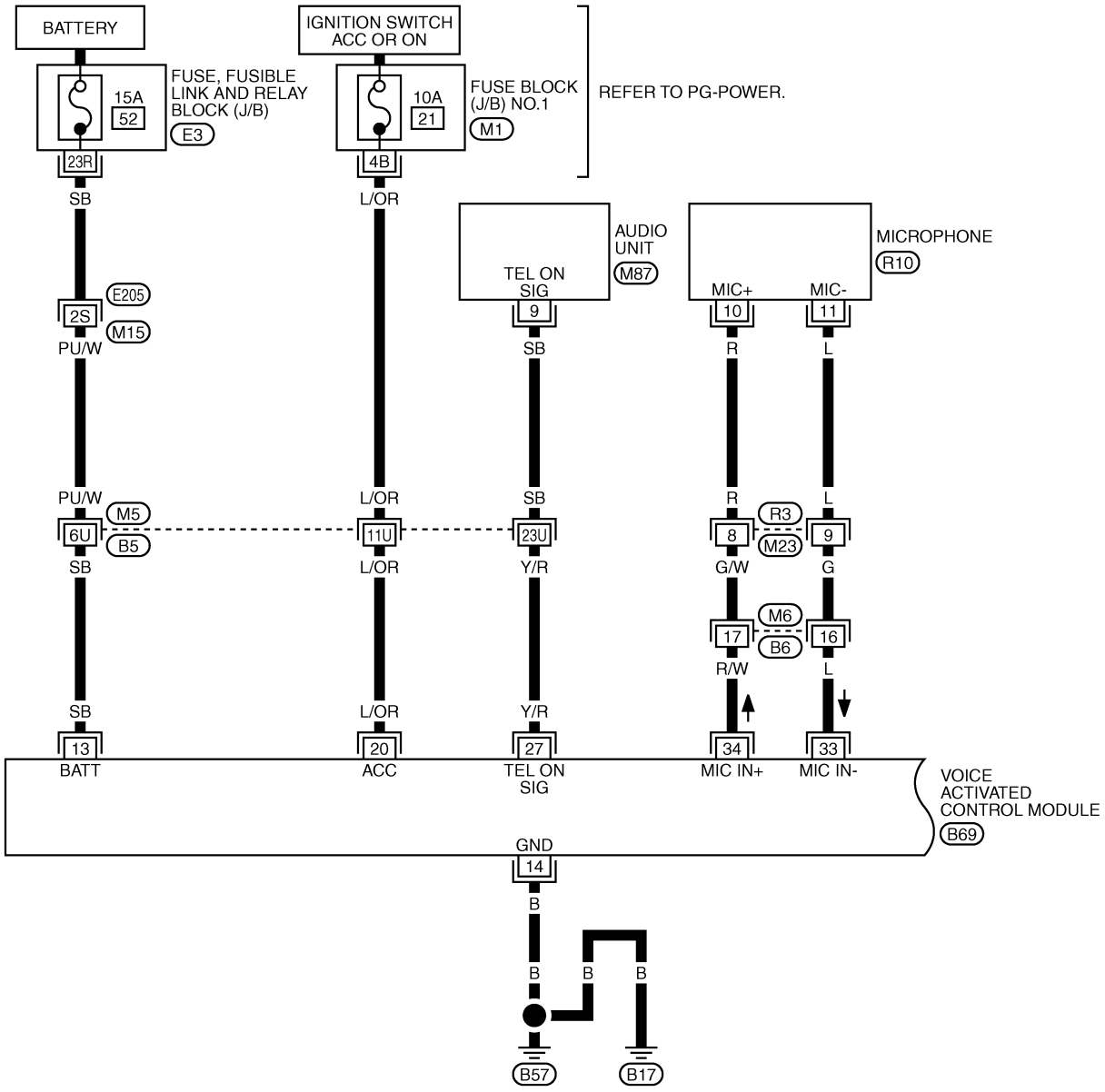
E205 -SUPER MULTIPLE JUNCTION (SMJ)

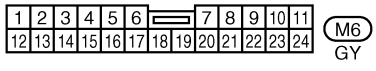
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

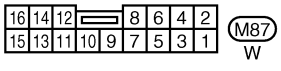
TKWM3768E

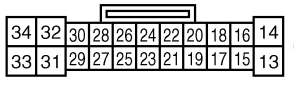
WITHOUT NAVI

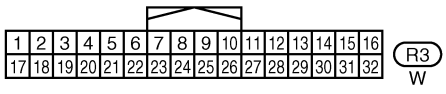
DI-VOICE-05

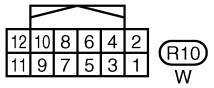












REFER TO THE FOLLOWING.

M5 , E205 -SUPER MULTIPLE JUNCTION (SMJ)

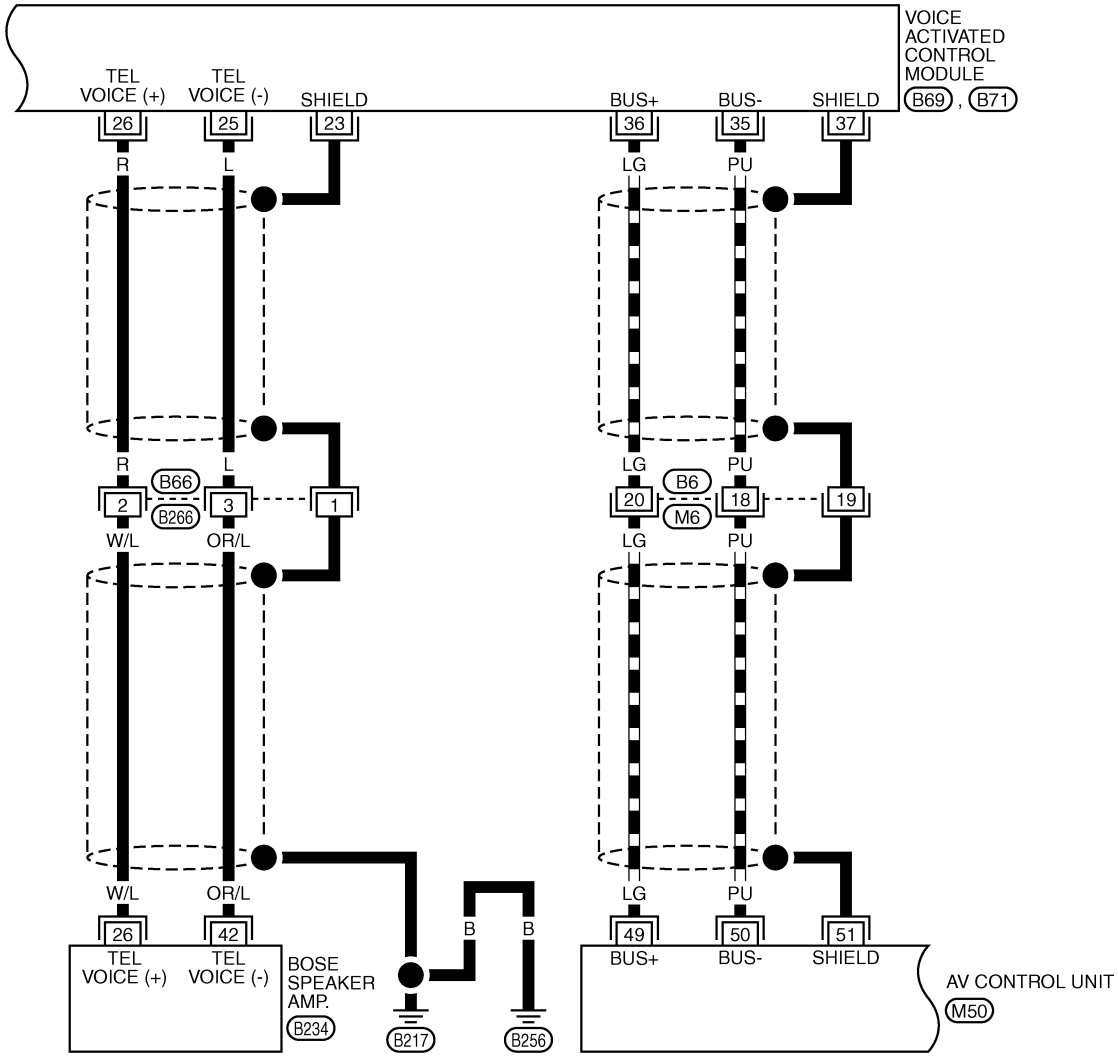
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

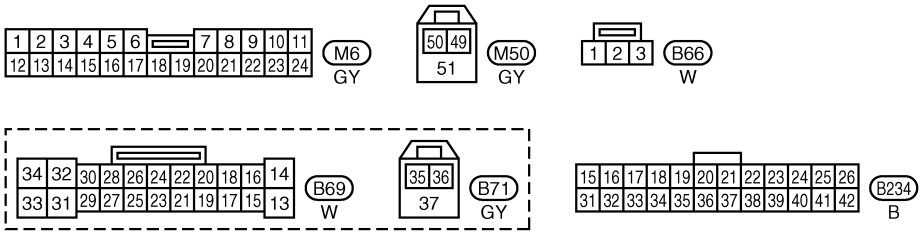
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3911E

DI-VOICE-06

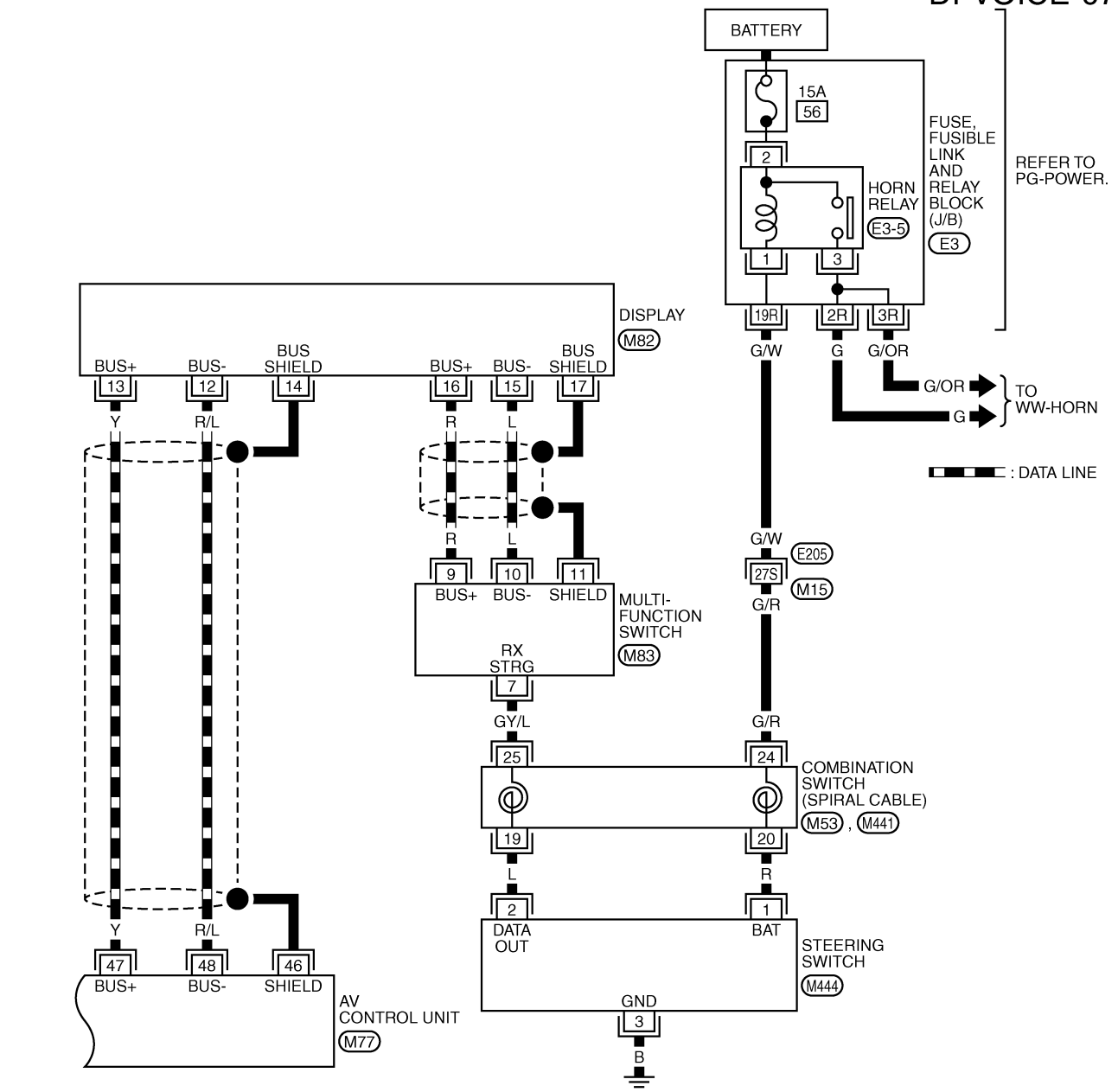
: DATA LINE

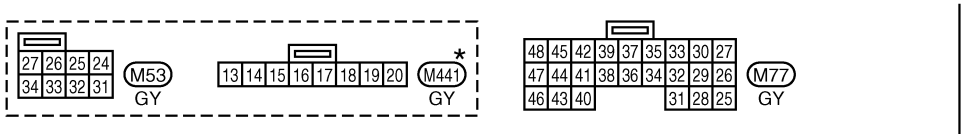


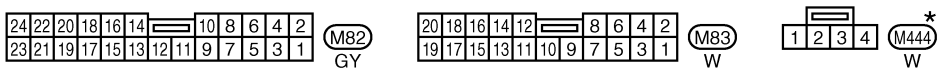


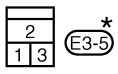
TKWM3912E

DI-VOICE-07









*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.

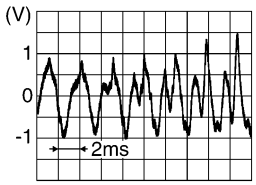
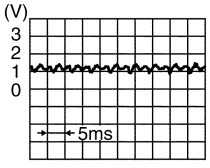
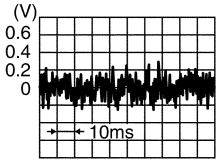
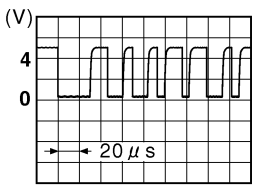
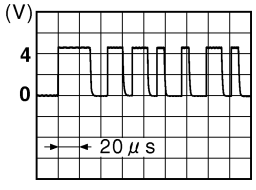
E205 -SUPER MULTIPLE JUNCTION (SMJ)

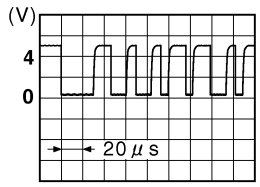
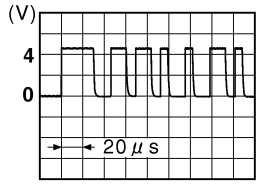
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3913E

Terminals and Reference Values for Voice Activated Control Module

NKS001EO

Terminal No. (Wire color)		Item	Condition		Reference value (V)
(+)	(–)		Ignition switch	Operation	
8 (L/W)*	Ground	TEL ON signal	ON	While using hands-free phone system or voice activated control system	Approx. 0 V
				Except while using hands-free phone system and voice activated control system	Approx. 12 V
10*	—	Shield	—	—	—
12 (P)*	11 (L)*	TEL voice signal	ON	Receiving the party's voice while using the hands-free phone system.	 SKIB3609E
13 (SB)	Ground	Battery power source	OFF	–	Battery voltage
14 (B)		Ground	ON	–	Approx. 0
20 (L/OR)		Ignition switch ACC	ACC	–	Battery voltage
23		Audio shield ground	ON	–	Approx. 0
25 (L)	23	Audio output (–)	ON	Voice guide operates.	 PKIA0355E
26 (R)	23	Audio output (+)	ON		
27 (Y/R)	Ground	Mute	ON	PTT switch (not operate → operate)	Approx. 5 → Approx. 0
34 (R/W)	33 (L)	Mic input	ON	Voice mic test operates.	 PKIA0356E
35 (PU)	Ground	Communication signal (–)	ON	—	 SKIB7379E
36 (LG)	Ground	Communication signal (+)	ON	—	 SKIB7378E

Terminal No. (Wire color)		Item	Condition		Reference value (V)
(+)	(–)		Ignition switch	Operation	
37	—	Shield	—	—	—
38 (PU)*	Ground	Communication signal (–)	ON	—	 SKIB7379E
39 (LG)*	Ground	Communication signal (+)	ON	—	 SKIB7378E
40*	—	Shield	—	—	—

*: With NAVI

CONSULT-II Function (MULTI AV)

NKS001EP

Refer to AV-115, "CONSULT-II Function (MULTI AV)" .

On Board Self-Diagnosis Function (Without CONSULT-II)

NKS001EQ

DESCRIPTION

- Diagnosis function consists of the self-diagnosis mode, and the “CONFIRMATION/ADJUSTMENT” mode.
- Self-diagnosis mode checks for connection between AV and NAVI control unit (with NAVI) or AV control unit (without NAVI) and voice activated control module. And analyzes each unit, then displays the results.
- “CONFIRMATION/ADJUSTMENT” function analyzes each microphone.

DIAGNOSIS ITEM

Mode		Description
SELF-DIAGNOSIS		● Checks for the connections between AV and NAVI control unit or AV control unit and voice activated control module. ● Performs the unit diagnosis of voice activated control module.
CONFIRMATION/ ADJUSTMENT	Voice Mic. Test	● Checks microphone.

SELF-DIAGNOSIS MODE

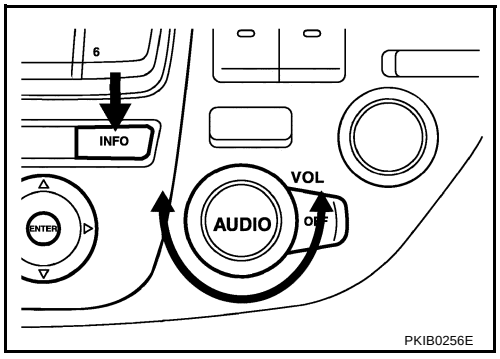
Operation Procedure

- To start the self-diagnosis mode and to check the diagnosis result, refer to DI-126, "SELF-DIAGNOSIS MODE" (without NAVI) or AV-102, "Self-Diagnosis Mode" (with NAVI).

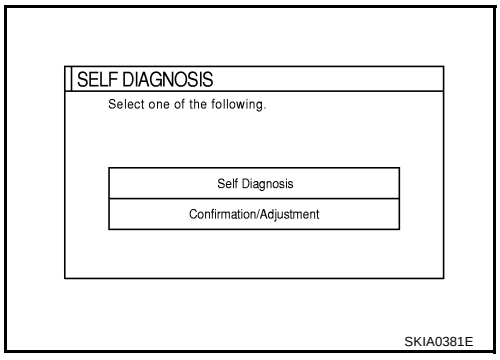
CONFIRMATION/ADJUSTMENT MODE

Operation Procedure

1. Start the engine.
2. Turn the audio system off.
3. While pressing the “INFO” switch, turn the volume control dial clockwise or counterclockwise for 30 clicks or more.

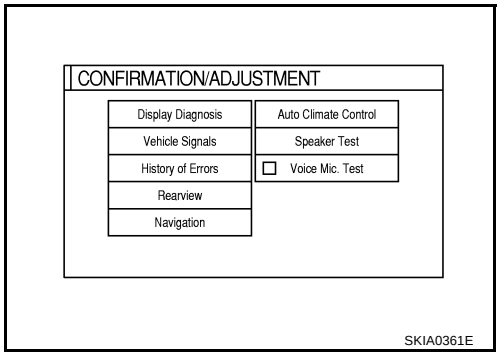


4. The initial trouble diagnosis screen will be shown, and items “Self Diagnosis” and “Confirmation/Adjustment” will become selective.
5. When “Confirmation/Adjustment” is selected on the trouble diagnosis screen, the operation will enter the Confirmation/Adjustment mode. In this mode, check and adjustment of each item will become possible.



6. When “Voice Mic. Test” is selected with joystick, icon indicator turns on (green) and voice input into microphone is sent out through speakers.

   NOTE:
   Voice from speakers may sound echoic.



Trouble Diagnosis

NKS001ER

THIS CONDITION IS NOT MALFUNCTION

Example of Basic Operational Errors

The system should respond correctly to all voice commands. Follow the solutions given in this guide for the appropriate error when any of the following symptom is encountered.
Where the solutions are listed by number, try each solution in turn, starting with number one, until the symptom is resolved.

Symptom	Remedy
Displays “COMMAND NOT RECOGNIZED” or the system does not interpret the command correctly.	1. Ensure that the command is valid, see Command list (Refer to Owner’s Manual). 2. Ensure that the command is given after the tone while “ LISTENING” is displayed. 3. Speak clearly without pausing between words and at a level appropriate to the ambient noise level. 4. Ensure that the ambient noise level is not excessive, for example, windows open or defrost on. **NOTE:** If it is too noisy to use the microphone, it is likely that voice commands will not be recognized. 5. If optional words of the command have been omitted, then the command should be tried with these in place. 6. If a number of commands have been given in rapid succession resulting in the message “COMMAND NOT RECOGNIZED” to be displayed, then allow the system to recover (approximately 1 minute) before trying the command again. 7. If the system consistently does not recognize commands, the voice training procedure should be performed to improve the recognition response for the speaker.
Displays “NO SPEECH DETECTED”.	1. Ensure that the command is given after the tone while “LISTENING” is displayed. 2. Ensure that the command is given within a maximum of five seconds from the end of the tone. **NOTE:** Be sure you know what to say before pressing the Voice button.
Displays “NAMETAG NOT UNIQUE”.	1. This response will be received when storing a nametag if the nametag being given has already been stored. This can be confirmed by giving the Radio Directory command. 2. If this response is received and the nametag has not been used already, then it is too similar to an existing nametag or voice grammar and an alternative should be used.
The system consistently selects the wrong nametag.	1. Ensure that the nametag requested matches what was originally stored. This can be confirmed by giving the Radio Directory command. 2. Delete one of the nametags being confused and replace it with a different nametag.

Power Supply and Ground Circuit Inspection

NKS001ES

1. CHECK FUSES

Check that any of the following fuses for voice activated control module is blown.

Unit	Power source	Fuse No.
Voice activated control module	Battery	52
	Ignition switch ACC or ON	21

OK or NG

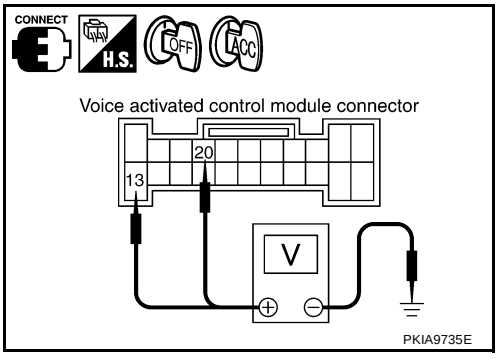
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

Check voltage between voice activated control module harness connector B69 terminals 13, 20 and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ACC
Connector	Terminal			
B69	13	Ground	Battery voltage	Battery voltage
	20		0 V	Battery voltage



OK or NG

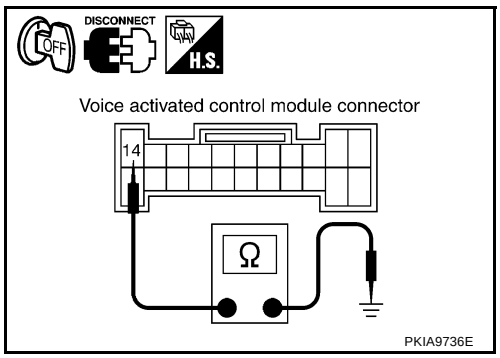
OK >> GO TO 3.

NG >> Check harness between voice activated control module and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector.
3. Check continuity between voice activated control module harness connector B69 terminal 14 and ground.

14 – Ground : Continuity should exist.



OK or NG

OK >> INSPECTION END
NG >> Check ground harness.

Voice Command Not Identified (With Voice Activated Control System in Operation)

NKS001ET

1. CHECK MICROPHONE OPERATION

1. Select “Voice Mic. Test” of “CONFIRMATION/ADJUSTMENT” mode. Refer to DI-212, "CONFIRMATION/ADJUSTMENT MODE" .
2. Speak to microphone, and check if the sound is heard from (right) instrument speaker.

OK or NG

OK >> Replace voice activated control module.
NG >> GO TO 2.

2. CHECK MICROPHONE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector and microphone connector.
3. Check the following.

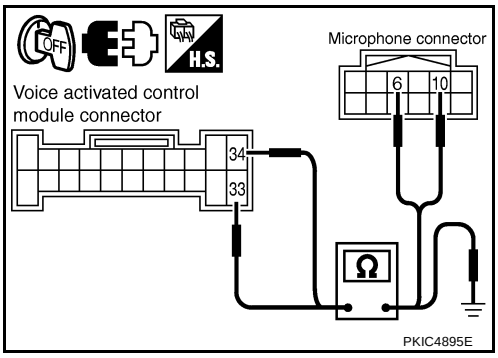
With NAVI

- Continuity between voice activated control module harness connector B69 terminal 34 and microphone harness connector R25 terminal 10.

  34 – 10 : Continuity should exist.

- Continuity between voice activated control module harness connector B69 terminal 33 and microphone connector R25 terminal 6.

  33 – 6 : Continuity should exist.



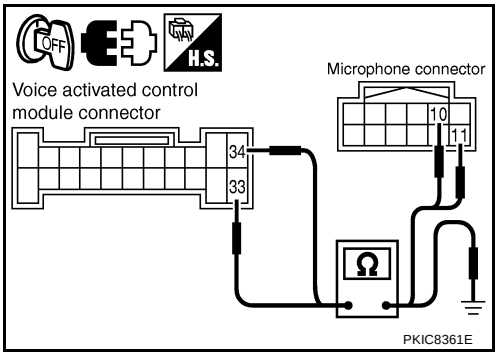
Without NAVI

- Continuity between voice activated control module harness connector B69 terminal 34 and microphone harness connector R10 terminal 10.

  34 – 10 : Continuity should exist.

- Continuity between voice activated control module harness connector B69 terminal 33 and microphone connector R10 terminal 11.

  33 – 11 : Continuity should exist.



4. Check continuity between voice activated control module harness connector B69 terminals 33, 34 and ground.

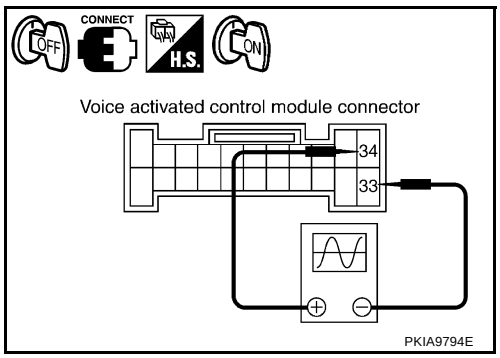
   33 – Ground
   34 – Ground **: Continuity should not exist.**

OK or NG

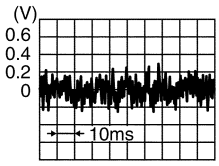
OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK MICROPHONE SIGNAL

1. Connect voice activated control module connector and microphone connector.
2. Turn ignition switch ON.
3. Speak to microphone and check voltage signal between voice activated control module connector B69 terminals 34 and 33.



34 – 33:



PKIA0356E

OK or NG

OK >> Replace voice activated control module.
NG >> Replace microphone.

No Guide Sound or Beeps

NKS001EU

1. CHECK GUIDE SOUND SETTING

Check volume setting of voice activated control system if set as 0 (zero).

OK or NG

OK >> GO TO 2.
NG >> Adjust volume.

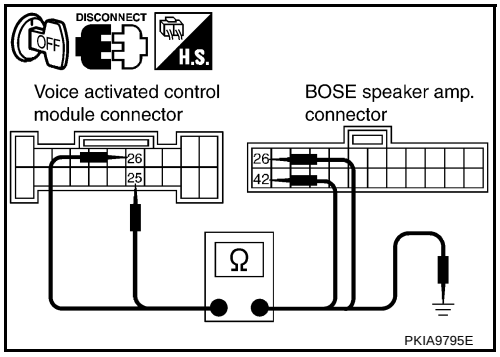
2. CHECK BOSE SPEAKER AMP. CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector and BOSE speaker amp. connector.
3. Check continuity between voice activated control module harness connector B69 terminal 25 and BOSE speaker amp. harness connector B234 terminal 42.

25 – 42 : Continuity should exist.

4. Check continuity between voice activated control module harness connector B69 terminal 26 and BOSE speaker amp. harness connector B234 terminal 26.

26 – 26 : Continuity should exist.



5. Check continuity between voice activated control module harness connector B69 terminals 25, 26 and ground.

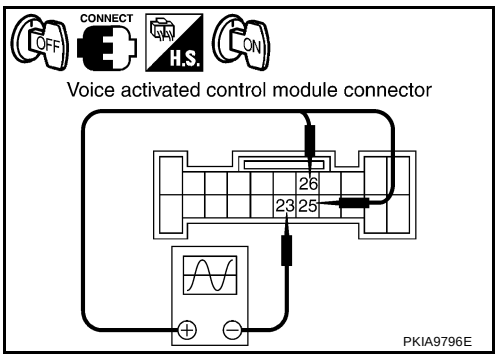
25 – Ground
26 – Ground **: Continuity should not exist.**

OK or NG

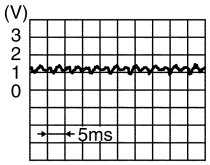
OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK VOICE SIGNAL

1. Connect voice activated control module connector and BOSE speaker amp. connector.
2. Turn ignition switch ON.
3. The Speaker Adaptation (SA) mode ON and voice guide signal sent out, check voltage signal between voice activated control module harness connector B69 terminals 25, 26 and 23.



26 – 23:
25 – 23:



PKIA0355E

OK or NG

OK >> Replace BOSE speaker amp.
NG >> Replace voice activated control module.

Voice Activated Control System Not Starting PTT Switch Pushed ON

NKS001EV

1. CHECK PTT SWITCH OPERATION

Check PTT switch operation with self-diagnosis of multifunction switch. Refer to DI-136, "Multifunction Switch Self-Diagnosis Function" .

OK or NG

OK >> GO TO 2.
NG >> Replace steering switch.

2. CHECK MULTIFUNCTION SWITCH AND VOICE ACTIVATED CONTROL MODULE

Start self-diagnosis mode. Refer to DI-126, "On Board Self-Diagnosis Function (Without CONSULT-II)" .

Does self-diagnosis mode start?

YES >> GO TO 3.
NO >> Replace multifunction switch.

3. CHECK VOICE ACTIVATED CONTROL MODULE

Check voice activated control module with self-diagnosis mode started in previous step 2.

OK or NG

OK >> ● Replace AV and NAVI control unit (with NAVI).
● Replace AV control unit (without NAVI).
NG >> GO TO 4.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of voice activated control module. Refer to DI-213, "Power Supply and Ground Circuit Inspection" .

OK or NG

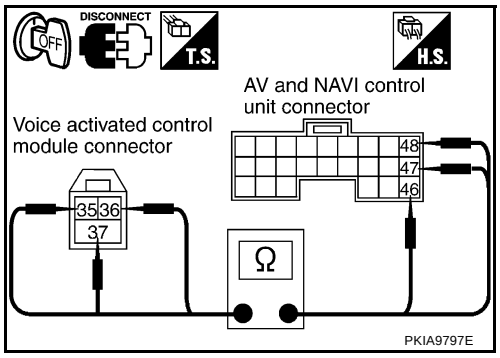
OK >> GO TO 5.
NG >> Repair harness or connector.

5. CHECK AV COMMUNICATION LINE

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector and AV and NAVI control unit (with NAVI) connector, or AV control unit (without NAVI) connector.
3. Check the following.

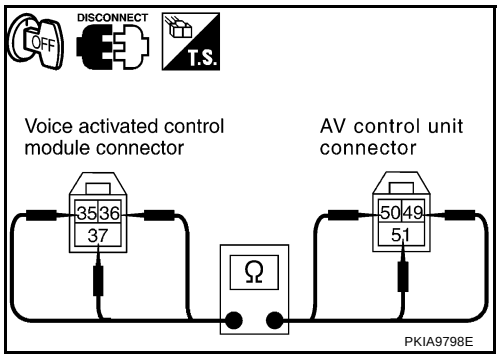
– **With NAVI**

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B71	35	B29	48	Yes
	36		47	Yes
	37		46	Yes
	35		46	No
	36		46	No



– **Without NAVI**

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
B71	35	M50	50	Yes
	36		49	Yes
	37		51	Yes
	35		51	No
	36		51	No



OK or NG

OK >> Replace voice activated control module.
NG >> Repair harness or connector.

Audio Not Muted with PTT Switch Pushed ON

NKS001EW

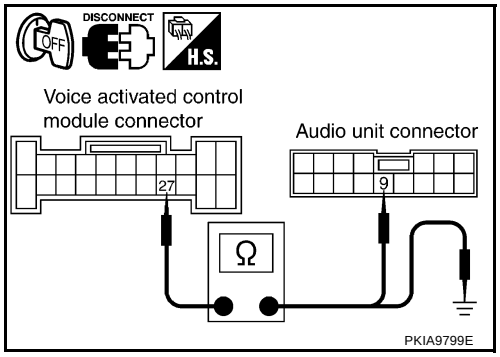
1. CHECK AUDIO UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector and Audio unit connector.
3. Check continuity between voice activated control module harness connector B69 terminal 27 and Audio unit harness connector M87 terminal 9.

27 – 9 : Continuity should exist.

4. Check continuity between voice activated control module harness connector B69 terminal 27 and ground.

27 – Ground : Continuity should not exist.

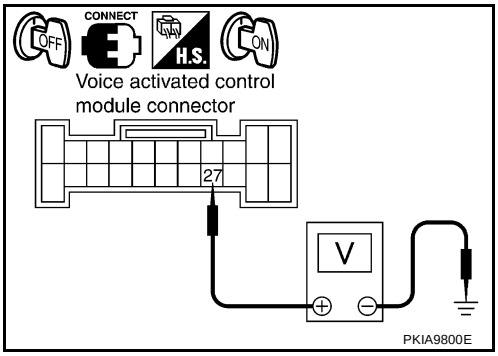


OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK AUDIO UNIT MUTE SIGNAL

1. Connect voice activated control module connector and audio unit connector.
2. Turn ignition switch ON.
3. Check voltage between voice activated control module harness connector B69 terminal 27 and ground.



Terminals			PTT switch condition	Voltage (V)
(+)		(–)		
Connector	Terminal			
B69	27	Ground	ON	Approx. 0
			OFF	Approx. 5

OK or NG

OK >> Replace audio unit.
NG >> Replace voice activated control module.

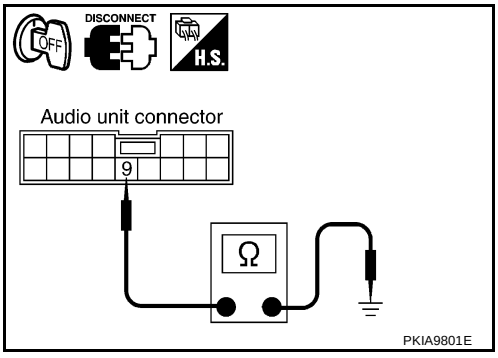
Audio Mute Not Released

NKS001EX

1. AUDIO UNIT MUTE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect voice activated control module connector and audio unit connector.
3. Check continuity between audio unit harness connector M87 terminal 9 and ground.

9 – Ground : Continuity should not exist.



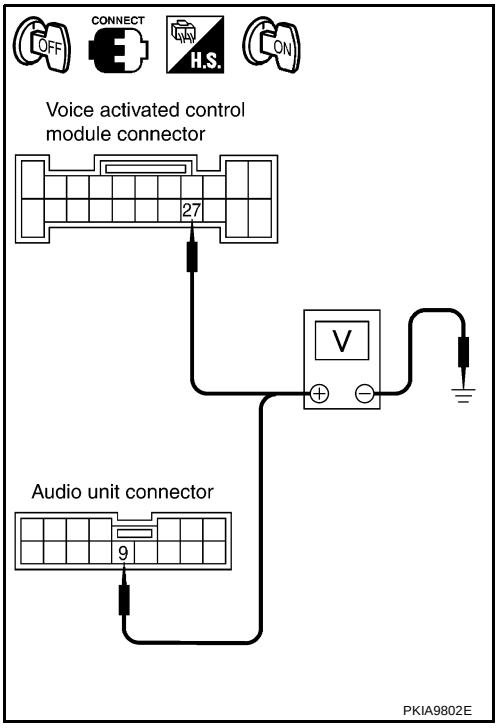
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK MUTE SIGNAL

1. Connect voice activated control module connector and audio unit connector.
2. Turn ignition switch ON.
3. Check the following.

Unit	Terminals			PTT switch condition	Voltage (V)
	(+)		(–)		
	Connector	Terminal			
Voice activated control module	B69	27	Ground	ON	Approx. 0
				OFF	Approx. 5
Audio unit	M87	9		ON	Approx. 0
				OFF	Approx. 5



OK or NG

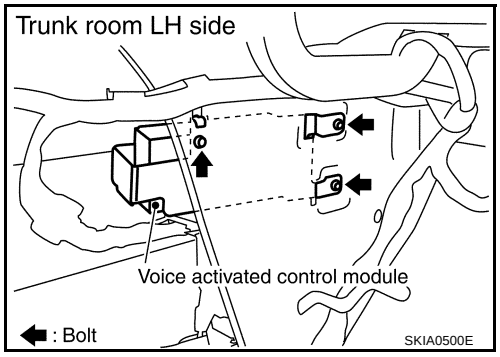
OK >> Replace audio unit.
NG >> Replace voice activated control module.

Removal and Installation for Voice Activated Control Module

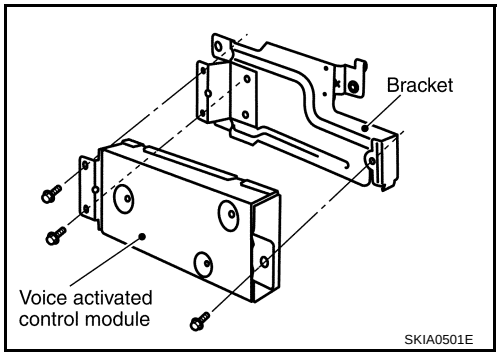
NKS001EY

REMOVAL

1. Remove trunk trim. Refer to EI-60, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Remove the bolts, and disconnect connectors.
3. Remove voice activated control module.



4. Remove bracket from voice activated control module.



INSTALLATION

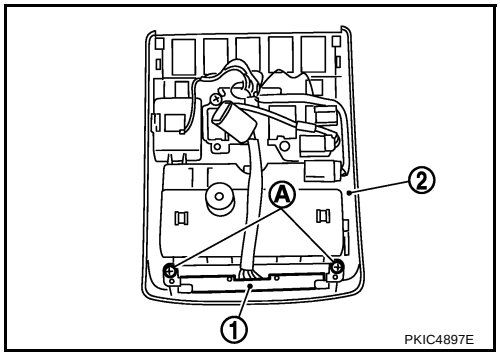
Installation is the reverse order of removal.

Removal and Installation for Microphone

NKS002Q0

REMOVAL

1. Remove map lamp cover. Refer to EI-58, "HEADLINING" .
2. Remove the screw (A), and remove microphone (1).



INSTALLATION

Installation is the reverse order of removal.

COMPASS

PFP:24835

Precautions for Compass

NKS002JE

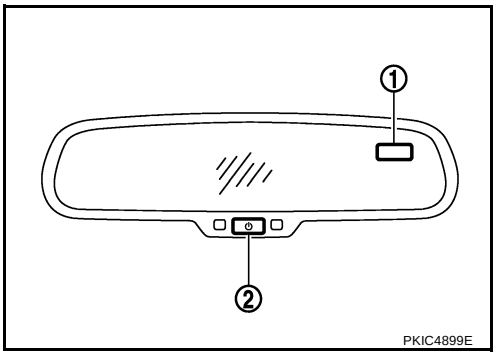
NOTE:

- Do not install the ski rack, antenna, etc. which is attach to the vehicle with a magnet base. It affects the operation of the compass.
- When cleaning the mirror, use a paper towel or similar material dampened with glass cleaner. Do not spray glass cleaner directly on the mirror as it may cause the liquid cleaner to enter the mirror housing.

System Description

NKS002JB

- This electronic compass is able to display 8 primary directions: N, NE, E, SE, S, SW, W, NW.
- The inside mirror switch is used to operate the compass and automatic anti-glare system.



1. Compass display
2. Inside mirror switch

Switch Operation

Press	Compass is turned ON/OFF
Press and hold (for 3 – 6 sec.)	Automatic anti-glare system turns ON/OFF
Press and hold (for 6 – 9 sec.)	Compass display turns to zone variation change mode
Press and hold (for more than 9 sec.)	Compass display turns to calibration mode

NOTE:

For further details of the compass and automatic anti-glare system, refer to Owner's Manual

- All standard compasses determine direction relative to Magnetic North; however, this electronic compass is designed to display direction relative to True North.
- The difference between Magnetic North and True North varies from place to place across the surface of the earth.
- This electronic compass must be “told” approximately where it is on the earth’s surface so that the Magnetic North reading can be properly converted into a True North display.
- To tell the electronic compass where it’s at, the earth is separated into numbered “Zone Variances”. The Zone Variance number in which the compass is to function must be entered into this electronic compass.
- Each zone is magnetically about 4.2° wide. Typically, anything under 22.5° total zone change is not noticed on the electronic compass display. However, over 22.5°, a reading may be off by one or more primary directions.
- On long trips, a vehicle may leave its original zone and enter one or more new zones. Generally, you do not need to reset the compass zone if you travel between 3 or 4 zones, such as business travel or vacation. The typical driver will not notice any difference on the display within 3 or 4 zones. However, if the vehicle is “permanently” moved to a new location, it is recommended that the compass zone be reset.

Troubleshooting

NKS002TZ

- The electronic compass is highly protected from changes in most magnetic fields. However, some large changes in magnetic fields can affect it. Some examples are (but not limited to): high tension power lines, large steel buildings, subways, steel bridges, automatic car washes, large piles of scrap metal, etc. While this does not happen very often, it is possible.
- During normal operation, the Compass Mirror will continuously update the compass calibration to adjust for gradual changes in the vehicle's magnetic "remnant" field. If the vehicle is subjected to high magnetic influences, the compass may appear to indicate false headings, become locked, or appear that it is unable to be calibrated. If this occurs, perform the calibration procedure.
- If at any time the compass continually displays the incorrect direction or the reading is erratic or locked, verify the correct zone variance.

Troubleshooting Chart

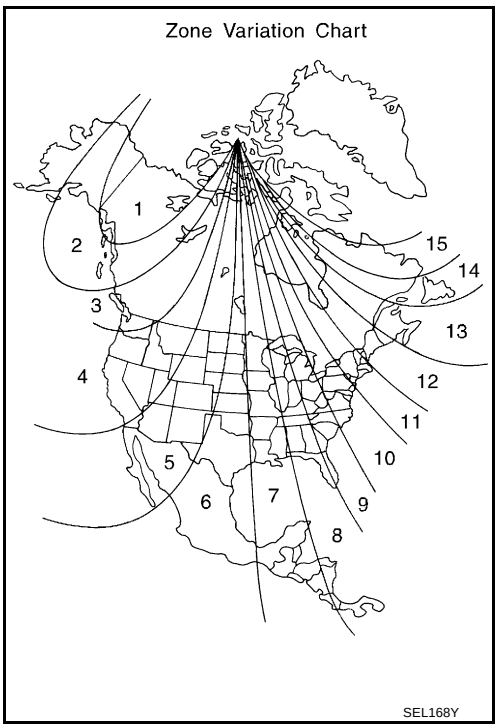
Symptom	Cause	Solution / Reference
The compass display reads "C".	• Compass is not calibrated. • Incorrect zone variance setting. • Large change in magnetic field (Steel bridges, subways, concentrations of metal, carwashes, etc.) • Compass was calibrated incorrectly or in the presence of a strong magnetic field.	Perform Calibration. Refer to DI-223, "Calibration Procedure" .
Compass shows the wrong direction.		
Compass does not change direction – appears "Locked".		
Compass does not show all the directions, one or more is missing.		
The compass was calibrated but it "loses" calibration.		
On long trips the compass shows the wrong direction.		Perform Zone Variation Setting if correct reading is desired in that location. Refer to DI-223, "Zone Variation Setting Procedure" .
Compass does not work – No direction is displayed.	Compass not turned ON.	Check for green LED indicator (inside mirror switch).
	No power to inside mirror.	Check power supply circuit.

Zone Variation Setting Procedure

NKS002JC

NOTE:
The zone setting is factory preset (“default” setting) to zone 8.

1. Press and hold the inside mirror switch for 6 – 9 seconds.
2. The current zone setting appears on the compass display.
3. Find the current geographical location number in the Zone Variation Chart.
4. Select the new zone number. (Press the inside mirror switch until the new zone number appears on the compass display.)
5. After select the new zone number, the compass display will automatically shows a direction within a few seconds.
6. Preform the following Calibration Procedure for more accurate indications.



Calibration Procedure

NKS002JD

NOTE:
The compass calibrates itself under normal driving conditions. However, occasional circumstances may cause the compass to operate inaccurately. Example: Driving from rural (wide open) areas to crowded city areas, or if an aftermarket (i.e., non original equipment) antenna with a magnetic base is attached to the vehicle. Calibrate the mirror compass if the display shows only one direction or a limited number of directions.

NOTE:

- If “magnetic hats” are used in the dealership for vehicle identification, remove the hat from the vehicle before performing the following steps. Do NOT put the hat back on the vehicle after the procedure is completed.
- Drive the vehicle to an open level area; away from large metallic objects, structures, and overhead power lines.
- Turn off “non-essential” electrical accessories (rear window defrost, heater/air conditioning, wipers) and close the doors.

1. Verify the correct compass zone setting for the geographical location. Refer to DI-223, "Zone Variation Setting Procedure" .
2. Press and hold the inside mirror switch for more than 9 seconds.
3. “C” is displayed on the compass display, when calibration starts.
4. Drive slowly [less than 8 km/h (5 mph)] in a circle until the “C / CAL” is replaced with primary headings (N, NE, E, SE, S, SW, W, or NW).

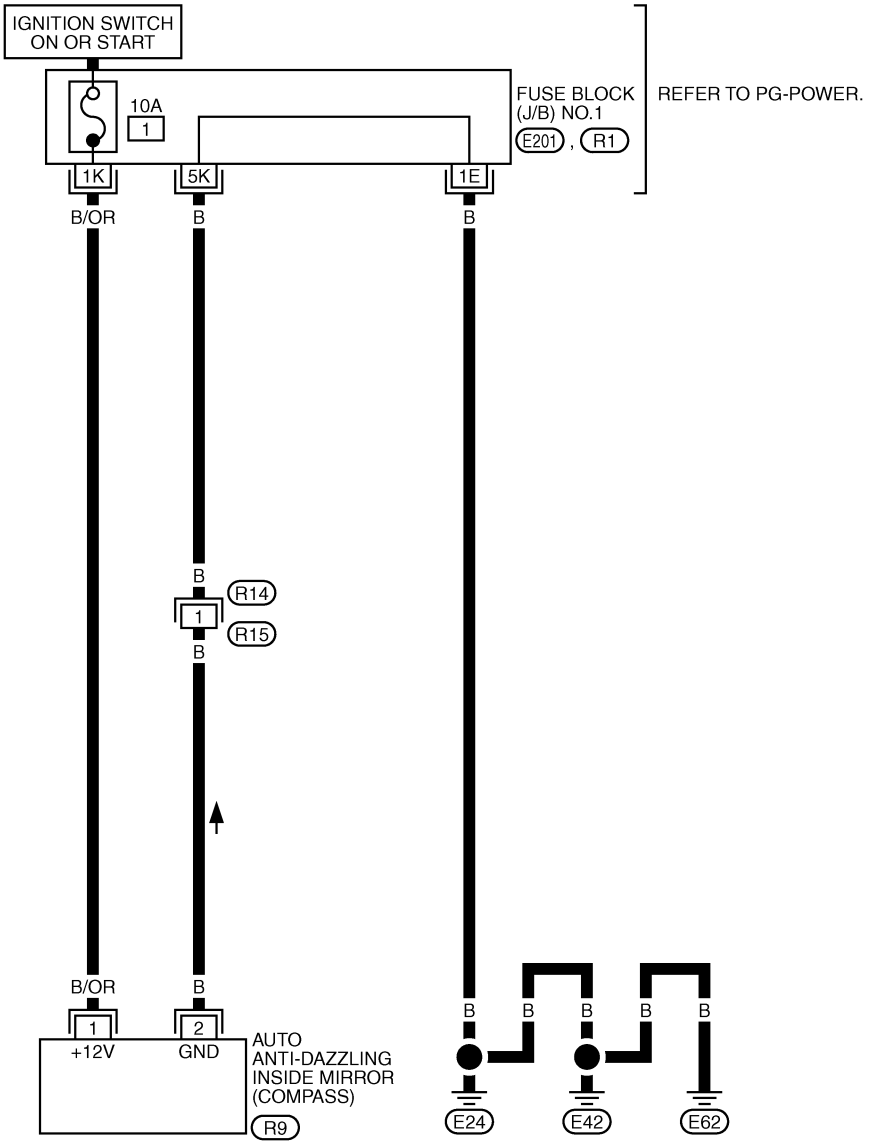
   NOTE:
   This will require driving at least 2 complete 360 degree circles; 3 complete circles may be required.
5. The compass calibration procedure is now complete. The compass should operate normally.

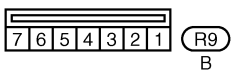
   NOTE:
   If at any time the compass continually displays the incorrect direction or the reading is erratic or locked, repeat the calibration procedure.

Wiring Diagram — COMPAS —

NKS001BL

DI-COMPAS-01





REFER TO THE FOLLOWING.
E201 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1539E

Removal and Installation of Compass

NKS001BM

Refer to GW-60, "AUTO ANTI–DAZZLING INSIDE MIRROR" .

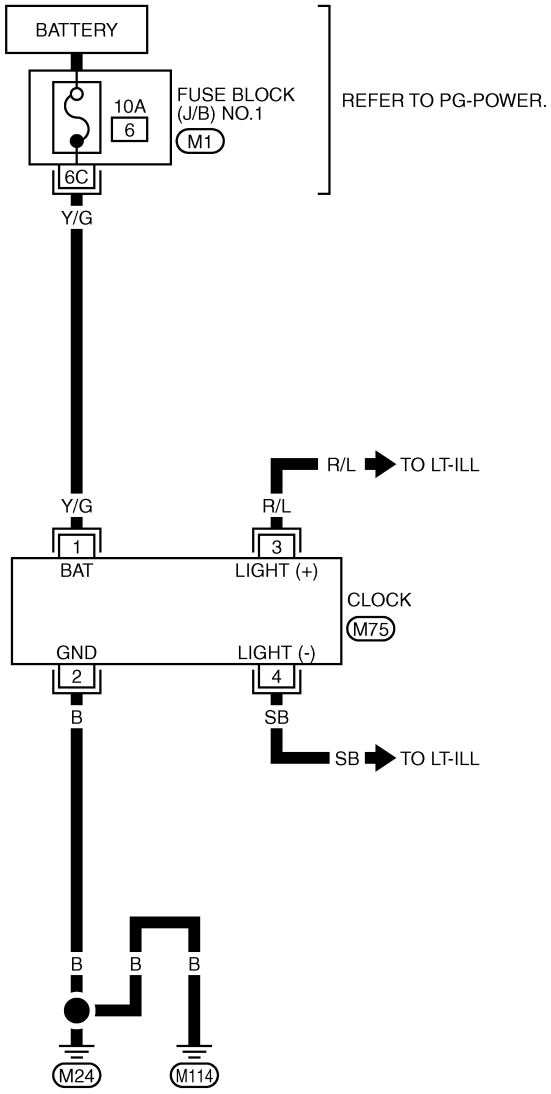
CLOCK

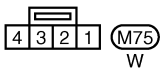
PFP:25820

Wiring Diagram — CLOCK —

NKS001EZ

DI-CLOCK-01





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

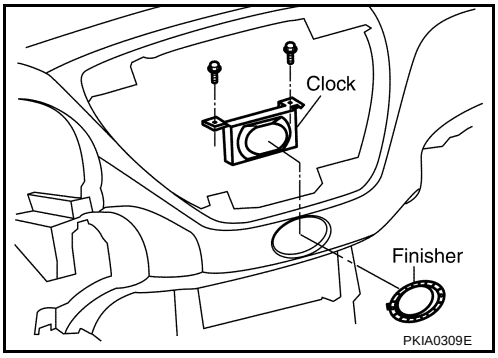
TKWM1580E

Removal and Installation

NKS001F0

REMOVAL

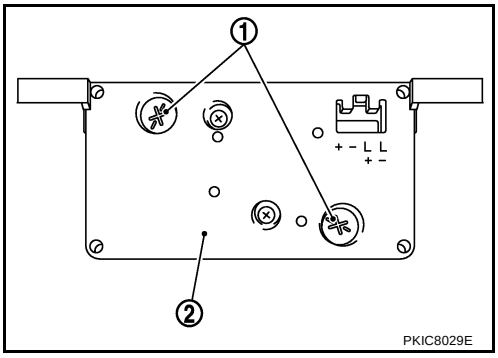
1. Remove the cluster lid C, refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the screws, and remove clock.



BULB REPLACEMENT

1. Turn the back of the bulbs (1) counterclockwise about 1/4 turn to unlock them.
2. Pull the old bulbs from the clock (2).
3. Install the new bulbs and turn them clockwise about 1/4 turn to lock them in place.

Clock bulbs : 12V-1.12W (BLUE CAP) × 2



INSTALLATION

Installation is the reverse order of removal.