SECTION DI
DRIVER INFORMATION SYSTEM

CONTENTS

SERVICE INFORMATION

DTC INDEX

U1000 - U1010

INFOID:0000000001422603

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	DI-30, "DTC [U1000] CAN Communication Circuit"
U1010	CONTROL UNIT (CAN)	DI-86, "DTC [U1010] CONTROL UNIT (CAN)"

B2202 - B2205

INFOID:0000000001422604

DTC	Items (CONSULT screen terms)	Reference
B2202	METER COMM CIRC	DI-30, "DTC [B2202] Meter Communication Circuit"
B2205	VEHICLE SPEED CIRC	DI-32, "DTC [B2205] Vehicle Speed Circuit"

C1B00 - C1B03

INFOID:0000000001422605

DTC	Items (CONSULT screen terms)	Reference
C1B00	CAMERA UNIT MALF	DI-85, "DTC [C1B00] CAMERA UNIT MALF"
C1B01	CAM AIMING INCMP	DI-85, "DTC [C1B01] CAM AIMING INCMP"
C1B02	VHCL SPD DATA MALF	DI-85, "DTC [C1B02] VHCL SPD DATA MALF"
C1B03	ABNRML TEMP DETECT	DI-86, "DTC [C1B03] ABNRML TEMP DETECT"

PRECAUTION

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000001612921

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 “SUPPLEMENTAL RESTRAINT SYSTEM” and “SEAT BELTS” 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 “SUPPLEMENTAL RESTRAINT SYSTEM”.**
- **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.**

COMBINATION METERS

System Description

INFOID:0000000001328433

UNIFIED METER CONTROL UNIT

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled by the unified meter control unit, which is built into the combination meter. Unified meter control unit receives signals from unified meter and A/C amp.
- Warning lamp and indicator lamp of combination meter are controlled by signals drawn from the unified meter and A/C amp.
- Odo/trip meter, A/T indicator and ICC system display segments can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

UNIFIED METER AND A/C AMP.

Refer to DI-26, "System Description" in “UNIFIED METER AND A/C AMP”.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times
- through 10A fuse [No. 19, located in the fuse block (J/B)]
- to combination meter terminal 8, and
- to unified meter and A/C amp. terminal 21.

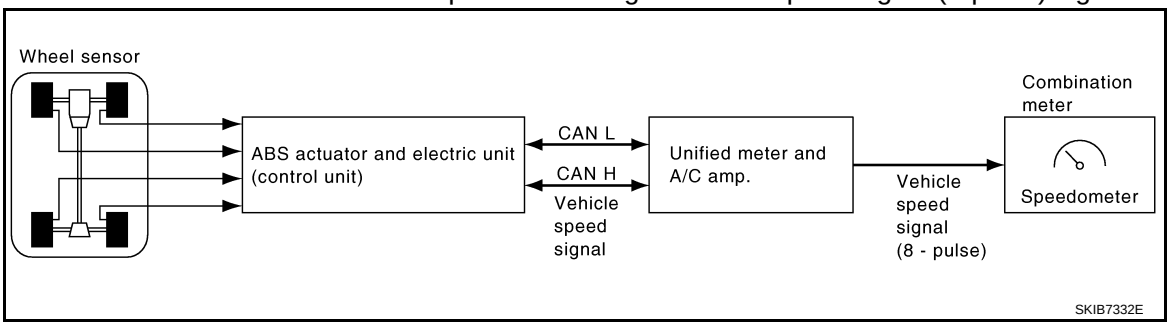
With the ignition switch in the ON or START position, power is supplied
- through 10A fuse [No. 14, located in the fuse block (J/B)]
- to combination meter terminal 7,
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to unified meter and A/C amp. terminal 22.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to combination meter terminal 4,
- through 15A fuse [No. 10, located in the fuse block (J/B)], and
- through 15A fuse [No. 11, located in the fuse block (J/B)]
- to unified meter and A/C amp. terminal 46.

Ground is supplied
- to combination meter terminals 5, 6 and 15
- through grounds M35, M45 and M85,
- to unified meter and A/C amp. terminals 29 and 30
- through grounds M35, M45 and M85.

SPEEDOMETER

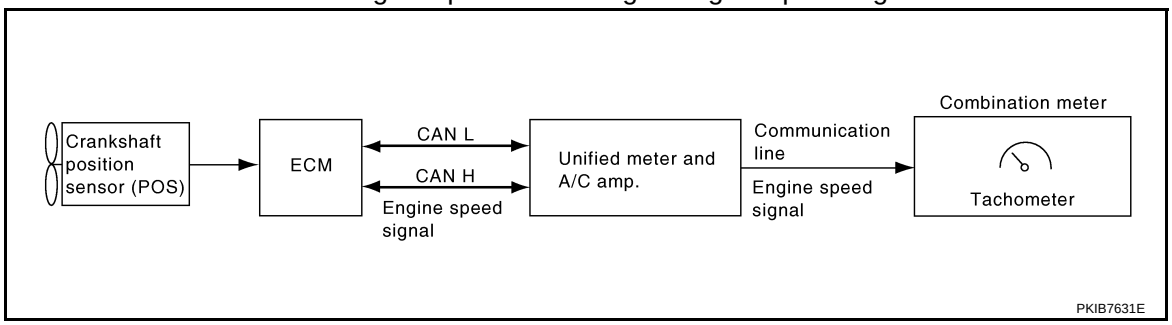
The speedometer indicates the vehicle speed.
- ABS actuator and electric unit (control unit) provides a vehicle speed signal to the unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. converts the vehicle speed signal to the 8-pulse signal, and outputs the vehicle speed signal (8-pulse) to combination meter.
- Combination meter indicates the vehicle speed according to vehicle speed signal (8-pulse) signal.



TACHOMETER

The tachometer indicates engine speed in revolutions per minute (rpm).
- ECM provides engine speed signal to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits engine speed signal to combination meter with communication line.

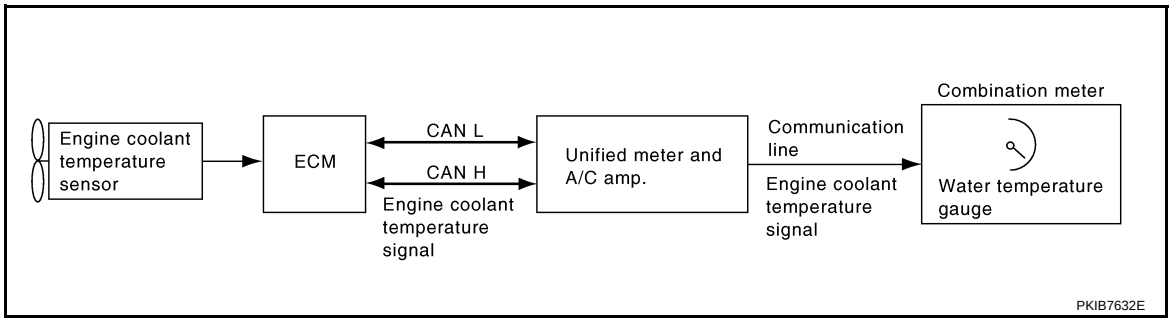
- Combination meter indicates the engine speed according to engine speed signal.



WATER TEMPERATURE GAUGE

The water temperature gauge indicates the engine coolant temperature.

- ECM provides engine coolant temperature signal to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits engine coolant temperature signal to combination meter with communication line.
- Combination meter indicates the engine coolant temperature according to engine coolant temperature signal.



FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.

- Unified meter and A/C amp. reads a resistor signal from fuel level sensor.

Signal is supplied

- from unified meter and A/C amp. terminal 36
- through the fuel level sensor unit and fuel pump (main) terminals 5 and 2, and
- through the fuel level sensor unit (sub) terminals 2 and 1
- to unified meter and A/C amp. terminal 28 for the fuel gauge.

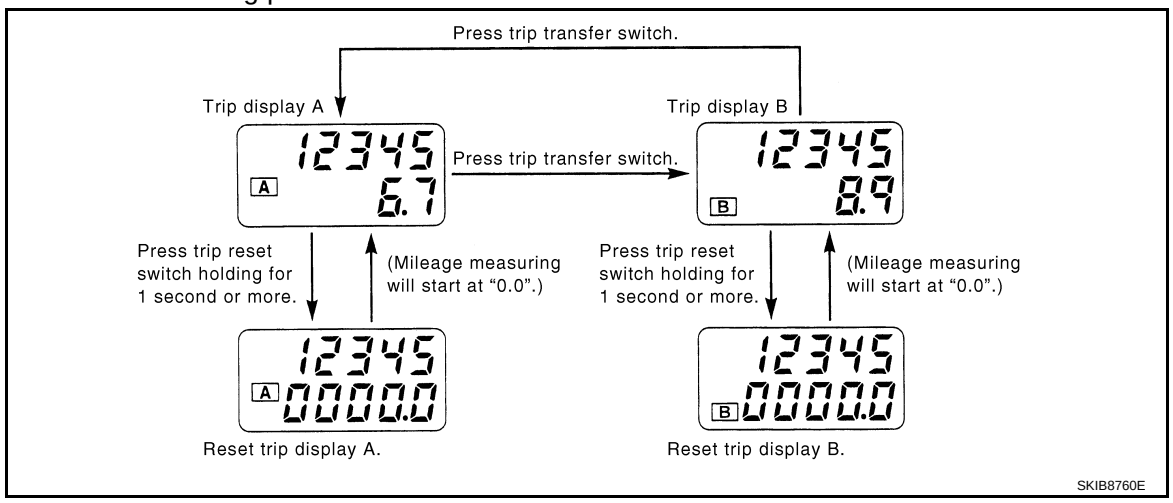
- Unified meter and A/C amp. provides a fuel level signal to combination meter with communication line.
- Combination meter indicates the approximate fuel level according to the fuel level signal.

ODO/TRIP METER

- ABS actuator and electric unit (control unit) provides a vehicle speed signal to the unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. converts the vehicle speed signal to the 8-pulse signal, and outputs the vehicle speed signal (8-pulse) to combination meter.
- Combination meter uses the vehicle speed signal (8-pulse) to calculate the mileage, and displays it.

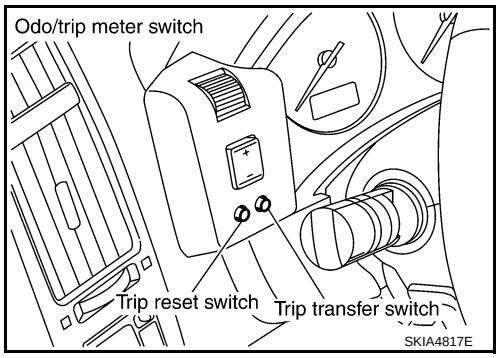
How to Change The Display For Odo/trip Meter

Switch modes with following procedure.



- When trip transfer switch is pressed, trip meter display changes.
- If trip reset switch is pressed for 1 second or more while “trip A” is displayed, only “trip A” is reset.

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.



COMBINATION METER ILLUMINATION CONTROL

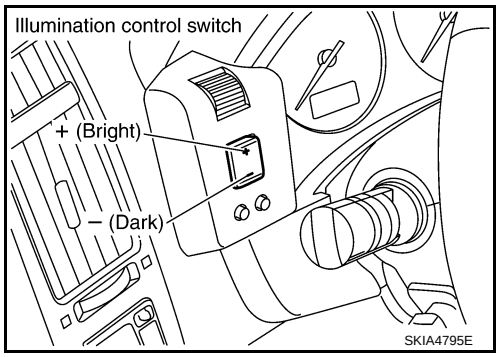
Daytime Mode

When ignition switch is turned ON, combination meter illumination is turned ON by unified meter control unit.

Nighttime Mode

- Unified meter control unit is transferred to nighttime mode, with ignition switch turned ON and position light request signal from BCM with CAN communication.
- When nighttime mode, illumination control switch illumination turns ON by unified meter control unit. Each illumination is controlled by unified meter control unit.
- Each illumination can be adjusted to 16 step by illumination control switch in nighttime mode.

NOTE:
For further details of illumination circuit, refer to LT-169, "System Description".



FAIL-SAFE

Combination meter performs fail-safe operation when unified meter and A/C amp. communication is malfunctioning.

Function		Fail-safe operation
Speedometer		Return to zero.
Tachometer		
Fuel gauge		
Water temperature gauge		
Illumination control	Combination meter illumination	Change to nighttime mode.

Function		Fail-safe operation
Odo/trip meter		Integrate in response to 8-pulse input.
A/T indicator		The display turns OFF.
Warning buzzer		The warning buzzer turns OFF.
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON.
	VDC OFF indicator	
	SLIP indicator	
	Brake warning lamp	
	Low tire pressure warning lamp	
	AWD warning lamp	
	Door warning lamp	The lamp turns OFF.
	SET indicator lamp	
	CRUISE indicator lamp	
	ICC warning lamp	
	A/T CHECK warning lamp	
	Oil pressure warning lamp	
	Snow mode indicator lamp	
	Turn signal indicator	
	Malfunction indicator lamp	
	High beam indicator	
	Key warning lamp	
	Run-flat tire warning lamp	

Component Parts and Harness Connector Location

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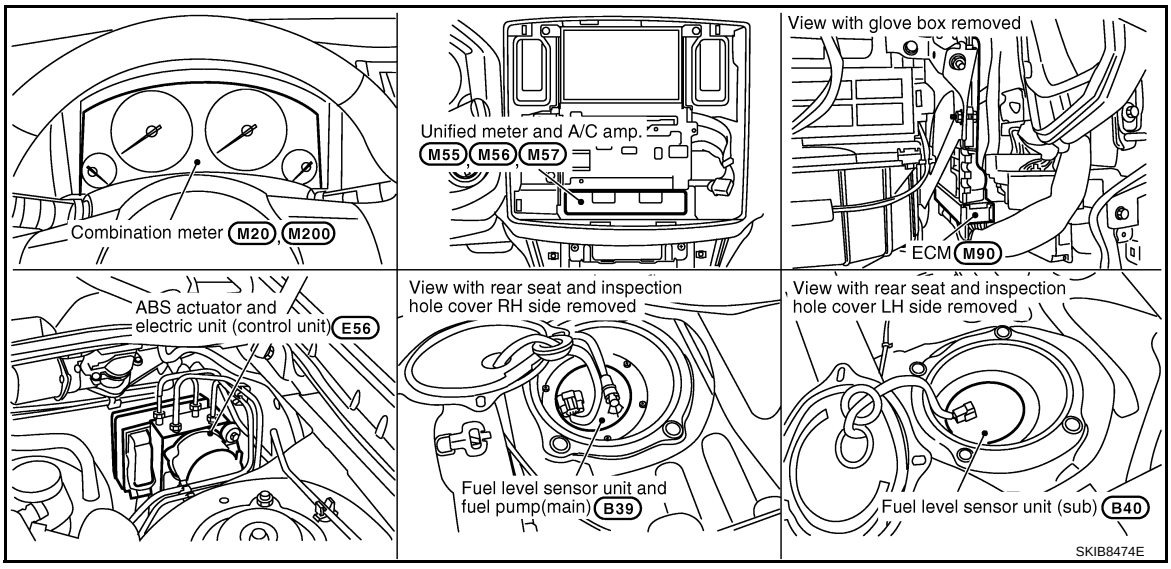

Arrangement of Combination Meter

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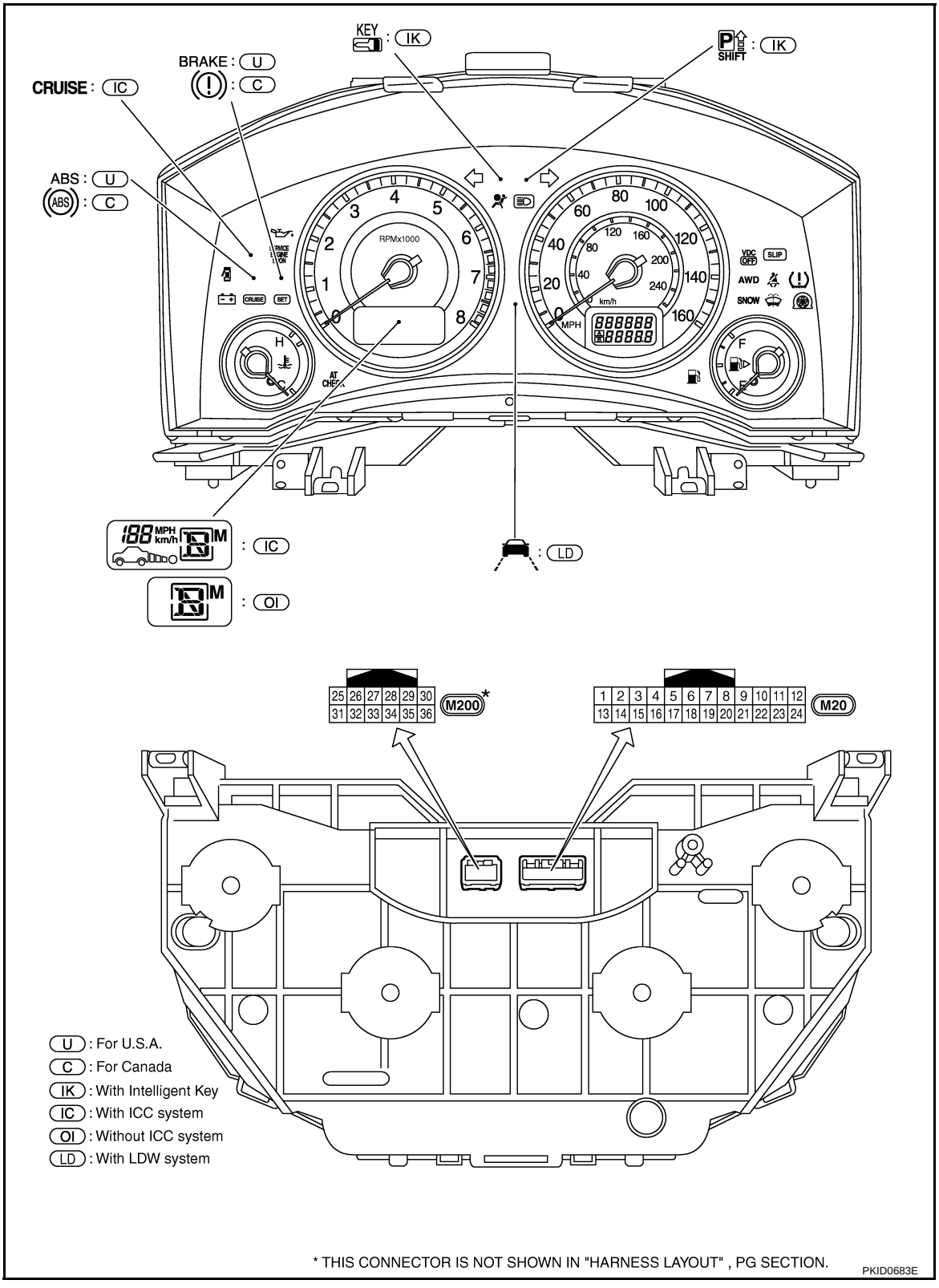

Circuit Diagram

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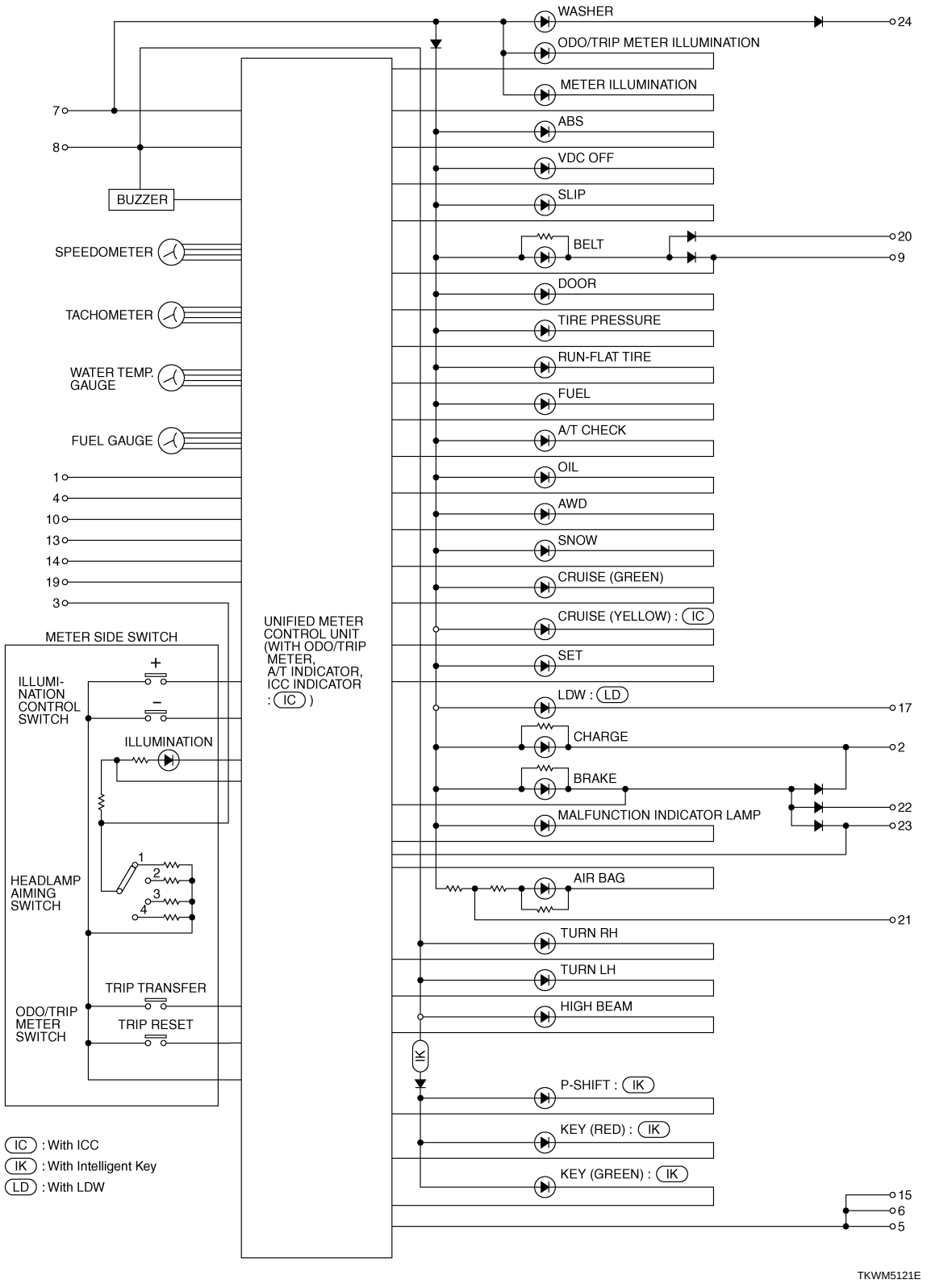

Wiring Diagram - METER -

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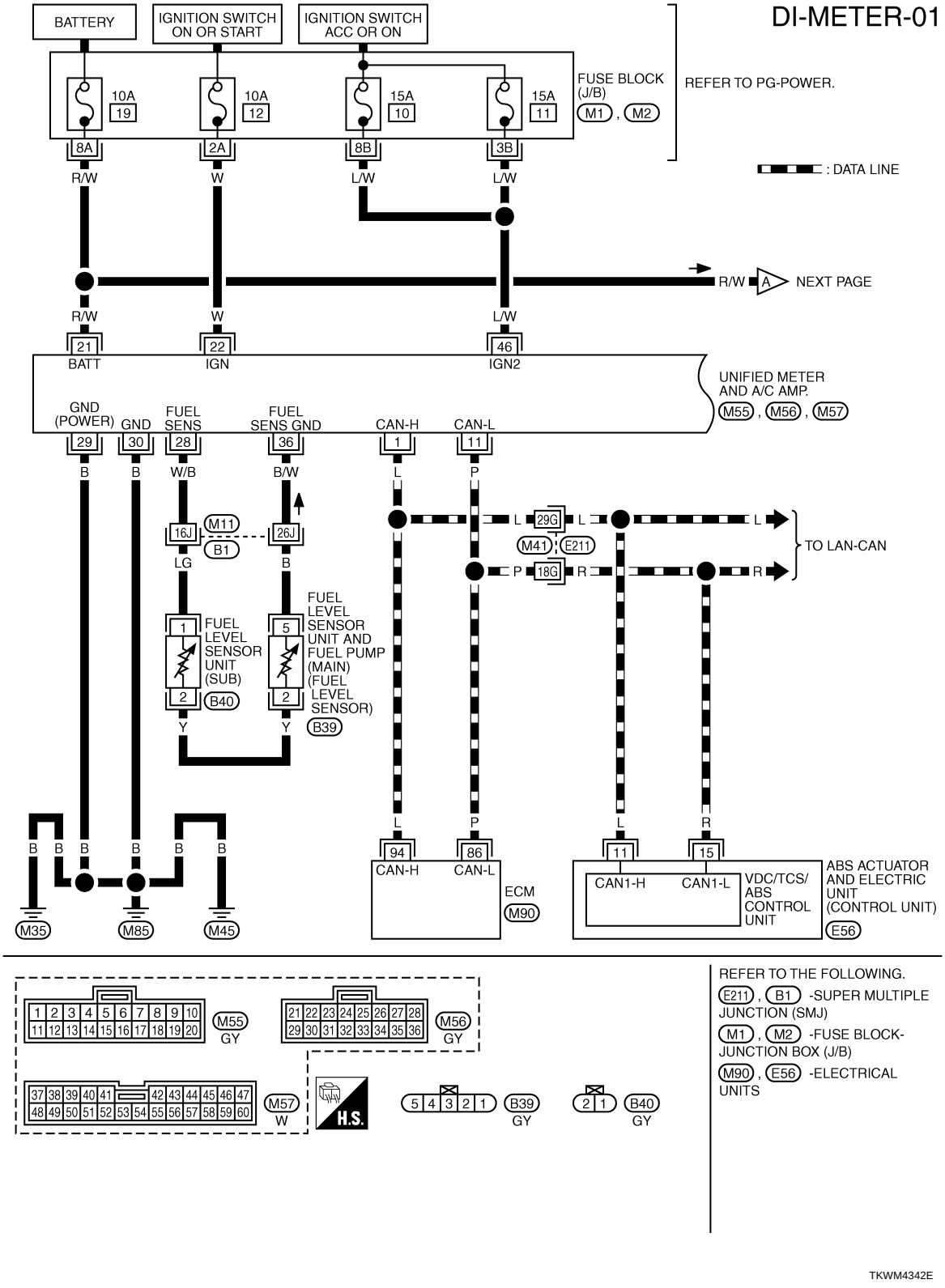
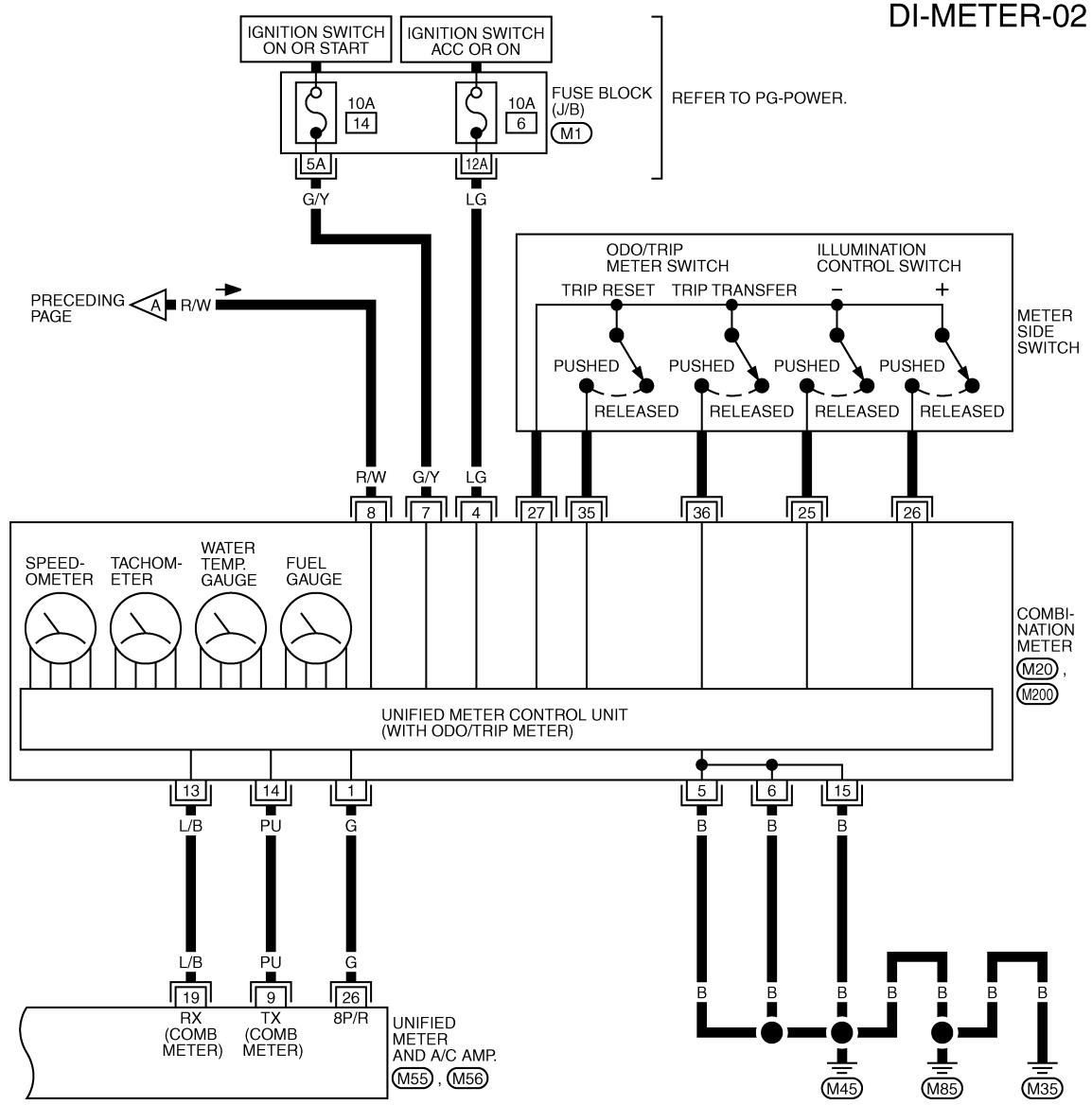


TKWM4342E

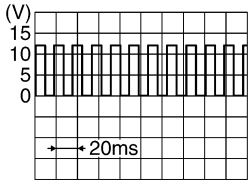
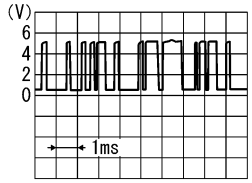
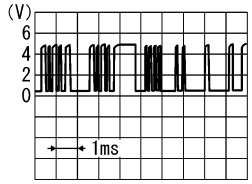
DI-METER-02



TKWM4343E

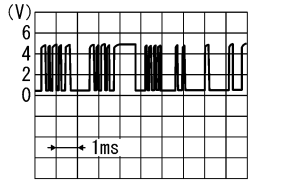
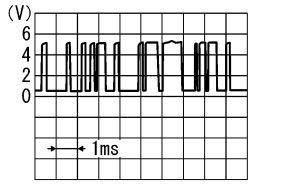
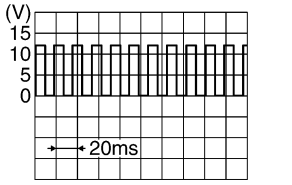
Terminal and Reference Value for Combination Meter

INFOID:0000000001328438

Terminal No.	Wire color	Item	Condition		Reference value
			Ignition switch	Operation or condition	
1	G	Vehicle speed signal (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** Maximum voltage may be 5 V due to specifications (connected units).  PKIA1935E
4	LG	ACC power supply	ACC	—	Battery voltage
5	B	Ground	ON	—	Approx. 0 V
6					
7	G/Y	Ignition power supply	ON	—	Battery voltage
8	R/W	Battery power supply	OFF	—	Battery voltage
13	L/B	TX communication line (To unified meter and A/C amp.)	ON	—	 SKIA3361E
14	PU	RX communication line (From unified meter and A/C amp.)	ON	—	 SKIA3362E
15	B	Ground	ON	—	Approx. 0 V
25	—	Illumination control switch (–)	OFF	Illumination control switch (–) is pressed.	Approx. 0 V
				Illumination control switch (–) is released.	Approx. 5 V
26	—	Illumination control switch (+)	OFF	Illumination control switch (+) is pressed.	Approx. 0 V
				Illumination control switch (+) is released.	Approx. 5 V
27	—	Odo/trip meter and illumination control switch ground	OFF	—	Approx. 0 V
35	—	Trip reset switch	OFF	Trip reset switch is pressed	Approx. 0 V
				Trip reset switch is released	Approx. 5 V
36	—	Trip transfer switch	OFF	Trip transfer switch is pressed	Approx. 0 V
				Trip transfer switch is released	Approx. 5 V

Terminal and Reference Value for Unified Meter and A/C Amp

INFOID:0000000001328439

Terminal No.	Wire color	Item	Condition		Reference value
			Ignition switch	Operation or condition	
1	L	CAN-H	—	—	—
9	PU	TX communication line (To combination meter)	ON	—	 SKIA3362E
11	P	CAN-L	—	—	—
19	L/B	RX communication line (From combination meter)	ON	—	 SKIA3361E
21	R/W	Battery power supply	OFF	—	Battery voltage
22	W	Ignition power supply	ON	—	Battery voltage
26	G	Vehicle speed signal (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** Maximum voltage may be 5 V due to specifications (connected units).  PKIA1935E
28	W/B	Fuel level sensor signal	—	—	Refer to DI-21, "Electrical Component Inspection".
29	B	Ground (For power)	ON	—	Approx. 0 V
30	B	Ground	ON	—	Approx. 0 V
36	B/W	Fuel level sensor ground	ON	—	Approx. 0 V
46	L/W	ACC power supply	ACC	—	Battery voltage

Self-Diagnosis Mode of Combination Meter

INFOID:0000000001328440

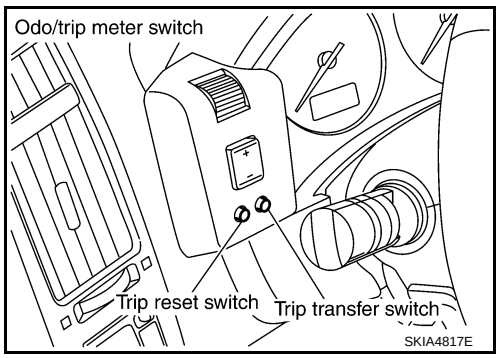
SELF-DIAGNOSIS FUNCTION

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

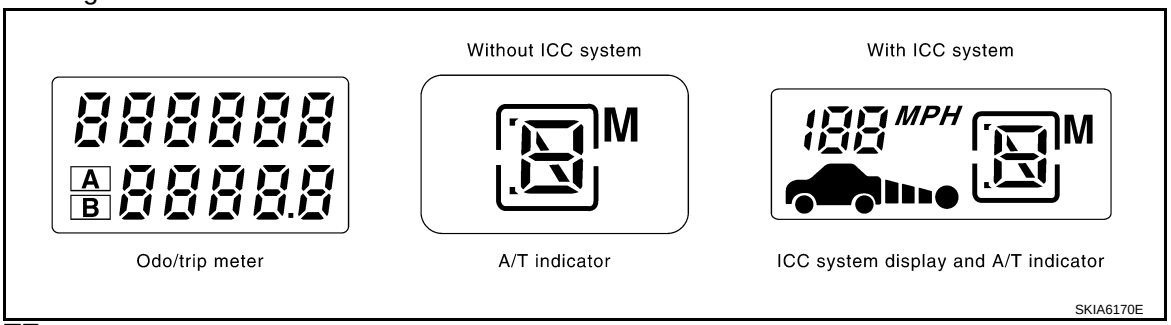
OPERATION PROCEDURE

1. Turn ignition switch ON, and switch the odo/trip meter to “trip A” or “trip B”.
   NOTE:
   If the self-diagnosis function is activated with the “trip A” displayed, only “trip A” display is reset.
2. Turn ignition switch OFF.

3. Turn ignition switch ON while pressing trip transfer switch and trip reset switch at the same time.
4. After ignition switch is turned ON, release trip transfer switch and trip reset switch (within 7 seconds after the ignition switch is turned ON).

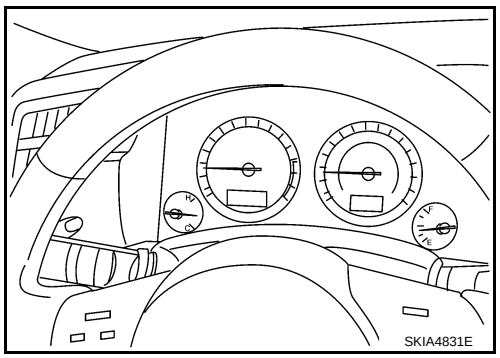


5. All the segments on the odo/trip meter, A/T indicator and ICC system display illuminates, and simultaneously the low-fuel warning lamp indicator illuminates. At this time, the unified meter control unit is turned to self-diagnosis mode.



NOTE:
- Check odo/trip meter switch and combination meter power supply and ground circuit when self-diagnosis mode of combination meter does not start. Replace combination meter if the results of the check are normal.
- If any of the segments are not displayed, replace combination meter.

6. Each meter/gauge activates during pressing trip reset switch. (Then low-fuel warning lamp turns OFF.)
NOTE:
- If any of the meters/gauges are not activated, replace the combination meter.
- The figure is reference.



CONSULT-III Function (METER/M&A)

INFOID:0000000001328441

Refer to DI-27, "CONSULT-III Function (METER/M&A)" in “UNIFIED METER AND A/C AMP”.

Trouble Diagnosis

INFOID:0000000001328442

HOW TO PERFORM TROUBLE DIAGNOSIS

1. Confirm the symptom or customer complaint.
2. Perform preliminary check. Refer to "PRELIMINARY CHECK".
3. According to the symptom chart, repair or replace the cause of the symptom. Refer to DI-16, "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 OPERATION OF SELF-DIAGNOSIS MODE (COMBINATION METER)

Perform self-diagnosis mode of combination meter. Refer to DI-14, "Self-Diagnosis Mode of Combination Meter".

Does self-diagnosis function operate?

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

2.CHECK UNIFIED METER AND A/C AMP. (CONSULT-III)

Perform self-diagnosis of unified meter and A/C amp. Refer to DI-27, "CONSULT-III Function (METER/M&A)".

Self-diagnosis results

No malfunction detected >> INSPECTION END
Malfunction detected >> Check applicable parts, and repair or replace corresponding parts.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT OF COMBINATION METER

Check power supply and ground circuit of combination meter. Refer to DI-16, "Power Supply and Ground Circuit Inspection".

OK or NG

OK >> Check odo/trip meter switch. Refer to DI-21, "Odo/Trip Meter and Illumination Control Switch Inspection".
NG >> Repair malfunctioning part.

Symptom Chart

INFOID:0000000001328443

Symptom	Possible cause
Speedometer and odo/trip meter indication is malfunctioning.	Refer to DI-17, "Vehicle Speed Signal Inspection".
Tachometer indication is malfunctioning.	Refer to DI-18, "Engine Speed Signal Inspection".
Water temperature gauge indication is malfunctioning.	Refer to DI-19, "Engine Coolant Temperature Signal Inspection".
Fuel gauge indication is malfunctioning.	Refer to DI-19, "Fuel Level Sensor Signal Inspection".
Low-fuel warning lamp indication is irregular.	
A/T indicator is malfunctioning.	Refer to DI-49, "A/T Indicator Is Malfunction".
Illumination control does not operate.	Refer to DI-21, "Odo/Trip Meter and Illumination Control Switch Inspection".

Power Supply and Ground Circuit Inspection

INFOID:0000000001328444

1.CHECK FUSE

Check for blown combination meter fuses.

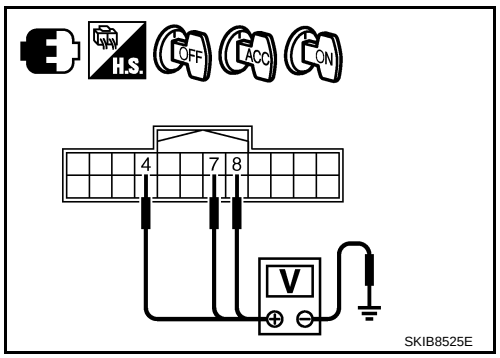
Power source	Fuse No.
Battery power supply	19
ACC power supply	6
Ignition power supply	14

OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-3, "Schematic".

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector M20 terminals 4, 7, 8 and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal				
M20	4	Ground	0 V	Battery voltage	Battery voltage
	7		0 V	0 V	Battery voltage
	8		Battery voltage	Battery voltage	Battery voltage

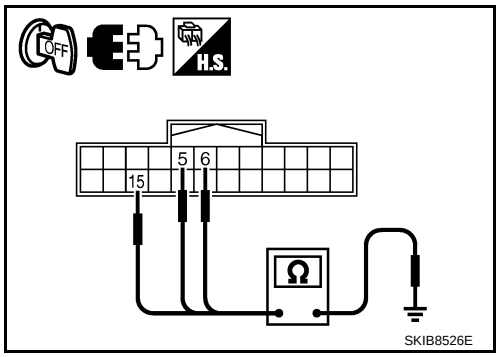
OK or NG

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 M20 terminals 5, 6, 15 and ground.

5 – Ground
6 – Ground **: Continuity should exist.**
15 – Ground



OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

Vehicle Speed Signal Inspection

INFOID:0000000001328445

Symptom: Speedometer and odo/trip meter indication is malfunction.

1.CHECK COMBINATION METER INPUT SIGNAL

1. Connect CONSULT-III, and start engine.
2. Select “METER /M&A” on CONSULT-III.
3. Using “SPEED METER” on “Data Monitor”, compare the value of “Data Monitor” with speedometer pointer of combination meter.

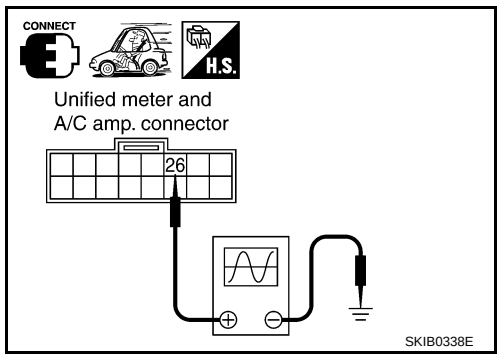
OK or NG

OK >> Perform self-diagnosis of ABS actuator and electric unit (control unit). Refer to BRC-26, "CONSULT-III Functions (ABS)".
NG >> GO TO 2.

2.CHECK UNIFIED METER AND A/C AMP. OUTPUT SIGNAL

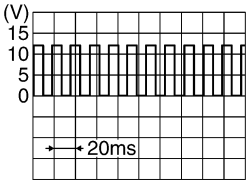
1. Drive vehicle at approximately 40 km/h (25 MPH).

2. Check voltage signal between unified meter and A/C amp. harness connector M56 terminal 26 and ground.



NOTE:
Maximum voltage may be 5 V due to specifications (connected units).

26 – Ground:

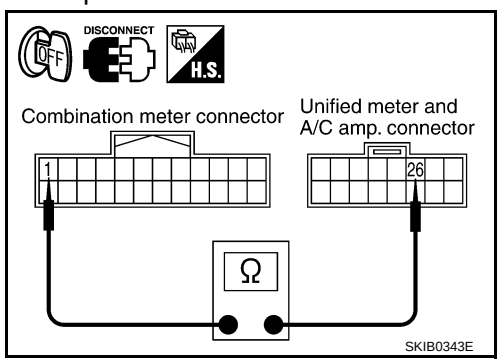


OK or NG

OK >> GO TO 3.
NG-1 >> If monitor indicates “0 V” constantly, perform the following.
1. Check each unit inputting vehicle speed signal (8 pulse), harness and connector between each unit and unified meter and A/C amp.
2. Repair or replace malfunctioning part.
NG-2 >> If monitor indicates “5 V” or “12 V” constantly, replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp".

3.CHECK CONTINUITY BETWEEN COMBINATION METER AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and unified meter and A/C amp. connector.
3. Check continuity between combination meter harness connector M20 terminal 1 and unified meter and A/C amp. harness connector M56 terminal 26.



1 – 26 : Continuity should exist.

OK or NG

OK >> Replace combination meter.
NG >> Repair harness or connector.

Engine Speed Signal Inspection

INFOID:0000000001328446

Symptom: Tachometer indication is malfunction.

1.CHECK COMBINATION METER INPUT SIGNAL

1. Connect CONSULT-III, and start engine.
2. Select “METER/M&A” on CONSULT-III.
3. Using “TACHO METER” on “Data Monitor”, compare the value of “Data Monitor” with tachometer pointer of combination meter.

OK or NG

OK >> GO TO 2.
NG >> Replace combination meter.

2.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

Select “Data Monitor” of CONSULT-III to compare values between “ ENG SPEED” of “ENGINE” and “TACHO METER” of “METER/M&A”.

OK or NG

OK >> Perform self-diagnosis of ECM. Refer to EC-117, "CONSULT-III Function (ENGINE)" (VQ35DE) or EC-695, "CONSULT-III Function (ENGINE)" (VK45DE).
NG >> Replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp".

Engine Coolant Temperature Signal Inspection

INFOID:0000000001328447

Symptom: Water temperature gauge indication is malfunction.

1.CHECK COMBINATION METER INPUT SIGNAL

1. Connect CONSULT-III, and start engine.
2. Select “METER/M&A” on CONSULT-III.
3. Using “W TEMP METER” on “Data Monitor”, compare the value of “Data Monitor” with water temperature gauge pointer of combination meter.

Water temperature gauge pointer	Reference value of data monitor [°C (°F)]
Hot	Approx. 130 (266)
Middle	Approx. 70 - 105 (158 - 221)
Cold	Approx. 50 (122)

OK or NG

OK >> GO TO 2.
NG >> Replace combination meter.

2.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

Select “Data Monitor” of CONSULT-“COOLAN TEMP/S” of “ENGINE” and “W TEMP METER” of “METER/M&A”.

OK or NG

OK >> Perform self-diagnosis of ECM. Refer to EC-117, "CONSULT-III Function (ENGINE)" (VQ35DE) or EC-695, "CONSULT-III Function (ENGINE)" (VK45DE).
NG >> Replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp".

Fuel Level Sensor Signal Inspection

INFOID:0000000001328448

Symptom:
- Fuel gauge indication is malfunctioning.
- Low-fuel warning lamp indication is irregular.

NOTE:
The following symptoms are not malfunctions.

Fuel gauge
- Depending on vehicle posture or driving circumstance, the fuel level in the tank varies, 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 in the tank flows and the warning lamp ON timing may change.

1.CHECK COMBINATION METER INPUT SIGNAL

1. Select “METER A/C AMP” on CONSULT-III.
2. Using “FUEL METER” on “Data Monitor”, compare the value of “Data Monitor” with fuel gauge pointer of combination meter.

Fuel gauge pointer	Reference value of data monitor [lit.]
Full	Approx. 86
Three quarters	Approx. 70
Half	Approx. 48
A quarter	Approx. 25
Empty	Approx. 9

OK or NG

OK >> GO TO 2.
NG >> Replace combination meter.

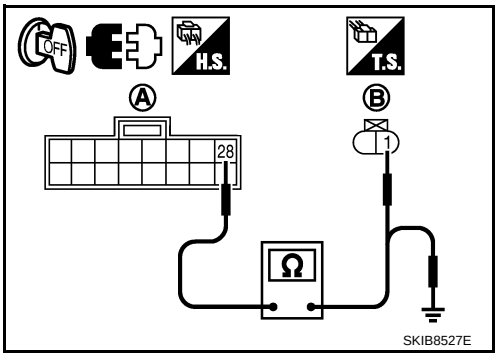
2.CHECK FUEL LEVEL SENSOR (SUB) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector and fuel level sensor unit (sub) connector.
3. Check continuity between unified meter and A/C amp. harness connector (A) M56 terminal 28 and fuel level sensor unit (sub) harness connector (B) B40 terminal 1.

28 – 1 : Continuity should exist.

4. Check continuity between unified meter and A/C amp. harness connector (A) M56 terminal 28 and ground.

28 – Ground : Continuity should not exist.



OK or NG

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

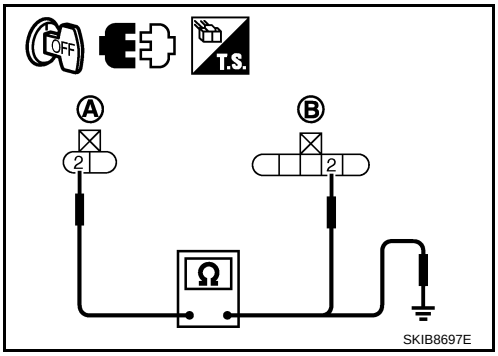
3.CHECK FUEL LEVEL SENSOR (MAIN·SUB) CIRCUIT

1. Disconnect fuel level sensor unit and fuel pump (main) connector.
2. Check continuity between fuel level sensor unit (sub) harness connector (A) B40 terminal 2 and fuel level sensor unit and fuel pump (main) harness connector (B) B39 terminal 2.

2 – 2 : Continuity should exist.

3. Check continuity between fuel level sensor unit (sub) harness connector (A) B40 terminal 2 and ground.

2 – Ground : Continuity should not exist.



OK or NG

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

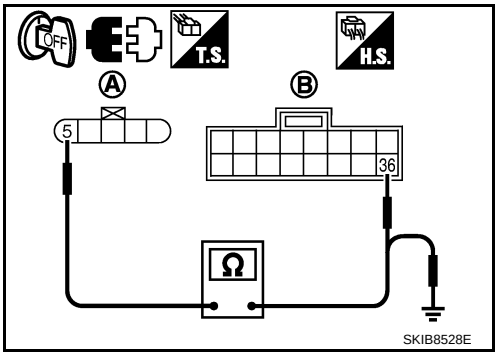
4.CHECK FUEL LEVEL SENSOR (MAIN) CIRCUIT

1. Check continuity between fuel level sensor unit and fuel pump (main) harness connector (A) B39 terminal 5 and unified meter and A/C amp. harness connector (B) M56 terminal 36.

5 – 36 : Continuity should exist.

2. Check continuity between fuel level sensor unit and fuel pump (main) harness connector (A) B39 terminal 5 and ground.

5 – Ground : Continuity should not exist.



OK or NG

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

5.CHECK FUEL LEVEL SENSOR

Check components. Refer to DI-21, "Electrical Component Inspection".

OK or NG

OK >> Check fuel level sensor unit installation, and check whether the float arm interferes or binds with any of the internal components in the fuel tank. Repair or replace malfunctioning part, if necessary.
NG >> Replace fuel level sensor unit.

Fuel Gauge Pointer Fluctuates, Indicator Wrong Value or Varies

INFOID:0000000001328449

1.CHECK FUEL GAUGE FLUCTUATION

Test drive vehicle to see if gauge fluctuates only during driving or at the instant of stopping.

Does the indication value vary only during driving or at the instant of stopping?

YES >> The pointer fluctuation may be caused by fuel level change in the fuel tank. Condition is normal.
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

INFOID:0000000001328450

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 vehicle parked on an incline?

YES >> Check the fuel level indication with vehicle on a level surface.
NO >> GO TO 4.

4.QUESTION 4

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

YES >> Check the fuel level sensor unit. Refer to DI-21, "Electrical Component Inspection".
NO >> The float arm may interfere or bind with any of the components in the fuel tank.

Odo/Trip Meter and Illumination Control Switch Inspection

INFOID:0000000001328451

Symptom: Illumination control does not operate.

1.CHECK ODO/TRIP METER AND ILLUMINATION CONTROL SWITCH

1. Remove odo/trip meter and illumination control switch. Refer to DI-24, "Removal and Installation of Odo/Trip Meter and Illumination Control Switch".
2. Check continuity odo/trip meter and illumination control switch. Refer to DI-21, "Electrical Component Inspection".

OK or NG

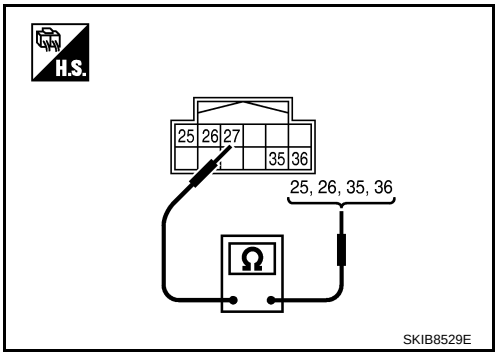
OK >> Replace combination meter.
NG >> Replace odo/trip meter and illumination control switch.

Electrical Component Inspection

INFOID:0000000001328452

ODO/TRIP METER AND ILLUMINATION CONTROL SWITCH

Check continuity between terminals 25, 26, 35 or 36 and 27.

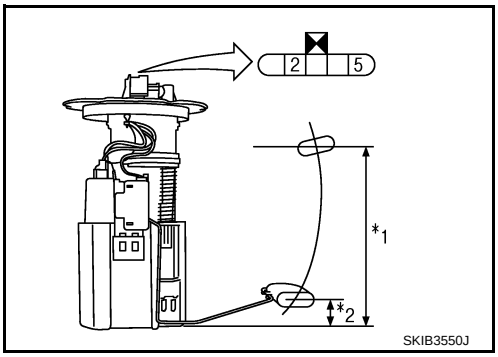


Terminal		Condition	Continuity
25	27	Illumination control switch (–) is pressed.	Yes
		Illumination control switch (–) is released.	No
26		Illumination control switch (+) is pressed.	Yes
		Illumination control switch (+) is released.	No
35		Trip transfer switch is pressed.	Yes
		Trip transfer switch is released.	No
36		Trip reset switch is pressed.	Yes
		Trip reset switch is released.	No

FUEL LEVEL SENSOR UNIT

For removal, refer to FL-4, "Component".

Fuel Level Sensor Unit and Fuel Pump (Main)
Check the resistance between terminals 2 and 5.

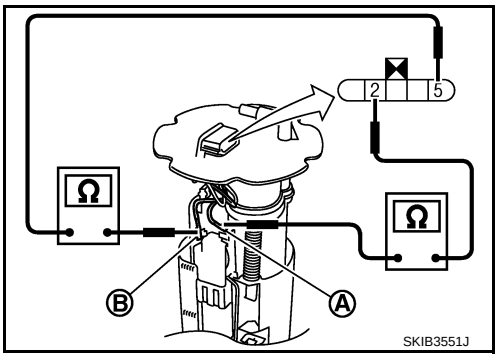


Terminal		Float position [mm (in)]			Resistance value [Ω]
2	5	*1	Full	236 (9.29)	Approx. 3
		*2	Empty	29 (1.14)	Approx. 80

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

- If the results of check are NG, check the fuel level sensor unit and fuel pump (main) harness. Refer to "Fuel Level Sensor Unit and Pump (Main) Harness".

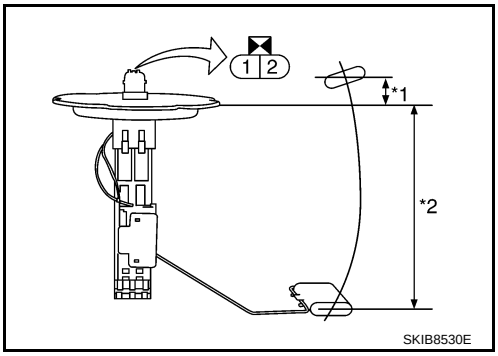
Fuel Level Sensor Unit and Pump (Main) Harness
Check continuity at following terminals.



Terminal	Continuity
2 - Signal terminal (A)	Yes
5 - Ground terminal (B)	

- If the results of check are NG, replace fuel pump assembly. If the results of check are OK, replace fuel level sensor unit.

Fuel Level Sensor Unit (Sub)
Check resistance between terminals 1 and 2.



Terminal		Float position [mm (in)]			Resistance value [Ω]
1	2	*1	Full	6 (0.24)	Approx. 3
		*2	Empty	203 (7.99)	Approx. 48

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

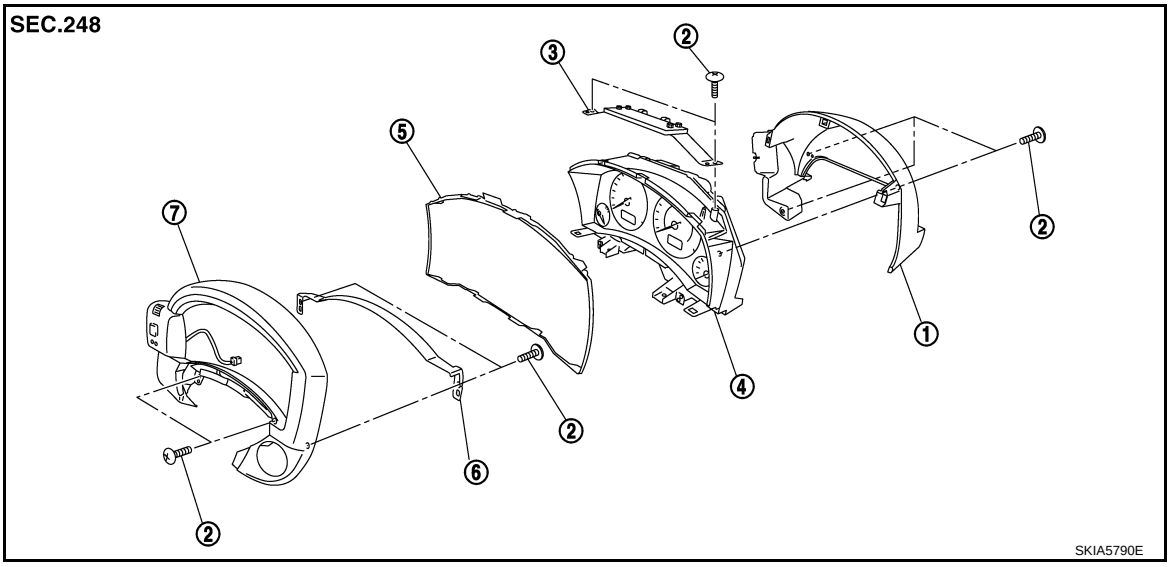
Removal and Installation of Combination Meter

INFOID:0000000001328453

Refer to IP-10, "Component Parts Location".

Disassembly and Assembly of Combination Meter

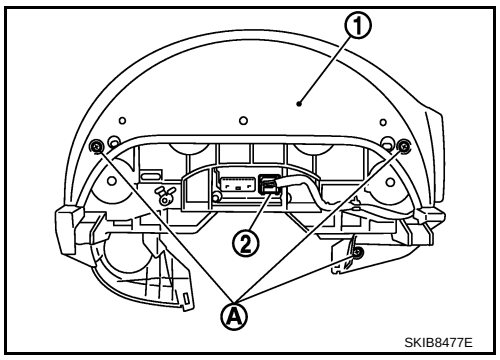
INFOID:0000000001328454



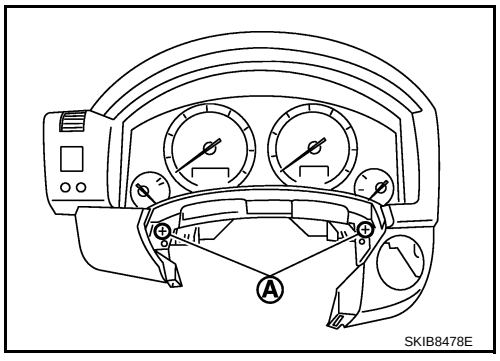
1. Rear cover
2. Screws
3. Plate
4. Unified meter control unit assembly
5. Front cover
6. Reinforcing metal
7. Switch and meter housing

DISASSEMBLY

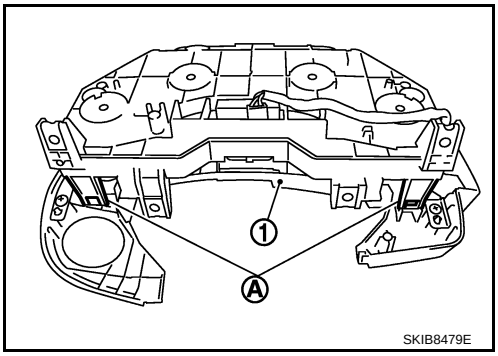
1. Remove screws (A) and remove rear cover (1).
2. Disconnect odo/trip meter and illumination control switch connector (2).



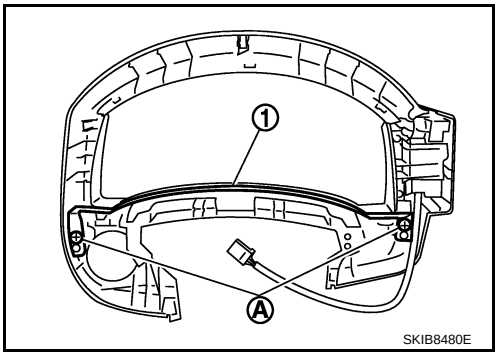
3. Remove screws (A).



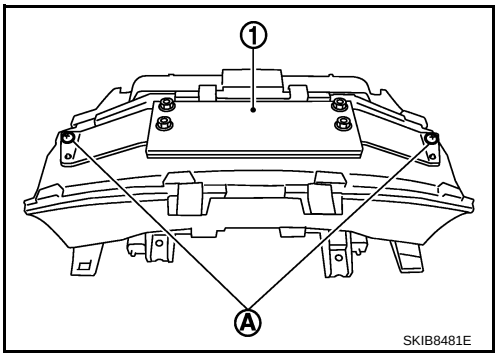
4. Remove tabs (A) and remove switch and meter housing (1).



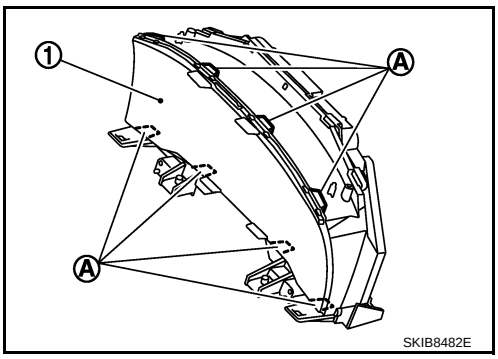
5. Remove screws (A) and remove reinforcing metal (1).



6. Remove screws (A) and remove plate (1).



7. Disengage tabs (A) to separate front cover (1).



ASSEMBLY

Assembly is the reverse order of disassembly.

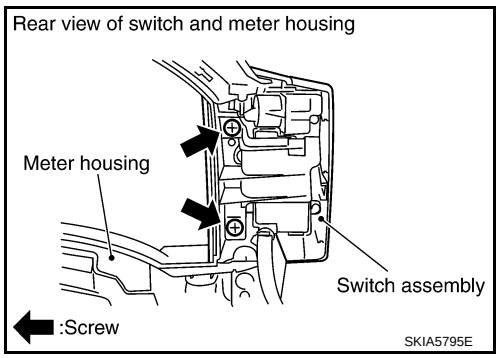
Removal and Installation of Odo/Trip Meter and Illumination Control Switch

INFOID:0000000001328455

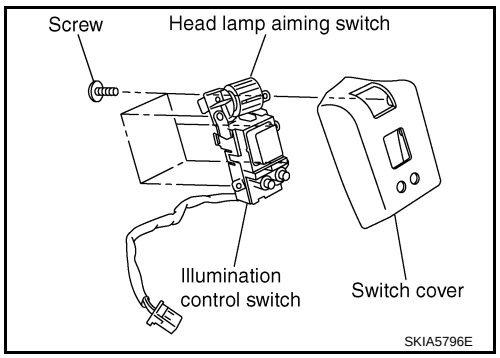
REMOVAL

1. Remove combination meter. Refer to IP-10, "Component Parts Location".

2. Remove switch and meter housing. Refer to DI-23, "Disassembly and Assembly of Combination Meter".
3. Remove screws (2), and remove switch assembly.



4. Remove screws (5), and remove odo/trip meter and illumination control switch.



INSTALLATION

Installation is the reverse order of removal.

UNIFIED METER AND A/C AMP

System Description

INFOID:0000000001328456

- For the unified meter and A/C amp., the signal required for controlling the combination meter are integrated in the A/C auto amp.
- The unified meter and A/C amp. corresponds to a CONSULT-III function (self-diagnosis results, CAN diagnosis support monitor, data monitor).

COMBINATION METER CONTROL FUNCTION

- Unified meter and A/C amp. receives necessary information for combination meter from each unit by CAN communication.
- Unified meter and A/C amp. transmits a signals with communication line (TX, RX) between unified meter and A/C amp. and combination meter.

Input/output signals between unified meter and A/C amp. and combination meter.

Unit	Input	Output
Unified meter and A/C amp.	• Seat belt buckle switch signal (Driver's side) • Parking brake signal • Illumination control nighttime required signal • Refuel status signal • Low-fuel warning lamp condition signal • Combination meter receive error signal • Delivery destination data signal • Combination meter specifications signal	• Vehicle speed signal (8-pulse) • Engine speed signal • Engine coolant temperature signal • Fuel level sensor signal (resistance value) • Malfunction indicator lamp signal • ABS warning lamp signal • Low tire pressure warning lamp signal • Run-flat tire warning lamp signal • Brake warning lamp signal • A/T CHECK warning lamp signal • ICC warning lamp signal • Oil pressure switch signal • Door switch signal • AWD warning lamp signal • Key warning lamp signal • VDC OFF indicator lamp signal • SLIP indicator lamp signal • CRUISE indicator lamp signal • SET indicator lamp signal • High beam request signal • Turn indicator signal • Snow mode switch signal • ICC system display signal • Shift position indicator signal • Manual mode indicator signal • Manual mode gear position signal • CAN communication condition signal of A/T • Position lights request signal • Buzzer output signal

NOTE:

Combination meter performs fail-safe operation when unified meter and A/C amp. communication is malfunctioning. Refer to DI-5, "System Description".

A/C AUTO AMP. FUNCTION

Unified meter and A/C amp. controls each operation for A/C auto amp. Regarding A/C control, refer to ATC-24, "Description of Air Conditioner LAN Control System" in ATC section.

OTHER FUNCTIONS

Drive Computer Function

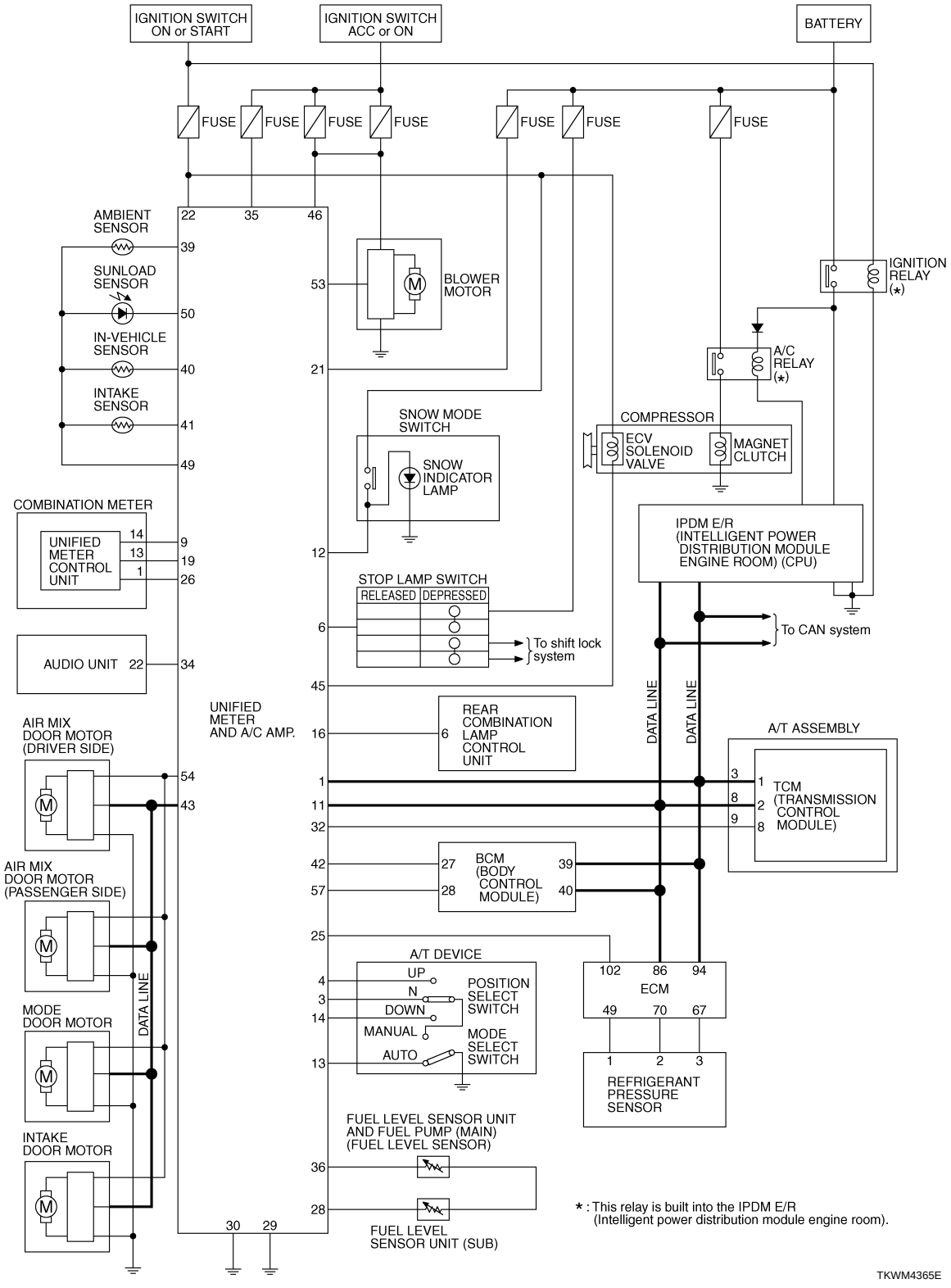
The signals required for the distance to empty (DTE) display are centralized in the unified meter and A/C amp., converted into data, and transmitted to the display unit (without NAVI) and display control unit (with NAVI) using CAN communication.

Signal Buffer Function

Unified meter and A/C amp. transmits each signal to other units with CAN communication.

Schematic

INFOID:0000000001328457



CONSULT-III Function (METER/M&A)

INFOID:0000000001328458

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

System	Diagnosis mode	Description
METER A/C AMP	Self Diagnostic Result	Unified meter and A/C amp. checks the conditions and displays memorized error.
	CAN DIAG SUPPORT MNTR	The results of transmit/receive diagnosis of CAN communication can be read.
	Data Monitor	Displays unified meter and A/C amp. input data in real time.

SELF-DIAG RESULTS

Display Item List

Display item [Code]	Malfunction is detected when...	Reference page
CAN COMM CIRC [U1000]	When unified meter and A/C amp. is not transmitting or receiving CAN communication signal for 2 seconds or more.	DI-30
METER COMM CIRC [B2202]	Malfunction is detected in communication of between combination meter and unified meter and A/C amp.	DI-30
VEHICLE SPEED CIRC [B2205]	When an erroneous speed signal is input for 1 second. **NOTE:** Even when there is no malfunction on speed signal system, malfunction may be misinterpreted when battery has low voltage (when maintaining 7 - 8 V for about 2 seconds).	DI-32

NOTE:
"TIME" means the following.
- 0: Means detected malfunction at present. (From malfunction detection to turning ignition switch OFF)
- 1 - 63: Means detected malfunction in the past. (Displays the number of ignition switch OFF → ON after detecting malfunction. "Self Diagnostic Result" is erased when exceeding "63".)

DATA MONITOR

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	SELECTION FROM MENU	Contents
SPEED METER [km/h] or [mph]	X	X	Displays the value of vehicle speed signal, which is input from ABS actuator and electric unit (control unit).
SPEED OUTPUT [km/h] or [mph]	X	X	Displays the value of vehicle speed signal, which is transmitted to each unit with CAN communication.
TACHO METER [rpm]	X	X	Displays the value of engine speed signal, which is input from ECM.
W TEMP METER [°C] or [°F]	X	X	Displays the value of engine coolant temperature signal, which is input from ECM.
FUEL METER [lit.]	X	X	Displays the value, which processes a resistance signal from fuel gauge.
DISTANCE [km] or [mile]	X	X	Displays the value, which is calculated by vehicle speed signal from ABS actuator and electric unit (control unit), fuel gauge and fuel consumption from ECM.
FUEL W/L [On/Off]	X	X	Indicates [On/Off] condition of low-fuel warning lamp.
MIL [On/Off]		X	Indicates [On/Off] condition of malfunction indicator lamp.
AIR PRES W/L [On/Off]		X	Indicates [On/Off] condition of low tire pressure warning lamp.
SEAT BELT W/L [On/Off]*1		X	Indicates [On/Off] condition of seat belt warning lamp.
BUZZER [On/Off]	X	X	Indicates [On/Off] condition of buzzer.
DOOR W/L [On/Off]		X	Indicates [On/Off] condition of door warning lamp.
HI-BEAM IND [On/Off]		X	Indicates [On/Off] condition of high beam indicator.
TURN IND [On/Off]		X	Indicates [On/Off] condition of turn indicator.

Display item [Unit]	MAIN SIGNALS	SELECTION FROM MENU	Contents
OIL W/L [On/Off]		X	Indicates [On/Off] condition of oil pressure warning lamp.
VDC/TCS IND [On/Off]		X	Indicates [On/Off] condition of VDC OFF indicator lamp.
ABS W/L [On/Off]		X	Indicates [On/Off] condition of ABS warning lamp.
SLIP IND [On/Off]		X	Indicates [On/Off] condition of SLIP indicator lamp.
BRAKE W/L [On/Off]*2		X	Indicates [On/Off] condition of brake warning lamp.
KEY G W/L [On/Off]		X	Indicates [On/Off] condition of key warning lamp (green).
KEY R W/L [On/Off]		X	Indicates [On/Off] condition of key warning lamp (red).
KEY KNOB W/L [On/Off]		X	Indicates [On/Off] condition of key knob warning lamp.
M RANGE SW [On/Off]	X	X	Indicates [On/Off] condition of manual mode range switch.
NM RANGE SW [On/Off]	X	X	Indicates [On/Off] condition of except for manual mode range switch.
AT SFT UP SW [On/Off]	X	X	Indicates [On/Off] condition of A/T shift-up switch.
AT SFT DWN SW [On/Off]	X	X	Indicates [On/Off] condition of A/T shift-down switch.
BRAKE SW [On/Off]		X	Indicates [On/Off] condition of brake switch (stop lamp switch).
AT-M IND [On/Off]	X	X	Indicates [On/Off] condition of A/T manual mode indicator.
AT-M GEAR [5-1]	X	X	Indicates [5-1] condition of A/T manual mode gear position.
P RANGE IND [On/Off]	X	X	Indicates [On/Off] condition of A/T shift P range indicator.
R RANGE IND [On/Off]	X	X	Indicates [On/Off] condition of A/T shift R range indicator.
N RANGE IND [On/Off]	X	X	Indicates [On/Off] condition of A/T shift N range indicator.
D RANGE IND [On/Off]	X	X	Indicates [On/Off] condition of A/T shift D range indicator.
AT CHECK W/L		X	Indicates [On/Off] condition of AT CHECK warning lamp.
CRUISE IND [On/Off]		X	Indicates [On/Off] condition of CRUISE indicator lamp.
SET IND [On/Off]		X	Indicates [On/Off] condition of SET indicator lamp.
CRUISE W/L [On/Off]		X	Indicates [On/Off] condition of ICC warning lamp.
4WD LOCK SW [On/Off]		X	This item is not used for this model. “off” is always displayed.
4WD LOCK IND [On/Off]		X	This item is not used for this model. “off” is always displayed.
4WD W/L [On/Off]		X	Indicates [On/Off] condition of AWD warning lamp.
RR COMB STATE [OK/NG]		X	Indicates [OK/NG] condition of rear combination lamp circuit.

NOTE:

Monitored item that does not match the vehicle is deleted from the display automatically.

*1: It dose not change when fastening or unfastening the passenger seat belt.

*2: Monitor keeps indicating “off” when brake warning lamp is on by the parking brake operation or low brake fluid level.

Power Supply and Ground Circuit Inspection

INFOID:0000000001328459

1.CHECK FUSE

Check for blown unified meter and A/C amp. fuses.

Power source	Fuse No.
Battery power supply	19
ACC power supply	10, 11
Ignition power supply	12

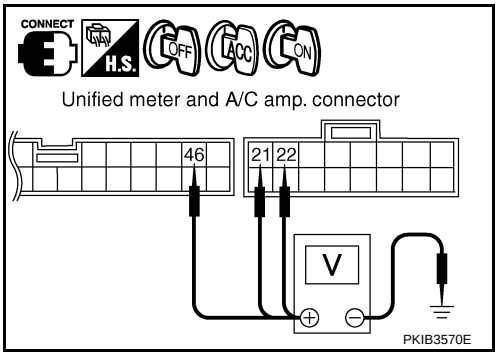
OK or NG

OK >> GO TO 2.

NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-3, "Schematic".

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between unified meter and A/C amp. harness connector terminals and ground.



Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal				
M56	21	Ground	Battery voltage	Battery voltage	Battery voltage
	22		0 V	0 V	Battery voltage
M57	46		0 V	Battery voltage	Battery voltage

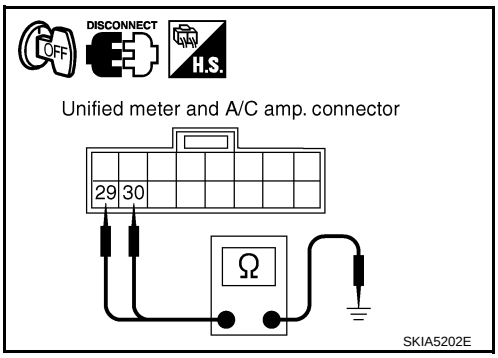
OK or NG

OK >> GO TO 3.
NG >> Check harness between unified meter and A/C amp. and fuse.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between unified meter and A/C amp. harness connector M56 terminals 29, 30 and ground.

29 – Ground
30 – Ground **: Continuity should exist.**



OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

DTC [U1000] CAN Communication Circuit

INFOID:0000000001328460

Symptom: Display “CAN COMM CIRC [U1000]” at the result of self-diagnosis for unified meter and A/C amp.

1.CHECK CAN COMMUNICATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “METER/M&A”

YES >> Refer to LAN-14, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-35, "CONSULT-III/GST Data Link Connector (DLC) Circuit".

DTC [B2202] Meter Communication Circuit

INFOID:0000000001328461

Symptom: Display “METER COMM CIRC [B2202]” at the result of self-diagnosis for unified meter and A/C amp.

1.CHECK CONNECTOR

Check combination meter, unified meter and A/C amp. and terminals (combination meter side, unified meter and A/C amp. side, and harness side) for looseness or bent terminals.

OK or NG

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

2.CHECK METER/GAUGES VISUALLY

Check the pointer on the meter/gauge fluctuate at the engine start.

Is the fluctuation acceptable?

YES >> GO TO 3.

NO >> GO TO 6.

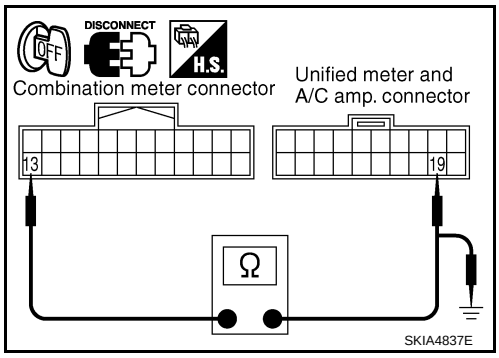
3. CHECK CONTINUITY COMMUNICATION CIRCUIT (TX: COMBINATION METER)

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and unified meter and A/C amp. connector.
3. Check continuity between combination meter harness connector M20 terminal 13 and unified meter and A/C amp. harness connector M55 terminal 19.

13 – 19 : Continuity should exist.

4. Check continuity between combination meter harness connector M20 terminal 13 and ground.

13 – Ground : Continuity should not exist.



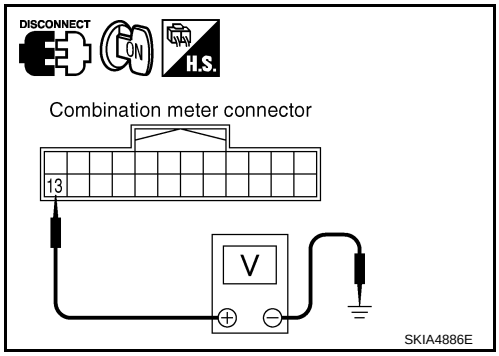
OK or NG

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

4. CHECK VOLTAGE OF UNIFIED METER AND A/C AMP.

1. Connect unified meter and A/C amp. connector.
2. Turn ignition switch ON.
3. Check voltage between combination meter harness connector M20 terminal 13 and ground.

13 – Ground : Approx. 5 V



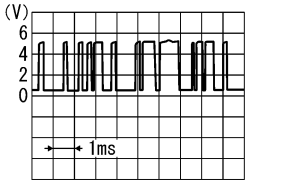
OK or NG

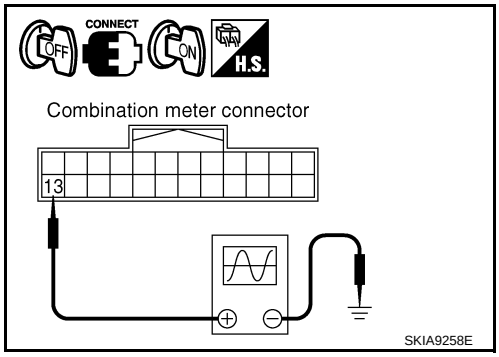
OK >> GO TO 5.
NG >> Replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp"

5. CHECK VOLTAGE SIGNAL OF COMBINATION METER

1. Turn ignition switch OFF.
2. Connect combination meter connector.
3. Turn ignition switch ON.
4. Check voltage signal between combination meter harness connector M20 terminal 13 and ground.

13 – Ground:





OK or NG

OK >> Replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp".
NG >> Replace combination meter.

6. CHECK CONTINUITY COMMUNICATION CIRCUIT (RX: COMBINATION METER)

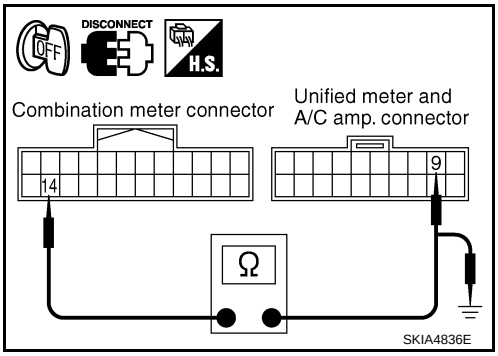
1. Turn ignition switch OFF.
2. Disconnect combination meter connector and unified meter and A/C amp. connector.

3. Check continuity between combination meter harness connector M20 terminal 14 and unified meter and A/C amp. harness connector M55 terminal 9.

14 – 9 : Continuity should exist.

4. Check continuity between combination meter harness connector M20 terminal 14 and ground.

14 – Ground : Continuity should not exist.



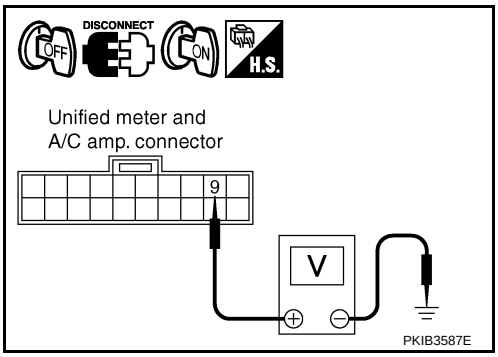
OK or NG

OK >> GO TO 7.
NG >> Repair harness or connector.

7. CHECK VOLTAGE OF COMBINATION METER

1. Connect combination meter connector.
2. Turn ignition switch ON.
3. Check voltage between unified meter and A/C amp. harness connector M55 terminal 9 and ground.

9 – Ground : Approx. 5 V



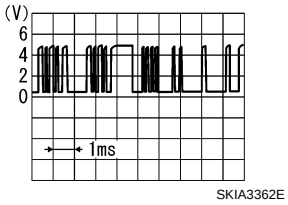
OK or NG

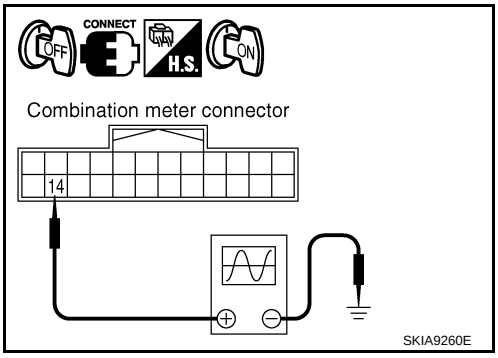
OK >> GO TO 8.
NG >> Replace combination meter.

8. CHECK VOLTAGE SIGNAL OF UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Connect unified meter and A/C amp. connector.
3. Turn ignition switch ON.
4. Check voltage signal between combination meter harness connector M20 terminal 14 and ground.

14 – Ground:





OK or NG

OK >> Replace combination meter.
NG >> Replace unified meter and A/C amp. Refer to DI-32, "Removal and Installation of Unified Meter and A/C Amp".

DTC [B2205] Vehicle Speed Circuit

INFOID:0000000001328462

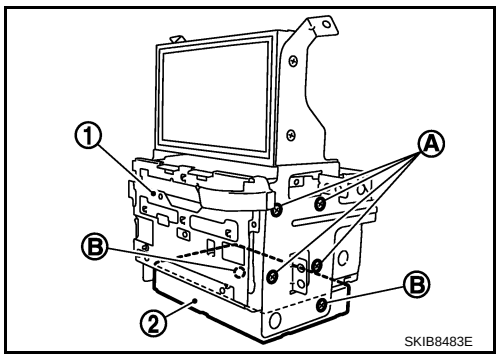
Symptom: Display “VEHICLE SPEED CIRC [B2205]” at the result of self-diagnosis for unified meter and A/C amp.
Perform self-diagnosis of ABS actuator and electric unit (control unit), and repair or replace malfunctioning parts. Refer to BRC-26, "CONSULT-III Functions (ABS)".

Removal and Installation of Unified Meter and A/C Amp

INFOID:0000000001328463

REMOVAL

1. Remove the audio unit (1). Refer to AV-41, "Removal and Installation of Audio Unit".
2. Remove the screws (A).
3. Remove the screws (B) and remove the unified meter and A/C amp. (2).



INSTALLATION

Installation is the reverse order of removal.

NOTE:

Use appropriate screws for each, as screws for audio unit and display unit are different from that for unified meter and A/C amp.

WARNING LAMPS

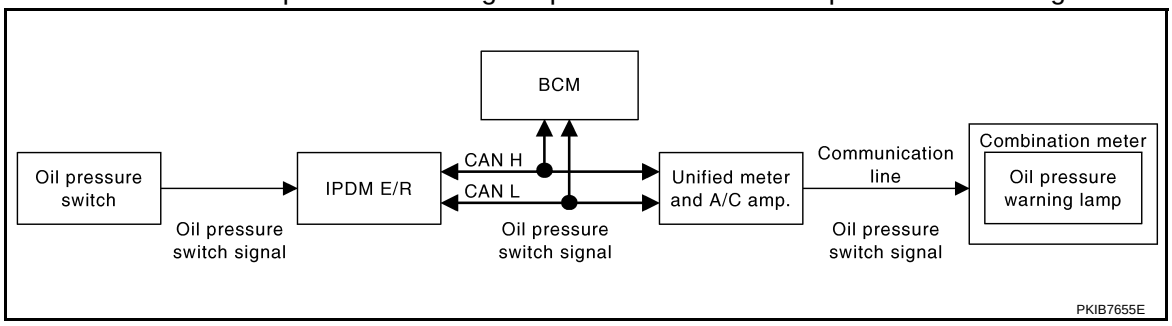
System Description

INFOID:0000000001328464

OIL PRESSURE WARNING LAMP

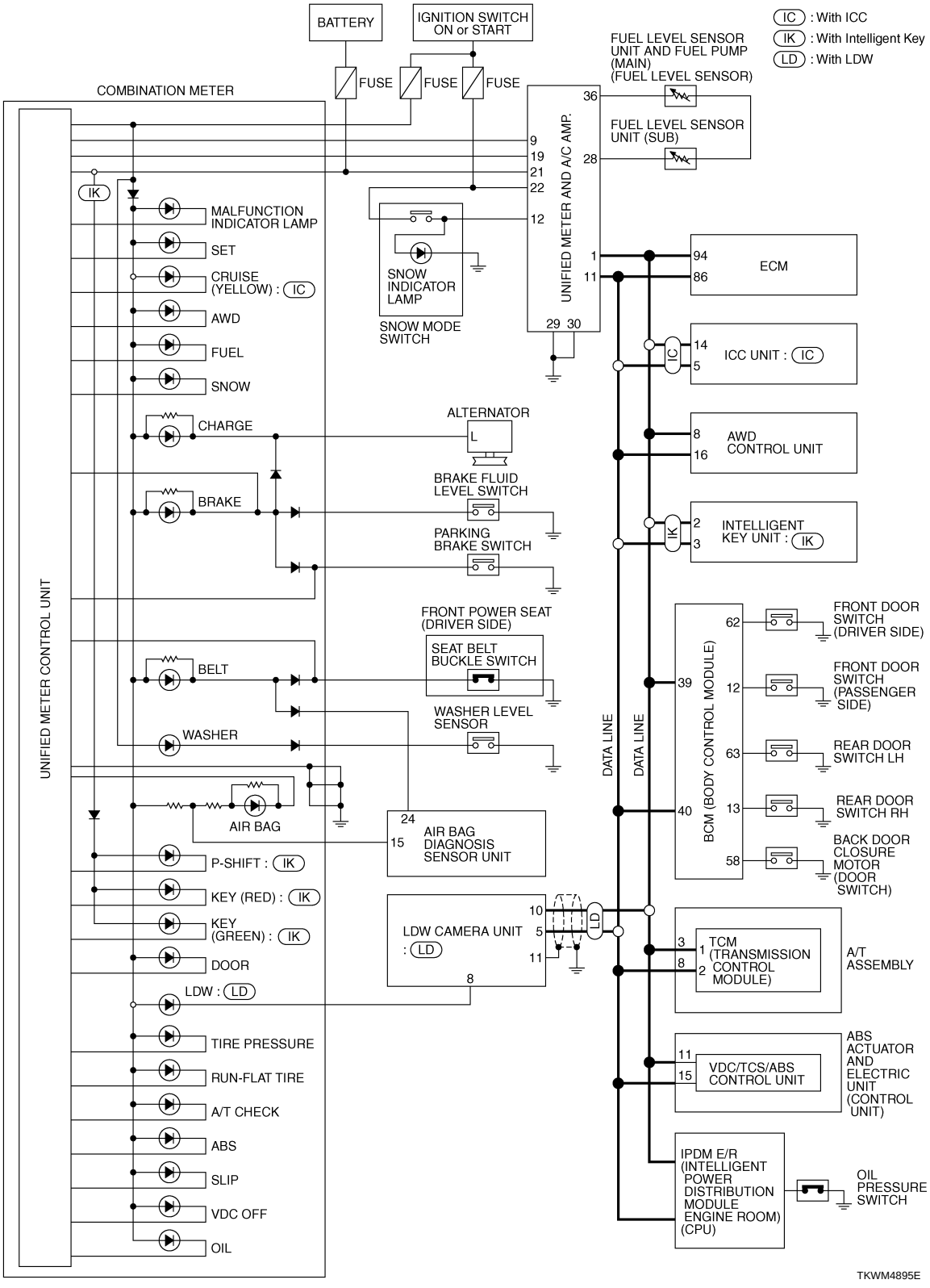
Oil pressure warning lamp turns ON when reducing engine oil pressure abnormally.

- IPDM E/R reads oil pressure switch signal from oil pressure switch, and transmits the signal to unified meter and A/C amp. through BCM with CAN communication.
- Unified meter and A/C amp. transmits oil pressure switch signal to combination meter with communication line.
- Combination meter turns oil pressure warning lamp ON with received oil pressure switch signal.



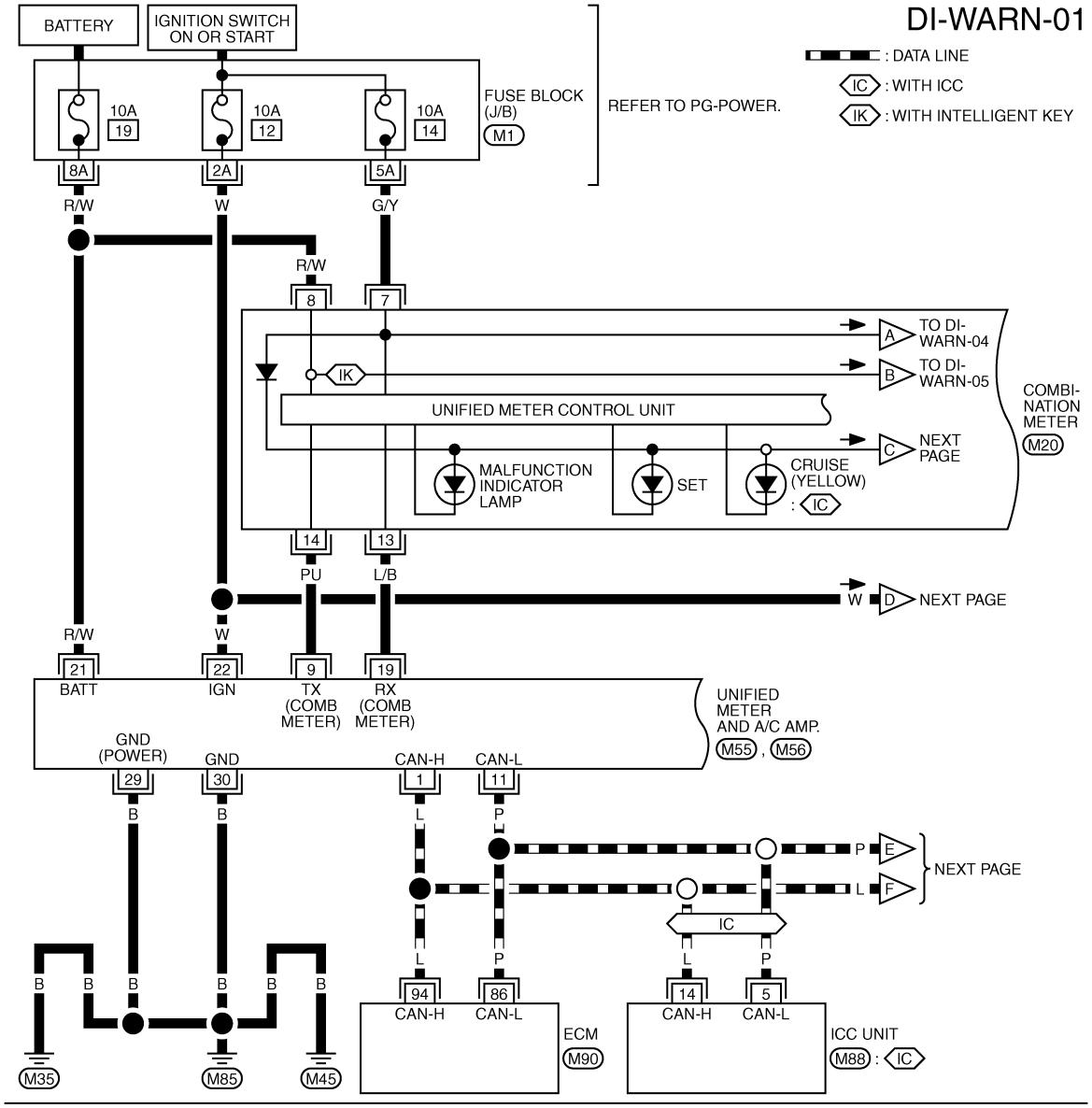
Schematic

INFOID:0000000001328465



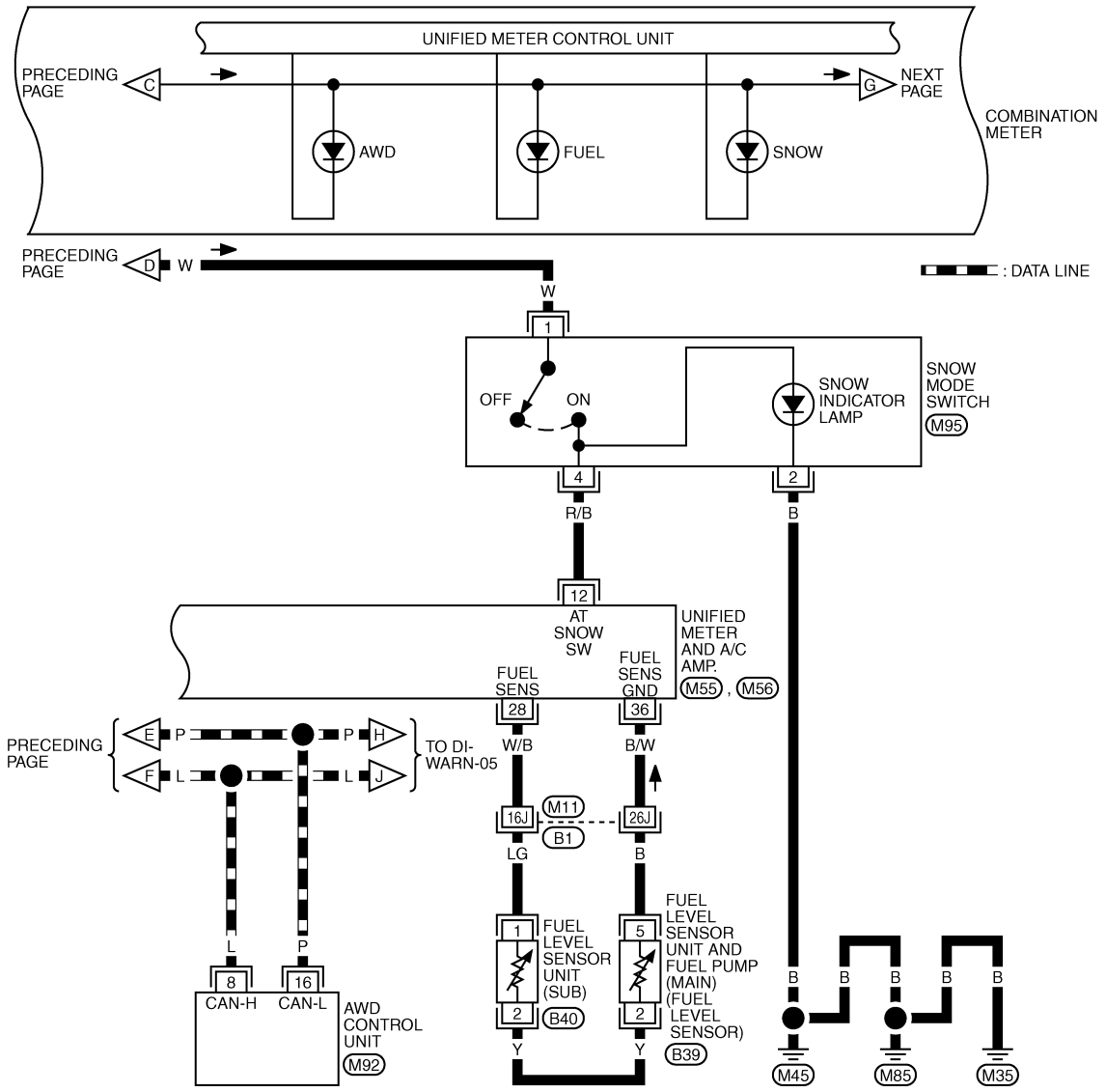
Wiring Diagram - WARN -

INFOID:0000000001328466



TKWM4346E

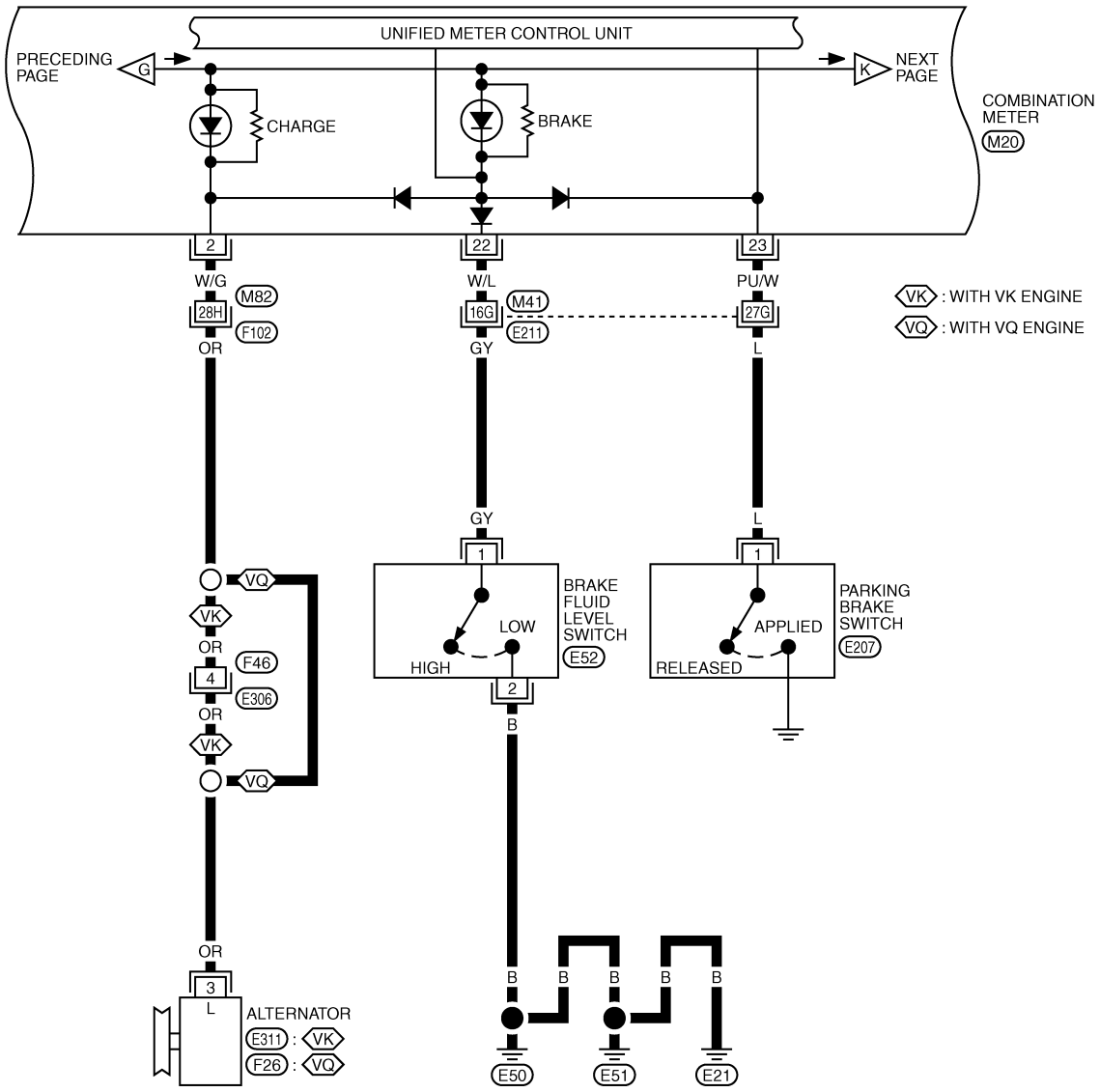
DI-WARN-02



REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM4347E

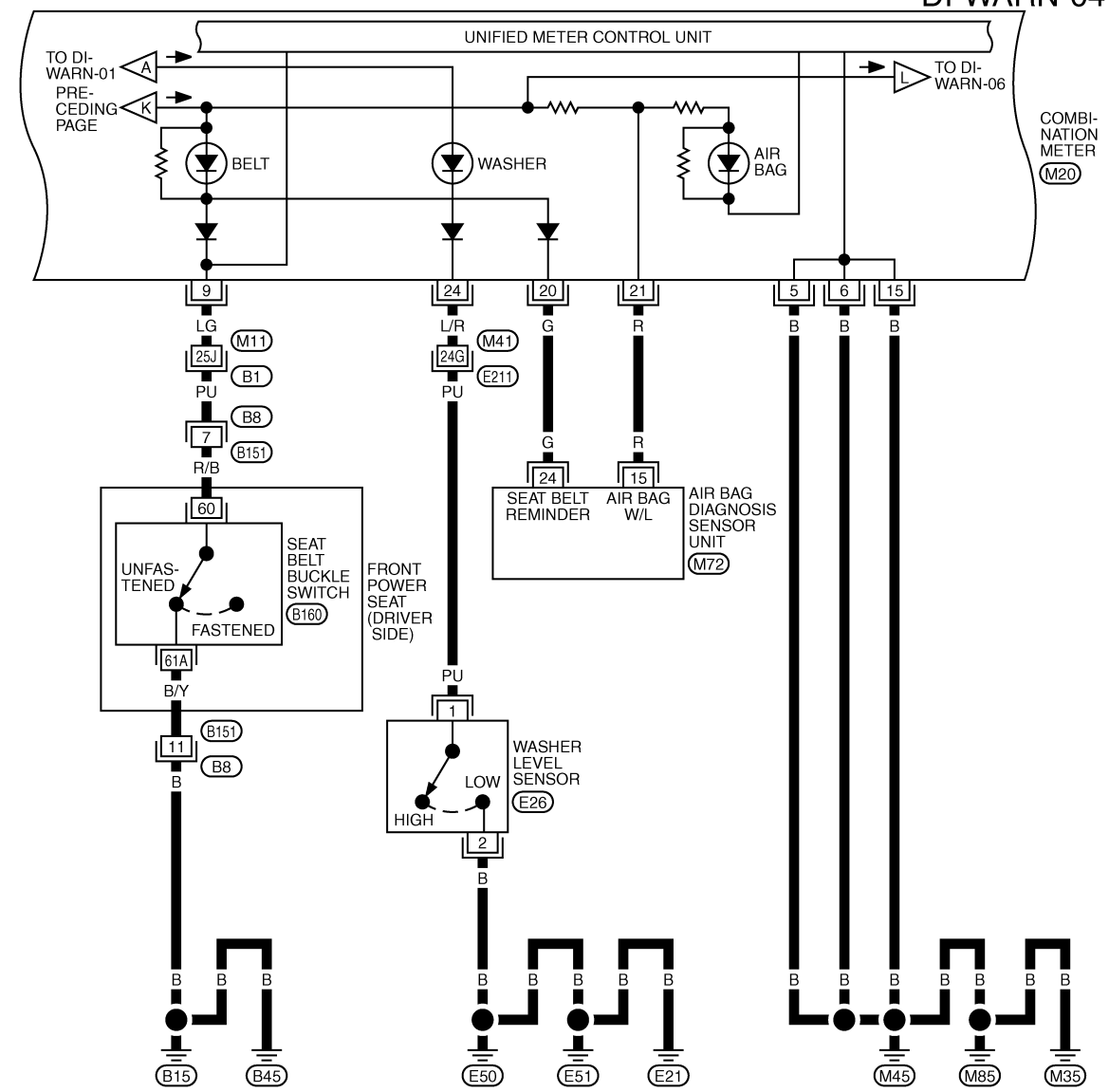
DI-WARN-03

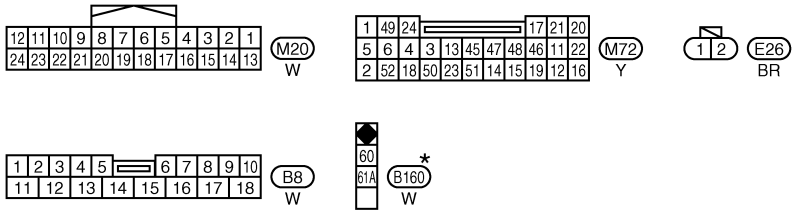


REFER TO THE FOLLOWING.
E211 , F102 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM4348E

DI-WARN-04





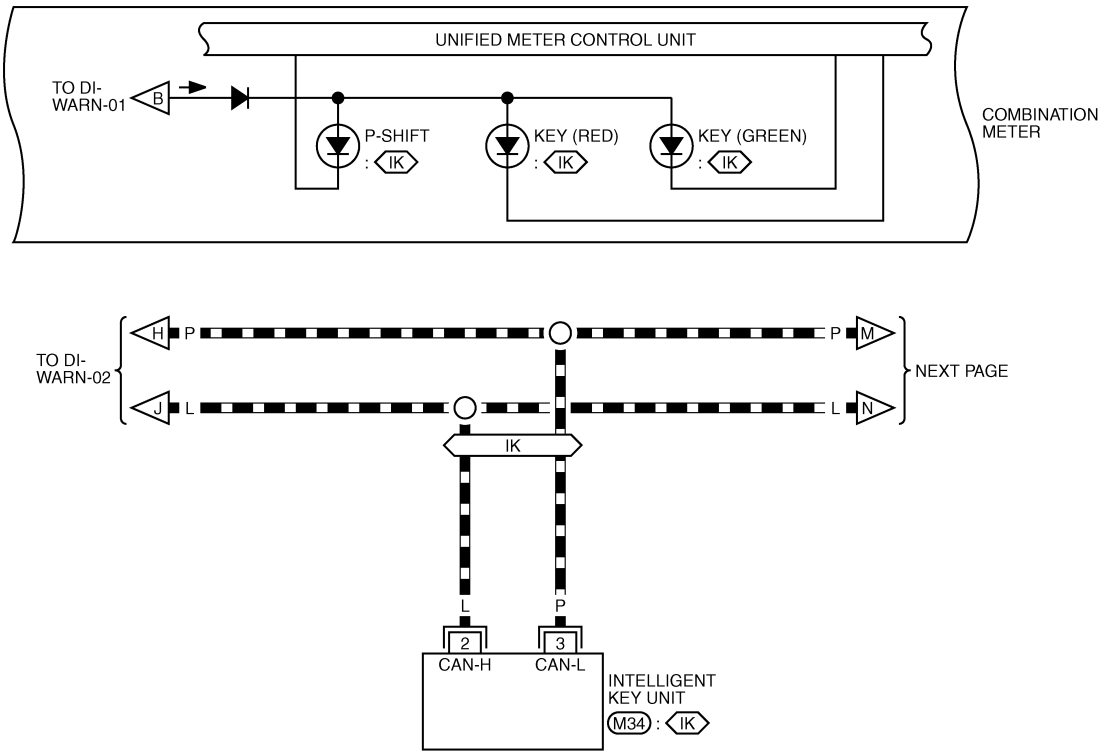
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
E211 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM5216E

DI-WARN-05

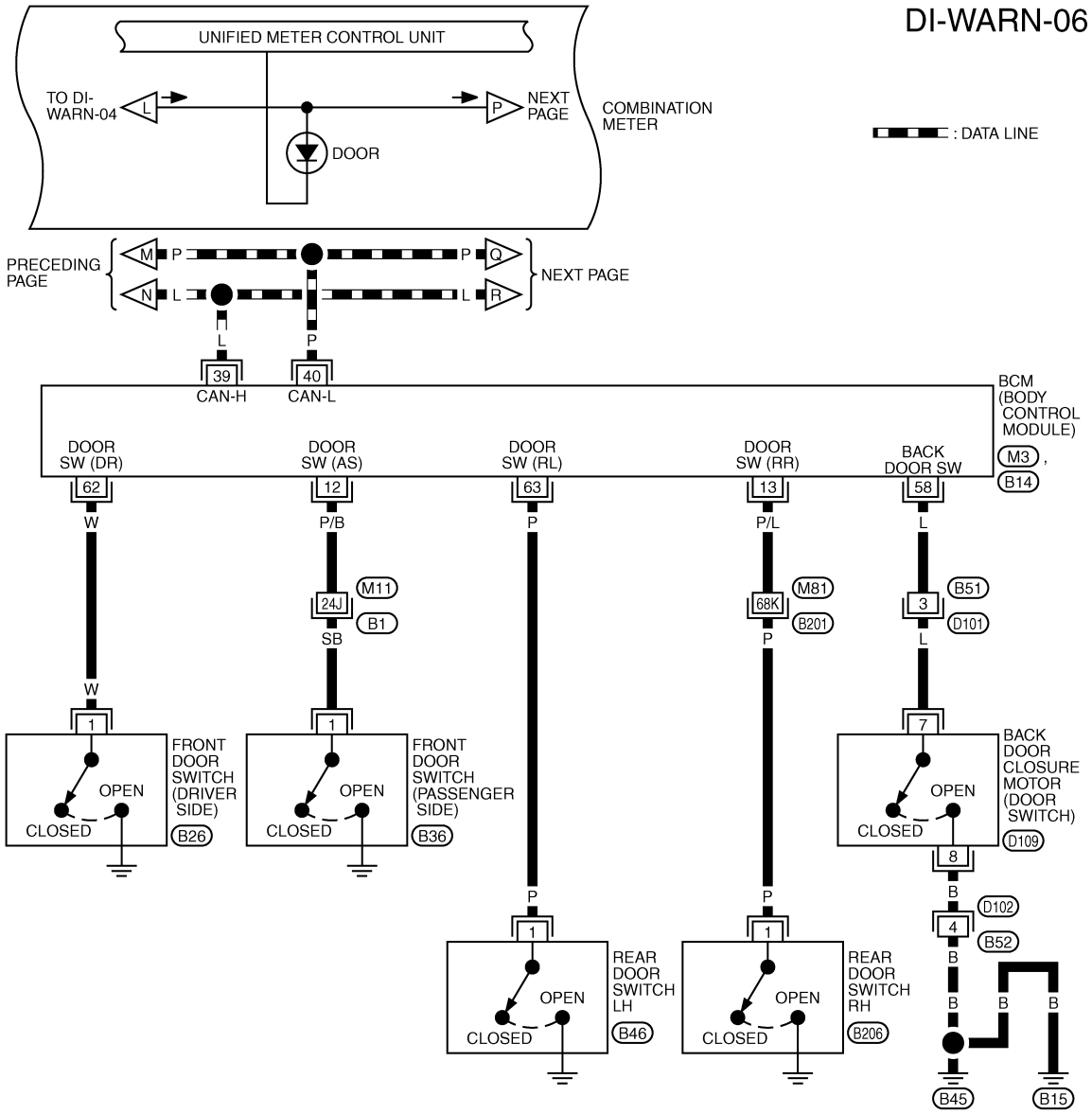
: DATA LINE
IK : WITH INTELLIGENT KEY

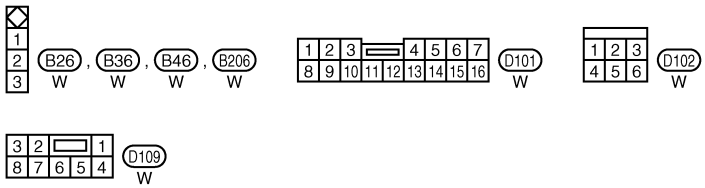


REFER TO THE FOLLOWING.
M34 -ELECTRICAL UNITS

TKWM4350E

DI-WARN-06

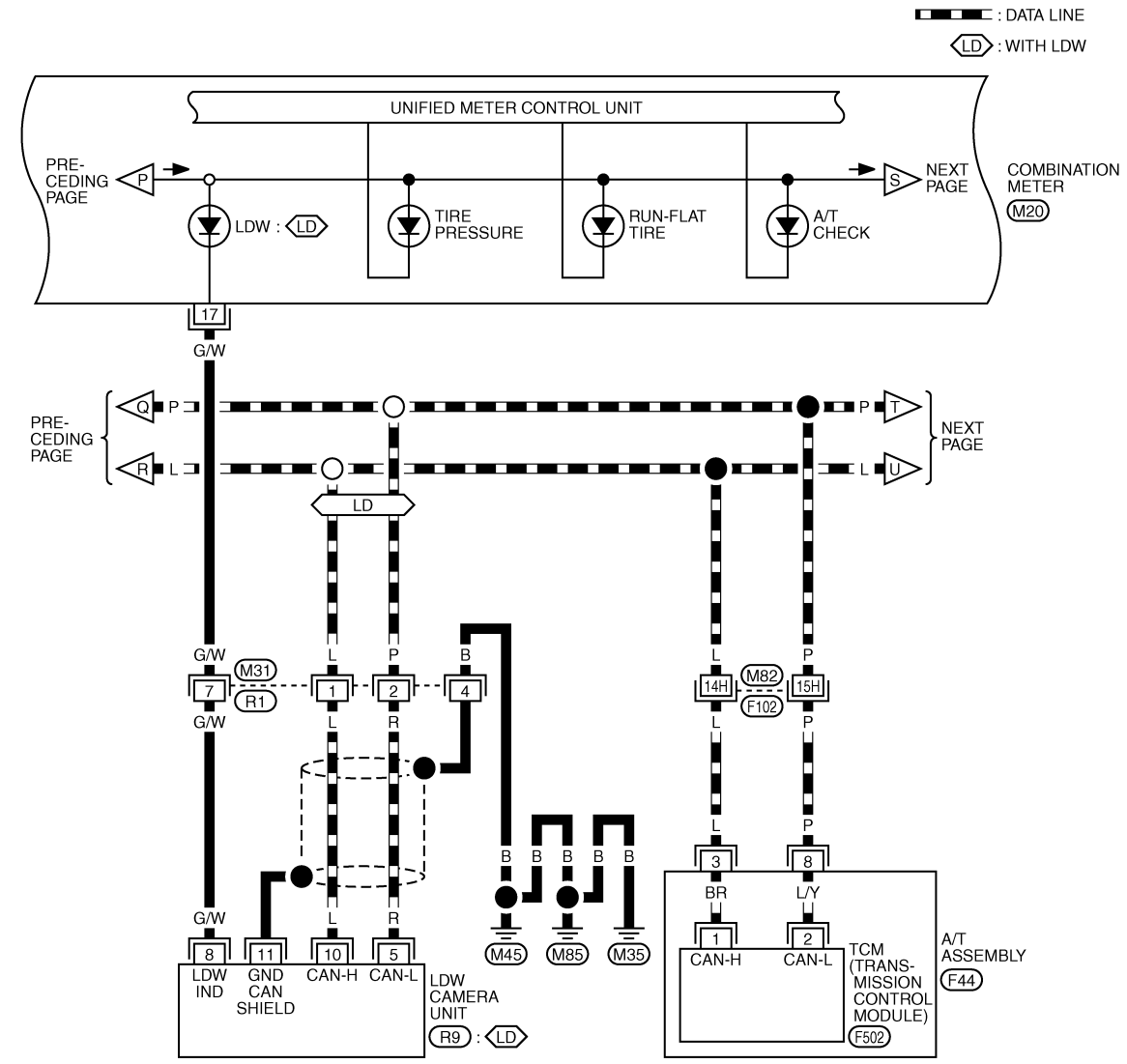


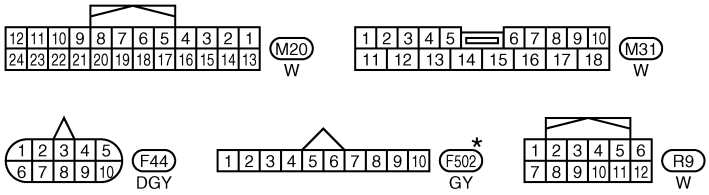


REFER TO THE FOLLOWING.
B1 , B201 -SUPER MULTIPLE JUNCTION (SMJ)
M3 , B14 -ELECTRICAL UNITS

TKWM4351E

DI-WARN-07



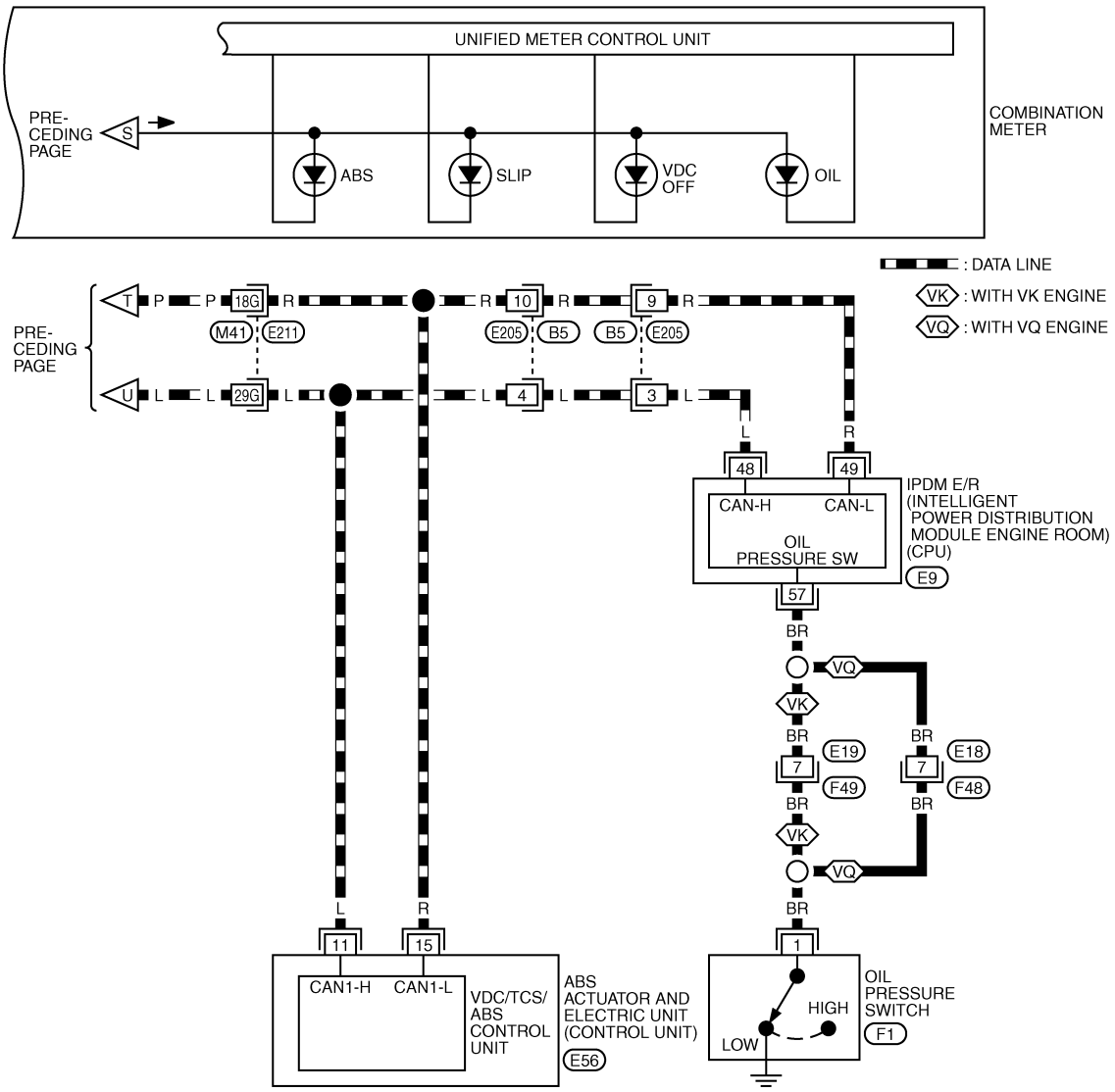


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM4900E

DI-WARN-08



TKWM4353E

Oil Pressure Warning Lamp Stays Off (Ignition Switch ON)

INFOID:0000000001328467

1. CHECK OIL PRESSURE WARNING LAMP OPERATION

Activate IPDM E/R auto active test. Refer to PG-20, "Auto Active Test".

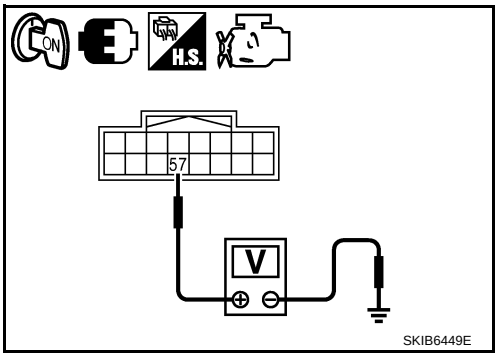
Does oil pressure warning lamp blink?

YES >> GO TO 2.
NO >> GO TO 5.

2.CHECK IPDM E/R INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between IPDM E/R harness connector E9 terminal 57 and ground.

57 – Ground : Approx. 0 V



OK or NG

OK >> Replace IPDM E/R. Refer to PG-24, "Removal and Installation of IPDM E/R".
NG >> GO TO 3.

3.CHECK OIL PRESSURE SWITCH

1. Turn ignition switch OFF.
2. Disconnect oil pressure switch connector.
3. Check oil pressure switch. Refer to DI-46, "Component Inspection".

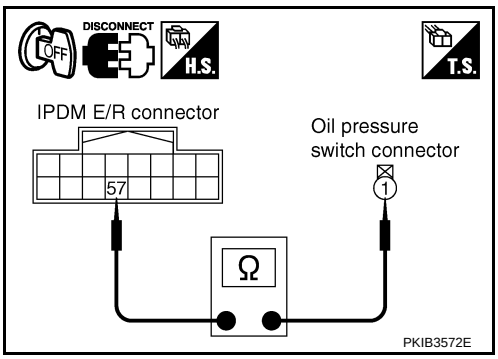
OK or NG

OK >> GO TO 4.
NG >> Replace oil pressure switch.

4.CHECK OIL PRESSURE SWITCH CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E9 terminal 57 and oil pressure switch harness connector F1 terminal 1.

57 – 1 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-24, "Removal and Installation of IPDM E/R".
NG >> Repair harness or connector.

5.CHECK UNIFIED METER AND A/C AMP. (CONSULT-III)

Perform self-diagnosis of unified meter and A/C amp. Refer to DI-27, "CONSULT-III Function (METER/M&A)".

Self-diagnosis results

No malfunction detected >> GO TO 6.
Malfunction detected >> Check applicable parts, and repair or replace corresponding parts.

6.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

1. Select “METER/M&A” on CONSULT-III.
2. Operate ignition switch with “OIL W/L” of “Data Monitor” and check operation status.

“OIL W/L”
When ignition switch is in ON position (Engine stopped) : On
When engine running : Off

OK or NG

OK >> Replace combination meter.
NG >> GO TO 7.

7.CHECK BCM INPUT SIGNAL

1. Select “BCM” on CONSULT-III.
2. Select “Data Monitor” of “SIGNAL BUFFER”.

3. Operate ignition switch with “OIL PRESS SW” of “Data Monitor” and check operate status.

“OIL PRESS SW”

When ignition switch is in ON position (Engine stopped) **: On**

When engine running **: Off**

OK or NG

OK >> Replace BCM. Refer to BCS-13, "Removal and Installation of BCM".
NG >> Replace IPDM E/R. Refer to PG-24, "Removal and Installation of IPDM E/R".

Oil Pressure Warning Lamp Does Not Turn Off (Oil Pressure Is Normal)

INFOID:0000000001328468

NOTE:
For oil pressure inspection, refer to LU-5, "Inspection" (VQ35DE) or LU-23, "Inspection" (VK45DE)

1.CHECK OIL PRESSURE WARNING LAMP OPERATION

Activate IPDM E/R auto active test. Refer to PG-20, "Auto Active Test".

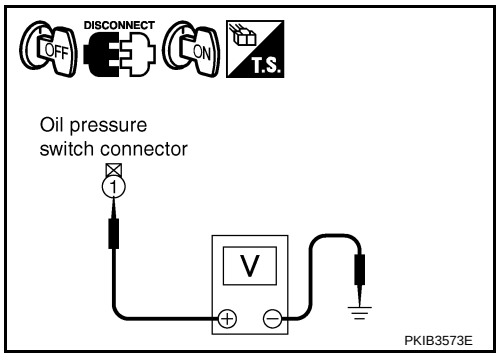
Does oil pressure warning lamp blink?

YES >> GO TO 2.
NO >> GO TO 5.

2.CHECK IPDM E/R OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect oil pressure switch connector.
3. Turn ignition switch ON.
4. Check voltage between oil pressure switch harness connector F1 terminal 1 and ground.

1 – Ground **: Approx. 12 V**



OK or NG

OK >> GO TO 3.
NG >> GO TO 4.

3.CHECK OIL PRESSURE SWITCH

1. Turn ignition switch OFF.
2. Check oil pressure switch. Refer to DI-46, "Component Inspection".

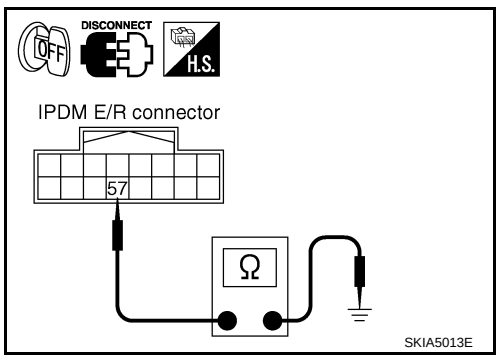
OK or NG

OK >> Replace IPDM E/R. Refer to PG-24, "Removal and Installation of IPDM E/R".
NG >> Replace oil pressure switch.

4.CHECK OIL PRESSURE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E9 terminal 57 and ground.

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



OK or NG

OK >> Replace IPDM E/R. Refer to PG-24, "Removal and Installation of IPDM E/R".
NG >> Repair harness or connector.

5. CHECK IPDM E/R (CONSULT-III)

Perform self-diagnosis of IPDM E/R. Refer to PG-18, "CONSULT-III Function (IPDM E/R)".

Self-diagnosis results

No malfunction detected >> Replace combination meter.
Malfunction detected >> Check applicable parts, and repair or replace corresponding parts.

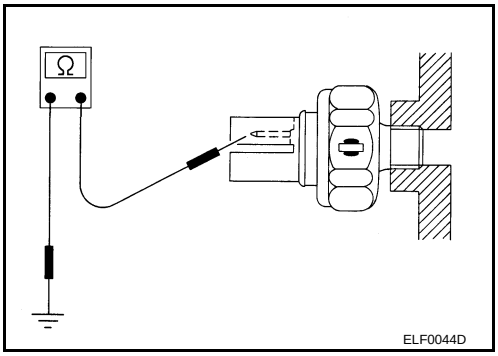
Component Inspection

INFOID:0000000001328469

OIL PRESSURE SWITCH

Check continuity between 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



A/T INDICATOR

System Description

INFOID:0000000001328470

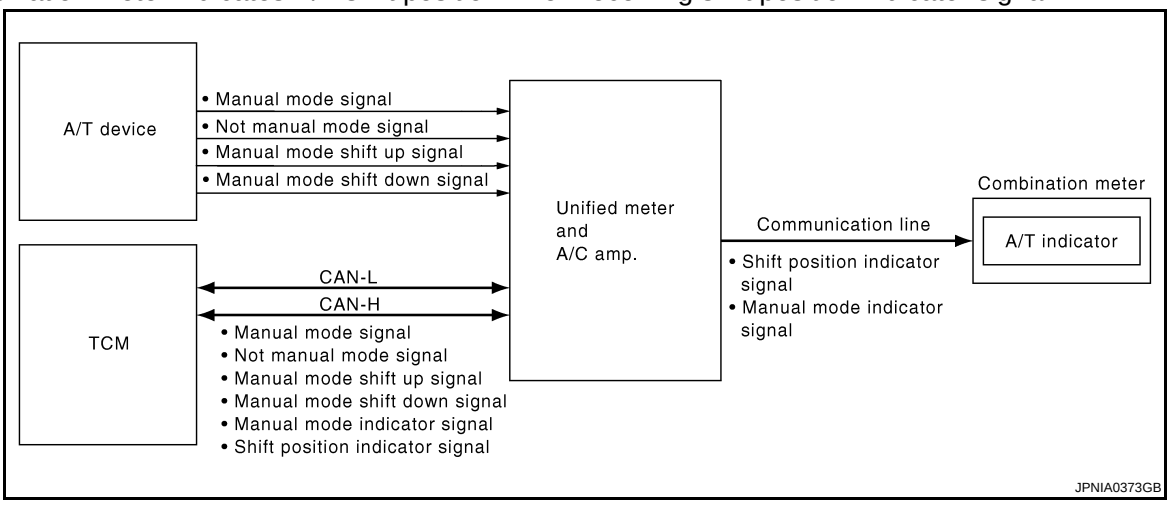
A/T shift position is displayed in the segment display in the combination meter.

MANUAL MODE

- Unified meter and A/C amp. reads manual mode signal and shift-up/down signal from A/T device (manual mode switch), and transmits the signals to TCM with CAN communication.
- TCM processes manual mode signal and shift-up/down signal, and transmits manual mode indicator signal and shift position indicator signal to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits manual mode indicator signal and shift position indicator signal to combination meter with the communication line.
- Combination meter indicates shift gear position and manual mode indicator, when receiving manual mode indicator signal and shift position indicator signal.

NOT MANUAL MODE

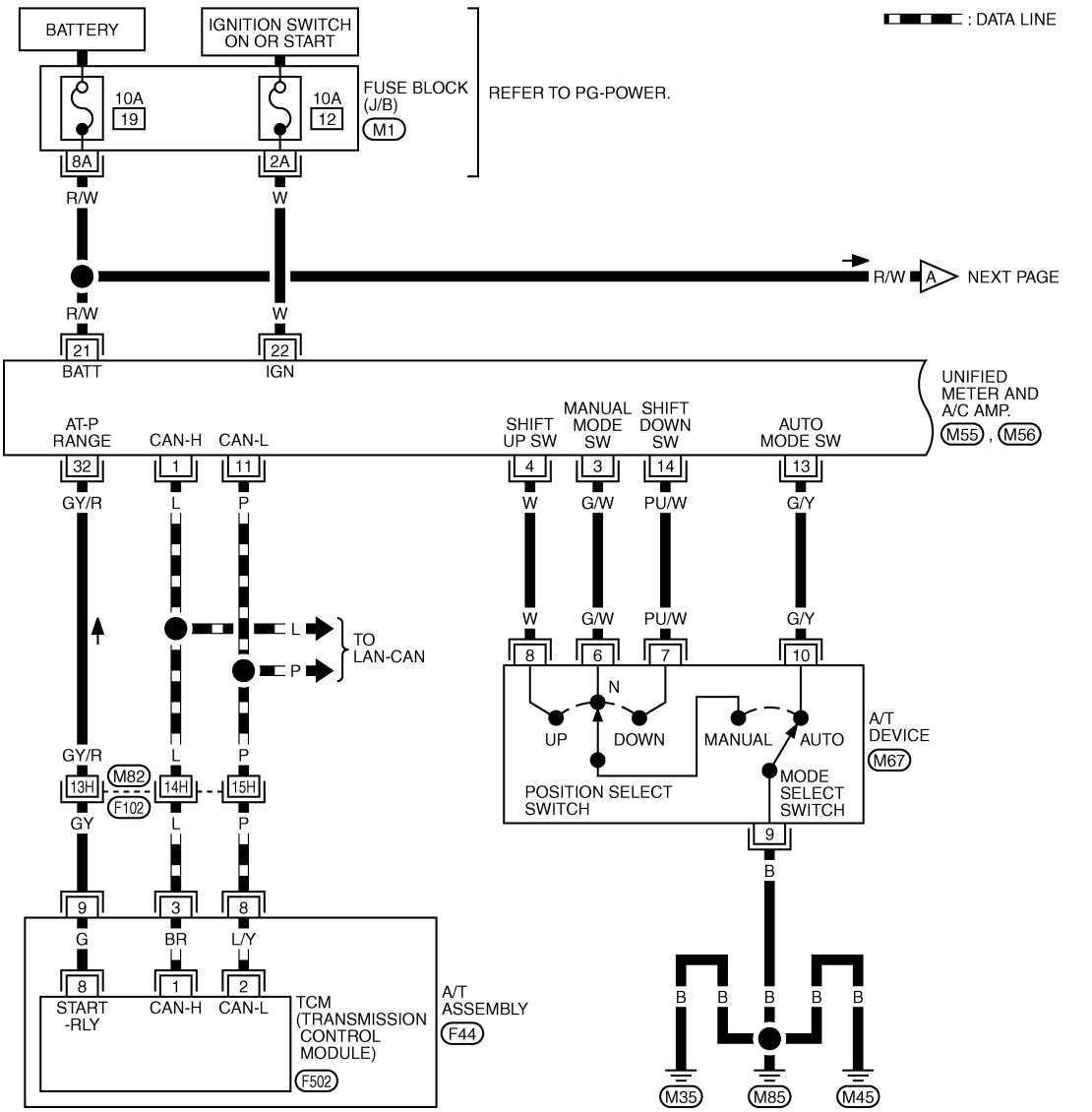
- Unified meter and A/C amp. reads not manual mode signal from A/T device (manual mode switch), and transmits the signals to TCM with CAN communication.
- TCM transmits shift position indicator signal to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits shift position indicator signal to combination meter with the communication line.
- Combination meter indicates A/T shift position when receiving shift position indicator signal.

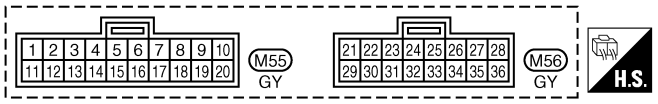


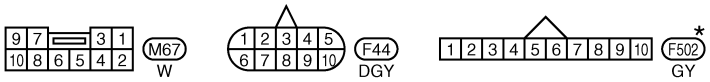
Wiring Diagram - AT/IND -

INFOID:0000000001328471

DI-AT/IND-01







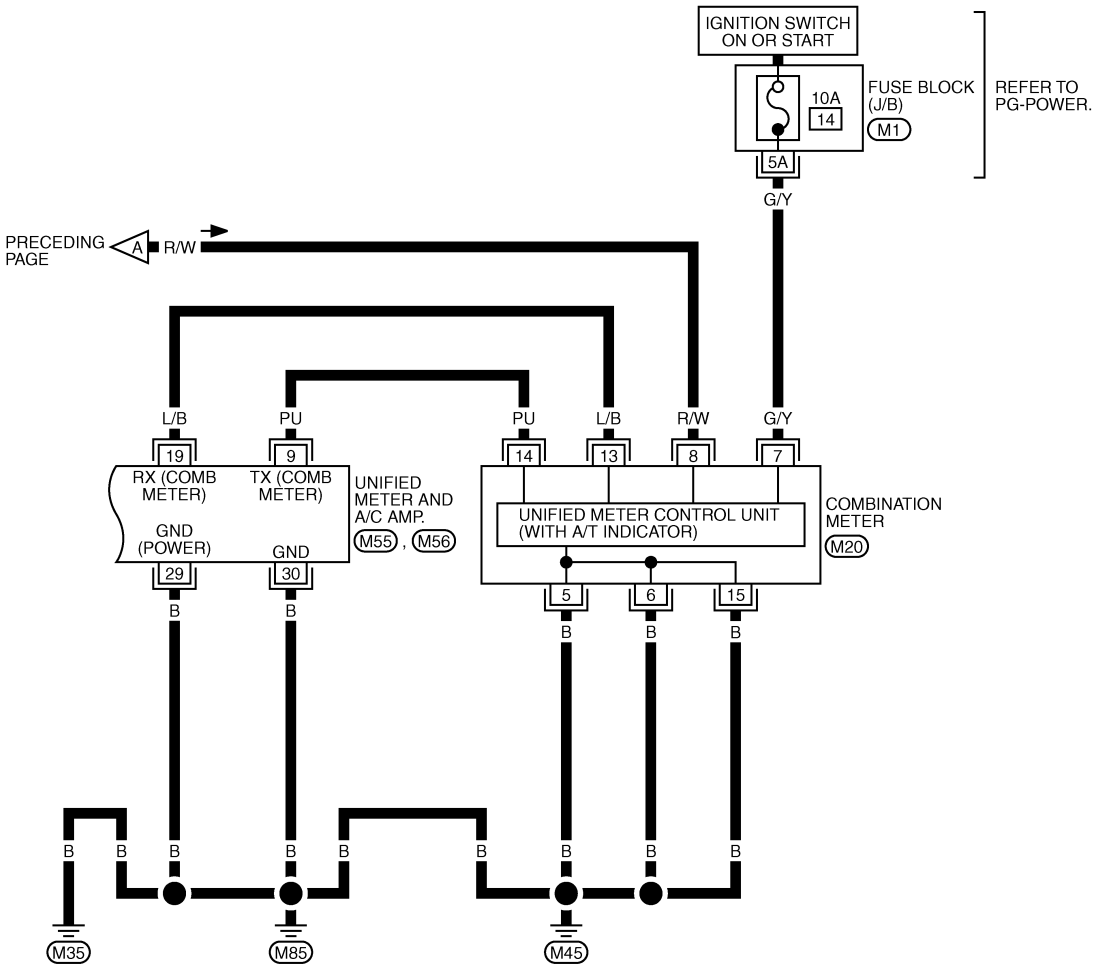
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

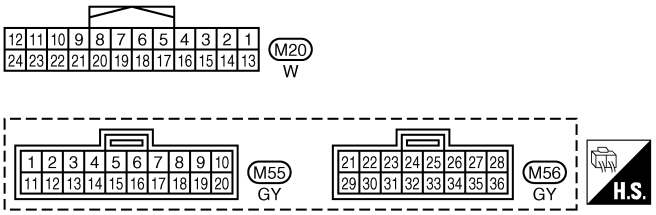
REFER TO THE FOLLOWING.

F102 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4354E





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4355E

A/T Indicator Is Malfunction

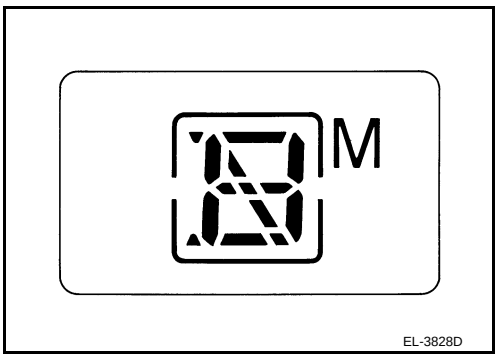
INFOID:0000000001328472

1. CHECK SEGMENTS OF A/T INDICATOR

Perform self-diagnosis mode of combination meter. Refer to DI-14, "Self-Diagnosis Mode of Combination Meter".

Are all segments displayed?

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



2. CHECK UNIFIED METER AND A/C AMP. (CONSULT-III)

Perform self-diagnosis of unified meter and A/C amp. Refer to DI-27, "CONSULT-III Function (METER/M&A)".

Self-diagnosis results

No malfunction detected >> GO TO 3.
Malfunction detected >> Check applicable parts, and repair or replace corresponding parts.

3. CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

Use “Data Monitor” of “METER/M&A” on CONSULT-III.Confirm each indication on the monitor when operating the shift lever.

CONSULT-III display	Switch operation	Operation status
AT-M IND	Manual mode range	On
	Except for manual mode range	Off
AT-M GEAR	Manual mode range (shift- up or down)	5 - 1
	Except for manual mode range	1
P RANGE IND	P range position	On
	Except for P range position	Off
R RANGE IND	R range position	On
	Except for R range position	Off
N RANGE IND	N range position	On
	Except for N range position	Off
D RANGE IND	D range position	On
	Except for D range position	Off

OK or NG

OK >> Replace combination meter.
NG >> GO TO 4.

4. CHECK TCM (CONSULT-III)

Perform self-diagnosis of TCM. Refer to AT-84, "CONSULT-III Function (TRANSMISSION)".

Self-diagnosis results

No malfunction detected >> Check TCM input/output signal. Refer to AT-83, "TCM Input/Output Signal Reference Value".
Malfunction detected >> Check applicable part, and repair or replace corresponding parts.

WARNING CHIME

System Description

INFOID:0000000001328473

- Buzzer for warning chime system is installed in the combination meter.
- The buzzer sounds when the combination meter receives buzzer output signal from each unit through unified meter and A/C amp.

POWER SUPPLY AND CIRCUIT

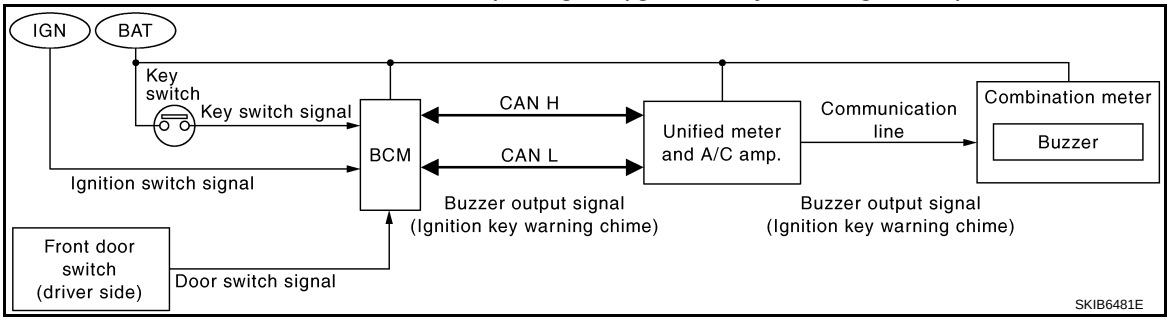
Power is supplied at all times
- through 50A fusible link (letter **M**, located in the fuse and fusible link block)
- to BCM terminal 55,
- through 15A fuse [No. 22, located in the fuse block (J/B)]
- to key switch and ignition knob switch terminal 3 (with Intelligent Key), and
- to key switch terminal 2 (without Intelligent Key), and
- to BCM terminal 42,
- through 10A fuse [No. 38, located in the fuse and fusible link block (with Intelligent Key)]
- to key switch and ignition knob switch terminal 1,
- through 10A fuse [No. 19, located in the fuse block (J/B)]
- to unified meter and A/C amp. terminal 21, and
- to combination meter terminal 8.

When ignition switch is in ON or START position, power is supplied
- through 15A fuse [No. 1, located in the fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to unified meter and A/C amp. terminal 22,
- through 10A fuse [No. 14, located in the fuse block (J/B)]
- to combination meter terminal 7.

Ground is supplied
- to BCM terminals 49 and 52,
- to unified meter and A/C amp. terminals 29 and 30, and
- to combination meter terminals 5, 6 and 15
- through grounds M35, M45 and M85.

IGNITION KEY WARNING CHIME (WITHOUT INTELLIGENT KEY)

With the key inserted into the key switch, and the ignition switch in OFF or ACC position, when driver's door is opened, the ignition key warning chime will sound.
- BCM detects key inserted into the key switch, ignition switch in OFF or ACC position, and front door switch (driver side) ON. And then transmits buzzer output signal (ignition key warning chime) to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits buzzer output signal (ignition key warning chime) to combination meter with communication line.
- When combination meter receives buzzer output signal (ignition key warning chime), it sounds the buzzer.

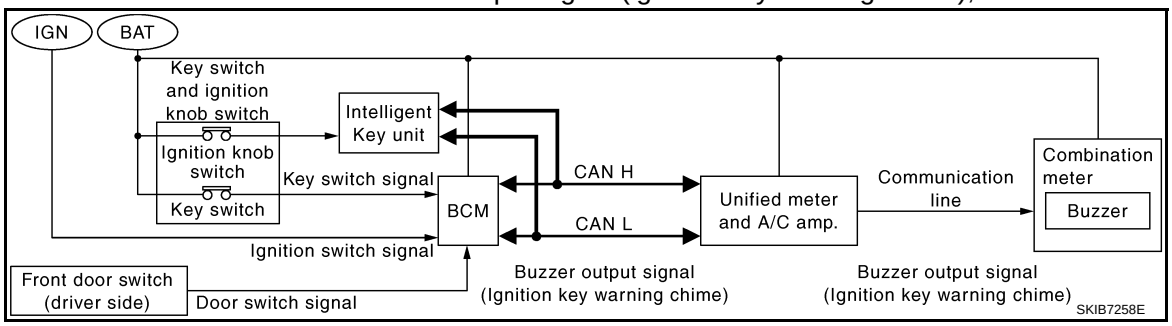


IGNITION KEY WARNING CHIME (WITH INTELLIGENT KEY)

When Mechanical Key Is Used

With the key inserted into the ignition switch, and the ignition switch LOCK or ACC position, when driver's door is opened, the warning chime will sound.
- BCM detects key inserted into the key switch, ignition switch in LOCK or ACC position, and front door switch (driver side) ON. And then transmits buzzer output signal (ignition key warning chime) to unified meter and A/C amp. with CAN communication.

- Unified meter and A/C amp. transmits buzzer output signal (ignition key warning chime) to combination meter with communication line.
- When combination meter receives buzzer output signal (ignition key warning chime), it sounds the buzzer.

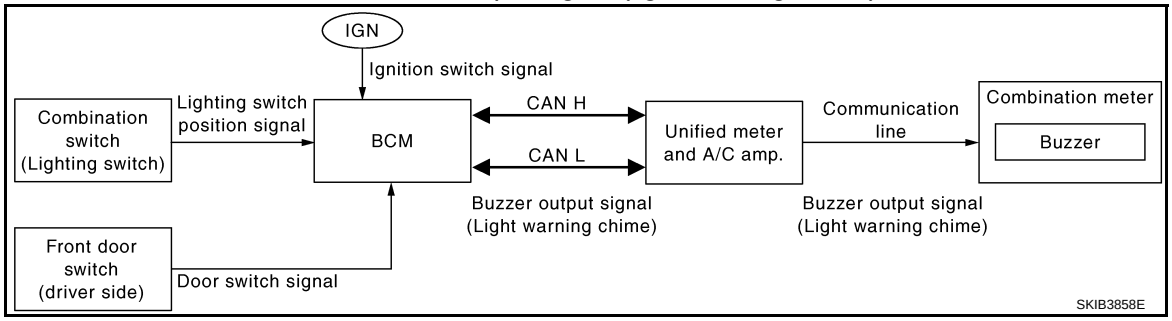


When Intelligent Key Is Carried With The Driver
Refer to BL-78, "System Description".

LIGHT WARNING CHIME

With ignition switch in LOCK or ACC position, driver's door is opened, and lighting switch in 1ST or 2ND position, the light warning chime will sound.

- BCM detects ignition switch in LOCK or ACC position, front door switch (driver side) ON, and lighting switch in 1ST or 2ND position. And then transmits buzzer output signal (light warning chime) to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits buzzer output signal (light warning chime) to combination meter with communication line.
- When combination meter receives buzzer output signal (light warning chime), it sounds the buzzer.

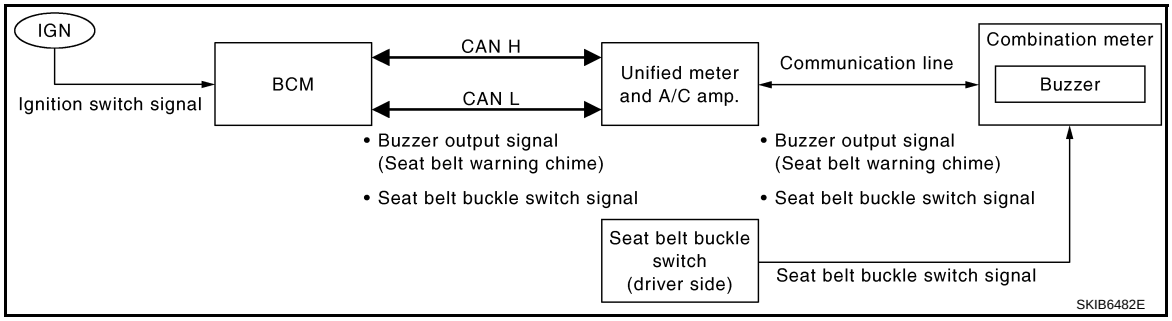


NOTE:
For further details of combination switch, refer to BCS-4, "System Description".

SEAT BELT WARNING CHIME

With ignition switch turned ON and driver's seat belt unfastened, seat belt warning chime will sound for approximately 6 seconds.

- Combination meter reads a ON/OFF signal from seat belt buckle switch (driver side), and transmits seat belt buckle switch signal to unified meter and A/C amp. with communication line.
- BCM receives seat belt buckle switch signal from unified meter and A/C amp. with CAN communication.
- BCM detects ignition switch turned ON and seat belt buckle switch (driver side) ON. And then transmits buzzer output signal (seat belt warning chime) to unified meter and A/C amp. with CAN communication.
- Unified meter and A/C amp. transmits buzzer output signal (seat belt warning chime) to combination meter with communication line.
- When combination meter receives buzzer output signal (seat belt warning chime), it sounds the buzzer.



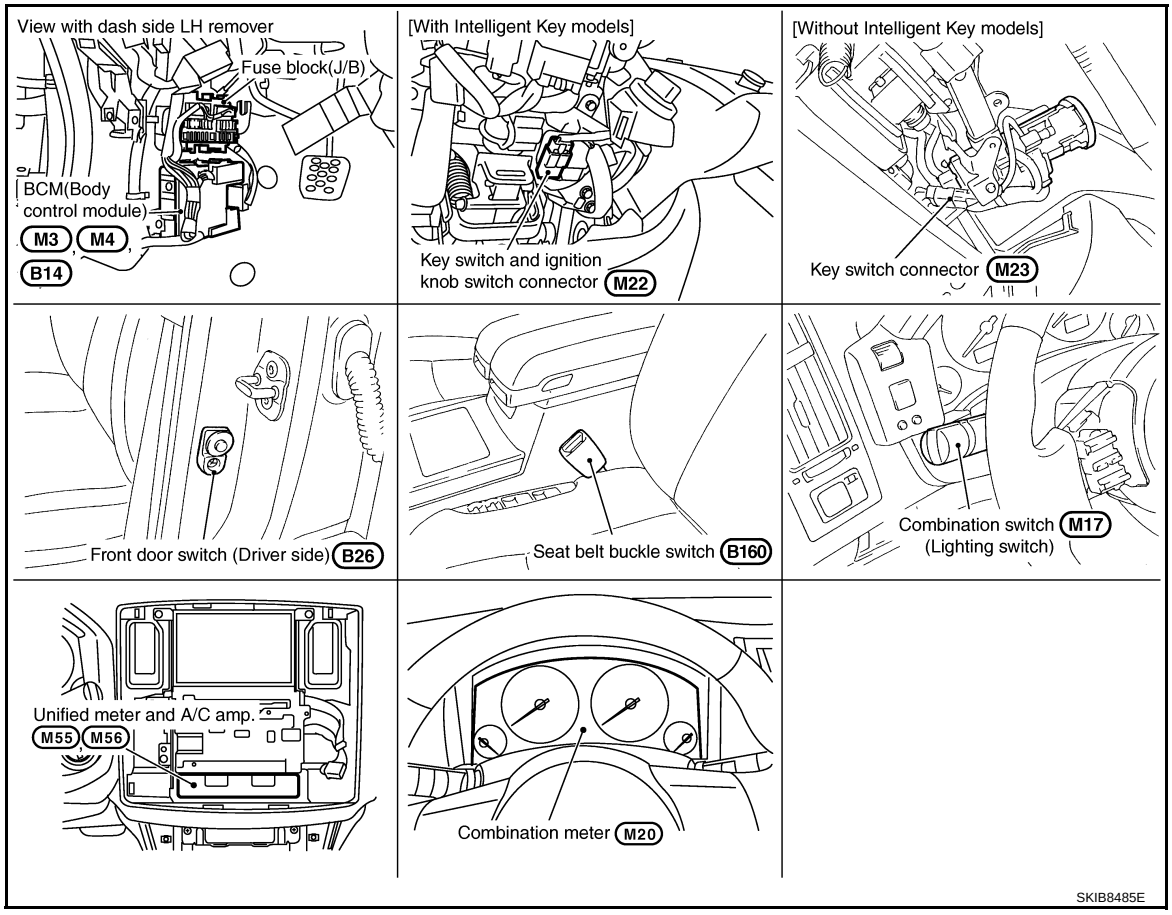
NOTE:

When ignition key warning chime, light warning chime, and seat belt warning chime should be performed at the same time, the priorities for each chime are the following.

1. Seat belt warning chime
2. Light warning chime
3. Ignition key warning chime

Component Parts and Harness Connector Location

INFOID:0000000001328474



Schematic

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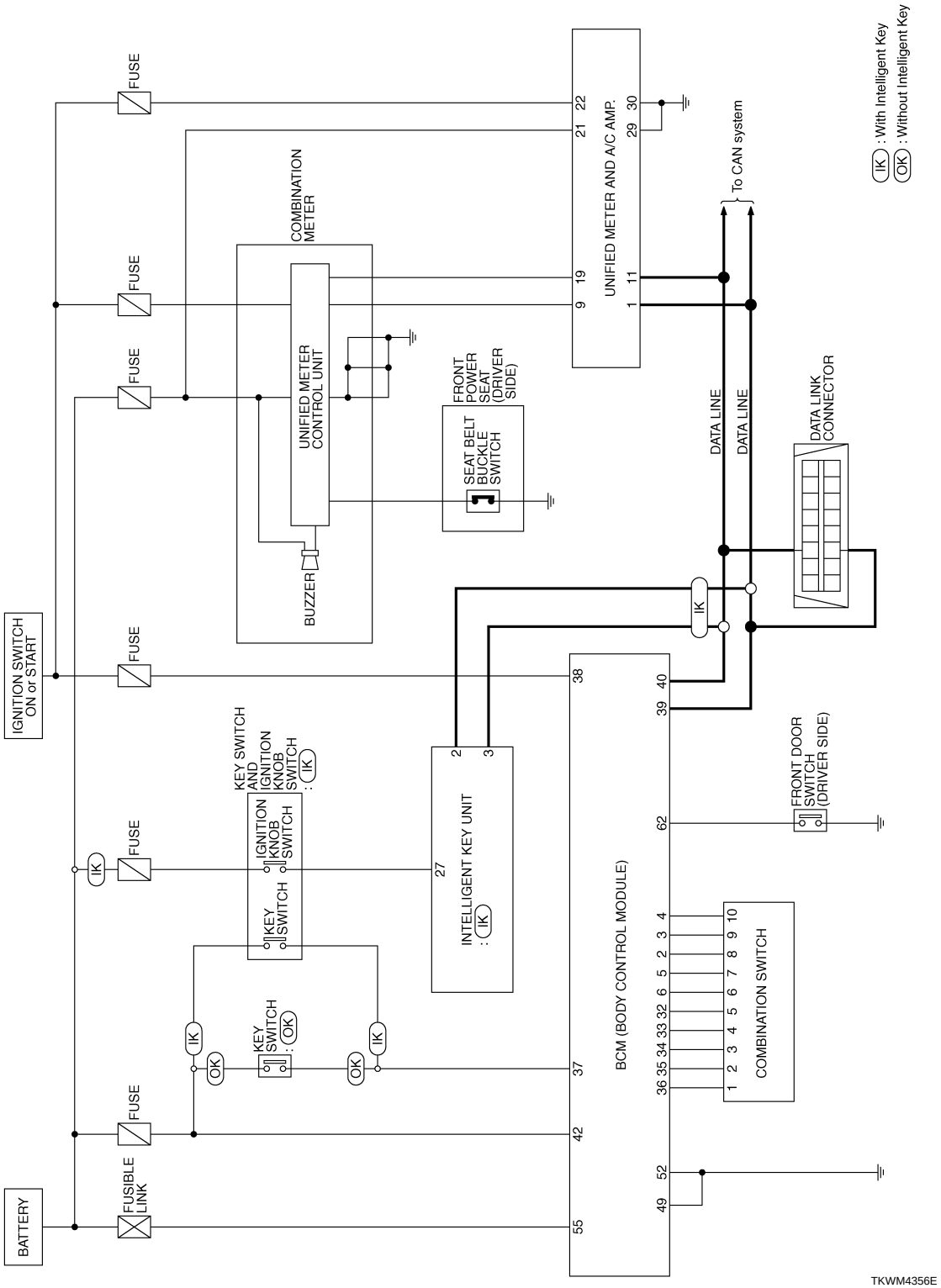
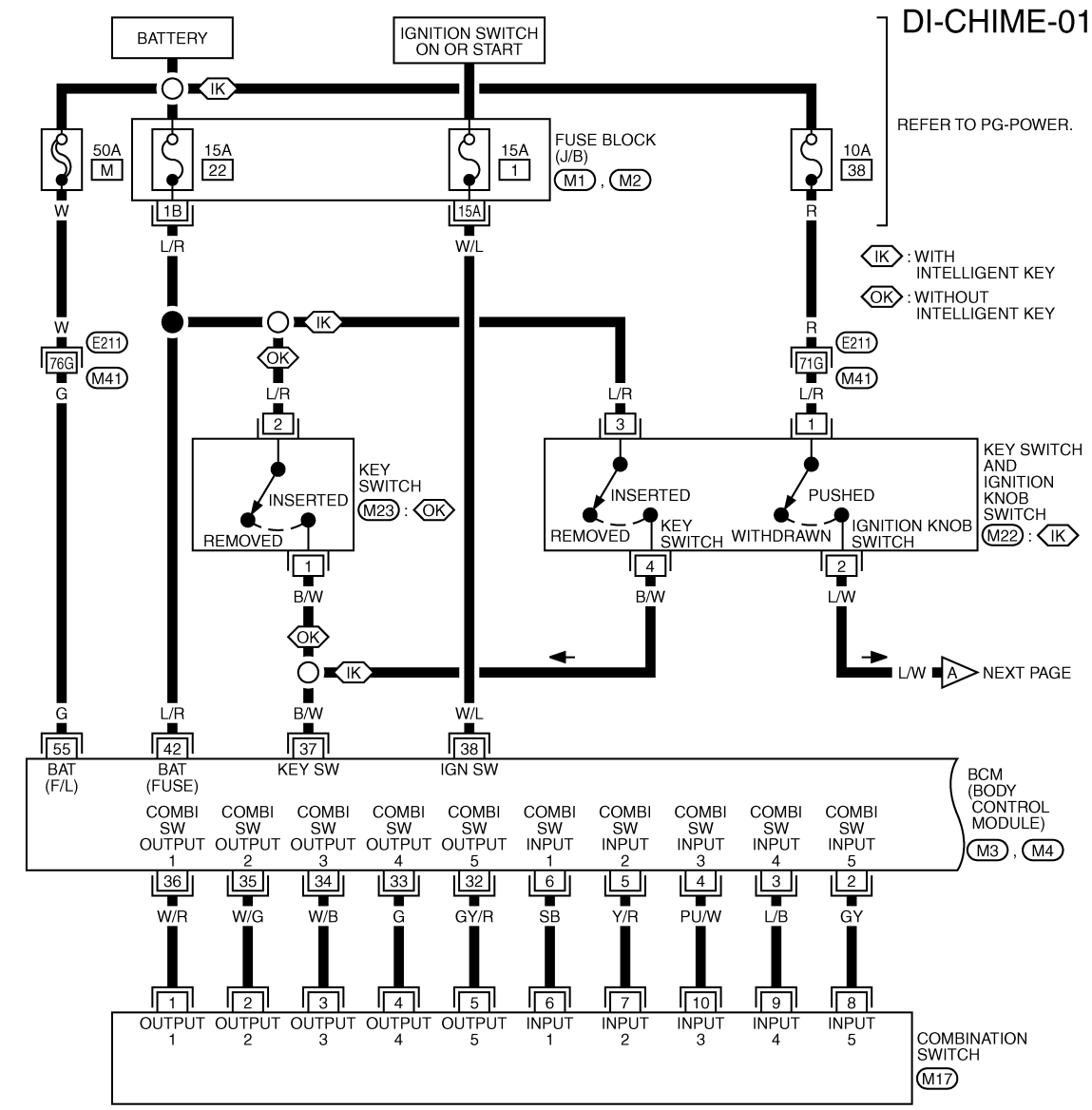
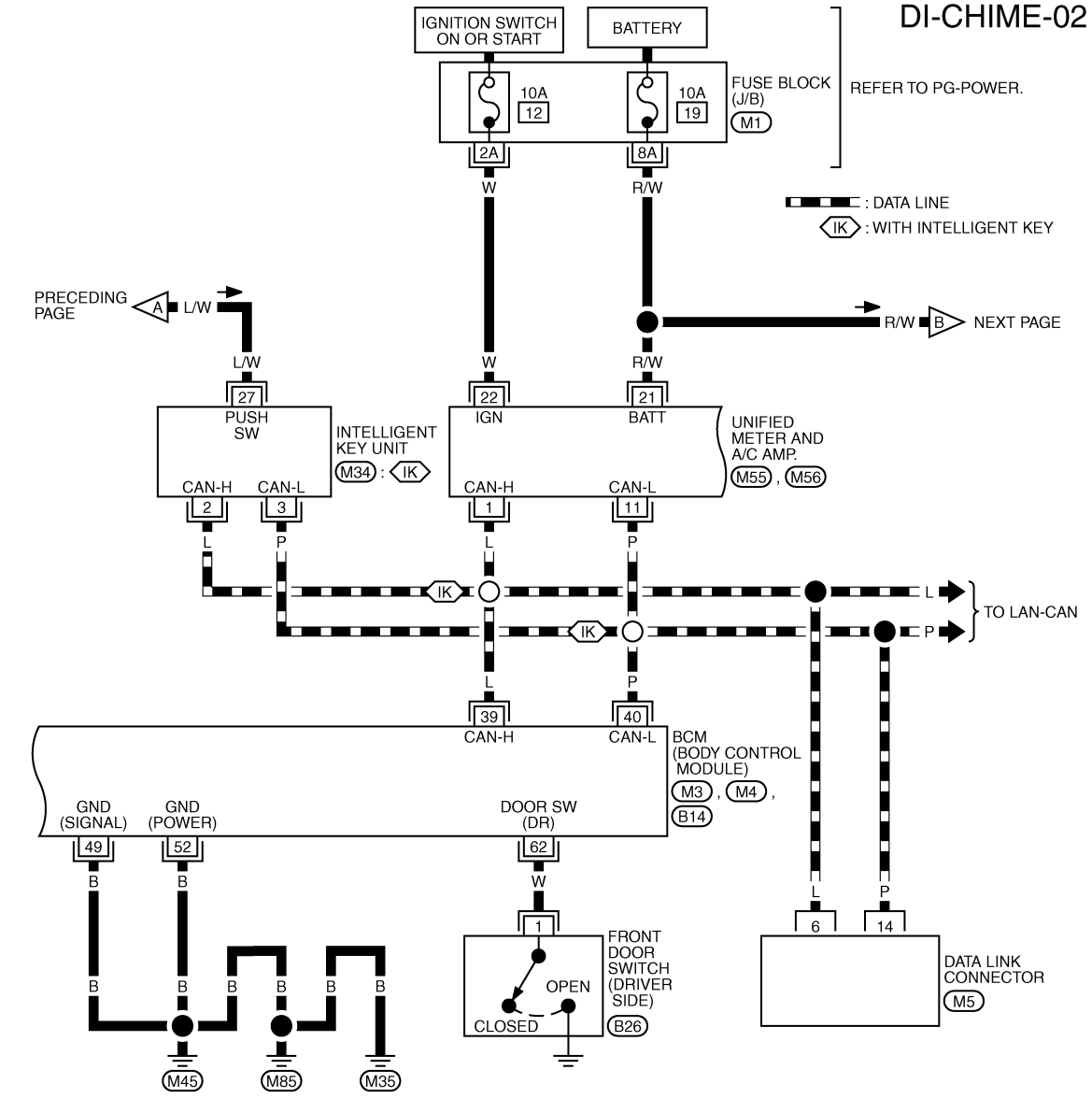


Wiring Diagram - CHIME -

INFOID:0000000001328476

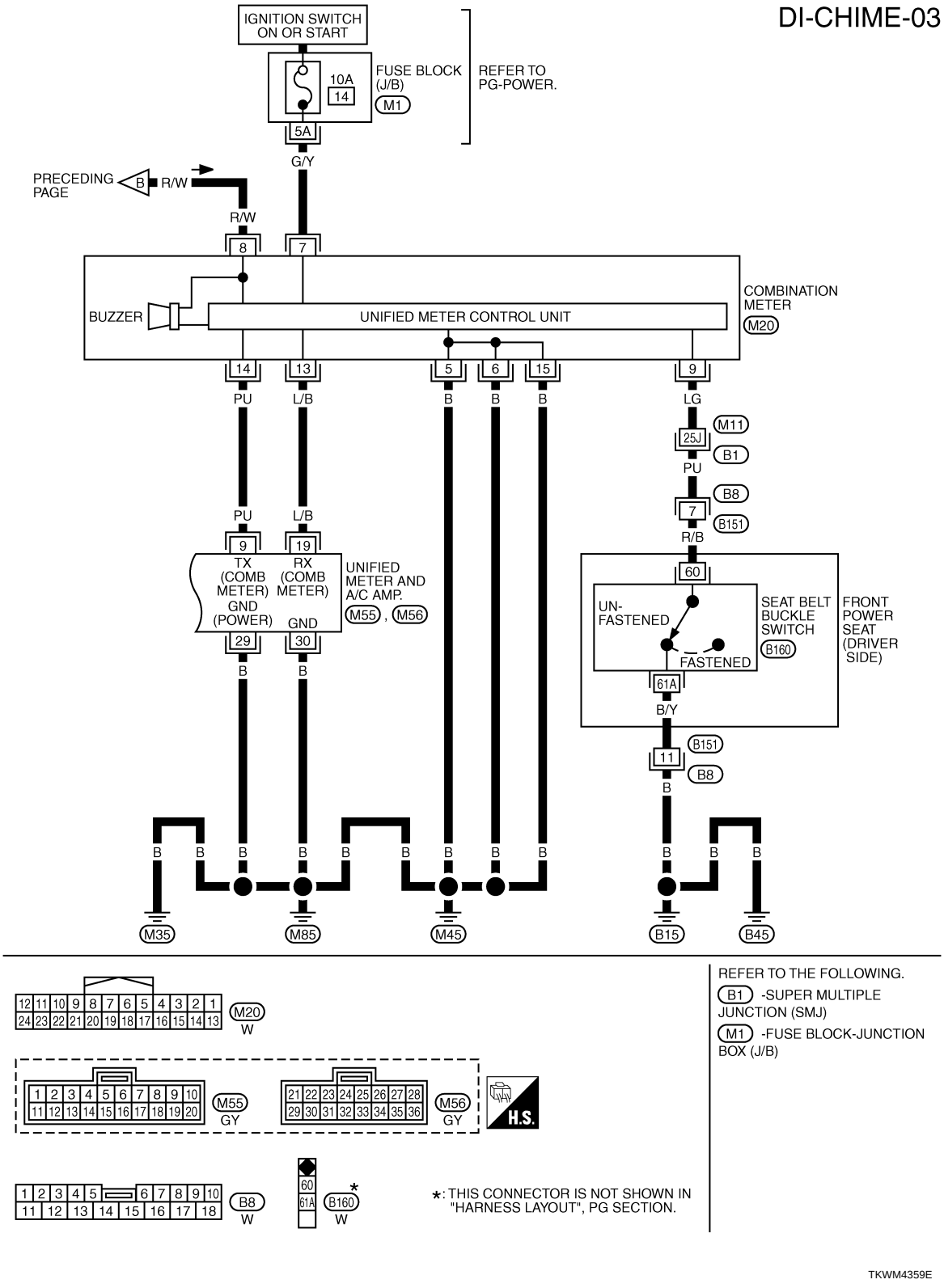


TKWM4357E


DI-CHIME-02
IGNITION SWITCH ON OR START
BATTERY
FUSE BLOCK (J/B) M1
10A 12
10A 19
2A
8A
REFER TO PG-POWER.
W
R/W
: DATA LINE
IK : WITH INTELLIGENT KEY
PRECEDING PAGE
A
L/W
R/W
B
NEXT PAGE
27
PUSH SW
INTELLIGENT KEY UNIT M34 : IK
22
IGN
21
BATT
UNIFIED METER AND A/C AMP. M55 , M56
CAN-H
CAN-L
2
3
1
11
L
P
IK
TO LAN-CAN
39
40
BCM (BODY CONTROL MODULE) M3 , M4 , B14
GND (SIGNAL)
GND (POWER)
DOOR SW (DR)
49
52
62
B
W
1
FRONT DOOR SWITCH (DRIVER SIDE)
OPEN
CLOSED
B26
6
14
DATA LINK CONNECTOR M5
M45
M85
M35
M5
W
M55
GY
M56
GY
H.S.
B26
W
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M3 , M4 , M34 , B14
-ELECTRICAL UNITS

TKWM4358E

DI-CHIME-03



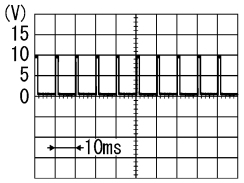
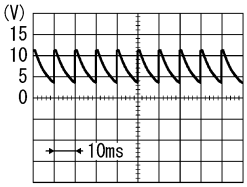
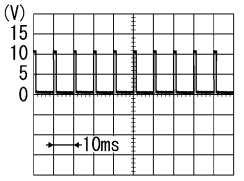
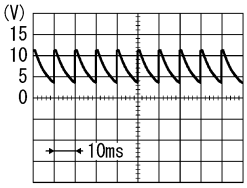
TKWM4359E

Terminal and Reference Value for BCM

INFOID:0000000001328477

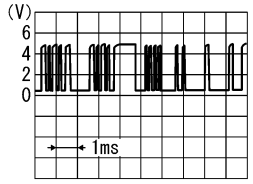
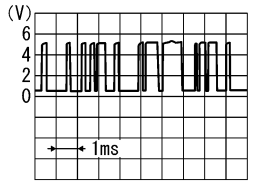
CAUTION:

- **Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal and wiper switch OFF not to be fluctuated by overloaded.**
- **Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-III. Refer to LT-103, "CONSULT-III Functions (BCM)".**

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/Y	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch 1ST	 PKIB4959J Approx. 1.0 V
33	G	Combination switch output 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch 1ST	 PKIB4958J Approx. 1.2 V
37	B/W	Key switch signal	OFF	When key is removed to ignition key cylinder.		Approx. 0 V
				When key is inserted to ignition key cylinder.		Battery voltage
38	W/L	Ignition power supply	ON	—		Battery voltage
39	L	CAN-H	OFF	—		—
40	P	CAN-L	OFF	—		—
42	L/R	Battery power supply	OFF	—		Battery voltage
49	B	Ground	ON	—		Approx. 0 V
52						
55	G	Battery power supply	OFF	—		Battery voltage
62	W	Front door switch DR signal	OFF	Front door switch DR	ON (open)	Approx. 0 V
					OFF (closed)	 PKIB4960J Approx. 7.0 - 7.5 V

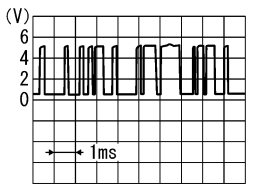
Terminal and Reference Value for Unified Meter and A/C Amp.

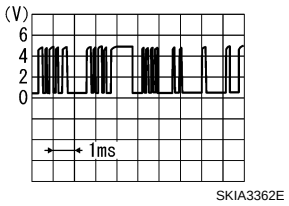
INFOID:0000000001328478

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
1	L	CAN-H	OFF	—	—
9	PU	TX communication line (To combination meter)	ON	—	 SKIA3362E
11	P	CAN-L	OFF	—	—
19	L/B	RX communication line (From combination meter)	ON	—	 SKIA3361E
21	R/W	Battery power supply	OFF	—	Battery voltage
22	W	Ignition power supply	ON	—	Battery voltage
29	B	Ground (Power)	ON	—	Approx. 0 V
30		Ground			

Terminal and Reference Value for Combination Meter

INFOID:0000000001328479

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
5	B	Ground	ON	—	Approx. 0 V
6					
7	G/Y	Ignition power supply	ON	—	Battery voltage
8	R/W	Battery power supply	OFF	—	Battery voltage
9	LG	Seat belt buckle switch (Driver side)	ON	Unfastened (ON)	Approx. 0 V
				Fastened (OFF)	Approx. 12 V
13	L/B	TX communication line (To unified meter and A/C amp.)	ON	—	 SKIA3361E

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
14	PU	RX communication line (From unified meter and A/C amp.)	ON	—	 SKIA3362E
15	B	Ground	ON	—	Approx. 0 V

CONSULT-III Function (METER/M&A)

INFOID:0000000001328480

Refer to DI-27, "CONSULT-III Function (METER/M&A)" in “UNIFIED METER AND A/C AMP”.

CONSULT-III Function (BCM)

INFOID:0000000001328481

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

DIAGNOSIS ITEMS DESCRIPTION

System	Test item	Diagnosis mode	Description
BCM	BUZZER	Data Monitor	Displays BCM input data in real time.
		Active Test	Operation of electrical loads can be checked by sending driving signal to them.
	BCM	Self Diagnostic Result	BCM checks the conditions and displays memorized error.

DATA MONITOR

Display Item List

Monitored item	Description
IGN ON SW [On/Off]	Indicates [On/Off] condition of ignition switch.
KEY ON SW [On/Off]	Indicates [On/Off] condition of key switch.
DOOR SW-DR [On/Off]	Indicates [On/Off] condition of front door switch (driver side).
LIGHT SW 1ST [On/Off]	Indicates [On/Off] condition of lighting switch.
BUCKLE SW [On/Off]	Indicates [On/Off] condition of seat belt switch (driver side).

ACTIVE TEST

Display Item List

Test item	Malfunction is detected when···
LIGHT WARN ALM	This test is able to check light warning chime operation.
IGN KEY WARN ALM	This test is able to check ignition key warning chime operation.
SEAT BELT WARN TEST	This test is able to check seat belt warning chime operation.

SELF DIAGNOSTIC RESULT

Display Item List

Monitored Item	CONSULT-III display	Description
CAN communication	CAN communication [U1000]	Malfunction is detected in CAN communication.

NOTE:

If “CAN communication [U1000]” is indicated, after printing the monitor item, go to “LAN system”. Refer to LAN-43, "CAN System Specification Chart".

Trouble Diagnosis

INFOID:0000000001328482

HOW TO PERFORM TROUBLE DIAGNOSIS

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to DI-51, "System Description".
3. Perform the preliminary inspection. Refer to "PRELIMINARY INSPECTION".
4. Referring to trouble diagnosis chart, make sure the cause of the malfunction and repair or replace applicable parts. Refer to DI-61, "Symptom Chart".
5. Does the warning chime operate normally? If so, GO TO 6. If not, GO TO 3.
6. INSPECTION END

PRELIMINARY INSPECTION

1.CHECK BCM (CONSULT-III)

Perform self-diagnosis of BCM. Refer to DI-60, "CONSULT-III Function (BCM)".

Self-diagnosis results

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

2.CHECK UNIFIED METER AND A/C AMP. (CONSULT-III)

Perform self-diagnosis of unified meter and A/C amp. Refer to DI-27, "CONSULT-III Function (METER/M&A)".

Self-diagnosis results

No malfunction detected >> INSPECTION END
Malfunction detected >> Check applicable parts, and repair or replace corresponding parts.

Symptom Chart

INFOID:0000000001328483

Symptom		Diagnoses/Service procedure
All warning chimes do not activate.		Perform the following inspections. 1. DI-62, "Combination Meter Buzzer Circuit Inspection". 2. DI-61, "Power Supply and Ground Circuit Inspection". Replace BCM, found normal function in the above inspections.
Ignition key warning chime does not activate.	Without Intelligent Key.	Perform the following inspections. 1. DI-63, "Front Door Switch (Driver Side) Signal Inspection". 2. DI-64, "Key Switch Signal Inspection (Without Intelligent Key)". Replace BCM, found normal function in the above inspections.
	With Intelligent Key, when mechanical key is used.	Perform the following inspections. 1. DI-63, "Front Door Switch (Driver Side) Signal Inspection". 2. DI-65, "Key Switch and Ignition Knob Switch Signal Inspection (With Intelligent Key, When Mechanical Key Is Used)". Replace BCM, found normal function in the above inspections.
	With Intelligent Key, when Intelligent Key is carried with the driver.	Refer to BL-106, "Trouble Diagnosis Symptom Chart".
Light warning chime does not activate.		Perform the following inspections. 1. DI-63, "Front Door Switch (Driver Side) Signal Inspection". 2. LT-104, "Combination Switch Inspection". Replace BCM, found normal function in the above inspections.
Seat belt warning chime does not activate.		Perform DI-66, "Seat Belt Buckle Switch (Driver Side) Signal Inspection". Replace BCM, found normal function in the above inspection.

Power Supply and Ground Circuit Inspection

INFOID:0000000001328484

1.CHECK FUSE AND FUSIBLE LINK

Check for blown BCM fuses and fusible link.

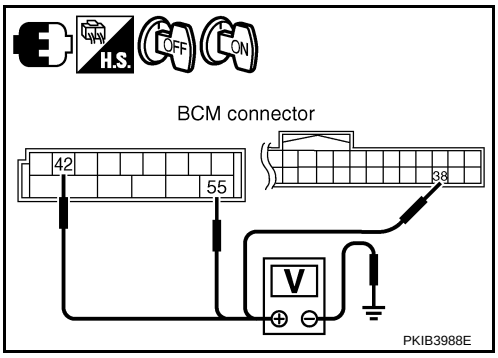
Power source	Fuse and fusible link No.
Battery power supply	M
	22
Ignition power supply	1

OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to PG-3.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between BCM harness connector terminals and ground.



Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
M34	38	Ground	0 V	Battery voltage
M35	42		Battery voltage	Battery voltage
	55			

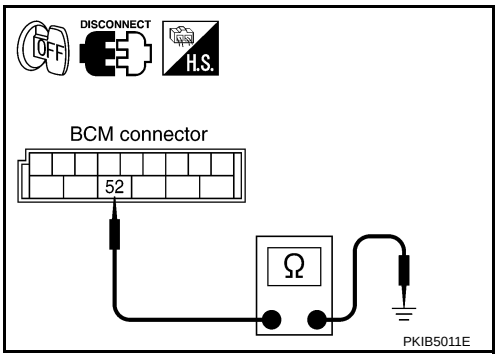
OK or NG

OK >> GO TO 3.
NG >> Check 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 M35 terminal 52 and ground.

52 – Ground : Continuity should exist.



OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

Combination Meter Buzzer Circuit Inspection

INFOID:0000000001328485

1.CHECK OPERATION OF COMBINATION METER BUZZER

1. Select “BUZZER” of “BCM” on CONSULT-III.
2. Perform “LIGHT WARN ALM”, “IGN KEY WARN ALM” or “SEAT BELT WARN TEST” of “Active Test”.

Does chime sound?

YES >> GO TO 4.
NO >> GO TO 2.

2.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

1. Select “METER/M&A” on CONSULT-III.
2. Operate switches to meet the requirements to sound warning chime with “BUZZER” of “Data Monitor” and check operation status.

“BUZZER”

When meeting the requirements to sound warning chime : On

Except above : Off

OK or NG

OK >> GO TO 3.
NG >> Replace BCM. Refer to BCS-13, "Removal and Installation of BCM".

3. CHECK BATTERY POWER SUPPLY CIRCUIT OF COMBINATION METER

Check battery power supply circuit of combination meter. Refer to DI-16, "Power Supply and Ground Circuit Inspection".

OK or NG

OK >> Replace combination meter.
NG >> Check harness between combination meter and fuse.

4. CHECK BATTERY POWER SUPPLY CIRCUIT OF UNIFIED METER AND A/C AMP.

Check battery power supply circuit of unified meter and A/C amp. Refer to DI-29, "Power Supply and Ground Circuit Inspection".

OK or NG

OK >> INSPECTION END
NG >> Check harness between unified meter and A/C amp. and fuse.

Front Door Switch (Driver Side) Signal Inspection

INFOID:0000000001328486

1. CHECK BCM INPUT SIGNAL

With CONSULT-III

1. Select “BCM” on consult-III.
2. With “Data Monitor” of “BUZZER”, confirm “DOOR SW-DR” when the driver side door is operated.

“DOOR SW-DR”

When driver side door is opened : On

When driver side door is closed : Off

Without CONSULT-III

Check voltage between BCM harness connector B14 terminal 62 and ground.

62 – Ground

When driver side door is opened : Approx. 0 V

When driver side door is closed : Approx. 12 V

OK or NG

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

2. CHECK FRONT DOOR SWITCH (DRIVER SIDE) CIRCUIT

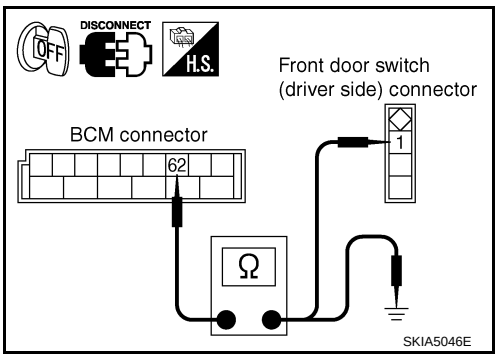
1. Turn ignition switch OFF.
2. Disconnect BCM connector and front door switch (driver side) connector.

3. Check continuity between BCM harness connector B14 terminal 62 and front door switch (driver side) harness connector B26 terminal 1.

62 – 1 : Continuity should exist.

4. Check continuity between BCM harness connector B14 terminal 62 and ground.

62 – Ground : Continuity should not exist.



OK or NG

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

3.CHECK FRONT DOOR SWITCH (DRIVER SIDE)

Check front door switch (driver side). Refer to DI-67, "Component Inspection".

OK or NG

OK >> Replace BCM. Refer to BCS-13, "Removal and Installation of BCM".
NG >> Replace front door switch (driver side).

Key Switch Signal Inspection (Without Intelligent Key)

INFOID:0000000001328487

1.CHECK BCM INPUT SIGNAL

With CONSULT-III

1. Select “BCM” on consult-III.
2. With “Data Monitor” of “BUZZER”, confirm “KEY ON SW” when the key is operated.

“KEY ON SW”

When key is inserted to ignition key cylinder : On

When key is removed from ignition key cylinder : Off

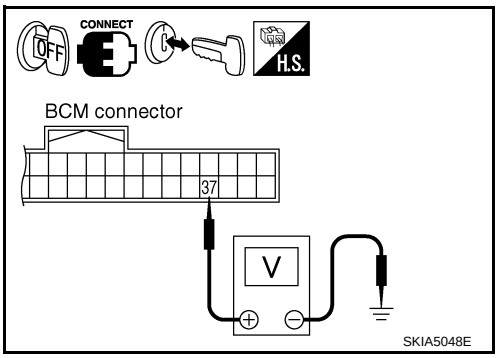
Without CONSULT-III

Check voltage between BCM harness connector M3 terminal 37 and ground.

37 – Ground

When key is inserted to ignition key cylinder : Approx. 12 V

When key is removed from ignition key cylinder : Approx. 0 V



OK or NG

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

2.CHECK KEY SWITCH

1. Turn ignition switch OFF.
2. Disconnect key switch connector.
3. Check key switch. Refer to DI-67, "Component Inspection".

OK or NG

OK >> GO TO 3.
NG >> Replace key switch.

3.CHECK KEY SWITCH CIRCUIT

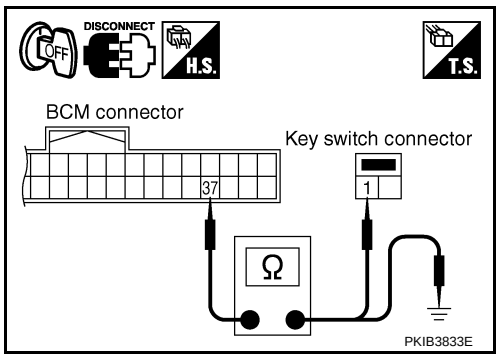
1. Disconnect BCM connector.

2. Check continuity between BCM harness connector M3 terminal 37 and key switch harness connector M23 terminal 1.

37 – 1 : Continuity should exist.

3. Check continuity between BCM harness connector M3 terminal 37 and ground.

37 – Ground : Continuity should not exist.



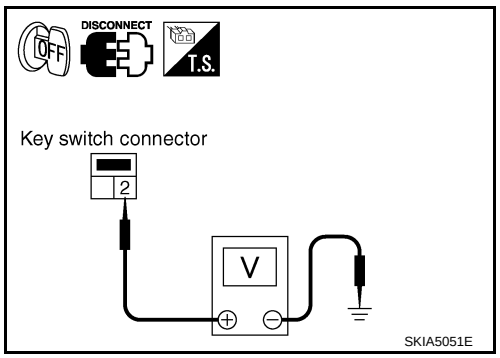
OK or NG

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

4. CHECK KEY SWITCH POWER SUPPLY CIRCUIT

Check voltage between key switch harness connector M23 terminal 2 and ground.

2 – Ground : Battery voltage



OK or NG

OK >> Replace BCM. Refer to BCS-13, "Removal and Installation of BCM".
NG >> Check harness between key switch and fuse.

Key Switch and Ignition Knob Switch Signal Inspection (With Intelligent Key, When Mechanical Key Is Used)

INFOID:0000000001328488

1. CHECK BCM INPUT SIGNAL

With CONSULT-III

1. Select “BCM” on consult-III.
2. With “Data Monitor” of “BUZZER”, confirm “KEY ON SW” when the key is operated.

“KEY ON SW”
When key is inserted to ignition key cylinder : On
When key is removed from ignition key cylinder : Off

Without CONSULT-III

Check voltage between BCM harness connector M3 terminal 37 and ground.

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

OK or NG

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

2. CHECK KEY SWITCH AND IGNITION KNOB SWITCH

1. Turn ignition switch OFF.
2. Disconnect key switch and ignition knob switch connector.
3. Check key switch and ignition knob switch. Refer to DI-67, "Component Inspection".

OK or NG

OK >> GO TO 3.
NG >> Replace key switch and ignition knob switch.

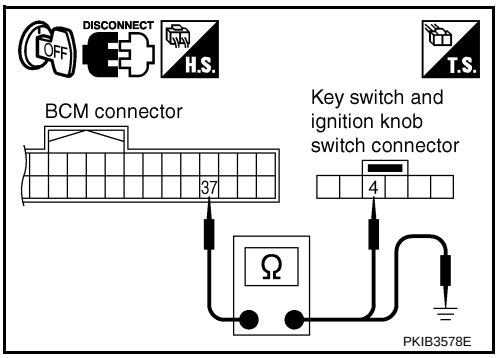
3.CHECK KEY SWITCH AND IGNITION KNOB SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M3 terminal 37 and key switch and ignition knob switch harness connector M22 terminal 4.

37 – 4 : Continuity should exist.

3. Check continuity between BCM harness connector M3 terminal 37 and ground.

37 – Ground : Continuity should not exist.



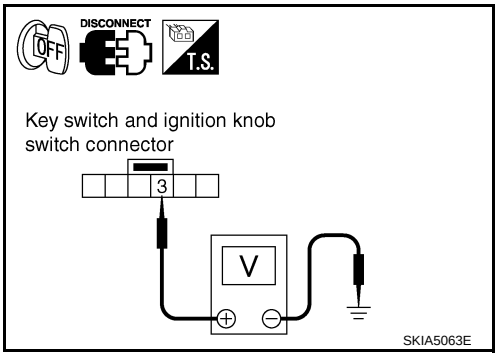
OK or NG

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

4.CHECK KEY SWITCH POWER SUPPLY CIRCUIT

Check voltage between key switch and ignition knob switch harness connector M22 terminal 3 and ground.

3 – Ground : Battery voltage



OK or NG

OK >> Replace BCM. Refer to BCS-13, "Removal and Installation of BCM".
NG >> Check harness between key switch and ignition knob switch and fuse.

Lighting Switch Signal Inspection

INFOID:0000000001328489

1.CHECK BCM INPUT SIGNAL

1. Select “BCM” on CONSULT-III.
2. With “Data Monitor” of “BUZZER”, confirm “LIGHT SW 1ST” when the lighting switch is operated.

“LIGHT SW 1ST”
Lighting switch ON (1st position) : On
Lighting switch OFF : Off

OK or NG

OK >> INSPECTION END
NG >> Check the lighting switch. Refer to LT-104, "Combination Switch Inspection".

Seat Belt Buckle Switch (Driver Side) Signal Inspection

INFOID:0000000001328490

1.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL

1. Select “METER/M&A” on CONSULT-III.
2. With “Data Monitor” of “METER/M&A”, confirm “SEAT BELT W/L” when the seat belt is operated.

“SEAT BELT W/L”

When seat belt (driver side) is fastened : Off

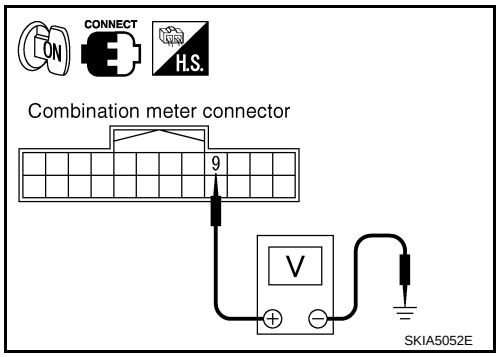
When seat belt (driver side) is unfastened : On

OK or NG

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

2. CHECK COMBINATION METER INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between combination meter harness connector M20 terminal 9 and ground.



9 – Ground

When seat belt (driver side) is fastened : Approx. 12 V

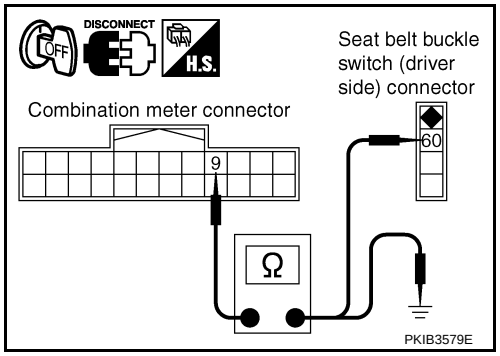
When seat belt (driver side) is unfastened : Approx. 0 V

OK or NG

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

3. CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and seat belt buckle switch (driver side) connector.
3. Check continuity between combination meter harness connector M20 terminal 9 and seat belt buckle switch (driver side) harness connector B160 terminal 60.



9 – 60 : Continuity should exist.

4. Check harness continuity between combination meter harness connector M20 terminal 9 and ground.

9 – Ground : Continuity should not exist.

OK or NG

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

4. CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

Check seat belt buckle switch (driver side). Refer to DI-67, "Component Inspection".

OK or NG

OK >> Check seat belt buckle switch (driver side) ground circuit.
NG >> Replace seat belt buckle switch (driver side).

Component Inspection

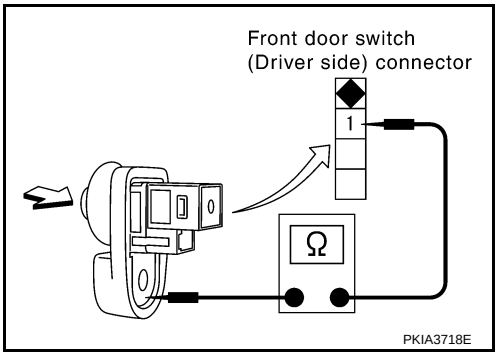
INFOID:0000000001328491

FRONT DOOR SWITCH (DRIVER SIDE)

Check continuity between terminal 1 and door switch case ground.

1 – Front door switch (Driver side) case ground

When front door switch (driver side) is released	**: Continuity should exist.**
When front door switch (driver side) is pushed	**: Continuity should not exist.**

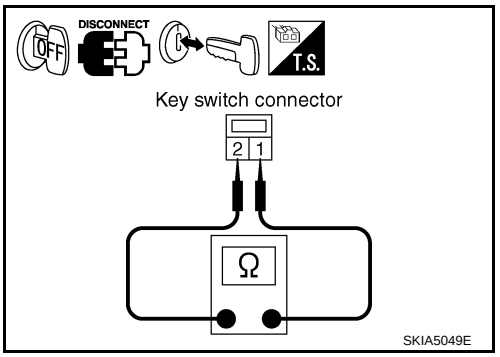


KEY SWITCH

Check continuity between terminals 1 and 2.

1 – 2

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

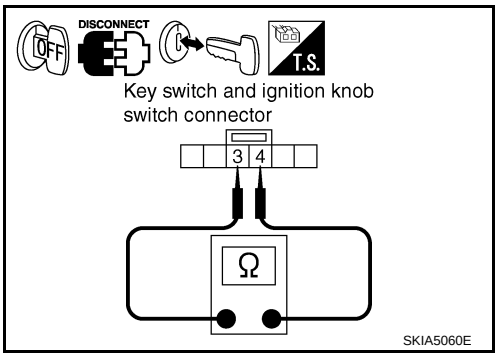


KEY SWITCH AND IGNITION KNOB SWITCH

Check continuity between terminals 3 and 4.

3 – 4

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

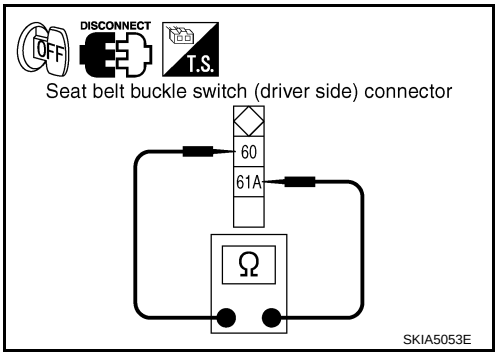


SEAT BELT BUCKLE SWITCH (DRIVER SIDE)

Check continuity between terminals 60 and 61A.

60 – 61A

When seat belt (driver side) is fastened	**: Continuity should not exist.**
When seat belt (driver side) is unfastened	**: Continuity should exist.**



LANE DEPARTURE WARNING SYSTEM

Precaution for Lane Departure Warning (LDW) system

INFOID:0000000001328492

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

INFOID:0000000001328493

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 pushing 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

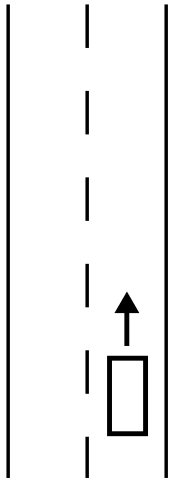
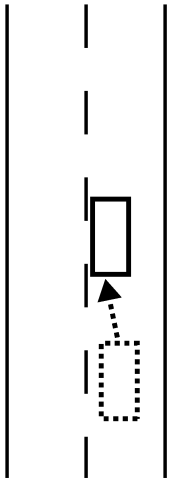
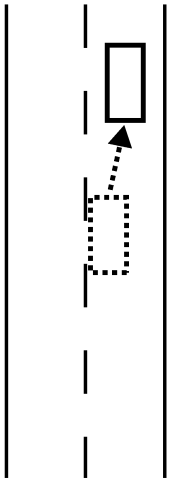
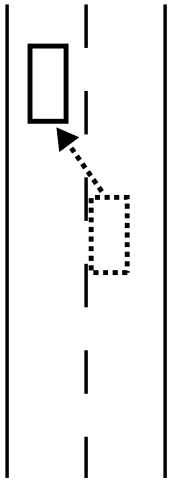
- LDW system is still off when the ignition switch is turned to the ON position.

- 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.

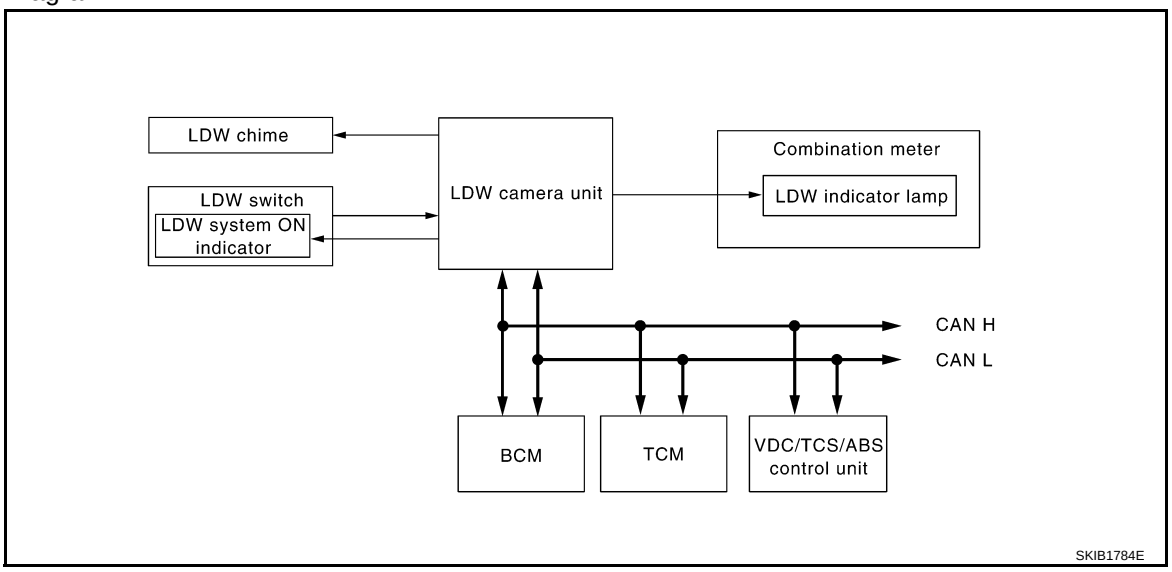
Warning Function

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.*
BCM	Transmits turn indicator signal to LDW camera unit with CAN communication signal.
ABS actuator and electric unit (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. 12, 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 M45, M85 and M35.

Action Test

INFOID:0000000001328494

LDW SYSTEM RUNNING TEST

WARNING:
- **Be careful when performing road test.**
- **Understand “Precautions” and “System Description” well before the road test. Refer to DI-69, "Precaution for Lane Departure Warning (LDW) system" and DI-69, "System Description".**

Function Check

Check the LDW system operation according to the condition that the warning function works. Refer to DI-69, "System Description".

Camera Aiming Adjustment

INFOID:0000000001328495

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-III when adjusting the camera aiming. (Camera aiming adjustment cannot be operated without CONSULT-III.)**

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.

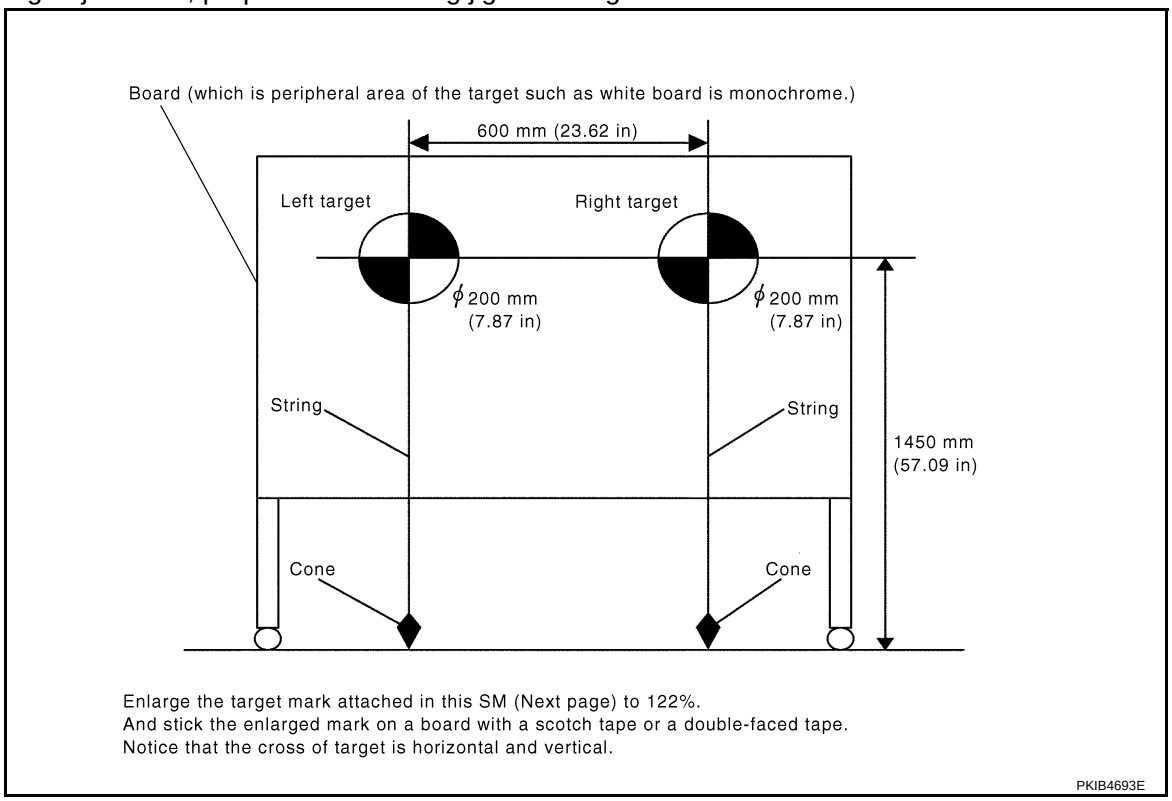
NOTE:

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

TARGET SETTING

Preparation Aiming Adjustment Jig

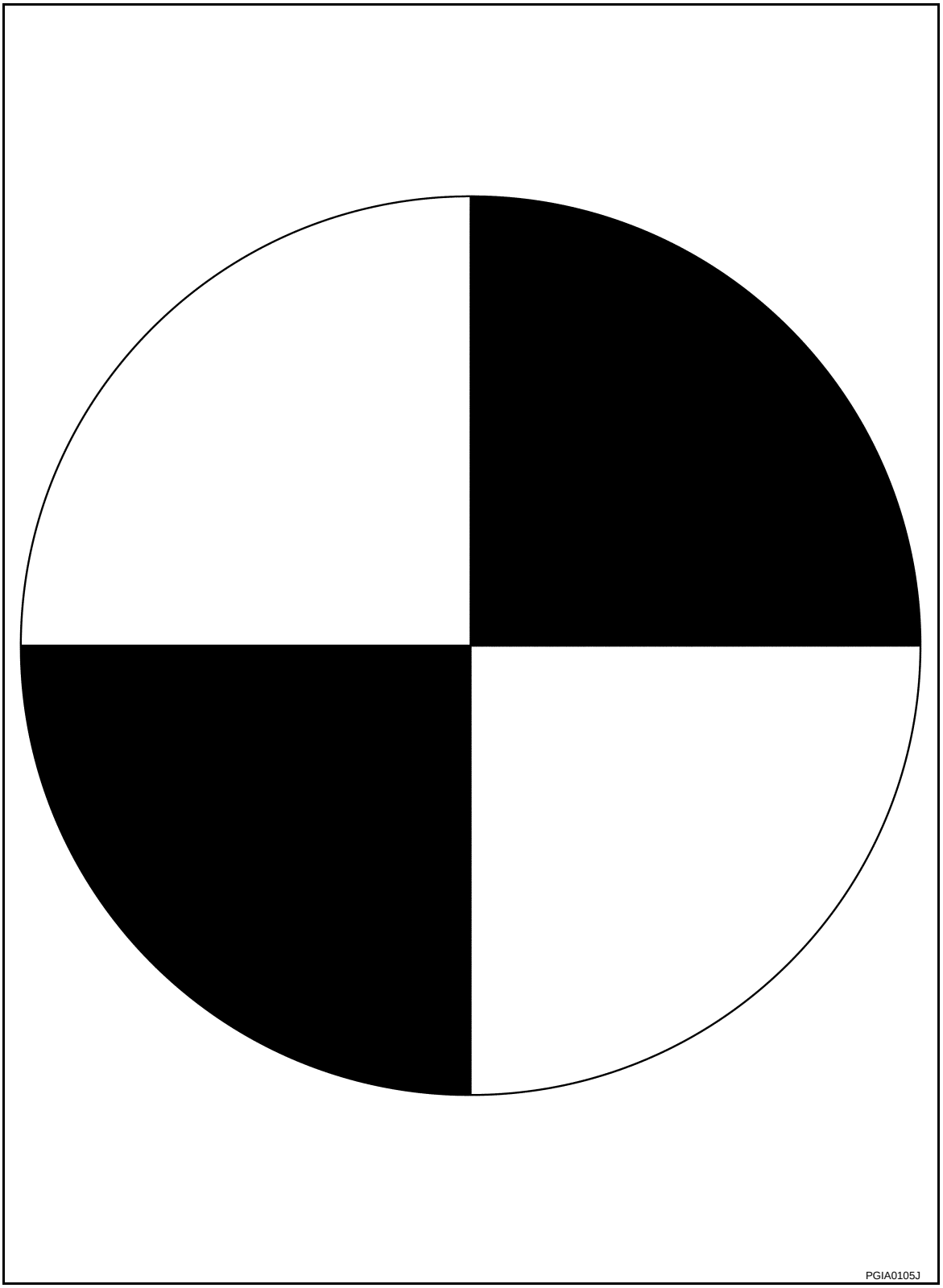
For aiming adjustment, prepare the following jigs and targets.



Target

NOTE:

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

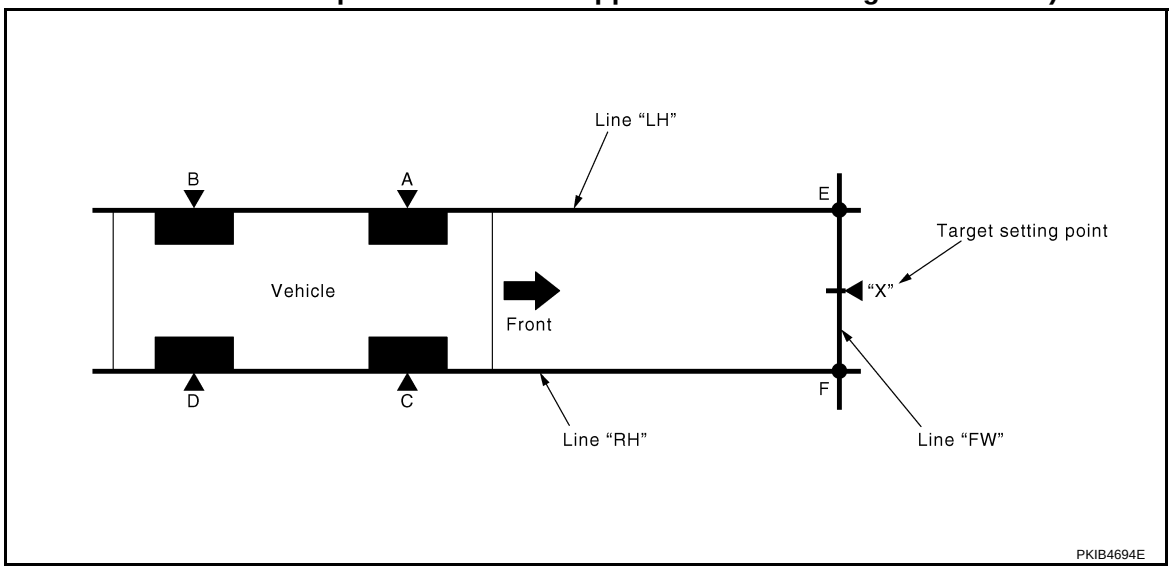


Target Setting

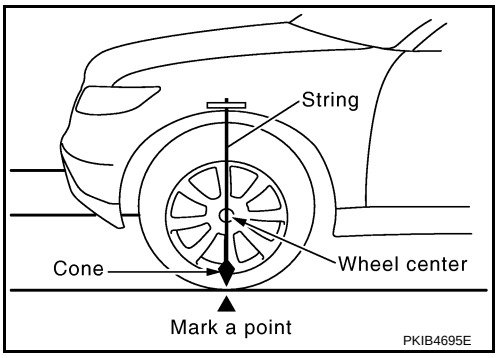
CAUTION:

- **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.)**

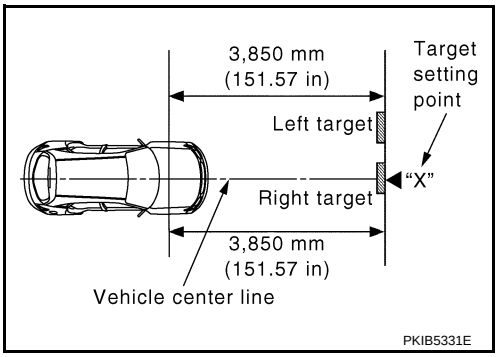
- **The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 1 m (3.28 ft) from either side and upward/downward position from the target. (It is desirable that the vehicle is positioned on the opposite side of a single-color wall.)**



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”).

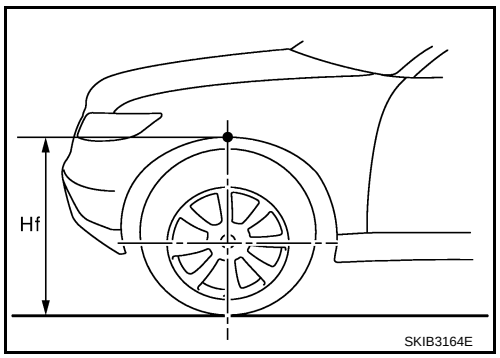


4. Draw a line passing through the points “C” and “D” on the right side of vehicle as with the step 2 (line “RH”).
   NOTE:
   Approximately 4 m (13.12 ft) or more from the forward end of vehicle.
5. Mark points on the line “RH”, at the positions 3850 mm (151.57 in) from the point “C” (“F”).
6. Draw 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 – 840

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.**

NOTE:
When the DTC (C1B01 CAM AIMING INCMP) is displayed on CONSULT-III screen, perform the aiming adjustment after erasing the DTC.

1. Select “Work Support” on LDW with CONSULT-III.
2. Select “AUTO AIM”.
3. Confirm following.

a. The target should be accurately placed.

b. The vehicle should be stopped.

4. Select “Start” to perform aiming.
   CAUTION:
   Never Select “Start” when the target is not placed.
5. Input “Dh”, and then select “Start”.
   NOTE:
   Check the value “Dh”. Refer to "VEHICLE HEIGHT CHECK".
   CAUTION:
   Never change “Ht” and “Dt”.
6. Check it display item.

a. “Normally Completed” is displayed, then selecting “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 again. Perform the aiming again. Refer to "Camera Aiming Adjustment".
	10H Writing error	
ABNORMALLY COMPLETED	—	

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

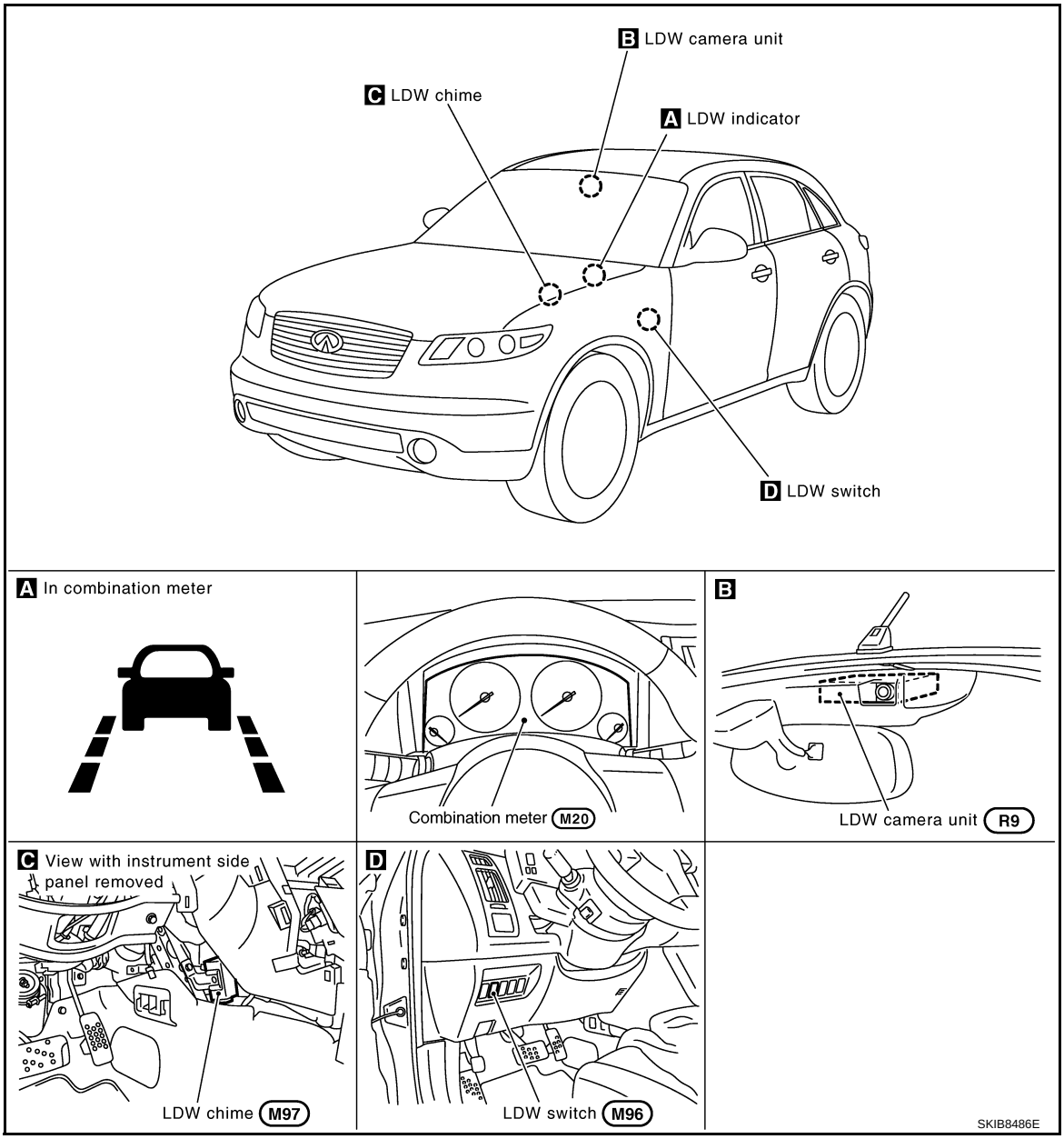
7. Check if “Normally Completed” is displayed and close the aiming adjustment procedure by selecting “End”.

Check After The Adjustment

1. Perform self-diagnosis of LDW camera unit. Refer to DI-81, "CONSULT-III Function (LDW)".
2. Test the LDW system operation by running test. Refer to DI-71, "Action Test".

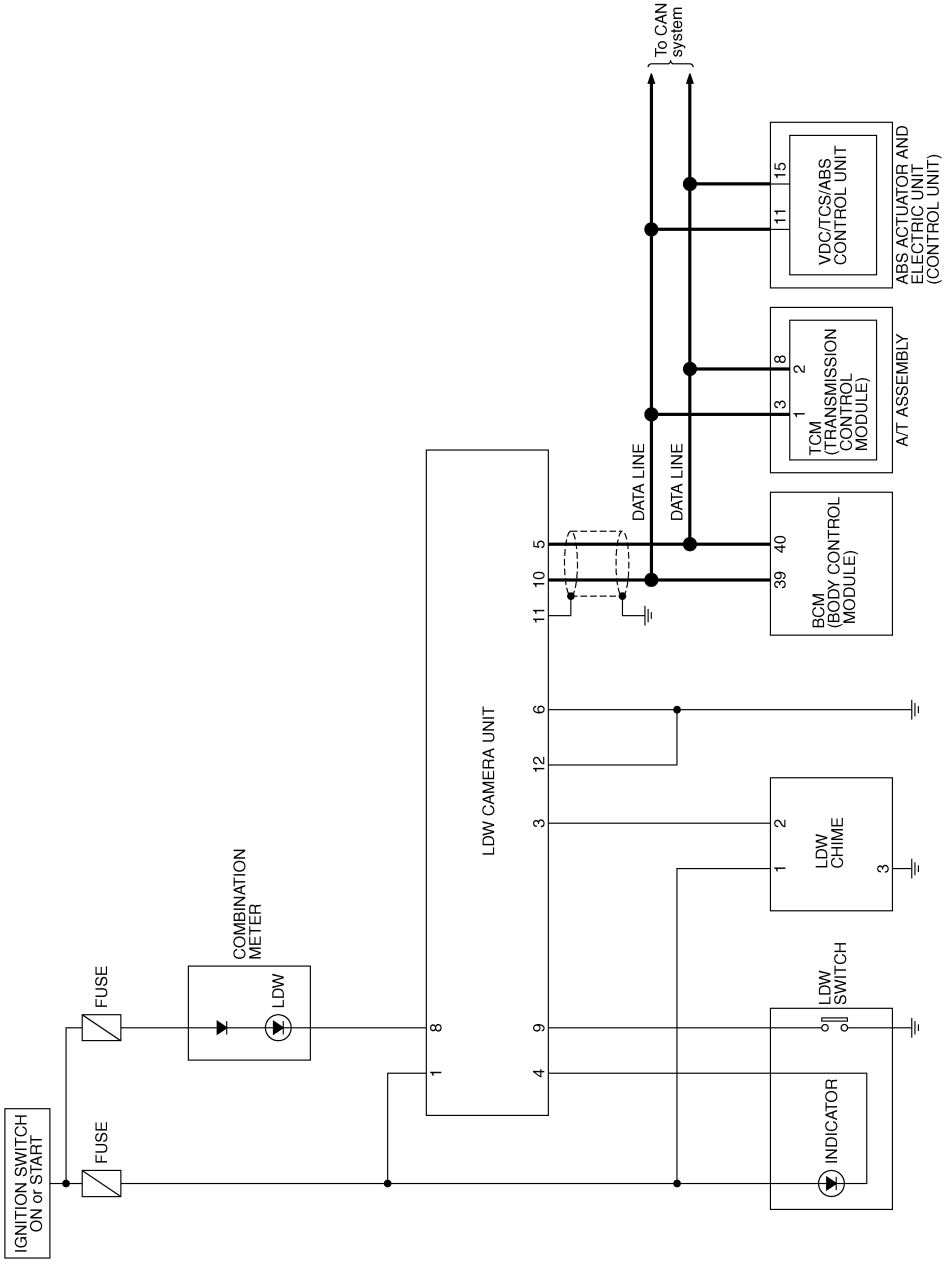
Component Parts and Harness Connector Location

INFOID:0000000001328496



Schematic

INFOID:0000000001328497

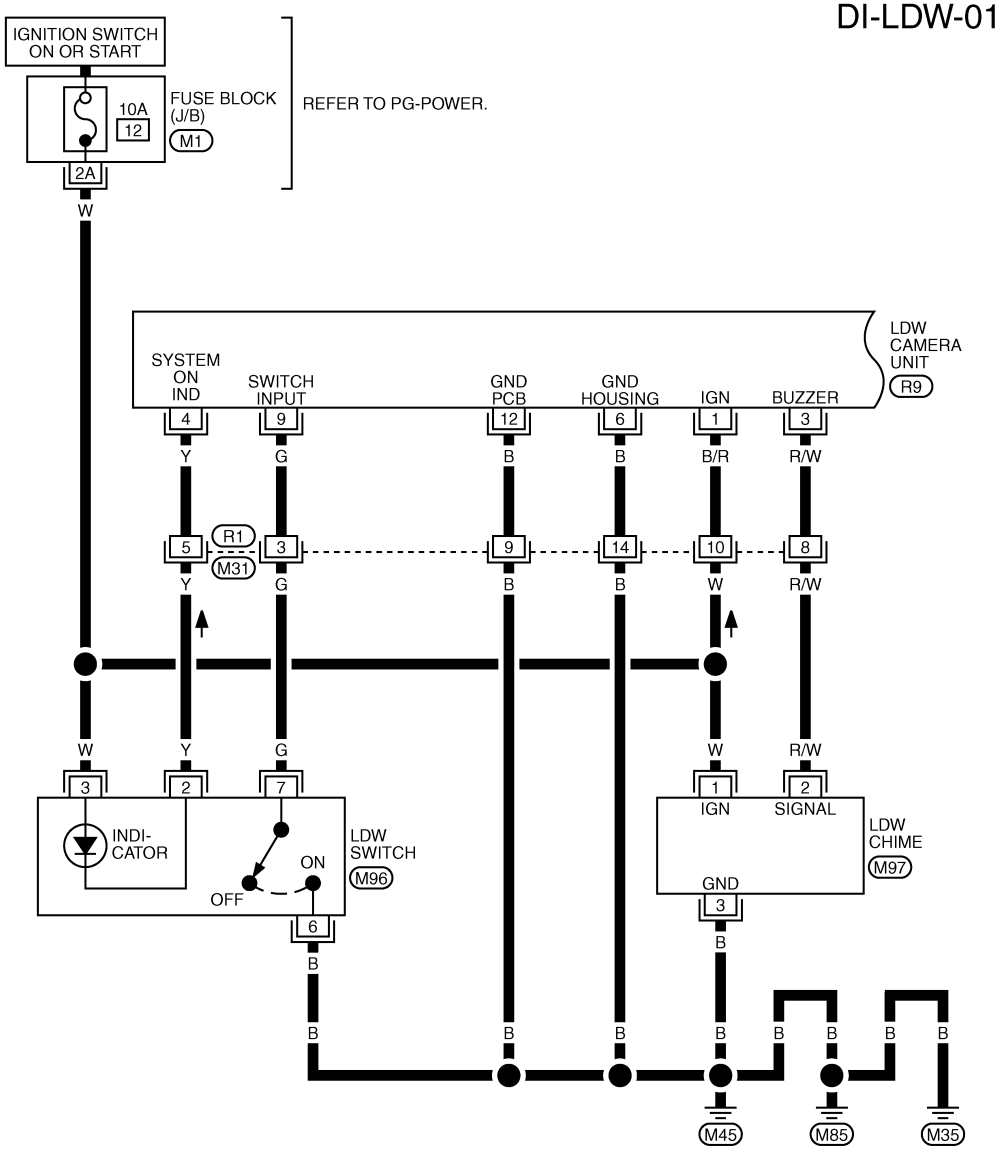


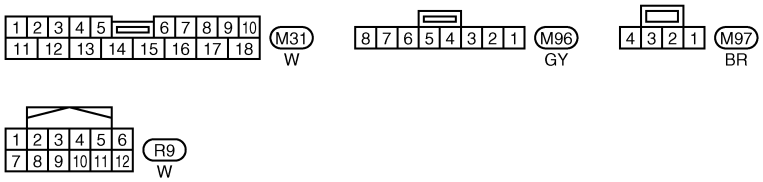
TKWM4366E

Wiring Diagram - LDW -

INFOID:0000000001328498

DI-LDW-01

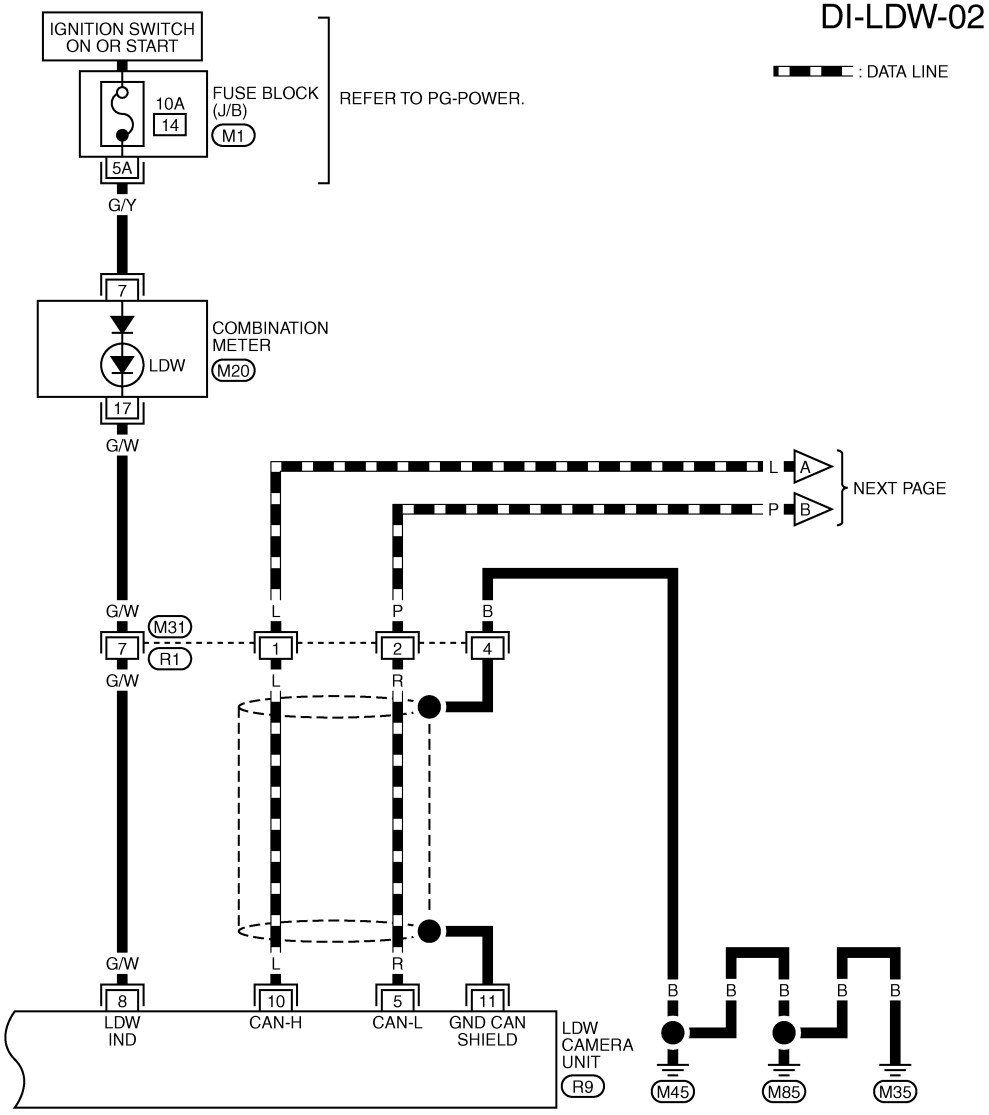


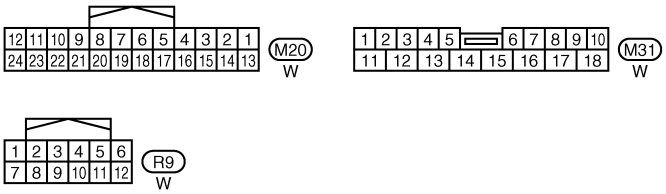


REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4367E

DI-LDW-02

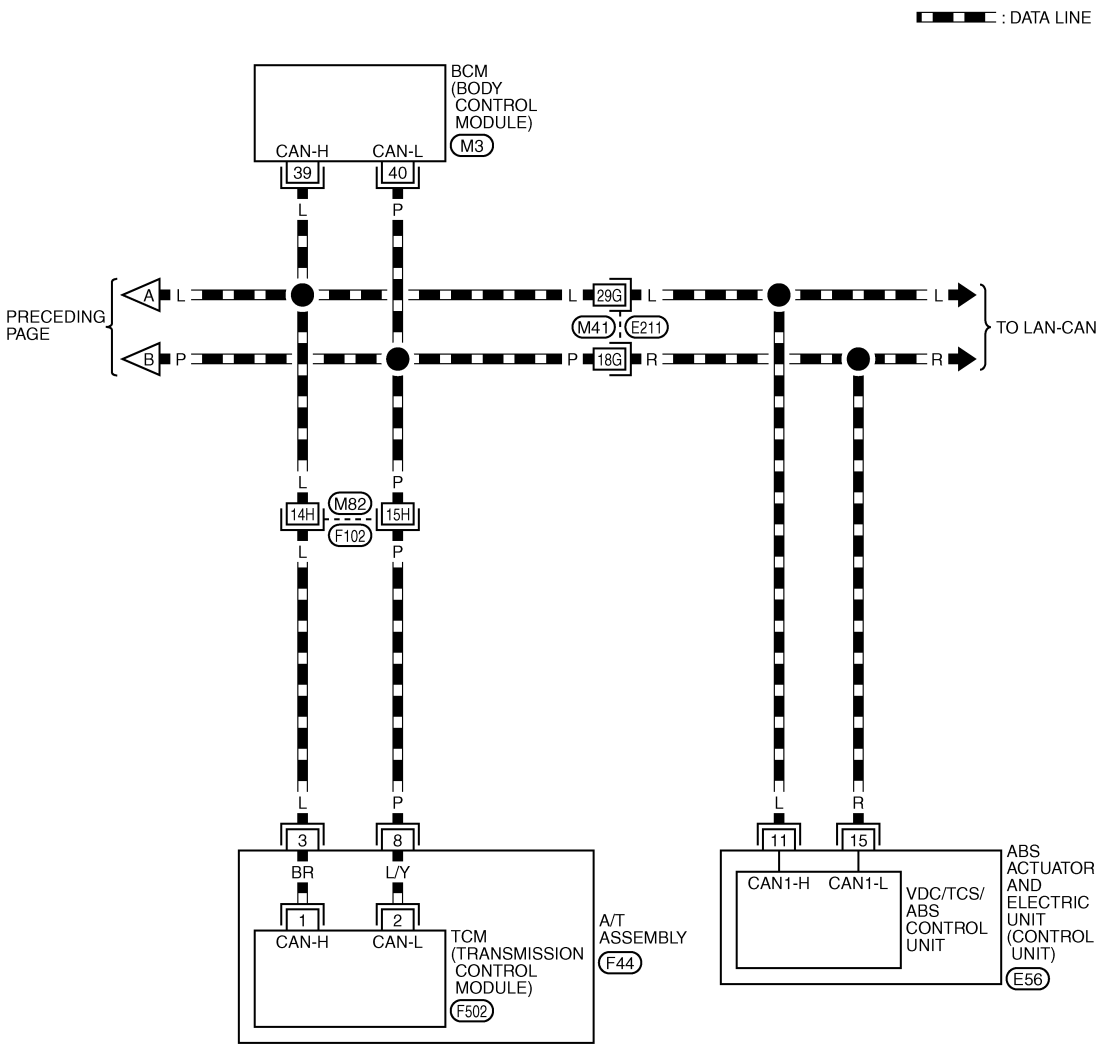


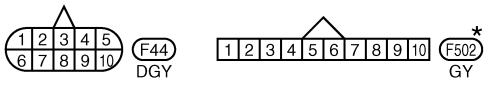


REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4368E

DI-LDW-03





REFER TO THE FOLLOWING.
E211 , F102 -SUPER MULTIPLE JUNCTION (SMJ)
M3 , E56 -ELECTRICAL UNITS

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

TKWM4369E

Terminal and Reference Value for LDW Camera Unit

INFOID:0000000001328499

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

NOTE:

*: Perform “Active Test” with CONSULT-III. Refer to DI-81, "CONSULT-III Function (LDW)".

CONSULT-III Function (LDW)

INFOID:0000000001328500

DESCRIPTION

CONSULT-III performs the following functions communicating with the LDW camera unit.

Select diag mode	Function
Work support	Displays causes of automatic cancellation of the LDW system.
Self Diagnostic Result	Displays malfunctioning system memorized in LDW camera unit.
Data Monitor	Displays real-time input/output data of LDW camera unit.
CAN DIAG SUPPORT MNTR	The results of transmit/receive diagnosis of CAN communication can be read.
Active Test	Enables operation check of electrical loads by sending driving signal to them.
Ecu Identification	Displays part number of LDW camera unit.

WORK SUPPORT

Display Item

Operation	Function	Reference page
AUTO AIM	Outputs camera unit, calculates dislocation of the camera, and displays adjustment direction.	DI-71, "Camera Aiming Adjustment"

SELF DIAGNOSTIC RESULT

Display Item

Display item [Code]		Malfunctions detected where...	Reference page
CAMERA UNIT MALF	[C1B00]	LDW camera unit internal malfunction	DI-85
CAM AIMING INCMP	[C1B01]	LDW camera aiming is not adjusted.	DI-85
VHCL SPD DATA MALF	[C1B02]	LDW camera unit detected different vehicle speed signal from TCM and ABS actuator and electric unit (control unit).	DI-85
ABNRML TEMP DETECT	[C1B03]	Temperature around LDW camera unit is excessively high.	DI-86
CAN COMM CIRCUIT	[U1000]	LDW camera unit detected CAN communication malfunction.	DI-86
CONTROL UNIT (CAN)	[U1010]	LDW camera unit detected internal CAN communication circuit malfunction.	DI-86

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

Display Item

Monitored Item [unit]		Description
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).
FCTRY AIM YAW	[deg]	Displays camera unit installation condition.
FCTRY AIM ROL	[deg]	Displays camera unit installation condition.
FCTRY AIM PIT	[deg]	Displays camera unit installation condition.
XOFFSET	[pixel]	Displays camera unit installation condition.
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.
TURN SIGNAL	[Off/LH/RH]	Displays “Turn signal” status, determined from BCM through CAN communication.
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]	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.

ACTIVE TEST

CAUTION:

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

1. Select “Active Test”.
2. Select any field, “BUZZER DRIVE ”, “SYSTEM ON LAMP DRIVE” and “INDICATOR LAMP DRIVE”, on selection screen.
3. Select necessary item and “Start”.
4. Active test screen will be shown.

Display Item

Active test item	Operation item	Function
BUZZER DRIVE	LDW chime	This test is able to check LDW chime operation.
SYSTEM ON LAMP DRIVE	LDW system ON indicator	This test is able to check LDW system ON indicator operation.
INDICATOR LAMP DRIVE	LDW indicator lamp	This test is able to check LDW indicator lamp operation.

BUZZER DRIVE
Select “On” and “Off” to check if LDW chime operates as follows.

“BUZZER DRIVE”
Select “On” : LDW chime is activated.
Select “Off” : LDW chime is not activated.

SYSTEM ON LAMP DRIVE
Select “ON” and “OFF” to check if LDW system ON indicator operates as follows.

“SYSTEM ON LAMP DRIVE”
Select “On” : LDW system ON indicator illuminates.
Select “Off” : LDW system ON indicator turns OFF.

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

INDICATOR LAMP DRIVE
Select “On” and “Off” to check that LDW indicator lamp operates as follows.

“INDICATOR LAMP DRIVE”
Select “On” : LDW indicator lamp illuminates.
Select “Off” : LDW indicator lamp OFF.

Trouble Diagnosis

INFOID:0000000001328501

HOW TO PERFORM TROUBLE DIAGNOSIS

1. Check the symptom and customer complaint.
2. Understand the outline of system. Refer to DI-69, "System Description".
3. Perform the preliminary inspection. Refer to DI-84, "Preliminary Check".
4. Referring to symptom chart, repair or replace the cause of the malfunction. Refer to "SYMPTOM CHART".
5. Erase DTC and perform self-diagnosis of LDW system again. Then perform LDW system running test. Refer to DI-81, "CONSULT-III Function (LDW)" and DI-71, "Action Test".
6. Does LDW system operate normally? If it operates normally, GO TO 7. If not, GO TO 3.
7. INSPECTION END

SYMPTOM CHART

Symptom	Diagnoses/Service procedure
LDW system is not activated. (LDW system ON indicator turns ON/OFF.)	Perform the following inspections. 1. DI-86, "LDW Chime Circuit Inspection" 2. DI-90, "LDW Indicator Lamp Circuit Inspection" Replace LDW camera unit, check function in the above inspections.
LDW system does not turn ON/OFF. (LDW system ON indicator does not turn ON/OFF.)	Perform DI-88, "LDW Switch Circuit Inspection". Replace LDW camera unit, check 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. • Different position from actual condition functions.	Perform DI-71, "Camera Aiming Adjustment".
Functions when changing the course to the turn signal direction.	Perform DI-91, "Turn Signal Input Inspection". Replace LDW camera unit, check function in the above inspection.
LDW indicator lamp does not illuminate with ignition switch ON.	Perform DI-90, "LDW Indicator Lamp Circuit Inspection". Replace LDW camera unit, check function in the above inspection.

Preliminary Check

INFOID:0000000001328502

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-71, "Camera Aiming Adjustment".

3.CHECK VEHICLE HEIGHT

Check vehicle height. Refer to GI-47, "Dimensions".

Is vehicle height appropriate?

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

4.CHECK LDW CAMERA UNIT (CONSULT-III)

Perform self-diagnosis of LDW camera unit. Refer to DI-81, "CONSULT-III Function (LDW)".

Self-diagnosis results

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 normal function?

YES >> INSPECTION END
NO >> Check combination meter. Refer to DI-15, "Trouble Diagnosis".

Power Supply and Ground Circuit Inspection

INFOID:0000000001328503

1.CHECK FUSE

Check for blown LDW camera unit fuse.

Power source	Fuse No.
Ignition power supply	12

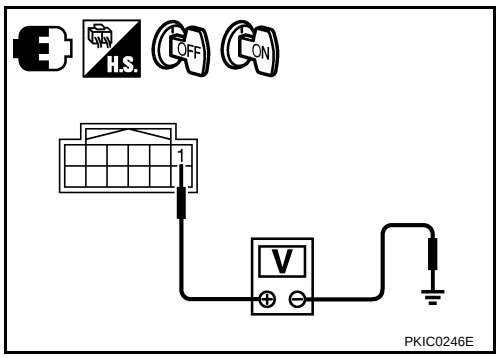
OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-77, "Terminal Arrangement".

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between LDW camera unit and ground.

Terminals			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
R9	1	Ground	0 V	Battery voltage



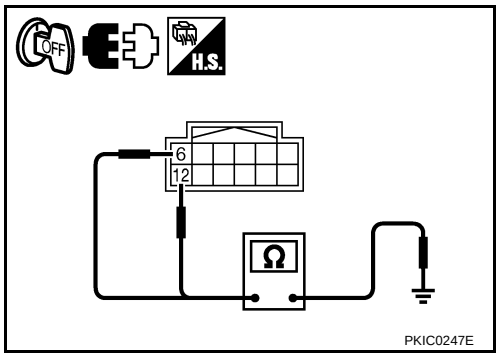
OK or NG

OK >> GO TO 3.
NG >> Check 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 R9 terminals 6, 12 and ground.

6 – Ground
12 – Ground **: Continuity should exist.**



OK or NG

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

DTC [C1B00] CAMERA UNIT MALF

INFOID:0000000001328504

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

INFOID:0000000001328505

1.PREFORM CAMERA AIMING ADJUSTMENT

1. Preform camera aiming adjustment. Refer to DI-71, "Camera Aiming Adjustment".
2. Erase DTC and perform the self-diagnosis LDW camera unit.

Self-diagnosis results

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

DTC [C1B02] VHCL SPD DATA MALF

INFOID:0000000001328506

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (CONSULT-III)

Perform self-diagnosis of ABS actuator and electric unit (control unit). Refer to BRC-26, "CONSULT-III Functions (ABS)".

Self-diagnosis results

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

2.CHECK TCM (CONSULT-III)

Perform self-diagnosis of TCM. Refer to AT-84, "CONSULT-III Function (TRANSMISSION)".

Self-diagnosis results

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

DTC [C1B03] ABNRML TEMP DETECT

INFOID:0000000001328507

1.COOLING CAMERA UNIT

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

Self-diagnosis results

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

DTC [U1000] CAN COMM CIRCUIT

INFOID:0000000001328508

1.CHECK CAN COMMUNICATION

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result” of “LDW”.

>> Go to “LAN SYSTEM”. Refer to LAN-43, "CAN System Specification Chart".

DTC [U1010] CONTROL UNIT (CAN)

INFOID:0000000001328509

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

LDW Chime Circuit Inspection

INFOID:0000000001328510

1.CHECK LDW CHIME OPERATION

Check LDW chime operation “BUZZER DRIVE” in “Active Test” mode with CONSULT-III.

“BUZZER DRIVE”
Select “On” : LDW chime is activated.
Select “Off” : LDW chime is not activated.

OK or NG

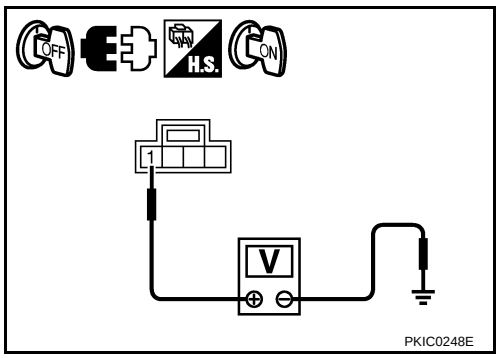
OK >> INSPECTION END
NG >> GO TO 2.

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 warning chime harness connector M97 terminal 1 and ground.

1 – Ground : Battery voltage



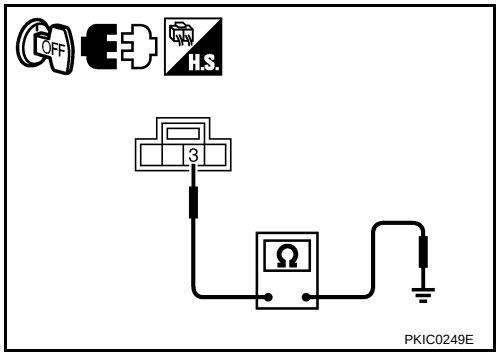
OK or NG

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 M97 terminal 3 and ground.

3 – Ground : Continuity should exist.



OK or NG

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

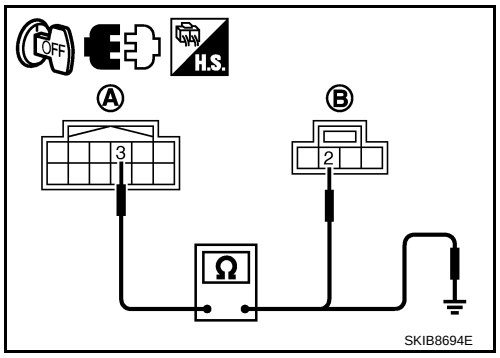
4. CHECK LDW CHIME SIGNAL CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector (A) R9 terminal 3 and LDW chime harness connector (B) M97 terminal 2.

3 – 2 : Continuity should exist.

3. Check continuity between LDW camera unit harness connector (A) R9 terminal 3 and ground.

3 – Ground : Continuity should not exist.



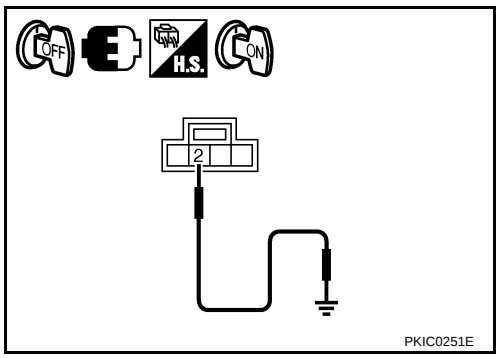
OK or NG

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

5. CHECK LDW CHIME OPERATION

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

2 – Ground : LDW chime should operate.



OK or NG

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

LDW Switch Circuit Inspection

INFOID:0000000001328511

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.

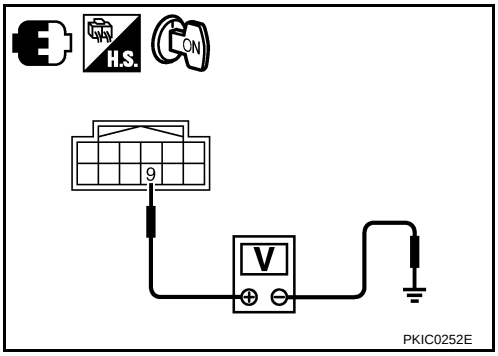
OK or NG

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

2.CHECK LDW SWITCH SIGNAL INPUT

Check voltage between LDW camera unit harness connector R9 terminal 9 and ground.

9 – Ground
When LDW switch is pressed : Approx. 0 V
When LDW switch is released : Approx. 5 V



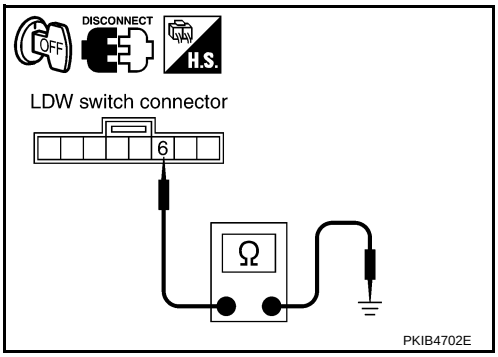
OK or NG

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 M96 terminal 6 and ground.

6 – Ground : Continuity should exist.



OK or NG

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

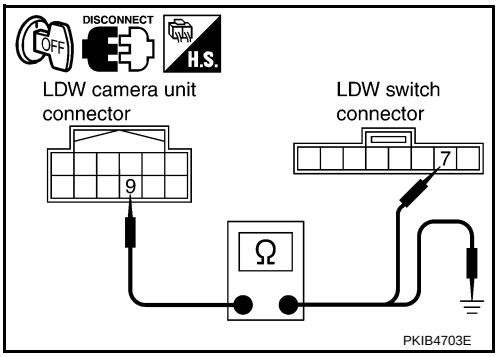
4.CHECK LDW SWITCH SIGNAL INPUT CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector R9 terminal 9 and LDW switch harness connector M96 terminal 7.

9 – 7 : Continuity should exist.

3. Check continuity between LDW camera unit harness connector R9 terminal 9 and ground.

9 – Ground : Continuity should not exist.



OK or NG

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

5.CHECK LDW SWITCH

Check LDW switch. Refer to

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-III.

“SYSTEM ON LAMP DRIVE”
Select “On” : LDW system ON indicator illuminates.
Select “Off” : LDW system ON indicator turns OFF.

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

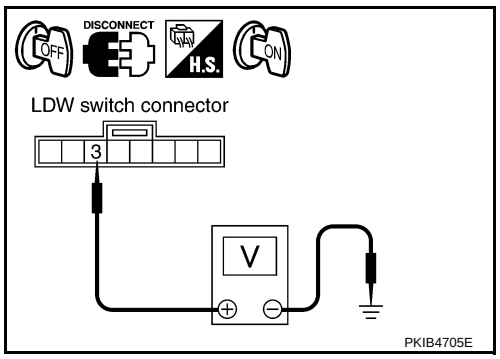
OK or NG

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 M96 terminal 3 and ground.

3 – Ground : Battery voltage



OK or NG

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

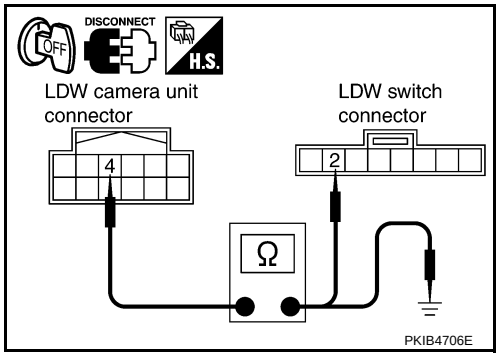
8. CHECK LDW SYSTEM ON INDICATOR SIGNAL CIRCUIT

1. Disconnect LDW camera unit connector.
2. Check continuity between LDW camera unit harness connector R9 terminal 4 and LDW switch harness connector M96 terminal 2.

4 – 2 : Continuity should exist.

3. Check continuity between LDW camera unit harness connector R9 terminal 4 and ground.

4 – Ground : Continuity should not exist.



OK or NG

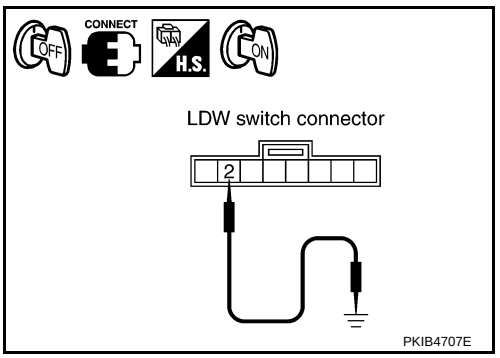
OK >> GO TO 9.
NG >> Repair harness or connector.

9. CHECK LDW SYSTEM ON INDICATOR

1. Connect LDW switch connector.
2. Turn ignition switch ON.

3. Apply ground to LDW switch terminal 2.
4. Check condition of the LDW system ON indicator.

2 – Ground : LDW system ON indicator should illuminate.



OK or NG

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

LDW Indicator Lamp Circuit Inspection

INFOID:0000000001328512

1.CHECK OPERATION OF LDW INDICATOR LAMP

Check LDW indicator operation “INDICATOR LAMP DRIVE” in “Active Test” mode with CONSULT-III.

“INDICATOR LAMP DRIVE”
Select “On” : LDW indicator lamp illuminates.
Select “Off” : LDW indicator lamp OFF.

OK or NG

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

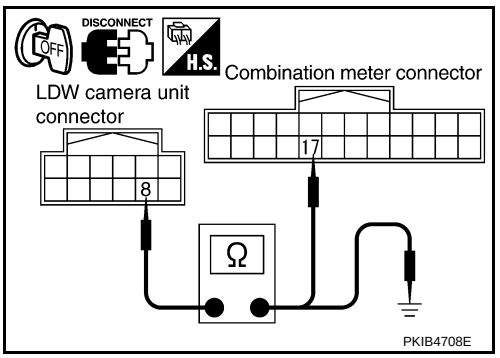
2.CHECK LDW INDICATOR LAMP SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect LDW camera unit connector and combination meter connector.
3. Check continuity between LDW camera unit harness connector R9 terminal 8 and combination meter harness connector M20 terminal 17.

8 – 17 : Continuity should exist.

4. Check continuity between LDW camera unit harness connector R9 terminal 8 and ground.

8 – Ground : Continuity should not exist.



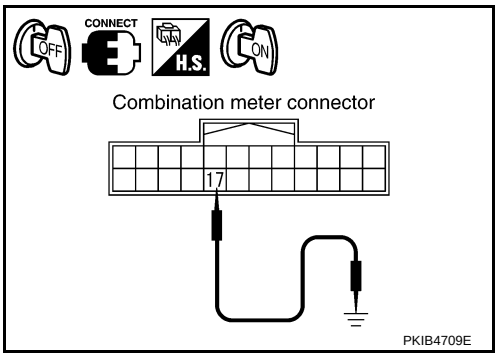
OK or NG

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

3.CHECK LDW INDICATOR LAMP OPERATION

1. Connect combination meter connector.
2. Turn ignition switch ON.
3. Ground combination meter harness connector M20 terminal 17.

17 – Ground : LDW indicator should illuminate.



OK or NG

OK >> Replace LDW camera unit.
NG >> Replace combination meter.

Turn Signal Input Inspection

INFOID:0000000001328513

1. CHECK TURN SIGNAL INPUT

Check turn signal input “TURN SIGNAL” in “Data Monitor” mode with CONSULT-III.

“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 >> INSPECTION END
NG >> Check turn signal and hazard warning lamps system, and repair or replace corresponding parts. Refer to LT-88, "How to Proceed with Trouble Diagnosis".

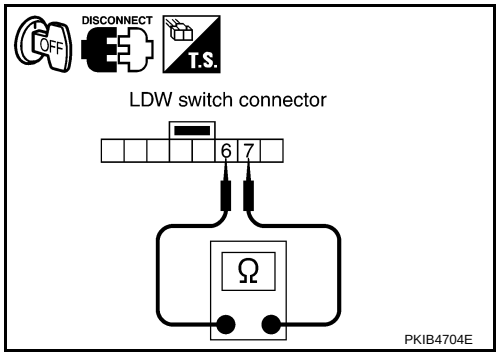
Electrical Component Inspection

INFOID:0000000001328514

LDW SWITCH

Check continuity between terminals 6 and 7.

Terminal		Condition	Continuity
6	7	When LDW switch is pressed.	Yes
		When LDW switch is released.	No

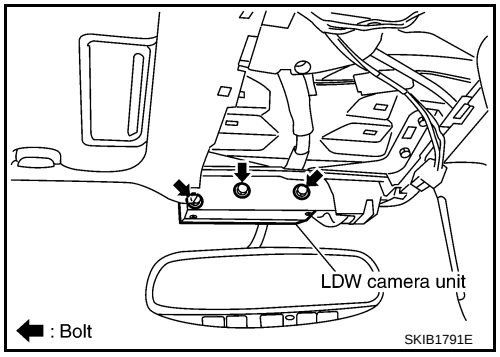


Removal and Installation for LDW Camera Unit

INFOID:0000000001328515

REMOVAL

1. Remove roof console. Refer to EI-43, "Component Parts Location".
2. Disconnect LDW camera unit connector.
3. Remove the bolts (3), and remove LDW camera unit.



INSTALLATION

Installation is the reverse order of removal.

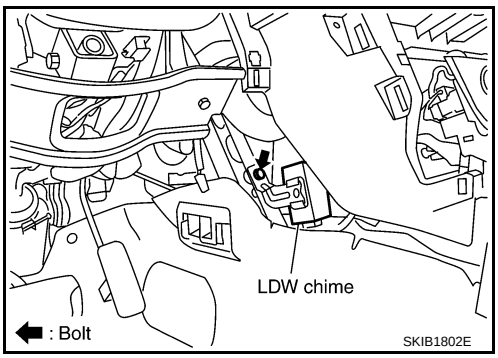
CAUTION:
- **Remove the camera lens cap for replacement.**
- **Never give an impact to the LDW camera unit.**
- **Adjust the camera aiming every time the LDW camera unit is removed or installed. Refer to DI-71, "Camera Aiming Adjustment".**

Removal and Installation for LDW Chime

INFOID:0000000001328516

REMOVAL

1. Remove instrument side panel (LH). Refer to IP-10, "Component Parts Location".
2. Remove the bolt (1).
3. Disconnect LDW chime connector and remove LDW chime.



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation for LDW Switch

INFOID:0000000001328517

Refer to IP-10, "Component Parts Location".

CAN COMMUNICATION

System Description

INFOID:0000000001328518

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

INFOID:0000000001328519

Refer to LAN-43, "CAN System Specification Chart" in “LAN SYSTEM”.

COMPASS

Precaution for Compass

INFOID:0000000001328520

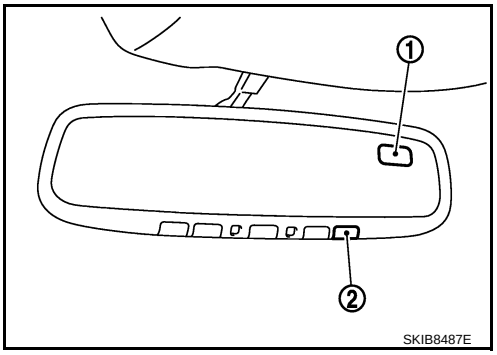
NOTE:

- 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

INFOID:0000000001328521

- This electronic compass is able to display 8 primary directions: N, NE, E, SE, S, SW, W, NW.
- The inside mirror switch (2) 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

INFOID:0000000001328522

- 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

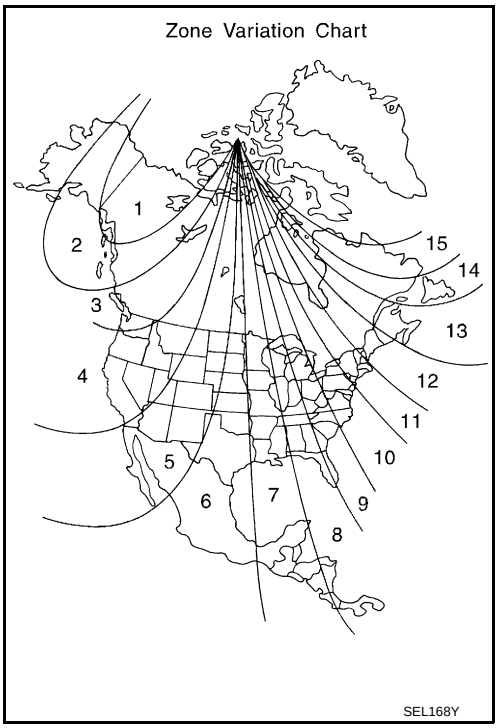
Symptom	Cause	Solution / Reference
The compass display reads “C”.	• Compass is not calibrated. • Incorrect zone variance setting. • Large change in magnetic field (Steel bridges, subways, concentrations of metal, carwashes, etc.) • Compass was calibrated incorrectly or in the presence of a strong magnetic field.	Perform Calibration. Refer to DI-95, "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-95, "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

INFOID:0000000001328523

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

INFOID:0000000001328524

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.

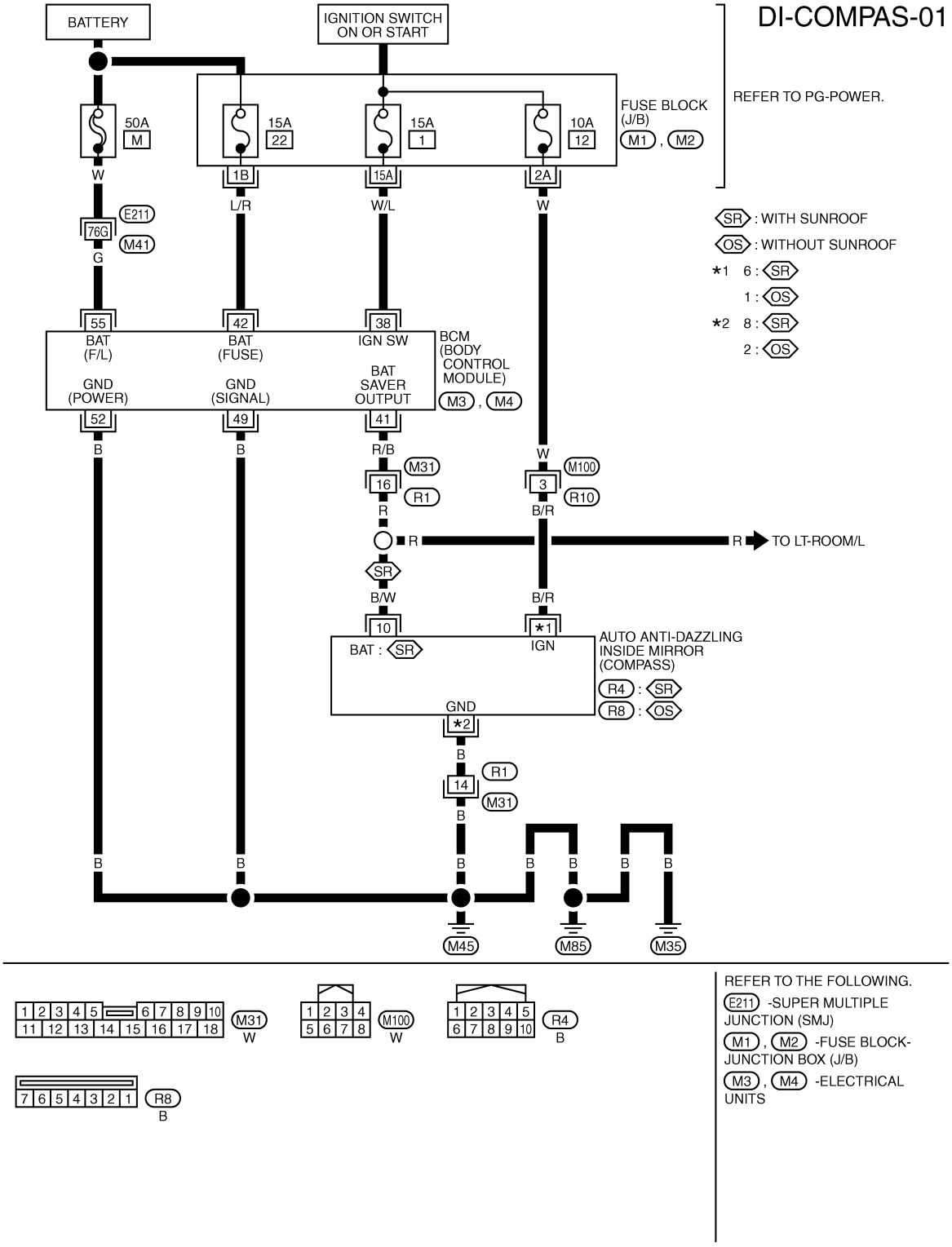
NOTE:

- 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-95, "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 -

INFOID:0000000001328525



TKWM4344E

Removal and Installation of Compass

INFOID:0000000001328526

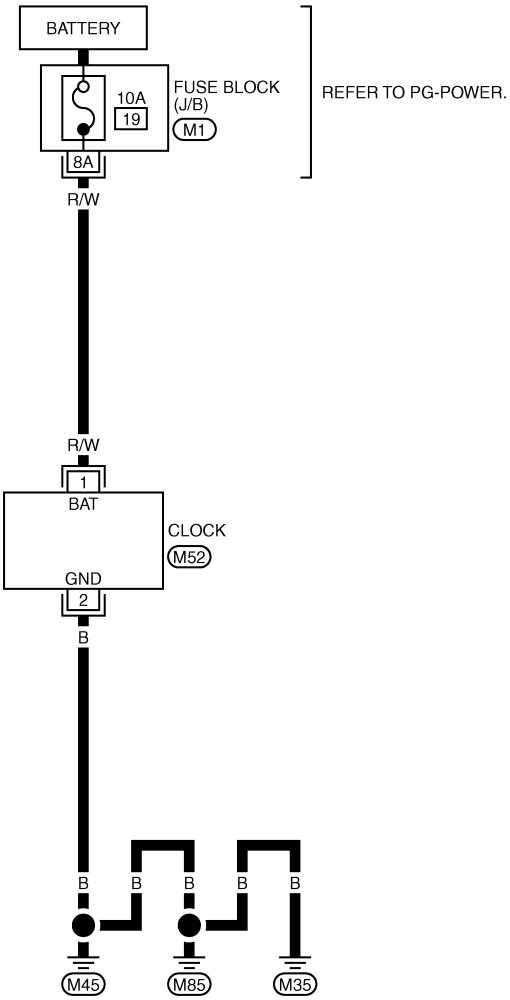
Refer to GW-58, "Removal and Installation".

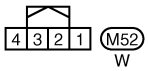
CLOCK

Wiring Diagram - CLOCK -

INFOID:0000000001328527

DI-CLOCK-01





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4360E

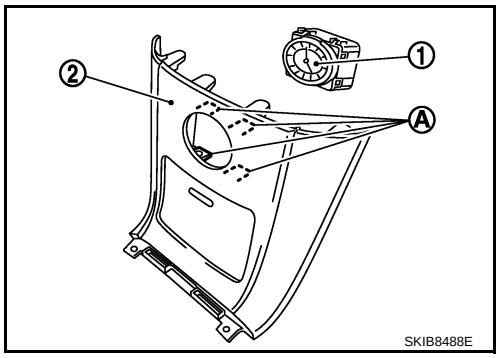
Removal and Installation of Clock

INFOID:0000000001328528

REMOVAL

1. Remove A/T selecter lever knob. Refer to IP-11, "Removal and Installation".

2. Remove A/T console finisher. Refer to IP-11, "Removal and Installation".
3. Remove instrument clock finisher. Refer to IP-11, "Removal and Installation".
4. Remove tabs (A), and remove clock (1) from instrument clock finisher (2).



INSTALLATION

Installation is the reverse order of removal.

REAR VIEW MONITOR

System Description

INFOID:0000000001328529

- The rear view monitor is equipped to check the rearward 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 rearward object, and the width of the vehicle much easier.

POWER SUPPLY AND GROUND

Power is supplied at all time
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to rear view camera control unit terminal 1.

When ignition switch is in ACC or ON position, power is supplied
- through 10A fuse [No. 6, located in fuse block (J/B)]
- to rear view camera control unit terminal 2.

When ignition switch is in ON or START position, power is supplied
- through 10A fuse (No. 83, located in IPDM E/R)
- to back-up lamp relay terminals 1 and 3.

Ground is supplied
- to rear view camera control unit terminal 3
- through grounds M35, M45 and M85.

AV COMMUNICATION LINE

Rear view camera control unit is connected to the following units with AV communication line. Each unit transmits/receives data with AV communication line.
- NAVI control unit
- Display
- Display control unit
- A/C and AV switch

REAR VIEW CAMERA OPERATION

When A/T selector lever is reverse position, power is supplied
- through back-up lamp relay terminal 2
- to TCM terminal 7.

Then back-up lamp relay is energized,
- from back-up lamp relay terminal 5
- 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 12 and 14
- to the display terminals 15 and 16.

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

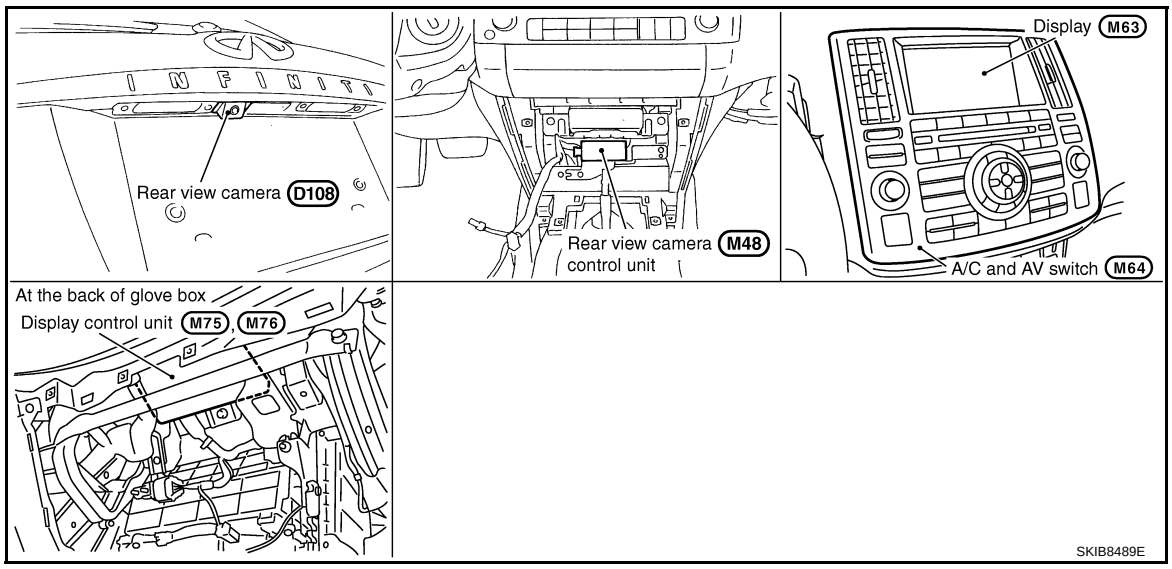
Side Distance Guideline

When A/T selector lever is in reverse position, rear view camera control unit is sent rear view camera guideline image
- through rear view camera control unit terminals 12 and 14
- to the display terminals 15 and 16.

Rear view camera guideline will be projected on the display.
Display shows image from rear view camera image and rear view camera guideline.

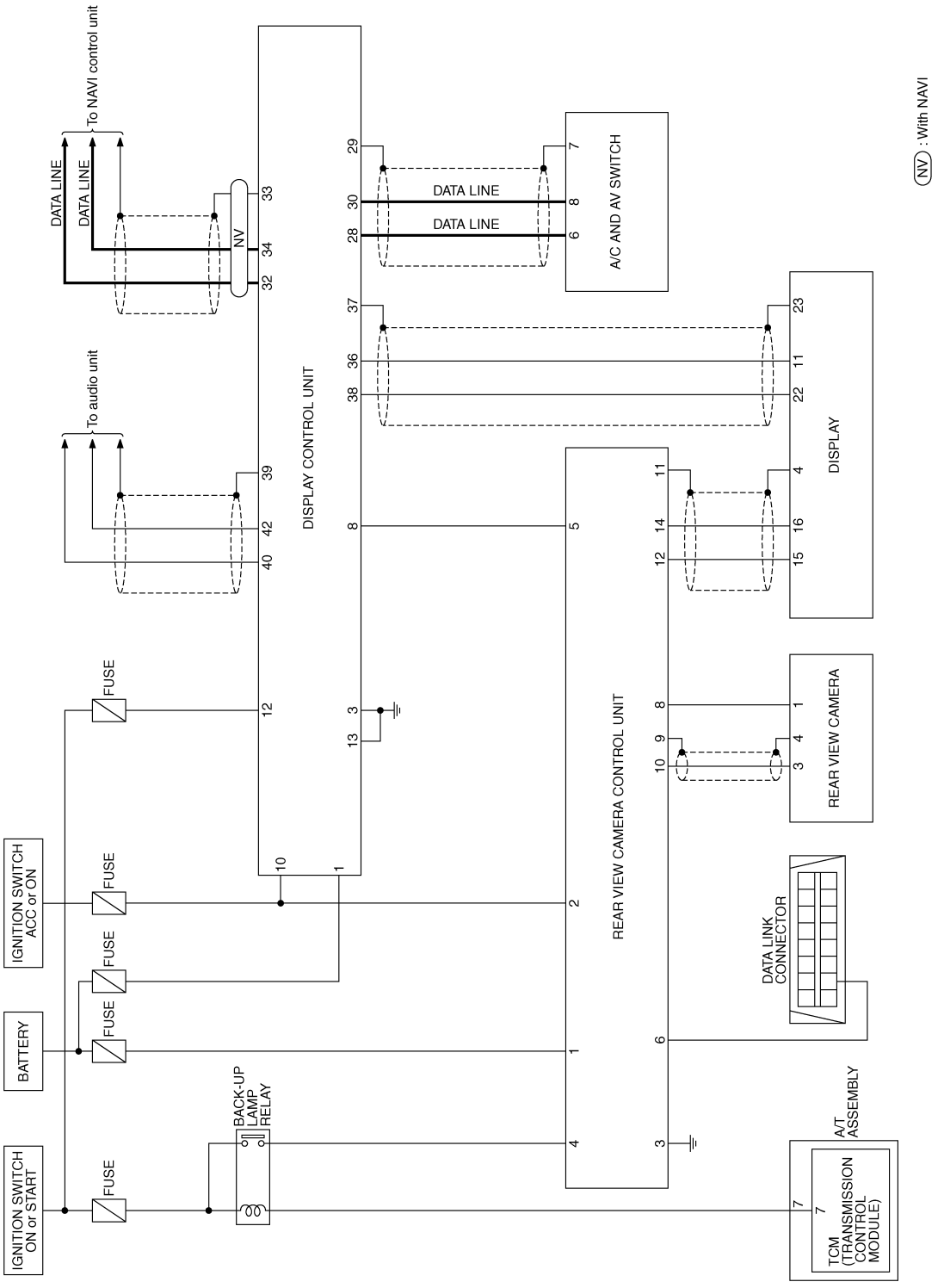
Component Parts and Harness Connector Location

INFOID:0000000001328530



Schematic

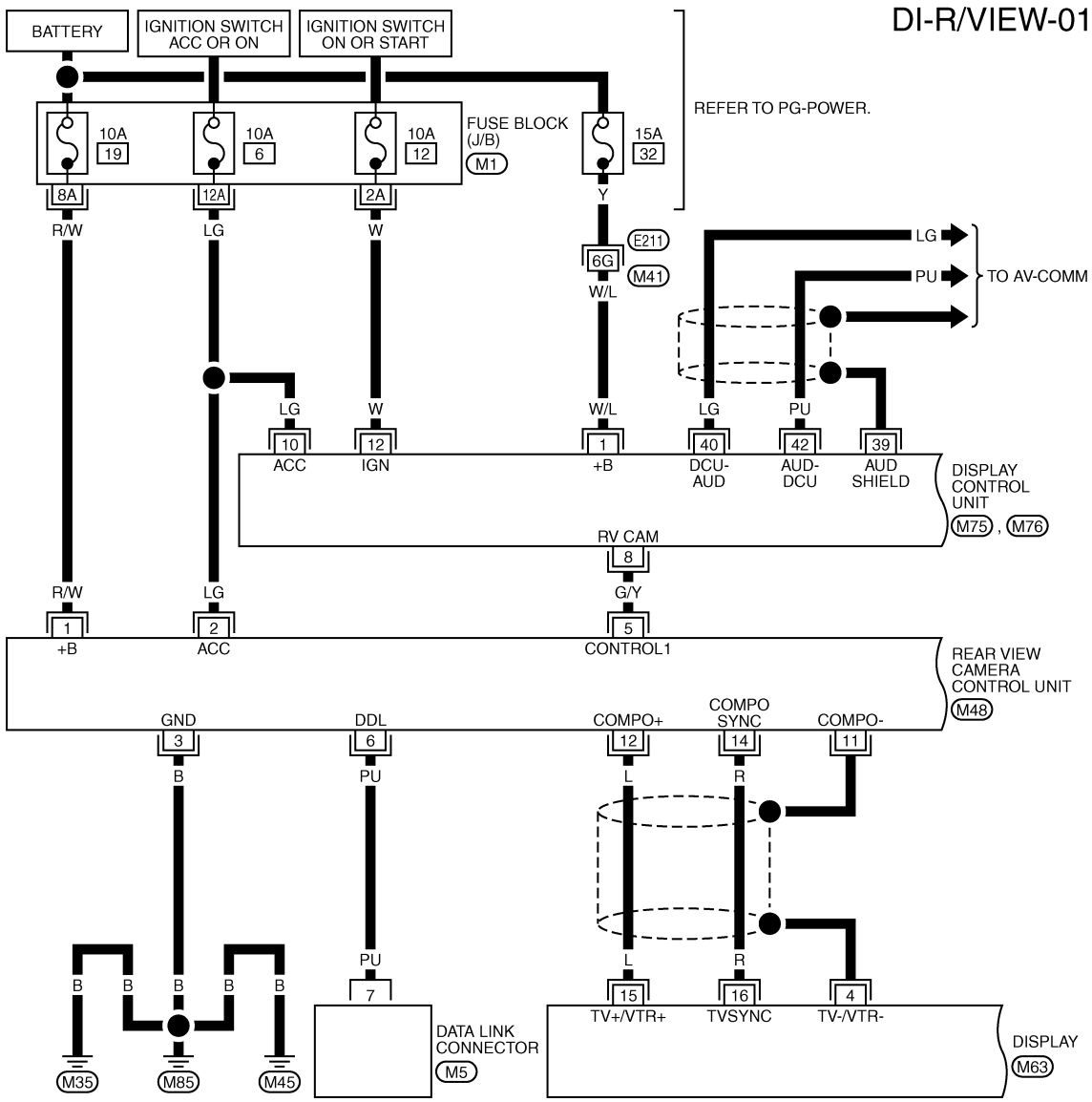
INFOID:0000000001328531

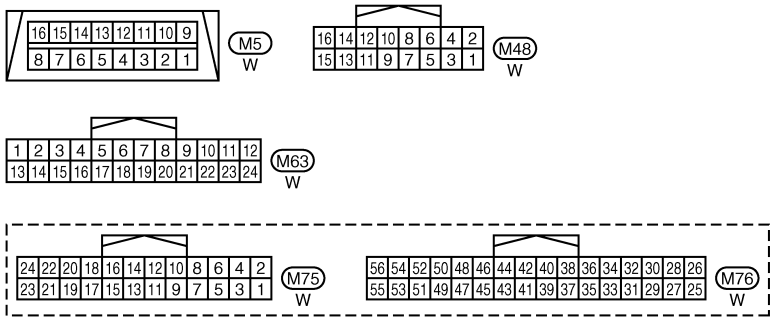


TKWM4361E

Wiring Diagram - R/VIEW -

INFOID:0000000001328532



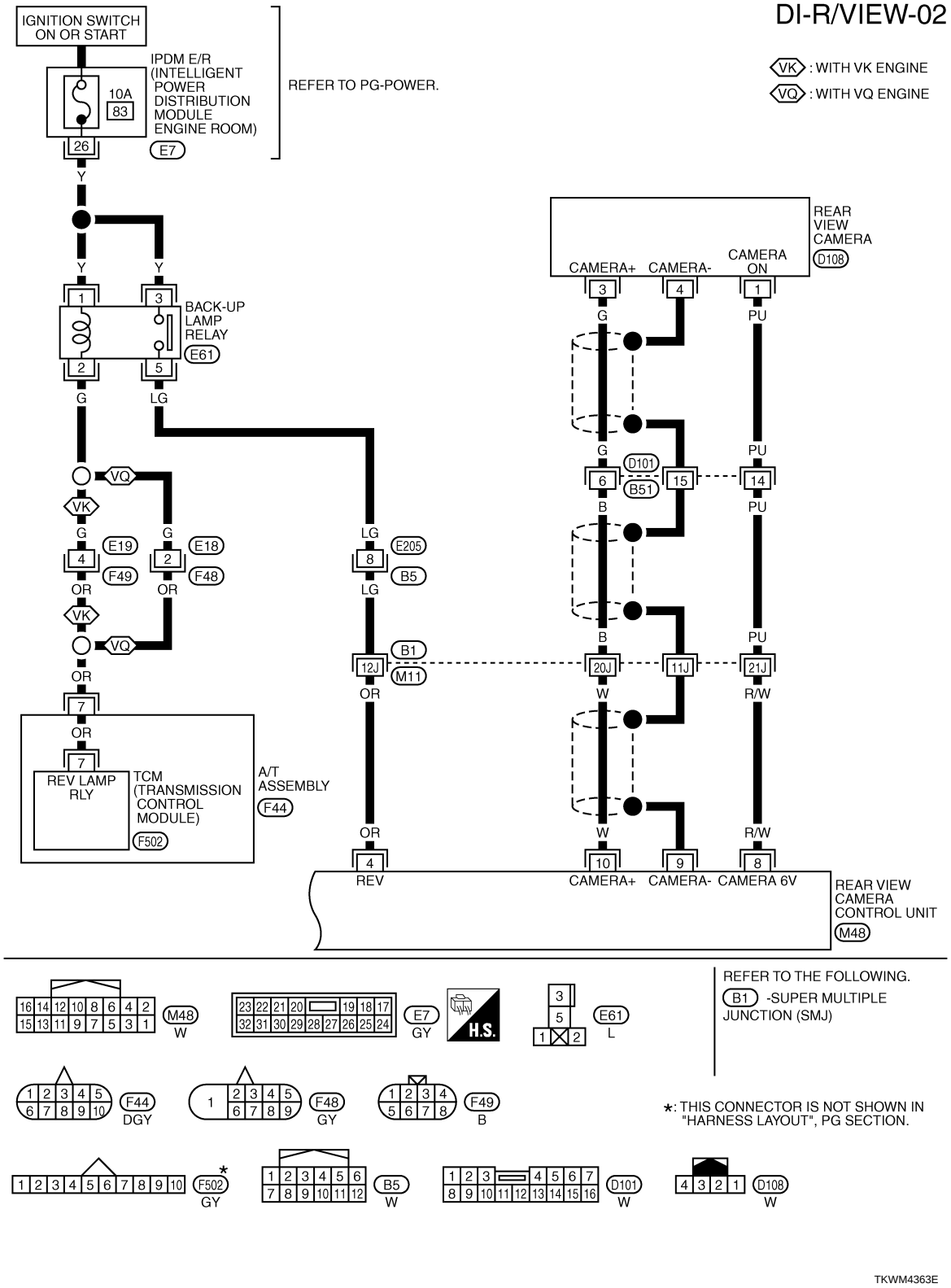


REFER TO THE FOLLOWING.

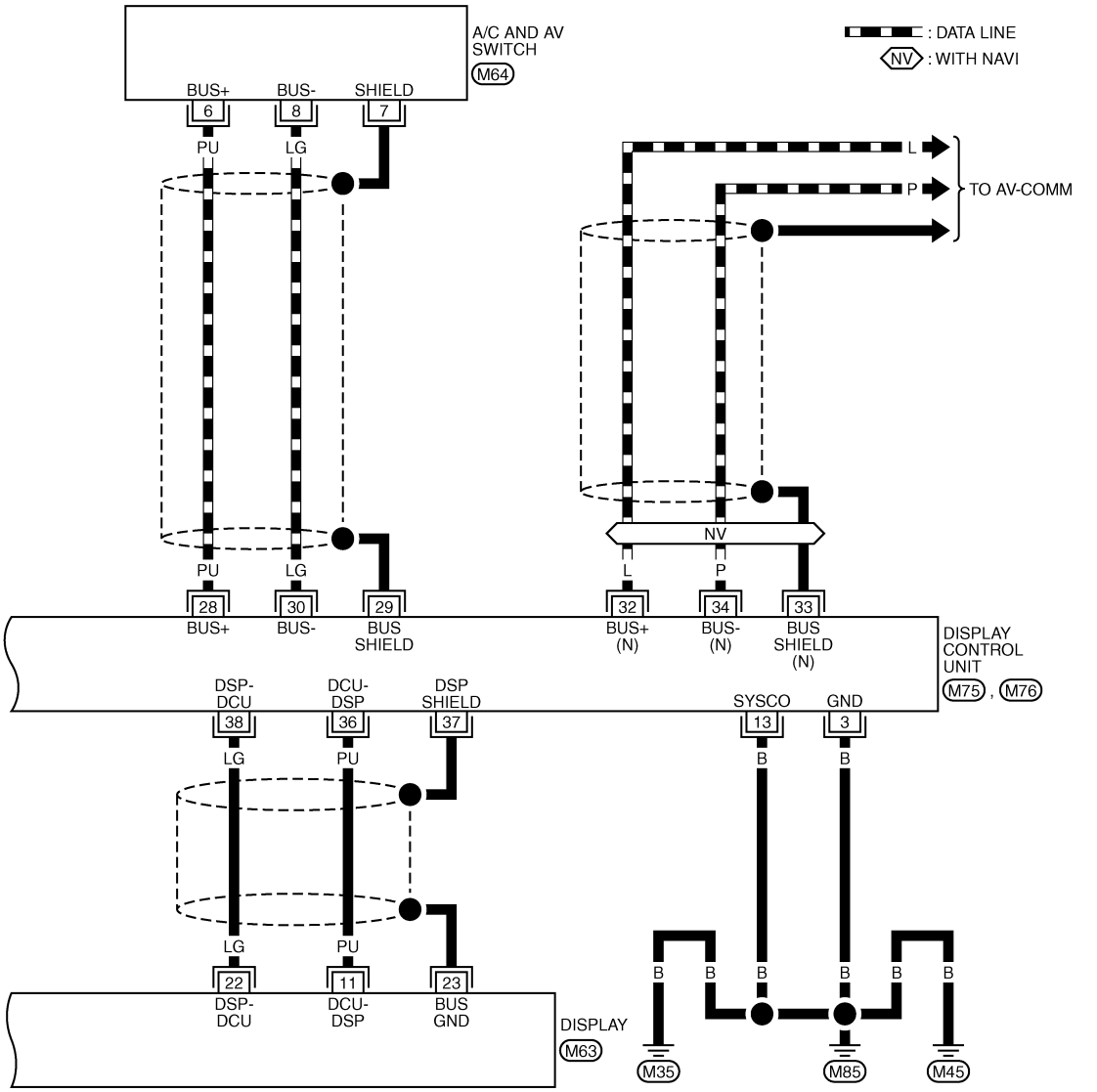
E211 -SUPER MULTIPLE JUNCTION (SMJ)

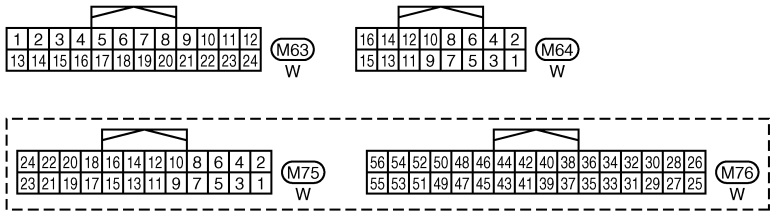
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4362E


DI-R/VIEW-02
VK : WITH VK ENGINE
VQ : WITH VQ ENGINE
IGNITION SWITCH ON OR START
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
10A 83
REFER TO PG-POWER.
BACK-UP LAMP RELAY
REAR VIEW CAMERA
CAMERA+ CAMERA- CAMERA ON
REV LAMP RLY
TCM (TRANSMISSION CONTROL MODULE)
A/T ASSEMBLY
REAR VIEW CAMERA CONTROL UNIT
CAMERA+ CAMERA- CAMERA 6V
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.
TKWM4363E

DI-R/VIEW-03

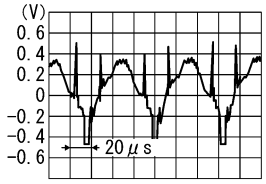
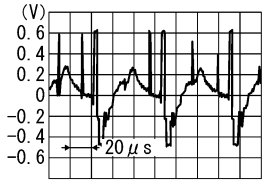
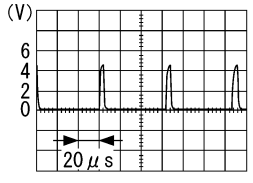




TKWM4364E

Terminal and Reference Value for Rear View Camera Control Unit

INFOID:0000000001328533

Terminals		Item	Condition		Reference value
Terminal No.	Wire color		Ignition switch	Operation	
1	R/W	Battery power supply	OFF	—	Battery voltage
2	LG	Ignition power supply	ACC	—	Battery voltage
3	B	Ground	ON	—	Approx. 0 V
4	OR	Reverse signal input	ON	A/T selector lever R range position	Battery voltage
				A/T selector lever in other than R range position	Approx. 0 V
5	G/Y	CONTROL 1	ON	—	Approx. 0 V
6	PU	DDL	—	—	—
8	R/W	Camera power output	ON	A/T selector lever R range position	Approx. 6 V
9	—	Camera image input (–)	ON	—	Approx. 0 V
10	W	Camera image input (+)	ON	A/T selector lever R range position	 SKIA4894E
11	—	Shield ground	—	—	—
12	L	Composite image output	ON	A/T selector lever R range position	 SKIA4896E
14	R	Composite image synchronization signal output	ON	A/T selector lever R range position	 SKIA5896E

CONSULT-III Function (REARVIEW CAMERA)

INFOID:0000000001328534

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

System	Diagnosis mode	Description
REARVIEW CAMERA	Work Support	It can adjust the side distance guidelines which overlap the rear view monitor image.
	Data Monitor	Displays rear view camera control unit input data in real time.
	Ecu Identification	Displays part number of rear view camera control unit.

WORK SUPPORT

SELCT GUIDELINE PATTERN	Side distance guideline is optional from two patterns.
ADJ GUIDELINE POSITION	Side distance guideline is adjustable toward up and down, right and left.

DATA MONITOR

Display item [Unit]	ALL SIGNALS	SELECTION FROM MENU	Contents
R POSI SIG [On/Off]	X	X	Indicates [On/Off] condition of R range position signal input.

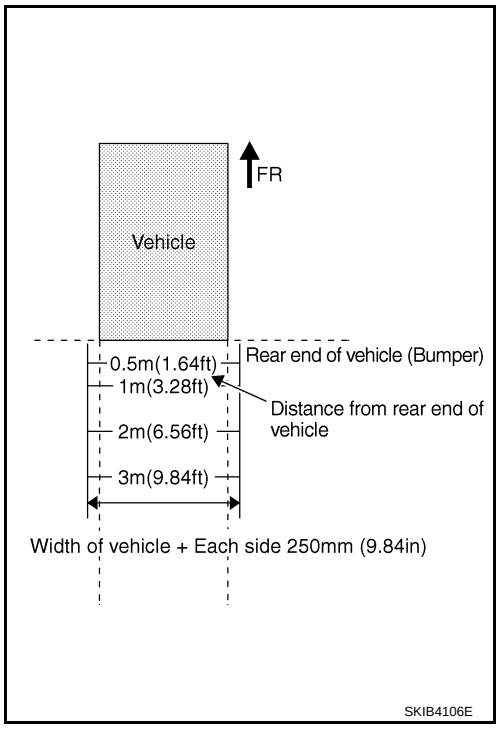
Side Distance Guideline Correction

INFOID:0000000001328535

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.

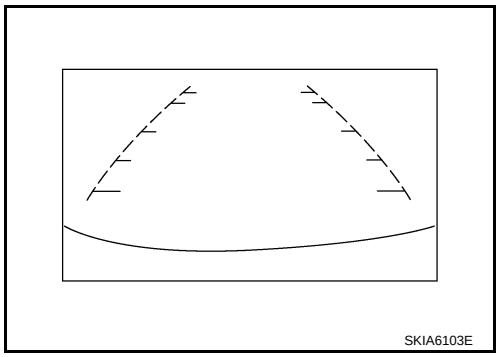
SIDE DISTANCE GUIDELINE CORRECTION PROCEDURE

1. Create a correction line to modify the screen.
   Draw lines on the rearward of the vehicle passing through the following points: 0.25 m (9.84 in) from both sides of the vehicle, and 0.5 m (1.64 ft), 1 m (3.28 ft), 2 m (6.56 ft), and 3 m (9.84 ft) from the rear end of the bumper.



2. Select “REARVIEW CAMERA” on CONSULT-III.
   CAUTION:
   Stop engine for the safety when correcting side distance guideline.

3. Shift A/T selector lever to R position.



4. Select “SELCT GUIDELINE PATTERN”.
5. Select “UP” or “DOWN”, and select the guide line, “PATTERN NO. 0” or “PATTERN NO. 1”, which is the closest to the corrected line.

6. Select “SAVE”, and confirm the guide line.
7. Select “End”.
8. Select “ADJ GUIDELINE POSITION”.
9. Adjust the guide line selecting “X UP”, “X DOWN”, “Y UP” or “Y DOWN” so that the corrected line can fit the guide line.
10. Touch “SAVE”, and confirm the guide line.
11. Touch “End” to finish correcting.

Power Supply and Ground Circuit Inspection

INFOID:0000000001328536

1.CHECK FUSE

Make sure the fuses for rear view camera control unit is blown.

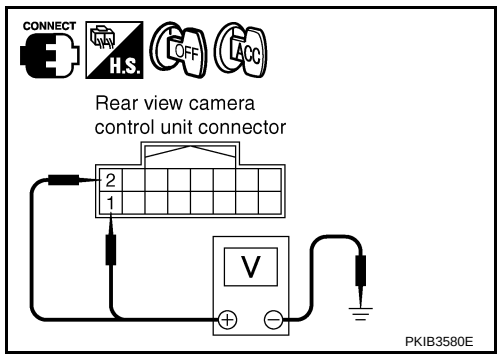
Power source	Fuse No.
Battery power supply	19
ACC power supply	6

OK or NG

OK >> GO TO 2.
NG >> Be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-3.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between rear view camera control unit harness connector M48 terminals 1, 2 and ground.



Terminals			OFF	ACC
(+)		(–)		
Connector	Terminal			
M48	1	Ground	Battery voltage	Battery voltage
	2	Ground	0 V	Battery voltage

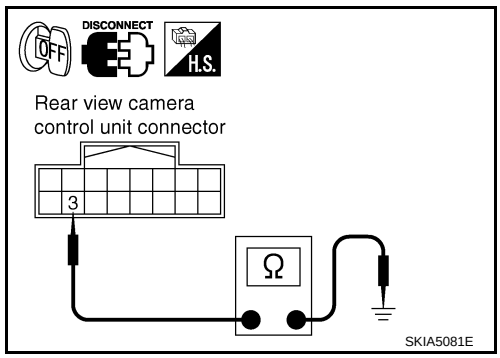
OK or NG

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 M48 terminal 3 and ground.

3 – Ground : Continuity should exist.



OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

Rear View Is Not Displayed with the A/T Selector Lever in R-Position

INFOID:0000000001328537

1.BACK-UP LAMP INSPECTION

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

Does back-up lamp illuminate?

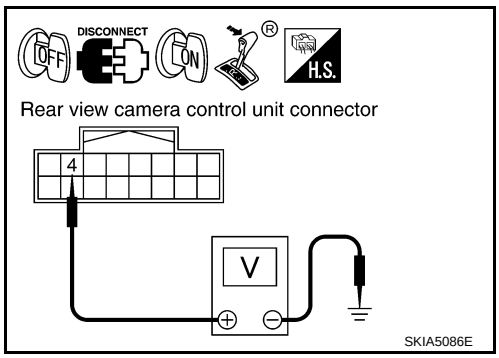
YES >> GO TO 2.
NO >> Check back-up lamp system. Refer to LT-116, "Wiring Diagram - BACK/L -" in LT section.

2.CHECK REVERSE POSITION INPUT SIGNAL

With CONSULT-III
1. Select “Data Monitor” of “REARVIEW CAMERA”.
2. Operate ignition switch with “R POSI SIG” of “Data Monitor” and check operate status.

Without CONSULT-III
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 M48 terminal 4 and ground.

4 – Ground : Battery voltage

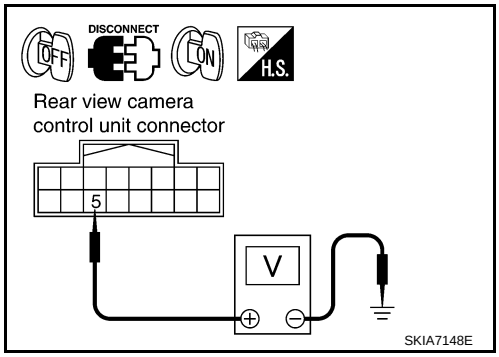


OK or NG
OK >> GO TO 3.
NG >> Check harness between rear view camera control unit and back-up lamp relay.

3.CHECK DISPLAY CONTROL UNIT OUTPUT SIGNAL

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 M48 terminal 5 and ground.

5 – Ground : Approx. 5 V



OK or NG
OK >> GO TO 5.
NG >> GO TO 4.

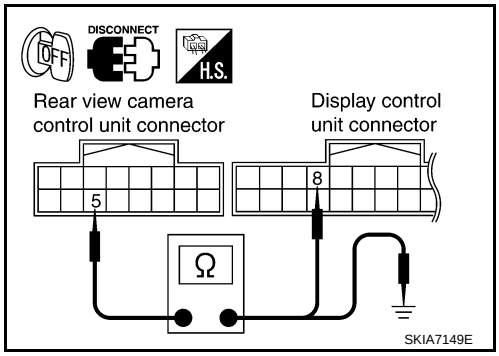
4.CHECK DISPLAY CONTROL UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect display control unit connector.
3. Check continuity between rear view camera control unit harness connector M48 terminal 5 and display control unit harness connector M75 terminal 8.

5 – 8 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector M48 terminal 5 and ground.

5 – Ground : Continuity should not exist.



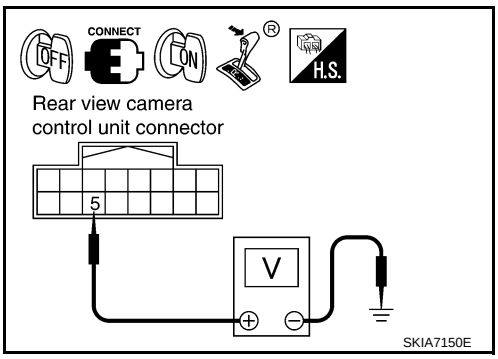
OK or NG
OK >> Replace display control unit.
NG >> Repair harness or connector.

5.CHECK CONTROL 1 SIGNAL

1. Turn ignition switch OFF.
2. Connect 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 M48 terminal 5 and ground.

5 – Ground : Approx. 0 V



OK or NG

OK >> GO TO 6.
NG >> Replace rear view camera control unit.

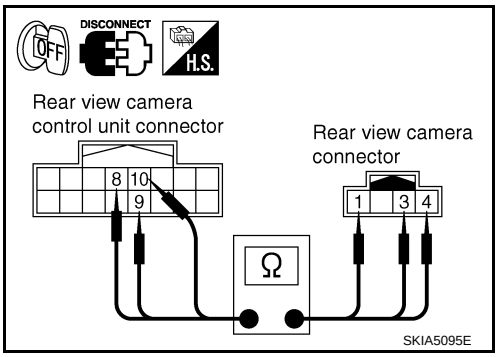
6. CHECK REAR VIEW CAMERA OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera connector.
3. Check continuity between rear view camera control unit harness connector M48 terminal 8 and rear view camera harness connector D108 terminal 1.

8 – 1 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector M48 terminal 9 and rear view camera harness connector D108 terminal 4.

9 – 4 : Continuity should exist.



5. Check continuity between rear view camera control unit harness connector M48 terminal 10 and rear view camera harness connector D108 terminal 3.

10 – 3 : Continuity should exist.

OK or NG

OK >> GO TO 7.
NG >> Repair harness or connector.

7. CHECK REAR VIEW CAMERA SHORT CIRCUIT

1. Check continuity between rear view camera control unit harness connector M48 terminal 8 and ground.

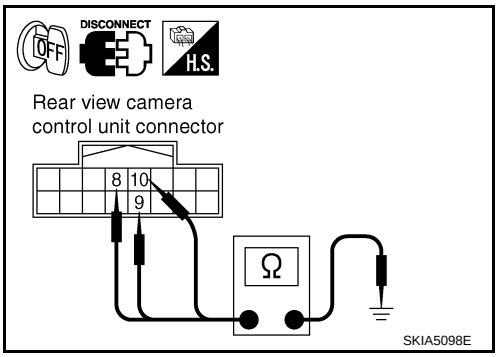
8 – Ground : Continuity should not exist.

2. Check continuity between rear view camera control unit harness connector M48 terminal 9 and ground.

9 – Ground : Continuity should not exist.

3. Check continuity between rear view camera control unit harness connector M48 terminal 10 and ground.

10 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.
NG >> Repair harness on connector.

8. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit. Refer to DI-108, "Power Supply and Ground Circuit Inspection".

OK or NG

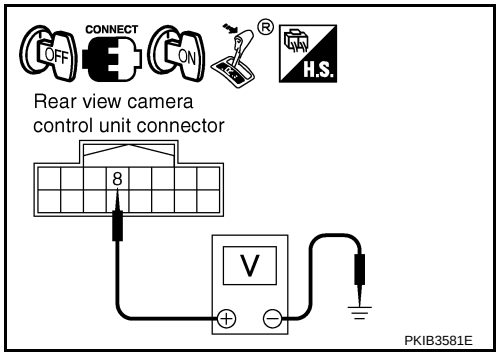
OK >> GO TO 9.

NG >> Repair or replace power supply and ground circuit.

9. CHECK REAR VIEW CAMERA CONTROL UNIT OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Connect 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 M48 terminal 8 and ground.

8 – Ground : Approx. 6 V



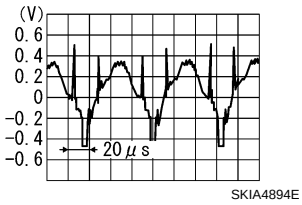
OK or NG

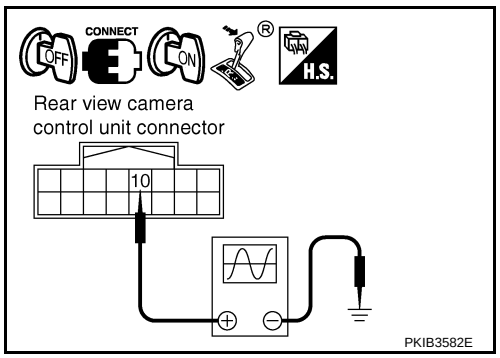
OK >> GO TO 10.
NG >> Replace rear view camera control unit.

10. CHECK REAR VIEW CAMERA 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 M48 terminal 10 and ground.

10 – Ground:





OK or NG

OK >> GO TO 11.
NG >> Replace rear view camera.

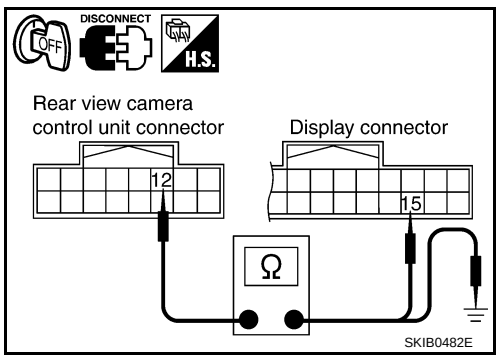
11. CHECK COMPOSITE SIGNAL CIRCUIT

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 M48 terminal 12 and display harness connector M63 terminal 15.

12 – 15 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector M48 terminal 12 and ground.

12 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.
NG >> Repair harness or connector.

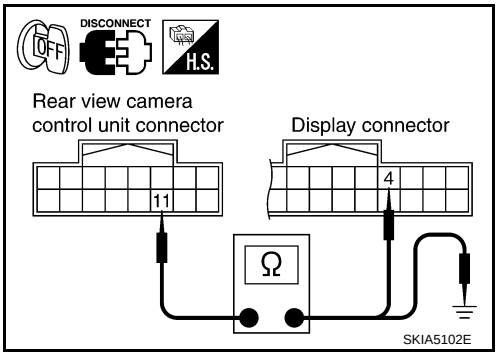
12. CHECK COMPOSITE SIGNAL GROUND CIRCUIT

1. Check continuity between rear view camera control unit harness connector M48 terminal 11 and display harness connector M63 terminal 4.

11 – 4 : Continuity should exist.

2. Check continuity between rear view camera control unit harness connector M48 terminal 11 and ground.

11 – Ground : Continuity should not exist.



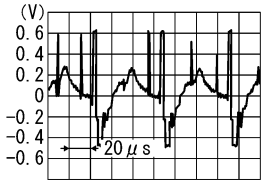
OK or NG

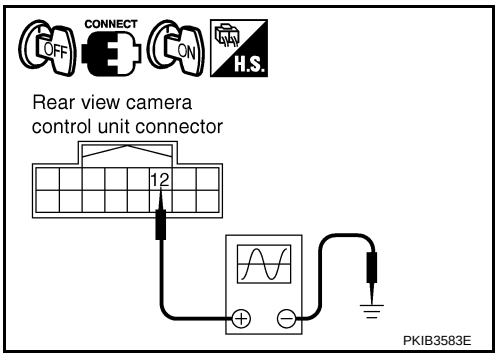
OK >> GO TO 13.
NG >> Repair harness or connector.

13. CHECK COMPOSITE 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 M48 terminal 12 and ground.

12 – Ground:





OK or NG

OK >> Replace display.
NG >> Replace rear view camera control unit.

The Rear View Image Is Distorted

INFOID:0000000001328538

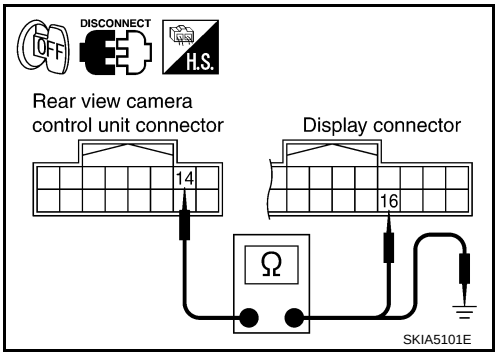
1. CHECK SYNCHRO SIGNAL OPEN OR SHORT CIRCUIT

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 M48 terminal 14 and display harness connector M63 terminal 16.

14 – 16 : Continuity should exist.

4. Check continuity between rear view camera control unit harness connector M48 terminal 14 and ground.

14 – Ground : Continuity should not exist.



OK or NG

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

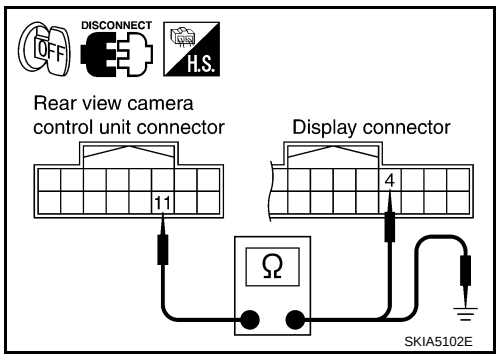
2. CHECK COMPOSITE SIGNAL GROUND CIRCUIT

1. Check continuity between rear view camera control unit harness connector M48 terminal 11 and display harness connector M63 terminal 4.

11 – 4 : Continuity should exist.

2. Check continuity between rear view camera control unit harness connector M48 terminal 11 and ground.

11 – Ground : Continuity should not exist.



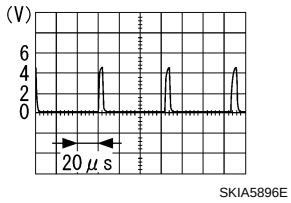
OK or NG

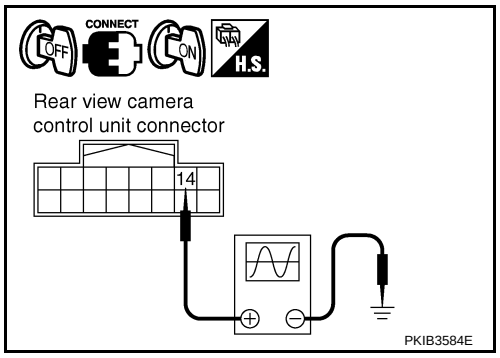
OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK REAR VIEW CONTROL UNIT SYNCHRO 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 M48 terminal 14 and ground.

14 – Ground:





OK or NG

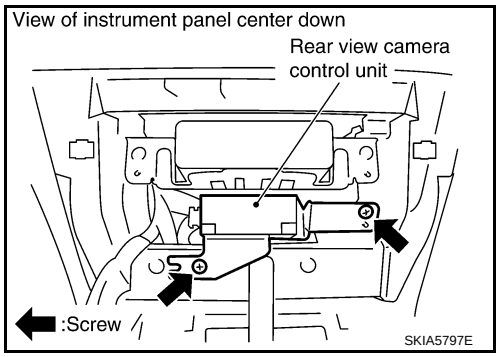
OK >> Replace rear view camera control unit.
NG >> Replace display.

Removal and Installation of Rear View Camera Control Unit

INFOID:0000000001328539

REMOVAL

1. Remove instrument clock finisher and A/T console finisher. Refer to IP-10, "Component Parts Location".
2. Remove screws (2), and remove rear view camera control unit.



INSTALLATION

Installation is the reverse order of removal.

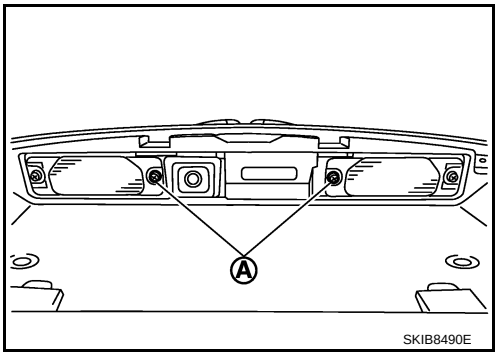
Removal and Installation of Rear View Camera

INFOID:0000000001328540

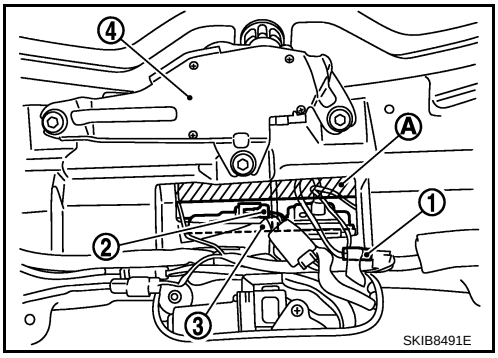
REMOVAL

1. Remove back door trim. Refer to EI-47, "Component Parts Location".
2. Remove back door outside finisher upper. Refer to EI-35, "Component Parts Location".

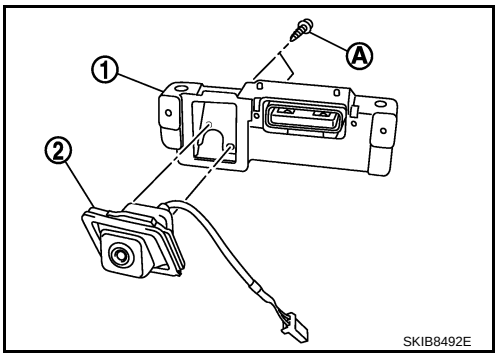
3. Remove licence lamp bolts (A).



4. Disconnect rear wiper connector.
5. Disconnect rear view camera connector (1) and back door opener switch connector (2).
6. Cut off back door module along the line (A).
7. Remove back door opener switch and rear view camera assembly (3).
   • Rear wiper (4)



8. Remove screws (A), and remove rear view camera (1) from back door opener switch (2).



INSTALLATION

Installation is the reverse order of removal.