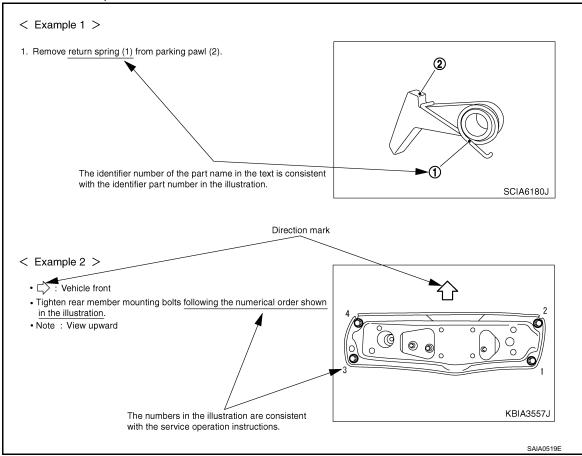
Relation between Illustrations and Descriptions

INFOID:0000000000602333

The following sample explains the relationship between the part description in an illustration, the part name in the text and the service procedures.



Components

THE LARGE ILLUSTRATIONS are exploded views (see the following) and contain tightening torques, lubrication points, section number of the PARTS CATALOG (e.g. SEC. 440) and other information necessary to perform repairs.

The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG**.

Components shown in an illustration may be identified by a circled number. When this style of illustration is used, the text description of the components will follow the illustration.

TIGHTENING TORQUE OF STANDARD BOLTS

< HOW TO USE THIS MANUAL >

TIGHTENING TORQUE OF STANDARD BOLTS

Description INFOID:0000000006023339

This vehicle has both new standard based on ISO* and previous standard bolts/nuts. There are some differences between these two types of bolts/ nuts; shape of the head, grade of strength, hexagonal width across flats and the standard tightening torque.

- For guidance in discriminating, refer to GI-21, "Tightening Torque Table (New Standard Included)".
- The new standard machine screws and tapping screws have a head of ISO standard torx recess.
- If the tightening torque is not described in the description or figure, refer to GI-21, "Tightening Torque Table (New Standard Included)".
- *ISO: International Organization for Standardization

Tightening Torque Table (New Standard Included)

CAUTION:

- The special parts are excluded.
- The bolts/nuts in these tables have a strength (discrimination) number/symbol assigned to the head or the like. As to the relation between the strength grade in these tables and the strength (discrimination) number/symbol, refer to "DISCRIMINATION OF BOLTS AND NUTS".

PREVIOUS STANDARD

Grade	Bolt size	Bolt di- ameter	Hexagonal width across flats mm	5	Tightening torque (Without lubricant)							
(Strength				Pitch mm	Hexagon head bolt			Hexagon flange bolt				
grade)		mm			N·m	kg-m	ft-lb	in-lb	N·m	kg-m	ft-lb	in-lb
	M6	6.0	10	1.0	5.5	0.56	4	49	7	0.71	5	62
-	M8	8.0	12	1.25	13.5	1.4	10	_	17	1.7	13	_
	IVIO	6.0	12	1.0	13.5	1.4	10	_	17	1.7	13	_
4T	M10	10.0	14	1.5	28	2.9	21	_	35	3.6	26	_
41	IVI IU	10.0	14	1.25	28	2.9	21	_	35	3.6	26	_
	M12	12.0	17	1.75	45	4.6	33	_	55	5.6	41	_
	IVI I Z	12.0	17	1.25	45	4.6	33	_	65	6.6	48	_
Ī	M14	14.0	19	1.5	80	8.2	59	_	100	10	74	_
	M6	6.0	10	1.0	9	0.92	7	80	11	1.1	8	97
	M8 8.0	0.0	10	1.25	22	2.2	16	_	28	2.9	21	_
		12	1.0	22	2.2	16	_	28	2.9	21	_	
7T	M10	10.0	10.0 14	1.5	45	4.6	33	_	55	5.6	41	_
/ 1	IVI IU	10.0		1.25	45	4.6	33	_	55	5.6	41	_
Ī	M12	2 12.0	17	1.75	80	8.2	59	_	100	10	74	_
	IVI IZ	12.0		1.25	80	8.2	59	_	100	10	74	_
-	M14	14.0	19	1.5	130	13	96	_	170	17	125	_
	M6	6.0	10	1.0	11	1.1	8	_	13.5	1.4	10	_
Ī	M8	8.0	12	1.25	28	2.9	21	_	35	3.6	26	_
	IVIO	6.0	12	1.0	28	2.9	21	_	35	3.6	26	_
9T	M10	10.0	14	1.5	55	5.6	41	_	80	8.2	59	_
<i>3</i> I	IVI IU			1.25	55	5.6	41	_	80	8.2	59	_
Ī	M12	12.0	17	1.75	100	10	74	_	130	13	96	_
	IVI I Z	12.0	17	1.25	100	10	74	_	130	13	96	_
	M14	14.0	19	1.5	170	17	125	_	210	21	155	

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CAUTION:

After replacing engine assembly and supercharger bypass valve control actuator together, always perform "Valve timing offset data clear" and "Valve timing offset data writing".

- "valve timing offset data clear" Refer to <u>EC3-992</u>, "Work Procedure".
- "valve timing offset data writing" Refer to EC3-993, "Work Procedure".

Engine assembly (without supercharger bypass valve control actuator)

CAUTION:

After replacing Engine assembly, always perform "valve timing offset data clear". Refer to EC3-992. "Work Procedure".

Inspection INFOID:000000007687327

INSPECTION AFTER INSTALLATION

Inspection for Leakage

The following are procedures for checking fluids leakage, lubricates leakage, and exhaust gases leakage.

- Before starting engine, check oil/fluid levels including engine coolant and engine oil. If less than required quantity, fill to the specified level. Refer to MA-29, "Fluids and Lubricants".
- Use procedure below to check for fuel leakage.
- Turn ignition switch "ON" (with engine stopped). With fuel pressure applied to fuel piping, check for fuel leakage at connection points.
- Start engine. With engine speed increased, check again for fuel leakage at connection points.
- Run engine to check for unusual noise and vibration.
- Warm up engine thoroughly to check there is no leakage of fuel, exhaust gases, or any oil/fluids including
 engine oil and engine coolant.
- Bleed air from lines and hoses of applicable lines, such as in cooling system.
- After cooling down engine, again check oil/fluid levels including engine oil and engine coolant. Refill to the specified level, if necessary.

Summary of the inspection items:

	Items	Before starting engine Engine running		After engine stopped	
Engine coolant		Level	Leakage	Level	
Engine oil		Level	Leakage	Level	
Transmission /	AT & CVT Models	Leakage	Level / Leakage	Leakage Level / Leakage	
transaxle fluid	MT Models	Level / Leakage	Leakage		
Other oils and fluids*		Level	Level Leakage		
Fuel		Leakage	Leakage	Leakage	
Exhaust gases		_	Leakage	_	

^{*:} Power steering fluid, brake fluid, etc.

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< PRECAUTION > [HR12DE]

PRECAUTION

PRECAUTIONS FOR EUROPE

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

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- 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.
- The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING.

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s)
 with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly
 causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

FOR EUROPE: Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

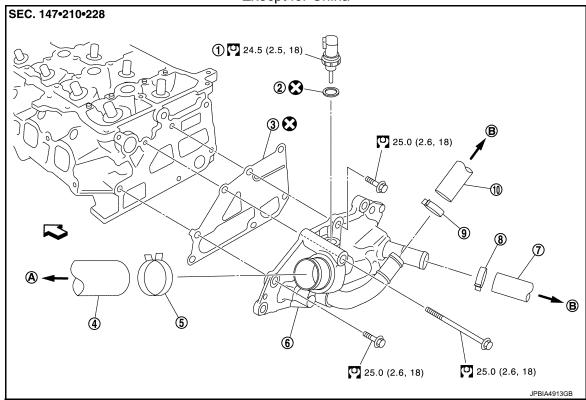
CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.

INFOID:0000000006282715

Execpt for China



- Engine coolant temperature sensor
 - Radiator hose (upper)
- 7. Heater hose
- 10. hose
- To radiator

Clamp

Washer

2.

- 8. Clamp
- B. To heater

- ∠

 ☐ : Engine front
- : Always replace after every disassembly.
- : N·m (kg-m, ft-lb)

- 3. Gasket
- 6. Water outlet
- Clamp

Removal and Installation

REMOVAL

- Drain engine coolant from radiator. Refer to CO-65, "Draining". **CAUTION:**
 - · Perform this step when engine is cold.
- 2. Remove air duct (inlet) and air cleaner assy. Refer to EM-337, "Exploded View".
- 3. Disconnect radiator hose (upper). Refer to CO-70, "Exploded View".
- 4. Disconnect harness connector from engine coolant temperature sensor.
- 5. Remove electric throttle control actuator hoses. (For china)
- 6. Remove water hoses and heater hoses.
- Remove water outlet.
- Remove engine coolant temperature sensor from water outlet, if necessary.

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

Do not reuse washer.

< DTC/CIRCUIT DIAGNOSIS >

[HR12DE (TYPE 1)]

P0130 A/F SENSOR 1

DTC Logic INFOID:0000000005989255

DTC DETECTION LOGIC

To judge malfunctions, the diagnosis checks that the A/F signal computed by ECM from the A/F sensor 1 signal fluctuates according to fuel feedback control.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible Cause	
P0130	Air fuel ratio (A/F) sensor 1 circuit	The A/F signal computed by ECM from the A/F sensor 1 signal is constantly approx. 2.2 V.	Harness or connectors (The A/F sensor 1 circuit is open or shorted.) A/F sensor 1	

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

Do you have CONSULT-III?

YFS >> GO TO 2. NO >> GO TO 6.

2.check air fuel ratio (a/f) sensor 1 function

- Start engine and warm it up to normal operating temperature.
- 2. Select "ENGINE" using CONSULT-III.
- 3. Select "A/F SEN1 (B1)" in "DATA MONITOR" mode.
- 4. Check "A/F SEN1 (B1)" indication.

Does the indication fluctuate around 2.2 V?

YES >> GO TO 3.

NO >> Go to EC-239, "Diagnosis Procedure".

3.perform dtc confirmation procedure for malfunction -i

- Select "ENGINE" using CONSULT-III.
- 2. Select "A/F SEN1 (B1) P1276" (for DTC P0130) of "A/F SEN1" in "DTC WORK SUPPORT" mode.
- Touch "START".
- When the following conditions are met, "TESTING" will be displayed on the CONSULT-III screen.

ENG SPEED	1,000 - 3,200 rpm
VHCL SPEED SE	More than 64 km/h (40 mph)
B/FUEL SCHDL	1.0 - 8.0 msec
Selector lever	D position (CVT) 4th position (M/T)

If "TESTING" is not displayed after 20 seconds, retry from step 2.

CAUTION:

Always drive vehicle at a safe speed.

Is "TESTING" displayed on CONSULT-III screen?

YES >> GO TO 4.

NO >> Check A/F sensor 1 function again. GO TO 2.

f 4 .PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION -II

Release accelerator pedal fully.

NOTE:

Never apply brake when releasing the accelerator pedal.

Which does "TESTING" change to?

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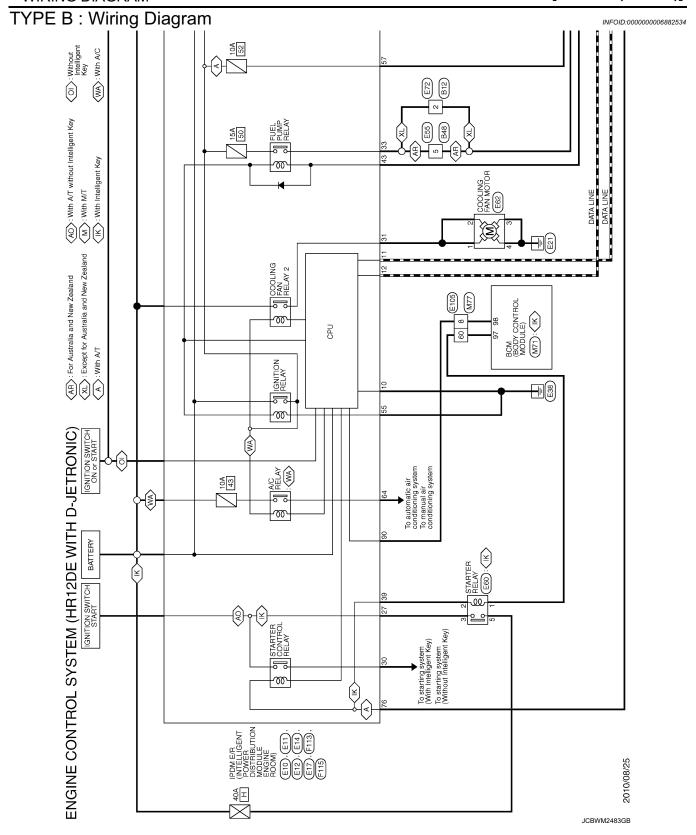
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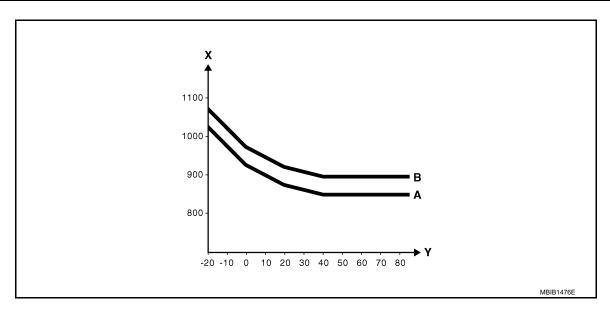
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INFOID:0000000006824697



X. Engine speed in rpm

Y. Engine coolant temperature in °C

GLOW CONTROL

GLOW CONTROL: System Description

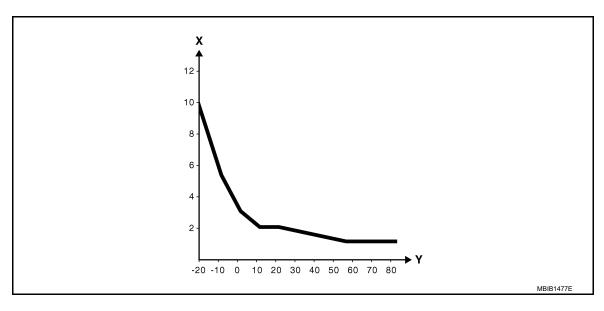
The pre/post heating function is controlled by the glow relay.

PRE/POST HEATING (GLOW PLUG) OPERATING PRINCIPLE

"Preheating" at Ignition Switch ON

Variable preheating

The time period for the glow lamp to light up and the feed to heater plugs depends on the engine coolant temperature and the battery voltage.



X. Time in seconds

Y. Temperature in °C

Whatever the situation, the preheating glow lamp cannot be lit for more than 10 seconds (except in the event of an engine coolant temperature sensor malfunction).

2. Fixed preheating

After the glow lamp goes out the plugs remain supplied for a fixed period of 5 seconds.

[&]quot;Post Heating" With The Engine Running

< DTC/CIRCUIT DIAGNOSIS >

[K9K]

P0560 BATTERY VOLTAGE

DTC Logic INFOID:0000000006834388

DTC No.	Tro	uble diagnosis nam	ie	Possible cause	
P0560	BATTERY VOLTAGE 1.DEF: Above maximum thre 2.DEF: Below threshold	eshold		Battery Battery terminal Alternator Incorrect jump starting	С
The DTO • Special	ons for applying the diag C is declared present when notes: ction indicator (Red) light	n the engine is r			D E
Diagnos	sis Procedure			INFOID:000000006834390	
1.CHEC	K BATTERY VOLTAGE				F
	gnition switch ON. k battery voltage.				G
Is the insp	oltage: Above 11V expection result normal? >> GO TO 2. >> Recharge the battery.				Н
	K BATTERY TERMINALS				I
	gnition switch OFF.				
	k battery terminals condition section result normal?	on.			J
YES >	>> GO TO 3.				
_	Repair the battery termine K BATTERY AND ALTERN				K
	at the proper type of battery		ernator are installed		
Refer to,	PG-533, "Battery" and CHO				L
-	pection result normal? >> GO TO 4.				
	>> Replace with a proper o	ne.			M
4.CHEC	K ECM POWER SUPPLY	CIRCUIT			
	gnition switch ON. k the voltage between ECN	Ո terminal harne	ess connector and groun	nd.	Ν
	ECM	- Ground	Voltage		_
Conn	ector Terminal	Giouna	Voltage		0
-			battery voltage		

NO >> GO TO 5.

5. DETECT MALFUNCTIONING PART

- Check the following.

 10A fuse (No. 52)

 Harness for open or short between ECM and IPDM E/R

>> Repair or replace malfunctioning part.

Component Inspection

INFOID:0000000005989271

1. INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

YES >> GO TO 2.

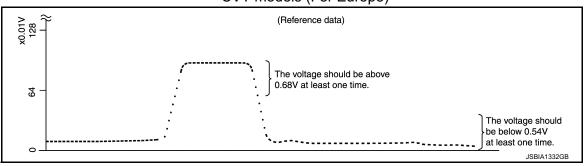
NO >> GO TO 3.

2. CHECK HEATED OXYGEN SENSOR 2

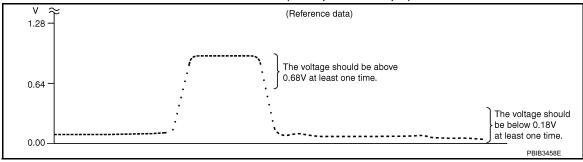
(P)With CONSULT

- 1. Turn ignition switch ON and select "ENGINE" using CONSULT.
- Select "DATA MONITOR" mode.
- 3. Start engine and warm it up to the normal operating temperature.
- 4. Turn ignition switch OFF and wait at least 10 seconds.
- 5. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
- 6. Let engine idle for 1 minute.
- 7. Select "FUEL INJECTION" in "ACTIVE TEST" mode, and select "HO2S2 (B1)" as the monitor item with CONSULT.
- 8. Check "HO2S2 (B1)" at idle speed when adjusting "FUEL INJECTION" to ±25%.

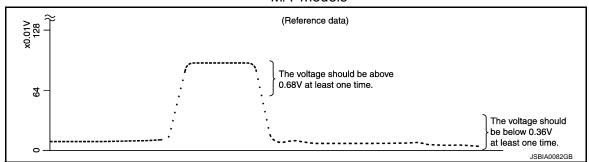
CVT models (For Europe)



CVT models (Except for Europe)



M/T models



"HO2S2 (B1)" should be above 0.68 V at least once when the "FUEL INJECTION" is +25%. "HO2S2 (B1)" should be below 0.36 V at least once when the "FUEL INJECTION" is -25%.

[HR12DDR]

Item	OBD-	Self-diagnostic test item	DTC -	li	e and Test mit display)	Description
	MID			TID	Unitand Scaling ID	2000.p.s
	A2H	No. 1 cylinder misfire	P0301	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driv- ing cycles
			P0301	0CH	24H	Misfire counts for last/current driving cycles
	АЗН	No. 2 cylinder misfire	P0302	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0302	0CH	24H	Misfire counts for last/current driving cycles
	A4H	No. 3 cylinder misfire	P0303	0ВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0303	0CH	24H	Misfire counts for last/current driving cycles
	A5H	No. 4 cylinder misfire	P0304	0ВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driv- ing cycles
MISFIRE		-	P0304	0CH	24H	Misfire counts for last/current driving cycles
	A6H	No. 5 cylinder misfire	P0305	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driv- ing cycles
			P0305	0CH	24H	Misfire counts for last/current driving cycles
	A7H	No. 6 cylinder misfire	P0306	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0306	0CH	24H	Misfire counts for last/current driving cycles
A	A8H	No. 7 cylinder misfire	P0307	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driv- ing cycles
			P0307	0CH	24H	Misfire counts for last/current driving cycles
	A9H	No. 8 cylinder misfire	P0308	ОВН	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0308	0CH	24H	Misfire counts for last/current driving cycles

P

ECT	sensor	E	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
F28	2	F16	44	Existed

4. Also check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

4.CHECK ENGINE COOLANT TEMPERATURE SENSOR

Refer to EC4-149, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace engine coolant temperature sensor. Refer to <u>CO-79</u>, "Exploded View".

5. CHECK INTERMITTENT INCIDENT

Refer to GI-51, "Intermittent Incident".

>> INSPECTION END

Component Inspection

1. CHECK ENGINE COOLANT TEMPERATURE SENSOR

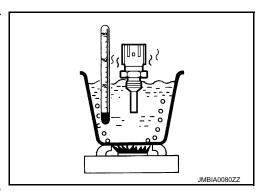
- Turn ignition switch OFF.
- 2. Disconnect engine coolant temperature sensor harness connector.
- 3. Remove engine coolant temperature sensor.
- 4. Check resistance between engine coolant temperature sensor terminals by heating with hot water as shown in the figure.

Terminals	Condition		Resistance
	Temperature [°C (°F)]	20 (68)	2.10 - 2.90 kΩ
1 and 2		50 (122)	0.68 - 1.00 kΩ
		90 (194)	0.236 - 0.260 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine coolant temperature sensor. Refer to CO-79, "Exploded View".



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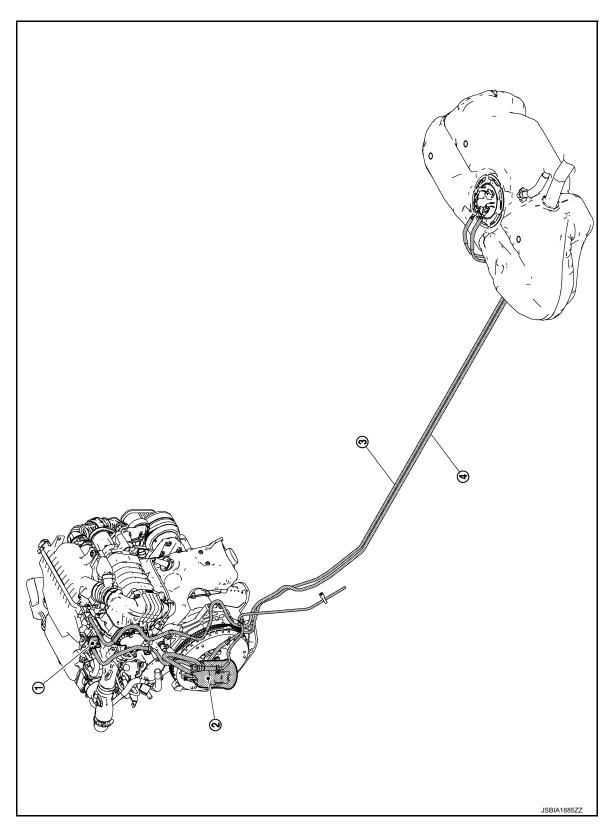
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EVAP CANISTER

Hydraulic Layout

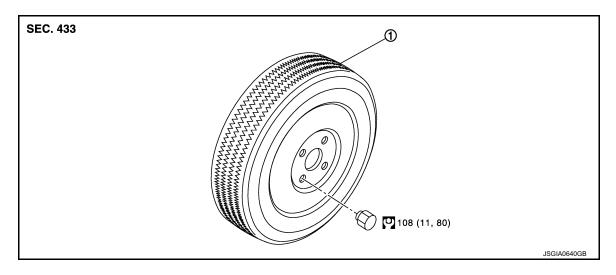
EVAPORATIVE EMISSION LINE DRAWING



REMOVAL AND INSTALLATION

ROAD WHEEL TIRE ASSEMBLY

Exploded View



1. Tire assembly

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

REMOVAL

- Remove wheel nuts.
- 2. Remove tire assembly.

INSTALLATION

Install in the reverse order of removal.

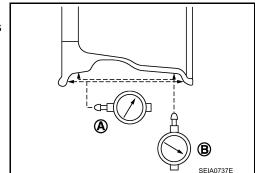
ALUMINUM WHEEL

- 1. Check tires for wear and improper inflation.
- 2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
- a. Remove tire from aluminum wheel and mount on a tire balance machine.
- b. Set dial indicator as shown in the figure.
- c. Check runout, if the axial runout (A) or radial runout (B) exceeds the limit, replace aluminum wheel.

Limit

Axial runout (A) : Refer to WT-9, "Road Wheel".

Radial runout (B) : Refer to WT-9, "Road Wheel".



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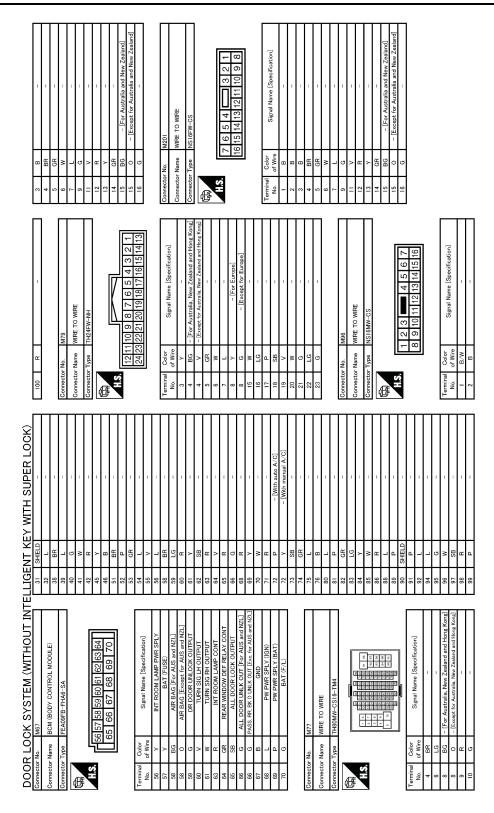
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STEEL WHEEL

1. Check tires for wear and improper inflation.

WT-7



JCKWM5006GB