DAIHATSU

F300

BODY ELECTRICAL SYSTEM

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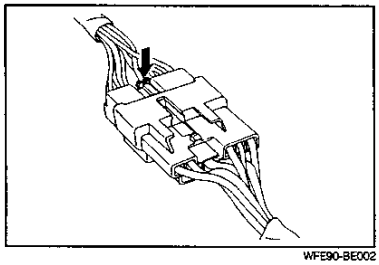
WFE90-BE001

INTRODUCTION

1. Handling of connectors with lock

(1) Disconnection
While pushing the lock lever as shown in the right figure, disconnect the connector. Do not pull the harness during this operation.

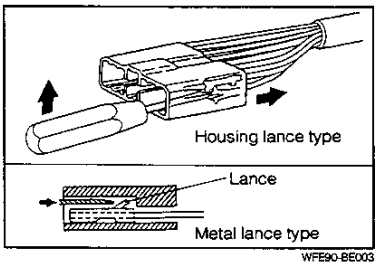
(2) Connection
Connect the male connector to the female connector. Ensure that the lock is engaged completely.



WFE90-BE002

(3) Removal of terminal
Housing lance type
Insert a miniature screwdriver through the opening section of the connector into between the locking lug and the terminal. While prying up the locking lug with the screwdriver, pull the terminal backward.

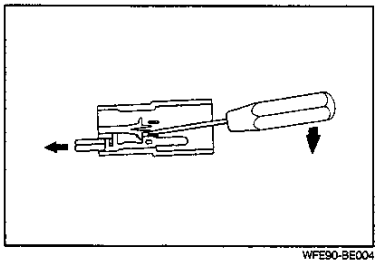
Metal lance type
While pushing the lance with the screwdriver, pull the terminal backward.



WFE90-BE003

(4) Installation of terminal
Housing lance type
Push the terminal into the protruding section of the connector, until the lock is engaged completely.
Lightly pull the harness to assure that the locking has been made completely.

Metal lance type
Insert the terminal into the connector, until lance is locked completely.
Lightly pull the harness to assure that the locking has been made completely.



WFE90-BE004

CAUTION:
HANDLING INSTRUCTIONS ON LOCK TYPE CONNECTOR

- Do not disconnect or connect the lock type connector, unless such operation is absolutely necessary. If the connector should be disconnected or connected, be sure to follow the procedure given below.

WFE90-BE005

2. Disconnection

The lock type of the connector comes in a push release type, a pull release type, a spring lock type, an one-way lock type and so on.

After confirming the shape of the lock, unlock the lock. Disconnect the connector while holding the connector by hand.

NOTE:

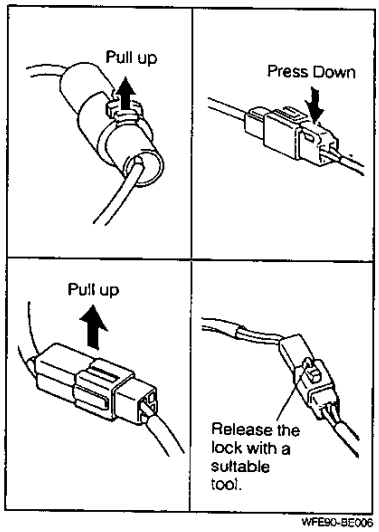
- Never pull the harness during the disconnection.
- Be sure to pull out the connector straight so as not to damage the terminal.

3. Connection

Perform the connection, until the lock is completely engaged.

NOTE:

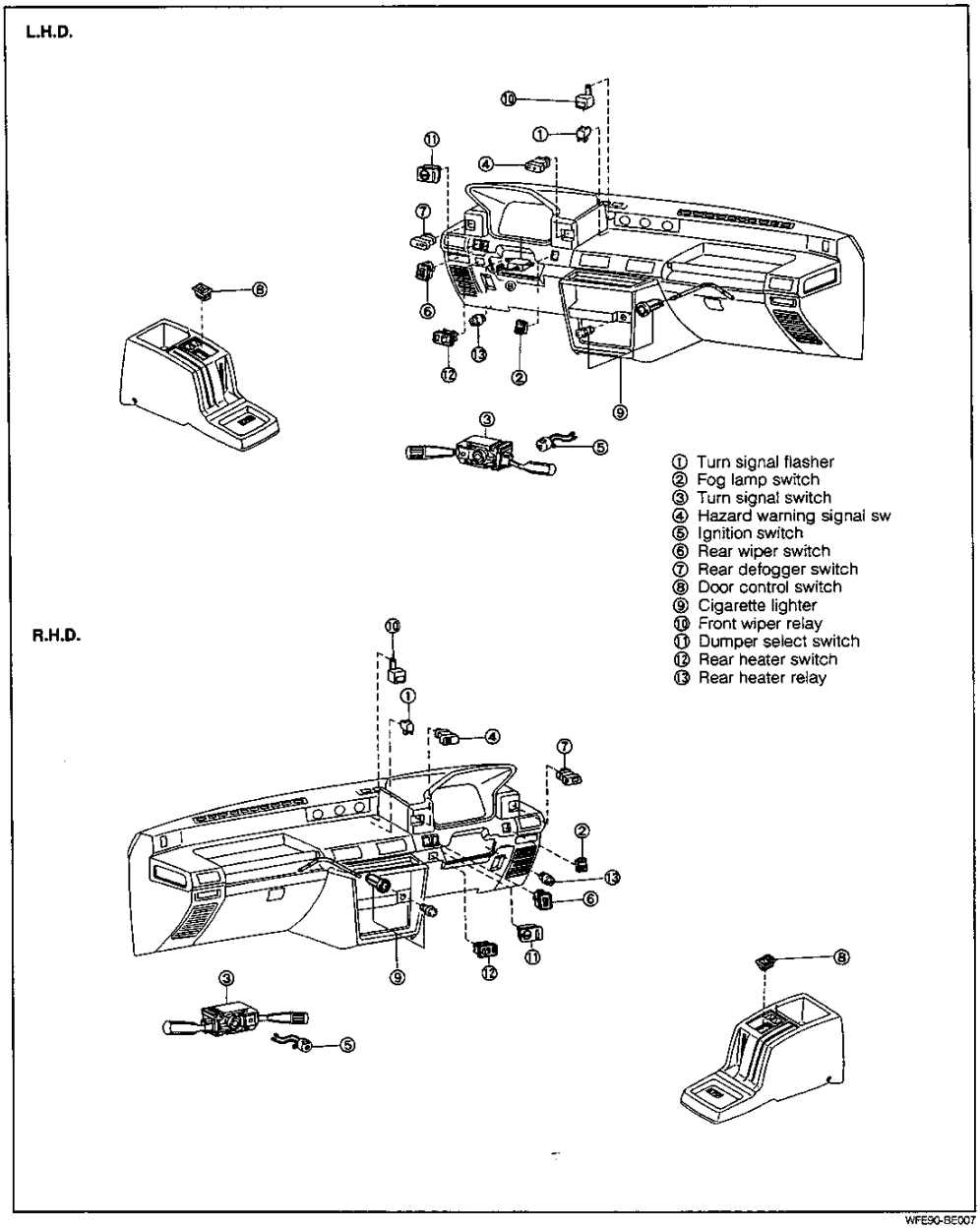
- To confirm whether the connector has been locked or not, lightly pull the connector. Make sure that the connector will not be disconnected. Be sure to press the connector again before finishing the confirmation.



WFE90-BE006

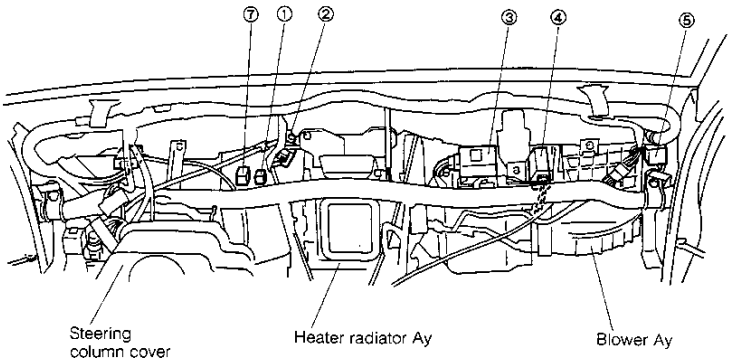
LOCATION OF THE PARTS

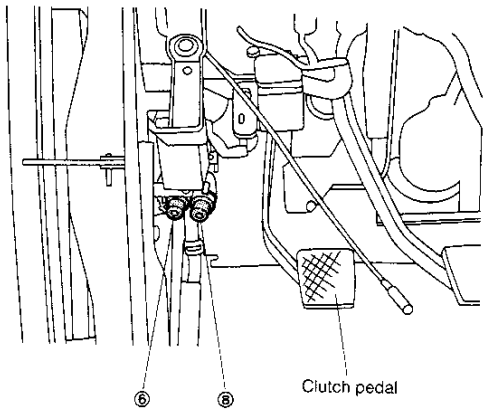
ARRANGEMENT OF SWITCHES AND RELAYS



WFE90-BE007

Instrument panel-related parts (LHD)

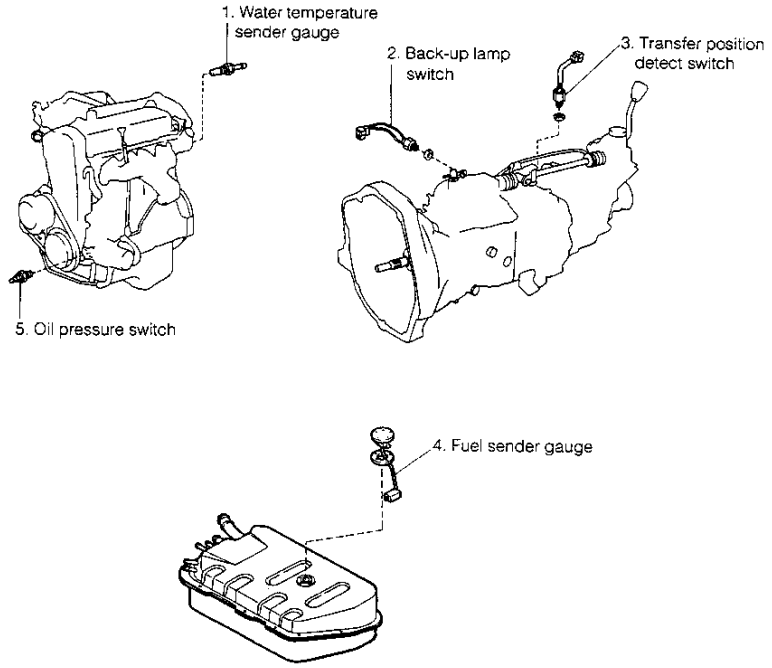




① Turn signal flasher relay
② Intermittent wiper relay
③ A/C acceleration cut amplifier
④ A/C amplifier
⑤ Headlamp cleaner relay
⑥ Front heater relay
⑦ Rear heater relay
⑧ Door lock control relay

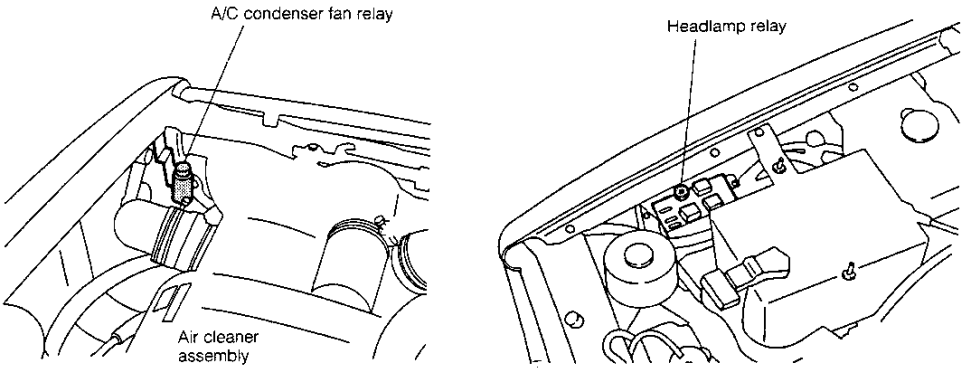
WFE90-BE008

Parts related to engine, transmission with transfer, and fuel tank



WFE90-BE009

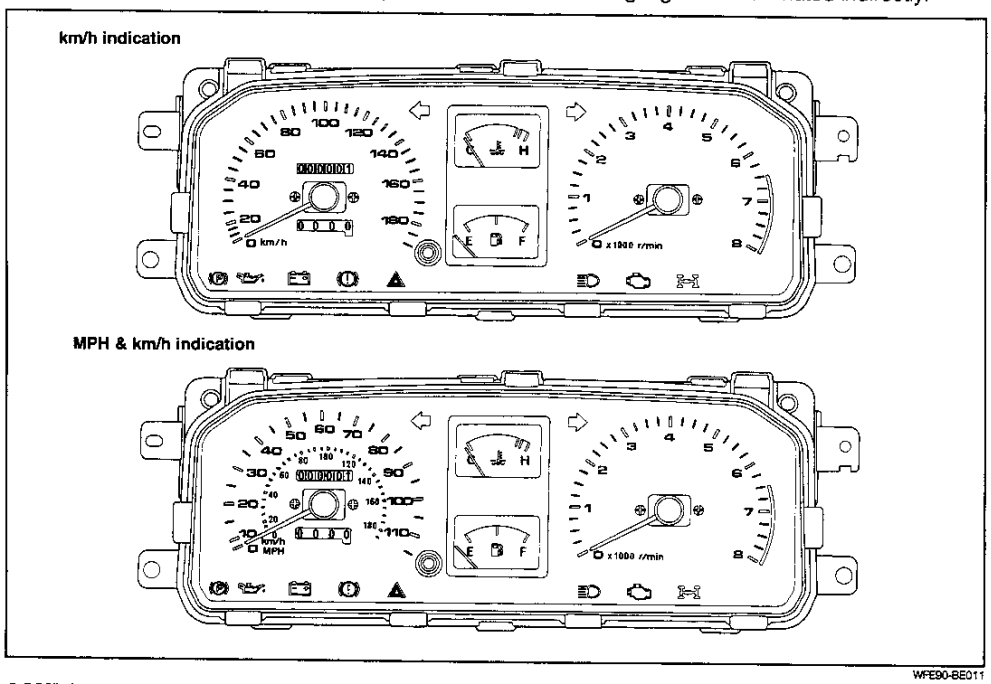
Engine room-related parts



WFE90-BE010

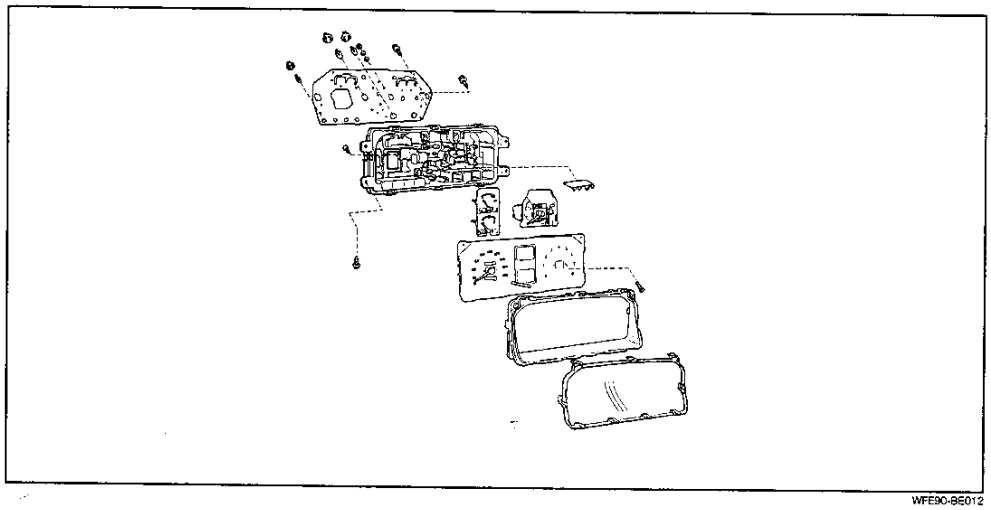
1. COMBINATION METER

A two-meter type combination meter is mounted on all models. As regards the meter dial plate, the speedometer and tachometer shares the same integral dial plate.
The speedometer and tachometer employs a transillumination. The gauges are illuminated indirectly.



WFE90-BE011

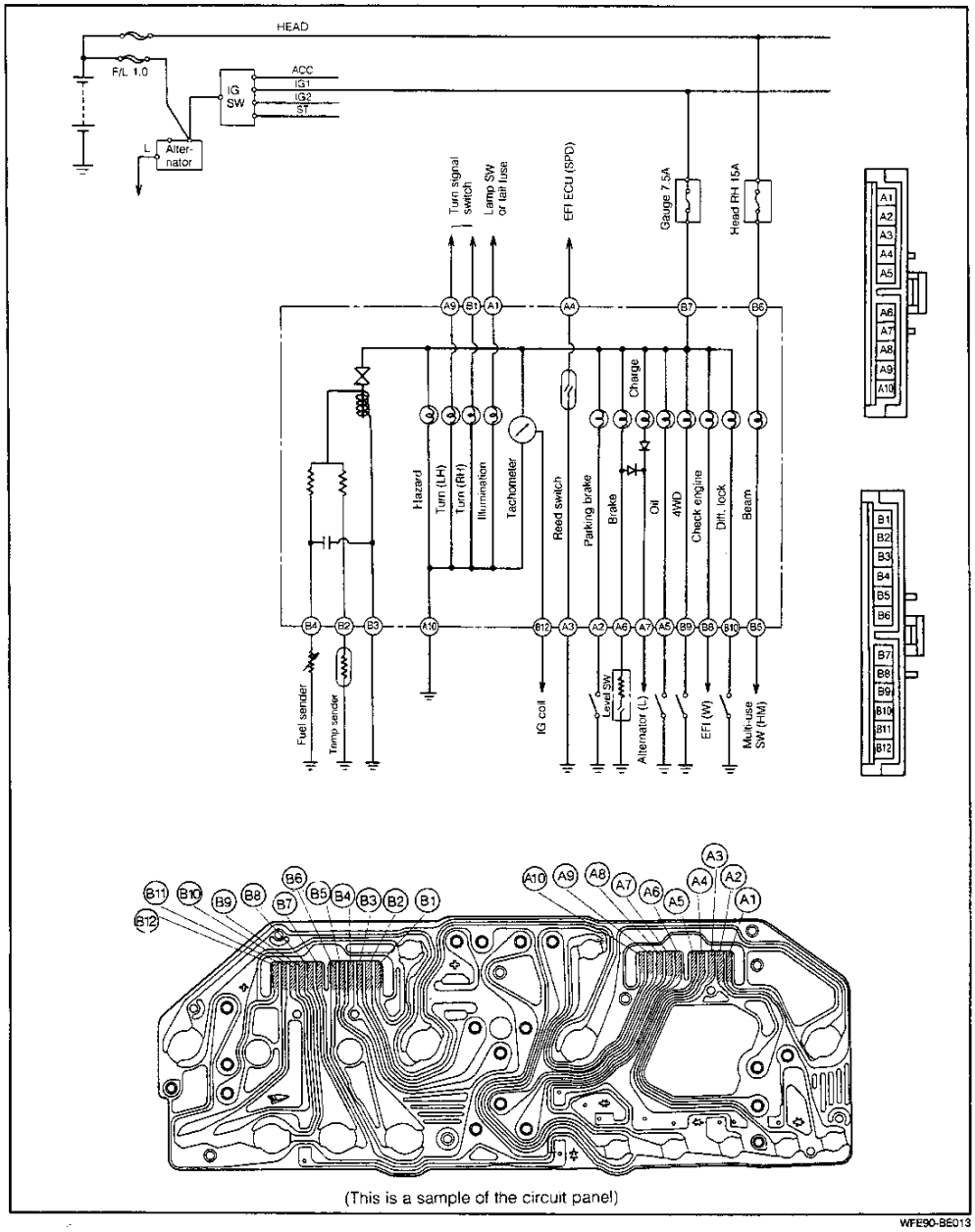
COMPONENTS



WFE90-BE012

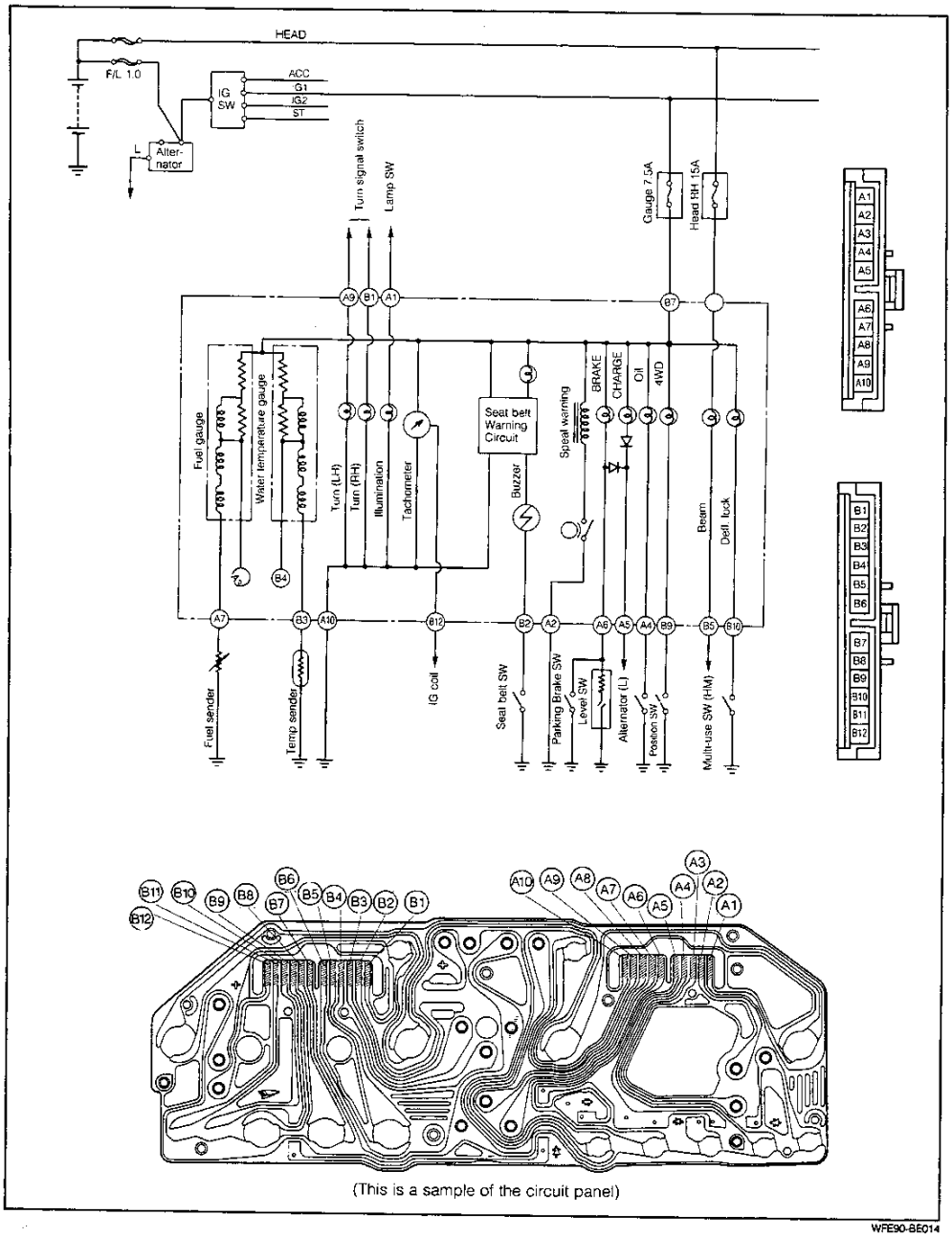
1-1. WIRING DIAGRAM

Version A (EC, AUS, GE)



WFE90-BE013

Version B (G.C.C.)

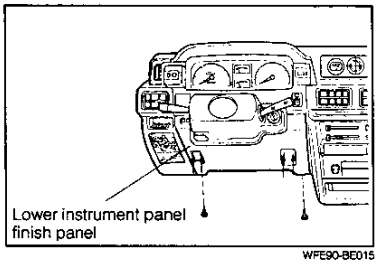


WFE90-BE014

1-2. REMOVAL AND INSTALLATION

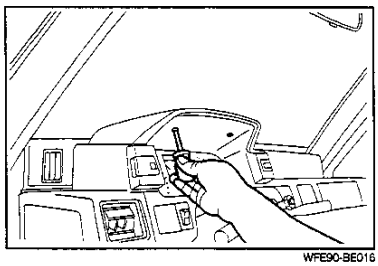
REMOVAL

1. Disconnect the battery cable from the negative (–) terminal.
2. Remove the steering wheel assembly.
3. Remove the lower instrument panel finish panel by removing the six screws.



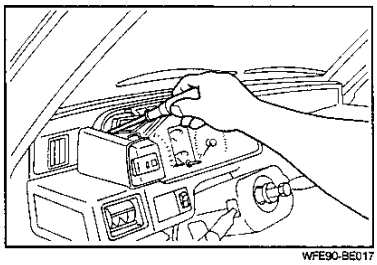
WFE90-BE015

4. Remove the instrument cluster finish upper panel by removing the two screws.



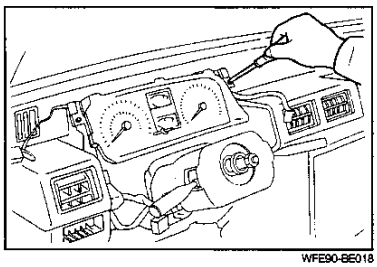
WFE90-BE016

5. Remove the instrument cluster finish panel by removing the four screws.
   Remove the coupler for the rear window defogger switch and hazard warning switch.



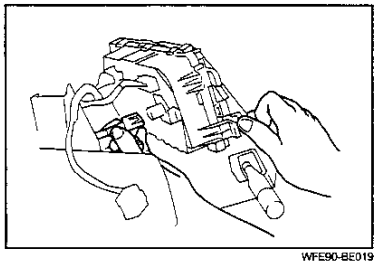
WFE90-BE017

6. Remove the combination meter assembly.



WFE90-BE018

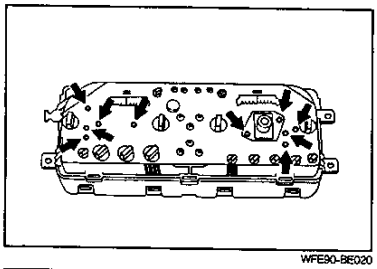
7. Remove the speedometer cable.
8. Remove the coupler of the combination meter.



WFE90-BE019

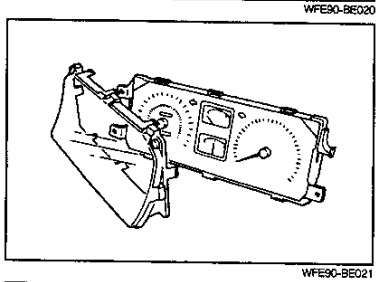
DISASSEMBLY

1. Remove the screws.



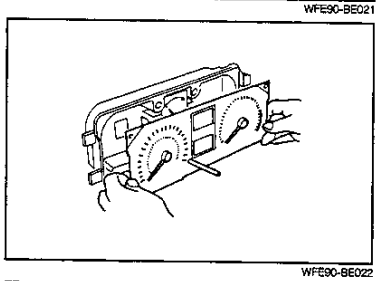
WFE90-BE020

2. Remove the combination meter cover with glass.



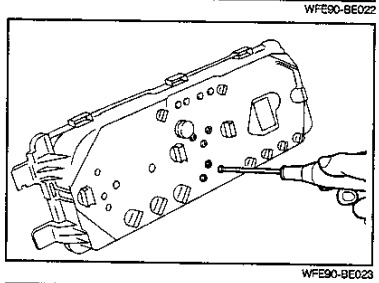
WFE90-BE021

3. Remove the speedometer/tacho-meter panel.



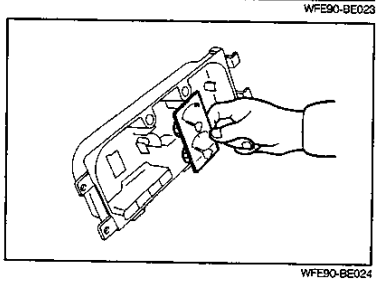
WFE90-BE022

4. Remove the attaching screws of the fuel/temp. gauge.



WFE90-BE023

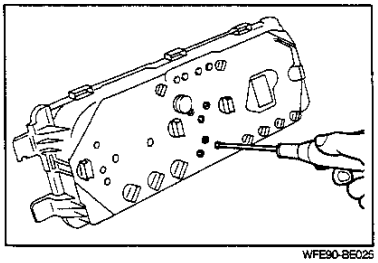
5. Remove the gauge.



WFE90-BE024

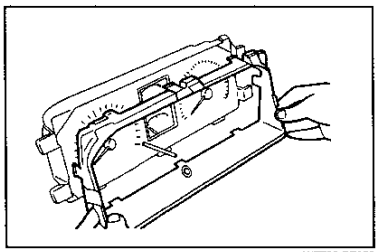
ASSEMBLY

1. Install the fuel/temp. gauge.
2. Install the speedometer/tacho-meter panel.



WFE90-BE025

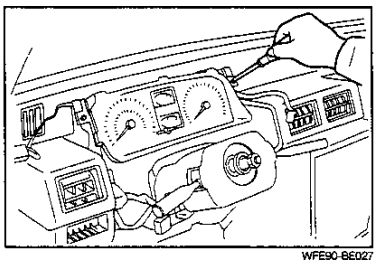
3. Attach the meter cover with glass to the combination cover. Install it to the meter case.



WFE90-BE026

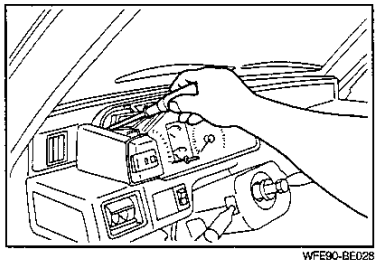
INSTALLATION

1. Installation of combination meter assembly
   (1) Connect the two couplers of the wiring harness and speedometer cable to the combination meter assembly.
   (2) Install the combination meter assembly with the four screws.



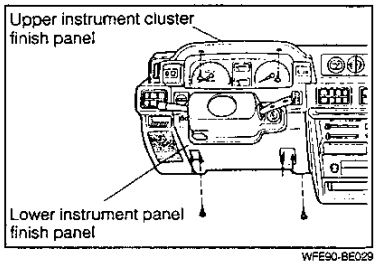
WFE90-BE027

2. Connect the couplers for the rear window defogger switch and hazard warning switch.
3. Install the instrument cluster finish panel with four screws.



WFE90-BE028

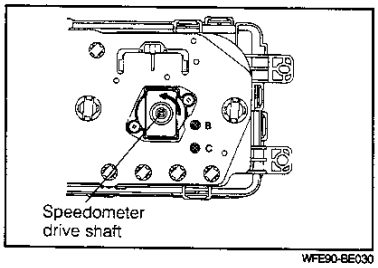
4. Install the upper instrument cluster finish panel with two screws.
5. Install the lower instrument panel finish panel with six screws.
6. Install the steering wheel assembly.
7. Install the negative terminal ⊖ of the battery.



WFE90-BE029

1-3. SPEED SENSOR (EFI equipped vehicle only)

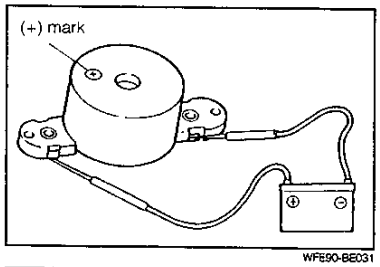
1. Remove the combination meter.
2. Ensure that continuity occurs four times at the reed switch while the speedometer drive shaft completes a turn. (Between Ⓑ and Ⓒ).



WFE90-BE030

1-4. SPEED WARNING BUZZER (G.C.C. specification only)

1. Remove the combination meter.
2. Apply the battery voltage across the terminals of the buzzer unit.
3. Ensure that the buzzer is set on.
   NOTE:
   - Be sure to connect the buzzer's side having a (+) mark to the positive (+) terminal of the battery.



WFE90-BE031

1-5. GAUGES

FUEL GAUGE AND WATER TEMPERATURE GAUGE CROSS COIL GAUGE

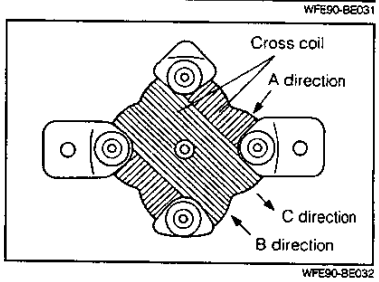
A pointer-zero-position-returning type cross coil gauge is employed for the water temperature gauge, whereas a pointer remaining type cross coil gauge is employed for the fuel gauge.

Pointer-zero-position-returning type cross coil gauge

In this gauge, coils are wound around the outer periphery of the magnet armature in three directions, spaced 90 degrees from each other. The armature is actuated by the change in the magnetic field generated by this coil.

When the engine switch is turned OFF, the returning of the gauge's pointer to the zero-position is carried out by the locating magnet.

Furtheremore, silicon oil for control use is filled at the lower shaft of the armature.



WFE90-BE032

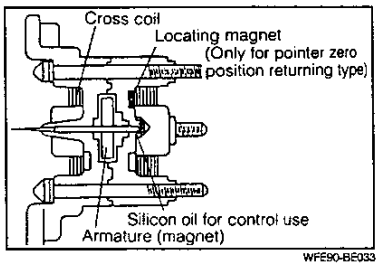
Pointer-remaining type cross coil gauge

In this gauge, even after the engine switch is turned OFF, the pointer remains at the position where the pointer registered during the operation, rather than it returns to the zero-position. Such design has been made possible by eliminating the locating magnet of the pointer-zero-position-returning type and by increasing the viscosity and amount of the silicon oil for control use.

Compared with the pointer-zero-position-returning type cross coil gauge, the pointer-remaining type cross gauge is slightly slow in the movement of the pointer.

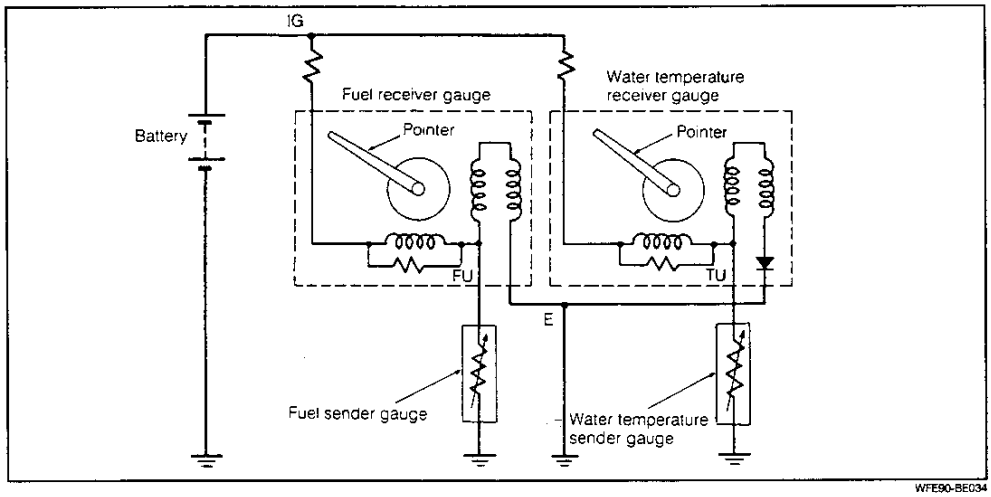
NOTE:

1. Even after the ignition switch is turned OFF, the pointer will not return down to the "E" position completely. This does not mean that the gauge is malfunctioning.
2. There are cases where the indication of the pointer at the time when the ignition switch is turned OFF may be deviated because of mechanical vibrations or after the lapse of time.
3. After the fuel tank has been filled with fuel to the full and the ignition switch is turned ON, it will take a little while (about two minutes) before the pointer's indication stabilizes.



WFE90-BE033

GAUGE CIRCUIT



WFE90-BE034

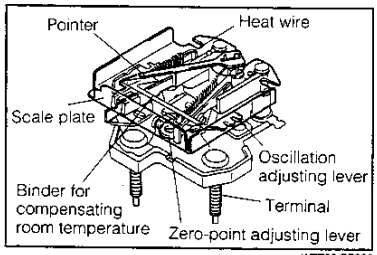
BIMETAL GAUGE

A bimetal type gauge is employed for the water temperature gauge and for the fuel gauge.

This gauge adopts such a combination that a bimetal is employed at the receiver section, whereas a resistor is installed at the sender section.
The following is brief description of the construction. A heat wire is wound around the bimetal. As a result, the bimetal bends in proportion to the heat amount which the bimetal receives form the heat wire. As the bimetal bends, the pointer is interlocked with that deflection of the heat wire.
As respects the resistance at the sender section, a sliding type resistor is employed in the case of the fuel gauge, while a thermistor is used in the case of the water temperature gauge.

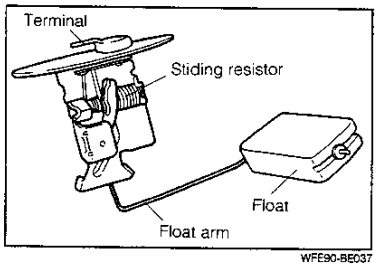
The right figure indicates the receiver section.
In the case of the bimetal-resistor combination type gauge, heat is generated by current which flows through the circuit.
Therefore, any variation in the power supply voltage will affect the amount of current flowing through the circuit, thereby causing an error in the reading at the receiving section. To prevent this error, the gauge incorporates a voltage regulator.

WFE90-BE035



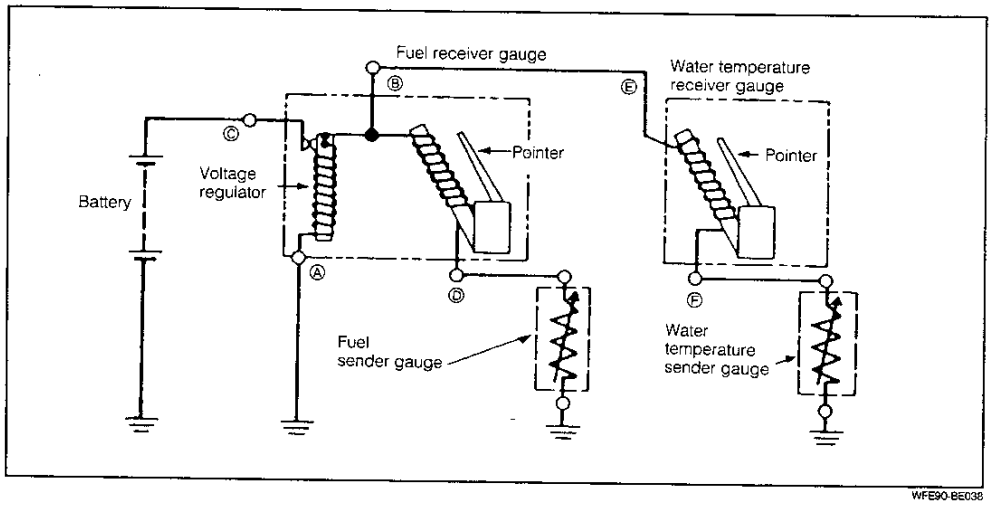
WFE90-BE036

The right figure represents the sender section which employs a sliding resistor. The gauge of this type is used for the fuel gauge.



WFE90-BE037

Circuit diagram of pin type, bimetal gauge

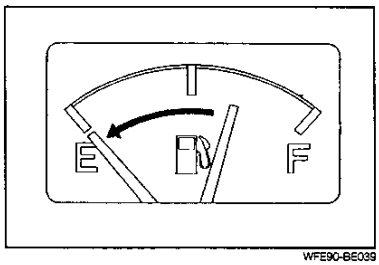


WFE90-BE038

FUEL RECEIVER GAUGE
(Cross coil type)

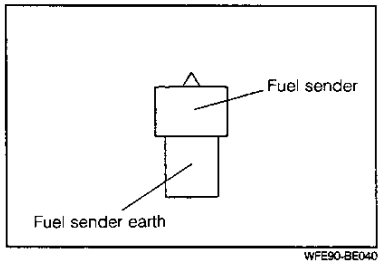
1. IN-VEHICLE INSPECTION

(1) Disconnect the connector of the fuel sender gauge located at the upper part of the fuel tank.
Under this condition, turn ON the engine switch. Ensure that the pointer of the receiver gauge returns to the position "E".



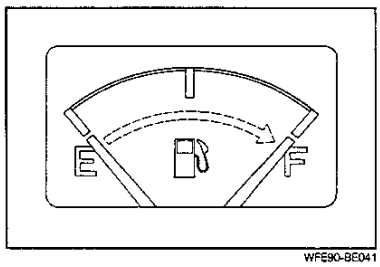
WFE90-BE039

(2) Turn OFF the engine switch. Ground the harness connector of the fuel sender gauge.
Under this condition, turn ON the engine switch. Ensure that the pointer of the receiver gauge rises gradually and registers the position "F".



WFE90-BE040

(3) Turn OFF the engine switch. Ensure that the pointer of the receiver gauge remains stationary and registers the position "F".

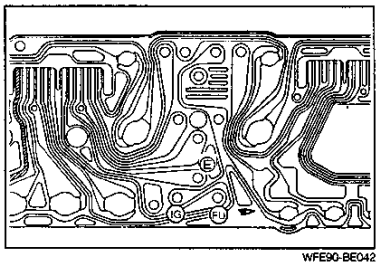


WFE90-BE041

2. UNIT CHECK

(1) Remove the combination meter. Measure the resistance between the terminals "IG" and "FU".
Specified Value: Approx. 82Ω

(2) Connect the multi-pole connector to the combination meter. Turn ON the engine switch. Ensure that the battery voltage is applied between the terminal "IG" and the body earth.



WFE90-BE042

FUEL RECEIVER GAUGE
(Bimetal type)

1. IN-VEHICLE INSPECTION

Disconnect the connector located at the upper part of the fuel tank. Carry out the following checks at the terminal at the receiver side.

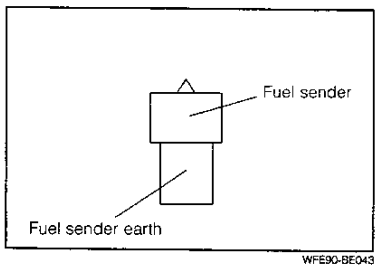
(1) Disconnect the connector from the harness of the fuel sender gauge. Ground the gauge through a test lamp (12V - 3.4W).

(2) Turn ON the engine switch. Ensure that the test lamp goes on and, several seconds later, the test lamp starts flashing.

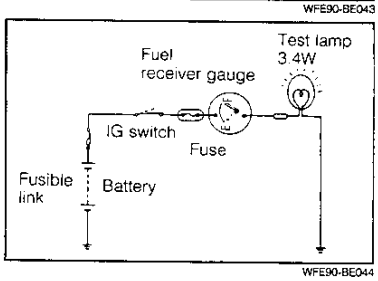
(3) Ensure that the pointer of the receiver gauge starts to rise gradually.

NOTE:

- **In case that the fuel sender earth terminal is used, in advance, make sure that it has continuity with the body earth.**



WFE90-BE043



WFE90-BE044

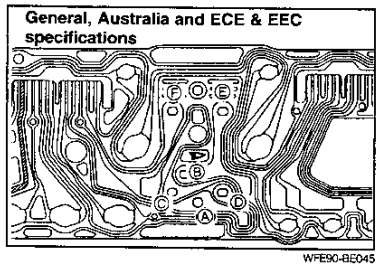
2. UNIT CHECK

(1) Remove the combination meter.

(2) Measure the resistance between the terminals Ⓑ and Ⓓ.
Specified Value: 55Ω

(3) Connect the multi-pole connector to the combination meter. Turn ON the engine key. Ensure that the battery voltage is applied between the terminal Ⓒ and the body earth.

(4) Under the conditions in the step (3), ensure that a voltage varying approximately from 2 to 7V is applied between the terminal Ⓑ and the body earth.



WFE90-BE045

FUEL SENDER GAUGE
(Common use for cross coil or bimetal type gauge)

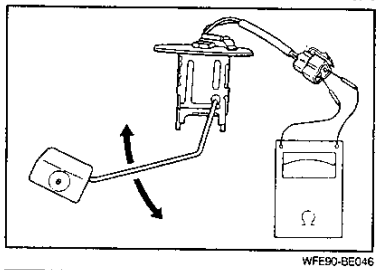
The fuel sender gauge is located at the upper part of the fuel tank.

1. MEASUREMENT OF RESISTANCE OF FUEL SENDER GAUGE

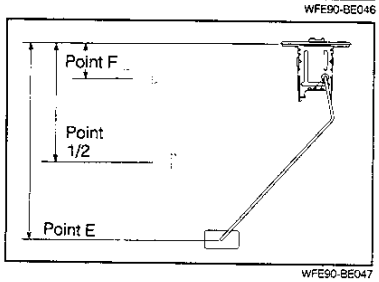
(1) Ensure that the resistance varies when the float is moved from the upper position to the lower position.

(2) Measure the resistance between the fuel terminal and the body at each float level.

Float position	Resistance (Ω)	Reference dimension mm (inch)
F	1 - 5	48 ± 3 (1.9 ± 0.12)
1/2	28.5 - 36.5	144 (5.7)
E	103 - 117	221 ± 3 (8.7 ± 0.12)



WFE90-BE046



WFE90-BE047

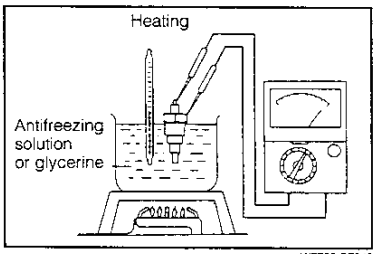
WATER TEMPERATURE SENDER GAUGE (Common use for cross coil or bimetal type gauge)

The water temperature sensor gauge is located at the rear end of cylinder head.

UNIT INSPECTION

Measure the resistance between the terminal and the earth, as indicated in the right figure.

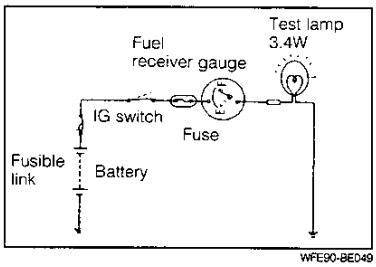
Temperature (°C)	Resistance (Ω)
50	226^{+34}_{-37}
115	$26.4^{+17}_{-2.2}$



WFE90-BE048

WATER TEMPERATURE RECEIVER GAUGE (Cross coil type use)

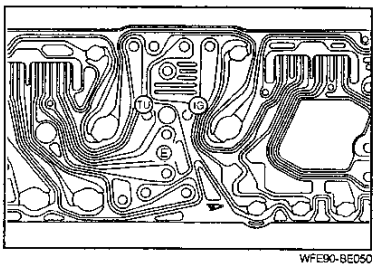
1. **IN-VEHICLE INSPECTION**
   (1) Disconnect the connector from the harness of the water temperature sender gauge. Ground the gauge through a test lamp (12V - 3.4W).
   (2) Turn ON the engine switch. Ensure that the test lamp goes on and the pointer of the receiver gauge starts to rise gradually.



WFE90-BE049

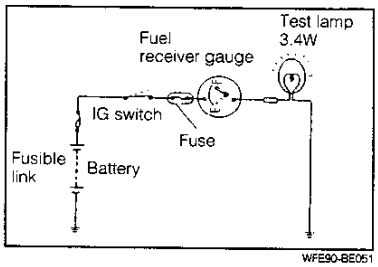
2. **UNIT CHECK**
   (1) Remove the combination meter. Measure the resistance between the terminals "IG" and "TU".
   Specified Value: Approx. 134Ω

   (2) Connect the multi-pole connector to the combination meter. Turn ON the engine switch. Ensure that the battery voltage is applied between the terminal "IG" and the body earth.

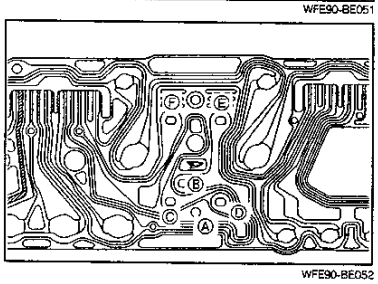


WFE90-BE050

WATER TEMPERATURE RECEIVER GAUGE (Bimetal type use)



WFE90-BE051


WFE90-BE052

1. IN-VEHICLE INSPECTION

(1) Disconnect the connector from the harness of the water temperature sender gauge. Ground the gauge to the connector at the harness trough a test lamp (12V - 3.4W).

(2) Turn ON the engine switch. Ensure that the test lamp goes on and, several seconds later, the test lamp starts flashing.

(3) Ensure that the pointer of the receiver gauge starts to rise gradually.

2. UNIT CHECK

(1) Remove the combination meter.

(2) Measure the resistance between the terminals Ⓔ and Ⓕ.

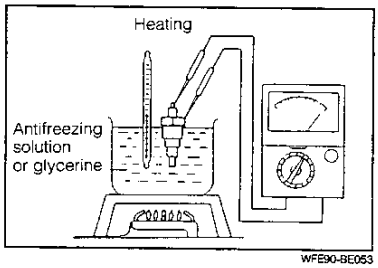
Specified Value: Approx. 25Ω

(3) Connect the multi-pole connector to the combination meter. Turn ON the engine key. Ensure that the battery voltage is applied between the terminal Ⓒ and the body earth.

(4) Under the conditions in the step (3), ensure that a voltage varying approximately from 2 to 7V is applied between the terminal Ⓔ and the body earth.

WATER TEMPERATURE SENDER GAUGE (Common use for cross coil ro bimetal type gauge)

The water temperature sensor gauge is located at the rear end of the cylinder head.



WFE90-BE053

UNIT INSPECTION

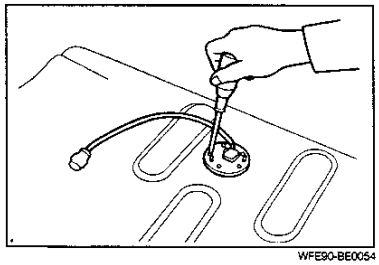
Measure the resistance between the terminal and the earth, as indicated in the right figure.

Temperature (°C)	Resistance (Ω)
50	226^{+34}_{-37}
115	$26.4^{+1.7}_{-2.2}$

FUEL SENDER GAUGE

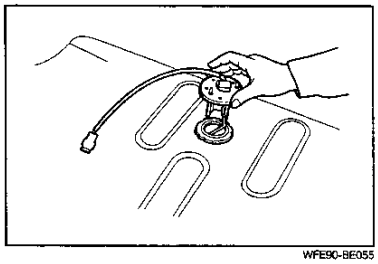
Removal

1. Remove the fuel tank assembly.
2. Remove the five attaching screws of the fuel sender gauge.



WFE90-BE0054

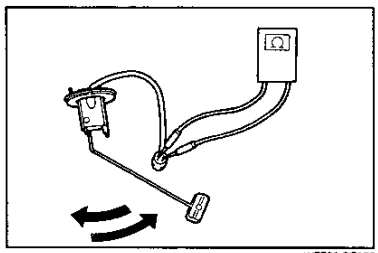
3. Remove the fuel sender gauge from the fuel tank.



WFE90-BE0055

Inspection

Ensure that the resistance varies when the float is moved from the upper position to the lower position.
Refer to previous pages.

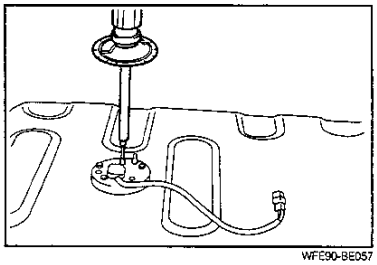


WFE90-BE056

Installation

1. Install the fuel sender gauge to the fuel tank.
   Tightening Torque: 1.8 - 2.0 kg-cm (0.18 - 0.20 N·m)

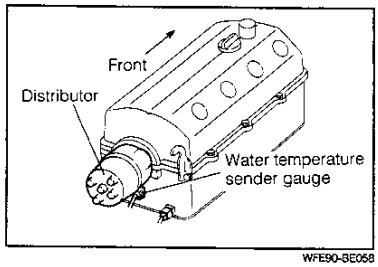
2. Install the fuel tank assembly to the vehicle body.



WFE90-BE057

WATER TEMPERATURE SENDER GAUGE

The water temperature sensor gauge is located at the rear end of the cylinder head.



WFE90-BE058

Removal

1. Drain the cooling water
2. Remove the water temperature sender gauge.

Unit inspection

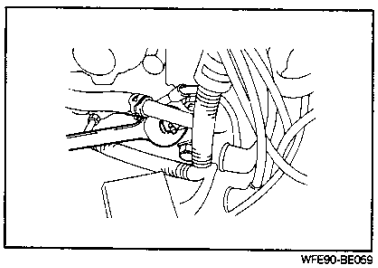
Measure the resistance between the terminal and the earth, as indicated in the right figure.
Refer to previous pages.

Installation

1. Installation of water temperature Sender gauge.
   (1) Wind sealing tape to the water temperature sender gauge and install it to the cylinder.
   Tightening Torque: 1.2 - 2.0 kg-m
   (8.7 - 14.5 ft-lb, 11.8 - 19.6 N·m)

   NOTE:
   - The new sensor is corted with sealer, therefore seal tape is unnecessary if the gauge is replaced with new one.

   (2) Connect the connector.
2. Fill the coolant


WFE90-BE059

2. WARNING & INDICATOR

CHECK WARNING LAMPS

1. Set the ignition switch to the ON position. Ensure that the warning lamps given below are illuminated.
2. Set the ignition switch to the START position. Start the engine. Ensure that the warning lamps given below are extinguished. (With the parking lever not applied)
3. Stop the engine. Set the ignition switch to the START position again. Start the engine. Ensure that, four to eight seconds later, the seat belt warning buzzer ceases its operation and the seat belt warning lamp goes out.

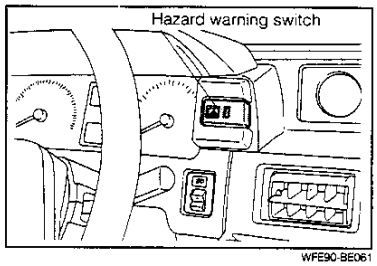
2-1. WARNING & INDICATOR

Kind		Indication	Function
Warning lamp	Hazard warning		Flashes when hazard switch is turned ON. Indicating color: Red
	Brake warning	BRAKE	Glows when brake fluid becomes too low or empty, or when parking brake is a pplies. Indicating color: Red
	Oil pressure warning	OIL	Glows when engine oil pressure system is encountered with abnormality while engine is running. Indicating color: Red
	Charge warning	CHARGE	Glow when engine charging system is encountered with abnormality while engine is running. Indicating color: Red
	Seat belt warning		Glows for about six seconds when driver fails to buckle up seat belt at driver's seat after ignition switch has been turned ON or engine has started. Indicating color: Red
	Check engine warning	CHECK ENGINE	Glows when CPU detects malfunction of Electronie Fuel Injection system. Indicating color: Amber
Indicator lamp	High beam indicator		Glows when upper beams of headlamps are turned ON. Indicating color: Blue
	Turn signal indicator		Flashes when turn signal switch or hazard warning switch is turned ON. Indicating color: Green
	4WD indicator		Glows when the transfer shift lever is moved to the 4H or 4L position with the engine switch turned ON. Indicating color: Green
	Differential lock indicator	DIFF-LOCK	Glows when the transfer shift lever is shifted to CENTER DIFF-LOCK with the engine switch turned ON. Indicating color: Amber

WFE90-BE060

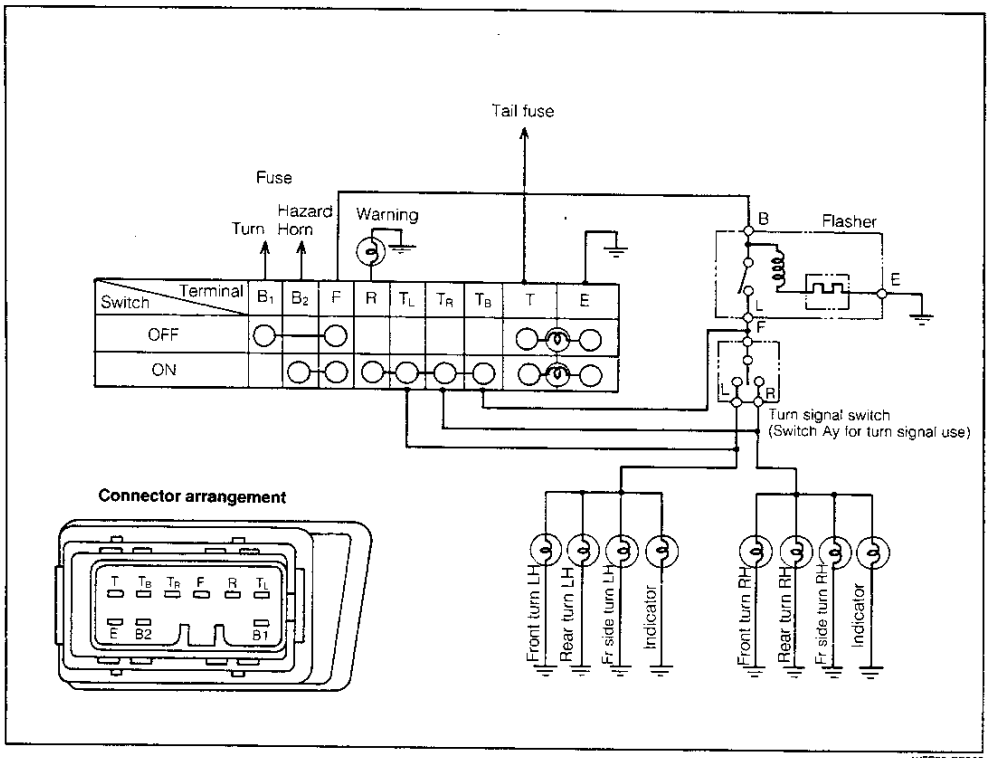
2-2. HAZARD WARNING

The hazard warning switch is a seesaw type switch which incorporates a symbol mark showing night illumination. Furthermore, the switch is installed in the meter cluster toward the inboard side of the vehicle.



WFE90-BE061

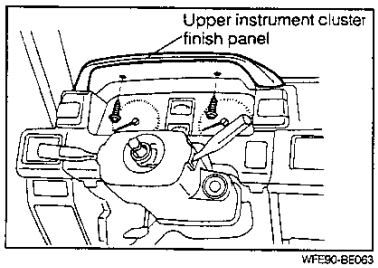
CIRCUIT DIAGRAM



WFE90-BE062

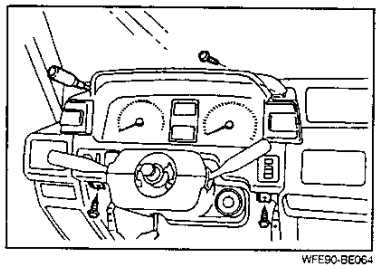
REMOVAL

1. Remove the upper instrument cluster finish panel by removing the two screws.
2. Remove the instrument panel finish lower panel.
   NOTE:
   - The removal of the steering wheel in advance will facilitate this removal operation.



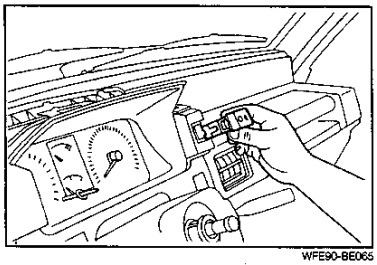
WFE90-BE063

3. Remove the instrument cluster finish panel subassembly by removing the four screws.



WFE90-BE064

4. Remove the hazard warning switch assembly.


WFE90-BE065

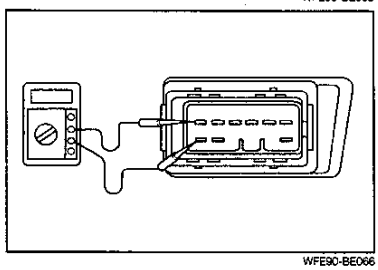
INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Continuity table

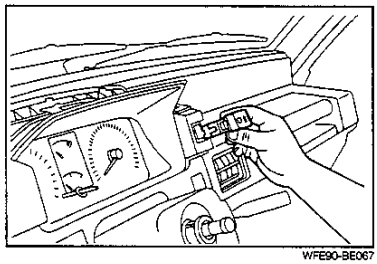
○—○ Continuity exists.
○-(●)-○ Bulb in installed state

Switch \ Terminal	B_1	B_2	F	R	T_L	T_R	T_B	T	E
OFF	○		○					○-(●)-○	
ON		○	○	○	○	○	○	○-(●)-○	

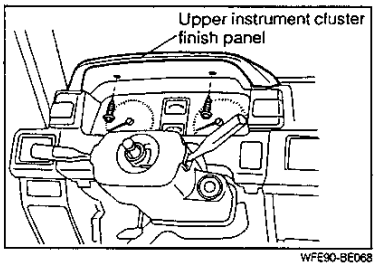

WFE90-BE066

INSTALLATION

1. Connect the coupler of the hazard warning switch and install it to the instrument cluster finish panel subassembly.


WFE90-BE067

2. Install the instrument cluster finish panel subassembly.
3. Install the instrument cluster finish upper panel.
4. Install the instrument panel finish lower panel.



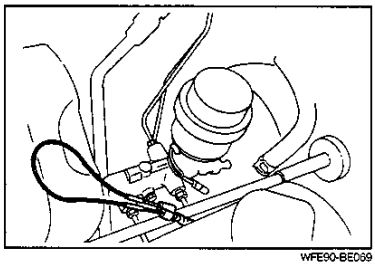
WFE90-BE068

2-3. BRAKE WARNING

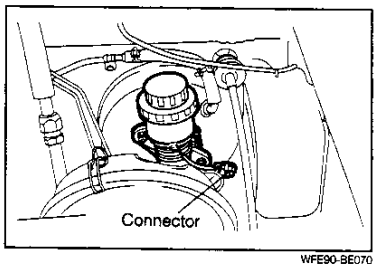
BRAKE FLUID LEVEL SWITCH

Inspection

1. Start the engine.
2. Return the parking brake lever to the original position.
3. Disconnect the connector of the brake level warning switch. Short the connector terminals at the wire harness side with each other, as indicated in the right figure. Ensure that the brake warning lamp glows.

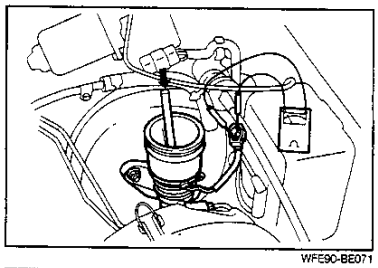

WFE90-BE069

4. Pull out the connector of the brake fluid level warning switch and connect a tester.

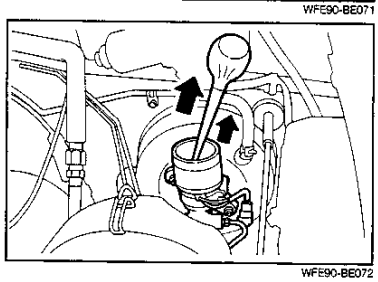


WFE90-BE070

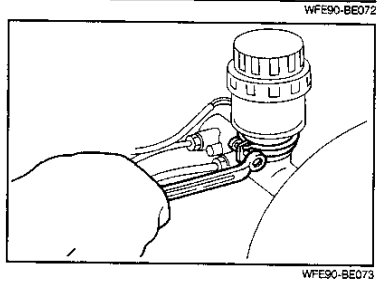
5. Press down the brake fluid level warning switch (float) with a rod. Ensure that continuity exists between the connector terminals.
   NOTE:
   - As for a rod to be used for pressing down the float, be sure to thoroughly clean it. Special care must be exercised to ensure that no dust nor water gets into the reservoir.


WFE90-BE071

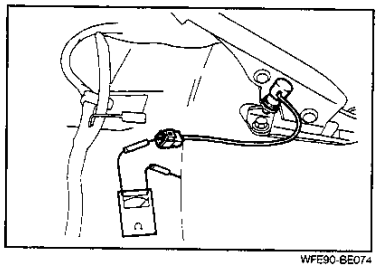
Removal
1. Detach the reservoir tank cap.
2. Suck the brake fluid in the reservoir tank, using a syringe.
3. Remove the master cylinder reservoir assembly.


WFE90-BE072

Installation
1. Install the master cylinder reservoir assembly to the master cylinder.
   Tightening Torque: 0.55 - 0.70 kg-m
   (4.0 - 5.0 ft-lb, 4.9 - 6.9 N·m)
2. Fill the reservoir tank with brake fluid up to the MAX level mark.
   Brake Fluid to be Used: DOT3 or SAE J1703

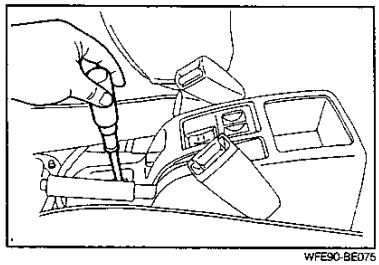

WFE90-BE073

PARKING BRAKE SWITCH
Inspection
1. Pull out the connector of the parking brake switch and conduct continuity checks between the terminal and the body earth.
   (1) Ensure that continuity exists between the terminals when the parking brake lever is pulled upward.
   (2) Ensure that no continuity exists between the terminals when the parking brake lever is returned.


WFE90-BE074

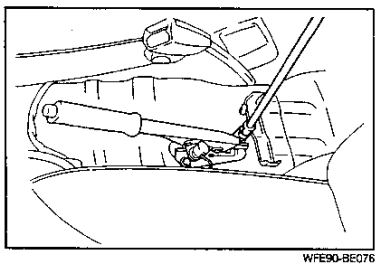
Removal

1. Remove the rear console box.



WFE90-BE075

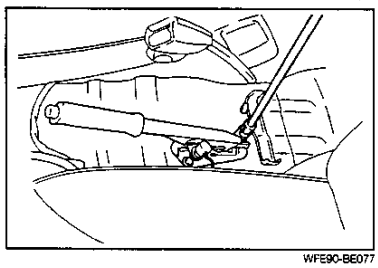
2. Remove the parking brake lever. Remove the parking brake switch.



WFE90-BE076

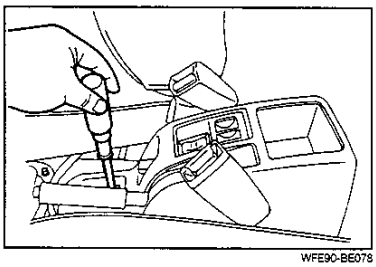
Installation

1. Install the parking brake switch and parking brake lever.
   NOTE:
   - Ensure that the parking brake switch operates normally. If the switch is installed improperly, the switch may malfunction.
     Tightening Torque: 1.0 - 1.6 kg-m
     (7.2 - 11.5 ft-lb, 9.8 - 15.7 N·m)



WFE90-BE077

2. Install the rear console box.



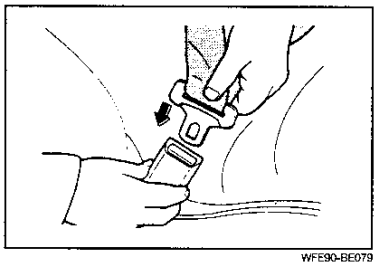
WFE90-BE078

2-4. SEAT BELT WARNING

OPERATION CHECK

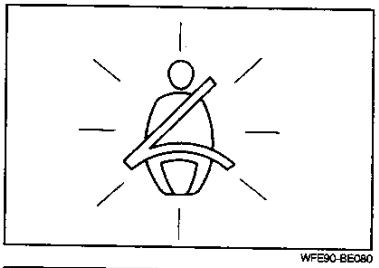
1. Seat belt warning buzzer
   (1) Ensure that the buzzer is set off for the specified time when the ignition switch is turned ON.
   Specified Set-off Time: 4 - 8 seconds

   (2) Ensure that the buzzer is not set off when the ignition switch is turned ON with the seat belt locked.



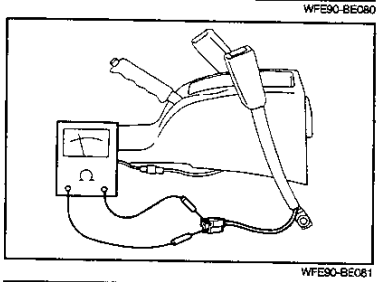
WFE90-BE079

2. Seat belt warning lamp
   (1) Ensure that, when the ignition switch is turned ON, the lamp glows for the specified time regardless of the seat belt lock.
   Specified Set-off Time: 4 - 8 seconds


WFE90-BE080

INSPECTION OF SEAT BELT SWITCH

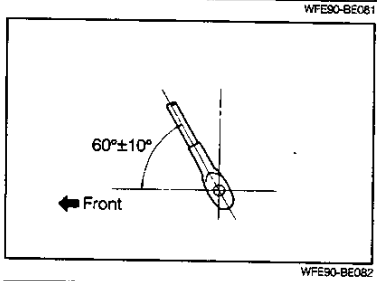
1. Pull out the connector of the seat belt switch and connect a tester.
2. Buckle the seat belt. Ensure that continuity exists between the connector terminals.


WFE90-BE081

REMOVAL AND INSTALLATION

Install the seat belt so that the installation angle of the front/inner seat belt may become 50 - 70 degrees.

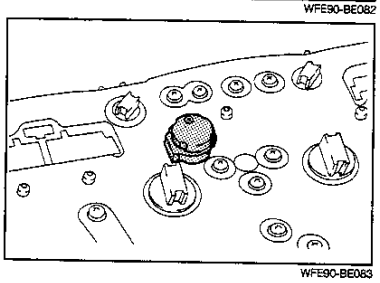
Tightening Torque: 2.9 - 5.4 kg-m
(21.0 - 39.1 ft-lb, 28.4 - 53.0 N·m)



WFE90-BE082

INSPECTION OF BUZZER

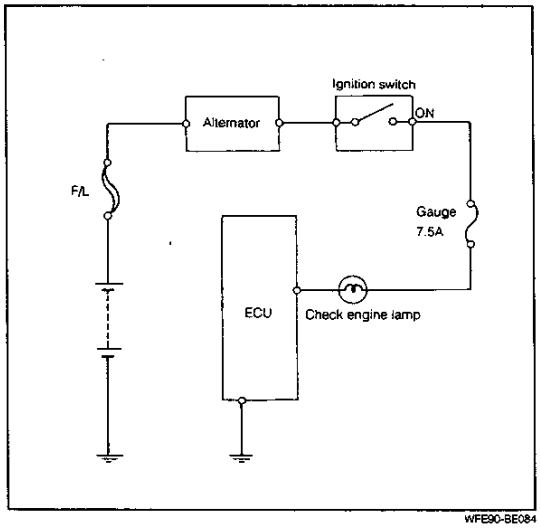
1. Remove the buzzer.
2. Apply a voltage of 12V between the terminals of the buzzer.
3. Ensure that the buzzer is set off.
   NOTE:
   - It must be noted that the buzzer will not be set off if the positive ⊕ and negative ⊖ terminals are connected reversely.


WFE90-BE083

2-5. CHECK ENGINE WARNING (EFI engine only)

INSPECTION

The inspection of the check engine lamp is performed under the inspection of the EFI system.

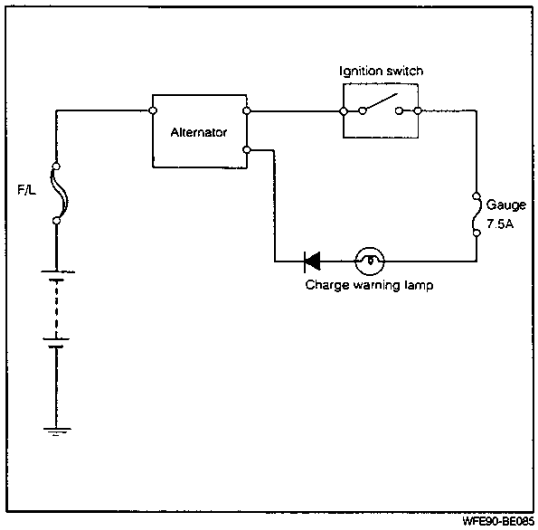


WFE90-BE084

2-6. CHARGE WARNING

INSPECTION

The inspection of the charge warning lamp is performed under the inspection of the charge system.

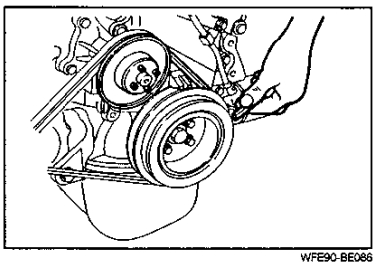


WFE90-BE085

2-7. OIL PRESSURE WARNING

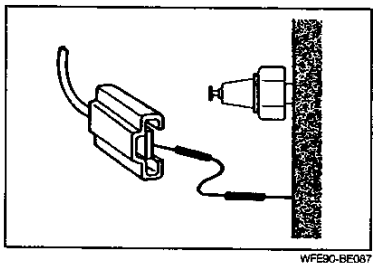
INSPECTION

1. Disconnect the oil pressure switch connector.



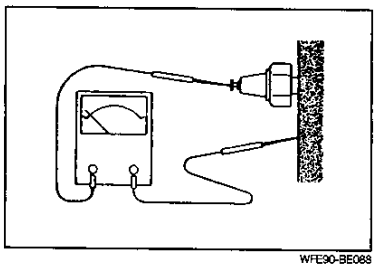
WFE90-BE086

2. Ground the connector at the harness side.
3. Ensure that the oil pressure warning lamp glows when the engine switch is turned ON.



WFE90-BE087

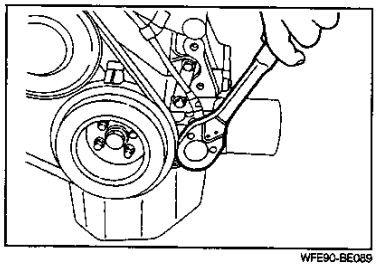
4. Pull out the connector located at the front/left part of the oil filter bracket.
5. Ensure that continuity exists between the oil pressure switch terminal and the earth.
   NOTE:
   - It should be noted that continuity exists while the engine is stopped, whereas no continuity exists while the engine is running.



WFE90-BE088

REMOVAL

1. Disconnect the oil pressure switch connector.
2. Remove the oil pressure switch.
   NOTE:
   - Use a hexagonal long box wrench for the removal.

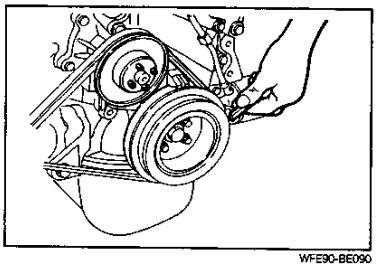


WFE90-BE089

INSTALLATION

1. Clean the threaded portion of the oil pressure switch. Wind seal tape around the threaded portion. Install the oil pressure switch in the oil pump.
   Tightening Torque: 1.2 - 2.0 kg-m (8.7 - 14.5 ft-lb)

   NOTE:
   (1) Use a hexagonal long box wrench for the installation.
   (2) The new oil pressure switch is coated with sealing materials.



WFE90-BE090

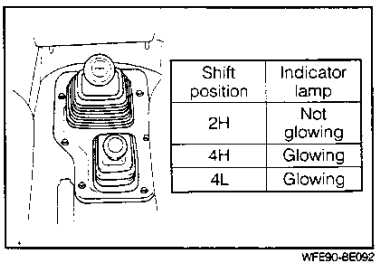
2. Connect the connector of the oil pressure switch.
3. Start the engine and check it for oil leakage.
   Repair the leaky point if oil leakage exists.

WFE90-BE091

2-8. 4WD INDICATOR LAMP

IN-VEHICLE CHECK

1. Turn ON the ignition switch.
2. Place the transfer shift lever in the 4H or 4L position. Ensure that the indicator lamp glows.
3. Place the transfer shift lever in the 2H position. Ensure that the indicator lamp is extinguished.

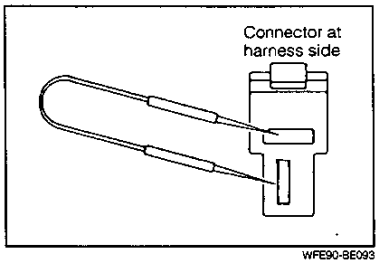


Shift position	Indicator lamp
2H	Not glowing
4H	Glowing
4L	Glowing

WFE90-BE092

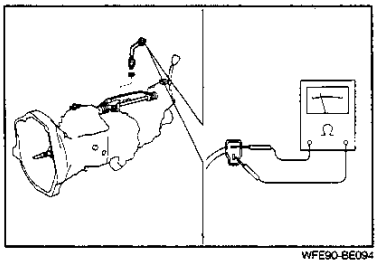
INSPECTION

1. Pull out the connector located at the top side part of the transfer front case.
2. Short the connector at the harness side.
3. Ensure that the 4WD indicator glows when the engine switch is turned on.



WFE90-BE093

4. Pull out the connector of the transfer position detect switch and connect a tester.
5. Shift the transfer shift lever to 4H and 4L. Ensure that continuity exists between the connector terminals.

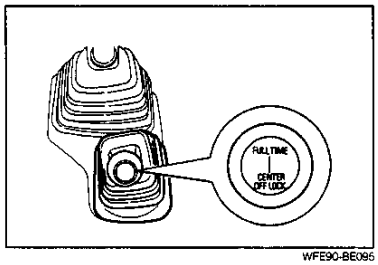


WFE90-BE094

2-9. DIFFERENTIAL LOCK INDICATOR LAMP

IN-VEHICLE CHECK

1. Turn ON the ignition switch.
2. Place the transfer shift lever in the CENTER DIFF LOCK position. Ensure that the indicator lamp glows.



WFE90-BE095

INSPECTION

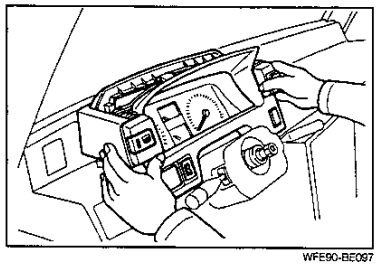
1. Pull out the connector located at the top side part of the transfer front case.
2. Short the connector at the harness side.
3. Ensure that the DIFF-LOCK indicator glows when the engine switch is turned on.
4. Pull out the connector of the transfer position detect switch and connect a circuit tester.
5. Shift the transfer shift lever to CENTER DIFF LOCK. Ensure that continuity exists between the connector terminals.

WFE90-BE096

3. IGNITION KEY SWITCH

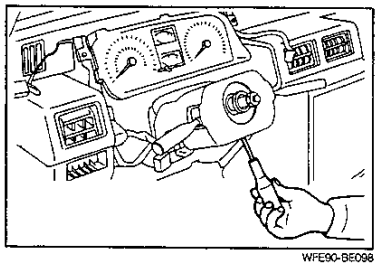
REMOVAL

1. Remove the instrument panel finish lower panel.
2. Remove the instrument cluster finish panel subassembly.
   NOTE:
   - The removal of the steering wheel in advance will facilitate this removal operation.



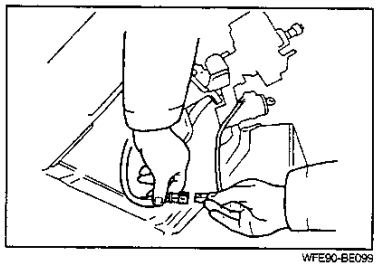
WFE90-BE097

3. Remove the steering column lower/upper cover.



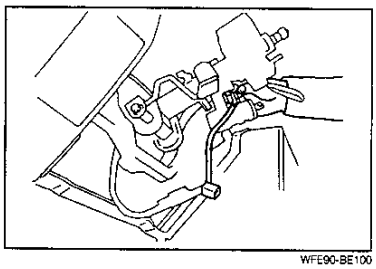
WFE90-BE098

4. Pull out the coupler of the ignition switch.



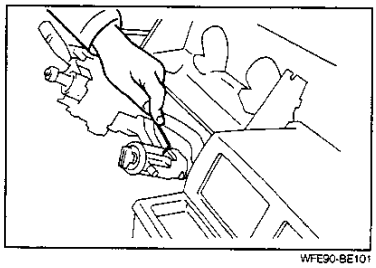
WFE90-BE099

5. Remove the ignition key switch.



WFE90-BE100

6. Remove the ignition key cylinder.
   (1) Set the key to the ACC position.
   (2) Push in the knock button, using a piece of wire, as indicated in the right figure.
   (3) Draw out the ignition key cylinder.



WFE90-BE101

INSPECTION

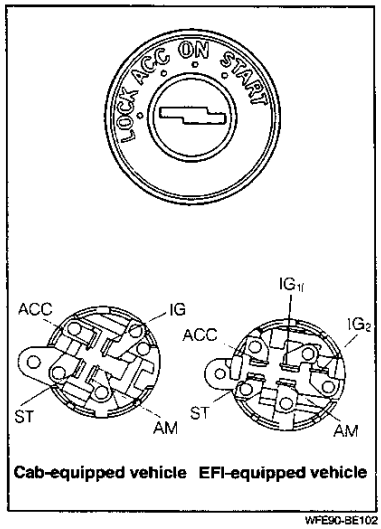
Ensure that continuity exists between the respective terminals as indicated in the continuity table.

Continuity table (HD-E engine) O—O Continuity exists.

	AM	ACC	IG_1	IG_2	ST
LOCK					
↕					
ACC	O——	——O			
↕	O——	——O			
ON	O——	——O——	——O——	——O	
↕	O——	——	——O——	——O	
START	O——	——	——O——	——O——	——O

Continuity table (HD-C engine) O—O Continuity exists.

	AM	ACC	IG	ST
LOCK				
ACC	O——	——O		
ON	O——	——O——	——O	
START	O——	——	——O——	——O

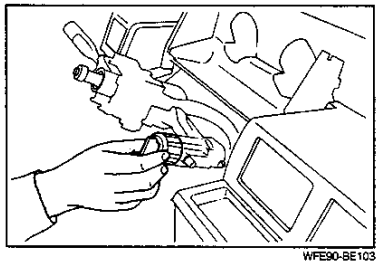


WFE90-BE102

INSTALLATION

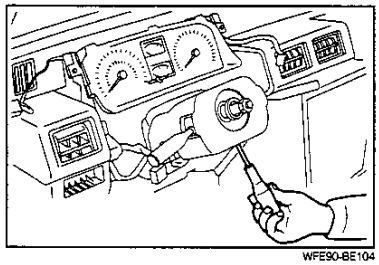
1. Install the ignition key cylinder
   (1) Set the key to the ACC position.
   (2) Insert the ignition key cylinder.

2. Install the ignition key cylinder.
3. Connect the coupler of the ignition switch.



WFE90-BE103

4. Install the steering column lower/upper cover.
5. Install the instrument cluster finish panel subassembly.
6. Install the instrument panel finish lower panel.
7. Install the steering wheel subassembly.

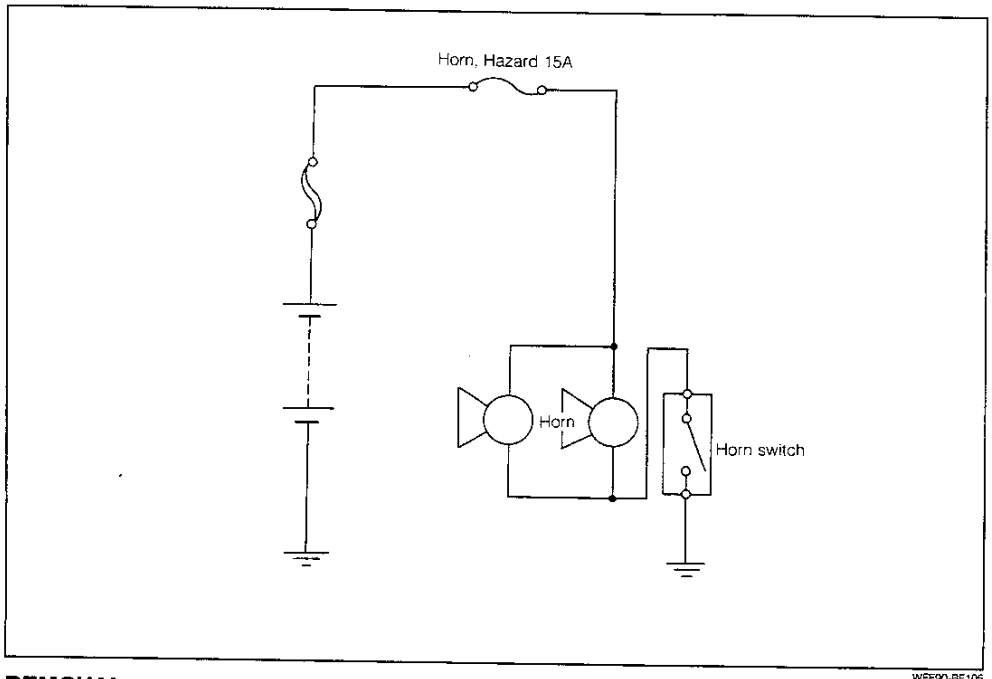


WFE90-BE104

4. HORN

The horn is installed at the front of the radiator support panel.

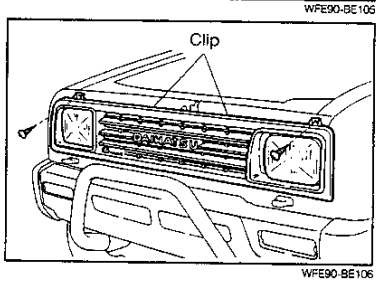
CIRCUIT DIAGRAM



WFE90-BE105

REMOVAL

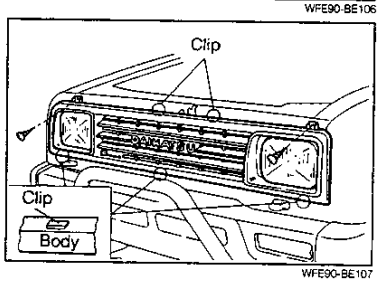
1. Removal of radiator grille
   (1) Remove the two screws.
   (2) Detach the two clips, using a screwdriver.
   (3) Remove the radiator grille from the vehicle body by raising it diagonally toward you.
2. Removal of horn assembly



WFE90-BE106

INSTALLATION

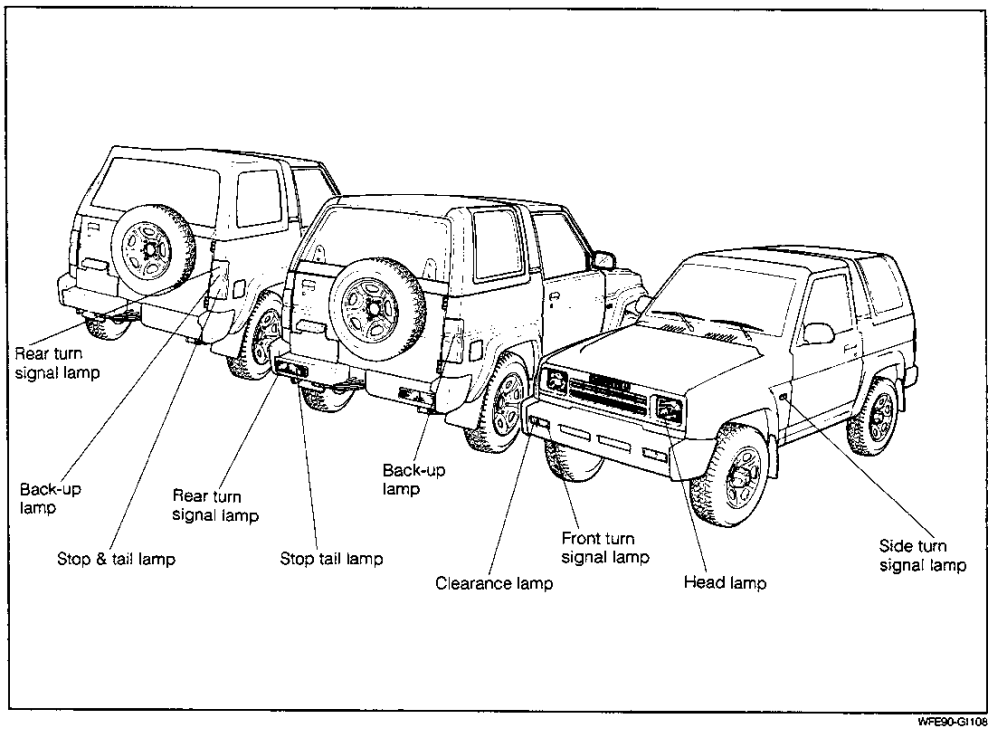
1. Install the horn assembly.
2. Installation of headlamp grille
   (1) Ensure that three clips are provided at the body side.
   (2) Set the headlamp grille on the body. Secure the headlamp grille with the two clips a the upper side.
   (3) Attach the headlamp grille to the body with the two screws.



WFE90-BE107

5. LIGHTING

The rear combination lamp has been built into the rear bumper for only European and Australian markets.



WFE90-GI108

Lamp specifications

Lamp		Specifications	Wattage	Remarks
Headlamp	Bulb specifications	Candescent	45/40	
		Halogen	60/55	
		Yellow	45/40	
Front combination lamp		Clearance lamp	5	
		Turn signal lamp	21	
Side turn signal lamp			5	
Rear combination lamp		Stop/tail lamp	21/5	
		Turn signal lamp	23 (21)	Figures in ( ) denote European specifications
		Back up lamp	21	
License plate lamp			5	
Room lamp			10	
Fog lamp		Front	35	• Option on Australian & General specifications
		Rear	21	• Standard on R.H.D. vehicles for European specifications • Option on L.H.D. vehicles for European specifications

WFE90-GI109

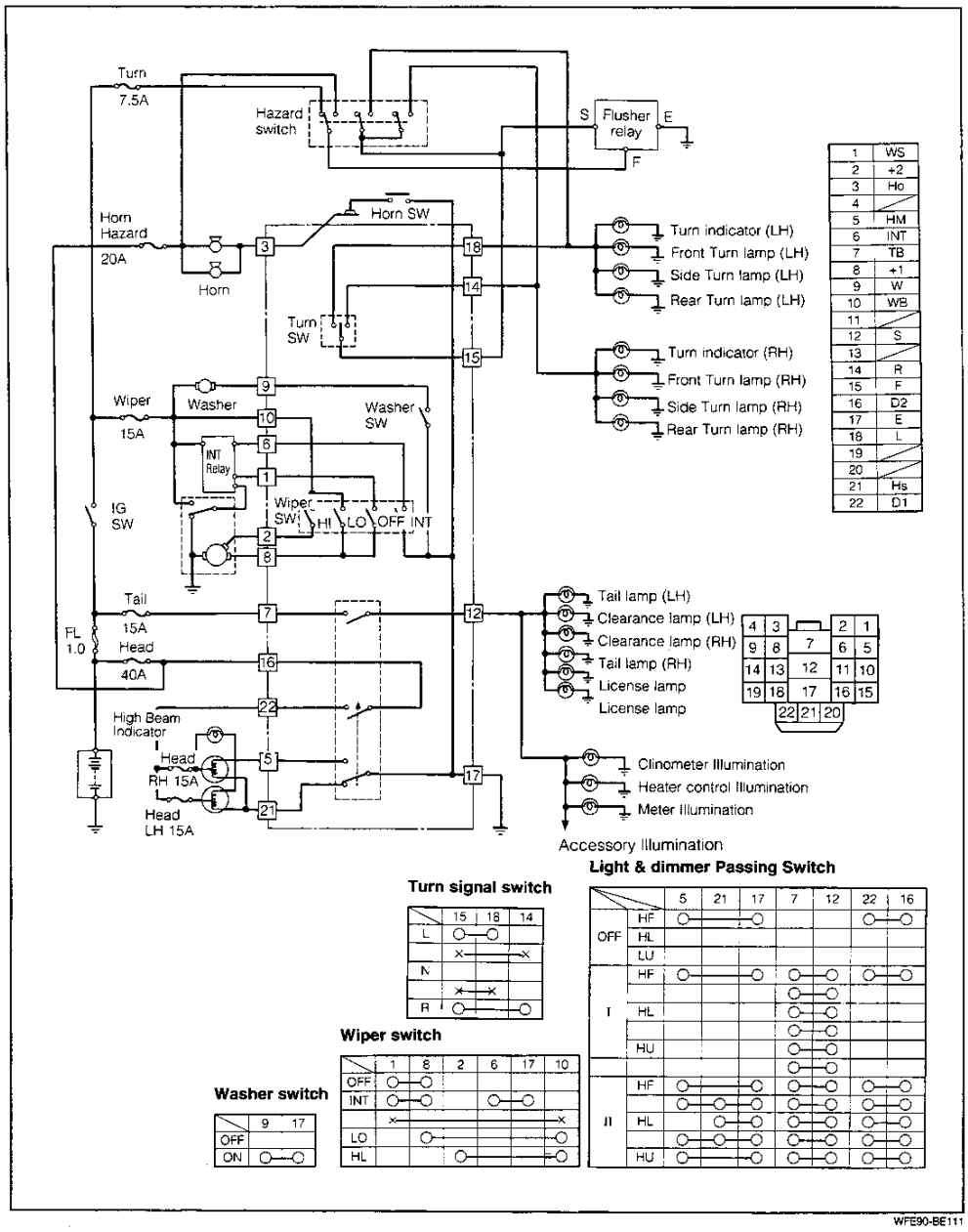
5-1. TROUBLE SHOOTING

Problem	Possible causes	Remedies
One headlamp will not glow.	• Burnt bulb • Faulty socket • Faulty wiring or earth	• Replace bulb. • Repair, as required.
Headlamps will not glow.	• Fusible link and/or fuse blown out • Faulty lighting switch • Faulty wiring or earth	• Replace fusible link and/or fuse. • Check switch. • Repair, as required.
High beam or low beam will not glow.	• Faulty lighting switch or dimmer switch • Faulty wiring	• Check switch. • Repair, as required.
Clearance lamp, tail lamp or license lamp will not glow.	• "Tail" fuse blown out • Fusible link blown out • Faulty side lamp switch • Faulty wiring or earth	• Check for short. Replace fuse. • Replace fusible link. • Check switch. • Repair, as required.
Turn signal lamps at one side will not glow.	• Faulty turn signal lamp switch • Faulty wiring or earth	• Check switch. • Repair, as required.
Turn signal lamps at both sides will not glow.	• "Turn" fuse blown out • Faulty turn signal/hazard switch • Faulty turn signal flasher relay • Faulty wiring or earth	• Check for short. Replace fuse. • Check switch. • Check flasher relay • Repair, as required.
Stop lamp will not glow.	• "Stop" fuse blown out • Faulty stop lamp switch • Faulty wiring or earth	• Check fro short. Replace fuse. • Check switch. • Repair, as required.
Stop lamp remains in glow state.	• Faulty stop lamp switch.	• Adjust or replace switch.
Hazard warning lamp will not glow.	• "Horn" fuse blown out • Faulty flasher relay • Faulty hazard switch • Faulty wiring or earth	• Check for short. Replace fuse. • Check flasher. • Check switch. • Repair, as required.

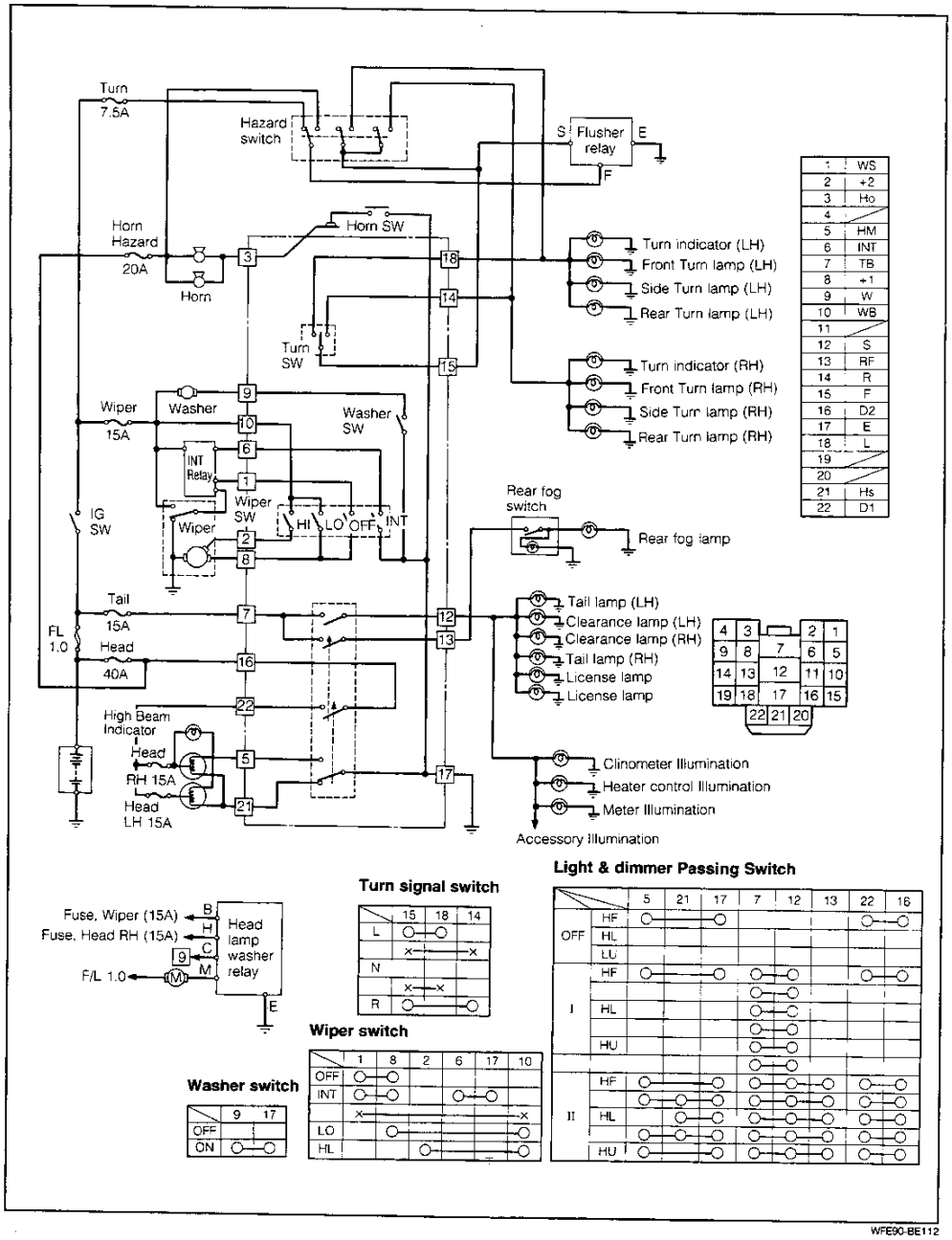
WFE90-BE110

5-2. WIRING DIAGRAM

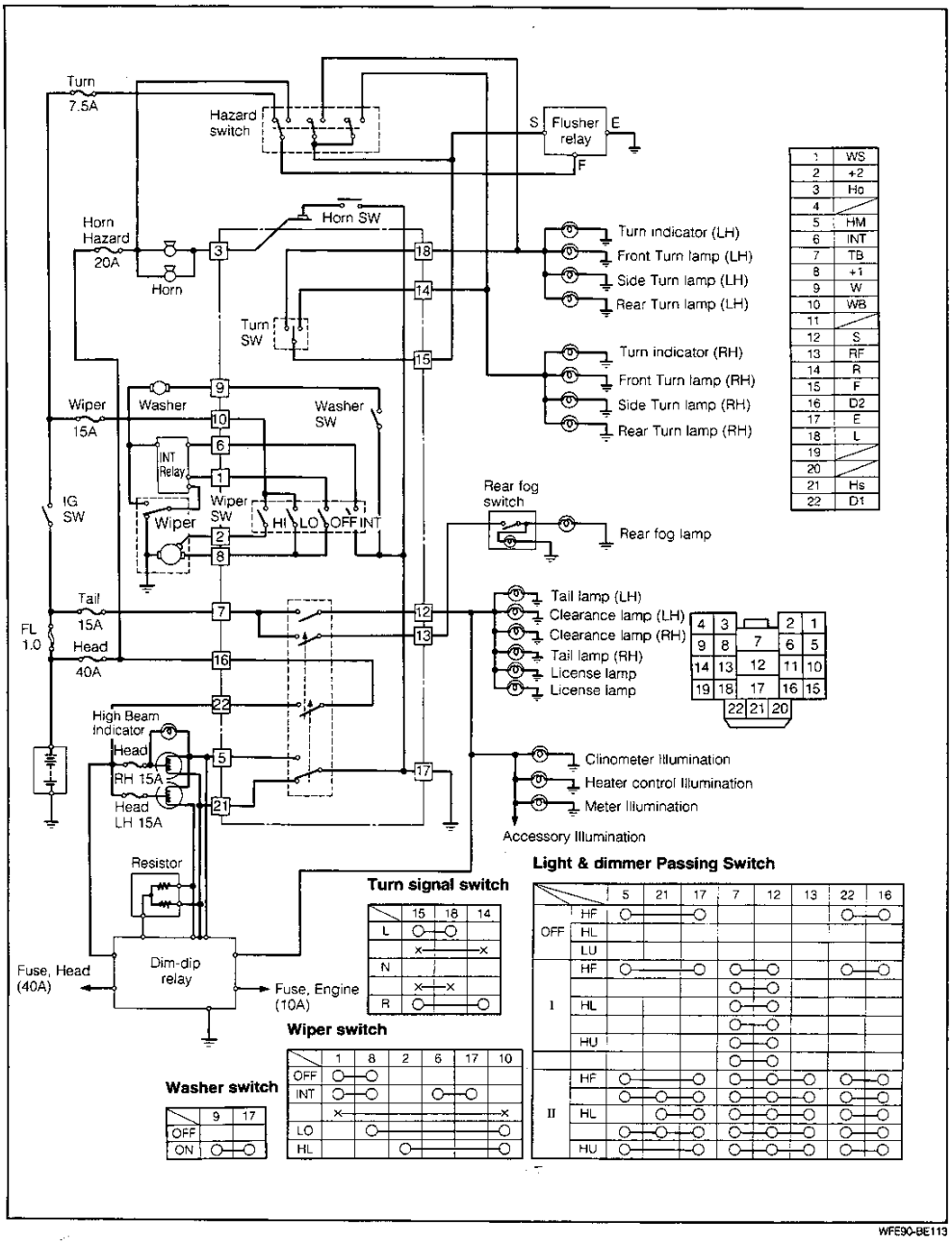
Version A: AUS, GE Specification



Version B: EC Specification

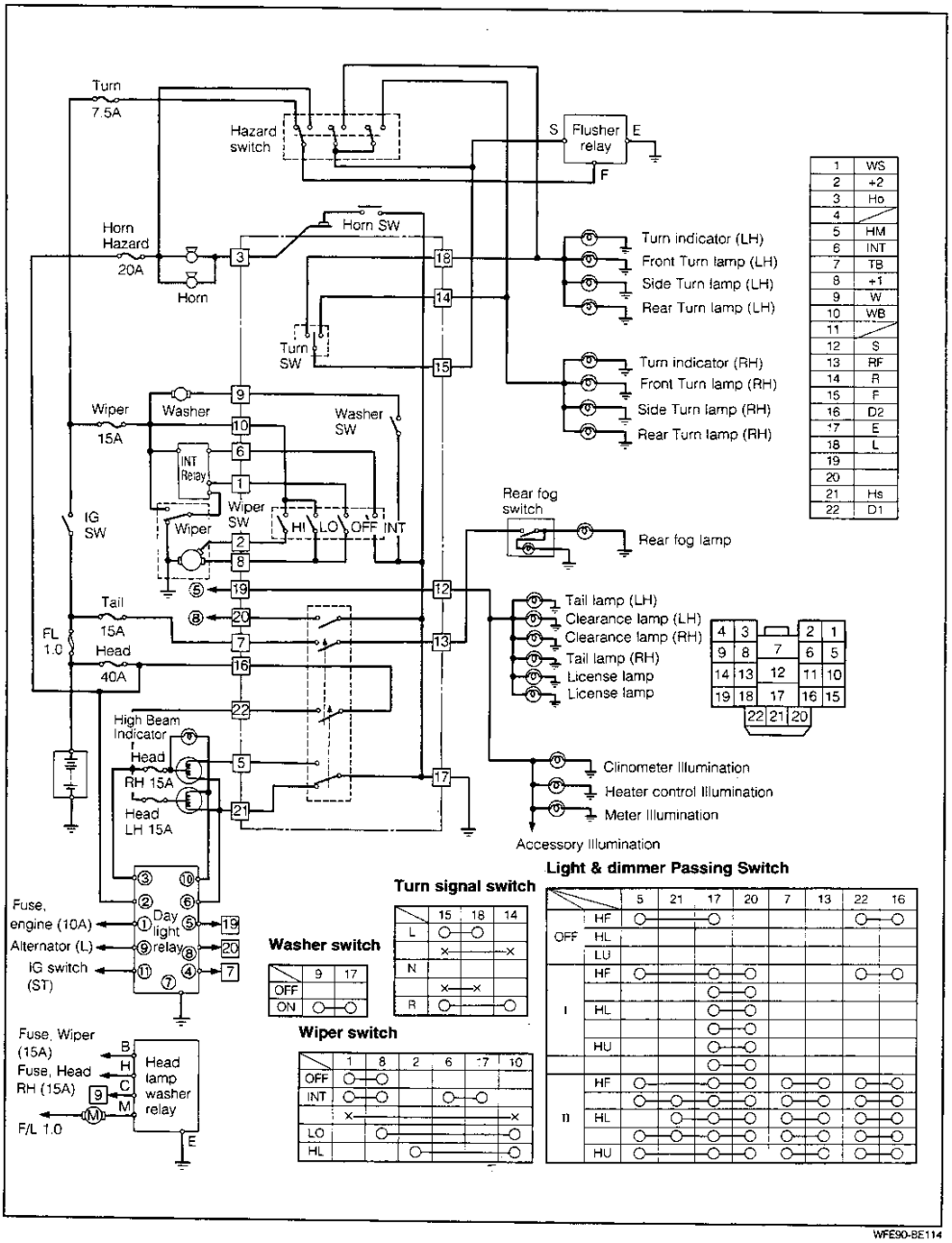


Version C: EC Specification with Dim-dip system



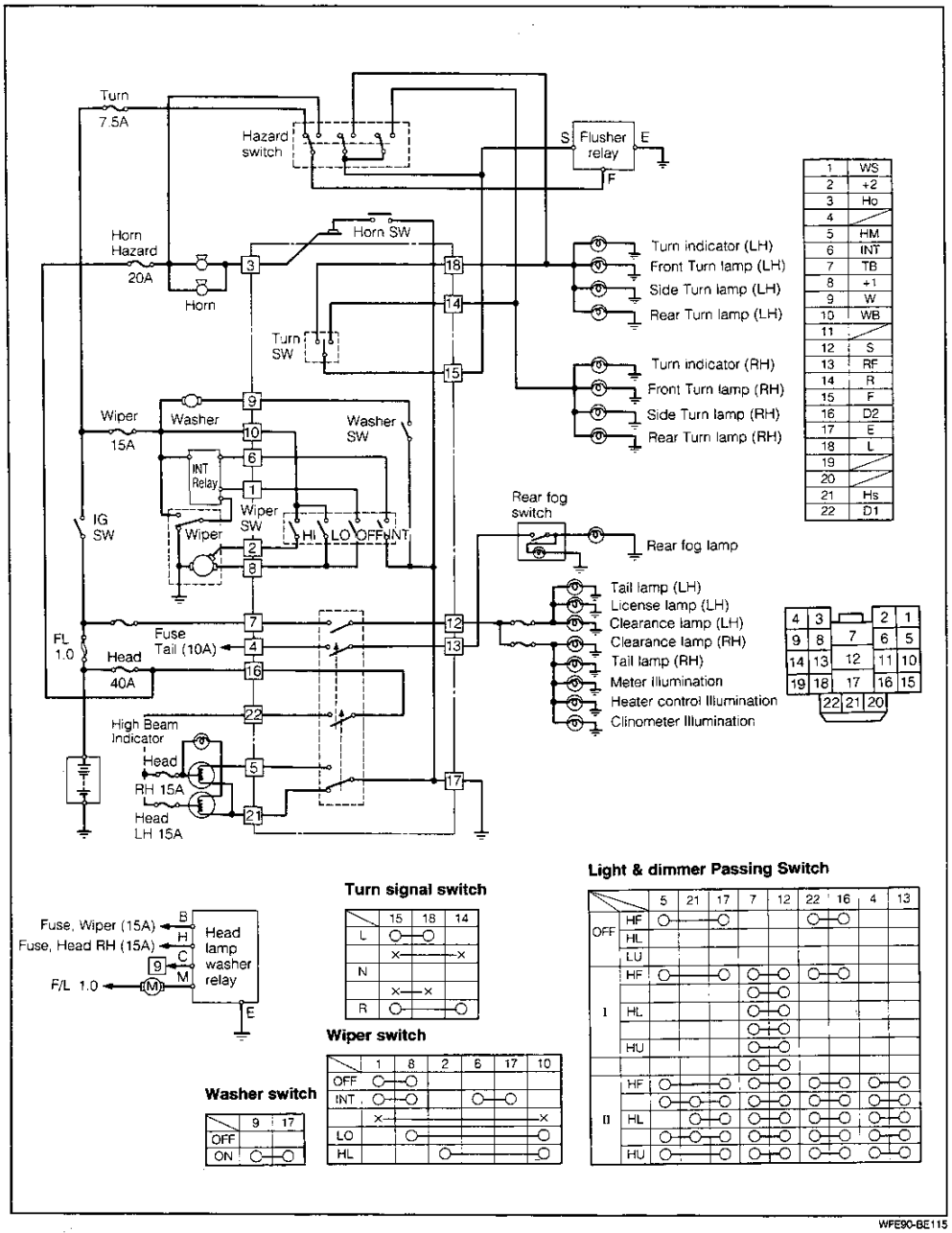
WFE90-BE113

Version D: EC Specification with Day-light system



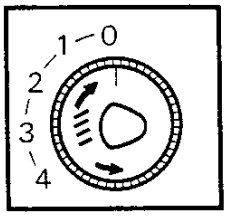
WFE90-BE114

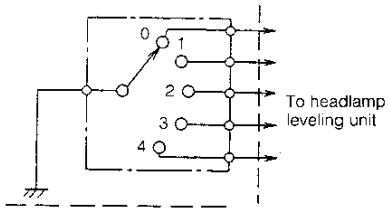
Version E: German Specification

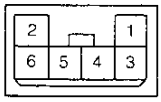


WFE90-BE115

HEADLAMP LEVELING SWITCH





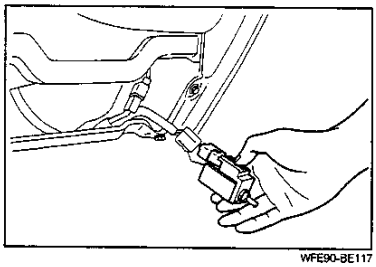


No.	Terminal name
1	GND
2	Switch 0
3	Switch 4
4	Switch 3
5	Switch 2
6	Switch 1

WFE90-BE116

REMOVAL

1. Push out the headlamp leveling switch from the back of the switch.
2. Disconnect the connector. Remove the swtich.



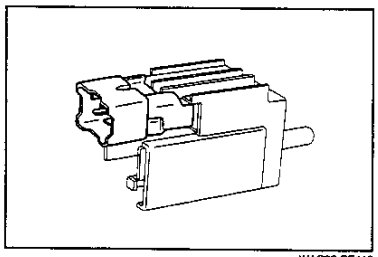
WFE90-BE117

INSPECTION

Ensure that continuity exists, as indicated in the table below, when the switch is operated.

Switch position \ Terminal	1	2	3	4	5	6
0	○	○				
1	○		○			
2	○			○		
3	○				○	
4	○					○

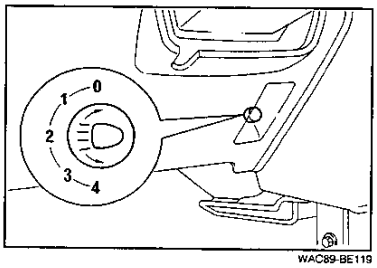
If not, replace the switch.



WAC89-BE118

INSTALLATION

1. Connect the connector.
2. Push the headlamp leveling switch until it is locked.



WAC89-BE119

5-3. MULTI-USE LEVER SWITCH

A multi-use lever type in which all switches to be used most frequently diring the driving, such as the lighting switches, turn signal switch and wiper switch, are arranged concentrated around the steering column has been employed.

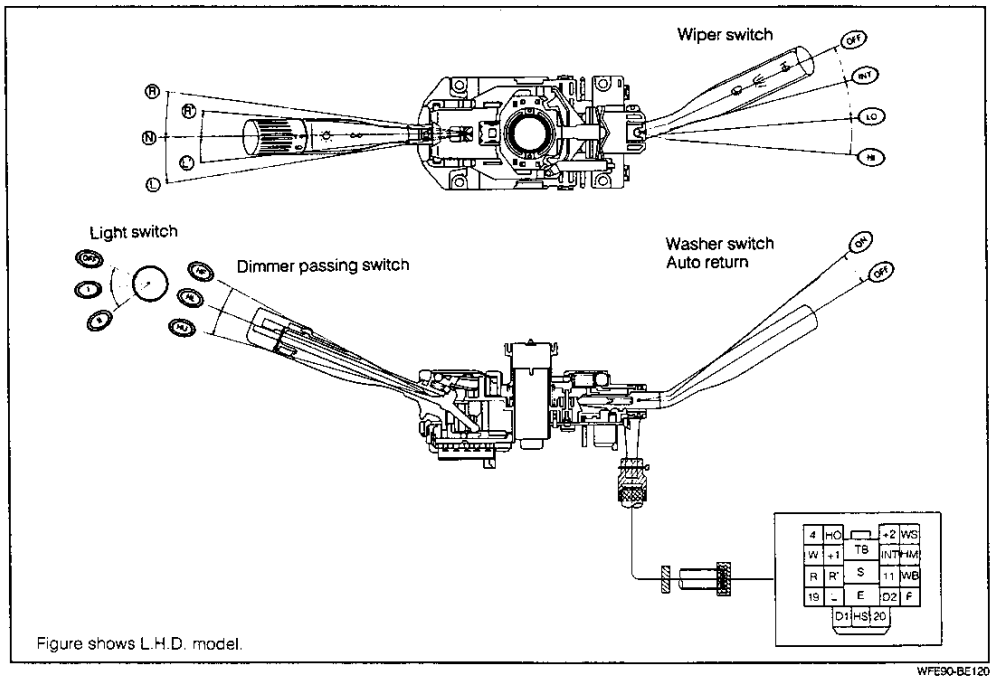
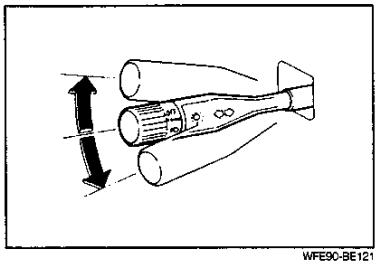


Figure shows L.H.D. model.

WFE90-BE120

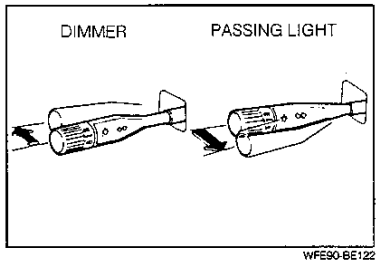
INSPECTION

1. Ensure that each of the turn signal, dimmer, lighting, hazard warning and front wiper switches is functioning smoothly with a positive detent feeling.
2. With the ignition switch turned ON, move the turn signal switch to the right or left. Ensure that the turn signal indicator lamp flashes.



WFE90-BE121

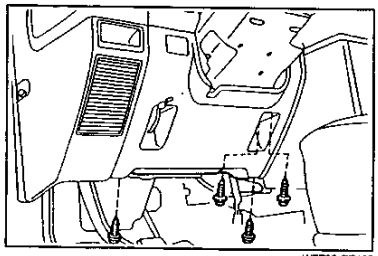
3. Ensure that the upper beam indicator lamp glows regardless of the ignition switch position when the dimmer switch and passing light switch are operated.



WFE90-BE122

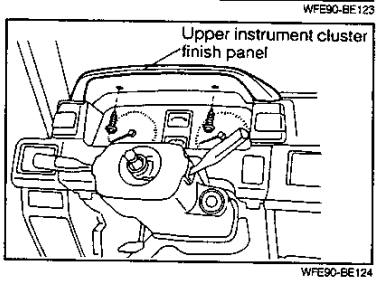
REMOVAL

1. Disconnect the battery cable from he negative ⊖ terminal.
2. Remove the steering wheel assy.
3. Removal of lower instrument panel finish panel.



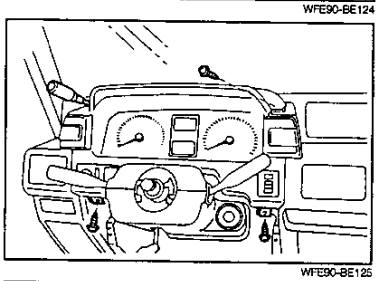
WFE90-BE123

4. Remove the upper instrument cluster finish panel by removing the two screws.



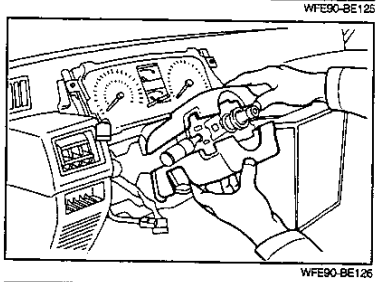
WFE90-BE124

5. Removal of instrument cluster finish panel subassembly
   (1) Remove the instrument cluster finish panel subassembly by removing the four screws.
   (2) Disconnect the connectors.



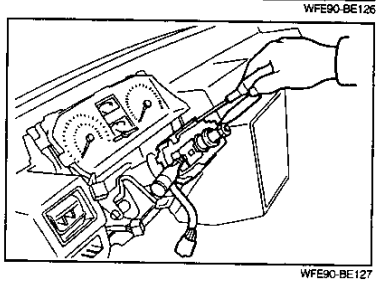
WFE90-BE125

6. Remove the steering column lower/upper cover.



WFE90-BE126

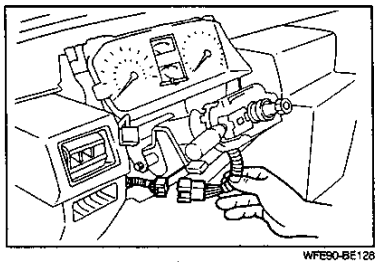
7. Remove the coupler of the multi-use lever.
8. Remove the multi-use lever switch.



WFE90-BE127

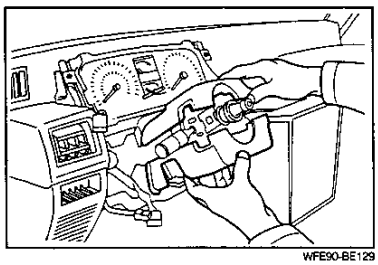
INSTALLATION

1. Install the multi-use lever switch. Connect the coupler.



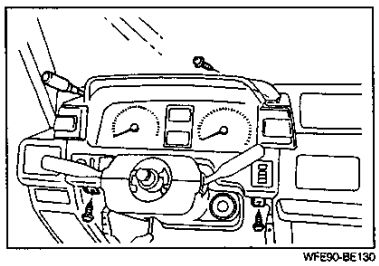
WFE90-BE128

2. Install the steering column lower/upper cover.



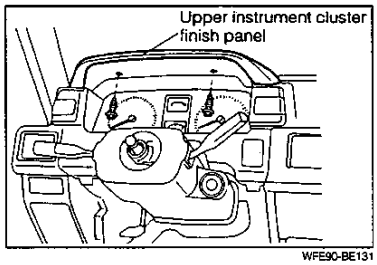
WFE90-BE129

3. Install the instrument cluster finish panel subassembly.



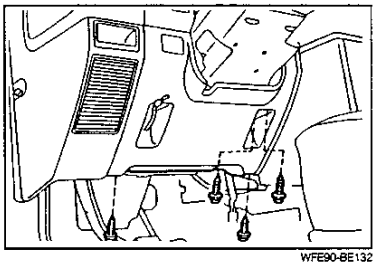
WFE90-BE130

4. Install the instrument cluster finish upper panel.



WFE90-BE131

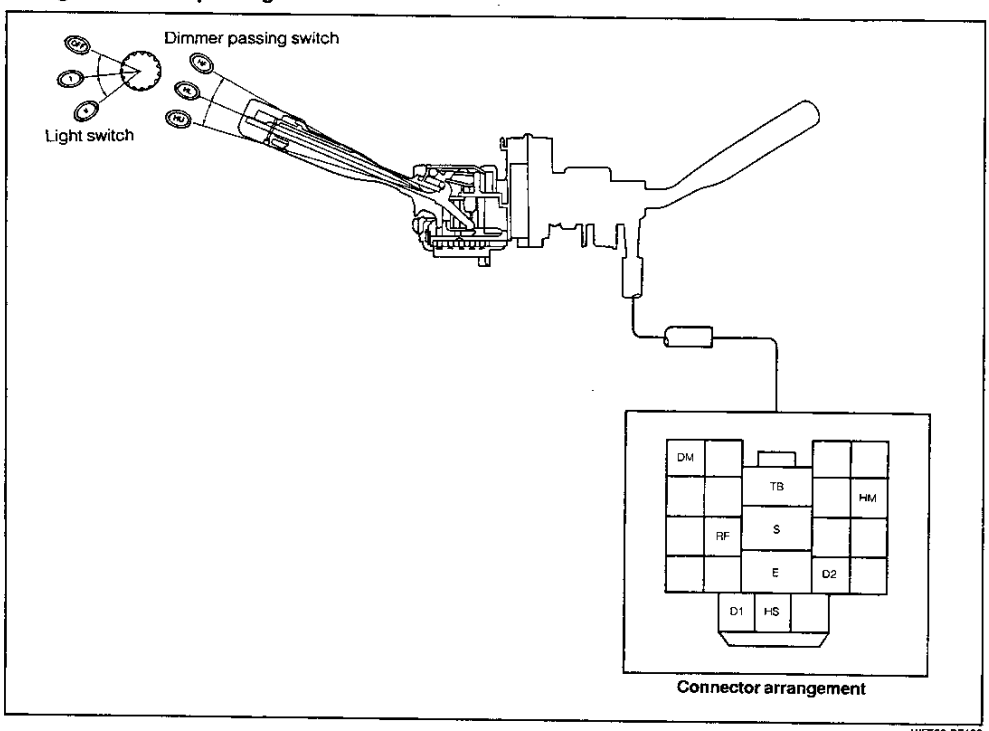
5. Install the instrument cluster finish lower panel.
6. Install the steering wheel subassembly.
7. Connect the battery cable to the negative ⊖ terminal.



WFE90-BE132

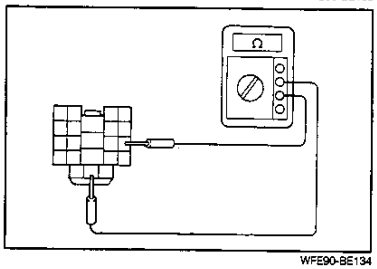
INSPECTION

1. Light & dimmer passing switch



WFE90-BE133

1. Ensure that continuity exists between the terminals of the connector, as indicated in the table as previous pages.

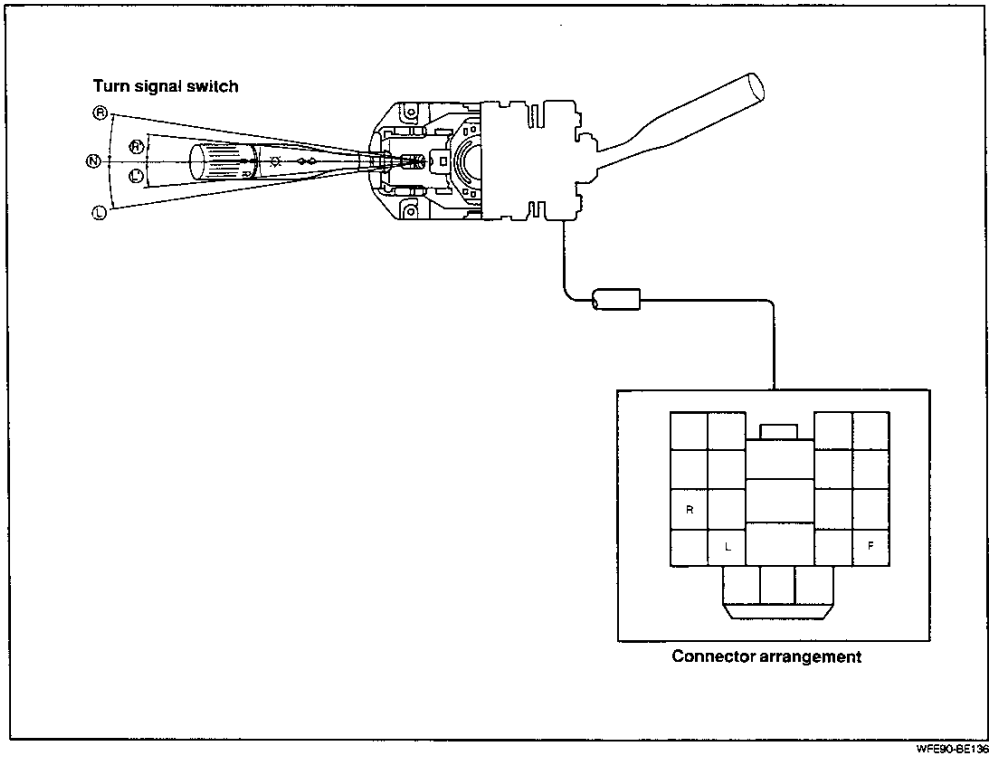


WFE90-BE134

2. Operate the light switch and dimmer passing switch. Ensure that each switch can be operated without any binding and with a detent feeling.

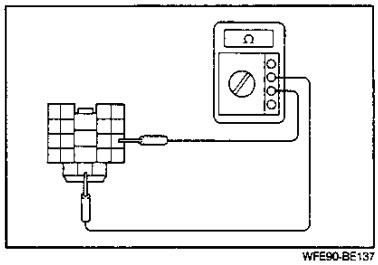
WFE90-BE135

2. Turn signal switch



WFE90-BE136

1. Ensure that continuity exists between the terminals of the connector, as indicated in the table as previous pages.



WFE90-BE137

2. Ensure that the turn signal switch can be operated smoothly and with a detent feeling.

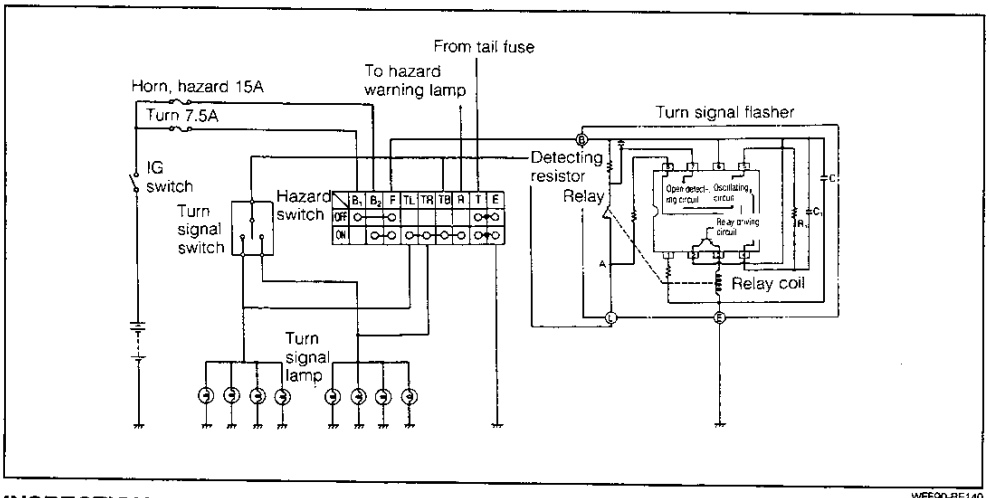
WFE90-BE138

5-4. FLASHER RELAY

The turn signal flasher relay controls turn signal and hazard warning.
The flasher relay is located under the dash board, next to the heater unit.

WFE90-BE139

Circuit diagram



WFE90-BE140

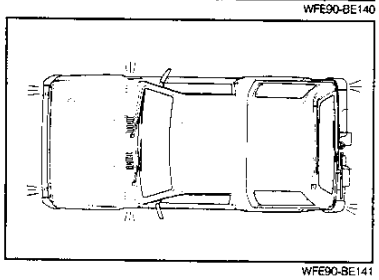
INSPECTION

Check each lamp for the state of glowing, flashing and not glowing.

Specified Flashing Speed: 85 ± 10 times/min.

NOTE:

- If any of the front or rear turn signal lamps has open wire, the flashing speed will exceed 120 times/min.
- If any abnormality is found in the inspection, check for burnt bulb and check each switch. When no abnormality is found in these checks, replace the lamp control relay.



WFE90-BE141

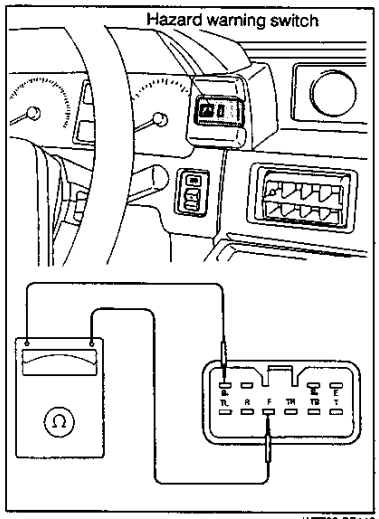
5-5. HAZARD WARNING SWITCH

Hazard switch is located at the meter cluster toward the inboard side of the vehicle.
Remove the hazard warning switch. Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Continuity table

○—○ Continuity exists.
○-◎-○ Bulb in installed state

Switch \ Terminal	B_1	B_2	F	T_L	T_R	T_B	R	T	E
OFF	○	———	○					○-◎-○	
ON		○	○	○	○	○	○	○-◎-○	

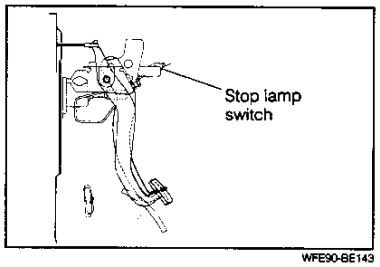


WFE90-BE142

5-6. STOP LAMP SWITCH

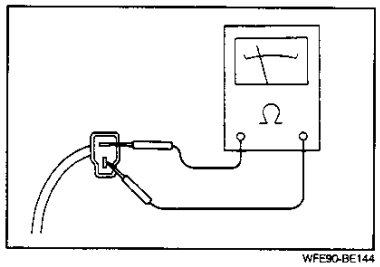
INSPECTION

1. Disconnect the connector of the stop lamp switch.
2. Ensure that continuity exists between the terminals when the brake pedal is depressed.



WFE90-BE143

3. Ensure that no continuity exists between the terminals when the brake pedal is not depressed.

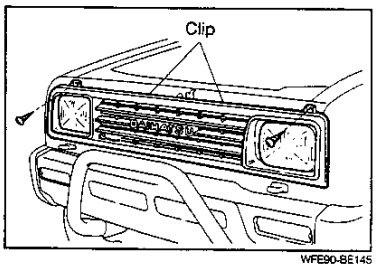


WFE90-BE144

5-7. HEADLAMP

NOTE:

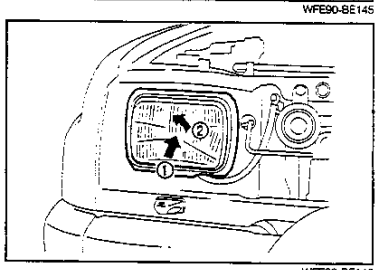
- If should be noted that the bulb replacement can be performed only after socket cover has been detached.



WFE90-BE145

REMOVAL

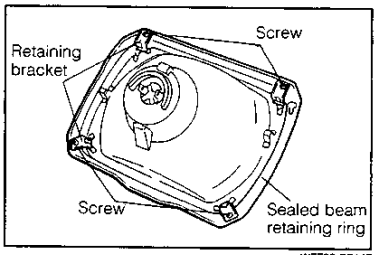
1. Removal of radiator grille
   (1) Remove the two screws.
   (2) Detach the two clips, using a screwdriver.
   (3) Remove the radiator grille from the vehicle body by raising it diagonally toward you.
2. Removal of headlamp assembly
   (1) Turn the headlamp counterclockwise while pushing it.
   (2) Remove the headlamp from the vehicle body. Disconnect the connector.



WFE90-BE146

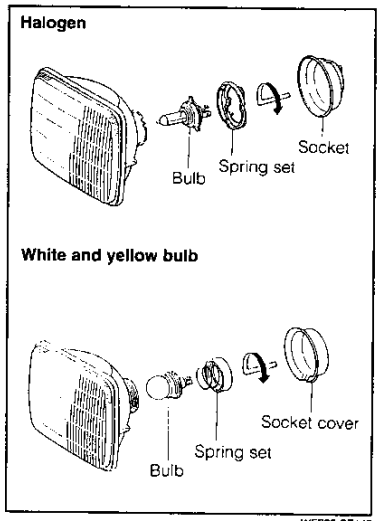
DISASSEMBLY

1. Remove the retaining bracket and sealed beam retaining ring by removing the four screws located at the back side of the headlamp.



WFE90-BE147

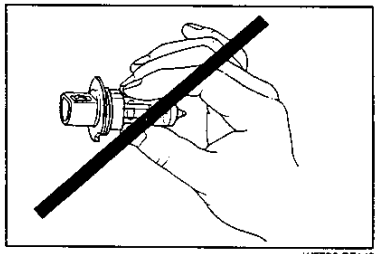
2. Removal of bulb (halogen, white and yellow bulb)
   (1) Remove the socket cover.
   (2) Remove the spring set by turning it counterclockwise while pushing it.
   (3) Remove the bulb.



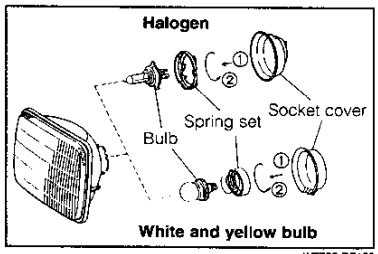
WFE90-BE148

Replacement of halgen headlamp bulb.
The bulb can be replaced from the engine compartment without a need of removing the headlamp proper.

> WARNING:
> The halogen bulb reaches a very high temperature while it is put into use. If any lubricant gets on the bulb surface, it will result in significantly reduced lamp life. Hence, be very careful not to allow your fingers, etc. to touch with the glass portion during the replacement. Be sure to hold the flange section to replace the bulb.

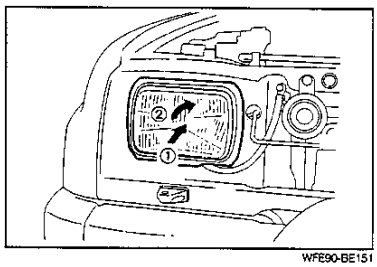

WFE90-BE149

ASSEMBLY
1. Installation of bulb (halogen, white and yellow bulb)
   (1) Set the bulb in the headlamp socket.
   (2) Secure the bulb by turning it clockwise while pushing it.
   (3) Install the socket cover.
2. Install the sealed beam retaining ring and retaining bracket to the headlamp by means of the four screws.

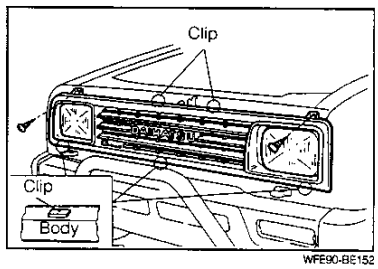


WFE90-BE150

INSTALLATION
1. Install the headlamp.


WFE90-BE151

2. Installation of headlamp grille
   (1) Ensure that three clips are provided at the body side.
   (2) Set the headlamp grille on the body. Secure the headlamp grille with the two clips at the upper side.
   (3) Attach the headlamp grille to the body with the two screws.



WFE90-BE152

HEADLAMP AIMING ADJUSTMENT

Screen type

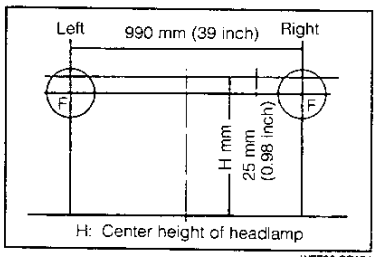
Conditions of vehicle during aiming adjustment

1. Perform the aiming adjustment with the tire air inflation pressure set to the specified value and with one person seated at the driver's seat.
2. Rock the vehicle in an up-and-down direction as well as in a right-and-left direction so that the suspensions may be settled in a normal state.
3. Carry out the headlamp aiming adjustment while the engine is running at 1500 rpm or more.
   (If the revolution speed is too low, the lamp terminal voltage drops, thus making it difficult to recognize the hot zone.)

WFE90-BE153

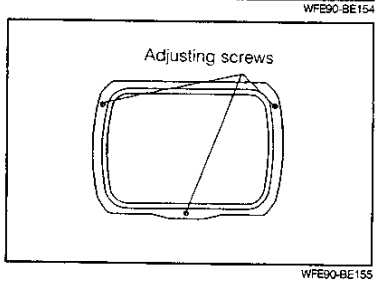
Sealed beam, white bulb type

1. Setting of reference points on screen
   (1) Measure the center height "H" of the headlamp. Draw a line as the adjustment line on the screen at a height 25 mm (0.98 inch) below the center height "H".
   (2) Draw a vertical line on the screen at each center of the headlamps at a height of [H] on both right and left sides. Determine each intersection point [F] of the vertical center line with the adjustment line.



WFE90-BE154

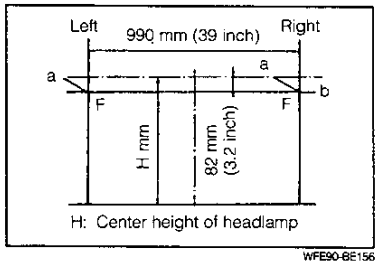
2. Adjustment of headlamp photometric axis
   (1) Position the vehicle in front of the screen such that the headlamps of the vehicle may come at a distance of three meters from the screen. Moreover, place the vehicle normal to the screen.
   (2) Turn ON the headlamps with the upper beams selected. Adjust the beams by means of the adjusting screws in such a way that the headlamps may aim the intersection points [F], respectively.
   (3) Upon completion of the headlamp aiming adjustment, switch the upper beams to the low beams. Ensure that each low beam is now aiming in the diagonally lower direction.



WFE90-BE155

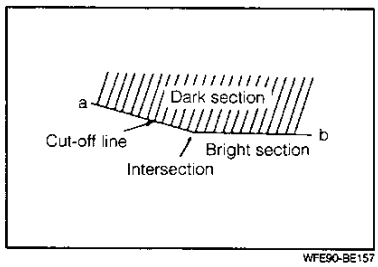
Sealed beam, yellow bulb type

1. Setting of reference points on screen
   (1) Measure the center height "H" of the headlamp. Draw a line as the adjustment line on the screen at a height 82 mm (3.2 inch) below the center height "H".
   (2) Draw a vertical line on the screen at each center of the headlamps on both right and left sides. Determine each intersection point [F] of the vertical center line with the adjustment line.



WFE90-BE156

2. Adjustment of headlamp photometric axis
   (1) Position the vehicle in front of the screen such that the headlamps of the vehicle may come at a distance of three meters from the screen. Moreover, place the vehicle normal to the screen.
   (2) Turn ON the headlamps with the low beams selected. Then, you can get a light distribution pattern as indicated at the right figure. Perform the aiming adjustment at an intersection point of the line "a" with the line "b".
   (3) With the low beams of the headlamps turned ON, perform the headlamp aiming adjustment by means of the adjusting screws in such a way that the intersection points of the cut-off lines may come at the intersection points [F], respectively.
   (4) Upon completion of the headlamp aiming adjustment, set the headlamps to the upper beams. Ensure that the main photometric axis of each headlamp aims downward.
   Moreover, ensure that the headlamps are aiming correctly straight in the forward direction of the vehicle.

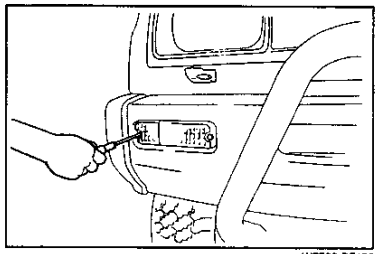


WFE90-BE157

5-8. FRONT TURN SIGNAL LAMP

REMOVAL

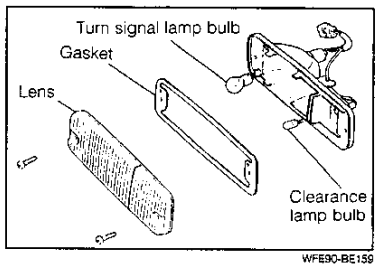
1. Remove the front turn signal lamp by removing the two screws.
2. Detach the lens and gasket.
3. Remove the turn signal bulb and clearance bulb.



WFE90-BE158

INSTALLATION

1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the gasket and lens. Secure the front turn signal lamp assembly with the two screw.

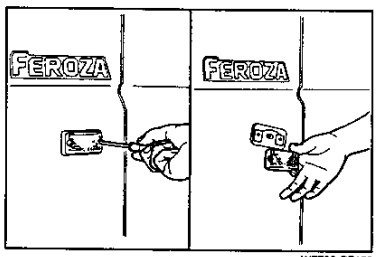


WFE90-BE159

5-9. SIDE TURN SIGNAL LAMP

REMOVAL

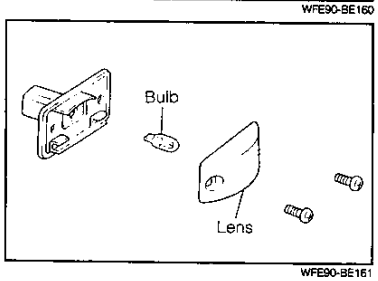
1. Remove the side turn signal lamp by removing the two screws.
2. Detach the lens.
3. Remove the bulb.



WFE90-BE160

INSTALLATION

1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the lens. Secure the side turn signal lamp assembly with the screw.

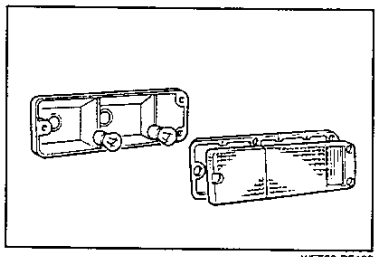


WFE90-BE161

5-10. REAR COMBINATION LAMP

REMOVAL

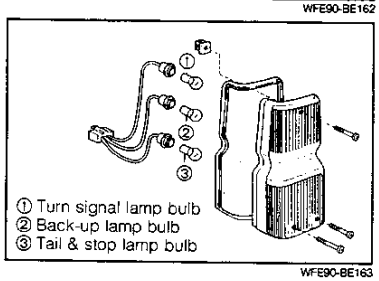
1. Remove the rear combination lamp assembly by removing the three screws.
2. Detach the socket and bulb.



WFE90-BE162

INSTALLATION

1. When the bulb is burnt out, install a new bulb with the designated wattage.
2. Install the bulb and socket in the rear combination lamp assembly.
3. Install the rear combination lamp assembly with the three screws.

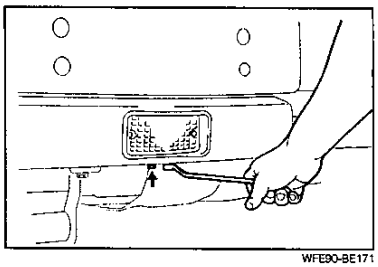


WFE90-BE163

5-15. REAR FOG LAMP

REMOVAL

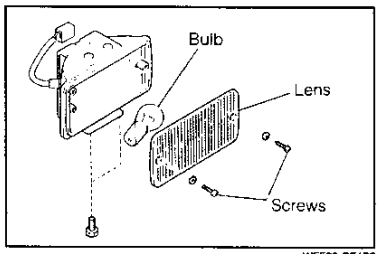
1. Remove the rear fog lamp assembly by removing the two bolts and disconnect the connector.
2. Disassembly the rear fog lamp.
   (1) Remove the two screws.
   (2) Detach the lens.
   (3) Remove the bulb.



WFE90-BE171

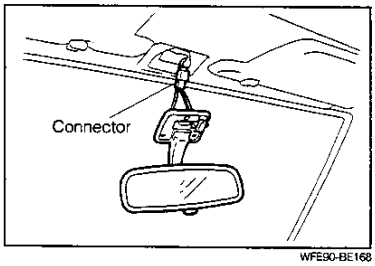
INSTALLATION

1. Assembly the rear fog lamp.
   (1) When the bulb is burnt out, install a new bulb with the designated wattage.
   (2) Attach the lens.
   (3) Install the two screws.
2. Connect the connecter.
3. Install the rear fog lamp assembly with the two bolts.



WFE90-BE172

INSTALLATION
1. Connect the connector.
2. Install the room lamp assembly with the three screws.
3. Attach the room lamp cover.

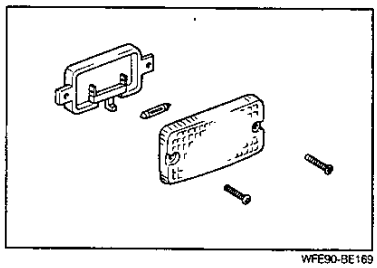


WFE90-BE168

5-13. LUGGAGE ROOM LAMP

REMOVAL
1. Remove the two screws to detach the lamp assembly.
2. Pull the bulb straight out.

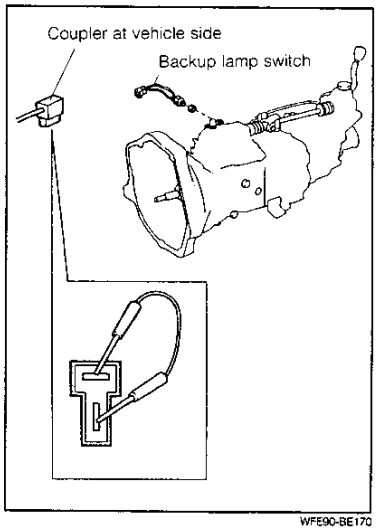
INSTALLATION
Reverse the removal procedure to install the lamp assembly.


WFE90-BE169

5-14. BACKUP LAMP SWITCH

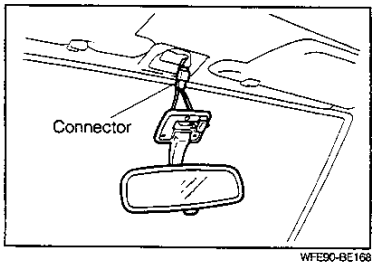
The backup lamp switch is mounted on the transmission case cover.

Inspection
1. Draw out the coupler which is connected to the backup lamp switch. This disconnection should be made at the vehicle side. Then, short the coupler.
2. Ensure that the backup lamp goes on.
3. Connect the backup lamp switch coupler again. Place the transmission in the reverse gear.
4. If the backup lamp fails to go on, replace the backup lamp switch.
   Tightening Torque: 0.3 - 0.5 kg-m
   (2.2 - 3.6 ft-lb, 2.9 - 4.9 N·m)



WFE90-BE170

INSTALLATION
1. Connect the connector.
2. Install the room lamp assembly with the three screws.
3. Attach the room lamp cover.

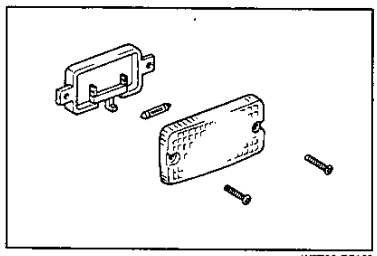


WFE90-BE168

5-13. LUGGAGE ROOM LAMP

REMOVAL
1. Remove the two screws to detach the lamp assembly.
2. Pull the bulb straight out.

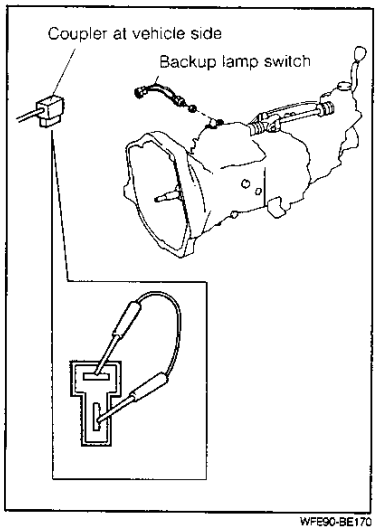
INSTALLATION
Reverse the removal procedure to install the lamp assembly.


WFE90-BE169

5-14. BACKUP LAMP SWITCH

The backup lamp switch is mounted on the transmission case cover.

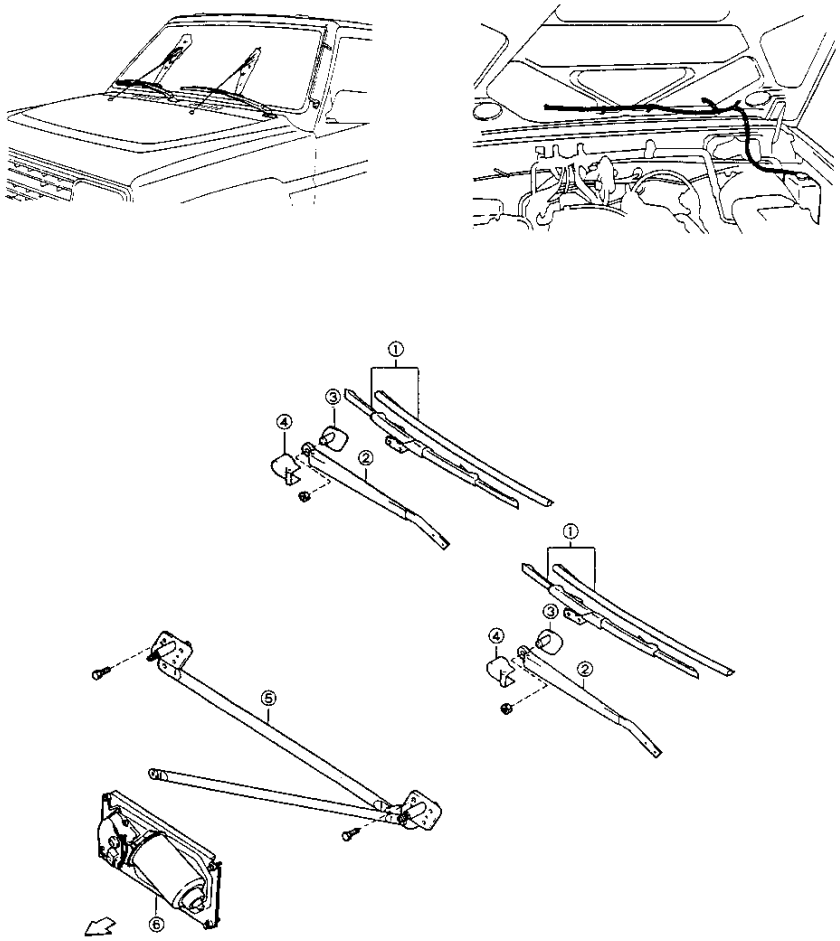
Inspection
1. Draw out the coupler which is connected to the backup lamp switch. This disconnection should be made at the vehicle side. Then, short the coupler.
2. Ensure that the backup lamp goes on.
3. Connect the backup lamp switch coupler again. Place the transmission in the reverse gear.
4. If the backup lamp fails to go on, replace the backup lamp switch.
   Tightening Torque: 0.3 - 0.5 kg-m
   (2.2 - 3.6 ft-lb, 2.9 - 4.9 N·m)



WFE90-BE170

6. FRONT WIPER & WASHER

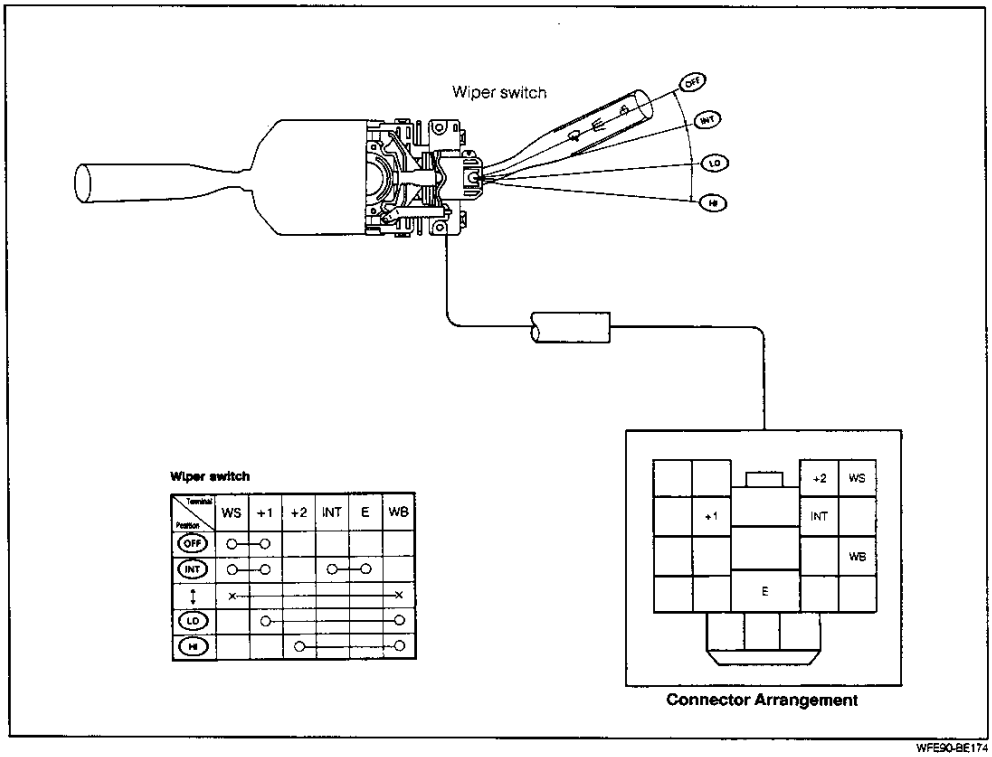
The wiper motor is located inside the engine compartment.
The wiper link comes in two kinds: One is the standard specifications and the other is cold region specifications having upgraded strength.



① Wiper blade Ay
② Windshield wiper arm Ay
③ Wiper link bush
④ Windshield wiper arm cover
⑤ Windshield wiper link Ay
⑥ Windshield wiper motor & bracket Ay

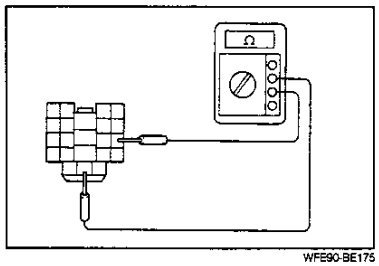
WFE90-BE173

6-1. WIPER SWITCH



WFE90-BE174

1. Ensure that continuity exists between the terminals of the connector, as indicated in the table above.

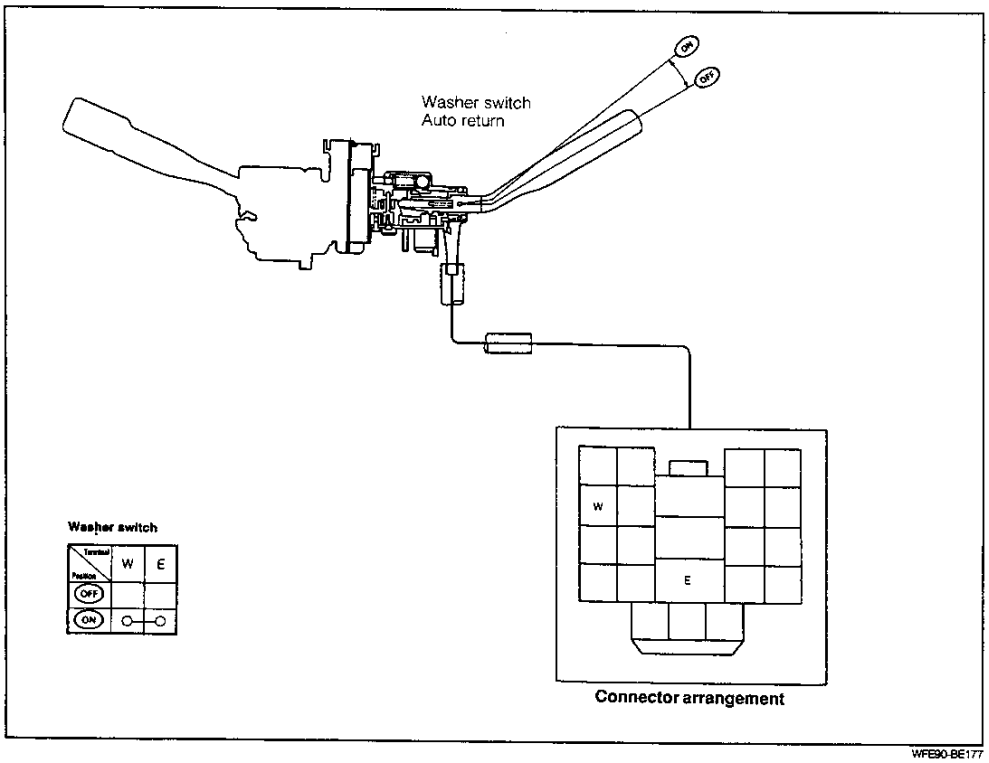


WFE90-BE175

2. Operate the wiper switch. Ensure that the switch can be operated without any binding and with a sharp feeling.

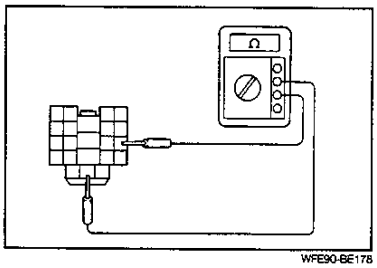
WFE90-BE176

6-2. WASHER SWITCH



WFE90-BE177

1. Ensure that continuity exists between the terminals of the connector, as indicated in the table above.



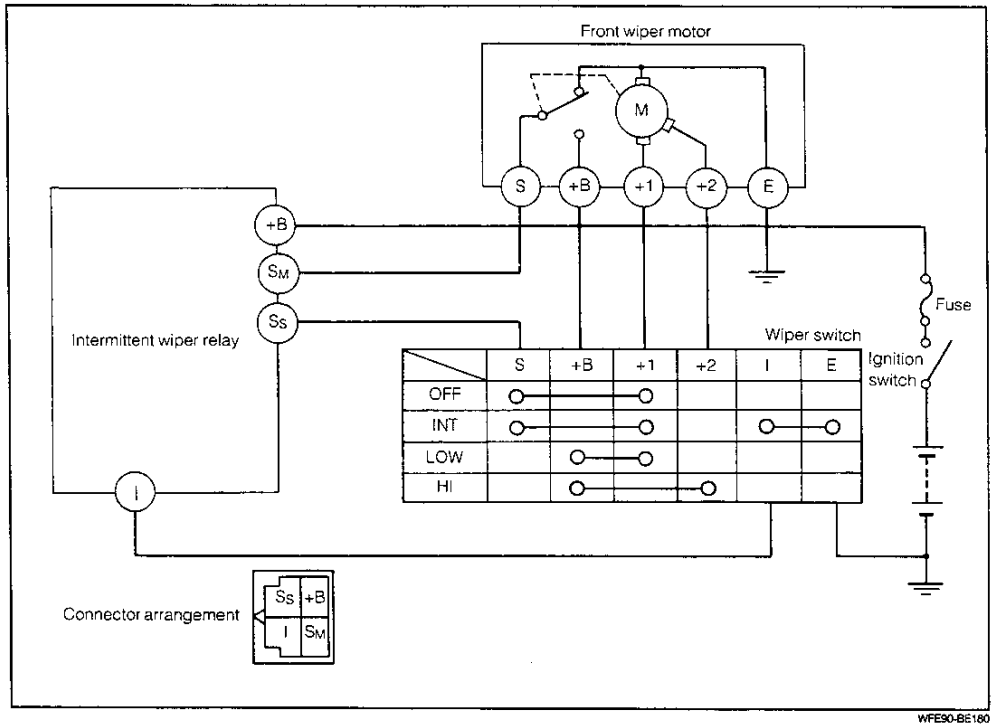
WFE90-BE178

2. Operate the washer switch. Ensure that the switch automatically returns to the OFF state.

WFE90-BE179

6-3. INTERMITTENT WIPER RELAY

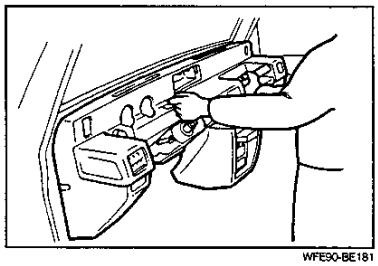
CIRCUIT DIAGRAM



WFE90-BE180

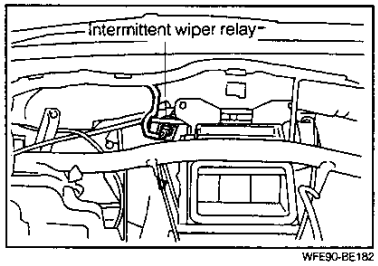
REMOVAL

1. Remove the instrument panel assembly.
   (For the removal procedure, refer to FRONT HEATER section.)



WFE90-BE181

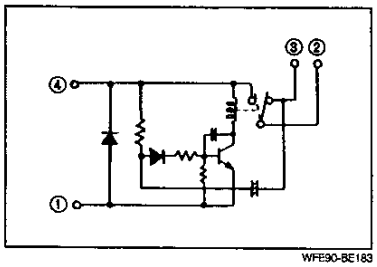
2. Remove the intermittent wiper relay.



WFE90-BE182

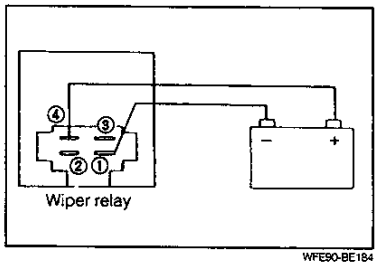
INSPECTION

1. Perform continuity checks between terminals given below.
   (1) Between terminals ② and ③ ... Continuity exists.
   (2) Between terminals ② and ④ ... No continuity exists.



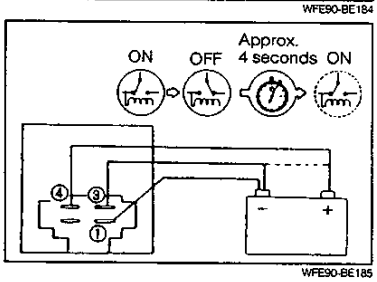
WFE90-BE183

2. Intermittent operation check
   (1) Connect the terminal ④ to the positive ⊕ terminal of the battery; terminal ① to the negative ⊖ terminal of the battery.
   (At this time, the relay emits an operating sound.): The relay is turned ON.



WFE90-BE184

   (2) Connect the terminal ③ to the positive ⊕ terminal of the battery for about one second. Then, ground the terminal ③.
   (The relay emits an operating sound.): The relay is turned OFF.
   (3) Ensure that, about four seconds later, the relay emits an operating sound (intermittent operation.)



WFE90-BE185

INSTALLATION

1. Install the intermittent wiper relay on the vehicle body.
2. Install the instrument panel assembly.

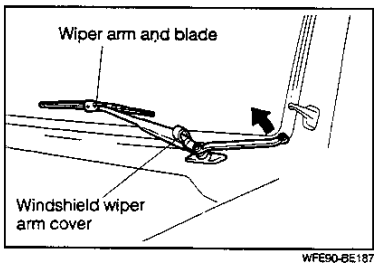
WFE90-BE186

6-4. WIPER MOTOR & BLADE

REMOVAL

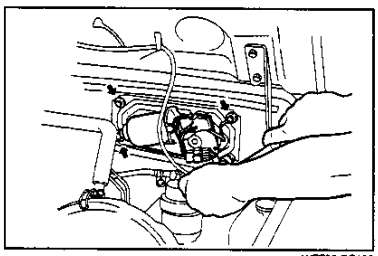
1. Remove the windshield wiper arm cover. Remove the nut.
   NOTE:
   - **Care must be exercised to ensure that no scratch is made to the body.**

2. Remove the wiper arm and blades.

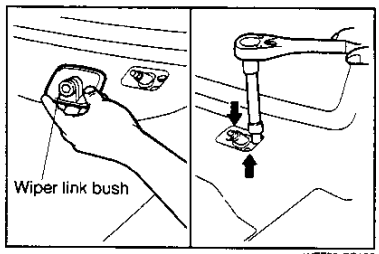


WFE90-BE187

3. Remove the wiper motor assembly.
   (1) Disconnect the connector.
   (2) Remove the set bolt.
   (3) Disconnect the motor from the link. Remove the motor.

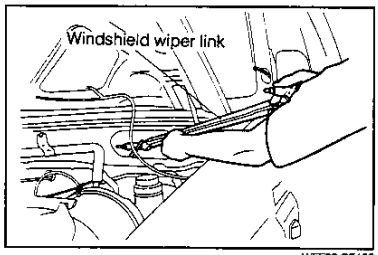

WFE90-BE188

4. Remove the windshield wiper link assembly.
   (1) Remove the wiper link bush.
   (2) Remove the set bolt.



WFE90-BE189

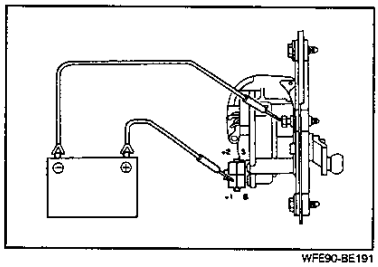
   (3) Take out the windshield wiper link assembly from the cowl louver hole.



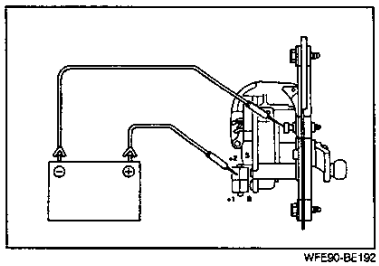
WFE90-BE190

INSPECTION OF WIPER MOTOR UNIT

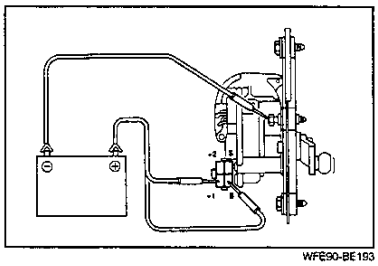
1. Low speed operation check
   (1) Connect the terminal +1 to the positive ⊕ terminal of the battery; the body to the negative ⊖ terminal of the battery. Ensure that the wiper operates at the low speed.


WFE90-BE191

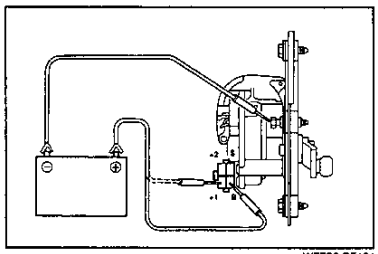
2. High speed operation check
   (1) Connect the terminal +2 to the positive ⊕ terminal of the battery; the body to the negative ⊖ terminal of the battery. Ensure that the wiper operates at the high speed.


WFE90-BE192

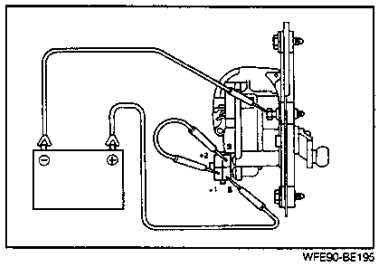
3. OFF operation check
   With the wiper motor body connected to the negative ⊖ terminal of the battery, perform the following checks.
   (1) Connect the terminal B to the positive ⊕ terminal of the battery.
   (2) Operate the wiper at the low speed by connecting the terminal +1 to the positive ⊕ terminal of the battery.

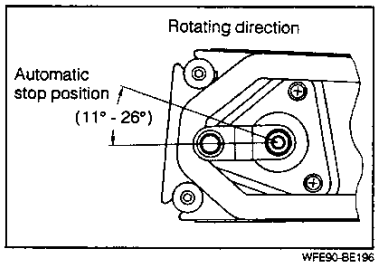

WFE90-BE193

   (3) Under the operating conditions in the step (2), disconnect the terminal +1 so as to interrupt the wiper motor operation.


WFE90-BE194

   (4) Connect the terminal +1 to the terminal S. Ensure that the wiper operates and stops at the automatic stopping position.

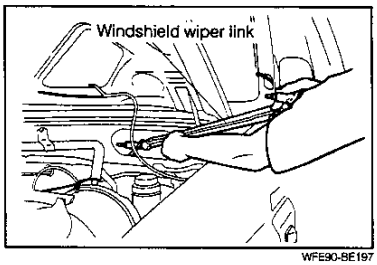

WFE90-BE195



WFE90-BE196

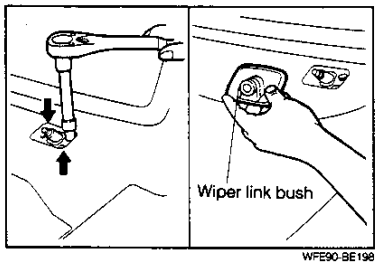
INSTALLATION

1. Install the windshield wiper link assembly.
   (1) Into the windshield wiper link assembly to the cowl louver hole.



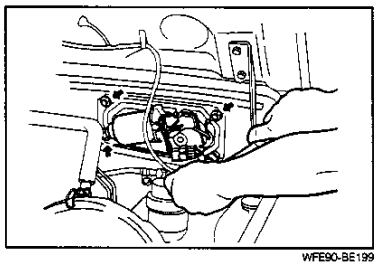
WFE90-BE197

   (2) Install the windshield wiper link assembly to the body using a bolts.
   (3) Install the wiper link bush.

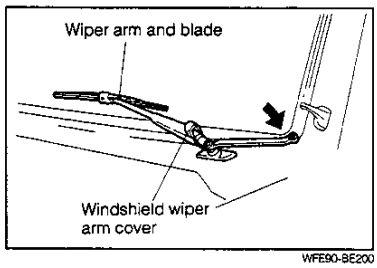


WFE90-BE198

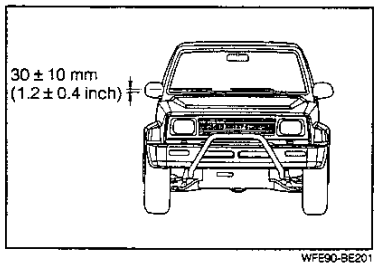
2. Install the motor assembly.
   NOTE:
   - Connect the motor assembly with the link securely.


WFE90-BE199

3. Installation of windshield wiper arm assembly
   (1) Operate the wiper motor, until it assumes the automatic stopping position.
   (2) Set the wiper arms at the positions indicated in the right figure.
   (3) Tighten the nut and attach the front wiper arm cover.



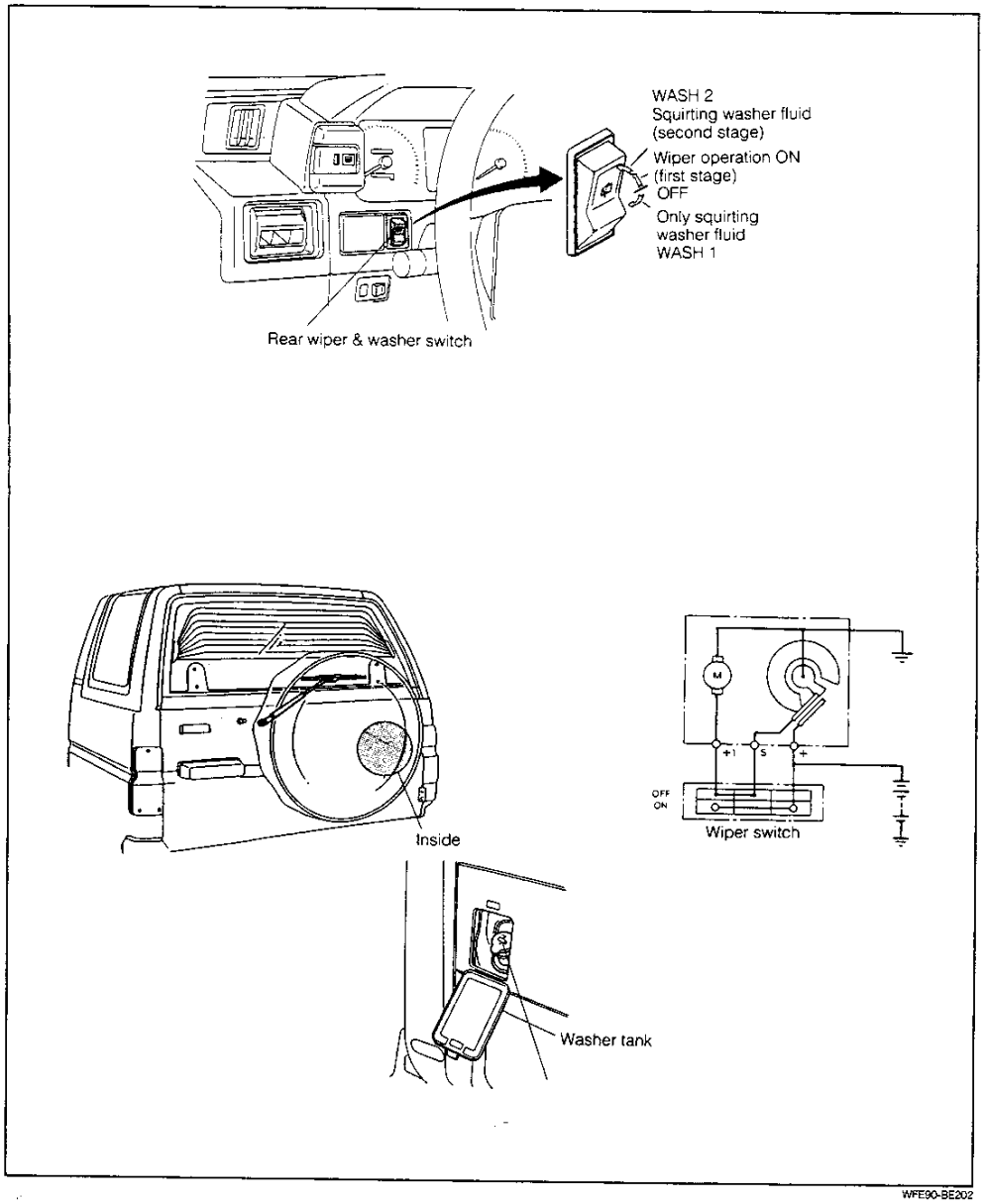
WFE90-BE200



WFE90-BE201

7. REAR WIPER & WASHER

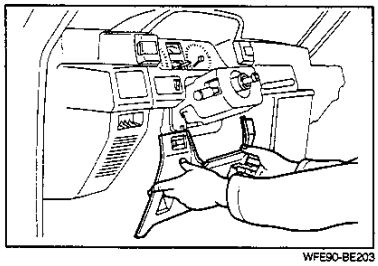
A seesaw type switch which serves as both wiper switch and washer switch has been employed.
The washer fluid squirts when the switch knob is further pushed with the wiper switch set to the [ON] or [OFF] position.



7-1. REAR WIPER & WASHER SWITCH

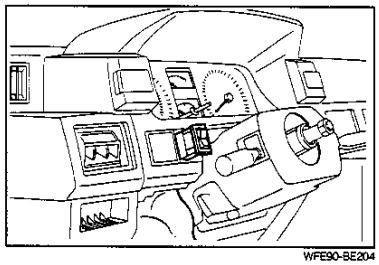
REMOVAL

1. Remove the instrument panel finish lower panel.



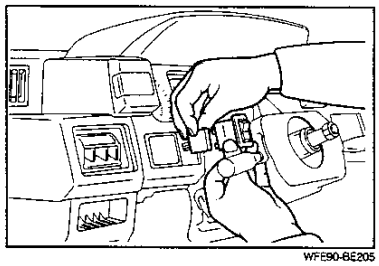
WFE90-BE203

2. Remove the rear wiper switch from the instrument cluster finish panel subassembly.



WFE90-BE204

3. Disconnect the coupler of the rear wiper switch.



WFE90-BE205

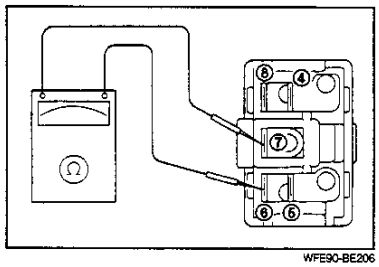
INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Continuity table

O—O Continuity exists.

Switch \ Terminal	8	7	6	5	4
WASH 2		O—O		O—O	
ON		O—O			
OFF	O—O				
WASH 1	O—O			O—O	



WFE90-BE206

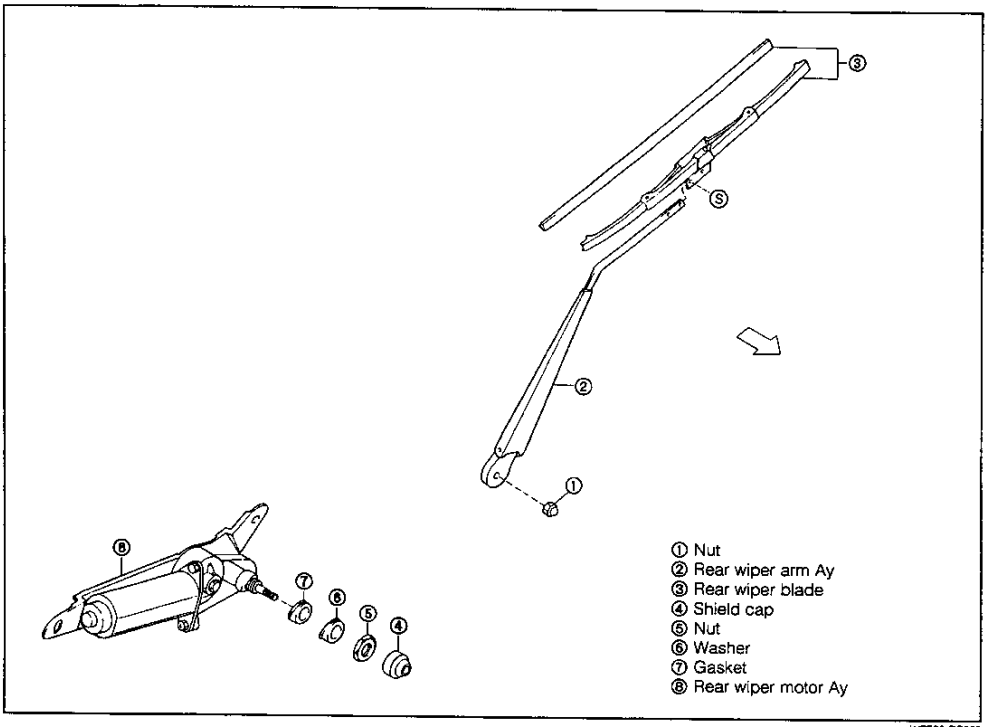
INSTALLATION

1. Connect the coupler of the rear wiper switch. Install the rear wiper switch to the instrument cluster finish panel subassembly.
2. Install the instrument panel finish lower panel.

WFE90-BE207

7-2. REAR WIPER MOTOR AND BLADE

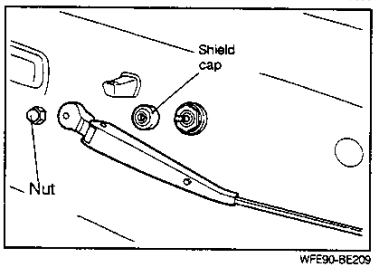
COMPONENTS



WFE90-BE208

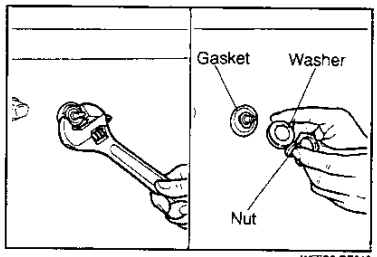
REMOVAL

1. Remove the spare tire.
2. Remove the wiper arm and blade by removing the nut.
3. Remove the shield cap.



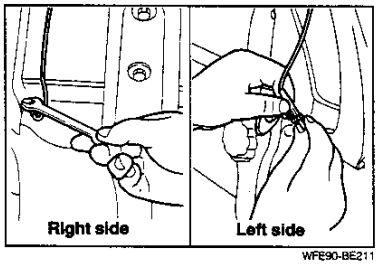
WFE90-BE209

4. Remove the washer and gasket by removing the nut.



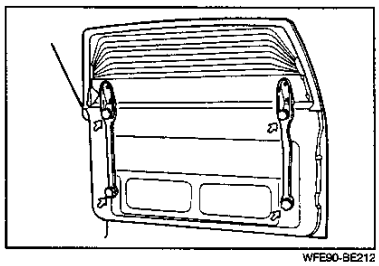
WFE90-BE210

5. Remove the rear window.
   (1) Remove the rear window defogger ground harness attaching bolt to disconnect the rear window defogger ground harness from the back door.
   (2) Disconnect the connector for the rear window defogger at left side.

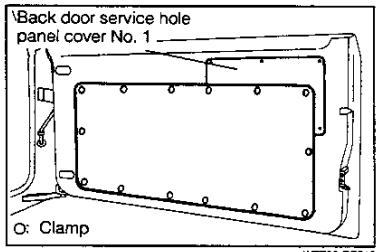


WFE90-BE211

   (3) Remove the rear window by removing the handles (4 points).

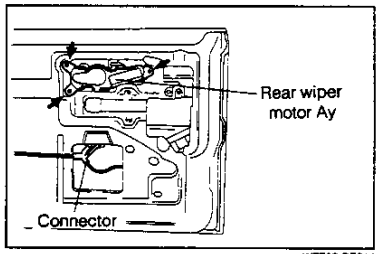

WFE90-BE212

6. Remove the back door trim by removing the clips (14 points.)
7. Remove the back door service hole panel cover No. 1 by removing the screws (4 points).
8. Remove the service hole cover.



WFE90-BE213

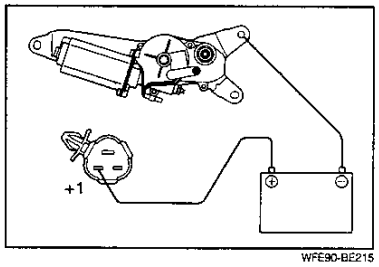
9. Remove the rear wiper motor assembly.
   (1) Disconnect the connector.
   (2) Remove the rear wiper motor by removing the three bolts.



WFE90-BE214

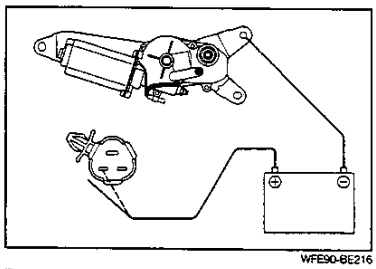
REAR WIPER MOTOR CHECK

1. Connect the terminal +1 to the positive ⊕ terminal of the battery; the body to the negative ⊖ terminal of the battery. Ensure that the wiper operates.



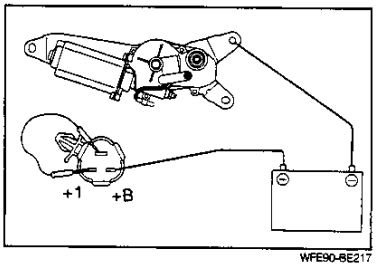
WFE90-BE215

2. Under the operating conditions in the step 1, disconnect the terminal +1 so as to interrupt the wiper motor operation.

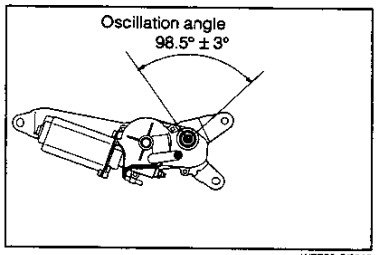


WFE90-BE216

3. Connect the terminal +1 to the terminal S; the terminal +B to the positive ⊕ terminal of the battery. Ensure that the wiper operates and stops at the automatic stopping position.



WFE90-BE217

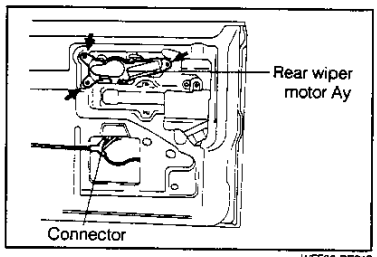


WFE90-BE218

INSTALLATION

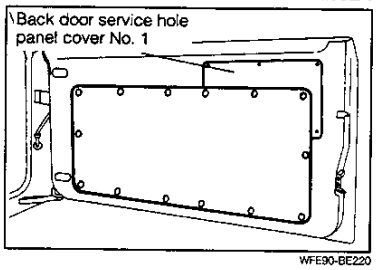
1. Install the rear wiper motor assembly, as follows:
   (1) Install the rear wiper motor assembly by tightening the set bolt.
   NOTE:
   - **Make sure that the body earth is provided properly.**

   (2) Connect the connector.



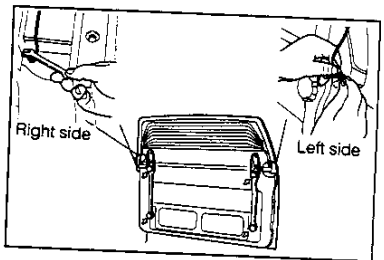
WFE90-BE219

2. Install the back door trim, as follows:
   (1) Install the service hole cover.
   (2) Install the back door service hole panel cover No. 1.
   (3) Install the back door trim.



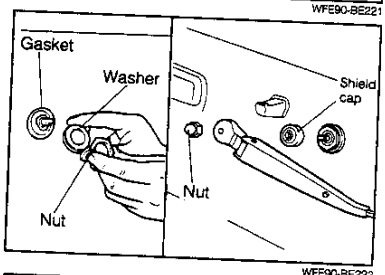
WFE90-BE220

3. Install the rear window.
   (1) Install the rear window using the handles.
   (2) Connect the connect to the rear window defogger at left side.
   (3) Install the rear window defogger ground harness using the bolt.



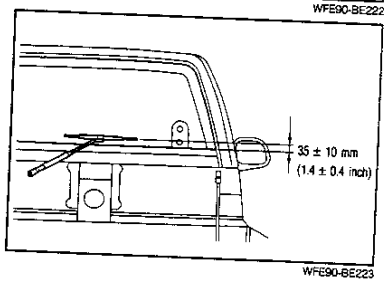
WFE90-BE221

4. Install the gasket, washer and nut.
5. Install the shield cap.



WFE90-BE222

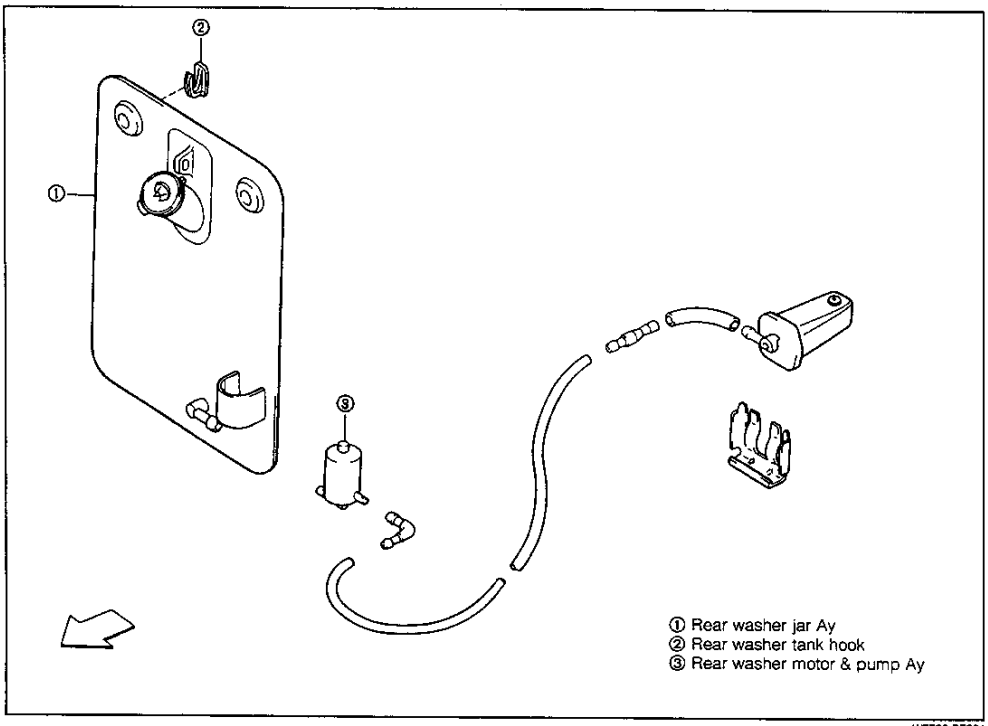
6. Install the wiper arm and blade.
   (1) Operate the wiper motor and set the wiper arm to the automatic stopping position.
   (2) Set the wiper arm to the position as indicated in the right figure.
   (3) Tighten the nut.



WFE90-BE223

7-3. REAR WASHER TANK

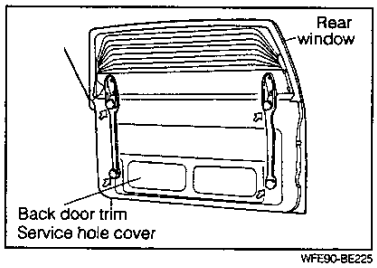
COMPONENTS



WFE90-BE224

REMOVAL

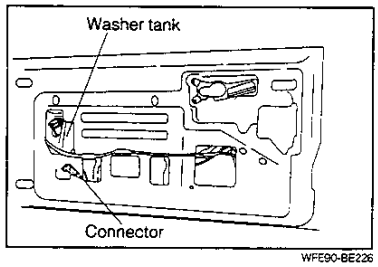
1. Remove the rear window assembly.
2. Remove the back door trim and service hole cover.
3. Disconnect the connector and water hose. Remove the washer tank assembly.



WFE90-BE225

INSTALLATION

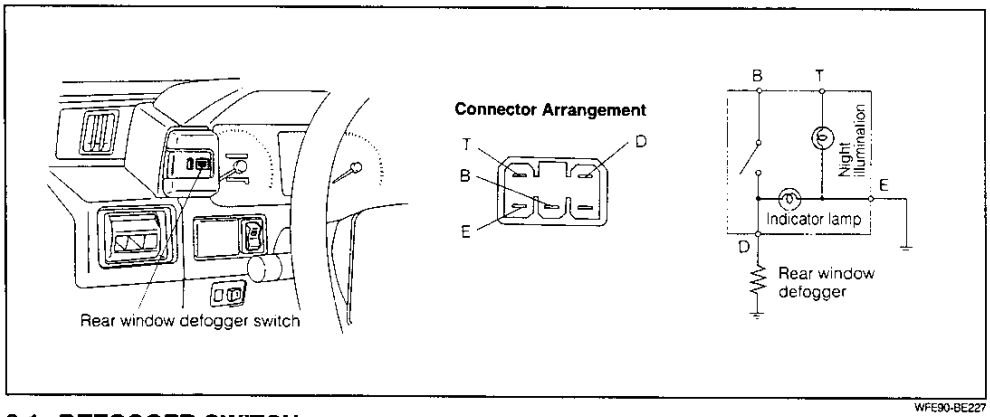
1. Install the washer tank assembly to the back door.
2. Connect the connector and water hose.
3. Install the service hole cover and back door trim.
4. Install the rear window assembly.



WFE90-BE226

8. REAR WINDOW DEFOGGER

The rear window defogger switch is a seesaw type switch which incorporates a symbol mark with night illumination and an indicator lamp.
Furthermore, the switch is installed in the meter cluster toward the outboard side of the vehicle.

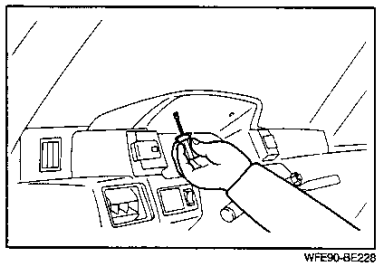


WFE90-BE227

8-1. DEFOGGER SWITCH

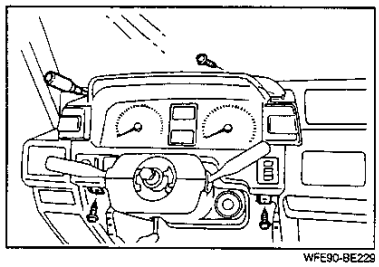
REMOVAL

1. Remove the instrument cluster finish upper panel.
2. Remove the instrument cluster finish lower panel.



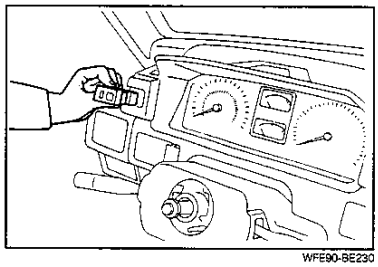
WFE90-BE228

3. Remove the instrument cluster finish panel subassembly.



WFE90-BE229

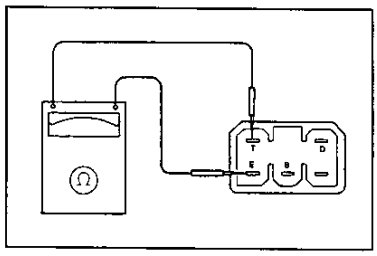
4. Remove the rear window defogger switch.



WFE90-BE230

INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the continuity table below.



WFE90-BE231

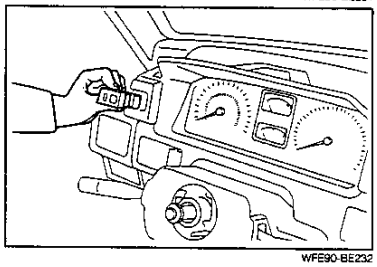
Continuity table

○—○ Continuity exists.
○—◎—○ Bulb in installed state

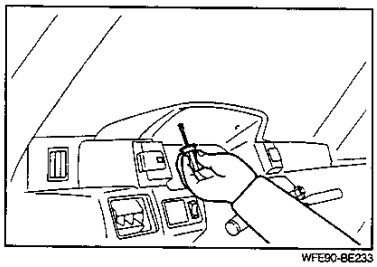
Switch \ Terminal	B	D	E	T
OFF		○—◎—○—◎—○		
ON	○—○—◎—○—◎—○			

INSTALLATION

1. Connect the coupler to the rear window defogger switch.
2. Install the rear window defogger switch to the instrument cluster finish panel subassembly.

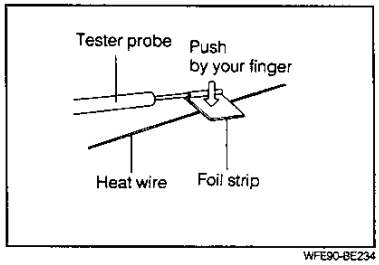

WFE90-BE232

3. Install the instrument cluster finish panel subassembly.
4. Install the instrument cluster finish upper panel.
5. Install the instrument cluster finish lower panel.


WFE90-BE233

8-2. DEFOGGER WIRE

NOTE:
(1) When wiping the glass surface, use a soft, dry cloth. Move the cloth along the wire. Be careful not to damage the wire.
(2) Never use washing agent or glass cleaner which contains abrasive compound.
(3) Wrap the tip end of the tester probe with foil strip so that the tester probe causes no damage on the heat wire during the voltage measurement. Check the voltage by pushing the foil strip against the heat wire by your finger, as shown in the figure.

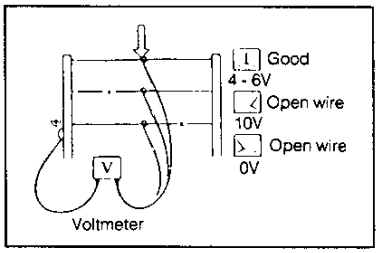


WFE90-BE234

1. OPEN WIRE CHECK

(1) Turn ON the ignition key switch.
(2) Turn ON the defogger switch so as to energize the defogger wire.
(3) Check the voltage at the center section of each heat wire.

Voltage	Judgement criteria
Approx. 5V	Good (No open wire)
Approx. 10V or 0V	Open wire

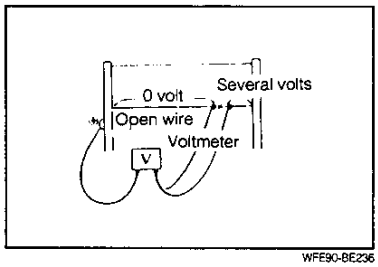


WFE90-BE235

REFERENCE:
- If the voltage is 10V, it means that open wire exists between the center of the wire and the end of the positive ⊕ side. If the voltage is 0V, it means that open wire exists between the center of the wire and the end of the earth side.

2. LOCATING POINT OF OPEN WIRE

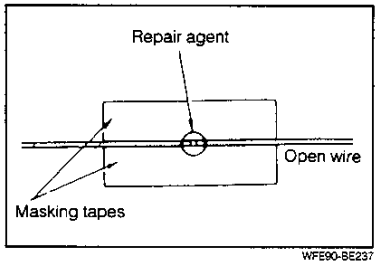
(1) Connect the positive ⊕ terminal of the voltmeter to the positive ⊕ side of the defogger wire.
(2) Slide the voltmeter's negative ⊖ terminal wrapped with foil strip on the defogger wire from its positive ⊕ side to its negative ⊖ side.
(3) The voltmeter reading changes from 0V to several volts at the point where open wire exists.



WFE90-BE236

3. REPAIRING POINT OF OPEN WIRE

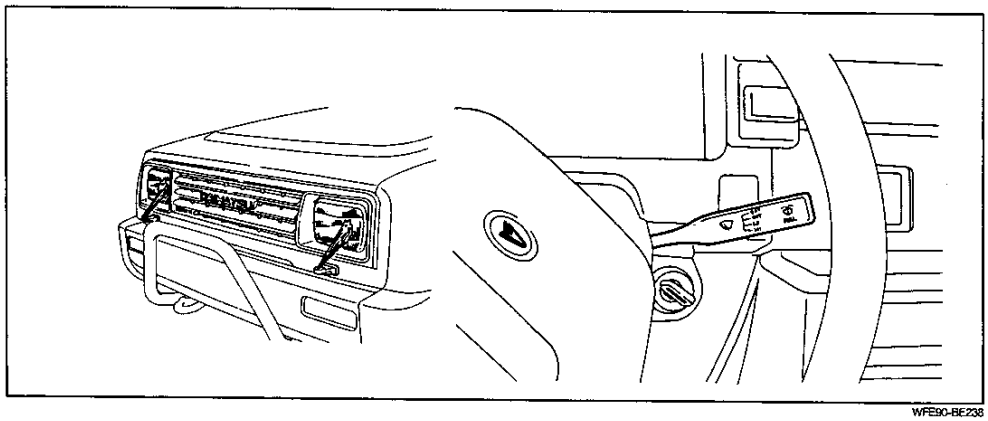
(1) Clean the point of open wire with white gasoline.
(2) Affix masking tapes to both upper and lower portions of the point to be repaired.
(3) Stir repair agent (Du Pont Paste No. 4817) thoroughly. Apply a small amount of the repair agent to the repairing point, using a fine brush.
(4) Two to three minutes later, peel off the masking tapes.
(5) Do not energize the defogger wire within 24 hours after the repair.



WFE90-BE237

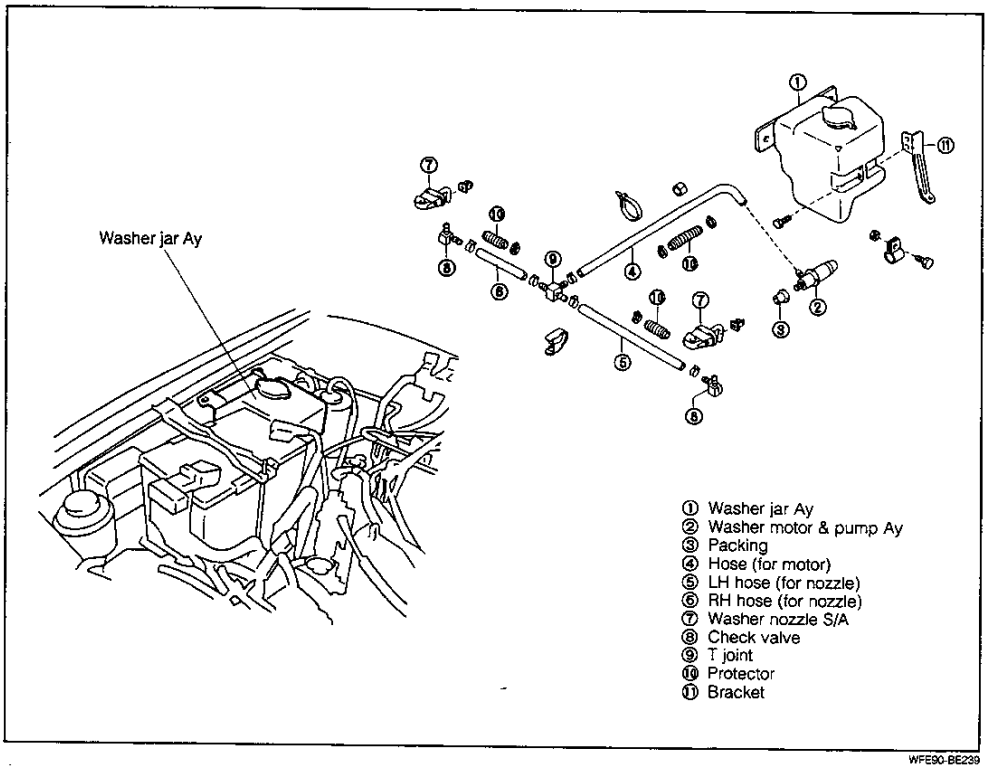
9. HEADLAMP CLEANER

Under conditions where the ignition switch and headlamp switch are turned ON, the washer switch can operate. When the washer switch is actuated again within about 0.8 second, the washer cleaner motor will start operating and squirt the washer liquid for headlamp use for a duration of about 0.5 second.



WFE90-BE238

COMPONENTS

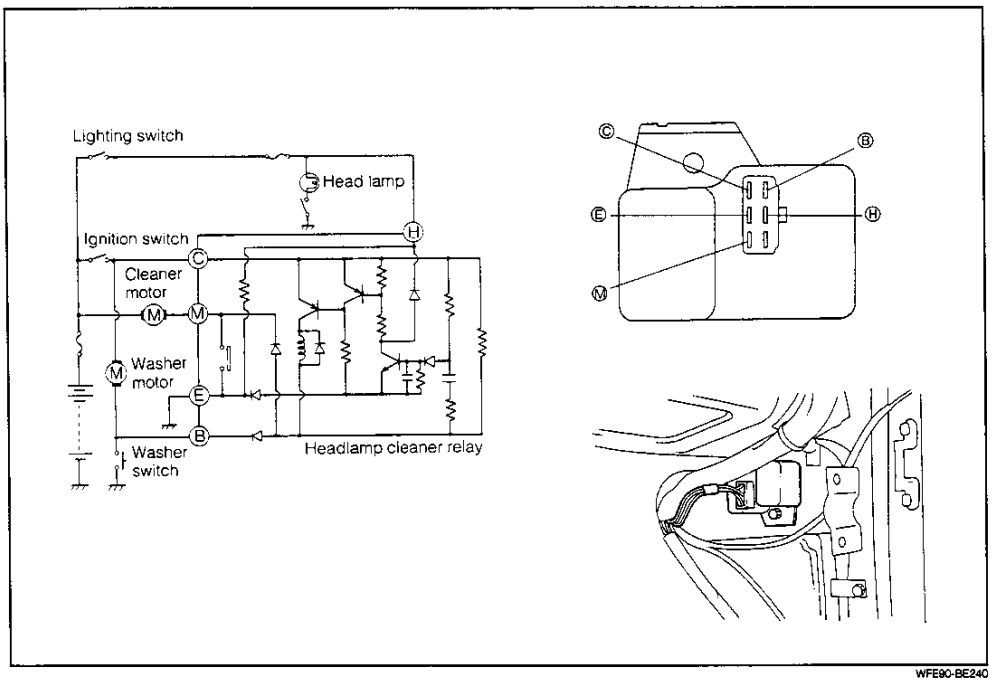


WFE90-BE239

9-1. CONTROL RELAY

The headlamp cleaner relay controls the operation of the headlamp cleaner motor.

CIRCUIT DIAGRAM



WFE90-BE240

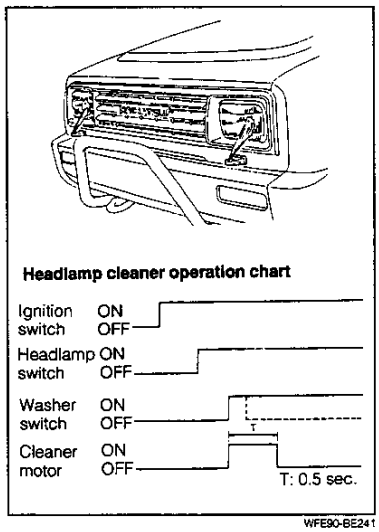
OPERATION CHECK

While the ignition switch is turned ON, carry out the following check: Operate the washer switch one time. Within about 0.8 second, operate the washer switch again. Ensure has the cleaner motor operates for about 0.5 second.

INSPECTION

If the headlamp cleaner is malfunctioning persistently when the following unit inspection reveals no malfunction, replace the headlamp cleaner relay.

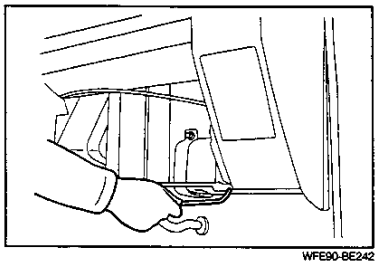
(1) Wiper fuse 15A
(2) Headlamp cleaner motor
(3) Washer switch
(4) Front windshield washer motor



WFE90-BE241

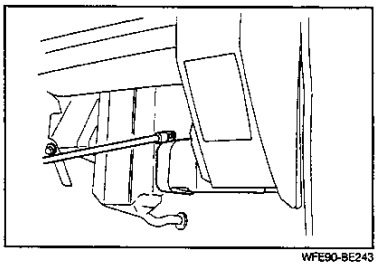
REMOVAL

1. Remove the glove compartment box.
2. Remove the instrument panel reinforcement.



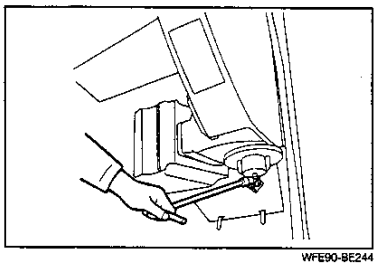
WFE90-BE242

3. Disconnect the coupler of the blower assembly.
4. Remove the clamp.



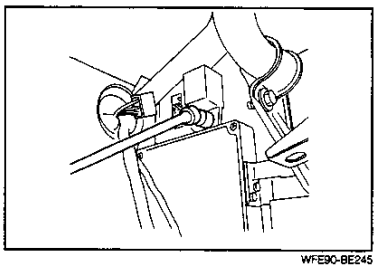
WFE90-BE243

5. Remove the blower assembly.



WFE90-BE244

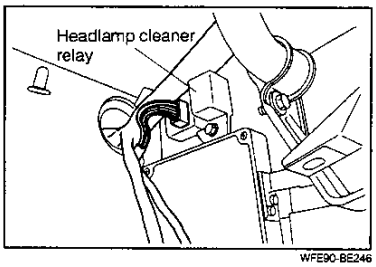
6. Disconnect the coupler of the headlamp cleaner relay.
7. Remove the headlamp cleaner relay.



WFE90-BE245

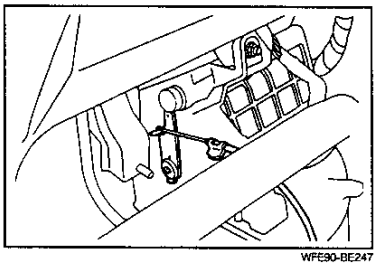
INSTALLATION

1. Install the headlamp cleaner relay.
2. Connect the coupler of the headlamp cleaner relay.

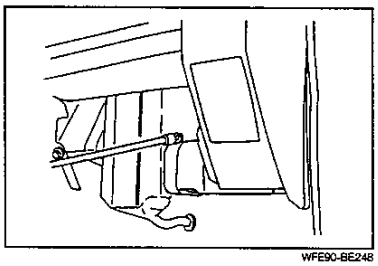


WFE90-BE246

3. Install the headlamp cleaner relay, following the procedure given below.
   (1) Set the inside/outside air selection lever to the outside air admission side.
   (2) Install the heater control cable with the lever set in the raised state.


WFE90-BE247

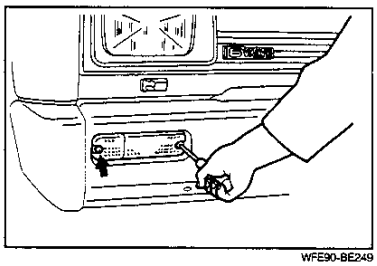
4. Install the blower assembly.
5. Install the clamp.
6. Connect the coupler of the blower assembly.
7. Install the instrument panel reinforcement.
8. Install the glove compartment box.


WFE90-BE248

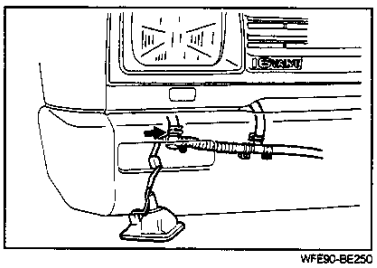
9-2. NOZZLE

REMOVAL

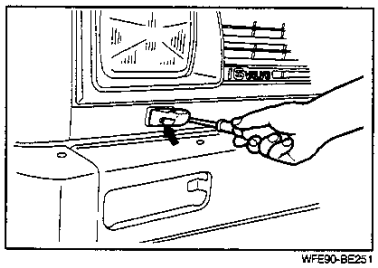
1. Remove the front turn signal lamp assembly by removing the two screw.


WFE90-BE249

2. Disconnect the washer nozzle and check valve.

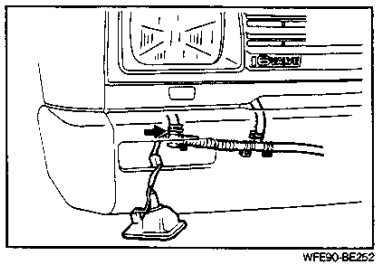

WFE90-BE250

3. Remove the washer nozzle by removing the two screws.


WFE90-BE251

INSTALLATION

1. Install the washer nozzle with the two screws.
2. Connect the washer nozzle and check valve.
3. Install the front turn signal lamp assembly with the two screws.



WFE90-BE252

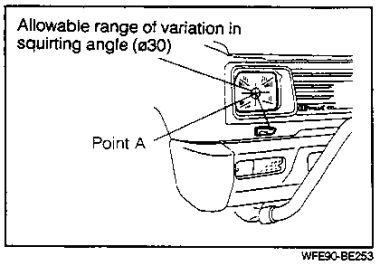
ADJUSTING PROCEDURE FOR NOZZLE INJECTION ANGLE

Operation prior to adjustment

1. Perform the headlamp aiming operation.

Adjustment

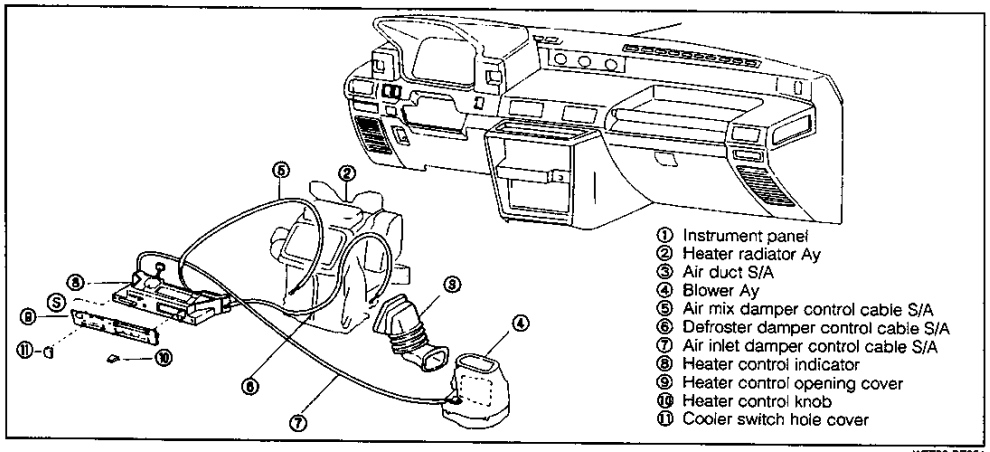
1. Set the nozzle so that the center of squirt come to the bulb installation position of the headlamp. (Bulb center: point A)
2. Ensure that the variation in the squirting angle is within the allowable range.



WFE90-BE253

10. FRONT HEATER

10-1. HEATER UNIT



WFE90-BE254

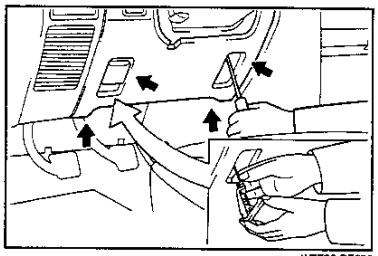
REMOVAL OF INSTRUMENT PANEL

NOTE:

1. This installation and removal procedure has been described for those vehicles equipped with no air conditioner. As for those vehicles equipped with air conditioner, see the AC section.
2. The instrument panel, together with the heater control unit and cable, should be removed from the body.

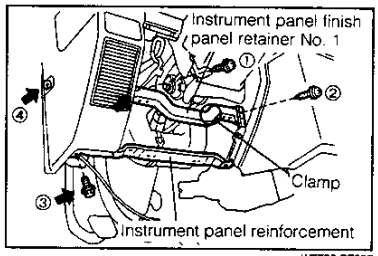
WFE90-BE255

1. Disconnect the battery cable from the negative ⊖ terminal.
2. Remove the steering wheel assembly.
3. Removal of lower instrument panel finish panel
   (1) Remove the hood lock control lever and wire.
   (2) Remove the screws retaining the rheostat.
   (3) Remove the two lower screws retaining the lower instrument panel finish panel.
   (4) Disconnect the rear heater switch connector and the rheostat connector.



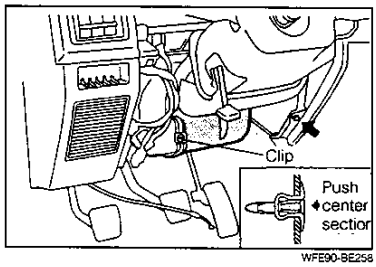
WFE90-BE256

4. Remove the screws ① and ② which retain the instrument panel finish panel retainer No. 1 at the right and left sides. (It is not necessary to remove the multi-use lever switch connector. Also, do not disconnect the connector.)
5. Remove the screws ③ and ④ located at the left side of the instrument panel.
   (It is not necessary to remove the instrument panel reinforcement.)



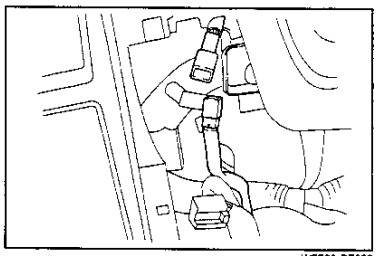
WFE90-BE257

6. Detach the clip retaining the air No. 1 duct subassembly. Remove the duct.
7. Remove the bolt connecting the instrument panel to the brace.

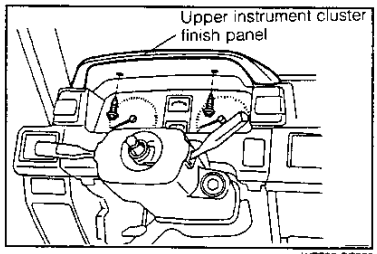


WFE90-BE258

8. Disconnect the connector of the instrument panel wire.

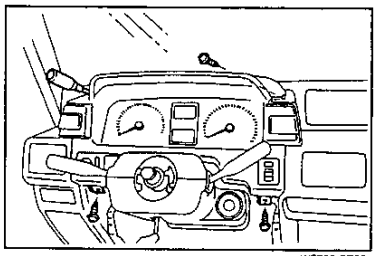

WFE90-BE259

9. Remove the upper instrument cluster finish panel.

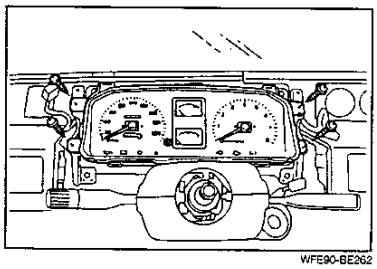


WFE90-BE260

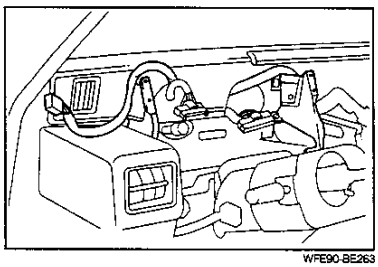
10. Removal of instrument cluster finish panel subassembly
    (1) Remove the instrument cluster finish panel subassembly.
    (2) Disconnect the connectors of the rear window defogger switch, hazard warning signal switch and rear wiper switch.


WFE90-BE261

11. Removal of combination meter assembly
    (1) Remove the attaching screw of the combination meter assembly.
    (2) Pull out the combination meter assembly toward your side.
    (3) Disconnect the speedometer cable and the two couplers of the wire harness.

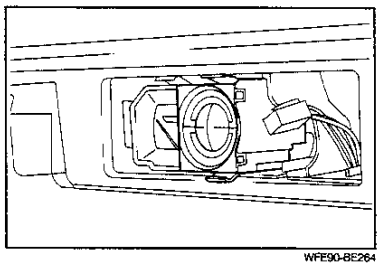

WFE90-BE262

12. Disconnect the clamp of the wire harness.



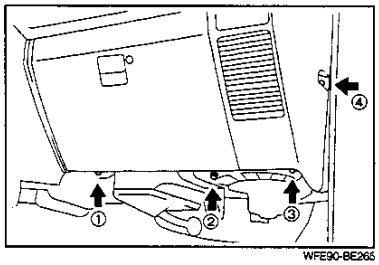
WFE90-BE263

13. Removal of triple meter
    (1) Remove the upper instrument panel finish by means of a bamboo spatula wrapped with a cloth.
    (2) Pull out the voltmeter, clinometer and clock toward your side, while pushing the upper and lower claws by means of a spatula or the like.
    (3) Disconnect the connectors.



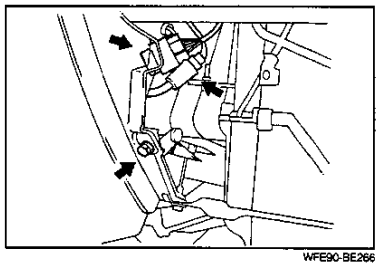
WFE90-BE264

14. Remove the glove compartment door subassembly (screws ① and ②).
15. Remove the screws ③ and ④.
    (It is not necessary to remove the instrument panel reinforcement.)



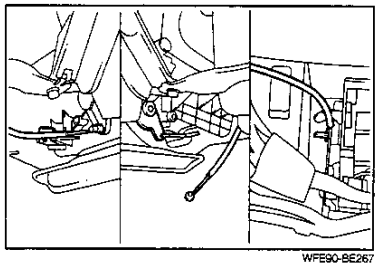
WFE90-BE265

16. Disconnect the connectors of the wire harnesses of the heater control switch (and the air conditioner switch).
17. Remove the attaching screw of the instrument panel and brace.



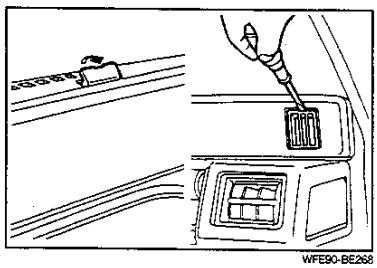
WFE90-BE266

18. Disconnect the heater control cables.



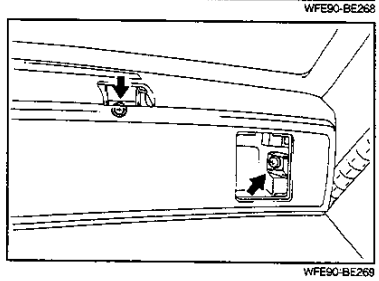
WFE90-BE267

19. Remove the defroster nozzles by means of a spatula wrapped with a cloth or the like (at the right and left sides).
20. Remove the instrument panel hole covers (at the right and left sides).



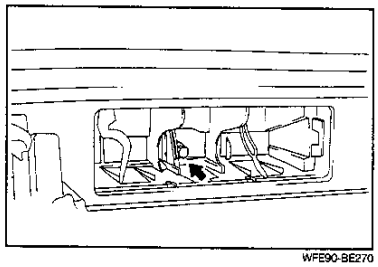
WFE90-BE268

21. Remove the attaching screws of the instrument panel (at the right and left sides).



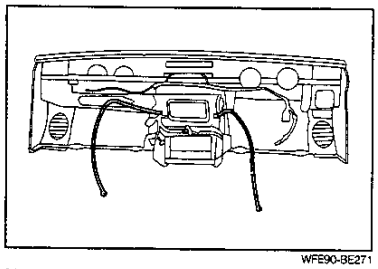
WFE90-BE269

22. Remove the attaching screws of the instrument panel (center).



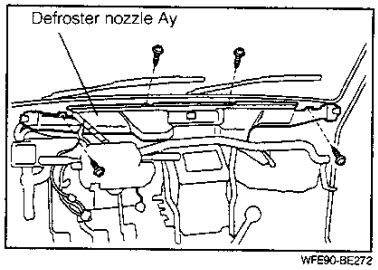
WFE90-BE270

23. Remove the instrument panel from the body.



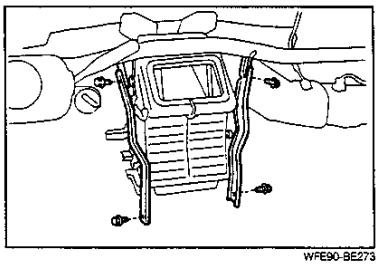
WFE90-BE271

24. Remove the defroster nozzle assembly.

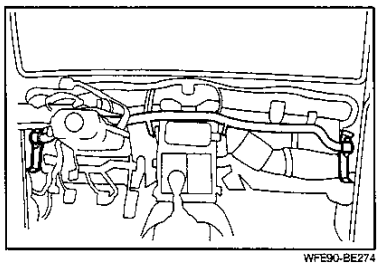


WFE90-BE272

25. Remove the instrument panel panel brace subassembly.
26. Remove the following parts.
    (1) Bracket of key reminder buzzer, heater relay and horn relay
    (2) Sub-fuse box

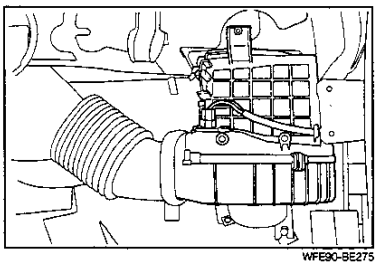

WFE90-BE273

27. Remove the steering column from the pillar-to-pillar member subassembly.
28. Remove the pillar-to-pillar member subassembly from the pillar.


WFE90-BE274

REMOVAL OF BLOWER

Remove the blower assembly and disconnect the connector of the wire harness.


WFE90-BE275

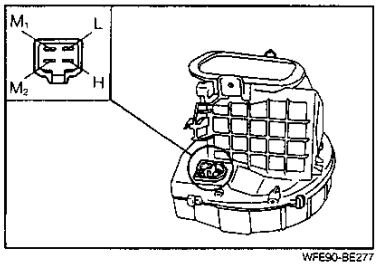
INSPECTION OF BLOWER

NOTE:
- The unit of the heater blower can be removed without removing the instrument panel. Refer to the headlamp cleaner section.
- The unit of the blower switch can be removed from the back side after the instrument panel has been removed.

1. Blower resistor
   Ensure that the resistance between the respective terminals conforms to the specifications below.
   Specified Values:
   Between Terminals L and M_1: About 1.17 Ω
   L and M_2: About 1.88 Ω
   H and M_2: About 0.32 Ω

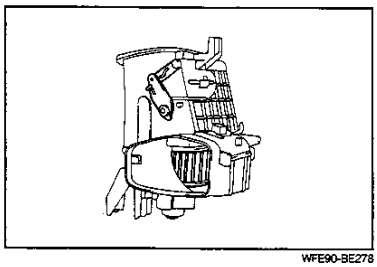
   NOTE:
   - The resistor is cooled by the air flow from the blower. Therefore, it should be noted that the resistor may be burnt out if the cooling air should be suspended owing to some reasons.

WFE90-BE276



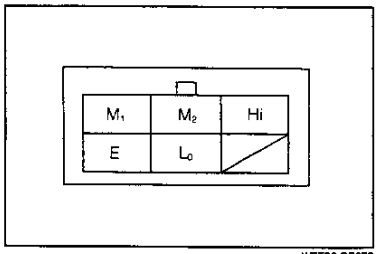
WFE90-BE277

2. Blower motor & case
   (1) Turn the blades of the blower by hand. Ensure that the blades rotate lightly.
   (2) Ensure that the screws retaining the blades to the motor axle are not loose.
   (3) Ensure that the blades are not turning eccentrically.
   (4) Check the flow route switching plate and packing for damage. Also, ensure that they can be switched smoothly.
   NOTE:
   - **In the step (3) above, there is the possibility that water enters the case and freezes there, thereby preventing the sirocco fan from rotating.**


WFE90-BE278

3. Blower switch
   When the blower switch is set to each stage, ensure that continuity exists between the respective terminals, as indicated in the continuity table below.

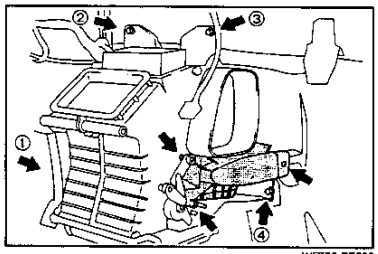
Switch \ Terminal	E	Lo	M_1	M_2	Hi
OFF					
I	○——	——○			
II	○——	——○	——○		
III	○——	——○	——	——○	
IV	○——	——○	——	——	——○



WFE90-BE279

REMOVAL OF HEATER

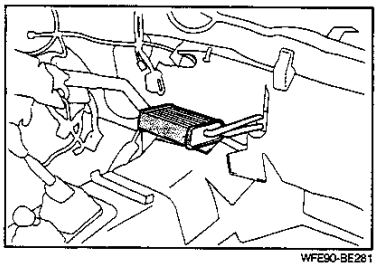
1. Remove the heater cover.
2. Remove the attaching screws ① through ④ for the heater case.
3. Slightly pull out the heater case toward your side. Then, draw it out toward the left side.
   NOTE:
   - **Never disconnect the water hoses from the engine, unless such disconnection is required. Failure to observe this caution may cause dents or scratches of the copper pipe, resulting in water leakage.**



WFE90-BE280

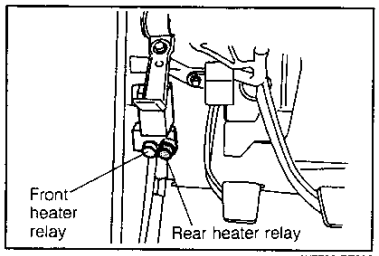
INSPECTION OF HEATER UNIT SUBASSEMBLY

Check the heater unit for cracks.
Check the packing for damage.
Ensure that the flow route switching plate moves smoothly.


WFE90-BE281

INSPECTION OF HEATER RELAY

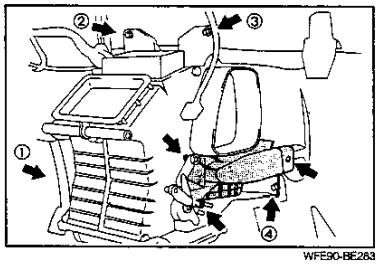
1. It the blower will not functioning properly, replace the heater relay.
2. Check the operation.



WFE90-BE282

INSTALLATION OF HEATER-RELATED PARTS

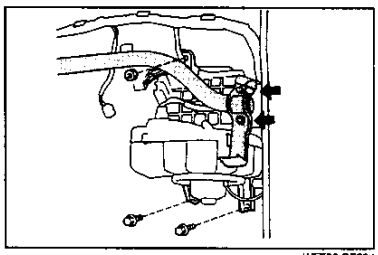
1. Install the heater radiator assembly with the two nuts and two bolts.
2. Install the heater cover with the two nuts and screws.



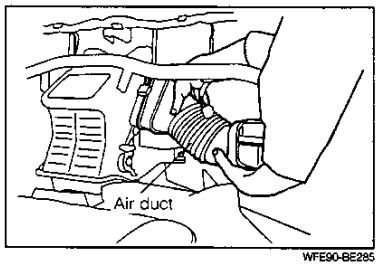
WFE90-BE283

3. Install the blower assembly with the two bolts, nuts and the connector.
4. Install the pillar-to-pillar member subassembly and steering column.
   Tightening Torque:
   14.7 - 21.6 N·m (Steering column)
   29.4 - 44.1 N·m (M10, pillar)
   14.7 - 21.6 N·m (M8, body center)

   NOTE:
   - Install the arrow-headed bolts after the left bolts (pillar and body center) have been installed. This procedure will facilitate the operation.

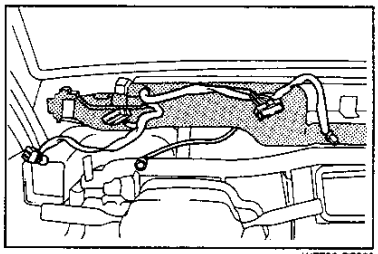

WFE90-BE284

5. Install the air duct.



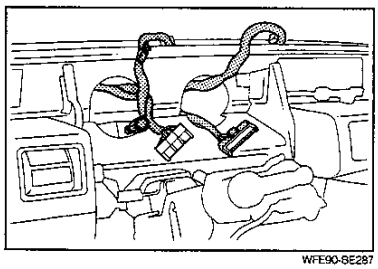
WFE90-BE285

6. Install the defroster nozzle.
   NOTE:
   - The wire harness of the combination meter should be drawn from the position as indicated by the arrow in the right figure.

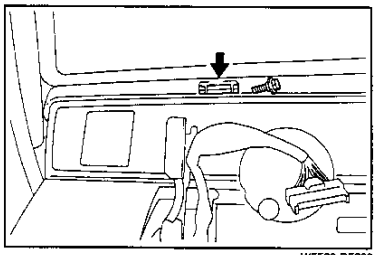

WFE90-BE286

INSTALLATION OF INSTRUMENT PANEL

1. Put the instrument panel in place.
2. Draw out the wire harnesses and speedometer cable from the hole for the combination meter.

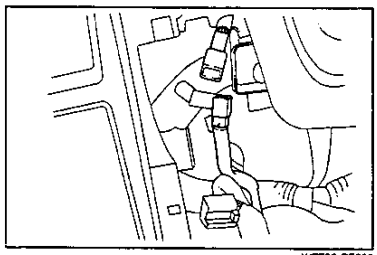

WFE90-BE287

3. Temporarily install the instrument panel with two bolts at upper right and left points.



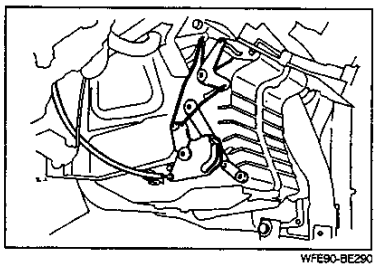
WFE90-BE288

4. Connect the coupler of the wire harness.
   (1) Wire, instrument panel
   (2) Wire, heater control switch
   (3) Wire, air conditioner switch
5. Clamp of wire harness
   (1) Wire cowl in left figure (for instrument panel wire)
   (2) Wire harnesses for hazard of combination meter section and rear wiper switch



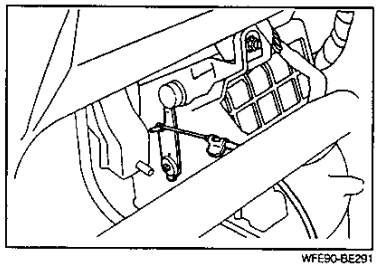
WFE90-BE289

6. Connect the wire of the heater control unit to the lever of the heater/blower unit.
   (1) Install the mode switching cable, as follows:
      1) Set the mode switching lever of the heater control to the (DEF) side; the mode switching lever of the heater unit to the DEF side.
      2) Connect the mode switching cable. Insert it into the clamp securely.



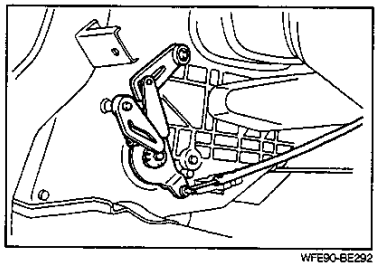
WFE90-BE290

   (2) Install the temperature regulating cable, as follows:
      1) Set the temperature regulating lever of the heater control to the ♥ (COOL) side; the temperature regulating lever of the heater unit to the COOL side.
      2) Connect the temperature regulating cable. Insert it into the clamp securely.



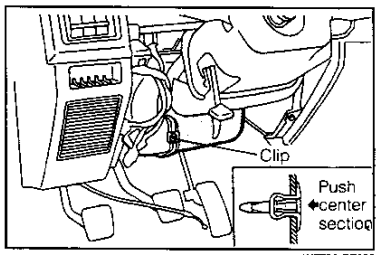
WFE90-BE291

   (3) Install the inside air/outside air switching cable, as follows:
      1) Set the inside air/outside air switching lever of the heater control to the (RECIRC) side; the inside air/outside air switching lever of the blower assembly to the RECIRC side.
      2) Connect the inside air/outside air switching cable. Insert it to the clamp securely.



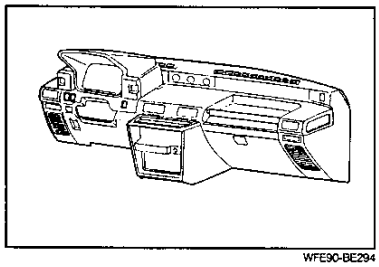
WFE90-BE292

7. Install the air No. 1 duct subassembly. Install the clip.
   NOTE:
   - Before the instrument panel is tightened securely, make sure that the wire harnesses, clamps and connectors are installed without applying undue force.

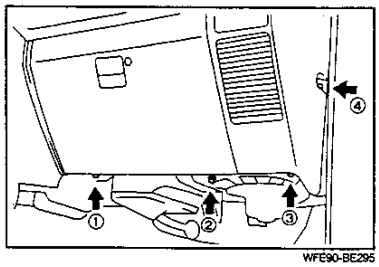


WFE90-BE293

8. Tighten all screws which have been removed during the removal operation.
   NOTE:
   - Refer to the sequence numbers 4, 5, 17, 21 and 22.
9. Install the defroster nozzle assembly.
10. Install the instrument panel hole cover.

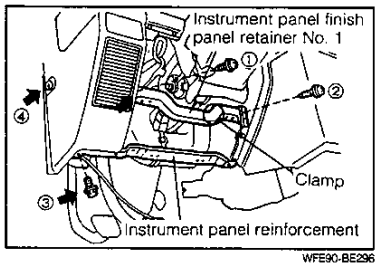

WFE90-BE294

11. Install the glove compartment door subassembly. (Tighten the screws ① and ②.)
12. Tighten the screws ③ and ④.



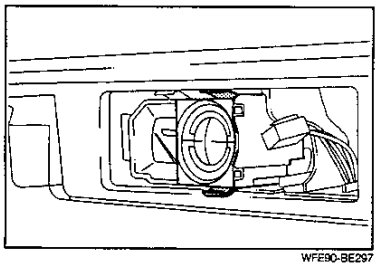
WFE90-BE295

13. Install the instrument panel finish panel retainer No. 1. (Tighten the screws ① and ②.)
14. Tighten the screws ③ and ④.

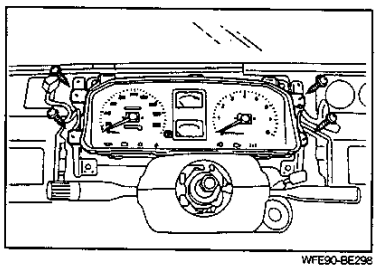


WFE90-BE296

15. Install the triple meter.
    (1) Connect each connector to the respective meters. Press the meter into the groove by hands.
    (2) Press the upper instrument panel finish into position by hands.

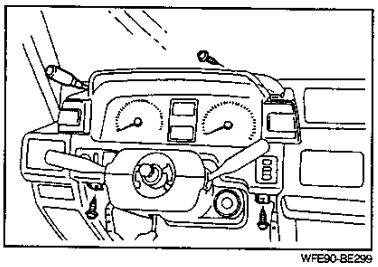

WFE90-BE297

16. Installation of combination meter
    (1) Connect the connector of the speedometer cable and the couplers of the wire harnesses.
    (2) Tighten the attaching screws.



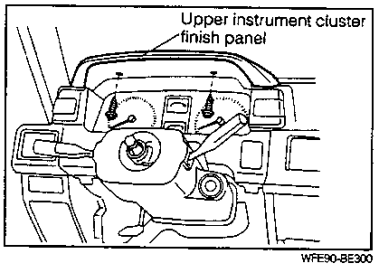
WFE90-BE298

17. Install the instrument cluster finish panel subassembly with the attaching screws.



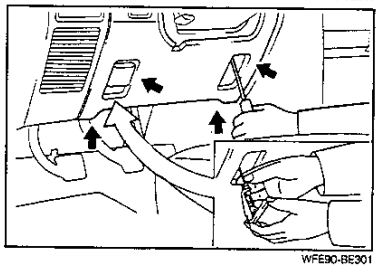
WFE90-BE299

18. Install the upper instrument cluster finish panel with the attaching screws.



WFE90-BE300

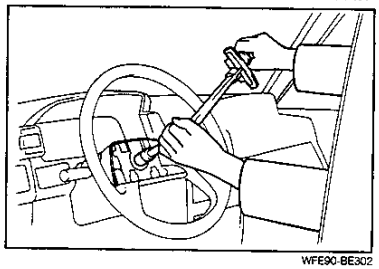
19. Installation of lower instrument panel finish panel.
    (1) Connect the connector for the rear heater switch and rheostat.
    (2) Tighten the attaching screws of the lower instrument panel finish panel.
    (3) Tighten the attaching screws of the rheostat.
    (4) Connect the wire for the hood lock control lever and tighten the attaching screws.



WFE90-BE301

20. Install the steering wheel.
    Tightening Torque: 29.4 - 49.0 N·m

21. Connect the horn wire and install the horn pad.
22. Tighten the screw of the horn pad.



WFE90-BE302

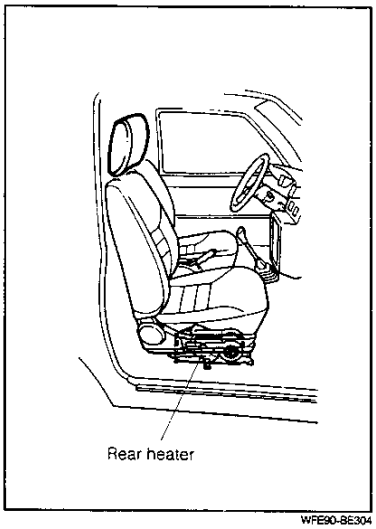
OPERATION AFTER INSTALLATION

1. Connect the battery.
2. Ensure that each switch of the instrument panel functions properly.
3. Start the engine.
   NOTE:
   (1) Replenish cooling water in advance if the cooling water has been drained out.
   (2) When starting the engine, place the shift lever of the transmission in the neutral position and apply the parking brake.
4. Ensure that all of the electrical system functions properly.

WFE90-BE303

11. REAR HEATER

The rear heater is available as optional equipment on all models.
The rear heater is located below the front passenger seat.



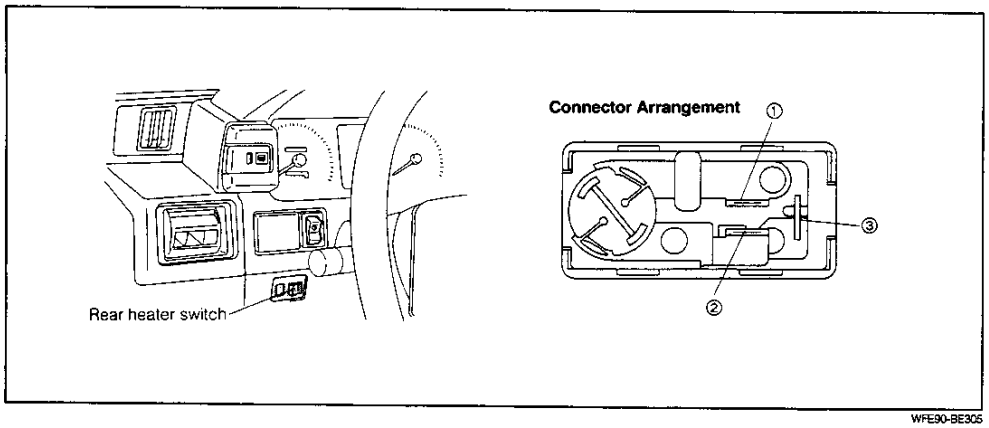
WFE90-BE304

Heater specifications

Heat radiating rate	kCal/h	1,600
Air flow rate	m^3h (ft^3/h)	120 (4238)
Power consumption	W	30
Fan diameter	mm (inch)	80 (3.1)

11-1. REAR HEATER SWITCH

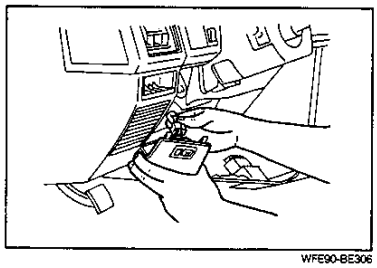
The rear heater switch is a seesaw type switch which incorporates an indicator lamp.
Furthermore, the switch is installed on the finish lower panel of the instrument panel toward the left side of the vehicle.



WFE90-BE305

REMOVAL

1. Remove the instrument panel finish lower panel.
2. Remove the coupler of the rear heater switch.
3. Remove the rear heater switch from the instrument panel finish lower panel.



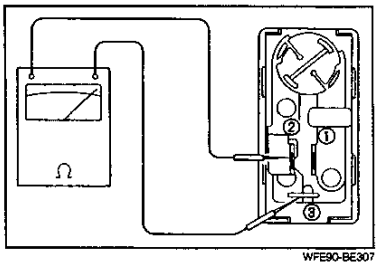
WFE90-BE306

INSPECTION
Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Continuity table

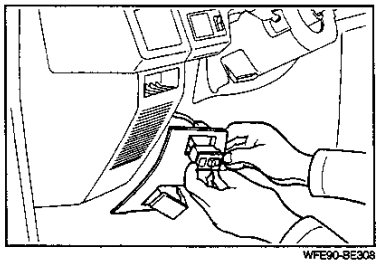
○—○ Continuity exists.
○-Ⓑ-○ Bulb in installed state

Switch \ Terminal	3	1	2
OFF		○—Ⓑ—○	
ON	○—	○—Ⓑ—○	

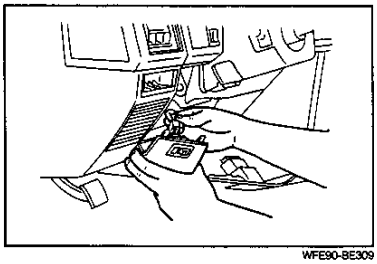


WFE90-BE307

INSTALLATION
1. Install the rear heater switch to the instrument panel finish lower panel.


WFE90-BE308

2. Connect the coupler of the rear heater switch.
3. Install the instrument panel finish lower panel.

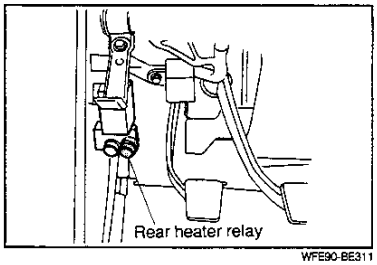

WFE90-BE309

11-2. REAR HEATER RELAY

INSPECTION
If the air flow rate of the rear heater exhibits abnormality when the rear heater switch is functioning properly, replace the rear heater relay. Check the operation.

WFE90-BE310

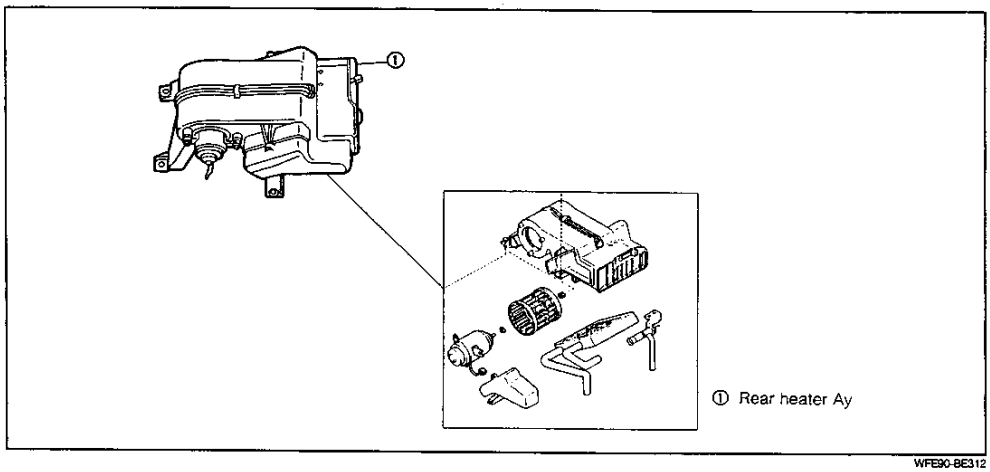
INSTALLATION POSITION OF REAR HEATER RELAY
The rear heater relay is located below the main fuse box at the lower left of the instrument panel subassembly.



WFE90-BE311

11-3. HEATER UNIT

RELATED PARTS



WFE90-BE312

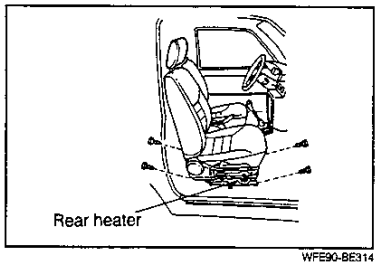
OPERATION PRIOR TO REMOVAL

1. Disconnect the negative ⊖ terminal of the battery.
2. Drain the cooling water from the radiator.

WFE90-BE313

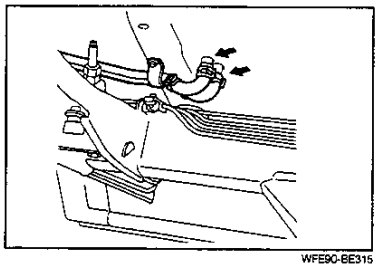
REMOVAL

1. Remove the right side of the front seat by removing the four bolts.



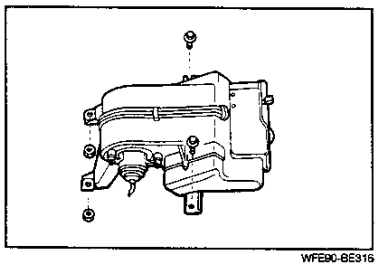
WFE90-BE314

2. Disconnect the two water hoses from the rear heater assembly.



WFE90-BE315

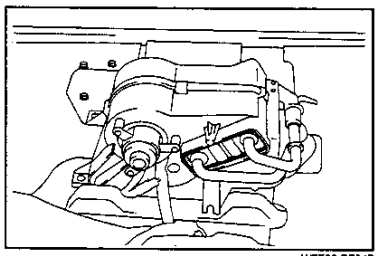
3. Remove the rear heater assembly by removing two nuts and two bolts.



WFE90-BE316

INSPECTION

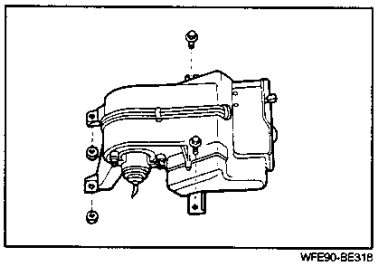
1. Blower unit
- Ensure that the radiator exhibits no cracks.
- Ensure that the packing is not damaged.
- Ensure that the blower fan rotates smoothly when it is turned by hand.



WFE90-BE317

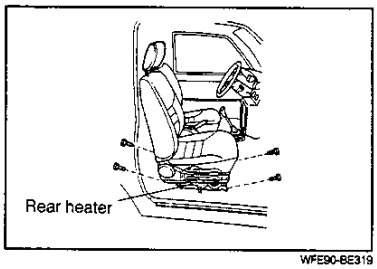
INSTALLATION

1. Install the rear heater assembly with two bolts and two nuts.
2. Install the two water hoses to the rear heater assembly.



WFE90-BE318

3. Install the front seat with four bolts.
   Tightening Torque: 3.0 - 4.5 kg-m
   (22 - 33 ft-lb, 29.4 - 44.1 N·m)



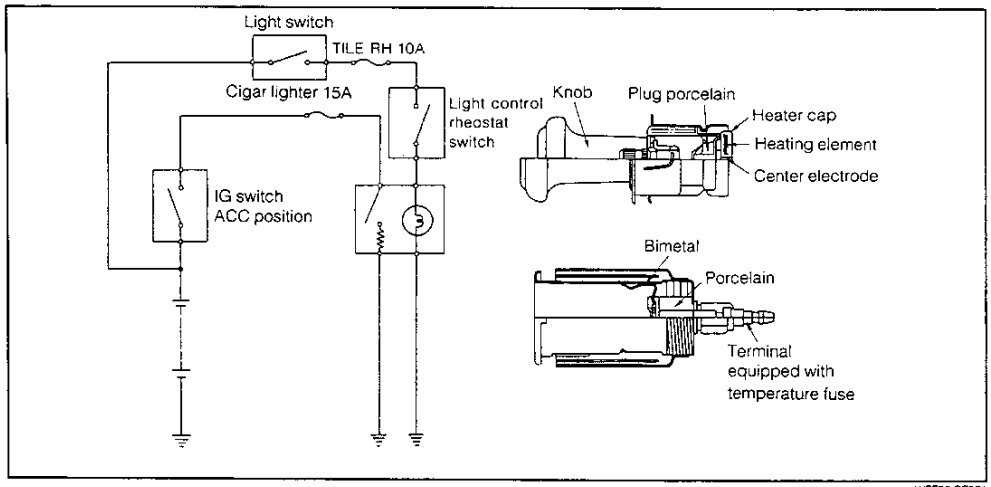
WFE90-BE319

12. CIGARETTE LIGHTER

The cigarette lighter system consists of a plug and a socket. When the plug knob is pushed in, current flows from the bimetal to the heating element, thereby causing the heating element to generate heat.
When the specified heating temperature is attained, the bimetal opens. As a result, the retention of the heater cap is released. The plug has been so constructed that it will pop up owing to its own spring tension. To assure the safety in the event of overheating, a temperature fuse is employed in order that fusing may take place, as required.

WFE90-BE320

CIRCUIT DIAGRAM

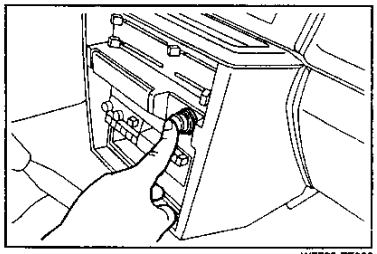


WFE90-BE321

INSPECTION

1. With the ignition switch set to the ON position, push in the cigarette lighter. Ensure that the plug pops out with the heating element in a glow state.
   If the normal function fails to take place, check for the fuse-related parts. Replace the cigarette lighter assembly, as required.

2. With the ignition switch set to the ON position, set the light control switch to the ON position. Ensure that the cigarette lighter position lamp goes on.
   If the normal function fails to take place, check for the fuse-related parts. Replace the cigarette lighter assembly, as required.



WFE90-BE322

REMOVAL & INSTALLATION PROCEDURE

NOTE:
- The replacement of the socket section of the cigarette lighter can be carried out from the back side after the instrument panel has been removed from the body.
  For the removal procedure for the instrument panel, see the "Front Heater Section."

WFE90-BE323

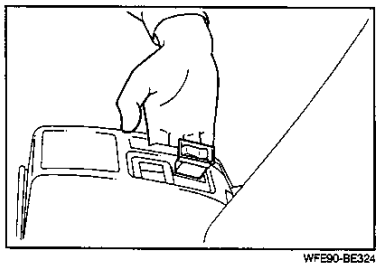
13. REMOTE CONTROL MIRROR

13-1. REMOTE CONTROL SWITCH

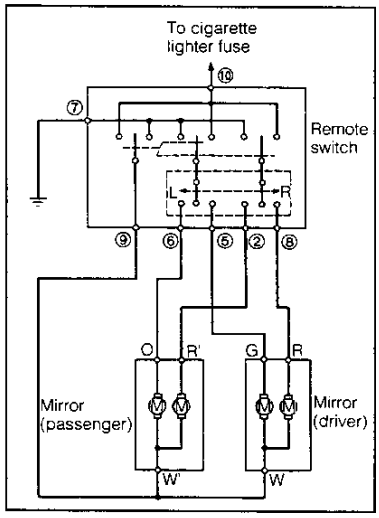
Inspection

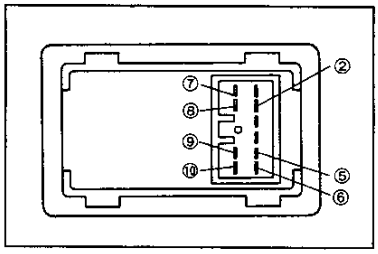
1. Take out the remote control switch by pushing it from the inside of the floor console box.
2. Disconnect the coupler.
3. Ensure that continuity exists between the respective terminals by operating the switch as indicated in the table below.

	Switch	⑩	⑨	⑧	⑦	⑥	⑤	②
Left	Up	○				○		
			○		○			
	Down				○	○		
		○	○					
	OFF							
	Left	○					○	
			○		○			
	Right				○		○	
		○	○					
OFF	Up		○		○			
	Down	○	○					
	OFF							
	Left		○		○			
	Right	○	○					
Right	Up	○						○
			○		○			
	Down				○			○
		○	○					
	OFF							
	Left	○		○				
			○		○			
	Right			○	○			
		○	○					



WFE90-BE324



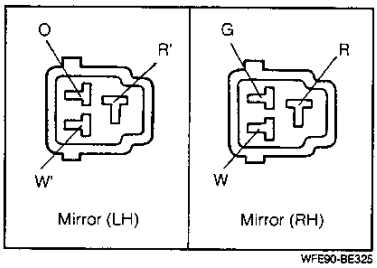


13-2. REMOTE CONTROL MOTOR

Inspection

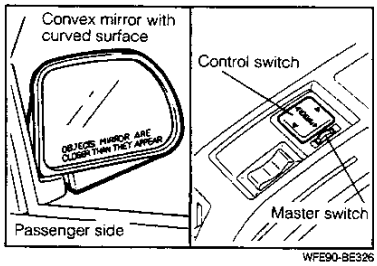
1. Remove the door trim. Take out the coupler.
2. Ensure that the motor operates properly by applying the battery voltage across the respective terminals as indicated in the table below.

(RH)	W	G	R
Up	—	+	
Down	+	—	
Left	—		+
Right	+		—



WFE90-BE325

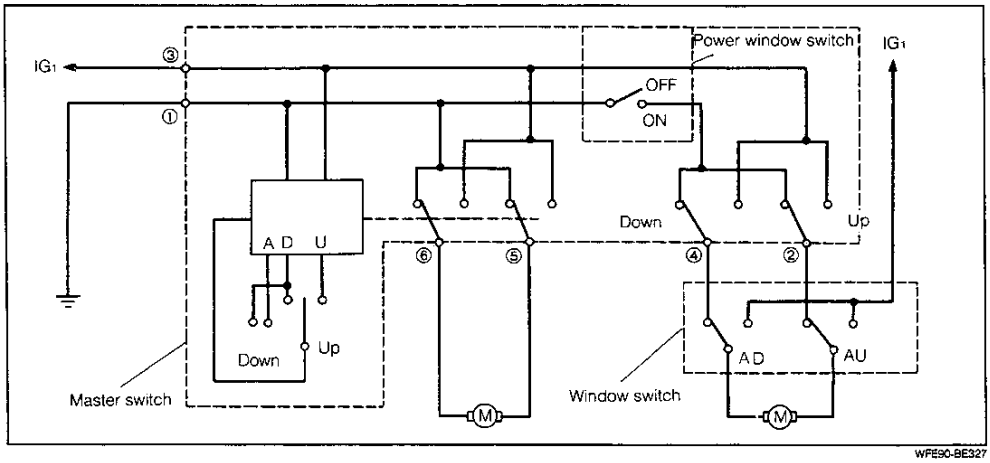
(LH)	W'	O	R'
Up	—	+	
Down	+	—	
Left	—		+
Right	+		—



WFE90-BE326

14. POWER WINDOW

14-1. CIRCUIT DIAGRAM

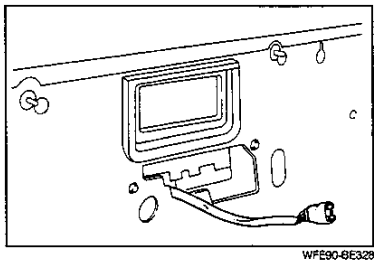


WFE90-BE327

14-2. MASTER SWITCH (Driver's switch)

REMOVAL

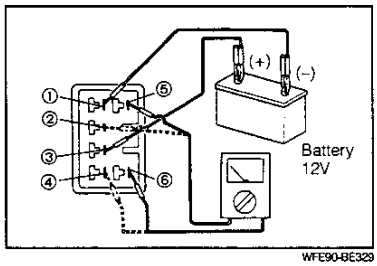
1. Remove the three screws of the arm rest.
2. Remove the screw of the door inside handle. Remove the bezel.
3. Remove the door trim board assembly.
4. Disconnect the wiring coupler.



WFE90-BE328

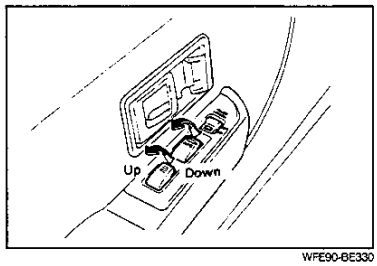
INSPECTION

1. Connect the wiring, as indicated in the right figure, to make a test circuit.
2. Operate the AUTO switch. Measure the voltage between the terminals ⑤ and ⑥.
   (1) OFF: 0V
   (2) UP: Battery voltage
   (3) DOWN, first stage: Battery voltage (The polarity becomes opposite to the item ②.)
   (4) DOWN, second stage: Battery voltage should remain for about 20 seconds even if the switch is not held pushed.



WFE90-BE329

3. Operate the window switch, Measure the voltage between the terminals ② and ④, (The power window switch is in the ON state.)
   (1) OFF: 0V
   (2) UP: Battery voltage
   (3) DOWN: Battery voltage (However, the polarity is opposite to the item ②.)



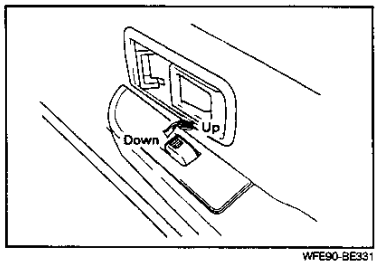
WFE90-BE330

4. When the power window switch is turned OFF, ensure that no voltage is applied across the terminals ② and ④ even if the window switch is operated.

14-3. WINDOW SWITCH (Passenger's switch)

REMOVAL

1. Remove the three screws of the arm rest.
2. Remove the screw of the door inside handle. Remove the bezel.
3. Remove the door trim board assembly.
4. Disconnect the wiring coupler.

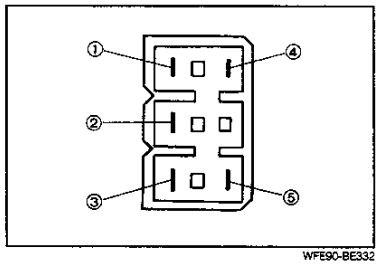


WFE90-BE331

INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the table below.

	①	②	③	④	⑤
UP	○——	——○		○——	——○
OFF	○——	——○	○——	——	——○
DOWN	○——	——	——○		
			○——	——	——○



WFE90-BE332

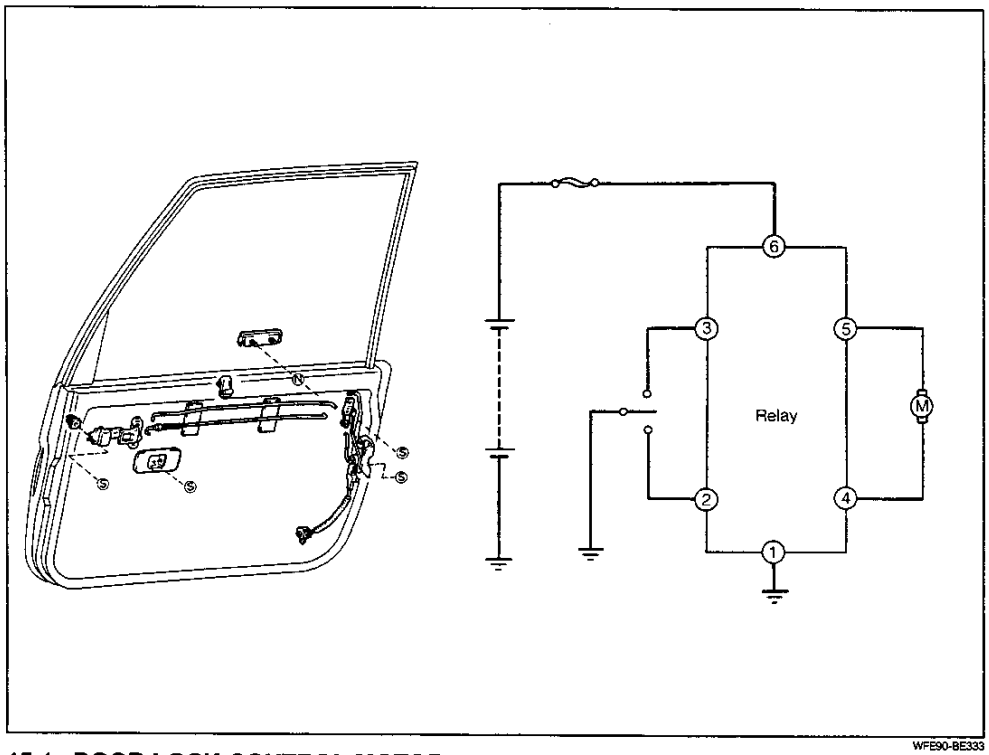
corrected by experiment:

INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the table below.

	①	②	③	④	⑤
UP	○——	——○		○——	——○
OFF	○——	——○	○——	——	——○
DOWN	○——	——	——	——○	
			○——	——	——○

15. POWER FRONT DOOR LOCK

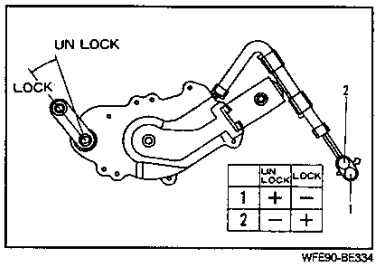


WFE90-BE333

15-1. DOOR LOCK CONTROL MOTOR (Passenger side door)

REMOVAL

1. Remove the three screws of the arm rest.
2. Remove the screw of the door inside handle. Remove the bezel.
3. Remove the door trim board assembly. Disconnect the wiring coupler.
4. Remove the water seal.



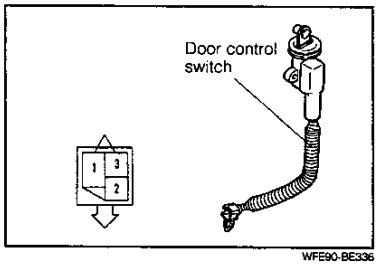
WFE90-BE334

INSPECTION

When the positive ⊕ and negative ⊖ polarities of a 12V battery are connected to the terminals of the coupler, the lever of the motor should move to the LOCK or UNLOCK direction.

WFE90-BE335

15-2. DOOR LOCK CONTROL SWITCH (Driver side door)



WFE90-BE336

REMOVAL

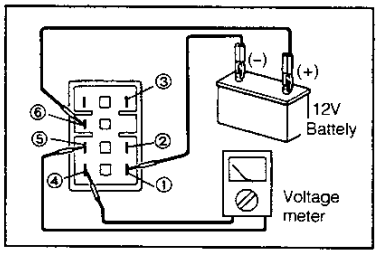
1. Remove the three screws of the arm rest.
2. Remove the screw of the door inside handle. Remove the bezel.
3. Remove the door trim board assembly. Disconnect the wiring coupler.
4. Remove the water seal.

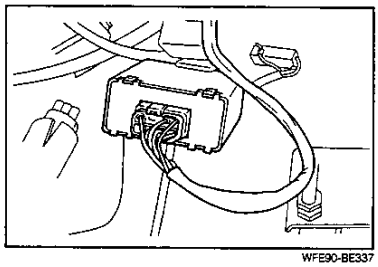
INSPECTION

Ensure that continuity exists between the respective terminals as indicated in the table below.

	1	2	3
Lock	○	○	
Unlock	○		○

15-3. DOOR LOCK CONTROL RELAY




WFE90-BE337

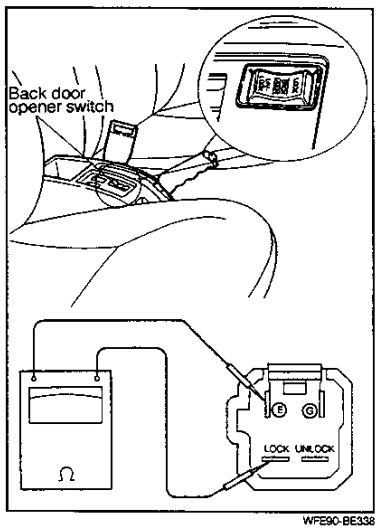
INSPECTION

1. Fabricate a test circuit as indicated in the right figure.
2. Set the circuit tester to the voltmeter range.
3. When the terminal ② is connected to the negative (–) terminal of the battery, ensure that the battery voltage is momentarily applied across the terminals ④ and ⑤.
4. When the terminal ③ is connected to the negative (–) terminal of the battery, ensure that the battery voltage is momentarily applied across the terminals ④ and ⑤. However, the polarity of the voltage at this time should be opposite to that under the step ③ above. page 80

16. BACK DOOR OPENER

16-1. BACK DOOR OPENER SWITCH

The back door opener switch is located at the rear console box.



WFE90-BE338

INSPECTION

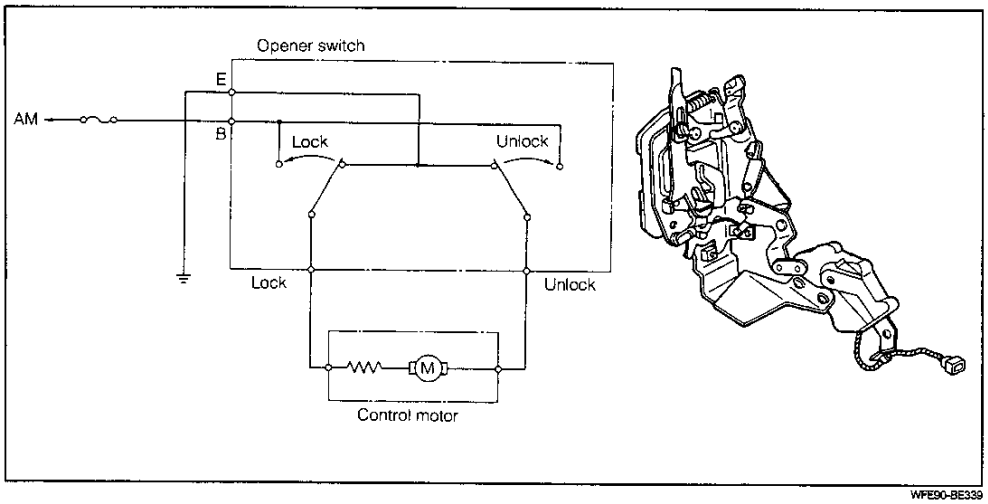
Remove the back door opener switch. Ensure that continuity exists between the respective terminals as indicated in the continuity table below.

Continuity table

○—○ Continuity exists.

Switch \ Terminal	B	E	LOCK	UNLOCK
LOCK	○		○	
		○		○
OFF		○	○	○
UNLOCK	○			○
		○	○	

CONTROL MOTOR CIRCUIT DIAGRAM



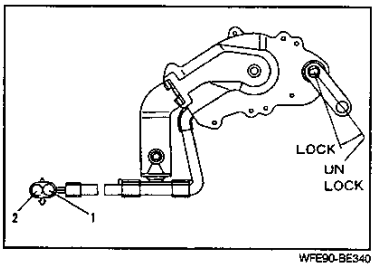
WFE90-BE339

INSPECTION

Solenoid assembly

Apply a voltage of 12V across the following two terminals. Ensure that the motor operates in accordance with the table below.

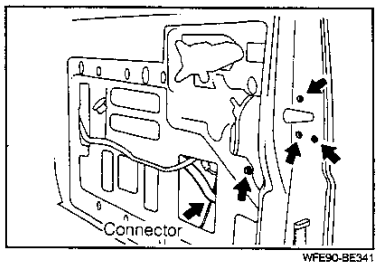
Operation direction \ Terminal	①	②
UNLOCK	⊕	⊖
LOCK	⊖	⊕



WFE90-BE340

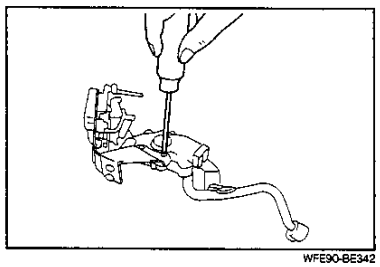
REMOVAL

1. Remove the rear window assembly.
2. Remove the back door trim and service hole cover.
   Disconnect the connector.
   Remove the assembly by removing the bolt and three screws.



WFE90-BE341

3. Detach the control motor and back door lock by removing the two screws.



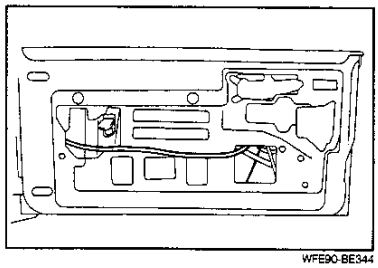
WFE90-BE342

INSTALLATION

1. Install the control motor assembly.
   (1) Attach the control motor and back door lock using two screws.

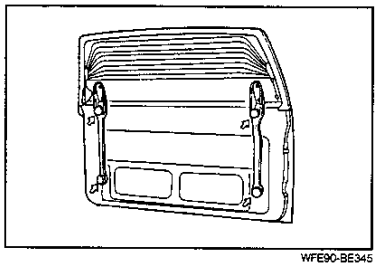
WFE90-BE343

   (2) Install the back door opener assembly to the back door using the bolt and three screws.
   (3) Connect the connecter.



WFE90-BE344

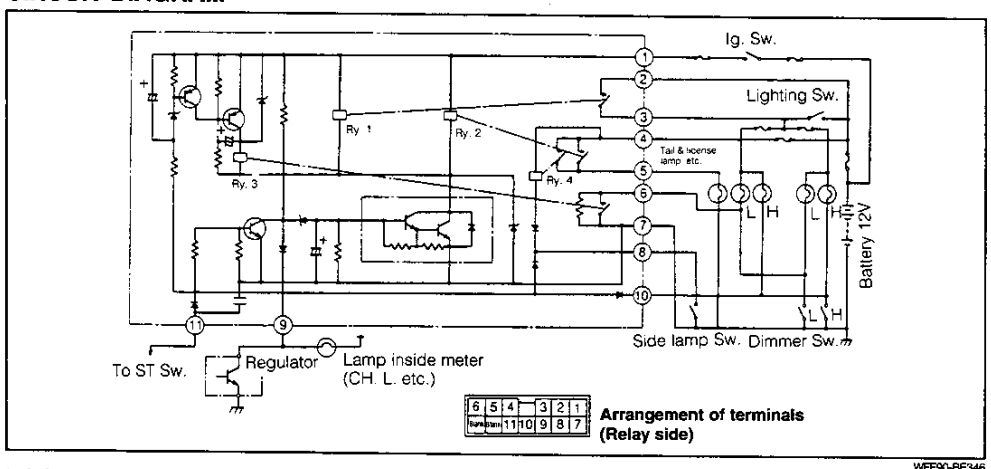
2. Install the service hole cover and back door trim.
3. Install the rear window assembly.



WFE90-BE345

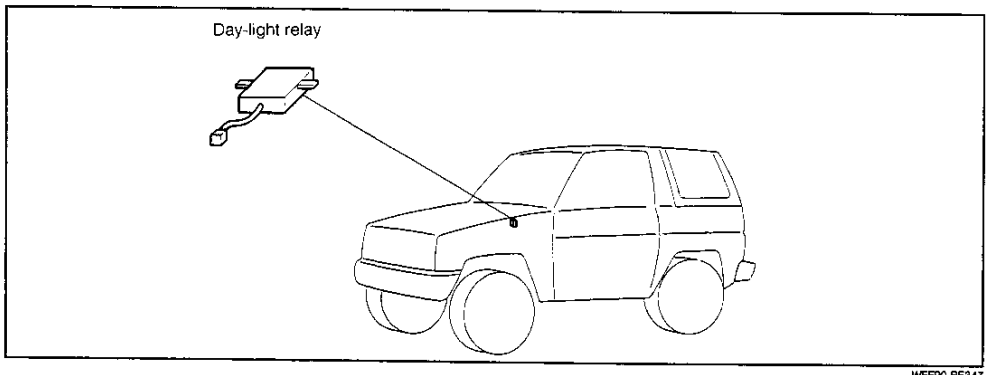
17. DAY-LIGHT RELAY

CIRCUIT DIAGRAM



WFE90-BE346

LOCATION OF DAY-LIGHT RELAY



WFE90-BE347

OPERATION CHECK

While the engine is rotating, ensure that the day-light goes on under the conditions given below.

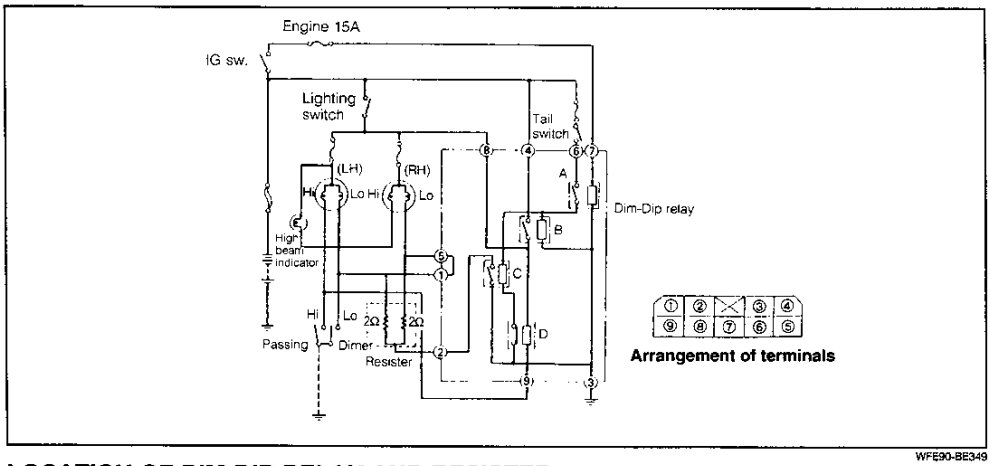
○ ... Goes on
× ... Goes off.

Engine	Ignition switch	Side lamp switch	Lighting switch	Dimmer switch	Tail & license lamp	Headlamp	
						Lo	Hi
STOP	ON	Normal glowing mode					
	OFF						
RUN	ON	OFF	OFF	OFF	○	○	×
	ON	ON	OFF	OFF	○	×	×
	ON	ON	ON	Lo	○	○	×
	ON	ON	ON	Hi	○	×	○
	ON	ON	Passing	Passing	○	×	○

WFE90-BE348

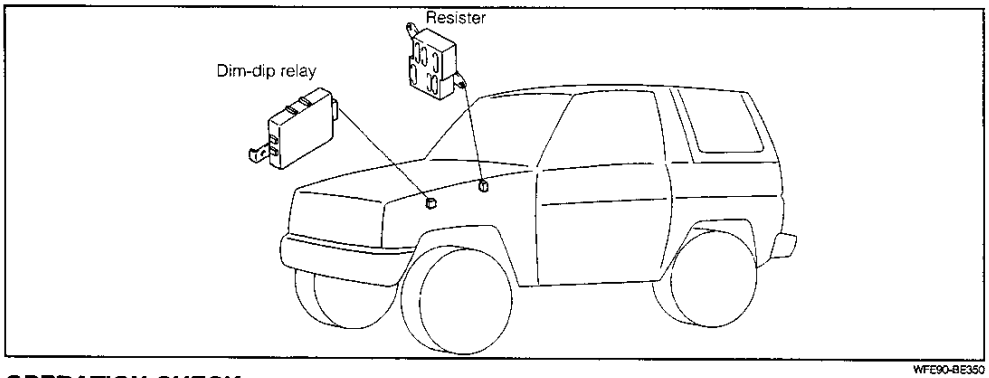
18. DIM-DIP LAMP

CIRCUIT DIAGRAM



WFE90-BE349

LOCATION OF DIM-DIP RELAY AND RESISTER



WFE90-BE350

OPERATION CHECK

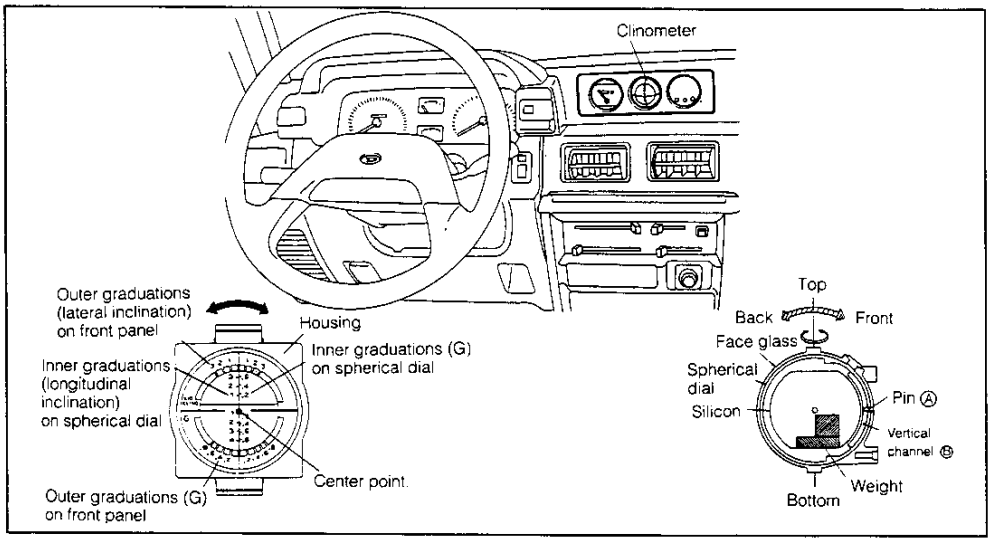
Under the conditions given below, ensure that the luminous intensity of the dim-dip lamp is reduced 10% compared with the normal operation.

Switch condition				Headlamp condition	Remarks
Ignition switch	Tail switch	Lighting switch L	Lighting switch H		
OFF	OFF	OFF	OFF	OFF	
	ON	OFF	OFF	OFF	Tail lamp only goes on.
	ON	ON	OFF	Lo	
	ON	OFF	ON	Hi	
	OFF	OFF	ON	Hi	Passing
ON	OFF	OFF	OFF	OFF	
	ON	OFF	OFF	Dim-dip	
	ON	ON	OFF	Lo	
	ON	OFF	ON	Hi	
	OFF	OFF	ON	Hi	Passing

WFE90-BE351

20. INCLINOMETER

The inclinometer indicates any inclination angle of the vehicle in a fore-and aft direction or in a right-and left direction as well as an acceleration being applied to the vehicle.



WFE90-BE352

Specifications

Item		Specification
Operative method		Gravity method by weight
Indications	Front-back	40 degrees max
	Right-left	30 degrees max
Illumination		12V, 1.4W bulb

WFE90-BE353

Construction

The inclinometer consists of an outer casing which inclines in the same way as with the vehicle inclination, a front panel scale plate, a front glass (fixed to the outer casing) and a spherical dial which maintains the horizontal state at all times.

The inclinometer has a pin Ⓐ which protrudes at the rear/inner part of the front glass. Also, a vertical groove Ⓑ is provided at the back side of the spherical dial.

The provision of this pin Ⓐ and vertical groove Ⓑ prevents any rotation of the inclinometer ( ) around an axis in an up-and-down direction. However, this construction makes it possible for the inclinometer to turn in a fore-and-aft direction ( ) as well as in a right-and left direction ( ).

A weight is fixed at the inside of the spherical dial. This weight indicates always the direction of gravity (lower side).

Furthermore, silicon oil is filled between the spherical dial and the front glass in order that the spherical dial may slide smoothly.

WFE90-BE354

Operation

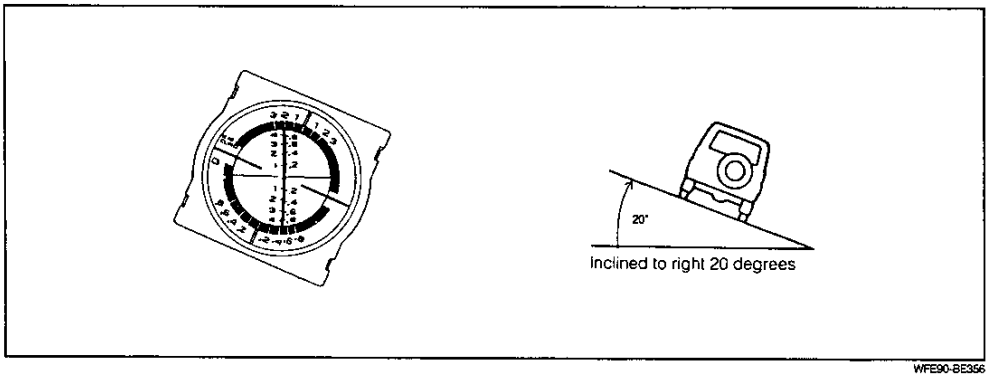
This weight indicates always the direction of gravity regardless of the vehicle posture. Thus, the inclinometer indicates the vehicle posture in a unit of degree. While the vehicle is running, the meter indicates the acceleration (G).

WFE90-BE355

Example of indication

1. Inclination condition when vehicle is running at a constant speed or stopped:
   - Case where vehicle is inclined in right-&-left direction (inclined 20 degrees to left):

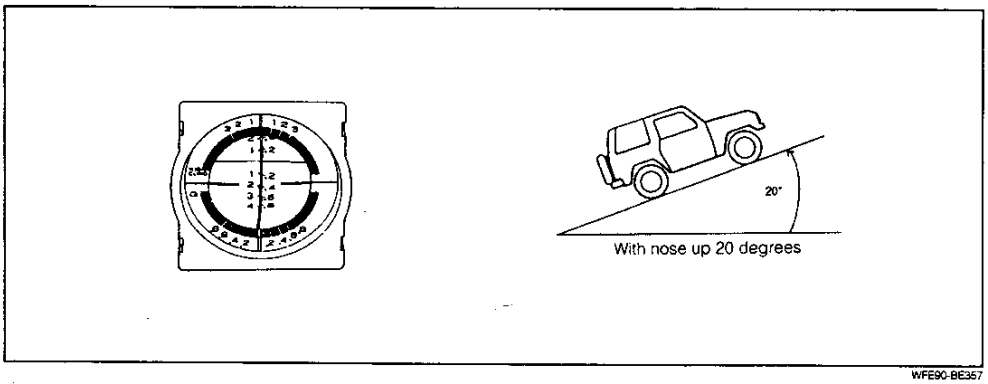
     The front panel dial is inclined in the same inclination of the vehicle. However, the spherical dial retains its horizontal state. Hence, the vertical center line of the spherical dial indicates the inclination angle in a right-and-left direction.



WFE90-BE356

   - Case where vehicle is inclined in fore-&-aft direction (with nose upward 20 degrees):

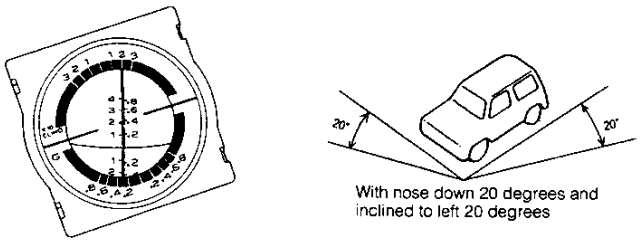
     The front glass is inclined in the same inclination of the vehicle. However, the spherical dial retains its horizontal state. Hence, the the intersection of the center point of the front glass with the spherical dial indicates the inclination angle in a fore-and-aft direction.



WFE90-BE357

- Case where vehicle is inclined in fore&-aft direction as well as in right-&-left direction (with nose down 20 degrees and inclined to left 20 degrees):

  The inclination angle in a fore-and-aft direction as well as in a right-and-left direction is indicated by means of the spherical dial, front glass and front panel dial.



With nose down 20 degrees and inclined to left 20 degrees

WFE90-BE358

2. When vehicle is under accelerating or decelerating condition:

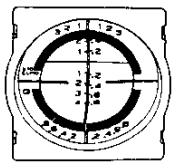
   When an acceleration is applied to the vehicle, the indication of the clinometer changes even while the vehicle is running on a level road.
   The greater this rate of change, the greater the acceleration.

   - Case where vehicle is under acceleration:
     A dipping force is applied to front glass in the same dipping direction of the vehicle. However, the spherical dial tends to turn upward. As a result, the intersection of the center point of the front glass with the spherical dial indicates the acceleration.

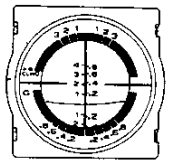
   - Case where vehicle is under deceleration:
     A floating force is applied to front glass in the same floating direction of the vehicle. However, the spherical dial tends to turn downward. As a result, the intersection of the center point of the front glass with the spherical dial indicates the deceleration.

   - Case where vehicle is cornering:
     A centrifugal is applied to the vehicle, thereby changing the indication. The greater this rate of change, the quicker the vehicle is making a turn.

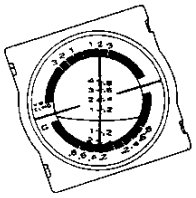
Indication of acceleration



Indication of deceleration



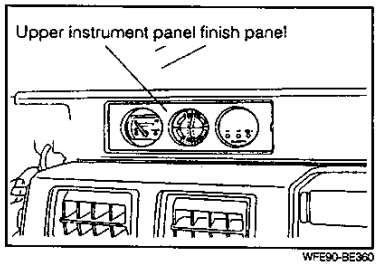
Indication during running while cornering



WFE90-BE359

REMOVAL

1. Remove the upper instrument panel finish panel.
2. Remove the clinometer.



WFE90-BE360

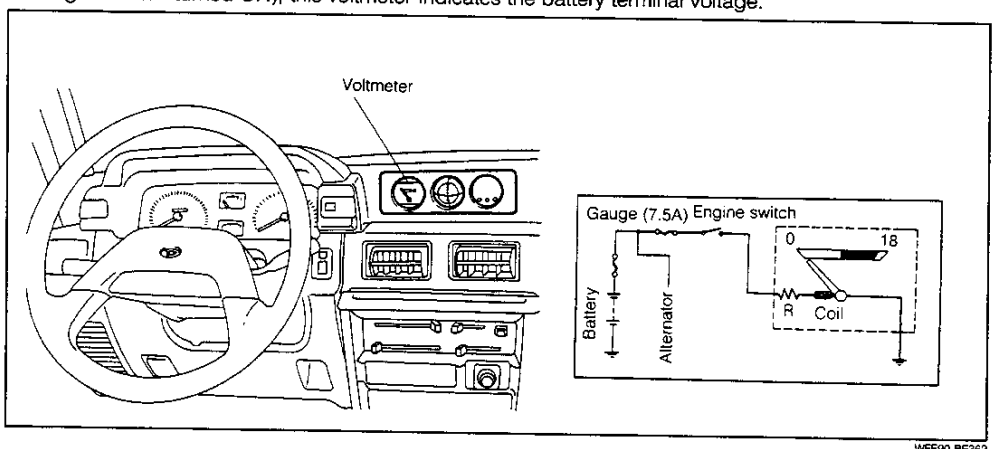
INSTALLATION

1. Install the clinometer to the instrument panel.
2. Install the upper instrument panel finish panel.

WFE90-BE361

21. VOLTMETER

While the engine is running, the voltmeter indicates the charging voltage. When the engine is stopped (with the engine switch turned ON), this voltmeter indicates the battery terminal voltage.



WFE90-BE362

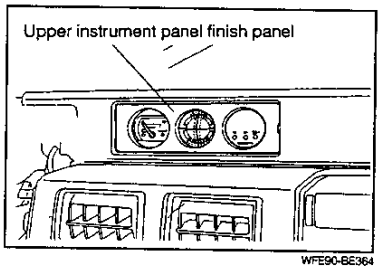
Specification

Type		Bi-metal	
Resistance value	(Ω)	R	460
		Coil	70

WFE90-BE363

REMOVAL

1. Remove the upper instrument panel finish panel.
2. Remove the voltmeter.



WFE90-BE364

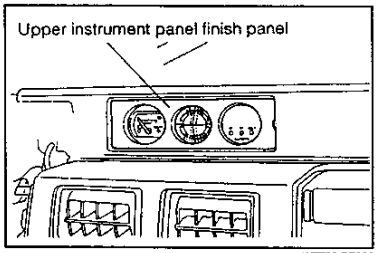
INSTALLATION

1. Install the voltmeter to the instrument panel.
2. Install the instrument panel finish upper panel.

WFE90-BE365

REMOVAL

1. Remove the upper instrument panel finish panel.
2. Remove the clock.



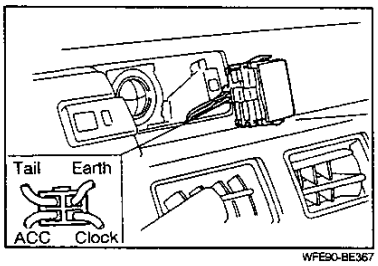
WFE90-BE366

INSPECTION

Connect the wire harness at the vehicle side to the clock. Perform the following checks given below.

(1) Ensure that continuity exists between the EARTH terminal and the body ground.

(2) Measure the voltage between each terminal and the body ground.



WFE90-BE367

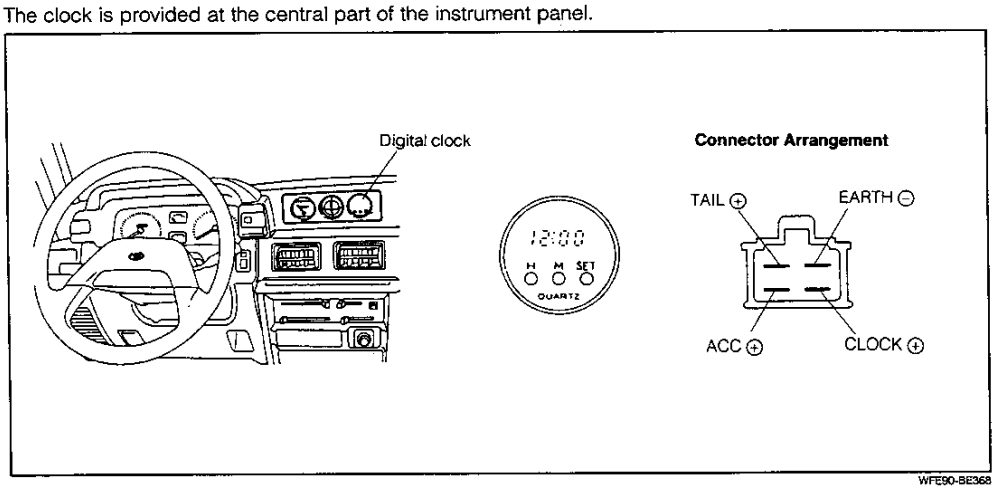
Terminal	Voltage	Remarks
CLOCK	Approx. 12V	At all times
ACC	Approx. 12V	When IG switch is set to ACC:
TAIL	Approx. 12V	When light control switch is turned ON.

INSTALLATION

1. Install the clock to the instrument panel.
2. Install the upper instrument panel finish panel.

22. CLOCK

The clock is provided at the central part of the instrument panel.



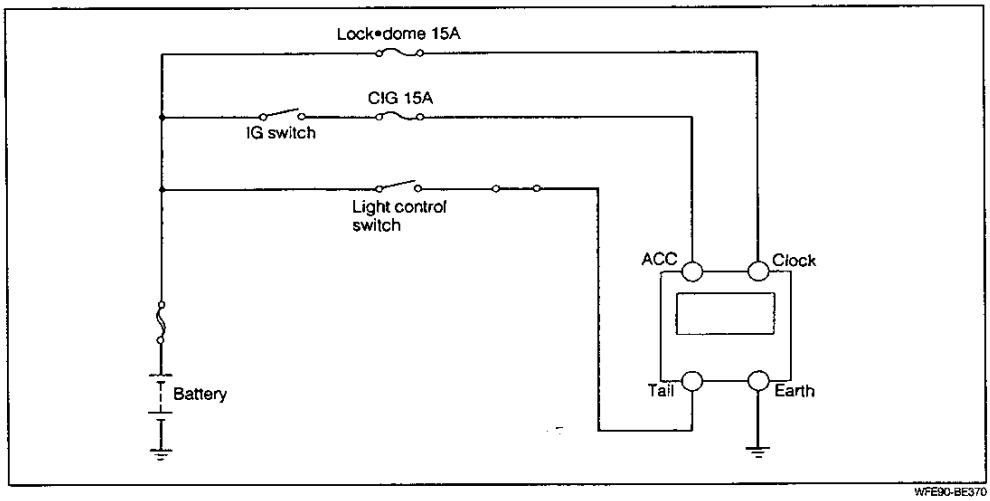
WFE90-BE368

Clock specification

		Specifications
Rating voltage	(V)	12
Accuracy	(second/day)	± 1.5
Consuming current	(mA)	160 (During indication period with glowing) 5 (During indications period without glowing)
Operating range characteristics	(V)	10 - 12

WFE90-BE369

CIRCUIT DIAGRAM



WFE90-BE370