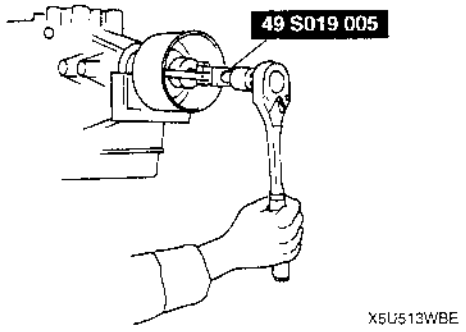
OIL SEAL (TRANSMISSION) REPLACEMENT

X5U513W28

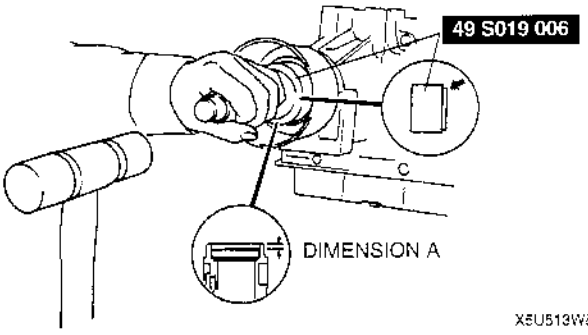
1. Clean the transmission exterior thoroughly by using a steam cleaner or cleaning solvent.
2. Drain the ATF. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT, ATF Level Inspection.)
3. Remove the exhaust pipe. (Refer to 01–15 EXHAUST SYSTEM REMOVAL/INSTALLATION.)
4. Remove the propeller shaft. (Refer to 03–15 PROPELLER SHAFT REMOVAL/INSTALLATION.)
5. Remove the oil seal by using the **SST**.



X5U513WBE

6. Apply ATF to the new oil seal lip.
7. Install the oil seal to the position shown in the figure within dimension A as follows by using the convex part of the **SST**.

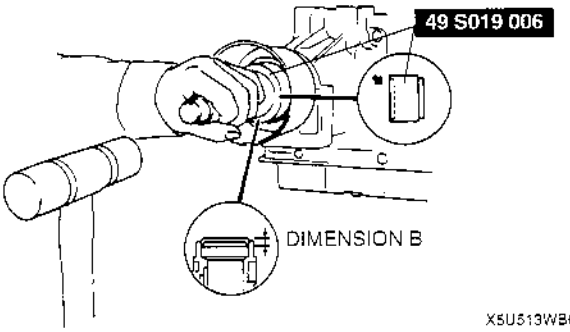
Dimension A
6. 2—6.8 mm {0.25—0.26 in}



X5U513W3F

8. Install the retainer to dimension B position by using the concave part of the **SST**.

Dimension B
0. 7—1.3 mm {0.03—0.05 in}



X5U513WBG

9. Install the propeller shaft. (Refer to 03–15 PROPELLER SHAFT REMOVAL/INSTALLATION.)
10. Install the exhaust pipe. (Refer to 01–15 EXHAUST SYSTEM REMOVAL/INSTALLATION.)
11. Add ATF to the specified level. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT, ATF Level Inspection.)
12. Carry out the line pressure test. (Refer to 05–13 MECHANICAL TEST, Line Pressure Test.)
13. Carry out the road test. (Refer to 05–13 ROAD TEST.)

CONTROL VALVE BODY REMOVAL/INSTALLATION

X5U513W22

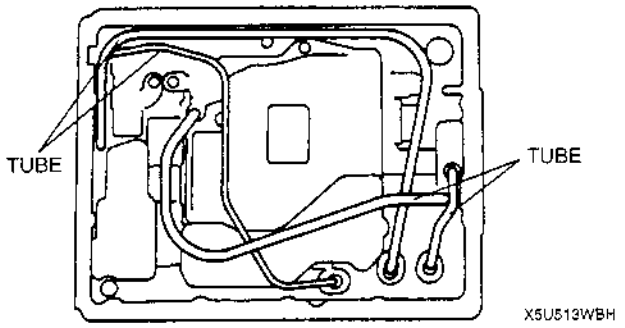
On-Vehicle Removal

1. Clean the transmission exterior thoroughly with a steam cleaner or cleaning solvents.
2. Disconnect the negative battery cable.
3. Drain the ATF. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
4. Remove the oil pan and gasket.

Caution

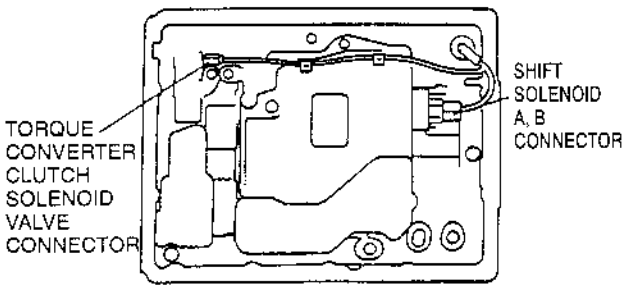
- **To prevent deformation of the tube, remove the tube by pulling both ends up.**

5. Remove the tube.



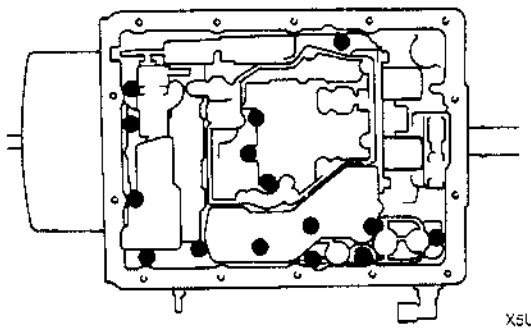
X5U513WBH

6. Disconnect shift solenoid A, B, and torque converter clutch solenoid valve connector.
7. Remove the oil strainer.



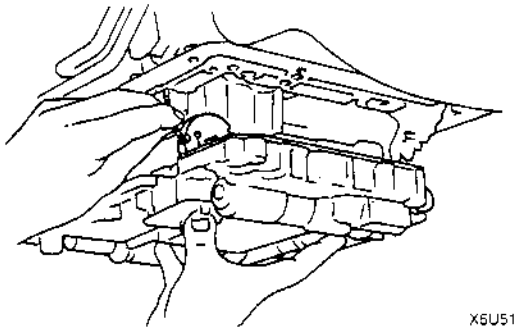
X5U513WBJ

8. Remove the control valve body installation bolts.



X5U513WA9

9. Remove the nipple of the throttle cable from the throttle cam.

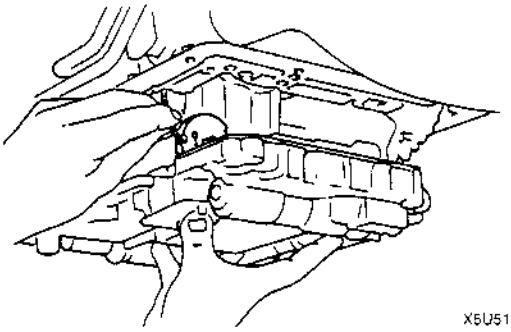


X5U513WBL

10. Remove the control valve body.
11. Remove the accumulator spring.

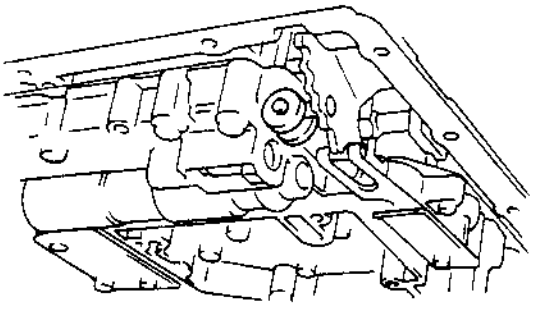
On-Vehicle Installation

1. Set the accumulator springs into the control valve body as shown.
2. Install the nipple of the throttle cable to the throttle cam.



X5U513WBN

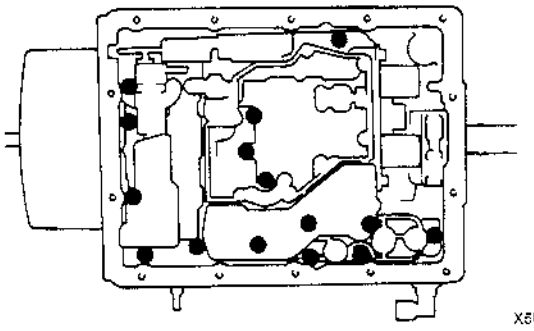
3. Verify that the manual valve and manual shaft are assembled correctly.



X5U513WBP

4. Install the control valve body.

Tightening torque
7.9—11.7 N·m
{80—120 kgf·cm, 70—104 in·lbf}

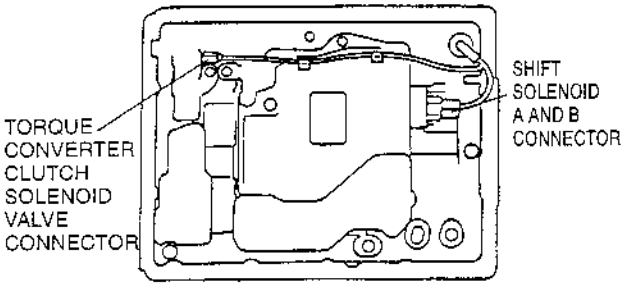


X5U513WA9

5. Install the oil strainer.

Tightening torque
5.0—5.8 N·m {50—60 kgf·cm, 44—52 in·lbf}

6. Connect shift solenoid A, B, and torque converter clutch solenoid valve connector.



X5U513WBR

7. Install the tube.
8. Install the new gasket and oil pan.

Tightening torque
4.0—4.9 N·m {40—50 kgf·cm, 35—43 in·lbf}

9. Add ATF to the specified level. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
10. Carry out the mechanical test. (Refer to 05–13 MECHANICAL SYSTEM TEST.)
11. Carry out the road test. (Refer to 05–13 ROAD TEST.)

TORQUE CONVERTER REMOVAL/INSTALLATION

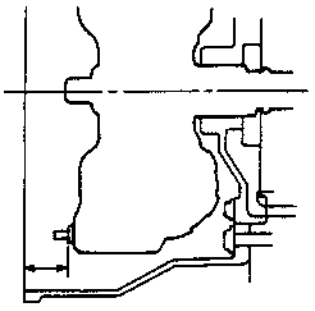
X5U513W23

1. Remove the transmission. (Refer to 05–13 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)

Caution
- **The oil seal is easily damaged by the sharp edges of the torque converter splines. Do not let the splines contact the oil seal.**

2. Remove the torque converter, and immediately turn it so that the hole faces upward. This will help to keep any remaining fluid from spilling.
3. Drain any ATF remaining in the torque converter.
4. Pour in solvent (approx. 0.50 L {0.53 Us qt, 0.44 Imp qt}).
5. Shake the torque converter to clean the inside. Pour out the solvent.
6. Install the torque converter in the converter housing while rotating it to align the splines.
7. To ensure that the torque converter is installed accurately, measure distance A between the end of the torque converter and the end of the converter housing.

Distance A
22.7 mm {0.894 in}



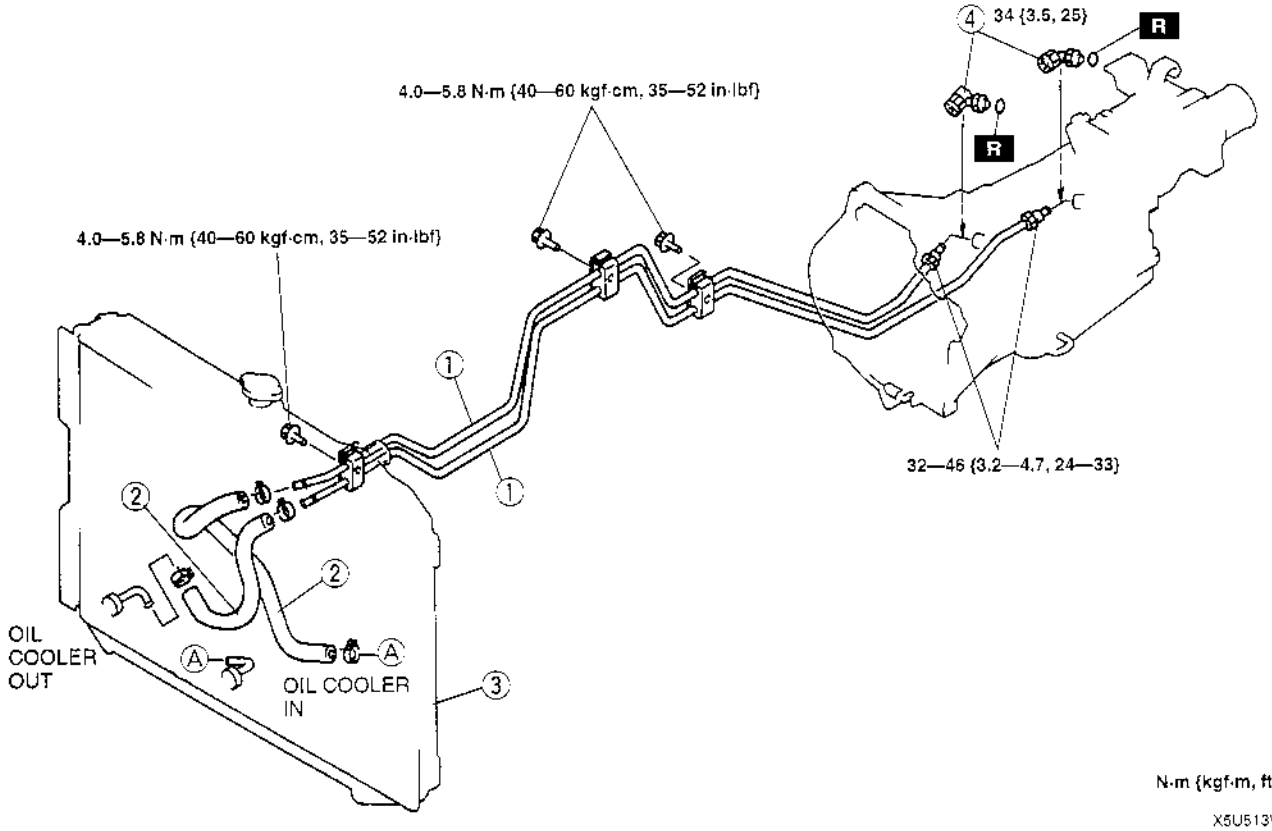
X5U513WBS

8. Install the transmission. (Refer to 05–13 AUTOMATIC TRANSMISSION REMOVAL/INSTALLATION.)

OIL COOLER REMOVAL/INSTALLATION

X5U5*3W25

1. Disconnect the negative battery cable.
2. Drain the ATF. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.
5. Add ATF to the specified level. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) REPLACEMENT.)
6. Connect the negative battery cable.
7. Inspect for oil leakage from the oil pipes and oil hoses.
8. Inspect the ATF level and condition. (Refer to 05–13 AUTOMATIC TRANSMISSION FLUID (ATF) INSPECTION, ATF Level Inspection.)
9. Carry out the mechanical system test. (Refer to 05–13 MECHANICAL SYSTEM TEST.)
10. Carry out the road test. (Refer to 05–13 ROAD TEST.)



X5U513WBU

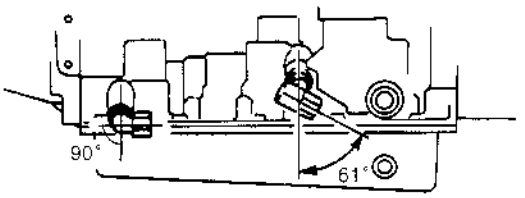
1	Oil pipe
2	Oil hose

3	Radiator (in tank oil cooler) ☞ Installation Note
4	Elbow ☞ Installation Note

Elbow Installation Note

1. Apply ATF to the O-ring, then install it to the elbow.
2. Install the elbows in the angle shown in the figure, then tighten the nut.

Tightening torque
34 N·m {3.5 kgf·m, 25 ft·lbf}



X5U5*3WBV

Radiator (In Tank Oil Cooler) Installation Note

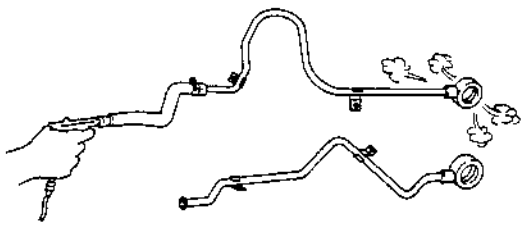
1. The automatic transmission oil cooler flushing must be performed whenever a transmission is removed for service to remove existing fluid which may be contaminated to prevent contamination of new fluid. The flushing must be performed after installation of the overhauled or replaced transmission.
2. Follow the instruction in the manufacturers publication for flushing operation.

Oil Hose Installation Note

Caution

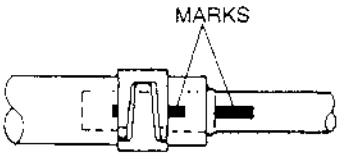
- **In order to prevent ATF leakage, replace the hose when any damage is found inside or outside of the hose, especially on areas contacting with pipes.**

1. Apply compressed air to cooler-side opening, and blow any remaining dust and foreign material from the cooler pipes. Compressed air should be applied for no less than one minute.



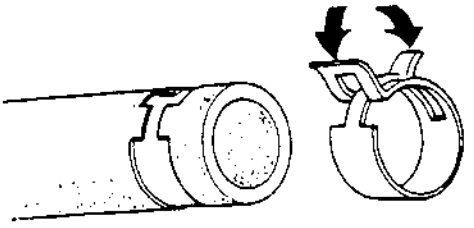
X5U513WBW

2. Align the marks, and slide the oil cooler hose onto the oil cooler pipe until it is fully seated as shown.



X5U513WBX

3. Install the hose clamp onto the hose. If reusing the hose, install the new hose clamp exactly onto the mark left by the previous hose clamp.

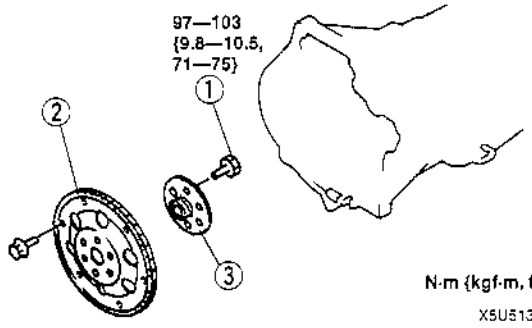


X5U513WBY

4. Verify that the hose clamp does not interfere with any other parts.

DRIVE PLATE REMOVAL/INSTALLATION

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.



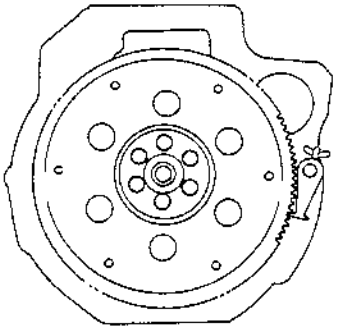
X5U513WBZ

1	Drive plate mounting bolts ☞ Removal Note ☞ Installation Note
2	Drive plate
3	Adapter

X5U513W26

Drive Plate Mounting Bolts Removal Note

1. Set the **SST** against the drive plate.

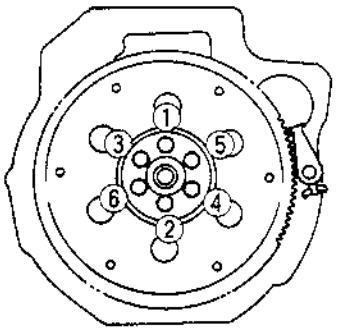


X5U513WC0

2. Remove the bolts and the drive plate.

Drive Plate Mounting Bolts Installation Note

1. Set the **SST** against the drive plate.



X5U513WC1

2. Tighten the drive plate mounting bolts gradually in the order shown.

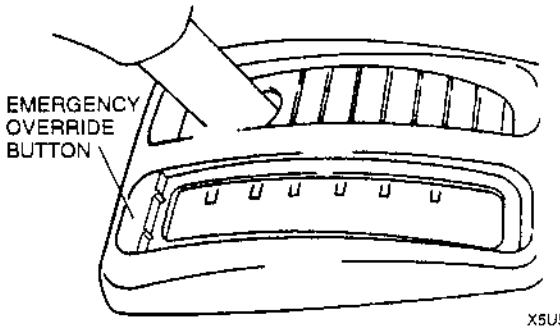
Tightening torque
97—103 N·m {9.8—10.5 kgf·m, 71—75 ft·lbf}

05–14 AUTOMATIC TRANSMISSION SHIFT MECHANISM

EMERGENCY OVERRIDE BUTTON INSPECTION

1. Verify that the selector lever is locked in P position.
2. Remove the indicator panel cover by using a screwdriver.
3. Insert the screwdriver into the emergency override hole, push down, and verify that the selector lever can be shifted from P position.
4. If not as specified, inspect or replace the shift-lock actuator.

X5U514W01

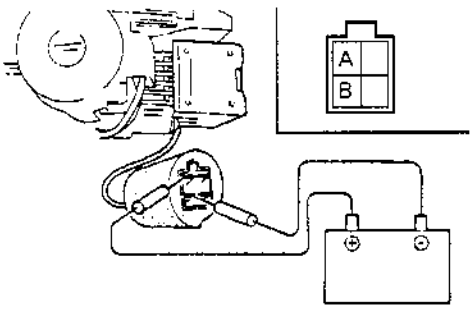


X5U514WA0

KEY INTERLOCK SOLENOID INSPECTION

X5U514W02

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Disconnect the key interlock solenoid connector.
4. Insert the ignition key in the key cylinder.
5. Apply battery positive voltage between terminals B and C, and verify that the solenoid operates.
6. If not as specified, replace the key interlock solenoid.
7. Connect the negative battery cable.



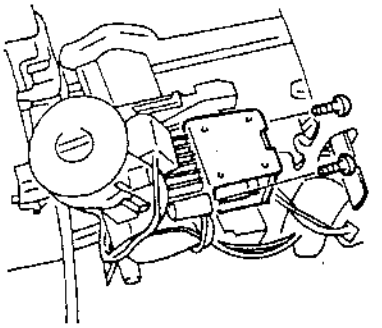
X5U514WA1

KEY INTERLOCK SOLENOID REMOVAL/INSTALLATION

X5U514W03

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Disconnect the key interlock solenoid connector.
4. Remove the screws and the key interlock solenoid.
5. Install the key interlock solenoid and tighten the screws.

Tightening torque
6.9—12.7 N·m
{70—130 kgf·cm, 61—112 in·lbf}



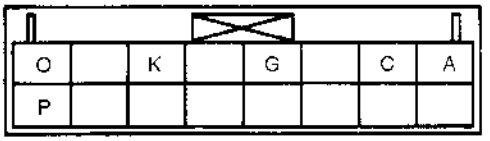
U5U51403

6. Verify that the key interlock solenoid operates.
7. Connect the key interlock solenoid connector.
8. Install the column cover.
9. Connect the negative battery cable.

KEY INTERLOCK UNIT INSPECTION

X5U514W04

1. Remove the column cover.
2. Turn the ignition switch to ON, and inspect terminal voltages, referring to the chart below.



X5U514WA2

Terminal	(–) terminal connected to	Condition	Correct measurement value
A	G	For less than 2 seconds after P position switch is on, and ignition switch is turned to ACC or on.	0
		Except above conditions	B+
C	G	P position switch is on, and ignition switch is turned to ACC or ON.	0
		Except above condition	B+
G	Ground	Constant	0
K	G	P position switch is on.	0
		P position switch is off.	B+
O	G	Ignition switch is at ON.	B+
		Ignition switch is off.	0
P	G	Ignition switch is at ACC.	B+
		Ignition switch is at position other than ACC.	0

3. If not as specified, repair the wiring harness and/or key interlock unit.

KEY INTERLOCK UNIT REMOVAL/INSTALLATION

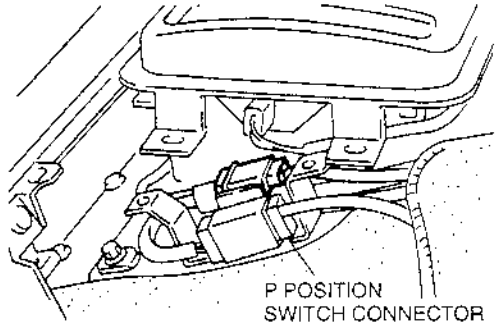
X5U514W05

1. Disconnect the negative battery cable.
2. Disconnect the key interlock unit connector.
3. Remove the key interlock unit.
4. Install the new key interlock unit.
5. Connect the key interlock unit connector.
6. Connect the negative battery cable.

P POSITION SWITCH INSPECTION

X5U514W06

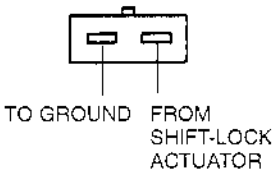
1. Disconnect the negative battery cable.
2. Remove the rear console.
3. Remove the screws and lift up the indicator panel.
4. Disconnect the P position switch connector.



X5U514WA3

5. Inspect for continuity between the terminals.

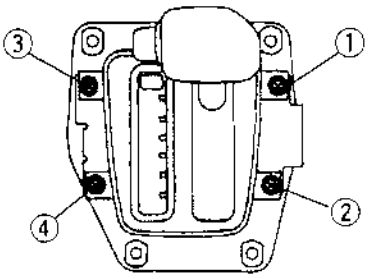
Position/ Range	Selector lever release button	Continuity
P	Released	Yes
	Depressed	No
R, N, D, 2, 1	—	No



U5U514W06

6. If not as specified, replace the P position switch.
7. Connect the P position switch connector.
8. Adjust the indicator panel. Install the screws in the order shown in the figure.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}



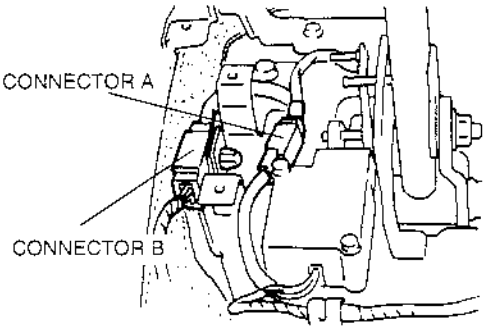
X5U514WA4

9. Install the rear console.
10. Connect the negative battery cable.

SHIFT-LOCK ACTUATOR INSPECTION

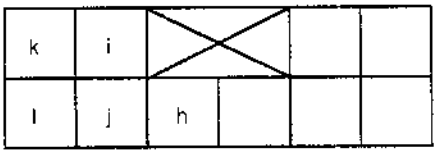
X5U514W07

1. Remove the rear console.
2. Remove the selector lever knob and indicator panel screws.
3. Lift up slightly the selector lever, selector sleeve, and indicator panel, and disconnect the O/D OFF switch connector.
4. Shift the selector lever to P position.



X5U514WA5

5. Turn the ignition switch to ON, and inspect for terminal voltages and continuity, referring to the chart below. Disconnect the shift-lock actuator connector to inspect for continuity between terminal C (harness side) and ground.

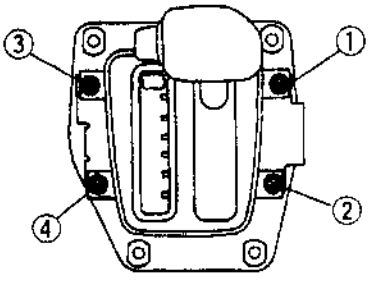


X5U514WAE

Terminal	(–) terminal connected to	Condition	Correct measurement value
h	l	Ignition switch is off	B+
i	l	Ignition switch is at ON	B+
j	l	Brake pedal is released → depressed	0 V → B+
k	l	P position, selector lever release button is depressed	0 V
l (harness side)	Body	Constant	0 Ω

6. If not as specified, repair the wiring harness and/or shift-lock actuator.
7. Grasp the O/D OFF switch wiring harness and pull it while pushing the selector lever knob down fully onto the selector lever.
8. Connect the O/D OFF switch connector.
9. Adjust the indicator panel. Install the screws in the order shown in the figure.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}



X5U514WA6

10. Apply locking compound to the selector lever knob screw threads after the threads have been cleaned. Tighten the screws.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}

11. Install the rear console.
12. Verify correct operation of the shift-lock system.

SHIFT-LOCK ACTUATOR REMOVAL/INSTALLATION

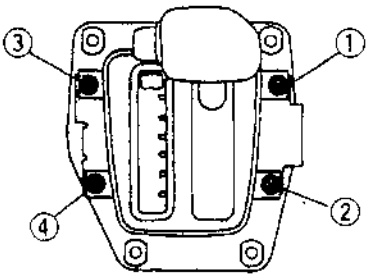
X5U514W08

1. Disconnect the negative battery cable.
2. Remove the rear console.
3. Remove the indicator screws and lift up the indicator panel.
4. Disconnect the shift-lock actuator connector.
5. Disconnect the P position switch connector.
6. Remove the shift-lock actuator.
7. Install a shift-lock actuator.

Tightening torque
0.7—1.2 N·m {7—13 kgf·cm, 6.1—11.2 in·lbf}

8. Connect the P position switch connector.
9. Connect the shift-lock actuator connector.
10. Install and adjust the indicator panel.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}



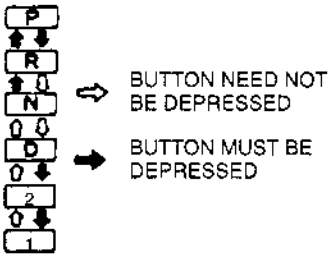
X5U514WA7

11. Install the rear console.
12. Verify correct operation of the shift-lock system.
13. Connect the negative battery cable.

SELECTOR LEVER INSPECTION

X5U514W09

1. Verify that the selector lever can be shifted only as shown in the figure.
2. Make sure there is a click at each range when shifted from P position ⇔ 1 range.
3. Verify that the positions of the selector lever and the indicator are aligned.
4. Verify that the selector lever moves smoothly.
5. If not correct, adjust or repair the selector lever.



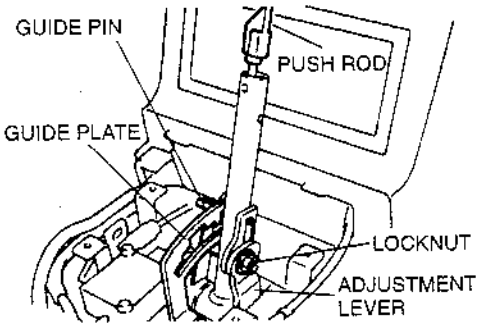
X5U514WA8

SELECTOR LEVER ADJUSTMENT

X5U514W10

Lever Position Adjustment

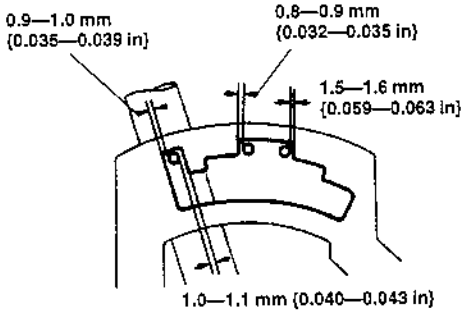
1. Remove the rear console, selector lever knob, selector sleeve, and indicator panel.
2. Loosen the locknut.
3. Shift the transmission to P position by pushing the adjustment lever forward.



U5U51413

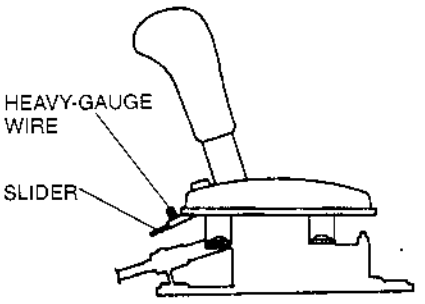
4. Adjust the lever so that the clearance between the guide plate and the guide pin in P position with the push rod lightly depressed is as shown.
5. Tighten the locknut.

Tightening torque
19—28 N·m {2.0—2.9 kgf·m, 15—20 ft·lbf}



X5U51414

6. Move the selector lever to N position and D range and verify that there is the same clearance between the guide plate and guide pin.



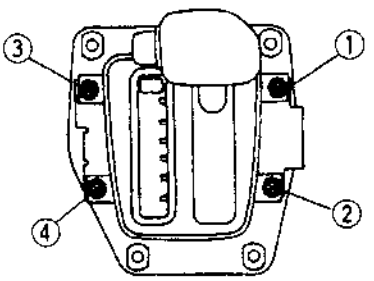
U5U51415

7. If not as specified, readjust the lever.
8. Install the indicator panel, selector sleeve, selector lever knob, and rear console in the reverse order of removal.

Indicator Panel Adjustment

1. Shift the selector lever to P position.
2. Loosen the indicator screws.
3. Align the alignment hole in the slider with the hole in the indicator panel. Install suitable heavy-gauge wire to hole the slider.
4. Tighten the indicator mounting screws in the order shown in the figure.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}



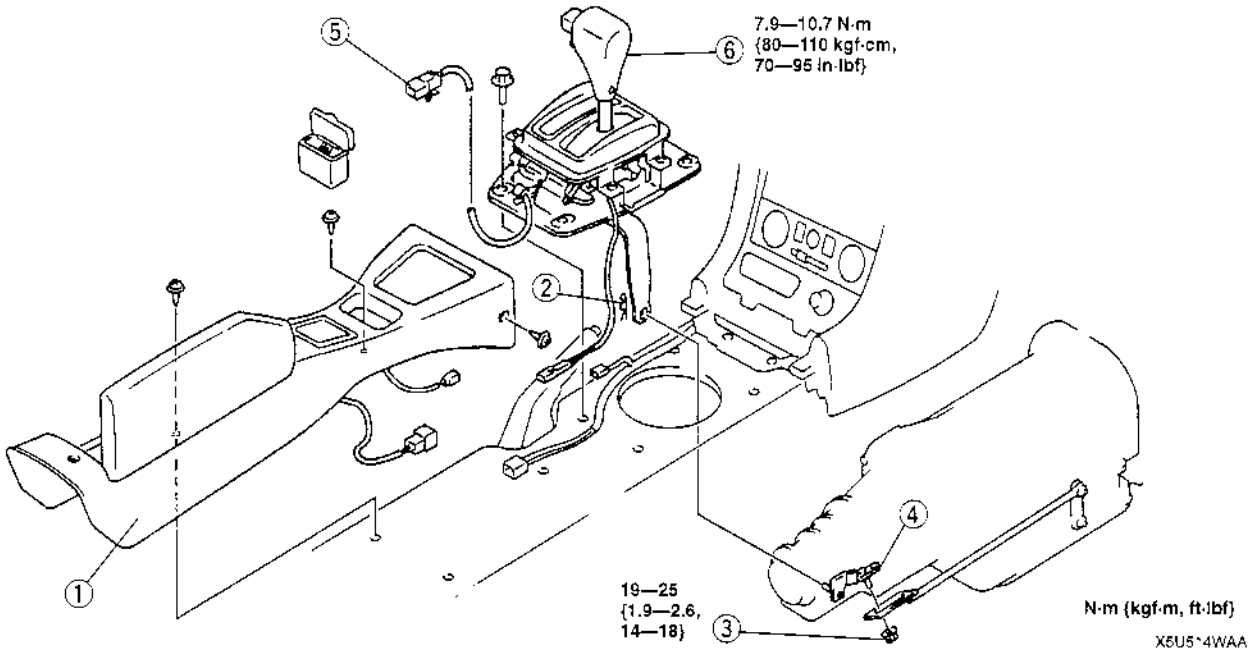
X5U514WA9

5. Remove the wire from the slider.
6. Verify that the selector lever properly aligns with the indicator in each range.
7. Verify correct operation of the emergency override button.

SELECTOR LEVER REMOVAL/INSTALLATION

X5U514W11

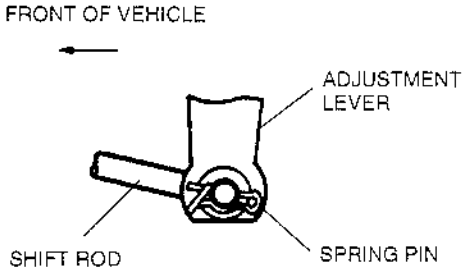
1. Disconnect the negative battery cable.
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.



1	Rear console
2	Spring pin ☞ Installation Note
3	Nut
4	Bracket
5	Shift-lock actuator connector
6	Selector lever

Spring Pin Installation Note

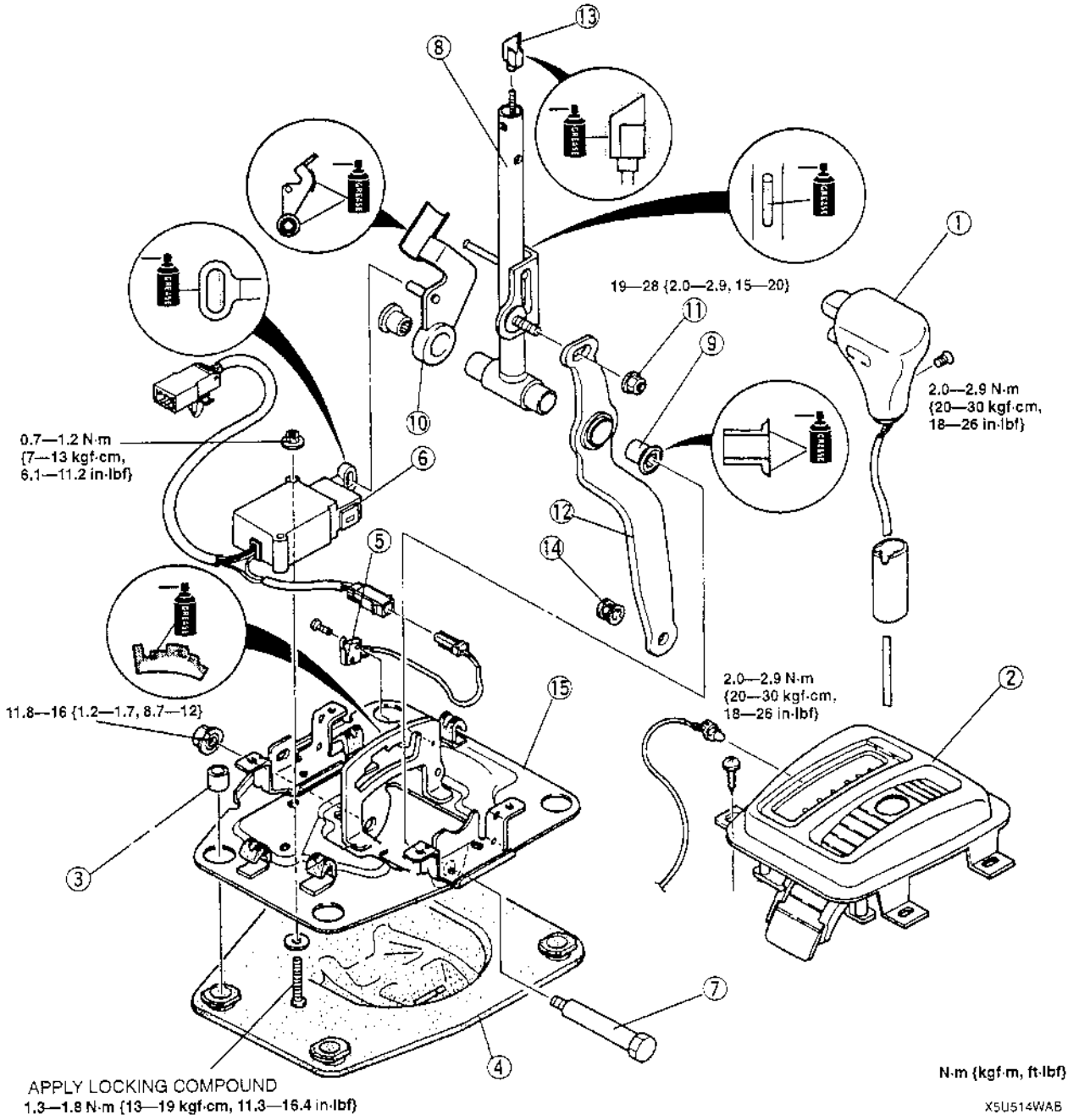
1. On level ground, jack up the vehicle and support it evenly on safety stands.
2. Install a new spring pin forward as shown in the figure.



SELECTOR LEVER DISASSEMBLY/ASSEMBLY

X5U514W12

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



X5U514WAB

1	Selector lever knob
2	Indicator panel ☞ Assembly Note
3	Spacer
4	Boot
5	P position switch
6	Shift-lock actuator
7	Spindle
8	Push rod component

9	Bushing
10	Lock lever
11	Locknut
12	Adjustment lever
13	Cam ☞ Assembly Note
14	Bushing
15	Selector lever bracket

Cam Assembly Note

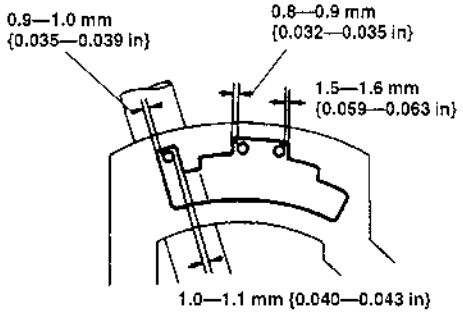
1. Temporarily install the cam to the push rod.

U5U51421

Note

- The clearance becomes smaller by turning the cam clockwise.

2. Adjust the clearance between the guide plate and the guide pin by turning the cam.

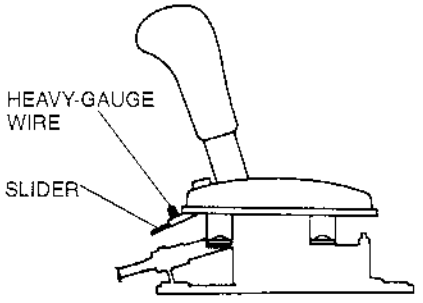


U5U51422

3. Install the selector lever knob and verify that the clearance is as specified.
4. If necessary, repeat from step 2.

Indicator Panel Assembly Note

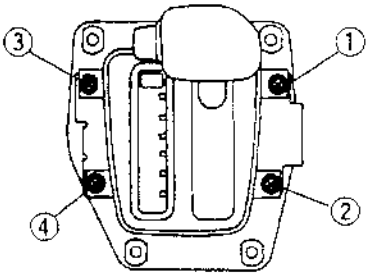
1. Set the selector sleeve over the selector lever.
2. Grasp the O/D OFF switch wiring harness and pull it while pushing the selector lever knob down fully on the selector lever.
3. Connector the O/D OFF switch connector.
4. Shift the selector lever to P position.
5. Align the alignment hole in the slider with the hole in the indicator panel. Install suitable heavy-gauge wire to hold the slider.



X5U514WAD

6. Tighten the indicator mounting screws in the order shown in the figure.

Tightening torque
2.0—2.9 N·m {20—30 kgf·cm, 18—26 in·lbf}



X5U514WAC

7. Remove the wire from the slider.
8. Verify that the selector lever properly aligns with the indicator in each range.
9. Verify correct operation of the emergency override button.

05–50 TECHNICAL DATA

05 TRANSMISSION/TRANSAXLE

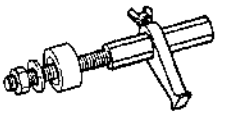
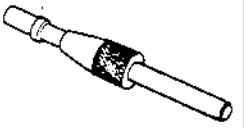
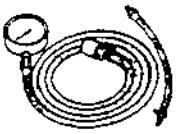
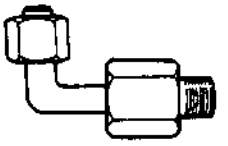
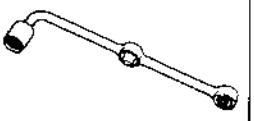
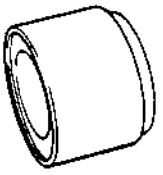
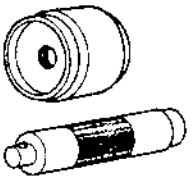
U5U550AA

Item				Engine
				BP
CLUTCH				
Clutch pedal	Height (with carpet)		(mm {in})	175—180 {6.89—7.09}
	Free play		(mm {in})	0.6—3.1 {0.02—0.12}
	Total free play		(mm {in})	5—13 {0.20—0.51}
	Disengagement height (with carpet)		(mm {in})	68 {2.68}
Clutch disc	Minimum thickness		(mm {in})	0.3 {0.012}
	Maximum runout		(mm {in})	0.7 {0.028}
Flywheel	Maximum runout		(mm {in})	0.2 {0.008}
Clutch fluid				SAE J1703, FMVSS116 DOT-3
MANUAL TRANSMISSION				
Transmission type				**M15M-D**
Oil	Grade			API Service GL-4 or GL-5
	Viscosity	All-season		SAE 75W–90
		Above 10 °C {50 °F}		SAE 80W–90
	Capacity		(L {US qt, Imp qt})	2.0 {2.1, 1.8}
AUTOMATIC TRANSMISSION				
Transmission type				**SB4A-EL**
Automatic transmission fluid (ATF)	Type			M-III or equivalent (e.g. Dexron®II)
	Capacity		(L {US qt, Imp qt})	6.7 {7.1, 5.9}
Line pressure (kPa {kgf/cm^2, psi})	D, 2, 1	Idle		370—400 {3.7—4.1, 53—58}
		Stall		980—1110 {9.9—11.4, 141—162}
	R	Idle		510—550 {5.1—5.7, 73—81}
		Stall		1250—1490 {12.7—15.2, 181—216}
Engine stall speed (rpm)	D, 2, 1			2,370—2,740
	R			2,370—2,740
Time lag (sec.)	N–D			0.7
	N–R			1.2
Input/turbine speed sensor (Ω)	ATF temperature [20 °C {68 °F}]			560—680
Output speed sensor (Ω)	ATF temperature [20 °C {68 °F}]			387—473
Solenoid valves (Ω)	Shift solenoid A			11—15
	Shift solenoid B			11—15
	TCC			11—15

05–60 SERVICE TOOLS

05 TRANSMISSION/TRANSAXLE

X5U560W01

49 0259 770B Flare nut wrench  T0259770B	49 E011 1A0 Ring gear brake set  TE0111A0X	49 SE01 310A Clutch disc centering tool  TSE01310A
49 1285 071 Bearing puller  T1285071X	49 0378 400B Oil pressure gauge set  T0378400B	49 HD64 406A Adapter  THD64406A
49 B019 901 Oil pressure gauge  TB019901X	49 0877 435 Wrench  T0877435X	49 S019 005 Oil seal remover  TS019005X
49 S019 006 Oil seal installer  TS019006X	49 B025 0A0 Oil seal installer  TB0250A0X	—

STEERING

06
SECTION

06–10 GENERAL PROCEDURES

PRECAUTION (STEERING)

X5U610W01

Wheels and tires removal/installation

- The removal and installation procedures for the wheels and tires are not mentioned in this section. When a wheel is removed, retighten it to **89—117 N·m {9.0—12.0 kgf·m, 66—86 ft·lbf}**.

Power steering components removal/installation

- If any power steering fluid line has been disconnected anytime during the procedure, add ATF M-III or equivalent (e.g. Dexron®II), bleed the fluid line, and inspect for leakage after the procedure has been completed.

Connectors disconnection/connection

- Obtain the code number and deactivate the audio antitheft system before disconnecting the battery.
- Disconnect the negative battery cable before doing any work that requires handling of connectors. Reconnect the negative battery cable only after the work is completed.

06–11 MANUAL STEERING

STEERING WHEEL AND COLUMN INSPECTION

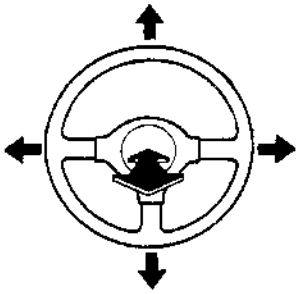
Steering Wheel Play Inspection

- If the play exceeds specification, either the steering joints are worn or the backlash of the steering gear is excessive. With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and verify that the play is within specification.

Play
0—30 mm {0—1.18 in}

Steering Wheel Looseness Inspection

- Move the steering wheel as shown in the figure to inspect for column bearing wear, steering shaft joint play, steering wheel looseness, and column looseness.



X5U611WA9

X5U611W01

Steering Wheel Effort Inspection

1. On level ground, jack up the front of the vehicle and support it on safety stands.
2. Turn the steering wheel fully to the left and right at least 5 times.
3. Move the steering wheel to put the wheels in the straight ahead position.
4. Attach a pull scale to the outermost point of the steering wheel spoke. Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

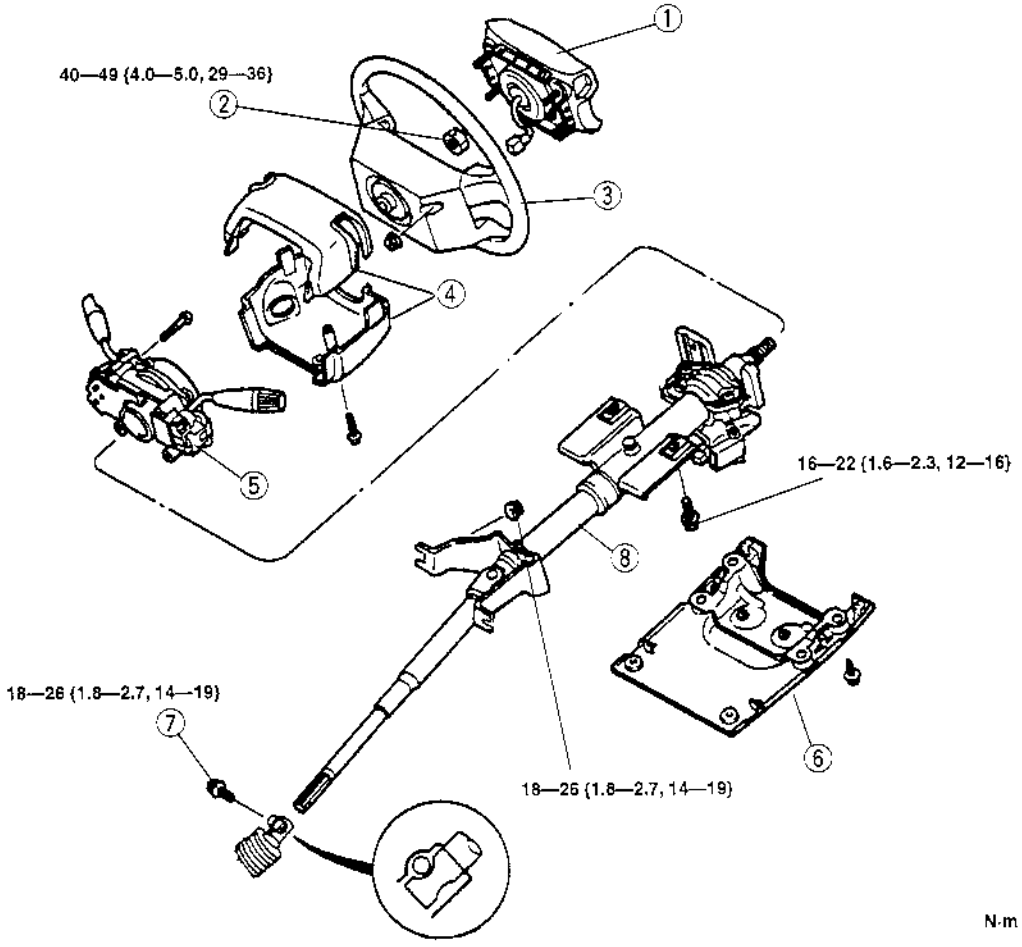
Steering wheel effort
5—29 N {0.5—3.0 kgf, 1.1—6.6 lbf} (during one turn of steering wheel)

5. If not as specified, inspect the following: rotation starting torque of pinion, rotation torque of each ball joint, and steering joints.

STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION

X5U611W02

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. After installation, verify that the horn sounds. If the horn does not sound, remove the air bag module and connect the module connectors.



N·m {kgf·m, ft·lbf}

X5U611WA6

1	Air bag module ☞ 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION
2	Locknut
3	Steering wheel ☞ Removal Note
4	Column cover
5	Combination switch
6	Lower panel
7	Intermediate shaft bolt
8	Steering shaft

Steering Wheel Removal Note

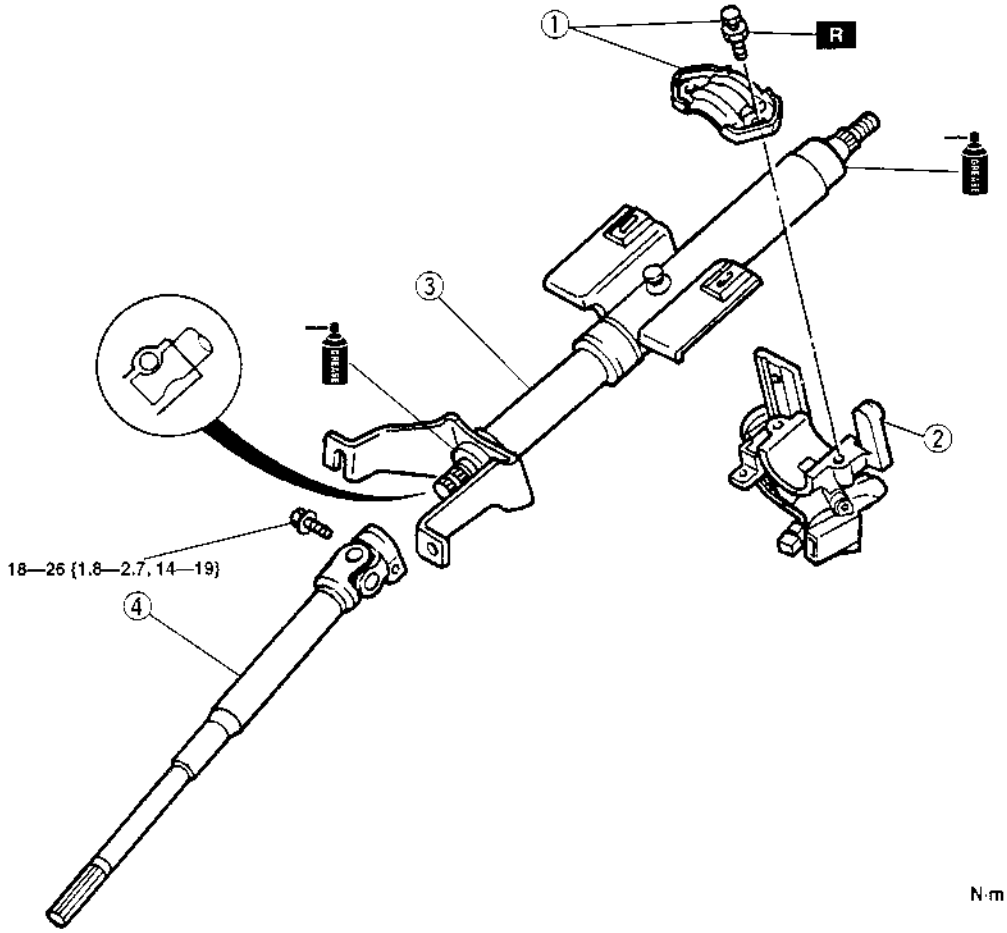
Caution

- **Do not try to remove the steering wheel by hitting the shaft with a hammer. The column will collapse.**
- Set the wheels in the straight-ahead position, remove the steering wheel by using a suitable puller.

STEERING SHAFT DISASSEMBLY/ASSEMBLY

X5U611W03

1. Disassemble in the order indicated in the tbale.
2. Assemble in the reverse order of disassembly.



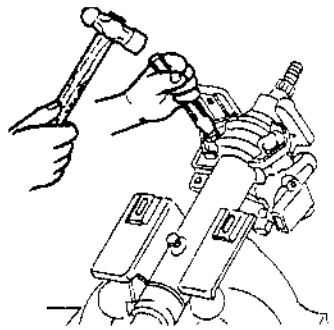
N·m {kgf-m, ft-lbf}

X5U611WA7

1	Steering lock mounting bolts and bracket ☞ Disassembly Note ☞ Assembly Note
2	Steering lock component
3	Steering shaft
4	Intermediate shaft

Steering Lock Mounting Bolts and Bracket Disassembly Note

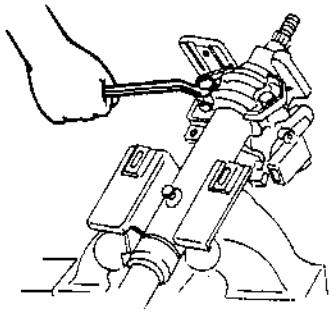
- Use a chisel to make a groove in the heads of the steering lock mounting bolts. Remove the bolts with a screwdriver. Remove the steering lock component.



U5U61105

Steering Lock Mounting Bolts and Bracket Assembly Note

- Install the steering lock component. Install the new steering lock mounting bolts. Tighten the bolts until the heads break off.



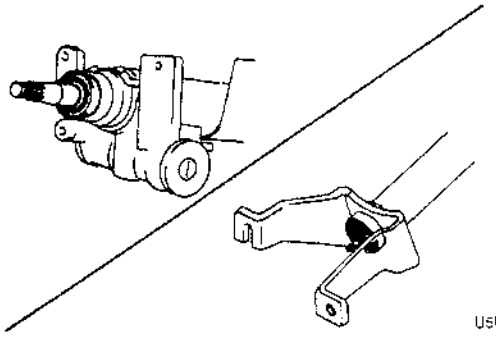
U5U61106

STEERING SHAFT INSPECTION

X5U611W04

- Inspect the following, and replace the column component as necessary.

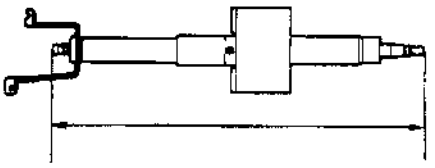
1. Column bearing damage.



U5U61107

2. Steering shaft length.

Length
593.8—595.8 mm {23.38—23.45 in}



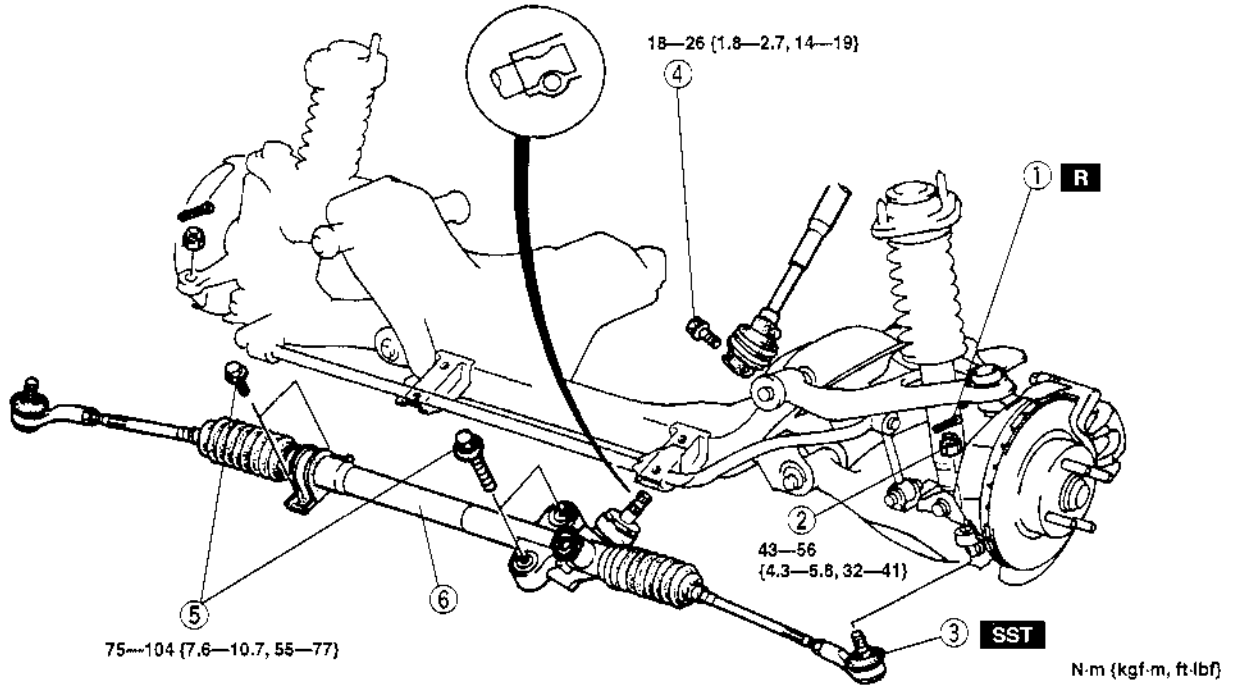
U5U61108

STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION

X5U611W05

Caution
- **Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the harness if it is pulled by mistake. Before performing the following procedures, remove the ABS wheel-speed sensor (axle side) and fix it to an appropriate place where the sensor will not be pulled by mistake while servicing the vehicle.**

1. With the wheels in the straight-ahead position, remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. Adjust the total toe-in.



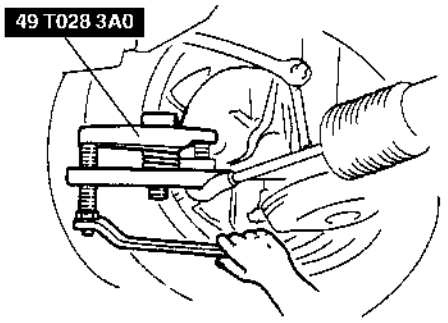
X5U611WA1

1	Cotter pin
2	Nut
3	Tie-rod end ball joint ☞ Removal Note

4	Intermediate shaft bolt
5	Mounting bracket bolt
6	Steering gear and linkage

Tie-rod End Ball Joint Removal Note

- Separate the tie-rod end ball joint from the knuckle by using the **SST**.

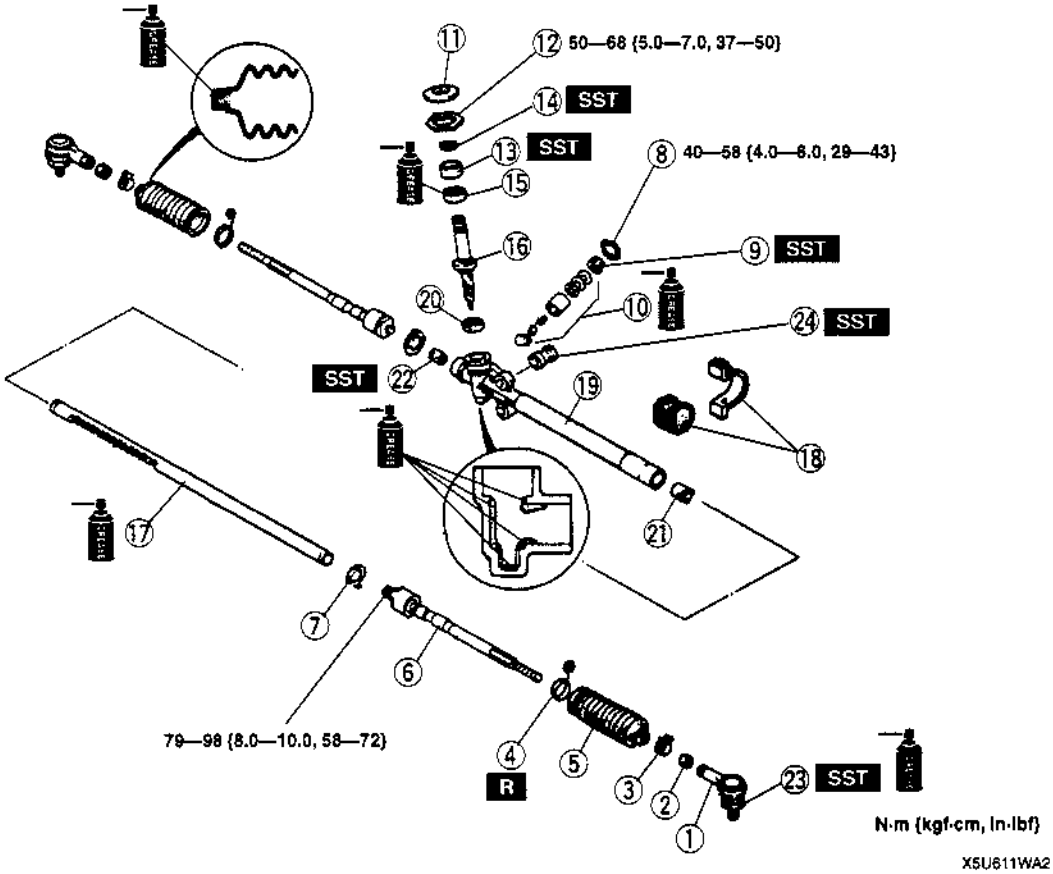


U5U61110

STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY

X5U611W06

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



X5U611WA2

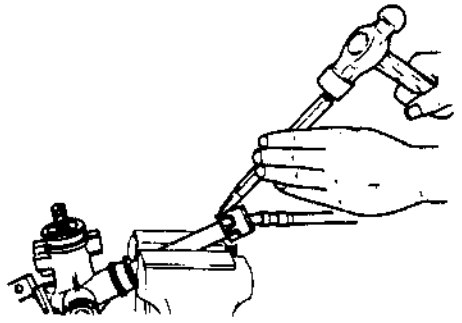
1	Tie-rod end
2	Locknut (Tie-rod end)
3	Boot band
4	Boot wire
5	Boot
6	Tie rod ☞ Disassembly Note
7	Washer

8	Locknut (Adjusting cover)
9	Adjusting cover ☞ Disassembly Note ☞ Assembly Note
10	Roller component
11	Dust cover
12	Locknut (Rear cover)

13	Rear cover ☞ Assembly Note
14	Oil seal ☞ Disassembly Note
15	Upper bearing
16	Pinion shaft ☞ Assembly Note
17	Steering rack ☞ Disassembly Note ☞ Assembly Note
18	Mounting bracket and mount
19	Gear housing
20	Lower bearing ☞ Disassembly Note ☞ Assembly Note
21	Rack bushing ☞ Disassembly Note ☞ Assembly Note
22	Bushing ☞ Disassembly Note ☞ Assembly Note
23	Tie-rod end boot ☞ Disassembly Note ☞ Assembly Note
24	Mounting rubber ☞ Disassembly Note ☞ Assembly Note

Tie Rod Disassembly Note

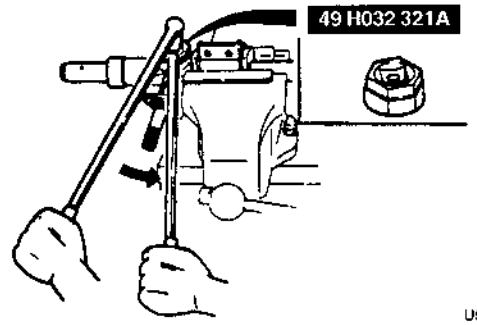
1. Unclamp the washer.
2. Remove the tie rod.



U5U61112

Adjusting Cover Disassembly Note

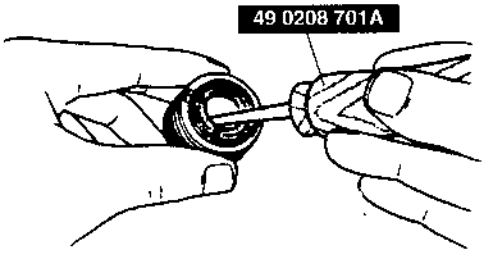
- Remove the adjusting cover by using the **SST**.



U5U61113

Oil Seal Disassembly Note

- Remove the oil seal by using the **SST**.



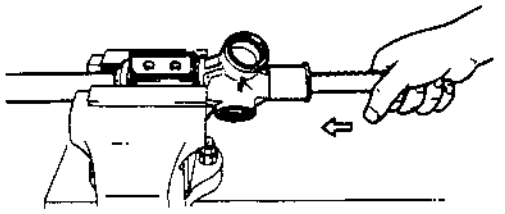
U5U61114

Steering Rack Disassembly Note

Caution

- **Removing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When removing the rack, remove it slowly and carefully.**

- Remove the rack from the tube side.



U5U61115

Lower Bearing Disassembly Note

Note

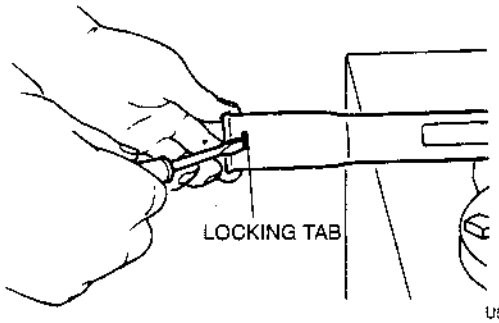
- The lower bearing does not need to be removed unless replacing it.

1. Heat the gear housing in water to about **80 °C {180 °F}**.
2. Tap the end of the housing with a plastic hammer to remove the lower bearing.

Rack Bushing Disassembly Note

Note
- The rack bushing does not need to be removed unless replacing it.

- Depress the locking tab, and carefully remove the rack bushing.

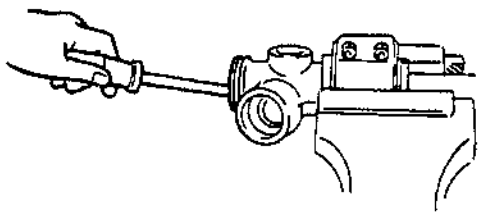


U5U61116

Bushing Disassembly Note

Note
- The bushing does not need to be removed unless replacing it.

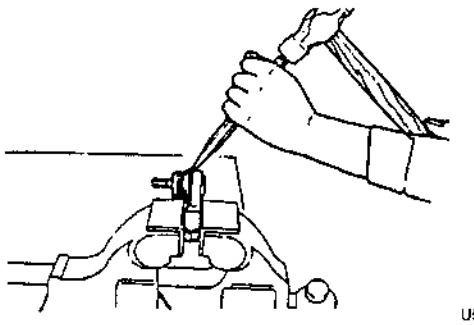
- Carefully break the bushing to remove it.



U5U61117

Tie-rod End Boot Disassembly Note

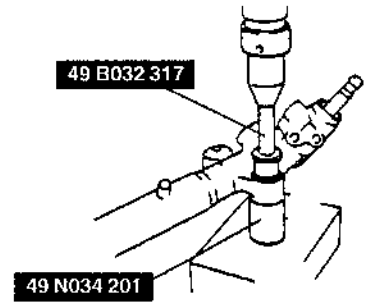
1. Secure the tie-rod end in a vise.
2. Place a chisel against the boot and hold it at the angle shown.
3. Remove the boot by tapping it with a hammer.



U5U61118

Mounting Rubber Disassembly Note

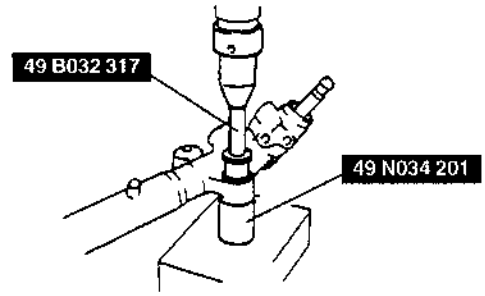
- Press the mounting rubber out from the gear housing by using the **SSTs** and a press.

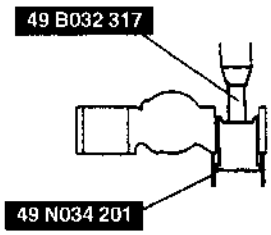


X5U611WA3

Mounting Rubber Assembly Note

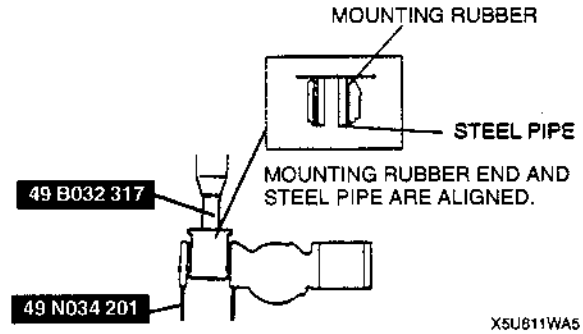
1. Apply soapy water to the rubber part of the mounting rubber.
2. Press the mounting rubber until the mounting rubber end comes out completely from the gear housing by using the **SSTs** and a press.





X5U611WA4

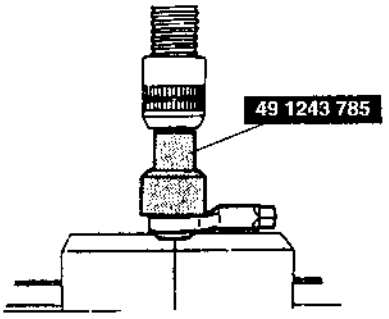
3. Reverse the gear housing, then press the mounting rubber until the mounting rubber end comes out completely from the other side. At this time, mounting rubber end and steel pipe are aligned.



X5U611WA5

Tie-rod End Boot Assembly Note

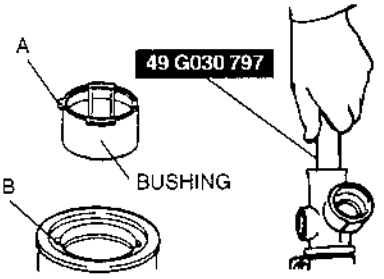
1. Wipe the grease off the ball joint.
2. Put a small amount of lithium-based grease into a new dust boot.
3. Install the dust boot onto the tie-rod end by using the **SST** and a press.
4. Wipe away any excessive grease.



U5U61119

Bushing Assembly Note

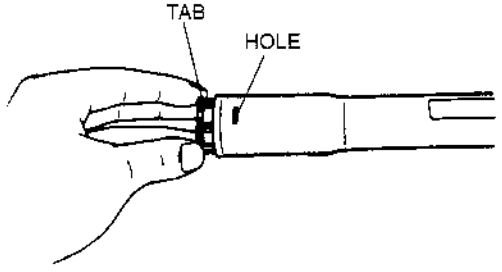
- Align A and B and press a new bushing into the gear housing by using the **SST** until the bushing is fully seated.



U5U61120

Rack Bushing Assembly Note

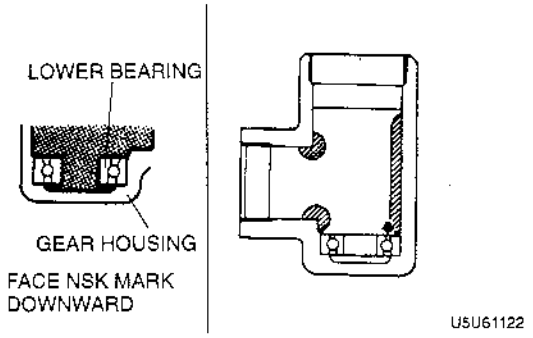
1. Align the tab of a new rack bushing with the hole in the column.
2. Push the rack bushing in until it is locked in place by the tab.



U5U61121

Lower Bearing Assembly Note

1. Apply grease to a new lower bearing.
2. Set the lower bearing onto the pinion shaft so that the NSK mark on the bearing faces downward.
3. Insert the pinion shaft together with the lower bearing.
4. Press the pinion shaft to seat the lower bearing.
5. Apply grease to the inside of the gear housing as shown.



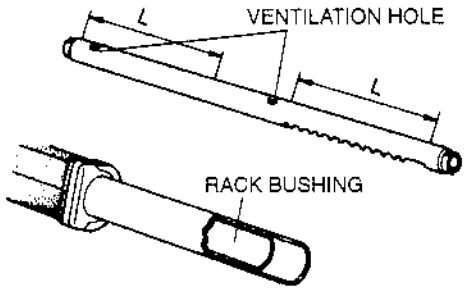
U5U61122

Steering Rack Assembly Note

1. Secure the mounting bracket in a vise.
2. Apply grease to the rack bushing.
3. Apply grease to the rack teeth and the sliding surface.

Caution

- **Do not plug the ventilation holes with the grease.**

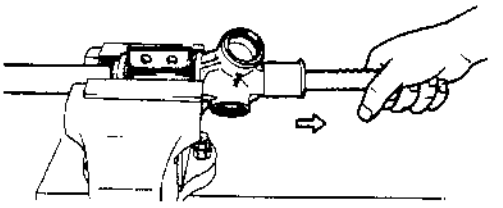


U5U61123

Caution

- **Installing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When installing the rack, install it slowly and carefully.**

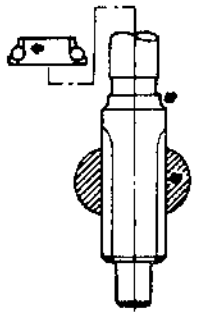
4. Slide the rack in from the tube side.



U5U61124

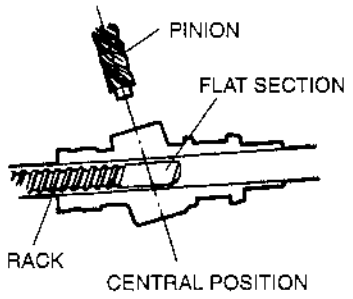
Pinion Shaft Assembly Note

1. Apply grease to the inner race of the upper bearing and install it to the pinion shaft.
2. Apply grease to the teeth of the pinion shaft.



U5U61125

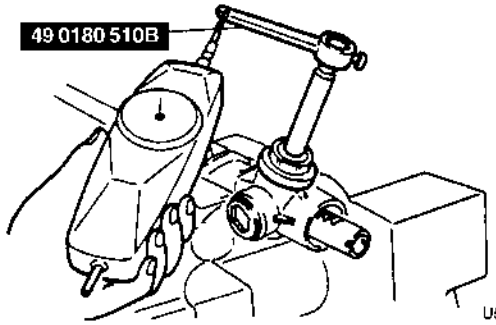
3. Turn the flat section of the rack toward the pinion, and insert the pinion.



U5U61126

Rear Cover Assembly Note

1. Apply grease to the outer race of the upper bearing and install it in the gear housing.
2. Install a new oil seal to the rear cover.
3. Apply sealant to the threads of the rear cover and install it into the gear housing.
4. Rotate the pinion to the left and right a few times to seat the bearing.
5. Tighten the rear cover so that the starting torque of the pinion is **2.0—3.4 N·m {20—35 kgf·cm, 18—30 in·lbf} (Pull scale reading: 20—34 N {2.0—3.5 kgf, 4.4—7.7 lbf})** as inspected by using the **SST** and a pull scale.



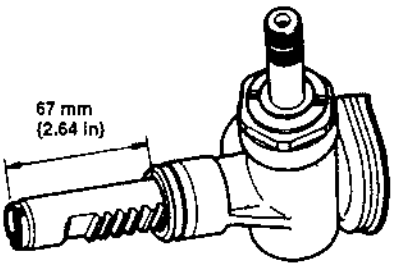
U5U61127

6. Tighten the locknut. Do not allow the rear cover to turn.

Tightening torque
50—68 N·m {5.0—7.0 kgf·m, 37—50 ft·lbf}

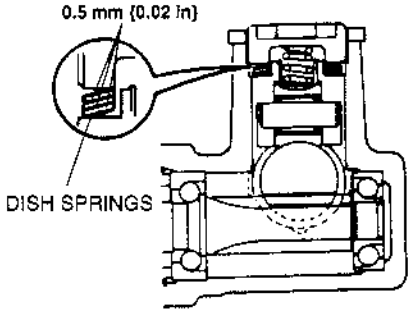
Adjusting Cover Assembly Note

1. Carefully move the rack so that the pinion is set to the center (neutral position) of the rack gear as shown.



X5U611WAB

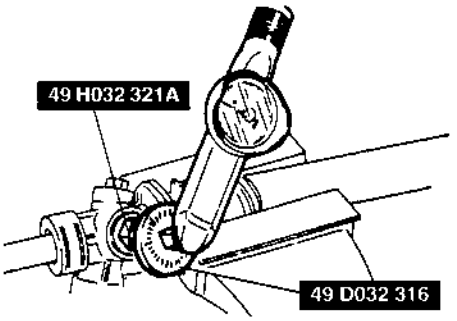
2. Install the roller component, needle roller, holder, dish springs, friction block, and the spring as shown.



U5U61129

3. Tighten the adjusting cover to **9.8 N·m {100 kgf·cm, 87 in·lbf}**, then loosen it **25°—45°**. Use the **SSTs** to secure the adjusting cover and the locknut.

Tightening torque
40—58 N·m {4.0—6.0 kgf·m, 29—43 ft·lbf}

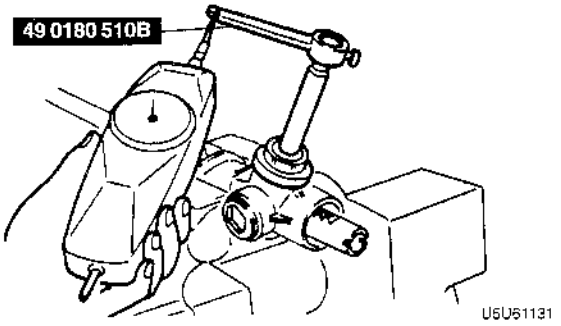


U5U61130

4. Measure the starting torque of the pinion by using the **SST**.

Center position ±90°
1.0—1.1 N·m
{9.5—11.5 kgf·cm, 8.3—9.9 in·lbf}

5. If not as specified, repeat steps 2 and 3.



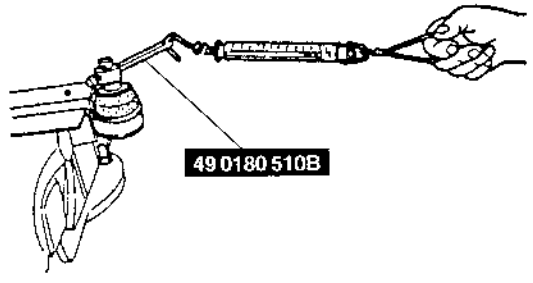
U5U61131

STEERING GEAR AND LINKAGE INSPECTION

Tie-rod End Inspection

1. Inspect the tie-rod end for damage and boot cracks. Replace it as necessary.
2. Inspect the ball joint for looseness. Replace the tie-rod end as necessary.
3. Rotate the ball joint 5 times.
4. Measure the rotation torque of the ball joint by using the **SST** and pull scale.

Rotation torque
0.3—2.9 N·m {3—30 kgf·cm, 2.6—26 in·lbf}
Pull scale reading
3—29 N {0.3—3.0 kgf, 0.7—6.6 lbf}



U5U61132

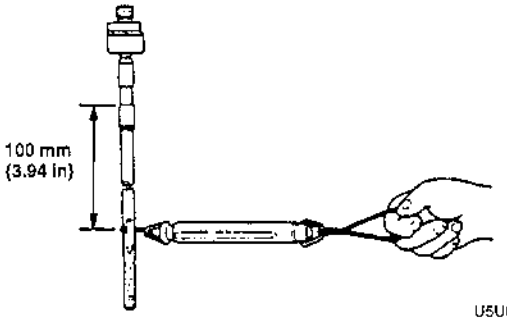
5. If not as specified, replace the tie-rod end.

Tie Rod Inspection

1. Inspect the tie rod for bending and damage. Replace it as necessary.
2. Inspect the ball joint for looseness. Replace the tie rod as necessary.
3. Swing the tie rod 5 times.
4. Measure the swing torque by using a pull scale.

Swinging torque
0.5—3.1 N·m {5—32 kgf·cm, 4.4—27.7 in·lbf}
Pull scale reading
3.0—19.6 N {0.3—2.0 kgf, 0.7—4.4 lbf}

X5U611W07



U5U61133

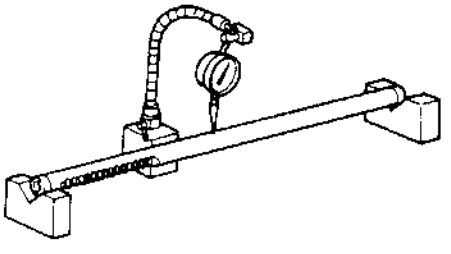
5. If not as specified, replace the tie rod.

Steering Rack Inspection

1. Inspect for cracks, damage, and tooth wear. Replace as necessary.
2. Measure runout of the rack.

Runout
0.3 mm {0.012 in} max.

3. If not as specified, replace the rack.


U5U61134

06–12 ENGINE SPEED SENSING POWER STEERING

AIR BLEEDING

X5U612W01

1. Inspect the fluid level.
2. Turn the steering wheel fully to the left and right several times with the engine not running.
3. Inspect the fluid level. If it has dropped, add fluid.
4. Repeat steps 2 and 3 until the fluid level stabilizes.
5. Start the engine and let it idle.
6. Turn the steering wheel fully to the left and right several times.
7. Verify that the fluid is not foamy and that the fluid level has not dropped.
8. Add fluid as necessary, and repeat steps 6 and 7.

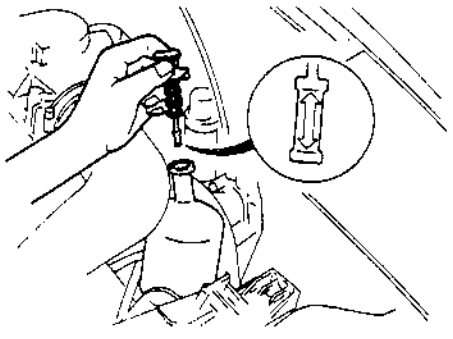
POWER STEERING FLUID INSPECTION

X5U612W02

Fluid Level Inspection

1. Verify that the fluid level is between the H and L marks.
2. Add the specified power steering fluid if it is below the L mark. Remove the fluid if it is above the H mark.

Fluid specification
ATF M-III or equivalent (e.g. Dexron®II)

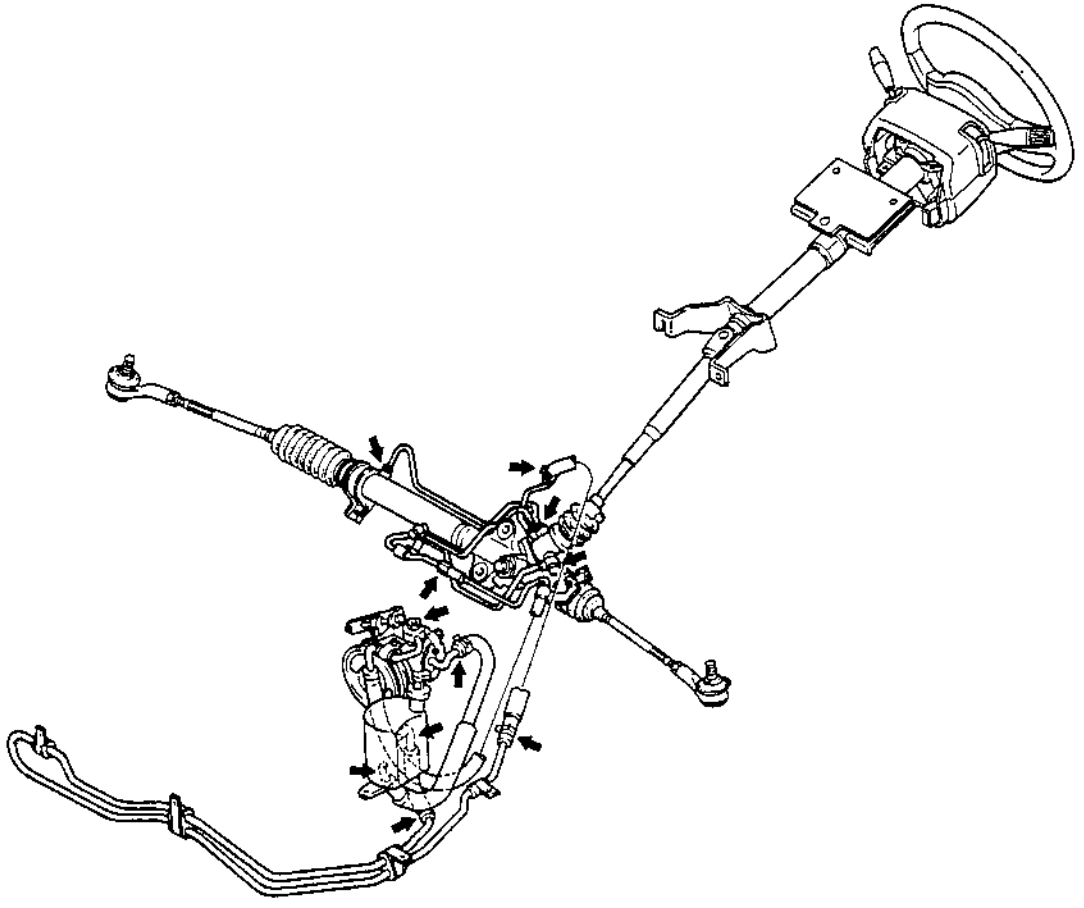


U5U6*201

Fluid Leakage Inspection

Caution
- **Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.**

- Start the engine and let it idle. Turn the steering wheel fully left and fully right to apply fluid pressure. Inspect the points shown in the figure for fluid leakage.

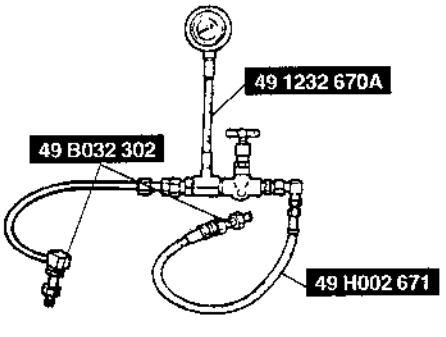


X5U612WA0

Fluid Pressure Inspection

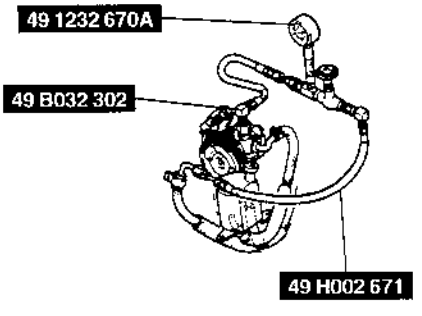
1. Assemble the **SSTs** as shown in the figure.

Tightening torque
40—49 N·m {4.0—5.0 kgf·m, 29—36 ft·lbf}



U5U61203

2. Mark both hose connections to ensure that the hose is reinstalled in its original position.
3. Disconnect the pressure hose from the oil pump. Attach the **SSTs**.

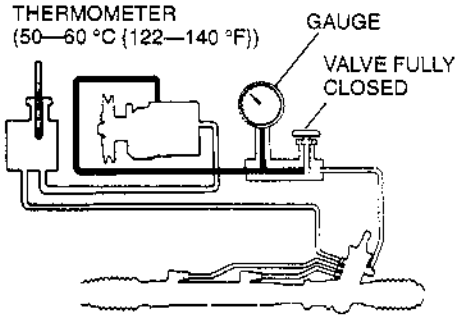


U5U61204

4. Bleed the air from the system.
5. Open the gauge valve fully. Start the engine and turn the steering wheel fully left and right to raise the fluid temperature to **50—60 °C {122—140 °F}**.

Caution
- **Do not let the valve stay closed for more than 5 seconds. The increase in fluid temperature will damage the oil pump.**

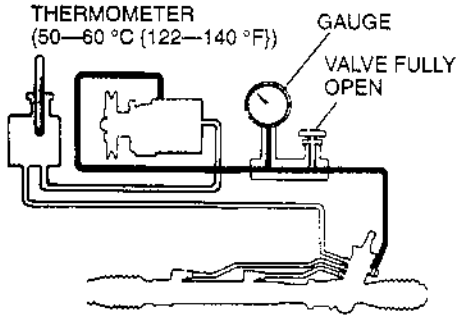
6. Close the gauge valve completely. Increase the engine speed to **1,000—1,500 rpm** and measure the fluid pressure generated by the oil pump. If the pressure is not within specification, replace the oil pump component.



U5U61205

Oil pump fluid pressure
7846—8335 kPa
{80—85 kgf/cm^2, 1138—1208 psi}

7. Open the gauge valve fully and increase the engine speed to **1,000—1,500 rpm**.



U5U61206

Caution
- **Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.**

8. Turn the steering wheel fully to the left and right and measure the fluid pressure generated by the gear housing. If the pressure is not within specification, replace the gear housing component.

Gear housing fluid pressure
7846—8335 kPa
{80—85 kgf/cm^2, 1138—1208 psi}

9. Remove the gauge set. Install and tighten the pressure hose to the specified torque.

Tightening torque
32—47 N·m {3.2—4.8 kgf·m, 24—34 ft·lbf}

10. Bleed the air from the system.

STEERING WHEEL AND COLUMN INSPECTION

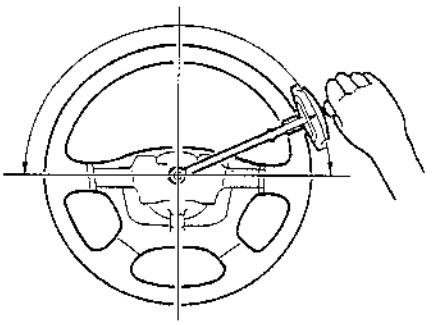
X5U612W03

Steering Wheel Play Inspection
(Refer to 06–11 STEERING WHEEL AND COLUMN INSPECTION, Steering Wheel Play Inspection.)

Steering Wheel Looseness Inspection
(Refer to 06–11 STEERING WHEEL AND COLUMN INSPECTION, Steering Wheel Looseness Inspection.)

Steering Wheel Effort Inspection

1. Check the following points:
   (1) Tire size and tire pressure
   (2) Fluid level
   (3) Drive belt deflection
2. With the vehicle on a hard, level surface, put the wheels in the straight-ahead position.
3. Start the engine and warm the power steering fluid to **50—60 °C {122—140 °F}**.
4. Remove the air bag module. (Refer to 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION.)
5. Measure the steering wheel effort by using a torque wrench.



U5U61207

Steering wheel effort
7.8 N·m {80 kgf·cm, 69 in·lbf} max.

Note

- To determine whether the steering effort is satisfactory or not, perform the inspection on another vehicle of the same model and under the same conditions, and compare the results.
- The steering wheel effort varies with conditions as shown below.
  1. Road conditions, such as dry or wet, and asphalt or concrete.
  2. Tire conditions, such as brand, wear, and tire pressure.

6. If not as specified, note the following:
   (1) Air in system
   (2) Fluid leakage at hose or connectors
   (3) Function of oil pump and steering gear

STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION

U5U612AD

(Refer to 06–11 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)

STEERING SHAFT DISASSEMBLY/ASSEMBLY

U5U612AE

(Refer to 06–11 STEERING SHAFT DISASSEMBLY/ASSEMBLY.)

STEERING SHAFT INSPECTION

U5U612AF

(Refer to 06–11 STEERING SHAFT INSPECTION.)

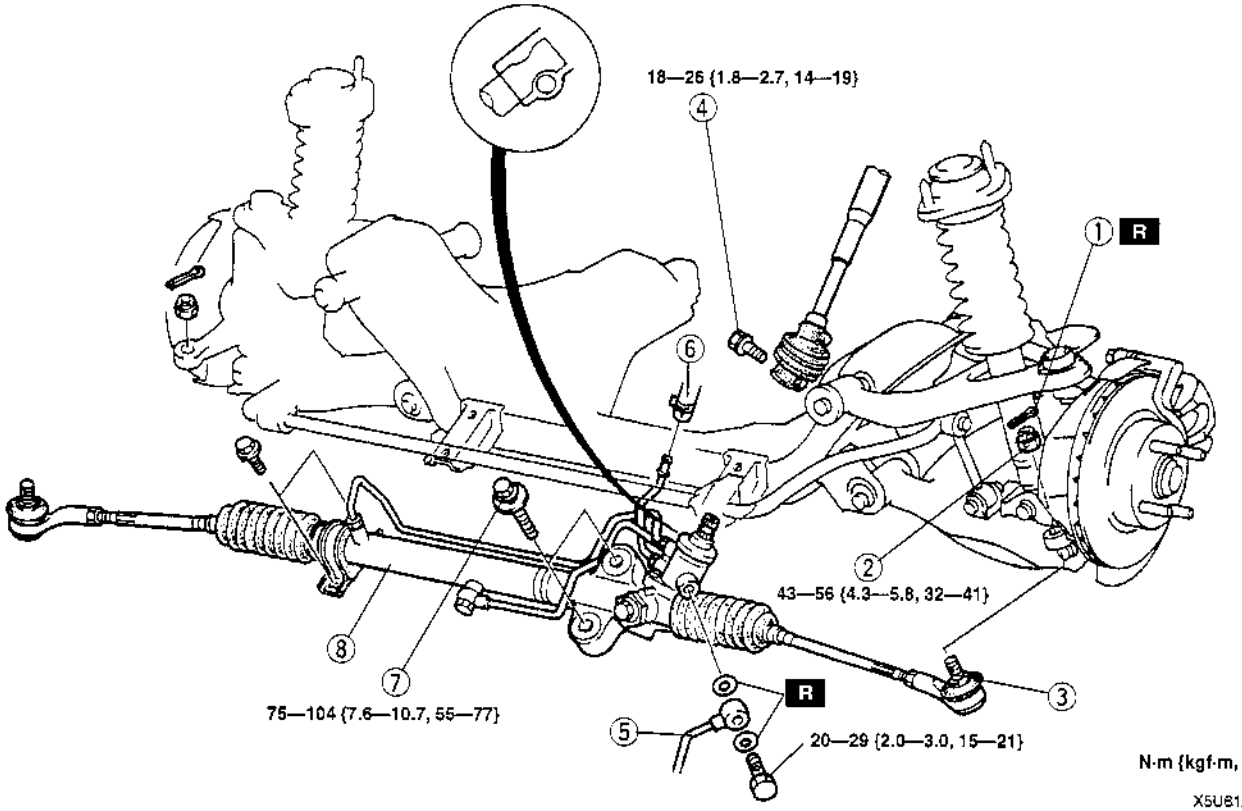
STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION

X5U612W04

Caution

- **Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the harness if it is pulled by mistake. Before performing the following procedures, remove the ABS wheel-speed sensor (axle side) and fix it to an appropriate place where the sensor will not be pulled by mistake while servicing the vehicle.**

1. Remove in the order indicated in the table.
2. With the wheels in the straight-ahead position, install in the reverse order of removal.
3. After installation, inspect the total toe-in and adjust it as necessary.



X5U812WA1

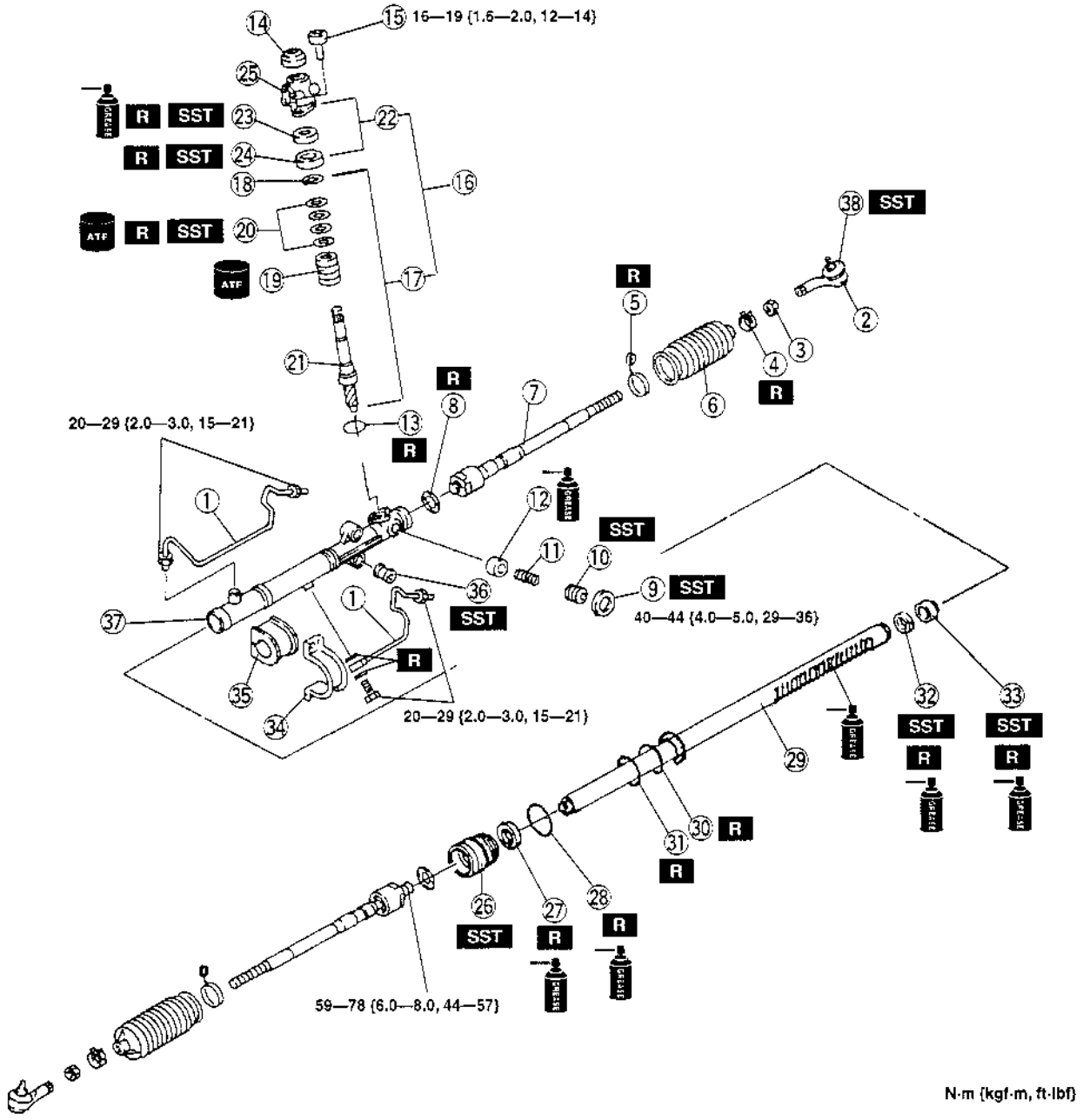
1	Cotter pin
2	Nut
3	Tie-rod end ball joint ☞ 06–11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Tie-rod End Ball Joint Removal Note

4	Bolt
5	Pressure pipe
6	Return hose
7	Mounting bracket bolt
8	Steering gear and linkage

STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY

X5U612W05

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



X5U612WA2

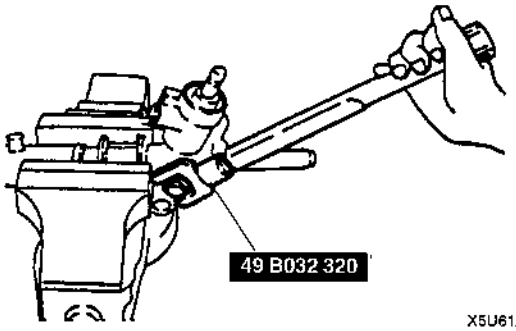
1	Oil pipe
2	Tie-rod end
3	Locknut (Tie-rod end)
4	Boot band
5	Boot wire
6	Boot
7	Tie rod ☞ 06–11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie Rod Disassembly Note

8	Washer
9	Locknut (Adjusting cover) ☞ Disassembly Note
10	Adjusting cover ☞ Assembly Note
11	Yoke spring
12	Support yoke
13	O-ring
14	Dust cover
15	Socket bolt

16	Pinion shaft and housing component ☞ Disassembly Note
17	Pinion shaft component ☞ Disassembly Note
18	Snap ring ☞ Disassembly Note
19	Control valve component
20	Seal ring ☞ Assembly Note
21	Pinion shaft
22	Valve housing component
23	Upper bearing ☞ Disassembly Note ☞ Assembly Note
24	Oil seal ☞ Disassembly Note ☞ Assembly Note
25	Valve housing
26	Holder ☞ Disassembly Note ☞ Assembly Note
27	U gasket
28	O-ring
29	Steering rack
30	Seal ring
31	O-ring
32	Oil seal ☞ Disassembly Note ☞ Assembly Note
33	Inner guide ☞ Disassembly Note ☞ Assembly Note
34	Mounting bracket
35	Mount
36	Mounting rubber ☞ 06–11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Mounting Rubber Disassembly Note ☞ 06–11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Mounting Rubber Assembly Note
37	Gear housing
38	Tie-rod end boot ☞ 06–11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie-rod End Boot Removal Note ☞ 06–11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie-rod End Boot Assembly Note

Locknut Disassembly Note

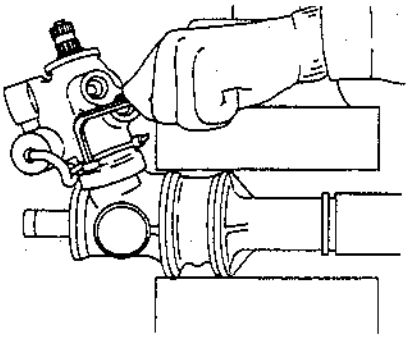
- Remove the locknut by using the **SST**.



X5U612WA3

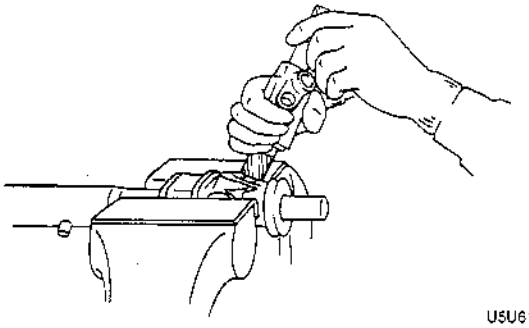
Pinion Shaft and Housing Component Disassembly Note

1. Remove the socket bolts (2 points) which fix the pinion shaft and housing.



U5U61210

2. Hold the pinion shaft as shown, and pull out the pinion shaft and housing component.

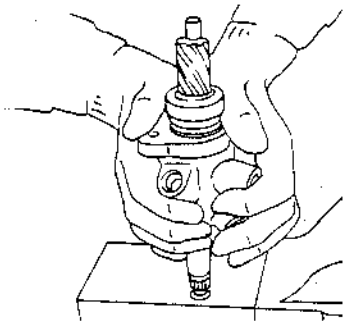


U5U61211

Pinion Shaft Component Disassembly Note

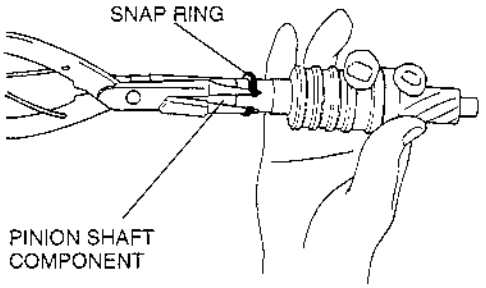
Note
- If the pinion shaft does not come out easily, remove it by using a press.

- Push out the pinion shaft component from the valve housing as shown.



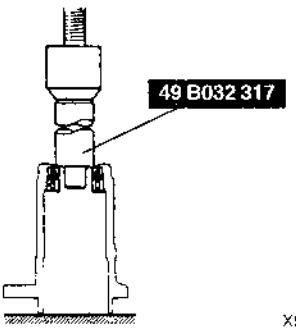
U5U61212

Snap Ring Disassembly Note
- Carefully remove the snap ring without damaging the pinion shaft component.



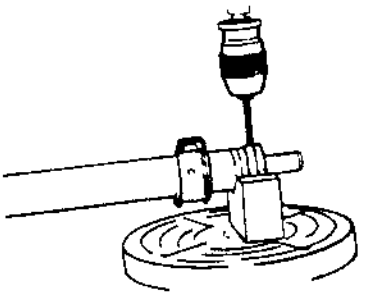
U5U61213

Upper Bearing, Oil Seal Disassembly Note
1. Set the **SST** as shown.
2. Using a press, remove the oil seal and upper bearing without applying pressure to the edge of the valve housing.



X5U612WA4

Holder Disassembly Note
1. Cut away the staked area by using a drill.

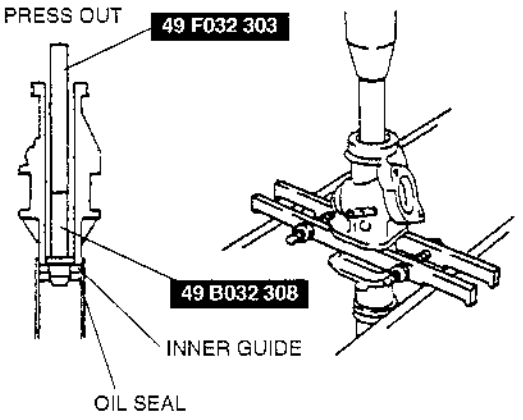


X5U612WA5

Caution
- **Carefully pull out the holder without damaging the U gasket.**

2. Remove the holder.

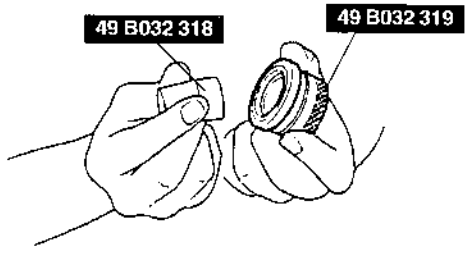
Oil Seal, Inner Guide Disassembly Note
1. Set the **SSTs** into the valve side.
2. Press out the oil seal and inner guide.



X5U612WAF

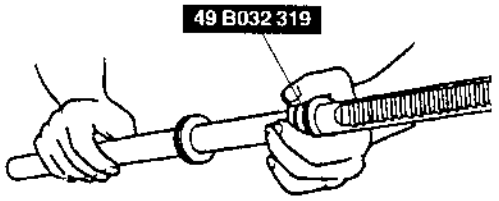
Oil Seal, Inner Guide Assembly Note

1. Install a new O-ring and new seal ring to the rack's piston.
2. After installing the seal ring, seat it properly at the piston circumference.
3. Install a new oil seal and inner guide to the **SST**.



X5U612WA7

4. Using the **SST**, place the oil seal and inner guide at the edge of the steering rack's pinion, and remove the **SST**.



X5U612WA8

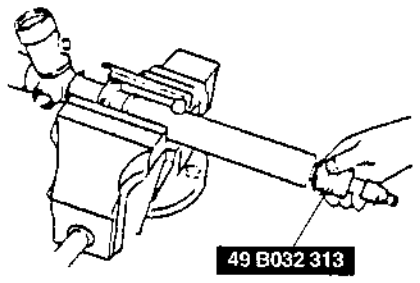
Caution

- **When pressing in, do not apply a load pressure of more than 39230 kPa {400 kg/cm^2, 5688 psi}, because to do so will damage the oil seal and inner guide.**
- **Apply grease to the seal ring, oil seal and inner guide.**

5. After mounting the steering rack to the gear housing, use a press to install the oil seal and inner guide to the correct position.

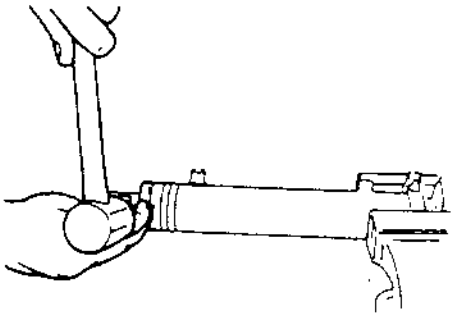
Holder Assembly Note

1. Apply grease to the U-gasket and O-ring.
2. Assemble the U-gasket and O-ring into the holder.
3. Assemble the holder by using the **SST**.



X5U612WA9

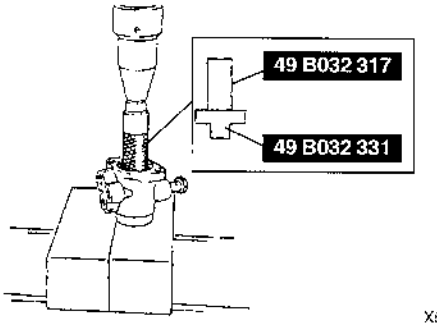
4. Stake the holder to the cylinder by using a punch.



X5U612WAA

Oil Seal Assembly Note

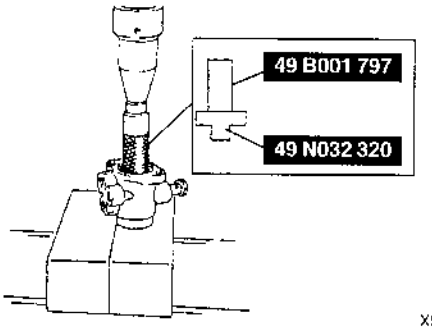
1. Apply grease to a new oil seal.
2. Press in the new oil seal by using the **SSTs**.



X5U612WAB

Upper Bearing Assembly Note

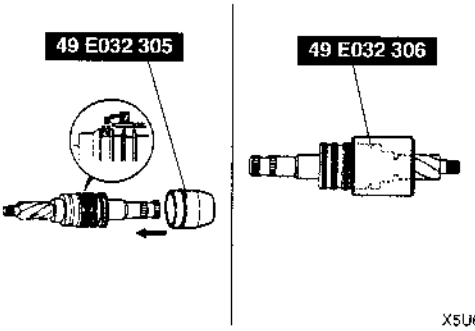
1. Apply grease to a new upper bearing.
2. Press in the upper bearing by using the **SST**.



X5U612WAC

Seal Ring Assembly Note

1. Install a new seal ring to the valve part of the pinion shaft by using the **SST**.
2. After installing it, seat it properly by using the **SST**.

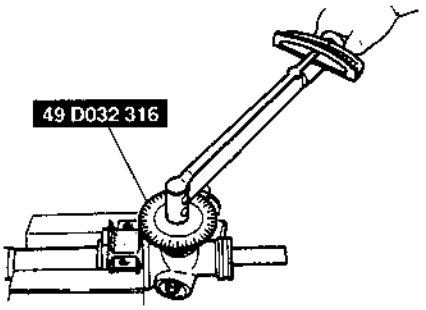


X5U612WAD

3. Install the snap ring.

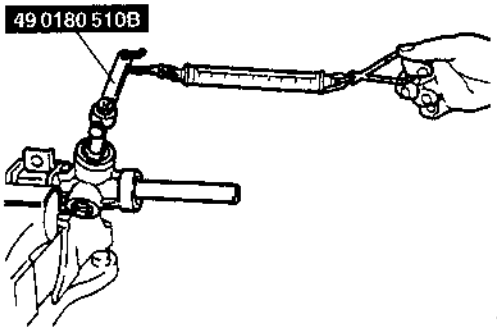
Adjusting Cover Assembly Note

1. Set the rack to the center position.
2. Tighten the adjusting cover to **4.9 N·m {50 kgf·cm, 43 in·lbf}** three times, then return it **25°** by using the **SST**.



U5U61237

3. Apply sealant to the threads of the locknut.
4. Attach the locknut.
5. Measure the pinion torque by using the **SST** and a pull scale.



U5U61238

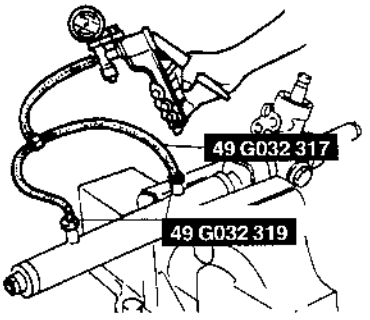
Standard
Center of rack ±90° 1.0—1.1 N·m {10—12 kgf·cm, 8.7—10.4 in·lbf}

6. If not as the specified, repeat steps 2 through 6.
7. Install the locknut by using the **SST** (49 B032 320).

Tightening torque
40—49 N·m {4.0—5.0 kgf·m, 29—36 ft·lbf}

Hermetic sealing inspection

1. Connect the **SSTs** to the power cylinder section of the gear housing.
2. Apply **53.3 kPa {400 mmHg, 15.7 inHg}** vacuum with a vacuum pump and verify that it is held for at least **30 seconds**.
3. If the vacuum is not held, replace the oil seal.



U5U61239

STEERING GEAR AND LINKAGE INSPECTION

X5U612W06

Tie-rod End Inspection
(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Tie-rod End Inspection.)

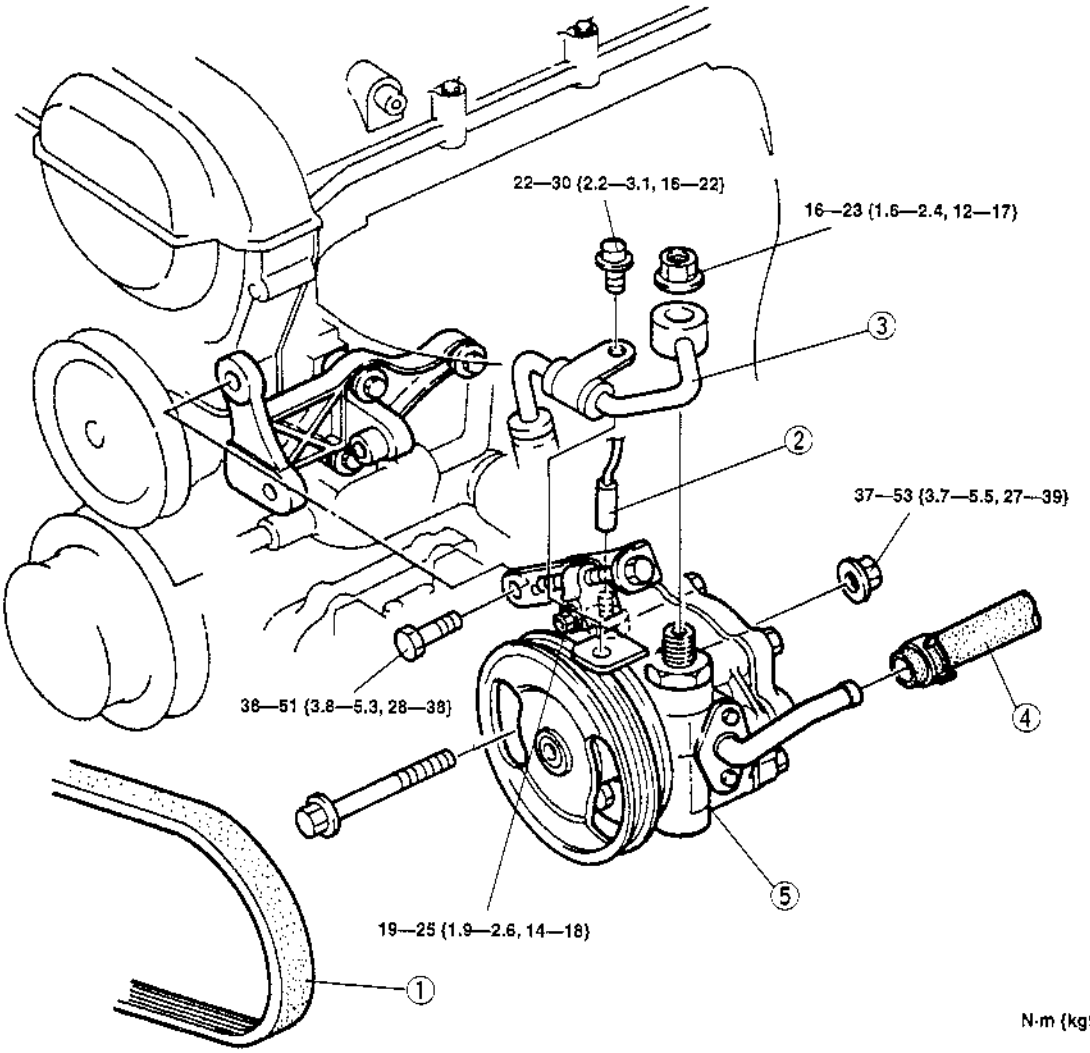
Tie Rod Inspection
(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Tie Rod Inspection.)

Steering Rack Inspection
(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Steering Rack Inspection.)

POWER STEERING OIL PUMP REMOVAL/INSTALLATION

X5U612W07

1. Remove the cooling fan. (Refer to 01–12 RADIATOR REMOVAL/INSTALLATION.)
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.
4. Adjust the drive belt. (Refer to 01–10 DRIVE BELT ADJUSTMENT.)



N·m {kgf·m, ft·lbf}

X5U612WA6

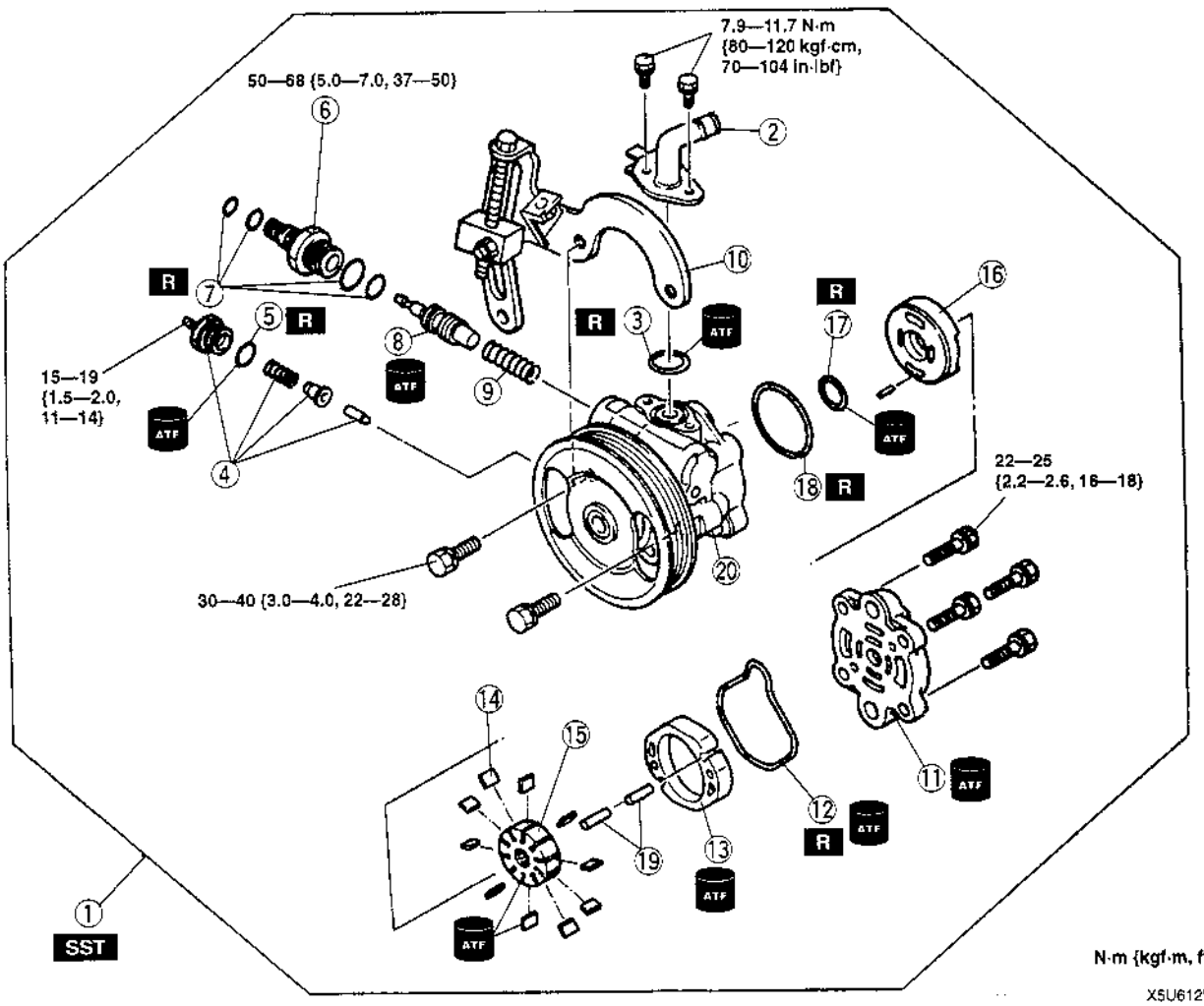
1	Drive belt
2	Power steering pressure switch connector
3	Pressure pipe

4	Return hose
5	Power steering oil pump

POWER STEERING OIL PUMP DISASSEMBLY/ASSEMBLY

X5U612W08

1. The following procedure is for replacement of the O-rings only. Replace the pump component if other repairs are necessary.
2. Disassemble in the order indicated in the table.
3. Assemble in the reverse order of disassembly.



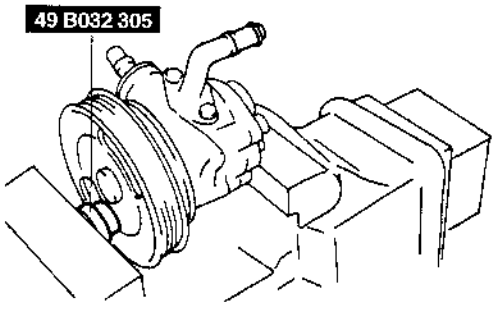
X5U612WAE

1	Oil pump ☞ Disassembly Note
2	Suction pipe
3	O-ring
4	Power steering pressure switch component
5	O-ring
6	Connector
7	O-ring
8	Control valve
9	Spring
10	Bracket
11	Pump body rear

12	O-ring
13	Cam ring ☞ Assembly Note
14	Blade ☞ Assembly Note
15	Rotor ☞ Assembly Note
16	Side plate
17	O-ring
18	O-ring
19	Pin
20	Pump body front

Power Steering Oil Pump Disassembly Note

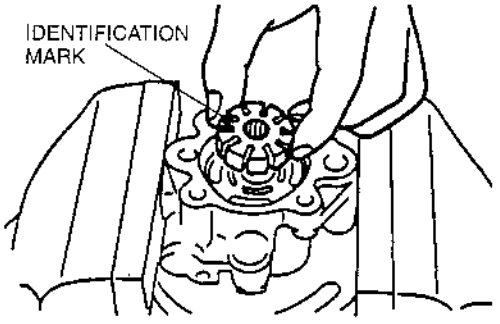
- Use the **SST** when securing the oil pump in a vise, so that force is not applied to the pulley or shaft.



U5U61242

Rotor Assembly Note

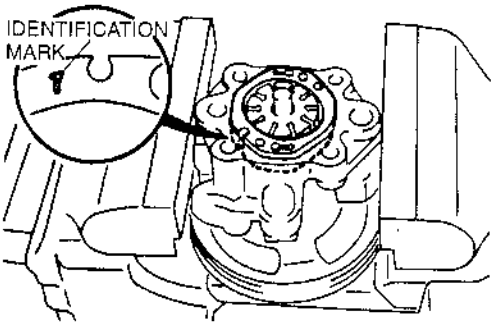
- Install the rotor with the identification mark facing upward.



U5U61243

Cam Ring Assembly Note

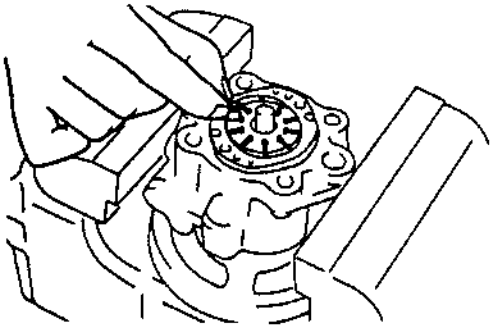
- Install the cam ring with the identification mark facing downward.



U5U61244

Blade Assembly Note

- Install the blades into the rotor with the rounded edges facing outward.



U5U61245

06–50 TECHNICAL DATA

06 STEERING

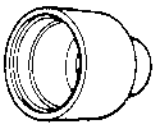
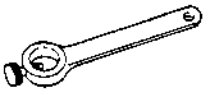
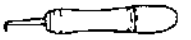
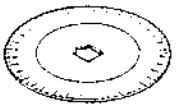
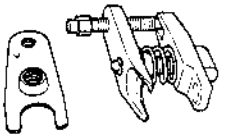
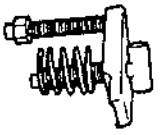
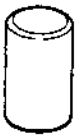
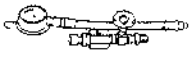
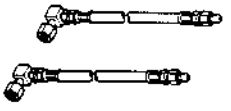
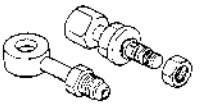
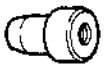
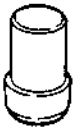
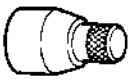
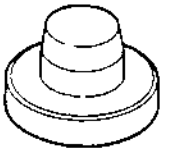
X5U650W01

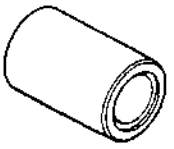
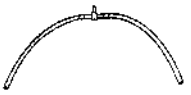
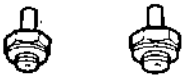
Item			Manual steering	Engine speed sensing power steering
Steering wheel	Play (mm {in})		0—30 {0—1.18}	
	Effort (N·m {kgf·cm, in·lbf})		5—29 {0.5—3.0, 1.1—6.6}	7.8 {80, 69} max.
Steering column and shaft	Length (mm {in})		593.8—595.8 {23.38—23.45}	
Steering gear	Tie-rod end	Rotation torque (N·m {kgf·cm, in·lbf})	0.5—3.1 {5—32, 4.4—22.7}	
		Pull-scale reading (N {kgf, lbf})	3.0—19.6 {0.3—2.0, 0.7—4.4}	
	Tie rod	Swinging torque (N·m {kgf·cm, in·lbf})	0.1—3.4 {1—35, 0.9—30.3}	
		Pull-scale reading (N {kgf, lbf})	0.7—21.5 {0.07—2.20, 0.16—4.84}	
	Pinion shaft	Rotation torque (N·m {kgf·cm, in·lbf})	1.0—1.1 {9.5—11.5, 8.3—9.9}	1.0—1.1 {10—12, 8.7—10.4}
	Gear housing fluid pressure (kPa {kgf/cm^2, psi})		—	7846—8335 {80—85, 1138—1208}
Power steering oil pump	Oil pump fluid pressure (kPa {kgf/cm^2, psi})		—	7846—8335 {80—85, 1138—1208}
Power steering system	Fluid	Type	—	ATF M-III or equivalent (e.g. Dexron®II)
		Capacity (L {US qt, Imp qt})	—	0.79 {0.84, 0.70} [MT] 0.68 {0.72, 0.60} [AT]

06–60 SERVICE TOOLS

06 STEERING SST

X5U660W01

49 1243 785 Boot installer  T1243785X	49 0180 510B Preload attachment  TC1805:0B	49 0208 701A Boot air out tool  T02C8701A
49 H032 321A Hexagon wrench  TH032321A	49 D032 316 Protractor  TD0323:6X	49 G030 797 Handle  TG030797X
49 T028 3A0 Ball joint puller set  TT0283A0X	49 T028 303 Body (Part of 49 T028 3A0)  TT028303X	49 T028 304 Attachment (Part of 49 T028 3A0)  TT028304X
49 B032 317 Bearing & oil seal remover  TB032317X	49 1232 670A Power steering gauge set  T1232670A	49 1232 672 Gauge (Part of 49 1232 670A)  T1232672X
49 1232 673 Valve body (Part of 49 1232 670A)  T1232673X	49 H002 671 Power steering gauge adapter  TH0C2671X	49 B032 304 Power steering gauge adapter  TBC32304X
49 B032 308 Rod seal remover body  TB032308X	49 B032 318 Rod seal guide  TB032318X	49 B032 319 Rod seal protector body  TB032319X
49 B032 313 Outer box protector  TB0323:3X	49 B032 320 Wrench  TB032320X	49 B032 331 Oil seal installer  TB032331X

49 B001 797 Handle  TB001797X	49 N034 201 Oil seal installer  TN034201X	49 F032 303 Handle  TF032303X
49 N032 320 Oil seal installer  TN032320X	49 G032 317 Hose  TG032317X	49 G032 319 Adapter  TG032319X

HVAC

07 SECTION

07–01 TROUBLESHOOTING

07

FOREWORD

X5U701W01

- Refer to 00–00 GENERAL PROCEDURE thoroughly read and understand the basic flow of troubleshooting to properly perform the procedures.
- For the steps that have an asterisk(*), inspect the connector/terminal connection for continuity and damage. If the connection is poor, reconnect it, or repair or replace the appropriate parts as necessary.
- The areas for inspection (steps) are given according to various circuit malfunctions. Use the chart below to verify the symptoms of the trouble in order to diagnose the appropriate area.

TROUBLESHOOTING INDEX

X5U701W02

No.	SYMPTOM
1	Insufficient blown air volume and/or no blown air depending on airflow mode.
2	No blown air in any airflow mode. Blown air volume does not change at any fan speed.
3	Airflow mode does not change.
4	Improper air circulation and/or no air circulation.
5	No operation at any temperature setting.
6	Insufficient A/C cooling.
7	No cool air.
8	Noise while operating A/C system.

SYMPTOM TROUBLESHOOTING

X5U701WC3

1	Insufficient blown air volume and/or no blown air depending on airflow mode.

TROUBLESHOOTING HINTS
① Malfunction in VENT mode system
Steps 1–4
② Malfunction in HEAT mode system
Step 5
③ Malfunction in DEFROSTER mode system
Steps 6–8

STEP	INSPECTION		ACTION
1	When airflow mode control dial is operated, is appropriate resistance felt and can it be moved to its full range?	Yes	Go to next step.
		No	Go to step 1 of troubleshooting index No. 3.
2	Is air discharged when in VENT mode?	Yes	Go to step 5.
		No	Go to next step.
3	Is vent clogged?	Yes	Remove obstruction, then go to step 9.
		No	Go to next step.
4	Is duct in dashboard properly installed?	Yes	Inspect duct for clogging, deformity and air leakage, then go to step 9.
		No	Install duct securely in the proper position, then go to step 9.
5	Is air discharged when in HEAT mode?	Yes	Go to next step.
		No	Inspect vent for clogging, then go to step 9.
6	Is air discharged when in DEFROSTER mode?	Yes	Operation is okay. Reinspect malfunction symptoms.
		No	Go to next step.
7	Is vent clogged?	Yes	Remove obstruction, then go to step 9.
		No	Go to next step.
8	Is defroster duct properly installed?	Yes	Inspect duct for clogging, deformity, and air leakage, then go to next step.
		No	Install duct securely in the proper position, then go to next step.
9	Is air discharged?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

2	No blown air in any airflow mode. Blown air volume does not change at any fan speed.

TROUBLESHOOTING HINTS
① Blower relay, blower motor, resistor, fan switch malfunction
Step 1
② Blower unit malfunction
Steps 2–4

STEP	INSPECTION		ACTION
1	Inspect the following systems and electrical parts. • Blower relay, blower motor, resistor, fan switch. Are they okay?	Yes	Go to next step.
		No	Repair or replace malfunctioning part, then go to step 5.
2	Turn ignition switch to ON. Turn fan switch on. Recirculate air inside vehicle. Does fan in blower unit rotate smoothly?	Yes	Go to step 4.
		No	Go to next step.
3	Inspect fan in blower unit. • Is fan free of interference from blower unit case? • Is fan free of foreign material and obstructions? Is fan okay?	Yes	Go to next step.
		No	Remove obstruction, repair or replace fan and blower unit case, then go to step 5.

STEP	INSPECTION		ACTION
4	Is blower unit intake vent clogged?	Yes	Remove obstruction, then go to next step.
		No	Inspect if there are any obstructions in passage between blower unit and heater unit, then go to next step.
5	Is air discharged?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

3 Airflow mode does not change.

TROUBLESHOOTING HINTS

① Heater unit's airflow mode link, airflow mode crank, airflow mode rod, airflow mode wire, wire clamp malfunction
Steps 1, 2

② Heater control unit's rack-and-pinion, airflow mode wire malfunction
Step 3

③ Malfunction in one or more heater unit door(s)
Steps 4, 5

STEP	INSPECTION		ACTION
1	Inspect heater unit's airflow mode links, airflow mode cranks, airflow mode rods, and wire clamp. • Is there grease on links and cranks? • Are links, cranks and rods installed securely and in the proper position? • Is wire clamp free of deformation? Are above items okay?	Yes	Go to next step.
		No	Apply grease or install links, cranks and rods securely in their proper positions, repair or replace wire clamp, then go to step 6.
2	Is airflow mode wire positioned securely and correctly vis-a-vis the heater unit's airflow mode links?	Yes	Go to next step.
		No	Adjust airflow mode wire or install correctly, then go to step 6.
3	Inspect heater control unit. • Is rack-and-pinion properly engaged? • Is airflow mode wire properly installed in correct direction on rack? Are above items okay?	Yes	Go to next step.
		No	Properly engage rack-and-pinion or install airflow mode wire in correct direction, then go to step 6.
4	Is there any foreign material or obstructions in any of heater unit's doors?	Yes	Remove obstruction, then go to step 6.
		No	Go to next step.
5	Are all doors within heater unit securely and properly positioned?	Yes	Inspect each door for cracks or damage, then go to next step.
		No	Install malfunction doors securely in proper position, then go to next step.
6	Does airflow mode change?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

4 Improper air circulation and/or no air circulation.

TROUBLESHOOTING HINTS

① Blower unit's air intake link, air intake crank, air intake wire, wire clamp malfunction
Steps 1, 2

② Heater control unit's air intake wire malfunction
Step 3

③ Blower unit's air intake door malfunction
Steps 4, 5

STEP	INSPECTION		ACTION
1	Inspect blower unit's air intake links, air intake cranks, and wire clamp. • Is there grease on links and cranks? • Are links and cranks securely and properly positioned? • Is wire clamp free of deformation? Are above items okay?	Yes	Go to next step.
		No	Apply grease or install links and cranks properly and securely, repair or replace wire clamp, then go to step 6.

07

STEP	INSPECTION		ACTION
2	Is air intake wire positioned securely and correctly vis-a-vis the blower unit's air intake links?	Yes	Go to next step.
		No	Adjust air intake wire or install securely in correct position, then go to step 6.
3	Is air intake wire positioned securely and correctly vis-a-vis the heater control unit's link?	Yes	Go to next step.
		No	Install air intake wire securely in correct position, then go to step 6.
4	Is there any foreign material or obstruction in blower unit's air intake door?	Yes	Remove obstruction, then go to step 6.
		No	Go to next step.
5	Is blower unit's air intake door securely and properly positioned?	Yes	Inspect air intake door for cracks or damage, then go to next step.
		No	Install air intake door securely in proper position, then go to next step.
6	Does air circulate?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

5	**No operation in any temperature setting.**

TROUBLESHOOTING HINTS
① Heater unit's air mix link, air mix crank, air mix rod, air mix wire, wire clamp malfunction
Steps 2, 3
② Heater control unit's rack-and pinion, air mix wire malfunction
Step 4
③ Heater unit's air mix door malfunction
Steps 5, 6

STEP	INSPECTION		ACTION
1	Is coolant sufficiently warmed up?	Yes	Go to next step.
		No	Warm engine for **approximately 10 minutes**, then go to step 7.
2	Inspect heater unit's air mix links, air mix cranks, air mix rods, and wire clamp. • Is there grease on links and cranks? • Are links, cranks, and rods securely installed in their proper positions? • Is wire clamp free of deformation? Are above items okay?	Yes	Go to next step.
		No	Apply grease or install links, cranks, and rods securely in their proper positions, repair or replace wire clamp, then go to step 7.
3	Is air mix wire securely installed in the correct position vis-a-vis heater unit's air mix links?	Yes	Go to next step.
		No	Adjust air mix wire or install securely in correct position then go to step 7.
4	Inspect heater control unit. • Is rack-and pinion properly engaged? • Is air mix wire properly installed in correct position vis-a-vis rack? Are above items okay?	Yes	Go to next step.
		No	Properly engage rack-and pinion or install air mix wire in correct position, then go to step 7.
5	Is there any foreign material or obstruction in heater unit's air mix doors?	Yes	Remove obstruction, then go to step 7.
		No	Go top next step.
6	Is heater unit's air mix door securely and properly installed?	Yes	Inspect air mix door for cracks or damage, then go to next step.
		No	Install air mix door securely in proper position, then go to next step.
7	Does unit operate in every temperature setting?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

6	Insufficient A/C cooling.

TROUBLESHOOTING HINTS
① Drive belt malfunction
Step 3
② Malfunction in blower unit or condenser
Steps 5, 6
③ Malfunction in receiver/drier or expansion valve (valve closes too much)
Steps 9, 10
④ Malfunction in refrigerant lines
Step 11, 12
⑤ A/C compressor system malfunction, insufficient compressor oil
Steps 14, 15
⑥ Over filling of compressor oil, malfunction in expansion valve or heater unit's air mix link system
Steps 16–18

STEP	INSPECTION		ACTION
1	Is vent air temperature **6 °C {43 °F} or less**?	Yes	Operation is normal. (To prevent evaporator within cooling unit from freezing, A/C compressor stops right away when ambient air temperature is **6 °C {43 °F} or less**.
		No	Go to next step.
2	Perform refrigerant system performance test. ☞ 07–10 PERFORMANCE TEST Is operation normal?	Yes	Operation is normal. (Reinspect malfunction symptoms.)
		No	Go to next step.
3	Inspect drive belt. ☞ 01–10 DRIVE BELT INSPECTION Is it okay?	Yes	Go to next step.
		No	Adjust or replace drive belt, then go to step 19. ☞ 01–10 DRIVE BELT ADJUSTMENT
4	Inspect refrigerant pressure. ☞ 07–10 REFRIGERANT PRESSURE CHECK Are both high-pressure and low-pressure values high?	Yes	Go to next step.
		No	Go to step 7.
5	Is blower unit intake clogged?	Yes	Remove obstruction, then go to step 19. (If air does not reach evaporator within cooling unit, heat exchange does not occur and refrigerant pressure becomes high. Therefore, removal of obstruction is necessary.)
		No	Go to next step.
6	Inspect condenser. ☞ 07–10 CONDENSER INSPECTION Is it okay?	Yes	Adjust refrigerant to specified amount, then go to step 19. (Excessive amount of refrigerant.)
		No	Replace condenser, or repair and clean condenser fins, then go to step 19.
7	Are refrigerant's high-pressure and low-pressure values low?	Yes	Go to next step.
		No	Go to step 13.
8	Immediately after A/C compressor operates, does refrigerant's high-pressure value momentarily rise to correct value, then fall and stay below it? (Is there negative pressure on low-pressure side?)	Yes	Go to next step.
		No	Go to step 11.
9	Turn A/C switch off and let air conditioner stop for **10 minutes**. Start engine. Turn both A/C switch and fan switch on. Does malfunction occur after A/C compressor turns on?	Yes	Go to next step.
		No	Replace receiver/drier, then go to step 19. (Since water has intermixed in receiver/drier, replacement is necessary.)
10	Is expansion valve heat-sensing tube within cooling unit securely installed proper position?	Yes	Replace expansion valve, then go to step 19. (Since valve closes too much, replacement is necessary.)
		No	Install heat-sensing tube securely in proper position, then go to step 19.

STEP	INSPECTION		ACTION
11	Inspect refrigerant lines. • Is piping free of damage and cracks? • Are piping connections free of oil grime? (Visual inspection) • Are piping connections free of gas leakage? (Inspect using gas leak tester.) Are above items okay?	Yes	Adjust both compressor oil and refrigerant to specified amount, then go to step 19.
		No	If piping is damaged or cracked, replace it, then go to step 19. If there is no damage, go to next step.
12	Are piping connections loose?	Yes	Tighten connections to specified torque, adjust both compressor oil and refrigerant to specified amount, then go to step 19.
		No	Replace O-ring on piping, adjust both compressor oil and refrigerant to specified amount, then go to step 19.
13	Does refrigerant's high-pressure value hardly increase?	Yes	Go to next step. (Pressure hardly increases.)
		No	Go to step 16.
14	When engine is racing, does high-pressure value increase?	Yes	Return to step 4.
		No	Go to next step.
15	After compressor oil is replenished to specified amount, does high-pressure value increase?	Yes	Troubleshooting completed. (Explain to customer that cause was insufficient compressor oil.)
		No	Replace A/C compressor, then go to step 19. (Cause is defective A/C compressor.)
16	Is only refrigerant low-pressure value high?	Yes	Go to step 18.
		No	Go to next step.
17	Are heater unit's air mix links, air mix cranks and air mix rods securely and properly installed?	Yes	Adjust compressor oil to specified amount, then go to step 19. (Cause is excessive amount of compressor oil.)
		No	Repair or install links, cranks and rods securely in proper position, then go to step 19.
18	Is expansion valve heat-sensing tube within cooling unit securely installed in proper position?	Yes	Replace expansion valve, then go to next step. (Since valve opens too much, replacement is necessary.)
		No	Install heat-sensing tube securely in proper position, then go to next step.
19	Is cool air discharged? (Are results of refrigerant system performance test okay?)	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

7	No cool air.

TROUBLESHOOTING HINTS
① A/C switch indicator light malfunction
Steps 4–6
② Thermoswitch, A/C switch malfunction
Steps 14, 15
③ PCM (A/C signal) system malfunction
Steps 16–18
④ Refrigerant pressure switch, refrigerant system malfunction
Steps 19, 20
⑤ PCM (IG1 signal) system malfunction
Steps 21
⑥ PCM A/C cut-off control system malfunction
Step 22
⑦ Coolant system malfunction
Step 23, 24
⑧ A/C compressor system malfunction
Steps 25, 26
⑨ A/C relay system malfunction
Steps 25–27

STEP	INSPECTION		ACTION
1	Is air discharged?	Yes	Go to next step.
		No	Go to step 1 of troubleshooting indexes No. 1, 2.
2	Start engine. Turn both A/C switch and fan switch on. Does A/C compressor operate?	Yes	Go to next step.
		No	Go to step 4.
3	Is vent air temperature **6 °C {43 °F} or less**?	Yes	Operation is normal. (To prevent evaporator within cooling unit from freezing, A/C compressor stops right away when ambient air temperature is **6 °C {43 °F} or less**.
		No	Go to step 1 of troubleshooting index No. 6.
4	Does A/C switch indicator light illuminate?	Yes	Go to step 7.
		No	Go to next step.
*5	Turn ignition switch to ON. Measure voltage at A/C switch terminal C (IG2 signal). Is voltage **approximately 12 V**?	Yes	Go to next step.
		No	Repair wiring harness between A/C 10 A fuse and A/C switch, then go to step 28.
*6	Turn both A/C switch and fan switch off. Measure voltage at A/C switch terminal A (A/C signal). Is voltage **approximately 12 V**?	Yes	Inspect A/C switch, then go to step 28.
		No	Repair wiring harness between A/C switch and fan switch, then go to step 28.
*7	Turn ignition switch to LOCK. Disconnect refrigerant pressure switch connector. Turn ignition switch to ON. Set fan switch at first speed. Measure voltage at following terminal of refrigerant pressure switch connector (on wiring harness side). • Terminal B (A/C signal) Is voltage **approximately 12 V** when A/C switch is off and **0 V** when it is on?	Yes	Go to step 14.
		No	Go to next step.
*8	Turn A/C switch off. Measure voltage at thermoswitch connector terminal C (IG2 signal). Is voltage **approximately 12 V**?	Yes	Go to next step.
		No	Repair wiring harness between A/C 10 A fuse and thermoswitch, then go to step 28.
*9	Measure voltage at thermoswitch connector terminal A (A/C signal). Is voltage **approximately 12 V** when A/C switch is off and **0 V** when it is on?	Yes	Repair wiring harness between refrigerant pressure switch and thermoswitch, then go to step 28.
		No	Go to next step.

STEP	INSPECTION		ACTION
10	Turn ignition switch to LOCK. Disconnect thermoswitch connector. Inspect for continuity at following terminal between thermoswitch connector (on wiring harness side) and ground. • Terminal A (A/C signal) Is there continuity?	Yes	Repair wiring harness between refrigerant pressure switch and thermoswitch, then go to step 28.
		No	Go to next step.
*11	Inspect thermoswitch. Is it okay?	Yes	Go to next step.
		No	Replace thermoswitch, then go to next step.
*12	Turn A/C switch on. Turn fan switch off. Measure voltage at A/C switch connector terminal B (A/C signal). Is voltage **approximately 12 V**?	Yes	Repair wiring harness between thermoswitch and A/C switch, then go to step 28.
		No	Go to next step.
13	Turn ignition switch to LOCK. Disconnect A/C switch connector. Inspect for continuity at following terminal between A/C switch connector (on wiring harness side) and ground. • Terminal B (A/C signal) Is there continuity?	Yes	Repair wiring harness between thermoswitch and A/C switch, then go to step 28.
		No	Replace A/C switch, then go to step 28.
*14	Measure voltage at refrigerant pressure switch connector (on wiring harness side) terminal A (A/C signal). Is voltage **approximately 12 V**?	Yes	Go to step 16.
		No	Go to next step.
*15	Measure voltage at PCM connector (22-pin) terminal 1P (A/C signal). Is voltage **approximately 12 V**?	Yes	Repair wiring harness between PCM and refrigerant pressure switch, then go to step 28.
		No	Replace PCM, then go to step 28.
16	When refrigerant pressure switch connector terminals A and B (on wiring harness side) are shorted, is cool air discharged?	Yes	Go to next step.
		No	Undo short, reconnect refrigerant pressure switch connector, then go to step 19.
17	Inspect refrigerant pressure. ☞ 07–10 REFRIGERANT PRESSURE CHECK Is it okay?	Yes	Undo short, reconnect refrigerant pressure switch connector, then go to step 19.
		No	Go to next step.
18	Inspect refrigerant amount. ☞ 07–10 REFRIGERANT CHARGE CHECK Is it okay?	Yes	Inspect refrigerant pressure switch, then go to step 28.
		No	Adjust refrigerant to specified level, then go to step 28.
*19	Does magnetic clutch operate when terminal B (IG1 signal) of A/C relay connector is grounded?	Yes	Undo short, then go to next step.
		No	Go to step 23.
*20	Turn A/C switch off. Measure voltage at PCM connector (22-pin) terminal 1S (IG1 signal). Is voltage **approximately 12 V**?	Yes	Go to next step.
		No	Repair wiring harness between A/C relay and PCM, then go to step 28.
*21	Inspect input signal components (crankshaft position sensor, engine coolant temperature sensor, power steering pressure switch, throttle position sensor, neutral switch (MT), transaxle range switch (AT), including wiring harness of PCM (A/C cut-off control). Are they okay?	Yes	Go to next step.
		No	Replace input signal components, then go to step 28.
22	Is coolant system operating properly? ☞ 01–01A ENGINE SYSTEM INSPECTION, Cooling Fan Control Inspection	Yes	Replace PCM, then go to step 28.
		No	Inspect for cause.
*23	Measure voltage at magnetic clutch's thermal protector terminal A (A/C control signal). Is voltage **approximately 12 V**?	Yes	Go to next step.
		No	Go to step 25.

STEP	INSPECTION		ACTION
*24	Inspect magnetic clutch. ☞ 07–40 MAGNETIC CLUTCH INSPECTION Is it okay?	Yes	Replace thermal protector, then go to step 28.
		No	Replace magnetic clutch stator, then go to step 28.
25	Inspect the following fuses: • A/C 10 A fuse • FAN 30 A fuse Are they okay?	Yes	Go to next step.
		No	Replace fuse, then go to step 28. If fuse burns out right away, go to next step.
*26	Measure voltage at following A/C relay terminals: • Terminal A (IG1 signal) • Terminal C (A/C control signal) Is voltage **approximately 12 V**?	Yes	Go to next step.
		No	Repair wiring harness between A/C 10 A fuse or FAN 30 A fuse and A/C relay, then go to step 28.
*27	Measure voltage at A/C relay terminal D (A/C control signal). Is voltage **approximately 12 V**?	Yes	Repair wiring harness between A/C relay and thermal protector, then go to next step.
		No	Replace A/C relay, then go to next step.
28	Is cool air discharged? (Is refrigerant system performance test result correct?)	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

07

8	**Noise while operating A/C system**		
TROUBLESHOOTING HINTS ① Magnetic clutch operation noise Step 4 ② A/C compressor vane noise Steps 5–12 ③ A/C compressor slippage noise Steps 13–16 ④ Hose or refrigerant line interference noise Step 17			
STEP	**INSPECTION**		**ACTION**
1	Is there a jinging, popping, beeping, or buzzing sound (A/C compressor vane noise)?	Yes	Go to step 5.
		No	Go to next step.
2	Is there a squeaking or whirling sound (A/C compressor slippage noise)?	Yes	Go to step 13.
		No	Go to next step.
3	Is there a rattling or vibrating sound (interference noise)?	Yes	Go to step 17.
		No	Go to next step.
4	Is there a clicking sound (magnetic clutch operation noise)?	Yes	Adjust clearance between pressure plate of magnetic clutch and A/C compressor pulley, then go to step 18. ☞ 07–40 MAGNETIC CLUTCH ADJUSTMENT
		No	Condition is normal. (Reinspect malfunction symptoms.)
5	Is noise heard continuously for more than 3 seconds after A/C compressor comes on?	Yes	Go to next step.
		No	Condition is normal. (Noise occurs for **2–3 seconds** immediately after A/C compressor turns on.)
6	Inspect idle speed. ☞ 01–10 ENGINE TUNE-UP, Idle Speed Is it okay?	Yes	Go to next step.
		No	Adjust idle speed, then go to step 18.
7	Inspect refrigerant amount. ☞ 07–10 REFRIGERANT CHARGE CHECK Is it okay?	Yes	Go to step 9.
		No	Go to next step.
8	Inspect refrigerant lines. • Is piping free of damage and cracks? • Are piping connections free of oil grime? (Visual inspection) • Are piping connections free of gas leakage? (Inspect using gas leak tester.) Are above items okay?	Yes	Adjust refrigerant amount to specified level, then go to step 18.
		No	If piping is damaged or cracked, replace then go to step 18. If there is gas leakage, repair or replace connection and replace receiver/drier*, then go to step 18.

STEP	INSPECTION		ACTION
8	Inspect refrigerant lines. • Is piping free of damage and cracks? • Are piping connections free of oil grime? (Visual inspection) • Are piping connections free of gas leakage? (Inspect using gas leak tester.) Are above items okay?	Yes	Adjust refrigerant amount to specified level, then go to step 18.
		No	If piping is damaged or cracked, replace then go to step 18. If there is gas leakage, repair or replace connection and replace receiver/drier*, then go to step 18.
9	Add **20 cc {0.8 fl oz}** of compressor oil. Is noise heard when racing engine?	Yes	Go to next step.
		No	Troubleshooting completed. Explain repair to customer.
10	Drain compressor oil. Is it contaminated with metal particles?	Yes	Go to next step.
		No	Replace A/C compressor, then go to step 18.
11	Is compressor oil whitish and mixed with water?	Yes	Replace entire A/C system (excluding heater), then go to step 18.
		No	Go to next step.
12	Is compressor oil darker than normal and contaminated with aluminum chips?	Yes	Replace A/C compressor and receiver/drier, then go to step 18. (Since A/C compressor may be worn and receiver/drier may be clogged, replacement of receiver/drier is necessary.)
		No	Condition is normal. Reinspect malfunction symptoms.
13	Is noise heard immediately after A/C compressor is stopped?	Yes	Replace A/C compressor, then go to step 18. (A/C compressor discharge valve left open.)
		No	Go to next step.
14	Inspect drive belt. ☞ 01–10 DRIVE BELT INSPECTION Is it okay?	Yes	Go to next step.
		No	Adjust or replace drive belt, then go to step 18.
15	Is drive belt worn? Does it have foreign material imbedded in it, or have oil on it?	Yes	Remove obstruction, remove oil, or replace drive belt, then go to step 18.
		No	Go to next step.
16	Inspect magnetic clutch. ☞ 07–40 MAGNETIC CLUTCH INSPECTION Is it okay?	Yes	Replace A/C compressor (excluding pressure plate, A/C compressor pulley, and stator), then go to step 18.
		No	Replace magnetic clutch, then go to step 18.
17	Is noise emitted from A/C compressor?	Yes	Visually inspect A/C compressor, replace appropriate parts if necessary, then go to next step.
		No	If noise is due to refrigerant lines, repair detached or missing clips, tighten loose bolts, then go to next step.
18	Has A/C compressor noise stopped?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

* : If there is gas leakage, air enters into the A/C system and the desiccant within the receiver/drier absorbs the moisture from it and becomes saturated. If the A/C system is used in this condition, the inside of the A/C compressor will begin to rust due to this moisture, which may cause lock up or noise to occur. Therefore, replacement of the receiver/drier is necessary.

07–10 REFRIGERANT SYSTEM

REFRIGERANT SYSTEM SERVICE WARNINGS

U5U71CAA

Using/Handling Unapproved Refrigerant

- **Using a flammable refrigerant, such as OZ-12, in this vehicle is dangerous. In an accident, the refrigerant may catch fire, resulting in serious injury or death. When servicing this vehicle, use only R-134a.**
- **Checking for system leaks on a vehicle that has been serviced with flammable refrigerant, such as OZ-12, is dangerous. Conventional leak detectors use an electronically generated arc which can ignite the refrigerant, causing serious injury or death. If a flammable refrigerant may have been used to service the system, or if you suspect a flammable refrigerant has been used, contact the local fire marshall or EPA office for information on handling the refrigerant.**

Storing Refrigerant

- **The refrigerant container is highly pressurized. If it is subjected to high heat, it could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Store the refrigerant at temperatures below 40 °C {104 °F}.**
- **Do not allow the refrigerant to leak near fire or any kind of heat. A poisonous gas may be generated if the refrigerant gas contacts fire or heat such as from cigarettes and heaters. When carrying out any operation that can cause refrigerant leakage, extinguish or remove the above-mentioned heat sources and maintain adequate ventilation.**

Handling Refrigerant

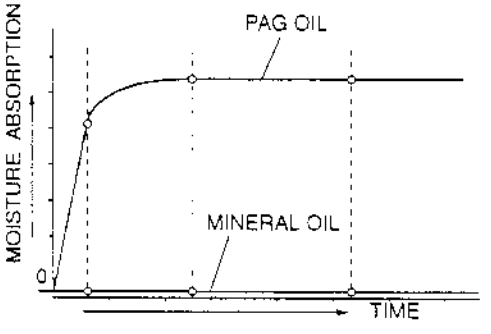
- **Handling liquid refrigerant is dangerous. A drop of it on the skin can result in localized frostbite. When handling the refrigerant, wear gloves and safety goggles. If refrigerant splashes into the eyes, immediately wash them with clean water and consult a doctor.**

REFRIGERANT SYSTEM SERVICE CAUTIONS

X5U71CW01

Compressor Oil

- **Use only DENSO OIL9 compressor oil for this vehicle. Using PAG oil other than DENSO OIL9 compressor oil can damage the A/C compressor.**
- **Do not spill DENSO OIL9 compressor oil on the vehicle. A drop of compressor oil on the vehicle surface can eat away at the paint. If oil gets on the vehicle, wipe it off immediately.**
- **PAG oil has a higher moisture absorption efficiency than the previously used mineral oil. If moisture mixes with the compressor oil, the refrigerant system could be damaged. Therefore, install caps immediately after using the compressor oil or removing refrigerant system parts to prevent moisture absorption.**



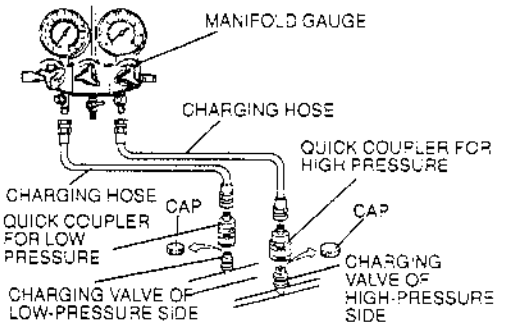
U5U71001

REFRIGERANT SYSTEM GENERAL PROCEDURES

X5U710W02

Manifold Gauge Set Installation

1. Fully close the valves of the manifold gauge.
2. Connect charging hoses to the high- and low-pressure side joints of the manifold gauge.
3. Connect quick couplers to the ends of the charging hoses.
4. Remove the caps from the high- and low-pressure side charging valves.
5. Connect the quick couplers to the charging valves.



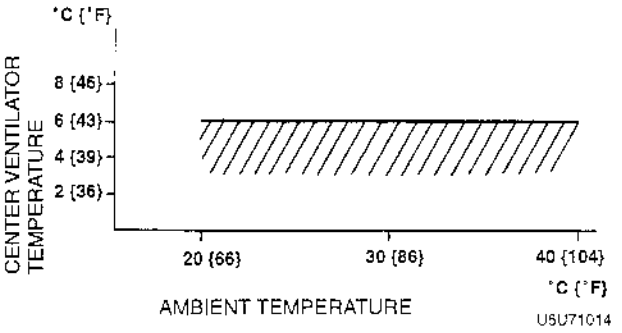
REFRIGERANT SYSTEM PERFORMANCE TEST

X5U710W03

Note

- After servicing the refrigerant system, test its performance.

1. Install the manifold gauge set. (Refer to 07–10 REFRIGERANT SYSTEM GENERAL PROCEDURES, Manifold Gauge Set Installation.)
2. Open the hood.
3. Close all the doors and all the windows.
4. Warm up the engine and run it at a constant **1,500 rpm**.
5. Turn the A/C switch on.
6. Set the fan switch at 4th.
7. Set the REC/FRESH lever to REC.
8. Set the mode lever to VENT.
9. Set the temperature control lever to MAX COLD.

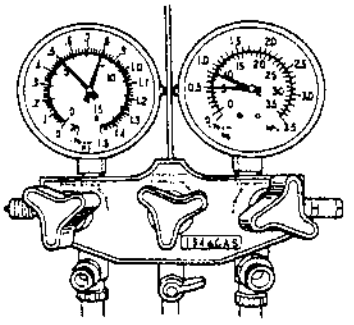


10. Measure the center ventilator temperature and record the temperature reading.
11. Measure the ambient temperature and record the temperature reading.
12. Verify that the temperature reading is in the shaded zone (maximum 6 °C {43 °F}).
13. If the performance is not within the shaded zone, troubleshoot the refrigerant system. (Refer to 07–01 TROUBLESHOOTING.)

REFRIGERANT CHARGE CHECK

X5U710W04

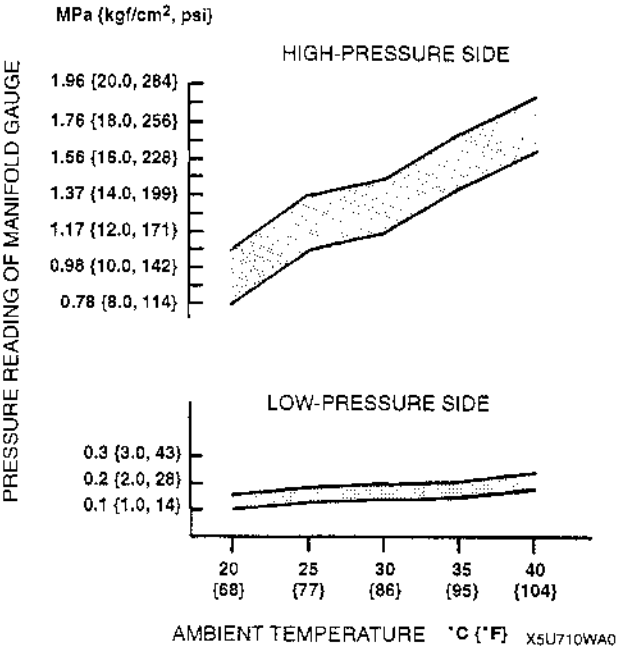
1. Install the manifold gauge set. (Refer to 07–10 REFRIGERANT SYSTEM GENERAL PROCEDURES, Manifold Gauge Set Installation.)
2. Check the refrigerant pressure reading with the engine stopped.
3. Verify that the high- and low-pressure side readings of the manifold gauge are at **493—788 kPa {5.02—8.04 kgf/cm^2, 72—114 psi}**. If the pressure readings are lower than specified, recharge the refrigerant amount. (Refer to 07–10 REFRIGERANT CHARGING.) If the pressure readings are within the specification but there is insufficient cooling, go to the next step. If the pressure readings are within the specification and there are no leaks, the refrigerant amount is OK.
4. Start the engine and run it at a constant **2000 rpm**.
5. Turn the A/C switch on and set the fan switch at 4th.
6. Set the REC/FRESH lever to REC.
7. If the A/C compressor is short-cycling, note the low-pressure side reading at which the magnetic clutch kicks out.
8. If the pressure is **170 kPa {1.7 kgf/cm^2, 24 psi}** or lower, evacuate then recharge the refrigerant system with the proper amount of refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.) If the pressure is **210 kPa {2.1 kgf/cm^2, 30 psi}** or higher, inspect the thermoswitch. (Refer to 07–40 THERMOSWITCH INSPECTION.)



REFRIGERANT PRESSURE CHECK

1. Install the manifold gauge set. (Refer to 07–10 REFRIGERANT SYSTEM GENERAL PROCEDURES, Manifold Gauge Set Installation.)
2. Open the hood.
3. Close all the doors and all the windows.
4. Warm up the engine and run it at a constant **1,500 rpm**.
5. Turn the A/C switch on.
6. Set the fan switch at 4th.
7. Set the REC/FRESH lever to REC.
8. Set the mode lever to VENT.
9. Set the temperature control lever to MAX COLD.
10. Measure the high- and low-pressure side readings of the manifold gauge.
11. If the high- and low-pressure side readings are in the shaded zones shown in the figure, the refrigerant system is normal.

X5U710W05



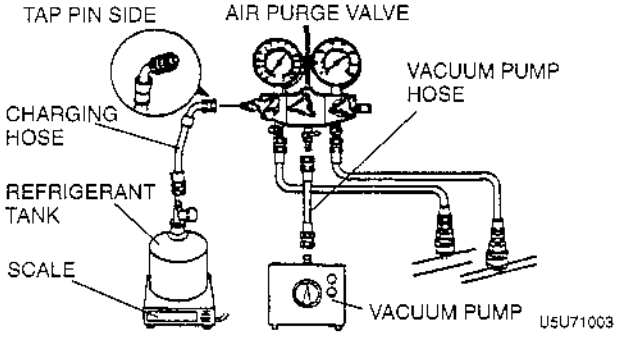
X5U710WA0

12. If the high- and low-pressure side readings are not as specified, troubleshoot the refrigerant system. (Refer to 07–01 TROUBLESHOOTING.)

REFRIGERANT CHARGING

1. Install the manifold gauge set. (Refer to 07–10 REFRIGERANT SYSTEM GENERAL PROCEDURES, Manifold Gauge Set Installation.)
2. Connect the tap pin side of the charging hose to the air purge valve of the manifold gauge.
3. Connect the vacuum pump hose to the center joint of the manifold gauge.
4. Connect the vacuum pump hose to the vacuum pump.
5. Connect the charging hose to the refrigerant tank.
6. Place the refrigerant tank on the scale.

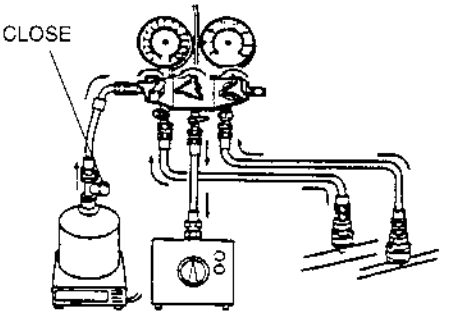
Regular amount of refrigerant
600 g {21.2 oz}



U5U71003

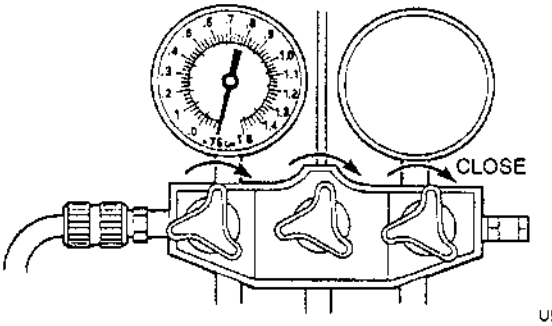
7. Open all the valves of the manifold gauge.
8. Start the vacuum pump and let it operate for **15 minutes**.

X5U710W06



U5U71004

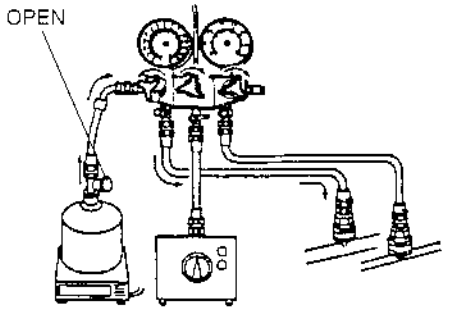
9. Verify that the high- and low-pressure side readings of the manifold gauge are at **–101 kPa {–760 mmHg, –29.9 inHg}**. Close each valve of the manifold gauge.



U5U71005

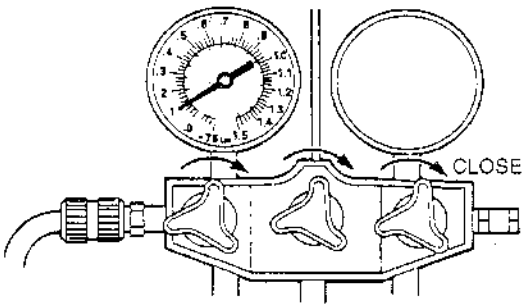
10. Stop the vacuum pump and wait for about **5 minutes**.

11. Check the low-pressure side reading of the manifold gauge. If the reading has changed, check for leaks and then repeat from step 7. If the reading has not changed, go to step 12.
12. Open the valve of the refrigerant tank.
13. Weigh the refrigerant tank.
14. Open the low-pressure side valve of the manifold gauge.



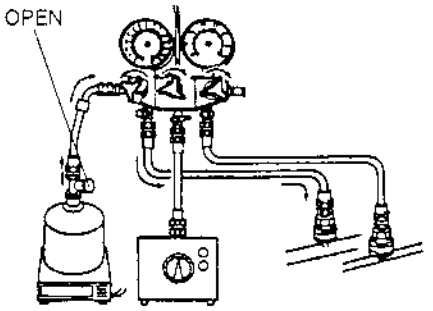
U5U71006

15. When the low-pressure side reading increases to **0.1 MPa {1 kgf/cm^2, 14 psi}**, close the low-pressure side valve of the manifold gauge.



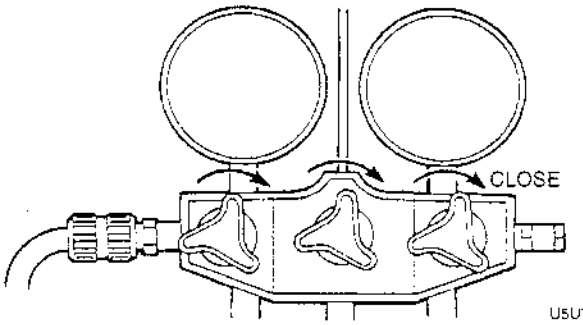
U5U71007

16. Check for leaks from the cooler pipe/hose connections by using a gas leak tester. If there are no leaks, go to step 17. If a leak is found at a loose joint, tighten the joint and check for leaks again. If there is still a leak at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from step 7. If there are no leaks after tightening the joint, go to step 17.
17. Open the low-pressure side valve of the manifold gauge and charge with refrigerant until the weight of the refrigerant tank has decreased 300 g {10.6 oz} from the amount in step 13.



U5U71008

18. Close the low-pressure side valve of the manifold gauge.

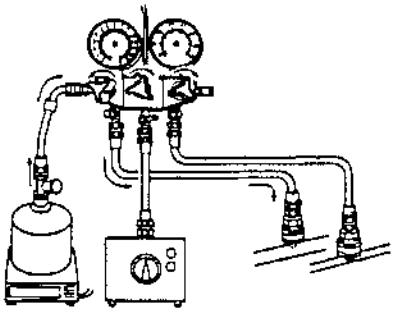


U5U71009

Warning

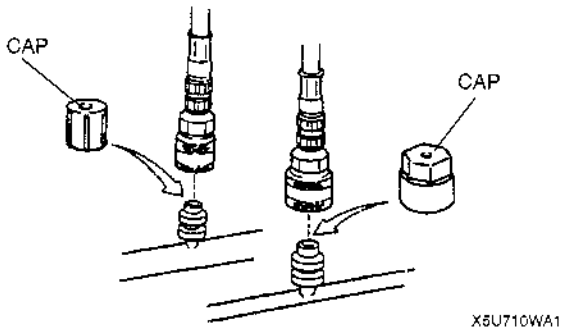
- **Running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**

19. Start the engine and actuate the A/C compressor.
20. Open the low-pressure side valve of the manifold gauge and charge with refrigerant until the weight of the refrigerant tank has decreased 600 g {21.2 oz} from the amount in step 13.


U5U71010

21. Close the low-pressure side valve of the manifold gauge.
22. Stop the engine and A/C compressor.

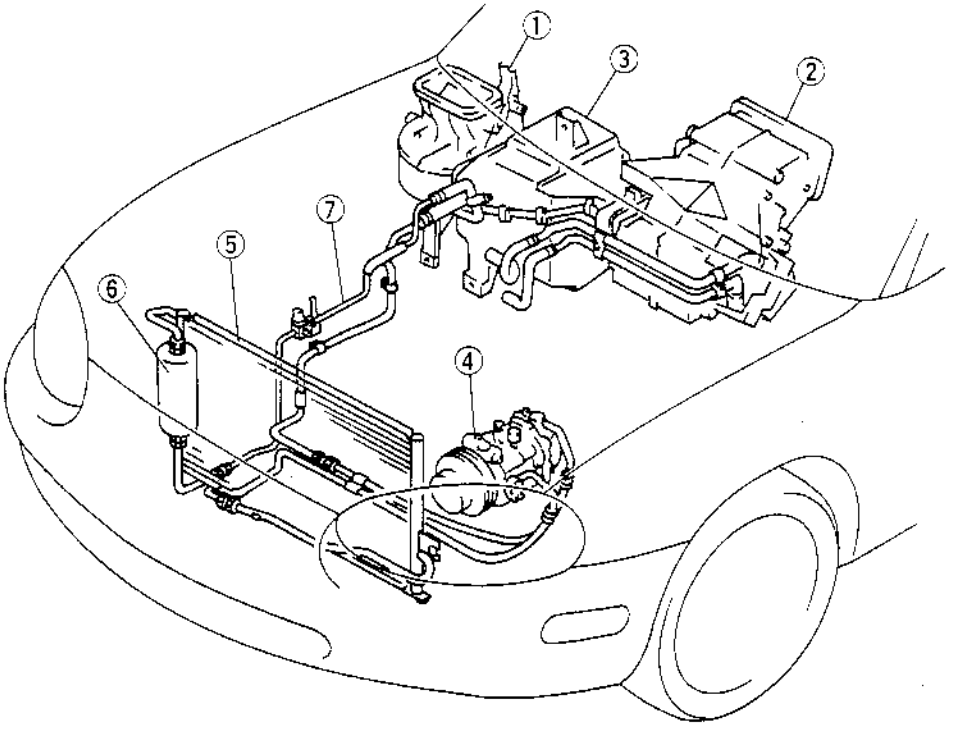
23. Check for leaks by using a gas leak tester. If there are no leaks, go to step 24. If a leak is found at a loose joint, tighten the joint and check for leaks again. If there is still a leak at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from step 7. If there are no leaks after tightening the joint, go to step 24.
24. Disconnect the high- and low-pressure side quick couplers from the charging valves.
25. Install the caps to the charging valves.



07–11 BASIC SYSTEM

BASIC SYSTEM STRUCTURAL VIEW

X5U711WC



X5U711WA0

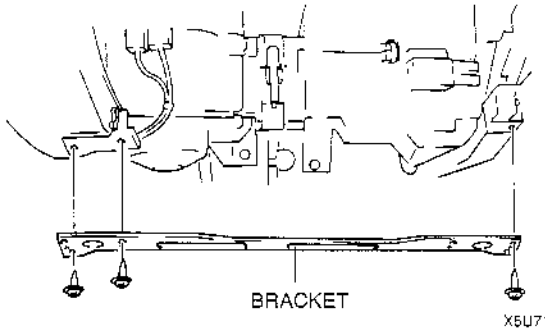
1	Blower unit
2	Heater unit
3	Cooling unit
4	A/C compressor

5	Condenser
6	Receiver/drier
7	Refrigerant lines

BLOWER UNIT REMOVAL/INSTALLATION

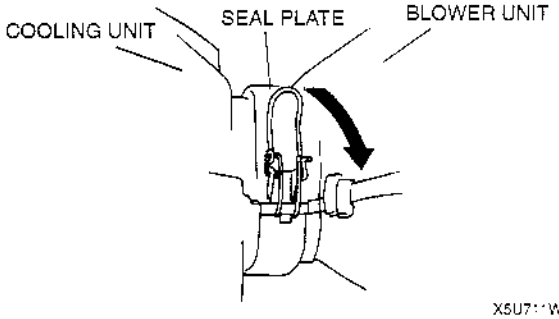
X5U711W02

1. Disconnect the negative battery cable.
2. Remove the glove compartment.
3. Remove the bracket.

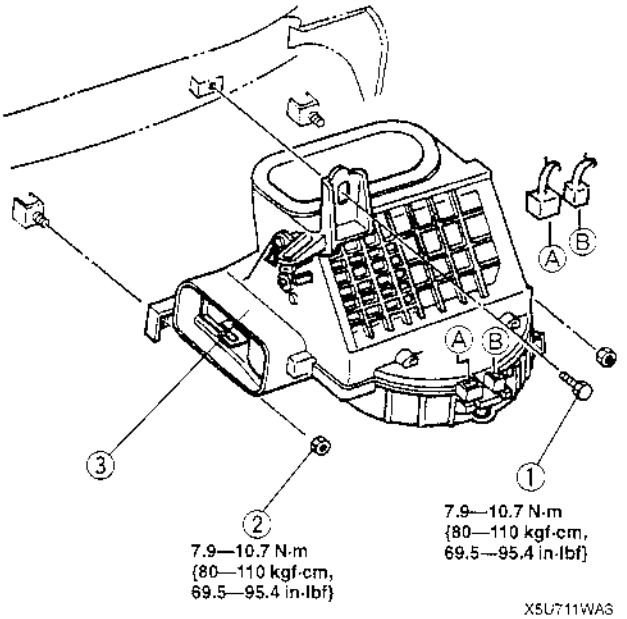


X5U711WA1

4. Remove the seal plate.



X5U711WA2



X5U711WA3

1	Bolt
2	Nut
3	Blower unit

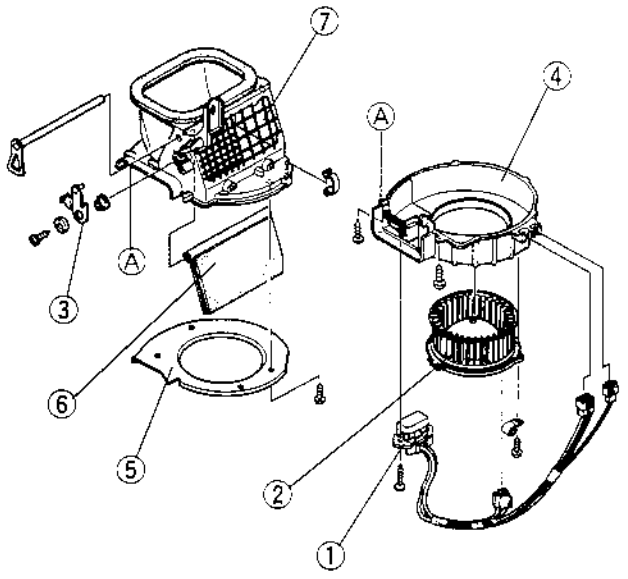
5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.

BLOWER UNIT DISASSEMBLY/ASSEMBLY

X5U711W03

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.

1	Resistor
2	Blower motor
3	Air intake link
4	Case (bottom)
5	Air guider
6	Air intake door
7	Case (top)



U5U71103

COOLING UNIT REMOVAL/INSTALLATION

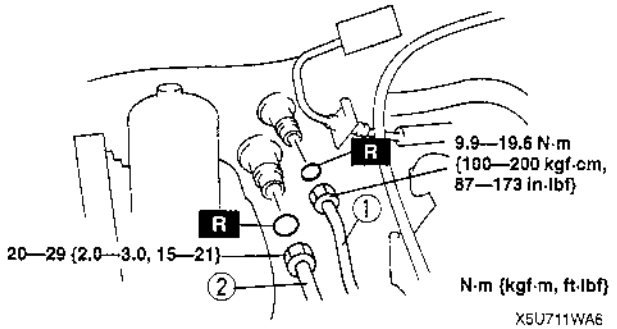
X5U711W07

1. Discharge the refrigerant from the system.
2. Disconnect the negative battery cable.
3. Remove the glove compartment.

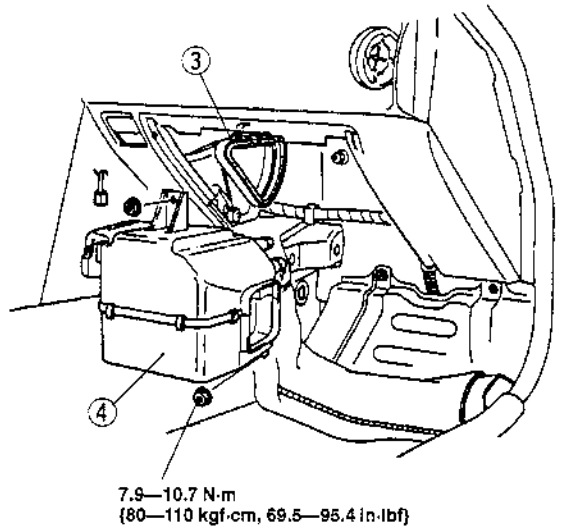
Caution

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

4. Remove in the order indicated in the table. Do not allow compressor oil to spill.
5. Install in the reverse order of removal.
6. Recharge with refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.)
7. Perform refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)



X5U711WA6



X5U711WA7

1	Cooler pipe No.1 ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Removal Note ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Installation Note
2	Cooler pipe No.2 ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Removal Note ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Installation Note
3	Seal plate
4	Cooling unit ☞ Installation Note

Cooling Unit Installation Note

- When installing a new cooling unit, add DENSO OIL9 compressor oil into the refrigeration cycle.

Supplemental amount
40 ml {40 cc, 1.4 fl oz}

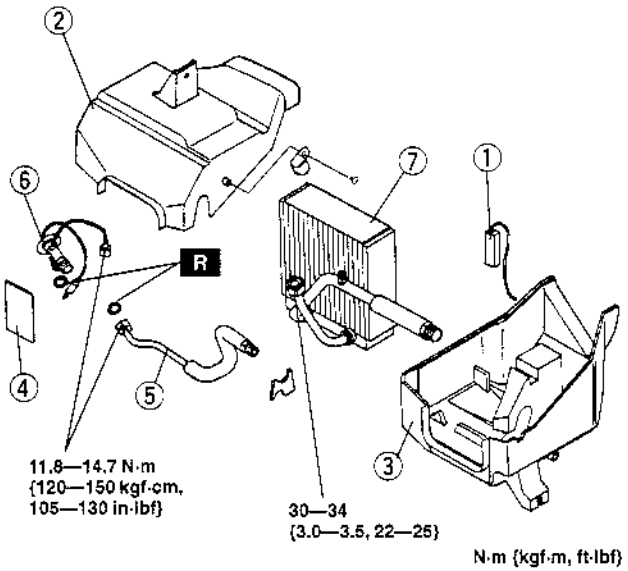
COOLING UNIT DISASSEMBLY/ASSEMBLY

X5U711W08

Caution

- **If moisture of foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



N·m {kgf·m, ft·lbf}

X5U711WA8

1	Thermoswitch ☞ Assembly note
2	Case (top)
3	Case (bottom)
4	Tar patty
5	Pipe
6	Expansion valve ☞ Assembly Note
7	Evaporator ☞ Assembly Note

Evaporator Assembly Note

- When installing a new evaporator, add DENSO OIL9 compressor oil into the refrigeration cycle.

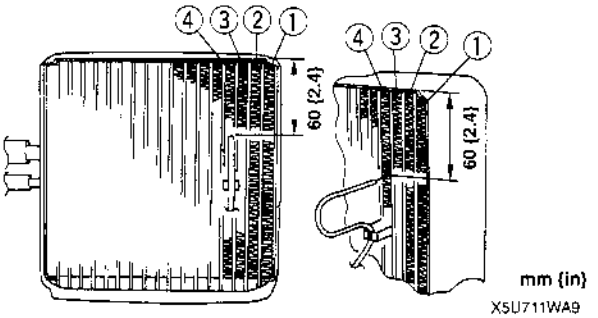
Supplemental amount
40 ml {40 cc, 1.4 fl oz}

Expansion Valve Assembly Note

1. Apply compressor oil to the O-rings and connect the joints.
2. Install the heat-sensing tube to its proper position.

Thermoswitch Assembly Note

- Insert the termoswitch probe in location as shown in the figure.



mm {in}

X5U711WA9

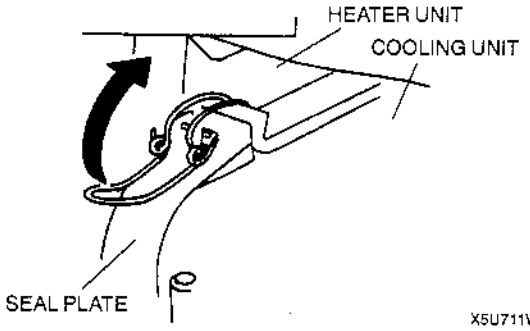
EVAPORATOR INSPECTION

X5U711W09

1. Remove the cooling unit. (Refer to 07–11 COOLING UNIT REMOVAL/INSTALLATION.)
2. Remove the evaporator from the cooling unit.
3. Inspect for cracks, damage, and oil leakage. If any are found, replace the evaporator.
4. Inspect for bent fins. If any are bent, use a flathead screwdriver to straighten them.

HEATER UNIT REMOVAL/INSTALLATION

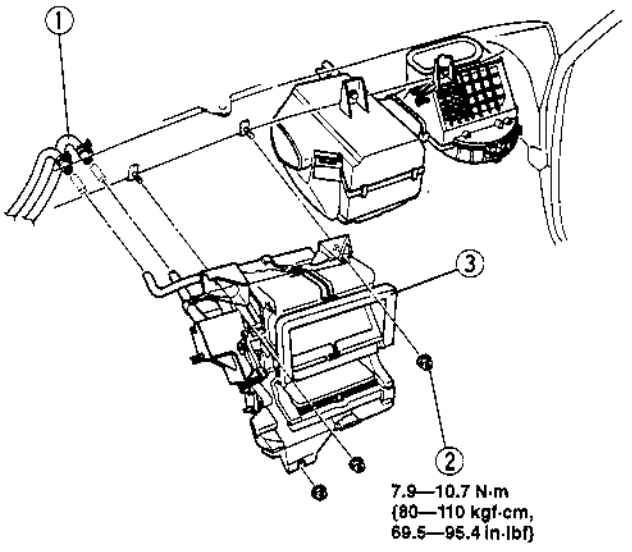
1. Disconnect the negative battery cable.
2. Drain the engine coolant. (Refer to 01–12 ENGINE COOLANT REPLACEMENT, Draining.)
3. Remove the dashboard. (Refer to 09–17 DASHBOARD REMOVAL/INSTALLATION.)
4. Remove the seal plate.



X5U711WA4

5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.
7. Refill the engine coolant. (Refer to 01–12 ENGINE COOLANT REPLACEMENT, Refilling.)

X5U711W04



X5U711WAE

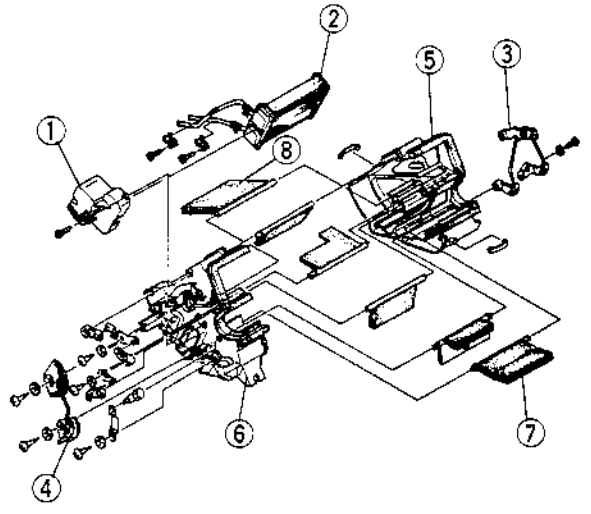
1	Heater hose
2	Nut
3	Heater unit

HEATER UNIT DISASSEMBLY/ASSEMBLY

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.

X5U711W05

1	Cover
2	Heater core
3	Air mix link
4	Airflow mode link
5	Case (RH)
6	Case (LH)
7	Air mix door
8	Airflow mode door



X5U711WA5

HEATER CORE INSPECTION

X5U711W06

1. Remove the heater unit. (Refer to 07–11 HEATER UNIT REMOVAL/INSTALLATION.)
2. Remove the heater core from the heater unit.
3. Inspect for cracks, damage, and coolant leakage. If any are found, replace the heater core.
4. Inspect for bent fins. If any are bent, use a flathead screwdriver to straighten them.
5. Verify that the heater core inlet and outlet are not distorted or damaged. Repair with pliers if necessary.

A/C COMPRESSOR REMOVAL/INSTALLATION

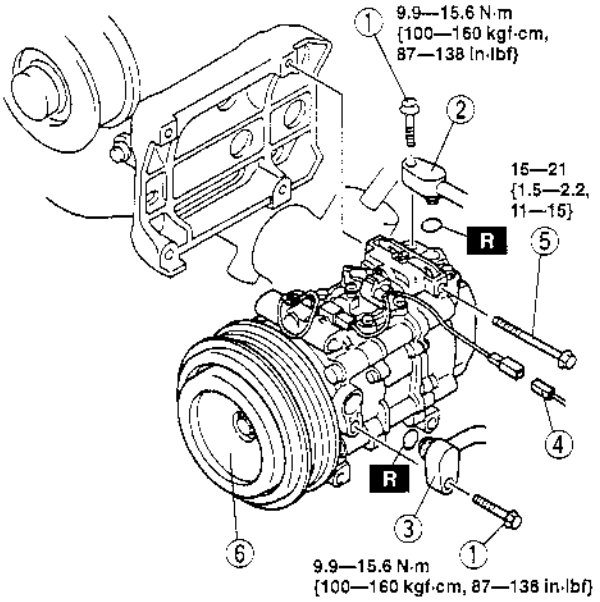
X5U711W10

1. Discharge the refrigerant from the system.
2. Disconnect the negative battery cable.
3. Remove the under cover.
4. Remove the drive belt (P/S+A/C).

Caution

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

5. Remove in the order indicated in the table. Do not allow compressor oil to spill.
6. Install in the reverse order of removal.
7. Adjust the drive belt (P/S+A/C). (Refer to 01–10 DRIVE BELT ADJUSTMENT.)
8. Recharge with refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.)
9. Perform refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)



X5U7[illegible]WAA

1	Bolt
2	Flexible hose (HI) ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Removal Note ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Installation Note
3	Flexible hose (LO) ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Removal Note ☞ 07–11 REFRIGERANT LINES REMOVAL/INSTALLATION, Refrigerant Lines Installation Note
4	Connector
5	Bolt
6	A/C compressor ☞ Installation Note

A/C Compressor Installation Note

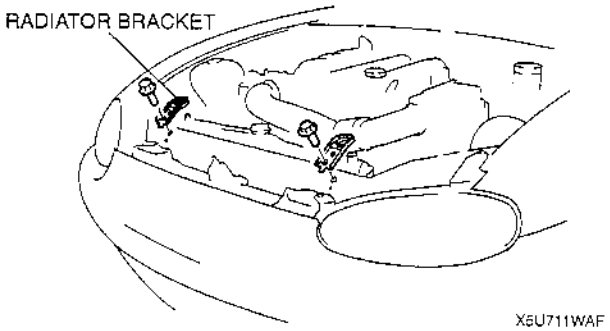
- Remove the following amount of compressor oil from the new A/C compressor when replacing the A/C compressor.

Compressor oil to the removed
= 200 ml {200 cc, 6.76 fl oz} −
[compressor oil from old A/C compressor
+ 15 ml {15 cc, 0.5 fl oz}]

CONDENSER REMOVAL/INSTALLATION

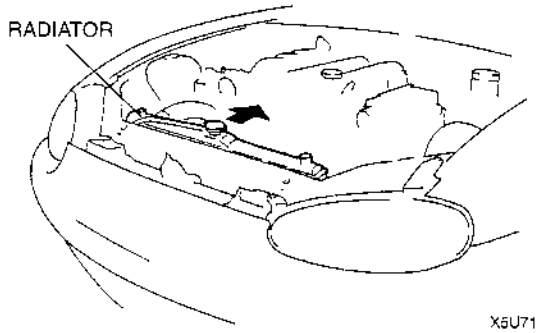
X5U711W11

1. Discharge the refrigerant from the system.
2. Disconnect the negative battery cable.
3. Remove the cooling fan. (Refer to 01–12 RADIATOR REMOVAL/INSTALLATION.)
4. Remove the condenser fan. (Refer to 07–11 CONDENSER FAN REMOVAL/INSTALLATION.)
5. Remove the radiator brackets.



X5U711WAF

6. Keep pushing the radiator fully backward to remove the condenser.

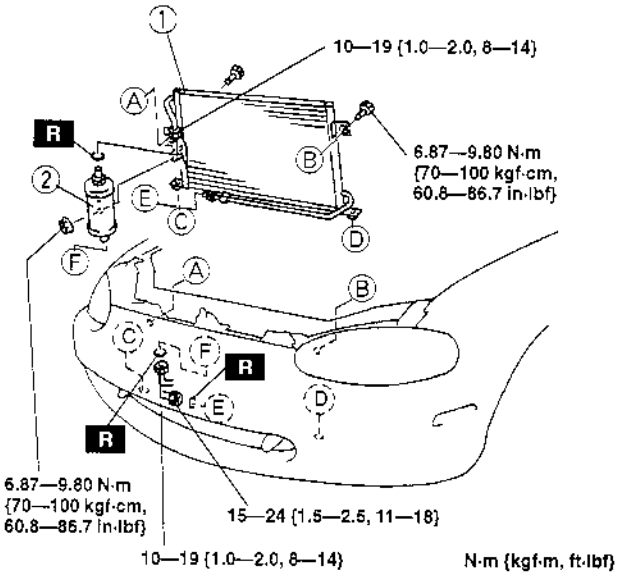


X5U711WAG

Caution

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

7. Remove in the order indicated in the table. Do not allow compressor oil to spill.
8. Install in the reverse order of removal.
9. Recharge with refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.)
10. Perform the refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)



X5U711WAB

1	Condenser ☞ Installation Note
2	Receiver/drier

Condenser Installation Note

- When installing a new condenser, add DENSO OIL9 compressor oil into the refrigeration cycle.

Supplemental amount
30 ml {30 cc, 1.0 fl oz}

CONDENSER INSPECTION

X5U711W12

1. Inspect for cracks, damage, and oil leakage. If any are found, replace the condenser.
2. Inspect for fins clogged by dust. If any are clogged, remove the dust from the fins.
3. Inspect for bent fins. If any are bent, use a flathead screwdriver to straighten them.

RECEIVER/DRIER REMOVAL/INSTALLATION

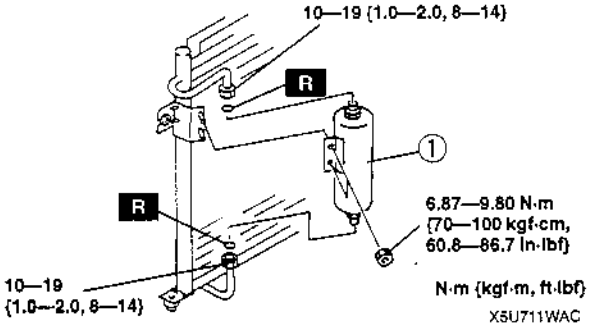
1. Discharge the refrigerant from the system.
2. Disconnect the negative battery cable.
3. Remove the condenser. (Refer to 07–11 CONDENSER REMOVAL/INSTALLATION.)

Caution

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

4. Remove in the order indicated in the table. Do not allow compressor oil to spill.
5. Install in the reverse order of removal.
6. Recharge with refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.)
7. Perform the refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)

X5U711W13



X5U711WAC

1	Receiver/drier ☞ Installation Note

Receiver/drier Installation Note

- When installing a new receiver/drier, add DENSO OIL9 compressor oil into the refrigeration cycle.

Supplemental amount
10 ml {10 cc, 0.3 fl oz}

REFRIGERANT LINES REMOVAL/INSTALLATION

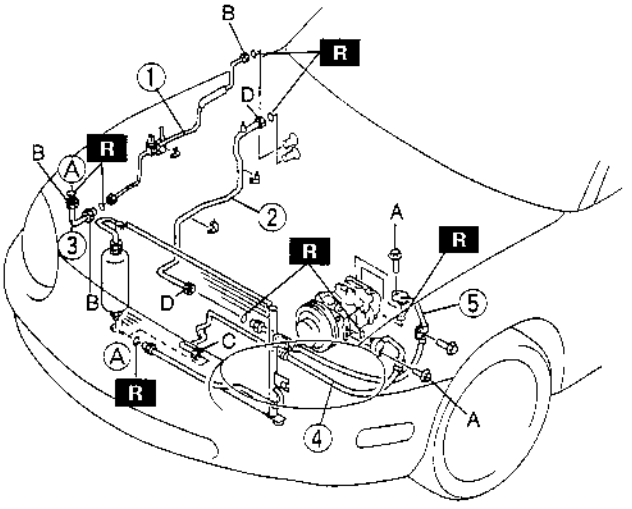
X5U711W14

1. Discharge the refrigerant from the system.
2. Disconnect the negative battery cable.
3. Remove the under cover.

Caution

- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**
- **To prevent the pipe from breaking, loosen the joint by using two open-end wrenches.**

4. Remove in the order indicated in the table.
5. Install in the reverse order of removal.
6. Recharge with refrigerant. (Refer to 07–10 REFRIGERANT CHARGING.)
7. Perform the refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)



A: 9.9—15.6 N·m {100—160 kgf·cm, 87—138 in·lbf}
B: 9.9—19.6 N·m {100—200 kgf·cm, 87—173 in·lbf}
C: 15—24 N·m {1.5—2.5 kgf·m, 11—18 ft·lbf}
D: 20—29 N·m {2.0—3.0 kgf·m, 15—21 ft·lbf}

X5U711WAD

1	Cooler pipe No.1 ☞ Refrigerant Lines Removal Note ☞ Refrigerant Lines Installation Note
2	Cooler pipe No.2 ☞ Refrigerant Lines Removal Note ☞ Refrigerant Lines Installation Note
3	Cooler pipe No.3 ☞ Refrigerant Lines Removal Note ☞ Refrigerant Lines Installation Note
4	Flexible hose (HI) ☞ Refrigerant Lines Removal Note ☞ Refrigerant Lines Installation Note
5	Flexible hose (LO) ☞ Refrigerant Lines Removal Note ☞ Refrigerant Lines Installation Note

Refrigerant Lines Removal Note

- Loosen the nut by using 2 wrenches, then remove the cooler pipe or hose.

Refrigerant Lines Installation Note

1. Apply compressor oil to the O-rings and connect the joints.
2. When installing a new cooler hose or pipe add DENSO OIL9 compressor oil into the refrigeration cycle.

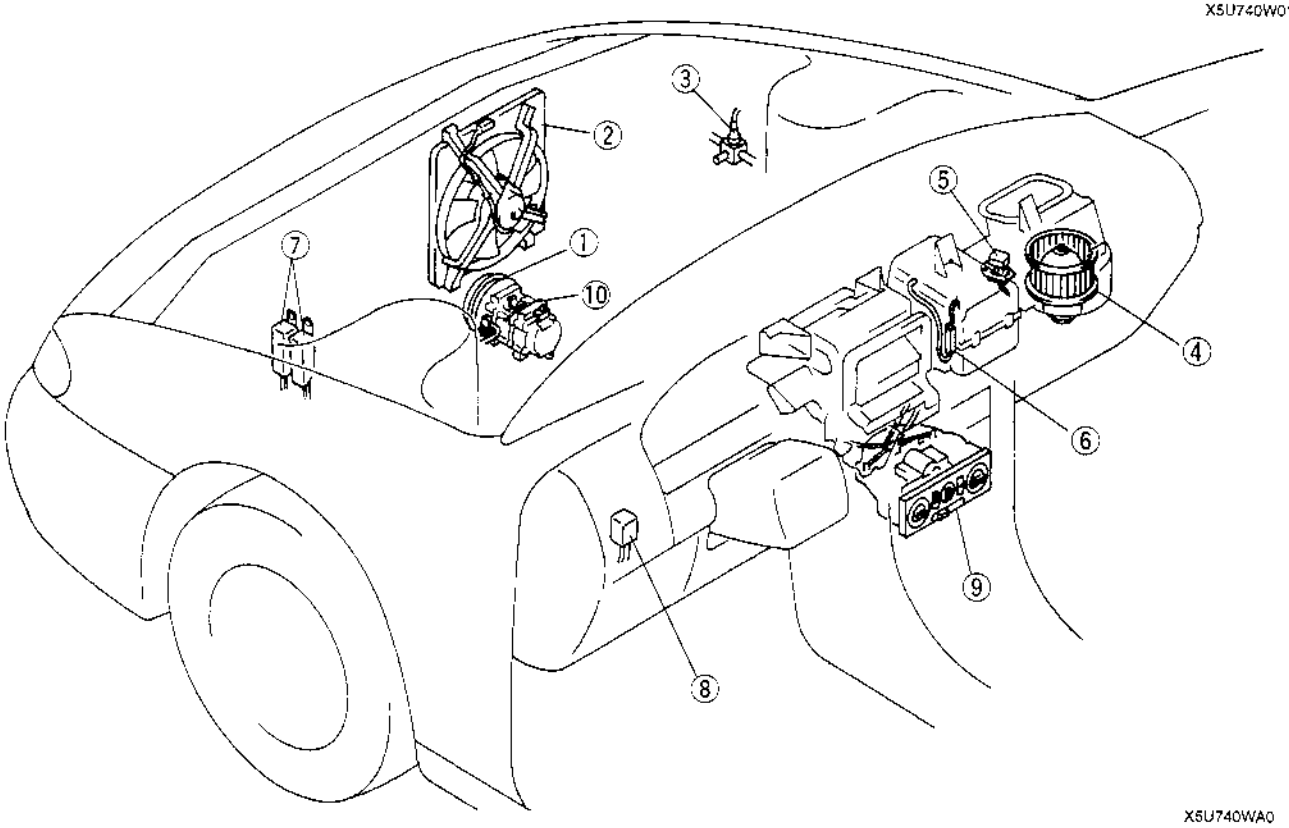
   Supplemental amount
   10 ml {10 cc, 0.3 fl oz}

3. Tighten the joints.
   (1) Tighten the nut or bolt of the joint by hand.
   (2) Tighten the joint to the specified torque. If it is a nut joint, tighten the nut by using a spanner and torque wrench.

07–40 CONTROL SYSTEM

CONTROL SYSTEM STRUCTURAL VIEW

X5U740W01



X5U740WA0

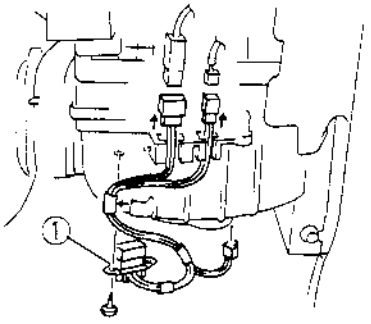
1	Magnetic clutch
2	Condenser fan
3	Refrigerant pressure switch
4	Blower motor
5	Resistor

6	Thermoswitch
7	A/C relay and condenser fan relay
8	Blower relay
9	Heater control unit
10	Thermal protector

RESISTOR REMOVAL/INSTALLATION

X5U740W09

1. Disconnect the negative battery cable.
2. Remove as indicated in the table.
3. Install in the reverse order of removal.



X5U740WA6

1	Resistor

RESISTOR INSPECTION

X5U740W10

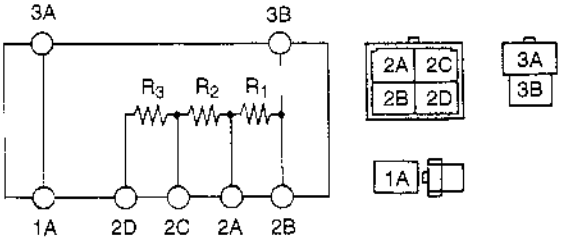
1. Disconnect the resistor connectors.
2. Inspect for continuity between the resistor terminals by using an ohmmeter.

○—○ : Continuity ○-WW-○ : Resistance

Test condition	Terminal						
	1A	3A	3B	2B	2A	2C	2D
Constant	○—○		○—○-WW-○-WW-○-WW-○				

R_1: 1 Ω R_2: 2.6 Ω R_3: 2 Ω

U5U74010



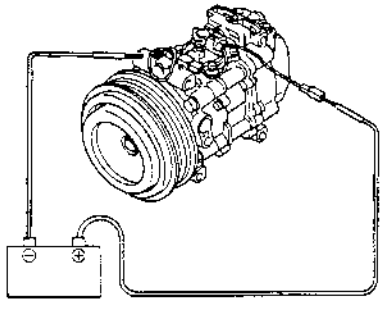
U5U74011

3. If not as specified, replace the resistor.

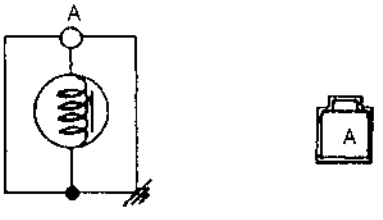
MAGNETIC CLUTCH INSPECTION

U5U740AC

1. Disconnect the magnetic clutch connector.
2. Connect battery positive voltage to terminal A of the magnetic clutch and ground to A/C compressor body.



X5U740WA1



U5U74024

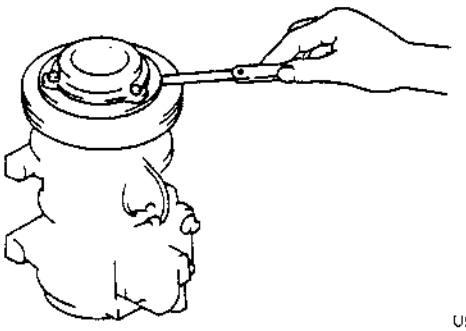
3. Verify that the magnetic clutch operates.
4. If not as specified, replace the stator.

MAGNETIC CLUTCH ADJUSTMENT

- Adjust the clearance by using shims if necessary. Adjusting shims are available in the following thicknesses.

Adjusting shim size
0.1 mm {0.004 in}
0.3 mm {0.012 in}
0.5 mm {0.020 in}
Standard clearance
0.35—0.65 mm {0.014—0.025 in}

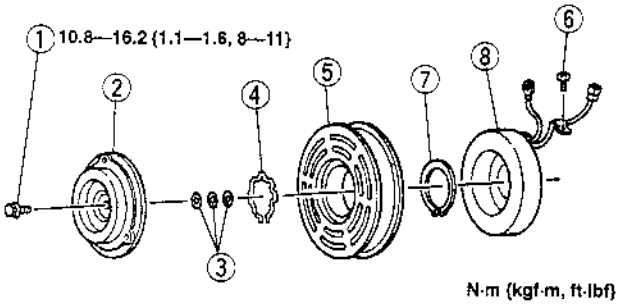
U5U740AD



U5U74005

MAGNETIC CLUTCH DISASSEMBLY/ASSEMBLY

1. Remove the A/C compressor. (Refer to 07–11 A/C COMPRESSOR REMOVAL/INSTALLATION.)
2. Disassemble in the order indicated in the table.
3. Assemble in the reverse order of disassembly.
4. Adjust the magnetic clutch clearance. (Refer to 07–40 MAGNETIC CLUTCH ADJUSTMENT.)



N·m {kgf·m, ft·lbf}

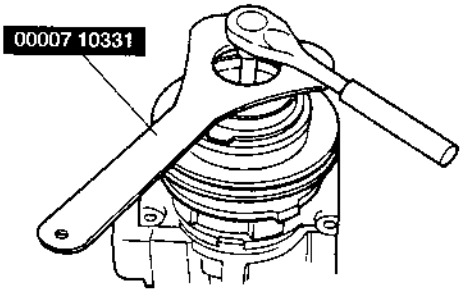
U5U74002

1	Bolt ☞ Disassembly Note
2	Pressure plate ☞ Disassembly Note
3	Shim
4	Snap ring
5	A/C compressor pulley
6	Screw
7	Snap ring
8	Stator

X5U740W02

Bolt Disassembly Note

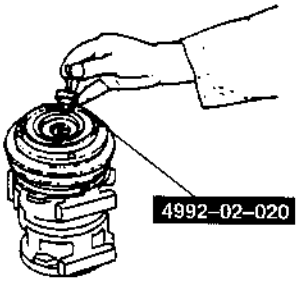
- Remove the bolt by using the **SST**.



U5U74003

Pressure Plate Disassembly Note

- Remove the pressure plate by using the **SST**.

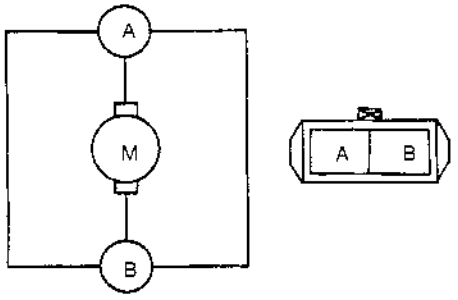


U5U74004

CONDENSER FAN INSPECTION

X5U740W04

1. Disconnect the condenser fan connector.
2. Connect battery positive voltage to terminal A and ground to terminal B of the condenser fan, and verify that air blows towards the engine.
3. If the condenser fan does not operate, replace the condenser fan.



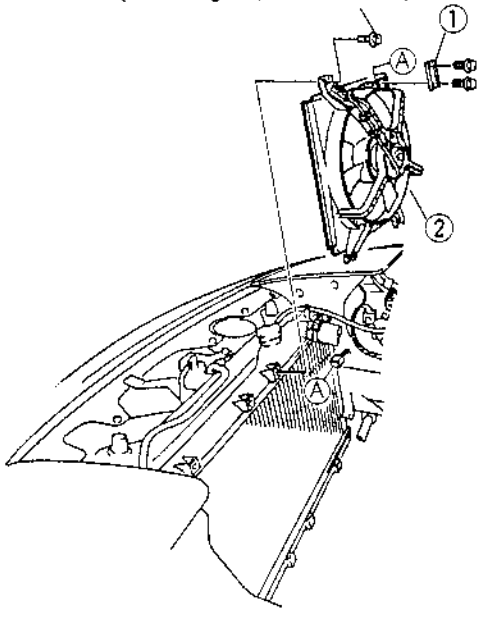
U5U74007

CONDENSER FAN REMOVAL/INSTALLATION

X5U740W03

1. Disconnect the negative battery cable.
2. Loosen the lower installation bolt of condenser fan.
3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.

7.9—10.7 N·m {80—110 kgf·cm, 69.5—95.4 in·lbf}



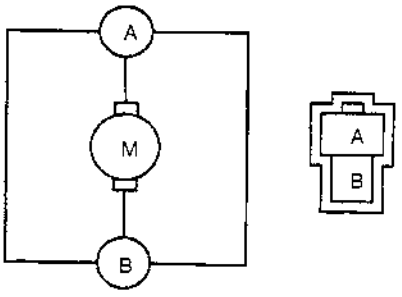
X5U740WA2

1	Bracket
2	Condenser fan

BLOWER MOTOR INSPECTION

X5U740W08

1. Disconnect the blower motor connector.
2. Connect battery positive voltage to terminal A and ground to terminal B of the blower motor, and verify its operation.
3. If the blower motor does not operate, replace the blower motor.

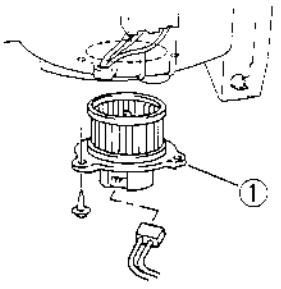


U5U74009

BLOWER MOTOR REMOVAL/INSTALLATION

X5U740W07

1. Disconnect the negative battery cable.
2. Remove the bracket.
3. Remove as indicated in the table.
4. Install in the reverse order of removal.



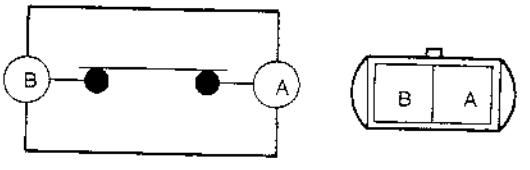
X5U740WA5

1	Blower motor

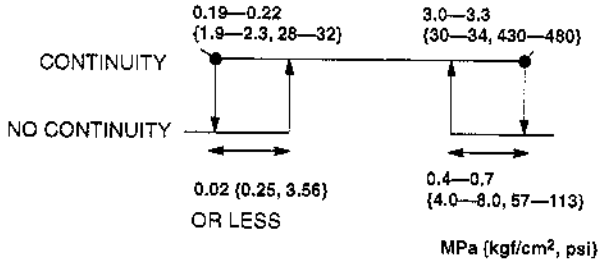
REFRIGERANT PRESSURE SWITCH INSPECTION

X5U740W06

1. Install the manifold gauge set. (Refer to 07–10 MANIFOLD GAUGE SET INSTALLATION.)
2. Disconnect the refrigerant pressure switch connector.
3. Verify the high-pressure side reading of the manifold gauge.
4. Inspect for continuity between the terminals of the refrigerant pressure switch.
5. If not as specified, replace the refrigerant pressure switch.



X5U740WA4



U5U74008

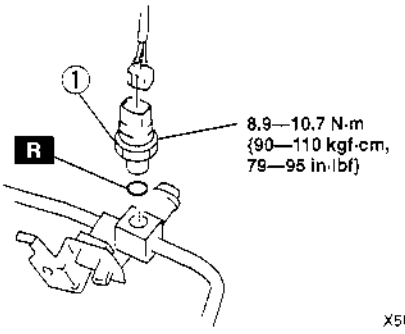
REFRIGERANT PRESSURE SWITCH REMOVAL/INSTALLATION

X5U740W05

1. Discharge the refrigerant from the system. (Refer to 07–10 CHARGING.)
2. Disconnect the negative battery cable.

Caution
- **If moisture or foreign material enters the refrigeration cycle, cooling ability will be lowered and abnormal noise will occur. Always immediately plug all open fittings after removing any refrigeration cycle parts to keep moisture or foreign material out of the cycle.**

3. Remove as indicated in the table.
4. Install in the reverse order of removal.
5. Perform the refrigerant system performance test. (Refer to 07–10 PERFORMANCE TEST.)



X5U740WA3

1	Refrigerant pressure switch ☞ Installation Note

Refrigerant Pressure Switch Installation Note
- Apply compressor oil to the O-ring and connect the joint.

THERMOSWITCH INSPECTION

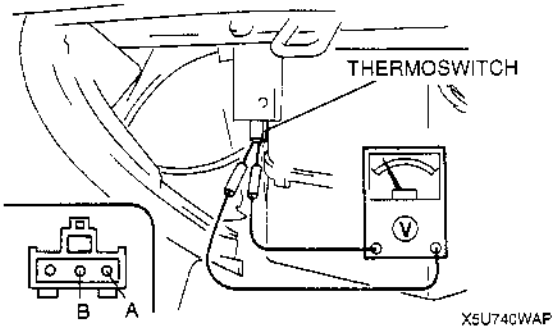
X5U740W11

To Determine If The Switch Is Functioning
1. Remove the glove compartment.
2. Start the engine.
3. Turn the A/C switch on.
4. Turn the fan switch on.
5. Connect the positive (+) and negative (–) probes of the voltmeter to terminal A and terminal B of the thermoswitch respectively. (The wiring harness connector must be connected to the thermoswitch connector.)
6. Inspect the voltage as shown below.

○—○ : Continuity

Magnetic clutch	Terminal		Voltage (V)
	A	B	
On	○	○	B+
Off	○	○	0

X5U740WAN



X5U740WAP

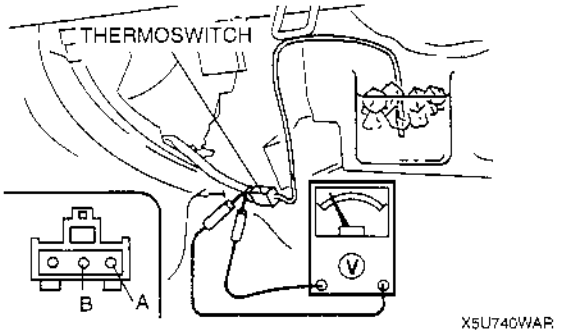
7. If not as specified, inspect on/off points of the thermoswitch.

To Inspect On/Off Points Of The Thermoswitch
1. Disconnect the negative battery cable.
2. Remove the cooling unit. (Refer to 07–11 COOLING UNIT REMOVAL/INSTALLATION.)
3. Remove the thermoswitch (Refer to 07–11 COOLING UNIT DISASSEMBLY/ASSEMBLY.)
4. Connect the negative battery cable.
5. Connect the thermoswitch connector to the wiring harness connector.
6. Turn the ignition switch to IG2.
7. Turn the A/C switch on.
8. Turn the fan switch on.
9. Immerse the sensor part of thermoswitch in a container of ice water.
10. Connect the positive (+) and negative (–) probes of the voltmeter to terminal A and terminal B of the thermoswitch respectively.
11. Inspect the voltage as shown below.

○—○ : Continuity

Water temperature	Terminal		Voltage (V)
	A	B	
3.6 °C {38 °F} or more	○	○	B+
0.8 °C {33 °F} or less	○	○	0

X5U740WAQ



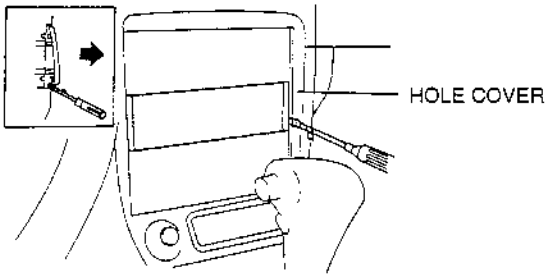
X5U740WAR

12. If not as specified, replace the thermoswitch. (Refer to 07–11 COOLING UNIT DISASSEMBLY/ASSEMBLY.)

HEATER CONTROL UNIT REMOVAL

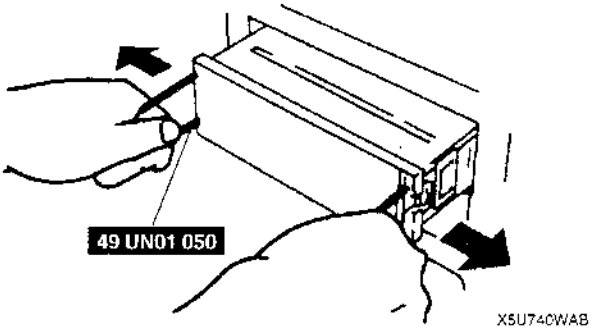
X5U740W16

1. Disconnect the negative battery cable.
2. Disconnect the air intake wire from the blower unit.
3. Disconnect the air mix wire and airflow mode wire from the heater unit.
4. Remove the hole covers by inserting a small, tape-wrapped, flathead screwdriver into the slot, then carefully prying them off without scratching the center panel. Pry up and pull off the hole covers carefully to prevent the posts from breaking off.



X5U740WAA

5. With the beveled parts of the **SST** facing inward, insert them into the heater control unit.
6. Pull the **SST** outward and rearward to slide out the heater control unit.



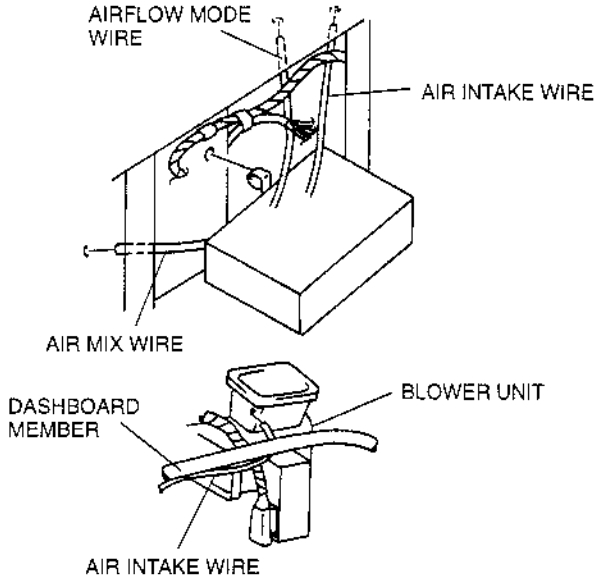
X5U740WA8

7. Disconnect the heater control unit connectors.

HEATER CONTROL UNIT INSTALLATION

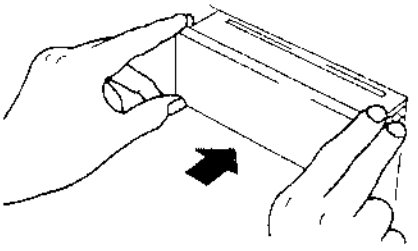
X5U740W17

1. Pass each wire through the following routes, then connect them to each unit.



X5U740WAC

2. Connect the heater control unit connectors.
3. Insert the heater control unit until each clip clicks.



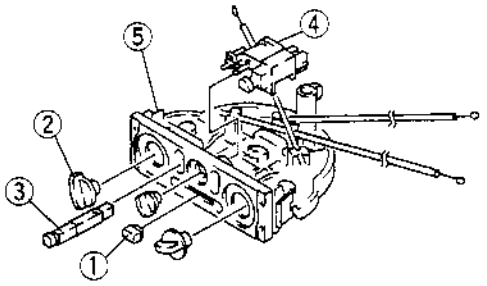
X5U740WAD

4. Install the hole covers carefully to prevent the posts from breaking off.
5. Adjust the heater control unit wire. (Refer to 07–40 HEATER CONTROL UNIT WIRE ADJUSTMENT.)
6. Connect the negative battery cable.

HEATER CONTROL UNIT DISASSEMBLY/ASSEMBLY

X5U740W18

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



X5U740WAE

1	Knob
2	Dial
3	A/C switch
4	Fan and rear defroster switch
5	Body

HEATER CONTROL UNIT INSPECTION

X5U740W19

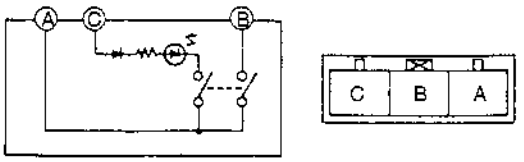
A/C Switch

1. Remove the heater control unit. (Refer to 07–40 HEATER CONTROL UNIT REMOVAL.)
2. Inspect for continuity between the A/C switch terminals by using an ohmmeter.

○—○ : Continuity

Switch position	Terminal	
	A	B
OFF		
ON	○	○

X5U740WAF



X5U740WAG

3. Connect battery positive voltage to terminal C and ground to the terminal A.
4. Turn the A/C switch on.
5. Verify that the LED illuminates.
6. If not as specified, replace the A/C switch.

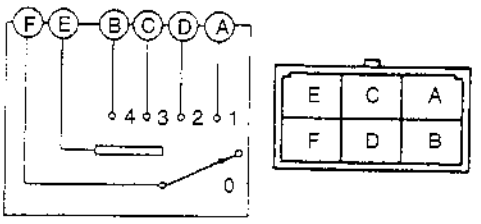
Fan Switch

1. Remove the heater control unit. (Refer to 07–40 HEATER CONTROL UNIT REMOVAL.)
2. Inspect for continuity between the fan switch terminals by using an ohmmeter.

○—○ : Continuity

Switch position	Terminal					
	A	B	C	D	E	F
0						
1	○					○
2				○		○
3			○		○	○
4		○			○	○

X5U740WAH



X5U740WAJ

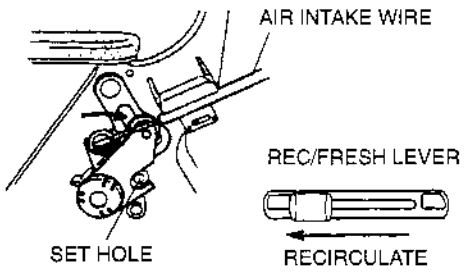
3. If not as specified, replace the fan and rear defroster switch.

HEATER CONTROL UNIT WIRE ADJUSTMENT

X5U740W20

Air Intake Wire

1. Set the REC/FRESH lever at REC.
2. Set the air intake link to REC in the direction of the arrow and insert a screwdriver into the set hole.

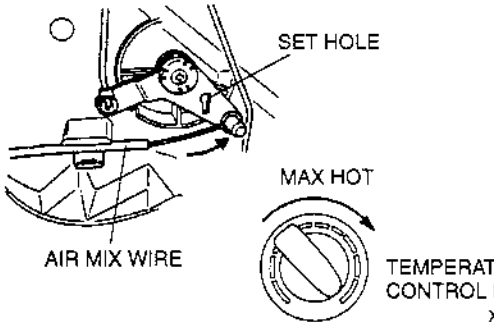


X5U740WAK

3. Connect the air intake wire to the air intake link.
4. Clamp the air intake wire to wire clamp.
5. Verify that the REC/FRESH lever moves its full stroke.

Air Mix Wire

1. Set the temperature control dial at MAX HOT.
2. Set the air mix link to MAX HOT in the direction of the arrow and insert a screwdriver into the set hole.

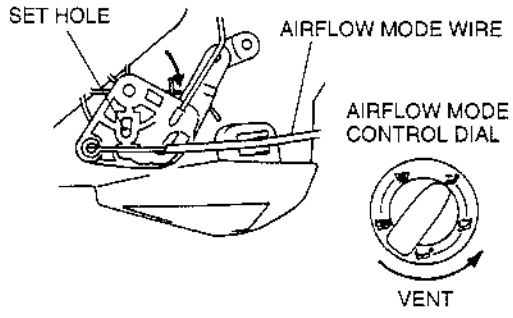


X5U740WAL

3. Connect the air mix wire to the air mix link.
4. Clamp the air mix wire to wire clamp.
5. Verify that the temperature control dial moves its full stroke.

Airflow Mode Wire

1. Set the airflow mode control dial at VENT.
2. Set the airflow mode link to VENT in the direction of the arrow and insert a screwdriver into the set hole.



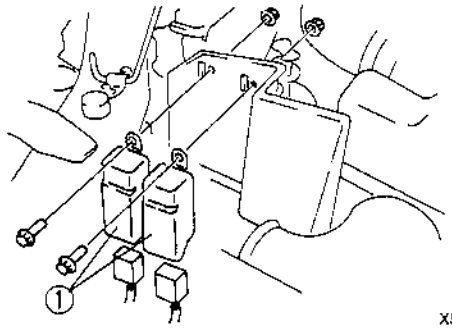
X5U740WAM

3. Connect the airflow mode wire to the airflow mode link.
4. Clamp the airflow mode wire to wire clamp.
5. Verify that the airflow mode control dial moves its full stroke.

A/C RELAY AND CONDENSER FAN RELAY REMOVAL/INSTALLATION

X5U740W12

1. Disconnect the negative battery cable.
2. Remove as indicated in the table.
3. Install in the reverse order of removal.



X5U740WA6

1	A/C relay and condenser fan relay

A/C RELAY AND CONDENSER FAN RELAY INSPECTION

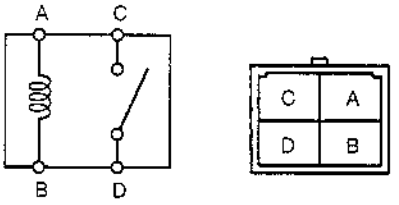
X5U740W13

1. Remove the relay.
2. Inspect for continuity between the relay terminals by using an ohmmeter.

○—○ : Continuity

Step	Terminal			
	A	B	C	D
1	○	○		
2	B+	GND	○	○

U5U74013



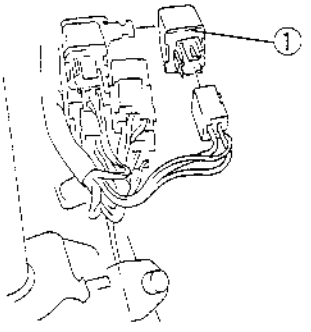
U5U74014

3. If not as specified, replace the relay.

BLOWER RELAY REMOVAL/INSTALLATION

X5U740W14

1. Disconnect the negative battery cable.
2. Remove as indicated in the table.
3. Install in the reverse order of removal.



X5U740WA9

1	Blower relay

BLOWER RELAY INSPECTION

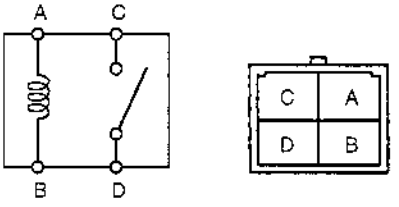
X5U740W15

1. Remove the blower relay.
2. Inspect for continuity between the blower relay terminals by using an ohmmeter.

○—○ : Continuity

Step	Terminal			
	A	B	C	D
1	○	○		
2	B+	GND	○	○

U5U74013



U5U74014

3. If not as specified, replace the relay.

07–50 TECHNICAL DATA

07 HVAC

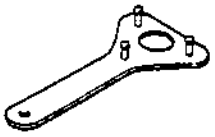
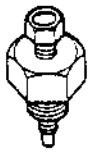
X5U750W01

Item			Specification
Refrigerant	Type		R-134a
	Regular amount (g {oz})		600 {21.2}
A/C compressor	Lube oil	Type	DENSO OIL9
		Sealed volume (ml {cc, fl oz})	150 {150, 5.07}
	Magnetic clutch clearance (mm {in})		0.35—0.65 {0.014—0.025}

07–60 SERVICE TOOLS

07 HVAC SST

X5U760W01

00007–10331 Magnetic clutch stopper  T0710331X	4992–02–020 Pressure plate remover  T9202020X	—

RESTRAINTS

08 SECTION

08–01 TROUBLESHOOTING

08

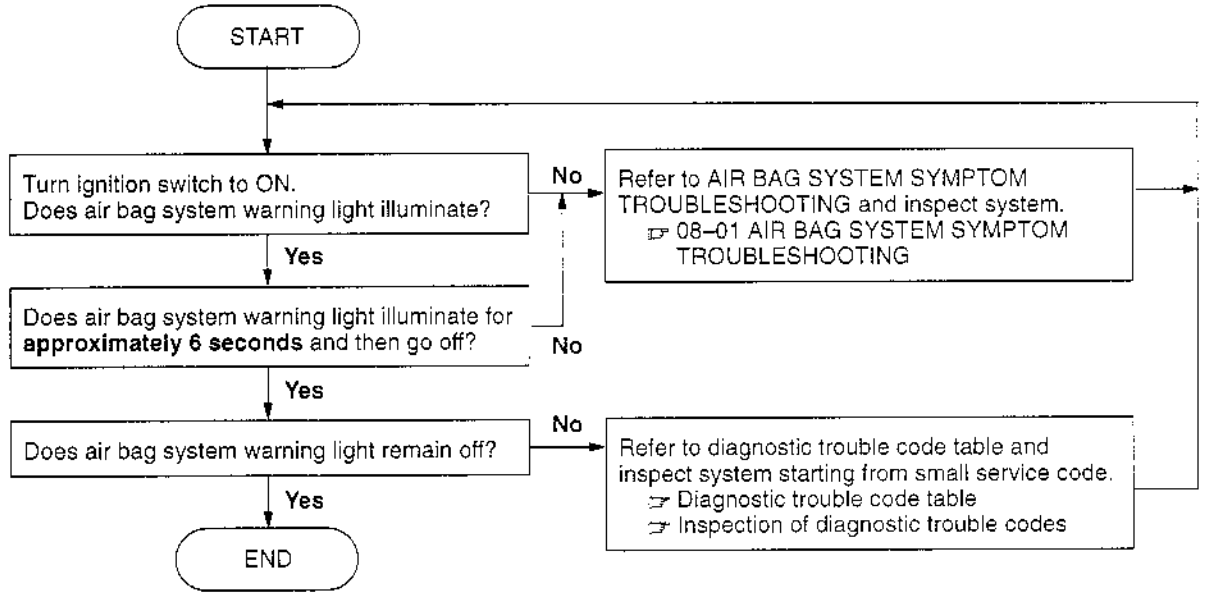
AIR BAG SYSTEM ON-BOARD DIAGNOSIS

X5U801WC1

Diagnostic Trouble Code

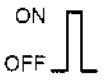
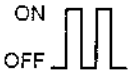
- The SAS control module has an on-board diagnostic function that flashes or illuminates the air bag system warning light to indicate trouble in the air bag system. The trouble can be determined by the warning light flashing or illumination pattern.

Flowchart



X5U801WA0

Diagnostic trouble code table

DTC	Output signal	Malfunction location
1	 X5U801WA1	SAS control module connector poor connection
2	 X5U801WA2	SAS control module
3	 X5U801WA3	Battery
6	 X5U801WA4	Driver-side air bag module
7	 X5U801WA5	Passenger-side air bag module
49	 X5U801WA6	Passenger-side air bag deactivation system
—	Continuously flashes	Deployment authorization standby code

Caution

- **When replacing a new SAS control module and the output pattern continuously flashes (standby code), perform the deployment authorization procedures. (Refer to 08–10 AIR BAG MODULE DEPLOYMENT AUTHORIZATION PROCEDURES.)**

Inspection of diagnostic trouble codes

DTC 1	SAS CONTROL MODULE CONNECTOR POOR CONNECTION		
DETECTION CONDITION	No continuity between poor connection detector bar of SAS control module		
POSSIBLE CAUSE	• SAS control module connector malfunction • Poor connection of connector		
STEP	**INSPECTION**		**ACTION**
1	**Warning** • **Handling air bag system components improperly can accidentally deploy air bag modules, which may seriously injure you. Read SERVICE WARNINGS, before handling air bag system components.** **☞ 08–10 SERVICE WARNINGS** Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Is SAS control module connector securely connected?	Yes	Go to next step.
		No	Reconnect connector properly.
2	Disconnect SAS control module connector. Is SAS control module connector okay?	Yes	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness.

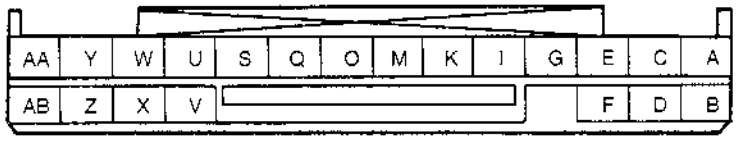
DTC 2	SAS CONTROL MODULE
DETECTION CONDITION	Malfunction in SAS control module circuit
POSSIBLE CAUSE	SAS control module malfunction

STEP	INSPECTION	ACTION
—	—	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION

DTC 3	BATTERY
DETECTION CONDITION	Voltage supplied to SAS control module is less than 9 V
POSSIBLE CAUSE	Note • Diagnostic trouble code 3 is indicated when the voltage simultaneously drops in the harnesses of both of the following circuits. ① Harness between A/B 10 A fuse and terminal AB of the SAS control module connector. ② Harness between ENG 15 A fuse and terminal Z of the SAS control module connector. • Weak battery • Poor connection of connector

STEP	INSPECTION		ACTION
1	**Warning** • **Handling air bag system components improperly can accidentally deploy air bag modules, which may seriously injure you. Read SERVICE WARNINGS, before handling air bag system components.** ☞ **08–10 SERVICE WARNINGS** Is battery voltage **more than 9 V**?	Yes	Go to next step.
		No	Battery is weak. Inspect charge/discharge system. ☞ 01–17 BATTERY INSPECTION
2	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector. Turn ignition switch to ON. Measure voltage at terminal AB or Z of SAS control module connector. Is voltage **more than 9 V**?	Yes	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness.

SAS CONTROL MODULE CONNECTOR



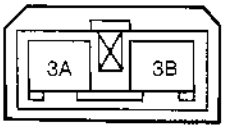
X5U801WA7

DTC 6	DRIVER-SIDE AIR BAG MODULE
DETECTION CONDITION	Resistance detected between terminals M—O of SAS control module is other than 2 Ω
POSSIBLE CAUSE	• Driver-side air bag module malfunction • Clock spring malfunction • Malfunction in wiring harness between SAS control module and driver-side air bag module

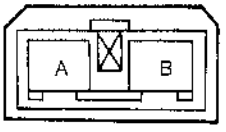
STEP	INSPECTION		ACTION
1	**Warning** • **Handling air bag system components improperly can accidentally deploy air bag modules, which may seriously injure you. Read SERVICE WARNINGS, before handling air bag system components.** ☞ **08–10 SERVICE WARNINGS** Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove driver-side air bag module. ☞ 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION Is clock spring pin okay?	Yes	Go to next step.
		No	Replace clock spring. ☞ 08–10 CLOCK SPRING REMOVAL/INSTALLATION
2	Connect leads of **SST** (Fuel And Thermometer checker) to terminals 3A and 3B of clock spring. Set resistance of **SST** (Fuel And Thermometer checker) to **2 ohms**. Connect negative battery cable. Is diagnostic trouble code 6 indicated when ignition switch is turned to ON?	Yes	Go to next step.
		No	Replace driver-side air bag module. ☞ 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION
3	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Is clock spring connector pin okay?	Yes	Go to next step.
		No	Replace wiring harness.
4	Connect leads of **SST** (Fuel And Thermometer checker) to terminals A and B of the clock spring connector. Set resistance of **SST** (Fuel And Thermometer checker) to **2 ohms**. Connect negative battery cable. Is diagnostic trouble code 6 indicated when ignition switch is turned to ON?	Yes	Go to next step.
		No	Replace clock spring. ☞ 08–10 CLOCK SPRING REMOVAL/INSTALLATION

STEP	INSPECTION		ACTION
5	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector. Inspect wiring harness between terminal O of SAS control module connector and terminal A of clock spring connector, and between terminal M of SAS control module connector and terminal B of clock spring connector for following. • Short to ground • Short to power supply • Open circuit Is wiring harness okay?	Yes	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness.

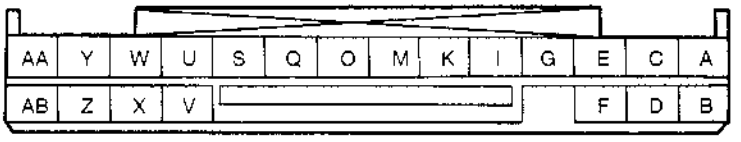
CLOCK SPRING



CLOCK SPRING CONNECTOR



SAS CONTROL MODULE CONNECTOR



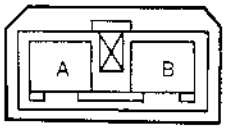
X5UB01WA8

08

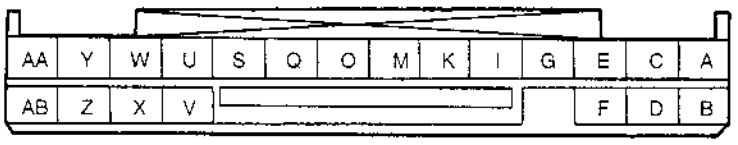
DTC 7	PASSENGER-SIDE AIR BAG MODULE
DETECTION CONDITION	Resistance detected between terminals I—K of SAS control module is other than 2 Ω
POSSIBLE CAUSE	• Passenger-side air bag module malfunction • Malfunction in wiring harness between SAS control module and passenger-side air bag module

STEP	INSPECTION		ACTION
1	Warning • **Handling air bag system components improperly can accidentally deploy air bag modules, which may seriously injure you. Read SERVICE WARNINGS, before handling air bag system components.** ☞ **08–10 SERVICE WARNINGS** Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Disconnect passenger-side air bag module connector. Is passenger-side air bag module connector pin okay?	Yes	Go to next step.
		No	Replace wiring harness.
2	Connect leads of **SST** (Fuel And Thermometer checker) to terminals A and B of passenger-side air bag module connector. Set resistance of **SST** (Fuel And Thermometer checker) to **2 ohms**. Connect negative battery cable. Is diagnostic trouble code 7 indicated when ignition switch is turned to ON?	Yes	Go to next step.
		No	Replace passenger-side air bag module. ☞ 08–10 PASSENGER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION
3	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector. Inspect wiring harness between terminal K of SAS control module connector and terminal A of passenger-side air bag module connector, and between terminal I of SAS control module connector and terminal B of passenger-side air bag module connector for following. • Short to ground • Short to power supply • Open circuit Is wiring harness okay?	Yes	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness.

PASSENGER-SIDE AIR BAG MODULE CONNECTOR



SAS CONTROL MODULE CONNECTOR

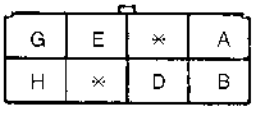


X5U80WA9

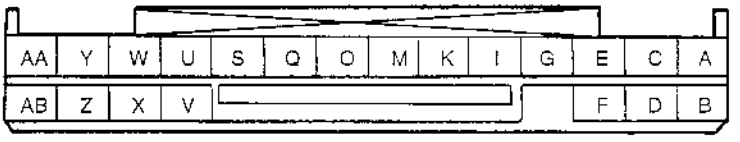
DTC 49	PASSENGER-SIDE AIR BAG CUT-OFF SYSTEM
DETECTION CONDITION	• No voltage detected at terminal V of SAS control module • Terminal G of SAS control module is not connected to ground
POSSIBLE CAUSE	• Passenger-side air bag deactivation switch malfunction • SAS control module malfunction • Malfunction in wiring harness between METER 15 A fuse and passenger-side air bag deactivation switch • Malfunction in wiring harness between SAS control module and ground • Malfunction in wiring harness between SAS control module and passenger-side air bag deactivation switch

STEP	INSPECTION		ACTION
1	Disconnect negative battery cable. Remove center panel. ☞ 09–17 CENTER PANEL REMOVAL/INSTALLATION Connect negative battery cable. Measure voltage at terminal A of passenger-side air bag deactivation switch connector. Is voltage **12 V**?	Yes	Go to next step.
		No	Replace wiring harness.
2	Inspect passenger-side air bag deactivation switch. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH INSPECTION Is switch okay?	Yes	Go to next step.
		No	Replace passenger-side air bag cut-off switch. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
3	**Warning** • **Handling air bag system components improperly can accidentally deploy air bag modules, which may seriously injure you. Read SERVICE WARNINGS, before handling air bag system components.** **☞ 08–10 SERVICE WARNINGS** Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector. Measure voltage at terminal V of SAS control module connector? Is voltage **12 V**?	Yes	Go to next step.
		No	Replace wiring harness.
4	Is there continuity between terminal G of SAS control module and ground?	Yes	Replace SAS control module. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness.

PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH CONNECTOR



SAS CONTROL MODULE CONNECTOR



X5U801WAA

AIR BAG SYSTEM SYMPTOM TROUBLESHOOTING

X5U801WC2

Foreword

- Refer to section GI and thoroughly read and understand the basic flow of troubleshooting in order to properly perform the procedures.
- For the steps that have an asterisk (*), inspect the connector/terminal connection for continuity and damage. If the connection is poor, reconnect it, or repair or replace the appropriate parts if necessary.

Troubleshooting Index

- Use the chart below to verify the symptoms of the trouble in order to diagnose the appropriate area.

No.	Malfunction symptom
1	Air bag system warning light does not illuminate when ignition switch is turned to ON.
2	Air bag system warning light illuminates immediately after ignition switch is turned to ON and remains illuminated.
3	Passenger-side air bag deactivation indicator does not illuminate when passenger-side air bag deactivation switch is turned to OFF.
4	With the passenger-side air bag deactivation switch at ON, passenger-side air bag deactivation indicator illuminates immediately after ignition switch is turned to ON and remains illuminated.
5	Passenger-side air bag deactivation indicator does not dim when headlight switch is turned on.
6	Passenger-side air bag deactivation switch illumination does not illuminate when headlight switch is on.

Symptom Troubleshooting

Note

- The following may be the cause of trouble if the symptom does not go away after the symptom troubleshooting steps are followed.

1. Poor contact at terminal D of short connector (6-pin) between instrument cluster and SAS control module.
2. Simultaneous poor contact at terminals A and F of short connector (6-pin) between A/B 10 A fuse and the SAS control module, ENGINE 15 A fuse and the SAS control module.
3. Simultaneous poor contact at terminals S and X of SAS control module connector (21-pin).
4. Simultaneous poor contact at terminals AB and Z of SAS control module connector (21-pin).
5. Simultaneous poor contact in wiring harness between terminal S of SAS control module connector (21-pin) and ground, terminal X of SAS control module connector (21-pin) and ground.
6. Simultaneous poor contact in wiring harness between A/B 10 A fuse and the SAS control module, ENGINE 15 A fuse and the SAS control module.

1	**Air bag system warning light does not illuminate when ignition switch is turned to ON.**		
TROUBLESHOOTING HINTS Malfunction in SAS control module power supply/ground circuit ① Air bag system warning light does not illuminate • SAS control module malfunction • Instrument cluster (print plate) malfunction • Terminal 1C of instrument cluster connector (16-pin) malfunction • Terminal 3D of instrument cluster connector (10-pin) malfunction • Terminal Q of SAS control module connector (21-pin) malfunction • Air bag system warning light bulb malfunction • Poor installation of air bag system warning light bulb • Poor connection at terminal 1C of instrument cluster connector (16-pin) • Poor connection at terminal 3D of instrument cluster connector (10-pin) • Poor connection at terminal Q of SAS control module connector (21-pin) • Poor contact in instrument cluster connector (10, 16-pin) • Malfunction in wiring harness between instrument cluster and SAS control module			
STEP	**INSPECTION**		**ACTION**
1	Is instrument cluster connector (10, 16-pin) securely connected?	Yes	Go to next step.
		No	Reconnect connector properly, then go to step 10.
2	Is air bag system warning light bulb securely installed?	Yes	Go to next step.
		No	Reinstall properly, then go to step 10.
3	Is air bag system warning light bulb functional?	Yes	Reinstall properly, then go to next step.
		No	Replace bulb, then go to step 10.

STEP	INSPECTION		ACTION
4	Are terminal 1C of instrument cluster connector (16-pin) and terminal 3D of instrument cluster connector (10-pin) securely connected?	Yes	Go to next step.
		No	Reconnect properly, then go to step 10.
5	Are terminal 1C of instrument cluster connector (16-pin) and terminal 3D of instrument cluster connector (10-pin) damaged?	Yes	Repair or replace terminal, then go to step 10.
		No	Go to next step.
6	Is there continuity between print plate of instrument cluster terminals 1C and 3D?	Yes	Go to next step.
		No	Replace print plate, then go to step 10.
7	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector (21-pin). Is terminal Q of SAS control module connector (21-pin) securely connected?	Yes	Go to next step.
		No	Reconnect properly, then go to step 10.
8	Is terminal Q of SAS control module connector (21-pin) damaged?	Yes	Replace air bag harness, then go to step 10.
		No	Go to next step.
*9	Disconnect SAS control module connector (21-pin) and instrument cluster connector (10-pin). Is there continuity between terminal Q of SAS control module connector (21-pin) and terminal 3D of instrument cluster connector (10-pin)?	Yes	Replace SAS control module, then go to next step. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness between instrument cluster and SAS control module, then go to next step.
10	Connect SAS control module connector (21-pin). Install dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Connect passenger-side air bag module connector. Connect clock spring connector. Connect instrument cluster connector. Connect negative battery cable. When turning ignition switch to ON, does air bag system warning light operate properly?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

2	**Air bag system warning light illuminates immediately after ignition switch is turned to ON and remains illuminated.**

TROUBLESHOOTING HINTS
Malfunction in air bag system warning light circuit
① Air bag system warning light remains illuminated
- SAS control module malfunction
- Malfunction of short bar between terminals Q and S of SAS control module connector (21-pin)
- Poor connection in SAS control module connector (21-pin)
- Short circuit in wiring harness between instrument cluster and SAS control module

STEP	INSPECTION		ACTION
1	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector (21-pin). Is SAS control module connector (21-pin) securely connected?	Yes	Go to next step.
		No	Reconnect properly, then go to step 5.
2	Is short bar between terminals Q and S of SAS control module connector (21-pin) bent?	Yes	Replace air bag harness, then go to step 5.
		No	Go to next step.
3	Is SAS control module short bar hook okay?	Yes	Go to next step.
		No	Replace SAS control module, then go to step 5. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
*4	Disconnect instrument cluster connector (10-pin). Insert insulating material between terminals Q and S of SAS control module connector (21-pin) so short bar cannot function. Is there continuity between terminal Q of SAS control module connector (21-pin) and ground?	Yes	Replace wiring harness between instrument cluster and SAS control module, then go to next step.
		No	Replace SAS control module, then go to next step. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
5	Connect SAS control module connector (21-pin). Install dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Connect passenger-side air bag module connector. Connect clock spring connector. Connect instrument cluster connector. Connect negative battery cable. When turning ignition switch to ON, does air bag system warning light operate properly?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

3	**Passenger-side air bag deactivation indicator does not illuminate when passenger-side air bag deactivation switch is turned to OFF.**

TROUBLESHOOTING HINTS

Malfunction in passenger-side air bag deactivation switch signal circuit

① Passenger-side air bag deactivation indicator does not illuminate

- SAS control module malfunction
- Passenger-side air bag deactivation switch malfunction
- Terminal D or E of passenger-side air bag deactivation switch connector malfunction
- Terminal B of SAS control module connector (21-pin) malfunction
- Terminal D or E of poor connection at passenger-side air bag deactivation switch connector
- Poor connection at terminal B of SAS control module connector (21-pin)
- Open circuit in wiring harness between passenger-side air bag deactivation switch and ground
- Open circuit in wiring harness between passenger-side air bag deactivation switch and SAS control module

STEP	INSPECTION		ACTION
1	When key is inserted into passenger-side air bag deactivation switch key cylinder, can it be set to the OFF position?	Yes	Go to next step.
		No	Replace passenger-side air bag deactivation switch, then go to step 9. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
2	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Disconnect passenger-side air bag deactivation switch connector. Is terminal D or E of passenger-side air bag deactivation switch damaged?	Yes	Replace passenger-side air bag deactivation switch, then go to step 9. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
		No	Go to next step.
3	Is terminal D or E of passenger-side air bag deactivation switch connector damaged?	Yes	Replace air bag harness, then go to step 9.
		No	Go to next step.
4	Turn passenger-side air bag deactivation switch key to OFF. Is there continuity between terminals D and E of passenger-side air bag deactivation switch?	Yes	Go to next step.
		No	Replace passenger-side air bag deactivation switch, then go to step 9. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
5	Is there continuity between terminal E of passenger-side air bag deactivation switch connector and ground?	Yes	Go to next step.
		No	Replace wiring harness between passenger-side air bag deactivation switch and ground, then go to step 9.
6	Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector (21-pin). Is terminal B of SAS control module (21-pin) damaged?	Yes	Replace SAS control module, then go to step 9. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Go to next step.
7	Is terminal B of SAS control module connector (21-pin) damaged?	Yes	Replace air bag harness, then go to step 9.
		No	Go to next step.
8	Is there continuity between terminal B of SAS control module connector (21-pin) and terminal D of passenger-side air bag deactivation switch connector?	Yes	Replace SAS control module, then go to next step.
		No	Replace wiring harness between SAS control module and passenger-side air bag deactivation switch, then go to next step.

STEP	INSPECTION		ACTION
9	Connect SAS control module connector (21-pin). Install dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Connect passenger-side air bag module connector. Connect clock spring connector. Connect passenger-side air bag deactivation switch connector. Turn passenger-side air bag deactivation switch to OFF. Remove the key. Connect negative battery cable. When turning ignition switch to ON, does passenger-side air bag deactivation indicator illuminate?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

4	**With the passenger-side air bag deactivation switch is at ON, passenger-side air bag deactivation indicator illuminates immediately after ignition switch is turned to ON and remains illuminated.**

TROUBLESHOOTING HINTS
Malfunction in passenger-side air bag deactivation switch signal circuit
① Passenger-side air bag deactivation indicator does not go out
- SAS control module malfunction
- Passenger-side air bag deactivation switch malfunction
- Terminal D or E of passenger-side air bag deactivation switch connector malfunction
- Short circuit in wiring harness between passenger-side air bag deactivation switch and SAS control module

STEP	INSPECTION		ACTION
1	When key is inserted into passenger-side air bag deactivation switch key cylinder, can it be set to the ON position?	Yes	Go to next step.
		No	Replace passenger-side air bag deactivation switch, then go to step 6. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
2	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Disconnect passenger-side air bag deactivation switch connector. Is terminal D or E of passenger-side air bag deactivation switch damaged?	Yes	Replace passenger-side air bag deactivation switch, then go to step 6. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
		No	Go to next step.
3	Is terminal D or E of passenger-side air bag deactivation switch connector damaged?	Yes	Replace air bag harness, then go to step 6.
		No	Go to next step.
4	Turn passenger-side air bag deactivation switch to ON. Is there continuity between terminals D and E of passenger-side air bag deactivation switch?	Yes	Replace passenger-side air bag deactivation switch, then go to step 6. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
		No	Go to next step.
5	Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector (21-pin). Is there continuity between terminal D of passenger-side air bag deactivation switch connector and ground?	Yes	Replace wiring harness between SAS control module and passenger-side air bag deactivation switch, then go to next step.
		No	Replace SAS control module, then go to next step. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
6	Connect SAS control module connector (21-pin). Install dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Connect passenger-side air bag module connector. Connect clock spring connector. Connect passenger-side air bag deactivation switch connector. Turn passenger-side air bag deactivation switch to ON. Remove the key. Connect negative battery cable. When turning ignition switch to ON, does passenger-side air bag deactivation indicator illuminate for **approximately 6 seconds** and then go out?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

5	Passenger-side air bag deactivation indicator does not dim when headlight switch is turned on.

TROUBLESHOOTING HINTS
Malfunction in TNS signal circuit
① Passenger-side air bag deactivation indicator does not dim
- SAS control module malfunction
- TNS signal circuit malfunction
- Terminal Y of SAS control module connector (21-pin) malfunction
- Poor connection at terminal Y of SAS control module connector (21-pin)
- Malfunction in wiring harness between TNS relay and SAS control module

STEP	INSPECTION		ACTION
1	Does parking light illuminate when headlight switch is turned on?	Yes	Go to next step.
		No	Inspect TNS signal circuit, then go to step 5.
2	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Remove column cover. Disconnect clock spring connector. Remove glove compartment. Disconnect passenger-side air bag module connector. Remove dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Disconnect SAS control module connector (21-pin). Is terminal Y of SAS control module (21-pin) damaged?	Yes	Replace SAS control module, then go to step 5. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Go to next step.
3	Is terminal Y of SAS control module connector (21-pin) damaged?	Yes	Replace air bag harness, then go to step 5.
		No	Go to next step.
4	Disconnect TNS relay connector. Is there continuity between terminal Y of SAS control module connector (21-pin) and terminal D of TNS relay connector?	Yes	Replace SAS control module, then go to next step. ☞ 08–10 SAS CONTROL MODULE REMOVAL/INSTALLATION
		No	Replace wiring harness between SAS control module and TNS relay, then go to next step.
5	Connect SAS control module connector (21-pin). Install dashboard. ☞ 09–17 DASHBOARD REMOVAL/INSTALLATION Connect passenger-side air bag module connector. Connect clock spring connector. Connect passenger-side air bag deactivation switch connector. Connect negative battery cable. When ignition switch is turned to ON and headlight switch is turned on, does passenger-side air bag deactivation indicator illuminate for **approximately 6 seconds** and then dim?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

6	Passenger-side air bag deactivation switch illumination does not illuminate when headlight switch is on.

TROUBLESHOOTING HINTS

Malfunction in passenger-side air bag deactivation switch illumination signal circuit

① Passenger-side air bag deactivation switch illumination does not illuminate

- Passenger-side air bag deactivation switch malfunction
- TNS relay signal circuit malfunction
- Panel light control switch signal circuit malfunction
- Terminal B or G of passenger-side air bag deactivation switch connector malfunction
- Passenger-side air bag deactivation switch illumination bulb malfunction
- Poor installation of passenger-side air bag deactivation switch illumination bulb
- Terminal B or G of poor connection at passenger-side air bag deactivation switch connector
- Malfunction in wiring harness between TNS relay and passenger-side air bag deactivation switch
- Malfunction in wiring harness between passenger-side air bag deactivation switch and panel light control switch

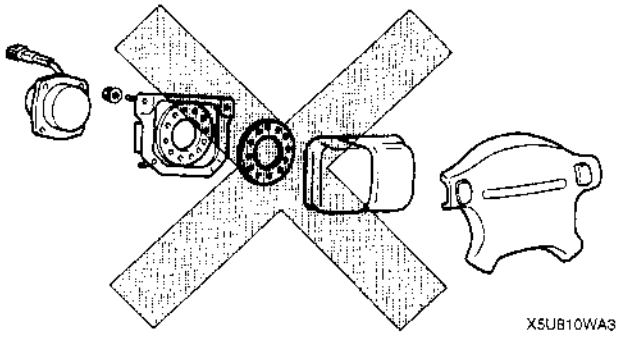
STEP	INSPECTION		ACTION
1	Does parking light illuminate when headlight switch is turned on?	Yes	Go to next step.
		No	Inspect TNS signal circuit, then go to step 9.
2	Does panel light control switch operate correctly?	Yes	Go to next step.
		No	Inspect panel light control switch signal circuit, then go to step 9.
3	Turn ignition switch to LOCK. Disconnect negative battery cable and wait for more than **1 minute** to allow backup power supply of SAS control module to deplete its stored power. Disconnect passenger-side air bag deactivation switch connector. Is terminal B or G of passenger-side air bag deactivation switch damaged?	Yes	Replace passenger-side air bag deactivation switch, then go to step 9. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
		No	Go to next step.
4	Is terminal B or G of passenger-side air bag deactivation switch connector damaged?	Yes	Repair wiring harness of damaged terminal, then go to step 9.
		No	Go to next step.
5	Is passenger-side air bag deactivation switch illumination bulb securely installed?	Yes	Go to next step.
		No	Reinstall properly, then go to step 9.
6	Is passenger-side air bag deactivation switch illumination bulb functional?	Yes	Reinstall properly, then go to next step.
		No	Replace bulb, then go to step 9.
7	Is there continuity between terminals B and G of passenger-side air bag deactivation switch?	Yes	Go to next step.
		No	Replace passenger-side air bag deactivation switch, then go to step 9. ☞ 08–10 PASSENGER-SIDE AIR BAG DEACTIVATION SWITCH REMOVAL/INSTALLATION
8	Disconnect TNS relay connector. Is there continuity between terminal D of TNS relay connector and terminal B of passenger-side air bag deactivation switch connector?	Yes	Inspect wiring harness between passenger-side air bag deactivation switch and panel light control switch, then go to next step.
		No	Repair wiring harness between TNS relay and passenger-side air bag deactivation switch, then go to next step.
9	Connect passenger-side air bag deactivation switch connector. Connect negative battery cable. When headlight switch is turned on, does passenger-side air bag deactivation switch illumination illuminate?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Reinspect malfunction symptoms, then repeat from step 1 if malfunction reoccurs.

08–10 AIR BAG SYSTEM

AIR BAG SYSTEM SERVICE WARNINGS

Component Disassembly

- **Disassembling and reassembling the components of the air bag system can render the system inoperative, which may result in serious injury or death in the event of an accident. Do not disassemble any air bag system component.**

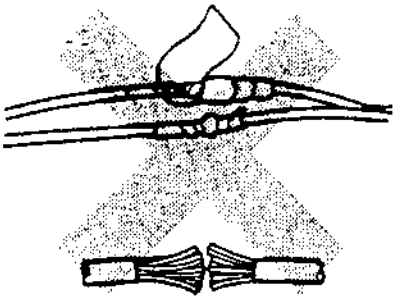


X5U810WA3

Wiring Harness Repair

- **Incorrectly repairing an air bag system wiring harness can accidentally deploy the air bag module, which can cause serious injury. If a problem is found in the system wiring, replace the wiring harness. Do not try to repair it.**

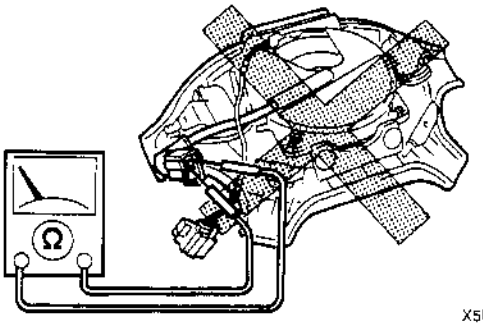
X5U810W01



X5U810WA4

Air Bag Module Inspection

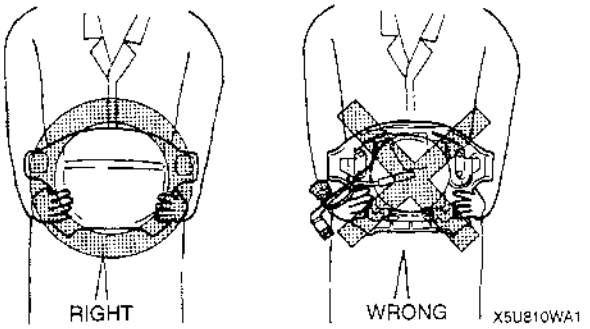
- **Inspecting the air bag module by using an ohmmeter can deploy the air bag module, which may cause serious injury. Do not use an ohmmeter to inspect the air bag module. Always use the on-board diagnostic function to diagnose the air bag for malfunctions. (Refer to 08–01 AIR BAG SYSTEM ON-BOARD DIAGNOSIS.)**



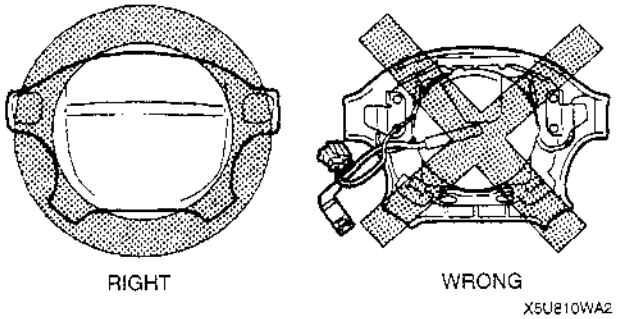
X5U810WA0

Air Bag Module Handling

- A live (undeployed) air bag module may accidentally deploy when it is handled and cause serious injury. When carrying a live (undeployed) air bag module, point the front surface away from your body to lessen the chance of injury in case it deploys.



- A live (undeployed) air bag module placed face down on a surface is dangerous. If the air bag module deploys, the motion of the module can cause serious injury. Always face the front surface up to reduce the motion of the module in case it accidentally deploys.



SAS Control Module Handling

- Disconnecting the SAS control module connector or removing the SAS control module with the ignition switch at ON can cause the air bag modules to deploy, which may seriously injure you. Before disconnecting the SAS control module connector or removing the SAS control module, turn the ignition switch to LOCK, then disconnect the negative battery cable and wait for more than 1 minute to allow the backup power supply of the SAS control module to deplete its stored power.
- Connecting the SAS control module connector without firmly installing the SAS control module to the vehicle is dangerous. The crash sensor inside the control module may send an electrical signal to the air bag modules. This will deploy the air bag modules, which may result in serious injury. Therefore, before connecting the connector, firmly mount the control module to the vehicle.
- For vehicles with a single point sensor, once an air bag is deployed due to an accident or other causes, the SAS control module must be replaced with a new one even if the used one does not have any external signs of damage. The used SAS control module may have been damaged internally which may cause improper operation, resulting in major injuries or even death. The used single point SAS control module cannot be bench-checked or self-checked.

Component Handling

- Oil, grease, water, etc on components may cause the air bag to fail to deploy in an accident, which may cause serious injury. Do not allow oil, grease, water, etc on components.
- Inserting a screwdriver, etc into the connector of the air bag module may damage the connector and cause the air bag module to deploy improperly, which may cause serious injury. Do not insert any foreign objects into the connector.

Component Reusing

- Once an air bag module is deployed due to an accident or other causes, even if it does not have any external signs of damage, the air bag module may have been damaged internally which may cause improper operation. The improper operation may cause serious injury. Always self-check the undamaged air bag module to determine whether it can be reused. (Refer to 08–01 AIR BAG SYSTEM ON-BOARD DIAGNOSIS.)

DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION

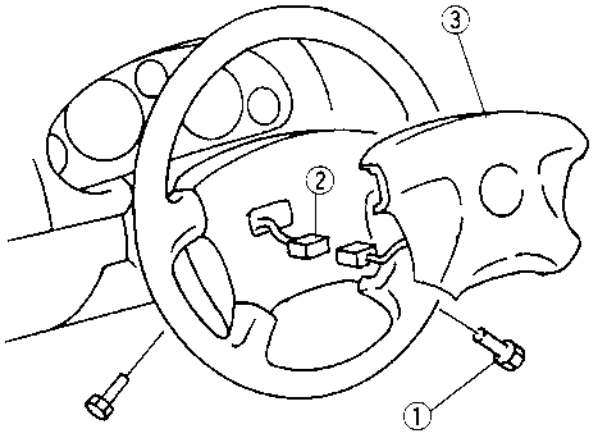
X5U810W02

Warning

- **Handling the air bag module improperly can accidentally deploy the air bag module, which may seriously injure you. Read AIR BAG SYSTEM SERVICE WARNINGS before handling the air bag module. (Refer to 08–10 AIR BAG SYSTEM SERVICE WARNINGS.)**

1. Turn the ignition switch to LOCK.
2. Disconnect the negative battery cable and wait for more than **1 minute** to allow the backup power supply of the SAS control module to deplete its stored power.
3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.
5. Turn the ignition switch to ON.
6. Verify that the air bag system warning light illuminates for **approximately 6 seconds** then goes off.
7. If the air bag system warning light remains on, off, or repeats flashing after servicing, there are malfunctions in the system. Carry out the inspection again. (Refer to 08–01 AIR BAG SYSTEM ON-BOARD DIAGNOSIS.)

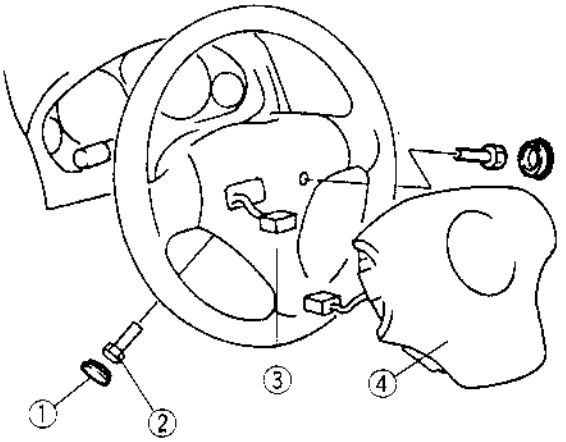
STANDARD TYPE



7.9—11.7 N·m {80—120 kgf·cm, 70—104 in·lbf}

X5U810WA5

SPORT TYPE



7.9—11.7 N·m {80—120 kgf·cm, 70—104 in·lbf}

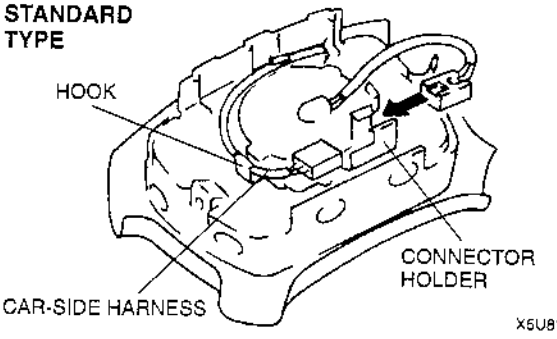
X5U810WA6

1	Cap
2	Bolt ☞ Installation note
3	Connector ☞ Installation note
4	Driver-side air bag module

Connector Installation Note

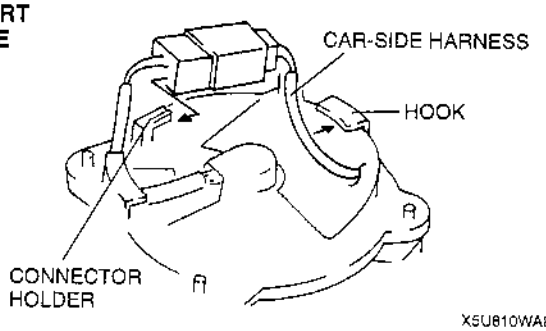
- Install the connector and secure the car-side harness onto the hook as shown in the figure.

STANDARD TYPE



X5U810WA7

SPORT TYPE

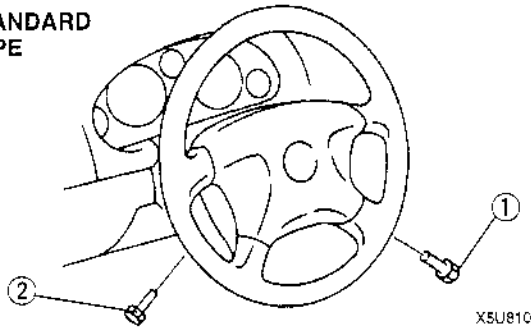


X5U810WA8

Bolt Installation Note

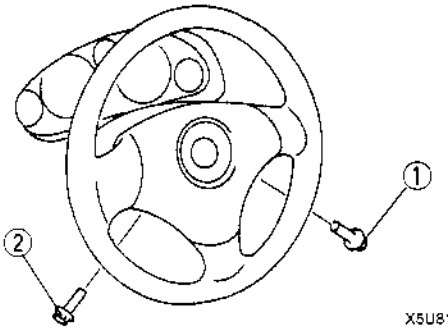
- Tighten the bolts in the order shown in the figure.

STANDARD TYPE



X5U810WA9

SPORT TYPE



X5U810WAA

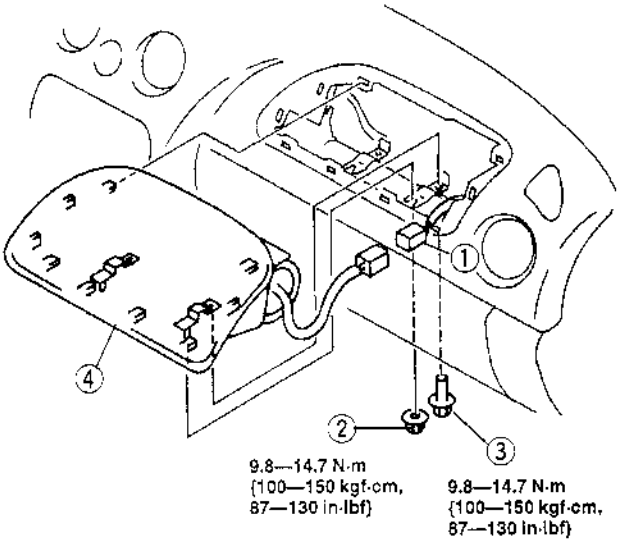
PASSENGER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION

X5U810W03

Warning

- **Handling the air bag module improperly can accidentally deploy the air bag module, which may seriously injure you. Read AIR BAG SYSTEM SERVICE WARNINGS before handling the air bag module. (Refer to 08–10 AIR BAG SYSTEM SERVICE WARNINGS.)**

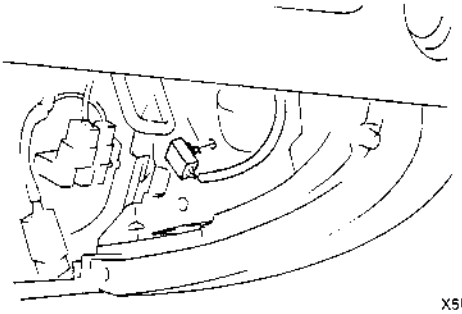
1. Turn the ignition switch to LOCK.
2. Disconnect the negative battery cable and wait for more than **1 minute** to allow the backup power supply of the SAS control module to deplete its stored power.
3. Remove the glove compartment.
4. Remove in the order indicated in the table.
5. Install in the reverse order of removal.
6. Turn the ignition switch to ON.
7. Verify that the air bag system warning light illuminates for **approximately 6 seconds** then goes off.
8. If the air bag system warning light remains on, off, or repeats flashing after servicing, there are malfunctions in the system. Carry out the inspection again. (Refer to 08–01 AIR BAG SYSTEM ON-BOARD DIAGNOSIS.)



X5U810WAB

1	Connector ☞ Installation note
2	Nut
3	Bolt
4	Passenger-side air bag module

- Install the connector as shown in the figure.



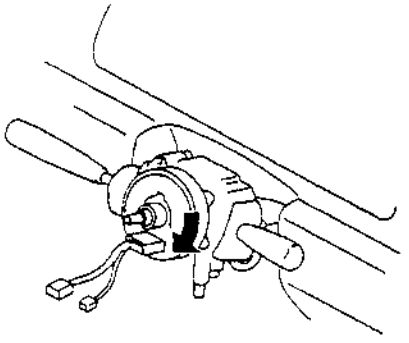
X5U810WAC

CLOCK SPRING ADJUSTMENT

1. Set the front wheels straight ahead.

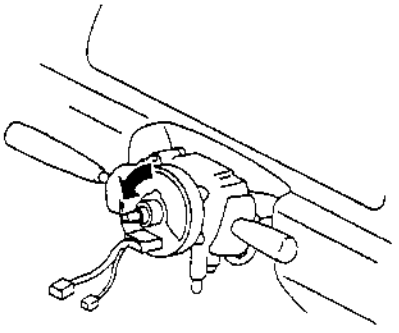
Caution
- **The clock spring will break if over-wound. Do not forcibly turn the clock spring when turning it.**

2. Turn the clock spring clockwise until it stops.



X5U810WAG

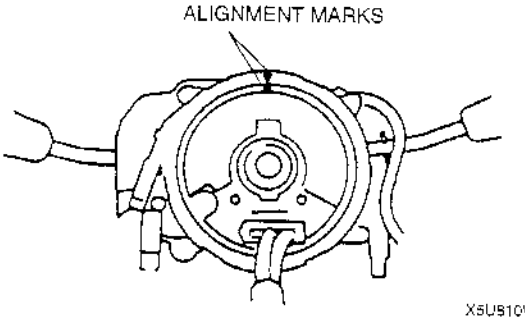
3. Turn the clock spring counterclockwise **2.75 turns**.



X5U810WAH

X5U810WC6

4. Align the mark on the clock spring with the mark on the outer housing.

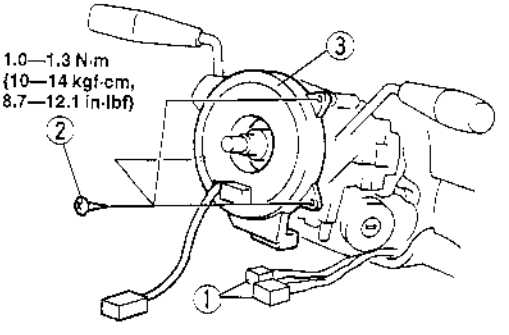


X5U810WAJ

CLOCK SPRING REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Remove the driver-side air bag module. (Refer to 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION.)
4. Remove the steering wheel. (Refer to 06–12 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)
5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.

X5U810W05



X5U710WAF

1	Connector
2	Screw
3	Clock spring