HOW TO USE THIS MANUAL

IN00U–36

GENERAL INFORMATION

1. INDEX

An INDEX is provided on the first page of each section to guide you to the item to be repaired. To assist you in finding your way through the manual, the section title and major heading are given at the top of every page.

2. PRECAUTION

At the beginning of each section, a PRECAUTION is given that pertains to all repair operations contained in that section.

Read these precautions before starting any repair task.

3. TROUBLESHOOTING

TROUBLESHOOTING tables are included for each system to help you diagnose the problem and find the cause. The fundamentals of how to proceed with troubleshooting are described on page IN–18.

Be sure to read this before performing troubleshooting.

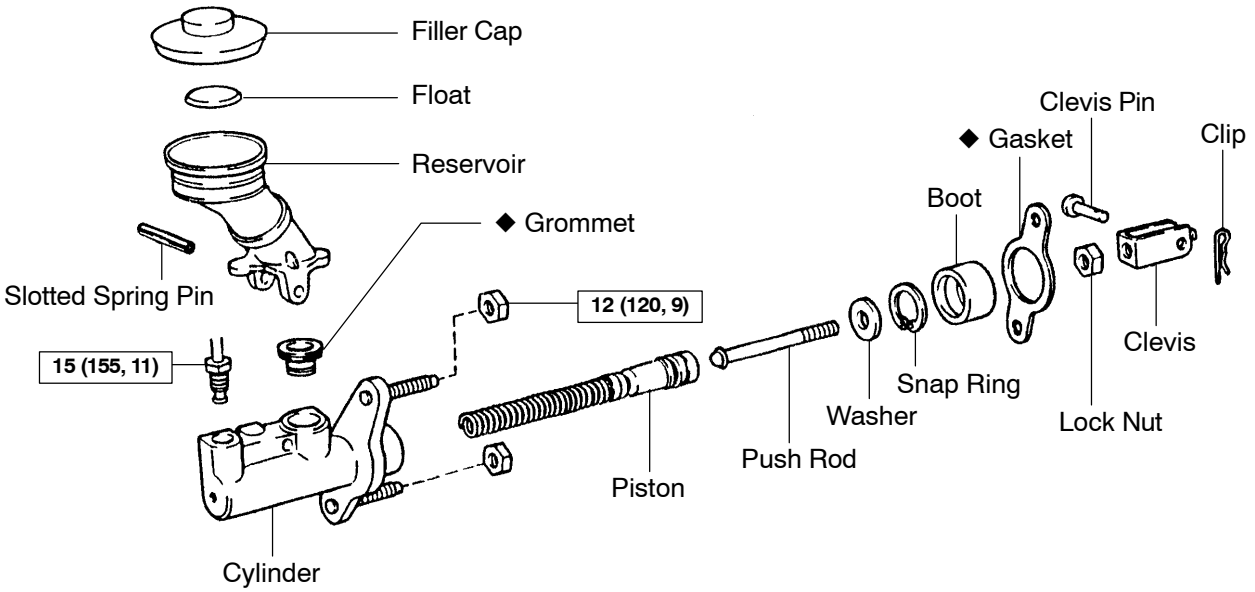
4. PREPARATION

Preparation lists the SST (Special Service Tools), recommended tools, equipment, lubricant and SSM (Special Service Materials) which should be prepared before beginning the operation and explains the purpose of each one.

5. REPAIR PROCEDURES

Most repair operations begin with an overview illustration. It identifies the components and shows how the parts fit together.

Example:



N·m (kgf·cm, ft·lbf) : Specified torque

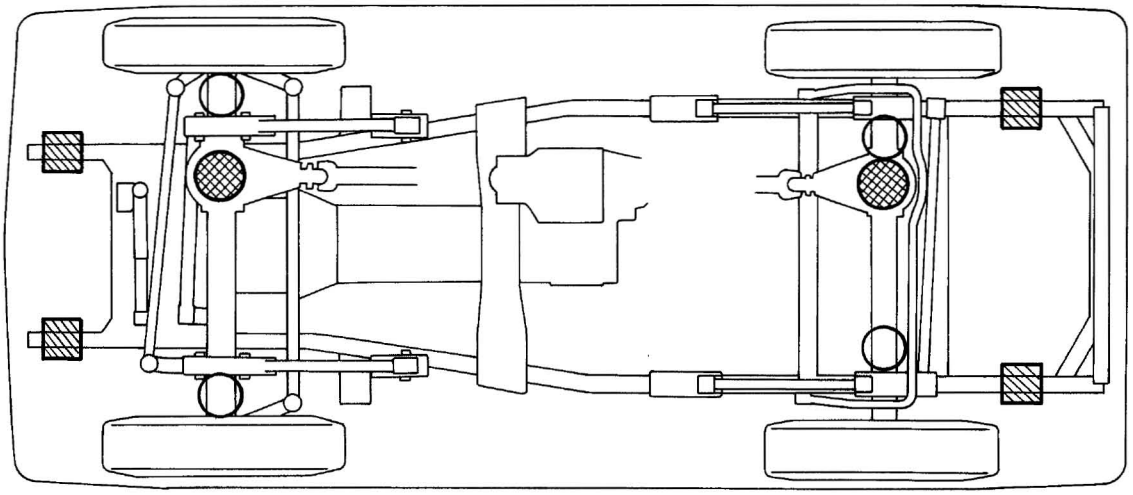
◆ Non–reusable part

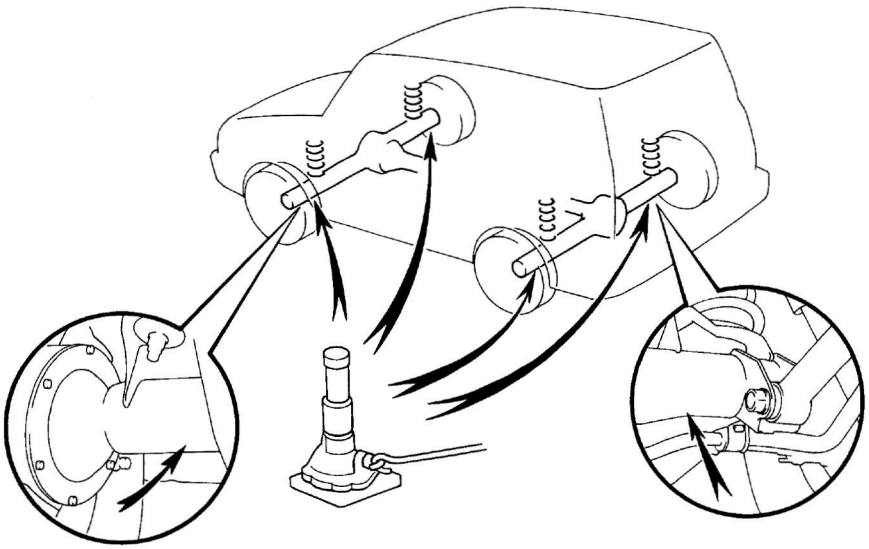
N17080

IN0H2–01

VEHICLE LIFT AND SUPPORT LOCATIONS

Front





JACK POSITION

Front ..... Under front differential

Rear ..... Under rear differential

SCREW TYPE JACK POSITION

SUPPORT POSITION

Safety stand .....

Z00796

HEATER UNIT

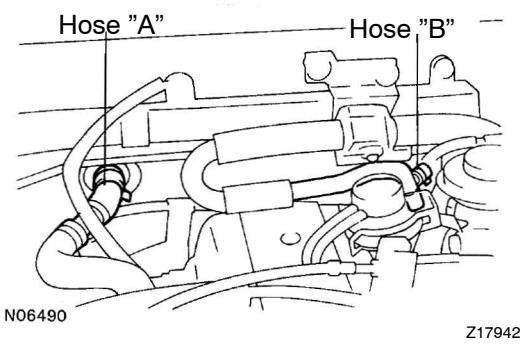
AC2QS–01

REMOVAL

1. **REMOVE COOLING UNIT (See page AC–24)**
2. **DRAIN ENGINE COOLANT FROM RADIATOR**

HINT:

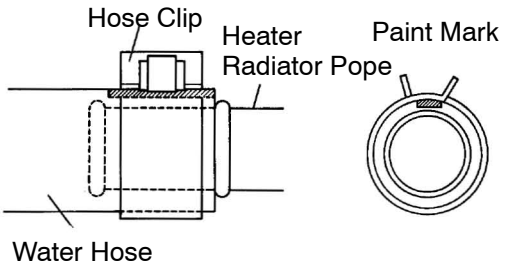
It is not necessary to drain out all the coolant.



3. **DISCONNECT WATER HOSES FROM HEATER RADIATOR PIPES**

(a) Grip the claws of the hose clip with pliers and slide the clip along the hose to a place where it does not clamp the hose to the pipe.

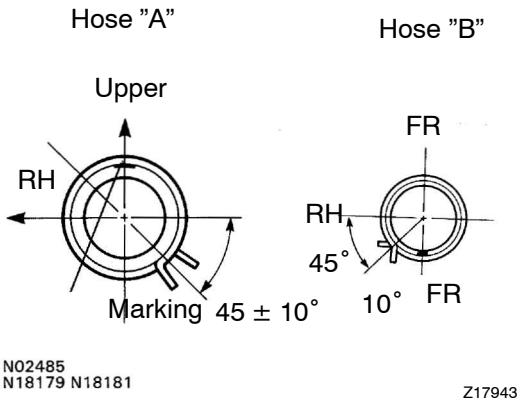
(b) Disconnect the water hoses.



HINT:

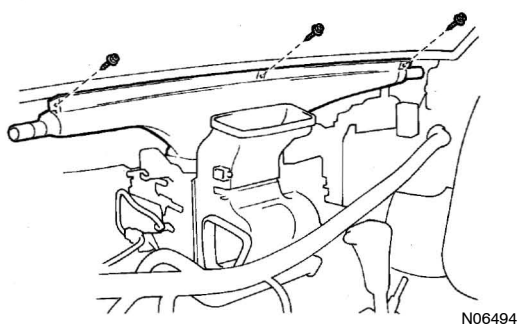
- Push the water hose onto the heater radiator pipe as far as the ridge on the pipe.
- Install the hose clip in a position, as shown in the illustration.

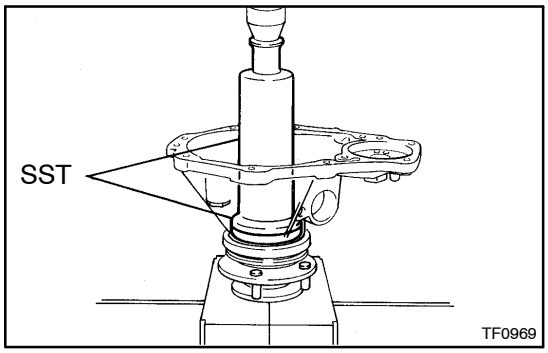
4. **REMOVE PIPE GROMMETS**
5. **REMOVE INSTRUMENT PANEL SAFETY PAD (See page BO–76)**
6. **REMOVE INSTRUMENT PANEL REINFORCEMENT (See page BO–76)**



7. **REMOVE HEATER UNIT**

(a) Remove the 3 screws and defroster nozzle.

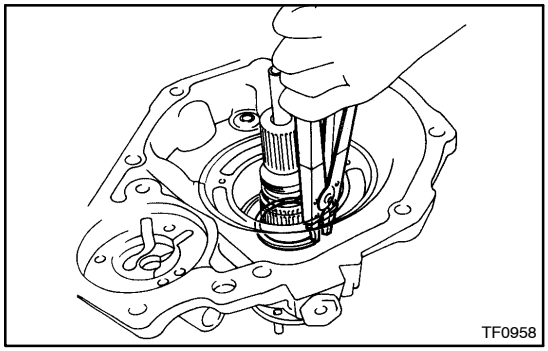




4. INSTALL REAR OUTPUT SHAFT

(a) Using SST and a press, install the rear output shaft.
SST 09316–20011, 09316–60011 (09316–00011, 09316–00031)

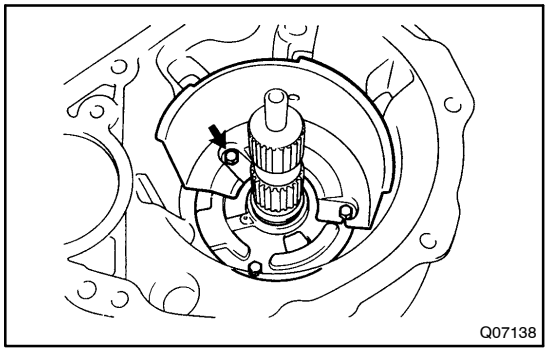
(b) Install the 2 seal rings to the rear output shaft.



(c) Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
1	1.95 (0.0768)
2	2.05 (0.0807)
3	2.15 (0.0847)
4	2.25 (0.0886)

(d) Using a snap ring expander, install a new snap ring.



5. INSTALL VEHICLE SPEED SENSOR DRIVE GEAR

(a) Install the vehicle speed sensor drive gear.

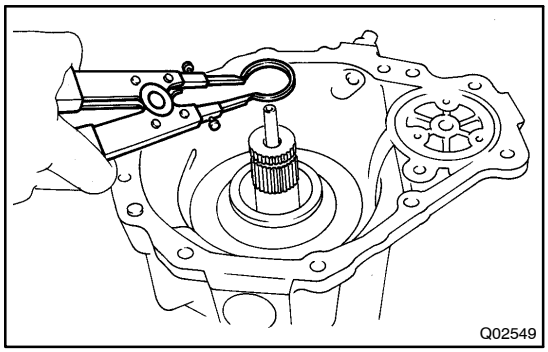
(b) Using a snap ring expander, install the snap ring.

6. INSTALL OIL PUMP PLATE AND SEPARATOR

(a) Install the oil pump plate.

(b) Install the separator.

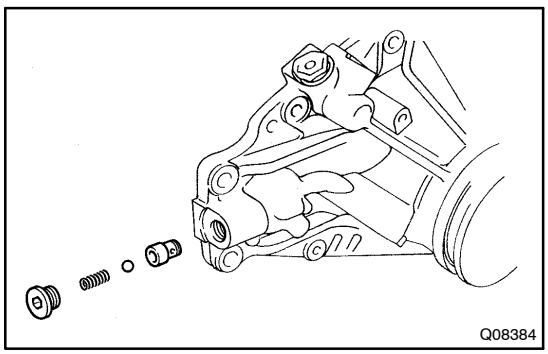
(c) Install and torque the 3 bolts.
Torque: 4.9 N·m (50 kgf·cm, 43 in.·lbf)



7. INSTALL CENTER DIFFERENTIAL CONTROL COUPLING ASSEMBLY

(a) Install the coupling assembly to the output shaft.

(b) Using a snap ring expander, install the snap ring.



8. INSTALL VALVE SEAT, BALL, SPRING AND SCREW PLUG

(a) Apply gear oil to the ball.

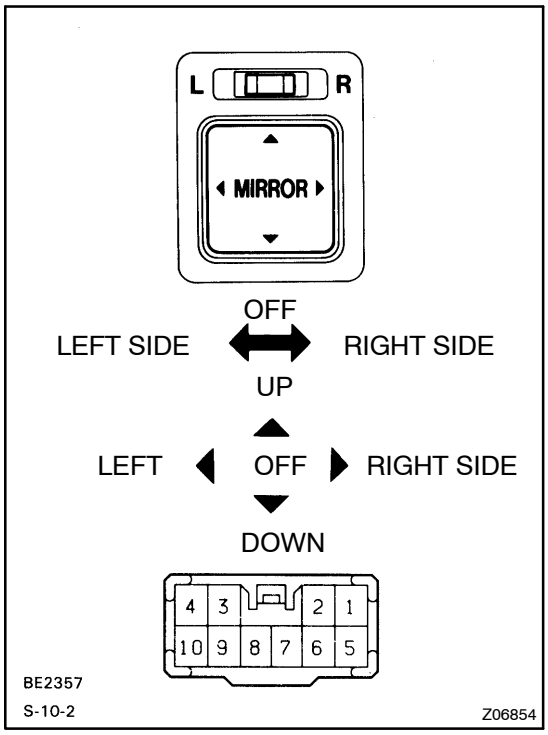
(b) Install the valve seat, ball and spring.

(c) Apply liquid sealer to the screw plug.
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(d) Using a hexagon wrench, install and torque the screw plug.
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

BE1MN–01

INSPECTION



1. Left side:
INSPECT MIRROR SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	1 – 10, 3 – 4	Continuity
DOWN	1 – 3, 4 – 10	Continuity
LEFT	1 – 9, 3 – 4	Continuity
RIGHT	1 – 3, 4 – 9	Continuity

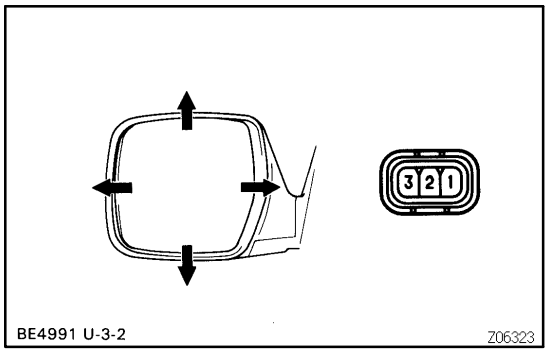
2. Off:
INSPECT MIRROR SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	3 – 4	Continuity
DOWN	1 – 3	Continuity
LEFT	3 – 4	Continuity
RIGHT	1 – 3	Continuity

3. Right side:
INSPECT MIRROR SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	1 – 6, 3 – 4	Continuity
DOWN	1 – 3, 4 – 6	Continuity
LEFT	1 – 2, 3 – 4	Continuity
RIGHT	1 – 3, 2 – 4	Continuity

If continuity is not as specified, replace the switch.



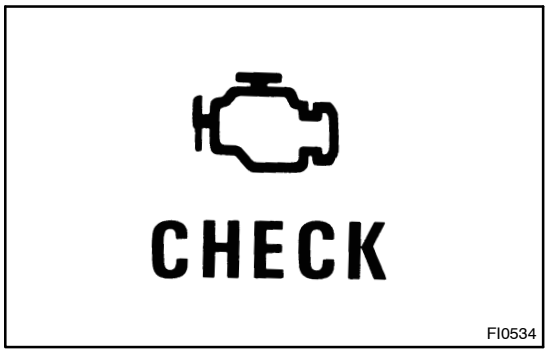
4. INSPECT MIRROR MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal in column "A" and the negative (–) lead to terminal in column "B", check that the mirror operates in column "C".

Switch position	Tester connection	Specified condition
A (+)	B (–)	C (Operation)
2	3	Mirror turns upward
3	2	Mirror turns downward
1	3	Mirror turns to left side
3	1	Mirror turns to right side

If operation is not as specified, replace the mirror assembly.

DI5OU–02



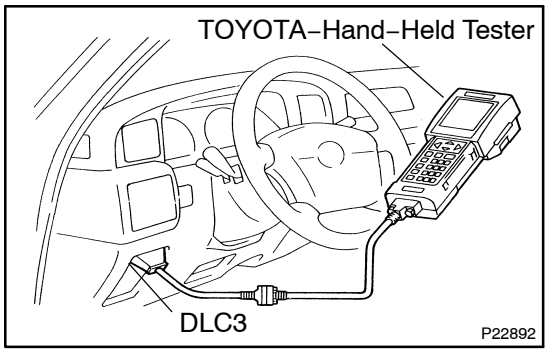
PRE–CHECK

1. DIAGNOSIS SYSTEM

(a) Description

- When troubleshooting OBD II vehicles, the only difference from the usual troubleshooting procedure is that you connect to the vehicle the OBD II scan tool complying with SAE J1978 or TOYOTA hand–held tester, and read off various data output from the vehicle's ECM.
- OBD II regulations require that the vehicle's on–board computer lights up the Malfunction Indicator Lamp (MIL) on the instrument panel when the computer detects a malfunction in the computer itself or in drive system components which affect vehicle emissions. In addition to the MIL lighting up when a malfunction is detected, the applicable Diagnostic Trouble Codes (DTC) prescribed by SAE J2012 are recorded in the ECM memory (See page DI–13).

If the malfunction does not reoccur in 3 trips, the MIL goes off but the DTC remain recorded in the ECM memory.

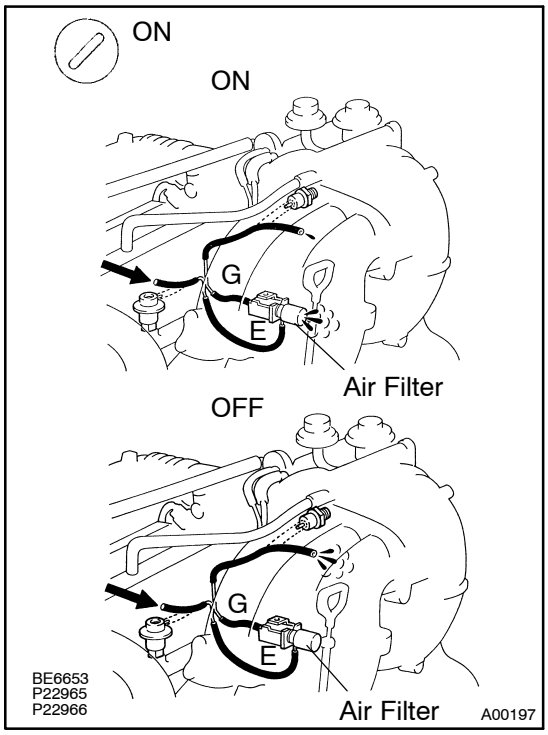


- To check the DTC, connect the OBD II scan tool or TOYOTA hand–held tester to Data Link Connector 3 (DLC3) on the vehicle. The OBD II scan tool or TOYOTA hand–held tester also enables you to erase the DTCs and check freezed frame data and various forms of engine data (For operating instructions, see the OBD II scan tool's instruction book.).
- DTC include SAE controlled codes and manufacturer controlled codes. SAE controlled codes must be set as prescribed by the SAE, while manufacturer controlled codes can be set freely by the manufacturer within the prescribed limits (See DTC chart on page DI–13).

INSPECTION PROCEDURE

TOYOTA hand–held tester

1	**Connect the TOYOTA hand–held tester and check operation of VSV for fuel pressure control.**



PREPARATION:

(a) Remove the fuse cover on the instrument panel.
(b) Connect the TOYOTA hand–held tester to the DLC3.
(c) Turn ignition switch ON and TOYOTA hand–held tester main switch ON.
(d) Select the ACTIVE TEST mode on the TOYOTA hand–held tester.

CHECK:

Check operation of VSV when VSV is operated by the TOYOTA hand–held tester.

OK:

VSV is ON:
Air from pipe E is flowing out through the air filter.
VSV is OFF:
Air from pipe E is flowing out through pipe G.

OK	**Check and repair fuel pressure regulator (See page SF–19).**

NG

2	**Check VSV for fuel pressure control (See page SF–59).**

NG	**Replace VSV for fuel pressure control.**

OK

DI5Q7–03

CIRCUIT INSPECTION

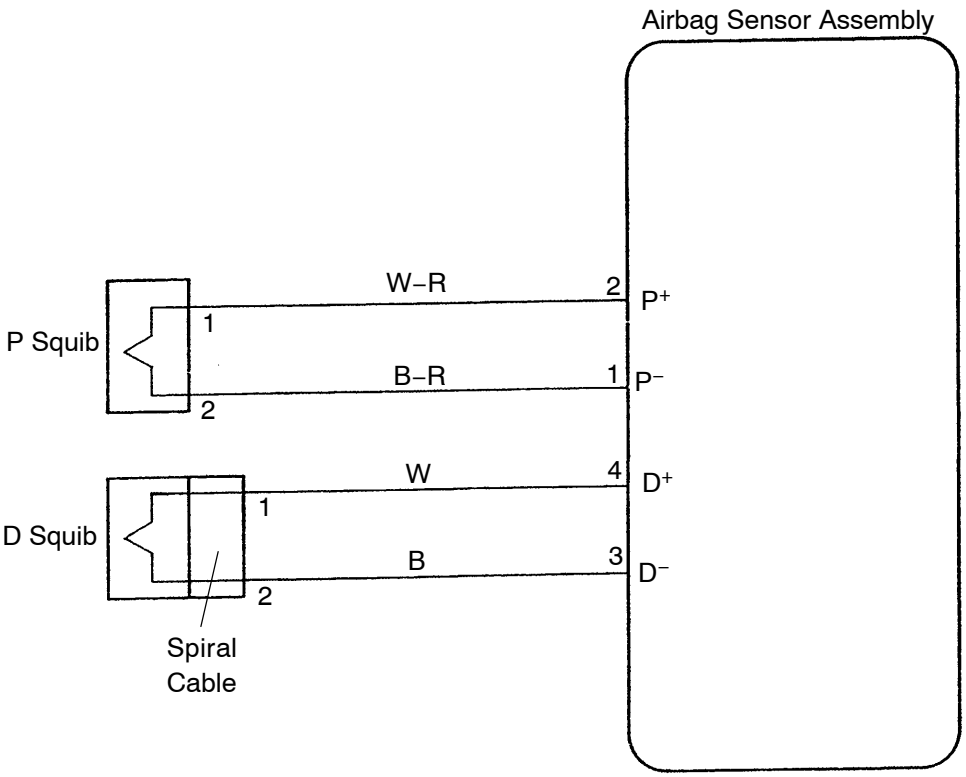
DTC	11	Short in Squib Circuit (to Ground)

CIRCUIT DESCRIPTION

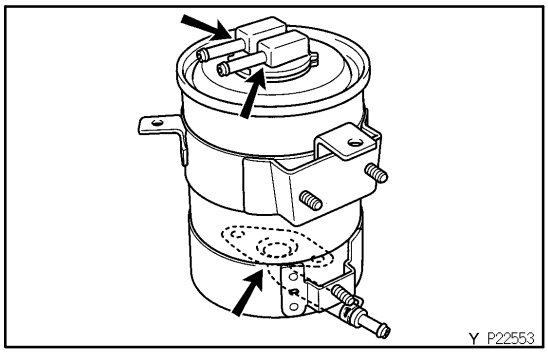
The squib circuit consists of the airbag sensor assembly, spiral cable, steering wheel pad and front passenger airbag assembly. If causes the SRS to deploy when the SRS deployment conditions are satisfied.
For details of the function of each component, see FUNCTION OF COMPONENTS on page RS–2.
DTC 11 is recorded when ground short is detected in the squib circuit.

DTC No.	DTC Detection Condition	Trouble Area
11	• Short circuit in squib wire harness (to ground) • Squib malfunction • Spiral cable malfunction • Airbag sensor assembly malfunction	• Steering wheel pad (D squib) • Front passenger airbag assembly (P squib) • Spiral cable • Airbag sensor assembly • Wire harness

WIRING DIAGRAM

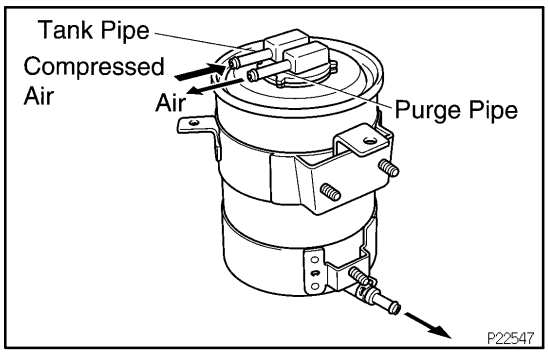


R16017



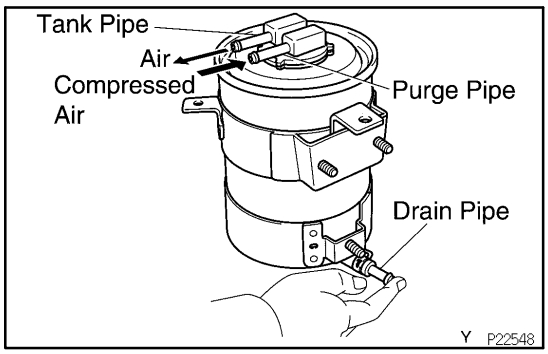
9. VISUALLY INSPECT CHARCOAL CANISTER

Look for cracks or damage.



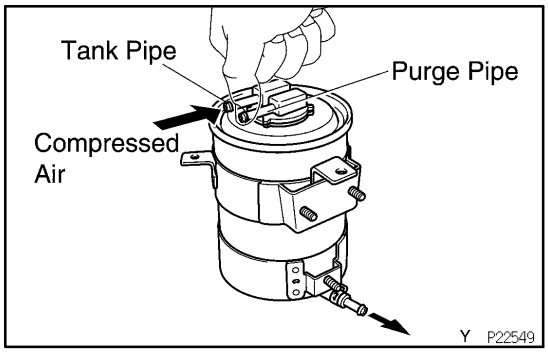
10. INSPECT FOR CLOGGED FILTER AND STUCK VALVE

(a) Using low pressure compressed air (7.26 kPa, 74 gf/cm^2, 1.05 psi), blow into tank pipe and check that air flows without resistance from the other pipes.



(b) While holding drain pipe closed, blow air (1.96 kPa, 20 gf/cm^2, 0.28 psi) into purge pipe and check that air flow without resistance from tank pipe.

If a problem is found, replace the charcoal canister.



11. CLEAN FILTER IN CANISTER

Clean the filter by blowing 294 kPa (3 kgf/cm^2, 43 psi) of compressed air into tank pipe while holding purge pipe closed.

NOTICE:

Do not attempt to wash the canister.No activated carbon should come out.

12. REINSTALL CAP TO CHARCOAL CANISTER

13. REINSTALL CHARCOAL CANISTER TO BRACKET
Torque: 14 N·m (145 kgf·cm, 10 ft·lbf)

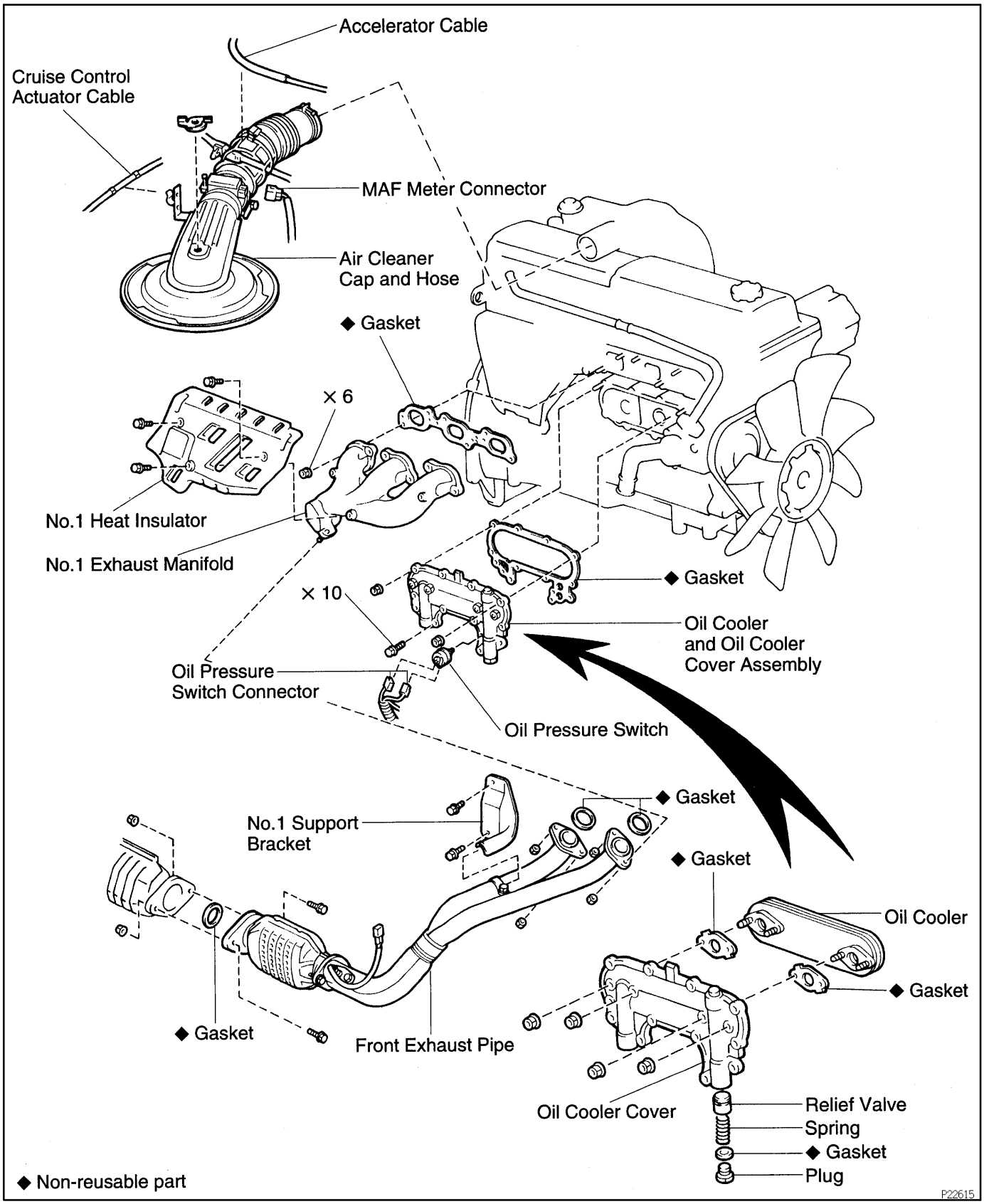
14. REINSTALL CHARCOAL CANISTER WITH BRACKET
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

15. DRAIN ENGINE COOLANT

OIL COOLER

COMPONENTS

LU08W–03

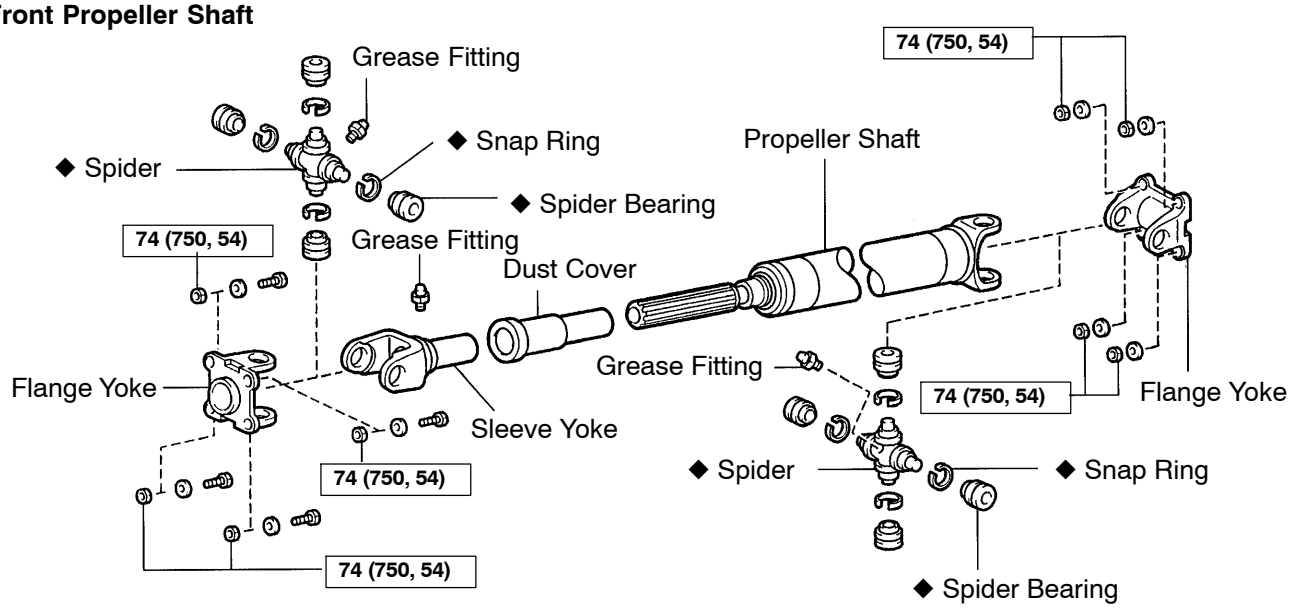


PROPELLER SHAFT ASSEMBLY

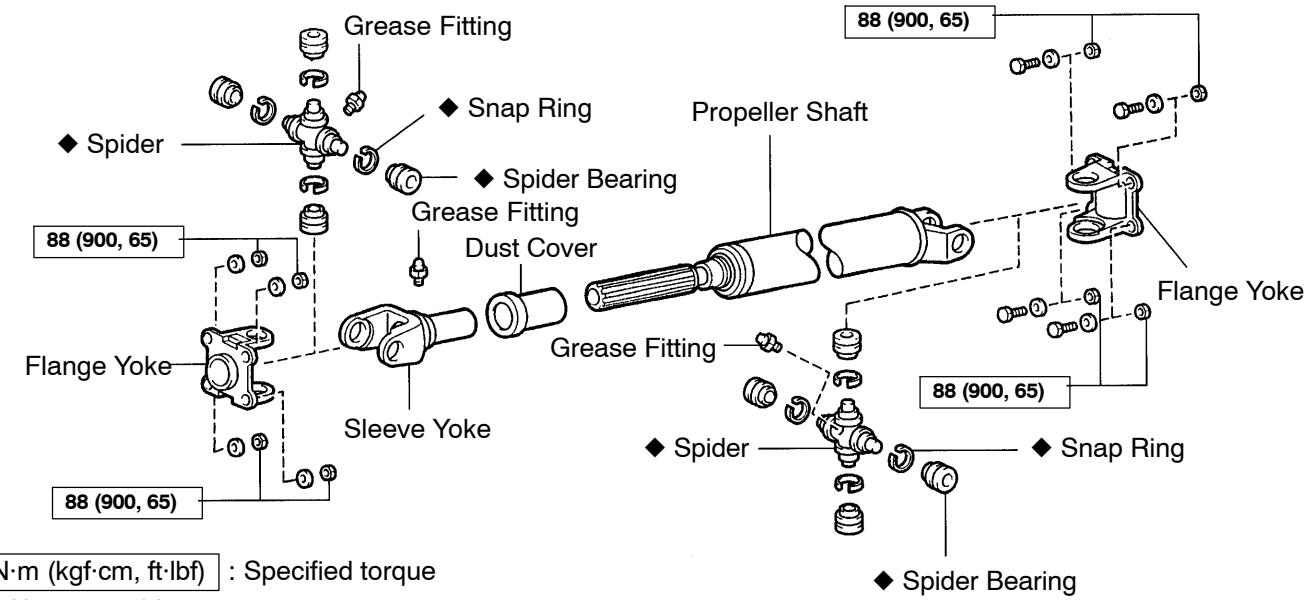
COMPONENTS

PR06O–02

Front Propeller Shaft



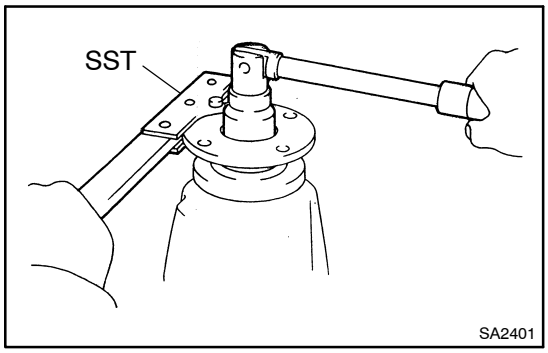
Rear propeller Shaft



N·m (kgf·cm, ft·lbf) : Specified torque

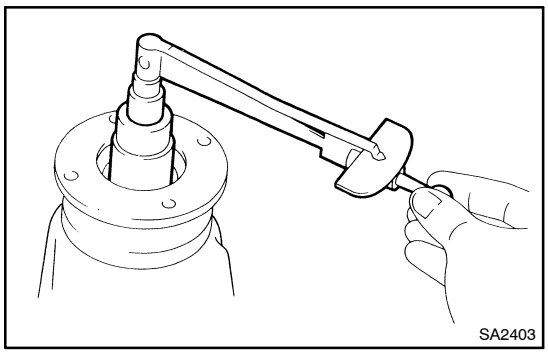
◆ Non–reusable part

Q10862



(c) Adjust the drive pinion preload by tightening the companion flange nut.
Using SST to hold the flange, tighten the nut.
SST 09330–00021

NOTICE:
As there is no spacer, tighten a little at a time, being careful not to overtighten.



(d) Using a torque wrench, measure the preload.
Preload (at starting):
New bearing
0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.·lbf)
Reused bearing
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

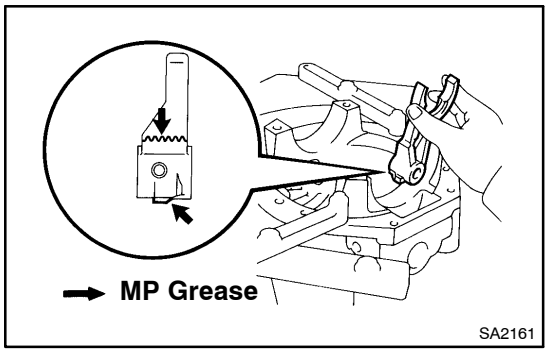
HINT:
Measure the total preload after first turning the bearing clockwise and counterclockwise several times to mark the bearing smooth.

12. w/o DIFFERENTIAL LOCK:
INSTALL DIFFERENTIAL CASE IN CARRIER

(a) Place the bearing outer races on their respective bearings. Make sure the left and right outer races are not interchanged.

(b) Install the case in the carrier.

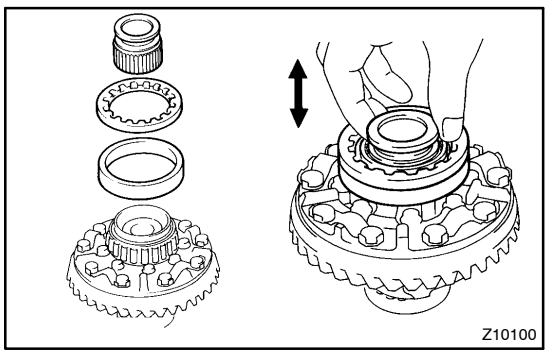
HINT:
Make sure that there is backlash between the ring gear and drive pinion.



13. w/ DIFFERENTIAL LOCK:
INSTALL DIFFERENTIAL CASE IN CARRIER

(a) Apply MP grease on the rack of the shift fork and connecting part of the indicator switch.

(b) Insert the shift fork into the differential carrier, as shown.



(c) Install outer races, adjusting nuts and left side to sleeve.

HINT:
Check that the sleeve moves smoothly.

(d) Install the shift fork in the groove of the sleeve holding it by hand and install the case in the carrier.

HINT:
Make sure that there is backlash between the ring gear and drive pinion.

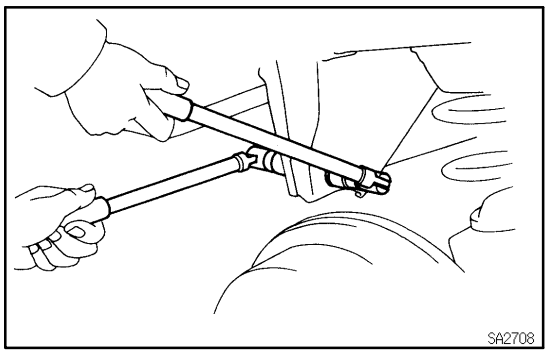
REAR LATERAL CONTROL ROD

SA1VU–01

REMOVAL

1. REMOVE REAR WHEEL

Torque:
Steel wheel: 147 N·m (1,500 kgf·cm, 109 ft·lbf)
Aluminum wheel: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

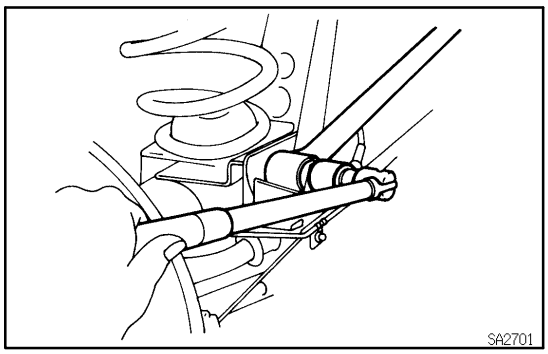


2. REMOVE LATERAL CONTROL ROD

(a) Remove the bolt, nut and plate washer, and disconnect the lateral control rod.

Torque: 177 N·m (1,800 kgf·cm, 130 ft·lbf)

HINT:
After stabilizing the suspension, torque the bolt.



(b) Remove the bolt and lateral control rod from the axle housing.

Torque: 245 N·m (2,500 kgf·cm, 181 ft·lbf)

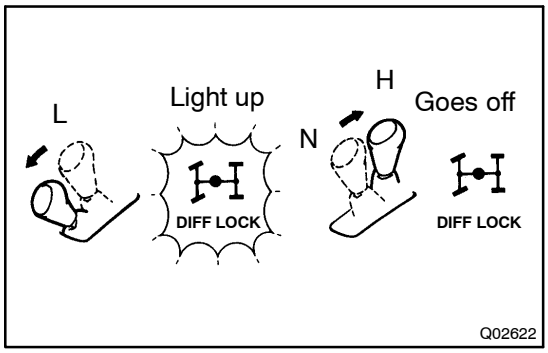
HINT:
After stabilizing the suspension, torque the bolt.

SS1EM–02

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Compressor x Suction hose	10	100	7
Compressor x Discharge hose	10	100	7
Condensser x Compressor bracket	25	250	18
Compressor bracket x Engine	37	375	27
Receiver x Liquid tube	5.4	55	48 in.·lbf
Condenser x Discharge hose	10	100	7
Cooling unit x Liqied tube	10	100	7
Cooling unit x Suction tube	10	100	7
Pressure switch x Liquid tube	10	100	7
Expansion valve x Evaporetor	5.4	55	48 in.·lbf
Liquid line (Union nut)	14	140	10
Suction line (bolt)	10	140	7

TR0BM–03

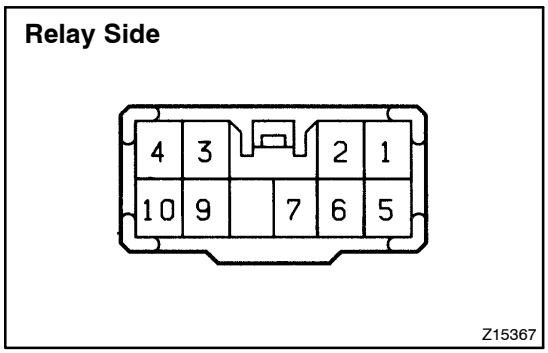


INSPECTION

1. INSPECT SHIFT LEVER POSITION

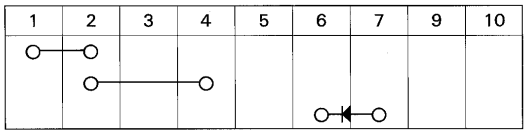
(a) Start the engine, and turn the center diff lock switch to OFF.

(b) Check that the center diff indicator light comes on when the transfer shift lever shifted to the ”L” position. Check that the light goes off when the lever is shifted to the ”N” or ”H” position.



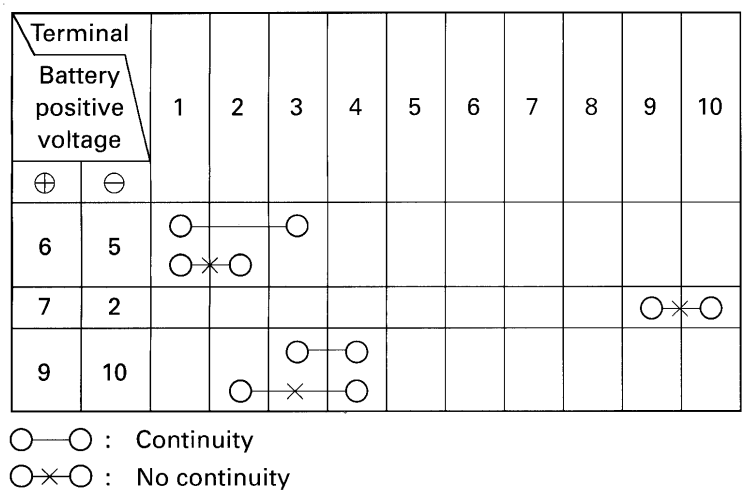
2. INSPECT CENTER DIFF LOCK CONTROL RELAY

(a) Check that there is continuity between the terminals, as shown in the chart.



HINT:
There is a diode between the terminals 6 and 7. If the circuit shown no continuity, change the positive (+) and negative (–) probes and recheck the circuit.

(b) Apply battery positive voltage between the terminals and check that there is continuity between the terminals, as shown in the chart.



If continuity is not as specified, replace the relay.