

CHARGING SYSTEM

CH021-01

PRECAUTION

- Check that the battery cables are connected to the correct terminals.
- Disconnect the battery cables when the battery is given a quick charge.
- Do not perform tests with a high voltage insulation resistance tester.
- Never disconnect the battery while the engine is running.

ON-VEHICLE INSPECTION

1. CHECK BATTERY ELECTROLYTE LEVEL

Check the electrolyte quantity of each cell.

Maintenance-Free Battery:

If under the lower level, replace the battery (or add distilled water if possible) and check the charging system.

Except Maintenance-Free Battery:

If under the lower level, add distilled water.

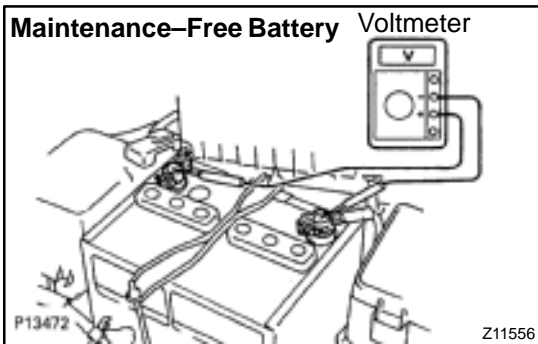


2. Except Maintenance-Free Battery: CHECK BATTERY SPECIFIC GRAVITY

Check the specific gravity of each cell.

Standard specific gravity: 1.25 – 1.29 at 20°C (68 °F)

If the specific gravity is less than specification, charge the battery.



3. Maintenance-Free Battery: CHECK BATTERY VOLTAGE

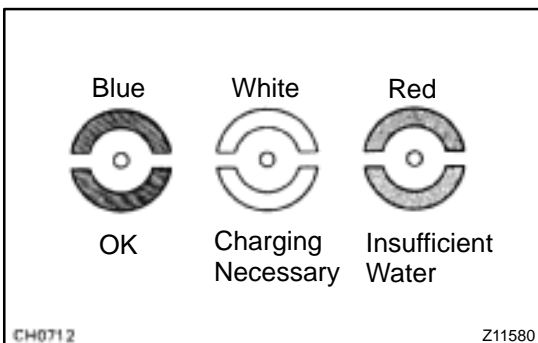
(a) After having driven the vehicle and in the case that 20 minutes have not passed after having stopped the engine, turn the ignition switch ON and turn on the electrical system (headlight, blower motor, rear defogger etc.) for 60 seconds to remove the surface charge.

(b) Turn the ignition switch OFF and turn off the electrical systems.

(c) Measure the battery voltage between the negative (-) and positive (+) terminals of the battery.

Standard voltage: 12.5 – 12.9 V at 20°C (68°F)

If the voltage is less than specification, charge the battery.



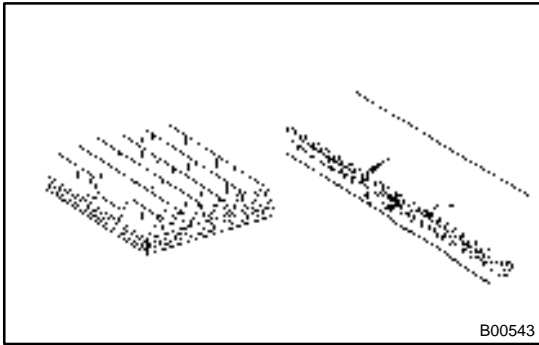
HINT:

Check the indicator as shown in illustration.

4. CHECK BATTERY TERMINALS, FUSIBLE LINK AND FUSES

(a) Check that the battery terminals are not loose or corroded.

(b) Check the fusible link, H-fuses and fuses for continuity.



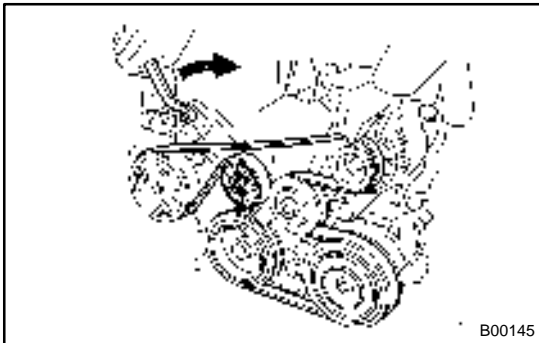
5. INSPECT DRIVE BELT

- (a) Visually check the belt for excessive wear, frayed cords etc.

If any defect has been found, replace the drive belt.

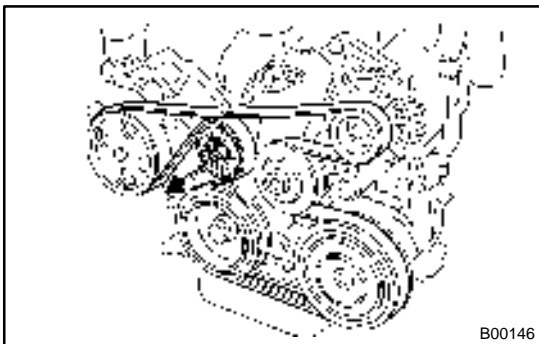
HINT:

Cracks on the rib side of a belt are considered acceptable. If the belt has chunks missing from the ribs, it should be replaced.



HINT:

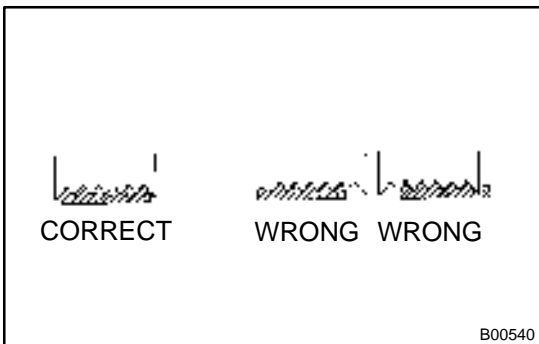
The drive belt tension can be released by turning the belt tensioner clockwise.



- (b) Check the belt tensioner operation.

- Check that belt tensioner moves downward when the drive belt is pressed down at the points indicated in the illustration with approx. 98 N (10 kgf, 22.0 lbf) of force.
- Check the alignment of the belt tensioner pulley to make sure the drive belt will not slip off the pulley.

If necessary, replace the belt tensioner.



HINT:

- After installing a belt, check that it fits properly in the ribbed grooves.
- Check with your hand to confirm that the belt has not slipped out of the groove on the bottom of the pulley.
- After installing a new belts, run the engine for about 5 minutes and check the belt tension existing.

6. VISUALLY CHECK GENERATOR WIRING AND LISTEN FOR ABNORMAL NOISES

- (a) Check that the wiring is in good condition.
- (b) Check that there is no abnormal noise from the generator while the engine is running.

7. INSPECT DISCHARGE WARNING LIGHT CIRCUIT

- (a) Turn the ignition switch "ON". Check that the discharge warning light comes on.

- (b) Start the engine. Check that the light goes off.

If the light does not operate as specified, troubleshoot the discharge warning light circuit.

8. INSPECT CHARGING CIRCUIT WITHOUT LOAD

HINT:

If a battery/generator tester is available, connect the tester to the charging circuit as per manufacturer's instructions.

(a) If a tester is not available, connect a voltmeter to the charging circuit as follows:

- Disconnect to the wire from terminal B of the generator and connect it to the negative (-) lead of the ammeter.
- Connect the positive (+) lead of the ammeter to terminal B of the generator.
- Connect the positive (+) lead of the voltmeter to terminal B of the generator.
- Ground the negative (-) lead of the voltmeter.

(b) Check the charging circuit as follows:

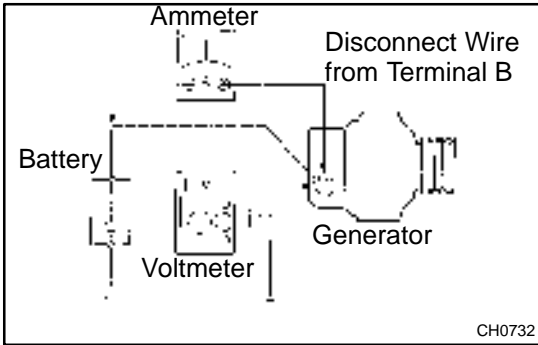
With the engine running from idle to 2,000 rpm, check the reading on the ammeter and voltmeter.

Standard amperage: 10A or less

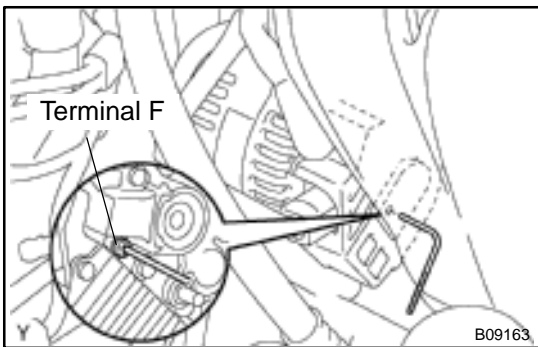
Standard voltage: 13.2 – 14.0 V

If the voltmeter reading is more than standard voltage, replace the voltage regulator.

If the voltmeter reading is less than the standard voltage, check the voltage regulator and generator as follows:



CH0732



B09163

- With terminal F grounded, start the engine and check the voltmeter reading of terminal B.
- If the voltmeter reading is more than standard voltage, replace the voltage regulator.
- If the voltmeter reading is less than standard voltage, check the generator.

9. INSPECT CHARGING CIRCUIT WITH LOAD

(a) With the engine running at 2,000 rpm, turn on the high beam headlights and place the heater blower switch at "H".

(b) Check the reading on the ammeter.

Standard amperage: 30 A or more

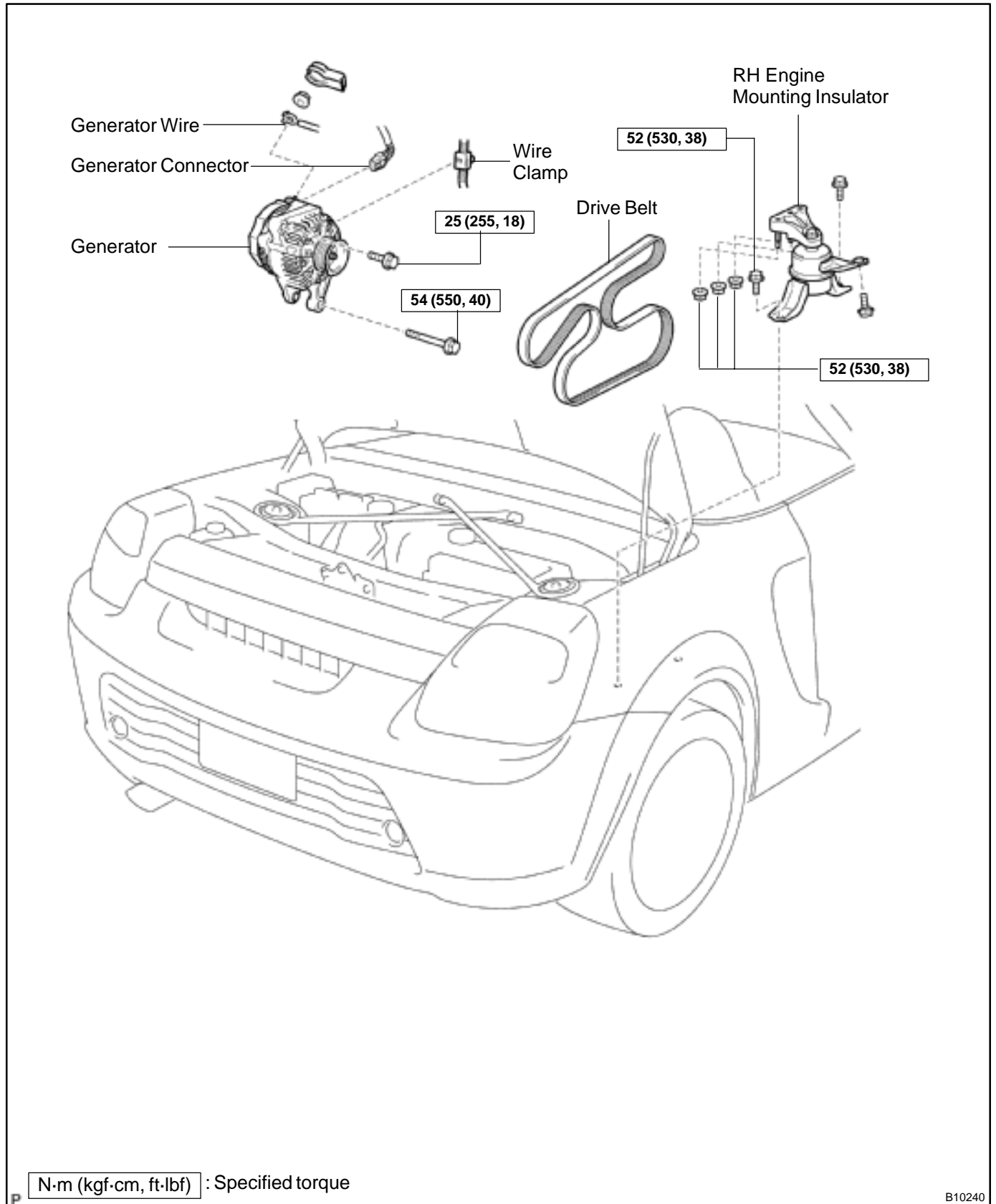
If the ammeter reading is less than standard amperage, repair the generator.

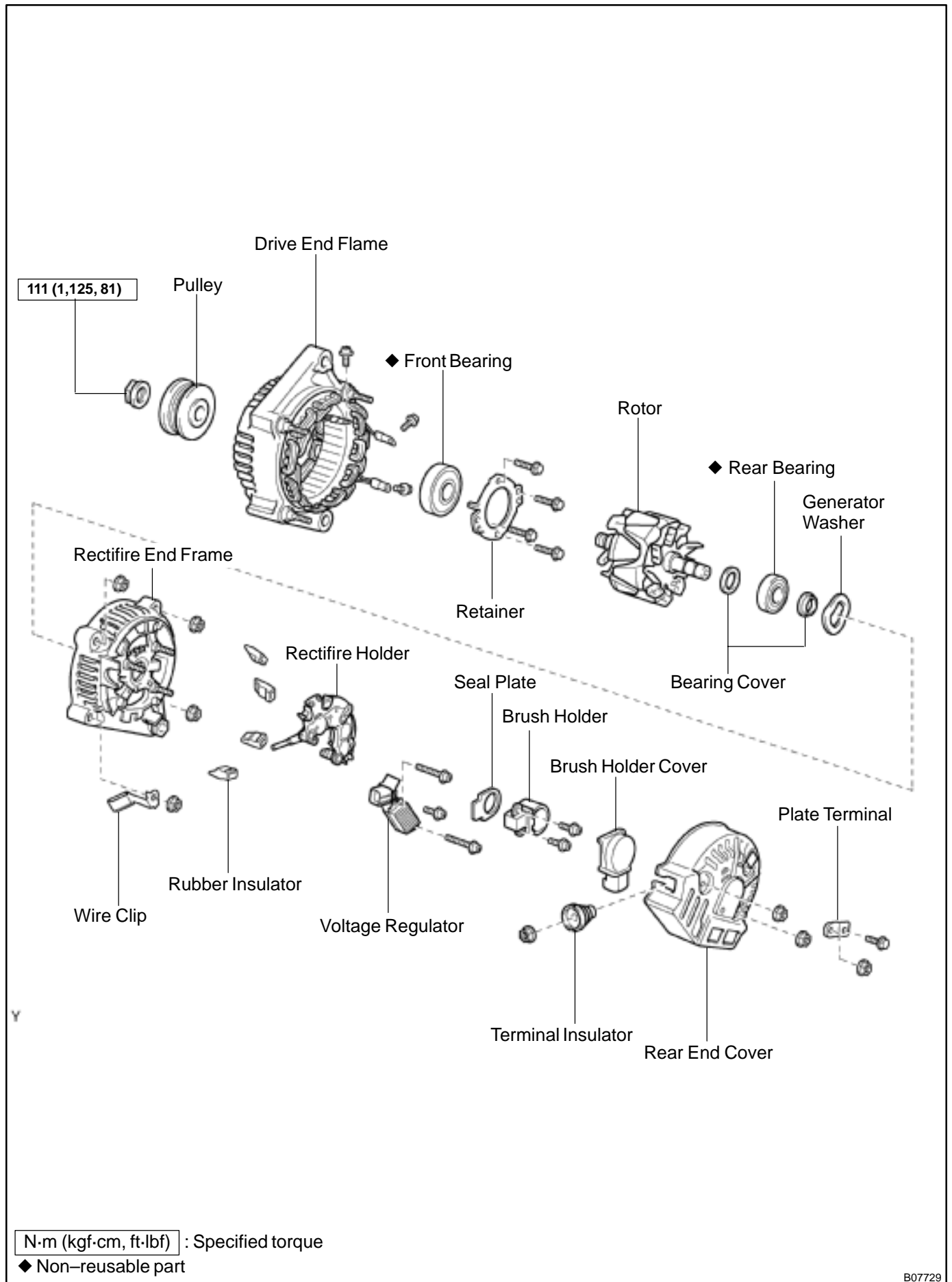
HINT:

If the battery is fully charged, the indication will sometimes be less than standard amperage.

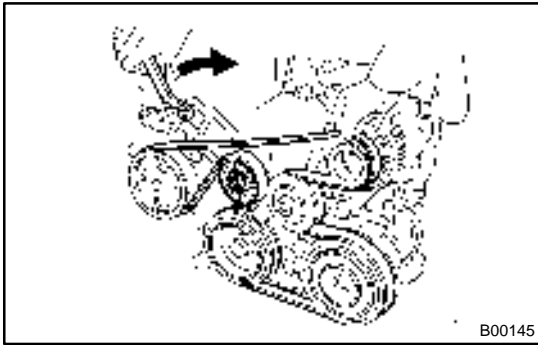
GENERATOR COMPONENTS

CH023-04





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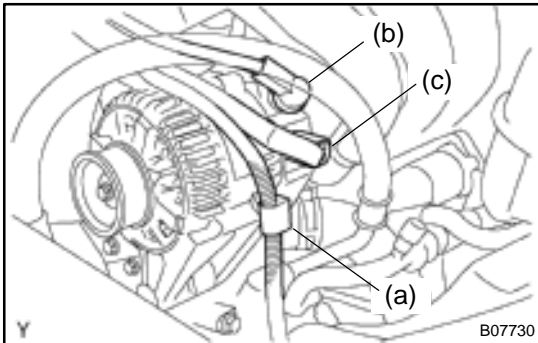


REMOVAL

1. REMOVE DRIVE BELT

Turn the drive belt tensioner slowly clockwise and loosen it. Then, remove the drive belt and replace the drive belt tensioner little by little and fix it quietly.

2. REMOVE RH ENGINE MOUNTING INSULATOR (See page EM-54)

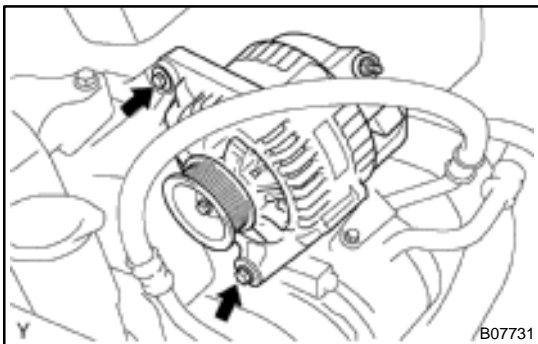


3. REMOVE GENERATOR

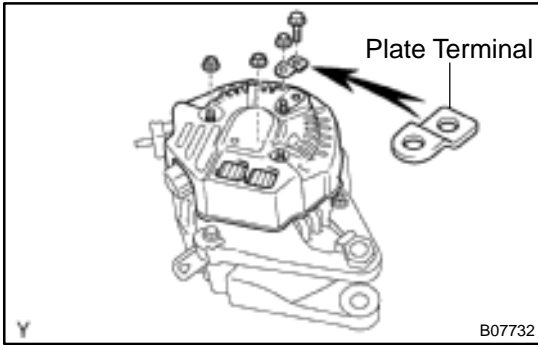
(a) Disconnect the wire clamp from the wire clip on the rectifier end frame.

(b) Remove the cap and nut, and disconnect the generator wire.

(c) Disconnect the generator connector.



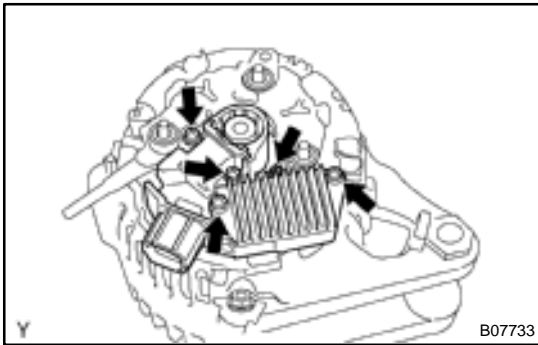
(d) Remove the 2 bolts and generator.



DISASSEMBLY

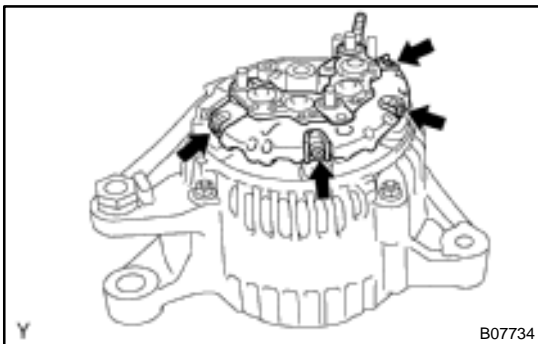
1. REMOVE REAR END COVER

- (a) Remove the nut and terminal insulator.
- (b) Remove the bolt, 3 nuts, plate terminal and end cover.



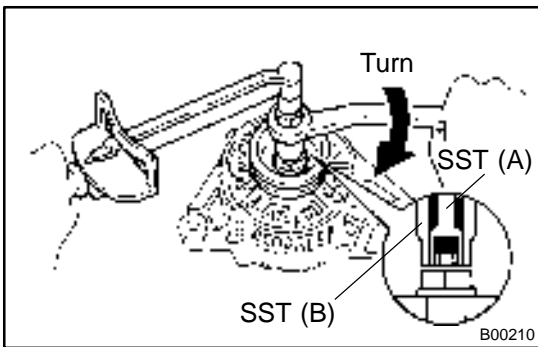
2. REMOVE BRUSH HOLDER AND VOLTAGE REGULATOR

- (a) Remove the brush holder cover from the brush holder.
- (b) Remove the 5 screws, brush holder and voltage regulator.
- (c) Remove the seal plate from the rectifier end frame.



3. REMOVE RECTIFIER HOLDER

- (a) Remove the 4 screws and rectifier holder.
- (b) Remove the 4 rubber insulators.



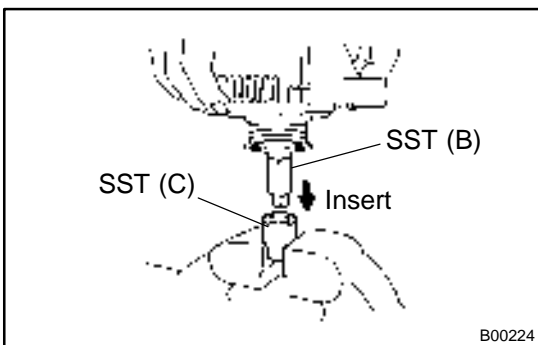
4. REMOVE PULLEY

- (a) Hold SST (A) with a torque wrench, and tighten SST (B) clockwise to the specified torque.

SST 09820-63010

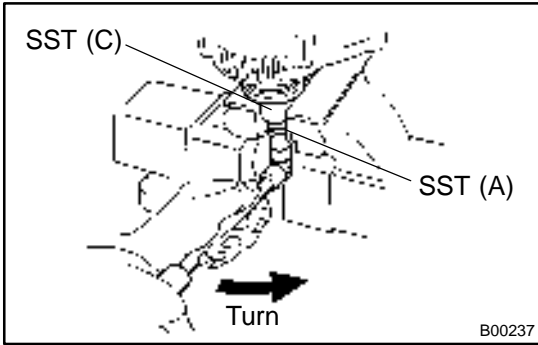
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

- (b) Check that SST (A) is secured to the rotor shaft.



- (c) Mount SST (C) in a vise.

- (d) Insert SST (B) into SST (C), and attach the pulley nut to SST (C).

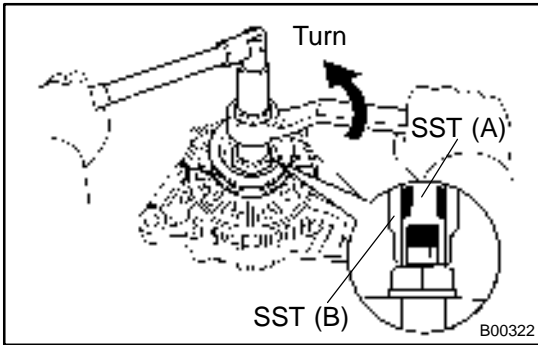


(e) To loosen the pulley nut, turn SST (A) in the direction shown in the illustration.

NOTICE:

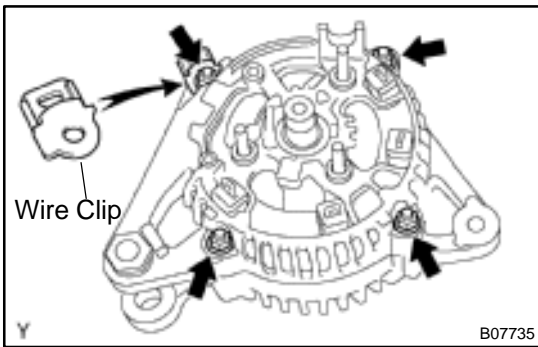
To prevent damage to the rotor shaft, do not loosen the pulley nut more than one-half of a turn.

(f) Remove the generator from SST (C).



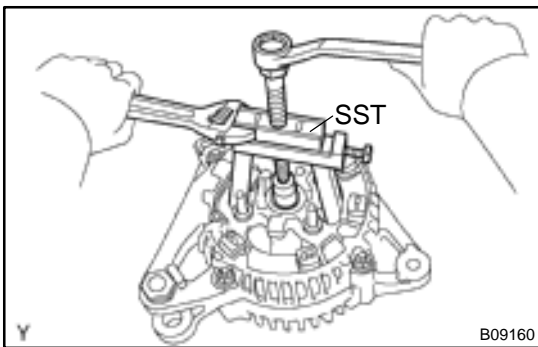
(g) Turn SST (B), and remove SST (A and B).

(h) Remove the pulley nut and pulley.



5. REMOVE RECTIFIER END FRAME

(a) Remove the 4 nuts and wire clip.

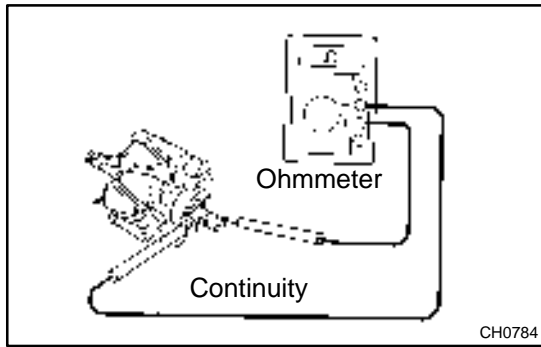


(b) Using SST, remove the rectifier end frame.

SST 09286-46011

(c) Remove the generator washer from the rotor

6. REMOVE ROTOR FROM DRIVE END FRAME



INSPECTION

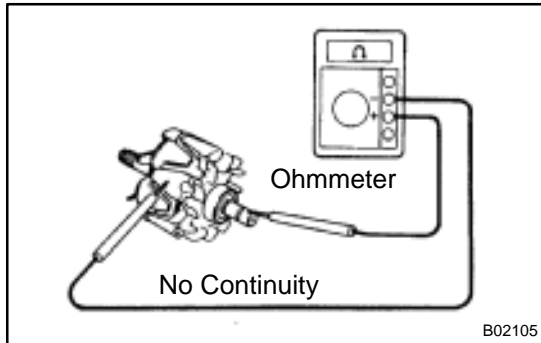
1. INSPECT ROTOR

- (a) Check the rotor for open circuit.

Using an ohmmeter, check that there is continuity between the slip rings.

Standard resistance: 2.1 – 2.5 Ω at 20°C (68°F)

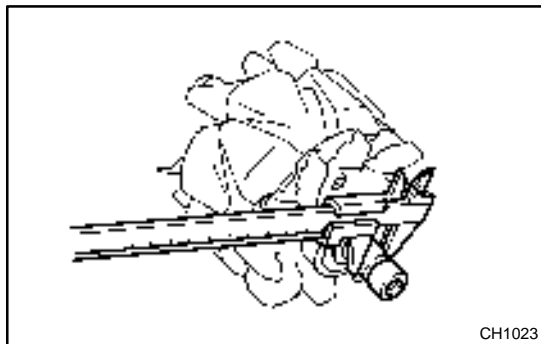
If there is no continuity, replace the rotor.



- (b) Check the rotor for ground.

Using an ohmmeter, check that there is no continuity between the slip ring and rotor.

If there is continuity, replace the rotor.



- (c) Check that the slip rings are not rough or scored.

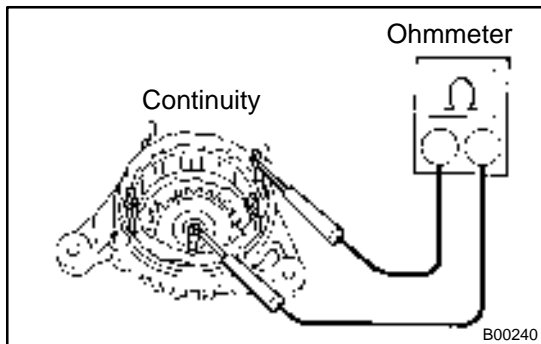
If rough or scored, replace the rotor.

- (d) Using a vernier caliper, measure the slip ring diameter.

Standard diameter: 14.2 – 14.4 mm (0.559 – 0.567 in.)

Minimum diameter: 12.8 mm (0.504 in.)

If the diameter is less than minimum, replace the rotor.

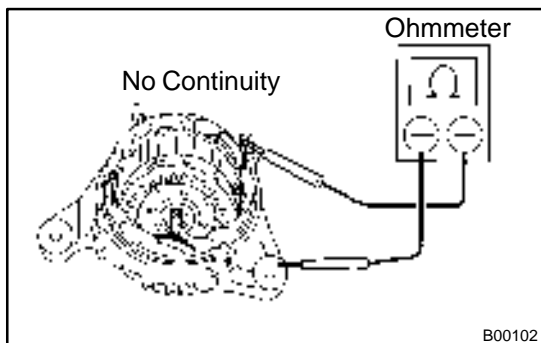


2. INSPECT STATOR (DRIVE END FRAME)

- (a) Check the stator for open circuit.

Using an ohmmeter, check that there is continuity between the coil leads.

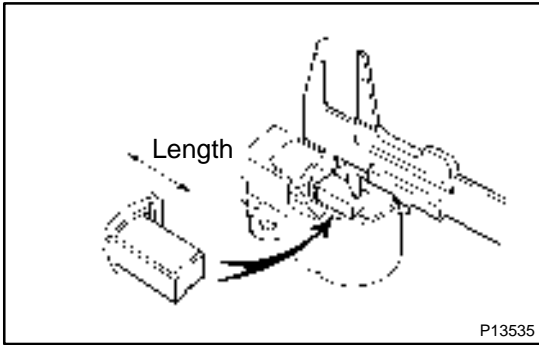
If there is no continuity, replace the drive end frame assembly.



- (b) Check the stator for ground.

Using an ohmmeter, check that there is no continuity between the coil lead and drive end frame.

If there is continuity, replace the drive end frame assembly.



3. INSPECT BRUSHES

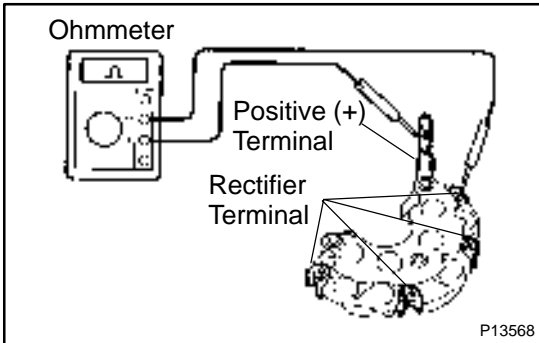
Using vernier calipers, measure the exposed brush length.

Standard exposed length:

9.5 – 11.5 mm (0.374 – 0.453 in.)

Minimum exposed length: 1.5 mm (0.059 in.)

If the exposed length is less than minimum, replace the brush holder assembly.



4. INSPECT RECTIFIERS (RECTIFIER HOLDER)

(a) Check the positive (+) rectifier.

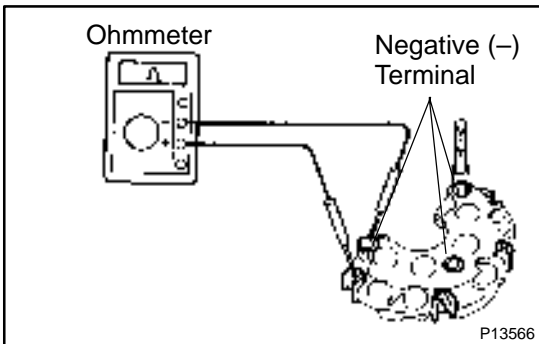
- (1) Using an ohmmeter, connect one tester probe to the positive (+) terminal and the other to each rectifier terminal.
- (2) Reverse the polarity of the tester probes and repeat step (a).
- (3) Check that one shows continuity and the other shows no continuity.

If continuity is not as specified, replace the rectifier holder.

(b) Check the negative (-) rectifier.

- (1) Using an ohmmeter, connect one tester probe to each negative (-) terminal and the other to each rectifier terminal.
- (2) Reverse the polarity of the tester probes and repeat step (a).
- (3) Check that one shows continuity and the other shows no continuity.

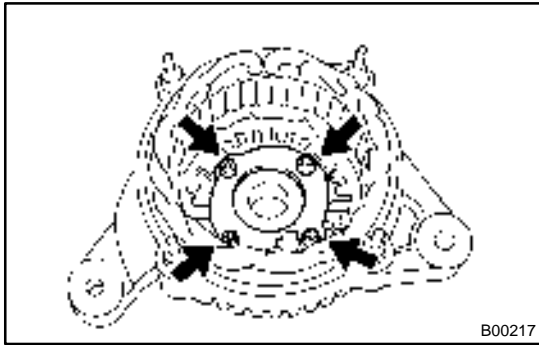
If continuity is not as specified, replace the rectifier holder.



5. INSPECT BEARINGS

Check the bearing is not rough or worn.

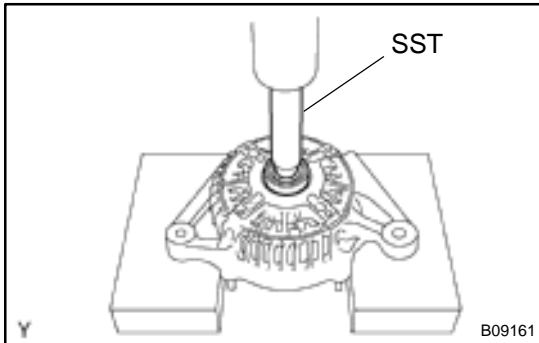
If necessary, replace the bearing (See page [CH-12](#)).



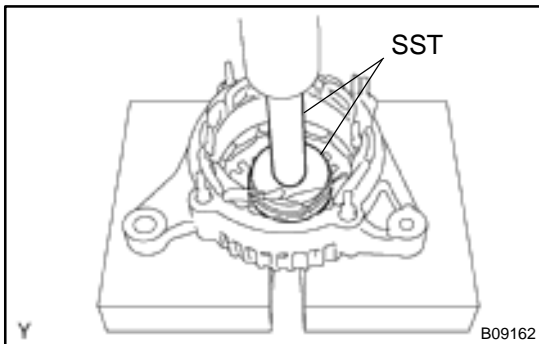
REPLACEMENT

1. REPLACE FRONT BEARING

- (a) Remove the 4 screws, bearing retainer and bearing.

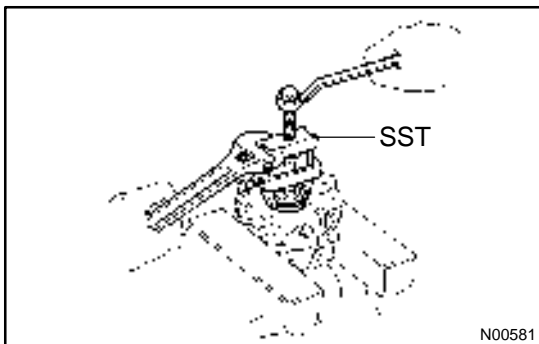


- (b) Using SST and a press, press out the bearing.
SST 09950-60010 (09951-00350), 09950-70010 (09951-07100)



- (c) Using SST and a press, press in a new bearing.
SST 09950-60010 (09951-00530), 09950-70010 (09951-07100)

- (d) Install the bearing retainer with the 4 screws.
Torque: 3.0 N·m (31 kgf·cm, 27 in.-lbf)

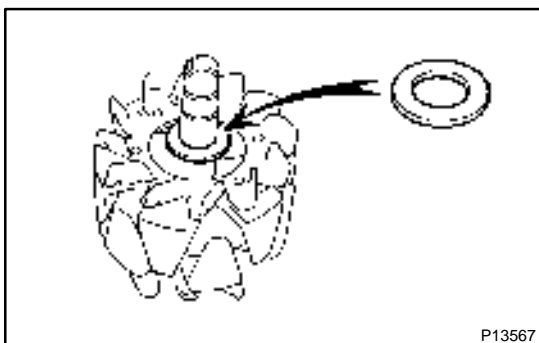


2. REPLACE REAR BEARING

- (a) Using SST, remove the bearing cover (outside) and bearing.
SST 09820-00021

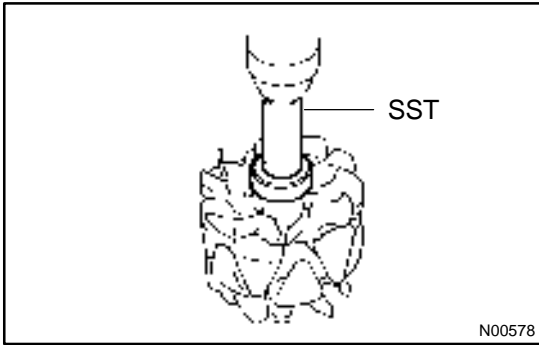
NOTICE:

Be careful not to damage the fan.

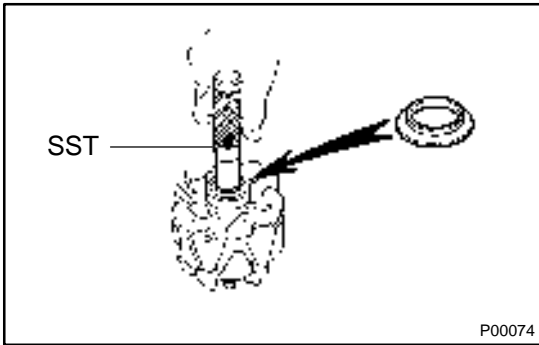


- (b) Remove the bearing cover (inside).
(c) Place the bearing cover (inside) on the rotor.

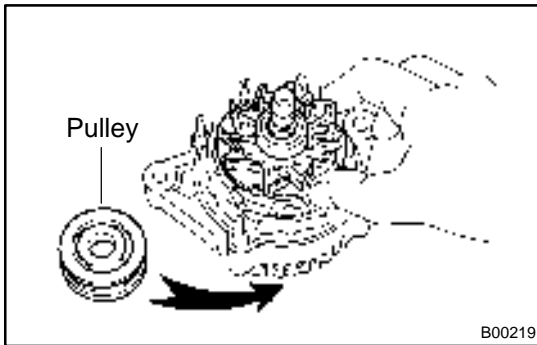
CHARGING - GENERATOR



- (d) Using SST and a press, press in a new bearing.
SST 09820-00030



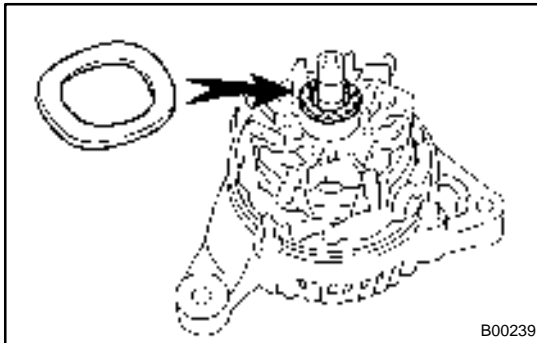
- (e) Using SST, push in the bearing cover (outside).
SST 09285-76010



REASSEMBLY

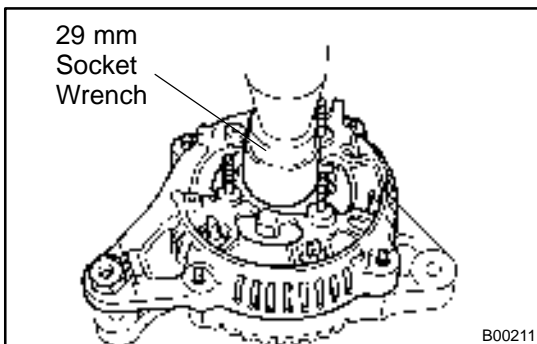
1. INSTALL ROTOR TO DRIVE END FRAME

- Place the drive end frame on the pulley.
- Install the rotor to the drive end frame.

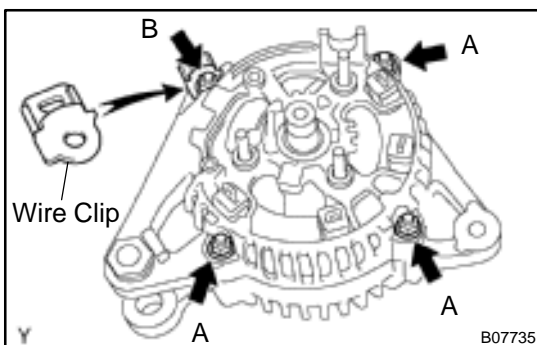


2. INSTALL RECTIFIER END FRAME

- Place the generator washer on the rotor.



- Using a 29 mm socket wrench and press, slowly press in the rectifier end frame.

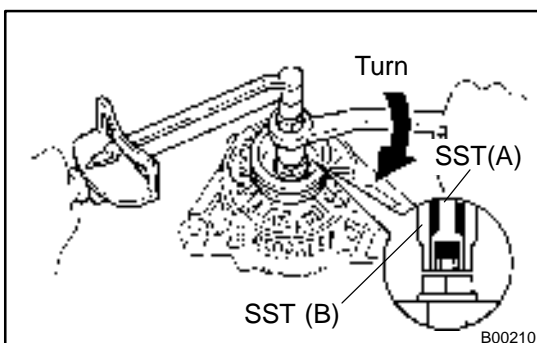


- Install the wire clip and 4 nuts.

Torque:

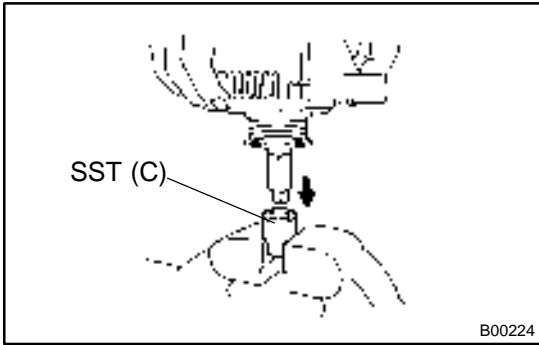
Nut A: 4.5 N·m (46 kgf·cm, 40 in.-lbf)

Nut B: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

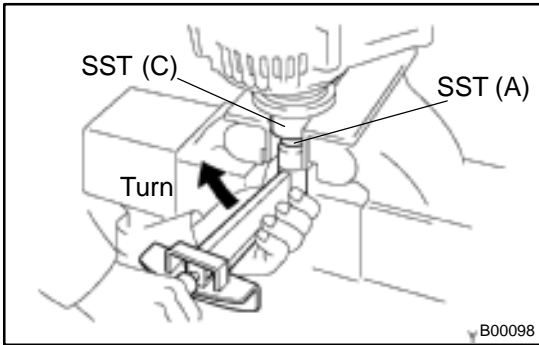


3. INSTALL PULLEY

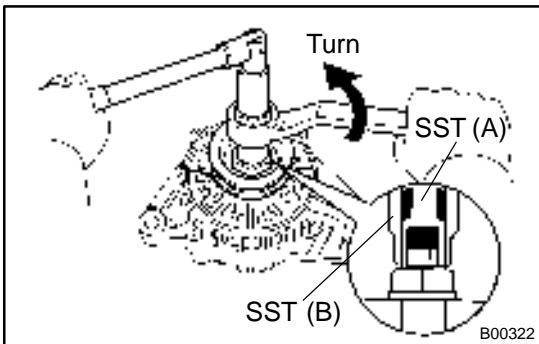
- Install the pulley to the rotor shaft by tightening the pulley nut by hand.
- Hold SST (A) with a torque wrench, and tighten SST (B) clockwise to the specified torque.
SST 09820-63010
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
- Check that SST (A) is secured to the pulley shaft.



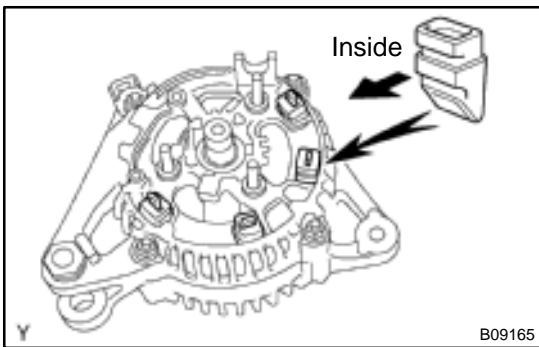
- (d) Mount SST (C) in a vise.
- (e) Insert SST (B) into SST (C), and attach the pulley nut to SST (C).



- (f) To torque the pulley nut, turn SST (A) in the direction shown in the illustration.
Torque: 111 N-m (1,125 kgf-cm, 81 ft-lbf)
- (g) Remove the generator from SST (C).



- (h) Turn SST (B), and remove SST (A and B).

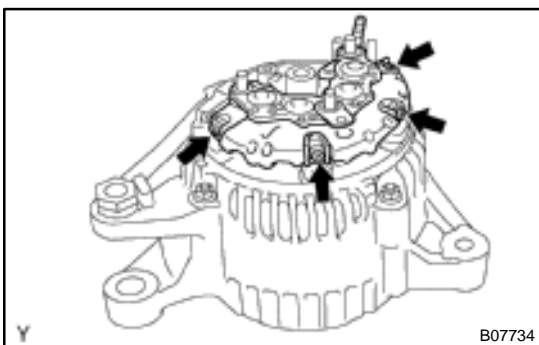


4. INSTALL RECTIFIER HOLDER

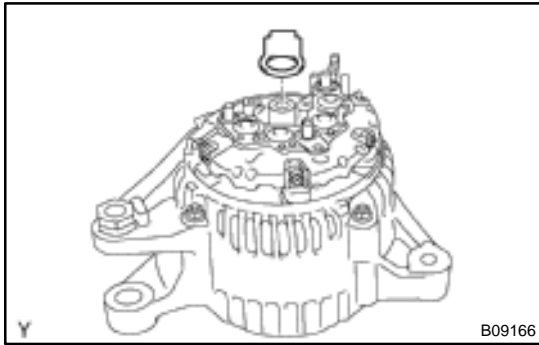
- (a) Install the 4 rubber insulators on the lead wires.

NOTICE:

Be careful of the rubber insulators installation direction.

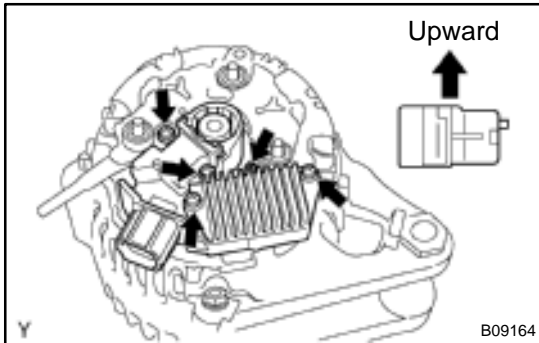


- (b) Install the rectifier holder while pushing it with the 4 screws
Torque: 2.9 N-m (30 kgf-cm, 26 in.-lbf)



5. INSTALL VOLTAGE REGULATOR AND BRUSH HOLDER

- (a) Place the seal plate on the rectifier end frame.



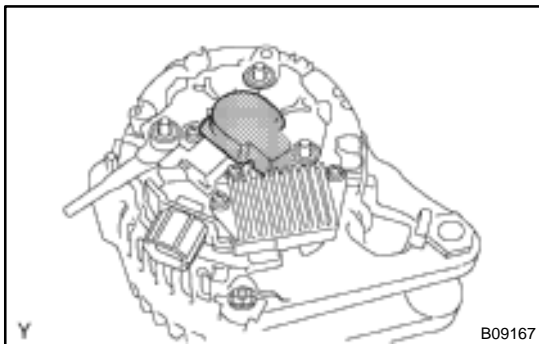
- (b) Place the voltage regulator and brush holder on the rectifier end frame.

NOTICE:

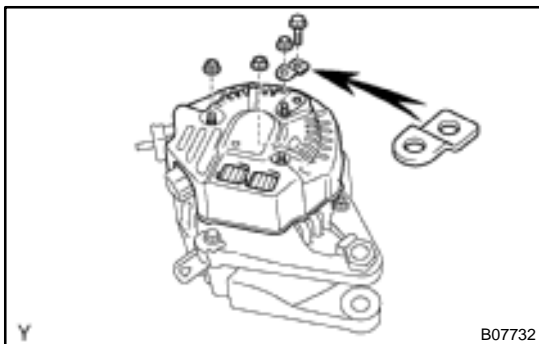
Be careful of the holder installation direction.

- (c) Install the 5 screws.

Torque: 2.0 N·m (20 kgf·cm, 18 in.-lbf)



- (d) Place the brush holder cover on the brush holder.



6. INSTALL REAR END COVER

- (a) Install the end cover and plate terminal with the bolt and 3 nuts.

Torque:

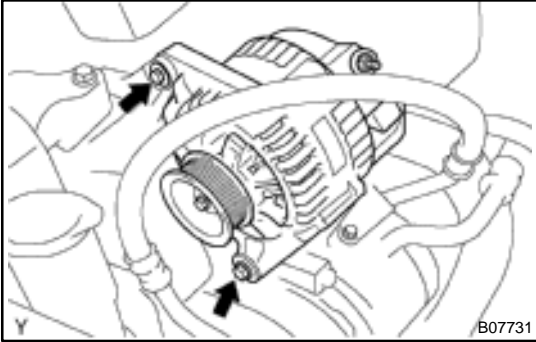
Nut: 4.4 N·m (45 kgf·cm, 39 in.-lbf)

Bolt: 3.9 N·m (39 kgf·cm, 35 in.-lbf)

- (b) Install the terminal insulator with the nut.

Torque: 4.1 N·m (42 kgf·cm, 36 in.-lbf)

7. CHECK THAT ROTOR ROTATES SMOOTHLY



INSTALLATION

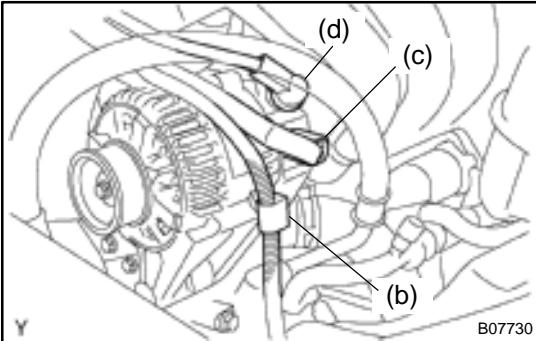
1. INSTALL GENERATOR

- (a) Install the 2 bolts and generator.

Torque:

12 mm head: 25 N·m (255 kgf·cm, 18 ft·lbf)

14 mm head: 54 N·m (550 kgf·cm, 40 ft·lbf)

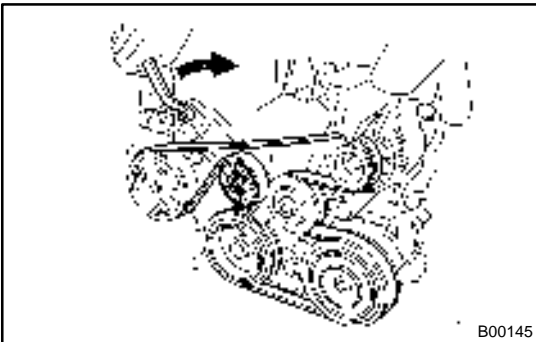


- (b) Connect the wire clamp to the wire clip on the rectifier end flame.

- (c) Connect the generator connector.

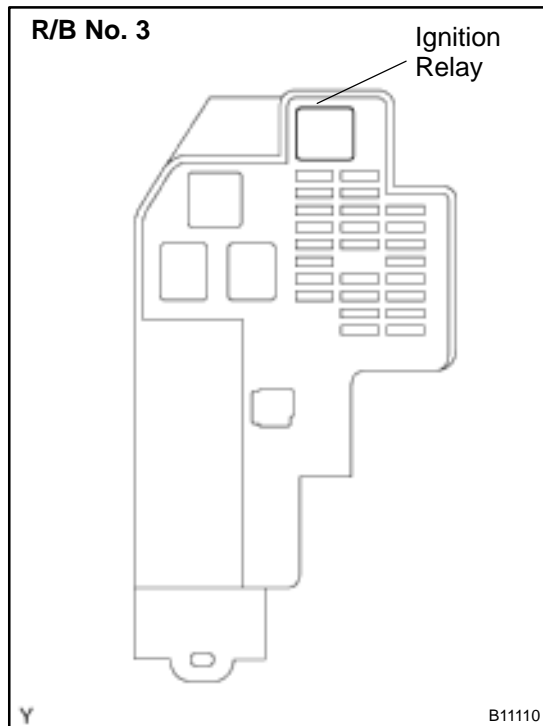
- (d) Connect the generator wire, and install the nut and cap.

2. INSTALL RH ENGINE MOUNTING INSULATOR (See page [EM-59](#))



3. INSTALL DRIVE BELT

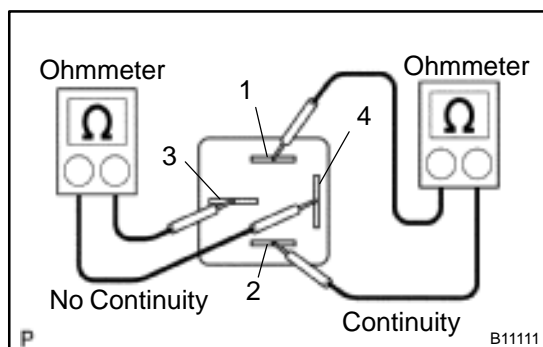
- Turning the drive belt tensioner clockwise, and install the drive belt.



IGNITION RELAY (No.1) INSPECTION

SF0DX-06

1. REMOVE IGNITION RELAY (Marking: IG1) FROM R/B No. 3



2. INSPECT IGNITION RELAY

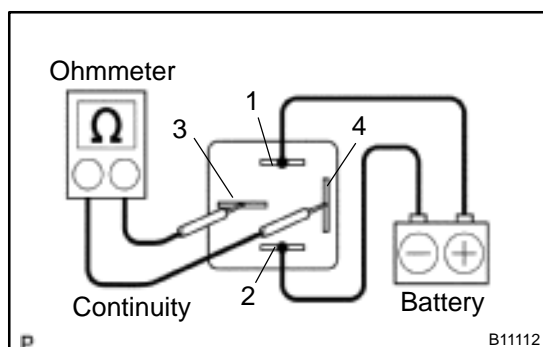
(a) Inspect the relay continuity.

- (1) Using an ohmmeter, check that there is continuity between terminals 1 and 2.

If there is no continuity, replace the relay.

- (2) Check that there is no continuity between terminals 3 and 5.

If there is continuity, replace the relay.



(b) Inspect the relay operation.

- (1) Apply battery positive voltage across terminals 1 and 2.

- (2) Using an ohmmeter, check that there is continuity between terminals 3 and 5.

If there is no continuity, replace the relay.

3. REINSTALL IGNITION RELAY

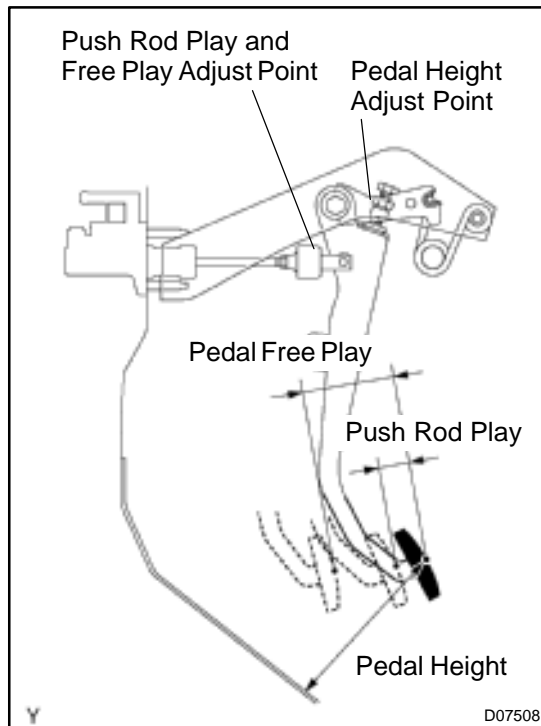
TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

CL02N-07

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspected Area	See page
Clutch grabs/chatters	8. Engine mounting (Loosen)	–
	9. Clutch disc (Runout is excessive)	CL-14
	10. Clutch disc (Oily)	CL-14
	11. Clutch disc (Worn out)	CL-14
	12. Clutch disc torsion rubber (Damaged)	CL-14
	13. Clutch disc (Glazed)	CL-14
	14. Diaphragm spring (Out of tip alignment)	CL-14
Clutch pedal spongy	1. Clutch line (Air in line)	–
	2. Master cylinder cup (Damaged)	CL-4
	3. Release cylinder cup (Damaged)	CL-9
Clutch noisy	1. Release bearing (Worn, dirty, or damaged)	CL-14
	2. Clutch disc torsion rubber (Damaged)	CL-14
Clutch slips	1. Clutch pedal (Free play out of adjustment)	CL-2
	2. Clutch disc (Oily)	CL-14
	3. Clutch disc (Worn out)	CL-14
	4. Diaphragm spring (Damaged)	CL-14
	5. Pressure plate (Distortion)	CL-14
	6. Flywheel (Distortion)	–
Clutch does not disengage	1. Clutch pedal (Free play out of adjustment)	CL-2
	2. Clutch line (Air in line)	–
	3. Master cylinder cup (Damaged)	CL-4
	4. Release cylinder cup (Damaged)	CL-9
	5. Clutch disc (out of true)	CL-14
	6. Clutch disc (Runout is excessive)	CL-14
	7. Clutch disc (Lining broken)	CL-14
	8. Clutch disc (Dirty or burned)	CL-14
	9. Clutch disc (Oily)	CL-14
	10. Clutch disc (Lack of spline grease)	CL-14
	11. Diaphragm spring (Damaged)	CL-14
	12. Diaphragm spring (Out of tip alignment)	CL-14
	13. Pressure plate (Distortion)	CL-14



CLUTCH PEDAL INSPECTION

CLOA6-01

1. CHECK PEDAL HEIGHT

Pedal height from dash panel:
128.2 – 138.2 mm (5.047 – 5.441 in.)

2. IF NECESSARY, ADJUST PEDAL HEIGHT

- Loosen the lock nut and turn the stopper bolt until the height becomes correct.
- Tighten the lock nut.

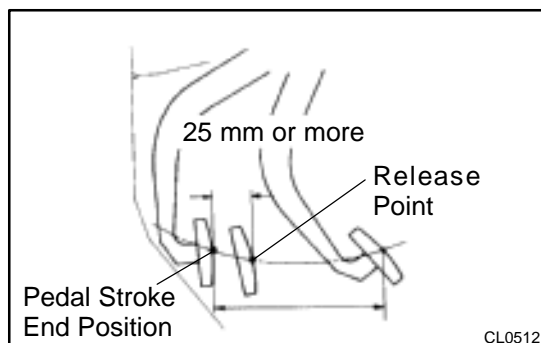
3. CHECK PEDAL FREE PLAY AND PUSH ROD PLAY

- Depress the pedal until clutch resistance begins to be felt.
Pedal free play: 5.0 – 15.0 mm (0.197 – 0.591 in.)
- Gently push on the pedal until the resistance begins to increase a little.

Push rod play at pedal top:
1.0 – 5.0 mm (0.039 – 0.197 in.)

4. IF NECESSARY, ADJUST PEDAL FREE PLAY AND PUSH ROD PLAY

- Loosen the lock nut and turn the push rod until the free play and push rod play becomes correct.
- Tighten the lock nut.
- After adjusting the pedal free play, check the pedal height.



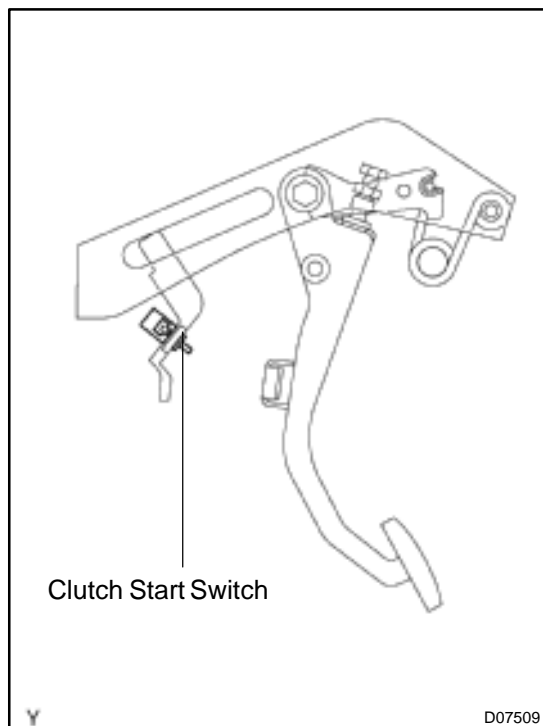
5. CHECK CLUTCH RELEASE POINT

- Pull the parking brake lever and install the wheel stopper.
- Start and idle the engine.
- Without depressing the clutch pedal, slowly shift the shift lever into reverse position until the gears contact.
- Gradually depress the clutch pedal and measure the stroke distance from the point the gear noise stops (release point) to the pedal stroke end position.

Standard distance: 25 mm (0.98 in.) or more
(From pedal stroke end position to release point)

If the distance is not as specified, perform the following operations:

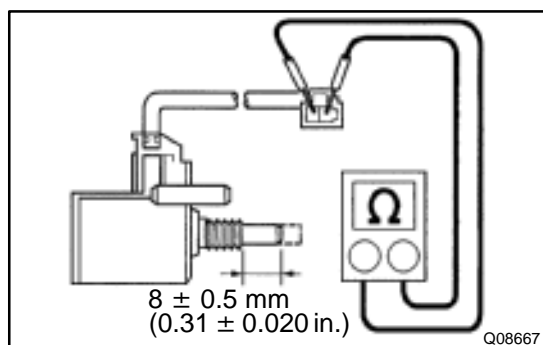
- Inspect pedal height.
- Inspect push rod play and pedal free play.
- Bleed the clutch line.
- Inspect the clutch cover and disc.



6. CHECK CLUTCH START SYSTEM

- (a) Check that the engine does not start when the clutch pedal is released.
- (b) Check that the engine starts when the clutch pedal is fully depressed.

If necessary, replace the clutch start switch.



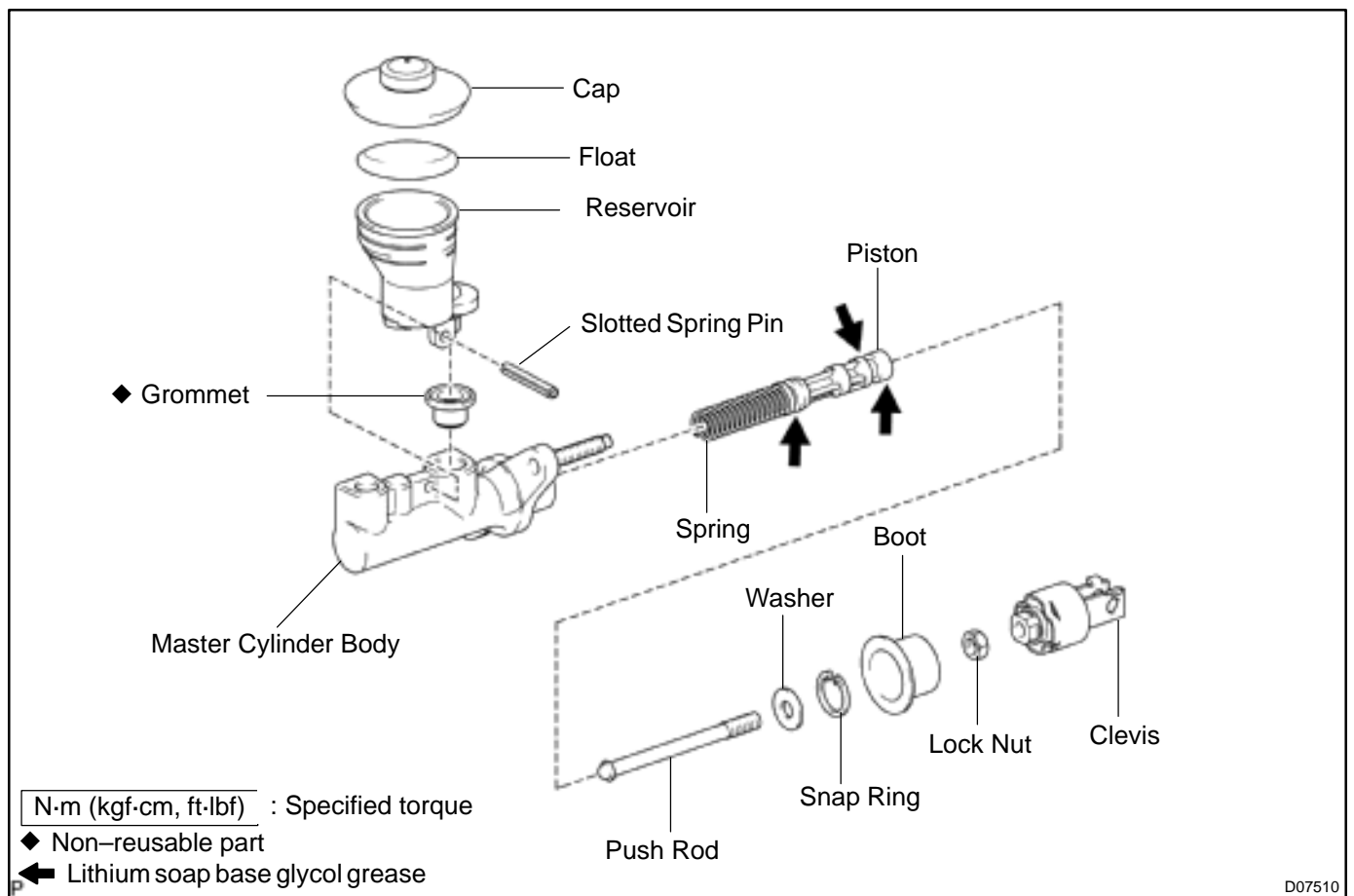
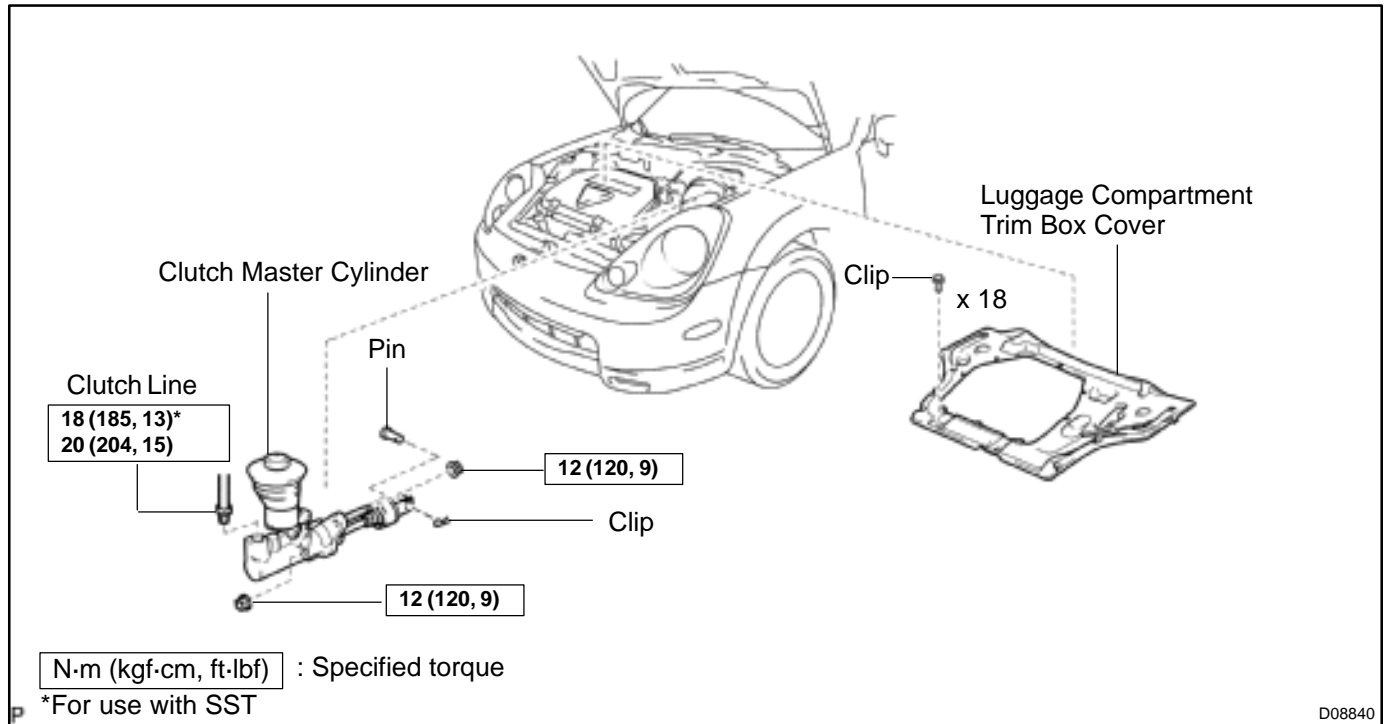
7. INSPECT CLUTCH START SWITCH CONTINUITY

Check the continuity between terminals when the switch is ON and OFF.

Switch position	Condition
ON (pushed)	Continuity
OFF (free)	No continuity

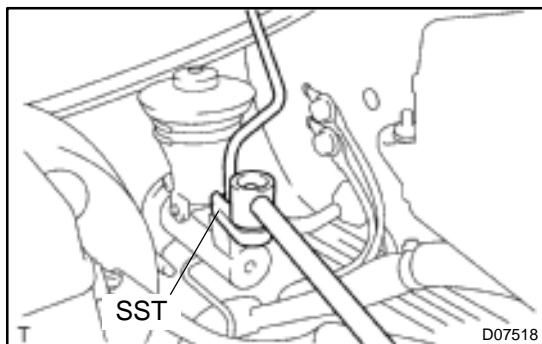
CLUTCH MASTER CYLINDER COMPONENTS

CL0A7-01



REMOVAL

1. REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER



2. DISCONNECT CLUTCH LINE FROM CLUTCH MASTER CYLINDER

Using SST, disconnect the clutch line.

SST 09023-38200

HINT:

Use a container to catch the fluid.

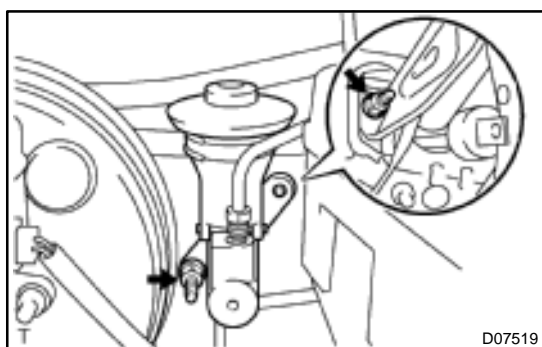
3. REMOVE CLIP AND PIN

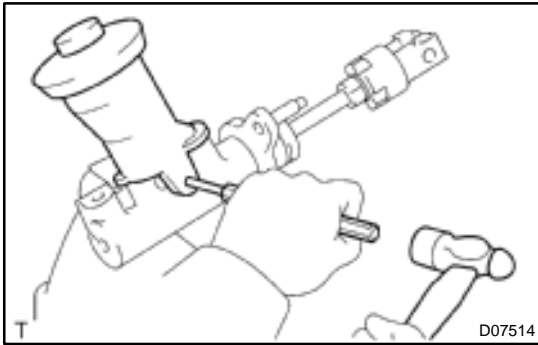
4. REMOVE CLUTCH MASTER CYLINDER

(a) Using needle-nose pliers, remove the clip and pin.

(b) Remove the 2 nuts.

(c) Pull out the master cylinder.





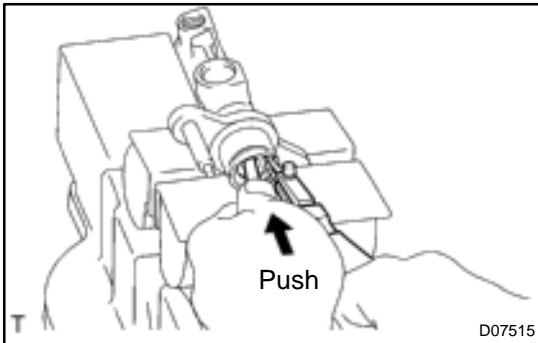
DISASSEMBLY

1. REMOVE RESERVOIR

- (a) Using a pin punch and a hammer, tap out the slotted spring pin.
- (b) Remove the reservoir.
- (c) Remove the grommet from the reservoir.
- (d) Remove the cap and float from the reservoir.

2. REMOVE CLEVIS

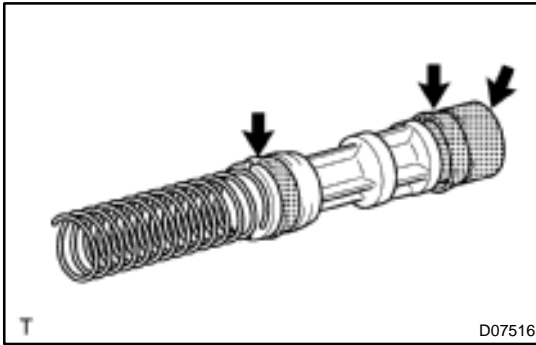
Loosen the lock nut, and remove the clevis and lock nut.



3. REMOVE PUSH ROD

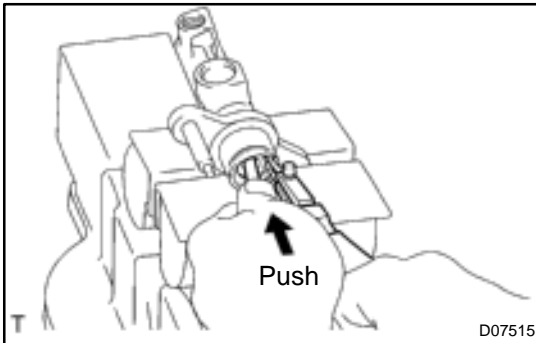
- (a) Remove the boot.
- (b) Using snap ring pliers, remove the snap ring while pushing the push rod.
- (c) Pull out the push rod and washer.

4. REMOVE PISTON WITH SPRING



REASSEMBLY

1. COAT PARTS WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN
2. INSERT PISTON WITH SPRING INTO CYLINDER



3. INSTALL PUSH ROD

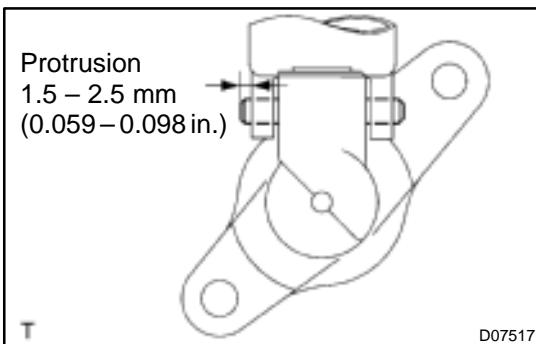
- (a) Install the washer to the push rod.
- (b) Push the push rod into the piston.
- (c) Using snap ring pliers, install the snap ring.

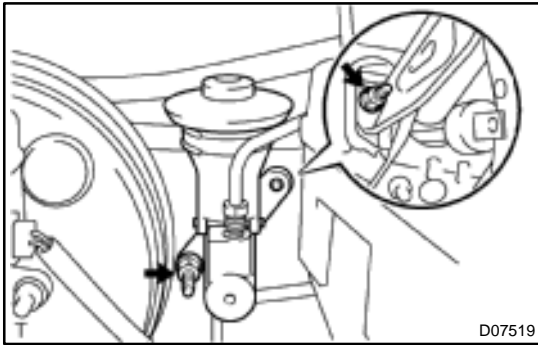
4. INSTALL BOOT TO CYLINDER

5. TEMPORARILY INSTALL LOCK NUT AND CLEVIS

6. INSTALL RESERVOIR

- (a) Install the float and cap to the reservoir.
- (b) Install a new grommet and reservoir to the cylinder body.
- (c) Using a pin punch and a hammer, tap in the slotted spring pin.



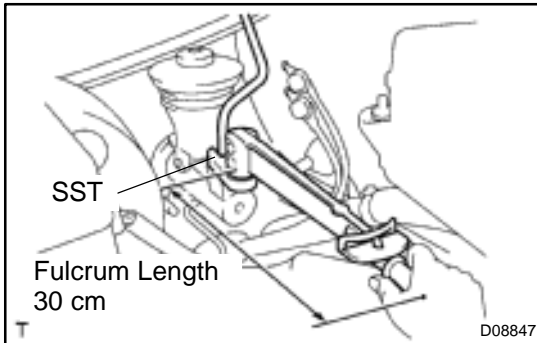


D07519

INSTALLATION

1. INSTALL CLUTCH MASTER CYLINDER

- (a) Install the master cylinder with the 2 nuts.
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)
- (b) Connect the push rod to the clutch pedal with the pin and pin clip.



D08847

2. CONNECT CLUTCH LINE

Using SST, connect the clutch line.

SST 09023-38200

Torque:

20 N·m (204 kgf·cm, 15 ft·lbf)

18 N·m (185 kgf·cm, 13 ft·lbf) for use with SST

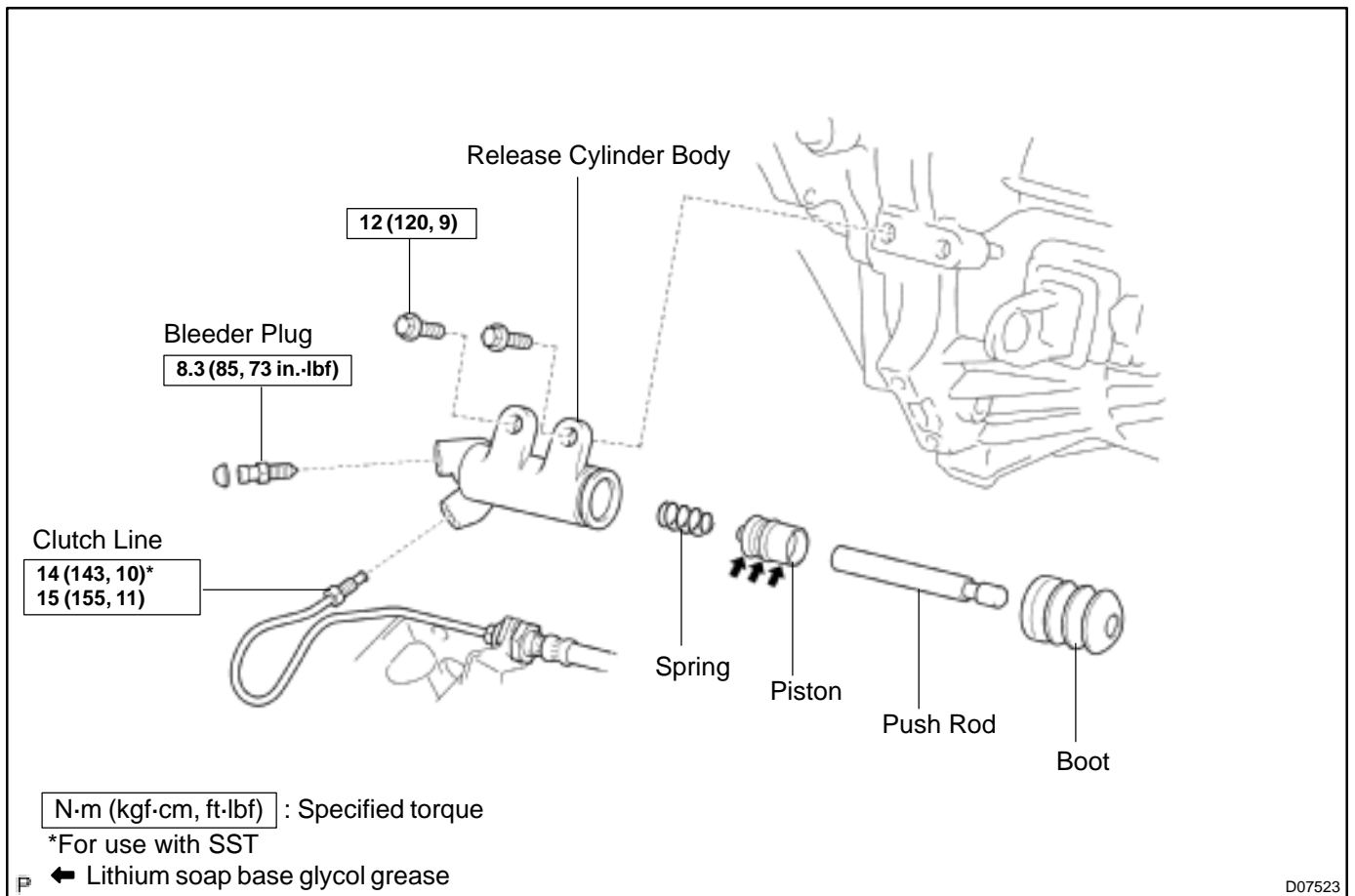
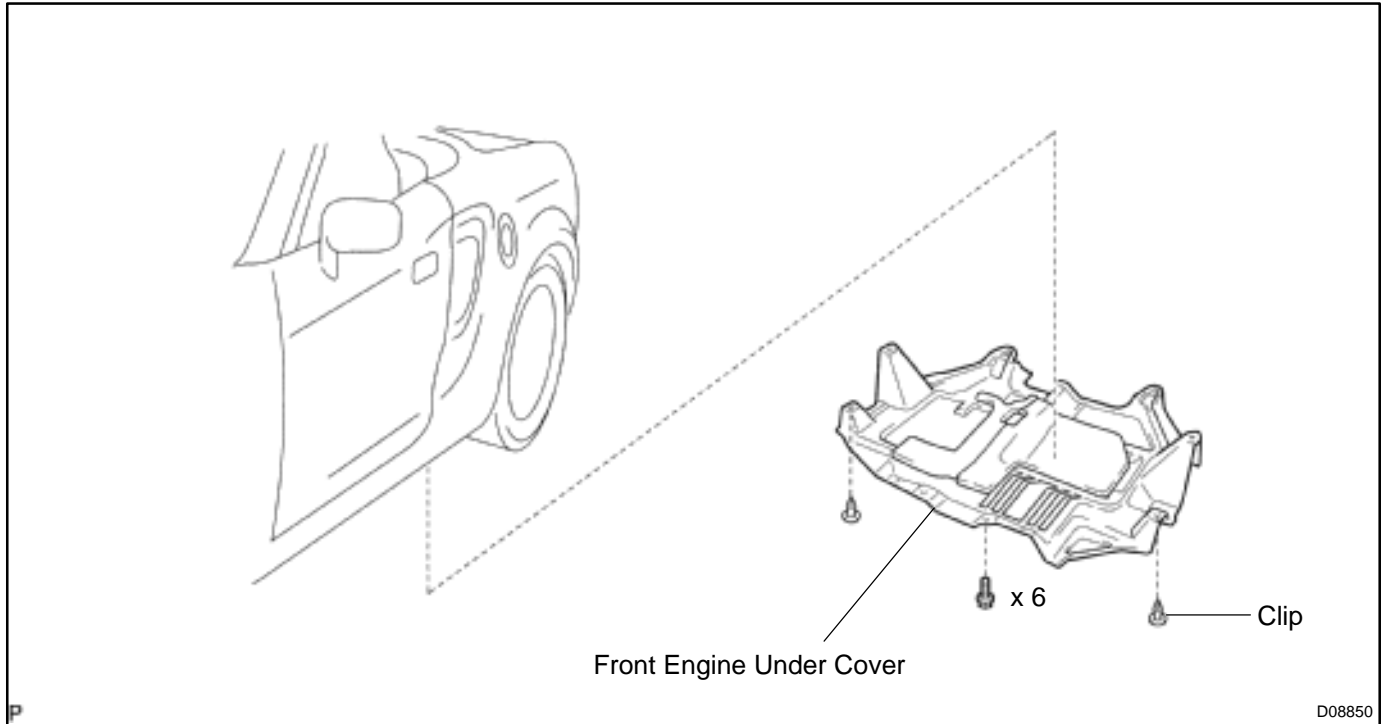
HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81in.).

3. **FILL RESERVOIR AND BLEED CLUTCH SYSTEM AND ADJUST CLUTCH PEDAL (See page CL-2)**
4. **CHECK FOR LEAKS**
5. **INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER**

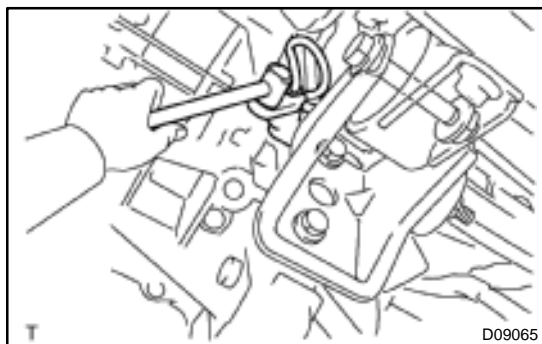
CLUTCH RELEASE CYLINDER COMPONENTS

CL0A8-01



REMOVAL

1. REMOVE FRONT ENGINE UNDER COVER

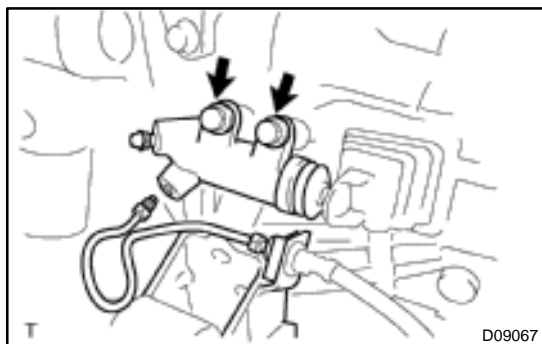


2. DISCONNECT CLUTCH LINE FROM RELEASE CYLINDER

Using SST, disconnect the clutch line from the release cylinder.
SST 09023-00100

HINT:

Use a container to catch the fluid.



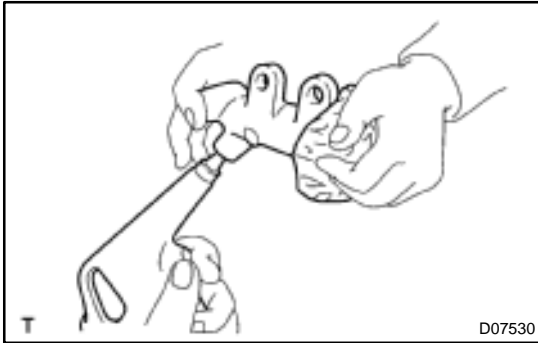
3. REMOVE RELEASE CYLINDER

Remove the 2 bolts and release cylinder.

DISASSEMBLY

1. REMOVE BOOT AND PUSH ROD

- (a) Pull out the boot with the push rod.
- (b) Remove the boot from the push rod.

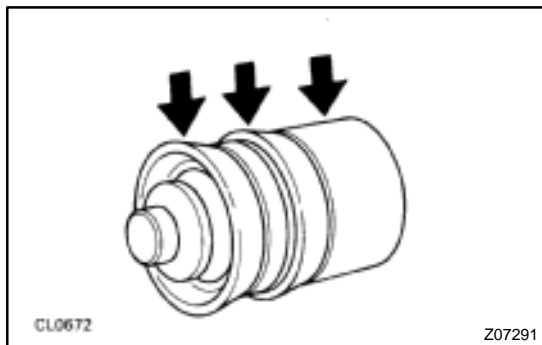


2. REMOVE PISTON AND SPRING

Using compressed air, remove the piston with the spring from the cylinder.

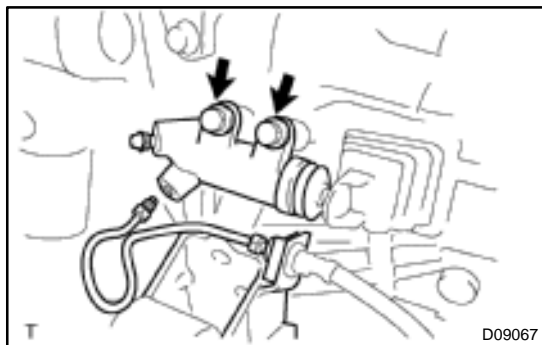
NOTICE:

- **Blowing off the air may cause the piston's jump-out. When removing the piston, hold it with your hand using a waste cloth.**
- **Take care not to splash brake fluid when air-blowing.**



REASSEMBLY

1. COAT PISTON WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN
2. INSTALL PISTON AND SPRING INTO CYLINDER
3. INSTALL BOOT AND PUSH ROD
 - (a) Install the push rod to the boot.
 - (b) Install the boot with the push rod to the cylinder.

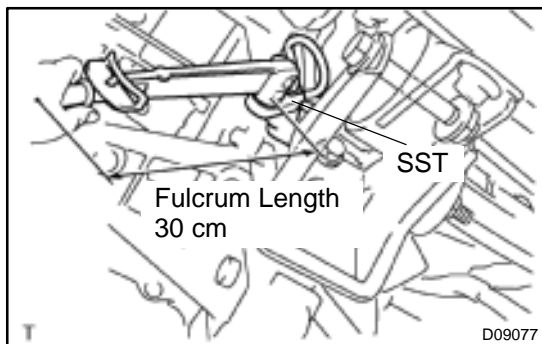


INSTALLATION

1. INSTALL RELEASE CYLINDER

Install the release cylinder with the 2 bolts.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



2. CONNECT CLUTCH LINE TO RELEASE CYLINDER

Using SST, connect the clutch line to the release cylinder.

SST 09023-00100

Torque:

14 N·m (143 kgf·cm, 10 ft·lbf) for use with SST

15 N·m (155 kgf·cm, 11 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81in.).

3. FILL RESERVOIR AND BLEED CLUTCH SYSTEM

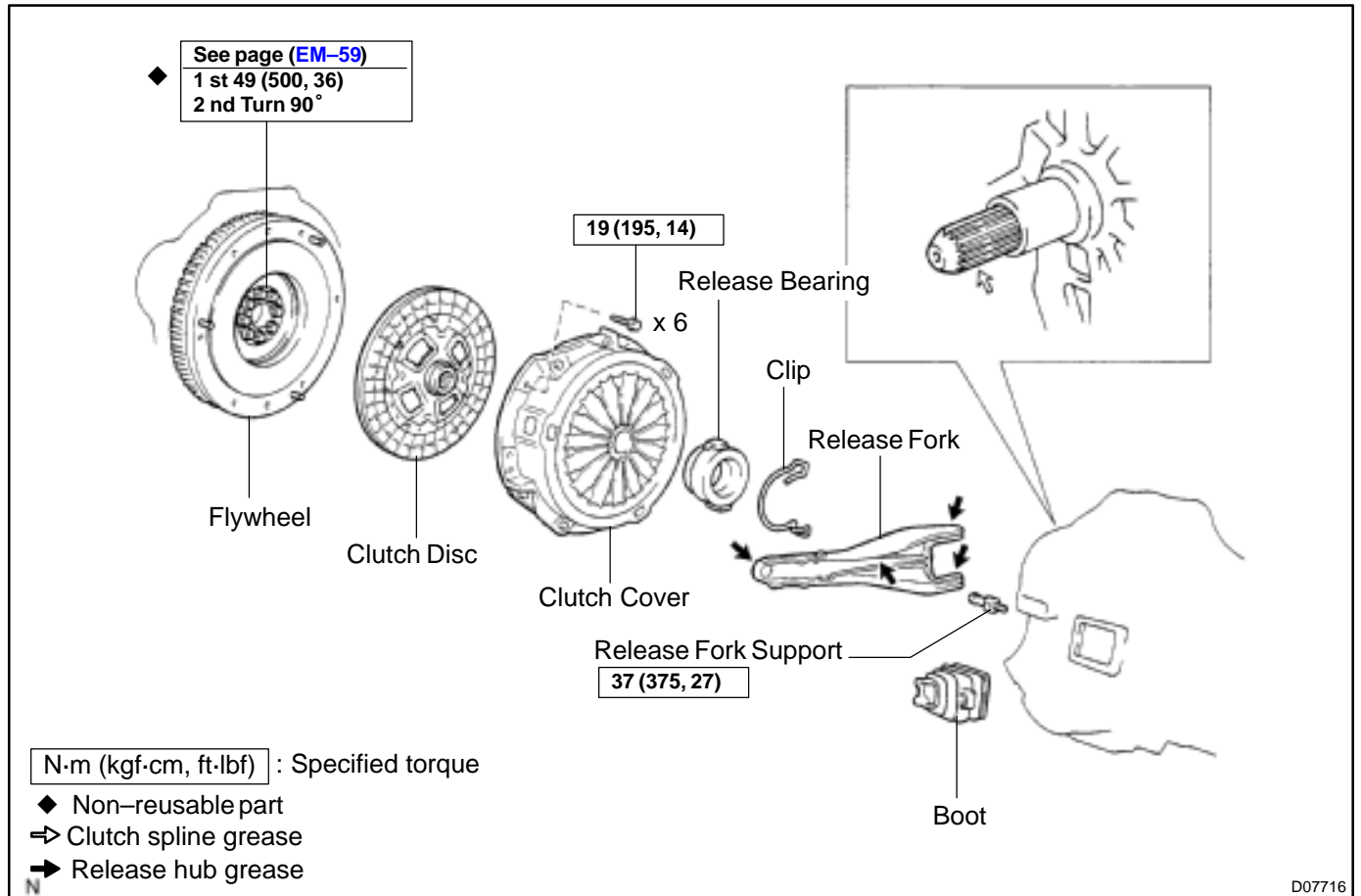
CAUTION:

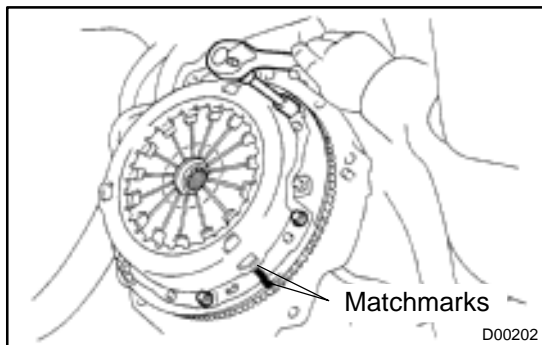
Make sure that the vehicle is securely supported.

4. CHECK FOR LEAKS

5. INSTALL FRONT ENGINE UNDER COVER

CLUTCH UNIT COMPONENTS



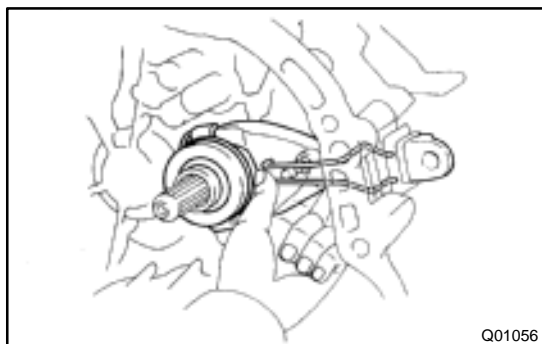


REMOVAL

1. **REMOVE TRANSAXLE FROM ENGINE**
(See page [MX-4](#))
2. **REMOVE CLUTCH COVER AND DISC**
 - (a) Align the matchmarks on the clutch cover with the one on the flywheel.
 - (b) Loosen each set bolt one turn at a time until spring tension is released.
 - (c) Remove the set bolts, and pull off the clutch cover with the clutch disc.

NOTICE:

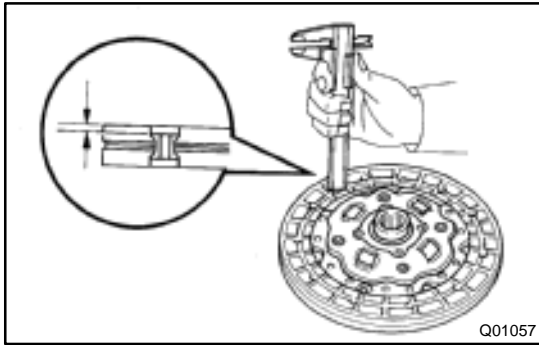
Do not drop the clutch disc.



3. **REMOVE RELEASE BEARING AND FORK FROM TRANSAXLE**

Remove the release bearing with the fork together and then separate them.

4. **REMOVE RELEASE FORK SUPPORT AND BOOT**



Q01057

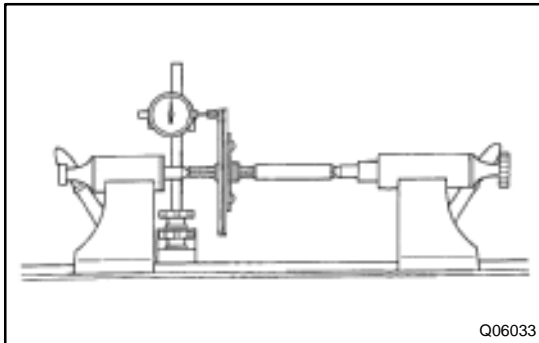
INSPECTION

1. INSPECT CLUTCH DISC FOR WEAR OR DAMAGE

Using vernier calipers, measure the rivet head depth.

Minimum rivet depth: 0.3 mm (0.012 in.)

If necessary, replace the clutch disc.



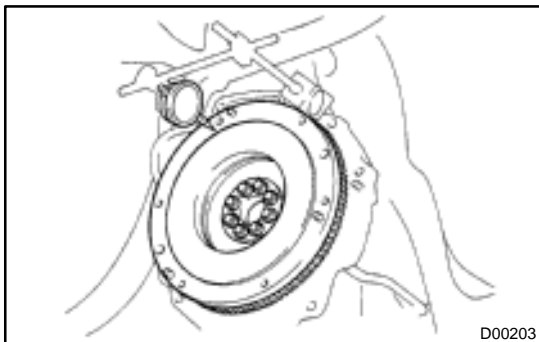
Q06033

2. INSPECT CLUTCH DISC RUNOUT

Using a dial indicator, check the disc runout.

Maximum runout: 0.8 mm (0.031 in.)

If necessary, replace the clutch disc runout.



D00203

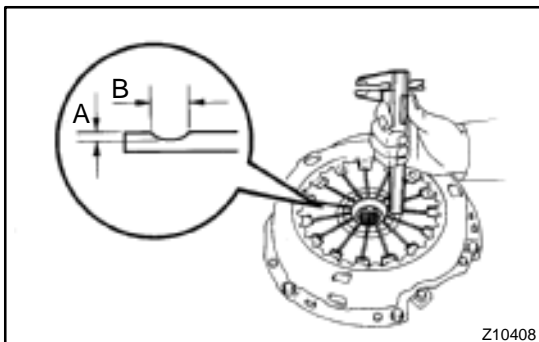
3. INSPECT FLYWHEEL RUNOUT

Using a dial indicator, check the flywheel runout.

Maximum runout: 0.1 mm (0.004 in.)

If necessary, replace the flywheel.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)



Z10408

4. INSPECT DIAPHRAGM SPRING FOR WEAR

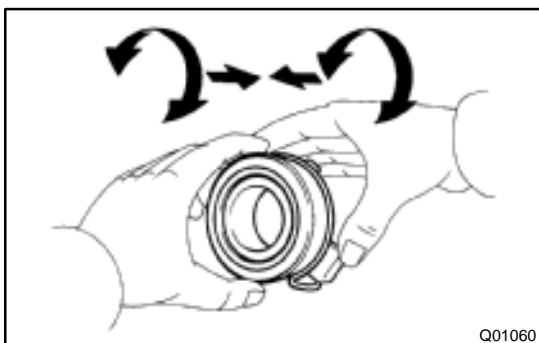
Using vernier calipers, measure the diaphragm spring for depth and width of wear.

Maximum:

Depth (A): 0.5 mm (0.020 in.)

Width (B): 6.0 mm (0.236 in.)

If necessary, replace the clutch cover.



Q01060

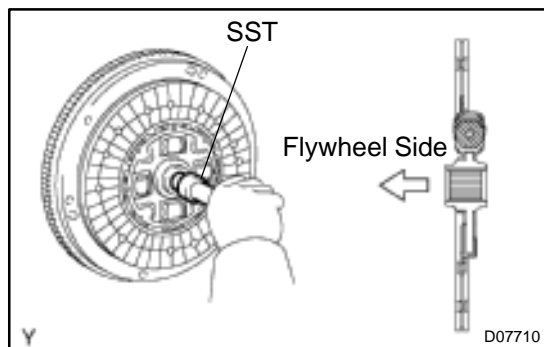
5. INSPECT RELEASE BEARING

Turn the bearing by hand while applying force in the axial direction.

HINT:

The bearing is permanently lubricated and requires no cleaning or lubrication.

If necessary, replace the release bearing.



INSTALLATION

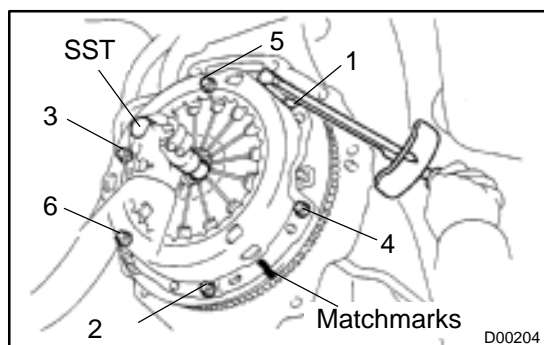
1. INSTALL CLUTCH DISC AND CLUTCH COVER ON FLYWHEEL

- (a) Insert SST in the clutch disc, then insert them in the flywheel.

SST 09301-00210

HINT:

Take care not to insert clutch disc in the wrong direction.



- (b) Align the matchmarks on the clutch cover and flywheel.
 (c) Following the procedures shown in the illustration, tighten the 6 bolts in the order starting the bolt locating near the knock pin on the top.

Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

HINT:

- Following the order in the illustration, tighten the bolts at a time evenly.
- Move SST up and down, right and left lightly, after checking that the disc is in the center, tighten the bolts.

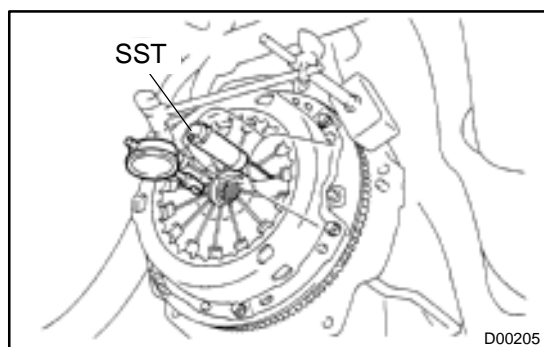
2. CHECK DIAPHRAGM SPRING TIP ALIGNMENT

Using a dial indicator with roller instrument, check the diaphragm spring tip alignment.

Maximum non-alignment: 0.5 mm (0.020 in.)

If alignment is not as specified, using SST, adjust the diaphragm spring tip alignment.

SST 09333-00013



3. INSTALL BOOT AND RELEASE FORK SUPPORT TO TRANSAXLE

Torque: 37 N·m (375 kgf·cm, 27 ft·lbf)

4. APPLY RELEASE HUB GREASE

Apply release hub grease to the release fork and hub contact, release fork and push rod contact and release fork pivot points.

Sealant:

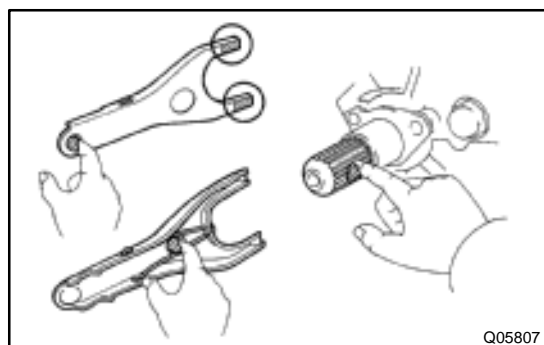
Part No. 08887-01806, RELEASE HUB GREASE or equivalent

5. APPLY CLUTCH SPRING GREASE

Apply clutch spline grease to the input shaft spline.

Sealant:

Part No. 08887-01706, CLUTCH SPLINE GREASE or equivalent



6. INSTALL RELEASE BEARING AND FORK TO TRANSAXLE

Install the bearing to the release fork, and then install them to the transaxle.

7. INSTALL TRANSAXLE TO ENGINE

(See page [MX-9](#))

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

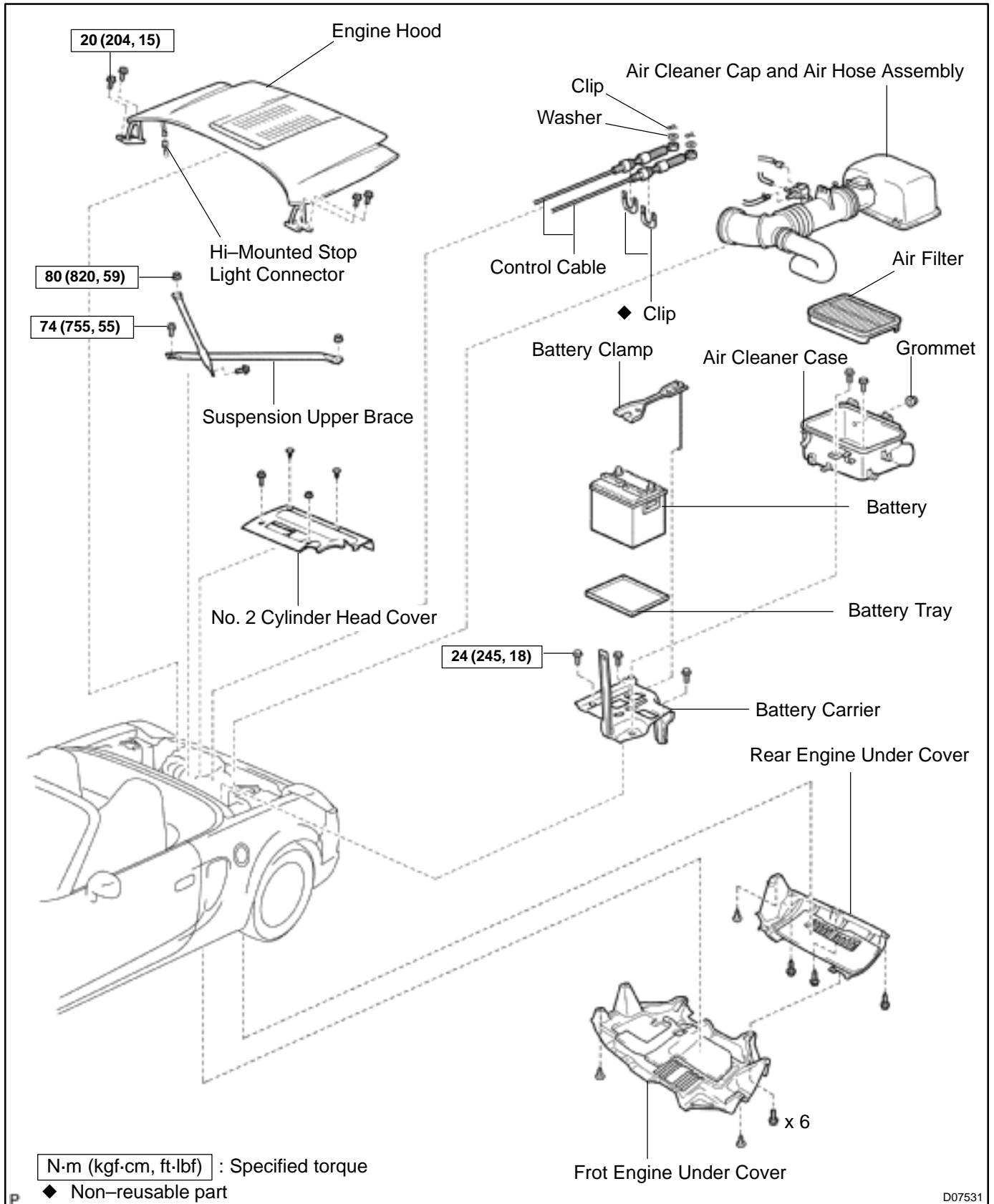
MX002-04

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace parts.

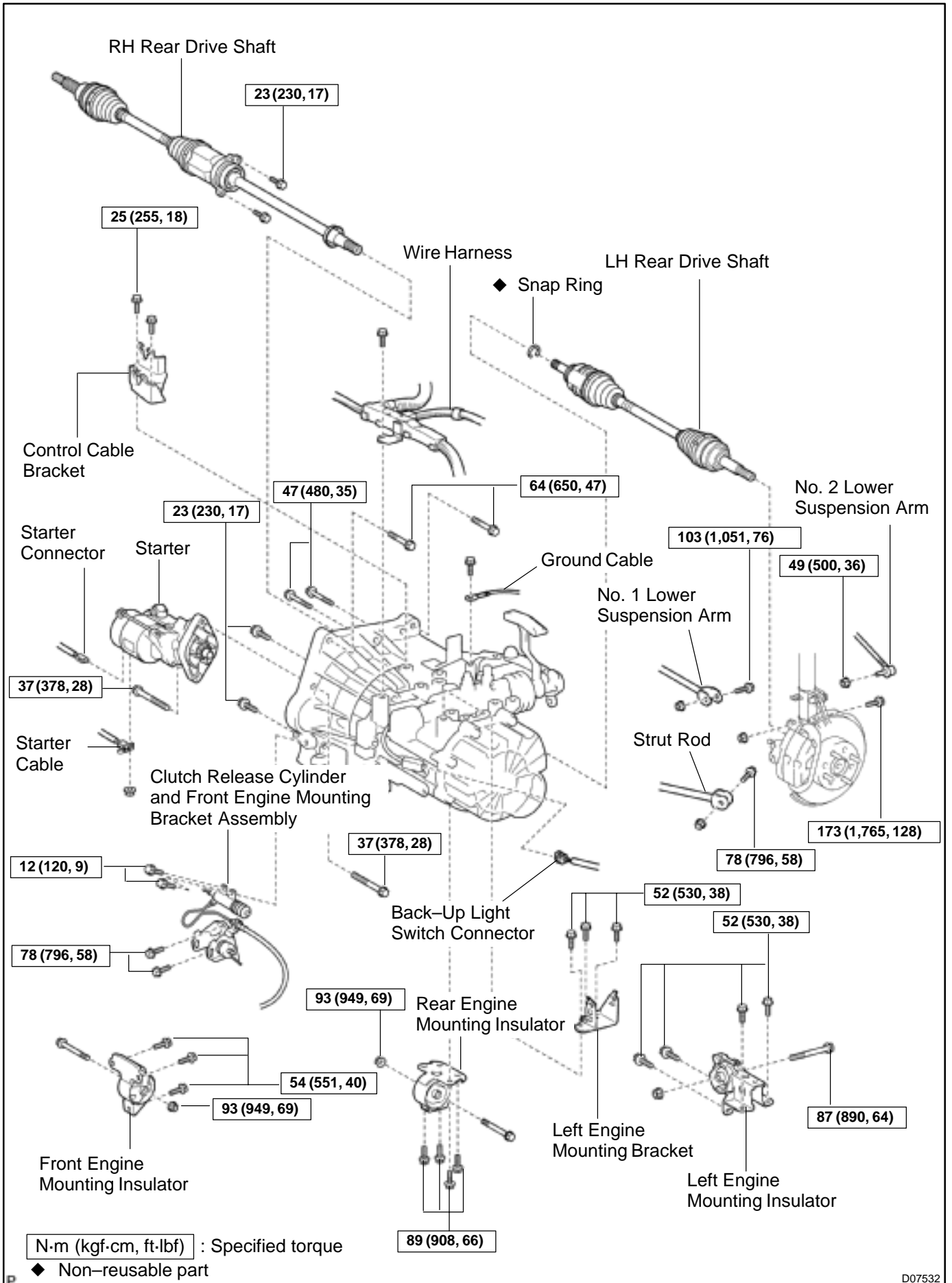
Symptom	Suspected Area	See page
Noise	<ol style="list-style-type: none"> 1. Oil (Level low) 2. Oil (Wrong) 3. Gear (Worn or damaged) 4. Bearing (Worn or damaged) 	<p>MX-4</p> <p>MX-4</p> <p>MX-10</p> <p>MX-10</p>
Oil leakage	<ol style="list-style-type: none"> 1. Oil (Level too high) 2. Gasket (Damaged) 3. Oil seal (Worn or damaged) 4. O-ring (Worn or damaged) 	<p>MX-4</p> <p>MX-4</p> <p>MX-4</p> <p>MX-4</p>
Hard to shift or will not shift	<ol style="list-style-type: none"> 1. Control cable (Faulty) 2. Synchronizer ring (Worn or damaged) 3. Shifting key spring (Damaged) 	<p>MX-56</p> <p>MX-4</p> <p>MX-30</p> <p>MX-39</p> <p>MX-4</p> <p>MX-30</p> <p>MX-39</p>
Jumps out of gear	<ol style="list-style-type: none"> 1. Locking ball spring (Damaged) 2. Gear shift fork (Worn) 3. Gear (Worn or damaged) 4. Bearing (Worn or damaged) 	<p>MX-4</p> <p>MX-4</p> <p>MX-4</p> <p>MX-4</p>

MANUAL TRANSAXLE UNIT COMPONENTS

MX09F-02



D07531



D07532

REMOVAL

1. REMOVE ENGINE HOOD

Remove the 4 bolts and engine hood.

Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

HINT:

At the time of installation, please refer to the following item.
Adjust the hood (See page [BO-9](#)).

2. REMOVE SUSPENSION UPPER BRACE

Remove the 2 bolts, 2 nuts and suspension upper brace.

Torque:

74 N·m (755 kgf·cm, 55 ft·lbf) for bolt

80 N·m (816 kgf·cm, 59 ft·lbf) for nut

3. REMOVE AIR CLEANER CAP AND AIR HOSE ASSEMBLY, AIR FILTER AND AIR CLEANER CASE

4. REMOVE BATTERY CARRIER

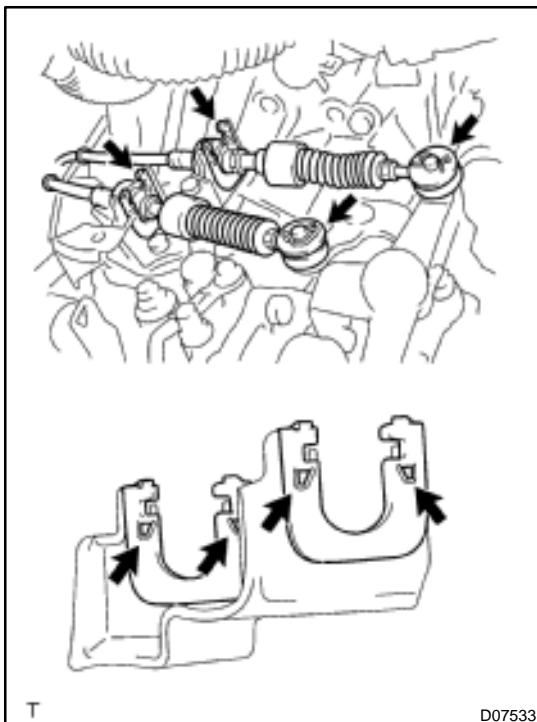
(a) Loosen the clamp nut, and remove the clamp, battery and tray.

(b) Remove the 3 bolts and battery carrier.

Torque: 24 N·m (245 kgf·cm, 18 ft·lbf)

5. DISCONNECT WIRE HARNESS FROM TRANSAXLE

6. DISCONNECT BACK-UP LIGHT SWITCH CONNECTOR



7. DISCONNECT CONTROL CABLES FROM TRANSAXLE

(a) Remove the 2 clips and 2 washers.

(b) Remove the 2 clips and disconnect the 2 control cables.

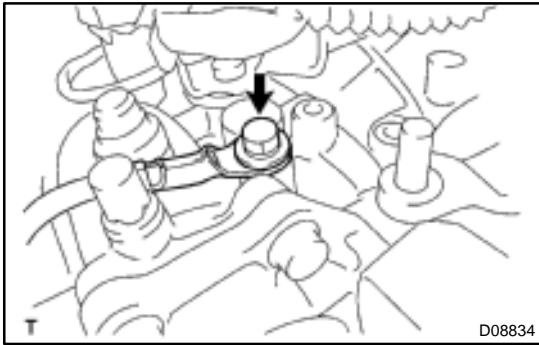
HINT:

Remove the select cable from the bracket by pressing the projection of the clip.

8. REMOVE CONTROL CABLE BRACKET

Remove the 2 bolts and control cable bracket.

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)



9. DISCONNECT GROUND CABLE FROM TRANSAXLE

Remove the bolt and disconnect the ground cable.

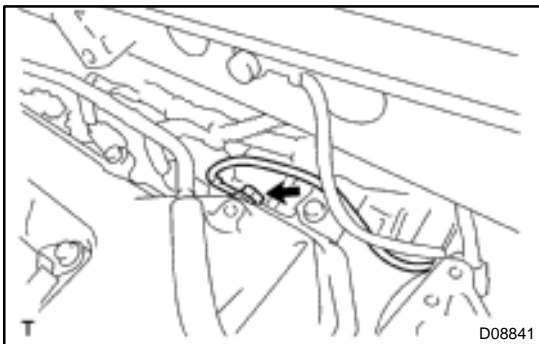


10. REMOVE 2 MOUNTING BOLTS OF TRANSAXLE UPPER SIDE

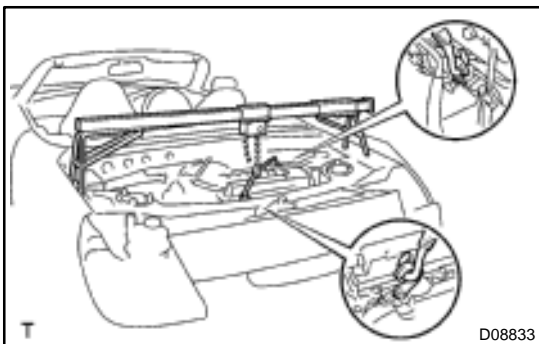
Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)

11. ATTACH ENGINE SUPPORT FIXTURE

(a) Remove the No. 2 cylinder head cover.



(b) Remove the bolt and disconnect the ground cable from the engine.



(c) Install the No. 1 and No. 2 engine hangers in the correct direction.

Parts No.:

No. 1 engine hanger: 12281-22021

No. 2 engine hanger: 12281-15040

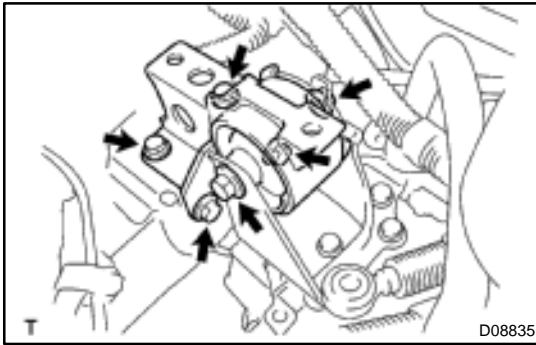
Bolt: 91512-B1016

Torque: 38 N·m (387 kgf·cm, 28 ft·lbf)

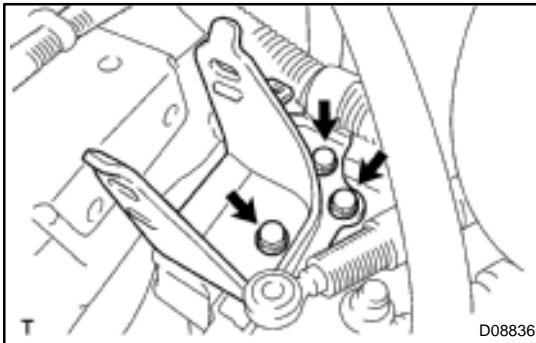
(d) Using an engine sling device, attach the engine support fixture to the engine hangers.

NOTICE:

Do not attempt to hang the engine by hooking the chain to any other part.

**12. REMOVE LEFT ENGINE MOUNTING INSULATOR**

- (a) Remove the through bolt and nut.
Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)
- (b) Remove the 4 bolts and mounting insulator.
Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)

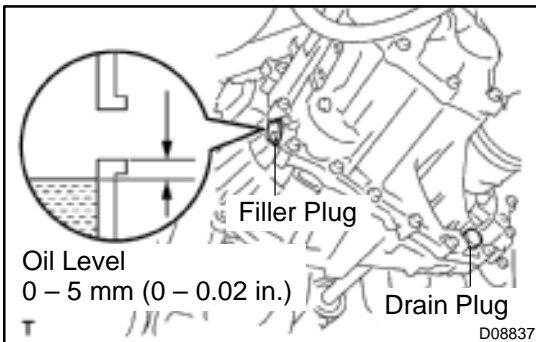
**13. REMOVE LEFT ENGINE MOUNTING BRACKET**

Remove the 3 bolts and mounting bracket.

Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)

14. RAISE VEHICLE**NOTICE:**

Make sure that the vehicle is securely supported.

15. REMOVE FRONT AND REAR ENGINE UNDER COVERS**16. DRAIN TRANSAXLE OIL**

Oil grade: API GL-4 or GL-5

Viscosity: SAE 75W-90

Capacity:

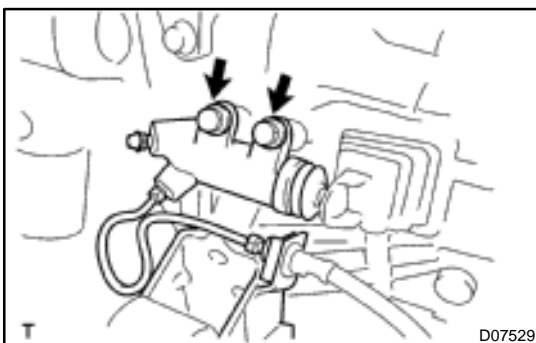
1.8 liters (2.0 US qts, 1.7 Imp. qts) for w/ LSD

1.9 liters (2.2 US qts, 1.8 Imp. qts) for w/o LSD

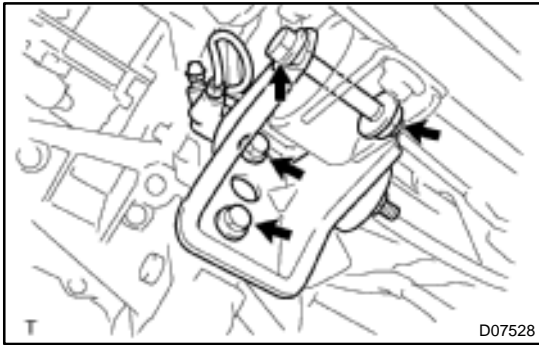
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

**17. REMOVE LH AND RH REAR DRIVE SHAFTS
(See page SA-41)****18. JACK UP TRANSAXLE SLIGHTLY**

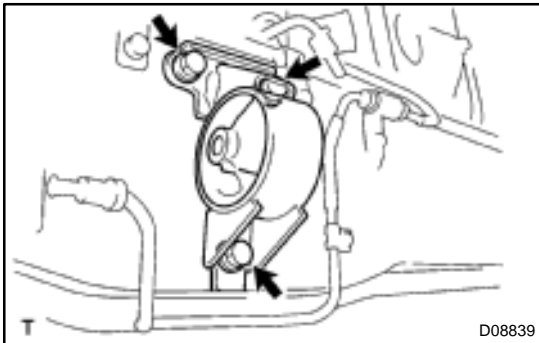
Using a transmission jack, support the transaxle.

**19. DISCONNECT CLUTCH RELEASE CYLINDER AND FRONT ENGINE MOUNTING BRACKET ASSEMBLY**

- (a) Remove the 2 bolts.
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



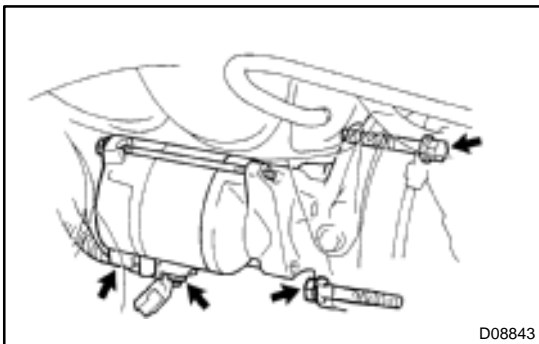
- (b) Remove the through bolt and nut.
Torque: 93 N·m (949 kgf·cm, 69 ft·lbf)
- (c) Remove the 2 bolts and disconnect the release cylinder and bracket assembly from the transaxle.
Torque: 78 N·m (796 kgf·cm, 56 ft·lbf)
- (d) Suspend the release cylinder and bracket assembly securely.



20. REMOVE FRONT ENGINE MOUNTING INSULATOR

Remove the 3 bolts and mounting insulator.

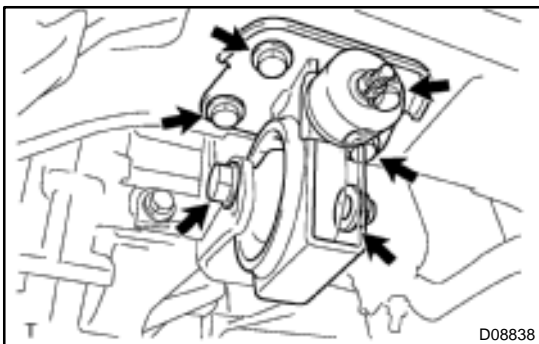
Torque: 54 N·m (551 kgf·cm, 40 ft·lbf)



21. REMOVE STARTER

- (a) Disconnect the starter connector.
- (b) Remove the nut and disconnect the starter cable.
- (c) Remove the 2 bolts and starter.

Torque: 37 N·m (378 kgf·cm, 28 ft·lbf)

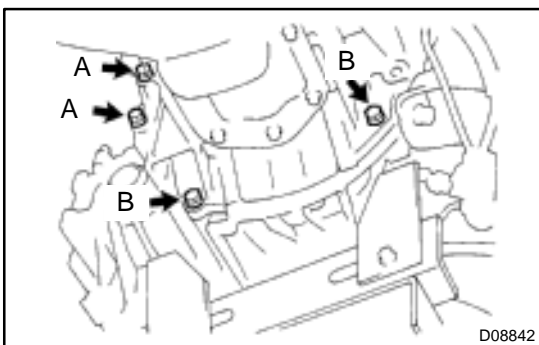


22. REMOVE REAR ENGINE MOUNTING INSULATOR

- (a) Remove the through bolt and nut.
Torque: 93 N·m (949 kgf·cm, 69 ft·lbf)
- (b) Remove the 4 bolts and mounting insulator.
Torque: 89 N·m (908 kgf·cm, 66 ft·lbf)

NOTICE:

Be sure to tighten the bolt at the upper end of the slot.



23. REMOVE 4 MOUNTING BOLTS OF TRANSAXLE LOWER SIDE

Torque:
47 N·m (480 kgf·cm, 35 ft·lbf) for bolt A
23 N·m (230 kgf·cm, 17 ft·lbf) for bolt B

24. REMOVE TRANSAXLE

Lower the engine left side, then slowly and carefully remove the transaxle from the engine.

HINT:

At the time of installation, please refer to the following items.

- Align the input shaft with the clutch disc and install the transaxle to the engine.
- Temporarily tighten the transaxle mounting bolts.

INSTALLATION

Installation is in the reverse order of removal (See page [MX-4](#)).

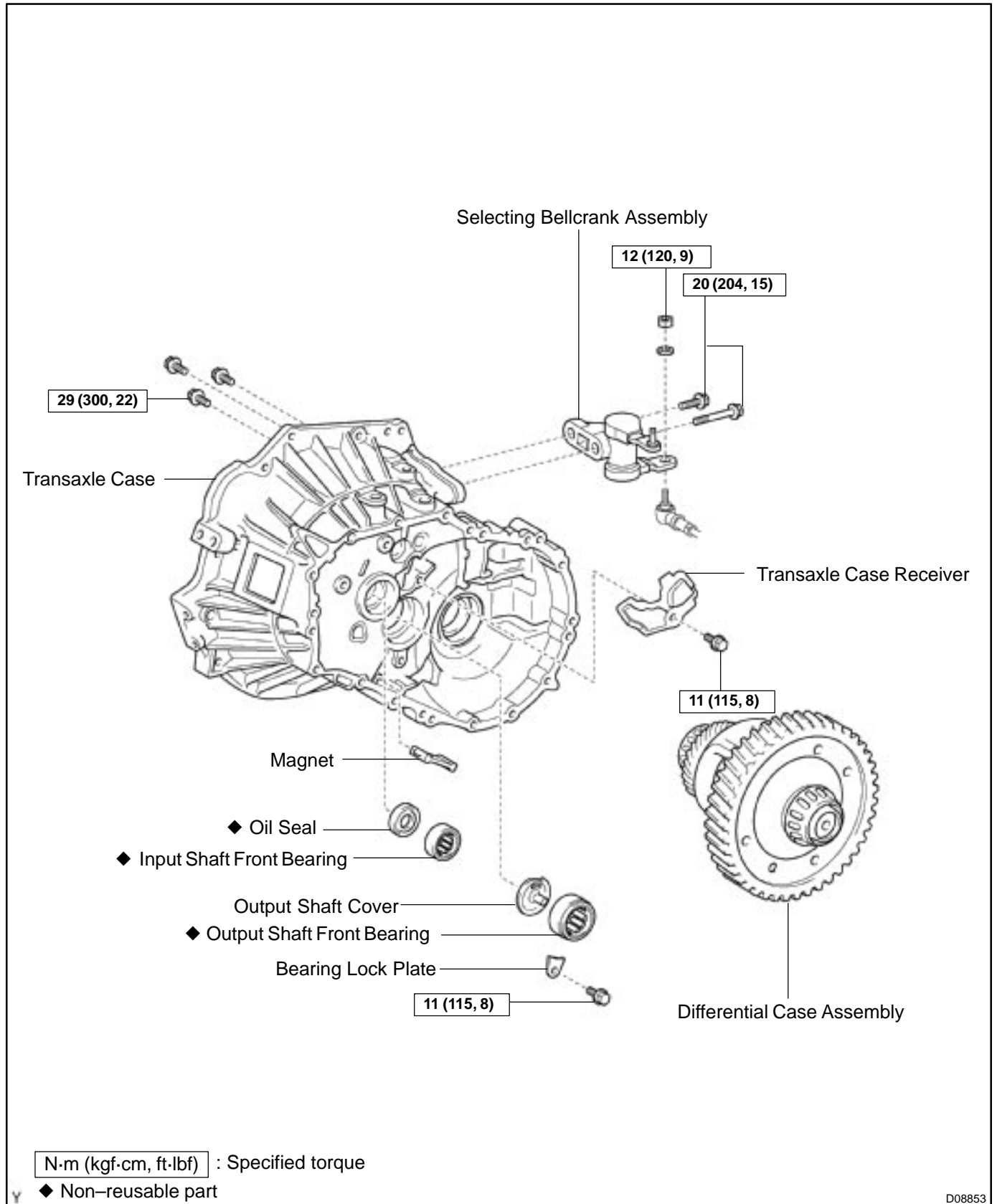
HINT:

After installation, check and inspect items as follows.

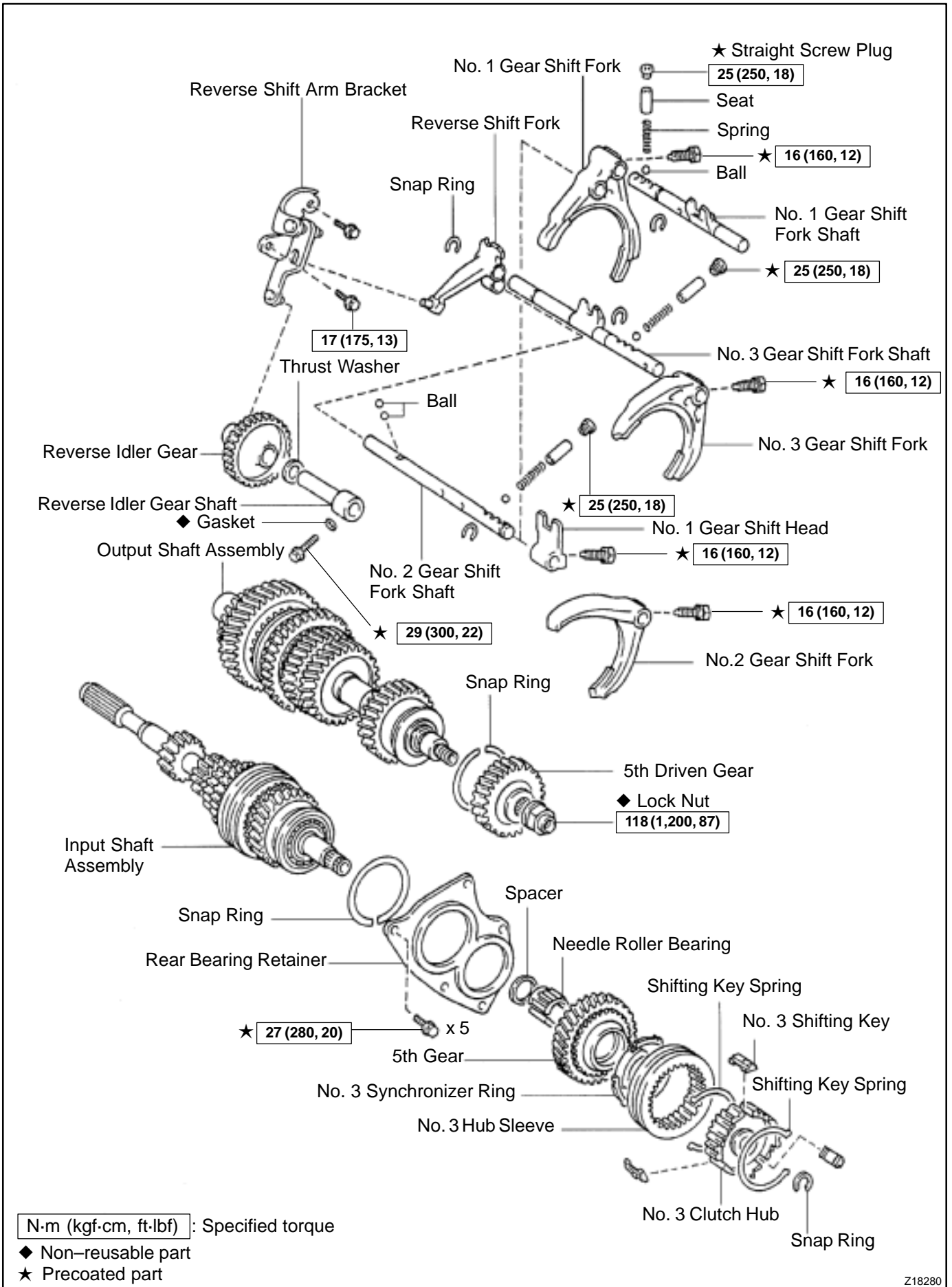
- Rear wheel alignment (See page [SA-7](#)).
- Do the road test.

MANUAL TRANSAXLE ASSEMBLY COMPONENTS

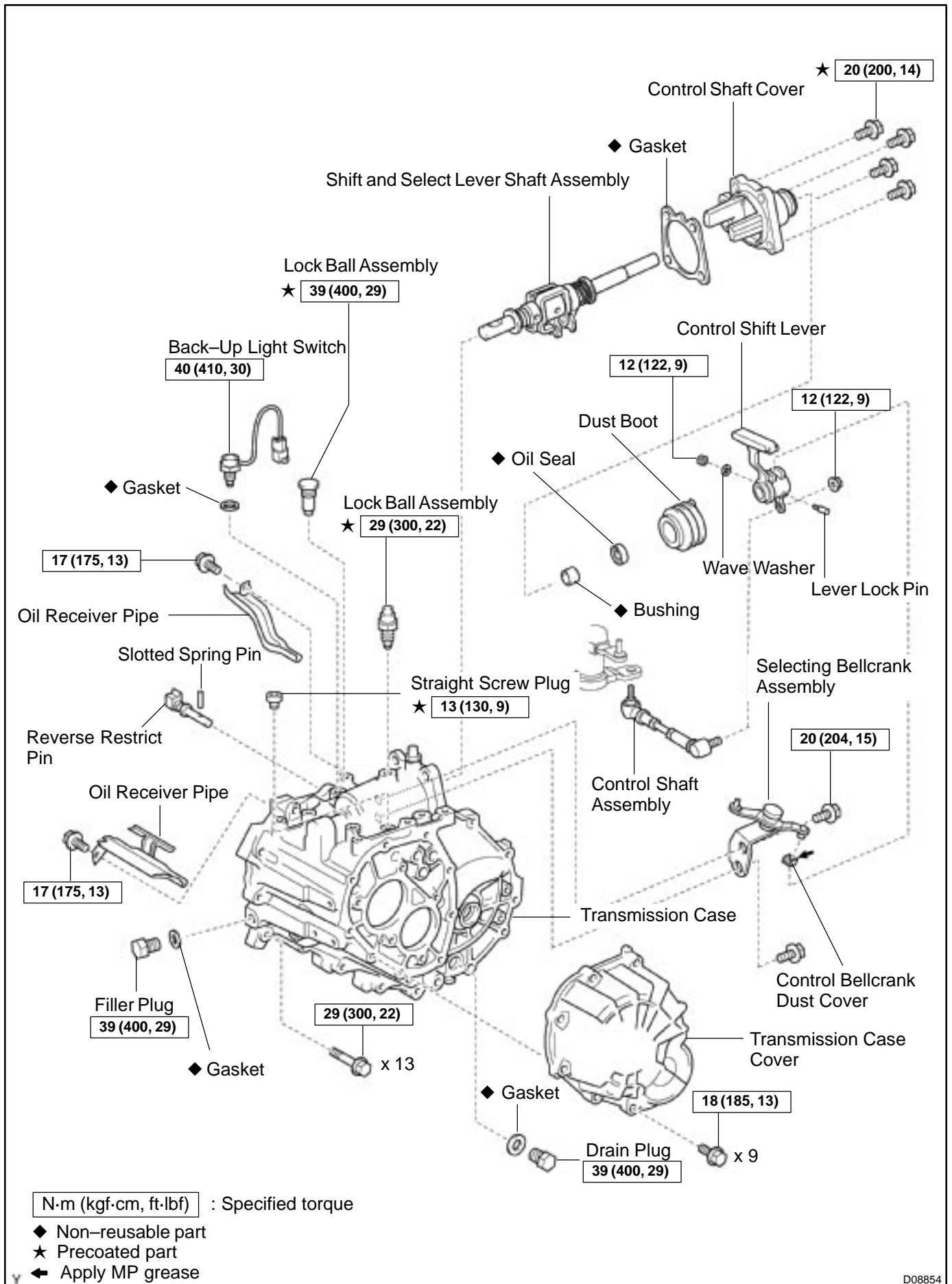
MX006-04



D08853



Z18280



D08854

DISASSEMBLY

1. REMOVE FILLER PLUG AND DRAIN PLUG WITH GASKETS

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

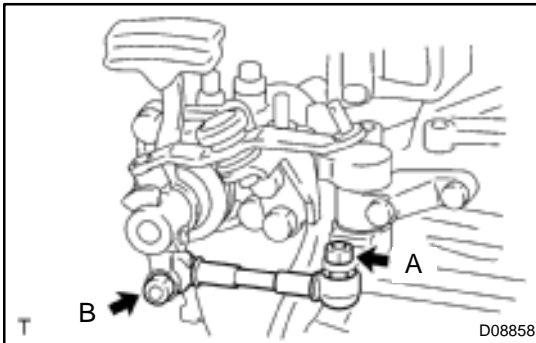
2. REMOVE BACK-UP LIGHT SWITCH WITH GASKET

Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)

3. REMOVE CONTROL CABLE BRACKET

Remove the 2 bolts and control cable bracket.

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)



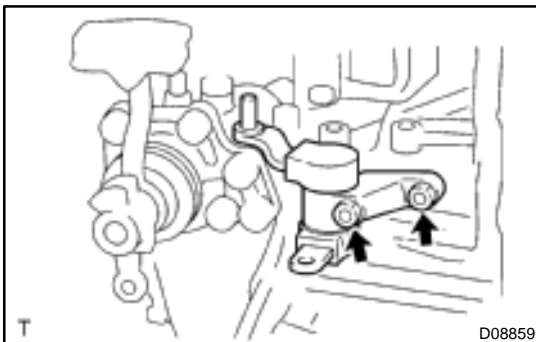
4. REMOVE CONTROL SHAFT ASSEMBLY

- (a) Remove the (A) nut and wave washer.

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)

- (b) Remove the (B) nut and the control shaft assembly.

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)



5. REMOVE SELECTING BELLCRANK ASSEMBLY

Remove the 2 bolts and the selecting bellcrank assembly.

Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

NOTICE:

At the time of reassembly, please refer to the following item.

Fit the selecting bellcrank assembly pin part with the dust cover into a groove in the control shift lever.



6. REMOVE SHIFTING BELLCRANK ASSEMBLY

Remove the 2 bolts and the shifting bellcrank assembly.

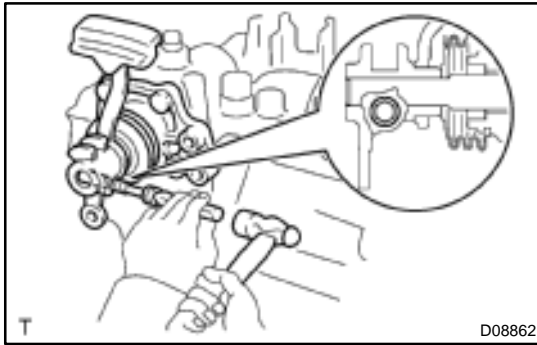
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)



7. REMOVE CONTROL SHIFT LEVER AND DUST BOOT

- (a) Remove the nut and wave washer.

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)



- (b) Using a pin punch and a hammer, tap out the lever lock pin.

NOTICE:

At the time of reassembly, please refer to the following item.

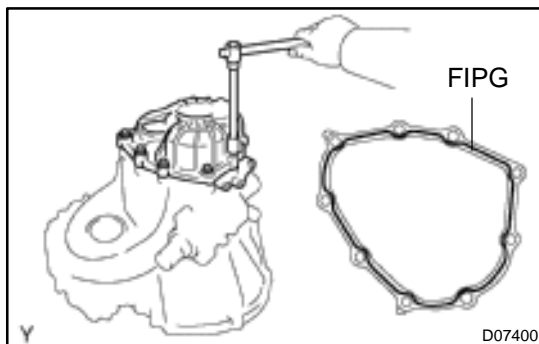
When fixing the lever lock pin, properly position the shaft groove.

- (c) Remove the control shift lever and dust boot.

NOTICE:

At the time of reassembly, please refer to the following items.

- Install the dust boot into a groove in the control shift lever.
- Be sure to install the dust boot in the correct direction, as shown in the illustration.

**8. REMOVE TRANSMISSION CASE COVER**

- (a) Remove the 9 bolts.

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

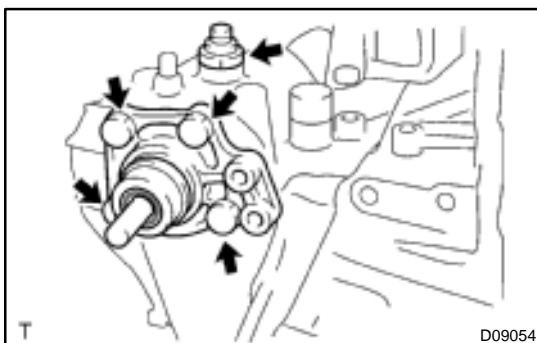
- (b) Using a brass bar and a hammer, carefully tap the projection of the transmission case cover to remove the transmission case cover from the transmission case.

HINT:

At the time of reassembly, please refer to the following item. Apply FIG to the transmission case cover as shown in the illustration.

FIG:

Part No. 08826-00090, THREE BOND 1281 or equivalent

**9. REMOVE LOCK BALL ASSEMBLY AND CONTROL SHAFT COVER**

- (a) Remove the lock ball assembly.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

- (b) Remove the 4 bolts, control shaft cover and gasket.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

10. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY

NOTICE:

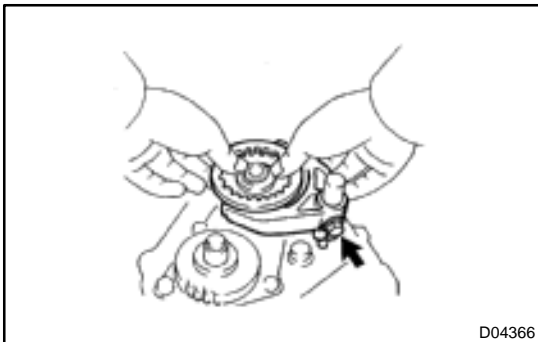
At the time of reassembly, please refer to the following item.

Set the claws of the shift interlock plate into the shift head part of the gear shift fork shaft securely.



11. REMOVE LOCK NUT

- Engage the gear double meshing.
 - Using a chisel and a hammer, loosen the staked part of the nut.
 - Remove the lock nut.
- Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)**
- Disengage the gear double meshing.



12. REMOVE NO. 3 HUB SLEEVE, NO. 3 CLUTCH HUB AND NO. 3 GEAR SHIFT FORK

- Remove the bolt from the No. 3 gear shift fork.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- Remove the No. 3 hub sleeve and 3 shifting keys with the No. 3 gear shift fork.

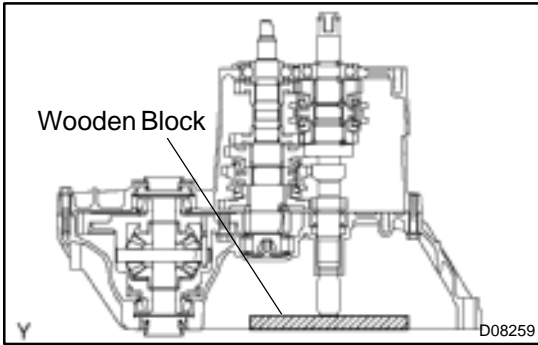
HINT:

At the time of reassembly, please refer to the following items.

- Assemble the No. 3 hub sleeve and No. 3 clutch hub. Install the No. 3 clutch hub and 3 shifting key springs to the No. 3 hub sleeve.
- Install the 2 shifting key springs under the 3 shifting keys.

NOTICE:

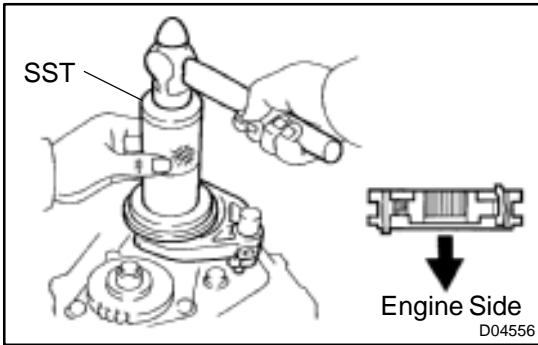
Position the key springs so that their end gaps are not aligned.



HINT:

At the time of reassembly, please refer to the following items.

- Before driving in the No. 3 hub sleeve and No. 3 clutch hub assembly, place the suitable sized wooden block on the rear side of the input shaft, as shown in the illustration. When driving it in, fix the input shaft firmly so that it is not pushed downward. Otherwise the input shaft rear radial ball bearing is overloaded, it might be damaged.

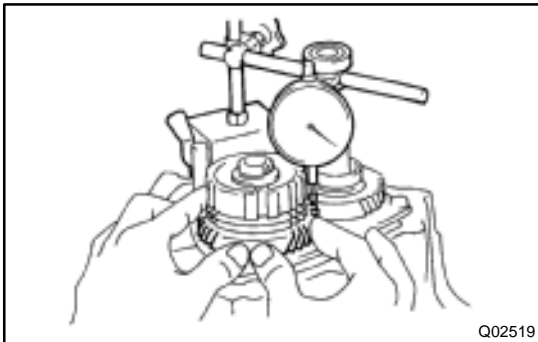


- Using SST and a hammer, tap in the No. 3 hub sleeve and No. 3 clutch hub assembly together with the No. 3 gear shift fork.

SST 09636-20010

NOTICE:

- Be sure to install the No. 3 hub sleeve and No. 3 clutch hub assembly in the correct direction, as shown in the illustration.
- Align the No. 3 synchronizer ring slots with the No. 3 shifting keys.



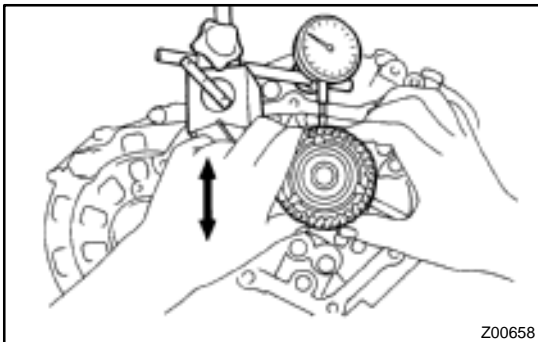
13. INSPECT 5TH GEAR THRUST CLEARANCE

Using a dial indicator, measure the thrust clearance.

Standard clearance:

0.10 – 0.57 mm (0.0039 – 0.0224 in.)

Maximum clearance: 0.57 mm (0.0224 in.)



14. INSPECT 5TH GEAR RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance.

Standard clearance:

KOYO made:

0.015 – 0.058 mm (0.0006 – 0.0023 in.)

NSK made:

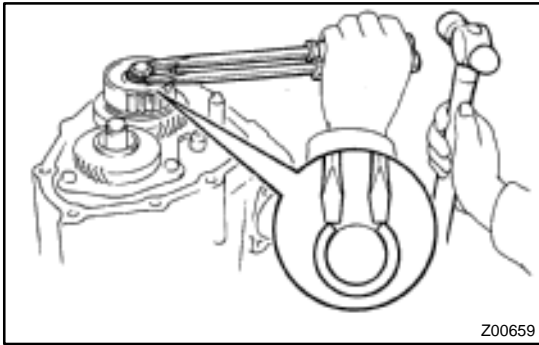
0.015 – 0.056 mm (0.0006 – 0.0022 in.)

Maximum clearance:

KOYO made: 0.058 mm (0.0023 in.)

NSK made: 0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.



Z00659

15. REMOVE No. 3 CLUTCH HUB AND 5TH GEAR

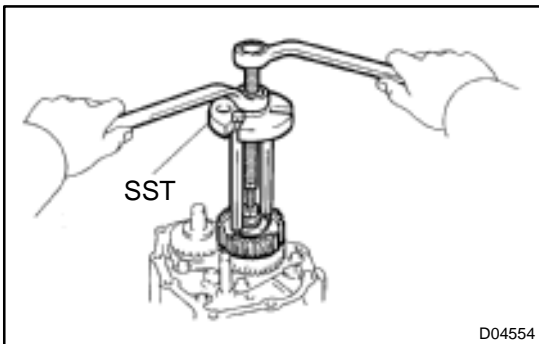
- (a) Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

At the time of reassembly, please refer to the following item. Select a snap ring from the table below that will make the thrust clearance of the No. 3 clutch hub less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.25 (0.0886)	E	2.49 (0.0980)
B	2.31 (0.0909)	F	2.55 (0.1004)
C	2.37 (0.0933)	G	2.61 (0.1028)
D	2.43 (0.0957)	-	-

- (b) Using a screwdriver, pry out the shifting key spring from the No. 3 clutch hub.



D04554

- (c) Install a bolt and washer to the tip of the input shaft and using SST, remove the No. 3 clutch hub.
SST 09950-30011

HINT:

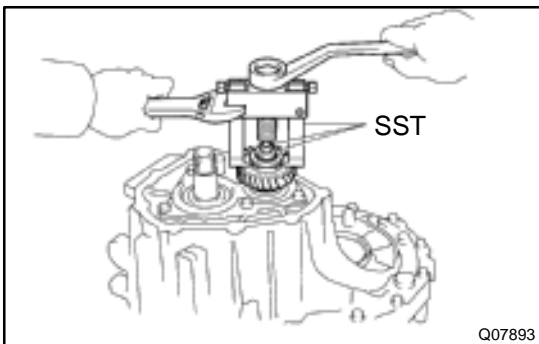
Select a bolt whose outer diameter is smaller than the screw hole of the input shaft so that it can be turned easily.

- (d) Using a screwdriver, pry out the shifting key spring from the other side of the No. 3 clutch hub.
- (e) Remove the No. 3 synchronizer ring, 5th gear, needle roller bearing and spacer.

16. REMOVE 5TH DRIVEN GEAR

Using SST, remove the 5th driven gear.

SST 09628-62011, 09950-40011 (09957-04010), 09950-60010 (09951-00230)

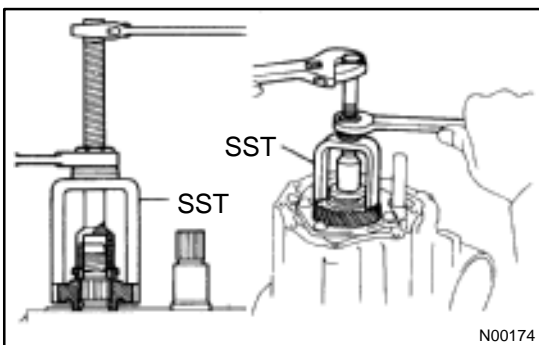


Q07893

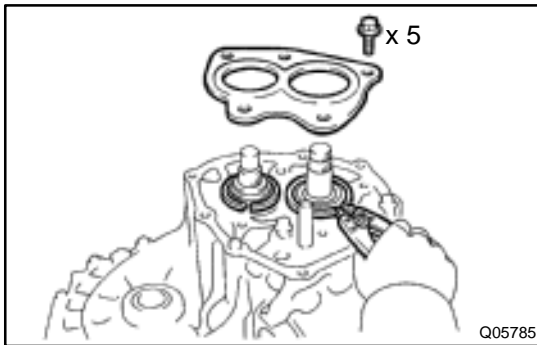
HINT:

At the time of reassembly, please refer to the following item. Using SST, install the 5th driven gear.

SST 09309-12020



N00174

**17. REMOVE REAR BEARING RETAINER**

Remove the 5 bolts and rear bearing retainer.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

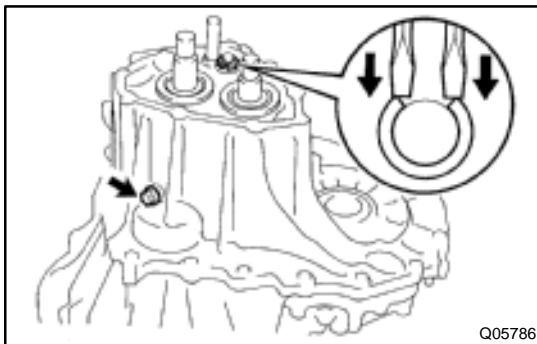
Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)

18. REMOVE BEARING SNAP RING

Using a snap ring expander, remove the 2 snap rings.

HINT:

If it is difficult to remove and install the snap rings, pull up the shafts.

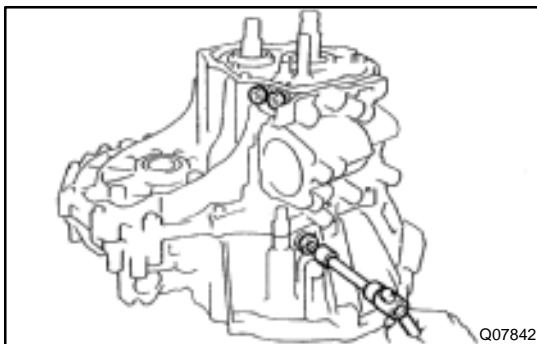
**19. REMOVE REVERSE IDLER GEAR SHAFT LOCK BOLT AND GASKET****Sealant:**

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

20. REMOVE SNAP RING FROM NO. 2 SHIFT FORK SHAFT

Using 2 screwdrivers and a hammer, tap out the snap ring.

**21. REMOVE STRAIGHT SCREW PLUG, SEAT, SPRING AND BALL**

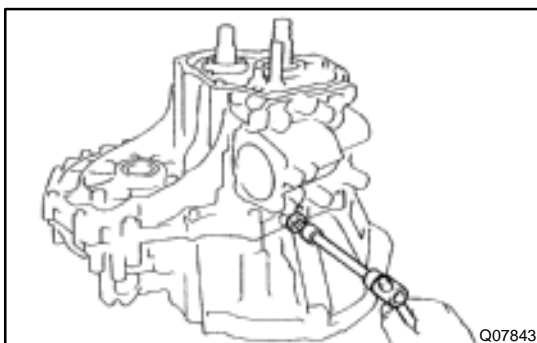
(a) Using a hexagon wrench, remove the 3 straight screw plugs.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

(b) Using a magnetic finger, remove the 3 seats, springs and balls.

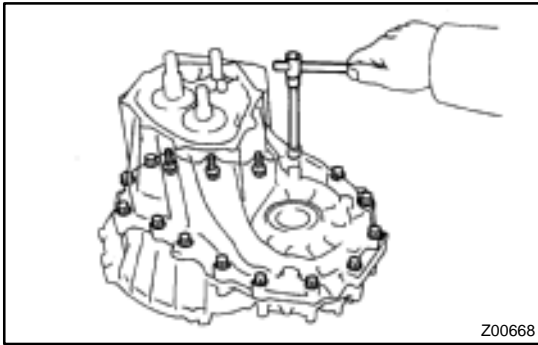
**22. REMOVE LOCK BALL ASSEMBLY**

Using a hexagon wrench, remove the lock ball assembly.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

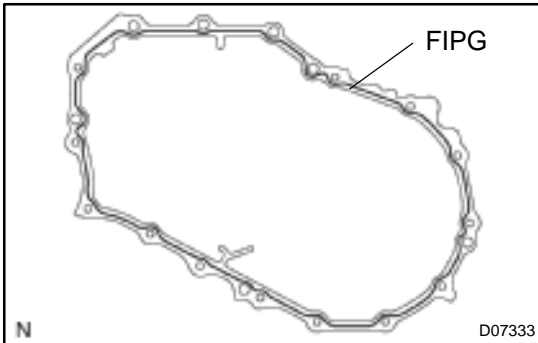
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

**23. REMOVE TRANSMISSION CASE**

(a) Remove the 16 bolts.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

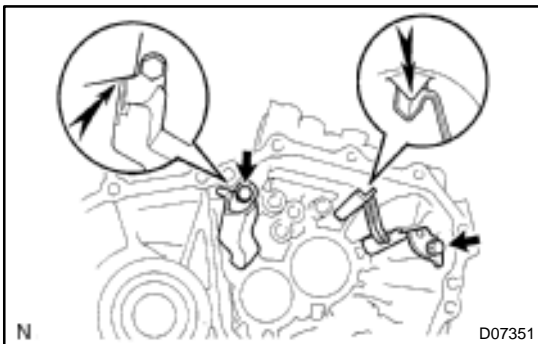
(b) Using a plastic-faced hammer, carefully tap the projection of the transmission case to remove the transmission case from the transaxle case.

**HINT:**

At the time of reassembly, please refer to the following item. Apply FIPG to the transaxle case as shown in the illustration.

FIPG:

Part No. 08826-00090, THREE BOND 1281 or equivalent

**24. REMOVE OIL RECEIVER PIPE**

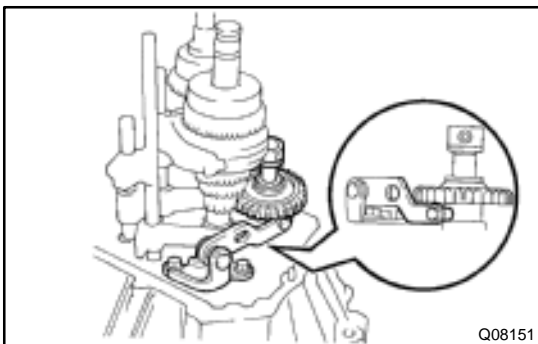
Remove the 2 bolts and 2 oil receiver pipes from the transmission case.

Torque: 17 N·m (175 kgf·cm, 13 ft·lbf)

NOTICE:

At the time of reassembly, please refer to the following items.

- Prevent the oil receiver pipes from being deformed.
- Install the oil receiver pipes while placing it against the transmission case, as shown in the illustration.

**25. REMOVE REVERSE IDLER GEAR, THRUST WASHER AND SHAFT****26. REMOVE REVERSE SHIFT ARM BRACKET**

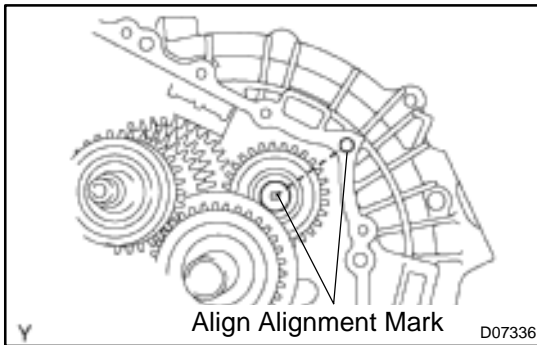
Remove the 2 bolts and reverse shift arm bracket.

Torque: 17 N·m (175 kgf·cm, 13 ft·lbf)

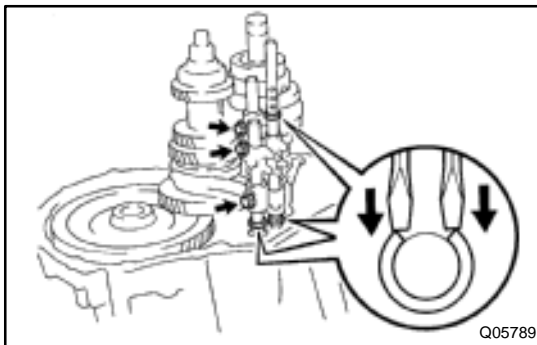
NOTICE:

At the time of reassembly, please refer to the following items.

- Set the pin on the top of the reverse shift arm into a groove on the reverse idler gear.
- Fit the claw of the reverse shift arm bracket with the notch of the input shaft front bearing.



- Install the reverse idler gear, thrust washer and shaft, as shown in the illustration.



27. REMOVE GEAR SHIFT FORK AND GEAR SHIFT FORK SHAFT

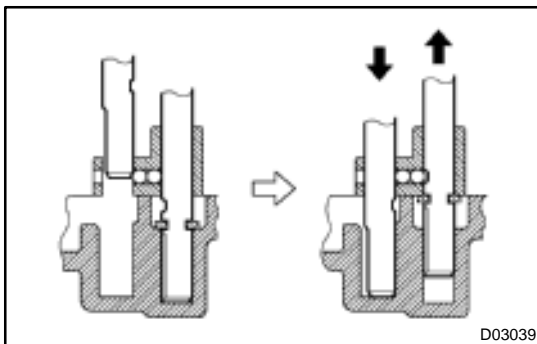
- Using 2 screwdrivers and a hammer, tap out the 3 snap rings from each gear shift fork shaft.
- Remove the 3 bolts from the No. 1 gear shift head, No. 1 and No. 2 gear shift forks.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

Torque: 16 N·m (160 kgf-cm, 12 ft-lbf)

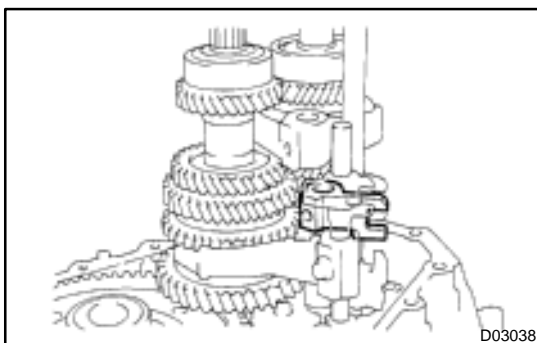
- Pull up the No. 3 gear shift fork shaft, remove the No. 2 gear shift fork shaft.



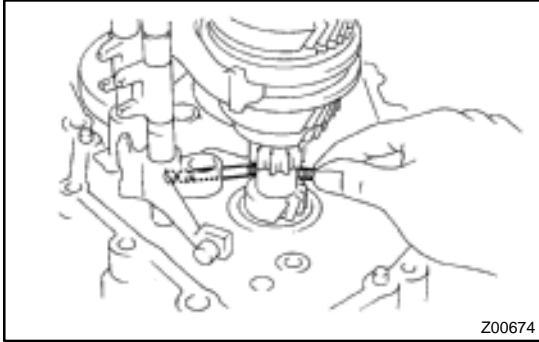
NOTICE:

At the time of reassembly, please refer to the following item.

To avoid the interference of the 2 balls, lift up the No. 3 gear shift fork shaft at the position shown in the illustration.



- Remove the No. 1 gear shift head.



- (e) Using a magnetic finger, remove the 2 balls from the reverse shift fork.
- (f) Remove the No. 3 gear shift fork shaft and reverse shift fork.
- (g) Pull out the No. 1 gear shift fork shaft.
- (h) Remove the No. 1 and No. 2 gear shift forks.

28. REMOVE INPUT AND OUTPUT SHAFTS TOGETHER FROM TRANSAXLE CASE

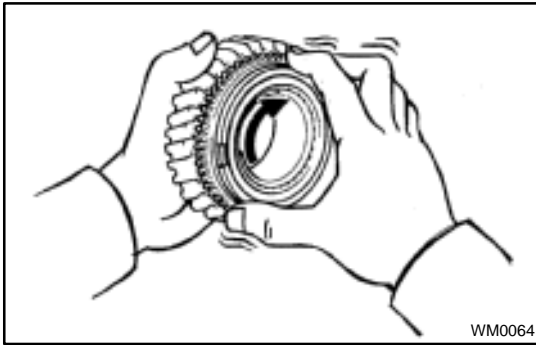
29. REMOVE DIFFERENTIAL CASE ASSEMBLY

NOTICE:

At the time of reassembly, please refer to the following item.

Before reassembly, inspect the differential tapered roller bearing preload (See page [MX-50](#)).

30. REMOVE MAGNET FROM TRANSAXLE CASE



INSPECTION

1. INSPECT 5TH GEAR SYNCHRONIZER RING

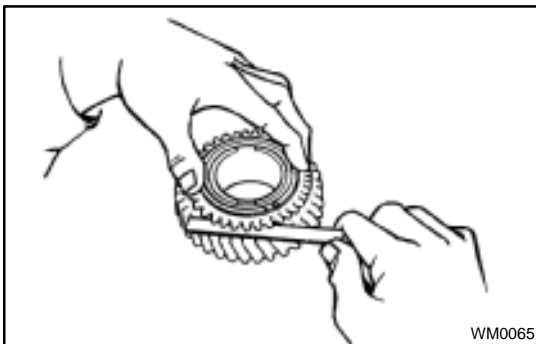
- (a) Check for wear or damage.
- (b) Check the braking effect of the synchronizer ring.
Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks.

If the braking effect is insufficient, apply a small amount of the fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.

NOTICE:

Ensure the fine lapping compound is completely washed off after rubbing.

- (c) Check again the braking effect of the synchronizer ring.



- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance: 0.75 mm (0.030 in.)

If the clearance is less than the minimum, replace the synchronizer ring, and apply a small amount of the fine lapping compound on gear cone.

NOTICE:

Ensure the fine lapping compound is completely washed off after rubbing.



2. INSPECT NO. 3 GEAR SHIFT FORK AND NO. 3 HUB SLEEVE CLEARANCE

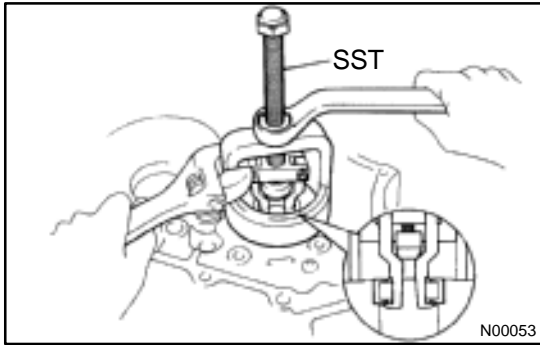
Using a feeler gauge, measure the clearance between the hub sleeve and gear shift fork.

Maximum clearance: 0.5 mm (0.020 in.)

If the clearance exceeds the maximum, replace the gear shift fork or hub sleeve.

3. REMOVE TRANSAXLE CASE RECEIVER

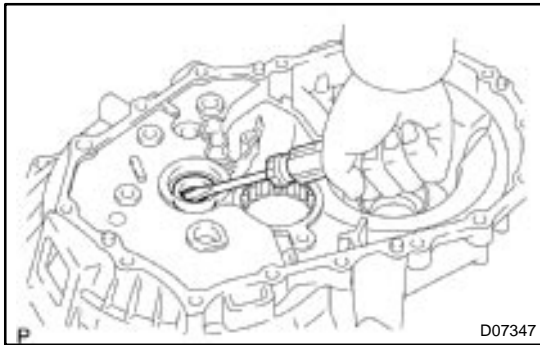
Remove the bolt and transaxle case receiver from the transaxle case.



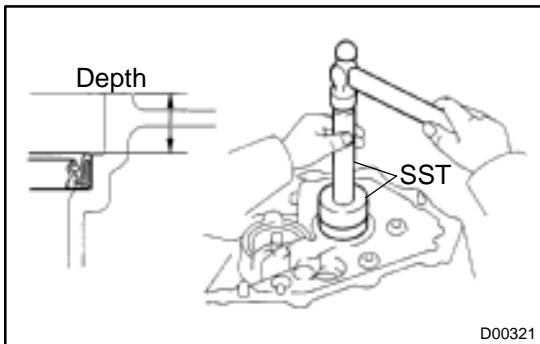
REPLACEMENT

1. REPLACE INPUT SHAFT FRONT BEARING AND OIL SEAL

- (a) Using SST, remove the input shaft front bearing.
SST 09612-65014



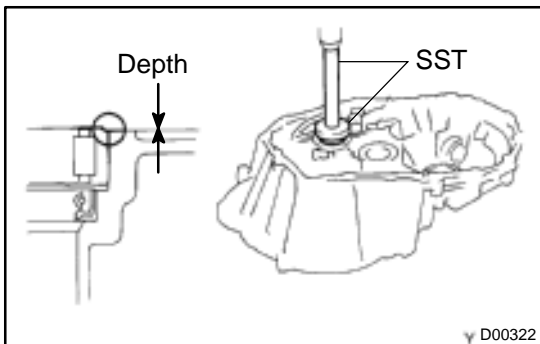
- (b) Using a screwdriver, pry out the oil seal.



- (c) Using SST and a hammer, tap in a new oil seal.
SST 09950-60010 (09951-00360), 09950-70010 (09951-07150)

Depth: 15.8 ± 0.2 mm (0.622 ± 0.008 in.)

- (d) Coat the lip of the oil seal with MP grease.

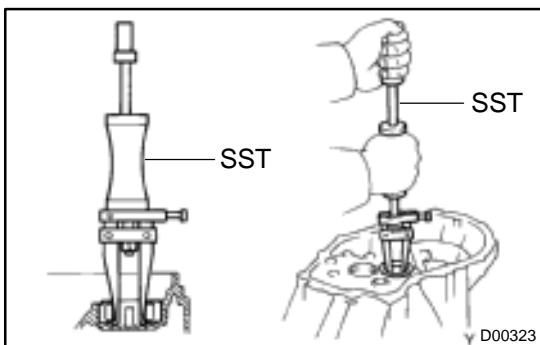


- (e) Using SST and a press, press in a new input shaft front bearing.
SST 09950-60010 (09951-00400), 09950-70010 (09951-07150)

Depth: 0 – 0.3 mm (0 – 0.012 in.)

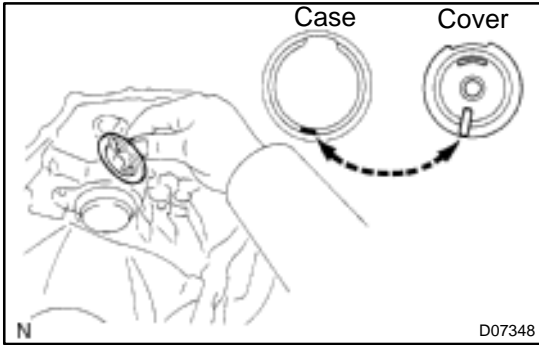
NOTICE:

Be sure to install a new bearing in the correct direction, as shown in the illustration.



2. REPLACE OUTPUT SHAFT FRONT BEARING AND OUTPUT SHAFT COVER

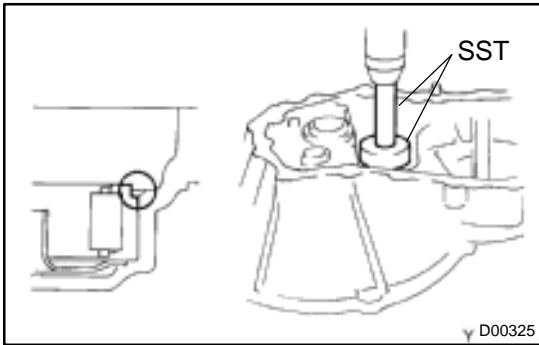
- (a) Remove the bolt and bearing lock plate.
- (b) Using SST, drive out the output shaft front bearing.
SST 09308-00010



- (c) Remove the output shaft cover.
- (d) Install the output shaft cover.

NOTICE:

Install the output shaft cover projection into the case side hollow.



- (e) Using SST and a press, press in a new output shaft front bearing.
SST 09950-60010 (09951-00560), 09950-70010 (09951-07150)

NOTICE:

- **Be sure to install a new bearing in the correct direction, as shown in the illustration.**
- **When replacing the output shaft front bearing, replace the output shaft front bearing inner race along with it.**

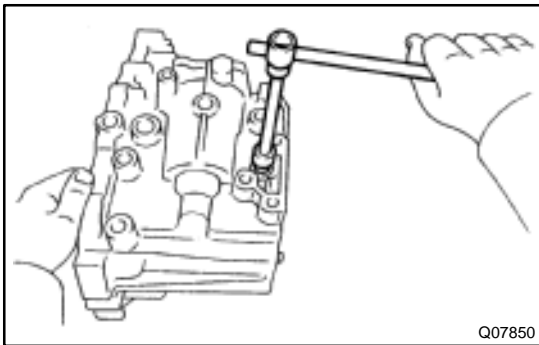
- (f) Install the bearing lock plate with the bolt.

Torque: 11 N·m (115 kgf·cm, 8 ft·lbf)

3. INSTALL TRANSAXLE CASE RECEIVER

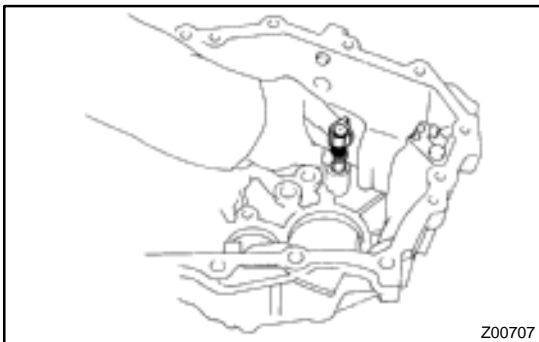
Install the transaxle case receiver to the transaxle case with the bolt.

Torque: 11 N·m (115 kgf·cm, 8 ft·lbf)



4. REPLACE REVERSE RESTRICT PIN

- (a) Using a hexagon wrench, remove the straight screw plug.
- (b) Using a pin punch and a hammer, tap out the slotted spring pin.

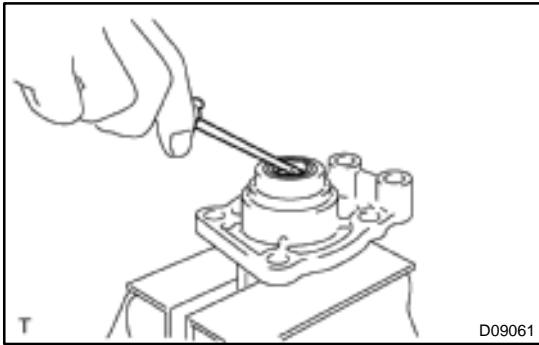


- (c) Replace the reverse restrict pin.
- (d) Using a pin punch and a hammer, tap in the slotted spring pin.
- (e) Apply sealant to the screw plug threads.

Sealant:

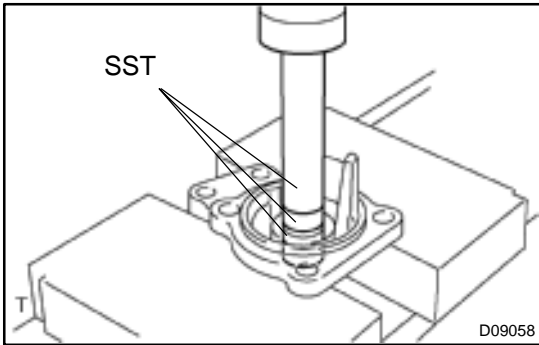
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (f) Using a hexagon wrench, install the straight screw plug.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

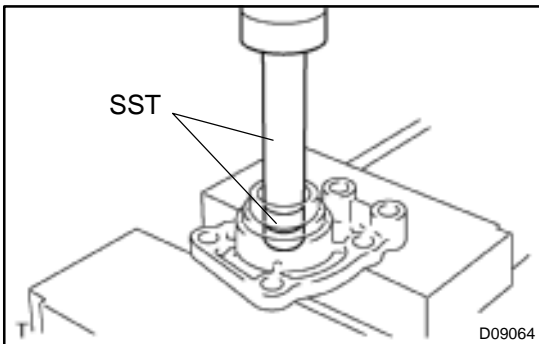


5. REPLACE CONTROL SHAFT COVER OIL SEAL AND BUSHING

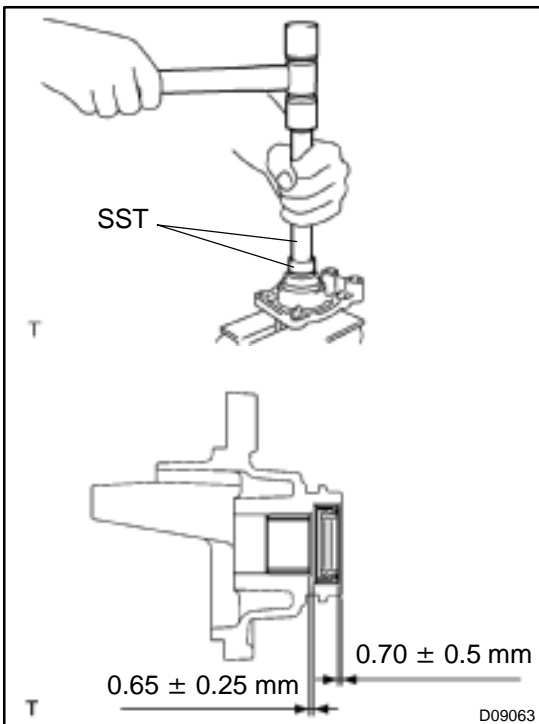
(a) Using a screwdriver, pry out the oil seal.



(b) Using SST and a press, press out the bushing.
SST 09950-60010 (09951-00200, 09951-00210), 09950-70010 (09951-07150)



(c) Using SST and a press, press in a new bushing.
SST 09950-60010 (09951-00200), 09950-70010 (09951-07150)
Depth: 0.65 ± 0.25 mm (0.0256 ± 0.0098 in.)



(d) Using SST and a plastic-faced hammer, carefully tap in a new oil seal.
SST 09950-60010 (09951-00270), 09950-70010 (09951-07150)
Depth: 0.70 ± 0.50 mm (0.0276 ± 0.0197 in.)

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [MX-13](#)).

NOTICE:

When working with FIPG material, you must observe the followings.

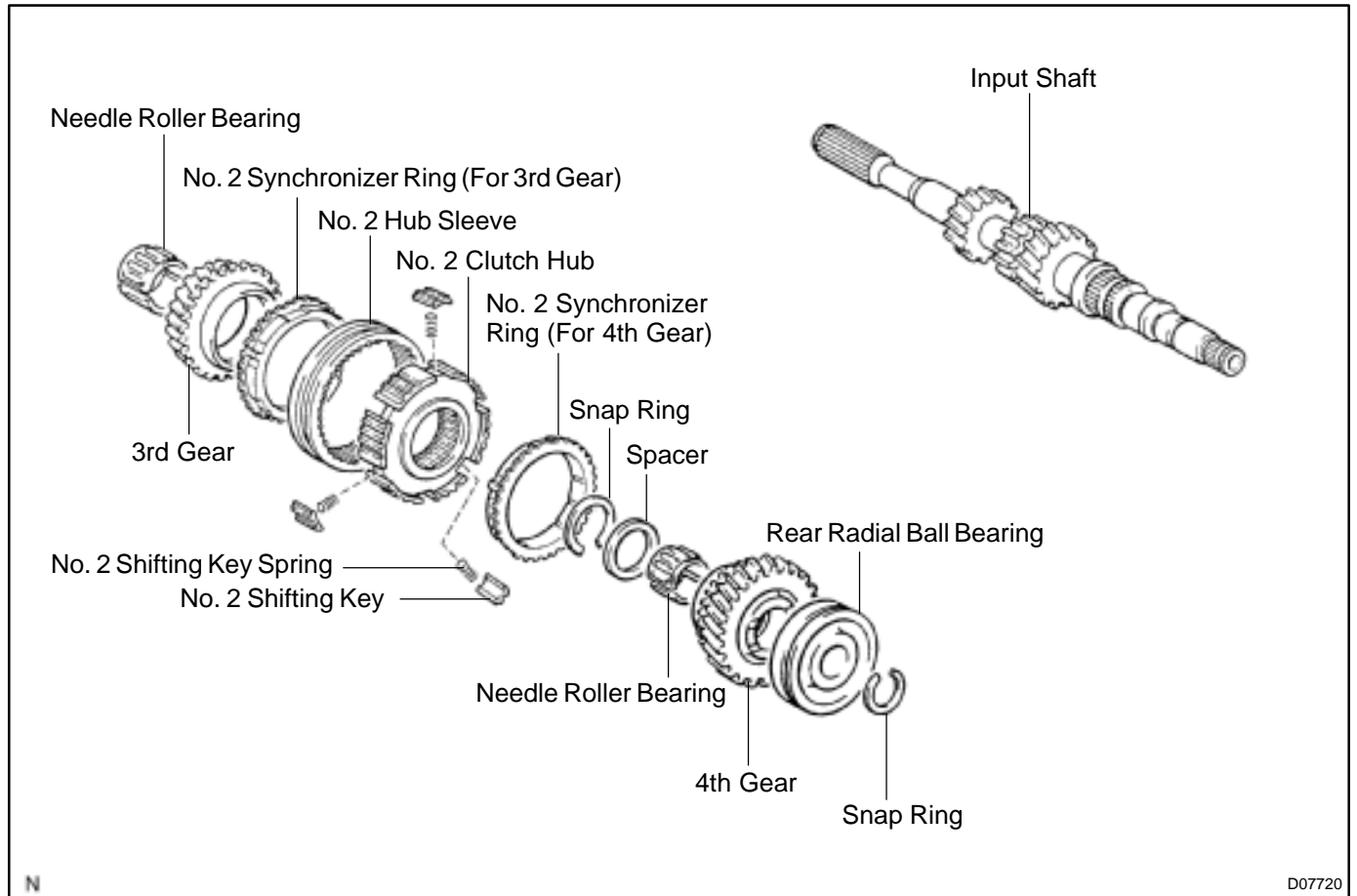
- Using a razor blade and gasket scraper, remove all old FIPG material from the gasket surfaces.
- Thoroughly clean all components to remove all loose material.
- Clean both sealing surfaces with a non-residue solvent.
- Apply FIPG in an approx. 1 mm (0.04 in.) wide bead along the sealing surface.
- Parts must be assembled within 10 minutes of application. Otherwise, the FIPG material must be removed and reapplied.

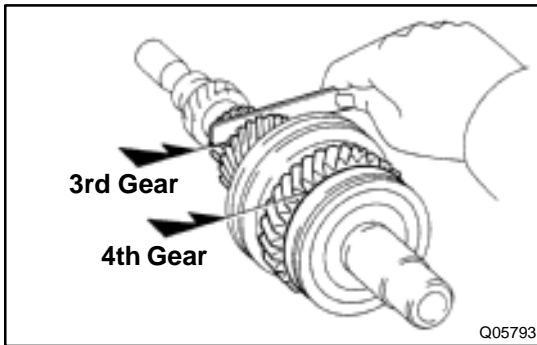
HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

INPUT SHAFT COMPONENTS

MX09K-02





DISASSEMBLY

1. INSPECT 3RD AND 4TH GEARS THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

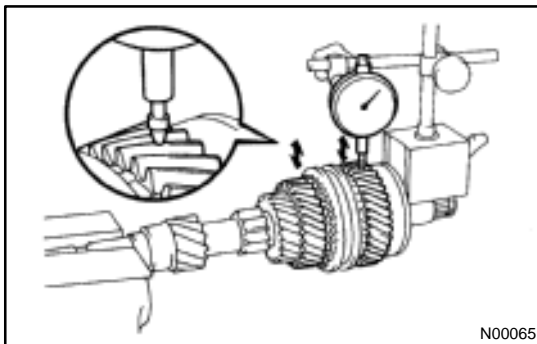
3rd gear: 0.10 – 0.35 mm (0.0039 – 0.0138 in.)

4th gear: 0.10 – 0.55 mm (0.0039 – 0.0217 in.)

Maximum clearance:

3rd gear: 0.35 mm (0.0138 in.)

4th gear: 0.55 mm (0.0217 in.)



2. INSPECT 3RD AND 4TH GEARS RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance between the gear and shaft.

Standard clearance:

KOYO made:

0.015 – 0.058 mm (0.0006 – 0.0023 in.)

NSK made:

0.015 – 0.056 mm (0.0006 – 0.0022 in.)

Maximum clearance:

KOYO made: 0.058 mm (0.0023 in.)

NSK made: 0.056 mm (0.0022 in.)

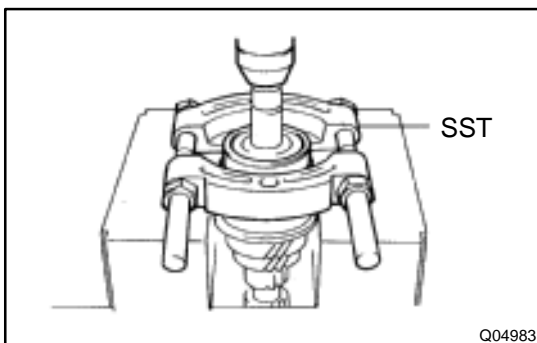
If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.

3. REMOVE SNAP RING

Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

Take care not to damage the journal surface of the input shaft.



4. REMOVE REAR RADIAL BALL BEARING, 4TH GEAR, NEEDLE ROLLER BEARING, SPACER AND NO.2 SYNCHRONIZER RING (FOR 4TH GEAR)

(a) Using SST and a press, press out the rear radial ball bearing and 4th gear.

SST 09950-00020

HINT:

Support the input shaft assembly by hand so that it will not be dropped off.

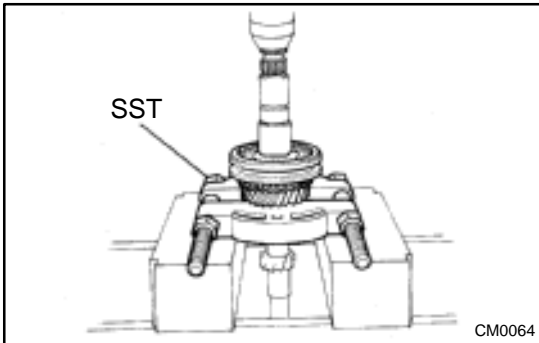
- (b) Remove the needle roller bearing, spacer and No. 2 synchronizer ring (for the 4th gear).

5. REMOVE SNAP RING

Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

Take care not to damage the journal surface of the input shaft.



6. REMOVE NO. 2 HUB SLEEVE, NO. 2 CLUTCH HUB ASSEMBLY, NO. 2 SYNCHRONIZER RING (FOR 3RD GEAR), 3RD GEAR AND NEEDLE ROLLER BEARING

- (a) Using SST and a press, press out the No. 2 hub sleeve, No. 2 clutch hub assembly, No. 2 synchronizer ring (for the 3rd gear) and 3rd gear.

SST 09950-00020

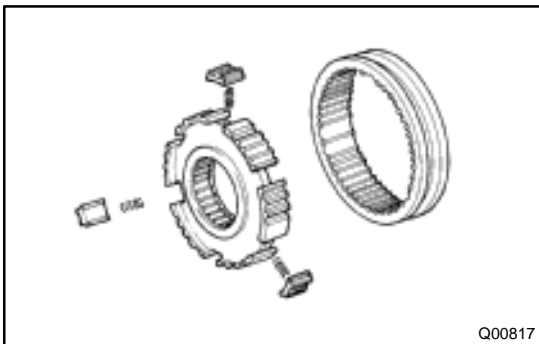
HINT:

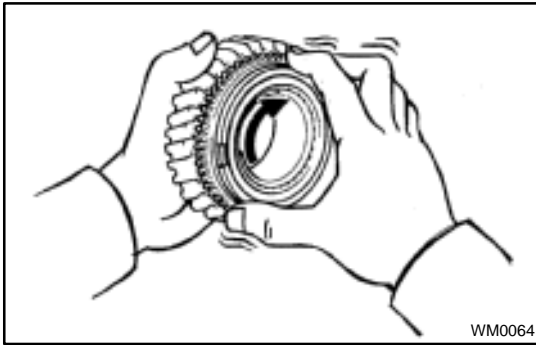
Support the input shaft by hand so that it will not be dropped off.

- (b) Remove the needle roller bearing.

7. DISASSEMBLE NO. 2 HUB SLEEVE AND NO. 2 CLUTCH HUB

- (a) Remove the No. 2 hub sleeve from the No. 2 clutch hub.
- (b) Remove the 3 No. 2 shifting keys and 3 No. 2 shifting key springs from the No. 2 clutch hub.





INSPECTION

1. INSPECT SYNCHRONIZER RING

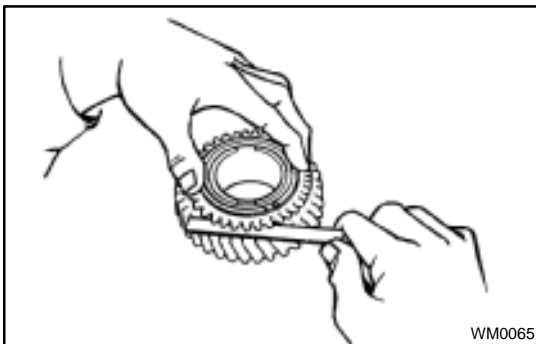
- (a) Check for wear or damage.
- (b) Check the braking effect of the synchronizer ring.
Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks.

If the braking effect is insufficient, apply a small amount of the fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.

NOTICE:

Ensure the fine lapping compound is completely washed off after rubbing.

- (c) Check again the braking effect of the synchronizer ring.



- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance:

3rd gear: 0.65 mm (0.0256 in.)

4th gear: 0.75 mm (0.0295 in.)

If the clearance is less than the minimum, replace the synchronizer ring, and apply a small amount of the fine lapping compound on gear cone.

NOTICE:

Ensure the fine lapping compound is completely washed off after rubbing.

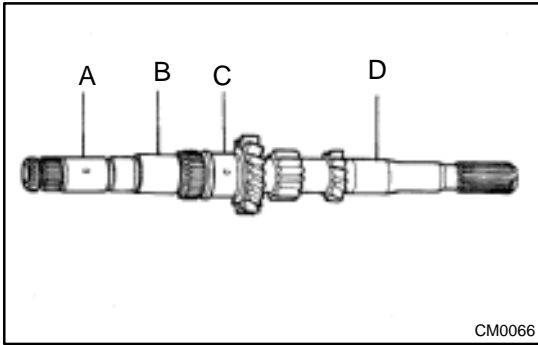


2. INSPECT NO. 2 GEAR SHIFT FORK AND NO. 2 HUB SLEEVE CLEARANCE

Using a feeler gauge, measure the clearance between the hub sleeve and gear shift fork.

Maximum clearance: 0.35 mm (0.014 in.)

If the clearance exceeds the maximum, replace the gear shift fork or hub sleeve.



3. INSPECT INPUT SHAFT

- (a) Check the input shaft for wear or damage.
- (b) Using a micrometer, measure the outer diameter of the input shaft journal surface.

Minimum outer diameter:

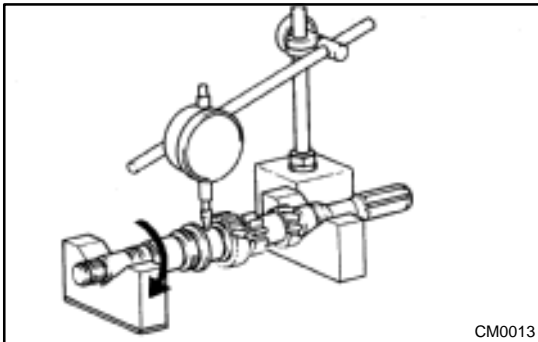
Part A: 24.885 mm (0.9797 in.)

Part B: 28.985 mm (1.1411 in.)

Part C: 30.985 mm (1.2199 in.)

Part D: 24.985 mm (0.9837 in.)

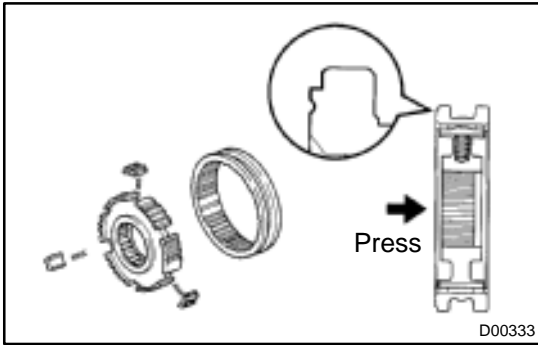
If the outer diameter is less than the minimum, replace the input shaft.



- (c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.03 mm (0.0012 in.)

If the runout exceeds the maximum, replace the input shaft.



REASSEMBLY

HINT:

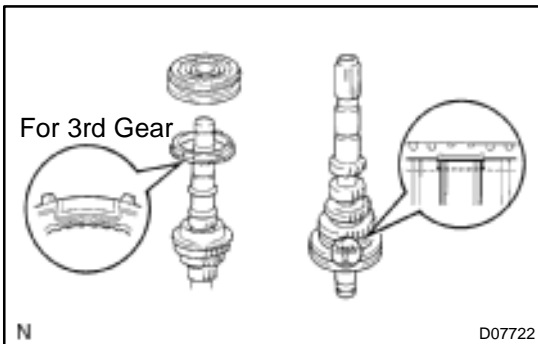
Coat all of the sliding and rotating surfaces with gear oil before reassembly.

1. ASSEMBLE NO. 2 HUB SLEEVE AND NO. 2 CLUTCH HUB

- (a) Install the 3 No. 2 shifting key springs and 3 No. 2 shifting keys to the No. 2 clutch hub.
- (b) Install the No. 2 hub sleeve to the No. 2 clutch hub.

NOTICE:

Assemble the No. 2 hub sleeve and No. 2 clutch hub in the direction shown in the illustration.



2. INSTALL NEEDLE ROLLER BEARING, 3RD GEAR, NO. 2 SYNCHRONIZER RING (FOR 3RD GEAR), NO. 2 HUB SLEEVE AND NO. 2 CLUTCH HUB ASSEMBLY

- (a) Apply gear oil to the needle roller bearing and install it.
- (b) Install the 3rd gear and No. 2 synchronizer ring (for the 3rd gear).

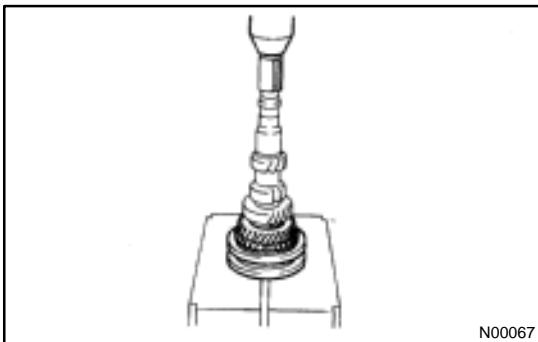
NOTICE:

Distinguish the No. 2 synchronizer ring (for the 3rd gear) by the teeth on the synchronizer ring.

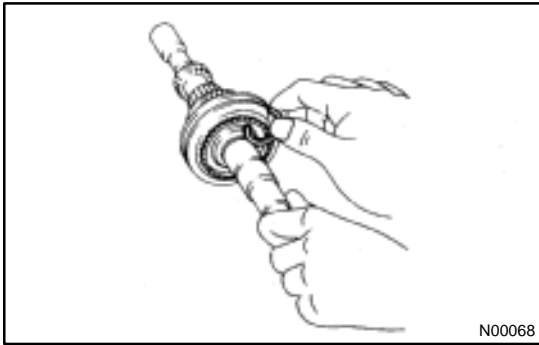
- (c) Install the No. 2 hub sleeve and No. 2 clutch hub assembly so that the No. 2 synchronizer ring slots and No. 2 shifting keys are aligned.

NOTICE:

Be sure to install the No. 2 hub sleeve and No. 2 clutch hub assembly in the correct direction, as shown in the illustration.



- (d) Using a press, press in the No. 2 hub sleeve and No. 2 clutch hub assembly.



3. INSTALL SNAP RING

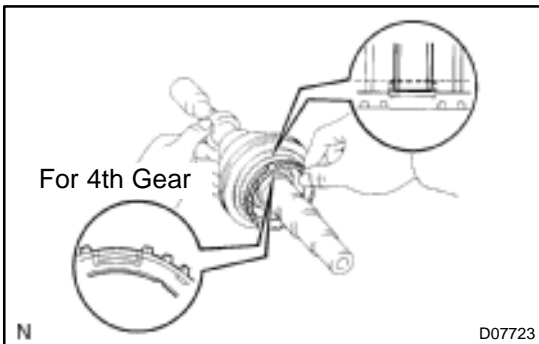
- (a) Select a snap ring from the table below that will make the thrust clearance of the No. 2 clutch hub less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	2.30 (0.0906)	3	2.48 (0.0976)
1	2.36 (0.0929)	4	2.54 (0.1000)
2	2.42 (0.0953)	5	2.60 (0.1024)

- (b) Using a screwdriver and hammer, tap in the snap ring.
HINT:

Take care not to damage the journal surface of the input shaft.

**4. INSPECT 3RD GEAR THRUST CLEARANCE
(See page MX-28)**

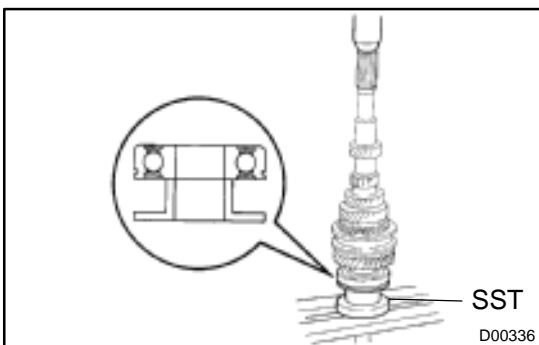


5. INSTALL SPACER, NEEDLE ROLLER BEARING, No. 2 SYNCHRONIZER RING (FOR 4TH GEAR), 4TH GEAR AND REAR RADIAL BALL BEARING

- (a) Install the spacer.
- (b) Apply gear oil to the needle roller bearings and install it.
- (c) Place the No. 2 synchronizer ring (for the 4th gear) on the No. 2 hub sleeve assembly and align the No. 2 synchronizer ring slots with the No. 2 shifting keys.
- (d) Install the 4th gear.

NOTICE:

Distinguish the No. 2 synchronizer ring (for the 4th gear) by the teeth on the synchronizer ring.



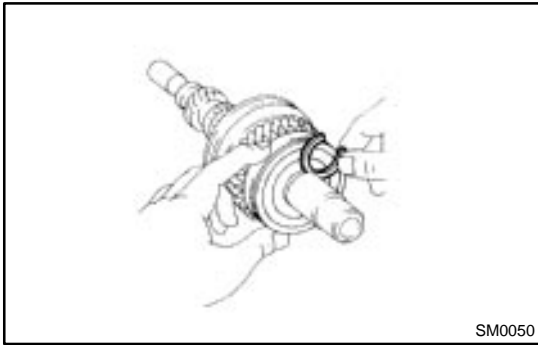
- (e) Using SST and a press, press in the rear radial ball bearing.
SST 09608-00071

NOTICE:

Be sure to install the rear radial ball bearing in the correct direction, as shown in the illustration.

HINT:

Set SST to the bearing inner race securely.



6. INSTALL SNAP RING

- (a) Select a snap ring from the table below that will make the thrust clearance of the rear radial ball bearing less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.29 (0.0902)	D	2.47 (0.0972)
B	2.35 (0.0925)	E	2.53 (0.0996)
C	2.41 (0.0949)	F	2.59 (0.1020)

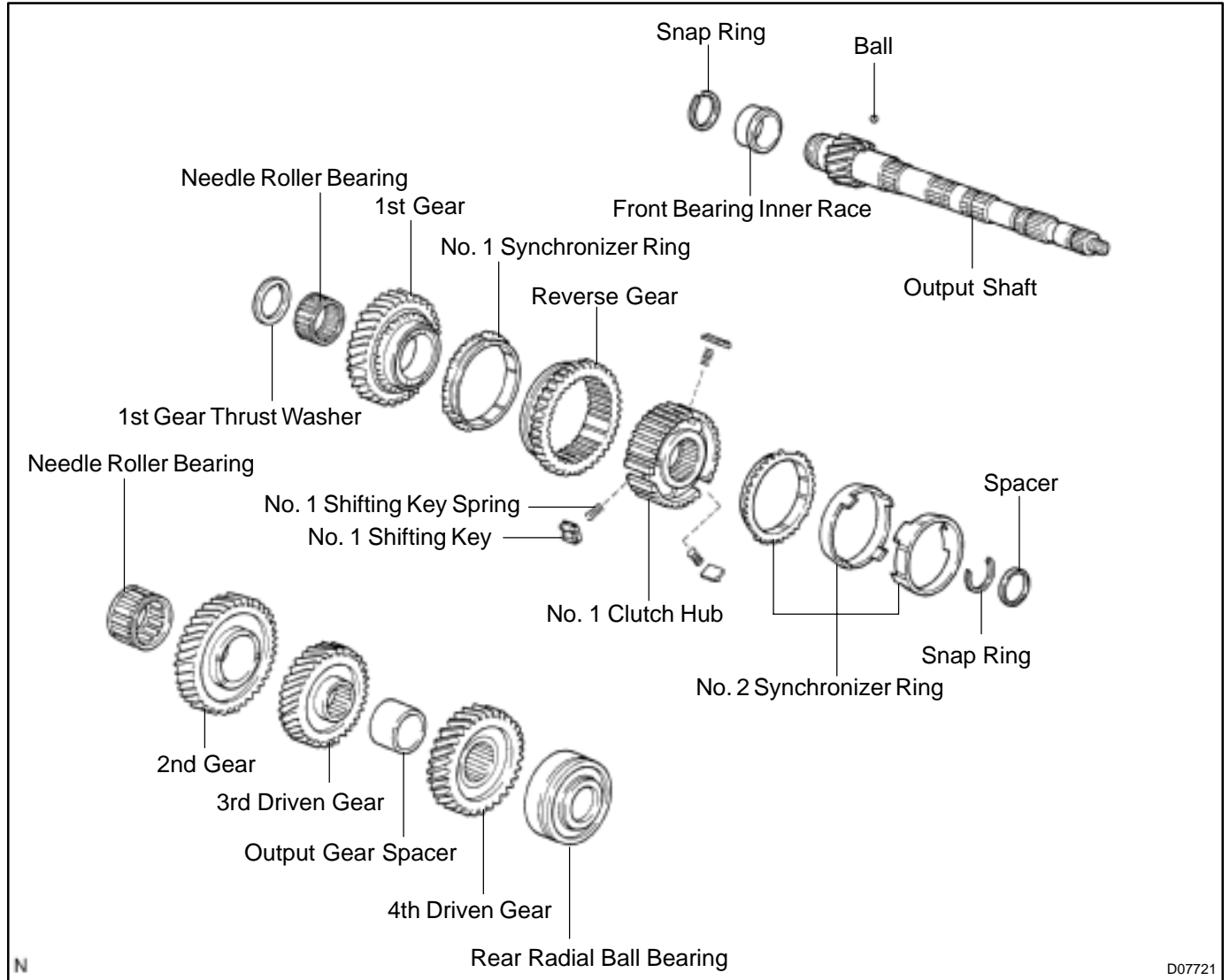
- (b) Using a screwdriver and hammer, tap in the snap ring.
HINT:

Take care not to damage the journal surface of the input shaft.

7. INSPECT 4TH GEAR THRUST CLEARANCE (See page [MX-28](#))

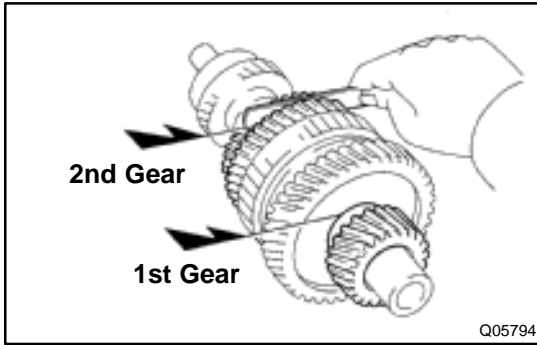
OUTPUT SHAFT COMPONENTS

MX090-02



N

D07721



DISASSEMBLY

1. INSPECT 1ST AND 2ND GEARS THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

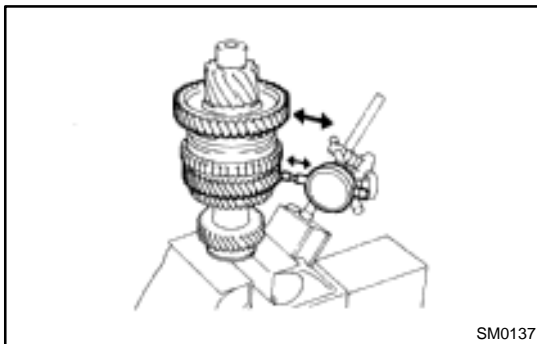
1st gear: 0.10 – 0.40 mm (0.0039 – 0.0157 in.)

2nd gear: 0.10 – 0.55 mm (0.0039 – 0.0217 in.)

Maximum clearance:

1st gear: 0.40 mm (0.0157 in.)

2nd gear: 0.55 mm (0.0217 in.)



2. INSPECT 1ST AND 2ND GEARS RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance between the gear and shaft.

Standard clearance:

KOYO made:

0.015 – 0.058 mm (0.0006 – 0.0023 in.)

NSK made:

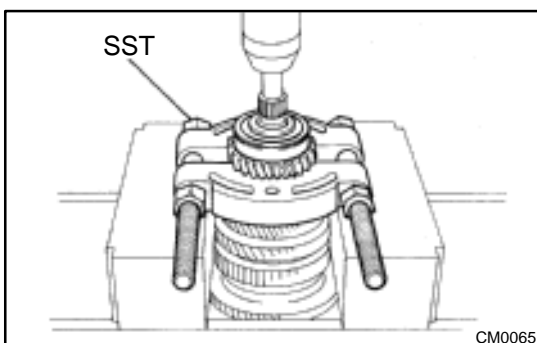
0.015 – 0.056 mm (0.0006 – 0.0022 in.)

Maximum clearance:

KOYO made: 0.058 mm (0.0023 in.)

NSK made: 0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.



3. REMOVE REAR RADIAL BALL BEARING, 4TH DRIVEN GEAR AND OUTPUT GEAR SPACER FROM OUTPUT SHAFT

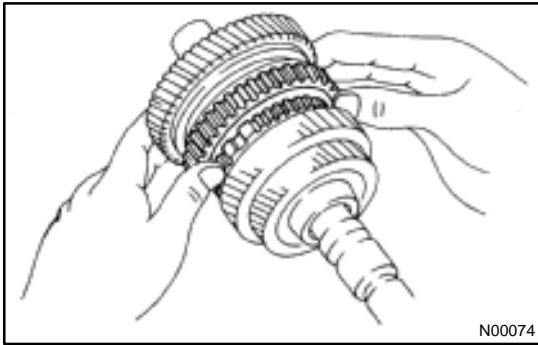
- (a) Using SST and a press, press out the rear radial ball bearing and 4th driven gear.

SST 09950-00020

HINT:

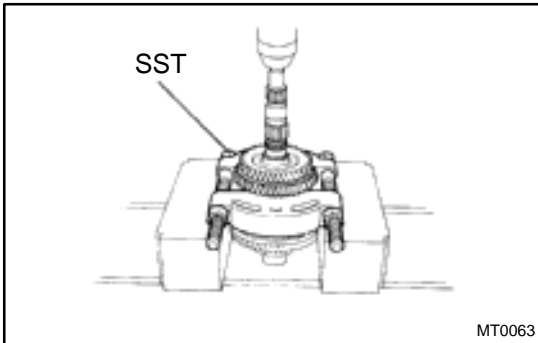
Support the output shaft assembly by hand so that it will not be dropped off.

- (b) Remove the output gear spacer.



4. REMOVE 3RD DRIVEN GEAR, 2ND GEAR, NEEDLE ROLLER BEARING, SPACER AND NO. 2 SYNCHRONIZER RING

- (a) Shift the reverse gear into the 1st gear.



- (b) Using SST and a press, press out the 3rd driven gear and 2nd gear.

SST 09950-00020

HINT:

Support the output shaft assembly by hand so that it will not be dropped off.

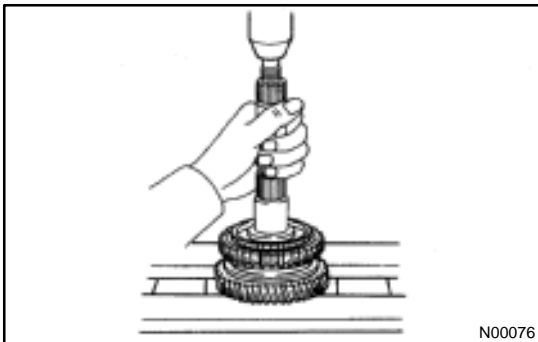
- (c) Remove the needle roller bearing, spacer and No. 2 synchronizer ring.

5. REMOVE SNAP RING

Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

Take care not to damage the journal surface of the output shaft.



6. REMOVE REVERSE GEAR, NO. 1 CLUTCH HUB ASSEMBLY, NO. 1 SYNCHRONIZER RING, 1ST GEAR, NEEDLE ROLLER BEARING, 1ST GEAR THRUST WASHER AND BALL

- (a) Using a press, press out the reverse gear, No. 1 clutch hub assembly, No. 1 synchronizer ring and 1st gear.

HINT:

Support the output shaft assembly by hand so that it will not be dropped off.

- (b) Remove the needle roller bearing and 1st gear thrust washer.

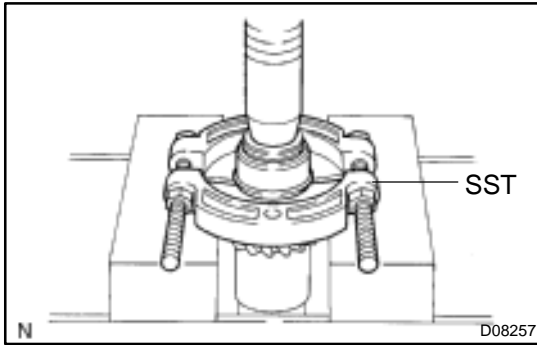
- (c) Using a magnetic finger, remove the ball.

7. REMOVE SNAP RING

Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

Take care not to damage the journal surface of the output shaft.



8. REMOVE FRONT BEARING INNER RACE

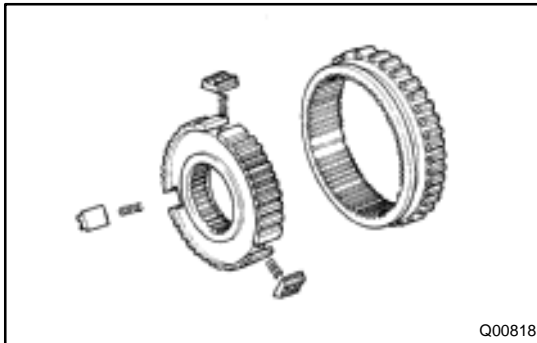
Using SST and a press, press out the front bearing inner race.
SST 09950-00020

NOTICE:

When replacing the front bearing inner race, replace the output shaft front bearing along with it.

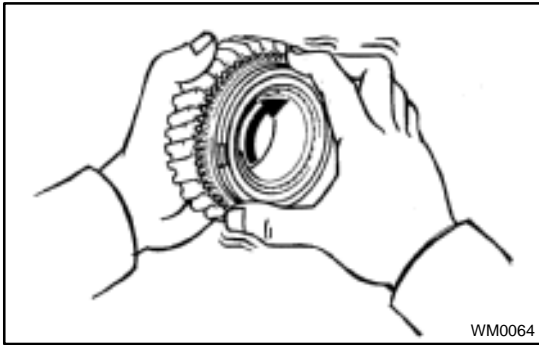
HINT:

Support the output shaft by hand so that it will not be dropped off.



9. DISASSEMBLE REVERSE GEAR AND NO.1 CLUTCH HUB

- (a) Remove the reverse gear from the No. 1 clutch hub.
- (b) Remove the 3 No. 1 shifting keys and 3 No. 1 shifting key springs from the No. 1 clutch hub.



INSPECTION

1. INSPECT NO. 1 SYNCHRONIZER RING

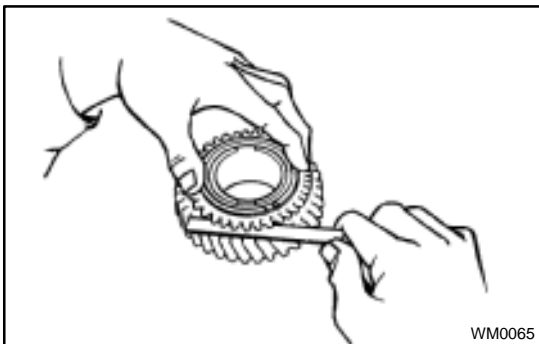
- (a) Check for wear or damage.
- (b) Check the braking effect of the synchronizer ring.
Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks.

If the braking effect is insufficient, apply a small amount of the fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.

NOTICE:

Ensure the fine lapping compound is completely washed off after rubbing.

- (c) Check again the braking effect of the synchronizer ring.



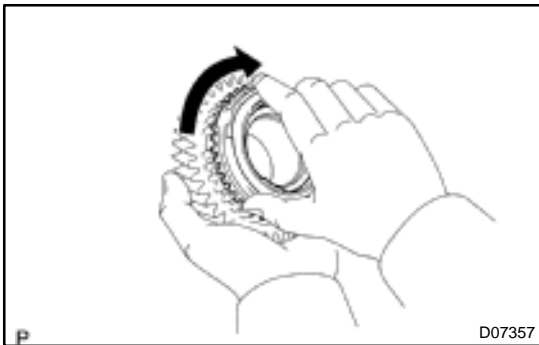
- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance: 0.75 mm (0.0295 in.)

If the clearance is less than the minimum, replace the synchronizer ring, and apply a small amount of the fine lapping compound on gear cone.

NOTICE:

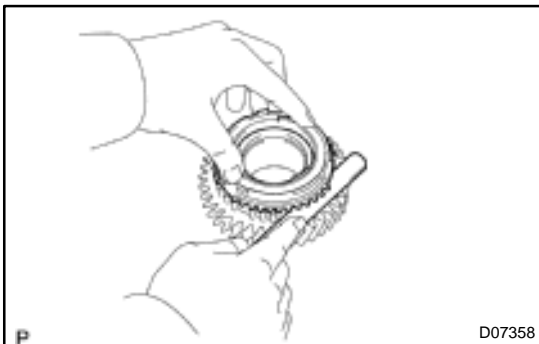
Ensure the fine lapping compound is completely washed off after rubbing.



2. INSPECT NO. 2 SYNCHRONIZER RING

- (a) Check for wear or damage.
- (b) Check the braking effect of the synchronizer ring.
Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks.

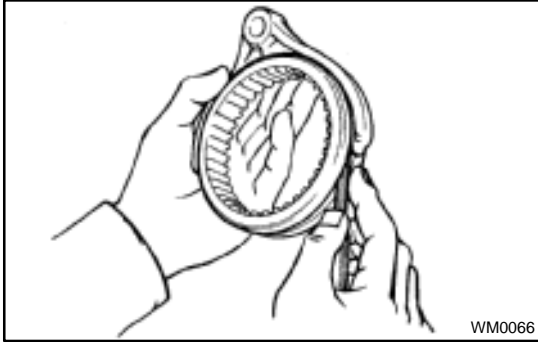
If the braking effect is insufficient, replace the synchronizer ring.



- (c) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance: 0.70 mm (0.0276 in.)

If the clearance is less than the minimum, replace the synchronizer ring.

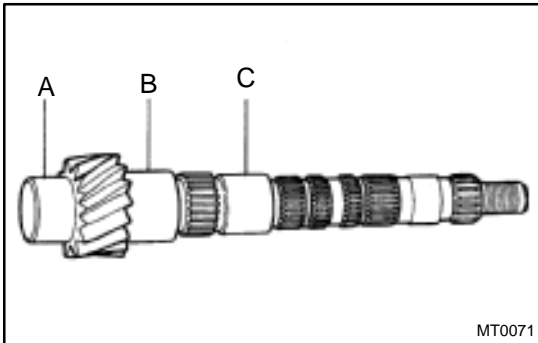


3. INSPECT NO. 1 GEAR SHIFT FORK AND REVERSE GEAR CLEARANCE

Using a feeler gauge, measure the clearance between the reverse gear and gear shift fork.

Maximum clearance: 0.35 mm (0.014 in.)

If the clearance exceeds the maximum, replace the gear shift fork or reverse gear.



4. INSPECT OUTPUT SHAFT

(a) Check the output shaft for wear or damage.

(b) Using a micrometer, measure the outer diameter of the output shaft journal surface.

Minimum outer diameter:

Part A: 32.985 mm (1.2986 in.)

Part B: 37.985 mm (1.4955 in.)

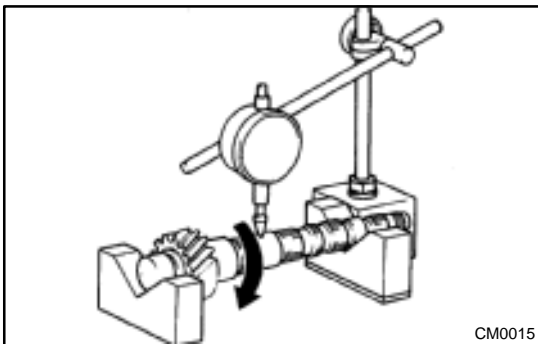
Part C: 31.985 mm (1.2592 in.)

If the outer diameter is less than the minimum, replace the output shaft.

(c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.03 mm (0.0012 in.)

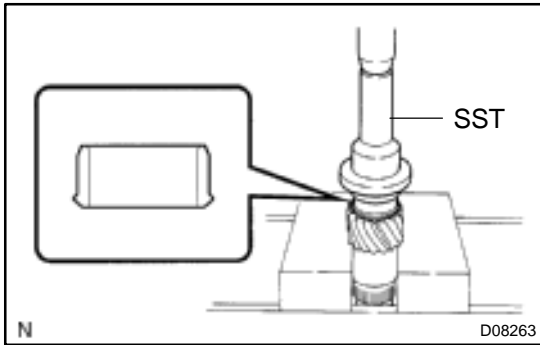
If the runout exceeds the maximum, replace the output shaft.



REASSEMBLY

HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.



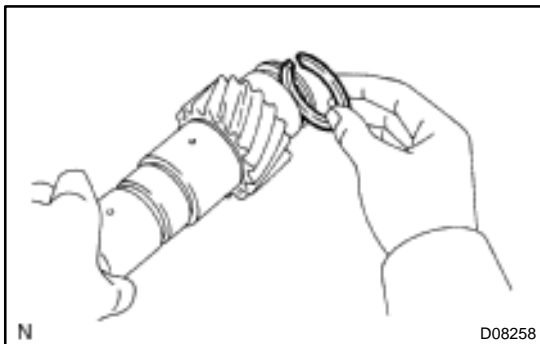
1. INSTALL FRONT BEARING INNER RACE

Using SST and a press, press in the front bearing inner race.

SST 09223-50010

NOTICE:

Be sure to install the front bearing inner race in the correct direction, as shown in the illustration.



2. INSTALL SNAP RING

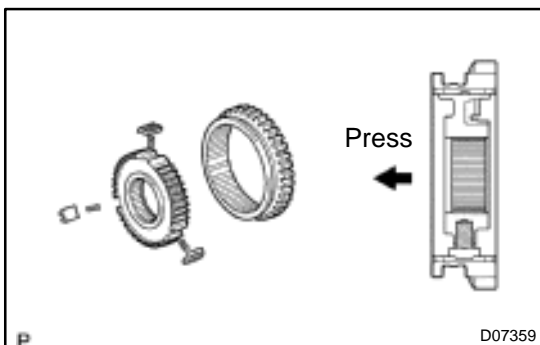
(a) Select a snap ring from the table below that will make the thrust clearance of the front bearing inner race less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
7	1.85 (0.0728)	3	2.05 (0.0807)
8	1.90 (0.0748)	4	2.10 (0.0827)
1	1.95 (0.0768)	5	2.15 (0.0846)
2	2.00 (0.0787)	6	2.20 (0.0866)

(b) Using a screwdriver and a hammer, tap in the snap ring.

HINT:

Take care not to damage the journal surface of the output shaft.



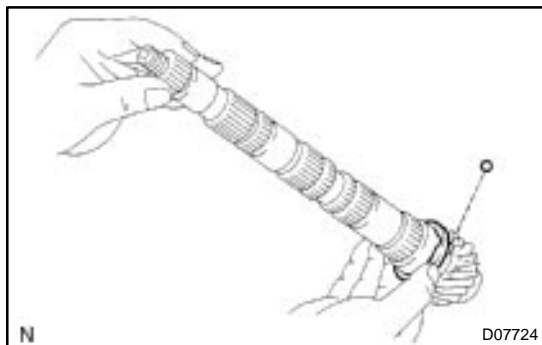
3. ASSEMBLE REVERSE GEAR AND NO.1 CLUTCH HUB

(a) Install the 3 No. 1 shifting key springs and 3 No. 1 shifting keys to the No. 1 clutch hub.

(b) Install the No. 1 clutch hub to the reverse gear.

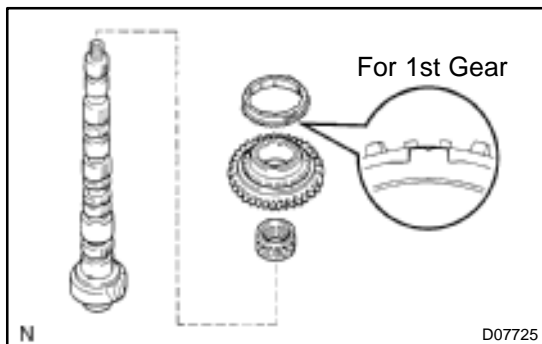
NOTICE:

Assemble the reverse gear and No. 1 clutch hub in the direction shown in the illustration.



4. INSTALL BALL, 1ST GEAR THRUST WASHER, NEEDLE ROLLER BEARING, 1ST GEAR, NO. 1 SYNCHRONIZER RING AND REVERSE GEAR AND NO. 1 CLUTCH HUB ASSEMBLY

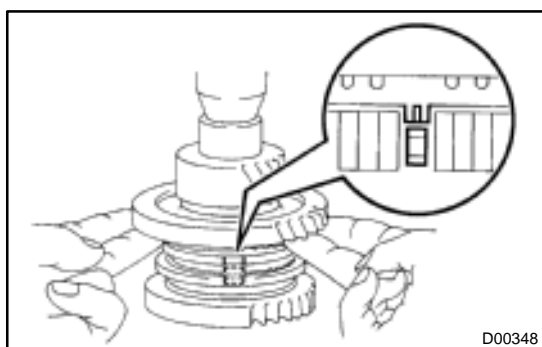
- (a) Using a magnetic finger, install the ball to the output shaft.
- (b) Fit the 1st gear thrust washer groove securely over the locking ball when installing the thrust washer on the output shaft.



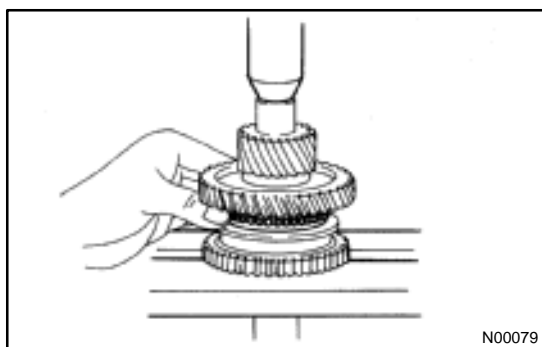
- (c) Apply gear oil to the needle roller bearing and install it.
- (d) Install the 1st gear and No. 1 synchronizer ring.

NOTICE:

Distinguish the No. 1 synchronizer ring by the teeth on the synchronizer ring.



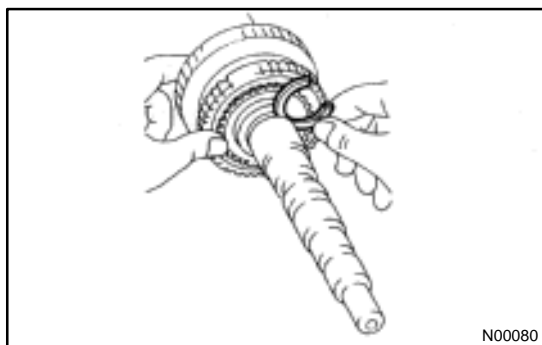
- (e) Place the reverse gear and No. 1 clutch hub assembly and align the No. 1 synchronizer ring slots with the No. 1 shifting keys.



- (f) Using a press, press in the reverse gear and No. 1 clutch hub assembly.

NOTICE:

- **Be sure to install the reverse gear and No. 1 clutch hub assembly in the correct direction, as shown in the illustration.**
- **When installing, make sure that the ball is placed in a groove of the 1st gear thrust washer.**



5. INSTALL SNAP RING

- (a) Select a snap ring from the table below that will make the thrust clearance of the No. 1 clutch hub less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.50 (0.0984)	D	2.68 (0.1055)
B	2.56 (0.1008)	E	2.74 (0.1079)
C	2.62 (0.1031)	F	2.80 (0.1102)

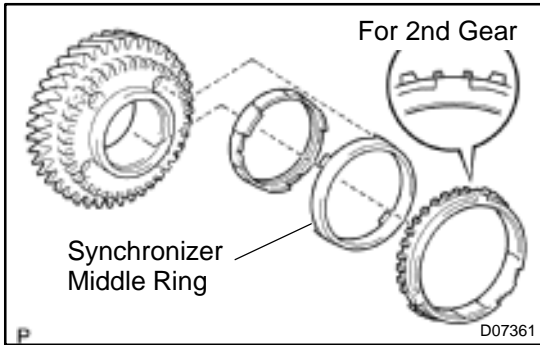
- (b) Using a screwdriver and a hammer, tap in the snap ring.

HINT:

Take care not to damage the journal surface of the output shaft.

6. INSPECT 1ST GEAR THRUST CLEARANCE

(See page MX-36)

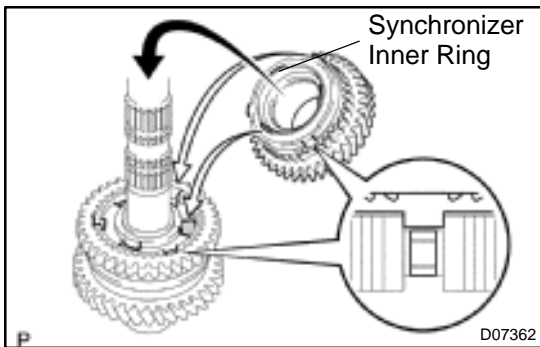


7. INSTALL SPACER, NEEDLE ROLLER BEARING, NO. 2 SYNCHRONIZER RING, 2ND GEAR AND 3RD DRIVEN GEAR

- (a) Install the spacer.
- (b) Apply gear oil to the needle roller bearing and install it.
- (c) Place the No. 2 synchronizer ring on the 2nd gear.

NOTICE:

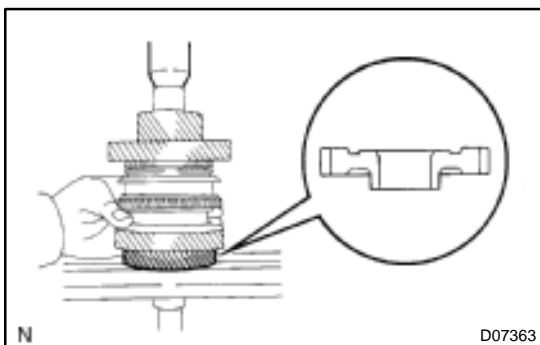
- Properly fit the synchronizer middle ring claws into the holes in the 2nd gear.
- Distinguish the No. 2 synchronizer ring by the teeth on the synchronizer ring.



- (d) Place the 2nd gear with the No. 2 synchronizer ring and align the No. 2 synchronizer ring slots with the No. 1 shifting keys.

NOTICE:

Fit the synchronizer inner ring claws into the slots in the No. 1 clutch hub.



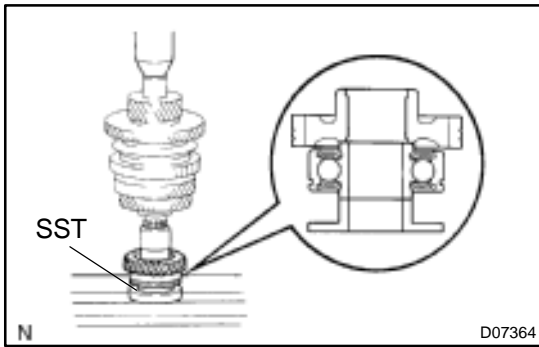
- (e) Using a press, press in the 3rd driven gear.

NOTICE:

Be sure to install the 3rd driven gear in the correct direction, as shown in the illustration.

8. INSPECT 2ND GEAR THRUST CLEARANCE

(See page MX-36)



9. INSTALL OUTPUT GEAR SPACER, 4TH DRIVEN GEAR AND REAR RADIAL BALL BEARING

- (a) Install the output gear spacer.
- (b) Using SST and a press, press in the 4th driven gear and rear radial ball bearing.

SST 09608-00071

NOTICE:

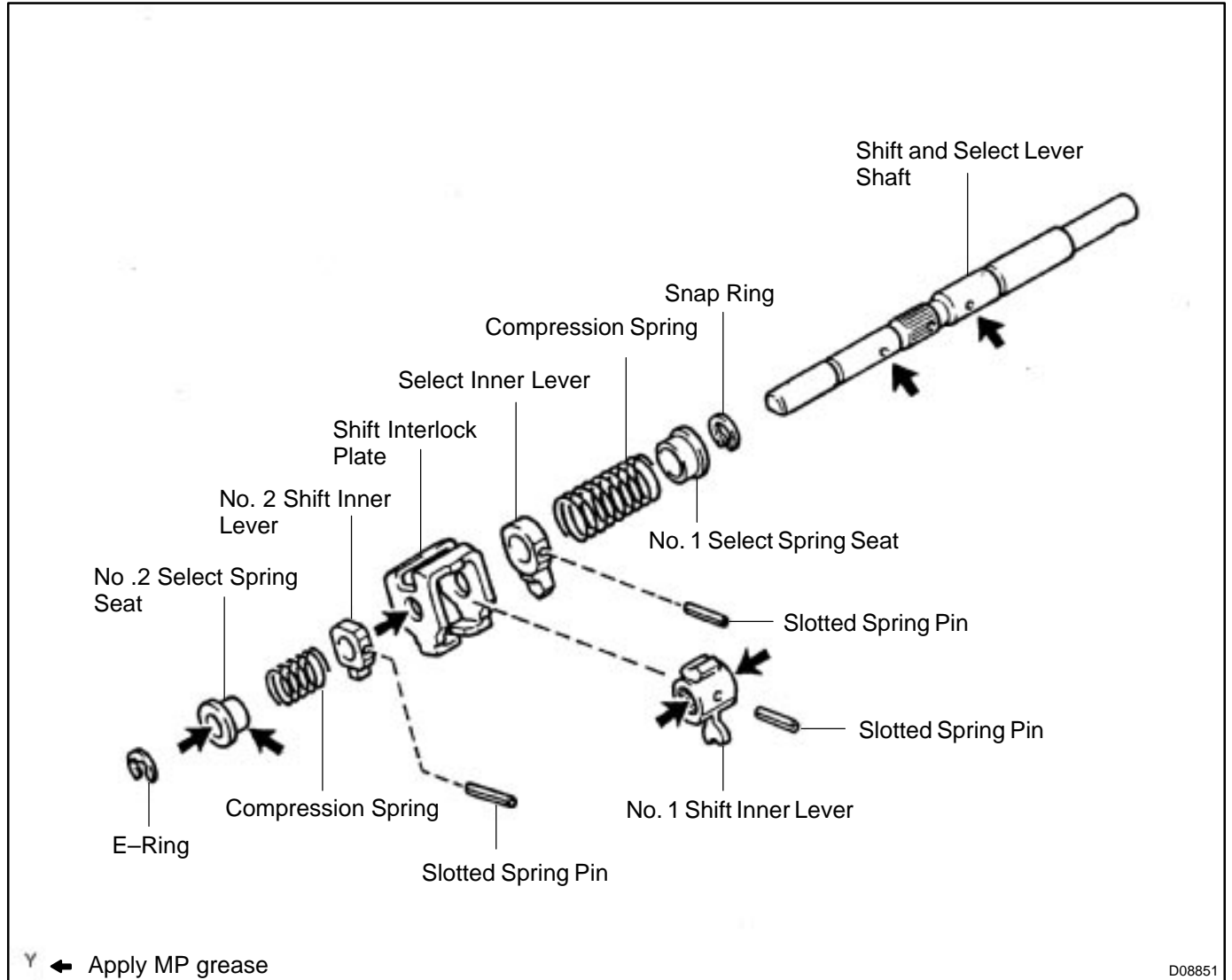
Be sure to install the 4th driven gear and rear radial ball bearing in the correct direction, as shown in the illustration.

HINT:

Set SST to the bearing inner race securely.

SHIFT AND SELECT LEVER SHAFT COMPONENTS

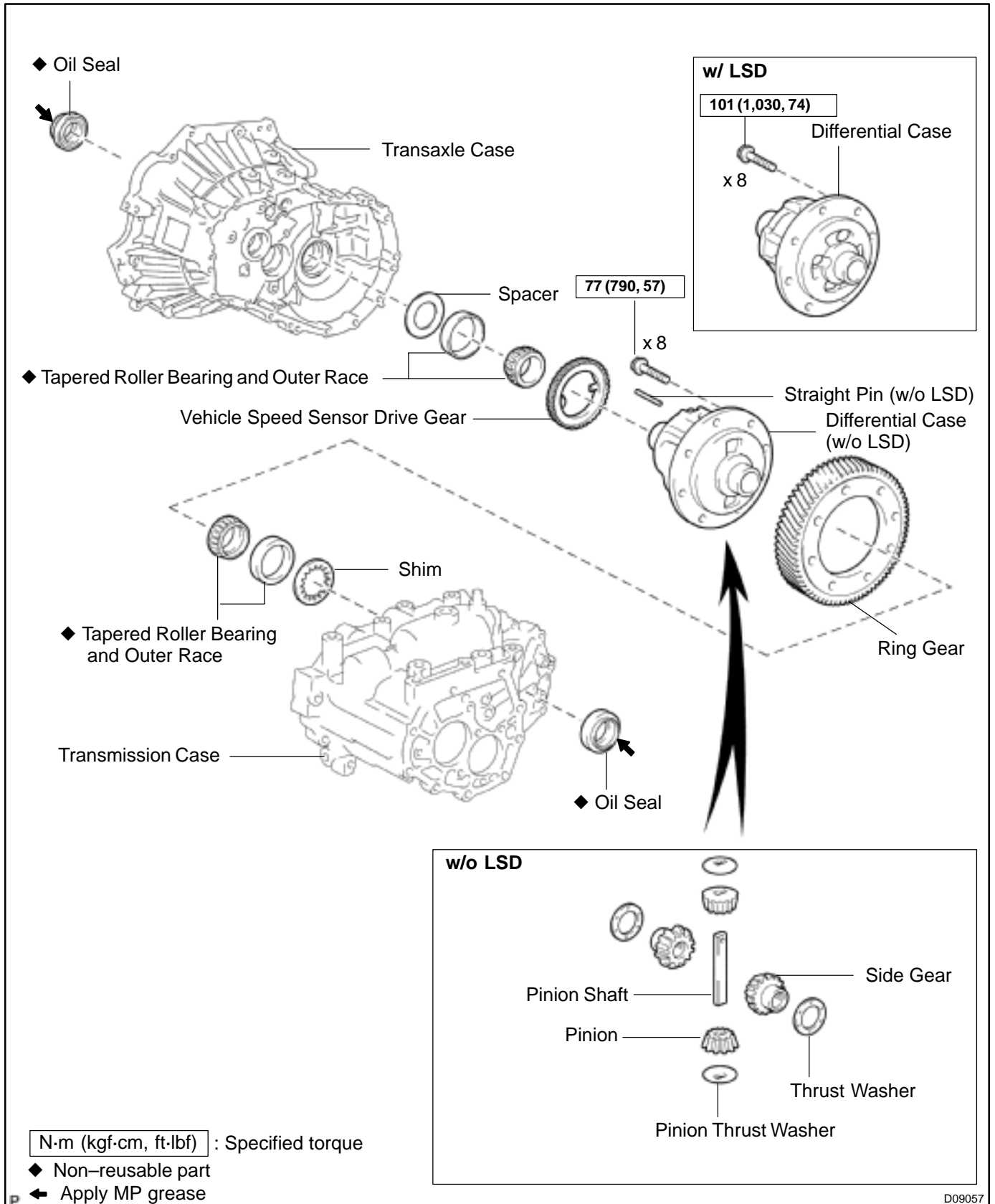
MX001-04



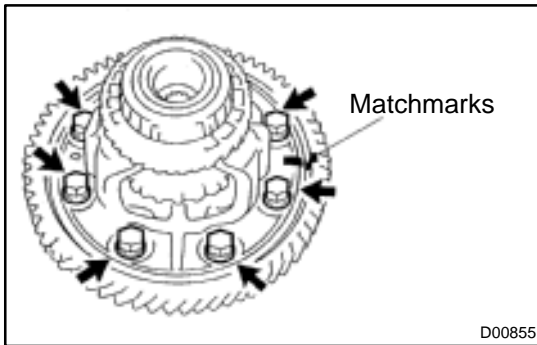
D08851

DIFFERENTIAL CASE COMPONENTS

MX09S-02



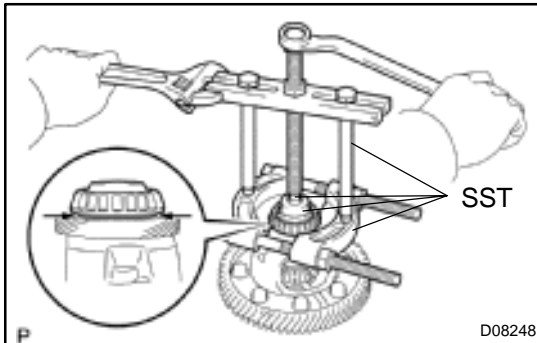
D09057



DISASSEMBLY

1. REMOVE RING GEAR

- Place matchmarks on the ring gear and differential case.
- Remove the 8 bolts.
- Using a copper hammer, tap out the ring gear.



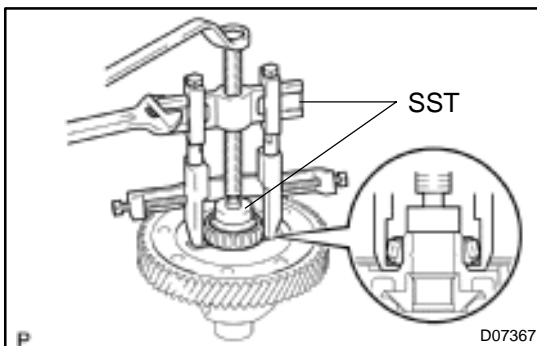
2. Vehicle Speed Sensor Drive Gear Side: REMOVE TAPERED ROLLER BEARING FROM DIFFERENTIAL CASE

- Using SST, remove the tapered roller bearing.
SST 09950-00020, 09950-00030, 09950-40011
(09957-04010), 09950-60010 (09951-00350)

HINT:

Set the claw of SST to the bearing inner race securely.

- Remove the vehicle speed sensor drive gear.



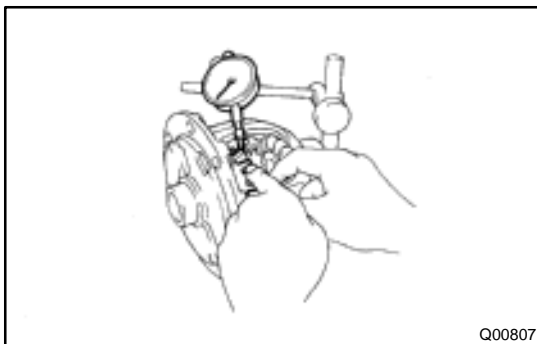
3. Ring Gear Side: REMOVE TAPERED ROLLER BEARING FROM DIFFERENTIAL CASE

Using SST, remove the tapered roller bearing.

SST 09950-40011, 09950-60010 (09951-00350)

HINT:

Set the claw of SST to the bearing inner race at the position where the differential case is indented.



4. Only w/o LSD: INSPECT SIDE GEAR BACKLASH

Using a dial indicator, measure the backlash of one side gear while holding one pinion toward the differential case.

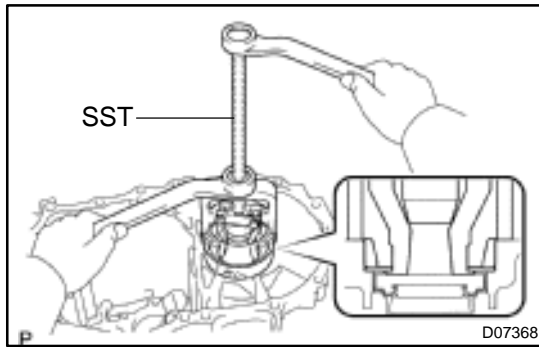
Standard backlash:

0.05 – 0.20 mm (0.0020 – 0.0079 in.)

If the backlash is not within the specification, install the correct thrust washer to the side gears.

5. DISASSEMBLE DIFFERENTIAL CASE

- Using a pin punch and a hammer, tap out the straight pin.
- Remove the pinion shaft from the differential case.
- Remove the 2 pinions and side gears with the 4 thrust washers from each gear.



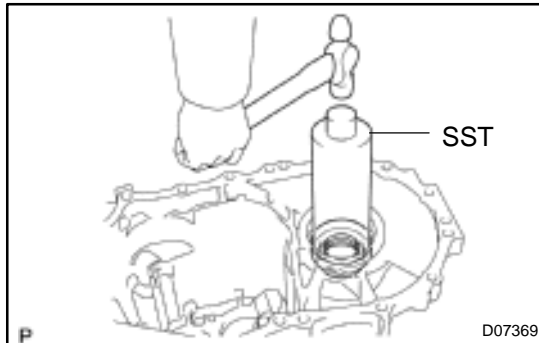
REPLACEMENT

1. Transmission Case Side:

REPLACE OIL SEAL AND TAPERED ROLLER BEARING OUTER RACE

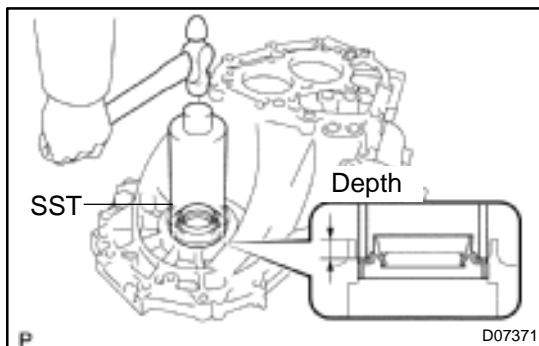
- (a) Using SST, remove the tapered roller bearing outer race and shim.

SST 09612-65014



- (b) Using SST and a hammer, tap out the oil seal.

SST 09226-10010



- (c) Using SST and a hammer, tap in a new oil seal.

SST 09226-10010

Depth: 9.9 ± 0.3 mm (0.390 ± 0.012 in.)

- (d) Coat the lip of the oil seal with MP grease.

- (e) Place the shim into the differential case.

HINT:

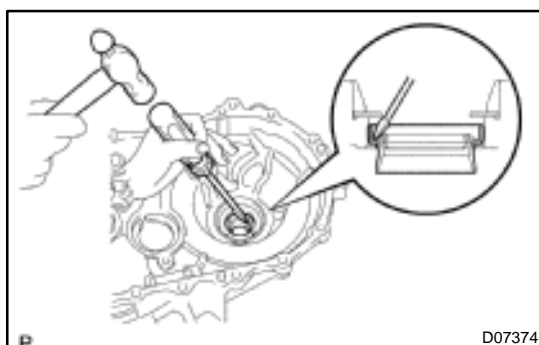
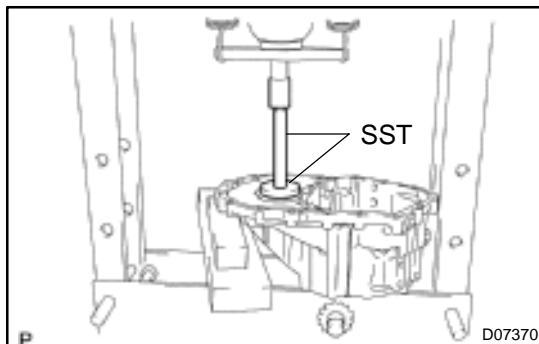
In case that the tapered roller bearing is new, install the shim by selecting among the thin ones. In case that the tapered roller bearing is a used one, its better to install the shim which has the same thickness before disassembling.

- (f) Using SST and a press, press in a new tapered roller bearing outer race.

SST 09950-60020 (09951-00710), 09950-70010 (09951-07150)

NOTICE:

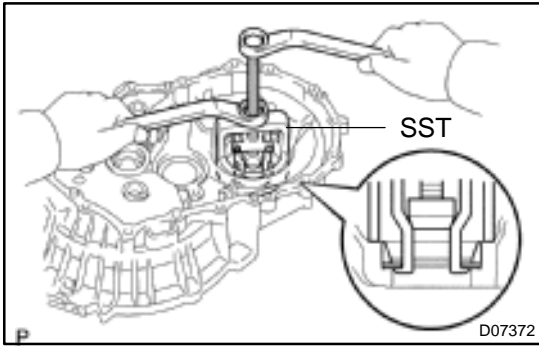
When replacing the tapered roller bearing outer race, replace the tapered roller bearing along with it.



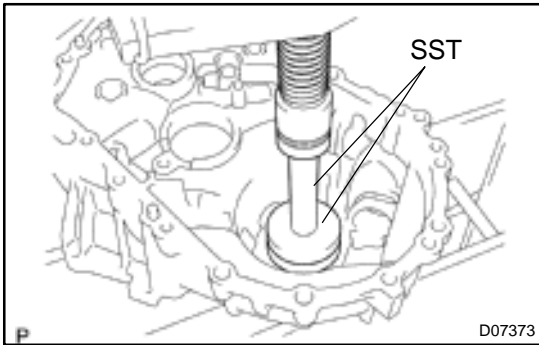
2. Transaxle Case Side:

REPLACE OIL SEAL AND TAPERED ROLLER BEARING OUTER RACE

- (a) Using a screwdriver and a hammer, tap out the oil seal.



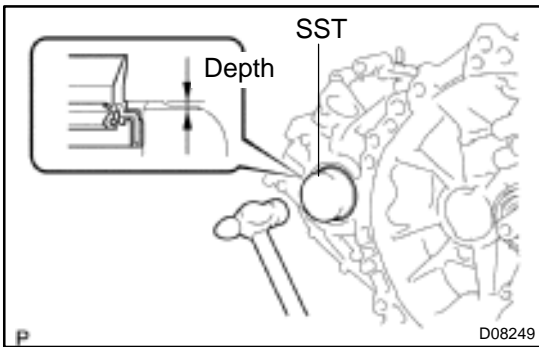
- (b) Using SST, remove the tapered roller bearing outer race and spacer.
SST 09612-65014
- (c) Place the spacer into the differential case.



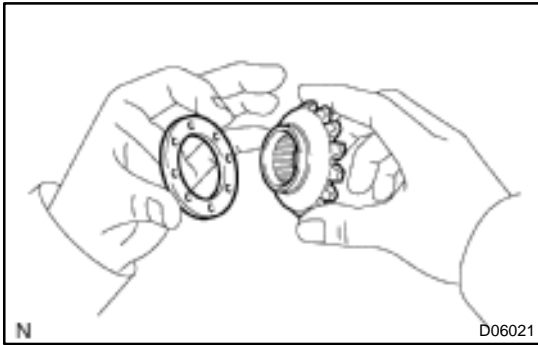
- (d) Using SST and a press, press in a new tapered roller bearing outer race.
SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)

NOTICE:

When replacing the tapered roller bearing outer race, replace the tapered roller bearing along with it.



- (e) Using SST and a hammer, tap in a new oil seal.
SST 09710-28021 (09710-08041)
Depth: 1.9 ± 0.3 mm (0.075 ± 0.012 in.)
- (f) Coat the lip of the oil seal with MP grease.



REASSEMBLY

1. ASSEMBLE DIFFERENTIAL CASE

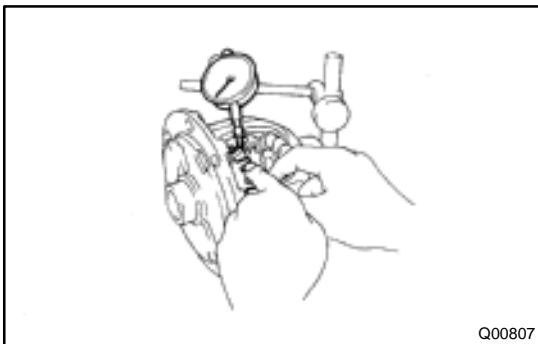
- (a) Install the correct thrust washers and side gears. Refer to the table below, select thrust washers which will ensure that the backlash is within the specification. Try to select washers of the same size for both sides.

Standard backlash:

0.05 – 0.20 mm (0.0020 – 0.0079 in.)

Thickness mm (in.)	Thickness mm (in.)
0.95 (0.0374)	1.10 (0.0433)
1.00 (0.0394)	1.15 (0.0453)
1.05 (0.0413)	1.20 (0.0472)

- (b) Install the thrust washers and side gears in the differential case.
- (c) Install the pinion shaft.



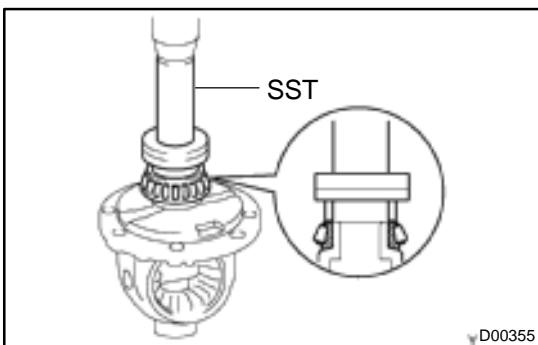
- (d) Using a dial indicator, check the side gear backlash. Measure the side gear backlash while holding one pinion toward the differential case.

Standard backlash:

0.05 – 0.20 mm (0.0020 – 0.0079 in.)

If the backlash is not within the specification, install a thrust washer of different thickness.

- (e) Using a pin punch and a hammer, tap in the straight pin through the differential case and hole in the pinion shaft.
- (f) Using a chisel and a hammer, caulk the pin holes around the circumference of the differential case.



2. Ring Gear Side:

INSTALL TAPERED ROLLER BEARING

Using SST and a press, press in a new tapered roller bearing.

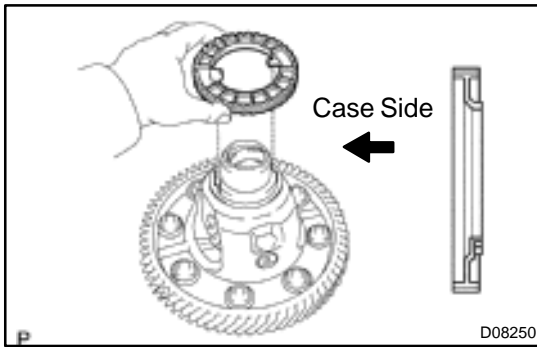
SST 09350-32014 (09351-32120, 09351-32140)

NOTICE:

When replacing the tapered roller bearing outer race, replace the tapered roller bearing along with it.

HINT:

Set SST to the bearing inner race securely.

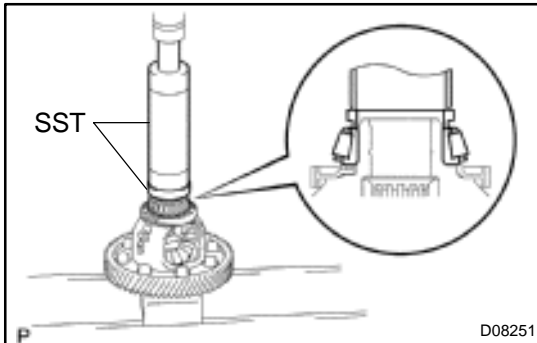


3. Vehicle Speed Sensor Drive Gear Side: INSTALL TAPERED ROLLER BEARING

- (a) Place the vehicle speed sensor drive gear in position to stop turning, and install the vehicle speed sensor drive gear.

NOTICE:

Be sure to install the vehicle speed sensor drive gear in the correct direction, as shown in the illustration.



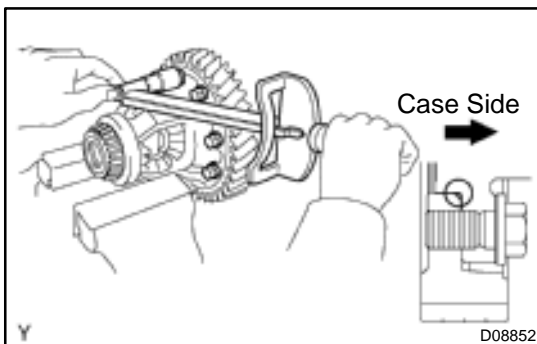
- (b) Using SST and a press, press in a new side bearing.
SST 09316-60011 (09316-00011), 09350-32014 (09351-32120)

NOTICE:

When replacing the tapered roller bearing outer race, replace the tapered roller bearing along with it.

HINT:

Set SST to the bearing inner race securely.



4. INSTALL RING GEAR ON DIFFERENTIAL CASE

- (a) Clean the contact surface of the differential case.
(b) Heat the ring gear in boiling water.
(c) Carefully take the ring gear out of the water.
(d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.

HINT:

Align the matchmarks on the differential case and contact the ring gear.

- (e) Temporarily install the 8 set bolts.

CAUTION:

The ring gear set bolts should not be tightened until the ring gear has cooled sufficiently.

- (f) After the ring gear has cooled sufficiently, torque the ring gear set bolts uniformly at a time.

Torque:

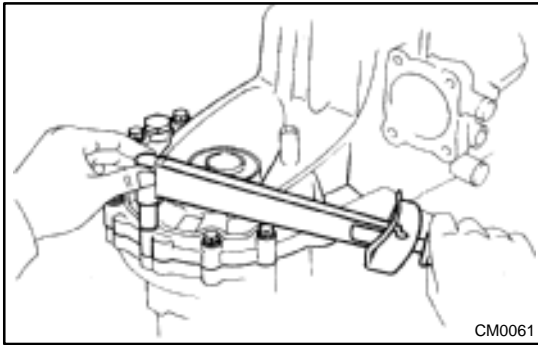
w/o LSD: 77 N·m (790 kgf·cm, 57 ft·lbf)

w/ LSD: 101 N·m (1,030 kgf·cm, 74 ft·lbf)

5. INSPECT DIFFERENTIAL TAPERED ROLLER BEARING PRELOAD (IN CASE THAT w/o LSD)

NOTICE:

- Perform this only when replacing the tapered roller bearing and outer race of the differential case.
- The thickness of the shim installed on the transmission should be selected from the thin ones.



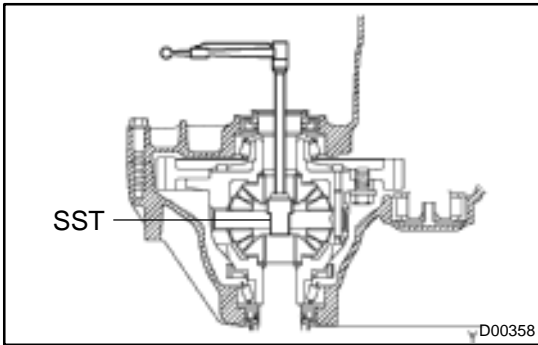
- (a) Install the differential case assembly to the transaxle case.

NOTICE:

Place it gently to protect the diff side bearing from being damaged.

- (b) Install the transmission case to the transaxle case with the 16 bolts.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)



- (c) Using SST and a torque wrench, turn the differential case assembly right and left 2 or 3 times to allow the bearings to settle.

SST 09564-32011

- (d) Using SST and a torque wrench, measure the preload.

SST 09564-32011

Preload (at starting):

New bearing

0.78 – 1.57 N·m (7.96 – 16.0 kgf·cm, 0.58 – 1.16 in.-lbf)

Reused bearing

0.49 – 0.98 N·m (5.0 – 10.0 kgf·cm, 0.36 – 0.72 in.-lbf)

If the preload is not within the specification and when there is a clearance, remove the transmission case side outer race of the tapered roller bearing with SST (See page MX-47), and select the thick shim. Then, exchange the shim and measure the preload again.

HINT:

The preload will change by about 0.3 – 0.4 N·m (3 – 4 kgf·cm, 2.6 – 3.5 in.-lbf) corresponding to a change of 0.05 mm (0.0020 in.) in shim thickness.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
AA	2.10 (0.0827)	LL	2.60 (0.1024)
BB	2.15 (0.0846)	MM	2.65 (0.1043)
CC	2.20 (0.0866)	NN	2.70 (0.1063)
DD	2.25 (0.0886)	PP	2.75 (0.1083)
EE	2.30 (0.0906)	QQ	2.80 (0.1102)
FF	2.35 (0.0925)	RR	2.85 (0.1122)
GG	2.40 (0.0945)	SS	2.90 (0.1142)
HH	2.45 (0.0965)	TT	2.95 (0.1161)
JJ	2.50 (0.0984)	UU	3.00 (0.1181)
KK	2.55 (0.1004)	–	–

6. INSPECT DIFFERENTIAL TAPERED ROLLER BEARING PRELOAD (IN CASE THAT w/ LSD)

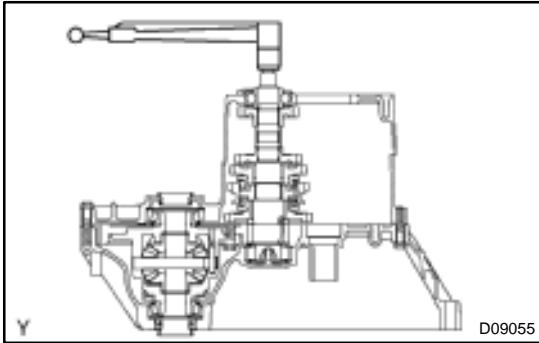
NOTICE:

- Perform this only when replacing the tapered roller bearing and outer race of the differential case.
- The thickness of the shim installed on the transmission should be selected from the thin ones.

- (a) Assemble the differential case assembly and output shaft assembly on the transaxle case, then on top of that, assemble the transmission case with the 16 bolts.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

- (b) Install the snap ring in the outer groove of the output shaft center bearing.



- (c) Using a socket wrench (27 mm) and a torque wrench, turn the output shaft right and left 2 or 3 times to allow the bearings to settle.

- (d) Using a socket wrench (27 mm) and a torque wrench, measure the preload.

Preload (at starting):

New bearing

0.17 – 0.35 N·m (1.73 – 3.57 kgf·cm, 0.13 – 0.26 in.-lbf)

Reused bearing

0.11 – 0.22 N·m (1.12 – 2.24 kgf·cm, 0.08 – 0.16 in.-lbf)

If the preload is not within the specification and when there is a clearance, remove the transmission case side outer race of the tapered roller bearing with SST (See page MX-47), and select the thick shim. Then, exchange the shim and measure the preload again.

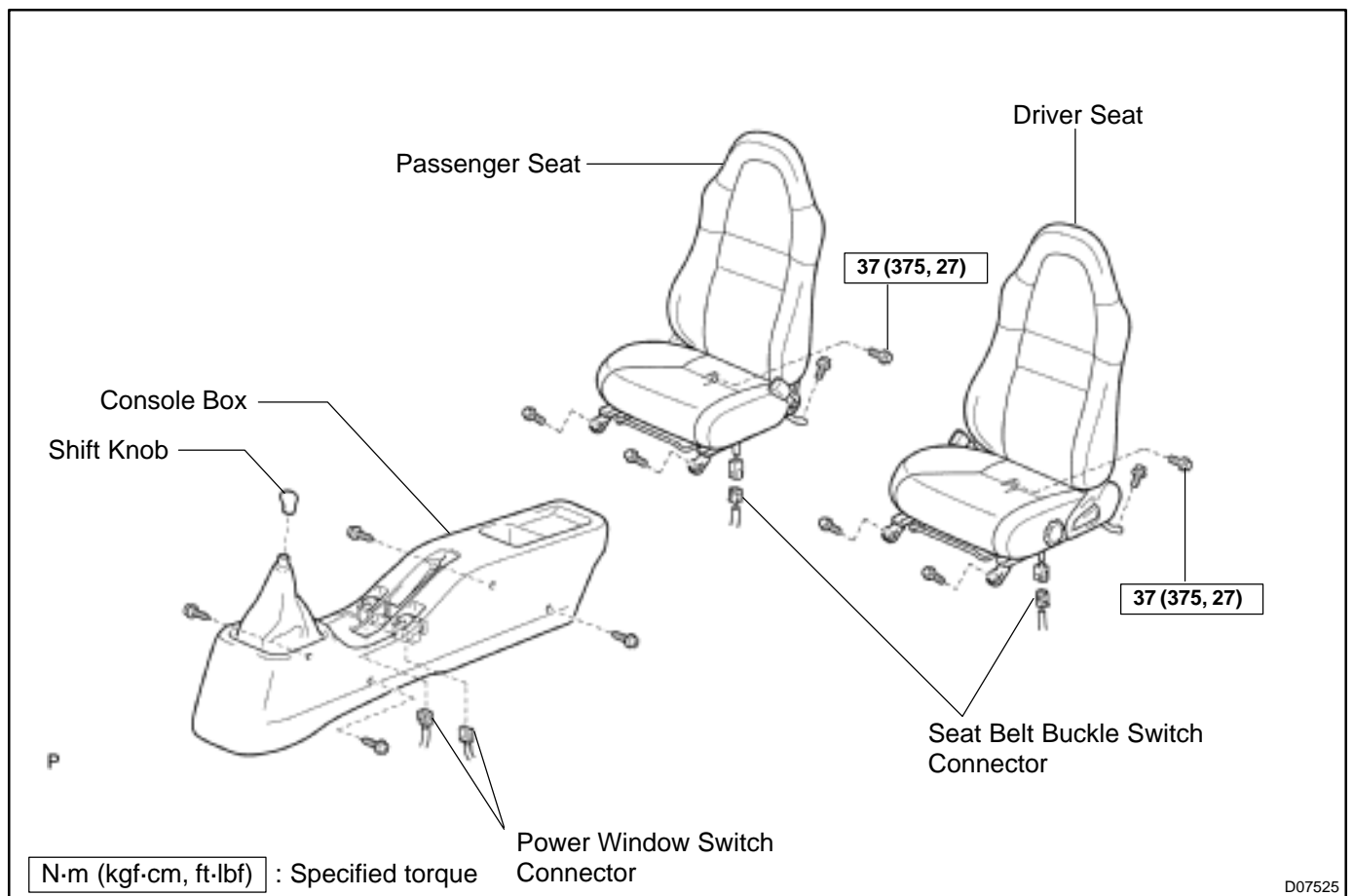
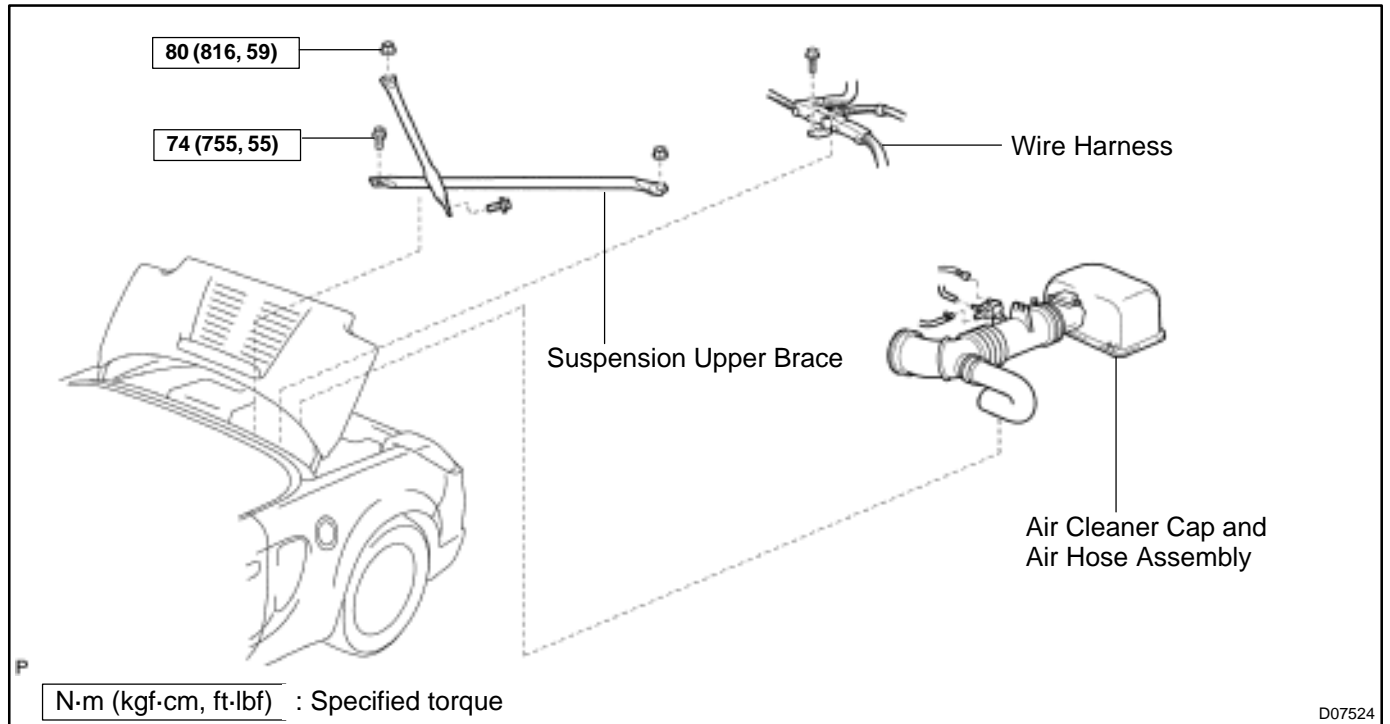
HINT:

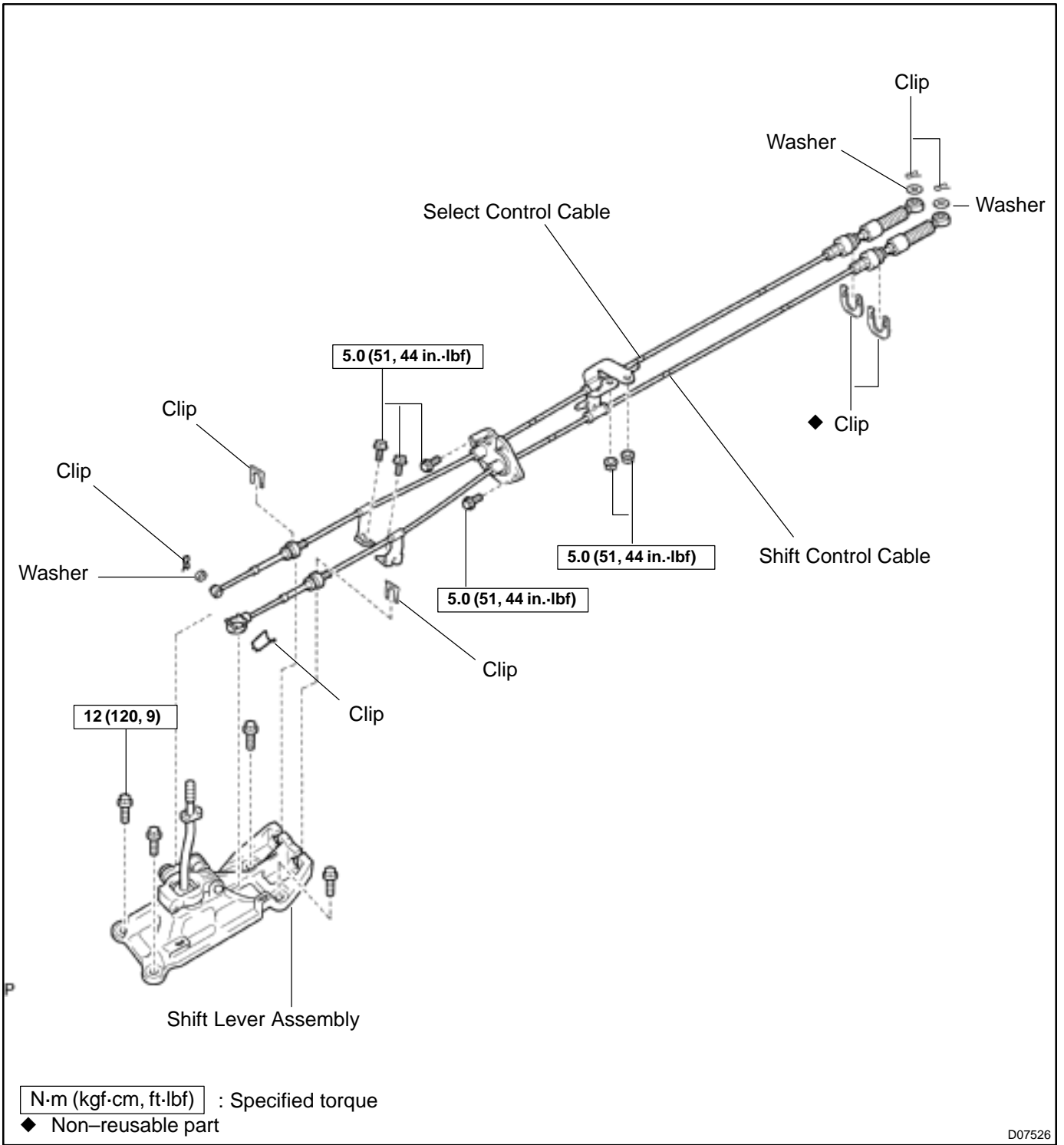
The preload will change by about 0.3 – 0.4 N·m (3 – 4 kgf·cm, 2.6 – 3.5 in.-lbf) corresponding to a change of 0.05 mm (0.0020 in.) in shim thickness.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
AA	2.10 (0.0827)	LL	2.60 (0.1024)
BB	2.15 (0.0846)	MM	2.65 (0.1043)
CC	2.20 (0.0866)	NN	2.70 (0.1063)
DD	2.25 (0.0886)	PP	2.75 (0.1083)
EE	2.30 (0.0906)	QQ	2.80 (0.1102)
FF	2.35 (0.0925)	RR	2.85 (0.1122)
GG	2.40 (0.0945)	SS	2.90 (0.1142)
HH	2.45 (0.0965)	TT	2.95 (0.1161)
JJ	2.50 (0.0984)	UU	3.00 (0.1181)
KK	2.55 (0.1004)	–	–

SHIFT LEVER AND CONTROL CABLE COMPONENTS

MX09V-02





REMOVAL

1. REMOVE SUSPENSION UPPER BRACE

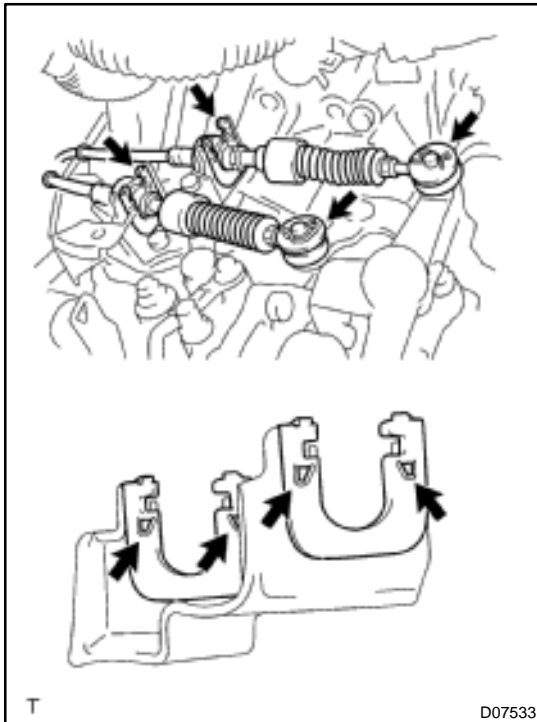
Torque:

74 N·m (755 kgf·cm, 55 ft·lbf) for bolt

80 N·m (816 kgf·cm, 59 ft·lbf) for nut

2. REMOVE AIR CLEANER CAP AND AIR HOSE ASSEMBLY

3. DISCONNECT WIRE HARNESS



4. DISCONNECT CONTROL CABLES FROM TRANSAXLE

(a) Remove the 2 clips and 2 washers.

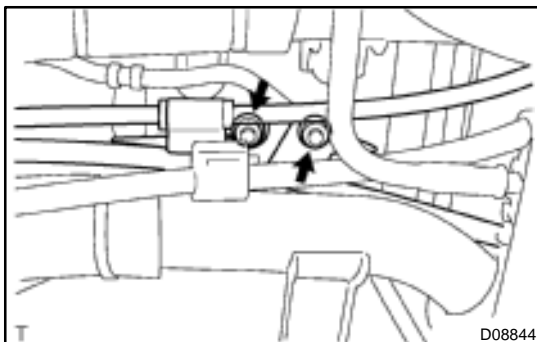
(b) Remove the 2 clips and disconnect the 2 control cables.

HINT:

Remove the select cable from the bracket by pressing the projection of the clip.

5. REMOVE SHIFT AND SELECT CONTROL CABLES

(a) Remove the fuel tank (See page [SF-29](#)).

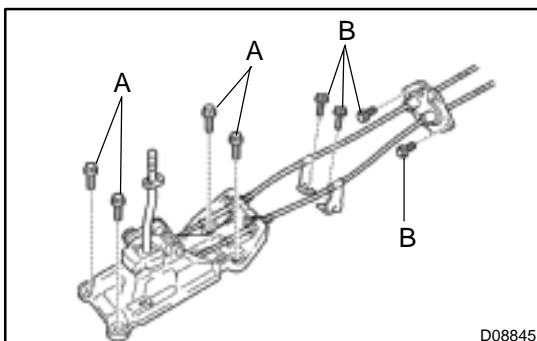


(b) Remove the 2 nuts.

Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)

(c) Remove the driver and passenger seats (See page [BO-49](#)).

(d) Remove the console box (See page [BO-41](#)).



(e) Remove the 8 bolts and the shift lever and control cables assembly.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf) for bolt A

Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf) for bolt B

(f) Remove the shift and select control cables from the shift lever assembly.

INSTALLATION

Installation is in the reverse order of removal (See page [MX-56](#)).

NOTICE:

When installing the 2 control cables, you must observe the following items.

- When handling the cable, do not bend the cable less than $R130^\circ$.
- Pay thorough attention not to damage the boots.
- When installing, do not apply force but install it gently.
- After finishing the installation, check the cable for twist. If there is any irregularity, adjust it.
- Never reuse the board-type clip to fix the control cable.

TROUBLESHOOTING

SAOCB-06

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspected Area	See page
Wander/pulls	14. Tire (Worn or improperly inflated) 15. Wheel alignment (Incorrect) 16. Steering linkage (Loose or worn) 17. Hub bearing (Worn) 18. Steering gear (Out of adjustment or broken) 19. Suspension parts (Worn)	SA-2 SA-4 SA-7 – SA-9 SA-33 SR-32 –
Bottoming	1. Vehicle (Overloaded) 2. Spring (Weak) 3. Shock absorber (Worn)	– SA-15 SA-50 SA-18 SA-53
Sways/pitches	1. Tire (Worn or improperly inflated) 2. Stabilizer bar (Bent or broken) 3. Shock absorber (Worn)	SA-2 SA-28 SA-61 SA-18 SA-53
Front wheel shimmy	1. Tire (Worn or improperly inflated) 2. Wheel (Out of balance) 3. Shock absorber (Worn) 4. Wheel alignment (Incorrect) 5. Ball joint (Worn) 6. Hub bearing (Worn) 7. Steering linkage (Loose or worn) 8. Steering gear (Out of adjustment or broken)	SA-2 SA-2 SA-18 SA-4 SA-25 SA-9 – SR-32
Abnormal tire wear	1. Tire (Worn or improperly inflated) 2. Wheel alignment (Incorrect) 3. Shock absorber (Worn) 4. Suspension parts (Worn)	SA-2 SA-4 SA-18 SA-53 –

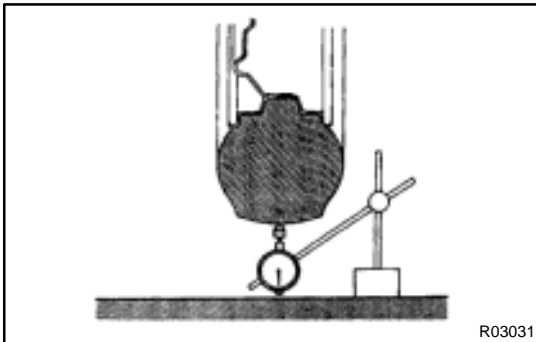
TIRE AND WHEEL INSPECTION

SA1SU-01

1. INSPECT TIRE

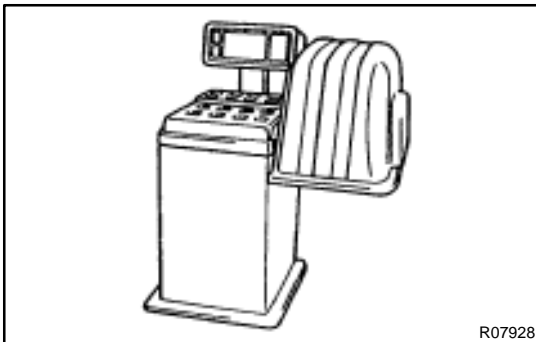
- (a) Check the tires for wear and proper inflation pressure.
Cold tire inflation pressure:

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
185/55R1581V	180 (1.8, 26)	–
205/50R1585V	–	220 (2.2, 32)



R03031

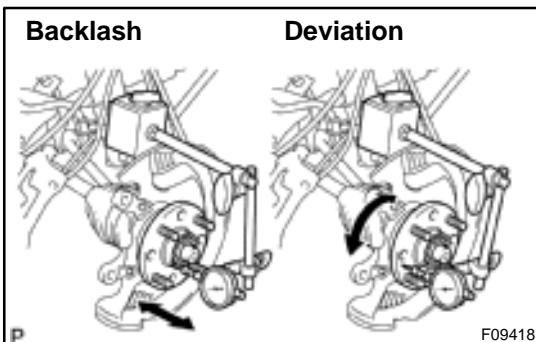
- (b) Using a dial indicator, check the tire runout.
Tire runout: 1.0 mm (0.039 in.) or less



R07928

2. INSPECT WHEEL BALANCE

- (a) Check and adjust the Off-the-car balance.
(b) If necessary, check and adjust the On-the-car balance.
Imbalance after adjustment: 8.0 g (0.018 lb) or less



F09418

3. CHECK WHEEL BEARING LOOSENESS

- (a) Using a dial indicator, check the backlash near the center of the axle hub.
Maximum: 0.05 mm (0.0020 in.)

If the backlash exceeds the maximum, replace the bearing.

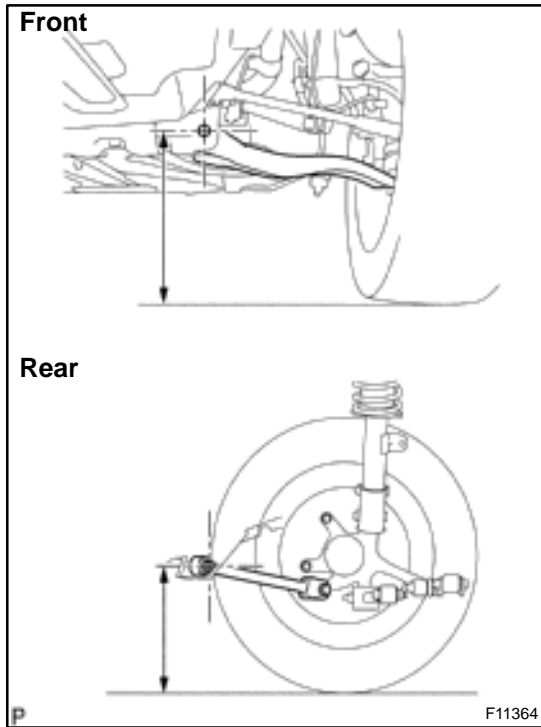
- (b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

Maximum: 0.07 mm (0.0028 in.)

If the deviation exceeds the maximum, replace the axle hub.

4. CHECK FRONT SUSPENSION FOR LOOSENESS

5. **CHECK STEERING LINKAGE FOR LOOSENESS**
6. **CHECK BALL JOINT FOR LOOSENESS**
7. **CHECK SHOCK ABSORBER WORKS PROPERLY**
 - Check that oil leaks
 - Check mounting bushings for wear
 - Bounce front and rear of the vehicle



FRONT WHEEL ALIGNMENT INSPECTION

SA1CK-09

1. MEASURE VEHICLE HEIGHT

Vehicle height:

Front*1	204 mm (8.03 in.)
Rear*2	270 mm (10.63 in.)

*1: Front measuring point

Measure the distance from the ground to the center of the front side lower suspension arm mounting bolt.

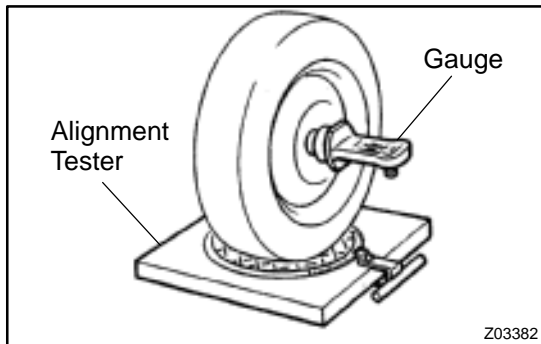
*2: Rear measuring point

Measure the distance from the ground to the center of the front side strut rod mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

If the vehicle height is not the specified value, try to adjust it by pushing down on or lifting the body.



2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination:

Camber	Right-lefterror	$-0^{\circ}47' \pm 45'$ ($-0.78^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
Caster	Right-lefterror	$3^{\circ}08' \pm 45'$ ($3.13^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less
Steering axis inclination	Right-lefterror	$14^{\circ}52' \pm 45'$ ($14.87^{\circ} \pm 0.75^{\circ}$) 45' (0.75°) or less

If the caster and steering axis inclination are not within the specified values, after the camber has been correctly adjusted, recheck the suspension parts for damaged and/or worn out parts.

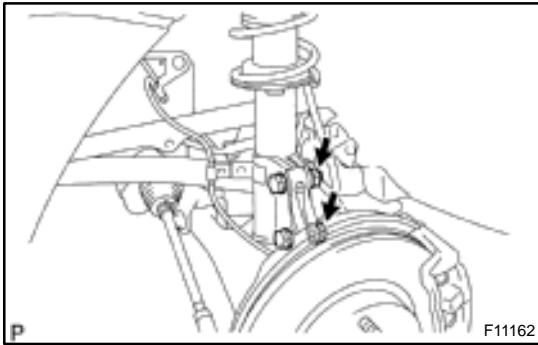
4. ADJUST CAMBER

NOTICE:

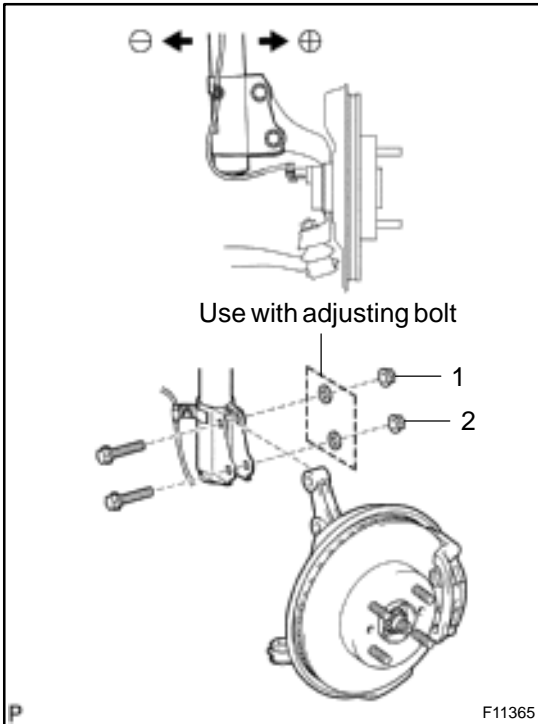
After the camber has been adjusted, inspect the toe-in.

- (a) Remove the front wheel.

SUSPENSION AND AXLE – FRONT WHEEL ALIGNMENT



- (b) Remove the 2 nuts on the lower side of the shock absorber.
- (c) Coat the threads of the nuts with engine oil.
- (d) Temporarily install the 2 nuts.



- (e) Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.
- (f) Tighten the nuts.
Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf)
- (g) Install the front wheel.
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- (h) Check the camber.

HINT:

- Try to adjust the camber to the center of the specified value.
- Adjusting value for the set bolts is 6' – 30' (0.1° – 0.5°).

If the camber is not within the specified value, using the following table, estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

NOTICE:

Tighten the adjusting bolt with a washer and a new nut.

Bolt	Set Bolt		Adjusting Bolt			
	90105-14140		90105-14146		90105-14147	
			1 Dot		2 Dots	
Adjusting Value						
	1	2	1	2	1	2
	15'	●		●		
	30'	●				●
	45'			●		●
1°00'					●	●

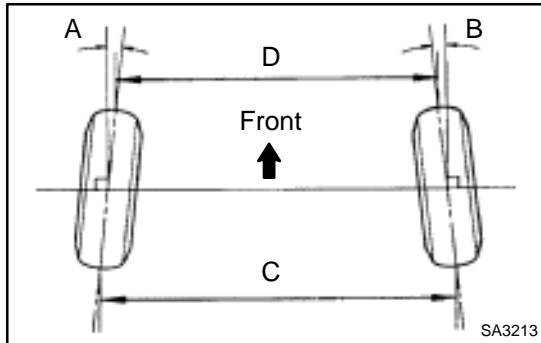
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F11783

- (i) Do the steps mentioned above again. Between step (b) and (c), replace 1 or 2 selected bolts.

HINT:

When replacing the 2 bolts, replace 1 bolt for each time.



5. INSPECT TOE-IN

Toe-in:

Toe-in (total)	A + B: $0^{\circ}09' \pm 12'$ ($0.15^{\circ} \pm 0.2^{\circ}$) C - D: 1.5 ± 2 mm (0.06 ± 0.08 in.)
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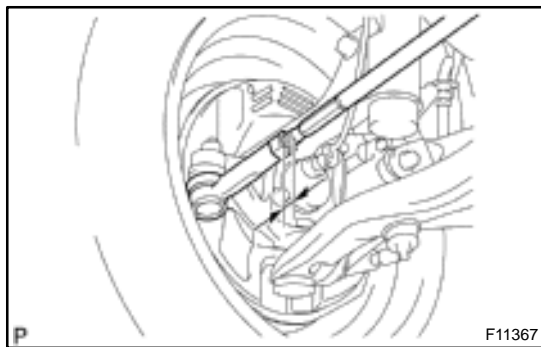
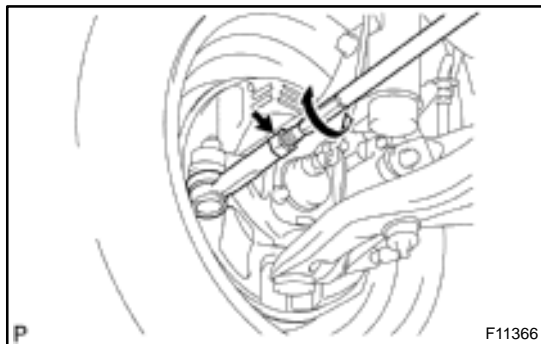
If the toe-in is not within the specified value, adjust it at the rack ends.

6. ADJUST TOE-IN

- (a) Remove the rack boot set clips.
- (b) Loosen the tie rod end lock nuts.
- (c) Turn the right and left rack ends by an equal amount to adjust the toe-in.

HINT:

Try to adjust the toe-in to the center of the specified value.



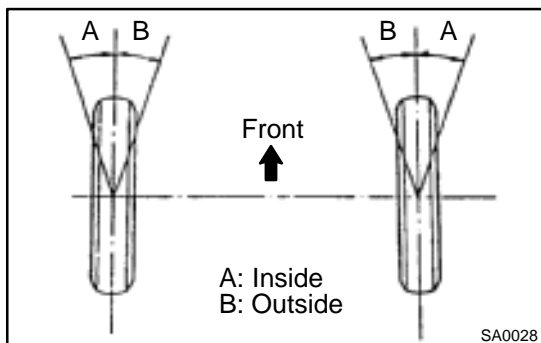
- (d) Make sure that the lengths of the right and left rack ends are the same.

Rack end length difference: 1.5 mm (0.059 in.) or less

- (e) Torque the tie rod end lock nuts.
Torque: 47 N·m (479 kgf·cm, 35 ft·lbf)
- (f) Place the boots on the seats and install the clips.

HINT:

Make sure that the boots are not twisted.



7. INSPECT WHEEL ANGLE

Turn the steering wheel fully, and measure the turning angle.

Wheel turning angle:

Inside wheel	$38^{\circ}03' \pm 2^{\circ}$ ($38.05^{\circ} \pm 2^{\circ}$)
Outside wheel: Reference	$32^{\circ}56'$ (32.93°)

If the right and left inside wheel angles differ from the specified value, check the right and left rack end lengths.

REAR WHEEL ALIGNMENT INSPECTION

SA1SV-01

1. MEASURE VEHICLE HEIGHT (See page SA-4)
2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER

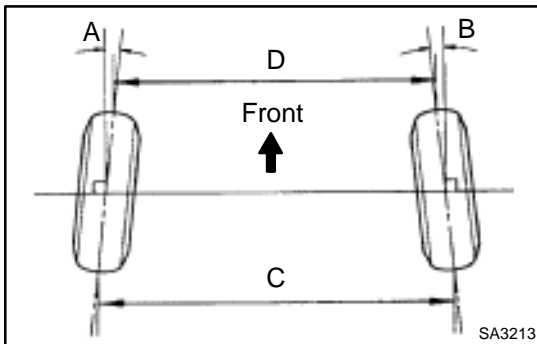
Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER

Camber:

Camber	-1°05' ± 45' (-1.08° ± 0.75°)
Right-left error	45' (0.75°) or less

If the camber is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.

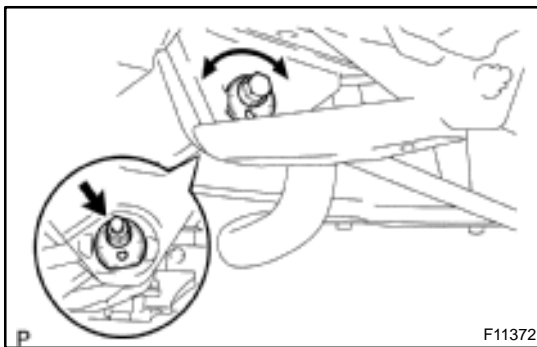


4. INSPECT TOE-IN

Toe-in:

Toe-in (total)	A + B: 0°18' ± 12' (0.3° ± 0.2°) C - D: 3 ± 2 mm (0.12 ± 0.08 in.)
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If the toe-in is not within the specified value, adjust it at the adjusting cam.



- (a) Loosen the lower arm adjusting cam set nut.
 - (b) Adjust the toe-in by turning the adjusting cam.
- Right-left error: 0.3 mm (0.012 in.) or less**

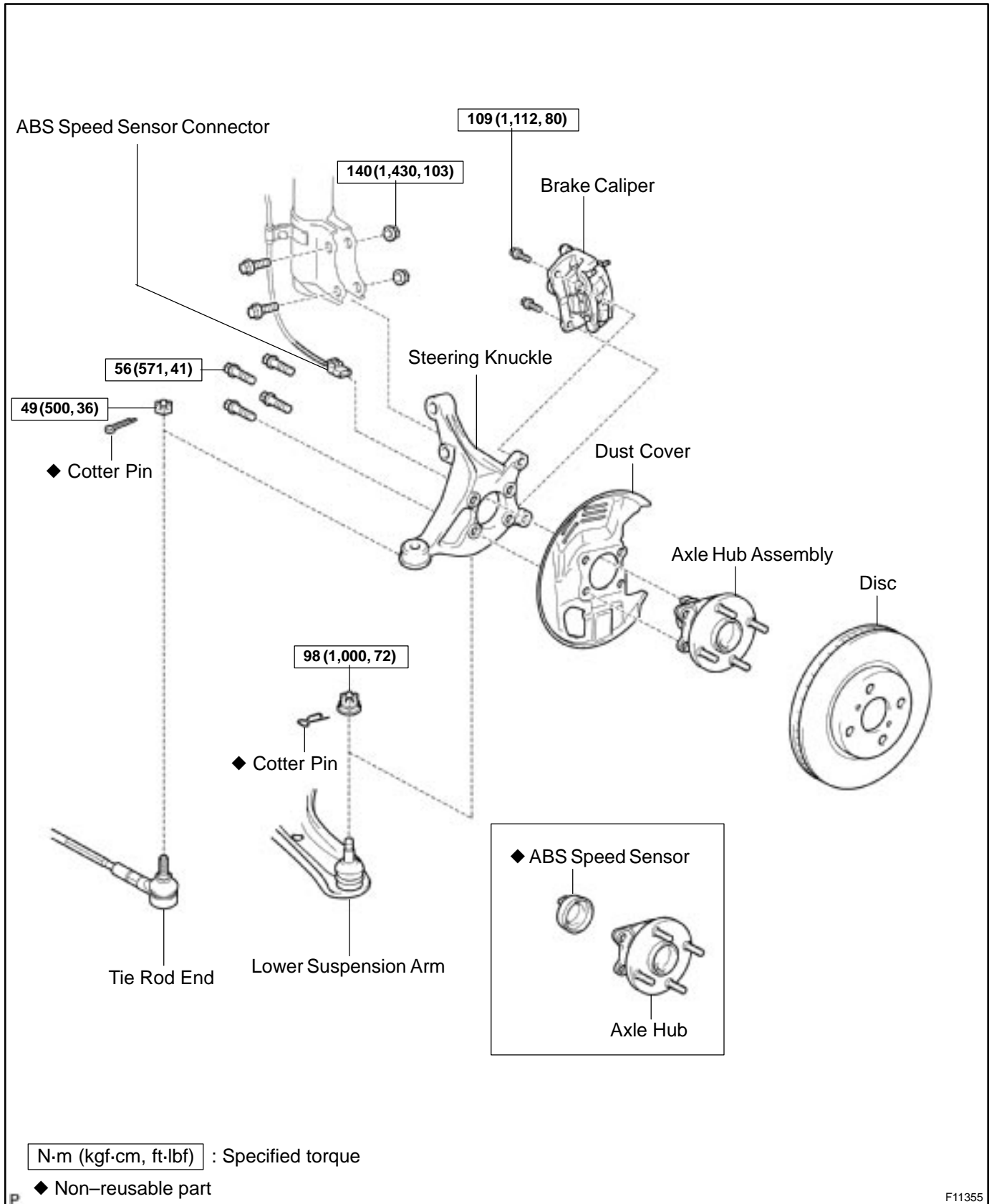
HINT:

- Try to adjust the toe-in to the center of the specified value.
 - Control value toe changes about 1.7 mm per 1 scale.
- (c) Torque the lower arm adjusting cam set nut.

Torque: 87 N·m (887 kgf-cm, 64 ft-lbf)

FRONT AXLE HUB COMPONENTS

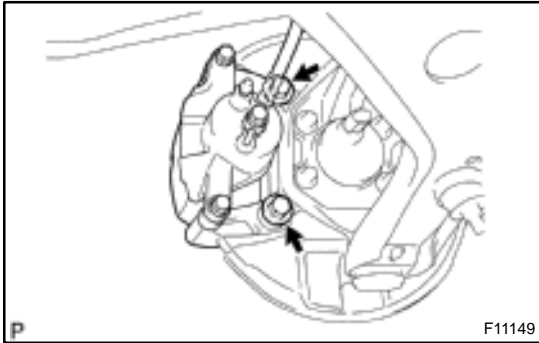
SA07B-07



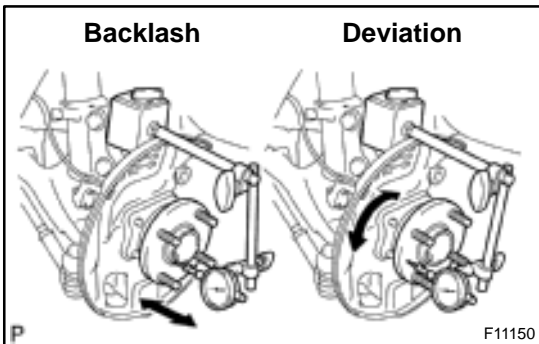
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REMOVAL

1. **REMOVE FRONT WHEEL**
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



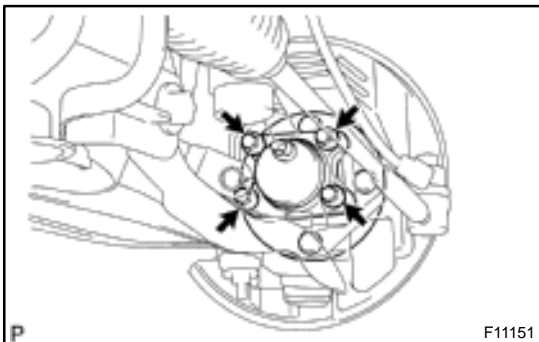
2. **REMOVE BRAKE CALIPER AND DISC**
 - (a) Remove the 2 bolts, brake caliper and disc.
Torque: 109 N·m (1,112 kgf·cm, 80 ft·lbf)
 - (b) Support the brake caliper securely.



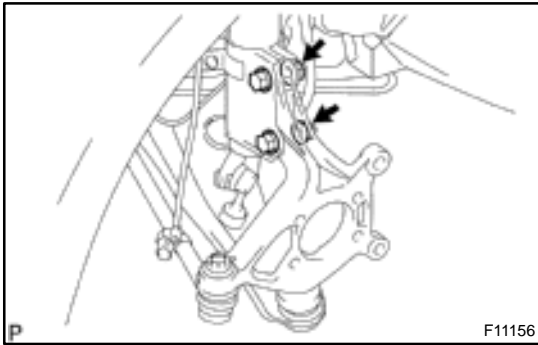
3. **CHECK BEARING BACKLASH AND AXLE HUB DEVIATION**

- (a) Using a dial indicator, check the backlash near the center of the axle hub.
Maximum: 0.05 mm (0.0020 in.)
If the backlash exceeds the maximum, replace the axle hub.
- (b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
Maximum: 0.07 mm (0.0028 in.)

4. **DISCONNECT ABS SPEED SENSOR CONNECTOR**



5. **REMOVE FRONT AXLE HUB**
Remove the 4 bolts, axle hub assembly and dust cover.
Torque: 56 N·m (571 kgf·cm, 41 ft·lbf)

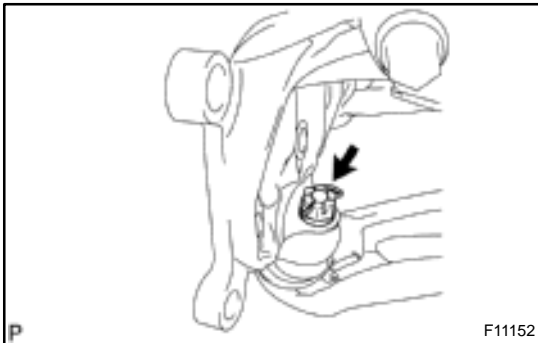


6. LOOSEN 2 NUTS ON LOWER SIDE OF SHOCK ABSORBER

Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.



7. DISCONNECT LOWER SUSPENSION ARM

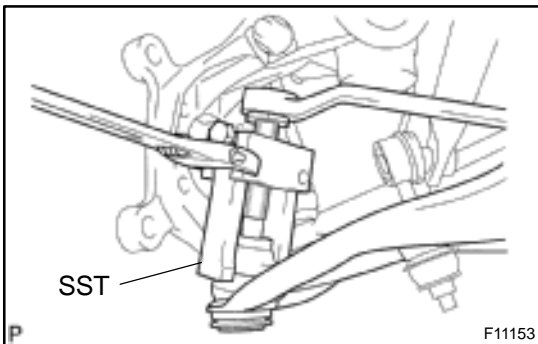
(a) Remove the cotter pin and nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

HINT:

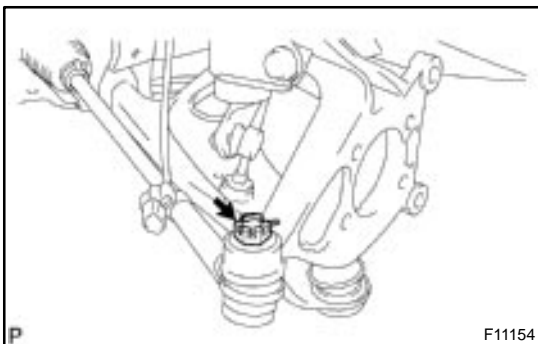
At the time of installation, please refer to the following items.

- After stabilizing the suspension, torque the nut.
- If the holes for a new cotter pin are not aligned tighten the nut further up to 60°.



(b) Using SST, disconnect the lower suspension arm.

SST 09628-62011



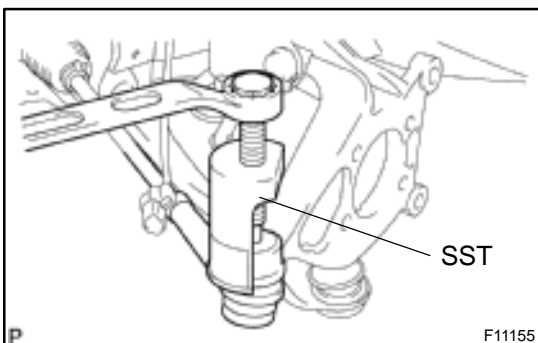
8. DISCONNECT TIE ROD END

(a) Remove the cotter pin and nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

HINT:

At the time of installation, if the holes for a new cotter pin are not aligned, tighten the nut further up to 60°.



(b) Using SST, disconnect the tie rod end.

SST 09610-20012

9. REMOVE STEERING KNUCKLE

(a) Remove the 2 bolts, 2 nuts on the lower side of the shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.

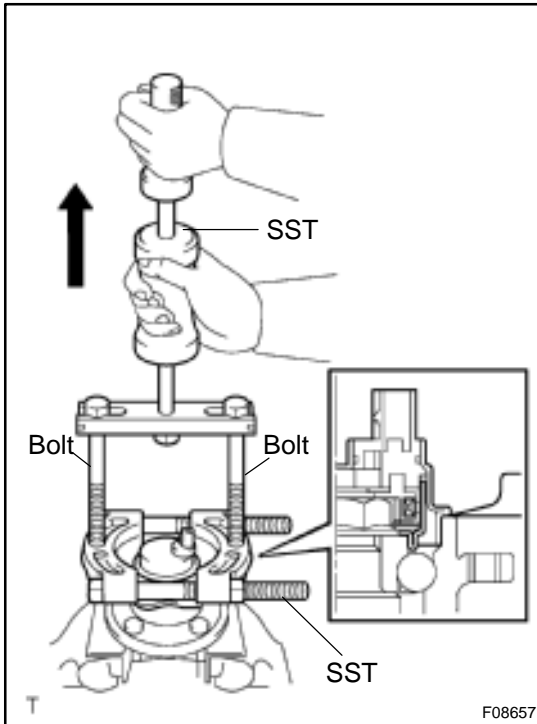
(b) Remove the steering knuckle.

DISASSEMBLY

REMOVE ABS SPEED SENSOR

- (a) Using a pin punch and hammer, drive out the 2 pins, and remove the 2 attachments from SST.

SST 09520-00031 (09520-00040, 09521-00020)



- (b) Mount the axle hub assembly in a soft jaw vise.

NOTICE:

Replace the axle hub assembly if it is dropped or a strong shock is given to it.

- (c) Using SST and 2 bolts (Diameter: 12 mm, Pitch: 1.5 mm), remove the ABS speed sensor.

SST 09520-00031 (09520-00040, 09521-00020),
09950-00020

NOTICE:

- Do not allow any foreign matter to stick to the sensor rotor.
- Pull out the ABS speed sensor straightly not to damage the sensor rotor.
- If the sensor rotor is damaged, replace the axle hub assembly.
- Do not scratch the contacting surface of the axle hub and speed sensor.

REASSEMBLY

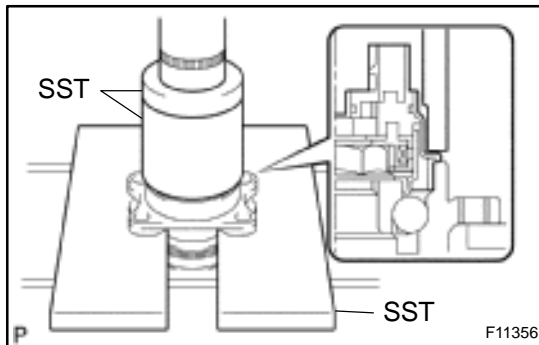
INSTALL NEW ABS SPEED SENSOR

- (a) Clean the contacting surface of the axle hub and a new ABS speed sensor.

NOTICE:

Do not allow any foreign matter to stick to the sensor rotor.

- (b) Place the ABS speed sensor on the axle hub so that the connector is set at the bottom under the on-vehicle condition.



- (c) Using SST and a press, install a new ABS speed sensor to the axle hub.

SST 09527-10011, 09710-04101,
09950-60020 (09951-00680)

NOTICE:

- **Do not tap the speed sensor with a hammer directly.**
- **Check that there should be no foreign matter on the speed sensor detection portion.**
- **Press in the ABS speed sensor straightly and slowly.**

INSTALLATION

Installation is in the reverse order of removal (See page [SA-9](#)).

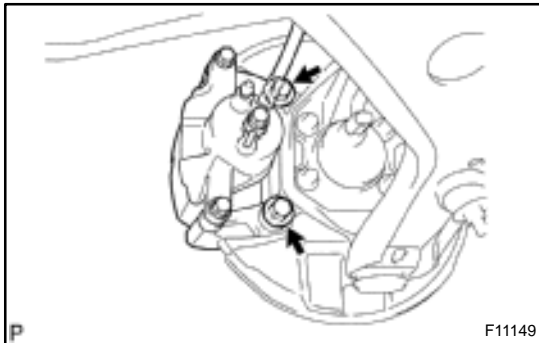
HINT:

After installation, check the ABS speed sensor signal (See page [DI-163](#)) and front wheel alignment (See page [SA-4](#)).

FRONT WHEEL HUB BOLT REPLACEMENT

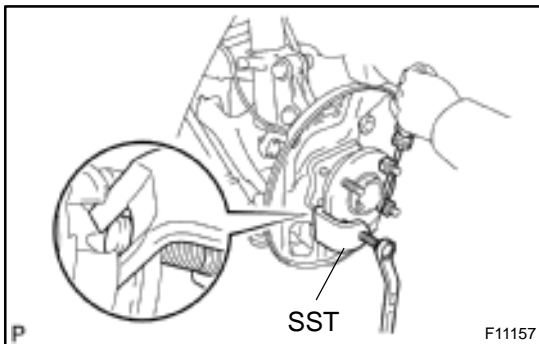
SA1CN-04

1. REMOVE FRONT WHEEL



2. REMOVE BRAKE CALIPER AND DISC

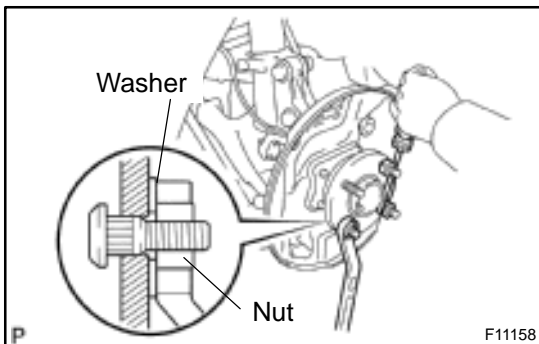
- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.



3. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628-10011



4. INSTALL HUB BOLT

- (a) Install a washer and a nut to a new hub bolt as shown in the illustration.
- (b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.
- (c) Remove the 3 nuts and washer.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc and brake caliper with the 2 bolts.

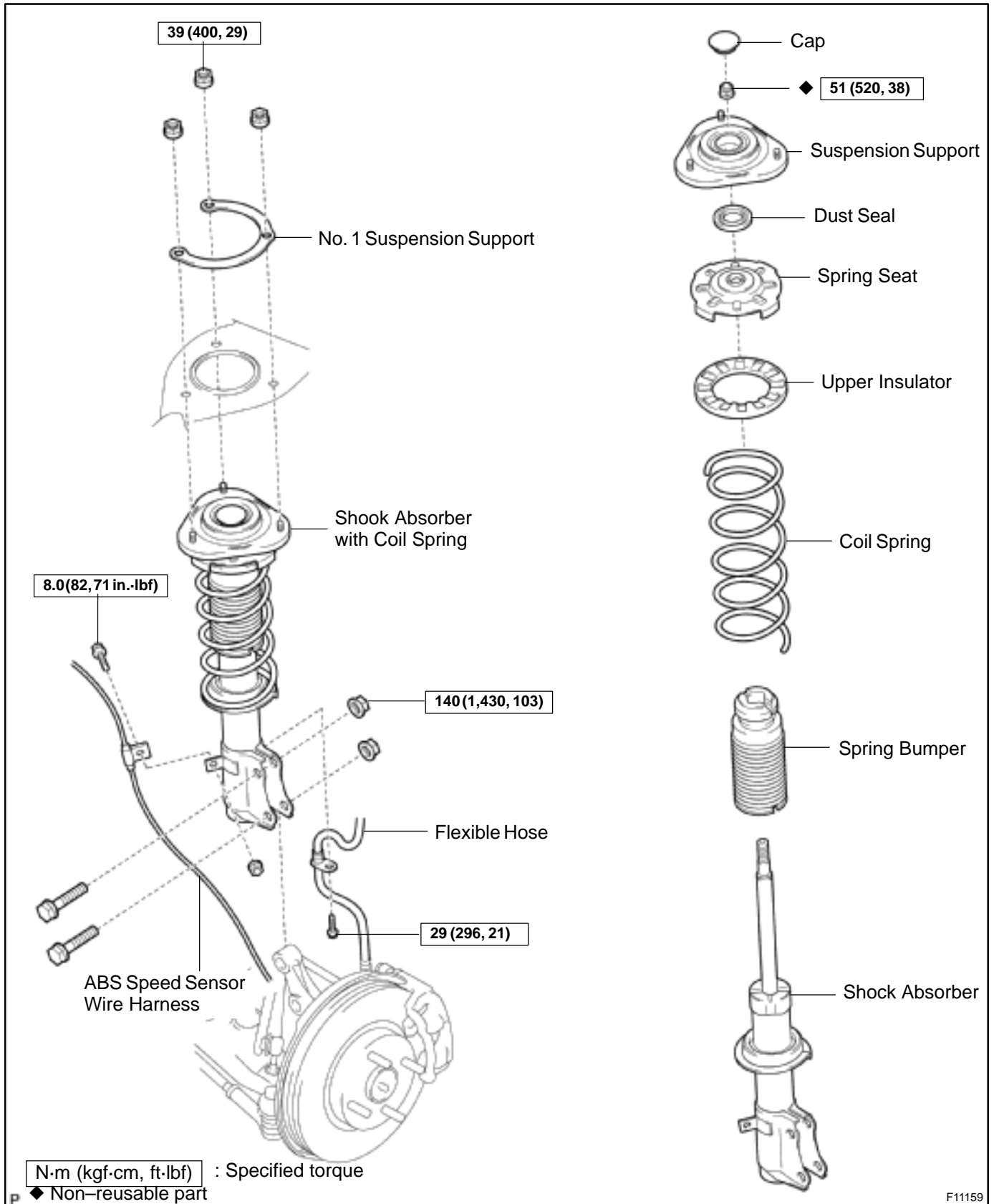
Torque: 109 N·m (1,112 kgf·cm, 80 ft·lbf)

6. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

FRONT SHOCK ABSORBER COMPONENTS

SA10J-04

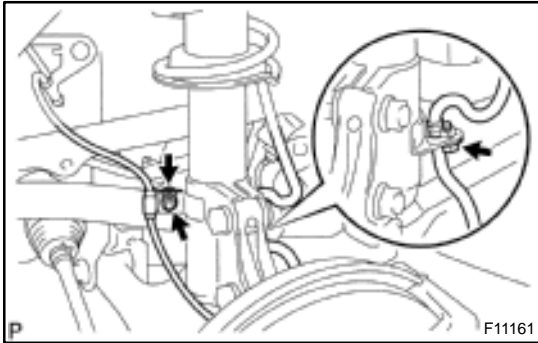


F11159

REMOVAL

1. REMOVE FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. DISCONNECT ABS SPEED SENSOR WIRE HARNESS CLAMP FROM SHOCK ABSORBER

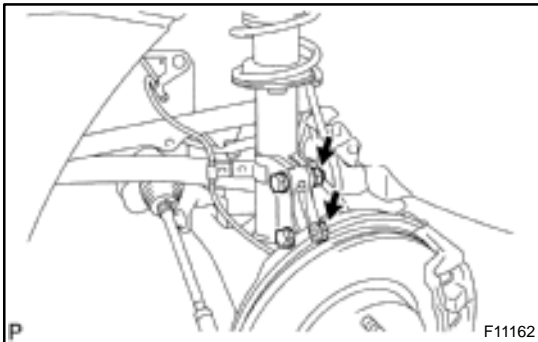
Remove the bolt, nut and disconnect the ABS speed sensor wire harness clamp.

Torque: 8.0 N·m (82 kgf·cm, 71 in.-lbf)

3. DISCONNECT FLEXIBLE HOSE

Remove the bolt and disconnect the flexible hose from the shock absorber bracket.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)



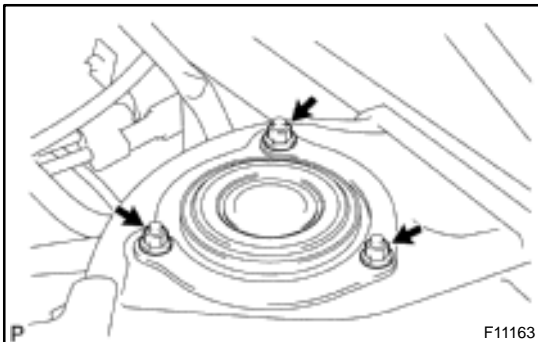
4. REMOVE SHOCK ABSORBER WITH COIL SPRING

(a) Loosen the 2 nuts on the lower side of shock absorber.

Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.



(b) Remove the 3 nuts on the upper side of the shock absorber.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

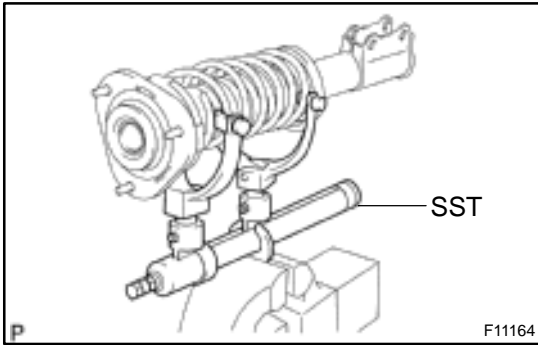
(c) Remove the No. 1 suspension support.

(d) Remove the 2 nuts and 2 bolts on the lower side of shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.

(e) Remove the shock absorber with coil spring.



DISASSEMBLY

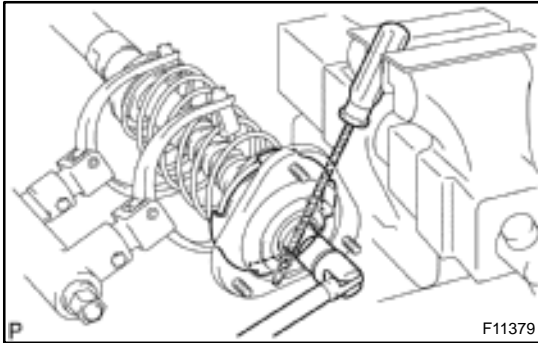
REMOVE COIL SPRING

- (a) Using SST, compress the coil spring.
 SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

- (b) Remove the cap.



- (c) Using a screwdriver to hold the spring seat, remove the nut.

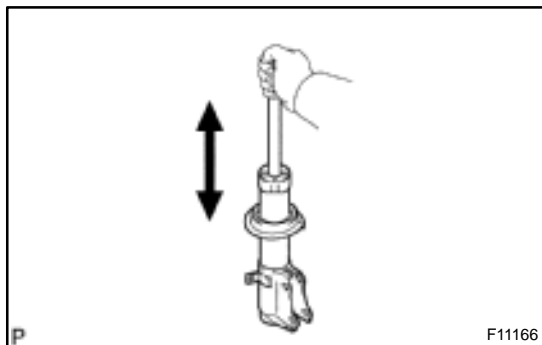
HINT:

Tape the screwdriver before use.

NOTICE:

Be careful not to damage the spring seat.

- (d) Remove the suspension support, dust seal, spring seat, upper insulator, coil spring and spring bumper.



INSPECTION

INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual sound during operation.

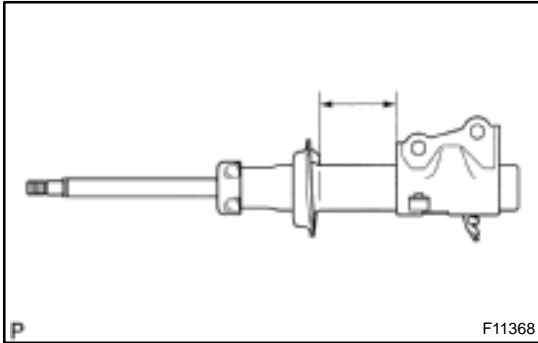
If there is any abnormality, replace the shock absorber with a new one.

NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA-19.

DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD



2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER

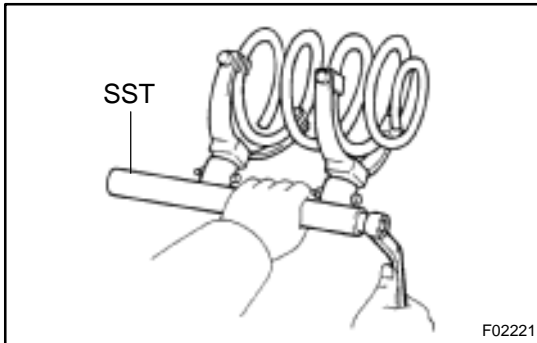
Using a drill, make a hole in the cylinder as shown in the illustration to discharge the gas inside.

CAUTION:

- When drilling, chips may fly out, work carefully.
- The gas is colorless, odorless and non-poisonous.

REASSEMBLY

1. INSTALL SPRING BUMPER TO PISTON ROD



2. INSTALL COIL SPRING

- (a) Using SST, compress the coil spring.
 SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

- (b) Install the coil spring to the shock absorber.

HINT:

Fit the lower end of the coil spring into the gap of the spring lower seat.

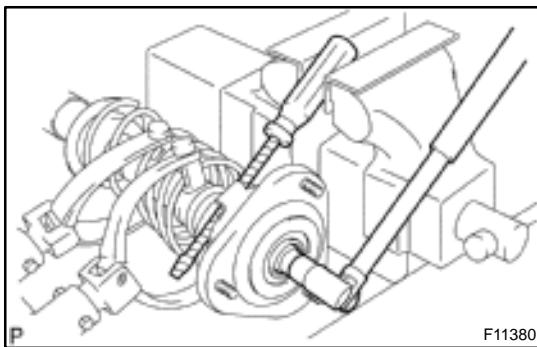
- (c) Install the upper insulator.

- (d) Install the spring seat to the shock absorber.

HINT:

Align the piston rod notch and the spring seat hole.

- (e) Install the dust seal and suspension support.



- (f) Using a screwdriver to hold the suspension support, install a new nut.

Torque: 51 N·m (520 kgf-cm, 38 ft-lbf)

HINT:

Tape the screwdriver before use.

NOTICE:

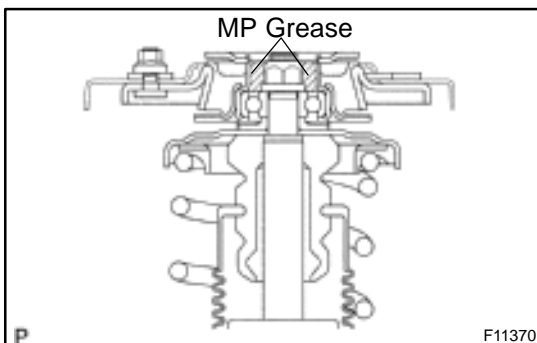
Be careful not to damage the spring seat.

- (g) Remove the SST.

SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

- (h) Apply MP grease into the suspension support.

- (i) Install the cap.



INSTALLATION

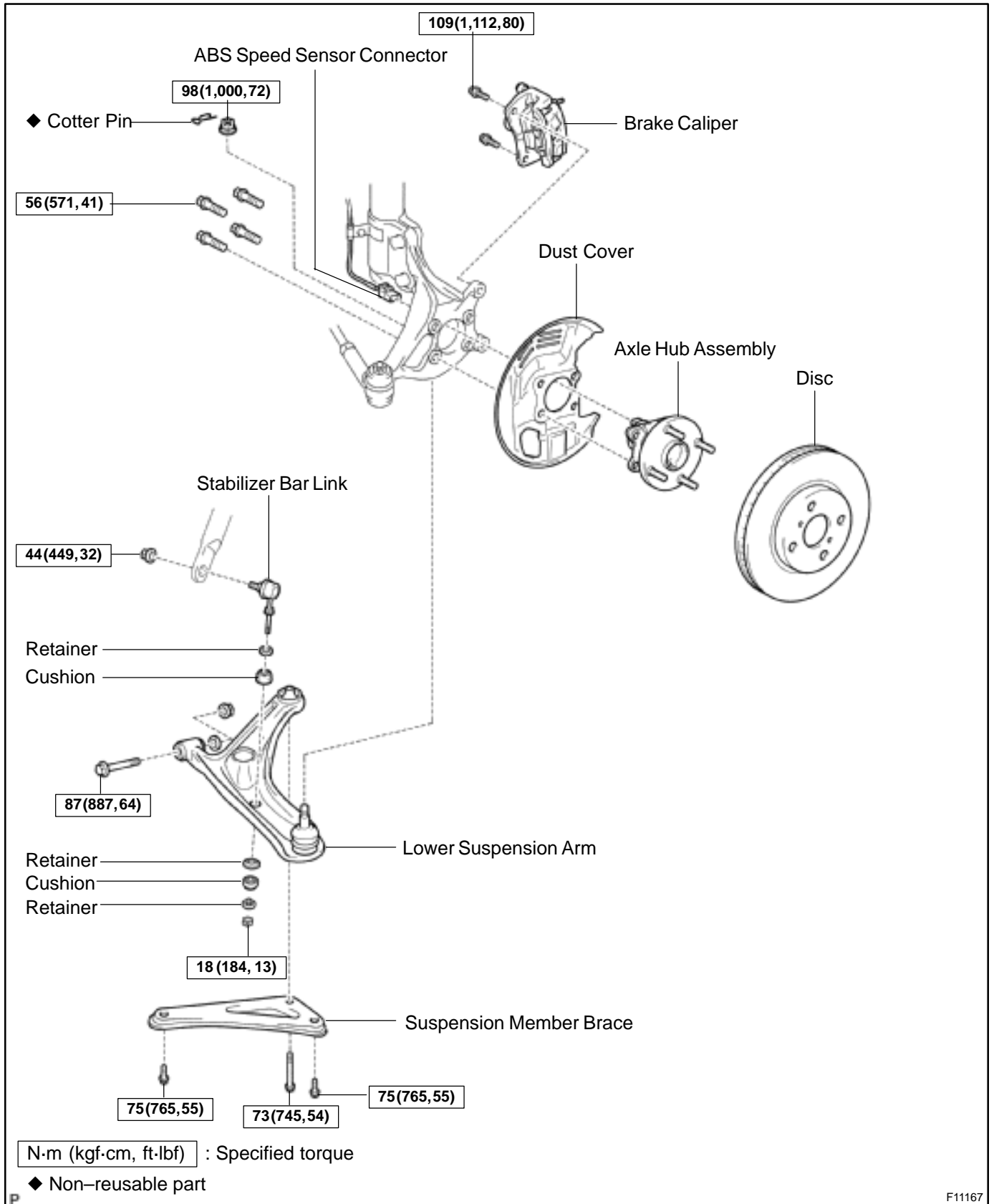
Installation is in the reverse order of removal (See page [SA-16](#)).

HINT:

After installation, check the front wheel alignment (See page [SA-4](#)).

FRONT LOWER SUSPENSION ARM COMPONENTS

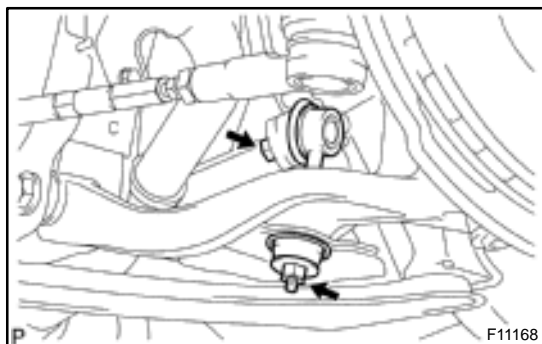
SA10R-03



F11167

REMOVAL

1. REMOVE FRONT WHEEL



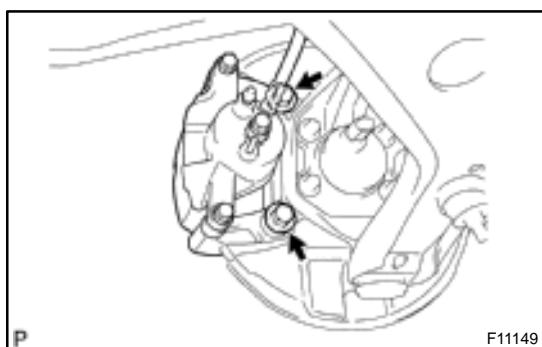
2. REMOVE STABILIZER BAR LINK

- (a) Remove the nut, and disconnect the stabilizer bar link from the stabilizer bar.

HINT:

If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.

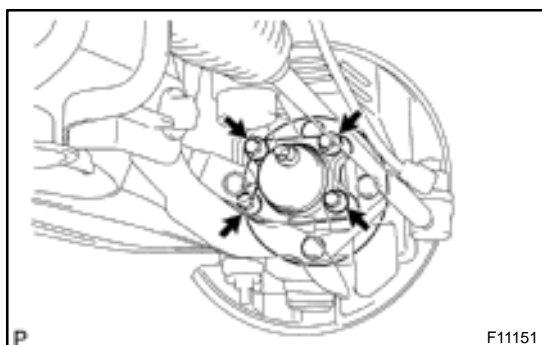
- (b) Remove the nut, stabilizer bar link, 3 retainers and 2 cushions.



3. REMOVE BRAKE CALIPER AND DISC

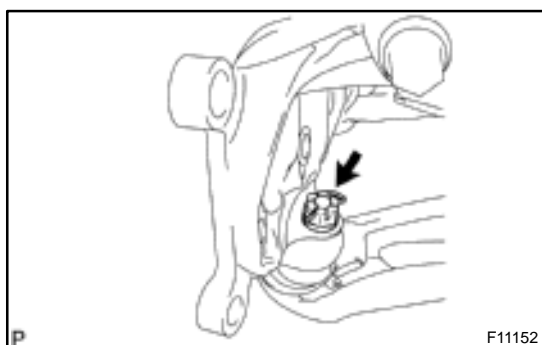
- (a) Remove the 2 bolts, brake caliper and disc.
 (b) Support the brake caliper securely.

4. DISCONNECT ABS SPEED SENSOR CONNECTOR



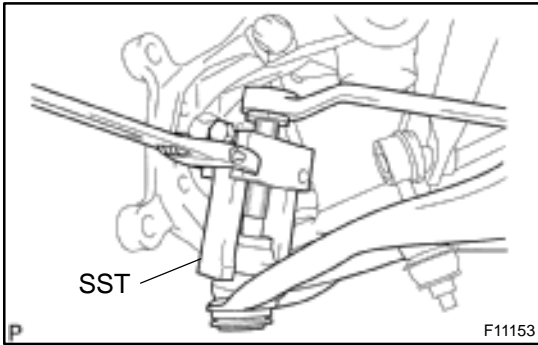
5. REMOVE FRONT AXLE HUB

Remove the 4 bolts, axle hub assembly and dust cover.

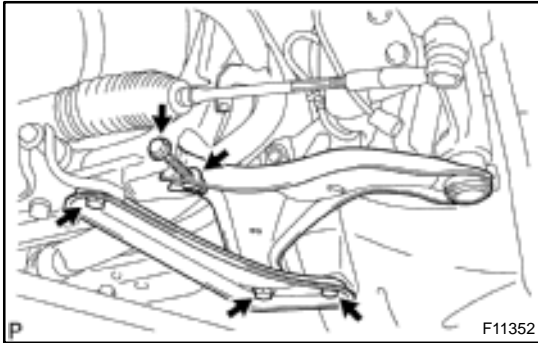


6. DISCONNECT LOWER SUSPENSION ARM FROM STEERING KNUCKLE

- (a) Remove the cotter pin and nut.



- (b) Using SST, disconnect the lower suspension arm from the steering knuckle.
SST 09628-62011



7. REMOVE LOWER SUSPENSION ARM

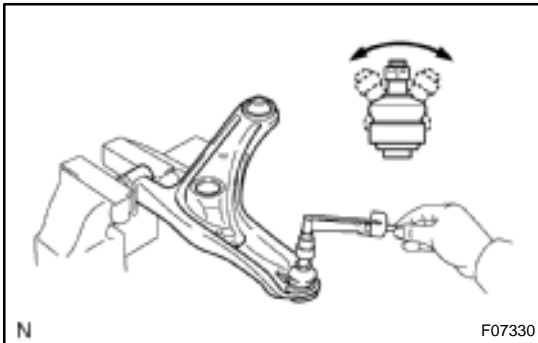
Remove the 4 bolts, nut, suspension member brace and front lower suspension arm.

NOTICE:

Don't turn the nut.

INSPECTION

1. INSPECT LOWER SUSPENSION ARM BALL JOINT BOOT FOR DAMAGE

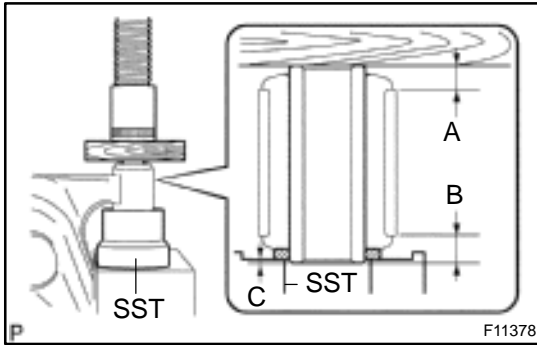


2. INSPECT LOWER SUSPENSION ARM BALL JOINT FOR ROTATION CONDITION

- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.59 – 3.43 N·m (6 – 35 kgf·cm, 5.2 – 30 in.-lbf)



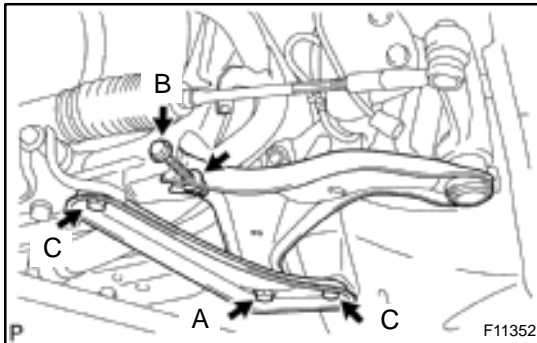
INSTALLATION

1. INSTALL LOWER SUSPENSION ARM

- (a) If use a new lower suspension arm, install a new washer. Using SST, a wooden block and a press, press in a new washer to a new lower suspension arm.

Standard distance C	$0.8 \pm 0.2 \text{ mm}$ ($0.031 \pm 0.008 \text{ in.}$)
Difference (A - B)	$0 - 1.5 \text{ mm}$ ($0 - 0.059 \text{ in.}$)

SST 09710-26011 (09710-05061)



- (b) Temporarily install the lower suspension arm and suspension member brace with the 4 bolts and nut.

HINT:

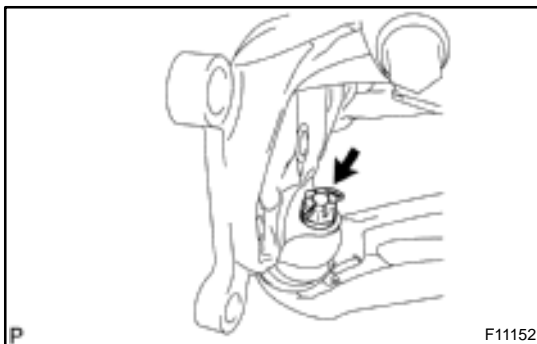
After stabilizing the suspension, torque the bolts.

- (c) Tighten the bolt A.
Torque: 73 N·m (745 kgf-cm, 54 ft-lbf)
- (d) Tighten the bolt B.
Torque: 87 N·m (887 kgf-cm, 64 ft-lbf)

NOTICE:

Don't turn the nut.

- (e) Tighten the 2 bolts C.
Torque: 75 N·m (765 kgf-cm, 55 ft-lbf)



2. CONNECT LOWER SUSPENSION ARM TO STEERING KNUCKLE

- (a) Connect the lower suspension arm to the steering knuckle with the nut.

HINT:

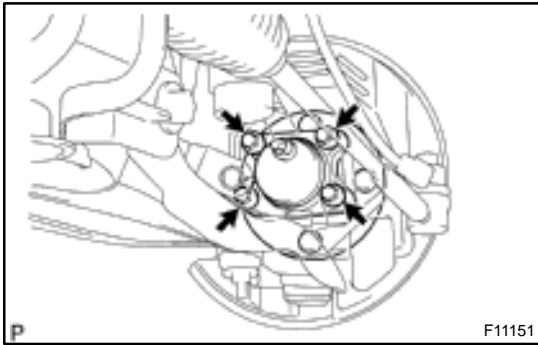
After stabilizing the suspension, torque the nut.

Torque: 98 N·m (1,000 kgf-cm, 72 ft-lbf)

- (b) Install a new cotter pin.

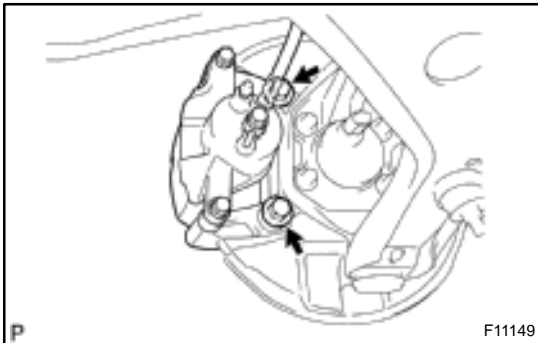
HINT:

If the holes for a new cotter pin are not aligned tighten the nut further up to 60° .

**3. INSTALL FRONT AXLE HUB**

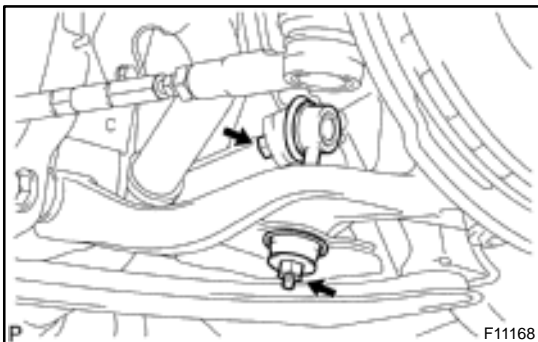
Install the dust cover and axle hub with the 4 bolts.

Torque: 56 N·m (571 kgf-cm, 41 ft-lbf)

4. CONNECT ABS SPEED SENSOR CONNECTOR**5. INSTALL DISC AND BRAKE CALIPER**

Install the disc and brake caliper with the 2 bolts.

Torque: 109 N·m (1,112 kgf-cm, 80 ft-lbf)

**6. INSTALL STABILIZER BAR LINK**

(a) Install the stabilizer bar link, 3 retainers and 2 cushions to the lower suspension arm with the nut.

Torque: 18 N·m (184 kgf-cm, 13 ft-lbf)

(b) Connect the stabilizer bar link to the stabilizer bar with the nut.

Torque: 44 N·m (449 kgf-cm, 32 ft-lbf)

HINT:

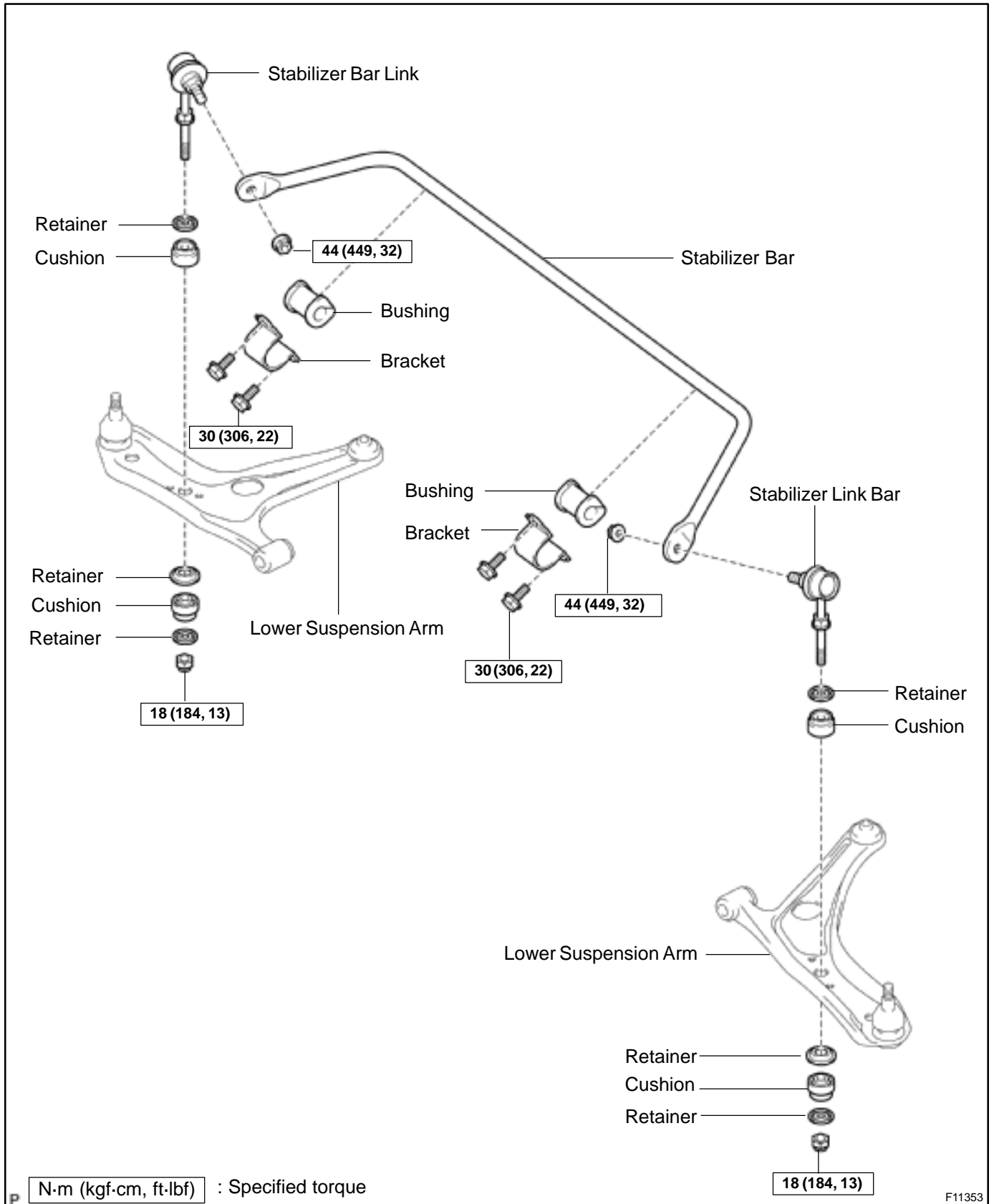
If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.

7. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf-cm, 76 ft-lbf)

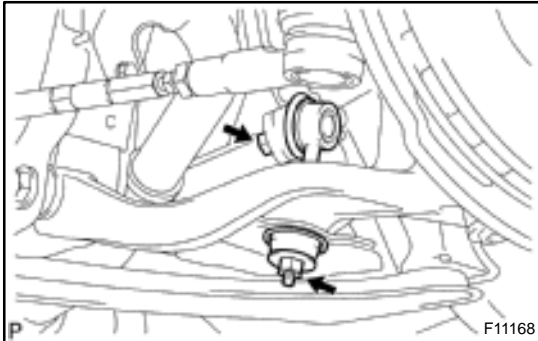
FRONT STABILIZER BAR COMPONENTS

SA10H-04



REMOVAL

1. REMOVE RH OR LH SIDE FRONT WHEEL
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. REMOVE STABILIZER BAR LINKS

- (a) Remove the nut, and disconnect the stabilizer bar link from the stabilizer bar.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

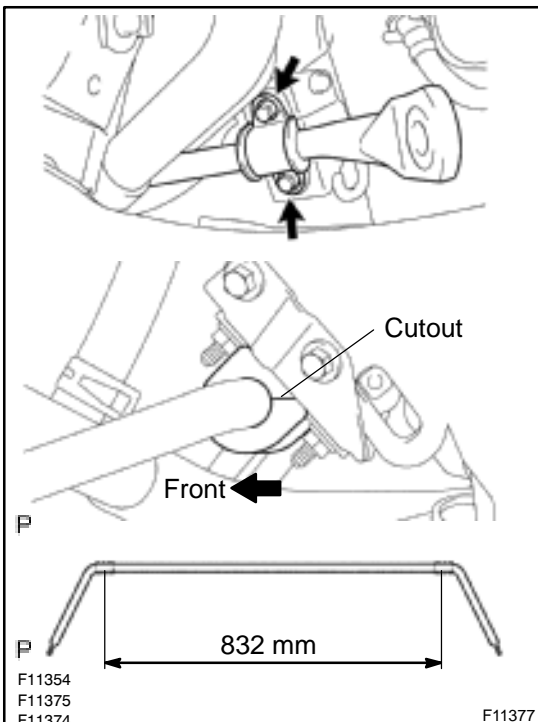
HINT:

If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.

- (b) Remove the nut, stabilizer bar link, 3 retainers and 2 cushions.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

- (c) Employ the same manner described above to the other side.



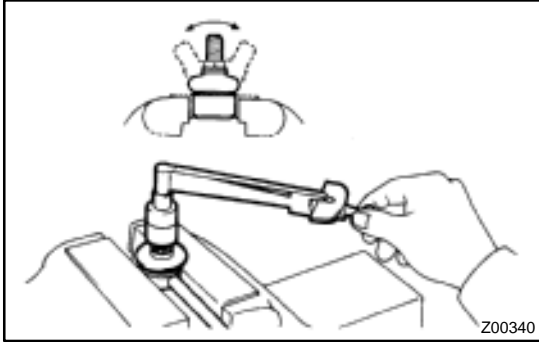
3. REMOVE STABILIZER BAR

- (a) Remove the 2 bolts, bracket and bushing.
Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)

HINT:

At the time of installation, please refer to the following items.

- Install the bushing so that the cutout will face to the rear.
 - The distance between the bushings is 832 mm.
- (b) Employ the same manner described above to the other side.
 - (c) Remove the stabilizer bar.



INSPECTION

INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTATION CONDITION

- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

INSTALLATION

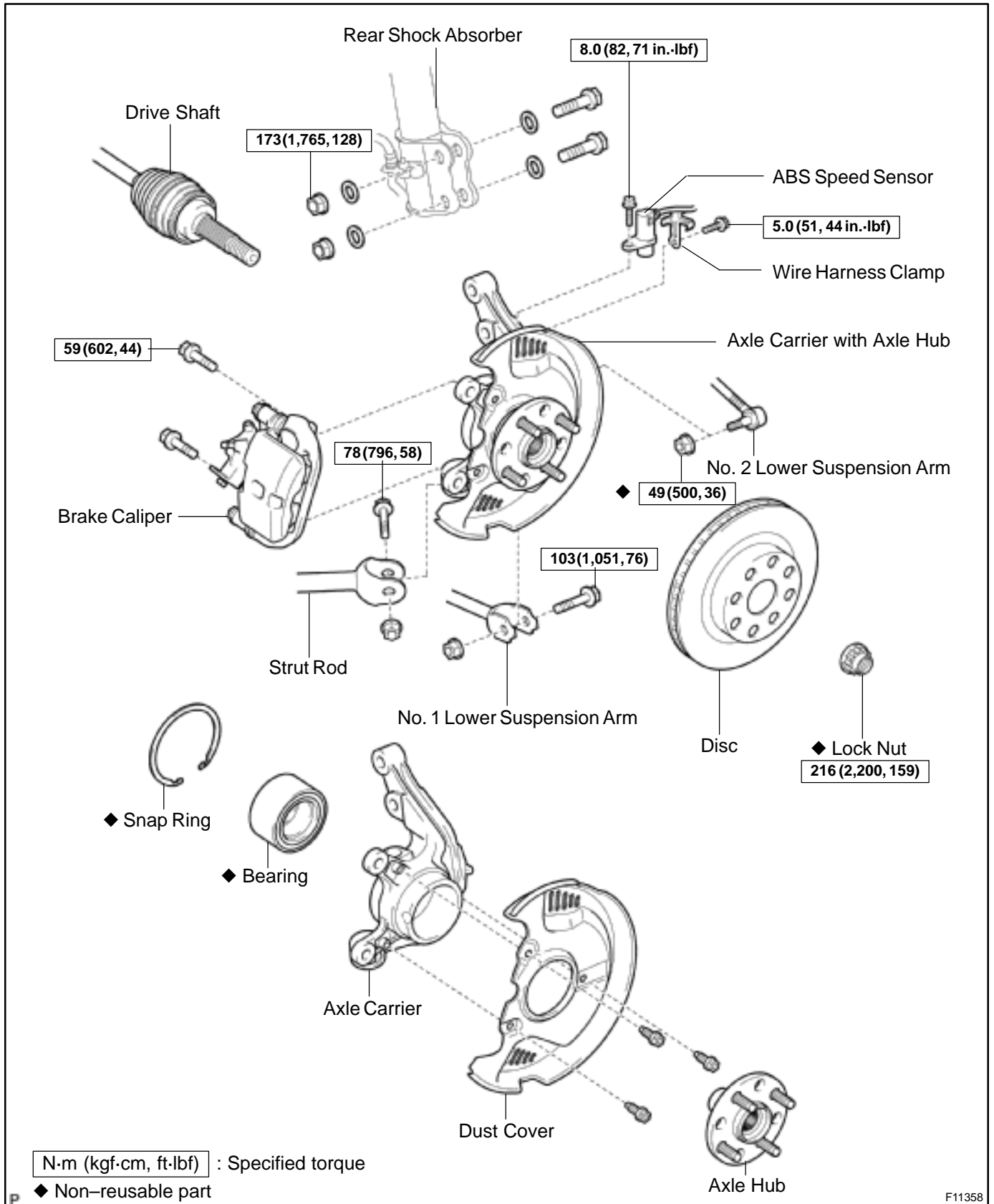
Installation is in the reverse order of removal (See page [SA-29](#)).

HINT:

After installation, check the front wheel alignment (See page [SA-4](#)).

REAR AXLE CARRIER COMPONENTS

SA1P7-02

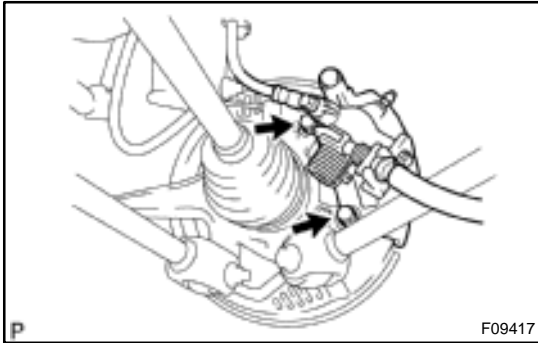


F11358

REMOVAL

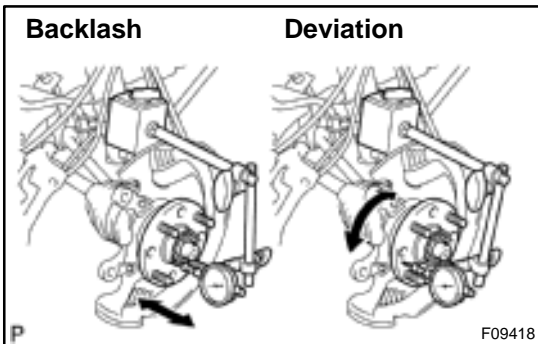
1. REMOVE REAR WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.



- (c) Using a dial indicator, check the backlash near the center of the axle hub.

Maximum: 0.05 mm (0.0020 in.)

If the backlash exceeds the maximum, replace the bearing.

- (d) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

Maximum: 0.07 mm (0.0028 in.)

If the deviation exceeds the maximum, replace the axle hub.

- (e) Install the disc and brake caliper with the 2 bolts.

Torque: 59 N·m (602 kgf·cm, 44 ft·lbf)

3. REMOVE DRIVE SHAFT LOCK NUT

- (a) Using SST and a hammer, unstake the staked part of the lock nut.

SST 09930-00010

- (b) While applying the brakes, remove the nut.

Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)

HINT:

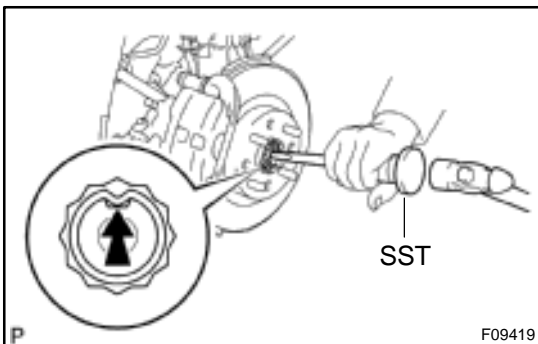
At the time of installation, use a new lock nut.

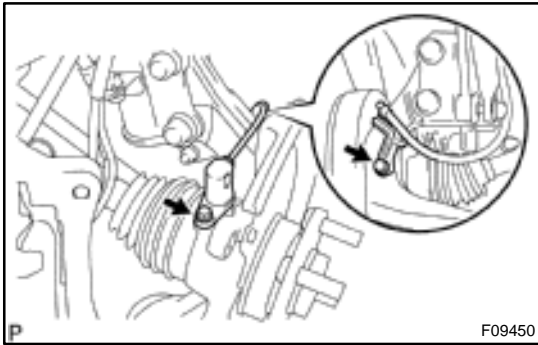
4. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts, brake caliper and disc.

Torque: 59 N·m (602 kgf·cm, 44 ft·lbf)

- (b) Support the brake caliper securely.





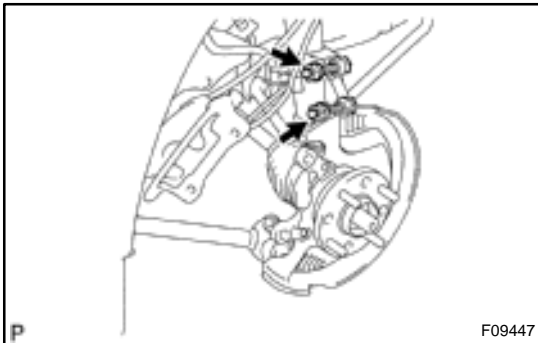
5. REMOVE ABS SPEED SENSOR

- (a) Remove the bolt and ABS speed sensor from the axle carrier.

Torque: 8.0 N·m (82 kgf·cm, 71 in.-lbf)

- (b) Remove the bolt, and disconnect the wire harness clamp from the axle carrier.

Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)

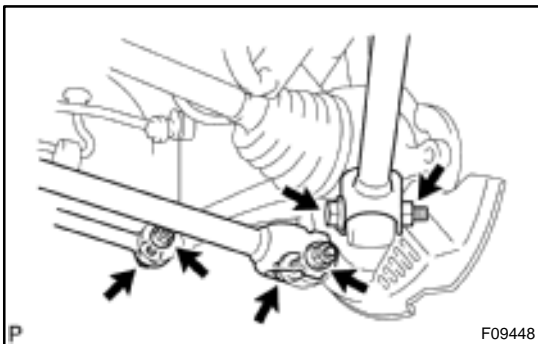


6. LOOSEN 2 NUTS ON LOWER SIDE OF SHOCK ABSORBER

Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.



7. DISCONNECT STRUT ROD

Remove the bolt and nut, and disconnect the strut rod from the rear axle carrier.

Torque: 78 N·m (796 kgf·cm, 58 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

8. DISCONNECT NO. 1 LOWER SUSPENSION ARM

Remove the bolt and nut, and disconnect the No. 1 lower suspension arm from the rear axle carrier.

Torque: 103 N·m (1,051 kgf·cm, 76 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

9. DISCONNECT NO. 2 LOWER SUSPENSION ARM

- (a) Remove the nut.

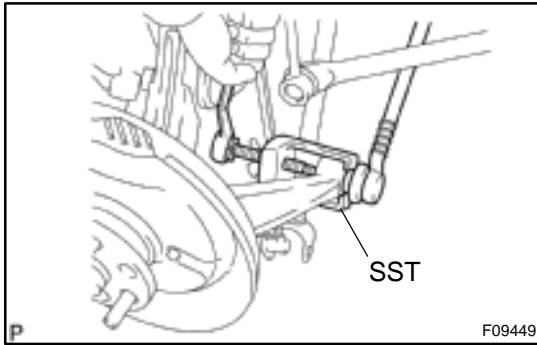
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

HINT:

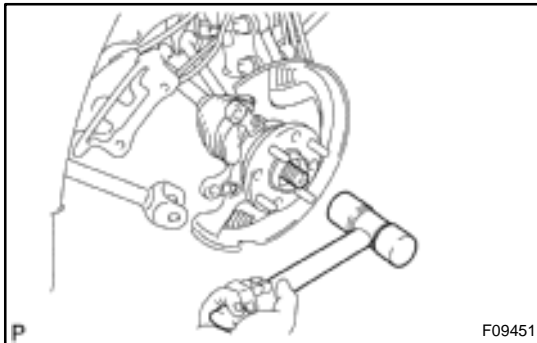
At the time of installation, please refer to the following items.

- Use a new nut.
- After stabilizing the suspension, torque the nut.

SUSPENSION AND AXLE - REAR AXLE CARRIER



- (b) Using SST, disconnect the No. 2 lower suspension arm from the rear axle carrier.
SST 09610-20012

**10. DISCONNECT DRIVE SHAFT**

Using a plastic hammer, disconnect the drive shaft from the axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

11. REMOVE AXLE CARRIER WITH AXLE HUB

- (a) Remove the 2 bolts, 2 nuts and 4 washers on the lower side of the shock absorber.

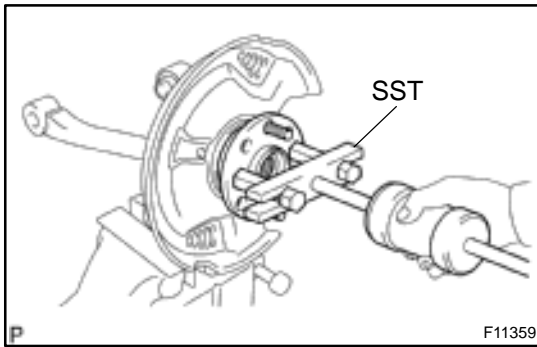
HINT:

At the time of installation, coat the nut's thread with engine oil.

- (b) Remove the axle carrier with axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

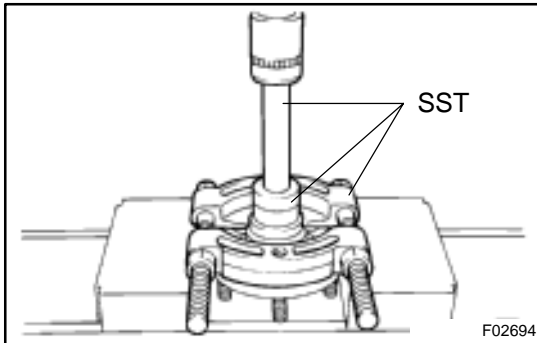


DISASSEMBLY

1. REMOVE AXLE HUB

- (a) Using SST, remove the axle hub.

SST 09520-00031 (09520-00040, 09521-00010, 09521-00020)



- (b) Using SST and a press, remove the inner race (outside) from the axle hub.

SST 09950-00020, 09950-60010 (09951-00380), 09950-70010 (09951-07150)

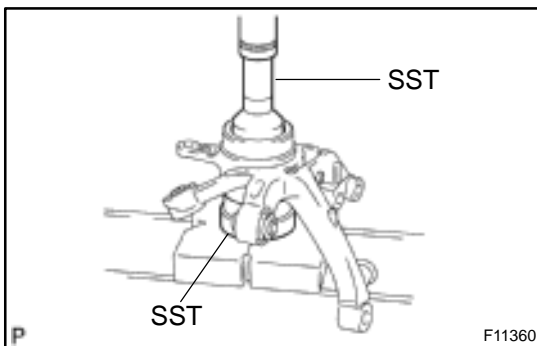
2. REMOVE DUST COVER

Remove the 3 bolts and dust cover.

3. REMOVE BEARING FROM AXLE CARRIER

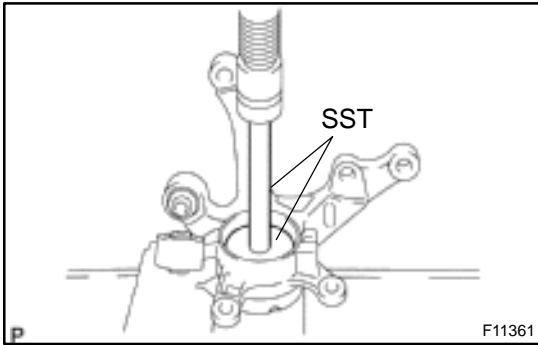
- (a) Using snap ring pliers, remove the snap ring.

- (b) Place the inner race on the outside of the bearing.



- (c) Using SST and a press, remove the bearing.

SST 09310-35010, 09527-17011



REASSEMBLY

1. INSTALL BEARING

- (a) Using SST and a press, install a new bearing to the axle carrier.

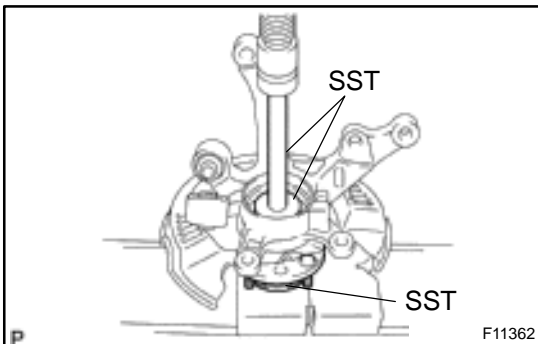
SST 09950-60020 (09951-00730),
09950-70010 (09951-07150)

- (b) Using snap ring pliers, install a new snap ring.

2. INSTALL DUST COVER

Install the dust cover with the 3 bolts.

Torque: 8.3 N·m (85 kgf·cm, 74 in.-lbf)



3. INSTALL AXLE HUB

Using SST and a press, install the axle hub.

SST 09608-32010, 09950-60010 (09951-00550)
09950-70010 (09951-07150)

INSTALLATION

Installation is in the reverse order of removal (See page [SA-33](#)).

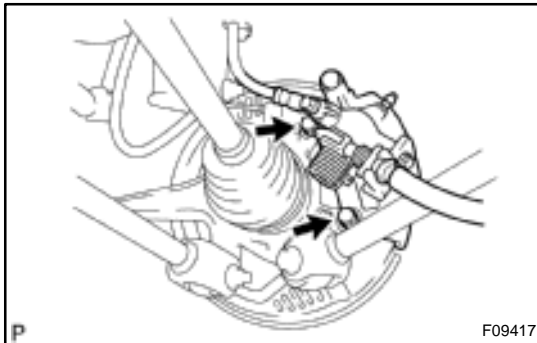
HINT:

After installation, check the ABS speed sensor signal (See page [DI-163](#)) and rear wheel alignment (See page [SA-7](#)).

REAR WHEEL HUB BOLT REPLACEMENT

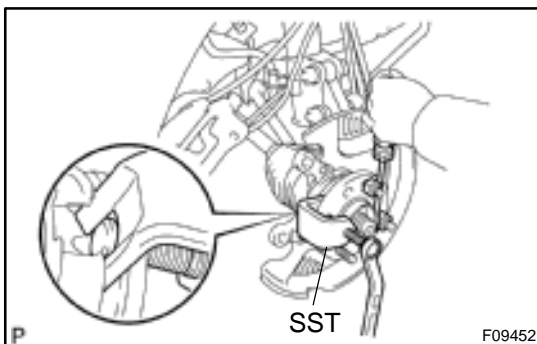
SA1PB-02

1. REMOVE REAR WHEEL



2. REMOVE BRAKE CALIPER AND DISC

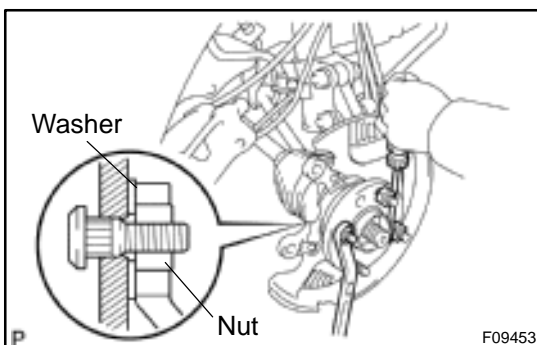
- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.



3. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628-10011



4. INSTALL HUB BOLT

- (a) Install a washer and nut to a new hub bolt as shown in the illustration.
- (b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.
- (c) Remove the 3 nuts and washer.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc and brake caliper with the 2 bolts.

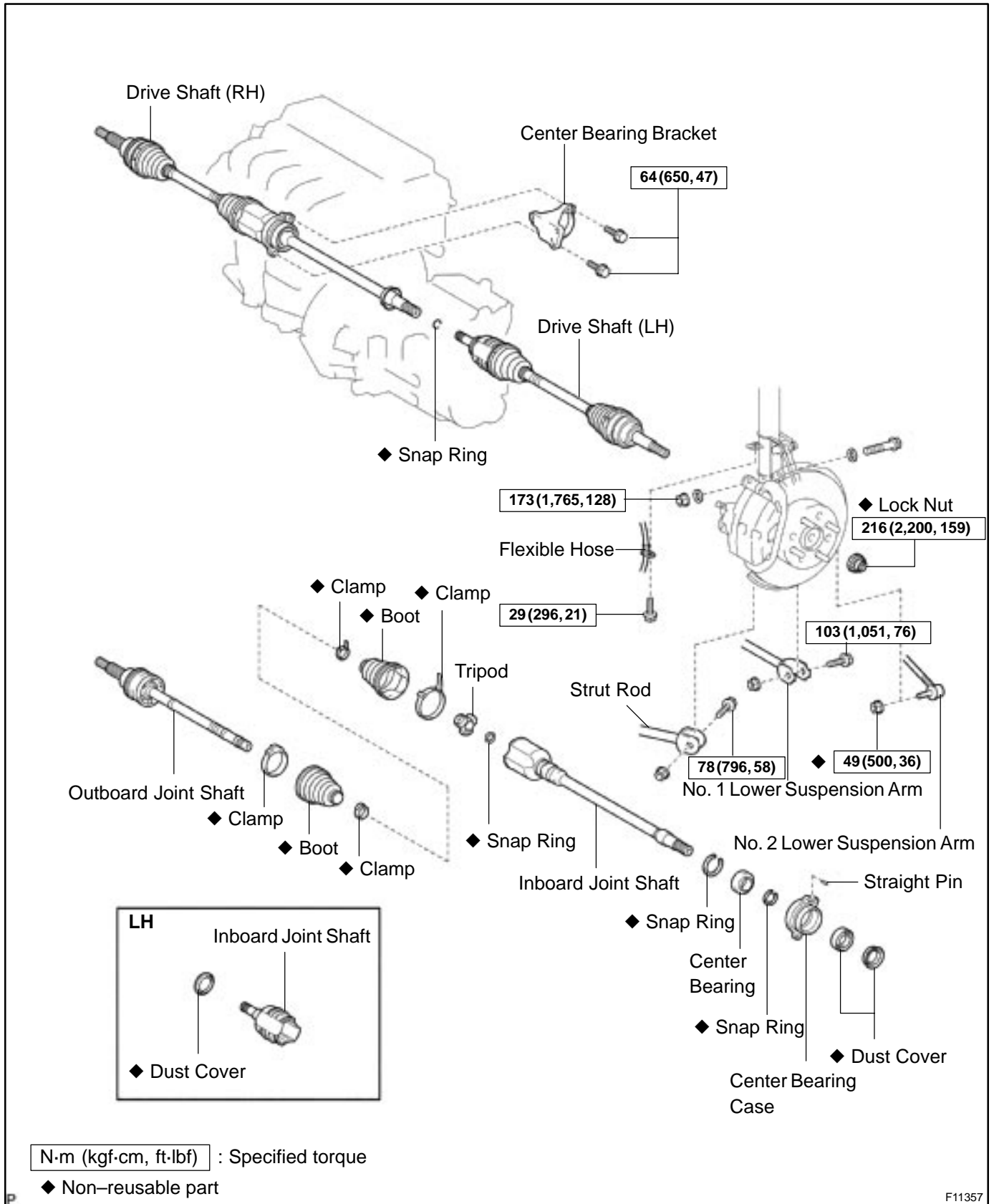
Torque: 59 N·m (602 kgf·cm, 44 ft·lbf)

6. INSTALL REAR WHEEL

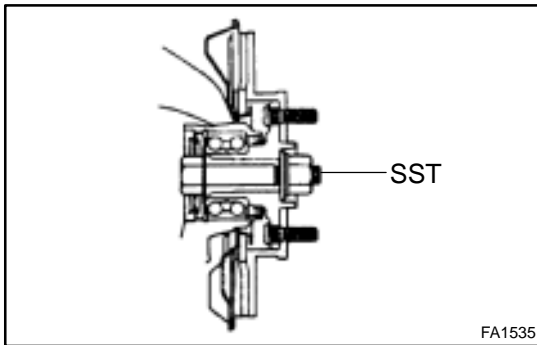
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

REAR DRIVE SHAFT COMPONENTS

SAQJX-04



F11357



REMOVAL

NOTICE:

- The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed.

Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with the SST.

SST 09608-16042 (09608-02021, 09608-02041)

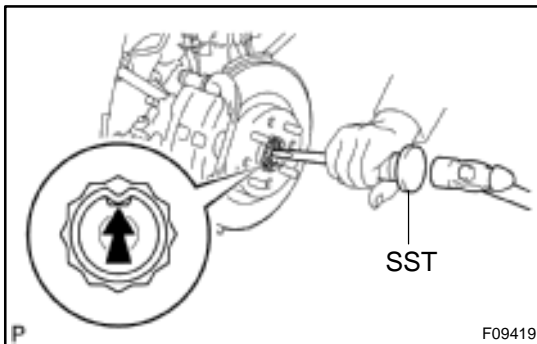
- After disconnecting the drive shaft from the axle hub, work carefully so as not to damage the ABS speed sensor rotor serrations on the drive shaft.

1. REMOVE REAR WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

2. REMOVE ENGINE UNDER COVERS

3. DRAIN GEAR OIL



4. REMOVE DRIVE SHAFT LOCK NUT

- (a) Using SST and a hammer, unstick the staked part of the lock nut.

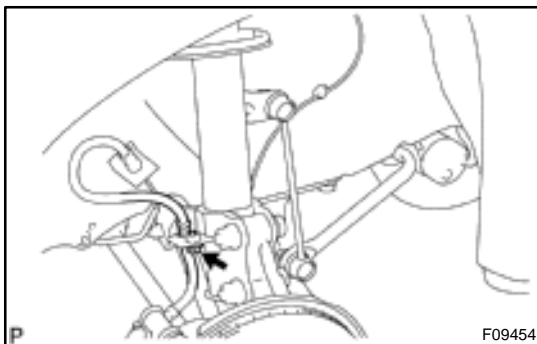
SST 09930-00010

- (b) While applying the brakes, remove the nut.

Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)

HINT:

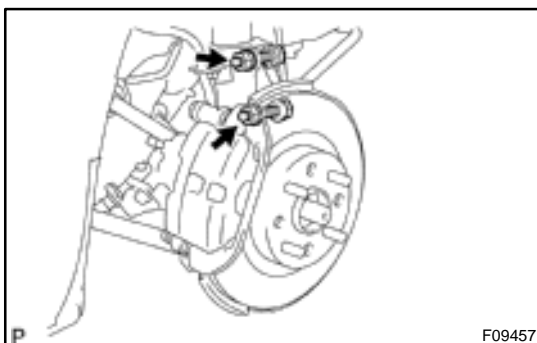
At the time of installation, use a new lock nut.



5. DISCONNECT FLEXIBLE HOSE

Remove the bolt, and disconnect the flexible hose from the shock absorber.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)

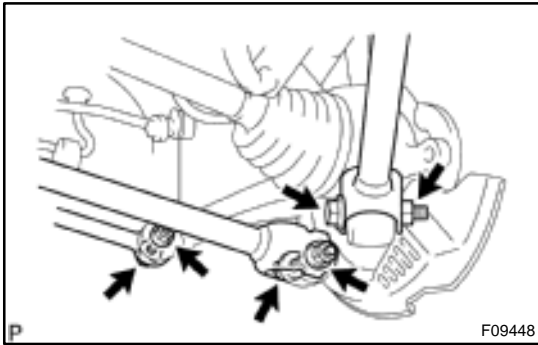


6. LOOSEN 2 NUTS ON LOWER SIDE OF SHOCK ABSORBER

Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.

**7. DISCONNECT STRUT ROD**

Remove the bolt and nut, and disconnect the strut rod from the rear axle carrier.

Torque: 78 N·m (796 kgf·cm, 58 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

8. DISCONNECT NO. 1 LOWER SUSPENSION ARM

Remove the bolt and nut, and disconnect the No. 1 lower suspension arm.

Torque: 103 N·m (1,051 kgf·cm, 76 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

9. DISCONNECT NO. 2 LOWER SUSPENSION ARM

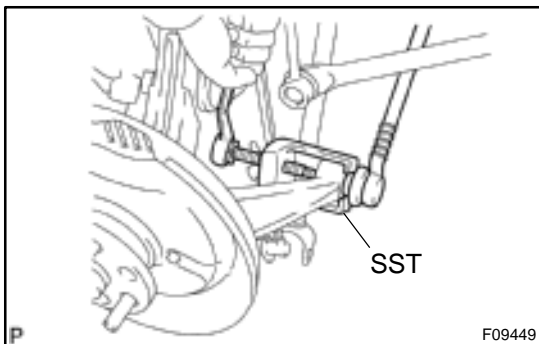
(a) Remove the nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

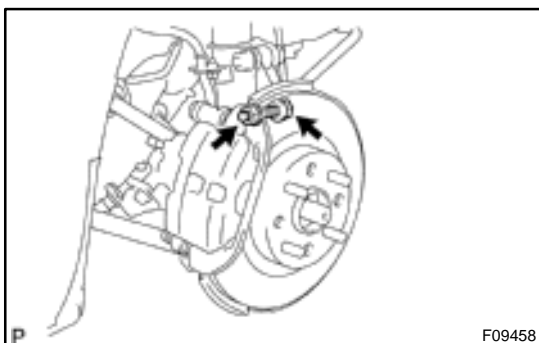
HINT:

At the time of installation, please refer to the following items.

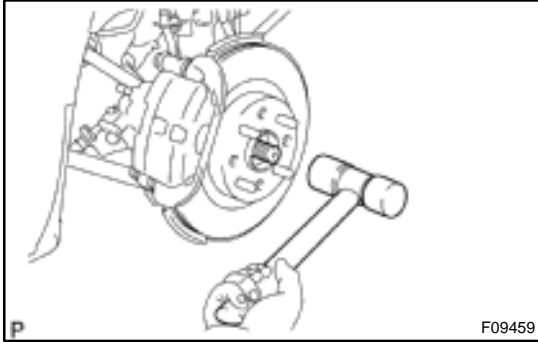
- Use a new nut.
- After stabilizing the suspension, torque the nut.



(b) Using SST, disconnect the No. 2 lower suspension arm.
SST 09610-20012

**10. REMOVE ONLY VERY BOTTOM BOLT, NUT AND 2 WASHERS OF SHOCK ABSORBER****HINT:**

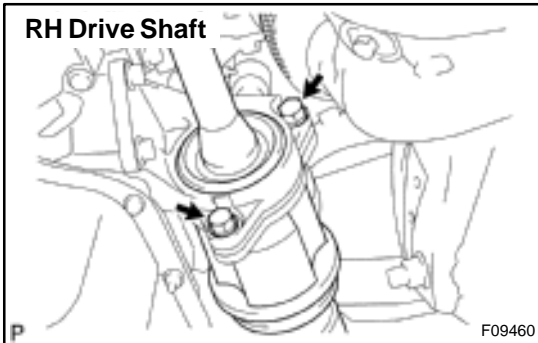
At the time of installation, coat the nut's thread with engine oil.

**11. DISCONNECT DRIVE SHAFT FROM AXLE HUB**

Using a plastic hammer, disconnect the drive shaft from the axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

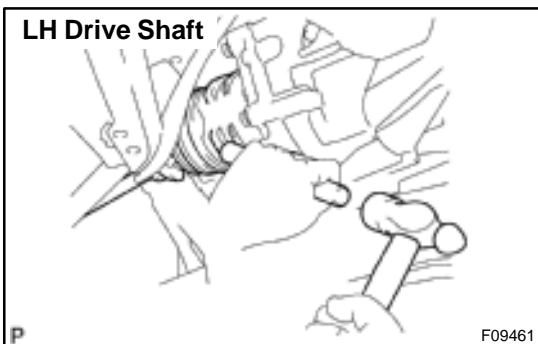
**12. RH drive shaft:****REMOVE DRIVE SHAFT**

Remove the 2 bolts on the center bearing bracket and pull out the drive shaft together with the center bearing case.

Torque: 64 N·m (650 kgf-cm, 47 ft-lbf)

NOTICE:

Be careful not to damage the oil seal and dust cover.

**13. LH drive shaft:****REMOVE DRIVE SHAFT**

(a) Using a brass bar and hammer, remove the drive shaft.

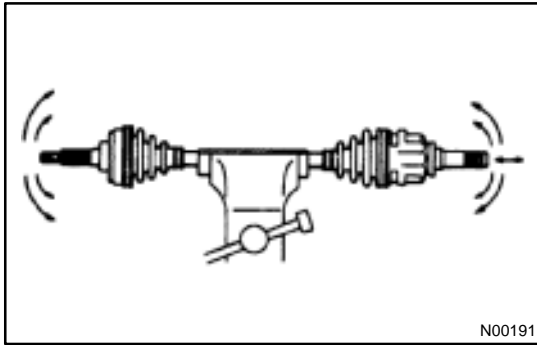
NOTICE:

Be careful not to damage the oil seal and dust cover.

HINT:

At the time of installation, please refer to the following items.

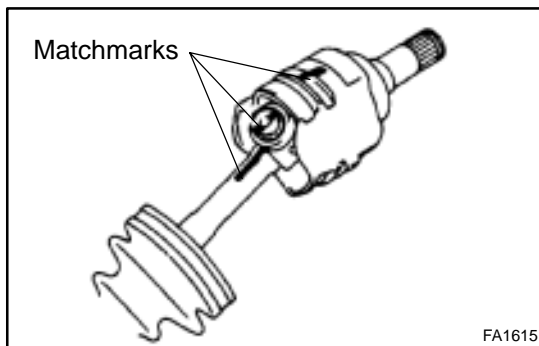
- Apply gear oil to the inboard joint shaft and differential case sliding surfaces.
 - Before installing the drive shaft, set the snap ring with its opening side facing downward.
 - Whether inboard joint shaft is in contact with pinion shaft or not can be known from the sound or feeling.
 - After installation, check that there is 2 – 3 mm (0.08 – 0.12 in.) of play in the axial direction.
 - After installation, check that the drive shaft cannot be removed by hand.
- (b) Using a screwdriver, remove the snap ring from the inboard joint shaft.



DISASSEMBLY

1. DISASSEMBLE DRIVE SHAFT

- (a) Check the drive shaft.
 - (1) Check to see that there is no remarkable play in the outboard joint.
 - (2) Check to see that the inboard joint slides smoothly in the thrust direction.
 - (3) Check to see that there is no remarkable play in the radial direction of the inboard joint.
 - (4) Check the boots for damage.
- (b) Remove the inboard and outboard joint boot clamps.
 - (1) Using a screwdriver, unclamp the 2 inboard joint boot clamps.
 - (2) Using a side cutter, cut the 2 outboard joint boot clamps and remove them.
- (c) Remove the inboard joint shaft.
 - (1) Slide the inboard joint boot toward the outboard joint.
 - (2) Place matchmarks on the inboard joint shaft, tripod and outboard joint shaft.



NOTICE:

Do not punch the marks.

- (3) Remove the inboard joint shaft from the outboard joint shaft.
- (d) Remove the tripod.
 - (1) Using a snap ring expander, remove the snap ring.
 - (2) Place matchmarks on the outboard joint shaft and tripod.

NOTICE:

Do not punch the marks.

- (3) Using a brass bar and hammer, remove the tripod from the outboard joint shaft.

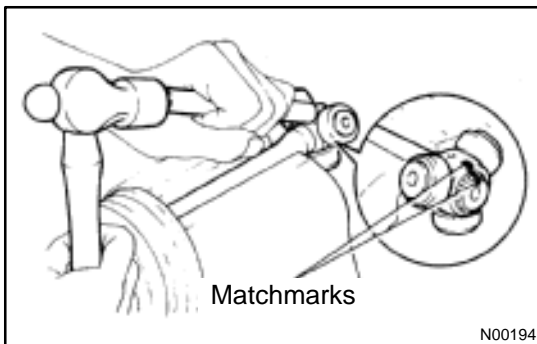
NOTICE:

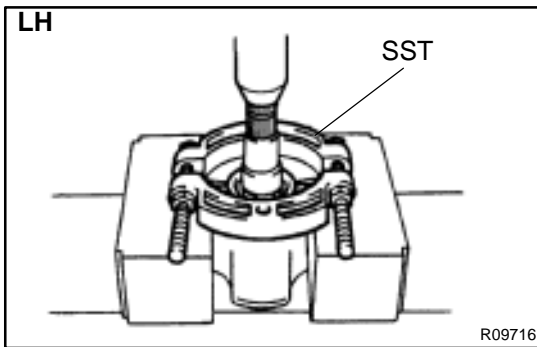
Do not tap the roller.

- (e) Remove the inboard and outboard joint boots and inboard joint clamps.

NOTICE:

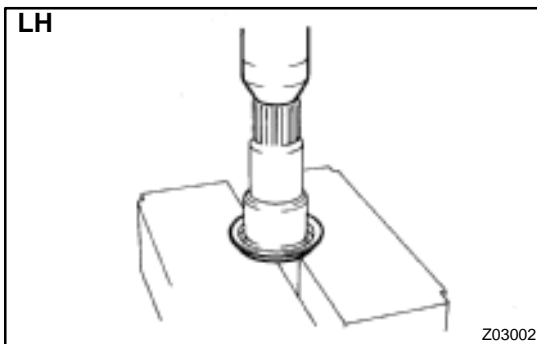
Do not disassemble the outboard joint.



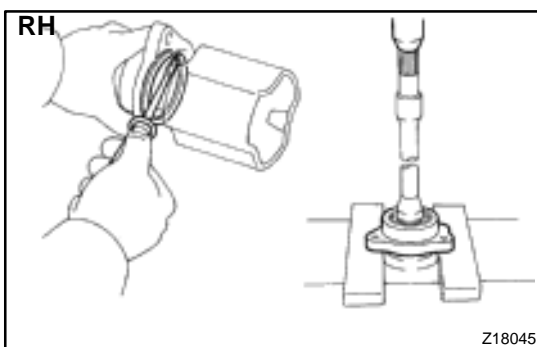


2. DISASSEMBLE INBOARD JOINT SHAFT

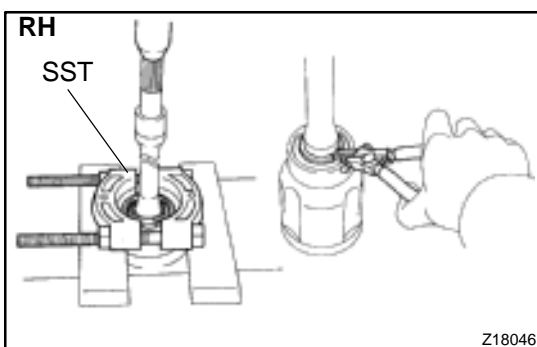
- (a) LH:
Remove the dust cover.
Using SST and a press, remove the dust cover.
SST 09950-00020



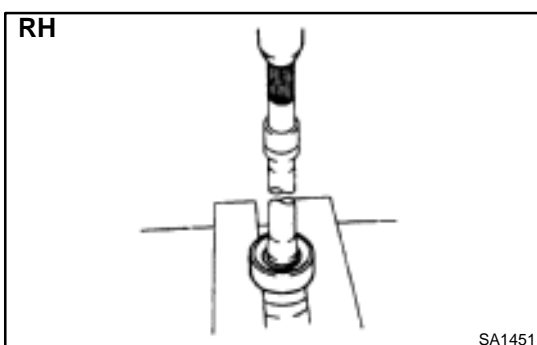
- (b) RH:
Remove the transaxle side dust cover.
Using a press, remove the transaxle side dust cover.



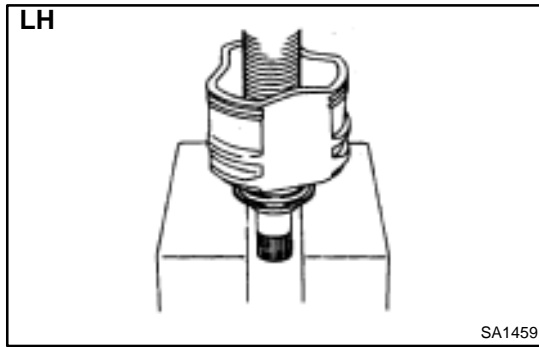
- (c) RH:
Remove the center bearing.
(1) Using a screwdriver, remove the outside snap ring.
(2) Using a press, remove the center bearing case.
(3) Using a pin punch and a hammer, remove the straight pin from the center bearing case.



- (4) Using SST and a press, remove the dust cover.
SST 09950-00020
(5) Using a snap ring expander, remove the inside snap ring.



- (6) Using a press, remove the center bearing.
(7) Using a snap ring expander, remove the outside snap ring.



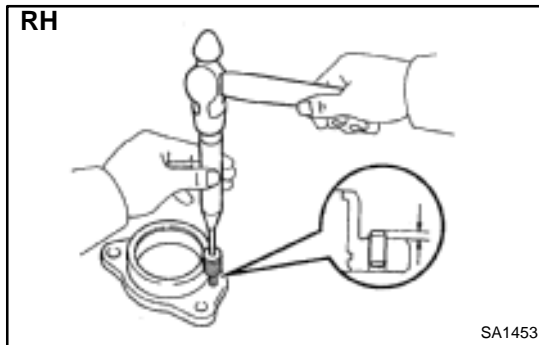
REASSEMBLY

1. REASSEMBLE INBOARD JOINT SHAFT

(a) LH:

Install the dust cover.

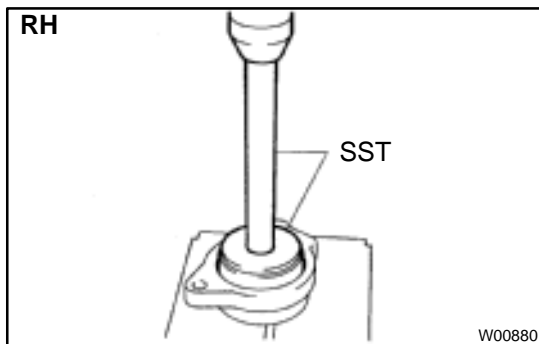
Using a press, install a new dust cover.



(b) RH:

Install the center bearing.

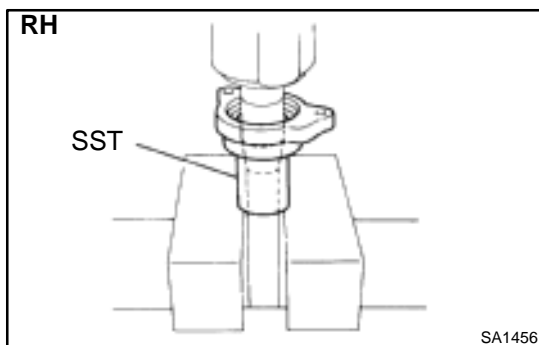
(1) Using a pin punch and a hammer, install the straight pin into the center bearing case.



(2) Using SST and a press, install a new center bearing into the bearing case.

SST 09950-60010 (09951-00650),
09950-70010 (09951-07150)

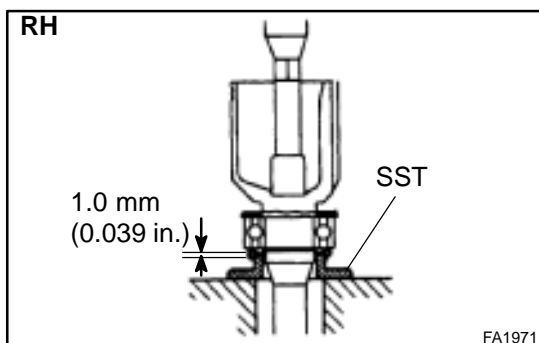
(3) Using a screwdriver, install a new outside snap ring.



(4) Using SST and a press, install the center bearing with the bearing case assembly to the inboard joint shaft.

SST 09710-30021 (09710-03141)

(5) Using a snap ring expander, install a new inside snap ring.

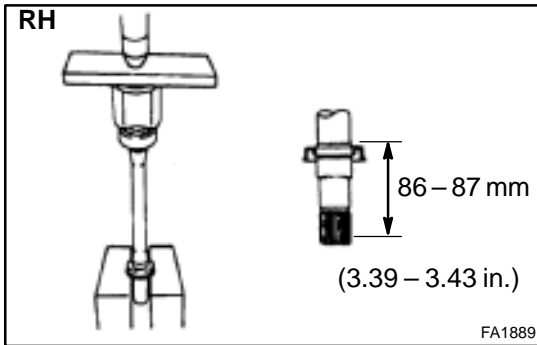


(6) Using SST, an extension bar and a press, install a new dust cover.

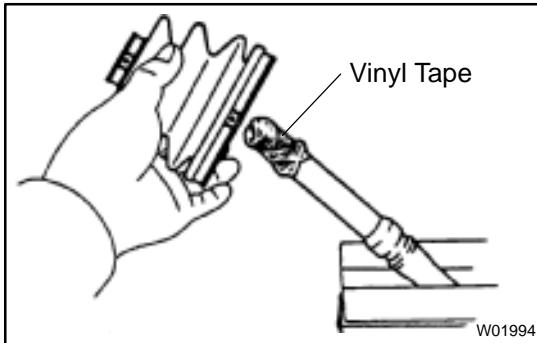
SST 09506-35010

HINT:

The clearance between the dust cover and bearing should be kept in the ranges as shown in the illustration.



- (c) RH:
Install the transaxle side dust cover.
Using a steel plate and press, install a new transaxle side dust cover until the distance from the tip of the inboard joint shaft to the dust cover reaches the specified value, as shown in the illustration.



2. REASSEMBLE DRIVE SHAFT

- (a) Temporarily install new outboard and inboard joint boots and new clamps.

HINT:

Before installing the boots, wrap the spline of the outboard joint shaft with vinyl tape to prevent them from being damaged.

- (1) Place 2 new clamps on a new outboard joint boot and install them to the outboard joint shaft.
 - (2) Place 2 new clamps on a new inboard joint boot and install them to the outboard joint shaft.
- (b) Install the tripod.
- (1) Place the beveled side of the tripod axial spline toward the outboard joint.
 - (2) Align the matchmarks placed before removal.
 - (3) Using a brass bar and hammer, tap in the tripod to the outboard joint shaft.

NOTICE:

Do not tap the roller.

- (4) Using a snap ring expander, install a new snap ring.
- (c) Install the boot to outboard joint.
Before assembling the boot, pack the outboard joint and boot with grease in the boot kit.

Grease capacity: (Color = Yellow ocher)

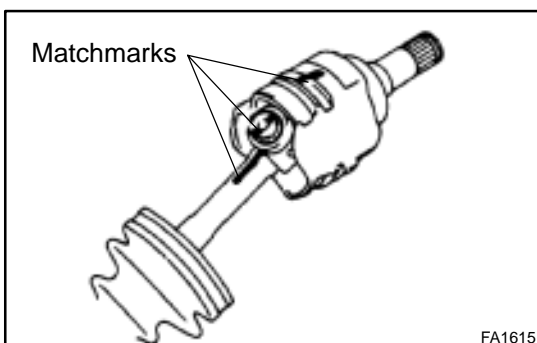
140 - 155 g (4.9 - 5.5 oz.)

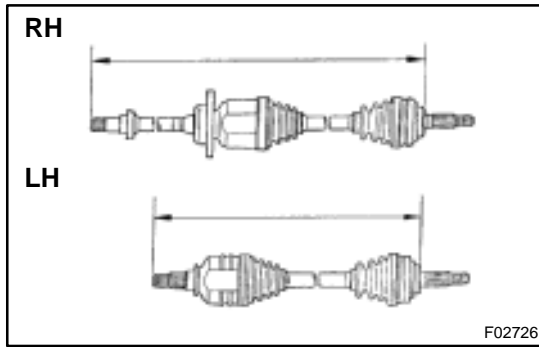
- (d) Install the inboard joint shaft to outboard joint shaft.
- (1) Pack the inboard joint and boot with grease in the boot kit.

Grease capacity: (Color = Yellow ocher)

180 - 190 g (6.3 - 6.7 oz.)

- (2) Align the matchmarks placed before removal, and install the inboard joint shaft to the outboard joint shaft.
- (3) Temporarily install the boot to the inboard joint.





- (e) Assemble the boot clamps to both boots.
- (1) Make sure that the boots are on the shaft grooves.
 - (2) Make sure that the boots are not stretched or contracted when the drive shaft is at standard length.

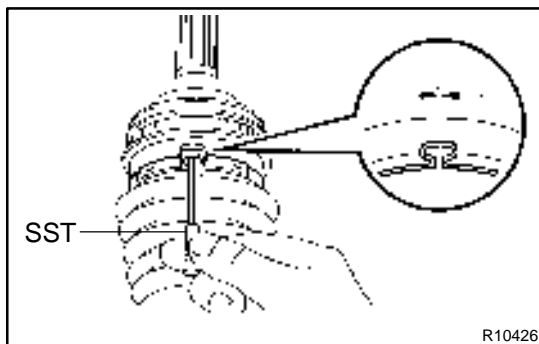
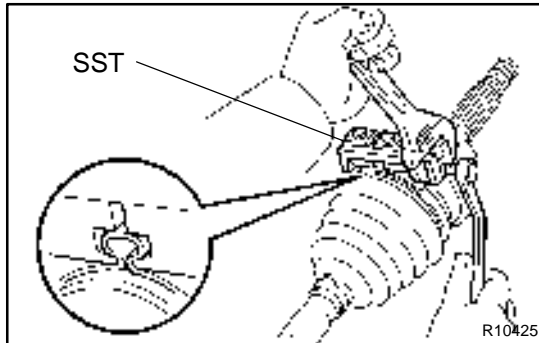
Drive shaft standard length:

RH	814.1 ± 5.0 mm (32.051 ± 0.197 in.)
LH	570.4 ± 5.0 mm (22.457 ± 0.197 in.)

- (3) Bend the band and lock the inboard joint boot clamps with a screwdriver.
- (4) Secure the 2 outboard joint boot clamps onto the boot.
- (5) Place SST onto the outboard joint large boot clamp.
SST 09521-24010
- (6) Tighten the SST so that the large clamp is pinched.

NOTICE:

Do not overtighten the SST.



- (7) Using SST, adjust the clearance of the large clamp.
SST 09240-00020
- Clearance: 0.8 mm (0.031 in.) or less**
- (8) Employ the same manner to the outboard joint small boot clamp.

INSTALLATION

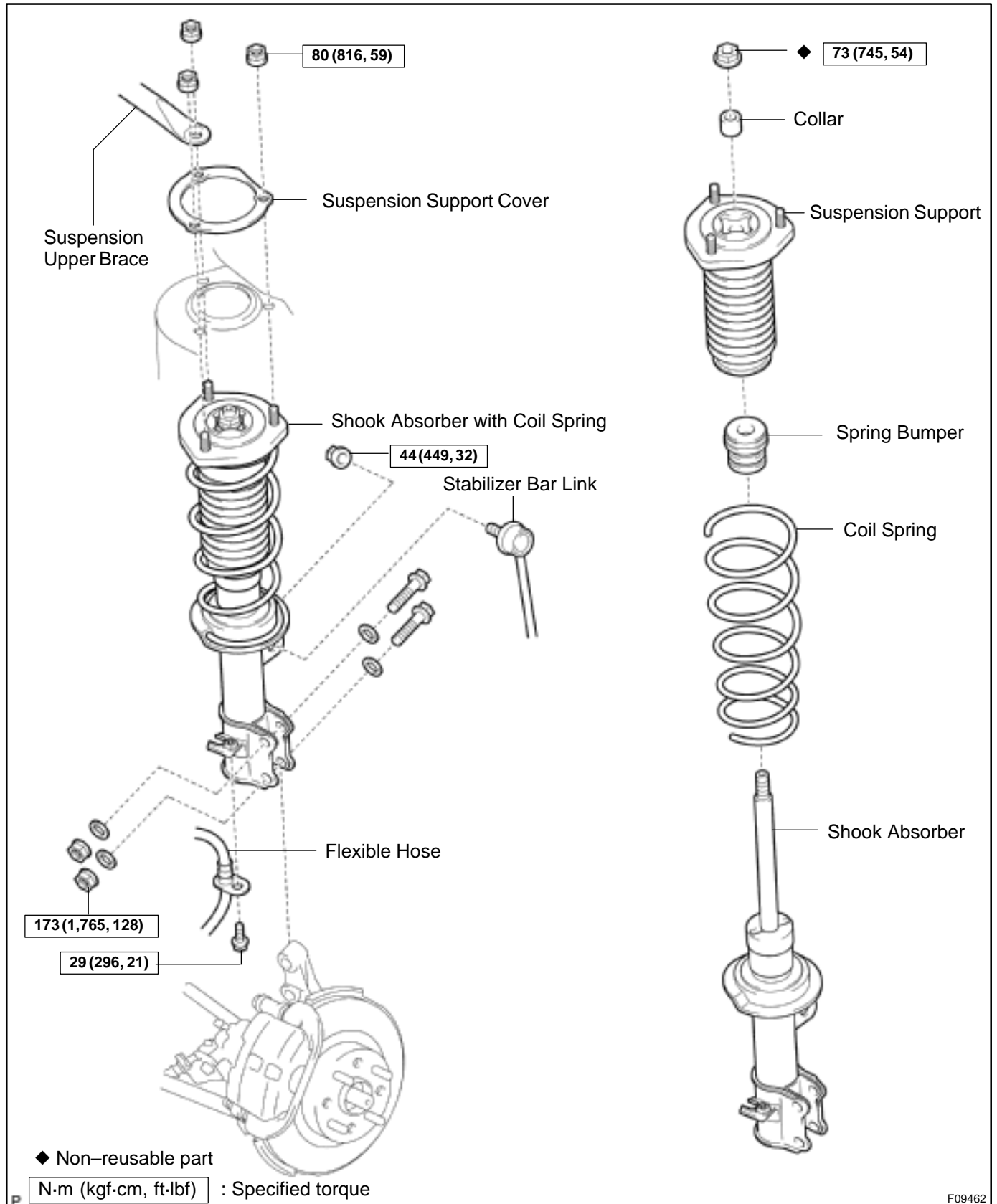
Installation is in the reverse order of removal (See page [SA-41](#)).

HINT:

After installation, check the ABS speed sensor signal (See page [DI-163](#)) and rear wheel alignment (See page [SA-7](#)).

REAR SHOCK ABSORBER COMPONENTS

SA10U-02

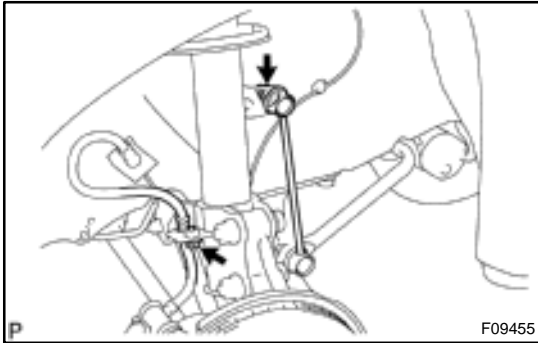


F09462

REMOVAL

1. REMOVE REAR WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. DISCONNECT STABILIZER BAR LINK

Remove the nut, and disconnect the stabilizer bar link from the shock absorber.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

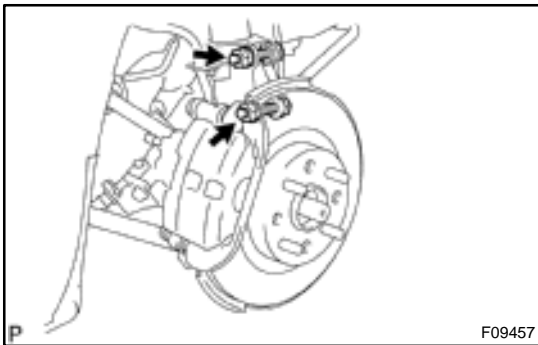
HINT:

If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.

3. DISCONNECT FLEXIBLE HOSE

Remove the bolt, and disconnect the flexible hose from the shock absorber.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)



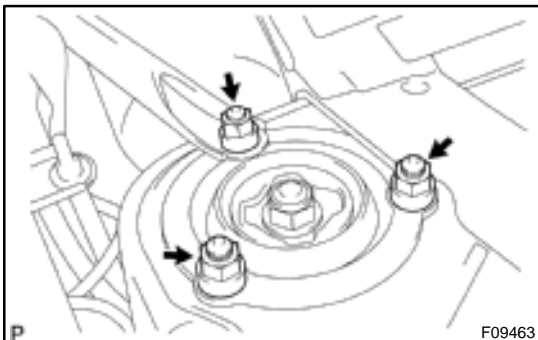
4. REMOVE REAR SHOCK ABSORBER

(a) Loosen the 2 nuts on the lower side of shock absorber.

Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.



(b) Remove the 3 nuts on the upper side of the shock absorber and disconnect the suspension upper brace from shock absorber.

Torque: 80 N·m (816 kgf·cm, 59 ft·lbf)

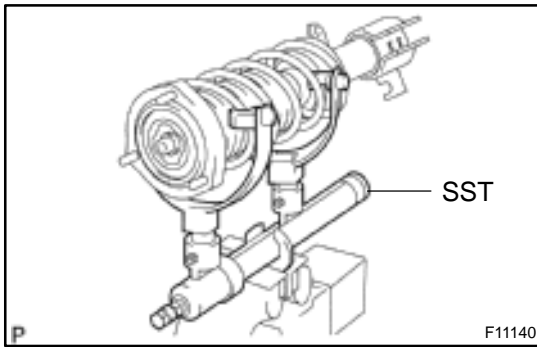
(c) Remove the 2 nuts, 2 bolts and 4 washers on the lower side of shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.

(d) Remove the shock absorber with coil spring.

(e) Remove the suspension support cover.



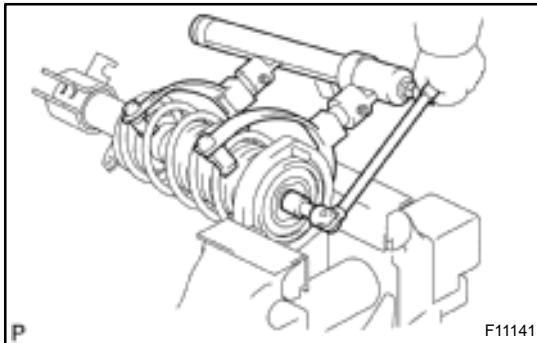
DISASSEMBLY

REMOVE COIL SPRING

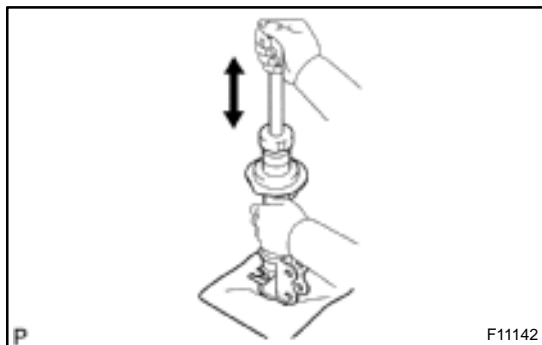
- (a) Using SST, compress the coil spring.
SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.



- (b) Hold the suspension support in a vise.
(c) Remove the nut, collar, suspension support, coil spring and spring bumper.



INSPECTION

INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual sound during operation.

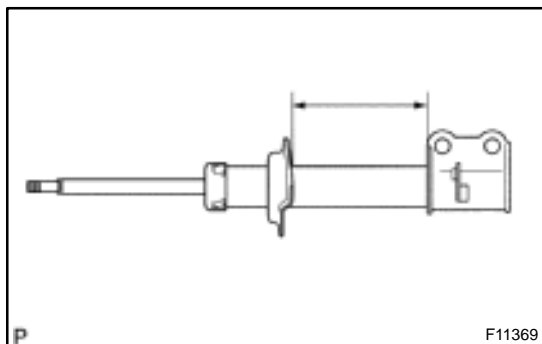
If there is any abnormality, replace the shock absorber with a new one.

NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA-54.

DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD

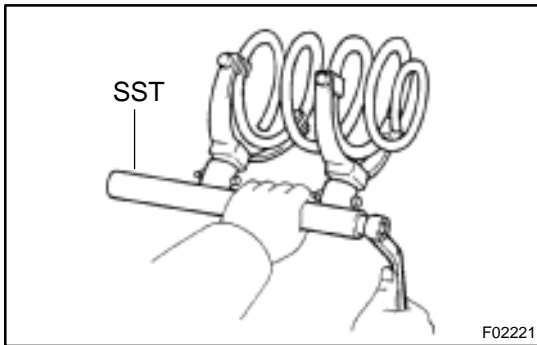


2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER

Using a drill, make a hole in the cylinder as shown in the illustration to discharge the gas inside.

CAUTION:

- When drilling, chips may fly out, work carefully.
- The gas is colorless, odorless and non-poisonous.



REASSEMBLY

1. INSTALL COIL SPRING

- (a) Using SST, compress the coil spring.
 SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

- (b) Insert the coil spring to the shock absorber.

HINT:

Fit the lower end of the coil spring into the gap of the spring lower seat.

2. INSTALL SPRING BUMPER

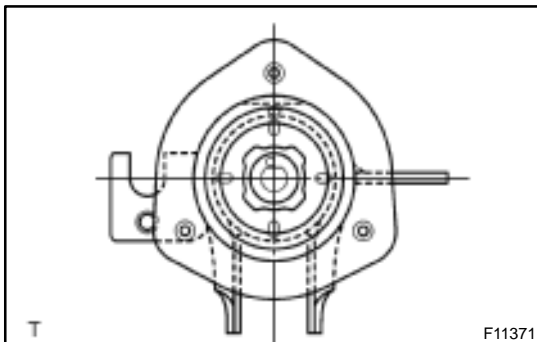
3. INSTALL SUSPENSION SUPPORT

- (a) Position the suspension support.

HINT:

Align the piston rod notch and the suspension support hole.

- (b) Temporarily install the collar and a new center nut.



- (c) Align the suspension support with the shock absorber lower bracket, as shown.

- (d) Hold the suspension support in a vise.

- (e) Tighten the center nut.

Torque: 73 N·m (745 kgf-cm, 54 ft-lbf)

- (f) Remove the SST.

SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

- (g) Recheck the direction of the spring bracket.

INSTALLATION

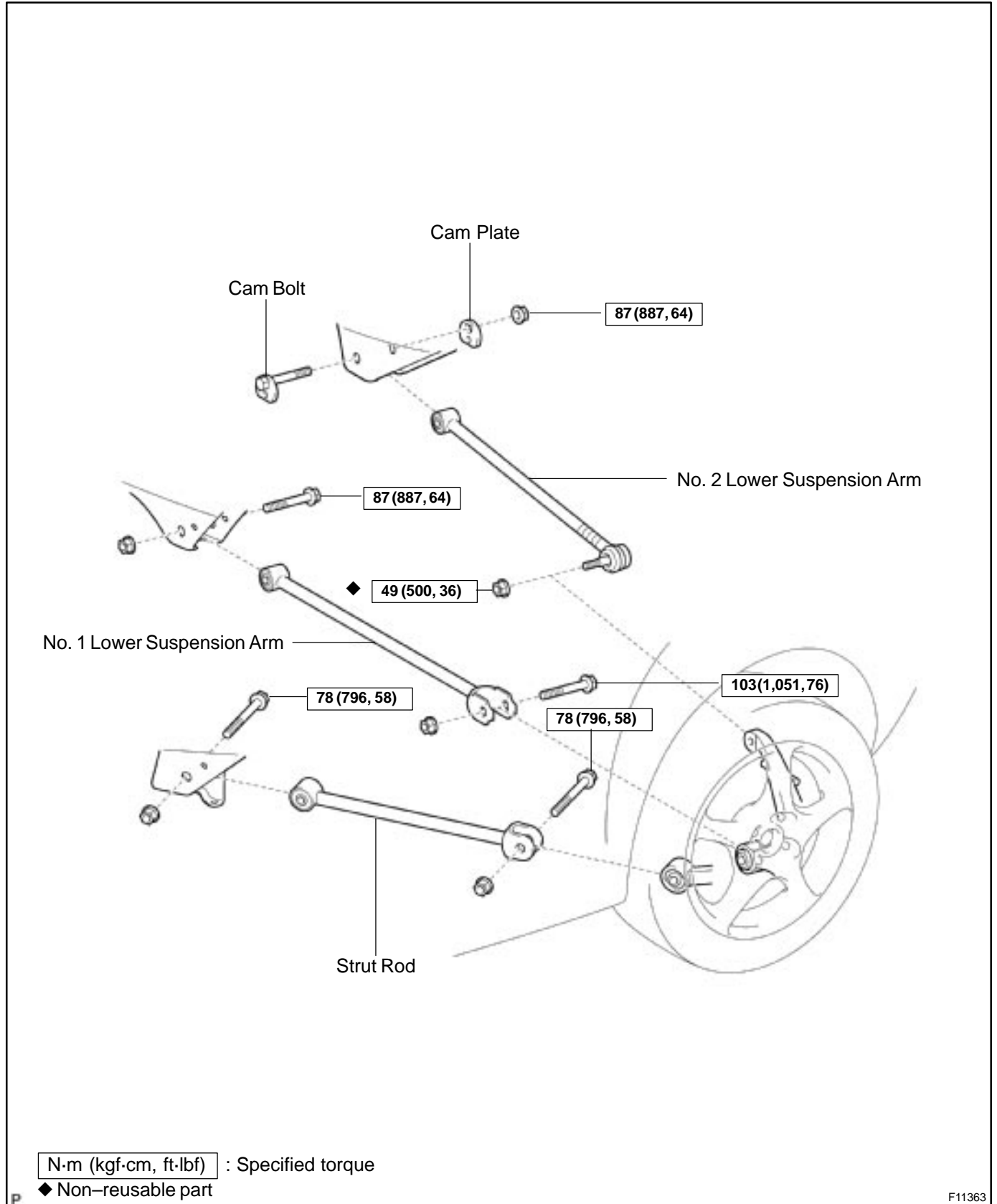
Installation is in the reverse order of removal (See page [SA-51](#)).

HINT:

After installation, check the rear wheel alignment (See page [SA-7](#)).

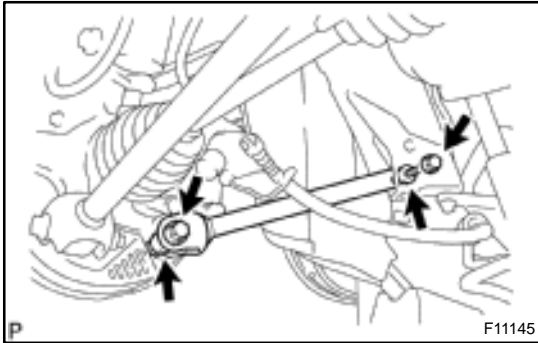
REAR LOWER SUSPENSION ARM AND STRUT ROD COMPONENTS

SA1T9-01



REMOVAL

1. REMOVE ENGINE UNDER COVERS



2. REMOVE STRUT ROD

Remove the 2 bolts, 2 nuts and strut rod.

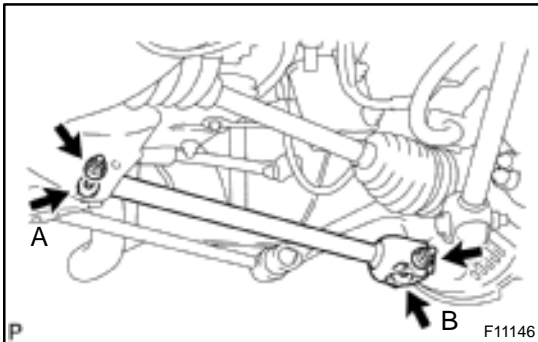
Torque: 78 N·m (796 kgf·cm, 58 ft·lbf)

NOTICE:

Don't turn the nuts.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolts.



3. REMOVE NO. 1 LOWER SUSPENSION ARM

Remove the 2 bolts, 2 nuts and No. 1 lower suspension arm.

Torque:

87 N·m (887 kgf·cm, 64 ft·lbf) for bolt A

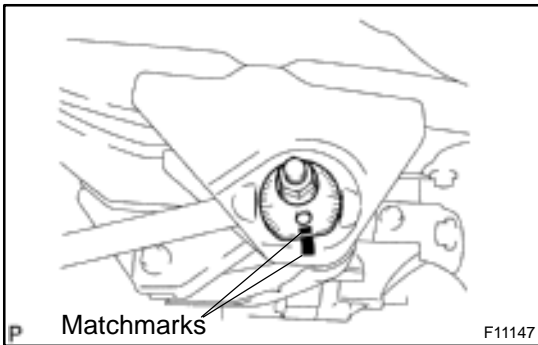
103 N·m (1,051 kgf·cm, 76 ft·lbf) for Bolt B

NOTICE:

Don't turn the nuts.

HINT:

At the time of installation, after stabilizing the suspension, torque the nuts.



4. REMOVE NO. 2 LOWER SUSPENSION ARM

(a) Place matchmarks on both the cam plate and suspension member.

(b) Remove the nut, cam plate and cam bolt.

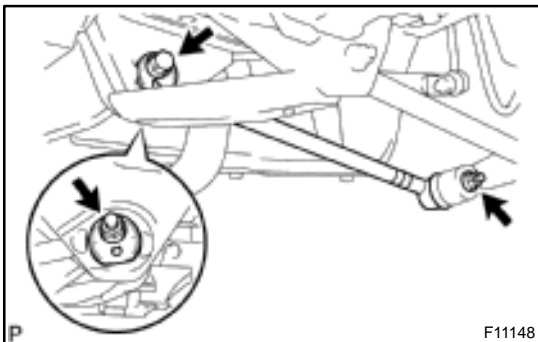
Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)

HINT:

At the time of installation, after stabilizing the suspension, torque the nut.

(c) Remove the nut.

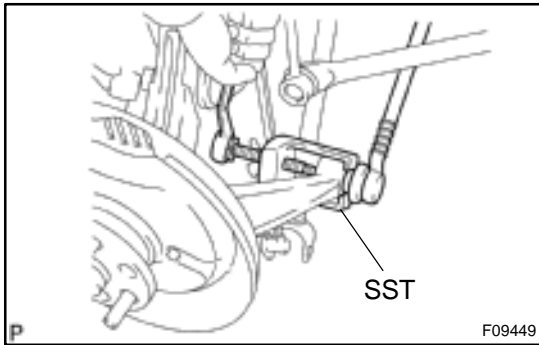
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)



HINT:

At the time of installation, please refer to the following items.

- Use a new nut.
- After stabilizing the suspension, torque the nut.



- (d) Using SST, remove the No. 2 lower suspension arm.
SST 09610-20012

INSTALLATION

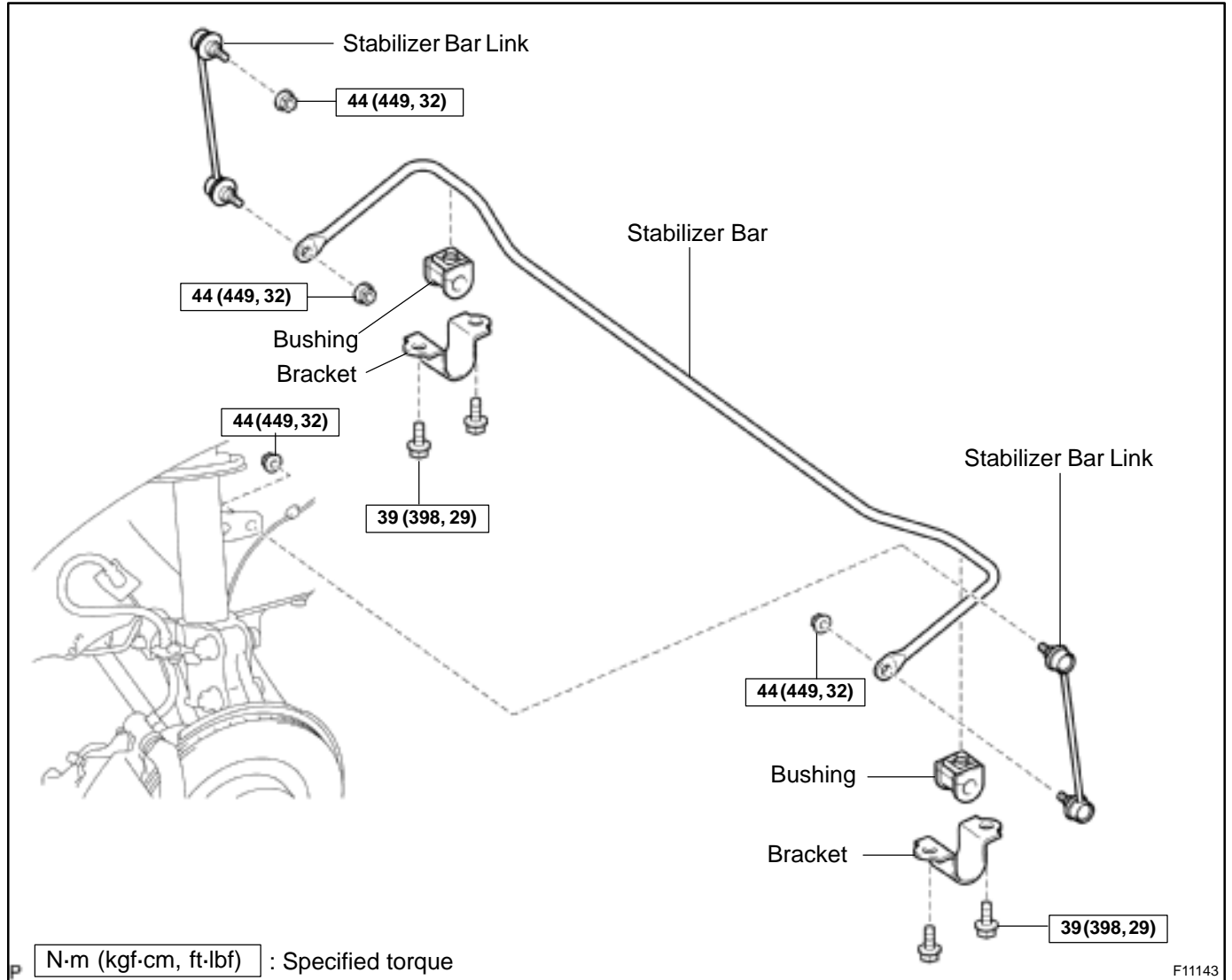
Installation is in the reverse order of removal (See page [SA-58](#)).

HINT:

After installation, check the rear wheel alignment (See page [SA-7](#)).

REAR STABILIZER BAR COMPONENTS

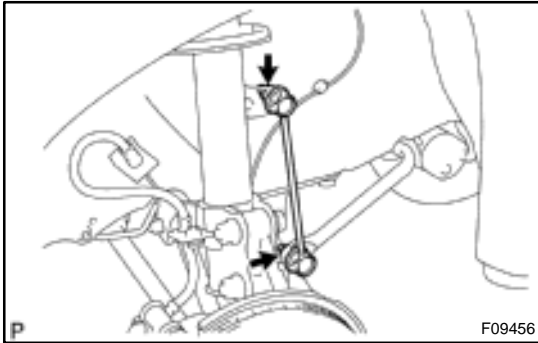
SA1PI-02



REMOVAL

1. REMOVE REAR WHEELS

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. REMOVE STABILIZER BAR LINKS

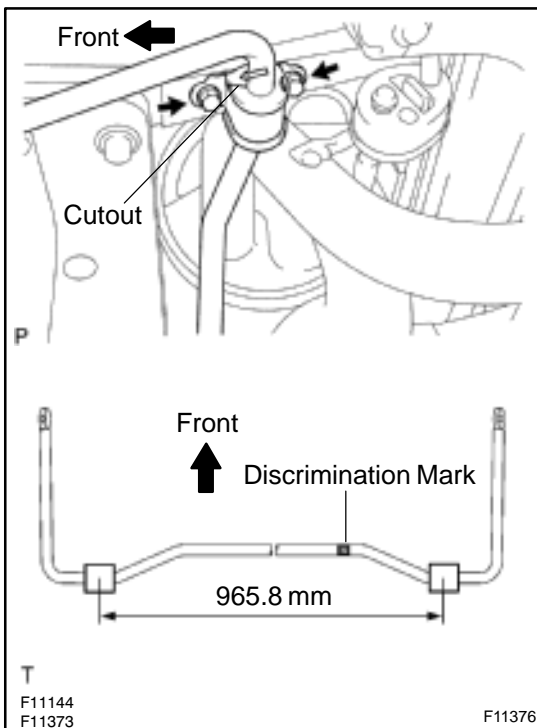
(a) Remove the 2 nuts and stabilizer bar link.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon (5 mm) wrench to hold the stud.

(b) Employ the same manner described above to the other side.



3. REMOVE STABILIZER BAR

(a) Remove the 2 bolts, bracket and bushing.

Torque: 39 N·m (398 kgf·cm, 29 ft·lbf)

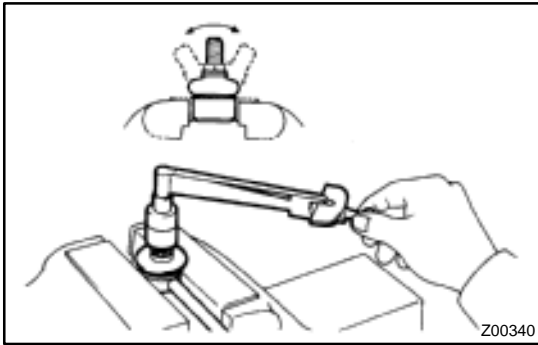
HINT:

At the time of installation, please refer to the following items.

- Install the bushing so that the cutout and arrow mark will face to the front.
- The distance between the bushings is 965.8 mm.
- The side on which the discrimination mark is applied on the stabilizer bar is RH side.

(b) Employ the same manner described above to the other side.

(c) Remove the stabilizer bar.



INSPECTION

INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTATION CONDITION

- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

INSTALLATION

Installation is in the reverse order of removal (See page [SA-62](#)).

BRAKE SYSTEM

BR0PW-01

PRECAUTION

- Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts of the same part number or equivalent.
- It is very important to keep parts and the area clean when repairing the brake system.
- If the vehicle is equipped with a mobile communication system, refer to the precaution in the IN section.

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BR0PX-04

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspected Area	See page
Lower pedal or spongy pedal	1. Brake system (Fluid leaks)	DI-199
	2. Brake system (Air in)	BR-4
	3. Piston seals (Worn or damaged)	Front BR-22 Rear BR-32
	4. Master cylinder (Faulty)	BR-9
	5. Booster push rod (Out of adjustment)	BR-17
Brake drag	1. Brake pedal freeplay (Minimal)	BR-6
	2. Parking brake lever travel (Out of adjustment)	BR-8
	3. Parking brake wire (Sticking)	–
	4. Pad (Cracked or distorted)	Front BR-19 Rear BR-28
	5. Piston (Stuck)	Front BR-22 Rear BR-32
	6. Piston (Frozen)	Front BR-22 Rear BR-32
	7. Booster push rod (Out of adjustment)	BR-17
	8. Booster system (Vacuum leaks)	BR-14
	9. Master cylinder (Faulty)	BR-9
Brake pull	1. Piston (Stuck)	Front BR-22 Rear BR-32
	2. Pad (Oily)	Front BR-19 Rear BR-28
	3. Piston (Frozen)	Front BR-22 Rear BR-32
	4. Disc (Scored)	Front BR-25 Rear BR-37
	5. Pad (Cracked or distorted)	Front BR-19 Rear BR-28
Hard pedal but brake inefficient	1. Brake system (Fluid leaks)	DI-199
	2. Brake system (Air in)	BR-4
	3. Pad (Worn)	Front BR-19 Rear BR-28
	4. Pad (Cracked or distorted)	Front BR-19 Rear BR-28
	5. Pad (Oily)	Front BR-19 Rear BR-28
	6. Pad (Glazed)	Front BR-19 Rear BR-28
	7. Disc (Scored)	Front BR-25 Rear BR-37
	8. Booster push rod (Out of adjustment)	BR-17
	9. Booster system (Vacuum leaks)	BR-14

BRAKE - TROUBLESHOOTING

Symptom	Suspected Area	See page
Noise from brake	1. Pad (Cracked or distorted)	Front BR-19
		Rear BR-28
	2. Installation bolt (Loose)	Front BR-22
		Rear BR-32
	3. Disc (Scored)	Front BR-25
		Rear BR-37
	4. Pad support plate (Loose)	Front BR-22
		Rear BR-32
	5. Sliding pin (Worn)	Front BR-22
		Rear BR-32
	6. Pad (Dirty)	Front BR-19
		Rear BR-28
	7. Pad (Glazed)	Front BR-19
		Rear BR-28
	8. Anti-squeal shim (Damaged)	Front BR-19
		Rear BR-28

BRAKE FLUID BLEEDING

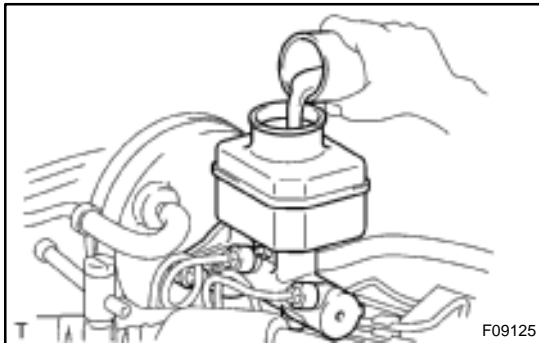
BROPY-03

HINT:

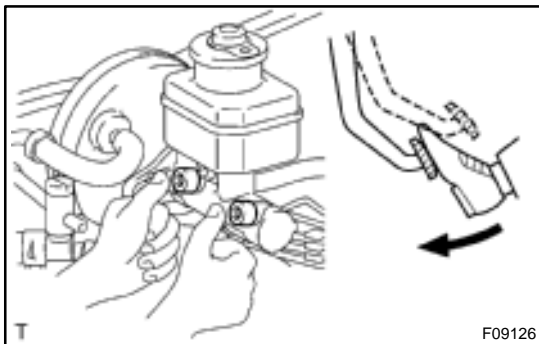
If any work is done on the brake system or if air in the brake lines is suspected, bleed the air from the brake system.

NOTICE:

Do not let brake fluid remain on a painted surface. Wash it off immediately.



- 1. FILL BRAKE RESERVOIR WITH BRAKE FLUID**
Fluid: SAE J1703 or FMVSS No. 116 DOT3

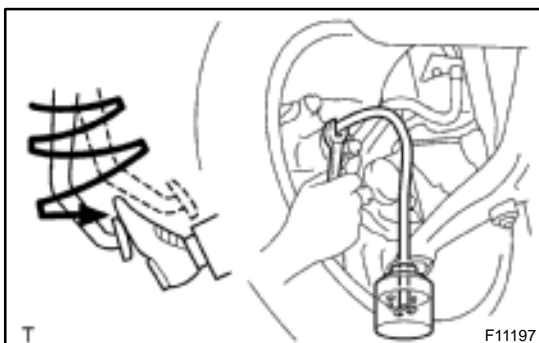
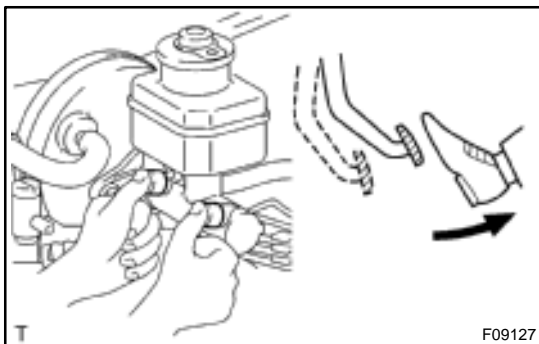


- 2. BLEED MASTER CYLINDER**

HINT:

If the master cylinder has been disassembled or if the reservoir becomes empty, bleed the air from the master cylinder.

- Disconnect the brake lines from the master cylinder.
SST 09023-00100
- Slowly depress the brake pedal and hold it.
- Block off the outlet plug with your finger and release the brake pedal.
- Repeat (b) and (c) 3 or 4 times.



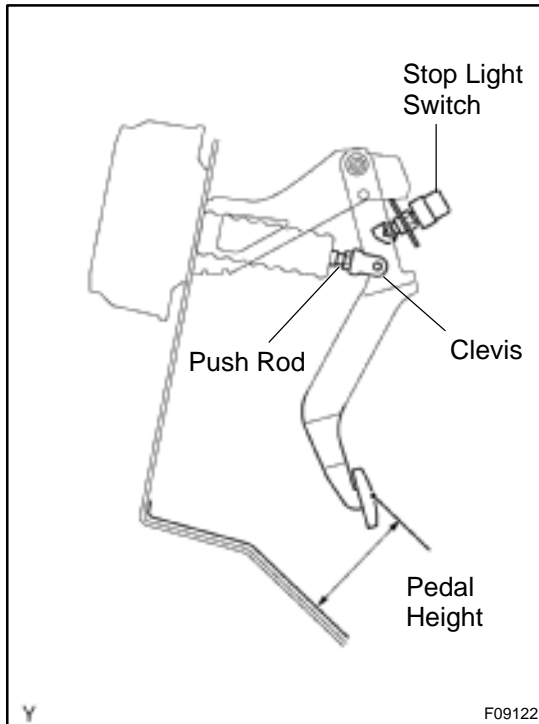
- 3. BLEED BRAKE LINE**

- Connect a vinyl tube to the caliper.
- Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down.
- At the point when fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
- Repeat (b) and (c) until all the air in the fluid has been bleeding out.
- Repeat the above procedure to bleed the air out of the brake line for each wheel.

4. CHECK FLUID LEVEL IN RESERVOIR

Check the fluid level and add fluid if necessary.

Fluid: SAE J1703 or FMVSS No. 116 DOT3



BRAKE PEDAL ON-VEHICLE INSPECTION

BR0PZ-03

1. CHECK PEDAL HEIGHT

**Pedal height from dash panel:
142.1 – 152.1 mm (5.594 – 5.988 in.)**

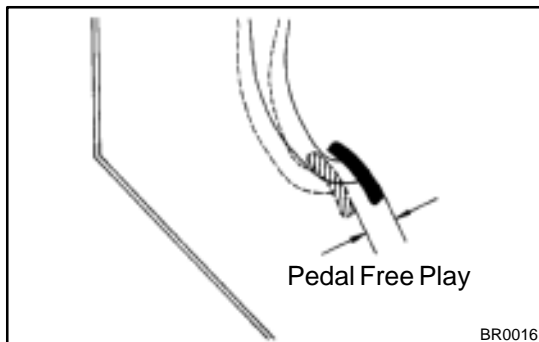
If the pedal height is incorrect, adjust it.

2. IF NECESSARY, ADJUST PEDAL HEIGHT

- Disconnect the connector from the stop light switch.
- Loosen the stop light switch lock nut and remove the stop light switch.
- Loosen the clevis lock nut.
- Adjust the pedal height by turning the pedal push rod.
- Tighten the clevis lock nut.

Torque: 26 N·m (265 kgf·cm, 19 ft·lbf)

- Install the stop light switch.
- Connect the connector to the stop light switch.
- Push the brake pedal in 5 – 15 mm (0.20 – 0.59 in.), turn the stop light switch to lock the nut in the position where the stop light goes off.
- Push the brake pedal in 5 – 15 mm (0.20 – 0.59 in.), and check that stop light lights up.
- After adjusting the pedal height, check the pedal free play.



3. CHECK PEDAL FREE PLAY

- Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.
- Push in the pedal until the beginning of the resistance is felt. Measure the distance, as shown.

Pedal free play: 1 – 6 mm (0.04 – 0.24 in.)

If incorrect, check the stop light switch clearance.

If the clearance is OK, then troubleshoot the brake system.

**Stop light switch clearance:
0.5 – 2.4 mm (0.020 – 0.094 in.)**

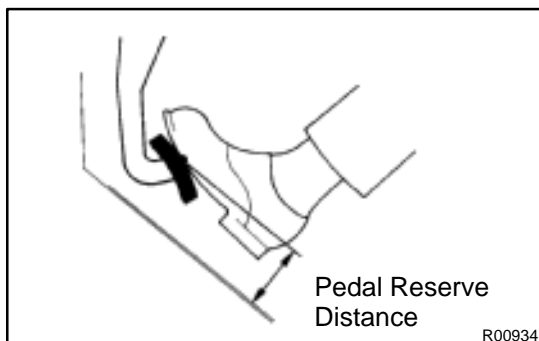
4. CHECK PEDAL RESERVE DISTANCE

Release the parking brake lever.

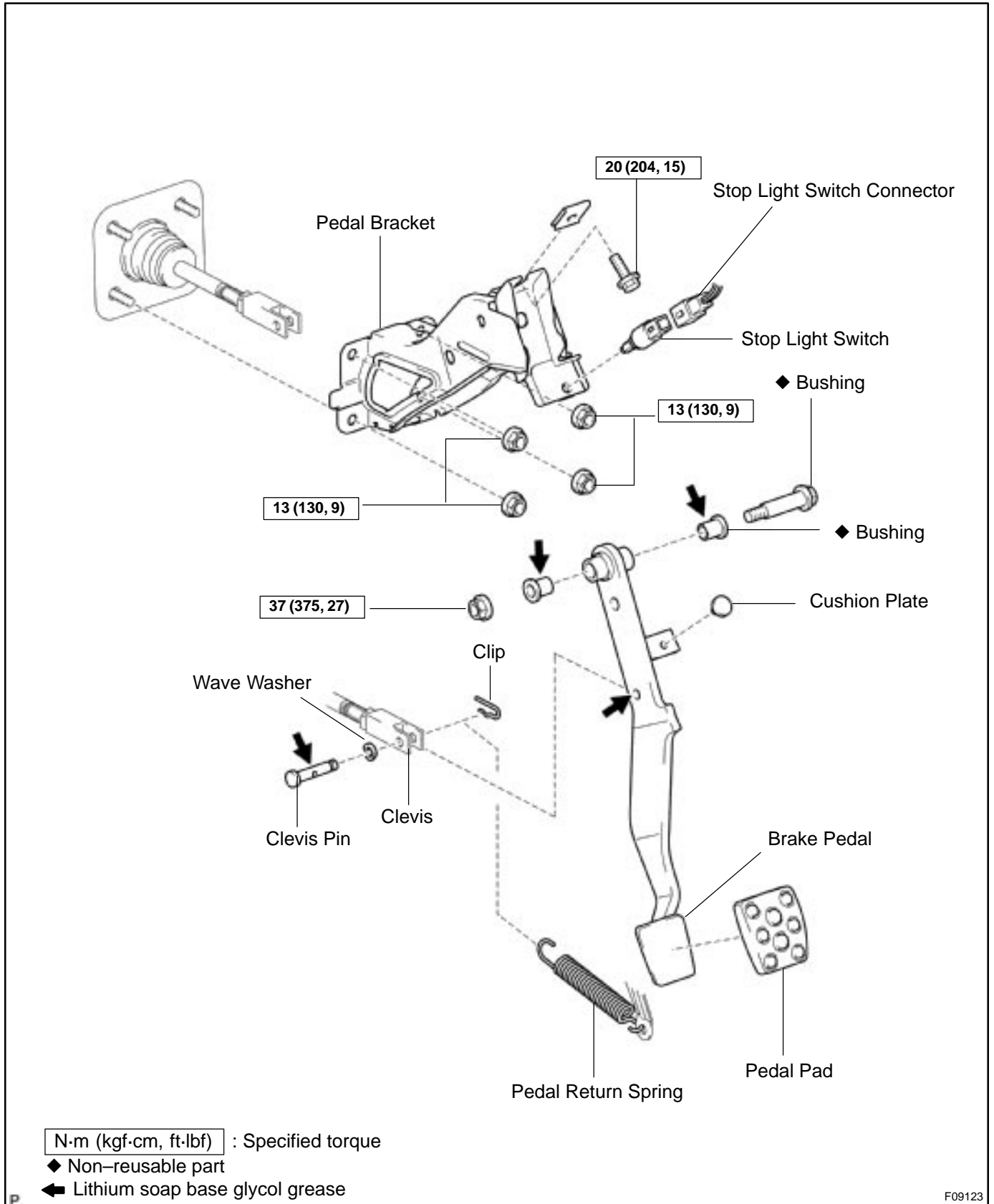
With engine running, depress the pedal and measure the pedal reserve distance, as shown.

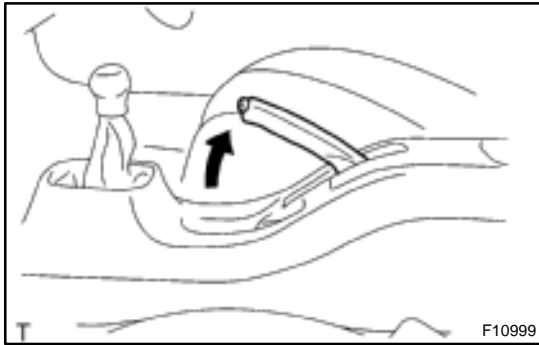
Pedal reserve distance from dash panel at 490 N (50 kgf, 110.2 lbf): More than 85 mm (3.35 in.)

If incorrect, troubleshoot the brake system.



COMPONENTS





PARKING BRAKE LEVER ON-VEHICLE INSPECTION

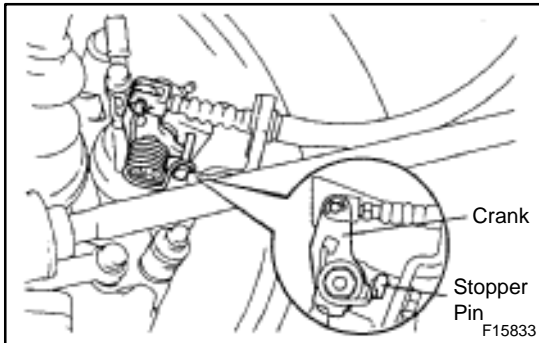
BR000-03

1. CHECK PARKING BRAKE LEVER TRAVEL

Pull the parking brake lever all the way up, and count the number of clicks.

**Parking brake lever travel at 196 N (20 kgf, 44.1 lbf):
5 – 8 clicks**

If incorrect, adjust the parking brake.

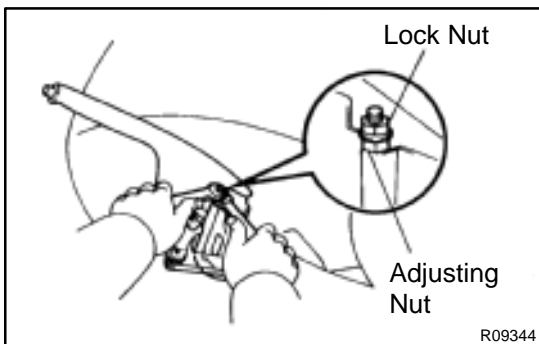


2. IF NECESSARY, ADJUST PARKING BRAKE

- (a) Remove the console box.
- (b) Loosen the lock nut and loosen the adjusting nut until the left and right parking brake cranks touch the stopper pin.
- (c) Start the engine and depress the brake pedal with the thread force at about 490 N (50 kgf, 110 lbf) for 10 times.
- (d) Tighten the adjusting nut until the cable has no looseness.
- (e) Pull the parking brake lever up strongly once.
- (f) Release the parking brake lever.
- (g) Turn the adjusting nut until the lever travel is correct.
- (h) Tighten the lock nut.

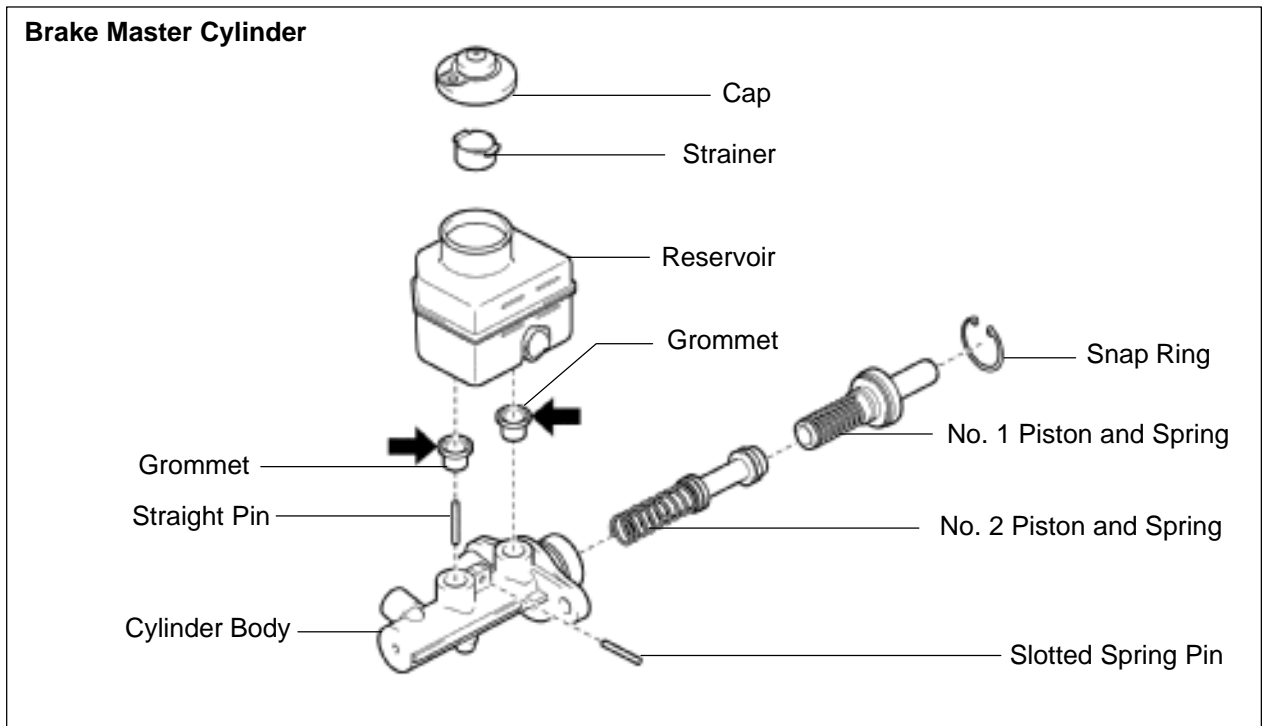
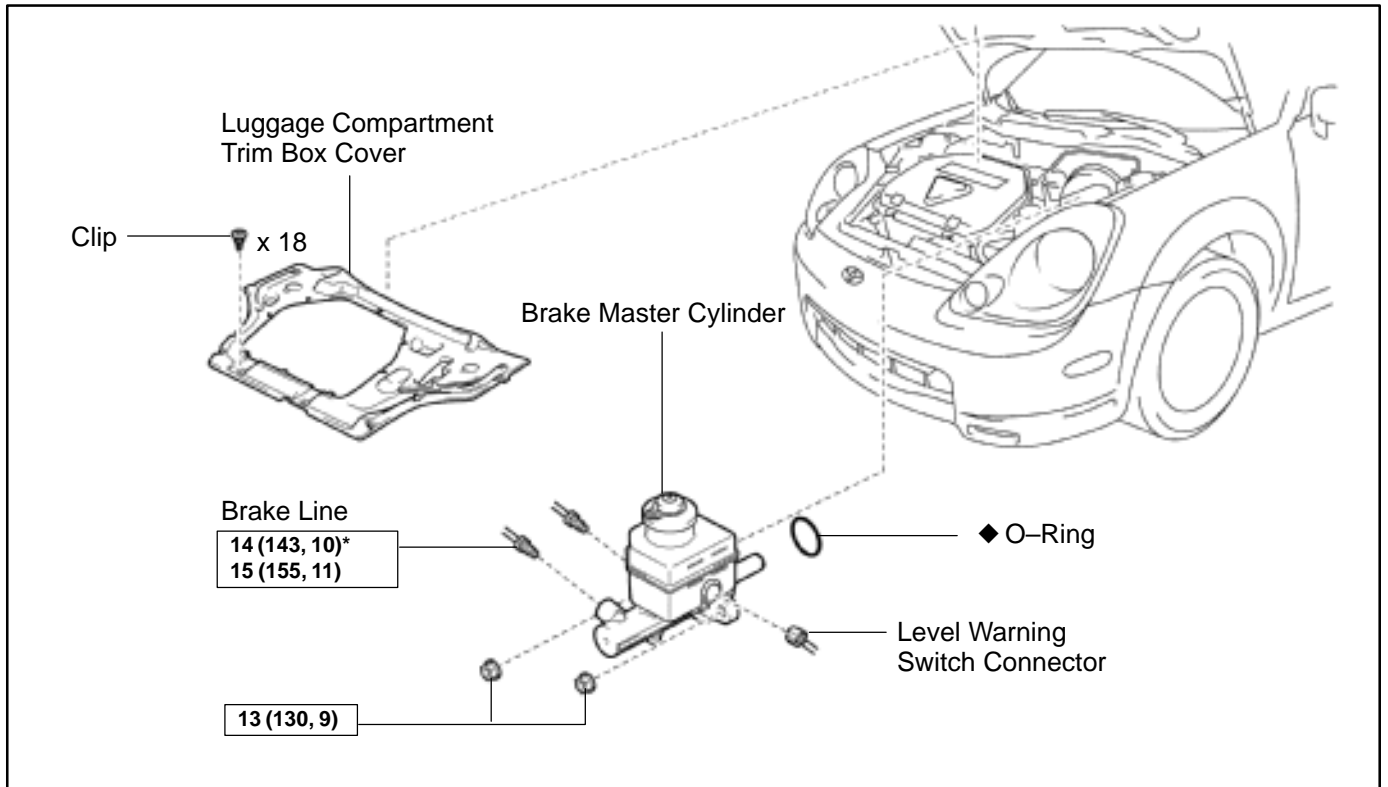
Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

- (i) Release the parking brake lever and check the brake drag of the rear brake by turning the rear wheel.
- (j) Check that the left and right brake cranks touch the stopper pin under the condition in which the parking brake lever is released.
- (k) Check that the brake indicator light comes on when operating the parking brake lever.
- (l) Install the console box.



BRAKE MASTER CYLINDER COMPONENTS

BR001-03



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

P ◆ Non-reusable part

*For use with SST

◀ Lithium soap base glycol grease

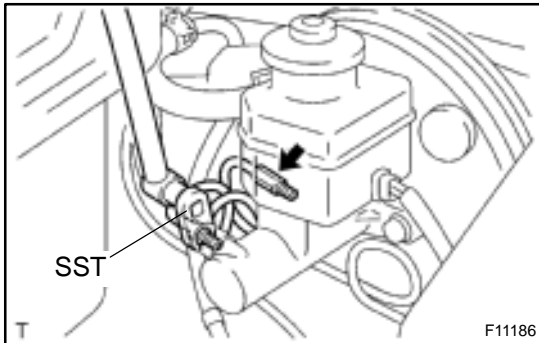
F09124

REMOVAL

1. REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER
2. DISCONNECT LEVEL WARNING SWITCH CONNECTOR
3. DRAW OUT FLUID WITH SYRINGE

NOTICE:

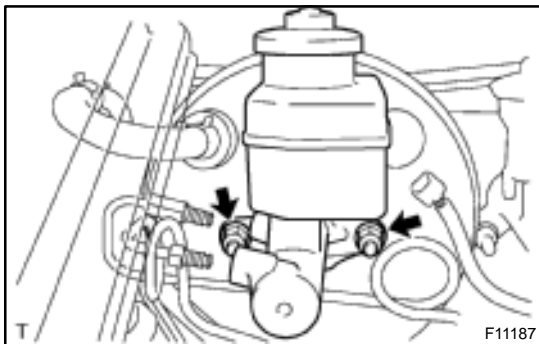
Do not let brake fluid remain on a painted surface. Wash it off immediately.



4. DISCONNECT BRAKE LINES FROM BRAKE MASTER CYLINDER

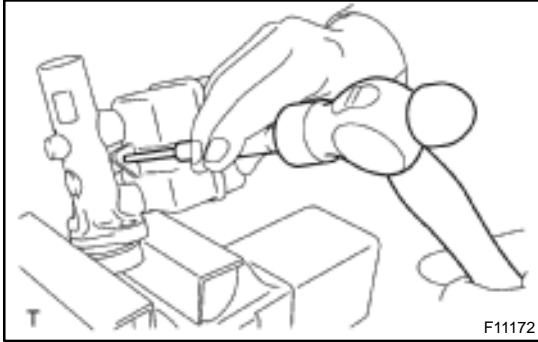
Using SST, disconnect the 2 brake lines.

SST 09023-00100



5. REMOVE BRAKE MASTER CYLINDER

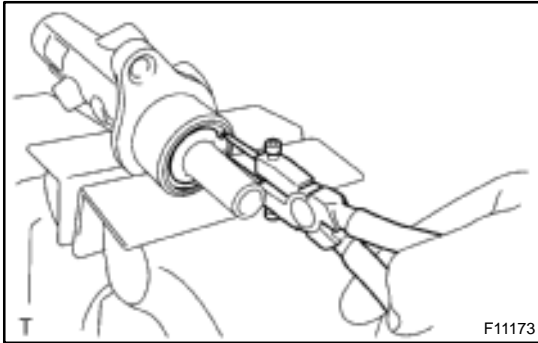
- (a) Remove the 2 nuts.
- (b) Pull out the master cylinder.
- (c) Remove the O-ring from the master cylinder.



DISASSEMBLY

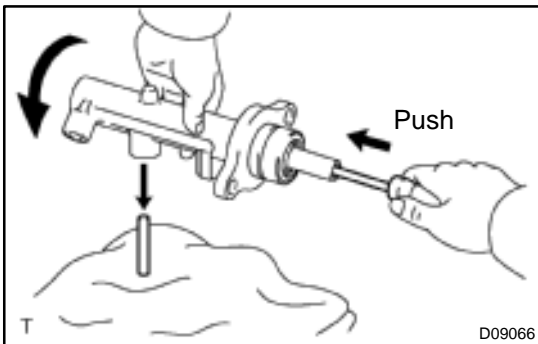
1. REMOVE RESERVOIR

- (a) Using a pin punch and a hammer, tap out the slotted spring pin.
- (b) Remove the reservoir.
- (c) Remove the 2 grommets from the reservoir.
- (d) Remove the cap and strainer from the reservoir.



2. REMOVE 2 PISTON AND SPRINGS

- (a) Using snap ring pliers, remove the snap ring.

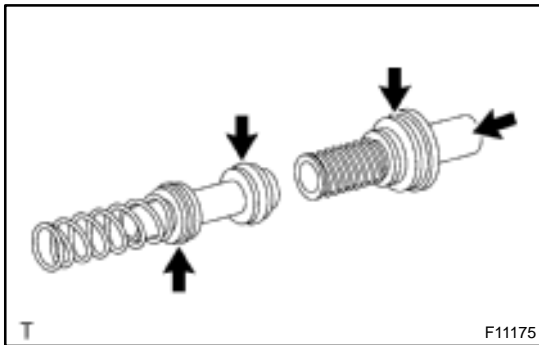


- (b) Push in the piston with a screwdriver, and remove the straight pins by turning over the cylinder body.

HINT:

Tape the screwdriver tip before use.

- (c) Remove the 2 pistons and springs by hand, pulling straight out, not at an angle.

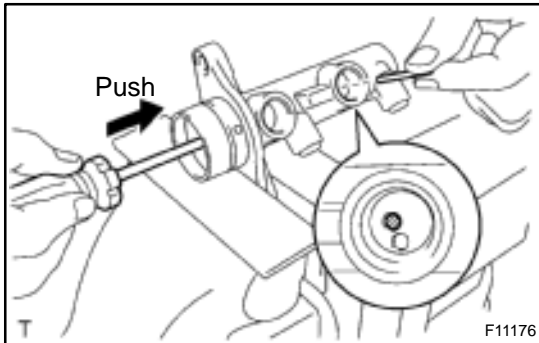


REASSEMBLY

1. **COAT PARTS WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN**

2. **INSTALL NO. 2 PISTON AND SPRING**

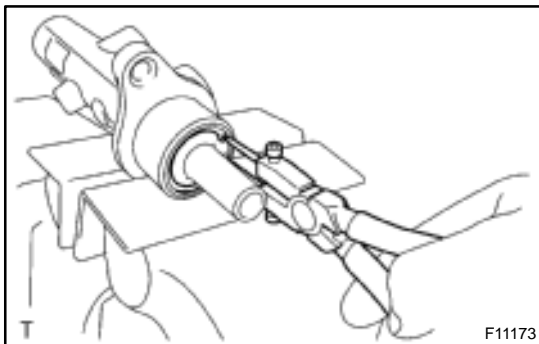
(a) Install the No. 2 piston and spring.



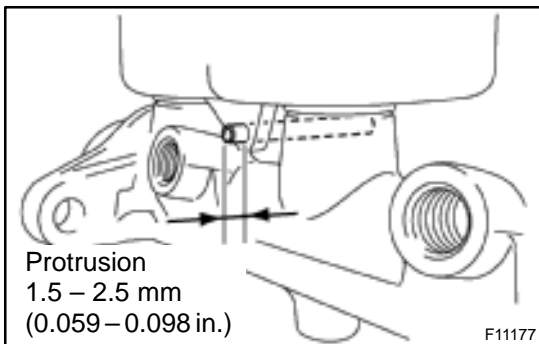
(b) Using a screwdriver, while pushing the No. 2 piston and spring, then install the straight pin.

3. **INSTALL NO. 1 PISTON AND SPRING**

(a) Install the No. 1 piston and spring.



(b) Using snap ring pliers, install the snap ring.



4. **INSTALL RESERVOIR**

(a) Install the strainer and cap to the reservoir.

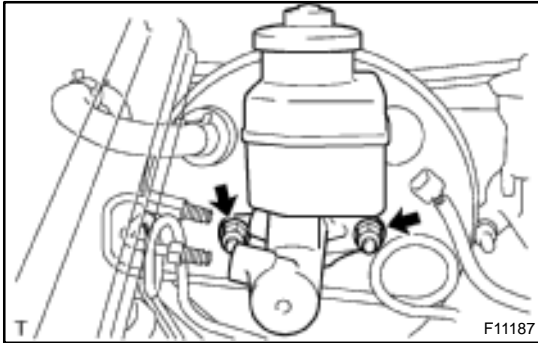
(b) Install the 2 grommets and reservoir to the cylinder body.

(c) Using a pin punch and a hammer, tap in the slotted spring pin.

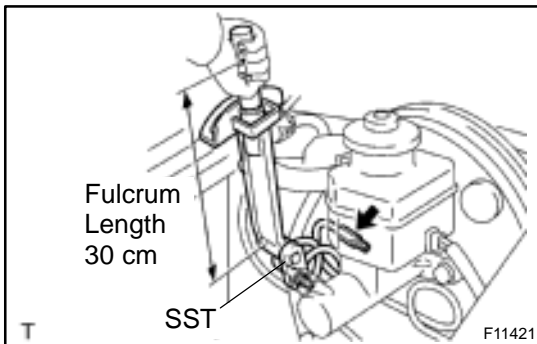
INSTALLATION

1. INSTALL BRAKE MASTER CYLINDER

- (a) Install a new O-ring to the master cylinder.



- (b) Install the master cylinder with the 2 nuts.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)



2. CONNECT BRAKE LINES TO MASTER CYLINDER

Using SST, connect the 2 brake lines.

SST 09023-00100

Torque:

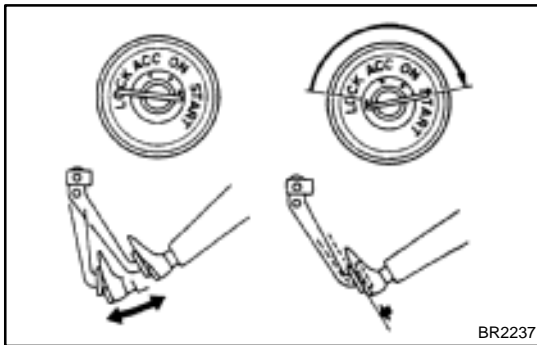
15 N·m (155 kgf·cm, 11 ft·lbf)

14 N·m (143 kgf·cm, 10 ft·lbf) for use with SST

HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81in.).

3. **CONNECT LEVEL WARNING SWITCH CONNECTOR**
4. **FILL RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-4)**
5. **CHECK FOR FLUID LEAKAGE**
6. **CHECK AND ADJUST BRAKE PEDAL (See page BR-6)**
7. **INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER**



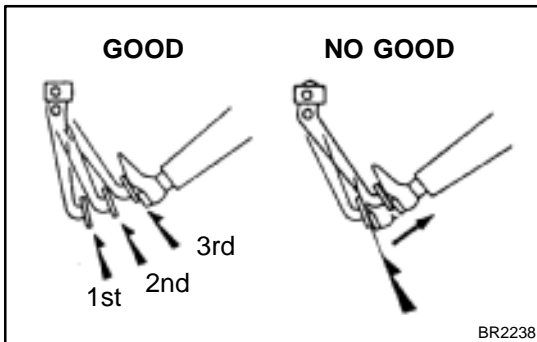
BR2237

BRAKE BOOSTER ASSEMBLY ON-VEHICLE INSPECTION

BR007-02

1. OPERATING CHECK

- (a) Depress the brake pedal several times with the engine off and check that there is no change in the pedal reserve distance.
- (b) Depress the brake pedal and start the engine. If the pedal goes down slightly, operation is normal.



BR2238

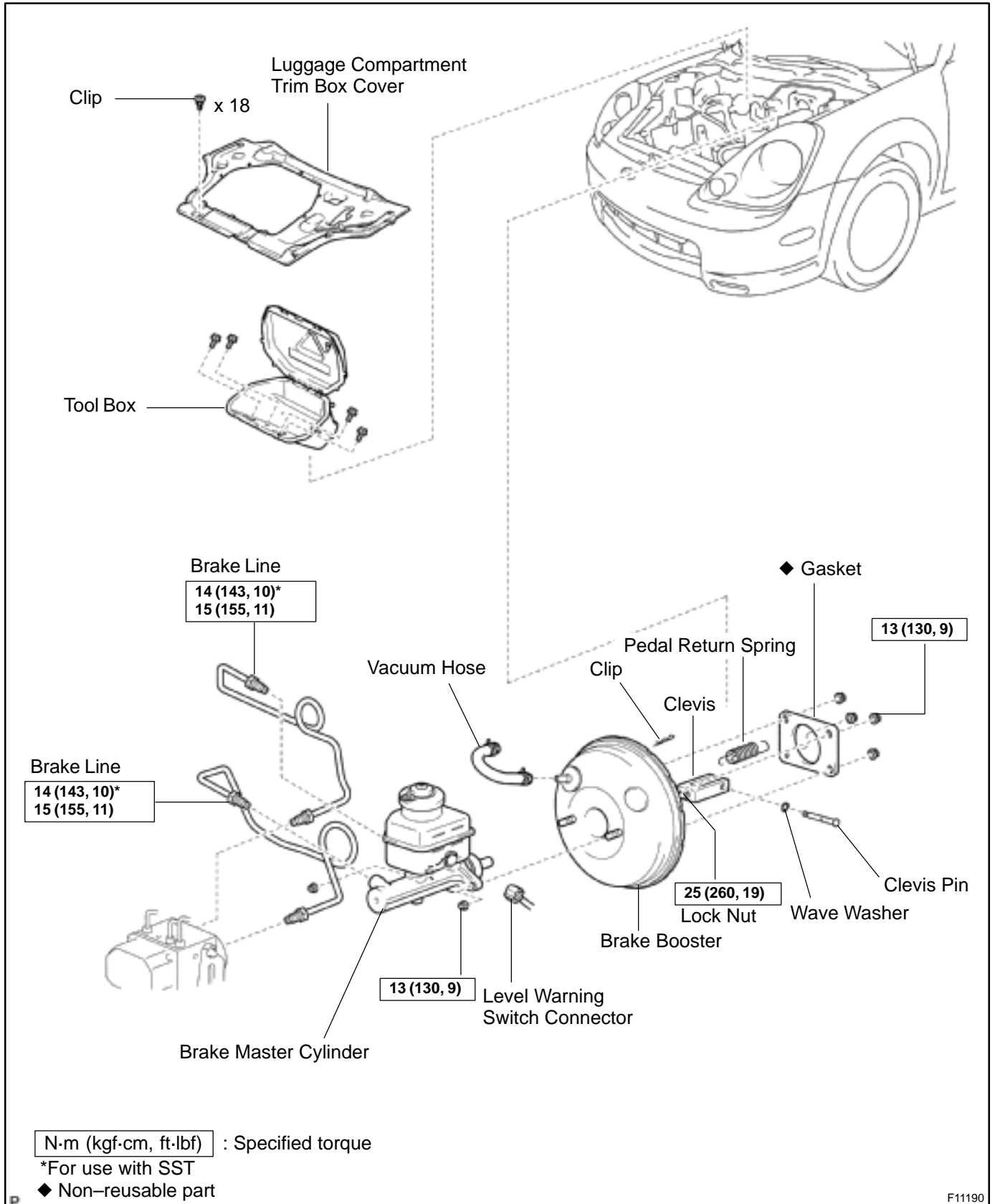
2. AIR TIGHTNESS CHECK

- (a) Start the engine and stop it after 1 or 2 minutes. Depress the brake pedal several times slowly.

If the pedal goes down farthest the 1st time, but gradually rises after the 2nd or 3rd time, the booster is air tight.

- (b) Depress the brake pedal while the engine is running, and stop the engine with the pedal depressed. If there is no change in the pedal reserve travel after holding the pedal for 30 seconds, the booster is air tight.

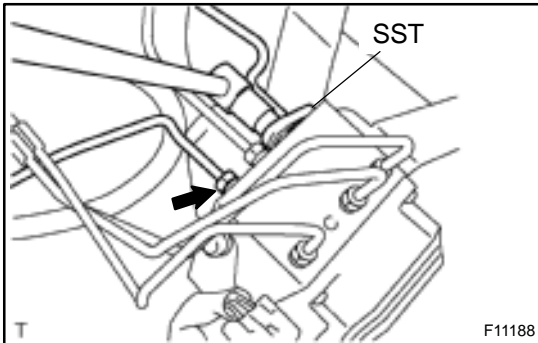
COMPONENTS



F11190

REMOVAL

1. REMOVE MASTER CYLINDER (See page BR-10)
2. REMOVE TOOL BOX
3. DISCONNECT VACUUM HOSE FROM BRAKE BOOSTER



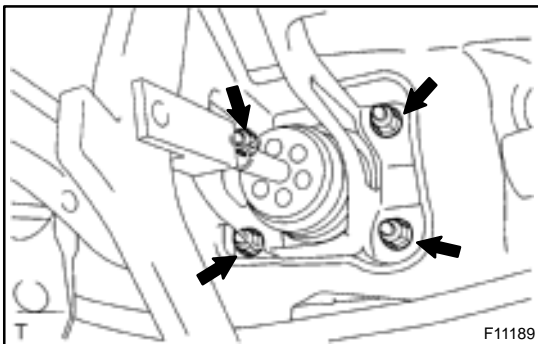
4. REMOVE 2 BRAKE LINES

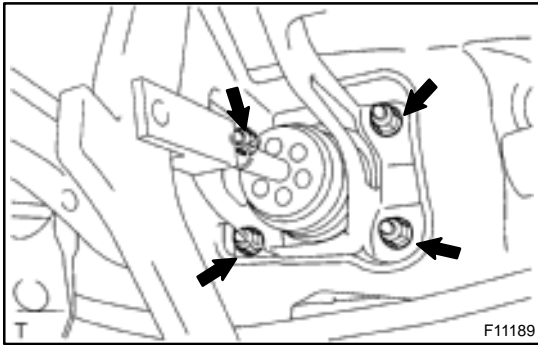
Using SST, remove the 2 brake lines from the ABS actuator.

SST 09023-00100

5. REMOVE BRAKE BOOSTER

- (a) Using needle-nose pliers, remove the return spring and clip.
- (b) Remove the clevis pin and wave washer.
- (c) Remove the 4 nuts and clevis.
- (d) Pull out the brake booster and gasket.

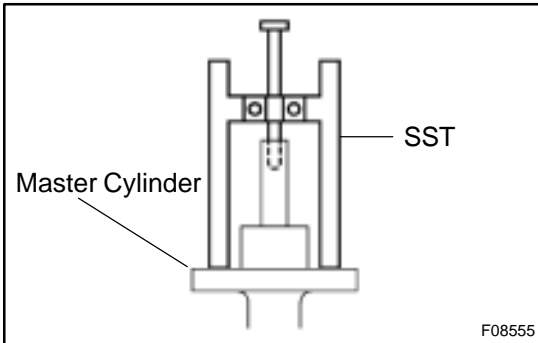




INSTALLATION

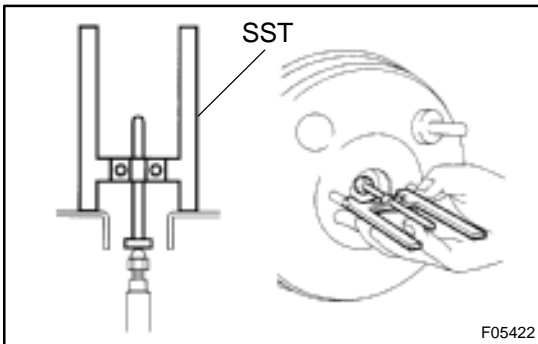
1. INSTALL BRAKE BOOSTER

- Install a new gasket and the brake booster with the 4 nuts.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)
- Install the clevis to the brake pedal with the wave washer, clevis pin and clip.
- Using needle-nose pliers, install the pedal return spring.

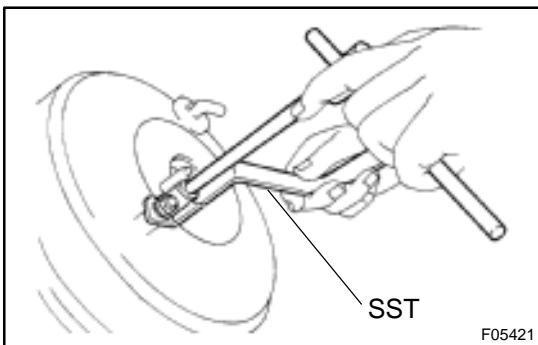


2. ADJUST LENGTH OF BOOSTER PUSH ROD

- Set the SST on the master cylinder, and lower the pin until its tip slightly touches the piston.
SST 09737-00011

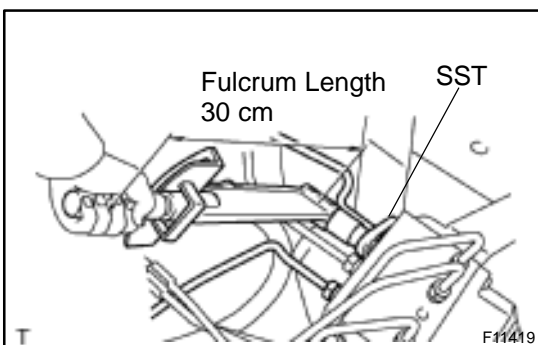


- Turn the SST upside down, and set it on the booster.
SST 09737-00011
- Measure the clearance between the booster push rod and pin head (SST).
Clearance: 0 mm (0 in.)



- Using SST, adjust the booster push rod length until the push rod lightly touches the pin head.
SST 09737-00020

3. CONNECT VACUUM HOSE TO BRAKE BOOSTER



4. INSTALL BRAKE LINES

Using SST, install the 2 brake lines to the ABS actuator.

Torque:

15 N·m (155 kgf·cm, 11 ft·lbf)

14 N·m (143 kgf·cm, 10 ft·lbf) for use with SST

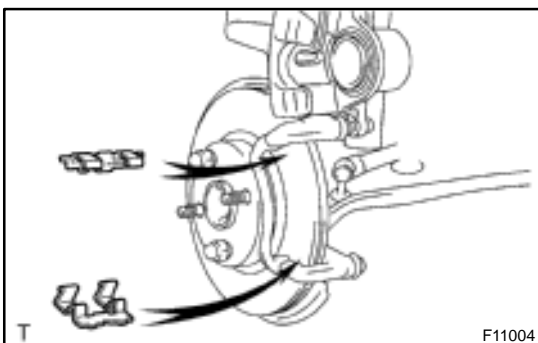
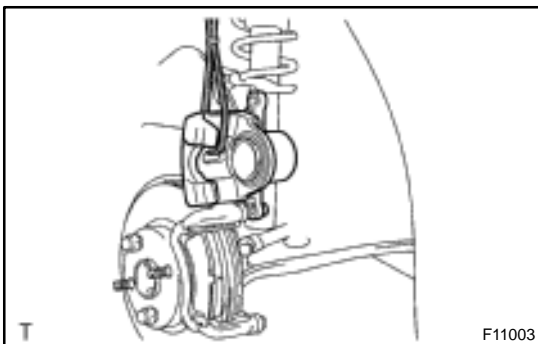
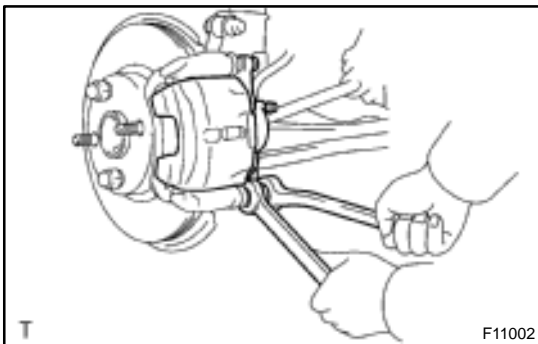
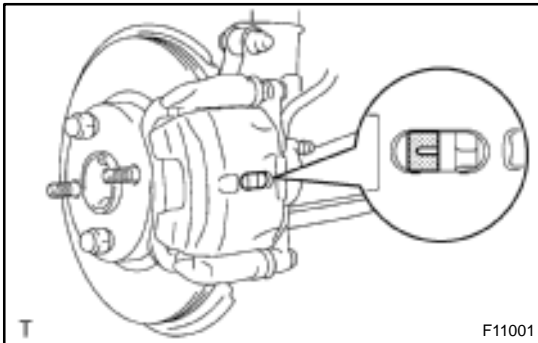
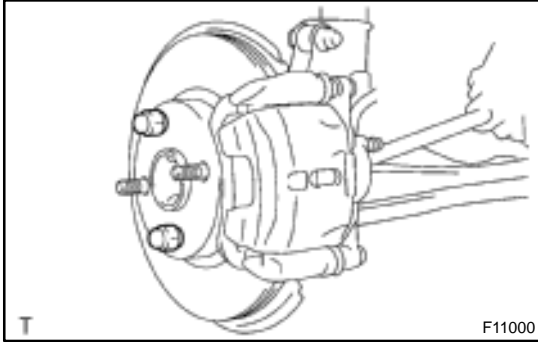
HINT:

Use a torque wrench with a fulcrum length of 30 cm (11.81in.).

5. INSTALL MASTER CYLINDER (See page BR-13)

6. FILL RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-4)

7. CHECK FOR FLUID LEAKAGE
8. CHECK AND ADJUST BRAKE PEDAL
(See page [BR-6](#))
9. DO OPERATIONAL CHECK (See page [BR-14](#))
10. INSTALL TOOL BOX
11. INSTALL LUGGAGE COMPARTMENT TRIM BOX
COVER



REPLACEMENT

1. REMOVE FRONT WHEEL

Remove the wheel and temporarily fasten the disc with the hub nuts.

2. INSPECT PAD LINING THICKNESS

Check the pad thickness through the caliper inspection hole and replace the pads if they are not within the specification.

Minimum thickness: 1.0 mm (0.039 in.)

3. DISCONNECT FLEXIBLE HOSE FROM SHOCK ABSORBER

Remove the bolt and disconnect the flexible hose.

4. LIFT UP CALIPER

- (a) Hold the sliding pin and remove the bottom side installation bolt.

HINT:

Do not disconnect the flexible hose from the brake caliper.

- (b) Lift up the caliper and suspend it securely.

5. REMOVE 2 PADS WITH 4 ANTI-SQUEAL SHIMS

6. REMOVE 2 PAD SUPPORT PLATES

NOTICE:

The support plates can be used again provided that they have sufficient rebound, no deformation, cracks or wear, and remove all rust, dirt and foreign particles.

7. CHECK DISC THICKNESS AND RUNOUT (See page [BR-25](#))

8. INSTALL PAD SUPPORT PLATES

Install the 2 pad support plates.

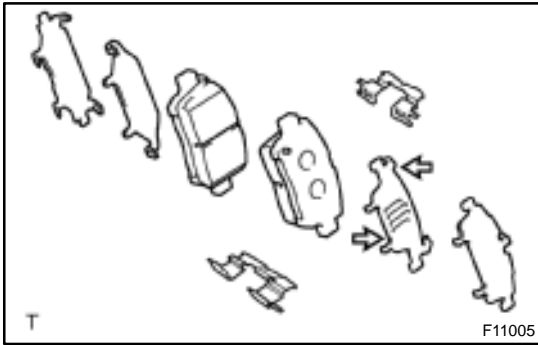
NOTICE:

Do not assemble the upper and lower pad support plates in reverse.

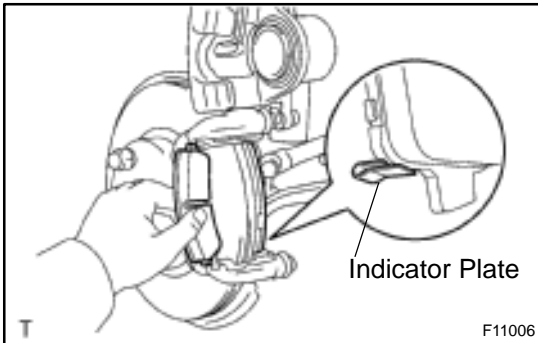
9. INSTALL NEW PADS

NOTICE:

When replacing worn pads, the anti-squeal shims must be replaced together with the pads.



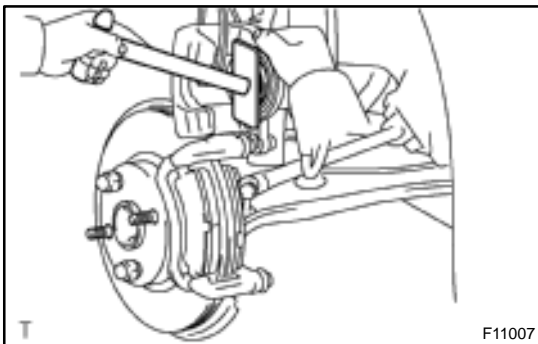
- (a) Apply disc brake grease to both sides of the inner anti-squeal shims position outside (See page BR-19).
- (b) Install the 2 anti-squeal shims on the outer pad.
- (c) Install the 2 anti-squeal shims on the inter pad.



- (d) Install the inside pads with the pad wear indicator plate facing downward.
- (e) Install the outside pad.

NOTICE:

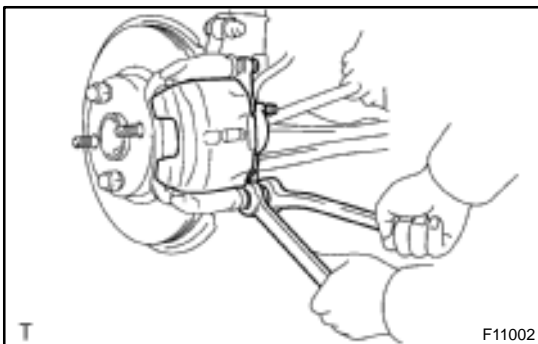
There should be no oil or grease adhering to the friction surfaces of the pads or the disc.

**10. INSTALL CALIPER**

- (a) Draw out a small amount of brake fluid from the reservoir.
- (b) Press in the piston with a hammer handle or similar implement.

HINT:

If the piston is difficult to push in, loosen the bleeder plug and push in the piston while letting some brake fluid escape.



- (c) Temporarily install the cylinder on the torque plate with bottom side installation bolt.
- (d) Hold the sliding pin and torque the installation bolt.
Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

11. CONNECT FLEXIBLE HOSE FROM SHOCK ABSORBER

Connect the brake hose and install the bolt.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)

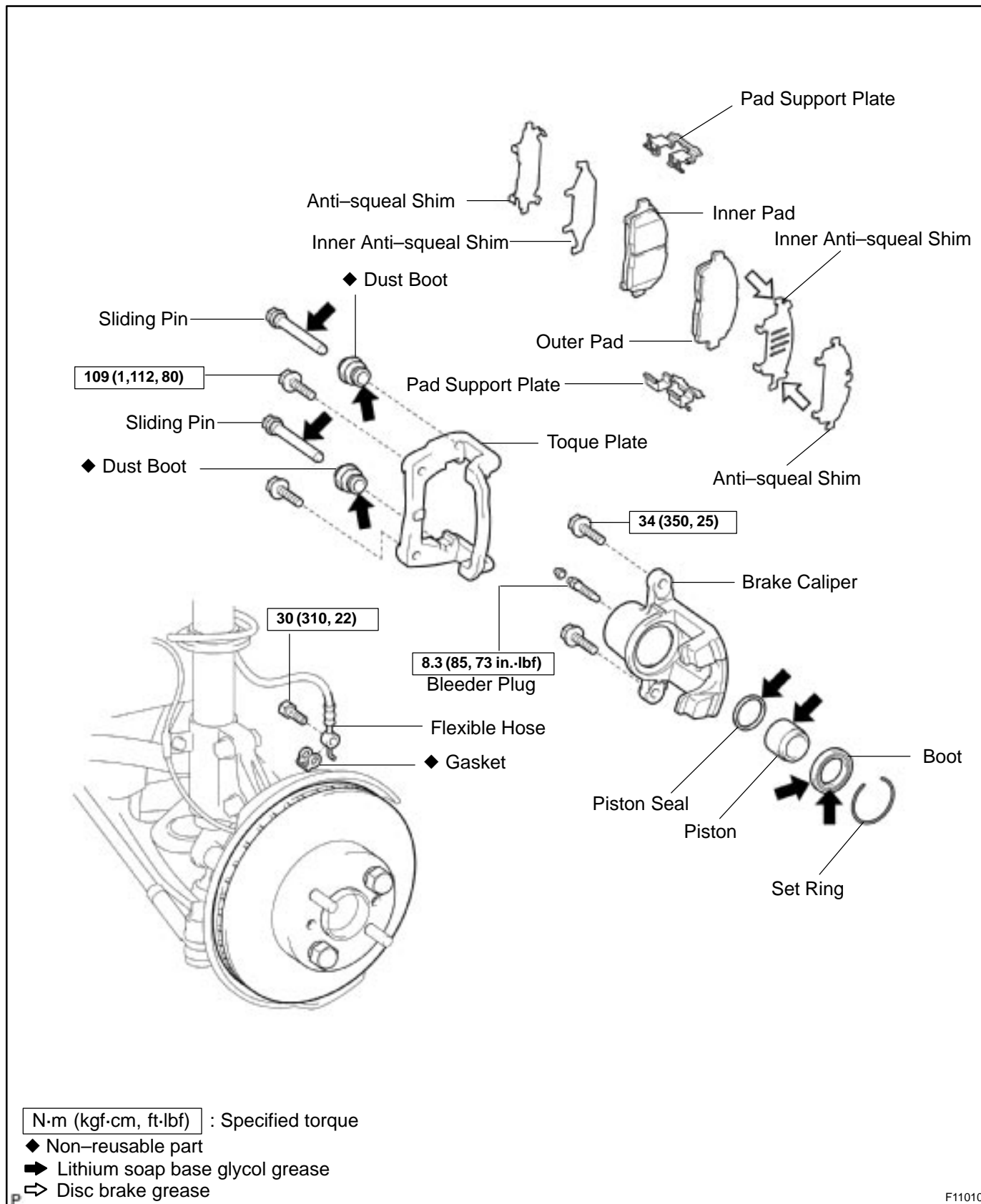
12. INSTALL FRONT WHEEL

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

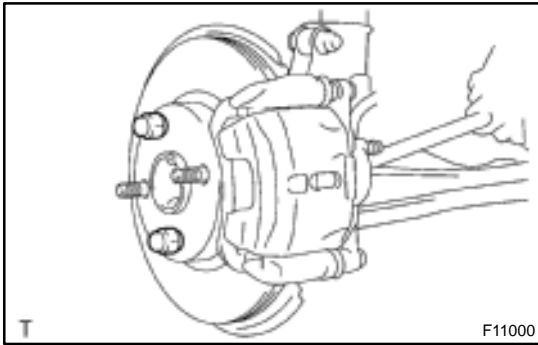
13. DEPRESS BRAKE PEDAL SEVERAL TIMES**14. CHECK THAT FLUID LEVEL IS AT MAX LINE**

FRONT BRAKE CALIPER COMPONENTS

BR1AF-01



F11010

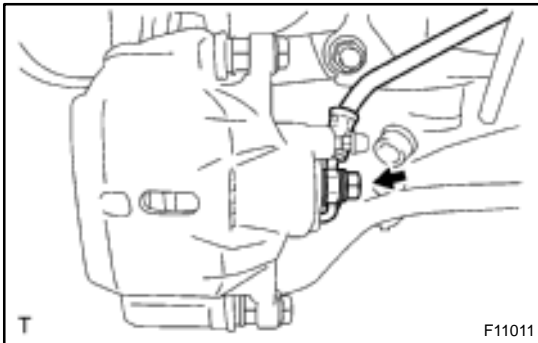


REMOVAL

1. REMOVE FRONT WHEEL

Remove the wheel and temporarily fasten the disc with the hub nuts.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. DISCONNECT FLEXIBLE HOSE

Remove the union bolt and gasket from the caliper, then disconnect the flexible hose from the caliper.

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

HINT:

- At the time of installation, install the flexible hose lock securely in the lock hole in the caliper.
- Use a container to catch the brake fluid as it drains out.

3. REMOVE CALIPER

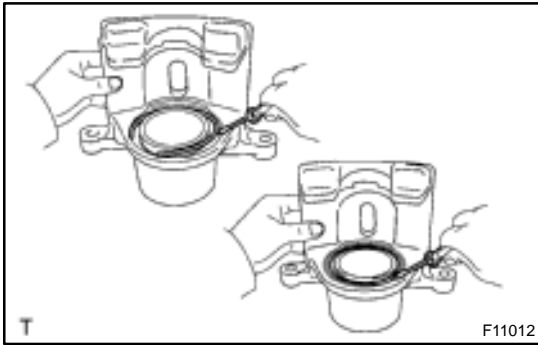
(a) Hold the sliding pin and remove the 2 installation bolts.

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

(b) Remove the caliper from the torque plate.

4. REMOVE 2 PADS WITH ANTI-SQUEAL SHIMS

5. REMOVE 2 PAD SUPPORT PLATES



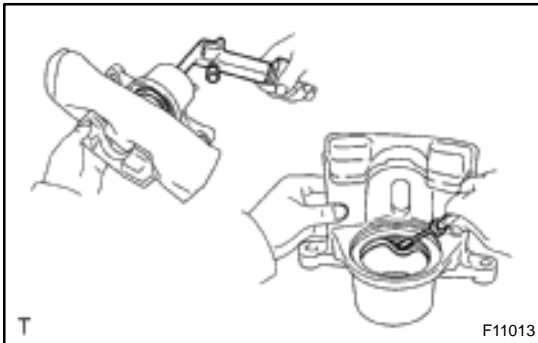
DISASSEMBLY

1. REMOVE SET RING AND CYLINDER BOOT

Using a screwdriver, remove the set ring and cylinder boot from the caliper.

2. REMOVE PISTON

(a) Place a piece of cloth or similar between the piston and the caliper.



(b) Use compressed air to remove the piston from the cylinder.

CAUTION:

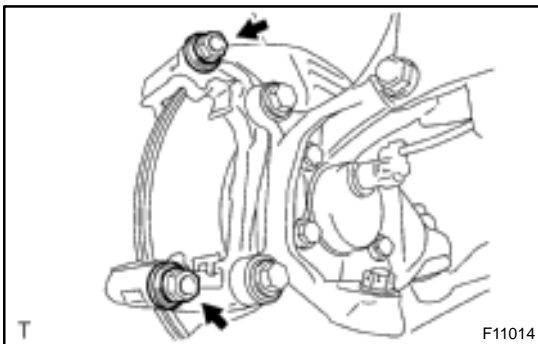
Do not place your fingers in front of the piston when using compressed air.

3. REMOVE PISTON SEAL

Using a screwdriver, remove the piston seal from the cylinder.

4. REMOVE BLEEDER PLUG

Torque: 8.3 N·m (85 kgf·cm, 73 in.-lbf)



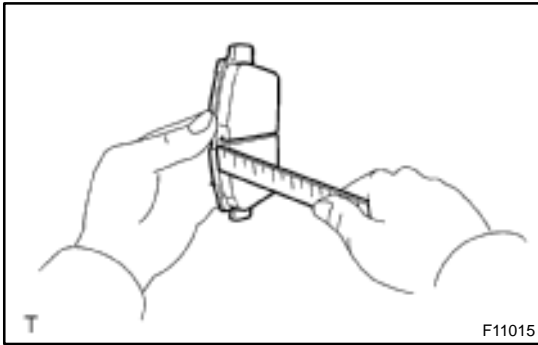
5. REMOVE SLIDING PINS AND DUST BOOTS

(a) Remove the 2 sliding pins from the torque plate.

(b) Remove the 2 dust boots.

NOTICE:

At the time of reassembly, check that the metal plate portion of the dust boot fits snugly in the torque plate.



INSPECTION

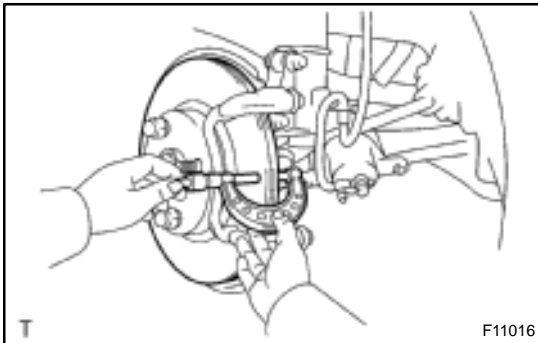
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 11.0 mm (0.433 in.)

Minimum thickness: 1.0 mm (0.039 in.)

Replace the pad if the pad's thickness is at the minimum thickness or less, or if the pad has severe, uneven wear.



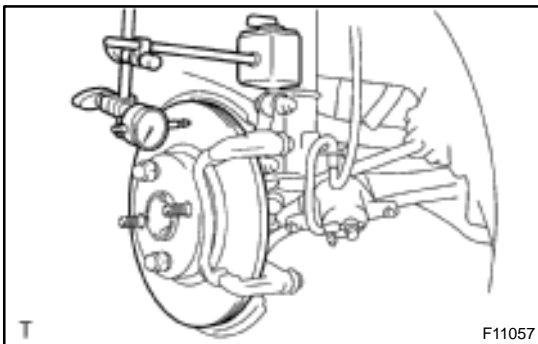
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 20.0 mm (0.787 in.)

Minimum thickness: 18.0 mm (0.709 in.)

Replace the disc if the disc's thickness is at the minimum thickness or less. Replace the disc or grind it on a lathe if it is badly scored or worn unevenly.

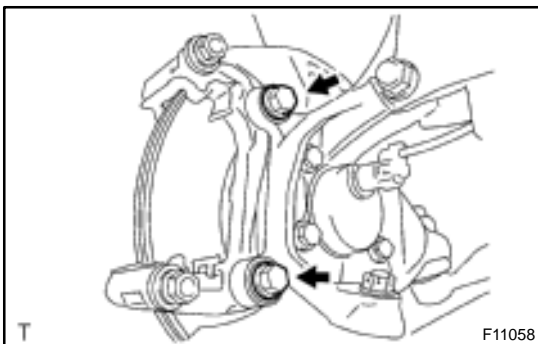


3. MEASURE DISC RUNOUT

Using a dial indicator, measure the disc runout at a position 10 mm (0.39 in.) from the outer edge of the disc.

Maximum disc runout: 0.05 mm (0.0020 in.)

If the disc's runout is maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page SA-9). If the bearing play and axle hub runout are not abnormal, adjust the disc runout or grind it on a "On-Car" brake lathe.



4. IF NECESSARY, ADJUST DISC RUNOUT

- (a) Remove the 2 bolts and torque plate from the knuckle.
- (b) Remove the hub nuts and the disc.
 - (1) Reinstall the disc in the position turned 1/4 from its original position on the hub.
 - (2) Install and torque the hub nuts.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
 - (3) Remeasure the disc runout. Make a note of the runout and the disc's position on the hub.
- (c) Repeat (b) until the disc has been installed on the 2 remaining hub positions.
- (d) If the minimum runout recorded in (b) and (c) is less than 0.05 mm (0.0020 in.), install the disc in that position.
- (e) If the minimum runout recorded in (b) and (c) is greater than 0.05 mm (0.0020 in.), replace the disc and repeat step 3.
- (f) Install the torque plate and torque the mounting bolts.

Torque: 109 N·m (1,112 kgf·cm, 80 ft·lbf)

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [BR-24](#)).

NOTICE:

Apply lithium soap base glycol grease to the parts indicated by arrows (See page [BR-22](#)).

INSTALLATION

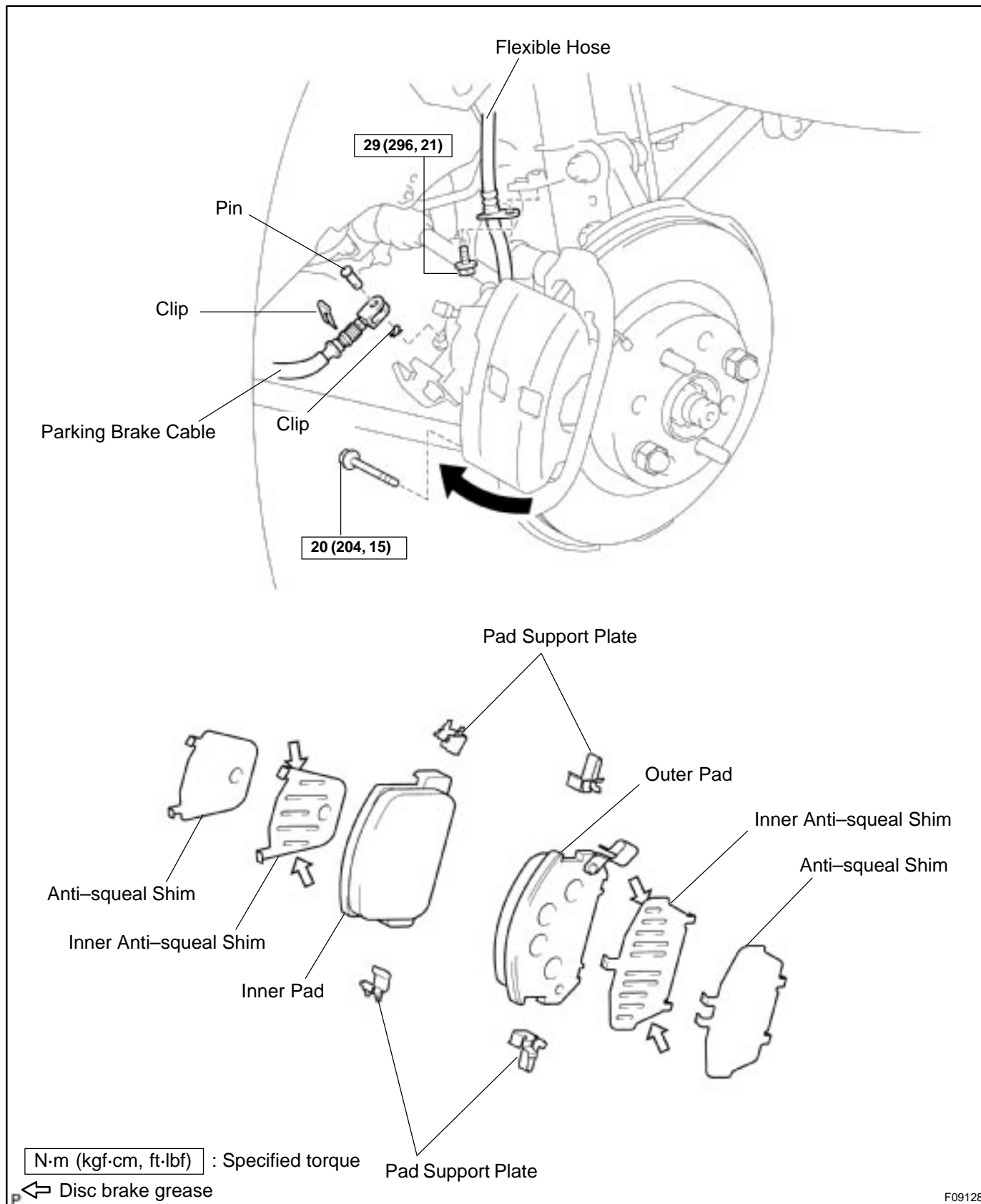
Installation is in the reverse order of removal (See page [BR-23](#)).

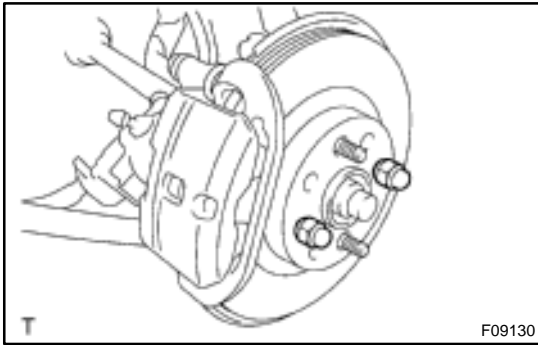
HINT:

- After installation, fill the brake reservoir with brake fluid and bleed brake system (See page [BR-4](#)).
- Check for leaks.

REAR BRAKE PAD COMPONENTS

BR0QJ-04

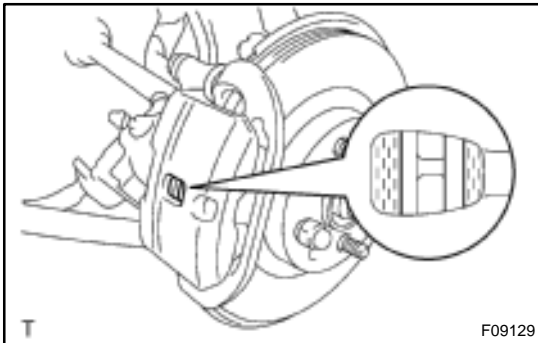




REPLACEMENT

1. REMOVE REAR WHEEL

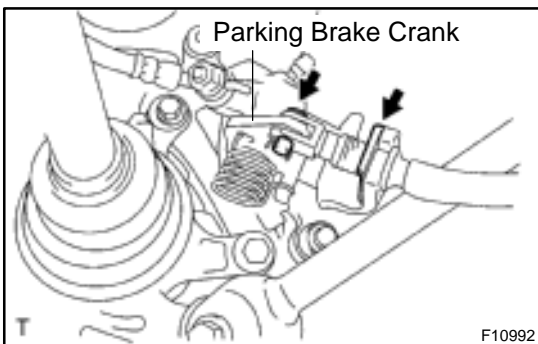
Remove the wheel and temporarily fasten the disc with the hub nuts.



2. INSPECT PAD LINING THICKNESS

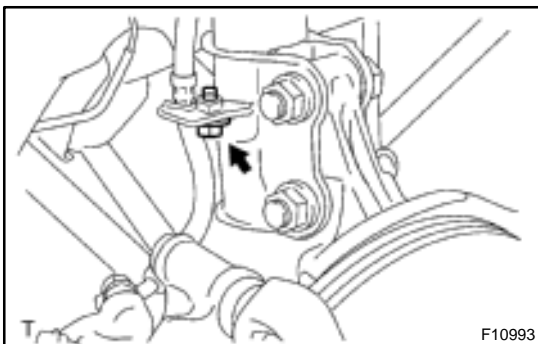
Check the pad thickness through the caliper inspection hole and replace the pads if they are not within the specification.

Minimum thickness: 1.0 mm (0.039 in.)



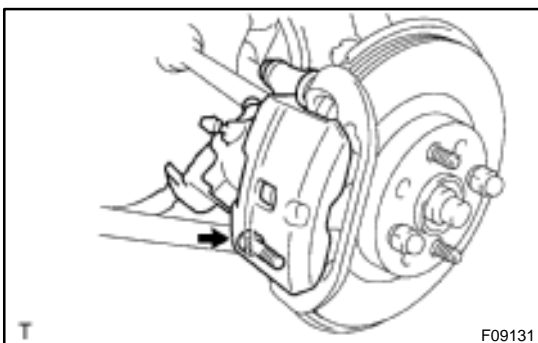
3. DISCONNECT PARKING BRAKE CABLE

- (a) Remove the clip.
- (b) Pull out the pin while pushing the parking brake crank.
- (c) Remove the clip and disconnect the parking brake cable.



4. DISCONNECT FLEXIBLE HOSE FROM SHOCK ABSORBER

Remove the bolt and disconnect the flexible hose.

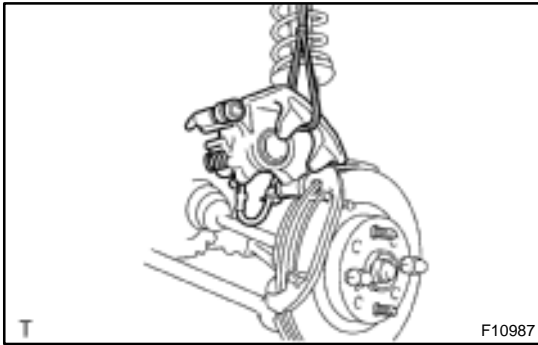


5. LIFT UP CALIPER

- (a) Remove the bottom side installation bolt.

HINT:

Do not disconnect the flexible hose from the brake caliper.



(b) Lift up the caliper and suspend it securely.

6. REMOVE 2 PADS WITH 4 ANTI-SQUEAL SHIMS

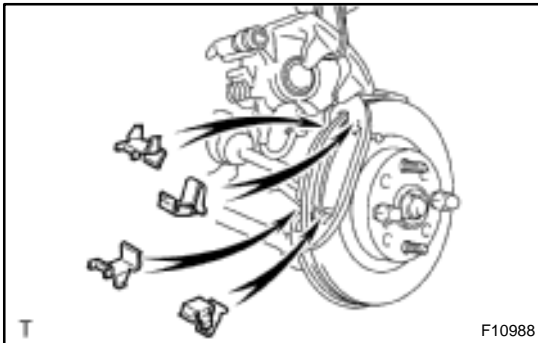
7. REMOVE 4 PAD SUPPORT PLATES

NOTICE:

The support plates can be used again provided that they have sufficient rebound, no deformation, cracks or wear, and remove all rust, dirt and foreign particles cleaned off.

8. CHECK DISC THICKNESS AND RUNOUT

(See page [BR-37](#))

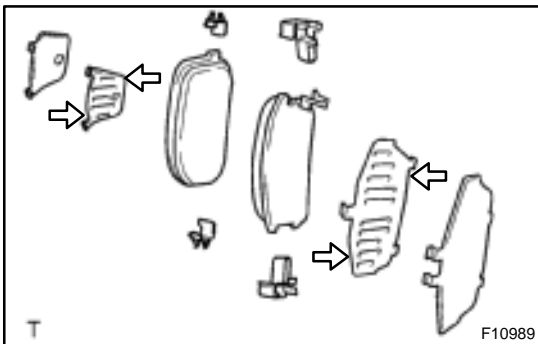


9. INSTALL 4 PAD SUPPORT PLATES

Install the 4 pad support plates.

NOTICE:

Do not assemble the upper and lower pad support plates in reverse.



10. INSTALL NEW PADS

NOTICE:

When replacing worn pads, the anti-squeal shims must be replaced together with the pads.

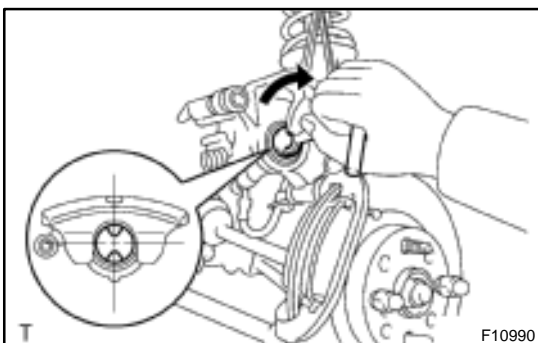
(a) Apply disc brake grease to both sides of the each inner anti-squeal shim (See page [BR-28](#)).

(b) Install the 2 anti-squeal shims on the outer pad.

(c) Install the 2 anti-squeal shims on the inner pad.

(d) Install the outside pad with the pad wear indicator plate facing upward.

(e) Install the inside pad.



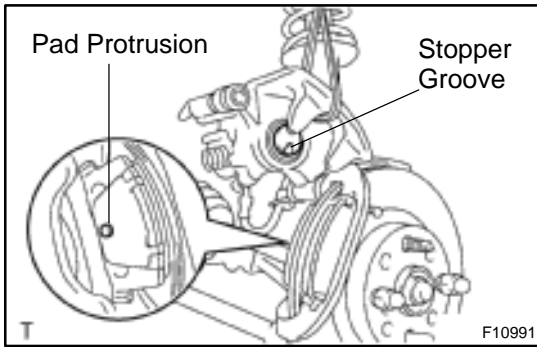
11. INSTALL CALIPER

(a) Using SST, slowly turn the piston clockwise until the piston turns freely, then align the cylinder protrusion and piston stopper groove.

SST 09719-14020 (09719-00020)

NOTICE:

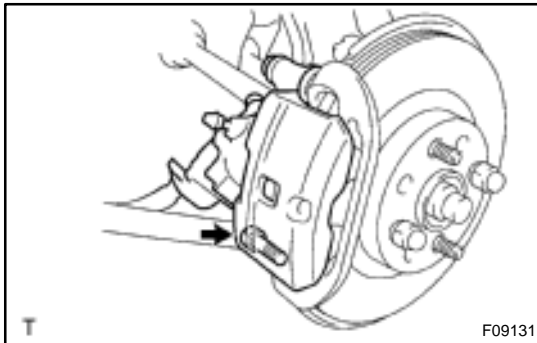
There is a case where the opposite piston fly out, so be sure to do the brake pad changing operation for one wheel at a time.



- (b) Fit the pad protrusion into the piston stopper groove and install the caliper.

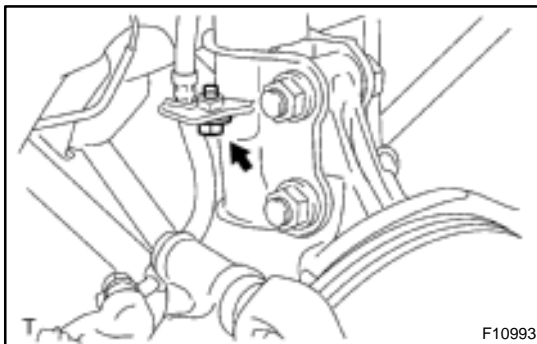
NOTICE:

- **Never make the dust boot be caught.**
- **Never twist the flexible hose.**



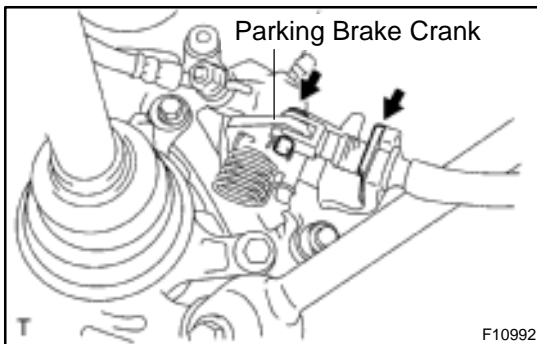
- (c) Install the installation bolt.

Torque: 20 N·m (204 kgf-cm, 15 ft-lbf)

**12. CONNECT FLEXIBLE HOSE TO SHOCK ABSORBER**

Connect the flexible hose and install the bolt.

Torque: 29 N·m (296 kgf-cm, 21 ft-lbf)

**13. CONNECT PARKING BRAKE CABLE**

Connect the parking brake cable and install the clip.

Install the pin and pin clip while pushing the parking brake crank.

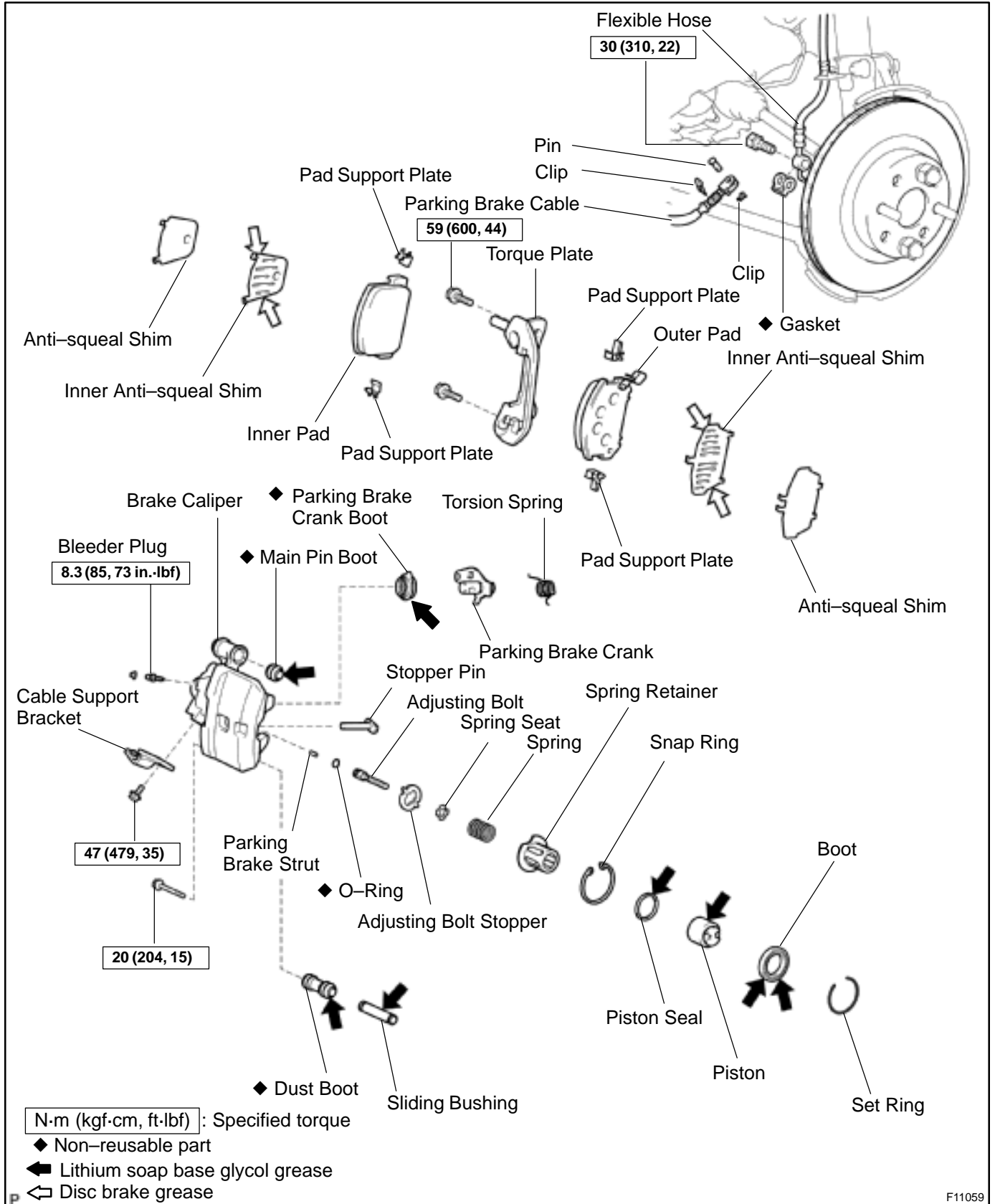
14. INSTALL REAR WHEEL

Torque: 103 N·m (1,050 kgf-cm, 76 ft-lbf)

15. DEPRESS BRAKE PEDAL SEVERAL TIMES**16. CHECK THAT FLUID LEVEL IS AT MAX LINE**

REAR BRAKE CALIPER COMPONENTS

BR0QL-04



F11059

REMOVAL

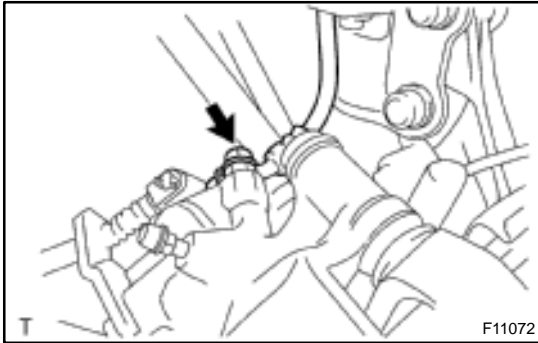
1. REMOVE REAR WHEEL

Remove the wheel and temporarily fasten the disc with the hub nuts.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

2. DISCONNECT PARKING BRAKE CABLE

(See page [BR-29](#))



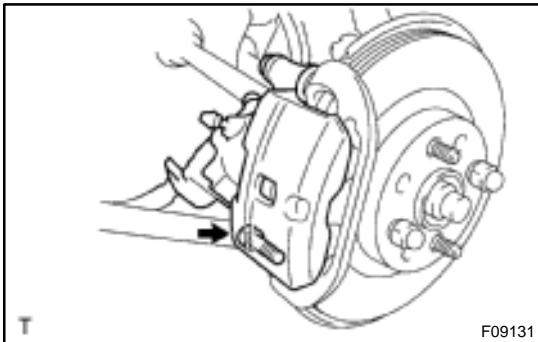
3. DISCONNECT FLEXIBLE HOSE FROM CALIPER

Remove the union bolt and gasket from the caliper, then disconnect the flexible hose.

Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)

HINT:

- At the time of installation, insert the flexible hose lock securely in the lock hole in the caliper.
- Use a container to catch the brake fluid as it drains out.



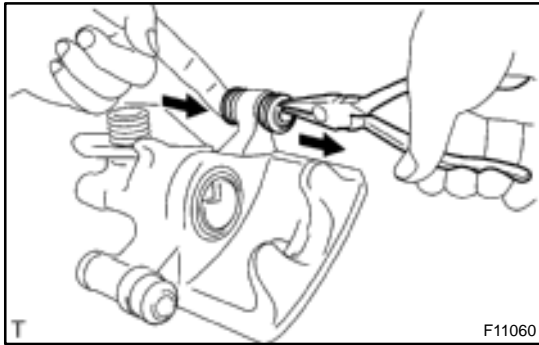
4. REMOVE CALIPER

Remove the installation bolt and caliper from the torque plate.

Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

5. REMOVE 2 PADS WITH 4 ANTI-SQUEAL SHIMS

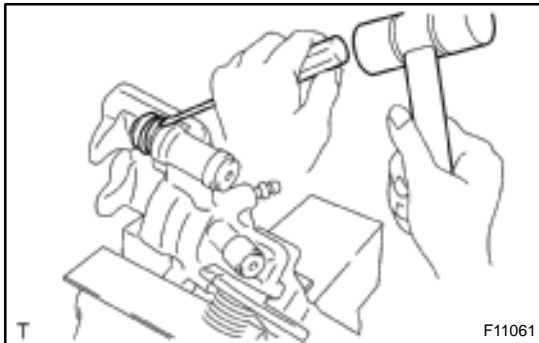
6. REMOVE 4 PAD SUPPORT PLATES



DISASSEMBLY

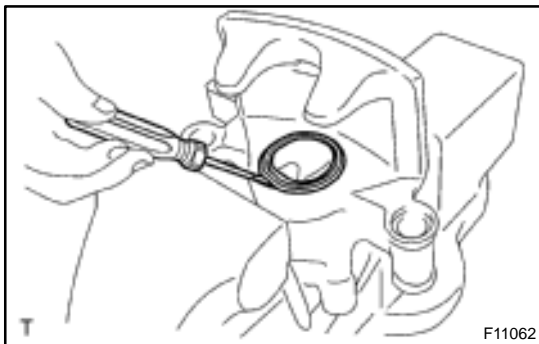
1. REMOVE DUST BOOT AND SLIDING BUSHING

- (a) Pull out the sliding bush with long-nose pliers by pushing it with a finger.
- (b) Remove the dust boot.



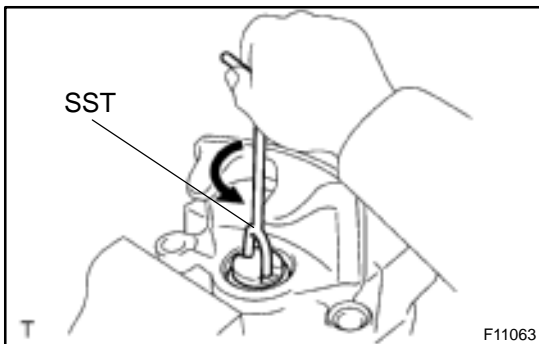
2. REMOVE MAIN PIN BOOT

Using a small screwdriver and a hammer, tap out the dust boot.



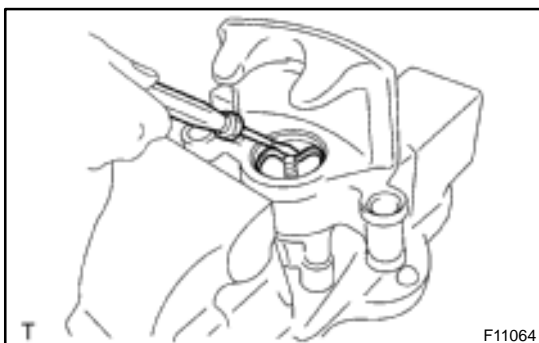
3. REMOVE CYLINDER BOOT SET RING AND CYLINDER BOOT

Using a small screwdriver, pry out the cylinder boot set ring and cylinder boot.



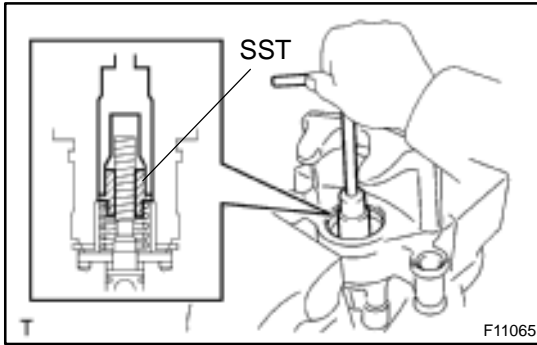
4. REMOVE PISTON FROM CYLINDER

Using SST, turn the piston counterclockwise and remove it.
SST 09719-14020 (09719-00020)



5. REMOVE PISTON SEAL FROM CYLINDER

Using a small screwdriver, pry out the piston seal.

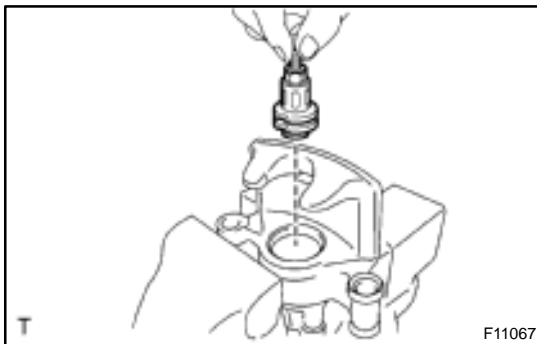
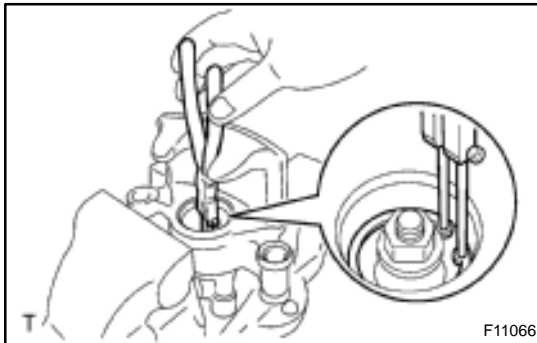


6. REMOVE ADJUSTING BOLT ASSEMBLY

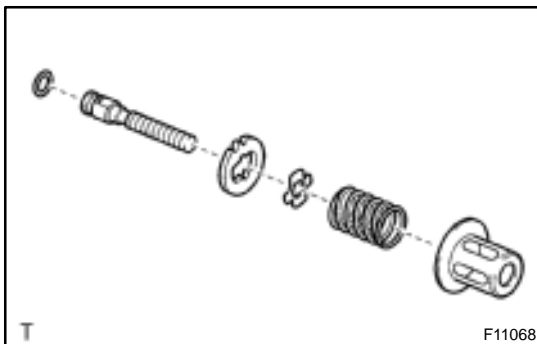
- (a) Set SST onto the adjusting bolt, and lightly tighten it with a 14 mm deep socket.
SST 09756-00010

CAUTION:

- To insure safety, always use SST as there is a possibility of the spring flying out, causing injury or damaging to the interior surface of the cylinder.
 - Be careful not to tighten the SST too tightly as this may damage the spring retainer.
- (b) Using snap ring pliers, remove the snap ring from the cylinder.

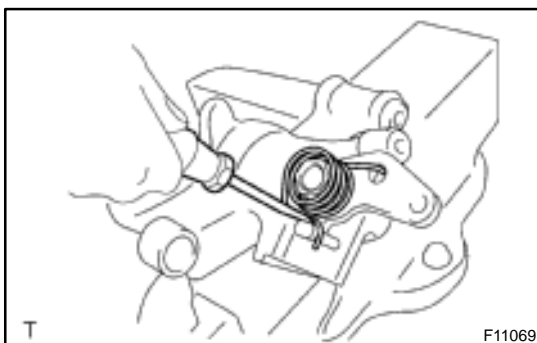


- (c) Remove the parking brake strut, spring retainer, spring, spring plate and stopper together with the adjusting bolt from the cylinder.



7. DISASSEMBLE ADJUSTING BOLT ASSEMBLY

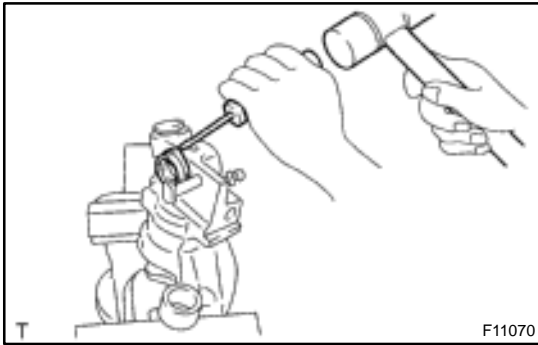
- (a) Remove the SST.
SST 09756-00010
- (b) Remove the spring retainer, spring, spring seat and stopper from the adjusting bolt.
- (c) Remove the O-ring from the adjusting bolt.



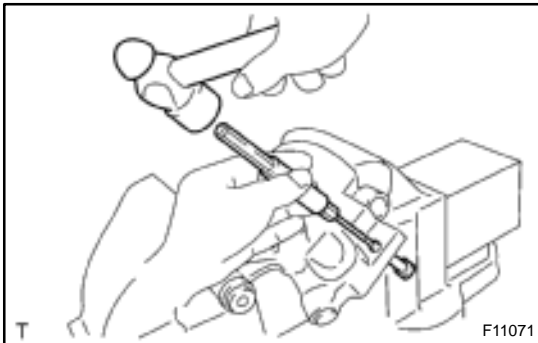
8. REMOVE TORSION SPRING FROM PARKING BRAKE CRANK

Using a small screwdriver, pry out the torsion spring.

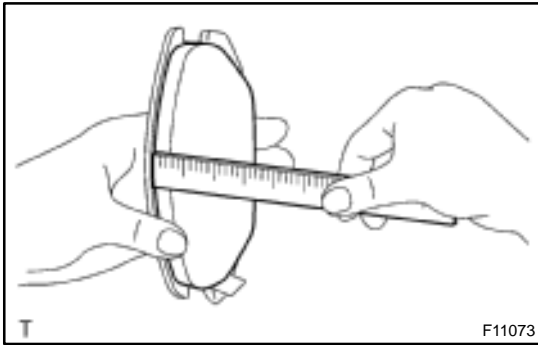
9. REMOVE PARKING BRAKE CRANK FROM BRAKE CALIPER

**10. REMOVE PARKING BRAKE CRANK BOOT**

Using a small screwdriver and a hammer, tap out the parking brake crank boot.

11. REMOVE BLEEDER PLUG**12. REMOVE BOLT AND CABLE SUPPORT BRACKET****13. REMOVE STOPPER PIN**

Using a pin punch and a hammer, tap out the stopper pin.



INSPECTION

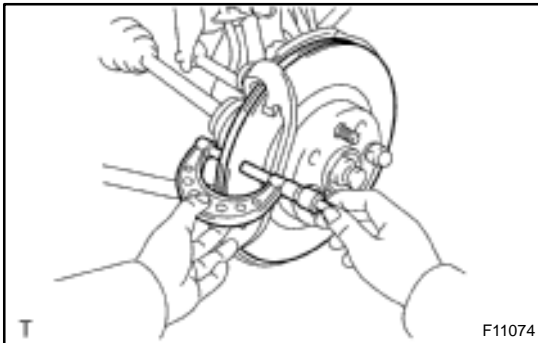
1. MEASURE PAD LINING THICKNESS

Using a ruler, measure the pad lining thickness.

Standard thickness: 10.0 mm (0.394 in.)

Minimum thickness: 1.0 mm (0.039 in.)

Replace the pad if the pad's thickness is at the minimum thickness or less, or if the pad has severe, uneven wear.



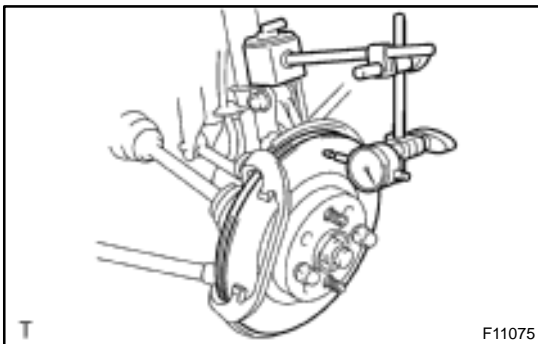
2. MEASURE DISC THICKNESS

Using a micrometer, measure the disc thickness.

Standard thickness: 16.0 mm (0.630 in.)

Minimum thickness: 15.0 mm (0.591 in.)

Replace the disc if the disc's thickness is at the minimum thickness or less. Replace the disc or grind it on a lathe if it is scored or worn unevenly.



3. MEASURE DISC RUNOUT

Using a dial indicator, measure disc runout at a position 10 mm (0.39 in.) from the outside edge.

Maximum disc runout: 0.10 mm (0.0039 in.)

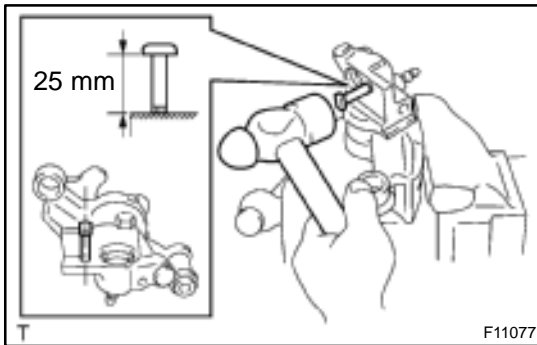
If the disc's runout is at the maximum value or greater, check the bearing play in the axial direction and check the axle hub runout (See page SA-33). If the bearing play and axle hub runout are not abnormal, adjust the disc runout or grind it on a "On-Car" brake lathe.

4. IF NECESSARY, ADJUST DISC RUNOUT

- (a) Remove the 2 mounting bolts and torque plate from the knuckle.
- (b) Remove the hub nuts and the disc.
 - (1) Reinstall the disc in the position turned 1/4 from its original position on the hub.
 - (2) Install and torque the hub nuts.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
 - (3) Remeasure the disc runout. Make a note of the runout and the disc's position on the hub.
- (c) Repeat (b) until the disc has been installed on the 2 remaining hub positions.
- (d) If the minimum runout recorded in (b) and (c) is less than 0.10 mm (0.0039 in.), install the disc in that position.
- (e) If the minimum runout recorded in (b) and (c) is greater than 0.10 mm (0.0039 in.), replace the disc and repeat step 3.
- (f) Install the torque plate and torque the 2 mounting bolts.

Torque: 59 N·m (600 kgf·cm, 44 ft·lbf)



REASSEMBLY

1. INSTALL STOPPER PIN

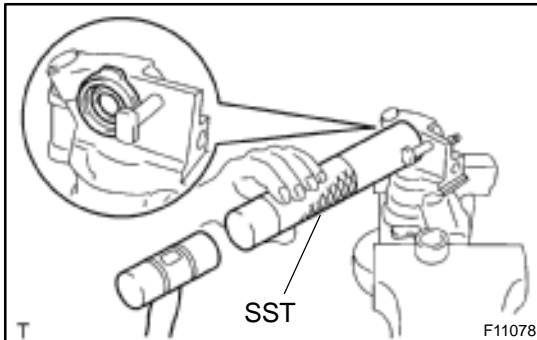
Tap in the pin to the brake cylinder until the stopper pin extends 25 mm (0.98 in.).

2. INSTALL CABLE SUPPORT BRACKET WITH BOLT

Torque: 47 N·m (479 kgf·cm, 35 ft·lbf)

3. INSTALL BLEEDER PLUG

Torque: 8.3 N·m (85 kgf·cm, 73 in.-lbf)

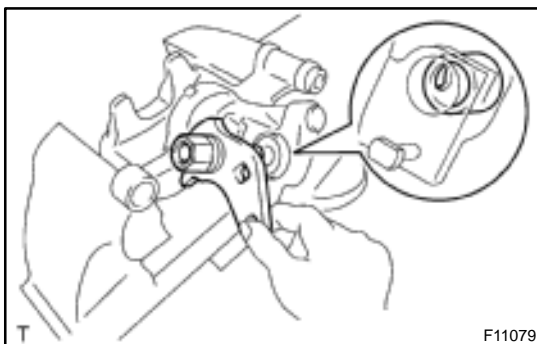


4. INSTALL PARKING BRAKE CRANK BOOT

(a) Using SST and a hammer, tap in new parking brake crank boot shown in the illustration.

SST 09612-22011

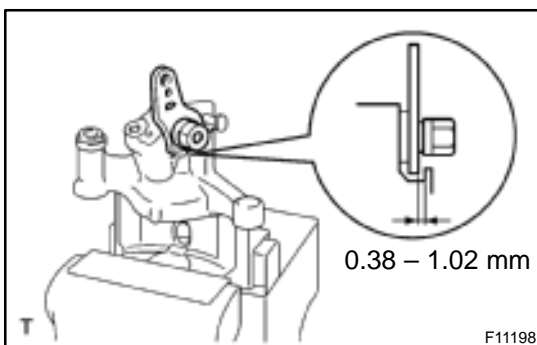
(b) Confirm that the metal plate portion of the parking brake crank boot fits snugly in the caliper.



5. INSTALL PARKING BRAKE CRANK

(a) Check that the needle roller bearing is not covering the cylinder hole.

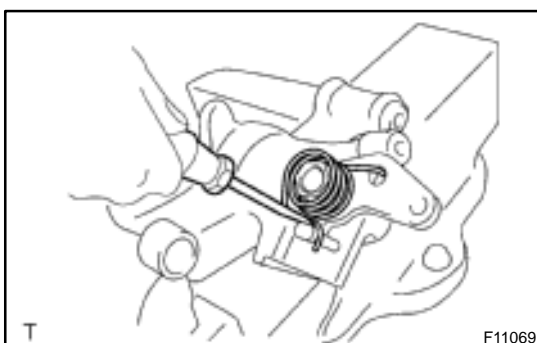
(b) Install the parking brake crank in the caliper.



(c) Check that there is clearance between the parking brake crank and caliper.

Standard clearance:

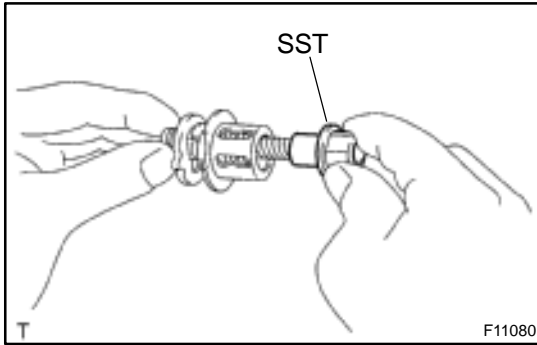
0.38 - 1.02 mm (0.0150 - 0.0416 in.)



6. INSTALL TORSION SPRING

Using a small screwdriver, install the torsion spring.

7. INSTALL NEW O-RING TO ADJUSTING BOLT



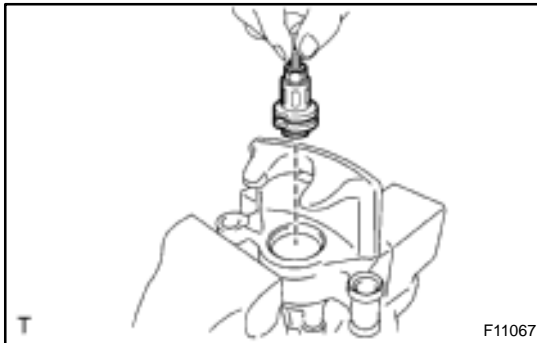
8. INSTALL ADJUSTING BOLT ASSEMBLY

- (a) Assemble the parking brake stopper, spring seat, spring, spring retainer and parking brake strut to the adjusting bolt, and using SST, fully tighten them down by hand.

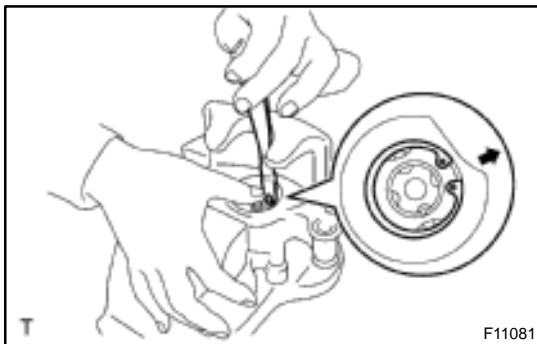
SST 09756-00010

HINT:

- Position the inscribed surface of the stopper upward.
- Align the notches of the spring retainer and stopper.



- (b) Install the adjusting bolt assembly into the cylinder.



- (c) Using snap ring pliers, install the snap ring.

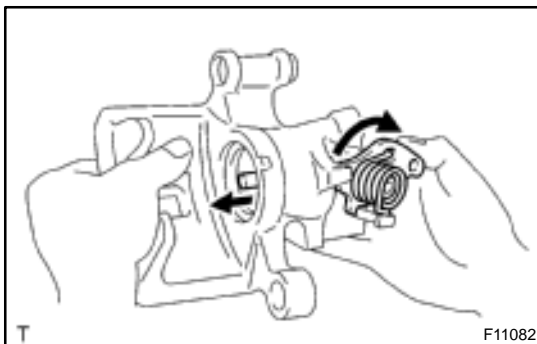
HINT:

Face the snap ring opening toward the bleeder side.

- (d) Remove the SST.

SST 09756-00010

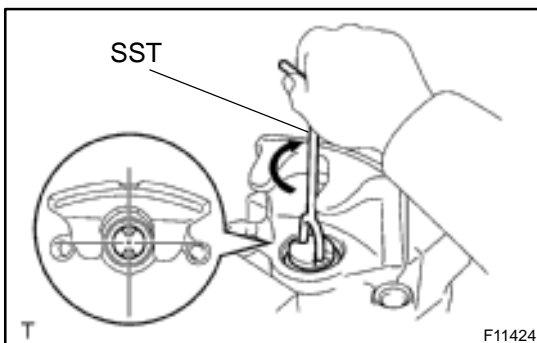
- (e) Firmly pull up the adjusting bolt by hand and insure that it does not move.



9. CHECK PARKING BRAKE CRANK OPERATION

Move the parking brake crank by hand and insure that the adjusting bolt moves smoothly.

10. INSTALL PISTON SEAL IN CYLINDER

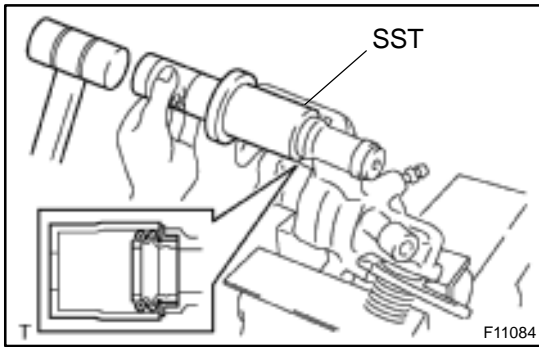


11. INSTALL PISTON IN CYLINDER

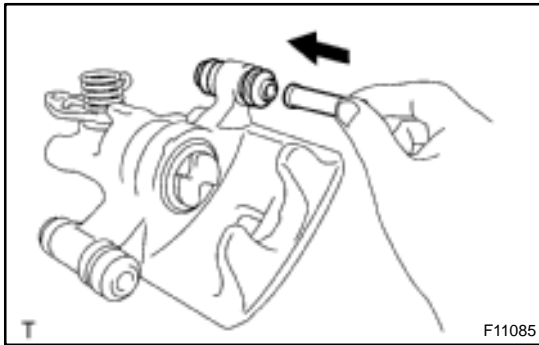
Using SST, slowly turn the piston clockwise until the piston turns freely, then align the cylinder protrusion and piston stopper groove.

SST 09719-14020 (09719-00020)

12. INSTALL CYLINDER BOOT AND SET RING IN CYLINDER

**13. INSTALL MAIN PIN BOOT**

- (a) Using SST and a hammer, tap in a new main pin boot to the caliper.
SST 09325-12010
- (b) Confirm that the metal plate portion of the main pin boot fits snugly in the caliper.

**14. INSTALL DUST BOOT AND SLIDING BUSHING**

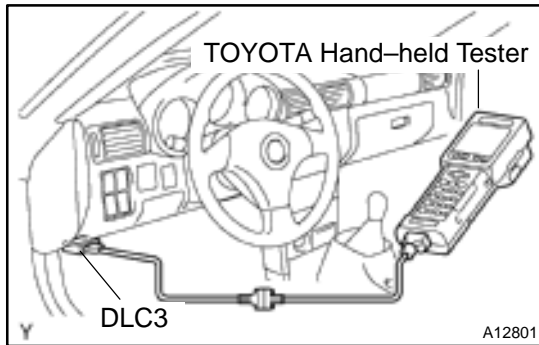
- (a) Install the dust boot.
- (b) Install the bushing into the boot with the flange facing inside.

INSTALLATION

Installation is in the reverse order of removal (See page [BR-33](#)).

HINT:

- After installation, fill the brake reservoir with brake fluid and bleed the brake system (See page [BR-4](#)).
- Check for leaks.



ABS ACTUATOR ON-VEHICLE INSPECTION

BR00W-03

1. **IN CASE OF USING TOYOTA HAND-HELD TESTER:**
 - (a) Connect the TOYOTA hand-held tester to the DLC3.
 - (b) Start the engine and run it at idle.
 - (c) Select the ACTIVE TEST mode on the TOYOTA hand-held tester.

HINT:

Please refer to the TOYOTA hand-held tester operator's manual for further details.

2. INSPECT ACTUATOR MOTOR OPERATION

- (a) With the motor relay ON, check the actuator motor operation noise.
- (b) Turn the motor relay OFF.
- (c) Depress the brake pedal and hold it for about 15 seconds. Check that the brake pedal cannot be depressed.
- (d) With the motor relay ON, check that the pedal does not pulsate.

NOTICE:

Do not keep motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval at more than 20 seconds.

- (e) Turn the motor relay OFF and release the brake pedal.

3. INSPECT RIGHT FRONT WHEEL OPERATION

NOTICE:

Never turn ON the solenoid which is not described below.

- (a) With the brake pedal depressed, perform the following operations.
- (b) Turn the SFRH and SFRR solenoid ON simultaneously, and check that the pedal cannot be depressed.

NOTICE:

Do not keep solenoid ON for more than 10 seconds continuously. When operating it continuously, set the interval at more than 20 seconds.

- (c) Turn the SFRH and SFRR solenoid OFF simultaneously, and check that the pedal can be depressed.
- (d) Turn the motor relay ON, and check that the pedal returns.

NOTICE:

Do not keep motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval at more than 20 seconds.

- (e) Turn the motor relay OFF and release the brake pedal.

4. INSPECT OTHER WHEEL OPERATION

As in the same procedure, check the solenoids of other wheels.

HINT:

Left front wheel: SFLH, SFLR

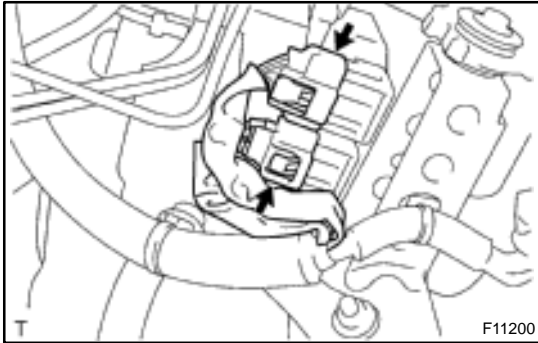
Right rear wheel: SRRH, SRRR

Left rear wheel: SRLH, SRLR

5. **CLEAR DTC (See page DI-199)**
6. **IN CASE OF NOT USING TOYOTA HAND-HELD TESTER:**

HINT:

Using the ABS actuator checker (SST), check the operation of the actuator. If the actuator does not operate, check the operation of sub-wire harness G according to the instructions on pages DI-178 and DI-173. If the solenoid and/or pump motor relay are abnormal, replace the relay and inspect the actuator operation again.



7. **INSPECT BATTERY POSITIVE VOLTAGE**

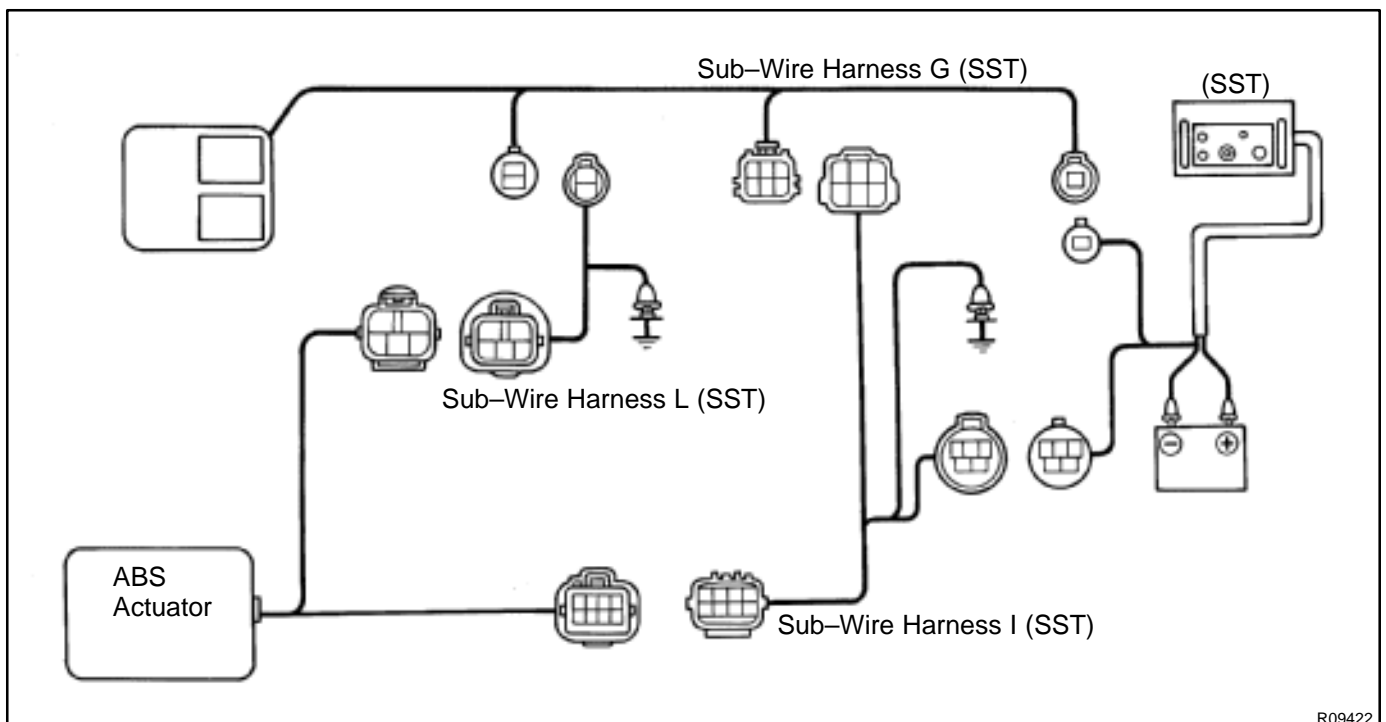
Battery positive voltage: 10 – 14 V

8. **DISCONNECT CONNECTORS**

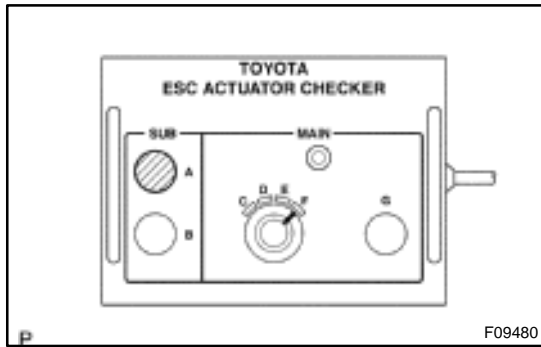
Disconnect the 2 connectors from the actuator.

9. **CONNECT ACTUATOR CHECKER (SST)**

- (a) Connect the actuator checker (SST) to the actuator side wire harness via the sub-wire harness (SST), as shown. SST 09990-00150, 09990-00250, 09990-00300, 09990-00360
- (b) Connect the red cable of the checker to the battery positive (+) terminal and black cable to the negative (-) terminal. Connect the black cable of the sub-wire harness to the battery negative (-) terminal or body ground.



R09422



10. INSPECT ABS ACTUATOR OPERATION OF REAR LH WHEEL

HINT:

The functions of the ABS actuator checker switches are shown in the table below.

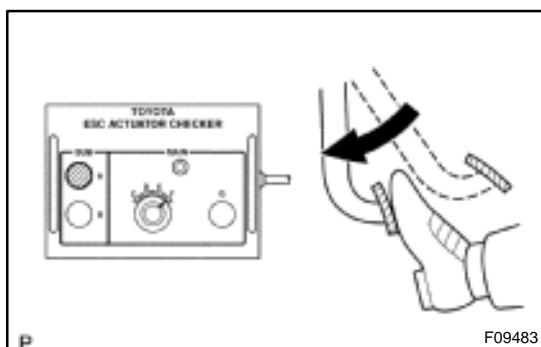
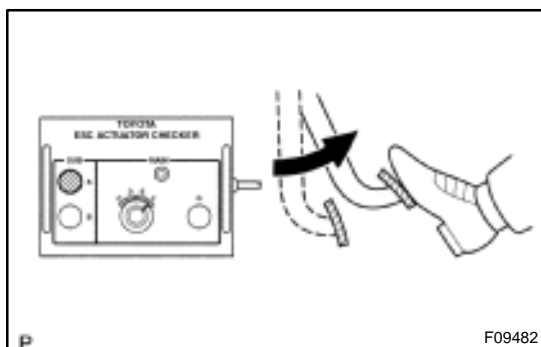
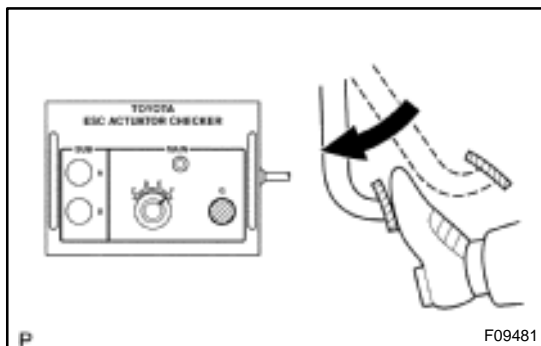
A	Motor ON/OFF
B	Front RH solenoid ON/OFF
C	-
D	Front LH solenoid
E	Rear RH solenoid
F	Rear LH solenoid
G	Solenoid ON/OFF

- (a) Start the engine and run it at idle.
- (b) Turn select switch of the actuator checker to the "F" position.
- (c) Push and hold in the "A" switch for a few seconds. Make sure that you can hear the motor running.
- (d) Depress the brake pedal and hold it until step (g) is completed.
- (e) Push and hold in the "G" switch for a few seconds, and check that the brake pedal does not go down.

NOTICE:

Do not keep the "G" switch pushed down for more than 10 seconds.

- (f) Release the "G" switch and check that the pedal goes down.
- (g) Push the "A" switch and check that the pedal returns.
- (h) Release the brake pedal.

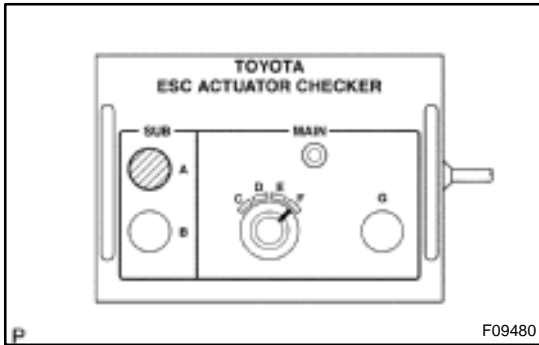


- (i) Push and hold in the "A" switch for a few seconds.
 - (j) Depress the brake pedal and hold it for about 15 seconds. As you hold the pedal down, push the "A" switch for a few seconds and check that the brake pedal does not pulsate.
 - (k) Release the brake pedal.
- ## 11. INSPECT FOR OTHER WHEELS
- (a) Turn the selector switch to "E" position (for rear RH wheel).
 - (b) Repeating (c) to (j) to the step 10, check the actuator operation similarly.

(c) Similarly, inspect "front LH" and "front RH" wheel.

HINT:

When inspecting the "front RH" wheel, push the "B" switch instead of the POWER SWITCH. This makes it possible to inspect wherever the selector switch position indicates.



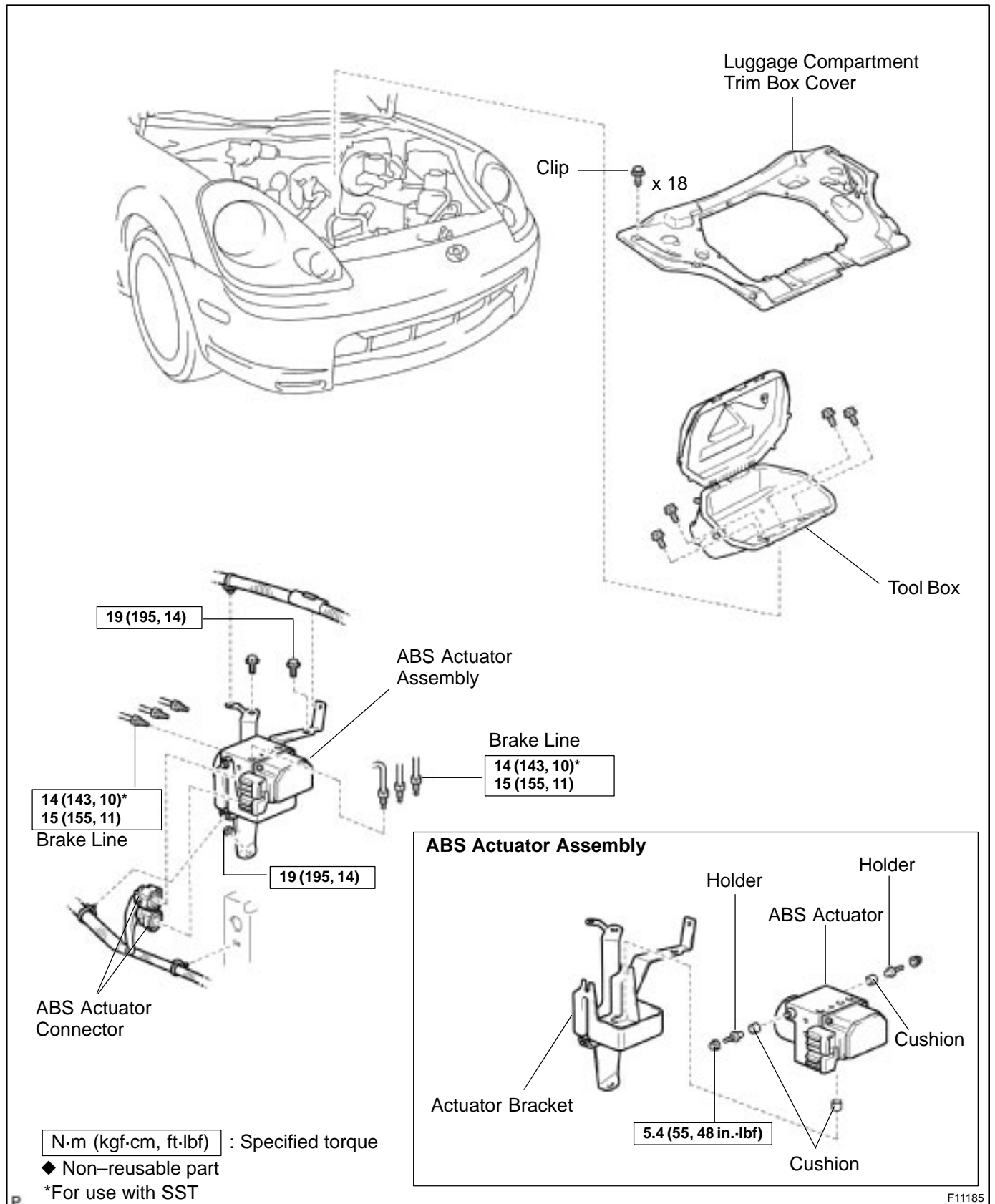
12. PUSH MOTOR SWITCH

- (a) Push and hold in the "A" switch for a few seconds.
- (b) Stop the engine.

13. DISCONNECT ACTUATOR CHECKER (SST) FROM ACTUATOR

- (a) Disconnect the actuator checker (SST) and 3 sub-wire harness (SST) from the actuator.
SST 09990-00150, 09990-00250, 09990-00300, 09990-00360
- (b) Connect the actuator connectors.
- (c) Clear the DTC (See page [DI-154](#)).

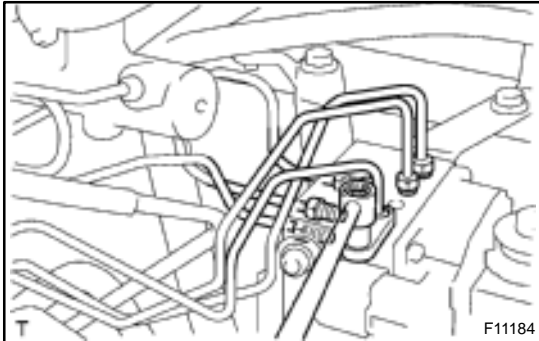
COMPONENTS



F11185

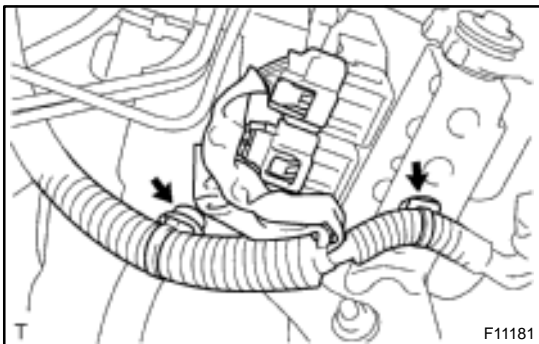
REMOVAL

1. REMOVE TOOL BOX
2. REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER

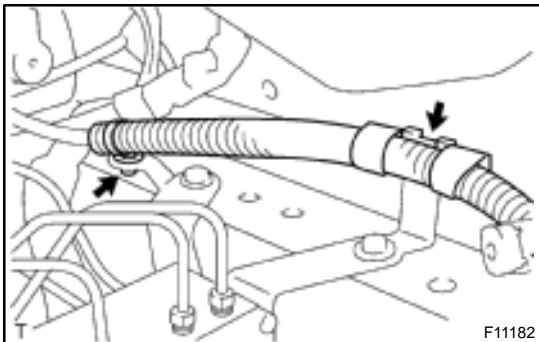
**3. DISCONNECT BRAKE LINES FROM ABS ACTUATOR**

Using SST, disconnect the 6 brake lines.

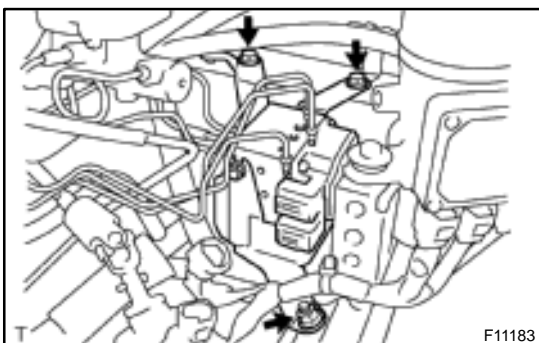
SST 09023-00100

**4. REMOVE ABS ACTUATOR**

- (a) Disconnect the 2 harness clamps and 2 actuator connectors.



- (b) Disconnect the 2 harness clamps.



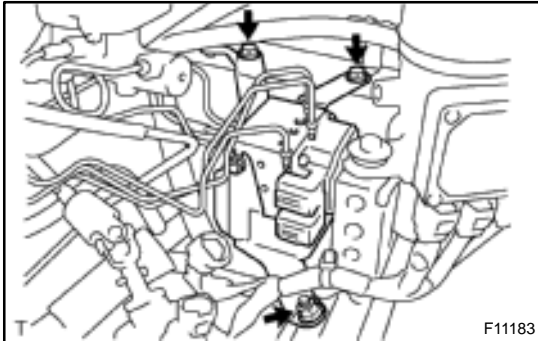
- (c) Remove the 2 bolts, nut and the ABS actuator assembly.
- (d) Remove the 2 nuts and ABS actuator from the actuator bracket.
- (e) Remove the 2 holders and 3 cushions from the ABS actuator.

INSTALLATION

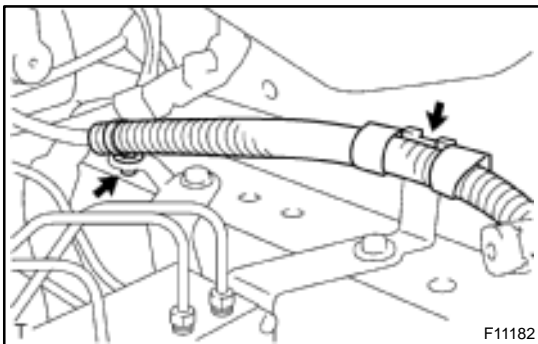
1. INSTALL ABS ACTUATOR

- (a) Install the 2 holders and 3 cushions to the ABS actuator.
- (b) Install the ABS actuator to the actuator bracket with the 2 nuts.

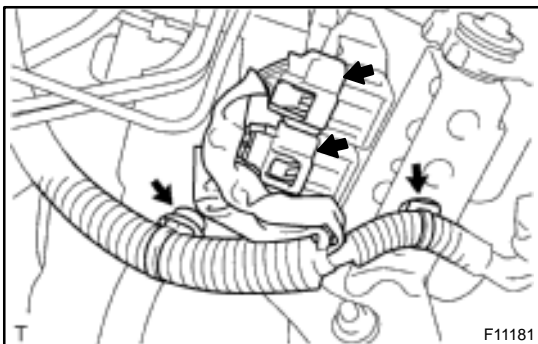
Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)



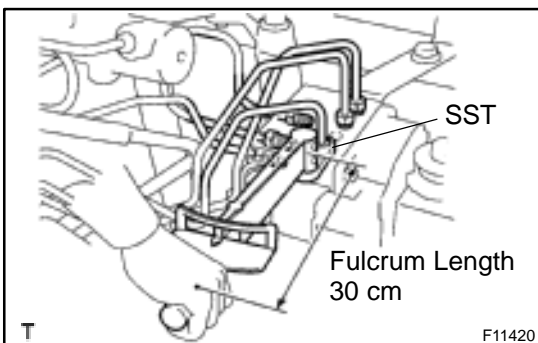
- (c) Install the ABS actuator assembly with the 2 bolts and nut.
Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)



- (d) Connect the 2 harness clamps.



- (e) Connect the 2 harness clamps and 2 actuator connectors.



2. CONNECT BRAKE LINES TO ABS ACTUATOR

Using SST, connect the 6 brake lines.

SST 09023-00100

Torque:

15 N·m (155 kgf·cm, 11 ft·lbf)

14 N·m (143 kgf·cm, 10 ft·lbf) for use with SST

HINT:

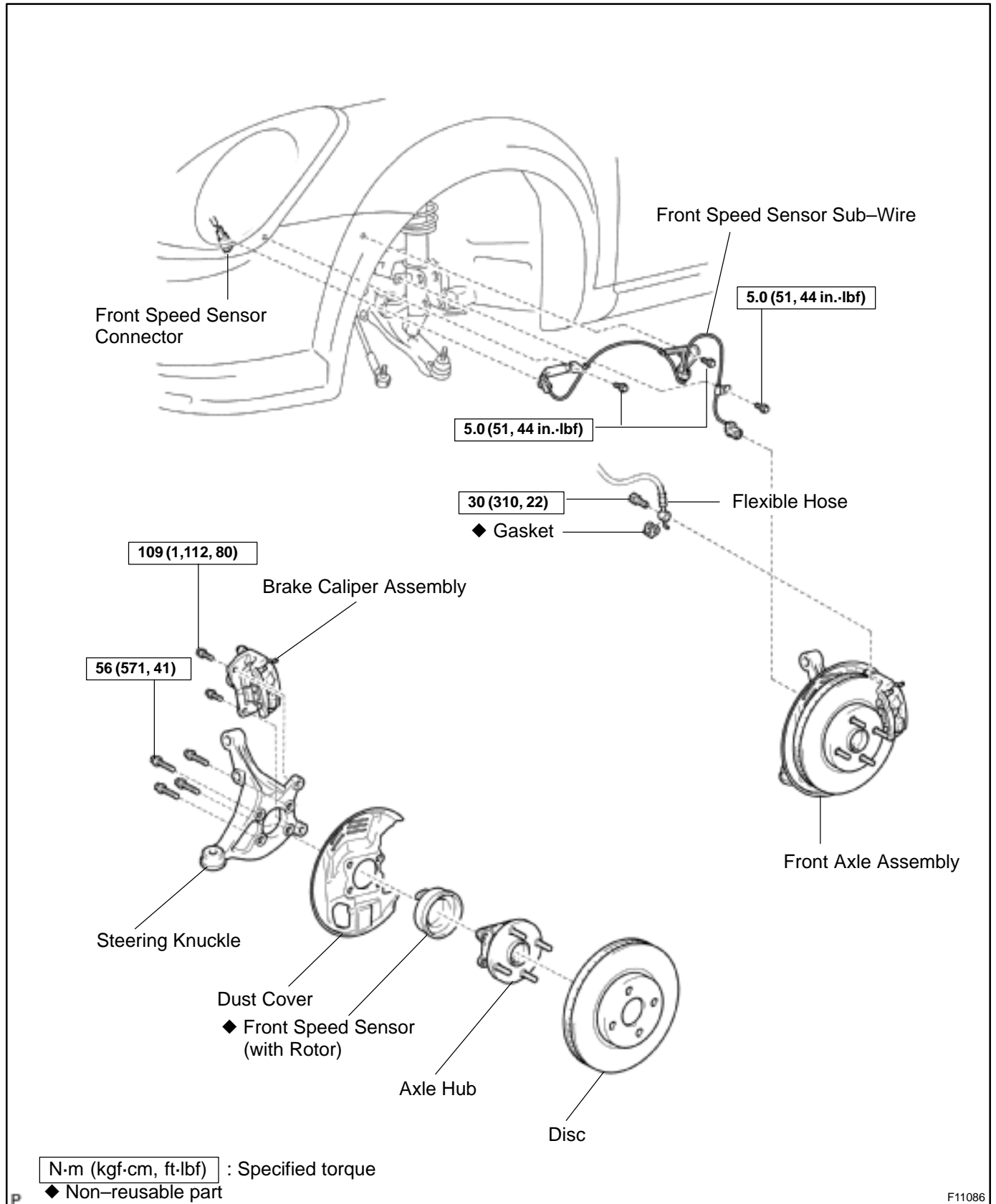
Use a torque wrench with a fulcrum length of 30 cm (11.81in.).

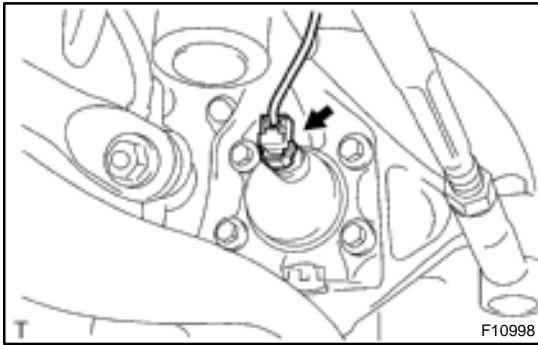
3. **FILL RESERVOIR WITH BRAKE FLUID AND BLEED BRAKE SYSTEM (See page BR-4)**

4. CHECK FOR FLUID LEAKAGE
5. INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER
6. INSTALL TOOL BOX

FRONT SPEED SENSOR COMPONENTS

BR0R0-03



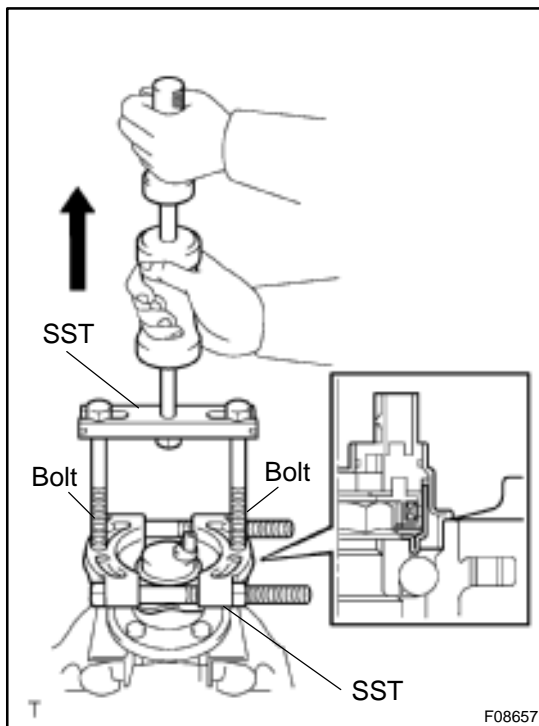


REPLACEMENT

1. REPLACE FRONT SPEED SENSOR

- (a) Remove the front wheel.
- (b) Disconnect the front speed sensor connector.
- (c) Remove the front speed sensor with the front axle hub (See page SA-9).
- (d) Remove the front speed sensor.
 - (1) Using a pin punch and a hammer, tap out the 2 pins and remove the 2 attachments from SST.

SST 09520-00031



- (2) Mount the rear axle hub in a soft jaw vise.

NOTICE:

Replace the axle hub assembly if it is dropped or a strong shock is given to it.

- (3) Using SST and 2 bolts (Diameter: 12 mm, Pitch: 1.5 mm), remove the speed sensor.

SST 09520-00031 (09520-00040, 09521-00020), 09950-00020

NOTICE:

- **If the sensor rotor is damaged, replace the axle hub assembly.**
- **Do not scratch the contacting surface of axle hub and speed sensor.**

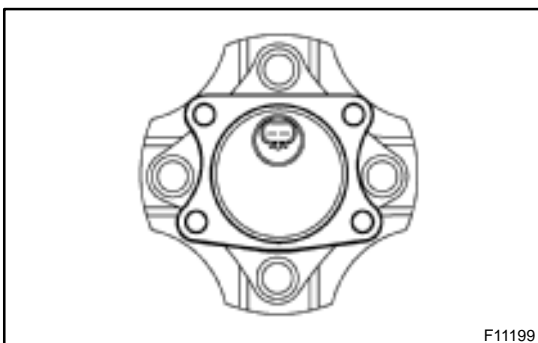
- (e) Install a new front speed sensor.

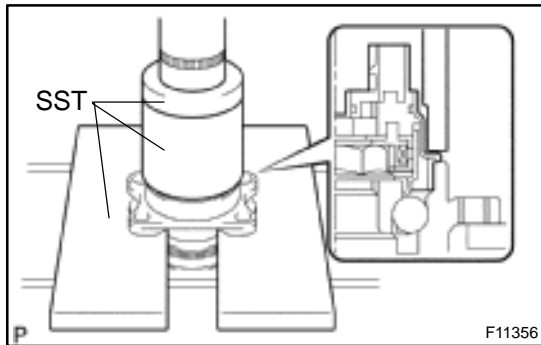
- (1) Clean the contacting surface of the axle hub and a new speed sensor.

NOTICE:

Take care not to stick any foreign objects to the sensor rotor.

- (2) Place the speed sensor on the axle hub so that the connector makes the most downward position under the on-vehicle condition.



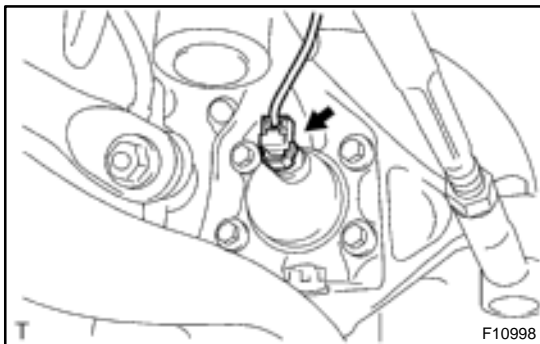


- (3) Using SST and a press, install the speed sensor to the axle hub.

SST 09527-10011, 09710-04101, 09950-60020 (09951-00680)

NOTICE:

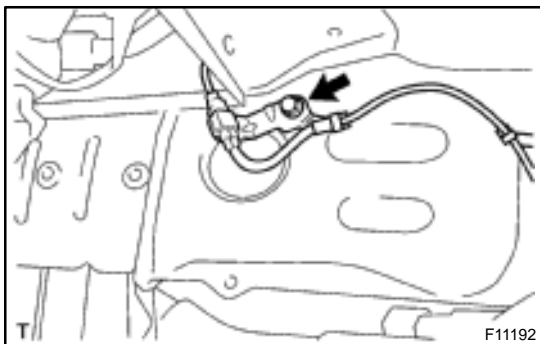
- Do not tap the speed sensor with a hammer directly.
 - Check that the speed sensor detection portion is free from foreign objects.
 - Press in the speed sensor straight and slowly.
- (f) Install the front speed sensor with the front axle hub (See page SA-13).
- (g) Connect the front speed sensor connector.
- (h) Install the front wheel.
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- (i) Check the speed sensor signal (See page DI-154).



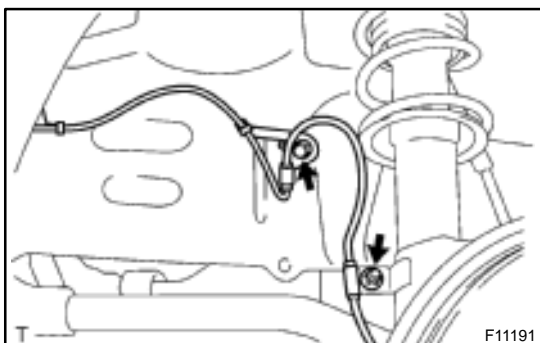
2. LH SIDE:

REPLACE FRONT SPEED SENSOR SUB-WIRE

- (a) Disconnect the sensor connector from the speed sensor.
 (b) Remove the fender liner.

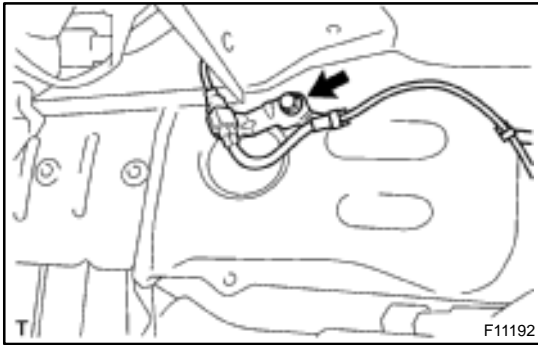


- (c) Remove the clamp bolt.
 (d) Disconnect the speed sensor sub-wire connector.

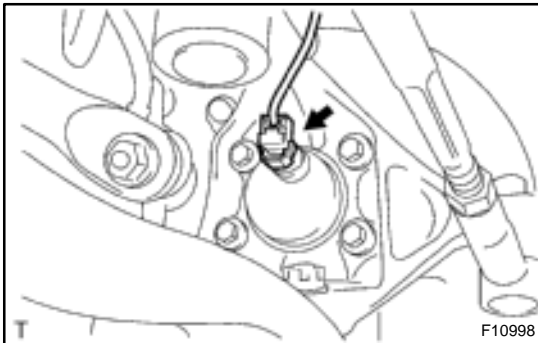


- (e) Remove the 2 clamp bolts and speed sensor sub-wire.
 (f) Install the 2 clamps of a new speed sensor wire with the 2 bolts.

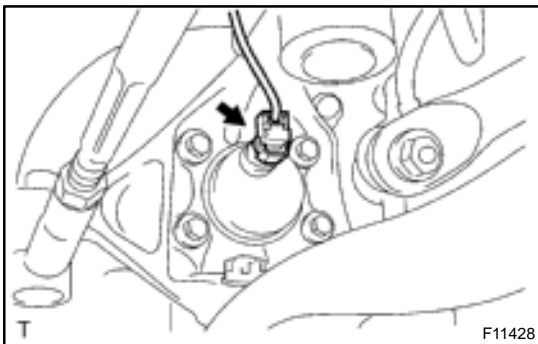
Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)



- (g) Install the clamp with the bolt.
Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)
- (h) Connect the front speed sensor connector.
- (i) Install the fender liner.



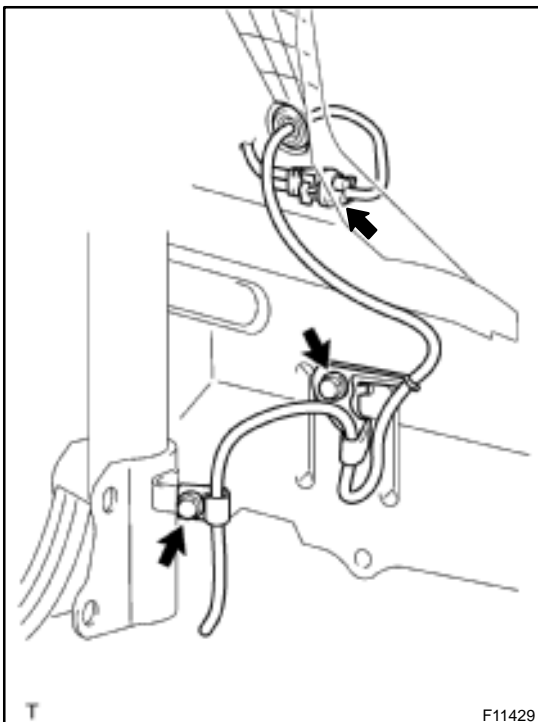
- (j) Connect sensor connector to the speed sensor.
- (k) Check the speed sensor signal (See page [DI-154](#)).



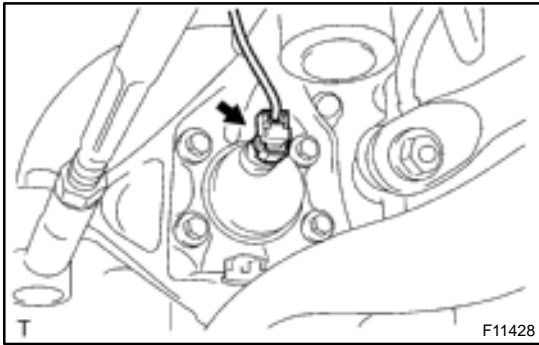
3. RH SIDE:

REPLACE FRONT SPEED SENSOR SUB-WIRE

- (a) Disconnect the sensor connector from the speed sensor.
- (b) Remove the fender liner.



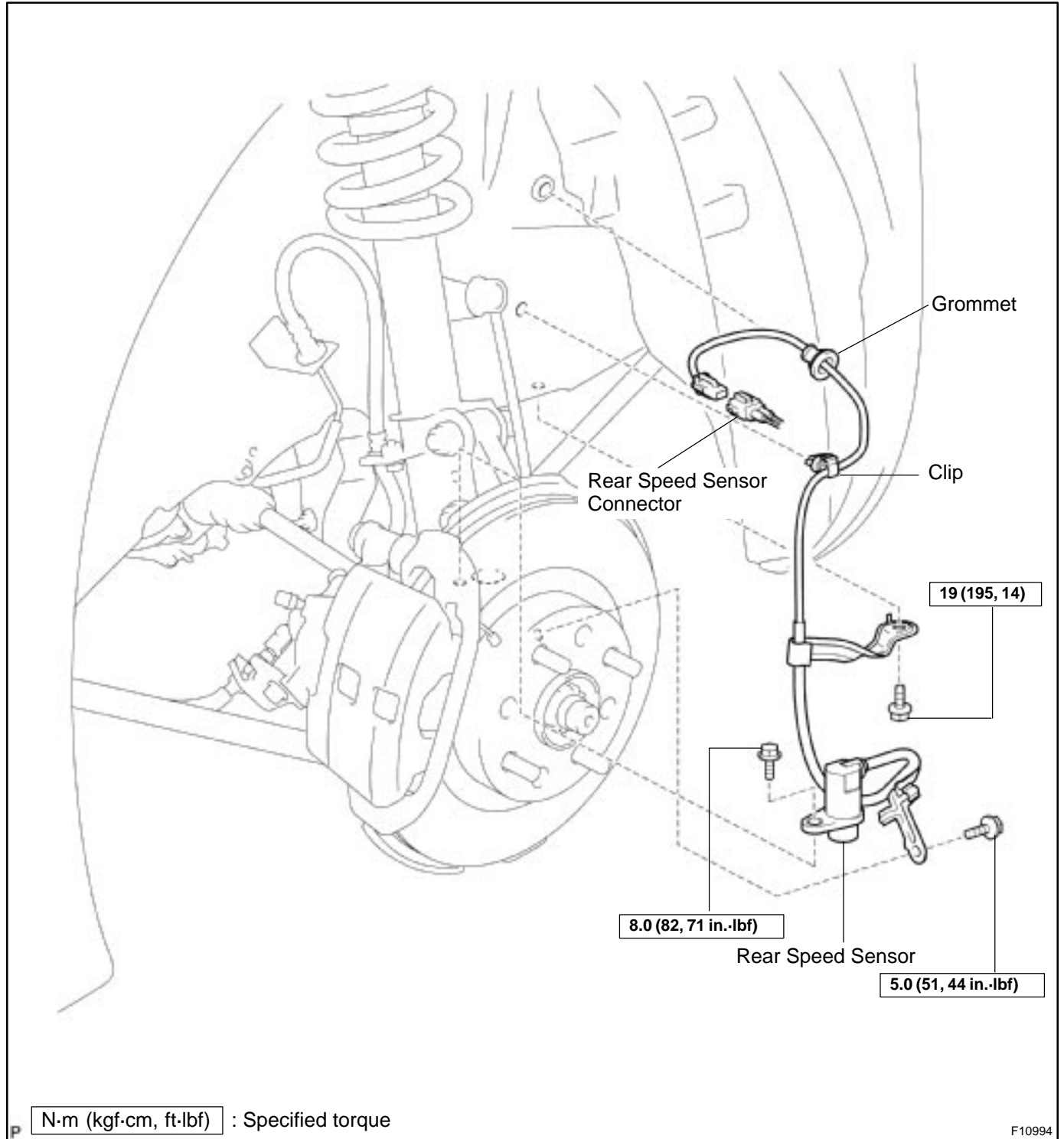
- (c) Disconnect the speed sensor sub-wire connector.
- (d) Remove the 2 clamp bolts and speed sensor sub-wire.
- (e) Install the 2 clamps of a new speed sensor wire with the 2 bolts.
Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)
- (f) Connect the front speed sensor connector to the sub-wire connector.
- (g) Install the fender liner.

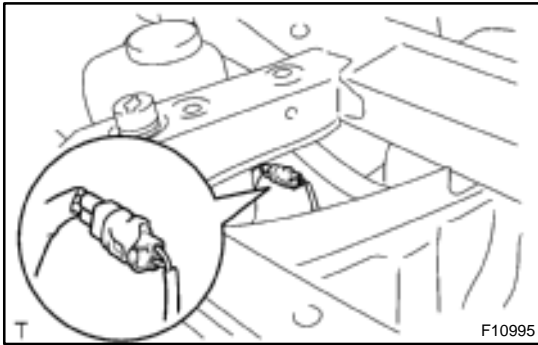


- (h) Connect the sensor connector to the speed sensor.
- (i) Check the speed sensor signal (See page [DI-154](#)).

REAR SPEED SENSOR COMPONENTS

BR0R3-03

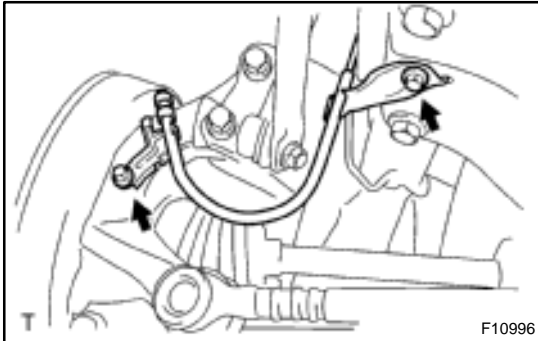




REPLACEMENT

REPLACE REAR SPEED SENSOR

- (a) Disconnect the rear speed sensor connector.
- (b) Remove the rear speed sensor.
 - (1) Remove the rear wheel.
 - (2) Remove the grommet and clip.



- (3) Remove the 2 clamp bolts.



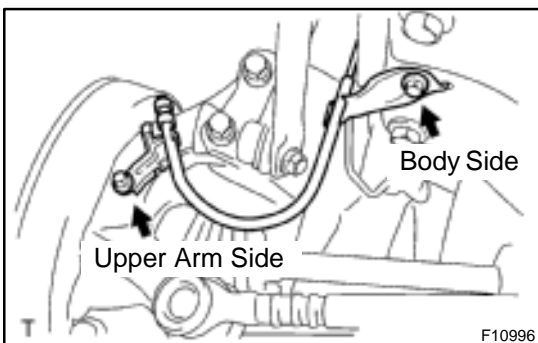
- (4) Remove the bolt and speed sensor.

NOTICE:

At the time of installation, please refer to the following items.

- There are no foreign objects on the sensor or the part of the knuckle to which the sensor is to be installed.
- The sensor is installed flat against the knuckle when the bolt is tighten.

- (c) Install a new speed sensor.
 - (1) Install the speed sensor with the bolt.
Torque: 8.0 N·m (82 kgf·cm, 71 in.-lbf)



- (2) Install the 2 clamp bolts.

Torque:

19 N·m (195 kgf·cm, 14 ft·lbf) for body side

5.0 N·m (51 kgf·cm, 44 in.-lbf) for upper arm side

- (3) Install the grommet and clip.

- (4) Install the rear wheel.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

- (d) Connect the speed sensor connector.
- (e) Check the speed sensor signal (See page [DI-154](#)).

STEERING SYSTEM

SR08F-03

PRECAUTION

- Care must be taken to replace parts properly because they could affect the performance of the steering system and result in a driving hazard.
- The MR2 is equipped with SRS (Supplemental Restraint System) such as the driver airbag and passenger airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in the RS section.

TROUBLESHOOTING

SR08G-04

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in the order shown. If necessary, repair or replace these parts.

Symptom	Suspect Area	See page
Hard steering	9. Tires (Improperly inflated)	SA-2
	10. Power steering fluid level (Low)	SR-4
	11. Front wheel alignment (Incorrect)	SA-4
	12. Steering system joints (Worn)	–
	13. Suspension arm ball joints (Worn)	SA-25
	14. Steering column (Binding)	–
Poor return	15. Power steering vane pump	SR-22
	16. Power steering gear	SR-32
	1. Tires (Improperly inflated)	SA-2
	2. Front wheel alignment (Incorrect)	SA-4
Excessive play	3. Steering column (Binding)	–
	4. Power steering gear	SR-32
	1. Steering system joints (Worn)	–
	2. Suspension arm ball joints (Worn)	SA-25
	3. Intermediate shaft, Sliding yoke (Worn)	–
Abnormal noise	4. Front wheel bearing (Worn)	SA-9
	5. Power steering gear	SR-32
	1. Power steering fluid level (Low)	SR-4
	2. Steering system joints (Worn)	–
	3. Power steering vane pump	SR-22
	4. Power steering gear	SR-32

HINT:

When the problem occurs on the Electro-Hydraulic Power Steering system, refer to the DI section (See page [DI-200](#)).

POWER STEERING FLUID BLEEDING

SR08I-04

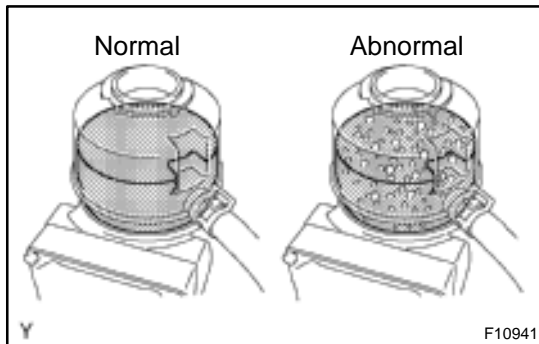
1. **CHECK FLUID LEVEL** (See page [SR-4](#))
2. **JACK UP FRONT OF VEHICLE AND SUPPORT IT WITH STANDS**
3. **TURN STEERING WHEEL**

With the engine stopped, turn the steering wheel slowly from lock to lock several times.

4. **LOWER VEHICLE**
5. **START ENGINE**

Run the engine at idle for a few minutes.

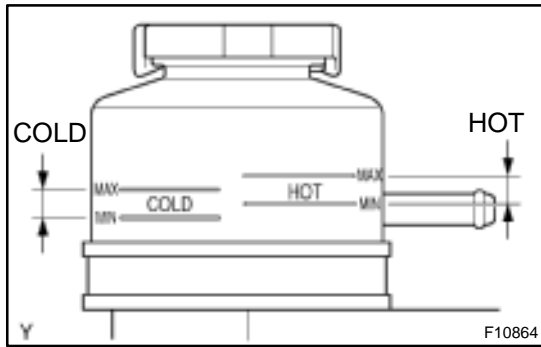
6. **TURN STEERING WHEEL**
 - (a) With the engine idling, turn the steering wheel to left or right full lock position and keep it there for 2–3 seconds, then turn the steering wheel to the opposite full lock position and keep it there for 2–3 seconds.
 - (b) Repeat (a) several times.
7. **STOP ENGINE**



8. **CHECK FOR FOAMING OR EMULSIFICATION**

If the system has to be bled twice specifically because of foaming or emulsification, check for fluid leaks in the system.

9. **CHECK FLUID LEVEL** (See page [SR-4](#))



INSPECTION

1. CHECK FLUID LEVEL

- (a) Keep the vehicle level.
- (b) With the engine stopped, check the fluid level in the oil reservoir.

If necessary, add fluid.

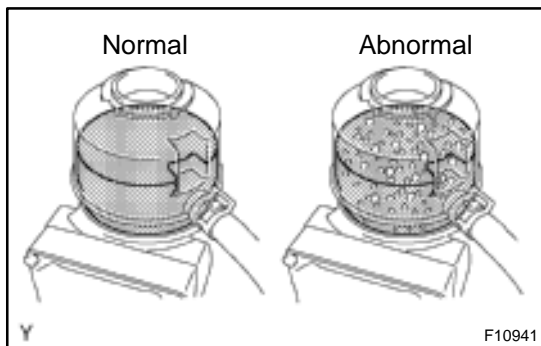
Fluid: TOYOTA POWER STEERING FLUID EH (Part No. 08886-01206) or equivalent

HINT:

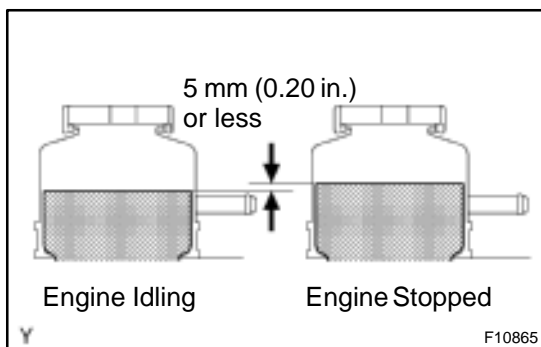
Check that the fluid level is within the HOT LEVEL range on the reservoir. If the fluid is cold, check that it is within the COLD LEVEL range.

- (c) Start the engine and run it at idle.
- (d) Turn the steering wheel from lock to lock several times to boost fluid temperature.

Fluid temperature: 50°C (122°F)



- (e) Check for foaming or emulsification. If there is foaming or emulsification, bleed power steering system (See page [SR-3](#)).



- (f) With the engine idling, measure the fluid level in the oil reservoir.
- (g) Stop the engine.
- (h) Wait a few minutes and remeasure the fluid level in the oil reservoir.

Maximum fluid level rise: 5 mm (0.20 in.)

If a problem is found, bleed power steering system (See page [SR-3](#)).

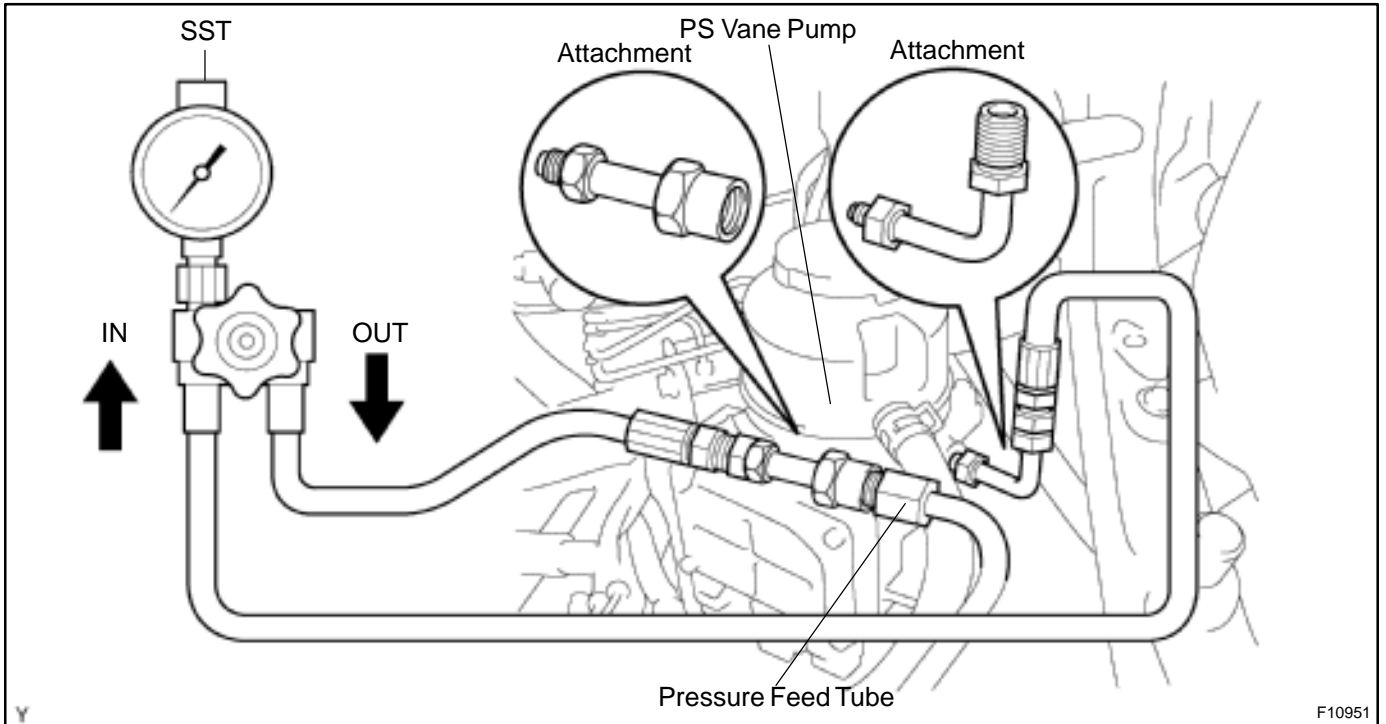
- (i) Check the fluid level.

2. CHECK STEERING FLUID PRESSURE

- (a) Disconnect the pressure feed tube from the PS vane pump (See page SR-24).
- (b) Connect SST, as shown in the illustration below.
SST 09640-10010 (09641-01010, 09641-01020, 09641-01030)

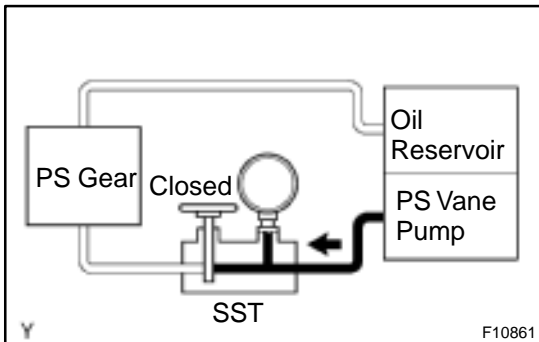
NOTICE:

Check that the valve of the SST is in the open position.



- (c) Bleed the power steering system (See page SR-3).
- (d) Start the engine and run it at idle.
- (e) Turn the steering wheel from lock to lock several times to boost fluid temperature.

Fluid temperature: 50°C (122°F)

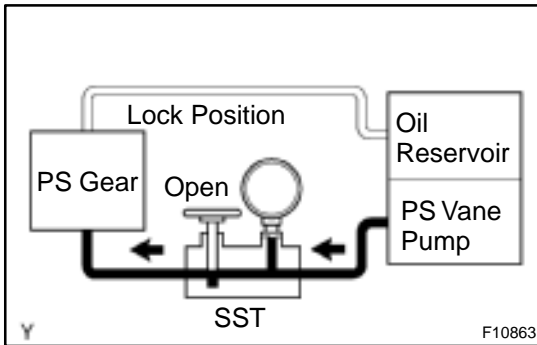


- (f) With the engine idling, close the valve of the SST and observe the reading on the SST.

**Minimum fluid pressure:
4,900 kPa (50 kgf/cm², 711 psi)**

NOTICE:

- **Do not keep the valve closed for more than 10 seconds.**
- **Do not let the fluid temperature become too high.**



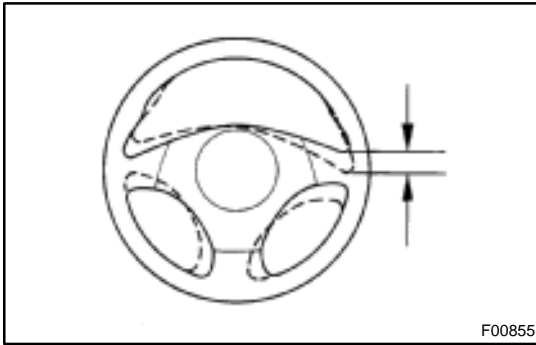
- (g) With the engine idling and valve fully opened, turn the steering wheel to full lock.

Minimum fluid pressure:

4,900 kPa (50 kgf/cm², 711 psi)

NOTICE:

- **Do not maintain lock position for more than 10 seconds.**
 - **Do not let the fluid temperature become too high.**
- (h) Disconnect the SST.
SST 09640-10010 (09641-01010, 09641-01030, 09641-01060)
- (i) Connect the pressure feed tube to the PS vane pump (See page [SR-31](#)).
- (j) Bleed the power steering system (See page [SR-3](#)).



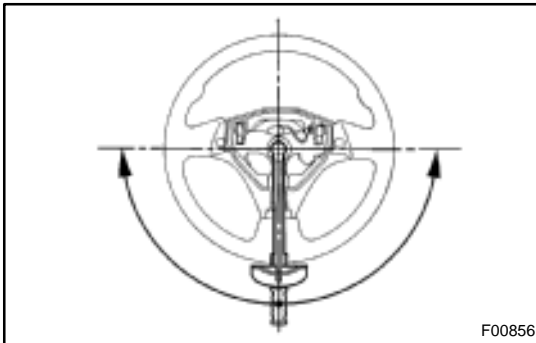
STEERING WHEEL INSPECTION

SR08K-04

1. CHECK STEERING WHEEL FREEPLAY

- (a) Stop the vehicle and face the tires straight ahead.
- (b) Rock the steering wheel gently up and down with a finger lightly, check the steering wheel freeplay.

Maximum free play: 30 mm (1.18 in.)



2. CHECK STEERING EFFORT

- (a) Center the steering wheel.
- (b) Remove the steering wheel pad (See page [SR-10](#)).
- (c) Start the engine and run it at idle.
- (d) Measure the steering effort in both directions.

Steering effort (Reference):

6.5 N·m (65 kgf·cm, 58 in.-lbf)

HINT:

Take the tire type, pressure and contact surface into consideration before making your diagnosis.

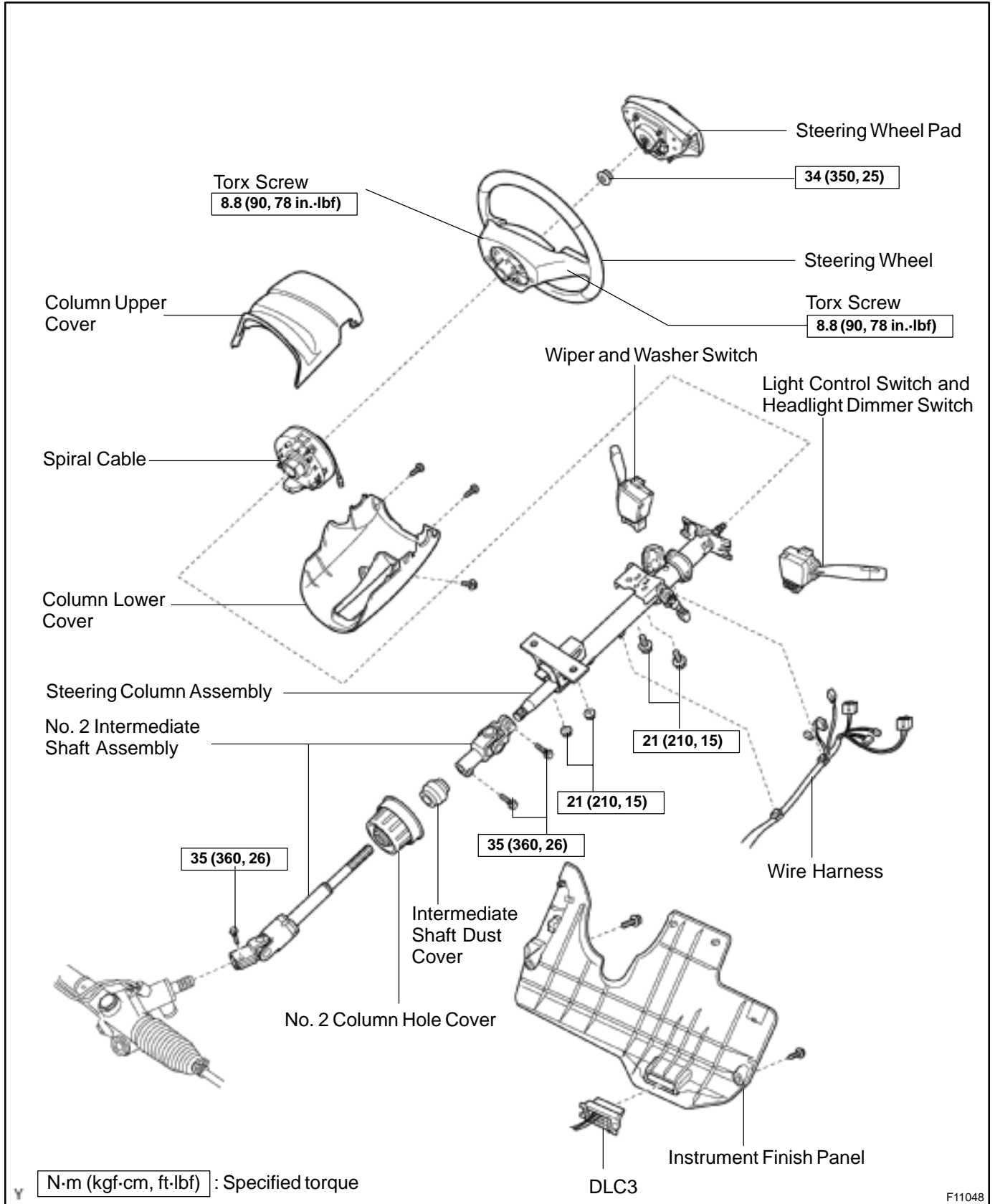
- (e) Install the steering wheel set nut.

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

- (f) Install the steering wheel pad (See page [SR-19](#)).

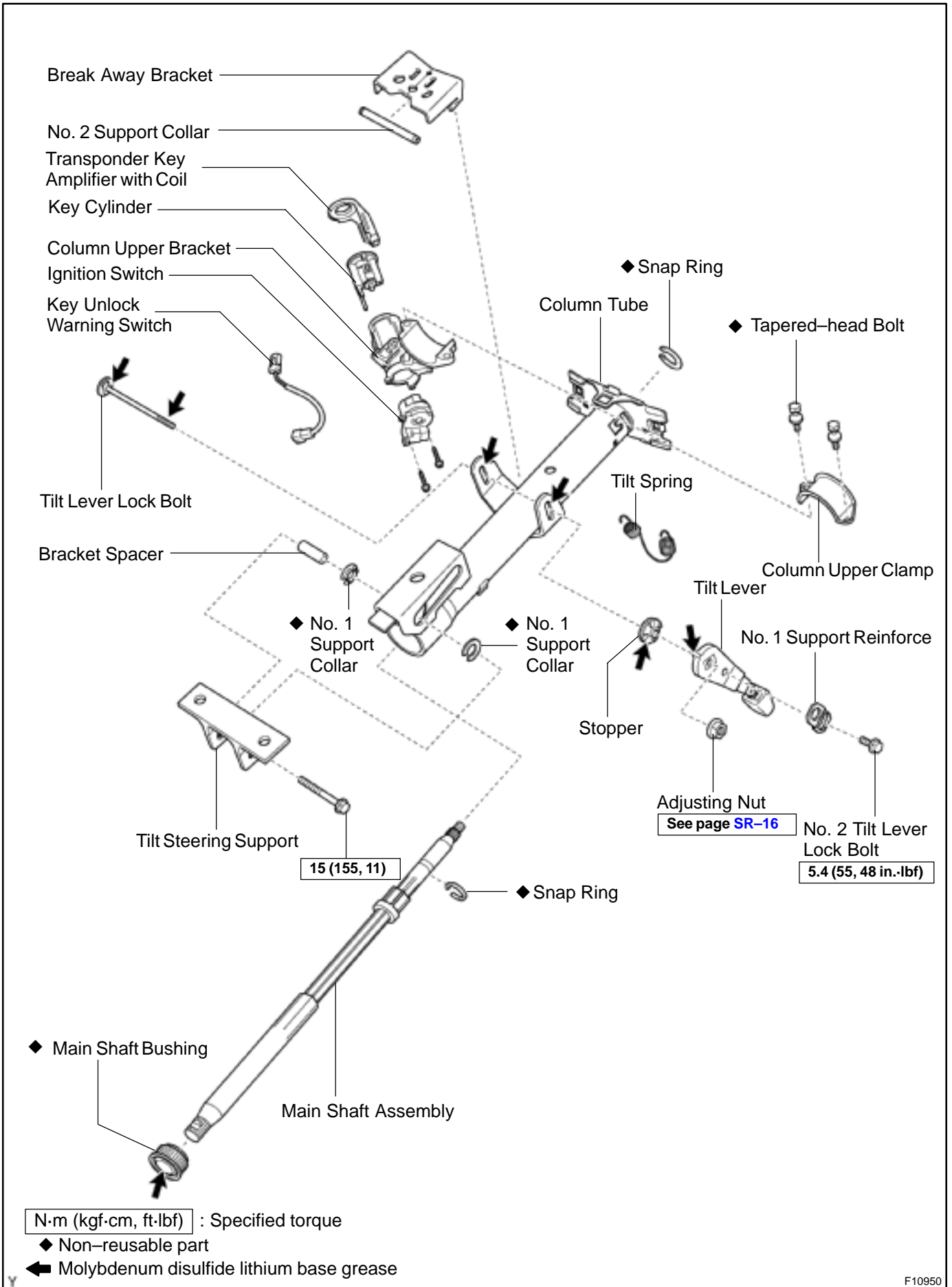
TILT STEERING COLUMN COMPONENTS

SR0YK-03

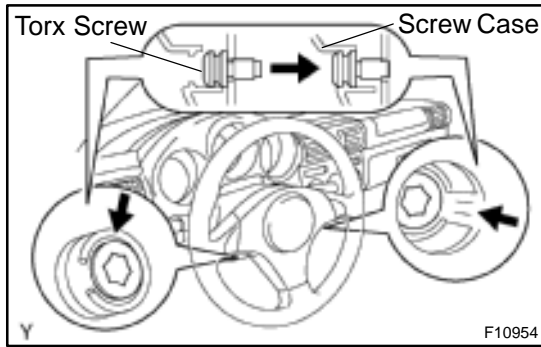


F11048

STEERING - TILT STEERING COLUMN



F10950



REMOVAL

1. REMOVE STEERING WHEEL PAD

NOTICE:

If the airbag connector is disconnected with the ignition switch at ON, DTCs will be recorded.

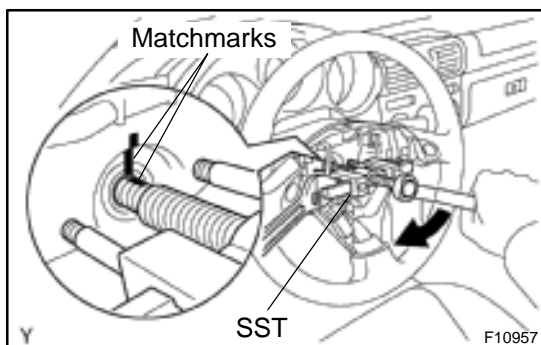
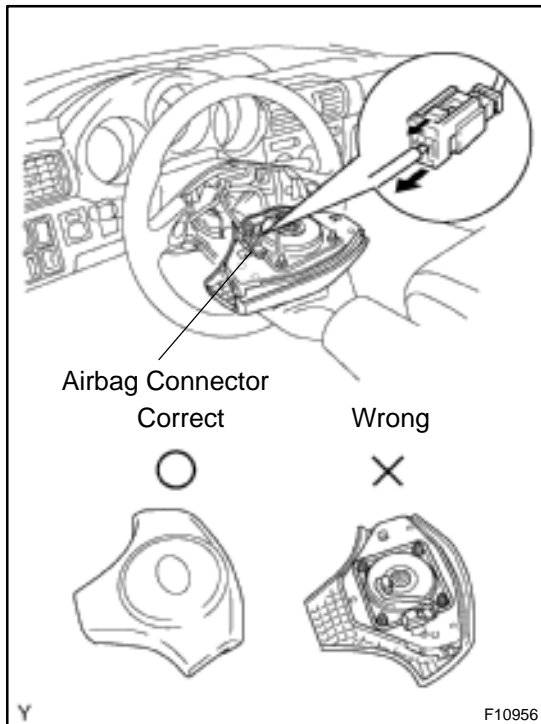
- Place the front wheels facing straight ahead.
- Using a torx socket wrench (T30), loosen the 2 torx screws until the groove along the screw circumference catches on the screw case.
- Pull out the wheel pad from the steering wheel and disconnect the airbag connector.

CAUTION:

- When storing the wheel pad, keep the upper surface of the pad facing upward.
- Never disassemble the wheel pad.

NOTICE:

When removing the wheel pad, take care not to pull the airbag wire harness.



2. REMOVE STEERING WHEEL

- Disconnect the connector.
- Remove the steering wheel set nut.
- Place matchmarks on the steering wheel and main shaft assembly.
- Using SST, remove the steering wheel.
SST 09950-50012 (09951-05010, 09952-05010, 09953-05020, 09954-05020)

3. REMOVE INSTRUMENT FINISH PANEL

- Remove the bolt, screw and lower No. 1 instrument finish panel.
- Disconnect the DLC3.

4. REMOVE COLUMN LOWER COVER

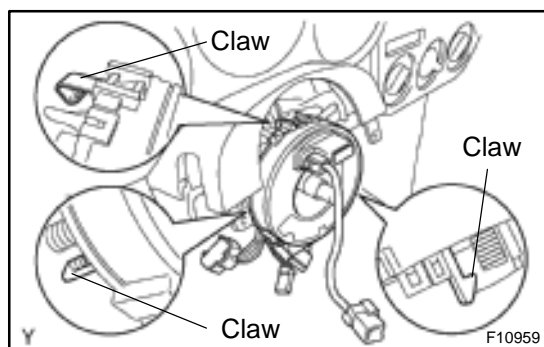
Remove the 3 screws and column lower cover.

5. DISCONNECT COLUMN UPPER COVER

Disconnect the column upper cover from the column tube.

6. REMOVE SPIRAL CABLE, LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH AND WIPER AND WASHER SWITCH

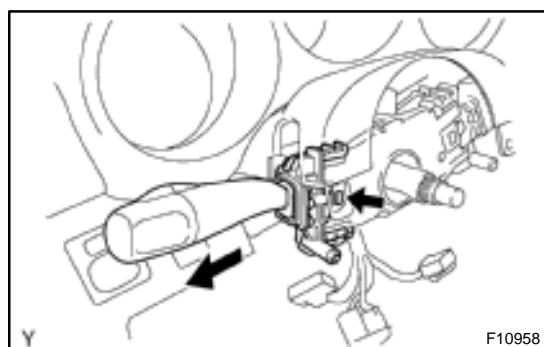
- (a) Disconnect the 3 connectors from the spiral cable, light control switch and headlight dimmer switch and wiper and washer switch.
- (b) Disconnect the airbag connector from the spiral cable.



- (c) Release the 3 claws and remove the spiral cable.

NOTICE:

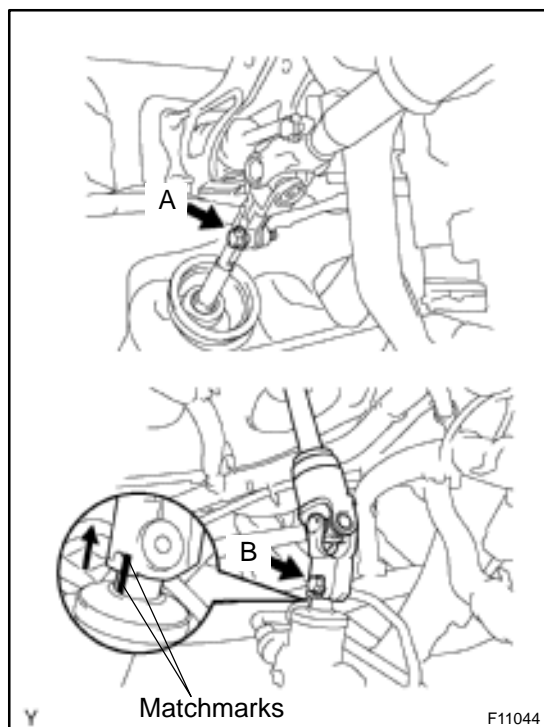
Do not disassemble the spiral cable or apply oil to it.



- (d) Push the claw and pull out the light control switch and headlight dimmer switch.
- (e) Employ the same manner described above to the wiper and washer switch.

7. DISCONNECT NO. 2 INTERMEDIATE SHAFT ASSEMBLY

- (a) Loosen the clamp and disconnect the No. 2 column hole cover.

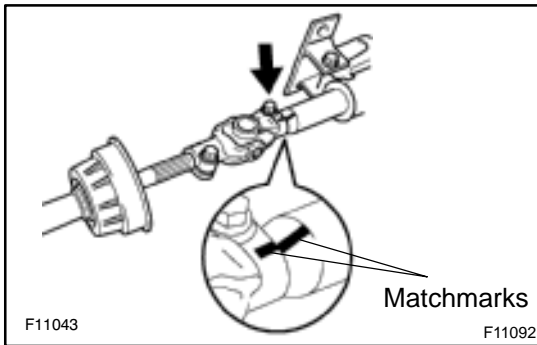


- (b) Place matchmarks on the No. 2 intermediate shaft assembly and control valve shaft.
- (c) Loosen the bolt A and remove the bolt B, then disconnect the No. 2 intermediate shaft assembly.

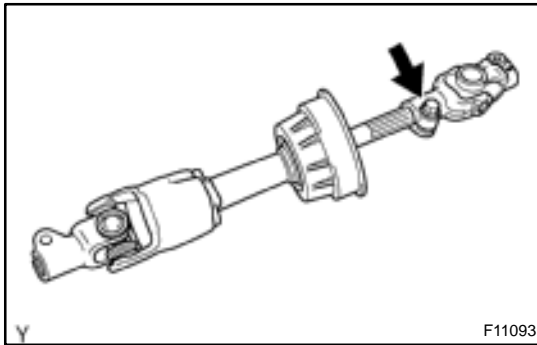
8. REMOVE STEERING COLUMN ASSEMBLY

- (a) Disconnect the 3 connectors and 2 wire harness clamps.
- (b) Remove the 2 bolts, nuts and steering column assembly.

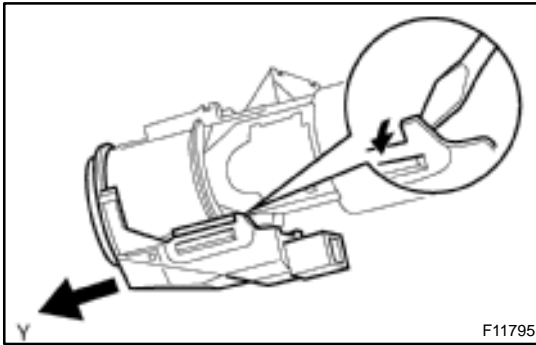
9. REMOVE COLUMN UPPER COVER



- 10. REMOVE NO. 2 INTERMEDIATE SHAFT ASSEMBLY**
- (a) Place matchmarks on the sliding yoke and main shaft assembly.
 - (b) Remove the bolt and No. 2 intermediate shaft assembly.



- 11. REMOVE SLIDING YOKE AND NO. 2 COLUMN HOLE COVER**
- Remove the bolt, sliding yoke, intermediate shaft dust cover and No. 2 column hole cover.



DISASSEMBLY

NOTICE:

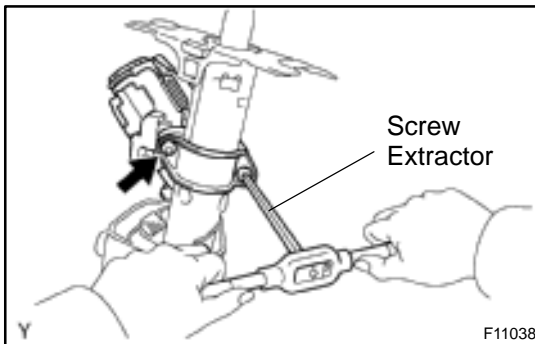
When using a vise, do not overtighten it.

1. REMOVE TRANSPONDER KEY AMPLIFIER WITH COIL

- (a) Widen the claw hung on the upper bracket by approx. 1.0 mm (0.039 in.) using a screwdriver.
- (b) Pull the transponder key amplifier toward the rear of the vehicle with the claw open.

NOTICE:

Take care not to use excessive force to prevent the case from being damaged.

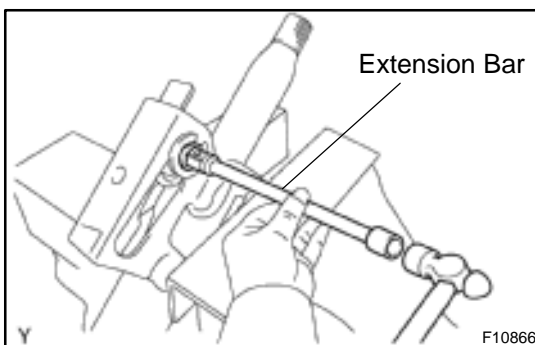


2. REMOVE COLUMN UPPER BRACKET AND COLUMN UPPER CLAMP

- (a) Using a centering punch, mark the center of the 2 tapered-head bolts.
- (b) Using a 3 – 4 mm (0.12 – 0.16 in.) drill, drill into the 2 bolts.
- (c) Using a screw extractor, remove the 2 bolts, column upper clamp and column upper bracket.

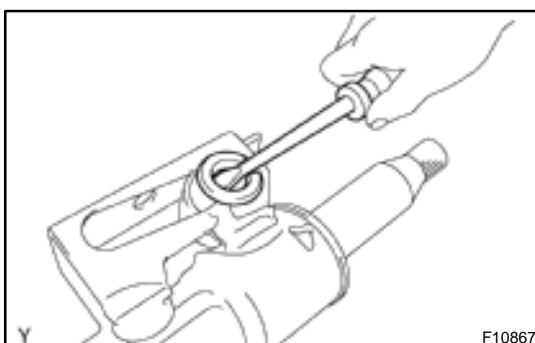
3. REMOVE TILT STEERING SUPPORT

Remove the bolt and tilt steering support.



4. REMOVE BRACKET SPACER AND NO. 1 SUPPORT COLLARS

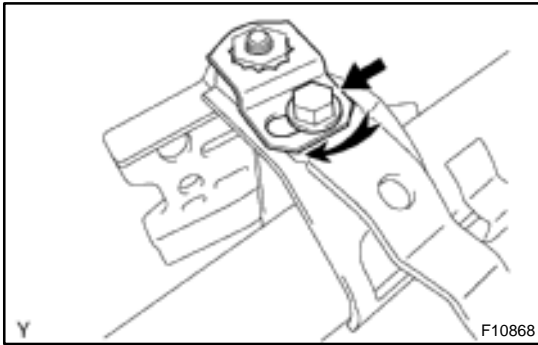
- (a) Using an extension bar and a hammer, tap out the bracket spacer.



- (b) Using a screwdriver, remove the 2 No. 1 support collars.

5. REMOVE TILT LEVER AND BREAK AWAY BRACKET

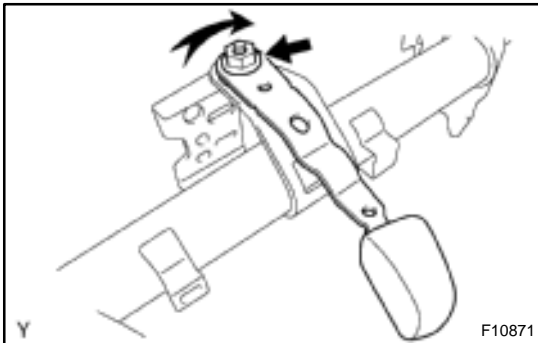
- (a) Remove the tilt spring.



- (b) Remove the No. 2 tilt lever lock bolt and No. 1 support reinforce.

HINT:

This bolt is left-handed one.

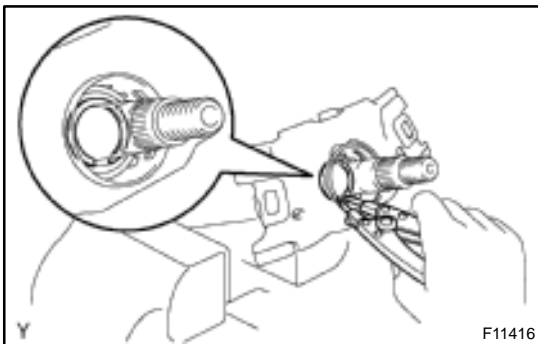


- (c) Remove the adjusting nut, tilt lever, stopper, tilt lever lock bolt and break away bracket.

HINT:

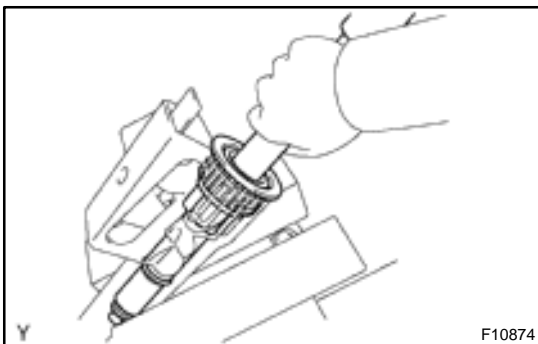
This nut is left-handed one.

- (d) Remove the No. 2 support collar from the break away bracket.

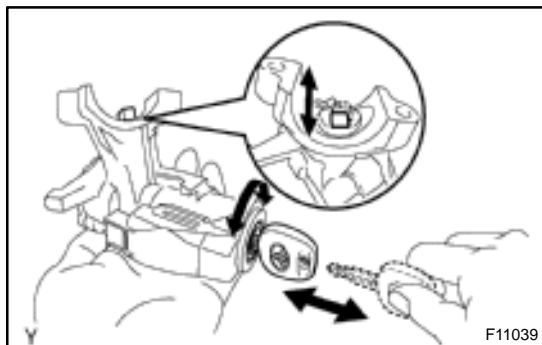


6. REMOVE MAIN SHAFT ASSEMBLY AND MAIN SHAFT BUSHING

- (a) Using a snap ring expander, remove the snap ring on the upper side.



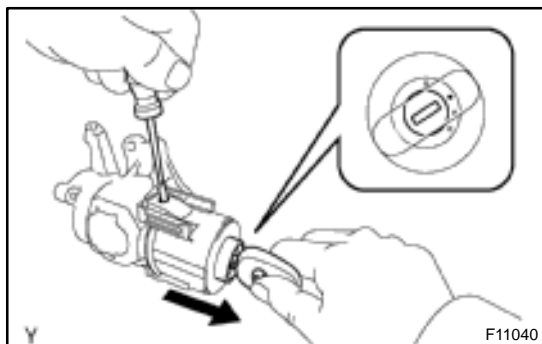
- (b) Pull out the main shaft assembly and main shaft bushing.
 (c) Using a snap ring expander, remove the snap ring on the lower side.



INSPECTION

1. INSPECT STEERING LOCK OPERATION

Check that the steering lock mechanism operates properly.



2. IF NECESSARY, REPLACE KEY CYLINDER

- (a) Place the ignition key at the ACC position.
- (b) Push down the stop pin with a screwdriver, and pull out the cylinder.
- (c) Install a new cylinder.

HINT:

Make sure the key is at the ACC position.

3. INSPECT IGNITION SWITCH (See page BE-16)

4. IF NECESSARY, REPLACE IGNITION SWITCH

- (a) Remove the 2 screws and ignition switch from the column upper bracket.
- (b) Install a new ignition switch with the 2 screws.

5. INSPECT KEY UNLOCK WARNING SWITCH (See page BE-16)

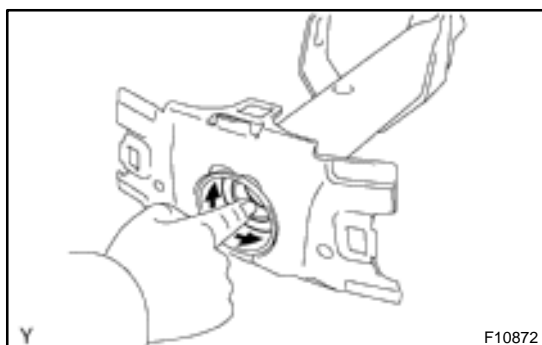
6. IF NECESSARY, REPLACE KEY UNLOCK WARNING SWITCH

- (a) Slide the key unlock warning switch out of the column upper bracket.
- (b) Slide a new key unlock warning switch in the column upper bracket.

7. INSPECT BEARING

Check the bearing rotation condition and check for abnormal noise.

If the bearing is worn or damaged, replace the column tube.

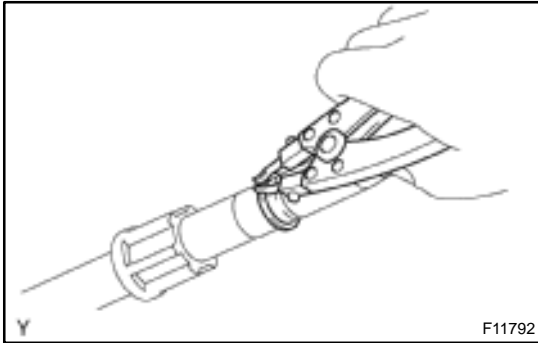


REASSEMBLY

NOTICE:

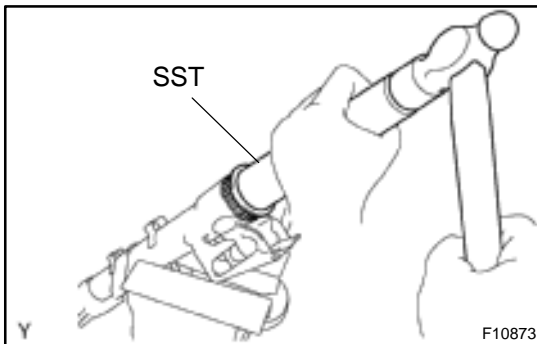
When using a vise, do not overtighten it.

1. **COAT PARTS INDICATED BY ARROWS WITH MOLYBDENUM DISULFIDE LITHIUM BASE GREASE (See page SR-8)**



2. **INSTALL MAIN SHAFT ASSEMBLY**

- (a) Using a snap ring expander, install a new snap ring on the lower side.
- (b) Install the main shaft assembly.
- (c) Using a snap ring expander, install a new snap ring on the upper side.



3. **INSTALL MAIN SHAFT BUSHING**

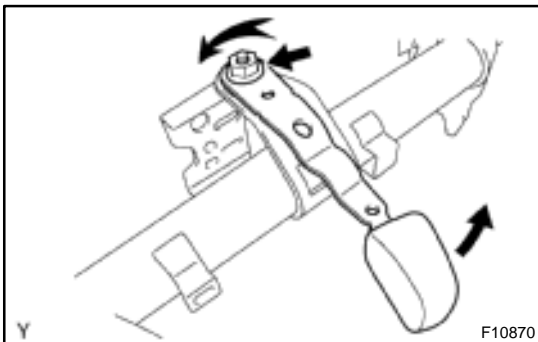
- (a) Coat a new bushing with molybdenum disulfide lithium base grease.
- (b) Using SST and a hammer, tap in the main shaft bushing. SST 09608-04031

4. **INSTALL BREAK AWAY BRACKET AND TILT LEVER**

- (a) Install the No. 2 support collar to the break away bracket.
- (b) Install the break away bracket, tilt lever lock bolt, stopper and tilt lever.

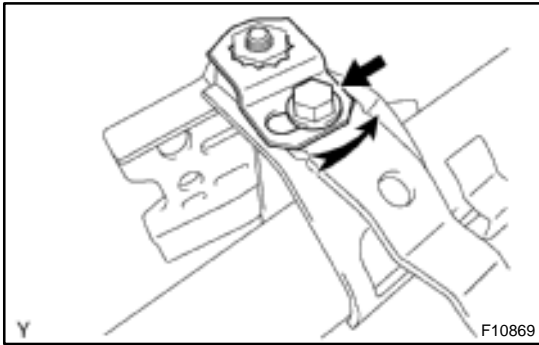
HINT:

Align the holes in the column tube with the projections of the tilt lever lock bolt and stopper.



- (c) Install the adjusting nut by rotating it counterclockwise in the specified torque so that the locking load (load applied to when a knob is operated) of the tilt lever will be 38 – 82 N (3.9 – 8.4 kgf, 8.5 – 18.4 lbf).

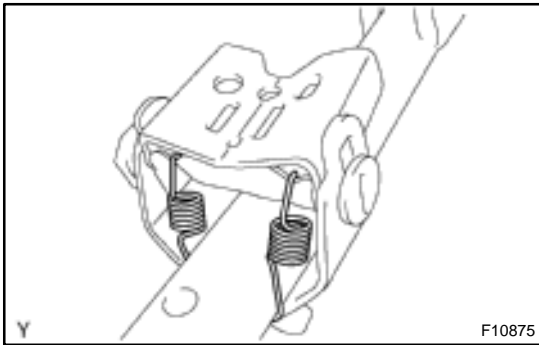
Torque: 9 N·m – 14 N·m (90 kgf·cm – 145 kgf·cm, 80 in·lbf – 10 ft·lbf)



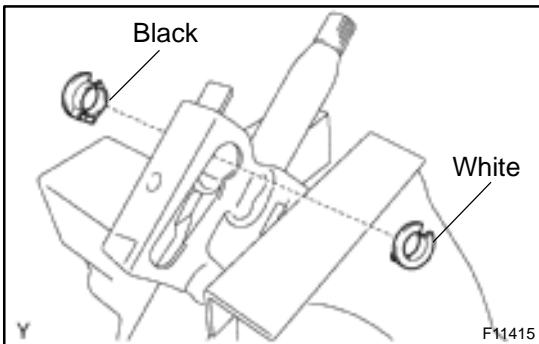
- (d) Install the No. 1 support reinforce with the No. 2 tilt lever lock bolt by turning it counterclockwise.
Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

HINT:

Align the No. 1 support reinforce with the nut to eliminate looseness by turning the No. 1 support reinforce counterclockwise a little, then torque the No. 2 tilt lever lock bolt.



- (e) Install the tilt spring.

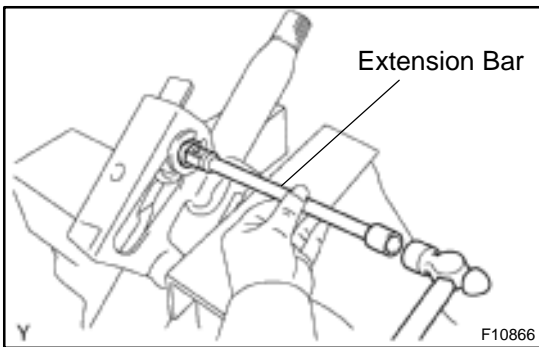


5. INSTALL NO. 1 SUPPORT COLLARS AND BRACKET SPACER

- (a) Install 2 new No. 1 support collars.

NOTICE:

Install the white support collar to the RH side, black support collar to the LH side.



- (b) Using an extension bar and a hammer, drive in the bracket spacer.

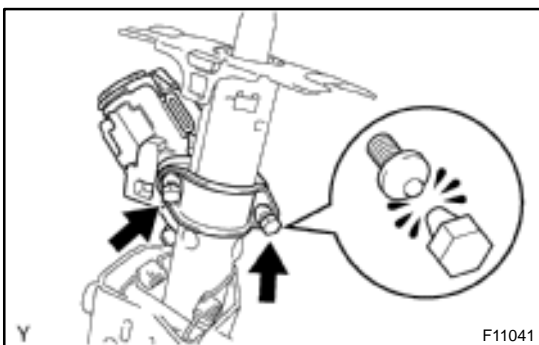
6. INSTALL TILT STEERING SUPPORT

Install the tilt steering support with the bolt.

Torque: 15 N·m (155 kgf·cm, 11 ft-lbf)

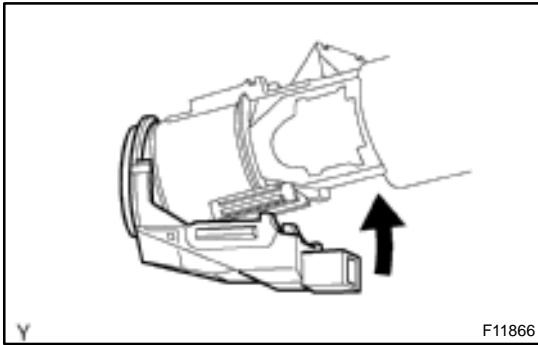
NOTICE:

Make sure that the tilt steering support is installed facing in the correct direction.



7. INSTALL COLUMN UPPER BRACKET AND COLUMN UPPER CLAMP

- (a) Install the column upper bracket and column upper clamp with 2 new tapered-head bolts.
 (b) Tighten the 2 tapered-head bolts until the bolt heads break off.

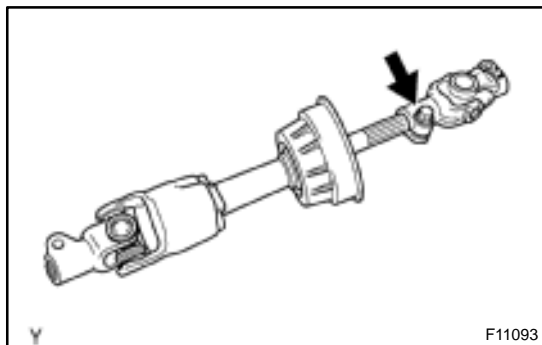


8. INSTALL TRANSPONDER KEY AMPLIFIER WITH COIL

- (a) Align the transponder key amplifier with the installation position of the upper bracket with the amplifier inclined.
- (b) Push the transponder key amplifier up and connect it to the upper bracket.

NOTICE:

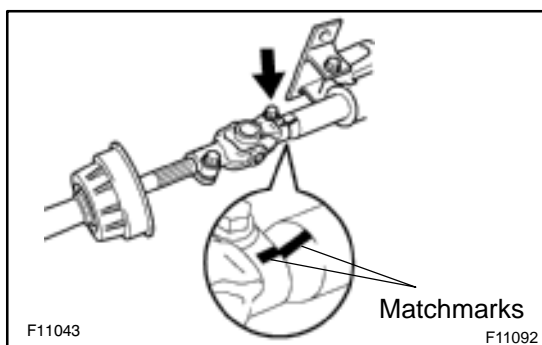
Take care not to push the amplifier up with excessive force to prevent it from being damaged.



INSTALLATION

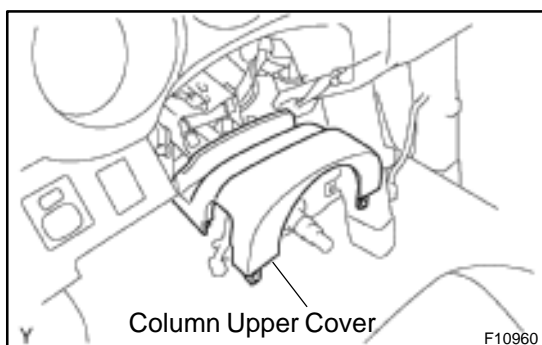
1. INSTALL SLIDING YOKE AND NO. 2 COLUMN HOLE COVER TO NO. 2 INTERMEDIATE SHAFT

- (a) Install the No. 2 column hole cover and intermediate shaft dust cover
- (b) Temporarily install the sliding yoke with the bolt.



2. INSTALL NO. 2 INTERMEDIATE SHAFT ASSEMBLY

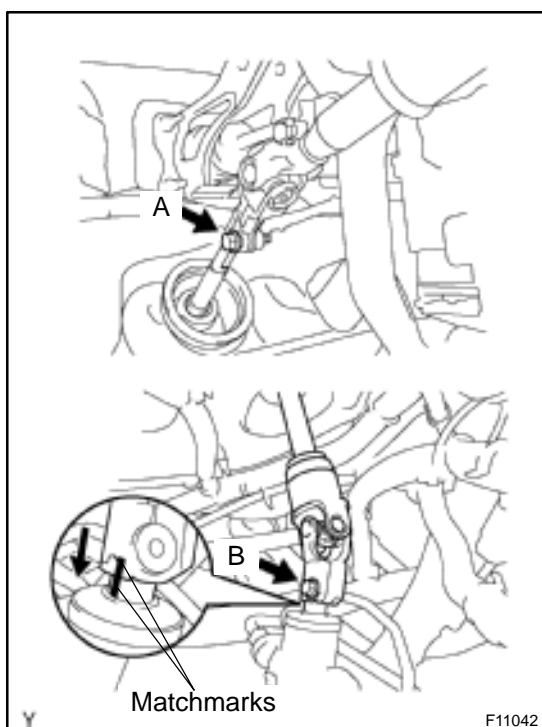
- (a) Align the matchmarks on the sliding yoke and main shaft assembly.
- (b) Install the No. 2 intermediate shaft assembly with the bolt.
Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)



3. PLACE COLUMN UPPER COVER TO STEERING COLUMN ASSEMBLY

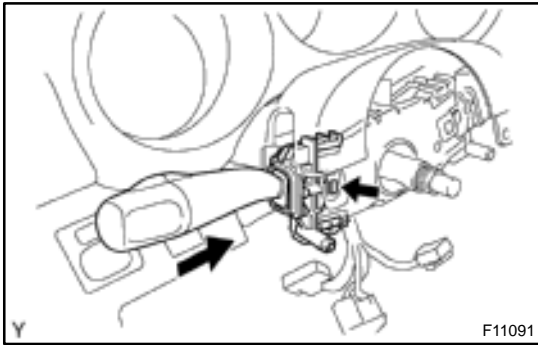
4. INSTALL STEERING COLUMN ASSEMBLY

- (a) Install the steering column assembly with the 2 bolts and nuts.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)
- (b) Connect the 3 connectors and 2 wire harness clamps.



5. CONNECT NO. 2 INTERMEDIATE SHAFT ASSEMBLY

- (a) Align the matchmarks on the No. 2 intermediate shaft assembly and control valve shaft.
- (b) Install the bolt B.
Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)
- (c) Torque the bolt A.
Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)
- (d) Connect the No. 2 column hole cover and tighten the clamp.



6. INSTALL LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH, WIPER AND WASHER SWITCH AND SPIRAL CABLE

- (a) Push into the light control switch and headlight dimmer switch until the claw is latched.
- (b) Employ the same manner described above to the wiper and washer switch.
- (c) Install the spiral cable.
- (d) Connect the airbag connector to the spiral cable.
- (e) Connect the 3 connectors to the spiral cable, light control switch and headlight dimmer switch and wiper and washer switch.

7. INSTALL COLUMN UPPER AND LOWER COVERS

Install the column upper and lower covers with the 3 screws.

8. INSTALL INSTRUMENT FINISH PANEL

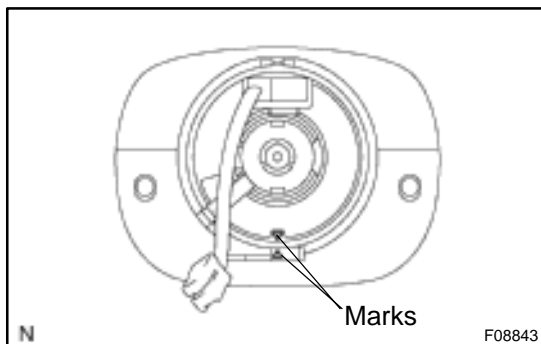
- (a) Connect the DLC3.
- (b) Install the lower No. 1 instrument finish panel with the bolt and screw.
- (c) Connect the hood lock release lever and install the 2 screws.

9. CENTER SPIRAL CABLE

- (a) Check that the front wheels are facing straight ahead.
- (b) Turn the cable counterclockwise by hand until it becomes harder to turn.
- (c) Then rotate the cable clockwise about 2.5 turns to align the marks.

HINT:

The cable will rotate about 2.5 turns to either left or right of the center.



10. INSTALL STEERING WHEEL

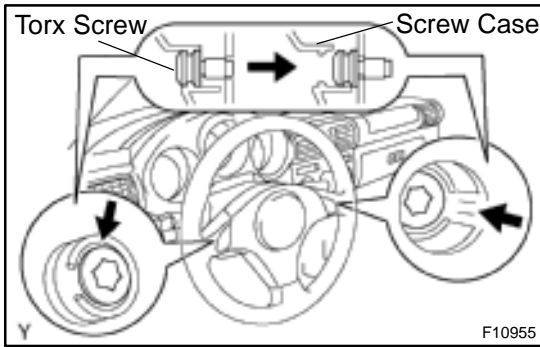
- (a) Align the matchmarks on the steering wheel and main shaft assembly.
- (b) Install the steering wheel set nut.
Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)
- (c) Connect the connector.

11. INSTALL STEERING WHEEL PAD

NOTICE:

- **Never use airbag parts from another vehicle. When replacing parts, replace with new ones.**
- **Make sure the wheel pad is installed with the specified torque.**
- **If the wheel pad has been dropped, or there are cracks, dents or other defects in the case or connector, replace the wheel pad with a new one.**
- **When installing the wheel pad, take care that the wirings do not interfere with other parts and that they are not pinched between other parts.**

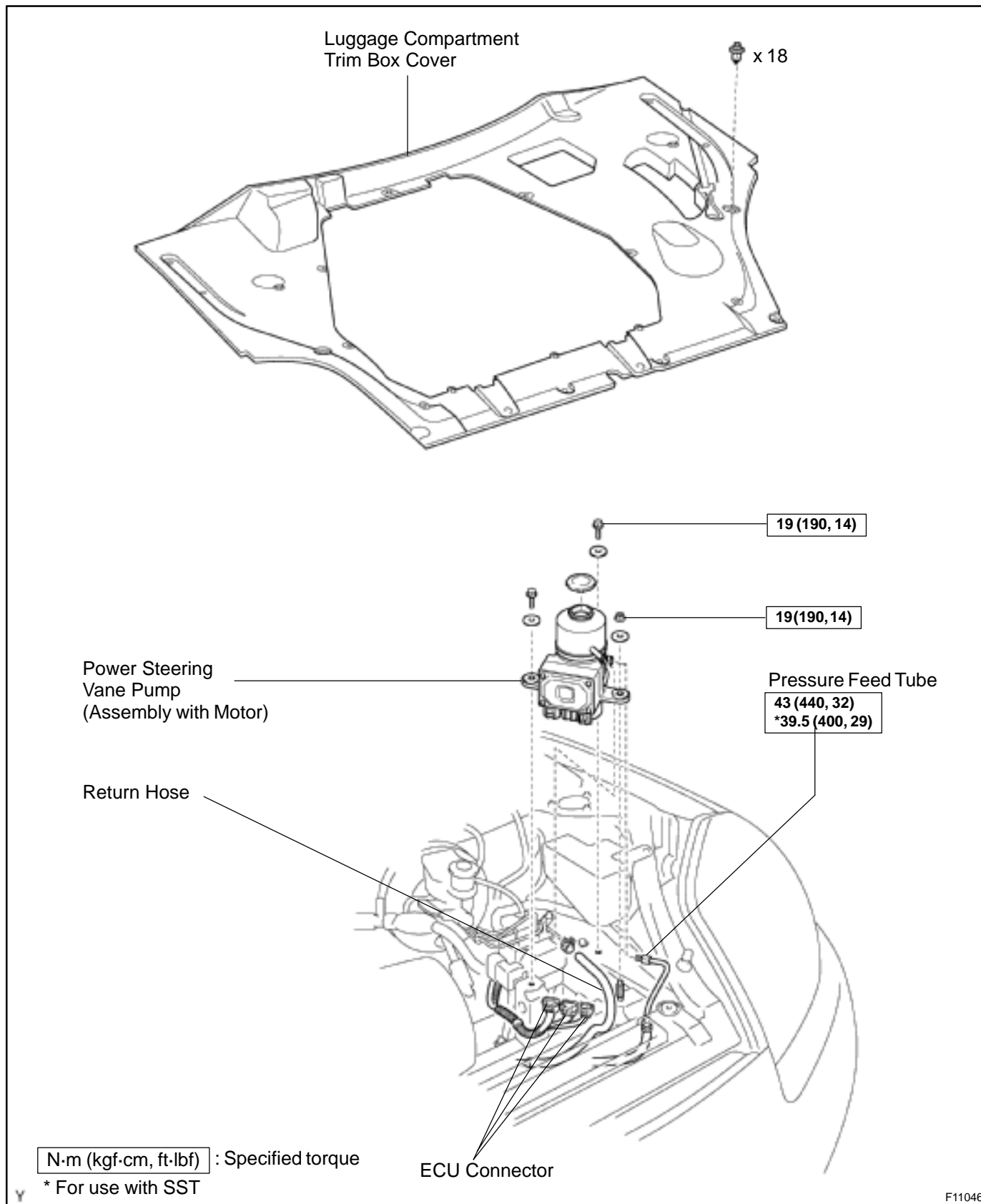
- (a) Connect the airbag connector.

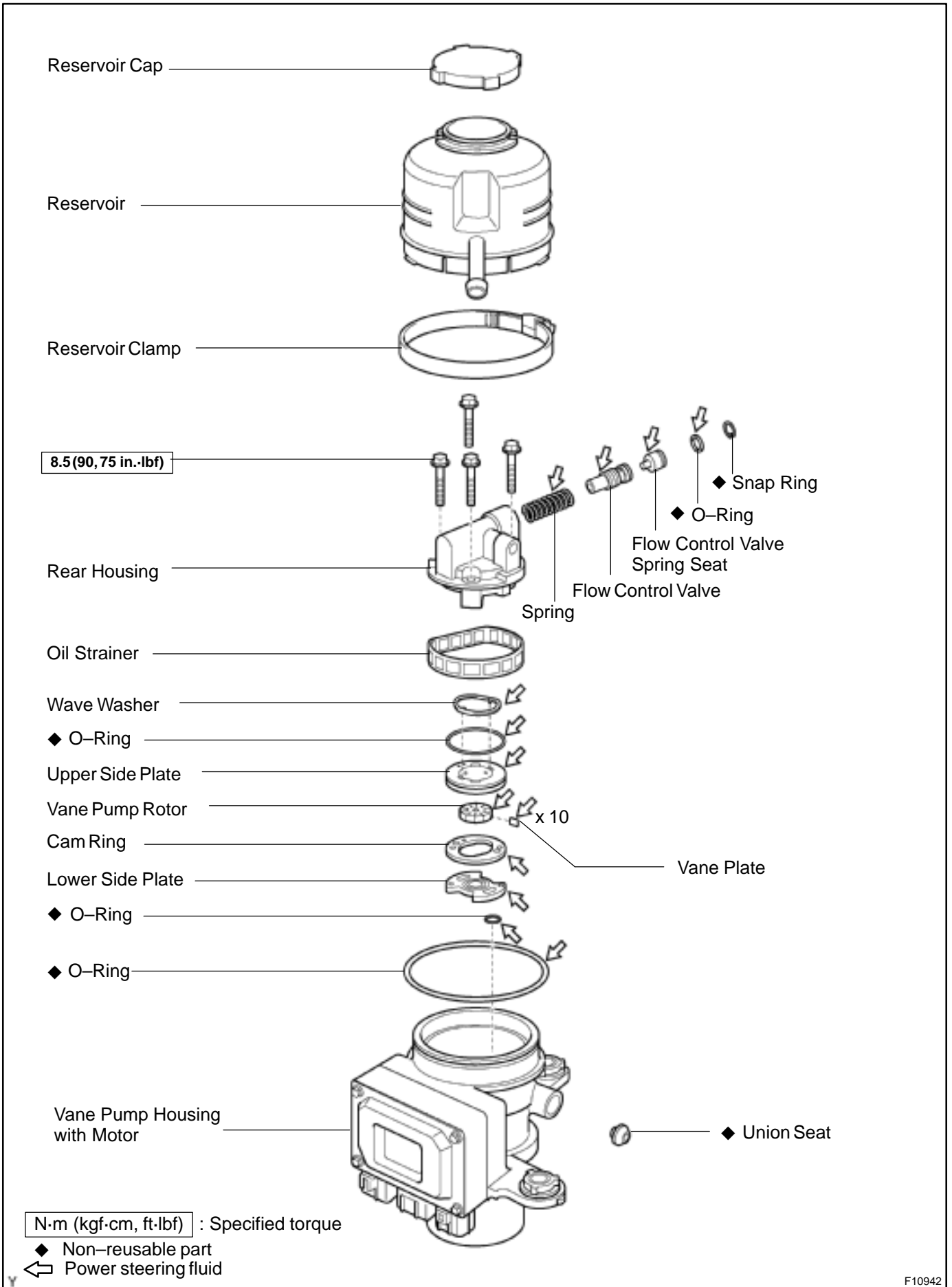


- (b) Install the steering wheel pad after confirming that the circumference groove of the torx screws is caught on the screw case.
- (c) Using a torx socket wrench (T30), torque the 2 screws.
Torque: 8.8 N·m (90 kgf·cm, 78 in.-lbf)
- 12. CHECK STEERING WHEEL CENTER POINT**

POWER STEERING VANE PUMP COMPONENTS

SR0YO-03



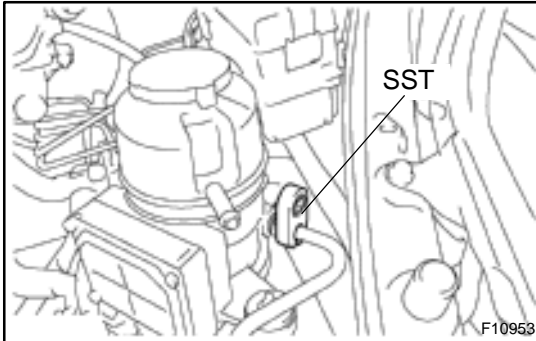


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REMOVAL

1. **REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER**
2. **DISCONNECT ECU CONNECTORS**
3. **DISCONNECT RETURN HOSE**

Remove the clip and disconnect the return hose.



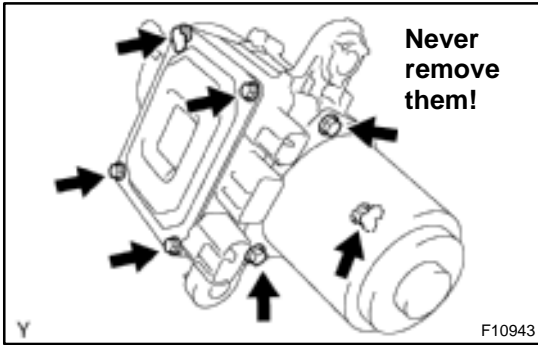
4. **DISCONNECT PRESSURE FEED TUBE**

Using SST, disconnect the pressure feed tube.

SST 09023-12700

5. **REMOVE POWER STEERING VANE PUMP**

Remove the 2 bolts, nut, 3 washers and power steering vane pump.



DISASSEMBLY

NOTICE:

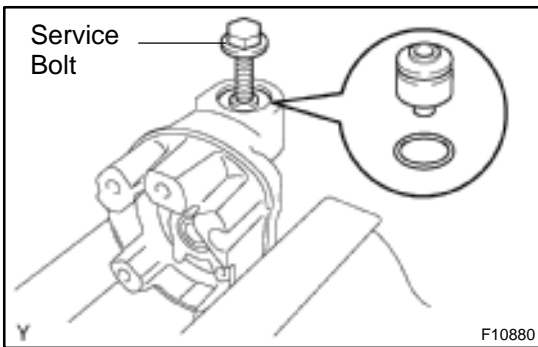
Never remove the mounting bolts (partly resin coated) of the power steering ECU and motor. (The power steering ECU and motor should not be disassembly.)

1. REMOVE RESERVOIR CAP
2. REMOVE RESERVOIR
 - (a) Loosen the clamp and remove the reservoir.
 - (b) Remove the O-ring from the power steering vane pump housing.
3. REMOVE REAR HOUSING AND OIL STRAINER
 - (a) Remove the 4 bolts, rear housing and oil strainer.
 - (b) Remove the O-ring from the power steering vane pump housing.
4. REMOVE CAM RING, VANE PLATES, VANE PUMP ROTOR AND LOWER SIDE PLATE
 - (a) Remove the cam ring, vane pump rotor and 10 vane plates.
 - (b) Remove the lower side plate.

NOTICE:

Take care not to drop the vane plate.

5. REMOVE FLOW CONTROL VALVE SPRING SEAT AND FLOW CONTROL VALVE
 - (a) Using snap ring pliers, remove the snap ring.

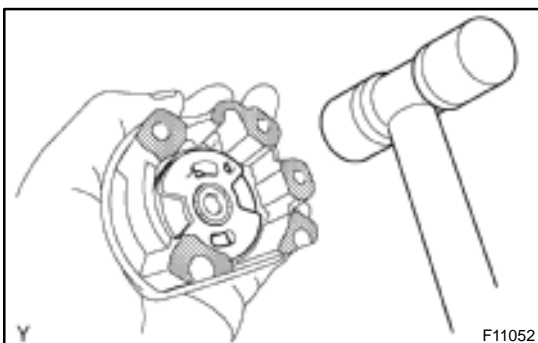


- (b) Using a service bolt, pull it out together with the spring seat.

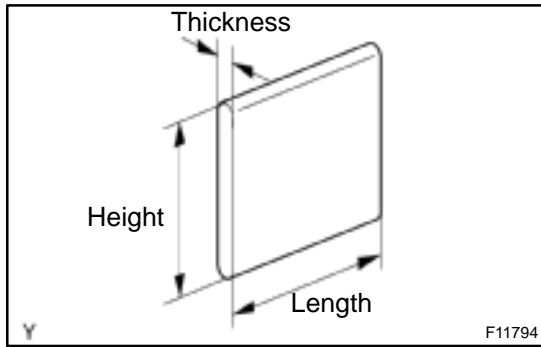
Recommended service bolt:

Thread diameter	6 mm
Thread pitch	1.0 mm

- (c) Remove the O-ring from the spring seat.
- (d) Remove the flow control valve and spring.



6. REMOVE UPPER SIDE PLATE
 - (a) Using a plastic-faced hammer, tap out the side plate and wave washer.
 - (b) Remove the O-ring from the side plate.



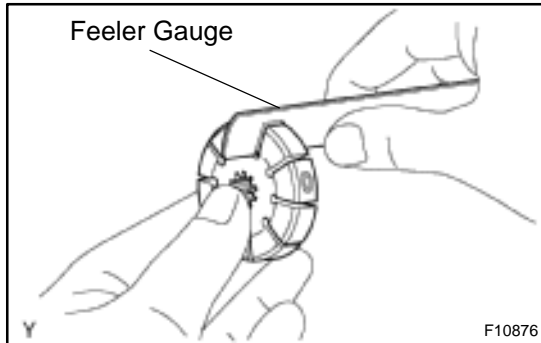
INSPECTION

1. **INSPECT VANE PUMP ROTOR AND VANE PLATES**
 - (a) Using a micrometer, measure the height, thickness and length of the 10 vane plates.

Minimum height: 5.4 mm (0.213 in.)

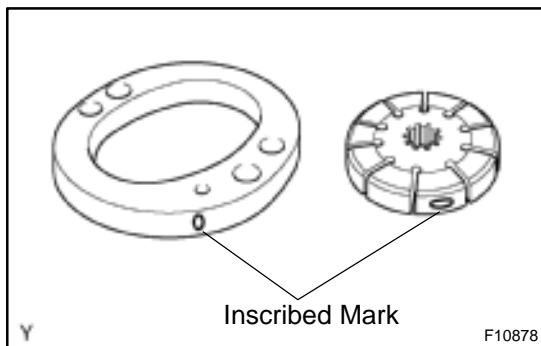
Minimum thickness: 0.882 mm (0.0347 in.)

Minimum length: 4.596 mm (0.1809 in.)



- (b) Using a feeler gauge, measure the clearance between the vane pump rotor groove and vane plate.

Maximum clearance: 0.023 mm (0.0009 in.)



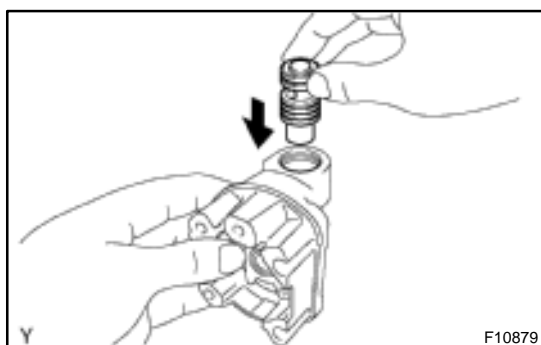
If it is more than the maximum, replace the vane plate and/or vane pump rotor with the one having the same mark stamped on the cam ring.

Inscribed mark: 0, 1, 2, 3, or 4

HINT:

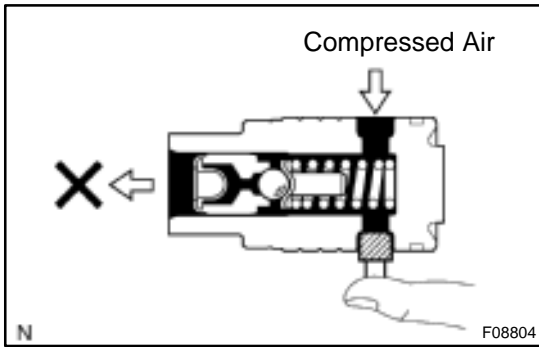
There are 5 vane plate heights corresponding to the following vane pump rotor and cam ring marks:

Vane pump rotor and cam ring mark	Vane plate part number	Vane plate length mm (in.)
0	44345-17060	4.604-4.606 (0.18126-0.18134)
1	44345-17070	4.602-4.604 (0.18118-0.18126)
2	44345-17080	4.600-4.602 (0.18110-0.18118)
3	44345-17090	4.598-4.600 (0.18102-0.18110)
4	44345-17100	4.596-4.598 (0.18094-0.18102)

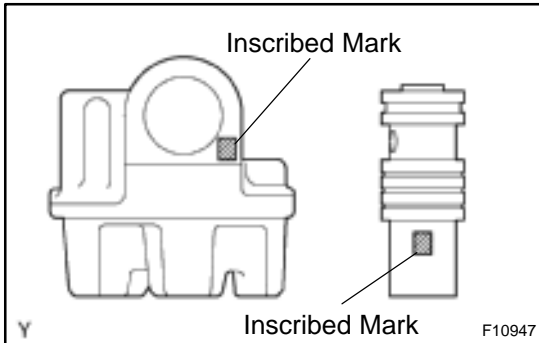


2. INSPECT FLOW CONTROL VALVE

- (a) Coat the flow control valve with power steering fluid and check that it falls smoothly into the valve hole of the rear housing by its own weight.

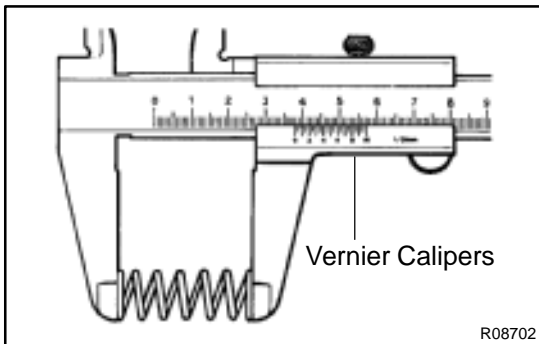


- (b) Check the flow control valve for leakage. Close one of the holes and apply compressed air of 392 – 490 kPa (4 – 5 kgf/cm², 57 – 71 psi) into the opposite side hole, and confirm that air does not come out from the end hole.



If necessary, replace the flow control valve with the one having the same letter as inscribed on the rear housing.

Inscribed mark: A, B, C, D, E or F

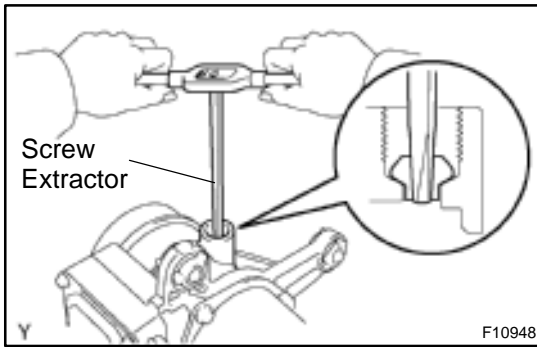


3. INSPECT SPRING

Using vernier calipers, measure the free length of the spring.

Minimum free length: 28.7 mm (1.130 in.)

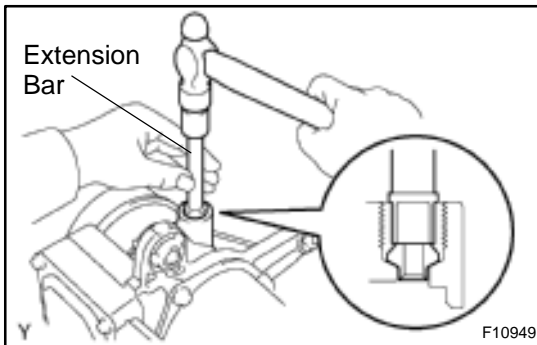
If it is not within the specification, replace the spring.



REPLACEMENT

REPLACE UNION SEAT

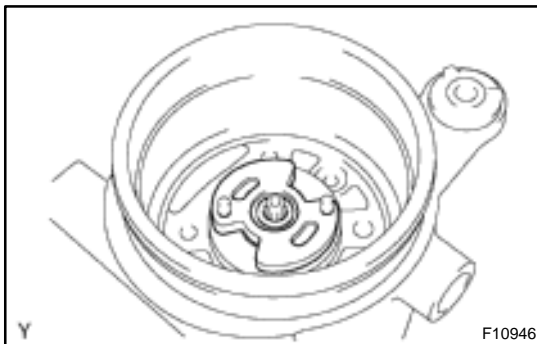
- (a) Using a screw extractor, remove the union seat from the power steering vane pump housing.



- (b) Using a hammer and an extension bar, lightly tap in a new union seat.

REASSEMBLY

1. **COAT PARTS INDICATED BY ARROWS WITH POWER STEERING FLUID (See page SR-22)**
2. **INSTALL FLOW CONTROL VALVE AND FLOW CONTROL VALVE SPRING SEAT**
 - (a) Install the spring.
 - (b) Install the flow control valve facing in the correct direction (See page SR-22).
 - (c) Coat a new O-ring with power steering fluid, and install it to the spring seat.
 - (d) Install the the spring seat with the bolt hole facing outward to the rear housing.
 - (e) Using snap ring pliers, install a new snap ring.

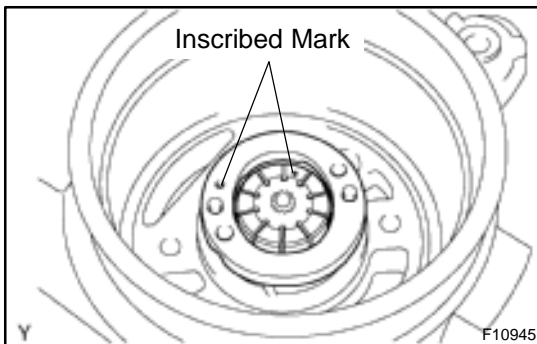


3. INSTALL LOWER SIDE PLATE

Align the holes of the side plate with the 2 straight pins, and install the lower side plate.

NOTICE:

Make sure that the side plate is installed facing in the correct direction.



4. INSTALL CAM RING

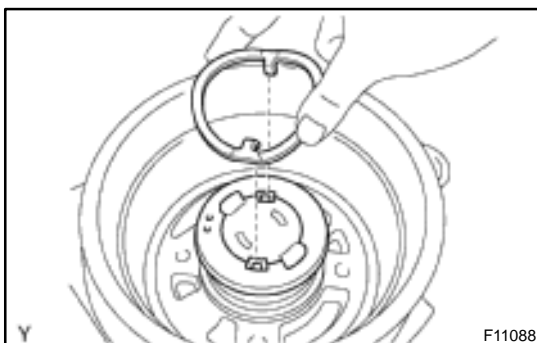
Align the holes of the cam ring with the 2 straight pins, and install the cam ring with the inscribed mark facing upward.

5. INSTALL VANE PUMP ROTOR

Install the vane pump rotor with the inscribed mark facing upward.

6. INSTALL VANE PLATES

Install the 10 vane plates.

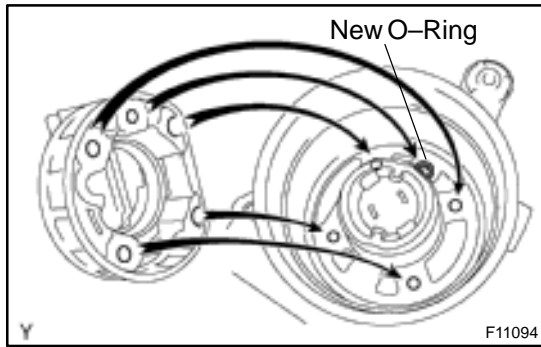


7. INSTALL UPPER SIDE PLATE

- (a) Coat a new O-ring with power steering fluid, and install it to the upper side plate.
- (b) Align the holes of the side plate with the 2 straight pins, and install the upper side plate.

8. INSTALL WAVE WASHER

Install the wave washer so that its protrusions fit into the slots in the upper side plate.



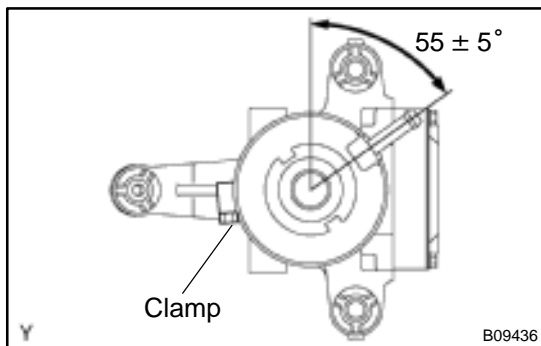
9. INSTALL OIL STRAINER AND REAR HOUSING

- (a) Coat a new O-ring with power steering fluid, and install it to the vane pump housing.
- (b) Install the oil strainer to the rear housing.
- (c) Align the O-ring with the oil hole of the rear housing.
- (d) Align the bolt set holes of the power steering vane pump housing with the bolt set holes of the rear housing, and install the rear housing with the 4 bolts.

Torque: 8.5 N·m (90 kgf·cm, 75 in.-lbf)

10. INSTALL RESERVOIR

- (a) Coat a new O-ring with power steering fluid, and install it to the power steering vane pump housing.



- (b) Install the reservoir with the clamp to the position shown in the illustration.

Torque: 7.0 N·m (70 kgf·cm, 61 in.-lbf)

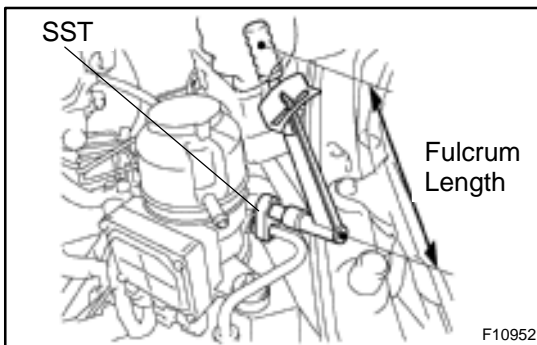
11. INSTALL RESERVOIR CAP

INSTALLATION

1. INSTALL POWER STEERING VANE PUMP

Install the power steering vane pump with the 2 bolts, nut and 3 washers.

Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)



2. CONNECT PRESSURE FEED TUBE

Using SST, connect the pressure feed tube.

SST 09023-12700

Torque: 39.5 N·m (400 kgf·cm, 29 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 345 mm (11.81 in).

3. CONNECT RETURN HOSE

Connect the return hose with the clip.

4. CONNECT ECU CONNECTORS

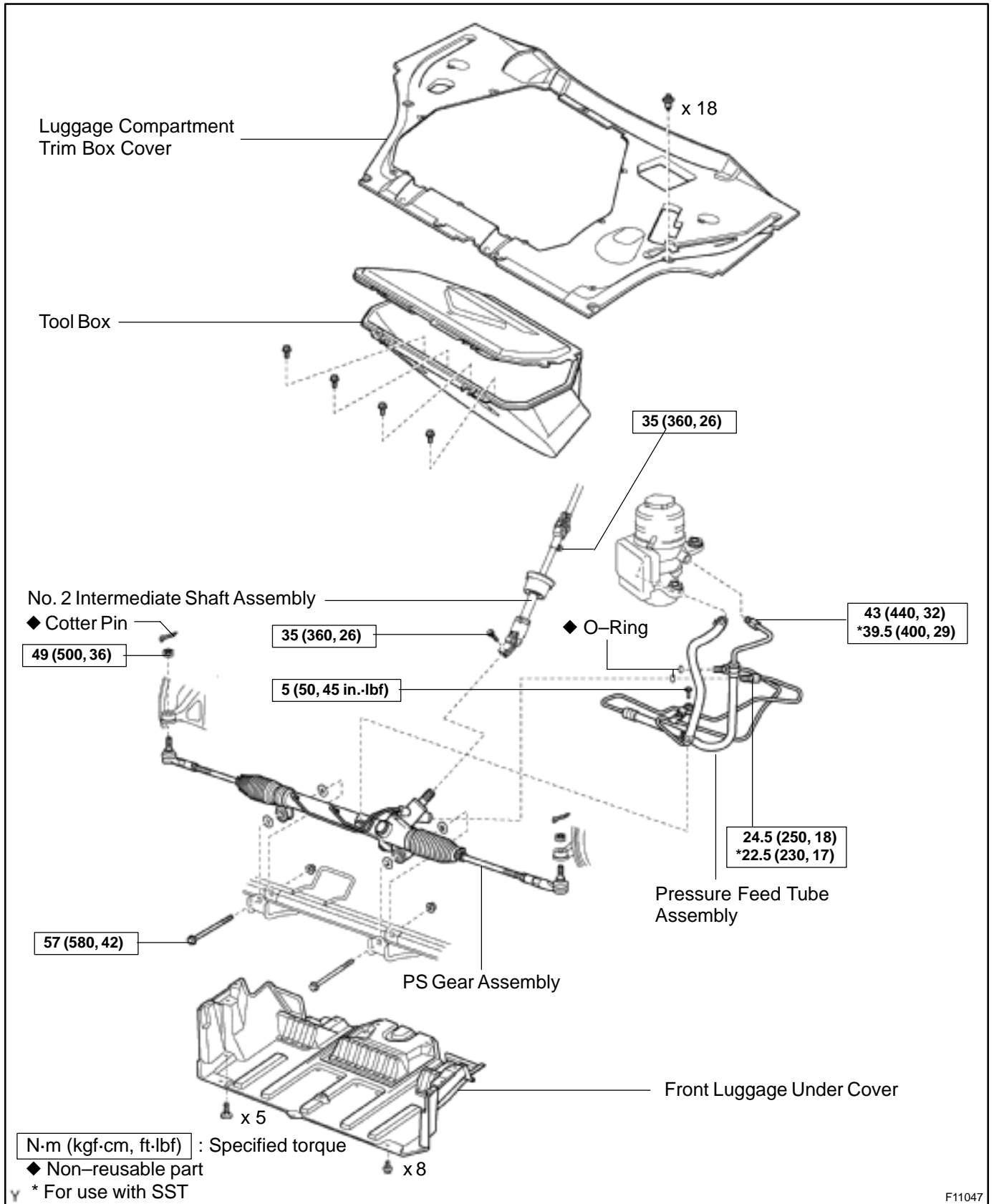
5. BLEED POWER STEERING SYSTEM

(See page [SR-3](#))

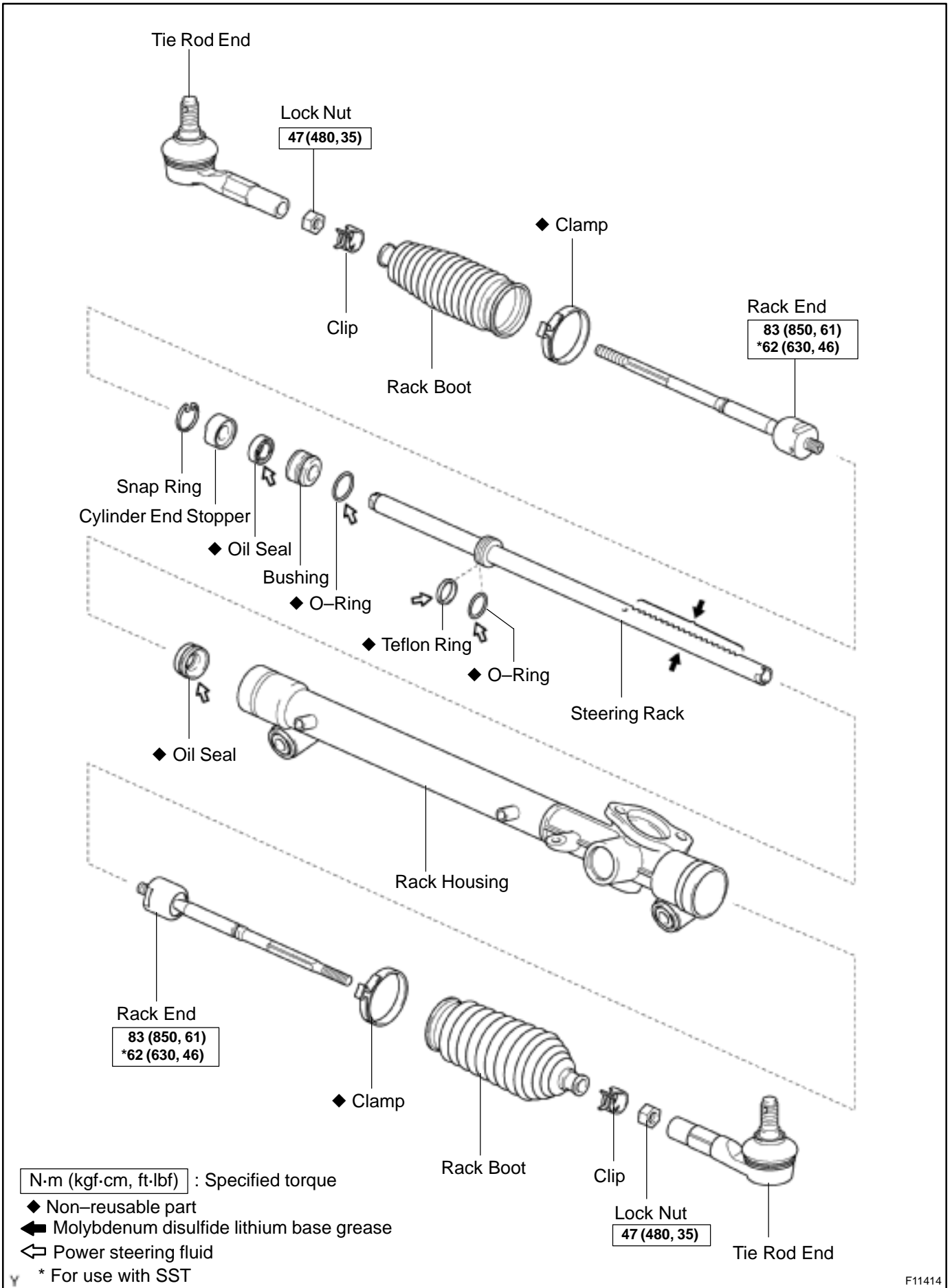
6. INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER

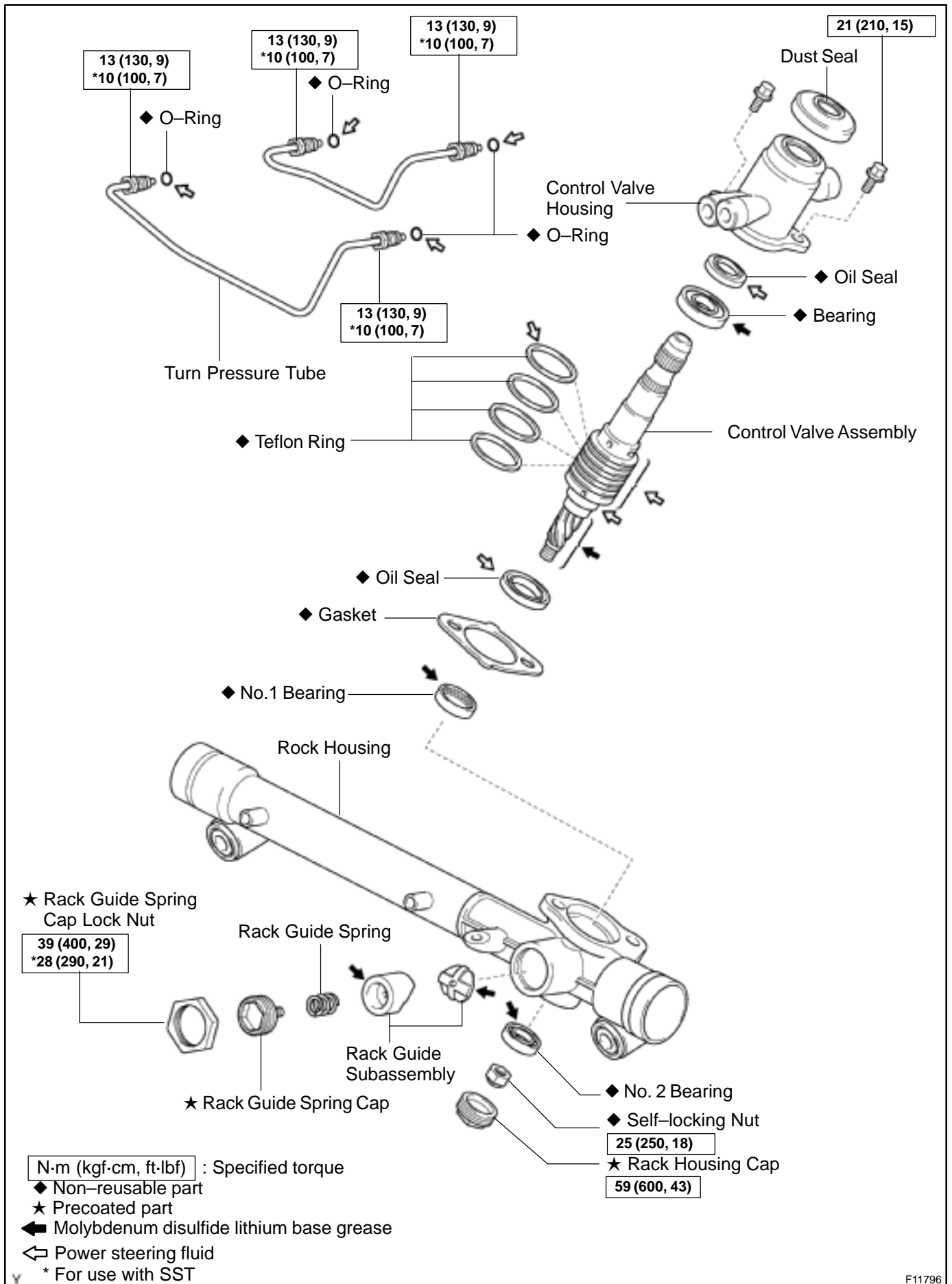
POWER STEERING GEAR COMPONENTS

SR13A-02



F11047





F11796

REMOVAL

NOTICE:

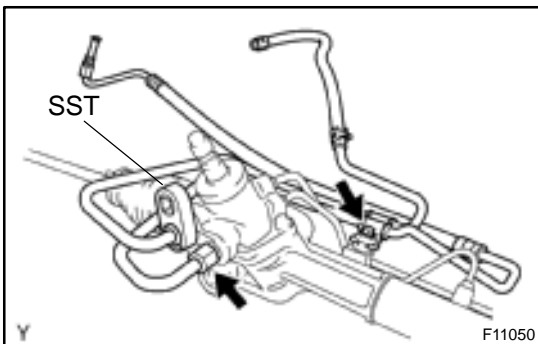
Remove the steering wheel assembly before the steering gear removal, because there is possibility of breaking of the spiral cable.

1. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
2. REMOVE STEERING WHEEL PAD (See page [SR-10](#))
3. REMOVE STEERING WHEEL (See page [SR-10](#))
4. REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER
5. REMOVE TOOL BOX
6. DISCONNECT PRESSURE FEED TUBE AND RETURN HOSE FROM POWER STEERING VANE PUMP (See page [SR-24](#))
7. REMOVE FRONT LUGGAGE UNDER COVER
8. DISCONNECT RH AND LH TIE ROD ENDS (See page [SA-9](#))
9. DISCONNECT NO. 2 INTERMEDIATE SHAFT ASSEMBLY (See page [SR-10](#))



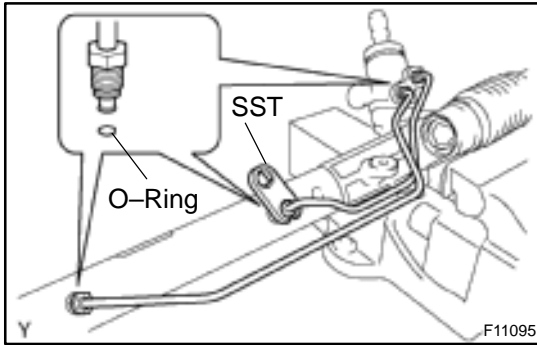
10. REMOVE PS GEAR ASSEMBLY

Remove the 2 bolts, 2 nuts, 4 plate washers and PS gear assembly from the steering gear support member.



11. REMOVE PRESSURE FEED TUBE ASSEMBLY

- (a) Using SST, disconnect the pressure feed and return tubes.
SST 09023-12700
- (b) Remove the 2 O-rings from the feed and return tubes.
- (c) Remove the bolt and pressure feed tube assembly.



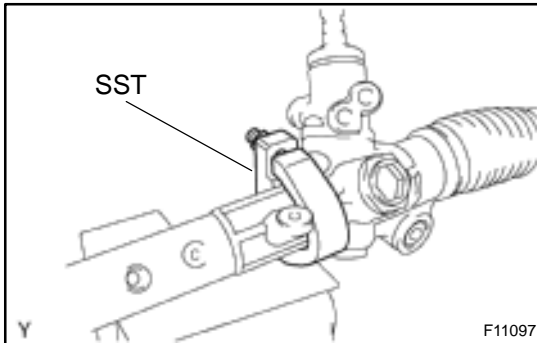
DISASSEMBLY

NOTICE:

When using a vise, do not overtighten it.

1. REMOVE TURN PRESSURE TUBES

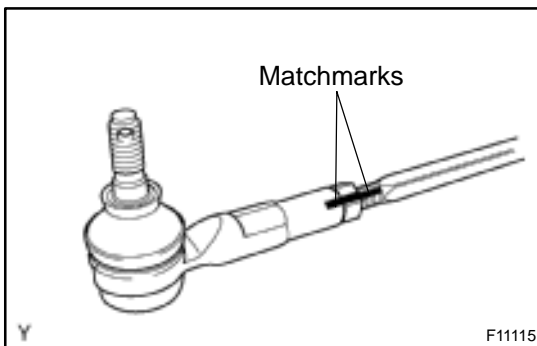
- (a) Using SST, remove the 2 turn pressure tubes.
SST 09023-38200
- (b) Remove the 4 O-rings from the 2 turn pressure tubes.



2. SECURE PS GEAR ASSEMBLY IN VISE

Using SST, secure the PS gear assembly in a vise.

SST 09612-00012



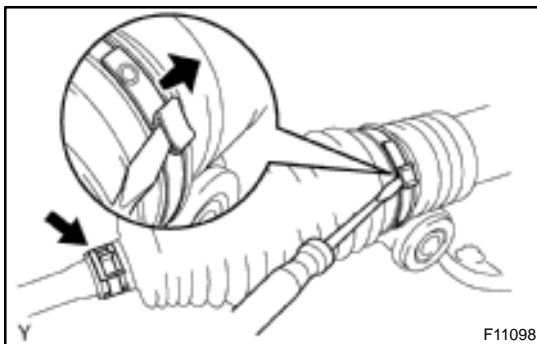
3. REMOVE RH AND LH TIE ROD ENDS AND LOCK NUTS

- (a) Place matchmarks on the tie rod end and rack end.
- (b) Loosen the lock nut, and remove the tie rod end and lock nut.

HINT:

Mark the RH and LH tie rod ends and lock nuts.

- (c) Employ the same manner described above to the other side.



4. REMOVE RH AND LH CLIPS, CLAMPS AND RACK BOOTS

- (a) Using a screwdriver, loosen the clamp.
- (b) Remove the clip, clamp and rack boot.

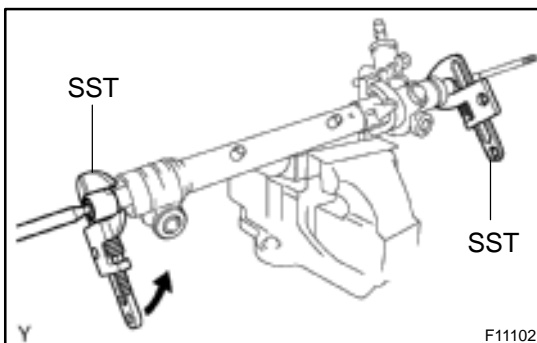
NOTICE:

Be careful not to damage the boot.

HINT:

Mark the RH and LH rack boots.

- (c) Employ the same manner described above to the other side.



5. REMOVE RH AND LH RACK ENDS

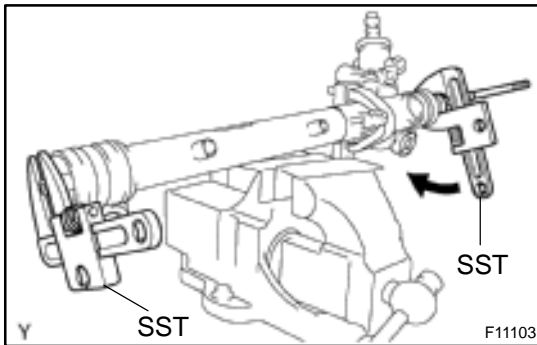
- (a) Using SST, hold the LH rack end steadily and using another SST, remove the RH rack end.
SST 09922-10010

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Mark the RH and LH rack ends.



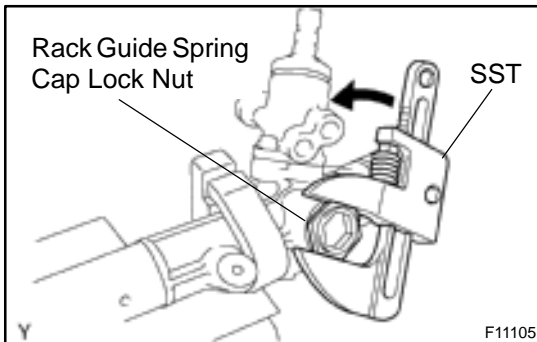
- (b) Using SST, hold the steering rack RH side steadily and using another SST, remove the LH rack end.
SST 09922-10010

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Mark the RH and LH rack ends.

**6. REMOVE RACK GUIDE SPRING CAP LOCK NUT**

Using SST, remove the rack guide spring cap lock nut.

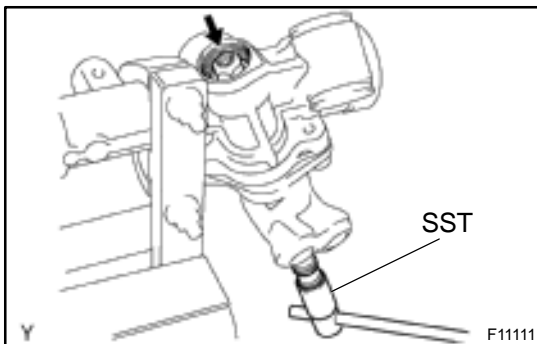
SST 09922-10010

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

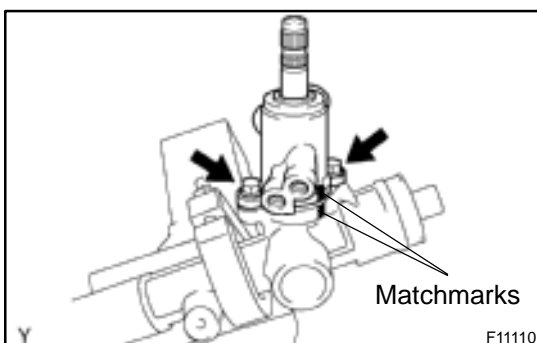
7. REMOVE RACK GUIDE SPRING CAP, RACK GUIDE SPRING AND RACK GUIDE SUBASSEMBLY

- (a) Using a hexagon wrench (19 mm), remove the rack guide spring cap.
- (b) Remove the rack guide spring and rack guide subassembly.

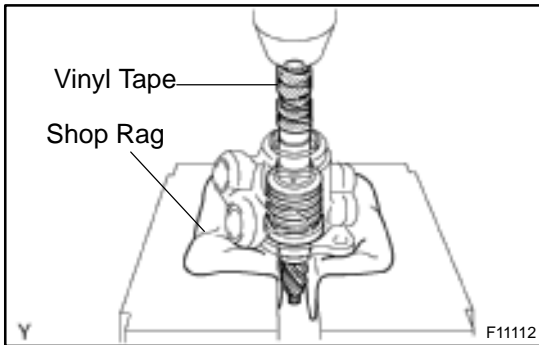
8. REMOVE RACK HOUSING CAP**9. REMOVE SELF-LOCKING NUT**

Using SST, stop the control valve shaft rotating and remove the self-locking nut.

SST 09616-00011

**10. REMOVE CONTROL VALVE HOUSING WITH CONTROL VALVE ASSEMBLY**

- (a) Remove the dust seal.
- (b) Place matchmarks on the control valve housing and rack housing.
- (c) Remove the 2 bolts.
- (d) Pull out the control valve housing with control valve assembly.
- (e) Remove the gasket.

**11. REMOVE CONTROL VALVE ASSEMBLY**

- (a) Wind vinyl tape on the control valve shaft.
- (b) Press out the control valve assembly.

NOTICE:

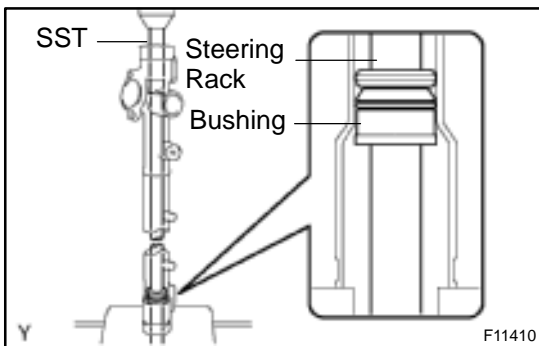
- **Be careful not to damage the oil seal lip.**
- **Place a shop rag between the valve housing and the blocks.**
- **Be careful not to drop the valve assembly.**

12. REMOVE OIL SEAL OF CONTROL VALVE ASSEMBLY

Remove the oil seal from the control valve assembly.

13. REMOVE CYLINDER END STOPPER

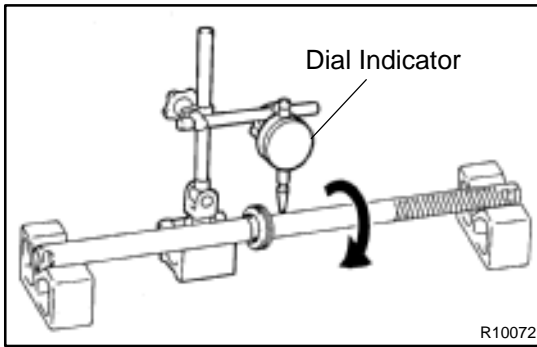
- (a) Using needle nose pliers, remove the snap ring.
- (b) Pull out the cylinder end stopper.

**14. REMOVE STEERING RACK WITH BUSHING**

- (a) Using SST, press out the steering rack with the bushing.
SST 09950-70010 (09951-07200)

NOTICE:

- Take care not to drop the steering rack.**
- (b) Remove the O-ring from the bushing.



INSPECTION

NOTICE:

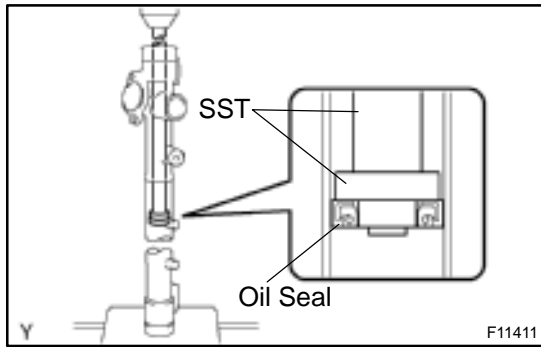
When using a vise, do not overtighten it.

INSPECT STEERING RACK

- (a) Using a dial indicator, check the rack for runout, teeth wear and damage.

Maximum runout: 0.1 mm (0.004 in.)

- (b) Check the back surface for wear and damage.



REPLACEMENT

NOTICE:

When using a vise, do not overtighten it.

1. REPLACE OIL SEAL OF RACK HOUSING

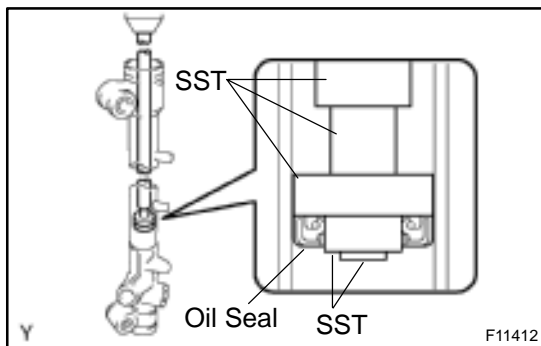
(a) Using SST, press out the oil seal.

SST 09950-60010 (09951-00210, 09951-00240,
09952-06010) 09950-70010 (09951-07360)

NOTICE:

Do not damage the rack housing.

(b) Coat a new oil seal lip with power steering fluid.

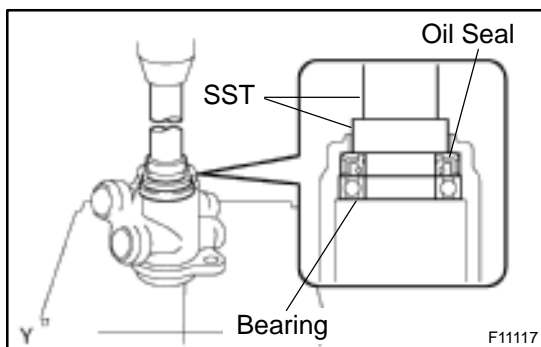


(c) Install the oil seal to SST, and press them into the rack housing.

SST 09950-60010 (09951-00210, 09951-00380,
09952-06010), 09950-70010 (09951-07360)

NOTICE:

- Make sure that the oil seal is installed facing in the correct direction.
- Take care that the oil seal does not get reversed as you install it.

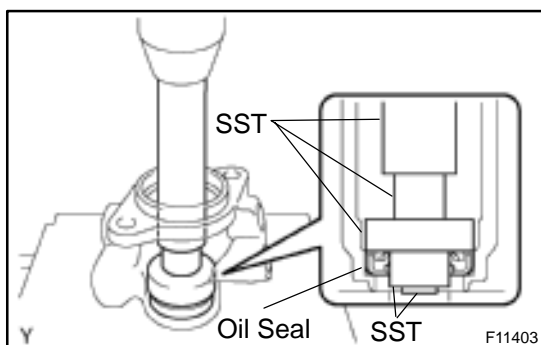


2. REPLACE OIL SEAL AND BEARING OF CONTROL VALVE HOUSING

(a) Using SST, press out the bearing and oil seal from the control valve housing.

SST 09950-60010 (09951-00260), 09950-70010
(09951-07100)

(b) Coat a new oil seal lip with power steering fluid.



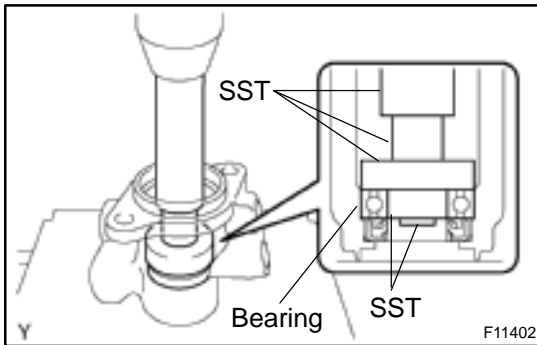
(c) Using SST, press in the oil seal.

SST 09950-60010 (09951-00180, 09951-00330,
09952-06010), 09950-70010 (09951-07100)

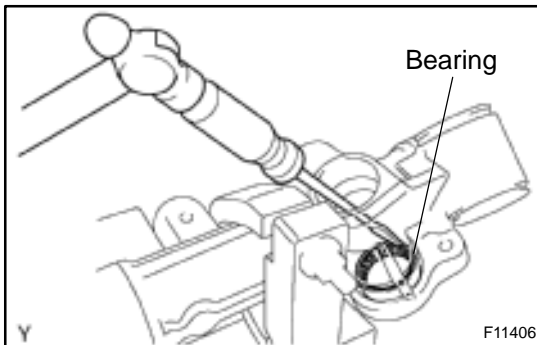
NOTICE:

Make sure that the oil seal is installed facing in the correct direction.

(d) Coat a new bearing with molybdenum disulfide lithium base grease.

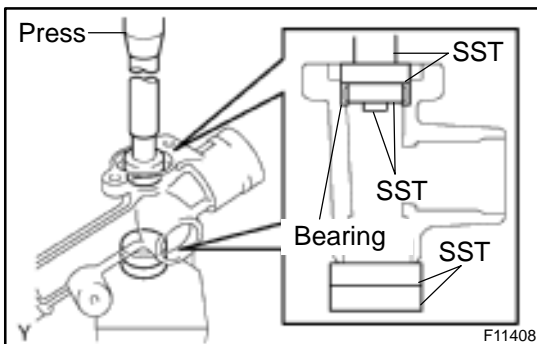


- (e) Using SST, press in the bearing.
 SST 09950-60010 (09551-00190, 09951-00340,
 09952-06010), 09950-70010 (09951-07100)

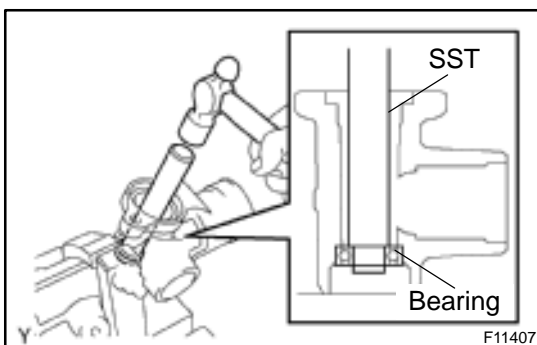


3. REPLACE NO.1 BEARING OF RACK HOUSING

- (a) Using a screwdriver and hammer, tap out the No. 1 bearing from the rack housing.
 (b) Coat a new bearing with molybdenum disulfide lithium base grease.

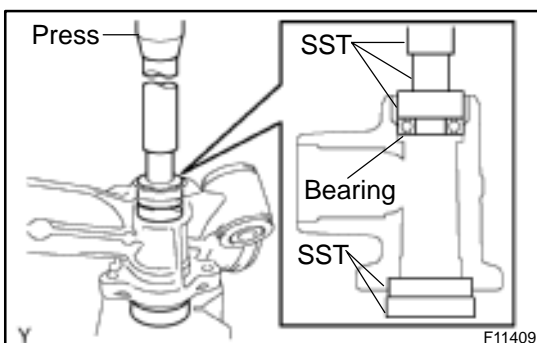


- (c) Using SST, press in the No.1 bearing.
 SST 09950-60010 (09951-00220, 09951-00320,
 09951-00420, 09951-00430, 09952-06010),
 09950-70010 (09951-07100)

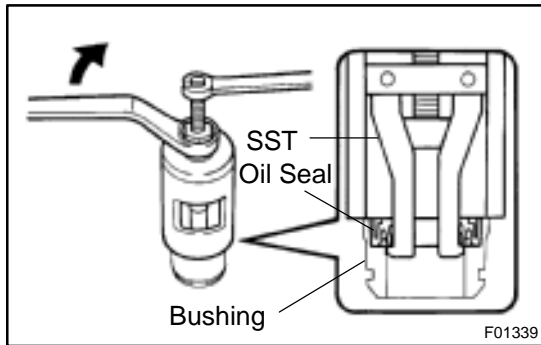


4. REPLACE NO. 2 BEARING OF RACK HOUSING

- (a) Using SST and a hammer, tap out the No. 2 bearing from the rack housing.
 SST 09950-70010 (09951-07100)
 (b) Coat a new bearing with molybdenum disulfide lithium base grease.



- (c) Using SST, press in the No. 2 bearing.
 SST 09950-60010 (09951-00280, 09951-00420,
 09951-00430, 09952-06010), 09950-70010
 (09951-07100)



5. REPLACE OIL SEAL OF STALING RACK BUSHING

- (a) Using SST, remove the oil seal from the bushing.
SST 09612-24014 (09613-22011)

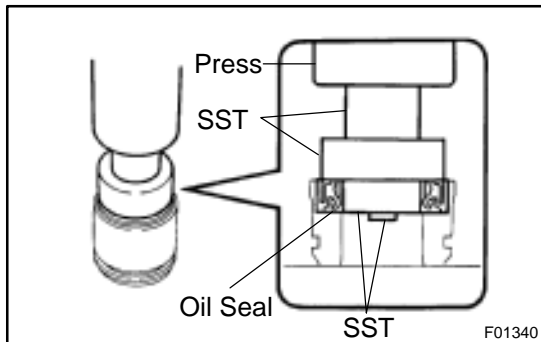
NOTICE:

Be careful not to damage the bushing.

HINT:

As shown in the illustration, from the opposite side of SST confirm that its claws are firmly caught on the oil seal.

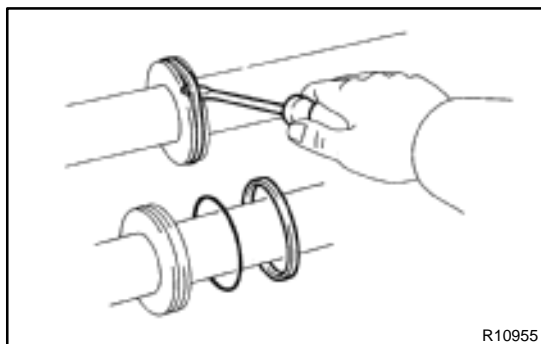
- (b) Coat a new oil seal lip with power steering fluid.



- (c) Using SST, press in the oil seal.
SST 09950-60010 (09951-00210, 09951-00350, 09952-06010)

NOTICE:

Make sure that the oil seal is installed facing in the correct direction.



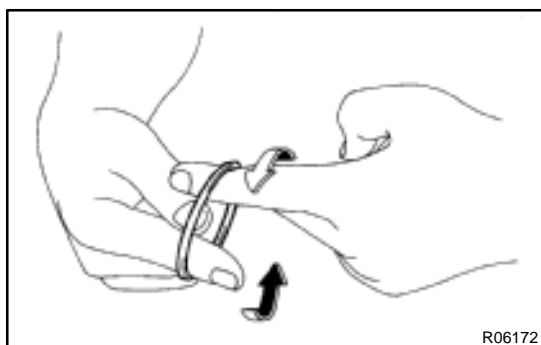
6. REPLACE TEFLON RING AND O-RING OF STEERING RACK

- (a) Using a screwdriver, remove the teflon ring and O-ring from the steering rack.

NOTICE:

Be careful not to damage the groove for the teflon ring.

- (b) Coat a new O-ring with power steering fluid and install it to the steering rack.

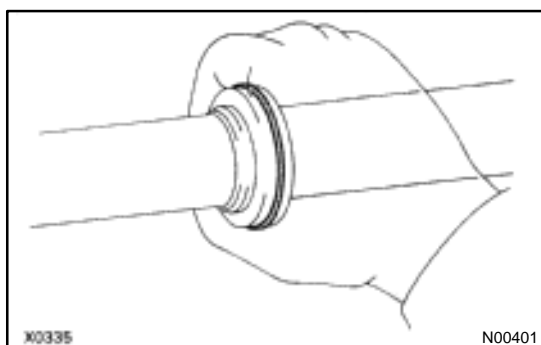


- (c) Expand a new teflon ring with your fingers.

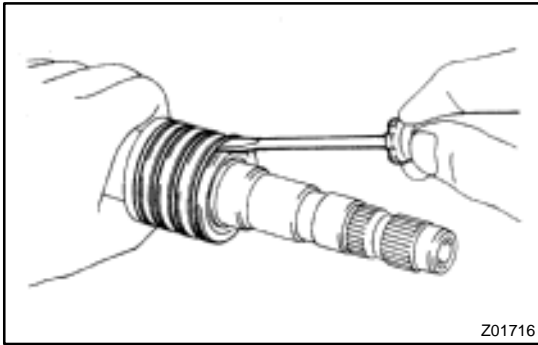
NOTICE:

Be careful not to overexpand the teflon ring.

- (d) Coat the teflon ring with power steering fluid.



- (e) Install the teflon ring to the steering rack and settle it down with your fingers.



7. REPLACE TEFLON RINGS OF CONTROL VALVE ASSEMBLY

- (a) Using a screwdriver, remove the 4 teflon rings from the control valve assembly.

NOTICE:

Be careful not to damage the grooves for the teflon rings.

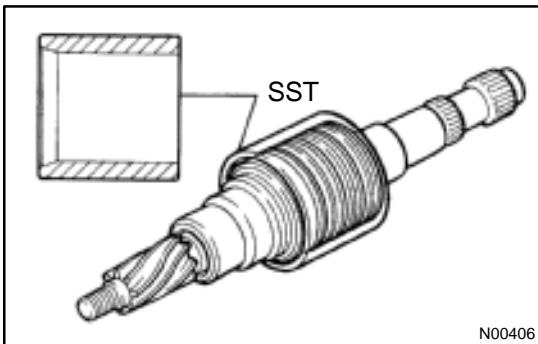
- (b) Expand 4 new teflon rings with your fingers.

NOTICE:

Be careful not to overexpand the teflon ring.

- (c) Coat the teflon rings with power steering fluid.

- (d) Install the teflon rings to the control valve assembly and settle them down with your fingers.



- (e) Carefully slide the tapered end of SST over the teflon rings until they fit to the control valve assembly.

SST 09631-20081

NOTICE:

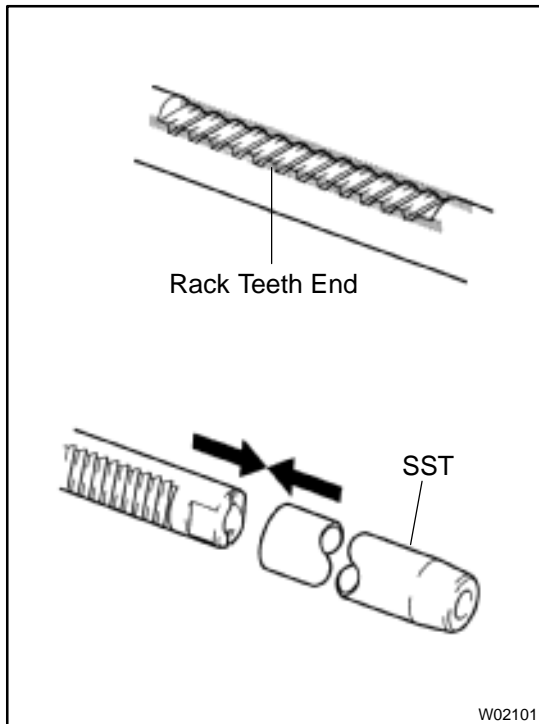
Be careful not to damage the teflon rings.

REASSEMBLY

NOTICE:

When using a vise, do not overtighten it.

1. COAT PARTS INDICATED BY ARROWS WITH POWER STEERING FLUID OR MOLYBDENUM DISULFIDE LITHIUM BASE GREASE (See page SR-32)



2. INSTALL STEERING RACK

- (a) Install SST to the rack.
SST 09631-10041

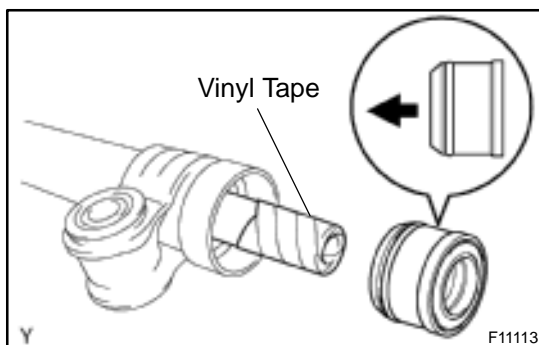
HINT:

If necessary, scrape the burrs off the rack teeth end and bur-nish.

- (b) Coat SST with power steering fluid.
- (c) Install the steering rack into the rack housing.
- (d) Remove the SST.
SST 09631-10041

3. INSTALL STEERING RACK BUSHING

- (a) Coat a new O-ring with power steering fluid and install it to the bushing.



- (b) To prevent oil seal lip damage, wind vinyl tape on the steering rack end, and apply power steering fluid.
- (c) Install the bushing into the rack housing.

NOTICE:

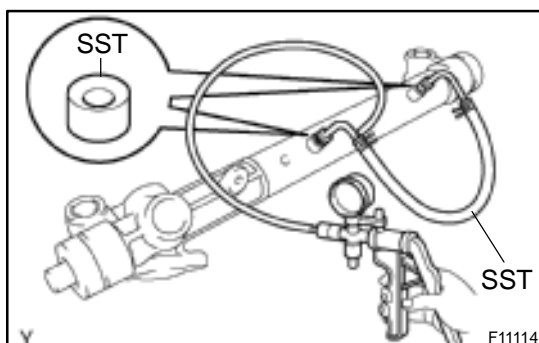
- Make sure that the bushing is installed facing in the correct direction.
- Be careful not to damage the oil seal lip.

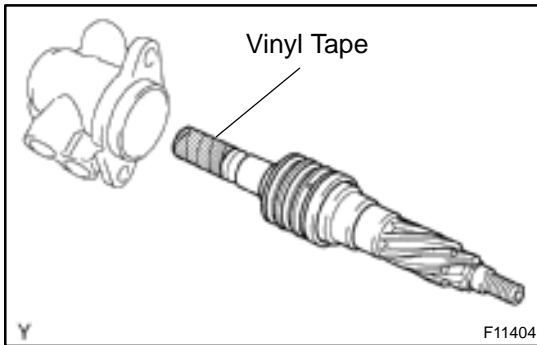
4. INSTALL CYLINDER END STOPPER

- (a) Push into the cylinder end stopper.
- (b) Using needle nose pliers, install the snap ring.

5. AIR TIGHTNESS TEST

- (a) Install SST to the rack housing.
SST 09631-12071 (09633-00010)
- (b) Apply 53 kPa (400 mmHg, 15.75 in.Hg) of vacuum for about 30 seconds.
- (c) Check that there is no change in the vacuum.
If there is a change in the vacuum, check the installation of the oil seals.



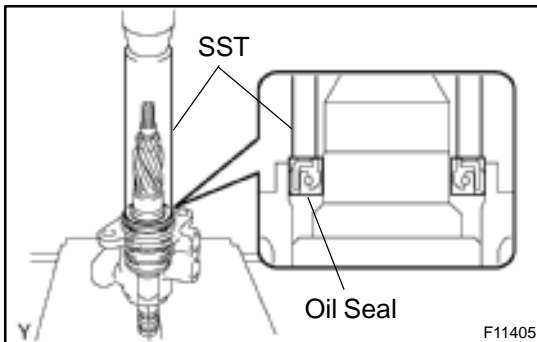


6. INSTALL CONTROL VALVE ASSEMBLY

- To prevent oil seal lip damage, wind vinyl tape on the serrated part of the control valve shaft.
- Coat the teflon rings with power steering fluid.
- Install the control valve assembly into the control valve housing.

NOTICE:

Be careful not to damage the teflon rings and oil seal lips.

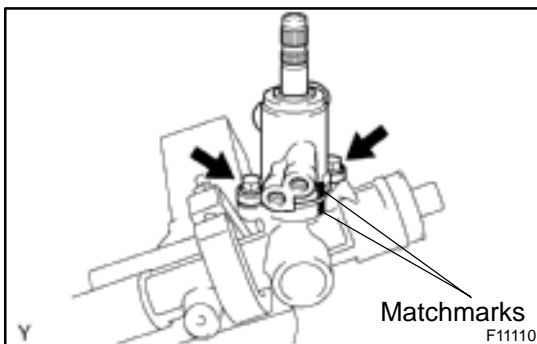


7. INSTALL OIL SEAL OF CONTROL VALVE ASSEMBLY

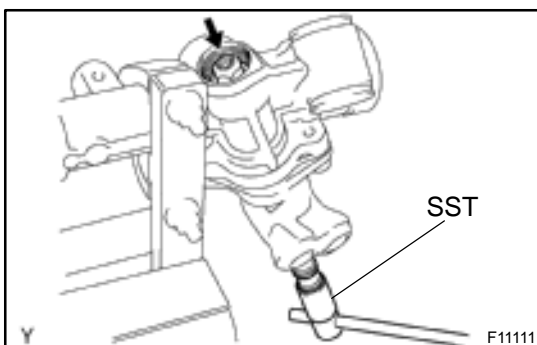
- Coat a new oil seal lip with power steering fluid.
- Using SST, press in the oil seal.
SST 09612-22011

8. INSTALL CONTROL VALVE HOUSING WITH CONTROL VALVE ASSEMBLY

- Install a new gasket.



- Align the matchmarks on the control valve housing and rack housing.
- Push into the control valve housing with control valve assembly.
- Install the 2 bolts.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)
- Install the dust seal.



9. INSTALL SELF-LOCKING NUT

Using SST, stop the control valve shaft rotating and install a new self-locking nut.

SST 09616-00010

Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)

10. INSTALL RACK HOUSING CAP

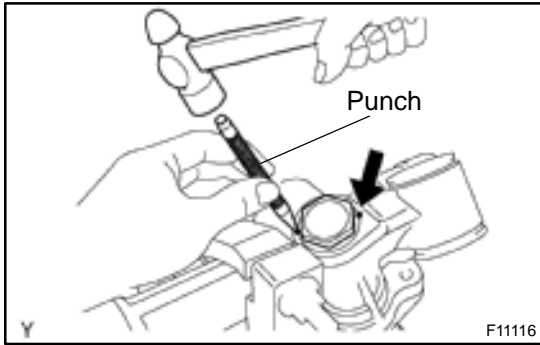
- Apply sealant to 2 or 3 threads of the rack housing cap.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- Install the rack housing cap.

Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)



- (c) Using a punch and a hammer, stake the 2 parts of the rack housing cap.

11. INSTALL RACK GUIDE SUB-ASSEMBLY, RACK GUIDE SPRING AND RACK GUIDE SPRING CAP

- (a) Install the rack guide sub-assembly and rack guide spring.
- (b) Apply sealant to 2 or 3 threads of the rack guide spring cap.

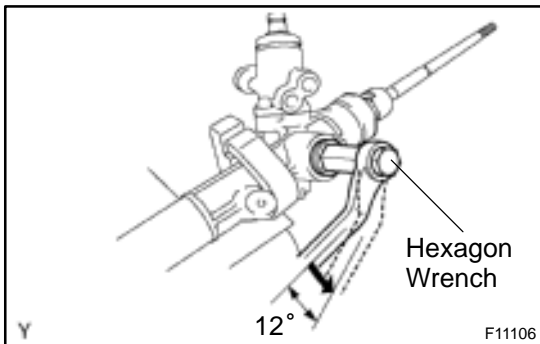
Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (c) Temporarily install the rack guide spring cap.

12. ADJUST TOTAL PRELOAD

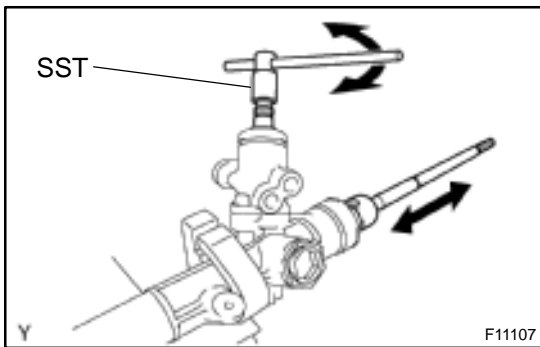
- (a) To prevent the steering rack teeth from damaging the oil seal lip, temporarily install the RH and LH rack ends.



- (b) Using a hexagon wrench (19 mm), torque the rack guide spring cap.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

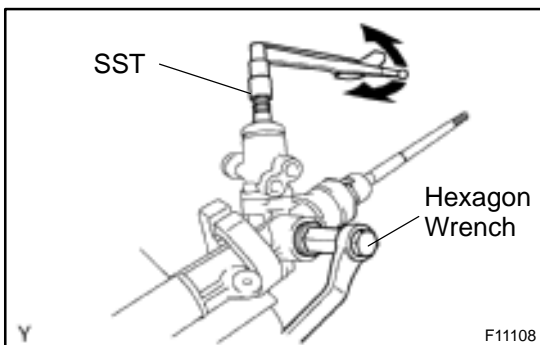
- (c) Using a hexagon wrench (19 mm), return the rack guide spring cap 12°.



- (d) Using SST, turn the control valve shaft right and left 1 or 2 times.

SST 09616-00011

- (e) Using a hexagon wrench (19 mm), loosen the rack guide spring cap until the rack guide spring is not functioning.



- (f) Using SST, a torque wrench and hexagon wrench (19 mm), tighten the rack guide spring cap until the preload is within the specification.

SST 09616-00010

Preload (turning):

0.8 – 1.3 N·m (8 – 13 kgf·cm, 6.9 – 11.3 in.-lbf)

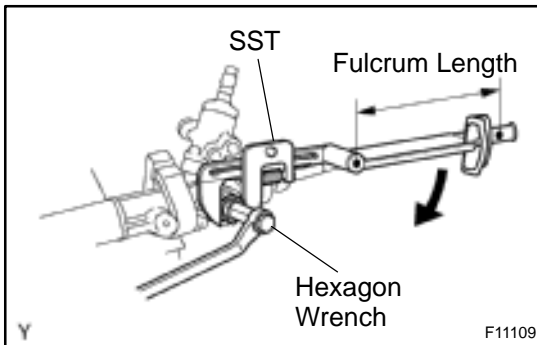
13. INSTALL RACK GUIDE SPRING CAP LOCK NUT

- (a) Apply sealant to 2 or 3 threads of the rack guide spring cap lock nut.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (b) Temporarily install the rack guide spring cap lock nut.



- (c) Using a hexagon wrench (19 mm), hold the rack guide spring cap and using SST, torque the rack guide spring cap lock nut.

SST 09922-10010

Torque: 28 N·m (290 kgf-cm, 21 ft-lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (d) Recheck the total preload.

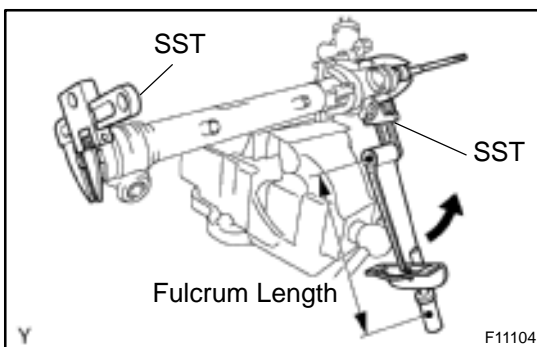
Preload (turning):

0.8 – 1.3 N·m (8 – 13 kgf-cm, 6.9 – 11.3 in.-lbf)

- (e) Remove the RH and LH rack ends.

14. INSTALL RH AND LH RACK ENDS

- (a) Temporarily install the LH rack end.



- (b) Using SST, hold the steering rack RH side steadily and using another SST, torque the LH rack end.

SST 09922-10010

Torque: 62 N·m (630 kgf-cm, 46 ft-lbf)

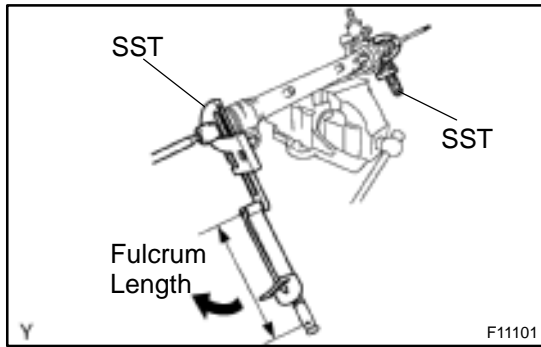
NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Use a torque wrench with a fulcrum length of 380 mm (14.96 in.).

- (c) Temporarily install the RH rack end.



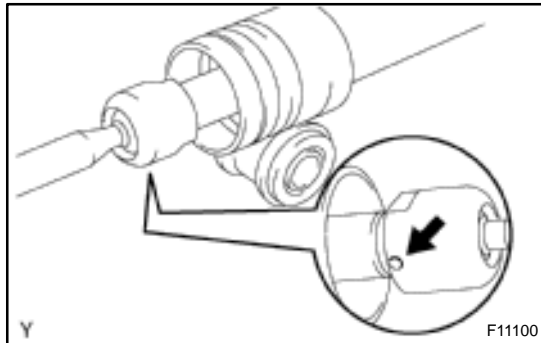
- (d) Using SST, hold the LH rack end steadily and using another SST, torque the RH rack end.
 SST 09922-10010
Torque: 62 N·m (630 kgf·cm, 46 ft·lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Use a torque wrench with a fulcrum length of 380 mm (14.96 in.).



15. INSTALL RH AND LH RACK BOOTS, CLAMPS AND CLIPS

- (a) Ensure that the steering rack end hole is not clogged with grease.

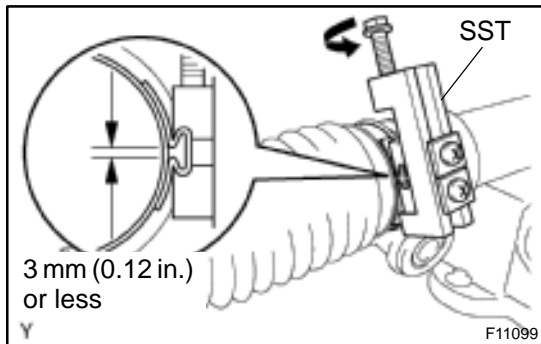
HINT:

If the hole is clogged, the pressure inside the boot will change after it is assembled and the steering wheel is turned.

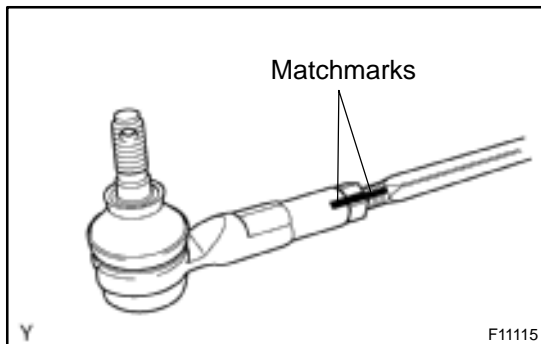
- (b) Install the boot, clip and a new clamp.

NOTICE:

Be careful not to damage or twist the boot.



- (c) Using SST, tighten the clamp as shown in the illustration.
 SST 09521-24010
- (d) Employ the same manner described above to the other side.



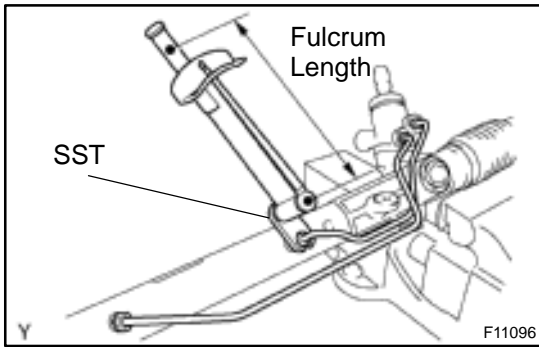
16. INSTALL RH AND LH TIE ROD ENDS AND LOCK NUTS

- (a) Screw the lock nut and tie rod end onto the rack end until the matchmarks are aligned.
- (b) Employ the same manner described above to the other side.
- (c) After adjusting toe-in, torque the nut (See page SA-4).

Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)

17. INSTALL TURN PRESSURE TUBES

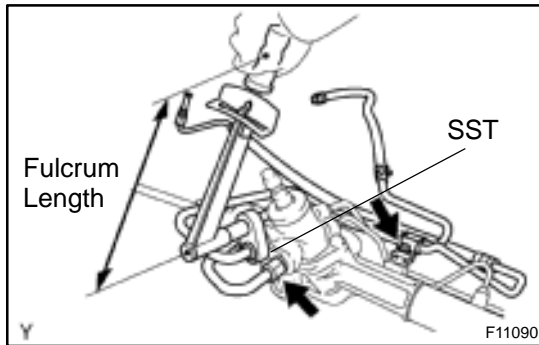
- (a) Coat 4 new O-rings with power steering fluid and install them to the 2 turn pressure tubes.



- (b) Using SST, install the 2 turn pressure tubes.
SST 09023-38200
Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 250 mm (9.84 in.).



INSTALLATION

1. INSTALL PRESSURE FEED TUBE ASSEMBLY

- (a) Install the pressure feed tube assembly with the bolt.
Torque: 5.0 N·m (50 kgf·cm, 45 in.-lbf)
- (b) Coat 2 new O-rings with power steering fluid and install them the pressure feed and return tubes.
- (c) Using SST, connect the pressure feed and return tubes.
SST 09023-12700
Torque: 22.5 N·m (230 kgf·cm, 17 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).



2. INSTALL PS GEAR ASSEMBLY

Install the PS gear assembly with the 2 bolts, 2 nuts and 4 plate washers to the steering gear support member.

Torque: 57 N·m (580 kgf·cm, 42 ft·lbf)

3. CONNECT NO. 2 INTERMEDIATE SHAFT ASSEMBLY (See page [SR-19](#))

4. CONNECT RH AND LH TIE ROD ENDS (See page [SA-13](#))

5. INSTALL FRONT LUGGAGE UNDER COVER

6. CONNECT PRESSURE FEED TUBE AND RETURN HOSE TO POWER STEERING VANE PUMP (See page [SR-31](#))

7. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

HINT:

Do it with the front of the vehicle jacked up.

8. CENTER SPIRAL CABLE (See page [SR-19](#))

9. INSTALL STEERING WHEEL

- (a) Align the matchmarks on the steering wheel and steering column main shaft.

- (b) Temporarily tighten the steering wheel set nut.

10. BLEED POWER STEERING SYSTEM (See page [SR-3](#))

11. CHECK STEERING WHEEL CENTER POINT

12. TORQUE STEERING WHEEL SET NUT

Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

13. INSTALL STEERING WHEEL PAD (See page [SR-19](#))

14. INSTALL TOOL BOX

15. INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER

16. CHECK FRONT WHEEL ALIGNMENT
(See page [SA-4](#))

INSTALLATION

Installation is in the reverse order of removal (See page [BO-41](#)).

INSPECTION

1. INSPECT WATER LEAKAGE

Check from the outside of the vehicle that there is no water leakage.

- (1) In case of pouring water with hose, do not water with the hose squeezed.
- (2) There is a possibility of water leakage even in a normal condition if you water under the tarpaulin.

NOTICE:

In case that the water leaks, Check and adjust the door glass and the tarpaulin alignment.

2. INSPECT TARPAULIN COVER FOR PROPER TENSION AND CREASES

Tarpaulin cover tension checking.

By making the tarpaulin in a full-open condition, check the tension of the cover visually and by touching.

NOTICE:

Depending on the tension or wrinkling condition, re-spread the cover.

3. INSPECT TARPAULIN COVER

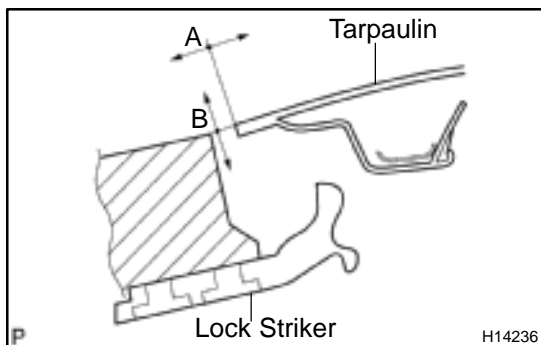
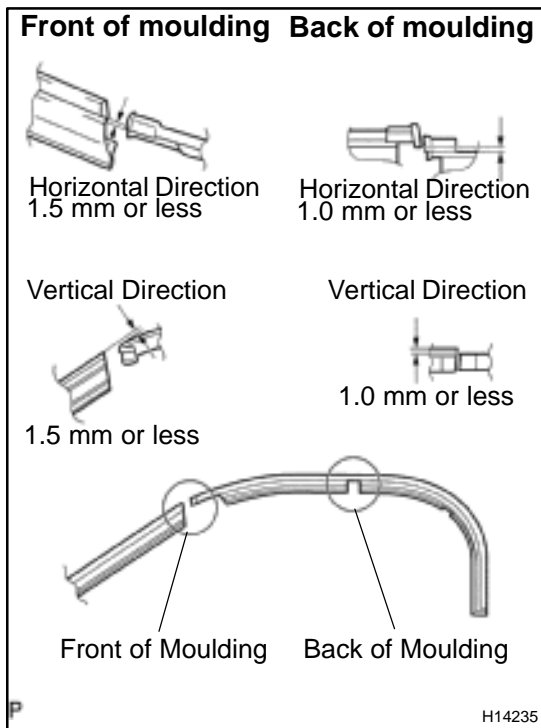
- (a) Inspect the roof drip moulding gap.

Standard gap:

	Vertical direction	Horizontal direction
Frontmoulding	1.5 mm (0.059 in) or less	1.5 mm (0.059 in) or less
Rearmoulding	1.0 mm (0.039 in) or less	1.0 mm (0.039 in) or less

NOTICE:

In case that it is out of the standard range, adjust or replace the roof drip moulding.



- (b) Inspect the roof header measurement.

Standard measurement:

A: 0 ± 2.0 mm (0.079 in.)

B: 0 ± 2.0 mm (0.079 in.)

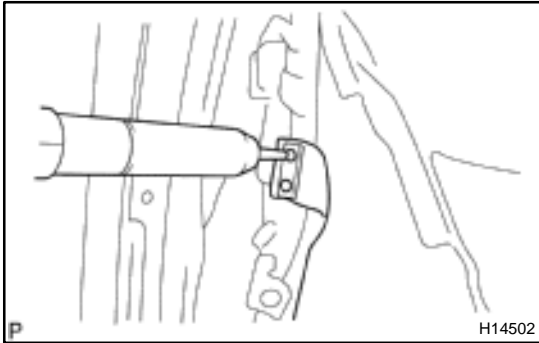
NOTICE:

In case that it is out of the standard range, adjust the tarpaulin assembly.

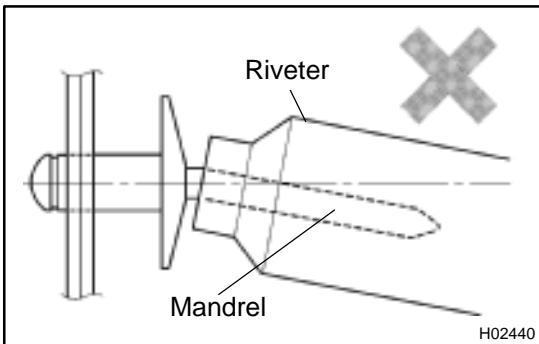
REASSEMBLY

1. INSTALL TARPAULIN COVER

(a) Set the tarpaulin cover on the link assembly.

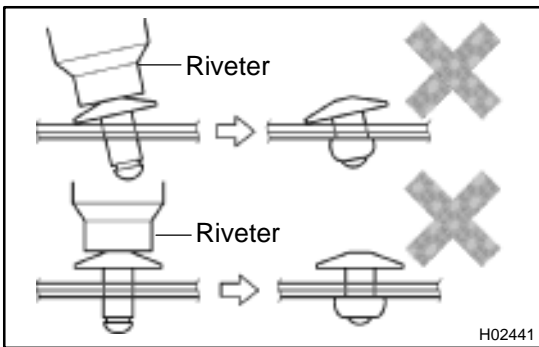


(b) Rivet the band on the link using a pneumatic riveter or hand riveter.

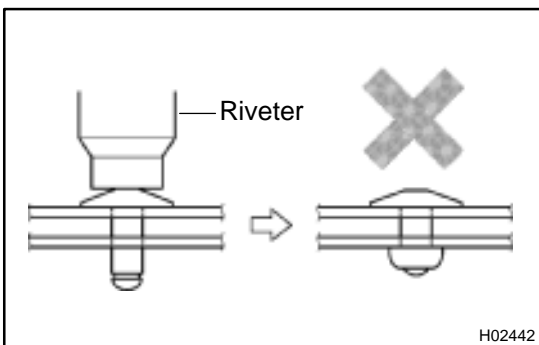


NOTICE:

- Do not prize a riveter, as riveter is damaged, it is not tightened and the mandrel is bent.



- Do not tilt the riveter and disconnect the rivet from the material while operating a riveter otherwise, the materials could not be tightened firmly.



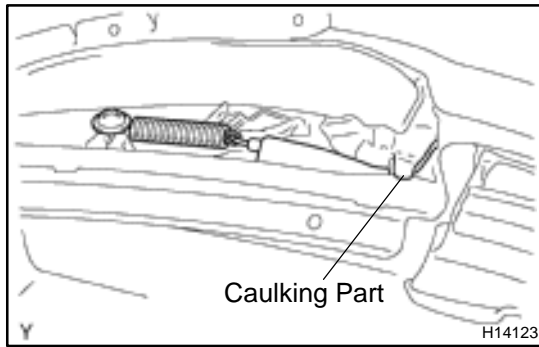
- Install the rivet while attaching materials, as they are not be tightened firmly.

(c) Apply the front part of the tarpaulin cover over the link header part.

(d) Put the front part of the tarpaulin cover over the link.

NOTICE:

Pull the both edges of the cover in order to prevent wrinkles.



- (e) Tighten the wire at the link side.
 (f) After caulking the wire, affix the butyl tape to that position.

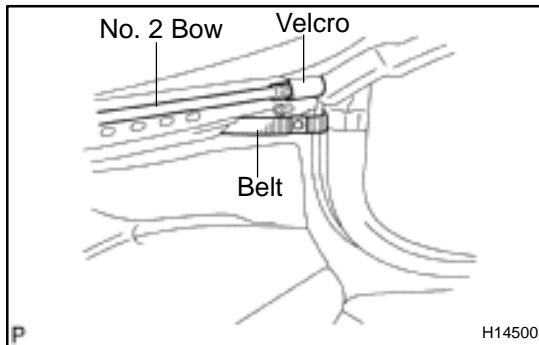
NOTICE:

Failing to tighten the caulking part securely may cause a break of the cover on the side.

- (g) install the spring with the screw.

NOTICE:

If the spring or the wire is leant toward either right or left, this may cause a wind noise.

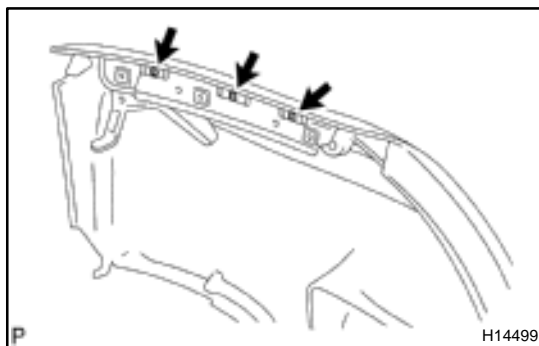


- (h) Retain the tarpaulin belt wound around the link side with a button.

- (i) Wind the velcro of the tarpaulin.

NOTICE:

Secure the space for winding the cloth.



- (j) Install the tarpaulin cover to the link side part with the 6 screws.

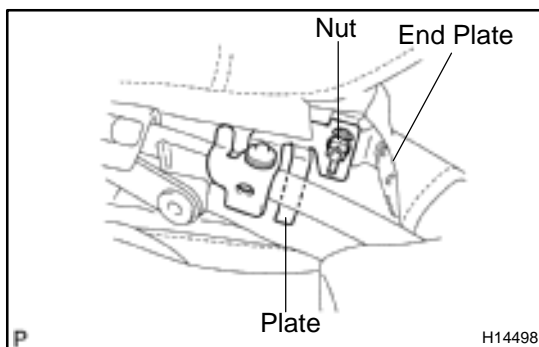
NOTICE:

Pay due attention, because the screws on the vehicle back end are short.

- (k) Install the set plate with the 6 screws.

NOTICE:

When installing, use the center screw first.



- (l) Apply adhesive to 2 or 3 threads of the mounting nut.

- (m) Install the end plate.

Adhesive: Part No. 08833-00070, THREE BOND 1324 or equivalent

NOTICE:

Do not let the head of the bolt sticking up over the nut upper surface. Pinch the plate, while taking care of the plate facing direction.

HINT:

Over-tightening of the nut causes a wind noise.

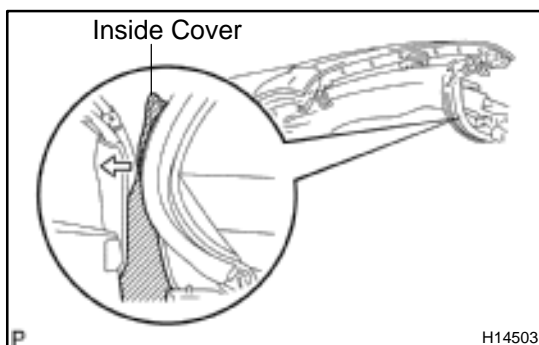
- (n) Put the cloth for the inside tarpaulin cover into the inside.

- (o) Install the rear of the tarpaulin cover to the stud bolt on the body side.

NOTICE:

Take care not to damage the glass.

- (p) Tighten the upper tarpaulin cover retainer with the 7 nuts.

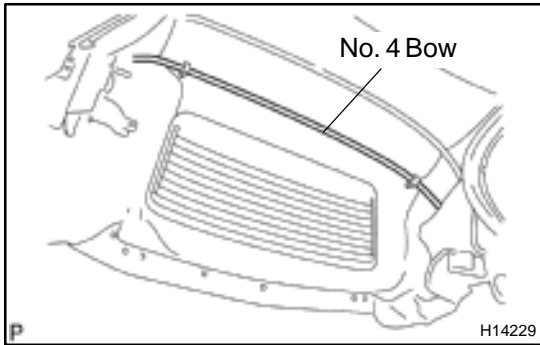


(q) Affix the tailgate lower seal with velcro.

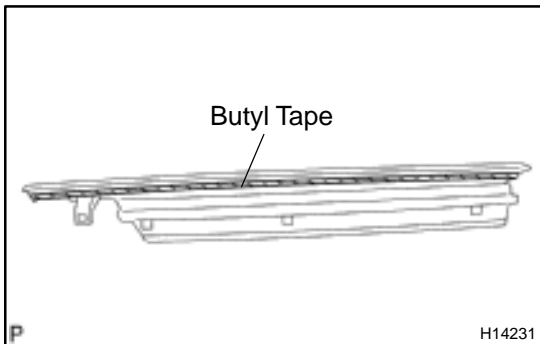
NOTICE:

Be careful that the inside cover or the tarpaulin is not caught.

(r) By making the tarpaulin assembly in a close condition, lock it.



(s) Pull No. 4 bow as shown in the illustration.



(t) Install the center roof drip side finish mouldings.

(1) Using a scraper, remove the adhesive sticking to the finish moulding.

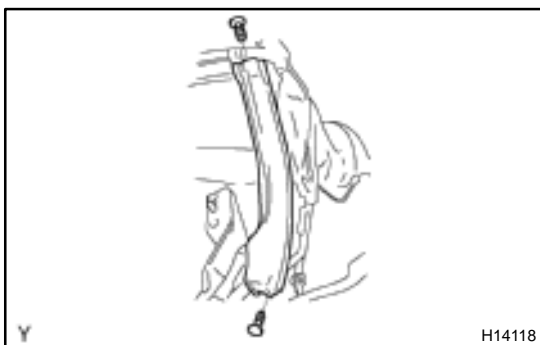
(2) Clean the roof side rail finish moulding.

(3) Apply butyl tape to the groove on the back of the moulding.

(4) Install the roof side rail finish moulding with the screws by matching them with marking.

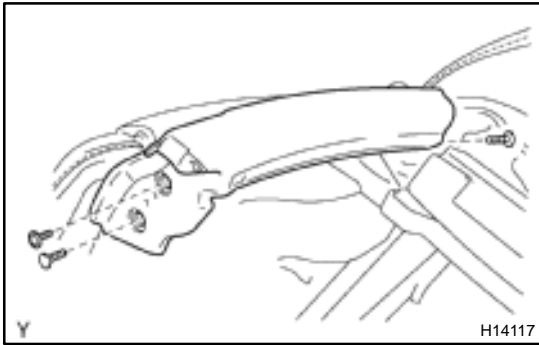
(u) Employ the same manner described above to the other side.

(v) Install the rear roof side finish mouldings.

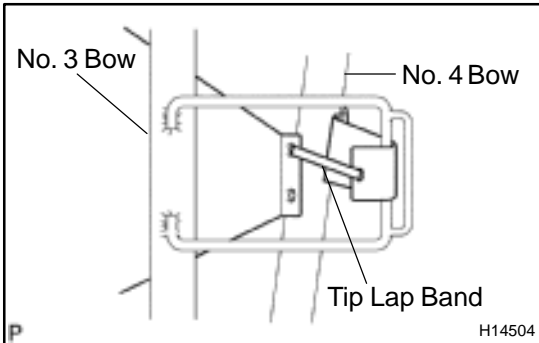


(w) Install the rear roof side rail weatherstrip with the 2 clips.

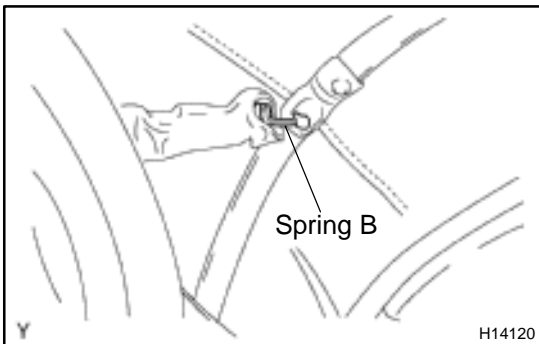
(x) Employ the same manner described above to the other side.



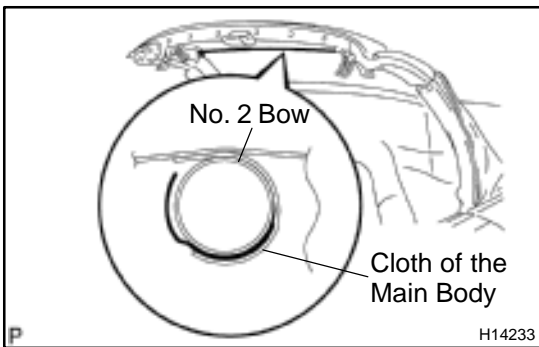
- (y) Install the front roof side rail weatherstrip with the screw and 2 clips.
- (z) Employ the same manner described above to the other side.
- (aa) Affix the inside cover with velcro.



- (ab) As shown in the illustration, put a cloth and a band through No. 3 bow guide, and fix with a tie lap band.
 - Fix with a band while checking the tension at the tarpaulin cover side.
 - After installing the band, cut it by 5 mm (0.20 in.) or less.

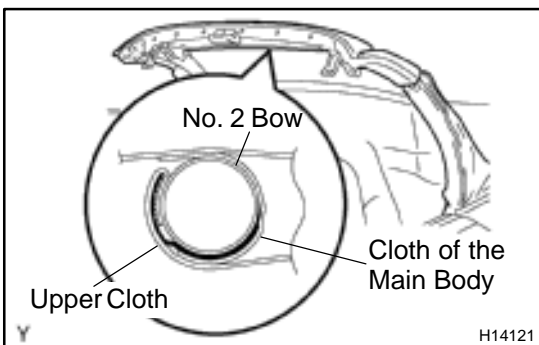


- (ac) Install the spring B.
 - Be sure to install the spring B securely to the groove.
 - Check the tension of the link upper part of the tarpaulin cover.
 - Check that the side of the cover is not caught in the link when opening or closing the tarpaulin assembly.



- (ad) Peel off the parting paper of the double adhesive tape, install the cloth of the main body side to No. 2 bow.

CAUTION:
Install the cloth of the main body side while checking that it is not stretched too much.



- (ae) By making the tarpaulin assembly in a half-open condition, install the upper cloth by hanging it on the hook.
- 2. INSTALL CENTER TARPAULIN BOW STAY CATCH HANDLE**
Install the center tarpaulin bow stay handle with the 2 screws.
Torque: 62 N·m (630 kgf·cm, 45 ft·lbf)

3. INSTALL TARPAULIN LOCKS

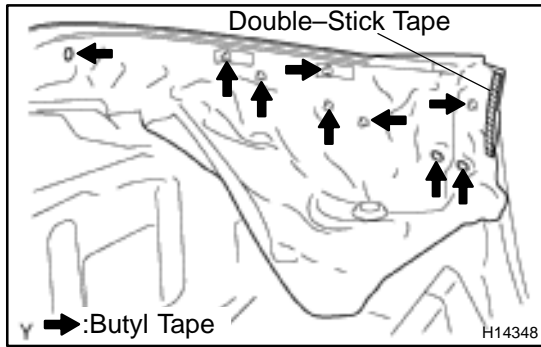
- (a) Apply adhesive to 2 or 3 threads of the mounting screw end.

Adhesive: Part No. 08833-00070, THREE BOND or equivalent

- (b) Install the tarpaulin lock with the 3 screws.

Torque: 62 N·m (630 kgf·cm, 45 ft·lbf)

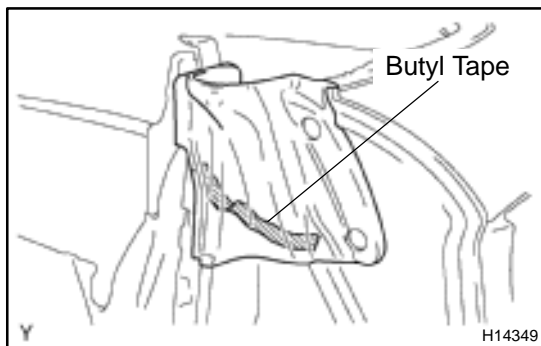
- (c) Employ the same manner described above to the other side.



INSTALLATION

1. INSTALL SIDE GATE SEALS

- Install the double-stick tape as shown in the illustration.
- Apply butyl tape as shown in the illustration.
- Insert the drain hose.
- Insert the hook to the center pillar.
- Peel off the separating sheet of the double adhesive tape and affix the tape to the center pillar.
- Employ the same manner described above to the other side.



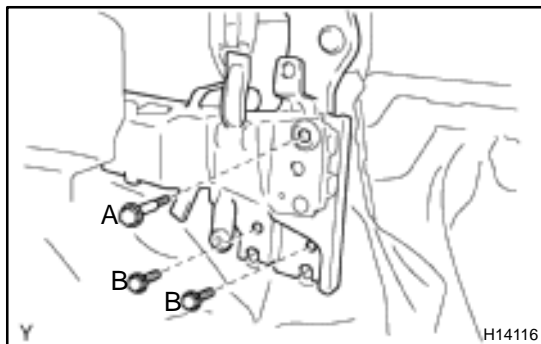
2. INSTALL DUST ROOF WEATHERSTRIPS

- Along the groove of the weatherstrip, apply the butyl tape on the weatherstrip.
- Install the pillar seal with the 3 clips.

HINT:

Press the weatherstrip with a hand and securely affix the butyl tape.

- Employ the same manner described above to the other side.



3. INSTALL TARPAULIN ASSEMBLY

- Install the tarpaulin assembly with the 6 bolts.

Torque:

A: 11 N·m (115 kgf·cm, 8 ft·lbf)

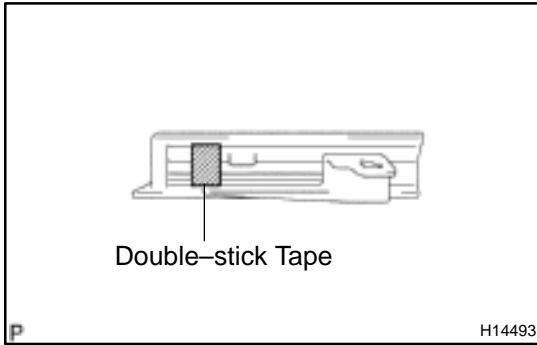
B: 11 N·m (115 kgf·cm, 8 ft·lbf)



- Install side gate seal with the clip.

4. INSTALL REAR BELT MOULDING

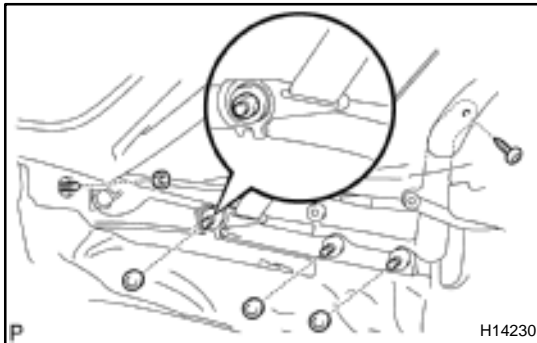
Install the rear belt moulding with the 8 bolts.

**5. INSTALL SIDE BELT MOULDING**

Install the new double-stick tape as shown in the illustration.

6. INSTALL UPPER TARPAULIN COVER RETAINER

Install the upper tarpaulin cover retainer with the 7 nuts.

7. INSTALL TAIL GATE LOWER SEAL**8. INSTALL TARPAULIN COVER SIDE RETAINERS**

- (a) Install the tarpaulin cover side retainer with the 4 nuts and screw.

NOTICE:

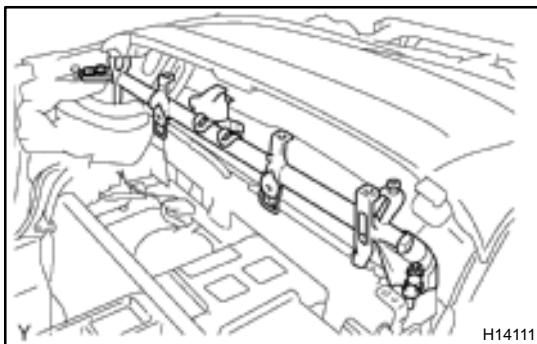
Tighten the side retainer and band assembly together securely.

After opening the tarpaulin, tighten the head of the side retainer together with the side retainer itself.

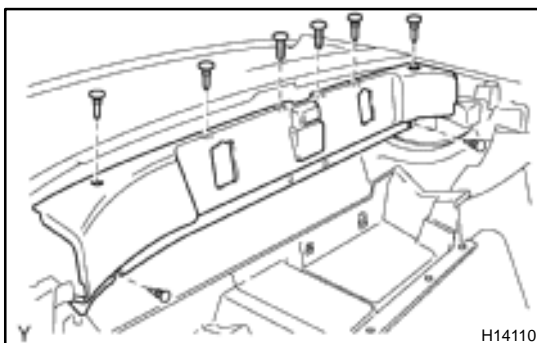
- (b) Install the wire on the side retainer.

NOTICE:

After installation, be sure that the bracket on the wire tip moves lightly.

9. INSTALL ROOM PARTITION BOARD**10. INSTALL PACKAGE TRAY TRIM PANEL****11. INSTALL FRONT TOP AND TARPAULIN SUPPORT FRAME**

Install the front top and tarpaulin support frame with the 2 bolts and 2 nuts.

12. INSTALL LUGGAGE COMPARTMENT COVERS**13. INSTALL UPPER LUGGAGE COMPARTMENT GARNISH**

Install the upper luggage compartment garnish with the 6 clips.

14. INSTALL PULL HANDLE

- (a) Install pull handle with the 2 screws.
 (b) Install the cover.

15. INSTALL WIND DEFLECTOR BOARD

- (a) Install the deflector board with the 4 nuts.
 (b) Install the window deflector cover.

16. CONNECT FRONT SEAT OUTER BELTS

Connect the front seat outer belt with the shoulder anchor mounting bolt.

Torque: 42 N·m (420 kgf-cm, 30 ft-lbf)

17. INSTALL LUGGAGE COMPARTMENT BOXS**18. INSTALL QUARTER TRIM PANELS****19. CONNECT FRONT SEAT OUTER BELTS**

Connect the front seat outer belt with the floor anchor mounting bolt.

Torque: 42 N·m (420 kgf-cm, 30 ft-lbf)

20. INSTALL LOWER REAR NO.1 SEPARATOR TRIM COVERS**21. INSTALL LUGGAGE COMPARTMENT LIDS****22. INSTALL FRONT SCUFF PLATES****23. INSPECT WATER LEAKAGE (See page [BO-80](#))****24. INSPECT TARPAULIN COVER FOR PROPER TENSION AND ALIGNMENT (See page [BO-80](#))**

SRS AIRBAG

PRECAUTION

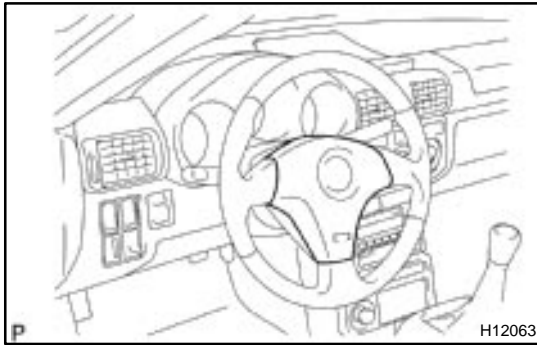
RSOJO-02

CAUTION:

- The MR2 is equipped with SRS, which comprises a driver airbag, front passenger airbag and failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Further, if a mistake is made in servicing the SRS, it is possible that the SRS may fail to operate when required. Before performing servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedures described in the repair manual.
- Work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (–) terminal cable is disconnected from the battery.
(The SRS is equipped with a back-up power source so that if work is started within 90 seconds from disconnecting the negative (–) terminal cable of the battery, the SRS may be deployed.)
- Do not expose the steering wheel pad, front passenger airbag assembly, airbag sensor assembly or front airbag sensor directly to hot air or flames.

NOTICE:

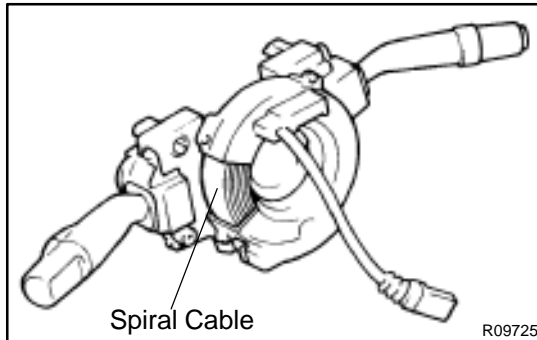
- Malfunction symptoms of the SRS are difficult to confirm, so the DTCs become the most important source of information when troubleshooting. When troubleshooting the SRS, always inspect the DTCs before disconnecting the battery.
- Even in cases of a minor collision where the SRS does not deploy, the steering wheel pad, front passenger airbag assembly, airbag sensor assembly and front airbag sensor should be inspected.
(See pages [RS-13](#), [RS-28](#), [RS-42](#), and [RS-47](#))
- Before repairs, remove the airbag sensor if shocks are likely to be applied to the sensor during repairs.
- Never use SRS parts from another vehicle. When replacing parts, replace them with new parts.
- Never disassemble and repair the steering wheel pad, front passenger airbag assembly, airbag sensor assembly or front airbag sensor, in order to reuse it.
- If the steering wheel pad, front passenger airbag assembly, airbag sensor assembly or front airbag sensor, has been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace it with new one.
- Use a volt/ohmmeter with high impedance (10 k Ω /V minimum) for troubleshooting the system's electrical circuits.
- Information labels are attached to the periphery of the SRS components. Follow the instructions on the notices.
- After work on the SRS is completed, check the SRS warning light check (See page [DI-237](#)).
- When the negative (–) terminal cable is disconnected from the battery, the memory of the clock and audio system will be canceled. So before starting work, make a record of the contents memorized in the audio memory system. When work is finished, reset the audio systems as they were before and adjust the clock. To avoid erasing the memory in each memory system, never use a back-up power supply from outside the vehicle.
- If the vehicle is equipped with a mobile communication system, refer to the precaution in the IN section.



OPERATION

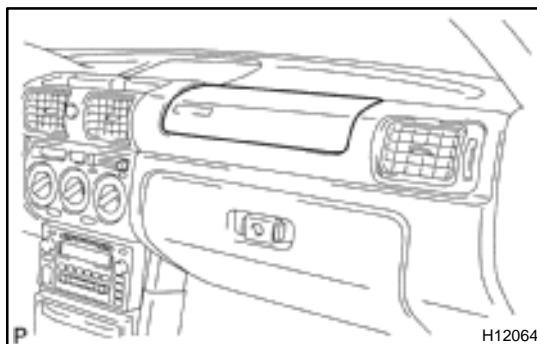
1. STEERING WHEEL PAD (with AIRBAG)

The inflator and bag of the SRS are stored in the steering wheel pad and cannot be disassembled. The inflator contains a squib, igniter charge, gas generator, etc., and inflates the bag when instructed by the airbag sensor assembly.



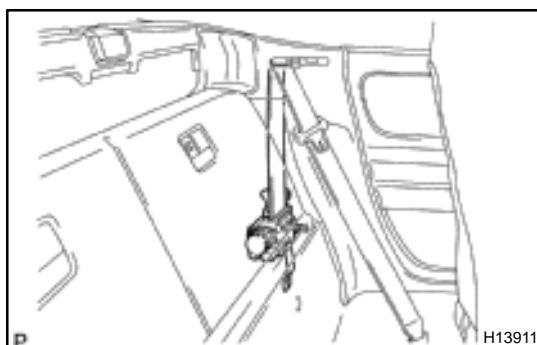
2. SPIRAL CABLE (in COMBINATION SWITCH)

A spiral cable is used as an electrical joint from the vehicle body side to the steering wheel.



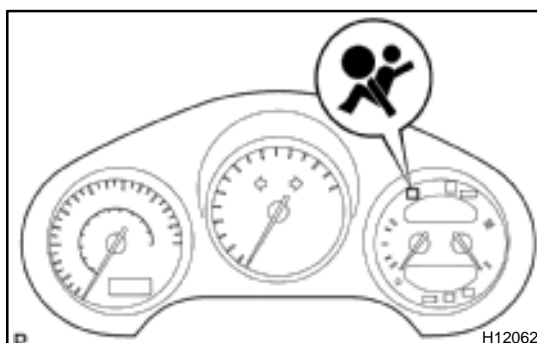
3. FRONT PASSENGER AIRBAG ASSEMBLY

The inflator and bag of the SRS are stored in the front passenger airbag assembly and cannot be disassembled. The inflator contains a squib, igniter charge, gas generator, etc., and inflates the bag when instructed by the airbag sensor assembly.



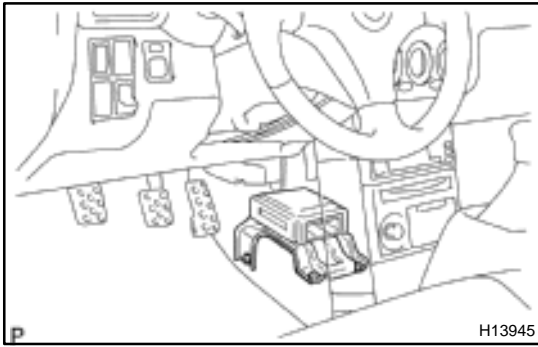
4. SEAT BELT PRETENSIONER

The seat belt pretensioner system is a component of the front seat outer belt. The pretensioner contains a squib, gas generator, wire, piston, etc., and operates in the event of a frontal collision. The seat belt pretensioner cannot be disassembled.



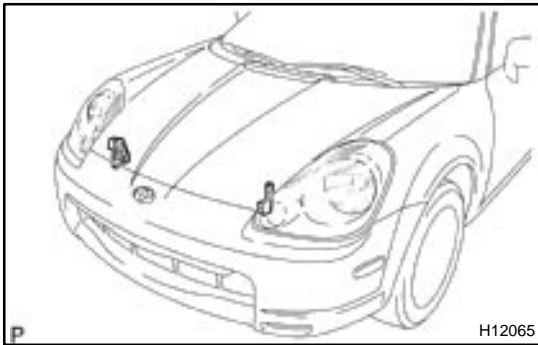
5. SRS WARNING LIGHT

The SRS warning light is located on the combination meter. It goes on to alert the driver of trouble in the system when a malfunction is detected in the airbag sensor assembly self-diagnosis. In normal operation conditions when the ignition switch is turned to the ON position, the light goes on for about 6 seconds and then goes off.



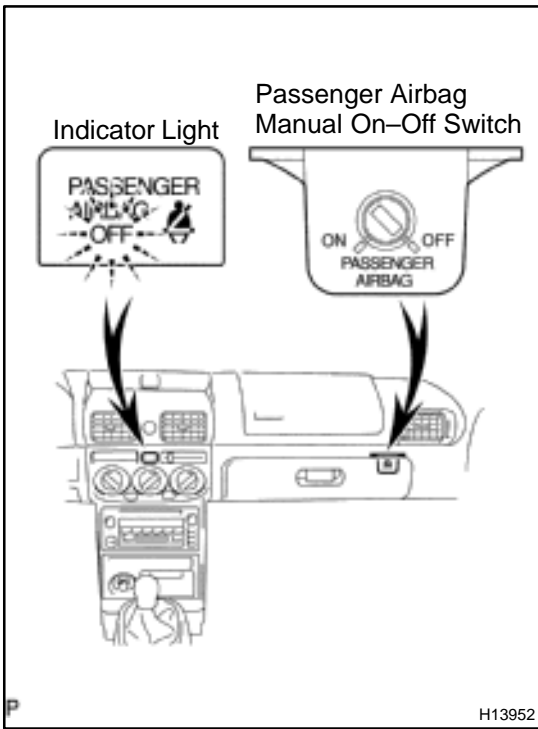
6. AIRBAG SENSOR ASSEMBLY

The airbag sensor assembly is mounted on the floor inside the lower center finish panel. The airbag sensor assembly consists of an airbag sensor, safing sensor, diagnosis circuit, ignition control, drive circuit, etc. It receives signals from the airbag sensor, front airbag sensor, side airbag sensor assembly and door side airbag assembly and judges whether the SRS must be activated or not. The airbag sensor assembly cannot be disassembled.



7. FRONT AIRBAG SENSOR

The front airbag sensor is mounted inside each of the side members. The sensor unit is a mechanical type. When the sensor detects deceleration force above a predetermined limit, contact is made in the sensor, sending a signal to the airbag sensor assembly. The front airbag sensor cannot be disassembled.



8. PASSENGER AIRBAG MANUAL ON-OFF SWITCH

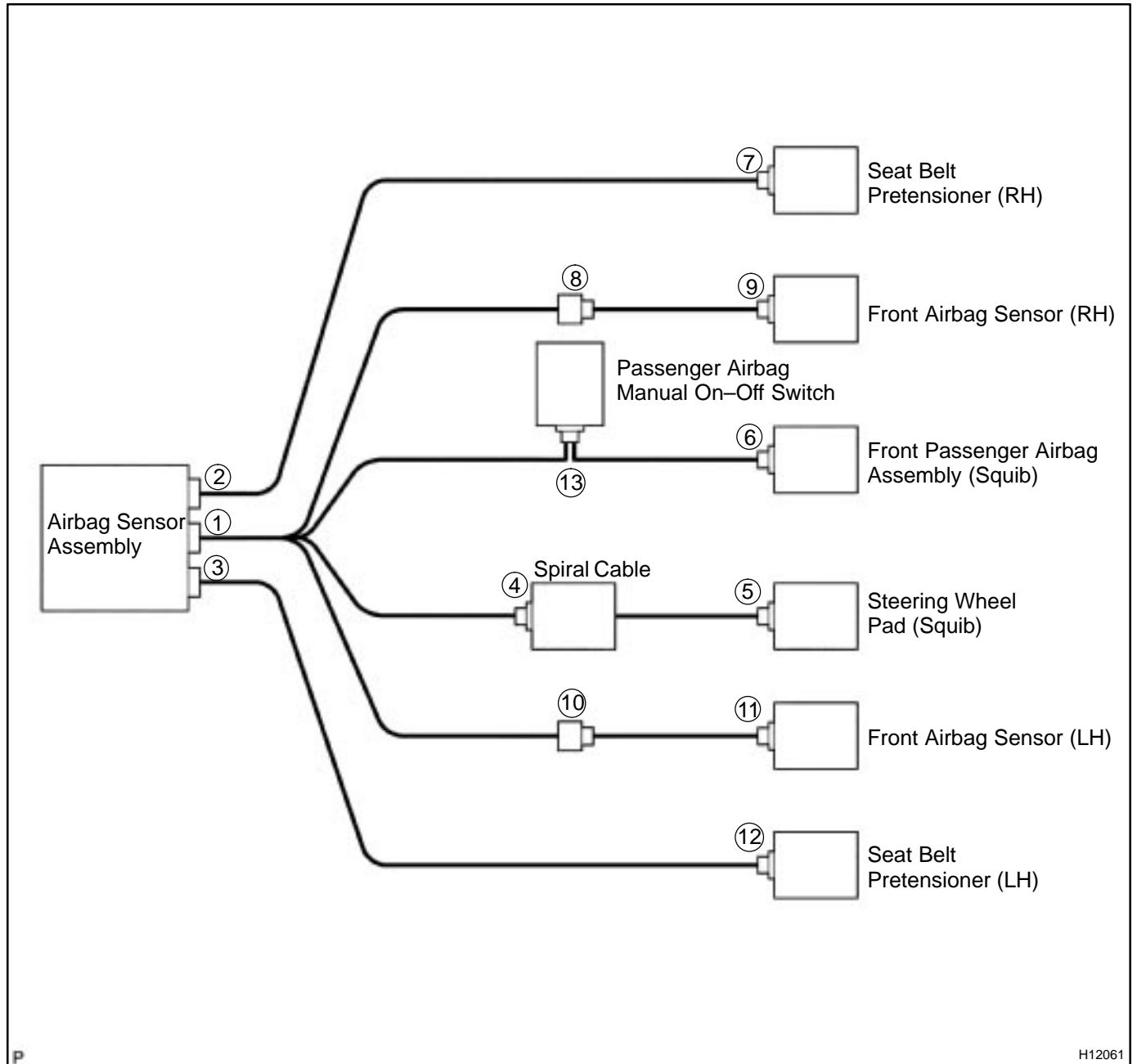
Passenger airbag manual on-off switch is mounted on in the glove compartment door. By turning the passenger airbag manual on-off switch to OFF with the ignition key, the passenger airbag system can be disabled. Also, in order to notify the passenger that the passenger airbag is disabled, OFF indicator inside the switch will light up.

Switch Position	Passenger Airbag	Indicator Light
ON	Operative	OFF
OFF	Disabled	ON

9. SRS CONNECTORS

HINT:

SRS connectors are located as shown in the following illustration.

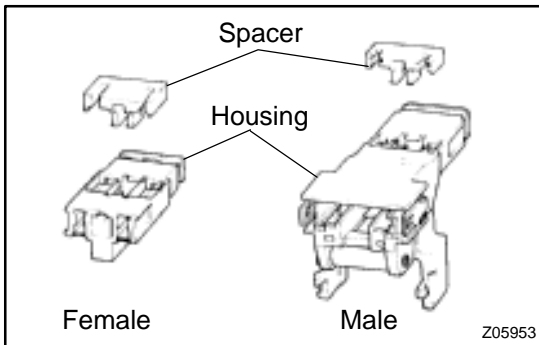


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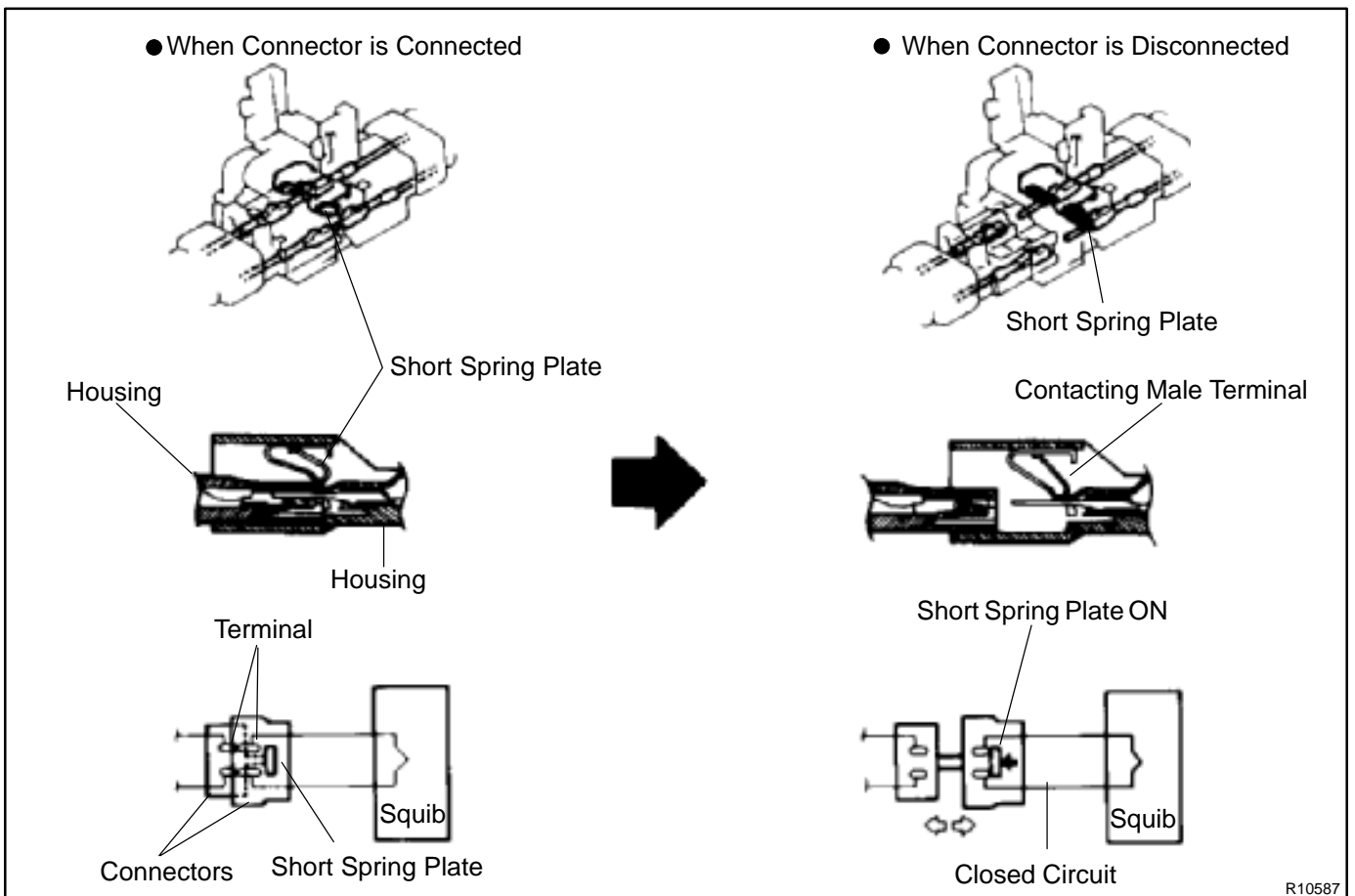
H12061

No.	Item	Application
(1)	Terminal Twin-Lock Mechanism	Connectors 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
(2)	Airbag Activation Prevention Mechanism	Connectors 1, 2, 3, 4, 5, 6, 13
(3)	Electrical Connection Check Mechanism	Connectors 1, 2, 3

- (a) All connectors in the SRS are colored in yellow to distinguish them from other connectors. Connectors having special functions and specifically designed for the SRS are used in the locations shown on the previous page to ensure high reliability. These connectors use durable gold-plated terminals.

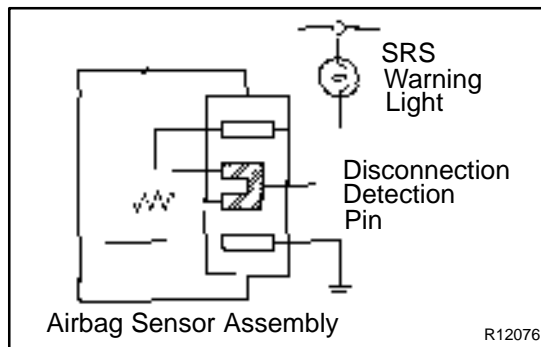


- (1) Terminal Twin-Lock Mechanism
Each connector has a two-piece component consisting of a housing and a spacer. This design enables the terminal to be locked securely by two locking devices (the retainer and the lance) to prevent terminals from coming out.
- (2) Airbag Activation Prevention Mechanism
Each connector contains a short spring plate. When the connector is disconnected, the short spring plate automatically connects positive (+) terminal and negative (-) terminal of the squib.

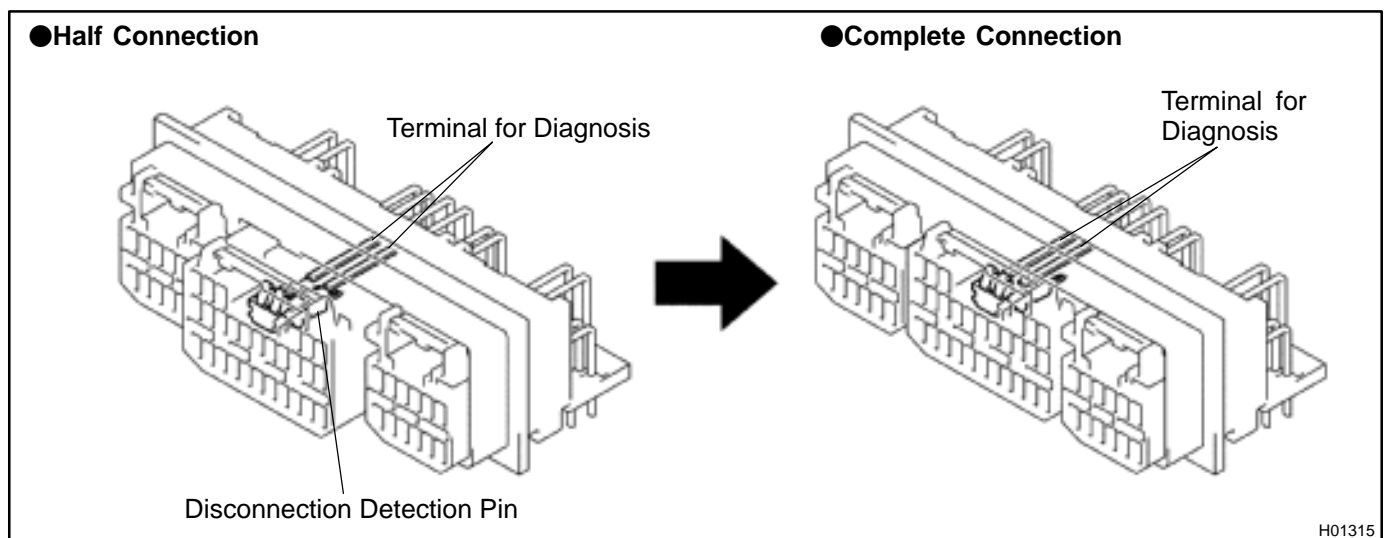


HINT:

The type of connector is shown in the diagram on the previous page.

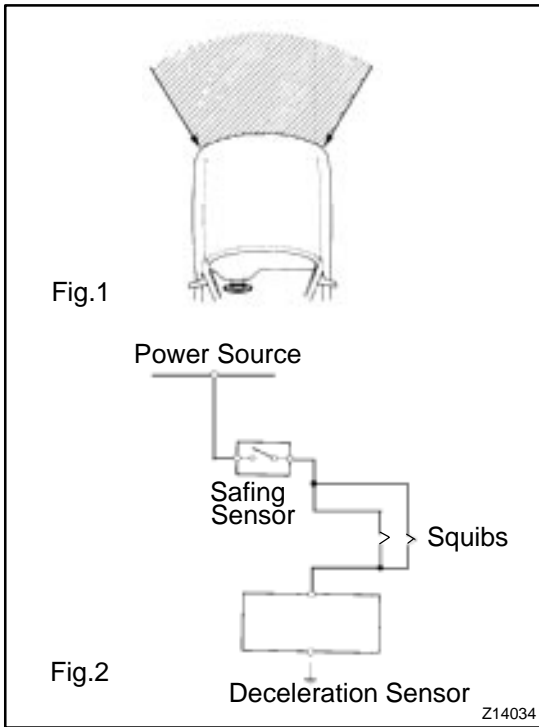


- (3) **Electrical Connection Check Mechanism**
 This mechanism electrically checks that connectors are connected correctly and completely. The electrical connection check mechanism is designed so that the disconnection detection pin connects with the diagnosis terminals when the connector housing lock is locked.

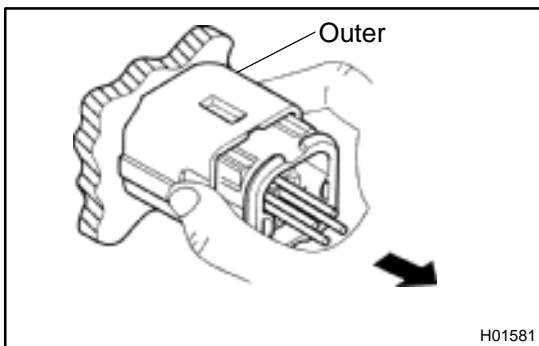


HINT:

The illustration shows connectors "1", "2" and "3" in step 11.



(b) When the vehicle is involved in a frontal collision in the hatched area (Fig. 1) and the shock is larger than the pre-determined level, the SRS is activated automatically. A safing sensor is designed to go on at a smaller deceleration rate than the airbag sensor. As illustrated in Fig. 2, ignition is caused when current flows to the squib, which happens when a safing sensor and the deceleration sensor go on simultaneously. When a deceleration force acts on the sensors, 2 squibs in the driver airbag and front passenger airbag ignite and generate gas. The gas discharging into the driver airbag and front passenger airbag rapidly increases the pressure inside the bags, breaking open the steering wheel pad and instrument panel. Bag inflation then ends, and the bags deflate as the gas is discharged through discharge holes at the bag's rear or side.

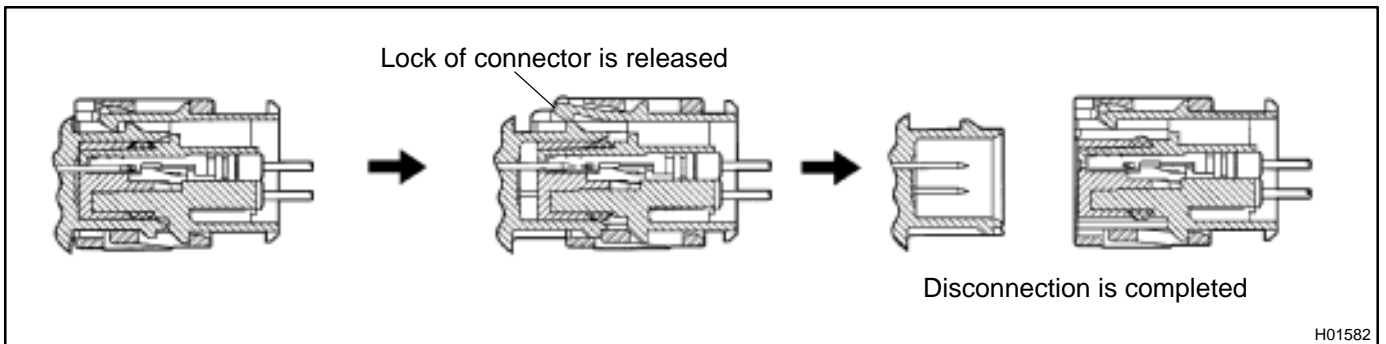


10. DISCONNECTION OF CONNECTORS FOR FRONT AIRBAG SENSOR

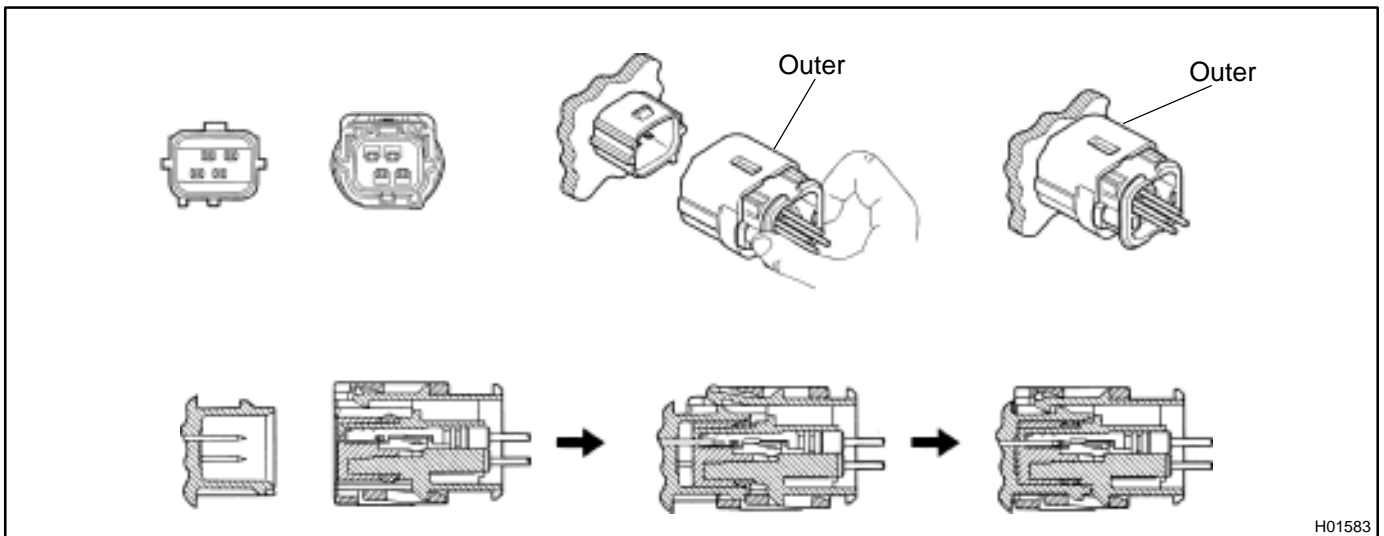
- (a) While holding both flank sides of the outer, slide the outer to the direction shown by an arrow.
- (b) Lock of the connectors is released, then disconnect the connectors.

HINT:

Be sure to hold both flank sides of the outer. If holding the top and bottom sides, it will obstruct disconnection.



11. CONNECTION OF CONNECTORS FOR FRONT AIRBAG SENSOR



H01583

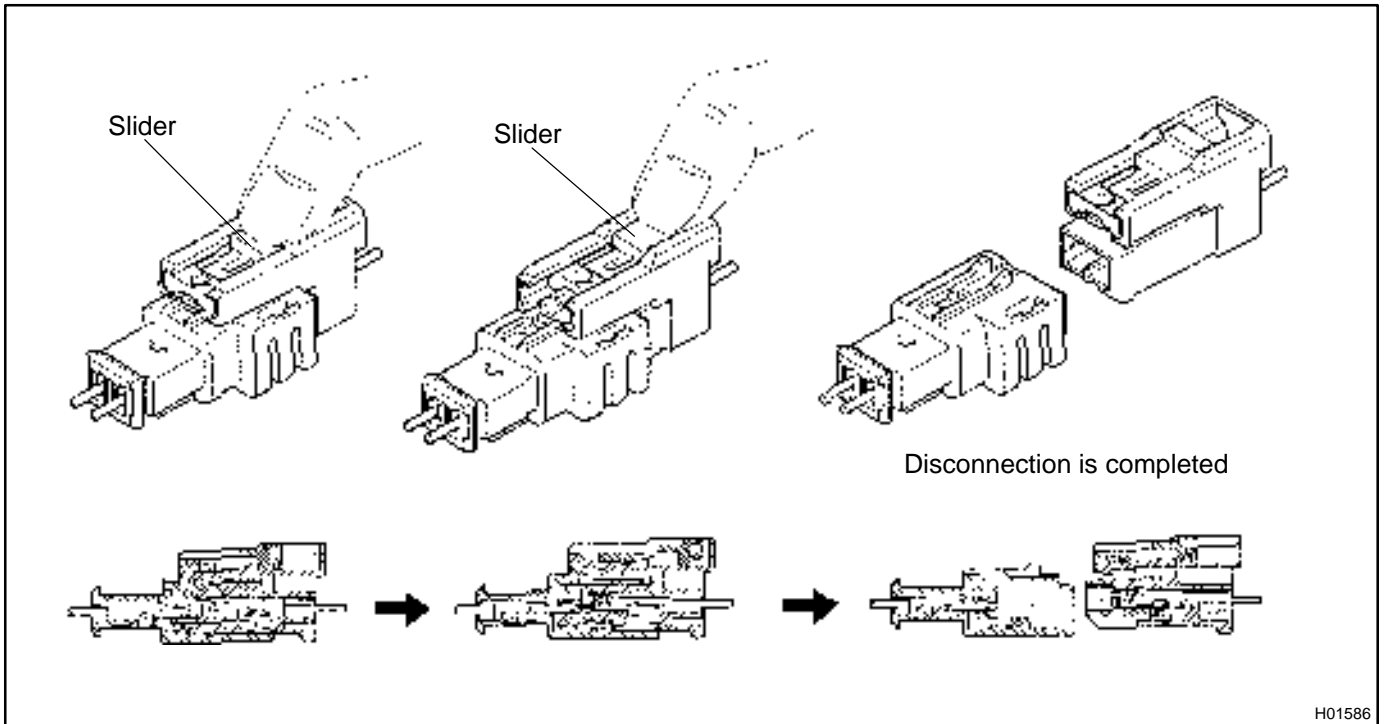
- (a) Align the male connector (of the side of sensor) and female connector in the same direction as shown in the illustration and fit in them without rubbing.
- (b) As they are fitted in, the outer slides rearward. Press it until the outer returns to its original position again.
If fitting stops half way, connectors will separate.
- (c) Be sure to insert until they are locked. After fitting in, pull them slightly to check that they are locked (When locked, make sure that the outer returns to its original position and the click can be heard at the time of fitting in.).

HINT:

- Do not fit in while holding the outer.
- When fitting in, the outer slides. Do not touch it.

12. DISCONNECTION OF CONNECTORS FOR STEERING WHEEL PAD (with AIRBAG) AND FRONT PASSENGER AIRBAG ASSEMBLY

- (a) Place a finger on the slider.
- (b) Slide the slider to release lock.
- (c) Disconnect the connector.



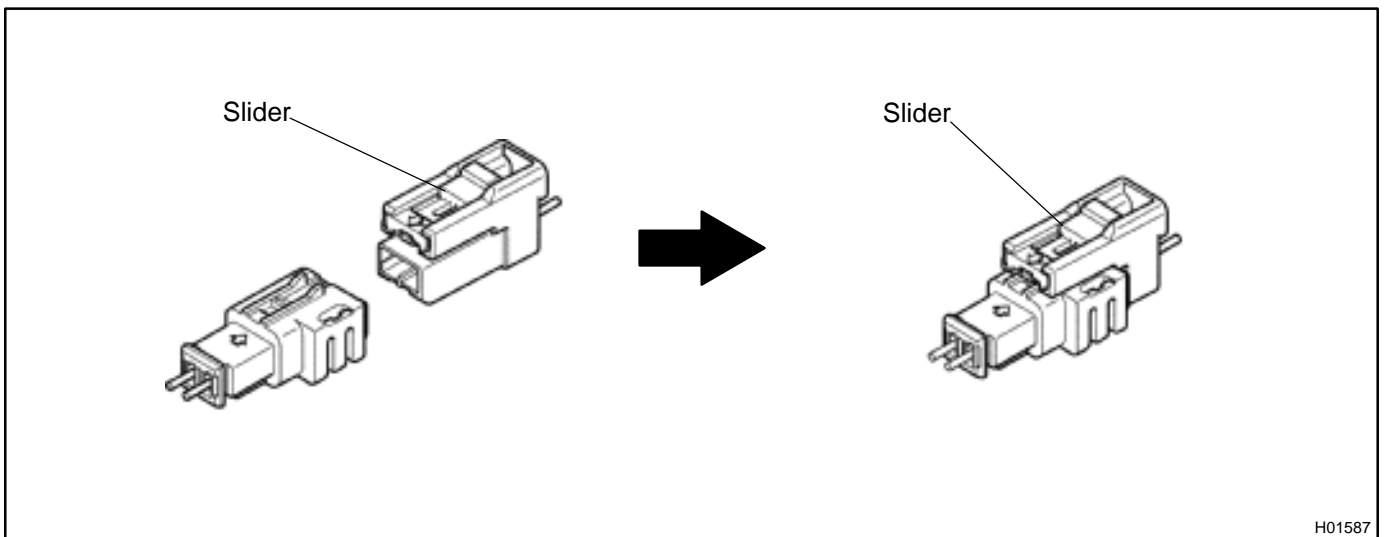
H01586

13. CONNECTION OF CONNECTORS FOR STEERING WHEEL PAD (with AIRBAG) AND FRONT PASSENGER AIRBAG ASSEMBLY

- (a) Align a lock part of male connector and a slider of female connector in the same direction as shown in the illustration, fit in them without rubbing.
- (b) Be sure to insert until they are locked. After fitting in pull them slightly to check that they are locked (When locked, make sure that the outer returns to its original position and the click can be heard at the time of fitting in.).

HINT:

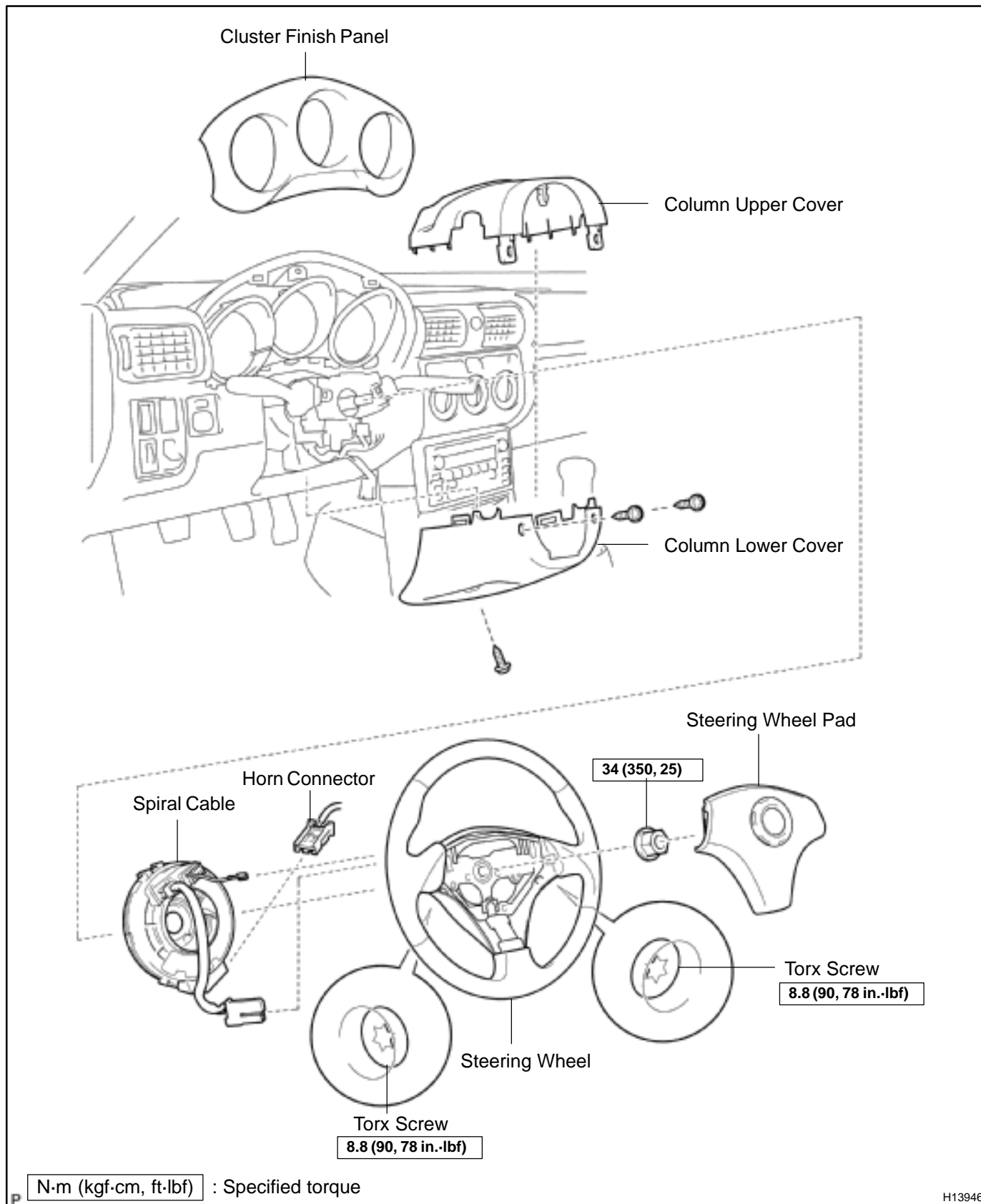
- As the slider slides, do not touch it.
- Be careful not to deform the release board. If the release board is deformed, replace it with a new one.



H01587

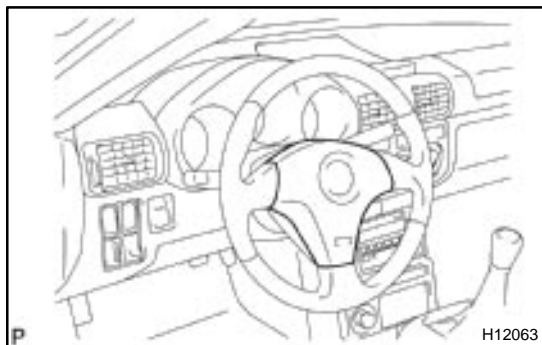
STEERING WHEEL PAD AND SPIRAL CABLE COMPONENTS

RS0JQ-02



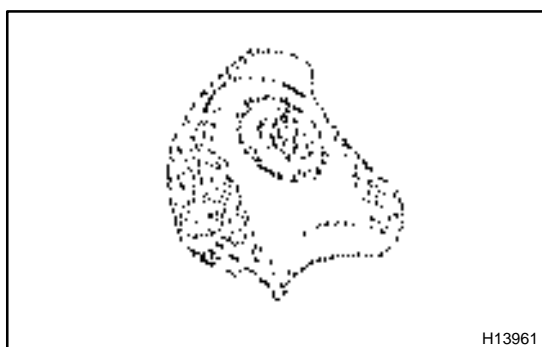
REMOVAL

1. REMOVE STEERING WHEEL PAD
2. REMOVE STEERING WHEEL (See page [SR-10](#))
3. REMOVE CLUSTER FINISH PANEL
4. REMOVE UPPER AND LOWER COLUMN COVERS
5. REMOVE SPIRAL CABLE

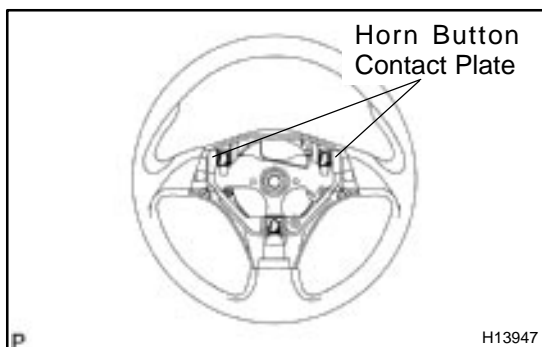


INSPECTION

1. **Vehicle not involved in collision:**
INSPECT SUPPLEMENTAL RESTRAINT SYSTEM
 - (a) Check a diagnostic system (See page [DI-237](#)).
 - (b) Do a visual check which includes the following item with the steering wheel pad (with airbag) installed in the vehicle.
 Check cuts, minute cracks or marked discoloration on the steering wheel pad top surface and in the grooved portion.
2. **Vehicle involved in collision with airbag not deployed:**
INSPECT SUPPLEMENTAL RESTRAINT SYSTEM
 - (a) Check a diagnostic system (See page [DI-237](#)).



- (b) Do a visual check which includes the following items with the steering wheel pad (with airbag) removed from the vehicle.
 - Check cuts, minute cracks or marked discoloration on the steering wheel pad top surface and in the grooved portion.
 - Check cuts and cracks in wire harness, and chipping in connectors.
- Check the deformation of the horn button contact plate of the steering wheel.

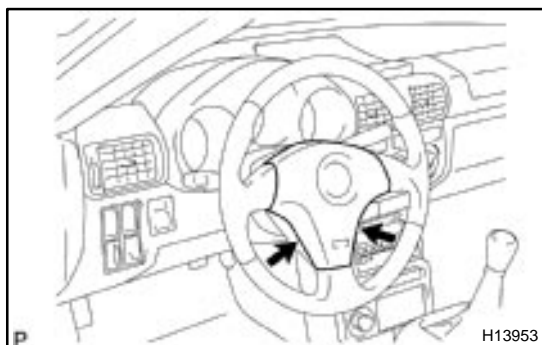


CAUTION:

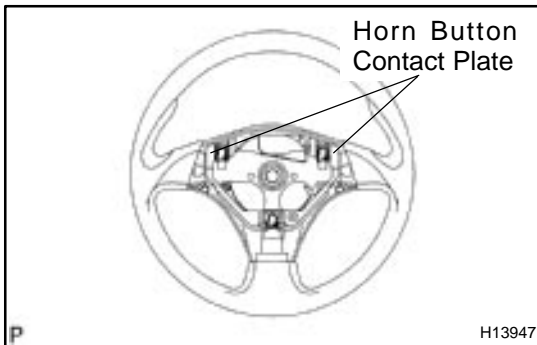
For removal and installation of the steering wheel pad, see pages [SR-10](#) and [SR-19](#), be sure to follow the correct procedure.

HINT:

- If the horn button contact plate of the steering wheel is deformed, never repair it. Always replace the steering wheel assembly with a new one.
- There should be no interference between the steering wheel pad and steering wheel, and the clearance should be uniform all the way around when the new steering wheel pad is installed on the steering wheel.



3. **Vehicle involved in collision and airbag is deployed: INSPECT SUPPLEMENTAL RESTRAINT SYSTEM**
- (a) Check a diagnostic system (See page [DI-237](#)).



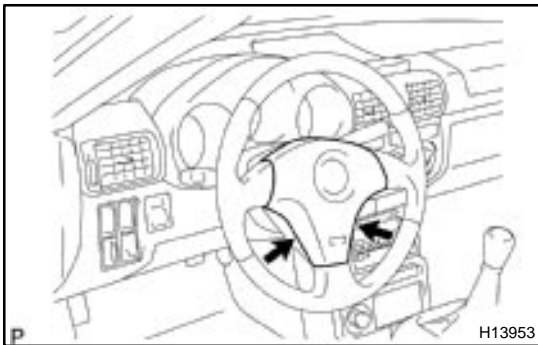
- (b) Do a visual check which includes the following items with the steering wheel pad (with airbag) removed from the vehicle.
- Check the deformation on the horn button contact plate of the steering wheel.
 - Check the damage on the spiral cable connector and wire harness.

CAUTION:

For removal and installation of the steering wheel pad, see pages [SR-10](#) and [SR-19](#), and be sure to follow the correct procedure.

HINT:

- If the horn button contact plate of the steering wheel is deformed, never repair it. Always replace the steering wheel assembly with a new one.
- There should be no interference between the steering wheel pad and steering wheel, and the clearance should be uniform all the way around when the new steering wheel pad is installed on the steering wheel.



DISPOSAL

HINT:

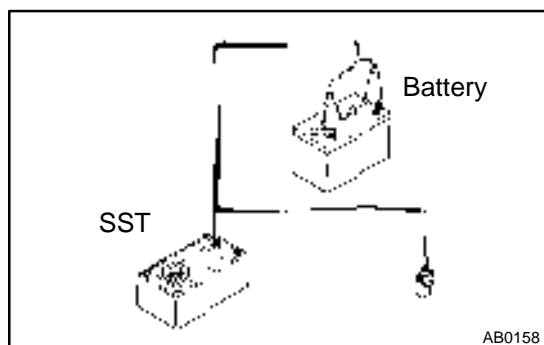
When scrapping vehicle equipped with an SRS or disposing of a steering wheel pad (with airbag), always first deploy the airbag in accordance with the procedure described below. If any abnormality occurs with the airbag deployment, contact the SERVICE DEPT. of TOYOTA MOTOR SALES, U.S.A., INC.

CAUTION:

- Never dispose of a steering wheel pad which has an undeployed airbag.
- The airbag produces a sizeable exploding sound when it deploys, so perform the operation out-of-doors and where it will disturb nearby residents.



- When deploying the airbag, always use the specified SST (SRS Airbag Deployment Tool). Perform the operation in a place away from electrical noise.
SST 09082-00700
- When deploying an airbag, perform the operation at least 10 m (33 ft) away from the steering wheel pad.
- The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.
- Use gloves and safety glasses when handling a steering wheel pad with the deployed airbag.
- Always wash your hands with water after completing the operation.
- Do not apply water, etc. to a steering wheel pad with the deployed airbag.



1. AIRBAG DEPLOYMENT WHEN SCRAPPING VEHICLE

HINT:

Have a battery ready as the power source to deploy the airbag.

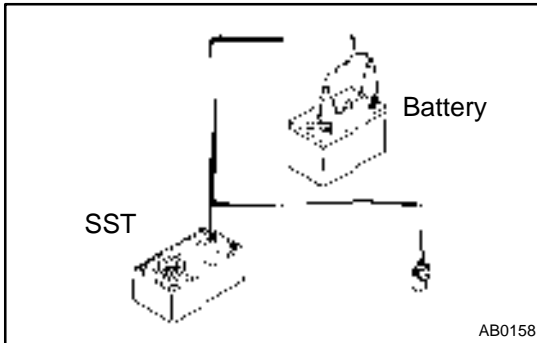


(a) Check functioning of the SST.

CAUTION:

When deploying the airbag, always use the specified SST: SRS Airbag Deployment Tool.

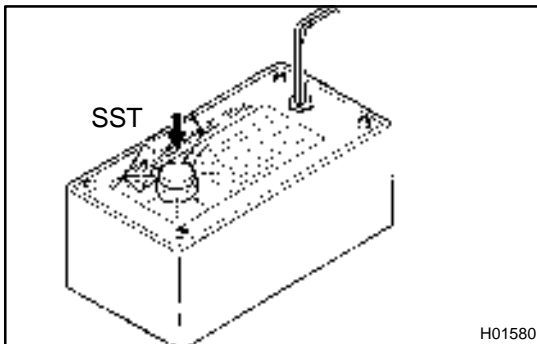
SST 09082-00700



- (1) Connect the red clip of the SST to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.

HINT:

Do not connect the yellow connector which will be connected with the supplemental restraint system.

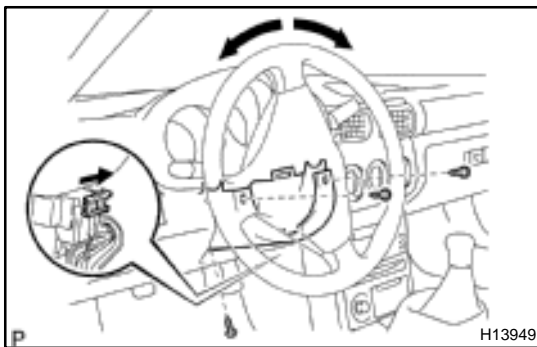


- (2) Press the SST activation switch, and check that the LED of the SST activation switch lights up.

CAUTION:

If the LED lights up when the activation switch is not being pressed, SST malfunction is probable, so definitely do not use the SST.

- (3) Disconnect the SST from the battery.

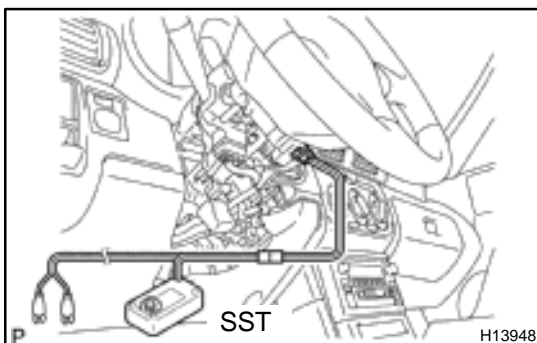


(b) Install the SST.

CAUTION:

Check the steering wheel and steering wheel pad for looseness.

- (1) While turning the steering wheel right / left, remove the 3 screws and column lower cover.
- (2) Disconnect the airbag connector of the spiral cable.

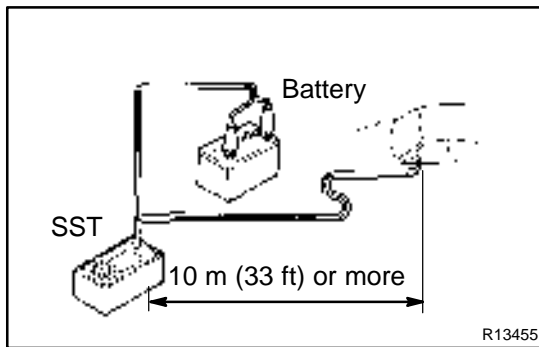


- (3) Connect the connectors of the 2 SST to the airbag connector of the spiral cable.

SST 09082-00700, 09082-00760

NOTICE:

To avoid damaging the connector of the SST and wire harness, do not lock the secondary lock of the twin lock.

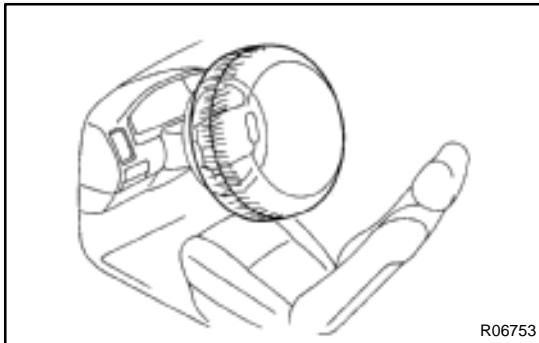


- (4) Move the SST at least 10 m (33 ft) away from the front of the vehicle.
- (5) Close all the doors and windows of the vehicle.

NOTICE:

Take care not to damage the SST wire harness.

- (6) Connect the SST red clip to the battery positive (+) terminal and the black clip to the negative (-) terminal.



- (c) Deploy the airbag.
 - (1) Check that no one is inside the vehicle or within 10 m (33 ft) area around the vehicle.
 - (2) Press the SST activation switch and deploy the airbag.

CAUTION:

- **The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a steering wheel pad with the deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a steering wheel pad with the deployed airbag.**
- **When scrapping a vehicle, deploy the airbag and scrap the vehicle with the steering wheel pad still installed.**
- **When moving a vehicle for scrapping which has a steering wheel pad with deployed airbag, use gloves and safety glasses.**

HINT:

The airbag deploys simultaneously as the LED of the SST activation switch lights up.

2. DEPLOYMENT WHEN DISPOSING OF STEERING WHEEL PAD ONLY

NOTICE:

- **When disposing of the steering wheel pad (with airbag) only, never use the customer's vehicle to deploy the airbag.**
- **Be sure to follow the procedure given below when deploying the airbag.**

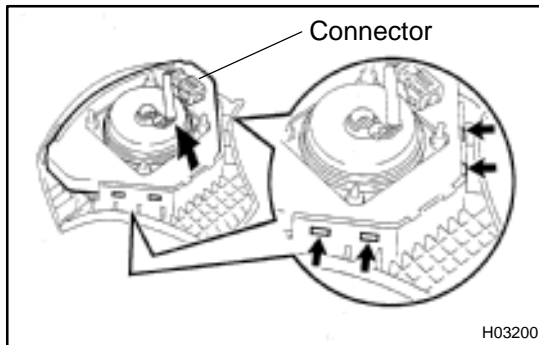
HINT:

Have a battery ready as the power source to deploy the airbag.

(a) Remove the steering wheel pad (See page [SR-10](#)).

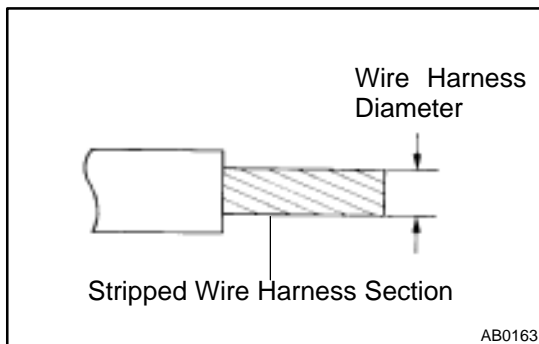
CAUTION:

- When removing the steering wheel pad, work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.
- When storing the steering wheel pad, keep the upper surface of the pad facing upward.



(b) Remove the connector on the steering wheel pad rear surface.

(c) Remove the steering wheel pad cover.



(d) Using a service-purpose wire harness tie down the steering wheel pad to the disc wheel.

**Wire harness: Stripped wire harness section
1.25 mm² or more (0.0019 in.² or more)**

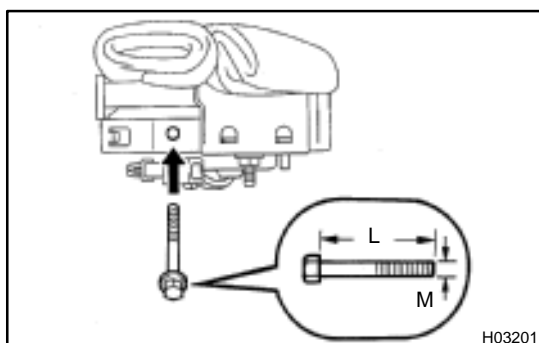
CAUTION:

If a wire harness which is too thin or some other thing is used to tie down the steering wheel pad, it may be snapped by the shock when the airbag is deployed. This is highly dangerous. Always use a wire harness for vehicle use which is at least 1.25 mm² (0.0019 in.²).

HINT:

To calculate the square of the stripped wire harness section:

$$\text{Square} = 3.14 \times (\text{Diameter})^2 \text{ divided by } 4$$



(1) Install the 2 bolts with washers in the 2 bolt holes in the steering wheel pad.

Bolt:

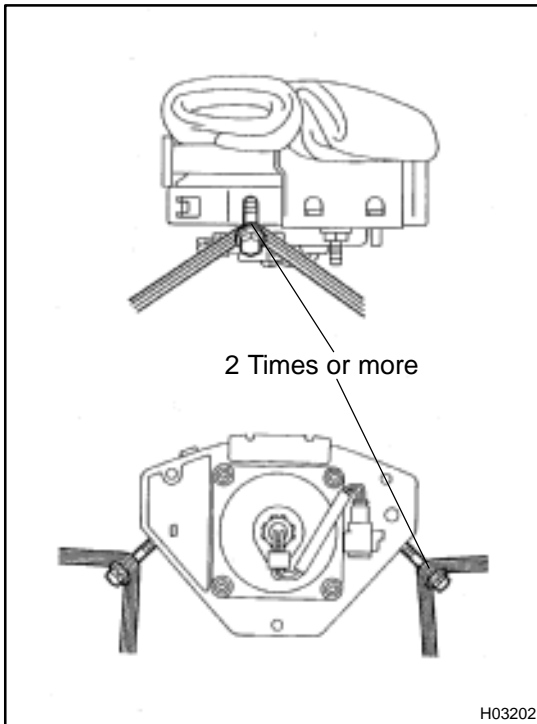
L: 35.0 mm (1.378 in.)

M: 6.0 mm (0.236 in.)

Pitch: 1.0 mm (0.039 in.)

NOTICE:

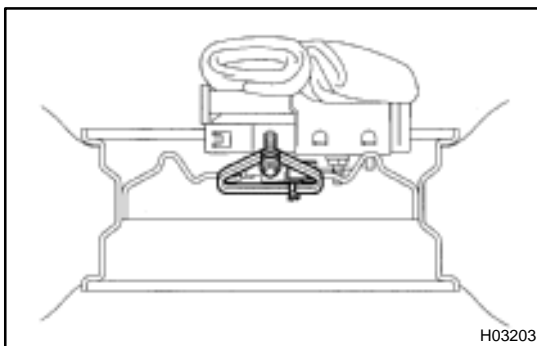
- Tighten the bolts by hand until the bolts become difficult to turn.
- Do not tighten the bolts too much.



- (2) Using 3 wire harness, wind the wire harness at least 2 times each around the bolts installed on the left and right sides of the steering wheel pad.

CAUTION:

- **Tightly wind the wire harness around the bolts so that there is no slack.**
- **If there is slackness in the wire harness, the steering wheel pad may come loose due to the shock when the airbag is deployed. This is highly dangerous.**



- (3) Face the upper surface of the steering wheel pad upward. Separately tie the left and right sides of the steering wheel pad to the disc wheel through the hub nut holes. Position the steering wheel pad connector so that it hangs downward through a hub hole in the disc wheel.

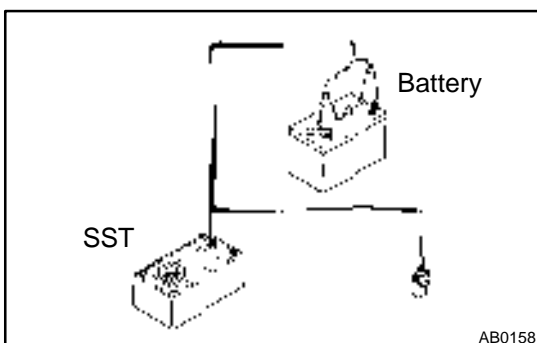
CAUTION:

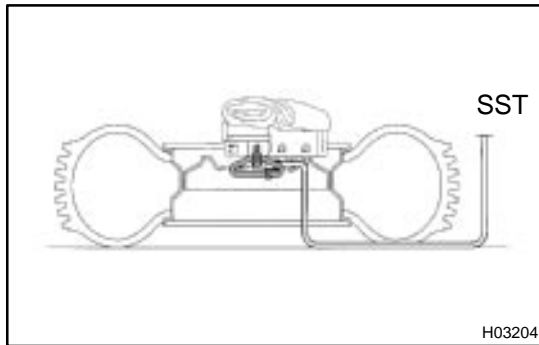
- **Make sure that the wire harness is tight. It is very dangerous when looseness in the wire harness results in the steering wheel pad coming free due to the shock from the airbag deploying.**
- **Always tie down the steering wheel pad with the pad side facing upward. It is very dangerous if the steering wheel pad is tied down with the metal surface facing upward as the wire harness will be cut by the shock from the airbag deploying and the steering wheel pad will be thrown into the air.**

NOTICE:

The disc wheel will be marked by airbag deployment, so when disposing of the airbag use a redundant disc wheel.

- (e) Check functioning of the SST (See step 1-(a)).
SST 09082-00700





(f) Install the SST.

CAUTION:

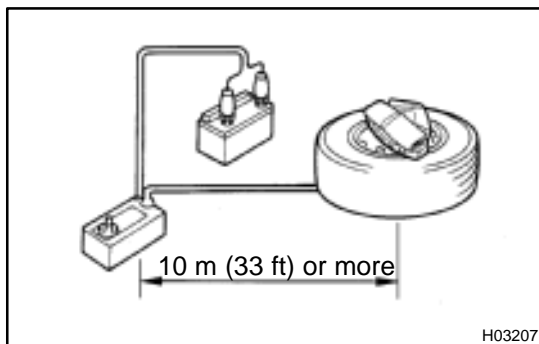
Place the disc wheel on the level ground.

- (1) Connect the connectors of the 2 SST to the steering wheel pad connector.

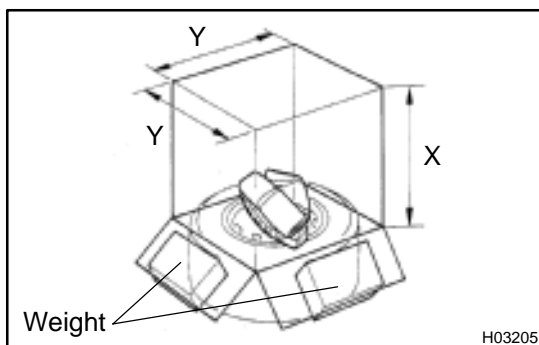
SST 09082-00700, 09082-00760

NOTICE:

To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock. Also, remove some slack for the SST wire harness inside the disc wheel.



- (2) Move the SST to at least 10 m (33 ft) away from the steering wheel pad tied down on the disc wheel.



- (g) Cover the steering wheel pad with a cardboard box or tires.

- Covering method using a cardboard box:
Cover the steering wheel pad with the cardboard box and weight the cardboard box down in 4 places with at least 190 N (20 kg, 44 lb).

Size of cardboard box:

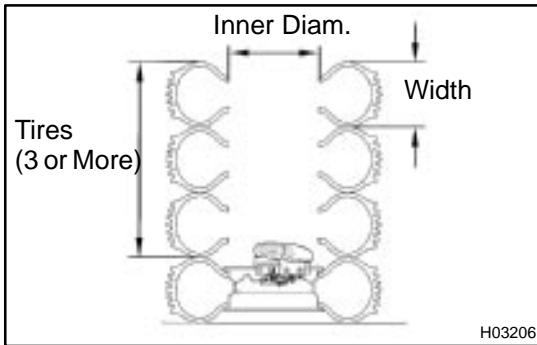
Must exceed the following dimensions:

X = 460 mm (18.11 in.)

Y = 650 mm (25.59 in.)

NOTICE:

- When dimension Y of the cardboard box exceeds the diameter of the disc wheel with tire to which the steering wheel pad is tied, X should be the following size.
X = 460 mm (18.11 in.) + width of tire
- If a cardboard box smaller than the specified size is used, the cardboard box will be broken by the shock from the airbag deployment.



- Covering method using tires:
Place at least 3 tires without disc wheel on top of the disc wheel with tire to which the steering wheel pad is tied.

Tire size: Must exceed the following dimensions:

Width: 185 mm (7.28 in.)

Inner diameter: 360 mm (14.17 in.)

CAUTION:

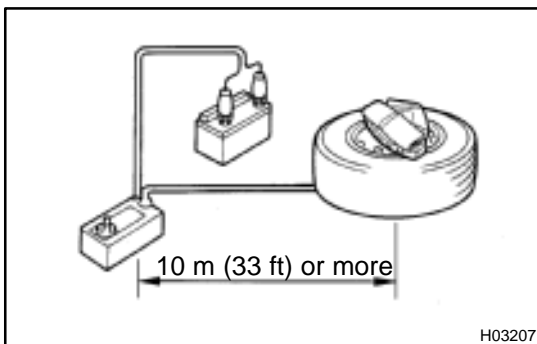
Do not use tires with disc wheels.

NOTICE:

The tires may be marked by the airbag deployment, so use the redundant tires.

(h) Deploy the airbag.

- (1) Connect the SST red clip to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.



- (2) Check that no one is within 10 m (33 ft) area around the disc wheel which the steering wheel pad is tied to.
- (3) Press the SST activation switch and deploy the airbag.

HINT:

The airbag deploys simultaneously as the LED of the SST activation switch lights up.



(i) Dispose of the steering wheel pad (with airbag).

CAUTION:

- **The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a steering wheel pad with the deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a steering wheel pad with the deployed airbag.**

- (1) Remove the steering wheel pad from the disc wheel.
- (2) Place the steering wheel pad in a vinyl bag, tie the end tightly and dispose of it in the same way as other general parts disposal.



3. DEPLOYMENT WHEN DISPOSING OF STEERING WHEEL PAD WITH AIRBAG DEPLOYED IN COLLISION

Dispose of the steering wheel pad (with airbag).

CAUTION:

- The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.
- When moving a vehicle for scrapping which has a steering wheel pad with the deployed airbag, use gloves and safety glasses.
- Use gloves and safety glasses when handling a steering wheel pad with deployed airbag.
- Always wash your hands with water after completing the operation.
- Do not apply water, etc. to a steering wheel pad with deployed airbag.
 - (1) Remove the steering wheel pad from the steering wheel (See page [SR-10](#)).
 - (2) Place the steering wheel pad in a vinyl bag, tie the end tightly and dispose of it in the same way as other general parts disposal.

REPLACEMENT

REPLACEMENT REQUIREMENTS

In the following cases, replace the steering wheel pad, steering wheel or spiral cable.

Case	Part to be replaced
If the airbag has been deployed.	Steering wheel pad
If the steering wheel pad has been found to be faulty in troubleshooting.	Steering wheel pad
If the spiral cable has been found to be faulty in troubleshooting.	Spiral cable
If the steering wheel pad has been found to be faulty during checking (See page RS-13).	Steering wheel pad
If the steering wheel has been found to be faulty during checking (See page RS-13).	Steering wheel
If the spiral cable has been found to be faulty during checking (See page RS-13).	Spiral cable
If the steering wheel pad has been dropped.	Steering wheel pad

CAUTION:

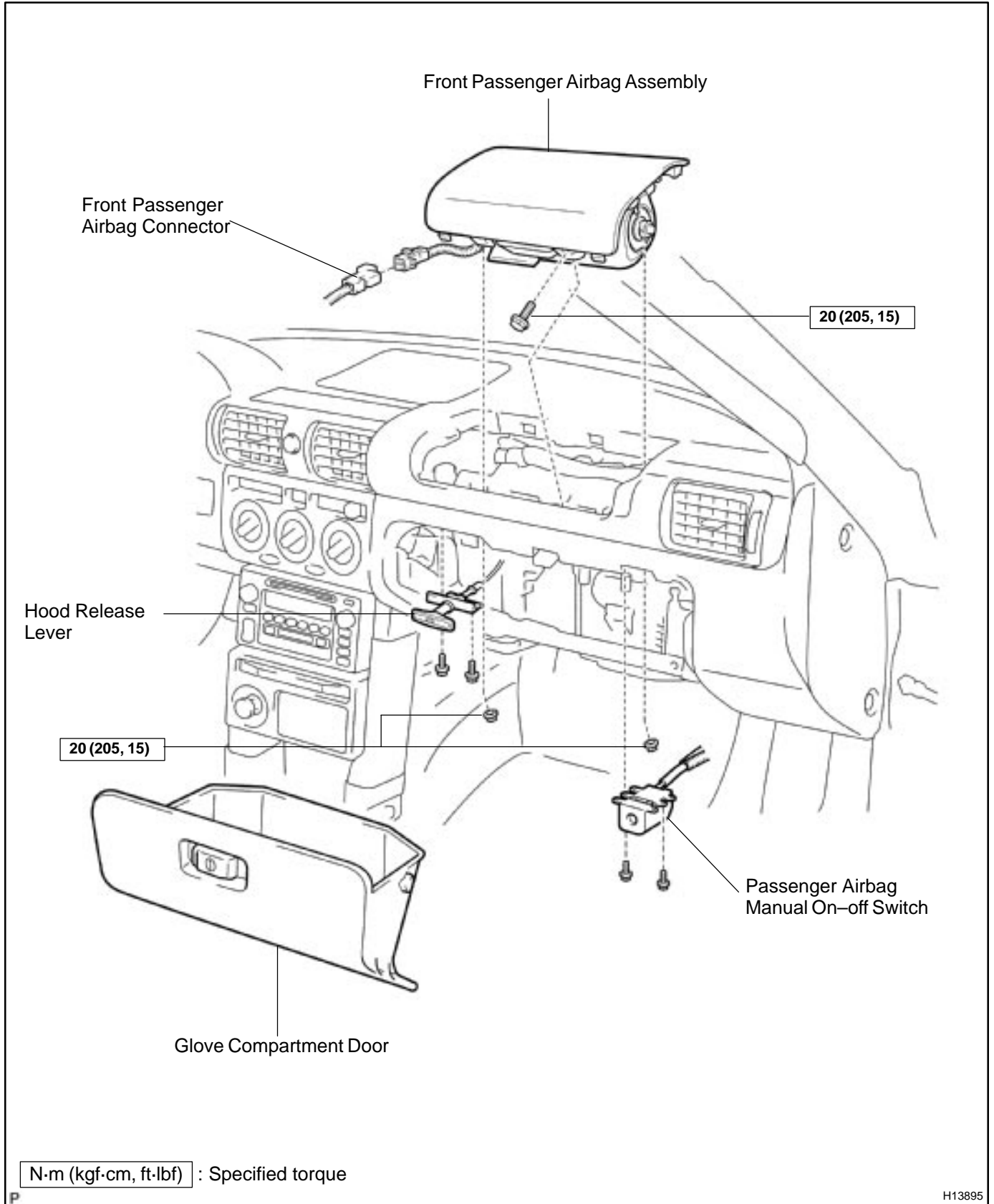
For removal and installation of the steering wheel pad, see pages SR-10 and SR-19. Be sure to follow the correct procedure.

INSTALLATION

1. INSTALL SPIRAL CABLE
2. INSTALL UPPER AND LOWER COLUMN COVERS
3. INSTALL CLUSTER FINISH PANEL
4. INSTALL STEERING WHEEL (See page [SR-19](#))
5. INSTALL STEERING WHEEL PAD

FRONT PASSENGER AIRBAG ASSEMBLY COMPONENTS

RS0JW-02

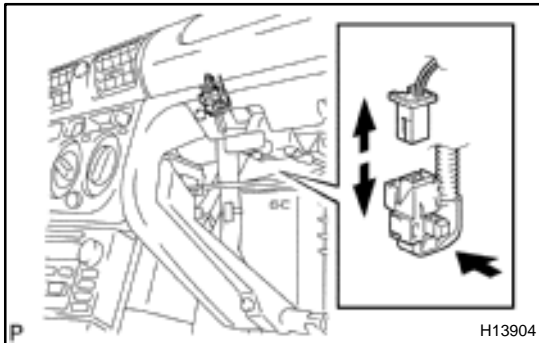


H13895

REMOVAL

NOTICE:

- If the wiring connector of the SRS is disconnected and the ignition switch is in ON position, DTCs will be recorded.
- Never use the airbag parts from another vehicle. When replacing parts, replace them with new parts.



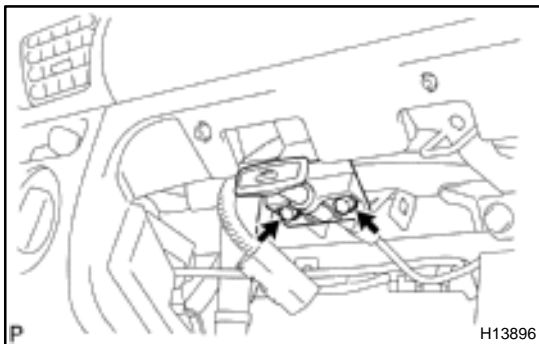
1. DISCONNECT AIRBAG CONNECTOR

- (a) Remove the glove compartment door.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

- (b) Disconnect the airbag connector.

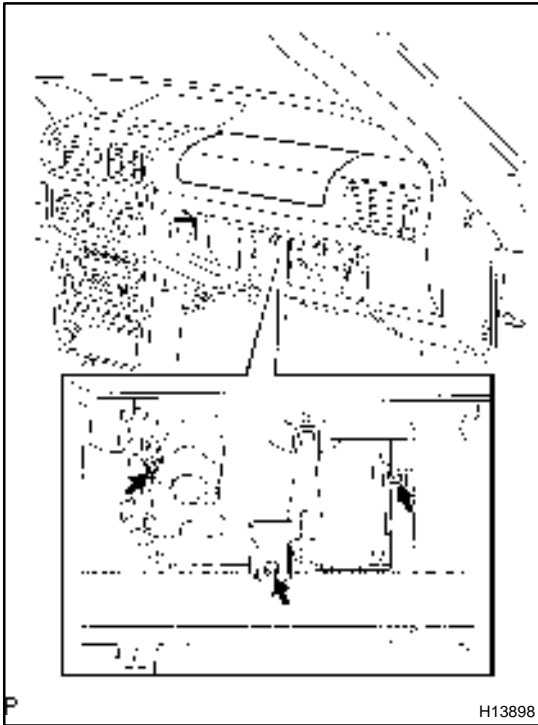


2. REMOVE FRONT PASSENGER AIRBAG ASSEMBLY

- (a) Remove the 2 bolts and disconnect the hood release lever.



- (b) Remove the 2 bolts and disconnect the passenger airbag manual on-off switch.



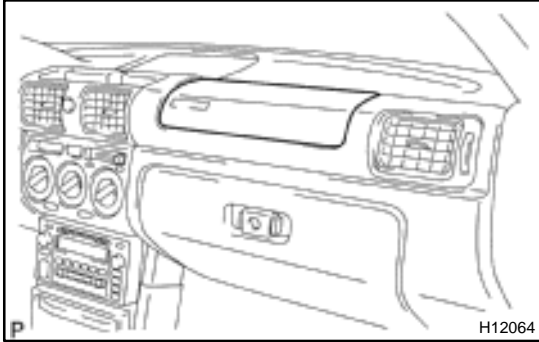
- (c) Remove the bolt, 2 nuts and front passenger airbag assembly.

CAUTION:

- Do not store the front passenger airbag assembly with the airbag deployment side facing downward.
- Never disassemble the front passenger airbag assembly.

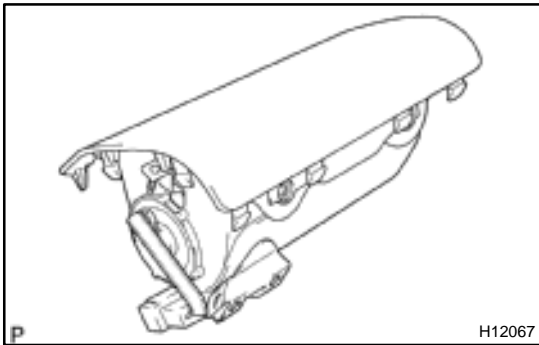
NOTICE:

When removing the front passenger airbag assembly, take care not to damage the wire harness.



INSPECTION

1. **Vehicles not involved in collision:**
INSPECT SUPPLEMENTAL RESTRAINT SYSTEM
 - (a) Check diagnostic system (See page [DI-237](#)).
 - (b) Do a visual check which includes the following item with the front passenger airbag assembly installed in the vehicle.
 Check cuts, minute cracks or marked discoloration on the front passenger airbag assembly and instrument panel.
2. **Vehicle involved in a collision with airbag not deployed:**
INSPECT SUPPLEMENTAL RESTRAINT SYSTEM
 - (a) Check a diagnostic system (See page [DI-237](#)).



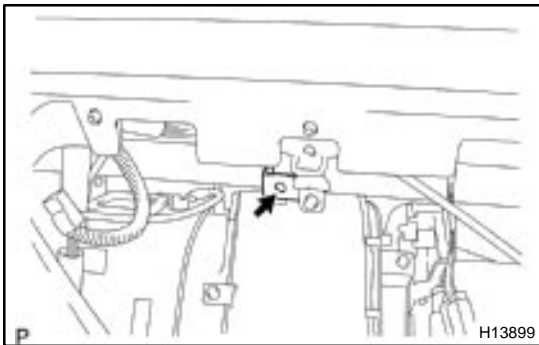
- (b) Do a visual check which includes the following items with the front passenger airbag assembly removed from the vehicle.
 - Check cuts, minute cracks or marked discoloration on the front passenger airbag assembly.
 - Check cuts and cracks in wire harness, and for chipping in connectors.
- Check the deformation or cracks on the instrument panel and instrument panel reinforcement.

CAUTION:

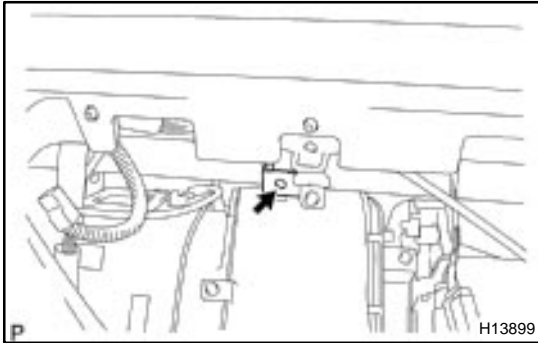
For removal and installation of the front passenger airbag assembly, see pages [RS-26](#) and [RS-38](#), and be sure to follow the correct procedure.

HINT:

If the instrument panel or instrument panel reinforcement is deformed or cracked, never repair it. Always replace it with a new one.



3. **Vehicle involved in a collision with airbag deployed: INSPECT SUPPLEMENTAL RESTRAINT SYSTEM**
- (a) Check a diagnostic system (See page [DI-237](#)).



- (b) Do a visual check which includes the following items with the front passenger airbag assembly removed from the vehicle.
- Check the deformation or cracks on the instrument panel and instrument panel reinforcement.
 - Check the damage on the connector and wire harness.

CAUTION:

For removal and installation of the front passenger airbag assembly, see pages [SR-10](#) and [SR-19](#), and be sure to follow the correct procedure.

HINT:

If the instrument panel or instrument panel reinforcement is deformed or cracked, never repair it. Always replace it with a new one.

DISPOSAL

HINT:

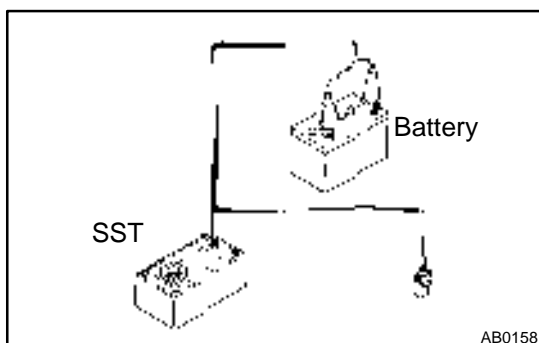
When scrapping vehicle equipped with an SRS or disposing of a front passenger airbag assembly, always first deploy the airbag in accordance with the procedure described below. If any abnormality occurs with the airbag deployment, contact the SERVICE DEPT. of TOYOTA MOTOR SALES, U.S.A., INC.

CAUTION:

- **Never dispose of a front passenger airbag assembly which has an undeployed airbag.**
- **The airbag produces a sizeable exploding sound when it deploys, so perform the operation out-of-doors and where it will not disturb nearby residents.**



- **When deploying the airbag, always use the specified SST (SRS Airbag Deployment Tool). Perform the operation in a place away from electrical noise.**
SST 09082-00700
- **When deploying an airbag, perform the operation at least 10 m (33 ft) away from the front passenger airbag assembly.**
- **The front passenger airbag assembly is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a front passenger airbag assembly with the deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a front passenger airbag assembly with the deployed airbag.**



1. AIRBAG DEPLOYMENT WHEN SCRAPPING VEHICLE

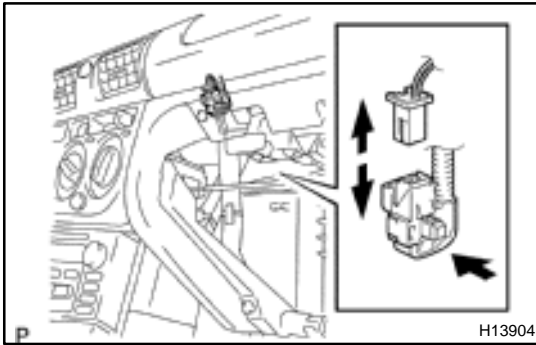
HINT:

Have a battery ready as the power source to deploy the airbag.

- Check functioning of the SST (See step 1-(a) on page [RS-15](#)).

SST 09082-00700

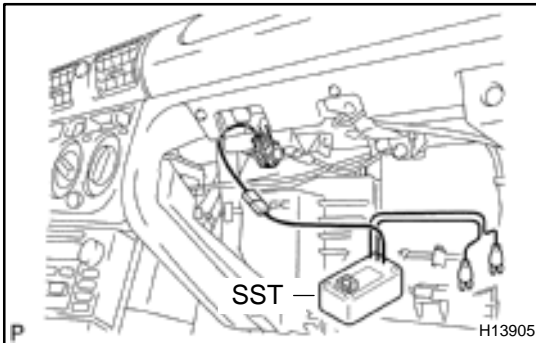
- Remove the glove compartment door.



(c) Disconnect the airbag connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



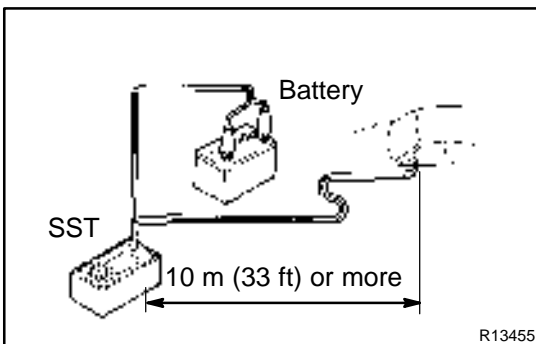
(d) Install the SST.

- (1) Connect the connectors of the 2 SST to the front passenger airbag assembly connector.

SST 09082-00700, 09082-00760

NOTICE:

To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock.



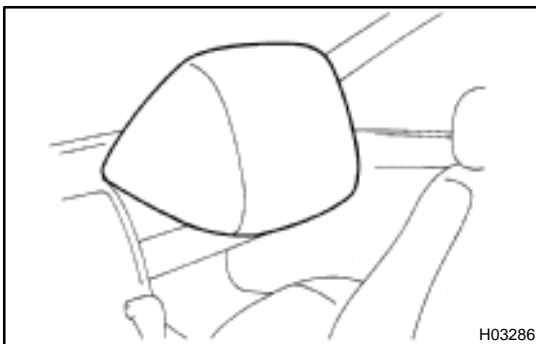
- (2) Move the SST at least 10 m (33 ft) away from the front of the vehicle.

- (3) Close all the doors and windows of the vehicle.

NOTICE:

Take care not to damage the SST wire harness.

- (4) Connect the SST red clip to the battery positive (+) terminal and the black clip to the negative (-) terminal.



(e) Deploy the airbag.

- (1) Check that no one is inside the vehicle or within 10 m (33 ft) area around the vehicle.

- (2) Press the SST activation switch and deploy the airbag.

CAUTION:

- The front passenger airbag assembly is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.
- Use gloves and safety glasses when handling the front passenger airbag assembly with the deployed airbag.
- Always wash your hands with water after completing the operation.
- Do not apply water, etc. to the front passenger airbag assembly with the deployed airbag.
- When scrapping a vehicle, deploy the airbag and scrap the vehicle with the front passenger airbag assembly still installed.
- When moving a vehicle for scrapping which has the front passenger airbag assembly with the deployed airbag, use gloves and safety glasses.

HINT:

The airbag deploys simultaneously as the LED of the SST activation switch lights up.

2. DEPLOYMENT WHEN DISPOSING OF FRONT PASSENGER AIRBAG ASSEMBLY ONLY

NOTICE:

- When disposing of the front passenger airbag assembly only, never use the customer's vehicle to deploy the airbag.
- Be sure to follow the procedure given below when deploying the airbag.

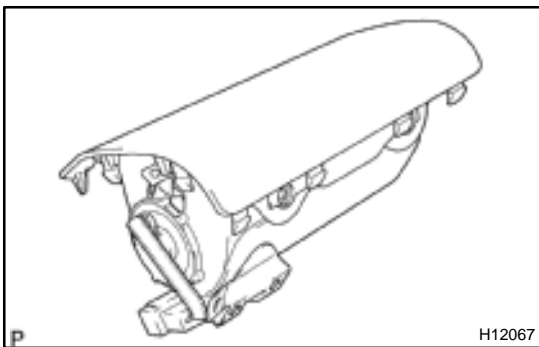
HINT:

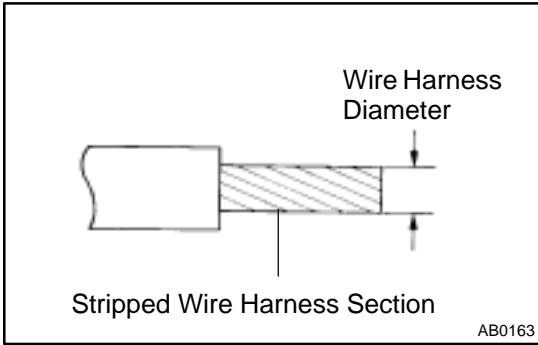
Have a battery ready as the power source to deploy the airbag.

- (a) Remove the front passenger airbag assembly (See page [RS-26](#)).

CAUTION:

- When removing the front passenger airbag assembly, work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.
- When storing the front passenger airbag assembly, keep the upper surface of the airbag deployment side facing upward.





- (b) Using a service-purpose wire harness, tie down the front passenger airbag assembly to the tire.
Wire harness: Stripped wire harness section 1.25 mm² or more (0.0019 in.² or more)

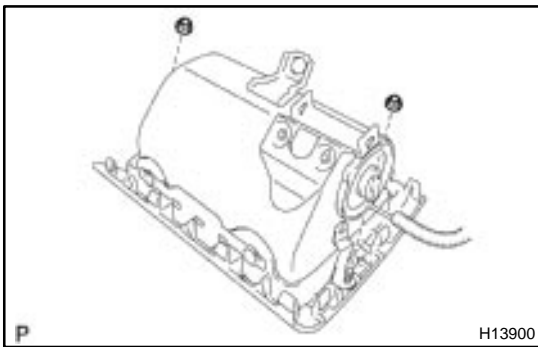
CAUTION:

If the front passenger airbag assembly is tied down with too thin wire harness, it may snap. This is highly dangerous. Always use a wire harness which is at least 1.25 mm² (0.0019 in.²).

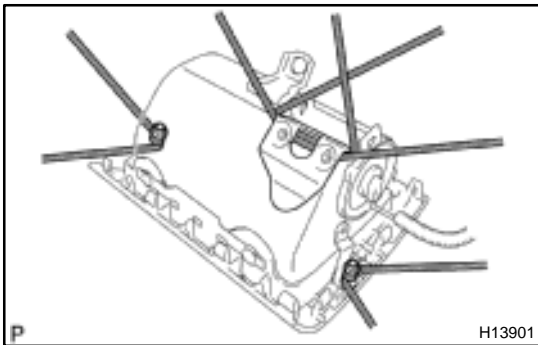
HINT:

To calculate the square of the stripped wire harness section:

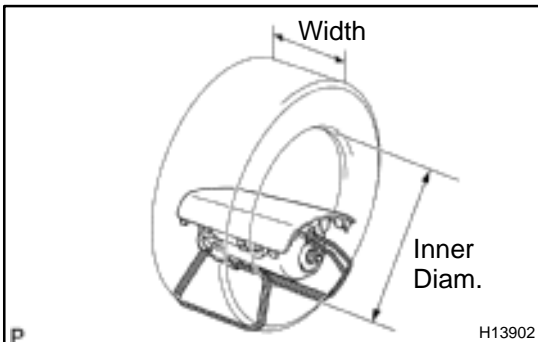
$$\text{Square} = 3.14 \times (\text{Diameter})^2 \text{ divided by } 4$$



- (1) Install the front passenger airbag assembly with the 2 nuts.



- (2) Wind the wire harness around the bolts, and pass the wire harness through the installation holes.



- (3) Position the front passenger airbag assembly inside the tire with the airbag deployment side facing inside.

Tire size: Must exceed the following dimensions–

Width: 185 mm (7.28 in.)

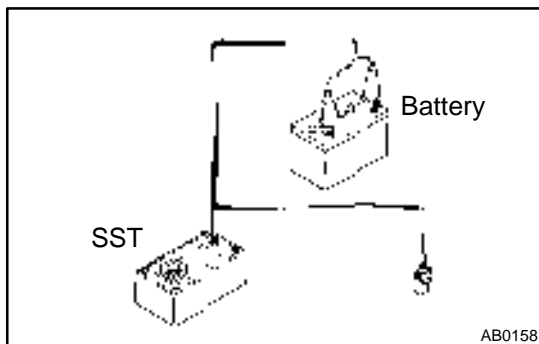
Inner diameter: 360 mm (14.17 in.)

CAUTION:

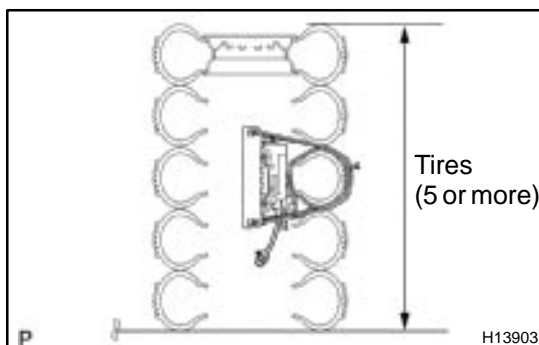
- Make sure that the wire harness is tight. It is very dangerous if loosen wire harness causes the front passenger airbag assembly to came free due to the shock from the airbag deploying.
- Always tie down the front passenger airbag assembly with the airbag deployment side facing inside.

NOTICE:

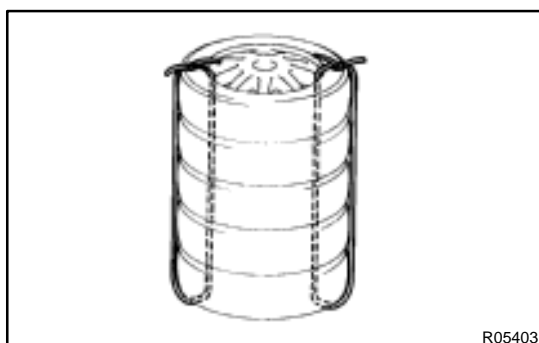
The tire will be marked by the airbag deployment, so when disposing of the airbag use a redundant tire.



- (c) Check functioning of the SST (See step 1–(a) on page [RS-15](#)).
SST 09082-00700



- (d) Place the tires.
- (1) Place at least 2 tires under the tire to which the front passenger airbag assembly is tied.
 - (2) Place at least 2 tires over the tire to which the front passenger airbag assembly is tied. The top tire should have the wheel installed.



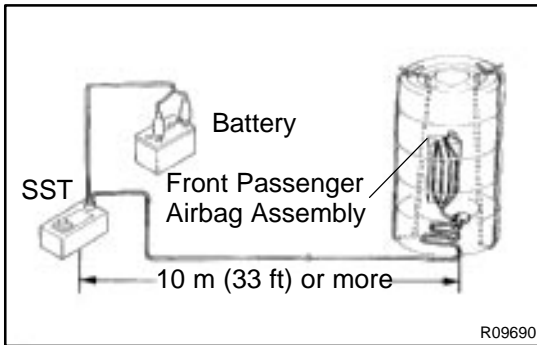
- (3) Tie the tires together with the 2 wire harnesses.

CAUTION:

Make sure that the wire harness is tight. It is very dangerous if loose wire harnesses cause the tires to came free due to the shock from the airbag deploying.

HINT:

Place the SST connector and wire harness inside tires. Provide at least 1 m (3 ft) of slack for the wire harness.



- (e) Install the SST.
Connect the connectors of the 2 SST to the front passenger airbag assembly connector.
SST 09082-00700, 09082-00760

NOTICE:

To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock. Also, remove some slack for the SST wire harness inside the tires.

- (f) Deploy the airbag.
- (1) Connect the SST red clip to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.
 - (2) Check that no one is within 10 m (33 ft) area around the tire which the front passenger airbag assembly is tied to.
 - (3) Press the SST activation switch and deploy the airbag.

HINT:

The airbag deploys simultaneously as the LED of the SST activation switch lights up.

- (g) Dispose of the front passenger airbag assembly.

CAUTION:

- **The front passenger airbag assembly is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
 - **Use gloves and safety glasses when handling a front passenger airbag assembly with the deployed airbag.**
 - **Always wash your hands with water after completing the operation.**
 - **Do not apply water, etc. to a front passenger airbag assembly with the deployed airbag.**
- (1) Remove the front passenger airbag assembly from the tire.
 - (2) Place the front passenger airbag assembly in a vinyl bag, tie the end tightly and dispose of it in the same way as other parts disposal.



3. DEPLOYMENT WHEN DISPOSING OF FRONT PASSENGER AIRBAG ASSEMBLY WITH AIRBAG DEPLOYED IN COLLISION

Dispose of the front passenger airbag assembly.



CAUTION:

- **The front passenger airbag assembly is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a front passenger airbag assembly with the deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to a front passenger airbag assembly with the deployed airbag.**
 - (1) Remove the front passenger airbag assembly from the instrument panel (See page [RS-26](#)).
 - (2) Place the front passenger airbag assembly in a vinyl bag, tie the end tightly and dispose of it in the same way so as othe parts disposal.

REPLACEMENT

REPLACEMENT REQUIREMENTS

In the following cases, replace the front passenger airbag assembly, instrument panel or instrument panel reinforcement.

Case	Part to be replaced
If the airbag has been deployed.	Front passenger airbag assembly
If the front passenger airbag assembly has been found to be faulty in troubleshooting.	Front passenger airbag assembly
If the front passenger airbag assembly has been found to be faulty during checking (See page RS-28).	Front passenger airbag assembly
If the instrument panel has been found to be faulty during checking (See page RS-28).	Instrument panel
If the instrument panel reinforcement has been found to be faulty during checking (See page RS-28).	Instrument panel reinforcement
If the front passenger airbag assembly has been dropped.	Front passenger airbag assembly

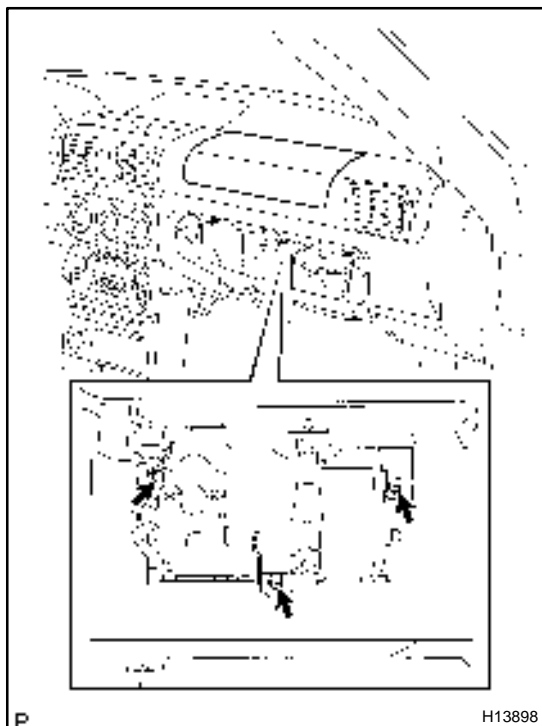
CAUTION:

For replacement of the front passenger airbag assembly, see pages RS-26 and RS-38. Be sure to follow the correct procedure.

INSTALLATION

NOTICE:

Never use airbag parts from another vehicle. When replacing parts, replace them with new ones.



1. INSTALL FRONT PASSENGER AIRBAG ASSEMBLY

(a) Install the front passenger airbag assembly with the 2 nuts.

(b) Install the bolt.

Torque: 20 N·m (205 kgf-cm, 15 ft-lbf)

CAUTION:

- When installing the front passenger airbag assembly, take care that the wiring does not interfere with other parts and is not pinched between other parts.
- Make sure that no foreign objects are trapped between the airbag and within the module.

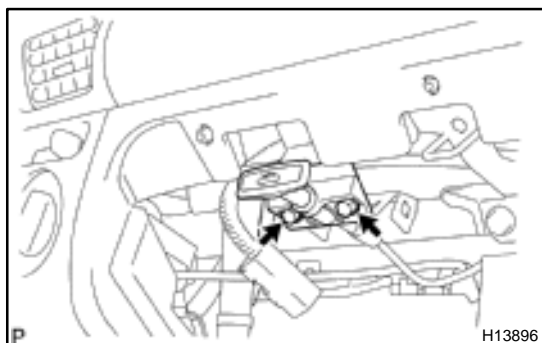
NOTICE:

If the front passenger airbag assembly has been dropped, or there are cracks, dents or other defects in the case or connector, replace the front passenger airbag assembly with a new one.

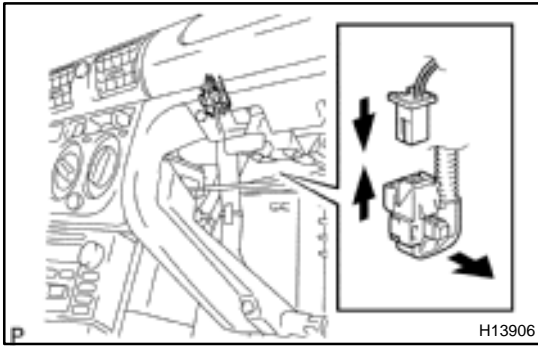
(c) Install the airbag wire harness clamp.



(d) Install the passenger airbag manual on-off switch with the 2 bolts.



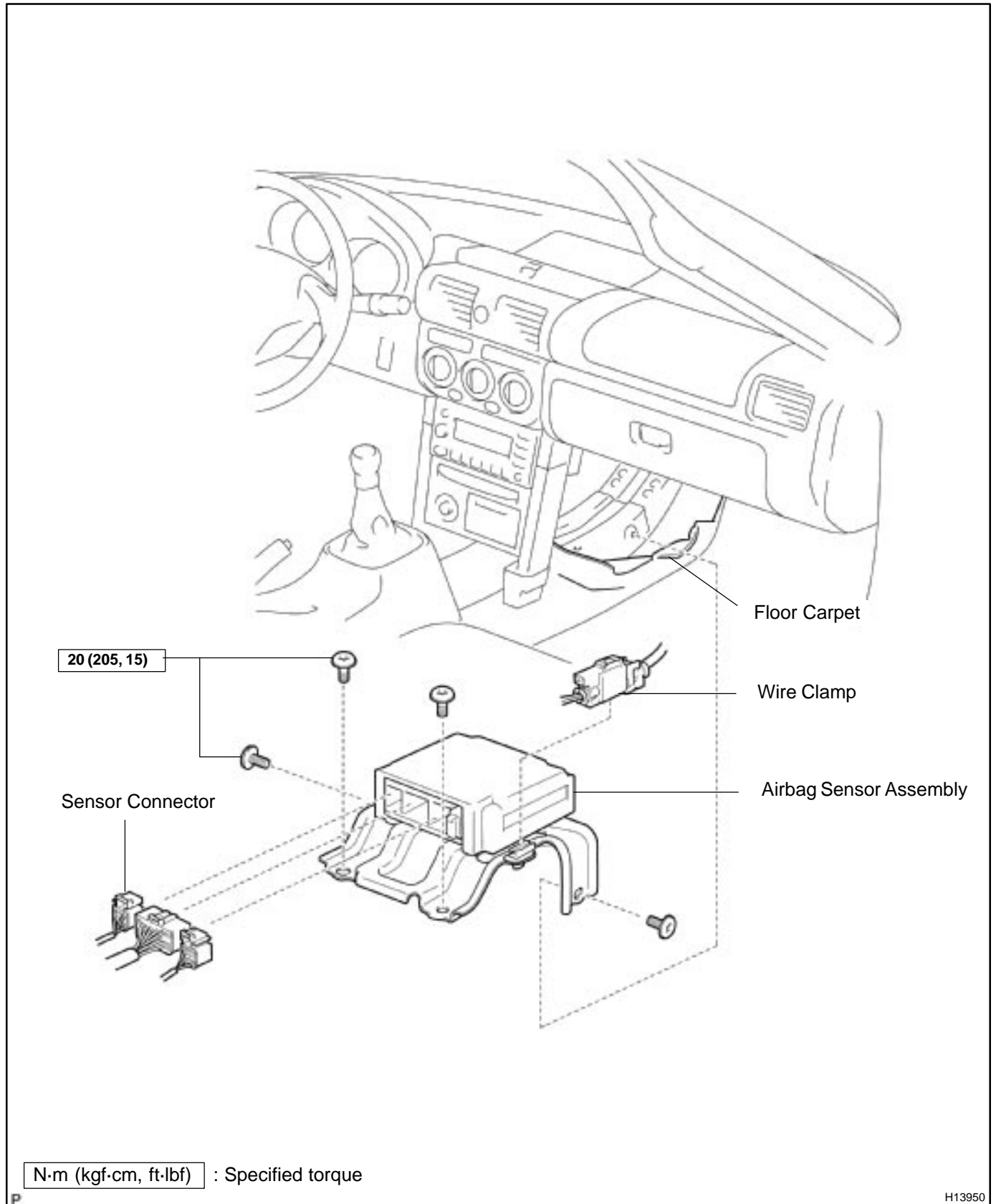
(e) Install the hood release lever with the 2 bolts.

**2. CONNECT AIRBAG CONNECTOR**

- (a) Connect the airbag connector.
- (b) Install the glove compartment door.

AIRBAG SENSOR ASSEMBLY COMPONENTS

RS0K6-03

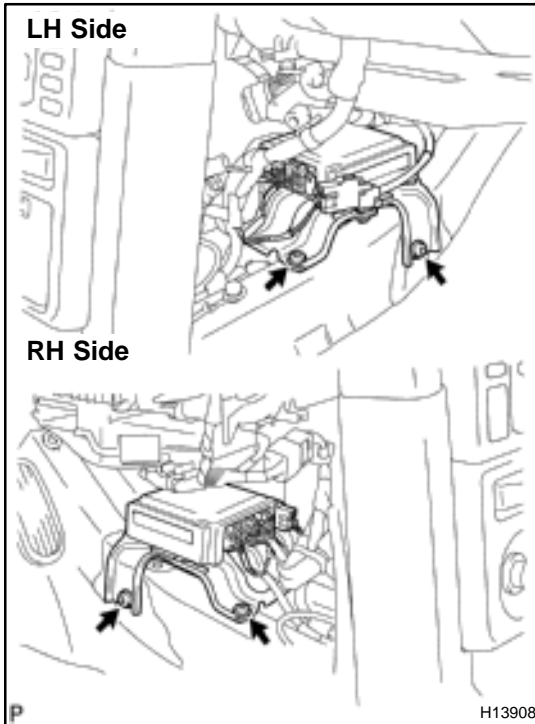


REMOVAL

NOTICE:

Do not open the cover or the case of the ECU and various electrical devices unless absolutely necessary.

(If the IC terminals are touched, the IC may be destroyed by static electricity.)



REMOVE AIRBAG SENSOR ASSEMBLY

- (a) Take out the floor carpet.
- (b) Disconnect the wire clamp.
- (c) Disconnect the airbag sensor connectors.

NOTICE:

Disconnect the connectors with the airbag sensor assembly installed.

- (d) Using a torx wrench, remove the 3 screws and airbag sensor assembly.

Torx wrench: T40 (Part No.09042-00020 or locally manufactured tool)

INSPECTION

1. VEHICLE NOT INVOLVED IN COLLISION

Check a diagnostic system (See page [DI-237](#)).

2. VEHICLE INVOLVED IN COLLISION WITH AIRBAG NOT DEPLOYED

Check a diagnostic system (See page [DI-237](#)).

3. VEHICLE INVOLVED IN COLLISION WITH AIRBAG DEPLOYED

Replace the airbag sensor assembly (See page [DI-237](#)).

REPLACEMENT

REPLACEMENT REQUIREMENTS

In the following cases, replace the airbag sensor assembly.

- If the SRS has been deployed in a collision.
- If the airbag sensor assembly has been found to be faulty in troubleshooting.
- If the airbag sensor assembly has been dropped.

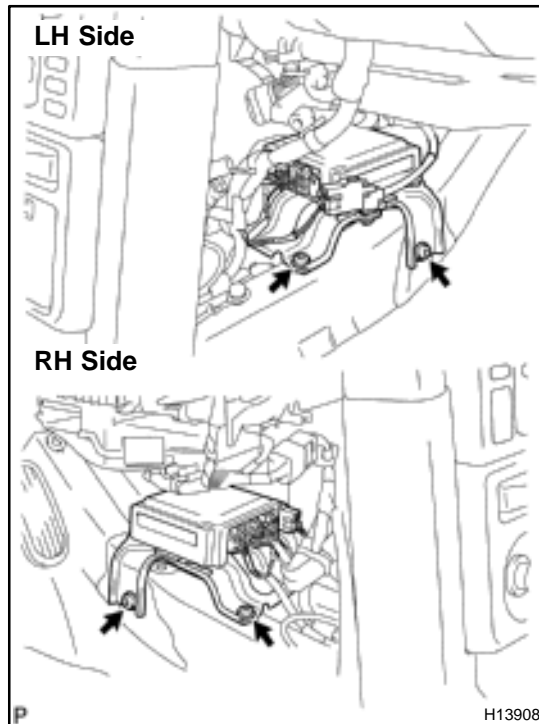
CAUTION:

For removal and installation of the airbag sensor assembly, see pages [RS-41](#) and [RS-44](#). Be sure to follow the correct procedure.

INSTALLATION

NOTICE:

- Never use SRS parts from another vehicle. When replacing parts, replace them with new ones.
- Never reuse the airbag sensor assembly involved in a collision with the airbag has deployed.
- Never repair a sensor in order to reuse it.



INSTALL AIRBAG SENSOR ASSEMBLY

- (a) Using a torx wrench, install the airbag sensor assembly with the 3 screws.

Torx wrench: T40 (Part No.09042-00020 or locally manufactured tool)

Torque: 20 N·m (205 kgf·cm, 15 ft·lbf)

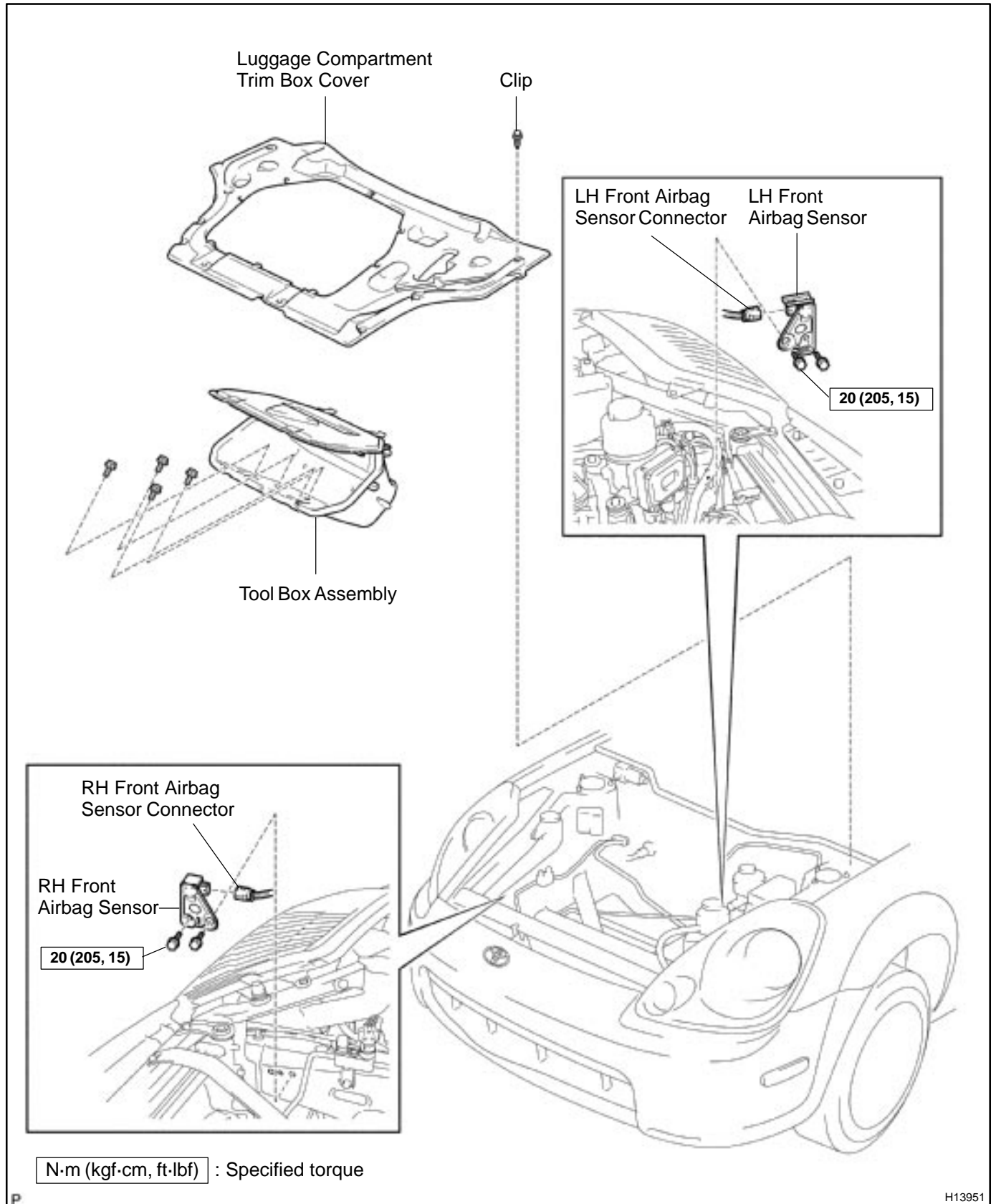
- (b) Connect the airbag sensor connectors.
 (c) Connect the wire clamp.
 (d) Install the floor carpet.

NOTICE:

- Connection of the connector is done after the sensor assembly has been installed.
- Make sure the sensor assembly is installed with the specified torque.
- If the sensor assembly has been dropped, or there are cracks, dents or other defects in the case, bracket or connector, replace the sensor assembly with a new one.
- When installing the sensor assembly, take care that the SRS wiring does not interfere with other parts and is not pinched between other parts.
- After installing, shake the sensor assembly to check for looseness.

FRONT AIRBAG SENSOR COMPONENTS

RS0KD-02

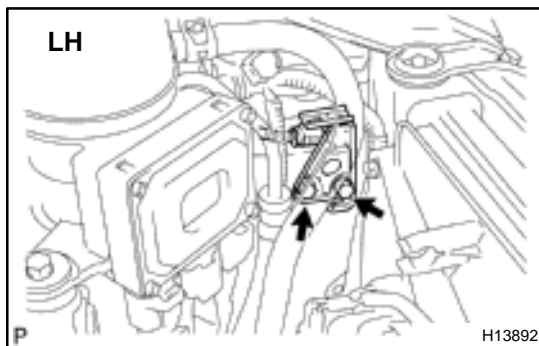


REMOVAL

NOTICE:

- If the wiring connector of the SRS is disconnected with the ignition switch at ON position, DTCs will be recorded.
- Never use SRS parts from another vehicle. When replacing parts, replace them with new ones.
- Never reuse the sensor involved in a collision with the SRS deployed.
- Never repair a sensor in order to reuse it.

1. REMOVE LUGGAGE COMPARTMENT TRIM BOX COVER
2. REMOVE TOOL BOX ASSEMBLY



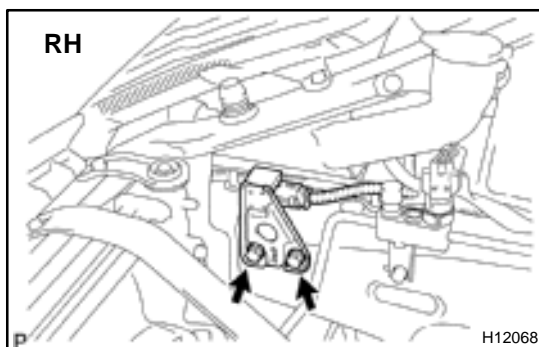
3. LH
REMOVE FRONT AIRBAG SENSOR

(a) Disconnect the connector.

NOTICE:

Disconnect the connector with sensor assembly installed.

(b) Remove the 2 bolts and front airbag sensor LH.



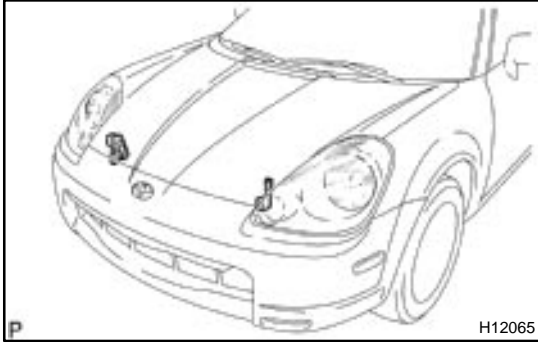
4. RH
REMOVE FRONT AIRBAG SENSOR

(a) Disconnect the connector.

NOTICE:

Disconnect the connector with sensor assembly installed.

(b) Remove the 2 bolts and front airbag sensor RH.



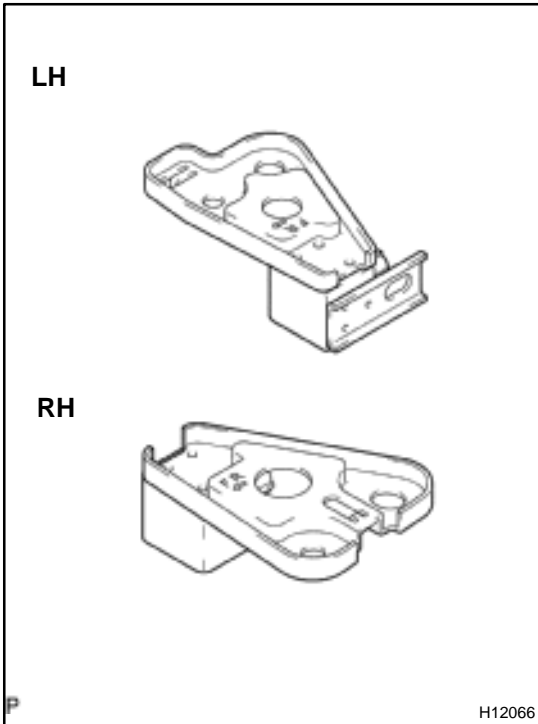
INSPECTION

1. VEHICLES NOT INVOLVED IN COLLISION

Check a diagnostic system (See page [DI-237](#)).

2. VEHICLES INVOLVED IN COLLISION

- (a) Check a diagnostic system (See page [DI-237](#)).
- (b) If the front fender of the car or its periphery is damaged, do a visual check for damage to the front airbag sensor, which includes the following items even if the airbag was not deployed:
 - Check the bracket deformation.
 - Check the paint peeling off the bracket.
 - Check the cracks, dents or chips in the case.
 - Check the cracks, dents, chipping and scratches in the connector.
 - Check the peeling off of the label or damage to the serial number.



REASSEMBLY

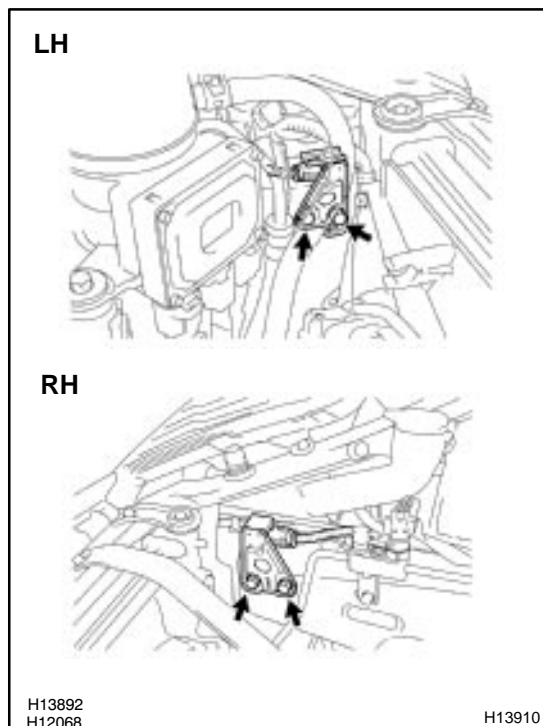
REPLACEMENT REQUIREMENTS

In the following cases, replace the front airbag sensor.

- If the SRS has been deployed in a collision. (Replace both the left and right airbag sensors.)
- If the front airbag sensor has been found to be faulty in troubleshooting.
- If the front airbag sensor has been found to be faulty during checking (See page [RS-47](#)).
- If the front airbag sensor has been dropped.

CAUTION:

For removal and installation of the front airbag sensor, see pages [RS-46](#) and [RS-49](#). Be sure to follow the correct procedure.



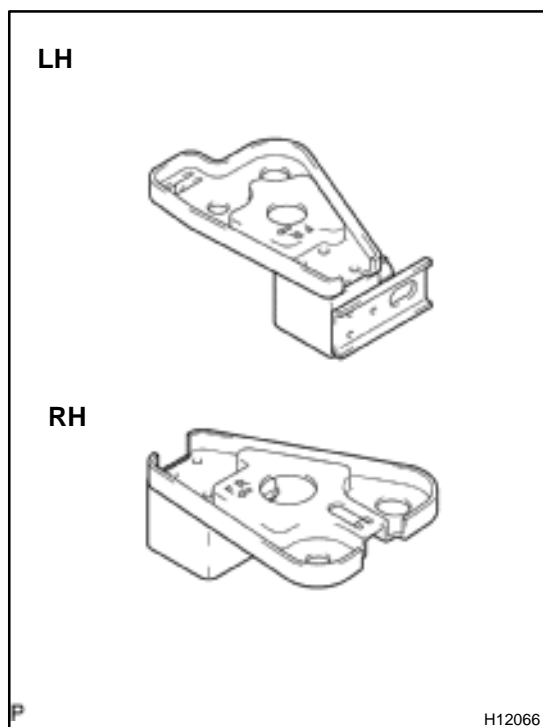
INSTALLATION

1. INSTALL FRONT AIRBAG SENSOR LH AND RH

- (a) Install the front airbag sensors with the 4 bolts.
Torque: 20 N·m (205 kgf·cm, 15 ft·lbf)
- (b) Connect the front airbag sensor connector.

NOTICE:

- The connector is connected after the sensor assembly has been installed.
- Make sure the sensor is installed with the specified torque.
- If the sensor has been dropped, or there are cracks, dents or other defects in the case, brackets or connector, replace the removed sensor with a new one.
- The front sensor is equipped with an electrical connection check mechanism. Be sure to lock this mechanism securely when connecting the connector. If the connector is not securely locked, a malfunction code will be detected by the diagnostic system.



HINT:

Install the front airbag sensor with the arrow on the sensor facing toward the front of the vehicle.

2. INSTALL TOOL BOX ASSEMBLY
3. INSTALL LUGGAGE COMPARTMENT TRIM BOX COVER

PASSENGER AIRBAG MANUAL ON-OFF SWITCH INSPECTION

RS006-01

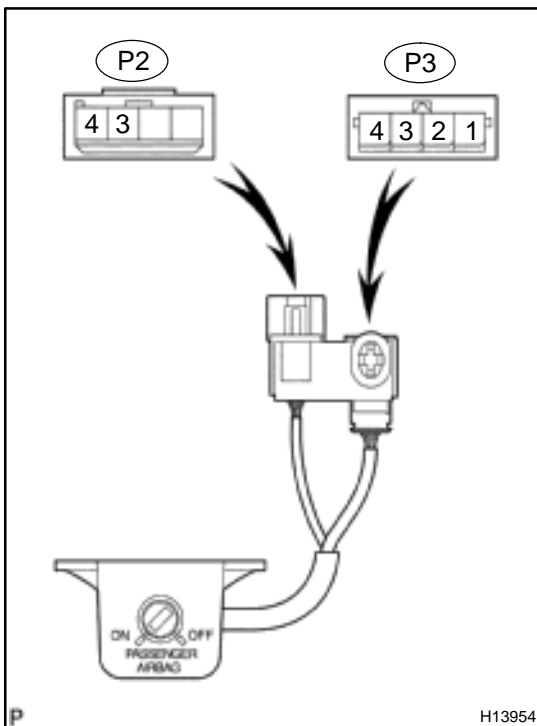
HINT:

Release the airbag activation prevention mechanism of the passenger airbag manual on-off switch connector on the airbag sensor assembly side (See page [DI-237](#)).



1. REMOVE PASSENGER AIRBAG MANUAL ON-OFF SWITCH

- Remove the glove compartment door.
- Remove the 2 bolts and passenger airbag manual on-off switch, and disconnect the switch connectors.



2. INSPECT PASSENGER AIRBAG MANUAL ON-OFF SWITCH CONTINUITY

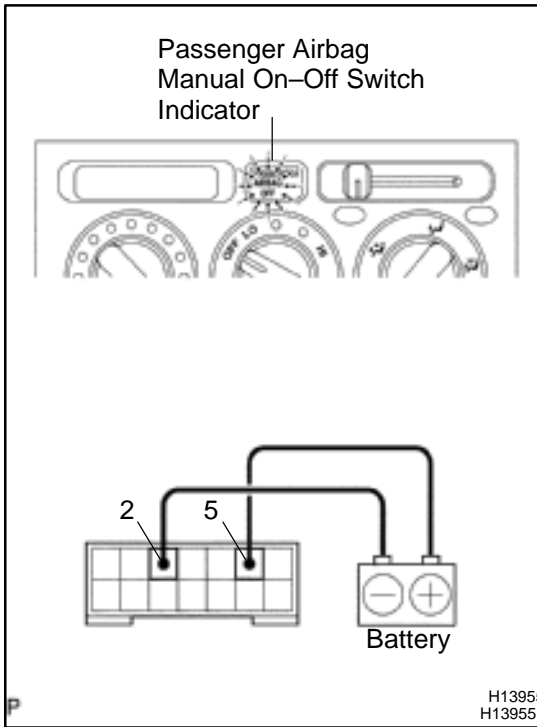
Using an ohmmeter, measure the continuity and resistance between each terminal.

Switch position	Tester connection	Specified condition
ON OFF	1 (P3) – 2 (P3)	Continuity
ON	3 (P3) – 4 (P3)	Continuity
	2 (P3) – 4 (P3) 3 (P2) – 4 (P2)	No continuity
OFF	3 (P2) – 4 (P2)	Continuity
	3 (P3) – 4 (P3)	No continuity
	2 (P3) – 4 (P3)	Resistance 2.4 Ω

If continuity is not as specified, replace the switch.

3. REINSTALL PASSENGER AIRBAG MANUAL ON-OFF SWITCH

- Install the passenger airbag manual on-off switch with the 2 bolts and connect the switch connector.
- Install the glove compartment door.



4. INSPECT PASSENGER AIRBAG MANUAL ON-OFF INDICATOR OPERATION

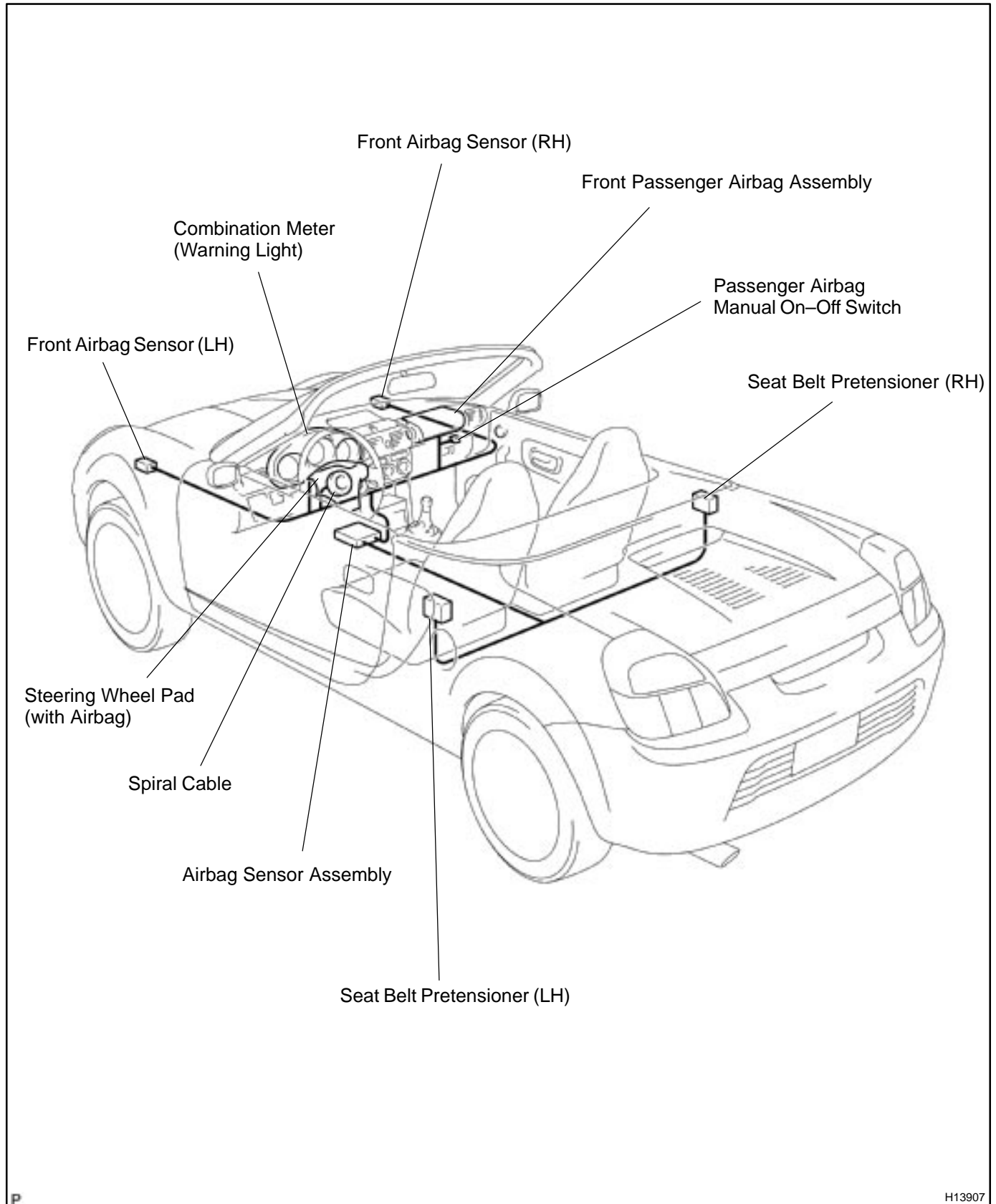
- (a) Remove the heater control assembly (See page [AC-83](#)).
- (b) Check that continuity exists between terminals 2 and 5.
- (c) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 5.
- (d) Check that the indicator light lights up.

If the operation is not as specified, replace the heater control assembly.

- (e) Reinstall the heater control assembly (See page [AC-86](#)).

WIRE HARNESS AND CONNECTOR LOCATION

RS0KS-02



INSPECTION

HINT:

The SRS wire harness is integrated with the instrument panel wire harness assembly. All the connectors in the system are a standard yellow color.

1. VEHICLES NOT INVOLVED IN COLLISION

Check a diagnostic system (See page [DI-237](#)).

2. VEHICLES INVOLVED IN COLLISION

- (a) Check a diagnostic system (See page [DI-237](#)).
- (b) Check the breakage in all wires of the SRS wire harness, and exposed conductors.
- (c) Check to see if the SRS wire harness connectors are cracked or chipped.

REPLACEMENT

In the following cases, replace the wire harness or connector.

- If any part of the SRS wire harness or any connector has been found to be faulty in troubleshooting.
- If any part of the SRS wire harness or any connector has been found to be faulty during checking items (See page [RS-53](#)).

CAUTION:

If the wire harness used in the SRS is damaged, replace the whole wire harness assembly.

BODY ELECTRICAL SYSTEM

BE00M-04

PRECAUTION

HINT:

Take care to observe the following precautions when performing inspections or removal and replacement of body electrical related parts.

1. HEADLIGHT SYSTEM

Halogen bulbs have pressurized gas inside and require special handling. They can burst if scratched or dropped. Hold a bulb only by its plastic or metal case.

Don't touch the glass part of a bulb with bare hands.

2. SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

The MR2 is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag, failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in the RS section.

3. AUDIO SYSTEM

If the negative (–) terminal cable is disconnected from the battery, the preset AM, FM1 and FM2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.

4. MOBILE COMMUNICATION SYSTEM

If the vehicle is equipped with a mobile communication system, refer to precautions in the IN section.

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BE00N-04

IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH:

Symptom	Suspected Area	See page
Ignition switch is not set to each position.	5. Ignition switch	BE-16
"Key unlock warning system" does not operate.	1. GAUGE fuse 2. Key unlock warning switch 3. Door courtesy switch 4. Body control system 5. Combinationmeter 6. Wire harness	BE-9 BE-16 BE-26 DI-354 – –

HEADLIGHT AND TAILLIGHT SYSTEM

Symptom	Suspected Area	See page
Headlight does not light. (Taillight is normal.)	1. HEAD fuse (LH UPR, RH UPR) 2. No. 2 daytime running relay 3. No. 4 daytime running relay 4. Headlight control relay 5. Headlight dimmer switch 6. Light control switch 7. Daytime running light relay (Main) 8. Headlight bulb 9. Wire harness	BE-9 BE-18 BE-18 BE-18 BE-18 BE-18 BE-18 – –
Headlight does not light. (Taillight does not light up.)	1. Light control switch 2. Daytime running light relay (Main) 3. Headlight bulb 4. Wire harness	BE-18 BE-18 – –
Only one side light does not light.	1. HEAD fuse (LH UPR, RH UPR) 2. Headlight bulb 3. Wire harness	BE-9 – –
"Lo-Beam" does not light. (ALL)	1. Headlight dimmer switch 2. No. 2 daytime running light relay 3. No. 4 daytime running light relay 4. Wire harness	BE-18 BE-18 BE-18 –
"Lo-Beam" does not light. (ONE SIDE)	1. HEAD LH LWR fuse 2. HEAD RH LWR fuse 3. Headlight bulb 4. Wire harness	BE-9 BE-9 – –
"Hi-Beam" does not light. (ALL)	1. Headlight dimmer switch 2. No. 2 daytime running light relay 3. No. 4 daytime running light relay 4. Wire harness	BE-18 BE-18 BE-18 –
"Hi-Beam" does not light. (ONE SIDE)	1. HEAD LH UPR fuse 2. HEAD RH UPR fuse 3. Headlight bulb 4. Wire harness	BE-9 BE-9 – –
"Flash" does not light.	1. Headlight dimmer switch 2. Daytime running light relay (Main) 3. Wire harness	BE-18 BE-18 –
"Light-on warning system" does not operate	1. GAUGE fuse 2. Door courtesy switch (Driver's) 3. Body control system 4. Combinationmeter 5. Wire harness	BE-9 BE-26 DI-354 – –

BODY ELECTRICAL – TROUBLESHOOTING

Headlight does not light with light control SW in HEAD.	<ol style="list-style-type: none"> 1. Light control switch 2. Daytime running light relay (Main) 3. No. 4 daytime running relay 4. Wire harness 	<p>BE-18 BE-18 BE-18 -</p>
Headlight does not go out with light control SW in OFF.	<ol style="list-style-type: none"> 1. No. 4 daytime running relay 2. Daytime running light relay (Main) 3. Light control switch 4. Wire harness 	<p>BE-18 BE-18 BE-18 -</p>
Taillight does not light with light control SW in TAIL.	<ol style="list-style-type: none"> 1. Taillight control relay 2. Light control switch 3. Wire harness 	<p>BE-18 BE-18 -</p>
Taillight does not go out with light control SW in OFF.	<ol style="list-style-type: none"> 1. Taillight control relay 2. Light control switch 3. Wire harness 	<p>BE-18 BE-18 -</p>
Headlight does not light with engine running and light control SW in OFF.	<ol style="list-style-type: none"> 1. GAUGE fuse 2. Generator L terminal 3. Parking brake switch 4. Brake fluid level warning switch 5. Daytime running light relay (Main) 6. Wire harness 	<p>BE-9 CH-10 BE-40 BE-40 BE-18 -</p>

TURN SIGNAL AND HAZARD WARNING SYSTEM

Symptom	Suspected Area	See page
"Hazard" and "Turn" do not light up.	<ol style="list-style-type: none"> 1. Hazard warning switch 2. Turn signal switch 3. Wire harness 	<p>BE-24 BE-24 -</p>
The flashing frequency is abnormal.	<ol style="list-style-type: none"> 1. Bulb 2. Turn signal flasher relay 3. Wire harness 	<p>- BE-24 -</p>
Hazard warning light does not light up. (Turn is normal.)	<ol style="list-style-type: none"> 1. HAZ fuse 2. Hazard warning switch 3. Wire harness 	<p>BE-9 BE-24 -</p>
Hazard warning light does not light up in one direction.	<ol style="list-style-type: none"> 1. Hazard warning switch 2. Wire harness 	<p>BE-24 -</p>
Turn signal does not light up.	<ol style="list-style-type: none"> 1. Ignition switch 2. TURN fuse 3. Turn signal switch 4. Wire harness 	<p>BE-16 BE-9 BE-24 -</p>
Turn signal does not light up in one direction.	<ol style="list-style-type: none"> 1. Turn signal switch 2. Wire harness 	<p>BE-24 -</p>
Only one bulb does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Wire harness 	<p>- -</p>

INTERIOR LIGHT SYSTEM

Symptom	Suspected Area	See page
Only one light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Wire harness 	<p>- -</p>
Interior light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Interior light assembly 3. Wire harness 	<p>- BE-26 -</p>
Illumination does not fade out when all the doors are closed.	<ol style="list-style-type: none"> 1. Courtesy switch 2. Combinationmeter 3. Body control system 4. DOME fuse 5. Wire harness 	<p>BE-26 BE-40 DI-354 BE-9 -</p>

BACK-UP LIGHT SYSTEM

Symptom	Suspected Area	See page
Back-up light does not light up.	1. GAUGE fuse 2. Back-up light switch 3. Bulb 4. Wire harness	BE-9 BE-28 – –
Back-up light remains always ON.	1. Back-up light switch 2. Wire harness	BE-28 –
Only one light does not light up.	1. Bulb 2. Wire harness	– –

STOP LIGHT SYSTEM

Symptom	Suspected Area	See page
Stop light does not light up.	1. STOP fuse 2. Stop light switch 3. Bulb 4. Wire harness	BE-9 BE-30 – –
Stop light remains always ON.	1. Stop light switch 2. Wire harness	BE-30 –
Only one light does not light up.	1. Bulb 2. Wire harness	– –

WIPER AND WASHER SYSTEM

Symptom	Suspected Area	See page
Wipers and washers do not operate.	1. WIPER fuse 2. Ignition switch 3. Wiper and washer switch 4. Wire harness	BE-9 BE-16 BE-32 –
Front wiper does not operate.	1. WIPER fuse 2. Front wiper and washer switch 3. Front wiper motor 4. Wire harness	BE-9 BE-32 BE-32 –
Front washer does not operate.	1. WASHER fuse 2. Front wiper and washer switch 3. Washer motor 4. Wire harness	BE-9 BE-32 BE-32 –

Meter, Gauges and Illumination:**COMBINATION METER**

Symptom	Suspected Area	See page
Tachometer, fuel gauge and engine coolant temperature gauge do not operate.	1. RADIO2 fuse 2. GAUGE fuse 3. Meter circuit 4. Wire harness	BE-9 BE-9 BE-38 –
Speedometer does not operate.	1. Vehicle speed sensor 2. ABS ECU 3. Meter circuit 4. Wire harness	BE-40 DI-202 BE-38 –
Tachometer does not operate.	1. ECM 2. Meter circuit 3. Wire harness	DI-1 BE-38 –
Fuel gauge does not operate or abnormal operation.	1. Fuel sender gauge 2. Meter circuit 3. Wire harness	BE-40 BE-38 –

BODY ELECTRICAL – TROUBLESHOOTING

Engine coolant temperature gauge does not operate or abnormal operation.	<ol style="list-style-type: none"> 1. Engine coolant temperature receiver gauge 2. ECM 3. Meter circuit 4. Wire harness 	<p>BE-40 DI-1 BE-38 -</p>
All illumination lights do not light up.	<ol style="list-style-type: none"> 1. Light control switch 2. TAIL1 fuse 3. Light control rheostat 4. Meter circuit 5. Wire harness 	<p>BE-18 BE-9 BE-40 BE-38 -</p>
Only one illumination light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Meter circuit 	<p>- BE-38</p>

Warning Lights:**COMBINATION METER**

Symptom	Suspected Area	See page
Warning lights do not light up. (Except discharge and door open.)	<ol style="list-style-type: none"> 1. LED 2. IGN fuse 3. Ignition switch 4. Meter circuit 5. Generator 6. Wire harness 	<p>- BE-9 BE-16 BE-38 CH-10 -</p>
Brake warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Brake fluid level warning switch 3. Parking brake switch 4. Daytime running light relay (Main) 5. Meter circuit 6. Wire harness 	<p>- BE-40 BE-40 BE-18 BE-38 -</p>
Seat belt warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Seat belt buckle switch 3. Body control system 4. Meter circuit 5. Wire harness 	<p>- BE-40 DI-354 BE-38 -</p>
Low oil pressure warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ECM 3. Oil pressure warning switch 4. Meter circuit 5. Wire harness 	<p>- DI-1 BE-40 BE-38 -</p>
Door open warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. DOME fuse 3. Door courtesy switch 4. Body control system 5. Meter circuit 6. Wire harness 	<p>- BE-9 BE-26 DI-354 BE-38 -</p>

Indicator Lights:**COMBINATION METER**

Symptom	Suspected Area	See page
SRS indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Airbag sensor assembly 3. Meter circuit 4. Wire harness 	<p>- DI-235 BE-38 -</p>
PS indicator light does not light up	<ol style="list-style-type: none"> 1. LED 2. Vane pump assembly with motor 3. Meter circuit 4. Wire harness 	<p>- SR-26 BE-38 -</p>

ABS indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ABS ECU 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">DI-202</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>
Malfunction indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ECM 3. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">DI-1</p> <p style="text-align: center;">–</p>
Turn indicator light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Turn signal and hazard warning system 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">BE-2</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>
High beam indicator light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Headlight and taillight system 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">BE-2</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>

DEFOGGER SYSTEM

Symptom	Suspected Area	See page
All defogger systems do not operate.	<ol style="list-style-type: none"> 1. HTR fuse 2. DEF fuse 3. Defogger relay 4. Defogger switch 5. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-48</p> <p style="text-align: center;">BE-48</p> <p style="text-align: center;">–</p>
Rear window defogger does not operate.	<ol style="list-style-type: none"> 1. Defogger wire 2. Wire harness 	<p style="text-align: center;">BE-48</p> <p style="text-align: center;">–</p>

ELECTRIC TENSION REDUCER SYSTEM

Symptom	Suspected Area	See page
Tension reducer does not operate.	<ol style="list-style-type: none"> 1. GAUGE fuse 2. Buckle switch 3. Tension reducer solenoid 4. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-46</p> <p style="text-align: center;">BE-46</p> <p style="text-align: center;">–</p>

POWER WINDOW CONTROL SYSTEM

Symptom	Suspect Area	See page
Power window does not operate.	<ol style="list-style-type: none"> 1. D P/W fuse 2. P P/W fuse 3. Body control system 4. Ignition switch 5. Power window control switch 6. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-9</p> <p style="text-align: center;">DI-354</p> <p style="text-align: center;">BE-16</p> <p style="text-align: center;">BE-52</p> <p style="text-align: center;">–</p>
"One touch power window system" does not operate.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>
Only one window glass does not move.	<ol style="list-style-type: none"> 1. Power window control switch 2. Power window motor 3. Wire harness 	<p style="text-align: center;">BE-52</p> <p style="text-align: center;">BE-52</p> <p style="text-align: center;">–</p>
"Window lock system" does not operate.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>
Illumination does not light up.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>

POWER DOOR LOCK CONTROL SYSTEM

Symptom	Suspected Area	See page
"Door lock control system" does not operate. (ALL)	<ol style="list-style-type: none"> 1. Body control system 2. DOOR fuse 3. GAUGE fuse 4. Wire harness 5. Other parts 	DI-354 BE-9 BE-9 – –
Malfunction in door lock / unlock. (Using door manual switch.)	<ol style="list-style-type: none"> 1. Door lock control switch 2. Body control system 3. Wire harness 4. Other parts 	BE-56 DI-354 – –
Malfunction in door lock / unlock. (Using door manual switch and key.)	<ol style="list-style-type: none"> 1. Wire harness 2. Other parts 	– –
Malfunction in door lock / unlock. (Using key.)	<ol style="list-style-type: none"> 1. Door unlock detection switch 2. Body control system 3. Wire harness 4. Other parts 	BE-56 DI-354 – –
Fault in 2 – operation unlock function of driver's side door key lock and unlock switch.	<ol style="list-style-type: none"> 1. Door unlock detection switch 2. Body control system 3. Wire harness 4. Other parts 	BE-56 DI-354 – –
Fault in key confine prevention operation.	<ol style="list-style-type: none"> 1. Door unlock detection switch 2. Door courtesy switch 3. Door lock control switch 4. Body control system 5. Wire harness 6. Other parts 	BE-56 BE-26 BE-56 DI-354 – –
Only one door lock does not operate.	<ol style="list-style-type: none"> 1. Door lock motor 2. Wire harness 	BE-56 –

POWER MIRROR CONTROL SYSTEM

Symptom	Suspected Area	See page
Mirror does not operate.	<ol style="list-style-type: none"> 1. RADIO2 fuse 2. Mirror switch 3. Mirror motor 	BE-9 BE-61 BE-61
Mirror operates abnormally.	<ol style="list-style-type: none"> 1. Mirror switch 2. Mirror motor 3. Wire harness 	BE-61 BE-61 –

AUDIO SYSTEM

Symptom	Suspected Area	See page
Audio system abnormal operation.	TROUBLESHOOTING	BE-71

CLOCK SYSTEM (in Heater Control Panel)

Symptom	Suspected Area	See page
Clock will not operate.	TROUBLESHOOTING NO. 1	BE-94
Clock loses or gains time.	TROUBLESHOOTING NO. 2	BE-94

ENGINE IMMOBILIZER SYSTEM

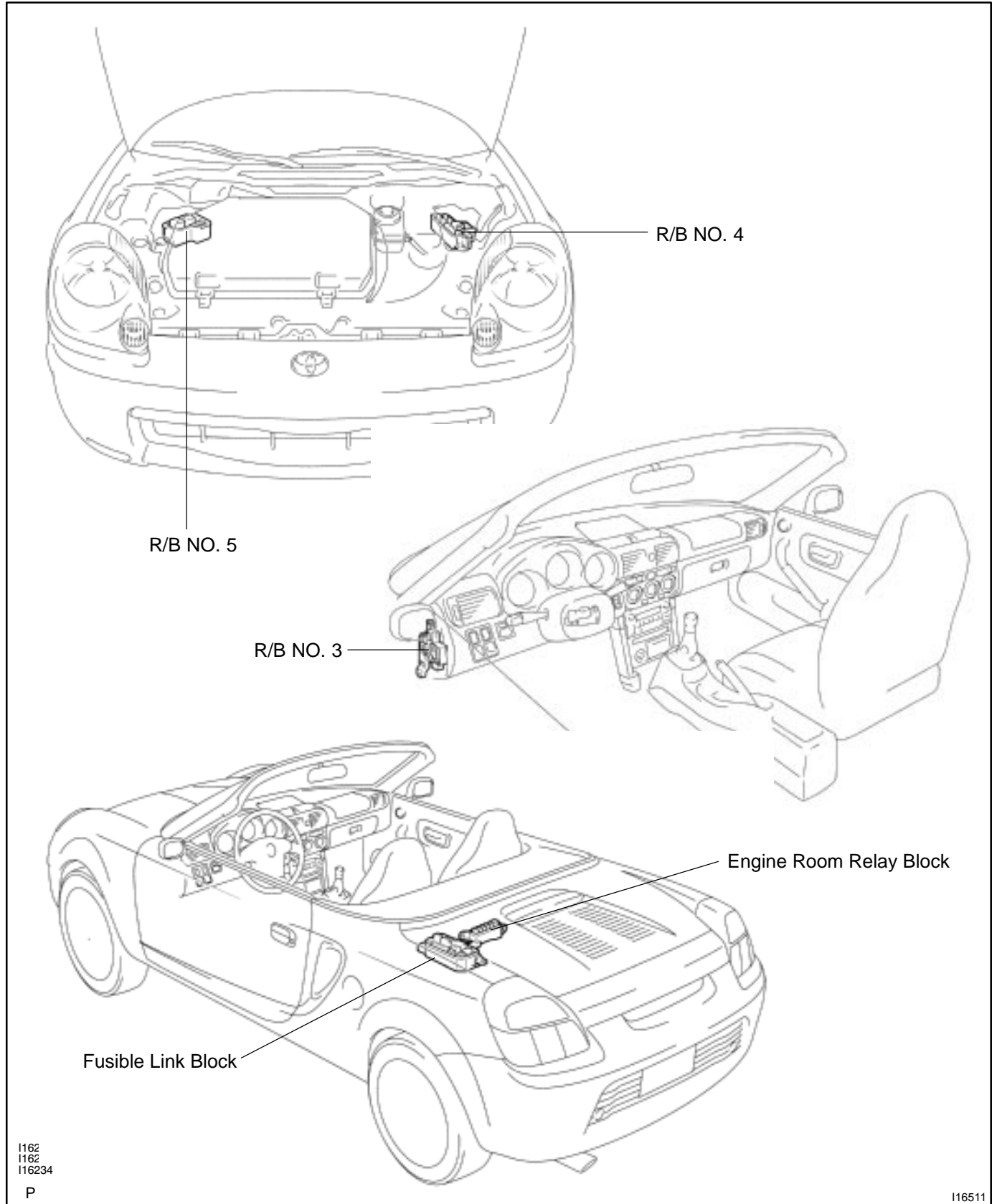
Symptom	Suspected Area	See page
Engine immobilizer system does not operate.	See DIAGNOSIS SYSTEM	DI-335

HORN SYSTEM

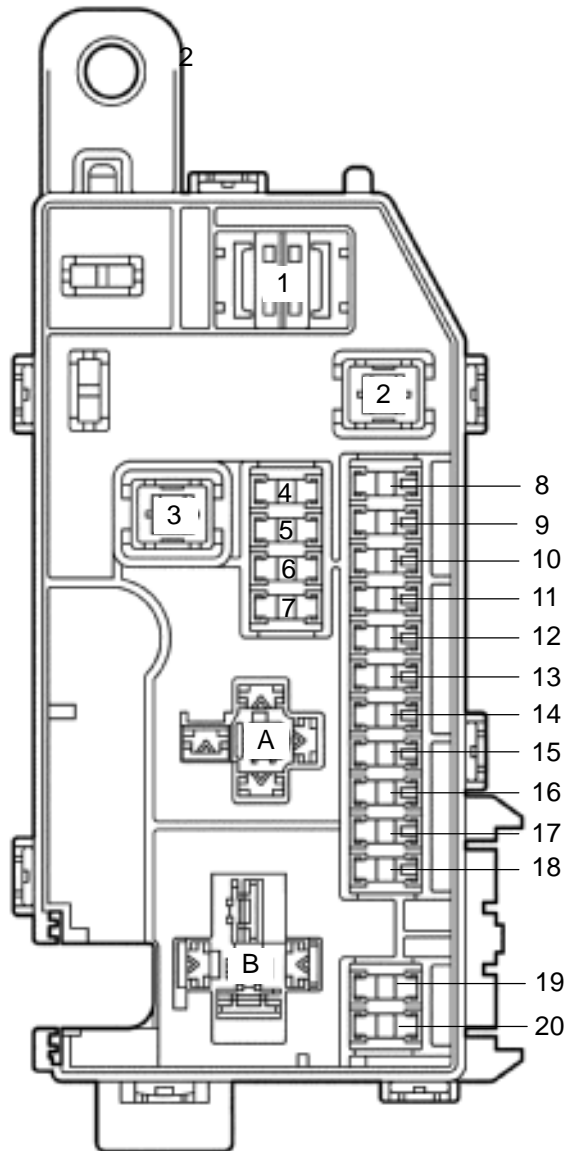
Symptom	Suspected Area	See page
Horn system does not operate.	<ol style="list-style-type: none"> 1. HORN fuse 2. Horn relay 3. Horn switch 4. Horn 5. Wire harness 	BE-9 BE-106 BE-106 BE-106 –
Horns blow all the time.	<ol style="list-style-type: none"> 1. Horn relay 2. Horn switch 3. Wire harness 	BE-106 BE-106 –
One horn operates but the other horn does not operate.	<ol style="list-style-type: none"> 1. Horn 2. Wire harness 	BE-106 –
Horns operate abnormally.	<ol style="list-style-type: none"> 1. Horn relay 2. Horn 3. Wire harness 	BE-106 BE-106 –

POWER SOURCE LOCATION

BE1K3-01



Fusible Link Block



Fuses

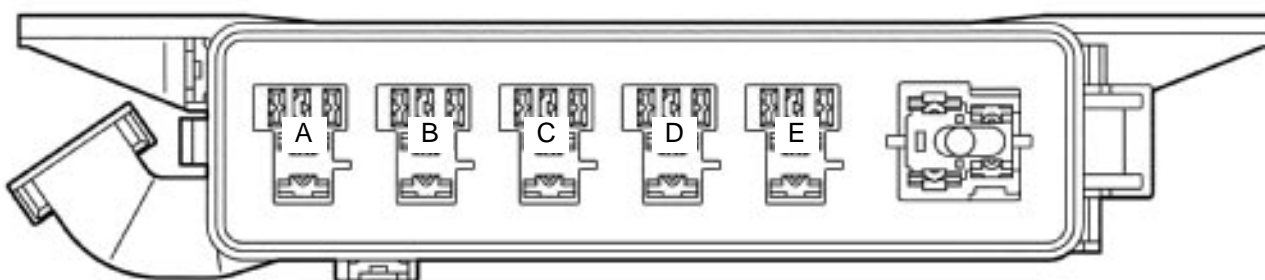
1. FL ALT	100 A
2. MAIN	40 A
3. HTR	40 A
4. EFI2	7.5 A
5. ST	7.5 A
6. SMT-IG	10 A
7. -	
8. -	
9. ALT-S	7.5 A
10. ECU-B1	25 A
11. SMT-B	10 A
12. HORN	10 A
13. HAZ	15 A
14. AM2	15 A
15. IG2	15 A
16. EFI1	15 A
17. ETCS	15 A
18. HPU	30 A
19. DRL NO.1	7.5 A
20. DRL NO.2	20 A

Relays

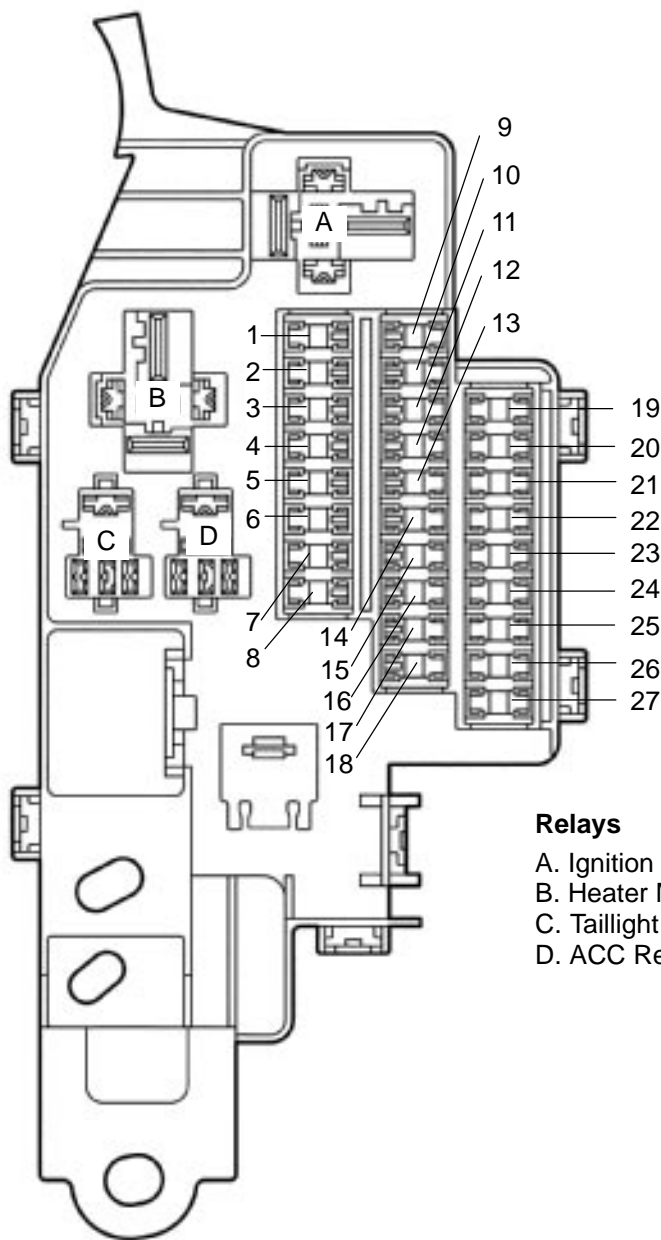
- A. Starter Relay (Marking: ST)
- B. Headlight Control Relay (Marking: H-LP)

Engine Room Relay Block**Relays**

- A. Circuit Opening Relay (Marking: C/OPN)
- B. Ignition Relay (Marking: IG2)
- C. Horn Relay (Marking: HORN)
- D. EFI Main Relay (Marking: EFI)
- E. Magnetic Clutch Relay (Marking: A/C COMP)



R/B NO. 3



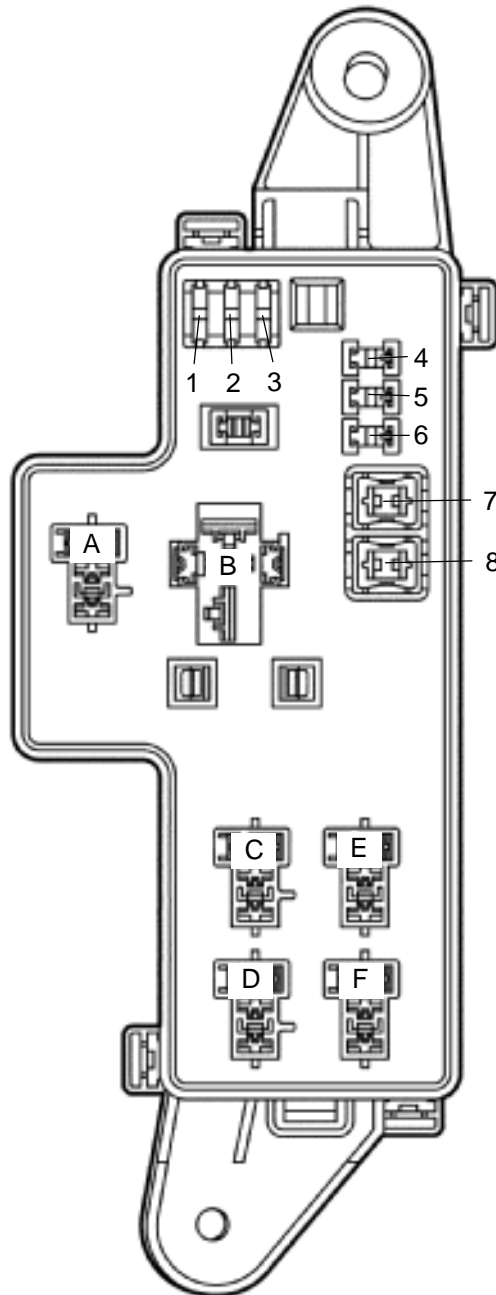
Fuses

1. WASHER	10 A
2. HTR	10 A
3. WIPER	20 A
4. ECU-IG	7.5 A
5. FAN-IG	7.5 A
6. TURN	7.5 A
7. GAUGE	7.5 A
8. SRS	7.5 A
9. DEF	25 A
10. OBD	7.5 A
11. AM1	7.5 A
12. ACC	25 A
13. DOOR	15 A
14. -	
15. STOP	15 A
16. TAIL1	20 A
17. D P/W	20 A
18. P P/W	20 A
19. RADIO1	15 A
20. DOME	10 A
21. ECU-B	10 A
22. TAIL2	10 A
23. PANEL	7.5 A
24. RADIO2	7.5 A
25. CIG	15 A
26. I/UP	7.5 A
27. -	

Relays

- A. Ignition Relay
- B. Heater Main Relay
- C. Taillight Control Relay
- D. ACC Relay

R/B NO. 4



Fuses

- | | |
|------------|------|
| 1. SPARE | 30 A |
| 2. SPARE | 15 A |
| 3. SPARE | 20 A |
| 4. CDS FAN | 30 A |
| 5. ABS1 | 20 A |
| 6. RDI FAN | 30 A |
| 7. EHPS | 50 A |
| 8. ABS2 | 40 A |

Relays

- A. NO. 1 Cooling Fan Relay (Marking: FAN NO.1)
- B. EHPS Relay (Marking: EHPS)
- C. NO. 3 Cooling Fan Relay (Marking: FAN NO.3)
- D. NO. 2 Cooling Fan Relay (Marking: FAN NO.2)
- E. ABS Motor Relay (Marking: ABS MTR)
- F. ABS Solenoid Relay (Marking: ABS SOL)

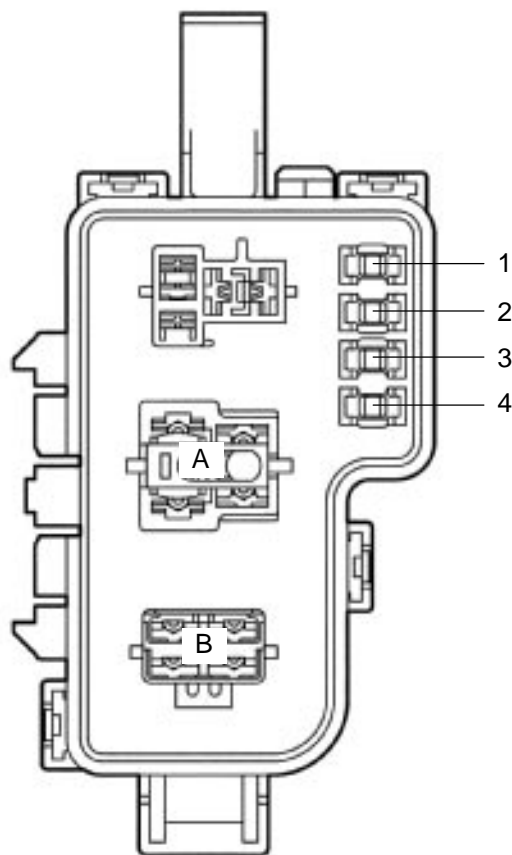
R/B NO. 5

Fuses

1. HEAD RH LWR	10 A
2. HEAD LH LWR	10 A
3. HEAD RH UPR	10 A
4. HEAD LH UPR	10 A

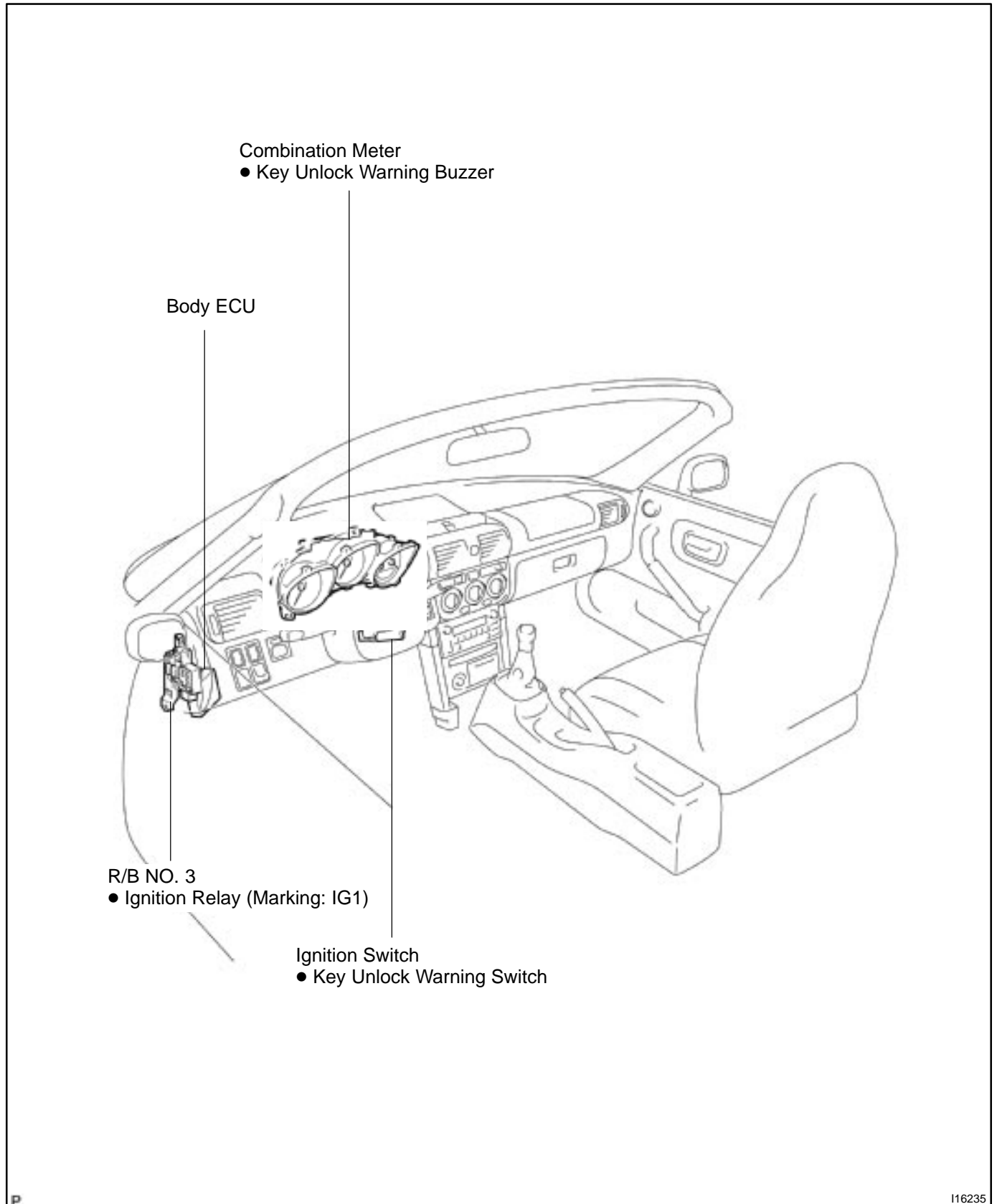
Relays

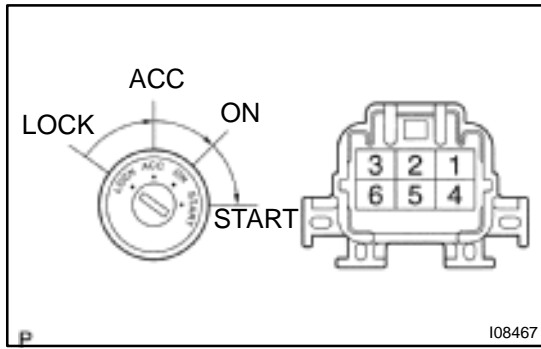
A. NO. 4 Daytime Running Light Relay (Marking: DRL NO.4)
B. NO. 2 Daytime Running Light Relay (Marking: DRL NO.2)



IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH LOCATION

BE00P-05



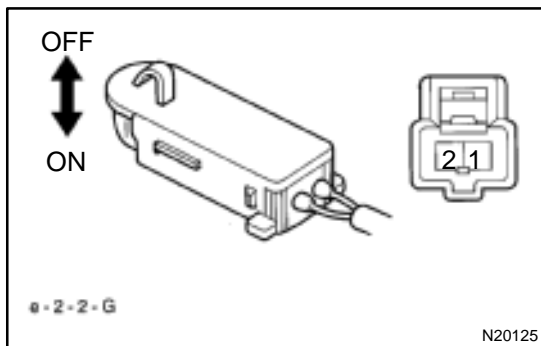


INSPECTION

1. INSPECT IGNITION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	-	No continuity
ACC	1-3	Continuity
ON	1-2-3 5-6	Continuity
START	1-2 4-5-6	Continuity

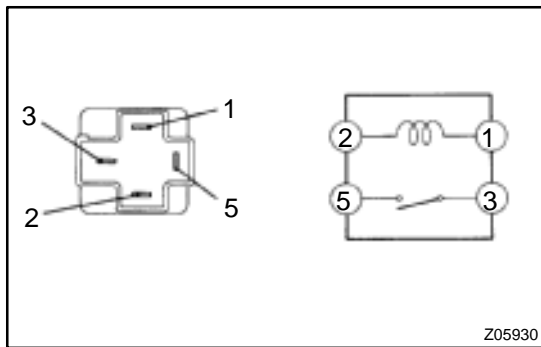
If continuity is not as specified, replace the switch.



2. INSPECT KEY UNLOCK WARNING SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Key removed)	-	No continuity
ON (Key set)	1-2	Continuity

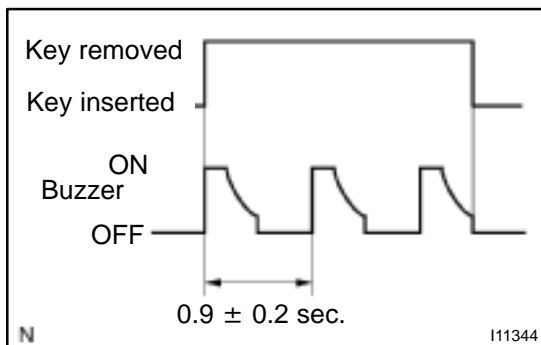
If continuity is not as specified, replace the switch.



3. INSPECT IGNITION RELAY (Marking: IG1) CONTINUITY

Condition	Tester connection	Specified condition
Constant	1-2	Continuity
Apply B+ between terminals 1 and 2.	3-5	Continuity

If continuity is not as specified, replace the relay.



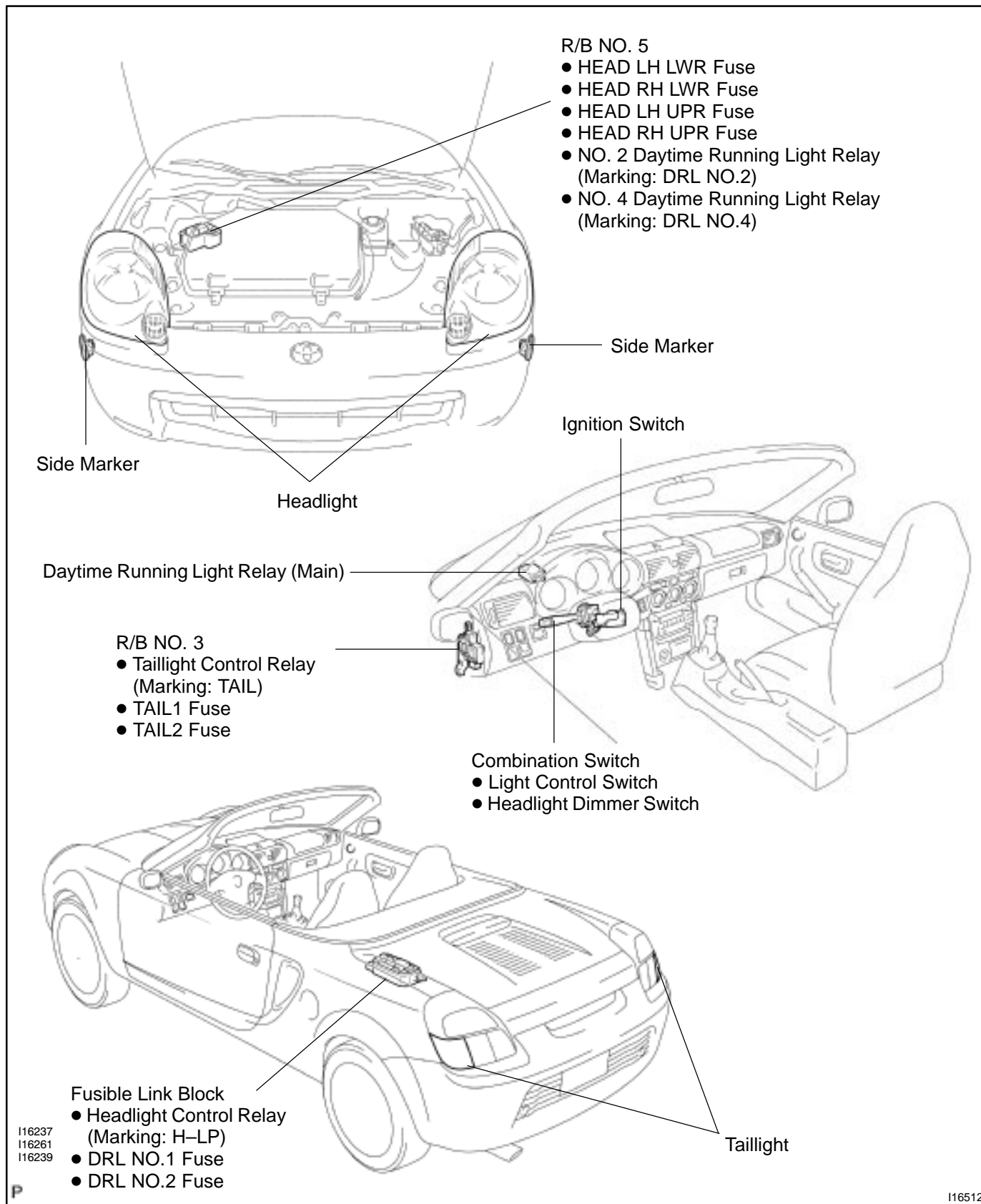
4. INSPECT KEY UNLOCK WARNING BUZZER

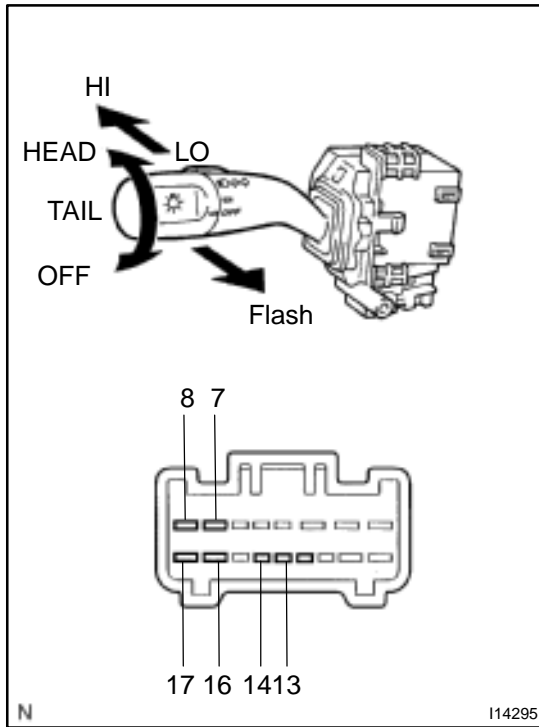
Check the buzzer sound when driver's door is opened and key inserted.

If operation is not as specified, replace the combination meter (See page [BO-41](#)).

HEADLIGHT AND TAILLIGHT SYSTEM LOCATION

BE00R-05





INSPECTION

1. INSPECT LIGHT CONTROL SWITCH CONTINUITY

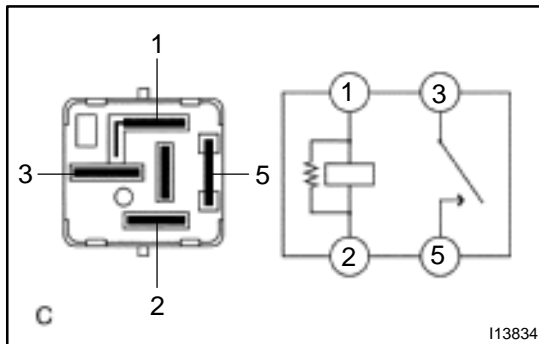
Switch position	Tester connection	Specified condition
OFF	-	No continuity
TAIL	14 - 16	Continuity
HEAD	13 - 14 - 16	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT HEADLIGHT DIMMER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LO beam	16 - 17	Continuity
HI beam	7 - 16	Continuity
Flash	7 - 8 - 16	Continuity

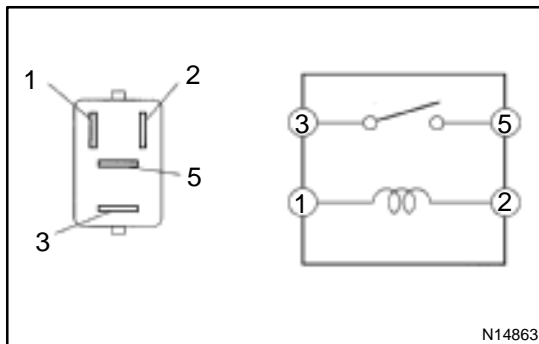
If continuity is not as specified, replace the switch.



3. INSPECT HEADLIGHT CONTROL RELAY (Marking: H-LP) CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

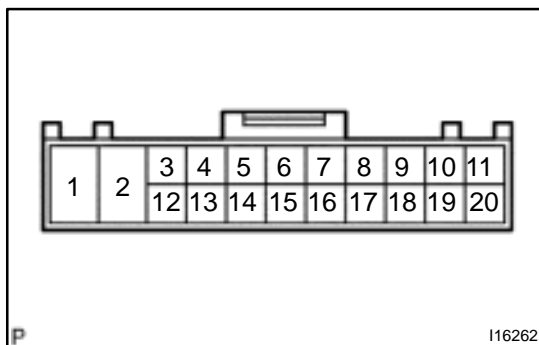
If continuity is not as specified, replace the relay.



4. INSPECT TAILLIGHT CONTROL RELAY (Marking: TAIL) CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.



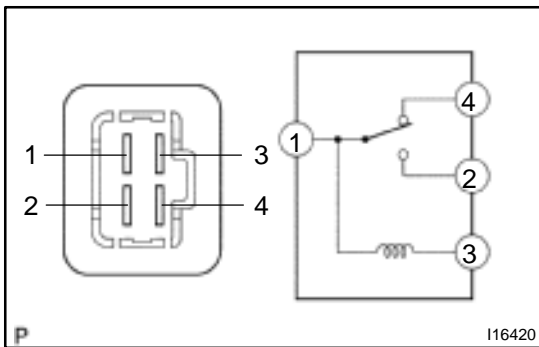
5. INSPECT DAYTIME RUNNING LIGHT RELAY (MAIN) CIRCUIT

Disconnect the connector from the relay and inspect the connector on the wire harness side, as shown in the chart on the next page.

BODY ELECTRICAL – HEADLIGHT AND TAILLIGHT SYSTEM

Tester connection	Condition	Specified condition
1 – Ground	Constant	Continuity
2 – Ground	Constant	Continuity
3 – Ground	Constant	Battery positive voltage
4 – Ground	Constant	Continuity
5 – Ground	Constant	Continuity
6 – Ground	Constant	Battery positive voltage
7 – Ground	Light control switch position OFF or TAIL	No continuity
7 – Ground	Light control switch position HEAD	Continuity
8 – Ground	Headlight dimmer switch position LO beam	No continuity
8 – Ground	Headlight dimmer switch position HI beam or Flash	Continuity
9 – Ground	Engine stop	No voltage
9 – Ground	Engine running	Battery positive voltage
10 – Ground	Brake fluid level warning position OFF	No continuity
10 – Ground	Brake fluid level warning position ON	Continuity
11 – Ground	Parking brake switch position OFF (Parking brake lever released)	No continuity
11 – Ground	Parking brake switch position ON (Parking brake lever pulled up)	Continuity
12 – Ground	Ignition switch position LOCK or ACC	No voltage
12 – Ground	Ignition switch position ON or START	Battery positive voltage

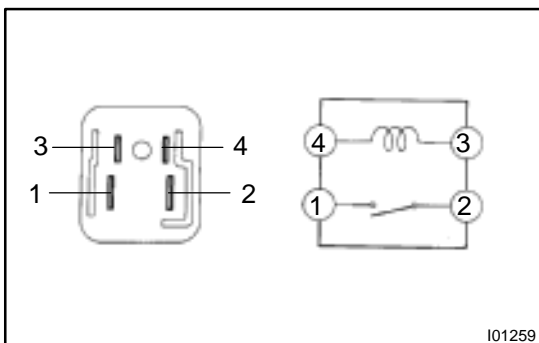
If circuit is as specified, try replacing the relay with a new one. If circuit is not as specified, inspect the circuits connected to other parts.



6. INSPECT NO. 2 DAYTIME RUNNING LIGHT RELAY (Marking: DRL NO.2) CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 – 3	Continuity
Constant	1 – 4	Continuity
Apply B+ between terminals 1 and 3.	1 – 2	Continuity

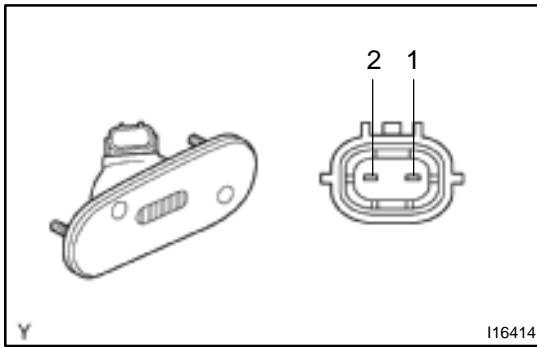
If continuity is not as specified, replace the relay.



7. INSPECT NO. 4 DAYTIME RUNNING LIGHT RELAY (Marking: DRL NO.4) CONTINUITY

Condition	Tester connection	Specified condition
Constant	3 – 4	Continuity
Apply B+ between terminals 3 and 4.	1 – 2	Continuity

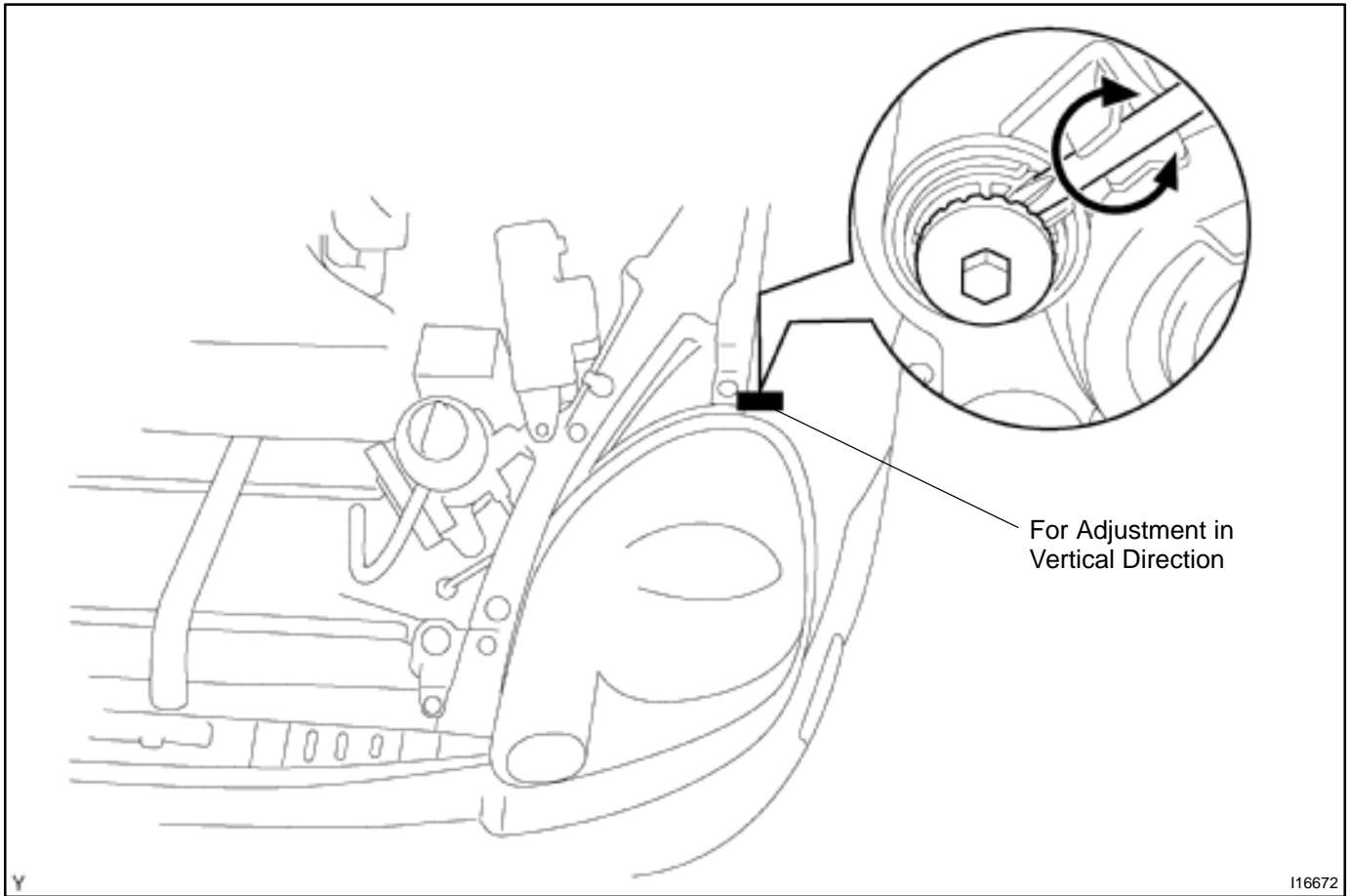
If continuity is not as specified, replace the relay.

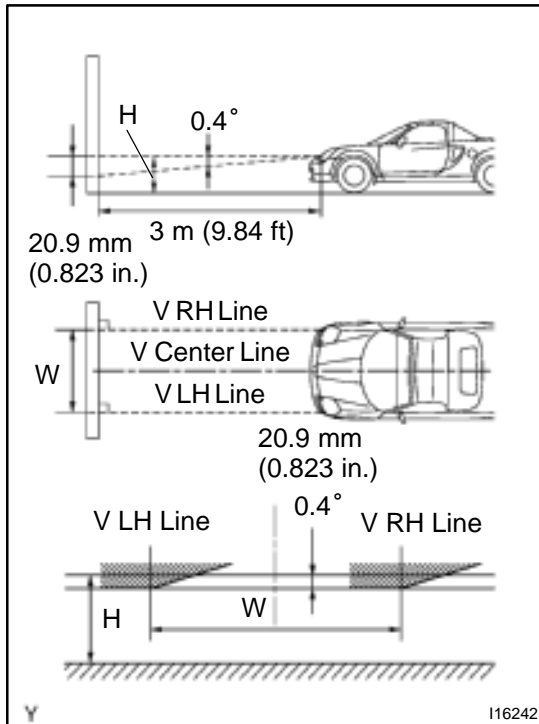
**8. INSPECT SIDE MARKER LIGHT CONTINUITY**

Using an ohmmeter, check that continuity exists between terminals.

If continuity is not as specified, replace the light assembly or bulb.

ADJUSTMENT





ADJUST HEADLIGHT AIM

- (a) Put the vehicle under the following conditions.
 - Make sure the body around the headlight is not deformed.
 - Park the vehicle on a level spot.
 - Get into the driver's seat and be ready for driving (with a full tank).
 - Bounce the vehicle several times.
 - Tire inflation pressure is the specified value.
- (b) Prepare the thick white colored paper.
- (c) Stand the paper perpendicularly and ensure the distance from it to the head lights is 3 m (9.84 ft).
- (d) Ensure that the center line of vehicle and the paper are at a 90 degree angle as shown in the illustration.(H line)
- (e) On the paper, draw a horizontal line indicating the longitudinal headlights (low beam and high beam center mark) position.
- (f) On the paper. draw a vertical line indicating the center of the vehicle (V center line)
- (g) On the paper, draw vertical lines indicating the lateral headlights (low beam and high beam center marks) positions.(V RH and LH lines)
- (h) Take an appropriate measure so as not to affect the other light.

NOTICE:

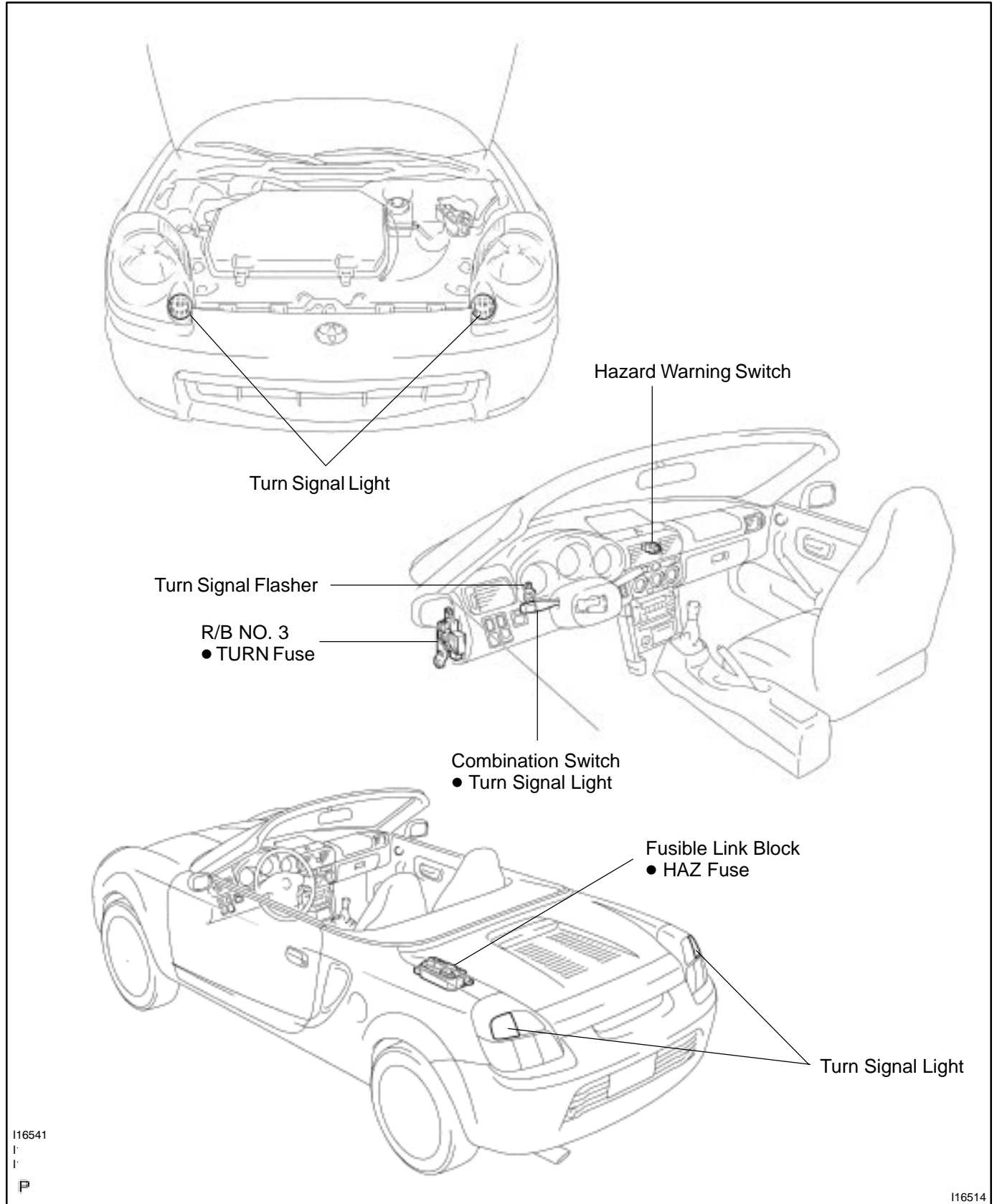
- **Disconnect the connector of another light to prevent heat affection from the light because the other lens of the head light assembly is made of synthetic resin. When connecting the connector again take care not to make the aiming out of adjustment.**
 - **When covering the headlight, finish it within 3 minutes.**
- (i) Turn the headlights ON.
 - (j) Check that the head lights light up the paper as shown in the illustration.

HINT:

As shown in the illustration, adjust aiming of the LH and RH lights respectively.

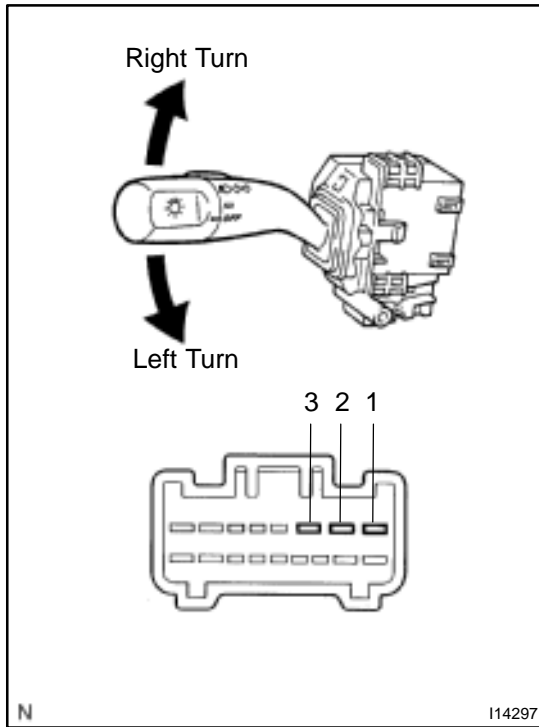
TURN SIGNAL AND HAZARD WARNING SYSTEM LOCATION

BE00Y-04



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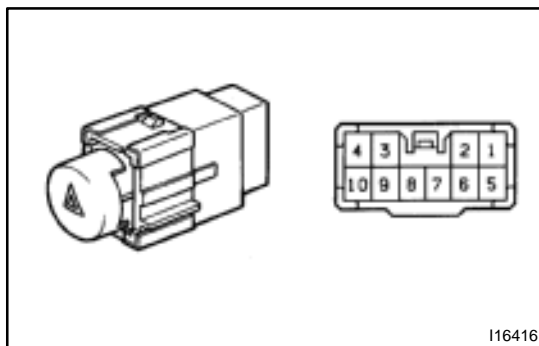


INSPECTION

1. INSPECT TURN SIGNAL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Left turn	1 – 2	Continuity
Neutral	–	No continuity
Right turn	2 – 3	Continuity

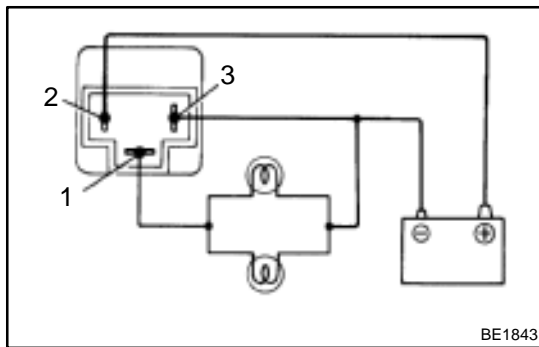
If continuity is not as specified, replace the switch.



2. INSPECT HAZARD WARNING SWITCH CONTINUITY

Condition	Tester connection	Specified condition
OFF	7 – 10	Continuity
ON	7 – 8, 4 – 5 – 6 – 9	Continuity
Illumination circuit	2 – 3	Continuity

If continuity is not as specified, replace the switch.



3. INSPECT TURN SIGNAL FLASHER OPERATION

- Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3.
- Connect the 2 turn signal light bulbs (21 W) parallel to each other to terminals 1 and 3, check that the bulbs flash.

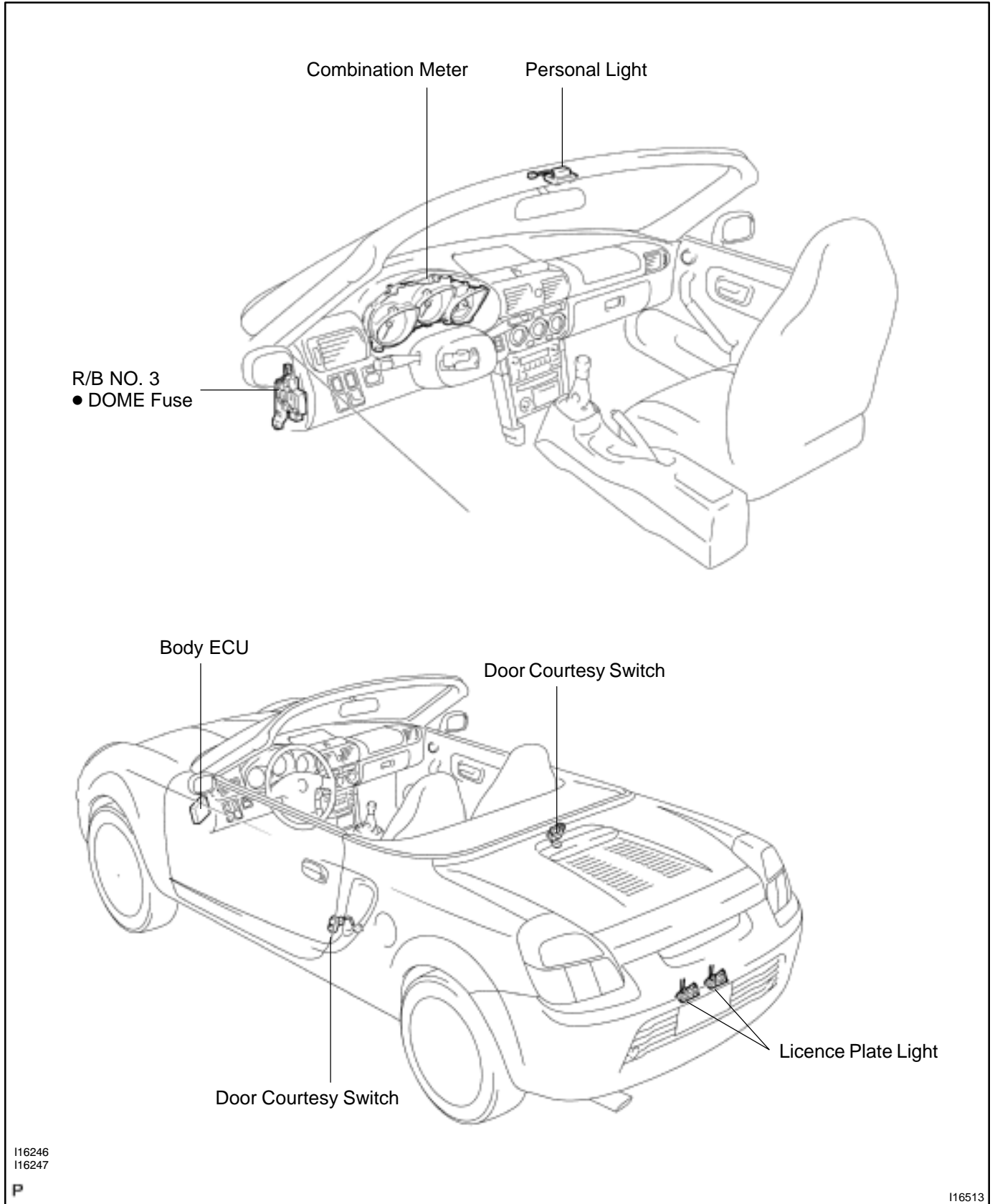
HINT:

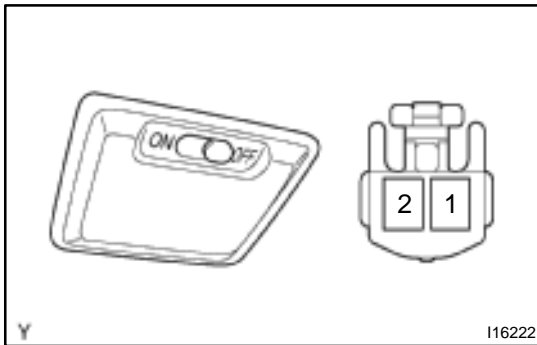
- The turn signal lights should flash 60 or 120 times per minute.
- If one of the front or rear turn signal lights has an open circuit, the number of flashers will be more than 140 per minute.

If operation is not as specified, replace the flasher.

INTERIOR LIGHT SYSTEM LOCATION

BE0P0-04



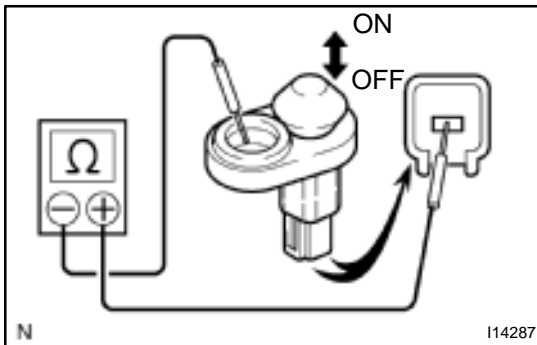


INSPECTION

1. INSPECT PERSONAL LIGHT CONTINUITY

Using an ohmmeter, check that continuity exists between terminals.

If continuity is not as specified, replace the light assembly or bulb.

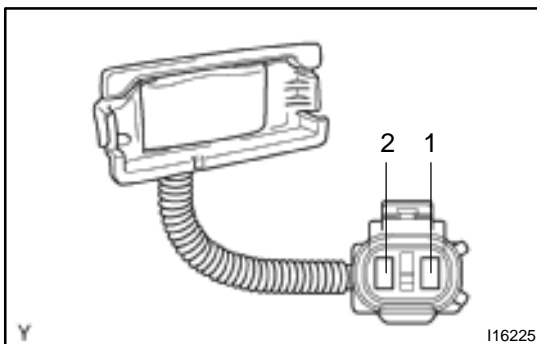


2. INSPECT DOOR COURTESY SWITCH CONTINUITY

(a) Check that continuity exists between terminal and the switch body with the switch ON (Switch pin released: opened door).

(b) Check that no continuity exists between terminal and the switch body with the switch OFF (Switch pin pushed in: closed door).

If operation is not as specified, replace the switch.



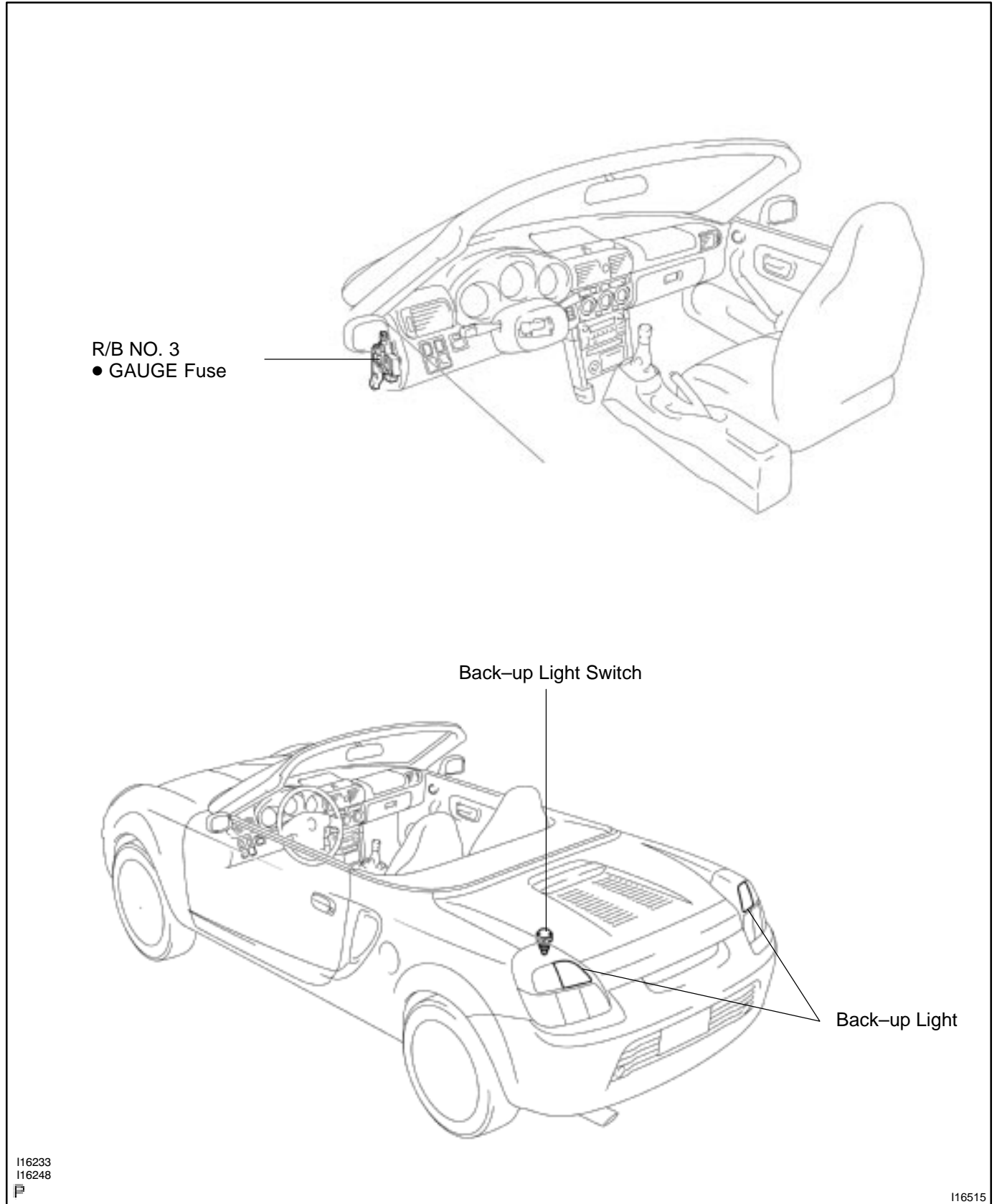
3. INSPECT LICENCE PLATE LIGHT CONTINUITY

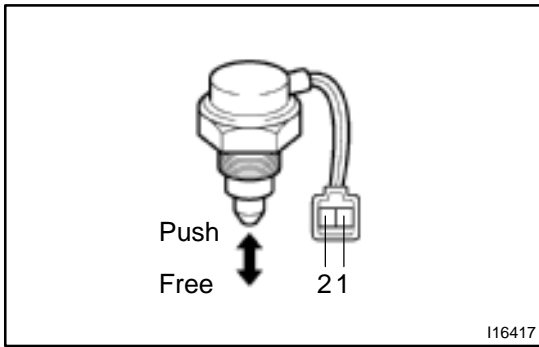
Using an ohmmeter, check that continuity exists between terminals.

If continuity is not as specified, replace the light assembly or bulb.

BACK-UP LIGHT SYSTEM LOCATION

BE0P2-04





INSPECTION

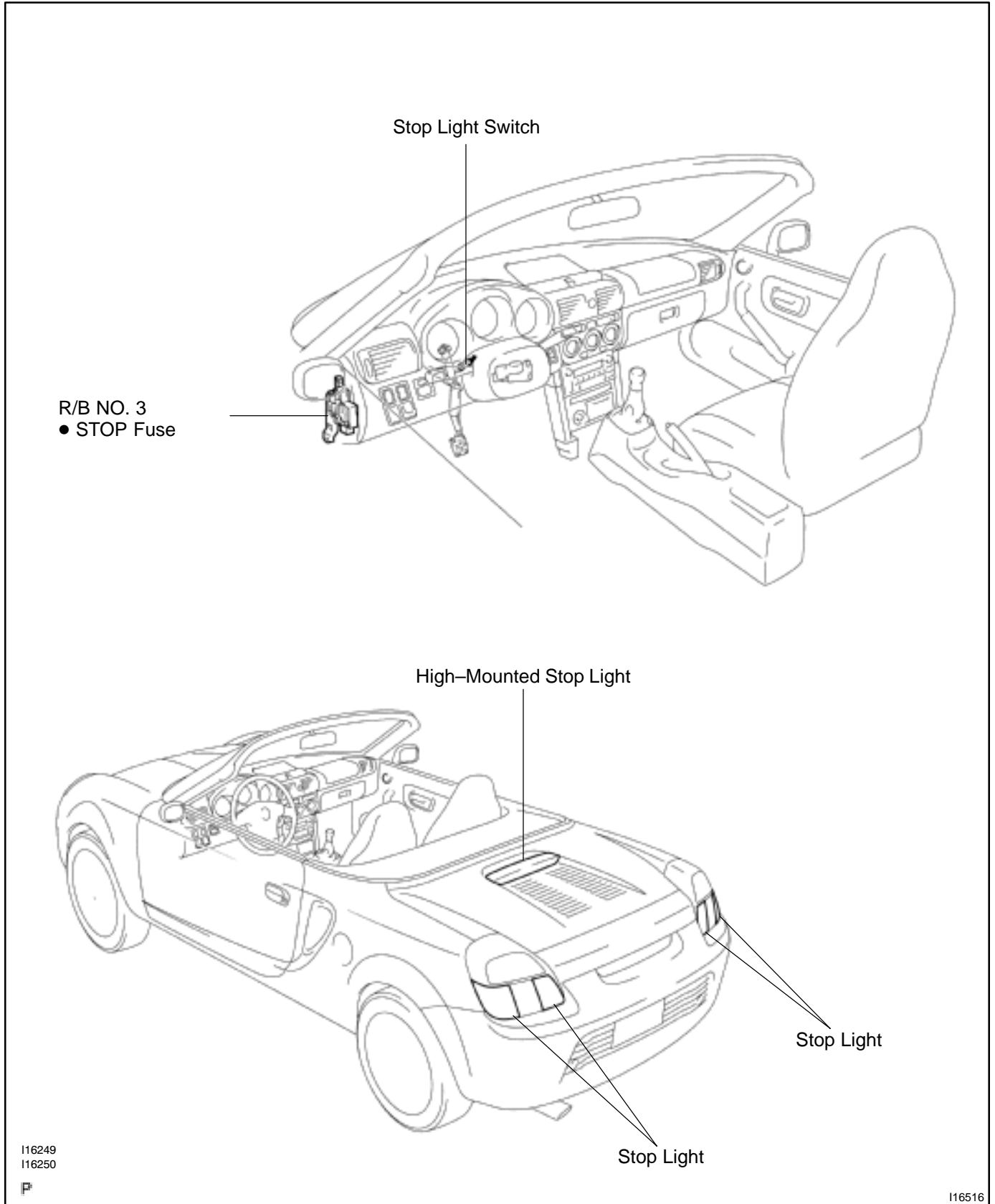
INSPECT BACK-UP LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Free	1 - 2	No continuity
Push	1 - 2	Continuity

If continuity is not as specified, replace the switch.

STOP LIGHT SYSTEM LOCATION

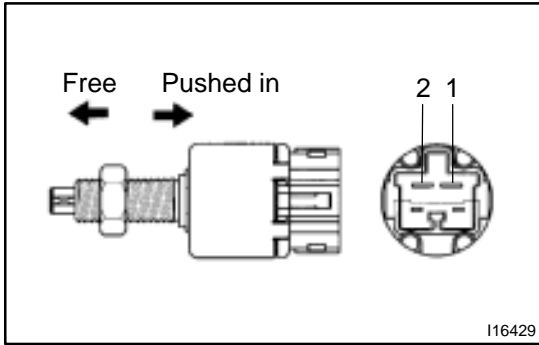
BE0P4-04



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INSPECTION

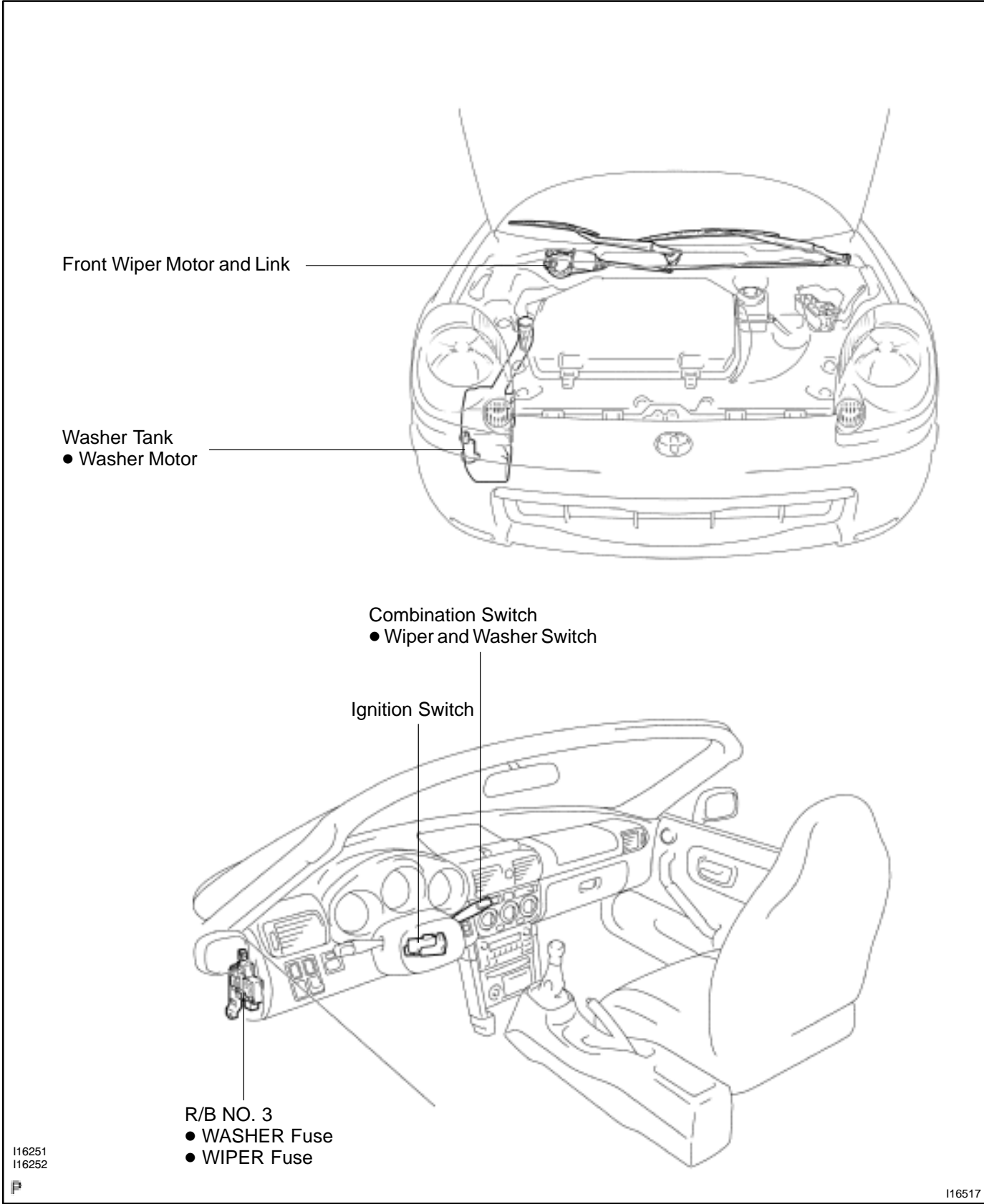
INSPECT STOP LIGHT SWITCH CONTINUITY

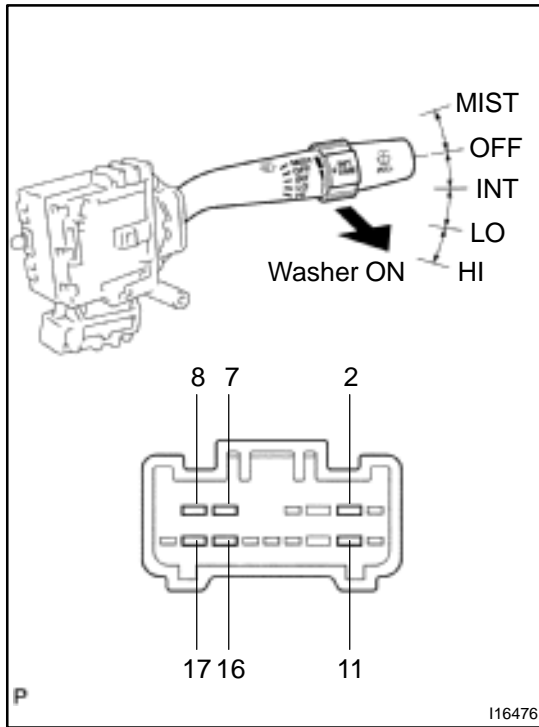
Switch position	Tester connection	Specified condition
Switch pin pushed in (Pedal released)	-	No continuity
Switch pin free (Pedal depressed)	1 - 2	Continuity

If continuity is not as specified, replace the switch.

WIPER AND WASHER SYSTEM LOCATION

BE0P6-04



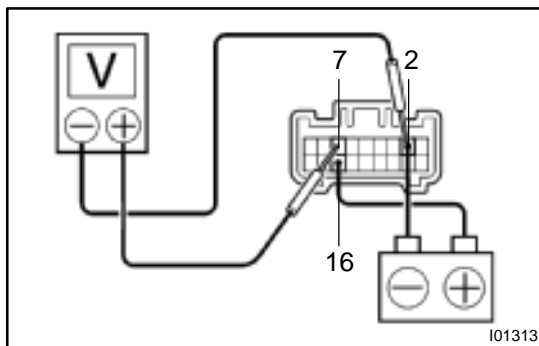


INSPECTION

1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY

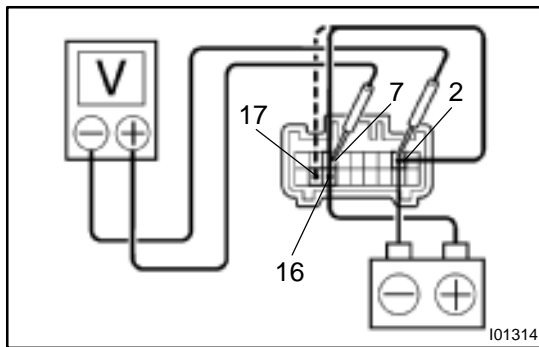
Switch position	Tester connection	Specified condition
OFF	7 – 16	Continuity
MIST	7 – 17	Continuity
INT	7 – 16	Continuity
LO	7 – 17	Continuity
HI	8 – 17	Continuity
Washer ON	2 – 11	Continuity

If continuity is not as specified, replace the switch.



2. INSPECT WIPER INTERMITTENT OPERATION

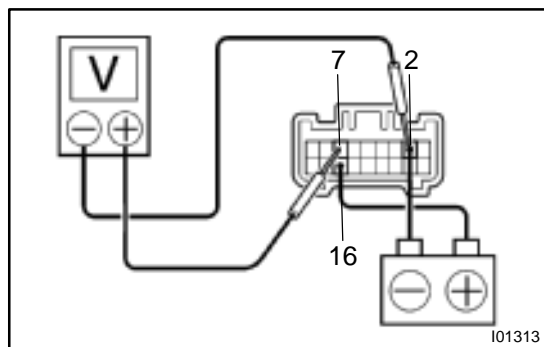
- (a) Turn the wiper switch to INT position.
- (b) Turn the intermittent time control switch to FAST position.
- (c) Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.
- (d) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2, check that the meter needle indicates battery positive voltage.



- (e) After connecting terminal 16 to terminal 17, connect to terminal 2 to terminal 17, check the voltage rises from 0 volts to battery positive voltage with in the times, as shown in the table.

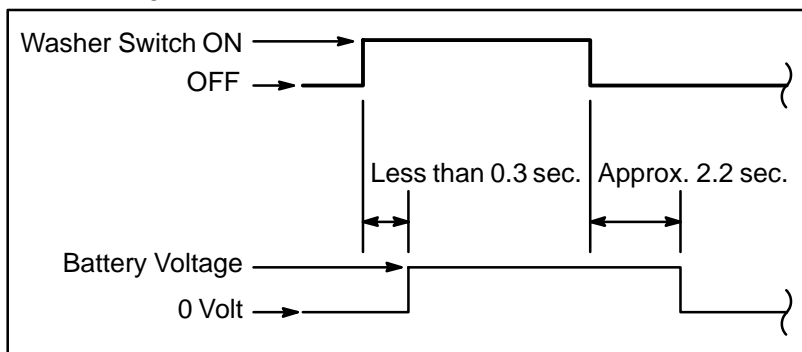
INT time control switch position	Voltage
FAST	Approx. 1 – 3 sec.
SLOW	Approx. 10 – 15 sec.

If operation is not as specified, replace the wiper and washer switch.

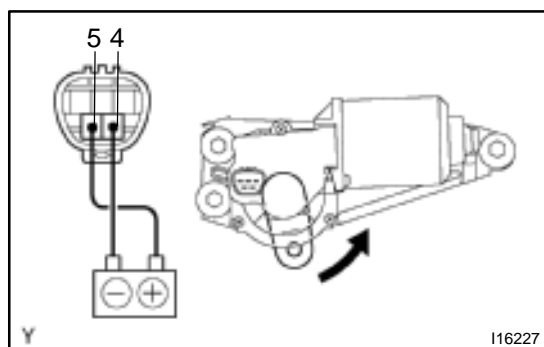


3. INSPECT FRONT WASHER LINKED OPERATION

- Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.
- Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2.
- Push in the washer switch, and check that the voltage changes, as shown in the table.



If operation is not as specified, replace the wiper and washer switch.

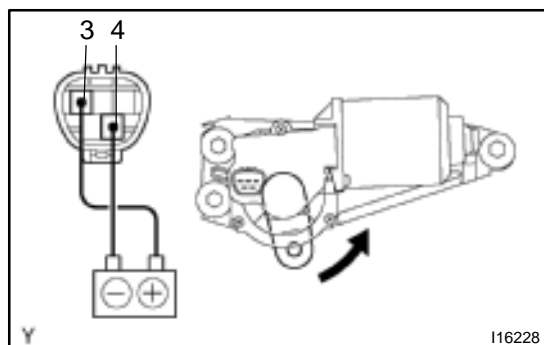


4. Low speed:

INSPECT FRONT WIPER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4, check that the motor operates at low speed.

If operation is not as specified, replace the motor.

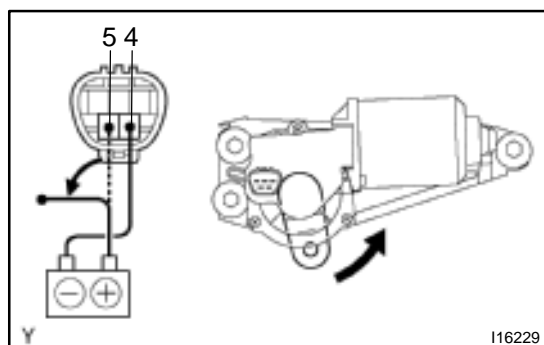


5. High speed:

INSPECT FRONT WIPER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 4, check that the motor operates at high speed.

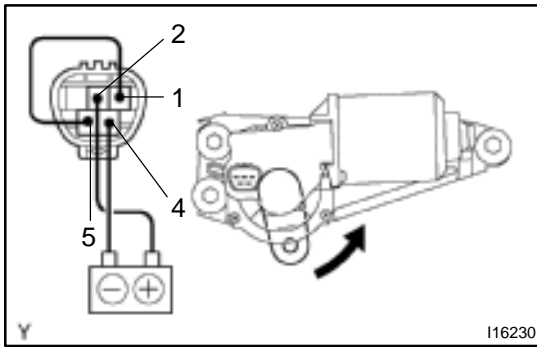
If operation is not as specified, replace the motor.



6. Stopping at stop position:

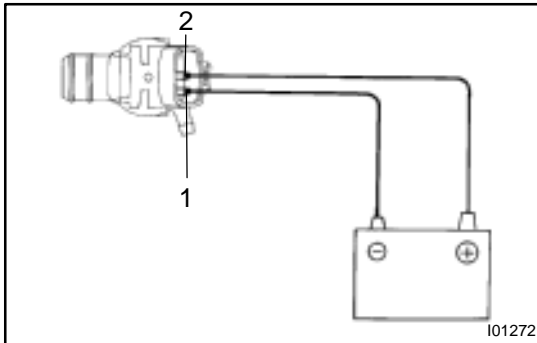
INSPECT FRONT WIPER MOTOR OPERATION

- Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 5.



- (b) Connect terminals 1 and 5.
 (c) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 4, check that the motor stops running at the stop position after the motor operates again.

If operation is not as specified, replace the motor.



7. INSPECT WASHER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, check that the motor operates.

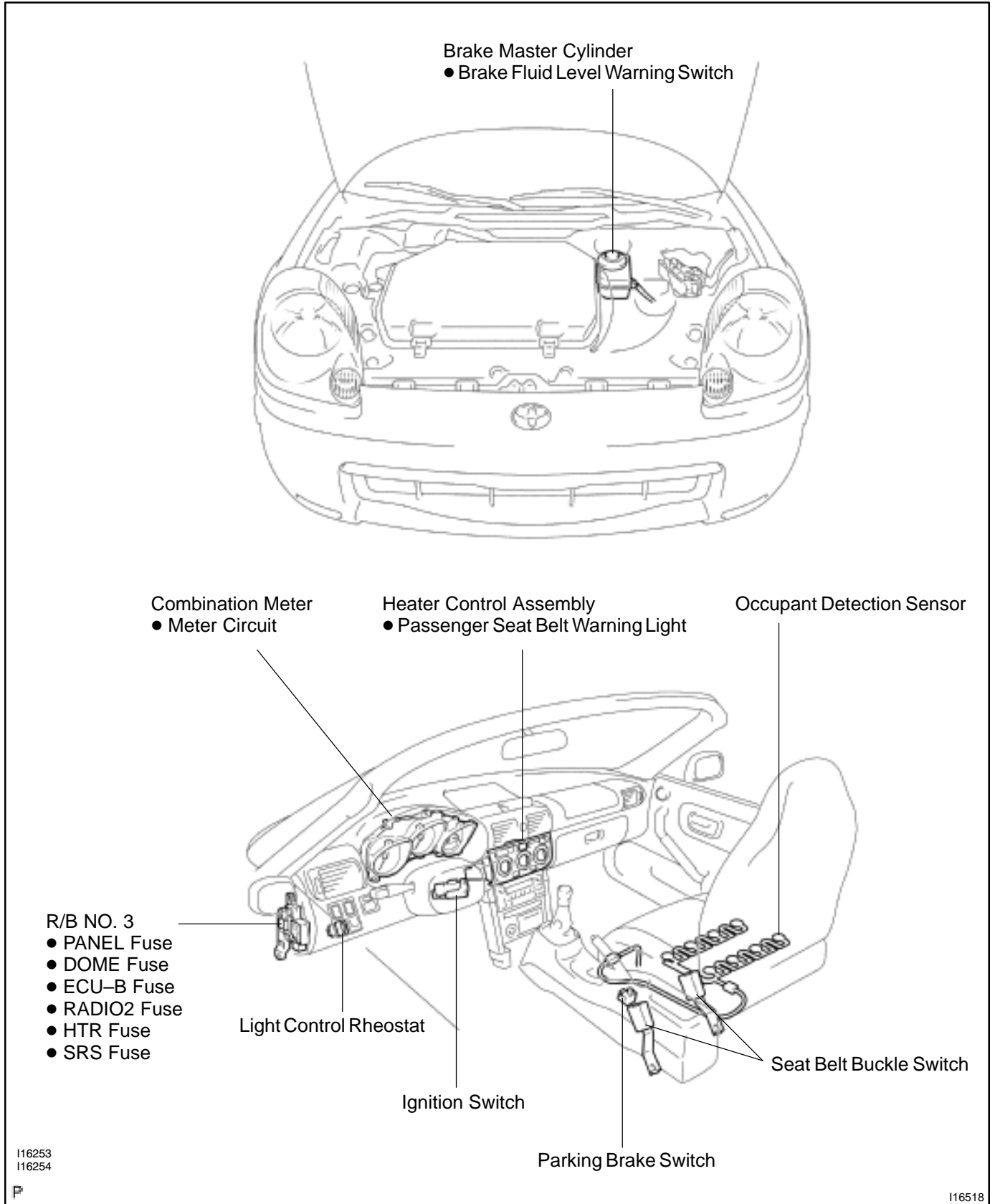
NOTICE:

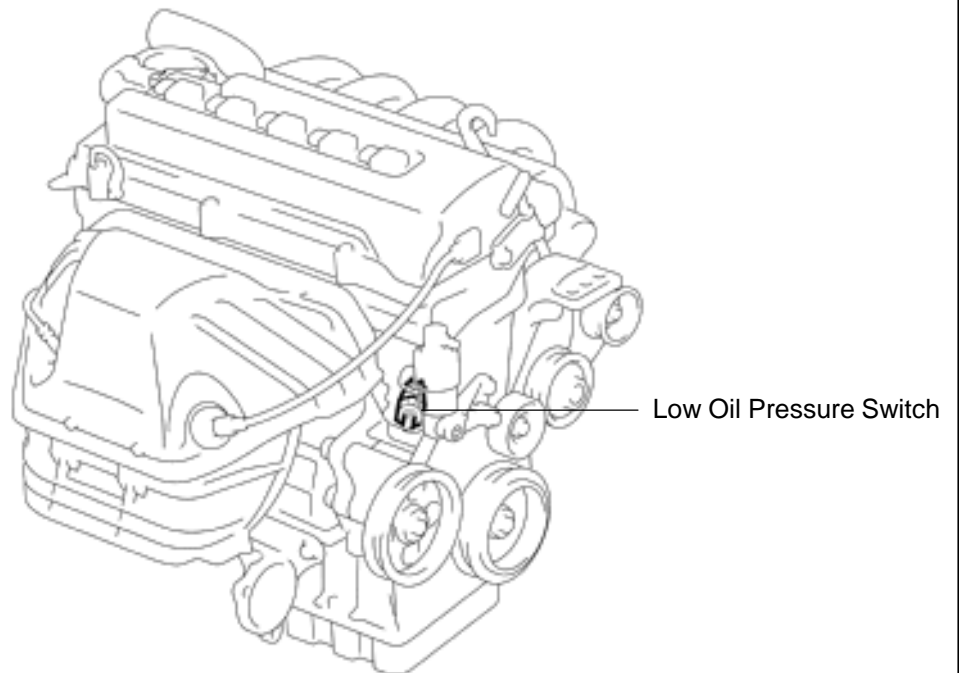
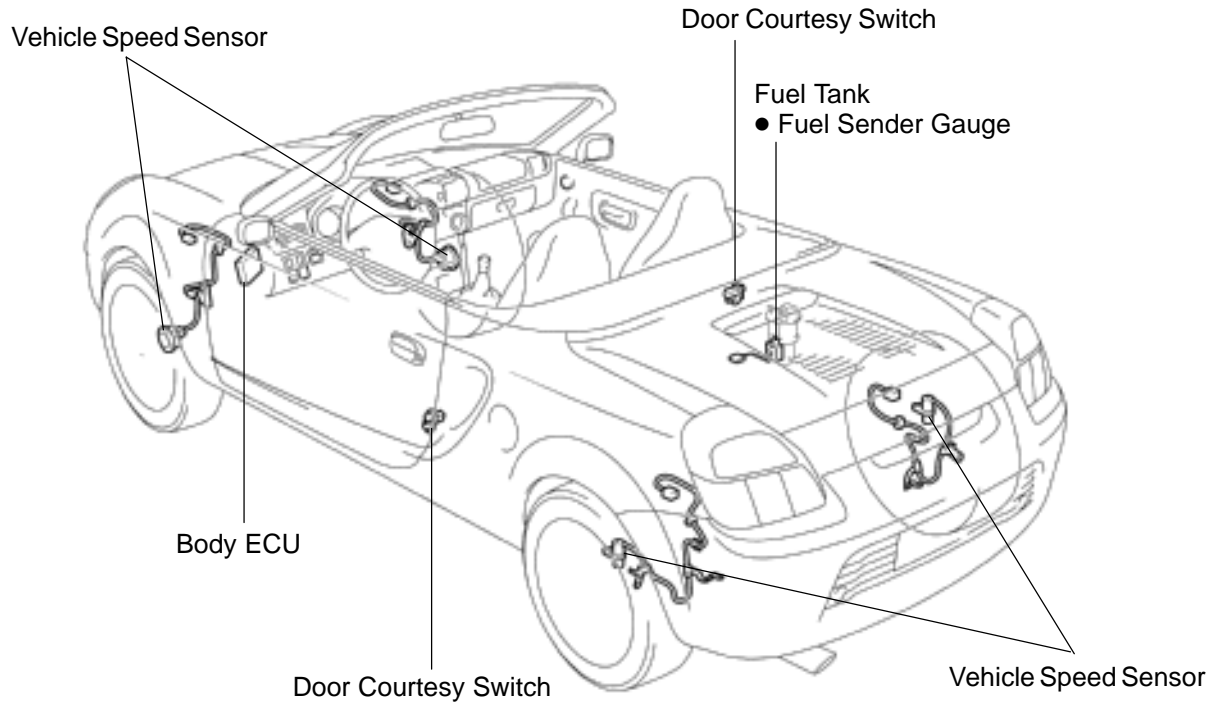
These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.

COMBINATION METER LOCATION

BE1D1-03

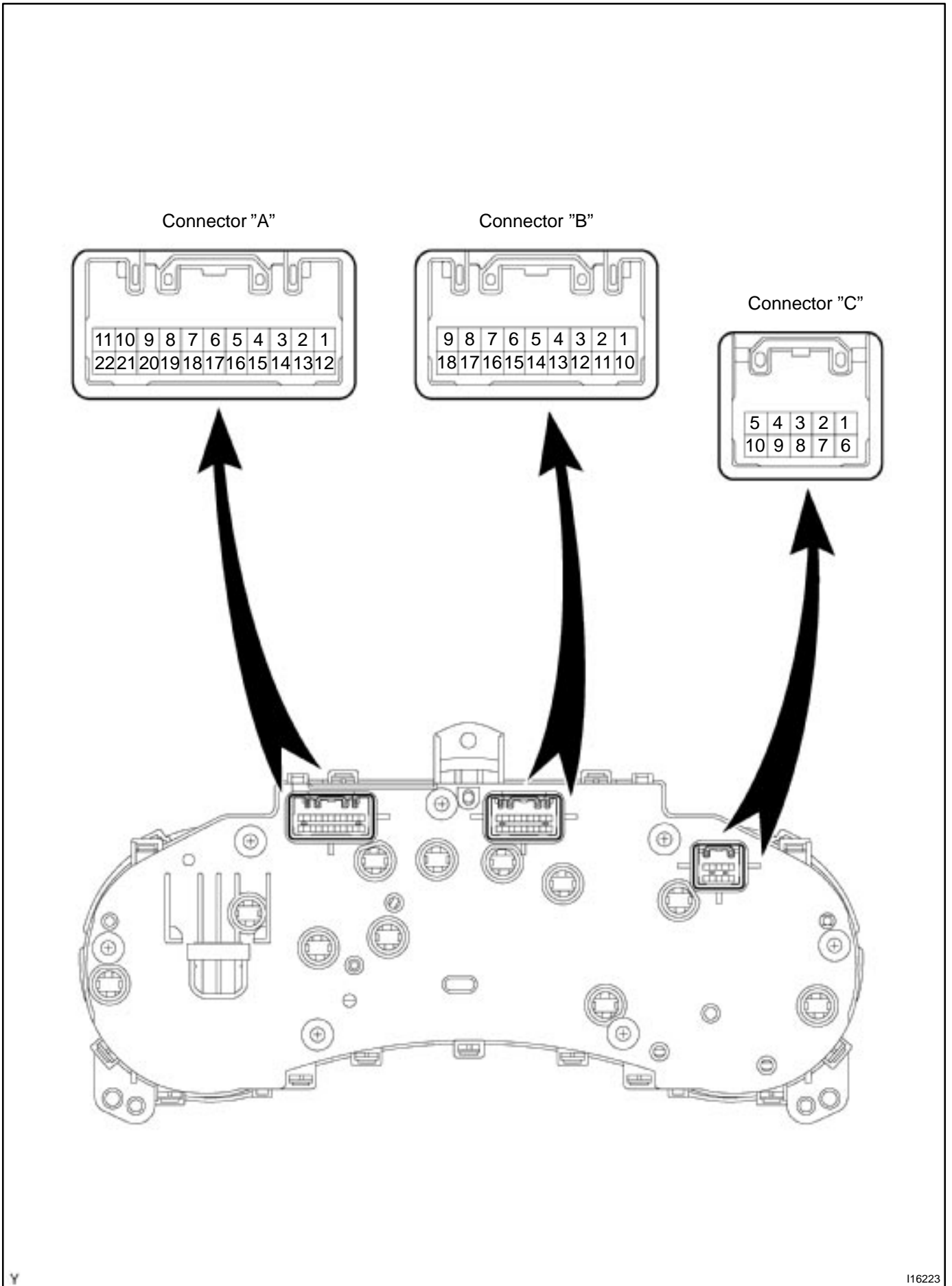




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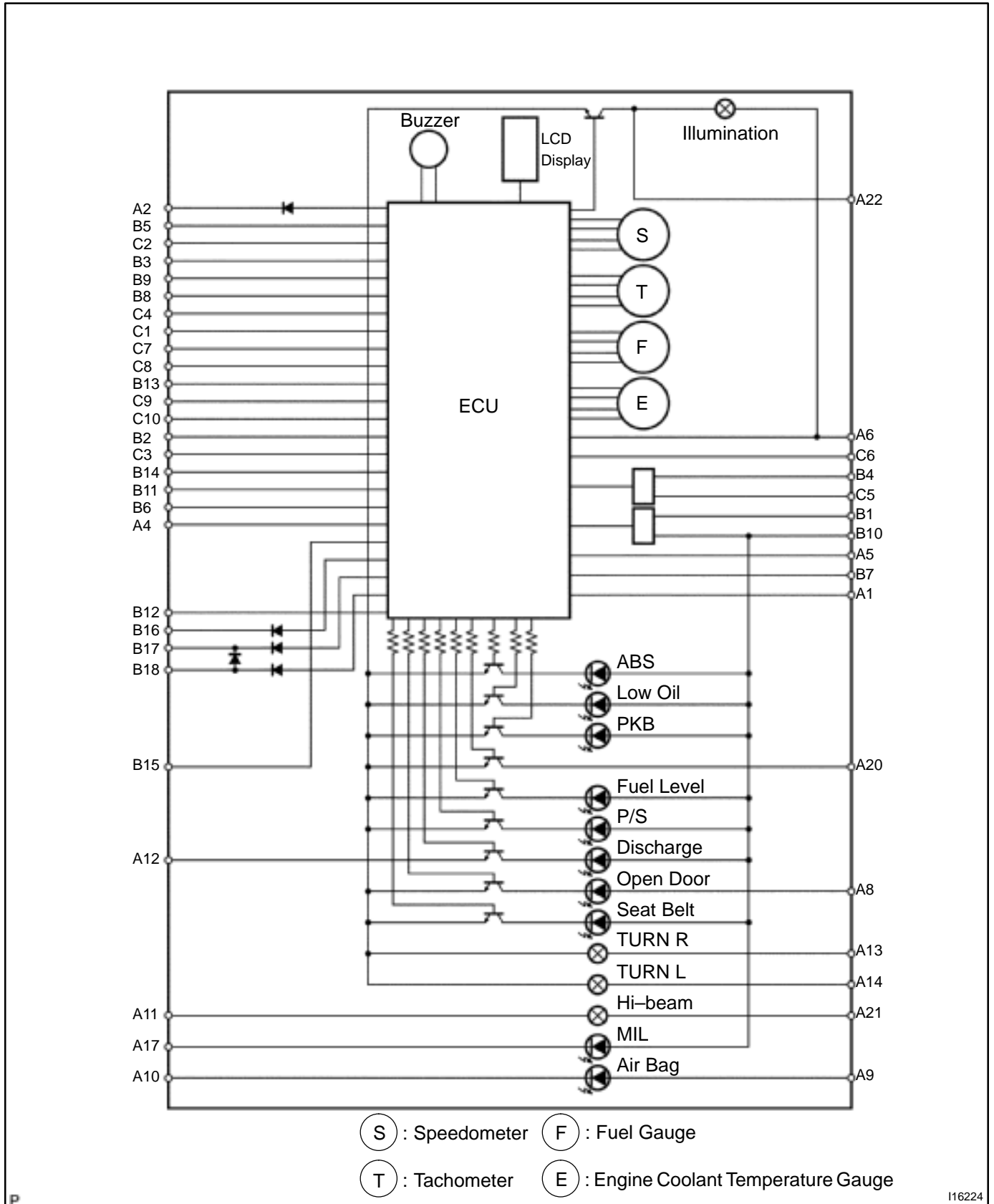
I16519



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I16223

CIRCUIT



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I16224

No.	Wiring connector side
A	1 Heater Main Relay (Marking: HTR)
	2 Key Unlock Warning Switch
	4 ABS ECU (Speed Meter)
	5 Power Steering ECU (SPD Terminal), ECM (SPD Terminal)
	6 PANEL Fuse
	8 DOME Fuse
	9 Airbag Sensor Assembly (IG2 Terminal)
	10 Airbag Sensor Assembly (LA Terminal)
	11 Ground
	12 Ground
	13 Hazard Switch
	14 Hazard Switch
	17 ECM (W Terminal)
	20 Passenger Seat Belt Warning Light (Heater Control Assembly)
21 Daytime Running Light Relay	
22 HAZARD Switch, HTR Panel, Audio	
B	1 ECU-B Fuse
	2 Rheostat
	3 Fuel Sender
	4 ECM (MPX1 Terminal)
	5 I/UP Fuse, Defogger Relay
	6 Brake Fluid Level Warning Switch
	7 RADIO2 Fuse
	8 Ground
	9 Fuel Sender
	10 GAUGE Fuse
	11 Power Steering ECU (WL Terminal)
	12 ABS ECU (WA Terminal)
	13 A/C Switch (L A/C Terminal)
	14 Ground
	15 RH Buckle Switch
	16 LH Buckle Switch and Tension Reducer
	17 LH Door Courtesy Switch
	18 RH Door Courtesy Switch
C	1 A/C Thermistor
	2 Fuel Sender
	3 Rheostat
	4 A/C Thermistor
	5 ECM (MPX2 Terminal)
	6 ECM (TACH Terminal)
	9 A/C Switch (S A/C Terminal)
	10 A/C Switch (DEF Terminal)

MPX: Multiplex communication
 Temp. : Temperature

INSPECTION

1. INSPECT SPEEDOMETER ON-VEHICLE

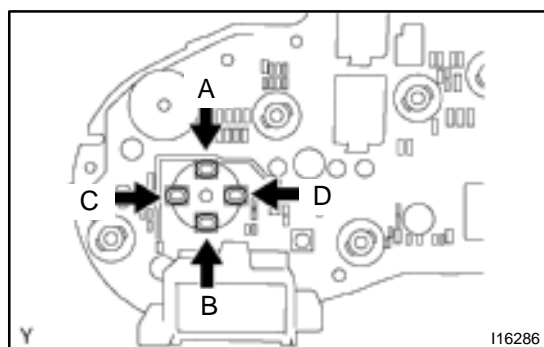
Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

HINT:

Tire wear and tire over or under inflation will increase the indication error.

USA (mph)	
Standard indication	Allowable range
20	19 - 22
40	39 - 42.5
60	59.5 - 63.5
80	80 - 85
100	100 - 105.5
120	120 - 125.5
140	140 - 146

If error is excessive, replace the combination meter.



2. INSPECT SPEEDOMETER RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

Tester connection	Resistance (Ω)
A - B	250
C - D	250

If resistance value is not as specified, replace the combination meter.

3. INSPECT TACHOMETER ON-VEHICLE

(a) Connect a tune-up test tachometer, and start the engine.

NOTICE:

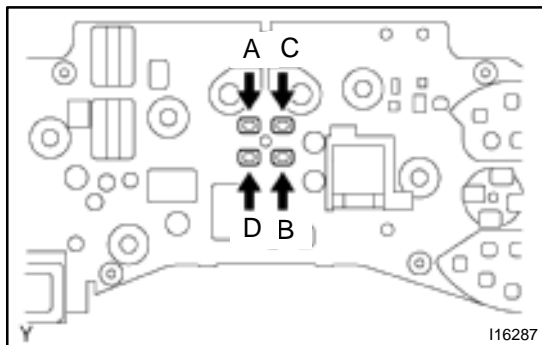
Reversing the connection of the tachometer will damage the transistors and diodes inside.

(b) Compare the tester indications with tachometer indications.

RPM (DC 13.5 V, 25° C (77° F))

Standard indication	Allowable range
700	630 - 770
1,000	900 - 1,100
2,000	1,850 - 2,150
3,000	2,800 - 3,200
4,000	3,800 - 4,200
5,000	4,800 - 5,200
6,000	5,800 - 6,200
7,000	6,800 - 7,200

If error is excessive, replace the combination meter.

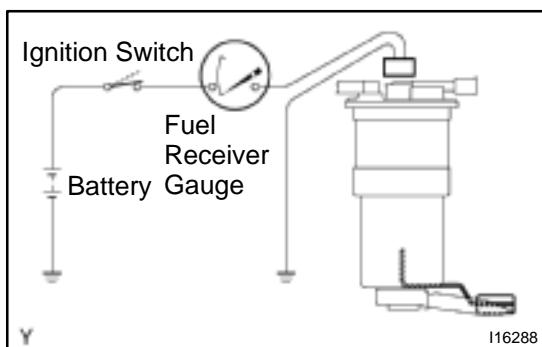


4. INSPECT TACHOMETER RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

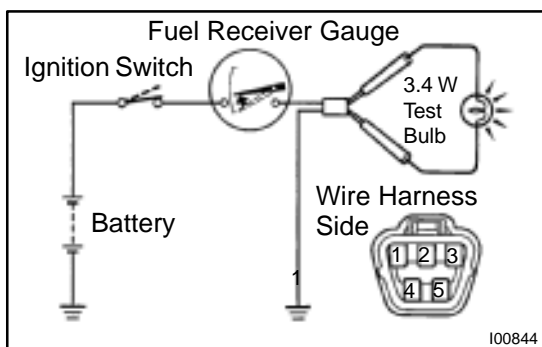
Tester connection	Resistance (Ω)
A - B	250
C - D	250

If resistance value is not as specified, replace the combination meter.



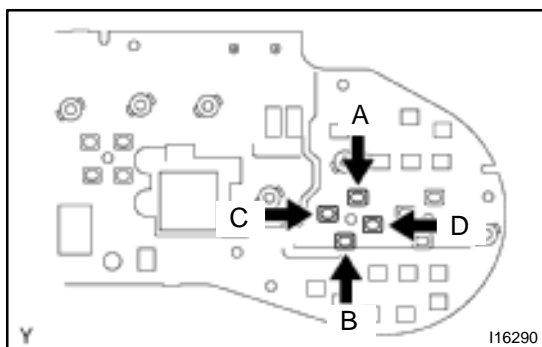
5. INSPECT FUEL RECEIVER GAUGE OPERATION

- Disconnect the connector from the fuel pump assembly.
- Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.



- Connect terminals 2 and 3 of the wire harness side connector through a 3.4 W test bulb.
- Turn the ignition switch ON, check that the bulb lights up and receiver gauge needle indicators EMPTY.

If operation is not as specified, inspect the sender gauge resistance.

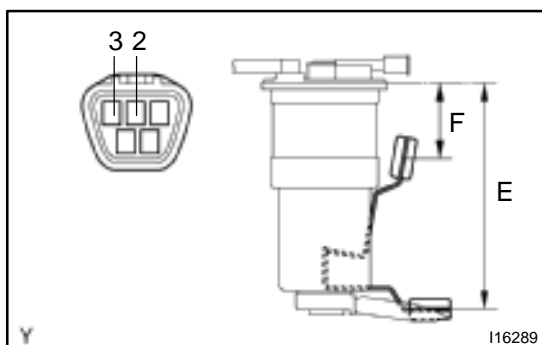


6. INSPECT FUEL RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

Tester connection	Resistance (Ω)
A - B	250
C - D	250

If resistance value is not as specified, replace the combination meter.

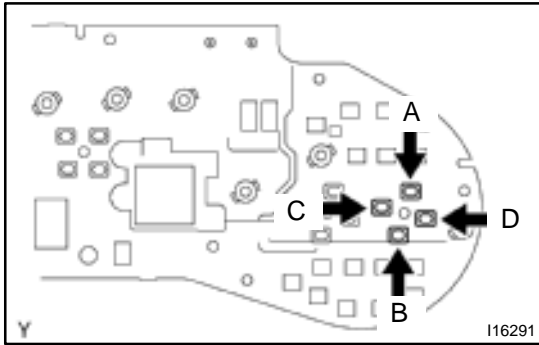


7. INSPECT FUEL SENDER GAUGE RESISTANCE

Measure the resistance between terminals 2 and 3 for each float position.

Float position: mm (in.)	Resistance (Ω)
F: Approx. 68.8 (2.71)	Approx. 16.4
E: Approx. 207.4 (8.17)	Approx. 192.7

If resistance value is not as specified, replace the sender gauge.

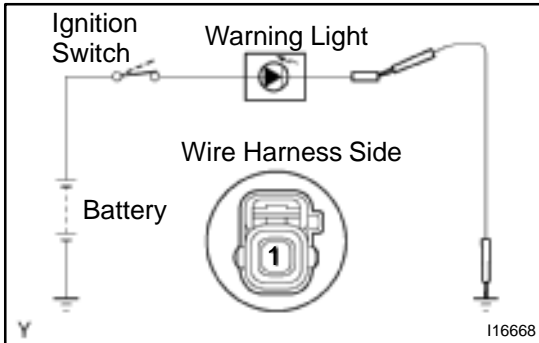


8. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A - B	250
C - D	250

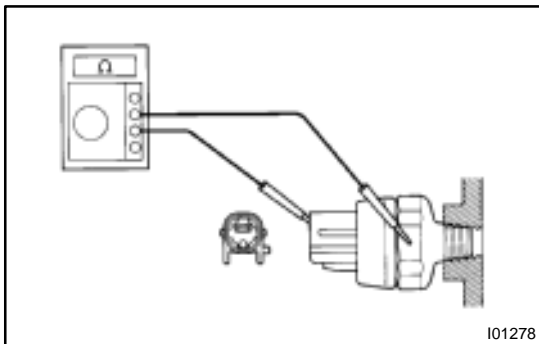
If resistance value is not as specified, replace the combination meter.



9. INSPECT LOW OIL PRESSURE WARNING LIGHT

- (a) Disconnect the connector from the warning switch and ground terminal of the wire harness side connector.
- (b) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light up, test the LED or inspect wire harness.



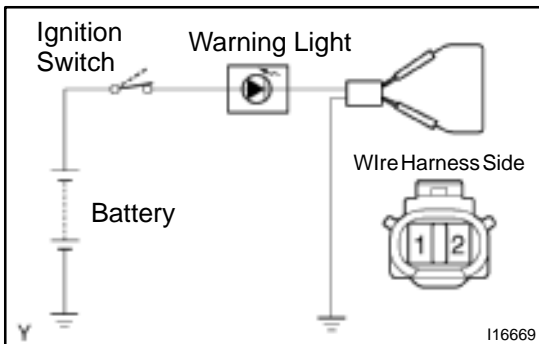
10. INSPECT LOW OIL PRESSURE SWITCH CONTINUITY

- (a) Check that continuity exists between terminal and ground with the engine stopped.
- (b) Check that no continuity exists between terminal and ground with the engine running.

HINT:

The oil pressure should be over 24.5 kPa (0.25 kgf/cm², 3.55 psi).

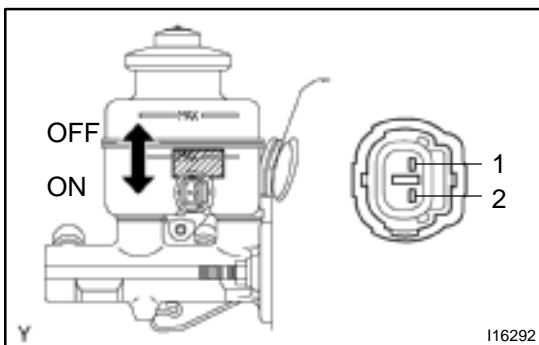
If operation is not as specified, replace the switch.



11. INSPECT BRAKE WARNING SYSTEM LIGHT

- (a) Disconnect the connector from the brake fluid warning switch.
- (b) Connect terminals of the wire harness side of the level warning switch connector.
- (c) Start the engine, check that the warning light lights up.

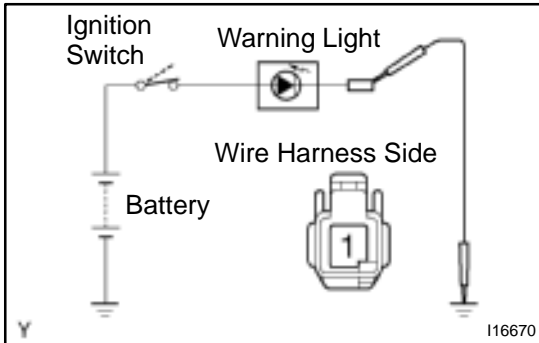
If the warning light does not light up, test the LED or wire harness.



12. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

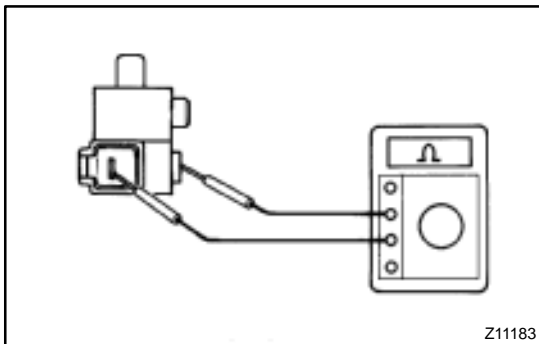
- (a) Remove the reservoir cap and strainer.
- (b) Disconnect the connector.
- (c) Check that no continuity exists between terminals with the switch OFF (float up).
- (d) Use syphon, etc. to take fluid out of the reservoir.
- (e) Check that continuity exists between terminals with the switch ON (float down).

- (f) Pour the fluid back in the reservoir.
- If operation is not as specified, replace the switch.



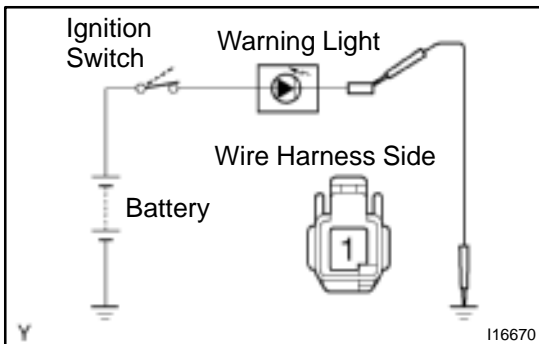
13. INSPECT PARKING BRAKE WARNING LIGHT

- (a) Disconnect the connector from the parking brake switch.
 - (b) Ground terminal of the wire harness side connector.
 - (c) Start the engine, check that the warning light lights up.
- If the warning light does not light up, test the LED or inspect wire harness.



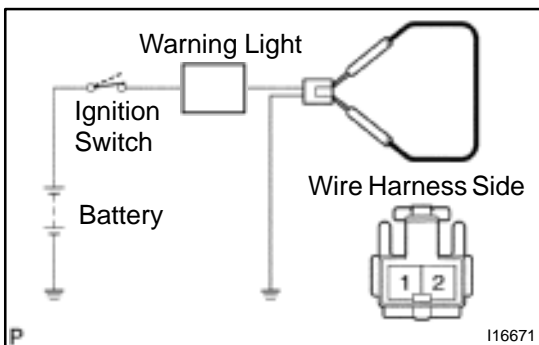
14. INSPECT PARKING BRAKE SWITCH CONTINUITY

- (a) Check that continuity exists between terminal and switch body with the switch ON (switch pin released).
 - (b) Check that no continuity exists between terminal and switch body with the switch OFF (switch pin pushed in).
- If operation is not as specified, replace the switch or inspect ground point.



15. INSPECT OPEN DOOR WARNING LIGHT

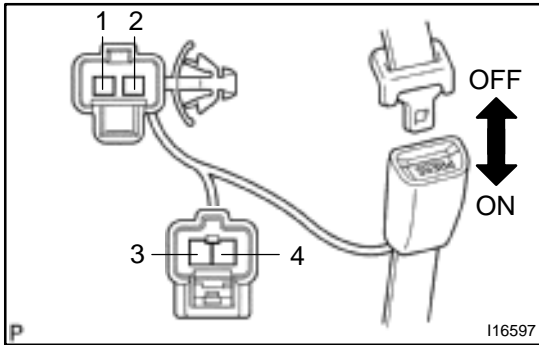
- (a) Disconnect the connector from the door courtesy switch.
 - (b) Ground terminal of the wire harness side connector.
 - (c) Start the engine, check that the warning light lights up.
- If the warning light does not light up, test the LED or inspect wire harness.



**16. Driver's side:
INSPECT SEAT BELT WARNING LIGHT**

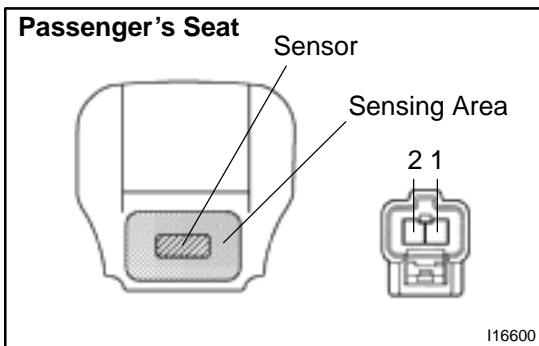
- (a) Disconnect the connector from buckle switch and ground terminal on the wire harness side connector.
 - (b) Turn the ignition switch ON and check that the warning light lights up.
- If the warning light does not light up, test the LED or inspect wire harness.

**17. Driver's side:
INSPECT BUCKLE SWITCH CONTINUITY (See page BE-46)**



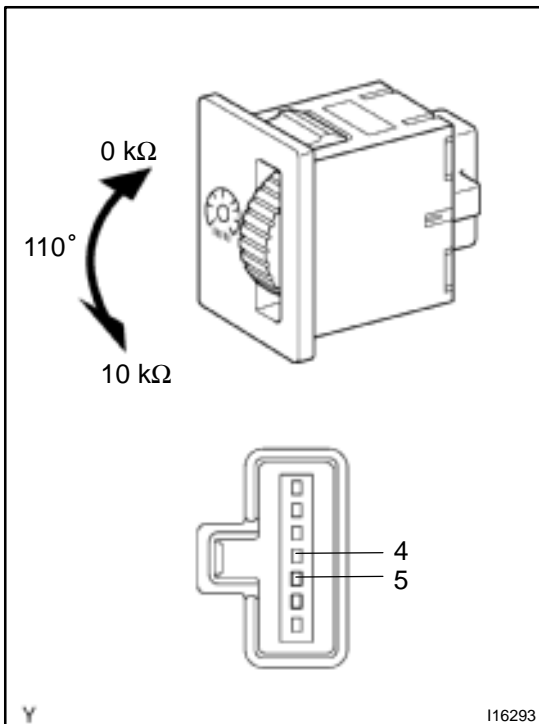
- 18. Passenger's side:
INSPECT BUCKLE SWITCH CONTINUITY**
- (a) Check that continuity exists between terminals 1 and 3 the switch side connectors with the switch OFF (belt fastened).
 - (b) Check that no continuity exists between terminals 1 and 3 the switch side connectors with the switch ON (belt unfastened).

If operation is not as specified, replace the switch.



**19. Passenger's seat only:
INSPECT SEAT BELT WARNING OCCUPANT DETECTION SENSOR CONTINUITY**

Check that continuity exists between terminals 1 and 2 when pressing the sensing part.
If operation is not as specified, replace the seat cushion pad with sensor.



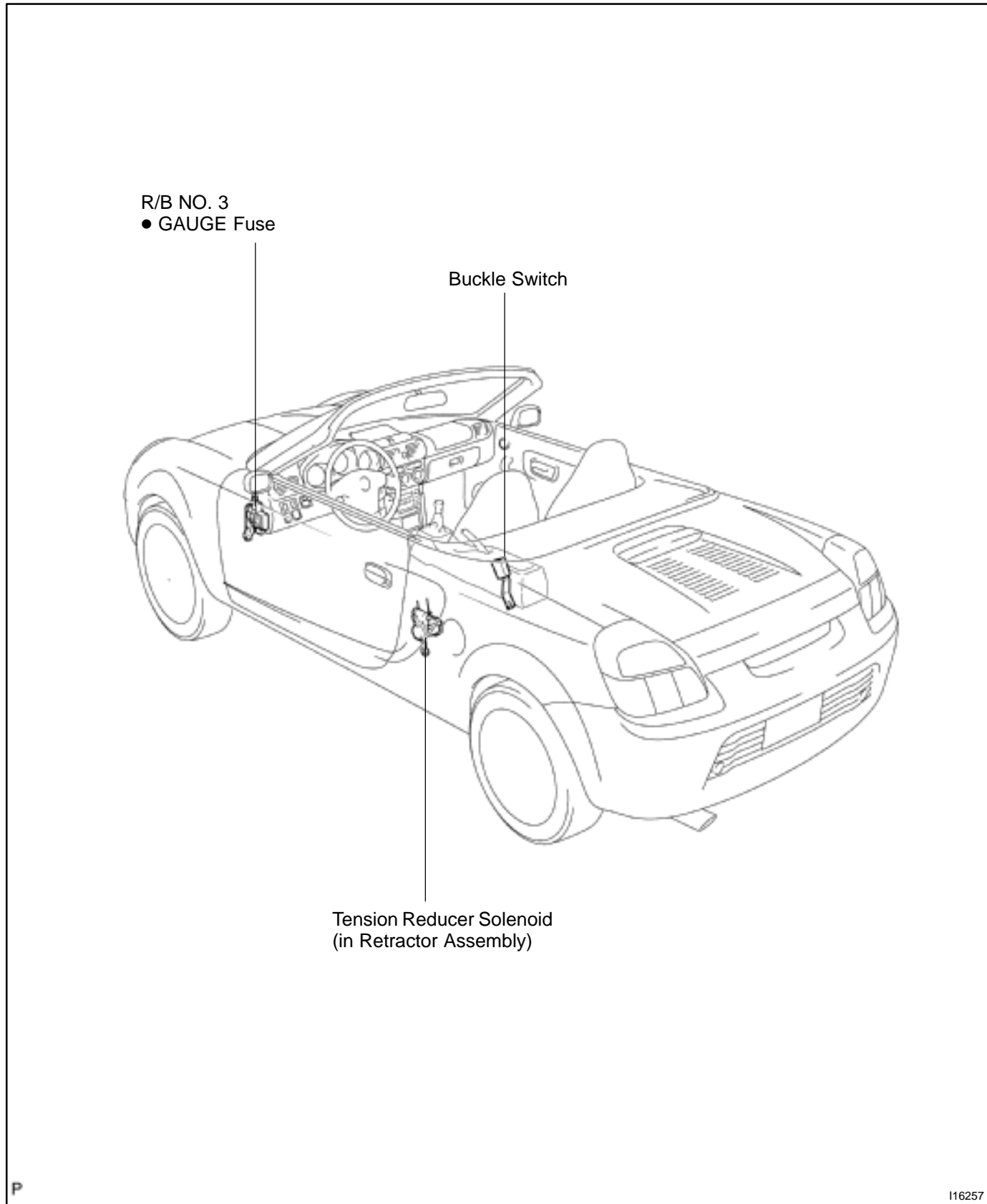
20. INSPECT LIGHT CONTROL RHEOSTAT OPERATION

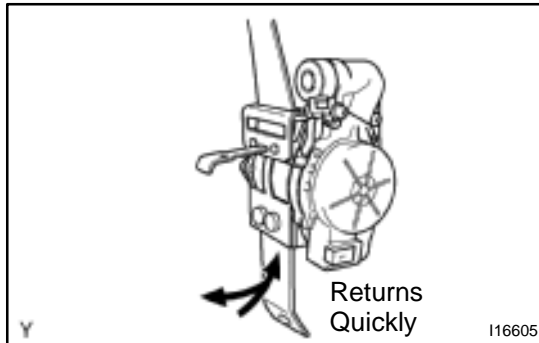
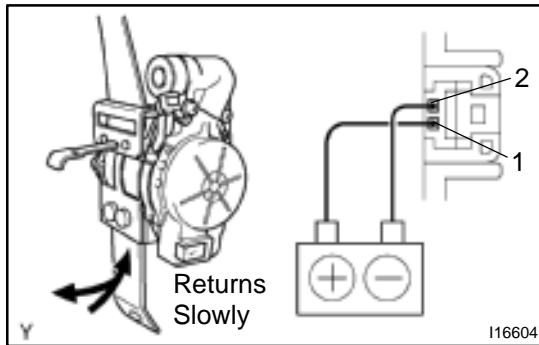
Gradually, turn the rheostat knob from the bright side to the dark side and check that the resistance decreases from 10 kΩ to 0 Ω between terminals 4 and 5. (Rheostat knob turned to clockwise)
If operation is not as specified, replace the light control rheostat.

ELECTRIC TENSION REDUCER SYSTEM (Driver)

LOCATION

BE1K9-01





INSPECTION

1. INSPECT TENSION REDUCER SOLENOID OPERATION

- Connect the positive (+) lead from the battery to terminal 1, and the negative (-) lead to terminal 2.
- Pull the belt upward and check that the belt is slowly retracted when released.

- Disconnect the lead from the battery.
- Pull the belt upward and check that the belt is retracted more quickly when released than in (b).

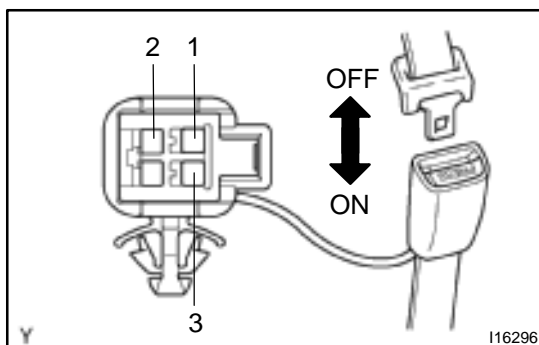
HINT:

Do not tilt the retractor.

If the operation is not as specified, replace the front seat outer belt assembly.

CAUTION:

Must not charge the connector terminal of the pretensioner. The pretensioner may work resulting in an unexpected injury.



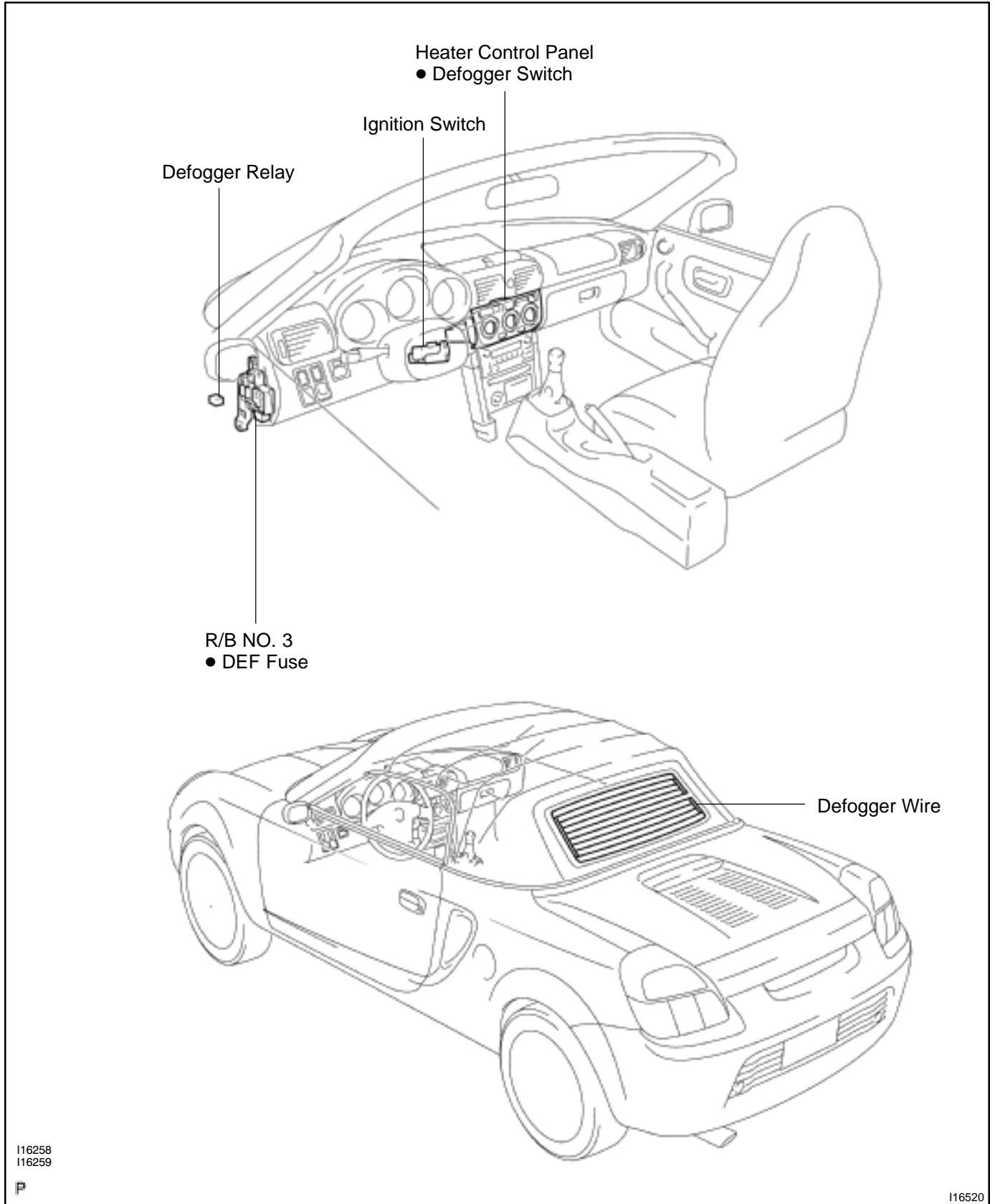
2. Driver's side:

INSPECT BUCKLE SWITCH CONTINUITY

- Check that continuity exists between terminals 1 and 3 on the switch side connector with the switch ON (belt fastened).
 - Check that no continuity exists between terminals 1 and 2 on the switch side connector with the switch OFF (belt unfastened).
 - Check that no continuity 1 and 2 (belt fastened).
 - Check that continuity 1 and 2 (belt unfastened).
- If operation is not as specified, replace the switch.

DEFOGGER SYSTEM LOCATION

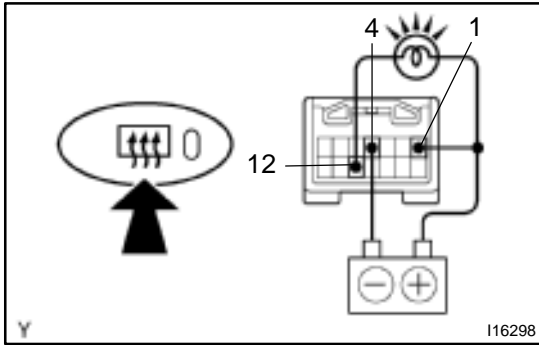
BEOPD-04



I16258
I16259



I16520

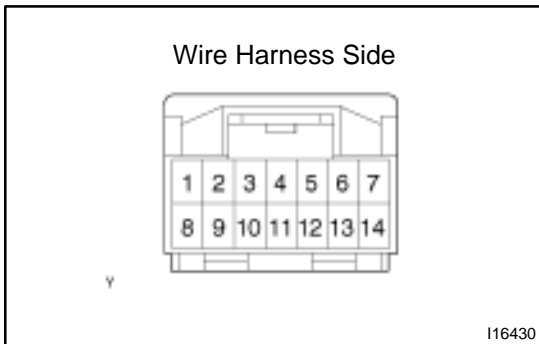


INSPECTION

1. INSPECT DEFOGGER TIMER OPERATION

- Connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 4.
- Connect the positive (+) lead from the battery to terminal 12 through a 3.4 W test bulb.
- Turn the defogger switch ON and check that the indicator light and test bulb light up for 12 for 18 minutes, then the indicator light and test bulb lights go out.

If operation is not as specified, replace the switch.



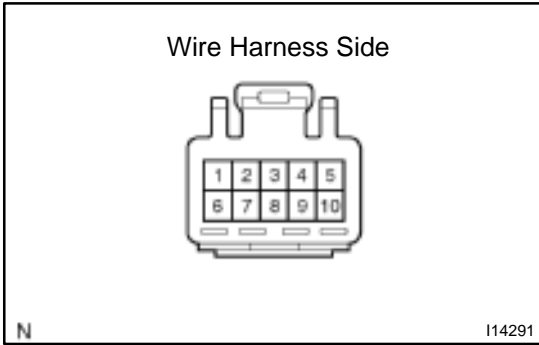
2. INSPECT DEFOGGER SWITCH CIRCUIT

Connector disconnected:

Disconnect the connector from the switch and inspect the connector on the wire harness side, as shown in the chart.

Tester connection	Condition	Specified condition
12 - Ground	Constant	Continuity
4 - Ground	Ignition switch LOCK or ACC	No voltage
4 - Ground	Ignition switch ON	Battery positive voltage

If the circuit is as specified, replace the switch.



3. INSPECT DEFOGGER SWITCH CIRCUIT

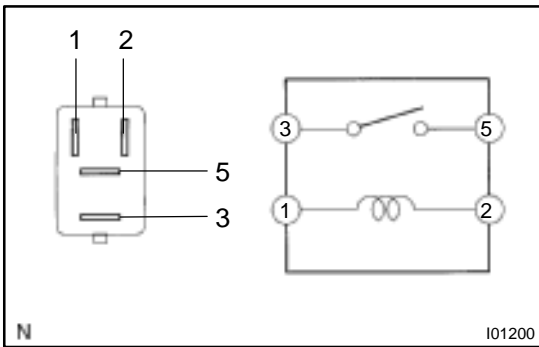
Connector connected:

Connect the connector from the switch and inspect the wire harness side connector from the back side, as shown in the chart.

Tester connection	Condition	Specified condition
4 – Ground	Ignition switch ON and defogger switch OFF	Battery positive voltage
4 – Ground	Ignition switch ON and defogger switch ON	No voltage

If the circuit is as specified, try replacing the switch with a new one.

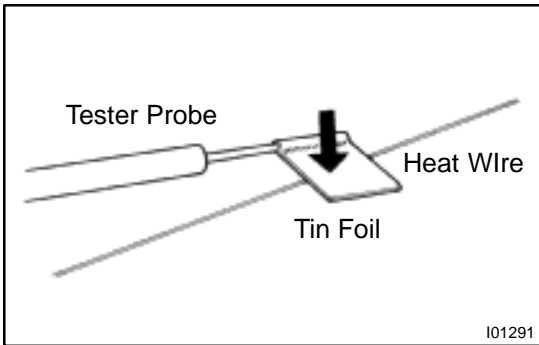
If the circuit is not as specified, inspect the circuit connected to other parts.



4. INSPECT DEFOGGER RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the relay.

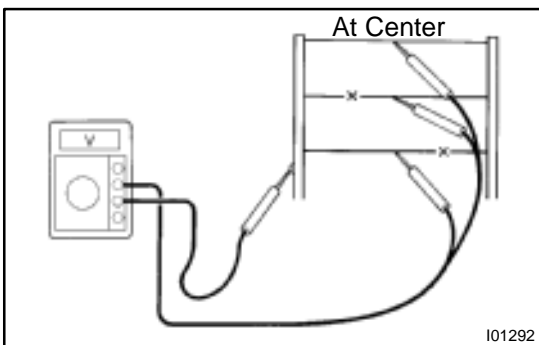


5. INSPECT DEFOGGER WIRE

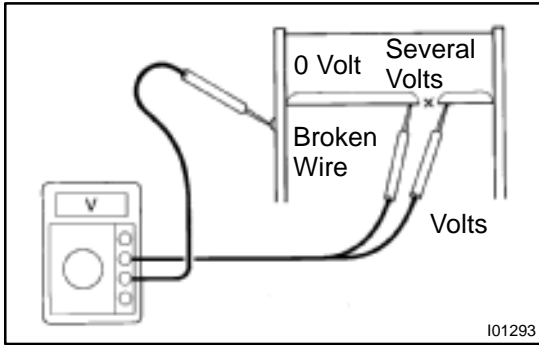
NOTICE:

- When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.
- Do not use detergents or glass cleaners with abrasive ingredients.
- When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger, as shown.

- Turn the ignition switch ON.
- Turn the defogger switch ON.
- Inspect the voltage at the center of each heat wire, as shown.



Voltage	Criteria
Approx. 5 V	Okay (No break in wire)
Approx. 10 V or 0 V	Broken wire



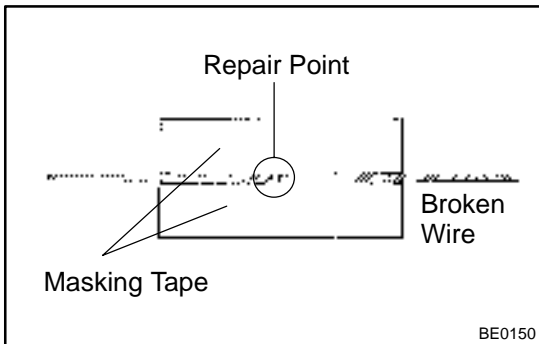
HINT:

If there is approximately 10 V, the wire is broken between the center of the wire and the positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.

- (d) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.
- (e) Place the voltmeter negative (-) lead with the foil strip against the heat wire at the positive (+) terminal end and slide it toward the negative (-) terminal end.
- (f) The point where the voltmeter deflects from zero to several V is the place where the heat wire is broken.

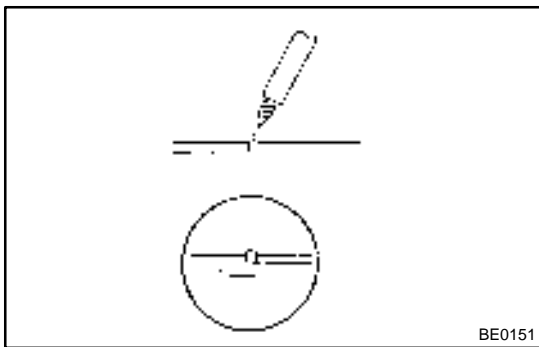
HINT:

If the heat wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the heat wire but gradually increases to about 12 V as the meter probe is moved to the other end.



6. IF NECESSARY, REPAIR DEFOGGER WIRE

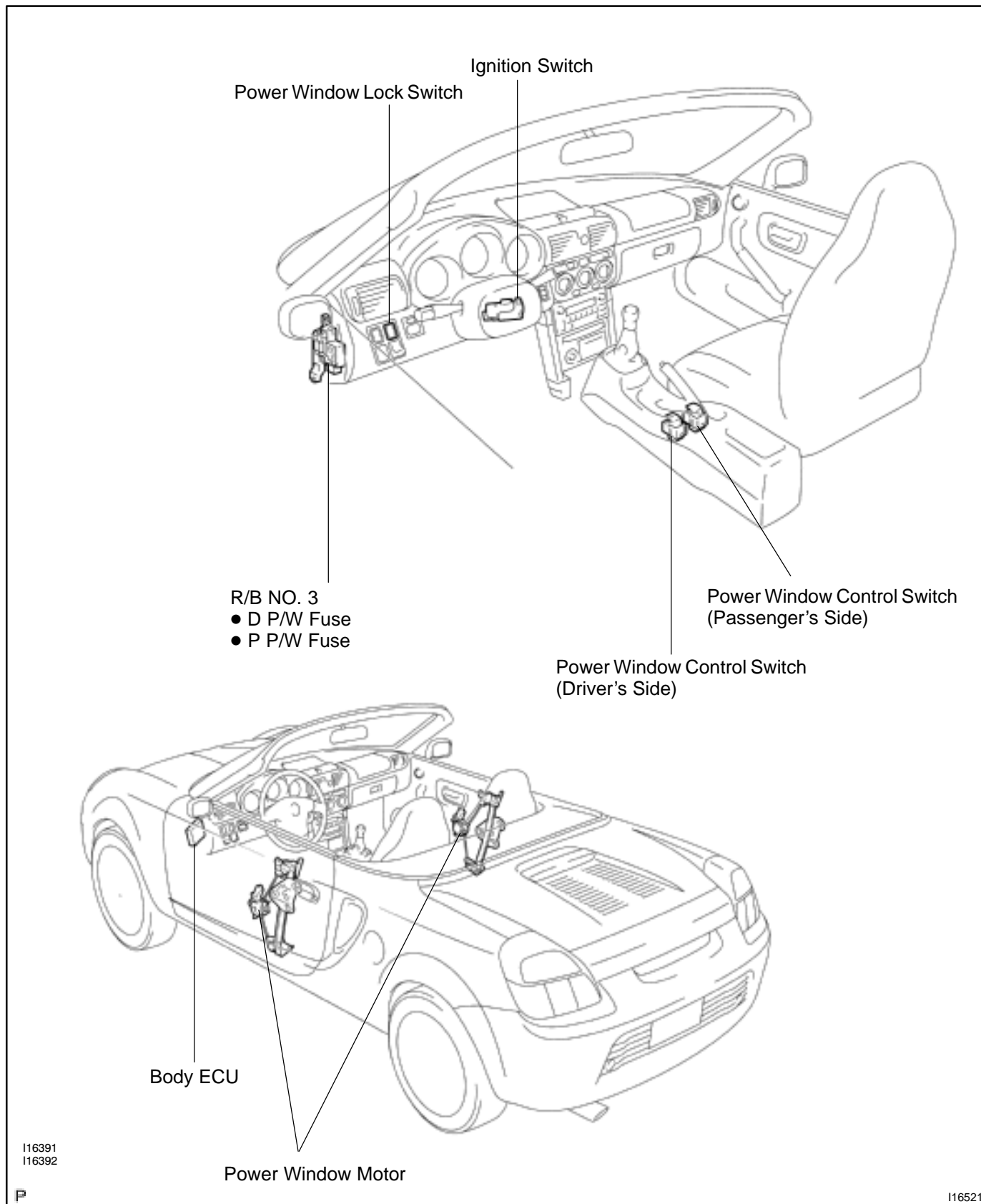
- (a) Clean the broken wire tips with grease, wax and silicone remover.
- (b) Place the masking tape along both sides of the wire to be repaired.

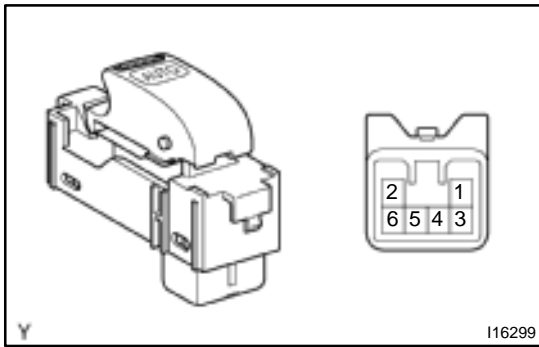


- (c) Thoroughly mix the repair agent (Dupont paste No. 4817 or equivalent).
- (d) Using a fine top brush, apply a small amount to the wire.
- (e) After a few minutes, remove the masking tape.
- (f) Do not repair the defogger wire for at least 24 hours.

POWER WINDOW CONTROL SYSTEM LOCATION

BE0PF-04



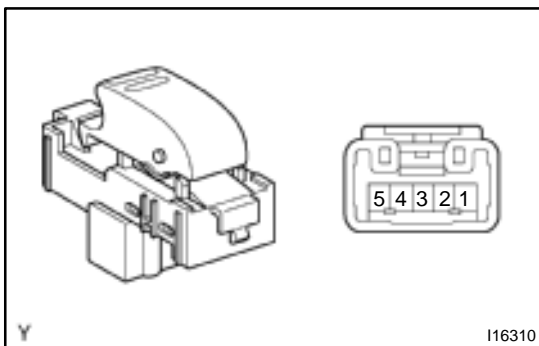


INSPECTION

1. Driver's side: INSPECT POWER WINDOW CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
UP MANUAL	3 – 6	Continuity
OFF	–	No Continuity
DOWN MANUAL	3 – 4	Continuity
DOWN AUTO	3 – 4, 3 – 5	Continuity

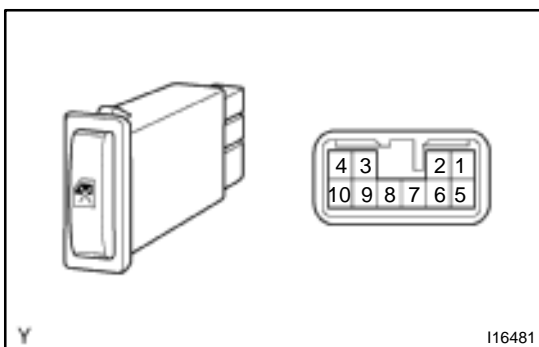
If continuity is not as specified, replace the switch.



2. Passenger's side: INSPECT POWER WINDOW CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
UP	1 – 2, 3 – 4	Continuity
OFF	1 – 2, 3 – 5	Continuity
DOWN	1 – 4, 3 – 5	Continuity

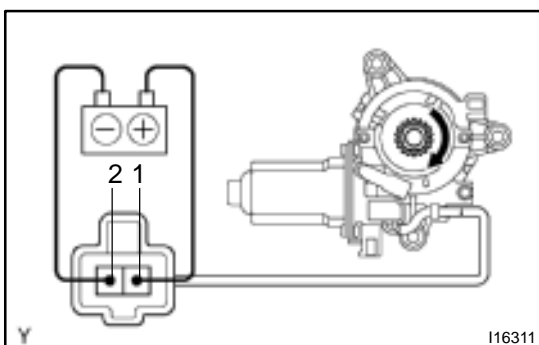
If continuity is not as specified, replace the switch.



3. Only for passenger's power window: INSPECT POWER WINDOW LOCK SWITCH CONTINUITY

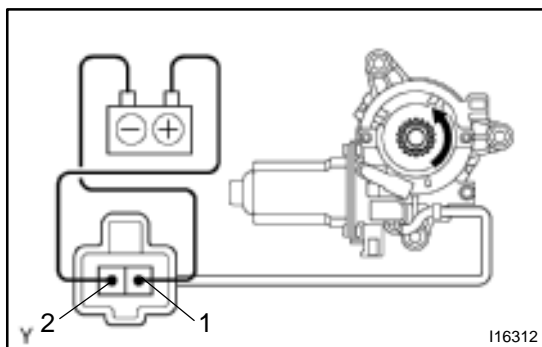
Switch position	Tester connection	Specified condition
ON	7 – 10	Continuity
OFF	7 – 10	No Continuity

If continuity is not as specified, replace the switch.



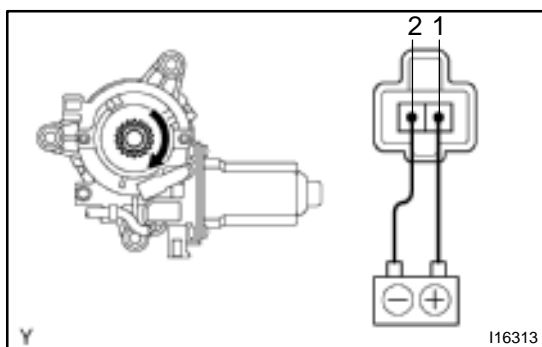
4. Driver's door: INSPECT POWER WINDOW MOTOR OPERATION

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns clockwise.



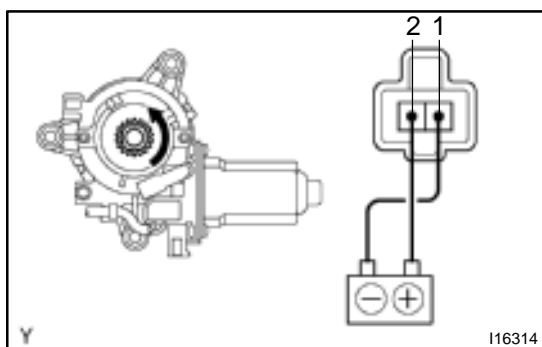
- (b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



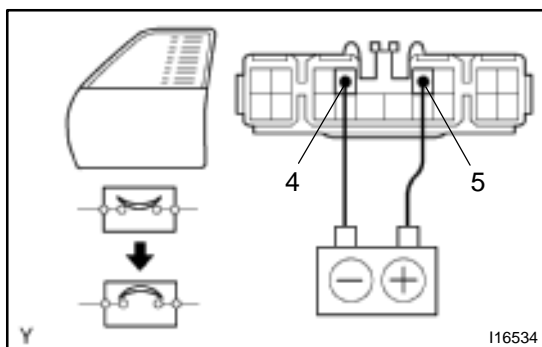
**5. Passenger's door:
INSPECT POWER WINDOW MOTOR OPERATION**

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns clockwise.



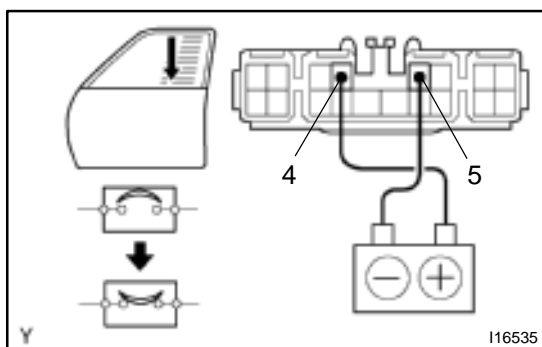
- (b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



**6. Driver's door:
INSPECT POWER WINDOW MOTOR PTC OPERATION**

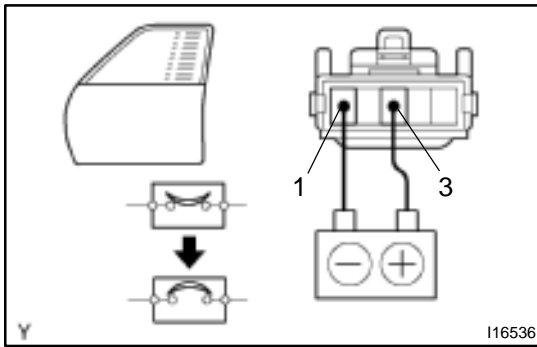
- (a) Disconnect the B6 connector from the body ECU.
(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4 on the wire harness side connector, and raise the window to fully closed position.



- (c) Continue to apply voltage, check that a circuit breaker operation noise is heard within approximately 4 to 90 seconds.

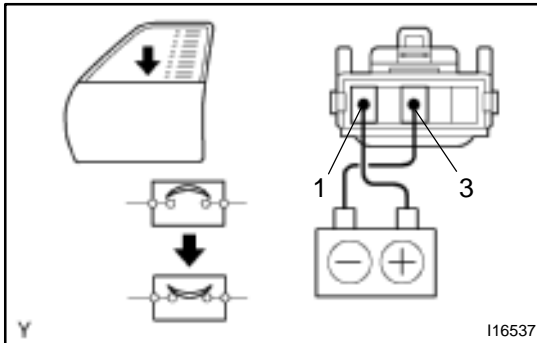
- (d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.

If operation is not as specified, replace the motor.



**7. Passenger's door:
INSPECT POWER WINDOW MOTOR PTC OPERATION**

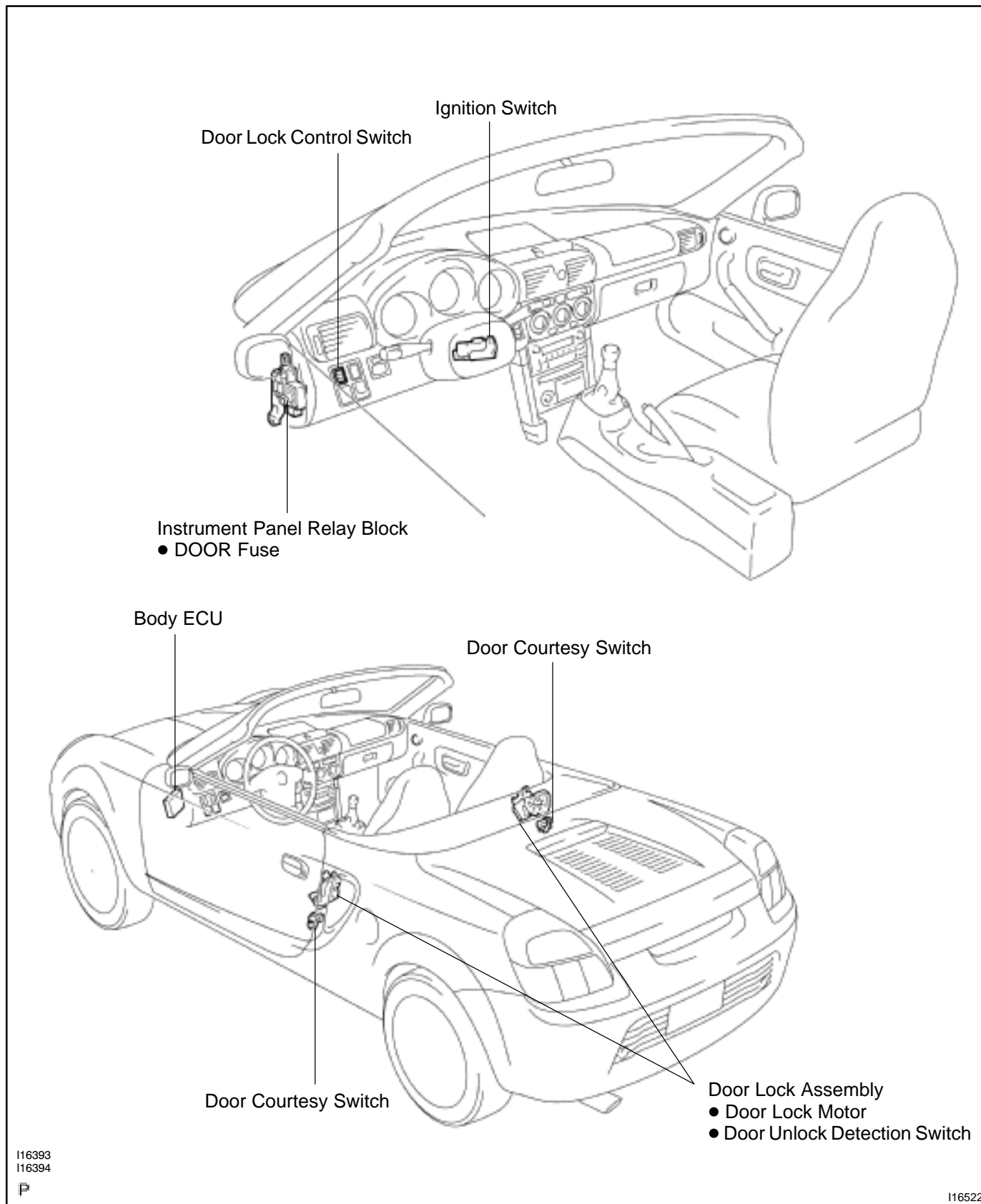
- (a) Disconnect the connector from the power window switch.
- (b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1 on the wire harness side connector, and raise the window to fully closed position.

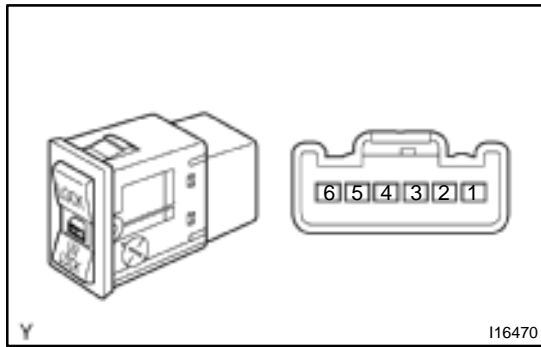


- (c) Continue to apply voltage, check that circuit breaker operation noise is heard within approximately 4 to 90 seconds.
 - (d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.
- If operation is not as specified, replace the motor.

POWER DOOR LOCK CONTROL SYSTEM LOCATION

BEOPH-04



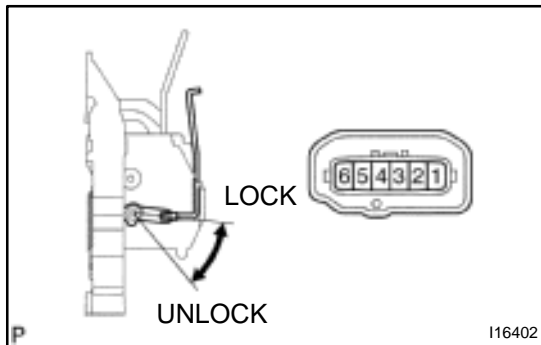


INSPECTION

1. INSPECT DRIVER'S DOOR LOCK CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 – 3, 5 – 6	Continuity
OFF	–	No continuity
UNLOCK	1 – 6, 3 – 5	Continuity

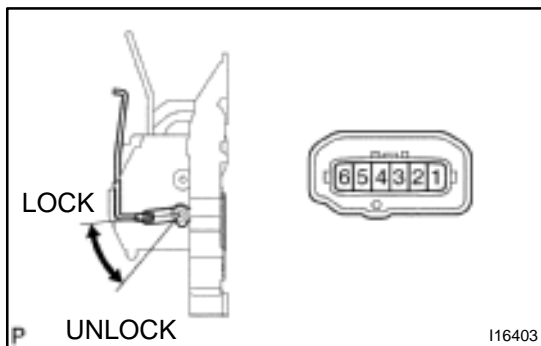
If continuity is not as specified, replace the switch.



2. Driver's door: INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	2 – 4	Continuity
OFF	–	No continuity
UNLOCK	2 – 3	Continuity

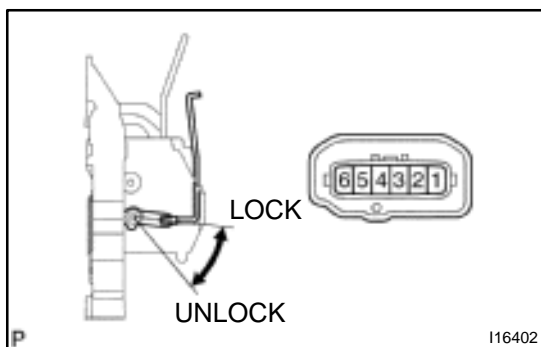
If continuity is not as specified, replace the switch.



3. Passenger's door: INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	3 – 5	Continuity
OFF	–	No continuity
UNLOCK	4 – 5	Continuity

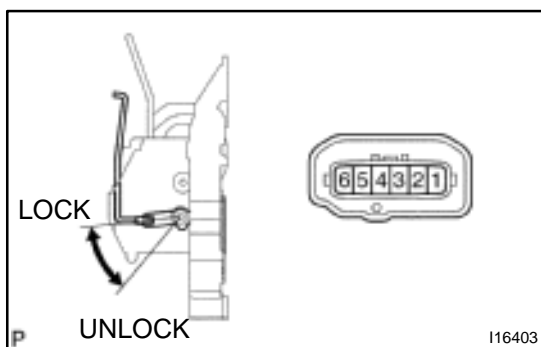
If continuity is not as specified, replace the switch.



4. Driver's door: INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	–	No continuity
ON (Door Lock set to UNLOCK)	1 – 2	Continuity

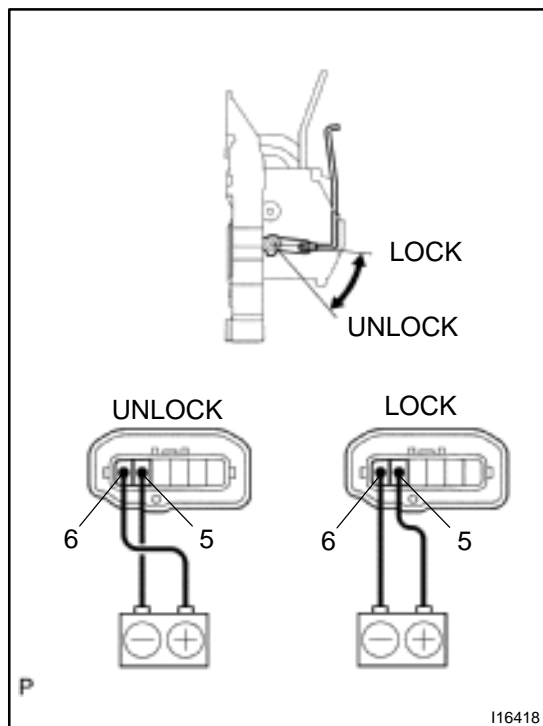
If continuity is not as specified, replace the switch.



5. Passenger's door: INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

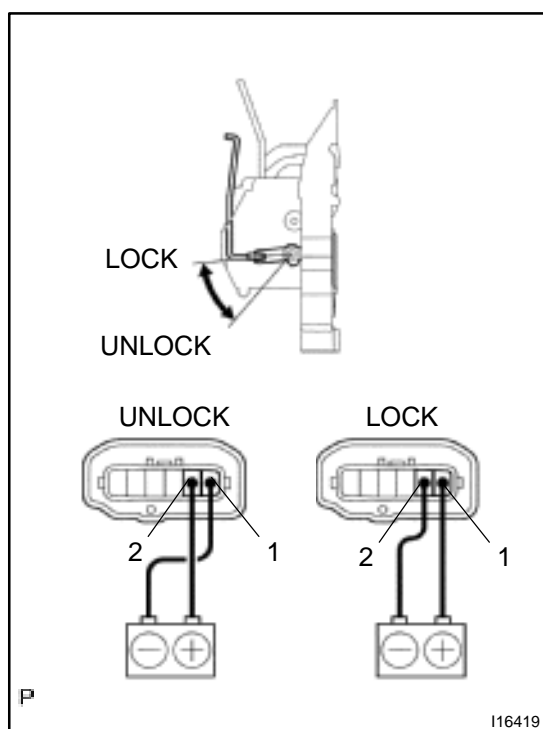
Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	–	No continuity
ON (Door Lock set to UNLOCK)	5 – 6	Continuity

If continuity is not as specified, replace the switch.

**6. Driver's door:****INSPECT DOOR LOCK MOTOR OPERATION**

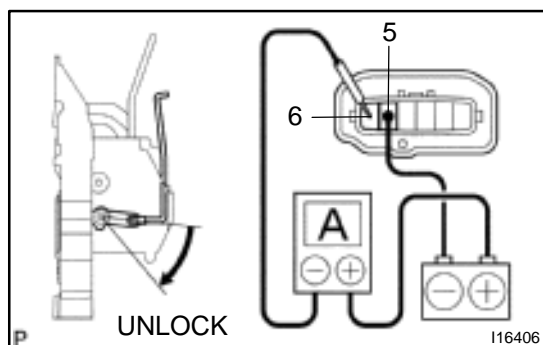
- (a) Connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 5, and check that the door lock link moves to UNLOCK position.
- (b) Reverse the polarity and check that the door lock link moves to LOCK position.

If operation is not as specified, replace the door lock assembly.

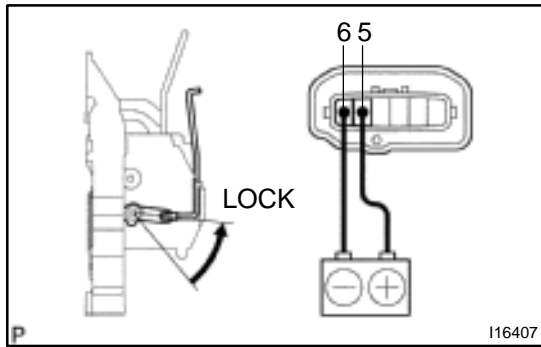
**7. Passenger's door:****INSPECT DOOR LOCK MOTOR OPERATION**

- (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, and check that the door lock link moves to UNLOCK position.
- (b) Reverse the polarity and check that the door lock link moves to LOCK position.

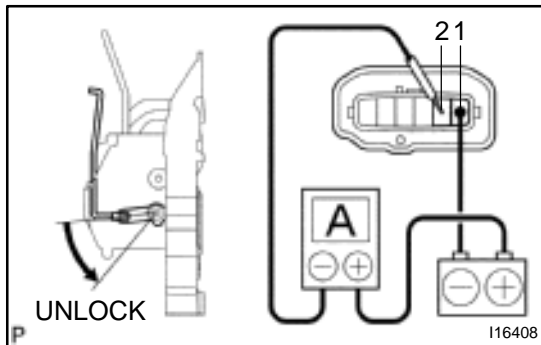
If operation is not as specified, replace the door lock assembly.

**8. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION**

- (a) Connect the negative (-) lead from the ammeter to terminal 6, and the positive (+) lead to negative terminal of the battery.
- (b) Connect the negative (-) lead from the battery to terminal 5.
- (c) Check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

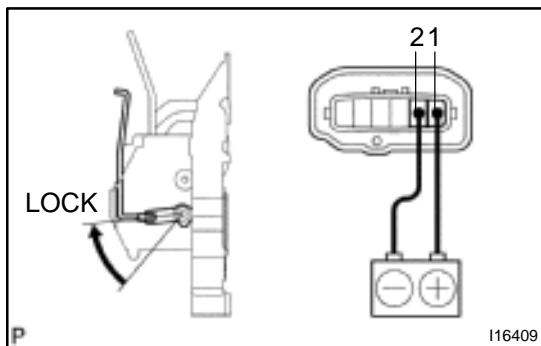


- (d) Disconnect the leads from terminals.
 - (e) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

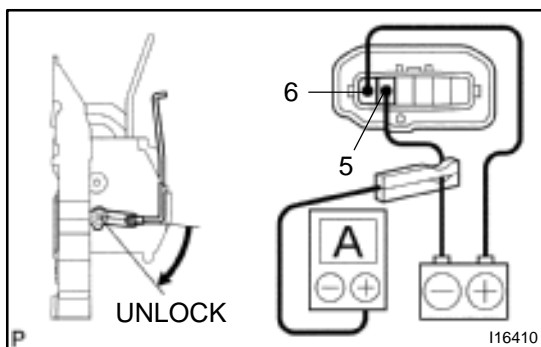


9. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

- (a) Connect the negative (-) lead from the ammeter to terminal 2, and the positive (+) lead to negative terminal of the battery.
- (b) Connect the negative (-) lead from the battery to terminal 1.
- (c) Check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

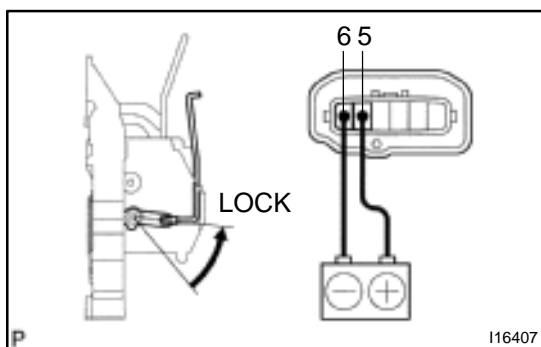


- (d) Disconnect the leads from terminals.
 - (e) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

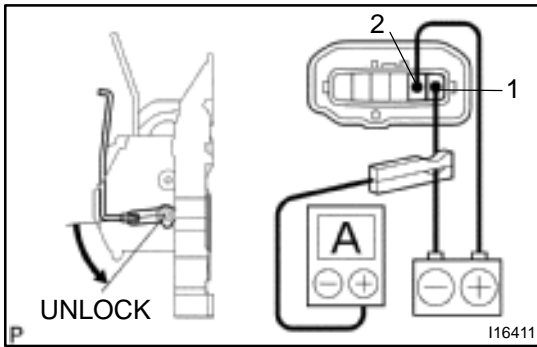


10. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

- (a) Connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 5.
- (b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

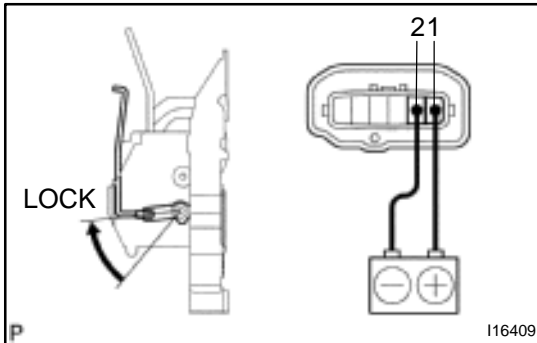


- (c) Disconnect the leads from terminals.
 - (d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.



11. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

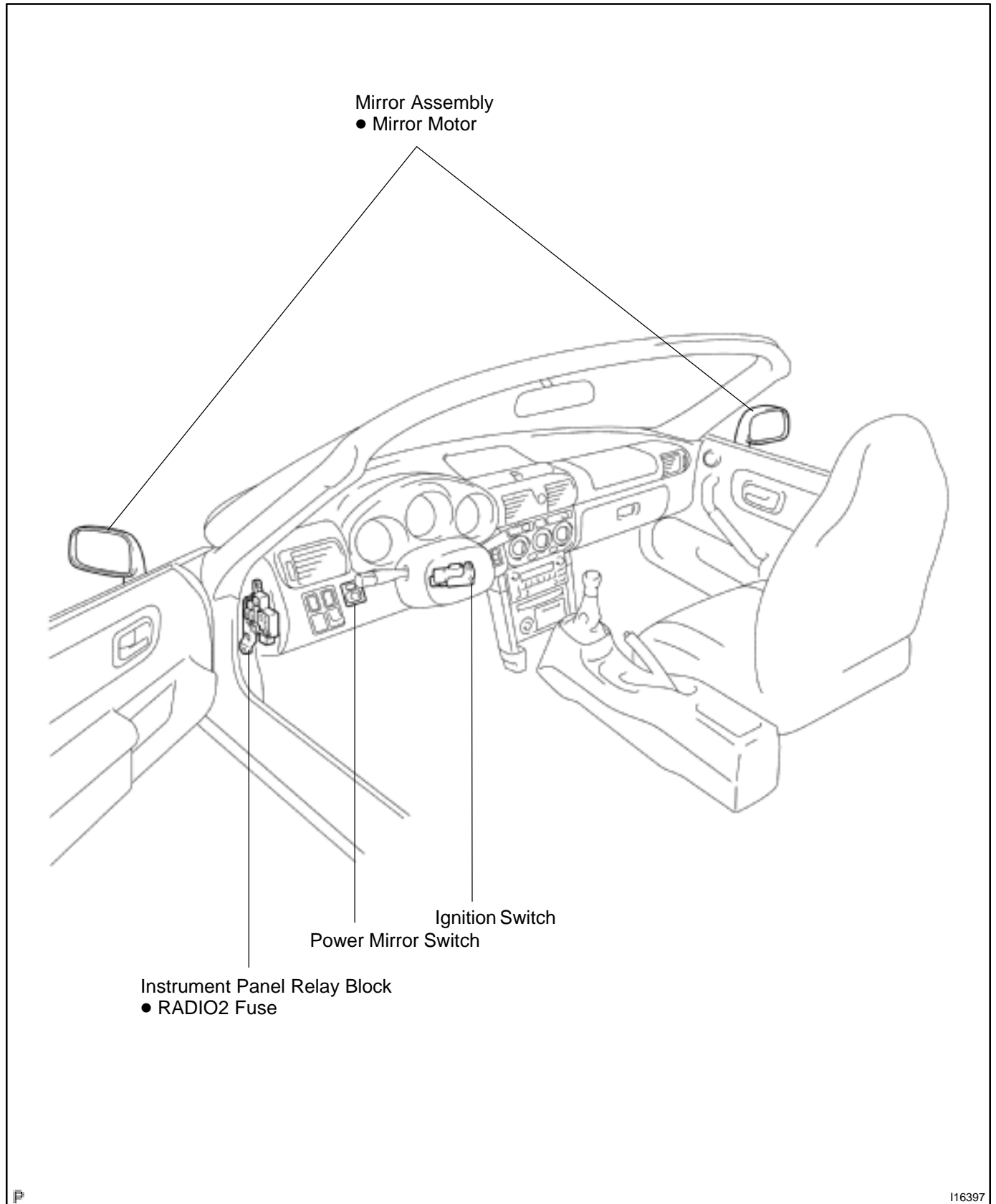
- (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1.
- (b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

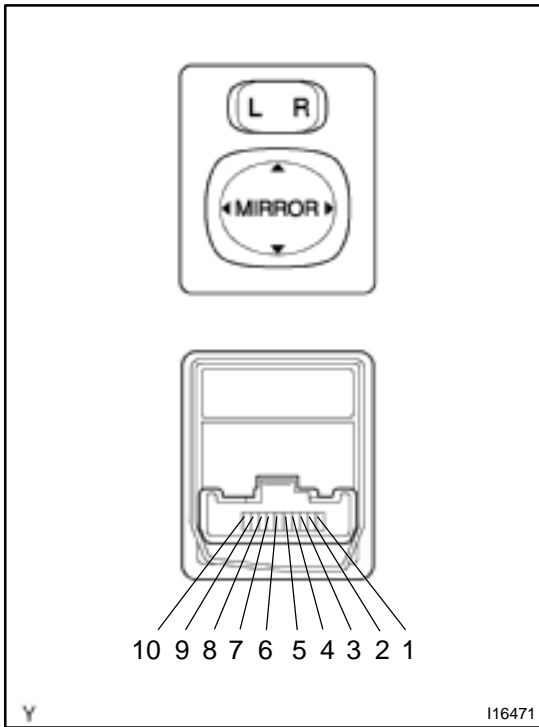


- (c) Disconnect the leads from terminals.
 - (d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

POWER MIRROR CONTROL SYSTEM LOCATION

BE0PL-04





INSPECTION

1. INSPECT LEFT SIDE MIRROR SWITCH CONTINUITY

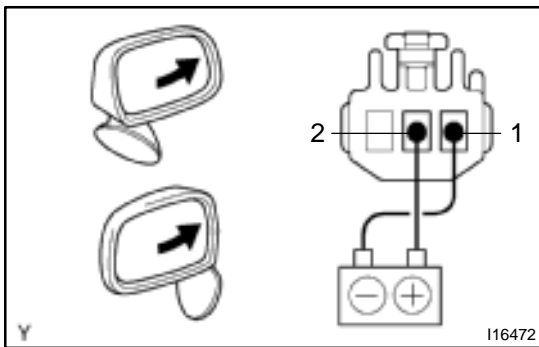
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	4–8 6–7	Continuity
DOWN	4–7 6–8	Continuity
LEFT	5–8 6–7	Continuity
RIGHT	5–7 6–8	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT RIGHT SIDE MIRROR SWITCH CONTINUITY

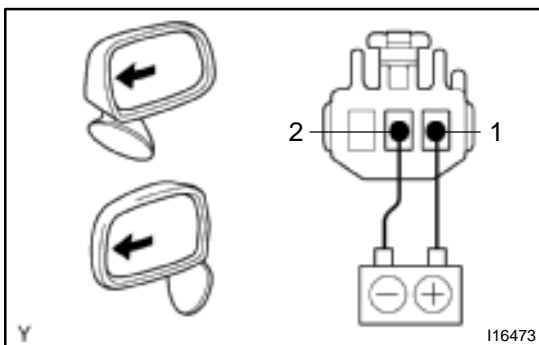
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	3–8 6–7	Continuity
DOWN	3–7 6–8	Continuity
LEFT	2–8 6–7	Continuity
RIGHT	2–7 6–8	Continuity

If continuity is not as specified, replace the switch.

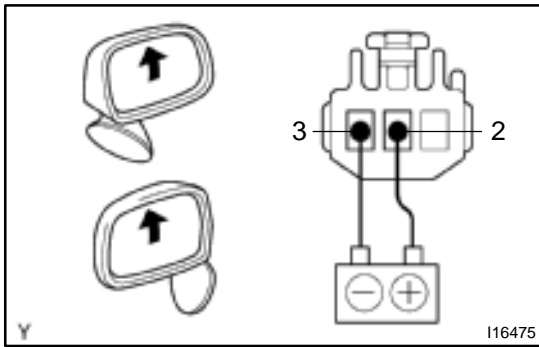


3. INSPECT MIRROR MOTOR OPERATION

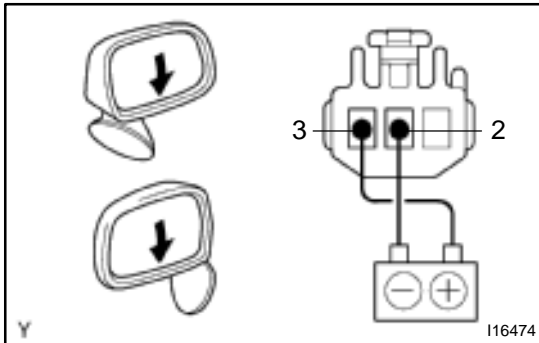
- (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, and check that the mirror turns to the right.



- (b) Reverse the polarity, and check that the mirror turns to the left.



- (c) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3, and check that the mirror turns downward.



- (d) Reverse the polarity, and check that the mirror turns upward.
If operation is not as specified, replace the mirror assembly.

AUDIO SYSTEM DESCRIPTION

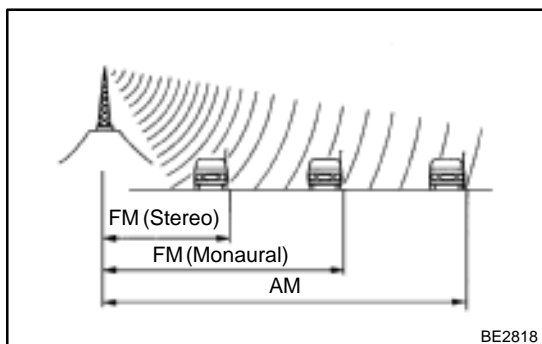
BE1KE-01

1. RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30 kHz	300 kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave		AM ↔		FM ↔	
Modulation method	Amplitude modulation			Frequency modulation	

LF: Low frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

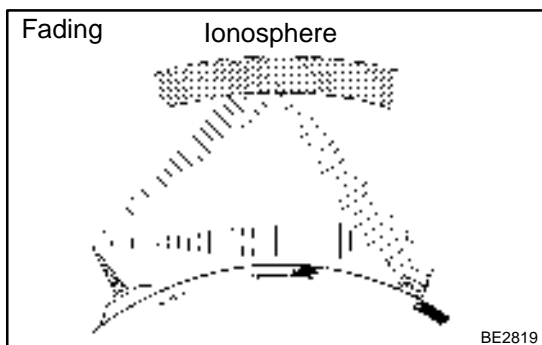


2. SERVICE AREA

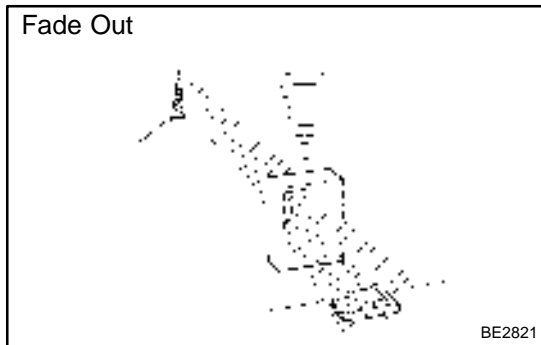
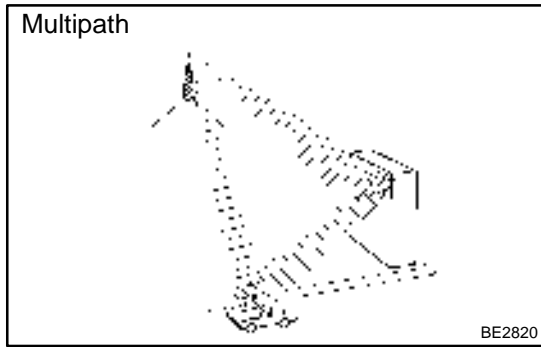
There are great differences in the size of the service area for AM and FM monaural. Sometimes FM stereo broadcasts cannot be received even though AM comes in very clearly. Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference ("noise") easily.

3. RECEPTION PROBLEMS

Besides the static problem, there are also the problems called "fading", "multipath" and "fade out". These problems are caused not by electrical noise but by the nature of the radio waves themselves.



- **Fading**
Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle's antenna directly. This type of interference is called "fading".



- Multipath**
Interference caused by bouncing of radio waves off obstructions is called "multipath". Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly.
- Fade out**
Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstructions. This is called "fade out".

4. NOISE PROBLEMS

(a) Questionnaire for noise:

For noise troubleshooting it is very important to understand the claims from the customers well, so make the best use of the following questionnaire and diagnose the problem accurately.

AM	Noise occurs at a specific place.	Strong possibility of foreign noise.
	Noise occurs when listening to faint broadcasting.	There is a case that the same program is broadcasted from each local station and that may be the case you are listening to different station if the program is the same.
	Noise occurs only at night.	Strong possibility of the beat from a distant broadcasting.
FM	Noise occurs while driving and at a specific place.	Strong possibility of multipath noise and fading noise caused by the changes of FM waves.

HINT:

In the case that the noise occurrence condition does not meet any of the above, check based on the "Trouble Phenomenon". Refer to previous page for multipath and fading.

- (b) Matters that require attention when checking:
- Noise coming into the radio usually has no harm for practical use as the noise protection is taken and it is hardly thinkable for an extremely loud noise to come in. When extremely loud noise comes into the radio, check if the grounding is normal where the antenna is installed.
 - Check if all the regular noise prevention parts are properly installed and if there is any installation of non-authorized parts and non-authorized wiring.
 - If you leave the radio out of tune (not tuning), it is easy to diagnose the phenomenon as noise occurs frequently.

5. COMPACT DISC PLAYER

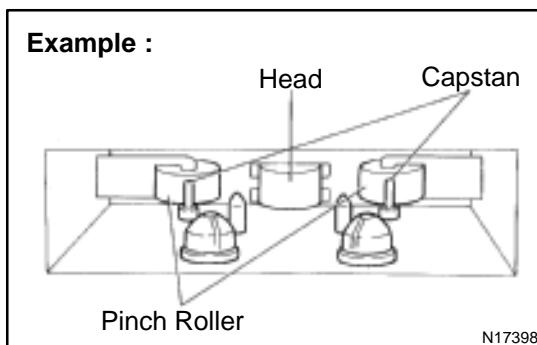
Compact Disc Players use a laser beam pick-up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc.

HINT:

Never attempt to disassemble or oil any part of the player unit. Do not insert any object other than a disc into the magazine.

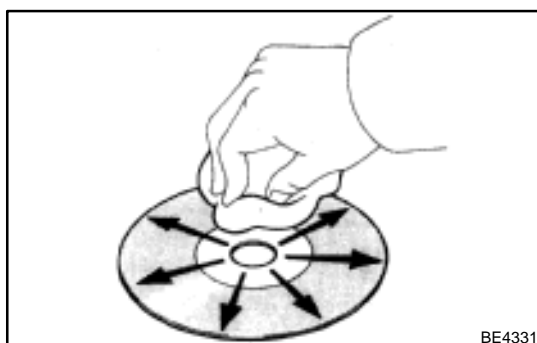
NOTICE:

CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.



6. Tape Player/Head Cleaning: MAINTENANCE

- Raise the cassette door with your finger. Next, using a pencil or similar object, push in the guide.
- Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



7. CD Player/Disc Cleaning: MAINTENANCE

If the disc gets dirty, clean the disc by wiping the surface from the center to outside in the radial directions with a soft cloth.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

8. OUTLINE OF AVC-LAN**(a) What is AVC-LAN?**

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.

(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

- (1) When products by different manufactures were combined together, there used to be a case that malfunction occurred such as sound did not come out. This problem has been resolved by standardization of signals.
 - (2) Various types of after market products have been able to add or replace freely.
 - (3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.
 - (4) Conventionally, a new product developed by a manufacture could not be used due to a lack of compatibility with other manufactures products. Because of this new standard, users can enjoy compatible products provided for them timely.
- (c) The above descriptions are the objectives to introduce AVC-LAN. By this standardization, development of new products will no longer cause systematic errors. Thus, this is very effective standard for a product in the future.

HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops. Accordingly the audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. (When audio system is equipped with a navigation system, navigation ECU is the master unit.)
- The car audio system using AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical address. Numbers are also allotted to each function in one product, which are called logical address.

9. DIAGNOSIS FUNCTION

Error codes over tuner and connected equipment are displayed on the screen of tuner.

(a) Diagnosis start-up

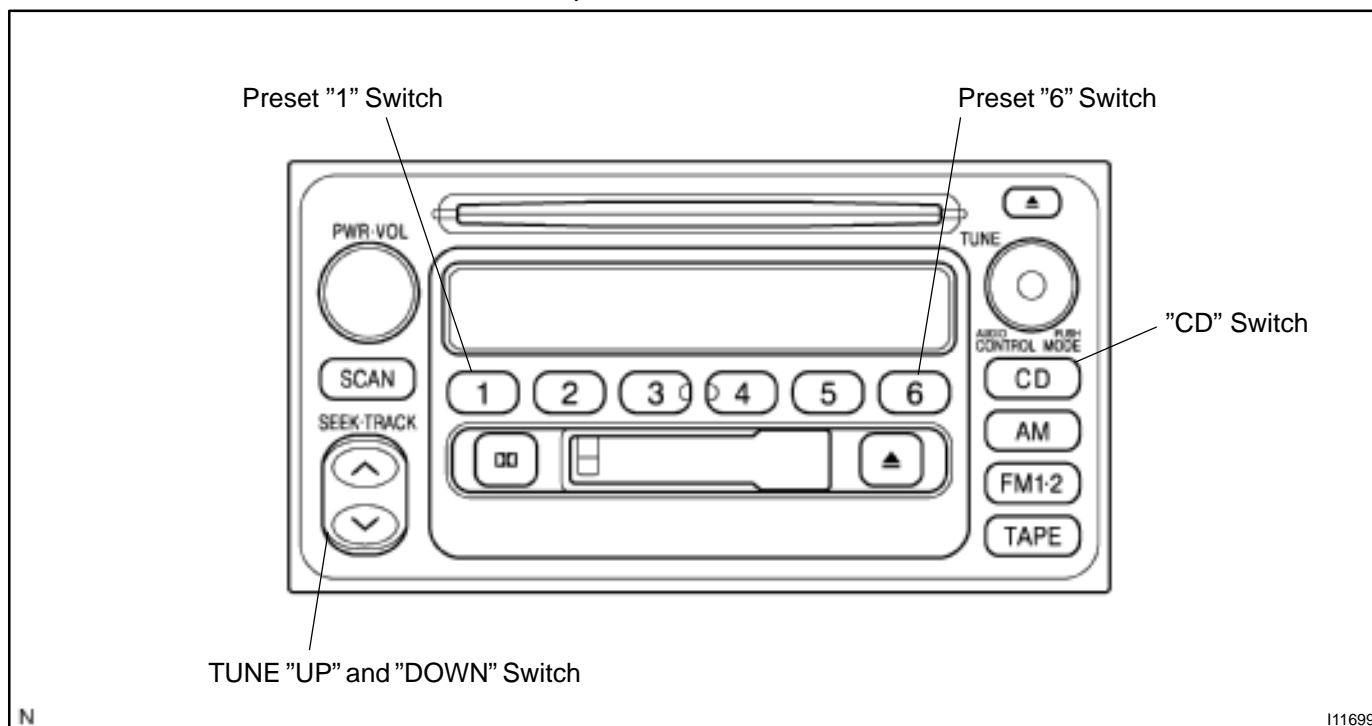
For shifting to diagnosis mode, push "CD" switch 3 times with pressing "1" and "6" of PRESET switch at the same time while the audio power is OFF and ACC is ON.

To exit from diagnosis mode, press "CD" switch for 2 seconds or turn the ignition key OFF.

(When "1-190" is displayed, the mode is transferred to LAN check mode.)

(b) LAN check

When starting up the diagnosis mode, the mode turns to LAN check mode, the screen displays the code numbers (physical address) of tuner and connected equipment. Smaller codes are displayed in order, displayed code numbers are switched by operating TUNE "UP" or "DOWN" switch. In LAN check mode, by pressing "5" of PRESET switch for more than 2 secs., diagnosis memory of each equipment can be deleted, when deletion is completed, the mode returns to LAN check mode.



Code No. (physical address) List

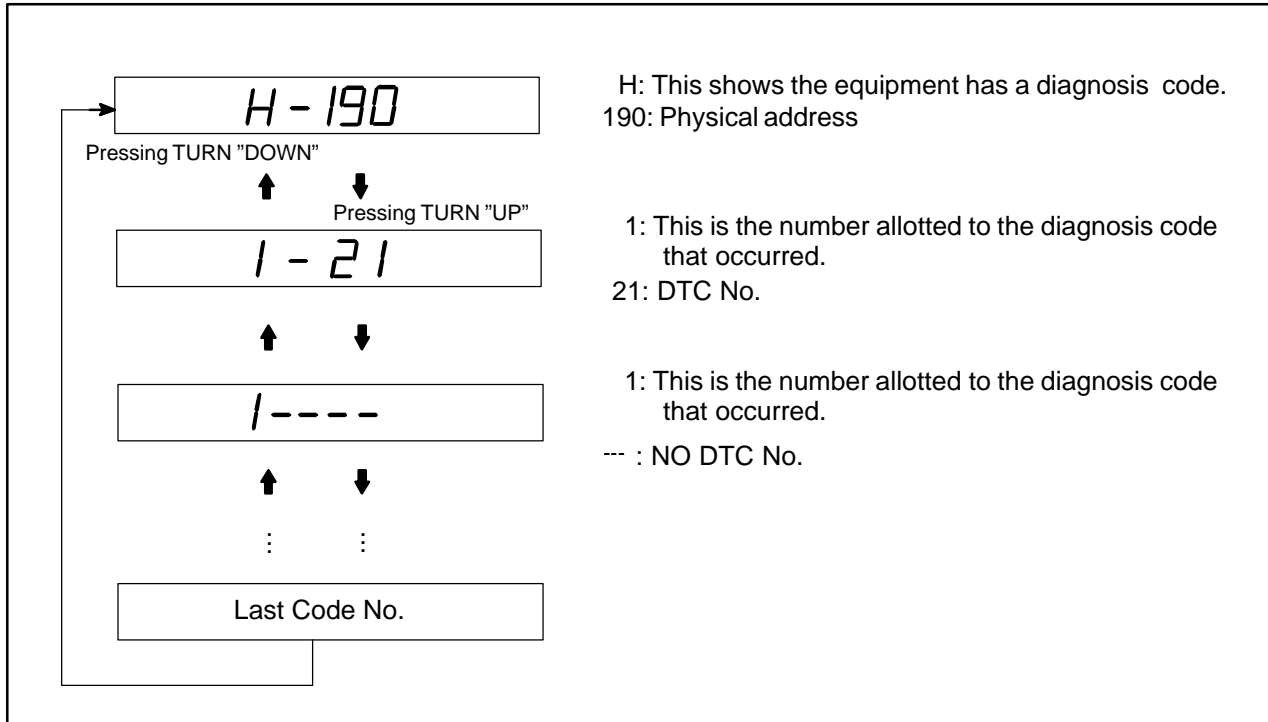
Code No. (physical address)	Equipmentname
190	Radio receiver assembly (Audio head unit)

(c) System check

- When pressing "1" of PRESET switch in LAN check mode, the mode turns to the system check mode, the system performs self diagnosis of connected equipment and displays the results. ("SYS" (showing the system is under detection) is displayed.)
- Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- It sometimes takes approx. 40 secs. till the system inspection is completed.
- The chart below is an example of when diagnosis code "21" appears on the physical address (190) equipment. (ROM error occurs on the radio receiver.)
- The smaller code numbers (physical address) are displayed in order (code No., diagnosis code, support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed.
- When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display.
- In the system check mode, when pressing "6" of PRESET switch the mode returns to LAN check mode.

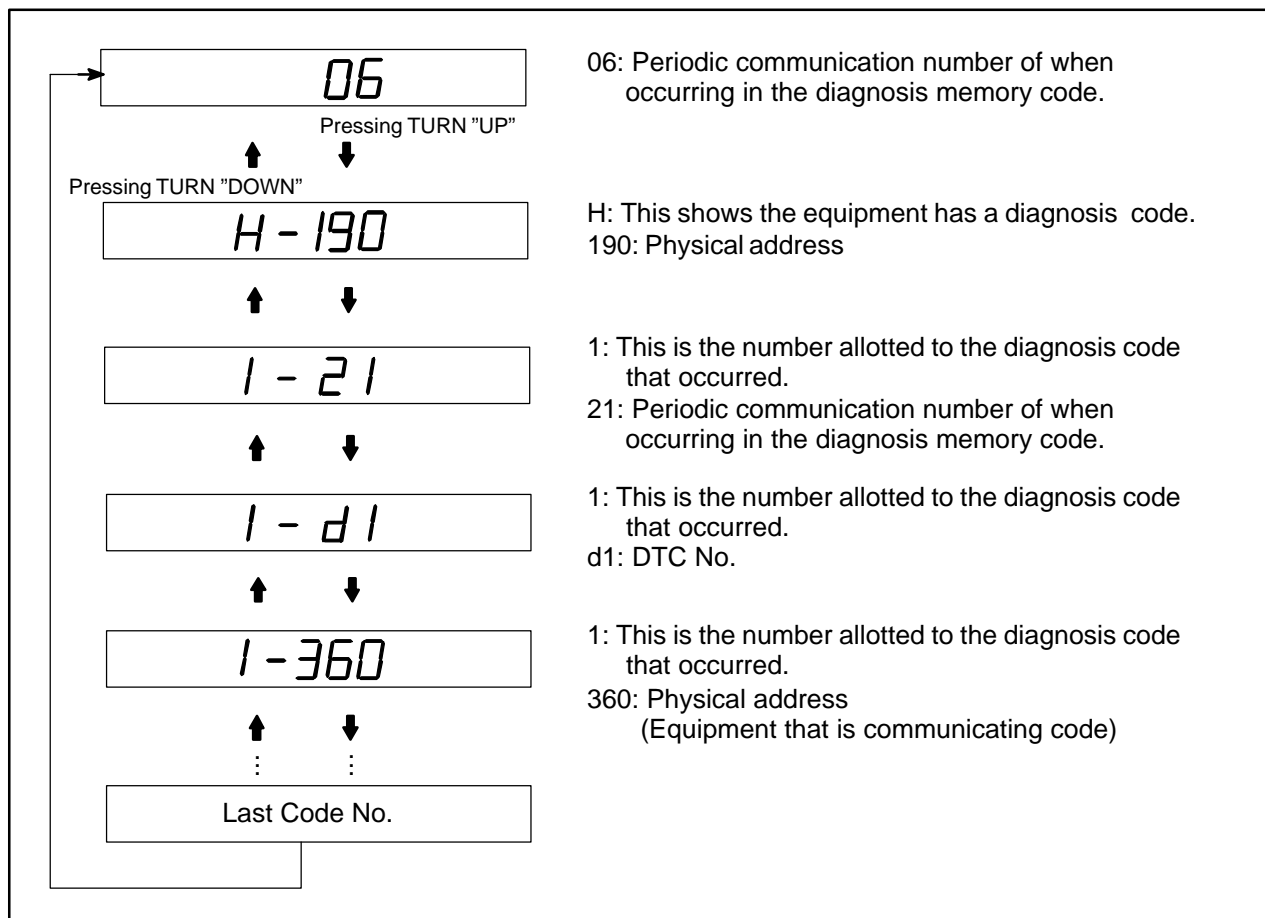


(d) Diagnosis memory

- (1) In LAN check mode, when pressing "2" of PRESET switch the mode turns to the diagnosis memory mode. ("CODE" is displayed.)
The results of self diagnosis performed over tuner and connected equipment are memorized and displayed.
- (2) Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- The smaller code numbers (physical address) are displayed in order (code No. , periodic communication number when error occurs, diagnosis code, and support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed. When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display. Each diagnosis code is same as code in the system check mode.
- When pressing "6" of PRESET switch, the mode returns to LAN check mode.
- The following illustration below is an example of when diagnosis code "D1" appears on the code (190) and (240 or 360) equipment. (Communication error occurs between the radio receiver and CD changer.)



(e) Diagnosis memory clear

- (1) After error is fixed, start up the diagnosis mode.
- (2) Continue pressing preset switch "5" for 2 secs. (CLr is displayed.)
- (3) Press the preset switch "2" and transfer to the diagnosis memory mode, and check that the normal code (00) is output.

10. DIAGNOSIS CODE LIST

- If there is "O" in the column of system check, an error can be detected when the mode is switched to the system check mode.
- If there is "O" in the column of diagnosis mode, each unit is monitoring whether or not it has failure. In case of detecting failure, it memorizes DTC.

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
Head Unit (190)	42	FM tuner error	There is an error in FM tuner.	Radio receiver check.	X	○
	50	Cassette error	There is an error in cassette deck.		X	○
	51	Cassette eject error	Cassette can not be ejected from Head Unit.		X	○
	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Radio receiver check. Wire harness and connector check.	○	○
	D2	Periodic communication no response	Error in periodic communication.	● Wire harness and connector	X	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish.	Radio receiver check.	○	X
AMP (440)	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Stereo component amplifier check.	○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○

TROUBLESHOOTING

NOTICE:

When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

HINT:

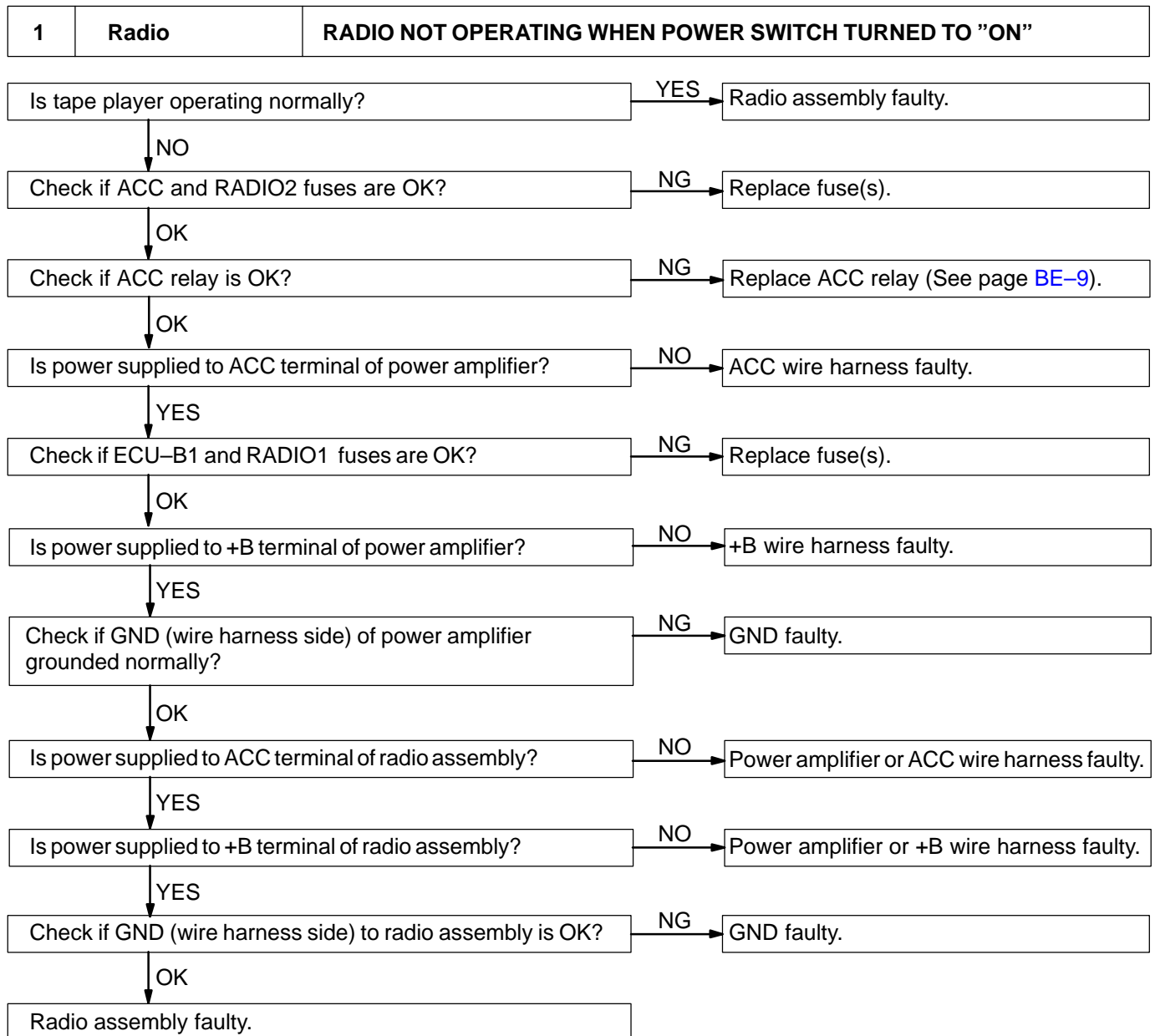
This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

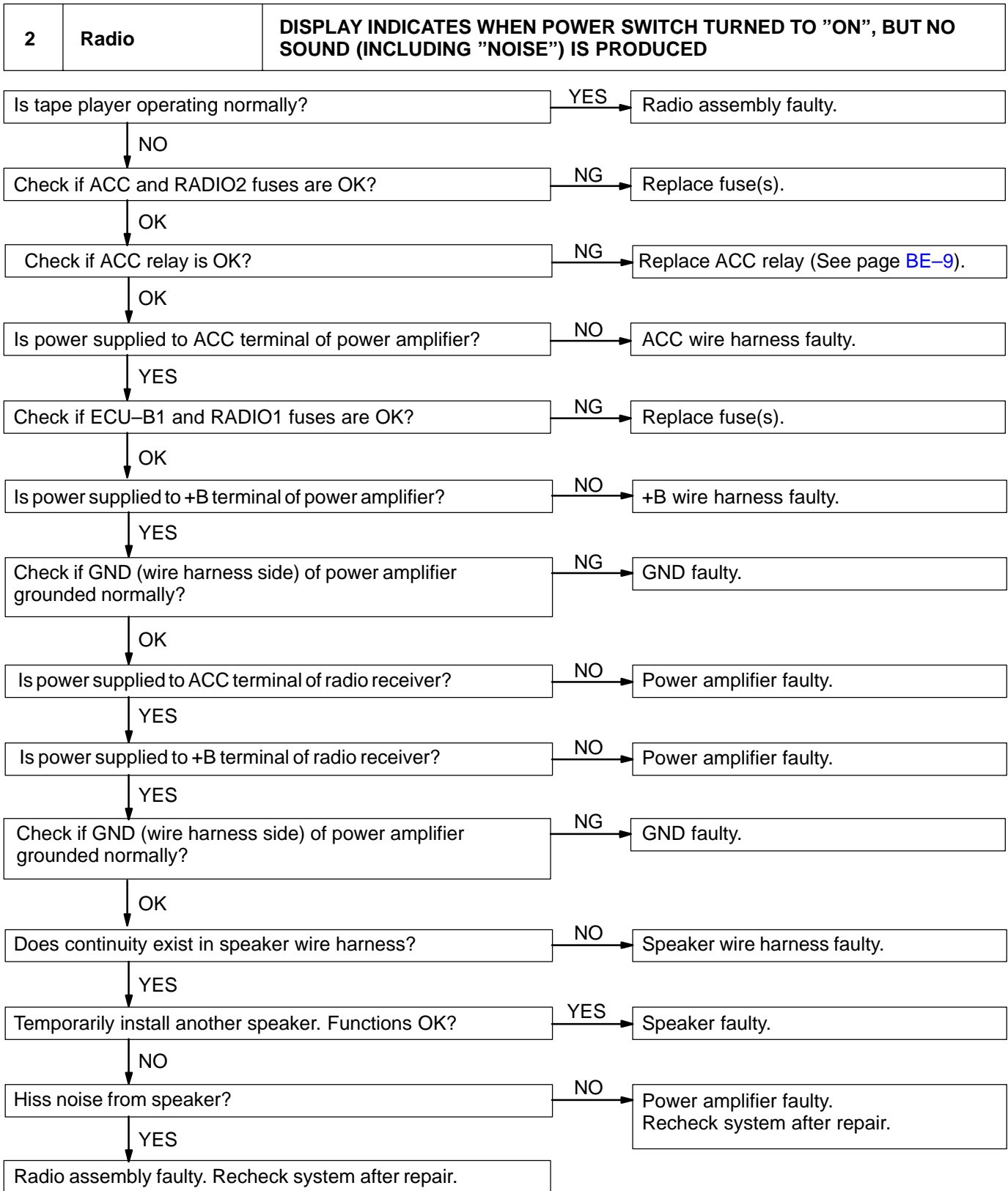
Always inspect the part with trouble taking the following items into consideration.

- Open or short circuit of the wire harness
- Connector or terminal connection fault

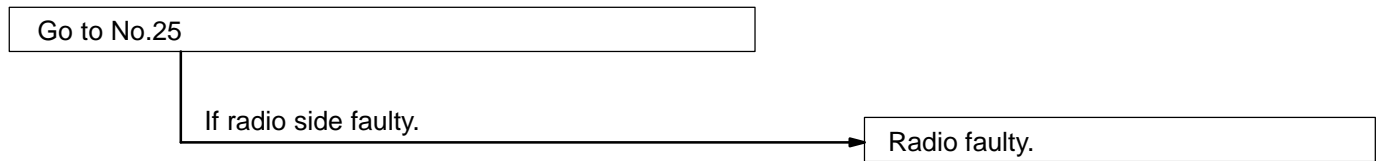
	Problem	No.
Radio	Radio not operating when power switch turned to "ON".	1
	Display indicates when power switch turned to "ON", but no sound (including "noise") is produced.	2
	Noise present, but AM – FM not operating.	3
	Any speaker does not work.	4
	Any AM or FM does not work.	5
	Few preset turning bands.	5
	Reception poor.	6
	Sound quality poor.	7
	Preset memory erased.	8
Tape player	Cassette tape cannot be inserted.	9
	Cassette tape inserted, but no power.	10
	Power coming in, but tape player not operating.	11
	Any speaker does not work.	12
	Sound quality poor.	13
	Tape jammed, malfunction with tape speed or auto–reverse.	14
	Cassette tape will not eject.	15
CD player	CD cannot be inserted.	16
	CD inserted, but no power.	17
	Power coming in, but CD player not operating.	18
	Sound jumps.	19
	Sound quality poor (Volume faint).	20
	Any speaker does not work.	21
	CD will not be ejected.	22
Power amplifier	No power coming in.	23
	Power coming in, but power amplifier not operating.	24
	Any speaker does not work.	25
Noise	Noise occurs	26
	Noise produced by vibration or shock while driving.	27
	Noise produced when engine starts.	28

The term "AM" includes LW, MW and SW, and the term "FM" includes UKW.

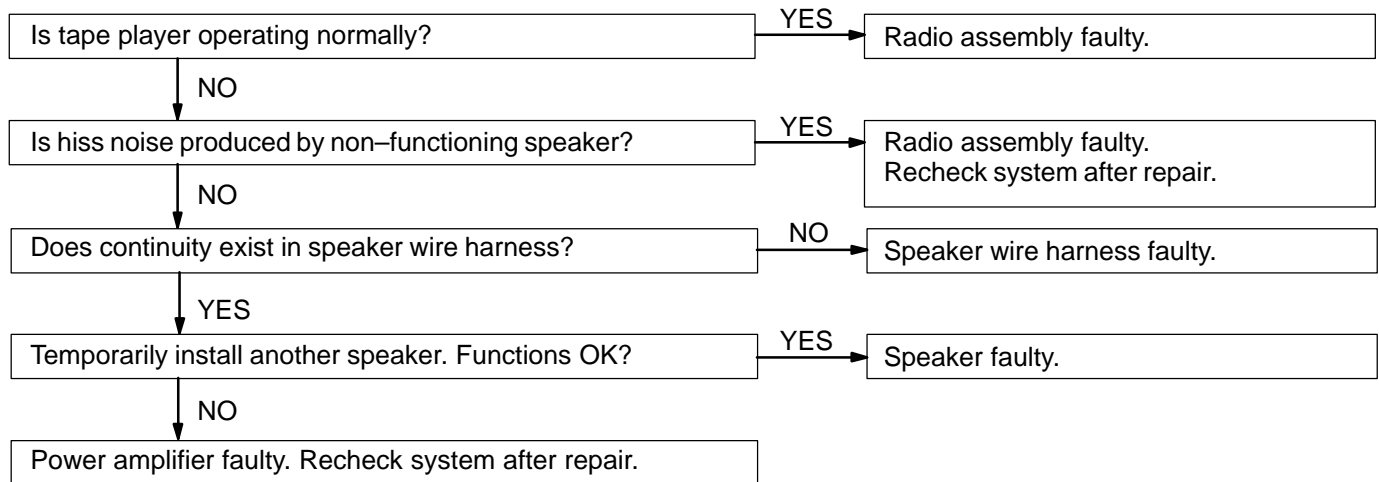




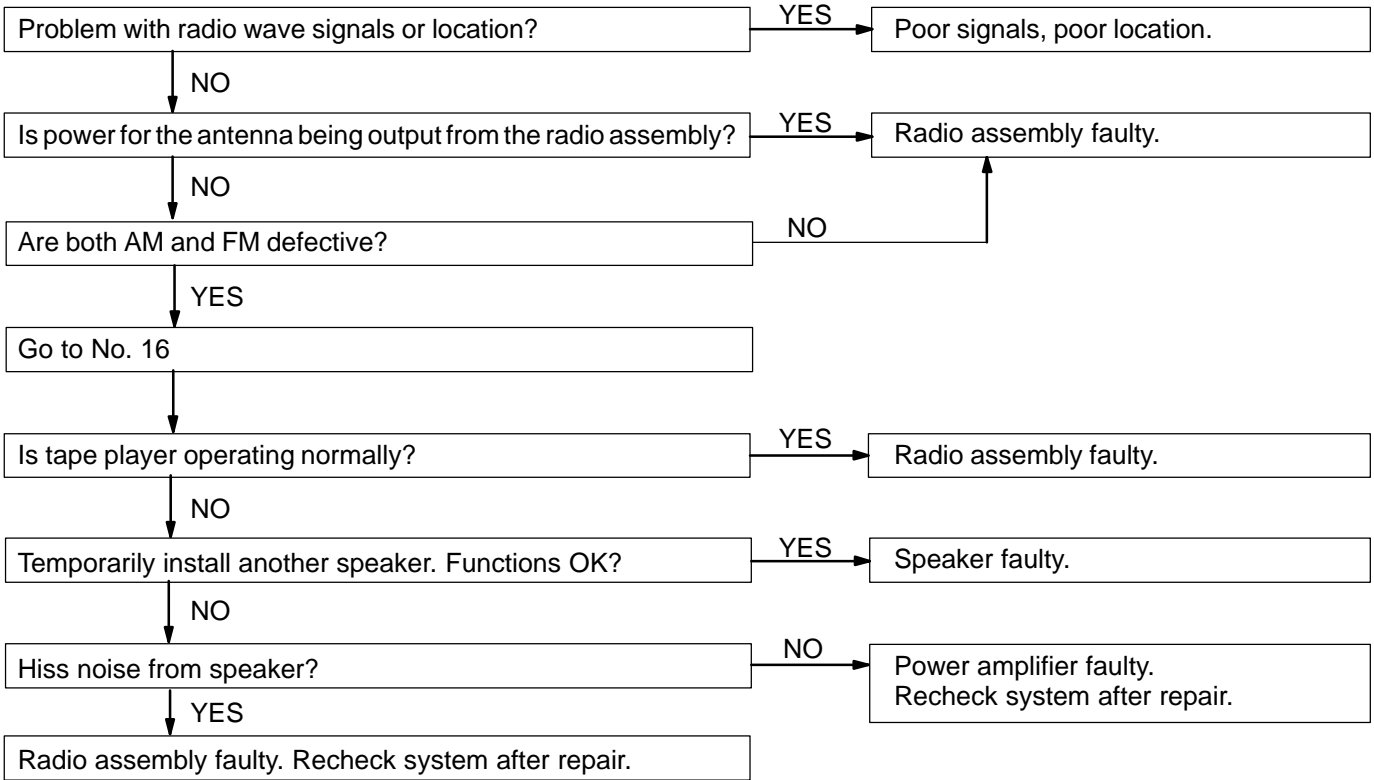
3	Radio	NOISE PRESENT, BUT AM-FM NOT OPERATING
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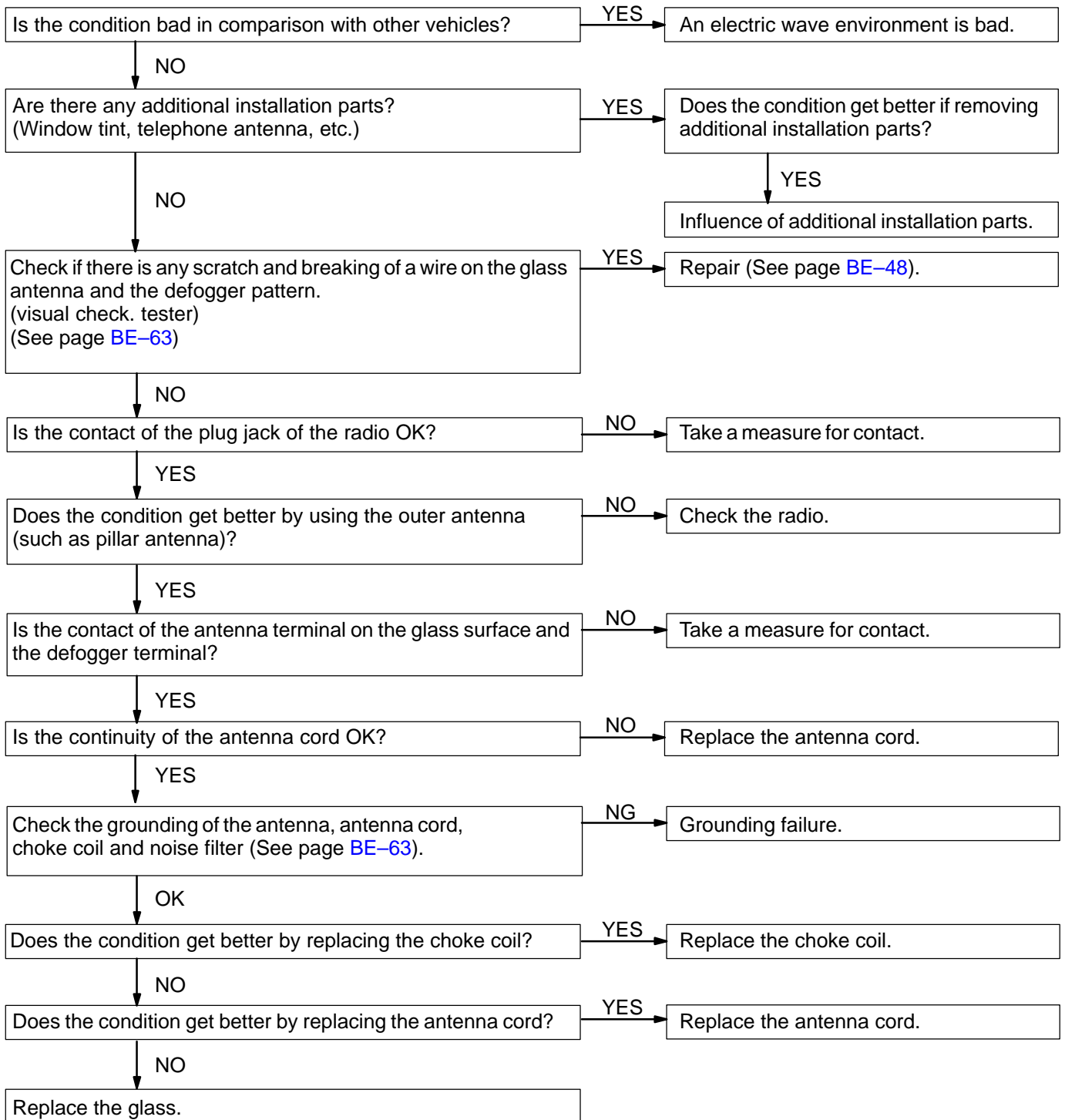
4	Radio	ANY SPEAKER DOSE NOT WORK
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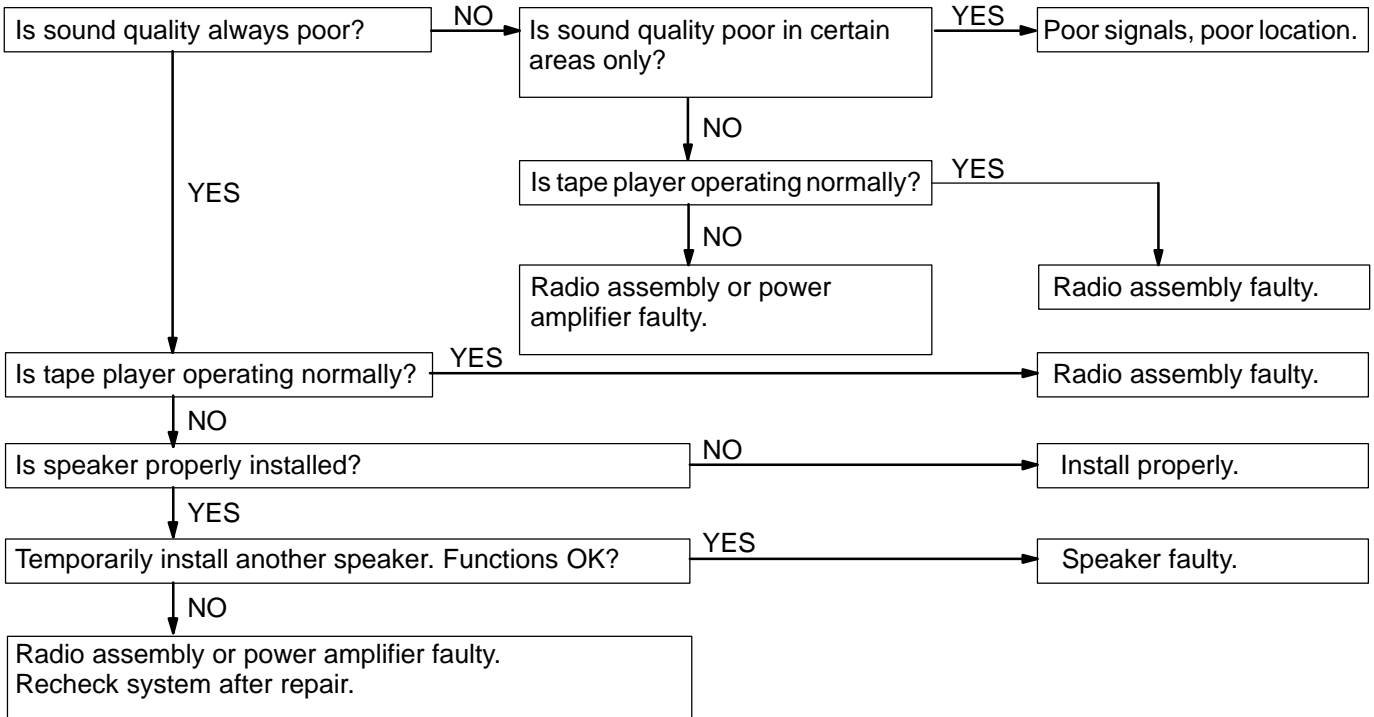
5	Radio	ANY AM OR FM DOES NOT WORK FEW PRESET TUNING BANDS
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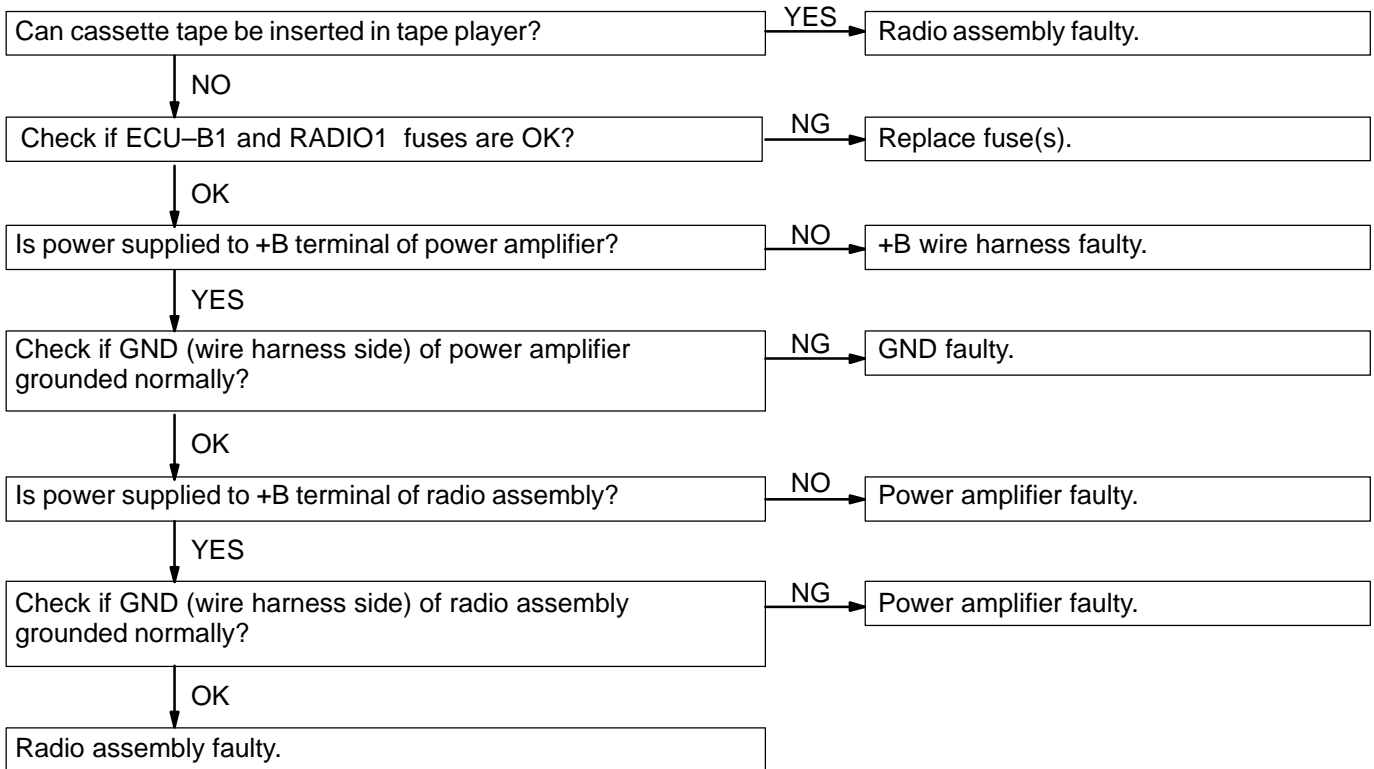
6	Radio	POOR RECEPTION
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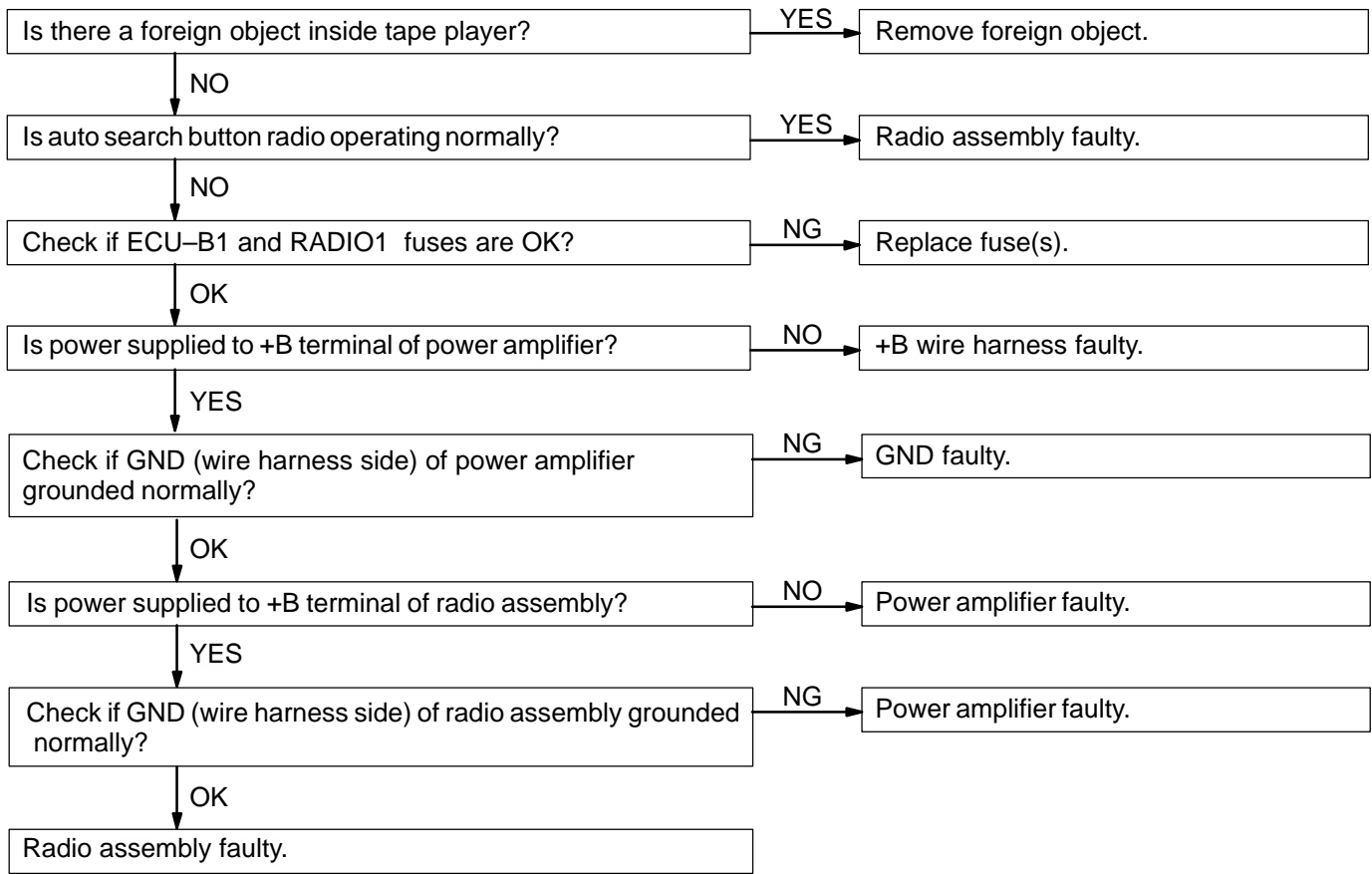
7	Radio	SOUND QUALITY POOR
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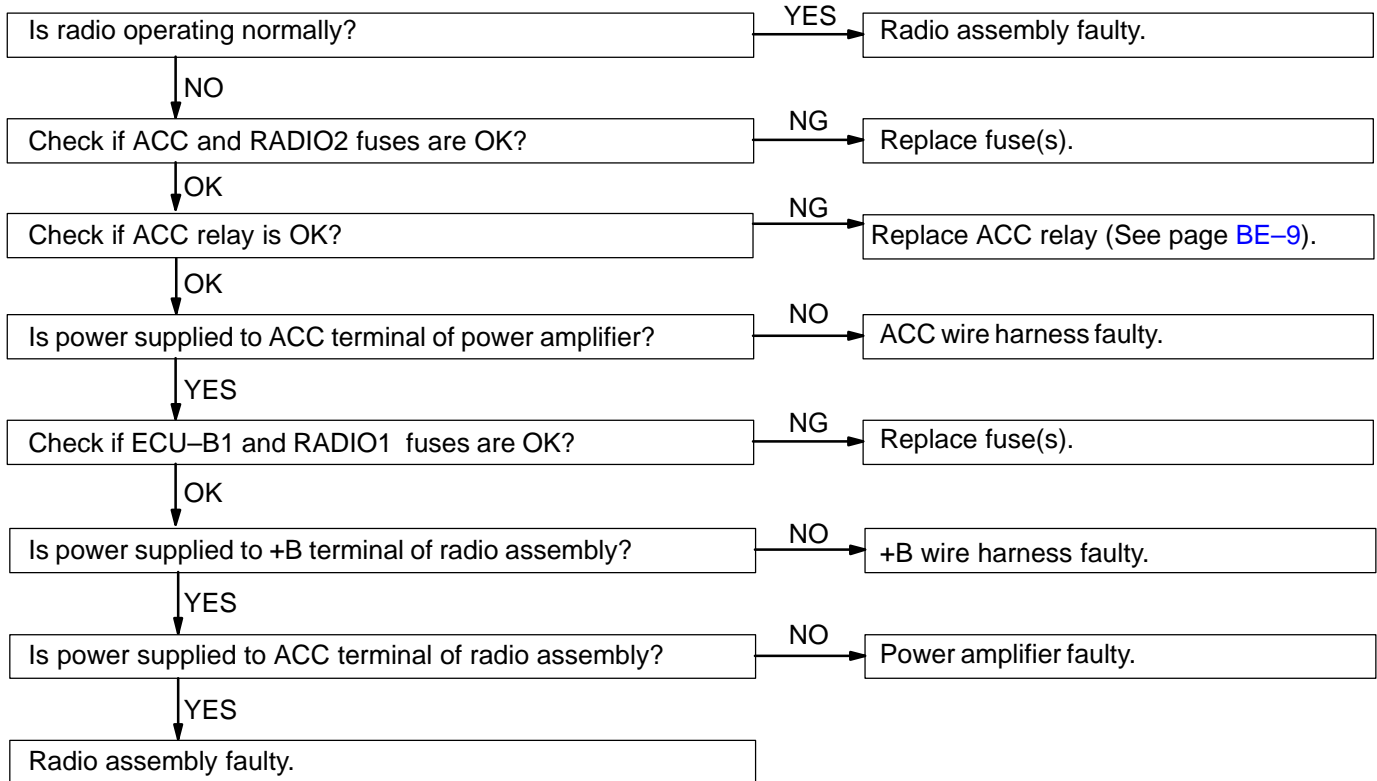
8	Radio	PRESET MEMORY DISAPPEARS
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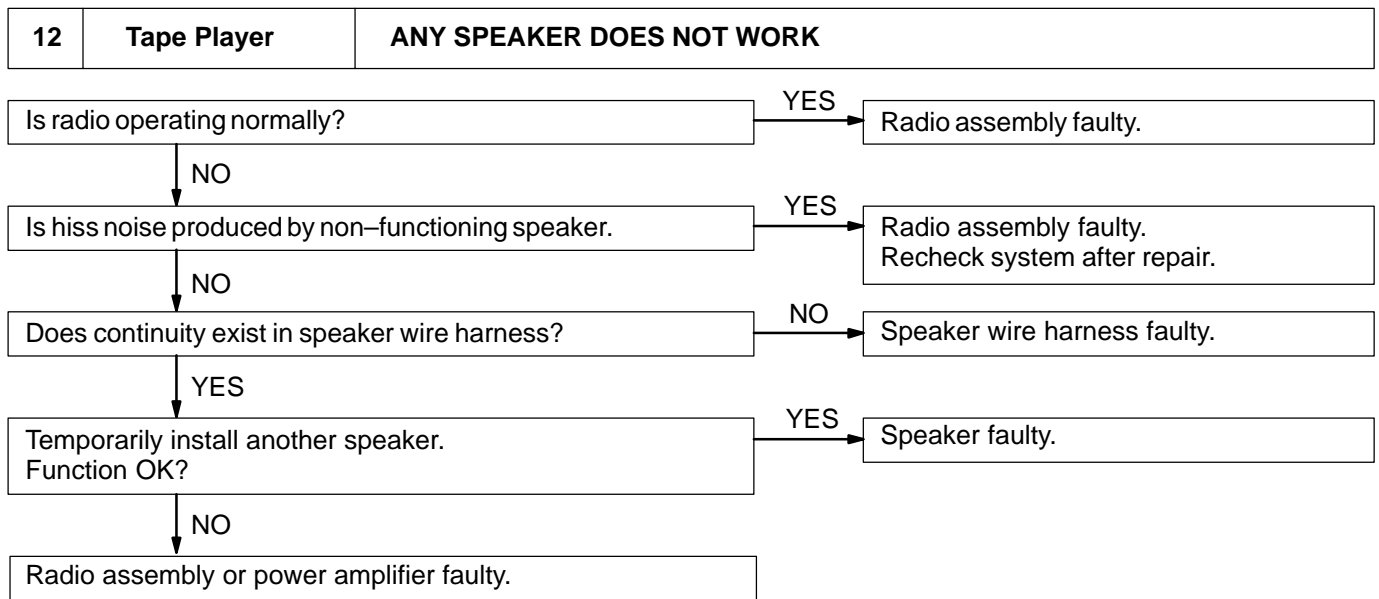
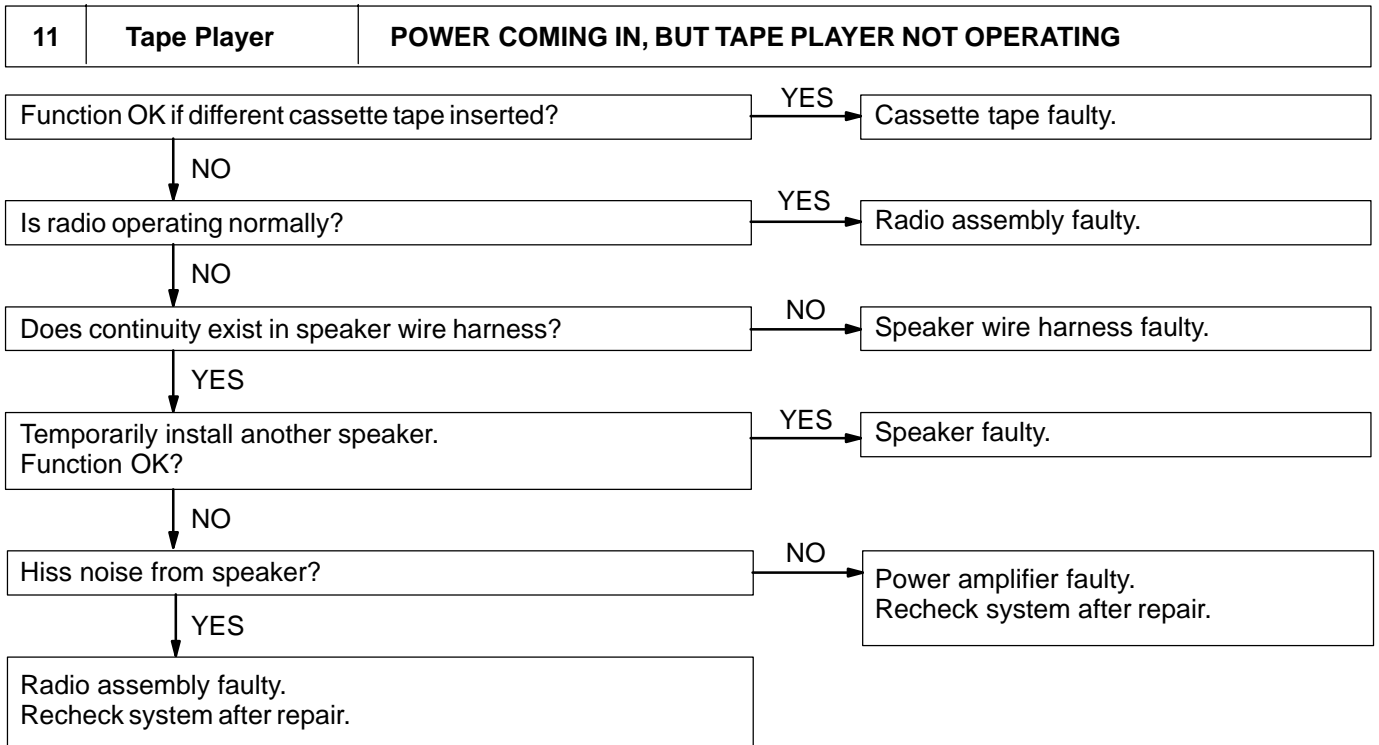


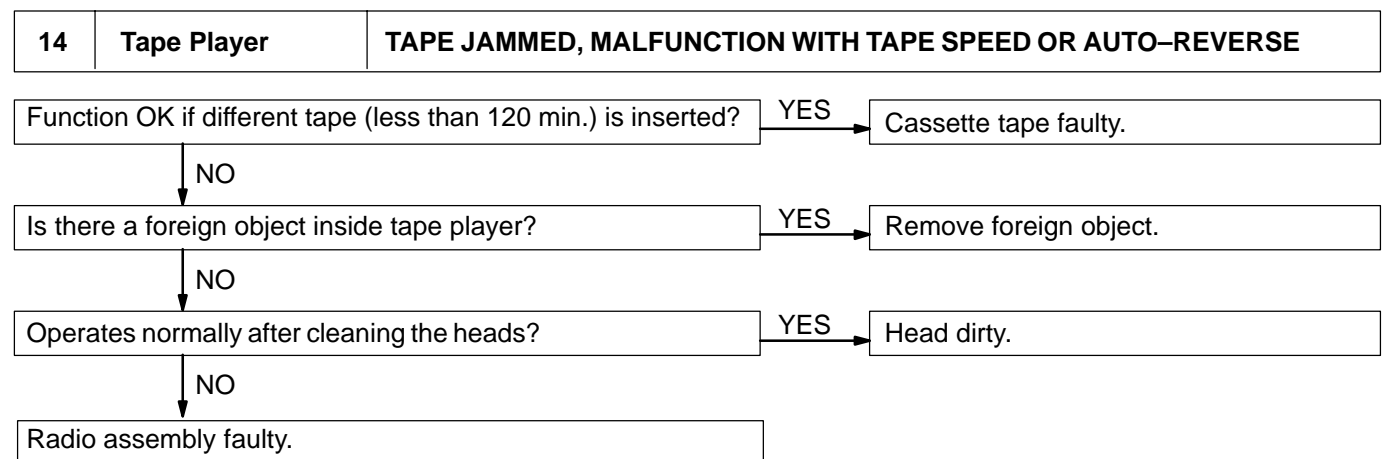
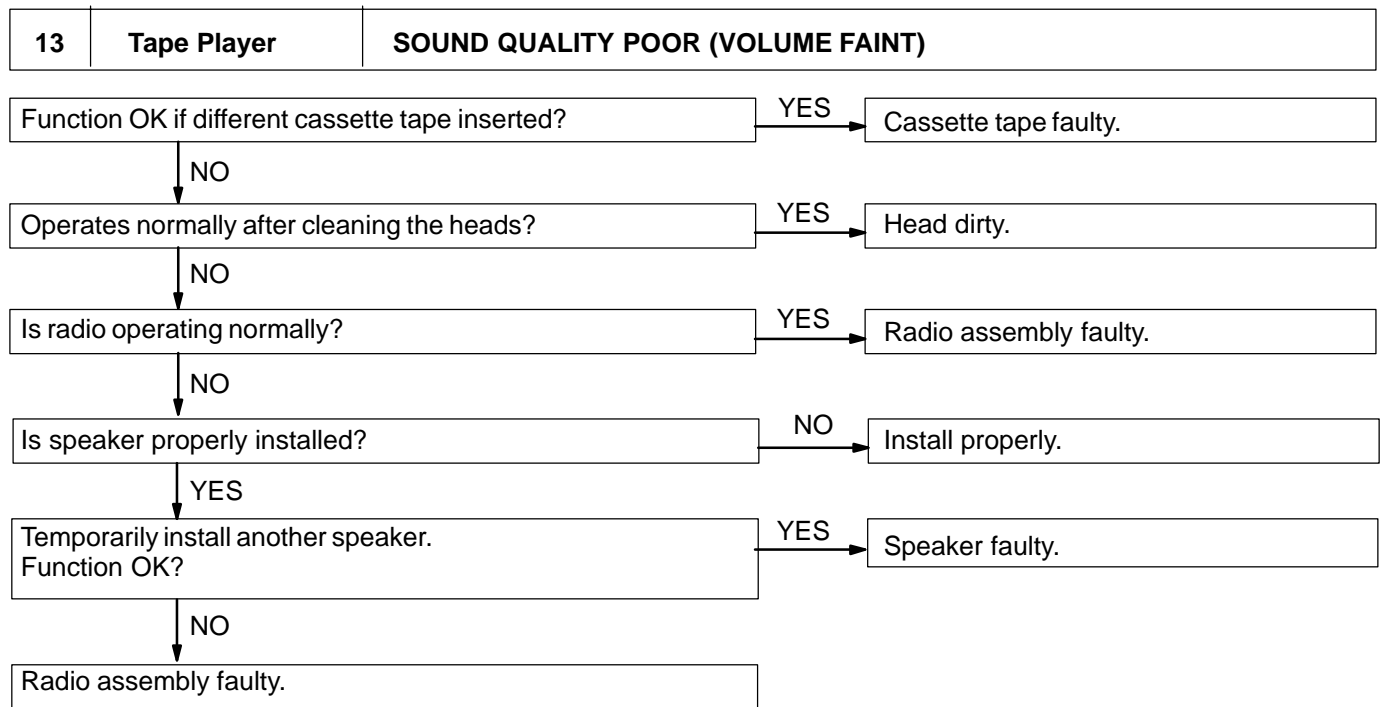
9	Tape Player	CASSETTE TAPE CANNOT BE INSERTED
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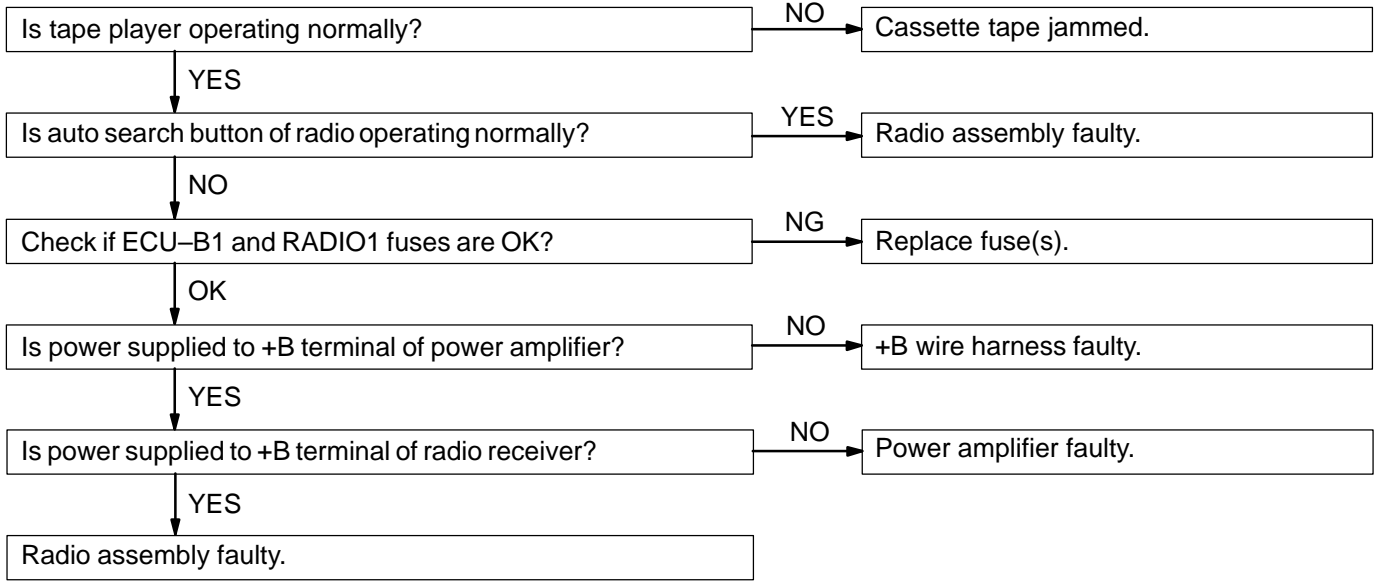
10	Tape Player	CASSETTE TAPE INSERTED, BUT NO POWER
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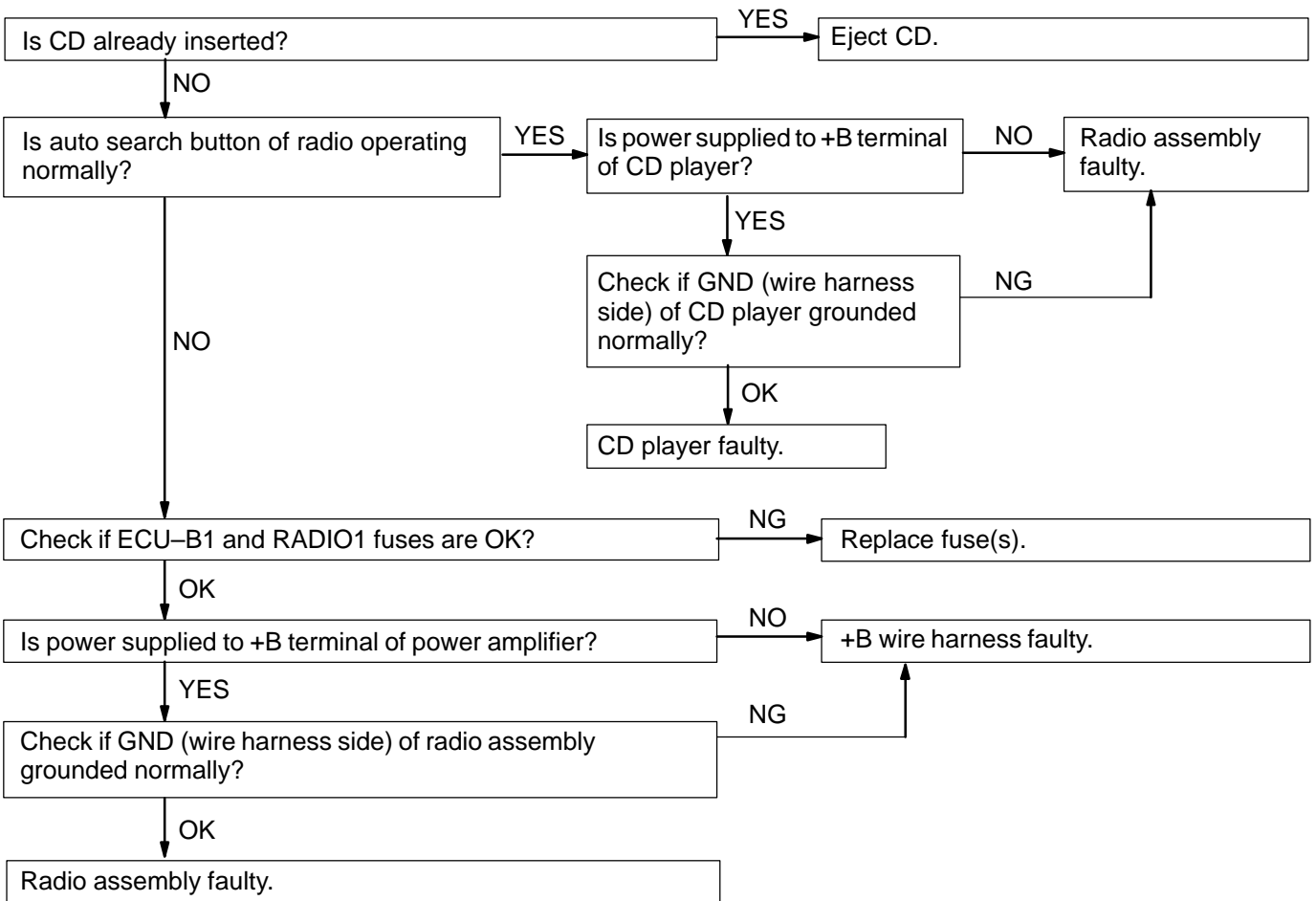




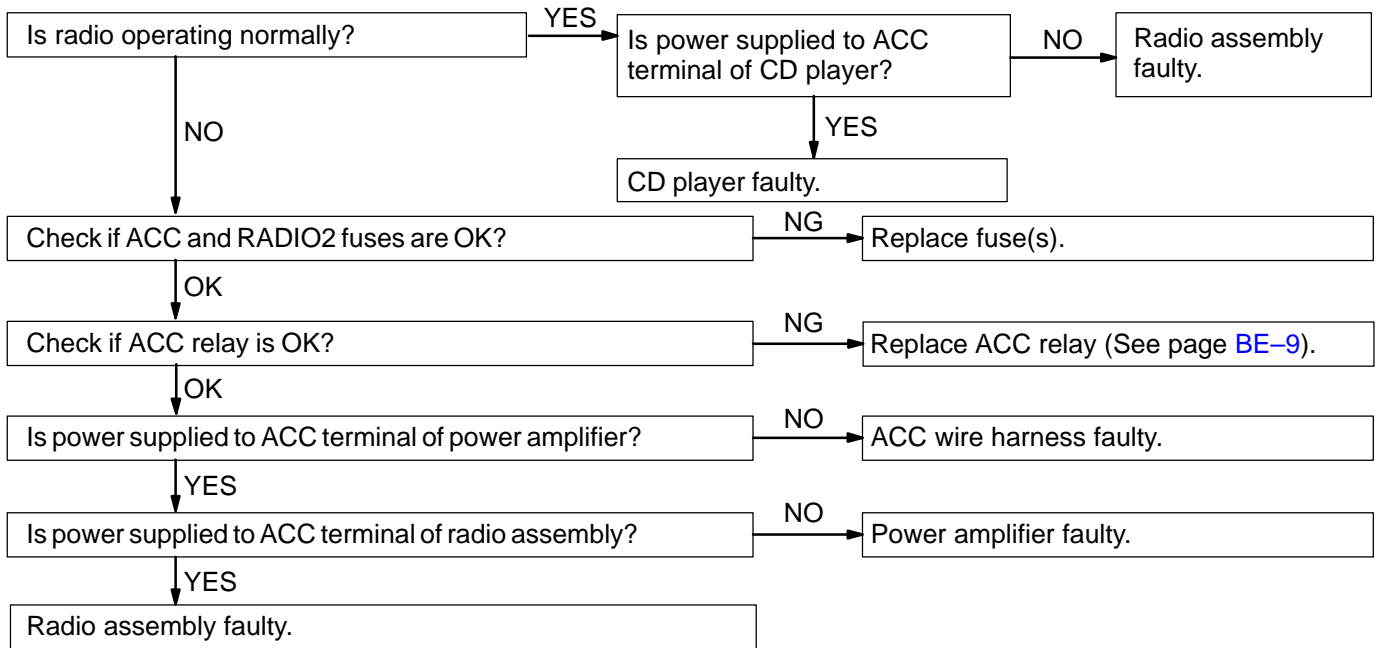
15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED
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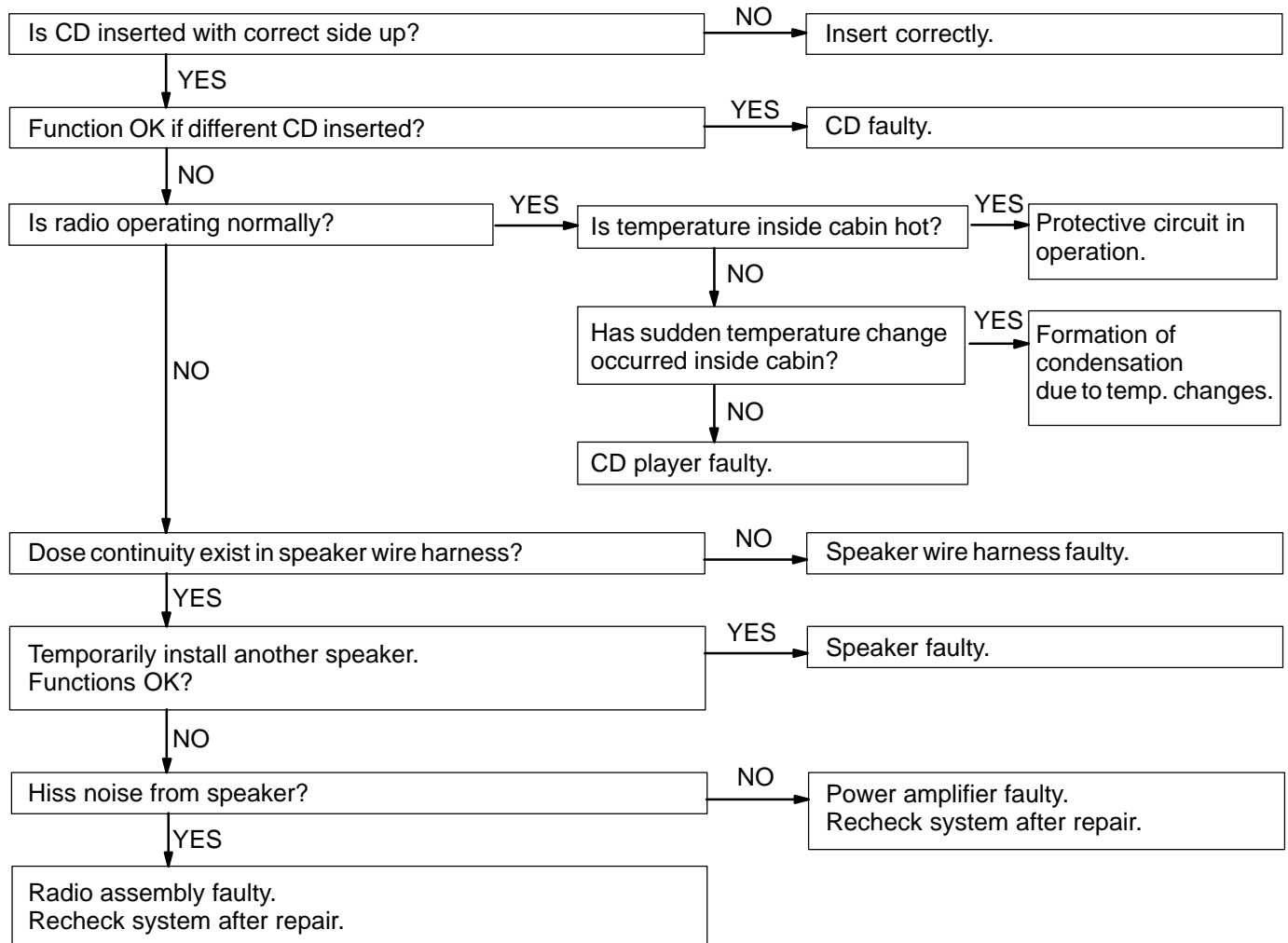
16	CD Player	CD CANNOT BE INSERTED
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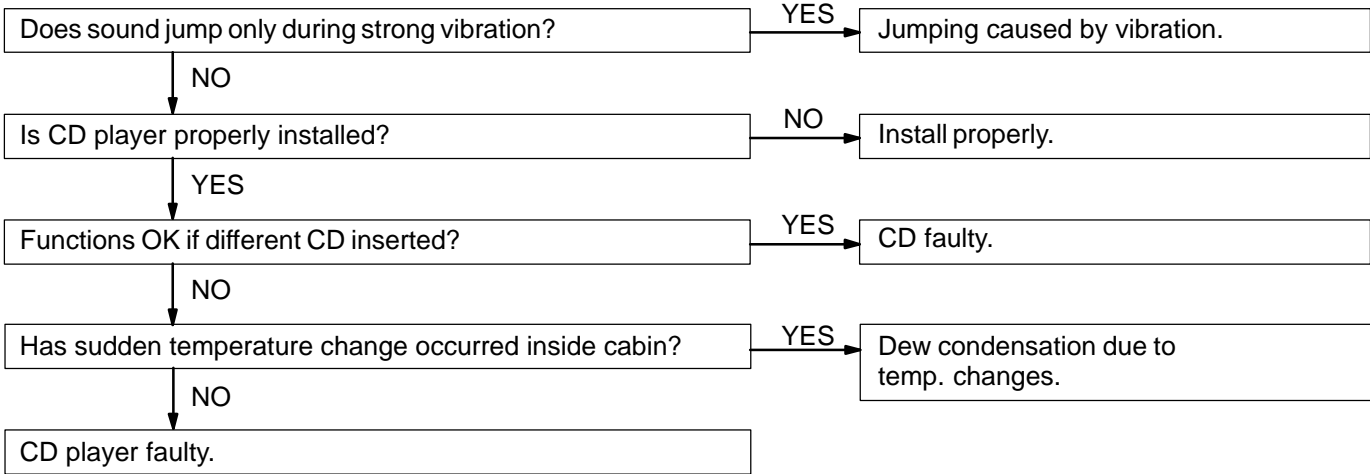
17 CD Player CD INSERTED, BUT NO POWER



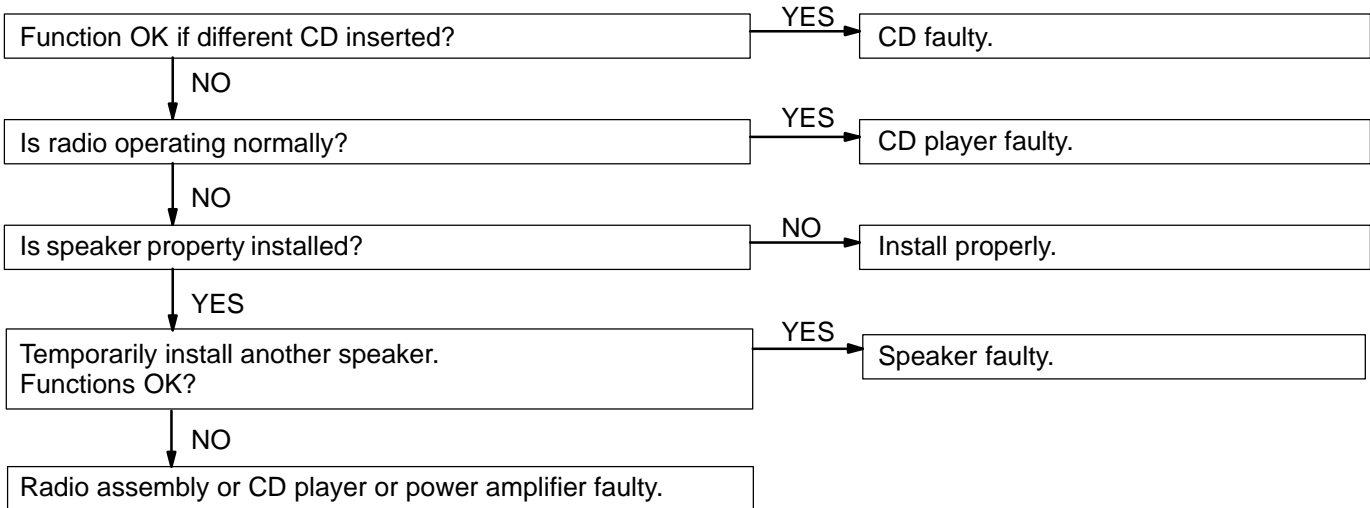
18 CD Player POWER COMING IN, BUT CD PLAYER NOT OPERATING



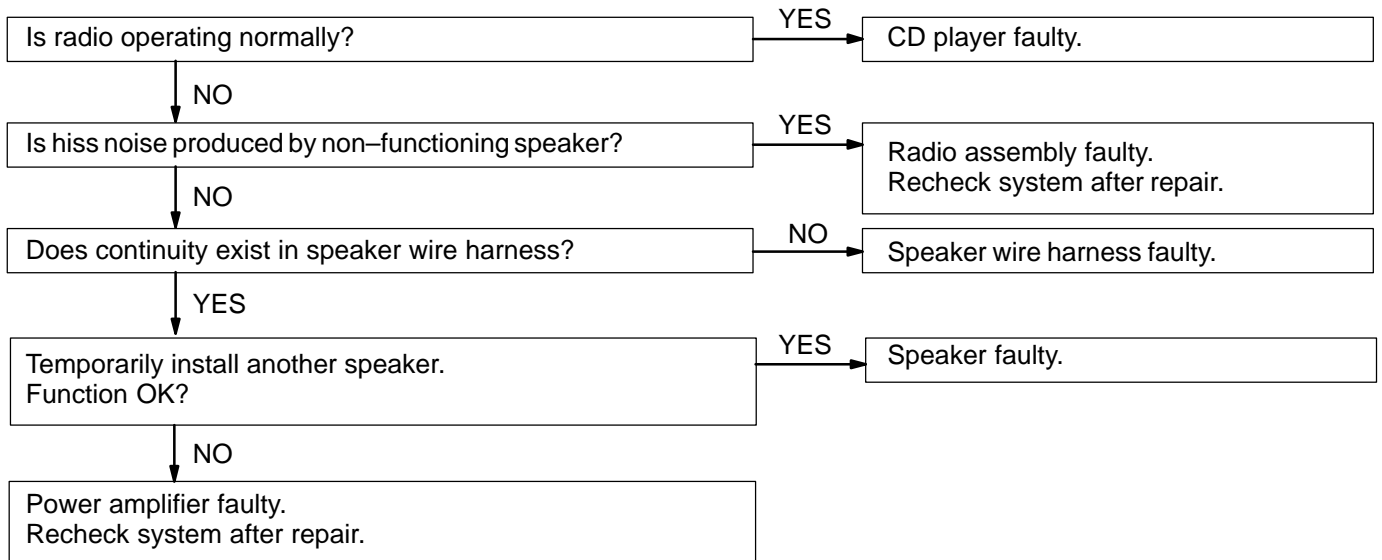
19	CD Player	SOUND JUMPS
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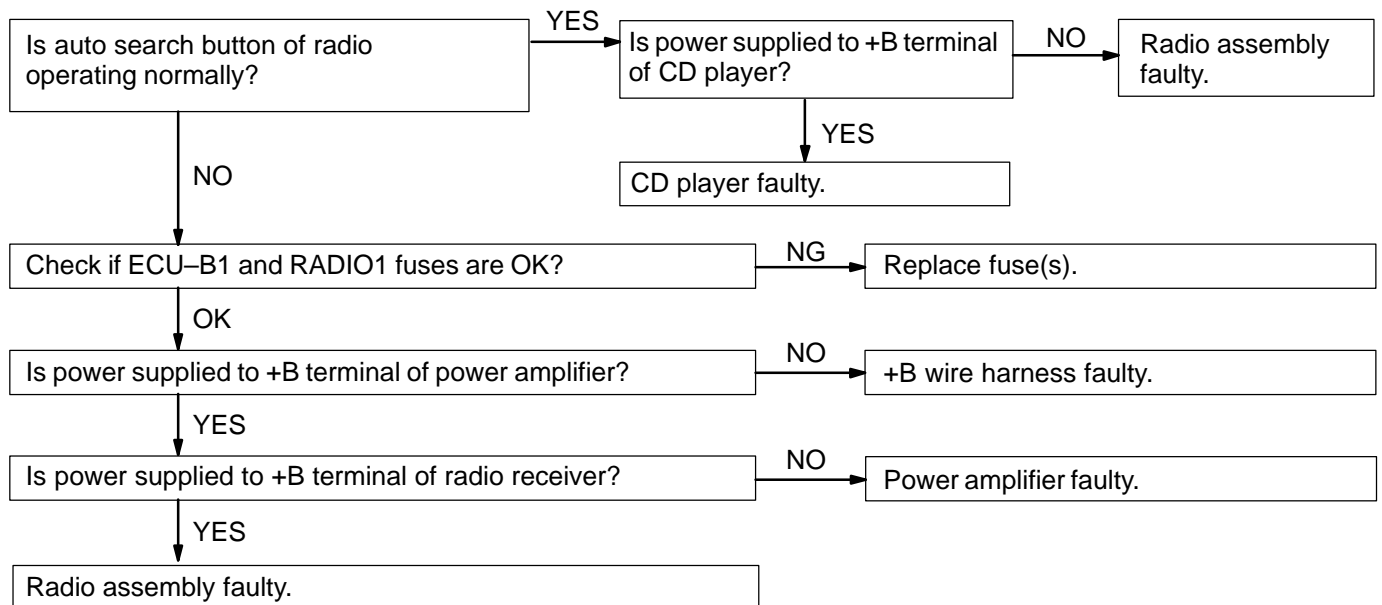
20	CD Player	SOUND QUALITY POOR (VOLUME FAINT)
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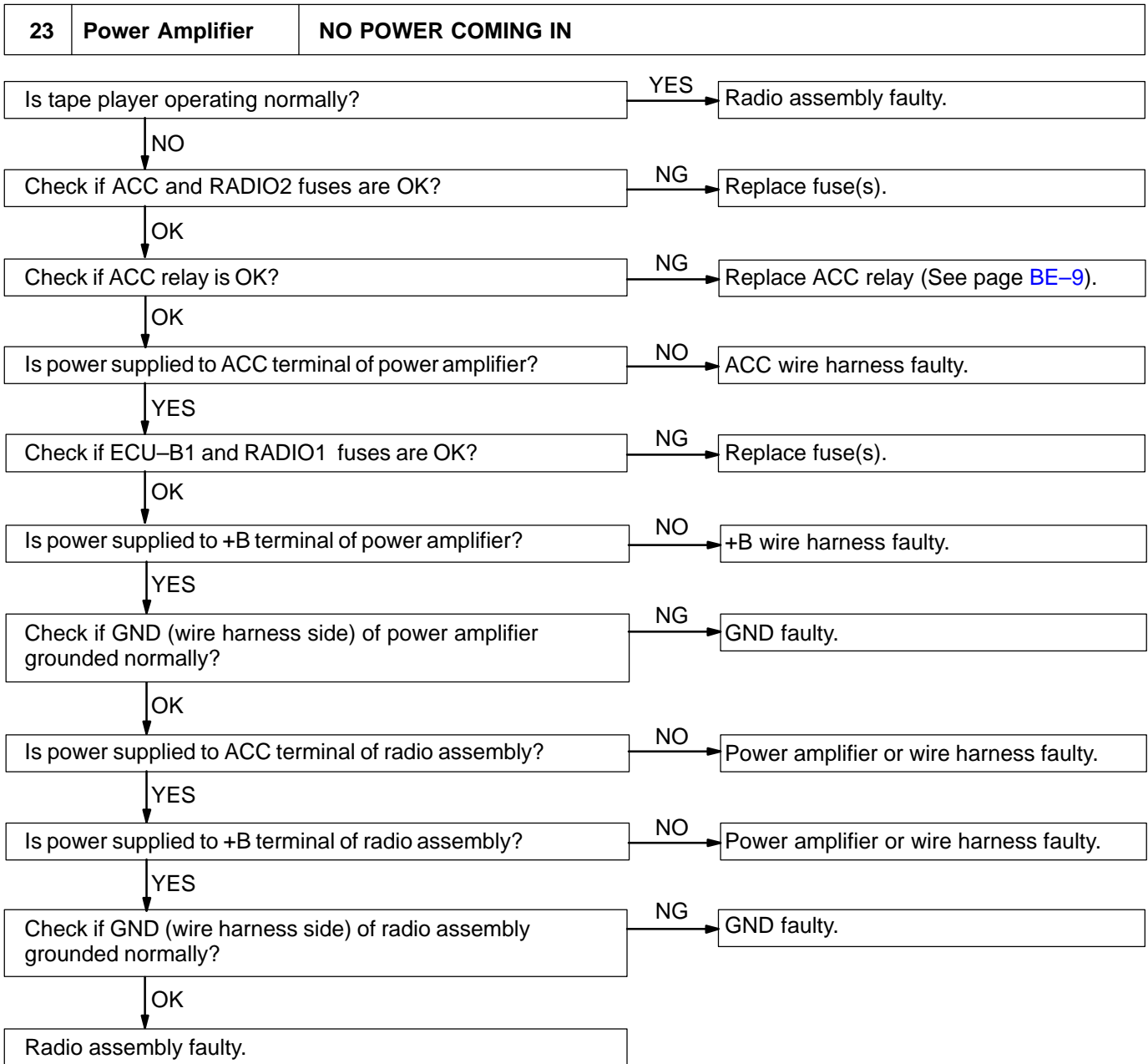


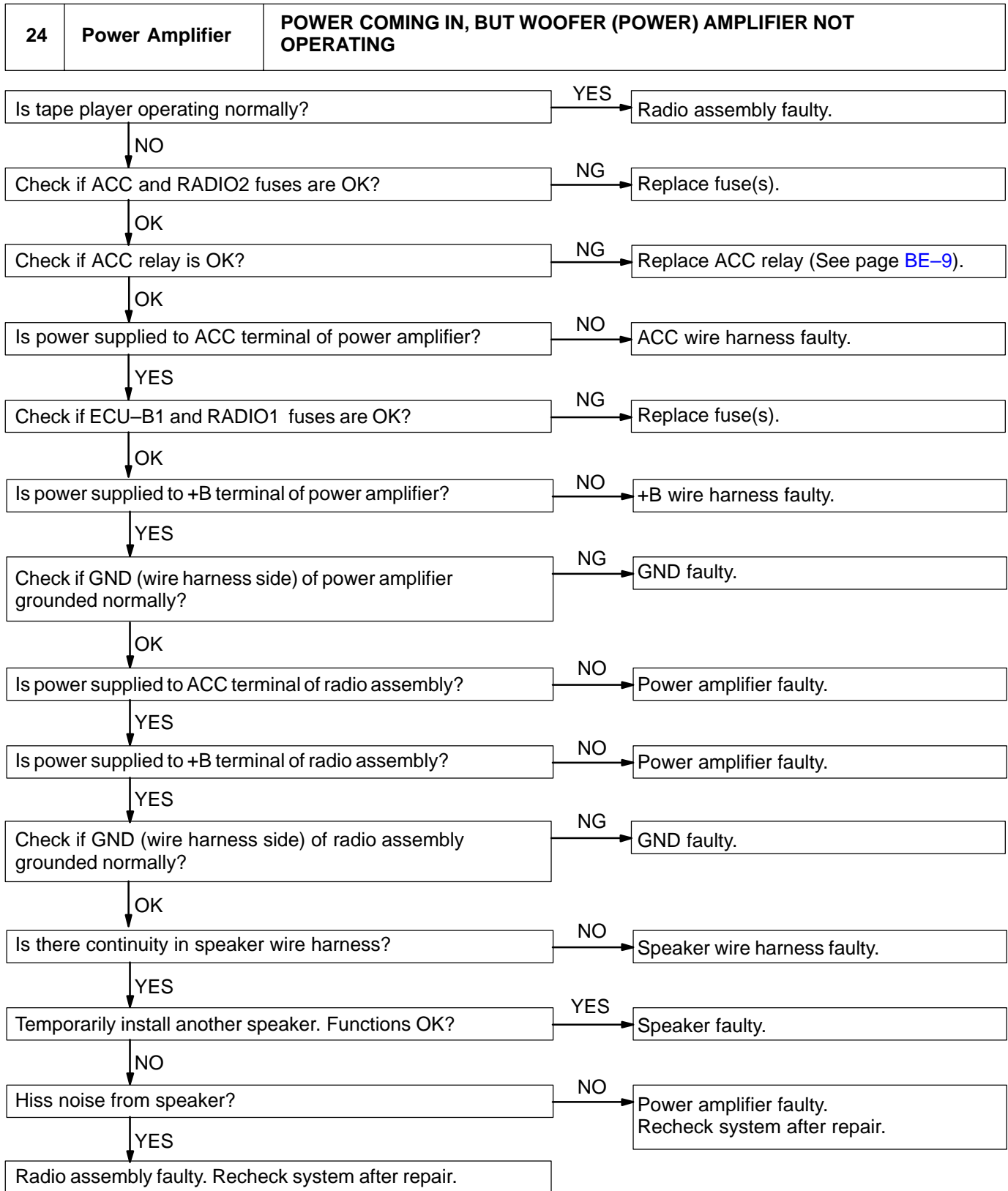
21	CD Player	ANY SPEAKER DOES NOT WORK
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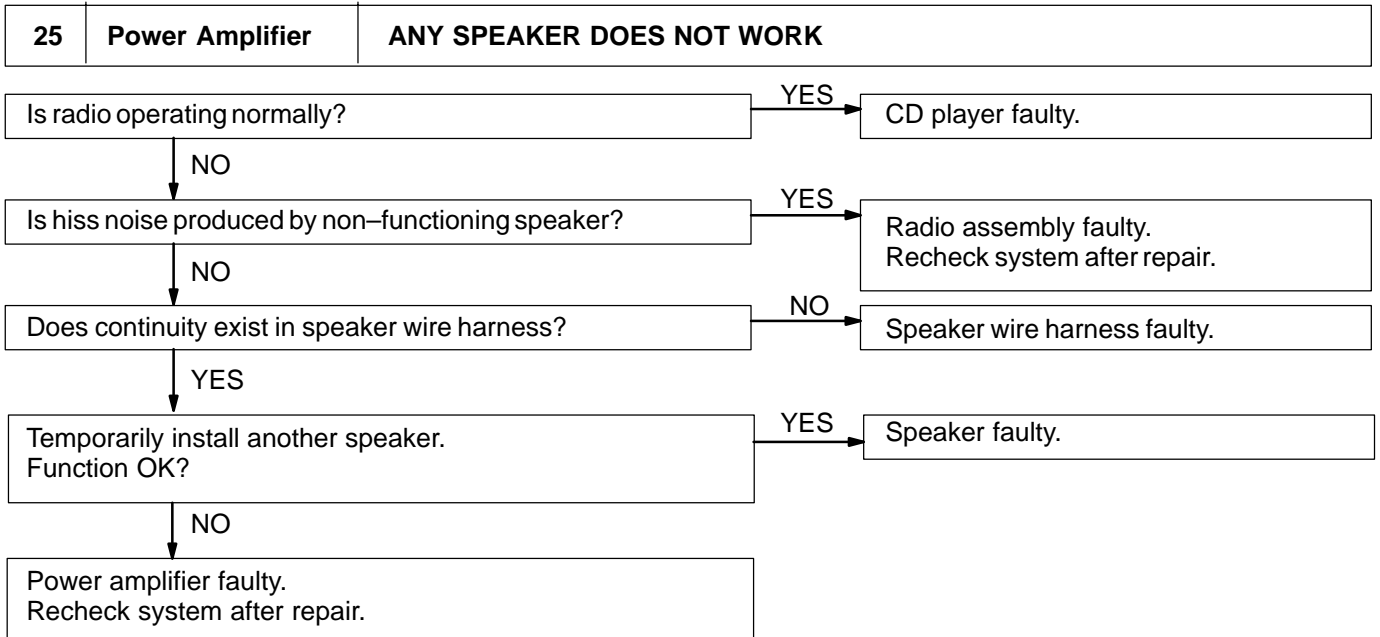


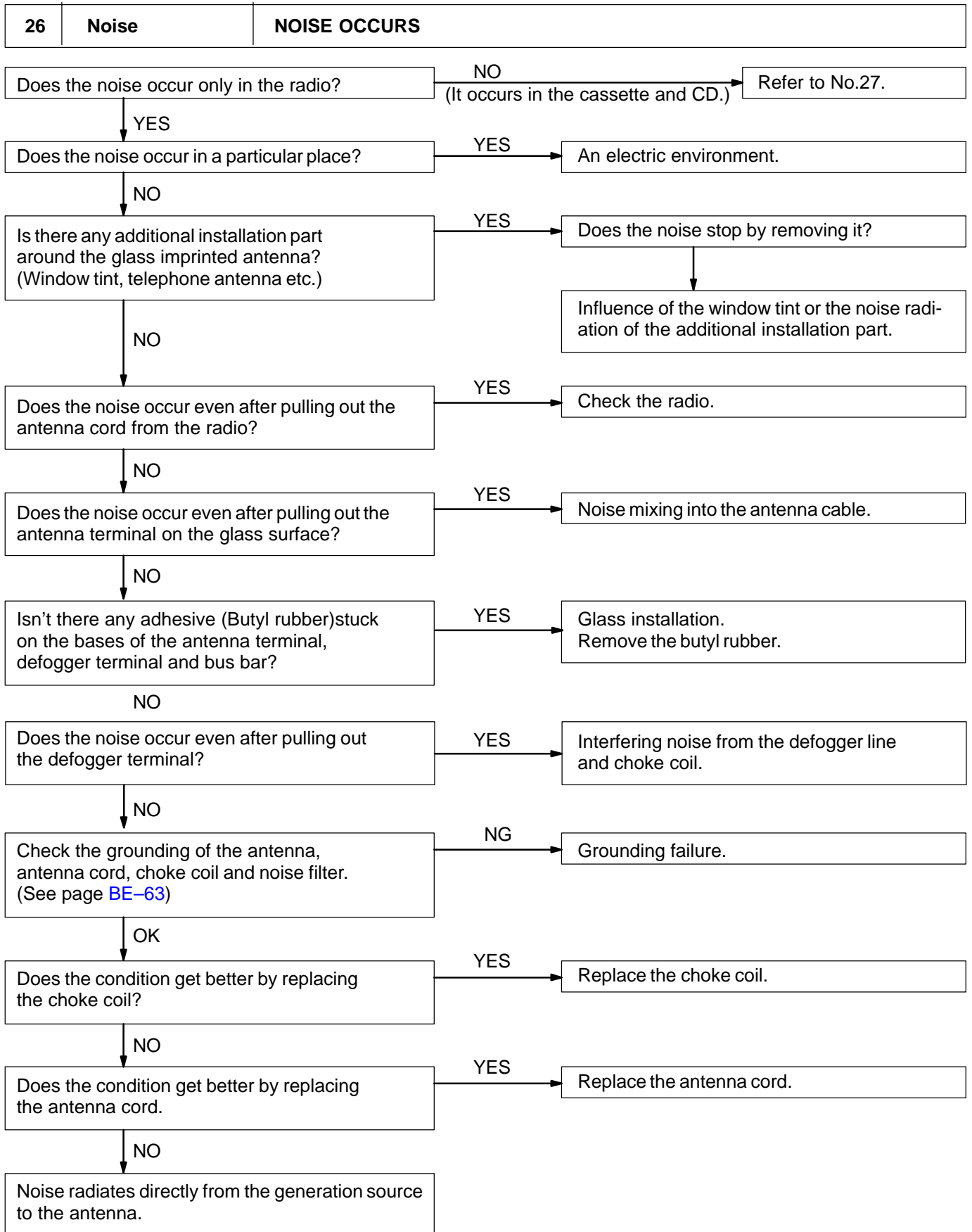
22	CD Player	CD WILL NOT BE EJECTED
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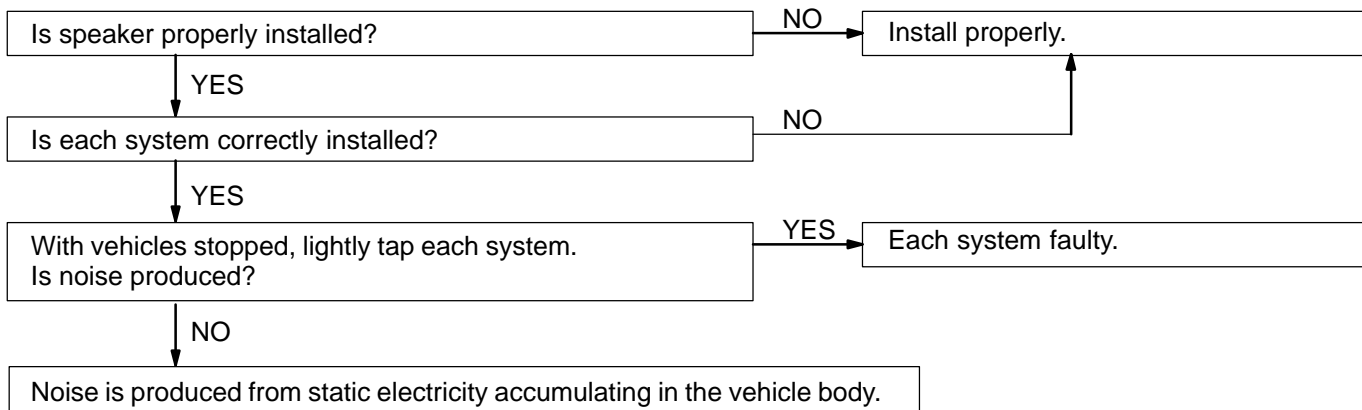




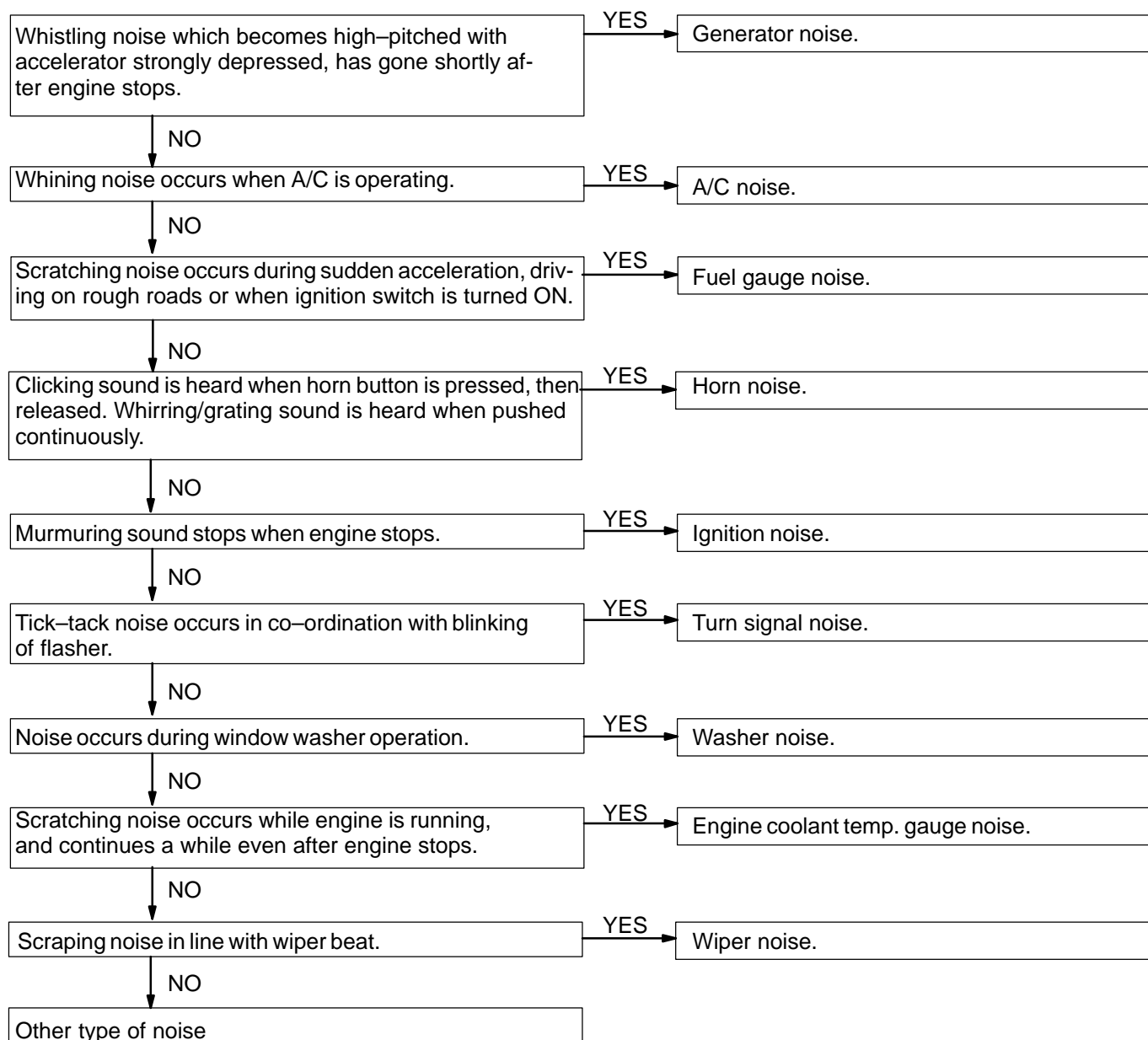




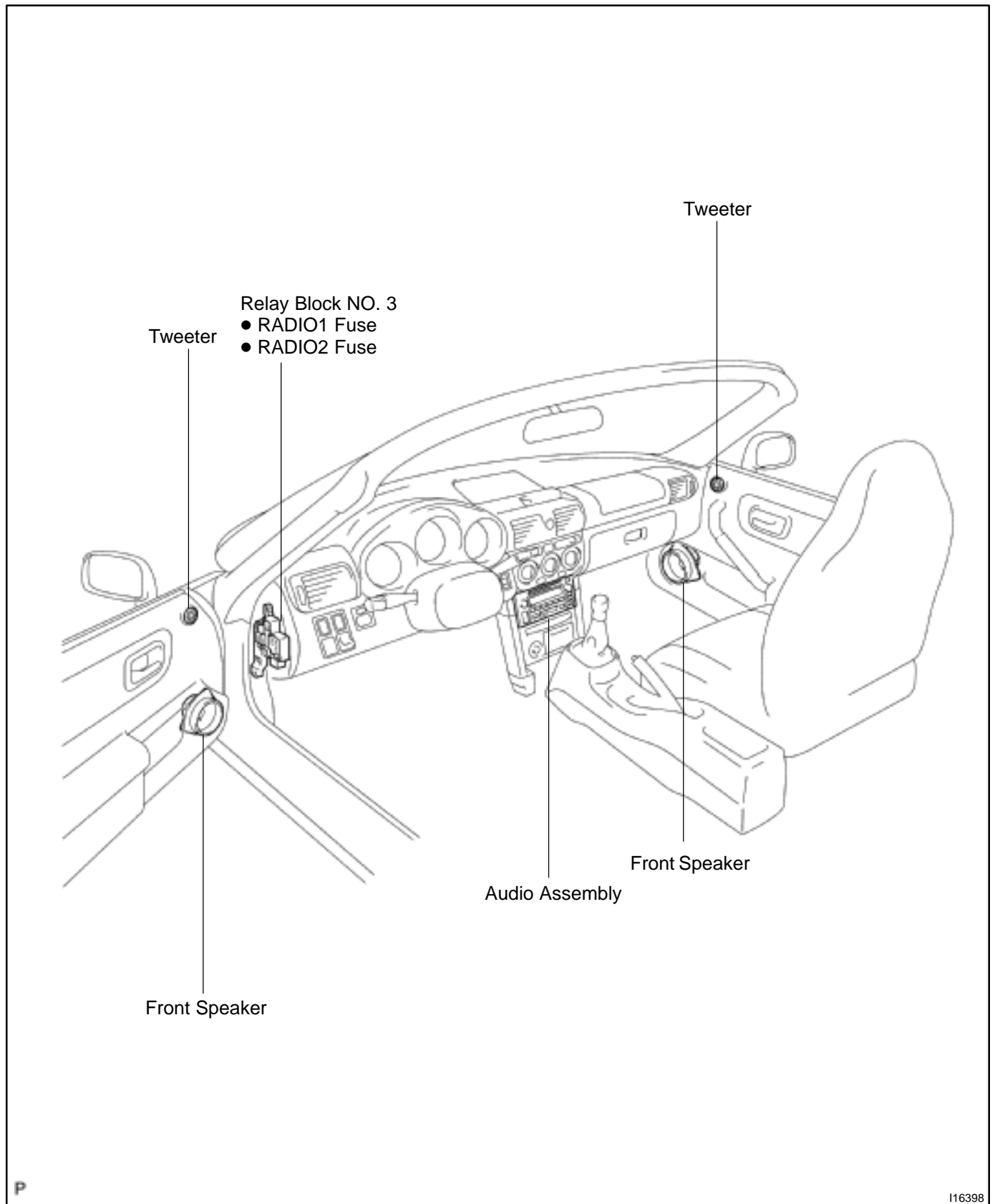
27	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING
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28	Noise	NOISE PRODUCED WHEN ENGINE STARTS
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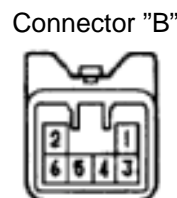
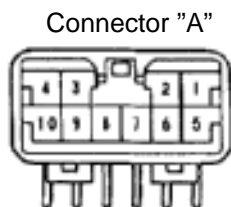


LOCATION



INSPECTION**INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT**

Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Radio Receiver Side

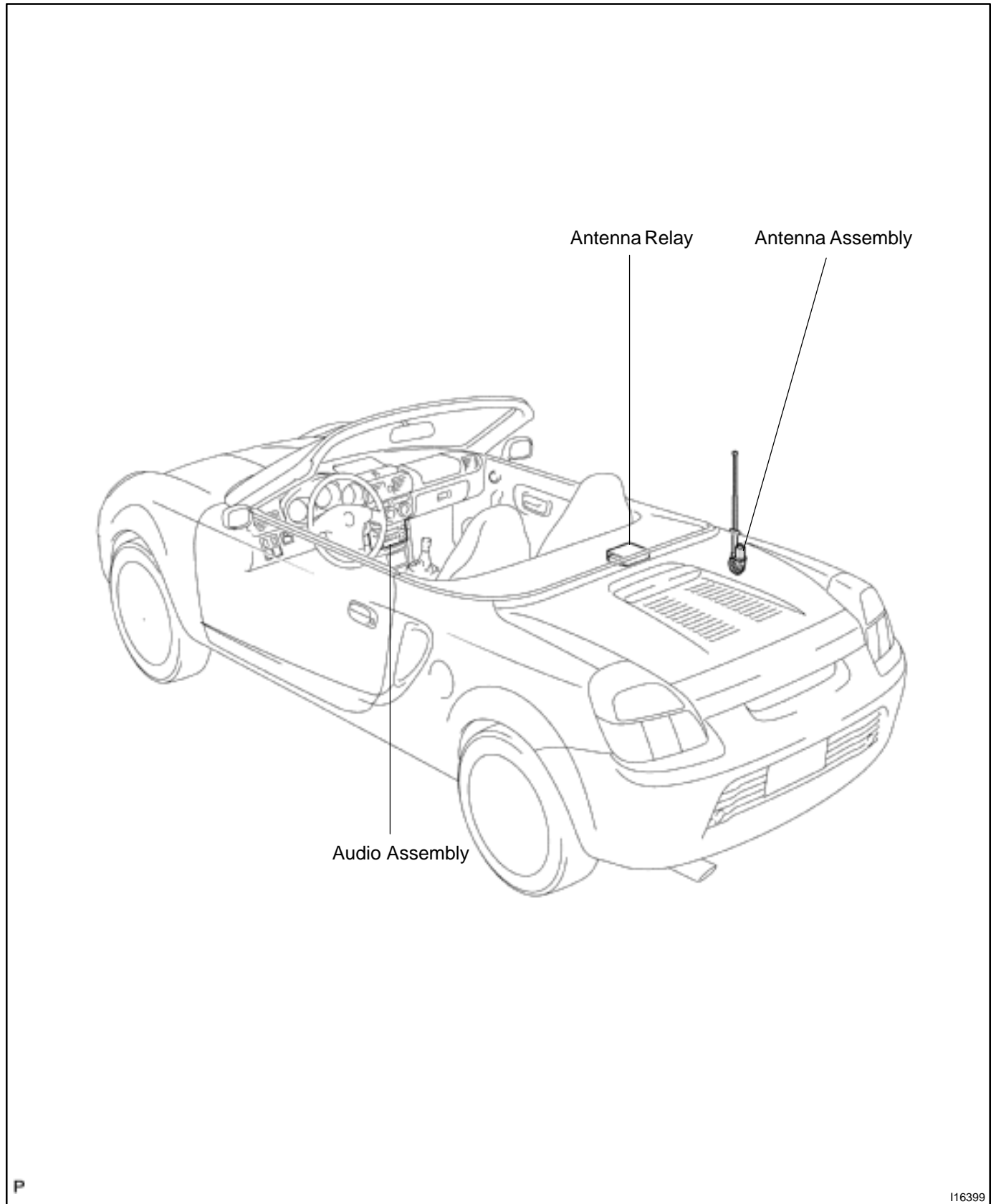
I12416

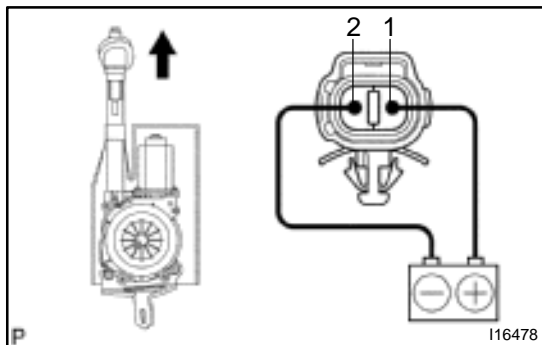
Tester connection	Condition	Specified condition
A1 – Ground (FR+)	Audiosounding	5 – 7 V
A2 – Ground (FL+)	Audiosounding	5 – 7 V
A3 – Ground (ACC)	Ignition switch ACC	Battery positive voltage
A4 – Ground (+B)	Constant	Battery positive voltage
A5 – Ground (FR–)	Audiosounding	5 – 7 V
A6 – Ground (FL–)	Audiosounding	5 – 7 V
A7 – Ground (E)	Constant	Continuity
A10 – Ground (ILL+)	Light control switch TAIL or HEAD	Battery positive voltage
B1 – Ground (RR+)	Audiosounding	5 – 7 V
B2 – Ground (RL+)	Audiosounding	5 – 7 V
B3 – Ground (RR–)	Audiosounding	5 – 7 V
B6 – Ground (RL–)	Audiosounding	5 – 7 V

If the circuit is not as specified, inspect the circuits connected to other parts.

ANTENNA LOCATION

BE1DE-02





INSPECTION

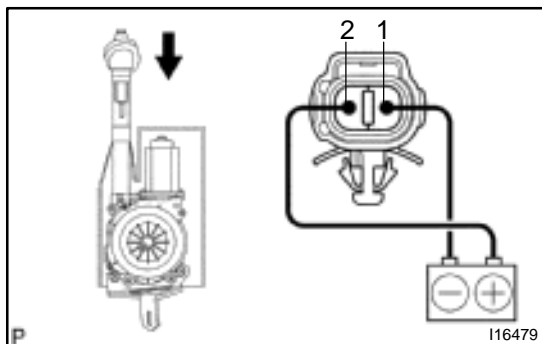
1. Auto antenna models:

INSPECT ANTENNA MOTOR

- Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
- Check that the motor turns (moves upward).

NOTICE:

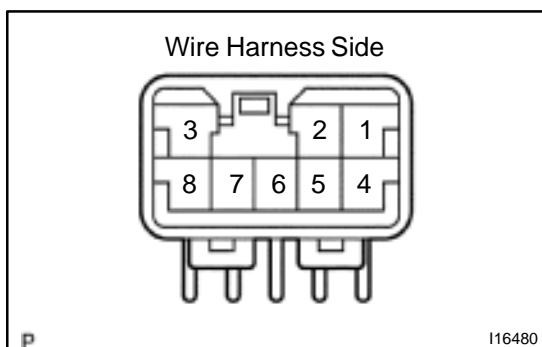
These tests must be done quickly (within 3 – 5 seconds) to prevent the coil from burning out.



- Then, reverse the polarity, check that the motor turns the opposite way (moves downward).

NOTICE:

These tests must be done quickly (within 3 – 5 seconds) to prevent the coil from burning out.



2. Auto antenna models:

INSPECT ANTENNA MOTOR CONTROL RELAY CIRCUIT

Disconnect the connector from the relay and inspect the connector on wire harness side.

Tester connection	Condition	Specified condition
2 – 3	Constant	Continuity
6 – Ground	Constant	Continuity
1 – Ground	Constant	Battery positive voltage
4 – Ground	Ignition switch position LOCK or ACC	No voltage
4 – Ground	Ignition switch position ON	Battery positive voltage
5 – Ground	Ignition switch position LOCK	No voltage
5 – Ground	Ignition switch position ACC or ON	Battery positive voltage
7 – Ground	Radio switch and cassette OFF	No voltage
7 – Ground	Radio switch or cassette ON	Battery positive voltage

If circuit is as specified, replace the relay.

CLOCK

TROUBLESHOOTING

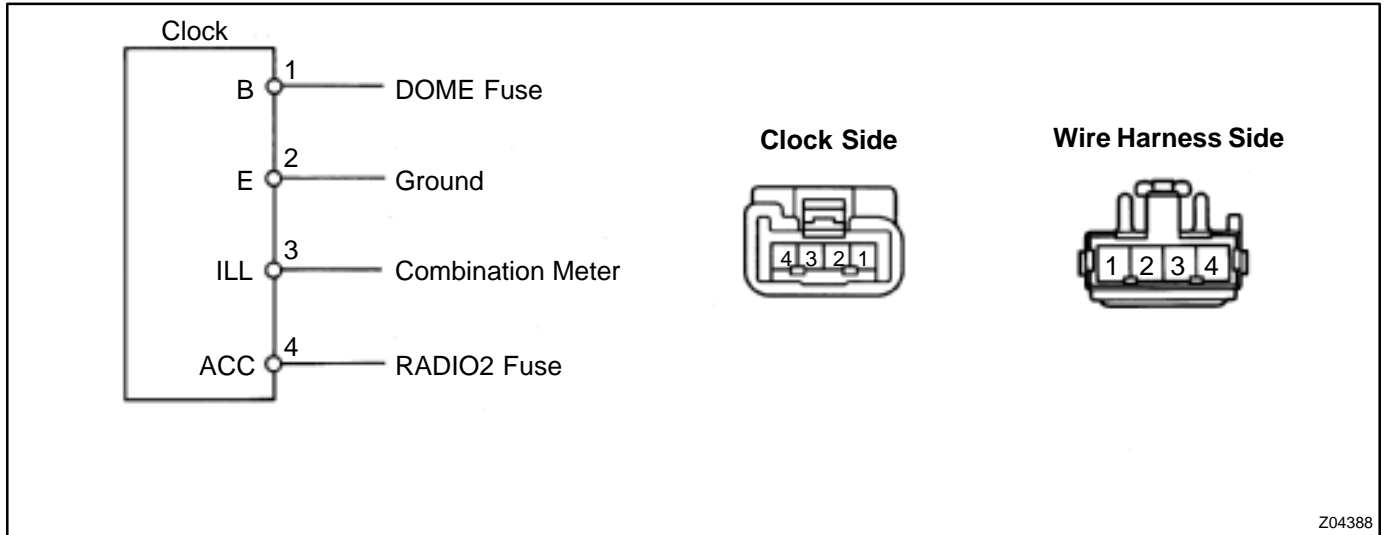
BE1KH-01

HINT:

Troubleshoot the clock according to the table below.

Troubleshooting	No.
Clock will not operate	1
Clock loses or gains time	2

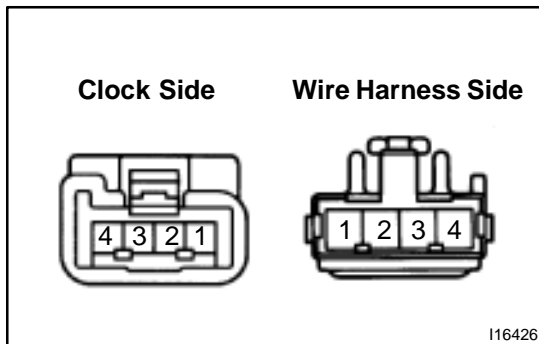
± 1.5 seconds / day



Z04388

1. TROUBLESHOOTING NO.1

1	CLOCK WILL NOT OPERATE
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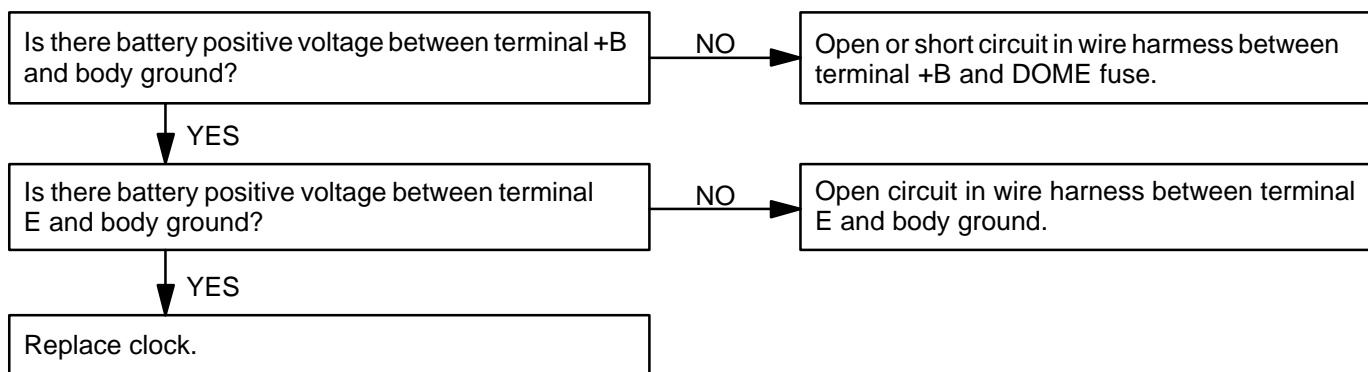
I16426

- (a) Check that the battery positive voltage is 10 – 16 V. If voltage is not as specified, replace the battery.
- (b) Check that the DOME and RADIO2 fuses are not blown. If the fuse is blown, replace the fuse and check for short.
- (c) Troubleshoot the clock as follows.

HINT:

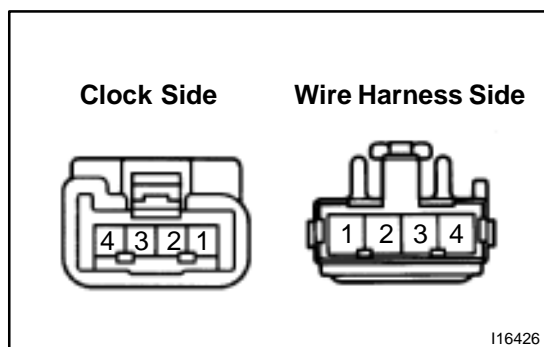
Inspect the connector on the wire harness side.

BODY ELECTRICAL - CLOCK

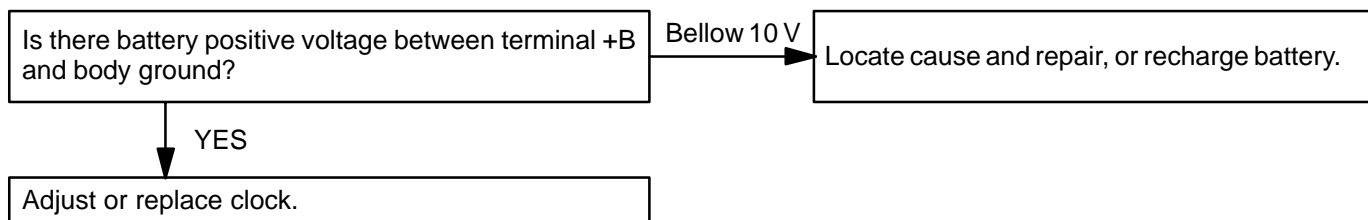


2. TROUBLESHOOTING NO.2

2	CLOCK LOSES OR GAINS TIME
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- (a) Check that the battery positive voltage is 10 – 16 V. If voltage is not as specified, replace the battery.
 - (b) Inspect the error of the clock.
Allowable error (per day): ± 1.5 seconds
 If the error exceeds the allowable error, replace the clock.
 - (c) Check that the clock adjusting button is sticking in position and has failed to return.
 If the error exceeds the allowable error, replace the clock.
 - (d) Troubleshoot the clock as follows.
- HINT:
 Inspect the connector on the wire harness side.



ENGINE IMMOBILISER SYSTEM

REGISTRATION PROCEDURE

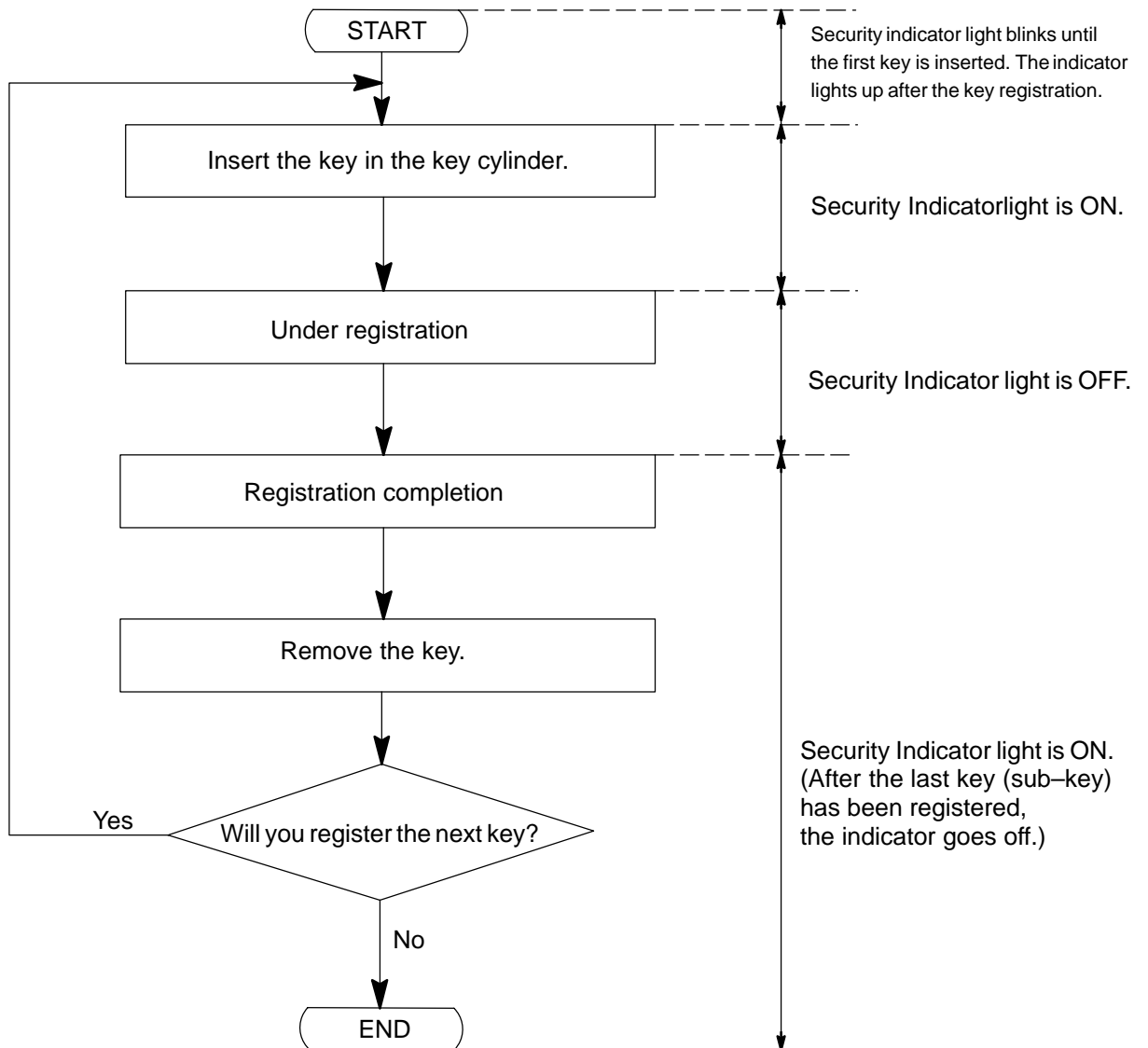
BE0B2-06

1. KEY REGISTRATION IN AUTOMATIC REGISTRATION MODE

(a) Registration of a new transponder key.

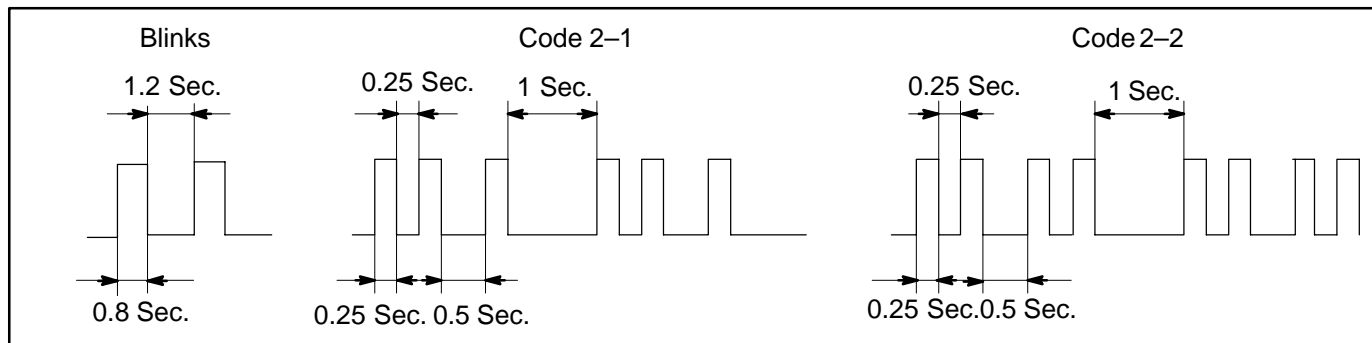
HINT:

- This must be done when you have installed a new ECM.
- The new ECM is in the automatic key code registration mode. The already fixed number of key codes for this ECM can be registered.
On this type of vehicle, up to 3 key codes can be registered.
- In the automatic registration mode, the last key registered becomes sub-key.



HINT:

- When a key is not inserted in the key cylinder in the automatic registration mode, the security indicator always lights on.
- When the immobiliser system operations normally and the key is pull out, the security indicator blinks.
- When key code registration could not be performed in the automatic registration mode, code 2-1 is output from the security indicator and when inserting the already registered key, code 2-2 is output.



(b) Automatic registration mode completion

If completing the mode forcibly when more than 1 key code have been registered in the automatic registration mode, perform the following procedures.

After 1 more key code have been registered with master key, perform step (1) or (2) without pulling the key out or inserting the already registered key.

- (1) Depress and release brake pedal 5 times or more within 15sec.
- (2) With the TOYOTA hand-held tester, require automatic registration mode completion.

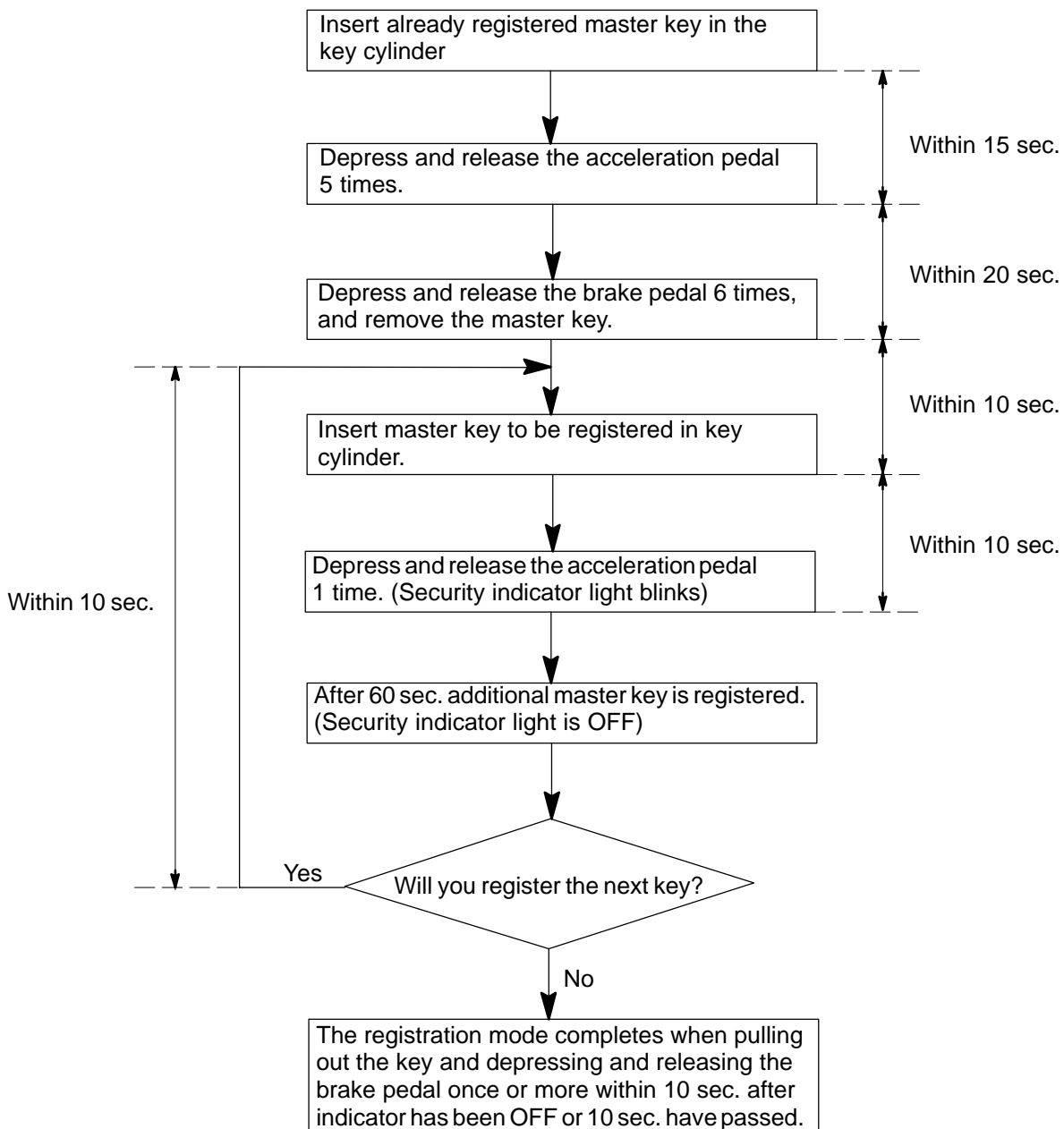
2. REGISTRATION OF ADDITIONAL MASTER KEY

There are 2 ways for registration of additional master key, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

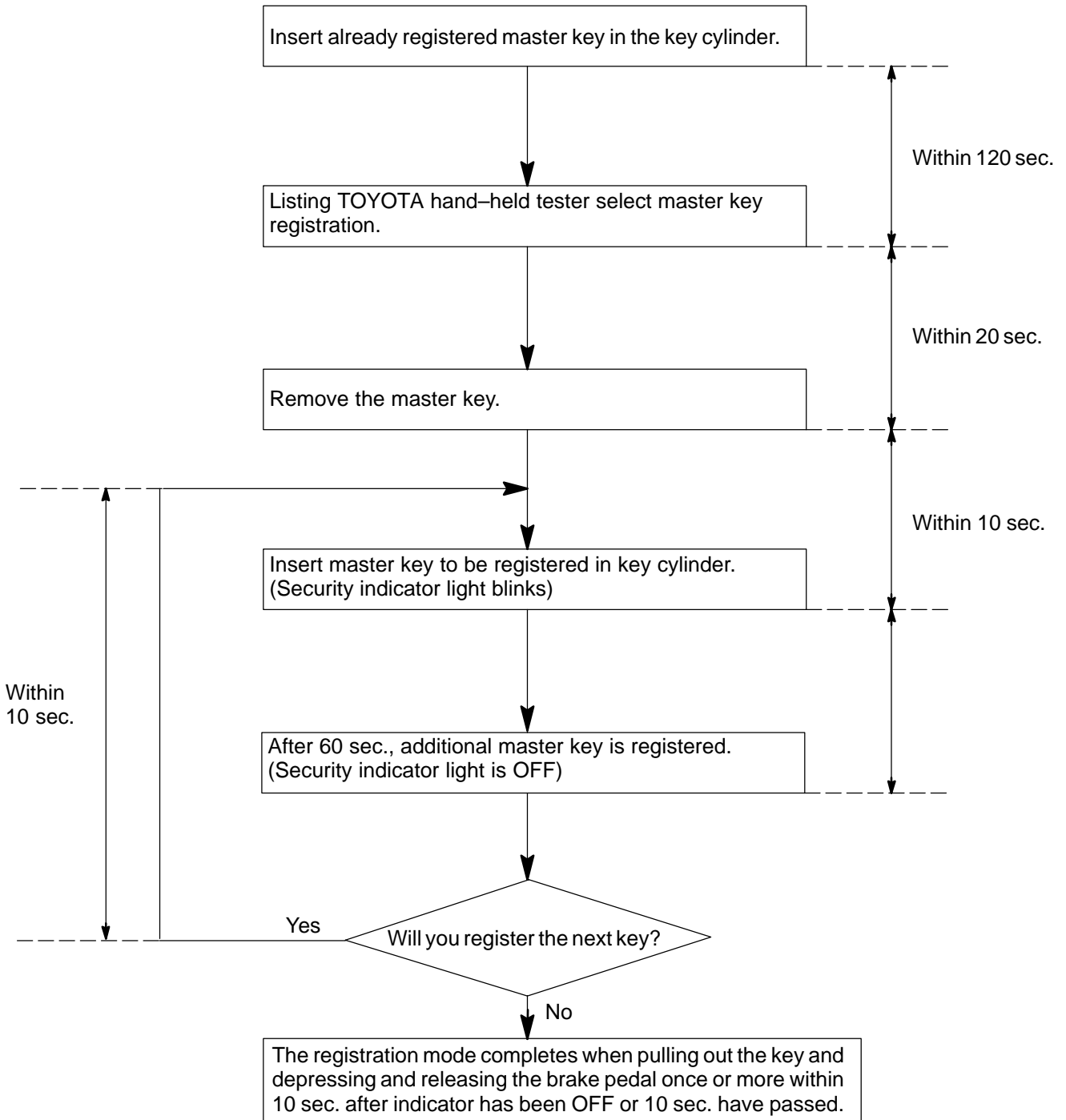
HINT:

- It is possible to register up to 7 master key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

(1) Depressing brake pedal and acceleration pedal:



(2) Using TOYOTA hand-held tester:



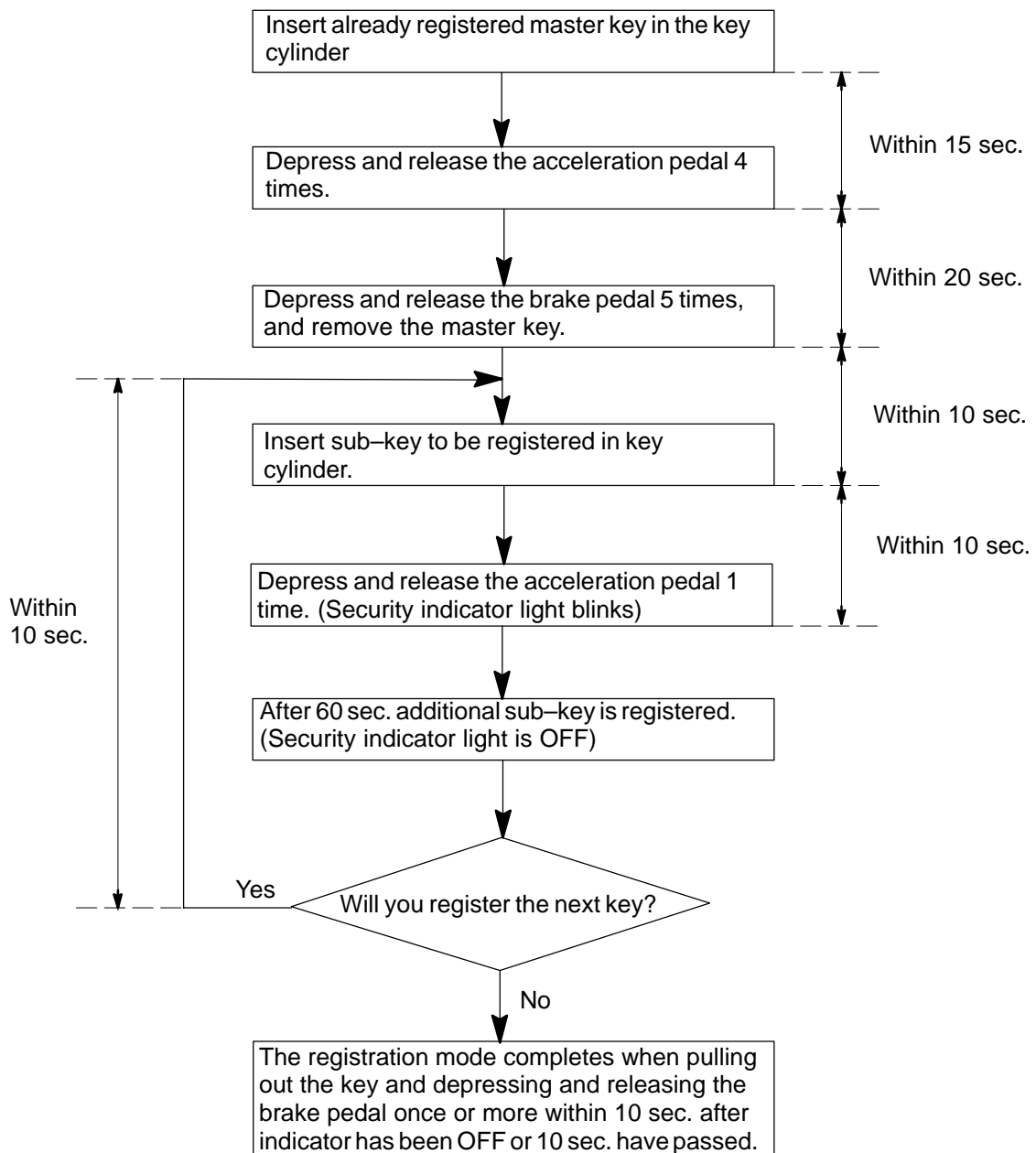
3. REGISTRATION ADDITIONAL OF SUB-KEY

There are 2 ways for registration of additional sub-key, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

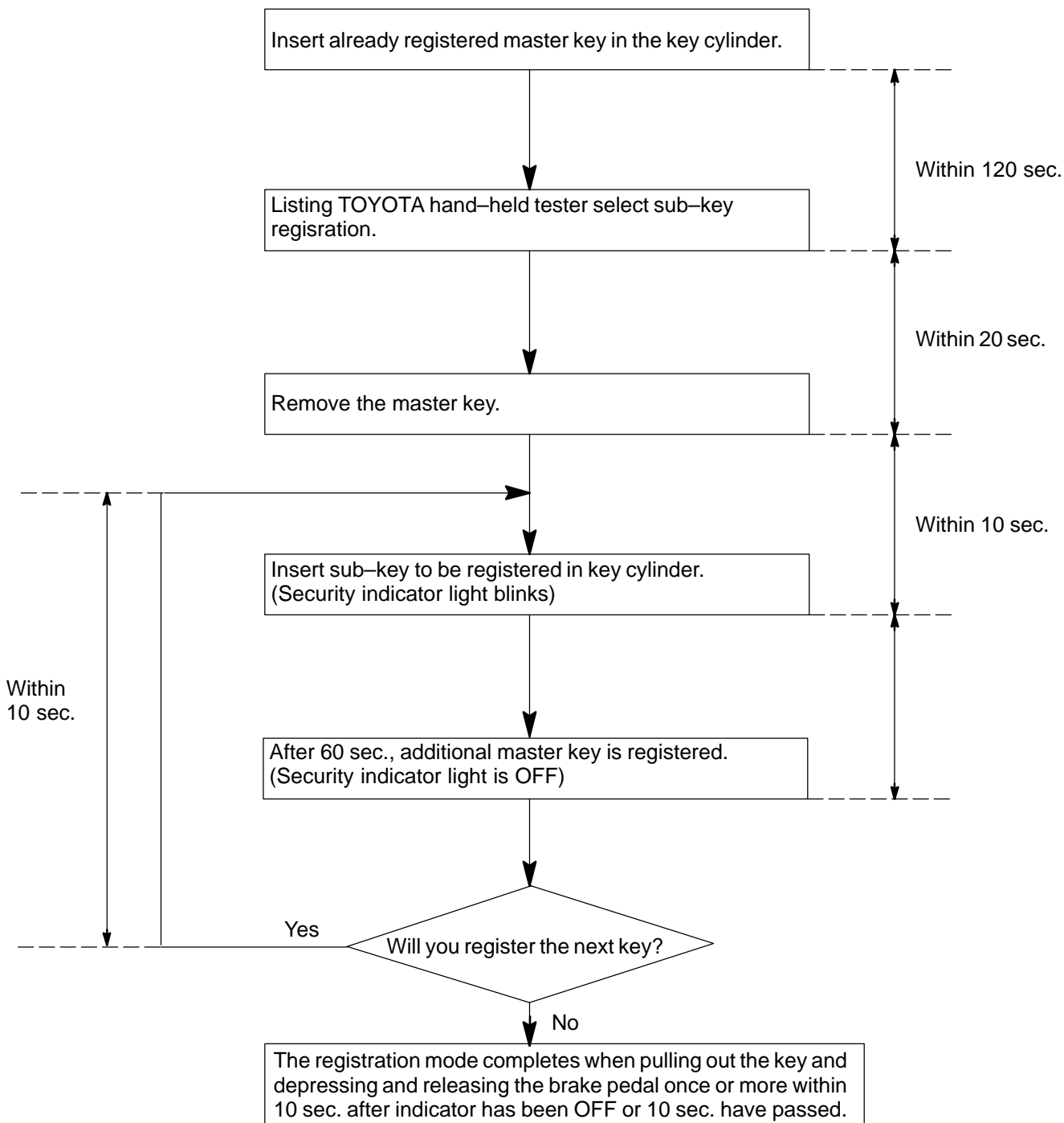
HINT:

- It is possible to register up to 3 sub-key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

(1) Depressing brake pedal and acceleration pedal:



(2) Using TOYOTA hand-held tester:



4. ERASURE OF TRANSPONDER KEY CODE

There are 2 ways for erasure of transponder key code, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

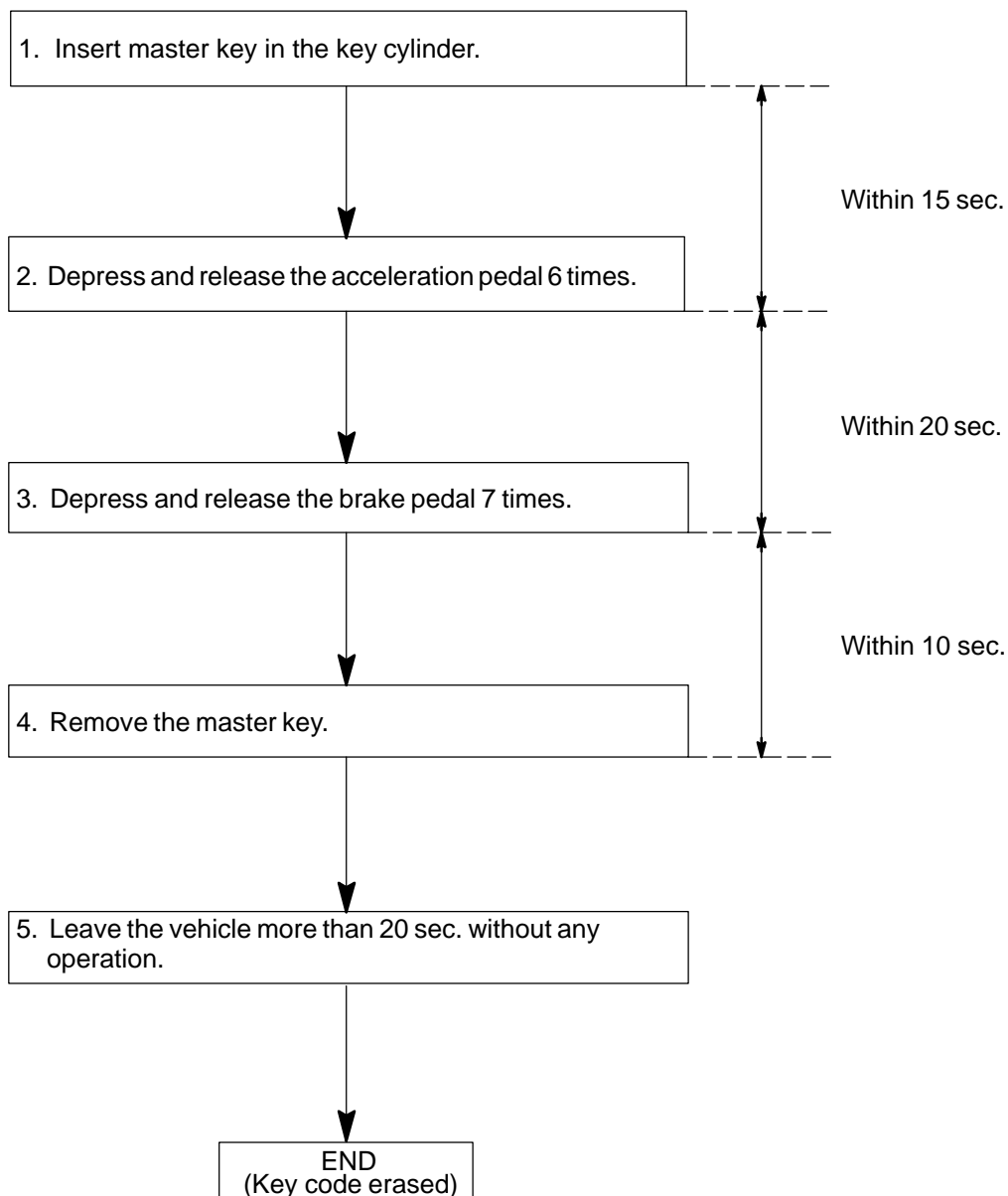
NOTICE:

All other master and sub-key codes are deleted leaving the master key code to use the operation. When using the key which was used before deleting, it is necessary to register the code again.

HINT:

- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

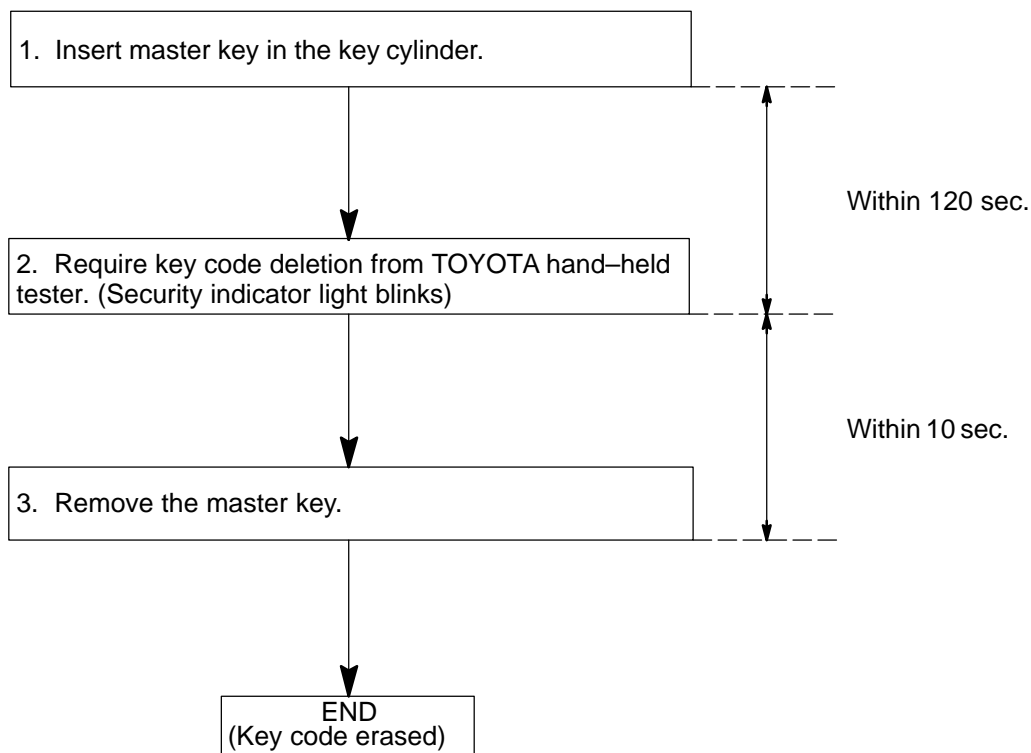
(1) Depressing brake pedal and acceleration pedal:



HINT:

If the key cannot be pulled out within 30 sec. from the first brake depression in the step 3, the key code deletion is canceled.

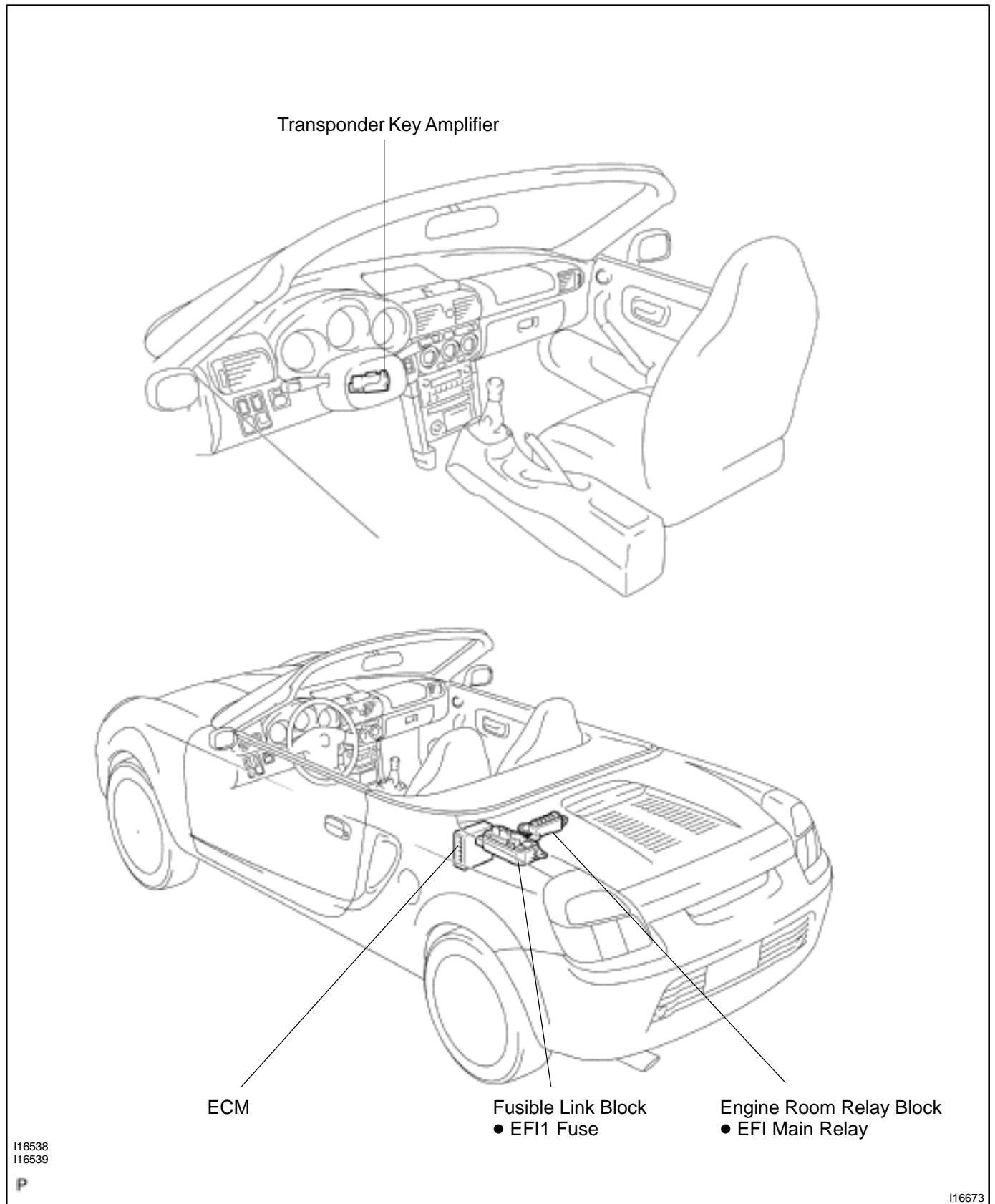
(2) Using TOYOTA hand-held tester:



HINT:

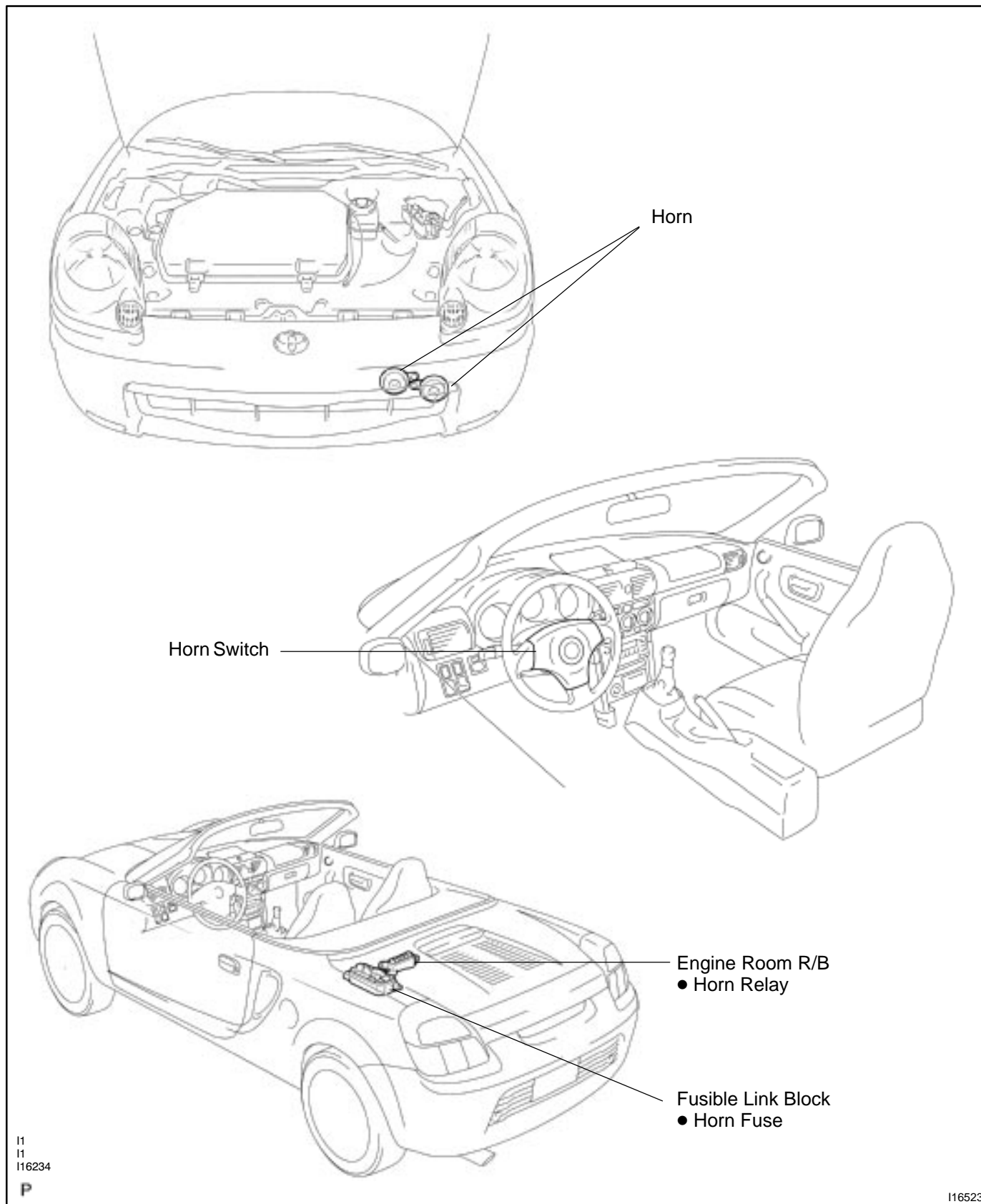
When the key cannot be pulled out in the step 3, key code deletion is canceled.
(Security indicator light is OFF)

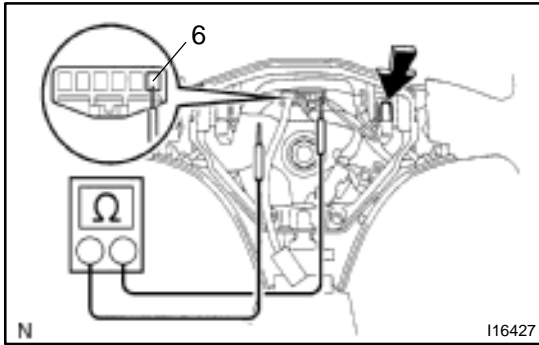
LOCATION



HORN SYSTEM LOCATION

BE0FY-12



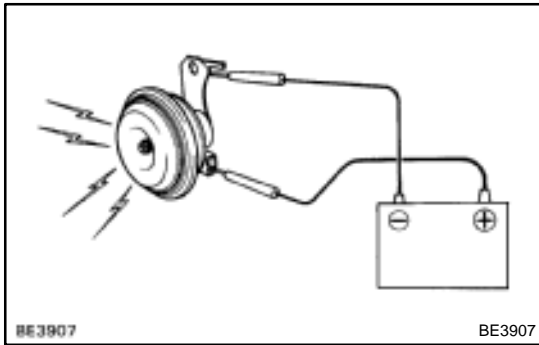


INSPECTION

1. INSPECT HORN SWITCH

- (a) Check that no continuity exists between terminal 6 of the connector and body ground.
- (b) Check that continuity exists between terminal 6 of the connector and body ground when the horn contact plate is pressed against the steering spoke assembly.

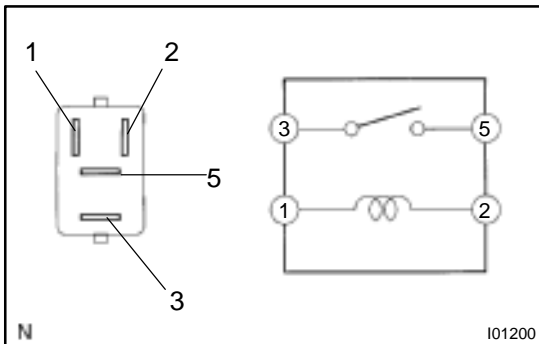
If continuity is not as specified, repair or replace the steering wheel or wire harness as necessary.



2. INSPECT HORN OPERATION

Connect the positive (+) lead from the battery to the terminal and negative (-) lead to the horn body and check that the horn blows.

If operation is not as specified, replace the horn.



3. INSPECT HORN RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.