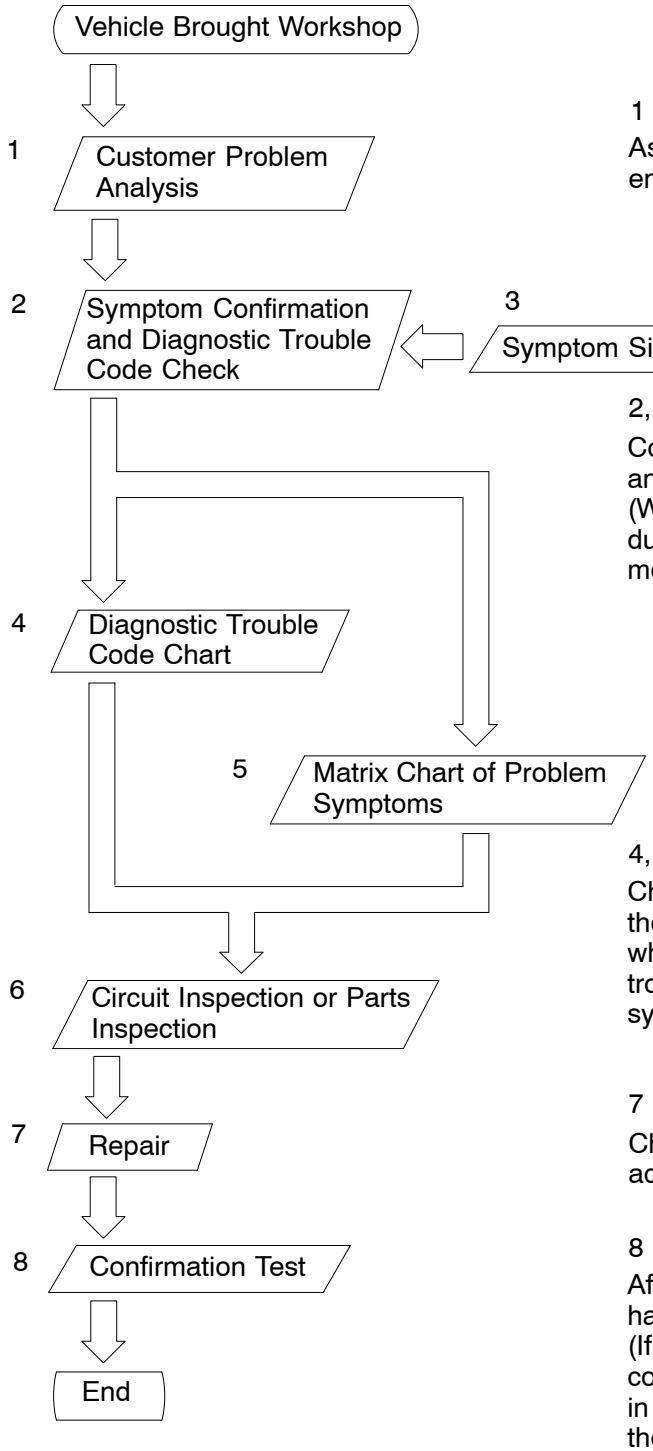
IN02J–03

HOW TO PROCEED WITH TROUBLESHOOTING

Carry out troubleshooting in accordance with the procedure on the following page. Here, only the basic procedure is shown. Details are provided in each section, showing the most effective methods for each circuit. Confirm the troubleshooting procedures first for the relevant circuit before beginning troubleshooting of that circuit.



1

Ask the customer about the conditions and the environment when the problem occurred.

2, 3

Confirm the symptoms and the problem conditions, and check the diagnostic trouble codes.
(When the problem symptoms do not appear during confirmation, use the symptom simulation method described later on.)

4, 5, 6

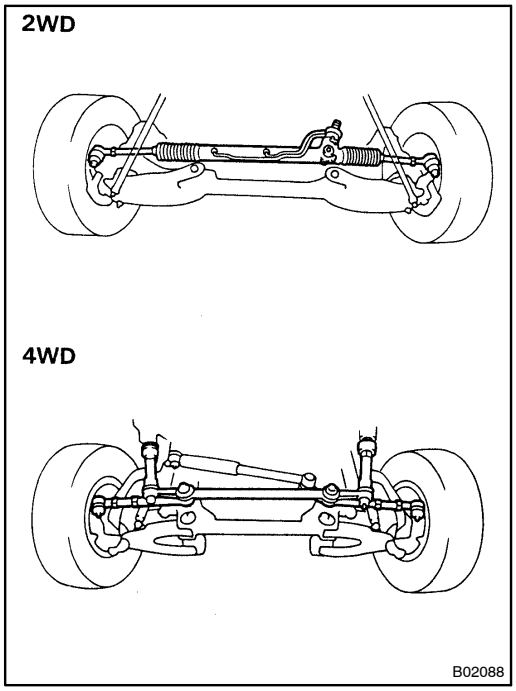
Check the results obtained in Step 2, then confirm the inspection procedure for the system or the part which should be checked using the diagnostic trouble code chart or the matrix chart of problem symptoms.

7

Check and repair the affected system or part in accordance with the instructions in Step 6.

8

After completing repairs, confirm that the problem has been eliminated.
(If the problem is not reproduced, perform the confirmation test under the same conditions and in the same environment as when it occurred for the first time.)



CHASSIS

MA015–02

INSPECTION

1. INSPECT STEERING LINKAGE

(a) Check the steering wheel freeplay (See page SR–9).

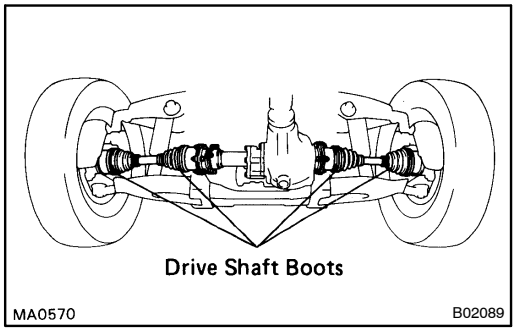
(b) Check the steering linkage for looseness or damage.
Check that:

- Tie rod ends and relay rod ends do not have excessive play.
- Dust seals are not damaged.
- 2WD:
  Boot clamps are not loose.

2. INSPECT SRS AIRBAG (See page RS–2)

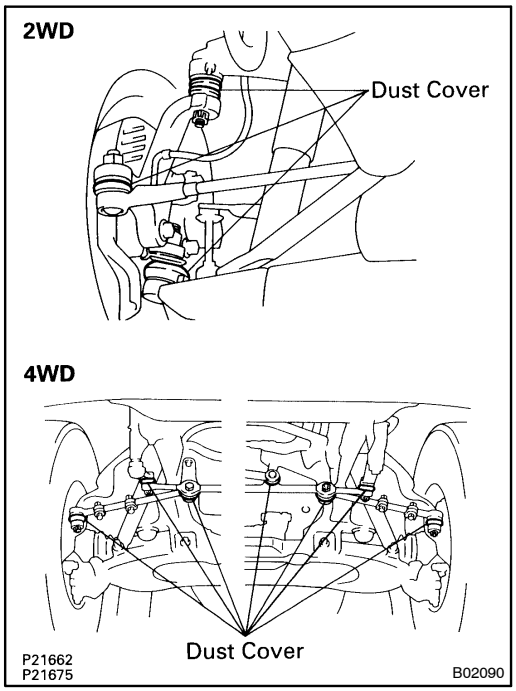
3. INSPECT STEERING GEAR HOUSING OIL

Check the steering gear housing for oil leaks.
If leakage is found, check for cause and repair.



4. 4WD:
INSPECT DRIVE SHAFT BOOTS

Inspect the drive shaft boots for clamp looseness, grease leakage or damage.

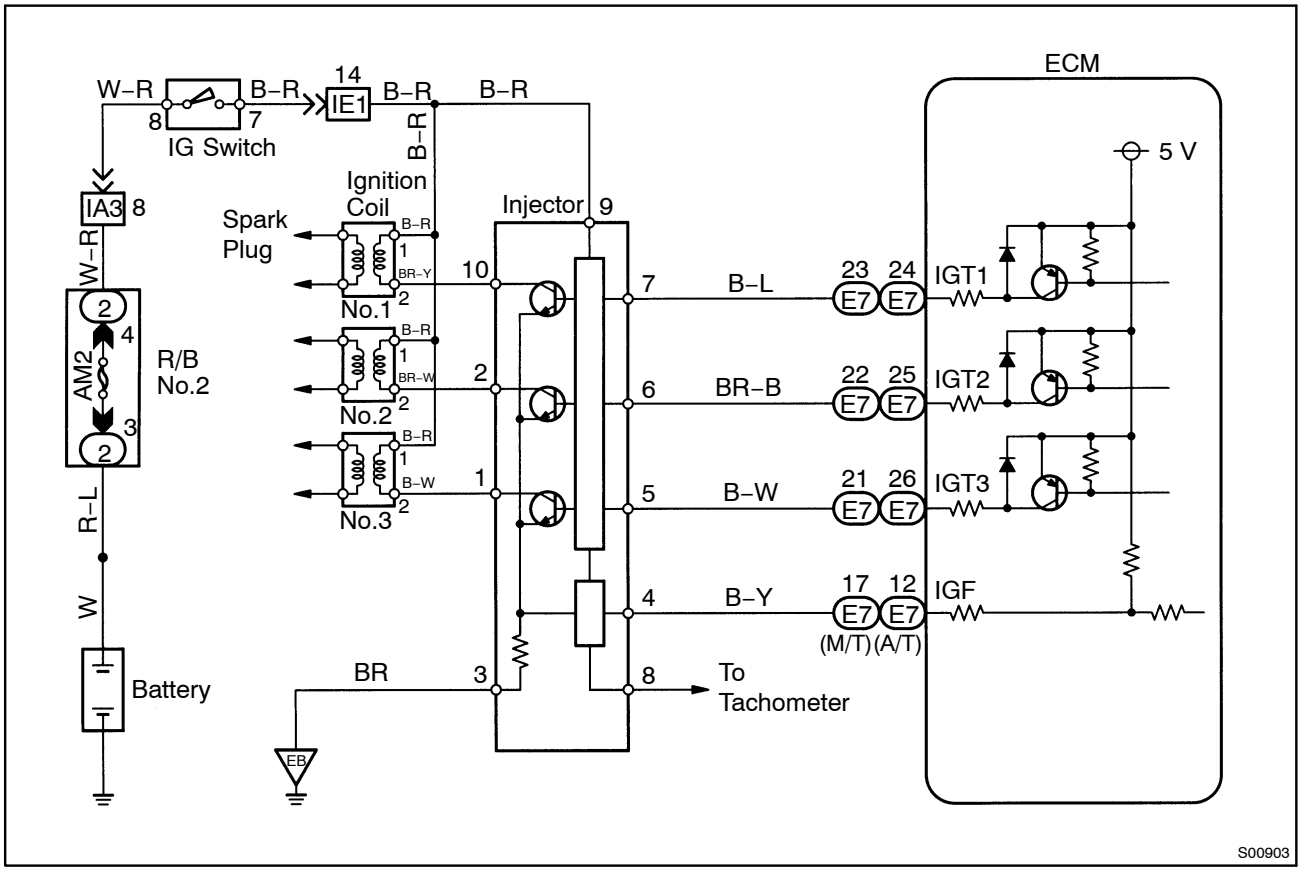


5. INSPECT BALL JOINTS AND DUST COVERS

(a) Inspect the ball joints for excessive looseness.

(b) Inspect the dust cover for damage.

WIRING DIAGRAM



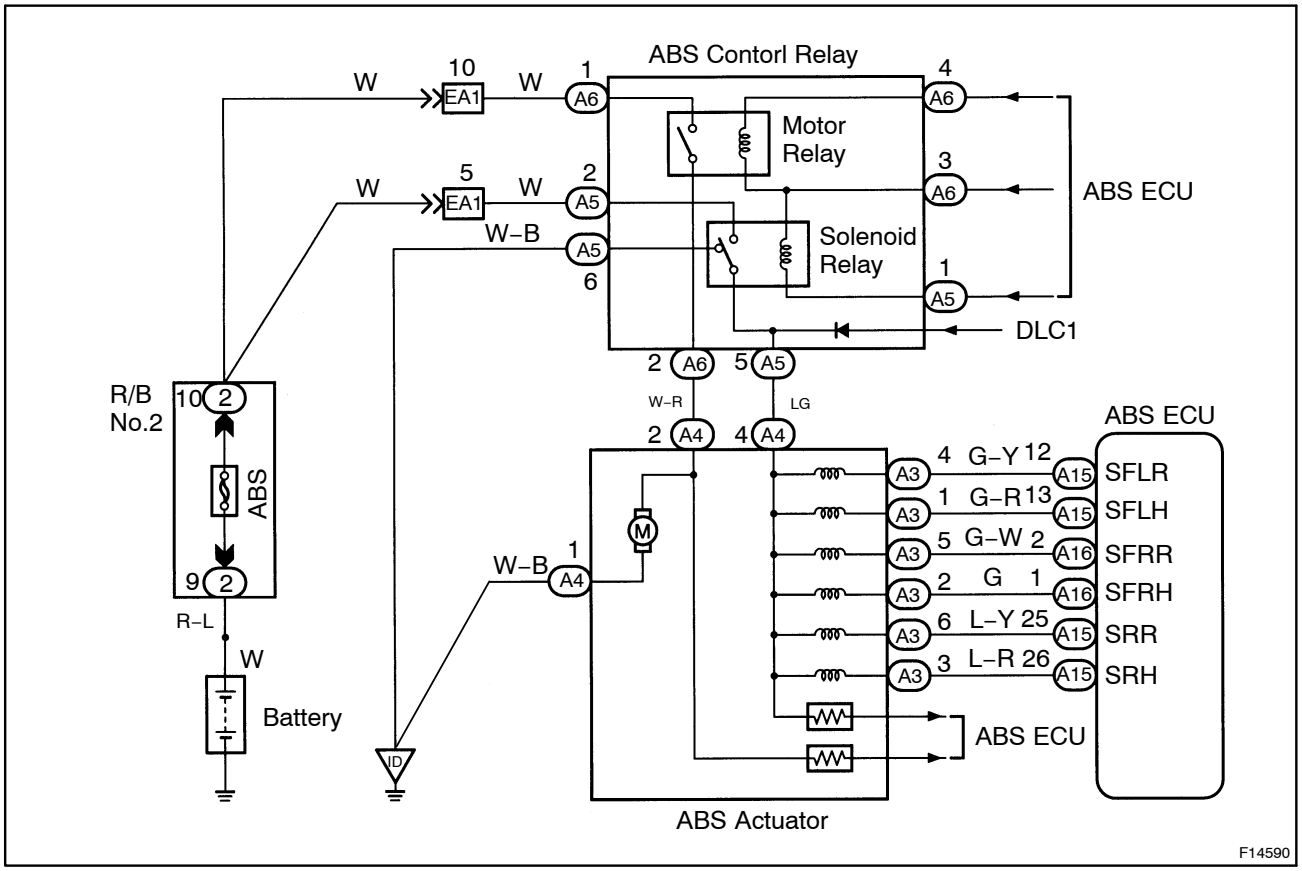
INSPECTION PROCEDURE

1	**Check spark plug (See page IG–1).**

NG → **Go to step 4.**

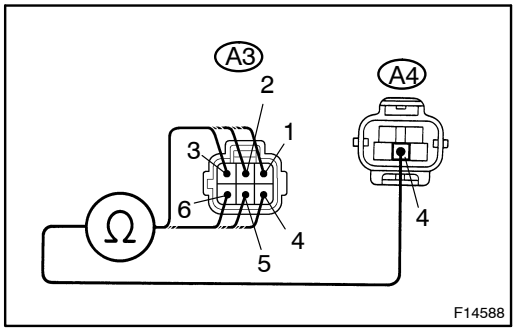
OK

WIRING DIAGRAM



INSPECTION PROCEDURE

1	**Check ABS actuator solenoid.**



PREPARATION:

Disconnect the 2 connectors from the ABS actuator.

CHECK:

Check continuity between terminals A4 – 4 and A3 – 1, 2, 3, 4, 5, 6 of ABS actuator connector.

OK:

Continuity

HINT:

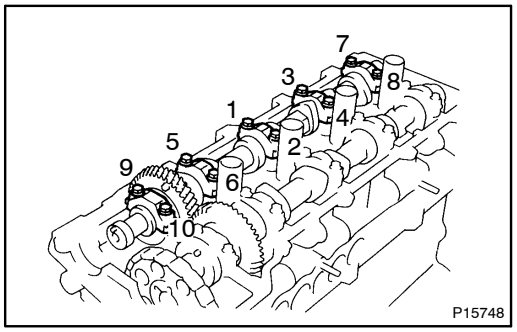
Resistance of each solenoid coil

SFRH, SFLH, SRH: 5.0 Ω

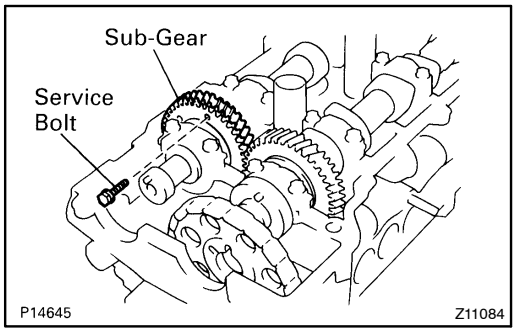
SFRR, SFLR, SRR: 2.2 Ω

NG	**Replace ABS actuator.**

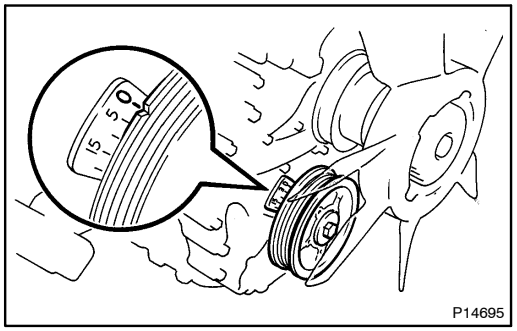
OK



(5) Apply light coat of engine oil on the threads and under the heads of the bearing cap bolts.
(6) Install and uniformly tighten the 10 bearing cap bolts in several passes in the sequence shown.

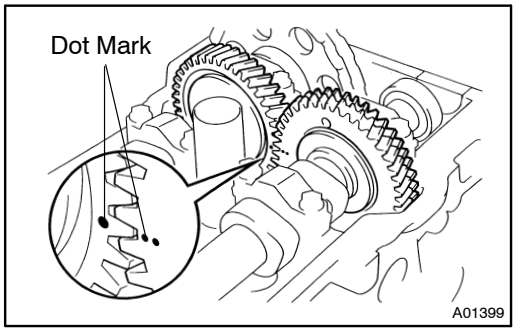


(7) Remove a service bolt.
(8) Check that the intake and exhaust camshafts turn smoothly.

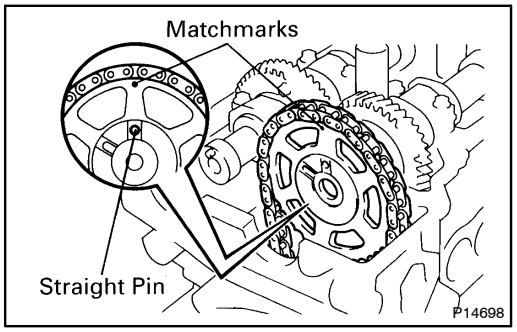


5. SET NO.1 CYLINDER TO TDC/COMPRESSION

(a) Turn the crankshaft pulley clockwise, and align its groove with the timing mark ”0” of the timing chain cover.



(b) Turn the camshafts so that the timing marks with one and 2 dots will be in straight line on the cylinder head surface as shown in the illustration.



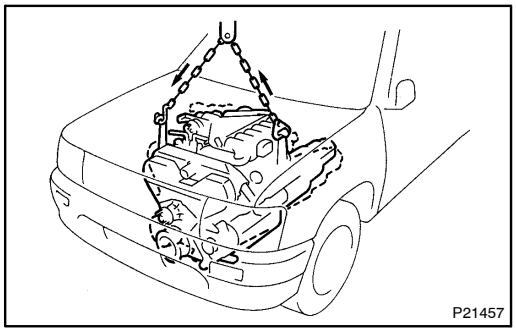
6. INSTALL CAMSHAFT TIMING GEAR

HINT:
Check that the matchmarks on the camshaft timing gear and timing chain are aligned.

(a) Place the gear over the straight pin of the intake camshaft.

EM1OS–01

INSTALLATION

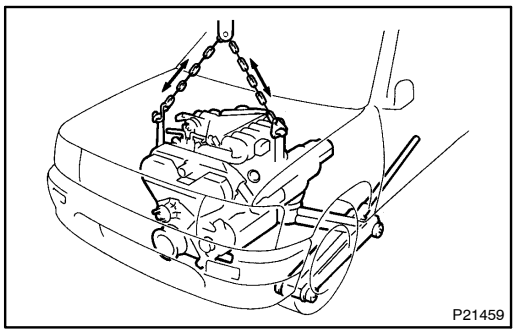

P21457

1. INSTALL TRANSMISSION TO ENGINE
(See page AT–26)

2. INSTALL ENGINE AND TRANSMISSION ASSEMBLY IN VEHICLE

(a) Attach the engine hoist chain to the engine hangers.

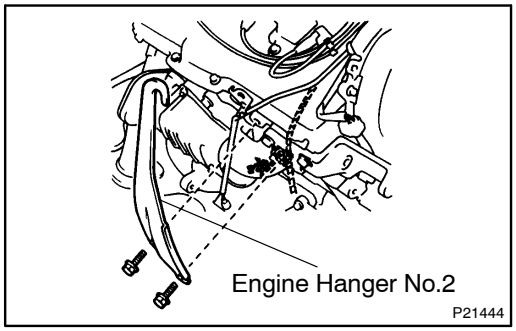
(b) Lower the engine and transmission assembly into the engine compartment.


P21459

(c) Keep the engine level, and align the RH and LH mountings and body mountings.

(d) Attach the RH and LH mounting insulators to the body mountings, and temporarily install the 4 bolts and nuts.

(e) Jack up and put the transmission onto the frame.

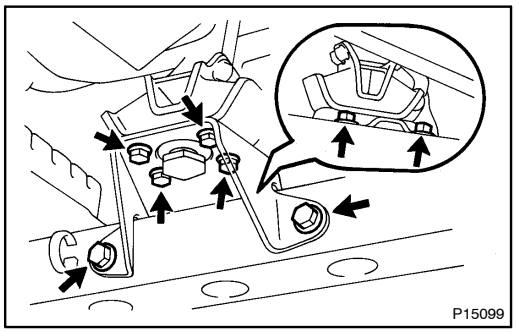


P21444

(f) Remove the engine chain hoist from the engine.

(g) Remove the 2 bolts and engine hanger No.2.

(h) w/ A/C:
Install the bolt, and connect the A/C compressor wire.


P15099

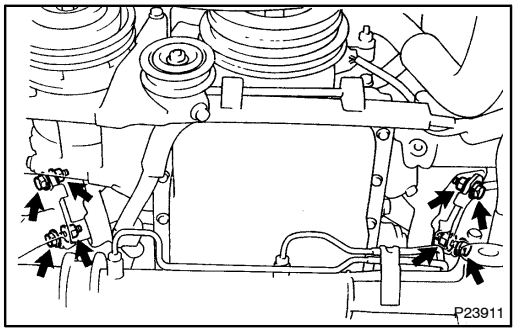
3. INSTALL ENGINE REAR MOUNTING BRACKET

(a) Raise the transmission slightly by raising the engine with a jack and a wooden block under the transmission.

(b) Install the engine rear mounting bracket to the frame.
Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)

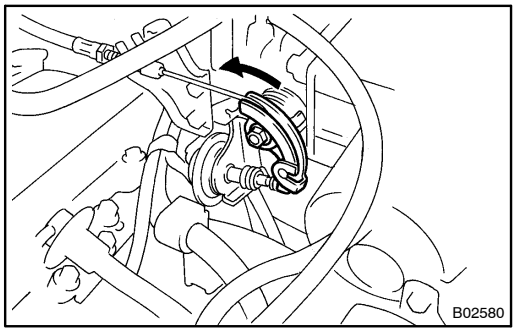
(c) Lower the transmission and rest it on the extension housing.

(d) Install the mounting bracket to the mounting insulator.
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)


P23911

4. TIGHTEN RH AND LH ENGINE MOUNTING INSULATOR BOLTS AND NUTS

Tighten the 4 bolts and nuts holding the mounting insulators to the body mountings.
Torque: 38 N·m (387 kgf·cm, 28 ft·lbf)



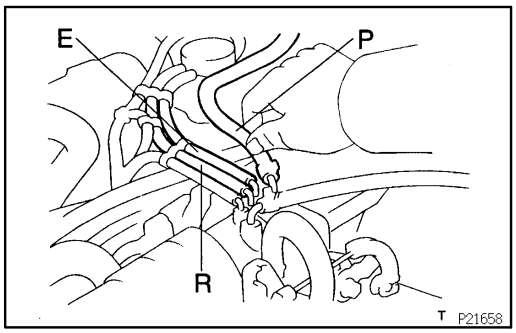
THROTTLE BODY

SF1QK–01

ON–VEHICLE INSPECTION

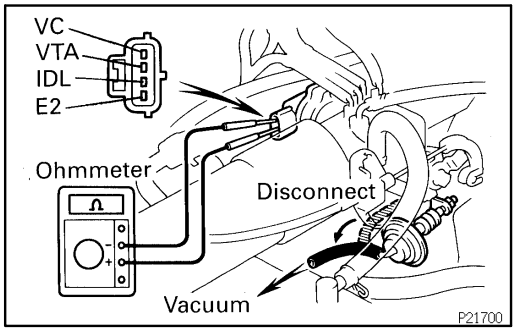
1. INSPECT THROTTLE BODY

(a) Check that the throttle linkage moves smoothly.



(b) Check the vacuum at each port.
  (1) Start the engine.
  (2) Check the vacuum with your finger.

Port name	At idle	At 3,500 rpm
P	No vacuum	Vacuum
E	No vacuum	Vacuum
R	No vacuum	Vacuum



2. INSPECT THROTTLE POSITION SENSOR

(a) Disconnect the sensor connector.
(b) Apply vacuum to the throttle opener.
(c) Using an ohmmeter, measure the resistance between each terminal.

Throttle valve condition	Between terminals	Resistance
Fully closed	VTA – E2	0.2 – 5.7 kΩ
Fully closed	IDL – E2	2.3 kΩ or less
Open	IDL – E2	Infinity
Fully open	VTA – E2	2.0 – 10.2 kΩ
–	VC – E2	2.5 – 5.9 kΩ

(d) Connect the sensor connector.

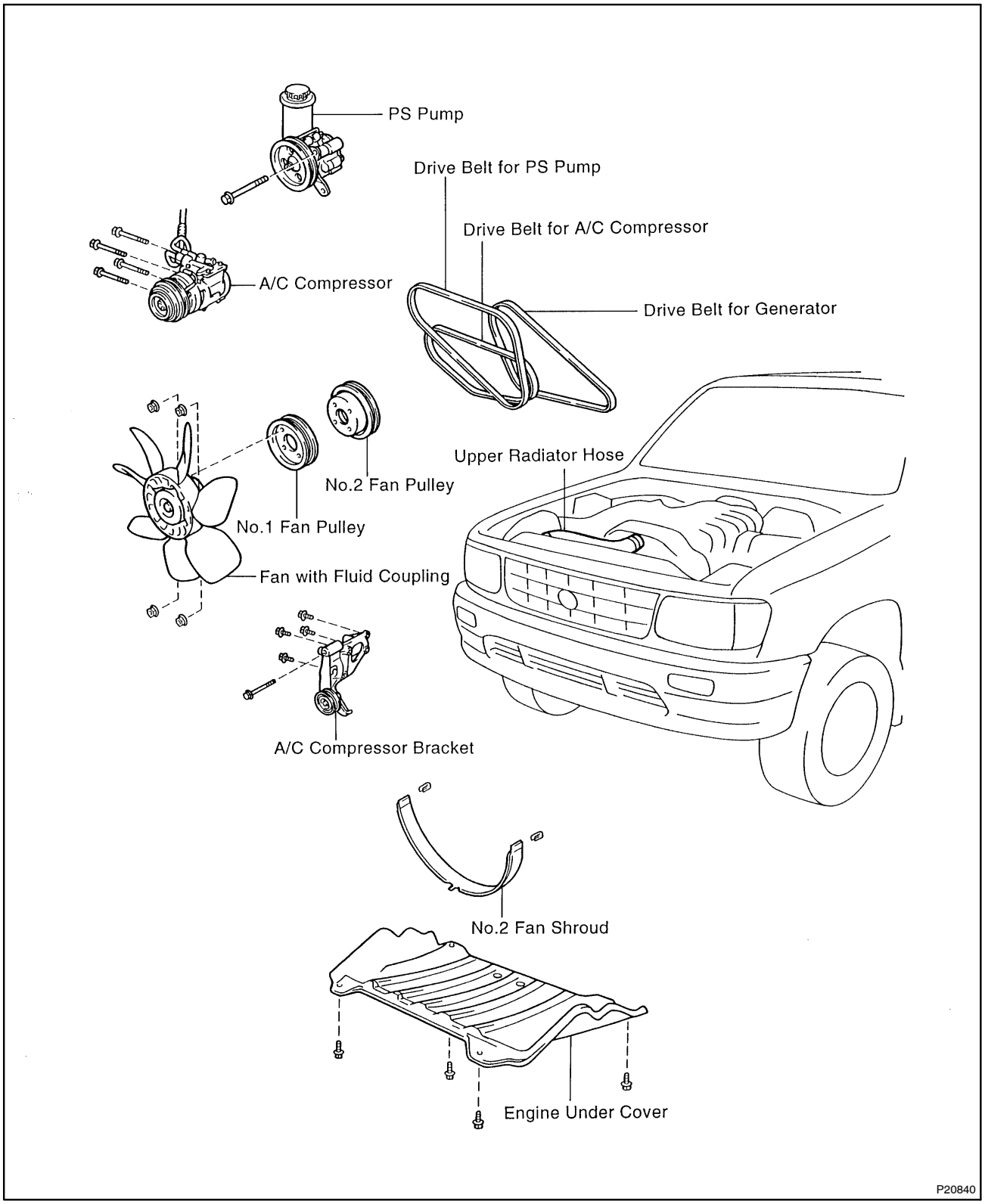
3. INSPECT THROTTLE OPENER

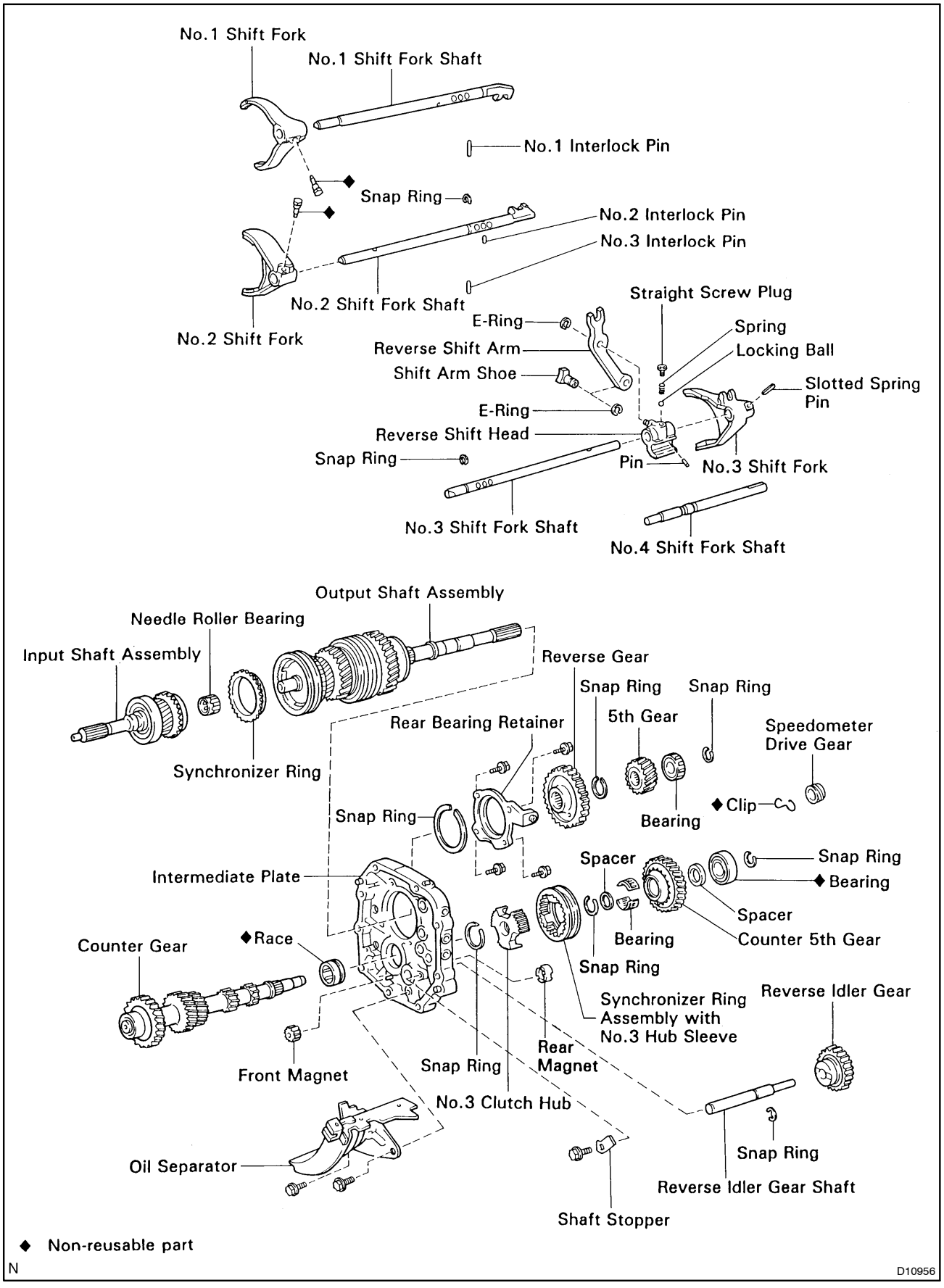
(a) Warm up engine
  Allow the engine to warm up to normal operating temperature.
(b) Connect TOYOTA hand–held tester or OBD II scan tool.
(c) Check idle speed
  Idle speed: 700 rpm
(d) Disconnect the vacuum hose from the throttle opener, and plug the hose end.

WATER PUMP

COMPONENTS

CO05Q–02





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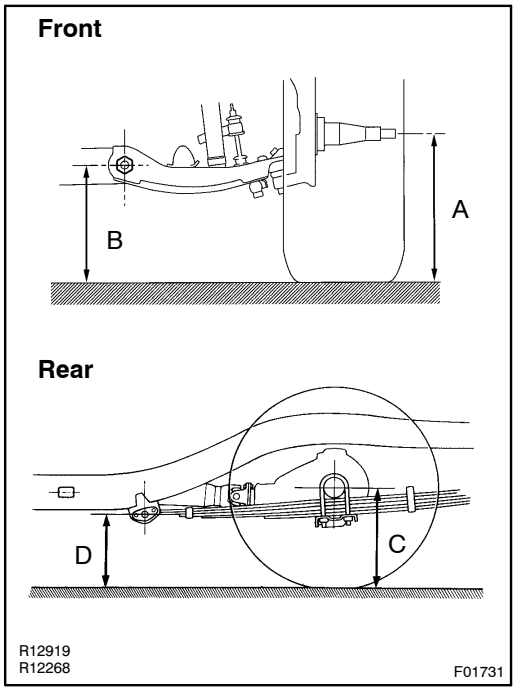


FRONT WHEEL ALIGNMENT (2WD)

SA0FF–02

INSPECTION

HINT:

For the vehicle height of non–loaded vehidles for each model and alighment standed values, refer to page SA–119.

1. MEASURE VEHICLE HEIGHT

Vehicle height: See page SS–58

Front: A – B = 74.0 mm (2.913 in.)

Rear: C – D = Standed cab

0.5 ton: 122.0 mm (4.803 in.)

1.0 ton: 107.0 mm (4.213 in.)

Extre cab: 115.5 mm (4.547 in.)

Measuring points:

A: Steering knuckle height measured at its center on the outer edge.

B: Lower suspension arm front adjusting bolt height measured at its center.

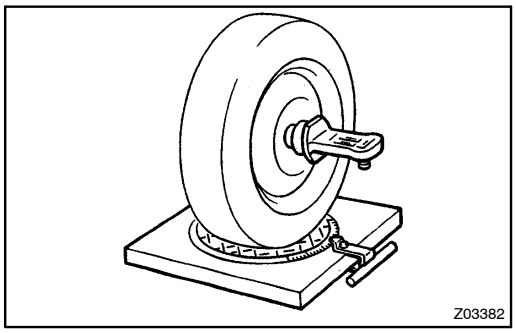
C: Rear axle shaft height measured at its center.

D: Rear leaf spring front bushing height measured at its center.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to specification.

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



2. INSTALL CAMBER–CASTER–KINGPIN GAUGE OR ONTO WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

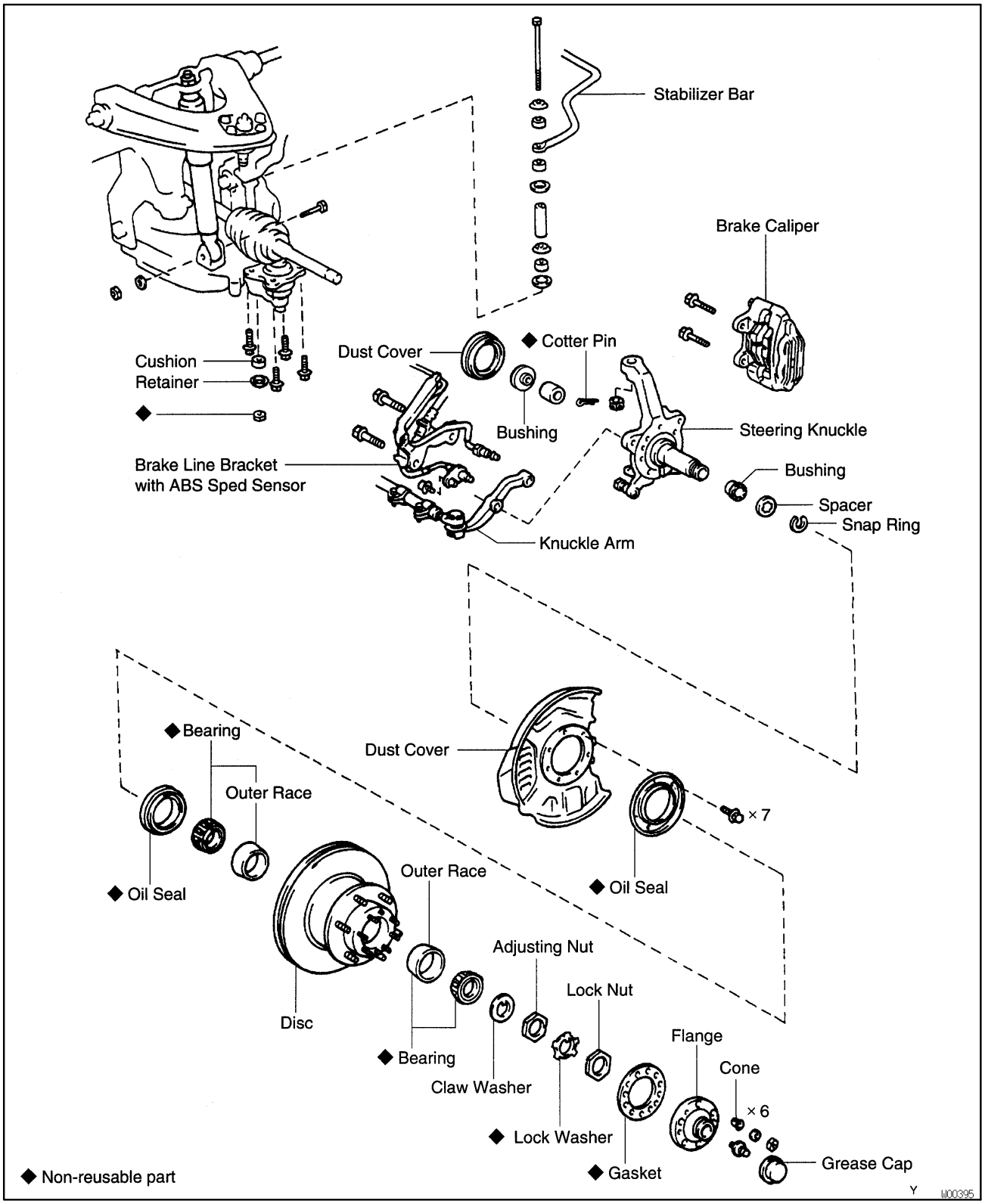
Camber	0°00' ± 45' (0° ± 0.75°)
Left–right error	45' (0.75°) or less
Caster	4°00' ± 45' (4° ± 0.75°)
Left–right error	45' (0.75°) or less
Steering axis inclination	12°30' ± 45' (12.5° ± 0.75°)
Left–right error	45' (0.75°) or less

If the steering axis inclination is not as specified, after camber and caster have correctly adjusted, recheck the steering knuckle front wheel for bearing or looseness.

STEERING KNUCKLE (4WD)

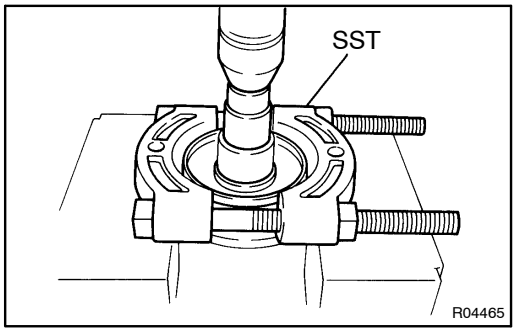
COMPONENTS

SA0FR–02



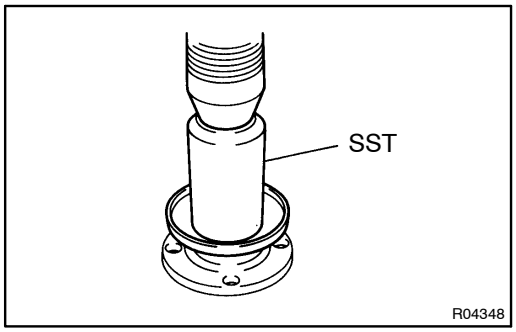
SA0G7–02

REPLACEMENT

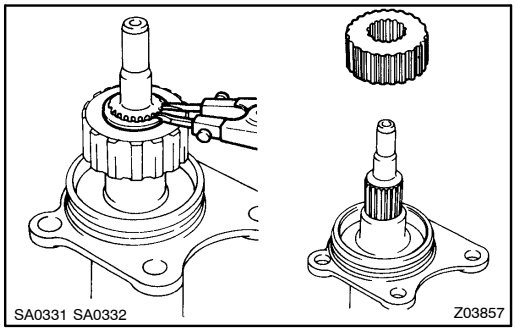


1. REPLACE COMPANION FLANGE DUST DEFLECTOR, IF NECESSARY

(a) Using SST and a press, remove the dust deflector.
SST 09950–00020



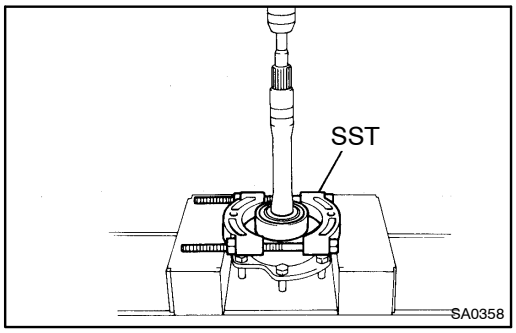
(b) Using SST and a press, install a new dust deflector.
SST 09636–20010



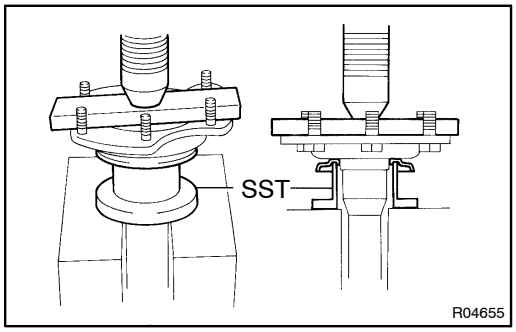
2. REPLACE SIDE GEAR SHAFT, IF NECESSARY

(a) Remove the clutch hub.
(1) Using a snap ring expander, remove the snap ring.
(2) Remove the clutch hub from the side gear shaft.

(b) Remove the LH side gear shaft from the tube.
(1) Remove the 3 bearing retainer bolts.
(2) Remove the side gear shaft from the tube.



(c) Replace the LH side gear shaft bearing and dust cover.
(1) Using a snap ring expander, remove the snap ring.
(2) Using SST and a press, remove the bearing.
SST 09950–00020
(3) Remove the bearing retainer.
(4) Using a screwdriver and hammer, remove the dust cover.

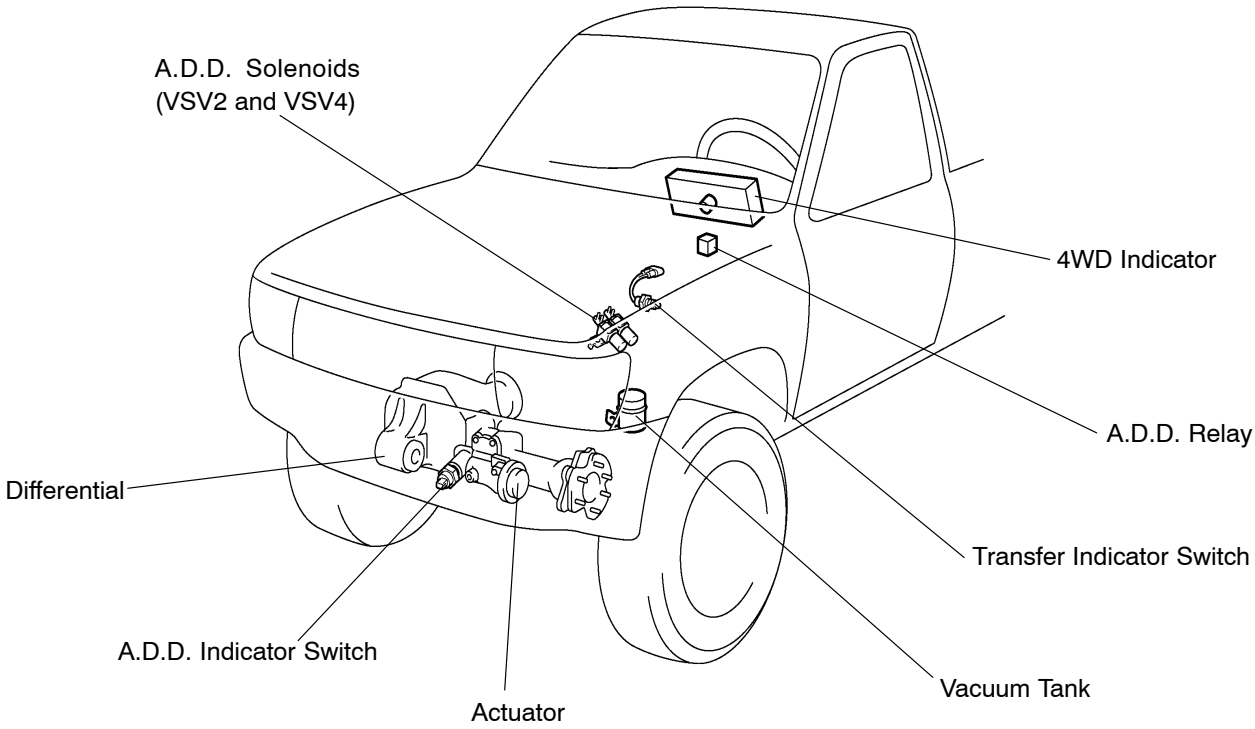


(5) Using SST and a press, install a new dust cover.
SST 09316–20011
(6) Install the bearing retainer.

A.D.D. CONTROL SYSTEM

LOCATION

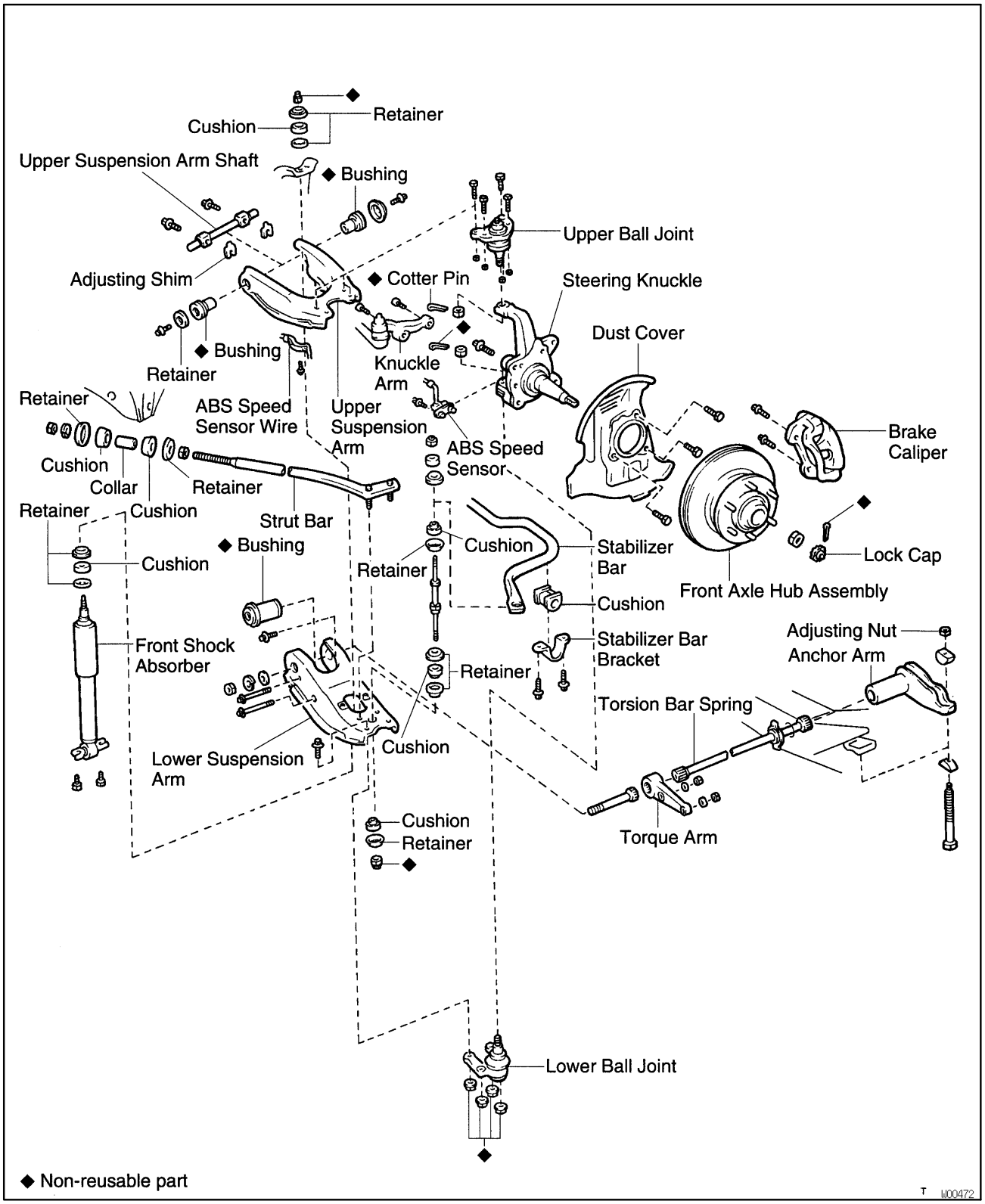
SA0GA–01



FRONT STRUT BAR (2WD)

COMPONENTS

SA0GS–07



FRONT UPPER BALL JOINT (4WD)

COMPONENTS

SA0HF–02