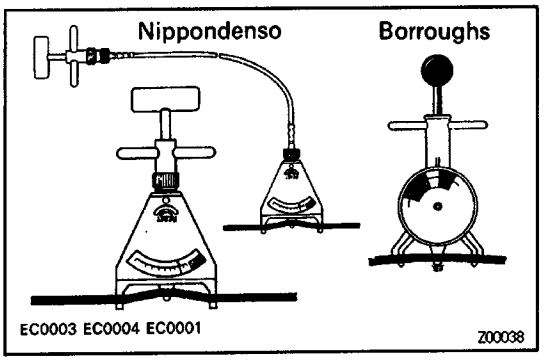


ON–VEHICLE INSPECTION

DRIVE BELT DEFLECTION CHECK

Using a belt tension gauge, check the drive belt deflection.

Belt tension gauge:

Nippondenso BTG–20 (95506–00020) or
Borroughs No.BT–33–73F

Drive belt deflection:

New belt

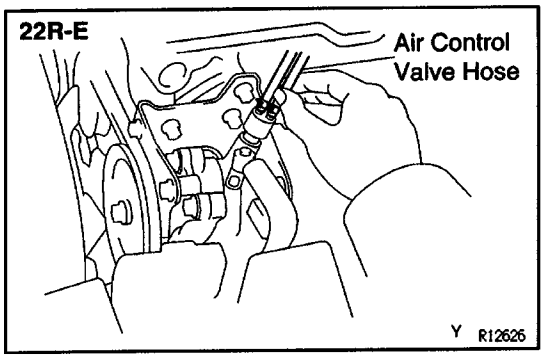
100–150 lbf

Used belt

60–100 lbf

HINT:

- ”New belt” refers to a belt which has been less than 5 minutes on a running engine.
- ”Used belt” refers to a belt which has been used on a running engine for 5 minutes or more.



IDLE–UP CHECK

1. TURN AIR CONDITIONING SWITCH OFF

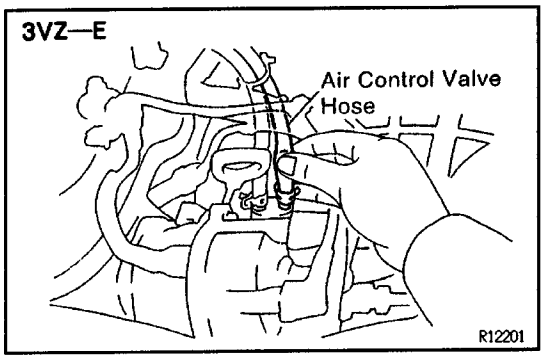
2. CHECK IDLE–UP

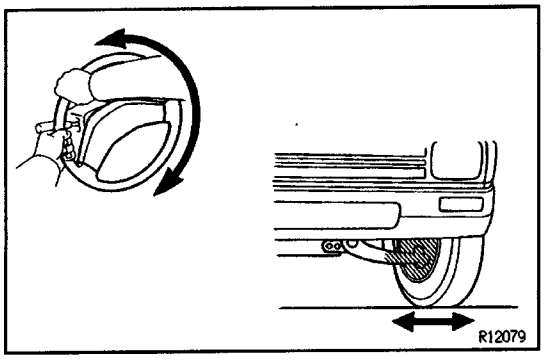
(a) Start engine and run it at idle.

(b) Fully turn the steering wheel.

(c) Check that the engine rpm decreases when the vacuum hose is pinched.

(d) Check that the engine rpm increases when the vacuum hose is released.





FLUID LEVEL CHECK

1. KEEP VEHICLE LEVEL

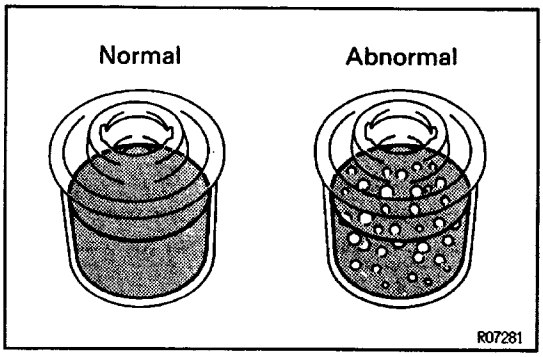
2. BOOST FLUID TEMPERATURE

(a) Start the engine and run it at idle.

(b) Turn the steering wheel from lock to lock several times to boost fluid temperature.

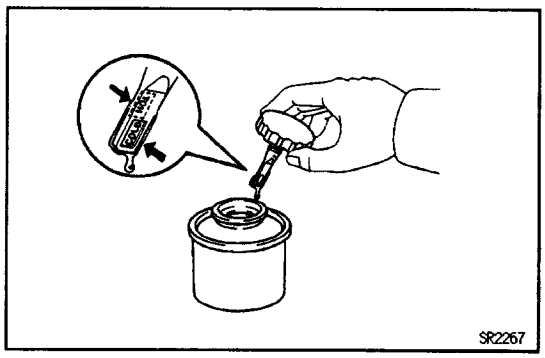
Fluid temperature:

80˚C (176˚F)



3. CHECK FOR FOAMING OR EMULSIFICATION

If there is foaming or emulsification, bleed power steering system.
(See page SR–31)

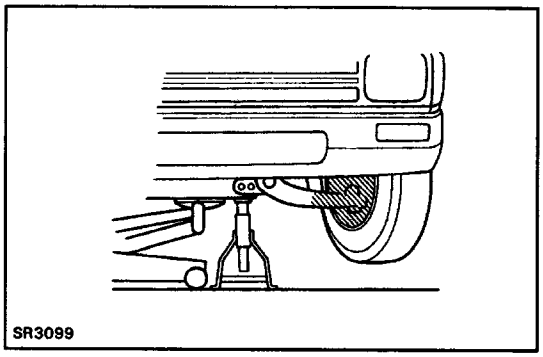


4. CHECK FLUID LEVEL

Check the fluid level in the oil reservoir.
If necessary, add fluid.
Fluid:

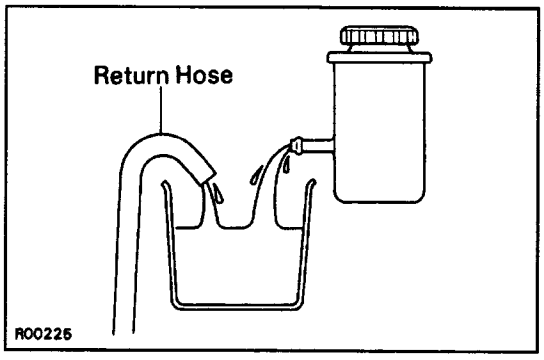
ATF DEXRON ® II

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

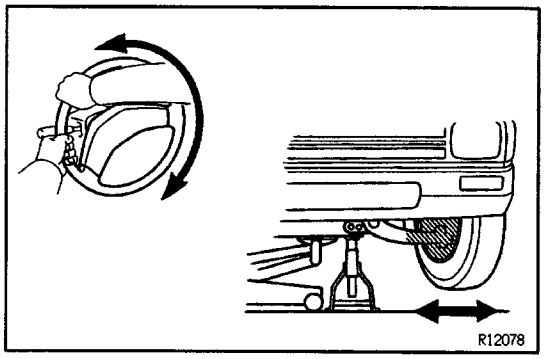


POWER STEERING FLUID REPLACEMENT

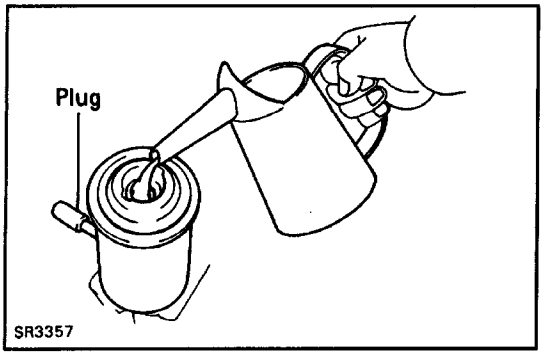
1. JACK UP FRONT OF VEHICLE AND SUPPORT IT WITH STANDS



2. REMOVE RETURN HOSE FROM OIL RESERVOIR AND DRAIN FLUID INTO CONTAINER



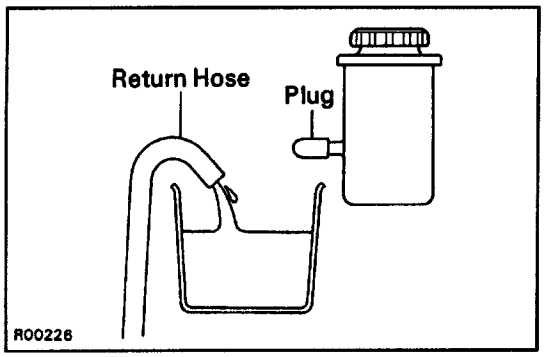
3. TURN STEERING WHEEL FROM LOCK TO LOCK WHILE DRAINING FLUID



4. FILL OIL RESERVOIR

Fluid:

ATF DEXRON ® II



5. START ENGINE AND RUN IT AT 1,000 RPM

After 1 or 2 seconds, fluid will begin to discharge from the return hose. Stop the engine immediately at this time.

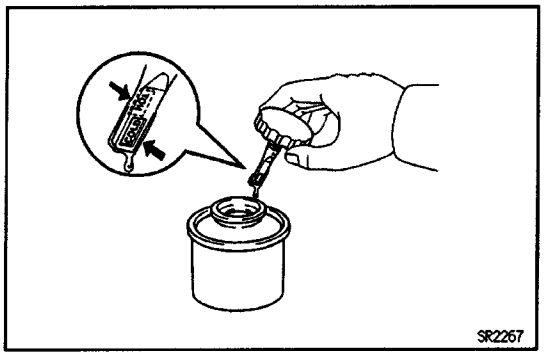
NOTICE: Take care that some fluid remains left in the oil reservoir.

6. REPEAT STEPS 4 AND 5 FOUR OR FIVE TIMES UNTIL THERE IS NO MORE AIR IN FLUID

7. CONNECT RETURN HOSE TO OIL RESERVOIR

8. BLEED POWER STEERING SYSTEM

POWER STEERING SYSTEM BLEEDING



1. CHECK FLUID LEVEL

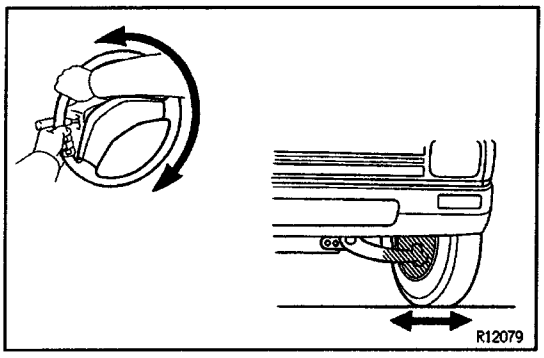
Check the fluid level in the oil reservoir.

If necessary, add fluid.

Fluid:

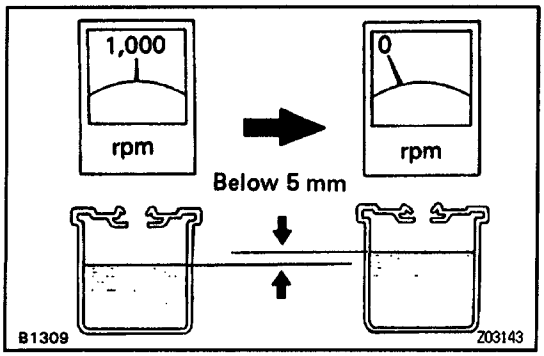
ATF DEXRON® II

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.



2. START ENGINE AND TURN STEERING WHEEL FROM LOCK TO LOCK 3 OR 4 TIMES

With the engine speed below 1,000 rpm, turn the steering wheel to left or right full lock and keep it there for 2–3 seconds, then turn the wheel to the opposite full lock and keep it there for 2–3 seconds.

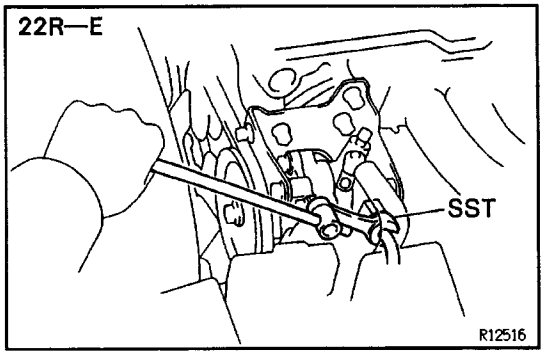


3. CHECK THAT FLUID IN OIL RESERVOIR IS NOT FOAMY OR CLOUDY AND DOES NOT RISE OVER MAXIMUM WHEN ENGINE IS STOPPED

Measure the fluid level with the engine running. Stop the engine and measure the fluid level.

Maximum rise: 5 mm (0.20 in.)

If a problem is found, repeat POWER STEERING FLUID REPLACEMENT on page SR–30.



OIL PRESSURE CHECK

1. CONNECT OIL PRESSURE GAUGE

(a) Drain fluid.

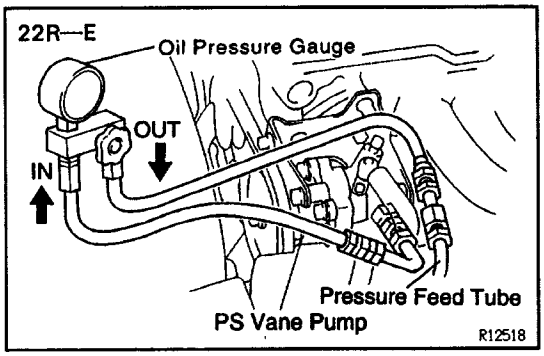
(b) 22R–E/4WD:

Using SST, disconnect the pressure feed tube from the PS vane pump.

SST 09631–22020

22R–E/2WD, 3VZ–E:

Remove the union bolt and 2 gaskets and disconnect the pressure feed tube from the PS vane pump.

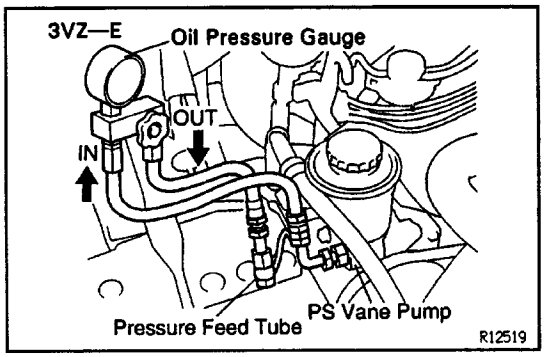


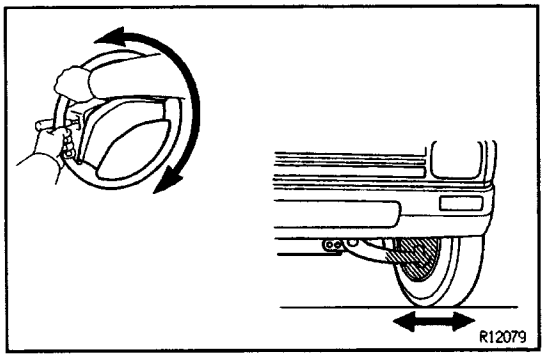
(c) Connect the valve side of the pressure gauge to the pressure feed tube, and the gauge side to the PS vane pump.

NOTICE: Check that the valve of the gauge is in the open position.

2. BLEED POWER STEERING SYSTEM

(See page SR–31)





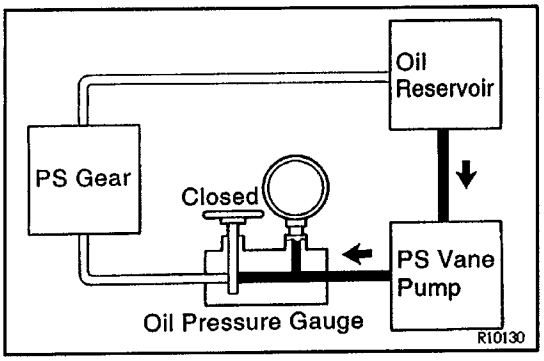
3. BOOST FLUID TEMPERATURE

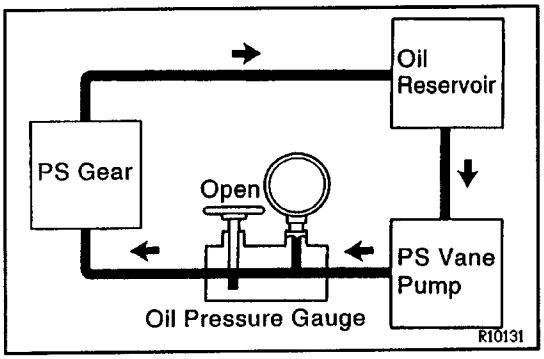
(a) Start the engine and run it at idle.

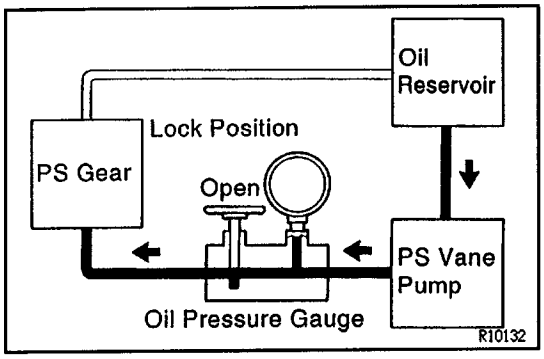
(b) Turn the steering wheel from lock to lock several times to boost fluid temperature.

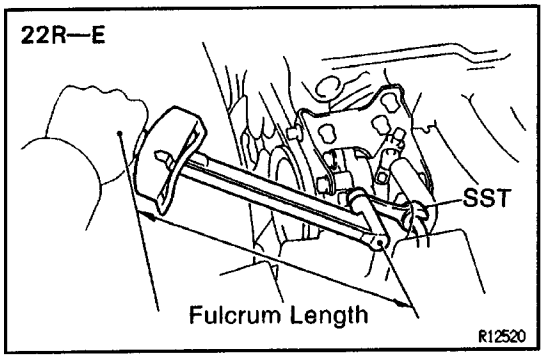
Fluid temperature:

80°C (176° F)









4. CHECK FLUID PRESSURE READING WITH VALVE CLOSED

With the engine idling, close the oil pressure gauge valve and observe the reading on the gauge.

Minimum pressure:

22R– E: 7,355 kPa (75 kgf/cm^2, 1,067 psi)

3VZ–E: 7,845 kPa (80 kgf/cm^2, 1,138 psi)

NOTICE:

- **Do not keep the valve closed for more than 10 seconds.**
- **Do not let the fluid temperature become too high.**

5. CHECK FLUID PRESSURE READING WITH VALVE OPENED

(a) With the engine idling, open the valve fully.

(b) Measure the fluid pressure at engine speeds of 1,000 rpm and 3,000 rpm.

Fluid pressure difference:

490 kPa (5 kgf/cm^2, 71 psi) or less

NOTICE: Do not operate the steering wheel.

6. CHECK PRESSURE READING WITH STEERING WHEEL TURNED TO FULL LOCK

With the engine idling and valve fully opened, turn the wheel to full lock.

Minimum pressure:

22R – E: 7,355 kPa (75 kgf/cm^2, 1,067 psi)

3VZ – E: 7,845 kPa (80 kgf/cm^2, 1,138 psi)

NOTICE:

- **Do not maintain lock position for more than 10 seconds.**
- **Do not let fluid temperature become too high.**

7. DISCONNECT OIL PRESSURE GAUGE

(a) Disconnect the gauge.

(b) 22R– E/4WD:

Using SST, connect the pressure feed tube.

SST 09631– 22020

Torque: 36 N–m (365 kgf–cm, 26 ft–lbf)

HINT: Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).

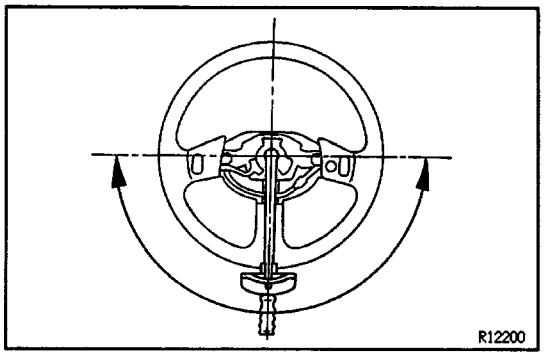
22R–E/2WD, 3VZ–E:

Torque the union bolt with a new gasket on each side of the pressure feed tube.

Torque: 47 N–m (475 kgf–cm, 34 ft–lbf)

8. BLEED POWER STEERING SYSTEM

(See page SR–31)



STEERING EFFORT MEASUREMENT

1. CENTER STEERING WHEEL

2. MEASURE STEERING EFFORT

(a) Remove steering wheel pad.
(See page SR–6)

(b) Start the engine and run it at idle.

(c) Measure the steering effort in both directions.

Reference:

5.9 N–m (60 kgf–cm, 52in.–lbf)

HINT: Be sure to consider the tire type, pressure and contact surface before making your diagnosis.

(d) Torque the steering wheel set nut.

Torque: 36 N–m (360 kgf–cm, 50 ft–lbf)

(e) Install the steering wheel pad.
(See page SR–6)