

On-Vehicle Inspection

CHECK DRIVE BELT TENSION

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

Belt tension gauge:

Nippondenso BTG-20 (95506-00020) or

Borroughs No. BT-33-73F

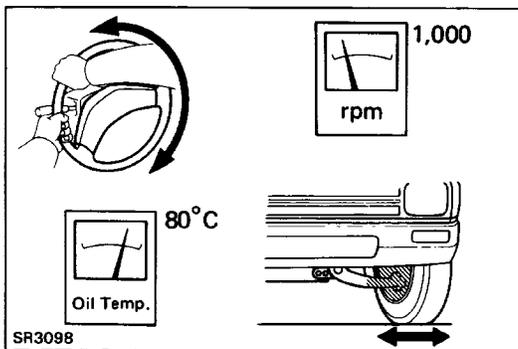
Drive belt tension:

New belt 441 – 667 N-m
(45 – 68 kgf, 100 – 150 lbf)

Used belt 265 – 441 N-m
(27 – 45 kgf, 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.



FLUID LEVEL CHECK

1. KEEP VEHICLE LEVEL

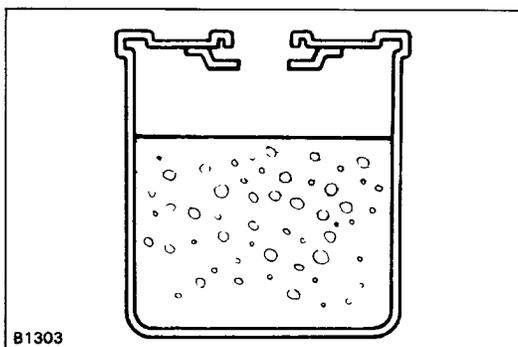
2. BOOST FLUID TEMPERATURE

With the engine idling at 1,000 rpm or less, 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

HINT: Foaming and emulsification indicate either the existence of air in the system or that the fluid level is too low.

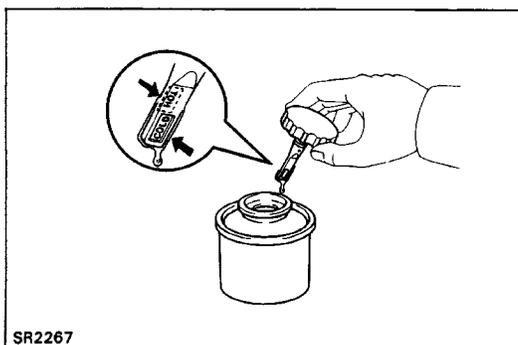


4. CHECK FLUID LEVEL IN RESERVOIR

Check the fluid level and add fluid if necessary.

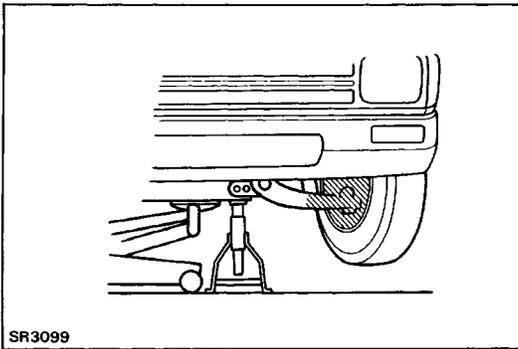
Fluid: ATF DEXRON®II

HINT: Check that the fluid level is within the **HOT LEVEL** of the dipstick. If the fluid is cold, check that it is within the **COLD LEVEL** of the dipstick.

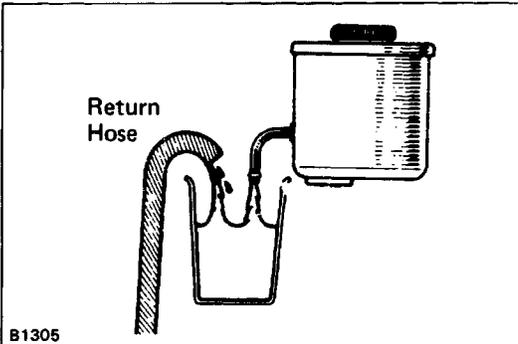


REPLACEMENT OF POWER STEERING FLUID

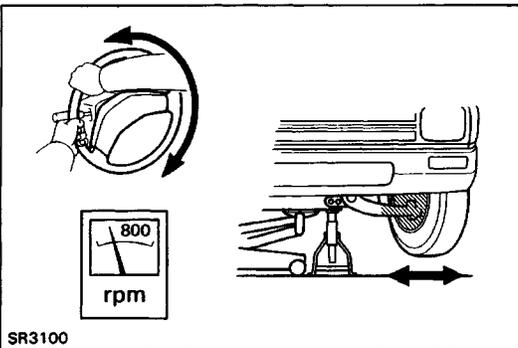
1. JACK UP FRONT OF VEHICLE AND SUPPORT IT WITH STANDS



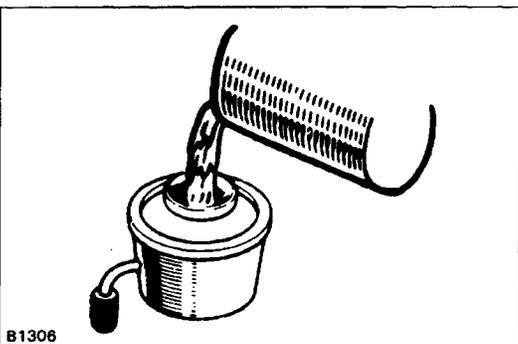
2. REMOVE FLUID RETURN HOSE FROM RESERVOIR TANK AND DRAIN FLUID INTO CONTAINER



3. WITH ENGINE IDLING, TURN STEERING WHEEL FROM LOCK TO LOCK WHILE DRAINING FLUID
4. STOP ENGINE



5. FILL RESERVOIR TANK WITH FRESH FLUID
Fluid : ATF DEXRON® II

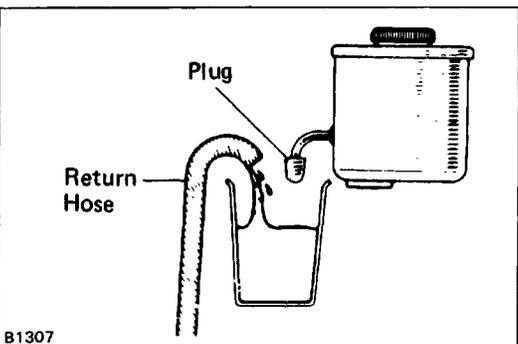


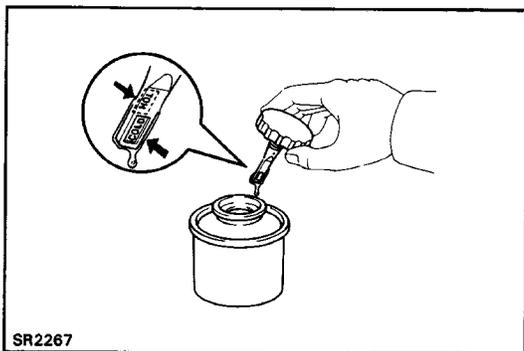
6. START ENGINE AND RUN IT AT 1,000 RPM

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 reservoir tank.

7. REPEAT STEPS 5 AND 6 FOUR OR FIVE TIMES UNTIL THERE IS NO MORE AIR IN FLUID
8. CONNECT RETURN HOSE TO RESERVOIR TANK
9. BLEED POWER STEERING SYSTEM





SR2267

BLEEDING OF POWER STEERING SYSTEM

NOTICE: The air bleeding method for vehicles equipped with the rear-wheel anti-lock brake system is different to the former method. For details, see page [BR-95](#).

1. CHECK FLUID LEVEL IN RESERVOIR TANK

Check the fluid level and add fluid if necessary.

Fluid: ATF DEXRON®II

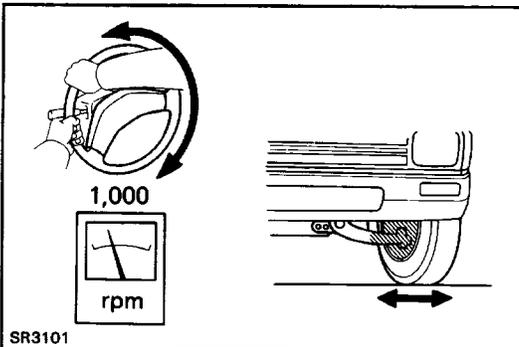
HINT: Check that the fluid level is within the HOT LEVEL of the dipstick. If the fluid is cold, check that it is within the COLD LEVEL of the dipstick.

2. START ENGINE AND TURN STEERING WHEEL FROM LOCK TO LOCK THREE OR FOUR TIMES

Run the engine at 1,000 rpm or less.

3. STOP ENGINE AND CONNECT VINYL TUBE TO BLEEDER PLUG

4. START ENGINE AND TURN STEERING WHEEL FROM LOCK TO LOCK TWO OR THREE TIMES



SR3101

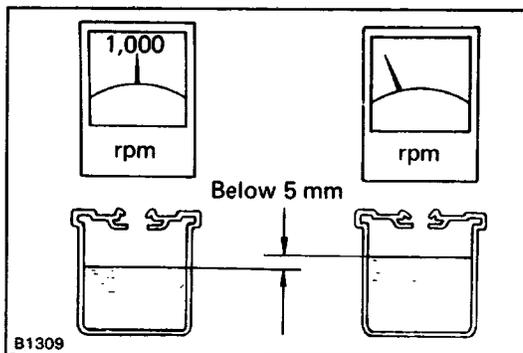
5. CHECK THAT FLUID IN RESERVOIR IS NOT FOAMY OR CLOUDY AND DOES NOT RISE OVER MAXIMUM WHEN ENGINE IS STOPPED

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 steps 7 and 8 on page [SR-40](#).

Repair the PS if the problem persists.



B1309

OIL PRESSURE CHECK

1. CONNECT PRESSURE GAUGE

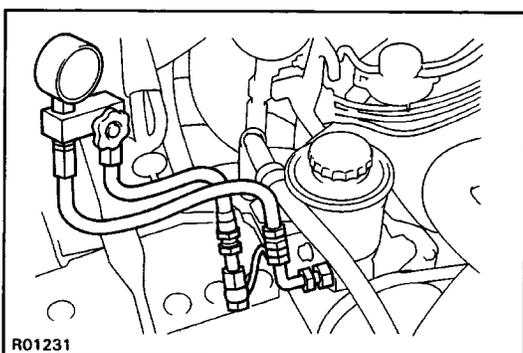
(a) Disconnect the pressure line from the PS pump.

SST 09631-22020 (RN Series4WD)

(b) Connect the valve side of the pressure gauge to the pressure line, and the gauge side to the PS pump.

(c) Bleed the system. Start the engine and turn the steering wheel from lock to lock two or three times.

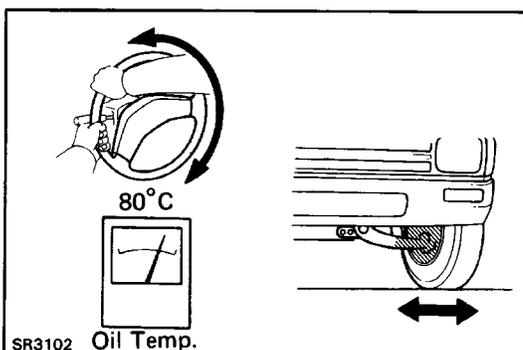
(d) Check that the fluid level is correct.



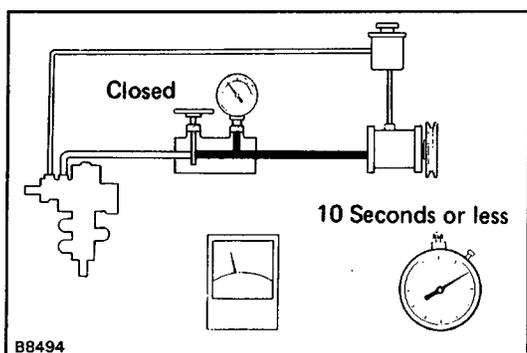
R01231

2. CHECK THAT FLUID TEMPERATURE IS AT LEAST 80°C (176°F)

3. START ENGINE AND RUN IT AT IDLE



SR3102 Oil Temp.



4. CHECK FLUID PRESSURE READING WITH VALVE CLOSED

Close the pressure gauge valve and observe the reading on the gauge.

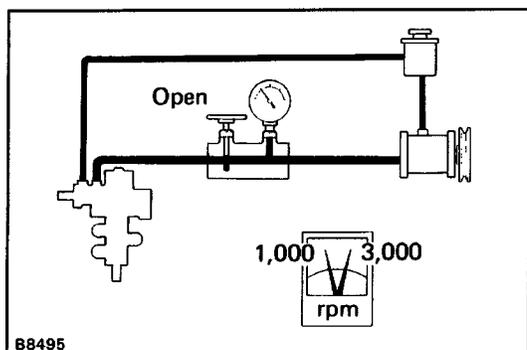
Minimum pressure:

3VZ Engine 7,845 kPa (80 kg f/cm², 1,138 psi)

Ex. 3VZ Engine 7,355 kPa (75 kgf/cm², 1,067 psi)

NOTICE:

- Do not keep the valve closed for more than 10 seconds.
- Do not let the fluid temperature become too high. If pressure is low, repair or replace the PS pump.



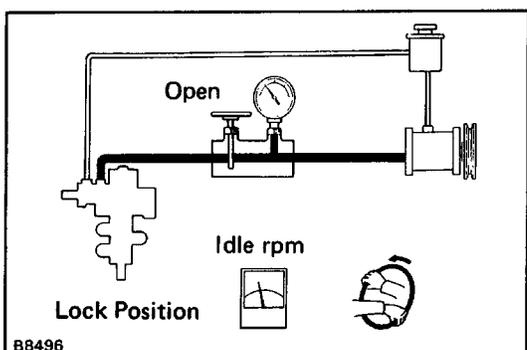
5. OPEN VALVE FULLY

6. CHECK AND RECORD PRESSURE READING AT 1,000 RPM

7. CHECK AND RECORD PRESSURE READING AT 3,000 RPM

Check that there is 490 kPa (5 kgf/cm², 71 psi) or less difference in pressure between the 1,000 rpm and 3,000 rpm checks.

If the difference is excessive, repair or replace the flow control valve of the PS pump.



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

[Standard type power steering]

Be sure the pressure gauge valve is fully opened and the engine idling.

Minimum pressure:

3VZ Engine 7,845 kPa (80 kg f/cm², 1,138 psi)

Ex. 3VZ Engine 7,355 kPa (75 kgf/cm², 1,067 psi)

If pressure is low, the gear housing has an internal leak and must be repaired or replaced.

[Progressive power steering]

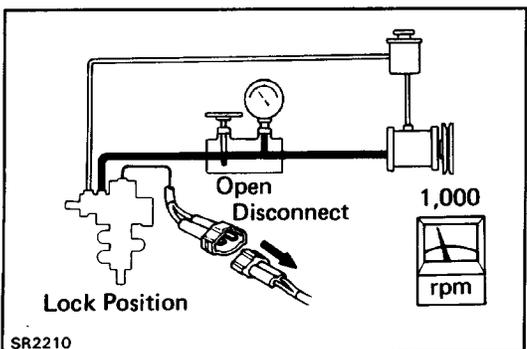
- Turn the steering wheel to full lock position.
- Disconnect the solenoid connector.
- Be sure the pressure gauge valve is fully opened and the engine is running at 1,000 rpm.

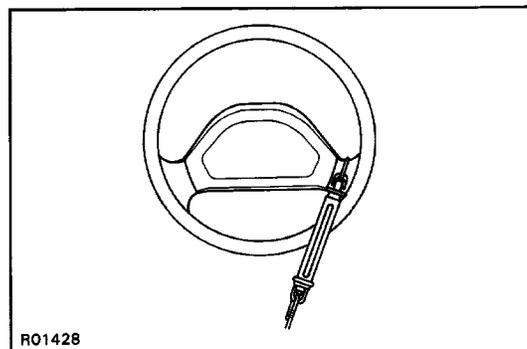
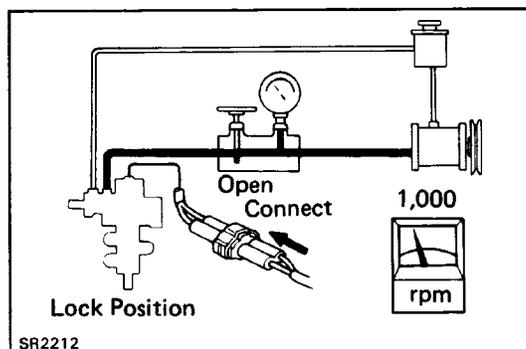
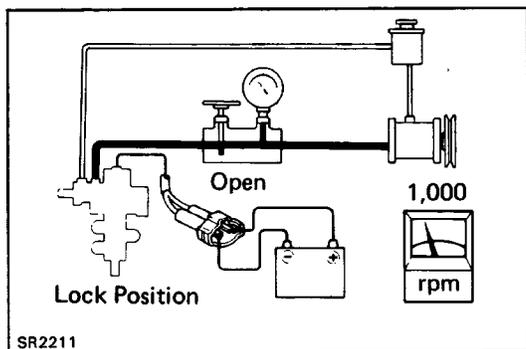
Minimum pressure:

3VZ Engine 7,845 kPa (80 kgf/cm², 1,138 psi)

Ex. 3VZ Engine 7,355 kPa (75 kgf/cm², 1,067 psi)

If pressure is low, the gear housing has an internal leak or the solenoid is faulty.





(d) Apply battery positive voltage to the solenoid.

NOTICE:

- **Do not apply voltage more than 30 seconds to avoid burning out the solenoid.**
- **If repeating this step, wait until the solenoid cools down enough that it can be touched by hand.**

(e) Check the oil pressure.

(Reference)

**Maximum pressure: Approx. 3,923 kPa
(40 kgf/cm², 569 psi.)**

If pressure is high, check the solenoid.

(f) Connect the solenoid connector and check the oil pressure.

Minimum pressure:

3VZ Engine 7,845 kPa (80 kgf/cm², 1,138 psi)

Ex. 3VZ Engine 7,355 kPa (75 kgf/cm², 1,067 psi)

If pressure is low, the progressive power steering system is faulty.

9. MEASURE STEERING EFFORT

[Standard type power steering]

(a) Center the steering wheel and run the engine at idle.

(b) Using a spring scale, measure the steering effort in both directions.

Maximum steering effort: 39 N (4 kgf, 8.8 lbf)

If steering effort is excessive, repair the power steering unit.

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

[Progressive power steering]

(a) Center the steering wheel and run the engine at idle.

(b) Using a spring scale, measure the steering effort in both directions.

Maximum steering effort: 29 N (3 kgf, 6.6 lbf)

If steering effort is excessive, repair the power steering unit.

(c) Apply battery positive voltage to the solenoid.

NOTICE:

- **Do not apply voltage more than 30 seconds to avoid burning out the solenoid.**
- **If repeating this step, wait until the solenoid cools down enough that it can be touched by hand.**

(d) Check that the steering effort is heavier than it was before battery positive voltage was applied to the solenoid.

(Reference)

Maximum steering effort: 118 N (12 kgf, 26 lbf)

(e) If steering effort is not heavier, check the solenoid.

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