

POWER STEERING SYSTEM

PRECAUTIONS

1. HANDLING AND OPERATING PRECAUTIONS FOR SRS AIRBAG SYSTEM

NOTICE:

Some service operations affect the SRS airbag. Be sure to read the precautionary notice for the SRS airbags before servicing. (See page RS-164)

OPERATION CHECK

1. CHECK STEERING MOUNT TORQUE

NOTICE:

Some service operations affect the SRS airbag. Be sure to read the precautionary notice for the SRS airbags before servicing.

- (a) Stop the vehicle on a level, paved road and align the front wheels straight ahead.
- (b) Check the handling and operating precautions for the SRS airbag system.
- (c) Disconnect the negative battery terminal.
- (d) Remove the horn button assembly.
- (e) Using a torque wrench, check that there is no slack in the steering wheel set nut.

Torque: 34.3 N*m (350 kgf*cm)

- (f) Connect the negative battery terminal.
- (g) Start the engine and idle it.
- (h) Turn the steering wheel 90 degrees to the right and measure steering torque while turning. Check in the opposite direction in the same manner.

Reference value:

Torque = 5.5 N*m (55 kgf*cm) or less (oil temperature: 80°C)

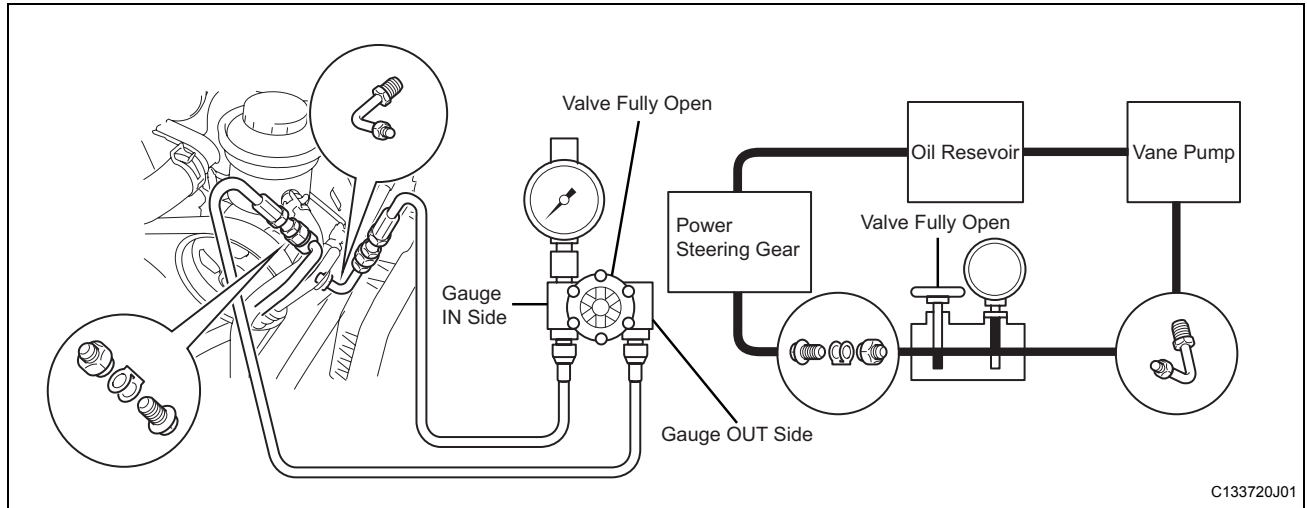
- (i) Align the front wheels straight ahead.
- (j) Disconnect the negative battery terminal.
- (k) Install the horn button assembly.
- (l) Connect the negative battery terminal.
- (m) Check the airbag warning light. (See page RS-1)

2. CHECK OIL PRESSURE

- (a) Remove No.1 engine under cover.
- (b) Disconnect pressure feed tube assembly. (See page PS-7)



(c) Install pressure gauge.



- (1) Using the attachment, install the pressure gauge IN side to the vane pump assembly pressure port.

NOTICE:

Install the pressure gauge OUT side with the pressure gauge valve fully opened.

- (2) Using the attachment and a new gasket, install the pressure gauge OUT side to the pressure feed tube assembly (vane pump side).

NOTICE:

Install the pressure gauge OUT side with the pressure gauge valve fully opened.

- (d) Bleed power steering fluid air.
- (e) Set oil temperature for oil pressure check.
 - (1) Start the engine.
 - (2) With the engine running at 1,000 r/min or less, move the steering wheel from full lock on one side to full lock on the other side to raise the temperature of the fluid.

Standard:

50°C

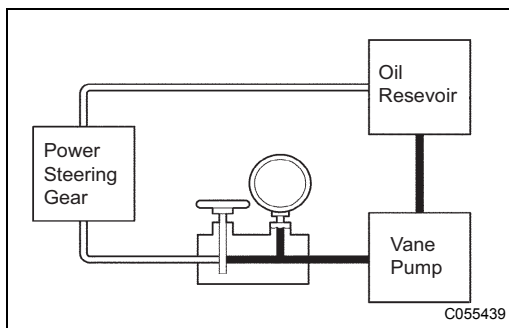
- (f) Inspect vane pump generated oil pressure.
 - (1) With the engine idling, fully close the pressure gauge valve and measure the oil pressure.

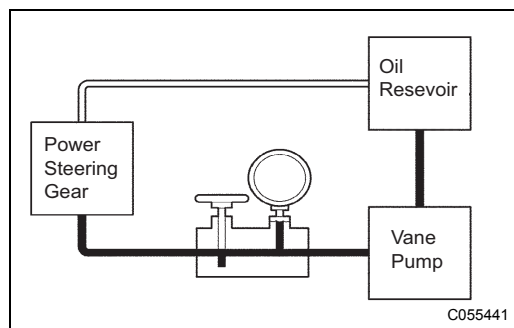
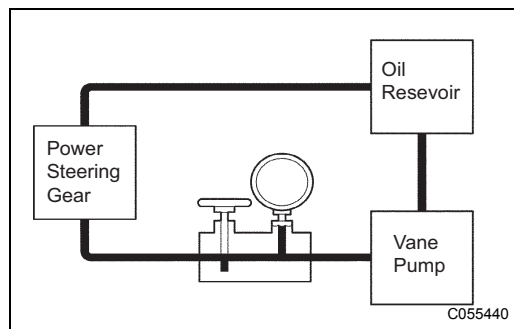
Standard:

7.4 to 7.9 MPa (75 to 80 kgf/cm²)

NOTICE:

- Do not close the pressure gauge valve for more than 10 seconds.
- The fluid temperature must not exceed 85°C.





- (g) Check oil temperature without load.
- (1) Fully open the pressure gauge valve.
 - (2) Measure the oil pressure with the engine idling at both 1,000 r/min and 3,000 r/min and check the difference in oil pressure. If the difference is out of the specified range, replace the vane pump assembly with a new one.

Standard:

Within 0.5 MPa (5 kgf/cm²)

NOTICE:

Do not operate the steering wheel.

- (h) Check steering gear housing generated oil pressure.
- (1) Fully open the pressure gauge valve.
 - (2) With the engine idling, turn the steering wheel fully left and right and measure oil pressure.

Standard:

7.4 to 7.9 MPa (75 to 80 kgf/cm²)

NOTICE:

Do not hold the steering wheel in the fully turned position for more than 10 seconds.

- (i) Remove pressure gauge and attachment
- (j) Connect pressure feed tube assembly. (See page PS-8)
- (k) Bleed power steering fluid leakage.
- (l) Check for powersteering fluid leakage.
- (m) Install No.1 engine under cover.

3. CHECK STEERING WHEEL FREEPLAY

- (a) Start the engine and align the wheels straight ahead.
- (b) Move the steering wheel gently with your fingers and check the steering wheel freeplay.

Maximum freeplay:

Within 30 mm

4. CHECK OIL RESERVOIR FLUID LEVEL

- (a) Make sure the vehicle is level.
- (b) With the engine running at 1,000 r/min or less, move the steering wheel from full lock on one side to full lock on the other side to raise the temperature of the fluid.

Standard:

50°C

- (c) Check that no bubbles or cloudy fluid come out of the mouth of the oil reservoir.
- (d) Measure the difference in the fluid level when the engine is running and stopped. If the difference is outside of the specified range, bleed out air. If there is no improvement after bleeding the air, check the hydraulic system for oil leakage.

Standard:

Within 5 mm

- (e) Check that the fluid level is within the range of specified values. If it is below the range of specified values, add power steering fluid up to the maximum level of the standard range.

Standard:

Within the HOT level range (When oil temperature is 50°C)

HINT:

When the oil temperature is low (0 to 20°C), check that the oil level is within the COLD level range.

5. BLEED POWER STEERING FLUID AIR

- (a) Add power steering fluid until it reaches 10-15 mm above the upper level of the oil reservoir level gauge (COLD side).
- (b) Idle the engine at 1,000 r/min or less for approximately 2 seconds. When the surface of the fluid drops below the upper level, add power steering fluid until it reaches the upper level mark. Repeat this procedure until the surface of the fluid settles at the upper level mark.
- (c) Start the engine and turn the steering wheel from lock to lock 2 to 3 times. Repeat this procedure until the oil level no longer changes.

NOTICE:

- **Continue to add fluid to ensure that oil reservoir does not run dry.**
 - **When performing the lock to lock, hold the steering wheel at the fully turned position for 2 to 3 seconds and then turn the wheel quickly to the other side.**
- (d) Hold the steering wheel at the lock position for 5 to 6 seconds repeatedly for 3 to 4 times at intervals of approximately 2 to 3 seconds.
 - (e) Check that there are no fine air bubbles in the oil reservoir, and then check that the steering wheel does not stick, vibrate or malfunction in any way when it is operated.

HINT:

If there is no improvement after bleeding the air, check the hydraulic system for oil leakage.

- (f) Check the oil reservoir fluid level.

PROBLEM SYMPTOMS TABLE

Symptom	Suspected Area	See Page
Steering is heavy	Front tires (improperly inflated, unevenly worn)	TW-2
	Front wheel alignment (incorrect)	SP-4
	Front suspension (lower ball joint)	-
	Power steering motor fluid level (low)	PS-1
	V-ribbed belt (slack)	EM-1
	Steering intermediate shaft	-
	Steering column assembly	SR-4
	Power steering vane pump	PS-7
	Power steering link assembly	PS-11
Poor steering wheel return	Front tires (improperly inflated, unevenly worn)	TW-2
	Front wheel alignment (incorrect)	SP-4
	Steering column assembly	SR-4
	Power steering link assembly	PS-11
Freeplay: none or excessive	Steering intermediate shaft	-
	Power steering link assembly	PS-11

Symptom	Suspected Area	See Page
Abnormal noise or vibration in steering wheel	Front wheel alignment	SP-4
	Front suspension (lower ball joint)	-
	Steering intermediate shaft	-
	Steering column assembly	SR-4
	Power steering motor fluid level (low)	PS-1
	Power steering link assembly	PS-11

