

# Power Steering Fluid

## POWER ASSISTED SYSTEM (POWER STEERING)

### 9. Power Steering Fluid

#### A: SPECIFICATION

|                                  |
|----------------------------------|
| Recommended power steering fluid |
| SUBARU ATF or ATF DEXRON III     |

#### B: INSPECTION

1) Check the power steering fluid for deterioration or contamination. If the fluid is highly deteriorated or contaminated, drain it and refill with new fluid.

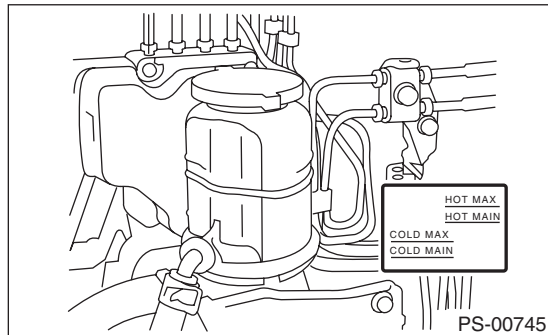
2) Check the joints and units for oil leakage. If any oil leaks are found, repair or replace the applicable part.

3) Inspect the fluid level of reservoir tank with vehicle on level surface and engine stopped.

If the level is at "MIN." point or below, add fluid to keep the level in the specified range of the indicator. If at "MAX." point or above, drain fluid by using a syringe or the like.

(1) Check at power steering fluid temperature 20°C (68°F); read the fluid level on the "COLD" side.

(2) Check at power steering fluid temperature 80°C (176°F); read the fluid level on the "HOT" side.



#### C: REPLACEMENT

1) Lift up the vehicle.

2) Remove the crossmember support.

3) Remove the pipe joint in the center of gearbox, and connect the vinyl hose to the pipe and joint. Wipe fluid off while turning the steering wheel.

4) Add the specified fluid to reservoir tank at "MAX" level.

5) Continue to turn the steering wheel slowly from lock to lock until the bubbles stop appearing on oil surface while keeping the fluid at the level in the Step 4).

6) If the steering wheel is turned in a low fluid level condition, air will be sucked into the pipe. If sucked, leave it about half an hour and then do the step 5) again.

7) Start the engine and let it idle.

8) Continue to turn the steering wheel slowly from lock to lock again until the bubbles stop appearing on oil surface while keeping the fluid at the level in Step 4).

Normally bubbles will stop appearing after turning the steering wheel from lock to lock three times.

9) In case bubbles do not stop appearing in the tank, leave it about half an hour and then do the step 4) all over again.

10) Lower the vehicle, and then idle the engine.

11) Continue to turn the steering wheel from lock to lock until the bubbles stop appearing and change of the fluid level is within 3 mm (0.12 in).

12) In case the following happens, leave it about half an hour and then do step 8) to 11) again.

(1) The fluid level changes over 3 mm (0.12 in).

(2) Bubbles remain on the upper surface of the fluid.

(3) Grinding noise is generated from oil pump.

13) Check the fluid leakage after turning steering wheel from lock to lock with engine running.

# General Diagnostic Table

POWER ASSISTED SYSTEM (POWER STEERING)

## 10. General Diagnostic Table

### A: INSPECTION

| Trouble                                                                                                                                                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                       | Corrective action                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Steering effort is heavy in all ranges.</li> <li>Steering effort is heavy at stand still.</li> <li>Steering wheel vibrates when turning.</li> </ul>             | 1. Pulley belt <ul style="list-style-type: none"> <li>Unequal length of pulley belts</li> <li>Contact with oil or grease</li> <li>Looseness or damage of the pulley belt</li> <li>Poor uniformity of the pulley belt cross section</li> <li>Pulley belt touches to pulley bottom</li> <li>Poor revolution of pulleys (except oil pump pulley)</li> <li>Poor revolution of oil pump pulley</li> </ul> | Adjust or replace the faulty parts.                             |
|                                                                                                                                                                                                        | 2. Tire and wheel <ul style="list-style-type: none"> <li>Improper tire out of specifications<sup>*1</sup></li> <li>Improper wheel out of specifications<sup>*1</sup></li> <li>Tires not properly inflated</li> </ul>                                                                                                                                                                                 | Replace or reinflate the tire and wheel.<br>Instruct customers. |
|                                                                                                                                                                                                        | 3. Fluid <ul style="list-style-type: none"> <li>Low fluid level</li> <li>Air entry in fluid</li> <li>Dust entry in fluid</li> <li>Fluid deterioration</li> <li>Inadequate warm up of fluid<sup>*2</sup></li> </ul>                                                                                                                                                                                   | Refill the fluid, bleed air, replace or instruct customer.      |
|                                                                                                                                                                                                        | 4. Idle speed <ul style="list-style-type: none"> <li>Lower idle speed</li> <li>Excessive drop of idle speed at start or when turning the steering wheel<sup>*3</sup></li> </ul>                                                                                                                                                                                                                      | Adjust the idle speed or instruct customer.                     |
|                                                                                                                                                                                                        | 5. Measure the hydraulic pressure. <Ref. to PS-47, HYDRAULIC PRESSURE, INSPECTION, Oil Pump.>                                                                                                                                                                                                                                                                                                        | Replace the faulty parts.                                       |
|                                                                                                                                                                                                        | 6. Measure the steering wheel effort. <Ref. to PS-54, MEASUREMENT OF STEERING EFFORT, INSPECTION, General Diagnostic Table.>                                                                                                                                                                                                                                                                         | Adjust the idle speed or replace the faulty parts.              |
|                                                                                                                                                                                                        | 7. Fluid line <ul style="list-style-type: none"> <li>Folded hose</li> <li>Flattened pipe</li> <li>Fluid leakage</li> </ul>                                                                                                                                                                                                                                                                           | Replace the faulty parts.                                       |
| <ul style="list-style-type: none"> <li>Vehicle leads to one side or the other.</li> <li>Returning force of steering wheel to center is poor.</li> <li>Steering wheel vibrates when turning.</li> </ul> | 1. Tire and wheel <ul style="list-style-type: none"> <li>Flat tire</li> <li>Mixed use of different tires</li> <li>Mixed use of different wheels</li> <li>Abnormal wear of tire</li> <li>Unequal tread remaining</li> <li>Unequal pressure of tire</li> </ul>                                                                                                                                         | Adjust, repair or replace the tire and wheel.                   |
|                                                                                                                                                                                                        | 2. Front alignment <ul style="list-style-type: none"> <li>Improper or unequal caster</li> <li>Improper or unequal toe-in</li> <li>Loose suspension connections</li> </ul>                                                                                                                                                                                                                            | Adjust or retighten.                                            |
|                                                                                                                                                                                                        | 3. Others <ul style="list-style-type: none"> <li>Damaged joint assembly</li> <li>Unbalance of ground clearance</li> <li>Unbalance of load</li> </ul>                                                                                                                                                                                                                                                 | Replace or adjust the faulty parts, or instruct customer.       |
|                                                                                                                                                                                                        | 4. Measure the steering wheel effort. <Ref. to PS-54, MEASUREMENT OF STEERING EFFORT, INSPECTION, General Diagnostic Table.>                                                                                                                                                                                                                                                                         | Adjust or replace the faulty parts.                             |

<sup>\*1</sup> If the tires or wheels are wider than standard, the load to the power steering system is increased. Accordingly, in a condition, for example before fluid warms-up, relief valve may work before reaching maximum turning angle. In this case, steering effort may be heavy. When the measured hydraulic pressure is normal, there is no abnormal thing.

<sup>\*2</sup> In cold weather, flow resistance will increase due to the cold hydraulic fluid, and steering effort will be heavier. After warming-up engine, turn the steering wheel from stop to stop several times to warm up fluid. If steering effort reduces normally, function is normal.

<sup>\*3</sup> In cold weather or with insufficient warm up of the engine, steering effort may be heavy due to excessive drop of idle rpm when turning the steering wheel. In this case, start the vehicle with increasing engine speed than usual. If steering effort reduces normally, function is normal.