

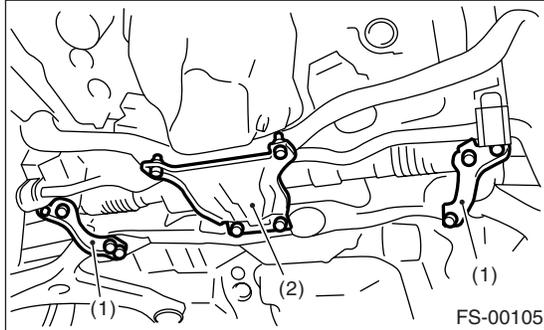
Pipe Assembly

POWER ASSISTED SYSTEM (POWER STEERING)

6. Pipe Assembly

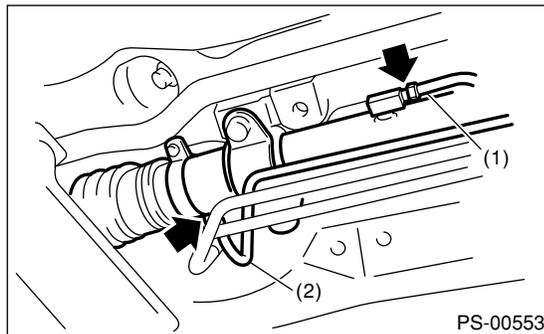
A: REMOVAL

- 1) Disconnect the ground cable from battery.
- 2) Lift-up the vehicle, and then remove the front crossmember support plate and jack-up plate.



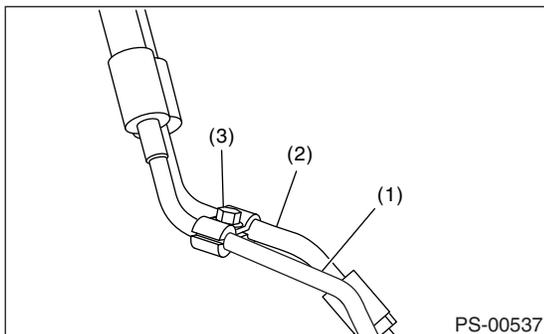
- (1) Front crossmember support plate
- (2) Jack-up plate

- 3) Remove one pipe joint at the center of gearbox, and connect the vinyl hose to the pipe and the joint. Discharge the fluid by turning steering wheel fully clockwise and counterclockwise. Discharge the fluid similarly from other pipes.



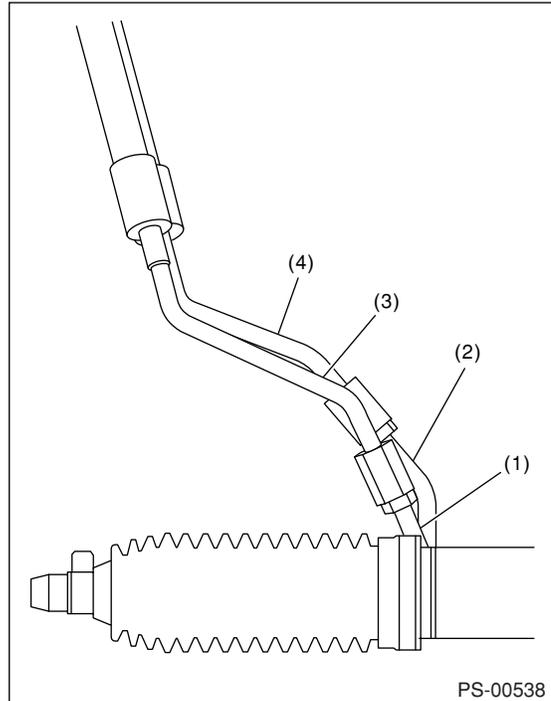
- (1) Pipe A
- (2) Pipe B

- 4) Remove the clamp E from return hose and pressure hose.



- (1) Return hose
- (2) Pressure hose
- (3) Clamp E

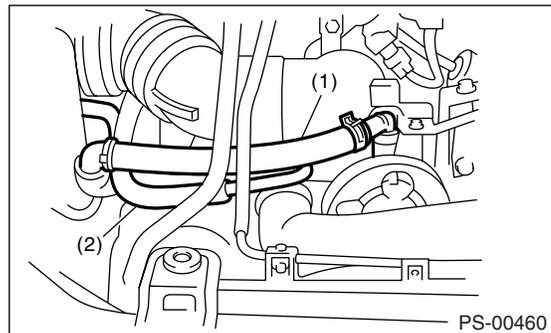
- 5) Disconnect the return hose and pipe D, pressure hose and pipe C.



- (1) Pipe C
- (2) Pipe D
- (3) Pressure hose
- (4) Return hose

- 6) Remove the air intake duct. <Ref. to IN(H4DOTC)-9, REMOVAL, Air Intake Duct.> <Ref. to IN(H4SO)-10, REMOVAL, Air Intake Duct.>

- 7) Disconnect the suction hose and pressure hose from oil pump.



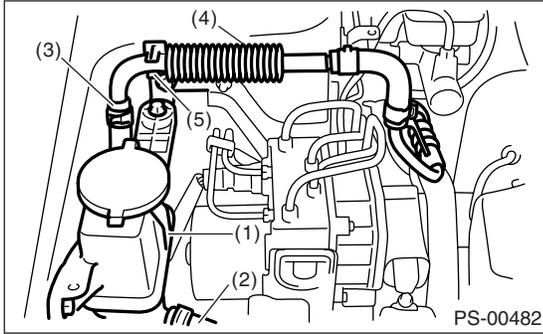
- (1) Suction hose
- (2) Pressure hose

- 8) Disconnect the suction hose and return hose from reservoir tank. Remove the oil cooler from oil cooler bracket.

Pipe Assembly

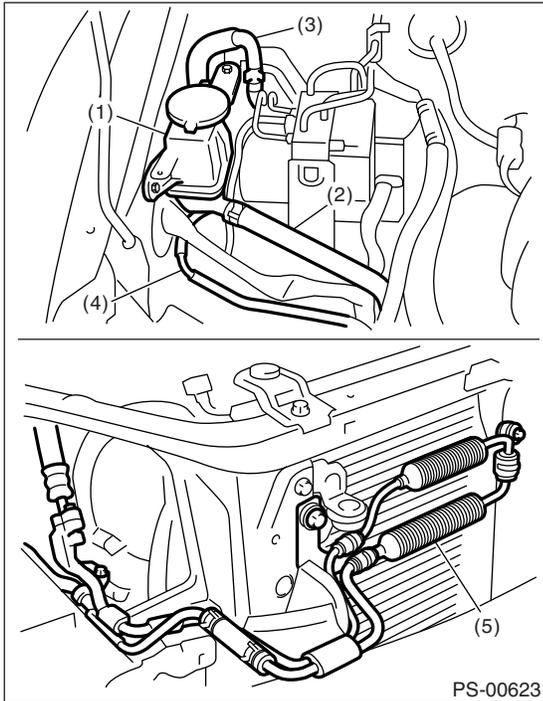
POWER ASSISTED SYSTEM (POWER STEERING)

- H4 model



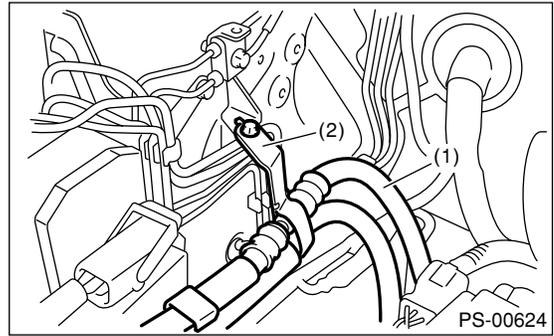
- (1) Reservoir tank
- (2) Suction hose
- (3) Return hose
- (4) Oil cooler
- (5) Oil cooler bracket

- H6 model



- (1) Reservoir tank
- (2) Suction hose
- (3) Return hose
- (4) Oil cooler pipe
- (5) Oil cooler

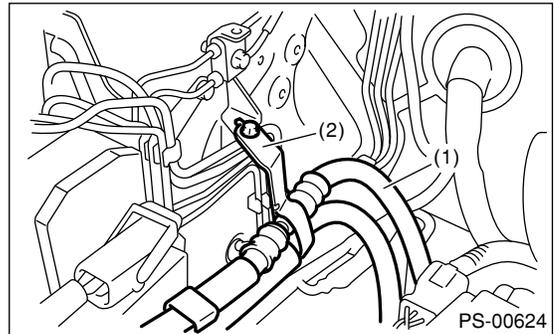
9) Remove the hose bracket and take out the hose assembly from vehicle.



- (1) Hose ASSY
- (2) Hose bracket

B: INSTALLATION

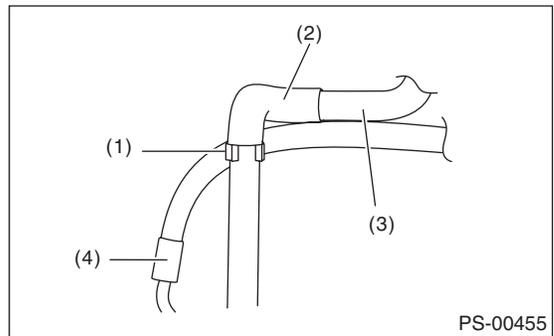
1) Temporarily tighten the bolt of hose bracket.



- (1) Hose ASSY
- (2) Hose bracket

2) Install the resin clip to the pressure hose and suction hose.

CAUTION:
Align the installation position of the resin clip with the protector edge of suction hose.



- (1) Resin clip
- (2) Protector
- (3) Suction hose
- (4) Pressure hose

Pipe Assembly

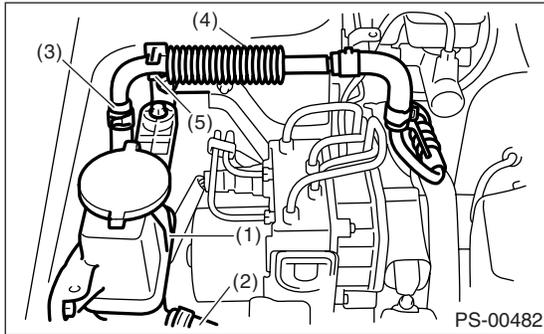
POWER ASSISTED SYSTEM (POWER STEERING)

3) Connect the suction hose and return hose to reservoir tank. Install the oil cooler to oil cooler bracket.

CAUTION:

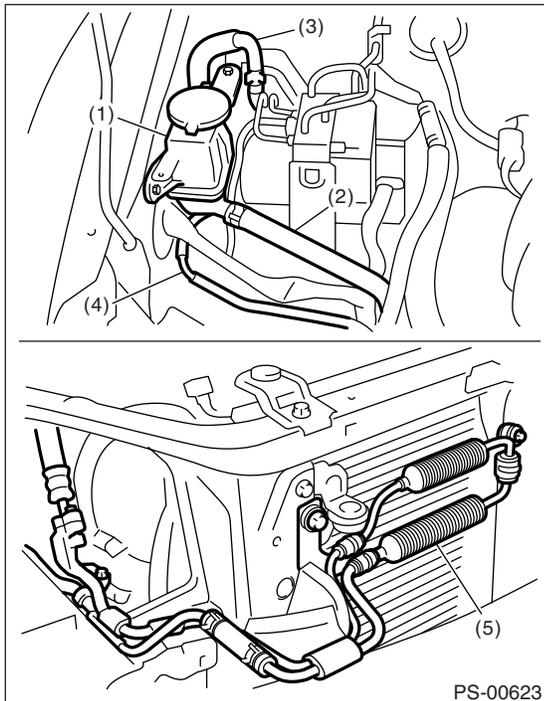
Firmly insert the resin clip of return hose to the bracket.

- H4 model



- (1) Reservoir tank
- (2) Suction hose
- (3) Return hose
- (4) Oil cooler
- (5) Oil cooler bracket

- H6 model

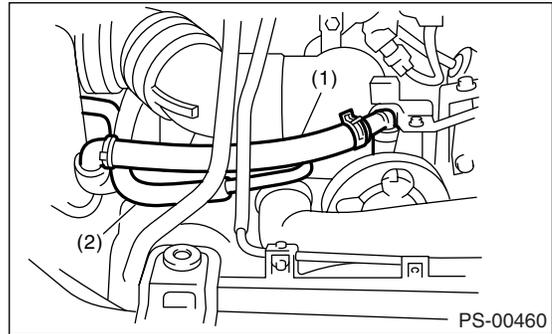


- (1) Reservoir tank
- (2) Suction hose
- (3) Return hose
- (4) Oil cooler pipe
- (5) Oil cooler

4) Connect the suction hose and pressure hose to the oil pump. Tighten the eye bolt of pressure hose.

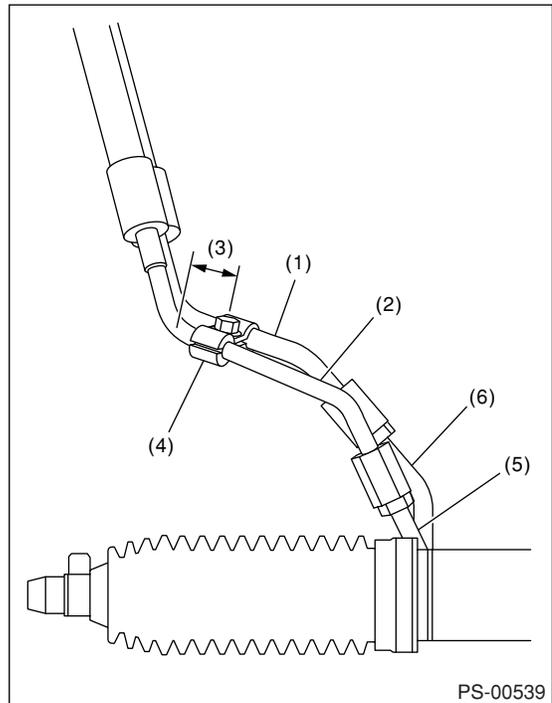
Tightening torque:

39 N·m (3.98 kgf·m, 28.8 ft·lb)



- (1) Suction hose
- (2) Pressure hose

5) Temporarily connect the pressure hose and pipe C, the return hose and D. Place the clamp E in the position shown in the figure, and tighten the bolt temporarily.



- (1) Return hose
- (2) Pressure hose
- (3) Approx. 18 mm (0.71 in)
- (4) Clamp E
- (5) Pipe C
- (6) Pipe D

6) Tighten the clamp E.

Tightening torque:

7.4 N·m (0.75 kgf·m, 5.4 ft·lb)

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7) Tighten the pressure hose and pipe C, the return hose and pipe D.

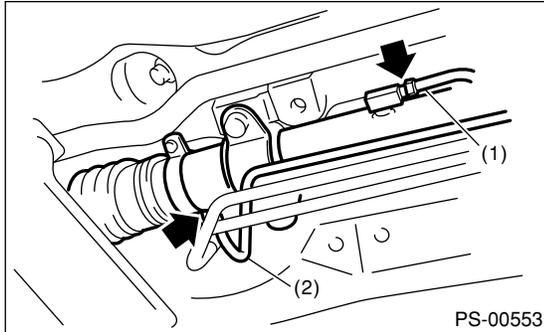
Tightening torque:

15 N·m (1.5 kgf·m, 10.8 ft·lb)

8) Connect the pipe A and B to the four pipe joints of gearbox.

Tightening torque:

Refer to COMPONENT in General Description. <Ref. to PS-4, POWER ASSISTED SYSTEM, COMPONENT, General Description.>



- (1) Pipe A
- (2) Pipe B

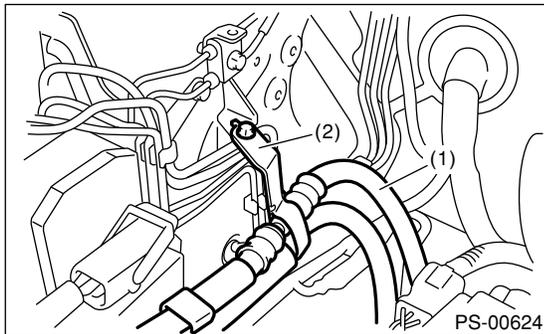
9) Install the front crossmember support plate and jack-up plate.

10) Lower the vehicle.

11) Tighten the bolts which hold the hose bracket.

Tightening torque:

10 N·m (1.02 kgf·m, 7.4 ft·lb)



- (1) Hose ASSY
- (2) Hose bracket

12) Install the air intake duct. <Ref. to IN(H4DOTC)-9, INSTALLATION, Air Intake Duct.> <Ref. to IN(H4SO)-10, INSTALLATION, Air Intake Duct.>

13) Connect the battery ground cable to battery.

14) Feed the specified fluid.

CAUTION:

Never start the engine before feeding the fluid; otherwise vane pump might be seized up.

15) Finally, check clearance between pipes or hoses as shown in the figure indicated in "General Diagnostic Table". <Ref. to PS-57, INSPECTION OF CLEARANCE, INSPECTION, General Diagnostic Table.>

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POWER ASSISTED SYSTEM (POWER STEERING)

C: INSPECTION

Check all disassembled parts for wear, damage or other abnormalities. Repair or replace defective parts as necessary.

Parts	Maintenance Parts	Corrective action
Pipe	<ul style="list-style-type: none"> • O-ring fitting surface for damage • Nut for damage • Pipe for damage 	Replace with a new one.
Clamp	<ul style="list-style-type: none"> • Clamps for weak clamping force 	Replace with a new one.
Hose	<ul style="list-style-type: none"> • Flare surface for damage • Flare nut for damage • Outer surface for cracks • Outer surface for wear • Clip for damage • End coupling or adapter for deformation 	Replace with a new one.

CAUTION:

Although surface layer materials of rubber hoses have excellent weathering resistance, heat resistance and resistance for low temperature brittleness, they are likely to be damaged chemically by brake fluid, battery electrolyte, engine oil and automatic transmission fluid and their service lives are to be very shortened. Wipe out immediately when the hoses are adhered with the fluids.

Since resistances for heat or low temperature brittleness are gradually declining according to time accumulation of hot or cold conditions for the hoses and their service lives are shortening accordingly, it is necessary to perform careful inspection frequently when the vehicle is used in hot weather areas, cold weather areas and a driving condition in which many steering operations are required in short time.

Particularly continuous work of relief valve over 5 seconds causes to reduce service lives of the hoses, the oil pump, the fluid, etc. due to over heat.

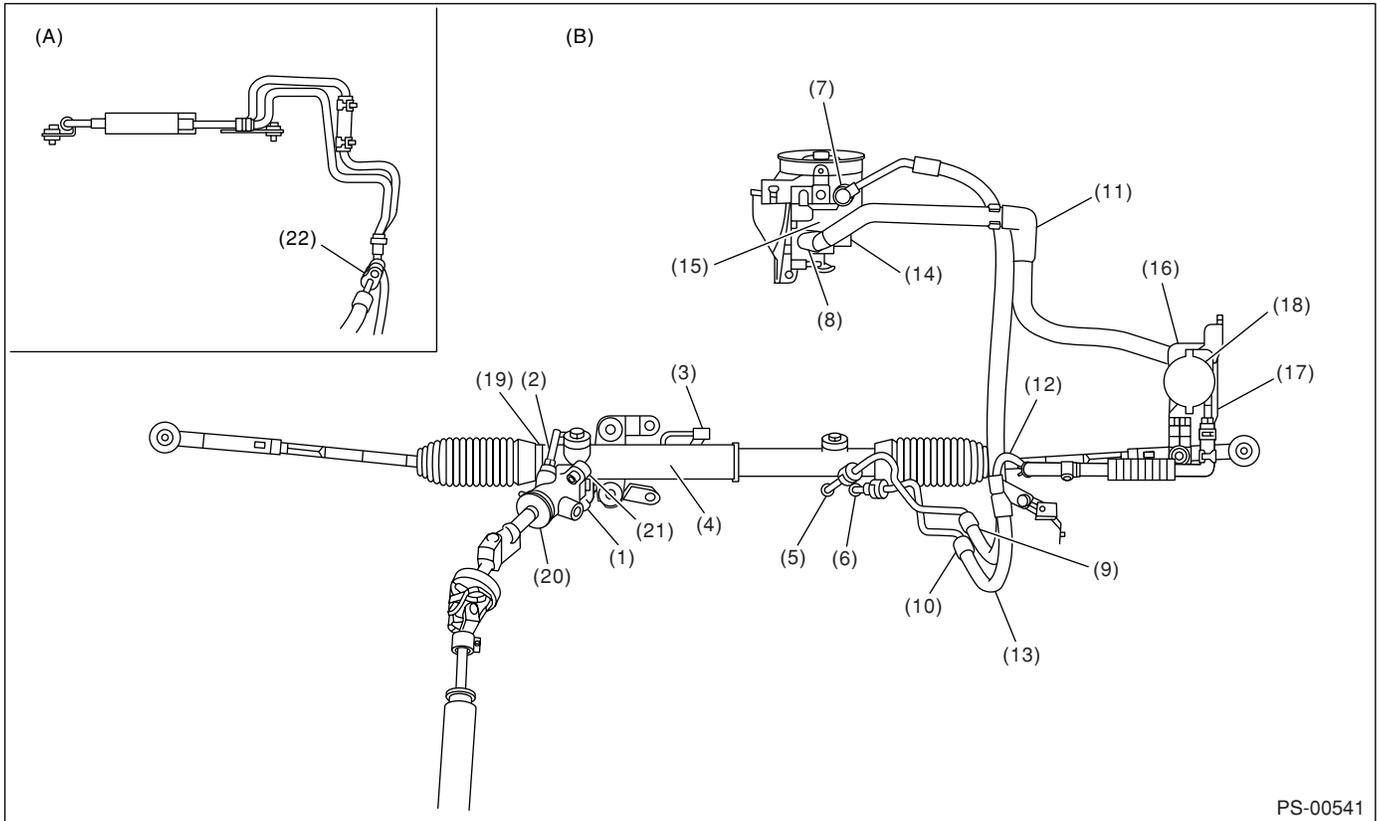
Trouble	Possible cause	Corrective action
Pressure hose burst	Excessive holding time of relief status	Instruct customers.
	Malfunction of relief valve	Replace oil pump.
	Poor cold characteristic of fluid	Replace fluid.
Forced out return hose	Poor connection	Repair.
	Poor holding of clip	Retighten.
	Poor cold characteristic of fluid	Replace fluid.
Fluid bleeding out of hose slightly	Wrong layout, tensioned	Replace hose.
	Excessive play of engine due to deterioration of engine mounting rubber	Replace the parts if defective.
	Improper stop position of pitching stopper	Replace the parts if defective.
Crack on hose	Excessive holding time of relief status	Replace. Instruct customers.
	Excessive tightening torque of return hose clip	Replace.
	Power steering fluid, engine oil, electrolyte adhere on the hose surface	Replace. Pay attention on service work.
	Too many times use in extremely cold weather	Replace. Instruct customers.

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NOTE:

It is likely that although one judges fluid leakage, there is actually no leakage. This is because the fluid spilt during the last maintenance was not completely wiped off. Be sure to wipe off spilt fluid thoroughly after maintenance.



PS-00541

(A) H6 model

(B) H4 model

Fluid leaking area	Possible cause	Corrective action
Leakage from connecting portions of pipes and hoses, numbered with (1) through (8) in figure	Insufficient tightening of flare nut, adhesion of dirt, damage to flare or flare nut or eye bolt	Loosen and retighten. Replace if ineffective.
	Poor insertion of hose or clamping	Retighten or replace the clamp.
	Damaged O-ring or gasket	Replace O-ring or gasket pipe or hose with new one, if ineffective, replace the gearbox also.
Leakage from hose (9) through (13) in figure	Crack or damage in hose	Replace with a new one.
	Crack or damage in hose hardware	Replace with a new one.
Leakage from surrounding of cast iron portion of oil pump (14) and (15) in figure	Damaged O-ring	Replace the oil pump.
	Damaged gasket	Replace the oil pump.
Leakage from oil tank (16) and (17) in figure	Crack in oil tank	Replace the oil tank.
Leakage from filler neck (18)	Damaged cap packing	Replace the cap.
	Crack in root of filler neck	Replace the oil tank.
	High fluid level	Adjust the fluid level.
Leakage from surrounding of power cylinder of gearbox (19) in figure	Damaged oil seal	Replace the oil seal.
Leakage from control valve of gearbox (20) and (21) in figure	Damaged packing or oil seal	Replace the problem parts.
	Damage in control valve	Replace the control valve.
(22) Leakage from connecting portion of cooler pipe and hose.	Insufficient tightening of connecting portion.	Loosen and retighten.