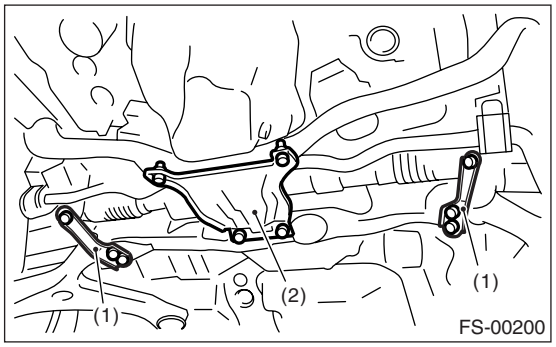
6. Pipe Assembly

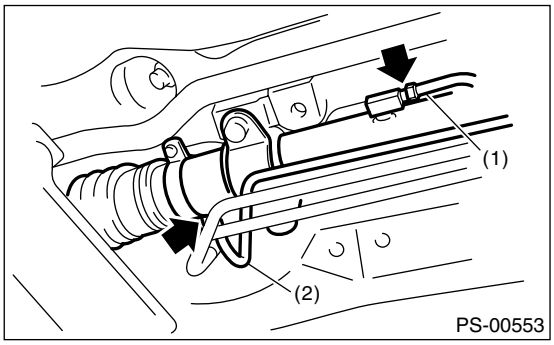
A: REMOVAL

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



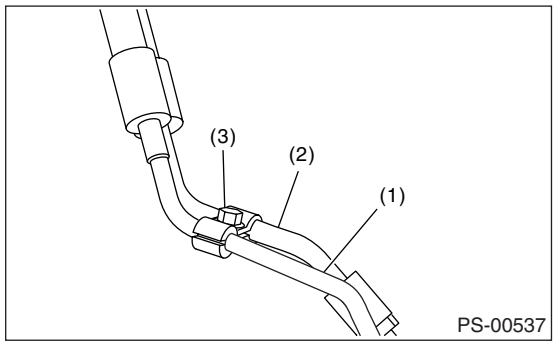
(1) Front crossmember support plate
(2) Jack–up plate

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



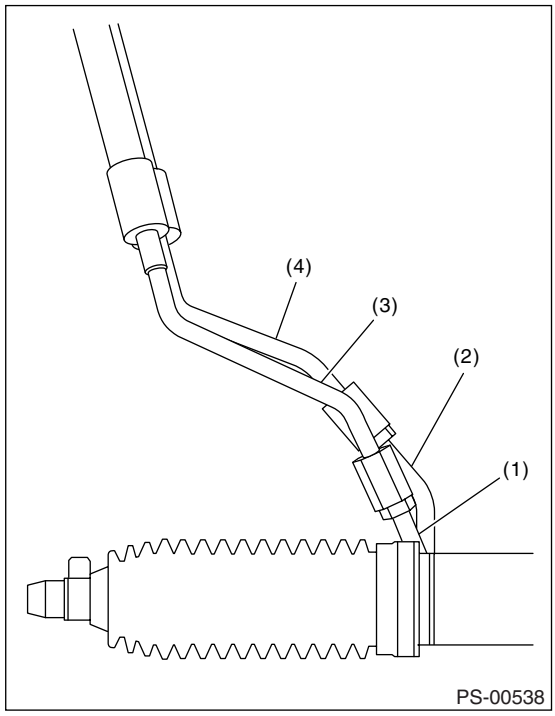
(1) Pipe A
(2) Pipe B

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



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

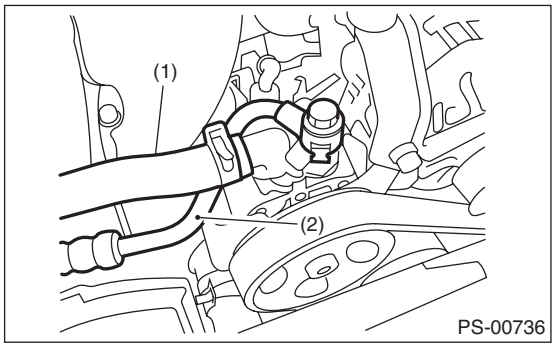
5) Disconnect the pipe D from return hose and pipe C from pressure hose.



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

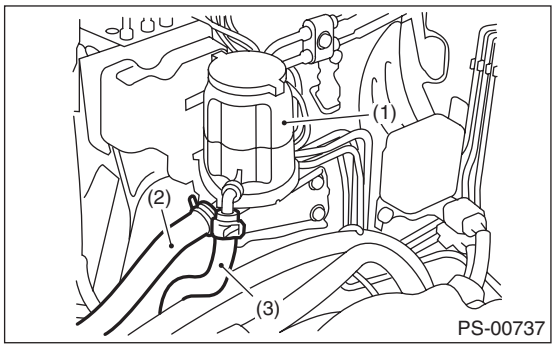
6) Remove the air intake duct. <Ref. to IN(H6DO)-7, REMOVAL, Air Intake Duct.>

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



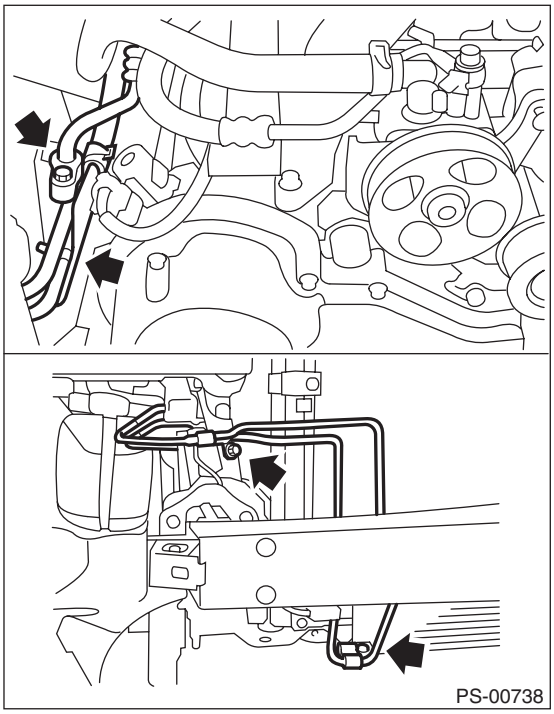
(1) Suction hose
(2) Pressure hose

8) Disconnect the suction hose and return hose from the reservoir tank.

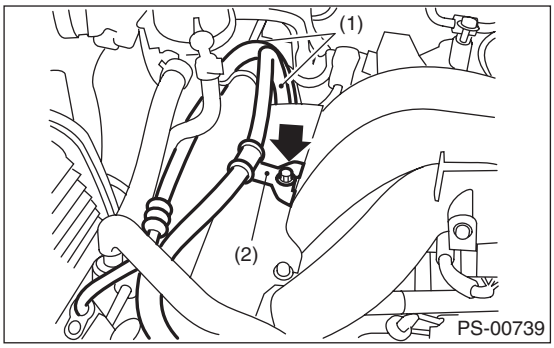


(1) Reservoir tank
(2) Suction hose
(3) Return hose

9) Remove the oil cooler pipe.



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



(1) Hose ASSY
(2) Hose bracket

B: INSTALLATION

1) Install in the reverse order of removal.

Tightening torque:
<Ref. to PS-4, POWER ASSISTED SYSTEM, COMPONENT, General Description.>

2) Fill with the specified fluid.

CAUTION:
Never start the engine before feeding the fluid otherwise the vane pump might be seized.

3) Finally, check the clearance between pipes or hoses as shown in the figure indicated in “General Diagnostic Table”. <Ref. to PS-53, INSPECTION OF CLEARANCE, INSPECTION, General Diagnostic Table.>

C: INSPECTION

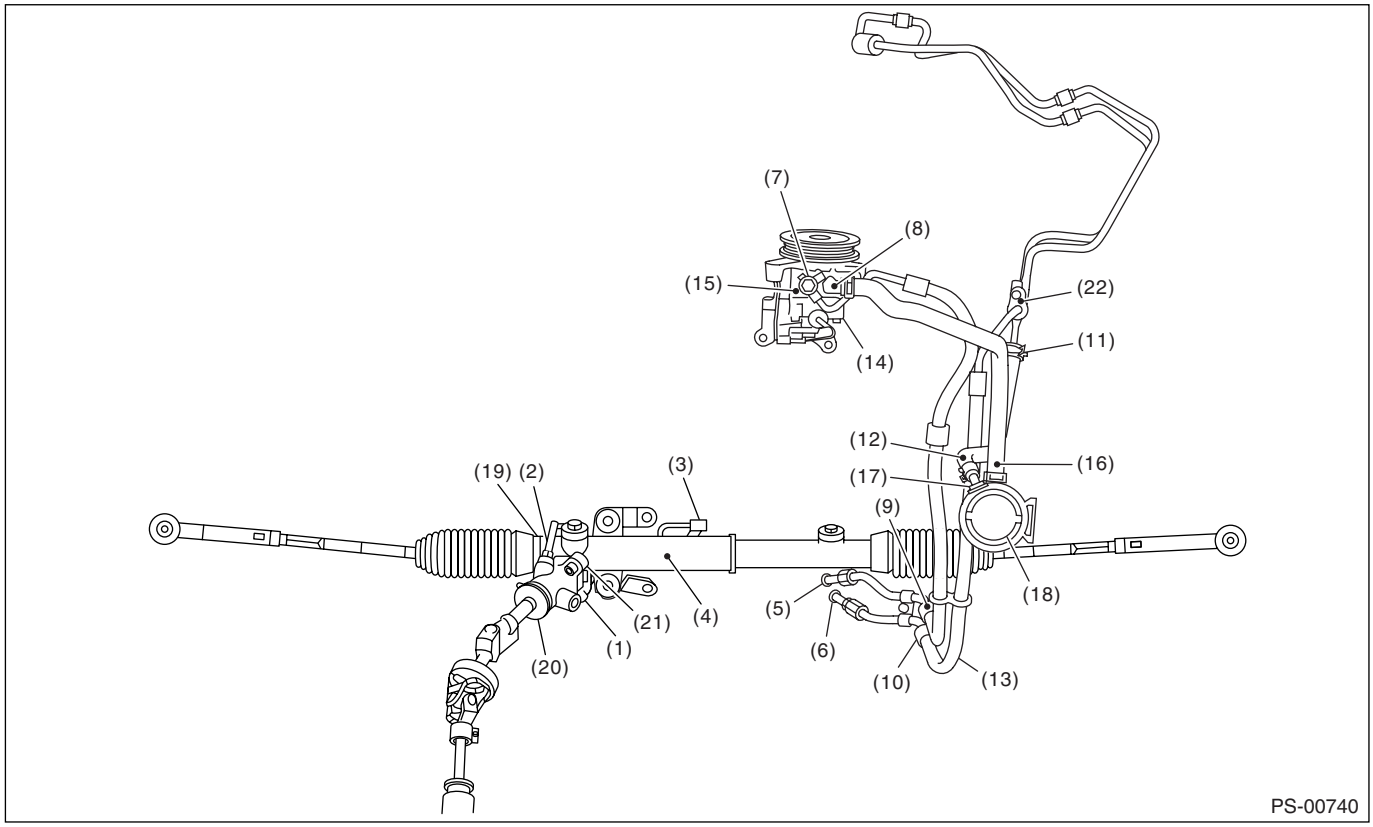
Check all disassembled parts for wear, damage or other problems. Repair or replace the defective parts as necessary.

Part	Maintenance parts	Corrective action
Pipe	• O–ring fitting surface damage • Nut damage • Pipe damage	Replace with a new part.
Clamp	• Loose clamps	Replace with a new part.
Hose	• Flare surface damage • Flare nut damage • Outer surface cracks • Outer surface wear • Clip damage • End coupling or adapter for deformation	Replace with a new part.

CAUTION:
Although the 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 off hoses immediately if any of these come into contact with the hoses.
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 the relief valve	Replace the oil pump.
	Poor cold characteristic of fluid	Replace fluid.
Disconnection of the return hose	Improper connection	Repair.
	Loosening of the clip	Retighten.
	Poor cold characteristic of fluid	Replace fluid.
Fluid slightly leaking out of hose	Wrong layout, tensioned	Replace the 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 for return hose clip	Replace.
	Power steering fluid, engine oil, electrolyte adhere on the hose surface	Replace. Be careful during service work.
	Too many uses in extremely cold weather	Replace. Instruct customers.

NOTE:
There are conditions in which a fluid leak is diagnosed, but is not actually leaking. 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.



Fluid leaking area	Possible cause	Corrective action
Leakage from pipe and hose connections numbered with (1) through (8) in the figure	Insufficient tightening of flare nut, adhesion of dirt, damage to flare or flare nut or eye bolt	Loosen and retighten. Replace if ineffective.
	Improper installation of hose or clamp	Retighten or replace the clamp.
	Damaged O-ring or gasket	Replace the O-ring, gasket pipe or hose with new one, if still no improvement, replace the gearbox as well.
Leakage from hose (9) through (13) in the figure	Crack or damage in hose	Replace with a new part.
	Crack or damage in hose hardware	Replace with a new part.
Leakage from surrounding of cast iron portion of oil pump, (14) and (15) in the figure	Damaged O–ring	Replace the oil pump.
	Damaged gasket	Replace the oil pump.
Leakage from oil tank, (16) and (17) in the figure	Crack in oil tank	Replace the oil tank.
Leakage from filler neck of (18)	Damaged cap packing	Replace the cap.
	Crack in root of filler neck	Replace the oil tank.
	Fluid level too high	Adjust the fluid level.
Leakage from power cylinder of gearbox area (19) in the figure	Damaged oil seal	Replace the oil seal.
Leakage from (20), (21) in the figure and control valve of gearbox	Damaged packing or oil seal	Replace the problem parts.
	Damage in control valve	Replace the control valve.
(22) Leakage from the joints between cooler pipe and hose.	Insufficient tightening of connecting portion.	Loosen and retighten.