

GENERAL INFORMATION

Items		Specifications
Gear box	Steering gear type	Rack and pinion
Oil pump	Oil pump type	Vane type
	Displacement cm ³ /rev.	9.6
	Relief set pressure MPa	11.8

SERVICE SPECIFICATIONS

Items		Standard value	Limit
Steering wheel free play mm	with engine stopped	0–10	–
	with engine running	–	30
Steering angle	Inner wheel	37°30' ± 2°	–
	Outer wheel	30°0'	–
Tie rod end ball joint starting torque Nm		0.5–2.5	–
Stationary steering effort N		27 or less	–
Fluctuation allowance N		5.9 or less	–
Oil pump pressure MPa	Oil pump relief pressure	11.8	–
	Pressure under no-load conditions	0.8–1.0	–
	Steering gear holding hydraulic pressure	11.8	–
Power steering pressure switch operating pressure MPa	ON → OFF	1.8–2.4	–
	OFF → ON	3.6–4.6	–
Total pinion preload Nm		0.8–1.6	–
Tie-rod joint swing resistance N		6–20	–
Tie-rod joint swing torque Nm		2–5	–
Oil pump pulley assembly backlash mm		–	0.1

ON-VEHICLE SERVICE

OIL PUMP PRESSURE TEST

CHECKING THE OIL PUMP RELIEF PRESSURE

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C.
3. Start the engine and idle it at $1,000 \pm 100$ rpm.
4. Fully close the shut-off valve of the pressure gauge and measure the oil pump relief pressure to confirm that it is within the standard value range.

Standard value: 11.8 MPa

Caution

Pressure gauge shut off valve must not remain closed for more than 10 seconds.

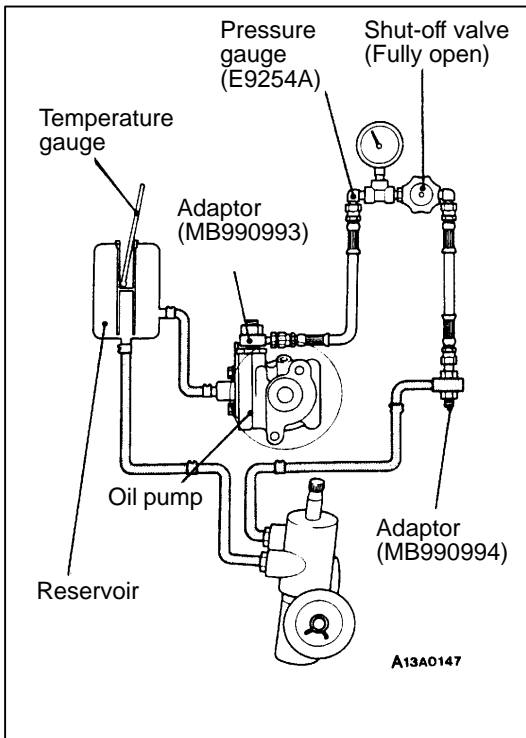
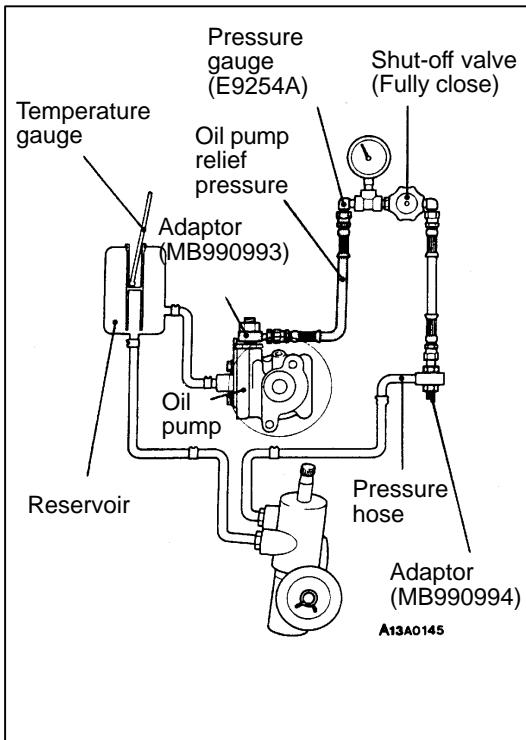
5. If it is not within the standard value, overhaul the oil pump.
6. Remove the special tools and then tighten the pressure hose to the specified torque.
7. Bleed the system.

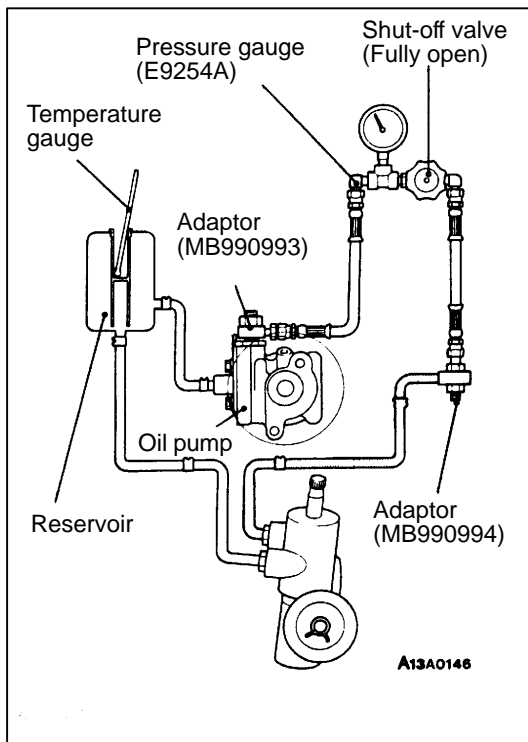
CHECKING THE PRESSURE UNDER NO-LOAD CONDITIONS

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C.
3. Start the engine and idle it at $1,000 \pm 100$ rpm.
4. Check whether or not the hydraulic pressure is the standard value when no-load conditions are created by fully opening the shut-off valve of the pressure gauge.

Standard value: 0.8–1.0 MPa

5. If it is not within the standard value, the probable cause is a malfunction of the oil line or steering gear box, so check these parts and repair as necessary.
6. Remove the special tools, and then tighten the pressure hose to the specified torque.
7. Bleed the system.



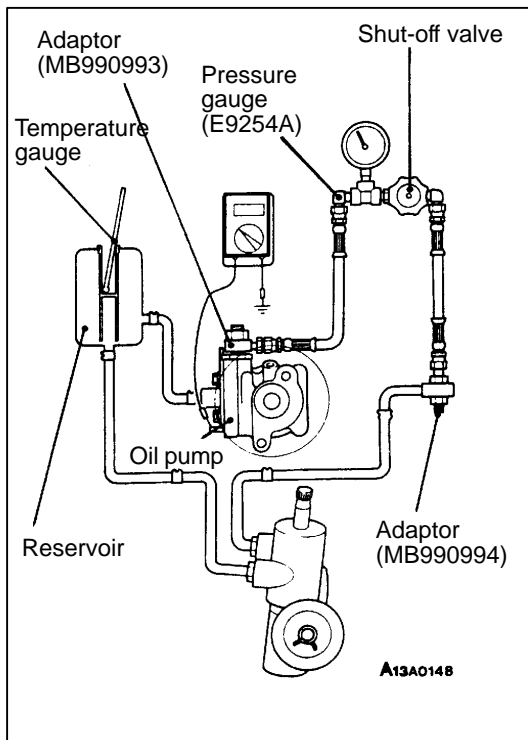


CHECKING THE STEERING GEAR HOLDING HYDRAULIC PRESSURE

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C.
3. Start the engine and idle it at $1,000 \pm 100$ rpm.
4. Fully close and fully open the shut-off valve of the pressure gauge.
5. Turn the steering wheel all the way to the left or right; then check whether or not the holding hydraulic pressure is the standard value.

Standard value: 11.8 MPa

6. When not within the standard value, overhaul the steering gear box.
Remeasure fluid pressure.
7. Remove the special tools, and then tighten the pressure hose to the specified torque.
8. Bleed the system.



POWER STEERING PRESSURE SWITCH CHECK

1. Disconnect the pressure hose from the oil pump, and then connect the special tools.
2. Bleed the air, and then turn the steering wheel several times while the vehicle is not moving so that the temperature of the fluid rises to approximately 50–60°C.
3. The engine should be idling.
4. Disconnect the connection of the connector for the pressure switch, and place an ohmmeter in position.
5. Gradually close the shut-off valve of the pressure gauge and increase the hydraulic pressure then check whether or not the hydraulic pressure that activates the switch is the standard value.

Standard value: 3.6–4.6 MPa

6. Gradually open the shut-off valve and reduce the hydraulic pressure; then check whether or not the hydraulic pressure that deactivates the switch is the standard value.

Standard value: 1.8–2.4 MPa

7. Remove the special tools, and then tighten the pressure hose to the specified torque.
8. Bleed the system.