

## DATSUN POWER-ASSISTED RECIRCULATING BALL

810

### DESCRIPTION

Power steering is composed of power steering pump and steering gear. The pump has an integral oil reservoir and is engine driven. The steering gear incorporates a control valve and power cylinder which is pressure operated from the power steering pump by flexible lines.

### GENERAL SERVICE

#### HYDRAULIC SYSTEM LUBRICANT

**Capacity** – 1½ qts.

**Type** – ATF Type DEXRON

#### BELT TENSION ADJUSTMENT

Apply thumb pressure of 22 lbs. midway between idler pulley and power steering pump pulley. Deflection should be, 0.31-0.47" (8-12 mm).

#### HYDRAULIC SYSTEM PRESSURE CHECK

1) Disconnect pressure line at pump and connect pressure gauge and shut off valve. Check fluid level, open shut off valve and run engine for about five seconds. Check fluid level and restart engine.

2) Turn steering wheel from lock-to-lock several times to expel air from system. Slowly close shut off valve. Pressure should be 953-1123 psi at idle.

**NOTE** – Do not close shut-off valve for more than 15 seconds as this may result in undue pump wear and abnormally increased lubricant temperature.

3) If pressure is below specifications the pump is faulty. If pressure is above specifications the pressure relief valve in pump is faulty.

#### HYDRAULIC SYSTEM BLEEDING

Check fluid level in reservoir, raise and support front of vehicle. With engine not running, turn steering wheel from lock-to-lock several times. Check fluid level, start engine and turn steering wheel from lock-to-lock several times. If system is not bled turn steering wheel to left lock and open bleeder screw to expel remaining air.

### ADJUSTMENT

#### BACKLASH

**NOTE** – Always check and adjust backlash before removing steering gear for replacement.

**On Car** – 1) Disconnect gear arm from steering gear, remove steering wheel horn pad. Locate steering wheel at its center of

travel. Punch mark on column shaft should be upward. Turn wheel one complete turn from center and attach socket to steering wheel nut.

2) With gauge ST3127S0000, turn nut less than 20° and determine torque required for column shaft rotation. Read turning torque with wheel in center position. Turn wheel 360° in both directions and read torque at both points. With steering wheel in center position, required turning torque should be 0.9 to 1.7 INCH lbs. (1 to 2 kg/cmkg) higher than at 360°. When steering wheel is turned 360° in either direction from center, turning torque should be less than 10 INCH lb (12 kg/cmkg).

3) If torque is within specifications, backlash adjustment is not necessary. If torque is outside specifications, remove column assembly and adjust backlash on steering gear unit alone.

**Off Car** – 1) Loosen lock nut on steering gear, and turn adjusting screw until worm shaft turning torque is within specifications. Tighten lock nut.

### REMOVAL & INSTALLATION

#### STEERING GEAR

**Removal** – 1) Remove air cleaner, remove bolt from universal joint to worm shaft. Disconnect fluid lines and block off. Remove nut and washer from steering gear arm.

2) Using steering gear arm puller ST29020001, remove arm from sector shaft. Remove mounting bolts from gear housing and remove housing from vehicle.

**Installation** – To install reverse removal procedure and note the following: Align groove in worm shaft with bolt hole in universal joint and pass bolt through undercut section of worm shaft.

#### STEERING PUMP

**Removal** – Disconnect fluid lines at pump and block off fittings. Remove pump mounting bolts and remove drive belt from pulley. Remove pump from vehicle.

**Installation** – To install reverse removal procedure.

### OVERHAUL

**NOTE** – Overhaul of steering gear is limited to oil seal replacement. If any further repair is necessary, replace entire steering gear assembly. According to location of oil leak, disassembly is divided into three categories as shown Fig. 1.

#### ADJUSTING SCREW SEAL REPLACEMENT

Measure turning torque of stub shaft. Remove lock nut. Lubricate and replace "O" ring. Reinstall lock nut, replacing copper washer. Adjust backlash.

## DATSUN POWER-ASSISTED RECIRCULATING BALL (Cont.)

### SECTOR SHAFT SEAL REPLACEMENT

**Disassembly** - 1) Install gear assembly on attachment KV48100300 and anchor in vise. Check preload, remove sector cover bolt. Install gear arm lock nut. With plastic mallet, knock out end of sector shaft approximately  $\frac{3}{4}$ ". Cover shaft with plastic film to prevent needle bearing loss.

2) Pull out sector shaft, remove snap ring and oil seal on low pressure side. Remove high pressure oil seal and stopper.

**NOTE** - Do not reuse snap ring, oil seals or stopper once removed.

**Assembly** - Lubricate and install oil seals, snap ring and sector cover "O" ring. Guide sector shaft into gear housing. Push sector cover in by hand. Tighten cover bolts. Check stub shaft turning torque. Check and adjust backlash.

### REAR HOUSING SEAL REPLACEMENT

**Disassembly** - 1) Install gear assembly on attachment and anchor in vise. Measure stub shaft turning torque. Loosen rear cover bolts, but do not remove cover.

2) Turn stub shaft clockwise to bring piston to rear side. Install gear arm lock nut on sector shaft, and turn slightly clockwise to raise intermediate cover through piston. Remove lock nut and turn shaft counterclockwise to place piston in neutral position. Remove sector shaft. Move piston to rear side, pull out worm assembly.

**NOTE** - When worm assembly is removed, piston may turn and come off under its own weight. Hold piston to prevent this. Do not damage Teflon ring at piston end when removing.

3) Lightly tap stub shaft end to remove rear housing. Remove rear housing oil seal. Remove sector shaft oil seal. Remove all "O" rings.

**Assembly** - 1) Lubricate and install rear housing oil seal, sector shaft oil seal and intermediate cover "O" rings. Replace worm assembly into rear housing, then into gear housing. Tighten rear housing bolts in a crisscross fashion.

**CAUTION** - Tighten housing bolts with assembly in a level position, to avoid damaging inner seals.

2) Inspect sector shaft. Check stub shaft turning torque. Check and adjust backlash.

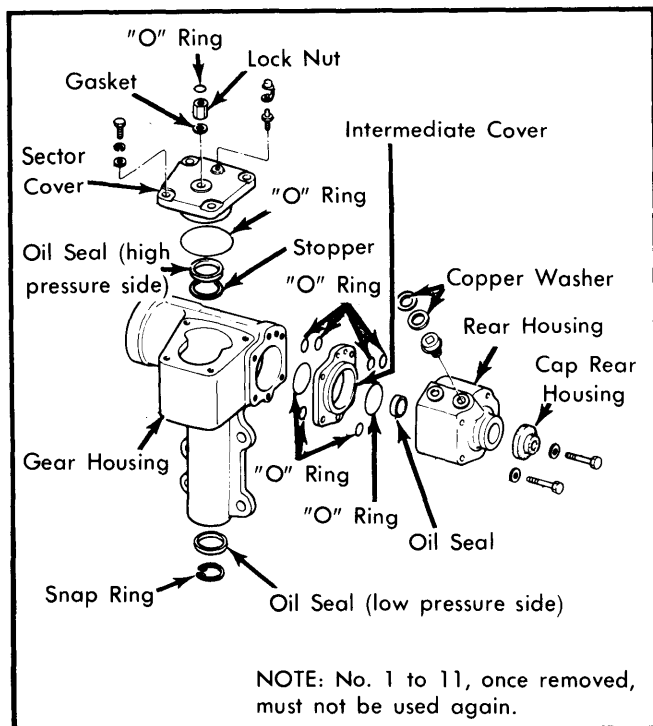


Fig. 1 Power Steering Gear Exploded View

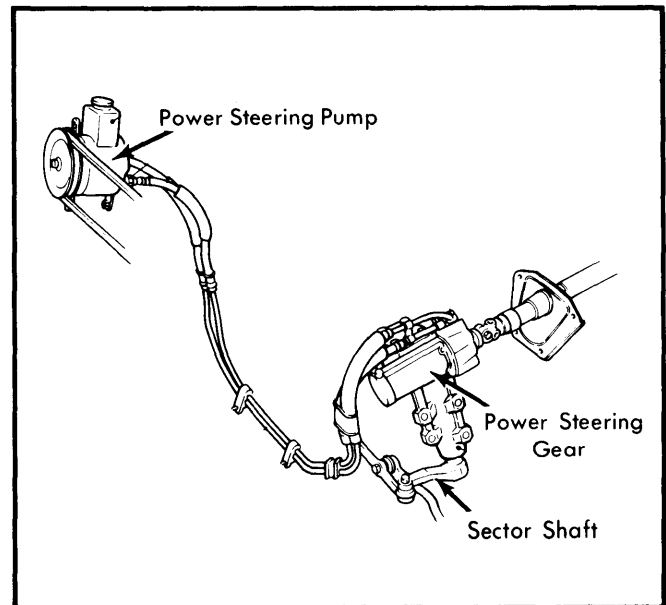


Fig. 2 Datsun Power Steering Components

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Universal Joint to Worm Shaft Bolt	24-28 (3.3-3.9)
Steering Gear Arm Lock Nut	94-108 (13-15)
Pump Bleeder Screw	5-7 (.7-.9)
Pump Mounting Bolts	14-19 (1.9-2.6)
Sector Cover Bolts	20-24 (2.7-3.3)