1973 DATSUN 610

610 (1973)

DESCRIPTION

Steering gear is a recirculating ball type, having a gear ratio of 15:1. The worm shaft is joined to the steering shaft by a rubber, shock-absorbing coupling. Steering linkage is a relay, or parallelogram, design with gear attached by a pitman arm to one end of the cross shaft while the other end of the cross shaft moves on the idler arm.

REMOVAL & INSTALLATION

STEERING GEAR

Removal – Unscrew pinch bolt attaching rubber coupling to worm shaft. Remove nut from sector shaft and detach pitman arm. Remove three bolts securing steering gear housing to body side member. Withdraw steering gear from vehicle.

Installation – To install, reverse removal procedure.

STEERING LINKAGE

Removal – Jack up front of vehicle and support with stands. Detach both outer tie rod ends from steering knuckles. Separate cross shaft from idler arm and pitman arm, then remove cross shaft and tie rods as an assembly. Idler assembly may be removed from side member, if necessary to replace bushing.

Installation – To install, reverse removal procedure, noting the following: Set length of tie rods to 12.331" (313.2 mm) as measured from center-to-center of ball studs. Check wheel alignment.

ADJUSTMENT

NOTE – Steering gear adjustments are performed during reassembly. See Overhaul as outlined below.

OVERHAUL

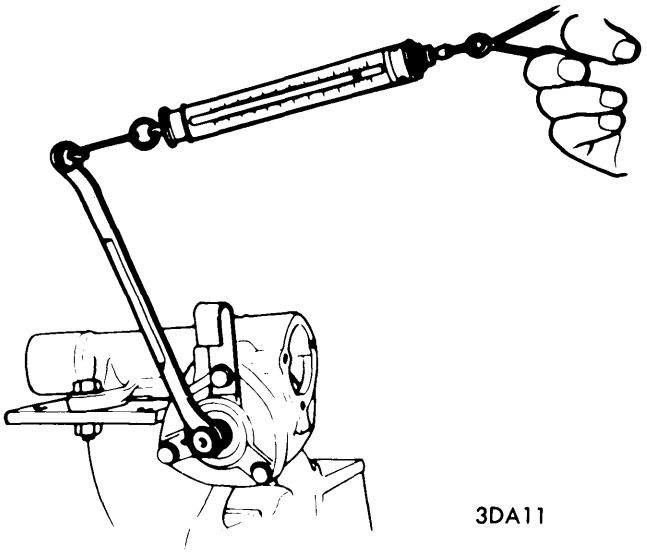
Disassembly – 1) Thoroughly drain gear box, then place gear in padded vise or on suitable holding tool (ST27700001) such that gear is in same relative position as when in vehicle.

2) Loosen adjusting screw lock nut and remove sector shaft cover screws. Turn adjusting screw a few turns clockwise and withdraw sector shaft. Remove rear cover. Withdraw bearing shims and worm assembly. Remove oil seal. *NOTE – Do not remove sector shaft needle bearings from housing. If defective, replace housing assembly. Do not disassemble ball nut; replace, if necessary, with worm shaft assembly.*

Inspection – Inspect gear teeth on sector shaft and ball nut for wear or damage; replace as necessary. Check bearings for wear or roughness during rotation. Ensure ball nut moves smoothly over its entire length of travel.

Assembly & Adjustment – 1) Lubricate bearings, gear, and other moving parts with gear oil. Apply suitable grease to oil seal lip and press seal into rear cover. Install "O" ring, worm shaft assembly, and worm bearing shims to gear housing. *NOTE – Be sure to install thicker shims to gear housing side.*

2) By selecting suitable shims, adjust worm bearing preload so that initial turning torque of worm shaft is 3.5-5.3 Inch lbs. Rotate worm shaft a few turns to properly settle worm bearing and obtain accurate reading. If readjustment is made, initial turning torque is 1.75-3.5 Inch lbs.



MEASURING INITIAL TURNING TORQUE

3) Insert adjusting screw with shims into "T" groove of sector shaft, and adjust end play between shaft and adjusting screw to .0004-.0012" (.01-.03 mm).

4) Rotate worm shaft until ball nut is in center of travel, then install sector shaft and adjusting screw in gear housing. Ensure center tooth of sector shaft is engaged with center of ball nut. Apply sealant and gasket material to sector shaft attaching face.

5) Turn adjusting screw counterclockwise to attach sector shaft cover to gear housing. Temporarily install retaining bolts. By pulling on adjusting screw, draw sector shaft slightly toward cover, then tighten cover bolts securely.

6) Push sector shaft against ball nut by gradually turning adjusting screw until sector shaft gear lightly meshes with ball nut gear, and temporarily secure adjusting screw with lock nut.

7) Install pitman arm to sector shaft and move it side-to-side several times to ensure smooth operation. Set pitman arm at center point and adjust backlash (by turning adjusting screw) such that free movement at top end of pitman arm is .004" (0.1 mm).

8) Turn adjusting screw clockwise approximately $\frac{1}{8}$-$\frac{1}{6}$ turn and tighten lock nut securely, after moving sector shaft several times. Fill gear housing with approximately $\frac{5}{8}$ pint (.27 litre) of suitable gear oil. Install filler plug.

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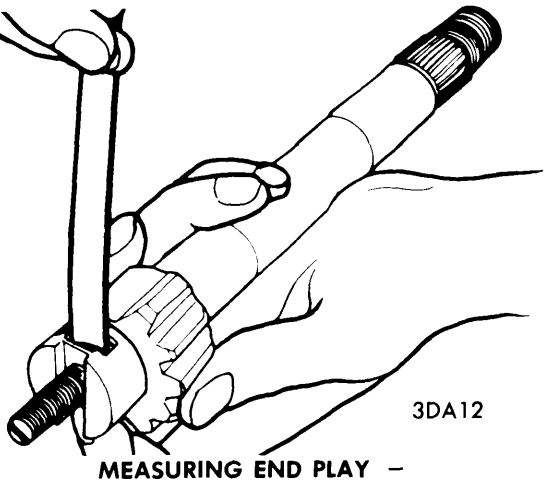

MEASURING END PLAY – SECTOR SHAFT-TO-ADJUSTING SCREW

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Pitman Arm Nut	101 (14)
Rear Cover Bolts	15 (2.1)
Adjusting Screw Lock Nut	17 (2.4)
Gear Housing-to-Body	52 (7.2)
Idler Arm-to-Frame	38 (5.3)
Ball Stud Nuts	48 (6.6)
Tie Rod Lock Nuts	38 (5.3)
Rubber Coupling-to-Worm Shaft Bolt	33 (4.6)