1965-73 TOYOTA, EXC. STOUT, COROLLA & LAND CRUISER

Carina (1972-73)
Celica (1972-73)
Corona (1966-73)
Corona Mark II (1969-73) ①
Crown (1965-72) ②
Hi-Lux Pickup (1969-73)

① — After January 1972, Corona Mark II incorporates power steering. *See appropriate article in this Section.*

② — After February 1971, Crown incorporates power steering. *See Appropriate article in this Section.*

▶ CHANGES, CAUTIONS, CORRECTIONS

▶ *1973 TOYOTA CARINA & CELICA — STEERING NOISE ON SHARP TURNS — To help eliminate noise encountered on sharp turning (caused by steering knuckle stopper bolt hitting knuckle stopper), a knuckle stopper cover (Part No. 45619-14010) has been introduced into production. This cover is usable on earlier models which did not originally have this part installed.*

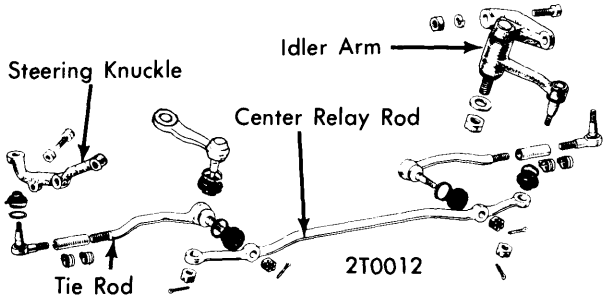
DESCRIPTION

STEERING GEAR

Steering gear is of recirculating ball type with a variable gear ratio. Several loose ball bearings circulate in two divided sections within grooves of worm and nut. Turing motion of worm moves ball nut axially on shaft, thereby turning the sector shaft and pitman arm.

STEERING LINKAGE

Linkage consists of idler arm, center relay rod, two adjustable tie rods, and two steering knuckles. The connection between each component is through ball joints. The linkage assembly is joined to the steering gear at the pitman arm.



STEERING LINKAGE — TYPICAL

ADJUSTMENT

See Overhaul procedures in this article.

REMOVAL & INSTALLATION

STEERING GEAR

Removal — Remove bolt attaching coupling yoke to worm shaft. Using a suitable puller (09610-20011), detach pitman arm from sector shaft. Unbolt gear housing from frame and remove from vehicle.

Installation — Reverse removal procedure, aligning yoke and worm shaft to original position.

STEERING LINKAGE

Removal — Using a suitable puller (09610-20011), disconnect pitman arm from sector shaft. Remove idler arm support from the frame. Detach tie rod ends from steering knuckles, using suitable tool (09611-20013). Remove steering linkage assembly from vehicle.

Installation — Connect tie ends to steering knuckles and torque retaining nuts to specification. Install pitman to sector shaft (ensure correct positioning of aligning marks as illustrated). Tighten nut to specified torque. Place idler arm support on frame and tighten retaining bolts to specification. Adjust toe-in.

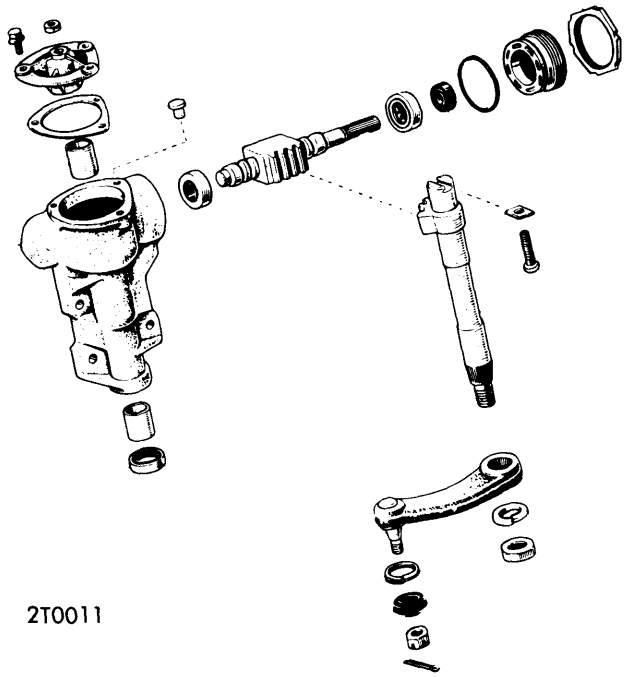
OVERHAUL

STEERING GEAR

Disassembly — Loosen sector shaft adjusting screw lock nut. Remove bolts attaching end cover plate, then remove plate and sector shaft. Drain gear oil from housing. Unscrew worm bearing adjusting screw lock nut, using suitable wrench (09617-22020). Remove worm bearing adjusting screw with suitable tool (09616-22010). Extract worm assembly with bearing. *NOTE — Do not disassemble ball nut from worm. If worm or ball nut is defective, replace assembly.*

Inspection — Check all components for wear or damage and replace as necessary. Check sector shaft-to-bushing clearance, it must not exceed .003". If clearance is exceeded, replace bushing or shaft.

Assembly & Adjustment — 1) Lubricate all bearings and sliding portions of gear assembly. Install worm into gear housing, then install adjusting screw and lock nut. Check worm bearing preload: Wind a cord around worm shaft and attach a pull-scale to end of cord. Pull required to turn worm shaft should be 8.8-13.2 lbs. (4-6 kg). Turn adjusting screw as required to bring preload into specification.

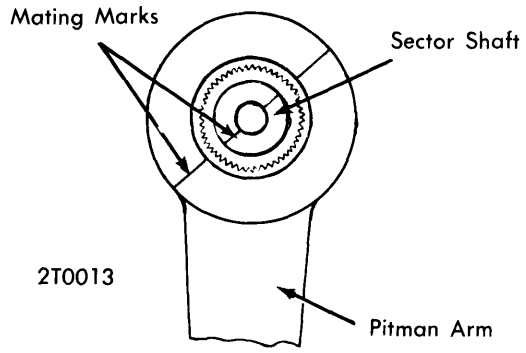


RECIRCULATING BALL TYPE STEERING GEAR

1965-73 TOYOTA, EXC. STOUT, COROLLA & LAND CRUISER (Cont.)

2) Install adjusting screw and thrust washer onto sector shaft and measure thrust clearance (between head of adjusting screw and bottom of "T" slot). Maximum satisfactory clearance is .0035" (.09 mm) on all models except 1973 and later Hi-Lux models. On these models, correct clearance is .0020" (.05 mm). Replace thrust washer if acceptable clearance is not measured.

3) Install sector shaft to end cover and install assembly (with gasket) into gear housing. *NOTE — Ensure ball nut is at center travel before inserting sector shaft. Loosen adjusting screw completely, prior to shaft insertion.* After sector shaft cover is bolted into place, repeat worm bearing preload test as previously described, using sector shaft adjusting screw to obtain 17.6-24.2 lbs. (8-11 kg).



ALIGNING PITMAN ARM TO SECTOR SHAFT

4) Install pitman arm (aligning mating marks); attach a dial gauge to measure pitman arm backlash. Backlash, as measured at pitman arm outer end, should not exceed 5° from either side of center. After checking, tighten adjusting screw lock nut securely.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Gear Housing-to-Frame	
Exc. Crown	35 (4.8)
Crown	43 (5.9)
Worm Bearing Adjusting Screw Lock Nut	
Exc. Crown	65 (9.0)
Crown	85 (11.8)
Sector Shaft Adjusting Screw Lock Nut	18 (2.5)
Sector Shaft End Cover Bolts	
Exc. Crown	14 (1.9)
Crown	28 (3.9)
Coupling Yoke-to-Worm Shaft	30 (4.1)
Idler Arm-to-Support	
Carina, Celica, Corona	58 (8.0)
Crown, Hi-Lux	75 (10.4)
Corona Mark II	50 (6.9)
Tie Rod Ends-to-Relay Rod	40 (5.5)
Pitman Arm-to-Sector Shaft	90 (12.4)
Relay Rod-to-Idler Arm	43 (5.9)
Tie Rod Ends-to-Steering Knuckles	43 (5.9)
Pitman Arm-to-Relay Rod	43 (5.9)
Idler Support-to-Frame	35 (4.8)