

# Steering Gears & Linkage

## JENSEN-HEALEY RACK & PINION

Jensen-Healey

### DESCRIPTION

The rack and pinion steering gear, which is connected to the column through a universal joint coupling, is mounted on front axle crossmember. Rack is supported in one end of housing by a bushing and at other end by a spring-loaded adjustable damper (yoke). Shims are placed under damper cover to adjust loading of rack with pinion. Pinion is mounted on ball bearings and has shims under pinion cover to adjust bearing preload. Steering turning lock is controlled by contact of tie rod ball joint lock nuts with end of rack housing.

### ADJUSTMENT

See procedure as outlined within Overhaul.

### REMOVAL & INSTALLATION

**Removal** — Detach tie rod ball joints from steering arms. Withdraw pinch bolts from upper and lower universal joints. Remove gear retaining bolts; withdraw coupling and gear from front axle crossmember.

**Installation** — Position gear assembly and connect the coupling, then tighten nuts and bolts in the following order: gear mounting nuts, lower pinch bolt, and upper pinch bolt. Ensure mating tapers of ball joints and steering arms are clean and free of grease, then attach ball joints to arms. Check front wheel alignment. See *Jensen-Healey* in *WHEEL ALIGNMENT* Section.

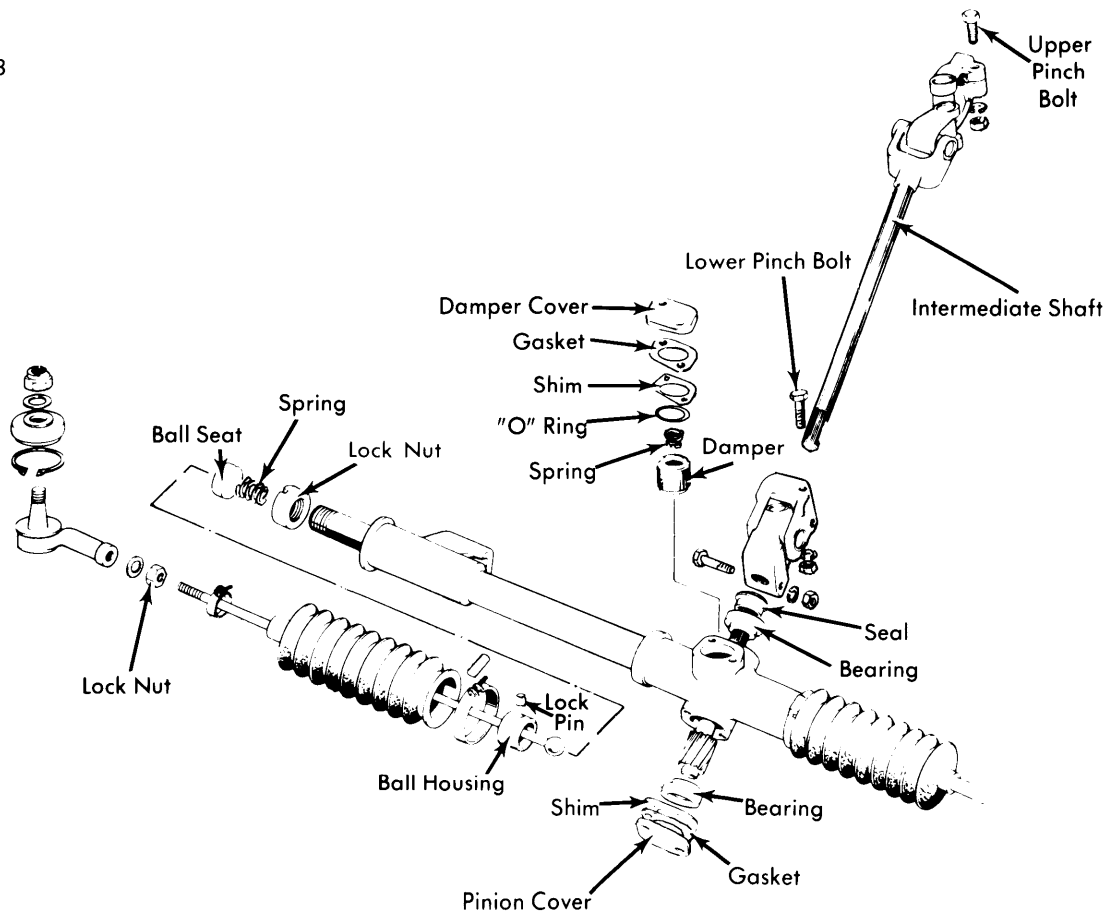
### OVERHAUL

**Disassembly** — 1) To remove tie rod assemblies, unclip and remove rubber bellows and drill out lock pins, using  $\frac{5}{32}$ " (.16 mm) diameter drill. Do not drill deeper than .37" (9.4 mm). Clamp or otherwise hold ball joint housing, and loosen lock nut. Remove tie rod assembly.

2) Pry out oil seal from pinion housing and withdraw pinion. Carefully extract rack from pinion end of housing. Tie rod outer ball joints may be separated from tie rod assembly by unscrewing lock nut.

**Assembly** — 1) Position rack in housing such that central position of travel is obtained: equal protrusion from each end of rack housing. Install pinion, ensuring flat on pinion shaft is facing left end of rack and that it is at 90° to rack.

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### JENSEN-HEALEY RACK & PINION STEERING GEAR

## JENSEN-HEALEY RACK & PINION (Cont.)

2) Check pinion bearing preload by positioning end cover and gasket in place. Measure gap between cover and mounting flat on housing. To this measurement add .001-.005" (.03-.13 mm) and assemble a shim pack to this final measurement.

3) To check rack load, temporarily install rack damper (yoke) without spring, shims, gasket, or "O" ring. Lightly tighten cover bolts and measure gap between cover and housing. Select shims of this thickness plus .004-.006" (.10-.15 mm). Reinstall damper, spring, "O" ring, shims, gasket, and cover. *NOTE — Thickness of gasket must be taken into account when assessing shim size required.*

4) Using an open-ended wrench and a pull-scale (spring balance), measure load (applied at right angle to wrench) required to rotate pinion. If measured load is greater than 12 INCH lbs. (.14 mkg), recheck damper adjustment and pinion bearing preload.

5) Coat mating surfaces of oil seal and pinion shaft with grease, and press seal into housing. If rack has not been replaced with new unit, mark original position of lock pin (to avoid drilling new hole in same area).

6) Assemble inner ball joint and tighten lock nut until 2-4 lbs. (.9-1.8 kg) is required to move tie rod (force applied to inner end of thread on rod). Do not allow load to exceed 4 lbs. (1.8 kg).

7) With ball joint adjusted, drill  $\frac{5}{32}$ " (4 mm) diameter hole, not deeper than .37" (9.4 mm), in ball housing, install new lock pin, and stake edge of hole in four places. Replace rubber bellows on end opposite pinion housing. Before replacing other bellows, inject .3 pint (.14 litre) of an EP90 gear oil into steering gear. Do not exceed this quantity. Replace bellows.

Screw outer ball joints onto tie rods, ensuring joints are screwed on by equal amounts. See *Toe-In Adjustment* in *WHEEL ALIGNMENT* Section.

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Gear-to-Crossmember .....	19 (2.63)
Universal Joint Pinch Bolts.....	32-35 (4.42-4.84)
Ball Joints-to-Steering Arms.....	24 (3.32)