

1971-73 PINTO RACK & PINION

Ford Pinto

►CHANGES, CAUTIONS, CORRECTIONS

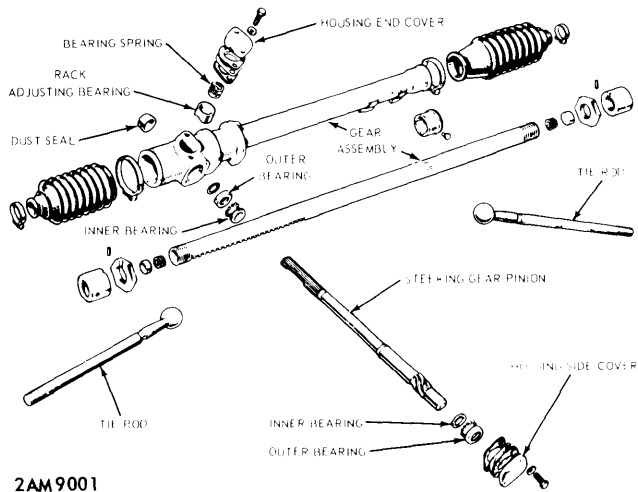
►1971 PINTO STEERING GEAR REPLACEMENT NOTE: If gear is removed from its mounting bracket for any reason, install a .050" shim having bite-in-teeth (Kit No. DIFZ-3F546-A), on both sides on bolt shank between gear assembly and mounting bracket and two new cone nuts.

DESCRIPTION

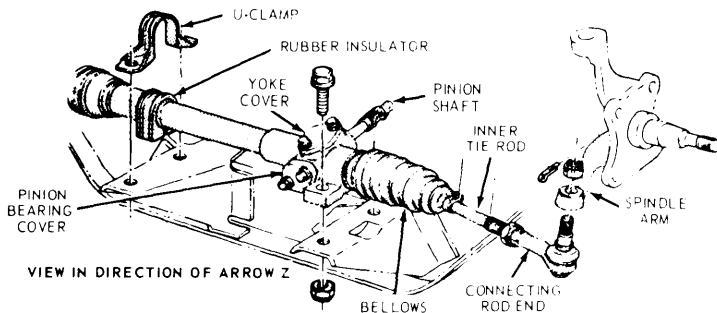
Rack-and-Pinion Type. Input shaft (steering wheel shaft) is connected to a pinion within the steering gear housing. This pinion meshes with a rack so that steering wheel and pinion rotation moves the rack laterally from right to left. A tie rod is connected at each end of the steering gear rack so that the front wheels turn in unison with the rack movement. The steering gear is sealed at each end with a rubber bellows and the gear case is filled with approximately 5 ozs. of SAE 90 EP type oil. Checking and re-filling is not required unless there is fluid leakage or the gear is disassembled for repair.

ADJUSTMENT

Two adjustments are provided. *Steering gear must be removed from the car to perform these adjustments.*



STEERING GEAR DISASSEMBLED



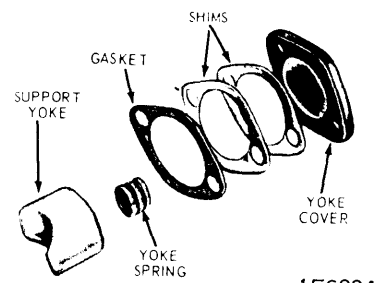
STEERING GEAR INSTALLATION IN CAR

Support Yoke-to-Rack Clearance

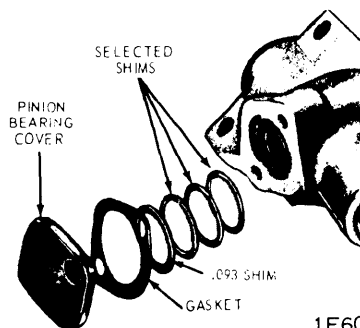
- 1) Clean exterior of steering gear thoroughly and clamp gear in a soft jawed vise with yoke cover up (grip mounting pads in vise).
- 2) Remove yoke cover, gasket, shims and yoke spring (see illustration). Clean cover and housing flange areas thoroughly. Reinstall yoke and cover **without** gasket, spring, and shims. Tighten cover bolts lightly until cover just touches the yoke.
- 3) Measure gap between cover and housing flange, then select shims which, together with cover gasket, are .0005-.006" thicker than the measured gap.
- 4) Remove cover, assemble gasket on housing flange, then install shim pack as selected in step (3), spring, and cover. Coat cover bolt threads with Permatex #3, and tighten cover bolts evenly to 15-20 Ft. Lbs. Check steering gear for smooth operation without binding or looseness.

Pinion Bearing Preload

- 1) Clean exterior of steering gear thoroughly and clamp gear in a soft jawed vise with pinion cover upward (grip mounting pads in vise.).
- 2) Loosen yoke cover bolts to relieve spring pressure on rack. Remove pinion cover and clean cover flange area thoroughly, then remove cover gasket and shims.
- 3) Install a new gasket on pinion cover flange, fit shims in gear until shim pack is flush with top surface of gasket (check with light pressure on straightedge placed on gasket face), then add one .005" shim to preload bearings.
- 4) Install shims with thinnest shims inward and thickest .093" shim next to cover. Install cover, coat cover bolt threads with Permatex #3, tighten bolts to 15-20 Ft. Lbs. Tighten yoke cover bolts to 15-20 Ft. Lbs.



SUPPORT YOKE & RACK ADJUSTMENT



PINION BEARING PRELOAD ADJUSTMENT

1971-73 PINTO RACK & PINION (Cont.)

PERFORMANCE

With front suspension in good condition and steering gear properly adjusted, freeplay measured at steering wheel rim should be not more than 3/8" and force required to keep steering shaft rotating should be 7-12 In. Lbs. When turning wheel from one stop to the other with vehicle stationary, steering gear should not knock (a knock indicates that steering gear adjustment is required). **NOTE** – *A faint steering gear knock while driving on an extremely rough road is acceptable and does not indicate steering gear is not performing satisfactorily.*

REMOVAL & INSTALLATION

Removal

- 1) With car on a hoist and steering wheel turned to a straight-ahead position, disconnect flexible coupling from pinion shaft, remove nuts and bolts securing steering gear to cross member, remove U-bolt.
- 2) Loosen nuts securing connecting rod ends to spindle arms, use steering ball joint separator tool, 3290-C, to separate connecting rod ends from spindle arms.
- 3) Remove nuts from connecting rod ends, then remove steering gear from left side of vehicle.

Installation

Reverse removal procedure and tighten all bolts and nuts to torques given in table.

OVERHAUL

NOTE – Gear rack cannot be removed from housing and overhaul operations are limited to the services listed below. Steering gear must be removed from car for all overhaul operations.

Bellows Seal

Disassembly – Mount steering gear in soft jawed vise with bellows upward, loosen clips at each end of bellows and remove bellows. Empty lubricant into a suitable container, traverse rack from end-to-end several times to expel all lubricant.

Reassembly – With gear in vise and rack vertical, traverse rack so that upper end is fully extended. Refill gear housing with 5 ozs. of specified lubricant by pouring lubricant under bellows at inner tie rod joint, traverse rack to distribute lubricant (**CAUTION** – *Do not use more than specified amount, excess lubricant could cause pressure and burst the bellows*). Lubricate tie rod in area of bellows contact with same lubricant. Install bellows clips with tightening screws in same plane as pinion shaft with screw ends upward, tighten screws and reinstall screw end caps to prevent damage to the bellows.

Input Shaft Seal

Disassembly – Clean input shaft and seal area thoroughly, pry pinion seal from its bore using care not to scratch or damage pinion shaft.

Reassembly – Lubricate new seal with chassis lubricant, install seal over shaft, use piece of tubing (of a size to engage outer edge of seal) to press or tap seal into its bore until flange is flush with shoulder of bore.

Rack Support Yoke

Disassembly and reassembly procedures are same as for "Support Yoke-to-Rack Clearance". See **ADJUSTMENTS** for procedure.

Pinion Shaft, Lower Bearing, & Spacer

Disassembly – With gear in vise, clean exterior thoroughly. Loosen bolts of rack support cover to relieve spring tension on rack, move rack to either end position and note position of flat on input shaft (**CAUTION** – *Pinion shaft must be installed in exactly same position to ensure correct straight-ahead position of steering wheel*). Remove pinion cover, shims and gasket. Remove pinion lower bearing and pinion shaft, then remove spacer. Inspect pinion shaft, seal, bearing, and rack teeth for damage and replace parts as necessary.

Reassembly – Lubricate spacer, pinion shaft and bearing with steering gear lubricant and I.D. of pinion seal with chassis lubricant. Assemble spacer in position against bearing face, move rack to one end position and assemble pinion with flat on shaft in same position as noted at disassembly. Assemble bearing by aligning bearing I.D. with shaft by rotating shaft and applying side pressure, tap bearing evenly into bore until it is recessed below the shoulder. Refer to "Pinion Bearing Preload" under **ADJUSTMENTS** for installation of shim pack and cover.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Steering Gear-to-Crossmember.....	55-65
Connecting Rod End-to-Spindle Arm.....	35-47
Connecting Rod End-to-Inner Tie Rod.....	35-50
"U" Clamp-to-Crossmember.....	35-50