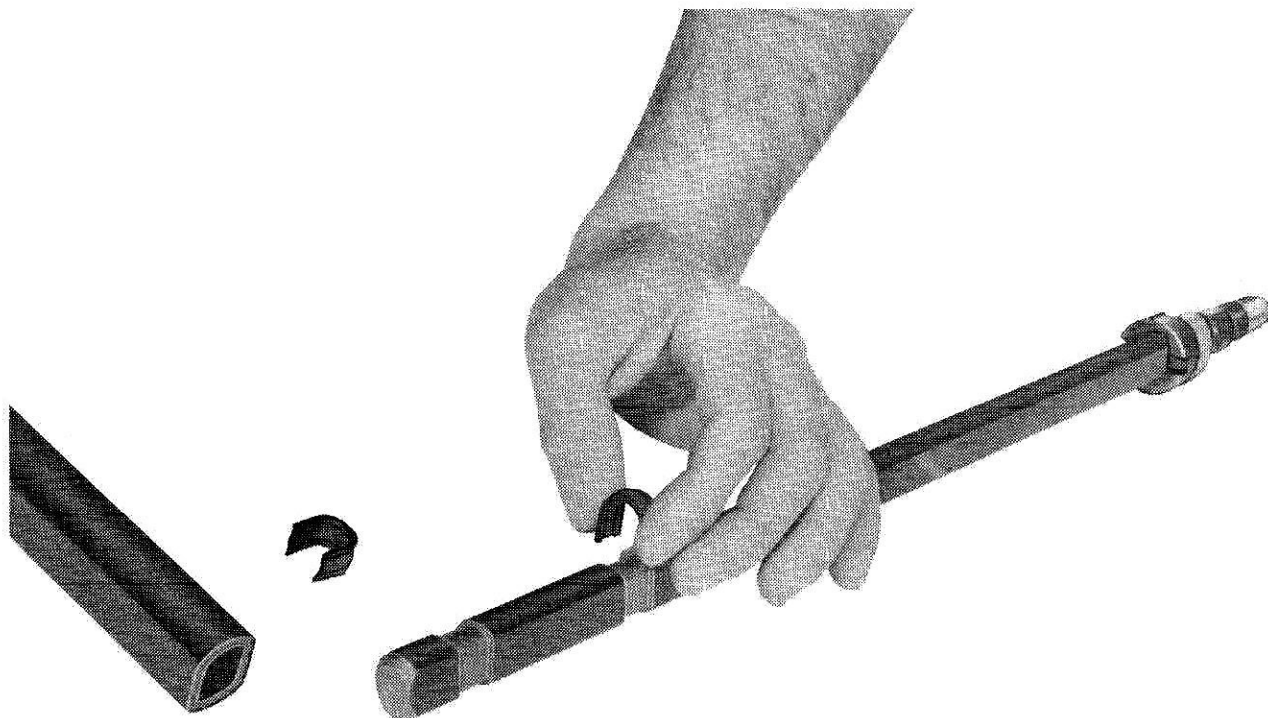




G2591-2A

FIG. 13 Removing or Installing Insulator Clips

8. Install the turn signal and wash/wipe switches and the shift cane assembly (column shift only) as described earlier in this Part.
9. Install the U-joint assembly as described earlier in this Part.
10. Install the steering column assembly as described earlier in this Part.

Flexible Coupling Removal

1. Remove the U-joint assembly as described earlier in this Part. **The flexible coupling is riveted to the U-joint assembly. Therefore, the U-joint assembly must be replaced when flexible coupling replacement is necessary.**

Installation

1. Install a new U-joint assembly as described earlier in this Part.

LOWER STEERING COLUMN SHAFT BEARING Removal

1. Remove the steering column assembly as described earlier in this Part.

2. Remove the shift cane (column shift only) upper bearing, lock cylinder housing and steering shaft as described earlier in this Part.
3. Remove the lower bearing retainer ring.
4. Pull the lower steering shaft bearing and sleeve out of the outer tube lower end.

Installation

1. Install the steering shaft, lock cylinder housing and upper bearing as described earlier in this Part.
2. Slide the lower steering shaft bearing and sleeve onto the lower shaft and seat into the outer tube. Lube the sleeve with Chassis Lubricant to ease the installation.
3. Install the lower bearing retainer ring.
4. Install the shift cane as described earlier in this Part.
5. Install the turn signal and wash/wipe switch and install the steering column as described earlier in this Part.



SPECIFICATIONS

SPECIAL SERVICE TOOLS

Tool Number	Description
T67L-3500-A	Steering Wheel Remover
T67P-7341-A	Shift Rod Grommet – Bearing Installation/Removal Tool

CG2656-1A

Steering Linkage

**PART
13-20**
Applies To All Models Except Mustang II/Pinto/Bobcat/Fairmont/Zephyr

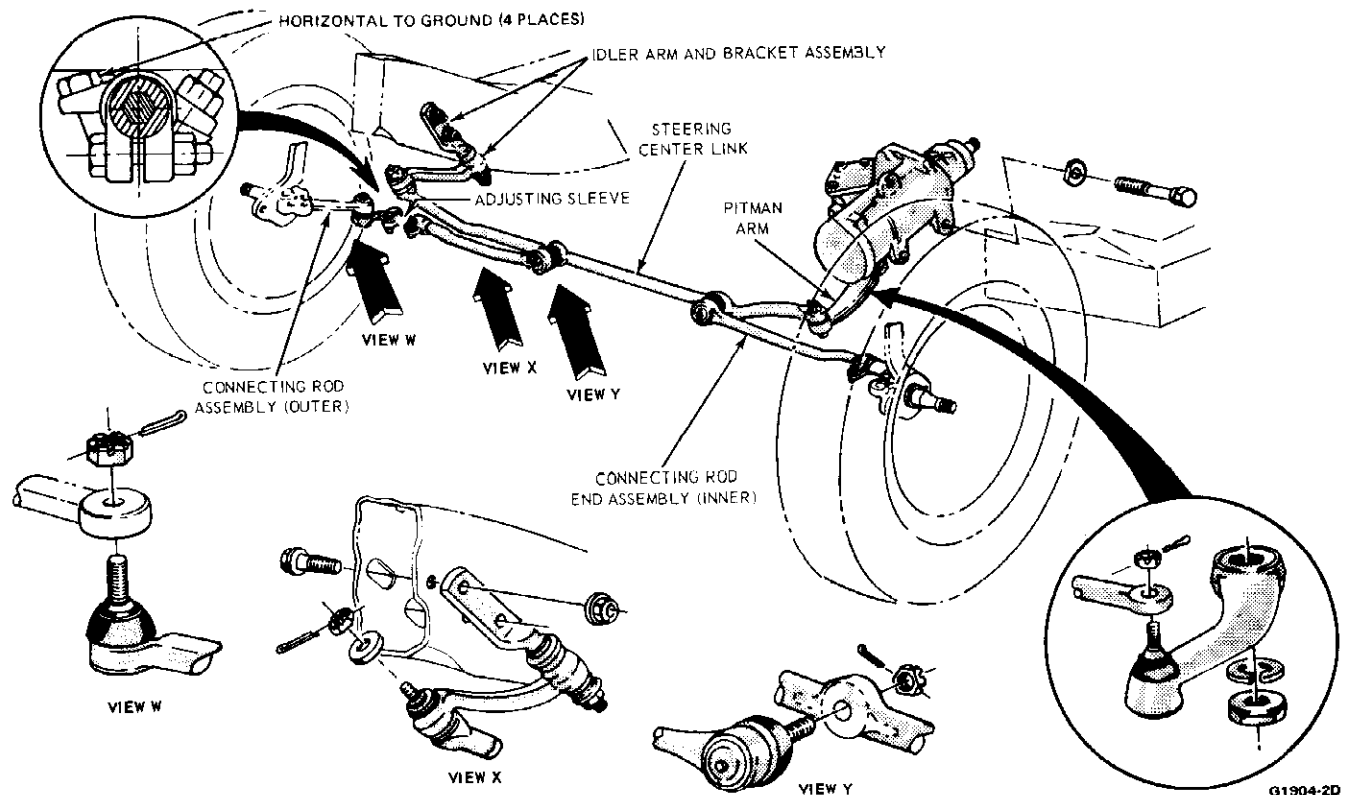
SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION		Idler Arm and Bracket Assembly	20-5
Steering Linkage	20-1	Pitman Arm	20-5
REMOVAL AND INSTALLATION		Spindle Connecting Rod Assembly	20-4
Adjusting Sleeve	20-4	SPECIFICATIONS	20-6
Center Link	20-4		

CG2425-2B

DESCRIPTION

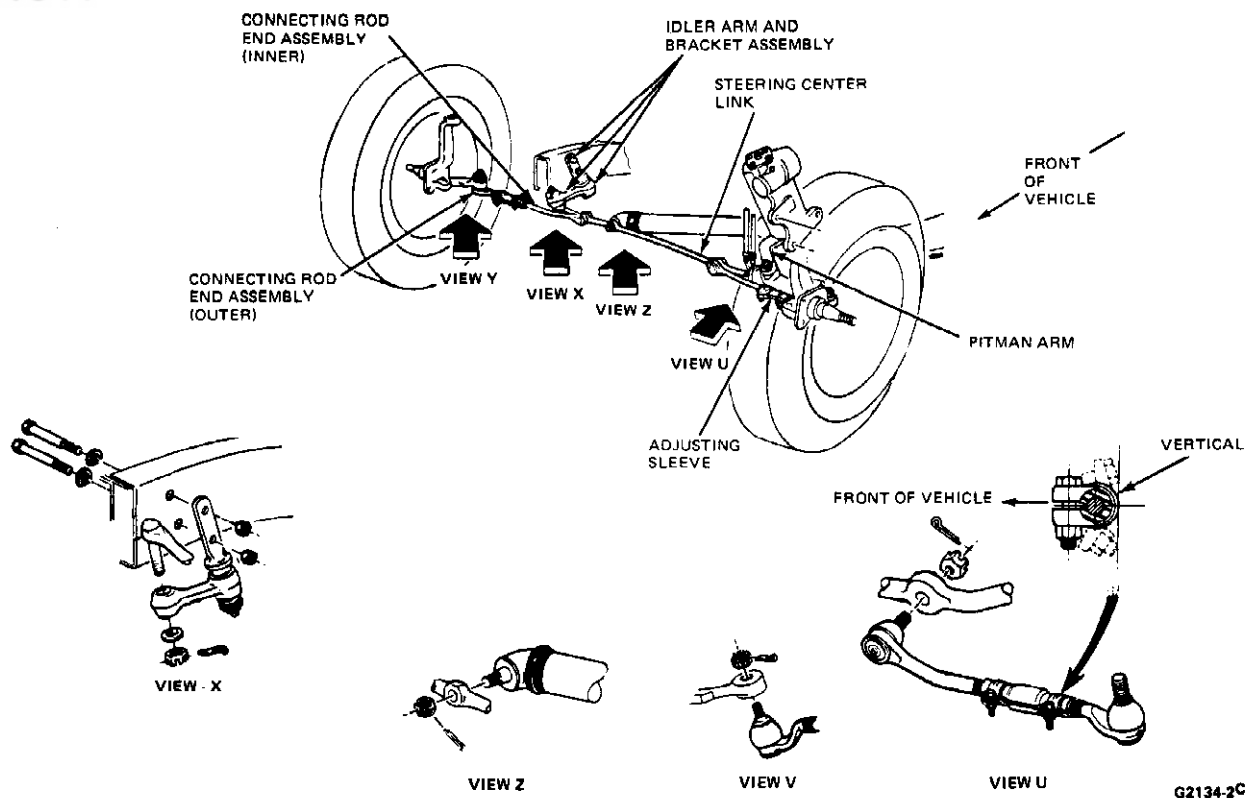
STEERING LINKAGE

The steering linkage (Figs. 1 - 5) consists of the Pitman arm, the Pitman arm-to-idler arm (center link), the idler arm and bracket assembly, and the spindle connecting sleeve and end assemblies (tie rods). **Never straighten bent linkage. Use new parts.**



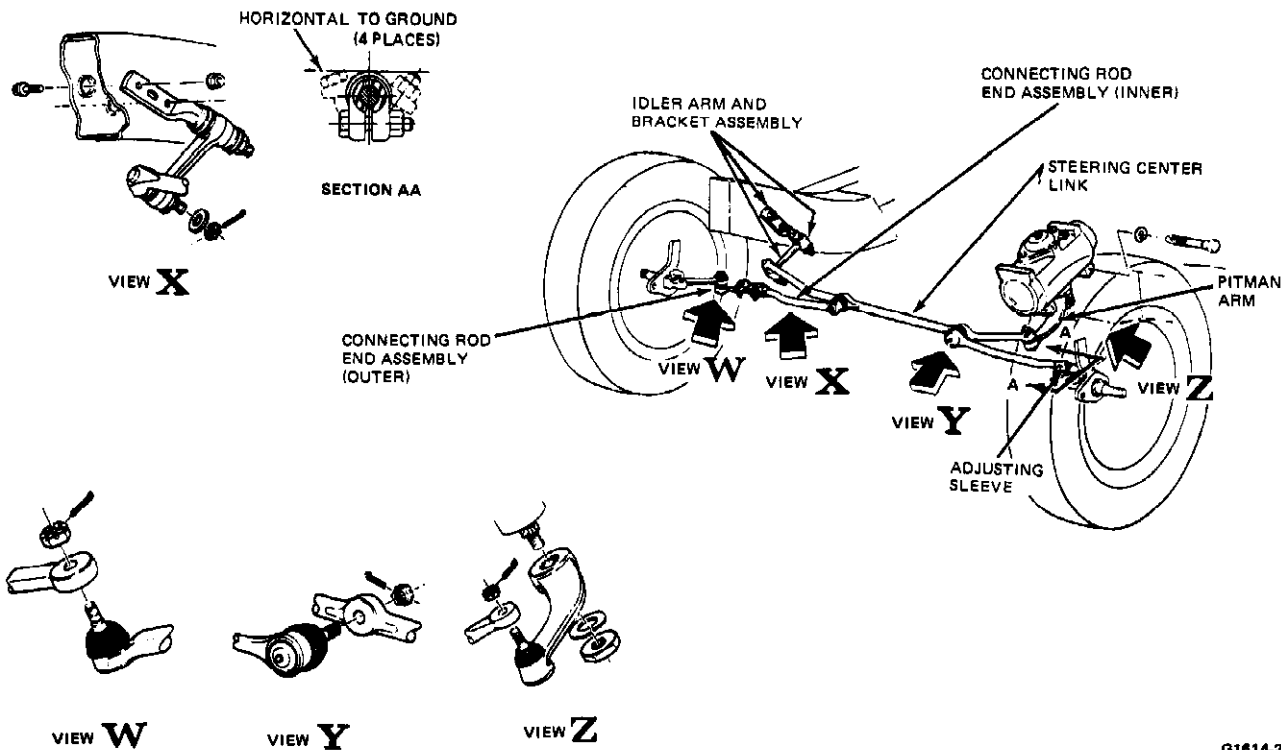
G1904-2D

FIG. 1 Manual or Power Steering Linkage—LTD II, Cougar, Thunderbird, and Continental Mark V



G2134-2C

FIG. 2 Non-Integral Power Steering Linkage—Granada, Monarch, Versailles



G1614-2F

FIG. 3 Manual or Power Steering Linkage—Ford and Mercury

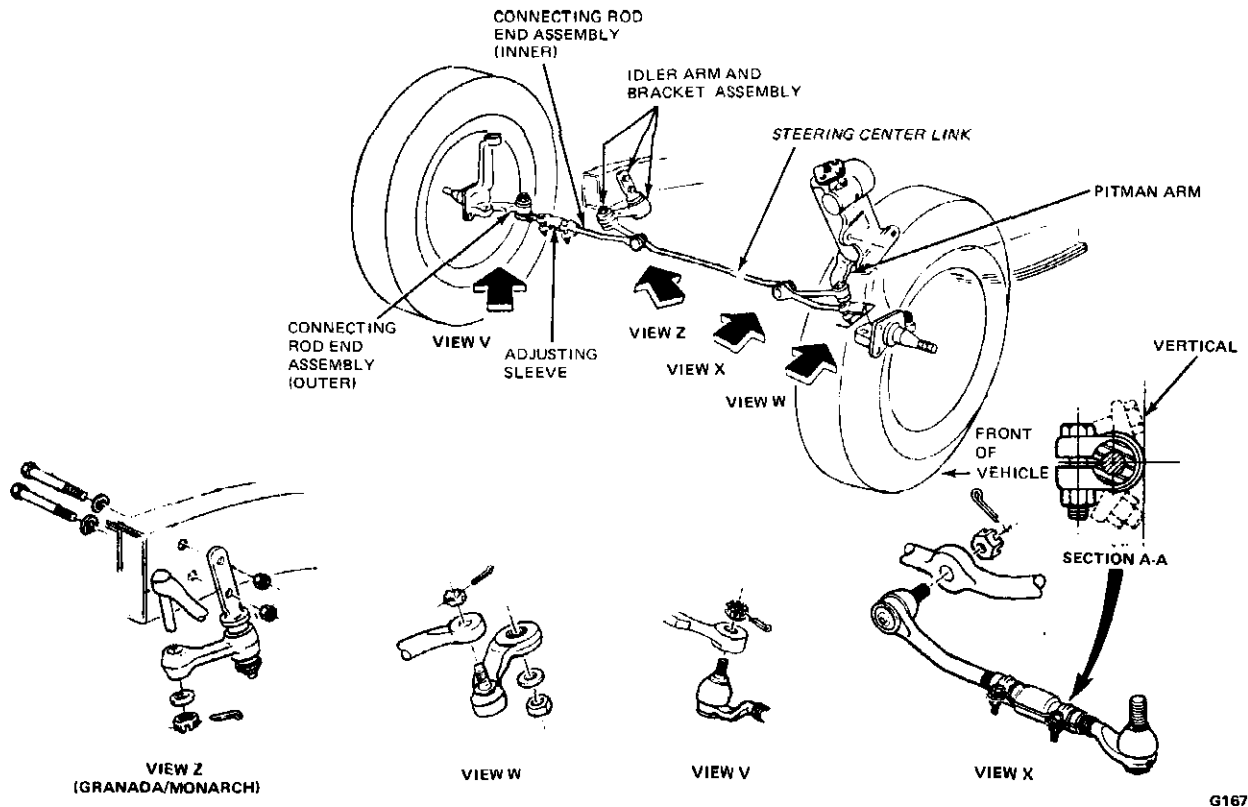


FIG. 4 Manual Steering Linkage—Granada, Monarch

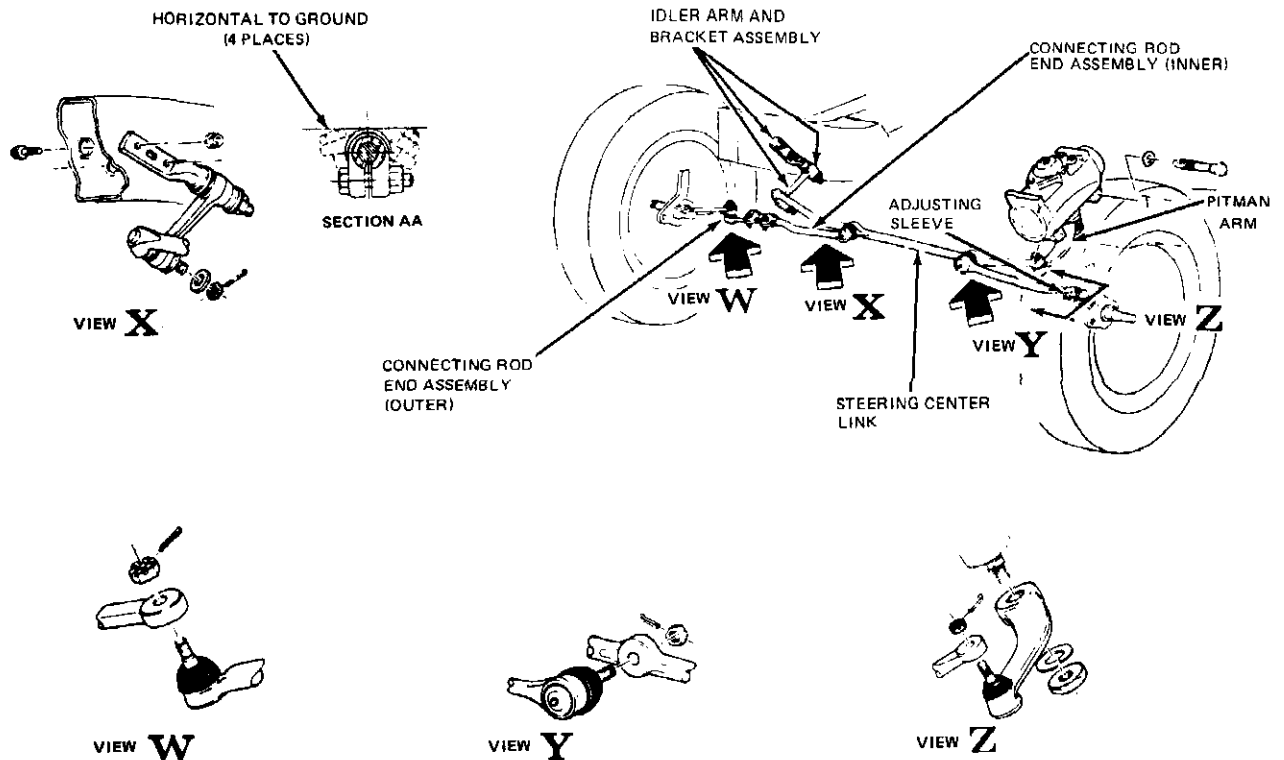


FIG. 5 Steering Linkage—Lincoln Continental

REMOVAL AND INSTALLATION

Refer to Group 11-02 for hoisting instructions.

SPINDLE CONNECTING ROD ASSEMBLY (INNER AND OUTER ENDS)

GRANADA, MONARCH AND VERSAILLES

Removal and Installation

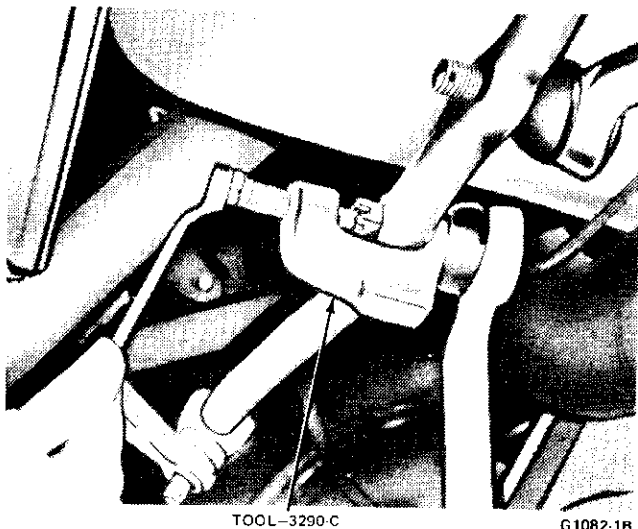
The spindle connecting rod ends, threaded into the adjusting sleeves, have non-adjustable, ball studs. When the ball studs become loose, replace each end or the entire assembly as follows:

1. Remove, and discard the cotter pin and nut from the worn rod end ball stud.
2. Disconnect the rod end from the spindle arm or center link as shown in Figs. 2 and 4.
3. Loosen the connecting rod sleeve clamp bolts, and turn the rod to remove the assembly from the sleeve. Count the number of turns required. **Discard all parts removed from the sleeve.**
4. Thread a new rod end into the sleeve, turning it the number of turns required for removal noted in Step 3. Do not tighten the sleeve clamp bolts.
5. Install a new stud and stud nut and torque to specification. Install a new cotter pin.
6. Check toe and adjust, if necessary (Part 14-01). Loosen the clamps from the sleeve. Oil the sleeve, clamps, bolts and nuts. Tighten the clamp nut to specification. Install the sleeve clamps as shown in Figs. 2 and 4 to prevent interference with the side rail and power steering valve.

FORD, MERCURY, LTD II, COUGAR, THUNDERBIRD, CONTINENTAL MARK V, AND LINCOLN CONTINENTAL

Removal and Installation

1. Raise the front end and install safety stands. Remove the cotter pin and nut from the worn rod end ball stud (Figs. 1, 3 and 5).
2. Loosen the connecting rod sleeve clamp bolts, and remove the rod end from the spindle arm center link using Tool 3290-C (Fig. 6).



TOOL-3290-C

G1082-1B

FIG. 6 Removing Ball Stud—Typical

3. Remove the rod end assembly from the sleeve, counting the number of turns required. **Discard all parts removed from the sleeve.**
4. Thread a new rod end into the sleeve, turning it the number of turns required for removal, noted in Step 3. Do not tighten the sleeve clamp bolts.
5. Install a new seal on a new rod end ball stud. Install the stud and stud nut and torque to specification. Install a new cotter pin.
6. Check toe and adjust, if necessary. Loosen the clamps from the sleeve and oil the sleeve, clamps, bolts and nuts. Position the clamps (Figs. 1, 3 and 5) and torque the nuts to specification.

ADJUSTING SLEEVE

Removal and Installation

Replace a worn or damaged adjusting sleeve as follows (Figs. 1 - 5): **Never attempt to straighten a damaged sleeve.**

1. Remove the spindle connecting rod end assemblies as described in this Part.
2. Screw the spindle rod end assembly into the new sleeve using the same number of turns required for removal. **Do not tighten the clamp bolts.**
3. Position the sleeve and end assembly on the center link and spindle arm. Install the attaching nut and torque to specification. Install the cotter pin.
4. Check toe and adjust, if necessary (Part 14-01). Loosen the clamps from the sleeve and oil the sleeve, clamps, bolts and nuts. Position the clamps (Figs. 1 - 5) and torque the clamp nuts to specification.

CENTER LINK

Replace the center link connecting the Pitman arm and the idler arm when it becomes damaged or worn at the ball studs (Figs. 1 - 5).

Removal

1. Raise the vehicle on a hoist and install safety stands.
2. Remove the cotter pins and nuts that attach the inner connecting rod ends to the center link (Figs. 1 - 5).
3. Disconnect the inner connecting rod ends from the center link using Tool 3290-C (Fig. 6).
4. Remove the cotter pin and nut that attach the idler arm to the center link.
5. Remove the cotter pin and nut that attach the Pitman arm to the center link. Disconnect the Pitman arm from the center link using Tool 3290-C, and remove the center link. On vehicles equipped with the non-integral power steering system, remove the center link from the control valve as described in Part 13-40.

Installation

1. Install new rubber seals on the spindle connecting rod ends, if required.
2. Position the center link to the Pitman arm and idler arm and loosely install the attaching nuts. Place the idler arm and the front wheels in the straight ahead

position to maintain steering wheel alignment and prevent bushing damage. Torque the nuts to the lower specification. Continue to torque the nuts until the slots in the nuts align with the holes in the stud. Install new cotter pins.

3. Place the spindle connecting rod ends on the center link and install the attaching nuts. Torque the nuts to the lower specification. Continue to torque the nuts until the slots in the nuts align with the holes in the stud. Install a new cotter pin.
4. Remove the safety stands and lower the vehicle. Check toe and adjust if necessary (Part 14-01).

IDLER ARM AND BRACKET ASSEMBLY

Removal

If the idler arm bushings are worn replace the idler arm assembly as follows:

1. Remove the cotter pin, nut and washer attaching the steering center link to the idler arm (Figs. 1 - 5).
2. Remove the bolts, nuts and washers (if equipped) that attach the idler arm and bracket assembly to the frame.

Installation

1. Loosely attach the center link to a new idler arm.
2. Install the bolts, nuts and washers that hold the idler arm and bracket assembly to the frame (Figs. 1 - 5).
3. Place the idler arm and front wheels in the straight ahead position to maintain steering wheel alignment and prevent bushing damage.
4. Install the idler arm rod nut and washer and torque to specification. Install a new cotter pin.

PITMAN ARM

Removal

1. Remove the cotter pin from the castellated nut that attaches the steering center link to the Pitman arm. Remove the castellated nut.
2. Using Tool 3290-C disconnect the steering center link from the Pitman arm.

3. Remove the Pitman arm attaching nut and lock washer.
4. Position the front wheels in the straight ahead position and remove the Pitman arm using Tool T64P-3590-F (Fig. 7).

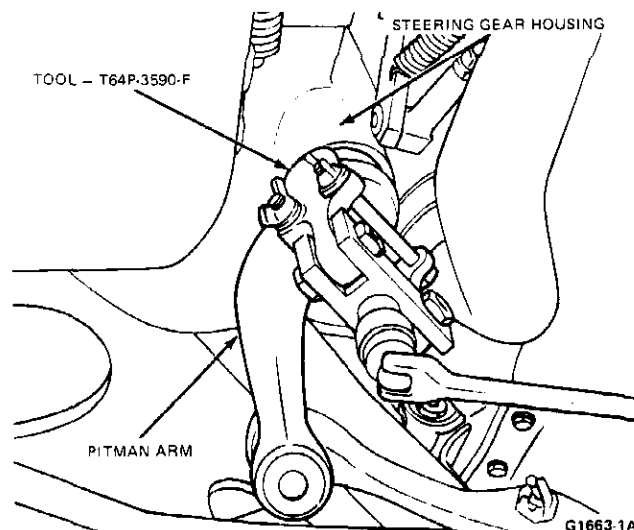


FIG. 7 Removing Pitman Arm—Typical

Installation

1. With the front wheels in the straight ahead position, place the Pitman arm, pointing forward, on the sector shaft. Align the blind tooth on the Pitman arm with the blind tooth on the sector shaft of the steering gear.
2. Install the nut and lock washer and torque to specification.
3. Install the castellated nut that attaches the steering center link to the Pitman arm and torque to specification. Install the cotter pin. **Always tighten the nut to the next castellation to align cotter pin holes.**

SPECIFICATIONS

STEERING LINKAGE TORQUE LIMITS (FT-LB)

Description	Granada/Monarch, Versailles	Other Car Lines
Power Cylinder to Center Link	43-47	
Power Cylinder to Bracket	18-24	
Power Cylinder to Bracket Lock Nut	3-5	
Cylinder Mounting Bracket to Underbody or Frame	Side Hole 36-40 Bottom Hole 40-43	
Pitman Arm to Control Valve	43-47 ①	
Connecting Rod End (Outer) to Spindle Arm	43-47 ①	43-47 ①
Center Link to Idler Arm	77-85 ①	53-70 ①
Pitman Arm to Center Link	43-47 ①	43-47 ①
Connecting Rod End (Inner) to Center Link	43-47 ①	43-47 ①
Pitman Arm to Sector Shaft	200-225	236-250
Steering Gear to Side Rail or Frame	60-65	60-65
Idler Arm Bracket to Frame or Underbody	60-65	45-50
Connecting Rod Clamp to Adjusting Sleeve	20-22	20-22

① Torque to low limit of specification; then, tighten the nut to the nearest cotter pin slot and insert the cotter pin.

SPECIAL SERVICE TOOLS

Tool No.	Description
T00L-3290-C	Tie Rod Ball Ends and Control Valve Ball Stud Remover
T64P-3590-F	Steering Pitman Arm Remover

Manual Steering Gear— Worm and Recirculating Ball

**PART
13-30**

Applies To Granada/Monarch/Versailles

SUBJECT	PAGE	SUBJECT	PAGE
ADJUSTMENT		REMOVAL AND INSTALLATION	
Worm and Sector	30-2	Steering Gear	30-2
DESCRIPTION		SPECIFICATIONS	30-5
Steering Gear	30-1		
DISASSEMBLY AND ASSEMBLY			
Steering Gear	30-3		

CG2407-2A

DESCRIPTION

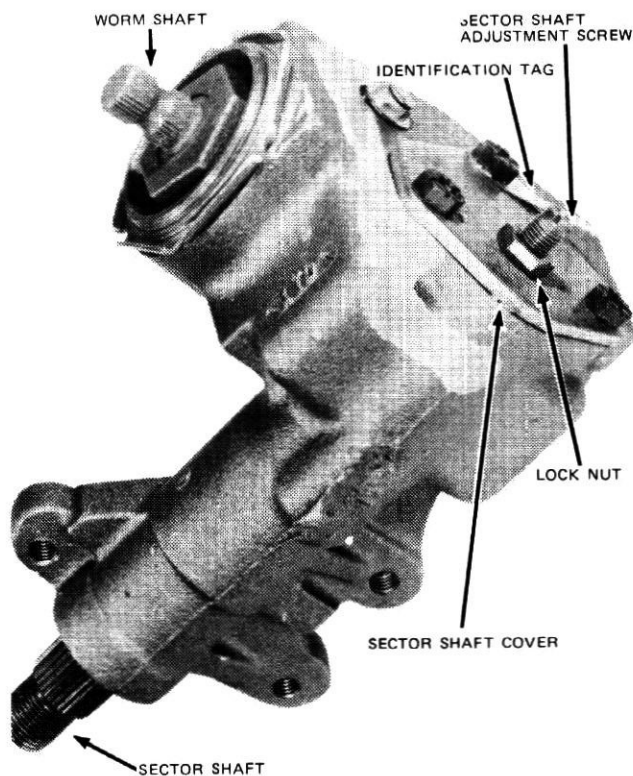
STEERING GEAR

The steering gear (Fig. 1) is of the worm and recirculating ball type. The sector shaft is mounted between two needle roller bearings in the housing below the gear.

Worm bearing preload is controlled by a large adjusting nut threaded into the housing. Sector shaft mesh load is controlled by an adjusting screw in the housing cover.

The steering linkage consists of the Pitman arm, steering-arm-to-idler arm rod, idler arm, and spindle connecting rods (tie rods).

The steering gear identification tag is attached under the middle cover-to-housing attaching bolt.


 G1625-1^C
FIG. 1 Manual Steering Gear