

ALL MODELS

GENERAL INFORMATION

All steering component fasteners are made of special quality materials. Replacement fasteners must be of same part number or equivalent. Do not weld, heat or bend steering linkage to repair or straighten. Torque all fasteners to specification and install new cotter pins. When installing cotter pins, do not back off castellated nuts to align cotter pin hole, tighten nut to lower specified torque; then tighten nut to next slot that lines up with stud hole. Do not hammer on ball studs or damage to threads may result. Threads should be clean and lightly lubricated with oil before being tightened.

REMOVAL & INSTALLATION

TIE RODS

Removal — Raise vehicle and remove cotter pins and nuts from ball studs. Use a suitable puller to separate ball studs from steering knuckle and center cross link. To remove tie rod ends from adjuster sleeve, remove clamp bolts and unscrew end assemblies.

NOTE — If sleeve adjuster clamp bolts are rusted, it is recommended that if torque required to remove nut from bolt after breakaway exceeds 7 ft. lbs., discard nuts and bolts.

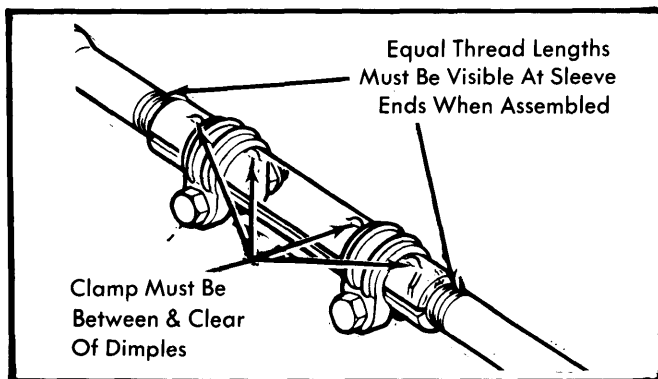


Fig. 1 Tie Rod Clamps Between Dimples (General Motors Shown).

Installation — If tie rod ends were removed, apply penetrating oil to clamps, tie rod threads and sleeve. Wipe threads clean and lubricate with EP chassis lube. Place sleeve clamps in position and thread tie rod ends an equal distance into sleeve. Install tie rod assembly, castellated nuts and new

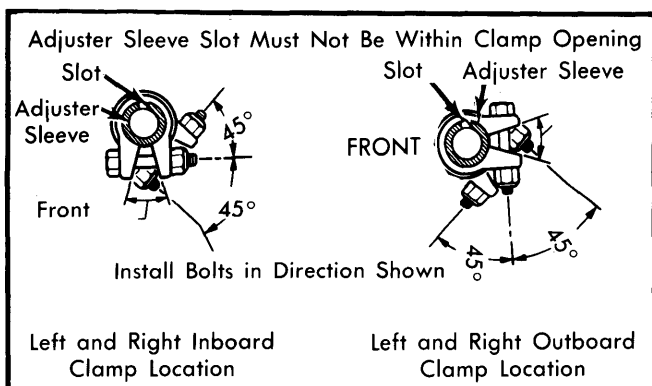


Fig. 2 Tie Rod Clamp Positioning (Corvette)

cotter pins. Rotate tie rod ends rearward to limit of ball stud travel, then position sleeve clamps and tighten bolts. Lower vehicle and adjust toe-in. See *Wheel Alignment Specifications & Procedures* in WHEEL ALIGNMENT Section.

CENTER LINK

Removal — Raise vehicle and disconnect inner tie rod ends using a suitable puller. Disconnect center link ball studs from pitman arm and idler arm using suitable puller and remove center link.

Installation — Connect center link to idler arm, making certain idler stud seal is in place, then tighten nut. Install end of rod in pitman arm, and tighten nut. Install tie rod ends, tighten nuts and install new cotter pins. Lower vehicle and adjust toe-in. See *Wheel Alignment Specifications & Procedures* in WHEEL ALIGNMENT Section.

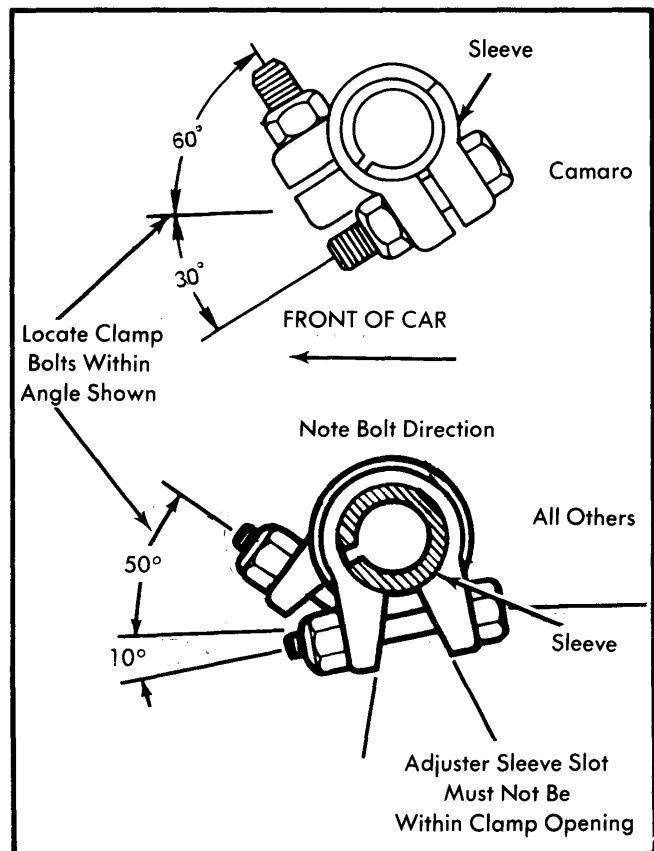


Fig. 3 Tie Rod Clamp Positioning (Buick, Pontiac, Chevrolet)

IDLER ARM

Removal — 1) Raise vehicle and disconnect center link from idler arm. Remove two bolts attaching idler arm support to frame (note bolt direction).

NOTE — If idler arm support is disconnected from frame for other work, wire support to idler arm to prevent rotation if equipped with a threaded bushing (G.M. Saginaw linkage types).

2) Maximum allowable lash or vertical deflection of relay rod end of idler lever is $\frac{1}{8}$ " when a 25 lb. load is applied at that point. Replace assembly if deflection is more than $\frac{1}{8}$ ".

Steering Linkage

ALL MODELS (Cont.)

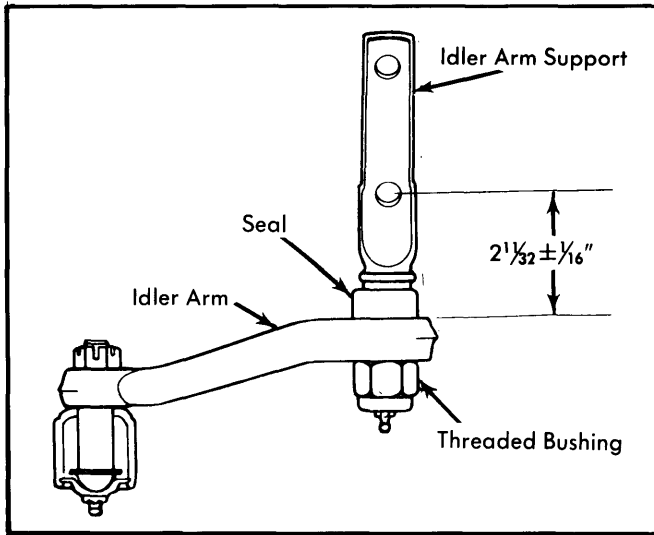


Fig. 4 Idler Arm Location
(General Motors with Threaded Bushing)

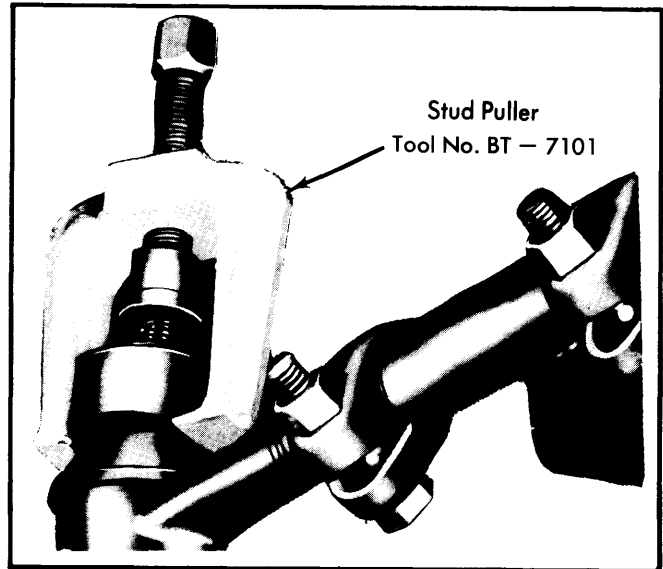


Fig. 6 Steering Linkage Ball Stud Removal

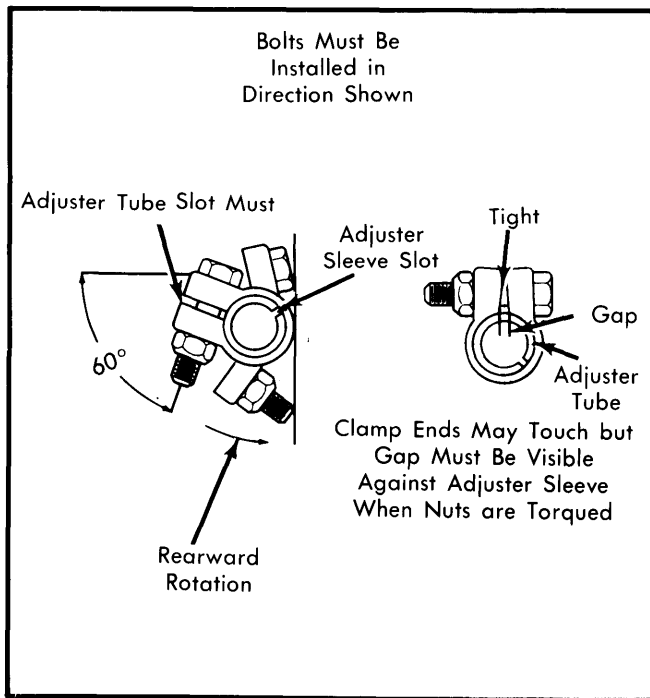


Fig. 5 Tie Rod Clamp Positioning
(Eldorado, Seville, Riviera and Toronado)

Installation — To install idler arm, reverse removal procedure and note the following: With General Motors Saginaw Linkage with threaded bushing idler arm, an adjustment is required for proper location of idler arm on its support. Idler arm ball socket will be level with pitman arm ball socket. The support must be threaded into idler arm bushing until distance from center of bolt hole to top of idler arm boss is as shown in Fig. 4. When idler arm is installed on support, it must be free to rotate a minimum of 90° in both directions from straight ahead.

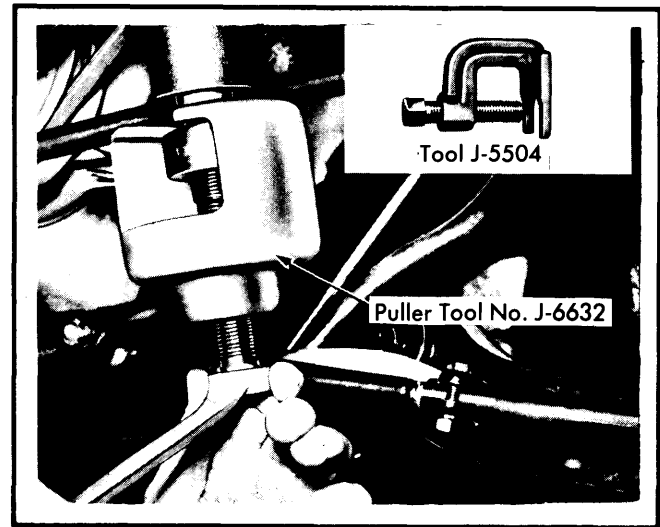


Fig. 7 Steering Gear Pitman Arm Removal

PITMAN ARM

Removal — 1) Raise vehicle and mark position of pitman arm to steering shaft relationship. Remove cross link ball stud cotter pin and nut. Using suitable puller, disconnect cross link from pitman arm.

2) On Eldorado, Seville, Riviera and Toronado models, it is necessary to disconnect and/or remove steering gear from its mounting before removing pitman arm. Remove pitman arm retaining nut and lock washer. Install suitable puller and remove pitman arm.

NOTE — DO NOT hammer on end of puller as damage to steering gear components may result.

Installation — To install pitman arm, reverse removal procedure and tighten nuts as required.

ALL MODELS (Cont.)

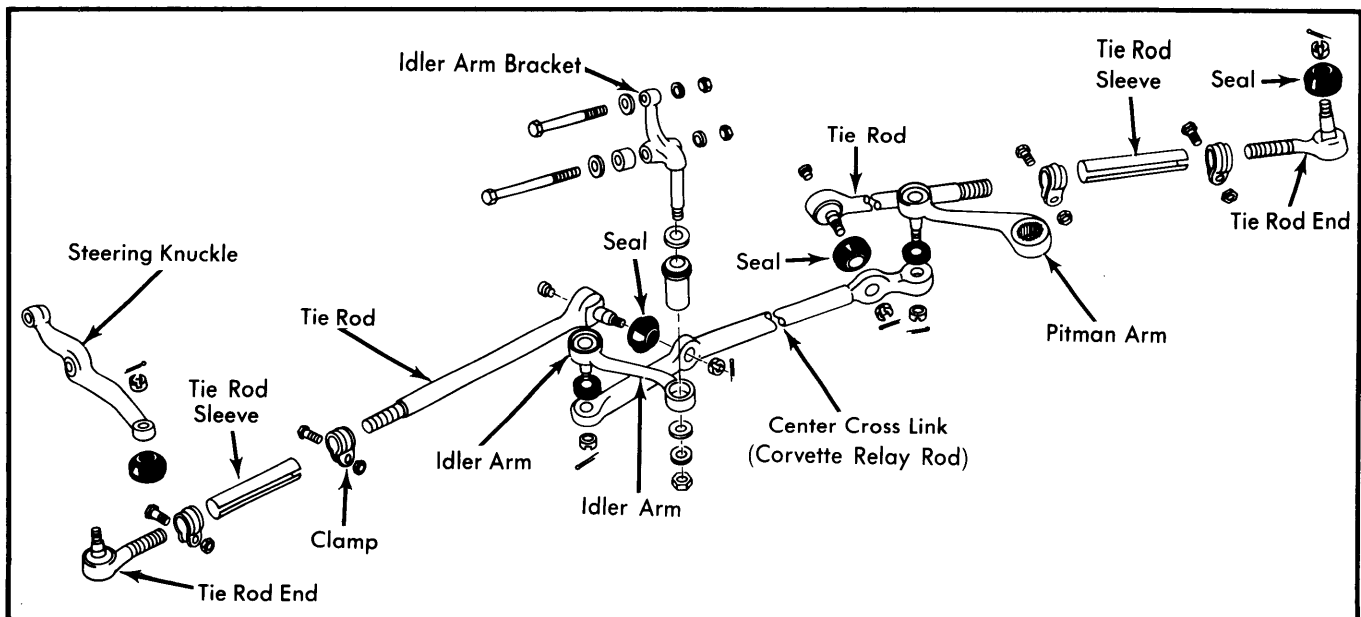


Fig. 8 Exploded View of Typical Steering Linkage

TIGHTENING SPECIFICATIONS

Application

Ft. Lbs.

Application

Ft. Lbs.

AMERICAN MOTORS

Pitman Arm-to-Steering Gear	①115
Idler Arm-to-Support	
Spirit & Concord	50
Eagle	65
Idler Arm-to-Cross Link	40
Tie Rod-to-Steering Knuckle	35
Tie Rod Clamps	14
Steering Damper-to-Center Link (Eagle)	37

CHRYSLER CORP.

Pitman Arm-to-Steering Gear	175
Idler Arm-to-Support	65-78
Pitman Arm-to-Cross Link	40
Idler Arm-to-Cross Link	40
Tie Rod-to-Steering Knuckle	40
Tie Rod-to-Cross Link	40
Tie Rod Clamps	13

FORD MOTOR CO.②

Pitman Arm-to-Steering Gear	236-250
Idler Arm-to-Support	85-95
Pitman Arm-to-Cross Link	43-47
Idler Arm-to-Cross Link	70-70
Tie Rod-to-Steering Knuckle	43-47
Tie Rod-to-Cross Link	43-47
Tie Rod Clamps	28-29

GENERAL MOTORS②

Pitman Arm-to-Steering Gear (All)	185
Idler Arm-to-Support	
Buick	50
Cadillac	
Eldorado & Seville	95
All Others	50
Chevrolet	
Corvette	40
All Others	60
Oldsmobile	60
Pontiac	60
Pitman Arm-to-Cross Link	
Buick	45
Cadillac	
Eldorado & Seville	60
All Others	45
Chevrolet	
Corvette	45
All Others	40
Oldsmobile	
Toronado	60
All Others	45
Pontiac	40
Idler Arm-to-Cross Link	
Buick	
Riviera	50
All Others	35

- ① — Nut must be staked to threads in at least 2 places.
 ② — Torque to low limit, then tighten to nearest cotter pin hole. Do not exceed 1/6 turn.

Steering Linkage

ALL MODELS (Cont.)

TIGHTENING SPECIFICATIONS (Cont.)			
Application	Ft. Lbs.	Application	Ft. Lbs.
GENERAL MOTORS (Cont.)		GENERAL MOTORS (Cont.)	
Cadillac		Oldsmobile	
Eldorado & Seville	60	Toronado	60
All Others	35	All Others	45
Chevrolet		Pontiac	40
Corvette	35	Tie Rod Clamp	
All Others	40	Corvette	11
Oldsmobile		All Other GM Models	15
Toronado	60	Tie Rod-to-Steering Knuckle	
All Others	35	Buick	35
Pontiac	40	Cadillac	
Tie Rod-to-Cross Link		Eldorado & Seville	40
Buick		All Others	35
Riviera	60	Chevrolet	40
All Others	35	Oldsmobile	35
Cadillac		Pontiac	35
Eldorado & Seville	60	Power Cylinder-to-Relay Rod	
All Others	40	(Corvette Only)	45
Chevrolet	40		