

## ALL MODELS

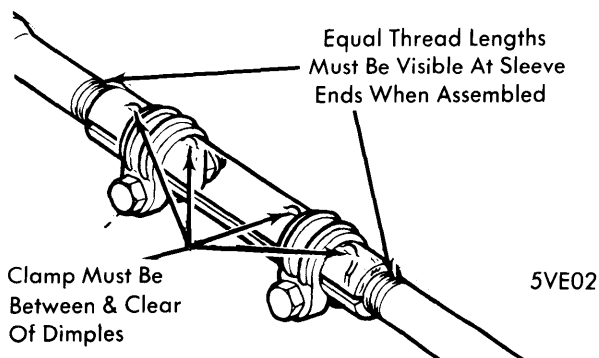
### GENERAL INFORMATION

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

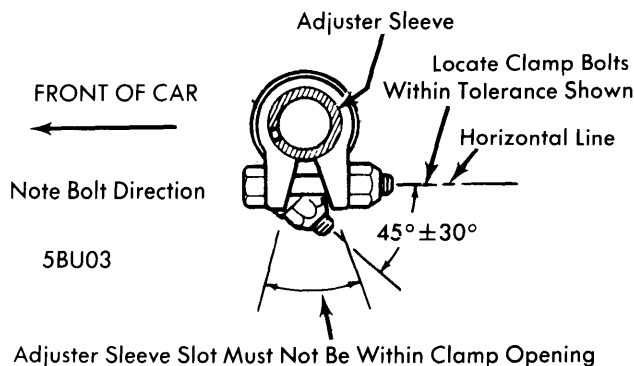
#### TIE RODS

**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.



**TIE ROD CLAMPS BETWEEN DIMPLES (TYPICAL)  
(GENERAL MOTOR'S 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



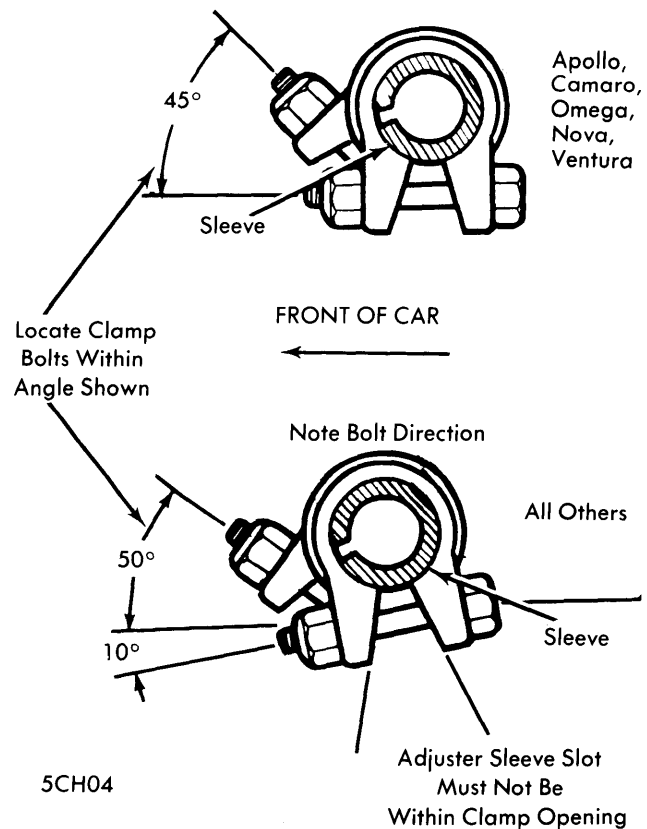
**TIE ROD CLAMP POSITIONING ("H" SERIES)  
(ASTRE, MONZA, SKYHAWK, STARFIRE & VEGA)**

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.



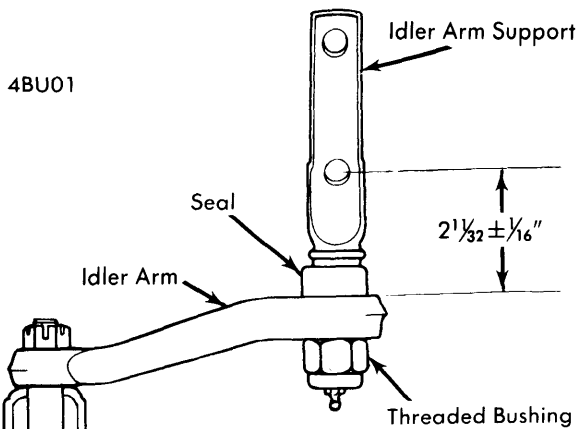
**TIE ROD CLAMP POSITIONING (GENERAL MOTORS)  
(EXC. "H" SERIES, ELDORADO & TORONADO)**

#### IDLER ARM

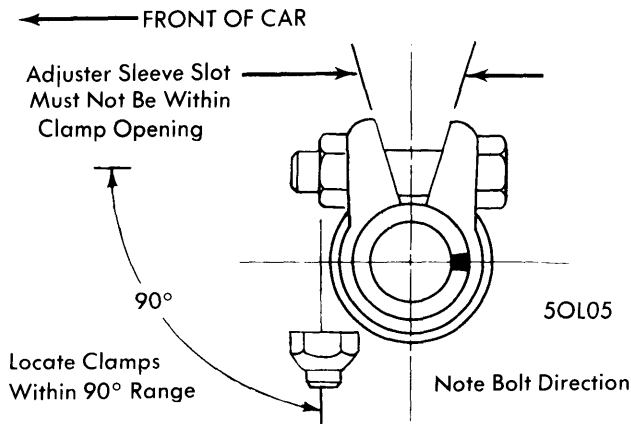
**Removal** — Raise vehicle and disconnect center link from idler arm. Remove two bolts attaching idler arm support to frame (note bolt direction). **NOTE** — If idler arm support is disconnected from frame for other work, wire support to idler arm to prevent rotation if equipped with a threaded bushing (G.M. Saginaw linkage types). 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

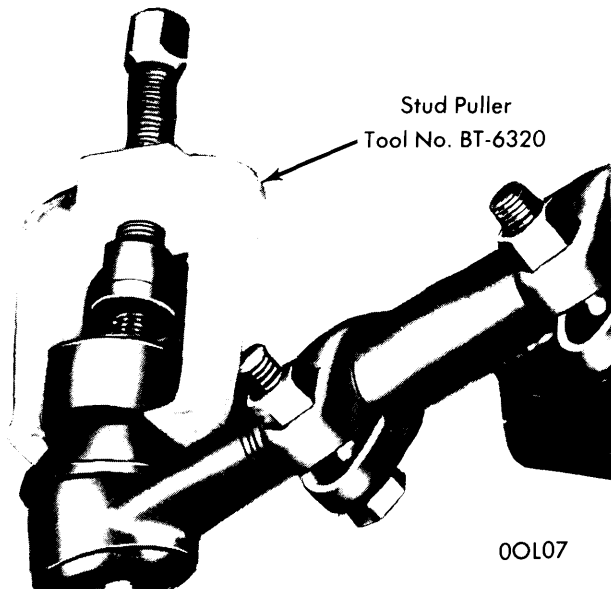
## ALL MODELS (Cont.)



**IDLER ARM LOCATION  
(GENERAL MOTORS WITH THREADED BUSHING)**

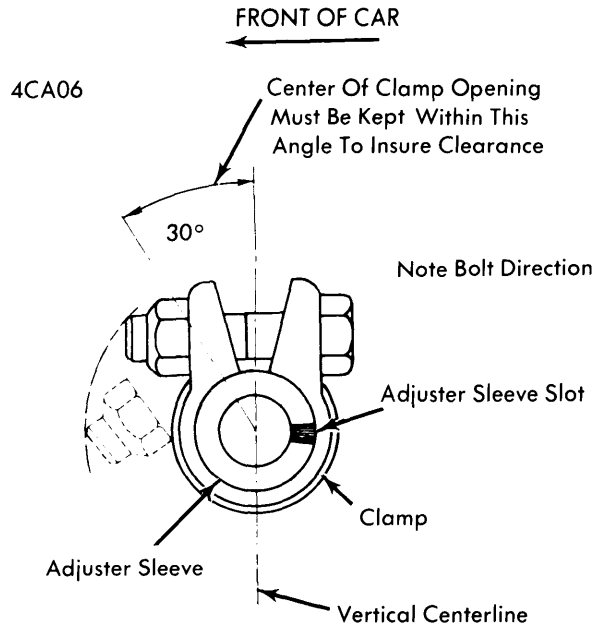


**TIE ROD CLAMP POSITIONING (TORONADO)**

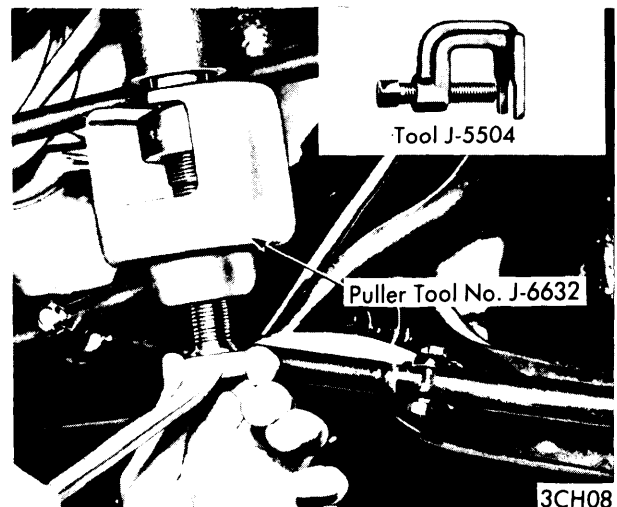


**STEERING LINKAGE BALL STUD REMOVAL**

**Installation** — To install idler arm, reverse removal procedure and note following: With General Motors Saginaw linkage with threaded bushing idler arm, an adjustment is required for proper location of idler arm on its support so 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 illustration. When idler arm is installed on support, it must be free to rotate a minimum of 90° in both directions from straight ahead.



**TIE ROD CLAMP POSITIONING (ELDORADO)**



**STEERING GEAR PITMAN ARM REMOVAL**

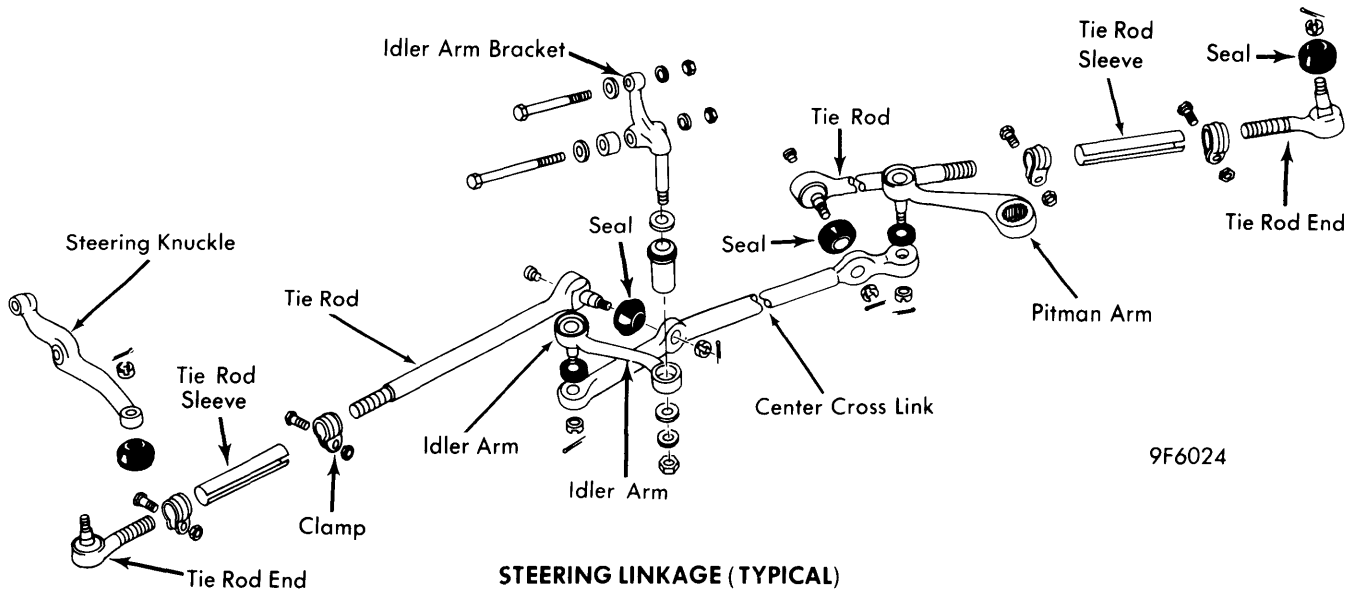
## ALL MODELS (Cont.)

### PITMAN ARM

**Removal** – 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. With Eldorado and Toronado front wheel drive 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 or damage to steering gear components may result.

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



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### TIGHTENING SPECIFICATIONS

#### AMERICAN MOTORS

Application	Ft. Lbs.
Pitman Arm-to-Steering Gear .....	115
Idler Arm-to-Support .....	50
Pitman Arm-to-Cross Link .....	35
Idler Arm-to-Cross Link .....	55
Tie Rod-to-Steering Knuckle	
Pacer .....	50
All Others .....	35
Tie Rod-to-Cross Link.....	35
Tie Rod Clamps	
Pacer .....	20
All Others .....	12

#### CHRYSLER CORP.

Application	Ft. Lbs.
Pitman Arm-to-Steering Gear .....	175
Idler Arm-to-Support .....	65-70
Pitman Arm-to-Cross Link .....	40
Idler Arm-to-Cross Link .....	40
Tie Rod-to-Steering Knuckle .....	40

#### CHRYSLER CORP. (Cont.)

Application	Ft. Lbs.
Tie Rod-to-Cross Link.....	40
Tie Rod Clamps.....	200 INCH Lbs.

#### FORD MOTOR CO.

Application	Ft. Lbs.
Pitman Arm-to-Steering Gear .....	200-225
Idler Arm-to-Support	
Comet, Granada, Maverick, Monarch .....	60-65
All Others .....	45-50
Pitman Arm-to-Cross Link.....	⓪43-47
Idler Arm-to-Cross Link	
Comet, Granada, Maverick, Monarch .....	⓪77-85
All Others .....	⓪53-70
Tie Rod-to-Steering Knuckle .....	⓪43-47
Tie Rod-to-Cross Link.....	⓪43-47
Tie Rod Clamps.....	20-22

⓪ – Torque to low limit, then tighten nut to nearest cotter pin hole.

# Steering Linkage

## ALL MODELS (Cont.)

### TIGHTENING SPECIFICATIONS

#### GENERAL MOTORS

Application	Ft. Lbs.	Application	Ft. Lbs.
<b>Pitman Arm-to-Steering Gear</b>			
Buick			
Skyhawk With Manual Steering .....	80-105	Idle Arm-to-Cross Link	
Skyhawk With Power Steering .....	120-160	Buick.....	④30-40
All Others .....	160-210	Cadillac	
Cadillac.....	185	Eldorado .....	③60
Chevrolet			
Monza & Vega 4 Cyl. ....	140	Seville.....	①35
All Others .....	185	All Others .....	②40
Oldsmobile			
Starfire With Manual Steering .....	105	Chevrolet.....	①35
Starfire With Power Steering .....	160	Oldsmobile	
All Others .....	210	88, 98 & Toronado .....	45
Pontiac			
Astre, Sunbird With Man. Steering.....	93	All Others .....	50
Astre, Sunbird With Pow. Steering .....	140	Pontiac .....	②35-40
All Others .....	180	<b>Tie Rod-to-Steering Knuckle</b>	
<b>Idle Arm-to-Support</b>			
Buick			
Skyhawk.....	25-35	Buick.....	④30-40
All Others .....	45-55	Cadillac	
Cadillac			
Eldorado .....	95	Seville.....	35
Seville.....	50	All Others .....	37
All Others .....	35	Chevrolet.....	①35
Chevrolet			
Corvette, Monza & Vega .....	30	Oldsmobile .....	②40
All Others .....	50	Pontiac .....	①35
Oldsmobile			
Toronado.....	110	<b>Tie Rod-to-Cross Link</b>	
Starfire .....	35	Buick	
All Others .....	45-55	Century.....	②30-50
Pontiac			
Astre & Sunbird .....	30	All Others .....	③50-70
All Others .....	40	Cadillac	
Pitman Arm-to-Cross Link			
Buick.....	②40-50	Seville.....	①35
Cadillac			
Eldorado .....	③60	All Others .....	③60
Seville.....	①35	Chevrolet.....	①35
All Others .....	②45	Oldsmobile	
Chevrolet			
Monza & Vega.....	①35	88, 98 & Toronado .....	70
All Others .....	②45	All Others .....	50
Oldsmobile			
Toronado.....	85	Pontiac	
Starfire .....	50	Astre, Sunbird, LeMans, Grand Am	
All Others .....	55	& Grand Prix .....	②35-40
Pontiac			
Astre & Sunbird .....	①35	All Others .....	③60
All Others .....	②45	<b>Tie Rod Clamps</b>	
Buick			
Skyhawk.....			
All Others .....			
Cadillac.....			
Chevrolet			
Corvette, Monza & Vega .....			
All Others .....			
Oldsmobile			
88, 98 & Toronado .....			
All Others .....			
Pontiac			
Astre & Sunbird .....			
All Others .....			

- ① — Plus additional torque required to align nut slot with cotter pin hole (not to exceed 50 ft. lbs.).
- ② — Plus additional torque required to align nut slot with cotter pin hole (not to exceed 55 ft. lbs.).

- ③ — Plus additional torque required to align nut slot with cotter pin hole (not to exceed 85 ft. lbs.).
- ④ — Plus additional torque required to align nut slot with cotter pin hole (not to exceed 45 ft. lbs.).