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.*

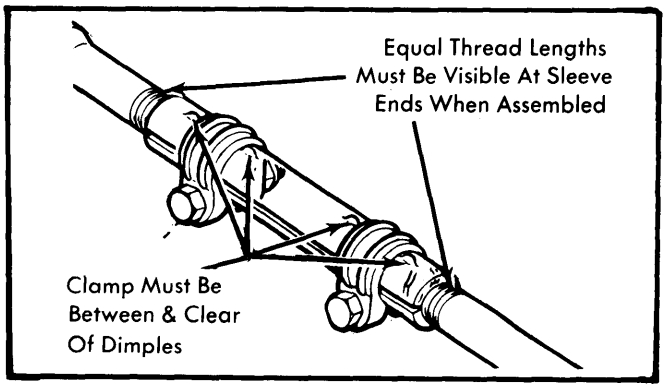

Fig. 1 Tie Rod Clamps Between Dimples (General Motors Shown).

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 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.*

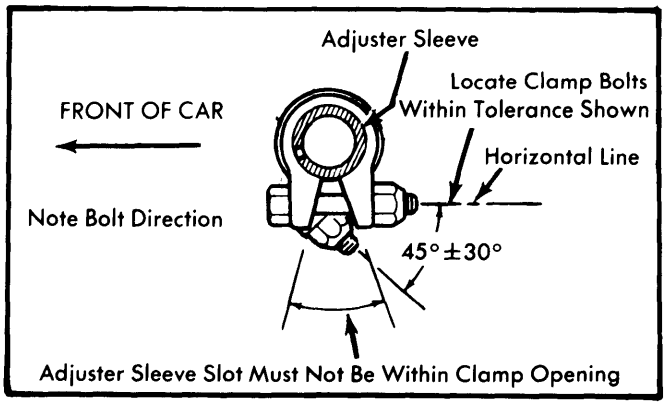

Fig. 2 Tie Rod Clamp Positioning (Monza, Skyhawk, Starfire)

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.*

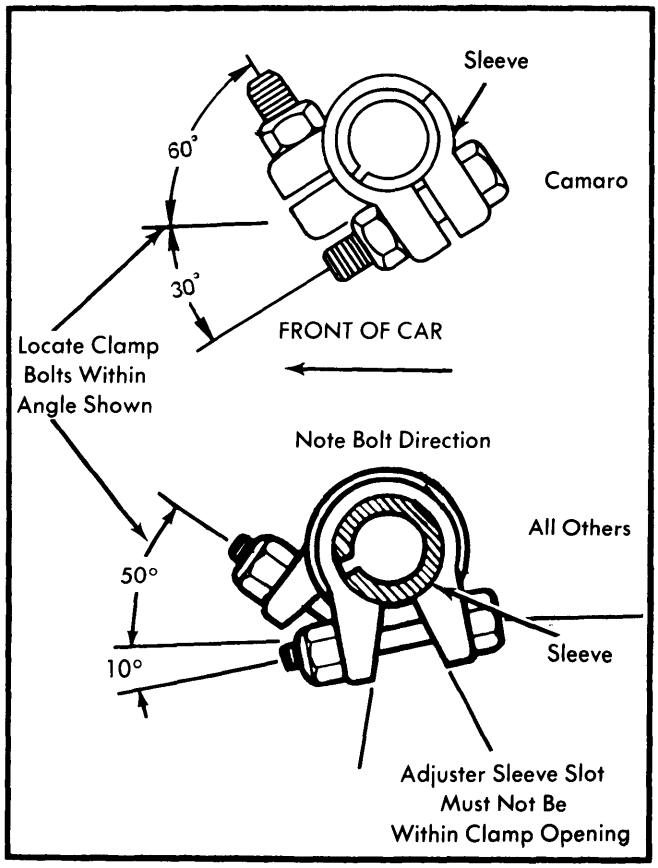

Fig. 3 Tie Rod Clamp Positioning (Buick, Pontiac, Chevrolet)

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 1/8" when a 25 lb. load is applied at that point. Replace assembly if deflection is more than 1/8".

ALL MODELS (Cont.)

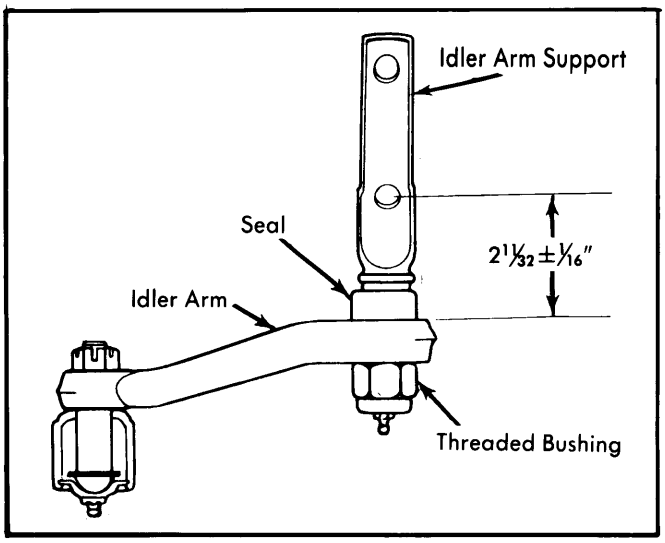

Fig. 4 Idler Arm Location (General Motors with Threaded Bushing)

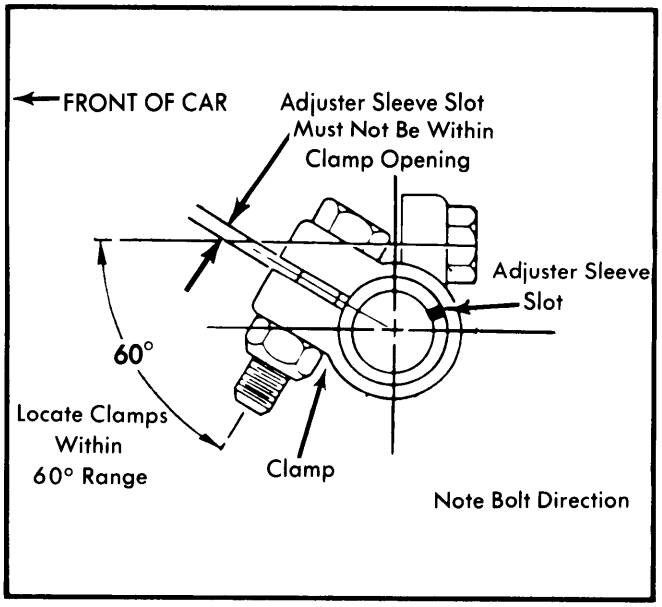

Fig. 5 Tie Rod Clamp Positioning Eldorado, Riviera, Toronado

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.

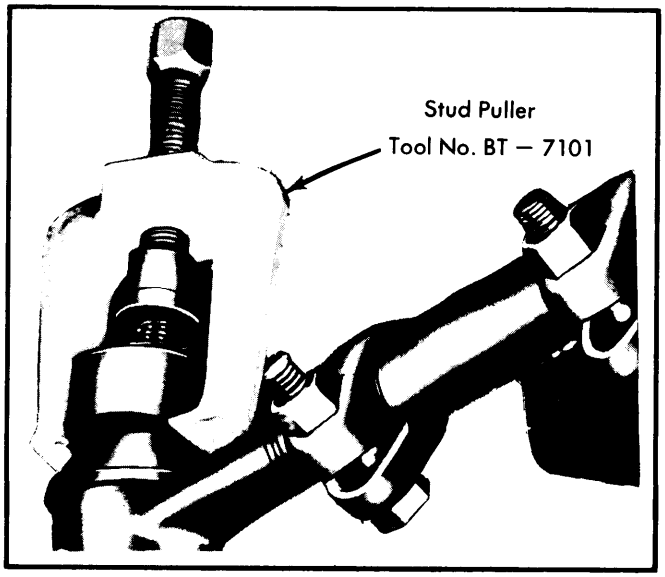

Fig. 6 Steering Linkage Ball Stud Removal

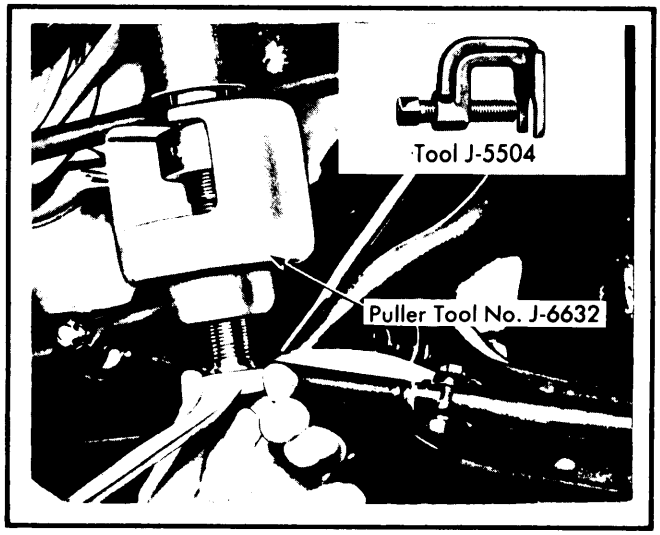

Fig. 7 Steering Gear Pitman Arm Removal

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.)

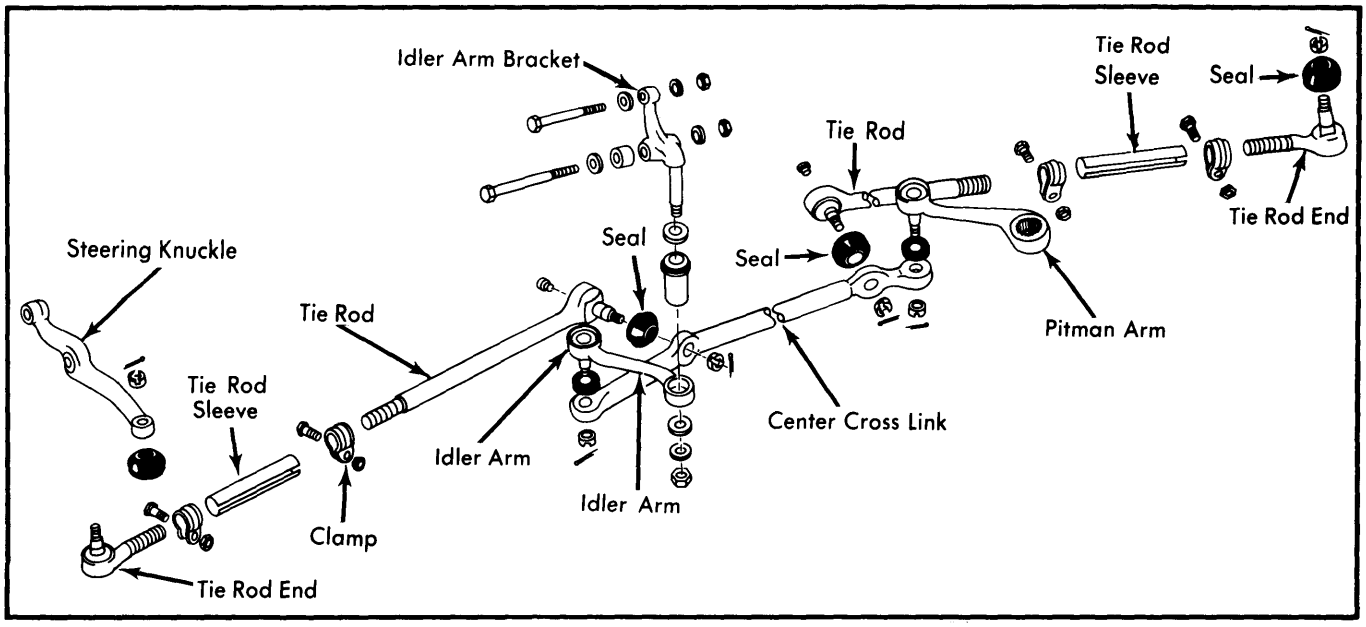

Fig. 8 Exploded View of Steering Linkage

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
AMERICAN MOTORS	
Pitman Arm-to-Steering Gear	85
Idler Arm-to-Support	50
Pitman Arm-to-Cross Link	40
Idler Arm-to-Cross Link	40
Tie Rod-to-Steering Knuckle	
Pacer	50
All Others	35
Tie Rod-to-Cross Link	40
Tie Rod Clamps	
Pacer	20
All Others	14
CHRYSLER CORP.	
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
Tie Rod-to-Cross Link	40
Tie Rod Clamps	13
FORD MOTOR CO.	
Pitman Arm-to-Steering Gear	
Granada, Monarch, Versailles	③200-225
Others	236-250
Idler Arm-to-Support	
Granada, Monarch, Versailles	60-65
All Others	85-95
Pitman Arm-to Cross Link	③43-47
Idler Arm-to-Cross Link	
Granada, Monarch, Versailles	③77-85
Others	③53-70

Application	Ft. Lbs.
FORD MOTOR CO. (Cont.)	
Tie Rod-to-Steering Knuckle	③43-47
Tie Rod-to-Cross Link	③43-47
Tie Rod Clamps	20-22
GENERAL MOTORS	
Pitman Arm-to-Steering Gear	
Buick	
Skylark (Manual)	①140
All Others	①185
Cadillac	
All	②185
Chevrolet	
Monza	①168
All Others	①180
Oldsmobile	
All	②180
Pontiac	
Sunbird	184
All Others	140
Idler Arm-to-Support	
Buick	
Electra, LeSabre & Century	①61
Skylark	②30

① – Align castellated nut with hole without loosening nut. Do not exceed 50 ft. lbs.
② – Do not loosen nut to install cotter pin, turn to next hole.
③ – Torque to low limit, then tighten nut to nearest cotter pin hole.

ALL MODELS (Cont.)

TIGHTENING SPECIFICATIONS (Cont.)

Application	Ft. Lbs.
GENERAL MOTORS (Cont.)	
Cadillac	
Eldorado & Seville	②95
All Others	②50
Chevrolet	
Corvette & Monza	30
All Others	60
Oldsmobile	
Starfire	②30
All Others	②60
Pontiac	
LeMans, Firbird & Phoenix	50
Sunbird	30
Bonneville	61
Pitman Arm-to-Cross Link	
Buick	
All	45
Cadillac	
Eldorado & Seville	②60
All Others	②45
Chevrolet	
Monza	①35
All Others	①40
Oldsmobile	
All	40
Pontiac	
All	③45
Idler Arm-to-Cross Link	
Buick	
All	③35
Cadillac	
Eldorado & Seville	②60
All Others	②35
Chevrolet	
All	①40
Oldsmobile	
All	②40
Pontiac	
All	③35

Application	Ft. Lbs.
GENERAL MOTORS (Cont.)	
Tie Rod-to-Cross Link	
Buick	
All	②40
Cadillac	
Eldorado & Seville	②60
All Others	②40
Chevrolet	
All	①40
Oldsmobile	
All	②40
Pontiac	
Sunbird, LeMans & Grand Prix	③40
All Others	③60
Tie Rod Clamps	
Buick	
All	14
Cadillac	
All	14
Chevrolet	
Corvette	11
All Others	14
Oldsmobile	
All	14
Pontiac	
All	14

① — Align castellated nut with hole without loosening nut. Do not exceed 50 ft. lbs.

② — Do not loosen nut to install cotter pin, turn to next hole.

③ — Maximum of $1/6$ turn to align cotter pin hole. Do not back off nut to insert cotter pin.