

at curb height, torque the lower arm inner pivot nut to specification.

10. If the lower arm is being replaced due to accidental damage, check the caster, camber, and toe-in and adjust as required (Part 14-01).

UPPER ARM

Removal

1. Raise the front of the vehicle and position safety stands under both sides of the frame just back of the lower arm.
2. Remove the hub cap or wheel cover.
3. Remove the wheel and tire from the hub. See Group 11.
4. Remove the cotter pin from the upper ball joint stud nut.
5. Loosen the upper ball joint stud nut one or two turns. **Do not remove the nut from the stud at this time.**
6. Install Tool T57P-3006-B (for all except Pinto, Bobcat and Mustang) or T74P-3006-A (for Pinto, Bobcat and Mustang) between the upper and lower ball joint studs with the adapter screw on top (Fig. 4). See tool application at the end of this Part under Specifications. **The tool should be seated firmly against the ends of both studs and not against the nuts or lower stud cotter pin.**
7. With a wrench, turn the adapter screw until the tool places the stud under compression. Tap the spindle near the upper stud with a hammer to loosen the stud in the spindle. **Do not loosen the stud from the spindle with tool pressure only. Do not contact the boot seal with the hammer.**
8. Remove the tool from between the ball joint studs and place a floor jack under the lower arm.
9. Raise the floor jack to relieve the pressure from the upper ball joint stud nut and remove the nut.
10. Remove the upper arm inner shaft attaching bolts. Remove the upper arm inner shaft as an assembly.
11. Remove the bumper from the upper arm. (Pinto, Bobcat and Mustang do not have a bumper at this location)

Installation

1. Position the bumper (except Pinto, Bobcat and Mustang) to the upper arm and install the nut. Torque the nut to specification.
2. Position the upper arm inner shaft to the frame bracket, and install the two attaching bolts and washers to a snug fit. (Pinto, Bobcat and Mustang are not equipped with washers.)
3. Connect the upper ball joint stud to the spindle and install the attaching nut. Torque the nut to specification and **continue to tighten** the nut until the cotter pin hole in the stud is in line with the nut slots. Then, install the cotter pin.
4. Install the wheel and tire on the hub and adjust the wheel bearings as outlined in Part 11-10.
5. Install the hub cap or wheel cover.
6. Remove the safety stands and lower the front of the vehicle.
7. Adjust caster, camber, and toe-in to specification.

FRONT WHEEL SPINDLE

Removal

1. Raise the vehicle and position safety stands.
2. Remove the two bolts attaching the caliper anchor plate assembly to the spindle. Remove the caliper anchor plate assembly from the rotor (Group 12) and wire it to the underbody to prevent damage to the brake hose.
3. Remove the grease cap from the hub; then, remove the cotter pin, nut lock, adjusting nut, washer, and outer bearing cone and roller assembly.
4. Pull the hub and rotor assembly off the wheel spindle (Group 11).
5. Remove the three caliper shield attaching bolts and remove the shield.
6. Disconnect the spindle connecting rod end from the spindle arm using Tool-3290-C.
7. Remove the cotter pins from both ball joint stud nuts, and loosen the nuts one or two turns. Do not remove the nuts from the studs at this time.
8. Position the ball joint remover tool between the upper and lower ball joint studs. **The tool should seat firmly against the ends of both studs and not against the stud nuts.**
9. Turn the tool with a wrench until the tool places the studs under considerable compression, and, with a hammer, sharply hit the spindle near the studs to break them loose in the spindle. **Do not loosen the studs in the spindle with tool pressure alone. Do not contact the boot seal with the hammer.**
10. Position a floor jack under the lower arm.
11. Remove the upper and lower ball joint stud nuts, lower the jack and remove the spindle.

Installation

1. Position the spindle on the lower ball joint stud and install the stud nut (Fig. 2). Torque the nut to specification and install a new cotter pin.

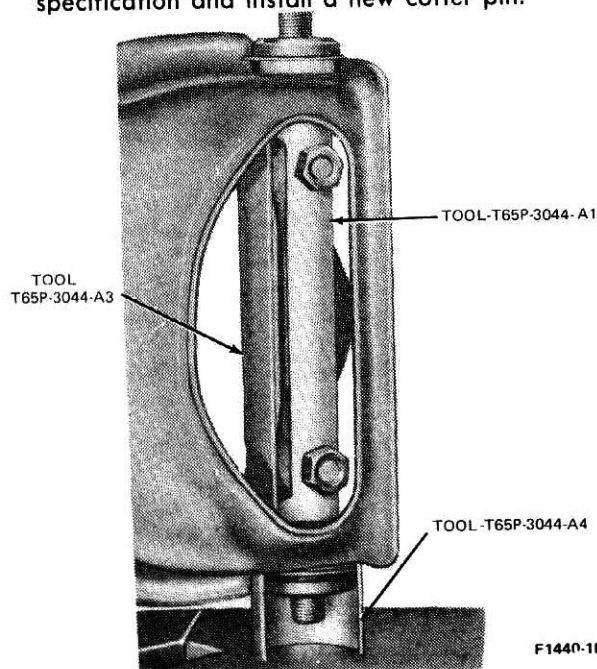


FIG. 6 Removing Upper Arm Bushings—Typical

2. Raise the lower arm, and guide the upper ball joint stud into the spindle. Install the stud nut.
3. Torque the nut to specifications and install a new cotter pin. Remove the floor jack.
4. Connect the spindle connecting rod end to the spindle arm and install the attaching nut. Torque the nut to specification and install a new cotter pin.
5. Position the caliper splash shield to the spindle and install the attaching bolts and nuts. Torque the nuts and bolts to specification.
6. Install the hub and rotor on the spindle.

Position the caliper anchor plate assembly to the rotor and spindle and install the attaching bolts. (Group 12). Torque the bolts to specification and install the safety wire.

Install the wheel and tire on the hub and adjust the wheel bearing (Group 11).

7. Install the hub cap or wheel cover.
8. Remove the safety stands, and lower the vehicle.
9. If the spindle is being replaced due to accidental damage, check and adjust caster, camber and toe-in as required.

FRONT SHOCK ABSORBER

All Vehicles Except Pinto, Bobcat and Mustang II

Removal and Installation

1. Remove the nut, washer, and bushing from the shock absorber upper end.
2. Raise the vehicle on a hoist and install safety stands.
3. Remove the two thread-cutting screws attaching the shock absorber to the lower arm and remove the shock absorber. Lightly wire brush the shock studs free of rust, oil or corrosion.
4. Place a washer and bushing on the shock absorber top stud and position the shock absorber inside the front spring. Install the thread-cutting screws and torque them to specifications. If the threads in the lower arm become stripped or damaged, the removed thread-cutting screws should be re-used, along with 5/16-18 lock nuts which are not supplied in the service kit. Torque to the same specifications as when thread cutting screws are secured directly to the lower arm.
5. Remove the safety stands and lower the vehicle.
6. Place a bushing and washer on the shock absorber top stud and install a new attaching nut. Torque it to specification.

Pinto, Bobcat and Mustang II

Removal and Installation

1. Remove the nut, washer and bushing from the shock absorber upper end.
2. Raise the vehicle on a hoist and install safety stands.
3. Remove the bolt attaching the shock absorber to the lower arm. Lightly wire brush the shock studs free of rust, oil or corrosion.
4. Place the retainer cup and bushing on the shock absorber top stud and position the shock absorber inside the front spring with the mounting stud in the

hole in the crossmember. Install the bolt attaching the shock absorber to the lower arm. Torque to specification.

5. Remove the safety stands and lower the vehicle.
6. Place a bushing and washer on the shock absorber top stud and install a new attaching nut. Torque to specification.

ADJUSTABLE SHOCK ABSORBERS (MUSTANG II)

Mustangs with competition suspension or Rallye Package options have adjustable shock absorbers which have been initially installed in the regular (R) control position. When changing from regular (R) to the firm (F) or extra firm (XF) position, it will be necessary to remove the shock absorber from the car. Then, because adjustment can only be accomplished by fully compressing the shock absorber, the rubber jounce cushion must be removed from the piston rod. With the shock absorber compressed, a dog on the end of the piston engages with a slot in the base valve. Rotate the piston rod to the next position until a definite click is heard and a definite movement to a detent position is noticeable. At this point, the notch in the upper piston rod head will be lined up with the control setting that is dialed. The jounce cushion must be re-assembled to the rod in the original position and the installation instructions follow as above for non-adjustable shock absorbers.

UPPER ARM BUSHINGS

All Vehicles Except Pinto/Bobcat/Mustang II

Removal and Installation—Arm Removed

1. Remove the nuts and washers from both ends of the upper arm inner shaft.
2. Install Tool T65P-3044-A1 on the inner shaft and place Tool T65P-3044-A3 inside the upper arm around the inner shaft (Fig. 6).
3. Position the upper arm in an arbor press on Tool T65P-3044-A4 (Fig. 6), and press the lower bushing out of the upper arm. See tool application at the end of this Part under Specifications.
4. Remove the bushing from the inner shaft; turn the assembly over and remove the bushing from the other side of the arm. **It may be necessary to remove Tool T65P-3044-A1 from the inner shaft and remove the shaft from the arm to remove the bushing. Then, install the tool on the shaft and remove the other bushing.**
5. Using tool as shown in Figure 7, position the shaft and bushings to the upper arm and install the bushings and inner shaft in the upper arm. Be sure that the inner pivot shaft is positioned so that the serrated side will contact the frame.
6. Install a washer and new nut on each end of the inner shaft and torque to specification.

Pinto/Bobcat/Mustang II

Removal and Installation

1. Remove the upper arm from the vehicle as described earlier in this part. Remove nuts and washers from both ends of the upper arm inner shaft.

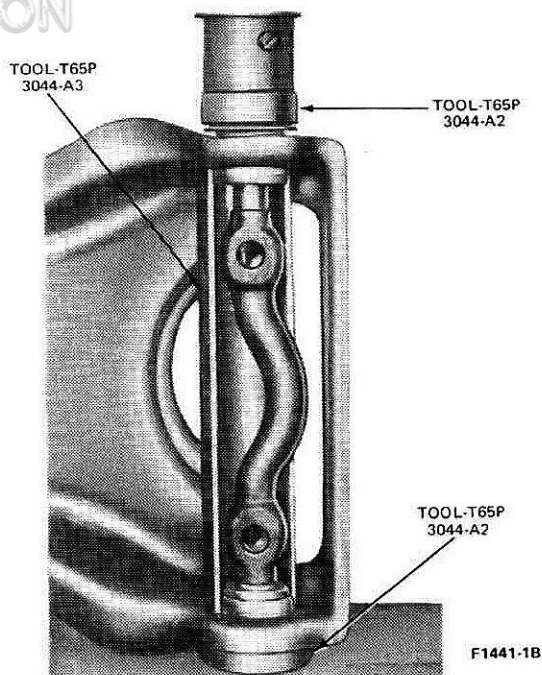


FIG. 7 Installing Upper Arm Shaft Bushing—Typical

2. Using Tool Kit T74P-3044-A, install the shaft locator on the shaft to keep the shaft from turning.
3. Position the Remover Adapter, Remover Receiver and C-Frame Assembly on the end of the shaft and remove the bushing.
4. Repeat Steps 2 and 3 for the other bushing.
5. Slide the shaft out of the upper arm.

Installation

1. Slide the shaft into the upper arm. Be sure that the shaft is positioned so that the serrated side will contact the frame.
2. Install the shaft locator on the shaft to keep the shaft from turning.
3. Position the Replacer Adapter, C-Frame Assembly and bushing on the end of the shaft and install the bushing.
4. Repeat Steps 2 and 3 for the other bushing.
5. Install the upper arm in the vehicle as described earlier in this part.

BALL JOINT SEAL REPLACEMENT—UPPER

Ford/Mercury, LTD II/Cougar/Thunderbird/
Continental Mark V, Lincoln Continental,
Mustang II/Pinto/Bobcat

Removal

1. Raise the front of the vehicle and position safety stands under both sides of the frame just back of the lower arms, and remove the wheel and tire.
2. Disconnect the upper end of the shock absorber, and push it down to the retracted position.
3. Remove the cotter pin from the upper ball joint stud nut.
4. Loosen the upper ball joint stud nut one or two turns. **Do not remove the nut from the stud at this time.**

5. Install Tool T57P-3006-B (for all except Mustang/Pinto/Bobcat) or T74P-3006-A (for Mustang/Pinto/Bobcat) between the upper and lower ball joint studs. **The tool should be seated firmly against the ends of both studs and not against the stud nuts.**
6. With a wrench, turn the adapter screw until the tool places the stud under compression. Tap the spindle near the upper stud with hammer to loosen the stud in the spindle. **Do not loosen the stud from the spindle with tool pressure only. Do not contact the boot seal with the hammer.**
7. Position a floor jack under the lower arm.
8. Remove the ball joint stud nut and use the jack to lower the arm and the spindle. Remove the spring.
9. Using a screwdriver, pry the ball joint seal off.
10. Wipe off any remaining lubrication from the ball joint stud and the lubrication plug located on the topside of the ball joint. The socket must be completely free of lubricant to be sure that the boot seats properly.

Installation

1. Position a new ball joint seal on the ball joint stud.
2. Install Tool T75P-3082-B using the ball joint stud nut.
3. Tighten the nut until the ball joint seal is firmly seated. Remove the nut and tool.
4. Using a floor jack, position the lower arm, spindle and spring to the upper arm. The lower end of the spring must be no more than 1/2" from the end of the depression in the lower arm.
5. Install the ball joint stud attaching nut and torque to specification. Continue to tighten the nut until the cotter pin hole is in line with the nut slots. Install a cotter pin in the upper ball joint stud.
6. Pull the shock absorber up and connect it to the frame using a new attaching nut. Torque to specifications.
7. Remove the lubrication plug using a 3/16-inch socket wrench.
8. Use a hand-operated, low-pressure grease gun fitted with a rubber tip and loaded with Multi-purpose Long Life Lubricant (or equivalent).
9. Force the lubricant into the joint only until the ball joint seal can be felt or seen to swell, indicating that the seal is full of lubricant. **Do not lubricate until the lubricant escapes from the seal, because this destroys the weather-tight seal.**
10. Install the lubrication plug.
11. Install the wheel and tire. Remove the safety stands and lower the vehicle.

BALL JOINT SEAL REPLACEMENT—LOWER

Ford/Mercury, LTD II/Thunderbird/Cougar,
Continental Mark V, Lincoln Continental
Removal

1. Raise the front of the vehicle and position safety stands under both sides of the frame just back of the lower arms, and remove the wheel and tire.
2. Disconnect the lower end of the shock absorber, and push it up to the retracted position.

3. If so equipped, disconnect the stabilizer bar link from the lower arm.
 4. Remove the cotter pin from the lower ball joint stud nut.
 5. Remove the bolts and nuts that attach the strut to the lower arm.
 6. Loosen the lower ball joint stud nut one or two turns. **Do not remove the nut from the stud at this time.**
 7. Install Tool T57P-3006-B between the upper and lower ball joint studs. The tool should be seated firmly against the ends of both studs and not against the stud nuts.
 8. With a wrench, turn the adapter screw until the tool places the stud under compression. Tap the spindle near the lower stud with a hammer to loosen the stud in the spindle. **Do not loosen the stud from the spindle with tool pressure only. Do not contact the boot seal with the hammer.**
 9. Position a floor jack under the lower arm.
 10. Remove the ball joint stud nut and use the jack to lower the arm from the spindle. Remove the spring.
 11. Using a screwdriver, pry the ball joint seal off.
 12. Wipe off any remaining lubrication from the ball joint stud and the lubrication plug located on the underside of the ball joint. The socket must be completely free of lubricant to be sure the boot seal seats properly.
- Installation**
1. Position a new ball joint seal on the ball joint stud.
 2. Install Tool T75P-3006-B using the ball joint stud nut.
 3. Tighten the nut until the ball joint seal is firmly seated. Remove the nut and tool.
 4. Using a floor jack, position the lower arm and spring to the spindle.
 5. Install the ball joint stud attaching nut and torque to specification. Continue to tighten the nut until the cotter pin hole is in line with the nut slots. Install a cotter pin in the lower ball joint stud.
 6. Pull the shock absorber down and connect it to the lower arm.
 7. Position and secure the strut to the lower arm. Install the nuts and torque to specification.
 8. If equipped, position the stabilizer bar link to the lower arm and install a new bolt and attaching nut. Torque to specification.
 9. Remove the lubrication plug using a 3/16-inch socket wrench.
 10. Use a hand-operated, low-pressure grease gun fitted with a rubber tip and loaded with Multi-purpose Long-Life Lubricant (or equivalent).
 11. Force the lubricant into the joint only until the ball joint seal can be felt or seen to swell, indicating that the seal is full of lubricant. **Do not lubricate until the lubricant escapes from the seal, because this destroys the weather-tight seal.**
 12. Install the lubrication plug.
 13. Install the wheel and tire.
 14. Remove the safety stands and lower the vehicle.
- Pinto/Bobcat/Mustang II

The Pinto/Bobcat/Mustang lower arm ball joint seal is not replaceable. If the seal has failed, the lower arm assembly must be replaced.

SPECIFICATIONS

TORQUE LIMITS—FRONT SUSPENSION (FT-LB)

Description	Mustang II/Pinto	Ford/Mercury LTD II/Thunderbird	Mark V	Lincoln
Lower Arm to No. 2 Crossmember	95-120		95-110	
Upper Arm to Frame	95-120		120-140 ②	
Upper Arm Bumper	—		15-18	
Stabilizer Bar to Lower Arm	10-18		6-12	
Ball Joint to Spindle (Upper and Lower)	75-90 ①		75-120 ①	Lower 105-120 Upper 75-90
Strut to Lower Arm	40-60		80-115	
Stabilizer Bar to Frame	14-21		14-26	
Shock Absorber Upper Attachment	22-30		22-30	
Shock Absorber to Lower Arm	60-80		12-18	
Brake Splash Shield (Disc) to Spindle	—		9-14	
Caliper to Spindle (Disc) - Upper Bolt			110-140 (90-120 LTD II/Thunderbird/Cougar)	
Caliper to Spindle (Disc) - Lower Bolt	—		90-120	
Brake Backing Plate and Cylinder Assembly to Spindle (Drum)	20-35	24-45	—	—
Strut to Frame	70-80		95-105	

① Torque to minimum specification, then, tighten the nut to the nearest cotter pin slot and insert the cotter pin.

② Ford/Mercury Police and Taxi - 130-150 Ft-Lb

SPECIAL SERVICE TOOLS

Tool No.	Description
T00L 3290-C	Tie Rod Ball Stud Remover
T57P-3006-B	Ball Joint Remover Press
T65P-3044-A	Upper Arm Bushing Overhaul Kit
T74P-3006-A	Spindle Ball Joint Press
T74P-3044-A	Upper Arm Bushing Replacement Kit
T75P-3042-B	Ball Joint Seal Replacer (Lower)
T75P-3082-B	Ball Joint Seal Replacer (Upper)

Front Suspension— Spring On Upper Arm

PART
14-04

Applies to Granada/Monarch/Versailles

SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION		REMOVAL AND INSTALLATION (Cont'd.)	
Front Suspension	04-1	Lower Arm	04-3
REMOVAL AND INSTALLATION		Lower Arm Strut and/or Insulators	04-2
Front Shock Absorber	04-6	Stabilizer Bar End Bushing	04-2
Front Spring	04-3	Stabilizer Bar Insulator	04-2
Front Wheel Spindle	04-5	Upper Arm	04-5
		SPECIFICATIONS	04-6

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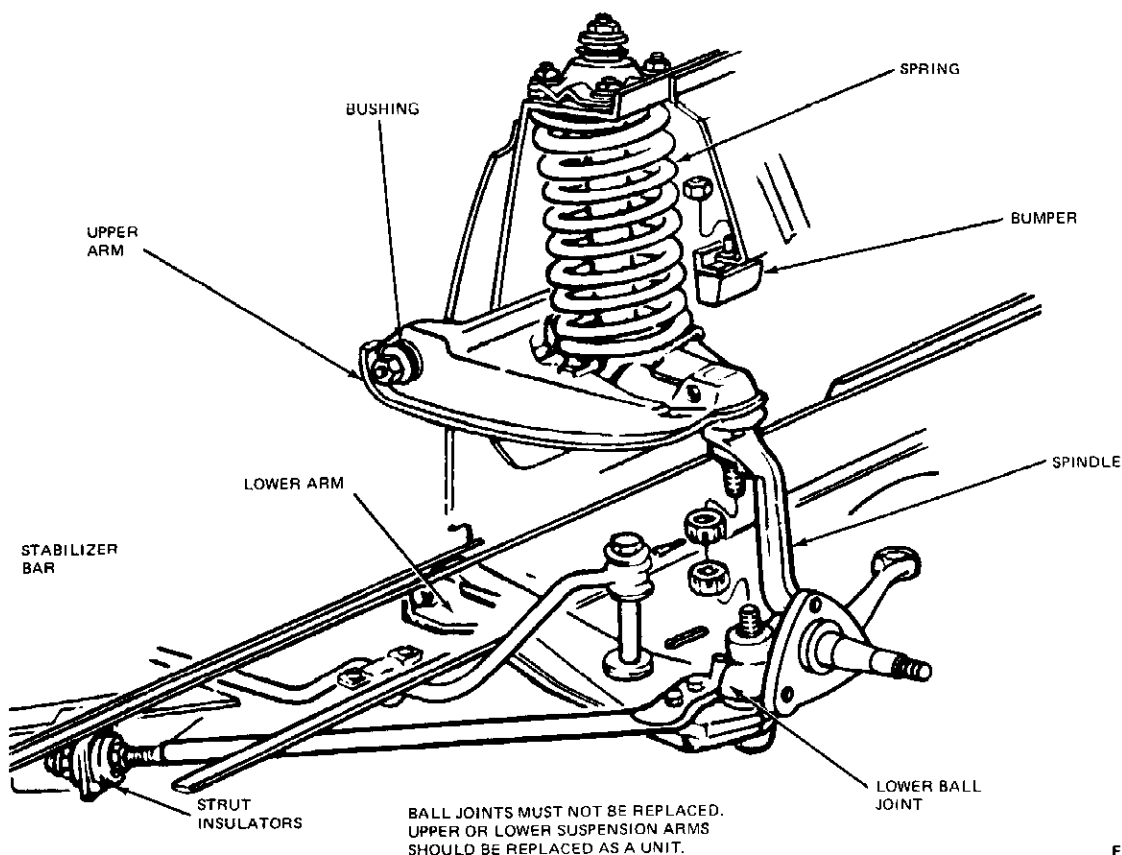
DESCRIPTION

FRONT SUSPENSION

Each front wheel rotates on a spindle. The upper and lower ends of the spindle are attached to ball joints, which are mounted to an upper and lower arm. The upper arm pivots on a bushing and shaft assembly, which is bolted to the frame. The lower arm pivots on a bolt in the Number 2 crossmember (Fig. 1). A coil spring seats between the upper arm pivot seat and the

top of the spring housing. A double-action shock absorber is attached to the pivot seat and the top of the spring housing.

Upper or lower suspension arms must always be replaced as a unit. Ball joints and other subcomponents should not be installed in a used suspension arm.



F2538-2B

FIG. 1 Front Suspension—Granada/Monarch—Versailles Similar

REMOVAL AND INSTALLATION

STABILIZER BAR END BUSHING

Removal and Installation

To replace the end bushings on each stabilizer link, use the following procedure.

1. Raise the vehicle on a hoist.
2. Remove the nut, washer, and insulator from the lower end of the stabilizer bar attaching bolt.
3. Remove the bolt and the remaining washers, insulators, and the spacer.
4. Assemble a cup washer and a new insulator on the bolt.
5. Insert the bolt through the stabilizer bar, then install a new insulator and cup washer.
6. Install the spacer, cup washer, and another new insulator on the bolt (Fig. 6).
7. Insert the bolt through the lower arm and install a new insulator and cup washer. Install and torque the attaching nut to specification.

STABILIZER BAR INSULATOR

Removal and Installation

1. Raise the vehicle high enough to provide working space, and place supports under both front wheels.
2. Disconnect the stabilizer from each link. Disconnect both stabilizer attaching brackets and remove the stabilizer.

3. Coat the necessary parts of the stabilizer with RUGLYDE or a comparable lubricant, and slide new insulators onto the stabilizer.
4. Secure each end of the stabilizer bar to the lower arm making sure that the bolt head is at the top (Fig. 1) to eliminate interference with the brake hose.
5. Remove the supports and lower the vehicle.

LOWER ARM STRUT AND/OR INSULATORS

Removal and Installation

1. Position wood blocks under the upper arm as shown in Fig. 2.
2. Raise the vehicle, position safety stands.
3. Remove the nut from the front of the strut.
4. Remove the two nuts attaching the strut to the lower arm. Tap the strut upward to loosen the bolt serrations in the lower arm. Remove the strut.
5. With two pry bars approximately 18 inches long, one at each side at the rear of the front washer, pry it forward to separate the inner sleeve from the outer sleeve. Remove insulators, washers, inner and outer sleeves from the No. 1 crossmember (Fig. 4).
6. Install outer sleeve, rear washer (large I.D.) and rear insulator bushing on the forward end of the strut rod.