FRONT SUSPENSION AND STEERING LINKAGE

CONTENTS

GENERAL INFORMATION

All ball joints, tie rod ends and the torsion bars at the front of the rear anchors are effectively sealed against road splash by tightly fitted balloon type flexible seals. The ball joints and tie rod ends are of the semi-permanent lubricated type.

Lower ball joints should not be replaced for looseness if the axial end play (Up and Down movement) is under .050 inch. Looseness of this nature is not detrimental and will not affect front wheel alignment or vehicle stability.

The torsion bar rear anchor, on **Chrysler Models only,** are rubber isolated from the engine rear support member on a separate crossmember. The front anchors are part of the lower control arms and provide the means of adjusting the vehicle front height. The compression type lower ball joints are integral with the steering knuckle arms.

NOTE: All service replacement ball joints are equipped with a "Knock-off" type lubrication fitting. After the ball joint has been lubricated with specified lubricant, knock off that portion of the lubrication fitting over which the lubrication gun was installed. A special ball check is installed in the remaining portion of the fitting to prevent foreign materials from passing through the fitting.

The tie rod end seals and protectors should be inspected for damage at all oil change periods. The tie rod end seals and seal protectors are serviced separately.

When re-lubrication of the ball joints and tie rod ends is required, remove the plugs from the assembly and install lubrication fittings. After the lubrication is completed, reinstall the plugs.

CAUTION: RUBBER BUSHINGS SHOULD NOT BE LUBRICATED AT ANY TIME. When replacement of a bushing is necessary, water may be used to aid in installation.

SERVICE DIAGNOSIS

Condition	Possible Cause	Correction
FRONT END NOISE	(a) Ball joint needs lubrication.	(a) Lubricate ball joint.
	(b) Shock absorber and bushings worn or loose.	(b) Replace bushings.
	(c) Worn strut bushings.	(c) Replace bushing.
	(d) Loose struts—Lower control arm bolts and nuts, Imperial Only.	(d) Tighten all bolts and nuts.
	(e) Loose steering gear on frame.	(e) Tighten the steering gear mounting bolts.
	(f) Worn upper control arm bushings.	(f) Replace worn bushings.
	(g) Worn lower control arm shaft bushings.	(g) Replace worn bushings.
	(h) Worn upper ball joint.	(h) Replace ball joint.
	(i) Worn lower ball joint.	(i) Replace ball joint.
	(j) Worn tie rod ends.	(j) Replace tie rod end.
	(k) Loose or worn front wheel bearings.	(k) Adjust or replace bearings as necessary.
	(l) Steering kunckle arm contacting the lower control arm or strut.	(l) Smooth off the contacting area and lubricate with a water resistant grease.
INSTABILITY	(a) Low or uneven tire pressure.	(a) Inflate tires to correct pressure.
	(b) Loose wheel bearings.	(b) Adjust wheel bearing.
	(c) Improper steering cross shaft adjustment.	(c) Adjust steering cross shaft.
	(d) Steering gear not centered.	(d) Adjust steering gear.
	(e) Worn idler arm bushing.	(e) Replace bushing.
	(f) Loose or excessively worn front strut bushings.	(f) Replace bushings.
	(g) Weak or broken rear spring.	(g) Replace spring.
	(h) Incorrect front wheel alignment.	(h) Measure and adjust front wheel alignment.
	(i) Shock absorber inoperative.	(i) Replace shock absorber.

Condition	Possible Cause	Correction
HARD STEERING	(a) Ball joints—require lubrication.	(a) Lubricate ball joints.
	(b) Low or uneven tire pressure.	(b) Inflate tires to recommended pressures.
	(c) Low power steering fluid level.	(c) Fill pump reservoir to correct level.
	(d) Lack of assist of power steering system.	(d) Inspect, test, and service the power steering pump and gear as required.
	(e) Incorrect front wheel alignment (particularly caster) resulting from: (a) Upper control arm bent. (b) Lower control arm bent. (c) Steering knuckle or steering knuckle arm bent.	(e) Replace bent parts and adjust the front wheel alignment.
	(f) Steering gear low on lubricant.	(f) Fill gear to correct level.
	(g) Steering gear not adjusted.	(g) Adjust steering gear.
	(h) Idler arm binding.	(h) Free-up idler arm.
CAR PULLS TO ONE SIDE	(a) Low or uneven tire pressure.	(a) Inflate tires to recommended pressure.
	(b) Front brake dragging.	(b) Adjust brakes.
	(c) Grease, lubricant or brake fluid leaking onto brake lining.	(c) Replace brake shoe and lining as necessary and stop all leaks.
	(d) Loose or excessively worn strut bushings.	(d) Tighten or replace strut bushings.
	(e) Power steering control valve out of adjustment.	(e) Adjust steering gear control valve.
	(f) Incorrect front wheel alignment (particularly camber).	(f) Adjust front wheel alignment.
	(g) Broken or weak rear spring.	(g) Replace spring.
EXCESSIVE PLAY IN STEERING	(a) Worn or loose front wheel bearings.	(a) Adjust or replace wheel bearings as necessary.
	(b) Incorrect steering gear adjustment.	(b) Adjust steering gear.
	(c) Loose steering gear to frame mounting bolts.	(c) Tighten steering gear to frame bolts.
	(d) Worn ball joints or tie rod.	(d) Replace ball joints or tie rods as necessary.
	(e) Worn steering gear parts.	(e) Replace worn steering gear parts and adjust as necessary.
	(f) Worn upper control arm ball joints.	(f) Replace ball joints.
	(g) Worn lower control arm ball joints.	(g) Replace ball joints.
FRONT WHEEL SHIMMY	(a) Tire, wheel out of balance.	(a) Balance wheel and tire assembly.
	(b) Uneven tire wear, or excessively worn tires.	(b) Rotate or replace tires as necessary.
	(c) Worn or loose wheel bearings.	(c) Replace or adjust wheel bearings as necessary.
	(d) Worn tie rod ends.	(d) Replace tie rod ends.
	(e) Strut mounting bushings loose or worn.	(e) Replace strut mounting bushings.
	(f) Incorrect front wheel alignment (particularly caster).	(f) Adjust front wheel alignment.
	(g) Worn or loose upper control arm ball joints.	(g) Inspect ball joints and replace where required. Tighten to specifications.

SERVICE PROCEDURES

PREPARATION FOR MEASURING WHEEL ALIGNMENT

The method of measuring alignment will vary depending on the type of equipment being used. The instructions furnished by the manufacturer of the equipment should always be followed, however, the specifications as recommended by Chrysler Corporation should always be followed.

All measurements and adjustments should be made in the following order:

Front Suspension Height
Caster and Camber
Toe-In
Steering Axis Inclination
Toe-Out on Turns

The measurement of steering axis inclination and toe-out on turns is valuable in determining if parts are bent, or damaged. **Bent or damaged suspension and steering linkage parts must be replaced. Do not attempt to modify any of these parts by heating and bending.** When replacements of this kind are made, it is important that other front end parts are inspected and front wheels aligned.

Before any attempt is made to measure or correct caster, camber and toe-in, the following preliminary

inspections and necessary corrections must be made on those parts which influence the steering of the vehicle.

(1) Inflate tires to recommended pressure. All tires should be the same size, in good condition and have equal wear. Note the type of wear to aid in diagnosing (Group 22).

(2) Inspect the suspension and steering linkage pivot points for excessive looseness; rear springs for proper tightness of "U" bolts and height differential between left and right sides of vehicle. The vehicle should be on a level floor or alignment rack and should have a full fuel tank with no luggage or passenger load.

(3) Adjust the front wheel bearings (Group 22). Measure the front wheel and tire assembly runout (Follow Equipment Manufacturers Instructions).

(4) To obtain accurate readings, the vehicle should be jounced in the following manner just prior to taking **each** measurement (Height—Caster—Camber and Toe-In): Grasp the bumpers at the center (rear bumper first) and jounce the vehicle up and down several times. Release the bumpers on the down cycle after jouncing both rear and front of car an equal number of times.

HEIGHT ADJUSTMENT

The front suspension heights can be measured by using special height gauges or by measuring the distances from "given" points of the suspension system to the floor with a scale. When using special height gauges follow the recommendations of the manufacturer, however, always use the specifications of the Chrysler Motors Corporation.

Without Using Special Tools

Front suspension heights must be held to specifications for a satisfactory ride, correct appearance, proper front wheel alignment and reduced tire wear.

The heights should only be measured when the vehicle has the recommended tire pressures, a full tank of fuel, no passenger load and is on a level floor.

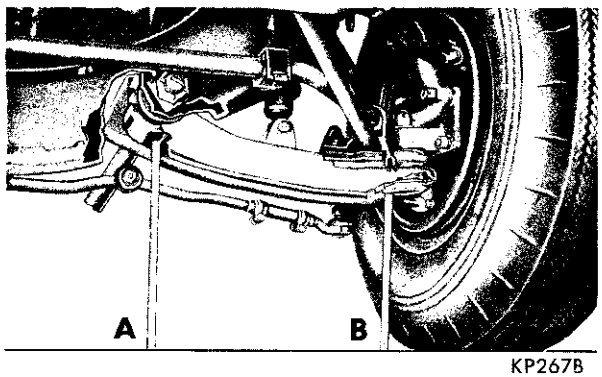

Fig. 1—Measuring Front Suspension Heights (Imperial)

(1) Clean all foreign material from the bottom of the lower ball joint assemblies and from the bottom of the lower control arm bushing housings between the flanges of the arms.

(2) Jounce the vehicle several times releasing it on the downward motion.

(3) **On Imperial Models,** measure the distance from the lowest point of one of the lower control arm bushing housings to the floor (measurement A) and from the lowest point of the flat portion on the bottom of the lower ball joint on the same side (measurement B) to the floor (Fig. 1). **Measure only one side at a time.**

(4) **On Chrysler Models,** measure the distance from the lowest point of one of the adjusting blades to the floor (measurement A) and from the lowest point of one of the steering knuckle arm to the floor (measurement B) (Fig. 2).

(5) Refer to specifications for the differential between measurement A and B.

(6) Measure the other side in the same manner. The difference from side to side should be no more than ⅛ inch.

(7) Adjust if necessary by turning in the torsion bar adjusting bolt to increase the height and backing off the bolt to decrease the height.

(8) After each adjustment, jounce the vehicle before rechecking measurements. Both sides should be measured even though only one side has been adjusted.

FRONT WHEEL ALIGNMENT

Camber—Left Wheel +¼° to +¾° (Preferred +½°)
Right Wheel 0° to +½° (Preferred +¼°)
Caster—Power Steering +¼° to +1¼°
Manual Steering 0° to −1°
Toe-In—3/32 to 5/32 inch (Preferred ⅛ inch)

Front suspension alignment settings must be held to specifications to hold tire wear to a minimum and

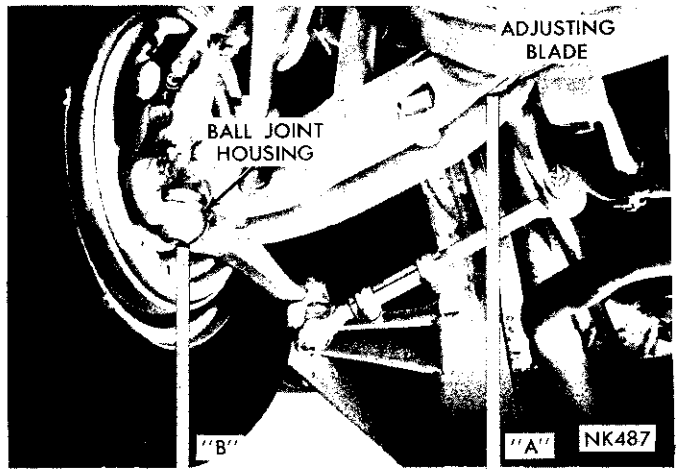

Fig. 2—Measuring Front Suspension Heights (Chrysler)

to maintain steering ease and handling of the vehicle.

Any parts of the front suspension system should be replaced if they are found to be bent. **Do not attempt to straighten any bent part.**

Camber and Caster

(1) Prepare the vehicle for measuring wheel alignment.

(2) Remove all foreign material from the exposed threads of the cam adjusting bolts.

(3) Record the initial camber and caster readings before loosening the cam bolt nuts.

(4) Camber settings should be held as close as possible to the "preferred" setting. Caster should be held as nearly equal as possible on both wheels. Tighten the cam bolt nuts 65 foot-pounds after adjusting the wheel alignment.

Toe-in 3/32 to 5/32 inch (Preferred 1/8 inch)

The toe setting should be the final operation of the front wheel alignment adjustments. The front wheels must be in a straight ahead position. Follow the equipment manufacturers procedure. The steering wheel should be centered during this operation.

Turning both tie rod sleeves will "center" the steering wheel. If the steering wheel was centered, make the toe-in adjustment by turning both sleeves an equal amount. Be sure and tighten the clamp bolt nuts 15 foot-pounds. Make sure the bolts are on the bottom, otherwise interference with the torsion bars in jounce may result.

TORSION BARS

The torsion bars **are not interchangeable side for side.** The bars will be indicated as either right or left by an "R" or "L" (right or left hand side) stamped on the end of the bars.

CAUTION: If the vehicle is to be raised on a hoist, make sure it is supported so that the front suspension is in full rebound (under no load).

Removal

(1) Place a jack under the center of the front crossmember and raise the vehicle off the floor, so the front suspension is in full rebound (under no load).

(2) Release all load from the torsion bar by turning the anchor adjusting bolts (Figs. 3 and 4) counterclockwise. Remove the adjusting bolt and swivel.

(3) Remove the plastic seal and lock ring from the rear anchor (Fig. 4).

NOTE: In some instances it may be necessary to use Tool C-3728 to aid in removing the torsion bar.

(4) **On Imperial Models** slide the torsion bar toward the rear of the vehicle sufficiently to disengage the forward end from the lower control arm. Slide the torsion bar forward and down, disengaging it from the anchor.

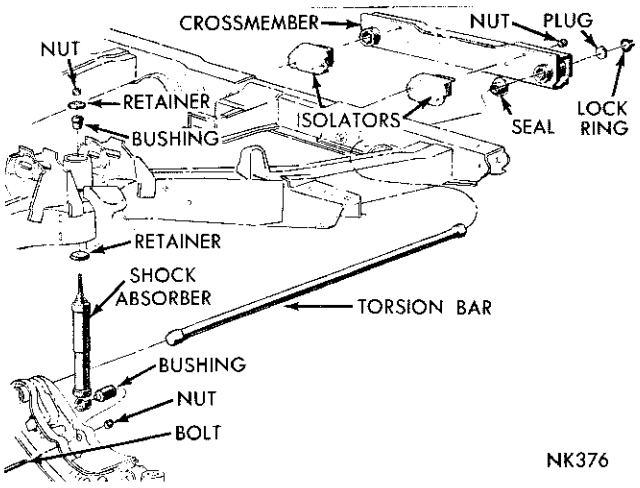

Fig. 3—Torsion Bar and Rubber Isolator (Chrysler)

(5) **On Chrysler Models** slide the torsion bar out through the rear of the anchor.

Inspection

(1) Before installing the torsion bar, inspect the adjusting bolt, swivel and torsion bar balloon seal for damage and replace as necesasry.

(2) Inspect the torsion bar for scores and nicks. Dress down all scratches and nicks to remove the sharp edges, then paint the repaired area with a rust preventative.

Installation

(1) Apply a liberal coating of multi-mileage lubri-

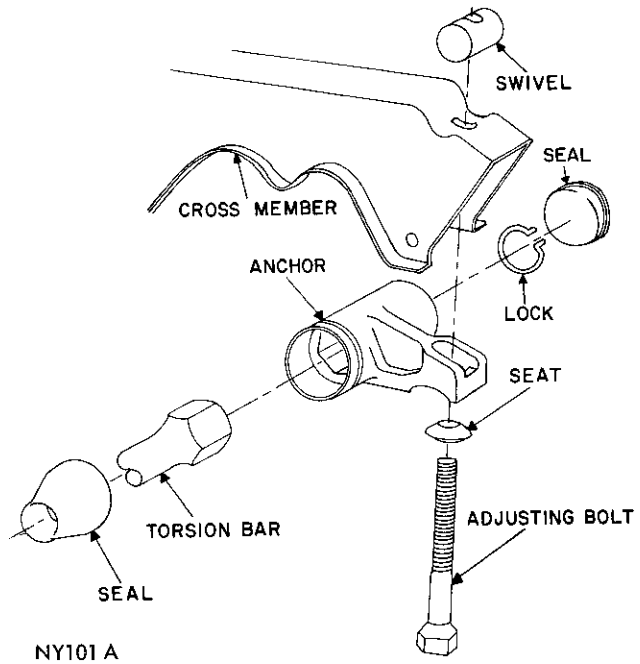

Fig. 4—Torsion Bar Rear Support (Imperial)

cant (NO. 2298947) around each end of the torsion bar. The rear end of the torsion bar should be coated equal to the depth of the anchor hub socket.

(2) Install the torsion bar into the rear anchor.

(3) Slide the balloon seal over the torsion bar (cupped side toward rear anchor).

(4) **On Imperial Models** turn the torsion bar until the anchor end is positioned approximately 120 degrees (eight o'clock or four o'clock position) down from the frame and engage the front end of the bar in the hex opening of the lower control arm. If the anchor end is not in the position just described when installing the torsion bar, it will be impossible to adjust the front suspension to the correct height.

(5) **On Chrysler Models,** slide the torsion bar into the hex opening in the control arm.

(6) Install the lock ring, making sure it is seated in its groove.

(7) Pack the annular opening in the rear anchor completely full of multi-mileage lubricant. Position the lip of the balloon seal in the groove in the anchor hub. Install the plastic seal into the rear anchor.

(8) Install the adjusting bolt, seat and swivel.

(9) **On Imperial Models,** turn the adjusting bolt clockwise until approximately 1 inch of threads are showing out of the swivel. This is an approximate setting and is to be used only as a starting point when adjusting for correct height. This setting is also necessary to place a load on the torsion bar before lowering the vehicle to the floor.

(10) **On Chrysler Models,** place a load on the torsion bar by turning the adjusting bolt clockwise.

(11) Lower the vehicle to the floor, then measure and adjust the height as required.

TORSION BAR RUBBER ISOLATOR AND CROSSMEMBER

(Chrysler Models Only)

Removal (Fig. 3)

(1) Raise the vehicle so the front suspension is in full rebound.

(2) Remove all load from the torsion bars by turning the adjusting bolts counterclockwise.

(3) Remove the lock rings from the rear anchors.

(4) Remove the nuts, two each side, attaching the torsion bar rear anchor crossmember to the isolators.

(5) Remove the crossmember from the torsion bars.

(6) Remove the nuts attaching the rubber isolator assembly to the engine rear support crossmember and remove the isolator assembly.

Installation (Fig. 3)

The rubber isolator and mounting bracket is serviced as an assembly only.

(1) Position the isolator assembly on the engine rear support crossmember bolts and install the nuts. Tighten the nuts 30 foot-pounds.

(2) Position the torsion bar anchor crossmember over the hex ends of the torsion bars and the rubber isolator attaching bolts. Install the nuts and tighten to 50 foot-pounds.

(3) Install the lock rings in the rear anchors.

(4) Place a load on the torsion bars by turning the adjusting bolts clockwise.

(5) Lower the car and adjust the front suspension heights.

STEERING KNUCKLES

Removal

(1) Place a jack under the lower control arm as near to the wheel as possible. Remove the wheel, tire, and drum. **Be sure the brake shoes are covered to prevent dirt or grease from soiling the lining.**

(2) Remove the cotter pins, nuts and lockwashers, attaching the steering knuckle arm and brake support assembly to the steering knuckle. Remove the steering knuckle arm and brake support assembly from the steering knuckle as an assembly but leaving the brake hose attached. **Do not allow the assembly to hang by the brake hose.**

(3) Remove the upper ball joint stud from the steering knuckle. On Imperial Models remove the lower ball joint stud. Remove the steering knuckle.

Installation

(1) Install the upper and lower ball joint studs. Install the lock washer and nuts. Tighten the upper ball joint stud nut 100 foot-pounds and the lower ball joint stud nut (Imperial Only) 115 foot-pounds. Install the cotter pin.

(2) Slide the brake support assembly over the steering knuckle and into position. Install the lockwashers

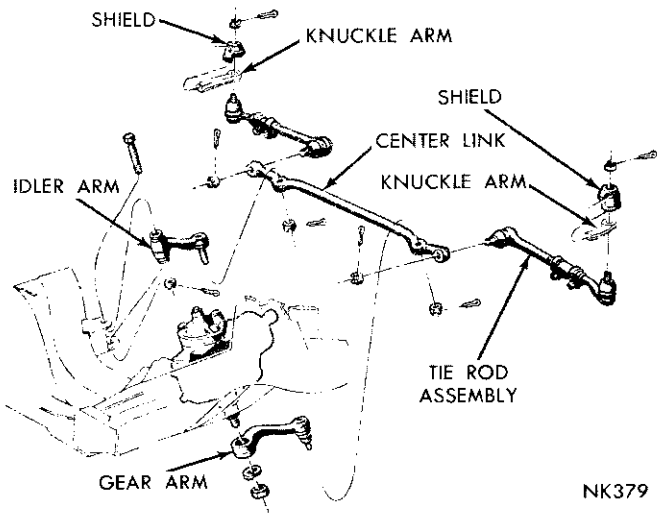

Fig. 5—Steering Linkage (Disassembled) (Chrysler)

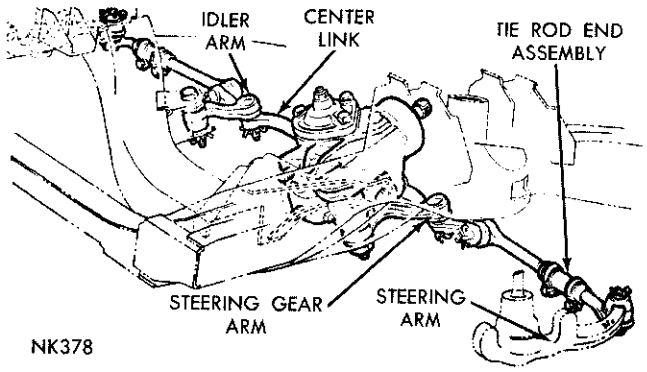

Fig. 5—Steering Linkage (Installed) (Chrysler)

and nuts on the upper rear and lower front bolts.

(3) Install the upper front and lower rear bolts through the brake support and steering knuckle. Position the steering arm over the bolts. Install the lockwashers and nuts. Tighten the steering knuckle to brake support bolts 55 foot-pounds and the steering knuckle to steering knuckle arm bolts 80 foot-pounds. Install the cotter pins.

(4) Remove the covering from the brake shoes. Install the wheel, tire and drum assembly and adjust the front wheel bearings (Group 22).

STEERING LINKAGE (Figs. 5 and 6)

Removal

When removing the tie rod ends, idler arm or steering gear arm, all seals should be closely inspected for wear or damage.

Damaged seals necessitate removal of the seal and inspecting the tie rod assembly end at the throat opening. If parts have not lost all the grease, or are not contaminated, worn, or rusted, replace the seal, otherwise a new complete tie rod end assembly should be installed. Lubricate the tie rod end assembly.

CAUTION: Removal of the tie rod ends from the steering knuckle arm (Fig. 7) or center link by methods other than using Tool C-3894 (Imperial), Tool C-3742 (Chrysler) may damage the tie rod end seals.

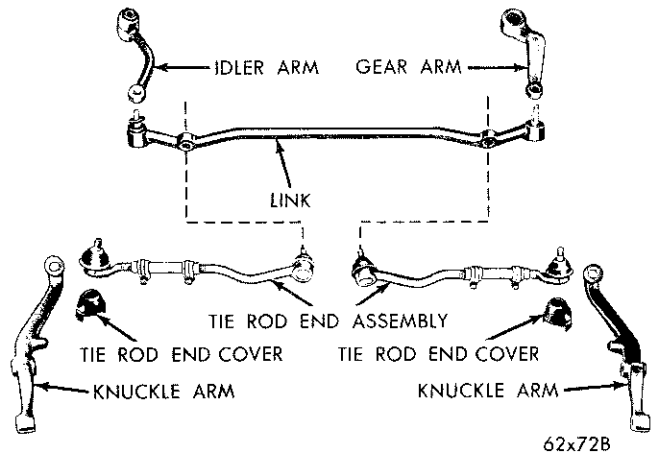

Fig. 6—Steering Linkage (Disassembled) (Imperial)

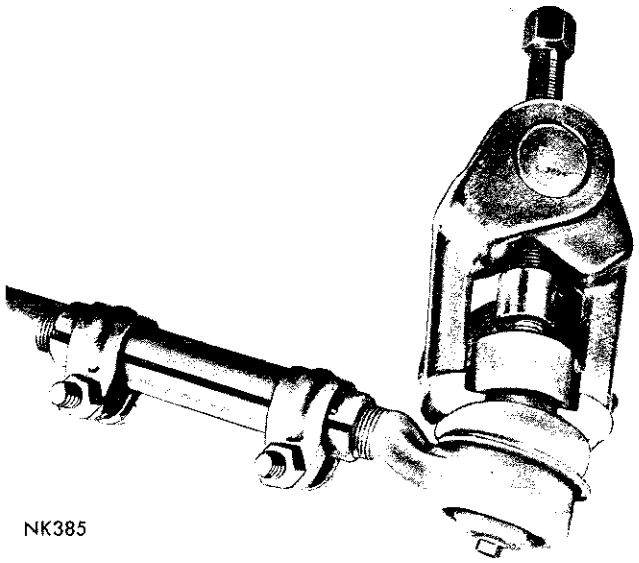

Fig. 7—Removing Outer Tie Rod End (Imperial)

(1) Remove the tie rod ends from the steering knuckle arms. **Use care not to damage the seals.**

(2) Remove the inner tie rod ends from the link.

(3) Remove the idler arm stud from the link.

(4) Remove the idler arm stud from the crossmember.

(5) Remove the steering gear arm stud from the link.

Installation

Replace all tie rod and steering arm assemblies that are damaged or excessively worn. Damaged seals are replaceable.

(1) Insert the idler arm and bushing assembly into the bracket **(Imperial Models)** using care not to damage the bushing. Insert the bolt and tighten to 80 foot-pounds. On **Chrysler Models,** install the idler arm stud in the crossmember bracket and tighten the nut 45 foot-pounds.

(2) Insert the center link over the idler arm and steering arm studs and tighten the nuts to 40 foot-pounds. Insert the cotter pins.

(3) Connect the tie rod ends to the steering knuckle arms. Tighten the nuts to 40 foot-pounds. Slide the stone protectors into position and install the cotter pins.

(4) Measure and adjust the front wheel toe-in.

SWAY BAR (Fig.8)

Removal

(1) Remove the two sway bar link retaining nuts and concave retainers.

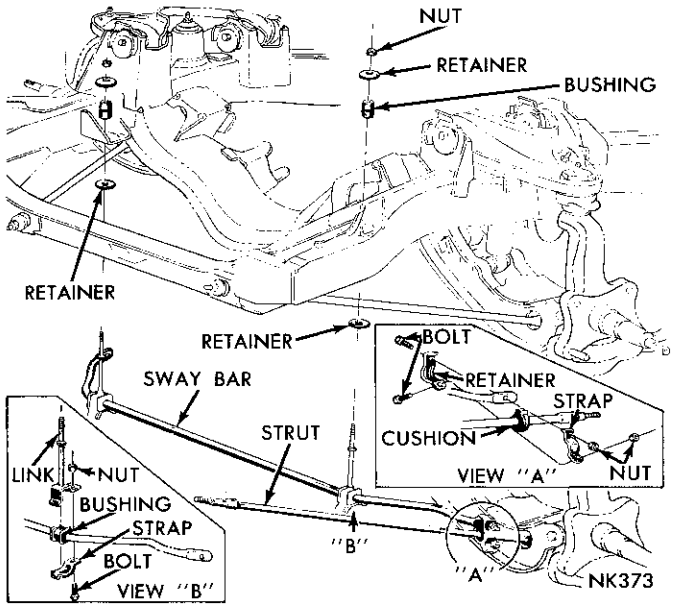

Fig. 8—Sway Bar Assembly (Chrysler)

(2) Remove the two sway bar cushion retaining nuts, lockwashers, straps, and bolts, (one to each strut). Slide the sway bar out through the control arm struts and away from the vehicle. **The sway bar cushions are not serviced separately. If replacement is necessary, install a new sway bar assembly. Remove the lower concave retainers.**

(3) Remove the sway bar link insulating bushings from the frame bracket. If the bushings are worn or deteriorated, install new bushings as required.

Installation

(1) Dip the sway bar link bushings in water and install in the opening in the frame bracket, using a twisting motion. When installed properly, the groove in the bushing will index with opening in the frame bracket.

(2) Thread the sway bar into position over the top of the lower control arm struts.

(3) Engage the sway bar cushion housing with the struts and install straps, bolts, lockwashers and nuts. Tighten to 30 foot-pounds.

(4) Install the retainers over the ends of the links (concave side up), then slide the links up through the bushings. Install the retainers (concave side down), over the ends of the links and down on the bushings. Install the nuts and tighten to 100 inch-pounds.

LOWER BALL JOINTS

The lower ball joints should not be replaced for looseness if the axial end play (up and down movement) is under .050 inch. Looseness of this nature is normal and will not affect front wheel alignment or vehicle stability. The lower ball joints on Chrysler Models are integral with the steering knuckle arms.

Removal (Imperial Models)

(1) Place a jack under the lower control arm and raise the vehicle.

(2) Remove the wheel, tire and drum assembly and the brake support assembly.

(3) Remove the upper and lower ball joint and nuts. Slide Tool C-3564 over the upper stud until the tool rests on the steering knuckle. Turn the threaded portion of the tool locking it securely against the lower stud (Fig. 9). Spread the tool enough to place the lower stud under pressure, then strike the steering knuckle sharply with a hammer to loosen the stud. Do not attempt to force the stud out of the knuckle with the tool alone.

(4) Remove the tool, then disengage the ball joint from the knuckle.

(5) Using Tool C-3561 remove the ball joint from the lower control arm.

The ball joint balloon type seal will come off as the ball joint is removed.

Installation (Imperial Models)

(1) **When installing the new ball joint, it is very important that the ball joint threads properly engage those of the control arm.** Screw the ball joint into the control arm as far as possible by hand.

(2) Using Tool C-3561, tighten the ball joint assembly to a minimum of 150 foot-pounds until seated in the control arm.

(3) Position the new ball joint seal on the ball joint body and using Tool C-3867 install the seals. **To facilitate installation of the seal, the ball joint stud should be perpendicular to the ball joint body.**

(4) Install the brake support assembly. Tighten the brake support bolts to 55 foot-pounds and the knuckle arm bolts to 80 foot-pounds.

(5) Position the stud in the steering knuckle, and install the washer and nut. Tighten to 135 foot-pounds

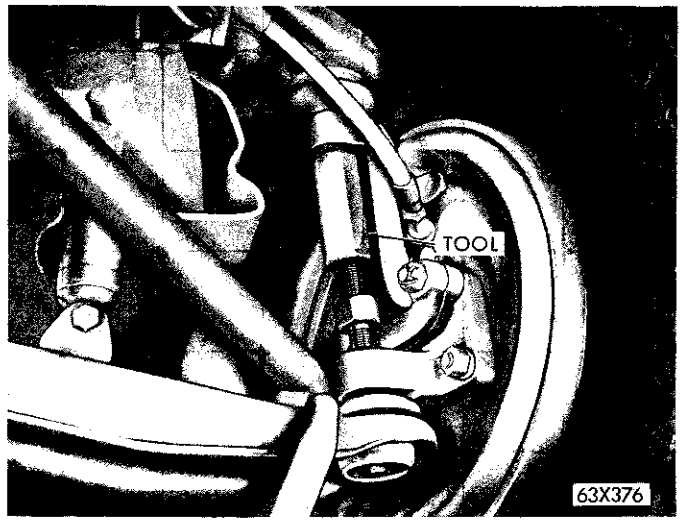

Fig. 9—Removing Lower Ball Joint Stud (Imperial)

and install the cotter pin.

(6) Lubricate the ball joint with the specified lubricant.

(7) Install the wheel, tire and drum assembly and adjust the front wheel bearing (Group 22).

Removal (Chrysler Models)

(1) Remove the upper control arm rebound bumper.

(2) Raise the vehicle so the front suspension is in full rebound. Remove all load from the torsion bar by turning the adjusting bolt counterclockwise.

(3) Remove the wheel, tire and drum as an assembly.

(4) Remove the two lower bolts from the brake support attaching the steering arm and ball joint assembly to the steering knuckle.

(5) Remove the tie rod end from the steering knuckle arm using Tool C-3742. **Use care not to damage the seal.**

(6) Using Tool C-3964 remove the ball joint stud from the lower control arm (Fig. 10) and remove the steering arm and ball joint assembly.

Installation (Chrysler Models)

(1) Place a new seal over the ball joint stud (if necessary) and press the seal fully down on the ball joint housing until it is securely locked in position.

(2) Position the steering arm and ball joint assembly on the steering knuckle and install the two mounting bolts. Tighten the nuts 80 foot-pounds.

(3) Insert the ball joint stud into the lower control arm.

(4) Install the stud retaining nut and tighten to 115 foot-pounds. Install the cotter pin and lubricate the ball joint.

(5) Inspect the tie rod end seal for damage and replace if damaged. Connect the tie rod end to the steering knuckle arm and tighten the nut 40 foot-pounds. Slide the tie rod end seal protector over the nut and

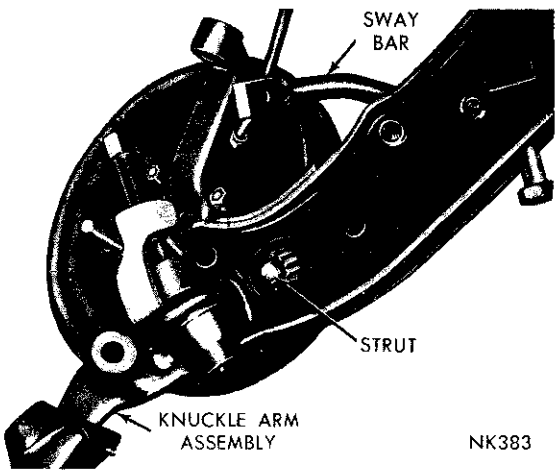

Fig. 10—Removing Lower Ball Joint Stud (Chrysler)

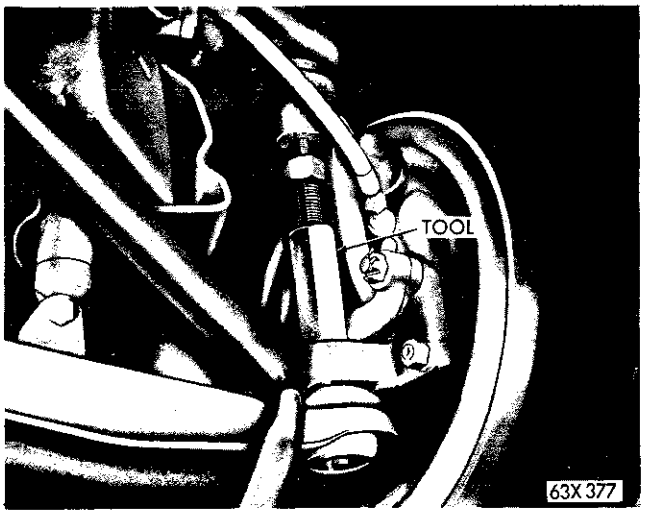

Fig. 11—Removing Upper Ball Joint Stud (Imperial)

install the cotter pin.

(6) Place a load on the torsion bar by turning the adjusting bolt clockwise.

(7) Install the wheel, tire and drum assembly and adjust the front wheel bearing (Group 22).

(8) Lower the vehicle to the floor and install the upper control arm rebound bumper. Tighten to 200 inch-pounds.

(9) Measure the front suspension height and adjust if necessary.

(10) Measure the front wheel alignment and adjust if necessary.

UPPER BALL JOINTS

Removal

(1) Place a jack under the lower control arm as close to the wheel as possible. Raise the wheel off the floor.

(2) Remove the wheel and tire assembly.

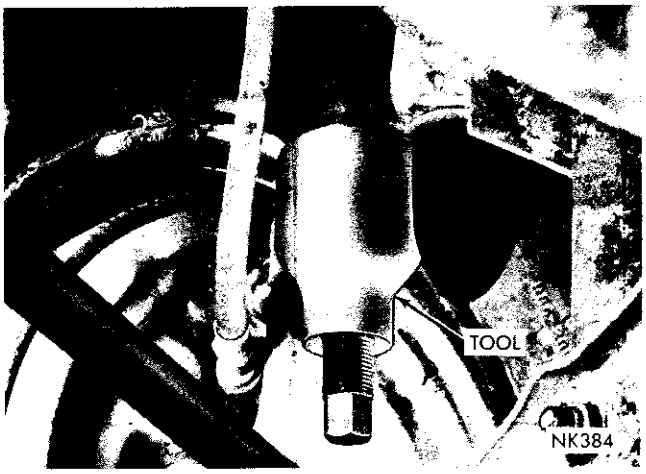

Fig. 12—Removing Upper Ball Joint Stud (Chrysler)

(3) **On Imperial Models,** remove the upper and lower ball joint stud nuts. Slide Tool C-3564 down over the lower stud until the tool rests on the steering knuckle. Turn the threaded portion of the tool locking it securely against the upper stud (Fig. 11). Spread the tool enough to place the upper stud under pressure, then strike the steering knuckle sharply with a hammer to loosen the stud. **Do not attempt to force the stud out of the knuckle with the tool alone.**

(4) Remove the tool, then disengage the ball joint from the knuckle.

(5) **On Chrysler Models,** when removing the upper ball joint stud from the steering knuckle using Tool C-3964 (Fig. 12) make sure the bottom portion of the tool is positioned between the steering knuckle and the seal, otherwise damage to the seal will result.

(6) Using Tool C-3560 for Chrysler Models and Tool C-3561 for Imperial Models (Fig. 13) unscrew the ball joint from the upper control arm.

The ball joint balloon type seal will come off as the ball joint is removed.

Installation

When installing a new ball joint, it is very important that the ball joint threads properly engage those of the control arm.

(1) Screw the ball joint squarely into the control arm as far as possible by hand.

(2) Using Tool C-3560 (Chrysler Models) or C-3561 (Imperial Models) tighten until the ball joint housing is seated on the control arm. Tighten to a minimum of 125 foot-pounds on Chrysler Models and 150 foot-pounds on Imperial Models.

(3) Position the new ball joint seal on the ball joint body using Tool C-3867 on Imperial Models and install the seals. **On Chrysler Models,** install the seal on the ball joint by hand, making sure it is fully seated on the housing. **To facilitate installation of the seal the ball joint stud should be perpendicular to the ball joint body.**

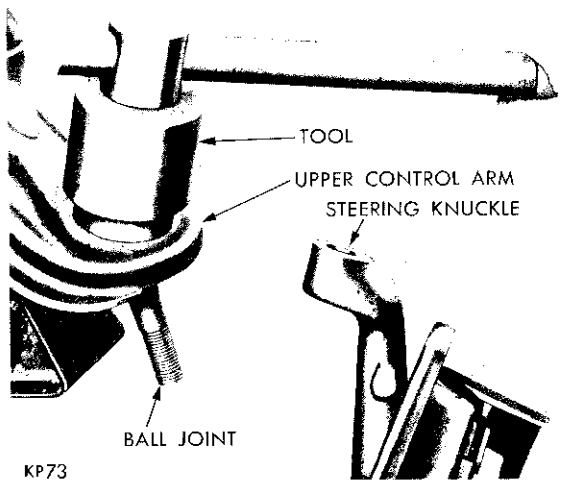

Fig. 13—Removing the Ball Joint (Imperial)

(4) Position the stud in the steering knuckle. Install the washer and nut. Tighten the nut on Chrysler Models 100 foot-pounds and on Imperial Models 135 foot-pounds. Install the cotter pin and lubricate the ball joint.

(5) Install the wheel and tire and adjust the front wheel bearing (Group 22).

LOWER CONTROL ARM AND SHAFT

Removal (Imperial Models)

(1) Remove the torsion bar.

(2) Remove the wheel, tire and drum assembly. Remove the brake support assembly.

(3) Disconnect the shock absorber at the lower control arm bracket then push the shock absorber up into the frame out of the way.

(4) Remove the nuts, lockwashers and bolts attaching the strut to the lower control arm.

(5) Remove the upper and lower ball joint stud nuts. Slide Tool C-3564 over the upper stud until the tool rests on the steering knuckle. Turn the threaded portion of the tool locking it securely against the lower stud (Fig. 9). Spread the tool enough to place the lower stud under pressure, then strike the steering knuckle sharply with a hammer to loosen the stud. **Do not attempt to force the stud out of the knuckle with the tool alone.**

(6) Remove the tool, and disengage the ball joint from the knuckle.

(7) Remove the cotter pin, nut and washer attaching the lower control arm pivot shaft to the frame.

(8) Tap the end of the shaft (a tapered fit in front crossmember) with a "soft end" hammer to aid in removal of the shaft from the crossmember.

(9) Remove the lower control arm and shaft as an assembly.

Disassembly (Imperial Models)

(1) Place the lower control arm in an arbor press (with torsion bar hex opening up). Press the shaft and bushing out of the control arm, using a brass drift.

(2) Remove the cotter pin, nut and washer from the end of the shaft, and remove the bushing from the shaft.

(3) Using Tool C-3561 unscrew the ball joint from the lower control arm. The ball joint balloon type seal will come off as the ball joint is removed.

Assembly (Imperial Models)

(1) Position the new bushing over the shaft (flange end first) and seat on the shoulder of the shaft. Install the washer and nut and tighten to 100 foot-pounds. (Hold shaft securely in a vise with protector jaws). Install the cotter pin.

(2) Press the lower control arm shaft and bushing into the lower control arm with an arbor press, or drive into place using Tool C-3557 and a hammer.

(3) Press until the flanged position of the bushing is seated beyond the locking groove.

(4) Install the ball joint into the new arm using Tool C-3561.

(5) Tighten to a minimum of 150 foot-pounds until the ball joint is seated (the ball joint will cut threads into the new arm during tightening operation).

Installation (Imperial Models)

(1) Position the control arm assembly in the frame crossmember in approximate operating position. Install the washer and nut. DO NOT TIGHTEN the nut until the full weight of the vehicle is on the wheels.

(2) Position the new ball joint balloon type seal on the ball joint body and using Tool C-3867 install the seals. **To facilitate installation of the seal the ball joint stud should be perpendicular to the ball joint body.** Lubricate the ball joint.

(3) Install the brake support assembly. Tighten brake support bolts 55 foot-pounds and the knuckle arm bolts 80 foot-pounds.

(4) Position the stud in the steering knuckle. Install the washer and nut. Tighten to 135 foot-pounds and install the cotter pin.

(5) Connect the shock absorber to the control arm and tighten the nut 55 foot-pounds.

(6) Position the strut on the lower control arm, install the bolts, washers and nuts and tighten to 100 foot-pounds. Install the sway bar on the strut. Tighten the nuts 50 foot-pounds.

(7) Install the wheel, tire and drum assembly and adjust the front wheel bearing (Group 22).

(8) Install the torsion bar.

(9) Tighten the lower control arm shaft nut 200 foot-pounds and install the cotter pin.

(10) Lower the vehicle to the floor, then measure and adjust the suspension heights and wheel alignment as necessary.

Removal (Chrysler Models)

(1) Remove the torsion bar from the lower control arm.

(2) Remove the cotter pin and slide the tie rod end seal protector up the steering knuckle arm. Remove the tie rod end from the steering knuckle arm using Tool C-3964 or Tool C-3742. **Use care not to damage the seal.**

(3) Remove the sway bar to strut attaching straps.

(4) Remove the steering knuckle arm to brake support bolts and remove the steering knuckle arm. Move the brake support assembly out of the way. **Do not allow the brake support to hang by the brake hose.**

(5) Remove the ball joint stud from the lower control arm using Tool C-3964 (Fig. 10). The bottom portion of the tool must be positioned between the seal and the control arm to avoid seal damage.

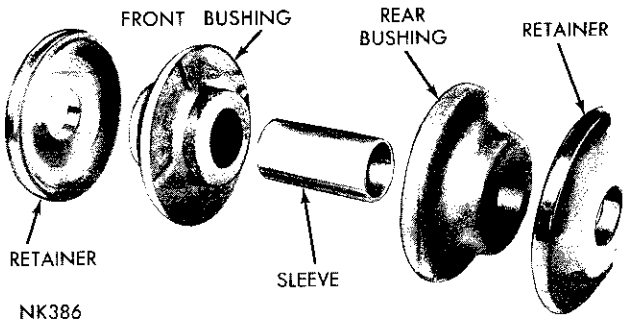

Fig. 14—Strut Bushing Assembly (Chrysler)

(6) Remove the strut front nut and bushing retainer.

(7) Remove the cotter pin, nut and washer from the lower control arm pivot shaft.

(8) Tap the end of the lower control arm shaft with a "soft end" hammer, to aid in removal of the shaft from the crossmember, and remove the lower control arm, shaft and strut as an assembly.

(9) Remove the strut bushings (Fig. 14) from the crossmember.

(10) Remove the strut bushing inner retainer from the strut.

Disassembly (Chrysler Models)

(1) Place the strut portion of the control arm assembly in a vise and remove the nut from the strut.

(2) Remove the strut from the control arm.

(3) Remove the jounce bumper, torsion bar adjusting bolt and swivel from the control arm.

(4) Place the control arm assembly in an arbor press with the torsion bar hex opening up and with a support under the outer edge of the control arm (Fig. 15).

(5) Place a brass drift into the hex opening and press the shaft out of the control arm (Fig. 15). The bushing inner shell will remain on the shaft.

(6) Remove the bushing inner shell from the pivot shaft.

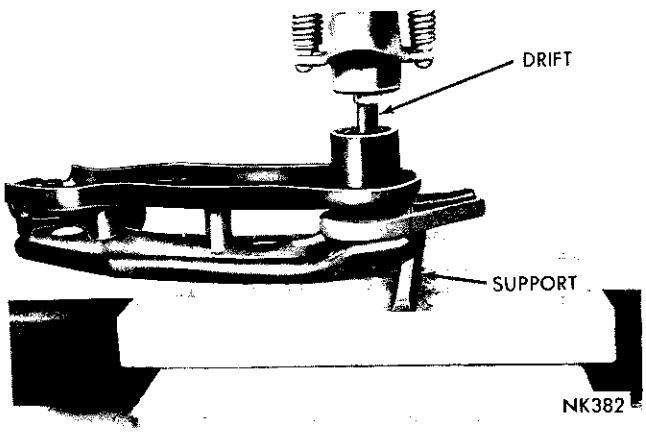

Fig. 15—Removing the Pivot Shaft (Chrysler)

(7) Remove the rubber portion of the bushing from the control arm.

(8) Remove the bushing outer shell by cutting with a chisel. **Use care not to cut into the control arm.**

Assembly (Chrysler Models)

(1) Position the new bushing on the shaft, flange end of bushing first, and seat the bushing on the shoulder of the shaft.

(2) Press the shaft and bushing assembly into the control arm using Tool C-3556 and an arbor press. **In some instances, it may be necessary to reduce the shoulder diameter of the shaft to facilitate the use of Tool C-3556.**

(3) Install the torsion bar adjusting bolt and swivel.

(4) Install the jounce bumper on the control arm and tighten the nut 200 inch-pounds.

(5) Position the strut in the control arm and tighten the nut 110 foot-pounds.

Installation (Chrysler Models)

(1) Install the strut inner bushing half (Fig. 14) in the crossmember.

(2) Place the strut bushing inner retainer on the strut and position the control arm, shaft and strut assembly into the crossmember.

(3) Install the outer strut bushing half, sleeve and retainer. Install the nut finger tight only.

(4) Install the control arm pivot shaft washer and nut finger tight only.

(5) Position the lower ball joint stud into the control arm. Tighten the nut 115 foot-pounds and install the cotter pin.

(6) Position the brake support on the steering knuckle and install the two upper bolts and nuts finger tight only.

(7) Position the steering knuckle arm on the steering knuckle and install the two lower bolts and nuts finger tight only.

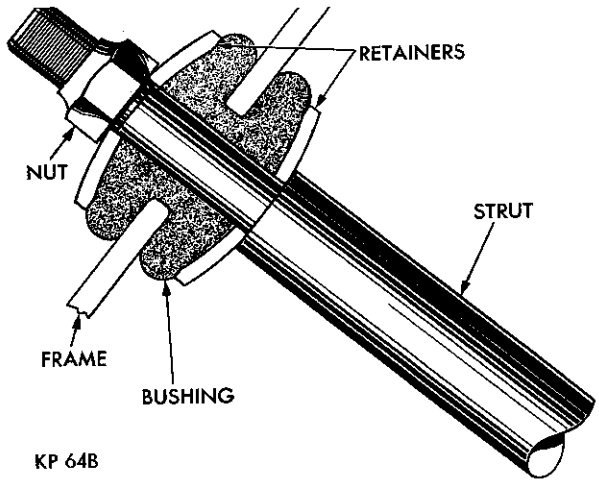

Fig. 16—Strut Bushing (Imperial)

(8) Tighten the upper bolt nuts 55 foot-pounds and the lower bolt nuts 100 foot-pounds.

(9) Inspect the tie rod for damage. Connect the tie rod end to the steering knuckle arm and tighten the nut 40 foot-pounds. Slide the tie rod end seal protector over the tie rod end and install the cotter pin.

(10) Connect the shock absorber to the control arm and tighten the nut 55 foot-pounds.

(11) Install the torsion bar.

(12) Install the wheel, tire and drum assembly and adjust the front wheel bearings (Group 22).

(13) Lower the vehicle to the floor and tighten the strut nut, at the crossmember, 40 foot-pounds.

(14) Tighten the lower control arm shaft nut 180 foot-pounds and install the cotter pin.

(15) Measure and adjust the front suspension height and wheel alignment as necessary.

LOWER CONTROL ARM STRUT

Removal (Chrysler Models)

(1) Remove the lower control arm, shaft and strut as an assembly.

(2) Remove the nut holding the strut to the control arm and remove the strut from the control arm.

(3) Inspect the strut bushings (Fig. 14).

Installation (Chrysler Models)

(1) Install new strut bushings if necessary.

(2) Position the strut into the control arm and tighten the retaining nut 100 foot-pounds.

(3) Install the control arm, shaft and strut assembly.

Removal (Imperial Models)

(1) Remove the nuts, lockwashers, and bolts that attach the sway bar bushing housings to the struts, disconnect the sway bar from the struts.

(2) Remove the strut to lower control arm mounting bolts and nuts.

(3) Remove the nut and bushing retainer (Fig. 16) from the forward end of the strut at the crossmember.

(4) Slide the strut and inner bushing retainer from the bushing in the frame.

(5) Using a screwdriver, pry the bushing out of the front of the frame.

Installation (Imperial Models)

(1) Dip the new bushing in water and with the tapered portion toward the rear of the vehicle, install the bushing in the opening in the frame using a twisting motion (and/or hammer) until the groove in the bushing indexes properly with the frame.

(2) With the cupped side out, slide the washer over the threaded end of the strut. Push the strut through the bushing in the frame, position the outer washer over the end of the strut (cupped side in) and install the nut.

(3) Tighten the nut sufficiently to install the strut to the lower control arm mounting bolts. Install the bolts, lockwashers and nuts, and tighten to 100 foot-pounds.

(4) Tighten the nut on the forward end of the strut to 40 foot-pounds torque with the full weight of the vehicle on the wheels.

(5) Install the sway bar.

(6) Adjust the front wheel alignment.

UPPER CONTROL ARM

Removal

(1) Place a jack under the lower control arm as close to the wheel as possible and raise the vehicle until the front wheel clears the floor.

(2) Remove the wheel and tire assembly.

(3) **On Imperial Models,** remove the upper and lower ball joint stud nuts. Slide the Tool C-3564 down over the lower stud until the tool rests on the steering knuckle. Turn the threaded portion of the tool locking it securely against the upper stud (Fig. 11). Spread the tool enough to place the upper stud under pressure then strike the knuckle sharply with a hammer to loosen the stud. **Do not attempt to force the stud out of the knuckle with the tool alone.** Remove the tool, then disengage the ball joint from the knuckle.

(4) **On Chrysler Models,** remove the upper ball joint stud using Tool C-3964 (Fig. 12).

(5) Remove the nuts, lockwashers, cams and cam bolts attaching the upper control arm bushings to the front and rear support. Lift the upper control arm up and away from the support.

Disassembly

(1) Remove the ball joint using Tool C-3560 for Chrysler Models or Tool C-3561 for Imperial Models. The ball joint balloon type seal will come off as the ball joint is removed.

(2) Assemble Tool C-3962, using adapter SP-3953 (Chrysler Models) Tool C-3710, using adapter SP-3088 (Imperial Models) over the bushing and press the bushing out of the arm (from inside out) (Fig. 17). **Be sure the control arm is firmly supported if a hammer and drift is used in place of the tool.**

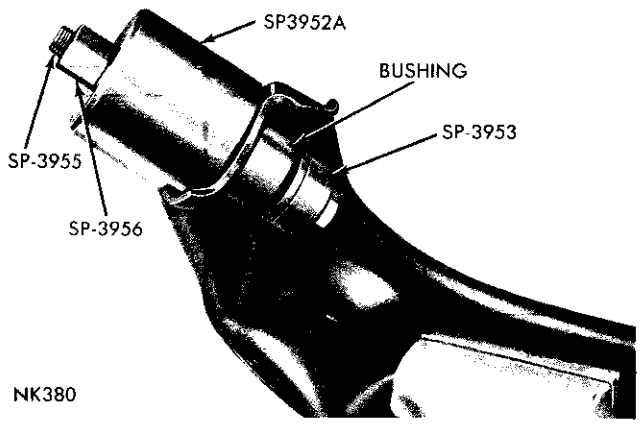

Fig. 17—Removing Upper Control Arm Bushing (Chrysler)

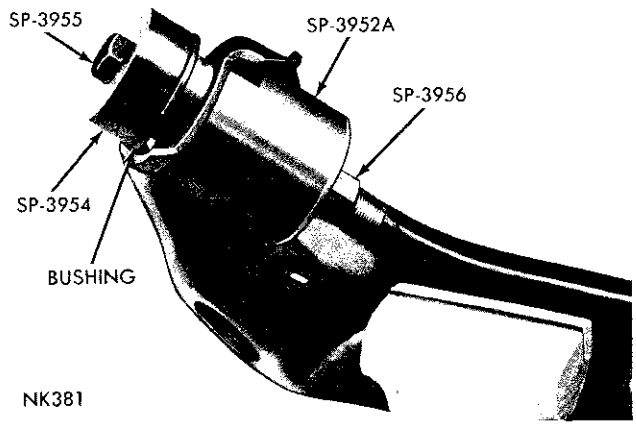

Fig. 18—Installing Upper Control Arm Bushing (Chrysler)

Assembly

NOTE: When installing the new bushings, be sure the control arm is supported squarely at the point where the bushing is being pressed in. Do not use oil or grease to aid in installation.

(1) Position the flange end of the new bushing in Tool C-3962 (Chrysler Models), Tool C-3710 (Imperial Models).

(2) Support the control arm squarely and press the bushings into the control arm (from outside) until the tapered portion of the bushing seats on the arm (Fig. 18).

(3) Thread the ball joint into the arm using Tool C-3560 for Chrysler Models or Tool C-3561 for Imperial Models.

(4) Tighten to a minimum of 125 foot-pounds on Chrysler Models and 150 foot-pounds on Imperial Models until seated. The ball joint will cut threads into a new arm during the tightening operation.

Installation

(1) Slide the upper control arm into position. Install the cam bolts, cams, washers and nuts. Tighten the nuts 65 foot-pounds after adjusting the front wheel alignment.

(2) Position the new ball joint seal on the ball joint body, and using Tool C-3867 for Imperial Models, install the seals. On Chrysler Models press the seal on by hand making sure it is seated fully down on the housing. **To facilitate installation of the seal the ball joint stud should be perpendicular to the ball joint body.** Lubricate the ball joint.

(3) Position the stud in the steering knuckle and install the washer and nut. Tighten the nut 100 foot-pounds on Chrysler Models and 135 foot-pounds on Imperial Models. Install the cotter pin.

(4) Install the wheel and tire and adjust the front wheel bearing (Group 22).

(5) Adjust the front wheel alignment and suspension height.