

SERVICE PROCEDURES

WHEEL ALIGNMENT

Front wheel alignment is the proper adjustment of all the interrelated suspension angles affecting the running and steering of the front wheels of the vehicle. The importance of wheel alignment and wheel balancing is considered essential in order to maintain ease of steering, good directional stability and to prevent abnormal tire wear.

Under every day driving conditions the front wheel alignment angles change and therefore it becomes necessary that every vehicle should have an alignment check at least once a year. Such an inspection of the front suspension and steering components is a preventive maintenance service and also has a definite bearing on the safe operation of the vehicle.

The method of checking front wheel alignment will vary depending on the type of equipment being used. The instructions furnished by the manufacturer of the equipment should always be followed, with the exception of the specifications as recommended by the Chrysler Motors Corporation should always be used.

There are six basic factors which are the foundation to front wheel alignment; height, caster, camber, toe-in, steering axis inclination and toe-out on turns (Fig. 1). All are mechanically adjustable except steering axis inclination and toe-out on turns. The latter two are valuable in determining if parts are bent or damaged particularly when the camber and caster adjustments cannot be brought within the recommended specifications.

Do not attempt to modify any suspension or steering components by heating or bending.

All adjustments should be made in the following sequence:

- (a) Front suspension height
- (b) Caster and Camber
- (c) Toe-in
- (d) Steering Axis Inclination
- (e) Toe-out on Turns.

Caster is the number of degrees of forward or backward tilt of the spindle support arm at the top. Forward tilt of the spindle support arm at the top is negative caster. Backward tilt of the spindle support arm at the top from true vertical is positive caster.

Camber is the number of degrees the top of the wheel is tilted inward or outward from a true vertical. Inward tilt of the top of the wheel from true vertical is negative camber. Outward tilt of the wheel at the top is positive camber. Excessive camber is a tire wear factor; negative camber causes wear on the inside of the tire, while positive camber causes wear to the outside.

Toe-in is measured in inches and is the distance the leading edges of the tires are closer than the trailing edges. Toe-in is considered the most serious cause for excessive tire wear. Toe-in is the last of the alignment angles to be set in the front wheel alignment operation.

Steering Axis Inclination is measured in degrees and is the amount the spindle support center line is tilted from true vertical. It has a fixed relationship with camber settings and does not change except when a spindle or ball joint is damaged or bent. This angle is not adjustable and damaged parts must be replaced.

Toe-out on Turns (Turning Radius) is measured in degrees and is the amount one front wheel turns sharper than the other on a turn. This angle is designed into the steering arms in relationship to the wheelbase of the vehicle and is not adjustable. When checking the turning radius and it is found not to be within the recommended specifications, look for possible bent or damaged components.

PRE-ALIGNMENT INSPECTION

Before any attempt is made to change or correct the wheel alignment factors the following inspection and necessary corrections must be made on those

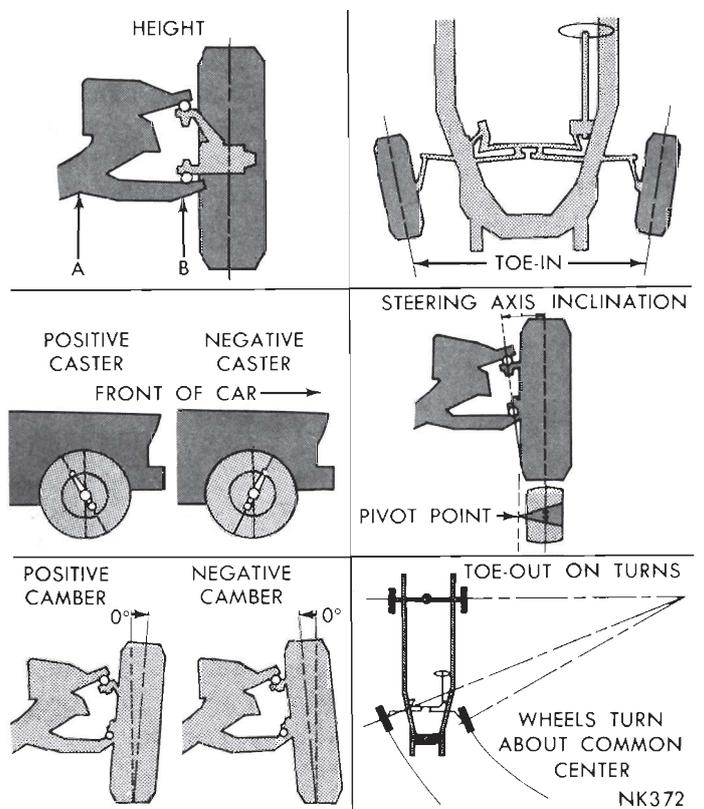


Fig. 1—Wheel Alignment Factors

parts which influence the steering of the vehicle.

(1) Check and inflate tires to recommended pressure. All tires should be same size and be in good condition and have approximately same wear. Note type of tire tread wear which will aid in diagnosing (Group 22).

(2) Check and adjust front wheel bearings (Group 22).

(3) Check front wheel and tire assembly for radial and lateral runout (follow the Equipment Manufacturers Instructions (Group 22).

(4) Check wheel and tire for unbalance conditions both static and dynamic which could affect steering.

(5) Inspect ball joints and all steering linkage pivot points for excessive looseness.

(6) Check shock absorbers for leaks and jounce vehicle to determine if shock absorbers have proper control.

(7) Check steering gear for roughness, binding or sticking condition and adjust as necessary.

(8) Check rear springs for cracks or broken leaves and "U" bolts for proper tightness and measure height differential between left and right sides of vehicle. (Vehicle should be on level floor or on alignment rack) with a full tank of fuel and no luggage or passenger load.

(9) Front suspension heights must only be checked after the vehicle has the recommended tire pressures, full tank of fuel, no passenger load and is on a level floor or alignment rack.

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

WHEEL ALIGNMENT ADJUSTMENTS

Front wheel alignment settings must be held to specifications to hold tire wear to a minimum and to maintain steering ease and handling of vehicle.

The equipment manufacturers recommended procedure should always be followed. 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.**

Height

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 after the vehicle has the recommended tire pressures, a full tank of fuel, no passenger or luggage compartment

load and is on a level floor or alignment machine.

(1) Clean all foreign material from bottom of steering knuckle arm assemblies and from lowest area of the height adjusting blades directly below center of lower control arm inner pivots.

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

(3) Measure distance from lowest point of one adjusting blade to floor (Measurement A) and from lowest point of steering knuckle arm, at the centerline, on same side (Measurement B) to floor (Fig. 2). **Measure only one side at a time.**

The difference between A and B (A always being greater than B) is the front suspension height.

(4) Refer to Specifications and adjust if necessary by turning torsion bar adjusting bolt clockwise to increase height and counterclockwise to decrease height.

(5) After each adjustment, jounce vehicle before remeasuring. Both sides should be measured even though only one side has been adjusted.

(6) Measure other side in same manner. The maximum allowable difference in suspension height from side to side is 1/8 inch on all Models.

Camber and Caster

Access holes to loosen upper control arm cam bolt nuts have been provided for in the fender side shields (Fig. 3) of the Satellite vehicles. The front access hole is made available by removing splash cover tapping screws and cover.

(1) Prepare vehicle for measuring wheel alignment.

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

(3) Record initial camber and caster readings before loosening 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. See specifications at rear of group.

Toe-In

The toe setting should be the final operation of the front wheel alignment adjustments. The front wheels

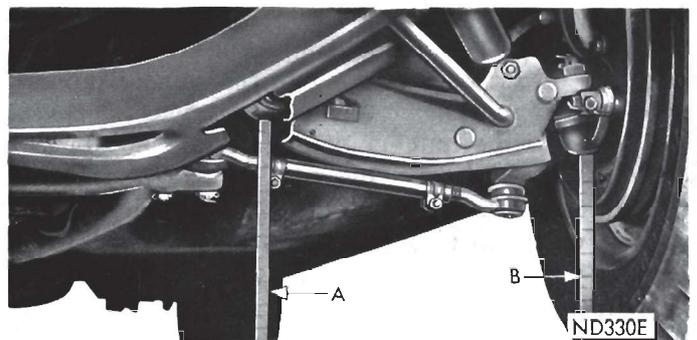


Fig. 2—Measuring Front Suspension Height

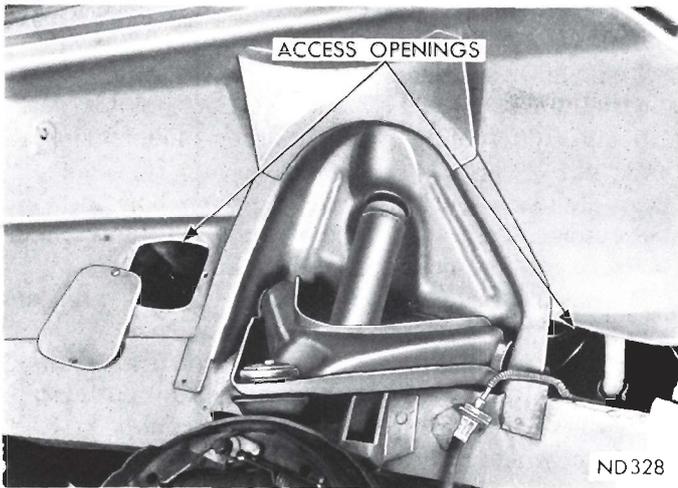


Fig. 3—Access Opening in Fender Shield

must be in a straight ahead position. Follow the equipment manufacturers procedure. The steering wheel should also be centered during this operation.

Turning the tie rod sleeve will “center” the steering wheel spokes. If the steering wheel was centered, make the toe-in adjustment by turning both sleeves an equal amount.

Tighten adjusting sleeve clamp bolt nuts 115 inch-pounds (Valiant, Satellite). (Fury models 150 inch-pounds). **Make sure clamp bolt nuts are on the bottom.**

TORSION BAR

The torsion bars are **not** interchangeable side for side. The bars are marked either right or left by an “R” or an “L” stamped on one end of the bar.

Removal

- (1) Remove upper control arm rebound bumper.
- (2) If vehicle is to be raised on a hoist, make sure it is lifted on body only so that front suspension is in full rebound (under no load). If vehicle is to be raised on jacks, placed under center of crossmember **it will be necessary that, a support first be placed between the crossmember and the jack.**
- (3) Release all load from torsion bar (Fig. 4) by turning anchor adjusting bolt (Fig. 5) counterclockwise.
- (4) Remove lock ring from torsion bar rear anchor (Fig. 4).
- (5) Using Tool C-3728, remove torsion bar (Fig. 5) from its anchors. It is advisable to place Tool C-3728 toward rear of torsion bar to allow sufficient room for striking the striking pad of tool. **Do not apply heat to torsion bar, front anchor or rear anchor.**
- (6) Remove tool and slide rear anchor balloon seal from anchor to facilitate removal of torsion bar.
- (7) Remove torsion bar by sliding bar out through

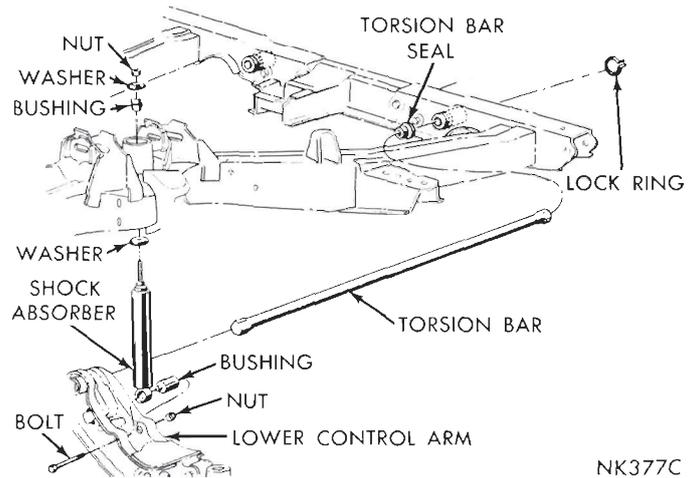


Fig. 4—Torsion Bar

rear of anchor. Use care not to damage balloon seal when it is removed from torsion bar.

Inspection

- (1) Inspect balloon seal for damage and replace if necessary.
- (2) Inspect torsion bar for scores and nicks. Dress down all scratches and nicks to remove sharp edges, then paint repaired area with a good rust preventative.
- (3) Remove all foreign material from hex openings in anchors and from hex ends of torsion bars.
- (4) Inspect adjusting bolt and swivel and replace if any corrosion or other damage is noted. Lubricate for easy operation.

Installation

- (1) Insert torsion bar through rear anchor.
- (2) Slide balloon seal over torsion bar (cupped end toward rear of bar).

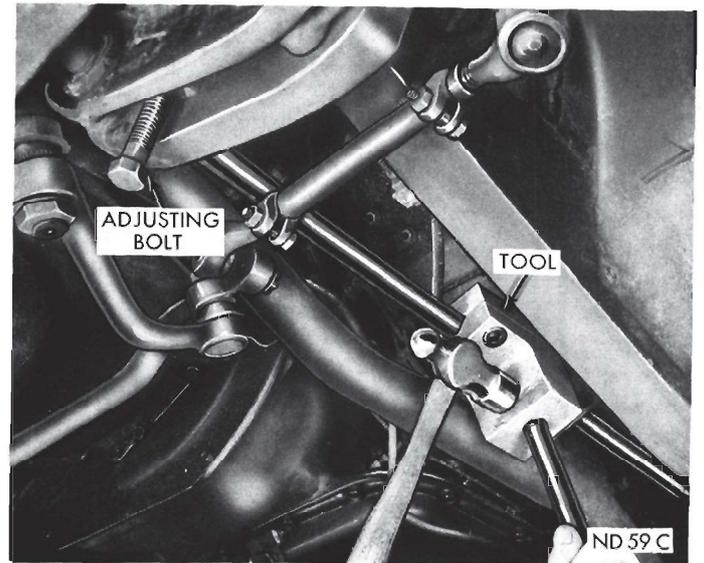


Fig. 5—Removing Torsion Bar

- (3) Coat both hex ends of torsion bar with Multi-Mileage Lubricant or equivalent.
- (4) Slide torsion bar into hex opening of lower control arm.
- (5) Install lock ring in rear anchor.
- (6) Pack the annular opening in rear anchor completely full of Multi-Mileage Lubricant or equivalent.
- (7) Position balloon seal on rear anchor so lip of seal engages with groove in anchor.
- (8) Turn adjusting bolt clockwise to place a load on torsion bar.
- (9) Lower vehicle to floor and adjust front suspension height.
- (10) Install upper control arm rebound bumper and tighten nut 200 inch-pounds.

STEERING KNUCKLES

ON MODELS EQUIPPED WITH DISC BRAKES, REFER TO GROUP 5 FOR BRAKE DISC REMOVAL AND INSTALLATION PROCEDURES.

Removal

- (1) Remove upper control arm rebound bumper.
- (2) Raise vehicle so front suspension is in full rebound (under no load).
- (3) Remove wheel, tire and drum as an assembly.
- (4) Remove all load from torsion bar by turning adjusting bolt counterclockwise.
- (5) Remove tie rod end from steering knuckle using Tool C-3894.
- (6) Remove upper ball joint stud from steering knuckle using Tool C-3711 (on Fury Models use Tool C-3964). It may be necessary to add approximately 7/16 inch of flat washers over lower ball joint stud to allow the use of Tool C-3711 without damaging threads on lower ball joint stud. Place Tool C-3711 over stud. Turn threaded portion of tool locking it securely against the upper stud (Fig. 22). To use Tool C-3711 as outlined, it may be necessary to modify the tool (Fig. 24). Spread tool enough to place upper stud under a load, then strike steering knuckle sharply with a hammer to loosen stud. Do not attempt to force stud out of steering knuckle with tool alone.
- (7) Remove two upper bolts attaching steering knuckle to brake support.
- (8) Remove two lower bolts attaching steering arm to steering knuckle and remove steering knuckle. **Support the brake assembly during this operation to prevent damage to brake hose when lower bolts are removed.**

Installation

- (1) Position steering knuckle on brake support and install upper mounting bolts and nuts. Tighten nut finger tight only.
- (2) Position steering knuckle arm on steering

knuckle and install mounting bolts and nuts finger tight only.

- (3) Install upper ball joint stud in steering knuckle and tighten ball joint stud nut 55 foot-pounds (Valiant) and 100 foot-pounds (all other models). Install cotter pin.
- (4) Tighten steering knuckle upper bolt nuts 55 foot-pounds. Tighten lower bolt nuts 100 foot-pounds (Valiant) 120 foot-pounds (Satellite-Fury).
- (5) Place a load on the torsion bar by turning adjusting bolt clockwise.
- (6) Install tie rod end in steering knuckle arm and install nut, tighten 40 foot-pounds. Install cotter pin.
- (7) Install wheel, tire and drum assembly and adjust front wheel bearings (Group 22).
- (8) Lower vehicle to floor and install upper control arm rebound bumper. Tighten nut 200 inch-pounds.
- (9) Measure and adjust front suspension heights and wheel alignment as necessary.

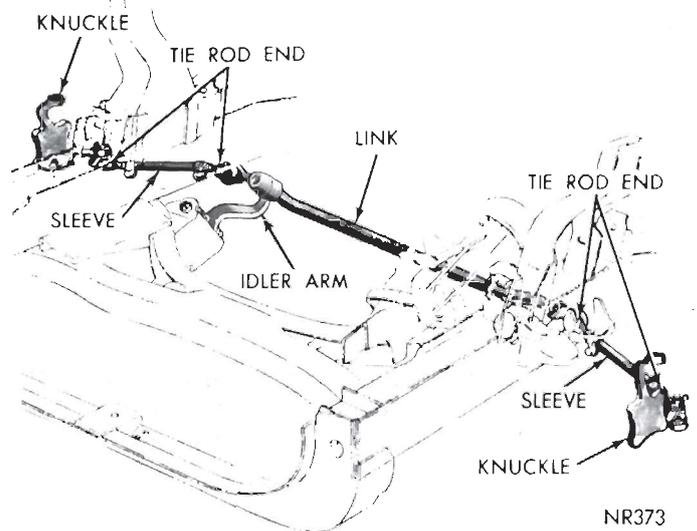


Fig. 6—Steering Linkage (Valiant-Barracuda)

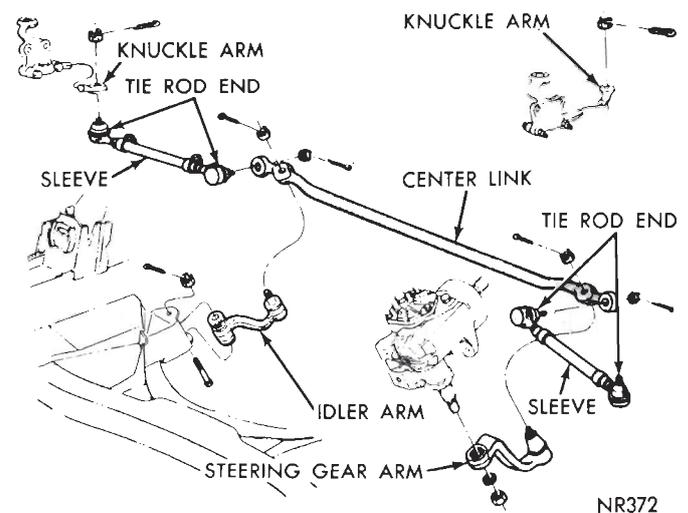
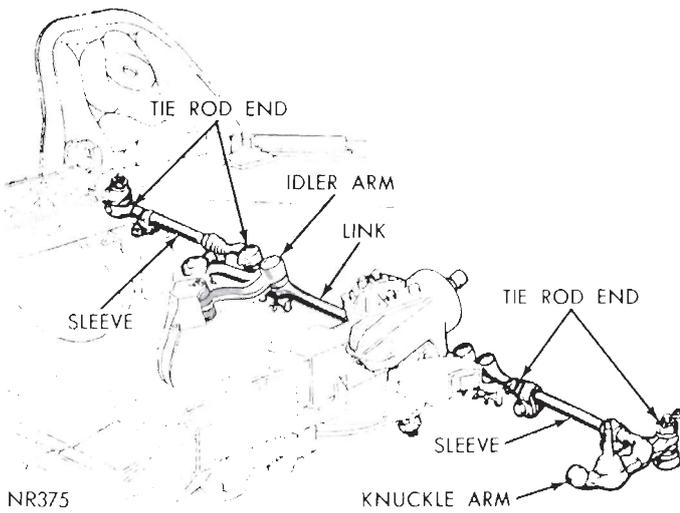
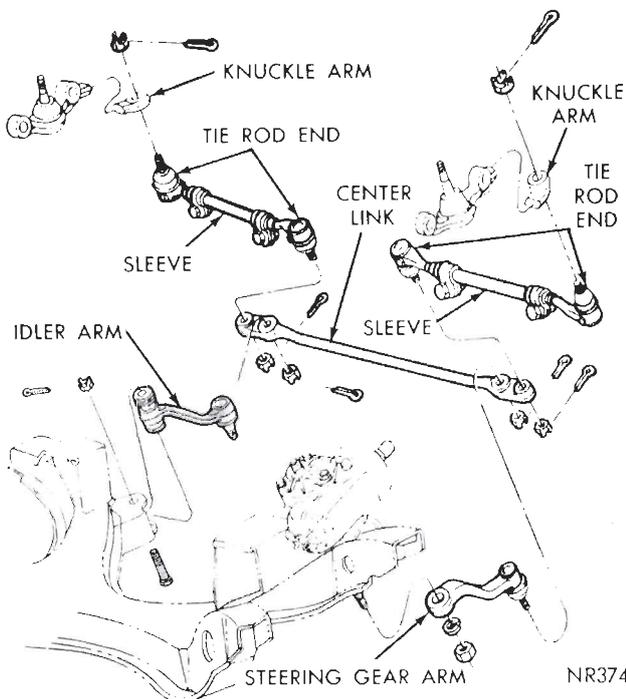


Fig. 6—Steering Linkage (Valiant-Barracuda)



NR375

Fig. 7—Steering Linkage (Satellite)



NR374

Fig. 7—Steering Linkage (Satellite)

STEERING LINKAGE (Figs. 6, 7 and 8)

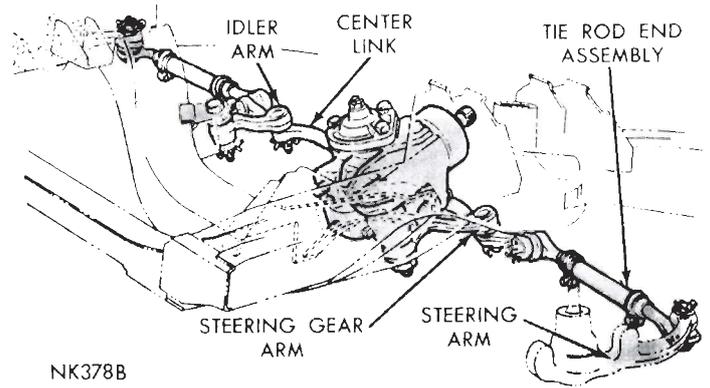
The tie rod end seals should be inspected for damage at all oil change periods.

Removal

Removal of tie rod ends from the steering knuckle arm or center link by methods other than using Tool C-3894 will damage tie rod end seal.

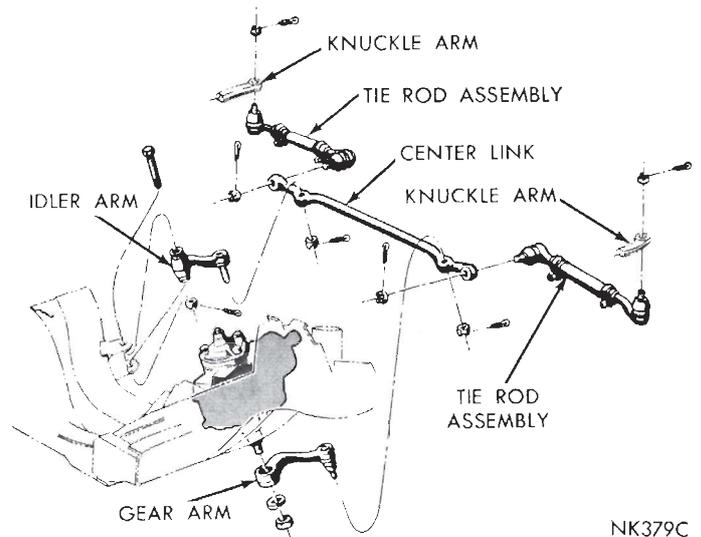
When removing tie rod ends, idler arm or steering gear arm, all seals should be closely inspected for wear or damage. The tie rod ends are of the semi-permanently lubricated type.

Damaged seals require removal of the seals and inspection of the tie rod assembly end at the throat



NK378B

Fig. 8—Steering Linkage (Fury)



NK379C

Fig. 8—Steering Linkage (Fury)

opening. If the parts have not lost all the lubricant or are not contaminated, worn or rusted, use new seals and reinstall, otherwise, a new complete tie rod end assembly should be installed. Lubricate the tie rod end assembly with special long-life chassis greases such as Multi-Mileage Lubricant, Part Number 2525035 intended for this purpose.

- (1) Remove tie rod ends from steering knuckle arms (Fig. 9). **Use care not to damage seals.**
- (2) Remove inner tie rod ends from center link.
- (3) Remove idler arm stud from center link.
- (4) Remove idler arm bolt from crossmember bracket.
- (5) Remove steering gear arm stud from center link.
- (6) Remove steering gear arm from gear.

Installation

Replace all tie rod and steering arm assemblies that are damaged or worn.

- (1) Position idler arm assembly in bracket and install bolt. Tighten nut 65 foot-pounds and install cotter pin.



Fig. 9—Removing Tie Rod End Stud from Steering Knuckle Arm

- (2) Place center link over idler arm and steering gear arm studs and tighten nuts 40 foot-pounds. Install cotter pins.
- (3) Connect tie rod ends to steering knuckle arms and centerlink. Tighten nuts 40 foot-pounds and install cotter pins.
- (4) Measure and adjust front wheel toe.

SWAY BAR (Figs. 10, 11 and 12)

Removal—Valiant—Satellite

- (1) Loosen and remove upper link nut, retainer and rubber insulator on both sides.
- (2) Loosen and remove bolts attaching both brackets to front crossmember.
- (3) Remove sway bar from vehicle.
- (4) Loosen and remove nuts, retainers and rubber insulators and remove links from lower control arm

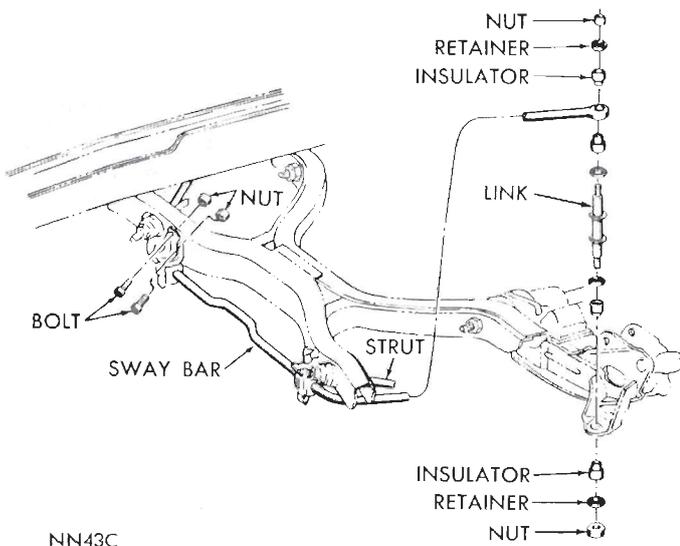


Fig. 10—Sway Bar Assembly (Valiant-Barracuda)

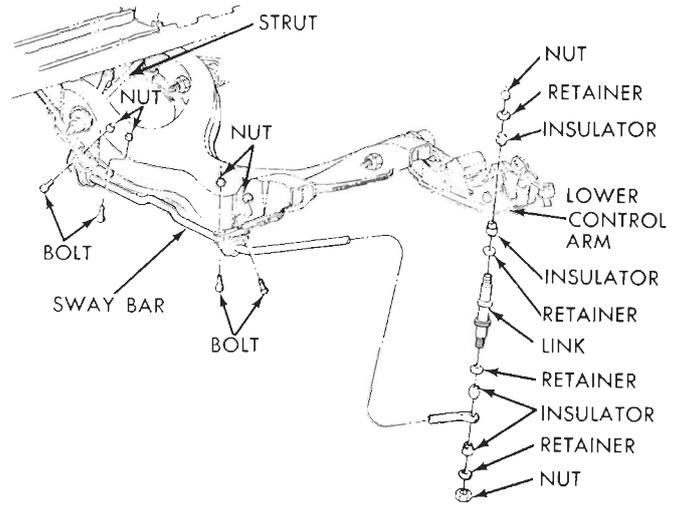


Fig. 11—Sway Bar Assembly (Satellite)

- bracket.
- (5) If the rubber insulator bushings show excessive wear or deterioration of rubber, install new bushings.
- The sway bar cushions are not serviced separately. If replacement is necessary, install a new sway bar assembly.

Installation—Valiant—Satellite

- (1) Position link with retainer and rubber insulator in lower control arm bracket, followed by rubber insulator and retainer (concave side toward rubber insulator) and nut. Tighten nut to 100 inch-pounds.
- (2) Position sway bar assembly in vehicle and install attaching bolts and nuts and tighten to 200 inch-pounds.

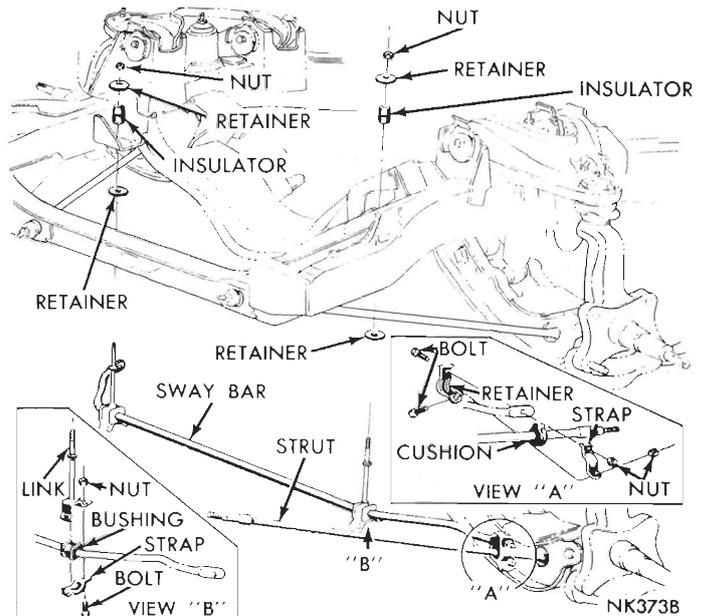


Fig. 12—Sway Bar Assembly (Fury)

(3) Install retainer on link, followed by rubber insulator and sway bar. Using a screwdriver or pinch bar between strut and sway bar, if necessary apply pressure and install upper rubber insulator, retainer and nut, tighten nuts 100 inch-pounds.

Removal—Fury

- (1) Remove two sway bar link retaining nuts and concave retainers.
- (2) Remove two sway bar cushion retaining nuts, lockwashers, straps, and bolts, (one to each strut). Slide sway bar out through control arm struts and away from vehicle. **The sway bar bushings are not serviced separately. If replacement is necessary, install a new sway bar assembly. Remove lower concave retainers.**
- (3) Remove sway bar link insulators from frame bracket. If insulators are worn or deteriorated, install new insulators as required.

Installation

- (1) Dip sway bar link insulators in water and install in opening in frame bracket, using a twisting motion. When installed properly, groove in insulator will index with opening in frame bracket.
- (2) Thread sway bar into position over top of lower control arm struts.
- (3) Engage sway bar cushion brackets with struts and install straps, bolts, lockwashers and nuts. Tighten to 30 foot-pounds.
- (4) Install retainers over ends of links (concave side up), then slide links up through insulators. Install retainers (concave side down) over ends of links and down on insulators. Install nuts and tighten to 100 inch-pounds.

LOWER CONTROL ARM AND SHAFT (Figs. 13, 14 and 15)

Removal ON MODELS EQUIPPED WITH DISC BRAKES, REFER TO GROUP 5 FOR BRAKE DISC REMOVAL AND INSTALLATION PROCEDURES.

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

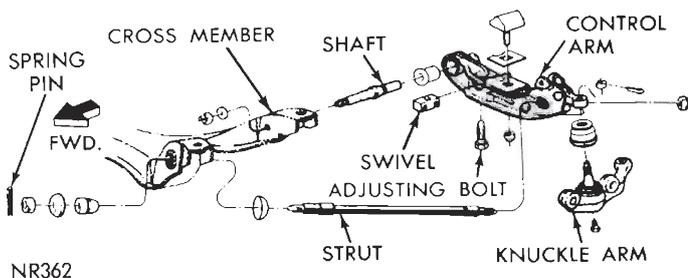


Fig. 13—Lower Control Arm (Valiant-Barracuda)

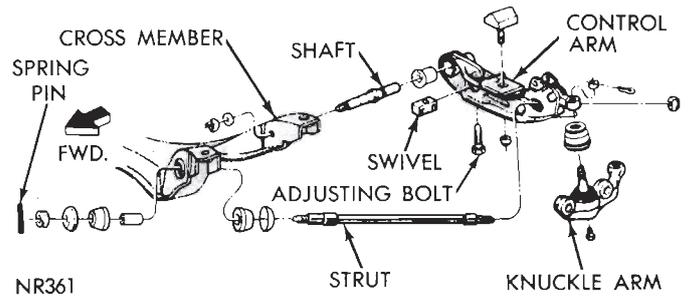


Fig. 14—Lower Control Arm (Satellite)

- (2) Remove lower shock absorber attaching bolt and push up and out of way, and remove torsion bar from lower control arm.
- (3) Remove tie rod end from steering knuckle arm using Tool C-3894 (Fig. 9). **Use care not to damage seal.**
- (4) Remove sway bar to strut strap (Fury Models) or remove sway bar link from lower control arms (Valiant, Satellite).
- (5) Remove steering knuckle arm to brake support bolts and remove steering knuckle arm. Move brake support assembly out of way.
- (6) Remove ball joint stud from lower control arm using Tool C-3964 (Fig. 16). The bottom portion of tool must be positioned between seal and control arm to avoid seal damage.
- (7) Remove strut spring pin, front nut and bushing retainer (Fig. 11) from forward end of crossmember.
- (8) Remove nut and washer from lower control arm shaft.
- (9) Tap end of lower control arm shaft with a "soft end" hammer to aid in removal of shaft from crossmember.
- (10) Remove lower control arm, shaft and strut as an assembly.
- (11) Remove strut bushing from crossmember only if damaged. All models (except Valiant) use a two piece bushing and sleeve arrangement (Figs. 17 and 18).

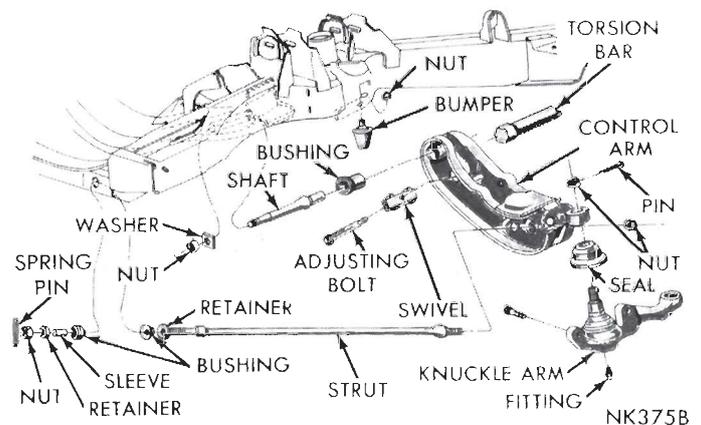


Fig. 15—Lower Control Arm (Fury)



Fig. 16—Removing Lower Ball Joint Stud

(12) Remove strut bushing inner retainer from strut.

Disassembly

- (1) Place strut portion of control arm assembly in a vise and remove strut nut.
- (2) Remove strut from control arm.
- (3) Remove torsion bar adjusting bolt and swivel.
- (4) Place lower control arm assembly in an arbor press with torsion bar hex opening up and with a support under outer edge of control arm.
- (5) Place a brass drift into hex opening and press shaft out of lower control arm. The bushing inner shell will remain on shaft.
- (6) Cut and remove rubber portion of bushing from control arm shaft.
- (7) Remove bushing outer shell by cutting with a chisel. **Use care not to cut into control arm.**
- (8) Remove bushing inner shell from pivot shaft. Cut off if necessary.

Assembly

- (1) Position new bushing on shaft (flange end of bushing first). Press shaft into inner sleeve until bushing seats on shoulder of shaft.
- (2) Press shaft and bushing assembly into lower control arm using Tool C-3848 and an arbor press. (Fury Models use Tool C-3556). In some instances

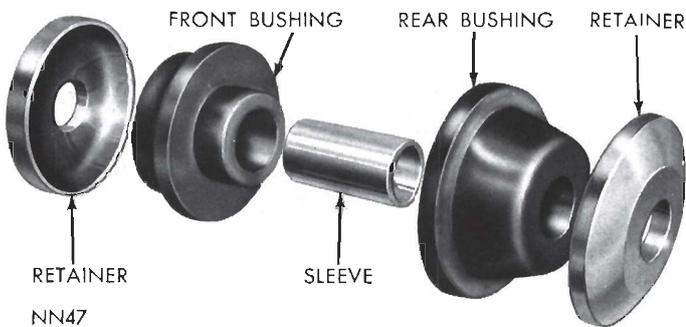


Fig. 17—Strut Crossmember Bushings (Satellite)

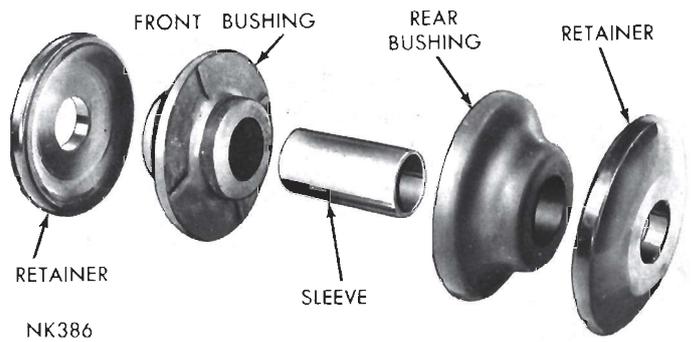


Fig. 18—Strut Crossmember Bushings (Fury)

it may be necessary to reduce the diameter of shaft shoulder to facilitate use of tool.

- (3) Install torsion bar adjusting bolt and swivel.
- (4) Position strut in lower control arm and tighten nut 110 foot-pounds (Fury), 100 foot-pounds (Valiant and Satellite).

Installation

- (1) On Valiant models, install new strut bushing in crossmember with a twisting motion. Water may be used as a lubricant to aid in installation.
- (2) Place strut bushing inner retainer on strut and install lower control arm, shaft, and strut assembly. Install strut, strut bushing outer retainer and nut finger tight only.
- (3) On Plymouth models, position front strut bushing half and sleeve into crossmember. Place rear retainer and rear strut bushing on strut and position control arm, shaft and strut assembly into crossmember. Install strut bushing outer retainer and nut finger tight only.
- (4) Install lower control arm shaft washer and nut finger tight only.
- (5) Position lower ball joint stud into lower control arm and tighten nut 100 foot-pounds (Fury Models 115 foot-pounds). Install cotter pin.
- (6) Position brake support on steering knuckle and install two upper bolts and nuts finger tight only.
- (7) Position steering knuckle arm on steering knuckle and install two lower bolts and nuts.
- (8) Tighten upper bolt nuts 55 foot-pounds. Tighten lower bolt nuts 100 foot-pounds (Valiant) 120 foot-pounds (Satellite-Fury).
- (9) Inspect tie rod end seal and replace if damaged. Connect tie rod end to steering knuckle arm and tighten nut 40 foot-pounds. Slide tie rod end seal protector over tie rod end and install cotter pin.
- (10) Connect shock absorber to control arm and tighten finger tight only. (Valiant install bolt from rear only).
- (11) Install wheel, tire and drum assembly and adjust front wheel bearing (Group 22).
- (12) Lower vehicle to floor, adjust front suspension heights and tighten strut nut, at crossmember 40 foot-

pounds and install strut spring pin Valiant (50 foot-pounds Satellite and Fury models). Tighten shock absorber nut 50 foot-pounds.

(13) Tighten lower control arm shaft nut 130 foot-pounds (Fury 180 foot-pounds).

(14) Measure and adjust front wheel alignment as necessary.

LOWER CONTROL ARM STRUT

Removal

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

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

(3) Inspect strut bushings (Figs. 17 and 18). If bushings are worn or deteriorated, install new bushings.

Installation

(1) Install new strut bushings, if necessary.

(2) Position strut into control arm and tighten nut 110 foot-pounds (Fury) 100 foot-pounds (Valiant and Satellite).

(3) Position strut bushing inner retainer on strut and position control arm shaft and strut assembly into crossmember. Install strut front bushing, sleeve and retainer. Tighten nut finger tight only.

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

(5) Connect shock absorber to lower control arm and tighten nut finger tight only.

(6) Lower vehicle to floor so full weight is on its wheels.

(7) Adjust front suspension heights to specifications.

(8) Tighten front strut nut 40 foot-pounds Valiant, (50 foot-pounds Satellite and Fury), install strut spring pin. Tighten pivot shaft nut 130 foot-pounds Valiant and Satellite (180 foot-pounds Fury models). Tighten shock absorber nut 50 foot-pounds Valiant and Satellite (55 foot-pounds Fury models).

(9) Adjust front wheel alignment as necessary.

LOWER BALL JOINTS

ON MODELS EQUIPPED WITH DISC BRAKES, REFER TO GROUP 5 FOR BRAKE DISC REMOVAL AND INSTALLATION PROCEDURES.

Inspection

(1) Raise the front of vehicle and install safety floor stands under both lower control arms as far outboard as possible. The upper control arms must not contact the rubber rebound bumpers.

(2) With the weight of vehicle on the control arm, install dial indicator and clamp assembly to lower con-

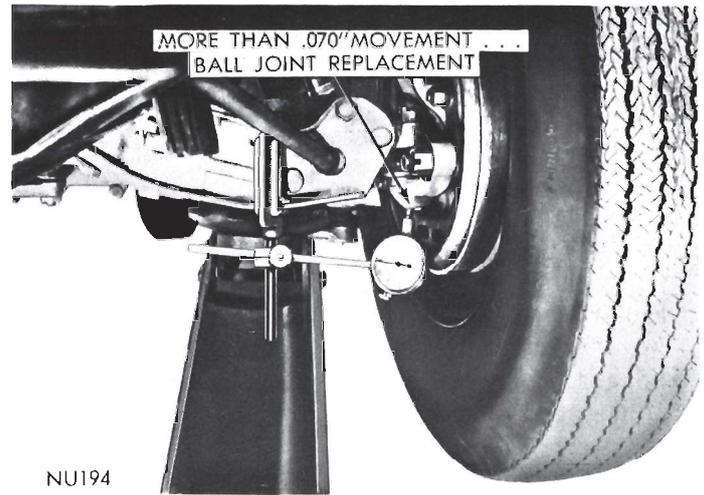


Fig. 19—Measuring Lower Ball Joint Axial Travel

trol arm (Fig. 19).

(3) Position dial indicator plunger tip against ball joint housing assembly and zero dial indicator.

(4) Measure axial travel of the ball joint housing arm with respect to the ball joint stud, by raising and lowering the wheel using a pry bar under the center of the tire.

(5) If during measurement you find the axial travel of the housing arm is .070" or more, relative to the ball joint stud, the ball joint should be replaced.

Removal

The lower ball joint is integral with the steering arm and is not serviced separately. Compression type lower ball joints are used on all models.

(1) Remove upper control arm rebound bumper.

(2) Raise vehicle so front suspension is in full rebound. Remove all load from torsion bar by turning adjusting bolt counterclockwise. If jacks are used to raise vehicle it is essential that a support be used between the crossmember and jack.

(3) Remove wheel, tire and drum as an assembly. It may be necessary to back-off the brake shoes to facilitate removal of drum assembly.

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

(5) Remove tie rod end from steering arm using Tool C-3894. **Use care not to damage seal.**

(6) Using Tool C-3964 remove ball joint stud from lower control arm (Fig. 16), and remove steering arm and ball joint assembly.

Installation

(1) Place a new seal over ball joint (if necessary) and using a 1-7/8 inch socket press retainer portion of seal down on ball joint housing until it is securely locked in position (Valiant, Satellite use Tool C-4039).

2-12 FRONT SUSPENSION

(2) Position steering arm and ball joint assembly on steering knuckle and install two mounting bolts. Tighten nuts 100 foot-pounds (Valiant), 120 foot-pounds (Belvedere-Satellite-Fury).

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

(4) Install stud retaining nut and tighten 100 foot-pounds, (Fury models 115 foot-pounds). Install cotter pin and lubricate ball joint, see Lubrication Section Group "O".

(5) Inspect tie rod seal for damage and replace if damaged. Connect tie rod end to steering knuckle arm, tighten nut 40 foot-pounds, and install cotter pin.

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

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

(8) Lower vehicle to floor, install upper control arm rebound bumper and tighten nut 200 inch-pounds.

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

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

UPPER CONTROL ARM (Figs. 20, 21 and 22)

Removal and Disassembly

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

(2) Remove wheel and tire as an assembly.

(3) On Valiant and Satellite models, remove upper and lower ball joint stud nuts using Tool C-3711. On Valiant models, it may be necessary to add approximately 7/16 inch of flat washers over lower ball joint stud to allow the use of Tool C-3711 without damaging threads on lower ball joint stud. Place Tool C-3711 over stud. Turn threaded portion of tool locking it securely against the upper stud (Fig. 23).

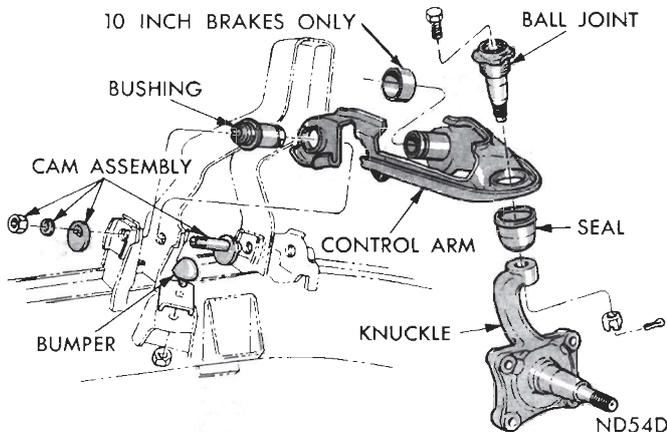


Fig. 20—Upper Control Arm (Valiant-Barracuda)

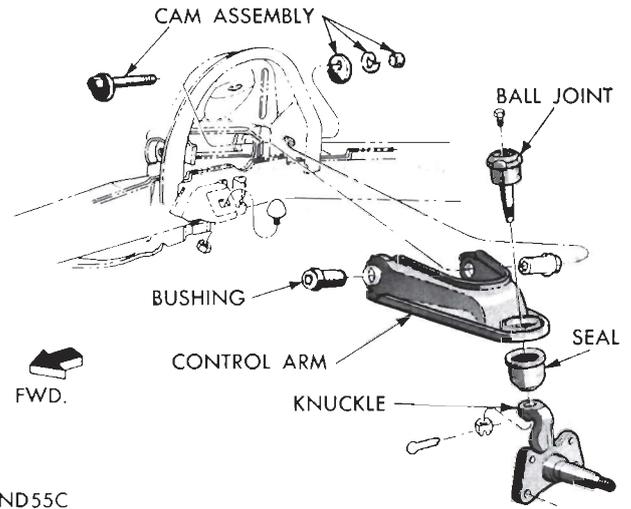


Fig. 21—Upper Control Arm (Satellite)

To use Tool C-3711 as outlined, it may be necessary to modify the tool (Fig. 24).

(4) Spread tool enough to place upper stud under a load, then strike steering knuckle sharply with a hammer to loosen stud. **Do not attempt to force stud out of steering knuckle with tool alone.**

(5) On Fury models, remove upper ball joint nut and remove stud from steering knuckle using Tool C-3964.

(6) Remove nuts, lockwashers, cams and cam bolts attaching upper control arm and bushings (Figs. 20, 21, 22) to support brackets. Lift control arm up and away from support.

(7) Remove ball joint (Fig. 25) using Tool C-3560

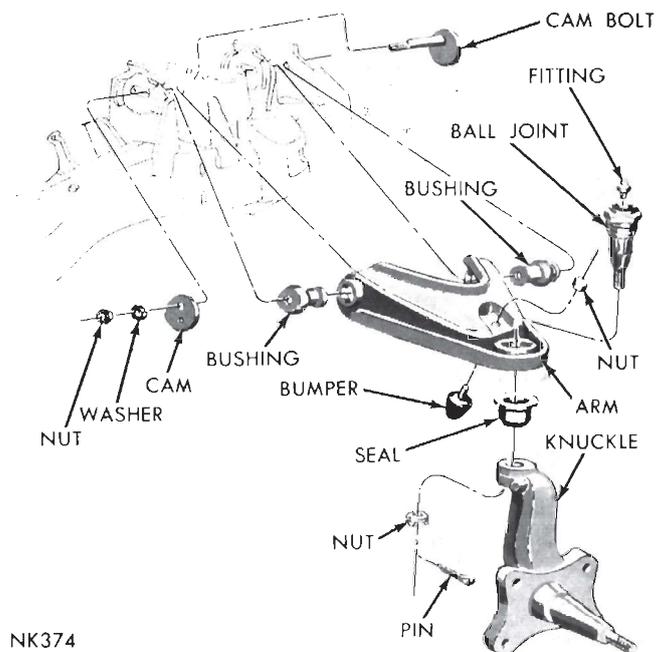


Fig. 22—Upper Control Arm (Fury)

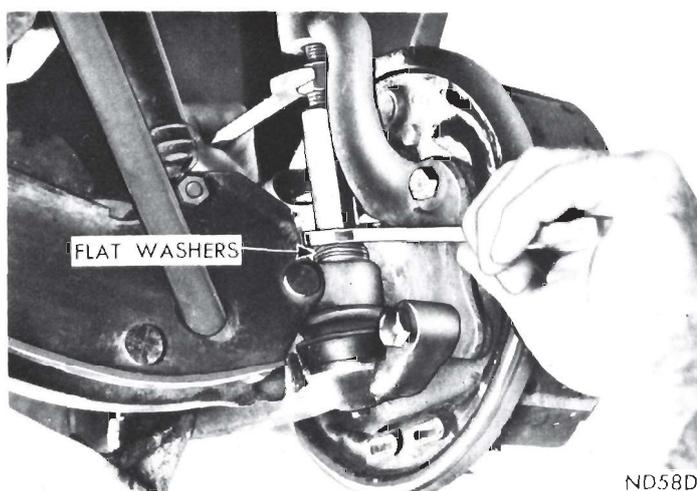


Fig. 23—Removing Upper Ball Joints Stud (Valiant-Barracuda)

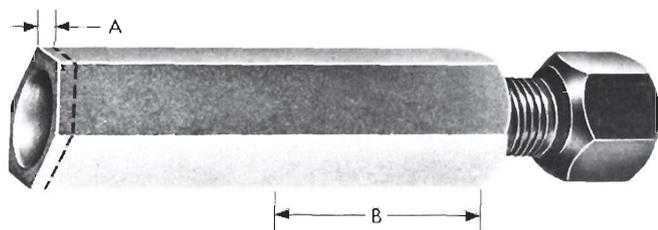
(Tool C-3714 Valiant). The seal will come off as ball joint is removed.

(8) Assemble Tool C-3710A (Tool C-3962 Fury) over bushing and press bushing out of arm (from inside out) (Fig. 26). To remove upper control arm rear bushing support sleeve (used on Valiant models with 10 inch front brakes and Satellite police and taxi application) assemble Tool C-3710A using adaptor SP-3826 in place of adaptor SP-3088, over bushing and press bushing out of arm (Fig. 26).

Assembly

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

(1) Position flange end of new bushing in Tool C-3710A, (Tool C-3962 Fury) support control arm squarely, and press bushings into control arm (from outside) until tapered portion of bushing seats on the arm. On Valiant models with 10 inch front brakes and Satellite police and taxi application (using bushing support sleeve) remove Tool C-3710A after bushing has been installed and install adaptor SP-3827 in place of SP-3233A cup on tool and install support sleeve on rear bushing only (Fig. 27).



- A. REMOVE 1/16 INCH FROM LOWER PART OF TOOL.
B. ROUND OFF PORTION OF THE TOOL THAT IS POSITIONED NEXT TO THE STEERING KNUCKLE ARM.

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Fig. 24—Tool C-3711 Modified

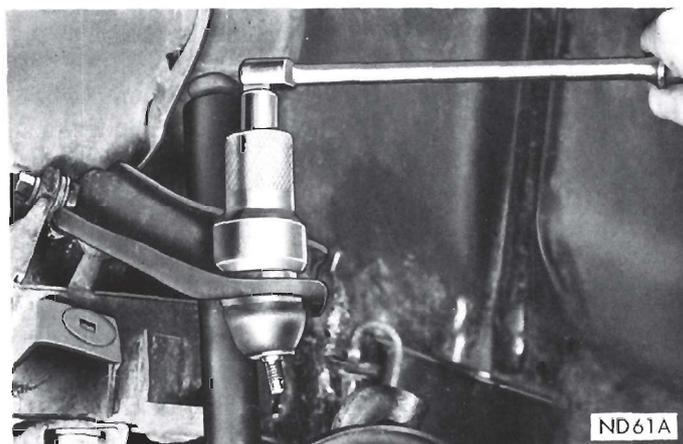


Fig. 25—Removing or Installing Upper Ball Joint

(2) Install ball joint into arm using Tool C-3560 (Tool C-3714 Valiant). Tighten until seated (125 foot-pounds minimum). The ball joint will cut threads into a new arm during tightening operations.

(3) Install a new ball joint seal using a 2" socket, making sure it is seated fully on ball joint housing. On Valiant Models install seal using Tool C-4039.

Installation

(1) Slide control arm into position and install cam bolts, cams, washers and nuts (Figs. 20, 21 and 22). Tighten nuts in preparation for final adjustments.

(2) Slide upper ball joint stud into position in steering knuckle and install nut. Tighten nut 100 foot-pounds, (Valiant 55 foot-pounds). Install cotter pin and lubricate ball joint. Tighten lower stud nut 100 foot-pounds (Fury 115 foot-pounds).

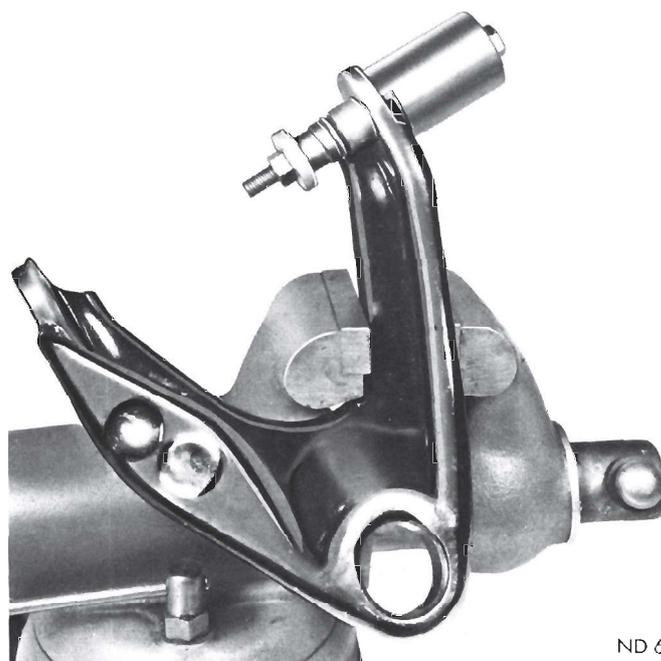


Fig. 26—Removing Upper Control Arm Bushing

(3) Install wheel and tire. Adjust wheel bearing (Group 22).

(4) Measure and adjust vehicle height and wheel alignment. Tighten cam bolt nuts 65 foot-pounds.

UPPER BALL JOINTS

ON MODELS EQUIPPED WITH DISC BRAKES, REFER TO GROUP 5 FOR BRAKE DISC REMOVAL AND INSTALLATION PROCEDURES.

Removal

(1) Raise vehicle by placing a jack under lower control arm as close as possible to wheel.

(2) Remove wheel, tire and drum.

(3) On Satellite and Valiant Models, remove upper and lower ball joint stud nuts. On Valiant models, it will be necessary to add approximately 7/16" of flat washers over lower ball joint stud to allow the use of Tool C-3711 without damaging threads on lower ball joint stud. Place Tool C-3711 over studs. Turn threaded portion of tool locking it securely against upper stud (Fig. 23). To use Tool C-3711 as outlined it will be necessary to modify it, as shown in Figure 24.

(4) Spread tool enough to place upper stud under a load, then strike steering knuckle sharply with a hammer to loosen stud. **Do not attempt to force stud out of steering knuckle with tool alone.**

(5) **On Fury Models**, remove upper ball joint stud nut and remove stud from control arm using Tool C-3964.

(6) Remove tool, then remove ball joint stud from steering knuckle.

(7) Using Tool C-3560, (Tool C-3714 Valiant) unscrew ball joint from upper control arm (Fig. 25). The seal will come off as ball joint is being removed.

Installation

When installing a ball joint, make certain the ball joint threads engage those of the control arm squarely if original arm is being used. Balloon type seals should always be replaced once they have been removed.

(1) Screw ball joint squarely into control arm as far

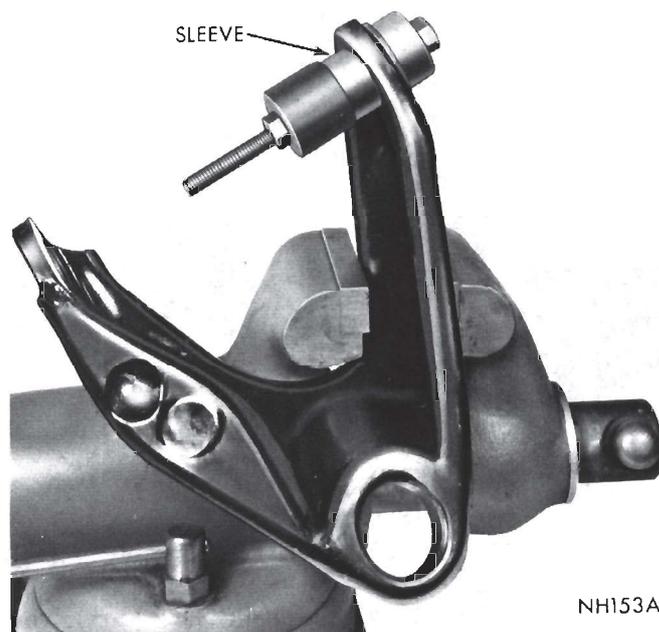


Fig. 27—Installing Support Sleeve on Bushing

as possible by hand.

(2) Using Tool C-3560 (Tool C-3714 Valiant) tighten ball joint until it bottoms on housing. Tighten to a minimum of 125 foot-pounds.

If ball joint cannot be torqued to 125 foot-pounds, inspect threads on ball joint and also in control arm and replace as necessary.

(3) Position a new seal over ball joint stud and install using a 2" socket making sure it is seated fully on ball joint housing. On Valiant Models, install seal using Tool C-4039.

(4) Position ball joint stud in steering knuckle and install a retaining nut.

(5) Tighten nut 100 foot-pounds, (Valiant 55 foot-pounds). Install cotter pin, lubricate ball joint.

(6) Install lower ball joint stud nut and tighten 100 foot-pounds, (Fury 115 foot-pounds).

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

(8) Lower vehicle and adjust front suspension height.

SPECIFICATIONS

MODEL	BARRACUDA	VALIANT	SATELLITE	FURY
CAMBER—Left			+1/4° To +3/4° (Preferred	+1/2°)
—Right			0° To +1/2° (Preferred +1/4°	
CASTER—Manual Steering			0° to -1° (-1/2° Preferred)	
—Power Steering (All models			+1/4° to +1-1/4° (+3/4° Preferred)	
except Fury)			0° to -1° (-1/2° Preferred)	
—Power Steering Fury models only				
HEIGHT (Inches) Standard & Heavy Duty	1-3/8 ± 1/8	2-1/8 ± 1/8	1-7/8 ± 1/8	1-3/8 ± 1/8
Side to Side Difference (Max.)			1/8	
STEERING AXIS INCLINATION			7-1/2°	
TOE-IN			3/32 inch to 5/32 inch (Preferred 1/8 inch)	

MODEL	BARRACUDA	VALIANT	SATELLITE	FURY
TOE-OUT ON TURNS (When inner wheel is 20° outer wheel is		17.5	17.8	18.8
TORSION BARS				
Length (inches)		35.8	41	44
Diameter (inches)—Std. Suspension (6 cyl.) ..		0.83	0.86	0.96
W/Air Conditioning		0.85	0.86	0.96
273 C. I. Engine		0.85	—	—
W/Air Conditioning		0.87	—	—
318, 340 C. I. Engine		0.87	0.88	0.98
383 C. I. Engine		0.89	0.88	0.94
Police, 426 & 440 Engine ..		—	0.92	0.98
Heavy Duty Suspension ..		0.87	0.90	0.98
Station Wagons		—	0.86	0.94
TREAD (inches) Front		57.4	59.5	62.0
Rear		55.5	59.2	60.7 **63.4
WHEEL BASE (inches)		108	116	119
** Fury Station Wagon				**121

TIGHTENING REFERENCE

	Foot	Inch		Foot	Inch
	Pounds			Pounds	
Ball Joint—Upper	125 (Min.)		(Valiant)	100	
Nut—Lower (Except Fury)	100		Disc Brakes	115	
(Fury)	115		Upper	55	
—Upper (Except Valiant)	100		Strut Nuts		
(Valiant)	55		Front (Valiant)	40	
Control Arm			(Satellite-Fury)	50	
Pivot Shaft Nut (Except Fury)	130		Rear	110	
(Fury)	180		Sway Eliminator Shaft		
Rebound Bumpers		200	Cushion Retainer Bolt Nut		
Crossmember Bolts	150		(Fury)	30	
Engine Mounting Bolts	85		Frame Bracket Bolt Nut		
Idle Arm Nuts			(Valiant-Satellite)		200
at Center Link	40		Link Insulator Retainer Bolt Nut		100
at Mounting Bracket	65		Tie Rod Ends		
Shock Absorber Nuts—Front			Sleeve Clamp Bolt Nut (Except Fury) ..		115
Lower	50		(Fury)		150
Upper	25		Stud Nuts	40	
Steering Gear Mounting Bolts	80		Wheel Nuts		
Steering Knuckle Bolt Nuts			Except Valiant-Barracuda	65	
Lower (except Valiant)	120		Valiant-Barracuda	55	