

SUSPENSION

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WHEEL ALIGNMENT

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DESCRIPTION AND OPERATION

WHEEL ALIGNMENT INFORMATION

Proper vehicle wheel alignment is the proper adjustment of all interrelated front and rear suspension angles (Fig. 1). These angles are what affects the handling and steering of the vehicle when it is in motion.

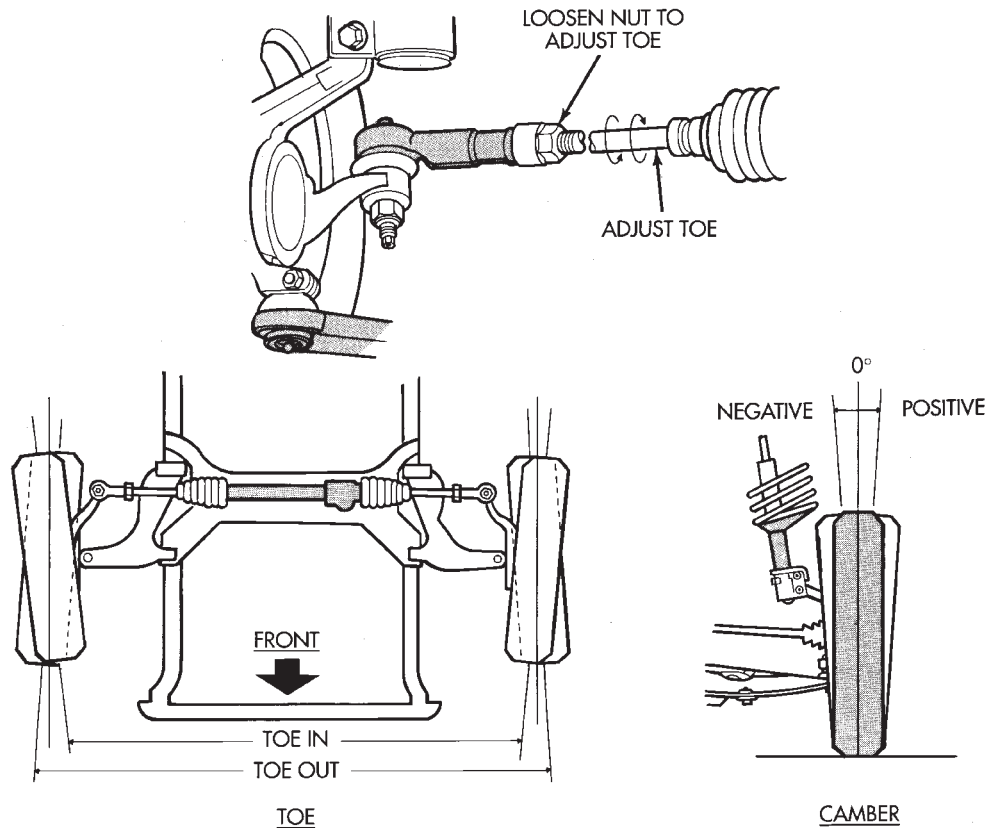
The method of checking a vehicle's front and rear wheel alignment will vary depending on the type and manufacturer of the equipment being used. Instructions furnished by the manufacturer of the equipment being used should always be followed to ensure accuracy of the alignment, except alignment specifications recommended by Chrysler Corporation **MUST ALWAYS** be used.

CAUTION: Do not attempt to modify any suspension or steering components by heating or bending of the component.

Wheel alignment adjustments should always be made in the following sequence, to ensure that an accurate alignment is performed.

- (1) Adjust rear camber to be at the preferred setting specification.
- (2) Adjust rear wheel Toe to be at the preferred setting specification..
- (3) Adjust front wheel Toe to be at the preferred setting specification for individual wheel Toe and for total Toe.

DESCRIPTION AND OPERATION (Continued)



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Fig. 1 Alignment Camber/Toe

(4) **Toe** is measured in degrees or inches and is the distance that the front edges of the tires are closer (or farther apart) than the rear edges (Fig. 1). See Front Wheel Drive Specifications for correct front and rear wheel Toe specifications.

(5) **Thrust Angle** is defined as the average of the Toe settings on each rear wheel. If this measurement is out of specification, re-adjust rear wheel Toe so that each wheel has 1/2 of the total Toe measurement. When re-adjusting, do not exceed the total Toe specification.

DIAGNOSIS AND TESTING

SUSPENSION AND STEERING DIAGNOSIS

CONDITION	POSSIBLE CAUSES	POTENTIAL CORRECTIONS
Front End Whine On Turns	1. Defective Wheel Bearing 2. Incorrect Wheel Alignment 3. Worn Tires	1. Replace Wheel Bearing 2. Check And Reset Wheel Alignment 3. Replace Tires
Front End Growl Or Grinding On Turns	1. Defective Wheel Bearing 2. Engine Mount Grounding Against Frame Or Body Of Vehicle. 3. Worn Or Broken C/V Joint 4. Loose Wheel Lug Nuts 5. Incorrect Wheel Alignment 6. Worn Tires	1. Replace Wheel Bearing 2. Check For Motor Mount Hitting Frame Rail And Reposition Engine As Required 3. Replace C/V Joint 4. Verify Wheel Lug Nut Torque 5. Check And Reset Wheel Alignment 6. Replace Tires
Front End Clunk Or Snap On Turns	1. Loose Wheel Lug Nuts 2. Worn Or Broken C/V Joint 3. Worn Or Loose Tie Rod Or Ball Joint 4. Worn Control Arm Bushing 5. Loose Sway Bar Or Upper Strut Attachment	1. Verify Wheel Lug Nut Torque 2. Replace C/V Joint 3. Tighten Or Replace Tie Rod End Or Ball Joint 4. Replace Control Arm Bushing 5. Tighten Sway Bar Or Upper Strut Attachment To Specified Torque
Front End Whine With Vehicle Going Straight At A Constant Speed	1. Defective Wheel Bearing 2. Incorrect Wheel Alignment 3. Worn Tires	1. Replace Wheel Bearing 2. Check And Reset Wheel Alignment 3. Replace Tires
Front End Growl Or Grinding With Vehicle Going Straight At A Constant Speed	1. Engine Mount Grounding 2. Worn Or Broken C/V Joint	1. Reposition Engine As Required 2. Replace C/V Joint
Front End Whine When Accelerating Or Decelerating	1. Worn Or Defective Transaxle Gears Or Bearings	1. Replace Transaxle Gears Or Bearings
Front End Clunk When Accelerating Or Decelerating	1. Worn Or Broken Engine Mount 2. Worn Or Defective Transaxle Gears Or Bearings 3. Loose Wheel Lug Nuts 4. Worn Or Broken C/V Joint 5. Worn Or Loose Ball Joint 6. Worn Or Loose Control Arm Bushing 7. Loose Crossmember Bolts	1. Replace Engine Mount 2. Replace Transaxle Gears Or Bearings 3. Verify Wheel Lug Nut Torque 4. Replace C/V Joint 5. Tighten Or Replace Ball Joint 6. Tighten To Specified Torque Or Replace Control Arm Bushing 7. Tighten Crossmember Bolts To Specified Torque
Road Wander	1. Incorrect Tire Pressure 2. Incorrect Front Or Rear Wheel Toe 3. Worn Wheel Bearings 4. Worn Control Arm Bushings 5. Excessive Friction In Steering Gear 6. Excessive Friction In Steering Shaft Coupling 7. Excessive Friction In Strut Upper Bearing	1. Inflate Tires To Rcommended Pressure 2. Check And Reset Front Wheel Toe 3. Replace Wheel Bearing 4. Replace Control Arm Bushing 5. Replace Steering Gear 6. Replace Steering Coupler 7. Replace Strut Bearing
Lateral Pull	1. Unequal Tire Pressure 2. Radial Tire Lead 3. Incorrect Front Wheel Camber 4. Power Steering Gear Imbalance 5. Wheel Braking	1. Inflate All Tires To Recommended Pressure 2. Perform Lead Correction Procedure 3. Check And Reset Front Wheel Camber 4. Replace Power Steering Gear 5. Correct Braking Condition Causing Lateral Pull
Excessive Steering Free Play	1. Incorrect Steering Gear Adjustment 2. Worn Or Loose Tie Rod Ends 3. Loose Steering Gear Mounting Bolts 4. Loose Or Worn Steering Shaft Coupler	1. Adjust Or Replace Steering Gear 2. Replace Or Tighten Tie Rod Ends 3. Tighten Steering Gear Bolts To The Specified Torque 5. Replace Steering Shaft Coupler
Excessive Steering Effort	1. Low Tire Pressure 2. Lack Of Lubricant In Steering Gear 3. Low Power Steering Fluid Level 4. Loose Power Steering Pump Belt 5. Lack Of Lubricant In Steering Ball Joints 6. Steering Gear Malfunction 7. Lack Of Lubricant In Steering Coupler	1. Inflate All Tires To Recommended Pressure 2. Replace Steering Gear 3. Fill Power Steering Fluid Reservoir To Correct Level 4. Correctly Adjust Power Steering Pump Drive Belt 5. Lubricate Or Replace Steering Ball Joints 6. Replace Steering Gear 7. Replace Steering Coupler

DIAGNOSIS AND TESTING (Continued)

PRE-WHEEL ALIGNMENT INSPECTION

Before any attempt is made to change or correct the wheel alignment factors. The following part inspection and the necessary corrections should be made to those parts which influence the steering of the vehicle.

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

(2) Check front wheel and tire assembly for radial runout.

(3) Inspect lower ball joints and all steering linkage for looseness.

(4) Check for broken or sagged front and rear springs.

(5) Check vehicle ride height to verify it is within specifications.

(6) Alignment **MUST** only be checked after the vehicle has the following areas inspected and or adjusted. Recommended tire pressures, full tank of fuel, no passenger or luggage compartment load and is on a level floor or a properly calibrated alignment rack.

SERVICE PROCEDURES**WHEEL ALIGNMENT CHECK AND ADJUSTMENT PROCEDURE****CASTER CAMBER DESCRIPTION**

On this vehicle, the front suspension caster and camber settings and the rear suspension caster settings, are determined at the time the vehicle is designed. This is accomplished by very accurately locating the vehicle's suspension components when designing and assembling the vehicle. This is called a Net Build vehicle and results in no required or available adjustment of front and rear caster and front camber after the vehicle is built or when servicing the suspension components. Thus Caster and Camber are not normally considered an adjustable specification when performing an alignment on this vehicle. Though Caster and Camber are not adjustable they must be checked to ensure they meet vehicle specifications.

If a vehicle's front camber is found to be outside of the required specifications, the vehicle's front suspension components should be inspected for any signs of damage or bending.

Rear Camber on this vehicle is adjustable. The rear camber on this vehicle is adjusted using the adjusting screw located in the forward and rear lateral links of the vehicle's rear suspension (Fig. 2).

Rear Caster on this vehicle is not adjustable and is not shown as an alignment specification.

CAUTION: Do not attempt to adjust the vehicle's Caster or Camber by heating, bending or any other modification of the suspension components.

CAUTION: When checking the rear alignment on this vehicle the alignment rack must be equipped with rear skid plates.

Correctly position vehicle on alignment rack and install all required equipment on vehicle, per the alignment equipment manufacturers specifications.

NOTE: Prior to reading each alignment specification, front and rear of vehicle should be jounced an equal number of times. Induce jounce (rear first then front) by grasping center of bumper and jouncing each end of vehicle an equal number of times. Bumper should always be released when vehicle is at the bottom of the jounce cycle.

Correctly jounce vehicle and read front and rear alignment settings and compare to vehicle specifications for camber, caster and Toe. See Alignment Specifications in this group of the service manual for required specifications.

FRONT WHEEL TOE AND REAR WHEEL TOE AND CAMBER SETTING PROCEDURE

(1) Prepare vehicle as described in the Pre-Alignment Vehicle Inspection procedure.

(2) Center steering wheel and lock in place using a steering wheel clamp.

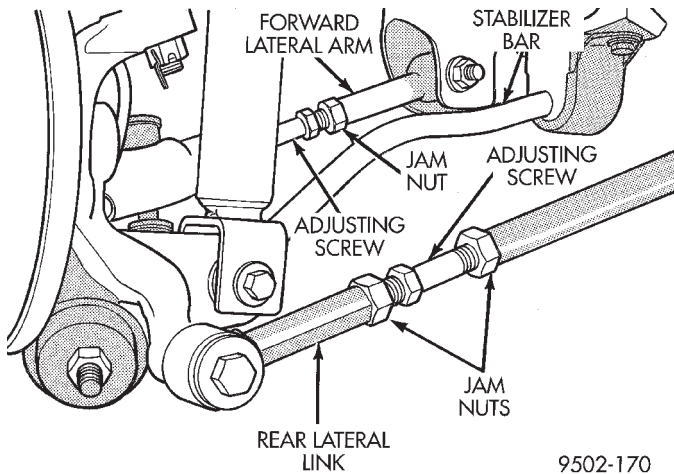
NOTE: When performing the Front Toe and Rear Camber and Toe setting procedure, the rear wheel Camber and Toe **MUST** be set to the preferred specification first, then set front wheel Toe to the preferred specification.

CAUTION: Do not attempt to straighten or repair a lateral link. Do not apply heat to the lateral link adjusting screws or to the jam nuts, (Fig. 2) when loosening or adjusting the lateral links.

(3) Loosen the adjusting screw jam nuts (Fig. 2) on all 4 of the rear lateral arm adjusting screws.

CAUTION: Do not attempt to move the adjusting screws without properly loosening the jam nuts. Note that each adjusting screw has one right-handed nut and one left-handed nut.

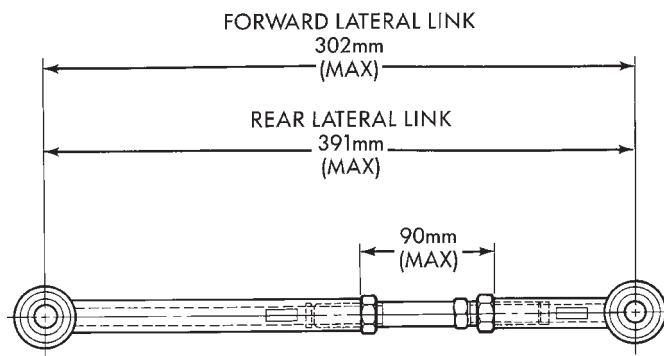
SERVICE PROCEDURES (Continued)



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Fig. 2 Lateral Arm Adjusting Screw Jam Nuts

CAUTION: When setting rear Camber and Toe on the vehicle, the maximum lengths of the adjustable lateral link at the locations shown in (Fig. 3) must not be exceeded. If these maximum lengths are exceeded, inadequate retention of adjustment link to the inner and outer link may result.



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Fig. 3 Rear Lateral Link Maximum Length Dimensions

(4) Rough in Rear Camber setting as close as possible to the preferred specification first, by mainly adjusting the rear lateral link adjusting screw (Fig. 2). Some adjustment of the forward lateral link adjusting screw (Fig. 2) will also be required to get Rear Camber setting to preferred specification. See Alignment Specifications in this group of the service manual for preferred specification.

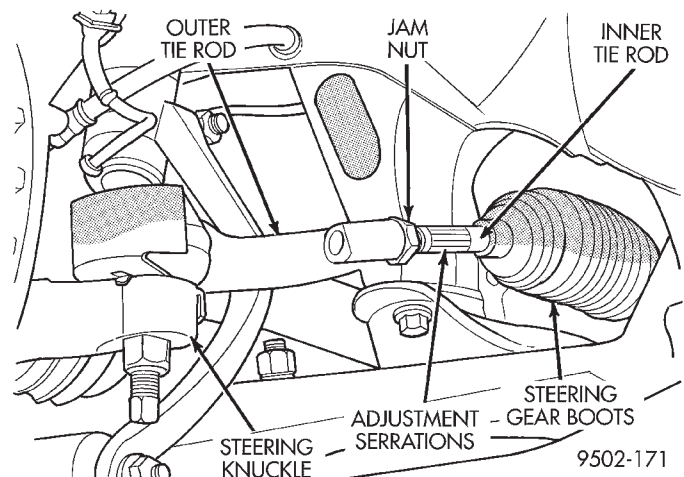
(5) Adjust the forward lateral link adjusting screw (Fig. 2) to set rear Toe to preferred specification. See Alignment Specifications in this group of the service manual for preferred specification.

- Adjusting Toe will cause a slight change in the Camber setting. If during setting of Toe, Camber no longer is at the preferred specification, continue to adjust Camber and Toe until both are at their preferred specifications.

(6) While holding adjustment screws from turning, use a crow foot and torque wrench, and tighten all lateral link adjusting screw jam nuts to a torque of 65 N·m (48 ft. lbs.). This will securely hold adjusting screws from turning.

CAUTION: Do not twist front inner tie rod to steering gear rubber boots during front wheel Toe adjustment.

(7) Loosen front inner to outer tie rod end jam nuts (Fig. 4). Grasp inner tie rods at serrations (Fig. 4) and rotate inner tie rods of steering gear to set front Toe to the preferred Toe specification. See Alignment Specifications in this group of the service manual for preferred specification.



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Fig. 4 Inner To Outer Tie Rod Jam Nut

(8) Tighten tie rod locknuts (Fig. 4) to 61 N·m (45 ft. lbs.) torque.

(9) Adjust steering gear to tie rod boots (Fig. 4) at inner tie rod.

(10) Remove steering wheel clamp.

SPECIFICATIONS

VEHICLE ALIGNMENT SPECIFICATIONS AT CURB HEIGHT

FRONT WHEEL ALIGNMENT	ACCEPTABLE ALIGNMENT RANGE AT CURB HEIGHT (FULL FLUIDS NO PASSENGERS)	PREFERRED SETTING (FULL FLUIDS NO PASSENGERS)	FENDER LIP TO GROUND HEIGHT
CAMBER..... **Side To Side Camber Difference Not To Exceed	-0.5° to +0.7° 0.7° or less	+0.1° 0.0°	28.0 in. + or - 3/4 in.
TOE RIGHT/LEFT	0.05°out to 0.15° in	0.05° in	
*TOTAL TOE Specified In Degrees (See Note)	0.1°out to 0.3°in	0.1° in	
CASTER..... **Side To Side Caster Difference Not To Exceed	+2.1° to +4.1° 1.0° or less	+3.1° 0.0°	
REAR WHEEL ALIGNMENT	ACCEPTABLE ALIGNMENT RANGE AT CURB HEIGHT	PREFERRED SETTING	FENDER LIP TO GROUND HEIGHT
CAMBER.....	-0.5° to +0.3°	-0.1°	28.0 in.
TOE RIGHT/LEFT	0.05° out to 0.15° in	0.05° in	+ or - 3/4 in.
*TOTAL TOE Specified In Degrees (See Note) TOE OUT: When Backed On Alignment Rack Is TOE In When Driving	0.1° out to 0.3° in	0.1° in	
THRUST ANGLE.....	+ or - 0.15°	0.0°	
*Note: Total Toe is the arithmetic sum of the left and right wheel Toe settings. Positive is Toe-in, negative is Toe-out. Total Toe must be equally split between each front wheel to ensure the steering wheel is centered after setting Toe. Left and Right Toe must be equal to within 0.02 degrees. **Remove the front shock/spring/upper control arm assemblies per the instructions in the Front Suspension Section in this service manual. Remove the 2 upper control arm bracket to body locator pins. Install the front shock/spring/upper control arm assembly back in the vehicle. Using the available clearance between the attaching bolts and the shock tower bolts, adjust the side to side Camber and/or Caster to the preferred settings shown above.			

FRONT SUSPENSION

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GENERAL INFORMATION

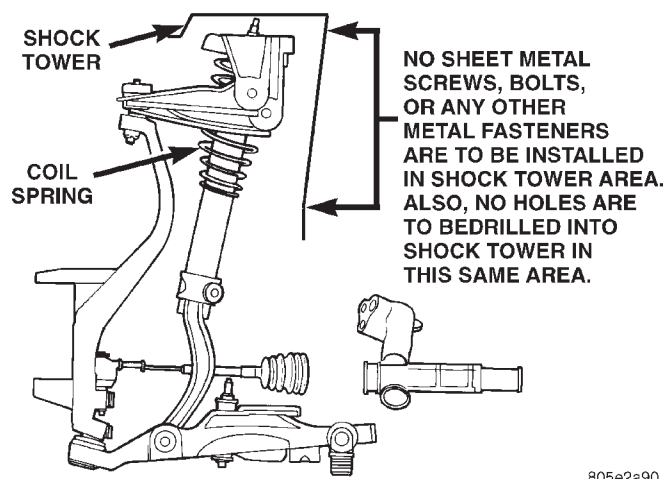
GENERAL INFORMATION

CAUTION: ONLY FRAME CONTACT HOISTING EQUIPMENT CAN BE USED ON THIS VEHICLE. All vehicles have a fully independent rear suspension. The vehicles can not be hoisted using equipment designed to lift a vehicle by the rear axle. If this type of hoisting equipment is used, damage to rear suspension components will occur.

CAUTION: At no time when servicing a vehicle, can a sheet metal screw, bolt or other metal fastener be installed in the shock tower to take the place of an original plastic clip. Also, NO holes can be drilled into the front shock tower in the area shown in (Fig. 1), for the installation of any metal fasteners into the shock tower.

Because of the minimum clearance in this area (Fig. 1) installation of metal fasteners could damage

the coil spring coating and lead to a corrosion failure of the spring. If a plastic clip is missing, or is lost or broken during servicing a vehicle, replace only with the equivalent part listed in the Mopar parts catalog.



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Fig. 1 Shock Tower To Spring Minimum Clearance Area

DESCRIPTION AND OPERATION

FRONT SUSPENSION SYSTEM DESCRIPTION

This vehicle's front suspension is a short long arm design used in conjunction with a gas pressurized shock absorber and coil spring assembly.

The upper control arm of the vehicle is mounted using rubber isolation bushings to an aluminum casting which is attached to the shock tower using 4 mounting bolts. This aluminum casting is also used as the upper mount for the front shock/coil spring assembly. The shock absorber assembly is also isolated from the aluminum bracket using a 2 piece rubber bushing design. The lower control arm is mounted to the vehicle's front suspension crossmember using 2 through bolts per control arm. The lower control arm is also isolated from the vehicle using 2 rubber bushings of unique design for the front and rear mounting location. The bottom of the shock absorber is mounted to the lower control arm by a clevis bracket which is part of the shock absorber assembly. The clevis bracket is mounted to and isolated from the lower control arm using a rubber isolation bushing and a through-bolt. The front steering knuckle is mounted to the vehicle by a ball joint located in the upper and lower control arms. Steering of the vehicle is provided by a rack and pinion steering gear which is connected directly to the steering knuckle by an outer tie rod.

The front shock absorber assembly includes the following components: A rubber isolated top mount, an upper spring seat, upper control arm/shock absorber bracket, jounce bumper, dust shield, coil spring, lower spring seat and the shock absorber clevis bracket.

A sealed for life front hub and bearing assembly is attached to the front steering knuckle. The outer C/V joint assembly is splined to the front hub and bearing assembly and is retained by a nut, nut retainer and cotter pin.

CAUTION: ONLY FRAME CONTACT HOISTING EQUIPMENT CAN BE USED ON THIS VEHICLE. All vehicles have a fully independent rear suspension. The vehicles can not be hoisted using equipment designed to lift a vehicle by the rear axle. If this type of hoisting equipment is used, damage to rear suspension components will occur.

SHOCK ABSORBER ASSEMBLY

The front shock absorber and suspension of the vehicle is supported by coil springs positioned around the shock absorbers. The springs are contained between an upper seat, located just below the top shock absorber mounting bracket and a lower spring seat located on the shock absorber.

The top of each shock absorber assembly is bolted to the cast aluminum upper control arm bracket which is then bolted to the shock tower of the vehicle using 4 mounting bolts.

The bottom of the shock absorber assembly attaches to the lower control arm of the vehicle using a thru-bolt and prevailing torque nut. Caster and camber is a fixed setting (net build) on all vehicles and is not required nor can be adjusted.

STEERING KNUCKLE

The steering knuckle is a single casting with legs machined for attachment to the vehicle's upper and lower control arm ball joints. The steering knuckle also has machined abutments on the casting to support and align the front brake caliper assembly. The knuckle also holds the front drive shaft outer C/V joint hub and bearing assembly. The hub is positioned through the bearing and knuckle, with the constant velocity stub shaft splined through the hub. The outer C/V joint is retained to the hub and bearing assembly using a nut, nut lock and cotter pin.

LOWER CONTROL ARM

The lower control arm is a ductile iron casting using 2 rubber bushings to isolate it from the front suspension crossmember and body of the vehicle. The isolator bushings consist of 2 metal encased rubber isolated pivot bushings. The front of the lower control arm is bolted to the front crossmember using a bolt through the center of the rubber pivot bushing. The rear of the lower control arm is mounted to the front suspension crossmember using a thru-bolt. The lower control arms are inter-connected through a linked rubber isolated sway bar.

UPPER CONTROL ARM

The upper control arm is a high strength steel stamping. The upper control arm uses the 2 rubber bushings of the upper control arm/shock absorber mounting bracket to isolate it from the mounting bracket and the body of the vehicle. The isolator bushings used in the upper control arm are a metal encased rubber isolated pivot bushing. The bushings isolate the upper control arm from the body of the vehicle yet allows for the up and down movement of the control arm during the jounce and rebound travel of the vehicle suspension. The upper control arm is bolted to the top of the steering knuckle using the upper ball joint.

STABILIZER BAR

The stabilizer bar interconnects both front lower control arms of the vehicle and is attached to the front suspension cradle and the underbody of the vehicle.

DESCRIPTION AND OPERATION (Continued)

Jounce and rebound movements affecting one wheel are partially transmitted to the opposite wheel of the vehicle to stabilize body roll.

Attachment of the stabilizer bar to the front suspension cradle is through 2 rubber-isolator bushings and bushing retainers. The stabilizer bar to lower control arm attachment is done utilizing a ball joint type, stabilizer bar attaching link. All parts of the stabilizer bar are replaceable as individual components, and the stabilizer bar to crossmember bushings are split for easy removal and installation.

HUB BEARING ASSEMBLY

The bearing used on the front hub of this vehicle is the combined hub and bearing unit type assembly. This unit assembly combines the front wheel mounting hub (flange) and the front wheel bearing into a one piece unit. The hub/bearing assembly is mounted to the steering knuckle and is retained by three mounting bolts accessible from the back of the steering knuckle. The hub/bearing unit is not serviceable and must be replaced as an assembly if the bearing or the hub is determined to be defective. The wheel mounting studs are the only replaceable component of the hub/bearing assembly.

COIL SPRING

Coil springs are rated separately for each corner or side of the vehicle depending on optional equipment and type of vehicle service. During service procedures when both springs are removed, mark springs to ensure installation in original position. **If the coil springs require replacement, be sure that the springs needing replacement, are replaced with springs meeting the correct load rating and spring rate for the vehicle and its specific options.**

LOWER CONTROL ARM BALL JOINT

The ball joint used in the lower control arm of this vehicle is a sealed for life ball joint. The ball joint can not be replaced as a separate component of the lower control arm assembly. If the ball joint is determined to be defective it will require replacement of the complete lower control arm assembly.

The lower ball joint connection to the steering knuckle is achieved by an interference fit created by the tapered stud of the ball joint and a tapered hole in the steering knuckle. The ball joint stud is retained in the steering knuckle using a castle nut and a cotter pin. The cotter pin is used for positive retention of the castle nut.

The lower ball joint is lubricated for life at the time it is assembled in the lower control arm. **The ball joint does not require any type of additional lubrication for the life of the vehicle. No**

attempt should be made to ever add any lubrication to the lower ball joint.

UPPER CONTROL ARM BALL JOINT

The ball joint is pressed into the upper control arm and has a tapered stud for attachment to the steering knuckle. The ball joint stud is attached and locked into the steering knuckle using a castle nut and cotter pin. The ball joint is not serviceable as a separate component of the upper control arm. If the ball joint is defective it will require replacement of the entire upper control arm.

WHEEL MOUNTING STUDS

If wheel attaching studs need to be replaced in the hub and bearing assembly the studs **CAN NOT** be hammered out of the hub flange. If a stud is removed by hammering it out of the bearing flange, damage to the hub and bearing assembly will occur leading to premature bearing failure.

Use the procedure and special tools shown in the service procedures section for the wheel mounting studs when replacing the wheel attaching studs.

The hub and bearing assembly does not require removal from the steering knuckle or the rear knuckle to replace the wheel attaching studs in the hub and bearing assembly.

DIAGNOSIS AND TESTING**SHOCK ABSORBER ASSEMBLY**

(1) Inspect for damaged or broken coil springs (Fig. 2).

(2) Inspect for torn or damaged shock absorber dust boots (Fig. 2).

(3) Lift the dust boot and inspect the shock absorber for evidence of fluid running from the upper end of fluid reservoir. (Actual leakage will be a stream of fluid running down the side and dripping off lower end of unit). A slight amount of seepage between the shock absorber rod and the seal is not unusual and does not affect performance of the shock absorber. Also inspect jounce bumpers for signs of damage or deterioration (Fig. 2).

STEERING KNUCKLE

The front suspension steering knuckle is not a repairable component of the front suspension. **IT MUST BE REPLACED IF FOUND TO BE DAMAGED IN ANY WAY.** If it is determined that the steering knuckle is bent when servicing the vehicle, no attempt is to be made to straighten the steering knuckle.

On this vehicle the steering knuckle must be removed from the vehicle when servicing the front hub bearing.

DIAGNOSIS AND TESTING (Continued)

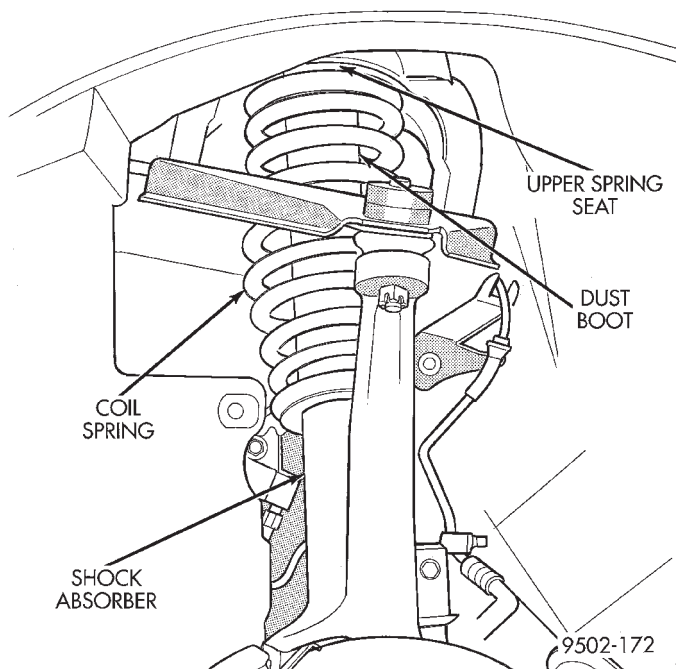


Fig. 2 On Vehicle Shock Absorber Assembly Inspection

LOWER CONTROL ARM

If damaged, the lower control arm casting is serviced only as a complete component. Inspect lower control arm for signs of damage from contact with the ground or road debris. If lower control arm shows any sign of damage, inspect lower control arm for distortion. **Do not attempt to repair or straighten a broken or bent lower control arm.**

The replaceable components of the lower control arm are: the ball joint grease seal and the control arm bushings. Inspect both control arm bushings for severe deterioration, and replace if required.

Inspect the lower ball joint for wear. Use the wear inspection procedure in the diagnosis and testing section in this group of service manual to determine if the wear is excessive and ball joint (lower control arm) replacement is required.

Service procedures to replace these components are detailed in the specific component removal and installation sections in this group of the service manual.

UPPER CONTROL ARM

If damaged, the upper control arm is serviced only as a complete component. Inspect the upper control arm for any signs of damage. If control arm shows any sign of damage the upper control arm must be replaced. **Do not attempt to repair or straighten a broken or bent upper control arm.**

The only serviceable component of the upper control arm is the ball joint grease seal. No other repair or replacement procedure should be attempted on

any component of the upper control arm. Service procedures to replace the serviceable components are detailed in the specific component sections of this group.

LOWER BALL JOINT ASSEMBLY WEAR INSPECTION

(1) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Install a dial indicator on the vehicle so it is contacting the top surface of the steering knuckle near the lower ball joint stud castle nut.

(3) Grab wheel and tire assembly and push it up and down firmly.

(4) Record the amount of up and down movement of the steering knuckle recorded on the dial indicator.

(5) Replace lower control arm if the movement in the lower control arm exceeds 1.5 mm (.059 in.).

UPPER BALL JOINT WEAR INSPECTION

With the weight of the vehicle resting on the road wheels. Grasp the grease fitting and with no mechanical assistance or added force attempt to move the grease fitting.

If the ball joint is worn the grease fitting will move easily. If movement is noted, replacement of the upper control arm is required.

STABILIZER BAR

Inspect for broken or distorted stabilizer bar bushings, bushing retainers, and worn or damaged stabilizer bar to control arm attaching links. If stabilizer bar to front suspension cradle bushing replacement is required, bushing can be removed from stabilizer bar by opening slit and peeling bushing off stabilizer bar.

HUB/BEARING

The hub bearing is designed for the life of the vehicle and requires no type of periodic maintenance. The following procedure may be used for diagnosing the condition of the hub bearing.

With the wheel, disc brake caliper, and brake rotor removed, rotate the wheel hub. Any roughness or resistance to rotation may indicate dirt intrusion or a failed hub bearing. If the hub bearing exhibits any of these conditions during diagnosis, the hub bearing will require replacement, the bearing is not serviceable.

Damaged bearing seals and the resulting excessive grease loss may also require bearing replacement. Moderate grease weepage from the hub bearing is considered normal and should not require replacement of the hub bearing.

REMOVAL AND INSTALLATION (Continued)

REMOVAL AND INSTALLATION

SHOCK ABSORBER ASSEMBLY

WARNING: DO NOT REMOVE SHOCK ROD NUT WHILE SHOCK ASSEMBLY IS INSTALLED IN VEHICLE, OR BEFORE SHOCK ASSEMBLY SPRING IS COMPRESSED.

REMOVE

- (1) Loosen wheel nuts.
- (2) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.
- (3) Remove the wheel and tire from the location on front of vehicle requiring shock removal.
- (4) If both shock absorbers are removed, mark the shock absorbers right and left according to which side of the vehicle they were removed from.
- (5) Remove the wheel speed sensor cable routing bracket (Fig. 3) from the steering knuckle.

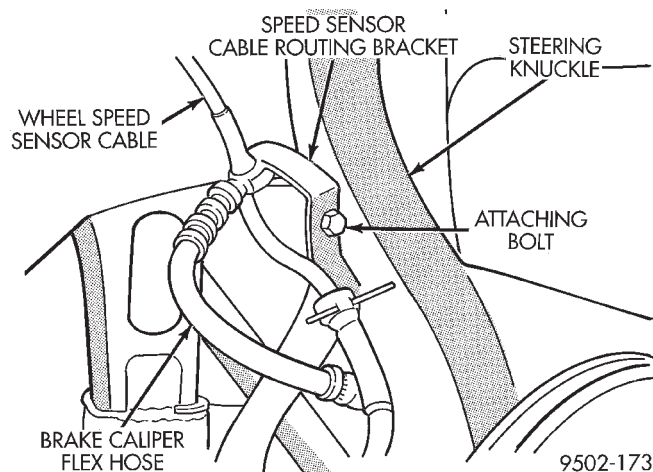


Fig. 3 Wheel Speed Sensor Cable Routing Bracket

- (6) Remove the cotter pin and castle nut (Fig. 4) from the upper ball joint stud.
- (7) Remove the upper ball joint stud from the steering knuckle using Puller, Special Tool, C-3894-A (Fig. 5). Pull steering knuckle outward and position toward the rear of the front wheel opening.
- (8) Remove pinch bolt attaching shock absorber clevis to shock absorber (Fig. 6).
- (9) Remove the nut and thru-bolt (Fig. 7) attaching the shock absorber clevis to the lower control arm.
- (10) Remove the clevis from the shock absorber by carefully tapping the clevis off the shock absorber using a soft (brass) drift.

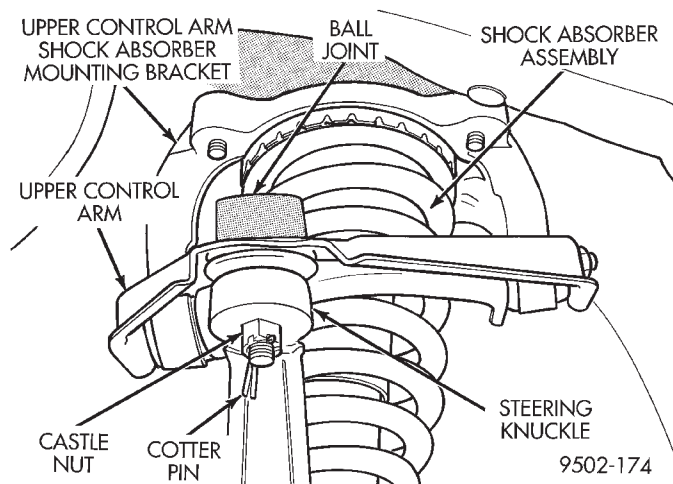


Fig. 4 Ball Joint Attachment To Steering Knuckle

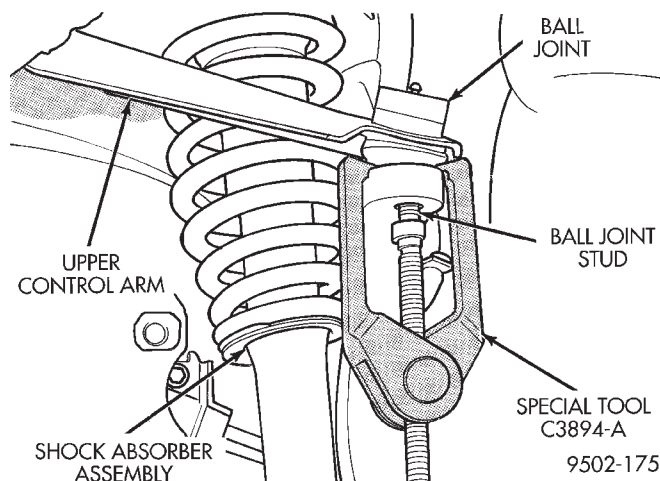


Fig. 5 Ball Joint Stud Removal From Steering Knuckle

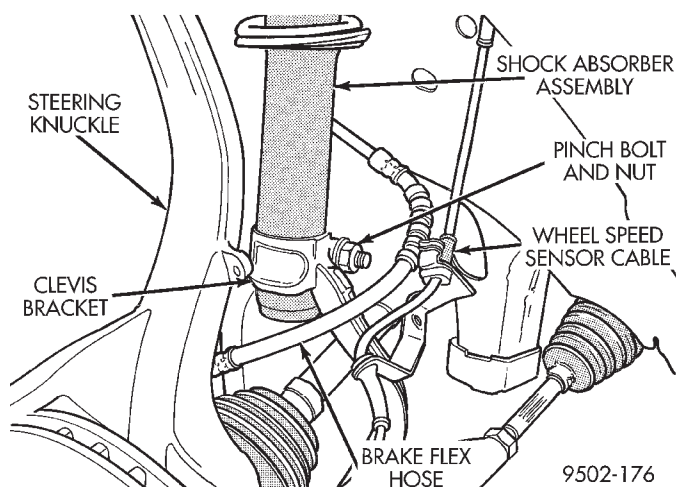


Fig. 6 Shock Absorber Clevis Bracket Pinch Bolt

- (11) Remove the 4 bolts (Fig. 8) attaching the shock absorber/upper control arm mounting bracket to the shock tower of the vehicle.

REMOVAL AND INSTALLATION (Continued)

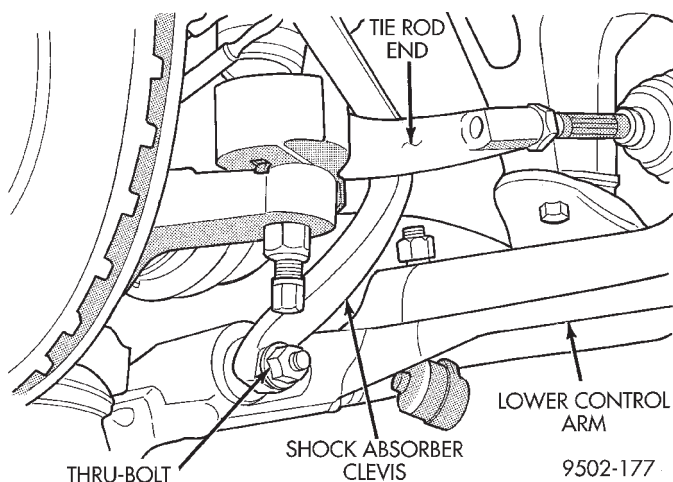


Fig. 7 Clevis To Lower Control Arm Attaching Bolt

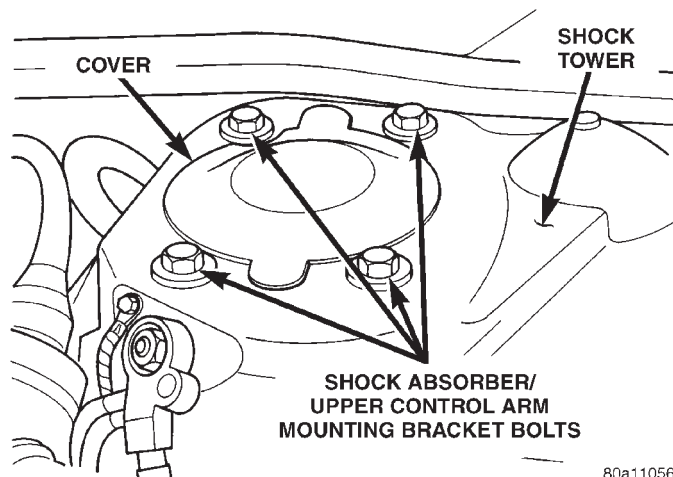


Fig. 8 Shock Absorber Attachment To Shock Tower

(12) Remove the shock absorber and upper control arm mounting bracket as an assembly from the vehicle. The shock absorber is removed out through the front area of the front wheel well.

INSTALL

(1) Install the shock absorber assembly, with the clevis removed, into shock tower. Aligning the 2 locating pins and the 4 mounting holes on the upper control arm shock absorber mount with the 4 holes in shock tower. Install the 4 upper control arm mount to shock tower mounting bolts (Fig. 8). Tighten the 4 bolts to a torque of 95 N·m (70 ft. lbs.).

(2) Install the clevis on the shock absorber. Clevis is installed by tapping it onto the fluid reservoir of the shock absorber using a soft (brass) drift until fully seated against locating tab on shock absorber (Fig. 9). Orientation tab on locating tab must be positioned in the split of the clevis (Fig. 9).

(3) Install the pinch bolt retaining the shock clevis to the shock absorber (Fig. 6). Tighten the pinch bolt to a torque of 88 N·m (65 ft. lbs.).

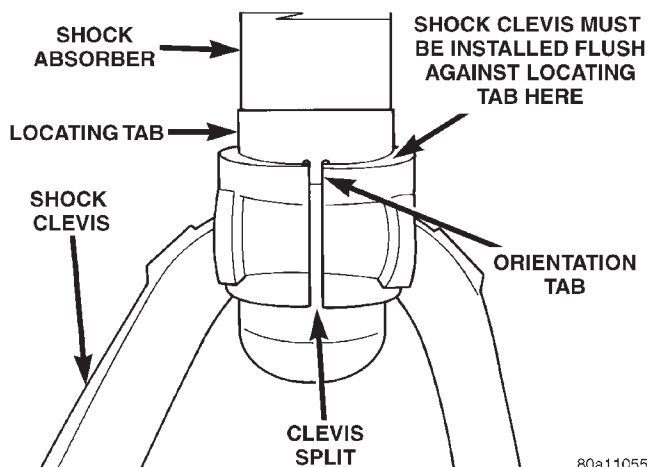


Fig. 9 Clevis Correctly Installed On Shock Absorber

(4) Install the clevis bracket to lower control arm thru-bolt (Fig. 7). Do not tighten or torque the thru-bolt at this time.

(5) Install upper ball joint into steering knuckle. Install castle nut on ball joint stud. Tighten castle nut to a torque of 54 N·m (40 ft. lbs.). Install cotter pin in stud of ball joint (Fig. 4).

(6) Install the routing bracket for the speed control cable (Fig. 3) on the steering knuckle. Install and securely tighten the routing bracket attaching bolt (Fig. 3).

CAUTION: When supporting lower control arm with jack stand, do not position jack stand under the ball joint cap on the lower control arm. Position in area of lower control arm shown in (Fig. 10).

(7) Lower vehicle to the ground with a jack stand positioned under the lower control arm (Fig. 10). Continue to lower vehicle so the total weight of the vehicle is supported by the jack stand and lower control arm.

(8) Tighten the shock absorber clevis to lower control arm bushing thru-bolt nut to a torque of 88 N·m (65 ft. lbs.).

(9) Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

UPPER CONTROL ARM

REMOVE

(1) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

REMOVAL AND INSTALLATION (Continued)

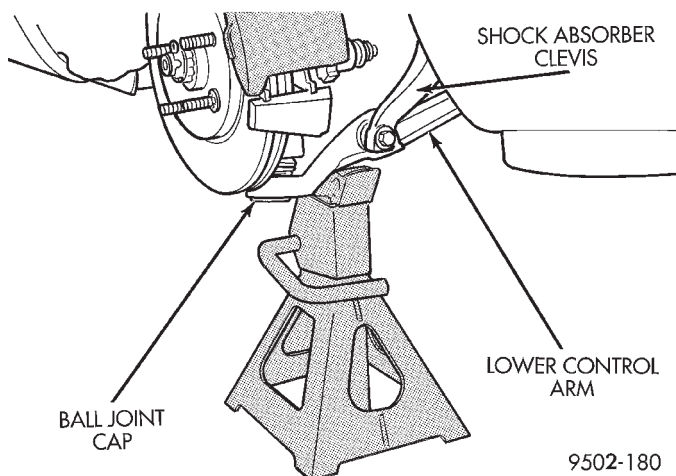


Fig. 10 Lower Control Arm Correctly Supported By Jack Stand

(2) Remove wheel and tire assembly from location on front of vehicle requiring upper control arm removal.

(3) Remove the wheel speed sensor cable routing bracket (Fig. 11) from the steering knuckle.

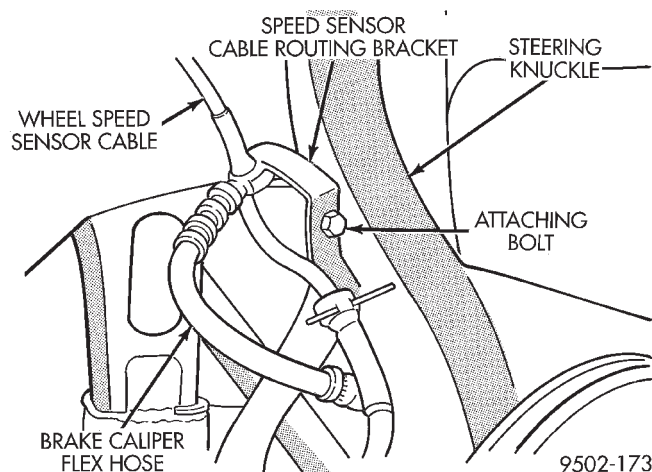


Fig. 11 Wheel Speed Sensor Cable Routing Bracket

(4) Remove the cotter pin and castle nut (Fig. 12) from the upper ball joint stud.

(5) Remove the upper ball joint stud from the steering knuckle using Puller, Special Tool, C-3894-A (Fig. 13). Pull steering knuckle outward and position toward the rear of the front wheel opening.

(6) Remove bolt (Fig. 14) attaching shock absorber clevis to the shock absorber.

CAUTION: When removing the shock absorber clevis to lower control arm thru-bolt (Fig. 15) do not turn the thru-bolt in the clevis. The serrations on the bolt and the clevis will be damaged.

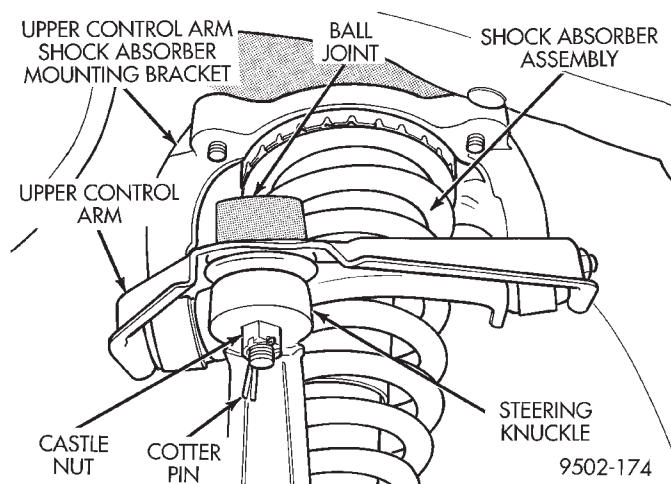


Fig. 12 Ball Joint Attachment To Steering Knuckle

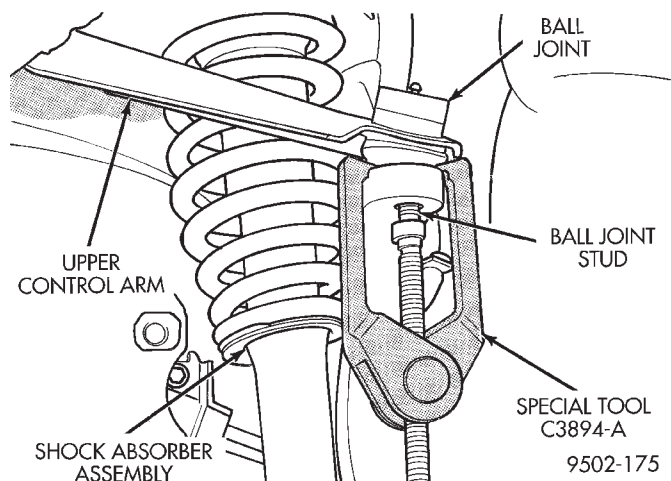


Fig. 13 Ball Joint Stud Removal From Steering Knuckle

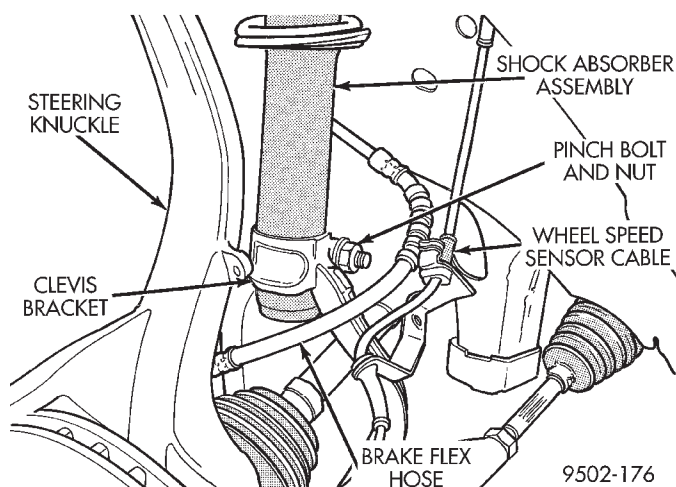
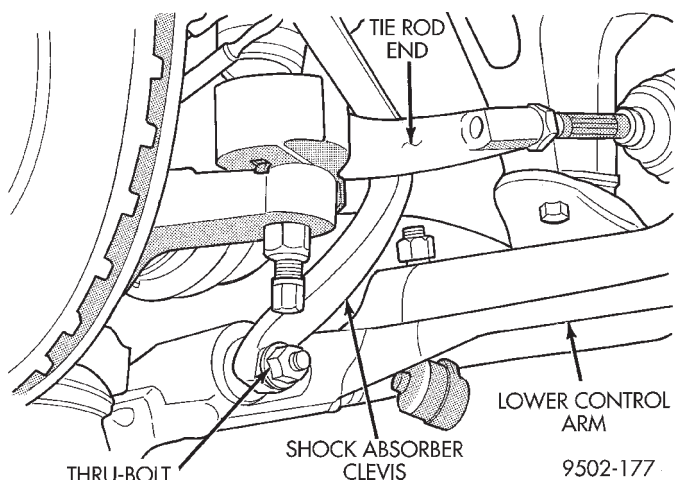


Fig. 14 Shock Absorber Clevis Pinch Bolt

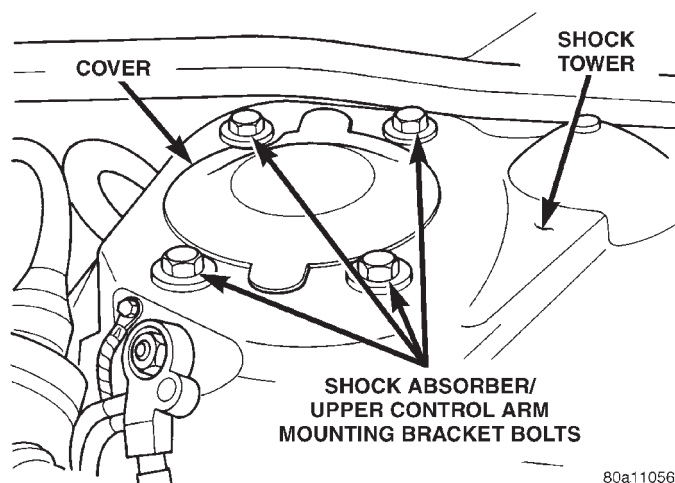
(7) Remove the nut and thru-bolt (Fig. 15) attaching the shock absorber clevis to the lower control arm.

REMOVAL AND INSTALLATION (Continued)

**Fig. 15 Clevis To Lower Control Arm Attaching**

(8) Remove the clevis from the shock absorber by carefully tapping it off the shock absorber using a soft (brass) drift.

(9) Remove the 4 bolts (Fig. 16) attaching the upper control arm/shock absorber mounting bracket to the shock tower of the vehicle.

**Fig. 16 Shock Absorber Attachment To Shock Tower**

(10) Remove the shock absorber and upper control arm mounting bracket as an assembly from the vehicle.

CAUTION: Do not clamp the shock absorber in a vise by the body of the shock absorber. The clevis bracket must be reinstalled on the shock absorber clamped in the vise using the clevis bracket.

(11) Install clevis bracket back on shock absorber and tighten pinch bolt. Then using the clevis bracket, clamp the shock absorber assembly in vise, with shock absorber in a vertical position (Fig. 17).

WARNING: DO NOT REMOVE SHOCK ABSORBER ROD NUT, BEFORE SHOCK ABSORBER COIL

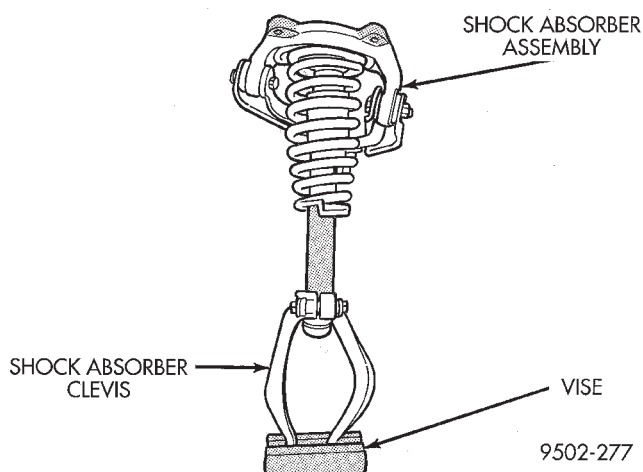
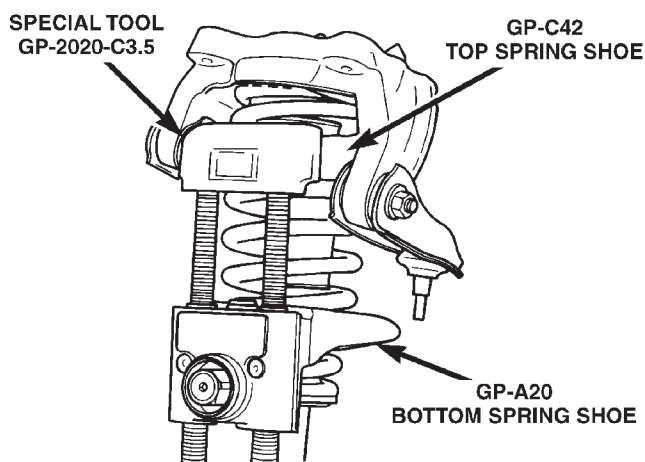


Fig. 17 Shock Absorber Correctly Mounted In Vise
SPRING IS COMPRESSED, REMOVING SPRING TENSION FROM UPPER CONTROL ARM/SHOCK ABSORBER MOUNTING BRACKET.

WARNING: WHEN COMPRESSING COIL SPRING FOR REMOVAL FROM SHOCK ABSORBER, THE FIRST FULL TOP AND BOTTOM COIL OF THE COIL SPRING MUST BE CAPTURED BY THE JAWS OF THE COIL SPRING COMPRESSOR.

(12) Compress shock absorber coil spring, using Professional Services Equipment Spring Compressor, GP-2020-C3.5 fitted with the GP-C42 top spring shoe and the GP-A20 bottom spring shoe (Fig. 18).

**Fig. 18 Compressing Shock Absorber Coil Spring**

(13) Hold the rod of the shock absorber from rotating using Shock Absorber Socket, Snap-On A136 or an equivalent (Fig. 19). Then remove the shock absorber shaft nut.

(14) Remove the washer (Fig. 20) from shock absorber rod.

REMOVAL AND INSTALLATION (Continued)

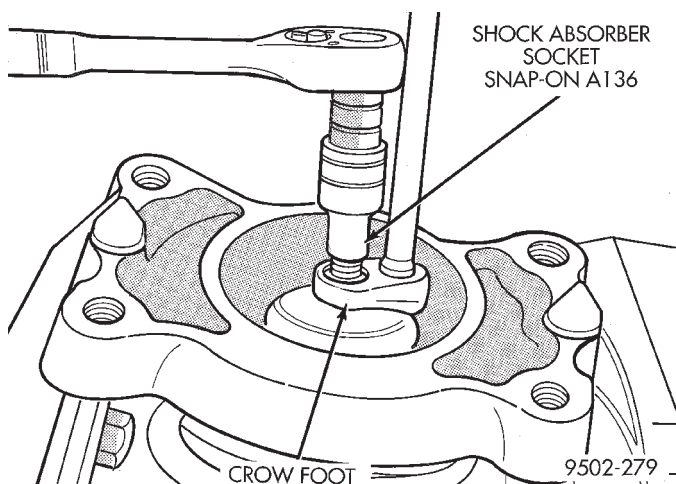


Fig. 19 Shock Absorber Shaft Nut Removal

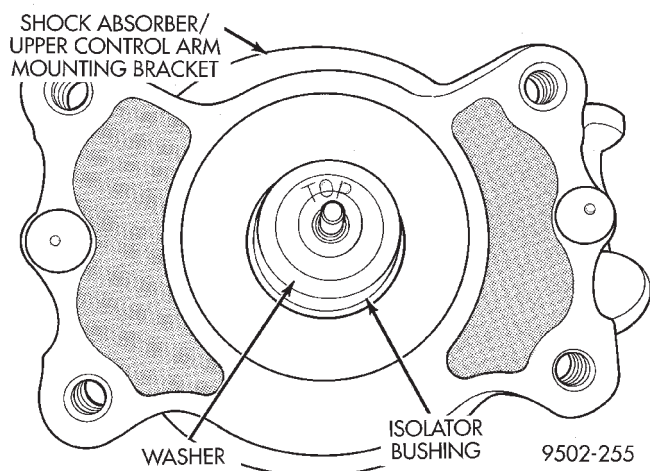


Fig. 20 Shock Absorber Rod Upper Washer

(15) Remove the shock absorber/upper control arm mounting bracket from the shock absorber assembly (Fig. 21).

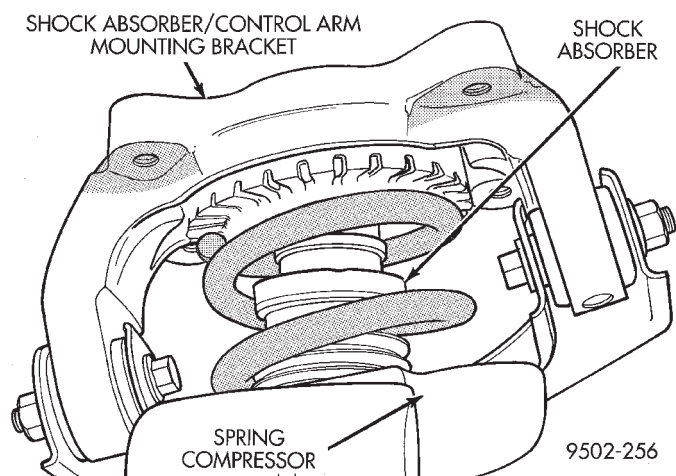


Fig. 21 Shock Absorber/Upper Control Arm Mounting Bracket

CAUTION: The top and bottom bushings for the shock absorber rod are unique to the position which they are installed on the rod. When removing the bushings from the rod, attention must be paid to their location so they will be installed correctly when shock absorber is assembled.

(16) Remove the shock absorber rod upper isolator bushing (Fig. 22) from the shock absorber/upper control arm mounting bracket.

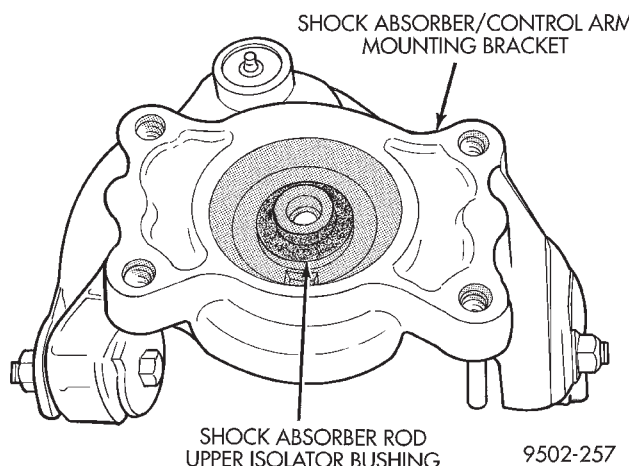


Fig. 22 Shock Absorber Rod Upper Isolator Bushing

(17) Remove the shock absorber rod lower isolator bushing and sleeve (Fig. 23) from the shock absorber/upper control arm mounting bracket. Then remove upper spring isolator (Fig. 23) from mounting bracket.

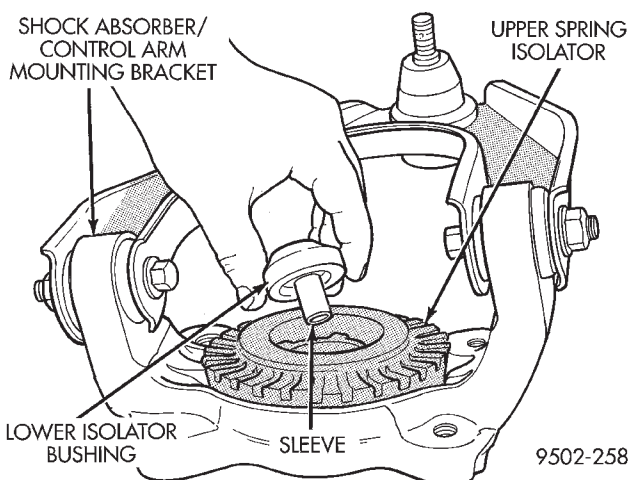


Fig. 23 Shock Absorber Rod Lower Isolator Bushing And Sleeve

(18) Remove the 2 bolts (Fig. 24) attaching the upper control arm to the bushings in the upper control arm mounting bracket.

(19) Remove the upper control arm from the mounting bracket.

REMOVAL AND INSTALLATION (Continued)

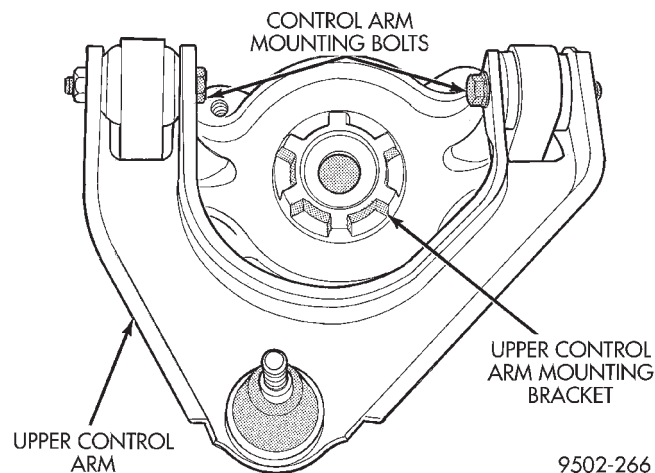


Fig. 24 Upper Control Arm To Mounting Bracket Attachment

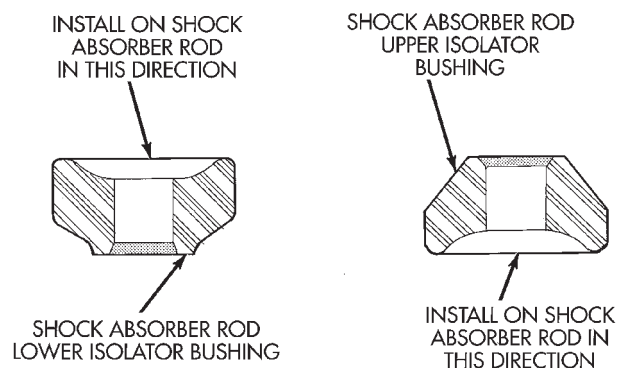
INSTALL

(1) Install the upper control arm assembly on its mounting bracket.

NOTE: Bolts **MUST** be installed so the head of the bolt will be toward the coil spring when the mounting bracket is installed on the shock absorber mounting bracket (Fig. 24).

(2) Install and securely tighten the 2 bolts attaching the upper control arm to the bushings in the mounting bracket (Fig. 24). Tighten the attaching bolts to a torque of 95 N·m (70 ft. lbs.).

CAUTION: The top and bottom shock absorber rod bushings are unique to the position which they are installed on the rod. When installing the bushings on the rod, attention must be paid to their location so they are installed correctly (Fig. 25).



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Fig. 25 Upper And Lower Shock Absorber Rod Bushing Identification

(3) Install the lower isolator bushing and sleeve (Fig. 23) in the shock absorber/lower control mount-

ing bracket. Install the coil spring upper isolator on the mounting bracket (Fig. 23).

(4) Install the upper isolator bushing (Fig. 22) on the shock absorber/upper control arm mounting bracket.

(5) Install the shock absorber/upper control arm mounting bracket (Fig. 21) on the shock absorber assembly.

(6) Install the upper washer on the rod of shock absorber and positioned with the word TOP facing up (Fig. 20).

WARNING: THE FOLLOWING 2 STEPS MUST BE COMPLETELY DONE BEFORE SPRING COMPRESSOR, GP-2020-C3.5 OR AN EQUIVALENT IS RELEASED FROM THE COIL SPRING.

(7) Install nut on rod of shock absorber assembly. While holding rod of shock absorber from turning, tighten shock absorber rod retaining nut to a torque of 55 N·m (40 ft. lbs.) (Fig. 19).

(8) Relieve all tension from spring compressor. After all spring tension has been removed from the spring compressor, remove it from the shock absorber assembly.

(9) Remove the shock absorber assembly from the vise and remove the clevis from the shock absorber.

(10) Install shock absorber assembly with the clevis bracket removed, into the shock tower. Align the 2 locating pins and the 4 mounting holes on the upper control arm shock absorber mount with the holes in shock tower. Install the 4 upper control arm mount to shock tower mounting bolts. Tighten the 4 bolts to a torque of 95 N·m (70 ft. lbs.). Refer to Shock Absorber Installation in this section of the service manual for the proper procedure.

(11) Install the clevis on the shock absorber. Clevis is installed by tapping it onto shock absorber using a soft (brass) drift until fully seated against locating tab on shock absorber. Locating tab on collar must be positioned in the split of the clevis bracket (Fig. 26).

CAUTION: When tightening the clevis pinch bolt do not turn the pinch bolt in the clevis. The serrations on the pinch bolt and the clevis will be damaged.

(12) Tighten the **nut** on the shock absorber clevis pinch bolt (Fig. 14) to a torque of 88 N·m (65 ft. lbs.).

(13) Install the clevis to lower control arm isolator bushing thru- bolt (Fig. 15). Do not tighten or torque the thru-bolt at this time.

(14) Install upper ball joint stud into steering knuckle. Install castle nut on ball joint stud. Tighten nut to a torque of 55 N·m (40 ft. lbs.). Install cotter pin in ball joint (Fig. 12).

(15) Install the routing bracket for the wheel speed sensor cable on the steering knuckle (Fig. 11). Install

REMOVAL AND INSTALLATION (Continued)

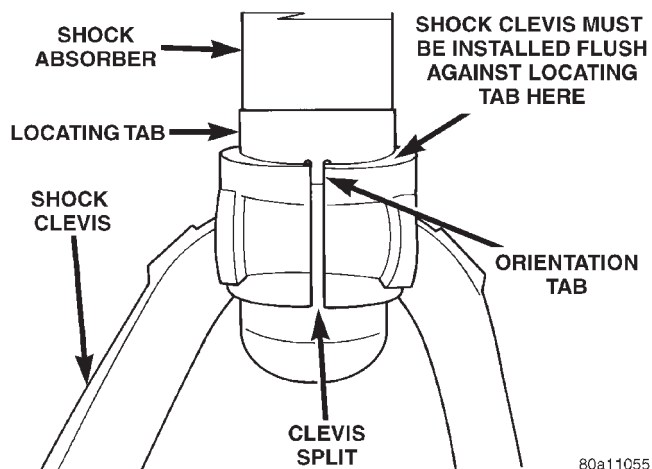


Fig. 26 Clevis Correctly Installed On Shock Absorber

and securely tighten the routing bracket attaching bolt.

CAUTION: When supporting the lower control arm with jack stand, do not position jack stand under the ball joint cap on the lower control arm. Position jack stand in area of lower control arm shown in (Fig. 27).

(16) Lower vehicle to the ground with a jack stand positioned under the lower control arm (Fig. 27). Continue to lower vehicle so the total weight of the vehicle is supported by the jack stand and lower control arm.

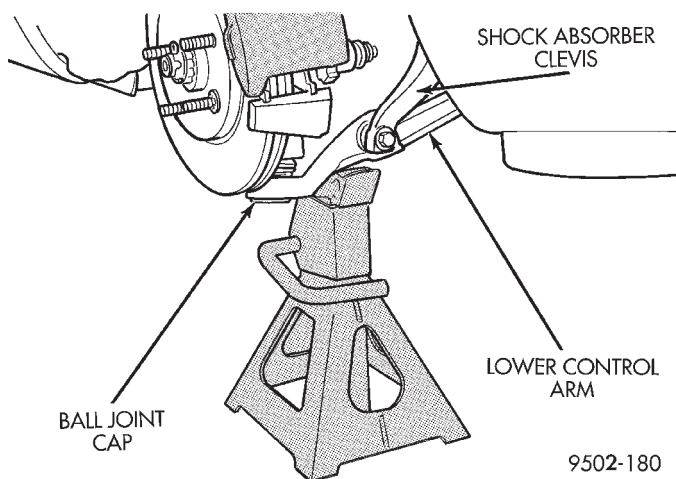


Fig. 27 Lower Control Arm Correctly Supported By Jack Stand

CAUTION: When tightening the shock absorber clevis to lower control arm thru-bolt (Fig. 15) do not turn the thru-bolt in the clevis. The serrations on the bolt and the clevis will be damaged.

(17) Tighten the shock absorber clevis to lower control arm bushing thru-bolt nut to a torque of 88 N·m (65 ft. lbs.).

(18) Properly lubricate the upper ball joint using Mopar Multi-Mileage Lube or an equivalent.

(19) Install the wheel and tire assembly back on the vehicle.

(20) Raise vehicle and remove jack stand from under lower control arm and lower vehicle to the ground.

(21) Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

LOWER CONTROL ARM

REMOVE

(1) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the tire and wheel from the vehicle.

NOTE: Removing the tie rod end from the steering knuckle allows the steering knuckle to be turned further. This allows better access to the steering knuckle when striking it to remove the ball joint stud from the steering knuckle.

(3) Remove nut attaching the outer tie rod end to the steering knuckle (Fig. 28). **Nut is to be removed from tie rod end using the following procedure, hold tie rod end stud with a 11/32 socket while loosening and removing nut with wrench (Fig. 28).**

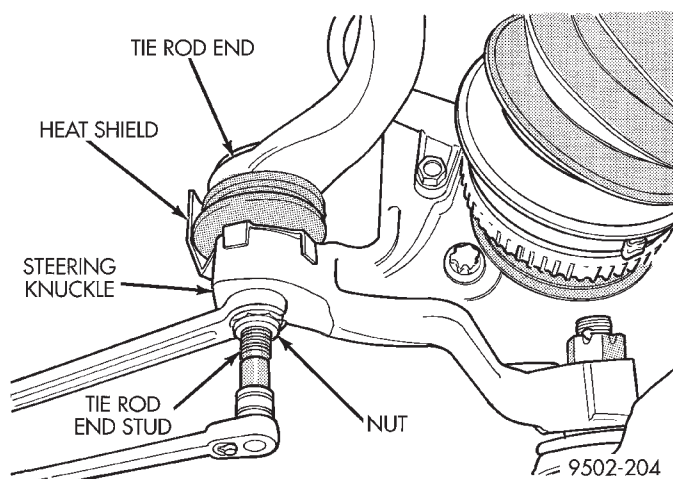


Fig. 28 Tie Rod End Attaching Nut

REMOVAL AND INSTALLATION (Continued)

(4) Remove the tie rod end from the steering knuckle using Remover, Special Tool MB-991113 (Fig. 29).

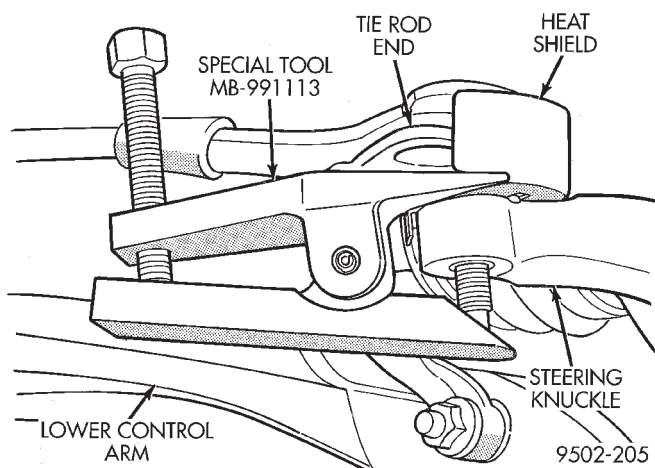


Fig. 29 Tie Rod End Removal From Steering Knuckle

(5) Remove cotter pin and castle nut (Fig. 30) from stud of lower ball joint.

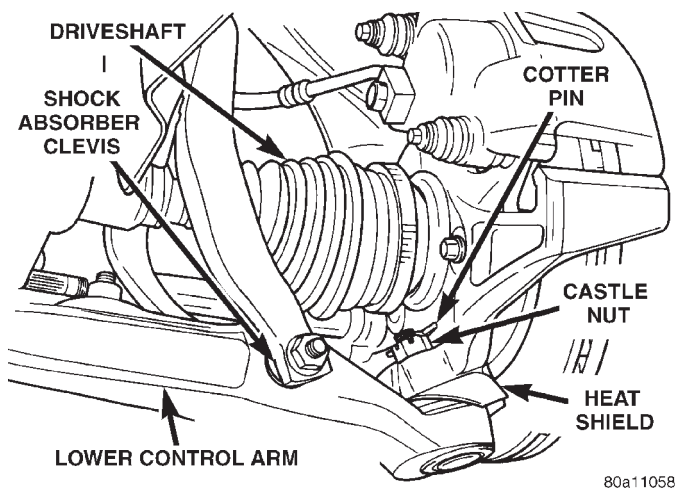


Fig. 30 Lower Ball Joint Attachment To Steering Knuckle

CAUTION: No tool is to be inserted between the steering knuckle and the lower ball joint to separate the lower ball joint from the steering knuckle. The steering knuckle is to be separated from the ball joint only using the procedure as described in step Step 6 below.

CAUTION: When striking the steering knuckle, do not hit the heat shield covering the ball joint grease seal. Bending the heat shield against the ball joint grease seal will cause the grease seal to fail.

(6) Turn steering knuckle so the front of the steering knuckle is facing as far outboard in the wheel opening as possible (Fig. 31). Using a hammer, strike steering knuckle boss (Fig. 31) until steering knuckle separates from the lower ball joint. **When striking steering knuckle care MUST be taken not to hit lower control arm or ball joint grease seal.**

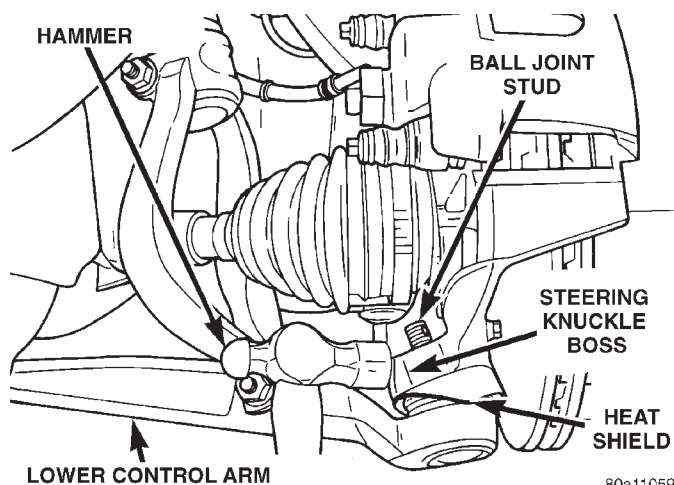


Fig. 31 Separating Lower Ball Joint Stud From Steering Knuckle

CAUTION: Pulling the steering knuckle outward from the vehicle after releasing it from the ball joint, can separate inner C/V joint. See Driveshafts.

(7) Remove the shock absorber clevis to lower control arm bushing, nut and thru-bolt. Separate the clevis from lower control arm (Fig. 32).

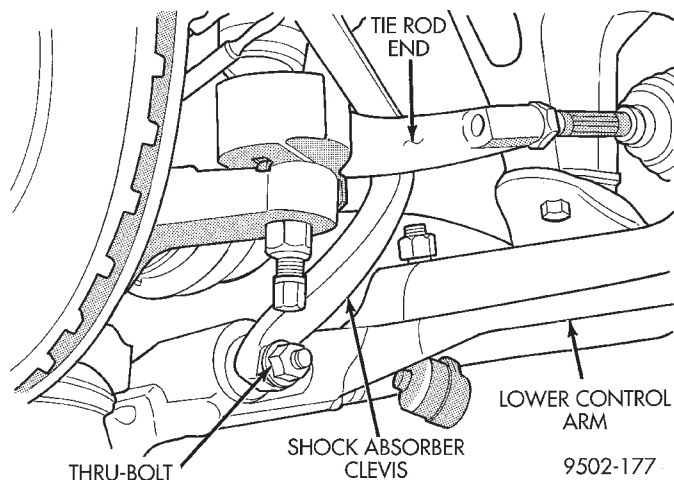


Fig. 32 Clevis To Lower Control Arm Attachment

(8) Remove nut attaching the stabilizer bar link to the lower control arm (Fig. 33). When removing nut, hold stud of stabilizer bar link from turning by inserting an allen wrench in the end of the stud (Fig. 33).

REMOVAL AND INSTALLATION (Continued)

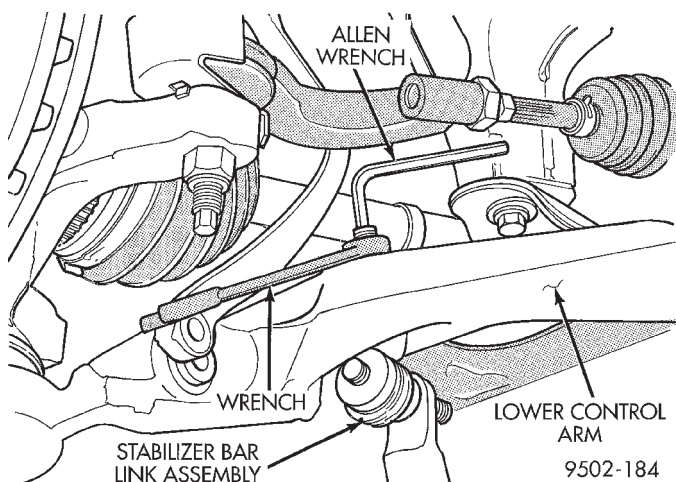


Fig. 33 Removing/ Installing Nut From Stud Of Stabilizer Link

(9) Remove the bolts (Fig. 34) attaching the one stabilizer bar bushing clamp to the front suspension crossmember and the body of the vehicle.

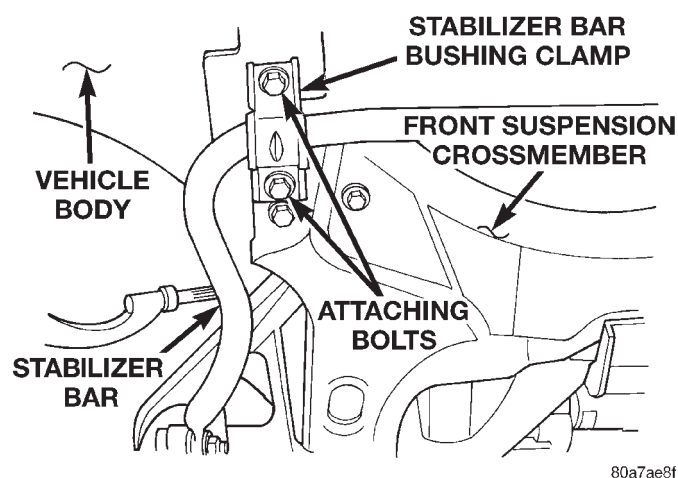


Fig. 34 Stabilizer Bar Bushing Clamp Attachment To Vehicle

(10) Lower the one side of the stabilizer bar away from the lower control arm and body of vehicle.

(11) Remove the nut and bolt (Fig. 35) attaching the rear of the lower control arm to the front suspension crossmember.

(12) Remove nut and bolt attaching the front of the lower control arm to the front suspension crossmember (Fig. 36).

CAUTION: When removing lower control arm from crossmember care must be taken to prevent hitting lower ball joint seal against steering knuckle, causing damage to the ball joint seal.

(13) Remove the front of the lower control arm from the front suspension crossmember first.

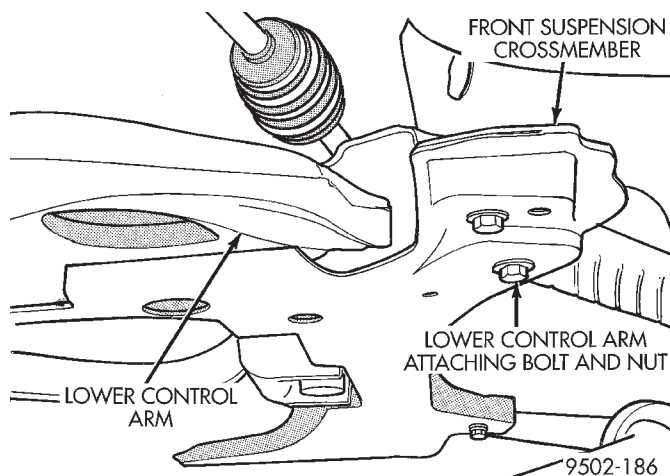


Fig. 35 Lower Control Arm Attachment To Front Suspension Crossmember

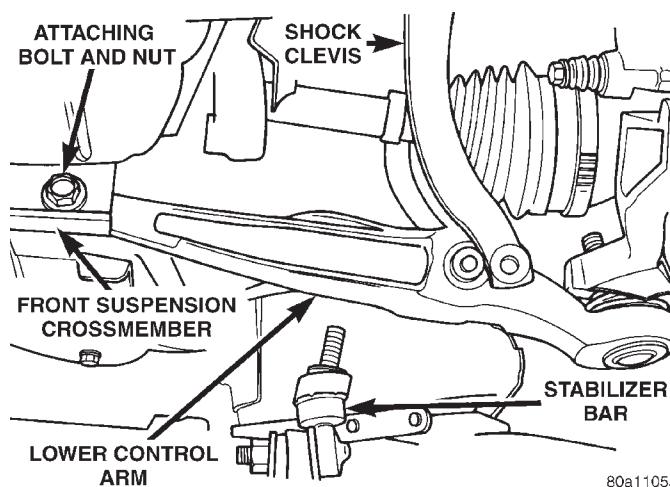


Fig. 36 Attaching Front Of Lower Control Arm To Suspension Crossmember

(14) Then, remove the rear of the lower control arm from the front suspension crossmember. When removing rear of lower control arm from crossmember, keep control arm as level as possible. This will keep rear bushing from binding on crossmember making it easier to remove control arm from crossmember.

INSTALL

(1) Position rear of lower control arm into front suspension crossmember first. Then install front of lower control arm in front suspension crossmember. Install bolts and nuts (Fig. 36) and (Fig. 35) attaching the front and rear of lower control arm to front suspension crossmember. **Do not tighten front attaching bolt at this time.**

(2) Tighten lower control arm rear attaching nut and bolt (Fig. 35) to a torque of 95 N·m (70 ft. lbs.).

REMOVAL AND INSTALLATION (Continued)

(3) Install the lower control arm ball joint stud into the steering knuckle. Install the steering knuckle to ball joint stud castle nut (Fig. 30).

(4) Install the tie rod end into the steering knuckle. Start the tie rod end to steering knuckle attaching nut onto stud of tie rod end. While holding stud of tie rod end stationary, tighten tie rod end to steering knuckle attaching nut (Fig. 28). Then using a crowfoot and 11/32 socket tighten the attaching nut to a torque of 61 N·m (45 ft. lbs.) (Fig. 37).

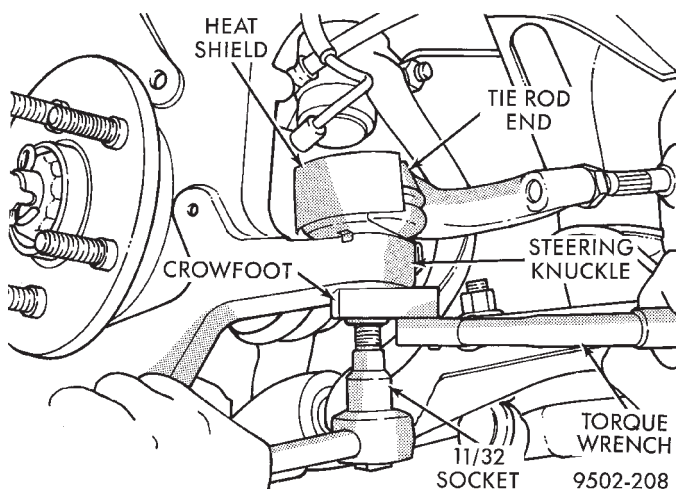


Fig. 37 Torquing Tie Rod End Attaching Nut

(5) Tighten the lower control arm ball joint stud castle nut (Fig. 30) to a torque of 74 N·m (55 ft. lbs.). Install the cotter pin (Fig. 30) in the ball joint stud.

(6) Position sway bar link into its lower control arm mounting hole.

(7) Align sway bar bushing clamp with mounting holes in front suspension crossmember and body of vehicle. Then install and securely tighten the bushing clamp mounting bolts (Fig. 34) to a torque of 61 N·m (45 ft. lbs.).

(8) Install and securely tighten the stabilizer bar link to lower control arm attaching nut to a torque of 102 N·m (75 ft. lbs.). When tightening and torquing attaching nut, hold stud of attaching link from turning with an allen wrench (Fig. 33).

(9) Install the clevis on the lower control arm. Loosely install the clevis to bushing thru-bolt (Fig. 32).

CAUTION: When supporting lower control arm with jack stand, do not position jack stand under the ball joint cap on the lower control arm. Position in area of lower control arm shown in (Fig. 38).

(10) Lower vehicle to the ground with a jack stand positioned under the lower control arm (Fig. 38). Continue to lower vehicle so the total weight of the vehicle is supported by the jack stand and lower control arm.

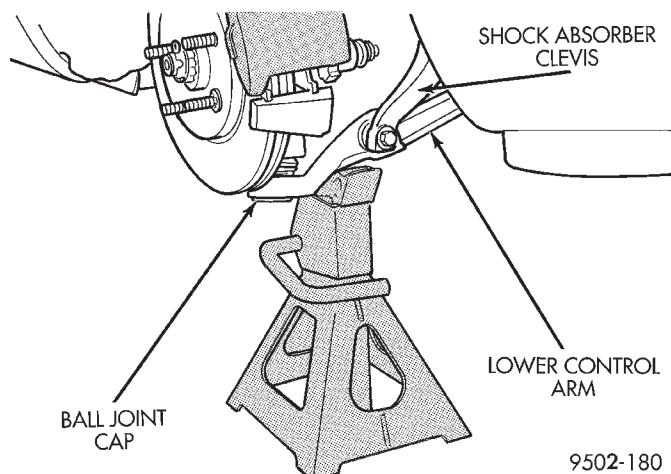


Fig. 38 Supporting Lower Control Arm With Jack Stand

CAUTION: When tightening the thru-bolt do not turn the bolt in the clevis. The serrations on the bolt and the hole in the clevis will be damaged.

(11) **With the vehicle's suspension at curb height**, tighten the clevis to lower control arm bushing thru-bolt nut (Fig. 32) to a torque of 88 N·m (65 ft. lbs.).

(12) Tighten front lower control arm nut and bolt (Fig. 36) to a torque of 182 N·m (135 ft. lbs.).

(13) Install wheel and tire assembly.

(14) Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(15) Remove jack stand from under lower control arm and lower vehicle to the ground.

(16) Check the vehicles alignment specifications and set front Toe to preferred specifications.

STEERING KNUCKLE

REMOVE

(1) Remove cotter pin, nut lock, and spring washer (Fig. 39) from the front stub axle.

CAUTION: Wheel bearing damage will result if after loosening hub nut, vehicle is rolled on the ground or the weight of the vehicle is allowed to be supported by the tires.

(2) Loosen hub nut while vehicle is on the floor with the brakes applied (Fig. 40). **The hub and driveshaft are splined together through the knuckle (bearing) and retained by the hub nut.**

(3) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for

REMOVAL AND INSTALLATION (Continued)

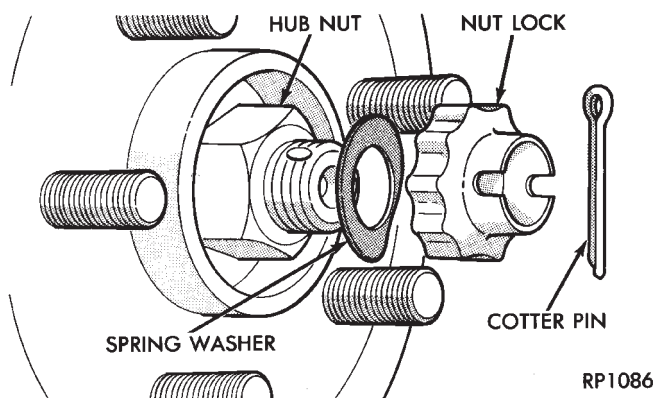


Fig. 39 Cotter Pin, Nut Lock

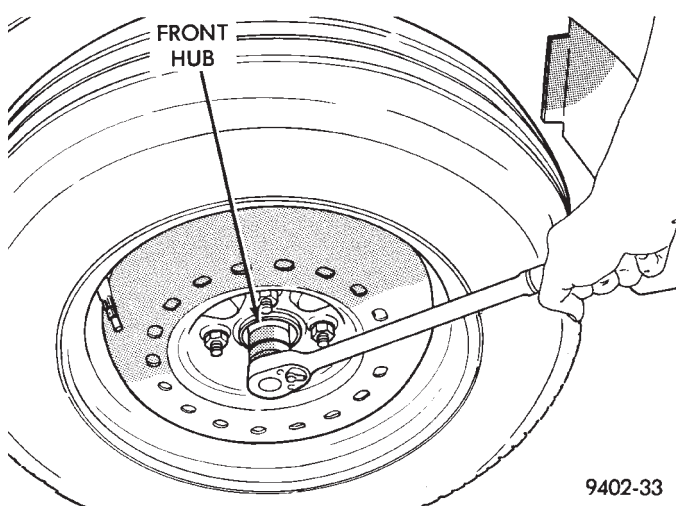


Fig. 40 Loosening Front Hub Nut

the required lifting procedure to be used for this vehicle.

(4) Remove front tire and wheel assembly from the hub.

(5) Remove front disc brake caliper to steering knuckle guide pin attaching bolts (Fig. 41).

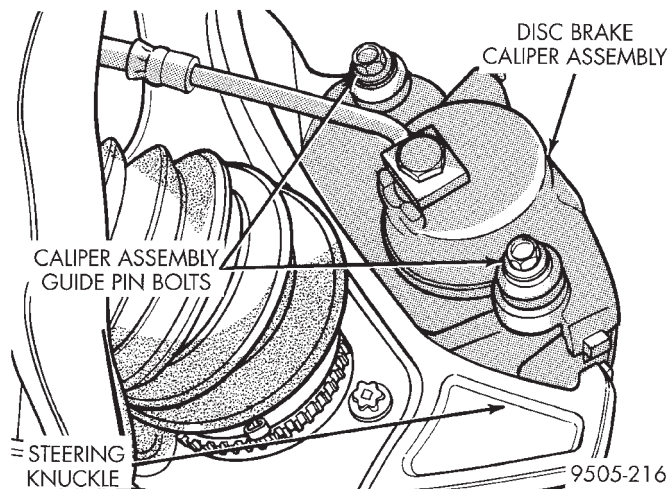


Fig. 41 Front Disc Brake Caliper Mounting

(6) Remove disc brake caliper assembly from steering knuckle. Caliper is removed by first lifting bottom of caliper away from steering knuckle, and then removing top of caliper out from under steering knuckle (Fig. 42).

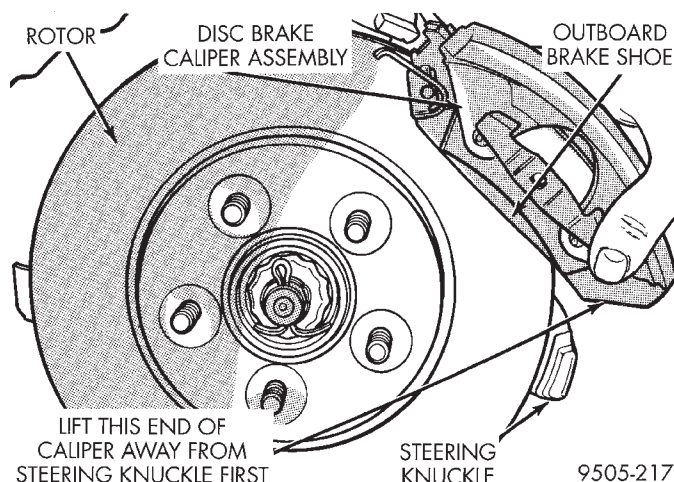


Fig. 42 Disc Brake Caliper Removal

(7) Support brake caliper/adaptor assembly using a wire hook (Fig. 43) and not by hydraulic hose.

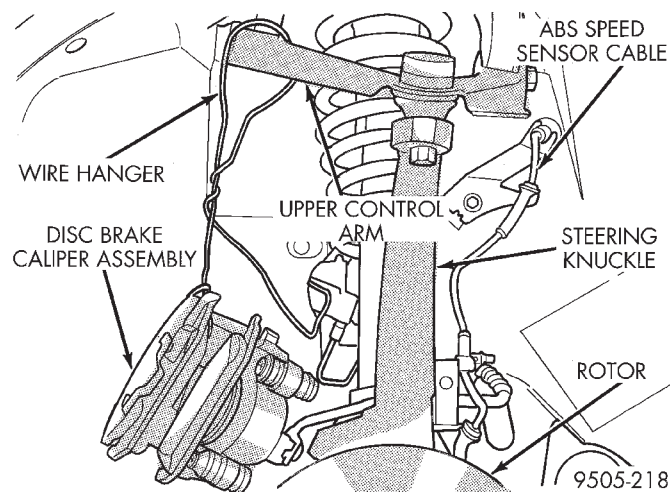


Fig. 43 Correctly Supported Front Disc Brake Caliper

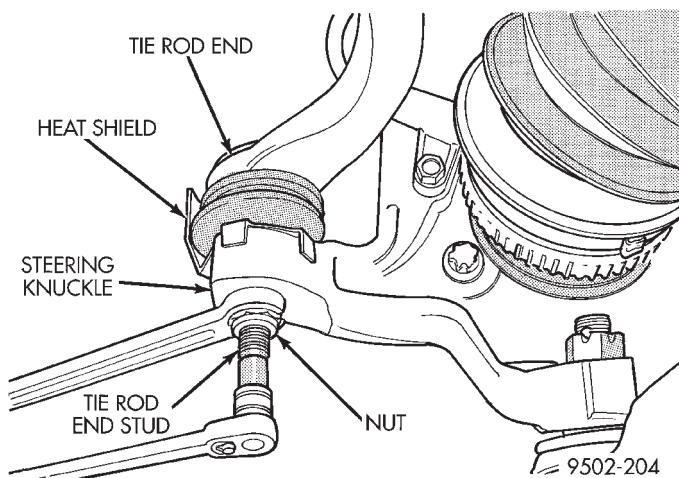
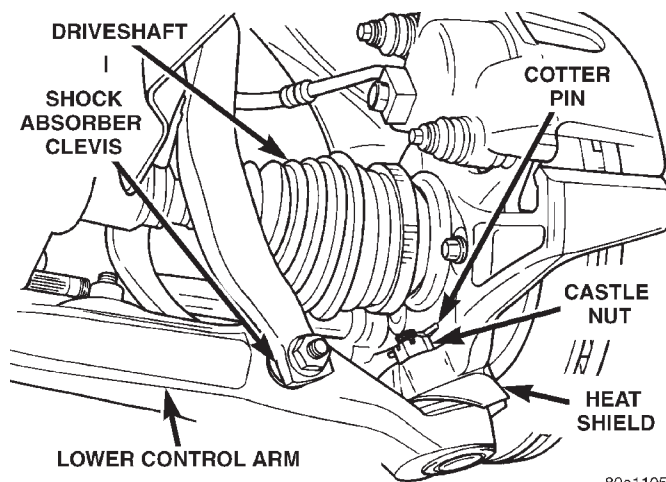
(8) Remove the braking disc from the front hub/bearing assembly.

(9) Remove nut attaching outer tie rod end to the steering knuckle (Fig. 44). **Nut is to be removed from tie rod end using the following procedure, hold tie rod end stud with a 11/32 socket while loosening and removing nut with wrench (Fig. 44).**

(10) Remove the tie rod end from the steering knuckle using Remover, Special Tool MB-991113 (Fig. 45).

(11) Remove the speed sensor cable routing bracket (Fig. 46) from the steering knuckle.

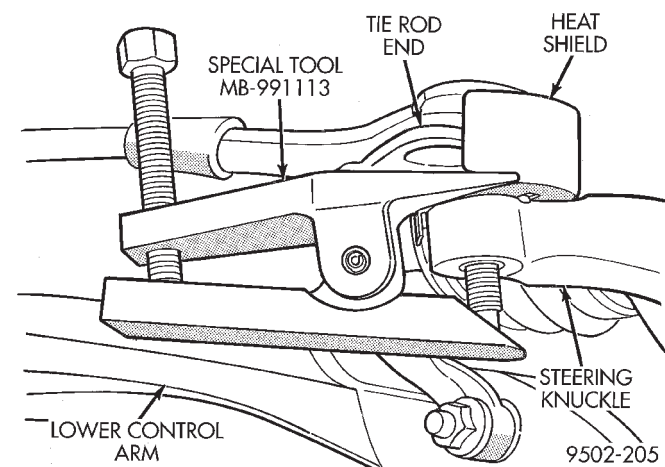
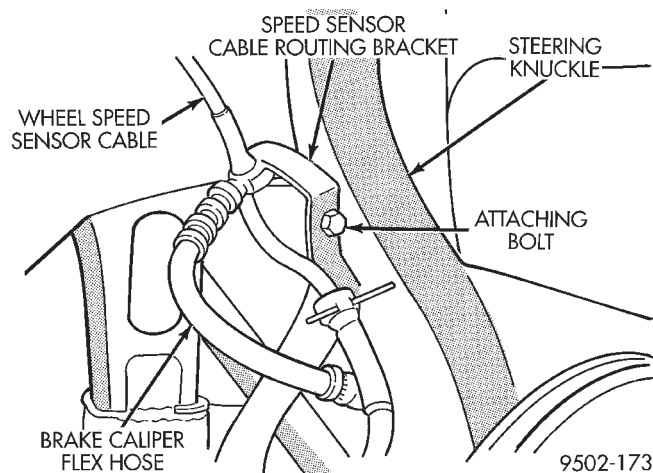
REMOVAL AND INSTALLATION (Continued)

**Fig. 44 Tie Rod End Attaching Nut****Fig. 47 Lower Ball Joint Attachment To Steering Knuckle**

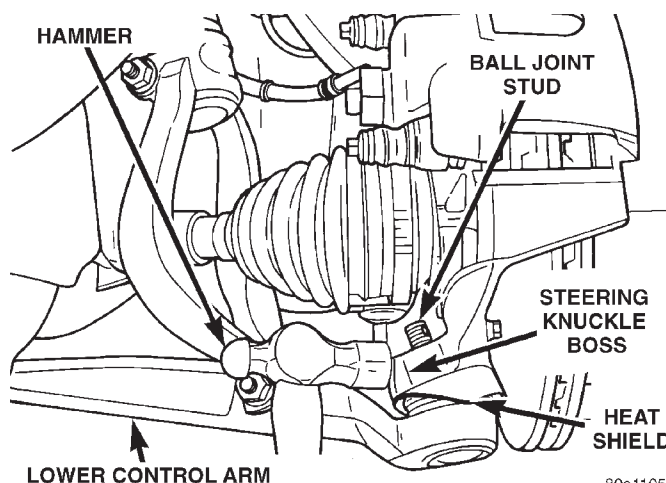
CAUTION: No tool is to be inserted between the steering knuckle and the lower ball joint to separate stud of lower ball joint from the steering knuckle. The steering knuckle is to be separated from the stud of the ball joint only using the procedure as described in step Step 13 below.

CAUTION: When striking the steering knuckle, do not hit the heat shield covering the ball joint grease seal. Bending the heat shield against the ball joint grease seal will cause the grease seal to fail.

(13) Turn steering knuckle so the front of the steering knuckle is facing as far outboard in the wheel well as possible. Using a hammer strike the boss on the steering knuckle, (Fig. 48) until the steering knuckle separates from the stud of lower ball joint.

**Fig. 45 Tie Rod End Removal From Steering Knuckle****Fig. 46 Speed Sensor Cable Routing Bracket**

(12) Remove cotter pin and castle nut (Fig. 47) from the stud of the lower ball joint .

**Fig. 48 Separating Ball Joint Stud From Steering Knuckle**

REMOVAL AND INSTALLATION (Continued)

CAUTION: Pulling steering knuckle out from vehicle after releasing from ball joint can separate inner C/V joint. See Driveshafts.

(14) Lift up on steering knuckle separating it from the lower ball joint stud. **Use caution when separating ball joint stud from steering knuckle, so ball joint seal does not get cut.**

NOTE: Care must be taken not to separate the inner C/V joint during this operation. Do not allow driveshaft to hang by inner C/V joint, driveshaft must be supported.

(15) Separate the steering knuckle from the outer C/V joint. Separate steering knuckle from outer C/V joint, by supporting the driveshaft while pulling steering knuckle away from the outer C/V joint (Fig. 49).

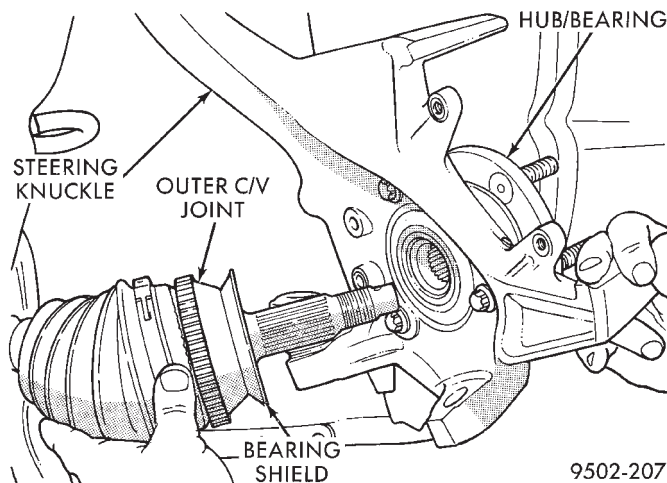


Fig. 49 Separating Steering Knuckle From Outer C/V Joint

(16) Remove the cotter pin and nut (Fig. 50) from the upper ball joint stud to steering knuckle attachment.

(17) Remove the upper ball joint stud from the steering knuckle using Puller, Special Tool, C-3894-A (Fig. 51).

(18) Remove steering knuckle from vehicle.

(19) **The bolt in type front wheel bearing used on the vehicle is transferable to the replacement steering knuckle if bearing is found to be in usable condition.** Refer to Hub And Bearing Service in this section of the service manual for proper wheel bearing removal and installation procedure.

INSTALL

(1) If required install a hub/bearing assembly into the steering knuckle before installing steering knuckle on vehicle. Refer to Hub And Bearing Ser-

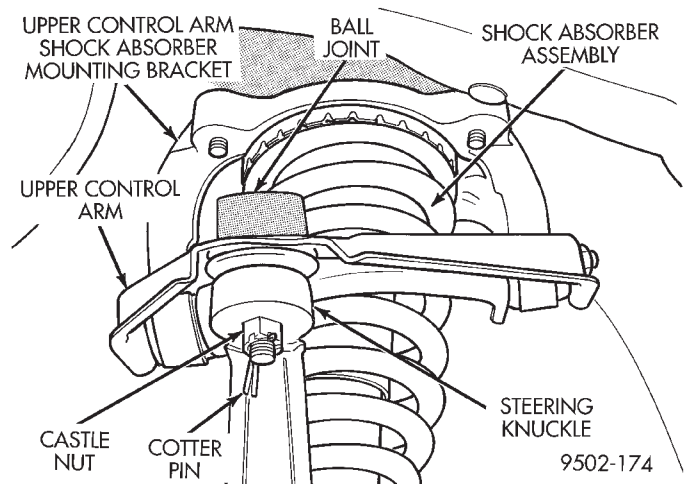


Fig. 50 Upper Ball Joint Attachment To Steering Knuckle

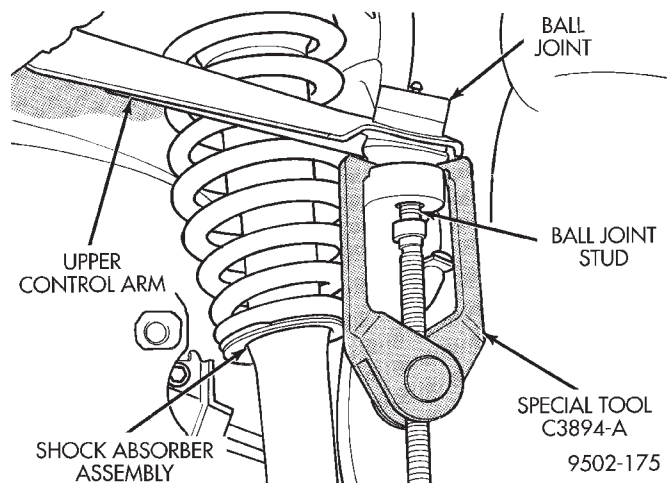


Fig. 51 Ball Joint Stud Removal From Steering Knuckle

vice in this section of the service manual for proper wheel bearing removal and installation procedure.

(2) Install the heat shield for the lower control arm ball joint grease seal before beginning the installation of the steering knuckle on the vehicle.

(3) Slide drive shaft back into front hub/bearing assembly. Then install steering knuckle onto the ball joint stud in lower control arm.

(4) Install the steering knuckle to lower ball joint stud castle nut.

(5) Install upper ball joint in steering knuckle. Install the steering knuckle to upper ball joint nut. Tighten the upper ball joint castle nut (Fig. 50) to a torque of 54 N·m (40 ft. lbs.). Then, using a crowfoot and torque wrench, tighten the lower ball joint nut (Fig. 47) to a torque of 75 N·m (55 ft. lbs.). Install cotter pins in upper and lower ball joint studs.

(6) Install the speed sensor cable routing bracket on the steering knuckle (Fig. 46) and securely tighten the attaching bolt.

REMOVAL AND INSTALLATION (Continued)

CAUTION: When installing tie rod on steering knuckle the heat shield (Fig. 52) must be installed. If heat shield is not installed, tie rod seal boot can fail due to excessive heat from brake rotor.

(7) Install tie rod end into the steering knuckle. Start tie rod end to steering knuckle attaching nut onto stud of tie rod end. While holding stud of tie rod end stationary, tighten tie rod end to steering knuckle attaching nut (Fig. 44). Then using a crow-foot and 11/32 socket tighten the attaching nut to a torque of 61 N·m (45 ft. lbs.) (Fig. 52).

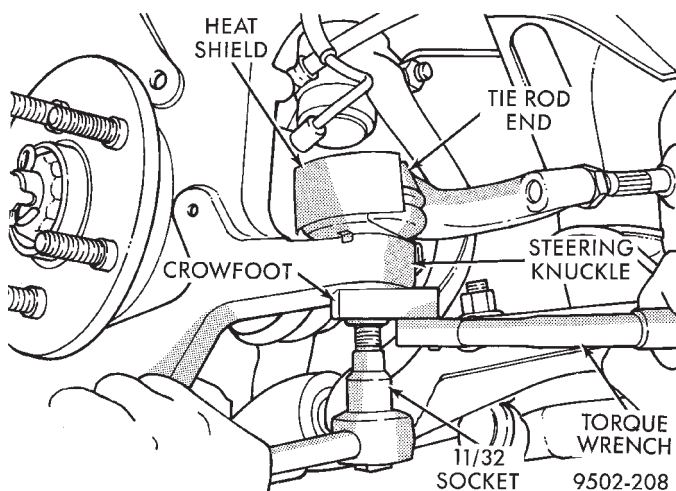


Fig. 52 Torquing Tie Rod End Attaching Nut

(8) Install braking disc back on hub and bearing assembly.

(9) Install disc brake caliper assembly on steering knuckle. Caliper is installed by first sliding top of caliper under top abutment on steering knuckle. Then installing bottom of caliper against bottom abutment of steering knuckle (Fig. 53).

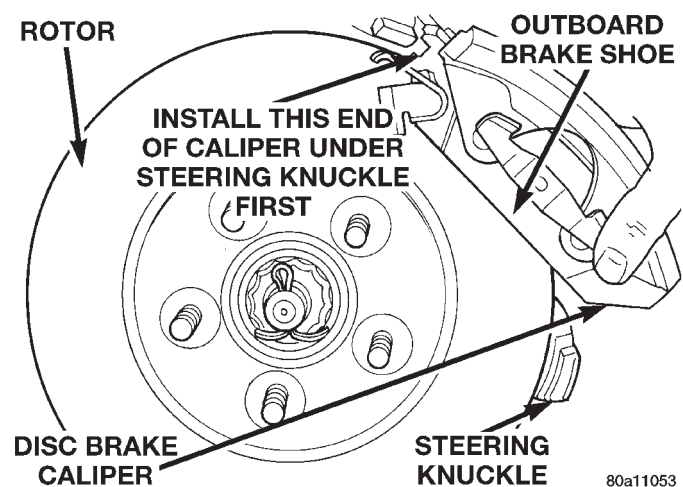


Fig. 53 Installing Brake Caliper

(10) Install the disc brake caliper guide pin bolts (Fig. 41). Tighten caliper assembly guide pin bolts to a torque of 31 N·m (23 ft. lbs.).

(11) Clean all foreign matter from the threads of the outer C/V joint stub axle. Install washer and hub nut (Fig. 54) onto stub axle and tighten nut.

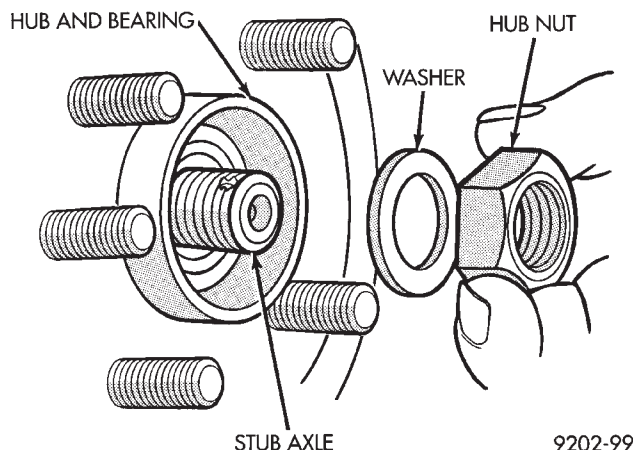


Fig. 54 Front Stub Axle Nut And Washer

(12) With vehicle brakes applied to keep braking disc from turning, tighten hub nut to 203 N·m (150 ft. lbs.) of torque.

(13) Install the spring washer, hub nut lock, and new cotter pin. Wrap cotter pin prongs tightly around the hub nut lock (Fig. 55).

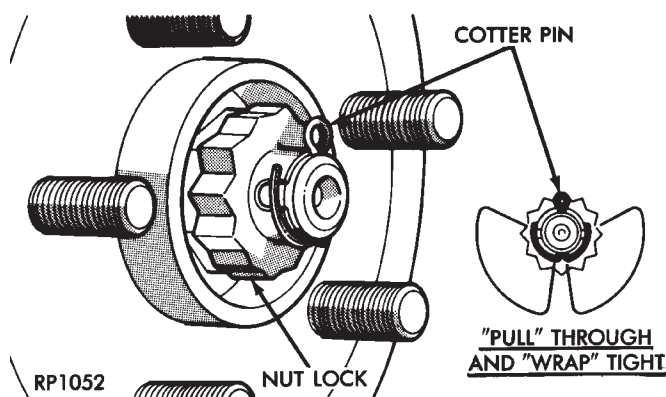


Fig. 55 Installing Spring Washer, Nut Lock And Cotter Pin

(14) Install front wheel and tire assembly. Install front wheel lug nuts and tighten in correct sequence. Then tighten to a torque of 135 N·m (100 ft. lbs.).

(15) Lower vehicle.

(16) Set front Toe on vehicle to required specification. Use procedure listed under Wheel Alignment, in the Front Suspension Service Procedures section of this service manual.

REMOVAL AND INSTALLATION (Continued)

STABILIZER BAR

REMOVE

(1) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove nuts and stabilizer bar attaching link assemblies from the front lower control arms (Fig. 56). When removing attaching link nut, keep stud from turning by installing an allen wrench in the end of the stud (Fig. 56).

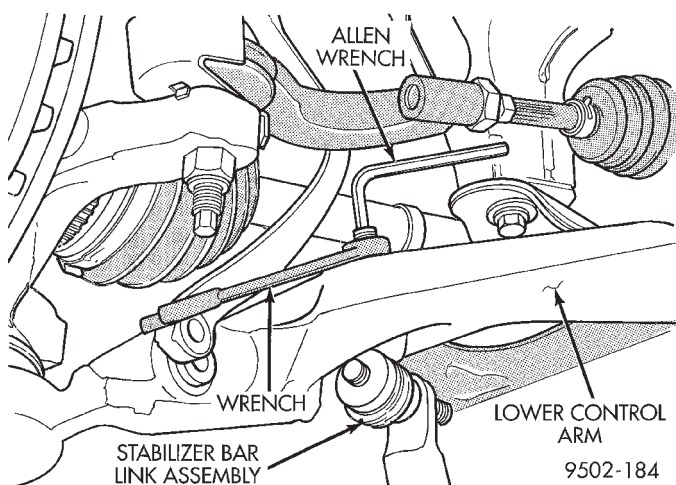


Fig. 56 Stabilizer Bar Attaching Link Nut Removal

(3) Remove the 4 bolts attaching the stabilizer bar bushing retainers to the front suspension crossmember and body (Fig. 57). Then remove the stabilizer bar assembly from the vehicle.

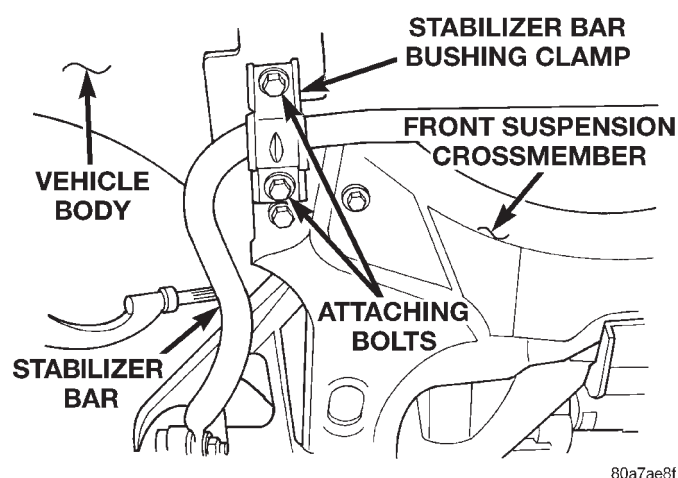


Fig. 57 Stabilizer Bar Bushing Retainer Attaching Bolts

STABILIZER BAR INSPECTION

Inspect for broken or distorted stabilizer bar bushings, clamps and attaching links. If stabilizer bar to

front crossmember bushing replacement is required, bushing can be removed using the stabilizer bar bushing removal procedure in the Disassembly And Assembly section in this group of the service manual.

If inspection determines that replacement of a stabilizer bar to lower control arm attachment link is required, replace the link before installing stabilizer bar.

INSTALL

(1) Position stabilizer bar and bushings as an assembly into front crossmember. Install the stabilizer bar bushing retainer to crossmember and body attaching bolts (Fig. 57).

(2) Tighten the bushing retainer attaching bolts to a torque of 61 N·m (45 ft. lbs.).

(3) Align stabilizer bar attaching link assemblies with attaching link mounting holes in the lower control arms. Install stabilizer bar attaching links into both lower control arms. Install the attaching link to lower control arm retaining nuts. Torque the stabilizer bar attaching link nuts to 101 N·m (75 ft. lbs.).

FRONT HUB/BEARING ASSEMBLY

The front hub/bearing is serviced separately from the front steering knuckle. Retention of the front hub/bearing into the steering knuckle, is by means of 3 bolts installed from the rear of the steering knuckle. The bolts attach the hub/bearing to the outboard side of the steering knuckle. Removal and installation of the hub/bearing assembly from the steering knuckle must be done with the steering knuckle removed from the vehicle. **This is required due to the tool clearance to the ABS tone wheel when removing the retaining bolts. Removing the retaining bolts with the steering knuckle installed can result in damage to the tone wheel teeth requiring replacement of the driveshaft. If vehicle is not equipped with ABS, the hub/bearing may be removable without removing steering knuckle from vehicle.**

REMOVE

(1) Remove cotter pin, nut lock, and spring washer (Fig. 58) from the front stub axle.

CAUTION: Wheel bearing damage will result if after loosening hub nut, vehicle is rolled on the ground or the weight of the vehicle is allowed to be supported by the tires.

(2) Loosen hub nut while vehicle is on the floor with the brakes applied (Fig. 59). **The hub and driveshaft are splined together through the knuckle (bearing) and retained by the hub nut.**

(3) Raise vehicle on jack stands or centered on a frame contact type hoist. See Hoisting in the Lubri-

REMOVAL AND INSTALLATION (Continued)

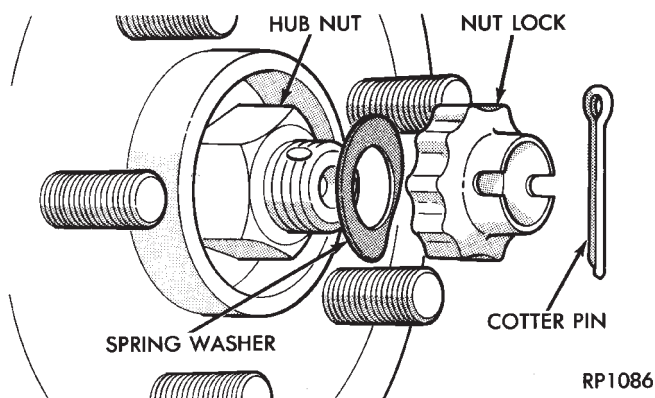


Fig. 58 Cotter Pin, Nut Lock

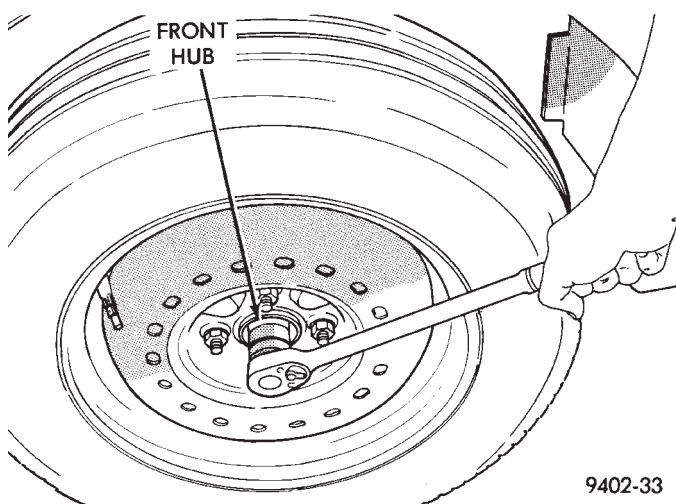


Fig. 59 Loosening Front Hub Nut

cation and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(4) Remove front tire and wheel assembly from the hub.

(5) Remove front disc brake caliper to steering knuckle guide pin attaching bolts (Fig. 60).

(6) Remove disc brake caliper assembly from steering knuckle. Caliper is removed by first lifting bottom of caliper away from steering knuckle, and then removing top of caliper out from under steering knuckle (Fig. 61).

(7) Support brake caliper/adapter assembly using a wire hook (Fig. 62) and not by hydraulic hose.

(8) Remove the braking disc from the front hub/bearing assembly (Fig. 63).

(9) Remove nut attaching the outer tie rod end to the steering knuckle (Fig. 64). **Nut is to be removed from tie rod end using the following procedure, hold tie rod end stud with a 11/32 socket while loosening and removing nut with wrench (Fig. 64).**

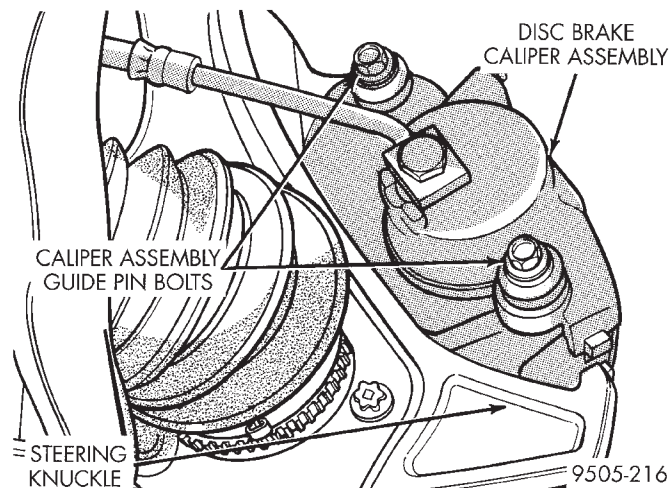


Fig. 60 Front Disc Brake Caliper Mounting

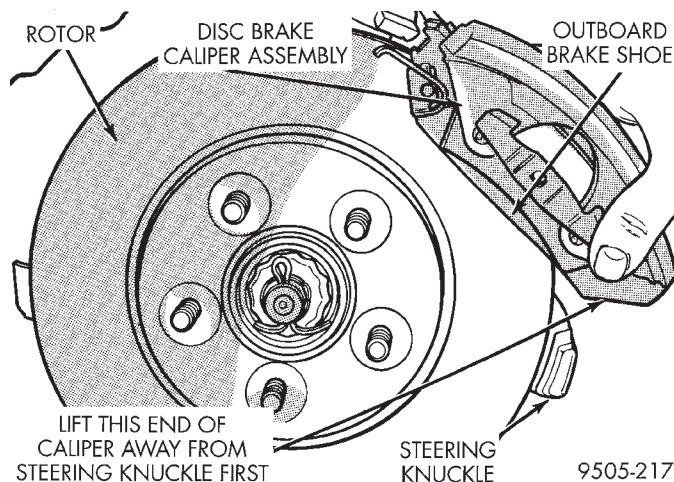


Fig. 61 Caliper Removal From Steering Knuckle

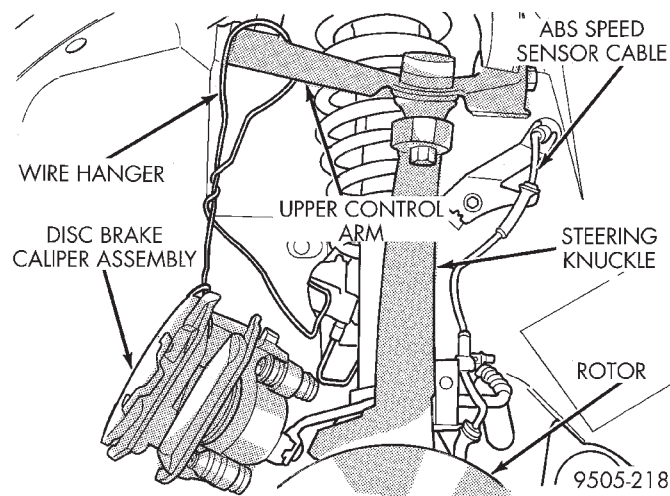


Fig. 62 Correctly Supported Front Disc Brake Caliper

(10) Remove the tie rod end from the steering knuckle arm, using Remover, Special Tool MB-991113 (Fig. 65).

REMOVAL AND INSTALLATION (Continued)

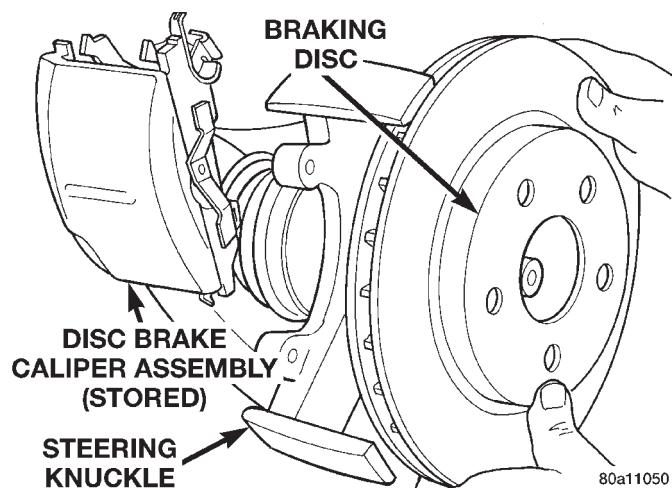


Fig. 63 Removing/Installing Front Braking Disc

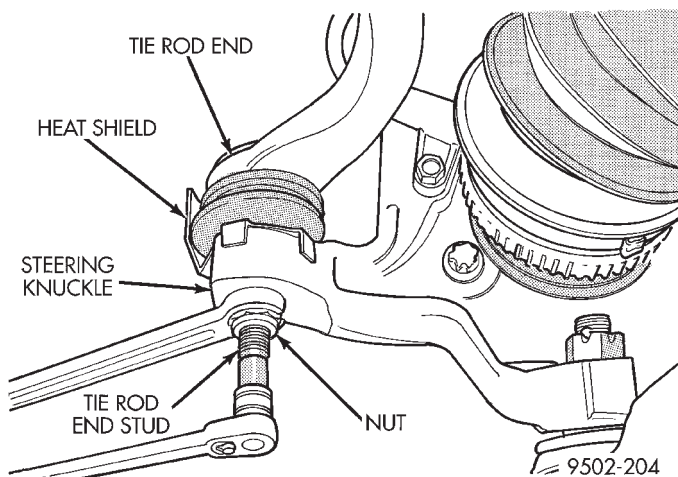


Fig. 64 Tie Rod End Attaching Nut Removal/Installation

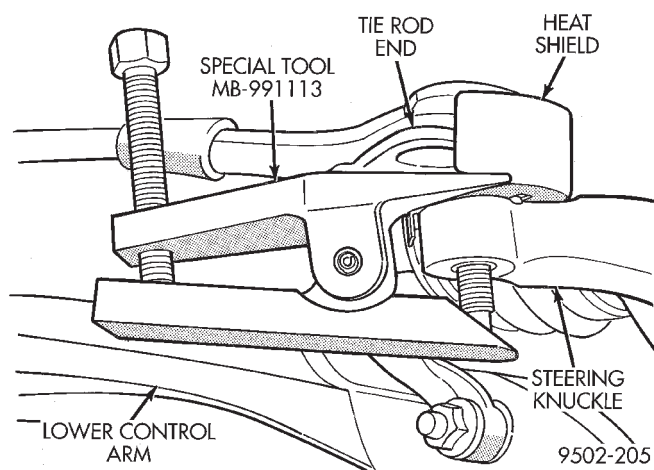


Fig. 65 Tie Rod End Removal From Steering Knuckle

(11) If equipped with antilock brakes remove the speed sensor cable routing bracket (Fig. 66) from the steering knuckle.

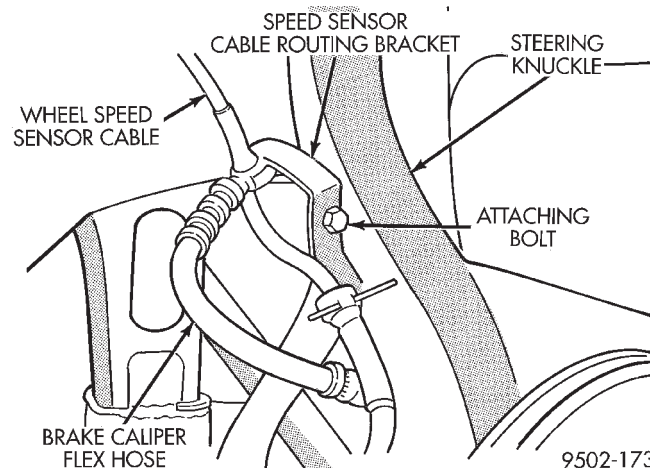


Fig. 66 Speed Sensor Cable Routing Bracket

(12) Remove cotter pin and castle nut (Fig. 67) from the stud of the lower ball joint.

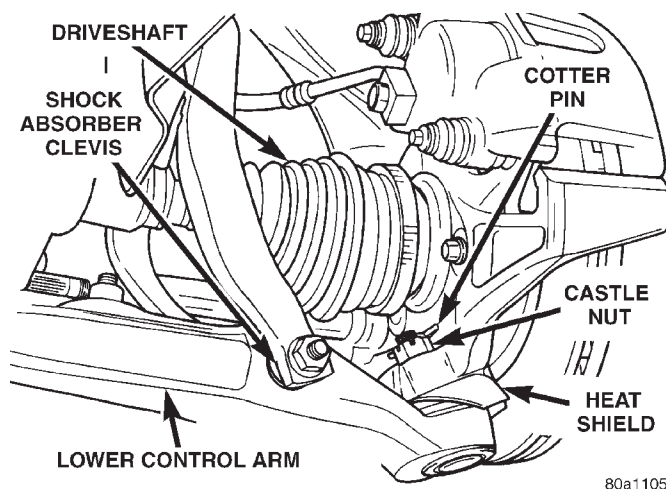


Fig. 67 Lower Ball Joint Attachment To Steering Knuckle

CAUTION: No tool is to be inserted between the steering knuckle and the lower ball joint to separate stud of lower ball joint from the steering knuckle. The steering knuckle is to be separated from the stud of the ball joint only using the procedure as described in step Step 13 below.

(13) Turn steering knuckle so the front of the steering knuckle is facing as far outboard in the wheel well as possible. Using a hammer strike the boss on the steering knuckle, (Fig. 68) until steering knuckle separates from stud of lower ball joint. **When striking steering knuckle, care MUST be taken not to hit lower control arm or ball joint grease seal.**

REMOVAL AND INSTALLATION (Continued)

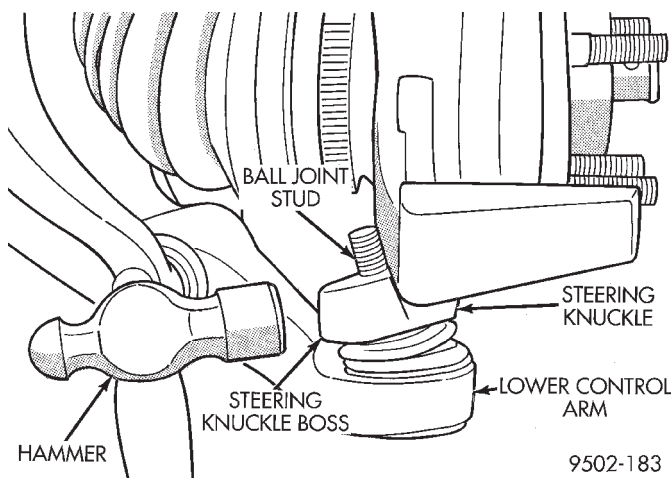


Fig. 68 Separating Ball Joint Stud From Steering Knuckle

CAUTION: Pulling steering knuckle out from vehicle after releasing from ball joint can separate inner C/V joint. See Driveshafts.

(14) Lift up on steering knuckle separating it from the lower ball joint stud. **Use caution when separating ball joint stud from steering knuckle, so ball joint seal does not get cut.**

NOTE: Care must be taken not to separate the inner C/V joint during this operation. Do not allow driveshaft to hang by inner C/V joint, driveshaft must be supported.

(15) Separate the steering knuckle from the outer C/V joint. Separate steering knuckle from outer C/V joint, by supporting the driveshaft while pulling steering knuckle away from the outer C/V joint (Fig. 69).

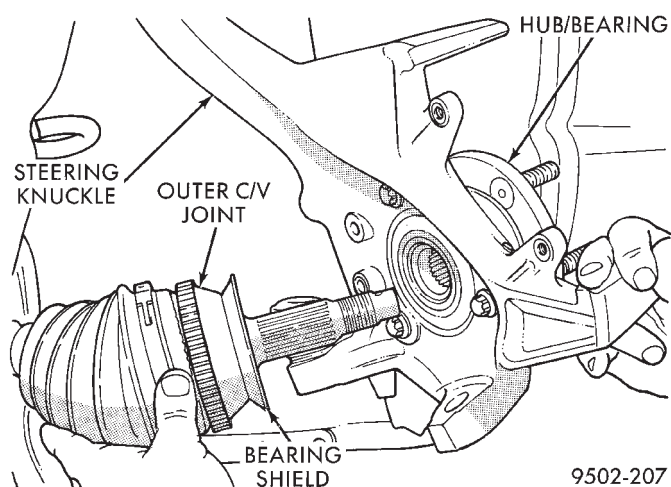


Fig. 69 Separating Steering Knuckle From Outer C/V Joint

(16) Remove the cotter pin and nut (Fig. 70) from the upper ball joint stud to steering knuckle attachment.

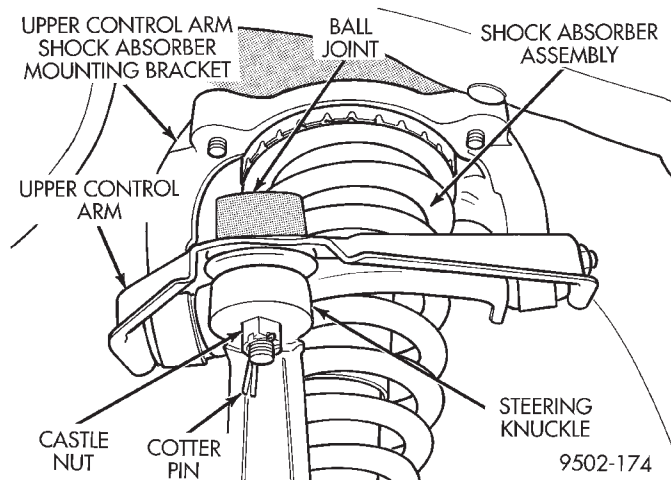


Fig. 70 Upper Ball Joint Attachment To Steering Knuckle

(17) Remove the upper ball joint stud from the steering knuckle using Puller, Special Tool, C3894-A (Fig. 71).

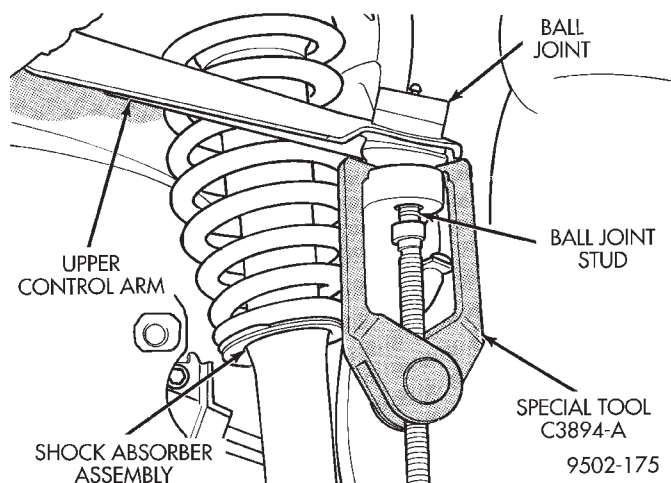


Fig. 71 Ball Joint Stud Removal From Steering Knuckle

(18) Remove steering knuckle from vehicle.

(19) Mount steering knuckle securely in a vise.

(20) Remove the 3 bolts (Fig. 72) attaching the hub/bearing assembly to the steering knuckle.

(21) Remove the hub/bearing assembly out from the front of the steering knuckle. **If bearing will not come out of steering knuckle, it can be tapped out using a soft faced hammer.**

(22) Thoroughly clean all hub/bearing assembly mounting surfaces on steering knuckle.

(23) Install the replacement hub/bearing assembly in steering knuckle aligning bolt holes in bearing flange with holes in steering knuckle.

REMOVAL AND INSTALLATION (Continued)

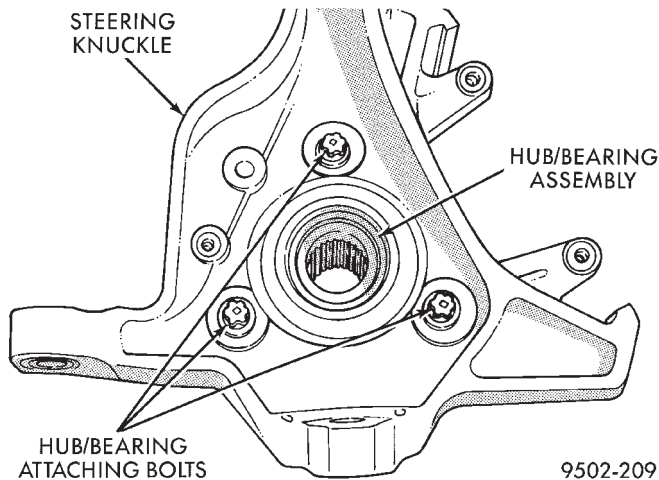


Fig. 72 Hub/Bearing Attaching Bolts

(24) Install the 3 mounting bolts (Fig. 72) and tighten evenly to ensure bearing is square to face of steering knuckle. Then tighten the 3 mounting bolts (Fig. 72) to a torque of 110 N·m (80 ft. lbs.).

INSTALL

(1) Slide drive shaft back into front hub/bearing assembly.

(2) Install the steering knuckle on the lower control arm ball joint.

(3) Install the steering knuckle to lower ball joint castle nut.

(4) Install upper ball joint stud in steering knuckle.

(5) Install the steering knuckle to upper ball joint stud castle nut.

(6) Using a crow foot and torque wrench, tighten the upper and lower ball joint castle nuts to the following torque specifications.

- Lower ball joint castle nut 74 N·m (55 ft. lbs.).
- Upper ball joint castle nut 62 N·m (45 ft. lbs.).

(7) If equipped with antilock brakes install the speed sensor cable routing bracket on the steering knuckle (Fig. 66) and securely tighten attaching bolt.

CAUTION: When installing tie rod on steering knuckle the heat shield (Fig. 73) must be installed. If heat shield is not installed, tie rod seal boot can fail due to excessive heat from brake rotor.

(8) Install tie rod end into the steering knuckle. Start tie rod end to steering knuckle attaching nut onto stud of tie rod end. While holding the stud of the tie rod end stationary, tighten tie rod end to steering knuckle attaching nut (Fig. 64). Then using a crowfoot and 11/32 socket tighten the attaching nut to a torque of 61 N·m (45 ft. lbs.) (Fig. 73).

(9) Install rotor on hub and bearing.

(10) Install disc brake caliper assembly on steering knuckle. Caliper is installed by first sliding top of

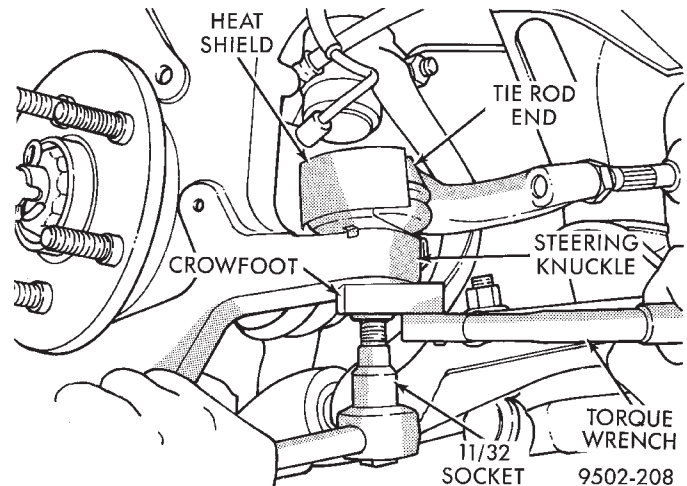


Fig. 73 Torquing Tie Rod End Attaching Nut

caliper under top abutment on steering knuckle. Then installing bottom of caliper against bottom abutment of steering knuckle (Fig. 74).

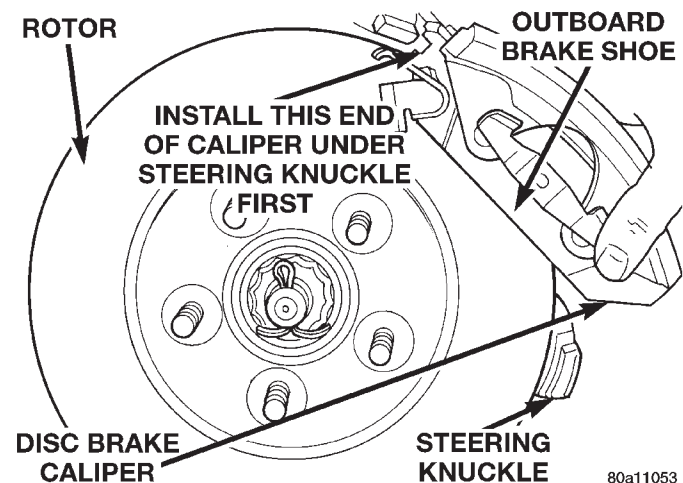


Fig. 74 Installing Brake Caliper

(11) Install disc brake caliper assembly to steering knuckle guide pin bolts (Fig. 60). Tighten caliper assembly guide pin bolts to a torque of 31 N·m (23 ft. lbs.).

(12) Clean all foreign matter from the threads of the outer C/V joint stub axle. Install the washer and hub nut (Fig. 75) onto the stub axle and tighten nut.

(13) With vehicle brakes applied to keep stub axle from turning, tighten hub nut to a torque of 203 N·m (150 ft. lbs.) of torque (Fig. 76).

(14) Install the spring washer, hub nut lock, and a **new** cotter pin. Wrap cotter pin prongs tightly around the hub nut lock (Fig. 77).

(15) Install front wheel and tire assembly. Install front wheel lug nuts and tighten in correct sequence. Then tighten to a torque of 129 N·m (95 ft. lbs.).

(16) Lower vehicle.

REMOVAL AND INSTALLATION (Continued)

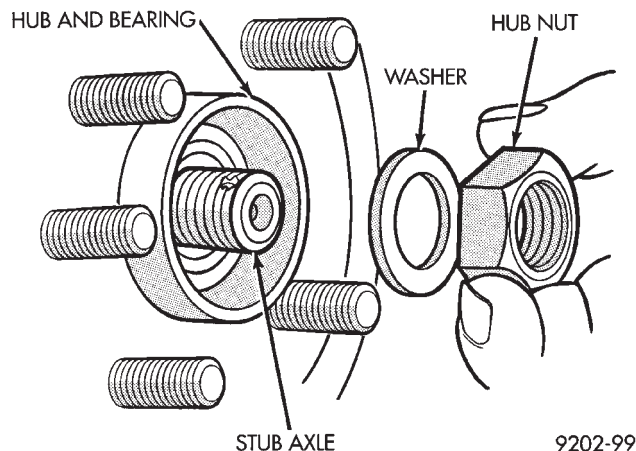


Fig. 75 Front Stub Axle Nut And Washer

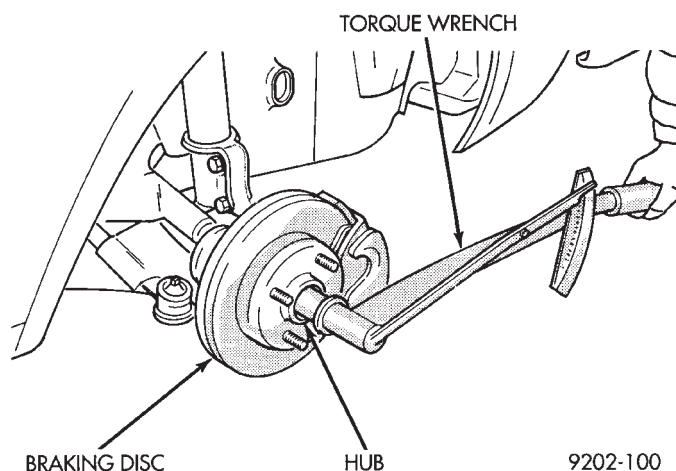


Fig. 76 Torquing Front Hub Nut

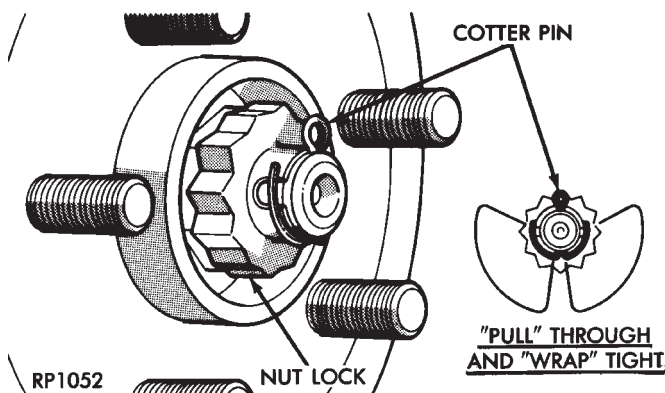


Fig. 77 Installing Spring Washer, Nut Lock And Cotter Pin

(17) Set front Toe on vehicle to required specification. Use procedure listed under Wheel Alignment, in the Front Suspension Service Procedures section of this service manual.

WHEEL MOUNTING STUDS

CAUTION: If a wheel mounting stud needs to be replaced in the hub and bearing assembly the studs **CAN NOT** be hammered out of the hub flange. If a stud is removed by hammering it out of the bearing flange, damage to the hub and bearing assembly will occur leading to premature bearing failure.

The following procedure and special tools shown **MUST** be used when replacing wheel attaching studs.

The hub and bearing assembly does not require removal from the steering knuckle to replace wheel attaching studs in the hub and bearing assembly.

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the front wheel and tire assembly from the vehicle.

(3) Remove front disc brake caliper to steering knuckle attaching bolts (Fig. 78).

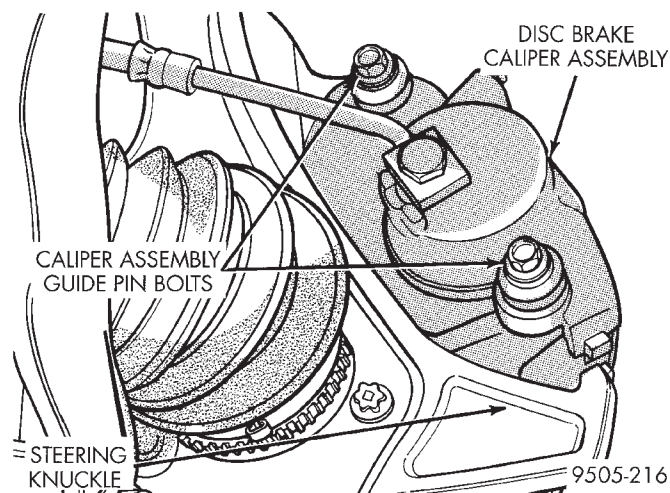


Fig. 78 Brake Caliper Attaching Bolts

(4) Remove disc brake caliper assembly from steering knuckle. Caliper is removed by first lifting bottom of caliper away from steering knuckle, and then removing top of caliper out from under steering knuckle (Fig. 79).

(5) Support brake caliper/adaptor assembly using a wire hook and not by hydraulic hose (Fig. 80).

(6) Remove the rotor from the front hub (Fig. 81).

(7) Install a lug nut on the wheel stud to be removed from the hub/bearing assembly, (Fig. 82) so threads on stud are even with end of lug nut. Rotate hub so stud requiring removal is aligned with notch cast into front of steering knuckle. Install Remover,

REMOVAL AND INSTALLATION (Continued)

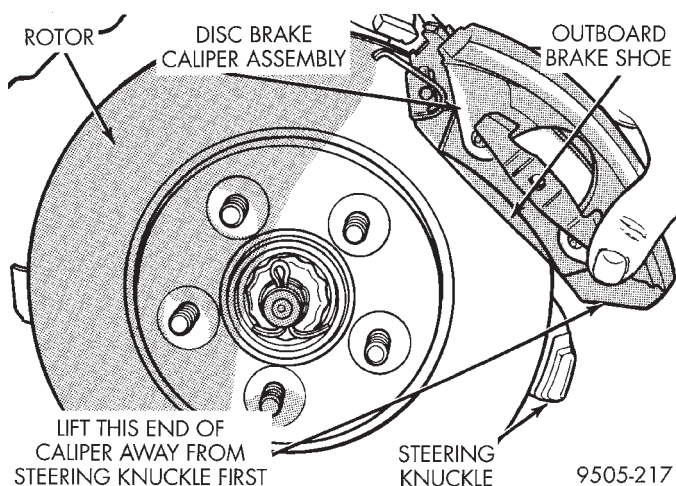


Fig. 79 Brake Caliper Removal

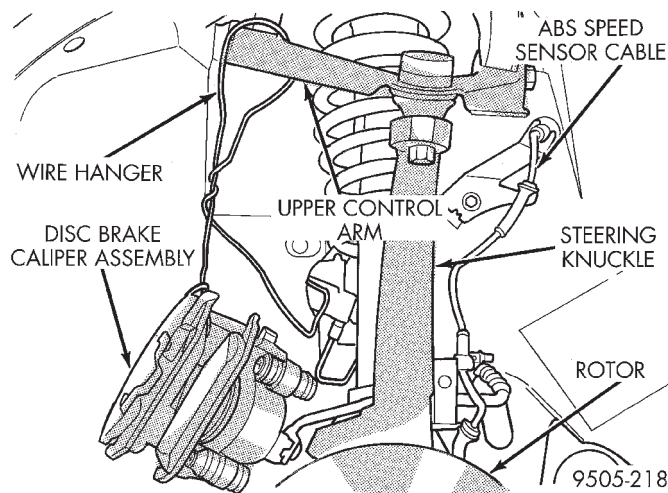


Fig. 80 Supporting Brake Caliper

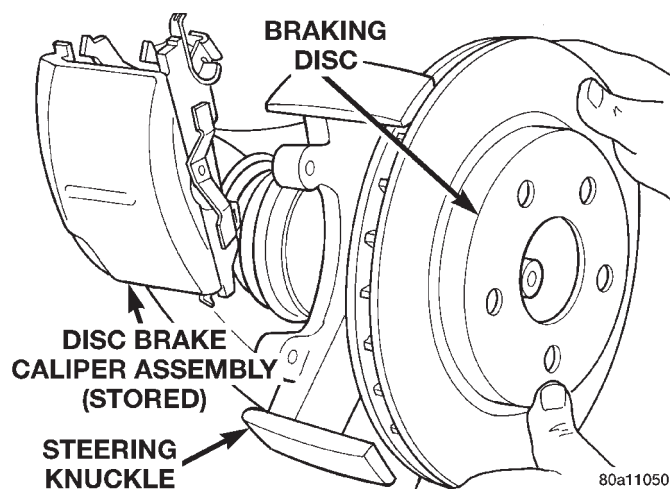


Fig. 81 Removing/Installing Front Braking Disc

Special Tool C-4150 on hub and bearing assembly flange and wheel stud (Fig. 82).

(8) Tighten down on special tool, this will push the wheel stud out of the hub and bearing flange.

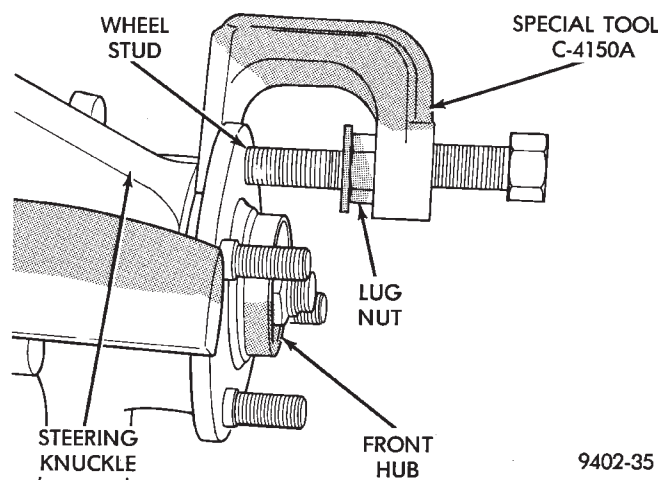


Fig. 82 Removing Wheel Stud From Hub And Bearing

INSTALL

(1) Install replacement wheel stud into flange of hub and bearing assembly. Install washers on wheel stud, then install a wheel lug nut on stud with flat side of lug nut against washers (Fig. 83).

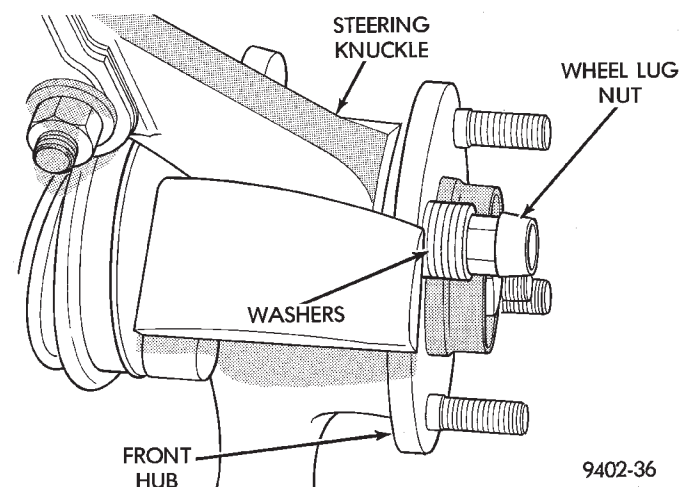


Fig. 83 Installing Wheel Stud Into Hub

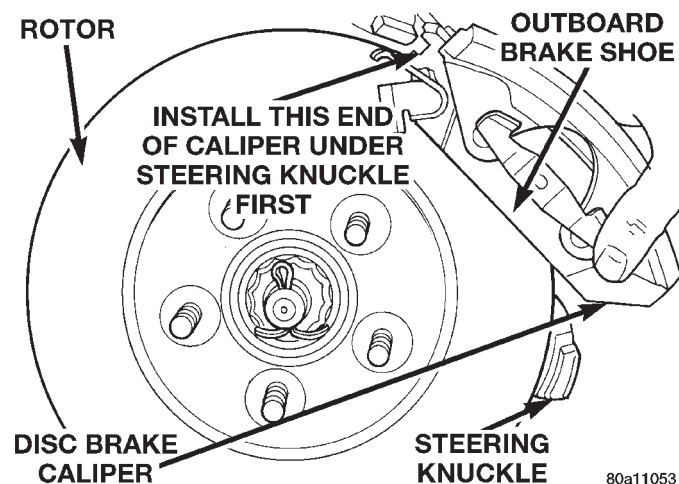
(2) Tighten the wheel lug nut, pulling the wheel stud into the flange of the hub and bearing assembly. When the head of the stud is fully seated against the bearing flange, remove lug nut and washers from wheel stud.

(3) Install the rotor back on the front hub/bearing (Fig. 81).

(4) Install disc brake caliper assembly on steering knuckle. Caliper is installed by first sliding top of caliper under top abutment on steering knuckle. Then installing bottom of caliper against bottom abutment of steering knuckle (Fig. 84).

(5) Install disc brake caliper assembly attaching bolts (Fig. 78) and torque to 31 N·m (23 ft. lbs.).

REMOVAL AND INSTALLATION (Continued)

**Fig. 84 Installing Brake Caliper**

(6) Install front wheel and tire assembly, and torque to 135 N·m (100 ft. lbs.).

(7) Install wheel lug nuts. Tighten wheel mounting stud nuts in proper sequence until all nuts are torqued to half the specified torque. Then repeat the proper sequence, tightening the stud nuts to the specified torque of 135 N·m (100 ft. lbs.).

(8) Lower vehicle.

DISASSEMBLY AND ASSEMBLY

SHOCK ABSORBER

The front shock absorber can not be repaired and must be replaced as a unit if found to be defective in any way. The front shock absorber is available in 2 different suspension calibrations, be sure the shock absorber is replaced with a shock absorber of the same calibration. Refer to the sale codes for the vehicle be serviced to determine which type of suspension the vehicle is equipped with.

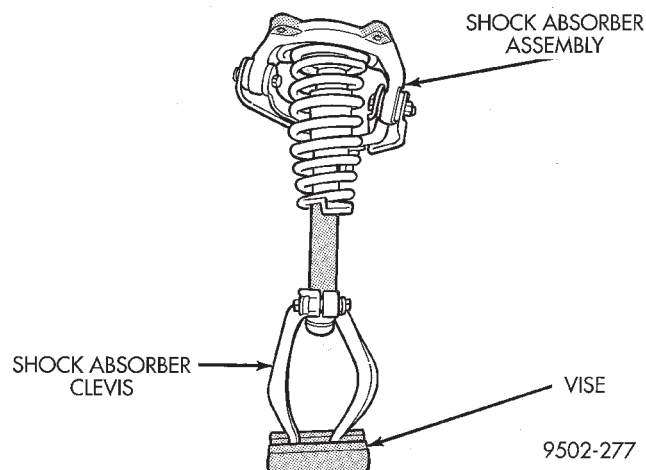
DISASSEMBLY

CAUTION: Do not clamp the shock absorber in a vise by the body of the shock absorber. The clevis bracket must be reinstalled on the shock absorber clamped in the vise using the clevis bracket.

(1) Install clevis bracket back on shock absorber and tighten pinch bolt. Then using the clevis bracket, clamp the shock absorber assembly in vise, with shock absorber in a vertical position (Fig. 85).

(2) Mark coil spring and shock absorber assembly right or left, according to which side of the vehicle the shock absorber was removed from, and which shock absorber the coil spring was removed from.

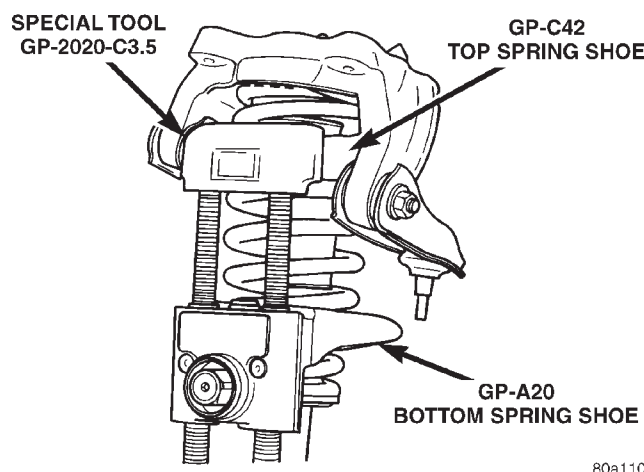
WARNING: DO NOT REMOVE THE SHOCK ABSORBER ROD NUT, BEFORE SHOCK

**Fig. 85 Shock Absorber Correctly Mounted In Vise**

ABSORBER COIL SPRING IS COMPRESSED, REMOVING SPRING TENSION FROM UPPER CONTROL ARM/SHOCK ABSORBER MOUNTING BRACKET.

WARNING: WHEN COMPRESSING COIL SPRING FOR REMOVAL FROM SHOCK ABSORBER, THE FIRST FULL TOP AND BOTTOM COIL OF THE COIL SPRING MUST BE CAPTURED BY THE JAWS OF THE COIL SPRING COMPRESSOR.

(3) Compress shock absorber coil spring, using Professional Services Equipment Spring Compressor, GP-2020-C3.5 fitted with the GP-C42 upper spring shoe and GP-A20 lower spring shoe (Fig. 86).

**Fig. 86 Compressing Shock Absorber Spring**

(4) Hold the rod of the shock absorber from rotating using Shock Absorber Socket, Snap-On A136 or an equivalent (Fig. 87). Then remove the shock absorber shaft nut.

(5) Remove the washer (Fig. 88) from the shock absorber rod.

DISASSEMBLY AND ASSEMBLY (Continued)

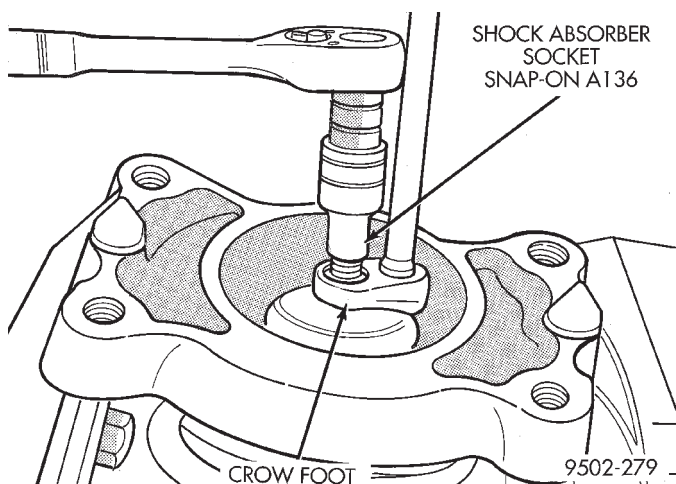


Fig. 87 Shock Absorber Shaft Nut Removal/Installation

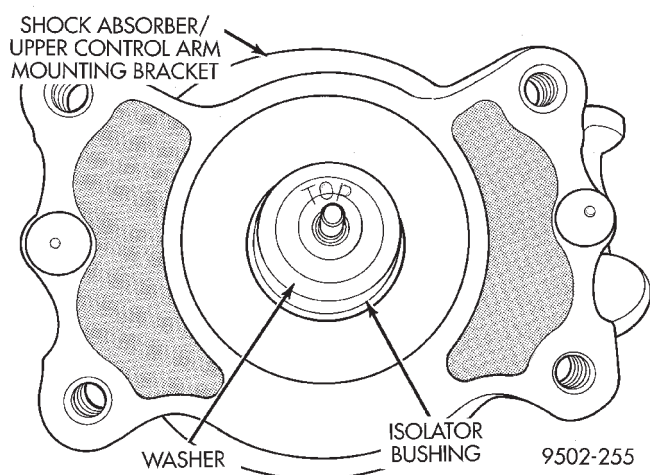


Fig. 88 Shock Absorber Rod Washer

(6) Remove the shock absorber/upper control arm mounting bracket from the shock absorber assembly (Fig. 89).

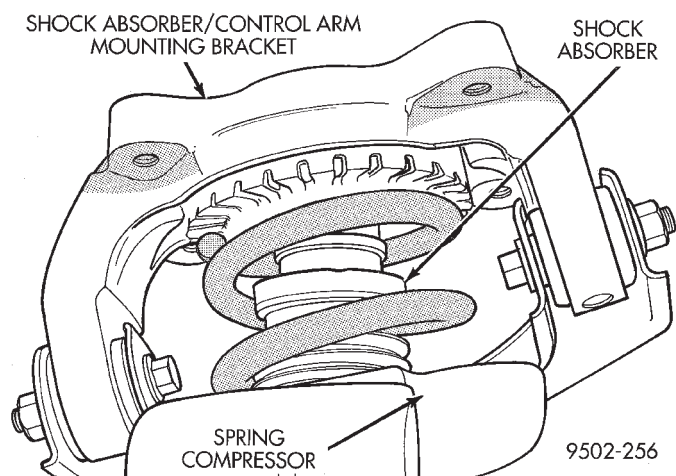


Fig. 89 Shock Absorber/Upper Control Arm Mounting Bracket

CAUTION: The top and bottom bushings for the shock absorber rod are unique to the position which they are installed on the rod. When removing the bushings from the rod, attention must be paid to their location so they will be installed correctly when shock absorber is assembled.

(7) Remove the shock absorber rod upper isolator bushing (Fig. 90) from the shock absorber/upper control arm mounting bracket.

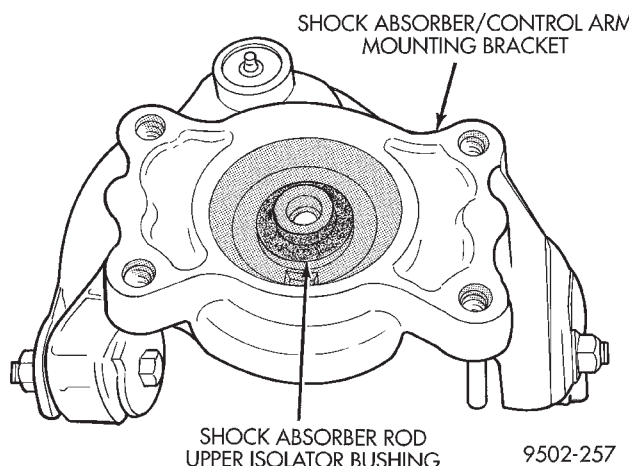


Fig. 90 Shock Absorber Rod Upper Isolator Bushing

(8) Remove the shock absorber rod lower isolator bushing and sleeve, (Fig. 91) from the shock absorber/upper control arm mounting bracket. Remove upper spring isolator from mounting bracket.

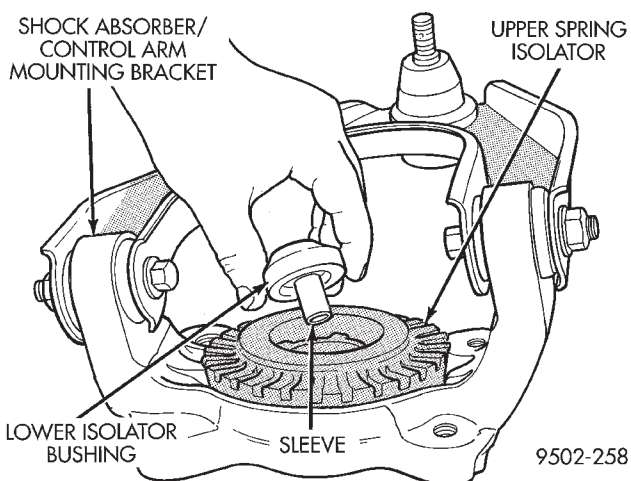


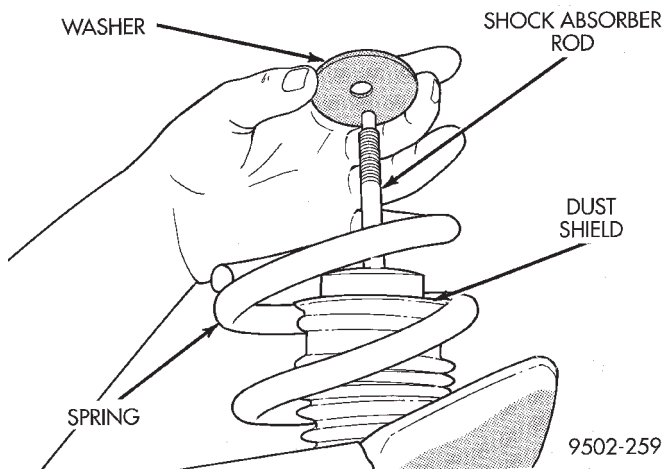
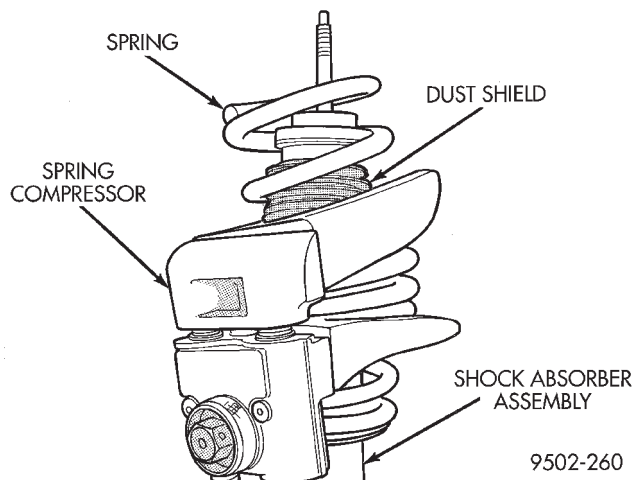
Fig. 91 Shock Absorber Rod Lower Isolator Bushing And Sleeve

(9) Remove the lower isolator bushing from the shock absorber rod sleeve.

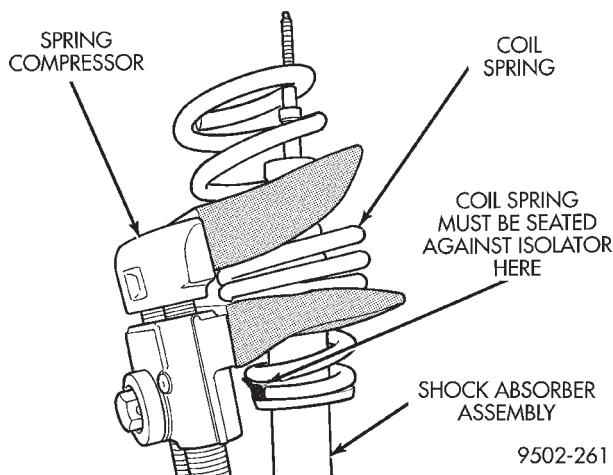
(10) Remove washer from top of dust shield (Fig. 92).

(11) Remove the dust shield (Fig. 93) from the shock absorber assembly.

DISASSEMBLY AND ASSEMBLY (Continued)

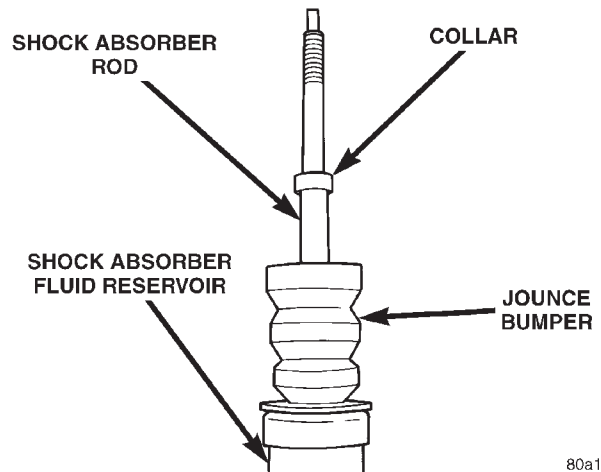
**Fig. 92 Shock Absorber Rod Washer****Fig. 93 Shock Absorber Dust Shield**

(12) Remove the coil spring and spring compressor as an assembly (Fig. 94) from the shock absorber assembly. **Mark springs, left and right, for installation back on the correct side of the vehicle.**

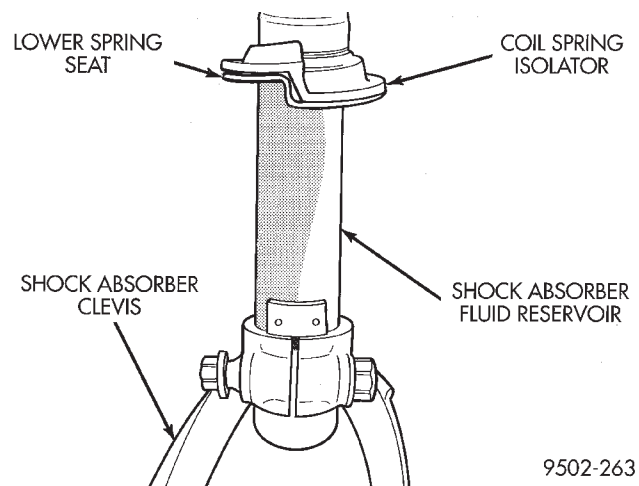
**Fig. 94 Shock Absorber Coil Spring And Compressor**

NOTE: The collar (Fig. 95) is a press fit on the rod of the shock absorber do not attempt to remove it from the shock absorber rod. The jounce bumper will have to be removed over the collar.

(13) Remove the jounce bumper (Fig. 95) from the rod of the shock absorber assembly.

**Fig. 95 Shock Absorber Jounce Bumper**

(14) Remove the coil spring isolator (Fig. 96) from the lower spring seat on the shock absorber assembly.

**Fig. 96 Coil Spring Lower Isolator**

(15) Inspect the shock absorber for any condition of rod binding over the full stroke of the shock rod.

(16) Inspect the shock mount and upper spring seat/isolator assembly for the following:

- Mount for cracks and distortion and locating pins for any sign of damage.
- Severe deterioration of the upper or lower coil spring isolators.
- Deterioration of the shock absorber rod to shock absorber mounting bracket bushings.
- Inspect dust shield for rips and/or deterioration.

DISASSEMBLY AND ASSEMBLY (Continued)

• Inspect jounce bumper for cracks and signs of deterioration.

(17) Replace any components of the shock absorber assembly found to be worn or defective during the inspection, before re-assembling the shock absorber.

ASSEMBLY

CAUTION: Do not clamp the shock absorber in a vise by the body of the shock absorber. The clevis bracket must be reinstalled on the shock absorber clamped in the vise using the clevis bracket.

(1) Install clevis bracket back on replacement shock absorber and snug the pinch bolt to keep shock from turning. Then using the clevis bracket, clamp the shock absorber assembly in a vise, with shock absorber in a vertical position (Fig. 85).

(2) Install the coil spring isolator (Fig. 96) on the lower spring seat of the shock absorber assembly. Isolator must be positioned on lower spring seat as shown in (Fig. 96).

(3) Install the jounce bumper on the shock absorber rod with the tapered end down (Fig. 97).

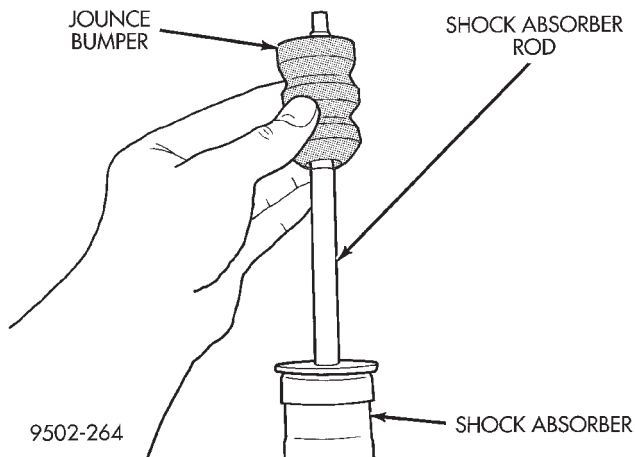


Fig. 97 Jounce Bumper Installation

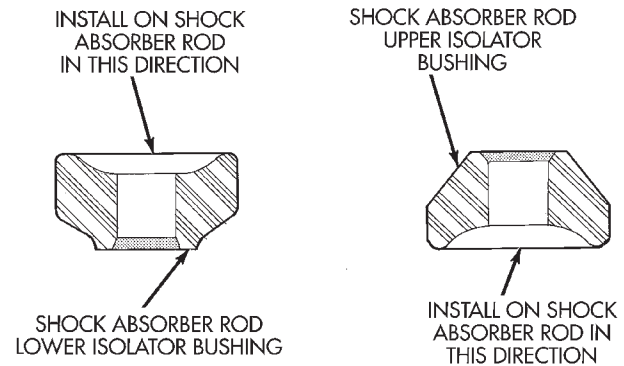
WARNING: IF A REPLACEMENT COIL SPRING IS TO BE INSTALLED ON THE STRUT ASSEMBLY, THE FIRST FULL TOP AND BOTTOM COIL OF THE SPRING MUST BE CAPTURED BY THE JAWS OF THE COIL SPRING COMPRESSOR.

(4) Install the coil spring (with small diameter coils down) and spring compressor on the shock absorber assembly. Be sure bottom coil of spring is correctly positioned on the lower spring isolator (Fig. 94).

(5) Install dust shield (Fig. 93) on rod of shock absorber assembly.

(6) Install bottom washer (Fig. 92) on rod of shock absorber assembly and the top of the dust shield.

CAUTION: The top and bottom shock absorber rod bushings are unique to the position which they are installed on the rod. When installing the bushings on the rod, attention must be paid to their location so they are installed correctly (Fig. 98).



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Fig. 98 Upper And Lower Shock Absorber Rod Bushing Identification

(7) Install the lower isolator bushing and sleeve (Fig. 91) in the shock absorber/upper control arm mounting bracket. Install coil spring upper isolator in mounting bracket (Fig. 91).

(8) Install the upper isolator bushing (Fig. 90) on the sleeve and the shock absorber/upper control arm mounting bracket.

(9) Install the shock absorber/upper control arm mounting bracket (Fig. 89) on the shock absorber assembly.

(10) Install the upper washer on rod of shock absorber and position it over top bushing with the word TOP facing up (Fig. 88).

WARNING: THE FOLLOWING 2 STEPS MUST BE COMPLETELY DONE BEFORE SPRING COMPRESSOR, GP-2020-C3.5 OR AN EQUIVALENT IS RELEASED FROM THE COIL SPRING.

(11) Install nut on rod of shock absorber assembly. Install Shock Absorber Socket, Snap-On A136 or an equivalent on end of shock rod to keep rod from turning (Fig. 87) Then tighten rod nut using a crowfoot (Fig. 87) to a torque of 55 N·m (40 ft. lbs.).

(12) Relieve all tension from spring compressor. After all spring tension has been remove from the spring compressor, remove it from the shock absorber assembly.

(13) Remove the clevis from the shock absorber. The clevis must be removed from the shock absorber for installation in vehicle.

(14) Install shock absorber assembly back in the vehicle. Refer to Shock Absorber Installation in this section of the service manual for the proper procedure

DISASSEMBLY AND ASSEMBLY (Continued)

LOWER CONTROL ARM FRONT ISOLATOR BUSHING

To perform removal and replacement of the lower control arm isolator bushings, the lower control arm must be removed from the vehicle.

DISASSEMBLY

(1) Remove lower control arm assembly from vehicle. See Lower Control Arm Removal in this section of the service manual for the required removal procedure.

(2) Install Bushing Remover, Special Tool 6602-5 and Bushing Receiver, Special Tool MB-990799 on Special Tool C-4212-F.

(3) Install lower control arm on Special Tools assembled for removal of the front isolator bushing. Be sure Special Tool MB-990799 is square on lower control arm and Special Tool 6602-5 is positioned correctly on isolator bushing (Fig. 99).

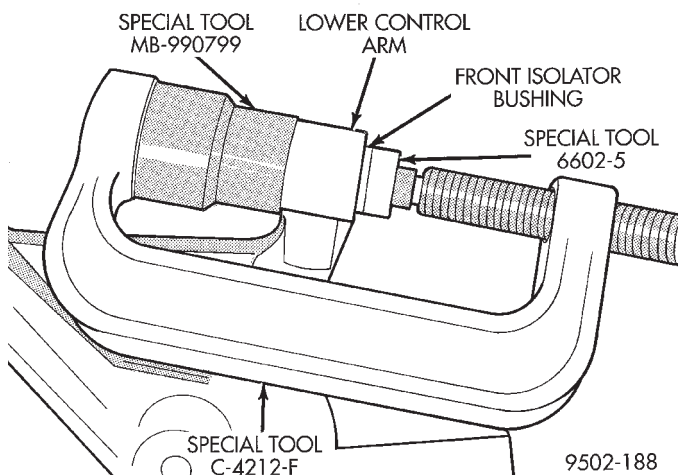


Fig. 99 Removing Front Bushing From Lower Control Arm

(4) Tighten screw on Remover/Installer Special Tool C-4212-F to press front bushing out of lower control arm.

ASSEMBLY

(1) Mount Bushing Installer, Special Tool 6876 on screw portion of Remover/Installer Special Tool C-4212-F (Fig. 100).

(2) Start front bushing into lower control arm **by hand, making sure it is square with its mounting hole in the lower control arm**. Bushing is to be installed in lower control arm from the machined surface side of lower control arm bushing hole.

(3) Install lower control arm on Special Tools assembled for installation of front isolator bushing into lower control arm (Fig. 100). Be sure Special Tool 6758 is square on lower control arm and Special Tool 6876 is positioned correctly on isolator bushing.

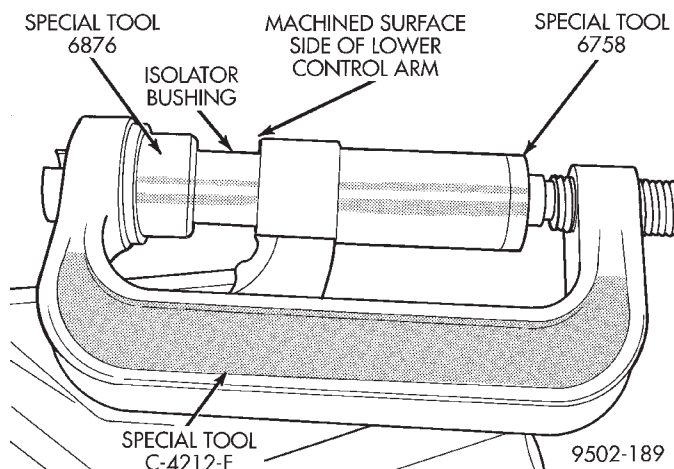


Fig. 100 Installing Front Bushing In Lower Control Arm

(4) Tighten screw on Remover/Installer Special Tool C-4212-F pressing front bushing into lower control arm. Continue pressing front bushing into lower control arm until bushing is sitting flush on the machined surface of the lower control arm. This will correctly position front bushing in lower control arm.

(5) Install lower control arm assembly back on vehicle. See Lower Control Arm Installation in this section of the service manual for the required installation procedure.

LOWER CONTROL ARM REAR ISOLATOR BUSHING

To perform removal and replacement of the lower control arm isolator bushings, the lower control arm must be removed from the vehicle.

DISASSEMBLY

(1) Remove lower control arm assembly from vehicle. See Lower Control Arm Removal in this section of the service manual for the required removal procedure.

(2) Install Bushing Remover, Special Tool 6756 and Bushing Receiver, Special Tool C-4366-2 on Special Tool C-4212-F (Fig. 101).

(3) Install Special Tools assembled for removal of the rear isolator bushing on the lower control arm. Be sure Special Tool C-4366-2 is square on lower control arm and Special Tool 6756 is positioned correctly on isolator bushing (Fig. 101).

(4) Tighten screw on Remover/Installer Special Tool C-4212-F to press rear bushing out of lower control arm.

ASSEMBLY

(1) Start rear bushing into lower control arm **by hand, making sure it is square with its mounting hole in the lower control arm**. Bushing is to be installed from the machined surface side of lower

DISASSEMBLY AND ASSEMBLY (Continued)

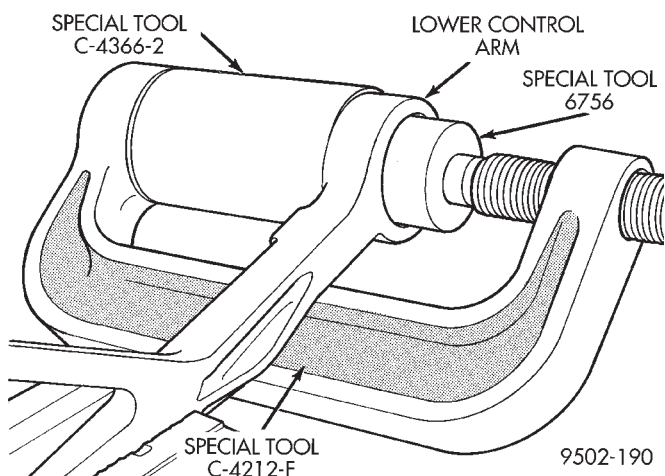


Fig. 101 Removing Lower Control Arm Rear Bushing

control arm bushing hole, with the void in rubber portion of bushing facing away from ball joint (Fig. 102).

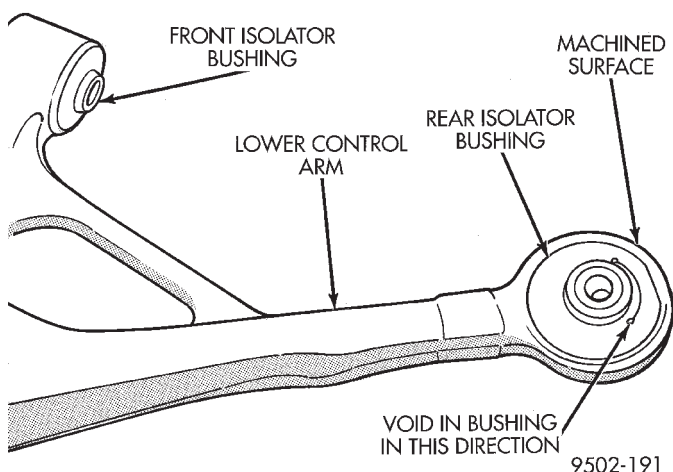


Fig. 102 Correctly Positioned Rear Isolator Bushing In Control Arm

(2) Mount Bushing Installer, Special Tool 6760 on screw portion of Remover/Installer Special Tool C-4212-F (Fig. 103).

(3) Install Special Tools assembled for installation of rear isolator bushing into lower control arm on the lower control arm. Be sure Special Tool 6756 is square on lower control arm and Special Tool 6760 is positioned correctly on isolator bushing (Fig. 103).

(4) Tighten screw on Remover/Installer Special Tool C-4212-F pressing rear bushing into lower control arm. Continue pressing rear bushing into lower control arm until bushing is sitting flush on the machined surface (Fig. 103) of the lower control arm. This will correctly position rear bushing in lower control arm.

(5) Install lower control arm assembly back on vehicle. See Lower Control Arm Installation in this

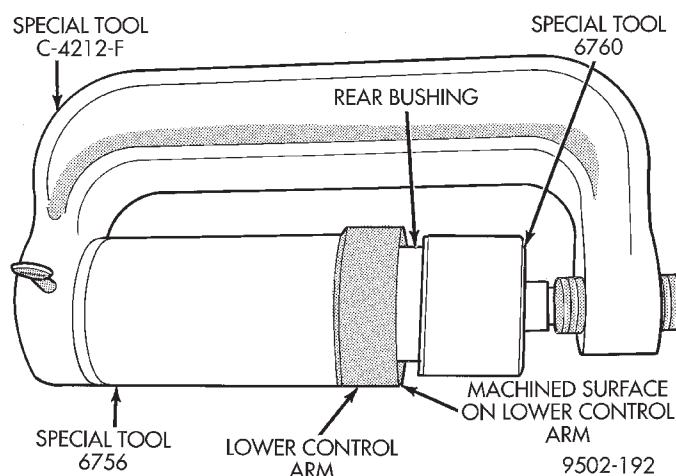


Fig. 103 Installing Rear Bushing In Lower Control Arm

section of the service manual for the required installation procedure.

CONTROL ARM CLEVIS BUSHING

To perform removal and replacement of the lower control arm clevis bushing, the lower control arm must be removed from the vehicle.

DISASSEMBLE

(1) Remove lower control arm assembly from vehicle. See Lower Control Arm Removal in this section of the service manual for the required removal procedure.

(2) Install Bushing Remover, Special Tool 6877 and Bushing Receiver, Special Tool 6876 on Special Tool C-4212-F.

(3) Install lower control arm on Special Tools assembled for removal of the clevis isolator bushing. Be sure Special Tool 6876 is square on lower control arm and Special Tool 6877 is positioned correctly on clevis bushing (Fig. 104).

(4) Tighten screw on Remover/Installer Special Tool C-4212-F to press clevis bushing out of lower control arm.

ASSEMBLE

(1) Start clevis bushing into lower control arm **by hand, making sure it is square with its mounting hole in the lower control arm.** Bushing is to be installed in lower control arm from the machined surface side of lower control arm bushing hole.

(2) Mount Bushing Installer, Special Tool 6877 on screw portion of Remover/Installer Special Tool C-4212-F as shown in (Fig. 105).

(3) Install the assembled special tools for installing the clevis bushing into the lower control arm, on the lower control arm and clevis bushing (Fig. 105). Be sure Special Tool 6876 is square on lower control arm

DISASSEMBLY AND ASSEMBLY (Continued)

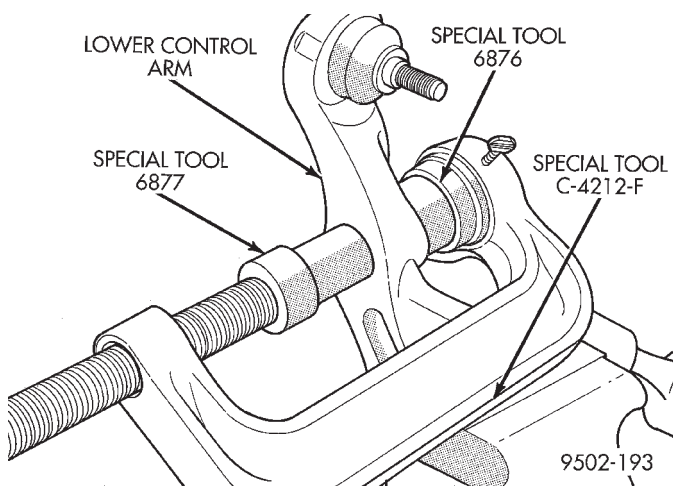


Fig. 104 Removing Clevis Bushing From Lower Control Arm

and Special Tool 6877 is positioned correctly on clevis bushing (Fig. 105).

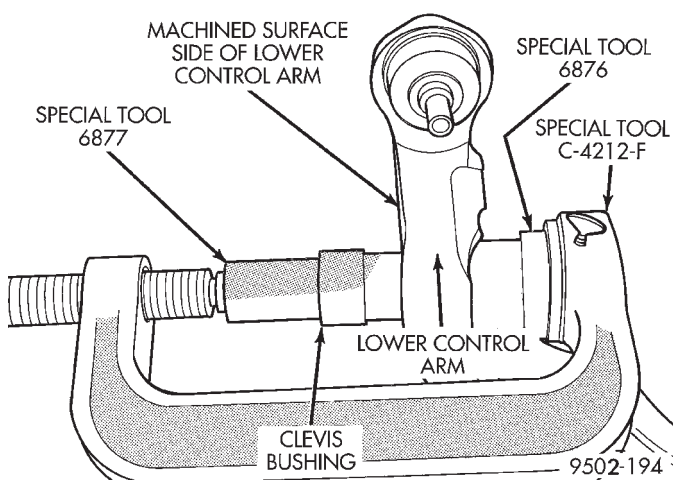


Fig. 105 Installing Clevis Bushing In Lower Control Arm

(4) Tighten screw on Remover/Installer Special Tool C-4212-F pressing clevis bushing into lower control arm. Continue pressing clevis bushing into lower control arm until bushing is sitting flush with the machined surface of the lower control arm. This will correctly position the clevis bushing in the lower control arm.

(5) Install lower control arm assembly back on vehicle. See Lower Control Arm Installation in this section of the service manual for the required installation procedure.

LOWER BALL JOINT SEAL BOOT

CAUTION: The replacement of the lower ball joint seal boot can only be done in the event that the seal boot is damaged while performing a service procedure on the vehicle.

CAUTION: Under no circumstances can a lower ball joint seal boot be replaced if it is determined that the vehicle had been driven with the seal boot damaged. If the vehicle has been driven with a damaged seal boot contamination of the ball joint has occurred. When contamination of the ball joint has occurred the lower control arm must be replaced. This is to ensure excessive wear of the ball joint does not occur from the contamination present in the ball joint.

CAUTION: Excessive wear in the ball joint can lead to a separation of the ball joint from the lower control arm.

CAUTION: The procedure below must be carefully followed when replacing the ball joint seal in the event it is damaged while servicing a vehicle.

CAUTION: The ball joint used in the lower control arm of this vehicle is a lubricated for life ball joint. This ball joint does not require any additional lubrication for the life of the vehicle. Do not alter the lower control arm or ball joint in an attempt to lubricate the lower control arm ball joint. If it is determined that the ball joint is lacking proper lubrication, the lower control arm will need to be replaced.

DISASSEMBLE

(1) Remove lower control arm assembly from vehicle. See Lower Control Arm Removal in this section of the service manual for the required removal procedure.

(2) Wrap a shop towel around the ball joint and seal boot. This is to prevent dirt and cleaning solvent to enter ball joint when cleaning area around ball joint.

(3) Using **ONLY** a solvent such as Mopar Foamy Engine Degreaser or an equivalent, thoroughly clean lower control arm in area around ball joint and seal. Then using a shop towel saturated with the engine degreaser, carefully wipe off the ball joint seal boot.

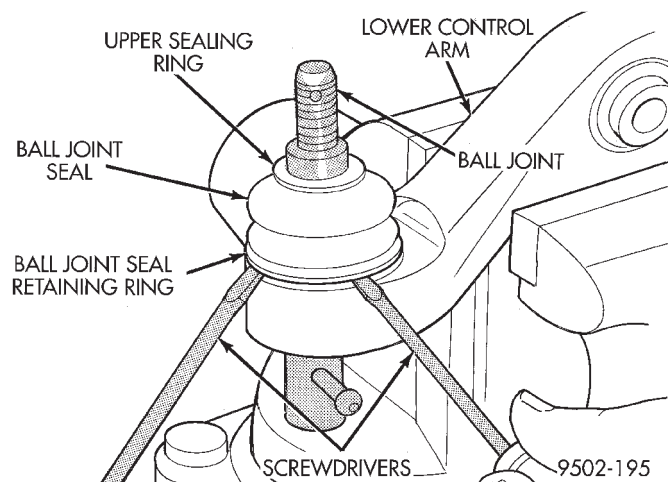
(4) Using 2 screwdrivers (Fig. 106) remove the ball joint seal retaining ring from the bottom of the ball joint seal.

(5) Remove ball joint seal from ball joint.

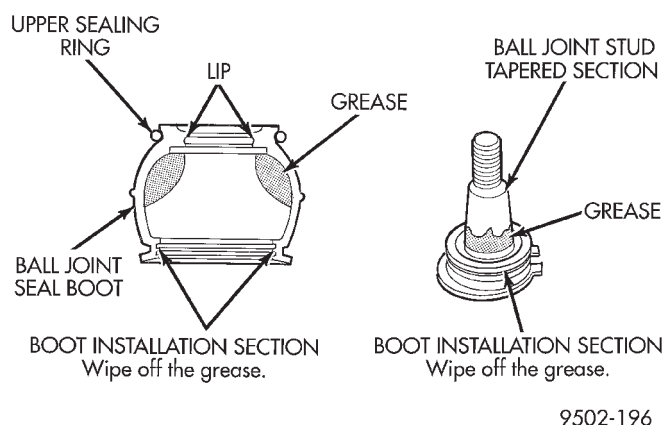
ASSEMBLE

CAUTION: When replacing ball joint seal, do not use any other type of grease to lubricate ball joint other than the lubricant provided in the Mopar Ball Joint Seal service kit.

DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 106 Removing Ball Joint Seal Retaining Ring**

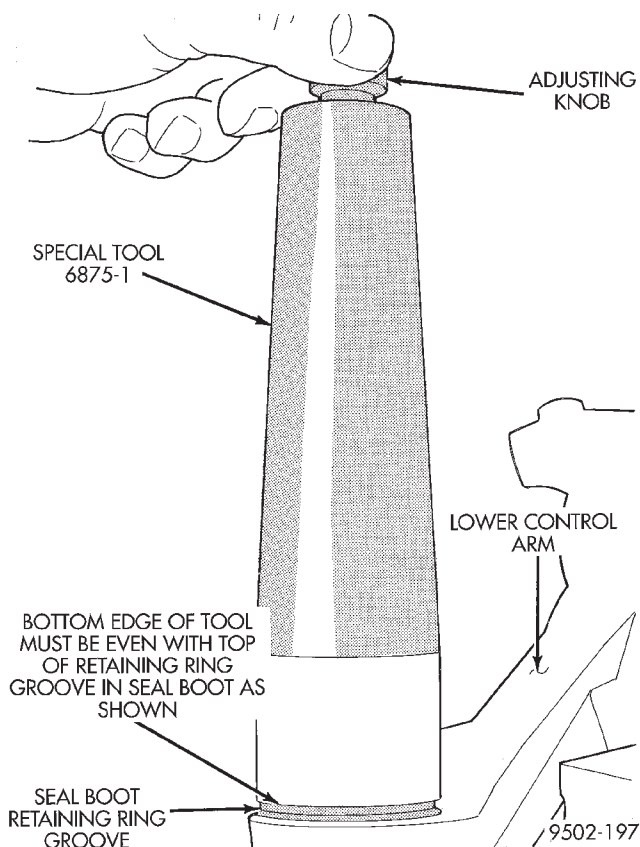
(1) Apply grease from the ball joint seal kit, to the specified areas of the ball joint stud and seal (Fig. 107). Be sure no grease is present on the seal boot installation section of the seal boot or lower control arm (Fig. 107).

**Fig. 107 Grease Correctly Applied To Ball Joint Stud And Seal Boot**

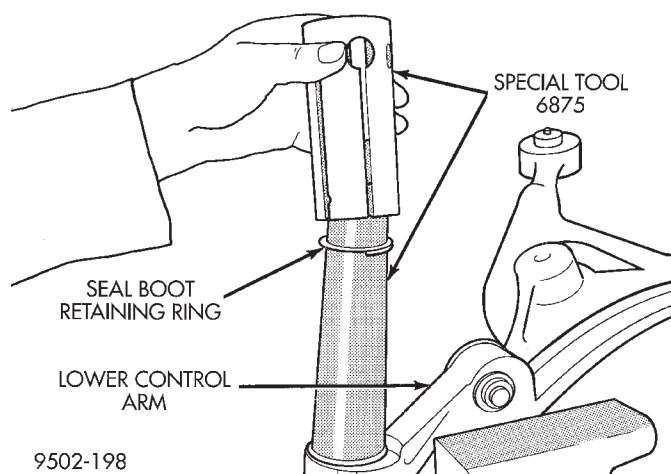
(2) Slide ball joint seal boot with upper seal ring installed, (Fig. 107) down tapered section of ball joint stud (Fig. 107). Seal boot is to be installed on stud of ball joint until seal boot is sitting on seal groove in lower control arm.

(3) Carefully position ball joint seal boot in seal retaining groove on lower control arm. After installing seal boot in retaining groove, carefully bleed air out of sealing boot without getting grease pushed into seal boot retaining groove in lower control arm.

(4) Place Retaining Ring Installer, Special Tool, 6875-1 over ball joint seal boot (Fig. 108). Using adjusting knob, adjust tool so bottom edge of tool is even with top of retaining ring groove in seal boot (Fig. 108).

**Fig. 108 Correctly Installed Ball Joint Seal Retaining Ring Tool**

(5) Place seal boot retaining ring on Installer, Special Tool, 6875- 1 (Fig. 109). Then place expandable collar from Installer, Special Tool, 6875 over tapered cone of the special tool (Fig. 109).

**Fig. 109 Retaining Ring And Expandable Collar Installed On Tool**

(6) Using the expandable collar of Installer, Special Tool, 6875 (Fig. 110) push the seal boot retaining ring down the cone of Installer, Special Tool, 6875.

DISASSEMBLY AND ASSEMBLY (Continued)

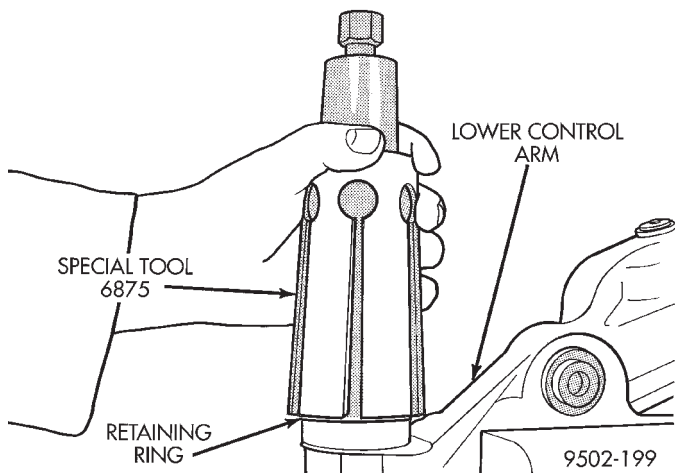


Fig. 110 Installing Seal Boot Retaining Ring

(7) Continue pushing retaining ring down Installer, Special Tool, 6875, until it is installed in the retaining ring groove of the seal boot (Fig. 111)

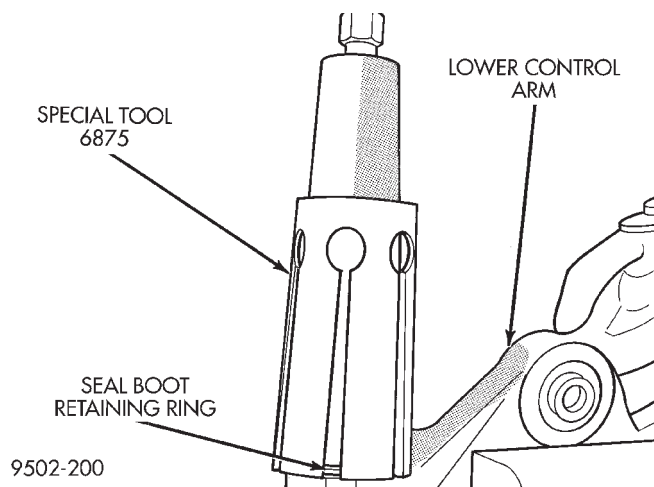


Fig. 111 Retaining Ring Installed In Ball Joint Seal Boot

(8) Remove Installer, Special Tool, 6875 from the ball joint seal boot. **When removing tool from seal boot be careful not to damage the seal boot with the tool.**

(9) Check retaining ring installation on seal boot to ensure it is fully seated in seal boot groove and the ends are not twisted (Fig. 112). Also, make sure upper sealing ring is on seal boot and correctly installed (Fig. 112). Check seal boot for damage before installing back on car.

(10) Install lower control arm assembly back on vehicle. See Lower Control Arm Installation in this section of the service manual for the required installation procedure.

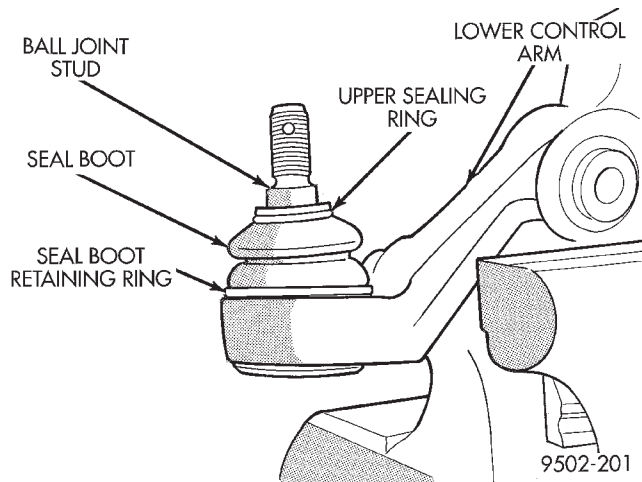


Fig. 112 Properly Installed Ball Joint Seal Boot

UPPER BALL JOINT SEAL BOOT

(1) Using a screw driver or other suitable tool, pry seal boot off of the ball joint assembly (Fig. 113).

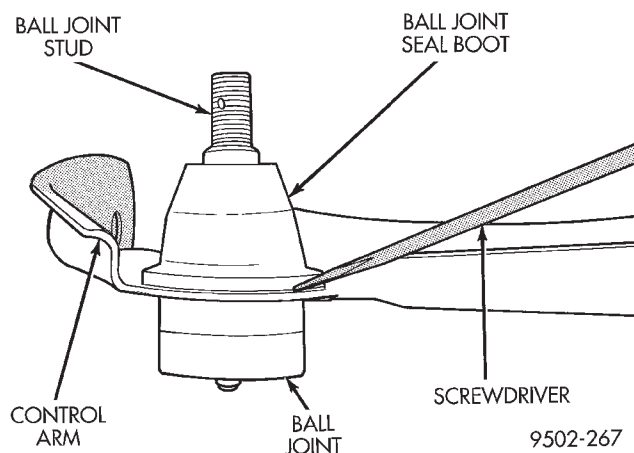


Fig. 113 Seal Boot Removal From Ball Joint

(2) Install a **NEW** ball joint assembly sealing boot on ball joint assembly. Install sealing boot as far as possible on ball joint assembly.

CAUTION: Do not use an arbor press to install the sealing boot on the upper control arm ball joint assembly. Damage to the sealing boot can occur due to excessive pressure applied to sealing boot when being installed.

(3) Position Receiving Cup, Special Tool 6758 over sealing boot so it is aligned properly with bottom edge of sealing boot (Fig. 114). Apply pressure **BY HAND** to special tool 6758, until sealing boot is pressed squarely against surface of upper control arm.

(4) Properly lubricate the upper ball joint assembly using only Mopar Multi-Mileage Lube or an equivalent.

DISASSEMBLY AND ASSEMBLY (Continued)

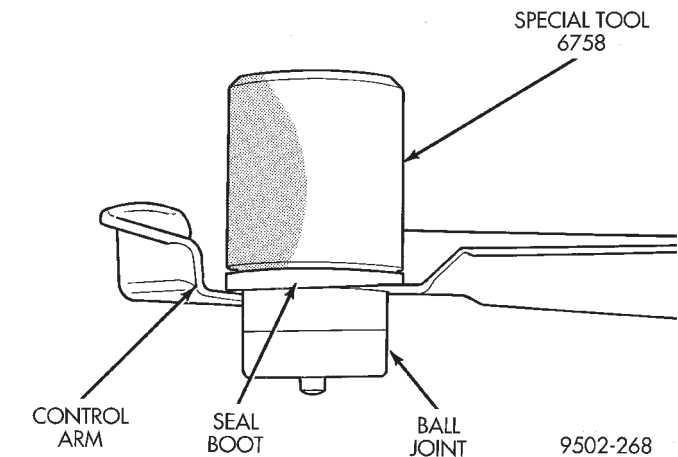


Fig. 114 Seal Boot Installation On Ball Joint

STABILIZER BAR BUSHING

(1) Bend back the 4 crimp locations on the stabilizer bar bushing retainer (Fig. 115).

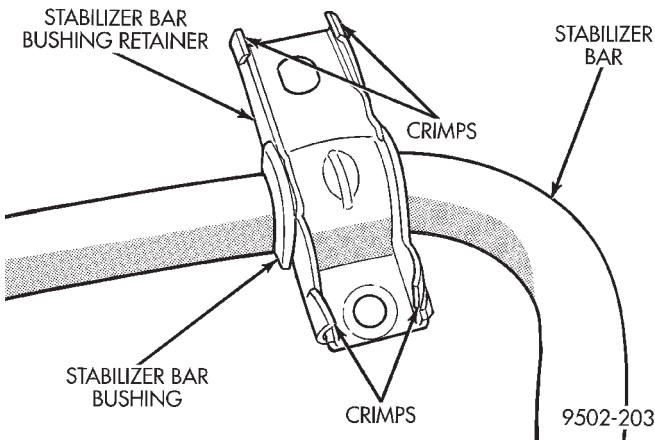


Fig. 115 Stabilizer Bar Bushing Retainer

- Separate the stabilizer bar bushing retainer.
- Stabilizer bar bushings are removed by opening slit and peeling bushing off stabilizer bar.
- Install new stabilizer bar bushings on the stabilizer bar. **Bushings must be installed on sway bar with slit in bushing facing front of vehicle when sway bar is installed.**
- Install bushing retainers back on stabilizer bar bushings.

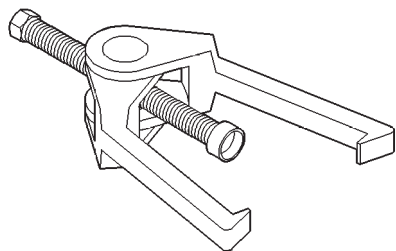
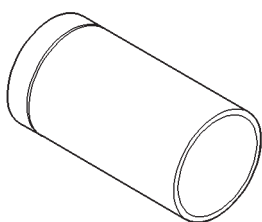
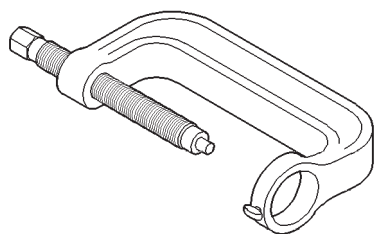
SPECIFICATIONS

FRONT SUSPENSION FASTENER TORQUE SPECIFICATIONS

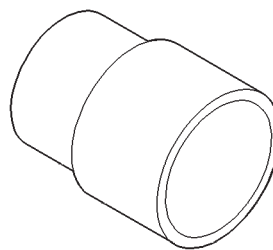
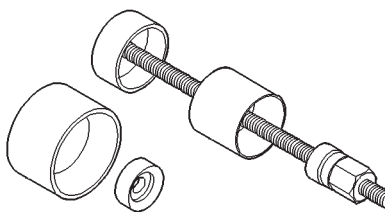
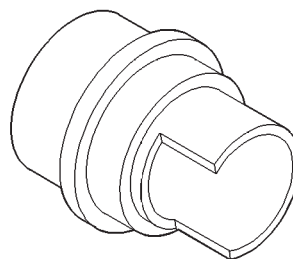
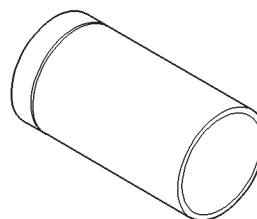
DESCRIPTION	TORQUE
Shock Absorber	
To Clevis Pinch Bolt	88 N·m (65 ft. lbs.)
To Shock Tower Bolts	101 N·m (75 ft. lbs.)
Clevis To Control Arm Bolt . . .	88 N·m (65 ft. lbs.)
Rod To Upper Mount Nut	54 N·m (40 ft. lbs.)
Steering Gear Assembly	
Tie Rod To Steering Knuckle	
Nut	61 N·m (45 ft. lbs.)
To Suspension Crossmember	
Bolts	68 N·m (50 ft. lbs.)
Tie Rod End Adjustment Jam	
Nuts	61 N·m (45 ft. lbs.)
Lower Control Arm	
Ball Joint Stud Castle Nut . . .	74 N·m (55 ft. lbs.)
To Crossmember Pivot Bolt	
(Front)	183 N·m (135 ft. lbs.)
To Crossmember Rear Bolt . . .	95 N·m (70 ft. lbs.)
Ball Joint Heat Shield	
Attaching Bolts	13 N·m (10 ft. lbs.)
Upper Control Arm	
Ball Joint Stud Castle Nut . . .	54 N·m (40 ft. lbs.)
To Shock Bracket	88 N·m (65 ft. lbs.)
Front Suspension Crossmember	
To Body Mounting Bolts	108 N·m (80 ft. lbs.)
Hub And Bearing Assembly	
To Stub Axle Retaining	
Nut	244 N·m (180 ft. lbs.)
Wheel Stud Lug Nut	109-150 N.m (80-110 ft. lbs.)
Stabilizer Bar	
Bushing Clamp Bolts	61 N·m (45 ft. lbs.)
Attaching Link Nuts (All) . . .	101 N·m (75 ft. lbs.)
Steering Knuckle	
Disc Brake Caliper Bolts	22 N·m (16 ft. lbs.)

SPECIAL TOOLS

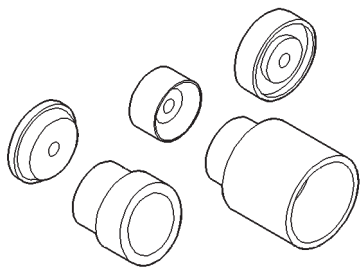
FRONT SUSPENSION

***Puller C-3894-A******Installer, Ball Joint 6758***

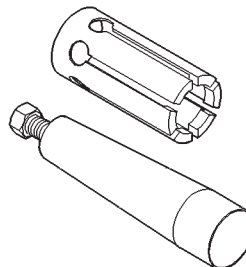
c-4212f-8011d4af

Press, Ball Joint Remover Installer C-4212F***Remover, Ball Joint MB-990799******Remover/Installer Control Arm Bushing 6602-5 (In Tool Kit 6602)******Installer/Receiver, Control Arm Bushing 6876******Installer, Ball Joint 6758***

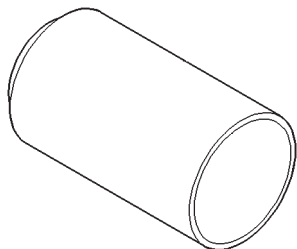
SPECIAL TOOLS (Continued)



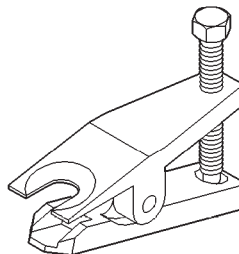
Remover / Installer C-4366-2 (In Tool Kit C-4366)



Installer, Ball Joint Seal Boot Retainer 6875

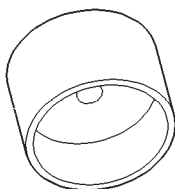


Receiver, Ball Joint 6756

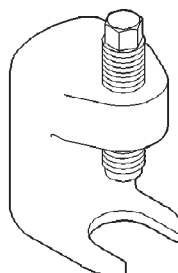


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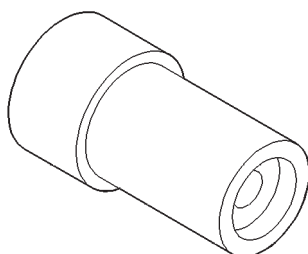
Remover, Tie Rod End MB-991113 or MB-990635



Installer, Bushing 6760



Remover, Lower Ball Joint C-4150A



Remover/Installer Control Arm Clevis Bushing 6877

REAR SUSPENSION

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GENERAL INFORMATION

GENERAL INFORMATION

CAUTION: Only frame contact or wheel lift hoisting equipment can be used on vehicles having a fully independent rear suspension. Vehicles with independent rear suspension can not be hoisted using equipment designed to lift a vehicle by the rear axle. If this type of hoisting equipment is used damage to rear suspension components will occur.

NOTE: If a rear suspension component becomes bent, damaged or fails, no attempt should be made to straighten or repair it. Always replace with a new component.

DESCRIPTION AND OPERATION

REAR SUSPENSION SYSTEM DESCRIPTION

The rear suspension used on this vehicle is a fully independent short and long arm style suspension (Fig. 1).

SHOCK ABSORBER ASSEMBLY

The rear shock absorber assemblies support the weight of the vehicle using coil springs positioned

around the shock absorbers. The coil springs are contained between the upper mount of the shock absorber and a lower spring seat on the body of the shock absorber.

The top of each shock absorber assembly is bolted to the top of the inner fender through a rubber isolated mount. Access for the removal of the nuts attaching the shock absorber mount to the inner fender is from the interior of the vehicle, through the convertible top storage well.

The bottom of the shock absorber assembly attaches to the rear knuckle using a thru-bolt. The shock absorber is isolated from the rear knuckle by a rubber bushing which is pressed into the knuckle.

UPPER CONTROL ARM

An upper control arm is attached to the top of each rear knuckle, connecting the knuckle to the rear suspension crossmember. The attachment of the upper control arm to the knuckle is achieved through a ball joint in the upper control arm. The ball joint is pressed into the upper control arm and is attached to the knuckle using a tapered stud and a castle nut.

DESCRIPTION AND OPERATION (Continued)

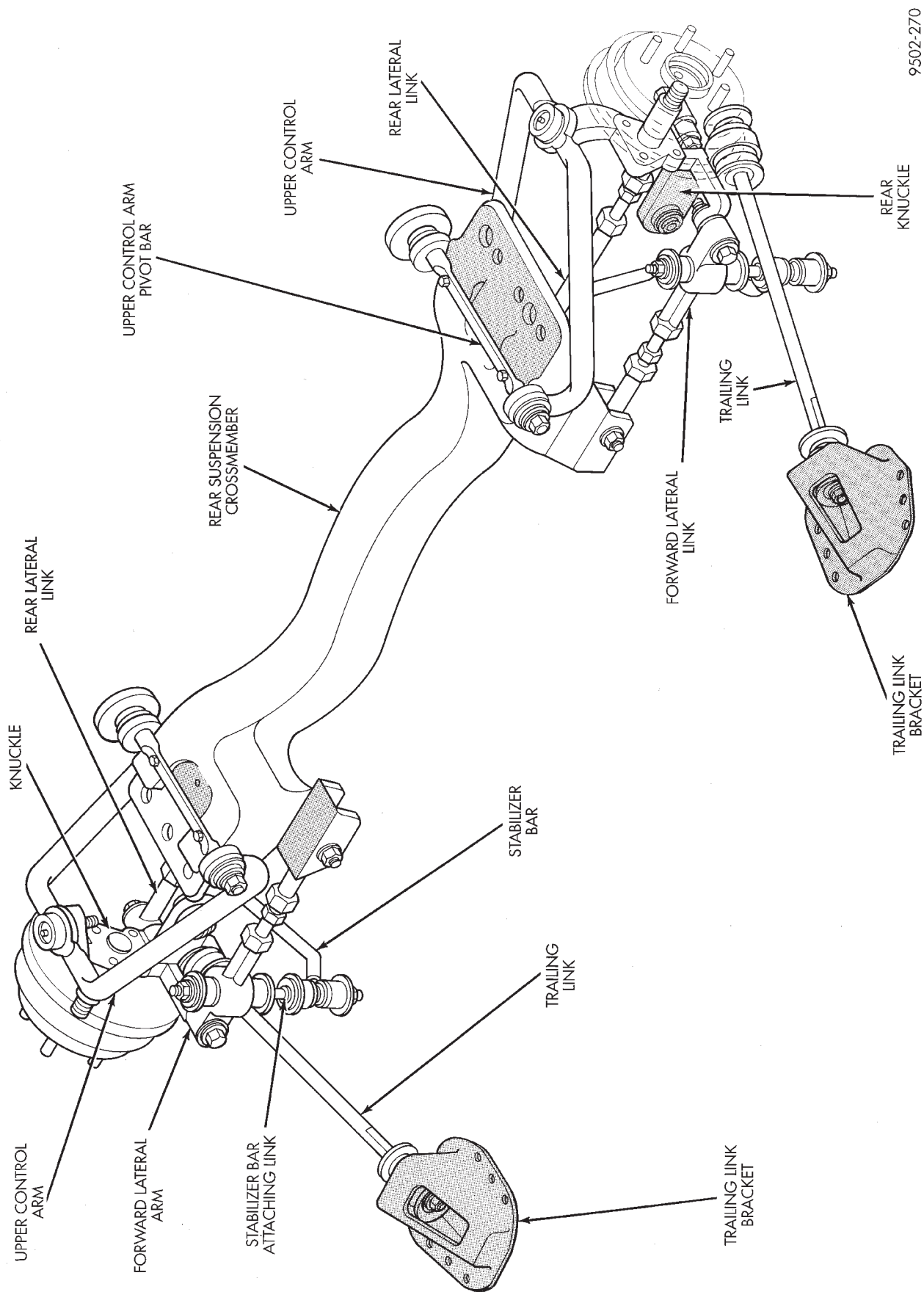


Fig. 1 Fully Independent Rear Suspension

DESCRIPTION AND OPERATION (Continued)

The upper control arm is bolted to the rear suspension crossmember using a pivot bar which is rubber isolated from the upper control arm.

The upper control arms have rubber bushings at the rear suspension crossmember end and a ball joint at the rear knuckle.

COIL SPRING

Rear coil springs are rated separately for each corner or side of the vehicle depending on optional equipment and type of vehicle service. During service procedures when both rear coil springs are removed, mark the coil springs to ensure installation of the springs in their original position. **If coil springs require replacement, be sure the springs need-ing replacement, are replaced with springs meeting the correct load rating for the vehicle and its specific options.**

STABILIZER BAR

The stabilizer bar interconnects the forward lateral links of the vehicle's rear suspension and is attached to the rear suspension crossmember of the vehicle.

Jounce and rebound movements affecting one rear wheel of the vehicle are partially transmitted to the opposite wheel of the vehicle to stabilize body roll.

Attachment of the stabilizer bar to the rear crossmember of the vehicle is through 2 rubber-isolator bushings and bushing retainers. The stabilizer bar to lateral arm attachment is done utilizing a rubber isolated stabilizer bar attaching link. All parts of the stabilizer bar are serviceable, and the stabilizer bar to rear suspension isolator bushings are split for easy removal and installation. The split in the stabilizer bar to crossmember bushing must be positioned toward the front of the vehicle, when the stabilizer bar is installed on the vehicle.

KNUCKLE

A cast iron rear knuckle is attached to the upper control arm by the upper ball joint and to the rear shock absorber assembly. The lateral movement of the rear knuckle is controlled using two lateral arms attached to the bottom of the knuckle and by the upper control arm attached to the top of the knuckle. The outboard ends of the two lateral arms are mounted forward and rearward of the knuckle centerline, and the inboard ends are mounted to the rear suspension crossmember. Fore and aft movement of the knuckle is controlled by the trailing link.

LATERAL ARMS AND TRAILING LINKS

The lateral movement of the rear knuckle is controlled by the lateral arms going from the front and rear of the knuckle to the rear suspension crossmem-

ber. Fore and aft movement of the knuckle is controlled by a trailing link.

The lateral arms and trailing link have rubber isolator bushings at each end to isolate suspension noise from the body of the vehicle.

The trailing link bolts to the bottom of the knuckle and to a bracket attached to the floor pan of the vehicle.

Lateral links, trailing arms and knuckles are normally replaced only when the part has been damaged or when the vehicle has been involved in an accident. If a suspension part has been damaged, be sure to check the underbody dimensions of the car. If the underbody dimensions are not correct, the frame of the vehicle must be straightened, before replacement suspension components are installed.

REAR SUSPENSION CROSSMEMBER

This vehicle is equipped with a bolt in type rear suspension crossmember. The crossmember on this vehicle is the same for all of the optional suspensions that are available on the vehicle.

DIAGNOSIS AND TESTING**SHOCK ABSORBER**

- (1) Inspect for damaged or broken coil springs.
- (2) Inspect for torn or damaged shock absorber dust boots.
- (3) Inspect for damaged lower spring isolator.
- (4) Lift dust boot and inspect shock absorber for evidence of fluid running from the upper end of fluid reservoir. (Actual leakage will be a stream of fluid running down the side and dripping off lower end of unit). A slight amount of seepage between the shock absorber rod and shock absorber rod seal is not unusual and does not affect performance of the shock absorber. Also inspect jounce bumpers for signs of damage or deterioration.

SUSPENSION KNUCKLE

The rear suspension knuckle is not a repairable component of the rear suspension. If it is determined that the knuckle is broken or bent when servicing the vehicle, no attempt is to be made to repair or to straighten the knuckle. **THE KNUCKLE MUST BE REPLACED IF FOUND TO BE DAMAGED IN ANY WAY.**

UPPER CONTROL ARM

The rear suspension upper control arm is not a repairable component of the rear suspension. When diagnosing a condition with the rear suspension of the vehicle it is determined that the upper control arm is broken or bent, the upper control arm **MUST** be replaced. No attempt is to be made to repair or to

DIAGNOSIS AND TESTING (Continued)

straighten the upper control arm. **THE UPPER CONTROL ARM MUST BE REPLACED IF FOUND TO BE DAMAGED OR DEFECTIVE IN ANY WAY.**

UPPER BALL JOINT WEAR INSPECTION

With the weight of the vehicle resting on the road wheels, grasp grease fitting and with no mechanical assistance or added force attempt to move the grease fitting.

If the ball joint is worn the grease fitting will move easily. If movement is noted, replacement of the ball joint is required.

LATERAL LINKS

Inspect the lateral link isolator bushings and sleeves for signs of damage or deterioration. If the lateral link isolator bushings or sleeves are damaged or are deteriorated, replacement of the lateral link assembly will be required. The isolator bushings are not serviceable as a separate component of the lateral link assembly.

Inspect the lateral links for signs of contact with the ground or road debris which has bent or caused other damage to the lateral link. If the lateral link is bent or damaged, the lateral link will require replacement. **Do not attempt to repair or straighten a lateral link.**

CAUTION: Do not apply heat to the lateral link adjusting screws or to the jam nuts, when loosening or adjusting the lateral links.

TRAILING LINKS

Inspect the trailing link bushings and retainers for signs of deterioration or damage. If the trailing link bushings are deteriorated or the retainers are damaged, replacement of the trailing link bushings and or the retainers will be required. The bushings and retainers are serviceable as separate components of the trailing link.

Inspect the trailing link for signs of contact with the ground or road debris which has bent or caused other damage to the trailing link. If the trailing link is bent or damaged the trailing link will require replacement. **Do not ever attempt to repair or straighten a trailing link.**

STABILIZER BAR AND BUSHINGS

Inspect the stabilizer bar for damage or bending. Inspect for broken or distorted stabilizer bar bushings, bushing retainers, and worn or damaged stabilizer bar to lateral arm attaching links. If stabilizer bar to crossmember bushing replacement is required, bushings can be removed from sway bar by opening slit and peeling bushing off sway bar.

STABILIZER BAR ATTACHING LINKS

Inspect the bushings and sleeves in the stabilizer bar attaching links for damage or deterioration. Inspect the stabilizer bar attaching link to ensure it is not bent or broken. If any of these conditions are present when inspecting the attaching links, replacement of the attaching link is required.

SERVICE PROCEDURES

REAR WHEEL ALIGNMENT

Refer to Front And Rear Wheel Toe And Camber Setting Procedures in the Wheel Alignment Check And Adjustment section in this group of the service manual for the required rear wheel Toe and Camber setting procedure.

REMOVAL AND INSTALLATION

SHOCK ABSORBER

NOTE: Access for the nuts attaching the rear shock absorber upper mount is from the passenger compartment of the vehicle. The top of the vehicle must be up to access the attaching nuts.

REMOVE

(1) Remove the plastic access panel (Fig. 2) in the convertible top storage well. Refer to Group 23 Body in this service manual, for the required procedure to remove the access panel.

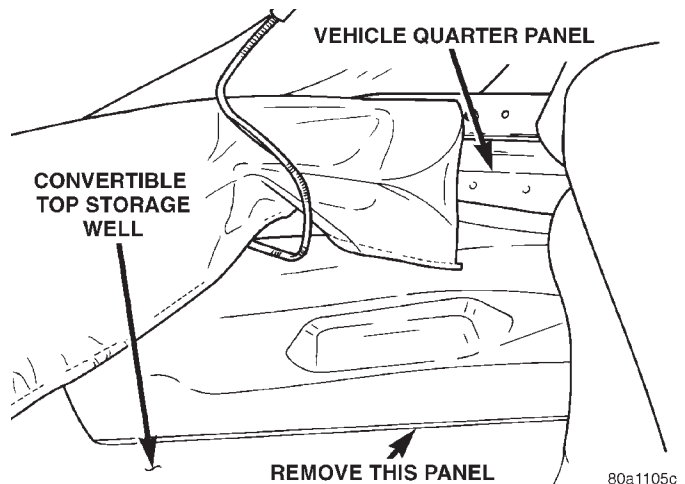
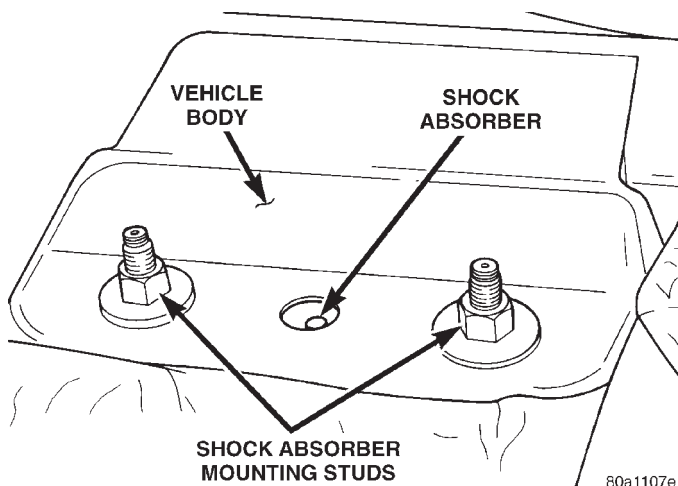


Fig. 2 Access Panel

(2) Roll back the sound matting in the corner of the convertible top storage well to access the shock absorber attaching nuts.

(3) Remove the 2 nuts (Fig. 3) attaching the shock absorber upper mount/spring seat to the body of the vehicle.

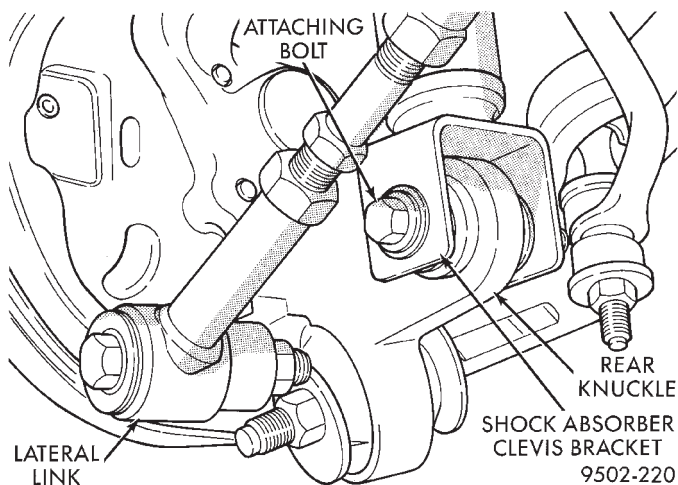
REMOVAL AND INSTALLATION (Continued)

**Fig. 3 Shock Absorber Upper Mount Attaching Nuts**

(4) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

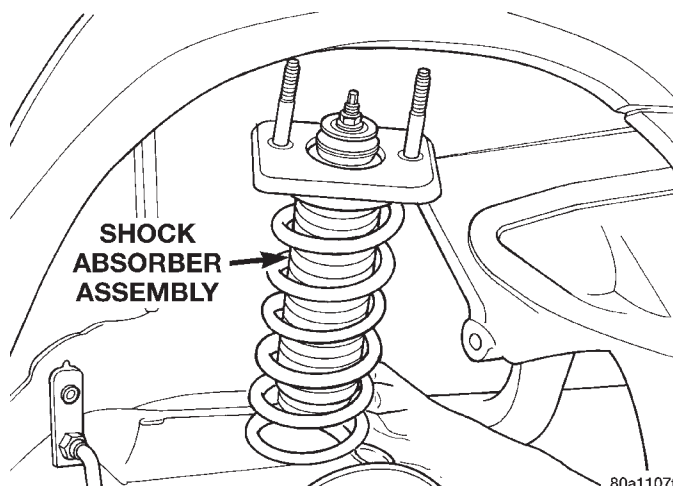
(5) Remove the rear wheel and tire from the vehicle.

(6) Remove bolt attaching shock absorber to rear knuckle (Fig. 4).

**Fig. 4 Shock Absorber Attachment To Knuckle**

(7) Remove the shock absorber from the vehicle using the following procedure: First remove the shock absorber from the rear knuckle. Then remove the shock absorber upper mount from the body of the vehicle. For the required clearance to remove upper mount from body it may be necessary to push down on the rear suspension.

(8) Move shock absorber downward and tilt top of shock outward. Then remove shock absorber from vehicle through top of wheel opening (Fig. 5).

**Fig. 5 Shock Absorber Removal****INSTALL**

(1) Install shock absorber back in vehicle using the reverse sequence of removal (Fig. 5).

(2) Install upper shock absorber mount into the mounting holes in rear shock tower.

(3) Push down on rear knuckle to obtain clearance and then install shock absorber clevis bracket on rear knuckle.

(4) Align clevis bracket on shock absorber with bushing in knuckle. Install and tighten bolt (Fig. 4) to a torque of 95 N·m (70 ft. lbs.).

(5) Lower vehicle far enough to gain access to the passenger compartment of the vehicle.

(6) Install and tighten the 2 shock absorber mounting bracket attaching nuts (Fig. 3) to a torque of 54 N·m (40 ft. lbs.).

(7) Install the sound matting over the top of the shock absorber attaching nuts.

(8) Install the plastic access panel (Fig. 2) in the convertible top storage well. Refer to Group 23 Body in this service manual, for the required procedure to install the access panel.

(9) Install wheel and tire assembly on vehicle. Then torque all wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat tightening sequence to full specified torque of 135 N·m (100 ft. lbs.).

(10) Lower the vehicle to the ground.

COIL SPRINGS

Coil springs are rated separately for each side of vehicle depending on optional equipment and type of service. During service procedures where both springs are removed, mark springs (Chalk, Tape, etc.) to ensure installation in original position. **If the coils springs require replacement, be sure that the springs being replaced, are replaced with springs meeting the correct load and spring rate for the vehicle.**

REMOVAL AND INSTALLATION (Continued)

NOTE: During service procedures requiring removal or installation of a coil spring, be sure that the first full top and bottom coil of the spring is captured by the jaws of spring compressor.

Replacement of the coil spring requires removal of the shock absorber from the vehicle, and the disassembly of the shock absorber. Refer to shock absorber in the removal and installation section in this group of the service manual for the required removal and replacement procedure. Then refer to shock absorber in the disassembly and assembly section in this group of the service manual for the required procedure to disassemble and assemble the shock absorber.

STABILIZER BAR

REMOVE

- (1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.
- (2) Remove both rear wheel and tire assemblies from the vehicle.
- (3) From each side of the vehicle, remove the nut (Fig. 6) attaching the stabilizer bar attaching link/isolator bushings to the stabilizer bar.

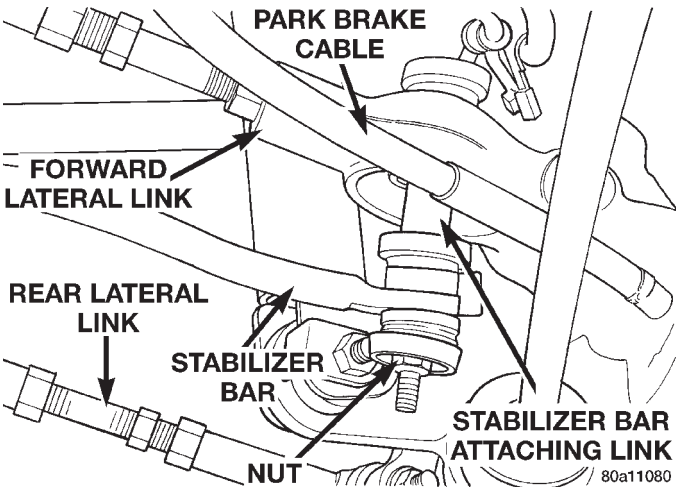


Fig. 6 Stabilizer Bar Attaching Link

- (4) Remove the 4 bolts attaching the stabilizer bar bushing clamps to the rear suspension crossmember (Fig. 7).
- (5) Remove the rear stabilizer bar to crossmember bushing clamps and bushings from the stabilizer bar.
- (6) Remove stabilizer bar from vehicle. Stabilizer bar will come out of vehicle between the exhaust pipe and the rear suspension crossmember.

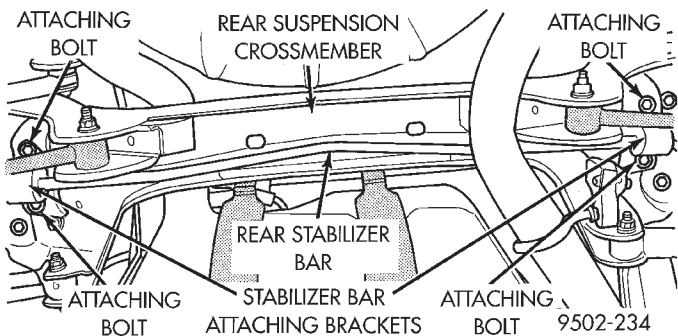


Fig. 7 Stabilizer Bar Attachment To Rear Suspension

STABILIZER BAR BUSHING INSPECTION

Inspect for broken or distorted retainers and bushings. If bushing replacement is required, bushings can be removed by opening slit in bushing and removing bushing from around stabilizer bar.

INSTALL

- (1) Install stabilizer bar back in vehicle with the bushings removed using the reverse sequence of removal.
- (2) When stabilizer bar is installed in vehicle, it must be installed with the bend in the end of the stabilizer bar positioned up in vehicle when viewed from the side (Fig. 8).

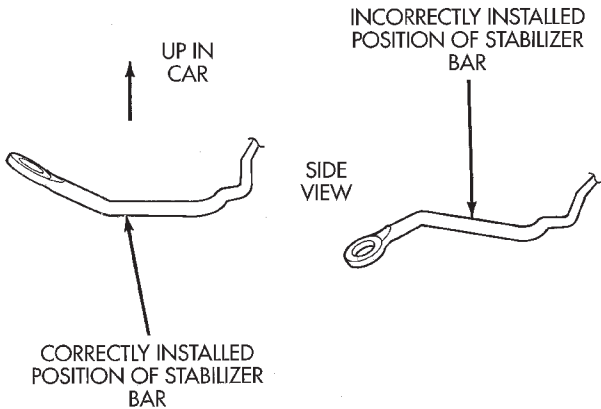


Fig. 8 Installed Position Of Stabilizer Bar In Vehicle

- (3) Install the stabilizer bar onto the stabilizer bar to forward lateral link attaching links (Fig. 6). Install the stabilizer bar to attaching link bushings on attaching links. Tighten the bushing retaining nuts to a torque of 35 N·m (26 ft. lbs.).
- (4) Loosely install the stabilizer bar bushing clamps on the rear suspension crossmember
- (5) Position the stabilizer bar so it is centered in the vehicle and does not contact other suspension components or vehicle body.

REMOVAL AND INSTALLATION (Continued)

(6) Tighten the bolts attaching the stabilizer bar bushing clamps to the rear crossmember to a torque of 27 N·m (19 ft. lbs.) (Fig. 7).

(7) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(8) Lower vehicle to the ground.

KNUCKLE

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the rear wheel and tire assembly from the vehicle.

(3) Remove rear brake drum from rear hub and bearing assembly.

(4) If vehicle is equipped with antilock brakes remove the rear wheel speed sensor from the brake support plate and brake flex hose routing bracket (Fig. 9).

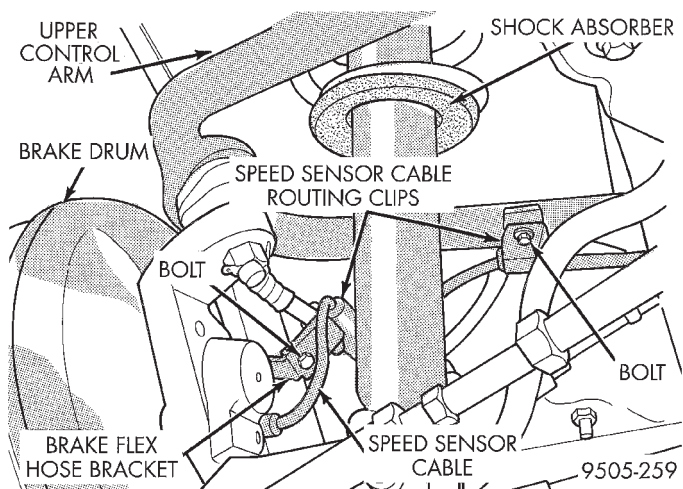


Fig. 9 Rear Wheel Speed Cable Routing And Attachment

(5) Remove the park brake cable from the park brake actuating lever (Fig. 10). Then remove the park brake cable from the rear brake support plate (Fig. 11). Park brake cable is removed from brake support plate using this procedure. Position a 1/2 inch box end wrench over cable retainer (Fig. 11) to collapse retaining tabs. Then pull rear brake cable from brake support plate.

(6) Remove the rear hub/bearing assembly retaining nut (Fig. 12). Then remove the washer and the hub/bearing assembly from the knuckle.

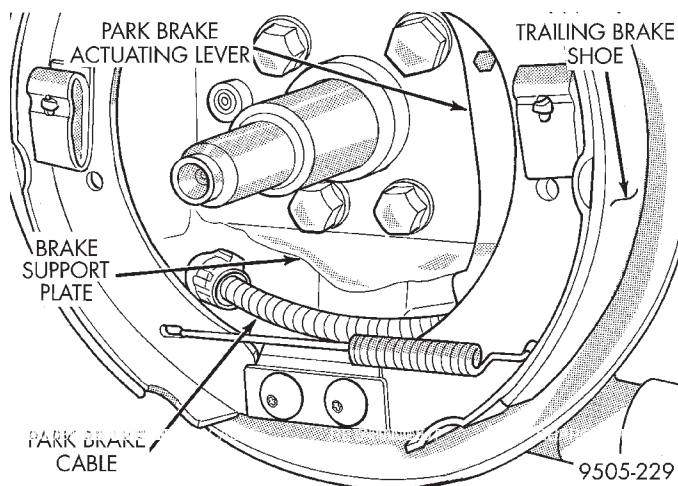


Fig. 10 Park Brake Cable Attachment To Actuating Lever

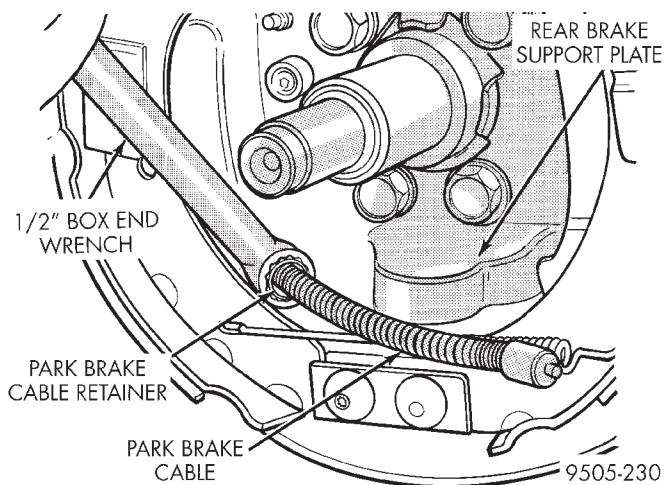


Fig. 11 Park Brake Cable Removal From Brake Support Plate

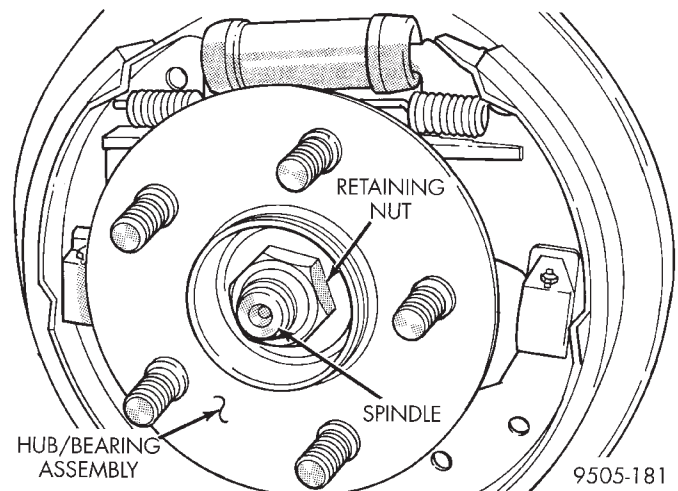


Fig. 12 Hub/Bearing Assembly Retaining Nut

(7) Remove the 4 bolts (Fig. 13) attaching rear brake support plate to knuckle. Then remove brake

REMOVAL AND INSTALLATION (Continued)

support plate, brake shoes and wheel cylinder as an assembly from rear knuckle. **It is not necessary to remove brake flex hose from wheel cylinder when removing support plate.** Brake support plate when removed, must be supported using mechanics wire as shown in (Fig. 14).

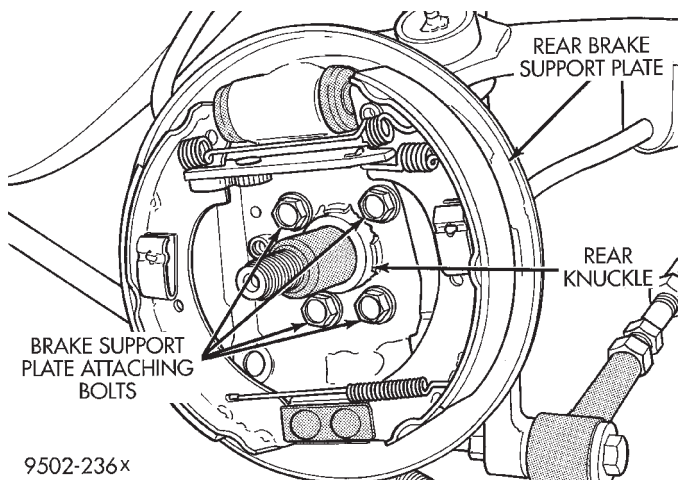


Fig. 13 Rear Brake Support Plate Mounting Bolts

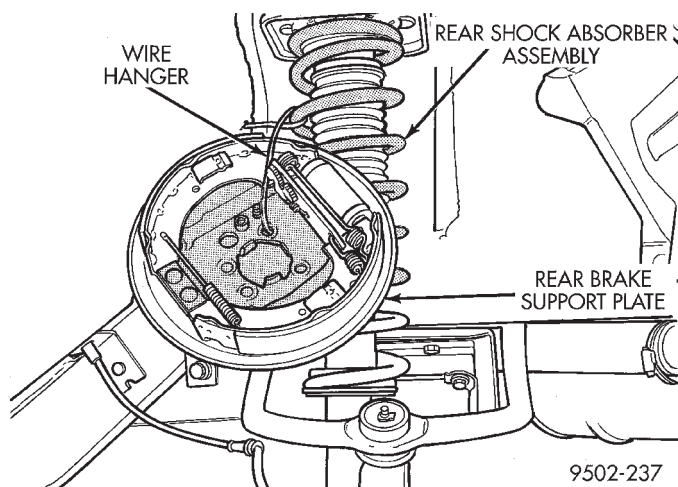


Fig. 14 Correctly Stored Rear Brake Support Plate

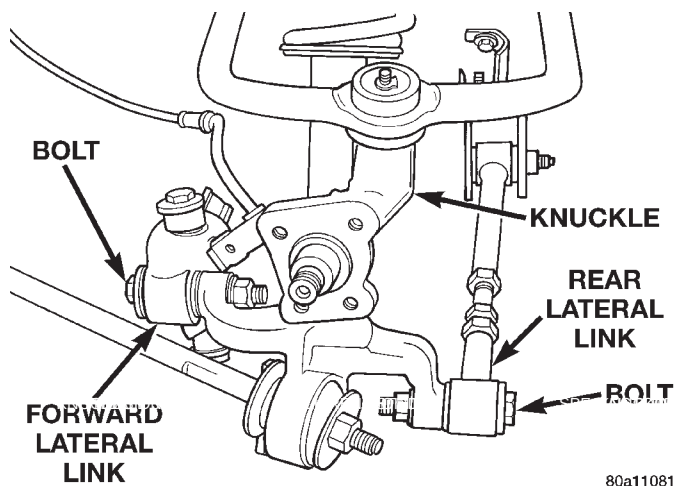
(8) Remove the nuts and bolts attaching the forward and rear lateral links (Fig. 15) to the rear knuckle.

(9) Remove cotter pin and castle nut attaching upper control arm ball joint to knuckle.

(10) Remove ball joint stud from knuckle using Puller, Special Tool, CT-1106 (Fig. 16). When using puller, install castle nut on ball joint stud (Fig. 16) to protect threads from damage.

(11) Remove the nut and washer attaching the trailing link to the rear knuckle. Use a wrench on the flat of the trailing link to keep it from turning when removing nut (Fig. 17).

(12) Remove the shock absorber clevis bracket to knuckle attaching nut and bolt (Fig. 18).



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Fig. 15 Lateral Link Attachment To Rear Knuckle

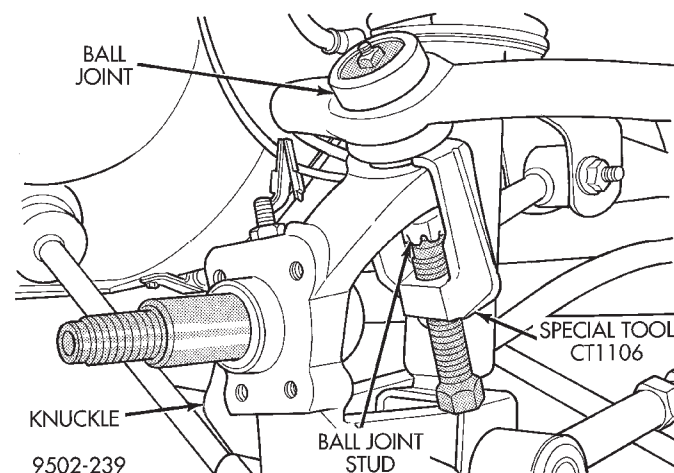
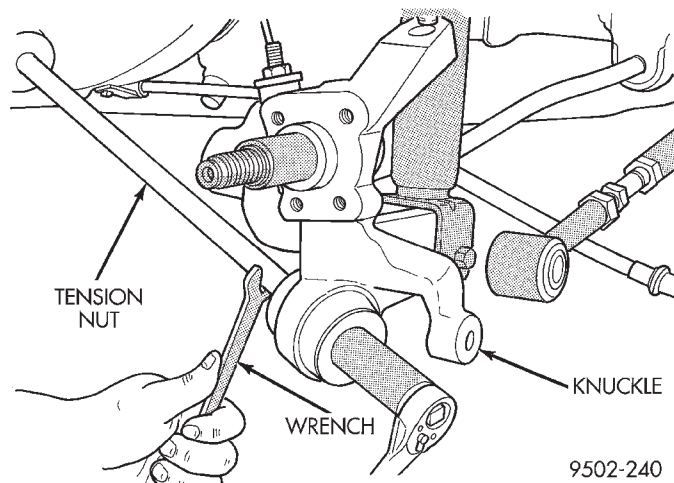


Fig. 16 Removing Ball Joint Stud From Knuckle

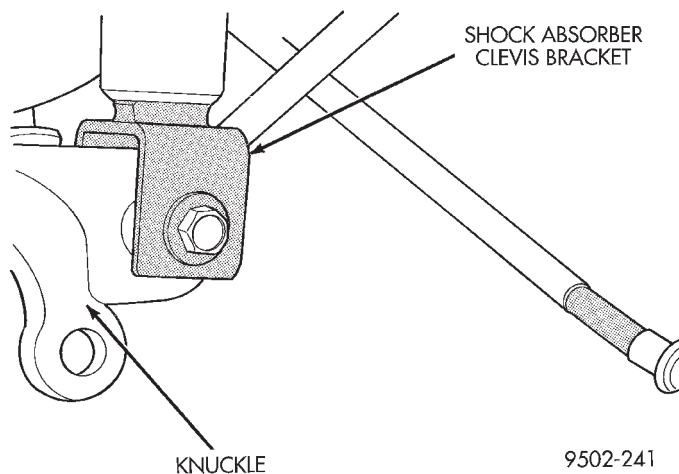


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Fig. 17 Trailing Link Attachment To Rear Knuckle

(13) Remove the knuckle assembly from the vehicle.

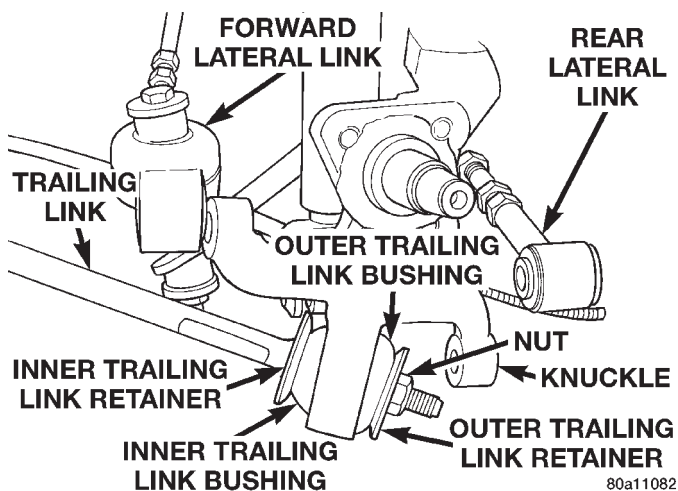
REMOVAL AND INSTALLATION (Continued)

**Fig. 18 Shock Absorber Attachment To Knuckle****INSTALL**

(1) Install knuckle on clevis bracket of rear shock absorber. Then install clevis bracket to shock absorber attaching bolt with head of bolt facing rear of vehicle (Fig. 18).

CAUTION: When installing trailing link bushing retainers, retainers must be installed with cupped side of retainer facing away from bushing and knuckle (Fig. 19).

(2) Install knuckle on trailing link. Then install the outer trailing link bushing, bushing retainer and retaining nut on trailing link (Fig. 19). Using a large adjustable wrench, to keep trailing link from rotating securely tighten the trailing link retaining nut (Fig. 19) to a torque of 99 N·m (73 ft. lbs.).

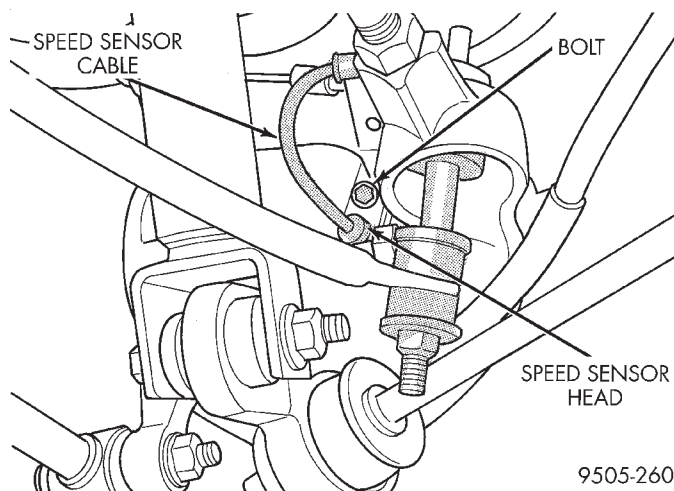
**Fig. 19 Trailing Link Bushing And Retainer Installation**

(3) Install the upper ball joint stud in the knuckle. Install and tighten the ball joint stud castle nut to a torque of 85 N·m (63 ft. lbs.). Install cotter pin in ball joint stud.

(4) Install the front and rear lateral links and attaching nuts and bolts on the knuckle (Fig. 15). Tighten the lateral links to knuckle attaching bolts and nuts to 108 N·m (80 ft. lbs.).

(5) Install rear brake support plate assembly onto the knuckle. Install the 4 bolts (Fig. 13) attaching rear brake support plate to rear knuckle. Tighten the attaching bolts to a torque of 61 N·m (45 ft. lbs.).

(6) If vehicle is equipped with ABS brakes, install speed sensor head into rear brake support plate (Fig. 20). Torque speed sensor head mounting bolt to 7 N·m (60 in. lbs.).

**Fig. 20 Speed Sensor Head Attachment To Brake Support Plate**

(7) Attach routing bracket for speed sensor cable to brake flex hose bracket and securely tighten attaching bolt (Fig. 9).

(8) Install park brake cable into brake support plate. Ensure cable retainer is securely holding cable to support plate. Then connect park brake cable to park brake lever on brake shoe.

(9) Install rear hub and bearing assembly on knuckle and install hub and bearing assembly retaining nut. Tighten retaining nut to a torque of 250 N·m (185 ft. lbs.).

(10) Install the brake drum on the hub/bearing assembly.

(11) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(12) Lower vehicle.

(13) Check and reset rear wheel alignment to specifications if required. Refer to Front And Rear Alignment Setting Procedure in the Wheel Alignment Check And Adjustment section in this group of the service manual for the required alignment setting procedure.

REMOVAL AND INSTALLATION (Continued)

UPPER CONTROL ARM

The rear upper control arm, control arm bushings, and pivot bar are serviced as a complete assembly on this vehicle. Do not attempt to disassemble the control arm from the pivot bar to service the rear control arm bushings.

The rear ball joint and ball joint seal are replaceable components of the rear control arm assembly. The ball joint and ball joint seal are to be replaced with the control arm removed from the vehicle.

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove both rear wheel and tire assemblies from the vehicle.

(3) Remove the shock absorber clevis bracket to rear knuckle attaching bolt and nut (Fig. 21) on both sides of the vehicle.

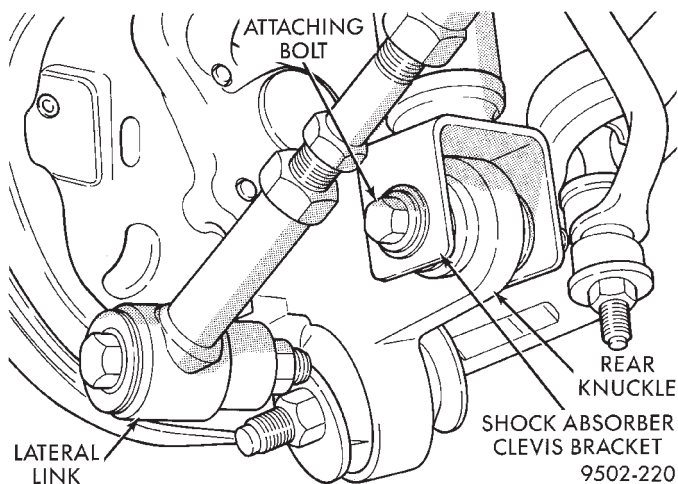


Fig. 21 Shock Absorber To Knuckle Attaching

(4) Remove muffler support bracket from rear frame rail (Fig. 22).

(5) Remove the rear exhaust pipe hanger bracket from the rear suspension crossmember (Fig. 23). Let exhaust system drop down as far as possible.

(6) On only the side of the vehicle requiring control arm removal, separate the control arm ball joint from the rear knuckle using following procedure.

- Remove cotter pin and castle nut attaching upper control arm ball joint to knuckle.

- Remove ball joint stud from knuckle using Puller, Special Tool, CT- 1106 (Fig. 24). When using puller, install castle nut on ball joint stud to protect threads from damage.

(7) Position a transmission jack and wooden block under the center of the rear suspension crossmember

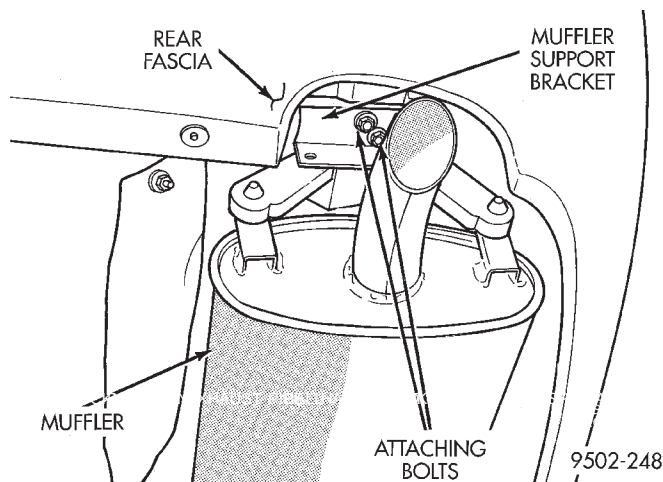


Fig. 22 Muffler Support Bracket

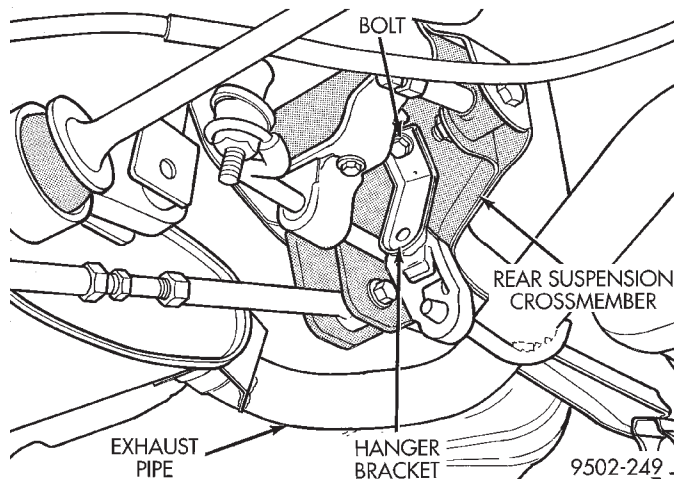


Fig. 23 Exhaust Pipe Hanger At Rear Suspension Crossmember

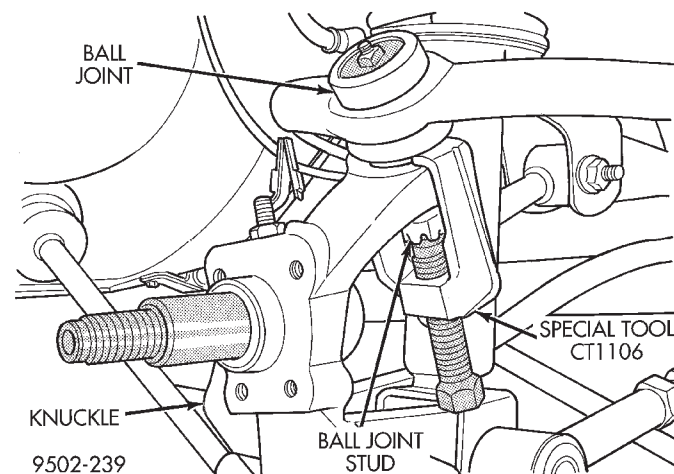


Fig. 24 Ball Joint Stud Removal From Knuckle

to support and lower crossmember during removal (Fig. 25).

REMOVAL AND INSTALLATION (Continued)

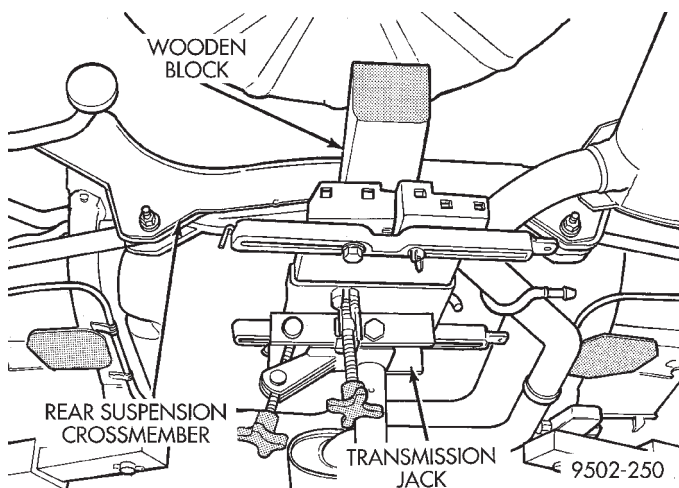


Fig. 25 Lowering And Supporting Rear Suspension Crossmember

(8) If vehicle is equipped with antilock brakes, remove routing clips for wheel speed sensor cable from brackets on both upper control arms (Fig. 26).

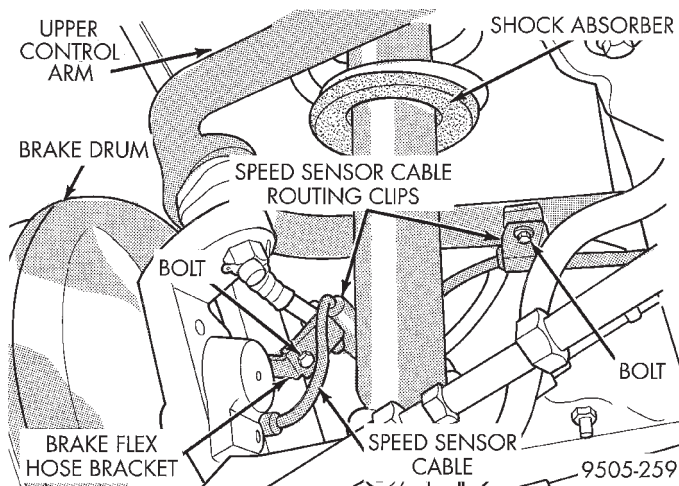


Fig. 26 Speed Sensor Cable Attachment To Control Arm

(9) Remove the 4 bolts (Fig. 27) attaching rear suspension crossmember to rear frame rails.

CAUTION: When lowering rear suspension crossmember do not put a strain on the rear brake flex hoses.

(10) Lower the rear suspension crossmember far enough to access the upper control arm pivot bar to crossmember attaching bolts.

NOTE: One flat washer is used at each upper control arm pivot bar attaching bolt. The flat washer is located between the pivot bar and the rear suspension crossmember. Be sure the washers are not lost when removing the pivot bar attaching bolts from the rear suspension crossmember.

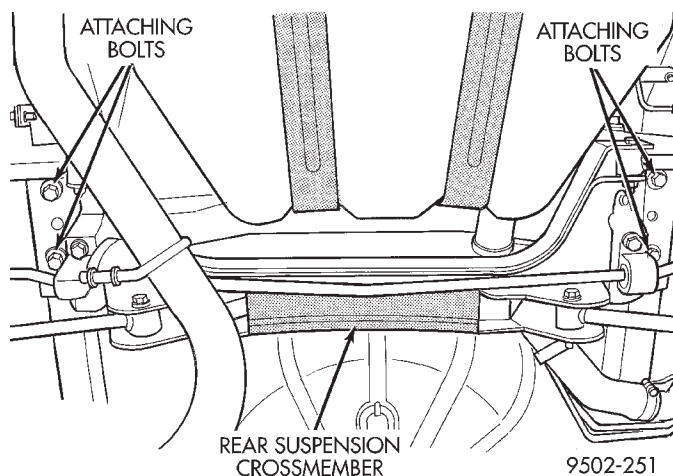


Fig. 27 Crossmember Attachment To Frame Rails

(11) Remove the 2 bolts (Fig. 28) attaching the upper control arm to the rear suspension crossmember.

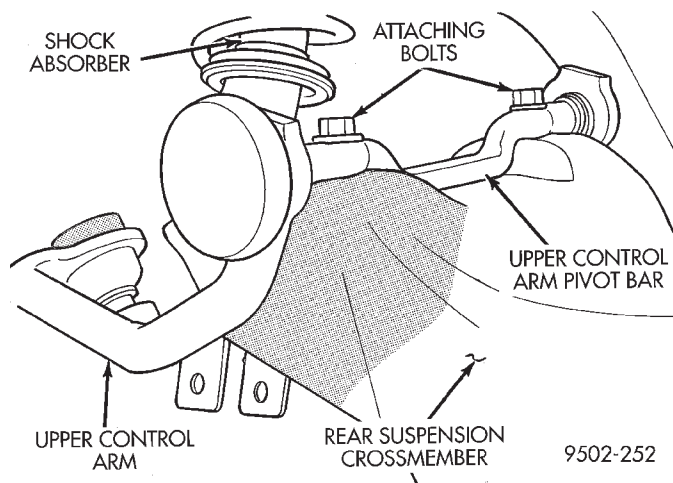


Fig. 28 Upper Control Arm Attachment To Crossmember

(12) Remove the flat washers and the upper control arm from the rear suspension crossmember.

(13) Transfer any required components to the replacement control arm.

INSTALL

NOTE: One flat washer is used at each upper control arm pivot bar attaching bolt. The flat washer is located between the pivot bar and the rear suspension crossmember. Be sure 1 flat washer is used at each bolt attaching the pivot bar to the rear suspension crossmember.

(1) Align the upper control arm pivot bar with the mounting holes in the rear suspension crossmember. Install the pivot bar attaching bolts and washers.

REMOVAL AND INSTALLATION (Continued)

Tighten the 2 pivot bar to crossmember attaching bolts (Fig. 28) to a torque of 108 N·m (80 ft. lbs.).

(2) Using transmission jack, raise rear suspension crossmember up to the rear frame rails and loosely install the 4 attaching bolts (Fig. 27).

(3) Position an appropriate size drift into the positioning hole in each side of rear suspension crossmember and crossmember locating holes in frame rails of the vehicle (Fig. 29). This is required to properly position rear suspension crossmember in the body of the vehicle. Then tighten the 4 crossmember to frame rail attaching bolts to 108 N·m (80 ft. lbs.). Remove drifts from rear suspension crossmember.

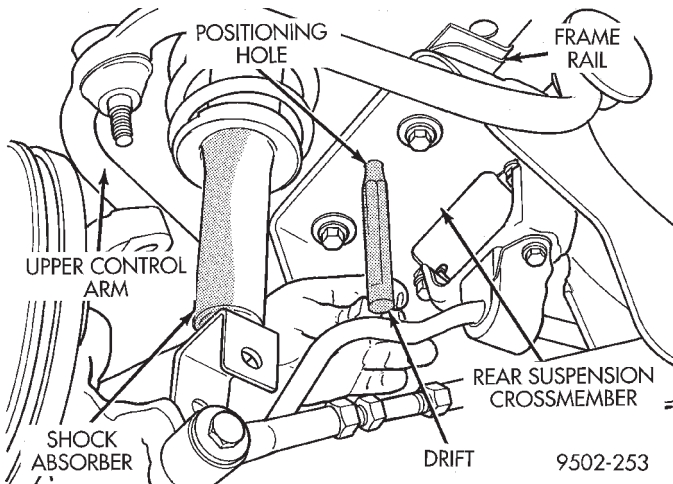


Fig. 29 Locating Rear Suspension Crossmember In Vehicle

(4) Install upper ball joint stud in knuckle. Install and tighten the ball joint stud castle nut to a torque of 85 N·m (63 ft. lbs.). Install cotter pin in ball joint stud.

(5) Remove transmission jack supporting rear suspension crossmember.

(6) Install muffler support bracket on rear frame rail (Fig. 22). Install rear exhaust pipe hanger on rear suspension crossmember (Fig. 23).

(7) Install the wheel speed sensor cable routing clip on upper control arm mounting bracket. Install and securely tighten attaching bolt (Fig. 26).

(8) Install the shock absorber clevis brackets (Fig. 21) on the rear knuckles. Tighten the shock absorber mounting bolts to a torque of 95 N·m (70 ft. lbs.).

(9) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(10) Lower vehicle to the ground.

(11) Check and reset if required, rear wheel Camber and Toe to preferred specifications.

UPPER BALL JOINT

The ball joints are replaceable **ONLY** as an assembly, do not attempt any type of repair on the ball joint assembly. The replacement procedure for the ball joint assembly is detailed in this section of the service manual.

The ball joint housing is a pressed fit into the control arm with the joint stud retained in the knuckle by a castle nut. The castle nut is retained on the ball joint stud by a cotter pin.

The procedure for the removal and replacement of the rear control arm ball joint must be done with the rear control arm removed from the vehicle. The ball joint will require the use of an arbor press to remove and install it on the control arm. For the required procedure to remove and install the rear control arm, refer to Rear Control Arm Service Procedures in this group of the service manual.

REMOVE

(1) Using a screw driver or other suitable tool, pry seal boot up and off of ball joint assembly (Fig. 30).

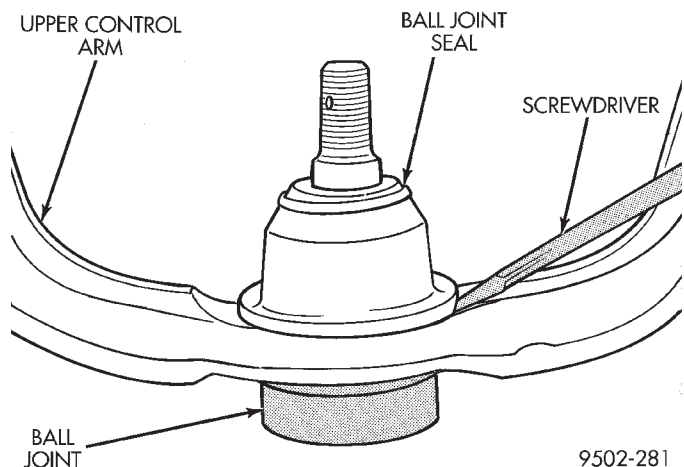


Fig. 30 Ball Joint Seal Boot Removal

(2) Position Receiving Cup, Special Tool 6758 to support control arm when removing ball joint assembly (Fig. 31). Install Remover/Installer, Special Tool 6804 on top of ball joint assembly (Fig. 31).

(3) Using an arbor press, press the ball joint assembly out of the control arm.

INSTALL

(1) By hand, position ball joint assembly into ball joint bore of control arm. Be sure ball joint assembly is not cocked in the bore of the control arm, this will cause binding of the ball joint assembly, when being pressed into lower control arm.

(2) Position assembly in an arbor press with Receiving Cup, Special Tool 6758 supporting lower control arm (Fig. 32). Then install Remover/Installer,

REMOVAL AND INSTALLATION (Continued)

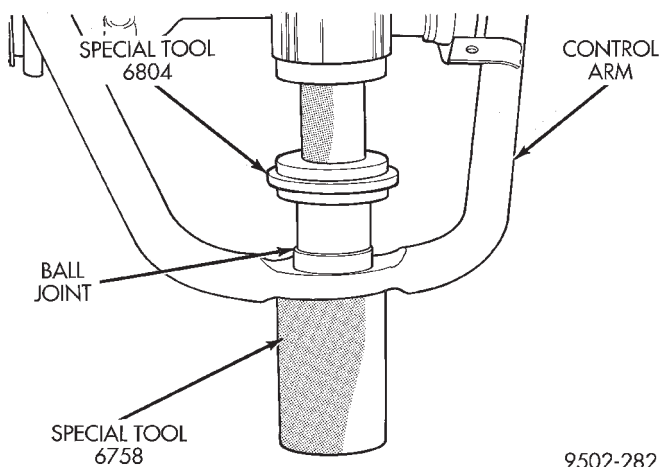


Fig. 31 Removing Ball Joint From Upper Control Arm

Special Tool 6804 on the top of the ball joint assembly (Fig. 32).

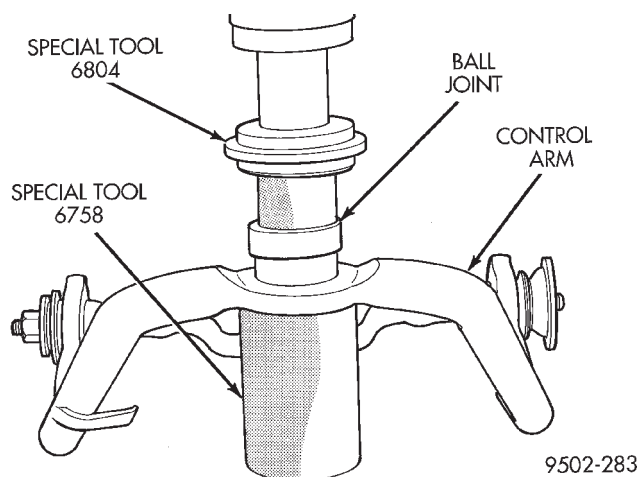


Fig. 32 Installing Ball Joint In Upper Control Arm

CAUTION: When installing the ball joint in the upper control arm, do not press the ball joint into the control arm all the way. The lip on the ball joint must not touch the surface of the control arm. Refer to Step 3 below when installing the ball joint.

(3) Carefully align all pieces. Using the arbor press, press the ball joint into the control arm until a gap of 3mm (1/8 inch) is between lip on ball joint and surface of lower control arm.

(4) Install a **NEW** ball joint assembly sealing boot on ball joint assembly.

CAUTION: Do not use an arbor press to install the sealing boot on the lower control arm ball joint assembly. Damage to the sealing boot can occur due to excessive pressure applied to sealing boot when being installed.

(5) Position Receiving Cup, Special Tool 6758 over sealing boot so it is aligned properly with bottom edge of sealing boot (Fig. 33). Apply pressure **BY HAND** to special tool 6758, until sealing boot is pressed squarely against surface of control arm.

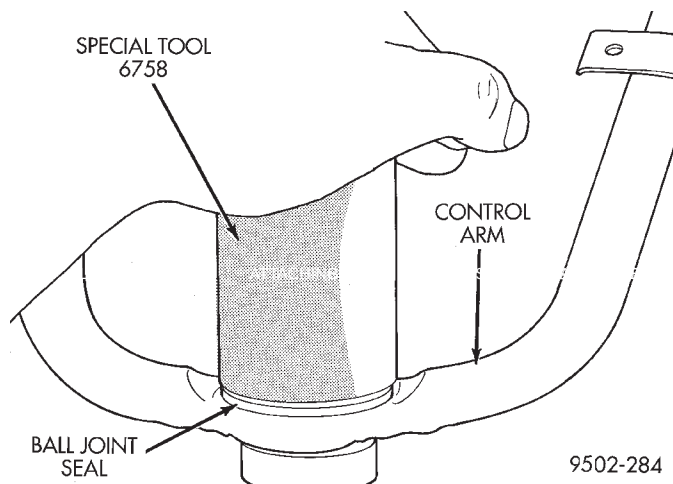


Fig. 33 Ball Joint Seal Boot Installation

REAR SUSPENSION CROSSMEMBER

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove both rear wheel and tire assemblies from the vehicle.

(3) Remove the shock absorber clevis bracket to rear knuckle attaching bolt and nut on both sides of the vehicle (Fig. 34).

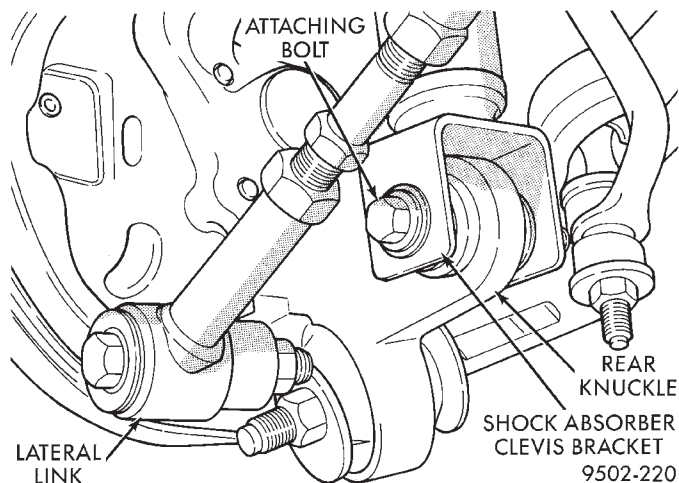


Fig. 34 Shock Absorber To Knuckle Attaching

(4) Remove muffler support bracket from rear frame rail (Fig. 35).

REMOVAL AND INSTALLATION (Continued)

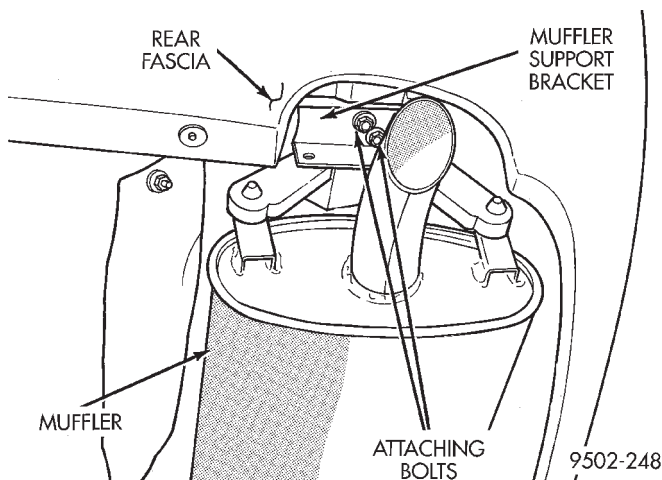


Fig. 35 Muffler Support Bracket

(5) Remove the rear exhaust pipe hanger from the rear suspension crossmember (Fig. 36). Let the exhaust system drop down as far as possible.

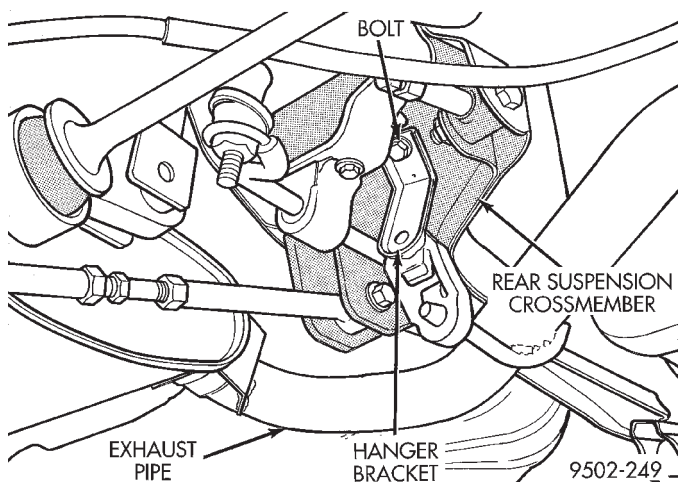


Fig. 36 Exhaust Pipe Hanger At Rear Suspension Crossmember

(6) Position a transmission jack and wooden block under the center of the rear suspension crossmember to support and lower crossmember during removal (Fig. 37).

(7) Remove the routing clips for the wheel speed sensor cable from the brackets on the upper control arm (Fig. 38).

(8) Remove the nuts and bolts on each side of the vehicle attaching the 4 lateral links to the knuckles.

(9) Remove the 4 bolts attaching the rear suspension crossmember to the rear frame rails (Fig. 39).

(10) Lower the rear suspension arm crossmember enough to access the upper control arm pivot bar to crossmember attaching bolts (Fig. 40).

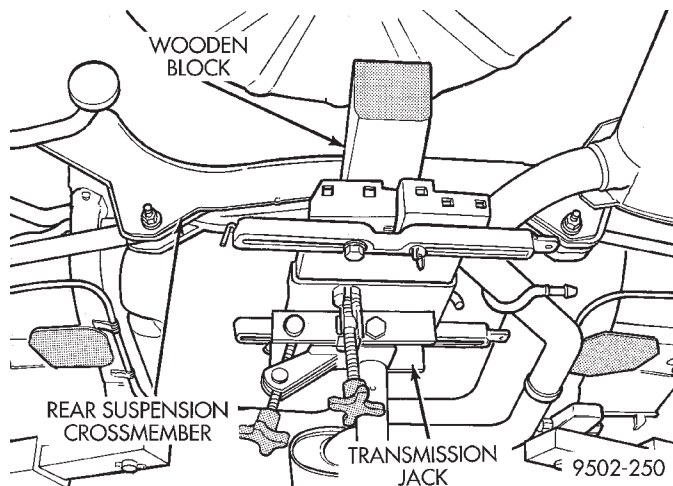


Fig. 37 Lowering And Supporting Rear Suspension Crossmember

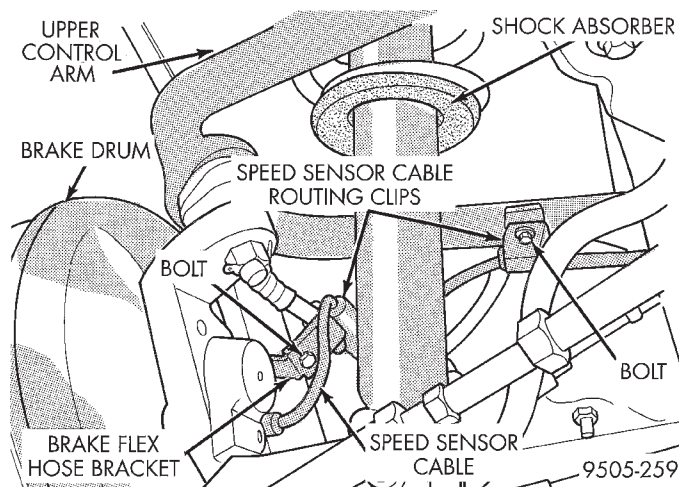


Fig. 38 Speed Sensor Cable Attachment To Control Arm

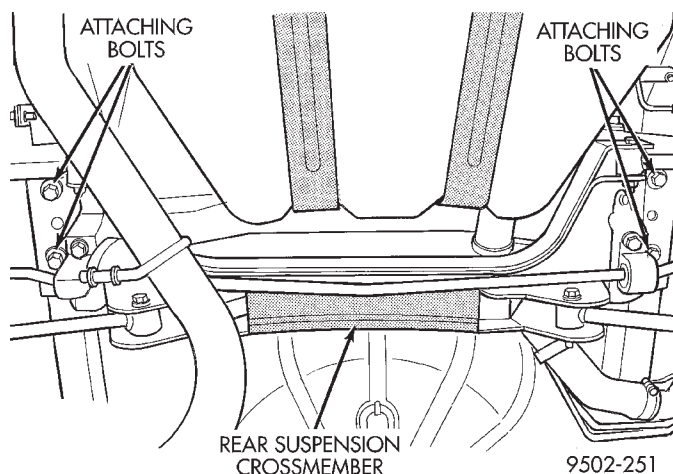


Fig. 39 Suspension Crossmember Attachment To Frame Rails

REMOVAL AND INSTALLATION (Continued)

NOTE: One flat washer is used at each upper control arm pivot bar attaching bolt. The flat washer is located between the pivot bar and the rear suspension crossmember. Be sure the washers are not lost when removing the pivot bar attaching bolts from the rear suspension crossmember.

(11) Remove the 4 bolts (Fig. 40) attaching the upper control arm pivot bars to the rear suspension crossmember. Remove the control arms from the crossmember.

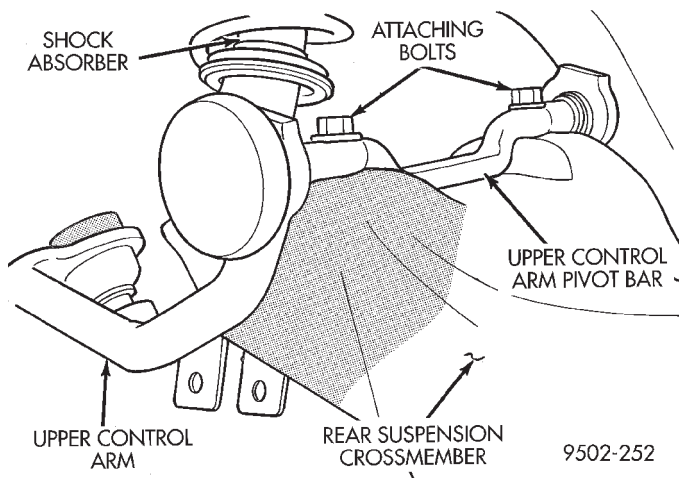


Fig. 40 Upper Control Arm Attachment To Crossmember

(12) Lower the rear suspension crossmember, lateral arms and stabilizer bar as far as possible using the transmission jack. Then with the aid of a helper remove rear suspension crossmember from the vehicle.

(13) Transfer the lateral arms, stabilizer bar mounting brackets and the stabilizer bar and bushings to the replacement crossmember before installing the replacement crossmember in the vehicle. Tighten the stabilizer bar mounting bracket to rear crossmember mounting bolts to a torque of 27 N·m (20 ft. lbs.). Tighten the 4 lateral arm to crossmember attaching bolts to a torque of 95 N·m (80 ft. lbs.). **Install the lateral arm to crossmember bolts so head of bolt will be toward the front of the vehicle when the crossmember is installed.**

INSTALL

(1) Install the rear suspension crossmember, lateral arms and rear stabilizer bar back into the vehicle as an assembly.

(2) With the aid of a helper position rear suspension crossmember back in vehicle and support it using the transmission jack.

NOTE: One flat washer is used at each upper control arm pivot bar attaching bolt. The flat washer is

located between the pivot bar and the rear suspension crossmember. Be sure 1 flat washer is used at each bolt attaching the pivot bar to the rear suspension crossmember.

(3) Align the upper control arm pivot bars with the mounting holes in the rear suspension crossmember. Install the pivot bar attaching bolts and washers. Tighten the 4 pivot bar to crossmember attaching bolts (Fig. 40) to a torque of 107 N·m (80 ft. lbs.).

(4) Using transmission jack, raise rear suspension crossmember up to the rear frame rails and loosely install the 4 attaching bolts.

(5) Position a drift of the appropriate size into the positioning hole in each side of rear suspension crossmember and locating holes in the frame rail of the body. (Fig. 41). This is required to properly position the rear suspension crossmember side-to-side and front-to-rear on the body of the vehicle. Then tighten the 4 crossmember to frame rail attaching bolts to 107 N·m (80 ft. lbs.). Remove drifts from rear suspension crossmember.

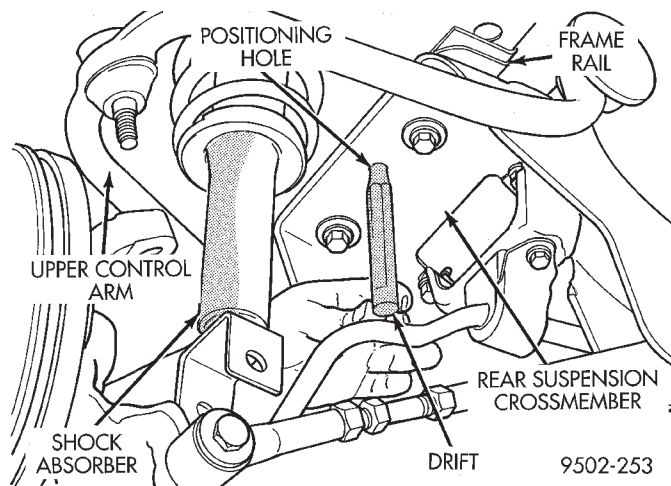


Fig. 41 Locating Rear Suspension Crossmember In Vehicle

(6) Align lateral links with knuckles and install the lateral arm to knuckle attaching bolts and washers. Tighten the 4 lateral arm to knuckle attaching bolts to a torque of 107 N·m (80 ft. lbs.).

(7) Remove transmission jack supporting rear suspension crossmember.

(8) Install muffler support bracket on rear frame rail (Fig. 35). Install rear exhaust pipe hanger on rear suspension crossmember (Fig. 36).

(9) Install the wheel speed sensor cable routing clip on the upper control arm mounting bracket (Fig. 38). Install and securely tighten attaching bolt.

(10) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specifica-

REMOVAL AND INSTALLATION (Continued)

tion. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(11) Lower vehicle to the ground.

(12) Check and reset if required, rear wheel alignment (camber and toe) to meet the preferred specifications.

LATERAL LINKS

The rear suspension lateral links (Fig. 42) are only serviced as complete assemblies. The isolator bushings used in the lateral links are not serviced as separate components.

CAUTION: Do not attempt to straighten or repair a lateral link. Do not apply heat to the lateral link adjusting screws or to the jam nuts, when loosening or adjusting the lateral links.

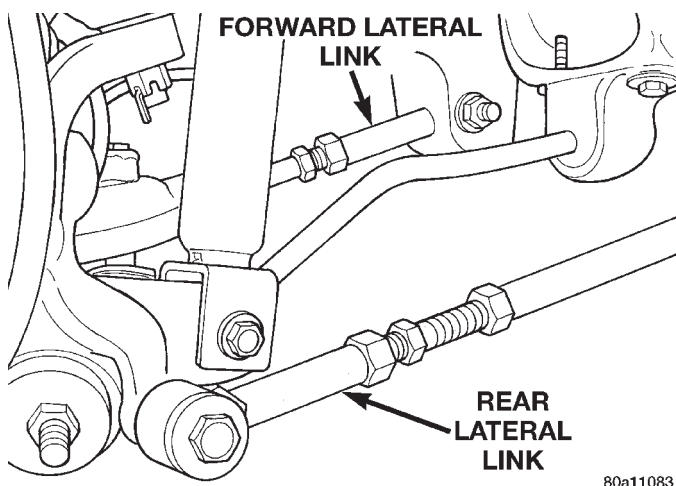


Fig. 42 Rear Suspension Lateral Links

FORWARD LATERAL LINK

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the rear wheel and tire assembly from the side of the vehicle requiring lateral link removal.

(3) Remove the rear stabilizer bar attaching link from the forward lateral link (Fig. 43).

(4) Remove the nut, bolt and washer (Fig. 43) attaching the forward lateral link to the knuckle.

(5) Remove the nut and bolt attaching the lateral link to the rear suspension crossmember (Fig. 44).

(6) Remove the forward lateral link from the vehicle.

INSTALL

(1) Install the lateral link and the attaching nut and bolt at rear suspension crossmember (Fig. 44).

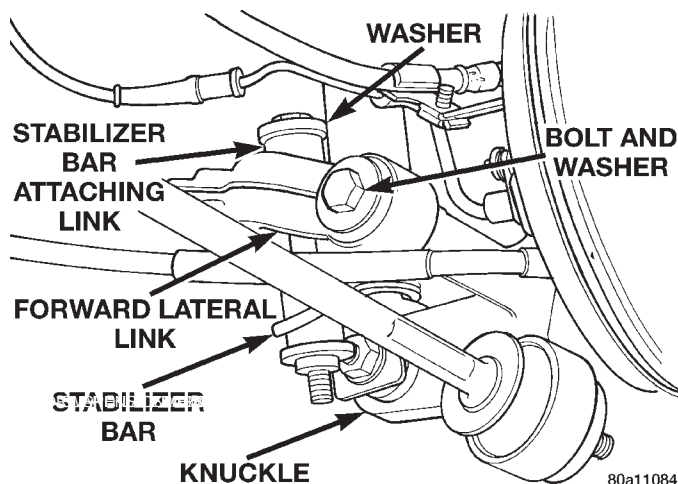


Fig. 43 Stabilizer Bar To Lateral Link Attachment

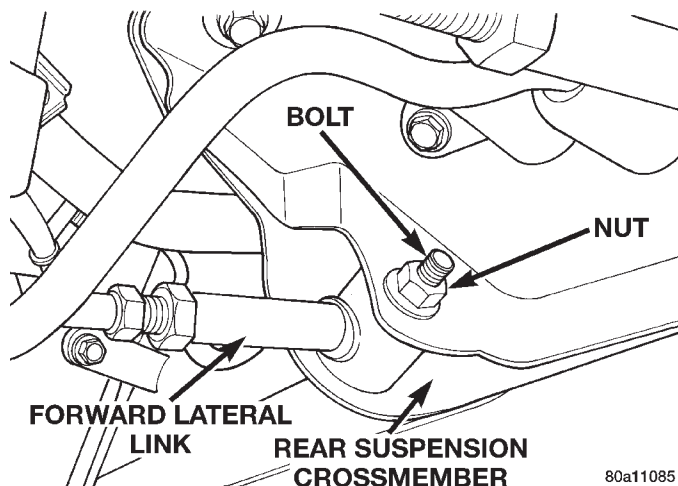


Fig. 44 Lateral Link Attachment To Rear Suspension Crossmember

The forward lateral link is to be installed with the cup in cast portion facing down and toward rear knuckle (Fig. 43).

(2) Install the lateral link and attaching nut, bolt and washer at rear knuckle (Fig. 43).

(3) Torque both lateral link attaching bolts to 108 N·m (80 ft. lbs.).

(4) Install the rear stabilizer bar attaching link, isolator bushings and attaching nut on the forward lateral link (Fig. 43). Tighten the attaching nut to a torque of 35 N·m (26 ft. lbs.).

(5) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(6) Lower vehicle to the ground.

(7) Check and reset rear wheel Camber and Toe to specifications if required. Refer to Front And Rear Alignment Setting Procedure in the Wheel Alignment Check And Adjustment section in this group of the

REMOVAL AND INSTALLATION (Continued)

service manual for the required alignment setting procedure.

REAR LATERAL LINK

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the rear wheel and tire assembly from the side of the vehicle requiring lateral link removal.

(3) Remove the nut, bolt and washer attaching the lateral link to the knuckle (Fig. 45).

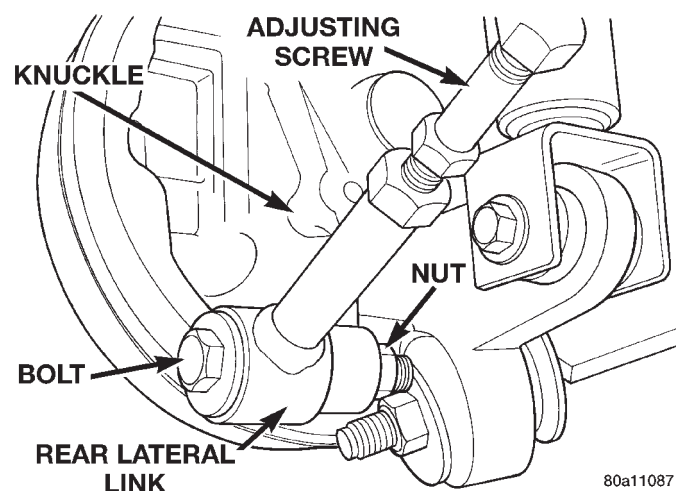


Fig. 45 Rear Lateral Link Attachment To Knuckle

(4) Remove the bolt (Fig. 46) and nut attaching the lateral link to the rear suspension crossmember.

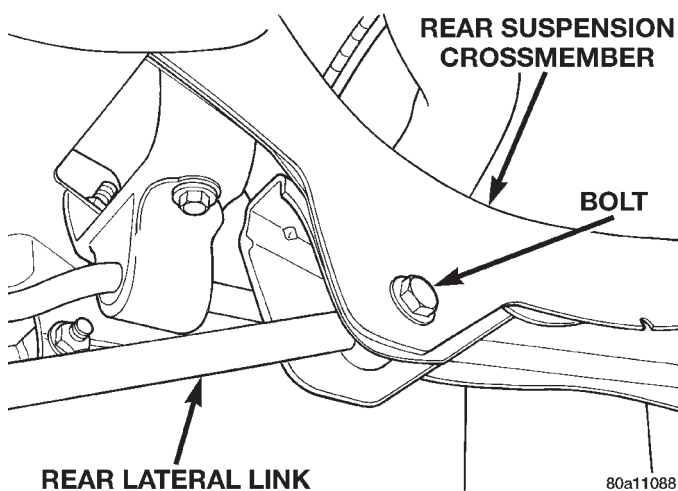


Fig. 46 Lateral Link Attachment To Rear Suspension Crossmember

(5) Remove rear lateral link from vehicle.

INSTALL

(1) Install the lateral link and the attaching nut and bolt at rear suspension crossmember (Fig. 46). **The rear lateral link is to be installed with the adjusting screw toward rear knuckle not rear suspension crossmember (Fig. 45).**

(2) Install the lateral link and the attaching nut, bolt and washer at rear knuckle (Fig. 45).

(3) Torque both lateral link attaching bolts to 108 N·m (80 ft. lbs.).

(4) Install wheel and tire assembly on vehicle. Tighten the wheel mounting stud nuts in proper sequence until all nuts are torqued to half specification. Then repeat the tightening sequence to the full specified torque of 135 N·m (100 ft. lbs.).

(5) Lower vehicle to the ground.

(6) Check and reset rear wheel Camber and Toe to specifications if required. Refer to Front And Rear Alignment Setting Procedure in the Wheel Alignment Check And Adjustment section in this group of the service manual for the required alignment setting procedure.

TRAILING LINKS

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove rear wheel and tire assembly from the vehicle.

(3) At the knuckle, remove the nut, bushing retainer and outer trailing link bushing (Fig. 47) from the trailing link.

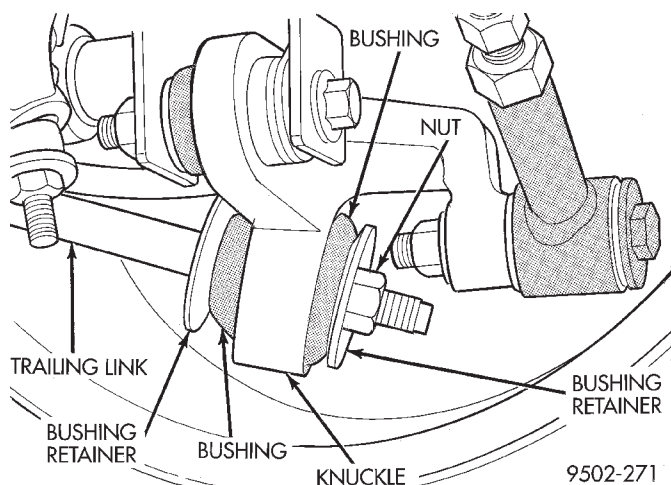


Fig. 47 Trailing Link To Knuckle Attachment

(4) Remove the 4 bolts (Fig. 48) attaching the trailing link hanger bracket to the floor pan and frame rail.

REMOVAL AND INSTALLATION (Continued)

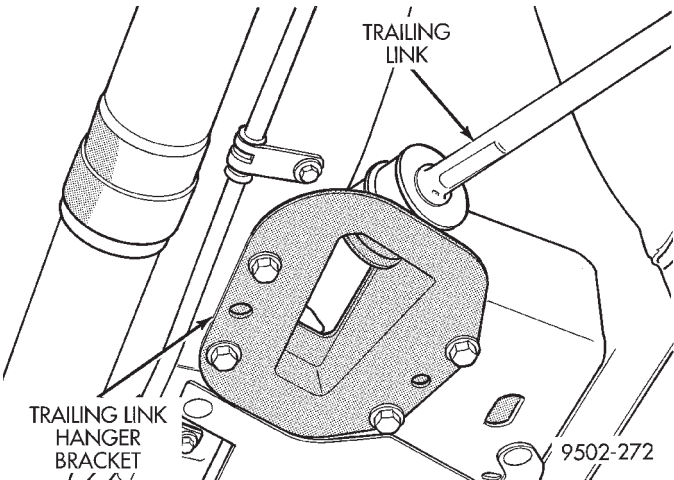


Fig. 48 Trailing Link Hanger Bracket Attachment To Vehicle

(5) Remove the trailing link and mounting bracket as an assembly from the vehicle.

CAUTION: The installation position of the bushings and retainers on the trailing link is important. When separating the trailing link from the hanger bracket, note the position and orientation on the bushings and retainers to ensure they are re-installed correctly.

(6) Separate the trailing link from the hanger bracket. To separate trailing link from hanger bracket, use a large adjustable wrench on flat of trailing link to turn link while holding nut stationary (Fig. 49).

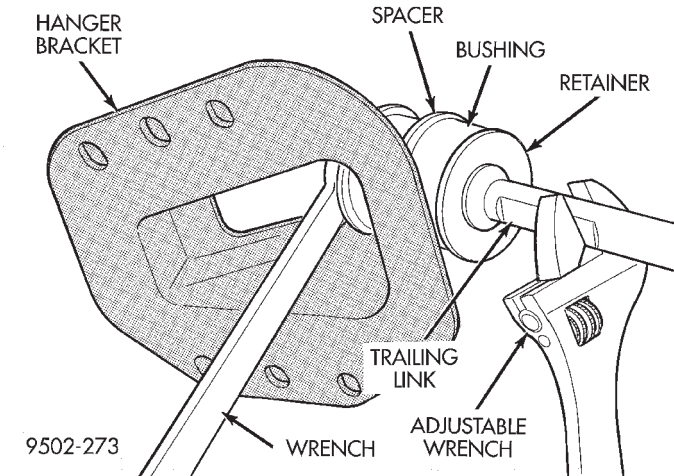


Fig. 49 Separating Trailing Link From Hanger Bracket

INSTALL

CAUTION: The inner and outer trailing link to hanger bracket bushings and retainers must be installed in their correct position on the trailing link.

Do not reverse the position of the inner and outer trailing link bushing or retainers on the trailing link.

NOTE: When installing trailing link into hanger bracket, the flat on the trailing link (Fig. 49) must be positioned at the hanger bracket.

(1) Install the inner bushing retainer, and inner bushing (Fig. 50) on the trailing link. Install the trailing link, retainer and bushing on the hanger bracket (Fig. 50). Then install the outer bushing, outer bushing retainer and nut (Fig. 50) on the trailing link. Tighten the trailing link retaining nut to a torque of 99 N·m (73 ft. lbs.).

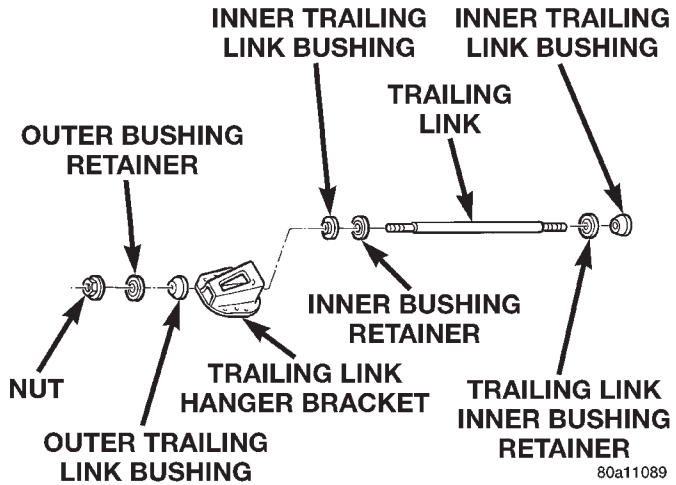


Fig. 50 Trailing Link Bushing Installation

(2) Install knuckle end of trailing link assembly in rear knuckle.

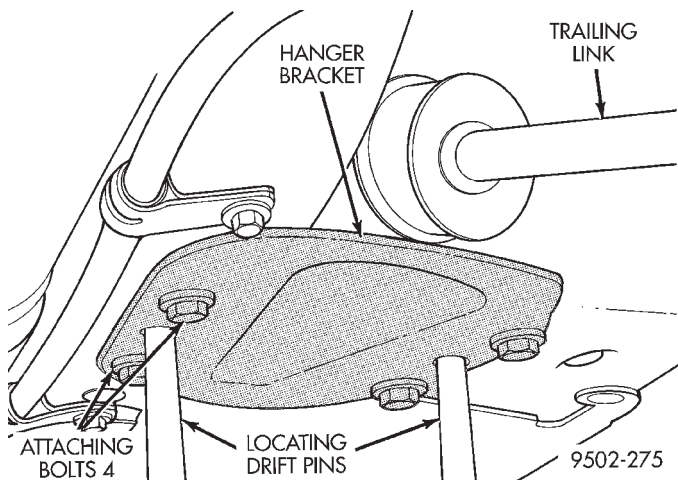
CAUTION: It is important that the following procedure be done when installing the trailing arm hanger bracket to the body of the vehicle. This procedure will ensure that the hanger bracket is installed in the correct position on the vehicle.

(3) Install trailing link hanger bracket on vehicle and loosely install the 4 attaching bolts (Fig. 51). Then install 2 drift pins of appropriate size in positioning holes on hanger bracket and into locating holes in body (Fig. 51). With hanger bracket correctly positioned on vehicle tighten the 4 hanger bracket mounting bolts to a torque of 34 N·m (25 ft. lbs.).

CAUTION: When installing trailing link bushing retainers, retainers must be installed with cupped side of retainer facing away from bushing and knuckle (Fig. 47).

(4) At the knuckle, install the outer trailing link bushing, outer bushing retainer and retaining nut on trailing link (Fig. 47). Using a large adjustable wrench on flat of trailing link to keep it from rotat-

REMOVAL AND INSTALLATION (Continued)

**Fig. 51 Trailing Link Hanger Bracket Installation**

ing tighten the trailing link retaining nut (Fig. 47) to a torque of 99 N·m (73 ft. lbs.).

DISASSEMBLY AND ASSEMBLY

SHOCK ABSORBER

The rear shock absorber can not be repaired and must be replaced as a unit if found to be defective in any way. The shock absorber is available in 2 different suspension calibrations, be sure the shock absorber is replaced with a shock absorber of the same calibration. Refer to the sales codes for the vehicle being serviced, to determine which type of suspension the vehicle is equipped with.

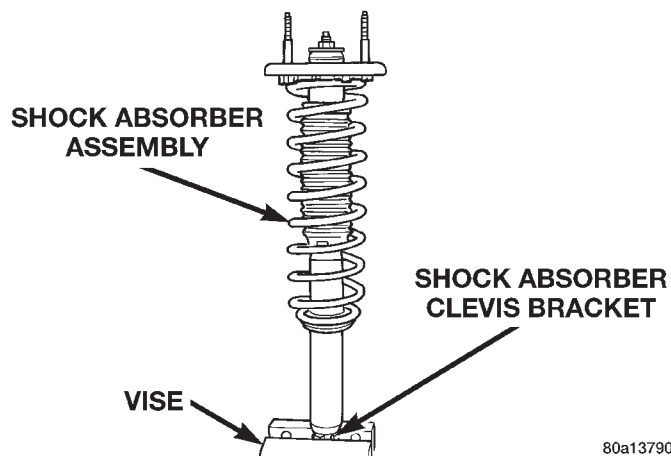
The components of the shock absorber assembly listed below are replaceable if found to be defective.

- Coil Spring (Coil springs come in a standard and high rate. Be sure spring is replaced with a spring of the correct rate.)
- Dust Shield Assembly
- Mount Bracket
- Jounce Bumper
- Lower Spring Isolator
- Shaft Nut
- Lower Retainer (Washer)
- Upper Retainer (Washer)
- Bushing Sleeve
- Upper Mount Bushing
- Lower Mount Bushing
- Upper Spring Isolator

DISASSEMBLE

(1) Remove shock absorber assembly requiring service from the vehicle. Refer to Shock Assembly Removal in Servicing Rear Shock Absorbers, in this section of the service manual.

(2) Position shock absorber assembly in a vise. Shock absorber is to be clamped only by the clevis bracket on the bottom of the shock absorber (Fig. 52).



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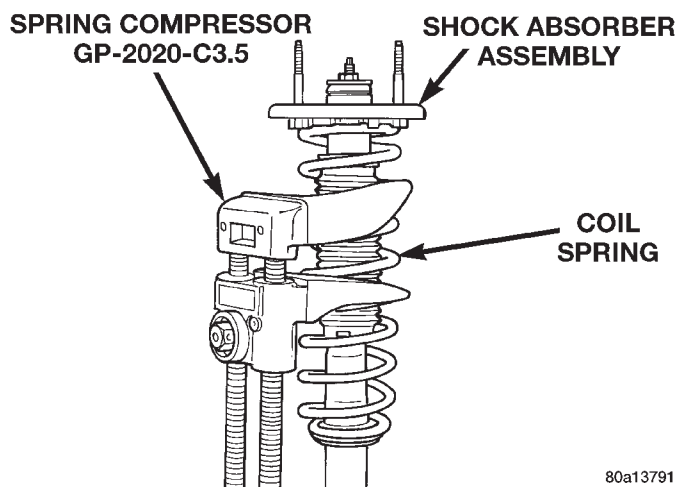
Fig. 52 Shock Absorber Correctly Mounted In Vise

(3) Mark the coil spring and the shock absorber right or left, according to which side of the vehicle it was removed from, and which shock absorber the spring was removed from.

WARNING: DO NOT REMOVE THE SHOCK ABSORBER ROD NUT, BEFORE THE SHOCK ABSORBER COIL SPRING IS COMPRESSED, REMOVING SPRING TENSION FROM THE SHOCK ABSORBER MOUNT.

WARNING: WHEN COMPRESSING COIL SPRING FOR REMOVAL FROM SHOCK ABSORBER ASSEMBLY, THE FIRST FULL TOP AND BOTTOM COIL OF THE SPRING MUST BE CAPTURED BY THE JAWS OF THE COIL SPRING COMPRESSOR.

(4) Compress shock assembly coil spring, using Professional Services Equipment Spring Compressor, GP-2020-C3.5 or an equivalent (Fig. 53).



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Fig. 53 Compressing Shock Absorber Spring

DISASSEMBLY AND ASSEMBLY (Continued)

(5) Hold the rod of the shock absorber from rotating using Shock Absorber Socket, Snap-On A136 or an equivalent (Fig. 54). Then remove the shock absorber shaft nut.

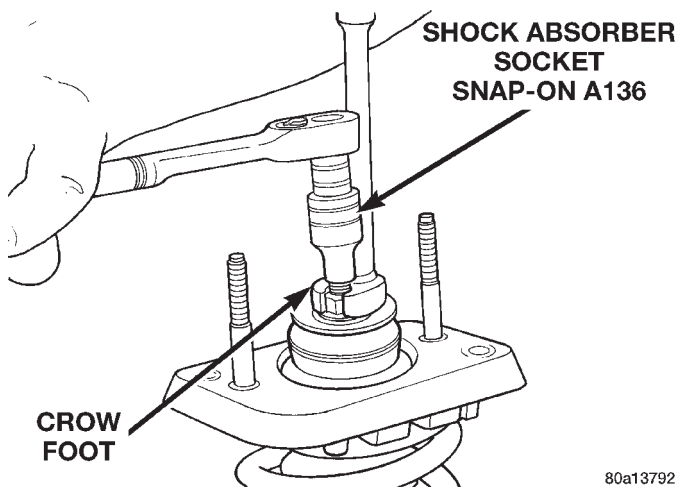


Fig. 54 Shock Absorber Shaft Nut

(6) Remove the washer from the shock absorber upper mounting bracket (Fig. 55).

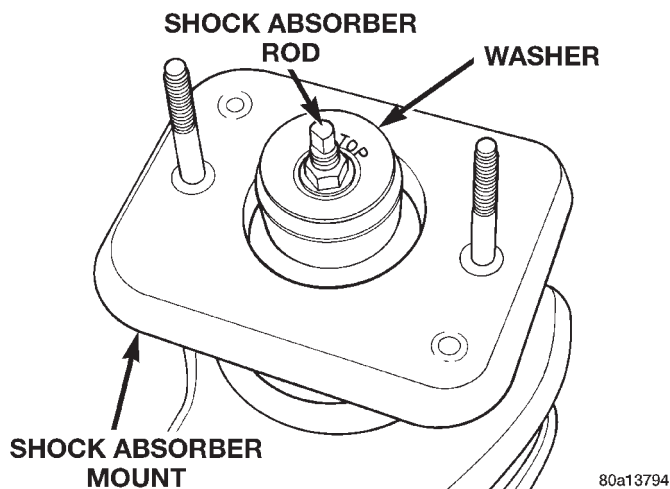


Fig. 55 Shock Absorber Upper Mount Washer

(7) Remove the shock absorber mounting bracket, bushings and sleeve (Fig. 56) as an assembly from the shock absorber.

(8) Remove the spring isolator (Fig. 57) from the coil spring.

(9) Remove the washer from the top of the dust shield and shock absorber rod (Fig. 58).

(10) Remove the dust shield (Fig. 59) from the shock absorber.

(11) Remove the coil spring and the spring compressor as an assembly (Fig. 60) from the shock absorber. **Mark left and right springs for installation back on correct side of vehicle.**

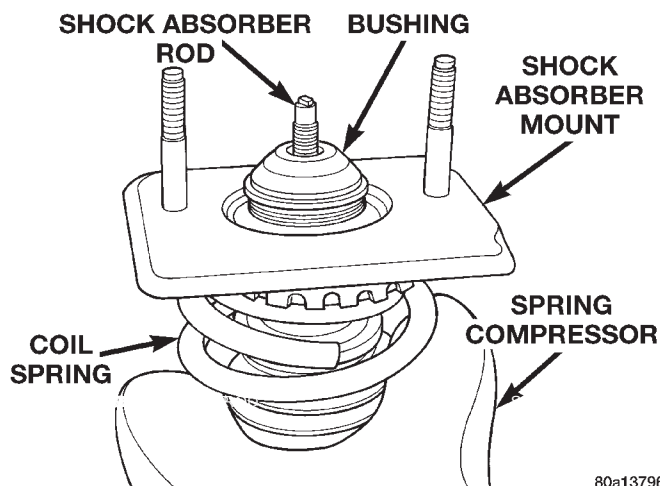


Fig. 56 Shock Absorber Mount And Bushings

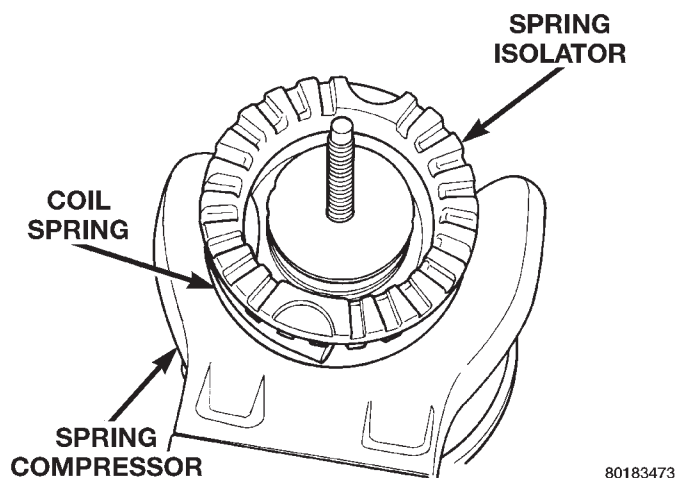


Fig. 57 Coil Spring Isolator

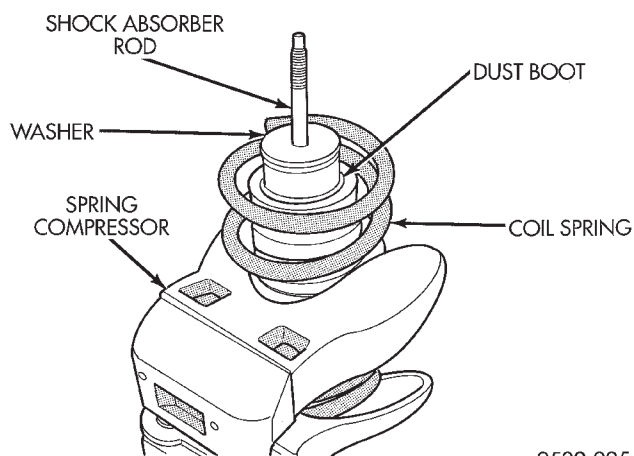
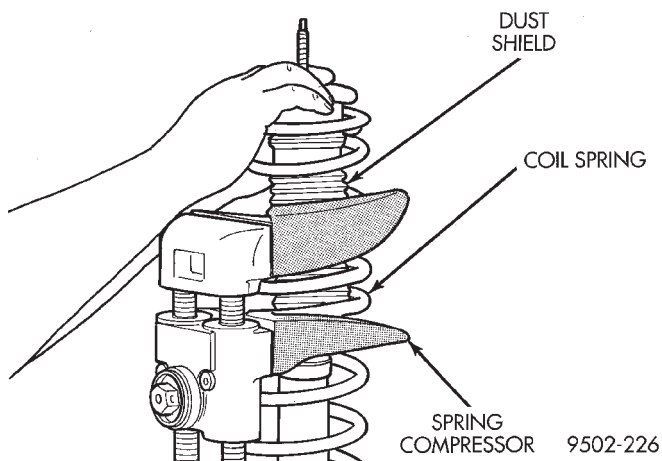
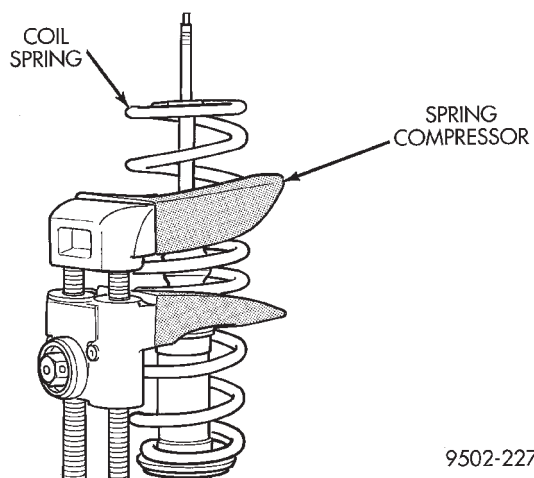


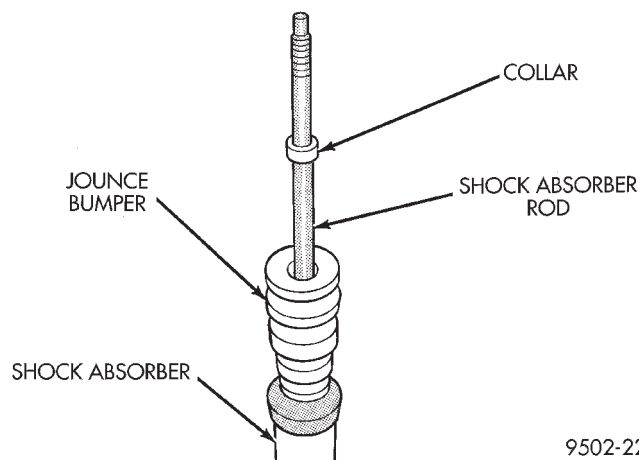
Fig. 58 Shock Absorber Rod Upper Washer

NOTE: The collar (Fig. 61) can not be removed from the shock absorber rod. When removing the jounce bumper it will have to be carefully pulled over the collar.

DISASSEMBLY AND ASSEMBLY (Continued)

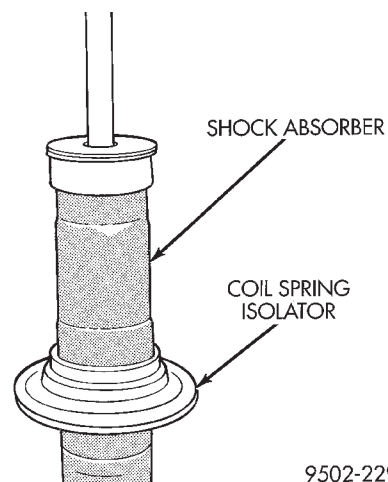
**Fig. 59 Shock Absorber Dust Shield****Fig. 60 Shock Absorber Coil Spring**

(12) Remove the jounce bumper (Fig. 61) from the rod of the shock absorber assembly.

**Fig. 61 Shock Absorber Jounce Bumper And Collar**

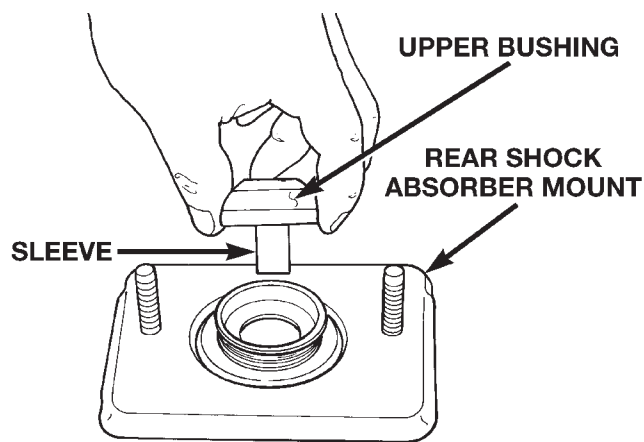
(13) Remove the coil spring isolator (Fig. 62) from the lower spring seat on the shock absorber.

(14) Inspect the shock absorber for any condition of shaft binding over the full stroke of the rod.

**Fig. 62 Coil Spring Isolator**

(15) Inspect all disassembled components for signs of abnormal wear or failure, replacing any components as required. Inspect shock absorber for signs of abnormal oil leakage and for loss of gas charge. To check for loss of gas charge in shock absorber, push the shaft of the shock absorber in and release, the shaft should return to its fully extended position. If shaft does not return to its fully extended position replace the shock absorber.

(16) Remove the upper bushing and sleeve from the shock absorber mount (Fig. 63).

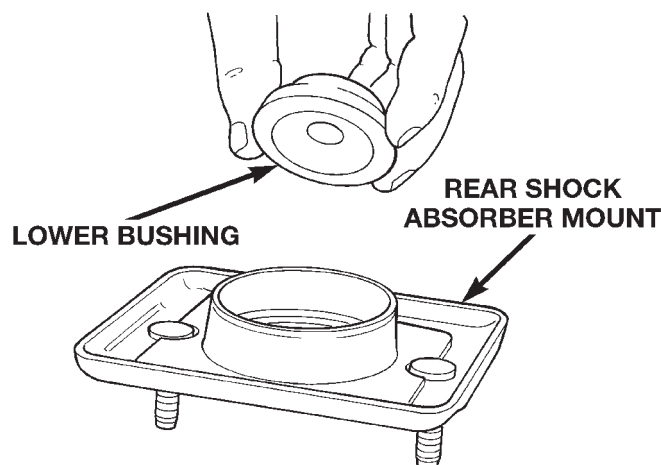
**Fig. 63 Shock Absorber Mount Upper Bushing**

(17) Remove the lower bushing from the rear shock absorber mount (Fig. 64).

(18) Inspect the rear shock absorber mount, upper and lower bushings, and upper and lower spring isolators for the following:

- Mount for cracks and distortion and locating studs for any sign of damage.
- Severe deterioration of the upper or lower coil spring isolators.
- Deterioration of the shock absorber rod to shock absorber mounting bracket bushings.
- Inspect dust shield for rips and/or deterioration.

DISASSEMBLY AND ASSEMBLY (Continued)



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Fig. 64 Shock Absorber Mount Lower Bushing

- Inspect jounce bumper for cracks and signs of deterioration.

ASSEMBLE

CAUTION: Do not clamp shock absorber in a vise by the body of the shock absorber. The shock absorber must only be clamped in the vise using the clevis bracket on bottom of shock absorber (Fig. 52).

(1) Install the lower bushing in the shock absorber mount. Bushing is to be installed with the cupped side of the bushing toward the shock absorber mount (Fig. 64).

(2) Install the upper bushing and the sleeve in the shock absorber mount. Bushing and sleeve are to be installed with the tapered side of the Bushing facing up (Fig. 63).

(3) Install the coil spring isolator (Fig. 62) on the lower spring seat of the shock absorber assembly.

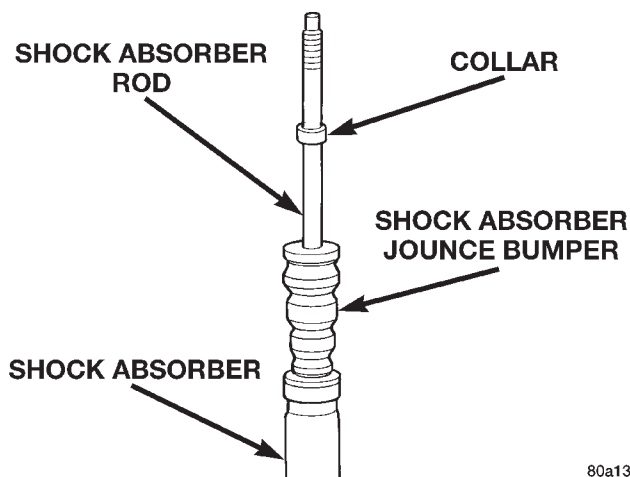
(4) Install the jounce bumper as shown on the rod of the shock absorber (Fig. 65).

WARNING: IF A REPLACEMENT COIL SPRING IS TO BE INSTALLED ON THE STRUT ASSEMBLY, THE FIRST FULL TOP AND BOTTOM COIL OF THE SPRING MUST BE CAPTURED BY THE JAWS OF THE COIL SPRING COMPRESSOR.

(5) Install the coil spring and spring compressor on the shock absorber (Fig. 60). Be sure bottom coil of spring is correctly positioned on the lower spring isolator.

(6) Install dust shield (Fig. 59) on rod of shock absorber.

(7) Install the washer on rod of shock absorber assembly and on top of dust shield (Fig. 58).



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Fig. 65 Jounce Bumper Installed On Shock Rod

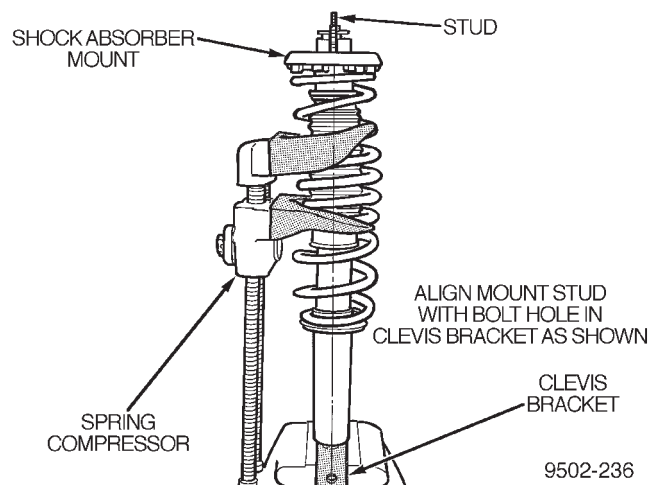
(8) Install the isolator on the top of the coil spring. Isolator must be installed with the two half circle formations in the isolator facing up (Fig. 57).

(9) Install the shock absorber mounting bracket and isolators as an assembly on the rod of the shock absorber assembly (Fig. 56).

(10) Install the top washer (Fig. 55) on rod of shock absorber and position it over shock absorber mount. **Washer must be installed with the word TOP stamped into washer facing up (Fig. 55).**

WARNING: THE FOLLOWING 2 STEPS MUST BE COMPLETELY DONE BEFORE SPRING COMPRESSOR IS RELEASED FROM THE COIL SPRING.

(11) Position shock absorber upper mount on shock absorber, so studs in upper mount are in line with the bolt hole in the shock absorber clevis bracket (Fig. 66).



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Fig. 66 Correctly Positioned Shock Absorber Upper Mount

(12) Install nut on rod of shock absorber assembly. Install Shock Absorber Socket, Snap-On A136 or an

DISASSEMBLY AND ASSEMBLY (Continued)

equivalent on end of shock rod to keep rod from turning (Fig. 54). Then tighten rod nut using a crowfoot (Fig. 54) to a torque of 55 N·m (40 ft. lbs.).

(13) Relieve all tension from spring compressor. After all spring tension has been remove from the spring compressor, remove it from the shock absorber assembly.

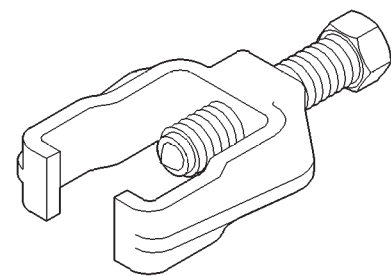
SPECIFICATIONS

REAR SUSPENSION FASTENER TORQUE SPECIFICATIONS

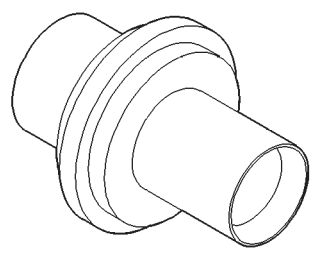
DESCRIPTION	TORQUE
Brakes	
Support Plate Mounting Bolts .	61 N·m (45 ft. lbs.)
Brake Hose Mounting Bolt . . .	45 N·m (45 ft. lbs.)
Brake Hose Bracket Bolt	23 N·m (17 ft. lbs.)
Shock Absorber	
Mounting Bracket To Body	
Nuts	54 N·m (40 ft. lbs.)
To Suspension Knuckle	
Bolt/Nut	95 N·m (70 ft. lbs.)
Rod To Upper Mount Nut	54 N·m (40 ft. lbs.)
Stabilizer Bar	
Isolator Bushing Retainer	
Bolt	28 N·m (20 ft. lbs.)
To Lateral Link Attaching	
Link Nut	35 N·m (26 ft. lbs.)
Bracket To Crossmember	
Bolts	28 N·m (20 ft. lbs.)
Trailing Link	
Shaft Nuts (Front And Rear) . .	99 N·m (73 ft. lbs.)
Bracket To Body Mounting	
Bolts	34 N·m (25 ft. lbs.)
Lateral Links	
To Knuckle Nuts	108 N·m (80 ft. lbs.)
Jam Nuts	65 N·m (48 ft. lbs.)
To Suspension Crossmember	
Nuts	108 N·m (80 ft. lbs.)
Hub And Bearing Assembly	
To Knuckle Retaining Nut . .	250 N·m (185 ft. lbs.)
Wheel Stud Lug Nuts	109-150 N·m (80-110 ft. lbs.)
Ball Joint	
To Knuckle Castle Nut	85 N·m (63 ft. lbs.)
Control Arm	
Pivot Bar To Crossmember . .	107 N·m (80 ft. lbs.)
Rear Suspension Crossmember	
To Body Attaching Bolts	108 N·m (80 ft. lbs.)

SPECIAL TOOLS

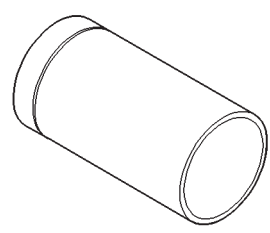
REAR SUSPENSION



Puller, Pitman Arm CT-1106



Remover, Suspension Arm Bushing And Ball Joint 6804



Installer, Ball Joint 6758