



Rev. 1/19/05

**'99-'03 CHEVROLET/GMC
IFS 4WD (8-LUG) w/ Autoride
6" SUSPENSION SYSTEM
P/N: 10-41801**

INSTALLATION INSTRUCTIONS

NOTE: This kit is designed for vehicle equipped with Delphi Autoride Shocks.

WARNING: The existing shocks are utilized with this kit. The front shock absorbers of the vehicle are multifunctional. They contribute to a smooth ride and also provide the only stop to the front suspension once suspension is fully extended. Use of shocks not complying to OEM specifications could result in suspension over-travel or shock breakage. Suspension over-travel may result in suspension component breakage.

Parts List

Box 1 of 5

<u>Item</u>	<u>Description</u>	<u>Qty</u>	<u>Illus.</u>
20-51899-1	Front Crossmember	1	14
20-51899-2	Rear Crossmember	1	14

Box 2 of 5

20-51800-5D	Front Spindle (Drvr.)	1	19
20-51800-6P	Front Spindle (Pass.)	1	19

Box 3 of 5

20-51899-9	Lateral Compression Strut	2	17
20-51099-22	Bracket, Strut Mount	2	17
20-68409	Hardware Pack Containing: (Compression Strut)		
15-11148	Bushing, Red	8	17
20-830918	Sleeve, 3/4" x 2 3/4" Lg.	4	17
20-832257	Sleeve, 3/4" x 1 1/2" Lg.	2	17
20-67902	Hardware Pack Containing: (Compression Strut)		
13-20069-Z	Hex Bolt, 1/2" 13 x 4" Lg. Gr. 5	4	17
13-21014-Z	Hex Bolt, 1/2" 13 x 3" Lg. Gr. 5	2	17
13-30034-Z	Flat Washer, 1/2" SAE	12	17
13-10038-Z	Nyloc Nut, 1/2" - 13	6	17

Box 4 of 5

20-51899-3	Bracket, Torsion Bar Drop	2	18
20-51899-7	Bracket, Differential Support	1	12
20-51899-8	Bracket, Differential Drop (Pass)	1	13
20-68383	Hardware Pack Containing (Drive Axle Spacer)		
20-51899-20	Drive Axle Spacer	2	15
13-22769-Z	Hex Bolt, 10mm x 1.5 x 50mm Gr. 10.9	12	15
13-30642-Z	Flat Washer, 10mm Hrdn.	12	15
13-90490	Loctite Compound	1	
20-67850	Hardware Pack Containing (Torsion Bar Drop)		
13-21118-Z	Hex Bolt, 7/16" - 14 x 1 1/4" Lg. Gr. 8	8	18
13-30304-Z	Flat Washer, 7/16" Hdrn.	16	18
13-10384-Z	Top Lock Nut, 7/16" - 14 Gr. C	8	18
15-11174	Bushing, Red	4	18
20-832257	Sleeve, 3/4" x 1.52" Lg.	2	18

20-68396	Hardware Pack Containing: (Differential Support Bracket)		
13-22665-Z	Hex Bolt, 9/16" - 12 x 1 3/4" Lg. Gr. 8	2	13
13-22704-Z	Hex Bolt, 7/16" - 14 x 3" Lg. Gr. 8	1	12
13-22639-Z	Bolt, 10mm x 1.5 x 60mm Lg. Gr. 10.9	5	12
13-30395-Z	Flat Washer, 9/16" Hrdn.	4	13
13-30304-Z	Flat Washer, 7/16" Hrdn.	2	12
13-30642-Z	Flat Washer, 10mm Hrdn.	5	12
13-10397-Z	Top Lock Nut, 9/16" - 12 Gr. C	2	13
13-10384-Z	Top Lock Nut, 7/16" - 14 Gr. C	1	
15-11148	Bushing, Red	2	12
20-832725	Sleeve, 3/4" x 2 1/4" Lg.	1	12
20-69358	Hardware Pack Containing: (Sway Bar Extension)		
20-832777	Sway Bar Extension (9 1/2")	2	19
13-22743-Z	Button Head, 1/2" - 13 x 3" Lg.	4	19
15-11616	Inner Bushing, Sway Bar Link	4	19
15-11629	Outer Bushing, Sway Bar Link	4	19
13-30681-Z	Washer, Retainer	4	19
20-68435	Hardware Pack Containing: (Front & Rear Crossmember)		
13-21950-Z	Hex Bolt, 5/8" - 11 x 5 1/2" Gr. 8	2	
13-22028-Z	Hex Bolt, 5/8" - 11 x 4 1/2" Gr. 8	2	
13-20031-Z	Hex Bolt, 1/2" - 13 x 1 1/4" Lg.	2	
13-20320-Z	Hex Bolt, 3/8" - 16 x 2" Lg.	2	
13-30369-Z	Flat Washer, 5/8" Hrdn	8	
13-30012-Z	Flat Washer, 3/8" SAE	4	
13-10345-Z	Top Lock Nut, 5/8" - 11	4	
13-10022-Z	Nyloc Nut, 3/8" - 16	2	
20-830866	Locating, Spacer	1	
11-15144	Spacer, 1" x .31	2	
20-68279	Hardware Pack Containing: (Bumpstop)		
20-51292-14	Bracket, Rear Brakeline Extension	1	
20-51292-15	Bracket, Rear Bumpstop Extension	2	
13-20536-Z	Hex Bolt, 5/16"-18 x 1"	2	
13-20081-Z	Hex Bolt, 3/8"-16 x 1-1/4"	4	
13-30187-Z	Flat Washer, 5/16" SAE	4	
13-30012-Z	Flat Washer, 3/8" SAE	8	
13-10155-Z	Nyloc Nut, 5/16"-18	2	
13-10022-Z	Nyloc Nut, 3/8"-16	4	
20-68305	Hardware Pack Containing: (RCD Universal)		
13-20447-Z	Unslot Hex, #10 x 1/2"	4	
15-10966	Claim, 3/8" x 3/8" x .203"	4	
15-11395	Wire Tie, 6"	4	
15-1147	Wire Tie, 8"	2	
15-11460	Wire Tie, 11"	2	
20-830658	Block, Rear - 4"	2	21
13-90347	U-Bolt, 5/8" - 18 x 14"	4	21

20-65471	Hardware Pack Containing: (U-Bolt)		
13-30369	Flat Washer, 5/8" Hrdn.	8	21
13-10488	High Nut, 5/8" - 18	8	21
20-830554	Cap, Frame	1	10

Box 5 of 5

20-51801-1	Upper Shock Mount Front	2	16
20-51801-2	Lower Shock Mount, Rear Pass.	1	22
20-51801-3	Lower Shock Mount, Rear Drvr.	1	22
20-68929	Hardware Pack Containing: (Front Shock Mount)		
13-22665-Z	Hex Bolt, 9/16" - 12 x 1 3/4" Lg. Gr. 8	2	16
13-30395-Z	Flat Washer, 9/16" Hrdn.	4	16
13-10397-Z	Top Lock Nut, 9/16" - 12 Gr. C	2	16
20-68942	Hardware Pack Containing: (Rear Shock Mount)		
13-21144-Z	Hex Bolt, 9/16" - 12 x 3 1/2" Gr. 8	2	22
13-22938-Z	Hex Bolt, 3/8" - 16 x 1 1/4" Gr. 8	4	22
13-30395-Z	Flat Washer, 9/16" Hrdn.	4	22
13-30408-Z	Flat Washer, 3/8" Hrdn.	8	22
13-10397-Z	Top Lock Nut, 9/16" - 12 Gr. C	2	22
13-10553-Z	Top Lock Nut, 3/8" - 16 Gr. C	4	22
13-10319-Z	Nyloc Nut, 8mm 1.25"	2	22
11-16015	Spacer, Tube 1" x .219 x 1.20"	2	22

BEFORE YOU BEGIN

- ❑ Installation by a professional mechanic is recommended. Use of the appropriate power tools, a Chevrolet/GMC service manual and shop hoist can greatly reduce installation time.
- ❑ Prior to Installation, carefully inspect the vehicle's steering and drive train systems, paying close attention to the tie rod ends, Pitman and Idler Arms, Ball and Joints and wheel bearing preload. Also check steering-to-frame and suspension-to-frame attaching points for stress cracks. The overall vehicle must be in excellent working condition; repair or replace worn parts.
- ❑ Read instructions carefully and study the illustrations before attempting installation. *Race Car Dynamics* is not responsible for damage, failure or injury resulting from improper installation or parts substitution of this kit.
- ❑ Check the parts and hardware against the parts list to assure that your kit is complete. The parts and hardware supplied are of high-grade material and must not be replaced by inferior parts or failure may result.

- ❑ Separate parts according to the areas that they will be used. Placing the hardware with brackets before you begin will save installation time.
- ❑ This kit is supplied as a bolt-on assembly. Do not weld anything to the components and do not weld components to the vehicle.
- ❑ All components in this kit come with protective coating. Do not plate (i.e. chrome, cadmium, zinc, etc.) or otherwise alter the finish in any way. This could weaken the structural strength of the components.
- ❑ Secure and properly block vehicle prior to beginning installation.
- ❑ Always wear safety glasses when using power tools.
- ❑ Foot-pound torque readings are listed on the Torque Specifications chart at the end of the instructions unless specifically stated in an instruction. DO NOT USE AN IMPACT WRENCH TO TIGHTEN ANY OF THE BOLTS.

PLEASE NOTE

- **WARNING:** DO NOT USE WHEEL SPACERS.
- Designed for vehicles manufactured after 8/2000 with large tie rod ends.
- Vehicles manufactured before 8/01/2000 have small outer tie rod ends and need to be updated with GM#12471649 or equivalent. Call for details.
- Fits new body style 8-lug only, does not fit "HD" models.
- No special drive shaft is required. Stock drive shafts are retained.
- Vehicles equipped with a 2-piece rear drive shaft may require Drive Shaft Support Drop Down Bracket #20-68747 designed for the factory carrier bearing.
- Some models may require an exhaust modification to clear front drive shaft.
- Clears 33" x 12.50" tires on 16" x 8" wheels, 35" x 12.50 with minor bumper trimming.
- Front-end realignment is necessary.
- Speedometer recalibration is necessary if bigger tires (10% more than stock diameter) are installed.

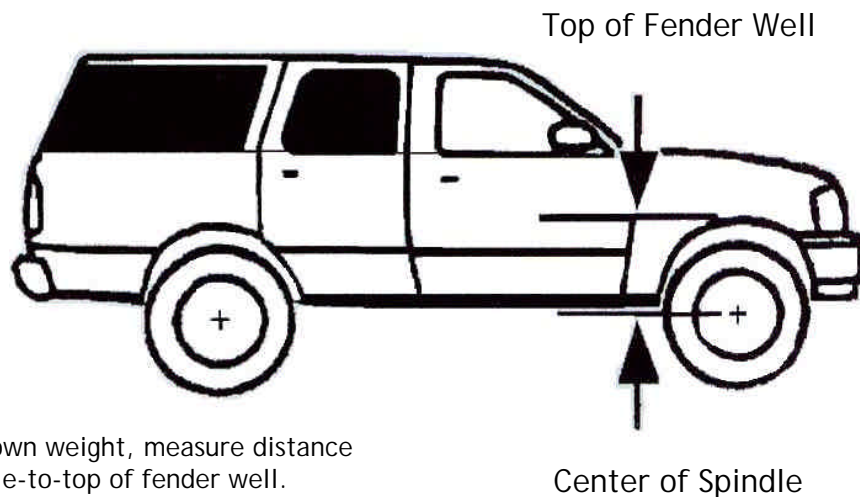
- Requires wheels with a maximum of 4.5" of back spacing.
- The following special tools will be required for the proper removal and/or installation of this kit. These tools can be purchased from your GM Dealer.

Ball Joint Separator Tool #J 43631
 Torsion Bar Unloading Tool #j 36202
 Steering Linkage Puller Tool #J 24319

FRONT DISASSEMBLY

WARNING: The existing shocks are utilized with this kit. The front shock absorbers of the vehicle are multifunctional. They contribute to a smooth ride and also provide the only stop to the front suspension when suspension is fully extended. Use of shocks not complying with OEM specifications could result in suspension over-travel or shock breakage. Suspension over-travel may result in suspension component breakage.

Ride Height Measurement



NOTE: Supporting it's own weight, measure distance from the center of spindle-to-top of fender well.

Illustration 1

1. GETTING STARTED: Measure ride height with vehicle supporting its own weight. Ride Measure ride height with vehicle supporting it's own weight. Ride height is the measured distance from the center of spindle to top of the fender well

2. Raise the vehicle. If working without a shop hoist, put vehicle in gear, set emergency brake and block rear wheels, in front and behind tires. Loosen front wheel lug nuts. Place floor jack under the lower control arm's front crossmember and raise vehicle. Place safety jack stands under frame rails, behind front wheel wells, and lower the frame onto the stands. Remove front wheels.

CAUTION: Be extremely careful when loading or unloading the torsion bars. There is tremendous amount of stored energy in the bars. Keep your hands and body clear of the adjuster arm assembly and puller tool in case anything brakes.

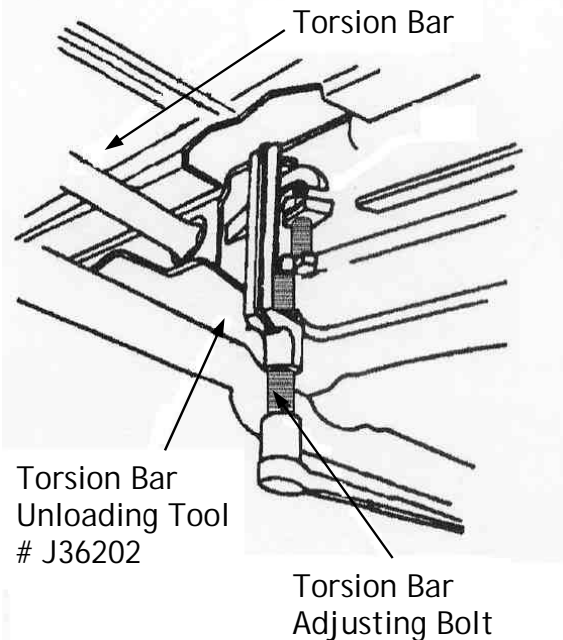


Illustration 2

3. Measure and record Torsion Bar Adjusting Screw depth for replacement of Torsion Adjuster Arm. Remove torsion bar adjusting screw. Apply a small amount of lubricating grease to the puller threads and puller shaft-to-adjuster arm contact point. Position puller over the adjuster arm and load adjuster arm until adjuster nut can be removed from the crossmember (**Illustration 2**). With bar unloaded, slide it further forward into the lower control arm. If bar seems lodged, use a hammer to punch through hole in the back of crossmember. When bar shifts forward, the adjuster arm will fall.

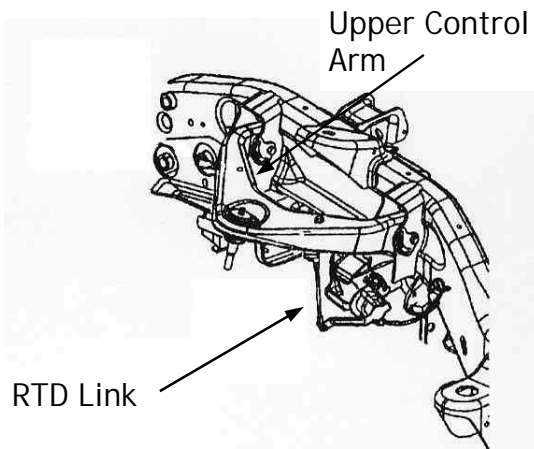


Illustration 3

4. Remove torsion bar crossmember by removing the two bolts that connect crossmember to frame. With crossmember out of the way, the torsion bars can be dislodged from lower control arms and removed. Mark or separate the bars, since they must be reinstalled on the same side they were removed from.
5. Disconnect the RTD rod from sensor on upper control arm (**Illustration 3**).

6. To remove front shock absorbers, grasp electrical connector lock tabs and rotate tabs counter-clockwise until the connector is unlocked (**Illustration 4**). Pull connector up. Hold shock stem with wrench to loosen stem nut. Remove nut and upper insulator (**Illustration 5**). Do not discard plastic pilot ring on shock. Remove lower shock bolt and remove shock.

Rotate Tabs Counter-Clockwise

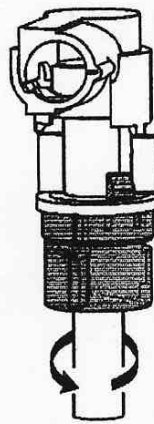


Illustration 4

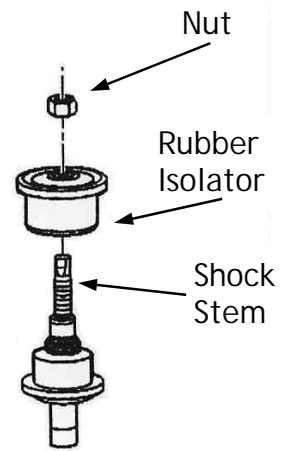


Illustration 5

7. Repeat removal procedures on opposite side of the vehicle.

8. Detach existing front Bumpstop from upper mounting cup. Set the Bumpstop aside, you will be re-using this item.

9. Remove sway bar extensions from lower control arms (**Illustration 6**).

10. Mark the differential flange and the drive axle flange for installation reference.

Vehicle Frame

Sway Bar

Lower Control Arm

Bolt

Sway Bar Extension

Bushing

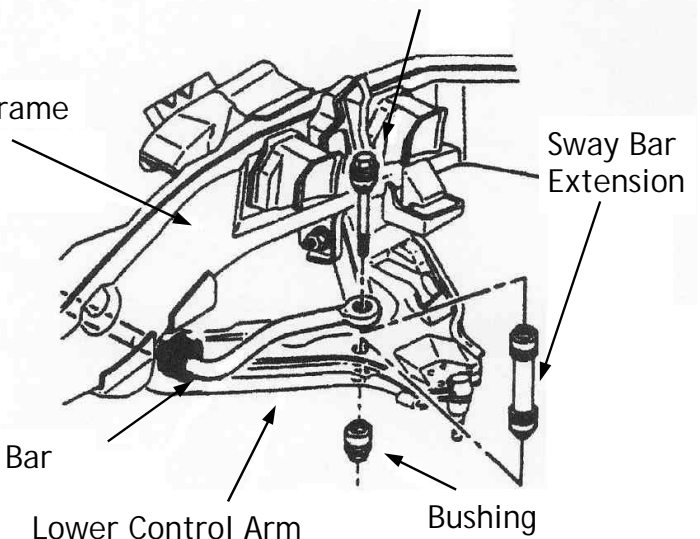


Illustration 6

11. Remove the nut and washer from hub (**Illustration 7**). Remove the six existing bolts fastening drive axle to differential. Pull drive axle out of hub through the lower control arm.

NOTE: Be careful not to damage drive axle boots.

12. Locate the two caliper bolts attaching brake caliper to front spindle. Remove the bolts and lift caliper off brake rotor. Use a length of wire to secure brake caliper out of the way and to prevent damage to brake lines. Remove brake rotor.

CAUTION: Do not allow brake caliper to hang by the brake hose.

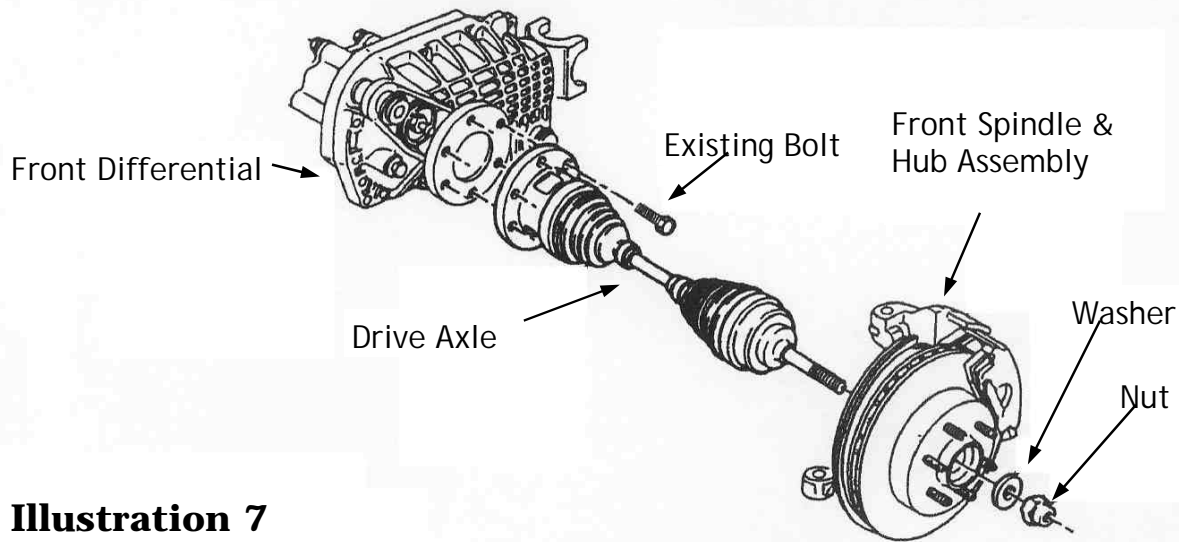


Illustration 7

13. Locate the tie rod end and remove nut. Attach Universal Steering Link Puller (J 24319) and separate tie rod end from the front spindle.
14. Separate the ABS sensor cable at the frame near upper control arm, if applicable.
15. Locate and remove front lower ball joint nut from ball joint. Use Ball Joint Separator Tool (J 43631) and apply pressure with tool until ball joint breaks loose from lower part of the front spindle.
16. Locate and remove front upper ball joint nut. Use Ball Joint Separator Tool (J 43631) to apply pressure on ball joint until ball joint breaks loose from upper part of the front spindle.
17. Remove front spindle with the hub and bearing assembly attached, set aside.
18. Remove lower control arm pivot bolts, remove lower control arm (**Illustration 8**).
- 19. Repeat steps 8 through 18 on opposite side.**
20. Remove the differential skid plate, if vehicle is so equipped.
21. Locate the front drive shaft U-joint to differential yoke. Place an index mark for installation reference on both the drive shaft U-joint and the differential yoke. Remove the hardware from yoke and slide the shaft rearward to disengage. Tape bearing cap assemblies and secure shaft out of work area.
22. Disconnect electrical connector and vent hose from differential assembly.

Illustration 8

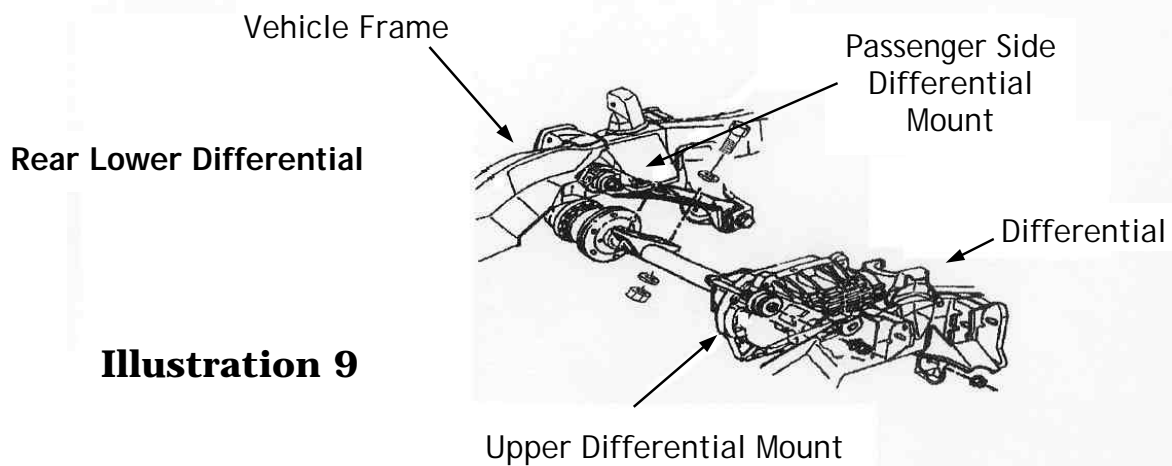
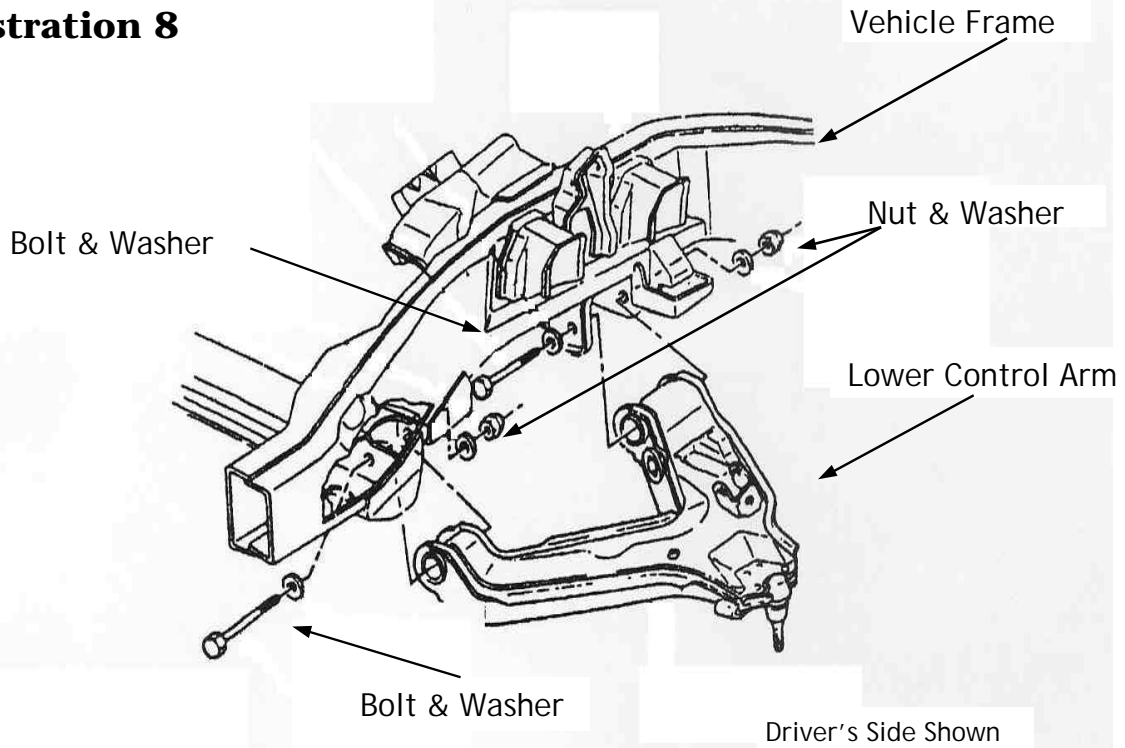
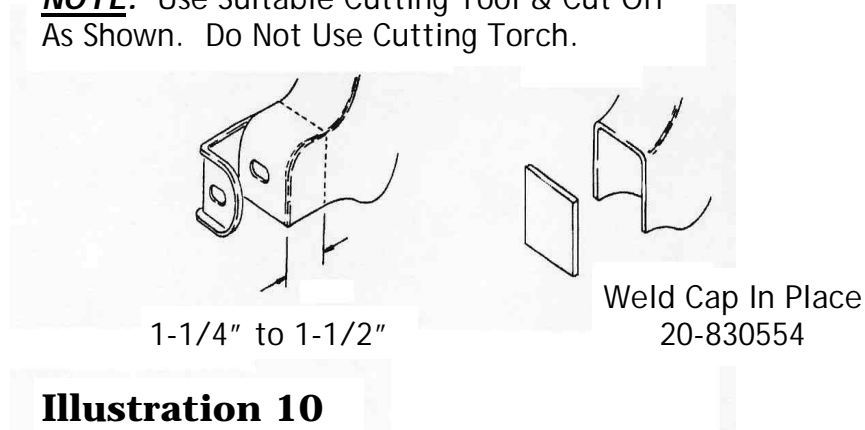


Illustration 9

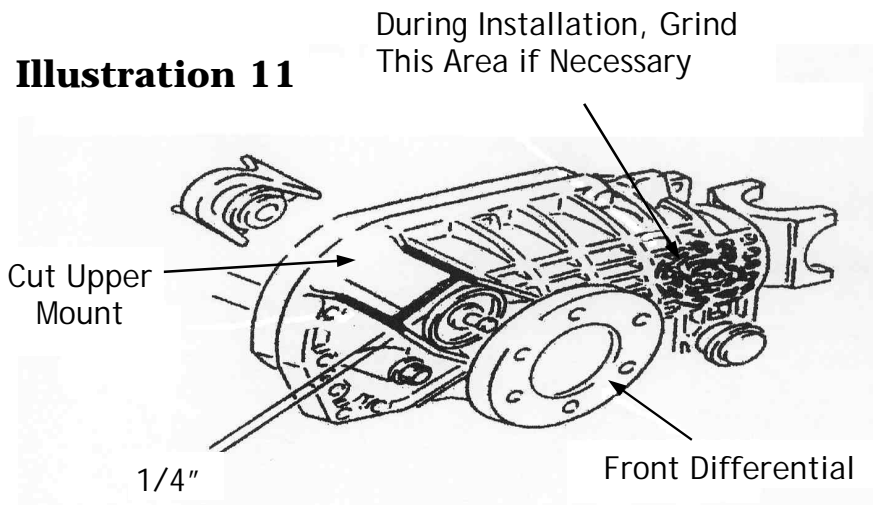
23. **Check differential fluid level.** Ensure that fluid level is 1/2" below the fill plug
24. Support front differential assembly with a floor jack. Remove upper mounting hardware and passenger side axle hardware (**Illustration 9**). Slowly remove differential assembly from vehicle, and lower it to the floor.

25. Use a suitable cutting tool to cut off the driver's side rear wrap around lower differential mount bracket, plus an additional one-inch of the frame supporting the bracket (**Illustration 10**). Clean all sharp edges, position and weld Frame Cap (20-830554) into place. Paint exposed metal.

NOTE: Use Suitable Cutting Tool & Cut Off As Shown. Do Not Use Cutting Torch.



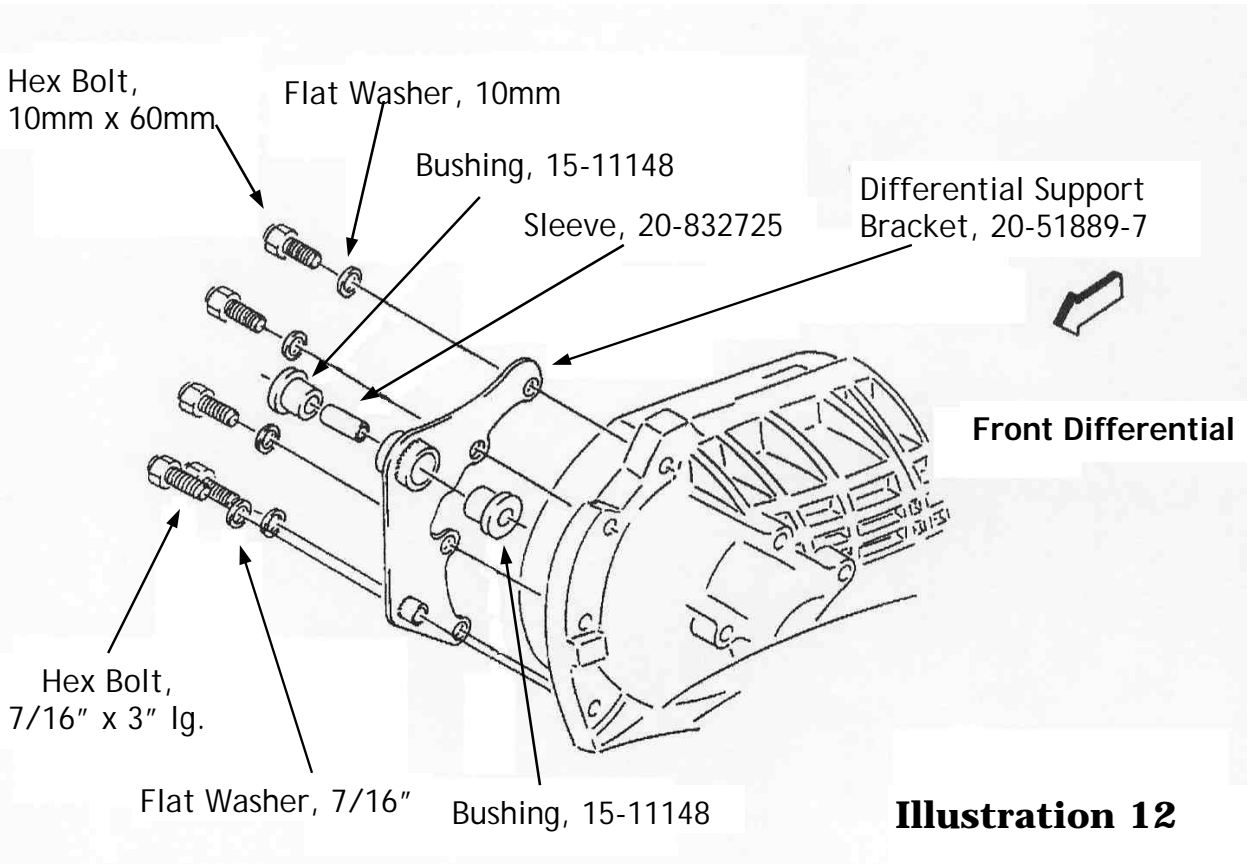
26. Locate the upper mount on front differential housing. Cut off upper mount flush to main case (**Illustration 11**). If the driver's side wrap-around differential mount bracket was properly modified grinding on the case for clearance will not be necessary. If necessary, remove material from the left side of differential case to clear the lower control arm frame mount. This will allow the differential to be centered in vehicle.



FRONT INSTALLATION

1. Install Bushings (15-11148) and Sleeve (20-832725), into Differential Support Bracket (20-51899-7). Attach Differential Support Bracket assembly to the front differential (**Illustration 12**). Use Loctite compound and hardware provided. Torque bolts to 45 ft. lbs.

NOTE: When attaching differential support bracket, gear oil may leak from the case. Place this assembly in a large oil pan before removing hardware to catch the excess oil. Add one extra pint of factory recommended lubricant to *full* differential while out of vehicle by tipping on side. (Axle Lubricant, GM P/N 1052271 or SAE 80W-90 GL-5 Gear Lubricant)



2. Loosely attach passenger side Differential Drop Bracket (20-51899-8), to the differential axle. Use hardware provided (**Illustration 13**).

**Vehicle Frame,
Passenger Side**

Differential Drop
Bracket, 20-51899-8

NOTE: Large Hole
in bracket faces
front of vehicle

Passenger Side
Differential

Top Lock Nut,
9/16"

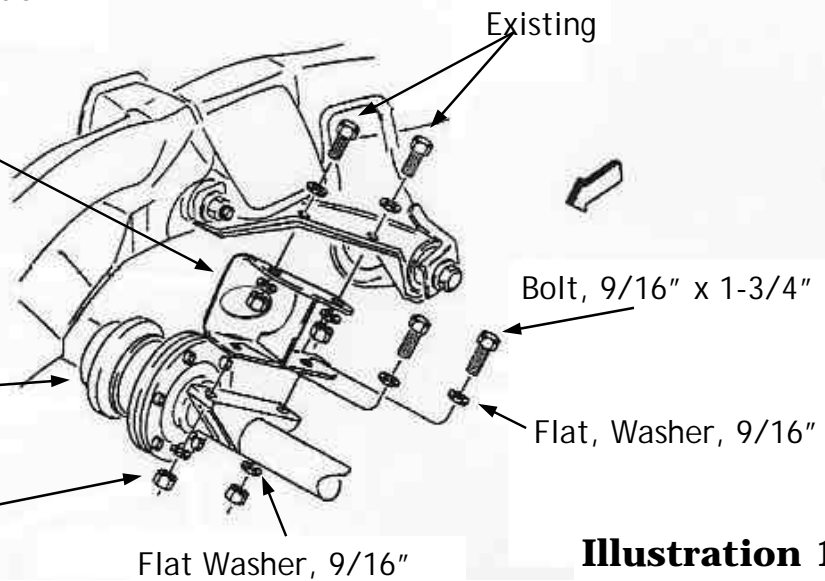
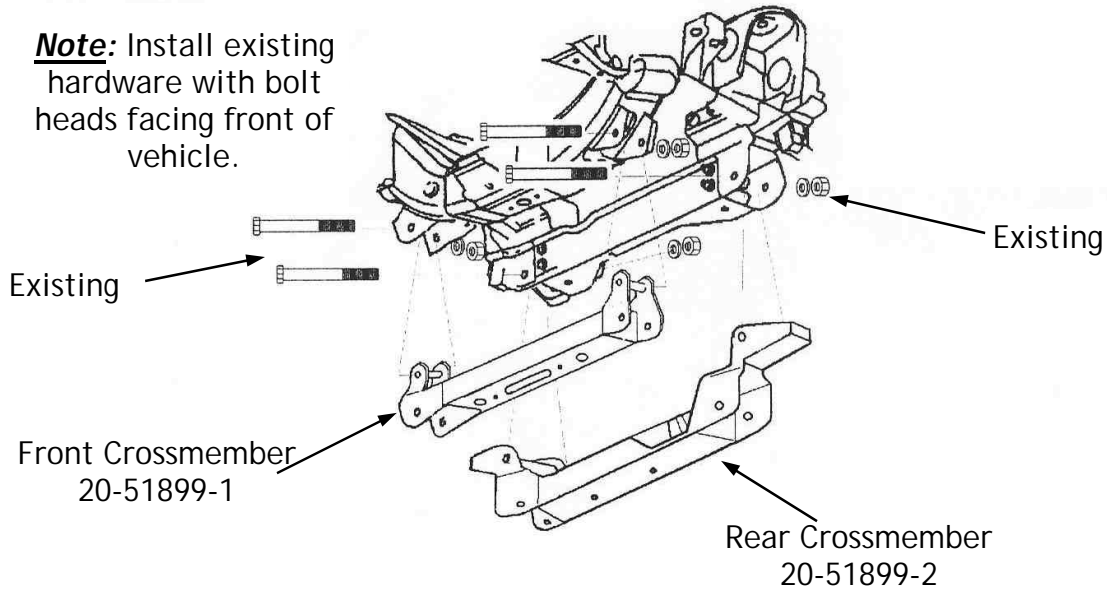


Illustration 13

3. Install Front Crossmember (20-51899-1) into existing front lower control arm mounting pockets with existing hardware. Make sure the bolt heads are facing to the front of the vehicle (**Illustration 14**). Do not fasten at this time.

Illustration 14

Note: Install existing
hardware with bolt
heads facing front of
vehicle.



4. Install Rear Crossmember (20-51899-2) into existing rear lower control arm mounting pockets with existing hardware. Make sure bolts heads face to the front of the vehicle. Do not fasten at this time.

5. Attach existing Bumpstops to rear crossmember Bumpstop pad, using existing hardware.
6. Support front differential assembly with a floor jack. Slowly raise the differential assembly into position.
7. Place the front driver side Differential Support Bracket between tabs located on front crossmember. Position the rear driver side differential mount to rear crossmember differential mounting area. Install passenger side Differential Drop to frame bracket, using existing hardware. Attach differential support bracket to front crossmember and rear differential mount to rear crossmember using the Locating Spacer (20-830866) and existing hardware. Do not fasten at this time.

NOTE: Check and make sure the differential is centered in vehicle. On both sides of the vehicle measure the distance from the flat surface of drive axle to center of the lower bolt head attaching lower control arm to Rear Crossmember. Make sure distance is the same on both sides before fastening.

8. Connect differential vent hose and electrical connector.
9. Align marks previously made on the front drive shaft U-joint and differential yoke and reconnect the front drive shaft to differential.
10. Install lower control arms into the Front and Rear Crossmembers using 5/8" hardware provided. Do not fasten at this time.
11. Torque existing upper control arm to crossmember nuts to 121 ft. lbs. Starting with front then rear. Torque front differential mounting hardware to 75 ft. lbs.
12. Remove the exiting O-ring, splash shield, hub and bearing assembly from front spindle. Reinstall O-ring, splash shield, hub and bearing assembly into new Front Spindle (20-51800-5D Drvr) and (20-51800-6P Pass).
13. Connect driver's side Front Spindle (20-51800-5D Drvr., 20-51800-6P Pass.) assembly to the upper and lower control arm ball joint. Torque upper ball joint nut to 37 ft. lbs. Torque lower ball joint nut to 74 ft. lbs.
14. Loosen the tie rod end jam nut and thread tie rod inward two complete turns. Retighten jam nut and attach tie rod to the front spindle. Torque nut to 37 ft. lbs.
15. Install drive axle into Front Spindle using hardware previously removed.

NOTE: Do not lubricate drive axle splines and front spindle with grease.

- Place Drive Axle Spacer (20-51899-20), against the differential flange (**Illustration 15**). Align the reference marks on the axle flange and differential flange, provided using Loctite compound. Torque bolts to 59 ft. lbs.

Front Differential

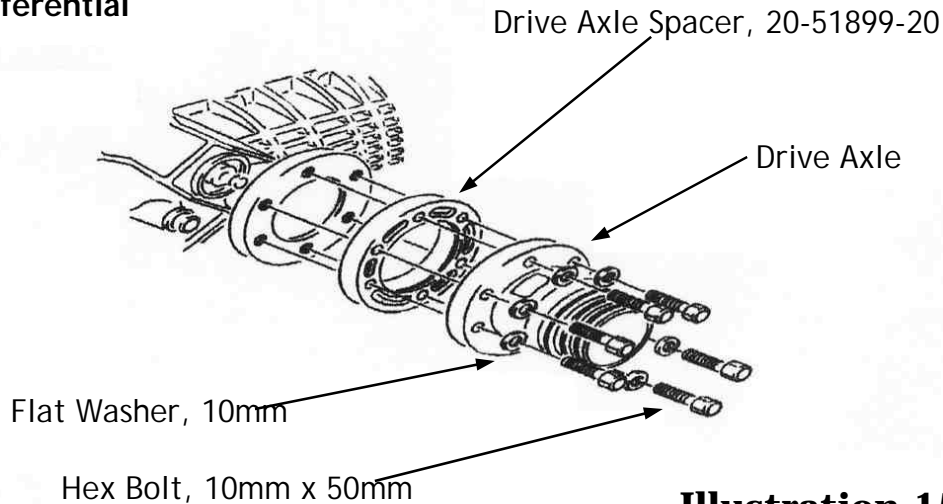


Illustration 15

- Install brake rotor. Attach the front caliper with previously removed existing hardware. Torque caliper mounting bolts to 38 ft. lbs.
- Torque axle hub nut to 165 ft. lbs.
- Insert Front Upper Shock Mount (20-51801-1) into pocket of frame's upper shock mount (**Illustration 16**). Make sure Mount's open side is facing out. Insert 9/16" - 12 x 1 3/4" Hex Bolt with Flat Washer up through mounting hole in top of Shock Mount and hole in frame pocket. Secure with Flat Washer and 9/16" - 12 Top Lock Nut. Torque nut to 130 ft. lbs.

- Insert the existing shock stem through hole in bottom of Front Upper Shock mount. Align shock's lower mounting holes and install using existing hardware. Do not tighten yet. Install existing upper insulator over shock stem. Thread existing nut onto shock stem. Connect the RTD link rod to sensor, if equipped. Hold shock stem with a wrench and tighten nut to 15 ft lbs. Connect electrical connector by

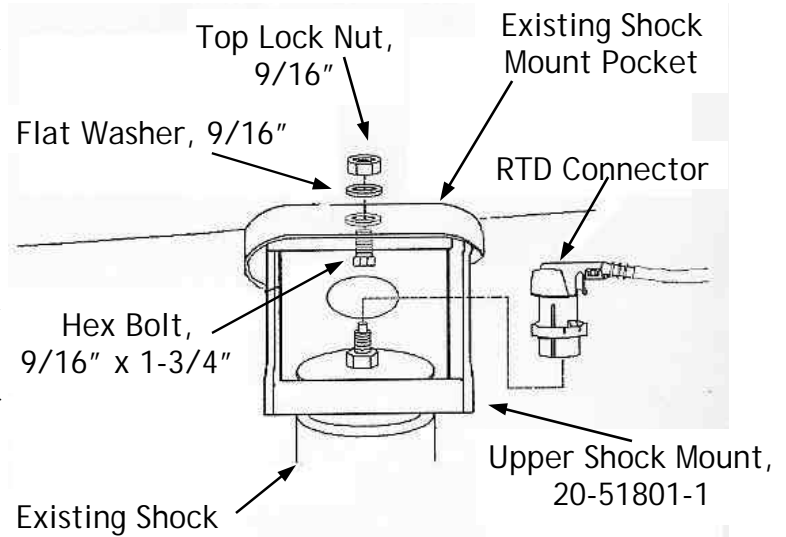


Illustration 16

aligning connector with wrench flat on shock stem. Push connector down on stem. Hold connector lock tabs and rotate counterclockwise until an audible click is heard and tabs are aligned.

21. Tighten lower shock nut to 59 ft. lbs.

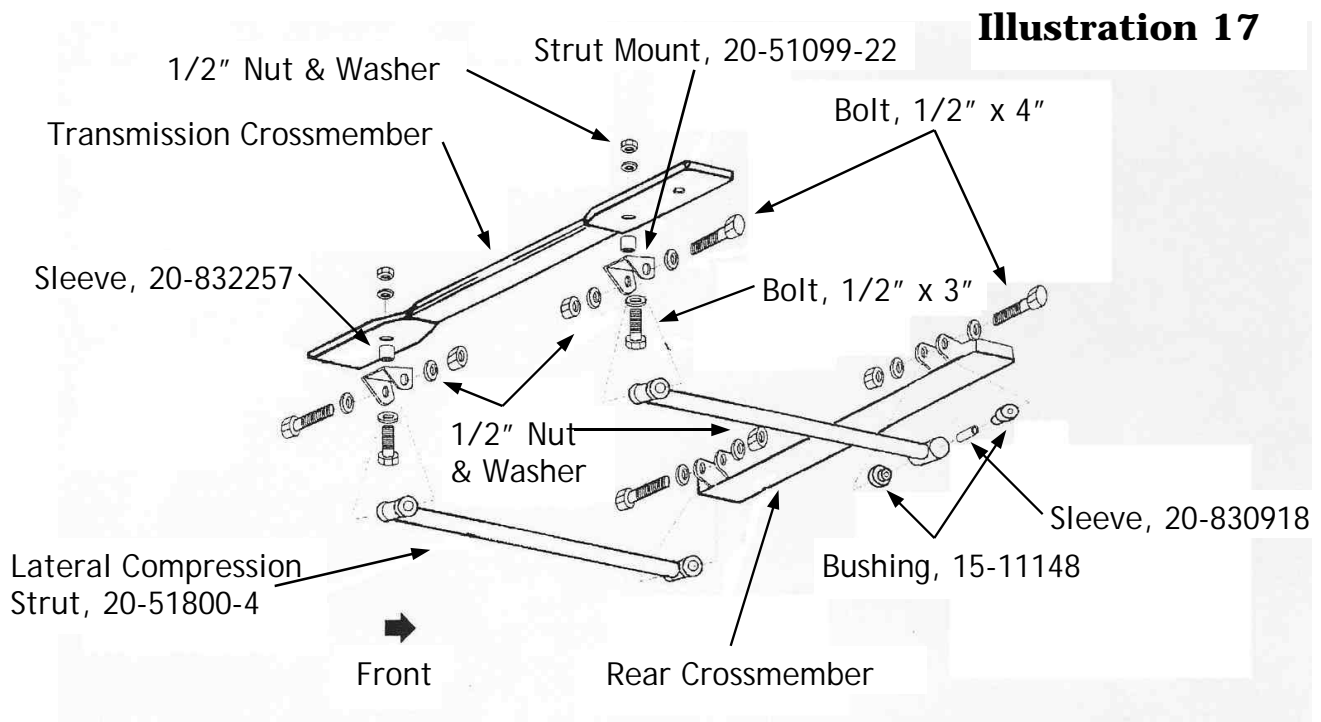
22. Repeat steps 12 through 21 on opposite side.

23. Re-install front skid plate using existing hardware. Use 3/8" hardware provided to attach skid plate to rear crossmember. Insert Spacer (11-15144) between skid plate and crossmember so skid plate does not touch differential.

24. Cycle front suspension through full travel cycle and check for adequate clearance between shocks, Bumpstops and brake line hoses.

25. Remove the transmission skid plate, if vehicle is so equipped.

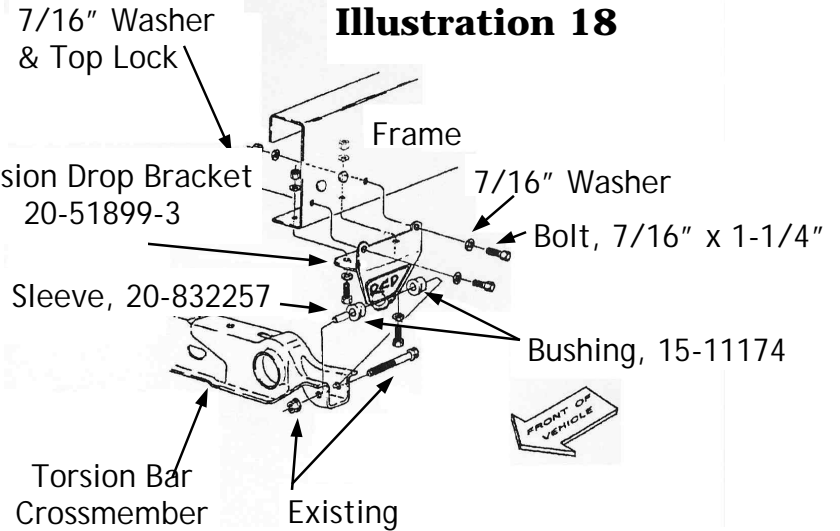
26. Install Bushings (15-11148) and Sleeves (20-830918) into both ends of Lateral Compression Struts (20-51800-4). Attach lateral compression to strut mount bracket located on rear crossmember using hardware provided (**Illustration 17**). Do not fasten this time.



27. Attach Strut Mount Bracket (20-51099-22) to opposite end of the compression strut. Rotate the compression strut assembly upward until bracket contacts bottom of the transmission crossmember. Use the bracket as a guide, mark and center punch the mounting hole locations. Drill 1/2" hole at each of the marked locations. Install using 1/2" hardware provided. Torque 1/2" nuts to 65 ft. lbs.

28. If vehicle is equipped with a transmission skid plate, notch skid plate for clearance of the strut mount bracket. Re-install skid plate using existing hardware.

29. Position Torsion Bar Drop Brackets (20-51899-3) against frame rail centered directly below the old torsion bar crossmember bracket. Use the bracket as a guide to mark and center punch the mounting hole locations (**Illustration 18**).



NOTE: Check the inside of frame rail before drilling. Move any components (gas lines, brake lines, etc.) that might get damaged. Drill 7/16" diameter hole at each of the marked locations.

30. Load torsion bars into their respective lower control arms. Slide the torsion bars forward.

31. Install Bushings (15-11174) and Sleeve (20-832257) into torsion bar drop bracket. Attach torsion bar drop brackets to the torsion bar crossmember using the existing hardware.

32. Install torsion bar crossmember assembly into the previously drilled holes. Fasten with 7/16" hardware provided, torque 7/16" nuts to 60 ft. lbs.

33. Slide torsion bar rearward through the torsion bar crossmember while holding adjustment arm in the proper position. Verify that reference marks on adjustment arm and torsion bar matches.

34. Install the Torsion Bar Unloading Tool (J 362002), again, being very careful. Increase the tension on the torsion var.

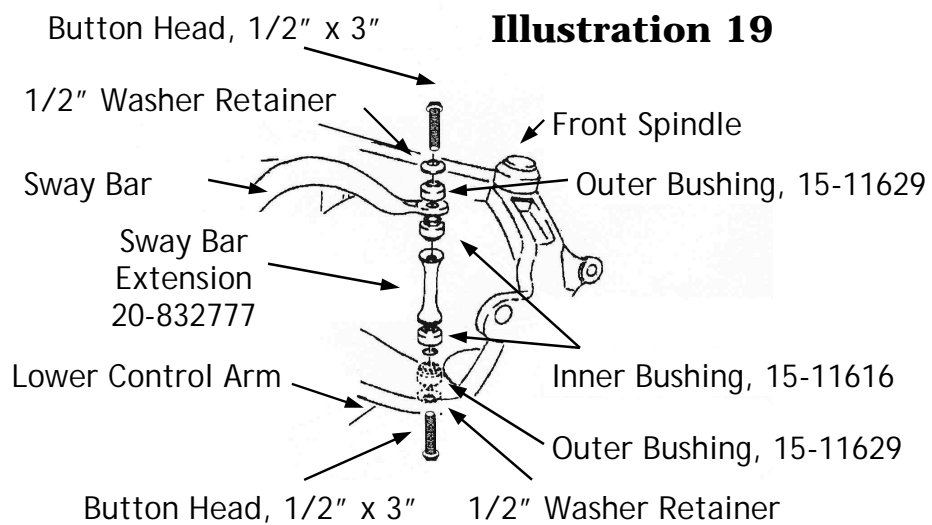
35. Reinstall the retainer plate and adjusting bolt. Thread adjusting bolt in until exposed length matches length measured before removal. This way, they can be installed in the stock position.

36. Repeat steps 33 through 35 on opposite side.

37. Measure the diameter of the hole in the Passenger and Driver lower control arms for the sway bar extension bolt. If it is less than 5/8" then it will need to be reamed to 5/8" in order to provide proper clearance for the sway bar

extensions. Chamfer the edges of the reamed hole so that no sharp edges contact the bolt or bushings.

38. Install front tire/wheel assemblies and lower vehicle to the ground. Tighten lug nuts to 140 ft. lbs.
39. Reinstall existing sway bar to lower control arm using Sway Bar Extension (20-832777) and hardware provided (**Illustration 19**). Torque Button Head bolt to 66 ft. lbs.
40. Once vehicle is at ride height, torque lower control arm to front and rear crossmembers pivot nuts to 121 ft. lbs.

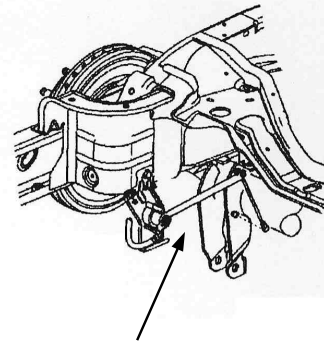


REAR INSTALLATION

1. Raise the vehicle. If working without a shop hoist, support vehicle with suitable safety stands. To do this, put vehicle in gear, block front wheels, both in front and behind tires, then disengage emergency brake. Place floor jack underneath rear axle and raise vehicle. Place suitable safety stands under frame to support vehicle and lower vehicle onto safety stands. Remove rear tire/wheel assemblies.
2. With the floor jack, raise the rear axle enough to relieve tension on the shock absorbers and remove shocks.
3. Remove nut and washer securing top of rear shock to frame mount.
4. Remove nut and bolt securing bottom of shock to axle mount.
5. Remove shock and use a length of mechanic's wire to secure shock to frame.

CAUTION: Shock is filled with high pressure gas. Do not allow shock to hang by electrical connector or hose.

6. Disconnect rear position sensor link from ball stud on lower shock axle mount (**Illustration 20**).



Position Sensor Link

Illustration 20

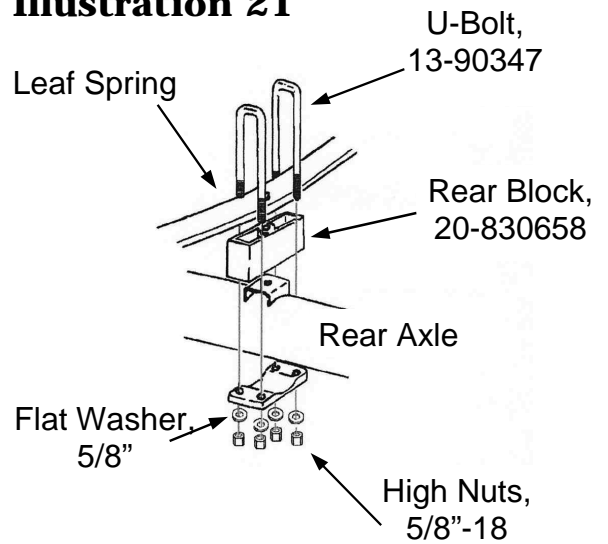
7. Remove ball stud.
8. Repeat removal process on opposite side of vehicle.
9. Remove rear U-bolts attaching rear axle to driver side leaf spring. Carefully lower rear axle enough to insert riser block.

WARNING: Do not allow axle to hang by any hoses or cables.

10. Insert new riser Block (20-830658) on axle pad. Make sure pin protruding from block indexes into the hole of the axle housing spring pad. Install shortest end of block facing forward. Carefully raise rear axle until block makes contact with leaf spring while making sure center bolt is aligned with hole in block (**Illustration 21**).

11. Re-mount axle to spring using new U-bolts (13-90347), Washers (13-30369), and High Nuts (13-10488) with existing spring plates. Torque High Nuts to 85-100 ft. lbs.

Illustration 21



12. Repeat steps 8 through 11 on passenger side.

13. Remove existing rear Bumpstop from bottom of the frame rail.

14. Unbolt brakeline bracket and using hardware provided install brakeline relocation bracket.

15. Grind off knob from the top of existing Bumpstop. Install rear Bumpstop Assembly (20-51292-15) to frame rail at the original bumpstop location using hardware provided.

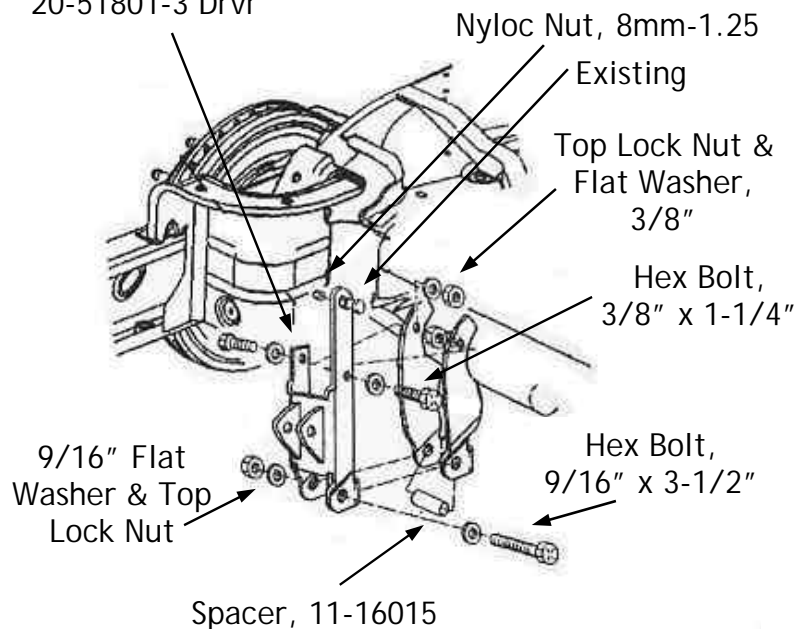
16. Repeat steps 13 through 15 on opposite side.

17. Position Lower Shock Mount (20-51801-2 Pass, 20-51801-3 Drvr) over lower shock axle-mounting bracket and align existing holes (**Illustration 22**). Use Mount as guide and mark additional holes to be drilled. Remove Shock Mount and drill 3/8" holes where marked.

Lower Shock Mount, Driver's Side Shown
20-51801-2 Pass,
20-51801-3 Drvr



18. Install Shock Mount using 3/8" hardware provided in upper mounting holes. Position Spacer (11-16015) between shock axle mounting tabs and insert 9/16" - 12 x 3 1/2" Hex Bolt and Flat Washer through Mount, tabs and Spacer. Install Flat Washer and 9/16" - 12 Top Lock Nut. Torque 3/8" nuts to 35 ft. lbs. Torque 9/16" nuts to 130 ft. lbs.



19. Install ball stud to Lower Shock Mount arm using 8mm-1.25 Nyloc Nut provided.

Illustration 22

20. Install rear position sensor link to ball stud on arm of Lower Shock Mount.
21. Install existing shock to upper frame mount with existing hardware.
22. Insert lower eye of shock into tabs on new Shock Mount. Install using existing hardware. Torque upper and lower shock nuts to 70 ft lbs.
- 23. Repeat shock/mount installation procedures on opposite side of vehicle.**
24. Install rear tire/wheel assemblies and lower vehicle. Torque lug nuts to 140 ft. lbs.

SOME FINAL NOTES

- ❑ After installation is complete, double check that all nuts and bolts are tight. Refer to the torque specifications on last page.
- ❑ If new tires were installed that are more than 10% taller than original tires, the speedometer must be recalibrated for the Rear Wheel Anti-Lock Brake System to function properly. Contact an Authorized GM dealer for details on recalibration.
- ❑ With vehicle on the floor, cycle steering lock to lock and inspect steering, suspension and driveline systems for proper operation, tightness and adequate clearance. Recheck brake/hose fitting for leaks. Be sure all hoses are long enough.
- ❑ Have headlights readjusted to proper setting.
- ❑ Have front end aligned to factory specifications. Be sure vehicle is at desired ride height prior to realignment.

TORQUE SPECIFICATIONS (*Grade 8 & Metric Class 10.9*)

5/16" NUTS	20 ft. lbs.	M6	9 ft. lbs.
3/8" NUTS	35 ft. lbs.	M8	23 ft. lbs.
7/16" NUTS	60 ft. lbs.	M10	45 ft. lbs.
1/2" NUTS	90 ft. lbs.	M12	75 ft. lbs.
9/16" NUTS	160 ft. lbs.	M14	120 ft. lbs.
5/8" NUTS	175 ft. lbs.	M16	165 ft. lbs.

EXISTING HARDWARE TORQUE SPECIFICATIONS

BRAKE CALIPER TO FRONT SPINDLE BOLT	38 ft. lbs.
10mm DIFFERENTIAL SUPPORT BOLTS	45 ft. lbs.
TORSION BAR CROSSMEMBER NUT	46 ft. lbs.
DRIVE AXLE BOLT	58 ft. lbs.
UPPER BALL JOINT NUT	37 ft. lbs.
LOWER BALL JOINT NUT	74 ft. lbs.
LOWER CONTROL ARM NUT	121 ft. lbs.
HUB & BEARING ASSEMBLY BOLT	133 ft. lbs.
FRONT HUB NUT	165 ft. lbs.