

# trail master

## SUSPENSION

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### CHEVY SILVERADO 2WD/4WD 6" SUSPENSION LIFT KIT 1999– 2009                      KIT# TM115N

<b>WARNING</b>
Installation of a Trail Master suspension lift kit will change the vehicle's center of gravity and handling characteristics both on- and off-road. You must drive the vehicle safely! Extreme care must be taken to prevent vehicle rollover or loss of control, which could result in serious injury or death. Avoid sudden sharp turns or abrupt maneuvers and always make sure all vehicle occupants have their seat belts fastened.
<b>WARNING</b>
Before you install this kit, read and understand all instructions, warnings, cautions, and notes in this instruction sheet and in the vehicle owner's manual.
<b>CAUTION</b>
Proper installation of this kit requires knowledge of the factory recommended procedures for removal and installation of original equipment components. We recommend that the factory shop manual and any special tools needed to service your vehicle be on hand during the installation. Installation of this kit without proper knowledge of the factory recommended procedures may affect the performance of these components and the safety of the vehicle. We strongly recommend that a certified mechanic familiar with the installation of similar components install this kit.
<b>WARNING</b>
This kit should only be installed on a vehicle that is in good working condition. Before you install the kit, thoroughly inspect the vehicle for corrosion or deformation of the sheet metal. If the vehicle is suspected to have been in a collision or misused, do not install this kit. Off-road use of your vehicle with this kit installed may increase the stress applied to the factory components. Failure to observe this warning may result in serious personal injury and/or severe damage to your vehicle.

<b>WARNING</b>
Many states and municipalities have laws restricting bumper heights and vehicle lifts. Consult state and local laws to determine if the changes you intend to make to the vehicle comply with the law.
<b>WARNING</b>
The installation of larger tires may reduce the effectiveness of the braking system.
<b>WARNING</b>
Always wear eye protection when operating power tools.
<b>WARNING</b>
Before you install this kit, block the vehicle tires to prevent the vehicle from rolling.
<b>WARNING</b>
DO NOT combine suspension, body, or other lift devices. Use of vehicle with combined lifts may result in unsafe and/or unexpected handling characteristics.
<b>NOTE</b>
Lift height may vary depending on vehicle configuration, engine size, additional accessories, the factory suspension package, and vehicle's condition.
<b>NOTE</b>
Trail Master recommends using thread locking compound on the threads of all kit nuts and bolts unless specified otherwise in these instructions.

## INSTALLATION WORKSHEET—SAVE WITH VEHICLE RECORDS

### Product Information

Part Number:	Date Purchased:	Purchased From:
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### Vehicle Information

Make:	Model:	Year:
VIN:	Mileage:	Engine:

### Owner Information

Name:		
Address:		
City:	State:	Zip:

### Vehicle Measurements

Axle Center to Fender Lip (on level ground, at ride height):	OE	Kit Installed
Right Front		
Right Rear		
Left Front		
Left Rear		

Bump Stop to Contact Point (on level ground, at ride height):	OE	Kit Installed
Right Front		
Right Rear		
Left Front		
Left Rear		

### Tire & Wheel Information

Tire Size:	Tire Brand:	
Actual Tire Diameter (measured):	Wheel Size:	
Wheel Style:	Wheel Brand:	Wheel Backspacing:

### Other Equipment and/or Accessories


### Installer Information

Shop Name:	Installer:	
Address:		
City:	State:	Zip:
Phone Number:	Fax Number:	

Attach:      Copy of Purchase Receipt  
                  Copy of Vehicle Wheel Alignment Results

## Before Starting Installation

### NOTE

Kit parts are prefaced by the word *kit* and appear in **bold** print.

### NOTE

Before you install this kit, read and understand all instructions, warnings, cautions, and notes in this instruction sheet and in the vehicle owner's manual.

1. Carefully read all warnings and instructions completely before beginning.
2. Verify all parts have been received in this kit by checking the parts list at the end of this document.
3. **Only install this kit on the vehicle for which it is specified.** If anytime during the installation you encounter something different from what is outlined in the instructions, call technical support at **(877) 695-7812**.
4. Special tools needed:
  - a. Torsion bar tool
  - b. Welder or access to a professional welding shop.
  - c. Die grinder or similar tool capable of cutting metal.
  - d. Transmission jack
  - e. Rust resistant metal paint
5. Park vehicle on a clean, dry, flat, level surface and block tires so vehicle cannot roll in either direction.

### Ride Height

6. Measure ride height with the vehicle supporting its own weight on level ground. To settle the suspension, the vehicle should be driven forward at least 10 feet immediately prior to taking these measurements. Ride height is the measurement from the center of the axle straight up (vertical) to the fender lip. Record this measurement for all four wheels.

## Wheel & Tire Requirements

The factory wheel and tire combination will NOT fit once this kit is installed. The following are specifications for choosing a proper wheel and tire combination:

Rims not to exceed 9" in width

17" wheel backspacing = 4-5/8"

18" & 20" wheel backspacing = 5"

### Torque Specifications:

See factory service manual for torque values when reusing OE fasteners.

See factory service manual for torque values when re-using OE fasteners.

Bolt Size	Grade 5 (ft.-lbs.)	Grade 8 (ft.-lbs.)
1/4"-20	10	10
1/4"-28	10	12.5
5/16"-18	17	22.5
5/16"-24	20	25
3/8"-16	30	40
3/8"-24	35	45
7/16"-14	50	65
7/16"-20	55	70
1/2"-13	75	100
1/2"-20	80	115
9/16"-12	105	135
9/16"-18	115	150
5/8"-11	150	195
5/8"-18	160	210
3/4"-16	175	225

### Engine Compartment

1. Disconnect both battery cables. Disconnect negative cable first, then positive cable.

# Front Installation

## Prepare Front Suspension

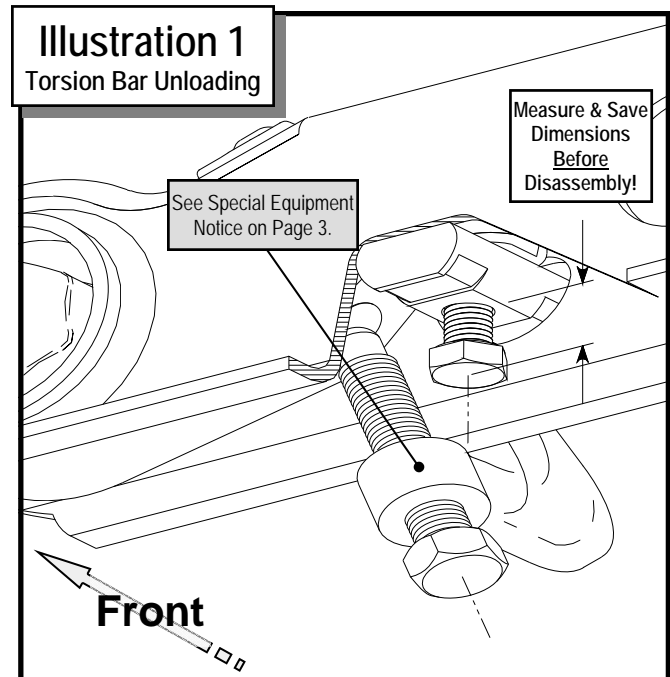
1. Ensure that your work space is of adequate size and the work surface is level. Place the vehicle in park. Place your floor jack under the front cross member and raise vehicle. Place jack stands under the frame rails behind the front wheel wells and lower the frame onto the stands. Remove the jack and place the vehicle back in gear, set the emergency brake, and place blocks both in front of and behind the rear wheels. Remove the front wheels.
2. Remove any skid plates or debris shields from the vehicle. Save the hardware for reinstallation.
3. Measure the torsion bar adjusting screw depth and record this dimension for later use on reassembly. See ILLUSTRATION 1.

**LEFT:** \_\_\_\_\_ **RIGHT:** \_\_\_\_\_

4. Remove the torsion bar adjusting screw. Apply a small amount of lubrication grease to the puller threads and the puller shaft-to-adjuster arm contact point. Load the puller and torsion adjuster arm until the adjuster nut can be removed from the cross member. Release the puller to unload the torsion bar. With the bar unloaded, slide it forward into the lower control arm until the adjuster arm falls free.

**NOTE:** *If the bar seems stuck, use a hammer and punch through the hole in the rear of the cross member to dislodge it.*

5. Repeat this procedure on the other side of the vehicle.
6. Remove the torsion bar cross member by unbolting it from the frame.
7. Remove the torsion bars from the lower A-arms.
8. Unbolt the sway bar link ends from the sway bar and lower control arm. Discard the sway



bar links and bushings.

9. Remove the front shock absorbers.
10. Remove the **OE** lower rubber bump stops from the frame. Save for reinstallation.
11. Remove front factory differential skid plate and splash shield. These items will not be reinstalled.
12. Remove the nut from the **OE** tie rod end. Using an appropriate removal tool, remove the tie rod end from the spindle.
13. Remove the brake hose bracket from the top of the **OE** knuckle. Unplug the ABS brake connection from the frame and control arm.
14. Remove the brake calipers from the rotor and secure them clear of the work area. Secure calipers up with wire so they do not hang.  
**CAUTION!:** *Do not suspend them by the brake lines! Damage will result!*
15. Remove the front rotors from the front hub.
16. Remove the dust cap and the axle retaining nut.
17. Unbolt the (4) bolts holding the hub flange to the knuckle. Remove the hub and O-ring and save for reinstallation.
18. Support the knuckle and loosen the upper ball

joint nut from the knuckle and separate using the appropriate tool.

19. Support the knuckle and loosen the lower ball joint nut from the knuckle and separate using the appropriate tool.
20. Remove the (6) retaining bolts from each CV joint. Carefully remove the CV axle from the side of the vehicle you are currently working on.

**NOTE: Be extra cautious with the CV boots. DO NOT damage them!**

21. Support the lower A-arms with your floor jack and remove the upper and lower ball joint nuts. Remove the knuckle from the vehicle.
22. Support the lower A-arm with your floor jack and remove the lower A-arm pivot bolts. Carefully remove the lower A-arms from the vehicle.
23. Disconnect the front drive shaft from the front differential and secure it clear of the work area. Tape the U-joint caps in place.
24. Disconnect the differential vent line and any

electrical control wire harnesses that may be present. Secure these clear of the work area.

25. Remove the stock differential rear crossmember and discard.
26. Support the differential with your floor jack. Unbolt and lower the differential to the ground and move it clear of the work area.  
**NOTE: Some models may require performing step 27 first in order to remove the differential assembly.**

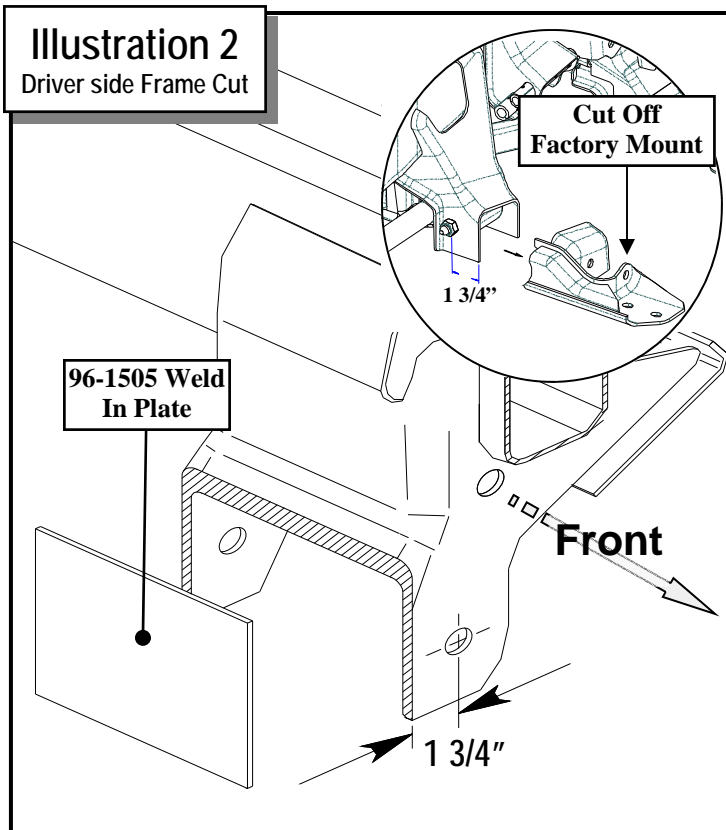
27. Using a suitable cutting tool, (abrasive cutoff wheel, Sawz-all, etc.) cut the driver side, rear differential bracket as shown in ILLUSTRATION 2. Follow the dimensions shown closely!

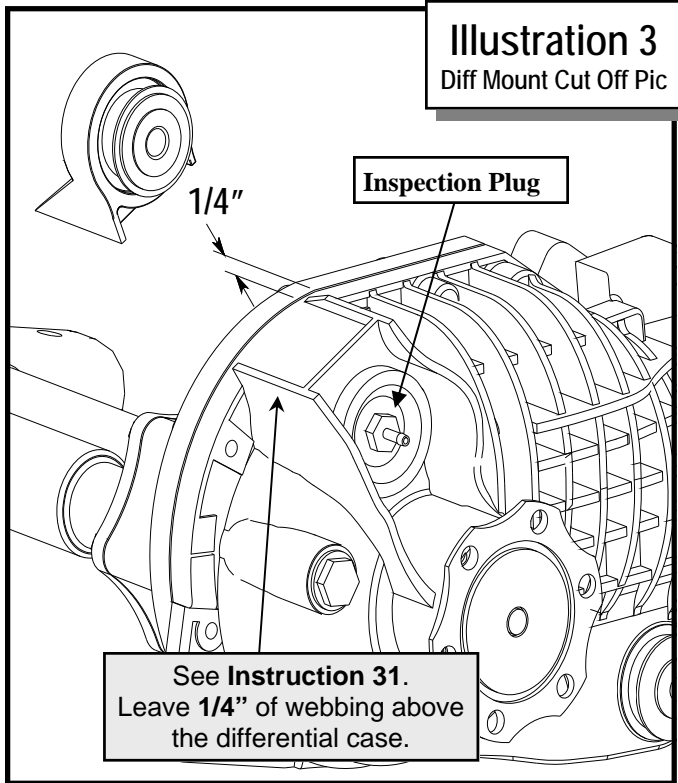
**NOTE: It may be easier to trim the differential bracket off in 2 smaller incremental cuts. It is very important that you measure carefully. If you cut too much, the lower drop will not fit. If you cut too little, you may have to grind material from the differential to clear the adapter.**

28. Clean the cut edges of all undercoat material and any oxidation that may be present. Place the weld in plate (96-1505) into position as shown. Trim excess material if needed. See ILLUSTRATION 2.

## Install Front Suspension

1. Tack the weld in plate (PN 96-1505) to the back of the pocket. **DO NOT** finish welding until the front differential has been reinstalled to ensure there is adequate clearance between the differential and the frame. See ILLUSTRATION 2.
2. Cut the upper differential mount ear from the differential case as shown in ILLUSTRATION 3. Leave 1/4" of material above the case.  
**CAUTION: Be very careful while cutting. DO NOT CUT INTO THE CASE!**
3. Install the urethane bushings (15-11326) and





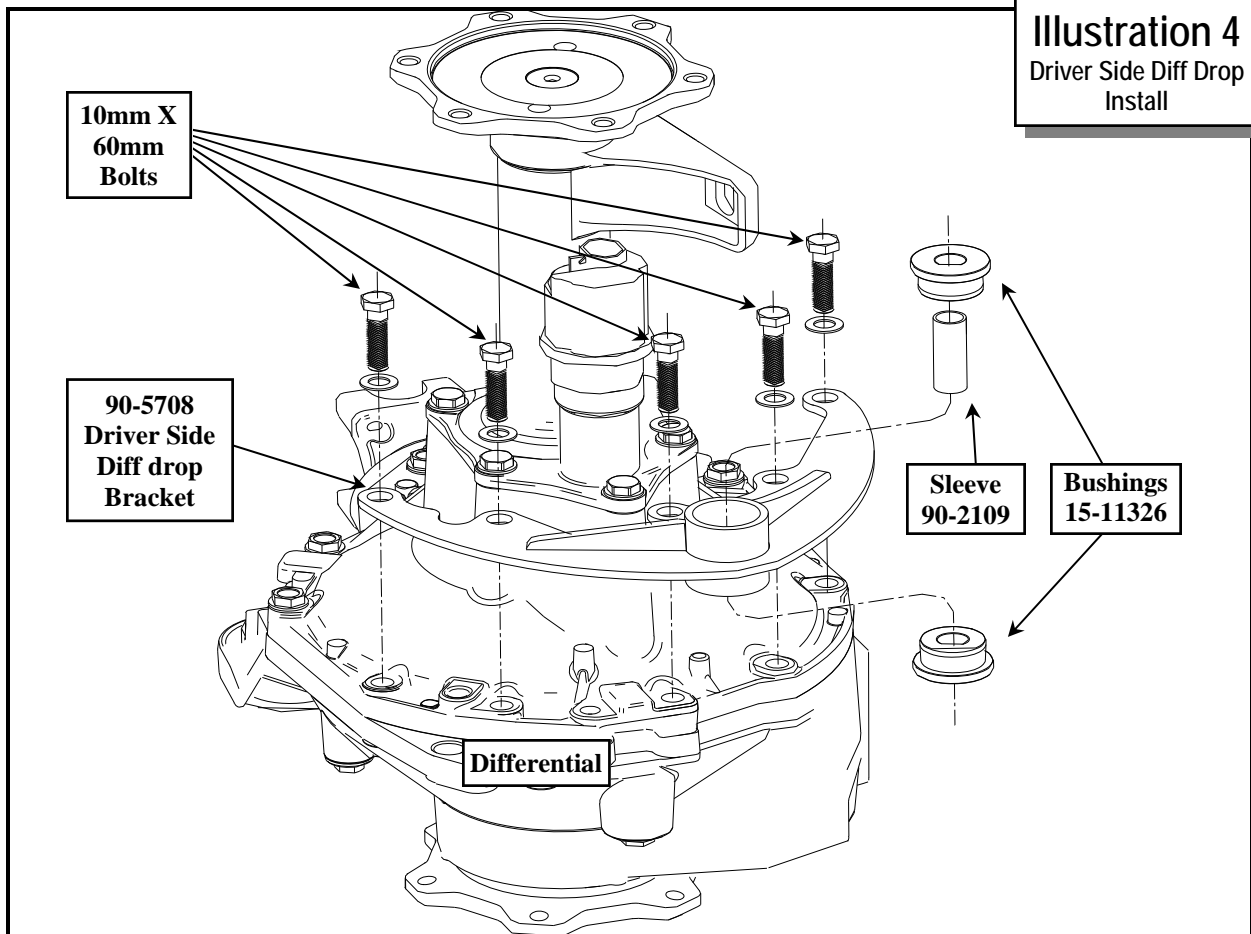
sleeve (90-2109) from hardware pack (90-6657), into the driver side differential bracket (91-5708). See ILLUSTRATION 4.

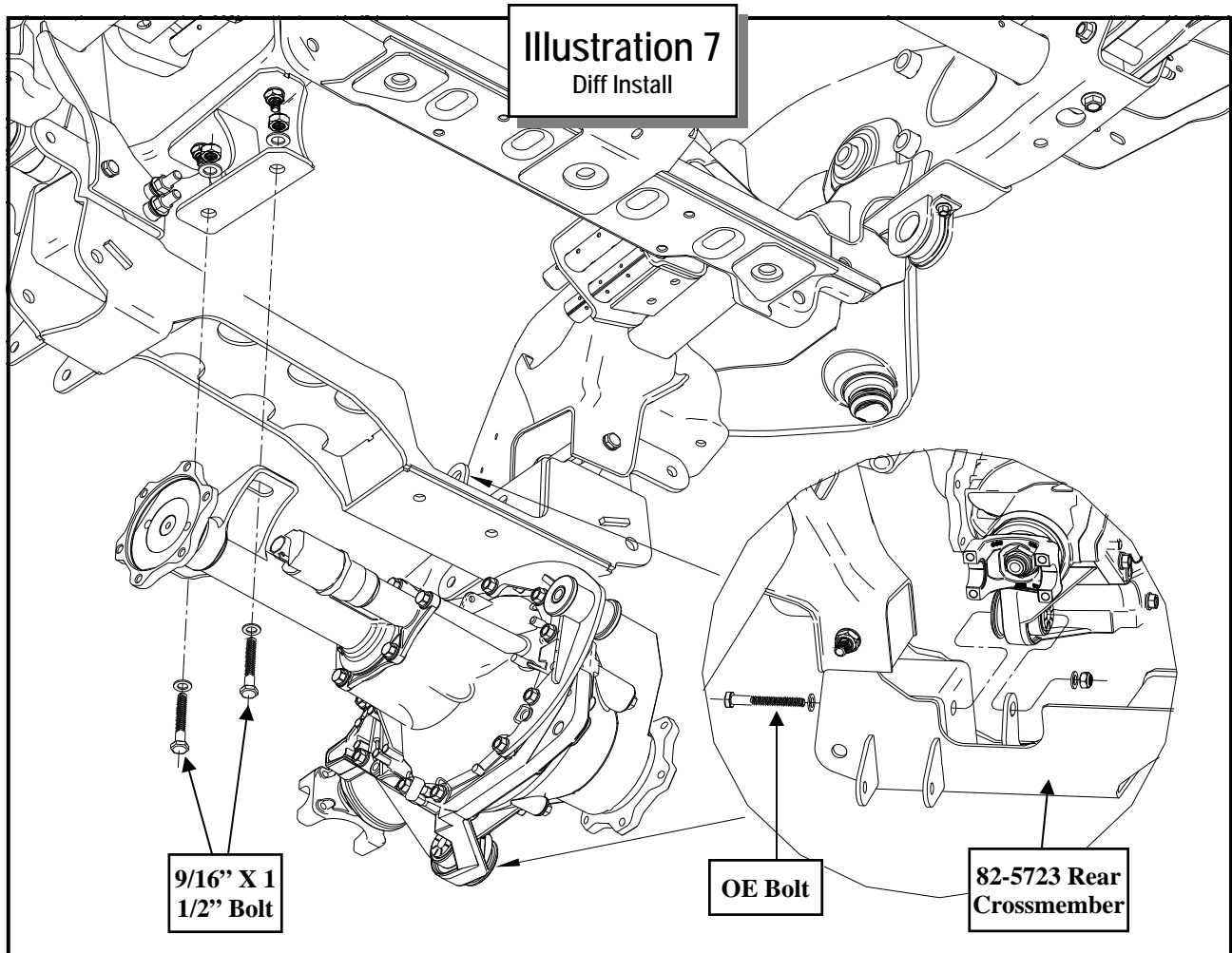
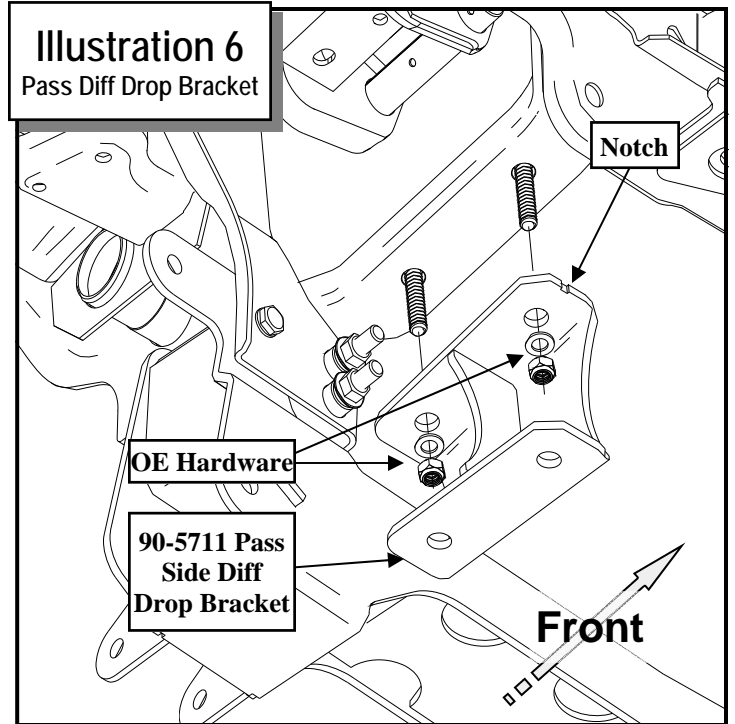
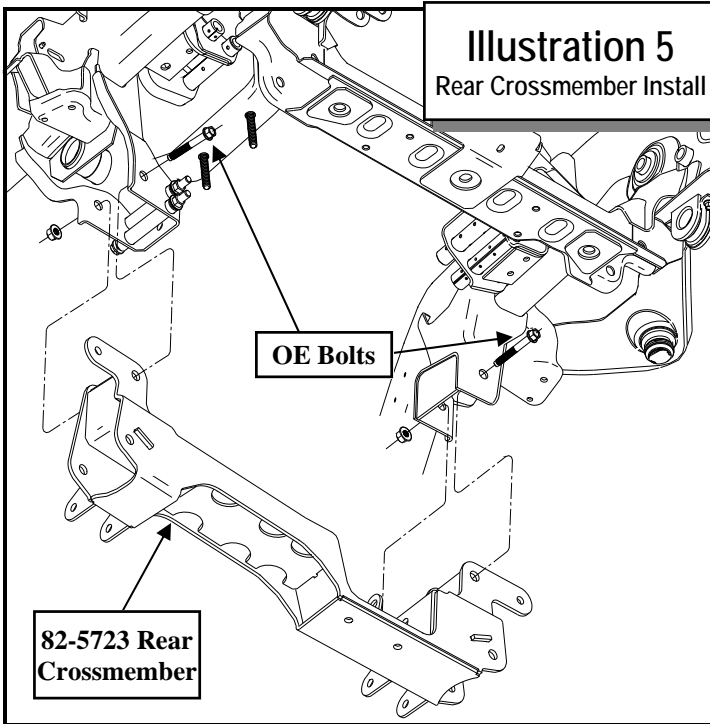
4. Rotate the front differential until the case bolt heads are oriented up. Carefully remove the (5) factory bolts from the differential as shown in ILLUSTRATION 4.

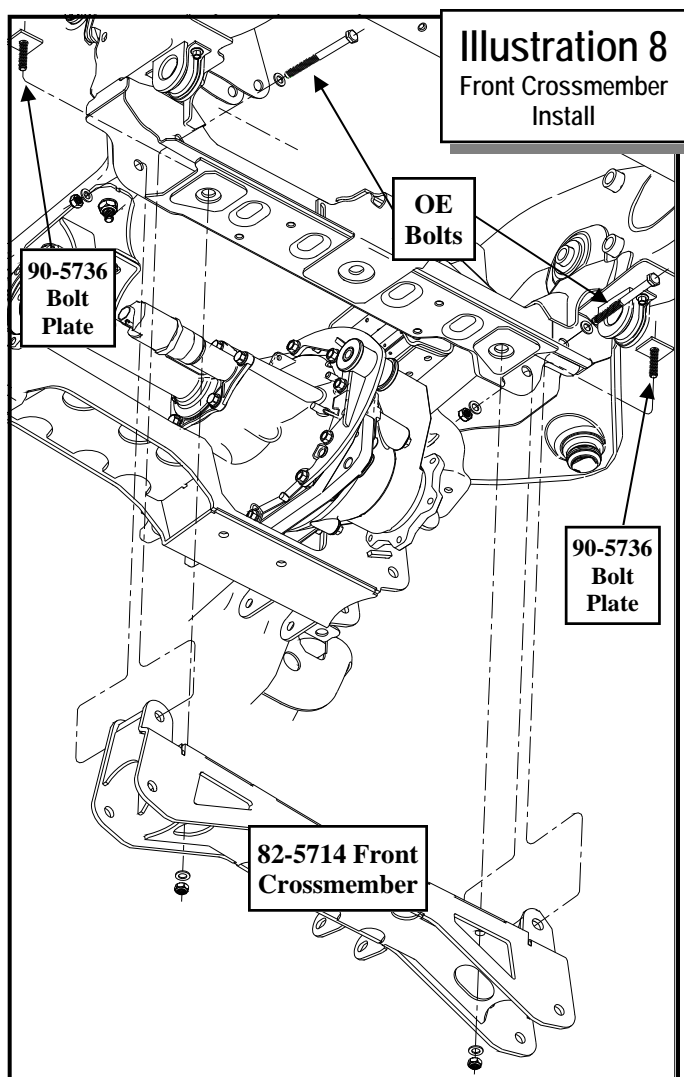
**NOTE:** You will probably notice some differential oil seeping from the area where the bolts are removed. This is normal and not something to worry about.

**IMPORTANT!:** If you do not stand the differential as directed, you will see a LOT more oil on your floor.

5. Place the driver side differential bracket (90-5708) as shown with the bushing eye to the top side of the housing. Secure using the (5) supplied 10mm X 60mm hardware (bolts, washers) from hardware pack (90-6718). Torque these fasteners to 30 ft./lbs. See ILLUSTRATION 4.







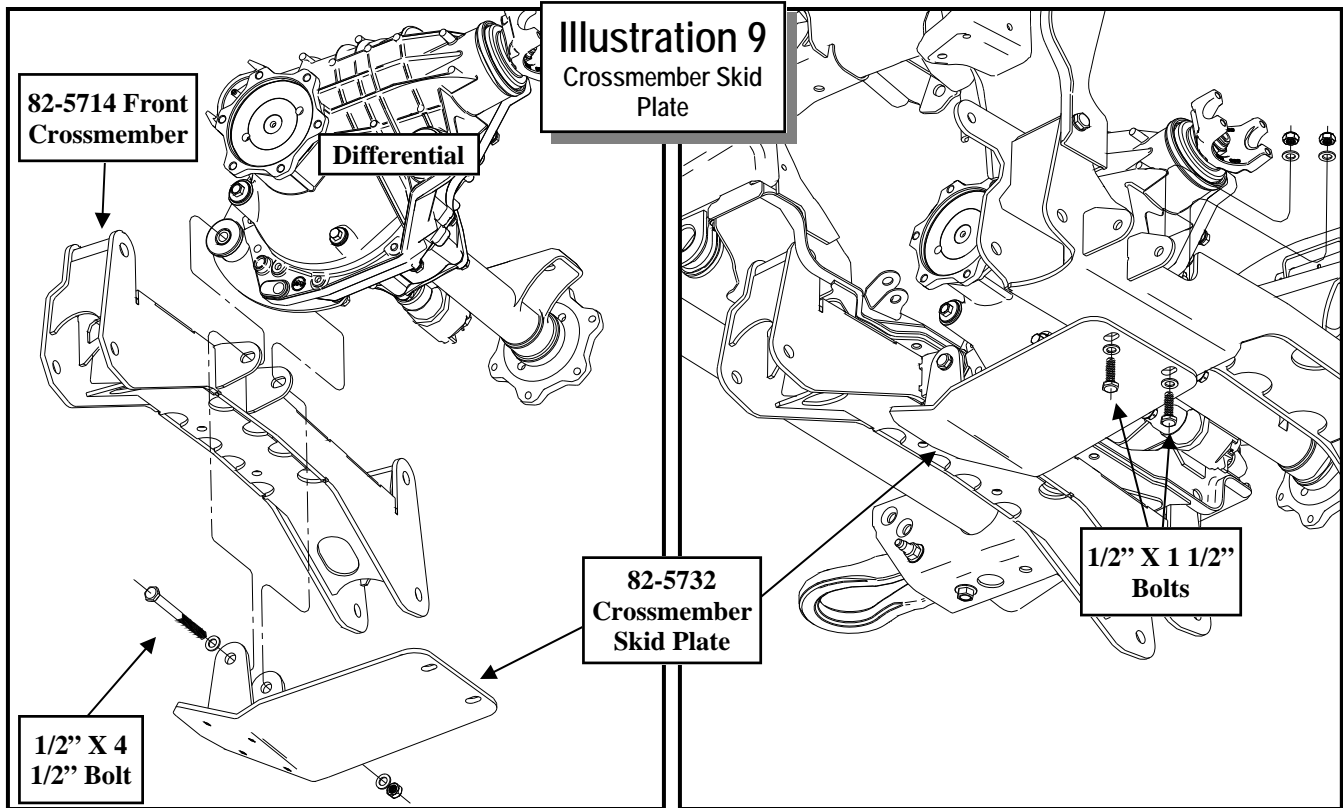
6. Install the rear crossmember (82-5723) into the factory lower control arm pockets using the OE bolts and hardware. Install the bolts with the heads to the front of the vehicle. Leave loose at this time. See ILLUSTRATION 5.
7. Install the passenger side differential bracket (90-5711) to the bottom of the OE frame mount. Be sure the notch on the bracket is to the top and facing toward the front of the vehicle. Secure using the previously removed hardware. See ILLUSTRATION 6. Torque the OE hardware to 70 ft./lbs.
8. Place the differential housing into the rear crossmember (82-5723) using the previously removed OE hardware on the driver side rear mount. Use the supplied 9/16" X 1 1/2" bolts and hardware on the passenger side. leave

loose at this time. See ILLUSTRATION 7.

9. Insert the square bolts plates (90-5736) into the OE front control arm frame crossmember and through the outer holes on the top of the front crossmember (82-5714). Install the front crossmember (82-5714) into the lower control arm pockets using the OE previously removed bolts, hardware, 3/8" bolt plate washers and nuts from pack (90-6194). Leave loose at this time. See ILLUSTRATION 8.
10. Install the driver differential mount (90-5708) into the front crossmember tabs. Install the crossmember skid plate (82-5732) around the differential housing bushing using 1/2" X 4 1/2" bolt and hardware. Leave loose at this time. See ILLUSTRATION 9.
11. Using the differential drop extension pack (90-6189) fit the new hose to the differential. Place the supplied plug in the end of the tube and connect the factory tube to it. Reinstall the electronic wiring to the differential. You may have to reroute these for proper fit.
12. Secure the rear of the crossmember skid plate to the rear crossmember using the 1/2" X 1 1/2" bolt and hardware. See ILLUSTRATION 9.
13. Install the lower control arms into the new crossmember mounting pockets with the crossmember support tubes (82-8020) placed over the pivot bolts between the crossmembers. Secure using the 5/8" X 5" (front) and 5/8" X 6" (rear) bolts and hardware. Do not torque the bolts until the vehicle is on the ground. See ILLUSTRATION 10.
14. Carefully check the entire differential installation for adequate clearance. Pay particular attention to the clearance between the front differential and the previously installed weld plate.
 

**CRITICAL NOTE: A minimum of 3/16" between these components is mandatory. Insufficient clearance will result in an annoying rattle at the least and component failure at the worst.**
15. Carefully remove the differential assembly and finish welding the weld in plate (96-1505). Paint the welded areas to prevent rust. After

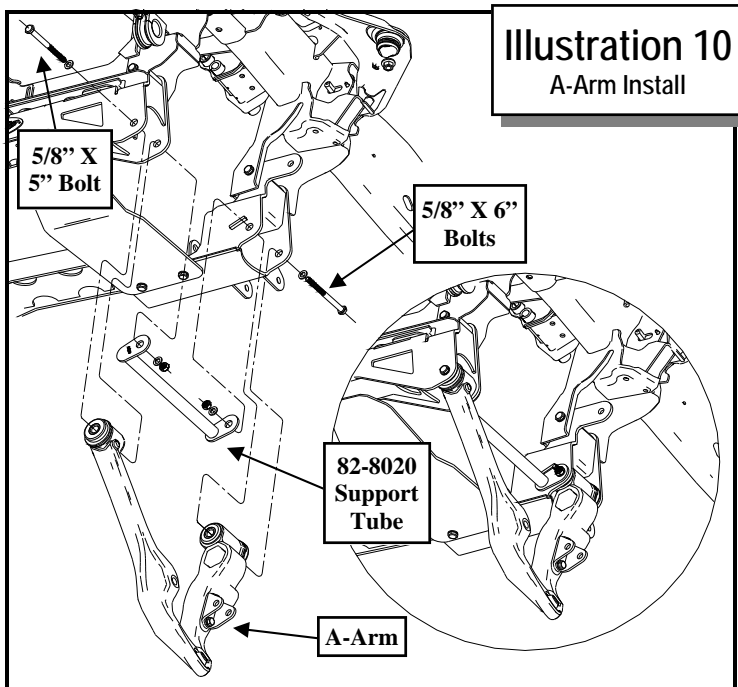




welding the plate, clean the area thoroughly and paint the exposed metal with a good quality paint.

- Carefully Reinstall the differential assembly and torque the following differential and

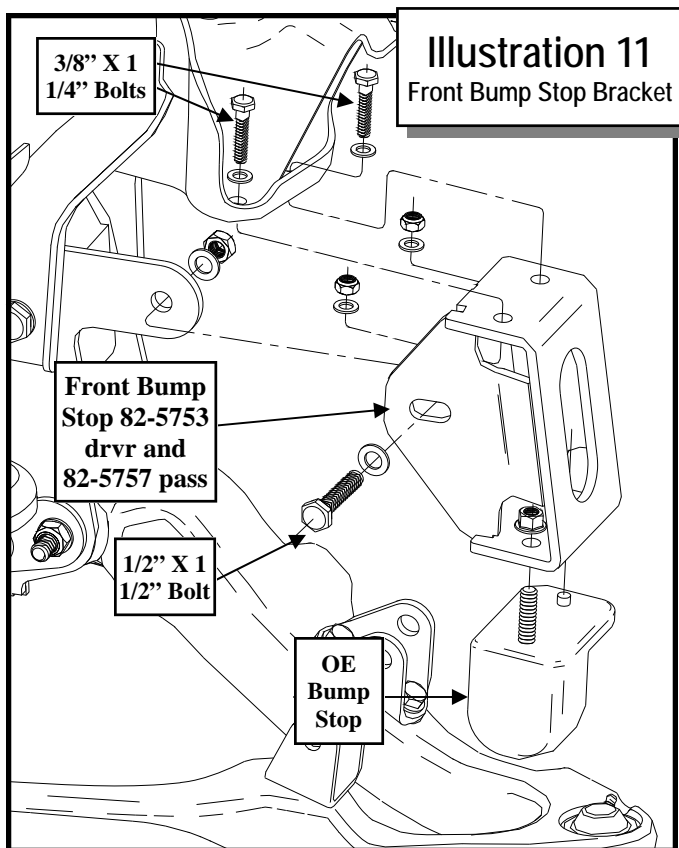
crossmember bolts: Driver side  $\frac{1}{2}$ " differential bushing bolts to **70** ft./lbs, Passenger side  $\frac{9}{16}$ " differential bracket bolt to **70** ft./lbs, OE Crossmember frame pocket bolts to **105** ft./lbs, Front crossmember  $\frac{3}{8}$ " square bolt plates to **25** ft./lbs, Rear  $\frac{1}{2}$ " Crossmember skid plate bolts to **50** ft./lbs. Recheck all bolts on the front end for proper torque before proceeding to next step.



- Install the two front bump stop drop brackets (**82-5753 Drvr** and **82-5757 Pass**) to the rear crossmember using  $\frac{1}{2}$ " X  $1 \frac{1}{2}$ " bolts and hardware. Attach the bump stop drop brackets to the frame using the  $\frac{3}{8}$ " X  $1 \frac{1}{4}$ " bolts and hardware. See ILLUSTRATION 11. Torque the  $\frac{3}{8}$ " hardware to **20** ft./lbs and  $\frac{1}{2}$ " hardware to **35** ft./lbs. Attach the previously removed OE bump stops to the bump stop drop brackets and torque to **15** ft./lbs.

**NOTE: The bump stops will be engaged with the A-arms at ride height.**

- Assemble the new steering knuckles (**90-4245 drvr** and **90-4246 pass**) using the previously removed OE hub bearing assemblies and O-rings. Apply thread lock compound to the OE



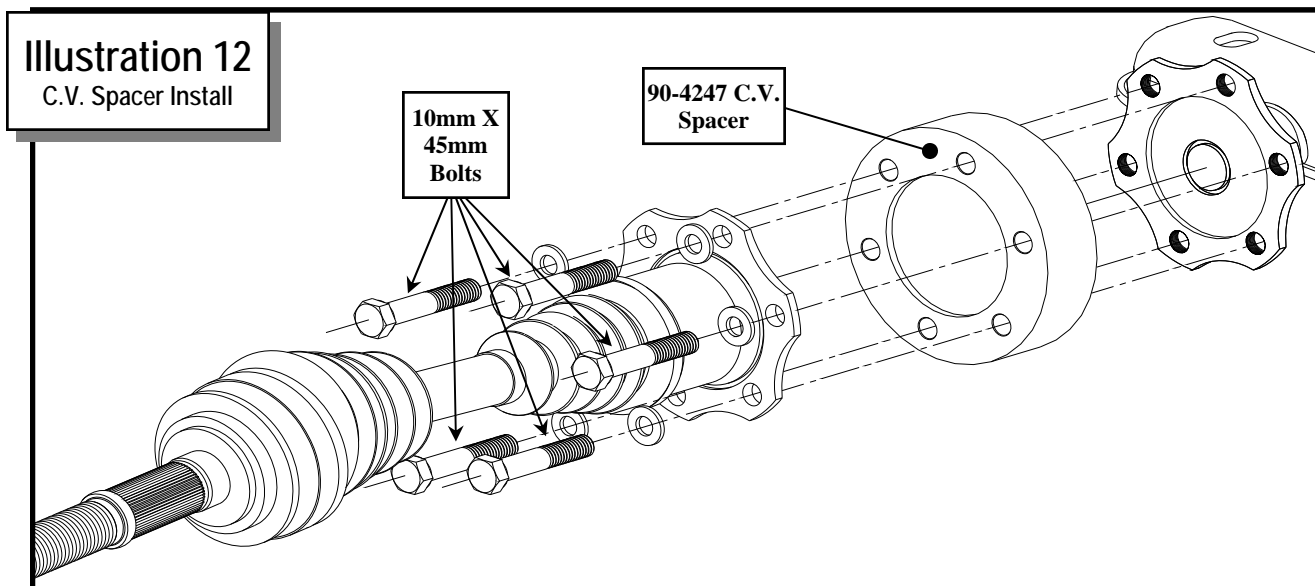
joint to **70** ft./lbs.

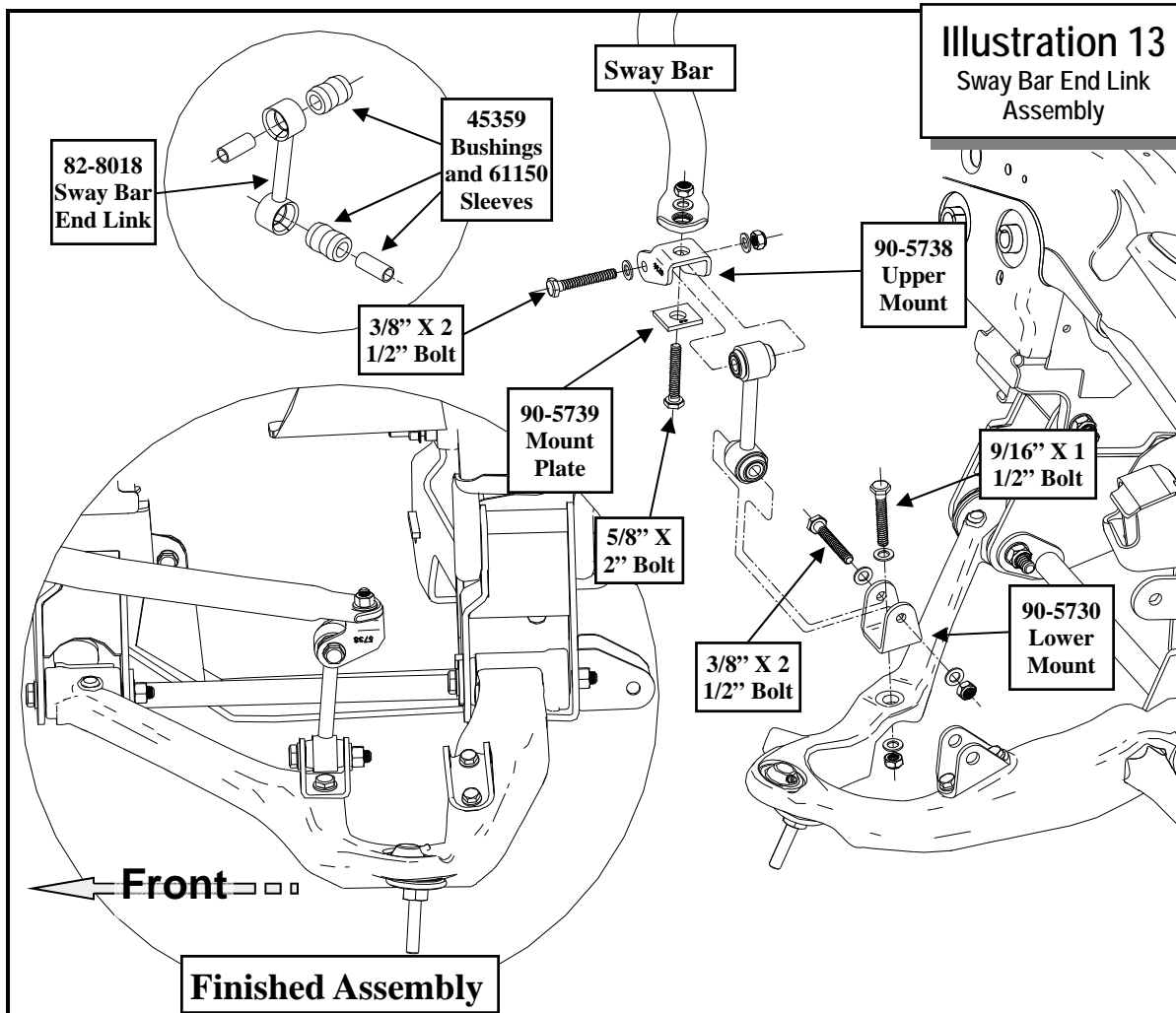
20. Turn the tie rod ends 180 degrees. Reattach the tie rod ends to the new knuckles using the previously removed **OE** nuts. Torque the factory nut to **30** ft./lbs.
21. Insert the CV shaft into the steering knuckle and reinstall the axle shaft washer and retaining nut. Be sure to use thread locker on the retaining nut. Torque the axle nut to **150** ft./lbs.
22. Place one of the CV spacers (**90-4247**) between the front differential drive flange and the CV. Use the **10mm X 45mm** bolts and washers provided in hardware pack (**90-6717**) through the CV and spacer and into the differential drive flange. Be sure to use thread lock compound on the bolts. See ILLUSTRATION 12. Torque the CV spacer bolts to **55** ft./lbs. in a criss-cross pattern.
23. Install the new Trailmaster shock absorbers (**TM75610W**) to the front installation. Torque the upper stem bushing to **15** ft./lbs. and the lower bolt to **35** ft./lbs.

hardware. Torque the flange bolts to **130** ft./lbs.

**NOTE:** Be sure the O-ring is placed in it's proper position while installing the hub.

19. Install the assembled knuckle to the upper and lower ball joints using the **OE** nuts. Torque the upper ball joint to **35** ft./lbs. and the lower ball
24. Reinstall the brake rotors and brake calipers. Torque the calipers to the knuckle to **70** ft./lbs. using the previously removed **OE** hardware. Be sure to use thread locker on these bolts.
25. Slide the brake hose clamp down and attach it to the top hole in the back of the steering knuckle using the previously removed **OE** bolt.





**Illustration 13**  
Sway Bar End Link  
Assembly

Torque the bracket hardware to **10** ft./lbs.

26. If you have ABS brakes, attach the ABS cable to the knuckle and upper control arm with zip ties. Check to make sure that the brake hose and ABS line is routed as to allow full turning radius to the steering without tire or suspension component contact.
27. Reattach the driveshaft to the differential yoke using the previously removed **OE** hardware. Torque U-joint straps to **19** ft./lbs.
28. Assemble the sway bar end links (**82-8018**) using the supplied bushings (**45359**) and sleeves (**61150**). See ILLUSTRATION 13.
29. Unbolt and remove the sway bar from the vehicle. Flip the bar upside down and reattach it to the **OE** mounting position.
30. Install the upper sway bar upper mount (**90-**

**5738**) to the sway bar using the **5/8" X 2"** bolts, mount plate (**90-5739**) and hardware. See ILLUSTRATION 13.

**NOTE: No washer is used on top of the bracket.**

31. Install the lower sway bar mount (**90-5730**) to the A-Arm using the **9/16" X 1 1/2"** bolts and hardware. See ILLUSTRATION 13.
32. Install the end links to sway bar mounts using the **3/8" X 2 1/2"** bolts and hardware. See ILLUSTRATION 13.  
**NOTE: The sway bar end link will be angled toward the rear of the vehicle.**
33. Torque the **5/8"** sway bar end link hardware to **135** ft./lbs. Torque the **9/16"** sway bar end link hardware to **95** ft./lbs. Torque the **3/8"** sway bar end link hardware to **45** ft./lbs.

34. Recheck all bolts on front end for proper torque before proceeding to next step.
35. Install the universal torsion bar cross member drops by locating part (82-5700) in place as shown in ILLUSTRATIONS 14. Clamp them in place to the bottom and face of the frame rail. The location is determined by centering the drop bracket holes on either side of the OE mounting rivet heads as shown in the detail view. Drill the four mounting holes per side (top and bottom) using a 7/16" drill bit. Using the supplied 7/16" X 1 1/4" bolts, fasten the drops to the frame rails leaving them slightly loose.

**NOTE:** When located properly the new torsion drop bushing eye will be located directly below the OE bushing eye.

36. From the factory, there are at least two different configurations for the torsion drop brackets. Included in the kit are adapters made specifically for these differences. The primary difference between the two pieces is the width of the cross member. Models with a torsion cross member width of 39 5/8" (bolt center to bolt center) will use torsion drop adapters (90-1638). Models with a torsion cross members with a width of 40 1/2" will use (90-1636). They are mounted to the universal adapters (82-5700) using four 3/8" X 1 1/4" bolts from parts pack (90-6223). See ILLUSTRATION 15.

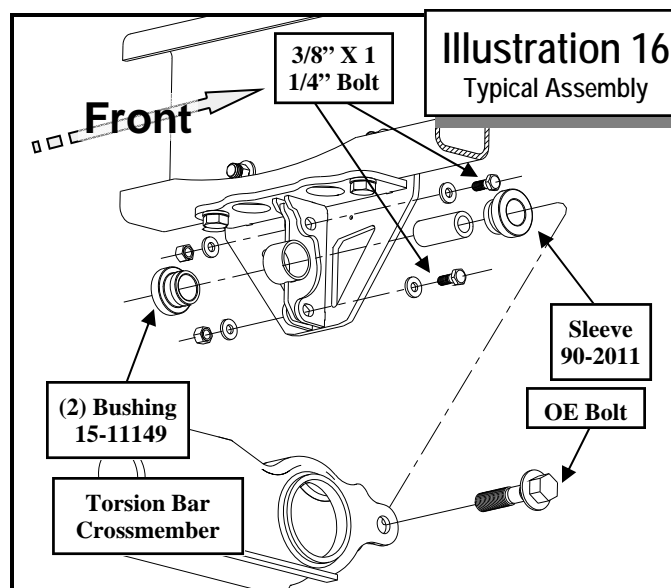
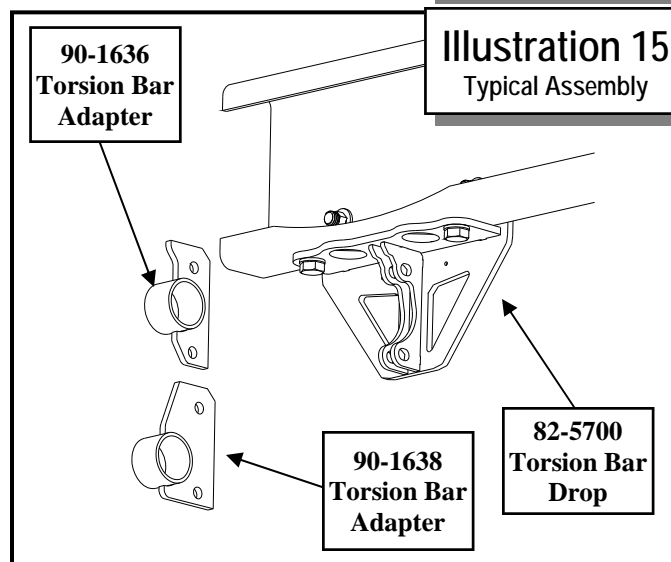
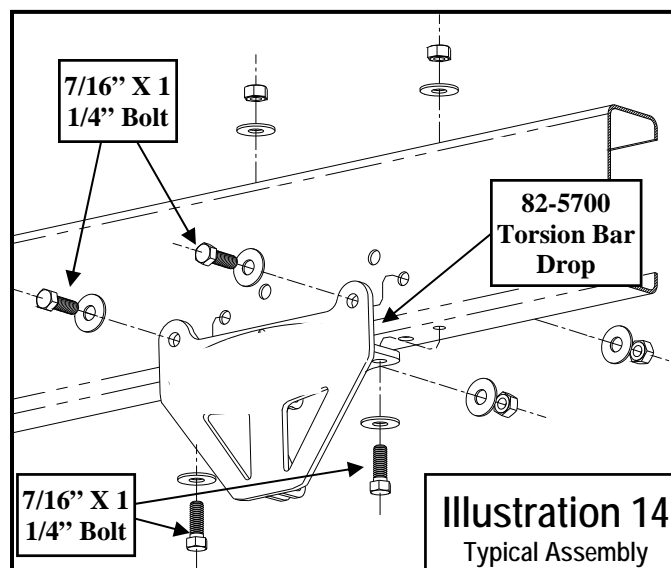
37. Torque the torsion bar drop hardware according to the torque chart on page 3.

38. Install the torsion bars into the front A-arms. Again, be very careful to install them with the same orientation that they were removed (i.e. left front to left front, right front to right front!).

39. Install the torsion bar crossmember as shown in ILLUSTRATION 16. Torque the OE cross-member bolts to 70 ft./lbs.

40. Install the torsion bars into the torsion bar crossmember. **Reset the torsion bar preload bolts using the measurements previously taken.**

41. Check the fluid in the front differential and fill if needed with factory specified differential oil.



***NOTE: Due to it's new position, the differential will accept additional fluid. Use the inspection plug, not the fill hole to add additional fluid. See ILLUSTRATION 3. Remove the inspection plug and fill the differential with fluid up to about a 1/2" below the inspection plug hole. DO NOT overfill the differential or it will leak out the vent tube.***

42. Lower the vehicle to the ground. Torque the lug nuts according to the wheel manufacturers recommendations. If the wheel contacts the front or rear of the wheel well some trimming will be necessary.

***NOTE: Remove OE rotor/drum retaining clips from wheel studs before installing the wheels.***

43. With the vehicle on the ground torque the lower A-arm bolts to **105** ft. lbs.
44. With the front wheels installed cycle the steering from lock to lock to check to make sure the front wheels have enough clearance in the wheel well. Check the caliper banjo fitting to ensure the line has the proper amount of slack. On both sides of the vehicle, check the routing of the brake lines and the ABS wire harnesses. There must be no pinching, rubbing, or stretching of either component. Use zip ties to secure these items to the steering components. At full droop, cycle the steering from lock to lock while observing the reaction of these components. Reposition them if needed.
45. On electronic stability control equipped vehicles, center the steering wheel and lock it in place. Set the toe by adjusting the tie rod ends properly. Lock the outer tie rod ends by tightening the jam nuts.

***IMPORTANT!: On electronic stability control equipped vehicles, if the steering wheel and front wheels are not centered properly it will trigger the anti-lock brake and traction control warning lights.***

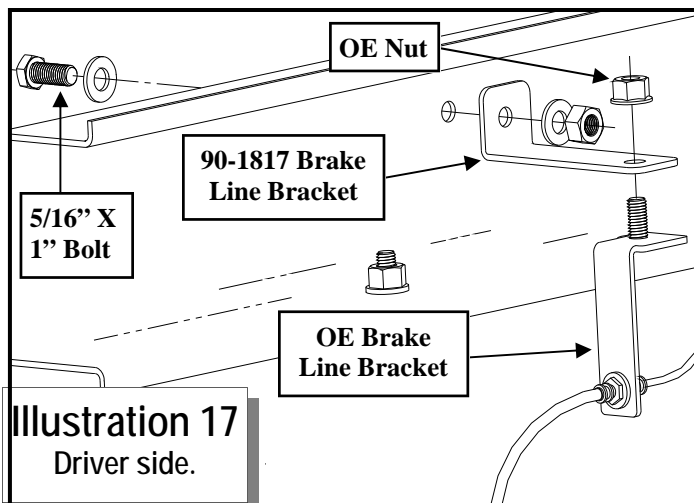
46. Recheck all hardware for proper installation and torque at this time. Reinstall the negative battery cable to the battery.

***IMPORTANT! BE SURE TO BRING THE VEHICLE IMMEDIATELY TO A REPUTABLE ALIGNMENT SHOP TO BE ALIGNED!***

## Rear Installation

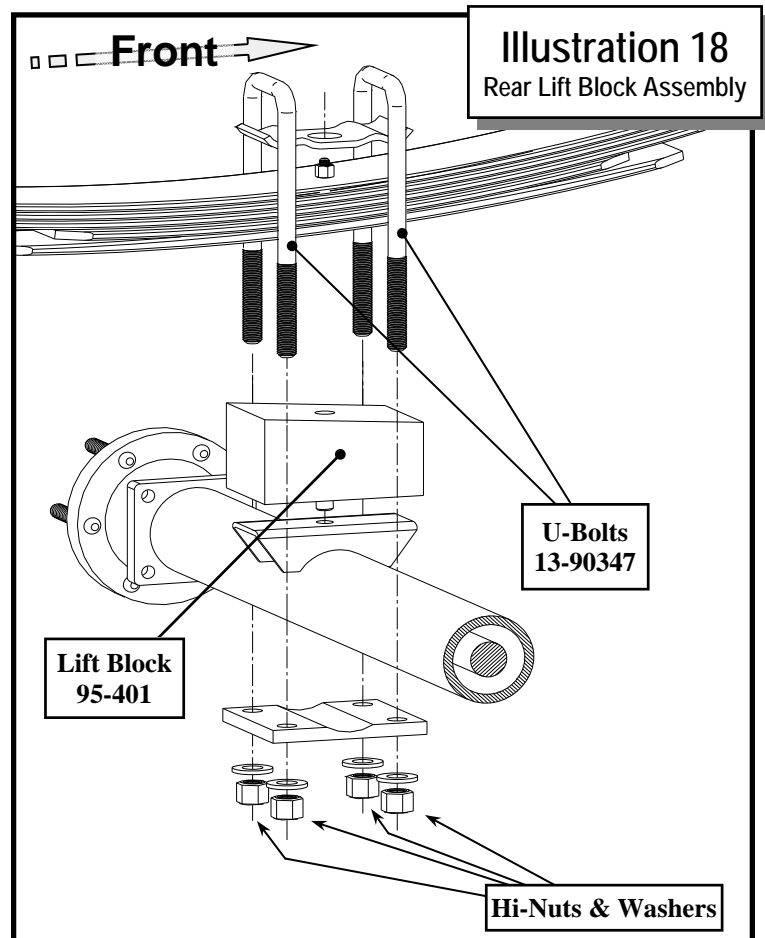
### Prepare Rear Suspension

1. Raise the rear of the truck enough for the tires to clear the ground and use jack stands on the frame to support the truck. Remove the rear wheels from the vehicle.
2. Carefully remove the **OE** shock absorbers. It may be necessary to raise the differential housing slightly to facilitate their removal.
3. Remove factory brake line bracket. Attach New brake line drop bracket (**90-1817**) to the existing hole in the frame using the **5/16 X 1"** bolt and hardware provided. Attach the factory brake line bracket to the new bracket using the previously removed **OE** hardware. See ILLUSTRATION 17.
4. Remove parking brake cable bracket from rear frame rail. Attach the supplied parking brake drop bracket (**90-1083**) to the **OE** bracket hole location using the previously removed **OE** hardware. Attach the stock bracket to the new drop bracket (**90-1083**) using the supplied **5/16" X 1"** bolts and hardware provided.
5. One side at a time, support the differential housing on the side being modified. Remove the "U" bolts from that axle end and discard. Carefully lower the differential away from the **OE** springs. Remove and discard the **OE** lift block from its mount pad. Take careful note of the position of the factory spring packs.



### Install Rear Suspension

1. Install the lift block (**95-401**), short end to the front, to the mount pad on the axle housing and raise the axle housing until the lift block hole fits around the new leaf spring center bolt. See ILLUSTRATION 19.  
*NOTE: Make sure the bottom of the lift block sits flat on the axle pad, if not the pin needs to be ground down until it does not hit the axle.*
2. Install the new "U" bolts over the leaf spring assembly and using the new washers and nuts supplied along with the existing spring plates, torque the U-bolt nuts to **120-130** ft./lbs. See ILLUSTRATION 18.
3. Repeat these steps on the other side of the vehicle.
4. Remove the **OE** bump stops from the frame.

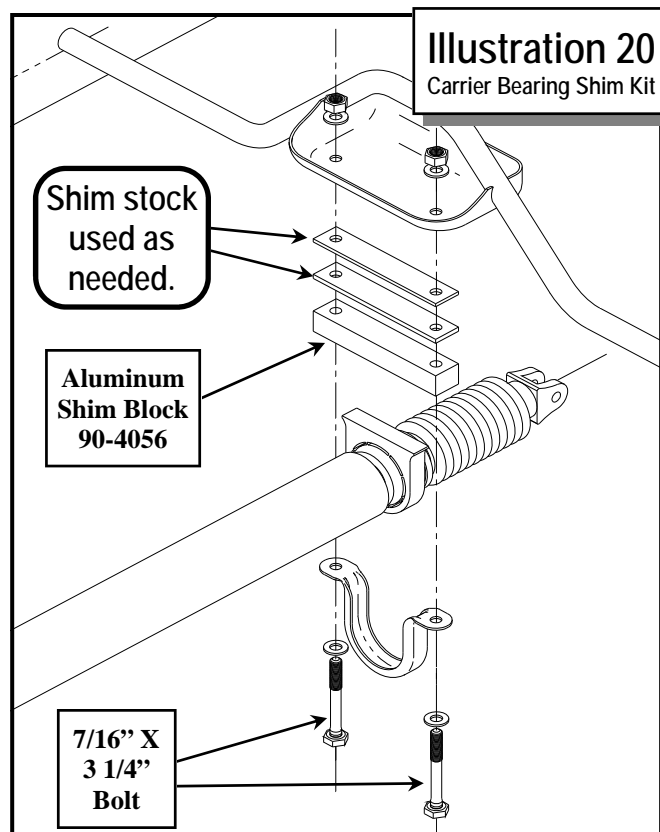
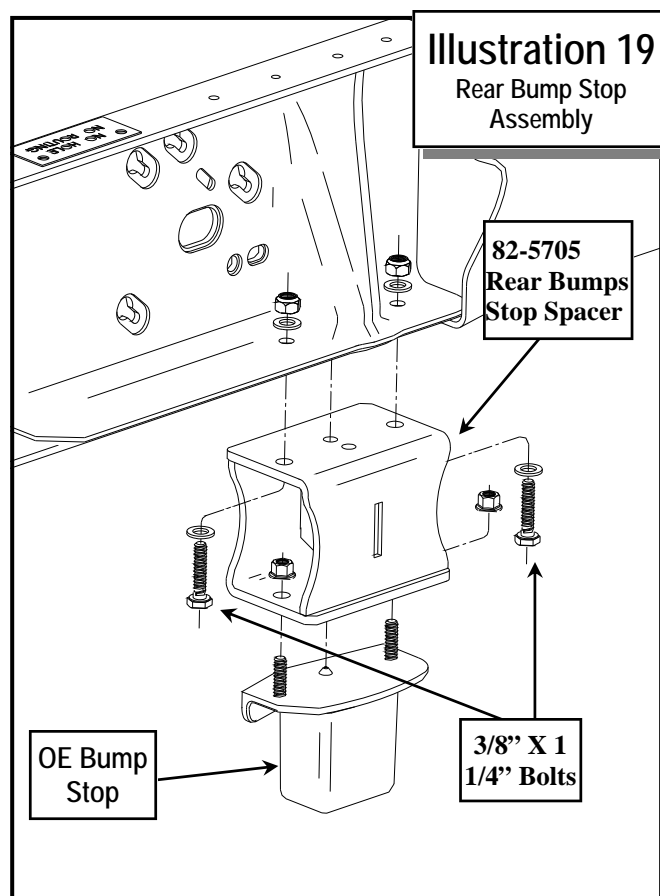


Install the rear bump stop spacers (82-5705) using the supplied 3/8" X 1 1/4" bolts and hardware. See ILLUSTRATION 19.

5. Secure the OE bump stops to the bump stop spacers (82-5705) using the previously removed OE hardware. See ILLUSTRATION 19.
6. Torque the bump stop OE hardware to manufacturers specifications and 3/8" hardware according to the chart on page 3.
7. Install your new Trailmaster shock absorbers (TM75620W) using the previously removed OE hardware. Torque the OE hardware and torque bolts to 65 ft./lbs.
8. **For vehicles with a two-piece driveshaft,** Install shim by removing the two nuts that secure the center drive shaft bearing and lower the center support.
9. Remove the existing pressed in bolts from the "U" shaped shell of the support bearing and drill out these holes using a 7/16" drill bit.
10. In addition to the 1" aluminum block, approximately 1/4" of shim thickness for each inch of rear lift is needed. Install the 1 1/2" shim block (90-4056) and a combination of the other shims until the desired spacing is achieved. Use the new 7/16" hardware to secure the bearing to the frame and torque the fasteners to 55 ft. lbs. See ILLUSTRATION 20.
11. Test drive your vehicle to check for driveline vibration. Adjust the shim pack if needed.

**NOTE:** 1/4" of shim for each inch of lift is *only a starting point. Only by driving the vehicle and adding or removing shims can the high speed vibration be totally eliminated. Any off the line vibration is caused by axle wrap up and cannot be eliminated with this product. Pro Comp traction bars will correct this condition. Contact your dealer for application information.*

12. Install your wheels and tires and lower the vehicle to the ground.
13. After installation is complete, double check that all nuts and bolts are tight. Refer to the chart at the end of this document for torque specifications. (Do not retighten nuts and bolts where Loctite® may have been used).



## Engine Compartment

1. Connect both battery cables. Connect positive cable first, then negative cable.

### Miscellaneous

1. Apply kit label (warning) onto dashboard in plain sight of all vehicle occupants.

2. Adjust headlights.

3. Check all fasteners to ensure they are tight.

4. Ensure all wires, hoses, cables, etc. are properly connected and there is ample slack.

### WARNING

If the engine cooling system is hot, the coolant will be HOT and UNDER PRESSURE. To prevent serious personal injury, wait until the cooling system is completely cool before removing the cap from the radiator.

5. Start engine and top off cooling system. Purge air from cooling system according to manufacturer's instructions. Install radiator cap.

6. Align vehicle

## Dynamic Vehicle Check

1. Check steering and suspension in all positions to ensure that there is no bind and adequate clearance between all moving, fixed, and heated members. Check operation of clutch, brake system, and parking brake. Check operation of transmission and transfer case. Ensure there is full engagement in all gears and 4WD ranges. Check battery connections and electrical component operations. Test-drive vehicle.

### WARNING

Retorque all fasteners after 500 miles and after off road use. All suspension lift components should be visually inspected and fasteners retorqued during routine vehicle servicing.

## Troubleshooting

1. Once the vehicle has been lifted, some vehicle vibration may become more apparent to the driver. The reason for the vibration may be due to the angle at which the driveline operates. A suspension lift increases the operating angle of the driveline and normal vehicle vibration is amplified. Some vibration characteristics are as follows:

a. Acceleration vibration: vibration felt during acceleration of the vehicle and caused by the rear axle pinion angle being too high.

b. Deceleration vibration: vibration felt during deceleration of the vehicle and caused by the rear axle pinion angle being too low.

c. General vibration: vibration caused by rear pinion angle in relation to the transfer case output shaft.

### WARNING

Re-torque all fasteners after 500 miles and after off road use. All suspension lift components should be visually inspected and fasteners re-torqued during routine vehicle servicing.

### Caution:

Larger wheel and tire combinations increase stress and wear on steering and suspension components, which leads to increased maintenance and higher risk for component failure. Larger wheel and tire combinations also alter speedometer calibration, braking effectiveness, center of gravity, and handling characteristics. Consult an experienced local off road shop to find what wheel and tire combinations work best with your vehicle.



## Kit Parts List:

### Box TM115N-1

<b>82-TM20056</b>	<b>FRONT CROSSMEMBER</b>	<b>1</b>
<b>90-6727</b>	<b>HARDWARE PACK: Front Crossmember</b>	<b>1</b>
70-0625501800	5/8" X 5" GR. 8 HEX BOLT	2
72-062100816	5/8" USS GR. 8 STOVER NUT	2
73-06200042	5/8" HARDENED FLAT WASHER	4
<b>82-8020</b>	<b>CROSSMEMBER SUPPORT TUBE</b>	<b>2</b>
<b>90-5736</b>	<b>SQUARE BOLT PLATE: Front Crossmember</b>	<b>2</b>
<b>90-5708</b>	<b>DIFFERENTIAL MOUNT: Drvr</b>	<b>1</b>
<b>90-6718</b>	<b>HARDWARE PACK: Drvr Differential Mount</b>	<b>1</b>
71-100601501000	10mm-1.5 X 60mm HEX BOLT GR. 10.9	5
73-01010940	10mm HARDENED FLAT WASHER	5
<b>90-6719</b>	<b>HARDWARE PACK: Differential Mounts</b>	<b>1</b>
70-0504501800	1/2" X 4 1/2" HEX BOLT GR. 8	1
72-050100816	1/2" STOVER NUT GR. C	1
73-05000034	1/2" HARDENED FLAT WASHER	2
70-0564501800	9/16" X 1 1/2" HEX BOLT GR. 8	2
72-056100816	9/16" STOVER NUT GR. C	2
73-05600034	9/16" HARDENED FLAT WASHER	4
<b>90-6657</b>	<b>HARDWARE PACK: Drvr Differential Mount</b>	<b>1</b>
15-11326	BUSHING	2
90-2109	SLEEVE	1
<b>90-6189</b>	<b>HARDWARE PACK: Differential</b>	<b>1</b>
90-2216	DIFFERENTIAL VENT EXTENSION	1
90-2217	HOSE MENDER: 5/16"	1
<b>82-8018</b>	<b>SWAY BAR END LINK</b>	<b>2</b>
<b>90-5730</b>	<b>SWAY BAR LOWER MOUNT</b>	<b>2</b>
<b>90-5738</b>	<b>SWAY BAR UPPER MOUNT</b>	<b>2</b>
<b>90-5739</b>	<b>SWAY BAR MOUNT PLATE</b>	<b>2</b>
<b>90-6720</b>	<b>HARDWARE PACK: Sway Bar</b>	<b>1</b>
70-0561501800	9/16" X 1 1/2" HEX BOLT GR. 8	2
73-05600034	9/16" HARDENED FLAT WASHER	4
72-056100816	9/16" STOVER NUT GR. C	2
70-0371501800	3/8" X 2 1/2" HEX BOLT GR. 8	4
72-037100816	3/8" STOVER NUT GR. C	4
73-03700034	3/8" HARDENED FLAT WASHER	8
70-0621501800	5/8" X 2" HEX BOLT GR. 8	2
73-06200034	5/8" HARDENED FLAT WASHER	2
72-062100816	5/8" STOVER NUT GR. C	2

<b>90-6721</b>	<b>HARDWARE PACK: Sway Bar Bushings</b>	<b>1</b>
45359	5/8" RUBBER HOURGLASS	4
61150	5/8" X 10mm X 1.480 " SLEEVE	4
<b>90-6705</b>	<b>HARDWARE PACK: Skid Plate</b>	<b>2</b>
70-0501501800	1/2" X 1 1/2" HEX BOLT GR. 8	2
72-050100816	1/2" STOVER NUT G. C	2
73-05000034	1/2" SAE HARDENED FLAT WASHER	4
<b>96-1505</b>	<b>WELD IN PLATE</b>	<b>1</b>
<b>90-6305</b>	<b>HARDWARE PACK: Rear Crossmembers</b>	<b>1</b>
70-0625501800	5/8" X 6" GR. 8 HEX BOLT	2
72-062100816	5/8" USS GR. 8 STOVER NUT	2
73-06200042	5/8" HARDENED FLAT WASHER	4
<b>82-5705</b>	<b>REAR BUMP STOP SPACER</b>	<b>2</b>
<b>Box TM115N-2</b>		
<b>91-5711</b>	<b>DIFFERENTIAL MOUNT: Pass</b>	<b>1</b>
<b>82-5732</b>	<b>CROSSMEMBER SKID PLATE</b>	<b>1</b>
<b>90-4245</b>	<b>KNUCKLE: Drvr</b>	<b>1</b>
<b>90-5812</b>	<b>WHEEL SPACER</b>	<b>1</b>
<b>82-5753</b>	<b>FRONT BUMP STOP BRACKET: Drvr</b>	<b>1</b>
<b>82-5757</b>	<b>FRONT BUMP STOP BRACKET: Pass</b>	<b>1</b>
<b>Box TM115N-3</b>		
<b>90-4246</b>	<b>KNUCKLE: Pass</b>	<b>1</b>
<b>95-401</b>	<b>4" REAR LIFT BLOCK</b>	<b>2</b>
<b>13-90347</b>	<b>U-BOLT: 5/8"-18 x 2.625" x 14.00"</b>	<b>4</b>
<b>20-65471</b>	<b>HARDWARE PACK: 5/8" High Nuts</b>	<b>1</b>
<b>Box TM115N-4</b>		
<b>90-4247</b>	<b>C.V. SPACER</b>	<b>2</b>
<b>90-6717</b>	<b>HARDWARE PACK: CV Spacer</b>	<b>1</b>
71-100451501000	10mm-1.5 X 45mm HEX BOLT GR. 10.9	12
73-01010940	10mm HARDENED FLAT WASHER	12
<b>82-5723</b>	<b>REAR CROSSMEMBER</b>	<b>1</b>

<b>90-6340</b>	<b>HARDWARE PACK:</b>	<b>2</b>
70-0431251800	7/16" X 1 1/4" GR. 8 HEX BOLT	4
73-04300034	7/16" SAE GR. 8 FLAT WASHER	4
72-04300100816	7/16" NYLOCK NUT	8
<b>90-6664</b>	<b>HARDWARE PACK:</b>	<b>1</b>
72-03700100816	3/8" FLANGE NUT Gr. 8	2
<b>82-5700</b>	<b>TORSION BAR DROP</b>	<b>2</b>
<b>90-1636</b>	<b>TORSION DROP ADAPTER: w/ 40 1/2" Torsion Bar Crossmember</b>	<b>2</b>
<b>90-1638</b>	<b>TORSION DROP ADAPTER: w/ 39 5/8" Torsion Bar Crossmember</b>	<b>2</b>
<b>90-6177</b>	<b>HARDWARE PACK: Torsion Drop</b>	<b>1</b>
<b>90-6298</b>	<b>HARDWARE PACK: Rear Brake Lines</b>	<b>1</b>
<b>90-1083</b>	<b>BRAKE LINE EXTENSION</b>	<b>1</b>
<b>90-1817</b>	<b>BRAKE LINE BRACKET: Rear</b>	<b>1</b>
<b>90-6299</b>	<b>HARDWARE PACK: Rear Brake Lines</b>	<b>1</b>
70-0311001500	5/16" X 1" GR.5 HEX BOLT	2
72-03100100512	5/16" NYLOCK NUT	2
73-03100030	5/16" SAE FLAT WASHER	4
<b>90-6223</b>	<b>HARDWARE PACK: Rear Bump Stop</b>	<b>3</b>
70-0371251800	3/8" X 1 1/4" GR. 8 HEX BOLT	4
72-037100816	3/8" USS STOVER NUT	4
73-03700034	3/8" SAE GR. 8 WASHER	8
90-2011	SPACER: 1.0" X .05" X 1.5	2
15-11149	BUSHING	4
90-4056	1" X 1 1/2" X 8" ALUMINUM SHIM BLOCK	1
90-1080	3/8" X 1 1/2" X 8" SHIM	2
90-1081	1/4" X 1 1/2" X 8" SHIM	2
90-1082	1/8" X 1 1/2" X 8" SHIM	2
<b>90-6216</b>	<b>HARDWARE PACK: Driveshaft Shim Kit</b>	<b>1</b>
70-04332501800	7/16" X 3 1/4" NC BOLT	2
73-04300042	7/16" HARDENED FLAT WASHER	4
72-043100816	7/16" NYLOCK NUT	2
<b>Box TM105N-5</b>		
<b>TM75610W</b>	<b>FRONT SHOCKS</b>	<b>2</b>
<b>TM75620W</b>	<b>REAR SHOCKS</b>	<b>2</b>

**Notice to Owner Operator, Dealer and Installer:**

Vehicles that have been enhanced for off-road performance often have unique handling characteristics due to the higher center of gravity and larger tires. This vehicle may handle, react and stop differently than many passenger cars or unmodified vehicles, both on and off-road. You must drive your vehicle safely! Extreme care should always be taken to prevent vehicle rollover or loss of control, which can result in serious injury or even death. Always avoid sudden sharp turns or abrupt maneuvers and allow more time and distance for braking! **Trail Master Suspension** reminds you to fasten your seat belts at all times and reduce speed! We will gladly answer any questions concerning the design, function, maintenance and correct use of our products.

**Please make sure your Dealer/Installer explains and delivers all warning notices, warranty forms and instruction sheets included with Trail Master Suspension product.**

Application listings in this catalog have been carefully fit checked for each model and year denoted. However, **Trail Master Suspension** reserves the right to update as necessary, without notice, and will not be held responsible for misprints, changes or variations made by vehicle manufacturers. Please call when in question regarding new model year, vehicles not listed by specific body or chassis styles or vehicles not originally distributed in the USA.

**Please note that certain mechanical aspects of any suspension lift product may accelerate ordinary wear of original equipment components.** Further, installation of certain **Trail Master Suspension** products may void the vehicle's factory warranty as it pertains to certain covered parts; it is the consumer's responsibility to check with their local dealer for warranty coverage before installation of the lift.

**Warranty and Return policy:**

**Trail Master Suspension** warrants its full line of products to be free from defects in workmanship and materials. **Trail Master Suspension's** obligation under this warranty is limited to repair or replacement, at **Trail Master Suspension's** option, of the defective product. Any and all costs of removal, installation, freight or incidental or consequential damages are expressly excluded from this warranty. **Trail Master Suspension** is not responsible for damages and / or warranty of other vehicle parts related or non-related to the installation of **Trail Master Suspension** product. A consumer who makes the decision to modify his vehicle with aftermarket components of any kind will assume all risk and responsibility for potential damages incurred as a result of their chosen modifications. Warranty coverage does not include consumer opinions regarding ride comfort, fitment and design. Warranty claims can be made directly with **Trail Master Suspension** or at any factory authorized **Trail Master Suspension** dealer.

**IMPORTANT!** To validate the warranty on this purchase please be sure to mail in the warranty card.

**Claims not covered under warranty-**

- Parts subject to normal wear; this includes bushings, bump stops, ball joints, tie rod ends and heim joints
- Discontinued products at **Trail Master Suspension's** discretion
- Bent or dented product
- Finish after 90 days
- Leaf or coil springs used without proper bump stops
- Products with evident damage caused by abrasion or contact with other items
- Damage caused as a result of not following recommendations or requirements called out in the installation manuals
- Products used in applications other than listed in **Trail Master Suspension's** catalog
- Components or accessories used in conjunction with other manufacturer's systems
- Warranty claims without "Proof of Purchase"
- **Trail Master Suspension** accepts no responsibility for any altered product, improper installation, lack of or improper maintenance, or improper use of our products.

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**Website: [www.trailmastersuspension.com](http://www.trailmastersuspension.com)**

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