



2265 Crosswind Drive • Prescott, AZ 86301  
(928) 636-3175

## JT522 & JT522 SSV

1997-2002 Jeep Wrangler (TJ) 4x4

6 Cylinder Models

4" Suspension Lift

## INSTALLATION INSTRUCTIONS



### WARNING

1. Read and understand all instructions, warnings and cautions in these instructions, your owner's manual and related service manuals before the installation or use of this product. **DO NOT** install or use this product if there is anything you do not understand in these instructions or related materials.

2. Certain Trail Master products are intended to improve off-road performance. Modifying your vehicle for off-road use may result in the vehicle handling differently than a factory equipped vehicle. Use of oversize tires, suspension lifts, body lifts and other suspension modifications may raise your vehicle's center of gravity resulting in an increased tendency for the vehicle to pitch and roll during sudden turns or abrupt maneuvers. Extreme care must be used to prevent loss of control or vehicle roll over. Failure to drive your modified vehicle safely may result in serious injury or death. Drive at reduced speeds to ensure your ability to maintain control of the vehicle under all driving conditions. **Always** wear seat belts.

3. **DO NOT** combine suspension lifts, body lifts or other lift devices. Combined use of lifts may result in unsafe and/or unexpected handling characteristics (see enclosed product safety WARNING label).

4. Many states now have laws restricting vehicle modifications such as lift, bumper height or other alterations. Consult your state vehicle equipment laws to determine if the installation of this kit or other modifications are permitted.

5. The use of larger than OE tire and wheel combinations may reduce the effectiveness of the braking system (including ABS equipped) and increase the amount of pedal pressure necessary to obtain a given braking distance with normal stops and increase the stopping distance in a panic stop. Drive at reduced speeds and allow for extra stopping distance while driving a vehicle



### WARNING

equipped with larger than OE tires. Discuss this issue with your tire and wheel dealer before installing larger tires and do not use tire and/or wheel combinations that compromise safe braking performance.

6. Supplied in this kit is a safety WARNING label. Install this label inside the cab of the vehicle where it will be highly visible to all operators of the vehicle.



### CAUTION

1. Proper installation of Trail Master products requires knowledge of recommended procedures for disassembly/assembly of OE vehicles and components (i.e. steering tie rods, control arms, brake calipers, etc.). Access to OE shop manuals and special tools is required. Attempting to install this kit without knowledge of these procedures may affect the safety of your vehicle and/or the performance of these components. Trail Master strongly recommends that this kit be installed by a certified mechanic with off-road experience.

2. Use the appropriate tool for the job and be sure that tools are in good condition. Failure to use proper tools and/or tools in good condition may result in personal injury.

3. Always wear safety glasses while installing this kit to avoid eye damage from debris, broken tools, etc.

4. Use Loctite 243 thread locker on all metal fasteners (per the manufacturers directions) unless otherwise noted in these instructions. Failure to use thread locker may result in fasteners becoming loose over time.

5. The components included in this kit require regular inspection for wear or damage. Periodically check fasteners for proper torque (see chart of required torque specifications on next page). Worn, damaged or loose parts can fail suddenly resulting in loss of control of the vehicle and personal injury.

## PRE-INSTALLATION NOTES



### WARNING

1. Properly block and secure vehicle prior to installation.

**Compare parts included in your system with the enclosed parts list. Placing hardware with components before you start may reduce installation time. Contact your Trail Master dealer if any parts are missing or appear to be different than those indicated on the parts list.**

# GLOSSARY OF TERMS

- TM: Trail Master
- DRV: Drivers side of the vehicle
- PASS: Passengers side of the vehicle
- OE: Original equipment
- SRS: Supplemental Restraint System

- 10mm x 80mm Coarse Thd Bolt (10MO80H150) ..... 2
- 1/4" x 1 5/8" Safety Snap Pin (14158SSP) ..... 2



## TORQUE SPECIFICATIONS

- 1/4 FASTENERS ..... 10'LBS
- 5/16 FASTENERS ..... 17'LBS
- 3/8 FASTENERS ..... 30'LBS
- 7/16-14 FASTENERS ..... 50'LBS
- 7/16-20 FASTENERS ..... 55'LBS
- 1/2-13 FASTENERS ..... 75'LBS
- 1/2 U-BOLTS ..... 65-80'LBS
- 9/16 FASTENERS ..... 110'LBS
- 9/16 GRADE 8 FASTENERS ..... 170'LBS
- 9/16 U-BOLTS ..... 75-90'LBS
- 5/8 FASTENERS ..... 150'LBS
- 5/8 U-BOLTS ..... 85-110'LBS
- 3/4 FASTENERS ..... 175'LBS

## PARTS LIST

- Front Coil Spring 4" (TJ) (232) ..... 2
- Upper Sway Bar Link Mount (960909) ..... 2
- Bump Stop Relocator (961114) ..... 4
- Anti-Sway Bar Links (911104) ..... 2
- Quick Disconnect Anti-Sway Bar Links (961203) ..... 2
- Wrangler Pitman Arm (PA-40) ..... 1
- Warning label (WL002) ..... 1
- Rear Coil Spring 4" (233) ..... 2
- Lower Suspension Arm (990802) ..... 4
- Trunion Assy (990509) ..... 4
- Boot (SB06BBK) ..... 4

### JTJ44BAG1:

- Half Bushing with 5/8" I.D (SB30BBK) ..... 4
- Rubber Stem Bumper (970102) ..... 2
- 3/8" x 1 1/2" Coarse Thd bolt (38112CHHC) ..... 2
- 5/16" Flat Washer (W56F) ..... 4
- 3/8" Coarse Thd Lock Nut (N38CL) ..... 2
- Straight Wall Bushing (SB43BBK) ..... 2
- 1/2" Coarse Thd Lock Nut (N12CL) ..... 4
- .625 OD x 1.25 LG Sleeve (36) ..... 2
- 1/2" x 3-1/2" Button Head (12312BHSCS) ..... 2
- 1/2" SAE Flat Washer (W12S) ..... 4
- 3/4" SAE Flat Washer (W34S) ..... 4
- 1/2" x 2 1/2" Carriage Bolt (12212CCGE) ..... 2
- Internally Threaded Collar/Nut (961201) ..... 2



### JTJ44BAG2:

- Transfer Case Bolt Bushing Sleeve (YJTC1) ..... 6
- Transfer Case Spacer Tubes (YJTC2) ..... 6



- 1/2" x 3" Coarse Thd Bolt (12300CHHC) ..... 6
- Shift Linkage Bracket (971103) ..... 1
- 1/4" x 1" Carriage Bolt (14100CCGE) ..... 2
- 1/4" Coarse Locknut (N14CL) ..... 2
- 1/4" Tenniferman Nut (14100TENN) ..... 2
- 1/4" Flat Washer (W14F) ..... 2



### JTJ44BAG3:

- Urethane Bushing with 5/8" ID (SB30BBK) ..... 8
- .625 OD x 1.25 LG Sleeve (36) ..... 4
- 10mm x 80mm Coarse Thd Bolt (10M080H150) ..... 2

### JTJ44BAG4:

- .750 OD x 1.125 LG Sleeve (53) ..... 4
- 5/16" x 2" Coarse Thd Bolt (56200CHHC) ..... 4
- 1/4" Flat Washer (W14F) ..... 4

### Lower Link Hardware Bag (8068BAG) ..... 2

- Control Arm Bushing (920902) ..... 16
- .875 OD x .120 W x 2.62 LG Sleeve (125) ..... 8
- Grease Fitting (920501) ..... 8
- Tie Wrap (SHKTIE) ..... 2
- Front SSV Series Shock (72750) ..... 2
- Rear SSV Series Shock (72820) ..... 2

## ADDITIONAL NOTES

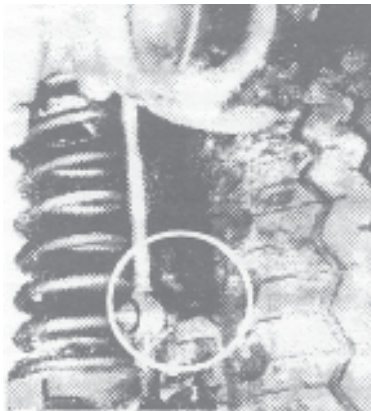
1. The TJ comes from the factory with a variety of factory options such as engine sizes, hard top or soft top, all of which affect the rake ie... how parallel the body is with flat ground. The TJ is fairly sensitive to changes in its weight so consequently varies from one TJ to the next. Other aftermarket add-ons like winches, racks over the spare tire, tool boxes, and the like will also affect rake. The JT622 is designed to work on all TJ Wranglers, but the ride height may vary based on how your TJ is outfitted. Vehicles subjected to long term overload situations will experience an abnormal amount of spring settling which is not covered by Trail Master's warranty. See "Warranty". Also, your TJ is not a Ferrari, so care must be taken to treat your vehicles' handling characteristics with respect. See "Product Safety Warning".

2. The recommended tire size for use with the JT622 system is a 33" x 12.50" x 15".

3. Due to short drive shaft lengths, some vibration may occur. Drive line angles may require tuning, slider on shaft may require replacement, shafts may need to be lengthened, shafts may need to be trued, and U-joints may require more frequent replacement.

4. Care must be taken when installing the JT622 system on manual transmission vehicles with a 13" rear drive shaft. Serious driveline vibrations may be experienced. Modifying the rear tail shaft housing and replacing drive shafts may be necessary to reduce vibrations. Serious vibrations will dramatically reduce OE component life.

5. After installing kit, be sure there is no tire or wheel contact at the front anti-sway bar axle brackets as shown below.



## INSTALLATION INSTRUCTIONS

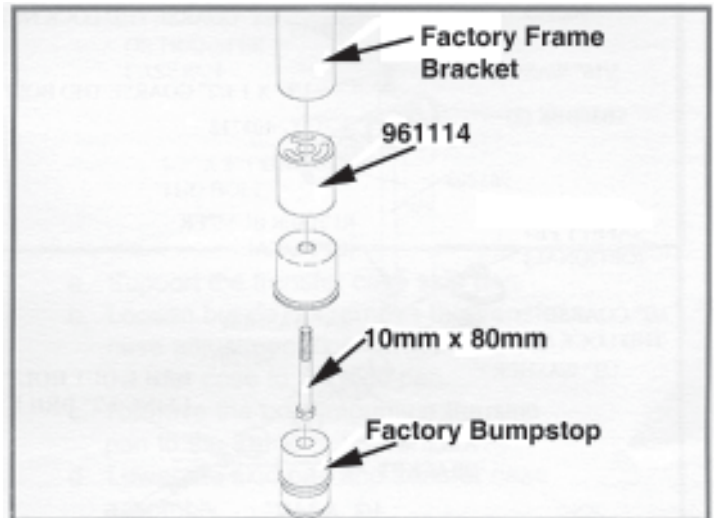
### A. LIFT AND SECURE FRONT OF VEHICLE

1. Block the rear wheels of the vehicle.
2. Lift the front of the vehicle with a jack.
3. Support the vehicle with jack stands at the frame rails.
4. Remove the front wheels and tires.

### B. FRONT SUSPENSION INSTALLATION

1. Support axle.
2. Disassemble front Suspension. Save OE hardware for reinstallation.
  - a. Remove shocks.
  - b. Remove the anti-sway bar end links.
  - c. Disconnect the track bar at the axle.
  - d. Remove the spring retainer clamps.
  - e. Mark alignment cams for proper reassembly.

- f. Remove the lower suspension arms.
    1. Mark each arm front and rear.
  - g. Lower the axle.
  - h. Remove the front springs.
  - i. Remove the bump stops and the bump stop cups.
  - j. Disconnect the drag link from the pitman arm.
  - k. Remove the pitman arm.
3. Front suspension installation.
    - a. Install TM pitman arm (PA-40).
    - b. Install the drag link onto the TM pitman arm.
    - c. Install bump stop spacer (961114) and the factory bump stop cups, using (1) 10mm x 80mm coarse threaded bolt as shown in **Fig. 1**.



**Fig. 1**

- d. Install the OE bump stop into the OE cup.
  - e. Install the TM front coil springs (232) into the OE spring mounts.
  - f. Install the OE spring retainer clamps.
  - g. Assemble arms as shown, **Fig 10**. **NOTE:** Install bushings, sleeves, and grease fittings in control arms.
  - h. Lubricate mounts by applying grease through zerkl fittings.
  - i. Position control arm inside frame mount pocket. **NOTE:** The bent portion of the control arm mounts to the axle.
  - j. Retain by loosely installing the OE pivot bolt.
  - k. Rotate arm toward front axle positioning lower end mount inside axle mount bracket. Retain by loosely installing the OE alignment cams and bolts. **NOTE:** It may be helpful to adjust the passenger side cam adjuster so as to position the axle as far forward as possible when installing replacement arm.
  - l. Install front shock absorbers (72750-W or see WARNING).  
Front extended length: 22 1/4"  
Front collapsed length: 13 1/4"
4. Move track bar mount hole over to the DRV side 3/4" as shown in **Fig. 2**.
    - a. Measure horizontally from the center of the OE track bar mount hole straight over to the DRV side of the vehicle 3/4" and scribe a line.



# WARNING

We strongly recommend using the Trail Master shocks that were engineered to be used with this kit. If you use other shocks, they **MUST** match the full extended and full collapsed lengths of the Trail Master units EXACTLY. The use of longer or shorter shocks than recommended may cause damage to the vehicle suspension and could result in sudden loss of control of the vehicle and personal injury. Contact Trail Master for the exact lengths of the front and rear shocks that must be used with this suspension kit.

- b. Drill a 1/2" hole at this point.
  1. You must drill through both halves of the track bar mount.
  2. You must drill the hole as square as is possible.
5. Assemble & install the anti-sway bar end links (961203) as shown in **Fig. 3**.
  - a. **NOTE:** Drill out OE anti-sway bar axle brackets using a 1/2" drill.
6. Reinstall the wheels and tires.

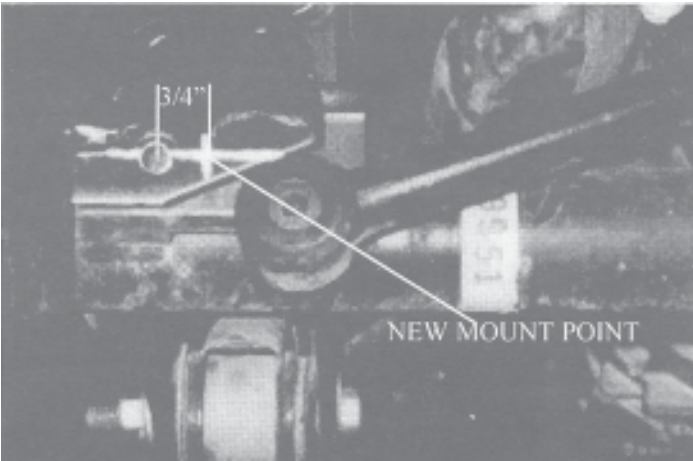


Fig. 2

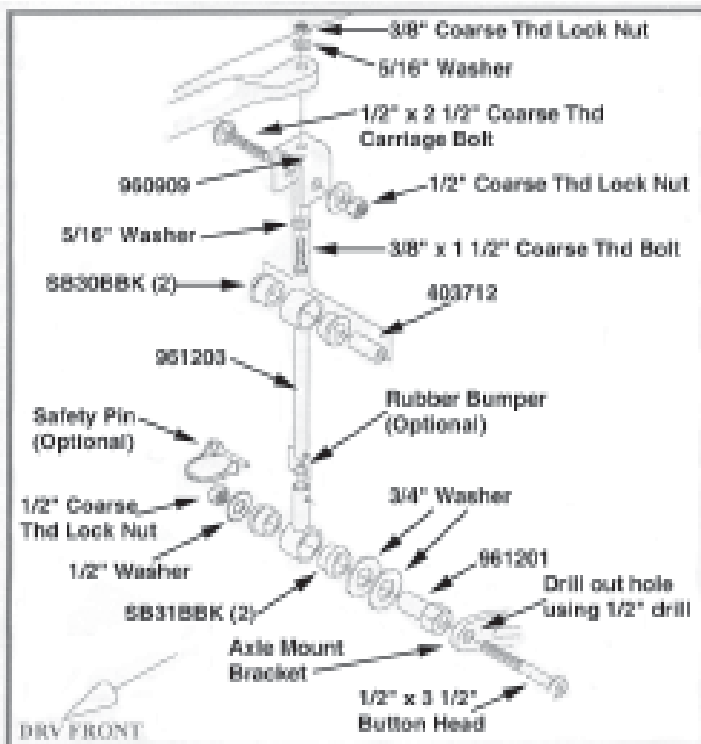


Fig. 3

7. Lower the front of the vehicle to the ground.

## C. LIFT AND SECURE REAR OF VEHICLE

1. Block the front wheels of the vehicle.
2. Raise the rear of the vehicle using a jack.
3. Support the vehicle with jack stands at the frame rails.
4. Remove the rear wheels and tires.

## D. REAR SUSPENSION INSTALLATION

1. Support the axle.
2. Disassemble the rear suspension.
  - a. Remove the shocks.
  - b. Remove the sway bar end links.
  - c. Remove the track bar at both ends. Mark the ends DRV and PASS for reinstallation.
  - d. Remove the lower suspension arms.
  - e. Lower the rear axle.
  - f. Remove the springs.
  - g. Remove the bump stops and the bump stop cups.
3. Move the axle track bar mount hole over 3/4" to the PASS side of the vehicle as shown in **Fig. 4**.
  - a. Measure horizontally from the center of the OE axle track bar mount hole straight over to the PASS side of the vehicle 3/4" and scribe a line.
  - b. Drill a 1/2" hole at the point which you just marked.
    1. You must drill through both sides of the track bar mount bracket.
    2. You must drill the hole as square as is possible.
4. Reassemble the rear suspension.
  - a. Install the TM bumpstop extensions (961114) and the OE bumpstop cups using (1) 10mm X 80mm coarse threaded bolt as shown in **Fig. 5**.
  - b. Install the OE bumpstops into the OE cups.

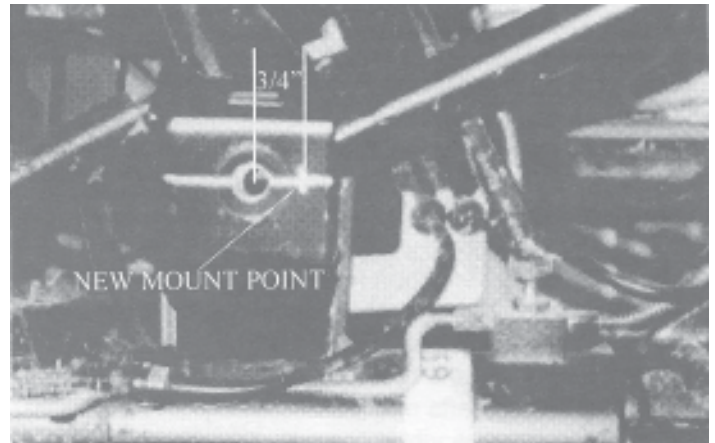


Fig. 4

- c. Install the TM rear coil springs (233) into the OE spring mounts.
- d. Assemble arms as shown, **Fig 10**. **NOTE:** Install bushings, sleeves, and grease fittings in control arms.
- e. Lubricate mounts by applying grease through zerk fittings.
- f. Position control arm inside frame mount pocket. **NOTE:** The bent portion of the control arm mounts to the axle.
- g. Retain by loosely installing the OE pivot bolt.
- h. Rotate arm toward front axle positioning lower end mount inside axle mount bracket. Retain by loosely installing the OE alignment cams and bolts. **NOTE:** It may be helpful to adjust the passenger side cam adjuster so as to position the axle as far

forward as possible when installing replacement arm.

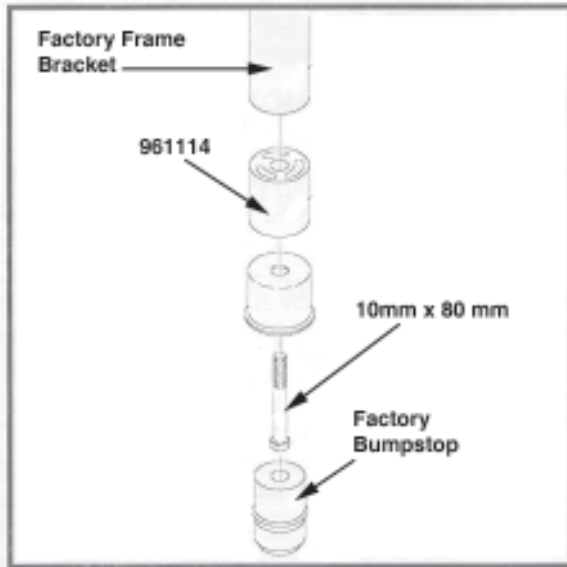


Fig. 5

- i. Raise the rear axle.
- j. Install rear shock absorbers (72820-W or see WARNING).

Rear extended length: 26"

Rear collapsed length: 15 7/16"

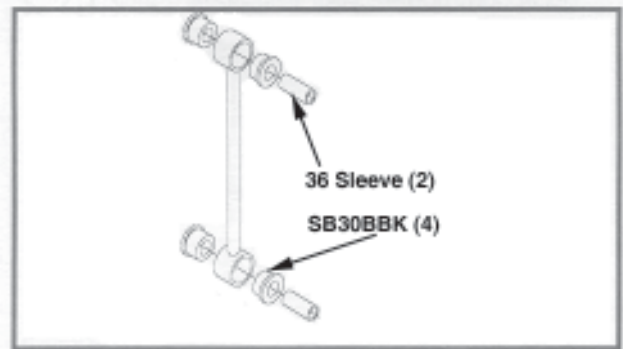


Fig. 6

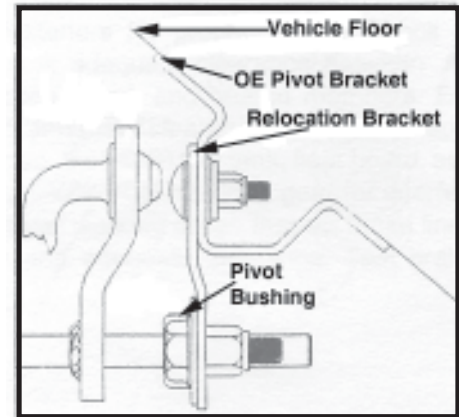


Fig. 7



## WARNING

We strongly recommend using the Trail Master shocks that were engineered to be used with this kit. If you use other shocks, they **MUST** match the full extended and full collapsed lengths of the Trail Master units EXACTLY. The use of longer or shorter shocks than recommended may cause damage to the vehicle suspension and could result in sudden loss of control of the vehicle and personal injury. Contact Trail Master for the exact lengths of the front and rear shocks that must be used with this suspension kit.

- k. Assemble and install rear anti-sway bar end links (961104) onto vehicle.
  - 1. Assemble the links as shown in **Fig. 6**.
    - a. Install (2) SB30BBK bushings into each end.
    - b. Install (1) #36 sleeve into each end.
  - 2. Install the assembled anti-sway bar link onto the OE mounts using the OE hardware.
- l. Install the track bar into the new axle mount hole which you drilled.
- m. Reinstall the rear wheels and tires.
- n. Lower the vehicle back to the ground.
- 5. Install pivot bracket as shown in **Fig. 7**.
  - a. Disconnect shift linkage pivot bushing from bracket on underside of floor. Retain hardware for re-use.
  - b. Remove bracket from underside of floor. Retain hardware for re-use.
  - c. Position pivot relocation bracket on OE pivot bracket.
  - d. Insert 1/4"-20 x 1" carriage head bolts through OE and relocation brackets. Maintain assembly by installing 1/4"-20 tennerman nuts.
  - e. Install 5/16" flat washers and 1/4"-20 lock nuts. Torque to specifications.
  - f. Install OE pivot bushing on relocation bracket. Retain with OE hardware. Torque to specifications.
  - g. Reinstall bracket assembly on under side of floor. Retain with OE hardware. Torque to specifications.
- 6. Lower transfer case as shown in **Fig. 8**.
  - a. Support the transfer case skid pan.
  - b. Loosen but do not remove the transfer case adjustment bolts holding the transfer case to the skid pan.
  - c. Remove the bolts mounting the skid pan to the frame.
  - d. Lower the skid pan and transfer case assembly.
  - e. Install 1 5/8" long spacers (YJTC2) between the frame and the skid pan.
    - 1. Be sure to have the cupped end of the spacers engage the skid pan.
  - f. Retain the pan and the spacers by using (6) 1/2" X 3" coarse thd bolts, and (6) YJTC1.
    - 1. Be sure the YJTC1 seat into the skid pan.
  - g. Retighten the transfer case to pan mount bolts.

\*\*\*\*\*NOTE\*\*\*\*\*

**Some models may experience transfer case contact with the skid pan. Shim transfer case mount up to relieve interference area on pan. Operating vehicle with transfer case contacting the pan could result in component failure.**

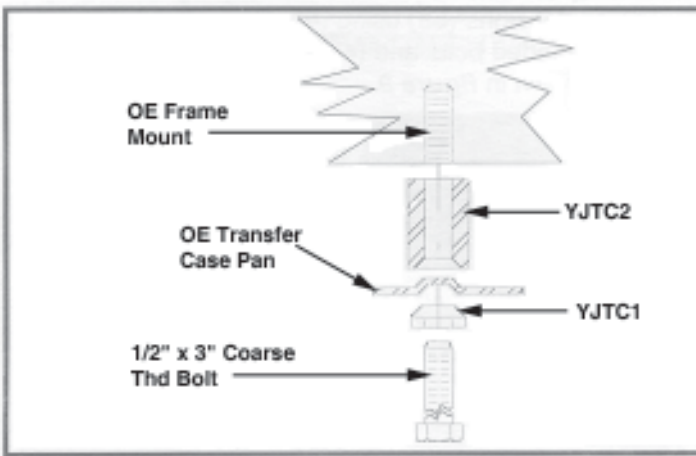


Fig. 8

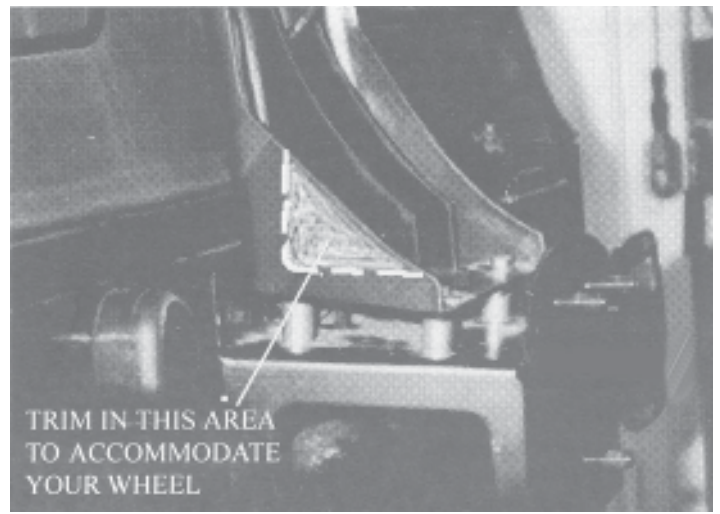
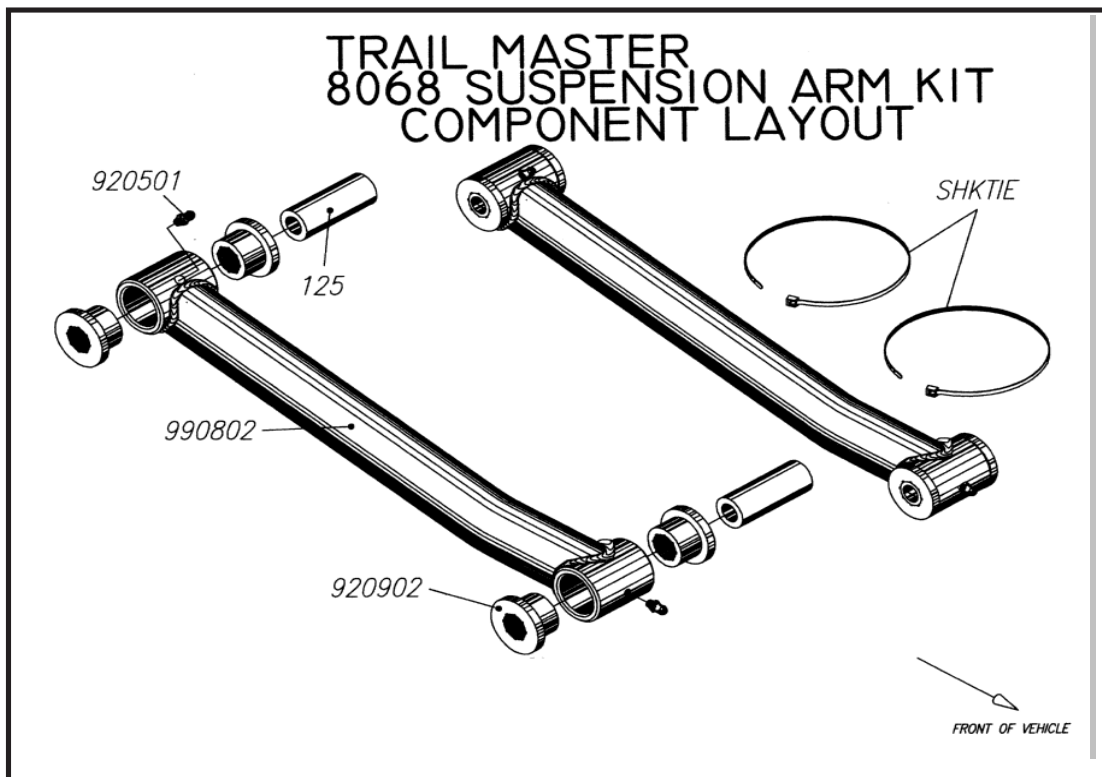


Fig. 9

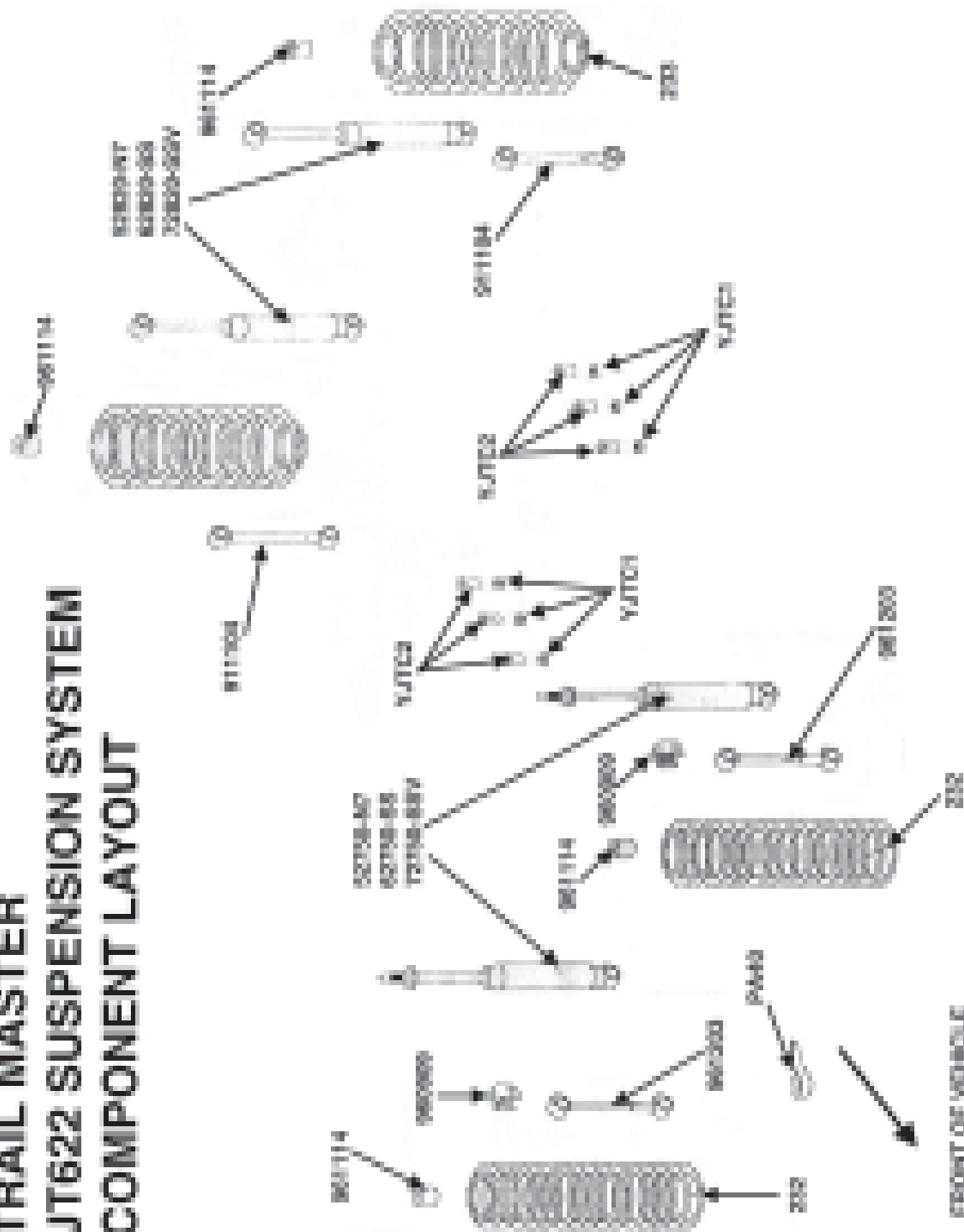
## E. FINAL VEHICLE PREPARATION

1. Bounce the vehicle several times front and rear to settle the springs.
2. Torque the front and rear suspension arms to OE specification.
3. Line up match marks on lower suspension arms and on the alignment cams, then tighten.
4. Install the front track bar into the new axle mount hole which you drilled.
  - a. It will be necessary to push the body of the vehicle towards the PASS side to get the track bar to line up.
5. Install the rear track bar into the OE frame mount.
  - a. It will be necessary to push the body of the vehicle towards the DRV side to get the track bar to line up.
6. If you are planning on using an over sized spare tire, install the third brake light extensions (53) using (4) 5/16" X 2" coarse threaded bolts and (4) 1/4" flat washers as shown in Fig. 9.
  - a. Trim the plastic light tower at the base to accommodate your particular tire and wheel.
7. Adjust the cross link to center steering wheel.
8. Have vehicle aligned.
  - a. Set alignment to OE specifications.
    1. Caster is to be set at 7 degrees with a range of +/- 1 degree.
    2. Camber is a fixed angle but should measure -.025 degrees with a range of +/- .63 of a degree.
    3. Toe-in should be .15 of a degree with a range of +/- .15 of a degree.
    4. Thrust angle should be 0 degrees with a range of +/- .15 of a degree.

Fig. 10



# TRAIL MASTER JT622 SUSPENSION SYSTEM COMPONENT LAYOUT



## POST-INSTALLATION NOTES



### WARNING

1. Check all fasteners for proper torque before driving the vehicle for the first time with this kit, after the first 500 miles, after each off-road use and during routine vehicle servicing. Worn, damaged or loose parts can fail suddenly resulting in loss of control of the vehicle and personal injury.
2. In ALL steering and suspension positions, check to ensure that there is adequate clearance between ALL rotating, moving, fixed and heated members. Ensure adequate clearance around steering components, exhaust components, brake lines, fuel lines, fuel tank and electrical wiring.
3. Visually inspect components for wear or damage after each off-road use and during routine vehicle servicing. Worn, damaged or loose parts can fail suddenly resulting in loss of control of the vehicle and personal injury.
4. Trail Master does not recommend a particular tire and wheel combination for use with its products and assumes no responsibility for customer choice of tires and wheels. Consult your owner's manual for recommended tire sizes and warnings related to use of oversize tires and wheels. In general, larger tire and wheel combinations may increase stress and wear on steering components leading to increased maintenance and greater risk of component failure, including loss of steering control. Property damage or personal injury may result. Large tire and wheel combinations may also alter speedometer calibration, reduce braking effectiveness and alter vehicle center of gravity height (See product safety warnings). Check with an experienced off-road shop for the tire and wheel combinations that work best on your truck. Remember, **BIGGER** isn't necessarily better.
5. Trail Master's goal is to provide you with the best system possible for a reasonable cost. It must be noted that the components in your Trail Master system do not eliminate OE component weaknesses.
6. Perform headlight adjustment.
7. Set vehicle alignment within OE specifications. The size of rim and tire combinations should be considered when making front end adjustments.
8. Retain this and all information regarding your altered vehicle for future reference. Thank you for choosing Trail Master. For questions, contact our Technical Assistance Department at (928) 636-3175.

## PRODUCT SAFETY LABEL

Supplied in kit is a safety warning label. Install label inside cab. Locate label in a highly visible location to all operators of this vehicle. If label becomes lost or damaged, contact Trail Master at (928) 636-3175 for a replacement.



### WARNING

The suspension of this vehicle has been modified to improve off-road performance. As a result, this vehicle may handle differently than factory equipped vehicles. Extreme care must be used to prevent loss of control or roll over during sharp turns or abrupt maneuvers. Failure to drive this vehicle safely may result in serious injury or death. Do not drive this vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Consult the instructions accompanying this product and the vehicle owner's manual for additional product safety warnings. Always wear seat belts, reduce your speed and drive safely.

*trail master*<sup>®</sup>



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