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CT10 N, S, SSV

1983-1994 GM S-10 / S-15

4WD Pickup and Blazer

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.

PRE-INSTALLATION NOTES

1. Not recommended for 1983 vehicles; if installed on 1983 vehicles, purchase of an additional **8025** sway bar kit and **8024** D-bolt kit required.

2. Special literature or tools required: OE service manual for model/year of vehicle. Necessary tools: OTC#J25517C or J 36202 torsion bar tool, ball joint and tie rod separators refer to **GM** manual, plasma cutting machine or cutoff wheel, disc grinder, die grinder with carbide burr or equivalent, and inclinometer. Additional tools unique to installation are mentioned in the following instructions.

3. System will not work on vehicles with ZR2 or highrider package.

4. Removal of portions of OE bracketry are necessary to accommodate this suspension system. Refer to FRONT INSTALLATION steps 11-14 for details.

5. Modification of exhaust crossover necessary to accommodate lowering of differential. Trail Master offers two kits to perform this modification. Part #CX43 for the 4.3 liter models up to 1992. Part #CX28 for the 2.8 liter models. Each kit comes complete with instructions and hardware. An experienced exhaust shop can perform this modification.

6. **Ride Height:** Due to payload options and initial ride height variances of the S vehicle, the designation of "4" lift is a "ground" figure. With OE torsion bar settings, your vehicle will retain it's stock attitude. Final ride height dimensions may vary in accordance to the original vehicle attitude.

7. Adhere to recommendations when replacement fasteners, retainers, and keepers are called out in OE manual. This system may not include all replacement fasteners recommended by the OE manual. Additional replacement fasteners should be obtained prior to installation of the system.

8. Thoroughly clean underside of vehicle prior to component installation. Concentrate on areas receiving bracketry.

9. If installation is to be performed without assistance of vehicle hoist, Trail Master recommends performing rear alterations first.

GLOSSARY OF TERMS

TM: Trail Master
DRV: Driver's side of the vehicle
PASS: Passenger's side of the vehicle
OE: Original equipment
SRS: Supplemental Restraint System

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

Bracketry

Upper Spring/U-Bolt Plate (CT10P)	2
Spring Perch/Axle Brkt (CT10SP)	2
Lower Control Arm Brkt Rear-Dvr (CT10CL)	1
Lower Control Arm Brkt Rear-Pass (CT10CR)	1
Lower Control Arm Brkt Front-Universal (CT10D)	2
Upper Control Arm Brkt Front-Dvr (CT10LF)	1
Upper Control Arm Brkt Front-Pass (CT10RF)	1
Upper Control Arm Brkt Rear-Dvr (CT10LR)	1
Upper Control Arm Brkt Rear-Pass (CT10RR)	1
Front Diff. Brkt-Pass (950113)	1
Front Diff. Brkt-Dvr Upper Straight (910904)	1
Front Diff. Brkt-Pass Upper Offset (910905)	1
Front Anti-Sway Bar Brkt '84-'94 (CT10SBD)	2
Torsion Bar Crossmember Brkt-Dvr (CT10FD)	1
Torsion Bar Crossmember Brkt-Pass (CT10FP)	1
Rear Crossmember Brkt (CT10R)	1
Steering Center Link (CT10S1)	1
Tie-rod Adjusting Sleeve (CT10TRX)	2
9/16-18 x 2-5/8" x 7-3/8" sq U-Bolt (0918258Q)	4

Shock Absorbers

Front 52620-W (N7), 62620-W (SS), 72620-W (SSV)	2
Rear 55430-W (N7), 65430-W (SS), 75430-W (SSV)	2

Hardware

7/8" O.D. x 2" Lg Sleeve (34)	4
7/8" O.D. x 1-11/16" Lg Sleeve (66)	4
7/8" O.D. x 1-1/4" Lg Sleeve (67)	1
7/8" O.D. x 3/8" Lg Sleeve (60)	1
1/2" Sq Washer (CT10LP)	10
1/2" Channel Brkt (CT10BP)	2
3" Relocation Brkt (B301WS)	4
2" Shaped Brake Line Brkt (T86FBB)	1
9/16-18 Hex high Nut (N96FH)	8
9/16-12 x 3-1/2" Hex Head Bolt (96312CHHC)	4
9/16" SAE Flat Washer (W96S)	8
9/16-12 Hex Lock Nut (N96SCL)	4
1/2-13 x 4" Hex Head Bolt (12400CHHC)	4
1/2-13 x 3" Hex Head Bolt (12300CHHC)	1
1/2-13 x 1-1/2" Hex Head Bolt (12112CHHC)	10
1/2-13 x 1-1/4" Hex Head Bolt (12114CHHC)	4
1/2-13 Hex Locknut (N12CL)	19
12mm-1.75 x 90mm Hex Head Bolt (12M090H175)	1
7/16"-14 x 1-1/4" Hex Head Bolt (76114CHHC)	9
1/2" x 12mm Flat Washer (W12F)	42
7/16-14 Hex Locknut	9
3/8-16 x 1-1/4 Hex Head Bolt	5
3/8-16 x 1-1/4 Self Tapping Hex Head Bolt (38114HWHT)	2
5/16" Flat Washer (W56F)	22
3/8-16 Hex Locknut (N38CL)	9
9/16" Flat Washer (W96F)	8
3/8" Flat Washer (W38F)	20
5/16-18 x 1" Hex Head Bolt (56100CHHC)	2
5/16-18 Hex Locknut (N56CL)	2
1/4" & 5/16" Flat Washer (W14F)	8
1/4-20 Tenniferman Nut (14100TENN)	4
1/4-20 Hex Locknut (N14CL)	4
1/4-20 x 1" Carriage Head Bolt (14100CCGE)	4
3/4" O.D. x 1-1/4" Lg Sleeve (53)	4
3/8-16 x 2-1/2" Lg hex Head Bolt (38212CHHC)	4
3/32" x 1-1/4" Lg Cotter Key (332114)	2
1/8" x 1-1/4" Lg Cotter Key (180114)	3

FRONT INSTALLATION INSTRUCTIONS

1. Block and secure vehicle. Disconnect battery. Remove battery and box on late models to access vacuum shift actuator. On early models, actuator is located rearward of battery, not requiring removal of battery. Remove spring clip and remove cable from actuator on both models.

2. Raise vehicle with hydraulic jack or equivalent and place jack stands under frame away from lower control arm anchors. Remove wheels, skid plates, and front sway bar.

3. Measure length of exposed thread on torsion bar adjustment bolts. Record figures here, DVR _____, PASS _____ for use when reassembling. Using #J22517C or #J36202 torsion bar tool or equivalent, unload torsion bars.

4. Tag torsion bars DVR front and PASS front, respectively. Remove rear torsion bar crossmember and torsion bars.

Note: On some models loosening or removal of exhaust system may be required to remove torsion bar crossmember.

5. Using hydraulic jack or equivalent, support lower control arm. Dislodge and unplug ABS wire at frame, when so equipped. Remove fasteners attaching brake line and ABS wire to frame and upper control arm. Remove brake caliper from knuckle and safely support. **Do not allow caliper to hang by hose!**

6. Remove fasteners retaining DVR inner C. V. joint to differential flange. Disengage flange from differential. Remove shock. Disengage outer tie rod from knuckle. Disengage upper ball joint from knuckle. Remove D-bolts from upper control arm. Remove upper arm from chassis.

7. Remove bolts attaching lower control arm to frame. Remove arm/knuckle assembly from chassis. Repeat steps 5 through 7 on opposite side.

8. Disengage inner tie rods from OE relay rod. Remove tie rod sleeves from tie rod ends. Note tie rod ends are right and left hand threaded. Tag for location, i.e. inner/outer DVR or PASS. Disengage OE relay rod from pitman and idler arm. Remove front compression stops located below rear upper control arm receivers. Note position for installation on TM brackets.

9. Early model "S" vehicles have a crossmember located directly rear of engine, **Fig. 9**. This crossmember must be removed. Remove brake line fasteners attached to crossmember. Remove crossmember fasteners and crossmember. Remove front drive shaft. **Do not allow slider yoke to disengage from shaft.**

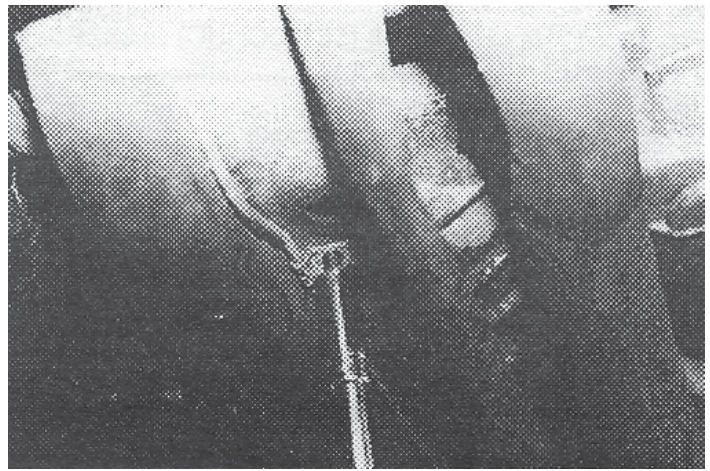


Fig. 9

10. Using hydraulic jacks or equivalent, support differential. Disconnect the "lock" indicator wire plug from differential. Remove fasteners mounting differential and actuator cable to chassis. Carefully remove differential assembly from chassis.

11. **Important installation Note:** Trail Master recommends all modifications to OE bracketry be performed with plasma cutting devices, Sawz-All, or cut off wheel. **The use of a cutting torch is not recommended!** Check position of fuel, brake, and other lines in area prior to cutting. Insulate or move to alleviate damage. For safety, never work alone. Have fire extinguisher readily available.

12. **CAUTION:** Fuel lines are located inside frame on driver side, exercise caution in this area. Scribe areas to be cut on OE bracket prior to actual cutting. To remove bottom section of OE rear upper control arm bracket:

- (I) Cut the extension stop gusset off flush with frame.
- (II) Cut front surface of bracket 1/2" below the bottom of frame, horizontally out 2". Cut vertically down bracket to intersect horizontal cut. **Fig. 12A.**
- (III) Cut rear side of bracket flush with frame 3/4" up. Cut bracket horizontally out 2" from this point. Cut bracket vertically to intersect horizontal cut and outside edge of receiver, **Fig. 12B.** You should now have removed the OE extended stop.
- (IV) Trim front leg of lower receiver flush with outside of frame. "Tune" leg rearward, **Fig. 12C.** Dress and final fit STEP (31) to accommodate installation of brackets "LR" and "RR" respectively. Repeat step 12 on opposite side.
- (V) Cut OE steering stabilizer chassis mount flush with frame, **Fig. 12D.**

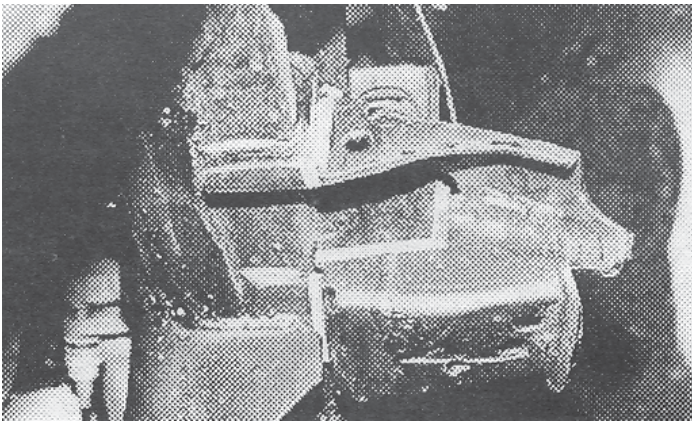


Fig. 12A

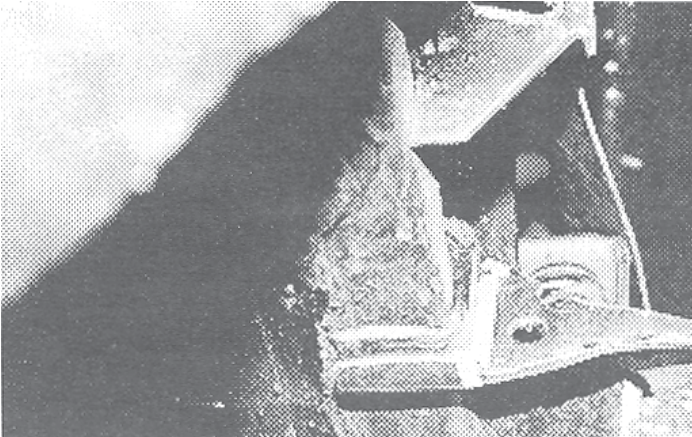


Fig. 12B

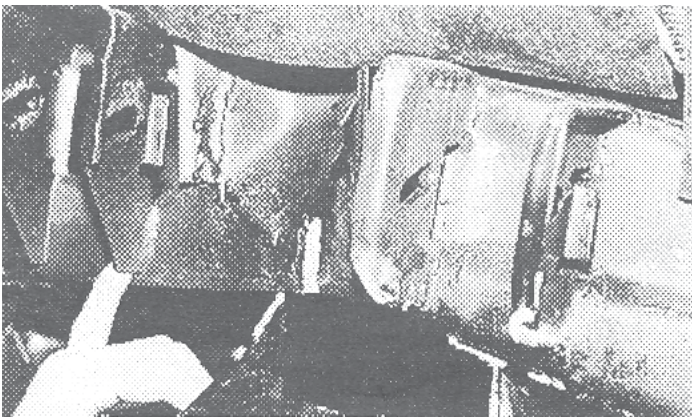


Fig. 12C

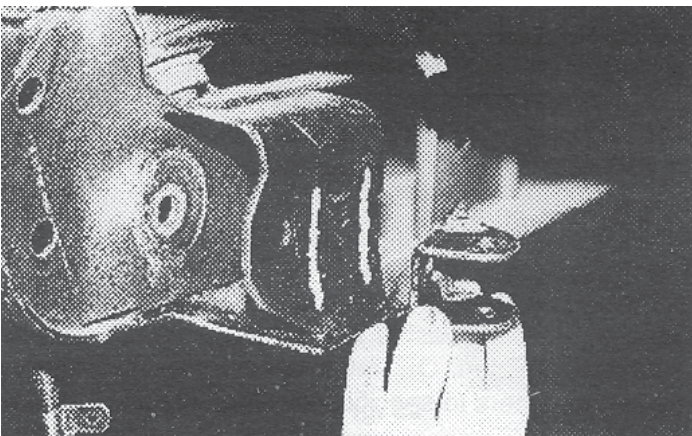


Fig. 12D

13. Scribe areas to be cut on OE bracket prior to actual cutting. Cut DVR lower rear control arm receiver, front and rear surfaces, vertically $\frac{3}{8}$ " toward inside of vehicle from control arm hole. Join front and rear cuts with horizontal cut, **Fig. 14**. You should now have removed rear OE differential mount. Dress to accommodate bracket "CL".

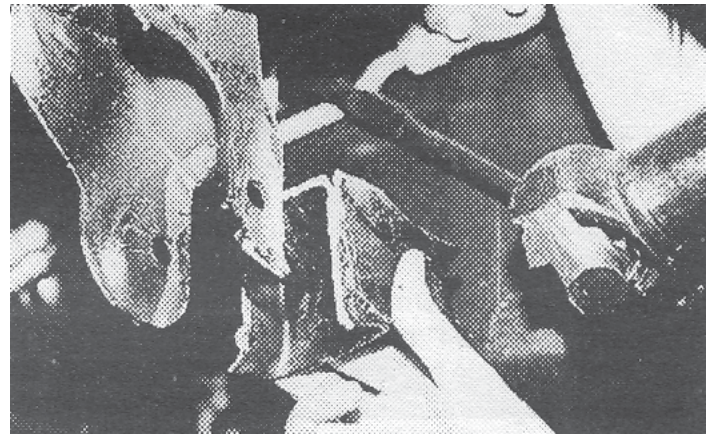


Fig. 14

14. Install DVR side front differential mount using straight bracket "910904" as the outer extension. Use offset bracket "910905" as the inner mount extension. Insert $\frac{1}{2}$ " x 3" bolt, 1- $\frac{1}{4}$ " sleeve, washers and nut provided into upper frame pocket, **Fig. 15**. **Do not tighten fasteners at this time.**

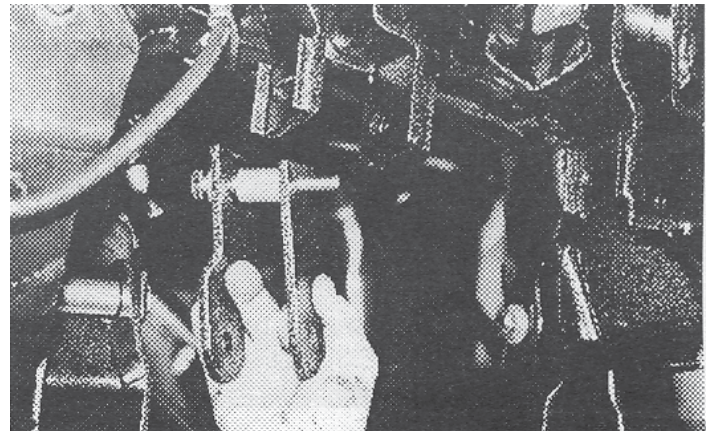


Fig. 15

15. Install bracket "950113" to PASS side differential chassis mount. Utilize two $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " bolts, washers and nuts provided. Loosely remount differential to drop brackets using OE fasteners, **Fig. 16**. **Do not tighten fasteners at this time.**

16. Install bracket "CR" into PASS side lower rear control arm receiver. Use 1- $\frac{15}{16}$ " spacer, $\frac{9}{16}$ " x 3- $\frac{1}{2}$ " bolt, washers, and nut provided, **Fig. 17**. **Note: "CR" must move freely. Do not tighten fasteners at this time.**



Fig. 16

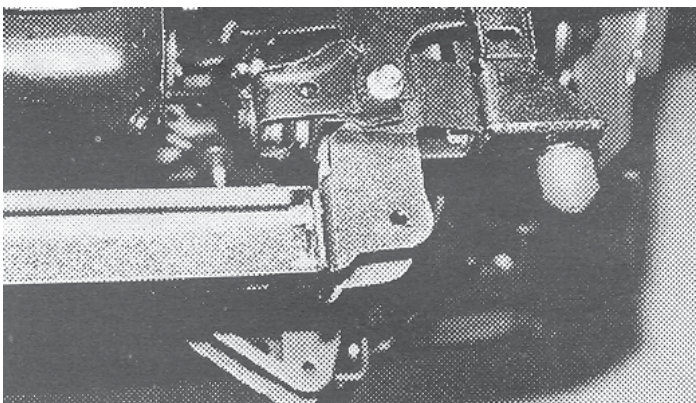


Fig. 17

17. Install bracket "CL" into DVR side lower rear control arm receiver. Use 1-15/16" spacer, 9/16" x 3-1/2" bolt, washers, and nut provided. Bracket "CL" will also engage rear differential mount, **Fig. 18**. **Note: "CL" must move freely. Do not tighten fasteners at this time.**

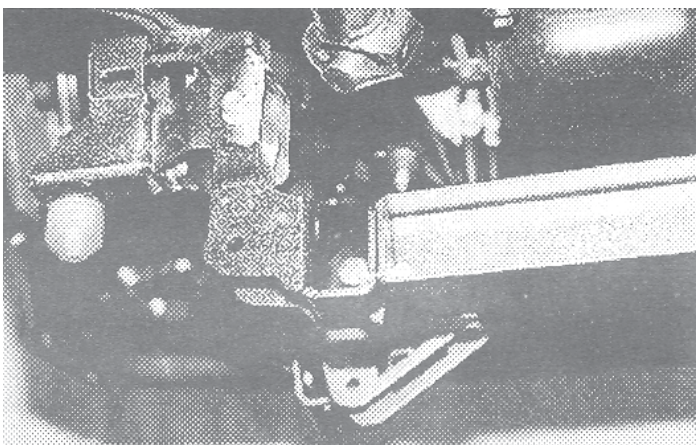


Fig. 18

18. Join crossmember "R", open side rearward, to brackets "CR" and "CL". Install and tighten 7/16" x 1-1/4" bolts, washers, and nuts provided. Insert 12mm x 90mm bolt and washer supplied, through "CL" into differential ear and crossmember, retain with OE nut. Run up 7/16" and 12mm bolts. **Do not tighten at this time. Fig. 19A**. Note slots in "CR" and "CL" at engagement points. Raise differential assembly (assembly "R") for late models. Lower assembly "R" for early models. Maintain identical engagement heights on "CR" and "CL" with assembly "R".

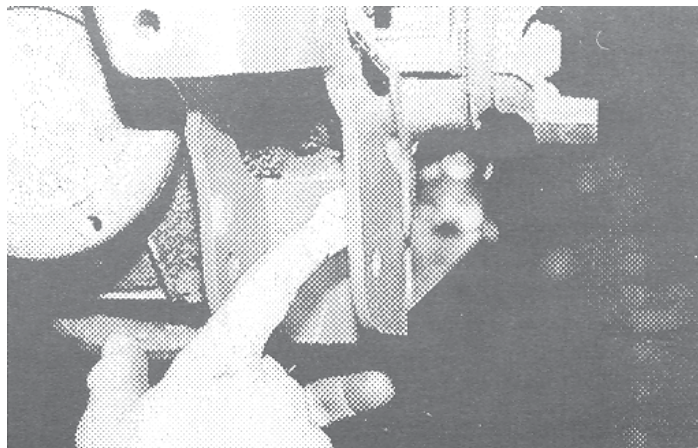


Fig. 19A

Note: If you perform step 9, drill two 17/64" holes 5" in from ends of crossmember "R". **Fig 19B**. Install "R" with 17/64" holes up. After final adjustment of assembly "R", step 28, form brake lines over pinion, reattach brake line using drilled holes and OE bolts.

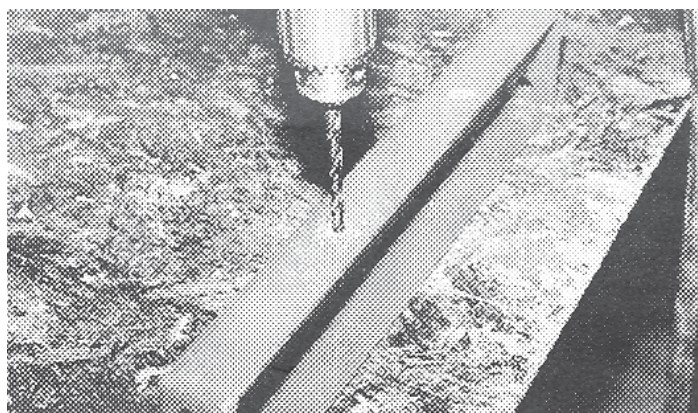


Fig. 19B

19. Check clearance between differential and OE DVR side lower control arm receiver. Minimum clearance 3/16". If clearance is less than 3/16" relieve and dress receiver and/or differential "fins" to gain clearance. **Fig. 20**.

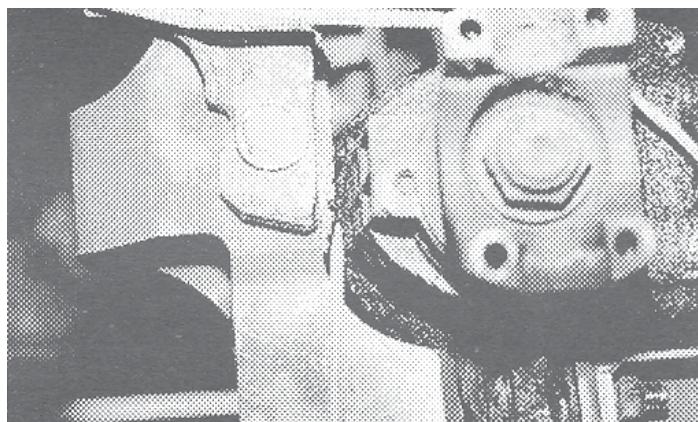


Fig. 20

20. Using an inclinometer, check pinion to transfer case angles. Maximum variance 1 1/2 degrees. Adjust angle by raising or lowering crossmember "R" and differential assembly. **Fig. 21.** Maintain identical engagement heights on "CR" and "CL" with assembly "R".

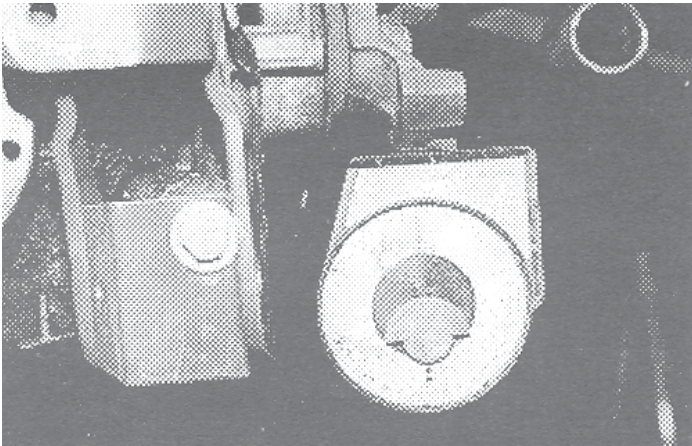


Fig. 21

21. Install inner tie rod ends into replacement relay rod "S". Torque to OE specification. Install relay rod assembly. Torque idler and pitman arm nuts to OE specifications. Install cotter pins provided. **Fig. 22.**

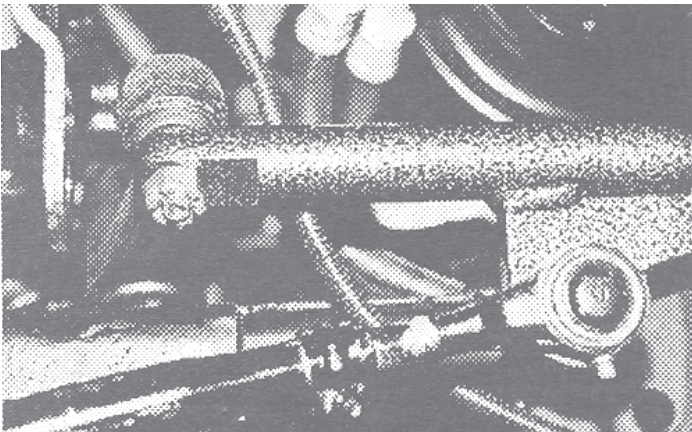


Fig. 22

22. Make steering sweep checking clearance between relay rod and differential ear on DVR side. **Fig. 23.** **Warning: Minimum acceptable clearance 7/16".**

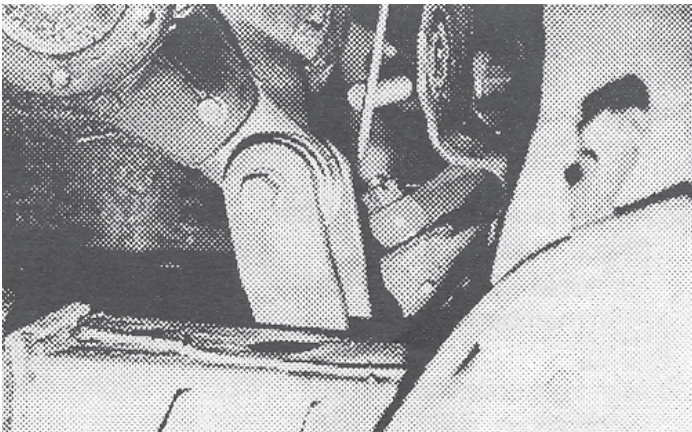


Fig. 23

23. If relay rod to differential clearance is adequate, proceed to step 25. If not, you must lower assembly "R" to gain clearance between relay rod and differential.

Warning: Do not sacrifice steering clearance for pinion angle! Ensure engagement heights of "R" on "CR" and "CL" are equal.

24. Torque 7/16" and 12mm fasteners in assembly "R" to specification.

25. Torque 1/2" x 1-1/2" bolts retaining "940201" to PASS chassis mount. Torque OE fasteners retaining differential to "940201". Note: crowding differential while tightening fasteners may increase clearance between receiver "CL" and differential. Refer to step 20.

26. Torque to specification, 1/2" x 3" bolt retaining DVR side front differential mount. Torque OE fasteners mounting differential to drop brackets.

27. Make steering sweep. Again check clearance between relay rod and differential ear. **Refer to Fig. 23 Warning: Minimum acceptable clearance 7/16".** In the event that clearance dimension is less than 7/16", you must revert to steps 23-27. If clearance measurement is sufficient, torque 9/16" cross bolts in brackets "CR" and "CL". Continue to step 29.

28. Check clearance between differential output flange and OE lower rear control arm receiver, PASS and DVR side. Minimum clearance 3/8". Dress receiver ear or tune to gain clearance. **Fig. 29A.** Make diagonal measurement on rear of system as shown. **Fig. 29B.** In the event that system fails to meet dimensional specification, locate interference and alleviate. Failure to meet this specification may result in the inability of the completed system to meet vehicle alignment specification. Check clearance between front differential and engine oil pan. It may be necessary to concave pan at PASS side axle tube flange to gain adequate clearance. A minimum clearance of 1/2 inch between differential flange and engine oil pan is required.

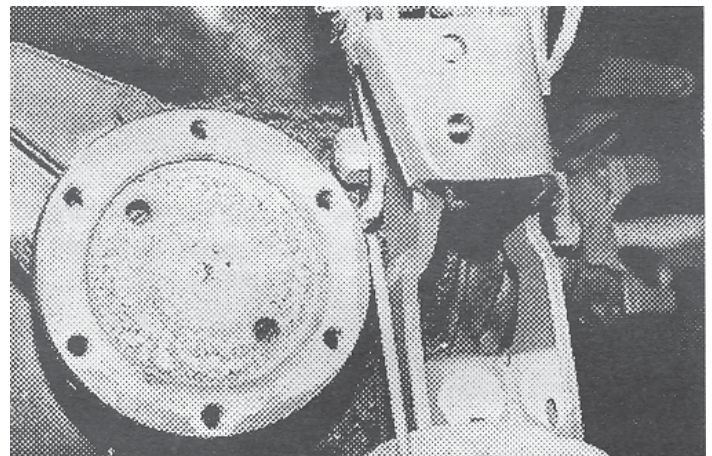


Fig. 29A

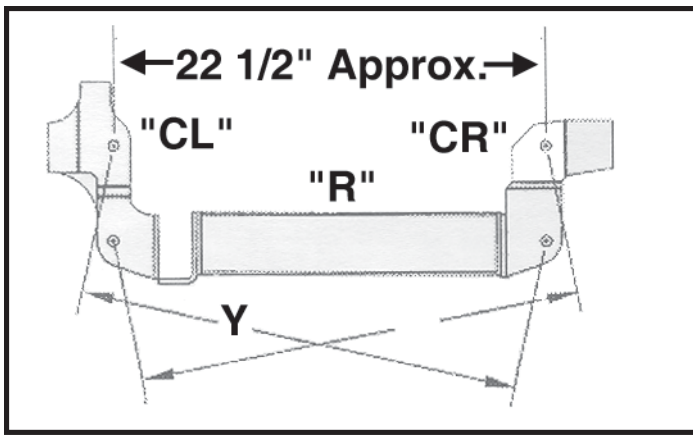


Fig. 29B

29. Note position of ears on upper portion of bracket "CL". Measure and locate center of ears, transfer coordinates to external surface of OE receiver. Drill 1/2" hole through OE receiver and bracket "CL", in front and rear legs. Install 7/16" sleeve in gap between bracket "CL" and front leg of OE receiver. Install 1/2" x 1 1/2" bolt assemblies running front bolt through 7/16" sleeve. Torque fasteners to specification. **Fig. 30.**

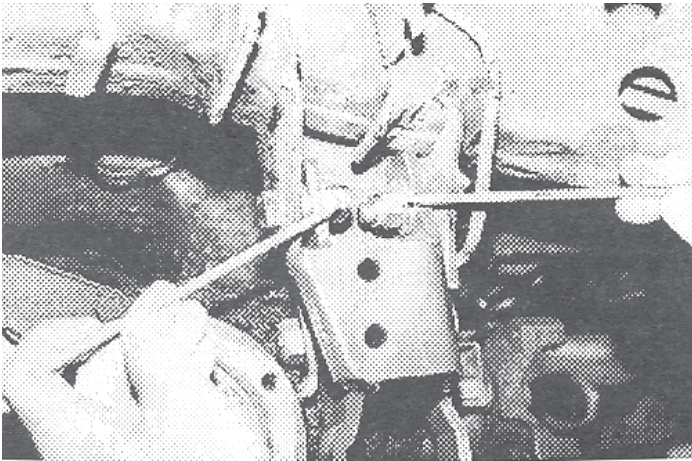


Fig. 30

30. Install bracket "LR" in DVR side upper rear OE control arm receiver. Use 1/2" x 4" bolt, washers, nuts, tabs "LP", and 1-11/16" sleeve provided. Note: "LP" fits one way into OE D-bolt adjustment tab. Reaming center of OE "D" slots will ease installation of cross bolt. **Do not tighten fasteners at this time.** **Fig. 31.** Repeat on PASS side using bracket "RR".

31. Align holes in bottom of "LR" with holes in "CL". Insert two 7/16" x 1-1/4" bolts and washers through "LR". Install washers and nuts provided on inside of "CL". **Note:** it may be necessary to ream top 7/16" hole to install bolt. Torque 7/16" bolts first; then 1/2" cross bolt. **Fig. 32.** Repeat step on PASS side engaging bracket "RR" and "CR".

32. On early models with closed top upper rear receivers, using hole in top of brackets "LR" and "RR" respectively to index, drill 1/2" hole in top of OE bracket. Install 1/2" x 1-1/2" bolt, washer and nut provided. Shim gap between "LR" and OE receiver with one "LP" tab. Tighten fasteners to specification. **Fig. 33.**

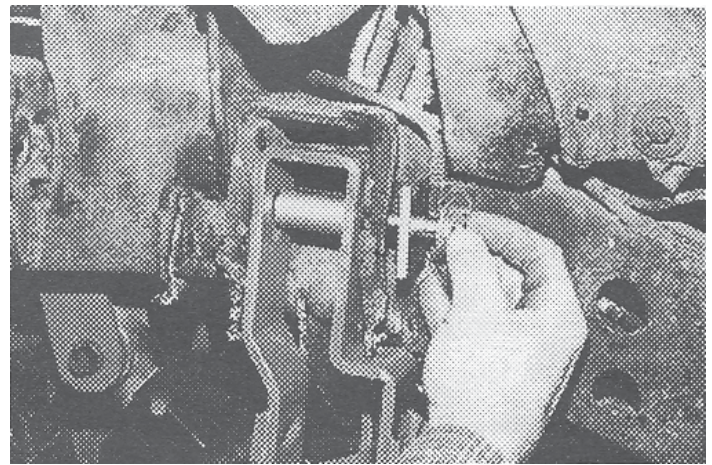


Fig. 31

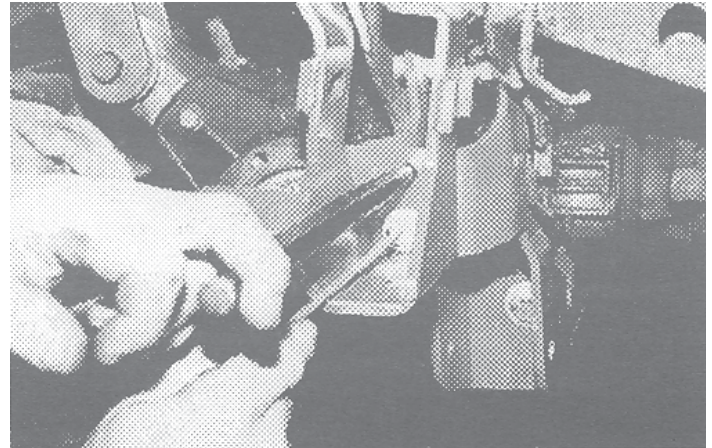


Fig. 32

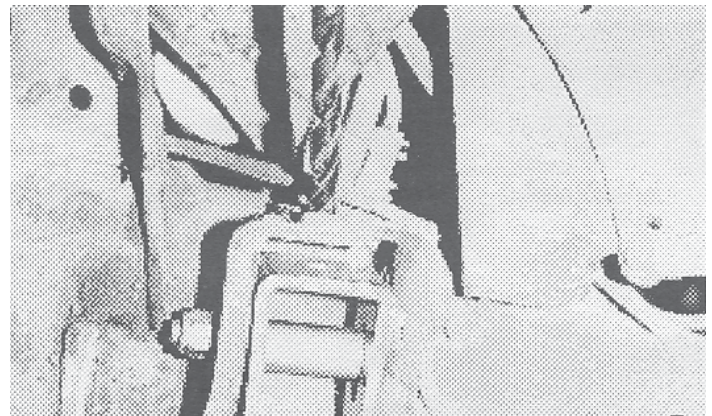


Fig. 33

33. Install bracket "LF" in DVR side upper front control arm receiver. Utilize 1/2" x 4" bolt, washers, locator tabs, 1-11/16" sleeve and nut provided. Install 1/2" x 1-1/4" bolt, washers, and nut through hole in top of OE bracket and bracket "LF". **Do not tighten fasteners at this time.** **Fig. 34.** **Note:** Reaming of OE holes may be necessary to obtain a good fit between OE receiver and TM brackets. Using bracket "RF" repeat step on PASS side.

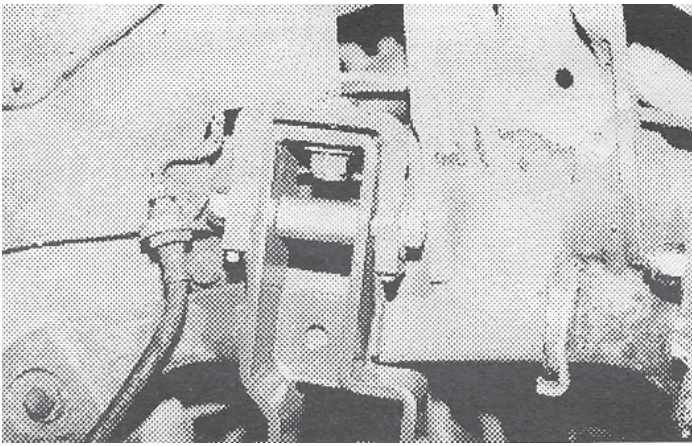


Fig. 34

34. Insert upper control arm into brackets "LF" and "LR". Run up 1/2" x 1-1/4" bolt in top of bracket "LF" and receiver. Using hole in bracket "LF" as template, drill 1/2" hole through frame. Insert 1/2" x 1-1/4" bolt and washer through "LF". Place bracket "BP" over bolt inside frame. Install nut into channel side of "BP" and tighten to specification. Tighten cross and top bolt to specification.

Fig. 35. Remove control arm. **Note:** it may be necessary to "tune" OE front bracket to facilitate installation of control arm. Repeat procedure on PASS side using corresponding control arm.

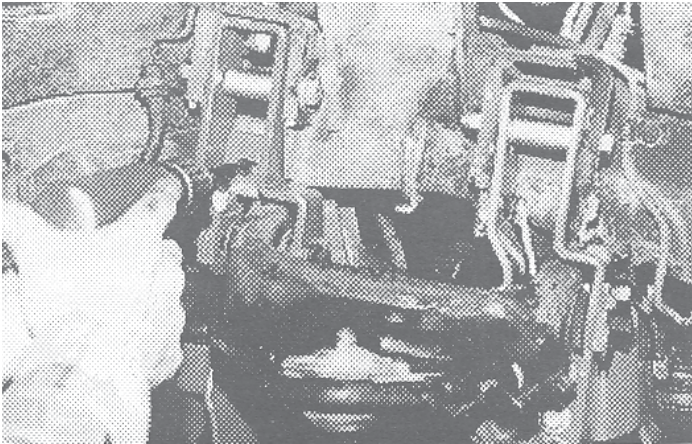


Fig. 35

35. Install brackets "D" into front OE control arm receivers. Utilize 9/16" x 3-1/2" bolts, washers, 1-15/16" sleeves and nuts. Brackets should fit flush with bottom of frame. **Note:** It may be necessary to dress frame to obtain flush fit.

Fig. 36A. Using bracket "D" as template, drill two 1/2" holes in flat of frame for each bracket as indicated,

Fig. 36B. Install 1/2" x 1-1/2" bolts, washers, and nuts. Torque 1/2" fasteners first followed by 9/16" cross bolts to specification.

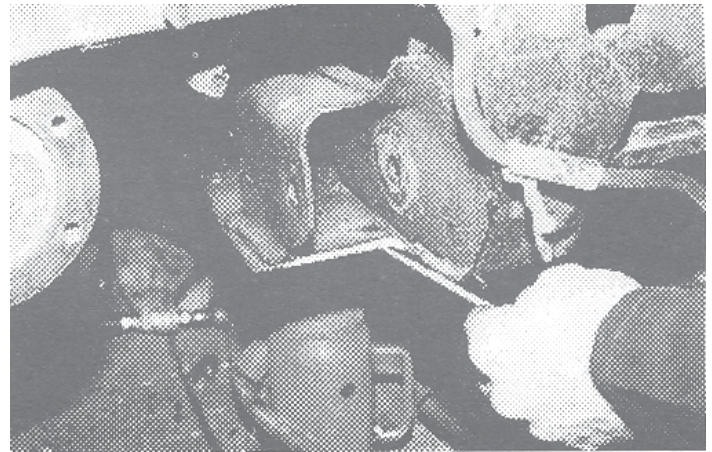


Fig. 36A

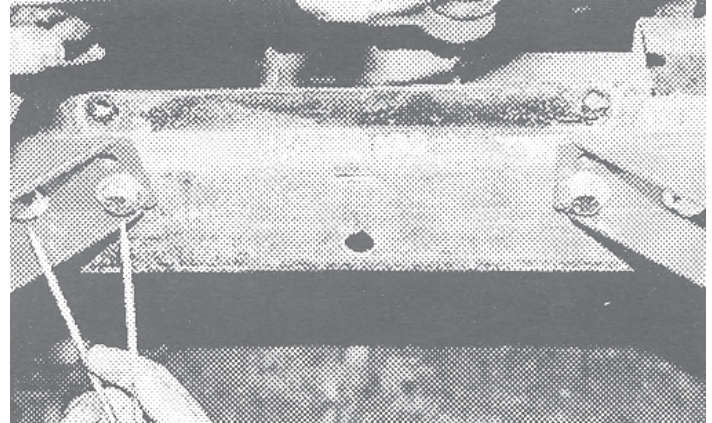


Fig. 36B

36. Install OE compression stops on bottom of brackets "LR" and "RR". Torque to specification. **Fig. 37.**

37. Using hydraulic jack or equivalent, raise lower control arm assembly into TM brackets. Install and run-up OE control arm bolts. Engage inner C.V. to differential mating flange. Install OE fasteners, torque to specification. Install brake caliper and caliper bolts, torque to specification.

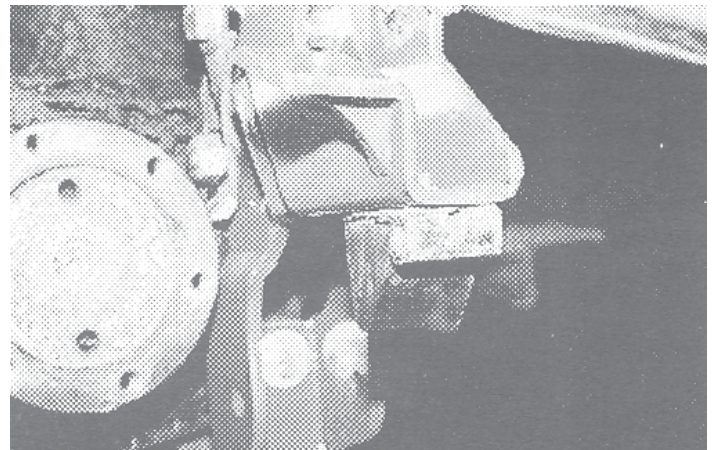


Fig. 37

38. Insert the 1/4" x 1" carriage bolts into square hole of 1" x 3" flat brackets "WS". Tighten tennerman nut to hold bolt in place. Attach upper end of bracket to frame at original brake line mount point using OE fastener. Remove bolts and clamps retaining brake lines to frame at shock towers. Carefully acquire slack in brake lines. Carefully extend brake line outward and down and mount to 1/4" bolt in extension bracket. **DO NOT KINK LINE**. Remount lines to frame using OE clamps and bolts. **Fig. 39.**

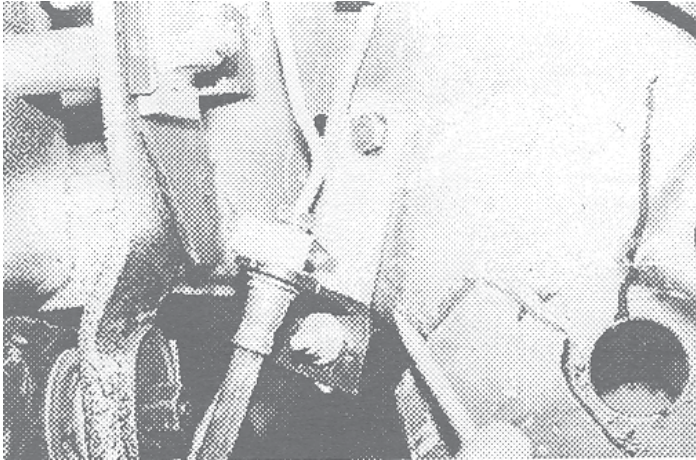


Fig. 39

39. Vehicles with ABS brakes will require loosening clamps retaining ABS wires to frame. Acquire sufficient slack in frame lead to reconnect knuckle sensor lead. Remove excess slack in ABS leads using OE clamps and tie-wraps provided. Ensure relocation is clean and secure. See also step 45.

40. Install shocks supplied. Use OE bolts, washers, and nut. Shim shock forward, if necessary, remove upper control arms and using 1/2" washers provided to gain clearance between shock body and C.V. **Fig. 41.** Torque OE fasteners to specification.

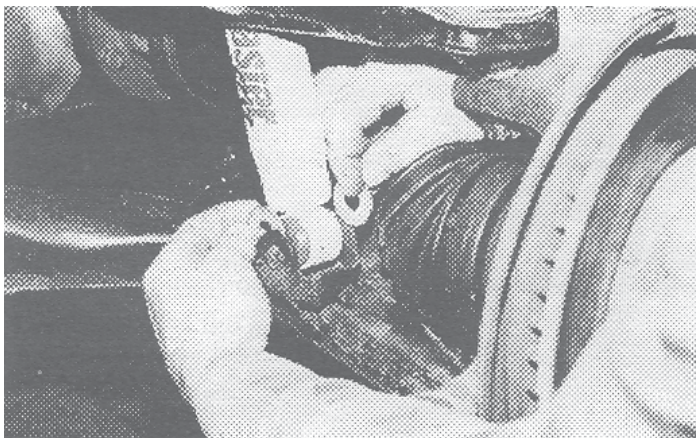


Fig. 41

41. Insert upper control arm into TM brackets. Check for interference at rear engagement. If necessary, remove upper control arms and relieve inside edge and dress rear bottom of upper A-arms on both PASS and DVR side arms to eliminate interference. **Fig 42.**



Fig. 42

42. Reinstall upper A-arms into TM brackets using OE "D" bolts. Engage ball joint, **do not tighten at this time**. Check clearance between A-arm and shock with "D" bolts adjusted inward as far as possible. Minimum clearance to shock 1/8". Using template supplied, relieve and dress control arm to gain clearance. All corners should be radiused and smooth. **Do not use torch. Fig 43.**

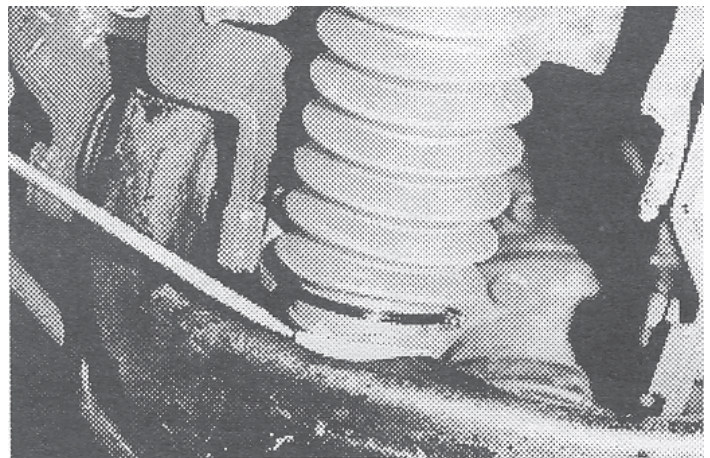


Fig. 43

43. Reinstall control arm with OE "D" bolts facing inside out, shock removal will be necessary. Refer to step 5 location / direction of "D" bolts. Centrally locate "D" bolt in adjustment slot with major portion down. Run up "D" bolts, **do not tighten**. Engage ball joint to knuckle and torque to specification. Reinstall shock.

44. Reinstall brake hose/ABS lead to control arm using OE fasteners. Turn knuckle assembly "lock" to "lock" and note movement and position of brake hose and ABS lead. Ensure ABS lead/hose routing is clean and secure. Torque to specification. See also step 40. Repeat steps 38-45 on opposite side.

45. Install tie-rod sleeves "TRX". Thread engagement of inner and outer tie-rod ends to "TRX" must be identical. Initial "TRX" adjustment, 24-7/16" center/center from inner to outer tie rod ends. Engage outer tie-rod ends to knuckles, torque to specification. Install cotter keys.
Safety Note: inner DVR side "TRX" clamp/bolt must be rotated to bottom. **Fig. 46.** This procedure will ensure clearance between clamp and differential.

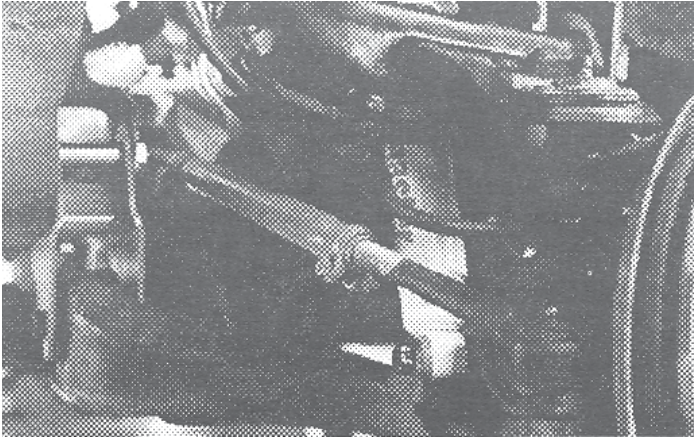


Fig. 46

46. Install sway bar extension brackets "SBD" to frame utilizing 3/8" x 1-1/4" bolts, washers, and nuts. **Do not tighten.** Install sway bar/anchors to A-arms. Install bar to "SBD". **Fig. 47.** Tighten all fasteners to specification.

NOTE: Lifting A-arms will ease installation of sway bar.

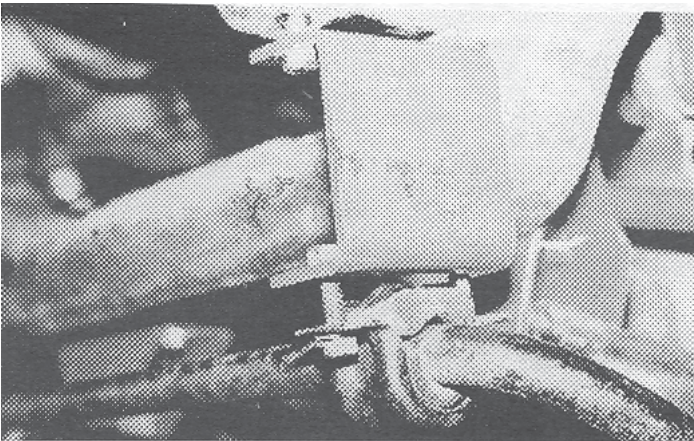


Fig. 47

47. **NOTE:** Fuel lines run inside frame on DVR side. Use caution when performing this step. Dress welds on bottom of frame. Ream OE torsion mount frame holes to 7/16". Install bracket "FD" on DVR side of vehicle using 7/16" x 1-1/4" bolts, washers, and nuts provided. **Fig 48.** Use 1/2" washers to shim space between frame and "FD" if so required. Using front hole in "FD" as guide, drill 5/16" in frame. Install 3/8" x 1" self tapping bolt provided. Repeat using "FP" on PASS side.

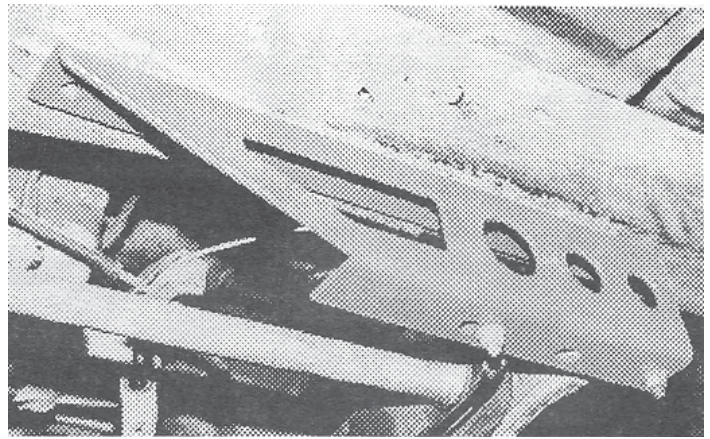


Fig. 48

48. Install OE torsion bar crossmember onto "FD" and "FP" using OE fasteners. Torque TM and OE fasteners to specification.

49. Install torsion bars. Reload bars using the #J36202 torsion bar tool. Set adjustment bolts to initial setting obtained from step 3. **Note:** Minor torsion bar adjustment may be required to level vehicle side to side. Set trim height within OE specifications.

50. Vacuum actuator relocation: on early models, move actuator from side of fender to inner fender. Using OE bracket as a template, drill two 5/16" holes into inner fender. Install 5/16" x 1" bolts, washers, and nuts supplied. Tighten to specification. **Fig. 51A.** Relocate cable over heater hoses. Reinstall cable and clip. Ensure relocation of actuator provides adequate slack in cable.

On late models with vacuum actuator located under battery, relocate assembly over 1 OE hole toward inside of vehicle and reattach using OE fastener. Using bracket as a template, drill a 5/16" hole in inner fender and install second OE fastener. Torque both to specification. Plug OE mount hole with 5/16" bolt, washer, and nut. Reinstall actuator cable and clip. Ensure relocation of actuator provides adequate slack in cable. Reinstall battery and box. **Fig. 51B.**

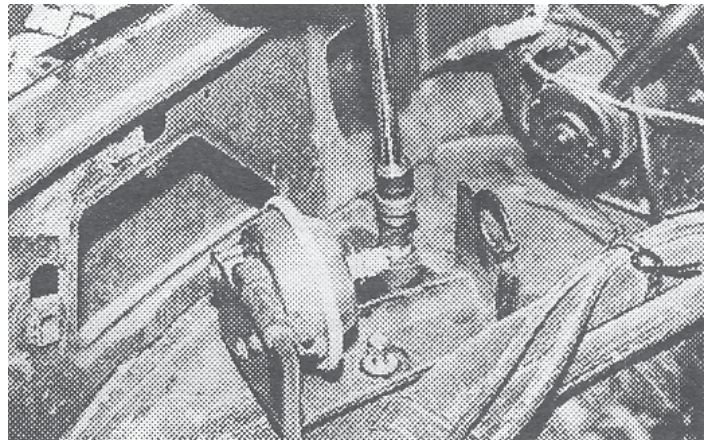


Fig. 51A

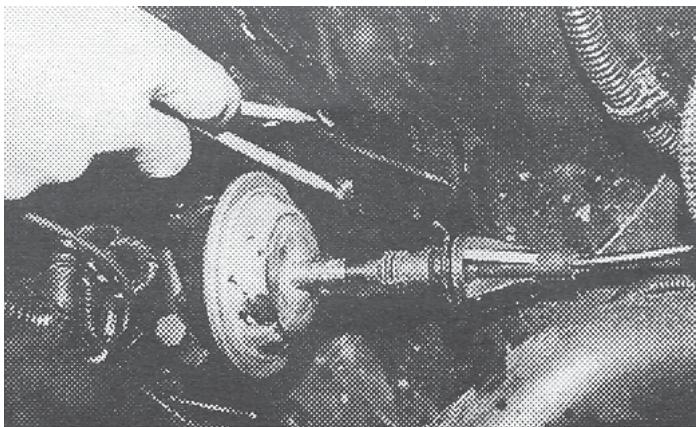


Fig. 51B

51. Perform exhaust modification. See Pre-Installation notes.

52. Reinstall drive shaft. Check clearance at OE crossmember. Remove crossmember and press front edge or peen to gain clearance. Minimum clearance 1/2".

Fig. 53.

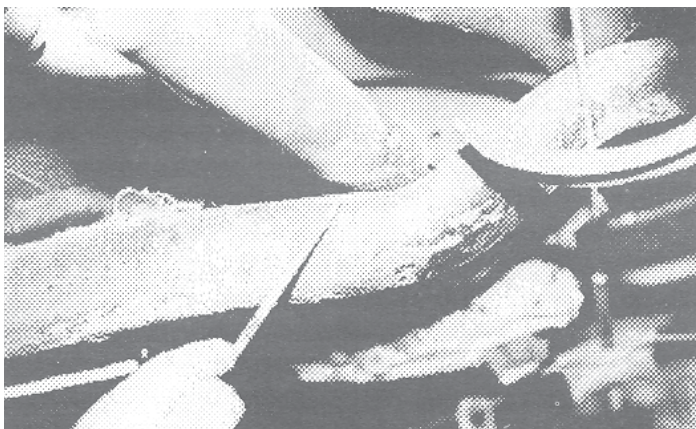


Fig. 53

53. Install wheels and tires. Torque nuts to specifications.

54. Lower vehicle to ground. Torque lower control arm anchor bolts. Torque upper control arm "D" bolts to specification.

55. Retorque all fasteners. Check brake lines for damage. Check steering clearances. Check to ensure there is adequate clearance between all rotating, mobile, and fixed members.

56. Align front end. Set torsion bars to OE Z height. Align to OE specifications. **SAFETY NOTE:** after setting toe, ensure DVR side inner tie rod sleeve clamp/bolt assembly is on bottom. This procedure will ensure steering clearance at differential.

REAR INSTALLATION INSTRUCTIONS

1. Block and secure vehicle. Remove shocks. Using hydraulic jack or equivalent, raise rear of vehicle. Place jack stands under frame on each side in front of spring hangers. Remove wheels and tires.

2. Remove retainer nut holding brake line to frame bracket. Slit OE bracket with saw. **DO NOT** cause abrasion to brake line. Bend bracket open, remove line. Close bend. Install bracket "BB" using 3/8" x 1-1/4" bolt, washers, and nut provided. Reinstall line into "BB" and tighten OE line retainer nut. **Fig. 2R.** On 1994 vehicles, remove bolts retaining emergency brake cable to frame at the front spring eye.

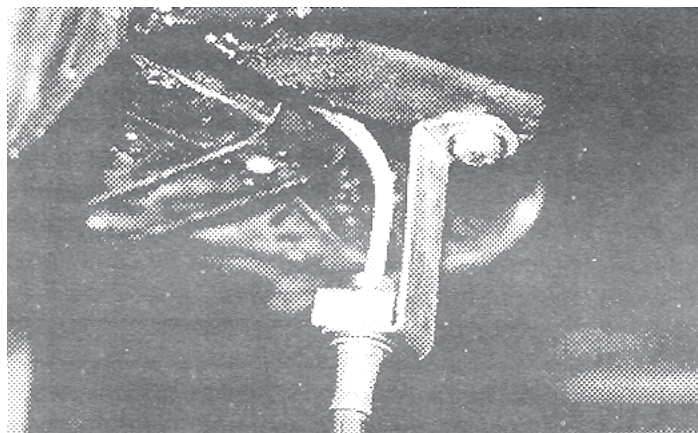


Fig. 2R

3. Support rear axle. Remove spring u-bolts. Remove springs. Lower axle. On 1994 models, remove bolts retaining emergency brake cables to frame above front spring hanger. Insert 1/4" x 1" carriage bolts into square hole of 1" x 3" flat brackets "WS" supplied. Tighten tennerman nut to hold bolt in place. Mount "WS" brackets (with 1/4" bolt down) to frame using OE bolts. Mount brake lines to 1/4" stud and secure with washers and nut.

Fig. 3R.

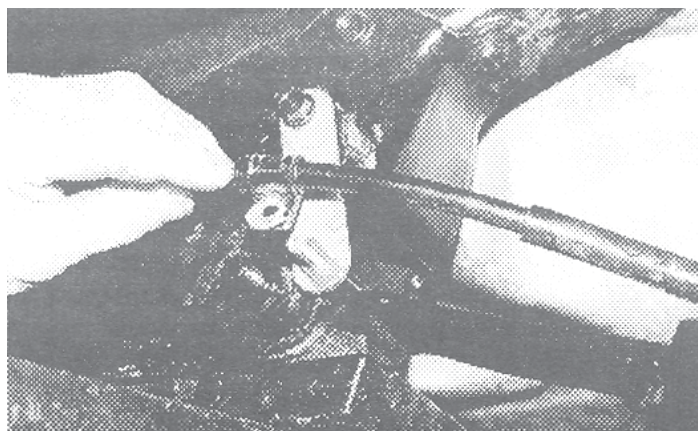


Fig. 3R

4. Clamp spring pack. Remove center pin, invert pin, torque to specification.

5. Install brackets "SP" onto axle, short end forward. Install springs over axle, attach spring ends using OE bolts. Run up, **do not tighten anchor bolts at this time**. Install u-bolts placing TM bracket "P" atop spring and OE u-bolt plate on bottom of axle. **Fig. 5R**. Use 9/16" high nuts and OE washers to retain. Run up. Crowd OE u-bolt plates rearward to ensure clearance for installation of larger bodied shocks provided. Torque u-bolts to specification.

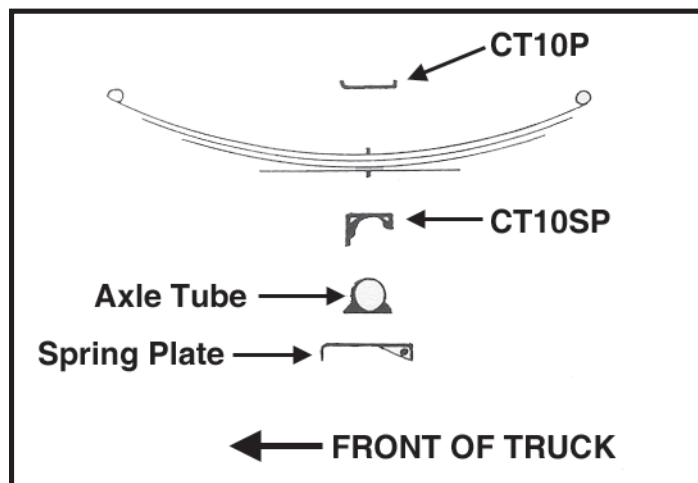


Fig. 5R

6. Install shocks. Torque OE mount fasteners to specification. Check clearance between shock body and axle tube. Minimum clearance 1/4". Slot holes in OE u-bolt plate if clearance is insufficient. Install wheels and tires. Torque to specification.

7. Lower vehicle to ground. Torque spring hanger and shackle fasteners to specification. Recheck all fasteners for their correct torque.

Extended Cab Only:

Carrier bearing crossmember relocation.

1. Support rear drive shaft assembly. Remove bolts mounting bearing to crossmember.

2. Remove fasteners mounting crossmember to chassis.

3. Relocate crossmember under frame using 1-1/4" spacers between frame and crossmember. Retain crossmember to frame using 3/8" x 2-1/2" long bolts, washers, and lock nuts.

4. Remount bearing to crossmember using OE bolts. Torque all fasteners to specification.

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

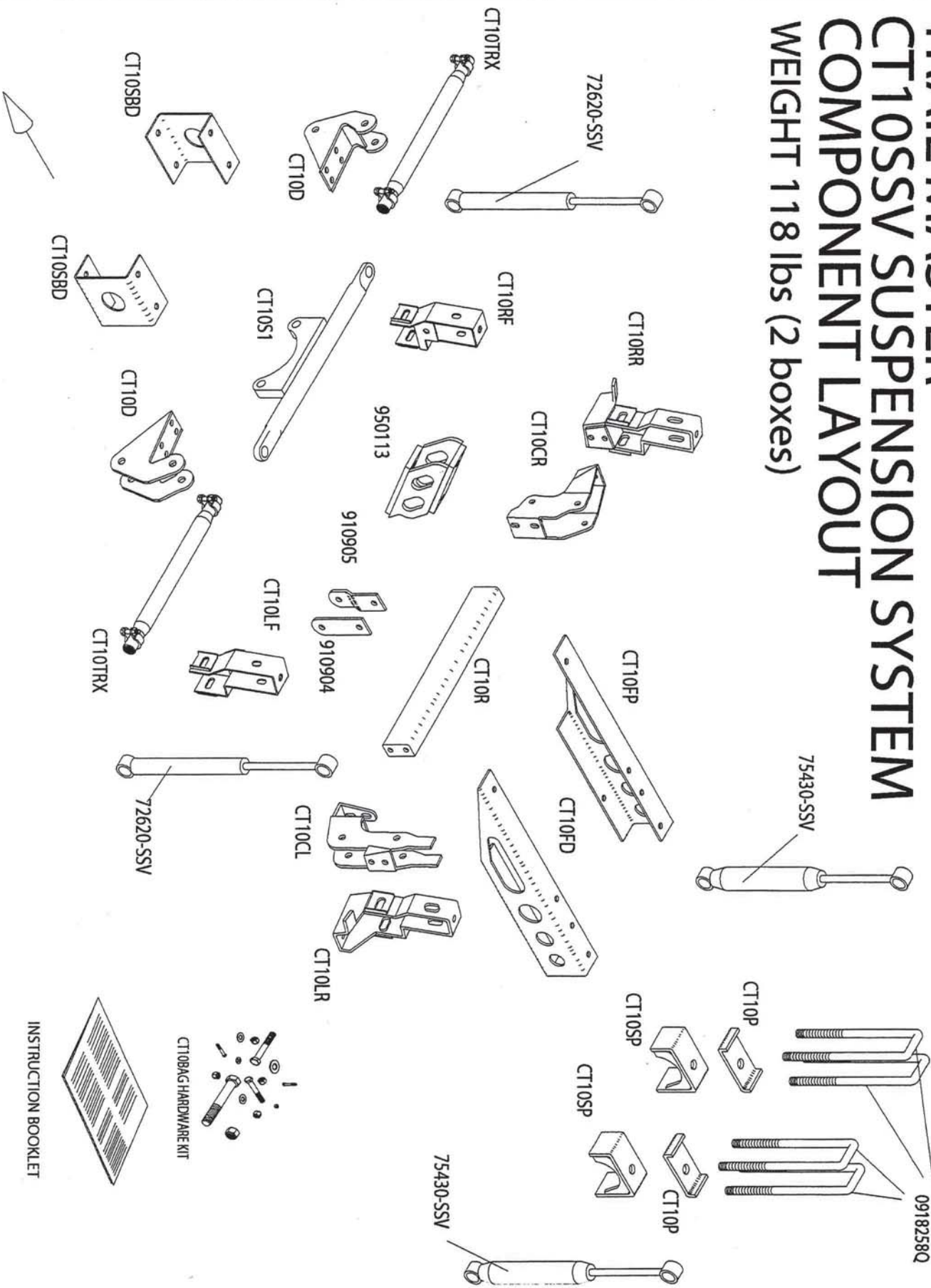
The suspension of this vehicle has been modified to improve off-road performance. As a result, this vehicle may handle differently than factory equipped vehicles. Extreme care must be used to prevent loss of control or roll over during sharp turns or abrupt maneuvers. Failure to drive this vehicle safely 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.

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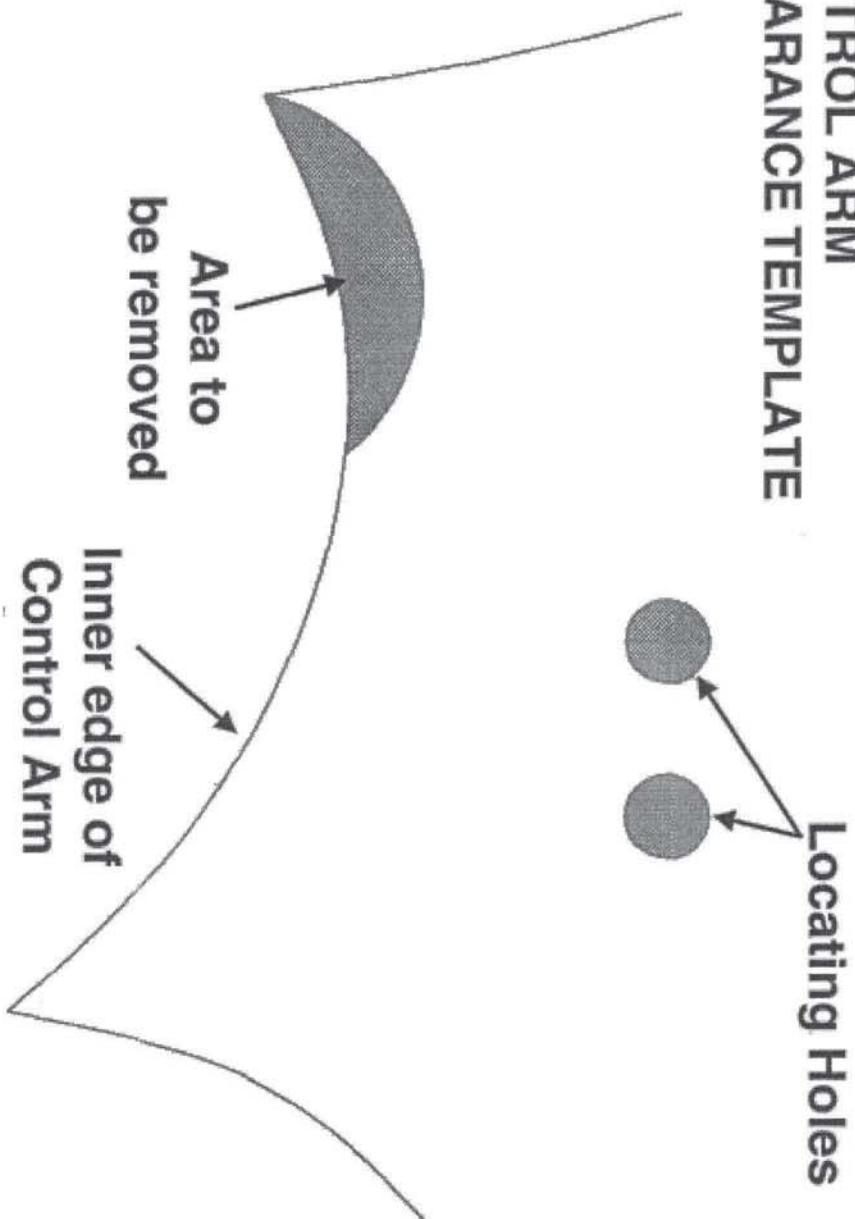
TRAIL MASTER CT10SSV SUSPENSION SYSTEM COMPONENT LAYOUT WEIGHT 118 lbs (2 boxes)

06/26/02
0918258Q



FRONT OF VEHICLE

CT10 / CT15 UPPER CONTROL ARM SHOCK CLEARANCE TEMPLATE



- Cut template along line and remove the shaded area.
- Cut out 2 holes to use as locators on the arm.
- Line up the template along inner edge of control arm.
- Lay the template flush along the arm conforming to the curves in arm.
- Line up 2 holes in template with the holes in control arm.
- Mark area to be removed (where shaded area was).
- Invert for use on the other side.



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