

#9378

Installation Instructions

3" Body Lift Kit

1998-2000 Ranger

READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS PRIOR TO INSTALLATION OF SYSTEM AND OPERATION OF VEHICLE.

SAFETY WARNING

BDS Suspension Co. recommends this system be installed by a professional technician. In addition to these instructions, professional knowledge of disassembly/reassembly procedures and post installation checks must be known.

PRODUCT SAFETY WARNING

Certain BDS Suspension 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. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. BDS Suspension Co. does not recommend the combined use of suspension lifts, body lifts, or other lifting devices.

You should never operate your modified vehicle under the influence of alcohol or drugs. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions. Always wear your seat belt.

PRE-INSTALLATION NOTES

1. Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.
2. Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.
3. Larger rim and tire combinations may increase leverage on suspension, steering, and related components. When selecting combinations larger than OE, consider the additional stress you could be inducing on the OE and related components.

4. Secure and properly block vehicle prior to installation of BDS Suspension components. Always wear safety glasses when using power tools.
5. BDS Suspension Co. body lifts are designed to be used on vehicles in good operating condition. It is not recommended that body lifts be used on vehicles in poor physical shape. This includes rusted body mounts, damaged or worn frame-to-body mounting brackets, and poor mechanical condition. Perform a visual inspection of the vehicle before beginning installation.

POST-INSTALLATION WARNINGS

1. Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake system.
2. Perform steering sweep to ensure front brake hoses have adequate slack and do not contact any rotating, mobile or heated members. Inspect rear brake hoses at full extension for adequate slack. Failure to perform hose check/replacement may result in component failure. Longer replacement hoses, if needed can be purchased from a local parts supplier.
3. Perform head light check and adjustment.
4. Re-torque all fasteners after 100 miles. Always inspect fasteners and components during routine servicing.

GLOSSARY OF TERMS

DRV: Driver's Side of the Vehicle

PASS: Passenger's Side of the Vehicle

OE: Original Equipment

PARTS LIST

Part#	Qty.	Description
3396	14	3" x 3" Body Blocks
01616	4	3" x 2" x 2" Metal Body Spacer
01702	2	2" x 3" x 1" steel spacer w/hole
01666	1	Front Bumper Bracket (DRV)
01665	1	Front Bumper Bracket (PASS)
01667	1	Rear Bumper Bracket (DRV)
01668	1	Rear Bumper Bracket (PASS)
01602	2	Radiator Drop Bracket
01642	2	"L" Shaped Ground Extension
#37	2	3/4" OD x 3" Sleeve
01611	1	1 1/2" x 5" Fuel Filler Extension
	1	3/4" x 17-1/2" Fuel Vent Hose
	1	3/4" x 6" Hose
240	2	#10 Hose Clamp
3500	1	Steering Extension
243	2	#28 Hose Clamp
099000	3	Wire Ties
342701	1	Loctite

Bolt Pack 413

Qty	Description
8	12mm-1.75mm x 180mm bolt
2	12mm-1.75mm x 200mm bolt
2	12mm-1.75mm x 160mm bolt
2	12mm-1.75mm x 140mm bolt

Bolt Pack 414

2	5/16"-18 U-nut
4	1/2"-13 prevailing torque nut
4	1/2" USS washer
14	7/16" USS washer
1	3/8"-16 x 1 1/2" bolt
2	3/8" SAE washer
1	3/8"-16 prevailing torque nut
8	1/4" SAE washer
5	1/4"-20 prevailing torque nut
3	1/4"-20 x 1" bolt
2	5/16"-18 x 1" bolt
2	5/16" USS washer
1	Wire Loom Bracket

Bolt Pack 415

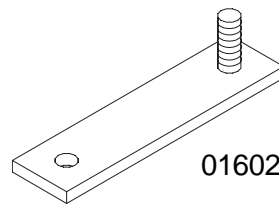
2	3/8"-16 x 4" bolt
2	3/8"-16 prevailing torque nut
4	3/8" SAE washer

Bolt Pack 416

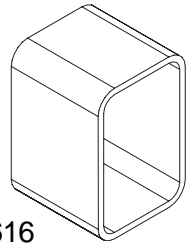
6	1/2"-13 x 1-1/4" bolt
6	1/2"-13 prevailing torque nut
12	7/16" USS washer

Torque Specifications

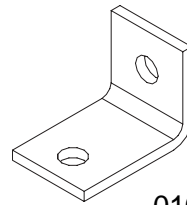
Fastener	Max. Torque (ft-lbs)
1/4"	10
5/16"	17
3/8"	30
7/16"-14	50
7/16"-20	55
1/2"-13	75
1/2" U-Bolt	65-80
9/16"	110
9/16" Grade 8	170
9/16" U-Bolt	75-90
5/8"	150
5/8" U-Bolt	85-110
3/4"	270
10mm	30
12mm	55



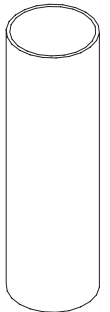
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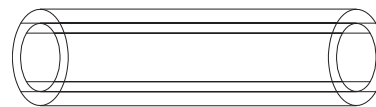
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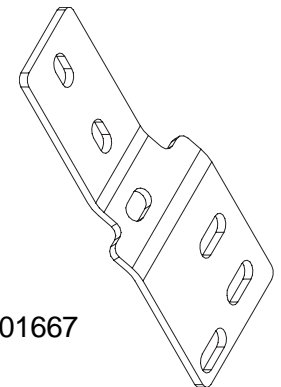
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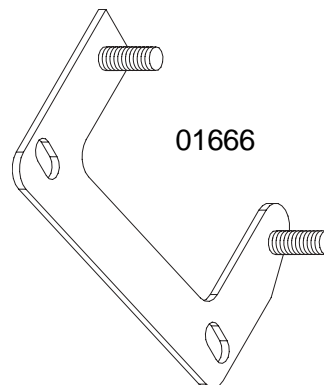
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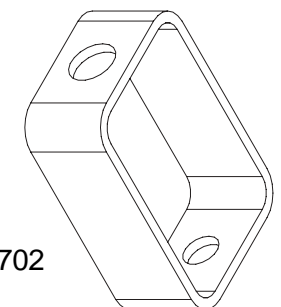
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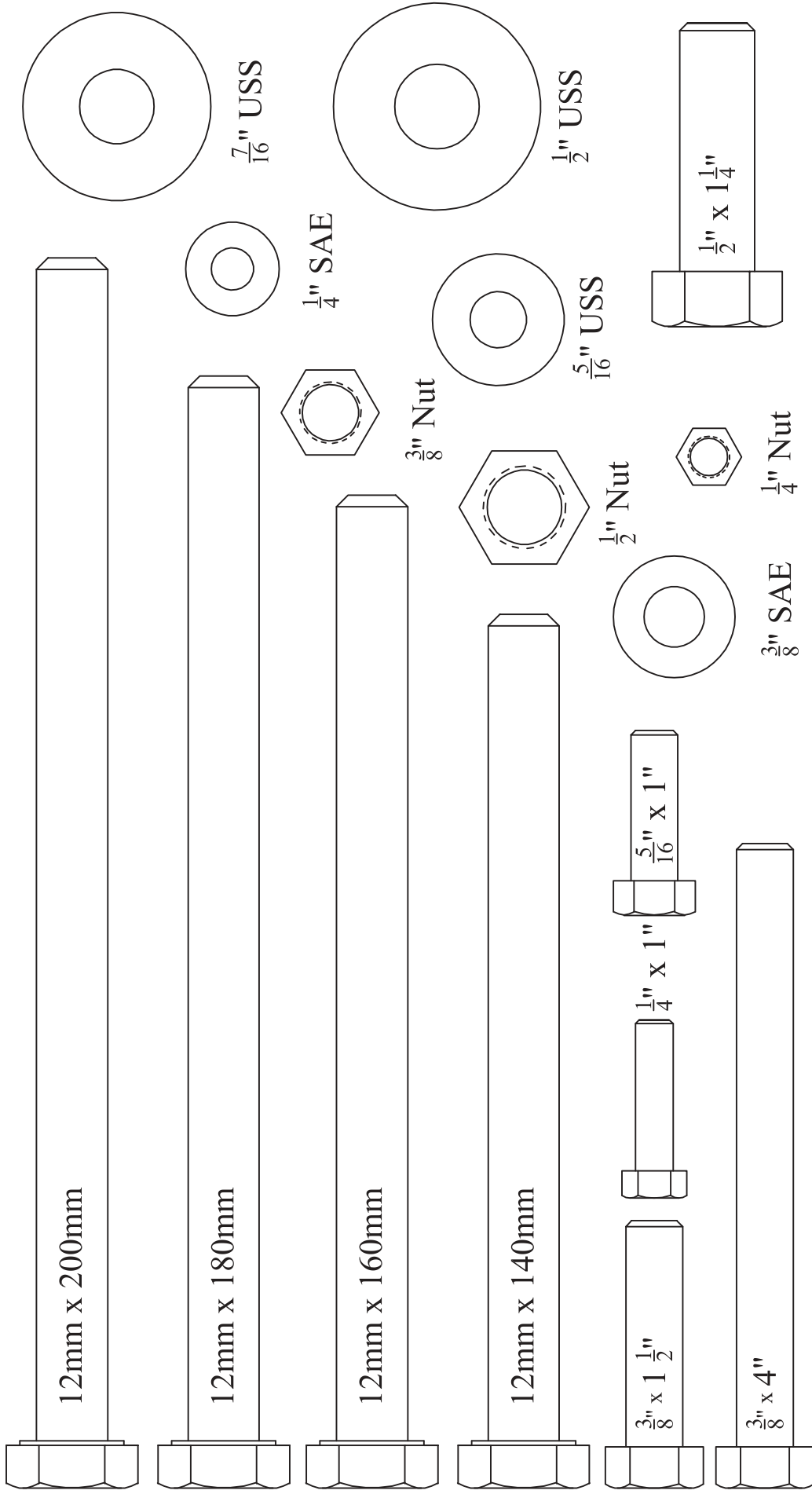
01667



01666



01702



INSTALLATION INSTRUCTIONS

1. Remove the negative battery cable first, then the positive battery cable. If equipped, the Supplemental Restraint System will be deactivated when the battery is disconnected.
2. Measure and record the space between the bumpers and the body as well as the space between the cab and bed for reference during installation of this kit.

FRONT INSTALLATION

Interior Removal

3. Pull back the carpet at the front floorboard to expose the mounting bolt access holes (Fig. 1). It is not necessary to remove the kick panels or scuff plates. The carpet can be pulled out from under the kick panel and tucked back in after installation is complete.



FIG. 1—Front Floorboard Access Hole

4. Remove the plastic covers to gain access to the mounting bolts.
5. Pull carpet back at the rear cab corners to reveal rear cab mounting access holes (Fig. 2). Plastic body panels do not have to be removed. **Note: Same for regular and extended cabs.**



FIG. 2—Rear Cab Access Hole

6. Loosen but do not remove the mounting bolts in the front floorboard and at the rear of the cab.

MANUAL TRANSMISSION SHIFT EXTENSION

Requires BDS Shift Extension Kit #9902

7. Remove the screws that mount the shift console to the floorboard. Pull the boot up to reveal the nut and wedge stud that attaches the shift lever to the transmission.
8. Remove nut from the right side of the wedge stud and place it on the left side. Tighten the nut to remove the wedge from the lever. Slide the lever off the transmission.



FIG. 3—Manual Shift Extension

9. Install the shift extension on the transmission (Fig. 3) and align the small hole with the slot in the transmission lever. Install the 1/8" x 1/2" roll pin through the hole and into slot.
10. Install the 5/16" nut on the 5/16" x 1" bolt and thread the nut up to the head of the bolt. Install the bolt in the threaded hole in the extension and tighten it against the flat section on the transmission lever. Tighten the nut against the extension.
11. Install the shift lever to the extension and secure with the stock wedge stud and nut.

Automatic Transmission

12. Automatic transmissions are cable operated and require no modification. Remove the cable from any clips that are holding it to the body that may cause binding while lifting.

TRANSFER CASE

13. On four wheel drive models equipped with electronic 4 wheel drive shift control, remove the wire loom mounting tab from the bracket at the rear of the transfer case.
14. Attach wire loom clamp to the wire loom. Attach clamp to the bracket on the back of transfer case using a 1/4" x 1" bolt, two 1/4" SAE washers, and a nut (Fig. 4).

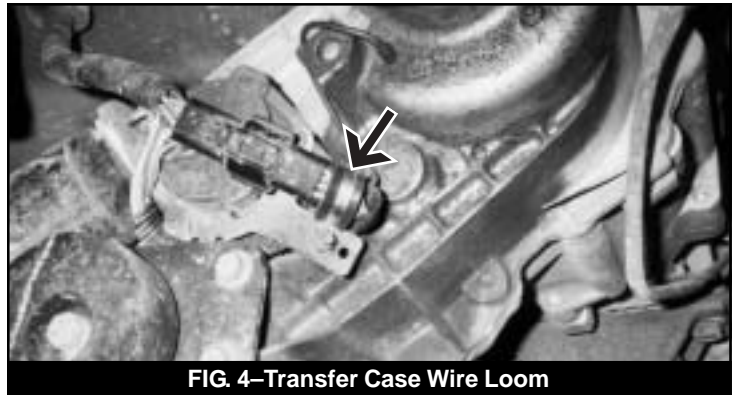


FIG. 4—Transfer Case Wire Loom

GROUND STRAP RELOCATION

15. There are two ground straps connecting the frame to the body. One is located under the driver's and passenger's doors. Remove the straps from the body.
16. Using the stock hardware, attach the ground strap relocation bracket to the body with the long end pointing down.
17. Attach the ground straps to relocation brackets using 1/4" x 1" bolts, 1/4" SAE washers, and nuts (Fig. 5).

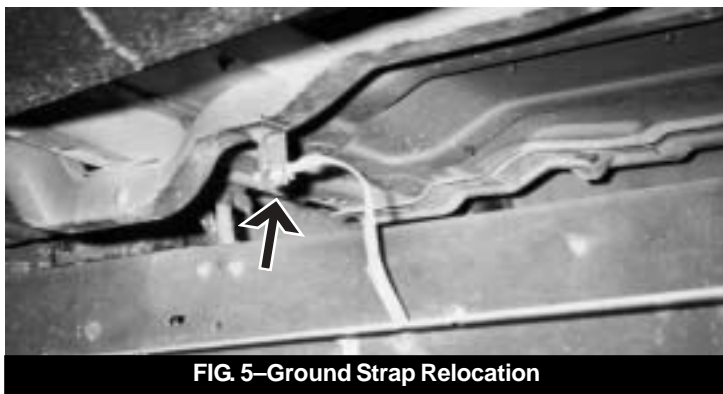


FIG. 5—Ground Strap Relocation

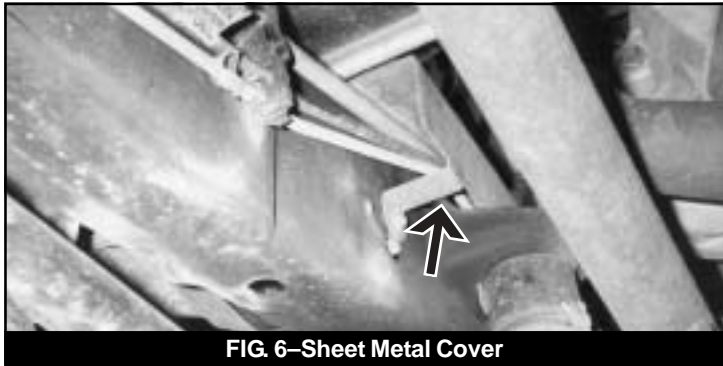


FIG. 6—Sheet Metal Cover

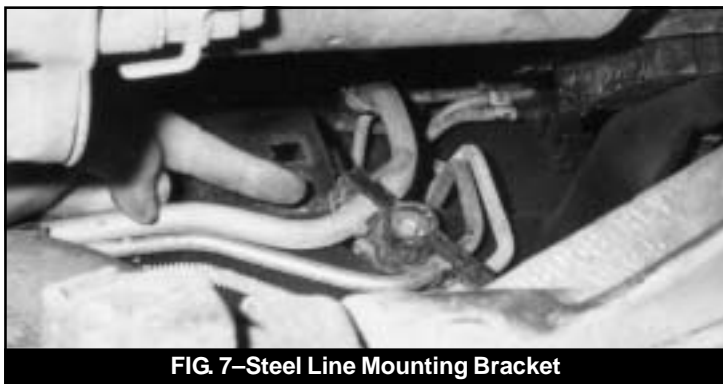


FIG. 7—Steel Line Mounting Bracket

FUEL LINE COVER

18. There is a sheet metal cover (if equipped) on the inside of the driver's side frame rail that covers fuel and brake lines going to the rear of the vehicle (Fig. 6). Remove the four bolts that mount the cover to the frame. Remove the cover from vehicle. The cover will be modified and reinstalled later.
19. The large diameter line must be removed from the mounting bracket (Fig. 7). Remove the bolt that closes the bracket and remove the line from the bracket.
20. Reinstall the bracket and the bolt. CAREFULLY bend the line upward to gain slack for lifting.

FRONT BUMPER REMOVAL

21. Disconnect the fog lights and any other wires that are attached to the front bumper.
22. If equipped, remove the three bolts mounting each tow hook (Fig. 8) to the frame and remove the hooks from the vehicle.
23. Remove the four nuts that mount the front bumper to the frame. Remove the bumper from the vehicle.

UNDER THE HOOD

24. There is a ground strap that runs from the back of the engine to a stud on the firewall. Remove the nut and strap from the stud and replace the nut on the stud.

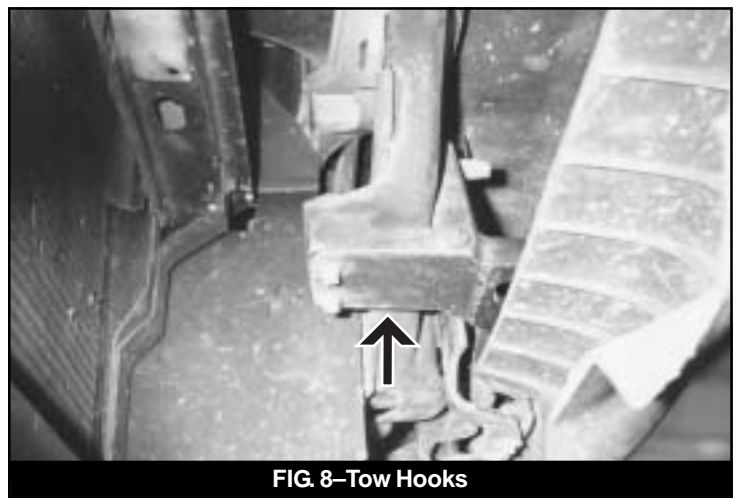


FIG. 8—Tow Hooks



FIG. 9—Ground Strap Relocation

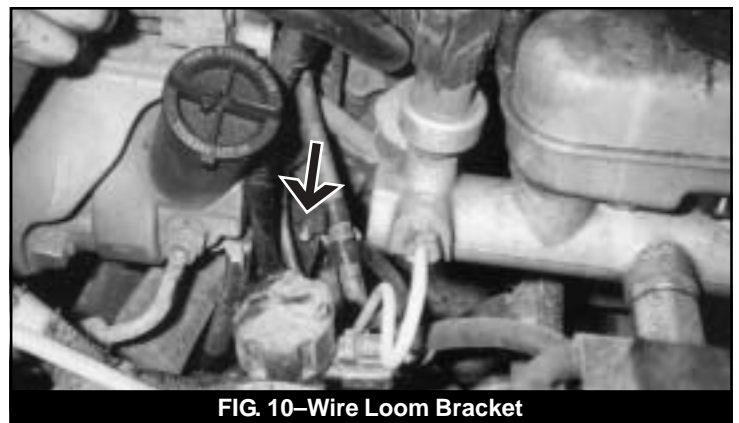


FIG. 10—Wire Loom Bracket

25. Remove lower wiper motor mounting bolt (directly below the stock ground stud) and attach the ground strap (Fig. 9). Tighten the mounting bolt.
26. There is a wire loom that runs from the battery to the driver's side of the engine. It is attached to the engine by a bracket mounted to a stud (Fig. 10). Remove the bracket from the stud and the wire from the bracket. The bracket will be relocated on the wire after lifting.
27. Remove the air intake hose from the throttle body and the air filter box. Disconnect any other wires or hoses connected to the intake hose and remove it from the vehicle.
28. Remove the brake lines from the plastic clips on the driver's side fender well and frame rail. CAREFULLY bend the lines to allow for slack while the vehicle is lifted.

RADIATOR

29. Remove the two bolts that mount the radiator to the top of the core support.

- Lift the radiator up and off the lower mounting pads. Reposition the radiator under the lower mounting pads. Allow the radiator to rest against the fan during lifting.

STEERING EXTENSION

- The steering shaft is coupled near the firewall. Mark the upper and lower sections of steering shaft for realignment.
- Remove the bolt that connects the upper steering shaft to the lower steering shaft. Slide the lower steering shaft down away from the firewall. **Note: DO NOT allow the two shafts to turn independent of each other.**
- Install the female end of the steering extension over the upper steering shaft. Fasten the extension with a 3/8" x 1-1/2" bolt, two 3/8" SAE washers, and a nut.
- Install the lower steering shaft on the extension by aligning the marks on the shafts (Fig. 11). Fasten the lower shaft to the extension with the stock hardware. Tighten all mounting hardware. *Use Loctite® on all steering hardware.*

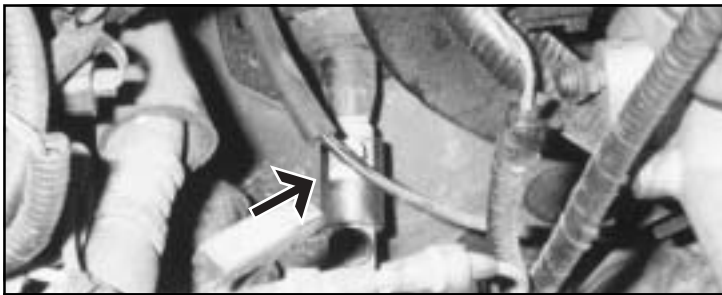


FIG. 11—Steering Extension

CAB LIFT

- Loosen but do not remove the remaining cab bolts located on both sides of the core support.
- Remove the mounting bolts on passenger's side only. Using a hydraulic jack and wooden block, lift the passenger's side of the vehicle slowly, continuously checking for wires or hoses that are binding. Lift the cab just high enough to place the body spacers. Before placing the front spacer, remove front mount bushing and using a 1/2" drill bit, drill the threads out of the bushing sleeve and replace the bushing in the frame. Use the following bolts in conjunction with 7/16" USS washers and stock hardware in these locations: front-12mm x 180mm, front floorboard- 12mm x 140mm, rear-12mm x 160mm. Do not tighten at this time.
- Repeat lift procedure for the driver's side of the cab.
- Align the cab to the bed with the aid of the measurements taken earlier and tighten all mounting hardware. *Use Loctite® on all mounting hardware.*

FUEL LINE COVER

- The cover must be modified to provide clearance for the fuel line that moved upward after the cab was lifted. The cover can be bent so that the two lower and rear upper mounting holes are still used. Bend cover for adequate clearance (Fig. 12).



FIG. 12—Sheet Metal Cover Modified

- Install modified cover to frame using the lower and rear upper mounting holes. Check to ensure that no lines are rubbing on the cover. If there is contact, remove the cover and make necessary modifications until cover can be installed with no contact with lines.

AUTOMATIC TRANSMISSION

- Check automatic transmission shift cable to see that it is not binding as a result of lifting the body.

FRONT BUMPER INSTALLATION

- Install the front bumper relocation brackets on the front bumper with the studs facing out and fasten with stock nuts (Fig. 13). Do not tighten at this time.
- The frame must be modified to provide clearance for the fog lights (if equipped) that are mounted in the bumper. Figure 14 shows the cut required. Remove approximately 1/3 of the outer slots.

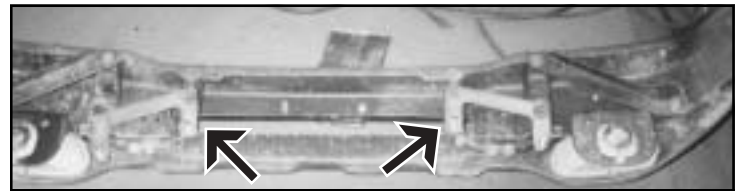


FIG. 13—Front Bumper Brackets

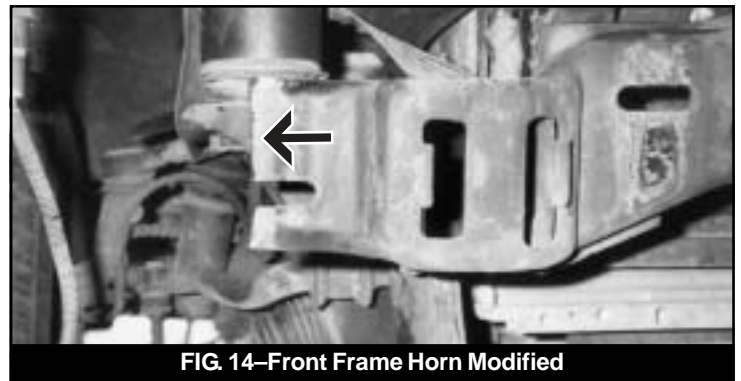


FIG. 14—Front Frame Horn Modified

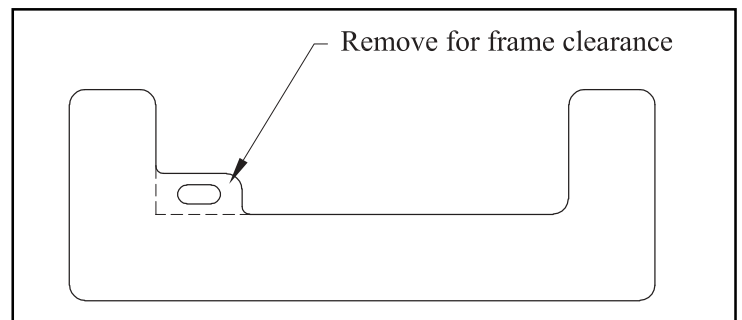


FIG. 15—Front Bumper Modification

- The front bumper must be modified for frame clearance. Remove the tab (on each side) protruding from the stock bumper brackets (Fig. 15).
- Install the bumper on vehicle and fasten using four 1/2" USS washers and 1/2" nuts. Do not tighten at this time.
- Adjust the bumper-to-body clearance using the measurements taken earlier and tighten all mounting hardware. *Use Loctite® on all mounting hardware.*

Note: Tow hooks can be reinstalled on vehicle but significant modification of front valance is required.

47. Reconnect fog lights and any other wires that were attached to the front bumper

RADIATOR RELOCATION

48. Remove the rubber mounting pads from the lower radiator mounts and install them in the small hole of lower relocating brackets. Install the provided u-nuts in the opposite end of the bracket with flat side facing out.
49. Mount the upper radiator relocation brackets to the stock mounts on the core support using the stock hardware so that the studs are pointing toward the radiator.
50. Mount the radiator on the relocation bracket studs and fasten with 1/4" nuts and 1/4" SAE washers. Do not tighten at this time.
51. Slide the lower relocation brackets, with mounting pads installed, over the legs of the radiator.
52. Mount the relocations brackets (Fig. 16) to the stock lower mounting brackets using two 5/16" x 1" bolts and 5/16" USS washers into the u-nuts installed on the relocation bracket. Do not tighten at this time.

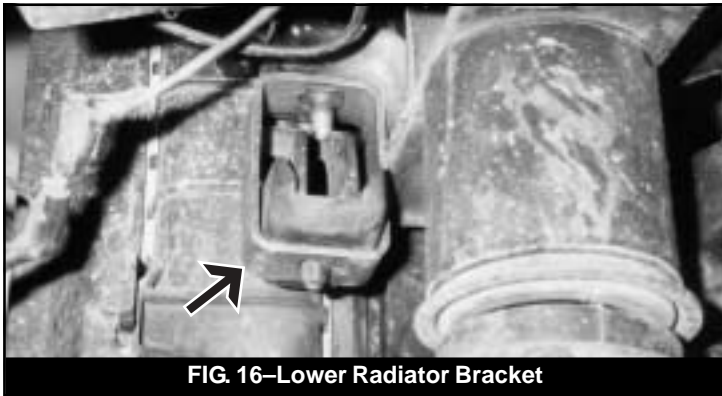


FIG. 16—Lower Radiator Bracket

53. Adjust shroud to fan clearance and tighten all mounting hardware.

UNDER THE HOOD

54. Reattach the wire loom bracket that was previously removed to the wire loom. Install the bracket on the original mounting stud on the driver's side of the engine (Fig. 10) using the stock nut.
55. Reattach the air intake hose to the throttle body and the air filter box. Attach any other hoses or wires that were removed.
56. On A/C equipped models the A/C hose may be rubbing on the alternator. Use the provided 3/4" x 6" piece of hose and zip ties to insulate the hose (Fig. 17).

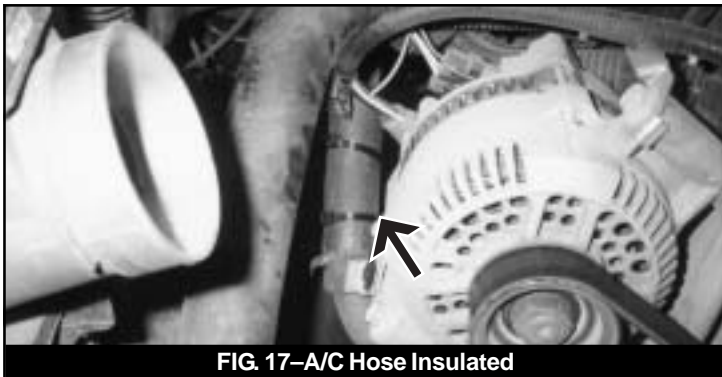


FIG. 17—A/C Hose Insulated

57. Make a visual check to see that no other brake lines, wires, or hoses are binding or rubbing. Make necessary modifications where needed.

INTERIOR ASSEMBLY

58. *Manual Transfer Case Vehicles Only*
Check to see that the transfer case can shift into all ranges. If it will not shift in all ranges the floorboard must be notched for adequate clearance. Install the shift boot and check operation again. If it will not shift in all ranges the boot will need to be modified for adequate clearance.
59. Replace the mounting bolt access covers and replace the carpet back to its original location. Reinstall shift console.

REAR INSTALLATION

FUEL FILLER

60. Remove the fuel cap. Remove the screws that mount the fuel filler neck to the body.

SPARE TIRE REMOVAL

61. Lower spare tire and remove from vehicle. **Note: For instructions on spare tire removal see owner's manual.**

REAR BUMPER REMOVAL

62. If equipped, remove the rear tow hook from the frame. Remove the four bolts that mount the tow hook (Fig. 18) and remove it from the vehicle.



FIG. 18—Rear Tow Hook

63. Disconnect the license plate lights and any other wiring that is attached to the bumper.
64. Remove the four bolts that mount the rear bumper to the frame (Fig. 19) and remove bumper from the vehicle.

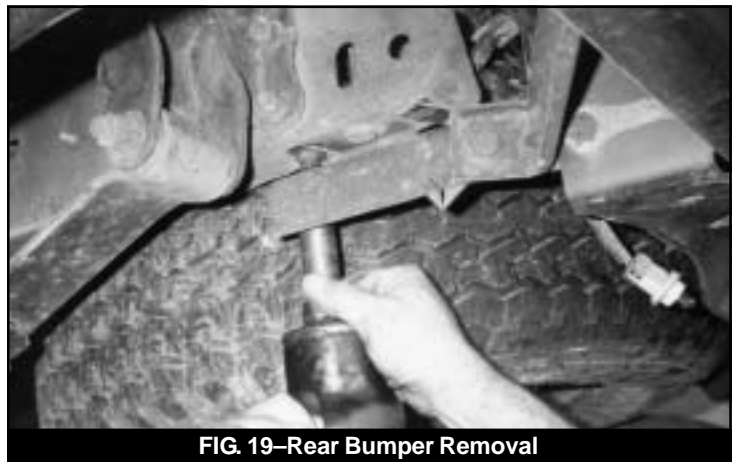


FIG. 19—Rear Bumper Removal

BED LIFT

65. Loosen but do not remove all of the bed mounting bolts. The bolts are accessed from inside the bed and require a t-55 torx socket to remove.
66. Remove the bed mounting bolts from the passenger's side of the vehicle only. Using a hydraulic jack and wooden block, slowly lift the bed while continuously checking for wires or hoses that may be binding. Lift the bed just high enough to place the body spacers.
67. Install the new mounting bolts with 7/16" USS washer from the top down and thread into the stock nuts attached to the frame. The bolts are located as follows: 12mm x 200mm in the front mount and 12mm x 180mm bolts in all other locations. Do not tighten at this time.
68. Repeat bed lift procedure for the driver's side of the vehicle. Take care to ensure that the fuel filler neck falls through the body while lifting.

Caution: All welding should be performed by a certified welder.

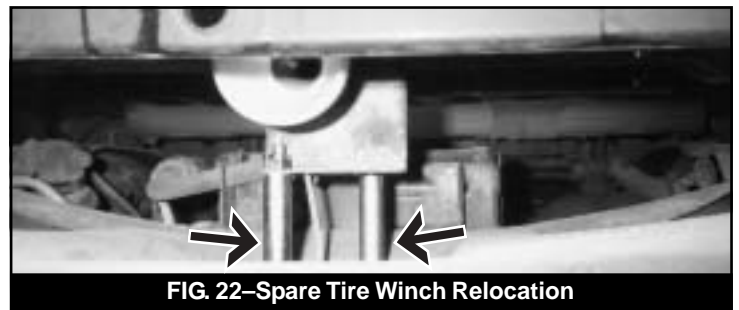
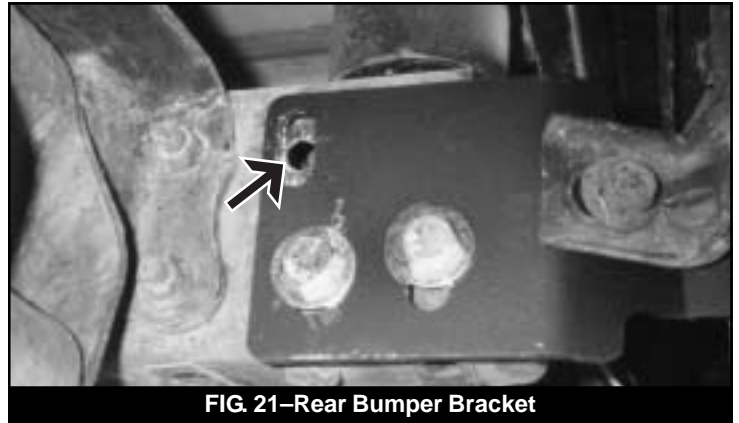
69. Install metal body spacers at locations where the bed cross members originally rested on the frame. Tack weld the spacers to the frame.
70. Align the bed to the cab using the measurements taken earlier and tighten all mounting hardware. *Use Loctite® on all mounting hardware.*

FUEL FILLER EXTENSION

71. Remove fuel filler assembly. Loosen the hose clamps holding the filler and vent hoses to the fuel tank. Remove the hoses from the tank and the assembly from the vehicle.
72. Loosen the hose clamp holding the vent hose to the filler neck and remove the vent hose. Install the new vent hose to the filler neck using a #10 hose clamp. Tighten clamp.
73. Lengthen filler hose. Cut the filler hose in two pieces at the middle of the hose. Insert the filler extension in both pieces of the hose and install two #28 hose clamps. Do not tighten clamps.
74. Fasten the filler hose with the OE clamp. Fasten the filler hose with the OE clamp. Fasten the vent hose with the #10 clamp provided.
75. Adjust the filler extension to appropriate length and tighten remaining clamps. **Note: Make sure there is adequate amount of extension in both sections of filler hose.**

REAR BUMPER INSTALLATION

76. Remove stock bumper brackets from the bumper. Loosen but do not remove the bolts mounting the outside support brackets to the bumper. Remove the bolts mounting the outside support brackets to the inside brackets. Remove the four bolts mounting the inside brackets to the bumper and remove the brackets from the bumper.
77. Mount new bumper brackets to the bumper as shown in (Fig. 20) using stock hardware. Attach the outside support brackets to new bumper brackets using the stock hardware. **DO NOT** tighten any mounting hardware at this time.
78. Loosely mount the bumper to the frame using five 1/2 x 1-1/2" bolts, ten 7/16" USS washers, and 1/2" nuts. There are three mounting holes on the passenger's side and two



on the driver's side. **Note: The rear tow hook can be reinstalled at this in its original position over the new brackets. Use the stock bolt and nut at the rear cross member.**

79. Adjust the bumper to the proper location with the aid of the measurements taken early and tighten all mounting hardware. Check tailgate clearance in opened position.
80. The upper mounting hole for the driver's side bracket must be drilled in the frame (Fig. 21). Using the bracket as a guide, drill a 1/2" hole in the center of the slot. Insert a 1/2" x 1-1/2" bolt with 7/16" USS washers and 1/2" nut in the hole and tighten.

SPARE TIRE WINCH RELOCATION

81. Remove the two bolts mounting the spare tire winch to the cross member. Remove the winch from the vehicle.
82. Using a 3/8" drill bit, drill out the two winch mounting holes in the frame and the two threaded holes in the winch.
83. Replace the modified winch in the vehicle (Fig. 22). Position two 3/4" OD x 3" winch spacers between the winch and the cross member and align the holes. Insert a 3/8" x 4" bolt and 3/8" SAE washer in each mounting hole. Fasten with two 3/8" lock nuts and 3/8" SAE washers. Tighten to proper torque. *Use Loctite® on all mounting hardware.*
84. Replace the spare tire to its stowed position.