

TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
M1083 SERIES, 5-TON, 6 X 6,
MEDIUM TACTICAL VEHICLES (MTV)

VOLUME NO. 4 OF 4

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TRK, CAR., MTV, M1083 W/WN W/O WN	2320-01-360-1895 2320-01-354-3386	BT3 BR2
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE), M1084	2320-01-354-3387	BR3
TRK, CAR., MTV, LWB, M1085 W/WN W/O WN	2320-01-360-1897 2320-01-354-4530	BT5 BR7
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE), M1086	2320-01-354-4531	BR8
TRK, TRACTOR, MTV, M1088 W/WN W/O WN	2320-01-360-1892 2320-01-355-4332	BTY BTJ
TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090 W/WN W/O WN	2320-01-360-1893 2320-01-354-4529	BTZ BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093 W/WN W/O WN	2320-01-360-1896 2320-01-355-3063	BT4 BR9
TRK, DUMP, MTV, AIR DROP, M1094 W/WN W/O WN	2320-01-360-1984 2320-01-355-3062	BT2 BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

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TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE), M1086	2320-01-354-4531	BR8
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TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090 W/WN W/O WN	2320-01-360-1893 2320-01-354-4529	BTZ BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093 W/WN W/O WN	2320-01-360-1896 2320-01-355-3063	BT4 BR9
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TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

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HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you maintain the MTV at the Direct Support (DS) and General Support (GS) Maintenance levels. This volume, Volume 4, contains information which will assist you in the performance of DS and GS Maintenance on the MTV. Volume 4 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual. Read all **WARNINGS** and **CAUTIONS** before performing any maintenance procedure.
- **TABLE OF CONTENTS.** Lists the chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **MAINTENANCE PROCEDURES.** DS and GS Maintenance procedures to assist you in supporting the MTV. Chapters 18 and 19 are Direct Support Maintenance procedures. General Support Maintenance procedures are contained in chapters 20 through 27. Become familiar with the entire maintenance procedure before beginning any maintenance task.

DIRECT SUPPORT MAINTENANCE

- **CHAPTER 18, SPECIAL PURPOSE KIT MAINTENANCE**
- **CHAPTER 19, ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE**

GENERAL SUPPORT MAINTENANCE

- **CHAPTER 20, ENGINE MAINTENANCE**
- **CHAPTER 21, TRANSMISSION MAINTENANCE**
- **CHAPTER 22, POWER TRANSFER AND FINAL DRIVE ASSEMBLY MAINTENANCE**
- **CHAPTER 23, FRONT AXLE MAINTENANCE**

OVERVIEW (CONT)

GENERAL SUPPORT MAINTENANCE (CONT)

- **CHAPTER 24, INTERMEDIATE AND REAR AXLE MAINTENANCE**
- **CHAPTER 25, FRAME, TOWING ATTACHMENT, AND DRAWBARS MAINTENANCE**
- **CHAPTER 26, MATERIAL HANDLING CRANES (MHC) AND UNDERLIFT MAINTENANCE**
- **CHAPTER 27, HYDRAULIC MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV and reference publications which contain information regarding the equipment.
- **APPENDIX B, TOOLS AND SPECIAL TOOLS LIST.** Lists equipment used in the performance of maintenance.
- **APPENDIX C, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX D, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the MTV.
- **APPENDIX E, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.
- **APPENDIX F, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX G, ADDITIONAL AUTHORIZATION LIST (AAL).** Lists additional items you are authorized for support of the MTV.
- **APPENDIX H, TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART.** Lists actions required to mate different transmission configurations with WTEC II or WTEC III controls.
- **SUBJECT INDEX.** Lists important subjects contained in Volume 4 in alphabetical order and gives the paragraph number where they are located.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in this volume. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.
- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.

- **CHAPTER INDEXES.** Lists paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.
- **SUBJECT INDEX.** Lists all maintenance procedures contained in Volume 4 in alphabetical order and gives the paragraph number where they are located.

TROUBLESHOOTING

Troubleshooting is contained in Chapter 2 of Volume 1. When a malfunction occurs, look at the symptom index for the vehicle troubleshooting table in Chapter 2. Find the malfunction in the index. Turn to the page number listed for the malfunction in the troubleshooting table. Perform the steps required to correct the malfunction. If you can't find the malfunction, or the malfunction is not corrected, notify your supervisor.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:

- Become familiar with the entire maintenance procedure before beginning a maintenance task.
- Read all **WARNINGS** and **CAUTIONS** before performing any procedures.

CHAPTER 18
SPECIAL PURPOSE KITS MAINTENANCE

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18-1. INTRODUCTION 18-1

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18-3. M1090/M1094 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION 18-20

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18-5. M1085 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION 18-51

18-6. 200 AMP ALTERNATOR REPAIR 18-62

Section I. INTRODUCTION

18-1. INTRODUCTION

This chapter contains maintenance instructions for installation and repair of Special Purpose Kits authorized by the Maintenance Allocation Chart (MAC) at the Direct Support (DS) Maintenance level.

Section II. MAINTENANCE PROCEDURES

18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION

This task covers:

- ## a. Installation b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).
Cargo bed removed (para 15-9).

Tools and Special Tools

Tool Kit, Genl Mech (Item 78, Appendix B)
Goggles, Industrial (Item 28, Appendix B)
Wrench, Torque, 0-175 lb-ft (Item 92, Appendix B)
Wrench, Torque, 0-600 lb-ft (Item 97, Appendix B)
Wrench Set, Socket (Item 84, Appendix B)
Socket, Socket Wrench (TM 9-2320-366-20)
Drill, Electric, Portable (Item 21, Appendix B)
Drill Set, Twist (Item 20, Appendix B)
Socket Set, Impact (Item 58, Appendix B)

Tools and Special Tools (Cont)

Wrench, Impact, Electric (Item 88, Appendix B)
Vise, Machinist (Item 82, Appendix B)
Sling, Cargo (Item 56, Appendix B)
Shop Equipment, Automotive Vehicle (Item 58,
Appendix B -20)

Materials/Parts

Ties, Cable, Plastic (Item 99, Appendix C)
Dispenser, Pressure Sensitive Adhesive Tape
(Item 30, Appendix C)

Personnel Required

(3)

WARNING

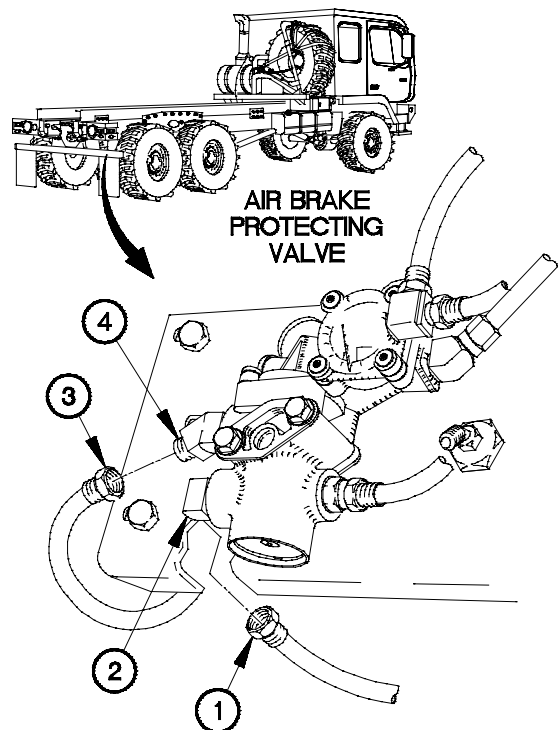
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Installation.

NOTE

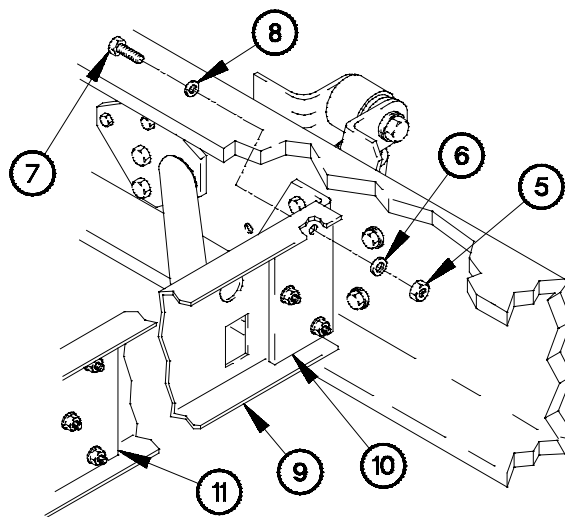
- Remove plastic cable ties as required.
- Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect air hose (1) from 90-degree fitting (2).
- (2) Disconnect air hose (3) from 45-degree fitting (4).



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- (3) Remove six self-locking nuts (5), washers (6), screws (7), washers (8), and valve control panel (9) from brackets (10 and 11).



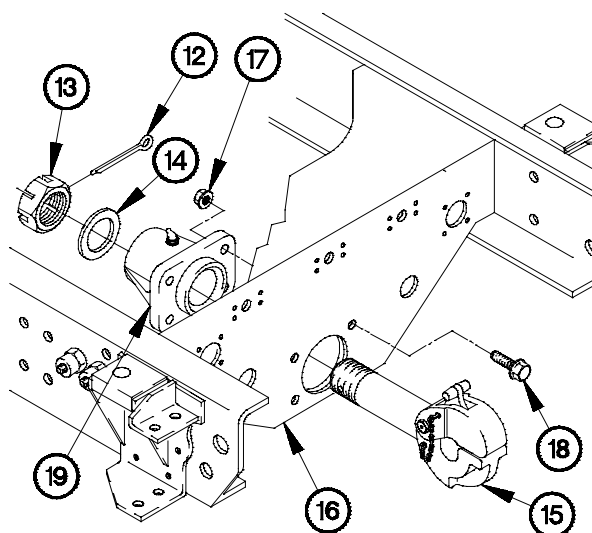
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- (4) Remove cotter pin (12) from nut (13). Discard cotter pin.
 (5) Remove nut (13) and washer (14) from pintle hook (15).

WARNING

Pintle hook weighs approximately 65 lbs (30 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

- (6) Remove pintle hook (15) from rear crossmember (16).
 (7) Remove four self-locking nuts (17), screws (18), and support (19) from rear crossmember (16). Discard self-locking nuts.



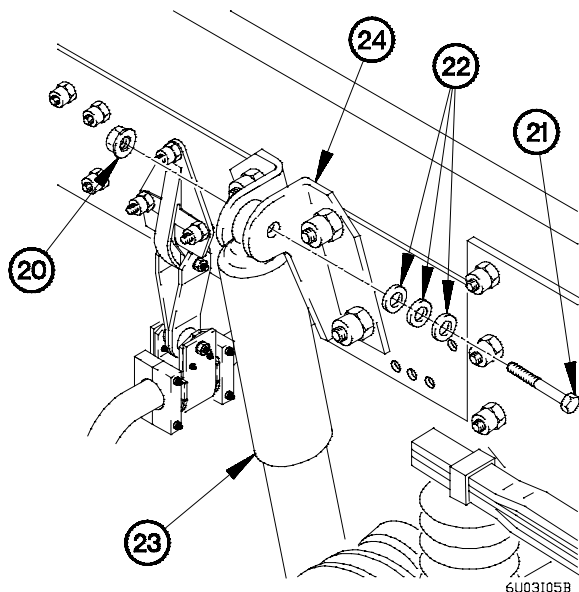
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18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION (CONT)

NOTE

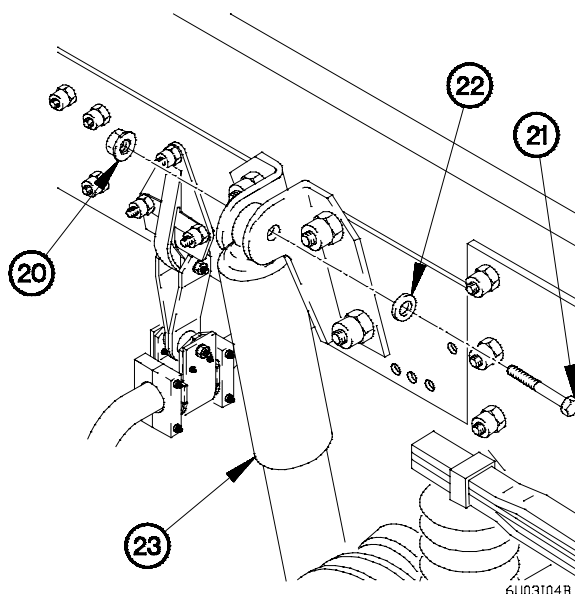
- Perform steps (8) through (14) on RH side of vehicle.
- Perform step (8) on vehicle serial numbers 0001 through 1398, and 2988 and higher serial numbers.
- Steps (8) through (21) require the aid of an assistant.

- (8) Remove self-locking nut (20), bolt (21), and washer (22) from rear axle shock absorber (23). Discard self-locking nut.



- (11) Remove collar (25) and bolt (26) from rear axle shock absorber front bracket (24). Discard collar and bolt.

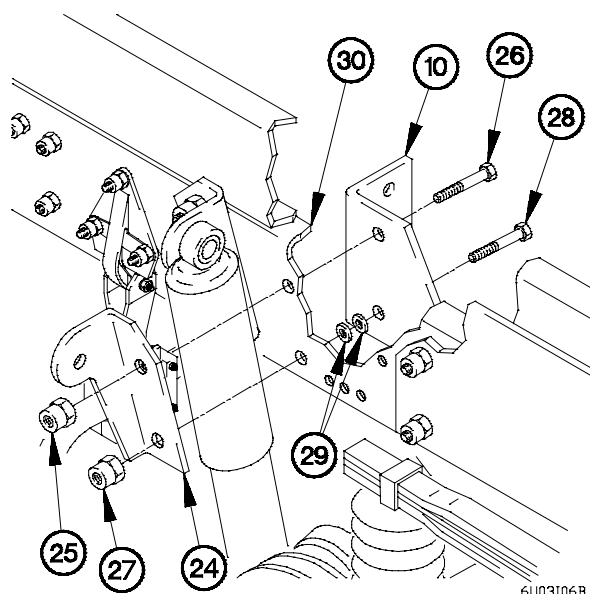
- (12) Remove collar (27), bolt (28), bracket (10), two washers (29) and rear axle shock absorber front bracket (24) from RH frame rail (30). Discard collar and bolt.



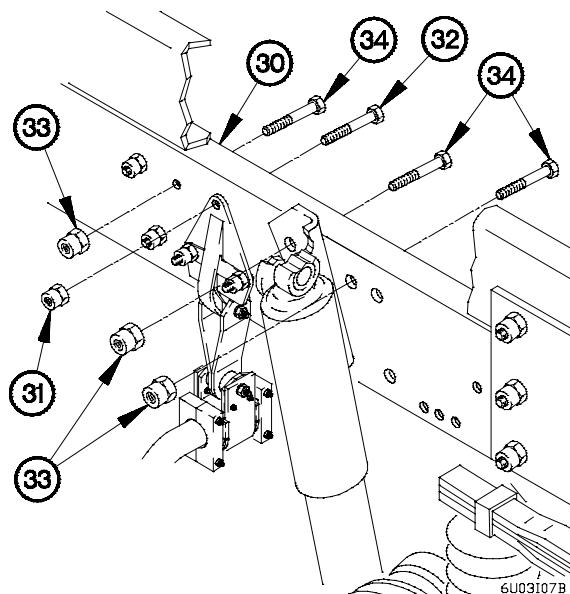
NOTE

Perform step (9) on vehicle serial numbers 1399 through 2987.

- (9) Remove self-locking nut (20), bolt (21), and three washers (22) from rear axle shock absorber (23). Discard self-locking nut.
- (10) Remove rear axle shock absorber (23) from rear axle shock absorber front bracket (24) and set to side.

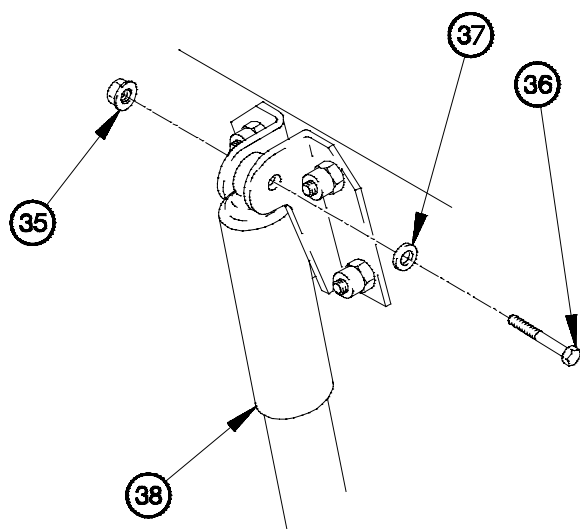


- (13) Remove collar (31) and bolt (32) from RH frame rail (30). Discard collar and bolt.
- (14) Remove three collars (33) and bolts (34) from RH frame rail (30). Discard collars and bolts.

**NOTE**

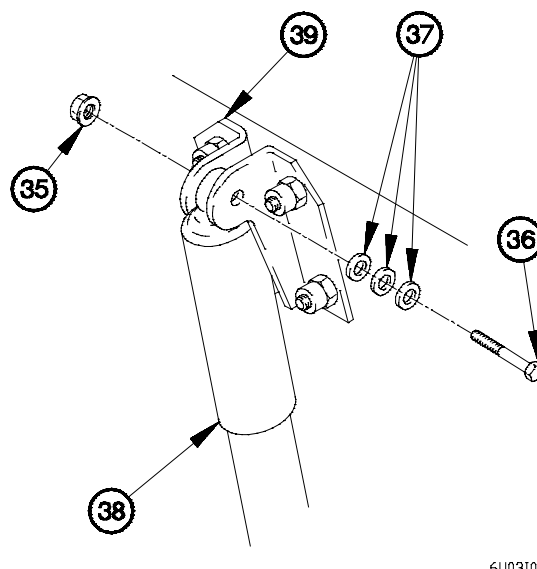
- Perform step (15) through (21) on LH side of vehicle.
- Perform step (15) on vehicle serial numbers 0001 through 1398, and 2988 and higher serial numbers.

- (15) Remove self-locking nut (35), bolt (36), and washer (37) from rear axle shock absorber (38). Discard self-locking nut.

**NOTE**

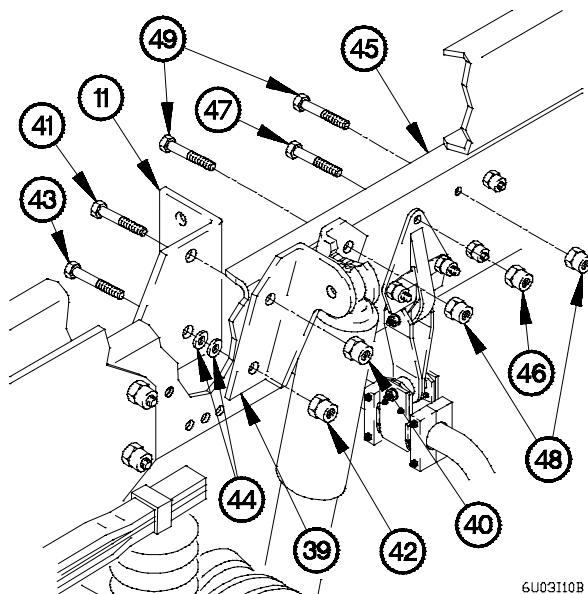
Perform step (16) on vehicle serial numbers 1399 through 2987.

- (16) Remove self-locking nuts (35), bolt (36), and three washers (37) from rear axle shock absorbers (38). Discard self-locking nut.
- (17) Remove rear axle shock absorber (38) from rear axle shock absorber front bracket (39) and set to side.



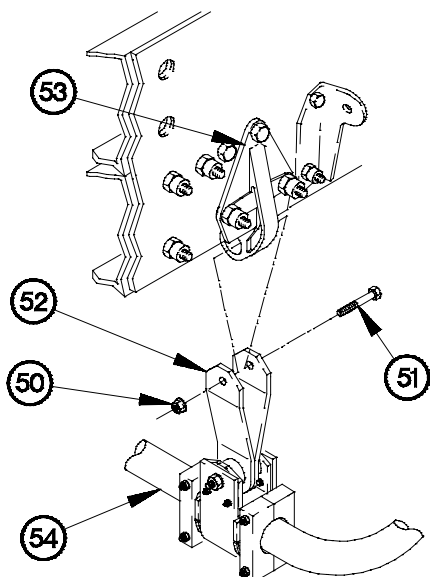
18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION (CONT)

- (18) Remove collar (40) and bolt (41) from rear axle shock absorber front bracket (39). Discard collar and bolt.
- (19) Remove collar (42), bolt (43), bracket (11), two washers (44) and rear axle shock absorber front bracket (39) from LH frame rail (45). Discard collar and bolt.
- (20) Remove collar (46) and bolt (47) from LH frame rail (45). Discard collar and bolt.
- (21) Remove two collars (48) and bolts (49) from LH frame rail (45). Discard collars and bolts.



NOTE

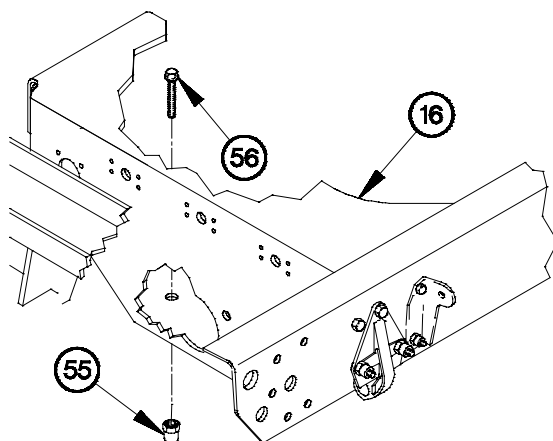
Left and right sides of rear stabilizer bar are disconnected the same way. Right side shown.



6U03111b

- (22) Remove self-locking nut (50), bolt (51), and bracket assembly (52) from frame bracket (53). Discard self-locking nut.
- (23) Perform step (22) on left side of vehicle.
- (24) Lower rear stabilizer bar (54).

- (25) Remove two collars (55) and bolts (56) from rear crossmember (16). Discard collars and bolts.

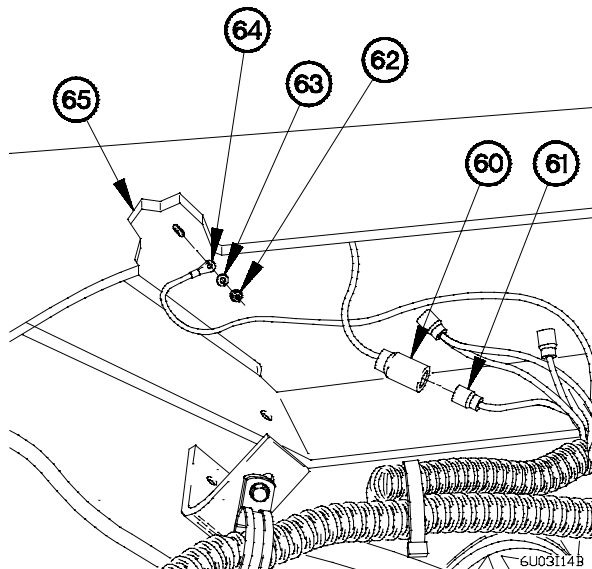
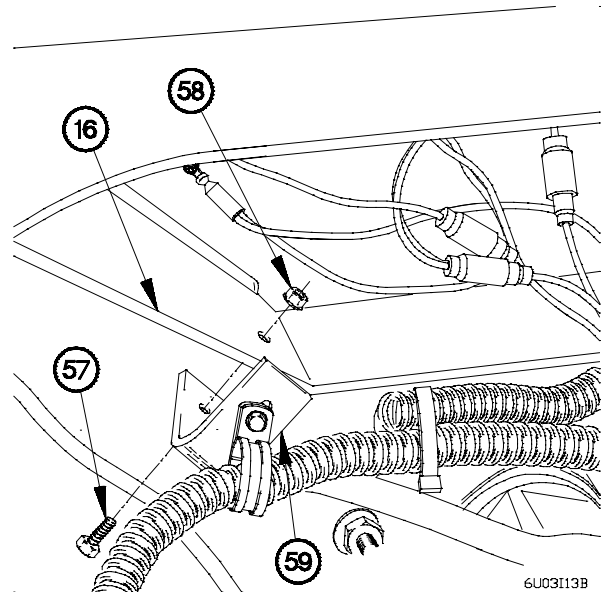


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NOTE

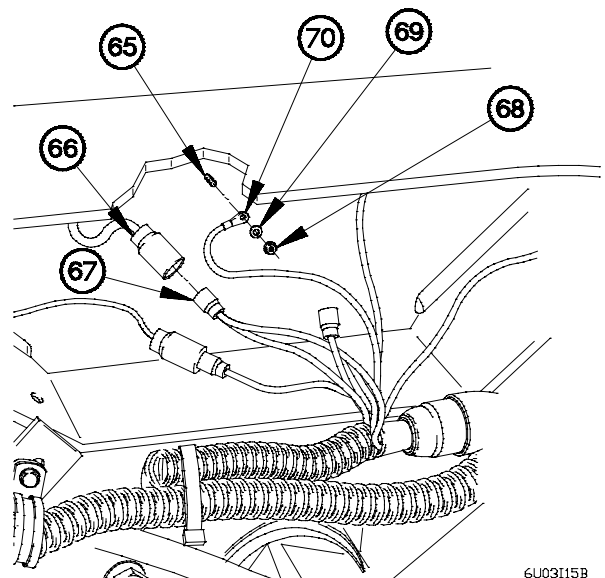
Left and right L-brackets are removed the same way. Right side shown.

- (26) Remove screw (57), self-locking nut (58), and L-bracket (59) from rear crossmember (16).
- (27) Perform step (26) on left side L-bracket.



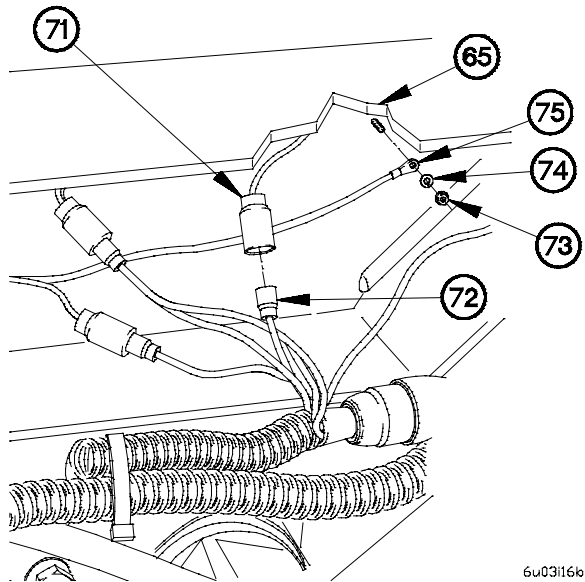
- (28) Disconnect connector (60) from connector P58 (61).
- (29) Remove nut (62), lockwasher (63), and terminal lug TL32 (64) from base (65).

- (30) Disconnect connector (66) from connector P56 (67).
- (31) Remove nut (68), lockwasher (69), and terminal lug TL31 (70) from base (65).

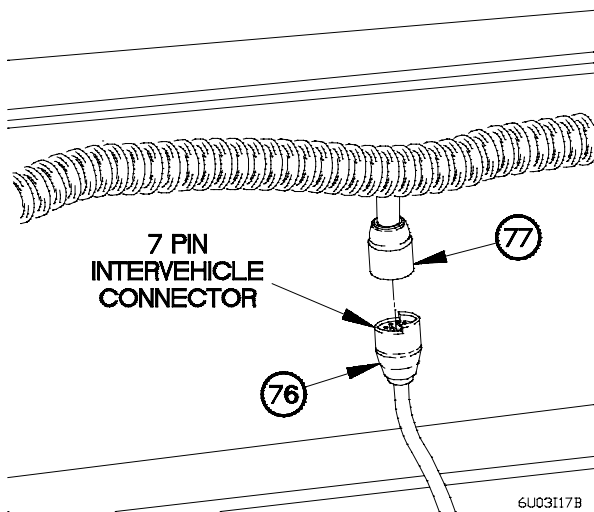


18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION (CONT)

- (32) Disconnect connector (71) from connector P54 (72).
- (33) Remove nut (73), lockwasher (74), and terminal lug TL30 (75) from base (65).

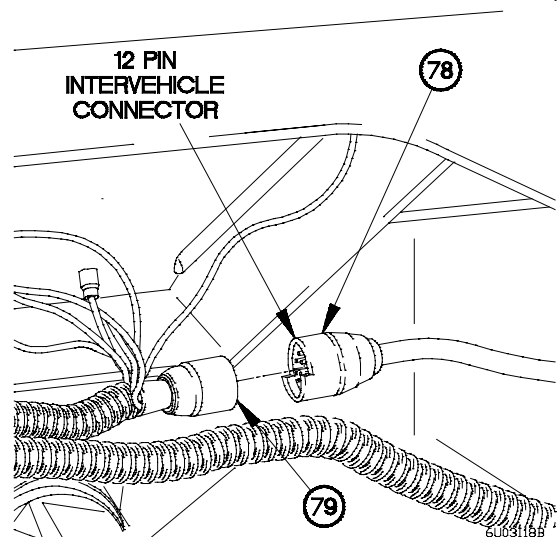


6U03116b



6U03117B

- (34) Disconnect connector J52 (76) from connector P52R (77).



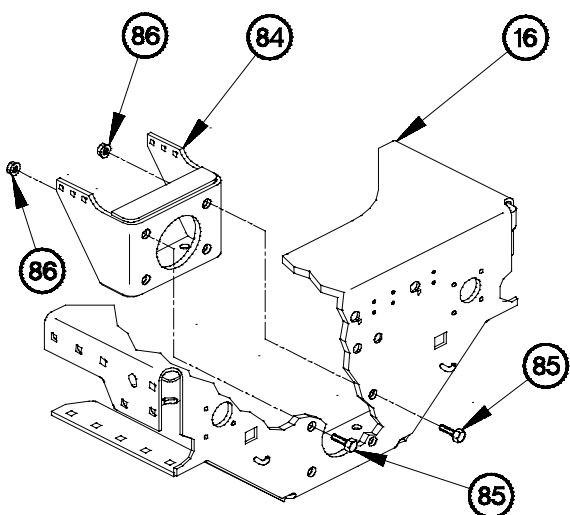
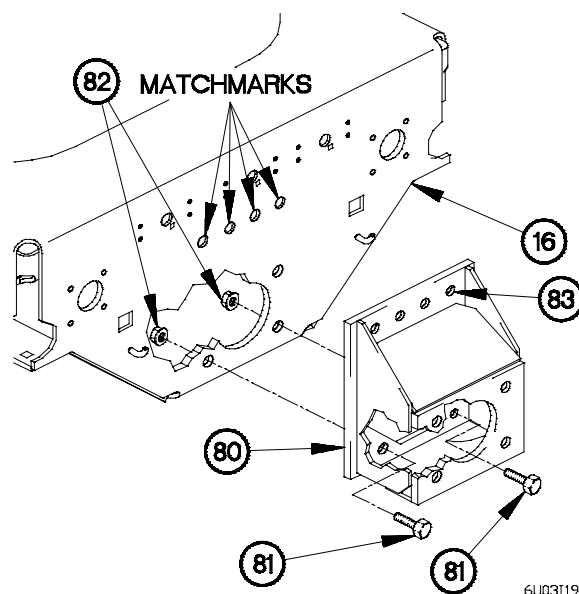
6U03118B

- (35) Disconnect connector J53 (78) from connector P53 (79).

NOTE

Use bolts P/N 12414307-143 on step (36).

- (36) Install pintle hook extension (80) on rear crossmember (16) with two bolts (81) and self-locking nuts (82).
- (37) Match mark four top holes (83) on rear crossmember (16).
- (38) Remove two self-locking nuts (82), bolts (81) and pintle hook extension (80) from rear crossmember (16).
- (39) Drill four 0.375 in. (9.5 mm) pilot holes in rear crossmember (16) at matchmarks.
- (40) Drill four 0.75 in. (19 mm) holes in rear crossmember (16).

**NOTE**

Use bolts P/N 12414307-140 on step (41).

- (41) Position rear lower crossmember support (84) on rear crossmember (16) with two bolts (85) and self-locking nuts (86).

18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION (CONT)

NOTE

- Position two spacers on frame rails with beveled edges facing down.
- Use bolts P/N 12414307-149 and 12414307-148 on step (42).
- Left and right side of rear main crossmember support is installed the same way. Right side shown.
- Route connectors and terminal lugs under rear main crossmember.

(42) Position two spacers (87) and rear main crossmember support (88) on LH and RH frame rails (30 and 45) with two bolts (89 and 90) and four self-locking nuts (91).

NOTE

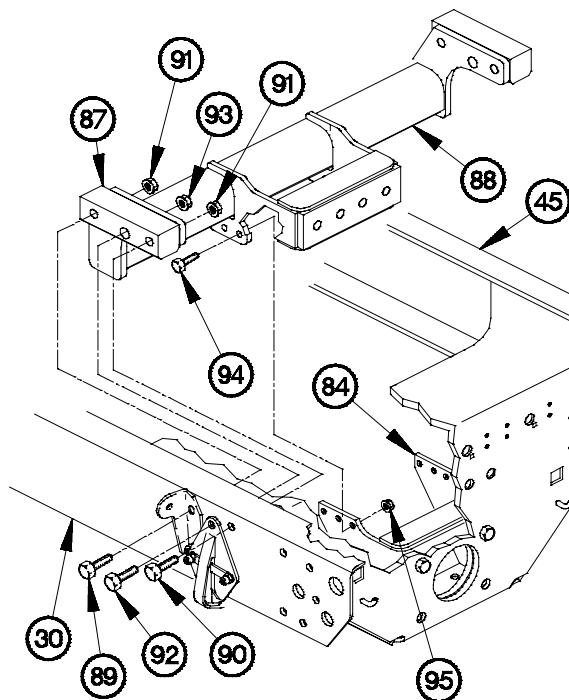
Use bolts P/N 12414307-090 on step (43).

(43) Position two bolts (92) and self-locking nuts (93) on rear main crossmember support (88).

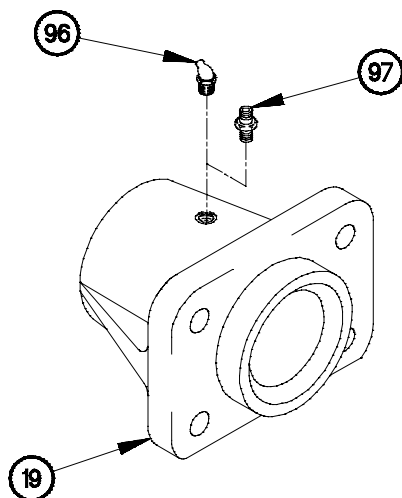
NOTE

Use bolts P/N 12414307-079 on step (44).

(44) Position six bolts (94) and self-locking nuts (95) on rear lower crossmember support (84).



6U031216



6U03122B

(45) Remove 45-degree grease fitting (96) from support (19).

(46) Install grease fitting (97) in support (19).

NOTE

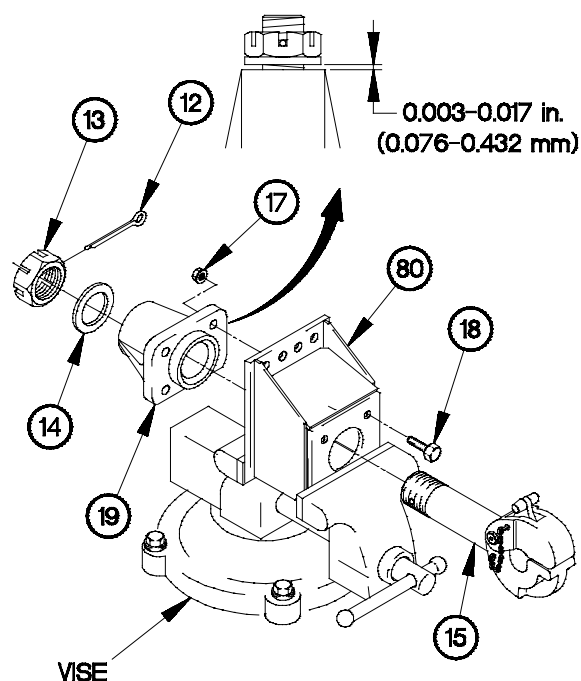
- Use bolts P/N 12414307-142 on step (47).
- Support will be installed with grease fitting facing down.

- (47) Position support (19) on pintle hook extension (80) with four bolts (18) and self-locking nuts (17).
- (48) Position pintle hook extension (80) in vise.
- (49) Tighten four self-locking nuts (17) to 196-240 lb-ft (265-325 N·m).
- (50) Position pintle hook (15) in pintle hook extension (80) with washer (14) and nut (13).

CAUTION

Clearance between washer and support must be 0.003-0.017 in. (0.076-0.432 mm). Failure to comply may result in damage to equipment.

- (51) Adjust nut (13) until clearance is 0.003-0.017 in. (0.076-0.432 mm) with alignment holes lined up between nut (13) and pintle hook (15).
- (52) Install cotter pin (12) in nut (13).



6u031231b

18-2. M1083 PINTLE HOOK EXTENSION KIT INITIAL INSTALLATION (CONT)

WARNING

Pintle hook extension weighs approximately 90 lbs (41 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

- Step (53) requires the aid of two assistants.
- Use bolt P/N 12414307-142 on step (53).

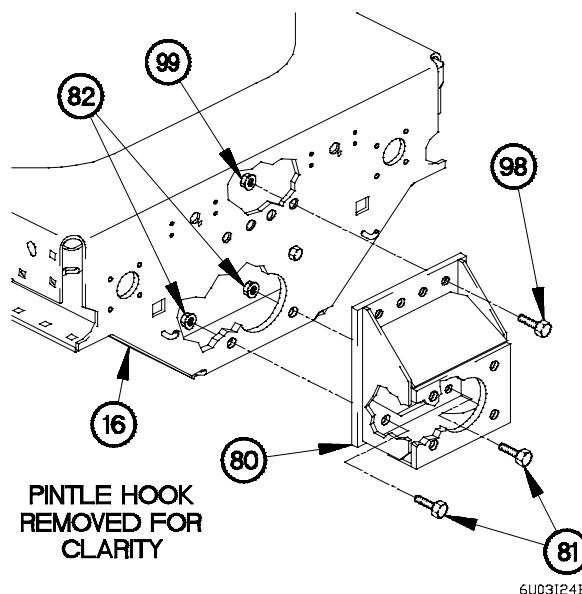
(53) Position pintle hook extension (80) on rear crossmember (16) with four bolts (98) and self-locking nuts (99).

NOTE

Use bolt P/N 12414307-143 on step (54).

(54) Position two bolts (81) and self-locking nuts (82) in pintle hook extension (80).

(55) Tighten four self-locking nuts (99) and two self-locking nuts (82) to 196-240 lb-ft (265-325 N·m).



NOTE

Use bolts P/N 12414307-141 on step (56).

(56) Position two bolts (100) and self-locking nuts (101) in rear lower crossmember support (84).

(57) Tighten two self-locking nuts (86 and 101) to 196-240 lb-ft (196-240 N·m).

(58) Tighten six self-locking nuts (95) to 76-94 lb-ft (103-125 N·m).

(59) Tighten two bolts (89 and 90) to 236-288 lb-ft (319-389 N·m).

(60) Tighten two bolts (92) to 92-112 lb-ft (124-152 N·m).

