

ROUTINE

MWO effective date is 18 March 2003 and completion date is 1 Oct 2003.

MWO 9-2330-392-20-2

MODIFICATION WORK ORDER

MODIFICATION OF
TRAILER, CARGO: 2-WHEEL M1101
(2330-01-387-5443) EIC: CBC
TRAILER, CARGO: 2-WHEEL M1102
(2330-01-387-5426) EIC: CBB
CHASSIS, TRAILER: 2-WHEEL
(2330-01-387-5424) EIC: CCL

Headquarters, Department of the Army, Washington, D.C.

18 March 2003

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is <http://aeprs.ria.army.mil>. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax, or email your letter, or DA 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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MWO 9-2330-392-20-2

1. PURPOSE.

This modification is to provide a procedure for replacing the rivets used to secure the landing leg mounting bracket. Bolts and nuts will replace the rivets.

2. PRIORITY.

This modification is classified as Routine.

3. END ITEMS TO BE MODIFIED.

The following vehicles shall be modified using this MWO:

NOMENCLATURE	NSN	PART NUMBER (P/N)	CAGE	SERIAL NUMBER
Trailer, Cargo: 2-Wheel M1101	2330-01-387-5443	7192	33875	ALL
Trailer, Cargo: 2-Wheel M1102	2330-01-387-5426	6636	33875	ALL
Trailer, Chassis, Cargo: 2-Wheel	2330-01-387-5424	6668	33875	ALL

4. MODULES TO BE MODIFIED.

Not Applicable.

5. PARTS TO BE MODIFIED.

Landing Leg Mounting Bracket & Draw Bar (Part Number will be available next TM update).

6. APPLICATION.

- a. Time Compliance Schedule. The effective date of this MWO is 18 August 2002 and it's completion is 1 May 2004.
- b. Level of Maintenance. The lowest level of maintenance authorized to apply this MWO is Unit Maintenance.
- c. Work Force and Man-Hours Requirements.

REQUIREMENTS

WORK FORCE/SKILLS

MAN-HOURS

Wheeled vehicle mechanic (MOS 63B) or equivalent	1.8
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Total man-hours required for a single application of this MWO are 1.8 hours.

WARNING

MWO 9-2330-392-35-1, STEEL DRAW BAR must be installed prior to replacing the rivets with bolts. Failure to follow this warning will result in catastrophic failure of the aluminum drawbar leading to equipment damage and possible injury or death of personnel.

- d. MWOs To Be Applied Prior to or Concurrently with this MWO. Installers will verify MWO 9-2330-392-35-1, Steel Draw Bar and MWO 9-2330-392-20-1, Surge Brake Actuator has been applied.
- e. Additional Information. Not Applicable.

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED.

TM 9-2330-392-14&P, 1 October 1995, with change 1, 13 March 1998 and Change 2, 27 April 2002.

8. MWO KIT/PARTS AND THEIR DISTRIBUTION

- a. Kit Needed to Apply MWO.

This MWO kit consists of standard Grade 8 nuts and bolts available through the Defense Logistic Agency supply system. It is not economically feasible to assemble a kit for distribution, therefore, units should order parts needed to apply this MWO as described in paragraph b below. Reimbursement for parts can be coordinated through your MWO coordinator to TACOM, AMSTA-LC-CIPWM, Mike Dargis, DSN 786-7391, commercial (586) 574-7391, e-mail: dargism@tacom.army.mil.

- b. Contents of MWO Kit:

The table below reflects parts required to modify **one trailer**. Note that unit of issue for some items listed are sold in packages of 50 or 100 only. **Units should use caution when ordering to insure they order the correct quantities.**

NOMENCLATURE	PART NUMBER	NSN	UNIT OF ISSUE	QTY RQD	CURRENT AMDF PRICE
Screw, Cap, Hex Head	B1821BH038C500N			6ea	
<i>Screw, Cap, Hex Head is only available in packages of 50 ea</i>		5305-00-964-0503	PK/50		13.21
Nut, Self-Locking	MS17829-6C	5310-00-483-8790	EA*	6ea	0.18
Washer, Flat	MS27183-14			12ea	
<i>Washer, Flat is only available in packages of 100 ea</i>		5310-00-080-6004	HD		1.01
Washer, Locking	MS51415-11	5310-01-386-0475	EA	1ea	0.94
Nut, Self-Locking	9422305	5310-01-130-4274	EA	2ea	0.54
Plate, MWO	10930014	9905-00-858-5682	EA	1ea	0.7
Rivet, Blind	AD43ABS			1ea	
<i>Rivet, Blind is only available in packages of 100 ea</i>		5306-00-904-4136	HD		1.76

NOTE: Reimbursement of parts will be based upon AMDF prices reflected in this document.

*Item 2, Nut, Self-Locking, NSN 5310-00-483-8790, may be economically substituted with:

NUT, SELF-LOCKING, Part Number 91831A127, NSN 5310-01-475-9244, Unit of Issue: **Pkg/50**, AMDF Price 21.39

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT, AND DIGNOSTICS EQUIPMENT (TMDE); AND FIXTURES REQUIRED.

NOMENCLATURE	NSN	CAGEC	SUPPLY CATALOGUE
Tool Kit, General Mechanics	5180-00-177-7033	50980	SC 5180-90-CL-N26
Shop Equipment, Automotive Maintenance And Repair Common No. 1	4910-00-754-0654	19204	SC 4910-95-CC-A74

10. MODIFICATION PROCEDURES.

a. VEHICLE PREPARATION

1. Set both parking brakes (1) and chock wheels (refer to TM 9-2330-392-14&P).
2. Place a jackstand (2) under each front trailer corner.
3. Using front support leg handle, lower trailer onto jackstands (2) and continue retracting support leg until wheel is off ground (see **Figure 1**).

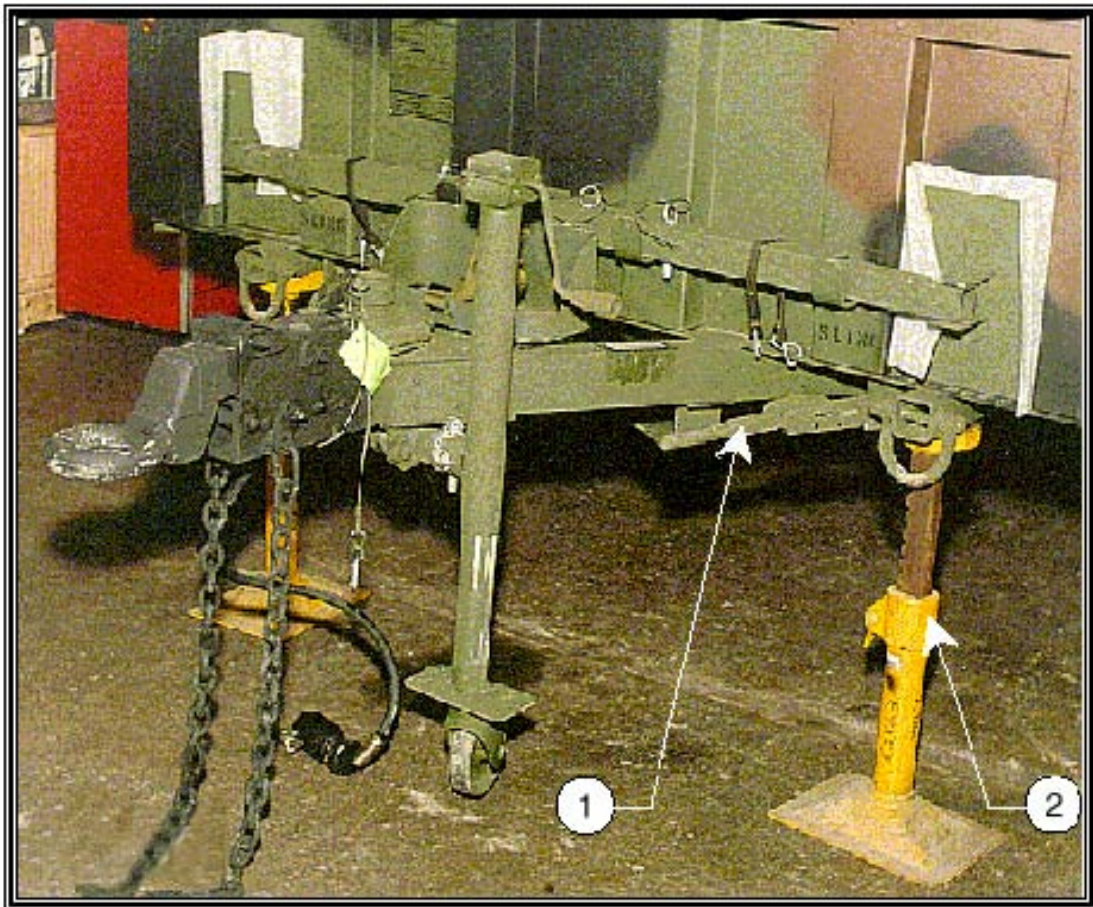


Figure 1

b. MODIFICATION PROCEDURE

1. Remove four brake master cylinder mounting bolts (4) holding master cylinder (3) to housing (5) (see **Figure 2**). Do NOT disconnect hydraulic hose.
2. Separate master cylinder (3) from housing (5) (see **Figure 2**). Tie out of the way so master cylinder does not hang by the hydraulic hose. Do NOT disconnect hydraulic hose or in any way open the brake hydraulic system. Retain breakaway lever spring (6) for reinstallation (see **Figure 2a.**).

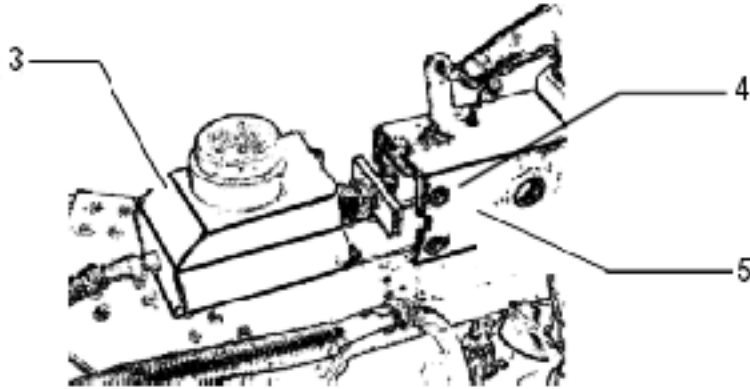


Figure 2

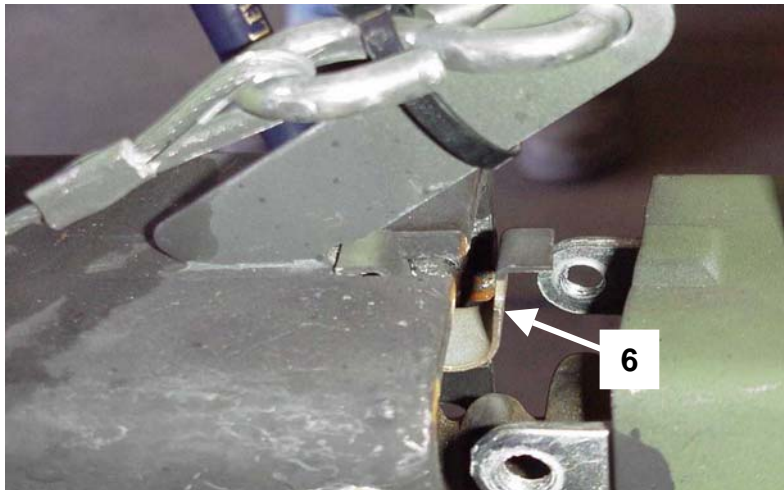


Figure 2a.

3. Disconnect quick-release pin and remove leveling jack. (see **Figure 3**).



Figure 3

4. Remove two bolts, two flat washers, two locking hex nuts from pivot side of bracket, and one screw, one lock washer from back side of bracket. Remove the landing leg pivot. Discard lock washer and locking hex nuts (see **Figure 4**).



Figure 4

5. Locate and mark the six rivets (7) to be removed. Remove the six rivets (7) from landing leg mounting bracket attached to the bottom plate using one of the two methods described on following page. Store landing leg mounting bracket for later installation on this trailer (see **Figure 5**).

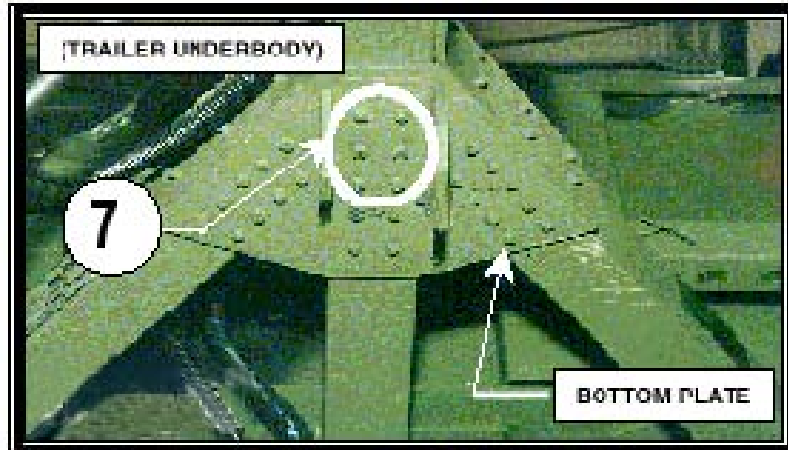


Figure 5

There are two methods that can be used to remove spare rivets from the trailer.

Method 1: Use an abrasive cutoff wheel to cut a slot in the rivet head just above the plate surface. Use a hammer and 3/4" (or wider) chisel to knock the remaining rivet head off the surface. Drive the rivet body out of the hole with a punch. Take care not to grind or gouge the aluminum plates or elongate the rivet hole (see **Figure 6 & 7**).

Method 1

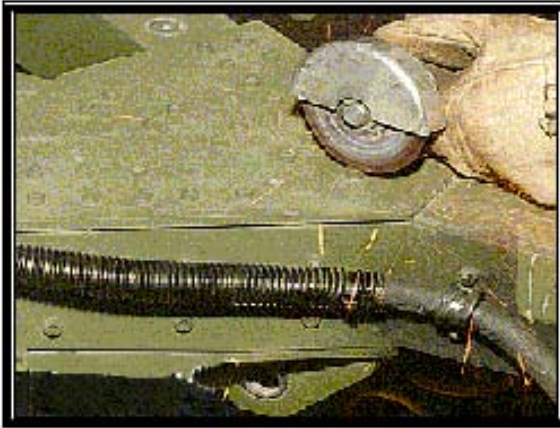


Figure 6



Figure 7

Method 2



Figure 8



Figure 9

Method 2: Use a grinder with a course sanding disk to remove almost all of the rivet head. Then use a tapered punch to drive what's left of the rivet out of the hole. If the rivet is not driven out of the hole easily, then grind more of the rivet head off and try again. Take care not to grind into the aluminum plates (see **Figure 8 & 9**).

6. Locate and mark six rivets from center of the top plate that line up with the six bottom rivets previously removed. Remove these six rivets using one of the two recommended methods.

NOTE

Ensure that the drill motor is relatively perpendicular to the top plate so that the drill bit will enlarge both the top and bottom rivet holes in a straight, perpendicular line. Take care not to bend drill bit.

7. Using a (27/64) drill bit, enlarge each of the rivet holes (see **Figure 10**) by drilling from the top all the way through the bottom rivet hole (see **Figure 11**).



Figure 10



Figure 11

8. Using the (27/64) drill bit, enlarge each of the six rivet holes in the landing leg mounting bracket. Bracket can be held in a vise and drilled either from the top or the side. Make sure drill is perpendicular to bracket (see **Figure 12 & 13**). If available, a drill press should be used.



Figure 12



Figure 13

9. Before installing hardware clear away all drill shavings with a brush or pressurized air. Drop four of the 3/8" bolts (8) (with a flat washer) through the front two and rear two holes going through the drawbar (see **Figure 14**).

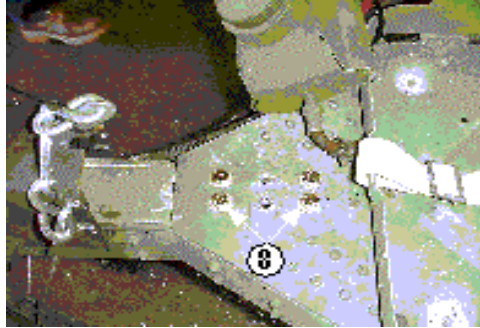


Figure 14

NOTE

Make sure the landing leg bracket is installed with the long side facing the driver's side (see **Figure 15**).



Figure 15

MWO 9-2330-392-20-2

10. Secure the landing leg mounting bracket with four 3/8" locknuts & flat washers. Do not fully tighten the bolts/nuts. Insert two 3/8" bolts with flat washers from the bottom through the two middle holes and secure with 3/8" locknuts & flat washers (9). Torque all bolts to 35 ft·lbs. Recheck torque on all bolts (see **Figure 16**).

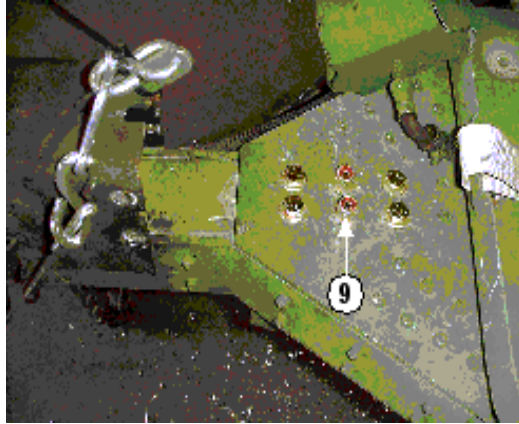


Figure 16

WARNING

When installing breakaway lever spring (10) onto breakaway lever and actuator housing you must hold the spring in place until master cylinder is installed. If the spring is not physically held in place as defined, it can fall out of the actuator housing, resulting in no surge brake protection for the trailer.

11. Reinstall breakaway lever spring (10) (see **Figure 17**) between master cylinder and breakaway lever. Reinstall master cylinder, torque cap screws to 30 ± 3 ft·lb (see **Figure 2**). Ensure correct operation of breakaway system (see **Figure 17**).
12. Install landing leg pivot, use one new lock washer with existing screw and two new locking hex nuts with existing flat washers and existing bolts. Torque screw to 210 ± 20 ft·lb and locking hex nuts to 150 ± 10 ft·lb (see **Figure 4**).

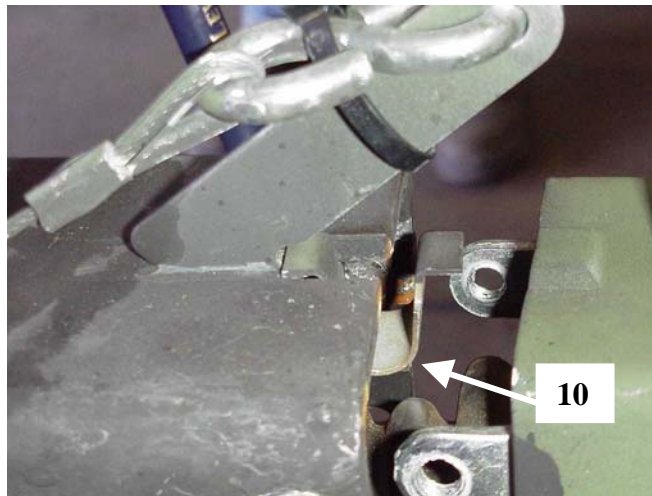


Figure 17

13. Install leveling jack and secure with quick-release pin (see **Figure 3**).

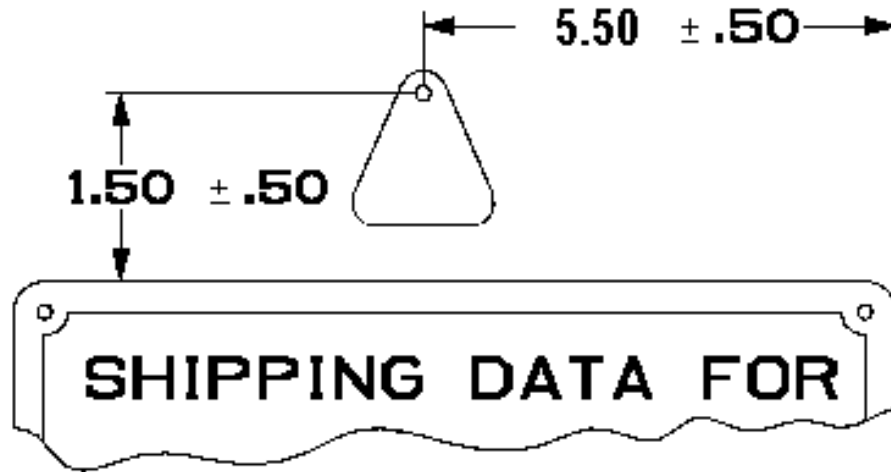


Figure 18

14. Marking Equipment.

After modification procedures have been completed, mark MWO number 9-2330-392-20-2 in MWO APPLIED block and date applied in DATE block on MWO identification plate P/N 10930014.

- 1) To install the MWO identification plate on cargo trailers, locate and drill a .129 - .133 inch diameter hole in the front cargo body above the shipping data plate (see **Figure 18**). Using a rivet gun and hand-set pull one rivet, P/N 12449496-1, from inside the cargo box fastening the MWO identification plate to the front cargo body. Installing the rivet from inside of the cargo box prevents any sharp edges on the inside wall of the cargo box.
- 2) To install MWO identification plate on chassis trailers, locate and drill a .129 - .133 inch diameter hole in the rear fender above the rear reflector (see **Figure 19**). Using a rivet gun and hand set pull one rivet, P/N 12449496-1, fastening the MWO identification plate to rear fender.

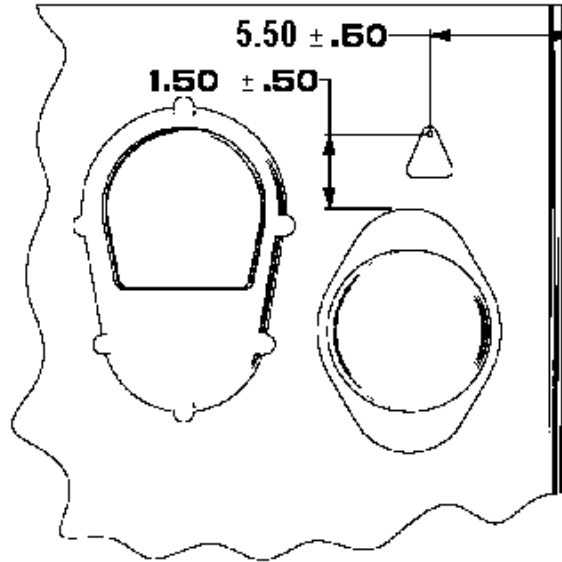


Figure 19

15. FINAL PREPARATION

- a. Remove trailer from supports.
- b. Release parking brakes and remove chock blocks if vehicle is to be moved.

11. CALIBRATION REQUIREMENTS.

Not Applicable

12. WEIGHT AND BALANCE DATA.

Weight and balance are not affected by this MWO.

13. QUALITY ASSURANCE REQUIREMENTS.

- a. General. The following information is furnished to ensure the proper application of this MWO and provide clarification in regard to the adequacy of installer's inspection methods and procedures applicable to Quality Assurance (QA). Inspection shall be IAW MWO 9-2330-392-20-2 as well as TM 9-2330-392-14&P.

- b. **Installer Responsibilities.** The installer is responsible for following instructions in MWO 9-2330-392-20-2. Requirements contained in this MWO shall be included in the installers inspection plan or quality assurance program. These requirements shall not be construed as eliminating the installer's responsibility from complete compliance with the provisions of the contract and submitting to the Government products that meet all requirements of the contract.
- c. **Government Verification.** All QA operations and installation changes and inspections performed by the installer are subject to Government verification at unannounced and varying intervals. Verification will consist of observations and inspections to confirm that practices, methods and procedures of the installers written inspection plan are being properly applied; and that government product inspection to confirm quality of product offered for Government acceptance does not deviate from prescribed acceptance standards specified in MWO 9-2330-392-20-2 as well as TM 9-2330-392-14&P. Deviations will be brought to the attention of the installer for correction.
- d. **In-process Inspection.** During normal assembly operations, paragraph 10, Modification procedure, will be used to check the installer's work. After installation is complete, the vehicle will be checked IAW TM 9-2330-392-14&P PMCS (Table 2-1, checklist) for correct installation and to ensure there are no vehicle defects. Any defects noted will be corrected by installer before the vehicle is placed in service. All vehicles modified during a production shift will be checked to ensure product quality.

14. RECORDING AND REPORTING OF THE MODIFICATION.

- a. **Records and Reports.** The organization responsible for MWO application will report application information as follows:
 - (1) Reporting will be accomplished by electronic means. MWO application information will be input directly into the Modification Management Information System (MMIS) over the internet. If the internet is not available, recording will be on a 3.5 inch disk, which will be mailed to TACOM, MMIS administrator. Entry into MMIS system is password protected. New users can register online at www.mmis-mwo.com. Passwords are normally approved and issued within 48 hours.
 - (2) Submission will be comprised of the nine (9) data elements listed in the table below. Elements 1,2,4,6,7,8 &9 are given for this MWO (as shown). The person reporting the MWO data will acquire the remaining elements (3&5) and input all nine into the MMIS.

DATA Elements

Input Data

1. Material Change Number (MCN) 2-02-06-0002
2. MWO Number 9-2330-392-20-2
3. Unit Identification Code at Battalion Level
4. NSN of End Item
5. Serial Number of End Item
6. USA Registration Number
7. Date of Application
8. Hours Required for Application
9. Software Version

(3) For off-line report, the 3.5 inch disk shall be mailed to the following address:

Commander
TACOM-Warren
ATTN: AMSTA-LC-CIPWM
Warren, MI 48397-5000

15. MATERIAL CHANGE NUMBER (MCN)


This MWO is authorized by MCN 2-02-06-0002

16. MODIFICATION IDENTIFICATION.

- a. When installed correctly with the landing leg mounting bracket will be secured to the trailer with six bolts, nuts, and washers.
- b. After the Kit is installed, the landing leg should be inspected for secure mounting. Any faults detected, or discrepancies noted, will be corrected before the High Mobility Trailer (HMT) is returned to normal service.

By Order of the Secretary of the Army:

Official:



JOEL B. HUDSON

*Administrative Assistant to the
Secretary of the Army*

0235702

ERIC K. SHINSEKI
*General, United States Army
Chief of Staff*

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 391039,
requirements for MWO 9-2330-392-20-2.

PIN: 080557-000