NORMAL

MWO effective date April 1985 and completion date September 1989

MWO 9-2350-259-34-1

DEPARTMENT OF THE ARMY MODIFICATION WORK ORDER

MODIFICATION OF COMBAT VEHICLE, ANTI-TANK IMPROVED TOW VEHICLE

MODIFICATION OF COMBAT VEHICLE, ANTI-TANK, IMPROVED TOW VEHICLE, M901 & M901A1 TOW II (2350-01-045-1123) (2350-01-103-5641)

TO REPLACE THE EXISTING HAND CONTROL ASSY WIRING HARNESS, DUST/MOISTURE BOOT AND ACTION SWITCHES WITH A PLUG-IN HARNESS, AND IMPROVED BOOTS AND ACTION SWITCHES TO FACILITATE MAINTENANCE AND REDUCE FAILURES

Headquarters, Department of the Army, Washington, DC

8 February 1985

REPORTING OF 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. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Tank Automotive Command, ATTN: AMSTA-MB, Warren, MI 48090. A reply will be furnished to you.

1. PURPOSE OF MODIFICATION

The purpose of this modification is to replace the existing hand control assembly, wiring assembly, dust/moisture boots, and action switches with a plug-in harness, and improved boots, and switches, which will facilitate maintenance and reduce failures.

2. PRIORITY CLASSIFICATION

This modification is classified **NORMAL.**

a. Equipment in use (including equipment in supply or maintenance activities below depot level and equipment in administrative storage). Equipment in use will be modified as soon as practical, but not later than the scheduled completion date. Equipment not modified after expiration of the Modification Work Order (MWO) completion date will be reported as NORM/NOT READY in accordance with applicable Army regulations.

b. Equipment in wholesale depot supply or maintenance activities. All MWO'S to include MWO'S which have been incorporated into Depot Maintenance Work Requirements (DMWRs) will be accomplished on serviceable materiel prior to issue and/or subsequent to scheduled completion date. Operational Project Stock stored at depots will be modified currently with depot stock. Issue of unmodified materiel is prohibited. The MWO will be applied to unserviceable materiel during scheduled depot maintenance.

c. Pre-positioned stock. Equipment which is pre-positioned will be modified during cyclic maintenance and will be consistent with TM 38-45. The Modification shall be accomplished prior to the MWO completion date.

3. END ITEM OR SYSTEM TO BE MODIFIED

Combat Vehicle, Anti-tank, Improved TOW Vehicle, M901 and M901A1 TOW.

Table 1.

NOMENCLATURE	NSNs	PART NUMBERS
M901	2350-01-045-1123	8736977 or 676000
M901A1	2350-01-103-5641	8750063

4. MODULES (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED.

Table 2

NOMENCLATURE	NSN	PART NUMBER
Hand Control Assembly	NSN 2510-01-076-9301	19207-12265902

5. PARTS TO BE MODIFIED. See Table 2

6. APPLICATION. Application of the modification is described in the following paragraphs.

a. Time compliance schedule. MWO effective date is April 1985 and the completion date is September 1989.

b. Level of maintenance. The lowest level of maintenance authorized to perform the modification described by this MWO is Direct Support maintenance.

c. Applied by. This modification shall be performed at 45K or equivalent.

d. Time required.

NOTE

Hours indicated do not include administrative time. Three hours (1 hour of mechanical type work, 2 hours electrical)

(1) Time for completion of MWO application to one end item. Time for completion of MWO application to one end item is as follows:

(2) Time for completion of one assembly or component 3 hours.

(3) Time for completion of one part: See 6d(2).

(4) MWOs to be applied prior to this MWO:

MWO 9-2350-259-50-1

MWO 9-2350-259-50-2

MWO 9-2350-259-50-3

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED AS RESULT OF THIS MWO.

TM 9-2350-259-34

TM 9-2350-259-34P

8. SUPPLY KITS, PARTS, AND DISPOSITION

a. Kits/parts required to accomplish MWO.

(1) General. See Table 3 for the kit required to accomplish this MWO.

(2) Kit. See Table 4 for approximate kit packaging dimensions.

b. Distribution and Issue Instructions.

(1) US Forces. Do not requisition kits. They will be shipped automatically as detailed in the Modification Work Order Field Plan (MWOFP).

(2) US Army Depots. Requisition required kit through supply channels.

(3) Multiservice. Not applicable.

(4) MAP/MAS Countries. Not applicable.

c. Bulk and consumable Materials: Bulk and consumable materials required to accomplish this MWO, but not supplied is shrink sleeving, M85080/ 1-110-0 per MIL-1-85080/ 1 & tin alloy solder, 3439-00-964-6426 or 3439-00-077-1405 per QQ-S-571, MIL-S-45743; sealing locking compound, 8030-00-067-6746; electrical tape 3/4 inch, MIL-I-7798 (or equivalent).

d. Parts disposition. Dispose of all removed parts in accordance with local salvage regulations.

TABLE 3. MODIFICATION KIT COMPONENTS

NSN	NOMENCLATURE	QTY/PART NUMBERS
2530-01-155-0065	Dust and Moisture Boot	2 EA 12298819
7690-01-155-0012	Hand Control Assembly Identification Marker	1 EA 12298820
5930-01-155-0003	Hand Control Assembly Action Switch	2 EA 12298816
5930-01-155-0004	Hand Control Assembly Slew Switch	2 EA 12298821
2590-01-155-0133	Wire Harness	1 EA 12298817

TABLE 4. WEIGHT DIMENSIONS, CUBE, AND SECURITY CLASS

WEIGHT	DIMENSIONS	CUBE	SECURITY CLASS
Three Pounds	3.0 x 1.0 x .5	1.5	None

TABLE 5. SPECIAL TOOLS

NSN	NOMENCLATURE	PART NUMBERS
1005-01-077-1651	Switch Adjustment Jig	12277474-1
1005-01-077-1652	Switch Adjustment Jig	12277474-2
4935-01-052-4970	Breakout Box #1	12277635

9. COMMON TOOLS, SPECIAL TOOLS, JIGS, TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE) AND FIXTURES REQUIRED. See Table 5 for special tools. Table 6 provides a list of common tools. Tools in the common tools list may have several NSNs even though only one is given. However, in most cases similar tools may be substituted.

TABLE 6. COMMON TOOLS

NOMENCLATURE	PART/REF NO.	NSN
Soldering Gun	(97849) D550G3	3439-00-618-6623
Heat Shrink Gun	HG501	4940-00-364-2828
Shop equip, auto maint & repair, org maint	SC4910-95CLA72	4910-00-754-0650

10. MODIFICATION PROCEDURE.

a. Preparation for Modification.

Remove hand control grip, TM 9-2350-259-34 para 4-26(b) 4 & 5.

CAUTION

Be sure to maintain the correct dimension (4 inch ± 1/16 inch) between cable clamps and handgrip collars when installing new harness 2590-01-155-0133

Install new harness, boots and switches, TM 9-2350-259-34 para 4-26(f)(3)-(4)(a) and 4-26(f)(4)(d)-(j).

CAUTION

Be sure to plug correct male wire leads into proper female receptacles on action and slew switches. Intermixing switches/wires could damage assembly. Refer to schematics in TM 9-2350-259-34 and FO-5-6 (sheet 6 of 15).

CAUTION

When placing improved shrinkable dust/ moisture boot over hand grips make sure shiny side is facing out.

b. Final inspection.

(1) Ensure that all marred painted areas are touched up in accordance with TM 43-0139.

(2) Ensure that all debris and foreight objects are removed from the vehicle.

11. CALIBRATION REQUIREMENT.

See TM 9-2350-259-34 para 4-26(f)(4)(f)-(j).

12. WEIGHT AND BALANCE DATA.

No significant impact.

13. QUALITY ASSURANCE REQUIREMENTS.

a. Perform quality assurance inspection, including performance testing, appearance and uniformity, in accordance with TM 750-245-4 and QAR (Qual Assur PAM 702-101) for hand control assembly, PN 19207-12298818.

14. RECORDING AND REPORTING OF THE MODIFICATION.

a. The following are instructions for recording and reporting the modifications:

1. DA Form 2408-5 or DA Form 2409. Record the modification on DA Form 2408-5, Equipment Modification Record, when multiple form asembled equipment logbook is applicable or DA Form 2409, Equipment Maintenance Log (Consolidated) as indicated in TM 38-750.

2. Completion of DA Form 2407, Maintenance Request. The NSN for End Items to be reported in Block 6 must be one of those shown in para 3. The NSN for components, assemblies, and subassemblies to be reported in Block 6 must be one of those delineated in paragraphs 4 and 5. The NSN of the item actually modified will be entered in Block 20h and must be the same as indicated in Block 6. The UIC in Block 1C must be the six character code that is put on the Unit/Organization shown in Block la. (Normally, this is the code that is put on the Unit/Organization Morning Report). List by NSN the number of kits used to accomplish this MWO using Block 20 and/or Block 35. If space is needed, use DA 2407-1, Continuation Sheet. After completing the form, mail the NMP copy (Copy 2) to: Commander, US Army Tank-Automotive Command, ATTN: DRSTA-MR, Warren, MI 48090. Mail the Control COPY (Copy 3) to: Commander, US Army Depot System Command, ATTN: DRSDS-SM-MOAT, Chambersburg, PA 17201, for PAC 98 (Non-AIF Field Activities). Forward the Organizational Copy (Copy 4) as directed by local commander. (See Appendix A, figures A-1 and A-2 for examples to be followed).

3. DA Form 2408-2408-9. Not applicable.

4. Marking Equipment. IAW MIL-STD-130. Also, make sure new ID marker 7690-01-155-0012 is placed on hand control at completion of MWO.

15. COMPLETE PRODUCT IMPROVEMENT PROPOSAL (PIP) NUMBER 1-81-05-6606.

HEADQUARTERS

US ARMY TANK-AUTOMOTIVE COMMAND

WARREN,MICHIGAN

This Modification Work Order (MWO) has been prepared under the supervision and control of the Commanding General, US Army Tank-Automotive Command, Warren, Michigan, by the Maintenance Directorate, National Maintenance Point (NMP) and is published for the information and guidance of all concerned.

FOR THE COMMANDER:

OFFICIAL:

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Adjutant

DISTRIBUTION:

To be distributed in accordance with DA Form 12-37, MWO requirements for Improved TOW Vehicle, M901, M901A1.

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MWO 9-2350-259-34-1		MODIFICATION OF HAND CONTROL ASSEMBLY WIRING

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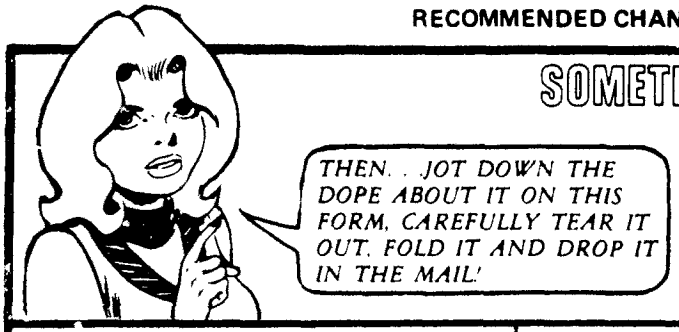

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

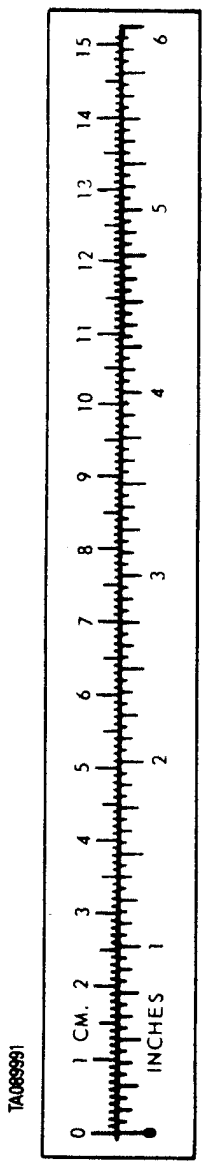
TEMPERATURE

$\frac{5}{9}(°F - 32) = °C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$\frac{9}{5}(°C + 32) = °F$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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