

ROUTINE

MWO effective date is 15 March 2002 and completion date is 15 March 2004

MWO 9-1025-211-30-3

MODIFICATION WORK ORDER

**MODIFICATION OF HOWITZER, MEDIUM, TOWED: 155-MM, M198
(1025-01-026-6648)**

Headquarters, U.S. Army Tank Automotive and Armament Command

15 March 2002

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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1. **PURPOSE.** The purpose of this modification is to add two or four 1/4 inch drain holes to the bottom carriage of the M198 Howitzer in the area where ring gear attaches. These drain holes will allow water to flow from this area preserving the ring gear. This modification will be applied at the first availability during the next annual service.

2. **PRIORITY.** This modification is classified ROUTINE.

3. **END ITEM(S) OR SYSTEM(S) TO BE MODIFIED.** See Table 1.

Table 1. End Item or System to be Modified.

| Nomenclature | NSN | Part Number | CAGEC | Model Number |
|---------------------------------------|------------------|-------------|-------|--------------|
| Howitzer, Medium, Towed: 155-MM, M198 | 1025-01-026-6648 | 12008000 | 19204 | M198 |

4. **MODULE(S) (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED.** The following items, whether installed or in depot stock, shall be modified. Stocked parts shall be modified prior to issue and shall be marked so that it can be easily determined that modification has been accomplished. Table 2 lists the assemblies, which require modification.

Table 2. Items to be Modified.

| Nomenclature | NSN | CAGEC | Part Number |
|--------------------------|-----|-------|-------------|
| Bottom Carriage Assembly | N/A | 19204 | 12008300 |

5. **PARTS TO BE MODIFIED.** The following items, whether installed or in depot stock, shall be modified. Stocked parts shall be modified prior to issue and shall be marked so that it can be easily determined that modification has been accomplished. Table 3 lists the parts, which require modification.

Table 3. Parts to be Modified.

| Nomenclature | NSN | CAGEC | Part Number | Next Higher Assembly |
|-----------------|-----|-------|-------------|----------------------|
| Bottom Carriage | N/A | 19204 | 12008380 | 12008300 |

6. APPLICATION.

a. Time Compliance Schedule: The date of this MWO is 15 March 2002 and its completion date is 15 March 2004.

b. Lowest Level of Maintenance Authorized to Apply this MWO: The lowest level of maintenance authorized to apply this MWO is direct support.

c. Work Force and Man-hour Requirements for Application of the MWO Single Unit End Item or System: The total man-hours required for a single application of this MWO is as follows:

REQUIREMENTS

| WORK FORCE/SKILLS | MAN-HOURS* |
|--|------------|
| U.S. ARMY | |
| 44E10/Machinist or 45B10/Artillery Repairman | .5 |
| U.S. MARINE CORPS | |
| 2161/Machinist or 2131/Artillery Repairman | .5 |

*The man-hours shown is the maximum number of hours required to apply the modification.

- d. MWOs To Be Applied Prior to or Concurrently with the Application of This MWO: None

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED.

| Publication Number | Date |
|--------------------|----------|
| DMWR 9-1025-211-2 | May 1997 |

8. MWO KIT(S)/PART(S) AND THEIR DISPOSITION.

- a. Kit Needed to Apply this MWO: Not applicable.
- b. Contents of MWO Kit: Not applicable.
- c. Bulk and Expendable Material: Table 4 lists the bulk and expendable material required to apply the MWO kit.

Table 4. Bulk and Expendable Material.

| Nomenclature | NSN | CAGEC | Part Number | QTY |
|------------------------|------------------|-------|---------------|-----|
| Cutting/Tapping Fluid | | | | V |
| Grease, Aircraft (WTR) | 9150-00-944-8953 | 81349 | MIL-PRF-81322 | CN |

- d. Part Disposition: Not applicable.

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. The tools in table 5, below are required to perform the modification and are not required to support the end item after modification is applied.

Table 5. Special Tools Required.

| Nomenclature | NSN | CAGEC | Part Number | QTY |
|--|------------------|-------|-------------|-----|
| Drill Bit, 3/16" | | | | 1 |
| Drill Bit, 1/2" | | | | 1 |
| Portable Electric Drill, 1/2" Chuck (Variable Speed) | | | | 1 |
| Hammer | | | | 1 |
| Center Punch | 5120-00-595-9471 | 81348 | GGG-P-831 | 1 |
| Goggles, Safety | 4240-00-278-9646 | 81348 | GG-G-531 | 1 |
| Extension Cord (25 ft minimum) | | | | 1 |
| Tape Measure, 10' | | | | 1 |
| Marker | | | | 1 |

10. MODIFICATION PROCEDURES.

OVERVIEW

The objective of the Bottom Carriage Ring Gear Area Drain Hole modification is to add two or four drain holes in the area where the ring gear is mounted between the Bottom and Top Carriage.

Most howitzers to be modified already have two drain holes in the rear of the area but will need to have the two front drain holes added. The purpose of the drain holes is to allow any trapped water to be removed from this area. The front drain holes are being added because many howitzers are being stored on jack stands or the new Bogey Wheels.

SET-UP PROCEDURES

1. The top carriage (12008100) must be separated from the bottom carriage assembly (12008300) per TM 9-1025-211-34.
2. Thoroughly clean area where internal gear (12008250) rests on bottom carriage.

DRILLING DRAIN HOLES**NOTE**

Some of the early serial number howitzers may not contain any drain holes and will require four to be drilled. This MWO will be written for drilling all four drain holes. If your howitzer already has the two rear drain holes, then only the two front drain holes need to be added.

1. Locate and mark two or four drain hole locations (1) with a center punch using dimensions in figure 1.

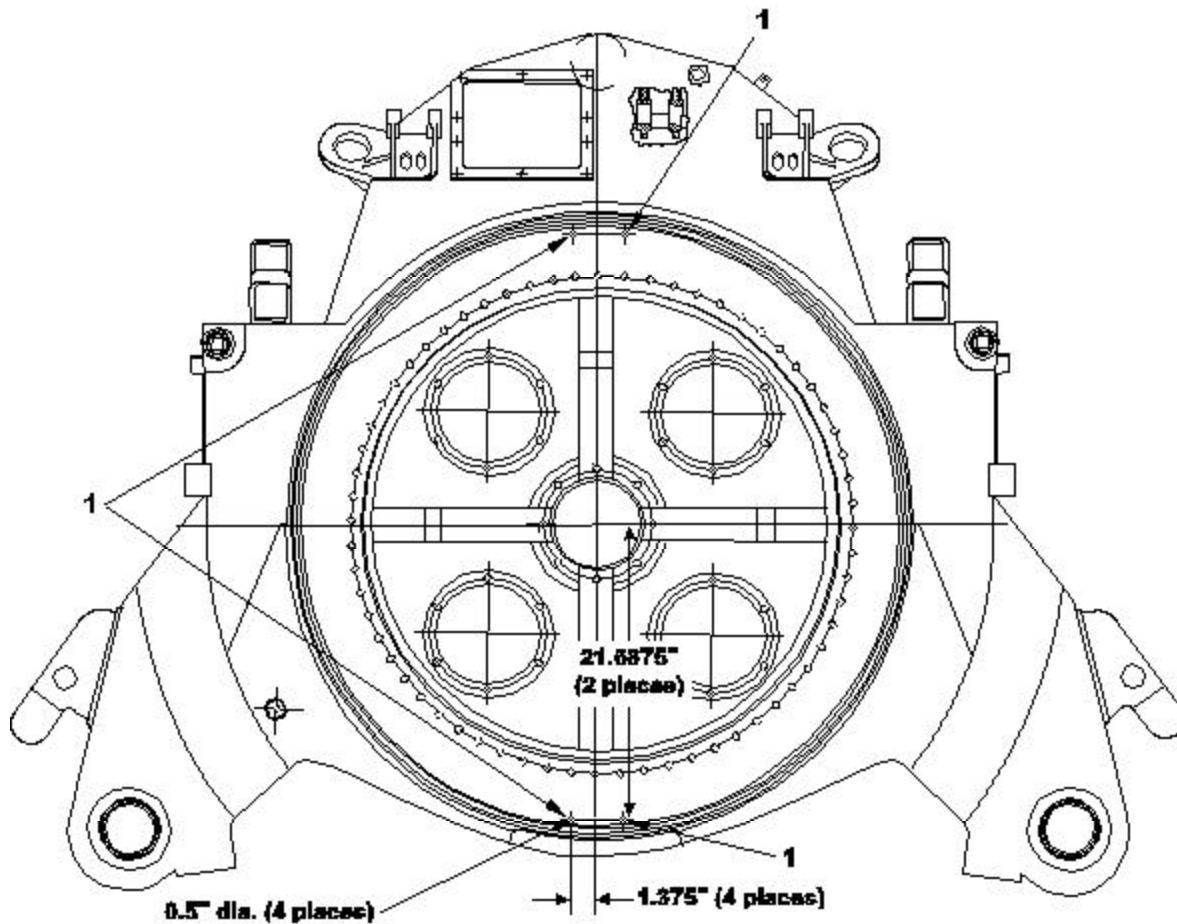


Figure 1. Locate and Mark Drain Holes.

WARNING

Safety goggles must be worn for all drilling operations.

NOTE

Cutting fluid must be used for all drilling operations.

2. Drill two or four pilot holes with 3/16-inch drill bits in areas marked in step 1.
3. Drill two or four, 1/2-inch diameter drain holes using 1/2-inch drill bit through pilot holes.
4. Remove burrs and sharp edges from drilled holes.

REASSEMBLY

NOTE

The reassembly of the weapon should take place after necessary annual services have been completed in the modified area.

Reinstall the top carriage (12008100) to bottom carriage assembly (12008300) per TM 9-1025-211-34.

11. CALIBRATION REQUIREMENTS. Not applicable.

12. WEIGHT AND BALANCE DATA. Weight and balance are not significantly affected.

13. QUALITY ASSURANCE REQUIREMENTS. Verify completeness by counting four 1/2-inch drain holes prior to reassembly.

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 can be input directly into the Modification Management Information System (MMIS) over the Internet. Entry into the MMIS system is password protected. New users can register on line at <http://65.196.121.253/mwo/>. Passwords are normally approved and issued within 48 hours. Once entry is gained into MMIS, the "MWO Reporting" module provides an on line method of reporting an MWO application.

2) Submission will be comprised of the nine (9) data elements listed in table 6. Elements 1, 2, 4, 6, and 9 are given for this MWO (as shown). The person reporting the MWO data will acquire the remaining elements (3, 5, 7, and 8) and input all nine into MMIS.

Table 6. MMIS Input Data.

| | DATA ELEMENT | INPUT DATA |
|---|--|-------------------|
| 1 | Materiel Change Number (MCN). | 1-01-05-0007 |
| 2 | MWO Number | 9-1025-211-30-3 |
| 3 | Unit Identification Code (UIC) @ Battalion level | |
| 4 | NSN of the end item | 1025-01-026-6648 |
| 5 | Serial Number | |
| 6 | Registration Number | N/A |
| 7 | Date of application | |
| 8 | Hours required for Application | |
| 9 | Software Version | N/A |

b. Marking Equipment: Not required.

c. Identification Data: Not applicable.

15. MATERIAL CHANGE NUMBER (MCN). This MWO is authorized by MCN 1-01-05-0007.

16. MODIFICATION IDENTIFICATION.

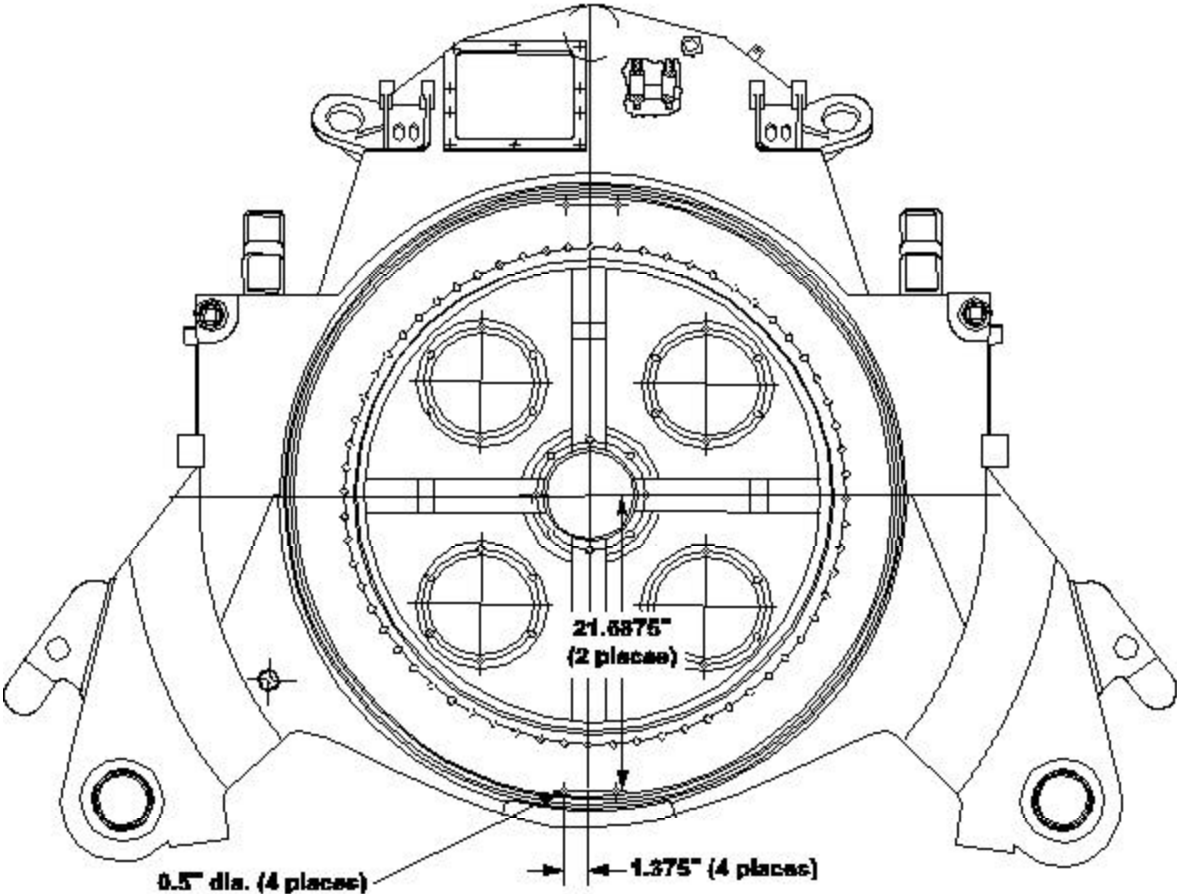



Figure 2. Bottom Carriage Showing Four Drain Holes.

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By Order of the Secretary of the Army:

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