ROUTINE

MWO effective date is 01 MAY 2007 and completion date is 28 February 2010.

MWO 1-1730-229-20-1

MODIFICATION WORK ORDER

Hydraulic Oil Sampling/Purge Adapter Aviation Ground Power Unit (AGPU) Part Number 83-360A, NSN 1730-01-144-1897 Part Number 83-360D, NSN 1730-01-466-9371 Part Number 83-360E, NSN 1730-01-552-2313

Headquarters Department of the Army, Washington, D.C.
20 September 2007

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 these procedures, please let us know. Mail your letter or DA Form 2028, (Recommended Changes to Publications and Blank Forms), located in the back of this manual, directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also provide DA 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our fax number is DSN 788-6546 or commercial 256-842-6546. Our e-mail address is : 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028. For the World Wide Web use:
http://amcom2028.redstone.army.mil.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

1. PURPOSE. The purpose of this MWO is to:

a. Modify the AGPU Hydraulic system to allow the AGPU hoses to be included in the self-filtration process. This self-filtration process is performed prior to connecting the AGPU to an aircraft to prevent any contamination contained in the connector and/or hoses from being introduced into the aircraft. In addition to this self-filtration, it will also allow the operator to draw an oil sample from the Hydraulic system during operation, for all Aircraft adapters and hoses.

b. Revise the procedures on the instruction plate located on hydraulic module door to require flushing of hoses and emphasizing the need to reduce pump output pressure prior to shutting down the AGPU.

c. Replace plastic caps currently used to protect the aircraft quick disconnect (QD) couplings with aluminum plugs.

d. Modify (2') Low Pressure Hose Adapter ASSY (83-14892) to adapt between the Low Pressure Hose ASSY (83-14825) and the CH-47 low pressure hydraulic port.

e. Modify (2') High Pressure Hose Adapter ASSY (83-14893) to adapt between the High Pressure Hose ASSY (83-14831) and the CH-47 high pressure hydraulic port.

f. Add the Purge and Oil sampling Adapter Block Assembly (1024260) and its storage bracket.

g. Supersedes any modifications that MWO 1-1730-229-50-3 outlined.

2. PRIORITY. This modification is classified NORMAL.

3. END ITEM OR SYSTEM TO BE MODIFIED.

NOMENCLATURE	NATIONAL STOCK NUMBER	PART NUMBER	CAGE
Aviation Ground Power Unit (AGPU)	1730-01-144-1897 1730-01-466-9371	83-360A 83-360D	81996 81996

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

NOMENCLATURE	NATIONAL STOCK NUMBER	PART NUMBER	CAGE
2' Low Pressure Hose Adapter Assembly	none	83-14892	81996
2' High Pressure Hose Adapter Assembly	none	83-14893	81996
10' Low Pressure Hose Adapter Assembly	none	83-14825	81996
10' High Pressure Hose Adapter Assembly	none	83-14831	81996
Instruction Plate, Hydraulic Operations	none	1024249	81996

5. PARTS TO BE MODIFIED. None.

6. APPLICATION. This MWO shall be applied to all AGPUs.

a. Time Compliance Schedule: MWO effective date is 01 May 2007 and completion date is 28 February 2010.

b. Level of Maintenance: AVUM.

c. Work Force Skills: MOS 15H, Aircraft Hydrulics/Pneudraulics Repairer.

d. Total man-hours for a single application of this MWO is 2 man-hours.

NOTE

MWO 1-1730-229-20-1 will be used until the TMs listed in paragraph 7 are updated and released.

7. TECHNICAL PUBLICATIONS. Affected/changed technical publications:

TM 55-1730-229-12, 1 December 1986, C10
TM 55-1730-229-24P, 11 September 1988, C7
TM 55-1730-229-34, 1 December 1986, C5

8. MWO PART(S) AND DISPOSITION.

a. MWO Kit Security Classification. Unclassified.

b. Kits/Parts Required to Apply this MWO. The kit consists of one (1) revised instruction plate, two (2) sets of dust plugs for the standard 10' adapter hoses supplied with the AGPU, one (1) set of standard male QD halves with dust caps, one (1) set of CH-47 female QD dust plugs (so the female QD dust plugs can be connected to the standard 10' hoses and then to the CH-47 ports of the Purge Adapter), and one (1) Hydraulic Oil Sampling/ Purge Adapter and storage bracket assembly with hardware.

c. Content of the MWO kits.

NOMENCLATURE	NATIONAL STOCK NUMBER	PART NUMBER	CAGE	QTY RQD
Hydraulic instructions plate	None	1024249	81996	1
Blind rivet	5320-00-469-4137	M24243-1-D304	07707	6
Std LP dust plug, 3/4 inch	4730-00-561-1545	155S9-12D	00624	2
Std HP dust plug, 1/2 inch	4730-00-576-5545	155S9-8D	00624	2
Std LP male QD half, 3/4 inch	4730-00-289-9817	T015519-S4-12D	00624	1
Std HP male QD half, 1/2 inch	4730-00-014-6846	TB015519-S4-8D	00624	1
Std LP dust cap, 3/4 inch	4730-00-561-1544	155S7-12D	00624	1
Std HP dust cap, 1/2 inch	4730-00-543-3904	155S7-8D	00624	1
CH-47 LP QD dust plug, 3/4 inch	4730-00-626-8340	3209-12	00624	1
CH-47 HP QD dust plug, 1/2 inch	4730-00-768-7025	3209-8	00624	1
Purge/Oil sampling Adapter Assembly	None	1024260	81996	1
Storage Bracket, Purge Block Assembly W/ Hardware	None	1024268	81996	1
Bolts screw Self Drilling 14X1	5305-01-481-3290	91324A620	39428	4
Washers/Lock	5310-00-582-5965	MS35338-44	96906	4
Drill Bit #4 or .209 Dia. Pilot hole	5133-00-189-9249	GGG-D-751	81348	1
3/16" OD size tubing oil sampling	4720-01-313-1654	5108K43	39428	20 ft
3/8" OD size tubing oil sampling	4720-01-354-9034	5108K49	39428	20 ft
#10 Screw Hex Head 10-32x1/4" LG.	5305-00-989-7434	35207-263	96906	2
Clamp, wire	5340-00-291-5348	AS21919WG8	81343	1
Screw, machine	5305-00-059-3661	AN520C10-12	D9182	1
#10 washer, flat	5310-00-167-0801	AB1500-32Y22D23	D9182	2
Washer, lock	5310-00-933-8120	AA55610-138	58536	1
# 10 Locking Washer	5310-00-045-3296	A-A-55610-43	81349	2
5/16" Ball Locking Pins	None	CL-5-BLPB1.00S	99862	2
Instruction Plate, Hydraulic Operations	None	1024249	81996	1

d. Bulk and Expendable Materials. Bulk items and expendable material required for a single application of this MWO are listed below.

NOMENCLATURE	NATIONAL STOCK NUMBER	PART NUMBER	CAGE	QTY RQD
Cleaning compound, solvent, 15 oz	6850-01-371-8084	ELECTRON	0WO71	AR

e. Parts Disposition. Disposition of replaced components and those items in excess or requirements for completion of the MWO shall be in accordance with disposition instructions listed below.

NOMENCLATURE	NATIONAL STOCK NUMBER	PART NUMBER	CAGE	DISPOSITION
Hydraulic instructions plate		83-14697	81996	Dispose of
AGPU LP QD half	4730-01-270-2034	VPHC12-12EM-9MHO	78357	Retain for spares
AGPU LP QD dust plug	5340-01-224-2947	AMPH12W/C10	78357	
AGPU HP QD half	4730-01-271-3213	VPHC8-8EM-9MHO	78357	
AGPU HP QD dust plug	5340-01-224-2947	AMPH-8W/C-10	78357	
LP QD dust cap	5340-01-270-2985	83-14958-02	63631	Dispose of
HP QD dust cap	5340-01-269-4527	83-14958-01	63631	

9. SPECIAL TOOLS.

NOMENCLATURE	QTY RQD
4'' Opening C Clamps,	2 ea

10. MODIFICATION PROCEDURES.

a. Replace instruction plate.

(1) Grind off existing rivets (4 each) and remove current instruction plate, Figure 5, item 14, from door of hydraulic module.

(2) Install new instruction plate 83-14697 using 6 each rivets provided.

b. Purge/Oil Sampling Adapter Storage bracket Installation.

(1) Place AGPU in a well ventilated, dry area and secure in place by placing parking brake on and chocking both front and rear wheels; per the Before and After operation check list located in TM 55-1730-229-12, change 10, Chapter 3, section III, Preventive Maintenance Checks and Services (PMCS). Place a drip pan under AGPU as required by local SOP.

(2) Insure all controls are in the off position and that the Battery's are disconnected per TM 55-1730-229-12, change 10, Section V. paragraph 2-13 and 3-18.1 and figure 3-2.

CAUTION

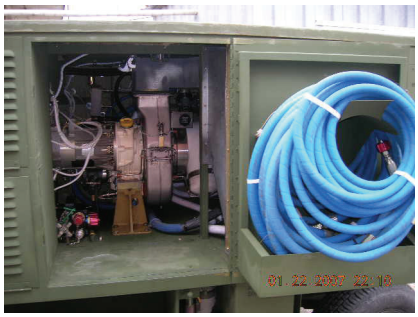
Battery power must be disconnected before going to next step.

NOTE

Four (4) Soldiers are required to remove the roof.

(3) Remove Roof cover of AGPU. Prior to removal, insure that all compartment doors and cables are in there closed or stowed position. UN-Latch four (4) latches, lifting cover from AGPU. Place cover in a secure area from the wind and rain. Insure to protect the insulation that is a part of the roof by storing roof on its side or on the top metal surface; TM 55-1730-229-12, figure 4-5 items 1, and 2.

(4) Open, and secure Gas Turbine Engine access door, TM 55-1730-229-12, figure 1-4 item 1.



(5) Locate the second (#2) upper support rail for the top cover. The support rail is within the Engine compartment, by the Access door, directly above the generator/ alternator. This is the location that the Purge/Oil sample Adapter storage bracket will be mounted, as shown in the photos below. Reference TM 55-1730-229-12, figure 1-8.

(6) Cover the generator/alternator with plastic or canvas cover to shield from metal saving's and debris. Use protective Eyewear, Ear protection during this part of the operation.

(7) Locate the wiring harness and clip or retainer clamp, attached to the support rail in the location where the storage bracket will mount. Remove the clip or retainer clamp, which secures the wiring harness.

NOTE

You should remove only one or two clamps located close to the electrical bay bulkhead. Safeguard harness out of the way when mounting storage bracket. See below photo for harness Clamp location on rail.


(8) Secure the storage bracket to the top rail with 2 each 4" "C" type clamp as shown in photo. Mount long end of bracket towards and against electrical bay bulkhead. The (L) shaped part of the hanger will be inboard of the engine compartment.

(9) Drill four (4) holes in the support rail, using the storage bracket pre-drilled holes as a location and guide, with a number #4 or .0209-drill bit provided in this MWO Kit. Drill only through the wall thickness of the rail; do not drill completely through the width of the support rail.

(10) Secure the storage bracket to the support rail with four (4) 14x1" self-drilling screws and four each lock washers provided in the MWO kit; using a 7/16" (s/w) socket and ratchet or a battery powered drill with a 7/16" socket drive bit.

NOTE

Self-drilling screws may take inward force and speed to start the drilling of the screw. Tighten screws as needed, but do not over torque to secure the storage bracket to the support rail.


(11) Mount the wiring harness to storage bracket with cable clamp and hardware provided with bracket. See photo below for location of clamp and harness to bracket.

(12) Remove the generator/ alternator plastic or canvas cover to shield from metal saving's and debris. Insure area is clean and clear of all tooling before mounting of Purge/Oil sample adapter.

(13) Mount the Purge/Oil Sample adapter in its storage bracket, by sliding the Purge/Oil sample adapter inward to bracket using the Handel of the device as the matting service and secure the retaining pins.

(14) Installation of AGPU Roof cover, insure that all compartment doors and cables are in there closed or stowed position. Insure to protect the insulation that is a part of the roof; do not let the insulation get caught on the main frame of the AGPU, by lifting the roof to a high position to clear all point of the AGPU roof frame; TM 55-1730-229-12, figure 4-5 items 1, and 2.

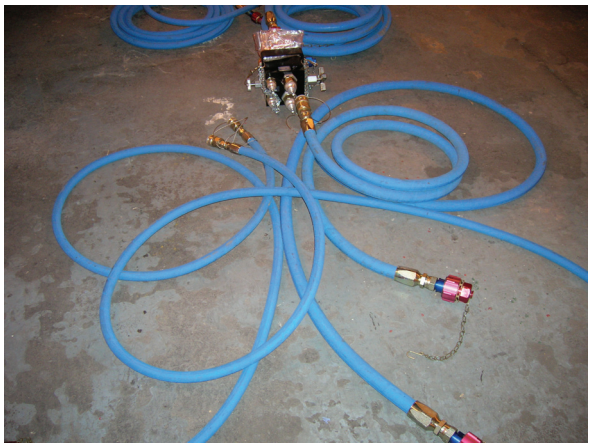
NOTE

Four (4) Soldiers should RE-install the roof.

(15) Reconnect the batteries, if AGPU operation is required.

(16) Installation of the Purge/Oil Sample adapter storage bracket is now complete.

c. Inspect, modify, repair, and inventory standard 10 ft adapter hoses, see photos below.



(1) Inspect and inventory two (2) each low and high pressure STD 10 foot adapter hoses issued as Basic Issue items with the AGPU. Insure all quick disconnects, dust plugs, and cables are serviceable and present per TM 55-1730-229-24P change 5, figure 93, items 9 and 27.

(2) Remove and discard the plastic caps and steel cables, figure 93, items 14, 17, 18, 31, 35, and 36 from the Aeroquip quick disconnect couplings (red) on the STD 10 ft adapter hoses.

(3) Thoroughly inspect all hoses, quick disconnects and plugs. Clean hoses, quick disconnects, caps, and plugs with solvent.

(4) Install two (2) each aluminum plugs (155S9-12D and 155S9-8D) in the Aeroquip (red) quick disconnect. Repair, as needed any parts and hose that are defective.

(5) Secure chains provided with the QD plugs to the hose QD fittings.

(6) Perform Leak check all components with new hoses.

d. Inspect, modify, repair, and inventory CH-47 2 ft adapter hoses located in bottom of below photo.

(1) Inspect and inventory one (1) each low and high-pressure CH-47 2 foot adapter hoses issued with the AGPU. Insure all quick disconnects, dust plugs, and cables are serviceable and present per TM 55-1730-229-24P change 5, figure 93, items 37 and 47.

(2) Remove and discard the plastic caps and steel cables, figure 93, items 41, 45, 46, 51, 55, and 56 from the Aeroquip quick disconnect couplings (orange) on the CH-47 2 ft adapter hoses.

(3) Remove and retain AGPU quick disconnect and plug, figure 93, items 43, 44, 53, and 54, only from adapter hose assemblies, figure 93, items 37 and 47.

(4) Thoroughly inspect all hoses and quick disconnects, plugs. Clean hoses, quick disconnect caps, and plugs with solvent. Repair, as needed any parts and hose that are defective.

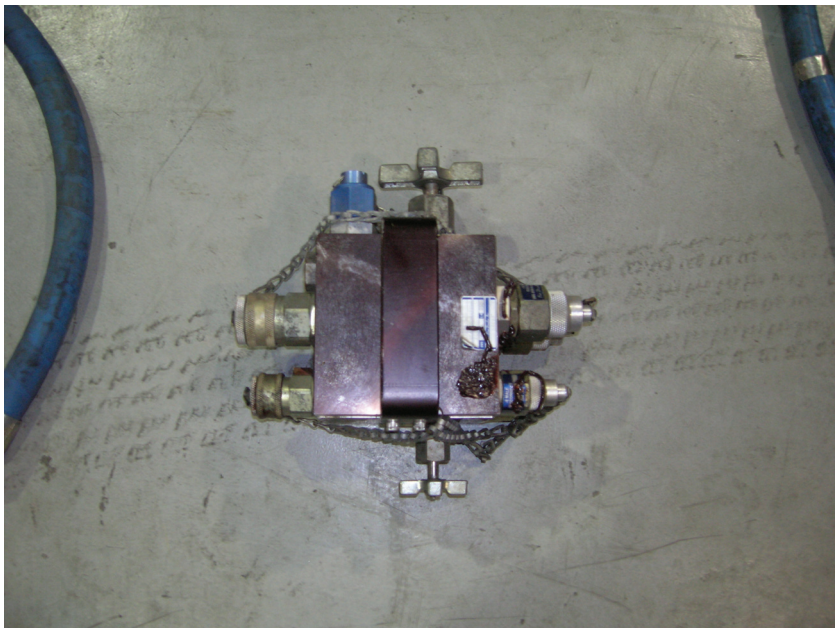
(5) Install one (1) each aluminum plugs (3209-12 and 3209-8) in the Aeroquip quick disconnects (orange). Secure chains provided with the QD plugs to the hose QD fittings.

(6) Install one (1) each standard (red) male QD halves (T015519-S4-12D and TB015519-S4-8D) on to one end of the CH-47 2 foot adapter hose. Do not remove the (Gold) QD's.

(7) Install one (1) each aluminum caps (155S7-12D and 155S7-8D) onto the quick disconnects (red). Secure chains provided with the QD plugs to the hose QD fittings.

(8) Perform Leak Check of all components.

e. Inspect, modify, repair, and inventory the Dual Service Manifold, see below photo.



(1) Configure the Dual Service Manifold to TM 55-1730-229-24P, figure 91, see the photo above as an example.

(2) Insure all Quick-Disconnects, Dust Caps, and attachment Chain's are in place with the Dual Service Manifold per the description listing on figure 91.

(3) Replace, as needed, the Quick-Disconnects and Dust Caps for the 30" Hoses/ input side of the Dual Service Manifold, (Female). Parts are the items found in TM 55-1730-229-24P, figure 91, items 3, 7,12,13,14 and 15.

(4) Replace, as needed, the Quick-Disconnects and dust caps for the 10' Hoses/Output side (Male) of the Dual Service Manifold (not provided with this MWO Kit). Parts are the items from TM 55-1730-229-24P, figure. 91, items 1, 2, 3, 4, 5, 6 and 7.

(5) Perform a Leak Check of all components of the Dual Service Manifold.

NOTE

Instructions shown in paragraph f. are the instructions shown on the Hydraulic Operations Instruction Plate. The Information on the Instruction Plate will replace the instructions shown in TM 55-1730-229-12, paragraph 2-7e.

f. Hydraulic System Self-Filtering, Purging/Oil sampling Operation.

AGPU HYDRAULIC PURGING AND OIL SAMPLING OPERATION

Part # 1024249

WARNING

This Operation Will Use Hydraulic Fluid Under Extreme High Pressure with the GTE Running!
The use of HEARING, EYE, and HAND protection is required.

Verify that the GTE is not running before connecting or disconnecting hoses. Verify all hose connections are secure, and not kinked before start up of the GTE and placing the Hydraulic Module Power Switch in the ON position.

CAUTION

Verify that RESERVOIR selector is set to AGPU and hydraulic fluid level is at ¾ or above on sight gauge before operating the hydraulic system.

Verify that the hydraulic OUTPUT PRESSURE is 450 to 500 PSIG before TURNING OFF GTE or Hydraulic Module.

TO CONNECT HOSES FOR PURGING AND SETTING OF CONTROLS

1. **Connect 30-foot hoses to AGPU Hydraulic Module.**
2. **Connect the Dual Service Manifold to AGPU 30-foot output and return hoses, and place a drain pan under the manifold.**
3. **Connect (AH-64/UH-60/ OH-58) 10-foot hoses, and the (CH-47) 2-foot adapter hoses (as Required) to the AGPU dual service manifold (out-put).**
4. **Connect purge/ oil sample adapter, to the LOW and HIGH PRESSURE out-put ends of the hoses by removing dust caps and hooking hoses to purge adapter.**
5. **Close BYPASS/FLUSH and the FILL DRAIN valves on the dual service manifold (clockwise).**
6. **Open GUAGE SHUTOFF valve 1/4 turn on Hydraulic Control Panel.**
7. **Verify OIL RESERVOIR selector is set to AGPU and that oil reservoir is at the proper fluid level ¾ Mark.**
8. **Verify BY-PASS selector is in the off position.**
9. **RE-VERIFY all hose connections are secure and dust caps are protected from debris (LOCKED together).**
10. **Start AGPU GTE ref: 2-19 in TM**
11. **Immediately confirm Hydraulic OUTPUT PRESSURE reads approximately 450-500 PSIG.**

(If insufficient pressure is indicated, shut down GTE and notify Maintenance.)

12. Place the POWER switch to ON. (Hydraulic Control Panel)
13. SYSTEM READY LIGHT SHOULD BE ON!

(If not, wait for 5 minutes. This will allow the system to warm up, if light still remains off, perform warm up operation out-lined in TM)

14. Observe the Return and High Pressure Site Glasses for Fluid Clarity. (No Bubbles present)
15. Place the OUT-PUT switch to ON. (Hydraulic Control Panel)
16. Increase the Hydraulic Pressure to 700-1000 PSIG (Hydraulic Control Panel)
17. Perform Purge operation for 5 to 30 minutes until sight glasses are clear.

OIL SAMPLING OPERATION AT PURGE/OIL SAMPLING ADAPTER BLOCK

This operation will be performed during AGPU and Hydraulic purging operation.

DO NOT SHUT DOWN SYSTEM FOR THIS OPERATION

1. Place oil catch pan under Purge/Sampling Adapter.
2. During Hydraulic purge operation, after hydraulic oil is above 70 degrees (F), depending on what system is needed for sampling, UH-60, CH-47; un-screw the protective cap on the oil sampling valve on Purge/Sampling Adapter Block.
3. Connect oil sampling tube and bottle to oil sample mister on block.
4. Push in, on top of oil sampling valve until oil sample bottle fills, and then release. Immediately cap filled sample bottle.
5. Remove tubing and discard, (never reuse oil tubing).
6. Reconnect the protective cap on the oil sampling valve, and wipe off any residue.
7. Fill out lab paper work as outlined DA PAM 38-751
8. Shut down Hydraulic operations.

TO SHUT DOWN HYDRAULIC OPERATIONS

1. Turn HIGH PRESSURE BLEED ¼ turn Counterclockwise and DECREASE pressure to 500-700 PSIG. (Hydraulic Control Panel)
2. Place the OUTPUT switch to OFF. (Hydraulic Control Panel)
3. Place the POWER switch to OFF (Hydraulic Control Panel)
4. STOP AGPU GTE.
5. Stow all Hydraulic lines w/dust caps mounted and stow the Dual Service Manifold and the Purge/Oil Sample Adapter w/dust caps, in the appropriate storage location in the AGPU.
6. Stow drain pans and perform any clean up operation.

TO APPLY POWER TO AIRCRAFT

1. **Remove purge/oil sample adapter from out put lines.**
2. **Set RETURN/BYPASS VALVES in accordance with aircraft type.**
3. **RE-VERIFY ALL hose connections and adapters are secure.**
4. **Establish contact with cockpit to verify aircraft power is OFF, and ready for power.**
5. **Start AGPU GTE ref: 2-19 in TM**
6. **Immediately confirm Hydraulic OUTPUT PRESSURE reads approximately 450 to 500 PSIG.**
   (If insufficient pressure is indicated, shut down GTE, and notify Maintenance.)
7. **Place the POWER switch to ON. (Hydraulic Control Panel)**
8. **Before placing the OUT-PUT switch to ON, verify relief valve setting with Aircraft TM. (Hydraulic Control Panel)**
9. **Increase the Hydraulic Pressure to DESIRED PSIG (Hydraulic Control Panel)**
10. **Shut down Hydraulic operations.**

11. CALIBRATION REQUIREMENTS. Not Applicable.

12. WEIGHT AND BALANCE DATA. Not Applicable.

13. QUALITY ASSURANCE REQUIREMENTS. Inspection of the completed MWO installation, for compliance with technical requirements of the MWO, shall be accomplished by qualified personnel in accordance with TM 750-245-4. Verify that the modification is properly recorded (paragraph 14).

14. RECORDING AND REPORTING MODIFICATION.

a. Records and Reports. Record accomplishment of this modification in accordance with procedures prescribed in DA PAM 738-750 and DA PAM 738-751. The following forms are applicable:

(1) DA Form 2407 (Maintenance Request)

(2) DA Form 2408-18 (Equipment Inspection List)

b. Completion of DA Form 2407. Reporting of MWO application will be accomplished as required by DA PAM 738-750. After completing DA form 2407:

(1) If work is competed by a Contract Field Team (CFT) either on site or at a remote location, a copy of DA Form 2407 will be forwarded to and retained by the Project Officer of applicable OLR site.

(2) If work is completed other than a CFT i.e. depot, equipment user, organization, etc. a copy of DA Form 2407 will be forwarded to Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-RE-FM, Redstone Arsenal, AL 35898-5000.

15. MATERIAL CHANGE NUMBER. Not Applicable.

16. MODIFICATION IDENTIFICATION. Compliance with this MWO can be verified by visual inspection of the dual service manifold, adapter hoses, dust plugs, dust caps, flush adapters, and hydraulic operations instruction plate on inside of hydraulic module door.

By Order of the Secretary of the Army

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0723909

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@wherever.army.mil>
To: 2028@redstone.army.mil

Subject: DA Form 2028

1. From: Joe Smith
2. Unit: home
3. Address: 4300 Park
4. City: Hometown
5. St: MO
6. Zip: 77777
7. Date Sent: 19--OCT--93
8. Pub no: 55--2840--229--23
9. Pub Title: TM
10. Publication Date: 04--JUL--85
11. Change Number: 7
12. Submitter Rank: MSG
13. Submitter First Name: Joe
14. Submitter Middle Initial: T
15. Submitter Last Name: Smith
16. Submitter Phone: 123--123--1234
17. Problem: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. Text:

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Par reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/ Supply Manuals (SC/SM)	DATE 8/30/02
TO: (Forward to proponent of publication or form)(Include ZIP Code) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, 35898	FROM: (Activity and location)(Include ZIP Code) MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565	

PART 1 – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-1005-433-24	16 Sep 2002	Organizational, Direct Support, And General Support Maintenance Manual for Machine Gun, .50 Caliber M3P and M3P Machine Gun Electrical Test Set Used On Avenger Air Defense Weapon System

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON
1	W PG 3		2			Test or Corrective Action column should identify a different WP number.

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION	SIGNATURE
MSG, Jane Q. Doe, SFC	788--1234	

TO: (Forward direct to addressee listed in publication)	FROM: (Activity and location) (Include ZIP Code)	DATE
Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM–MMC–MA–NP Redstone Arsenal, 35898	MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565	8/30/02

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
MSG, Jane Q. Doe, SFC	788–1234	

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Par reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/ Supply Manuals (SC/SM)	DATE
TO: (Forward to proponent of publication or form)(Include ZIP Code) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898 - 5000	FROM: (Activity and location)(Include ZIP Code)	

PART 1 – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON

* Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION	SIGNATURE

TO: (Forward direct to addressee listed in publication) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898	FROM: (Activity and location) (Include ZIP Code)	DATE

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 084272-000