

ROUTINE

MWO effective date is 1 January 2007 and completion date is 31 January 2011.

MWO 10-1670-287-23-1

MODIFICATION WORK ORDER

**MODIFICATION OF THE MC-4 RAM AIR
FREE-FALL PERSONNEL PARACHUTE SYSTEM
FOR
ELECTRONIC AUTOMATIC ACTIVATION DEVICE (EAAD)
NSN 1670-01-306-2100 (EIC: NA)**

HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, D.C.

20 APRIL 2007

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this MWO. 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 the MWO directly to: Commander, U.S. TACOM LIFE CYCLE MANAGEMENT COMMAND, ATTN: AMSTA-LC-SECT, 15 Kansas St., Natick, MA 01760-5052. You may also submit your recommended changes by E-mail directly to amssbriml@natick.army.mil. A reply will be provided to you.

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

1. **Purpose.** The Military Cypres® Electronic Automatic Activation Device (EAAD) is a replacement for the currently fielded Automatic Ripcord Release (AR-2) System. The EAAD eliminates a capability gap identified for a safety device that opens a parachutist’s reserve parachute automatically in the event of a malfunction with the main canopy or with a disabled parachutist.
2. **Priority.** This modification is classified as ROUTINE.
 - a. **Equipment in Use.** All Authorized MC-4 Harness/Containers with a minimum of 1 year or more of service life remaining will be modified and completed no later than the scheduled completion date. MC-4 Harness/Containers not modified after the expiration of the MWO completion date will be reported as Non Mission Capable (NMC), in accordance with applicable Army Regulations. The MWO will be applied to unserviceable assets awaiting scheduled Organization Maintenance providing the scheduled repair restores the MC-4 Harness/Container back to a Fully Mission Capable (FMC) status.
 - b. **Equipment in Wholesale Depot Supply or Maintenance Activities.** The MWO will be applied to serviceable MC-4 Harness/Containers prior to the issue and/or subsequent to the scheduled completion date.
3. **End Item(s) or System(s) To Be Modified.** This modification applies to all MC-4 Harness/Containers.

Table 1. End Item to be Modified.

Nomenclature	National Stock Number	Type and Model	CAGEC	Serial Number	LIN
MC-4 Ram Air	1670-01-306-2100	MC-4	81337	ALL	P68275

4. **Module(s), Components, Assemblies, Subassemblies, Boards, and Cards to Be Modified.** Not applicable.
5. **Part(s) To Be Modified.**

Table 2. Parts to be Modified.

Nomenclature	National Stock Number	Type and Model	CAGEC	Serial Number	LIN
Harness/Container	1670-01-330-3280	MC-4	81337	ALL	

6. **Application.**
 - a. **Time Compliance Schedule:** The MWO effective date is 1 January 2007, and the completion date is 31 January 2011.
 - b. **Level of Maintenance:** Depot.
 - c. **Workforce and Man-hour Requirement:** A total of 1.5 man hours are required for a single modification of the harness container assembly and installation of this MWO. Based on depot workload requirement and quantities received (from the user), estimated down time per end item cannot be determined.
 - d. **MWO To Be Applied Prior To, or Concurrently With, This MWO:** Not applicable.

7. **Technical Publications Affected/Changed.**

Table 3. Technical Publications Affected/Changed.

Publication Number	Publication Title
ARMY TM 10-1670-287-23&P	Unit and Direct Support Maintenance Manual (Including Repair Parts And Special Tools List) for MC-4 Ram Air Free-Fall Personnel Parachute System, NSN: 1670-01-306-2100
AIR FORCE T.O. 14D1-2-468-2	Unit and Direct Support Maintenance Manual (Including Repair Parts And Special Tools List) for MC-4 Ram Air Free-Fall Personnel Parachute System, NSN: 1670-01-306-2100
MARINE CORPS TM 09011A-23&P	Unit and Direct Support Maintenance Manual (Including Repair Parts And Special Tools List) for MC-4 Ram Air Free-Fall Personnel Parachute System, NSN: 1670-01-306-2100
NAVY NAVAIR 13-1-38	Unit and Direct Support Maintenance Manual (Including Repair Parts And Special Tools List) for MC-4 Ram Air Free-Fall Personnel Parachute System, NSN: 1670-01-306-2100

8. **MWO Kit(s)/Part(s) and Their Disposition.**

- a. **Kits(s)/Part(s) Needed to Apply the MWO:** Not applicable. Contractor provides all necessary assets.
- b. **Contents of MWO Kit:** Not applicable.
- c. **Bulk and Expendable Materials:** Not applicable.
- d. **Parts Disposition:**

NOTE

Credit will not be given for return of the AR2.

- (1) Package up each AR2, with its original piston rod cap and storage cable, into its original box.
 - (a) If the original box is not available, individually wrap each AR2 in bubble wrap and secure the bubble wrap with tape.
 - (b) Maintain accountability of the AR2s until additional disposition instructions are released.
- (2) After all preparation procedures of the harness/container are complete, package them in the following manner:
 - (a) Ensure the boxes used are serviceable and have NO OTHER markings (i.e. static-line parachute boxes with Part Numbers (PNs) and National Stock Numbers (NSNs) that are not the reflection of the contents therein).

NOTE

Suggested boxes for shipment are a cardboard box container or the three-piece tri-wall with the plastic top and bottom. If you are unable to procure a cardboard box container and would prefer to ship items in the three-piece tri-wall container, the NSN, pricing information and description is provided for each piece for ease of ordering. You will not be reimbursed the cost of using this item to ship parts to the depot.

8115-01-444-0211	\$39.35 ea	Top
8115-01-444-0198	\$31.45 ea	Center
8115-01-444-0206	\$57.53 ea	Bottom
8115-00-774-6562	\$34.71 ea	Cardboard container

- (b) If these markings exist, deface (with black spray paint or appropriate permanent marker) the labels/stenciled markings so they are not legible.
- (c) Line all boxes with plastic to protect from humidity/moisture during shipment.
- (d) Inside the box, provide the following information:
1. Unit name with DODAC.
 2. Unit POC, address and phone number.
 3. Quantity of items shipped per box.
 4. Series and total number of boxes (i.e. 2 of 4 boxes).
 5. Nomenclature and NSN of contents.
- (3) Units will use Transportation Account Code (TAC) **AQAR** for shipping components to the depot. Units must declare a value of their property on the shipping document. Shipping and insurance charges will be billed against the TAC.
- (4) Since commercial shipment (i.e. FEDEX/UPS/DHL) will be used, the below address **MUST** be used to ensure items are delivered to proper building for retrofit:

DDSP-XM
 Aerial Delivery & Textile Section
 ATTN: SSG Long/Mrs. Debra Boldosser
 R Avenue, Bldg. 80, Bay 1
 New Cumberland, PA 17070
 (ph) 717-770-4075/ 7475

e. **Mandatory Replacement Parts:** Not applicable.

9. **Special Tools, Tool Kits, Jigs, Test, Measurement and Diagnostic Equipment (TMDE), and Fixtures Required.**

Table 4. Special Tools Required for Modification.

Nomenclature	National Stock Number	Type and Model	CAGEC	Serial Number	LIN
Knife, Pocket	5110-00-162-2205		58536		
Screwdriver, Cross-tip	5120-00-234-8913	Phillips, No. 2	75347		
Wrench, Box and Open End	5120-00-228-9505	7/16-in.	05047		
Wrench	5120-00-264-3795	Adjustable, 6-in.	05047		

10. Modification Procedures:

Following are the directions and procedures to prepare the parts for shipment to the depot where the MWO will be applied:

NOTE

Do NOT send harness/container assemblies that have less than one year of service life remaining. Units will be notified when to submit their assets in conjunction with the fielding of the Cypres®.

- a. Check the Placed in Service (PIS) Date. If the PIS date of the harness/container assembly is missing or not legible, the Date of Manufacture (DOM) stamped on the reserve riser data block will be substituted for the missing PIS date (refer to TM 10-1670-201-23). If any of these conditions exist upon receipt, the installers have been notified to document those containers, repack and return to their owners without retrofit application.
- b. Clean and service all harness/container assemblies in accordance with (IAW) TM 10-1670-287-23&P and TM 10-1670-201-23.
- c. Units will send only the MC-4 harness/container for retrofit kit installation. Remove the following components and prepare the MC-4 harness/container, as follows, prior to shipment:

NOTE

Remove the main and reserve canopies IAW procedures detailed in TM 10-1670-287-23&P.

- (1) **Main and Reserve Log Record Books:** Remove both main and reserve log record books (DA 3912) from the harness/container. Maintain possession of the log record books for use upon return of the modified harness/container.
- (2) **Main Parachute Assemblies:** After removing main canopy from harness/container IAW procedures detailed in TM 10-1670-287-23&P, maintain possession of the main canopy for use upon return of the modified harness/container.
- (3) **Reserve Parachute Assemblies:** After removing reserve canopy from harness/container IAW procedures detailed in TM 10-1670-287-23&P, maintain possession of the reserve canopy for use upon return of the modified harness/container.
- (4) Using an adjustable wrench and a Phillips head screwdriver, remove the AR2 power cable from the Automatic Activation Device (AAD) junction plate.

- (5) **Red Cutaway Pillow Assembly:** Detach cutaway pillow assembly from pile fastener tape. Maintain possession of the cutaway pillow assembly for use upon return of the modified harness/container.
- (6) **Power Cable Housing:** Remove AR2 cable from the harness/container by slowly routing the AR2 cable back over the diagonal back straps and out through the AR2 power cable sleeve opening located above the AR2 pocket. Maintain accountability of the AR2 cable until further notice.
- (7) **Reserve Backing Plate:** Using a knife, remove the reserve backing plate from the reserve closing flap. Dispose of the reserve backing plate IAW local procedures.
- (8) **Main and Reserve Ripcord Assemblies:** Remove both main and reserve ripcords and maintain possession for use upon return of modified harness/container.



Figure 1. Harness/Container With Reserve Backing Plate Removed.

- (9) **Main and Reserve Soft Loops:** Remove the Type II A reserve soft loop and dispose of IAW local procedures.
 - a. Remove the 1-inch safety-stow and the main soft loop and maintain possession of them for use upon return of modified harness/container.
 - b. Locate the AR2 unit and follow the disposition instructions detailed in paragraph 8d, Parts Disposition.

NOTE

To regulate shipment costs, equipped units will package and ship the harness/container to Distribution Depot Susquehanna Pennsylvania (DDSP).

11. **Calibration Required.** Not applicable.
12. **Weight and Balance Data.** Not applicable.
13. **Quality Assurance Requirements.** Prior to returning a shipment, a First Article Test (FAT) sample is required per the depot as well as periodic lot inspections conducted by the Integrated Logistics Support Center's (ILSC) Quality Assurance Office and PM Clothing and Individual Equipment (PM CIE) Office. A Technical/Rigger Type Inspection (TRI) and an in-service inspection will be completed at the organizational level when placing the MC-4 back into service.
14. **Recording and Reporting of the Modification Records and Report Forms.**
 - a. **Records and Reports.** Once units receive their total quantity of assets back from the depot, immediately notify CW3 Jimmy Taylor at DSN 256-6012 or commercial at (508) 233-6012.
 - b. TACOM-SBC MWO Office will assume responsibility for recording the MWO application data to the Modification Management Information System (MMIS). CW3 Taylor will forward the application data to the MWO Office as it is received from field units.
15. **Materiel Change (MC) Number:** This MWO is authorized by MC Number 1-06-04-0002.
16. **Modification Identification:**

To ensure that the harness container assembly has been modified, check the following:

The first cutter is mounted on the inner surface of the bottom flap of the reserve container. This cutter is completely covered by the Cypres® cutter flap to keep the cutter away from the suspension lines of the reserve canopy. A size 0 stainless spur grommet/washer is installed through the Cypres® cutter flap enabling the Cypres® soft loop to pass through.

The second cutter is mounted on the inside of the reserve compartment directly on the reserve compartment stiffener, immediately aligned with the bottom grommet.

The elastic cutter keepers (elastic sleeve to hold cutter) must be installed properly. The housing must be positioned so that the cutter closing loop hole is directly under the edge of the grommet against which the closing loop is being pulled. When a reserve is packed, the closing flaps are always under tension and pull outward against the closing loop. The closing loop will therefore always be against the edge of the grommet nearest to the free end of the closing flap. The housing must be installed so that the cutter will be perpendicular to the pulling force on the grommet and loop (usually parallel to the edge of the closing flap).

The Cypres® control unit is mounted in a clear plastic pocket under the top portion of the reserve closing flap of the reserve container.



Figure 2. Harness/Container With Modification, View 1.



Figure 3. Harness/Container With Modification, View 2.



Figure 4. Harness/Container With Modification, View 3.

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
0710908

DISTRIBUTION: This publication is available in electronic media only.

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@avma27.army.mil>
To: amssbriml@natick.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 FName: Joe
14. Submitter MName: T
15. Submitter LName: 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 Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE 21 October 2003
TO: (Forward to proponent of publication or form) (Include ZIP Code) US TACOM LIFE CYCLE MANAGEMENT COMMAND ATTN: AMSTA-LC-SECT 15 KANSAS ST NATICK, MA 01760-5052						FROM: (Activity and location) (Include ZIP Code) PFC JANE DOE Co A 3 RD Engineer Br. Ft Leonard Wood, MO 63108	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TM 10-1670-296-23&P						DATE 30 October 2002	TITLE Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).	
	0036 00-2				1	<p>In Table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MDZZ not MD22</p> <p>Change the manual to show Sewing Machine, Industrial: Zig-Zag; 308 stitch; medium-duty; NSN 3530-01-181-1421 as a MDZZ code symbol.</p>	
<i>*Reference to line numbers within the paragraph or subparagraph.</i>							
TYPED NAME, GRADE OR TITLE Jane Doe, PFC				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION (508) 233-4141 DSN 256-4141		SIGNATURE Jane Doe Jane Doe	

TO: <i>(Forward direct to addressee listed in publication)</i> US TACOM LIFE CYCLE MANAGEMENT COMMAND ATTN: AMSTA-LC-SECT 15 KANSAS ST NATICK, MA 01760-5052	FROM: <i>(Activity and location) (Include ZIP Code)</i> PFC JANE DOE Co A 3 RD Engineer Br. Ft Leonard Wood, MO 63108	DATE 21 October 2003
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 10-1670-296-23&P	DATE 30 October 2002	TITLE Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
0066 00-1					4			<i>Callout 16 in figure 4 is pointed to a D-Ring. In the Repair Part List key for Figure 4, item 16 is called a <u>Snap Hook</u>. Please correct one or the other.</i>

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.)*

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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TO: (Forward to proponent of publication or form) (Include ZIP Code) Commander U.S. TACOM LIFE CYCLE MANAGEMENT COMMAND ATTN: AMSTA-LC-SECT Kansas Street, Natick, MA 01760-5052.						FROM: (Activity and location) (Include ZIP Code)	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER MWO 10-1670-287-23-1				DATE 20 April 2007		TITLE Modification of the MC-4 Ram Air Free-Fall Personnel Parachute System For Electronic Automatic Activation Device (EAD)	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>	
<i>*Reference to line numbers within the paragraph or subparagraph.</i>							
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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 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 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 milliliters = .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 feet

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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 $\times \frac{5}{9}$ (after subtracting 32) = Celsius temperature °C

PIN: 084030-000