<table>
<thead>
<tr>
<th>OCT 80</th>
<th>J A BAGGETT, R S DOTSON</th>
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**UNCLASSIFIED**

MISSILE MATERIEL READINESS REPORTING SYSTEM. EXECUTIVE SUMMARY. (U)

DRSM1/D-81-1

END
Technical Report D-81-1

MISSILE MATERIEL READINESS REPORTING SYSTEM

EXECUTIVE SUMMARY

OCTOBER 1980

U.S. ARMY MISSILE COMMAND
Redstone Arsenal, Alabama 35898

Approved for Public Release; Distribution Unlimited

Plans, Analysis, and Evaluation Directorate
US Army Missile Command
Redstone Arsenal, AL 35898

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Executive Summary

This executive summary describes the application of AR 750-40 Missile Readiness Reporting. The report prescribes responsibilities and procedures for evaluating and reporting the material readiness of missile equipment. Equipment to be covered includes the M/SLF systems used for tactical purposes, training equipment, operational readiness flow equipment, and selected other missile equipment for a specified purpose and period of time. The reporting system is illustrated on the chart (Continued on reverse).
DA Form 3266 - Missile Equipment Status Report, used for each reportable failure (Figure 1).

DA Form 3266-1 - Missile Materiel Readiness Report, used for monthly consolidation of DA Form 3266 (Figure 2).

The DA Form 3266-1 serves as the basis for equipment status ratings reported for missile systems designated as pacing items in AR 220-1, Unit Status Reporting.
The Materiel Readiness Reporting System Executive Summary was developed by the US Army Missile Command under the general technical cognizance of Mr. B. J. Risse', Acting Director, Plans, Analysis, and Evaluation Directorate, US Army Missile Command, Redstone Arsenal, AL 35898. AR 750-40, Missile Materiel Readiness Report is the basic document for this Executive Summary.
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<td>DA Form 3626, Missile Equipment Status Report</td>
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<td>DA Form 3266-1, Missile Materiel Readiness Report</td>
<td>3.</td>
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<td>Theater Missile X Status Graph</td>
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<td>7.</td>
<td>USAREUR (45th AADCOM) Missile X Status</td>
<td>11.</td>
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<td>8.</td>
<td>EUSA/FORSCOM Missile X Status</td>
<td>12.</td>
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MISSILE MATERIEL READINESS REPORTING SYSTEM

EXECUTIVE SUMMARY

ABSTRACT

AR 750-40 Missile Materiel Readiness Report prescribes responsibilities and procedures for evaluating and reporting the materiel readiness of missile equipment. Equipment to be reported includes TOE/MTOE systems used for tactical purposes, training equipment, operational readiness float equipment, and selected other missile equipment as directed for a specified purpose and period of time. The reporting system comprises two forms:

DA Form 3266 - Missile Equipment Status Report, used for each reportable failure (Figure 1).

DA Form 3266-1 - Missile Materiel Readiness Report, used for monthly consolidation of DA Form 3266 (Figure 2).

The DA Form 3266-1 serves as the basis for equipment status ratings reported for missile systems designated as pacing items in AR 220-1, Unit Status Reporting.

1. Introduction

The Missile Materiel Readiness Report was developed and introduced in January 1980 to replace the Materiel Readiness Report DA Form 2406. It was important to change from DA Form 2406 because it was a quarterly report and gave no indication as to what specific action was needed to correct degraded readiness conditions in specific units, missile systems, or theaters. A simple system was developed consisting of failure reports (DA Form 3266) which are rolled up into monthly reports (DA Form 3266-1). These reports are key punched as received and form MICOM's readiness evaluation data base.

2. Objectives

The schedule of objectives for the AR 750-40 reporting system were as follows:

a. Convert readiness rating criteria from red/amber/green to go no go, design forms, write, staff, and publish AR 750-40 (Aug 78 - Dec 79) (Figure 3).

b. Establish mechanized AR 750-40 reporting system (Aug 79 - Sep 80).

c. Initiate AR 750-40 reporting system from field (Big 4 Systems), Jan 80.
## MISSILE EQUIPMENT STATUS REPORT

### REQUIREMENT CONTROL SYMBOL

**To**
COMMANDER  
2L BN, 577 ADA  
APO NY 09145

**From**
COMMANDER  
BTRY C, 2L BN, 577 ADA  
APO NY 09145

**Re**
MISSION CAPABLE  
(ANNCS)

**T**
NO PARTS NEEDED TO REPAIR END ITEM AVAILABLE IN COMMAND (66-82)

**C**
REPAIR COMPLETED

**D**
END ITEM job ORDERED

**E**
* 3069

**Item**
LEFETA  
150 2.3

**End Item PN**
12 END ITEM SERIAL NO.

**Date**
13 DATE/TIME OPERATIONAL (67)

**Time**
150

**Remarks**
LOW VOLTAGE WILL NOT REGULATE

---

**MISSILE**

**CODE**
WK4F64

**SERIAL NO.**
596-62-179-4779

**DESCRIPTION**
ELECTRON TUBE 02 01

---

**Signature**

**DA FORM 3266**

**Edition of 1 Feb 75 is OBSOLETE**

**Figure 1**
<table>
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<tr>
<th>Item Number</th>
<th>Serial Number</th>
<th>Date Not Mission Capable</th>
<th>Order No. or Document No.</th>
<th>MALFUNCTION or PART No.</th>
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<tr>
<td>LNRI</td>
<td>950013</td>
<td>08/04</td>
<td>LASF05-</td>
<td>Electron Tube</td>
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<tr>
<td>DNRI</td>
<td>950013</td>
<td>08/04</td>
<td>9300-04-171-2248</td>
<td></td>
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<td>STC</td>
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<td>02/04</td>
<td>8600-7302</td>
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<td>02/04</td>
<td>41051-7003</td>
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<tr>
<td>MSL</td>
<td>960014</td>
<td>09/01</td>
<td>N/A</td>
<td>Waiting Shipment to MTOD</td>
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</table>

*Figure 2—Continued.*

TPAR failure (Electron Tube 9500-171-2248) was the direct cause of all system MEC during the reporting period. In spite of both TPIRIs for the same part (TPIR 4-9300-171-2248) also, an early repaired system capability. The non-availability of circuit card (9300-04-048-2248) does not allow fielding of an IEMT.
### APPENDIX I

**HAPINESS RATING CRITERIA FOR IMPROVED HAWK BATTERY (Squad) :**

<table>
<thead>
<tr>
<th>Report on (SA Form 328-1)</th>
<th>HYOE MISSILE SYSTEM LINE OBSW INC &quot;A&quot;</th>
<th>Minimum Quantity of Equipment Required To Be On-Hand and Operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Improved CW Acq Radar (ICNAR)</td>
<td>LEFFYA</td>
</tr>
<tr>
<td>X</td>
<td>Improved Pulse Acq Radar (IPAR)</td>
<td>LEFFYA x</td>
</tr>
<tr>
<td>X</td>
<td>Improved High Power ELL Radar (HPEL)</td>
<td>LEFFRA x</td>
</tr>
<tr>
<td>X</td>
<td>Improved Range Only Radar (IRON)</td>
<td>LEFFRA x</td>
</tr>
<tr>
<td>X</td>
<td>Improved Battery Control Central (Circle fully CPP and subcomp as listed)</td>
<td>LEFFKA x</td>
</tr>
<tr>
<td>A. Tactical Control Console (TCC)</td>
<td></td>
<td>A. Target Display and Engagement Control Console (TDEC)</td>
</tr>
<tr>
<td>B. CM Tgt Dett Console (CMIC)</td>
<td></td>
<td>B. Automatic Data Processor</td>
</tr>
<tr>
<td>C. Fire Control Console (FCC)</td>
<td></td>
<td>C. Data Cable Set will contain a minimum of RAC(7T) (8 fins, 1 FOB); and 1 D35-T (5MMX) 8 data cables</td>
</tr>
<tr>
<td>D. Intermute Coord Unit (ICU)</td>
<td></td>
<td>D. Interceptor Set AN/TPQ-46(V) (IFP)</td>
</tr>
<tr>
<td>E. Information and Coord Central (ICC)(Circle fully CPP and subcomp as listed)</td>
<td>LEFFLA x</td>
<td>E. Automatic Data Processor</td>
</tr>
<tr>
<td>F. Tactical Control Console Box (TCCB)</td>
<td></td>
<td>F. All launchers must be cabled to an operational IFP.</td>
</tr>
<tr>
<td>G. Improved HAWK Launcher (Lchr)</td>
<td>LEFFPA x</td>
<td>G. Power Supply</td>
</tr>
<tr>
<td>H. Improved Launcher Section Control Box (LSCB)</td>
<td>LEFFPA</td>
<td>H. Data Cables</td>
</tr>
<tr>
<td>I. Improved HAWK Missile</td>
<td>LEFFPA</td>
<td>I. Palletes</td>
</tr>
<tr>
<td>J. Generator 50KW, 400 Hz</td>
<td>6080XW</td>
<td>J. AN/CSA-150 (10-1) consisting of the following</td>
</tr>
<tr>
<td>K. Improved HAWK Loader Transporter (Ltr Tranp)</td>
<td>HUGLEF</td>
<td>K. AN/TPW-181</td>
</tr>
<tr>
<td>L. Cable Assy Set Elect (MC)</td>
<td>AN/CSA-150 (10-1) consisting of the following</td>
<td>L. AN/TPW-181</td>
</tr>
</tbody>
</table>

**SYSTEM RATING INSTRUCTIONS:**

- When the missile system meets the requirements for all lines shown, it is considered Mission Capable (MC). Failure to meet the standard for one or more items causes the system to be rated Non-Mission Capable (NMC).

- A unit must have either a fully operational ICC or IFP configured at an ICC.

- A unit must have a fully operational Interceptor Set AN/TPQ-46(V) integrated into the system.

- C. Data Cable Set will contain a minimum of RAC(7T) (8 fins, 1 FOB); and 1 D35-T (5MMX) 8 data cables.
d. Provide visibility as to Missile Materiel Readiness, Jun 80.

3. **Follow-On Objectives**

Follow-on objectives were established in July 1980 as follows:


b. Develop a set of ADP programs to fully meet mechanization objectives, Jul-Sep 80.

c. Develop a set of ADP programs to analyze AR 750-40 mechanized output, Aug-Oct 80.

From analysis of the above objectives, a simple three step process has evolved to evaluate readiness. See Figure 4. This process is to:

a. Manually analyze DA Form 3266-1 to determine system components causing most missile system down time.

b. From this list of heavy hitters, determine national stock numbers failing most within end items and causing most down time. ARTIS Terminal access to the DA Form 3266 end item failure reports is used for this step.

c. Prepare multifaceted investigation of specific NSN's to determine recommendations for NICP, NMP, Procurement, Quality Assurance, or design engineering action.

4. **Development of Evaluation Programs**

In order to facilitate the above evaluation, a number of data evaluation programs have been developed. These programs permit detailed analysis of compiled DA Form 3266. These programs identify the problem by organization, end item, and national stock number of spare parts. In addition, the individual DA Form 3266 data can be displayed in order to check any data entry. The programs shown below can be called up for any time period (i.e., last 30 days, 90 days, or 6 months to one year) if trend analysis is desired.

a. Failures Selected by Organization

b. Failures Selected by Weapon System

c. Failures Selected by End Item

d. Failures Selected by Mission Identification

e. Occurrences of NSN by Organization
f. Occurrences of NSN by Weapon System

g. Occurrences of NSN by End Item

h. Non-Mission Capable Supply/Non-Mission Capable Maintenance (NMCS/NMCM)

or by organization

i. NMCS/NMCM by Weapon System

j. NMCS/NMCM by Serial Number

k. Parts Not Available in Command

l. Individual DA Form 3266

m. Any National Stock Number

S. Analysis of Missile Readiness

a. Figures 5 through 8 are examples of the materiel readiness of Missile System X for a typical month. From this analysis, overall trends in readiness performance of the missile system worldwide down to theater, command, and battalion level can be identified. Notational data is used to preclude classification of this paper.

b. Figures 9 and 10 show the components causing Missile System X's downtime both worldwide and by theater. Since Radar Y is consistently causing most of the system downtime, an analysis of all failure reports submitted on this radar is called up on the ARTIS Terminal and printed out. The analysis of the printout shows that the Liquid Cooler (NSN 1430-00-066-5696, AMDF price $16,064.00 each) is the heavy hitter item most often reflected in the failure reports. The demand history for this stock number is then called up on the ARTIS Terminal and printed out. The demand history analysis shows that 182 Liquid Coolers have been issued in the past 24 months to support Radar Y's total density of 80 each. This means that on the average the Liquid Cooler is being replaced once a year or slightly more often. Further inquiry reveals the 2 Bn sample data collection mean time between failure rate is one Cooler failure every 3.5 months, most of which are repaired with piece parts at the DS level. Ultimately, two needed fixes are identified. One involves rerouting a wiring harness to prevent it from rubbing against the vibrating pump and wearing through the wiring insulation causing an electrical short and possible fire. The other involves a better oil coolant pressure leak test at the contractor's cooler rebuild shop to stop field rejections of rebuilt coolers for leaking coolant seals, hoses, etc.

c. Follow-up procedures are needed to insure that the specified corrective actions are in fact accomplished. Currently, a review of "old business" and status of these actions is accomplished before the start of the monthly MICOM readiness review for the OCG Readiness, Project Managers, and Directors. The objective is to get well on the problem-causing repair parts, thus improving the readiness of the heavy hitter component end item and thereby improve the total missile system materiel readiness performance.
### UNCLASSIFIED

**MISSILE SYSTEM X**

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**UNCLASSIFIED**

Figure 5
UNCLASSIFIED

MISSILE SYSTEM X
THEATER
MC/NMC (AR 750-40)

UNCLASSIFIED

FORSOM
JUN JUL AUG SEP
00 00 00 00
100
90
80
70
60
50
40
30
20
10
0

EUSA
JUN JUL AUG SEP
00 00 00 00
100
90
80
70
60
50
40
30
20
10
0

USAREUR
JUN JUL AUG SEP
00 00 00 00
0

Figure 6
## UNCLASSIFIED

### MISSILE SYSTEM X

#### UNIT & MISSILE SYSTEM READINESS REPORTS (3266-1)

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**Figure 7**
UNCLASSIFIED

MISSILE SYSTEM X

COMPONENTS CAUSING SYSTEM NMC TIME

BY THEATER

UNCLASSIFIED

Figure 10
6. **Present Objectives**

The current objectives are to refine our readiness and logistical analysis procedures and establish realistic readiness yardsticks for future systems. This will be done by threat analysis, development of missile system hardware matrices, and assignment of rating criteria in coordination with the field missile community, Project Manager personnel, TRADOC schools, and DA staff. The immediate objectives are to:

a. Compile historical records - Lessons Learned.

b. Analyze data records for remedial actions needed.

c. Use data analysis to effect timely feedback to user.

d. Maintain coordination between MICOM support elements and field commanders.

7. **Performance Feedback Program**

In conjunction with actions as outlined in Para 6 above, a user feedback program is being implemented in three phases. In Phase 1, as a product of our repair parts expediting effort, we began in January 1980 to provide daily feedback to field requisitioners on status of requisitions for repair parts reported as required on the DA Form 3266 failure reports. In Phase 2, beginning in May of this year, a program of data feedback to the field commanders was initiated. This program consists of providing detailed analysis of weapon system and missile unit materiel readiness performance in color transparency form on a monthly basis. Starting at MACOM level, we now plan to go down to division level by December. Field response to this program has been rapid and very positive.

In Phase 3, between now and February 1981, we expect to have established a mail order catalog of selected computer printouts. These printouts will show the failure history of a unit, a missile system, and end items to include repair parts for each failure. These reports will be made available to commanders down to battalion level on a request basis.

8. **Conclusion**

The objective of the Missile Materiel Readiness Reporting System was originally to provide the Commander, MICOM, with visibility as to specific causes for degraded missile materiel readiness in the most timely manner feasible. In addition, continuing efforts have been implemented which provide the capability to analyze the field reports and initiate timely remedial action. The field commander can now be apprised of the status of his missile readiness in comparison with his contemporaries and of positive action being taken by support agencies to improve his readiness posture as well as an indication of those actions he can take locally to help himself.
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Commander
US Army Depot Support Command
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Letterkenny Army Depot
Chambersburg, PA 17201

Commander
US Army Mobility Equipment Command
ATTN: DRDME-0
Fort Belvoir, VA 22060

Commander
Natick Research & Development Command
ATTN: DRXRM-0
Natick, MA 01760

Commander
US Army Test and Evaluation Command
ATTN: DRSTE-SY
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