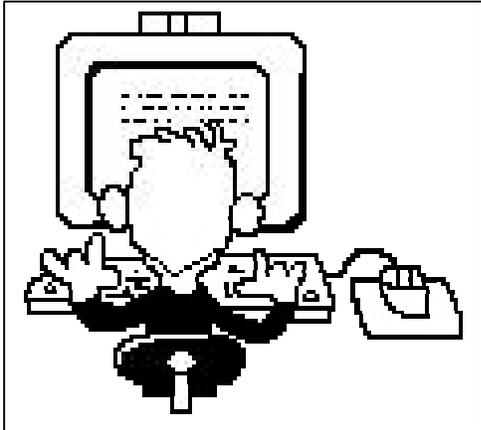




TECHNICAL REPORTING



**Plans
Reports**

U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND
MARYLAND

APRIL 2001

FOREWORD

When you boil down all the work we accomplish in this Command, our output is a series of documents - test plans, test incident reports (TIRs), interim reports, and final reports. Years after a test is over all that exists is the ATC report. Clearly, as the record and score card for any test item, the report must reflect our fundamental values: accuracy, clarity, fairness, and most of all - professionalism. The report is a keystone to the fielding/production decision! For these reasons we must assure ourselves that it is of the highest quality, complete, understandable, timely and with the appropriate format. The responsibility for this document rests with the test director; however, it can have numerous authors - experts providing subtest input and reporting. The value of the report is the value of ATC. Yesterday's weather report is clearly not as valuable as tomorrow's. Similarly, an ATC report that is not available during the decision process has no value to the decision-maker and diminishes all the effort made to accomplish the test.

The report **IS OUR PRODUCT**. We must make sure it reflects our standards and arrives on time. ATC's and your reputation depend on excellent technical reporting!!!

26 April 2001



JAMES W. FASIG
Technical Director

ATC INSTRUCTIONS FOR MANUSCRIPT PREPARATION

1. Introduction

a. *This document is an update of specific portions of TECOM Pamphlet 73-1. Supplementation by ATC is identified by italics. The contents of the following appendices are reflected:*

Appendix G: Army Test Types

Appendix I: Test Plan and Associated Correspondence Formats

Appendix J: Test Reports and Associated Correspondence Formats

Appendix L: Administrative Specifications for Test and Evaluation Documentation

b. *Additionally, the ADACS Data Collectors Handbook User's Guide and the ATIMS User's Guide, prepared by ATC, are also included in this technical reporting manual but not italicized.*

2. Getting Started.

a. *ATC has an outstanding technical documents preparation team who is fully aware of the requirements identified within this document. Contact Gerry Thompson for more details, e-mail gthomps@atc.army.mil, or phone at 3-2462.*

b. *Many writers often waste time getting started. Successful writers have learned it is often necessary to sit down and begin to write something to get into the swing of writing. The writer soon finds that he/she works into the subject. 'Warm-up' efforts may then be revised or discarded, and the good work kept as a first draft. The quality of the final published document depends heavily on the quality of the draft submitted by the author. Seldom does a first draft satisfy the needs of a good plan/report. Writing and rewriting is a basic requirement for ensuring that the final document will be satisfactory.*

c. *Remember to use the third person in all technical documents.*

Right: The gun was fired at . . .

The vehicle traveled . . .

Wrong: We fired the gun . . .

d. *Except for rare occasions, the text of a plan/report should not mention any organization within ATC. To mention the Automotive Instrumentation Team, for example, is parochial and improper, since the plan/report is an ATC document.*

3. Organizing the Writing.

a. Planning and organizing together constitute the first and most important step in writing a plan/report. This step is accomplished by reviewing previously published documents on the subject, as well as the notes, logs, and data sheets accumulated during the course of the test. This review will provide the broad picture of the subject, which is necessary before the author can channel his/her thinking to produce a unified and coherent document. For reports, objective thinking based on the total evidence available will not be neglected just because the results seem obvious. Even the simplest test results can sometimes be construed to have different meanings when the data are reviewed in their entirety.

b. The outline is the best tool for drawing together the various sources of evidence to prepare a unified presentation. Depending upon the requirements of the subject and the needs of the author, the outline may be detailed to the extent of using topic sentences, or it may be roughed out as words and phrases. In any case, the outline should reflect the format to be used in the resulting document. For reports, outlining the report and use of the previously provided test plan will ensure that all essential coverage has been made, that the material is presented in logical sequence, and that unnecessary repetition has been avoided.

c. Some test reports lend themselves to a chronological sequence, in which case, the test plan may serve as a guide for blocking out the report. Complex programs having several differing or interrelated courses of action may be more effectively described by considering the individual phases in their entirety before passing on to other phases. When the test program involves comparison of test items, the results can be presented in a parallel arrangement, considering points of comparison in a logical manner without regard for the chronological sequence.

d. Writers must be careful to avoid repeating information in various sections of the document, except when required by the prescribed format. Although it may be necessary to consider the same point in different sections of a document, each of these discussions has a different purpose and should be tailored to meet the needs of that section of the document. When repetition of information is necessary, it will be as brief as possible, reference to preceding sections of the document may make a second discussion unnecessary.

4. Organizing the Illustrations.

a. Photographs, sketches, and charts give life to technical writing. Although a good writer must have the ability to describe involved and complex mechanisms and procedures in words, his task is simplified and the reader's understanding is improved when suitable illustrations are used.

b. The offset printing method used at Aberdeen Proving Ground permits the use of both text and graphic materials in plans/reports. Illustrations can be placed at the most advantageous points and can be made larger or smaller as the subject material and available space dictate. Authors should use discretion in selecting illustrative material. Only those illustrations necessary for understanding will be used, and then only when referred to in the text. Numerous photographs for storage purposes will be avoided.

c. A general view or "characteristics photograph" should be placed before the first page of the text of major reports. When more than four full pages of photographs or charts appear on successive pages, they will be placed in an appendix to avoid excessive interruption in the text of the report.

d. Photographs should be carefully cropped, not by actual cutting, but by use of crop marks in the margins, and the top of the photograph should be marked "TOP" to prevent inadvertent reversal. The figure should be identified.

e. Unless placed in an appendix, illustrations will appear as soon as possible after they are mentioned. All illustrations will be referred to in the text.

f. When preparing the final draft of a plan/report, the author will leave a space to indicate the desired position of an illustration. The title of the illustration will be given, including the figure number.

5. Preparing the Final Draft.

a. A good plan/report must not only be written, it must be revised; often, it must be rewritten several times. Revising and polishing the text are essential to the production of a well-written and creditable technical document.

b. The drafts of plans/reports should always be double-spaced, neat, and legible in order to facilitate changes during the review and editing process.

APPENDIX G

ARMY TEST TYPES

Test Types. This handout provides a brief description of the Army test types that are performed throughout the acquisition cycle as defined in AR 73-1.

Developmental Test Types. DT is a generic term encompassing M&S and engineering type tests that are used to verify that design risks are minimized, that system safety is certified, that achievement of system technical performance is substantiated, and that readiness for OT&E is certified. DT generally requires instrumentation and measurements and is accomplished by engineers and technicians. It is repeatable, may be environmentally controlled, and covers the complete spectrum of system capabilities.

a. Pre-Full Rate Production (FRP) Testing. Pre-FRP testing ranges from before program initiation to the FRP decision:

(1) RESEARCH EFFORT/TEST. Technical effort/test conducted prior to milestone (MS) A to determine early technical parameters, to support the research of the item, and to provide fundamental knowledge for solutions of identified military problems.

(2) TECHNICAL FEASIBILITY TEST (TFT). The TFT is typically conducted after MS A and before MS B to assist in determining safety, establishing system performance specifications, and determining feasibility of alternative concepts. Testing during this phase identifies and reduces risks in subsequent acquisition phases.

(3) ENGINEERING DEVELOPMENT TEST (EDT). The EDT is typically conducted after MS B and before MS C to provide data on performance and safety, the achievability of critical technical parameters, refinement and ruggedization of hardware configurations, and determination of technical risks. The EDT includes testing of compatibility/interoperability with existing or planned equipment and systems and the system effects caused by natural and induced environmental conditions.

(4) PRODUCTION PROVE OUT TEST (PPT). A PPT is conducted with prototype hardware post MS B, but prior to production testing to provide data for the selected design alternative. The PPT is usually performed at the subsystem level and provides data on safety, NBC survivability, achievability of critical technical parameters, refinement and ruggedization of hardware and software configurations, and determination of technical risk.

(5) PRODUCTION QUALIFICATION TEST (PQT). The PQT is a system level test conducted after MS B that demonstrates design integrity over the specified operational and environmental range. It must be completed using Low-Rate Initial Production (LRIP) assets (when appropriate) prior to the FRP decision.

(a) The PQT normally uses prototype or pre-production hardware and software fabricated to the proposed production design specifications and drawings. Such tests include contractual R&M demonstration tests required before production release.

NOTE: This is an updated extract of TECOM Pam 73-1.

(b) The objectives of the PQT are to have the government confirm the design will meet the performance and user requirements and to assess the performance envelope. It is also used to determine the adequacy of any corrective action indicated by previous tests and to validate the manufacturer's facilities, procedures, and processes.

(c) PQT may also include tests which are not included in the technical data package or contract (e.g., environmental extremes, test-to-failure) when necessary to obtain engineering data for corrective action verification or other purposes. PQT may be accomplished in phases (e.g., preliminary engineering, shoot-off, specific problem correction, etc.).

(6) LIVE FIRE TEST (LFT). For those weapons systems required by law to undergo live fire T&E, the LFT is conducted as part of, or in conjunction with, the PQT. The LFT demonstrates the ability of the system to provide battle resilient survivability, or the munition to provide lethality. It will provide insights into the principal damage mechanisms and failure modes occurring as a result of the munition/target interaction and into techniques for reducing personnel casualties or enhancing system survivability/lethality.

(7) LOGISTIC DEMONSTRATION (LD). A logistics demonstration (LD) evaluates the achievement of maintainability goals; the adequacy and sustainability of tools, test equipment, selected test programs sets, built-in test equipment, associated support items of equipment, technical publications, and maintenance instructions. It also evaluates the adequacy of troubleshooting procedures, personnel skill requirements; the selection and allocation of spare parts, tools, test equipment, and tasks to appropriate maintenance levels; and the adequacy of maintenance time standards. A LD is required for all new acquisition systems or system changes which have an operational impact, including any new or improved support and test equipment intended for support of the system.

(8) C4I/IT INTEROPERABILITY CERTIFICATION TEST. The inter-operability certification test is a test that applies to C4I IT systems having interfaces or interoperability requirements with other systems. This test may consist of demonstrations using message analysis or parsing software with limited interface connectivity, or extend to full-scale scenario-driven exercises with all interfaces connected. This test is conducted by CECOM's Army Primary Test Unit.

(9) SOFTWARE DEVELOPMENT TEST. The software development test (SDT) consists of program or module and cycle or system levels of testing. The software developer conducts the SDT, and the independent quality control element of the software development center also participates in the SDT. The proponent agency also participates and validates that the functional requirements are being met. The unit or module test is the initial testing level. Testing is executed on local testbed hardware, and benchmark test files are used. The cycle or system test involves testing the combination of linkage of programs or modules into major processes. It is a formal test conducted by the software developer and the proponent agency to ensure that the technical and functional objectives of the system are met.

b. Post FRP Testing. Post MS FRP developmental testing includes production testing and post-production (deployment) testing. Production testing is required to determine the producer's performance in producing the items that meet prescribed technical data package requirements, to provide data for materiel release, and to ensure that the product continues to meet the prescribed requirements. Production testing also provides a baseline for postproduction testing. Testing during operations and support include surveillance and reconditioning tests that are required to measure the ability of materiel in the field, in storage, and after maintenance actions to meet user requirements.

(1) PRODUCTION VERIFICATION TEST (PVT). A system-level DT conducted to verify that the production item meets critical technical parameters and contract specifications, determine the adequacy and timeliness of any corrective action indicated by previous (pre-FRP) tests, and validate the manufacturer's facilities, procedures, and processes. This test provides data for the system evaluation for materiel release decision so the evaluator can address the adequacy of the materiel with

respect to the stated requirements. The PVT will also provide a baseline for the test requirements in the TDP for post-production testing. The PVT is accomplished during the first limited production or full-scale production contract.

(a) The PVT may take the form of a first article test (FAT) if such testing is required in the TDP. A FAT may be required for quality-assurance purposes to qualify a new manufacturer or procurements from a previous source out of production for an extended period of time. The FAT ensures the contractor can furnish a product that conforms to all contract requirements for acceptance. Requirements for FATs may be invoked in production contracts by citation of the applicable Federal Acquisition Regulation (FAR) first article inspection and approval clause. When a FAT is specified in a contract, it may not be waived or changed without prior approval of the head of the contracting activity. FATs may be conducted at government facilities or at contractor facilities when observed by the government. Requirements for the FAT should be consistent with those of the PQT.

(b) The PVT may include tests that are not included in the data package or contract (e.g., environmental extremes, test-to-failure) when necessary to obtain engineering data for corrective action verification or to support a materiel release decision.

(2) COMPARISON TEST (CPT). A CPT is a test of a randomly selected sample from production. CPT is conducted as a quality assurance measure to detect any manufacturing or quality deficiencies that have developed during volume production which may have reduced effective operation of the item or resulted in item degradation. CPT is conducted or supervised by an agent independent of the producer or by Government on-site quality assurance personnel.

(3) QUALITY CONFORMANCE (ACCEPTANCE) INSPECTIONS. Inspections that are examinations and verification tests normally prescribed in the TDP to be performed by the contractor (subject to witnessing by the on-site Quality Assurance Representative) on the item, lots of items, or services to be offered for acceptance. These examinations may include in-process and final comparisons with technical quality characteristics required to verify that materiel meets the terms of the contract and should be accepted by the Government.

(4) C4I IT INTEROPERABILITY RECERTIFICATION TEST. This test for C3I systems is conducted if major hardware and software modifications to the C3I system have been made that impact on previously established joint interface requirements. Recertification test schemes must be developed and must be commensurate with the level of changes involved in both the C4I IT system and the systems with which it must interoperate.

(5) SURVEILLANCE TESTS. Surveillance tests include destructive and nondestructive tests of materiel in the field, depot, or extreme environmental locations. Surveillance tests are conducted to determine suitability of fielded or stored materiel for use, evaluate the effects of environments, measure deterioration, identify failure modes, and establish or predict service and storage life. They may be at the component-through-system level. System level programs may include dedicated hardware allocated for this purpose, fielded materiel, or supplies in storage. "Libraries" of component parts to provide a baseline for subsequent surveillance test data comparisons may be established at contractor or government facilities.

(6) RECONDITIONING TESTS. Reconditioning tests fall into five types, the most important of which are pilot and initial.

(a) Pilot reconditioning tests are conducted to demonstrate the adequacy of the documented technical requirements, processes, facilities, equipment, and materiel that will be used during volume reconditioning activities. The pilot model will be reconditioned in strict accordance with depot maintenance work requirements, modification work orders, Technical Manuals (TM), Technical Bulletins (TB), and contracts. . Pilot reconditioning tests will be applied when Depot Maintenance Work Requirements (DMWR), TMs, or TBs, are used the first time or when major changes are made.

(b) Initial reconditioning tests are conducted to demonstrate the quality of the materiel when reconditioned under volume (rate) procedures and practices. These tests relate to the PVT during production.

(c) Control Tests are conducted on random items from volume reconditioning operations to verify that the process is still producing satisfactory materiel. Criteria should be the same as for initial reconditioning tests. These tests relate to critical technical parameters during production.

(d) Acceptance Tests are conducted on in-process materiel and at the completion of reconditioning activities, and provide data upon which an accept/reject decision is based.

(e) Baseline Evaluation Tests are conducted simultaneously on reconditioned and new production materiel of the same configuration to provide a comparison of performance and to determine the degree of reconditioning required. This test will be considered when the item is being reconditioned for the first time, when significant modifications affecting performance are incorporated, or to provide data upon which to base a decision on upgrading versus new procurement.

(7) POST DEPLOYMENT SOFTWARE SUPPORT (PDSS). Developmental tests in support of PDSS for software intensive materiel systems parallel those described for pre-FRP, but are usually abbreviated based on the number, magnitude, and complexity of the modifications and or maintenance.

Operational Test Types. The OT is a field test of a system under realistic operational conditions with users who represent those expected to operate and maintain the system when it is fielded or deployed.

a. Pre-FRP Testing. Pre-FRP testing and experimentation for systems range normally from MS A to the FRP decision.

(1) EARLY USER TEST (EUT). EUT, a generic term, encompasses all system tests employing representative user troops during concept and technical development phase. The EUT may test a materiel concept, support planning for training and logistics, identify interoperability problems, and/or identify future testing requirements.

(2) EARLY USER EXPERIMENTATION (EUE). An EUE is a field experiment conducted to generate data that are subsequently used to identify potential system related solutions or to define issues to be addressed at milestone B and beyond.

(3) LIMITED USER TEST (LUT). The LUT is any type of RDTE funded operational test normally conducted during the system development phase other than the IOT. The LUT normally addresses a limited number of operational issues. The LUT may be conducted to provide a data source for operational assessments in support of LRIP decisions and for reviews conducted before IOT. The LUT may be conducted to verify fixes to problems discovered in IOT that must be verified prior to FRP (that is, the fixes are of such importance that verification cannot be deferred to the FOT). The LUT will not be used to circumvent requirements for an IOT before a FRP as prescribed by statute.

(4) INITIAL OPERATIONAL TEST (IOT). The IOT is a field test required by statute for major systems. It is conducted under realistic operational conditions with a production or production-representative system (or key component of such a system) to determine its operational effectiveness and operational suitability for use by typical users in combat or when otherwise deployed. The IOT environment is as operationally realistic as possible and includes use of realistic threats. Typical users operate and maintain the system under conditions simulating actual deployment conditions.

b. Post-FRP Testing. Operational testing in the production and deployment phase supports both development and fielding subsequent to the IOT, and supports PDSS for information systems.

(1) FOLLOW-ON OPERATIONAL TEST (FOT). An FOT is an OT that may be necessary during or after the production phase to refine the estimates made during IOT, provide data to evaluate changes, and verify that deficiencies in materiel, training, or concepts have been corrected. FOT may also provide data to ensure that the system continues to meet operational needs and that it retains its effectiveness in a new environment or against a new threat. For software intensive systems, the FOT typically serves as the operational test in support of PDSS.

(2) USER ACCEPTANCE TEST (UAT). The functional proponent or combat developer will conduct a UAT for systems that support PDSS. For systems that have both a functional proponent and a combat developer, the functional proponent will conduct the UAT. The UAT is limited in scope relative to an FOT and conducted primarily to verify the functionality of the changes to the information technology in the user environment.

c. As Required Operational Testing and Experimentation.

(1) FORCE DEVELOPMENT TEST AND/OR EXPERIMENTATION (FDT/E). FDT/E is a TRADOC program supporting its force development processes by examining the effectiveness of existing or proposed concepts or products of doctrine, training, leader developments, organization, and soldier developments (DTLOS). FDT/E may be used for either stand-alone DTLOS efforts or for DTLOS efforts supporting a system acquisition program. In support of system acquisition programs, FDT/E may be stand-alone, related to, or combined with OT and should be scheduled in the TEMP.

(2) SUPPLEMENTAL SITE TEST (SST). A SST may be necessary for C4I IT systems that execute in multiple hardware and operating system environments if there are differences between user locations that could affect performance or suitability. The SST supplements the IOT and UAT.

(3) CUSTOMER TEST (CT). A customer test is a test conducted for a requesting agency. The requesting agency coordinates support requirements and provides funds and guidance for the test. A CT is not directly responsive to Army program objectives.

APPENDIX I

TEST PLAN AND ASSOCIATED CORRESPONDENCE FORMATS

I-1. TEST PLAN FORMAT

a. The format for the detailed test plan is reflected at Figure I-1. Also provided are two additional figures which are contained within the Test Plan format: Figure I-2 (Sample Detailed Test Plan Front Cover) and Figure I-3 (Appendix B - Test Schedule).

b. The format for the abbreviated test plan is reflected at Figure I-4.

I-2. TEST PLAN APPROVAL

a. A sample of the memorandum transmitting the test plan from the test center to HQ DTC for approval is reflected at Figure I-5.

b. A sample memorandum prepared by the test manager transmitting approval of the test plan to the test center is reflected at Figure I-6.

c. A sample of the memorandum prepared by the test manager to the PM approving and distributing the test plan is reflected at Figure I-7.

d. An ATC Test Plan/Report Routing Sheet is reflected at Figure I-8.

e. A sample memorandum transmitting a test plan to T&E WIPT members is at Figure I-9.

NOTE: This is an updated extract of TECOM Pam 73-1.

DETAILED TEST PLAN

FRONT COVER

The outside front cover and the reverse of the front cover are prepared as outlined in Appendix L, Administrative Specifications.

A sample outside front cover format reflecting the information required by Appendix L is contained at Figure I-2 on page I-8.

TABLE OF CONTENTS

This table lists each major section and subtest heading of the test plan. Administrative requirements are reflected in Appendix L.

TEXT OF DETAILED TEST PLAN:

SECTION I. INTRODUCTION

1.1 TEST OBJECTIVE

The objective of the test is a statement of the overall purpose of the testing actions. It should be a restatement of the objective from the test directive or, for customer tests, from the test request. It is a general answer to the question "Why is the test effort being performed?"

1.2 TESTING AUTHORITY

The testing authority will identify and reference the:

- a. Test directive, specifying the test center(s) involved and stating the type of test (e.g., TFT, PQT), and
- b. Test request, specifying the PM sponsoring this testing.

1.3 TEST CONCEPT

Present an overview of the concept of test (location(s), duration, timeframe, type(s) of subtests, numbers of test items, etc.). Cite sufficient detail to allow the reader to clearly understand the extent of testing. Address special test considerations required such as known limitations. This paragraph should directly relate to the SEP and the Integrated Test Schedule of the TEMP, and should be an updated restatement of the test concept from the directive.

1.4 SYSTEM DESCRIPTION

The description is derived from the SEP, TEMP, or other source documents. It should describe the test item in terms of function, technical parameters, physical characteristics, mission, and threat. If the test item consists of several major components, identify these and describe each. If test items differ from previously tested items, describe the differences in the test items.

If literature on the test item exists, include appropriate extracts of the description and cite the reference. Ensure that the manufacturer's performance claims are not included as facts in the description. Listing physical characteristics rather than performance information is advisable.

This description must permit full understanding of the item. Include a line drawing or photograph, if available.

1.5 UNIQUE TEST PERSONNEL REQUIREMENTS.

Describe the use of SOMTE personnel in terms of critical operator and maintainer tasks (see TECR 70-5).

Describe whether or not personnel qualified to test by duty assignment will be used (see TECR 70-25).

SECTION 2. SUBTESTS

This is the most important section of the test plan. Include specific subtests necessary to provide test data to answer the evaluator's Critical Technical Parameters, and/or to describe the degree to which an item meets the criteria specified in requirements, DTC directives, military standards, military specifications, etc.

State what is being measured and how the test will be accomplished. When appropriate, reference applicable elements from the SEP or DTC directive.

Keep the subtest limited in scope. Generally, the criteria are the guide for subtest partitioning. A short subtest discussing only one specific topic is easier to write and read. Longer subtests may be divided into subelements. For example, a human factors subtest may be divided into workspace, visual, noise, lighting, etc.

For subtests to be satisfied by contractor/developer testing which are described in a published contractor/developer test plan, for which the test manager has assigned certain responsibilities to the test center (e.g., data analysis, data reduction, or on-site monitoring), ensure that complete information on that subtest is provided. Describe all elements for that subtest from the externally prepared document and delineate the responsibilities of the test center.

Include sufficient detail to enable approving authorities to determine if the scope of the specific subtests will accomplish the subtest objective, to determine the justification for conducting the subtests, and to allow a tester other than the plan's author to conduct the test.

Paragraph headings and contents for this section are as follows:

2.1 NAME OF SUBTEST

2.1.1 OBJECTIVES

The objectives of the subtest should support the test objectives (para 1.1). State the objective or reason for conducting the subtest in a brief statement; e.g., "Determine the reliability of the (system)."

2.1.2 CRITERIA

State the criteria verbatim from their sources. State source and paragraph in parenthesis following each criterion. The criteria may be derived from the SEP, requirements documents, test directive, regulations, standards, and/or operating procedures.

The criteria should be quantitative where possible, but qualitative criteria are acceptable if the circumstances do not lend themselves to numerical values. The criteria should be stated so they may be considered in terms of met, partially met, or not met.

For a subtest with no criteria available, the test director may develop criteria, listing the test center as the source. The approval of the test plan will constitute approval of the subtest criteria. If no criteria would be required (i.e., subtest designed to provide data with no assessment), state "This subtest is conducted to document technical performance."

A complete listing of criteria will be included in Appendix A. In those cases when several criteria are listed, Appendix A of the plan may be referenced in lieu of listing numerous criteria (e.g., "See items 2 through 10 and 17 in Appendix A").

2.1.3 TEST PROCEDURES

The procedures to be used in the subtest should be described in sufficient detail to allow the reader to understand what will occur. If possible, TOPs, ITOPs, or MIL-STDS should be referenced. Describe in sufficient detail how the subtest will be conducted so that another individual knowledgeable in testing of such materiel could follow the procedure and conduct the test. Describe how the test item will be operated or what it will be exposed to in order to conduct the subtest.

Specify what data will be acquired and how it will be acquired. The what/how pairing will, as a minimum, reflect data requirements expressed in the IAP. Justify stringent data accuracy requirements.

Subparagraphs (e.g., 2.1.3.1, 2.1.3.2) may be used to organize the test procedures to enhance the reader's understanding.

2.1.4 DATA REQUIRED

Include a listing of all data elements that will be recorded during the subtest. Specify the accuracies required for the measurements.

The use of standard forms, data sheets, or questionnaires are encouraged. If standard forms, data sheets, or questionnaires are to be used, include them as an appendix and reference that appendix.

2.1.5 DATA ANALYSIS/PROCEDURE

Describe how the data are to be analyzed by the test center and how they should be reported. For each criterion, specifically identify in a separate subparagraph how it will be addressed and what condition will lead to a determination that the criterion has been met. Address only that portion of a criterion applicable to the specific subtest.

Present the analytical procedure in the same order that it was introduced in the test procedure paragraph. Specify any compression, reduction, averaging, compilation, and/or statistical treatment. Include any assumptions that are appropriate.

For analytical and/or statistical procedures, the procedure should be identified in sufficient detail to allow another individual to carry out the analysis and to allow a reviewer (test manager, evaluator/assessor, PM, etc.) to judge the adequacy of the methodology. Sufficient detail does not mean the complete equations for computations such as single T-Test, standard Analysis of Variance (ANOVA), or simple point estimate, and confidence limits. Identification of statistical test name, sample size, confidence/or risk levels (whichever is appropriate), and any distribution assumption is sufficient.

Analytical procedures should provide interpretations of criteria statements where necessary.

SECTION 3. APPENDICES

A. TEST CRITERIA

Extract appropriate test criteria verbatim from the IAP, requirements document, contract specification and standards, or other sources. This format will subsequently be used in the test report format with a "Remarks" column added. List as reflected below:

Item	Applicable Source	Test Criteria	Subtest
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When a portion of a listed criterion is not to be examined, underline the non-applicable portion and add the following statement at the bottom of each page on which underlining is used: NOTE: Underlined portion of criterion will not be addressed.

B. TEST SCHEDULE

Provide realistic schedules of the test effort to ensure efficient programming and utilization of resources. Front load tests which provide input for the safety release.

Every effort should be made to minimize the time required to accomplish the test. Prepare an incremental test schedule presenting an estimate of net testing time in a format similar to the one at Figure I-3.

C. INFORMAL COORDINATION

Informal coordination is that coordination effected with a PM or MSC. Include a list of all agencies with which the draft test plan was informally coordinated. Indicate coordination comments not incorporated into the plan. List the agency providing the comment, the comment and the reason for not accommodating the comment. Major disagreements or anomalies, in the judgement of the test plan preparer, will immediately be brought to the attention of the DTC test manager.

D. REFERENCES

This appendix should list all documents mentioned in the plan, in the order in which they were mentioned.

E. ABBREVIATIONS

All acronyms, brevity codes, short titles, and abbreviations used in the plan are listed alphabetically with an explanation of their meaning. Do not list commonly used terms.

F. DISTRIBUTION LIST

The distribution list will list all agencies receiving the plan in accordance with the HQ DTC test directive and internal test-center requirements. (See Appendix L for additional details.)



DTC PROJECT NO. 1-VG-120-035-056

DETAILED TEST PLAN
FOR THE
PRODUCTION VERIFICATION TEST (PVT)
OF THE
MEDIUM TACTICAL VEHICLE REPLACEMENT (MTVR)
VARIANT PROGRAM
U.S. **MARINE CORPS** VARIANT

MARTIN C. BINDEL
KERRY L. NORTH
ROBERT SCHOFFSTALL
CHARLES KOSTER

VEHICLES TEAM
AUTOMOTIVE

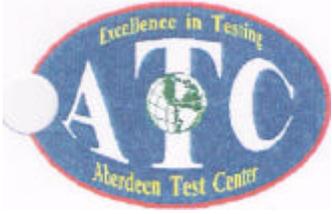
U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MD 21005-5059

MARCH 2001

Prepared for:
U.S. ARMY TANK-AUTOMOTIVE COMMAND
WARREN, MI 48397-5000

U.S. ARMY DEVELOPMENTAL TEST COMMAND ABERDEEN PROVING
GROUND, MD 21005-5055

Figure 1- 2



TECOM PROJECT NO. 1-VS-120-HET-027

DETAILED TEST PLAN
FOR THE
TECHNICAL FEASIBILITY TEST (TFT)
OF THE
HEAVY EQUIPMENT TRANSPORTER (HET)
M1070 TRUCK TRACTOR
TECHNOLOGY INSERTION PROJECT (TIP)



DAVID J. STRAWBRIDGE

VEHICLES TEAM
AUTOMOTIVE

U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MD 21005-5059

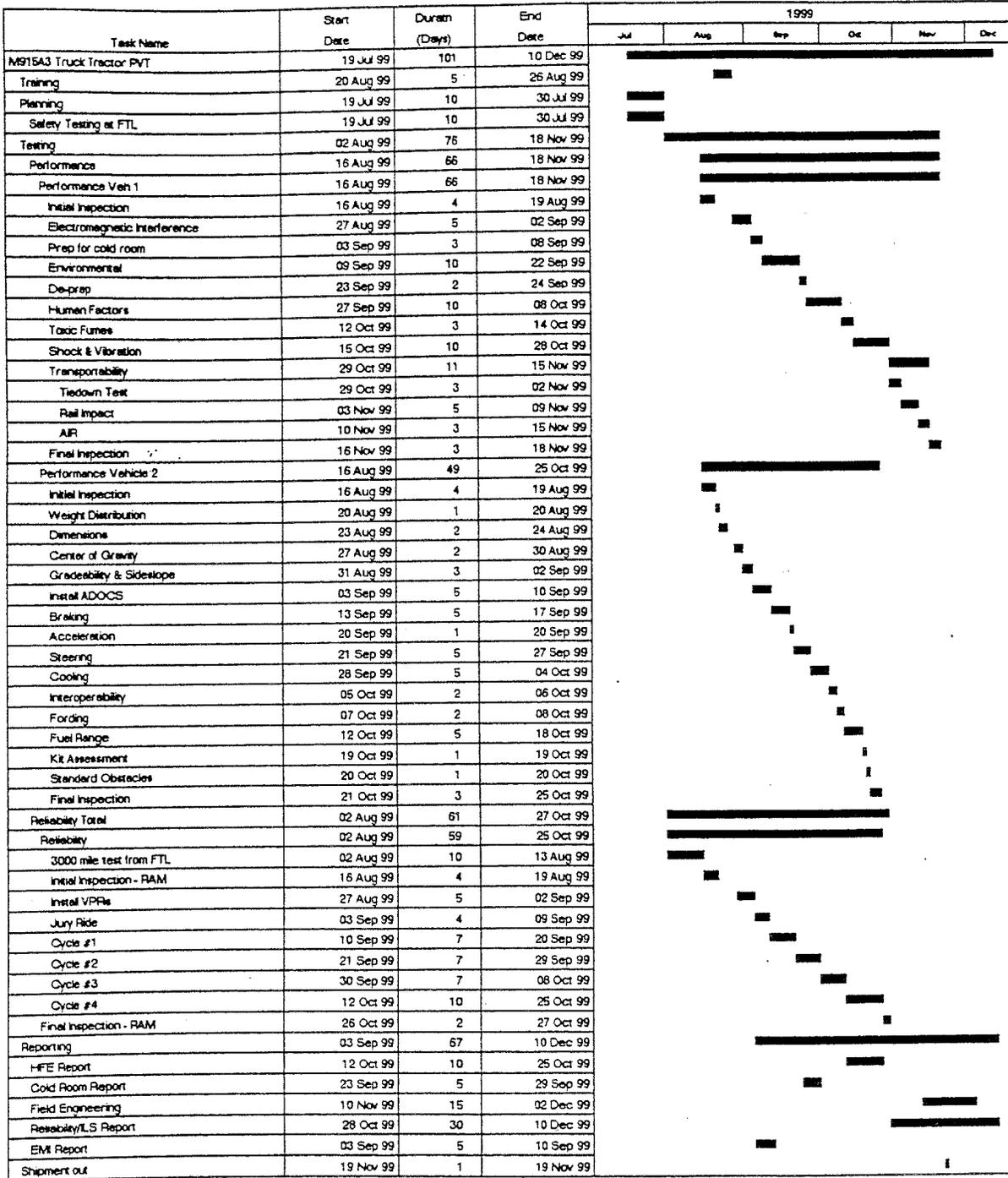
JULY 1999

Prepared for:
U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENTS
COMMAND WARREN, MI 48397-5000

U.S. ARMY DEVELOPMENTAL TEST COMMAND ABERDEEN PROVING
GROUND, MD 21005-5055

APPENDIX B. TEST SCHEDULE

M915A3 Truck Tractor
Production Verification Test



As of June 1999.

B-1

(Page B-2 Blank)

Figure I-3

ABBREVIATED TEST PLAN

FRONT COVER

The outside front cover and the reverse of the front cover are prepared as outlined in Appendix L, Administrative Specifications.

The front cover for the Abbreviated Test Plan does not differ from the cover of the Detailed Test Plan, except the word "Abbreviated" replaces "Detailed." A sample front cover format reflecting the information required by Appendix L is contained at Figure I-2.

Figure I-4

TEXT OF ABBREVIATED TEST PLAN

SECTION 1. INTRODUCTION.

1.1 TEST OBJECTIVE

The objective of the test is a statement of the overall purpose of the testing actions. It should be a restatement of the objective from the test directive or, for customer tests, from the test request. It is a general answer to the question "Why is the test effort being performed?"

1.2 TESTING AUTHORITY

The testing authority will identify and reference the:

- a. Test directive, specifying the test center(s) involved and stating the type of test (e.g., TFT, PQT), and
- b. Test request, specifying the PM sponsoring this testing.

1.3 TEST CONCEPT

Present a short overview of the concept of test (location(s), duration, timeframe, type(s) of subtests, numbers of test items, etc.). The information should be in sufficient detail to allow the reader to clearly understand the extent of testing. Address any special test considerations required such as known limitations.

1.4 SYSTEM DESCRIPTION

Describe the test item in terms of function, technical parameters, physical characteristics, mission, and threat. If the test item consists of several major components, identify these and describe them separately. If test items differ from the previously tested items, describe the differences in the test items.

If literature on the test item exists, include appropriate extracts of the description and cite the reference. Ensure that the manufacturer's performance claims are not included as facts in the description. Listing physical characteristics rather than performance information is advisable.

This description must permit full understanding of the item. Include a line drawing or photograph, if available.

1.5 UNIQUE TEST PERSONNEL REQUIREMENTS.

Describe the use of SOMTE personnel in terms of critical operator and maintainer tasks (see TECR 70-5).

Describe whether or not personnel qualified to test by duty assignment will be used (see TECR 70-25).

SECTION 2. SUBTESTS.

There are two options available. The test manager may specify the option in the test directive:

1. List the names of individual subtests to be conducted and summarize objectives, criteria, test procedures, data required, and data analysis/ procedures required in paragraph style. If lengthy information is needed for understanding, include as an appendix.

OR

2. List the names of the individual subtests, extract appropriate test criteria verbatim and identify the source in parenthesis at the end of the statement, and identify the test method. State, "The subtests are shown in the following table." Provide this information in a table with the following information, as a minimum:

Subtest	Test Criteria	Test Method
---------	------------------	----------------

SECTION 3. APPENDICES.

A. TEST CRITERIA

Extract appropriate test criteria verbatim from the IAP, requirements document, contract specification and standards, or other sources. This format will subsequently be used in the test report format with a "Remarks" column. Omit if the tabular format identified in Section 2. Subtests (option 2, above) is used. List as reflected below:

Item	Applicable Source	Test Criteria	Subtest
------	----------------------	------------------	---------

When a portion of a listed criteria is not to be examined, underline the non-applicable portion. Add the following statement at the bottom of each page on which underlining is used: NOTE: Underlined portion of criteria will not be addressed.

B. TEST SCHEDULE

Provide realistic schedules of the test effort to ensure efficient programming and utilization of resources. Front load tests which provide input for the safety release.

Every effort should be made to minimize the time required to accomplish the task. Prepare an incremental test schedule presenting an estimate of net testing time in a format similar to the ones shown in the detailed test plan format at Figure I-3.

C. INFORMAL COORDINATION

Informal coordination is that coordination effected with a PM or MSC. Include a list of all agencies with which the draft test plan was informally coordinated. Indicate coordination comments not incorporated into the plan. List the agency providing the comment, the comment and the reason for not accommodating the comment. Major disagreements or anomalies, in the judgement of the test plan preparer, will immediately be brought to the attention of the DTC test manager.

D. REFERENCES

This appendix should list all documents mentioned in the plan, in the order in which they were mentioned.

E. ABBREVIATIONS (OPTIONAL)

All acronyms, brevity codes, short titles, and abbreviations used in the plan are listed alphabetically with an explanation of their meaning. Do not list commonly used terms.

F. DISTRIBUTION LIST

The distribution list will list all agencies receiving the plan in accordance with the HQ DTC test directive and internal test center requirements. (See Appendix L for additional details.)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY U. S. ARMY
ABERDEEN TEST CENTER
400 COLLERAN ROAD
ABERDEEN PROVING GROUND, MARYLAND 21005-6059

CSTE-DTC-AT-WC-S (70-10r)

16 MAR 2001

MEMORANDUM FOR Commander, U.S. Army Developmental Test Command, ATTN:
CSTE-DTC-TT-S (Jerry Cook)

SUBJECT: Final Report for the Developmental Test of the Prophet Ground Block One, DTC Project 6-ES-945-GBC-030, ATC Report Number ATC-8348

1. Subject report is forwarded for comment and approval. Approval should reach this office no later than 28 March 2001.
2. POC at this activity is Diane Alvarez, DSN 298-3021.

FOR THE COMMANDER:

Encl
as



JOHN B. RUHL
Director, Warfighter Core

Figure 1-5

1-15



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY DEVELOPMENTAL TEST COMMAND
314 LONGS CORNER ROAD
ABERDEEN PROVING GROUND MD 21005-5055



^4 APR 200)

CSTE-DTC-TT-S (70-10p)

MEMORANDUM FOR Soldier Systems Team (CSTE-DTC-AT-WC-S), Warfighter Core,
U.S. Army Aberdeen Test Center, 400 Collieran Road, Aberdeen Proving Ground, MD 21005-
5059

SUBJECT: Approval of the Final Report for the Developmental Test of the Prophet Ground Block One,
DTC Project 6-ES-945-GBC-030, ATC Report Number ATC-8348

1. Reference memorandum, ATC, CSTE-DTC-AT-WC-S, 16 Mar 01, subject: Final Report for the Developmental Test of the Prophet Ground Block One, DTC Project 6-ES-945-GBC-030, ATC Report Number ATC-8348.
2. The author did a very thorough and excellent job in preparing the report. No recommendations for improvement are required.
3. The DTC approval memorandum (End 1) will be reproduced, and a copy attached to the inside cover of each report distributed/retained by ATC. Distribution listing is provided in End 2.
4. Point of contact at this headquarters is Mr. Jerry Cook, CSTS-DTC-TT-S, cookj@dtc.army.mil, DSN 298-1458/FAX DSN 298-9173.

FOR THE COMMANDER:

2 Encls


RICHARD K. SPARKS
Chief, Soldier, C3 and IEW Division
Directorate for Test and Technology

Figure 1-6

1-16



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY DEVELOPMENTAL TEST COMMAND
314 LONGS CORNER ROAD
ABERDEEN PROVING GROUND MD 21005-5055



CSTE-DTC-TT-S (70-10p)

_ 4 APR 2001

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Approval of the Final Report for the Developmental Test of the Prophet Ground Block One, DTC Project 6-ES-945-GBC-030, ATC Report Number ATC-8348

1. Subject document has been approved by this headquarters and is provided for your information.
2. Point of contact at this headquarters is Mr. Jerry Cook, CSTS-DTC-TT-S, cookj@dtc.army.mil, DSN 298-1458/FAX DSN 298-9173 or Comm 410 278-1458.

FOR THE COMMANDER:

RICHARD K. SPARKS
Chief, Soldier, C3 and IEW Division
Directorate for Test and Technology

End

CF:

(Addressees specified in distribution listing)

Figure 1-7

TEST PLAN/REPORT ROUTING SHEET

TITLE: _____
 TECOM PROJ NO: _____ REPORT NO. _____
 WORK ORDER NO.: _____ ACTUAL TRMS EVENT 550: _____
 RESPONSIBLE DIR/DIV: _____ SCHEDULED TRMS CRITICAL EVENT 5: _____

TEST GROUP: WHEN REPORT IS NEEDED: _____

DOCUMENT TYPE: TEST PLAN METHODOLOGY INVESTIGATION
 FORMAL REPORT R&D TEST/FIRING RECORD
 INTERIM REPORT ACCEPTANCE FIRING RECORD
 ABBREVIATED REPORT OTHER

NOTE: ALL INTER-OFFICE ROUTING NOT SHOWN BELOW APPEARS ON THE REVERSE SIDE (TOP HALF).

AUTHOR'S NAME/EXT: _____ INITIAL WRITING COMPLETED ON: 4/Apr/2001
 CURRENT DISTRIBUTION CHECKED WITH TECOM ON: 4/Apr/2001

	DATE		REMARKS:
	IN	OUT	
Branch/Div Ch: (technical review)			
Tech Reports: (final edit/type)			
Test Director: (check)			
Branch/Div Ch: (verification)			
* Director: (director approval)			

INTERNAL ATC COORDINATION ACCOMPLISHED HERE (SEE REVERSE SIDE, BOTTOM HALF)

ATC Safety Office: (review)			
IDD (meth reports only)			
Technical Director (ATC approval)			
Tech Reports: (corrections publish & dist)			

* Methodology and instrumentation projects, and Group 2 test reports will be approved by the appropriate commodity director and distributed without internal coordination shown on the reverse side and additional review/approval shown below.



REPLY TO
ATTENTION

DEPARTMENT OF THE ARMY
U. S. ARMY ABERDEEN TEST CENTER
400 COLLERAN ROAD
ABERDEEN PROVING GROUND, MARYLAND 21005-5059

TSTEAC

STEAC-AC-V (70-10r)

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Detailed Test Plan for the M915A3 Truck Tractor Production Verification Test (PVT), TEOCM Project No. 1-VS-140-915-030

1. Subject Detailed Test Plan is forwarded for review and approval.
2. Provide comments either in writing or by e-mail (dstawbr@atc.army.mil) by 23 Jul 99. If comments are not received, concurrence of the Detailed Test Plan will be assumed.
3. The U.S. Army Aberdeen Test Center point of contact is Mr. David Strawbridge, DSN 298-5612.

FOR THE COMMANDER:

JOHN P. SOBCZYK
Director, Automotive Core

End
as

DISTRIBUTION:

Commander, U.S. Army Test and Evaluation Command, ATTN: AMSTE-TM-S,
Aberdeen Proving Ground, MD 21005-5055
Commander, U.S. Army Tank-automotive and Armaments Command,
ATTN: AMSTA-DSA-JIA-CS, AMSTA-TR-E/HTV, AMSTA-DSA, Warren, MI 48397-5000
Commander, U.S. Army Operational Evaluation Command, ATTN: CSTE-OEC-CSE-O,
EAC-ILS, Alexandria, VA 22302-1458
Commander, U.S. Army Combined Arms Support Command, ATTN: DCD TRAN,
Fort Lee, VA 23801-6000
Director, U.S. Army Evaluation Analysis Center, ATTN: EAC-AV-CS,
Aberdeen Proving Ground, MD 21005-3013
Director, Military Management Traffic Command, ATTN: MTTE-DPE,
Newport News, VA 23606-2574
Freightliner Corporation, Portland, OR 97208-3849

Figure 1-9



DEPARTMENT OF THE ARMY

U. S. ARMY ABERDEEN TEST CENTER
400 COLLIERAN ROAD
ABERDEEN PROVING GROUND, MARYLAND 21005-5059

REPLY TO
ATTENTION OF

CSTE-DTC-AT-FC-M (70)

8 May 2001

MEMORANDUM FOR U.S. Army Armament Research, Development and Engineering Center (AMSTA-AR-CCL-FS/Mr. Traub), Picatinny Arsenal, NJ 07806-5000

SUBJECT: Abbreviated Test Report for the first Article Test of the Modular Weapon System for the M16A2 Rifle and M4 Carbine

- 1. The subject report is forwarded for your retention.**
- 2. The point of contact for this office is Mr. Marvin M. Maule, DSN 298-3720.**

FOR THE COMMANDER:

**Encl
as**

A handwritten signature in black ink, appearing to read "C. Martin". Below the signature is a small capital letter "C".

**CECILE E. MARTIN
Acting Director, FIREPOWER**

1-20

APPENDIX J

TEST REPORT AND ASSOCIATED CORRESPONDENCE FORMATS

J-1. TEST REPORT FORMATS

a. The format for the formal test report is reflected at Figure J-1. Also provided are two additional figures which are contained within the Test Report format: Figure J-2 (Sample Test Report Front Cover) and Figure J-3 (Format for Preliminary Determination of Deficiencies, Shortcomings, and Suggested Improvements).

b. The format for the abbreviated test report is reflected at Figure J-4.

c. The test record format is reflected at Figure J-5.

J-2. TEST REPORT APPROVAL

a. A sample of the memorandum transmitting the test report from the test center to DTC for approval is reflected at Figure J-6.

b. A sample of the memorandum prepared by the test manager transmitting the approval of the test report to the test center is reflected at Figure J-7.

c. A sample of the memorandum prepared by the test manager to the PM approving and distributing the test report is reflected at Figure J-8.

d. The format for an ATC Lab Report is reflected at Figure J-9.

NOTE: This is an updated extract of TECOM Pam 73-1.

FORMAL TEST REPORT

FRONT COVER

The outside front cover and the reverse of the front cover are prepared as outlined in Appendix L, Administrative Specifications.

A sample outside front cover format reflecting the information required by Appendix L is contained at Figure J-2.

REPORT DOCUMENTATION PAGE, SF 298.

This form will be filled out in accordance with the instructions contained in Appendix L.

CHARACTERISTIC PHOTO.

This photograph will be included in accordance with the instructions contained in Appendix L.

TABLE OF CONTENTS

This table lists each major section and subtest heading of the test report. Administrative requirements are reflected in Appendix L.

FOREWORD

The primary purpose of the foreword is to acknowledge people, activities and organizations that have contributed to the test program or test report. The contribution of other government and contractor personnel may be recognized. If more than one DTC test center was involved, the test center(s) and test director(s) should be identified. The contributions of each activity/organization should be delineated.

Figure J-1

TEXT OF FORMAL TEST REPORT

SECTION 1. EXECUTIVE DIGEST

1.1 SUMMARY.

Present in condensed form, the significant findings that will give the reader an understanding of the outcome of testing without reading the entire report. Include any technical judgements that should be highlighted to the executive reader.

NOTE: The contents of the remainder of this section can be totally lifted from the test plan or customer's test request and updated, if appropriate.

1.2 TEST OBJECTIVE

The objective of the test is a statement of the overall purpose of the testing and should be a restatement of the objective from the test plan, updated as necessary.

1.3 TESTING AUTHORITY

The testing authority will identify and reference the:

- a. Test directive, specifying the test center(s) involved and stating the type of test (e.g., TFT, PQT), and
- b. Test request, specifying the PM sponsoring this testing.

1.4 TEST CONCEPT

Present a short overview of the concept of test (location(s), duration, timeframe, numbers of test items, etc.). Any significant deviations from the test concept presented in the test plan should be described.

1.5 SYSTEM DESCRIPTION

This is a restatement from the test plan, updated as necessary.

NOTE: For Group 2 (Customer Tests) only, conclusions and recommendations may, at the option of the test director, be included in the text of the report, inserted following the summary (paragraph 1.1), with the remaining paragraphs renumbered accordingly. For all other groups of tests, conclusions and recommendations are reflected in the transmittal memorandum, which is described in Figure J-7.

1.6 CONCLUSIONS

Conclusions are summary determinations of the capability of the tested system as substantiated by the test results/findings in relation to the test objectives.

1.7 RECOMMENDATIONS

Recommendations tell the reader, from an engineering test perspective, what should be done to prevent the same test incidents from occurring on future tests or in field use. Depending on the circumstances of the test, recommendations may be very specific or very general statements or only recommend that further tests are needed. Recommendations will be objective and will not repeat conclusions, however, the basis of the recommendation must be supported by a conclusion.

SECTION 2. SUBTESTS.

Include the appropriate paragraphs generally following the format and contents of Section 2 of the test plan. The normal subtest format and the information to be presented are specified below. After the name of each subtest, provide objectives, criteria, test procedures, test findings, and technical analysis for that subtest before going to the next subtest.

For subtests to be satisfied by contractor/developer testing which are described in a published contractor/developer test plan, for which the test manager has assigned certain responsibilities to the test center (e.g., data analysis, data reduction, or on-site monitoring), ensure that complete information on the subtests results are provided.

Reflect results of RAM Scoring Conferences, whenever possible, and identify tests performed by SOMTE personnel (including test-related comments and observations of individual SOMTE personnel).

2.1 (NAME OF FIRST SUBTEST)

Cover separately each individual subtest conducted.

2.1.1 OBJECTIVES

State the objective or reason for conducting the subtest in a brief statement. This paragraph should be identical to that of the test plan, updated if necessary.

2.1.2 CRITERIA

State the criteria addressed by this subtest. This paragraph is identical to that of the test plan, updated if necessary.

2.1.3 TEST PROCEDURE

Describe the procedure actually used in conducting the subtest. Explain deviations from the procedure described in the test plan together with any assumptions. Explain reasons for not conducting any subtests designated in the corresponding test plan.

2.1.4 TEST FINDINGS

This paragraph contains the factual data or results of the subtest and provides the reader with a complete and comprehensive view of the system's performance during the subtest. Where possible, results should be presented in tabular or graphic form. When large amounts of data have been generated, only data essential to the technical analysis need be presented, and it may be presented in a reduced (i.e., processed) form. Discuss the analytical procedures used in data reduction.

2.1.5 TECHNICAL ANALYSIS

The technical analysis addresses the "so what?" aspect of the subtest. Analysis related to each subtest criteria is presented. State whether each criterion was met, partially met, not met, or not tested, and provide the supporting explanation. In addition, provide a comprehensive overview of system performance relative to the overall subtest. Discuss any preliminary deficiencies, shortcomings, and suggested improvements.

2.2 (Name of Second Subtest), etc.

SECTION 3. APPENDICES

A. TEST CRITERIA

This appendix is obtained from the test plan. It uses the same format except a column indicating "Remarks" is added, which would indicate met, partially met, or not met.

This appendix is the one most heavily relied on by the assessors and decision makers. It provides an immediate check to ensure that all criteria listed in the test plan were addressed in the report and provides a quick reference for specific information to support an assessment of the criteria.

B. TEST DATA

This appendix contains test data too lengthy or too numerous to be included in Section 2 of the report. When lengthy, the detailed test results in the form of tables, charts, lists, illustrations, and photographs should be included here.

Raw data (such as pressure-time traces, dispersion data, materials analysis, oil analysis records) will not be included in this appendix in total; samples can be included. Do not include other complete and published test reports on specific phases of the test in the appendix. Since these reports are published and distributed independently, a reference will suffice. Significant data, observations, and analyses may be extracted from published reports and included in section 2 or in this appendix, and the reports referenced. However, this duplication will be kept to a minimum.

C. PRELIMINARY DETERMINATION OF DEFICIENCIES, SHORTCOMINGS, AND SUGGESTED IMPROVEMENTS

The classification of a test incident as a "deficiency" or "shortcoming" can be one of the most controversial portions of the test program. At the present time, there is no regulatory T&E guidance pertaining to the classification of deficiencies and shortcomings or any restrictions placed on type classification or progression of systems which have deficiencies. Nonetheless, the test director must apply strict technical judgement to making the preliminary classification of the deficiency, shortcoming, or suggested improvement. The final determination rests with the developmental assessor. MIL-STD 882 contains information on classifying risks into categories which should be used as a guideline for making this preliminary determination. TOP 1-1-012 describes criteria intended to provide consistent guidance for classification of appropriate test incidents and test results as deficiencies and shortcomings.

Another aspect of reporting deficiencies and shortcomings is showing the corrections that the PM has already accomplished. Part of this appendix provides for "corrected previous deficiencies and shortcomings."

The format for Appendix C is reflected at Figure J-3.

Other appendices (e.g., ILS Maintenance Evaluation; Instrumentation Description) may be included at the option of the author or if specified in the test directive. These appendices would be inserted after Appendix C.

The following appendices are required and close the test report:

REFERENCES

This appendix should list all references used in the report in the same order in which they appear.

ABBREVIATIONS

All acronyms, brevity codes, short titles, and abbreviations used in the report will be listed alphabetically with an explanation of their meaning. Do not list commonly used terms, such as in., ft., km, mm, etc.

DISTRIBUTION LIST

The distribution list will list all agencies receiving the report in accordance with requirements of the test directive, test plan or as amended by HQ DTC. (See Appendix L for additional details.)

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APPENDIX C.

PRELIMINARY DETERMINATION OF DEFICIENCIES, SHORTCOMINGS,
AND SUGGESTED IMPROVEMENTS

1. PRELIMINARY DEFICIENCY

<u>Deficiency</u>	<u>Suggested Corrective Action</u>	<u>Applicable Subparagraph</u>
1.1 Briefly describe the deficiency, identify the parts, if applicable.	Provide the suggested corrective action in as much detail as possible. If corrective action cannot be suggested by the test center, state "none."	Reference subtest paragraph(s) where .problem was noted.

2. PRELIMINARY SHORTCOMING

<u>Shortcoming</u>	<u>Suggested Corrective Action</u>	<u>Applicable Subparagraph</u>
2.1 Briefly describe the shortcoming, identify the parts, if applicable.	Provide the suggested corrective action in as much detail as possible. If corrective action cannot be suggested by the test center, state "none."	Reference subtest paragraph(s) where problem was noted.

3. CORRECTED DEFICIENCIES AND SHORTCOMINGS

<u>Corrected-Previous Test</u>	<u>Corrective Action</u>	<u>Remarks</u>
3.1 Briefly describe the deficiency or shortcoming, identify the parts, if applicable.	Give a statement of corrective action.	Give pertinent remarks relating to the testing of the corrective action.

4. SUGGESTED IMPROVEMENTS

<u>Suggestion</u>	<u>Applicable Subparaqrph</u>
4.1 State the recommended action.	Reference the subtest paragraph(s) where noted.

ABBREVIATED TEST REPORT

FRONT COVER

The outside front cover and the reverse of the front cover are prepared as outlined in Appendix L, Administrative Specifications.

The cover format for the abbreviated test report does not differ from the cover format for the formal test report. The sample is reflected at Figure J-2.

REPORT DOCUMENTATION PAGE, SF 298.

This form will be filled out in accordance with the instructions contained in Appendix L.

CHARACTERISTIC PHOTO.

This photograph will be included in accordance with the instructions contained in Appendix L.

FOREWORD

The primary purpose of the foreword is to acknowledge people, activities and organizations that have contributed to the test program and test report. The contribution of other government and contractor personnel may be recognized. If more than one DTC center was involved, the center(s) and test director should be identified. The contributions of each activity/organization should be delineated.

Figure J-4

TEXT OF ABBREVIATED TEST REPORT

SECTION 1. EXECUTIVE DIGEST

1.1 SUMMARY.

Present in condensed form, the significant findings that will give the executive reader a basic understanding of the outcome of testing without reading the entire report. As a goal, the summary should not exceed one page. Include any engineering judgements that should be highlighted to the executive reader.

Note: The contents of the remainder of this section can be totally lifted from the test plan or customer's test request and updated, if appropriate.

1.2 TEST OBJECTIVE

The objective of the test is a statement of the overall purpose of the testing and should be a restatement of the objective from the test plan, updated as necessary.

1.3 TESTING AUTHORITY. The testing authority will identify and reference the:

- a. Test directive, specifying the test center(s) involved and stating the type of test (e.g., Technical Feasibility Test, Preproduction Qualification Test), and
- b. Test request, specifying the PM sponsoring this testing.

1.4 SYSTEM DESCRIPTION

This is a restatement from the test plan, updated as necessary.

NOTE: For Group 2 (Customer Tests) only, conclusions and recommendations may, at the option of the test director, be included in the text of the report, inserted following the summary (paragraph 1.1), with the remaining paragraphs renumbered accordingly. For all other groups of tests, conclusions and recommendations are reflected in the transmittal memorandum, which is described in Figure J-6.

1.5 CONCLUSIONS

Conclusions are summary determinations of the capability of the tested system as substantiated by the test results/findings in relation to the test objectives.

1.6 RECOMMENDATIONS

Recommendations tell the reader, from an engineering test perspective, what should be done to prevent the same test incidents from occurring on future tests or in field use. Depending on the circumstances of the test, recommendations may be very specific or very general statements or only recommend that further tests are needed. Recommendations will be objective and will not repeat conclusions, however, the basis of the recommendation must be preceded by a conclusion.

SECTION 2. DETERMINATION OF FINDINGS

There are three options available for this section. The test manager may specify one of the following in the test directive:

1. Include the appropriate paragraphs, generally following the format and contents of section 2 of a formal report. List the names of individual subtests to be conducted and summarize objectives, criteria, test procedures, test findings, and technical analysis in paragraph style.

OR

2. Include a narrative discussion, in paragraph format, related to the remarks as identified in the Appendix A criteria table. This discussion will elaborate further, as necessary, upon failure to meet criteria or those areas where a partially met remark was stated. The intent would be to briefly summarize the contents of test findings and technical analysis of the formal test report format.

OR

3. Use a test criteria table, which would be appropriate for small, noncontroversial or repetitive tests. Provide the information in a table with the following information, as a minimum:

<u>Subtest</u>	<u>Criteria</u>	<u>Test Method</u>	<u>Test Results</u>
----------------	-----------------	--------------------	---------------------

SECTION 3. APPENDICES

A. TEST CRITERIA

This appendix is obtained from the test plan. It uses the same format except that a column indicating "Remarks" is added, which would indicate met, partially met, or not met and the appropriate report paragraph number that supports that analysis. This may be omitted if the tabular format for findings identified in option 3, above, is used.

This appendix is the one most heavily relied on by the assessors and decision makers. It provides an immediate check to ensure that all criteria listed in the test plan were addressed in the report and provides a quick reference for specific information to support an assessment of the criteria.

Other appendices may be included at the option of the author or if specified in the test directive. These appendices would be inserted after Appendix A.

The following appendices are required to close the test report:

REFERENCES

This appendix should list necessary system documentation and revisions; such as the test directive, Test Plan, TEMP, requirements documents, etc. It should, also, list all references used in the report in the same order that they appear in the report.

DISTRIBUTION LIST

The distribution list will list all agencies receiving the report in accordance with requirements of the test directive, test plan or as amended by HQ DTC. (See Appendix L for additional details.)

U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MARYLAND 21005-5059
TEST RECORD

TECOM Project No:

Dates of Test:

Type Test and Title:

Authority:

If recording firing data, include:

Related Firing Records:

Test Record No.

TEST ITEM(S)

List all items being tested and describe briefly, including such information as model, part no., drawing no., lot no., serial no., modification(s), etc. For firing programs, identify whether they are ammunition or components, weapons, armor, etc.

SUPPORTING FACILITIES AND INSTRUMENTATION

List facilities and supporting equipment in the following sequence:

- a. Weapon(s):
- b. Ammunition:
- c. Firing Position:
- d. Facilities:
- e. Instrumentation:

DETAILS OF TEST

Begin this section with an introduction in sufficient detail to thoroughly describe the test objective and the procedures used in conducting the test.

For firing programs only:

ROUND-BY-ROUND DATA

When two or more pages are required, make the notation "Round-by-round data are at Enclosure ___." Include the date of each day's firing. Standard forms may be used. Special-forms may be prepared by the test director, when required.

SUMMARY OF RESULTS

Summarize test results and tabulate when possible. It might be desirable to make brief statements concerning the most important findings under this heading.

OBSERVATIONS/REMARKS/VISITORS

Include any comments pertaining to test results. Include the following statements as the last entry: "This is the final report on this task." If other reports will follow, include this statement: "This is not the final report on this task."

Show nontest center participants or witnesses who had a project-related need to be present during the tests.

FUTURE RELATED WORK

Use this section to indicate future tests will follow at a later date.

SUBMITTED BY:

(AUTHOR'S NAME)
Test Director

REVIEWED BY:

FOR THE COMMANDER:

(REVIEWER'S NAME)
Team Chief

(DIRECTOR'S NAME)
Director, _____

4 Encls

1. Correspondence and Message cited in firing record (include test directive only if requested by customer)
2. Illustrations
3. Round-by-round data
4. Distribution List (show internal distribution)

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J-17

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY DEVELOPMENTAL TEST COMMAND
314 LONGS CORNER ROAD
ABERDEEN PROVING GROUND MD 21005-5055



CSTE-DTC-TT-S (70-10p)

.3 APRIL 2001

MEMORANDUM FOR SEE DISTRIBUTION

Subject: Approval of the Final Report for the First Article Test (FAT) of the Family of Loudspeakers (FOL), DTC Project Number 6-ES-945-FOL-006, ATC Report Number ATC-8308

1. Subject document has been approved by this headquarters and is provided for your information.
2. Point of contact at this headquarters is Mr Jerry Cook CSTS-DTC^TT-S, cookj@dtc.army.mil, DSN 298-1458/FAX DSN 298-9173 or Comm 410 278-1458.

FOR THE COMMANDER:

Encl

1 fat
RICHARD K. SPARKS
Chief, Soldier, C3 and IEW Division
Directorate for Test and Technology

CF:

(Addressees specified in distribution listing)

Figure J-8

J-19

RAM/ILS EVALUATION TEAM
U.S. ARMY ABERDEEN TEST CENTER

DTC PROJECT NO. 1-VS-100-989-013

DATE: APRIL 2001

TEST REPORT NO.: 01-03

ENDURANCE, LOGISTICS SUPPORTABILITY, AND
SAFETY AND HUMAN FACTORS ENGINEERING
SUBTEST REPORTS
FOR THE PRODUCTION VERIFICATION TEST (PVT)
OF THE
M989A1 HEAVY EXPANDED MOBILITY AMMUNITION TRAILER
(HEMAT)



PREPARED BY: Ronald T. Cassidy

APPROVED BY:

NELLIE M. DUPREY
Chief, RAM/ILS Evaluation Team

U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MD 21005-5059

Figure J-9

TEXT OF LAB REPORT

SECTION 1. INTRODUCTION

1.1 TEST OBJECTIVE. The objective of the test is a statement of the overall purpose of the testing and could be a restatement of the objective from the test plan, updated as necessary.

1.2 TESTING AUTHORITY. The testing authority will identify and reference the test directive, test request, or memo from the test director.

1.3 SYSTEM DESCRIPTION

This is a restatement from the test plan, updated as necessary.

SECTION 2.DETERMINATION OF FINDINGS

There are two options available for this section. The test director must specify one of the following in the test directive:

1. Include the appropriate paragraphs, generally following the format and contents of Section 2 of a formal report. List the names of individual subtests to be conducted and summarize objectives, criteria, test procedures, test findings, and technical analysis in paragraph style.

OR

2. Include a narrative discussion, in paragraph format, with each paragraph related to a particular subtest. The intent would be to address the test criteria, procedures, results and analysis as appropriate for each subtest in a thorough, yet concise manner.

SECTION 3. APPENDIXES

The main appendix included in a lab report is Test Data. To ensure consistency with the report that this data will be placed in, label that appendix as Appendix B. Test Data and note that Appendix A (Test Criteria) is not applicable.

TEST DATA

This appendix contains test data too lengthy or numerous to be included in the body of the report. When lengthy, the detailed test results in the form of tables, charts, lists, illustrations, and photographs should be included here. A Table of Contents should be provided for voluminous information.

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Raw data (such as pressure-time traces, dispersion data, materials analysis, oil analysis records) will not be included in this appendix in total; samples can be included.

Other appendices may be included at the option of the author or if specified in the test directive. These appendices would be inserted after Appendix B.

REFERENCES

This appendix should list necessary system documentation and revisions; such as the test directive, Test Plan, TEMP, requirements documents, etc. It should, also, list all references used in the report in the same order that they appear in the report.

APPENDIX L

ADMINISTRATIVE SPECIFICATIONS FOR TEST AND EVALUATION DOCUMENTATION

L-1. GENERAL. Maximum use of word-processing capabilities is encouraged as long as the highest quality technical reporting standards are maintained. MIL-STD 847 and American National Standard Institute (ANSI) Z39.18 set the standards for technical reporting. However, dual column presentation of text, formulas, and equations and the placement of illustrations, figures, and tables is at the discretion of the author.

L-2. ELEMENTS OF REPORTS.

- a. Front Matter: Cover with reverse side requirements
Report Documentation Page (SF 298)
Executive Summary (IARs only)
Table of Contents (List of Figures/Tables, if required)
- b. Body of Report: Main Text
- c. End Matter: References/Bibliography
List of abbreviations, acronyms (if required)
Appendices
Back Cover

L-3. DECORATIVE FEATURES. The ATC seal is authorized as a decorative feature.

L-4. CHARACTERISTIC PHOTO.

a. Include at least one photograph of the test item in all test reports. This photograph will show an overall view and, preferably, a notation of the characteristics of the test item. It should also show a scale denoting size; if a large item, show an individual standing next to the item. For clothing and individual equipment, the item should be worn by an individual. Refer to this photograph as a frontispiece. Other photographs may be included in the report.

b. If test items are being depicted and two or more manufacturers' products or names are identified in a report, obscure the manufacturers' or trade names in the photographs.

NOTE: This is an updated extract of TECOM Pam 73-1

L-5. METRIC UNITS OF MEASURE. Technical reports, studies, and position papers (except those pertaining to items dimensioned in U.S. customary units) will include metric units in addition to (in parentheses) or instead of U.S. customary units. AR 700-1 contains Army policy on the conversion to the metric system. In applying this requirement to DTC plans and reports, follow the methods and guidelines in the American Society for Testing and Materials (ASTM) E380-74. Unless sponsor states otherwise, U.S. units may be used alone.

- a. *Data sheets which would require cumbersome conversions to metric should not be converted.*
- b. *Each conversion should be rounded to be consistent with the degree of fineness in the original units (e.g., 2 ft equals 0.61 m, not 0.6096 m).*
- c. *When tables contain both metric and English units, show them as follows:*

	Length		Width		Height	
	cm	in.	cm	in.	cm	in.
Shelter						
S-280	373	147	220	87	218	86

L-6. CLASSIFICATION MARKINGS. Apply classification markings in accordance with chapter IV, AR 380-5, as supplemented.

If a referenced document is classified confidential or higher, its classification is stated in parentheses following the data. The classification of the title of classified documents is also noted in parentheses following the title. If the document is unclassified, no mention of classification is made. If the document is classified, the classification ("CONFIDENTIAL" or "SECRET") will follow after data.

L-7. ABBREVIATIONS, ACRONYMS, AND SYMBOLS. Symbols, abbreviations, and acronyms shall be explained if there is a chance that readers will not understand them. Standard mathematical notation, chemical symbols, and known abbreviations of measurement need not be defined unless a potential exists for misinterpretation. An acronym is written out the first time it is used in the text and is also included in a list of symbols and abbreviations. List all symbols, abbreviations, and acronyms in the Abbreviations appendix, if required.

a. *The rules and list that follow are a guide to present usage of abbreviations and acronyms. An attempt has been made to minimize the number of exceptions to each rule consistent with acceptable practice and ease of comprehension. In applying the rules below, the technical writer must exercise judgment and discretion, taking into account such factors as the frequency with which the word is being used, the particular location and usage of the word in the report, and the familiarity of prospective readers with the abbreviated form. An abbreviation or acronym will never be used if there is a possibility it will be misunderstood or if it begins a sentence. Avoid creating new abbreviations or acronyms for an individual report.*

b. *Abbreviations that are suitable for tables, data sheets, charts, references, and sketches are often quite unsuitable for the text of a report. For example, abbreviations such as avg, comb., frag, est,*

ht, max, min, orig, vert, and vs will never be used in the text; others such as FH, CP, EVD, and MV, may be used, but only if properly explained and used with great frequency.

c. When an abbreviation or acronym is commonly used, it is often preferred, even in the text, to the unabbreviated form. Examples are:

Latin phrases: e.g., p.m., etc., i.e.

Certain units of measure: °C, ft/s, lb/in.²

Certain military terms: HVAP, APC-T, HEAT, AP

d. Abbreviations and acronyms that will not be readily recognized by potential readers should be placed in parentheses following the spelled out form the first time it occurs in the text. (For example, write National Aeronautics and Space Administration (NASA) the first time it is mentioned; thereafter, write NASA.) In tables and figures, such explanatory matter should be supplied in a legend unless covered by the text. In plans/reports all abbreviations that will not readily be recognized by potential readers will be listed in the Abbreviation Appendix.

e. Abbreviations that can be misinterpreted will be avoided or made clear; e.g., spell out gram and grain.

f. The singular abbreviation is used for measurements whether the word is singular or plural.

<u>Obsolete</u>	<u>Acceptable</u>
<i>ins.</i>	<i>in. (inches)</i>
<i>yds.</i>	<i>yd (yards)</i>
<i>ft-lbs.</i>	<i>ft-lb (foot-pound)</i>
<i>rds.</i>	<i>rd (rounds)</i>

g. Units of measure are abbreviated in the text only if preceded by a numeral.

<u>Incorrect</u>	<u>Correct</u>
<i>a few m/s</i>	<i>16 m/s</i>
<i>several in. long</i>	<i>3-1/4 in.</i>
<i>Many hp</i>	<i>45 hp</i>

h. No periods will be placed after technical abbreviations unless the resulting abbreviation spells an English word, such as in., No., and auto. Periods are placed after nontechnical abbreviations.

<u>Technical</u>	<u>Nontechnical</u>
<i>KPa</i>	<i>Dr.</i>
<i>km/hr</i>	<i>p.m.</i>
<i>ft/s</i>	<i>i.e.</i>

i. Abbreviations will be written with lower-case characters (small letters). Exceptions include proper nouns, such as °F, Btu, and °C. Acronyms such as HVAP, GP, SMG, DTC, OD, and CG are capitalized without periods. Acronyms for the names of major organizations, such as AMCOM are preferred to the cumbersome spelled out name except when it first appears in the text.

j. Abbreviations are preferred to conventional signs: lb, not #; and in., not ". However, ° is acceptable for degrees, % for percent, and ' and" for minute and second (when referring to angles only). "To" is preferred instead of "-". Nearly all conventional signs may be used in tables, charts, and data sheets to conserve space. Regardless of the form used, the same form must be used throughout the text.

k. Abbreviations will not be used in the abstract of a report. If an abbreviation is used in one table, it should be used in all. If an abbreviation is used in text, it should be used throughout the report except as the first word of a sentence. A sentence in the text or a title should not begin with an abbreviation or with a number followed by an abbreviation..

<u>Incorrect</u>	<u>Correct</u>
<i>No. 3 round was...</i>	<i>Number 3 round was...</i>
<i>25 rds were...</i>	<i>Twenty-five rounds were...</i>
<i>Fig. 2.3-7. Tube Erosion.</i>	<i>Figure 2.3-7. Tube erosion.</i>

l. However, acronyms may be used to begin a sentence. Thus: TACOM provided the criteria ...

m. In addition to the DTC identified abbreviations in the glossary, additional ATC commonly used abbreviations is at Section III of the Glossary.

L-8. REFERENCES. When documents are mentioned in the body of plans or reports, list the referenced documents in the References. List references in the same sequence as they appear in the body of the report. Include the identification numbers, if applicable, titles, and dates, e.g., TECR 70-25, Use of Volunteers as Subjects of Research, 21 Aug 90; TOP 1-1-060, System Safety Engineering, 7 Apr 86; Final Report, PQT of XYZ System, 1 Dec 89, U.S. Army Aberdeen Test Center.

L-9. USE OF TRADE NAMES AND CODE SHEETS. In accordance with AR 70-31, reports will not advertise products or contain material which implies that the Government endorses or favors products of commercial organizations. Therefore, reports should not contain any identification of commercial sources, but should identify products by either generic names, standard Army nomenclature, or specifications. If it is absolutely necessary to identify commercial sources in a test report, test centers will state the reason in the cover letter which forwards the report to DTC. When it is essential that trade names or manufacturers' names be used, the following requirements apply:

a. When one manufacturer's product is identified:

(1) Add the following statement to the disclaimer on the reverse of the front cover: "The use of trade names in this report does not constitute an official endorsement or approval of the use of such commercial hardware or software. This report may not be cited for purposes of advertisement."

(2) When special handling is required, such as for sensitive information for source selection, mark the test reports "FOR OFFICIAL USE ONLY" and ensure the appropriate distribution instructions are on the cover.

b. When two or more manufacturers' products or names are identified (e.g., comparative test of products of two or more manufacturers), the following procedures apply:

(1) Code the identifying names and provide a separate code sheet with each copy except as noted herein. Mark the code sheets "FOR OFFICIAL USE ONLY." Do not assign code sheets a classification higher than that of the parent report. Do not distribute code sheets outside the U.S. Government or to the Defense Technical Information Center (DTIC). The code sheet will always be the last page of the report.

(2) Prominently mark code sheets as follows: "This code sheet will not be distributed outside the U.S. Government."

(3) Annotate the front cover of each report containing a code sheet as follows: "Manufacturers' code sheet contained within this report will be removed before this report is distributed outside the U.S. Government."

(4) Add the following statement on the reverse of the front cover: "The use of trade names in this report does not constitute an official endorsement or approval of the use of such commercial hardware or software. This report may not be cited for purposes of advertisement."

(5) In photographs, obscure the manufacturers' names or the trade names of items being tested.

L-10. SIGNATURE AUTHORITY.

a. No signatures will appear in plans or reports.

b. The transmittal memorandum forwarding test plans and test reports to DTC are signed at the test center by or for the commander. These transmittal memorandums are not to be distributed to anyone except HQ DTC and other participating DTC test centers. In addition to the obvious function of these memos, they may also:

(1) For test plans - comment on informal coordination or other matters and/or identify resource shortfalls. A sample transmittal memorandum for test plans is at Figure I-5.

(2) For test reports - provide test center conclusions and recommendations or other remarks and/or observations not suitable for inclusion in the test report. A sample transmittal memo for test reports is at Figure J-6.

L-11. FRONT COVER. Include the following information, as appropriate, on the front cover of plans and reports:

a. ATC seal (1 1/2-inch size) in the upper right corner.

b. Report numbers, as appropriate, centered between the seals as follows:

AD No. _____ (for reports only)
DTC Project No.
RDTE No. (if known)

NOTE: It is suggested that AD numbers be obtained before publication, if possible, to facilitate retrieval at DTIC when additional copies are needed. If the number is not available at the time of publication, enter the designation and leave enough room for the numbers.

c. Title of the document

(1) For test plans/reports, center the type of document (e.g., Detailed Test Plan), followed by "FOR THE;" then reflect the type of test, followed by "OF THE;" then reflect the name of the system.

(2) For assessment plans/reports, center the type of document (e.g., Independent Assessment Plan), followed by "OF THE," followed by the name of the system, and the milestone decision supported.

d. Name of the principal author(s) in conventional order (for example, James R. Davis, or if the author prefers J. Robert Davis).

e. Name and location of the test agency or U. S. Army Developmental Test Command (if prepared by the HQ).

f. Month and year of publication.

g. Period covered, expressed in month and year (for test reports only).

h. PM's name and address in the lower left corner (for test plans and reports). Place the words "Prepared for" immediately above the name.

i. Monitoring agency's name and address (i.e., U.S. Army Developmental Test Command, Aberdeen Proving Ground, MD 21005-5055) under the PM's name and address.

j. There are two primary distribution statements required on DTC technical reports.

(1) A statement is reflected so that DTIC is cognizant of the parameters for secondary distribution (AR 70-11 and DOD Directive 5230.24). This statement is only reflected on reports provided to DTIC (e.g., formal, abbreviated, expanded).

(a) The most common distribution statement is as follows:

Distribution authorized to U.S. Government agencies only; test and evaluation (month/year). Other requests for this document shall be referred to (insert name and address of DOD controlling office).

NOTE: The DOD controlling office will generally be the PM unless the document is an SEP or a DTC test center report on operating methods, instrumentation, or special studies in support of testing in which case, the controlling office will be DTC.

(b) There are other distribution statements the PM may specify. For example, if the PM wants the information accessible by:

- Government agencies and their contractors
- DOD agencies and their contractors
- DOD components only.

The specific statements to be reflected for the above conditions are included in AR 70-11.

(2) All technical reports that are determined to contain export-controlled technical data (i.e., the significant military equipment identified by Title 22, U.S. Code) will be marked:

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Section 2751 et seq.) or Executive Order 12470. Violations of these export laws are subject to severe criminal penalties.

(a) This statement may be placed either on the front cover or on the reverse of the front cover, at the discretion of the test center. If placing on the reverse front cover, include a statement on the front cover: "Export control warning statement on reverse front cover."

(b) The significant military equipment identified by Title 22, U.S.C., Section 2751 and Executive Order 12470 is very comprehensive. Use of this statement would be standard.

k. Security classification markings and other security marking notices in accordance with AR 380-5

L-12. REVERSE OF FRONT COVER. Include the following information on the reverse of the front cover:

a. Disposition Instructions (AR 70-31). All plans and reports must contain a statement of disposition instructions (AR 340-18). Occasionally, a report requiring special handling may contain special disposition instructions.

(1) Unclassified reports will contain the following statement: "Destroy this report when no longer needed. Do not return to the originator."

(2) Classified reports will contain the following statement: "Government recipients will destroy reports in accordance with AR 380-5 (DOD 5200.1-R). Army contractors will destroy reports in accordance with paragraph 19, DOD 5220.22-M (Industrial Security Manual for Safeguarding Classified Information)."

b. Trade Names Statement (for reports only). Include the disclaimer statement in accordance with paragraph 7, above.

L-13. TABLE OF CONTENTS. The table of contents will consist of sections (if applicable), paragraph headings in capital letters and page numbers. A list of tables and figures may be included immediately following the table of contents.

L-14. SF 298 (REPORT DOCUMENTATION PAGE). DTIC provides a central service for the interchange of scientific and technical information. Copies of nearly all reports are provided to DTIC. A notable exception to the distribution requirement is the dissemination of special access program data. The SF 298 is the mechanism which provides DTIC the essential information relating to reports. The data input on the form is reflected in the widely-distributed DTIC announcement bulletin and is what others will use when retrieving information from DTIC's bibliographic data base. Therefore, it should be unclassified, if possible. If a classification is required, identify the classified items on the page by the appropriate symbol.

a. A completed SF 298 is to be included in each report; completion instructions are on the reverse of the form.

b. Information reflected in the abstract is a brief, unclassified, factual summary of the most significant information contained in the report. Results of testing are not to be included in the abstract. Rather, reflect a short statement providing significant background information and the purpose of the test; test location, dates, and duration; test methods; and scope of the test.

L-15. PAGE NUMBERING. Number all front matter pages with Roman numerals. The body of the plan/report should be numbered consecutively at the bottom center in Arabic numerals. Separate volumes may be numbered independently. In special cases, when the plan/report is complex or voluminous, it may be numbered by section, chapter, subtest, etc. For example, a 20 page subtest 2.4 would be numbered 2.4-1 through 2.4-20. This allows easier assembly of reports drafted by multiple writers.

L-16. FIGURES.

a. General.

(1) Figures include photographs, drawings, graphs, and diagrams.

(2) Figures should be consistent throughout each report. Details and labels will be clearly legible after final reduction. When practical, crop or mask photographs to eliminate insignificant detail.

b. Placement. Place figures as close to the narrative they support as possible (following the first text reference) except in special situations, such as a report containing only a few pages of text and many figures. If possible, place figures so they may be viewed without turning the page; if not possible, place the figure so it can be seen by rotating the page clockwise.

c. Foldouts. Avoid oversized figures that must be folded. A large figure can usually be divided to appear on facing pages. When foldouts cannot be avoided, begin them on a right-hand page and number as one page.

d. Numbering. Number figures in the text consecutively using Arabic numerals, preceded by the word "Figure." Number figures in appendices alphanumerically within each appendix.

e. Titles. Each figure must include a descriptive title. Place the number and title beneath the figure.

L-17. TABLES.

a. General. Prepare tables as simply as possible so that readers can easily understand the data. Avoid vertical and horizontal lines wherever spacing can be used effectively. Use letters and numbers in tables that will be at least 8-point or 1/10-inch high in the final reproduced report. Letters and numbers on printout sheets from electronically tabulated data used for direct reproduction should be sharp and unbroken.

b. Placement. Place tables as near as possible after the first text reference except in special situations, such as a report containing only a few text pages and many tables. If possible, place tables so that they may be viewed without turning the page. If not possible, place the tables sideways so they can be seen by rotating the page clockwise.

c. Columns and Column Headings. Applicable units of measure will be included in the column headings; do not repeat in the columns. When tables continue on two or more pages, note the continuation and repeat the column headings and rules on each page.

d. Numbering. Number tables in the text consecutively (and independently of figures) with Arabic numbers (e.g., Table 1, Table 2). If an appendix contains its own tables in addition to the text tables, the appendix tables are numbered consecutively after the tables in the main text (e.g., Table A-1, Table A-2). If there is more than one appendix, table numbers begin again in each (e.g., Table B-1, Table B-2).

e. Title. Table number followed by a brief, descriptive title, will be placed above the table.

(1) Numerical data written out are difficult to grasp. A table simplifies data and eases comparisons. The following example illustrates the advantage of a table even for a small amount of data:

"Fifteen rounds of ammunition were assembled with the M100 fuze, and 17 rounds with the M200. During the firing, 8 of the former detonated high order, 4 low order, and the remainder failed to function; of the latter, 12 detonated high order, 5 low order, and none failed to function."

A table of the same data would appear as follows:

<u>Fuze</u>	<u>No. Rd</u> <u>Fired</u>	<u>Detonations</u>		<u>Failures</u>
		<u>High-Order</u>	<u>Low-Order</u>	
M100	15	8	4	3
M200	17	12	5	0

(2) Tables that directly supplement the discussion are usually included in the body of the report, while tables of supporting data, such as round-by-round and laboratory measurements, belong in appendices. Tables in the body of the report will be short and will contain only those columns pertinent to the text. Large amounts of data are often most effectively presented in several short tables. Each table should be inserted close to the text it supplements, preferably after the first reference to the data contained in it.

(3) The format described is appropriate for all tables. Whenever possible, tables are arranged to be read without rotating the page. If the table is too wide for the page, it should be placed so that it may be read if the report is turned clockwise. Tables that cannot be arranged conveniently on paper of standard size may be placed on a larger sheet for reduction to standard size, or for use as a fold-out when proportions do not permit reduction. Tables which require less than one full page should be separated from the text, above and below, by a blank space equivalent to two lines of single-spaced type.

(4) Each table, except as noted below, will have a number and a short descriptive title. The number and title are placed on the same line and centered above the table. If two or more lines are required for the title, they are placed in the form of an inverted pyramid. For detailed and abbreviated test plans and final and abbreviated reports, the number is comprised of the first two numbers of the paragraph in which it appears followed by an Arabic number. For test and firing records, the tables are numbered in consecutive order with Arabic numerals. If a test/firing record contains only one table, it shall not be numbered. The title is in capital letters. If a table is continued on a second page, the title is replaced by "(CONT'D)" on the second page.

(5) Every column and every row of the table will have a clear, concise, descriptive heading. To save space, the words in headings may be abbreviated, and in column headings they may be "stacked up." Periods are omitted from the abbreviations in headings unless they spell some other word. The underlining of column headings separates the headings from the figures and shows the number of columns to which each heading applies.

(6) Units of measurement-must be shown. Usually the column or row heading is the place to specify units. Units are written in lower case, separated from the last word of the heading by commas.

(7) In a column of figures of like units, the decimal points will be aligned. But in a column of unlike units, the numerals will be centered in the column. Blanks occurring in the table will be filled with a dash or explained by a footnote. When the first number in the column or after a break in the table is wholly a decimal, a zero is added at the left of the decimal point. Succeeding numbers, however, do not require a zero. In a column containing mixed units, the zero is repeated before each decimal. In tables, commas will be used for figures of four or more digits if at least one five-digit number appears in the table. Otherwise, there will be no commas in four-digit numbers.

(8) Footnotes are placed below the table in paragraph style, and they comment on individual entries or headings. Lower case letters are used for footnote references. Applicable footnotes should appear on each page on which the reference is used. If footnotes are lengthy, they may all be placed on one page at the end of the table and be referred to as required. They are assigned consecutively across the page from left to right for the headings and then to the data in columns from left to right. Footnote references are placed at the right in headings and reading columns and at the left in number columns.

(9) Legends, when required, follow the footnotes. Legends are not required for commonly used abbreviations. The word legend shall not appear on the table.

(10) Notes comments on all contents of the table and are placed below the legend. Notes can replace entire columns if every entry in the column is the same.

L-18. EQUATIONS.

a. General. When necessary, identify symbols after the first use to simplify reading, or include symbols in a separate list. Make parentheses, brackets, and braces the same height as that of the tallest expression they enclose. Separate the numerator from the denominator with a line as long as the longer of the two. Center both the numerator and the denominator.

b. Placement. Indent or center an equation on the line immediately following its first text reference. Break equations before an equal, plus, or multiplication sign. Align groups of separate but related equations by the equal signs and indent or center the group as a whole. Place short equations which are not part of a series or identified by a number in the text rather than displaying them.

c. Numbering. Number equations which are part of a series or which are referred to in the text consecutively using Arabic numerals. Enclose each number in parentheses at the right margin on the last line of the equation to which it refers. Number equations in appendices alphanumerically within each appendix.

(1) Equations are often useful for a complete explanation; however, they should be used sparingly. Involved mathematical derivations are never presented in the body of the report and rarely in an appendix.

(2) All symbols used will be defined. Equations and formulas are written on lines separated from the text and centered on the page. When writing an equation, always place “where” at the left margin. Refer to the following sample.

The MTBF will be computed at the 90% confidence level using:

$$M_1 = \frac{2T}{\chi^2_{2(r+1)} a}$$

where

M_1 = lower limit of the 100 (1-a)% one-sided

r = number of failures.

a = 1-confidence level.

$\chi^2_{2(r+1)} a$ = the percentile of the Chi-square distribution
for $2(r+1)$ degrees of freedom.

T = test time.

and

$$R = \frac{t}{e^{-MBTF}}$$

where

R = reliability.

t = mission time.

e = base of natural logarithms.

L-19. BINDING. Binding is the fastening together of a report to make it easy to handle and to preserve it. Factors to be considered in binding are cost requirements, security classifications, preferred styles, report length, anticipated frequency of use, and need for permanence. Each type of binding has its application and shall be judged on usefulness and expense for a specific job.

L-20. DISTRIBUTION LIST. Distribution lists are provided by Test Manager, DTC.

2. SUPPLEMENTATION OF INFORMATION CONTAINED IN APPENDIX L.

L-21. GRAPHS, DRAWINGS, AND PHOTOGRAPHS.

a. *Graphs, drawings, and photographs may be placed in the technical document as illustrations or as basic records. In the body of the document, graphs, drawings, and photographs are referred to by successive figure numbers. Those that directly supplement or clarify the discussion should be placed in the body of the document, preferably close to the text which they illustrate. If insertion of the figures in the body is inconvenient or the number is excessive, place them in an appendix. Figures that do not illustrate specific portions of the text but contribute generally to the understanding of the document, will be placed in the appendix. No figure will be used, however, which is not specifically referred to in the text.*

b. *When preparing a technical document in draft form, the writer should leave a space in his/her text to indicate the location of an illustration. The title should appear in this space, including the figure number and text of the title. All illustrations should be introduced and cited in the text. All illustrations will be indicated as figures, not as a mixture of figures, charts, plots, etc.*

c. *Drawn illustrations are most effective when they are simple and yield sharp copy of good contrast. Nonessential data and distracting details will be omitted. Originals are preferred to prints and copies.*

d. *Figures are given a number and descriptive title. The figure number in plans/reports consist of the first two numbers of the paragraph in which the figure is first referenced, followed by a serial number, e.g., Figure 2.3-1, 2.3-2, 2.4-1, and 2.4-2. Figures in an appendix are identified by the number of the appendix followed by a serial number, e.g., Figure B-1, B-2, and B-3. Figure numbers may be omitted from figures included in the test data appendix and references may be made to the page number. A figure number and title are centered below the figure if they are no longer than one line. If the title requires more than one line, the number and title are written flush with the left margin below the figure. Begin succeeding lines under the first letter of the first word of the title. (See examples throughout this manual.) The title is written in lower case with the initial letter of the first word capitalized. Illustrations in firing records are numbered in consecutive order with Arabic numbers. Illustrations in firing record enclosures are numbered independently in the same manner.*

e. *As is the case with tables, figures will be placed so they are readable without rotating the page. When the figure is too wide, however, it should be arranged so that it can be read if the report is turned clockwise. Figures that cannot be arranged conveniently on paper of standard size may be placed on a larger sheet for reduction to standard size or as a fold-out.*

f. The single term “graphs” include all types of pictorial representations of relationships among variables. Data gathered during testing is usually placed in a worksheet of computer software programs such as Microsoft Excel. After the worksheet is completed, the data can be graphically presented by creating a chart (or “graph”). Although graphs are constructed in a wide variety of forms, the most common types are line graphs, scatter diagrams, histograms, and bar charts.

(1) The intended use of the graph governs its format and location in the report. A graph that supplements or clarifies a discussion in the text is most effective when it is simple and placed close to the discussion. A graph that serves as the record of an event, however, is often quite detailed and is usually placed in an appendix, if required. Graphs of this type occur frequently when the test instrumentation employs sensing devices that produce continuous data.

(2) The principles of graphic presentation discussed in this section generally apply to all graphs. Every graph should have a number, assigned in the series of “figure” numbers, and a short, descriptive title. The number and title are placed below the graph. Graphs are numbered in the same manner as other figures and may be intermingled with them.

(3) Ordinarily, the independent variable is plotted horizontally and the dependent variable vertically. The name of the variable and the units in which it is measured must be shown. The scale label for the independent variable is centered just below the horizontal scale; the label for the dependent variable is centered to the left of the vertical scale and parallel to it.

(4) The proportions of the graph and the scales should be chosen to display the data properly. Greatly expanded vertical scales which exaggerate the fluctuations in the data, or severely compressed scales which conceal the fluctuation in the data, should be avoided. Graphs intended to convey a comparison of the magnitudes of the plotted quantities should show the zero of the vertical scale; otherwise, comparison is difficult and even misleading.

(5) When using a software program to create a graph, the marginal vertical and horizontal lines and the curve should be made slightly heavier than other coordinate lines. No more coordinate lines will appear than are needed to assist in reading the graph. Sometimes all coordinate lines can be omitted. Too many lines in a graph grid is objectionable for most illustrative uses. It may be appropriate, however, for many of the record-type graphs from which precise readings may be taken.

(6) Lines and curves representing the plotted data will be heavier than the coordinate lines. If several curves are plotted on the same graph, each will stand out clearly. If the lines do not cross, labeling each line is usually sufficient to distinguish them. If the lines cross irregularly, the use of coded lines (color, dotted, dashed, or solid) is a further aid to the reader. A legend may be shown on the graph when different lines are used, but labeling is preferred. When points representing several sets of data are plotted, a different color and/or symbol is chosen to represent each set, and a legend must be used.

(7) A histogram shows the distribution of the individuals of a group according to some characteristic variable, while a bar chart is usually intended to show the relations between two or more quantities on different occasions or under different conditions. The rectangles comprising the histogram are joined to form one continuous area. Color coding or hatching is not used. The bars of a bar chart are usually separated, since area has no meaning, and is used to distinguish the various quantities being graph. Except for the lines bearing the scales, coordinate lines are usually omitted from both the histogram and the bar chart. A few light lines to aid in reading the heights of the rectangles or the lengths of the bars may be used.

g. Photographs. A great many photographs may be taken during the course of a test, especially when they can be obtained at no other time. Only those to which reference is made in the text and which show something significant will be included in the report. When a number of pictures can be distinguished from each other only by the titles, one typical picture should suffice.

(1) The importance of selecting suitable photographs for use in illustrating reports cannot be overemphasized. Well-chosen illustrations increase the intelligibility and value of a technical report. Conversely, poor photographs, improperly located photographs, and the overuse of photographs can degrade the quality of an otherwise technically fine document.

(2) The following criteria, in the order of importance as listed, will be applied in the selection of photographs.

(a) Does the photograph contribute anything of value to the report? If not, it would be summarily discarded.

(b) Is there a good range of contrast in the photographic print? A short tonal range will usually result in a muddy, unsightly reproduction in the final printed report.

(c) Is the photograph well composed and is the subject matter clearly presented? Unbalanced composition, disturbing backgrounds and foregrounds, or the center of interest hidden in shadow detract seriously from the value of the illustration.

(d) Are there too many photographs in close sequence? This condition will result in fragmentation of the text material and annoy the reader. If a large number of related views are necessary, consideration will be given to placing them in an appendix.

(e) Is the illustration clear, well composed, properly located, and pertinent to the subject matter? If so, by all means use it.

(3) For formal reports, a color or black and white print showing the test item "show-room bright" must be ordered by the author and supplied together with the text and a list of characteristics to TRO. From this, a "characteristics photograph" is made in accordance with applicable TOPs. Photographs may be included in the body of the report, or appended with references made to them in the text. To simplify the printing process and to obtain a clear characteristics photograph, no more than two photographs shall normally be placed on a page. To avoid extreme reduction of the critical areas of a photograph, extraneous backgrounds, foregrounds, and unrelated material may be cropped from the print.

(4) When needed, labels and other aids such as arrows and circles will be added to photographs by authors to clarify the illustration or locate points of interest, and their significance must be noted in the title.

h. Drawings, Sketches, and Blueprints. Drawings and sketches may be fitted into the report just as photographs are. For best quality reproduction, the drawing should have good contrast; India ink on white, opaque paper is ideal. Sketches made with offset pencil also reproduces well. Blueprints, photostats, and xerox copies should never be used. It is advisable to trace or redraw drawings of low contrast (such as blueprints and photostats), if they are to be used. Complete drawings will be used only if the need for them is unquestionable. The International Imaging Team has the capability to reproduce blueprints into black and white copies.

L-22. CAPITALIZATION.

a. Capitalization of the names of materiel has too often been a hit-or-miss matter of taste or preference. U.S. Army Aberdeen Test Center style is that the name of an item is initialized only if its full standard nomenclature is given, in its proper order. Thus, "Cartridge, 20-mm Spotter-Tracer, M48," is capitalized, but "20-mm spotter-tracer cartridge, M48," or "M48 spotter-tracer cartridge, 20-mm," or any other variations, are not. Approved standard nomenclature can be found in Federal Item Identification Guides for Supply Cataloging (DA Supply Bulletin 708-301). Approved standard nomenclature will be used in the titles of formal reports; thereafter, more informal reference terms will be employed.

b. The names of test areas, such as the Munson Test Area or the Churchville Test Area, are capitalized, but the names of courses (such as hilly, cross-country course, 6-inch washboard course, or paved straightaway) or ranges (such as trench-warfare range, light-armor range, or 40-mm range) are not capitalized.

c. Types of test, such as Engineering Development Test, Preproduction Qualification Test, or First Article Test are capitalized.

d. Some rules on capitalization are a matter of local policy for the purpose of providing consistency. Thus, when a figure, table, appendix, or enclosure is referenced in the text, it is capitalized:

For more information, see Appendix B.

A picture of a 155-mm howitzer is shown in Figure 2.

Data on rounds fired are contained in Table C-3.

e. A reference to a paragraph, however, is not capitalized (e.g., para 4.1.1).

f. References placed in parentheses are lower case and abbreviated:

Crop all photographs before they are printed (fig. 5).

5. NUMBERS.

Frequently, a technical report must contain numerical expressions in the text. Because numbers can be written in more than one way, the writer must choose between figures and words and among various conventions of form and punctuation. The objectives that will guide his/her choice are ease of comprehension and a neat appearance. Often, these objectives are opposed, so that one can be achieved only with some sacrifice of the other. Generally, comprehension is eased by figures rather than words, by treating all numbers in a group of two or more related expressions in a consistent manner, and by avoiding cumbersome forms, regardless of other rules. On the other hand, figures in the text interrupt the reading and detract from the appearance of the report. The following specific rules should assist the writer in selecting appropriate forms for expressing numbers in the text of a technical report.

a. Figures are used for:

(1) Dates and time: 5 October; 1430 hours

(2) Measurements: 16ft; +68°F; 5 mm; 3 lb; 0.2 in.

(3) Money: \$17.50; a cost of 43 each; 75 cents

(4) Percentages: 17% of the items

(5) Proportions: 1:4

(6) Decimals: 5.723; 0.15

(7) Mixed numbers: 5-1/2; 3-7/8

(8) *Mathematical expression: multiplied by 4; divided by 6*

(9) *Sizes: .50 cal; 4X4 (vehicle); 4.00 x 6 (tire)*

(10) *Unit modifiers. (Note that a hyphen is placed between the figure and the unit except in the case of degrees.)*

<i>3-lb hammer</i>	<i>80-hp engine</i>
<i>2-1/2-ton truck</i>	<i>90-mm, HVAP, M344 projectile</i>
<i>2-ton truck</i>	<i>1.8- by 2.4-m (6- by 8-ft) target</i>
<i>1/2-inch pipe</i>	<i>4-, 8-, and 16-hour periods</i>
<i>45° cone</i>	<i>+165 ° F test</i>
<i>8-inch howitzer</i>	

(11) *Isolated whole numbers greater than ten:*

The test run was repeated 15 times.

(12) *Numbers in a group consisting of two or more related numerical expressions:*

Impacts were recorded for 9 of the 30 rounds fired; 5 of these 9 rounds functioned high order.

but: The observers in tower 15 located only two impacts.

(13) *Model and serial numbers of materiel:*

M60 tank, No. 4

M15 rifle

b. *Words are used for:*

(1) *Isolated whole numbers of ten or less (except for units of time, measure, or money):*

The engine was operated three times.

(2) *Isolated fractions (unless cumbersome):*

The chamber pressure was less than one-half (or half) of the maximum.

(3) *Indefinite expressions and round numbers of ten or less:*

About five scientists contributed to this work.

(4) *A number beginning a sentence:*

Eighteen rounds were inspected.

Twenty-two visitors observed the experiment.

(5) *Number less than 100 preceding a compound modifier containing another number:*

*six 16-mm cameras and fourteen 8-mm cameras, but
156 90-mm guns*

(6) *Numbers should not be expressed both in words and figures.*

wrong: The test will require more than five (5) days to complete.

right: The test will require more than five days to complete.

c. Fractions.

(1) Because the standard keyboard contains very few fractions, most fractions must be written in the form 1/2, and mixed numbers in the form 1-3/4. Generally, if some of the fractions in a series require the form then all should be of that form.

(2) Diameters of 1/2, 1/4, and 1-1/8 in. are required.

not Diameters of , , and 1-1/8 in. are required.

(3) Fractions written in figures should not be followed by of a or of an before the unit of measurement.

1/2 inch, not 1/2 of an inch

d. Decimals.

(1) When expressed as a decimal, a number less than one requires a zero immediately preceding the decimal point. Exceptions occur in certain fixed expressions and nomenclature, e.g., caliber .30.

(2) Final zeros after the decimal point should be used only when they indicate the accuracy of measurement.

0.030 in. (when measurements are taken to 0.001 in.)

0.03 in. (when measurements are taken to 0.01 in.)

e. Commas.

(1) *Commas are used to punctuate whole numbers of more than four digits except when used in tables, in which case, commas are used in all four-digit (or more) numbers if one or more five-digit numbers appear.*

55,200	but	5520
12,660		1266
560		56
1,240		124
220		22
43,150		4315

(2) *Commas are not used in decimals or in serial numbers:*

0.00236

SN 0556939

L-23. **COMPOUND WORDS**

a. *There are two types of compound words. The first is the compound adjective which consists of two or more distinctly separate words (often nouns) which, to convey the proper meaning, must be joined to form a unit modifier. Compound adjectives of this type are hyphenated to aid understanding and readability. For example:*

long-range program

12-inch board

percussion-fired primer

armor-piercing projectile

transportation-vibration test

time-pressure curves

b. *Do NOT hyphenate compound modifiers consisting of an -ily adverb and a verb. For example:*

recently completed (test)

partly consumed (case)

Federally funded

c. *The second type is a combination of two words, or a prefix and a word, that are often used together to convey a single meaning. When such combinations are compounded, the writer is faced with the choice of writing two separate words, joining them with a hyphen, or combining them into a single word. Since there are many rules concerning the correct compounding of words, no attempt will be made to present them here (except to mention that nearly all words beginning with anti-, bi-, inter-, non-, semi-, sub-, un-, pre-, and under- are single, unhyphenated words). Instead, a list containing many of the compound words with which the writer will be concerned is at Section IV of the glossary, together with certain other related expressions of correct usage.*

L-24. SPELLING.

a. *Rigorous attention must be given to correct spelling of the words used in technical documents. Authors, reviewers, editors, and typists must be alert to detect misspelled words or words that do not conform to standard Government usage.*

b. *Several authoritative sources can be relied upon for the correct spelling of problem words. Most easily available and generally accepted is Webster's New Collegiate Dictionary. Webster's New World Dictionary is also a useful aid. Even in these dictionaries, however, alternate spelling of some words is permitted; Government usage normally prefers the first spelling shown. The Government Printing Office Style Manual is an even more authoritative source for preferred forms for Government printing.*

c. *A complete listing of commonly misspelled words or those in which a specific form is preferred is beyond the scope of this manual. The following list, however, indicates a few of the words most frequently misspelled in ATC technical documents.*

LIST OF COMMONLY MISPELLED WORDS (PREFERRED SPELLING SHOWN)

<i>accelerate</i>	<i>bourrelet</i>	<i>gauge or gage</i>
<i>acknowledgment</i>	<i>canister</i>	<i>grille</i>
<i>adapter (not adaptor)</i>	<i>criteria (plural)</i>	<i>materiel (ordnance)</i>
<i>affect</i>	<i>criterion (singular)</i>	<i>preceding</i>
<i>ancillary</i>	<i>effect</i>	<i>usable</i>
<i>anthropomorphic</i>	<i>foreword</i>	
<i>auxiliary</i>	<i>forward</i>	

L-25. PUNCTUATION.

a. Punctuation is extremely important in documents, since misplacement can change the entire meaning of the sentence. Close attention must especially be paid to the correct use of commas, colons, and semicolons.

b. Use of the Comma.

(1) When a sentence is comprised of two independent clauses (each could stand alone as a sentence), a comma is used immediately before the conjunction (but, and, or, for) that joins these clauses. If, however, the clauses are very long or have commas within them, use semicolons to separate them. For example:

The components were faulty, but the test item still passed.

(2) Commas should not separate a subject from its verb.

Wrong: *The gunner loaded the round which had been modified, and fired it at an elevation of 45°.*

Right: *The gunner loaded the round which had been modified and fired it at an elevation of 45°.*

(3) An adverbial clause (dependent - could not stand alone) that precedes the main clause is set off by a comma. For example:

After all the rounds were fired, the test director left.

(4) Nonrestrictive phrases and clauses (can be omitted without changing the sense of the sentence) should be set off by commas. For example:

John Smith, who was in charge of the test, left without explanation.

Joe Brown, seeing the gun explode, jumped back.

The woman who is standing over there is the test director. (Note: Since the phrase is necessary to explain which woman, commas are not used.)

(5) Phrases and clauses should be placed as near as possible to the word(s) they modify.

Projectile striking velocities are measured by using printed circuits located 6 m from the weapon. (Note: The underlined portion of the above sentence modifies the noun circuits.)

(6) Use commas to separate items in a series of words, phrases, or short clause. For example:

The gun can fire 20- , 40- , and 60-mm ammunition.

c. Use of the Colon. A colon is used to introduce a word list, examples, a statement or question, a series of statements, or a long quotation. An expression such as “are as follow” or “is as follows” usually precedes the list. For example:

The following tests were conducted: salt fog, humidity, and hot-dry.

d. Use of the Semicolon.

(1) When two independent clauses of a compound sentence are short and complement each other, a semicolon may be used instead of a comma and conjunction to separate them. For example:

The tank flipped over on its top; we did not know what to do.

Use a semicolon between clauses of a compound sentence that are joined by conjunctive adverbs such as *therefore, however, thus, nevertheless.* For example:

The weather appeared formidable; nevertheless, we decided to proceed.

RAM/ILS/ADACS Database Project Initialization Sheets*

*When requesting RAM/ILS Evaluation Team support, please use the attached updated instructions and RAM/ILS/ADACS Database Project Initialization Sheets (Form 1011R). These updates were completed on 1 May 01 and should replace all previous versions. Form 1011R can be accessed on the ATCNET, in forms, Forms Flow Forms, local forms.

1. Project Data:

a. Test Title (34 characters): Enter the title that has been assigned to this test. The maximum field length for the test title is 34 characters (abbreviate as needed).

b. Test Project Number (16 characters): Enter the test project number that has been assigned for this test. For tests conducted by Developmental Test Command (DTC) activities, this will be the Test Project Number (e.g., 1-VC-010-577-011). For tests conducted by non-DTC test activities, enter the applicable test project number, if any. Enter "N/A" in this space if no number is applicable. The maximum length for this data field is 16 characters.

c. Test Type: Enter test type. Examples include: IPT (Initial Production Test); FPT (Follow on Production Test); PVT (Production Verification Test); PQT (Production Qualification Test); Customer Test; etc.

d. JONO: Enter the Job Order Number (JONO) that has been assigned for this test.

e. Commodity Type: Enter the commodity type that this test pertains to (e.g., Tracked Vehicle, Wheeled Vehicle, Shelter, Artillery, etc.).

f. Test Agency Code (20 characters): Enter the name of the test agency (government or contractor) or the test agency code (if known) that identifies what test agency the test is being conducted for. The maximum length for this data field is 8 characters.

g. Test Sponsor Code: Enter the 2 character code of the test sponsor, materiel developer, or project manager. If the 2 character code is not available, enter the name. The maximum length for this data field is 20 characters.

h. Test Site Code: Enter the test site code that identifies the location of the test site where the testing took place (e.g. K2 for ATC, L5 for YPG, etc.) This information can be obtained from the "TECOM Pamphlet 73-3, dated 15 July 1996" or from the "Test Resource Management System (TRMS) Functional Operating Instructions (FOI) Volume II, Data Elements Dictionary", revised April 2000 by HQ DTC.

2. Test Data:

a. Test Start Date: Enter the day, month, and year that the test is scheduled to start. The format is DD/MMM/YY (e.g., 30/Jul/01).

b. Test Completion Date: Enter the day, month, and year that the test is scheduled to stop. The format is DD/MNM/YY (e.g., 30/Dec/02).

c. Test Record Retired Date: Enter the day, month, and year that the test report is to be completed (e.g., 28/Jan/03).

d. Number of Test Items: Enter the number of test items scheduled for this test.

e. Test Days Per Week: Enter the number of days per week that the test will be working.

f. Shifts Per Day: Enter the number of shifts that will be worked each day.

- g. Hours Per Shift: Enter the number of hours that will be worked each shift.
 - h. Time Standard: Enter the time standard of the test site.
 - i. Estimated Number of Data Collectors: Enter the estimated number of data collectors that will be needed to collect the test data.
3. Test Management Data:
- a. Preparer (34 characters): Enter the Full Name (First Name, Middle Initial, and Last Name) of the individual responsible for the preparation of TIR's.
 - b. Ext (phone number): Enter the phone number extension of the preparer.
 - c. Title (34 characters): Enter the title of preparer (e.g., Test Director, Sr. Test Director, etc).
 - d. Releaser (34 characters): Enter the Full Name (First Name, Middle Initial, and Last Name) of the official approving the release of the test data.
 - e. Ext (phone number): Enter the phone number extension of the releaser.
4. Core and Team: Identify (check) the correct entry.
5. Report Requirements: Identify (check) the required reports that will be needed from the following list:

TIR, Test Incident Report
 SAC, Support Analysis Chart
 SSC, Supply Support Chart
 F&O, Fuel & Oil Usage Report
 PUB, Publication Report
 SUM, Reliability, Availability & Maintainability Analysis
 MIS, Mission Report
 SER, Service Data Report
 METER, Meter Readings Report
 DSR, Daily Summary Report
 AMNO, Ammo Expenditure Report
 BIT, Built In Test Report
 TMDE, Test Measurement Diagnostic Equipment Report
 SCORING, Scoring Conference Report
 OTHER, Any Other Report that would contain any Special or Unique
 RAM/ILS Test Data
 LOGISTICS SUPPORT ANALYSIS, Self Explanatory
 RELIABILITY ENGINEERING ANALYSIS, Self Explanatory

RAM/ILS/ADACS Database Project Initialization Sheet (Cont'd)

7. Item ID (6 Char): _____
 8. Major Item Model (26 Char): _____
 9. Serial # (22 Char): _____
 10. USA # (22 Char): _____
 11. Manufacturer (26 Char): _____
 12. Contract # (22 Char): _____

Test Life

13. Titles	14. Initial Reading (6 dig)

7. Item ID (6 Char): _____
 8. Major Item Model (26 Char): _____
 9. Serial # (22 Char): _____
 10. USA # (22 Char): _____
 11. Manufacturer (26 Char): _____
 12. Contract # (22 Char): _____

Test Life

13. Title	14. Initial Reading (6 dig)

7. Item ID (6 Char): _____
 8. Major Item Model (26 Char): _____
 9. Serial # (22Char): _____
 10. USA # (22 Char): _____
 11. Manufacturer (26Char): _____
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Test Life

13. Titles	14. Initial Reading (6 dig)

7. Item ID (6 Char): _____
 8. Major Item Model (26 Char): _____
 9. Serial # (22Char): _____
 10. USA # (22 Char): _____
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Test Life

13. Title	14. Initial Reading (6 dig)

7. Item ID (6 Char): _____
 8. Major Item Model (26 Char): _____
 9. Serial # (22Char): _____
 10. USA # (22 Char): _____
 11. Manufacturer (26Char): _____
 12. Contract # (22 Char): _____

Test Life

13. Titles	14. Initial Reading (6 dig)

MEMORANDUM FOR Chief, RAM/LS Evaluation Team

JECT: RAM/LS/ADACS Database Project Initialization

*1. Project Data:

- a. Test Title (34 Char.) _____
- b. TECOM Project No. (16 Char): _____ c. Test Type: _____
- d. JONO: _____ e. Commodity Type: _____
- f. Test Agency Code: _____ g. Test Sponsor Code: _____ h. Test Site Code: _____

2. Test Data:

- a. Test Start Date : _____ b. Test Compl. Date: _____ c. Test Record Retired: _____
- d. Number of test items: _____
- e. Test days/week: _____ f. Shifts/day: _____ g. Hours/shift: _____
- h. Time Standard: _____ i. Estimated number of data collectors: _____

*3. Test Management Data:

- a. Preparer (34 Char): _____ b. Ext: _____
- c. Title (34 Char): _____
- d. Releaser (34 Char): _____ e. Ext: _____
- f. Title (34 Char): _____

*4. Core and Team:

Automotive	Firepower	Survivability/Lethality
a. <input type="checkbox"/> Fire Control Team	a. <input type="checkbox"/> Large Caliber Team	a. <input type="checkbox"/> METDC
b. <input type="checkbox"/> Vehicles Team	b. <input type="checkbox"/> Special Ordnance Team	b. <input checked="" type="checkbox"/> Maritime Team
	c. <input type="checkbox"/> Team Small Arms	c. <input type="checkbox"/> Vulnerability/Lethality Team
Technology	Warfighter	
a. <input type="checkbox"/> Software Test Team	a. <input type="checkbox"/> OPFOR Technical Team	
	b. <input type="checkbox"/> Soldier Systems Team	

5. Report Requirements:

TIR SAC SSC F&O PUB SUM MIS SER
 METER DSR AMMO BIT TMDE SCORING Other (Specify)
 Logistics Support Analysis Reliability Engineering Analysis

6. Distribution Information:

- a. Classified Data Requirements: COMP. SENSITIVE FOUO CONFIDENTIAL SECRET
- b. TIR e-mail Distribution/address list: _____
- c. Database Access List: _____
- d. Remarks _____

imum Data Requirements

Signature

Automated Data Collection System (ADACS) Data Collector's Hand Book User's Guide

By US Army Aberdeen Test Center

Automotive Core

RAM/ILS Evaluation Team



ADACS DATA BASE

DATA COLLECTOR'S HANDBOOK

INTRODUCTION

This publication provides basic instructions for the data collection personnel to use when using the ADACS (Automated Data Collection System) data forms to record the RAM/ILS test data required on a test program.

GENERAL

The data collector (DC) records information on special preprinted forms. Each distinct form has its own purpose and use. All data forms should be self-explanatory. Any line marked by an "*" will not be completed by the DC. Each data form must be identified with the item number. Do not leave any areas blank. Enter "NA " if the line is not needed. If paper data collection forms are being used, all writing on the forms must be neat and clear since the information of the forms have to be read by a data transcriber (keypunch operator) who is not familiar with the data.

The importance of the data collector preparing these forms in a timely manner cannot be over-emphasized. Each data form required to document a particular event must be completed accurately and thoroughly. Narratives, where required, must be clear, concise, and provide an accurate description of the action that has occurred (i.e. test incident, maintenance, servicing, mission, etc). Describe where the action took place, who performed it, what happened, why did it happen and who directed it to be done (if applicable).

This handbook contains detailed information concerning each data form that is used to collect the various types of RAM/ILS test data that are needed on this test program. Included in this information will be the purpose of each data form, what special or unique procedures that need to be followed when recording the test data, and a detailed definition of what each data element is.

The DCs are reminded that an accurate and detailed reporting of all test information must be made available to various Research & Development engineers, evaluators, and Materiel Developers. The test information provided by data collectors will be used in various analyses and evaluations that will affect the development and production of various types of Army equipment/materiel undergoing testing. Remember, you are the eyes and ears of the U.S. Army testing community.

If you are unfamiliar with a term, see the ADACS Dictionary, Appendix A, for the definition.

Any data block marked with an asterisk () will be completed (filled in) by Data Evaluation Personnel.

FORM SETS

A Test Incident Report (TIR) form set is used for recording maintenance data collected during any scheduled or unscheduled maintenance event and for reporting other types of test related data. A separate TIR will be initiated for each unrelated test incident.

A TIR form set includes:

1. Incident Data
2. Incident Subject Data
3. Maintenance Data
4. Remarks Data
5. Parts Data - when required

A TIR form set is initiated when:

1. An unscheduled maintenance action (malfunction) occurs.
2. A scheduled maintenance action is performed.
3. A modification is applied to the test item.
4. Requested by the Test Director to document an action or event.
5. An error or omission to the TMs is identified.
6. A special tool or diagnostic equipment did not perform its intended function.
7. When a repair part was unsatisfactory.

A Mission Form set includes:

1. Mission Data
2. Service Data - when required
3. Meter Readings Sheet - when required
4. Ammo Expenditure Data - when required
5. Other optional data forms that may be required on certain test programs.

PROCEDURES FOR RECORDING START AND STOP TIMES ON TEST DATA BEFORE/AFTER MIDNIGHT

A very important part of the duties and responsibilities of the data collector is the accurate recording of start and stop times that pertain to any one of the many various types of RAM/ILS test data that are being recorded. After this test data has been entered into the ADACS database system, the ADACS system is routinely used to perform many computer-generated functions to calculate the total time to perform the various types of tasks or operations. The data collector (DC) must be sure to follow certain procedures when recording the maintenance time associated with the Test Incident Reports (TIRs). When a maintenance event begins on one day and extends past midnight (2400 hrs) into a different day, the DC will be required to enter a stop time at 2400 hrs on the day that the maintenance was started, and then enter a new start time with the new date at 0000 hrs. This special procedure is necessary to ensure that the special computer-generated calculations for maintenance times are performed correctly by the ADACS database system.

MISSION TEST DATA INFORMATION

Purpose: The purpose of the Mission Data Form is to record each type of daily test activity that the test item has performed each day. The mission report includes various types of test data that are needed to track the overall testing accomplishments that are obtained each day. The types of test data that are typically documented on a mission report include the following types of test information:

1. The test item identification number.
2. The date
3. The start and stop times (clock hours)
4. The daily start and stop meter readings (test lifes) of the test item
5. The type of test activity (mission profile) the test item was involved in
6. The type of test course that the test item operated on
7. The ambient weather conditions
8. A narrative section used to provide a brief summary of the daily test activities
9. Any other type of special daily test data that may be needed to be documented on a specific test program.

If there is a requirement to have additional data elements recorded on a routine basis, an additional data sheet (containing the extra data fields) may be required with each mission form set.

A separate mission will be started when one of the following occurs:

- a. A change is made in the test site or course type.
- b. A significant change with the environmental conditions occurs.
- c. The test phase (test environment/mission profile) is changed.
- d. The test item is shut down for an extended period of inactivity due to a lack of personnel, tools, or replacement parts.

MISSION DATA INSTRUCTIONS

Instructions:

1. Item ID#: Enter the identification number (ID #) that has been assigned to the test item.
2. Date: Enter the month, day, and year (MM/DD/YYYY).
3. Test Type: Identify which test phase this test data pertains to.
(Optional) The options are: Contractor Test (CT); Operational (User) Test (OT); and Developmental (Technical) Test (DT). (Circle the appropriate code).

Test Site: Identify the test site where the testing took place.

(Optional) The options are: Contractor Test Facility (CTF); Aberdeen Test Center (ATC); Yuma Proving Ground (YPG); and Ft. Hood (HOOD). (Circle the appropriate code).

Note - This data element is used only on those test programs where combined testing (CT, DT, and/or OT) is taking place.

4. Mission Start Time: Enter the 24 hour clock time when the mission begins.
5. Mission Stop Time: Enter the 24 hour clock time when the mission stops.
6. Start Meter Readings: Enter the meter readings at the start of the mission.
7. Stop Meter Readings: Enter the meter readings at the end of the mission.
8. Mission Profile: The DC will identify the phase of test (test environment or mission profile) that the test item was involved in during the mission. The mission profile (test environment) codes are located in Appendix B of this handbook.
9. Course Type: Identify the type of test course that the test operations were conducted on during the mission. The list of the various types of applicable test courses is contained in the Appendix B of this handbook.
10. Course Condition: Identify the condition of the test course (muddy, dry, wet, snow, ice, etc). The list of the various types of course conditions is contained in the Appendix B of this handbook.

MISSION DATA INSTRUCTIONS (CONTINUED)

11. Visibility: Indicate the visibility conditions that existed at the start of the mission. (See Appendix B for visibility codes).

12. Temperature: Enter the ambient temperature at the beginning of the mission (degrees - Fahrenheit).

Brief Description: The DC will enter a brief description of the mission profile and course type.

Narrative: The DC will use this narrative section to provide a general overview of what took place during this mission. This overview will include a brief summary of what actions were accomplished during this mission, as well as identifying any problems that were encountered and the repair actions that were taken (if any).

ITEM _____ DATE _____ SEQ _____ REL _____ REL DATE _____ RECORD
_____ (NO PUNCH)

MISSION DATA

1. Item ID#: _____ 2. DATE: ____/____/____ (MM/DD/YYYY)

3. TEST TYPE: a. CT b. OT c. DT d. Other (Circle one)

TEST SITE: a. CTF b. ATC c. YPG d. HOOD e. OTHER (Circle One)

4. MISSION START TIME: _____ 5. MISSION STOP TIME: _____

6. START METER READINGS

7. STOP METER READINGS

a. MILES: _____

a. MILES: _____

b. TURRET POWER: _____

b. TURRET POWER: _____

c. ENGINE HOURS: _____

c. ENGINE HOURS: _____

d. ROUNDS: _____

d. ROUNDS: _____

e. NBC HOURS: _____

e. NBC HOURS: _____

8. MISSION PROFILE: _____

9. COURSE TYPE: _____

10. COURSE CONDITION: _____

11. VISIBILITY: _____

12. TEMPERATURE: _____

BRIEF DESCRIPTION:

NARRATIVE: _____

(NO PUNCH)

(NO PUNCH)

NAME _____ DATE _____

SERVICE DATA INSTRUCTIONS

1. Purpose. The servicing form is used to provide an accountability of any type of Petroleum, Oils, or Lubricants (POLs) that are used by the test item. A servicing form is used to record any fuels, oils, lubricants, hydraulic fluids, etc. that may be added or drained from the test item. The information gathered from this form is used to track fuel and oil consumption rates, as well as any other types of POL usage that may be used in the evaluation of a system under test.

2. How Service Form is Used. All replenishments of POLs are recorded on this form. A servicing could be mission-related or maintenance-related. All "mission related servicing data sheets" for fuel and engine oil should be attached to the mission where the replenishment took place.

Instructions:

1. Start Time: Enter the 24 hour clock time at the start of the servicing.
2. Subsystem: Identify the subsystem that best describes the area being serviced. A list of the applicable subsystems (and related subsystem codes) is provided in Appendix B of this handbook.
3. Operating Units: Identify the type of operating test life that is being used to track the servicing events. Examples of test lifes include: miles, engine hrs, etc.
4. Action taken: Identify what type of servicing action took place. "Added" is to be used for refueling or topping off oil levels. Replaced is to be used when a POL commodity is drained and refilled.
5. When performed: Identify when the servicing action was performed. Select from the list that is provided that best describes when the servicing took place. (Examples include PMCS, During Operations, Post Ops, Unscheduled Maintenance, etc)
6. Commodity: Identify the POL commodity that the servicing action pertained to. Choose from the list of POL commodities that is provided. Examples include: Fuel, Oil, Hydraulic Fluid, Anti-freeze etc.
7. Commodity type: Identify the type of commodity (fuel, oil, hydraulic fluid) that the servicing action pertains to. Examples include: DF-2 Fuel, JP-8 Fuel, 10W30 Lubricating oil. See Appendix B for a detailed list of the various types of commodities.
8. Quantity: Identify the amount (number) of the commodity type that was added, drained, or replenished. This is the amount, number or count of the commodity used during the action. Partial units of measure, except for fuel, must be expressed in the next lower unit of measure. (For example, 2.5 gallons of oil would be 10 quarts. When fuel is added, record the actual amount to the nearest tenth of a gallon. (For example, 2.5 gallons of fuel would be recorded as 2.5).
9. Units: Identify the "unit of measure" that pertains to the servicing action. Select a unit of measure from the provided list. Examples include gallons, pints, quarts, pounds, ounces.

- / / - - / /

ITEM DATE SEQ REL REL DATE RECORD # _____

(NO PUNCH)

ITEM ID: _____ DATE: ___/___/___(MM/DD/YY)

SERVICE DATA

1. START TIME: _____ 2. SUBSYSTEM: _____ (4)
3. OPERATING UNITS: _____ (6) Actual Meter: _____ Correction Factor: _____
----- (No Punch) -----

4. ACTION TAKEN: a__ADDED c__LUBRICATED e__FLUSHED
b__DRAINED d__REPLACED f__CHARGED

5. WHEN PERFORMED: a__OPERATION d__SCHEDULED MAINTENANCE
b__POST-OPS e__UNSCHEDULED MAINTENANCE
c__PRE-OPS f__AFTER FIRING

6. COMMODITY: a__COOLANT d__OIL g__HALON
b__FUEL e__SOLVENT h__OTHER
c__HYDRAULIC FLUID f__DISTILLED WATER

7. COMMODITY TYPE: _____(2) 8. QUANTITY: _____(4)

9. UNITS: a__GALLONS c__PINTS e__POUNDS
b__QUARTS d__OUNCES

1. START TIME: _____ 2. SUBSYSTEM: _____(4)

3. OPERATING UNITS: _____(6) Actual Meter: _____ Correction Factor: _____
----- (No Punch) -----

4. ACTION TAKEN: a__ADDED c__LUBRICATED e__FLUSHED
b__DRAINED d__REPLACED f__CHARGED

5. WHEN PERFORMED: a__OPERATION d__SCHEDULED MAINTENANCE
b__POST-OPS e__UNSCHEDULED MAINTENANCE
c__PRE-OPS f__AFTER FIRING

6. COMMODITY: a__COOLANT d__OIL g__HALON
b__FUEL e__SOLVENT h__OTHER
c__HYDRAULIC FLUID f__DISTILLED WATER

7. COMMODITY TYPE: _____(2) 8. QUANTITY: _____(4)

9. UNITS: a__GALLONS c__PINTS e__POUNDS
b__QUARTS d__OUNCES

(NO PUNCH)

(NO PUNCH)

NAME _____ DATE _____

DAILY SUMMARY REPORT INSTRUCTIONS

Purpose - The purpose of the "Daily Summary Report" is to provide a daily activity summary report of what action the test item(s) performed each day. This summary report will identify what phase of testing took place and will provide a brief summary of any test incident reports (TIRs) that may have occurred on the test item. The information obtained from this test data will be used to develop a special output report that will provide the materiel developers (and other users of ATC test data) with a brief and accurate summary of the day's events that occurred to the test item(s).

How the Daily Summary Report is Used - The data collector will use this form to report specific information about each daily mission that was performed and a brief summary of each TIR that has occurred. Use the following information for filling out this form:

Instructions:

1. Time: (Mission and TIR related entries) - Enter the 24-hour clock time that the action (event) occurred.

2. Incident Type: Identify whether the entry pertains to a "mission" or a "TIR" and indicate the sequence number associated with the mission or TIR. Examples - 1st Mission, 2nd Mission, 3rd Mission, or 1st TIR, 2nd TIR, 3rd TIR, etc. For entries that relate to TIR's that are revisions, add "(REV)" after the TIR entry. Example - 1st TIR (REV), 2nd TIR, 3rd TIR (REV), etc. In this example the first and third TIR's are revisions. The purpose of adding the "(REV)" to the entry is to alert the customer (materiel developer or other government agency) that this particular TIR pertains to a previously reported test incident.

3. Description: The description section of this report form is very important. In this section the data collector must provide a brief and accurate summary of what happened and what action (if any) was taken. The intent of this section is to provide bullet-like statements that give a quick overview of the incident. There is ample space allotted in this description section so that a more detailed description can be given if it is needed, however, the available space is limited. Complete sentences are desired but not needed as long as the verbiage is clearly and easily understood.

a. Instructions for "Mission Related Entries" - After entering the meter readings (test life) at the end of the mission, the data collector will identify the mission profile (test environment) and the type of test course the test item operated on during the mission. Example "RAM/Paved" or "Maintenance/Shop". The data collector will then enter a very brief summary of the actions that occurred during this mission. Included in this brief summary will be an indication of what problems (if any) were encountered, and the total miles accumulated during the mission.

DAILY SUMMARY REPORT INSTRUCTIONS (CONTINUED)

b. Instructions for TIR related entries. After entering the meter reading (test life) at the time of the incident, the data collector will identify the problem the TIR was reporting, and what repair action (if any) was performed to correct the problem. This should be stated very briefly. (Example: Right headlight low beam inoperative - Replaced headlight lamp). In other cases, a more detailed description may be needed so that our customers can be fully informed of the true nature of the problem. For these situations, be sure that the verbiage is of adequate length to provide a detailed description of the problem and the repair action. If the repair action has not been completed, or if the actual repair action is still not known, then be sure to indicate this information. (Examples:

1. Right headlight low beam inoperative - maintenance deferred;
2. Right headlight low beam inoperative - Awaiting replacement parts; or
3. Right headlight inoperative - Lamp OK - Awaiting further troubleshooting.

For those entries that pertain to revision TIR's, enter "Revision to TIR, Dated MM/DD/YYYY" (MM/DD/YYYY pertains to the month, day, and year of the original TIR). Provide a clear and accurate description of the problem and of the repair action that was taken to correct the problem.

METER READINGS DATA FORM

1. Purpose. The meter reading form is an optional data form that can be used to record additional readings from meters and counters that are located on the test item. This data form can be designed to include a complete listing of all meters and counters that are needed to track the operating parameters of a test item. This form can be modified to become a special meter tracking sheet that serves as an expansion of the daily mission form.

2. How Meter Form Is Used. This form is used to record a complete listing of all meters and counters associated with the test item at the end of each day's operations. These daily readings will serve as the start readings for the next day's operations.

INSTRUCTIONS:

1. Item ID: Enter the identification number (item ID) of the test item.
2. Date: Enter the month, day, and year (using the MM/DD/YYYY format).
3. List of Meter Readings: Enter a complete listing of the readings from all meters and counters. The DC will adjust out any initial meter reading values so that the readings that are reported on this form will represent the actual test readings that have been accumulated during the actual testing to date. A list of the initial meter and counter values must be recorded at the start of the test for each test item and will be used throughout the test phase to calculate the actual test lifes accumulated.

HULL METERS

<u>Meter Name</u>	<u>Meter Reading</u>
1. XXXXX	
2. XXXXX	
3. XXXXX	
4.	
5.	

Turret Meters

<u>Meter Name</u>	<u>Meter Reading</u>
6. XXXXX	
7. XXXX	
8.	
9.	
10.	

PROCEDURES FOR ORIGINAL TIRs & TIR REVISIONS

The data collector will fill out the necessary forms for the original Test Incident Report (TIR) and for the revision TIR. Note - The revision TIR is used to provide additional information to a previously reported TIR (update an original TIR).

ORIGINAL TIR

Each unrelated test incident will be reported in a separate TIR. In each TIR, there will be a separate Maintenance Data Form Set* for each maintenance level.

Example - One Maintenance Data Form Set will cover all Crew Level Maintenance;
One Maintenance Data Form Set will cover all Organizational Level Maintenance; One Maintenance Data Form Set will cover all Direct Support Level Maintenance; etc.

All the Maintenance Data will be attached to the TIR by order of lowest level of maintenance to the highest level.

* Note: A Maintenance Data Form Set is one maintenance data form, plus as many continuation forms necessary to cover all maintenance performed at that maintenance level.

REVISION TIR

When the data collector reaches the time limit for holding the Original TIR out in the field, they will initiate a Revision TIR. The method to record maintenance data for the TIR Revision will be the same as for recording maintenance time for the Original TIR. If paper forms are being used to manually record the test data on a test program, all of the information from the Incident Data Sheet and the Incident Subject Data Sheet from the Original TIR should be transferred to the Revision TIR. All information on these two sheets will be subject to change during the course of the maintenance, except for the following data elements on the incident data form:

- a. ITEM # (Block 15)
- b. LIFE PERIOD (Block 21)
- c. DATE (Block 40)
- d. TIME (Block 40)
- e. INCIDENT TITLE (Block 30)
- f. OBSERVED DURING (Block 33)
- g. TEST ENVIRONMENT (Block 48)

If the test data is being recorded with laptop computers, using the Automated Test Information Management System (ATIMS) software, a copy of the original TIR will be pulled back from the ADACS database after a copy of the original TIR has been released. This copy of the original TIR will then be used to revise (update) the TIR to include the additional test information.

TIR REVISION PROCEDURES (CONTINUED)

REMARKS DATA FORM

BRIEF DESCRIPTION

When revising (updating) a TIR, the Remarks Section Brief Description (1st line of the TIR narrative – block #90) should be the same as the original. Once the action has been completed on the incident being reported, only the corrective action portion of the brief description should change.

The narrative section of the incident will resume at the point where the original narrative had ended. Do not transfer any information from the original narrative to the revision. The word "REVISION", plus the current date and test life readings will precede the new information that is being added to the revision narrative. For each day that new information is added to the revision narrative, the date and test life should be included first as part of the information that is reported.

The Revision TIR will be logged in on the Events/Incident Summary Sheet (an in-house tracking worksheet used at ATC) as soon as the revision was initiated and additional maintenance has been conducted.

TEST LIFE READINGS

Each time a TIR is revised, the test life readings reported in the "WHEN REPAIRED" blocks (Blocks #62-64) on the Incident Subject Data form could change. On many occasions after a problem has been detected, the decision may be made to defer the corrective maintenance to a later date and have the test item continue test operations to expedite testing. When this type of situation occurs, additional test life (miles, hours, etc) will be accumulated on the test item. In order to properly calculate the correct part life for each part when it is replaced, the data collector must fill in the test item's current test life readings (miles, hours, etc) on the "WHEN REPAIRED" blocks on the Parts Replaced Form (Blocks 162-164) when that part was actually replaced. The "WHEN REPAIRED" Block on the Incident Subject Data Form (blocks 62-64) will also contain the test item's test life readings at the time the repairs have been completed on the End Item. It is the responsibility of the data collector to fill in this information accurately.

OTHER

The "Incident Title" (Block #30 on Incident Data Sheet) is a 26 character field that is used to provide a brief description of the incident. Since this field is limited in length, it should only contain a description of the subject of the TIR. A more detailed description of the problem and the corrective action that was taken can be provided in the first line (Brief description) of Block #90 in the narrative section of the TIR.

The "Brief Description" (Block #90 on the Narrative Form) is a 78 character field that should include a description of the incident and what corrective action was taken. The data collector should provide an accurate description of the problem and identify what maintenance (if any) was performed to correct the problem. Do not simply copy the Incident Title (Block #30) to the Brief Description.

INCIDENT DATA INSTRUCTIONS

Test Type: Identify which test phase the test incident pertains to. The options include: Contractor Test (CT); Operational (User) Test (OT); Developmental (Technical) Test (DT); and Other.

Test Site: Identify the test site where the test incident occurred. The options include: Contractor Test Facility (CTF); Aberdeen Test Center (ATC); Yuma Proving Ground (YPG); and Ft. Hood (HOOD).

*4. **TIR#:** The Test Incident Report (TIR) # is a unique number that is assigned to a TIR. The TIR # will be assigned by the Data Evaluation personnel.

15. **ITEM ID:** Enter the Item Identification # that has been assigned to the test item.

21. **TEST LIFE:** Enter the accumulated test life on the test item at the time of the incident. The test life entries include: Miles, Engine Hours, Turret Power, and Rounds.

40. **DATE:** Enter the MONTH, DAY, and YEAR when the test incident occurred. (EX: MONTH 03/ DAY 02/ YEAR 2000).

TIME: Using the 24 hour clock time, identify when the incident occurred.

30. **INC TITLE:** Enter a brief description of the incident. Do not exceed 26 spaces in length.

31. **SUBSYSTEM:** Identify the test item's subsystem that the incident pertains to. A complete listing of the various subsystems (and related subsystem codes) are located in the Appendix B of this booklet.

SUBSYSTEM CAUSED (Optional): Identify the subsystem that caused the incident. Note - This is an optional data element that is used primarily on the M1A2 tank test programs. If this data element is not required the data field can be omitted.

*32. **INCIDENT CLASS:** The incident classification is used in the corrective action process. This classification will be assigned in accordance with the guidelines and procedures that are prescribed in "DA Pamphlet 73-1". Data Evaluation personnel will assign the classification to each TIR. Possible incident classifications consist of:
Critical, Major, Minor, and Information.

INCIDENT DATA INSTRUCTIONS (CONTINUED)

33. **OBSERVED DURING:** Identify the type of test activity the test item was involved in when the incident was first observed. Choose from the list of test activities that is provided.
34. **ACTION TAKEN:** Identify the type of action that was taken on the major item (test item). Choose from the list of actions that is provided.
- *44. **INCIDENT STATUS:** Identify the scoring status of this Test Incident Report (FD/SC scoring reported in TIR Blocks 41 through 43). The Incident Status options include: “PRELIMINARY” (if the tester had assigned the score); “SCORED” (if a formal RAM scoring conference committee had scored the data); or “ASSESSED” (if a RAM Assessment Committee had reviewed and assessed the data). Data Evaluation personnel will assign the “Incident Status”.
- *46. **CATEGORIES:** This data field is used to identify what aspect of the testing process the information being reported in the TIR relates to. Examples of the types of categories include the following: RAM, Performance, Safety, Design, Training, Technical Manuals, Repair Parts, Human Factors, Software, Environmental, etc. All applicable categories should be assigned (up to 4 different categories can be entered). The categories should be listed in the order of importance. See Appendix B for a complete listing of the categories.
- *47. **KEYWORDS:** The “keywords” data field gives the tester the ability to assign certain keywords to a test incident that can be used as an identifier to help distinguish certain types of test incidents when sorting data electronically. The tester will assign a descriptive word or phrase that relates to the incident being reported. Up to 4 keywords (phrases) can be used, with the most important keyword listed first. This data field is to be completed by the data evaluation personnel.
48. **TEST ENVIRONMENT:** The DC will identify the phase of test (test environment or mission profile) that the test item was involved in when the incident occurred. The test environment (Mission Profile) codes are located in Appendix B of this handbook.

DEFECTIVE MATERIEL: This data field is used to report what happened to the parts that were removed from the test item (what action was taken with the parts). Examples include: Returned to the Contractor, Held for Failure Analysis, Scrapped, Missing/Lost, etc. The DC will select from the list of “Parts Deposition” options that have been provided. If no parts were replaced, enter "Not Applicable".

_____-_____/_____/_____-_____-_____/_____/_____
ITEM DATE SEQ REL REL DATE RECORD # _____

(NO PUNCH)

INCIDENT DATA

I MAJOR ITEM DATA

*4. TIR#: _____ 15. ITEM ID: _____
21. TEST LIFE: _____ (6) MILES _____ (6) ENG HRS
_____ (6) TURRET HRS _____ (6) ROUNDS
TEST TYPE: a. CT b. OT c. DT (Circle one)
TEST SITE: a. CTF b. ATC c. YPG d. HOOD e. OTHER (Circle One)
30. INC TITLE: _____ (26)
40. DATE: MONTH _____ DAY _____ YEAR _____ TIME: _____

II INCIDENT DATA

31. SUBSYSTEM: _____
32. INCIDENT CLASS:
a. ___ CRITICAL b. ___ MAJOR c. ___ MINOR d. ___ INFORMATION
33. OBSERVED DURING:
a. ___ OPERATION b. ___ MAINTENANCE c. ___ INSPECTION d. ___ SERVICING
e. ___ OTHER f. ___ INIT INSPECT g. ___ RAM-D h. ___ TRANSPORT
i. ___ SAFETY EVAL j. ___ NON-MISSION k. ___ DESK AUDIT
34. ACTION TAKEN:
a. ___ CLEARED b. ___ MAINTAINED c. ___ SUSPEND TEST d. ___ OPERATED
e. ___ DEFER MAINT f. ___ NONE g. ___ INSPECT
*44. INCIDENT STATUS: _____
*46. CATEGORIES: a. _____ b. _____ c. _____ d. _____
*47. KEYWORDS: a. _____ b. _____ c. _____ d. _____
48. TEST ENVIRONMENT:
a) MISSION PROFILE: _____ b) COURSE TYPE: _____ c) COURSE COND: _____
49. DEFECTIVE MATERIEL: (Check one)
a. ___ CONTROLLED SUBSTITUTION g. ___ NOT APPLICABLE
b. ___ FWRD TO DEPOT LEVEL MAINT. h. ___ OTHER, SEE NARRATIVE
c. ___ FWRD TO INTERMEDIATE MAINT. i. ___ RETURNED TO CONTRACTOR
d. ___ HELD FOR FAILURE ANALYSIS j. ___ REWORKED
e. ___ INSTALLED/REINSTALLED k. ___ SCRAPPED
f. ___ MISSING/LOST l. ___ TURNED INTO SUPPLY
(NO PUNCH) (NO PUNCH)
DATA COLLECTOR _____ DATE _____

SCORING DATA INSTRUCTIONS

- *41. **FD/SC STEP#:** Enter the step number from the Failure Definition / Scoring Criteria (FD/SC) that best describes the scoring of the TIR. Note- The database can be set up so that the Step # (block #41) will automatically set the FD/SC Scoring classification (block 42). (To be completed by Data Evaluation Personnel).
- *42. **FD/SC CLASS:** Enter the preliminary scoring classification from the Failure Definition/Scoring Criteria that best describes the scoring of the TIR. Note – The database can be set up so that the Step # (block #41) will automatically set the FD/SC Scoring classification (block 42). * (To be completed by Data Evaluation Personnel).
- *43. **CHARGEABILITY:** Enter the chargeability element that best describes what caused the incident to occur. Some typical chargeability elements include: hardware, software, operator/crew, maintenance personnel, training, etc. Refer to the system’s FD/SC for a complete list of the chargeability elements. (To be completed by Data Evaluation Personnel).
- *36. **SPECIAL REQUIREMENTS DATA:** (This section to be completed by Data Evaluation Personnel).

___ * **BIT Effectiveness:** This data element is used to evaluate how well the test item's on-board diagnostic equipment, known as Built-In-Test (BIT), performed during the troubleshooting/checkout and repair of each test incident.

The typical BIT issues addressed on test programs include the following:

- a. Was Bit Involved? Yes or No (Indicate if BIT was used).
- b. Was it a False Alarm? Yes or No (Indicate if BIT gave a misdiagnosis, incorrect fault indication or False Alarm)
- c. Did BIT detect the Problem? Yes or No (Indicate if BIT detected that a problem was present).
- d. Did BIT isolate the problem to the LRU (Line Replaceable Unit)? Yes or No (Indicate if BIT isolated the problem to the actual faulty component).

Note to Data Collectors - You must provide enough detailed information in the TIR narrative so that these BIT issues can be adequately and accurately addressed.

___ * - **HAZARD:** Enter the appropriate hazard severity category in accordance with the guidelines as outlined in MIL-STD-882A.

Hazard severity categories are defined to provide a qualitative measure of the worst potential consequences resulting from personnel error, environmental conditions, design inadequacies, procedural deficiencies, system, subsystem or component failure or malfunction. The “Hazard Severity Categories” are as follows:

- a. Category I - Catastrophic. May cause death or system loss.
- b. Category II - Critical. May cause severe injury, severe occupational illness, or major system damage.
- c. Category III - Marginal. May cause minor injury, minor occupational illness, or minor system damage.
- d. Category IV - Negligible. Will not result in injury, occupational illness, or system damage.
- e. NA – Not Applicable

INCIDENT SUBJECT DATA INSTRUCTIONS

(WHEN ISSUING A "SHORT FORM TIR", USE ONLY BLOCKS 50, 54 & 60)

0. NAME: Enter the name (nomenclature) of the part that is the subject of the incident.
POSITION CODE: Identify the position (physical location) of the incident subject part in relation to other similar parts on the test item. (See Appendix B for position codes).
51. SERIAL NUMBER: Enter the serial number of the component requiring repair or replacement. If the serial number is not readable put "UNKNOWN" in this space. If the component does not have a serial number, then put "NA" in this space.
52. FSN/NSN: Enter the Federal/National Stock number of the incident part.
53. MFR: Enter the name of the manufacturer or Federal Supply Code of Manufacturer (FSCM) code from the parts manual.
54. MFR PART#: Enter the manufacturer's part number, as listed in the repair parts manual, or as shown on the actual part.
55. DRAWING NUMBER: Enter the MFRS Drawing No. (if known). If not known, enter the TM number and the page number that identifies the part requiring maintenance (e.g.-20P, pg 2-135). If the part is not shown in the parts manual, enter "not shown".
56. QUANTITY: Enter the number of similar parts that apply to the incident.
57. ACTION: Identify what type of action was taken on the incident subject part (removed, installed, repaired, etc). Choose from the selection that has been provided.
60. FGC: Enter the Functional Group Code or the name of the functional group to which the subject part belongs.
61. LSA#: Enter the Logistic Support Analysis (LSA) control number. If the LSA# is not used, enter NA (Not Applicable).
62. SUBJECT PART LIFE: The test life readings entered in blocks 63-65 will reflect the actual test life (operating time/part life) that the incident subject part (Block #50) has accumulated. The test life "WHEN REPAIRED" section will reflect the operating test life of the entire test item at the time the repair was completed.
LIFE PERIOD REPAIRED: The "PART LIFE" section will be filled in by the Data Evaluation personnel. The "WHEN REPAIRED" block will be filled in by the data collector.
65. NEXT ASSY: Enter the name of the next higher assembly of the incident subject part.
- 66 NEXT ASSY SERIAL#: Enter the serial number of the next higher assembly.
67. SOFTWARE VERSION#: Enter the software version # (if applicable) if the test incident is software related. Enter "NA" if not applicable.
- TECHNICAL MANUAL: The DC will indicate if the information provided in the technical manuals (TMs) was adequate to perform all necessary maintenance actions that were required. If an "Unsatisfactory" evaluation is reported, the TM problem must be documented in a separate TIR. This data field will be used by the maintenance evaluators to address the overall adequacy of the technical manuals.

_____-_____/_____/_____-_____-_____-_____/_____/_____
ITEM DATE SEQ REL REL DATE RECORD #_____
(NO PUNCH)

SCORING DATA

*41. FD/SC STEP: _____ *42. FD/SC CLASS: _____

*43. CHARGEABILITY: _____

*HAZARD: 1_CATASTROPHIC 2_CRITICAL 3_MARGINAL 4_NEGLIGIBLE 5_NA

*36. SPECIAL REQUIREMENT DATA: (To be completed by Data Evaluation Personnel)
BIT INVOLVED: a. Yes b. No c. NA d. Unk BIT FALSE ALARM: a. Yes b. No c. NA d. Unk
BIT DETECTION: a. Yes b. No c. NA d. Unk BIT ISOLATION: a. Yes b. No c. NA d. Unk

III INCIDENT SUBJECT DATA

50. NAME: _____ 60. FGC: _____

POSITION CODE: _____

51. SERIAL#: _____ 61. LSA#: _____

PART LIFE: UNITS: WHEN REPAIRED:

52. FSN/NSN: _____ 62. _____ MILES _____ MILES
_____ TURRET HRS _____ TURRET HRS
_____ ENG HRS _____ ENG HRS
_____ ROUNDS _____ ROUNDS

53. MFR: _____ 54. MFR PART#: _____

55. DRAWING#: _____ 56. QUANTITY: _____

65. NEXT ASSY: _____ 66. SERIAL#: _____

57. ACTION: a. __ REPLACED d. __ REMOVED g. __ SERVICED j. __ INSPECTED
b. __ REPAIRED e. __ INSTALLED h. __ MODIFIED k. __ NONE
c. __ ADJUSTED f. __ DIAGNOSED i. __ CLEARED

67. SOFTWARE VERSION#: _____

TECHNICAL MANUAL EVALUATION: (Check one)

s. __ SATISFACTORY m. __ MARGINAL u. __ UNSATISFACTORY n. __ NOT EVALUATED

(NO PUNCH)

(NO PUNCH)

DATA COLLECTOR _____ DATE _____

MAINTENANCE DATA INSTRUCTIONS
(FOR A SHORT FORM TIR – DO NOT USE THIS SECTION)

80. TYPE: This data field is used to identify the type of maintenance that was performed during the incident being reported. The types of maintenance include Unscheduled, Scheduled, No Test, Estimated/Unscheduled, Estimated/Scheduled, and Simulated Maintenance.

Appendix B contains a more detailed definition of the various maintenance types. The DC will utilize existing technical manuals (whenever possible) to follow all maintenance actions as they are being performed. Whenever the maintenance procedures that are actually performed deviate from the procedures that are prescribed in the TMs, the DC must make a special note of this information in the TIR narrative. The TMs should provide clear guidance to the DC as to what type of maintenance is being performed.

81. MAINT LEVEL USED: Identify the maintenance level that was “USED” to perform the maintenance. Appropriate maintenance levels include Crew, Organizational, Direct Support, General Support, and Depot.

82. MAINT LEVEL: Identify the maintenance level that was “PRESCRIBED”
PRESCRIBED in the Technical Manual and/or the Maintenance Allocation Chart (MAC), to do the maintenance that was performed.

83. MAINT LEVEL: Identify the maintenance level that was “RECOMMENDED”
RECOMMENDED to do the maintenance that was performed. This recommendation is based on the opinion of experienced maintainers and qualified maintenance evaluation personnel.

*74. MR CHARGEABILITY: This data field is used to identify if the maintenance time is “Chargeable” or “Non-Chargeable” when calculating maintenance time to address the Maintenance Ratio (MR) requirements. Data Evaluation personnel will determine the MR chargeability.

MAINTENANCE SUBTASK DATA INSTRUCTIONS

The DC will use this section of the maintenance data forms to record all maintenance that is performed. The DC will record a separate entry for each maintenance person that is actively involved in the maintenance task. Separate entries will be used to record the “start” and “stop” times of each person and for each task that they are performing. The information derived from the detailed maintenance data that is recorded in this manner will be used to calculate the diagnostic and active maintenance clock hours and man hours associated with each test incident.

Instructions for the maintenance subtask form:

Date: Enter the date (MM/DD/YYYY) that the maintenance was performed.

MOS: Enter the Military Occupational Speciality (MOS) code of the maintenance person doing the task. Appendix B contains a list of applicable MOS codes.

Maintenance Subtask Instructions (Continued)

- Task Element:** The maintenance “Task Element” data field is used to aid in the calculation of the active maintenance times associated with Fault Location (Diagnostic Time), Fault Correction, and Checkout of Maintenance. By using a series of codes to identify the different maintenance task elements, the DC will record and identify the actual maintenance mode the maintainer is working in (Fault Location (Diagnostic Time), Fault Correction, or Checkout of Maintenance) as the maintenance is being performed. Appendix B contains a complete listing of the applicable “Task Element” codes.
- Task Action:** Identify the maintenance “Task Action” that was performed by the person performing the task. Examples of “Task Actions” include actions such as Remove, Adjust, Tighten, Loosen, Inspect, Install, Torque, etc. Appendix B contains a complete listing of the applicable “Task Action” codes.
- Start Time:** This is the twenty-four hour clock time when the maintenance person starts the maintenance task.
- Stop Time:** This is the twenty-four hour clock time when the maintenance person finished the maintenance task.
- Delay Code:** If there has been a delay in the maintenance being performed, identify the reason the maintenance was stopped. A complete listing of the various types of delays (and related codes) can be found in Appendix B.
- Remarks:** Enter a brief description of the maintenance action that was performed. (Example: inspect; removed GPS; installed GPS; etc.)

The DC will use as many separate maintenance entries on the maintenance data form that are needed to accurately record the start and stop times of the maintenance activity of each maintenance person participating in the maintenance action.

**Sign name and date the bottom.

____ - __/__/__ - ____ - ____ - __/__/__
 ITEM DATE SEQ REL REL DATE RECORD # _____
 (NO PUNCH)

 IV MAINTENANCE DATA

80. TYPE: a. __ UNSCHEDULED b. __ SCHEDULED c. __ NO TEST
 d. __ ESTIMATED/SCHED e. __ ESTIMATED/UNSCH f. __ SIMULATED MAINT

MAINTENANCE LEVEL AND TIME DATA:

81. LEVEL USED: 82. LEVEL PRESC: 83. LEVEL RECMD:
 a. __ CREW a. __ CREW a. __ CREW
 b. __ ORG b. __ ORG b. __ ORG
 c. __ DS c. __ DS c. __ DS
 d. __ GS d. __ GS d. __ GS
 e. __ DEPOT e. __ DEPOT e. __ DEPOT
 f. __ NA f. __ NA f. __ NA

*74. MR CHARGEABILITY:

C __ CHARGEABLE
 N __ NON-CHARGEABLE

*MAINT DEMAND: a. __ SMD c. __ NUMD e. __ NA
 b. __ CCMD d. __ EUMD

MAINTENANCE SUBTASK DATA

Date	MOS	Element	Task	Action	Task	Task Time	Start	Stop	Delay	Remarks

 (NO PUNCH) (NO PUNCH)
 DATA COLLECTOR _____ DATE _____

REMARKS INSTRUCTIONS

BRIEF DESCRIPTION: The first line of the TIR narrative (block #90) is reserved for the DC to provide a brief summary of the TIR. This brief summary will identify what the problem was, and what corrective action (if any) was taken to correct the problem. The first line of the TIR narrative is used with many special database output reports and thus needs to contain this information. Several examples of this brief description are as follows: Steering Pulls To The Left – Adjusted Steering Linkage; Class III Fuel Leak On Fuel Return Line – Tightened Loose Fitting; Turret Malfunction Light Illuminated – Reset CB#19 On Turret Networks Box

SUBSEQUENT LINES: On subsequent lines of the TIR narrative, the DC will fully describe the incident or event and any resultant maintenance action. The DC will provide a very detailed and accurate description of all actions that were taken, providing detailed information such as what troubleshooting steps were followed, were the TMs used, what repairs were performed, and any other useful information that pertains to the test incident. Use complete sentences and proper paragraph structuring, numbering, and indentation. Enter table headings and values as required to amplify the narrative. Use footnotes, if applicable. If desired, skip lines to separate paragraphs, space tables and table headings, and isolate footnotes. Provide answers to as many of these questions as possible:

- a. What happened?
- b. How did it happen?
- c. How was it discovered?
- d. Where did it happen?
- e. Under what conditions did it happen?
- f. Why did it happen?
- g. What actions, if any, were taken?

Include additional information or descriptions for those situations where the entries made in sections I through IV of the TIR may require further clarification. The TIR narrative should include the rationale and justification for the incident classification assignment and for the incident FD/SC scoring, if these scoring classifications are not self-explanatory.

**Sign name and date the bottom.

PARTS DATA INSTRUCTIONS

The Parts Data Form is used to record all parts that are removed or installed on the test item. The DC will fill out a Parts Data Form for each different part that is either removed or installed during a maintenance action.

Note – The terms “Removed, Installed, or Consumed (Removed/Replaced)” are used to identify the type of action that has been performed on the part in question.

“Removed” is used in those situations:

- To report that a part with a serial number has been removed from the test item.
- To report that a part has been removed and no part was installed in its place
- To report that a part with one part number is being removed in those situations where another part with a different part number will be installed in its place.

“Installed” is used in those situations:

- To report that a part with a serial number has been installed.
- To report that a part has been installed in a situation where no part had been removed.
- To report that a part (with one part number) has been installed to replace another part (with a different part number) that had been removed.

“Consumed” is used in those situations:

- To report that a non-serialized part was removed and replaced with an identical non-serialized part that has the same part number. Whenever “Consumed” is used, it indicates that a part was removed and that a new (spare) part was installed in its place (A non-serialized part was removed & replaced with a similar part).

150. Name: Enter the part nomenclature of the part that was removed, installed, or replaced. Use the part nomenclature that is listed in the Parts Manual, whenever possible.

151. Serial Number: Enter the serial number (SN) of the part that was removed or installed. There must be a separate entry to record the SN of the part that was removed and a second entry to record the SN of the part that was installed. If a SN on a part is not readable, enter "UNKNOWN". For all parts without a SN, enter "NA".

52. FSN/NSN: Enter the Federal Stock Number/National Stock Number of the part being removed, installed, or replaced. This information can be obtained from the Parts Manual or from the part or assembly itself.

153. Manufacturer: Enter the manufacturer's name or the Federal Supply for the Manufacturer (FSCM) of the item being repaired or replaced. If the manufacturer of the part is not known, enter unknown.

154. MFR Part#: Enter the manufacturer's part number. This information can be obtained from the Parts Manual or from the part itself. If the part number can not be determined, enter "UNKNOWN".

155. Drawing Number: Enter the manufacturer's drawing number. This information can be obtained from the Parts Manual (example: TM -20P, Pg 2-135, Item #12). If the part is not shown in the parts manual, enter "not shown".

PARTS REPLACED DATA (Continued)

156. Quantity: Enter the number of parts that were removed, installed, or replaced.

157. Action: Identify whether the part was removed, installed, or consumed (removed/replaced). The action "Consumed" is used to record the "parts" that are replaced in a situation where a part is removed and an identical replacement part (with the same part number) is installed in its place (headlight, roadwheel, fuel filter, etc). "Removed" and "Installed" are used to record the serialized parts that are being removed and installed on the test item.

160. FGC: Enter the appropriate functional group code (FGC) from the MAC in the -20 series manual).

161. LSA#: Enter the LSA Control Number listed in the LSAR (Logistic Support Analysis Record) for the subject part or assembly. If the LSA is not used, enter "NA" (Not Applicable).

162. Part Life: The test life entered in block 163-165 will consist of two different test life readings. The first test life reading is the "Part Life" reading. This reading will report the actual test life of the part that was removed or installed (the number of test miles/hours this part has accumulated during testing). The second test life reading reported in this section is the "WHEN REPAIRED" test life. This test life reports the overall test life of the test vehicle (test item) at the time the part was replaced.

When Replaced: The "PART LIFE" information will be calculated by the Data Evaluation Personnel. The "WHEN REPAIRED" test life readings will be reported by the data collection personnel.

Position Code: The position code is used to differentiate one part from another in those situations where the exact same part is located in more than one location on a test item (examples include: roadwheels, incandescent lamps, shock absorbers, brake shoes, etc.) The position code is a coding system that can be used when tracking the specific part life of each component of a test item. See Appendix B for a listing of applicable position codes.

*Reason Used: Identify the type of maintenance action that was being conducted when the part was changed (identify the reason the part was changed). Options include: Unscheduled Maintenance, Scheduled Maintenance Action, and No Test. The "Reason Used" should coincide with the RAM scoring of the test incident.

Maintenance Level: Identify the maintenance level that was prescribed in the technical manual to replace the part. This information can be obtained from the parts manual.

* Logistics Demand: Identify if there was a Logistics Demand associated with the replacement of the part that was removed or installed. The Logistics Demand assigned should coincide with the RAM Scoring (per FD/SC). Options include: Essential Logistics Demand (ELD); Non-Essential Maintenance Demand (NELD); and for those incidents where there was no Logistics Demand, use NA (Not Applicable).

_____-_____/_____/_____-_____-_____/_____/_____
ITEM DATE SEQ REL REL DATE RECORD # _____
(NO PUNCH)

PARTS DATA

150. NAME: _____ 160. FGC: _____
151. SERIAL#: _____ 161. LSA#: _____
152. FSN/NSN: _____
PART LIFE: UNITS: WHEN REPLACED:
153. MFR: _____ 162. _____ MILES _____ MILES
163. _____ TURRET HRS _____ TURRET HRS
164. _____ ENG HRS _____ ENG HRS
165. _____ ROUNDS _____ ROUNDS
154. MFR PART#: _____
155. DRAWING NUMBER: _____ *LOGISTICS DEMAND: a. ___ ELD
b. ___ NELD
156. QUANTITY: _____ c. ___ NA
157. ACTION: a. ___ CONSUMED/REPLACED c. ___ INSTALLED
b. ___ REMOVED d. ___ *ESTIMATED/CONSUMED
POSITION CODE: _____ *REASON USED: a. ___ SCHEDULED
b. ___ UNSCHEDULED
c. ___ NO TEST
MAINT LEVEL: a. ___ CREW d. ___ GS
b. ___ ORG e. ___ DEPOT
c. ___ DS f. ___ NA

150. NAME: _____ 160. FGC: _____
151. SERIAL#: _____ 161. LSA#: _____
152. FSN/NSN: _____
PART LIFE: UNITS: WHEN REPLACED:
153. MFR: _____ 162. _____ MILES _____ MILES
163. _____ TURRET HRS _____ TURRET HRS
164. _____ ENG HRS _____ ENG HRS
165. _____ ROUNDS _____ ROUNDS
154. MFR PART#: _____
155. DRAWING NUMBER: _____ *LOGISTICS DEMAND: a. ___ ELD
b. ___ NELD
156. QUANTITY: _____ c. ___ NA
157. ACTION: a. ___ CONSUMED/REPLACED c. ___ INSTALLED
b. ___ REMOVED d. ___ *ESTIMATED/CONSUMED
POSITION CODE: _____ *REASON USED: a. ___ SCHEDULED
b. ___ UNSCHEDULED
c. ___ NO TEST
MAINT LEVEL: a. ___ CREW d. ___ GS
b. ___ ORG e. ___ DEPOT
c. ___ DS f. ___ NA

(NO PUNCH) (NO PUNCH)
DATA COLLECTOR _____ DATE _____

APPENDIX A. ADACS DATA DICTIONARY

<u>DATA ELEMENT/SUBJECT</u>	<u>DEFINITION</u>
ACTION (BLOCK #57)	Enter the word or phrase that best describes what was done to the incident subject part or assembly during the incident. (See Appendix B for acceptable values).
ACTION TAKEN (BLOCK #34)	Enter the word or phrase that best describes any action that was taken on the major item as a result of the incident. Acceptable values include: CLEARED DEFER MAINT MAINTAINED NONE SUSPEND TEST INSPECT OPERATED
ACTIVE MAINT	This indicates the elapsed CLOCK HOURS and MAN HOURS for each level of maintenance. CLOCK HOURS is the total amount of clock time (clock hours) spent performing the maintenance. MAN HOURS is the amount of clock time multiplied by the actual number of action.
CATEGORY	The "Category" data field is used to identify what aspect of the testing process the incident being reported in the TIR relates to. All applicable categories will be submitted, with the primary (most important) category listed first. Examples of acceptable values include the following: PHYSICAL HUMAN FACTORS CORROSION SAFETY O&O TEST ADMIN PERFORMANCE TRAINING SOFTWARE RAM ENVIRONMENTAL LOG SUPPORT DESIGN REPAIR PART TMDE TECH MANUAL
CHARGEABLE	Those maintenance times which are used in the calculations of maintainability and availability. If a maintenance time is chargeable, it will be added in for calculating the Maintenance Ratio (MR), Mean-Time-To-Repair (MTTR), Achieved Availability (AA) and Maximum Corrective Downtime (Mmax). Chargeable maintenance is usually defined in the Operational Reliability and Maintainability Failure Definitions and Scoring Criteria.
CHARGEABILITY	The FD/SC chargeability identifies the chargeable element that caused the incident to occur. Typical FD/SC chargeability entries include (but are not limited to): HARDWARE TRAINING TECHNICAL MANUALS SOFTWARE GFE OPERATOR/CREW SUPPORT EQUIP

MAINT PERSONNEL ACCIDENT

DATA ELEMENT/SUBJECT	DEFINITION
DEFECTIVE MATERIAL of	This data field is used to report what action was taken with the parts that were removed from the test item (i.e. where the failed components were sent). Also referred to as "MATERIEL SENT TO". Examples of typical part disposition options include: Held For Failure Analysis; Returned To Contractor; Scrapped; Missing/Lost; Reworked; Turned In To Supply; Not Applicable; Other
DRAWING NUMBER	This represents the engineering drawing number of the subject part. This is usually an 8 digit number and is used only in the early stages of system development. In later stages of development, the drawing number standardizes to the manufacturer's part number.
FGC (TB 750-93-1)	This is the functional group code of the part as shown in the maintenance allocation chart (MAC), the repair part manual or technical bulletin FSN/NSN. Enter the Federal/National Stock Number for the item named in Block 50. This information can be obtained from the Parts Manual.
HAZARD SEVERITY (MIL-STD-882A) 28 June 1977	Hazard severity categories are defined to provide a qualitative measure of the worst potential consequences resulting from personnel error, environmental conditions, design inadequacies, procedural deficiencies, system, subsystem or component failure or malfunction as follows:

- a. Category I - Catastrophic. May cause death or system loss.
- b. Category II - Critical. May cause severe injury, severe occupational illness, or major system damage.
- c. Category III - Marginal. May cause minor injury, minor occupational illness, or minor system damage.
- d. Category IV - Negligible. Will not result in injury, occupational illness, or system damage.

These hazard severity categories provide guidance to a wide variety of programs. However, adaptation to a particular program may be required. This adaptation

may include definite transition points between categories and further definition of the degree of injury or damage.

<u>DATA ELEMENT/SUBJECT</u>	<u>DEFINITION</u>
INCIDENT CLASSIFICATION	<p>The “Incident Classification” is used in the corrective action process. There are 4 classifications that can be assigned. These classifications are assigned in accordance with the guidance and procedures that are outlined in the DA PAMPHLET 73-1. The 4 incident classifications are as follows:</p> <p>CRITICAL (1) Involves a catastrophic or critical hazard related to health or safety of personnel (death or severe injury or occupational illness; Categories I and II per MIL-STD-882). (2) Involves a catastrophic hazard pertaining to safety to the item/system under test (unplanned system loss; Category I per MIL-STD-882). (3) Reports test results which make test suspension or termination advisable.</p> <p>- MAJOR (1) Involves a safety hazard, other than catastrophic or critical, to health or safety of personnel. (2) Involves a critical or marginal safety hazard pertaining to the item/system under test (unplanned major system damage; Category II per MIL-STD-882). (3) Reports the inability of the test materiel (including diagnostic equipment, tools, publications, software, etc.) to meet a critical or essential function area, design, or performance requirement. (4) Reports subtest results which reflect inadequate performance which require expedited corrective action by the materiel proponent. (5) Reports non-receipt of all or part of the SSPL, the SSP, or an inadequacy in the components of the SSP. (6) Reports test materiel received in unsatisfactory condition for test.</p> <p>- MINOR (1) Reflects an actual or incipient malfunction, defect, hazard, or negative finding that does not qualify as critical or major. (2) Reports subtest results which reflect marginal performance which require improvements by the materiel proponent.</p> <p>- INFORMATION - Reports modification to the tested item, current condition of the tested item, test findings, subtest results, safety release information, or other types of test information where no malfunction has occurred (scheduled service or PMCS performed, etc).</p>
INCIDENT DATE	<p>The MONTH, DAY and YEAR on which the test incident occurred. (EX: MONTH 03, DAY 02, YEAR 1999).</p>
INCIDENT STATUS	<p>The “Incident Status” data field is used to identify the scoring status</p>

of the test incident reported in the TIR. If the scoring status (Blocks 32 and 41 through 43) represents the Tester's score, the status of "PRELIMINARY" is entered. Enter the status "SCORED" if a formal committee such as a RAM Scoring Conference has scored the data. Enter the status "ASSESSED" if a formal committee such as a RAM Assessment Conference scored the data. Status entries are: PRELIMINARY SCORED ASSESSED

INCIDENT TITLE (Block #30) A title for the TIR or a brief summary of the information that is contained in the TIR.

<u>DATA ELEMENT/SUBJECT</u>	<u>DEFINITION</u>
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KEYWORDS: The "keywords" data field gives the tester the ability to assign certain keywords to a test incident that can be used as an identifier to help distinguish certain types of test incidents when sorting data electronically. The tester will assign a descriptive word or phrase that relates to the incident being reported. Up to 4 keywords (phrases) can be used, with the most important keyword listed first. This data field is to be completed by the data evaluation personnel.

NOTE: Before using these keyword blocks, contact the local ATIRS administrator (prior to the commencement of test) to obtain a list of established keywords that can be used. Other keywords may be added by registering them with the ATIRS administrator.

LEAKAGE When reporting fluid leakages, the rate of leakage is a very important data point that needs to be reported. The Army has an established leakage rate reporting policy that should be used whenever a fluid leakage is being reported. Fluid leakage rates are classified as Class I, Class II, or Class III leaks. The definitions for these leaks are as follows:

Class I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II - Leakage of fluid great enough to form drops but not great enough to cause drops to drip from the item being checked/inspected.

Class III - Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

LINE REPLACEABLE UNIT (LRU) A replaceable component (part) of the test item (vehicle or equipment system undergoing testing) that is replaceable by the maintainers in the field (front line maintenance levels – Organizational/Unit Level).

MAINTENANCE LEVEL (PRESCRIBED) Identify the maintenance level that was prescribed in the Technical Manual and/or the Maintenance Allocation Chart (MAC), to do the maintenance that was performed. The various maintenance levels are listed below:

- OPERATOR/CREW
- ORGANIZATIONAL
- DIRECT SUPPORT
- GENERAL SUPPORT
- DEPOT
- NA

MAINTENANCE LEVEL (RECOMMENDED) Based on the level of skill required to perform the maintenance action in question, this represents the classification of the recommended maintenance level that is recommended to perform the maintenance action. Maintenance classifications are listed below:

- OPERATOR/CREW
- ORGANIZATIONAL
- DIRECT SUPPORT
- GENERAL SUPPORT
- DEPOT
- NA

DATA ELEMENT/SUBJECT	DEFINITION
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MAINTENANCE LEVEL (USED)	This represents the classification of the maintenance level that was used to perform the maintenance action in question. Maintenance classifications are listed below:
---------------------------------	--

- OPERATOR/CREW
- ORGANIZATIONAL
- DIRECT SUPPORT
- GENERAL SUPPORT
- DEPOT
- NA

MAINTENANCE TIME CHARGEABLE	See definitions for CHARGEABLE, NON-CHARGEABLE and MR CHARGEABILITY.
------------------------------------	--

MAINTENANCE	This indicates whether the maintenance type was Unscheduled (corrective), Scheduled (preventative), or No Test (Non-RAM Oriented Maintenance Event).
--------------------	--

MR CHARGEABILITY	When maintenance times are recorded, they will be classified as chargeable or non-chargeable. Chargeable maintenance will be the maintenance times that will be included in the calculations when determining Maintenance Ratio's (MR), mean-time-to-repair (MTTR), Total Corrective Maintenance Downtime (TCM) and other maintenance related indices. The maintenance time chargeability must coincide with the FD/SC scoring classification.
-------------------------	--

MFR	The name of the Manufacturer of the major item.
------------	---

MFR PART NO. This is the manufacturer's part number of the part in question. This part number can be obtained from the Parts Manual or from the part itself.

MODEL This is the model number of the Major End Item.

NAME This is the nomenclature (name) of the incident subject part.

NEXT ASSEMBLY This identifies the name of the next higher assembly of the incident subject part.

NON-CHARGEABLE This is the maintenance time that is defined as "Not Chargeable" against the maintenance ratio. Examples of non-chargeable maintenance times are incidents that are scored "No Test".

OBSERVED DURING Identifies what type of function was in progress when the test incident occurred. This describes the type of test activity that was taking place when the incident was detected (i.e. Inspection, Operation, Maintenance, Servicing, Safety Evaluation).

DATA ELEMENT/SUBJECT

DEFINITION

PART LIFE

The "Part Life" reflects the actual operating time that a part has accumulated during testing. In order to determine the part life (operating hours/miles) of a component on a test item, a calculation is performed using the following test data: 1. Determine the current operating test life of the test item at the time of the incident; 2. Determine if the part has ever been replaced before; 3. Using the test life readings when the part was last replaced (or using 0.0 part life if the part has never been replaced before), subtract the current test life readings from the test life readings when the part was last replaced. This will give you the "Part Life" of the part in question.

QUANTITY

The number (quantity) of identical parts discovered at the same time on the same major item that involves the same part transaction. (i.e. "Eight bolts were replaced on the two roadwheels").

RELEASE DATE

an

REV# and

revision number.

The date that the TIR was released for distribution, using the DD/MMM/YYYY format. If a revised TIR is released to update original TIR, change the original release date to the release date of the revision, followed by a space and the phrase the revision number. Allocate two spaces for the

Examples: Original TIR: 04 AUG 1999

Revised TIR: 06 AUG 1999 REV# 01

SCHEDULED MAINTENANCE

Periodic, prescribed servicing or inspection of equipment accomplished on a calendar, mileage, hours of operation, round or cycle basis. Scheduled maintenance time includes inspections, tests, services, and only those adjustments, alignments, calibrations, and replacements of components that are specifically defined as cyclic actions or component changes (not chance occurrences) in the maintenance manual's preventive maintenance check and services table. For example, where the preventative maintenance check and services table states "inspect and replace, repair, adjust, align, etc., if necessary," the active maintenance time to "inspect" is chargeable to scheduled maintenance time while the ctive maintenance time to perform all maintenance task elements other than "inspect" is chargeable to unscheduled maintenance time. That portion of preparation time, checkout time, and cleanup time that is related to "inspect" or other cyclic actions or component changes is also included in scheduled maintenance time. The scheduled maintenance for a given test is usually defined in the organizational manual (-20).

SERIAL#

The serial number is a unique number that has been assigned to a part/component by the manufacturer at the time the item was manufactured. The serial number is used for various tracking purposes during the life cycle of the part/component.

DATA ELEMENT/SUBJECT

DEFINITION

SOFTWARE VERSION# The software version number (#) is the level of software that the incident subject part contains.

SUBSYSTEM The “Subsystem” is a breakdown of the major subassemblies of the test item. These subsystems are used in the system evaluation process. Typical subsystems on a vehicle system include such items as: Engine, Transmission, Frame, Electrical Instl, Hydraulics, Wheels & Tires, etc. See Appendix B for applicable codes.

SYSTEM The “System” name represents the family of test vehicles or equipment that the test item belongs to. The M1A2 Abrams Tank System, the Bradley Fighting Vehicle System, the Family of Medium Tactical Vehicles (FMTV) System are examples of the vehicle “System”. NOTE: If the System name is not known, contact the local ATIRS administrator to obtain this information.

SYSTEM TEST SUPPORT PACKAGE The System Support Package is an assemblage of support elements provided prior to, and used during development and operational tests to validate the organizational, direct support and general support maintenance requirements and capability. The maintenance test support package includes all required draft equipment publications (operator through general support technical maintenance equipment manuals), parts, accessories, special and common tools, test support, calibration, maintenance shop facilities, and personnel skill requirements.

TEST ENVIRONMENT Identifies the type of test activity (test environment/mission profile) and the course type that the test item was operating on when the test occurred (i.e. Endurance Operations, Paved Road, etc.). A detailed list of established values is contained in Appendix B.

TEST LIFE This represents the accumulated test life on the major item at the time of the incident. Appropriate est life entries include accumulated miles, operating hours, rounds fired, and operating cycles, etc (Also referred to as System Life).

TIME The time based on a twenty-four hour clock (0001 to 2400) corresponding to when the incident occurred.

UNSCHEDULED MAINT Unscheduled maintenance is that portion of the maintenance time that is not scheduled and is performed in a non-periodic, non-predetermined time frame that is required to correct malfunctions and problems that occur between scheduled inspections and services.

USA# United States Army Registration number (for vehicles Only). This data field pertains only to test items that are Army vehicles and which have been assigned a USA registration number.

APPENDIX B. APPLICABLE CODE SHEETS

TEST ENVIRONMENT/MISSION PROFILE CODES (TIR & MISSION)

(32 CHARACTERS)

CODE MISSION PROFILE/TEST ENVIRONMENT (Test Phase)

- 01 INITIAL INSPECTION
- 02 PHYSICAL CHARACTERISTICS
- 03 AUTOMOTIVE PERFORMANCE
- 04 TRANSPORTABILITY
- 05 ENDURANCE AND RELIABILITY
- 06 LOGISTIC SUPPORTABILITY
- 07 HUMAN FACTORS ENGINEERING (HFE)
- 08 SAFETY EVALUATION
- 09 FINAL INSPECTION
- 10 MAINTENANCE
- 11 ENVIRONMENTAL CHAMBER OPERATIONS
- 12 TRAINING
- 13 AMMO/WEAPON FIRING
- 14 DEMO/OTHER

COURSE TYPE CODES (TIR & MISSION DATA)

The following codes are to be used when accumulating miles:

Code Course Type

- A SECONDARY ROAD "A"
- G GRAVEL
- P PAVED
- 2 LEVEL X-COUNTRY 2
- 3 LEVEL X-COUNTRY 3
- HB HILLY X-COUNTRY-B
- HC HILLY X-COUNTRY-C
- BG BELGIAN BLOCK & GRAVEL

The following course type codes are not to be used when miles are being accumulated (stationary operations only):

Code Course Type

- R MAINTENANCE SHOP
- L LAB
- FR FIRING RANGE
- NA NA

SUBSYSTEM CODES (INCIDENT DATA)

<u>CODE</u>	<u>SUBSYSTEM</u>
00	Complete Vehicle
01	Engine Assy
03	Fuel System
04	Exhaust System
05	Cooling System
06	Electrical Instl
07	Transmission Assy
08	Transfer/Final Drives
09	Propeller/Shafts
10	Front Axle Instl
11	Rear Axle Instl
12	Brake Instl
13	Wheels (Wheeled Vehicles)
13	Suspension System (Tracked Vehicles)
14	Steering Instl
15	Frame Assembly
16	Springs/Shock Absorber
18	Body, Cab & Hull
19	Turret Assembly
20	Hoist & Winch Instl
21	Bumpers & Guards
24	Hydraulic Instl
26	TMs, Tools/Test Equip
31	BII, OVE
33	Special Purpose Kits
34	Armament
47	Gages, Non-electrical
91	NBC
96	CTIS Instl

SUBSYSTEM CODES (SERVICING ONLY)

<u>CODE</u>	<u>SUBSYSTEM</u>
A2	SUSPENSION
A2B	SHOCKS
A2C	ARM & HUB ASSY
A2D	SUPPORT ROLLER
A4	ENGINE
A5	TRANSMISSION
A6	FINAL DRIVE
A7	FUEL SYSTEM

A8
B1

COOLING SYSTEM
HYDRAULICS

CATEGORIES (TIR)
(14 CHARACTERS)

CODE CATEGORY

A RAM
B HUMAN FACTORS
C PERFORMANCE
D TRAINING
E SOFTWARE
F SAFETY
G PHYSICAL
H O&O
I TEST ADMIN
J REPAIR PART
K TECHNICAL PUBS
L TMDE
M CORROSION
N ENVIRONMENTAL
P LOG SUPPORT
R DESIGN

COURSE CONDITION CODES (TIR & MISSION)
(16 CHARACTERS)

CODE COURSE CONDITION

A DRY
B DUSTY
C HEAVY MUD
D ICE
E ICE AND SNOW
F LIGHT MUD
G SNOW
H WET
I WET SNOW
J NA

VISIBILITY CODES (MISSION DATA)
(28 CHARACTERS)

CODE VISIBILITY

— A CLEAR, UNLIMITED
B DUST/SMOKE, LIMITED
C FOG, LIMITED
D HAZE, LIMITED
E RAIN, LIMITED
F RAIN AND FOG, LIMITED
G RAIN AND HAZE, LIMITED

H SNOW/FREEZING RAIN, LIMITED
J NA

COMMODITY TYPE CODES (SERVICE FORM)
(50 CHARACTERS)

CODE COMMODITY TYPE

- 02 FLUID, HYDRAULIC, MIL-L-2104 (MAIN RESERVOIR)
- 03 GREASE, AUTO & ARTILLERY, GAA, MIL-G-10924
- 04 OIL, LUBRICATING, VV-L-800 (GENERAL PURPOSE)
- 05 OIL, LUBRICATING, OE/HDO 10
- 06 OIL, LUBRICATING GEAR, GO 80W-90
- 07 OIL, LUBRICATING, OE/HDO 15W40
- 08 OIL, LUBRICATING, 10W30
- 09 OIL, LUBRICATING, OE/HDO 40
- 10 FUEL, DIESEL, DL-1
- 11 FUEL, DIESEL, DL-2
- 12 FUEL, JP8
- 13 ANTI-FREEZE

MOS LIST (MAINTENANCE DATA)

(24 CHARACTERS)

MOS	DESCRIPTION	LEVEL		
		ORG(O)	DS(F)	GS(H) CREW(C)
63G	Fuel & Electrical Sys Repairman		X	X
63S	Wheeled Vehicle Mechanic	X		
63W	Wheeled Vehicle Repairer		X	X
88M	Motor Transport Operator			X
39E	Special Electronic Devices Repairer			X
99C	Contractor Personnel	X	X	X
12C	Operator/Crew			X

TASK ELEMENT CODES (MAINTENANCE DATA)

(24 CHARACTERS)

UNSCHEDULED

SCHEDULED

- 12 - Fault Location
- 14 - Fault Correction
- 16 - Checkout of Maintenance
- *19 - Non-Chargeable
- *17 - Curing Time
- 24 - Perform Inspection/Service
- *29 - Non-Chargeable

*Check with Data Evaluation Personnel before using these codes.

TASK ACTION CODES (MAINTENANCE DATA)

(26 CHARACTERS)

- | | |
|-------------------------------|-------------------------|
| a ___ ADJUSTED | o ___ OTHER |
| b ___ ALIGNED | p ___ REINSTALLED |
| c ___ CALIBRATED | q ___ REMOVED |
| d ___ CONTROLLED SUBSTITUTION | r ___ REPAIRED |
| e ___ CLEANED | s ___ CONSUMED/REPLACED |
| f ___ CONNECTED | t ___ SERVICED |
| g ___ DISASS/ASSEMBLED | u ___ SHIMMED |
| h ___ DISCONNECTED | v ___ TAPPED/DIED |
| i ___ INSPECTED | w ___ TESTED |
| j ___ INSTALLED | x ___ TORQUED/TIGHTENED |
| k ___ LUBRICATED | y ___ TROUBLESHOOTING |
| l ___ NO ACTION TAKEN | z ___ WELDED |
| m ___ MWO | |
| n ___ OPERATED | |

DELAY CODES (MAINTENANCE DATA)

(26 CHARACTERS)

- 0 - NO DELAY
- 1 - SUPPLY DELAY
- 2 - ADMINISTRATIVE DELAY
- 3 - WEATHER DELAY
- 4 - OTHER MILITARY DUTIES DELAY
- 5 - AWAITING MAINTENANCE PERSONNEL
- 6 - AWAITING REQUIRED TMDE

7 - DEFERRED MAINTENANCE
8 - AWAITING REQUIRED TOOLS

FD/SC SCORING CODES (TIR ONLY)

The Failure Definition/Scoring Criteria (FD/SC) contains detailed technical instructions that are to be followed when assigning the Reliability Availability Maintainability (RAM) scores to test incidents that occur during testing. There are several different types of scoring schemes that the FD/SC could follow. The following table lists a type of FD/SC Scoring example that utilizes the "SA/EFF, EFF, NEFF" scoring methodology.

<u>Database Code</u>	<u>FD/SC Step # (Block #41 on TIR)</u>	<u>FD/SC Classification (Block #42 on TIR Block)</u>
01A	No Test	Pretest Checkout
01B	No Test	Equipment Mod
01C	No Test	Test Peculiar
01D	No Test	Test Abuse
01E	No Test	Unrelated Damage
01F	No Test	Not Ram Oriented
02A	Non-Failure	PMCS
02B	Non-Failure	Scheduled Maint
02C	Non-Failure	Routine Procedures
03A	Failure	SA/EFF
03B	Failure	EFF
03C	Failure	Non-EFF
04A	Failure	Dependent Malfunction

Chargeability (Block #43 on TIR)

<u>Code</u>	<u>Chargeability Element</u>	<u>Code</u>	<u>Chargeability Element</u>
CHC	Hardware/CFE	CHG	Hardware/GFE
CC	Crew/Operator	CMP	Maint Personnel
CM	Technical Manuals	CSE	Support Equipment
CS	Software	CA	Accident
CT	Training	CPF	Primary Failure
NA	NA		

POSITION CODES
(INCIDENT SUBJECT DATA & PARTS DATA)

The following table lists the position codes of suspension components only. If the maintenance is related to components other than the suspension, use these codes: LT (Left); RT (Right); FT (Front); RR (Rear); and CT (Center), etc.

INDIVIDUAL ROADWHEEL POSITIONS

<u>Position</u>	<u>Code</u>
Left #1 Outer	L10
Left #1 Inner	L1I
Left #2 Outer	L20
Left #2 Inner	L2I
Left #3 Outer	L30
Left #3 Inner	L3I
Left #4 Outer	L40
Left #4 Inner	L4I
Left #5 Outer	L50
Left #5 Inner	L5I
Left #6 Outer	L60
Left #6 Inner	L6I
Left #7 Outer	L70
Left #7 Inner	L7I

ROAD ARMS, IDLER ARM, TORSION BAR,
SPROCKET WHEEL POSITIONS

<u>Position</u>	<u>Code</u>	<u>Position</u>	<u>Code</u>
Left #1 Roadarm	L1	Right #1 Roadarm	R1
Left #2 Roadarm	L2	Right #2 Roadarm	R2
Left #3 Roadarm	L3	Right #3 Roadarm	R3
Left #4 Roadarm	L4	Right #4 Roadarm	R4
Left #5 Roadarm	L5	Right #5 Roadarm	R5
Left #6 Roadarm	L6	Right #6 Roadarm	R6
Left #7 Roadarm	L7	Right #7 Roadarm	R7
Left Idler	LI	Right Idler	RI
Left Sprocket	LS	Right Sprocket	RS

INDIVIDUAL IDLER WHEEL POSITIONS

Right #1 Outer	R10
Right #1 Inner	R1I
Right #2 Outer	R20
Right #2 Inner	R2I
Right #3 Outer	R30
Right #3 Inner	R3I
Right #4 Outer	R40
Right #4 Inner	R4I
Right #5 Outer	R50
Right #5 Inner	R5I
Right #6 Outer	R60
Right #6 Inner	R6I
Right #7 Outer	R70
Right #7 Inner	R7I

<u>Position</u>	<u>Code</u>
Left Outer	LO
Left Inner	LI
Right Inner	RI
Right Outer	RO

If additional position codes are needed, contact the Data Evaluation personnel to establish any additional codes that may be required.

User's Guide

By US Army Aberdeen Test Center



5/21/97

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Introduction

About This Manual

The Automated Test Information Management System provides a flexible, user friendly means of collecting and loading TIR and other data

This manual is intended for all ATIMS users, from beginners to experts. It covers all aspects of data management using ATIMS in conjunction with ADACS and ATIRS. Designed primarily as a reference guide, this manual covers topics such as standard Test Incident Report (TIR) entry, the release of data to ADACS, merging data to other locations, and retrieving TIRs for revision.

How This Manual Is Organized

This manual consists of 8 chapters, 2 appendices, a glossary and an index. The following paragraphs summarize the goal of each chapter and appendix.

Chapter 1 deals with the basics of ATIMS data management. It describes the many ways the flexible ATIMS software can be used; with either a single user, or multiple users in remote locations.

Chapter 2 illustrates and explains the anatomy of the ATIMS screen. Each screen element, such as dialog boxes, buttons, menus, and toolbars are explained in detail.

Chapter 3 cover each aspect of entering data, including creating a new data sheet record, editing records, filling out forms, and noting interim information.

Chapter 4 explains whom should merge data, and when they should do it. Each step in the process is explained.

Chapter 5 explains how to convert your data to an ADACS loadable format. It describes when it is appropriate to release your data to ADACS, and how to do it.

Chapter 6 describes a method of data quality checks that can be used in instances where multiple users are viewing / editing data sheet records.

Chapter 7 gives step by step instructions on how to revise TIRs that have already been released to ADACS.

Chapter 8 Explains each of the program preferences, such as file paths and data sources.

Appendix A provides a listing of technical support points of contact. In the event you should need more in-depth assistance than this manual provides, look here for the names, phone numbers and e-mail addresses of those you should contact.

Appendix B explains the plans for future enhancements to the Automated Test Information Management System; the directions we are headed in, and our anticipated priorities.

About ATIMS

The ATIMS Program

ATC is dedicated to providing quality support for ATIMS and continually expanding it's scope to meet the changing needs of its users.

The Automated Test Information Management System is a Microsoft Windows ® based system that allows single and multiple users in different locations to collect data, transfer data, and release data to ADACS. The system was developed by the US Army Aberdeen Test Center (ATC) at Aberdeen Proving Ground, MD.

Generating an ATIMS Program

Generating a custom ATIMS program is as easy as 1-2-3!

Each ATIMS program is custom designed to handle virtually any type of data being collected for a particular test, i.e. Test Incident Report data. Data forms are designed using V-Plus FormSpec® on the ADACS HP 3000 computer (see Appendix B, “The Future” for future plans to design forms directly from the PC). The ADACS Builder program uses FormSpec information to automatically generate the custom ATIMS program files. A custom ATIMS program can be generated in the time it takes to input form and field information; in the case of the standard TIR, an ATIMS program can be generated in less than an hour.

Modifying Data Requirements

The ATIMS Form Editor makes it easy to change properties without recompiling source code.

Field properties such as lists of acceptable values for a field, initial values, and data types are easily modified using the ATIMS Form Editor companion program. The Form Editor is a stand-alone utility that works with any ATIMS program. See the Form Editor manual for detailed information on modifying form and field properties.

Pen Support

With ATIMS, multiple users can enter data using pen-based machines in the field, and later merge the data to a centralized location.

Each ATIMS program is fully functional under Microsoft Windows® on pen-based computers. The data collector in the field can enter data in the ATIMS program, then merge the data to a centralized ATIMS data repository using floppy disks, network connections, or null serial cable (see Chapter 4, Merging Data).

Releasing Data to ADACS

ATIMS generates a file format which can be loaded to ADACS.

The ATIMS software makes it easy to release data to an ADACS database (see Chapter 5, Releasing data to ADACS). Once the data is in the ADACS database, reports can be generated using the ATIRS reporting methods (see the ATIRS User's Guide for more information).

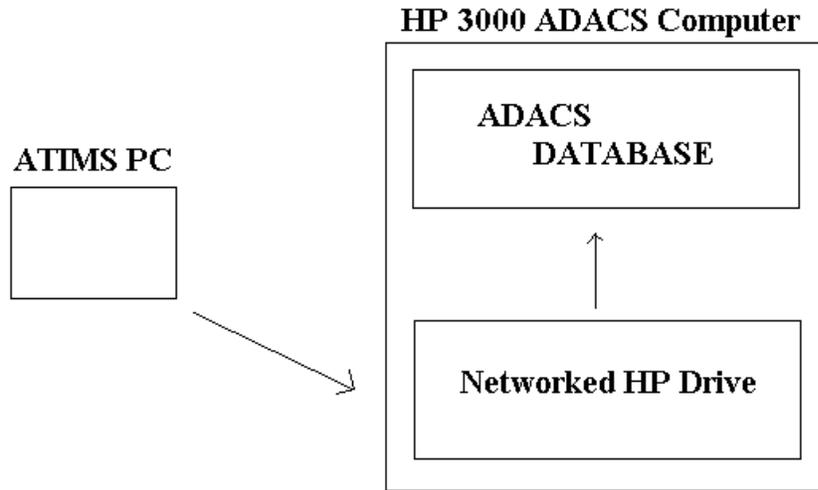
ATIMS Configurations

ATIMS is flexible enough to be used in many different data collection environments (see the ATIMS System Administrator's Guide for information on setting up the various configurations). What follows is a basic description of each of the configurations currently being used.

Standalone

The PC user is the only person involved in the process of collecting and loading ADACS data.

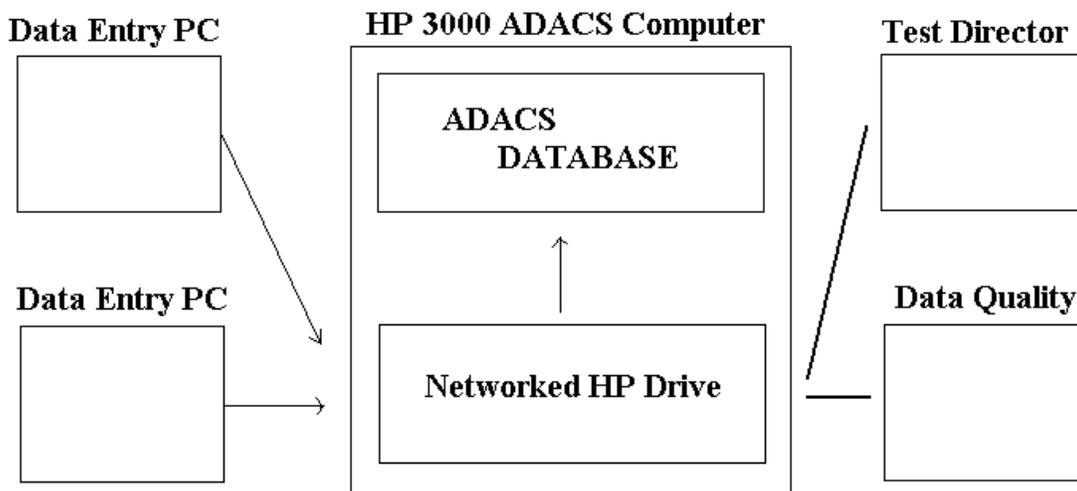
In the Standalone configuration, a single PC is used for test data entry. ATIMS data are stored on a HP 3000 Resource Sharing network drive. Once complete, the data are released to the ADACS database.



Data can be collected at multiple sites and then merged to a central location where one or more user can revise or release the data.

Multiple User

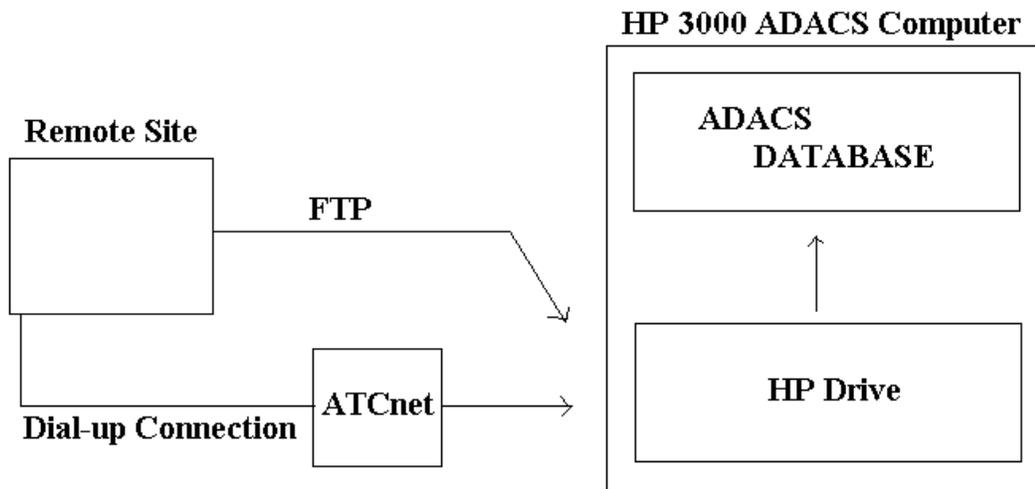
In the Multiple User configurations, there is more than one user involved in the process of collecting and releasing ADACS data. In the illustration below, Data Collectors enter data from remote sites then merge the data to the networked HP drive (see Chapter 4, Merging Data). Once on the network drive, Data Quality performs edit checks. The Test Director then releases the data to ADACS.



Users in any location can use ATIMS for their data management needs, and upload directly to ADACS through a network or dial-up connection.

Remote Site

Users outside ATC can also use ATIMS to collect data locally, then release the data to ADACS. Either of the above configurations may be used at the remote site. To release the data to ADACS, remote users access the ADACS database via a network connection, using FTP (File Transfer Protocol), or a dial-up network connection (see Appendix B, “The Future of ATIMS” for information on plans to generate ATIRS streamer TIRs that can be e-mailed to the ADACS database).



System Requirements

Hardware

IBM Compatible PC, 80386 33mhz or better

4 MB RAM (8 MB recommended)

5 MB hard disk space, plus extra for data

Optional: Network Connection to ATCnet or other LAN

Software

MSDOS ® with Windows 3.1 or 3.11 ® OR

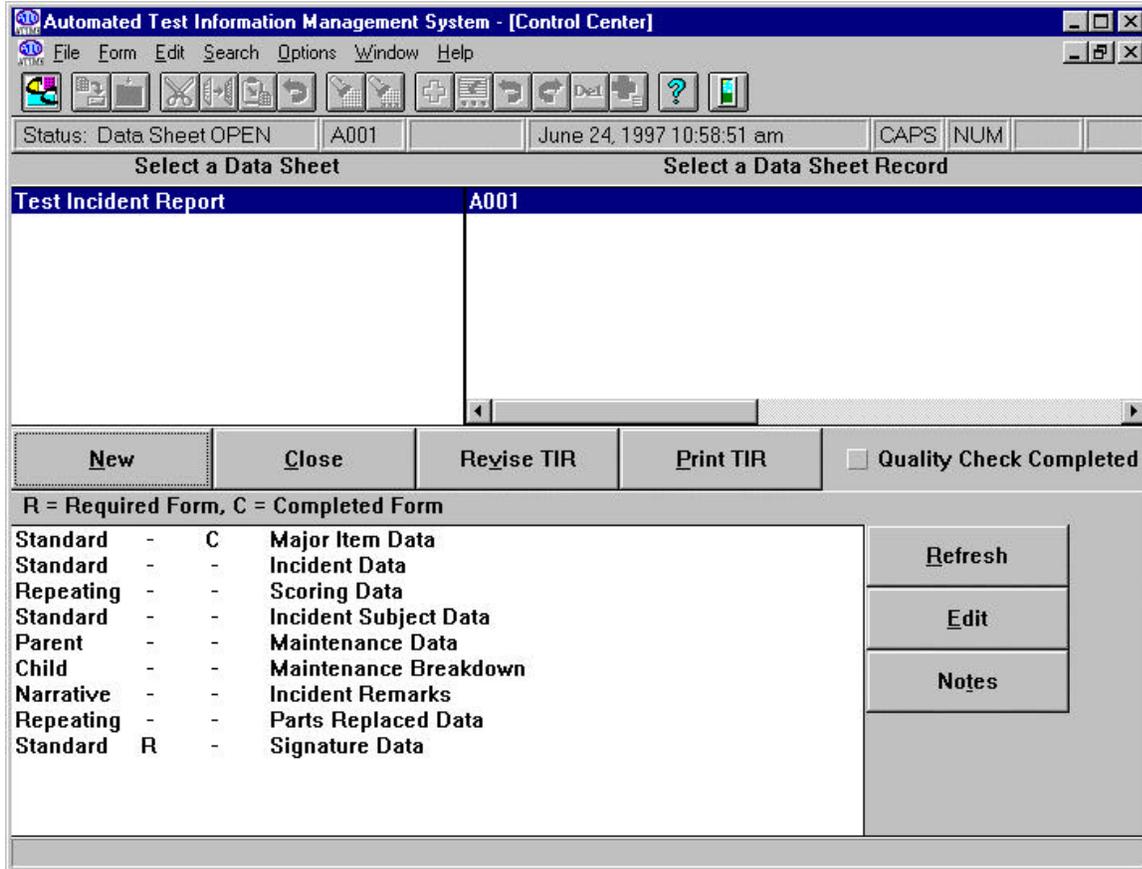
Microsoft Windows NT ® OR

Microsoft Windows 95 ®

Optional: TCP/IP, FTP, Dial-up PPP client

The ATIMS Screen The Control Center

The Control Center window is a split-pane window that contains listings of available data sheets, data sheet records, and forms within a data sheet. The Control Center has buttons that allow you to create new data sheets, edit existing data sheets or import TIRs for revision. The Control Center can be opened by selecting the File|Control Center menu item, or by clicking on the “CC” icon on the toolbar.



A data sheet can be a TIR or another collection of forms.

A data sheet record is a collection of related forms...

The Forms Window allows easy access to each of the forms in a data sheet.

The Quality Check box prevents users from releasing data that has not been thoroughly checked.

Not operational!!!

To activate a button, left-click on its surface.

Data Sheets

All available data sheets for an ATIMS program are listed in the upper left section of the Control Center window. A data sheet is a collection of related forms. Each data sheet is assigned a unique identifier, called the event number.

Data Sheet Records

When a data sheet is selected, all data sheet records in the database are displayed in the Data Sheet Records section in the upper right of the Control Center window. Each line consists of the data sheet record event number, followed by other key information from the first form in the data sheet.

The Forms Window

The Forms Window, located at the bottom of the Control Center window, lists each of the forms which are available for the current data sheet, along with information about each form such as: the type of form, whether or not it is required, and whether or not it has been completed.

Quality Check

The “Quality Check Completed” checkbox is located in the middle of the Control Center window. It is disabled when there is no open data sheet. Users with “Data Quality” permissions may check this box when a data sheet record has been quality checked. In the Multiple User configuration, this tells the next person in line that the data sheet has been checked and is ready for release. An attempt to release data that has not been quality checked will result in a warning message.

Buttons

There are 7 buttons in the Control Center, each of which operates on data sheet records.

The “**New**” button creates a new data sheet record for the currently selected data sheet. See “Creating a New Data Sheet Record” for more information.

The “**Revise TIR**” button is used to import TIRs for revision. TIR revision is not available in all configurations. See “Chapter 7: Revising TIRs” for more information.

The “**Print TIR**” button is used to generate a standard “Test Incident Report” to a file which resides in the ATIMS “TXT” directory. This TIR file can then be viewed and printed using the “Print TIR” program that comes with the ATIMS software.

The “**Close**” button closes the open data sheet.

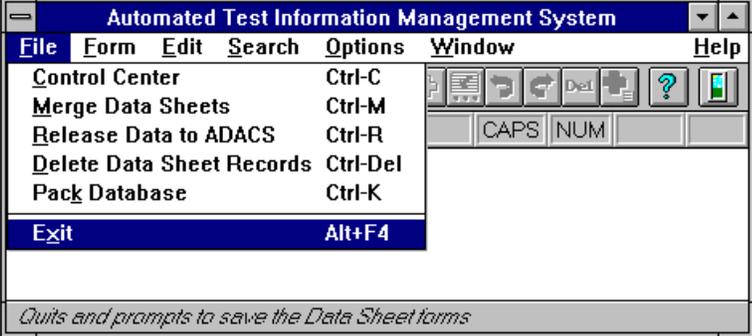
The “**Refresh**” button redisplay form information in the Forms Window.

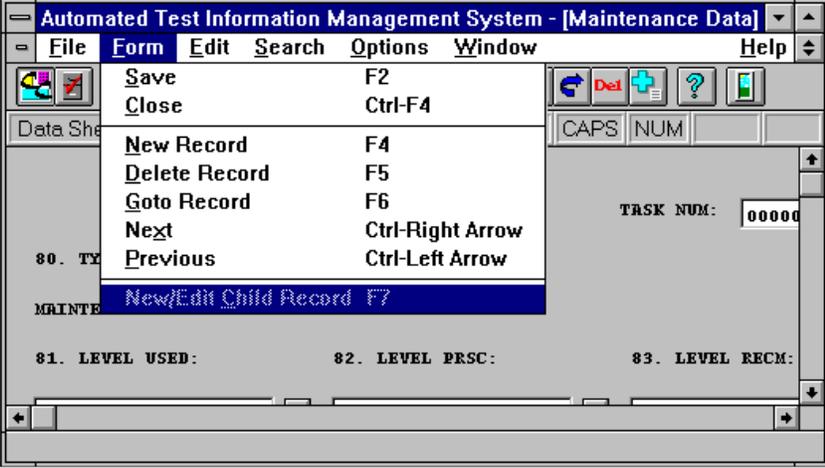
The “**Edit**” button opens the currently selected form in the Forms Window (you can also double click the form name). See “Filling Out Forms” for more information.

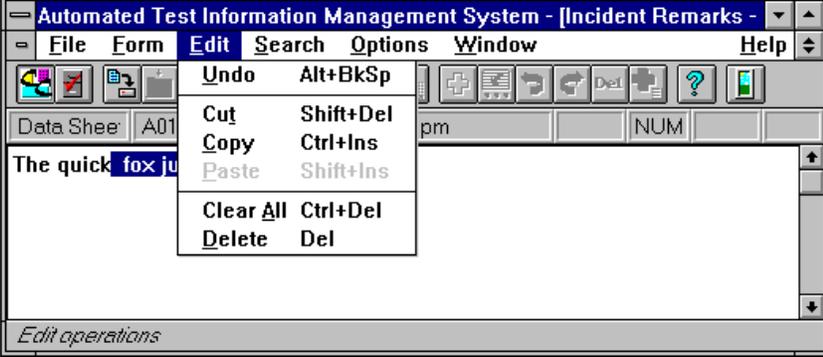
The “**Notes**” button opens the notes file for the currently open data sheet record. See “Entering Notes” for more information.

The Menu

The ATIMS menu contains the following menu items:

<h2>File</h2>															
<table border="1"> <thead> <tr> <th>Menu Item</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Control Center</td> <td>Opens the ATIMS Control Center</td> </tr> <tr> <td>Merge Data Sheets</td> <td>Merge (transfer) data sheet records, mark original data for deletion</td> </tr> <tr> <td>Release Data to ADACS</td> <td>Release the data to ADACS, mark original data for deletion</td> </tr> <tr> <td>Delete Data Sheet Records</td> <td>Deletes data sheet records</td> </tr> <tr> <td>Pack Database</td> <td>Permanently remove data sheet records which have been deleted</td> </tr> <tr> <td>Exit</td> <td>Exit ATIMS</td> </tr> </tbody> </table>	Menu Item	Description	Control Center	Opens the ATIMS Control Center	Merge Data Sheets	Merge (transfer) data sheet records, mark original data for deletion	Release Data to ADACS	Release the data to ADACS, mark original data for deletion	Delete Data Sheet Records	Deletes data sheet records	Pack Database	Permanently remove data sheet records which have been deleted	Exit	Exit ATIMS	
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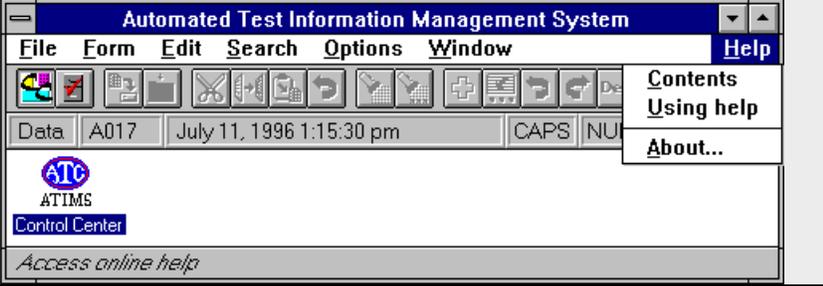
<h2>Form</h2>																			
<table border="1"> <thead> <tr> <th>Menu Item</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Save</td> <td>Save the active form</td> </tr> <tr> <td>Close</td> <td>Close the active form</td> </tr> <tr> <td>New Record</td> <td>Create a new record in the active repeating form</td> </tr> <tr> <td>Delete Record</td> <td>Delete a record in the active repeating form</td> </tr> <tr> <td>Goto Record</td> <td>Goto a specific record in the active repeating form</td> </tr> <tr> <td>Next</td> <td>Goto the next record in the active repeating form</td> </tr> <tr> <td>Previous</td> <td>Goto the previous record in the active repeating form</td> </tr> <tr> <td>New/Edit Child Record</td> <td>Create or edit a child form record</td> </tr> </tbody> </table>	Menu Item	Description	Save	Save the active form	Close	Close the active form	New Record	Create a new record in the active repeating form	Delete Record	Delete a record in the active repeating form	Goto Record	Goto a specific record in the active repeating form	Next	Goto the next record in the active repeating form	Previous	Goto the previous record in the active repeating form	New/Edit Child Record	Create or edit a child form record	
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Edit	
Menu Item	Description
Undo	Undo the last operation in an edit field
Cut	Remove the selected text and place in Windows clipboard
Copy	Copy the selected text to the Windows clipboard
Paste	Paste the text in the Windows clipboard into the current field
Clear All	Clear all text
Delete	Delete the selected text

Search	
Menu Item	Description
Find	Find a text string within the text
Replace	Replace some or all instances of a text string with new text
Next	Find the next instance of your initial search

Options	
Menu Item	Description
Set Preferences	Set ATIMS preferences

Window	
Menu Item	Description
Cascade Tile Arrange Icons	Cascade all open windows, so that each title bar is shown Arrange all open windows so that their full area is in view Line up minimized windows at the bottom of the screen

Help	
Menu Item	Description
Contents Using Help About	Display ATIMS help Table of Contents Get help on Windows Help About ATIMS

The Toolbar

The ATIMS toolbar is located just beneath the menu, at the top of the ATIMS screen. Each picture button on the toolbar corresponds to a menu selection in the ATIMS menu. To find out what a toolbar button is for, let the mouse cursor rest over the button and the description will appear in the status line at the bottom of the screen. What follows is a list of toolbar buttons along with their menu item equivalents:

Toolbar Button	Menu Item Equivalent
	File Control Center
	Form Save
	Form Close
	Edit Cut
	Edit Copy
	Edit Paste
	Edit Undo
	Search Find
	Search Next
	Form New Record
	Form Goto Record
	Form Previous
	Form Next
	Form Delete Record
	Form New/Edit Child Record
	Help Contents
	File Exit

Entering Data
Selecting a Data Sheet

To select a data sheet, left-click the desired data sheet in the “Select a Data Sheet” portion of the Control Center window.

Creating a New Data Sheet Record

To create a new data sheet record, left-click the desired data sheet, then left-click the “New” button in the Control Center window. All forms for the data sheet will be displayed in the Forms Window, which is located in the bottom section of the Control Center window.

Editing an Existing Data Sheet Record

To edit an existing data sheet record, left-click the desired data sheet, then left-click on the data sheet the record you wish to edit. All forms for the data sheet will be displayed in the Forms Window, which is located in the bottom section of the Control Center window.

Filling Out Forms

To add or edit a form:

- Double click on the desired form OR
- Click on the desired form, then click on the “Edit” button OR
- Click on the desired form, then use the ALT-E keystroke.

Standard Forms

Standard forms are forms that do not repeat. Only one instance of a standard form may exist in a data sheet record. While a standard form is active, only toolbar buttons and menu items pertaining to standard forms will be activated.

Repeating Forms

Repeating forms allow you to enter more than one instance of a form in the same data sheet record. This is used in situations such as parts listings where the same information is needed for multiple parts. The same form is filled out and saved for each part used.

While a repeating form is active, special menu items and toolbar buttons become available, for example: New Record, Next Record, Previous Record, Go to Record, and Delete Record.

Narratives

Narrative forms provide a means of entering free-form text data input. Information from other Windows applications can be cut and pasted into the ATIMS narrative using Windows cut, copy & paste.

While a narrative form is open, items from the Edit menu are activated, and may be used to: undo the last action, cut the selected text and place it in the Windows Clipboard, copy the selected text to the Windows Clipboard, paste the contents of the Windows Clipboard at the current cursor position (note that only text may be pasted, the narrative form does not accept graphic input), clear all text, or delete the selected text.

Parent and Child Forms

Parent forms are repeating forms in which there is a set of child repeating forms relating to *each* parent record, for example:

Test Incident Report, Event Number A001		
Maintenance Data	Task 1	
Maintenance Breakdown	Task 1	Subtask 1
Maintenance Breakdown	Task 1	Subtask 2
Maintenance Breakdown	Task 1	Subtask 3

Maintenance Data	Task 2	
Maintenance Breakdown	Task 2	Subtask 1
Maintenance Breakdown	Task 2	Subtask 2
Maintenance Breakdown	Task 2	Subtask 3

In the above example, for each Maintenance Data that is entered, multiple Maintenance Breakdown forms may also be entered. In this case, Maintenance Data is the parent form, and Maintenance breakdown is the child form. Task and Subtask numbers are automatically numbered and renumbered by the ATIMS software.

To add or edit child form records, you must first open the parent form. Once the parent form is opened, you can use the Form|New Record menu command to add additional records, and the Form|Goto, Next and Previous menu commands to move between records. Once in the desired parent record, use the Form|New / Edit Child Record command to bring up the child form records belonging to the current parent record.

Once in the child form, the Form|New Record, Goto, Next and Previous menu commands operate on child records.

The following steps were taken to create the previous example of parent and child Maintenance Data:	
1) Open the desired data sheet	
2) Open the desired data sheet record	
3) Open the Maintenance Data form	
4) Fill out the first Maintenance Data form	
5) Save the Maintenance Data form	
6) Select the Form New / Edit Child Record command	<i>Maintenance Data Task #1 the Maintenance Breakdown form appears</i>
7) Fill out the first Maintenance Breakdown form	
8) Save the Maintenance Breakdown form	<i>Maintenance Breakdown Task #1, Subtask #1</i>
9) Select the Form New Record command	
10) Repeat steps 7 and 8	<i>Maintenance Breakdown Task #1, Subtask #2</i>
11) Select the Form New Record command	
12) Repeat steps 7 and 8	<i>Maintenance Breakdown Task #1, Subtask #3</i>
13) Close the Maintenance Breakdown form	<i>the Maintenance Data form appears</i>
14) Select the Form New Record command	<i>Maintenance Data Task #2</i>
15) Repeat steps 4 - 13	

Required Forms

Forms are either required or optional. If a form is required, an “R” will appear in the form information listed in the forms window.

An attempt to release a data sheet in which required form data is not present will result in an error message. The required form must be filled out before the data sheet can be released.

Fields

A field is a block in a form where text is entered. Each field has a label, which explains what goes in

the field. ATIMS forms have two types of fields, edit fields and combo boxes. Edit fields are rectangular boxes in which text is entered. Combo boxes are a combination of an edit field and a drop down list. Not all ATIMS fields are selectable, some of them are initialized to a value that is the same for every data sheet. In this instance, no data entry is required.

Lists

Many ATIMS fields have a predefined list of acceptable values, this makes the data entry process simpler. Fields that have a list are visibly different from those that don't in that they have a small down arrow to the right of them. To select a value from a list, click on the down arrow then click on the desired list item. List items may also be selected by placing the cursor in the field and pressing the down arrow on the keyboard until the desired list item is shown. List fields are displayed in light cyan.

Text

Text fields are standard Windows edit fields. To enter data in a text field, place the cursor in the field and type. Selectable fields are displayed in light cyan, whereas non-selectable, initialized, fields are displayed in plain white.

Dates

Fields which require a data value are checked for accuracy when the form is closed. If a date is formatted improperly, an error message is displayed and the form does not close. To automatically enter today's date in a data field, double click in the field.

Times

Fields, which require a time value, are checked for accuracy when the form is closed. If a time is formatted improperly, an error message is displayed and the form does not close. To automatically enter the current time in a time field, double click in the field.

Entering Notes

When using the multiple user configurations, it is sometimes helpful to record notes about the data being sent to the next person in line. In this case, a note file may be created. There can be one note file for each data sheet record. The note file stays with the data sheet when it is merged to another location.

To edit or create a note file, open the desired data sheet record in the Control Center, then click on the "Notes" button in the lower right corner of the Control Center window. Enter notes as you would enter a narrative field, then close the window using the CTRL-F4 command or the form close command.

Saving Your Work

To save the current form, narrative, or notes file select the Form|Save option from the ATIMS menu. If you forget to save a form and attempt to close it, a message will be displayed prompting you to save it.

When a data sheet record is created, the first form in the data sheet is automatically initialized and saved. This is because ATIMS does not consider a data sheet to exist until a record exists in the database table for the first form of the data sheet.

When a data sheet is open, and the forms displayed in the forms window, ATIMS displays a 'C' to the left of the form title to indicate that there is a record for the current data sheet in the database table belonging to that form. The 'C' does not mean all of the data has been filled in, it is up to the user to ensure the data is complete.

Deleting Data Sheet Records

To delete one or more data sheet records, make sure the Control Center window is closed, then select the File|Delete Data Sheet Records command from the menu. Next select the appropriate data sheet and click "Ok". A box will appear listing all data sheet records along with pertinent field information from the first form in the data sheet.

Highlight (click on) each of the data sheet records to be deleted, then click the “Select” button. The selected data sheet records will be removed from the “Available Data Sheet Records” box, and placed in the “Selected Data Sheet Records” box. Once all of the data sheet records to be deleted have been selected, click “Ok” to delete them.

While records are being deleted, a status box will be displayed on the screen indicating the progress. Data sheet records which have been deleted will no longer be shown in the Control Center window, and are not available for release.

ATIMS administrators are able to recover data which has been deleted, as long as the database has not been packed (“File|Pack Database”).

Merging Data

When to Merge

The “Merge Data Sheets” menu selection is used in the multiple user configuration when a user is finished entering data and is ready to transfer the data to the next location, which is usually a networked HP drive or floppy disk. The “Merge Data Sheets” menu option is disabled where users do not have merge permissions. Once the data are merged, the next person in the progression (usually Data Quality or the Test Director) can perform quality checks and release the data. After the merge completes successfully, the original data is marked for deletion.

How to Merge

To merge data sheet records do the following:	
1) Make sure the Control Center window is closed	
2) Select the File Merge Data Sheets menu item	
3) Select the appropriate data sheet, and click on “Ok”	<i>the Merge Data Sheets box will appear</i>
4) Highlight each data sheet to merge, then click on “Select”	<i>data sheet records will move to the Selected Box</i>
5) Click on the “Ok” button to merge the selected records	<i>a status window will indicate merge progress</i>

Releasing Data to ADACS

When to Release Data

Data is released to ADACS when it is complete and has been quality checked. Once data is released, it is put on a networked HP drive where an HP server program polls for new data at timed intervals. Once the server program finds the new data, it loads it to the appropriate ADACS database. The data are then available for revision and report writing, using standard ATIRS methods.

When TIRs are released to ADACS, they are automatically assigned a TIR number, and emailed to the designated recipients.

The “Release Data to ADACS” menu option is disabled when users do not have data release permission.

How to Release Data

To release data to ADACS do the following:	
1) Make sure the Control Center window is closed	
2) Select the File Release Data to ADACS menu item	
3) Select the appropriate data sheet, and click on “Ok”	<i>the Release Data Sheets box will appear</i>
4) Highlight each data sheet to release, then click on “Select”	<i>data sheet records will move to the Selected Box</i>
5) Click on the “Ok” button to release the selected records	<i>a status window will indicate release progress</i>

Revising TIRs
Who Can Revise TIRs

Only those users with revision permission may revise TIRs. These are Test Directors or Data Quality personnel who are connected to the networked HP drive.

How Revisions Work

When the “Revise TIR” button in the center of the Control Center window is selected, you are prompted for a TIR Number or Event Number. Once the number is entered, ATIMS places a request on the networked HP drive for that particular TIR. An HP server program receives the request, retrieves the data and notifies ATIMS. ATIMS then loads the data into the database, and assigns it a new Event Number.

The new data sheet record can then be treated as any other data sheet record, except that the “Rev #” field in the Major Item Data section of the TIR should be updated accordingly.

How to Import TIRs For Revision

To import a TIR for revision, do the following:	
<ol style="list-style-type: none"> 1) Make sure the Control Center window is open 2) Click on the “Revise TIR” button 3) Type in the TIR or Event Number, click “Ok” 4) Wait for ATIMS report back on the progress 5) Make note of the new Event Number, and edit as needed 	<p><i>Use all uppercase</i></p> <p><i>Success or error message will be displayed</i></p> <p><i>New data sheet record placed in Control Center list</i></p>

Scoring -

When revising a TIR after a Scoring Conference the following changes must be made:

First Scoring Data change:
 Scoring Status - HIST

Second Scoring Data change:
 Prime Score - No
 Scoring Status - HIST

Third Scoring Data is creating a new score, copy previous FD/SC STEP#, FD/SC CLASS, and CHARGEABILITY:
 Types - PRLM
 Prime Score - YES
 Scoring Status - CURR
 Date - (Current Date)
 Make entry in incident description (i.e. Revision 04/02/97 - Scoring Conference.) and increment revision# by 1

Print TIR

What it is...

PrintTIR is an ATIMS companion program that reads in .TIR files for display and print purposes. If the PrintTIR program was installed during the ATIMS installation, its icon will reside in the ATIMS group alongside other ATIMS programs.

.TIR files can also be imported into standard text files, such as Notepad, however the PrintTIR program uses a fixed width font of the appropriate size to display the TIR as it will actually look once it is released to ADACS.

How it works...

The PrintTIR program incorporates many of the standard commands used in many Windows programs. What follows is a listing of PrintTIR menu item commands and their descriptions:

File Open	Open a .TIR file for viewing and/or printing.
File Close	Closes the current .TIR file.
File Save As	Saves the current .TIR file with a different file name.
File Print Preview	Display the current .TIR file, as it will look when it is printed.
File Print	Print the current .TIR file; allows standard Windows printer functionality.

.TIR files are located in the TXT subdirectory of your ATIMS <TESTNAME> directory.

The Options Menu

Who Should Set ATIMS Preferences

Only ATIMS Administrators should set ATIMS preferences. Incorrect settings could result in loss of data. See the "ATIMS Administrators Guide" for information on setting ATIMS preferences.

Technical Support
Technical Points of Contact

Name	Title	Phone	Email
Eileen Viars	ATIMS, ATIRS Administrator	dsn 298- 9417	eviars@atc.army.mil
ATIMS Shelley Cobb	Suggestion, Comments ATIMS Admin, YUMA	dsn 899- 6446	atims@atc.army.mil scobb@yuma- adacs.army.mil

The Future
Future Enhancements
Form Generation on the PC

Users will be able to design forms on the PC, rather than the HP 3000. This will allow for greater flexibility in form design, as well as make it easier to change forms after the initial program generation.

Data Sheet Templates

Data Sheets can be filled out and saved as a template. The template can be used later on when creating new Data Sheet Records. This eliminates the need to enter the same data on multiple data sheet records.

Web Browser Compatibility

ATIMS software will be fully integrated with your web browser for easy access to Internet & Intranet data sources. TIRs and other reports will be displayed in the standard HTML format in any WWW browser window.

Multimedia Support

Users will be able to embed multimedia objects such as pictures and video footage directly into their ATIMS data. The multimedia objects will be accessible from the WWW browser.

Glossary of Terms

toolbar

A collection of buttons which correspond to menu items.

Forms Window

A window in the Control Center that displays all the forms in the current Data sheet, as well as other pertinent information.

event number

A combination of a letter, the event prefix, and a number which uniquely identifies a data sheet record.

data sheet records

A collection of data sheet forms which have been filled out. Each is assigned an event number.

data sheet

A collection of related ATIMS forms.

Control Center

The main ATIMS window where data is collected, edited and organized.

dial-up network connection

A method of connecting to a network using the phone line and modem on a remote PC.

multiple user configuration

ATIMS configuration used when more than one user is entering and/or releasing data.

standalone configuration

ATIMS configuration used when a single user is entering and releasing data.

release data

Load selected data to the appropriate ADACS database and release it.

TIR

Test Incident Report (AR 73-1)

event prefix

An identifier consisting of a letter and a series of numbers that uniquely represents a data sheet.

Builder

An ATC designed and developed CASE (Computer Aided Software Engineering) tool that generates data entry programs using forms and database definitions.

ATIRS

Automated Test Incident Reporting System

ADACS

Automated Data Collection System