U. S. ARMY TEST AND EVALUATION COMMAND
COMMON SERVICE TEST OPERATIONS PROCEDURE

AMSTE-RP-702-104
*Test Operation Procedure 5-3-526
AD 758231

30 June 1972

EMPLACEMENT, ACTION, AND MARCH ORDER

SECTION I
GENERAL

1. Purpose and Scope. This procedure applies to missile and rocket systems, including ballistic, guided, and target missiles, guided missile systems electronic ancillary equipment, and associated ground support equipment. Characteristics to be evaluated are system capabilities and limitations as to emplacement, preparation for action, and march order.

*This TOP supersedes MTP 5-3-526, 17 Apr 69, including all changes.

Test objectives are to evaluate personnel and equipment requirements and verify the time required for site preparation and system emplacement, preparation for action, and march order. The procedures cover the testing of systems under both normal, blackout and all environmental conditions. The procedures are written for application to functional weapons systems but may be adapted to test individual system components when data from such tests would be meaningful. The procedures are not applicable to man-portable systems, or to systems which operate only from fixed installations.

2. Background.

a. Missile and rocket systems must be repositioned from time to time on the battlefield as their methods of employment and the tactical circumstances dictate. These systems vary widely in size and complexity and in their inherent mobility characteristics. Reliable information on system capabilities and requirements for movement and return to action, under appropriate ranges of environmental conditions, must be acquired by systematic testing for comparison with specifications contained in applicable materiel need (MN) documents. Moreover, commanders must be aware of the capabilities and limitations of such systems for movement and return to action, so that appropriate lead times for displacements can be allowed to reduce the vulnerability of an item, or to reposition for continuing support of other forces.

b. For the purpose of this procedure, site preparation, emplacement, preparation for action, and march order are defined below. The specific actions encompassed in each phase should be defined by MN documents, system technical and operational publications, or other pertinent documents.

(1) Site preparation encompasses those actions which are accomplished at a previously unoccupied operating position, normally by an advance party, to make ready for arrival, positioning and emplacement of primary components of a weapon system. These actions may include internal reconnaissance of the site, surveying and marking of baselines and reference points or orienting lines, placement of tapes or stakes to guide the positioning of the equipment, prepositioning of auxiliary equipment (to include communications equipment), clearing of intrasite vehicular and cable routes, and earth-moving operations.

(2) Emplacement includes those actions required to bring a weapon system or component from a travel to an operational configuration. These actions may include positioning of equipment, detachment from prime movers, extension of jacks or outriggers, leveling, the laying out and connecting of cables, and alignment and collimation of component items. (Emplacement after air delivery may include the above as well as removal of drop or lifting gear and attachment of jacks and outriggers). Depending on system design and employment concepts, the term "emplacement" may also embrace some or all of the actions listed under site preparation, or preparation for action, or both.

(3) Preparation for action comprises all the actions required to advance a weapon system or component from an emplaced, inactive condition to a ready-for-action condition. Depending on the system and its operational concepts, preparation for action may begin with the system either in a completely deenergized (cold) condition or in a partially energized (standby) condition. Preparation for action may include the starting and run-up of power generation and auxiliary equipment, application of power, equipment warm-up and conditioning, preoperational checks and adjustments, insertion and computation of on-call mission data, and the assembly, loading and preparation of missiles/rockets on launchers.

(4) March order includes those actions required to return a system or component from an operational to a travel configuration. It may begin with the system or item in an active, standby, or cold condition, and may include deenergizing of equipment, shutdown of power generation and auxiliary equipment, disconnecting and retrieving of cables, disassembly and repackaging of missiles, attachment of running gear, retracting of jacks and outriggers, positioning and connecting of prime movers, stowage of equipment, boarding of personnel and formation of column.

3. Equipment and Facilities.

a. Stopwatch.

b. Appropriate technical manuals.

c. Photographic documentation as required.

SECTION II
TEST PROCEDURES

4. Preliminary Activities. Perform the procedures governed by the following publications, as appropriate, prior to conducting the required test phases.

TITLE	PUBLICATION NO.
Preoperational Inspections and Physical Characteristics (Guided Missile Systems)	5-3-500(D)

5. Site Preparation.

a. Objective.

(1) Determine if the authorized personnel can effectively prepare a site for occupation within the time specified in the MN document, under each set of conditions (e.g., maximum/minimum crew, daylight/blackout, normal/adverse weather) required to satisfy test objective.

(2) Evaluate the adequacy of equipment and procedures provided for site preparation.

b. Criteria. Criteria will be extracted from the MN document. Criteria will usually include specifications as to site preparation being accomplished within a given time under all applicable conditions (or under each particular set of conditions). Criteria are ordinarily of the following form:

Site preparation will be accomplished within___minutes, under given conditions (or all applicable conditions) or terrain, weather, illumination and crew size.

c. Method.

(1) Designate site preparation crews that are manned and organized in accordance with organizational doctrine refined by US Army Combat Developments Command.

(2) Select sites to be used in accordance with information given in subparagraphs 12a, b, and c.

(3) Assign each test site a number, and record the following data, documented by still photographs:

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(c) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven, rolling).

(d) Slope of terrain.

(e) Elevation of site.

(4) Establish routes between sites which traverse typical terrain, but do not unduly stress the test item by imposing unrealistically severe maneuvering or cross-country mobility requirements.

(5) Perform the following operations under normal environmental conditions and during daylight hours:

Site preparation crews proceed to each site from a starting point at least one kilometer distant from the site. Upon arrival, crews accomplish site preparation as defined in paragraph 2b(1) and in accordance with procedures contained in system technical and operational publications. These procedures will be repeated, varying the crew size as necessary to achieve test objectives relating to crew size.

(6) Repeat the procedures of paragraph 5c(5) above, under blackout conditions and/or adverse weather conditions, as necessary to satisfy test objectives.

(7) Record the following information for each repetition of site preparation:

(a) Identities and job titles of crew members; test site number; environmental conditions; lists of equipment and materials used in the operation, including serial numbers of test items; and issue date and revision status of publications used.

(b) Time of commencement and completion of each phase of site preparation operations. Time starts upon arrival of the lead element of the site preparation crew at the new site. (Exception: Where a function, such as survey, begins outside the new site, or is conducted by a separate party, time for that function starts when the function is begun and is recorded independently.)

(c) Comments of the operating crew and test observers on the adequacy of materials, equipment and publications; faults in, or suggested improvements to, test items or procedures, particularly difficult tasks, and any unusual circumstances observed during the preparation. Questionnaires and/or checklists will be designed prior to the initiation of test to assure that adequate and pertinent data are collected and are available for analysis.

(8) Make the following records as required:

(a) Motion pictures or television tape of significant activities or especially difficult tasks.

(b) Still photographs of significant events, physical results, and the appearance of the test site and equipment at successive stages of test.

d. Data Required.

(1) Crew member data.

(a) Test job title.

(b) Identity, SSN and rank.

(c) Unit of assignment.

(d) Armed Forces Qualification Battery scores.

(e) MOS.

(f) Training time in MOS.

(g) Experience in MOS.

(h) Training and experience on test item or similar item.

(i) Visual and aural acuity.

(2) Environmental conditions data.

(a) Date and time of day.

(b) Illumination (daylight, clear, cloudy, moonlight, starlight, darkness).

(c) Weather conditions (clear, misting, light or heavy rain, snow, sleet, icing, fog).

(d) Meteorological conditions (temperature, relative humidity, wind direction, wind velocity).

(3) Test site parameters data:

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(c) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven rolling).

(d) Slope of terrain.

(e) Elevation of site.

(4) Lists of all equipment and materials used in the operation, including the following information for test items:

(a) Nomenclature and model number.

(b) Serial number.

(c) Manufacturer.

(d) Issue date and revision status of accompanying publications.

(5) Comments of the operating crew and test observers (paragraph 5c(7)(c)).

(6) Elapsed time for overall operation and for each phase of the operation that is to be evaluated independently.

(7) Data from motion pictures, television, or still photography as indicated under paragraph 5c(8).

6. Emplacement.

a. Objective.

(1) Determine if the personnel authorized can effectively emplace the test item within the time specified in the MN document, under each set of conditions (e.g., maximum/minimum crew, daylight/blackout, normal/adverse weather) required to satisfy test objective.

(2) Evaluate the capability of the system to be emplaced in all types of terrain specified in the MN document.

b. Criteria. Criteria will be extracted from the MN document. Criteria will usually include specifications as to emplacement being accomplished within a given time under all applicable conditions (or under each particular set of conditions). Criteria are ordinarily of the following form:

Emplacement will be accomplished within___minutes, under given conditions (or all applicable conditions) of terrain, weather, illumination and crew size.

c. Method.

(1) Designate site emplacement crews that are manned and organized in accordance with organizational doctrine refined by US Army Combat Developments Command.

(2) Select sites to be used in accordance with information given in subparagraphs 12a, b, and c.

(3) For systems which do not require site preparation, assign each test site a number and record the following data, documented by still photographs:

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(4) For systems requiring site preparation, establish routes between sites which traverse typical terrain, but do not unduly stress the test item by imposing unrealistically severe maneuvering or cross-country mobility requirements.

(5) Perform the following operations under normal environmental conditions and during daylight hours:

(a) The system under test, and the emplacement crew, will proceed to each site from a starting point which is located at least one kilometer from the site. Upon arrival, emplacement will be accomplished as defined in paragraph 2b(2). System technical and operational publications will be complied with.

(b) Repeat above procedures varying the crew size as necessary to achieve test objectives relating to crew size.

(6) Repeat above procedures under blackout conditions and/or adverse weather conditions, as necessary to satisfy test objectives.

(7) For each repetition of emplacement procedure, record the following:

(a) Identities and job titles of crew members; test site number; environmental conditions; lists of equipment and materials used in the operation, including serial numbers of test items; and issue date and revision status of publications used.

(b) Time of commencement and completion of each phase of site emplacement operations. Time starts upon arrival of the lead element of the site emplacement crew at the new site. (Exception: Where a function, such as survey, begins outside the new site, or is conducted by a separate party, time for that function starts when the function is begun, and is recorded independently).

(c) Comments of the operating crew and test observers on the adequacy of materials, equipment and publications; faults in or suggested improvements to test items or procedures; particularly difficult tasks, and any unusual circumstances observed during the preparation. Questionnaires and checklists should be designed prior to the initiation of the test to assure that adequate and pertinent data are collected and are available for analysis.

(d) Time of commencement and completion of each phase of emplacement operations. Time starts with arrival of the emplacement crew lead element at the new site.

(8) Data from motion pictures, television, or still photography as indicated under paragraph 5c(8).

d. Data Required.

(1) Crew member data.

(a) Test job title.

(b) Identity, SSN and rank.

(c) Unit of assignment.

(d) Armed Forces Qualification Battery scores.

(e) MOS.

(f) Training time in MOS.

(g) Experience in MOS.

(h) Training and experience on test item or similar item.

(i) Visual and aural acuity.

(2) Environmental conditions data.

(a) Date and time of day.

(b) Illumination (daylight, clear, cloudy, moonlight, starlight, darkness).

(c) Weather conditions (clear, misting, light or heavy rain, snow, sleet, icing, fog).

(d) Meteorological conditions (temperature, relative humidity, wind direction, wind velocity).

(3) Test site parameters data.

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(c) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven, rolling).

(d) Slope of terrain.

(e) Elevation of site.

(4) Lists of all equipment and materials used in the operations, including the following information for test items:

(a) Nomenclature and model number.

(b) Serial number.

(c) Manufacturer.

(d) Issue date and revision status of accompanying publications.

(5) Comments of the operating crew and test observers (paragraph 5c(7)(c)).

(6) Elapsed time for overall operation and for each phase of the operation that is to be evaluated independently.

(7) Data from motion pictures, television, or still photography as indicated under paragraph 5c(8).

7. Preparation for Action.

a. Objective. Determine if the personnel authorized can effectively prepare the test system for action within the time specified in the MN document under each set of conditions (e.g., maximum/minimum crew, daylight/blackout, normal/adverse weather) required to satisfy test objective.

b. Criteria. Criteria will be extracted from the MN document. Criteria will usually include specifications as to preparation for action being accomplished within a given time under all applicable conditions.

c. Method.

(1) Designate preparation for action crews that are manned and organized in accordance with organizational doctrine refined by US Army Combat Developments Command.

(2) Perform the following operations under normal environmental conditions and during daylight hours.

(a) After operations described in paragraph 6, above, have been completed, crews accomplish system preparation for action as defined in paragraph 2b(3) and in accordance with system technical and operational publications..

(b) Repeat above procedures varying the crew size as necessary to achieve test objectives relating to crew size.

(c) Repeat above procedures under blackout conditions and/or adverse weather conditions, as necessary to satisfy test objectives.

(3) For each repetition of preparation for action, record the following:

(a) Identities and job titles of crew members; test site number; environmental conditions; lists of equipment and materials used in the operation, including serial numbers of test items; and issue date and revision status of publications used.

(b) Time of commencement and completion of each phase of preparation for action. Time starts after emplacement is completed and upon command to prepare the system for action.

(c) Comments of the operating crew and test observers on the adequacy of materials, equipment and publications; faults in, or suggested improvements to, test items or procedures; particularly difficult tasks and any unusual circumstances observed during the preparation.

(d) Time of commencement and completion of each phase of preparation for action.

(4) When necessary to evaluate specifications contained in requirements documents, record the following on recording oscillographs or digital recorders:

(a) Time histories, in seconds and tenths of seconds, of functions involved in starting and warm-up (generator performance, power supply performance).

(b) Time histories, in seconds and tenths of seconds, of electronic functions involved in transition from cold start to ready and from standby to ready.

(c) Time histories, in seconds and tenths of seconds, of electrical and electronic checks as prescribed for the test item.

d. Data Required.

(1) Crew member data.

(a) Test job title.

(b) Identity, SSN and rank.

(c) Unit of assignment.

(d) Armed Forces Qualification Battery scores.

(e) MOS.

(f) Training time in MOS.

(g) Experience in MOS.

(h) Training and experience on test item or similar item.

(i) Visual and aural acuity.

(2) Environmental conditions data.

(a) Date and time of day.

(b) Illumination (daylight, clear, cloudy, moonlight, starlight, darkness).

(c) Weather conditions (clear, misting, light or heavy rain, snow, sleet, icing, fog).

(d) Meteorological conditions (temperature, relative humidity, wind direction, wind velocity).

(3) Test site parameters data.

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(c) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven, rolling).

(d) Slope of terrain.

(e) Elevation of site.

(4) Lists of all equipment and materials used in the operations, including the following information for test items:

(a) Nomenclature and model number.

(b) Serial number.

(c) Manufacturer.

(d) Issue date and revision status of accompanying publications.

(5) Comments of the operating crew and test observers (para 5c(7)(c)).

(6) Elapsed time for overall operation and for each phase of the operation that is to be evaluated independently.

(7) Data from motion pictures, television, or still photography as indicated under paragraph 5c(8).

(8) Time histories, in seconds and tenths of seconds, of functions involved in starting and warm-up (generator performance, power supply performance).

8. March Order.

a. Objective. Determine if the personnel authorized can effectively march order the test equipment within the time specified in the MN document, under each set of conditions

(e.g., maximum/minimum crew, daylight/blackout, normal/adverse weather) required to satisfy the test objective.

b. Criteria. Criteria will be extracted from the MN document. Criteria will usually include specifications as to the march order being accomplished within a given time under all applicable conditions (or under each particular set of conditions). Criteria are ordinarily of the following form:

March Order will be accomplished within ___ minutes, under given conditions (or all applicable conditions) of terrain, weather, illumination and crew size.

c. Method.

(1) Designate march order crews that are manned, trained, equipped, and organized in accordance with organizational doctrine refined by US Army Combat Developments Command.

(2) Perform the following operation under normal environmental conditions and during daylight hours.

(a) Crews march order the system under test. March order includes those actions required to return a system or component from an operational to a travel configuration. It may begin with the system or item in an active, standby, or cold condition, and may include deenergizing of equipment, shutdown of power generation and auxiliary equipment, disconnecting and retrieving of cables, disassembly and repackaging of missiles, attachment of running gear, retraction of jacks and outriggers, positioning and connecting of prime movers, stowage of equipment, boarding of personnel, and formation of column. These procedures will be performed in accordance with system technical and operational publications.

(b) Repeat above procedures varying the crew size as necessary to achieve test objectives relating to crew size.

(3) Repeat above procedures under blackout conditions and/or adverse weather conditions, as necessary to satisfy test objectives.

(4) For each repetition of system march order, record the following:

(a) Identities and job titles of crew members; test site number; environmental conditions; lists of equipment and materials used in the operation, including serial numbers of test items; and issue date and revision status of publications used.

(b) Time of commencement and completion of each phase of march order. Time starts upon command to march order the system.

(c) Comments of the operating crew and test observers on the adequacy of materials, equipment and publications; faults in or suggested improvements to test items or procedures; particularly difficult tasks and any unusual circumstances observed during the preparation.

d. Data Required.

(1) Crew member data.

(a) Test job title.

(b) Identity, SSN and rank.

(c) Unit of assignment.

(d) Armed Forces Qualification Battery scores.

(e) MOS.

(f) Training time in MOS

(g) Experience in MOS.

(h) Training and experience on test item or similar item.

(i) Visual and aural acuity.

(2) Environmental conditions data.

(a) Date and time of day.

(b) Illumination (daylight, clear, cloudy, moonlight, starlight, darkness).

(c) Weather conditions (clear, misting, light or heavy rain, snow, sleet, icing, fog).

(d) Meteorological conditions (temperature, relative humidity, wind direction, wind velocity).

(3) Test site parameters data.

(a) Site location and boundaries by map coordinates.

(b) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(c) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven, rolling).

(d) Slope of terrain.

(e) Elevation of site.

(4) Lists of all equipment and materials used in the operations, including the following information for test items:

(a) Nomenclature and model number.

(b) Serial number.

(c) Manufacturer.

(d) Issue date and revision status of accompanying publications.

(5) Comments of the operating crew and test observers (paragraph 5c(7)(c)).

(6) Elapsed time for overall operation and for each phase of the operation that is to be evaluated independently.

(7) Data from motion pictures, television, or still photography as indicated under paragraph 5c(8).

SECTION III
SUPPLEMENTARY INSTRUCTIONS

9. General.

a. Testing will be conducted under conditions which as closely as possible simulate tactical conditions. In particular, plans and instructions will include provisions and

allocations of time and materials necessary to furnish adequate cover and concealment.

b. As many of the test observations as possible will be made concurrently with other subtests on the test item, such as testing for mobility; blackout operations; vulnerability to detection; and operational characteristics.

10. Safety.

a. The provisions of AMC Regulation 385-12 and TECOM Regulation 385-6 are applicable in the planning, conduct and reporting of all operations governed by these test operating procedures.

b. Tests will be planned and performed in the safest manner consistent with accomplishing the mission. All test operations will be observed by a representative of the test agency who is fully aware of the hazards and safety characteristics of the test item, and who will be charged with responsibility for safety.

c. To the maximum extent possible, operations under this TOP shall be performed using inert rounds.

11. Test Personnel.

a. Coordinate with appropriate elements of US Army Combat Developments Command and US Continental Army Command to insure currency of information as to doctrine, organization and training.

b. Using AR 611-201, MN documents, and current tables of organization and equipment, determine the number of personnel and their qualifications to best perform all test operations.

c. Select personnel for the test based on requirements established under paragraph 11b, above. Record the data of (1) through (9), below, for all personnel. Examine the data of (4) through (9), below, to insure that test personnel represent a realistic cross-section of those who will normally operate the system in the field.

(1) Test job title.

(2) Identity, SSN and rank.

(3) Unit of assignment.

(4) Armed Forces Qualification Battery scores.

(5) MOS.

(6) Training time in MOS.

(7) Experience in MOS.

(8) Training and experience on test item or similar item.

(9) Visual and aural acuity.

d. Train individuals and crews as necessary to establish a level of training and experience equal to that of a typical fielded unit.

e. Insure that operating crews are organized and trained as a team. If possible, all test personnel will be members of a single TOE unit, of appropriate type, which is detailed to support the test as a sole or primary mission, operates as a unit throughout the test, and receives its administrative and logistical support through normal channels.

f. Where it is necessary to vary crew size in order to satisfy test objectives, the same basic crew will be used, and personnel added or deleted, and duties redistributed as necessary. Crews will receive an equal amount of training for each crew size tested.

12. Site Selection.

a. Determine the number of sites required, based on the number of trials of each function to be conducted, and considering that at least one trial of each function (site preparation, emplacement, preparation for action, and march order) will be performed at each site.

b. Select sites to be used for the test. Sites selected will include cases that are typical of all terrain categories in which the system is required to operate (e.g., rocky, sandy, marshy, grassy), and slopes up to, and including, the maximum slope on which the system is to be capable of being emplaced. Overall, the group of sites selected will reflect average conditions, and not be biased toward difficult conditions.

c. Select routes between sites which will permit mobility testing to be integrated with operations conducted under this TOP.

d. Assign each test site a number and record the following data (document by still photographs).

(1) Site location and boundaries by map coordinates.

(2) Climatic zone and nature of terrain in which site is located (desert, arctic, tropic, temperate; plains, hills, valleys, desert, mountains, coastal).

(3) Characteristics of local terrain at site (rocky, sandy, marshy, grassy, flat, uneven, rolling).

(4) Slope of terrain.

(5) Elevation of site.

13. Environmental Testing.

a. The operations described under paragraphs 5 through 8 will be conducted under the full range of environmental conditions necessary to satisfy stated test objectives.

b. For each repetition of a test operation, record the following:

(1) Date and time of day.

(2) Illumination (daylight, clear, cloudy, moonlight, starlight, darkness).

(3) Weather conditions (clear, misting, light or heavy rain, snow, sleet, icing, fog).

(4) Meteorological conditions (temperature, relative humidity, wind direction, wind velocity).

14. Test Item and Equipment. Record the following for the test item and associated equipment.

a. Nomenclature and model number.

b. Serial number.

c. Manufacturer.

d. Issue date and revision status of accompanying publications.

15. New Equipment Training (NET).

a. New or modified equipment normally requires special training for the operators/evaluators. This training will be conducted by the contractor, CONARC school or test agency. Early planning and scheduling for NET is important to assure that trained personnel to conduct the test are available at the start of test.

b. The adequacy of training will be evaluated prior to the start of data collection for tests outlined in Section II of this TOP. This evaluation should be designed to insure that the test is not prejudiced by untrained or inadequately trained personnel.

16. Human Factors.

a. During the conduct of operations as described in paragraphs 5 through 8, the following will be observed and commented on in the final report of test:

(1) The degree to which test item design features permit achieving safe, reliable and effective performance.

(2) The degree to which the test item optimizes the operator-machine combination.

(3) The degree to which the human functions and tasks required during system operation are reflected in technical publications provided with the equipment.

(4) The degree to which potential error-inducing equipment features are minimized.

b. Questionnaire and checklists will be prepared prior to the initiation of test, to obtain comments and/or reactions from the test personnel who actually perform operations.

c. The following areas will be specifically checked to determine the degree to which they meet the requirements as stated in paragraph 15a:

(1) Stowage

(2) Electrical hazards

(3) Optical instruments

(4) Communications

(5) Labeling

(6) Controls/displays

(7) Mechanical hazards

d. Failures will be analyzed to differentiate between failures due to equipment alone, to man-equipment incompatibilities, and to human error.

17. Analytical Plan.

a. Data required: Data will be collected for emplacement action and march order per table, Appendix B. The remarks column will include any unusual circumstances that occurred during the test which affected the overall time required to perform the prescribed operation.

b. A statistical technique such as the following will be used to reduce the data. A minimum of 22 trials will be conducted. Pass/Fail criteria will be based on the times prescribed in the applicable materiel needs document. AMCP 706-109 will be utilized to determine the level at which the system meets the MN requirement.

c. The mean, standard deviation and reduced data, paragraph 17b, above, will be presented in the final report.

Recommended changes to this publication should be forwarded to Commanding General, US Army Test and Evaluation Command, ATTN: AMSTE-ME, Aberdeen Proving Ground, Maryland 21005. Technical information related to this publication may be obtained from the preparing activity, US Army Air Defense Board, ATTN: STEBD-MO, Fort Bliss, Texas 79916. Additional copies of this document are available from the Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314. This document is identified by the accession number (AD No.) printed on the first page.

APPENDIX A
REFERENCES

1. AR 70-10, "Test and Evaluation During Development and Acquisition of Materiel."
2. AR 385-10, "Army Safety Program."
3. AR 705-5, "Army Research and Development."
4. AMC Reg 385-12, "Verification of Safety of Army Materiel."
5. AMC Reg 385-224, "AMC Safety Manual."
6. AMCP 706-109, "Tables of the Cumulative Binomial Probabilities."
7. TECOM Reg 70-23, "Equipment Performance Reports."
8. TECOM Reg 70-24, "R&D Documenting Test Plans and Reports."
9. TECOM Reg 70-33, "Research and Development, USATECOM Test Cost Estimates."
10. TECOM Reg 385-6, "Verification of Safety of Materiel During Testing."
11. MIL-P-14232, "Part Equipment and Tools for Army Materiel."

APPENDIX B
DATA COLLECTION TABLE

TIME REQUIRED FOR EMPLACEMENT, ACTION OR MARCH ORDER

Type test: Emplacement ____ Action ____ March Order ____

Weather Conditions: _____

Illumination: _____

Environmental Conditions: _____

Site No.	Crew Size Used (No.)	Time Required (Hr. & Min.)	Remarks

Recorder Signature _____

Project Officer Signature _____

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13. ABSTRACT

Describes a method for evaluation of rocket and missile system characteristics relative to emplacement, action, and march order. Identifies supporting test, facilities, equipment required. Provides procedures for site preparation, emplacement, preparation for action, march order, safety, selection of test personnel, site selection, environmental tests, new equipment training, human factors, and analytical plan. Applicable to ballistic, guided, and target missiles, guided missile systems electronic ancillary equipment, and associated ground support equipment.

DD FORM 1 NOV 68 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Emplacement and March Order						
March Order						
Missile System						