

| INCH-POUND |
 MIL-R-85545B(AS)
 30 November 1990
 SUPERSEDING
 MIL-T-85545A(AS)
 4 April 1986

MILITARY SPECIFICATION

ROCKET, GTR-18A

This specification is approved for use by the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification establishes the requirements for the manufacture and inspection of the GTR-18A rocket referred to herein as the rocket.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

MILITARY

MIL-I-85547	Igniter, PVU-3A/E and PVU-3B/E
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STANDARDS

MILITARY

MIL-STD-129	Marking for Shipment and Storage
MIL-STD-810	Environmental Test Methods and Engineering Guidelines
MIL-STD-1167	Ammunition Data Card
MIL-STD-1168	Ammunition Lot Numbering

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Naval Air Engineering Center, Systems Engineering and Standardization Department. (Code 53), Lakehurst, NJ 08733-5100, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, Pa 1911-5094.

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

NAVAL AIR SYSTEMS COMMAND (NAVAIR) (CAGE Code 30003)

1335AS275	Igniter, PVU-3A/E
1335AS280	Rocket, GTR-18A
1335AS285	Decal, GTR-18A Smokey Sam Rocket
1335AS289	Shipping Condition
1335AS290	Packaging Assembly
1335AS380	Launcher, Rocket LMU-23A/E
1335AS390	Simulator, Surface-to-Air Missile SMU-124/E (Smokey SAM Simulator)
1335AS700	Launcher, Rocket LMU-24A/E

(Unless otherwise indicated, copies of Naval Air Systems Command drawings are available from the Naval Air Technical Services Facility (NATSF) (Code 312), 700 Robbins Avenue, Philadelphia, Pa 19111-5096.)

PUBLICATIONS

CODE OF FEDERAL REGULATIONS

49 CFR 100-199	Transportation
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(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-0001.)

NAVAL AIR SYSTEMS COMMAND

11-75-63	Technical Manual for LMU-23A/E and LMU-24A/E
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(Copies are available from the Naval Publications and Forms Center (Code 1051), 5801 Tabor Avenue, Philadelphia, PA 19111-5099.)

2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.4) in accordance with 4.4.

3.2 Design and construction. The rocket shall be fabricated and assembled in accordance with Drawing 1335AS280. For the smokey SAM simulator, utilizing the rocket, see Drawing 1335AS390.

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3.3 Environmental conditioning. The rocket shall withstand exposure to vibration and shock without performance failure (see 4.6.2 and 4.6.3).

3.4 Performance. The rocket shall meet the following requirements when launched at an angle of 80° or 85° (see 4.6.4):

- a. The rocket shall expel a visible flame and white smoke plume during powered flight (see 6.5.1).
- b. The rocket shall not impact the ground during powered flight.
- c. The rocket shall attain an altitude of 1500 \pm 500 ft. above launcher.

3.5 Marking. In addition to any special or other identification required by the contract (see 6.2), rockets shall be marked with lot numbers (see 4.5.3) on the designated area of the rocket decal, Drawing 1335AS285.

3.6 Data cards. Data cards shall be prepared in accordance with MIL-STD-1167 and shall be furnished with each rocket lot (see 4.5.2).

3.7 Workmanship. Workmanship and finish shall be in accordance with the highest grade practice used in manufacturing military weapons. Finished items and parts shall not exhibit poor material and processing such as seams, laps, laminations, cracks, visible steps, sharp edges, nicks, scratches, burrs, deformations, and missing operations which may affect serviceability, functioning, operation appearance, or safety. No part or assembly shall contain chips, dirt, grease or any other foreign matter. The rocket shall be free from explosive materials on all external surfaces.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of section 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

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- a. First article inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).

4.3 Inspection plan. Prior to first article or quality conformance inspection, the inspection plan (see 6.3) to be used for first article or quality conformance units shall be available to the acquiring activity.

4.4 First article inspection. First article inspection shall be performed on sample units which have been produced using the same materials, equipment, processes and procedures normally used in production.

4.4.1 Sample. First article sample shall consist of 24 loaded rockets and 10 empty (devoid of all explosive material) rockets (see 6.4).

4.4.2 Inspection routine. The loaded rockets shall be divided into two groups of twelve. One group shall undergo in sequence, all the tests of 4.6 and the other group shall undergo only visual inspection (4.6.1) before ballistic testing (see 4.6.4). The empty rockets shall be inspected for conformance to 3.2 and 3.7.

4.4.3 Failure. Failure of any rocket shall be cause for rejection of the first article sample.

4.5 Quality conformance inspection. Quality conformance inspection shall consist of the tests specified in 4.6.1 and 4.6.4, in sequence. Quality conformance inspections shall be performed on sample units produced from one lot.

4.5.1 Sampling plan. Sampling shall be as specified in table I.

TABLE I. Sampling plan.

Sample	Sample size	Cumulative sample size	Accept lot	Cumulative interim reject	Reject lot
1	16	16	0	1 1/	2
2	13	29	1	2 1/	3
3	13	42	2	---	3

1/ Additional 13 samples shall be fired to prove acceptability of the lot.

4.5.2 Lot. A lot shall consist of rockets produced from one mix of propellant.

4.5.3 Lot numbering. Unless otherwise specified in the contract (see 6.2.1), lot numbering shall be in accordance with MIL-STD-1168. Lot interfix numbers shall be assigned by the acquiring activity.

4.6.1 Visual inspection. The rockets shall be visually inspected for conformance to the requirements of 3.2 and 3.7. Four power (4X) magnification may be used for this inspection.

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4.6.2 Vibration. While packaged in their shipping containers along with 12 PVU-3A/E igniters (see MIL-I-85547) according to Drawing 1335AS290, the rockets shall be subjected to a vibration test in accordance with MIL-STD-810, method 514.4, category 1. Vibration test levels given in figures 514.4-1 through 514.4-3 shall be used. Test time shall be based on a transportation of 3,000 miles.

4.6.3 Shock. The rockets shall be removed from their shipping containers and subjected to a 6-foot drop test in accordance with MIL-STD-810, method 516.4, procedure IV. Drop height shall be measured from the lowest point of the test item to the impact plane. One-third of the rockets shall be dropped with the nose cone down, one-third with the nose cone up, and one-third with the longitudinal axis parallel to the impact plane. Drop orientation of the rocket shall be required at the release point only.

4.6.4 Ballistic test. The rocket shall be fired in accordance with NAVAIR 11-75-63, Work Package 005 00, using an LMU-23A/E launcher (see Drawing 1335AS380) set at an angle of 80° or an LMU-24A/E launcher (see Drawing 1335AS700) set at an angle of 85° and a PVU-3A/E igniter (see Drawing 1335AS275). The altitude of the rocket shall be measured.

4.7 First article or quality conformance inspection report. A first article or quality conformance report (see 6.3) shall be available to the acquiring activity within the time frame specified (see 6.2). The report shall contain the following information:

- a. Date of report
- b. Date of inspection
- c. Lot number
- d. Manufacturer
- e. Operational objective
- f. Test equipment used
- g. Environmental conditions at time of inspection or failure
- h. Type of failure, if any
- i. Analysis, significance, and recommendations
- j. Disposition of parts
- k. Corrective action taken because of failure

4.8 Inspection of packaging. The sampling and inspection of the preservation, packing, and container marking shall conform to this specification (see section 5).

5. PACKING

5.1 Preservation. Rockets shall be stored in a cool and dry environment until packed (see 5.2).

5.2 Packing. Unless otherwise specified in the contract (see 6.2.1), rockets shall be packed in accordance with Drawing 1335AS289. Hermetic sealing of the rockets shall take place no later than 30 days after the rockets are removed from the curing ovens (see 5.1).

5.3 Marking. Unless otherwise specified in the contract (see 6.2), shipping containers and pallets shall be marked in accordance with MIL-STD-129 and the class B explosive, special fireworks requirements of 49 CFR 100-189.

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6. NOTES

(This section contains information of general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The GTR-18A rocket is intended for use with the PVU-3A/E and PVU-3B/E igniters and the LMU-23A/E and LMU-24A/E launchers to train aviation and ground forces to recognize and cope with attacking surface-launch missiles.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification.
- b. Issue of the DODISS to be cited in the solicitation, and if required the specific issue of individual documents referenced (see 2.1.1).
- c. Part number.
- d. Quantity required.
- e. Whether first article is required (see 6.4), and if so, specify the test activity.
- f. Date and place of delivery.
- g. Packing, marking, and lot numbering, if other than specified in 3.5, 4.5.3, 5.2 and 5.3.
- h. Time frame for submission of first article or quality conformance report.
- i. That the safety precaution requirements of the "Contractor's Safety Manual for Ammunition, Explosives, and Related Dangerous Material," DoD 4145.26M are applicable.

NOTE: When this specification is used as part of the description of work to be accomplished by a Government activity, the safety precaution requirements of "Ammunition and Explosives Ashore," OP5 are applicable.

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Reference Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
4.3	DI-NDTI-80566	Test plan	---
4.7	DI-T-2072	Report, test	---

The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems And Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

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6.4 First article. When a first article inspection is required, the item should be a first article sample. The first article should consist of 24 loaded and 10 empty rockets. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.5 Definition. For the purpose of this specification, the following definition applies.

6.5.1 Powered flight. Powered flight is defined as the stage of the rockets flight in which positive thrust is being produced by the propellant burning.

6.6 Subject term key word listing.

Igniters
Launcher
Powered flight

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - AS
(Project No. 1370-N326)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER

MIL-R-85545B(AS)

2. DOCUMENT DATE (YYMMDD)

30 November 1990

3. DOCUMENT TITLE

ROCKET, GTR-18A

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)

(1) Commercial

(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

Commanding Officer
NAEC (SESD) Code 53

b. TELEPHONE (Include Area Code)

(1) Commercial

908/232-1116

(2) AUTOVON

624-1116

c. ADDRESS (Include Zip Code)

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