Document No. SwRI 2837-ADP- 15

Release Date: NOV 10 1972

WEIGHT AND SIZE

LEVELING FIXTURE

MASS MEASURING DEVICE

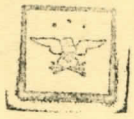
SERIAL NO. 002

COMPONENT PART NUMBER 2837-273-01A

| | |
|---|---|
| WEIGHT | 90.2 lbs |
| LENGTH | 31 3/8" |
| WIDTH | 27 7/8" |
| HEIGHT | 3 1/4" |

12/13/71
VBP

SwRI 3 R&QA





M172 BMMD
GSE S/N 002

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# OPERATING INSTRUCTIONS

The instructions for operation of the leveling fixture hardware for the mass measuring device are contained in paragraph 5.6.1 of document OMH-2.

VBP 14/3/71

SwRI 3 R&QA



M172 BMMD
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Document No. SwRI 2837-ADP- 15

Release Date: NOV 10 1972

SOUTHWEST RESEARCH INSTITUTE

8500 Culebra Road, San Antonio, Texas 78284

Department of Applied Electromagnetics

DOCUMENT NO. CPPP-402
REVISION A

# CLEANING, PRESERVATION, PACKAGING AND PACKING FOR THE M074 SPECIMEN MASS MEASUREMENT DEVICE AND THE M172 BODY MASS MEASUREMENT DEVICE

# CLEANING, PRESERVATION, PACKAGING AND PACKING FOR THE M074 SPECIMEN MASS MEASUREMENT DEVICE AND THE M172 BODY MASS MEASUREMENT DEVICE

U. S. Air Force Contract No. F41609-70-C-0029
SwRI Project 16-2837

## APPROVALS

Prepared by: W. W. Bradshaw Date: 23 September 1971

Reviewed by: J. W. Frogwell Date: 30 Sept 1971
Project Manager

Approved: W. A. Hawley Date: 30 September 1971
Reliability and Quality Assurance

Approved: C. S. Hudson Date: 30 Sept. 1971
Division Vice President

Approved: John W. Moore Date: 30 Sept 1971
Department of Applied Electromagnetics

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Department of Applied Electromagnetics

# CHANGE LOG

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| | | Approvals | | | |
| Date | Prepared by | Dept. | Division | Division | Revision Letter |
| 23 Sept 1971 | W. W. Bradshaw | John D. Moore | R. P. Hulen | W. G. Hawley | A |

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## 1.0 INTRODUCTION

The purpose of this document is to provide procedures for cleaning, preserving, packaging and packing the M074 Specimen Mass Measurement Device and the M172 Body Mass Measurement Device. The application of these procedures will insure that the SMMD and BMMD are protected from deterioration, degradation, and damage.

The applicable end item specifications are Document Nos. MSC-KW-E-69-10 and MSC-KW-E-69-11. The test data sheets in Document Nos. ATSP-1 and ATSP-2 shall be filled out to verify that the procedures in Document CPPP-402 have been fulfilled.

## 2.0 APPLICABLE DOCUMENTS

The following documents, of the exact issue shown, form a part of this document to the extent specified herein. In the event of conflict between documents referenced here and other detail content of Sections 1.0 and 3.0 through 5.0, the detail content of Sections 1.0 and 3.0 through 5.0 shall be considered a superseding requirement.

### 2.1 Specifications

#### 2.1.1 NASA

| | |
|---|---|
| MSC-SPEC-C-8<br>Amendment 1<br>5 January 1967 | Spacecraft On-Board Equipment, Cleanliness, Specifications For |

#### 2.1.2 SwRI

| | |
|---|---|
| MSC-KW-E-69-10<br>Revision B<br>12 October 1970<br>with Document<br>Change No. 1 dated<br>19 March 1971 | End Item Specification Flight Hardware For Specimen Mass Measurement (Experiment M074) |
| MSC-KW-E-69-11<br>Revision B<br>12 October 1970<br>with Document<br>Change No. 1 dated<br>19 March 1971,<br>Document Change<br>No. 2 dated<br>3 June 1971, and<br>Document Change<br>No. 3 dated<br>13 August 1971 | End Item Specification Flight Hardware For Body Mass Measurement (Experiment M172) |

### 2.2 Standards

#### 2.2.1 Federal

| | |
|---|---|
| FED-STD-209<br>Revision A<br>10 August 1966 | Clean Room and Work Station Requirements, Controlled Environment |

2.2.2 American Society for Testing and Materials

| | |
|---|---|
| ASTM F25-68<br>June 1969 | Standard Method for Sizing and Counting Airborne Particulate Contamination in Clean Rooms and Other Dust Controlled Areas Designed for Electronic and Similar Applications |

2.3 Drawings

2.3.1 SwRI

| | |
|---|---|
| E-2837-012-01<br>Rev. A<br>25 February 1971 | Packing Box Assembly, SMMD |
| E-2837-011-01<br>3 August 1971 | Packing Box Assembly, BMMD |
| D-2837-466-01<br>11 February 1971 | Calibration Mass Assembly |
| C-2837-022-01<br>24 February 1971 | Clamp, Packing and Calibration Mass Mounting |
| D-2837-266-01<br>3 March 1971 | Rod, Frame Mounting |
| E-2837-400-01<br>Revision B<br>18 March 1971 | SMMD Mechanical Subsystem |
| E-2837-001-01<br>13 August 1971 | Top Assembly of BMMD System |

2.4 Other Documents

2.4.1 SwRI

| | |
|---|---|
| ATSP-1<br>12 February 1971<br>with Document<br>Change No. 1 dated<br>7 April 1971,<br>Document Change<br>No. 2 dated<br>23 April 1971, and<br>Document Change<br>No. 3 dated<br>28 July 1971 | Acceptance Test Specifications And Procedures For The M074 Specimen Mass Measurement Device Flight Hardware |
| ATSP-2<br>16 March 1971<br>with Document<br>Change No. 1 dated<br>28 July 1971,<br>Document Change<br>No. 2 dated<br>4 August 1971, and<br>Document Change<br>No. 3 dated<br>20 August 1971 | Acceptance Test Specifications And Procedures For The M172 Body Mass Measurement Device Flight Hardware |
| QAM-1<br>15 December 1970<br>with Document<br>Change No. 1 dated<br>15 January 1971 | Calibration Systems Plan |

## 3.0 CLEANING PROCEDURE

### 3.1 General

The cleaning procedure shall be applied only to flight type hardware.

#### 3.1.1 Clean Room Requirements

The cleaning operations outlined in this document shall be conducted in a controlled clean room. The minimum requirements for this room shall be as follows (per FED-STD-209A):

##### 3.1.1.1 Environmental Conditions

Parameters (1), (2), (3) and (4) shall be measured daily whenever the clean room is in use and the results entered on a log.

(1) The maximum number of particles per cu. ft. 5.0 microns and larger must not exceed 700. A count will be made, using the methods outlined in the ASTM Standards, F25-68, once each 24 hours in which the room is in use. When practicable, the sample shall be taken during the peak work load.

(2) The room temperature shall be controlled to a range of $72 \pm 10^{\circ}F$, and shall be measured and recorded each time a count is made.

(3) The relative humidity shall be controlled to a range of 30% to 60%, and shall be measured and recorded each time a count is taken.

(4) Positive pressure differential between the clean room and anteroom shall be maintained with the entryway closed. The pressure differential shall be measured and recorded each time a count is made.

(5) Sufficient fresh or make-up air shall be supplied to maintain the air within the clean room in a breathable condition.

3.1.1.2 Environmental Conditions Monitoring Equipment

The following equipment and instruments or equivalent shall be used to measure the parameters specified in 3.1.1.1. Calibration shall be in accordance with Document QAM-1.

(1) Temperature and relative humidity measurements

Psychrometer, Bendix Model 566; calibrated at 12 month intervals

(2) Differential pressure measurements

Manometer, Dwyer, 0 to 1 inch; calibrated at 12 month intervals

(3) Particle Counting

(a) Microscope, Unitron, Series N.

(b) Calibrated grating, Bausch and Lomb, 0.1 mm and 0.01 mm graduations; calibrated at 12 month intervals

(c) Vacuum pump, Millipore, Model No. XX 600,000; calibration not required

(d) Aerosol monitor with 0.5 micron filters, Millipore, MABG 037AO; calibration not required

3.1.1.3 Clean Room Operating Instructions

(1) All personnel shall wear lint-free smocks, gloves, head coverings and shoe coverings.

(2) Neither smoking or eating shall be permitted inside the room.

(3) Use only ball-point pens for writing. Lead pencils and erasers are not permitted.

(4) Avoid solvent contact with hands to prevent removal of natural skin oils and consequent excessive "skin peeling" and flaking.

(5) Clean all equipments, instruments, materials, and parts before entry to area by means of dusting, vacuum cleaning, washing, or other acceptable means as best suited to the article involved.

(6) No machining, grinding, filing, or similar operations are permitted

(7) Where practical, cleaning operations involving the use of solvents should be performed in an adjoining or nearby area. Following cleaning, the article should be returned promptly to the clean room to prevent contamination.

(8) Access to the clean room is limited to only those persons necessary for the room operation.

(9) Janitorial service shall consist of a properly supervised, regularly scheduled cleaning program.

(10) Keep bench tops free of unnecessary materials, parts, and equipment. Also, keep area underneath benches clear to allow easy access by janitors.

(11) The protective garments designed for clean room use shall not be worn outside the clean room area.

(12) All compressed gas cylinders shall be cleaned of dust and debris prior to bringing into the clean room. After bringing into the clean room, the gas cylinder shall be covered with a polyethylene film covering.

(13) Prior to using the clean room for cleaning a hardware unit, remove all dirt and dust particles from the air vents of the air conditioning system by vacuuming.

3.1.2 Precautions

All cleaning work involving the use of solvents shall be performed in a well-ventilated area of the cleaning room to prevent hazards such as toxic or explosive gas mixtures.

3.1.3 Inspections

All operations performed herein shall be witnessed by a Quality Assurance representative, and the checklist shown in Appendix A shall be filled out to verify that the cleaning procedures have been performed.

3.2 Materials and Equipment

The following materials and equipment, or equivalent materials and equipment, are approved for use in the cleaning operations.

(1) Vacuum Cleaner, Black and Decker, Type A, 5 Gallon All Purpose

(2) Solvent applicators

(3) Brushes

(4) Clean Room Articles

- Nylon wiping cloth
- White nylon frocks
- White caps
- Lint-free gloves
- Plastic covers for shoes

(5) Nitrogen, 99.5% purity, dew point approximately -75°F, water pumped type, filtered utilizing Millipore, 1/2 micron filter or equivalent.

(6) Cleaning Solvents: CP grade isopropyl alcohol and Freon TF (Freon TMC will not be used).

3.3 Special Procedures

Before beginning final cleaning the Quality Assurance representative shall assure that the following preparations are accomplished. Compliance shall be indicated in the appropriate place in the check list provided in Appendix A.

3.3.1 SMMD

(1) Turn the lockout cam (Item 12 on Drawing No. E-2837-400-01) to the "cam lock" position using a torque of no more than 35 inch-pounds.

(2) The calibration mass assembly (Drawing No. D-2837-466-01) and the clamp, packing and calibration mass mounting, (Drawing No. C-2837-022-01) must accompany the SMMD and be ready for final cleaning.

3.3.2 BMMD

(1) Install the tie down cables (Items 6 and 7 on Drawing No. E-2837-001-01) with the tie down bracket and 1/4-20 x 1/2 cap screw (Items 4 and 5 on Drawing No. E-2837-001-01).

(2) Install the launch bolts (Item 3 on Drawing No. E-2837-001-01) in the launch configuration - 2 places.

(3) Install the two frame mounting rods (Drawing No. D-2837-266-01) with 1/4 - 20 x 1 - 3/4 hex head bolts (4 places).

3.4 Cleaning Procedure

Each SMMD and BMMD shall be cleaned in accordance with the following procedure. Personnel handling the cleaned mass measuring devices shall be equipped, as a minimum, with clean room type gloves, smocks, caps, and shoe covers.

3.4.1 Prior to cleaning the SMMD or BMMD, remove any lubricants, greases, or other similar material present with a lint-free cloth. The cloth may be saturated with cleaning solvent to assist in removing these materials.

3.4.2 Remove dust and other particles from the SMMD or BMMD by carefully vacuum cleaning its surfaces.

3.4.3 Clean the units by directing a low velocity spray of cleaning solvent in its surfaces. A spray gun may be utilized in this operation. The brush may be used to dislodge dirt or other particles from crevices and other difficult-to-reach surface areas.

3.4.4 Dry the units by directing a stream of dry nitrogen over its surfaces. The flow rate shall be in excess of 10 scfm and the period of application shall be a minimum of 2 minutes.

3.4.5 Visually inspect the SMMD or BMMD surfaces and note any evidence of dirt, grease, or other material. The Quality Assurance representative will insure that hardware exterior surfaces are visible clean. Freedom from particulate matter fifty (50) microns and larger in size and from films other than known innocuous films will be verified by visual inspection under sufficient light intensity to illuminate the area being inspected.

The Quality Assurance representative will insure that the hardware exterior surfaces are free of hydrocarbons. He will verify this by inspection with ultraviolet light or other suitable methods.

3.4.6 If the SMMD or BMMD exhibits unclean surface areas, repeat procedure steps 3.4.3, 3.4.4, and 3.4.5.

# 4.0 PRESERVATION AND PACKAGING PROCEDURES

## 4.1 General

This section provides the procedures for preserving and packaging the SMMD or BMMD flight hardware.

### 4.1.1 Cleaning

Prior to packaging, the SMMD or BMMD shall be cleaned in accordance with Section 3.0 above, and the checklist presented in Appendix A filled out and approved (stamped off).

### 4.1.2 Clean Room Requirements

The preservation and packaging procedures shall be performed in a clean room meeting the requirements specified in sub-paragraph 3.1.1 above. Personnel performing the preservation and packaging task shall be equipped, as a minimum, with clean room type gloves, frocks, caps, and shoe covers.

### 4.1.3 Application

Preservation and packaging of the SMMD or BMMD shall be conducted as a part of the Acceptance Tests (see Document Nos. ATSP-1 and ATSP-2).

### 4.1.4 Inspections

All operations performed herein shall be witnessed by a Quality Assurance representative, and the checklist provided in Appendix B shall be filled out to verify that the procedures have been performed.

## 4.2 Materials and Equipment

The following materials and equipments, or equivalent materials and equipments, are approved for use in performing these procedures:

(1) Nylon 6 bags, 2 mils thick, meeting Class 100,000 cleanliness requirements

(2) Antistatic polyethylene bags, 6 mils thick, meeting Class 100,000 cleanliness requirements

(3) Nitrogen, 99.5% purity, dew point approximately -75°F, water pumped type, filtered utilizing Millipore, 1/2 micron filter or equivalent

(4) Heat sealing machine, Audion Electro, Type SSM250, S/N 04/6306

(5) Clean room articles

- Nylon wiping cloth
- White nylon frocks
- White caps
- Lint-free gloves
- Plastic covers for shoes

4.3 Preservation and Packaging

4.3.1 General

Preservation and packaging will consist of double bagging the SMMD or BMMD in appropriately sized Nylon 6 and antistatic polyethylene bags. Sharp edges, points, etc. of the SMMD or BMMD which may puncture or damage the barrier bags will be overwrapped with 2 mil thick Nylon 6 material to form a cushion.

4.3.1.1 SMMD Bagging

(1) The SMMD is to be secured in place by clamping the mounting plate to the bottom of the inner box (see Drawing No. E-2837-012-01-A). Insure that the plastic bag material folds smoothly over the top of the SMMD mounting plate around the edges.

(2) Install the calibration mass assembly (Drawing No. D-2837-466-01) on the clamp, packing and calibration mass mounting (Drawing No. C-2837-022-01) hand tight.

(3) Make sure that the plastic bag material conforms to the slots in the mounting clamp to permit passage of the padded packing bolts and to prevent cutting, tearing, puncturing, or abrading of the plastic sheet. Also insure that the plastic may be clamped tightly against the bottom of the clamp and against the top of the clamp in the vicinity of the end slots.

4.3.1.2 BMMD Bagging

The BMMD is to be secured in place by clamps which almost completely encircle the frame mounting rods near the ends (See Drawing No. E-2837-011-01). Make sure the plastic bags conform to the BMMD mounting rods sufficiently to permit installing the clamps without damaging the bags.

4.3.2 Interior Bag (2 mil thick Nylon 6)

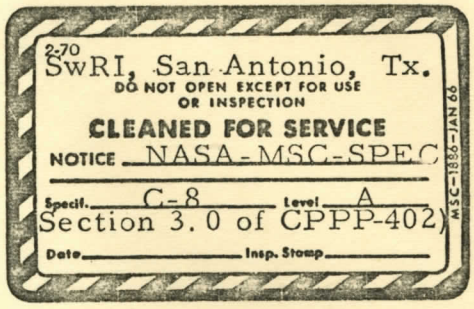
4.3.2.1 The inside of the 2 mil thick nylon bag will be flushed with dry nitrogen at a rate greater than 5 scfm until a minimum of three complete volume changes of gas have occurred in the bag. The bag shall be sized to accommodate three heat seals in the closure end.

4.3.2.2 Immediately after step 4.3.2.1, the SMMD, SMMD calibration mass assembly, or BMMD will be placed inside the bag, and the inside of the bag flushed with nitrogen. The open end of the bag will be heat sealed leaving a hole for evacuating the gas. The bag will be formed around the item by hand, squeezing out the gas and the hole heat sealed. Additional heat seals across the entire width of the closure end of the bag will be made.

4.3.2.3 A decal shall then be placed on the outside of the 2 mil thick bag indicating that the SMMD or BMMD has been cleaned in accordance with MSC-SPEC-C-8, Class A. Since NASA considers the procedures in Section 3.0 herein to comply with the cleanliness requirements for Class A equipment as specified in

MSC-SPEC-C-8, and to simplify future interpretation of the cleanliness level of the hardware, all units shall be cleaned in accordance with Section 3.0 herein. The decal shall also show evidence of SwRI and Government inspection and verification of cleanliness and packaging as well as the date of stamp-off.

4.3.2.3.1 The decall shall be approximately 38 x 60 mm in size and read substantially as shown below




4.3.3 Exterior Bag (6 mil thick antistatic polyethylene)

4.3.3.1 Step 4.3.2.1 will be performed on the exterior 6 mils thick bag.

4.3.3.2 The single bagged device will be flushed on the exterior surface with nitrogen until it is visibly clean and free of moisture. The bagged device will be placed inside the exterior bag. The inside of the exterior bag will be flushed with nitrogen and heat sealed in the same manner as the inner bag.

NOTE

Before installing hardware in the spacecraft, remove the clamp, packing and calibration mass mounting, from the SMMD calibration mass assembly and the two frame mounting rods from the BMMD. Return items to respective packing boxes.



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# 5.0 PACKING PROCEDURE

## 5.1 General

This section provides the procedure for the packing of the SMMD or BMMD. The mockup and flight training hardware shall be packed according to standard commercial practices. The flight hardware shall be packed according to the following procedure.

### 5.1.1 Room Requirements

The packing operations outlined in this procedure shall be performed in an area which is controlled such that excessive contamination of the bagged SMMD or BMMD and the packing materials will not occur.

### 5.1.2 Application

Packing, which is defined as enclosing the double-bagged SMMD or BMMD in a protective case, shall be conducted as a part of the Acceptance Test (see Document Nos. ATSP-1 and ATSP-2).

### 5.1.3 Inspections

5.1.3.1 All operations performed herein shall be witnessed by a Quality Assurance representative, and the checklist provided in Appendix C shall be filled out to verify that the procedures have been performed.

## 5.2 Materials and Equipment

The following materials and equipments, or equivalent materials and equipment, are approved for use in performing these procedures:

(1) Vacuum cleaner, Black and Decker, Type A, 5 Gallon All Purpose

(2) Packing Box Assembly, SMMD, SwRI Drawing No. 2837-012-01

(3) Packing Box Assembly, BMMD, SwRI Drawing No. 2837-011-01

(4) Polyurethane foam material

5.3 Packing Procedure

The SMMD or BMMD unit shall be rigidly mounted to the inner packing box with no packing material used. Paragraph 5.3.2 will be followed for the SMMD while paragraph 5.3.3 will be followed for the BMMD.

5.3.1 Use the vacuum cleaner to remove dust and other foreign particles from the inside of the packing box.

5.3.2 Place the bagged SMMD into the inner packing box and clamp it into place using neoprene padding to protect the bag at the clamped areas. Make sure that one of the clamps is the bagged calibration mass assembly. Place the lid on the inner box and install the locking screws. Place the Acceptance Data Package (packaged in a plastic wrapping) on the outer surface of the box and tape it to the box securely. Place the three packages each containing a set of clean room shipping bags on top of the Acceptance Data Package. Line the outer packing box with a minimum of 4-inches of polyurethane foam, place the inner box in the outer box and secure the outer box lid. A label or stencil giving direction to the unpacking instructions in the data package shall be displayed conspicuously on the top of the inner box.

5.3.3 (Refer to Drawing No. E-2837-011-01)

(1) Place the mounting pad, internal packing box (Item 1) on stands at least 10 inches high.

(2) Secure the four internal packing box lower clamps (Item 3) to the internal packing box mounting pad with 3/8 x 4 lag bolts (Item 11). The triangular pattern of tapped holes in the lower clamps must be toward the edge of the mounting pad.

(3) Place a 3 x 5-3/4 inch piece of rubber (Item 6) in each clamp.

(4) Carefully lower the bagged BMMD onto the mounting pad so that the ends of the mounting rods rest in the four rubber-lined clamps.

(5) Adjust the positions of the lower clamps as required to permit the BMMD mounting rods to settle down in the clamps without damage to the plastic bags.

(6) Fold the rubber liners over the mounting rods and install the upper portions of the clamps (Item 4) with 3/8 - 16 x 1-3/4 hex head bolts (Item 10).

(7) Install the end clamp plates with 2-1/2 inch square rubber cushions (Item 7) and 1/4 -20 x 3/4 hex head bolts (Item 9).

(8) Lower the internal packing box cover (Item 2) over the BMMD and onto the internal packing box mounting pad.

(9) Insert from below through the mounting pad into the cover 3/8 - 16 x 8-1/2 inch hex head bolts with washers and tighten (Items 13 and 14 - 22 places).

(10) Secure the plastic wrapped Acceptance Data Package on the outer top surface of the inner packing box. Place the three packages each containing a set of clean room shipping bags on top of the Acceptance Data Package. A label or stencil giving direction to the unpacking instructions in the data package shall be displayed conspicuously on the top of the inner box.

(11) Line the outer packing box (Item 18) with urethane foam (Items 15, 16 and 17).

(12) Lower the internal packing box into the foam-lined outer packing box.

(13) Place a layer of foam (Item 15) over the internal packing box.

(14) Place the outer packing box lid (Item 19) on the outer packing box and secure with 1/2 - 13 x 4 inch hex head bolts with washers (Items 20 and 21 - 26 places).



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5.4 Packing Box Markings

In addition to address labels, the markings of sub-paragraphs 5.4.1 and 5.4.2 shall be placed on the packing box.

5.4.1 Top Side Marking

The packing box shall be marked as follows:

Item Name _____

Manufacturer Part Number _____

Quantity in Package _____

Serial Number _____

Manufacturer _____

Contract Number _____

Cleaned _____

Shipping Weight _____

Packing Box External Dimensions
(l x w x h and volume) _____

5.4.2 Marking For All Sides

(1) The following information, printed in red in letters at least 0.5 inch high, shall be provided on each of the six outside surfaces of both inner and outer packing boxes:

(a) SMMD
HANDLE WITH CARE!
M074 SPECIMEN MASS MEASUREMENT DEVICE

(b) BMMD
HANDLE WITH CARE!
M172 BODY MASS MEASUREMENT DEVICE

(2) In addition the four sides of both packing boxes shall be marked with "up" arrows and the following"

CAUTION - OPEN ONLY WITH TOPSIDE UP!



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# APPENDIX A

## CLEANING INSPECTION CHECKLIST

# CLEANING INSPECTION CHECKLIST

| Para. Ref. | Inspection and Test Procedure | Recorded Date | Cleaning Acceptance SwRI | Cleaning Acceptance Gov't. | REMARKS |
|---|---|---|---|---|---|
| 3.1.1 | Documentation Review<br>Review clean room log sheets and verify, from recorded data, that the clean room meets class 100,000 requirements. | 12-15-71 | SwRI 9 R&QA | | |
| 3.1.2 | Precautions<br>Observe cleaning area. Verify that all cleaning, requiring solvents, has been performed in a well-ventilated area. | 12-15-71 | SwRI 9 R&QA | | |
| 3.2 | Materials and Equipment<br>Review material and equipments used for cleaning the SMMD or BMMD and verify that approved materials and equipment are being used. | 12-15-71 | SwRI 9 R&QA | | |
| -- | SMMD or BMMD Identification<br>SMMD or BMMD shall have a tag or label identifying it with the following information. (Record this information.)<br>Item Name<br>Contract No.<br>Manufacturing Date<br>Manufacturer<br>Manufacturer's Serial No. 002<br>Manufacturer's Part No. 2837-273-01<br>Total Weight | 12-15-71 | SwRI 9 R&QA | | LEVELING PLATE HAS SCRATCHES AROUND BMMD MOUNTING HOLES |

Form No.: 67
Date: 25 February 1971

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# CLEANING INSPECTION CHECKLIST

| Para. Ref. | Inspection and Test Procedure | Recorded Date | Cleaning Acceptance SwRI | Cleaning Acceptance Gov't. | REMARKS |
|---|---|---|---|---|---|
| 3.3 | Special Procedures | | | | |
| 3.3.1 | SMMD<br>Verify that the lockout cam is turned to the "cam lock" position and that the calibration mass assembly and mounting clamp are with the SMMD per Paragraph 3.3.1. | N/A | N/A | N/A | |
| 3.3.2 | BMMD<br>Verify the installation of the tiedown cables and bracket, the launch bolts, and the frame mounting rods per Paragraph 3.3.2. | N/A | N/A | N/A | |
| 3.4 | Clean and Inspect SMMD or BMMD<br>Observe the cleaning and inspection of the SMMD or BMMD. Verify that the SMMD or BMMD is cleaned and inspected in accordance to procedures in Paragraph 3.4. | 12-15-71 | SwRI 9 R&QA | | |

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# APPENDIX B

## PRESERVATION AND PACKAGING INSPECTION CHECKLIST

# PRESERVATION AND PACKAGING INSPECTION CHECKLIST

| Para. Ref. | Inspection and Test Procedure | Recorded Date | Acceptance | | | REMARKS |
|---|---|---|---|---|---|---|
| | | | SwRI | NR/SD | Gov't. | |
| 4.2 | Materials and Equipment<br>Review materials and equipment used for preservation and packaging. Verify that approved materials and equipment are being used. | 11-09-72<br>~~11-09-72~~ WWP | SwRI 9 R&QA | N/A | BASA 1813 | |
| 4.3 | Packaging Procedures<br>Observe the packaging of the SMMD or BMMD. Verify that the unit is packaged. in accordance with Paragraph 4.3. | 11-09-72 | 9 R&QA | N/A | BASA 1813 | |
| 4.3.1.1 | SMMD Bagging<br>Verify that the plastic bag material folds over the top of the mounting far enough to permit clamping without damaging the bags and that the calibration mass assembly is installed to the mounting clamp and bagged in a manner to permit proper utilization of the clamp per Paragraph 4.3.1.1 | N/A | N/A | N/A | N/A | |
| 4.3.1.2 | BMMD Bagging<br>Verify that the plastic bags conform to the frame mounting rods at the ends to permit packing clamp installation without damage to the bags per Paragraph 4.3.1.2. | N/A | N/A | N/A | N/A | |

Form No.: 68
Date: 25 February 1971

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M172 BMMD
GSE S/N 002

# APPENDIX C

## PACKING PROCEDURE CHECKLIST

# PACKING PROCEDURE CHECKLIST

| Para. Ref. | Inspection and Test Procedure | Recorded Date | Acceptance | | REMARKS |
|---|---|---|---|---|---|
| | | | SwRI | Gov't. | |
| 5.1.1 | Documentation Review<br>Verify that the controlled area meets requirements of Paragraph 5.1.1. | 11-10-72 | SwRI 7 R&QA | S NASA 1813 | |
| 5.2 | Materials and Equipment<br>Review material and equipment used for packing the SMMD or BMMD and verify that approved materials and equipment are being used. | 11-10-72 | SwRI 7 R&QA | S NASA 1813 | |
| 5.3 | Packing Procedure<br>Observe the packing of the SMMD or BMMD. Verify that the unit is packed in accordance with Paragraph 5.3. | 11-10-72 | SwRI 7 R&QA | S NASA 1813 | |
| 5.4 | Identifications<br>Review the markings on the packing boxes. Verify that all boxes are marked in accordance with Paragraph 5.4 | 11-10-72 | SwRI 7 R&QA | S NASA 1813 | |

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M172 BMMD
GSE S/N 002

Form No.: 69
Date: 25 February 1971

BMMD LEVELING FIXTURE - 2837-273-01-S/N 002

"TO BE STORED IN A COOL DRY LOCATION"

# MATERIAL INSPECTION AND RECEIVING REPORT

| 1. PROC. INSTRUMENT IDEN(CONTRACT) | (ORDER) NO. | 6. INVOICE NO. | 7. PAGE | OF |
|---|---|---|---|---|
| F41609-70-C-0029 | | DATE | 1 | 1 |
| | | | 8. ACCEPTANCE POINT | S |

| 2. SHIPMENT NO. | 3. DATE SHIPPED | 4. TCN | 5. DISCOUNT TERMS |
|---|---|---|---|
| SWR0044 | 72NOV13E | Document No. SwRI 2837-ADP- 15<br>Release Date: NOV 10 1972B | |

| 9. PRIME CONTRACTOR | CODE | 10. ADMINISTERED BY | CODE |
|---|---|---|---|
| Southwest Research Institute<br>8500 Culebra Road<br>San Antonio, TX 78284 | 025401 | DCASO, San Antonio<br>7071B San Pedro Avenue<br>San Antonio, TX 78216 | S4404A |

| 11. SHIPPED FROM (If other than 9) | CODE | FOB: | 12. PAYMENT WILL BE MADE BY | CODE |
|---|---|---|---|---|
| See Block 9 | 025401 | S | Accounting and Finance Officer<br>Brooks Air Force Base, TX 78235 | FQ7624 |

| 13. SHIPPED TO | CODE | 14. MARKED FOR | CODE |
|---|---|---|---|
| Chief, Freight Traffic, IS-LOG-211<br>NASA, John F. Kennedy Space Center<br>Central Supply Warehouse, Bldg. M6-744<br>Kennedy Space Center, FL 32899 | 804200 | M/F: G. G. Moegling, LS-ENG-53 (Ext. 5655) | 804200 |

| 15. ITEM NO. | 16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.) | 17. QUANTITY SHIP/REC'D * | 18. UNIT | 19. UNIT PRICE | 20. AMOUNT |
|---|---|---|---|---|---|
| 0002 AD | BMMD Leveling Fixture, S/N 002, P/N 2837-273-01, with End Item Acceptance Data Package Document No. 15 | 1 | EA | | |

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

[X] PQA [X] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

11-10-72 — DATE
L C Neely — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE: S4404A L.C.Neely

B. DESTINATION

[ ] PQA [ ] ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

DATE RECEIVED — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by ( ✔ ) mark, if different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

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M172 BMMD
GSE S/N 003