

UNCLASSIFIED

AD NUMBER
AD829156
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; 18 Sep 1963. Other requests shall be referred to the Ballistic Systems Division, Norton AFB, CA.
AUTHORITY
SAMSO ltr, 28 Feb 1972

THIS PAGE IS UNCLASSIFIED

TIN 66- 1882 DRT

Copy _____

OPADEC

AD829156

Prepared by

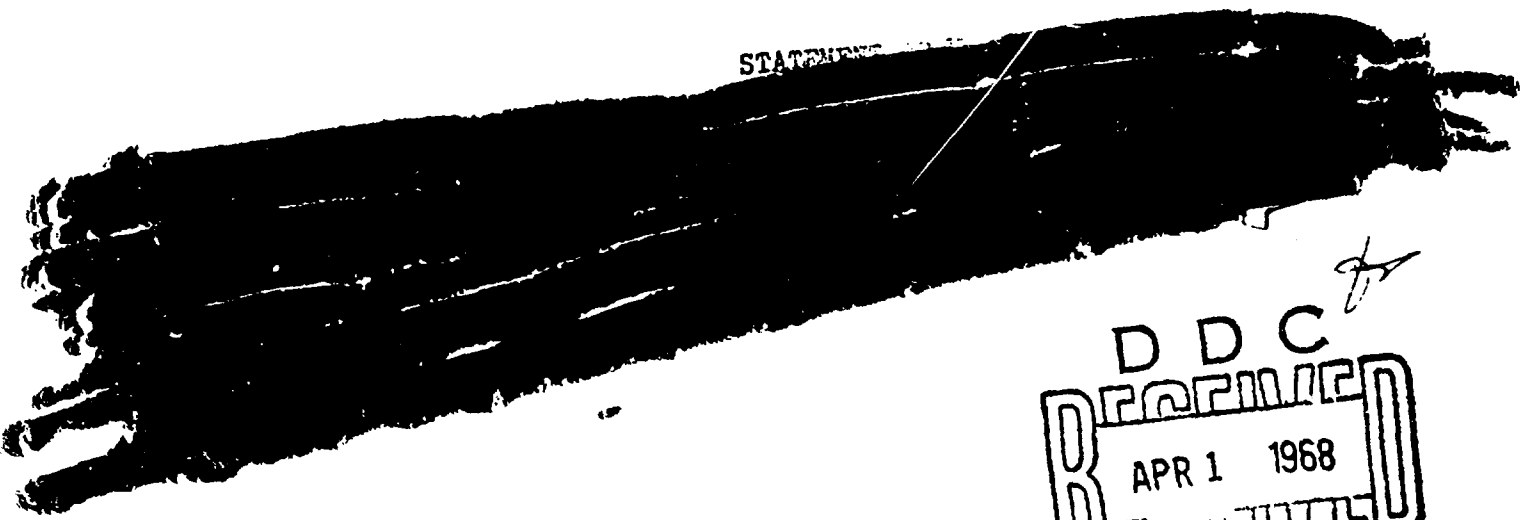
RESEARCH AND ADVANCED DEVELOPMENT DIVISION
AVCO CORPORATION
Wilmington, Massachusetts

MARK 6 MOD 2 DECOY (AMR) ASSEMBLY AND TEST PROCEDURES
(Including Ordnance Information and Related Documentation)
ATLAS MISSILE

(Task 1.2.19--Optical Particle Decoys--REST Project)
(Task 1.2.1.3--Mark 6 Decoys--REST Project)

RAD-SR-63-198
Contract AF04(694)-239

THIS REPORT WAS PREPARED IN ACCORDANCE WITH AIR FORCE
CONTRACT AF04(694)-239. IT IS SUBMITTED IN PARTIAL FUL-
FILLMENT OF THE CONTRACT AND IN ACCORDANCE WITH
AFBM EXHIBIT 58-1 (PARAGRAPH 3-18).



STATEMENT

DDC
RECEIVED
APR 1 1968
C

Prepared for

AIR FORCE BALLISTIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Norton Air Force Base, California

FOR OFFICIAL USE ONLY

Prepared by
RESEARCH AND ADVANCED DEVELOPMENT DIVISION
AVCO CORPORATION
Wilmington, Massachusetts

**MARK 6 MOD 2 DECOY (AMR) ASSEMBLY AND TEST PROCEDURES
(Including Ordnance Information and Related Documentation)
ATLAS MISSILE**

(Task 1.2.19--Optical Particle Decoys--REST Project)
(Task 1.2.1.3--Mark 6 Decoys--REST Project)

RAD-SR-63-198
Contract AF04(694)-239

THIS REPORT WAS PREPARED IN ACCORDANCE WITH AIR FORCE
CONTRACT AF04(694)-239. IT IS SUBMITTED IN PARTIAL FUL-
FILLMENT OF THE CONTRACT AND IN ACCORDANCE WITH
AFPM EXHIBIT 3B-1 (PARAGRAPH 3-18).

Prepared by
W. Astrowsky
W. Astrowsky
Test Systems Integration

18 September 1963

APPROVED

E. F. Leonard
E. F. Leonard, Chief
Test Systems Integration
H. A. Carner
H. A. Carner, Manager
Flight Technology Department

D. Rowse
D. Rowse, Project Engineer
Optical Particle Decoy Program
J. A. Luceri
J. A. Luceri, Manager
REST Project Office

STAT-10

5050 Los Angeles Ave
CA 90045

Prepared for

AIR FORCE BALLISTIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Norton Air Force Base, California

MARK 6 MOD 2 DECOY PROGRAMS (LB-1 AND LB-1A)

ASSEMBLY AND TEST PROCEDURES FOR AM

TABLE OF CONTENTS

	<u>PAGE</u>
<u>INTRODUCTION</u>	v
<u>OUTLINE</u>	vi
<u>FLOW DIAGRAM, FIGURE 1</u>	1-1, 1-2
<u>FUNCTION NUMBERS (MAJOR)</u>	
(LAUNCH CONFIGURATION FOR NOSE EJECTION)	
1.0 Transfer Mark 6 Mod 2 Payload - Receiving Dock to Hangar N	2-1
2.0 Receive and Visually Inspect Payload - Hangar N	2-1
3.0 Perform Visual/Electrical Checkout of Payload	2-2
4.0 Assemble Payload and Store - Hangar N	2-4
5.0 Transfer Payload and Support Equipment from Hangar N to Pan American Munitions Area	2-5
6.0 Receive, Unpack, Inspect and Test Ordnance	2-5
7.0 Install Ordnance	2-6
8.0 Assemble Payload	2-8
9.0 Prepare Payload for Transfer to Aeronutronic Hangar F	2-11
10.0 Mate Payload to Aeronutronic Launch Tube	2-12
<u>FUNCTION NUMBERS (MAJOR)</u>	
(LAUNCH CONFIGURATION FOR AFT EJECTION)	
1.0 Transfer Mark 6 Mod 2 Payload - Receiving Dock to Hangar N	3-1
2.0 Receive and Visually Inspect Payload - Hangar N	3-1
3.0 Perform Visual/Electrical Checkout of Payload	3-2
4.0 Assemble Payload and Store - Hangar N	3-4
5.0 Transfer Payload and Support Equipment from Hangar N to Pan American Munitions Area.	3-5

	<u>PAGE</u>
6.0 Receive, Unpack, Inspect and Test Ordnance	3-5
7.0 Install Ordnance	3-6
8.0 Assemble Payload	3-8
9.0 Prepare Payload for Transfer to Aeronutronic Hangar F	3-10
10.0 Mate Payload to Aeronutronic Launch Tube	3-11
<u>HANDLING AND STORAGE PROCEDURES</u>	4-1
(AVCO/HUGHES MARK 6 MOD 2 OPaDec DECOY)	
<u>ORDNANCE DATA AND SAFETY ASPECTS</u>	
Block Diagram, Figure 2	5-1
Description of System	5-2
Explosive Valve Characteristics	5-3
Pyrotechnic Time Delay Switch Characteristics	5-4
Initiator Characteristics	5-5
(Classified) Ordnance Characteristics	5-6
Safety Aspects	5-7
Catastrophic Condition	5-8
Reference Drawings	5-9
<u>GROUND SUPPORT EQUIPMENT</u>	6-1

INTRODUCTION

GENERAL

This document describes the Assembly Procedures and Test Operations of the Avco Mark 6 Mod 2 (LB-1) and Avco/Hughes Mark 6 Mod 2 (LB-1A) Decoys to be flown on Atlas Missiles. It also updates and supercedes documents TDM-W-12,289, Revision 1, dated 7 January 1963, and RAD-SR-63,149, dated 16 August 1963, same subjects respectively. All future additions and changes to the Assembly Procedures and Test Operation for these programs will be handled as revisions to this document.

APPLICATION

The application of this document is restricted to the Avco Mark 6 Mod 2 (LB-1) and Avco/Hughes Mark 6 Mod 2 (LB-1A) Decoy Programs and the related support equipment necessary to implement the vehicle readiness.

PURPOSE

The purpose of this document is to provide a simple comprehensive approach which defines those areas which may be unfamiliar to the technician, and to prescribe routines for the accomplishment of the tasks associated with each area.

HOW TO USE

This document is supported by flow diagrams which present schematically the logical sequence of functions necessary to prepare the Avco Mark 6 Mod 2 (LB-1) and Avco/Hughes Mark 6 Mod 2 Decoys for flight readiness at AMR. In order to follow the procedural flow of the Decoys through AMR, read all the major functions from the flow diagram, e.g., 1.0 - 2.0 - 3.0 etc. In order to follow the analysis of any major function, read the sub-functions entered beneath the major functions, e.g., 1.1 - 1.2, etc.

MARK 6 MOD 2 DECCY PROGRAMS (LB-1 AND LB-1A)

ASSEMBLY AND TEST PROCEDURES FOR AMR

OUTLINE

The Mark 6 Mod 2 Payloads (LB-1 and LB-1A) will be received at the AMR receiving dock by Avco Personnel and transported to Hangar N. These vehicles will be shipped fully assembled (less ordnance) within the shipping and storage container.

After the Mark 6 Mod 2 Payload is received at Hangar N, it will be visually inspected to ensure that the payload was not damaged during shipment and electrically checked to ensure the integrity of the system. (Hughes Aircraft Company representatives will monitor and support, as required, all operations to process the LB-1A payload through launch)

The Mark 6 Mod 2 Payload will then be stored at Hangar N until required for installation of the (classified) ordnance and performance of other flight processing functions.

The (classified) ordnance will have been completely checked out by Berrite prior to shipping to AMR for storage in the Pan American Munitions Storage Area. At the time of required usage, Avco will request Pan American to draw the (classified) ordnance from storage, check it out, and deliver it to Avco at the Pan American Munitions Assembly Area where Avco will physically install the (classified) ordnance.

When a Mark 6 Mod 2 Payload is to be processed and made flight ready, the payload and support equipment will be delivered to the Pan American Munitions Area for installation of the (classified) ordnance and complete electrical and mechanical checkout.

At the Pan American Munitions Area the Mark 6 Mod 2 Payload will be disassembled, inspected and reassembled with the (classified) ordnance. Following electrical checkout, the Payload will be stored in its container and placed in an air-conditioned munitions bunker or transported directly to Aeronutronic Hangar F for mating to the launch tube, as schedules dictate

At Aeronutronic Hangar F the final inspection, electrical check and mechanical premating preparation will be made by Avco before turning the payload over to Aeronutronic for mating.

During mating, Avco and Hughes Aircraft Company representatives will support and monitor the operation as required.

N O T E

AFMIS is authorized to modify the procedures herein as required to meet engineering requirements. Such deviation will be incorporated in succeeding issues of this document.

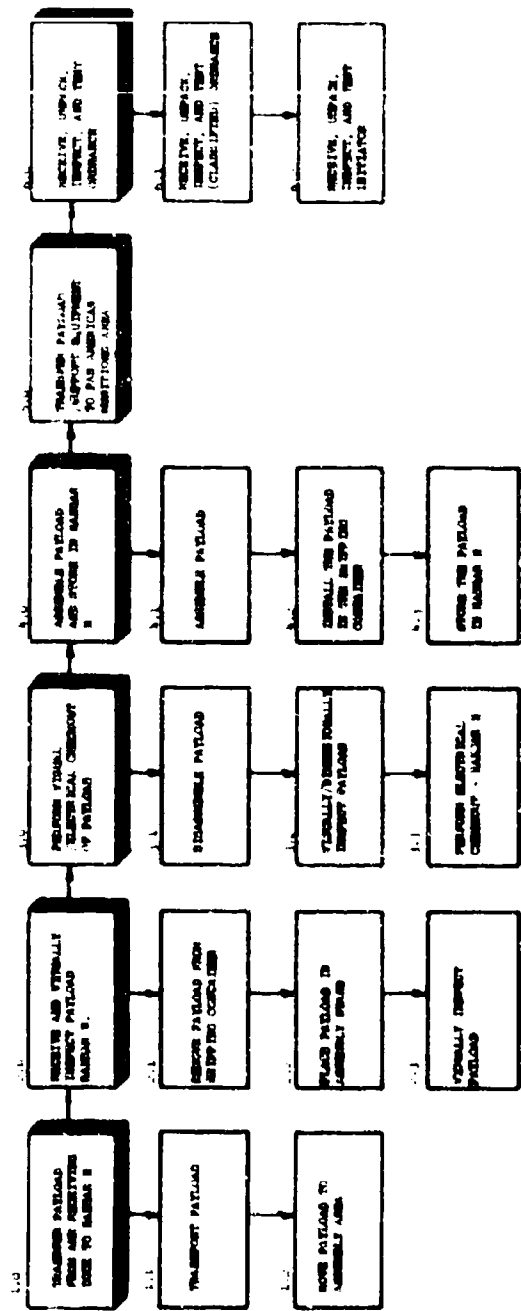


FIGURE 1 MARK 6 MOD 2 DECOY (AMR) ASSEMBLY AND TEST PROCEDURES
 FLOW DIAGRAM FOR THE ATLAS MISSILE
 LB-1 AND LB-1A PAYLOADS

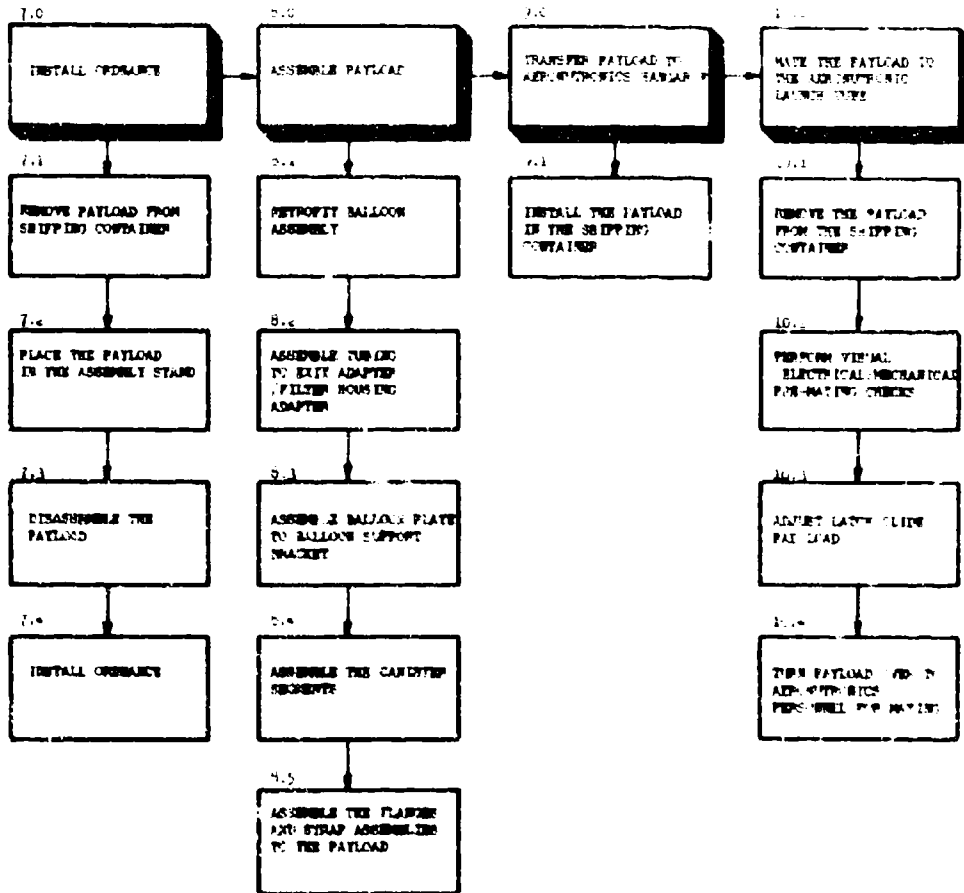


FIGURE 1 MARK 6 MOD 2 DECOY (AMR) ASSEMBLY AND TEST PROCEDURES
 FLOW DIAGRAM FOR THE ATLAS MISSILE (C model)
 LB-1 AND LB-1A PAYLOADS

MARK 6 MOD 2 DECOY PROGRAMS (LB-1 AND LB-1A)

ASSEMBLY AND TEST PROCEDURES FOR AMR

LAUNCH CONFIGURATION FOR NOSE EJECTION

ATLAS MISSILE

Major Function 1.0 - Transfer Mark 6 Mod 2 Payload - Receiving Dock to Hangar N

<u>Equipment Required</u>	<u>Model No.</u>
Transport Truck/Station Wagon	
Fork Lift Truck	
Shipping Container	PSK 1119

Sub-Function 1.1 - Transport Payload

NOTE

The Mark 6 Mod 2 Payload will be shipped to APMTS fully assembled (less pyrotechnics). The unloading of the payload is the responsibility of the Aircraft Commander. Avco will accept shipment at the AMR Receiving Dock. If required, Avco personnel may assist in unloading the payload from the Transport Aircraft.

- A. Using the fork lift truck, load the payload, in its container, onto the transport truck or station wagon.
- B. Transport the payload to Hangar N.

Sub-Function 1.2 - Move Payload to Assembly Area

- A. Using the fork lift truck, unload the payload from the transport truck /station wagon.
- B. Transfer the payload to the Assembly Area within Hangar N.
- C. Unload the payload from the fork lift truck.

Major Function 2.0 - Receive and Visually Inspect Payload - Hangar N

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Shipping Container	PSK 1119

Sub-Function 2.1 - Remove Payload from Shipping Container

- A. Remove top from wooden shipping container.
- B. Remove packing material.

- C. Open cardboard container and lift the cylindrical container/payload clear of the shipping container maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.

CAUTION

Special care is required in the handling of the structures with Hughes Aircraft Company heat shield when they are received at AFMIS for assembly and testing. The material marks easily and is subject to scratches, markings, etc, when handled roughly. Refer to special section in procedures. The segmented flange that is bonded to the canister segments, (middle flange) is not to be used in holding or in manipulating the payloads.

Sub-Function 2.2 - Place Payload in the Assembly Stand

- A. Lift the payload, remove the base pallet and place the payload in the assembly stand (driving flange down).

NOTE

Lift the payload by decoy assembly only. Place payload in the assembly stand so that index marks on each are aligned.

- B. Secure the driving flange of the payload to the assembly stand using hand screw.
- C. Close assembly stand doors around the decoy and secure latch slides.

Sub-Function 2.3 - Visually Inspect Payload

- A. Visually inspect the payload for evidence of damage and proper assembly.

Major Function 3.0 - Perform Visual/Electrical Checkout of Payload

<u>Equipment Required</u>	<u>Model No.</u>
Electrical Test Equipment	(Supplied by AFMIS)
Avcoat Repair Kit	(Supplied by AFMIS)
QATP 10399	
Work Bench	
Hughes Aircraft Company Decoy	
Shipping Container	

Sub-Function 3.1 - Disassemble Payload

- A. Tighten down adjustment nut on spring retaining bolt to compress spring washers approximately $\frac{1}{4}$ inch.
- B. To relieve the rest of the strap tension, loosen nuts fastening the straps to the forward flange.

- C. Unhook straps from latch slides and remove forward flange/strap assembly from payload.

CAUTION

Verify that the balloon/canister segments are restrained with the balloon assembly straps.

- D. Remove the spring and flange adapter from the nose of the decoy.
- E. Loosen the four (4) captive screws that hold the balloon plate to the balloon support through access holes in the canister segments.

NOTE

These screws are left in place for shipping purposes only and are to be removed prior to final assembly.

- F. Release the assembly stand doors and remove the decoy from the balloon assembly
- G. Place the decoy assembly in the Hughes Aircraft Company Shipping Container in a nose-down attitude

NOTE

Bolster the packing material in the Hughes shipping container so that it is flush with the top of the container.

Sub-Function 3.2 - Visually/Dimensionally Inspect Payload

- A. Visually inspect all the payload components for possible damage.
- B. Visually inspect the Avcoat heat shield on the decoy assembly and make any repairs necessary. (LB-1 payloads only).
- C. Hughes Aircraft Company personnel will inspect the heat shield on the LB-1A Payloads to determine its flight readiness.
- D. Examine the flanges and payload for dimensional discrepancies.

Sub-Function 3.3 - Perform Electrical Checkout Hangar N

NOTE

The Hangar N Electrical Checkout is to be performed as close to flight schedule as practicable.

- A. Remove the cap on connector J-1.
- B. Perform electrical checkout of payload per QATP 10399.
- C. Replace the cap on connector J-1.

Major Function 4.0 - Assemble Payload and Store - Hangar N

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Shipping Container	PSK 1119
Hughes Aircraft Company	
Shipping Container	

Sub-Function 4.1 - Assemble the Payload

- A. Remove the decoy assembly from the Hughes Aircraft Company Shipping Container and place it on the balloon assembly in the assembly stand.

NOTE

Align index marks on balloon assembly with those on decoy assembly.

- B. Secure the assembly stand doors around the decoy assembly and engage the latch slides.
- C. Tighten the four (4) captive screws that attach the balloon plate assembly to the balloon support.
- D. Assemble the flange adapter, spring and forward flange assembly to the decoy.

NOTE

Align all flanges for proper orientation.

- E. Assemble the three (3) straps to the latch slides on the driving flange.
- F. Encircle the latch slides with the bead chain and secure.

NOTE

Adjust the bead chain so that the latch slide pads form a twelve (12) inch diameter circle.

- G. Tighten the spring to a tension of (1) to (1 1/2) foot pounds.
- H. Release the nut on the spring to the ground.

Sub-Function 4.2 - Install the Payload on the Shipping Container

- A. Release the payload from the assembly by disengaging doors around the decoy and the hand screw from the driving flange.
- B. Lift the payload from the assembly stand and install the shipping container pallet to the driving flange.

- C. With the payload standing on the shipping container pallet, slip the cylindrical tube over the payload.
- D. Wrap the cylindrical tube with cardboard and place it in the wooden shipping container.
- E. Replace the rest of the packing material and secure the top of the container.

Sub-Function 4.3 - Store the Payload - Hangar N

- A. Store the payload at Hangar N until required for further flight processing and transfer to the Pan American Munitions Area.

Major Function 5.0 - Transfer Payload and Support Equipment from Hangar N to Pan American Munitions Area

<u>Equipment Required</u>	<u>Model No.</u>
Hughes Aircraft Company Decoy Shipping Container Electrical Test Equipment Shipping Container Transport Truck	(Supplied by AFMIS) PSK 1119

Major Function 6.0 - Receive, Unpack, Inspect and Test Ordnance

<u>Equipment Required</u>	<u>Model No.</u>
Pan American will furnish testing equipment required.	

NOTE

The pyrotechnics used in the Mark 6 Mod 2 Payloads (LB-1 and LB-1A) will be shipped to the Pan American Munitions Area from the manufacturer. Pan American personnel will receive, inspect and store the pyrotechnics until they are required by AFMIS for installation into the payload.

Sub-Function 6.1 - Receive, Unpack, Inspect and Test (Classified) Ordnance

Sub-Function 6.2 - Receive, Unpack, Inspect and Test Initiator

NOTE

Test of the Initiator should be accomplished no more than three (3) days in advance of scheduled assembly to the payload.

Major Function 7.0 - Install Ordnance

<u>Equipment Required</u>	<u>Model No.</u>
Hughes Aircraft Company Decoy Shipping Container Electrical Test Equipment FTP 1018 Work Bench Assembly Stand	(Supplied by AFMTS) LA 3677

NOTE

During all ordnance installation operations and during storage of armed Payloads, the payload and ground handling equipment must be grounded to avoid hazardous static charges.

Sub-Function 7.1 - Remove Payload from Shipping Container

- A. Remove top from wooden shipping container.
- B. Remove packing material.
- C. Open cardboard container and lift the cylindrical container/payload clear of the shipping container maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.

Sub-Function 7.2 - Place Payload in the Assembly Stand

- A. Lift the Payload, remove the base pallet and place the payload in the assembly stand (driving flange down).

NOTE

Lift the payload by the decoy assembly only. Place the payload in the assembly stand so that index marks on each are aligned.

- B. Secure the driving flange of the payload to the assembly stand using hand screw.
- C. Close assembly stand doors around the decoy and secure latch slides.

Sub-Function 7.3 - Disassemble Payload

- A. Tighten down adjustment nut on spring retaining bolt to compress spring washers approximately $\frac{1}{8}$ inch.
- B. To relieve the rest of the strap tension, loosen the nuts fastening the straps to the forward flange.
- C. Unhook straps from latch slides and remove forward flange/strap assembly from payload.

CAUTION

Verify that the balloon/canister segments are restrained with the balloon assembly straps.

- D. Remove the spring and flange adapter from the nose of the decoy.
- E. Loosen the four (4) captive screws that hold the balloon plate to the balloon support through access holes in the canister segments.
- F. Release the assembly stand doors and remove the decoy from the balloon assembly.
- G. Place the decoy assembly in the Hughes Aircraft Company shipping container in a nose-down attitude.

Sub-Function 7.4 - Install Ordnance

- A. Remove protective cover from J1 and perform no voltage and open circuit tests per FTP 1018.
- B. At the rear of the decoy, remove the cable and balloon support assembly by removing screws.
- C. Move cable and balloon support assembly aside and remove shipping flange.

CAUTION

When removing the dummy flange and installing the (classified) ordnance, extreme care must be exercised not to damage components mounted in the decoy.

- D. Install the (classified) ordnance into the decoy.

CAUTION

Do not remove initiator shorting plug at this time.

- E. Reassemble the cable and bracket assembly to the rear of the decoy body.

- F. Perform no voltage and open circuit readings through connector J-1 of the payload per FTP 1018.
- G. Conduct spurious voltage checks at payload connector P-4 per FTP 1018.
- H. Remove shorting plug from initiator and mate with payload connector P-4.

Major Function 8.0 - Assemble Payload

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand Hughes Aircraft Company Decoy Shipping Container Electrical Test Equipment FTP 1018 Work Bench S-9371-3 Twine	LA 3667 (Supplied by AFMIS)
Balloon Separation Retrofit Kit	399603

Sub-Function 8.1 - Retrofit Balloon Assembly

- A. Remove balloon assembly from the driving flange mounted in the assembly stand and place on work bench.
- B. Remove the four (4) captive screws from the balloon plate assembly.
- C. Release the balloon assembly straps and remove the canister segments.

CAUTION

Manually restrain folded balloon during this operation until the balloon can be tied with twine without unfolding.

- D. Tie the balloon with twine.

Sub-Function 8.2 - Assemble Tubing to Exit Adapter/Filter Housing Adapter

- A. Bond and tape the tubing to the Exit Adapter Assembly.
- B. Route tubing through rings that are mounted to (classified) ordnance.

NOTE

When making bends in tubing, twist or crinkle tubing to ensure free passage of gas. Examine closely to see that passage does exist.

- C. Position the balloon plate assembly over the balloon support assembly oriented for mating.
- D. Pivoting about the exit adapter, rotate the balloon plate assembly 90° from the decoy/balloon mating interface. Support, the balloon assembly in this position.
- E. Bond and tape the tubing to the filter housing assembly.

Sub-Function 8.3 - Assemble Balloon Plate to Balloon Support Bracket

- A. Tie a piece of nylon cord to each of the four (4) retainers.

NOTE

Leave several inches of slack in each cord for ease of assembly. For this and subsequent operations, the balloon plate is to be supported a few inches directly above the balloon support bracket.

- B. Thread the cords through the captive nut in the balloon plate and "T" slot in the balloon support.

NOTE

All four (4) cords are to be worked simultaneously..

- C. Position protective sleeving over the cords as they pass through the captive nut and "T" slot and the piece used as protection through the balloon support.

- D. Continue threading the cords through the balloon support across the (classified) ordnance and through the directly opposite balloon support.
- E. Pull all the cords taut to seat the balloon plate to the balloon support and rest on roll pins.
- F. Position another piece of protective sleeving on the cord and wind the cord/sleeving around the adjacent screws (under the washer) in the (classified) ordnance flange one (1) or two (2) turns.
- G. Torque screws to values given in RAD-P40009, Type I.

Sub-Function 8.4 - Assemble the Canister Segments

- A. Place the canister segments around the balloon assembly.

NOTE

Align the slots in the canister segments with keys in the decoy assembly.

- B. Place clamp assemblies over canister segments while holding the canister segments in position.
- C. Equally tighten clamp assemblies to pull canister segment in position.

NOTE

Do not pull canister segments into their final position at this time.

- D. Through the openings between segments, cut and remove the twin restraining the balloon.
- E. Push three pieces of Teflon (1/8 x 12) between the balloon canister segments.
- F. Check the position of the canister segments for proper alignment.
- G. Finish tightening clamp assemblies until the segments are in position.
- H. Remove the teflon from between the balloon and the canister segments.

Sub-Function 8.5 - Assemble Flange Assemblies and Strap Assembly to Payload

- A. Remove decoy/balloon assembly from Hughes Aircraft Company Shipping Container rotate 180° and place in the assembly stand on the driving flange.

NOTE

The driving flange is to be attached to the base of the assembly stand with the hand nut. When placing the decoy/balloon assembly on the driving flange, align segmented and driving flanges.

- B. Close and secure assembly stand doors around decoy.
- C. Assemble the flange adapter, spring and forward flange assembly to the nose of the decoy.

NOTE

Align this flange with segmented flange.

- D. Assemble the three (3) straps to the latch slides on the driving flange.
- E. Encircle the latch slides with the bead chain and secure.

NOTE

Adjust the bead chain so that latch slide pads form a twelve (12) inch diameter circle.

- F. Torque the strap nuts to eight (8) to ten (10) inch pounds.
- G. Release the nut on the spring washer retaining bolt.
- H. Perform munitions area no voltage and open circuit readings through connector J-1 of payload per FTP 1018.

Major Function 9.0 - Prepare the Payload for Transfer to Aeronautics Hangar F.

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Shipping Container	PSK 1119
Stencil Kit	(Supplied by AFMT)

Sub-Function 9.1 - Install Payload in Shipping Container

- A. Release the payload from the assembly stand by disengaging door around decoy and hand screw from the driving flange.
- B. Lift the payload from the assembly stand and install the shipping container pallet to the driving flange.
- C. With the payload standing on the shipping container pallet, slip the cylindrical tube over the payload.

- D. Wrap cylindrical tube with cardboard and place in the wooden shipping container.
- E. Replace packing material and secure the top of the wooden shipping container.
- F. Stencil shipping container as follows: "Contains Class B Explosives"

NOTE

The payload can now be stored in an air-conditioned bunker in the Munitions Area or transferred immediately to Aeronautics Hangar F. When the payload is to be transported to Hangar F, a PAA solid propellant escort and a PAA Security Police escort will be required.

Major Function 10.0 - Mate Payload to Aeronautics Launch Tube

<u>Equipment Required</u>	<u>Model No.</u>
Electrical Test Equipment	(Supplied by AFMTS)
Shipping Container	PSK 1119
Spring Scale (Extension Type)	0-40lbs capacity (supplied by ADF)
Torque Wrench	

Sub-Function 10.1 - Remove Payload from the Shipping Container

- A. Remove the top of the shipping container.
- B. Remove the packing material.
- C. Open the cardboard container and lift the container/payload clear of the shipping container while maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.
- F. Place payload on padded work bench and remove base pallet.

Sub-Function 10.2 - Perform Visual/Electrical/Mechanical Pre-Mating Checks.

- A. Visually inspect the payloads exterior for possible damage.
- B. Remove cap from connector J-1.
- C. Electrically check payload per FTP 1018.
- D. "Fit-Check" the payload to the launch tube.

NOTE

Check alignment of payload flanges and keyway to the launch tube spin rail.

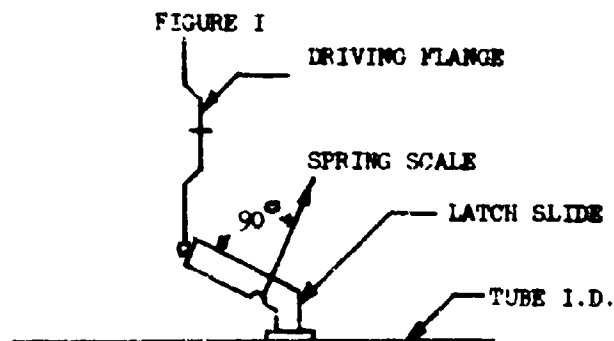
Sub-Function 10.3 - Adjust Latch Slide Pad Load

- A. Insert the payload into the launch tube making certain that the driving flange assembly is properly engaged with the launch tube spin rail.

NOTE

Breech plate on launch tube must be removed in order to perform the pad adjustment.

- B. Back off nut on spring compression bolt to ensure that the full spring preload is transmitted into the tension straps and pads.
- C. Remove bead chain encircling latch slides.
- D. Flex each latch slide several times to ensure the proper seating of the strap assemblies and latch slide.
- E. Proceed to check the pad loads (three (3) locations) using a calibrated spring scale. Locate the hook end of the scale in the radius notch on the latch slide as shown in Figure I. The pad load value shall be 13.5 ± 1.5 lbs.



NOTE

Scale readings are to be recorded just as pad lifts away from the launch tube inside diameter.

- F. Adjust the pad loads to the value in E above by adjusting the nut located on the forward end of the strap assembly. The adjustment procedure shall be as follows:
1. Condition I - All loads are below the minimum value.
 - a. Tighten adjustment nuts uniformly on all straps until the load is within the specified tolerance.
 2. Condition II - All loads are above the maximum value.
 - a. Loosen the adjustment nuts uniformly on all straps until the load is within the specified tolerance.

3. Condition III - Loads above and below the maximum and minimum values.
 - a. Proceed to loosen adjustment nut on strap with low values and tighten adjustment nut on strap which have high values until the pad loads have become equalized. Then adjust the pad loads per condition I or II, whichever is applicable.

NOTE

Flex latches several times by pulling inward, and releasing each latch. This will tend to seat the pivots on the strap assembly and latches. This must be done after each adjustment and prior to reading the scale.

Sub-Function 10.4 - Turn Payload over to Aeronutronic Personnel for Mating to Launch Tube

- A. Remove the spring washer retaining bolt.
- B. Remove the balloon canister segment clamps.
- C. Remove all caution tags.
- D. Load the payload all the way into the launch tube.
- E. Turn the payload over to Aeronutronic personnel for electrical and mechanical mating to the launch tube.

NOTE

As the payload contractor Avco will maintain cognizance of the operations performed which involve the payload from the time it is delivered to Aeronutronic through launch, with support provided as required.

MARK 6 MOD 2 DECOY PROGRAMS (LB-1 AND LB-1A)

ASSEMBLY AND TEST PROCEDURES FOR AMR

LAUNCH CONFIGURATION FOR AFT EJECTION

ATLAS MISSILE

Major Function 1.0 - Transfer Mark 6 Mod 2 Payload - Receiving Dock to Hangar K

<u>Equipment Required</u>	<u>Model No.</u>
Transport Truck/Station Wagon	
Fork Lift Truck	
Shipping Container	PSK 1119

Sub-Function 1.1 - Transport Mark 6 Mod 2 Payload

NOTE

The Mark 6 Mod 2 Payload will be shipped to AFMTS fully assembled (less pyrotechnics). The unloading of the payload is the responsibility of the Aircraft Commander. Avco will accept shipment at the AMR Receiving Dock. If requested, Avco personnel may assist in unloading the payload from the transport aircraft.

- A. Using the fork lift truck, load the payload, in its container, onto the transport truck, or station wagon.
- B. Transport the payload to Hangar N.

Sub-Function 1.2 - Move Payload to Assembly Area

- A. Using the fork lift truck, unload the payload from the transport truck /station wagon.
- B. Transfer the payload to the assembly area within Hangar N.
- C. Unload the payload from the fork lift truck.

Major Function 2.0 - Receive and Visually Inspect Payload - Hangar N

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Shipping Container	PSK 1119

Sub-Function 2.1 - Remove Payload from Shipping Container

- A. Remove top from wooden shipping container.
- B. Remove packing material.

- C. Open bay board container, lift the cylindrical container/payload clear of the shipping container maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.

CAUTION

Special care is required in the handling of the structures with Hughes Aircraft Company heat shield when they are received at AFMPS for assembly and testing. The material marks easily and is subject to scratches, markings, etc, when handled roughly. Refer to special section in procedures. The segmented flange that is bonded to the canister segments (middle flange) is not to be used in holding or in manipulating the payloads.

Sub-Function 2.2 - Place Payload in the Assembly Stand

- A. Lift the payload, remove the base pallet and place the payload in the assembly stand (driving flange down).

NOTE

Lift payload by decoy assembly only. Place payload in the assembly stand so that index marks on each are aligned.

- B. Secure the driving flange of the payload to the assembly stand using hand screw.
- C. Close assembly stand doors around the decoy and secure latch slides.

Sub-Function 2.3 - Visually Inspect Payload

- A. Visually inspect the payload for evidence of damage and proper assembly.

Major Function 3.0 - Perform Visual/Electrical Checkout of Payload

<u>Equipment Required</u>	<u>Model No.</u>
Electrical Test Equipment	(Supplied by AFMPS)
Avcoat Repair Kit	(Supplied by AFMPS)
QATP 10399	
Work Bench	
Hughes Aircraft Company Decoy	
Shipping Container	

Sub-Function 3.1 - Disassemble Payload

- A. Tighten down adjustment nut on spring retaining bolt to compress spring washers approximately $\frac{1}{8}$ inch.

- B. To relieve the rest of the strap tension, loosen nuts fastening the straps to the forward flange.
- C. Unhook straps from latch slides and remove forward flange/strap assembly from payload.

CAUTION

Verify that the balloon/canister segments are restrained with the balloon assembly straps.

- D. Loosen the four (4) captive screws that hold the balloon plate to the balloon support through access holes in the canister segments.

NOTE

These screws are left in place for shipping purposes only and are to be removed prior to final assembly.

- E. Remove the balloon canister assembly from the decoy assembly and store on work bench.
- F. Release the assembly stand doors and remove the decoy from the driving flange.
- G. Place the decoy assembly in the Hughes Aircraft Company shipping container in a nose-down attitude.

NOTE

Bolster the packing material in the Hughes shipping container so that it is flush with the top of the container.

Sub-Function 3.2 - Visually/Dimensionally Inspect Payload

- A. Visually inspect all the payload components for possible damage.
- B. Visually inspect the Avcoat heat shield on the decoy assembly and make any necessary repairs (LB-1 payloads only).
- C. Hughes Aircraft Company personnel will inspect the heat shield in the LB-1A Payloads to determine its flight readiness.
- D. Examine the flanges and payload for dimensional discrepancies.

Sub-Function 3.3 - Perform Electrical Checkout, Hangar N

NOTE

The Hangar N Electrical checkout is to be performed as close to flight schedule as practicable.

- A. Remove the cap on connector J-1.
- B. Perform electrical checkout of payload per QATP 10399.
- C. Replace the cap on connector J-1.

Major Function 4.0 - Assemble Payload and Store - Hangar M

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 5077
Shipping Container	PSK 1119
Hughes Aircraft Company Shipping Container	

Sub-Function 4.1 - Assemble the Payload

- A. Assemble the spring and flange adapter to the driving flange.
- B. Remove the decoy assembly from the Hughes Aircraft company shipping container and place it on the flange adapter in a nose-down attitude.
- C. Secure the assembly stand doors around the decoy assembly and engage the latch slides.
- D. Place the balloon canister assembly on the decoy assembly.

NOTE

Align index marks on the balloon assembly with those on the decoy assembly.

- E. Tighten the four (4) captive screws that attach the balloon plate assembly to the balloon support.
- F. Place the forward flange assembly on the balloon canister assembly.

NOTE

Align all flanges for proper orientation.

- G. Assemble the three (3) straps to the latch slides on the driving flange.
- H. Encircle the latch slides with the bead chain and secure.

NOTE

Adjust the bead chain so that the latch slide pads form a twelve (12) inch diameter circle.

- I. Tighten the four (4) captive screws to the (10) inch pounds.
- J. Place the payload assembly in the shipping container.

Sub-Function 4.2 - Install the Payload in the Shipping Container.

- A. Release the payload from the assembly stand by disengaging the doors around the decoy and the hand screw from the driving flange.
- B. Lift the payload from the assembly stand and install the shipping container pallet to the driving flange.
- C. With the payload standing in the shipping container pallet, slip the cylindrical tube over the payload.
- D. Wrap the cylindrical tube with cardboard and place it in the wooden shipping container.

Sub-Function 4.3 - Store the Payload - Hangar N

- A. Store the payload at Hangar N until required for further flight processing and transfer to the Pan American Munitions Area.

Major Function 5.0 - Transfer Payload and Support Equipment from Hangar N to Pan American Munitions Area

<u>Equipment Required</u>	<u>Model No.</u>
Hughes Aircraft Company Decoy Shipping Container	
Electrical Test Equipment	(Supplied by AFMIS)
Shipping Container	PSK 1119
Transport Truck	
Assembly Stand	LA 3677

Major Function 6.0 - Receive, Unpack, Inspect and Test Ordnance

<u>Equipment Required</u>	<u>Model No.</u>
Pan American will furnish testing equipment required.	

NOTE

The pyrotechnics used in the Mark 6 Mod 2 Payloads (LB-1 and LB-1A) will be shipped to the Pan American Munitions Area from the manufacturer. Pan American personnel will receive, inspect and store the pyrotechnics until they are required by AFMIS for installation into the payload.

Sub-Function 6.1 - Receive, Unpack, Inspect and Test (Classified) Ordnance

Sub-Function 6.2 - Receive, Unpack, Inspect and Test Initiator

NOTE

Test of the initiator should be accomplished no more than three (3) days in advance of scheduled assembly to the payload.

Major Function 7.0 - Install Ordnance

<u>Equipment Required</u>	<u>Model No.</u>
Hughes Aircraft Company Decoy Shipping Container	
Electrical Test Equipment FTP 1018	(Supplied by AFSTC)
Work Bench	
Assembly Stand	LA 3677

NOTE

During all ordnance installation operations and during storage of armed payloads, the payload and ground handling equipment must be grounded to avoid hazardous static charges.

Sub-Function 7.1 - Remove Payload from Shipping Container

- A. Remove top from wooden shipping container.
- B. Remove packing material.
- C. Open cardboard container and lift the cylindrical container/payload clear of the shipping container maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.

Sub-Function 7.2 - Place Payload in the Assembly Stand

- A. Lift the payload, remove the base pallet and place the payload in the assembly stand (driving flange down).

NOTE

Lift the payload by decoy body only. Place the payload in the assembly stand so that index marks on each are aligned.

- B. Secure the driving flange of payload to the assembly stand using hard screw.
- C. Close assembly stand doors around the decoy and secure latch slides.

Sub-Function 7.3 - Disassemble Payload

- A. Tighten down adjustment nut on spring retaining bolt to compress spring washers approximately $\frac{1}{4}$ inch.
- B. To relieve the rest of the strap tension, loosen nuts fastening the straps to the forward flange.

- C. Unhook straps from latch slides and remove forward flange/strap assembly from payload.

CAUTION

Verify that the balloon/canister segments are restrained with the balloon assembly straps.

- D. Loosen the four (4) captive screws that hold the balloon plate to the balloon support through access holes in the canister segments.
- E. Remove the balloon canister assembly from the decoy assembly and store on work bench.
- F. Release the assembly stand doors and remove the decoy from the driving flange.
- G. Place the decoy assembly in the Hughes Aircraft Company shipping container in a nose-down attitude.

Sub-Function 7.4 - Install Ordnance

- A. Remove protective cover from J-1 and perform no voltage and open circuit tests per FTP 1018.
- B. At the rear of the decoy, remove the cable and balloon support assembly by disengaging screws.
- C. Move cable and bracket assembly aside and remove shipping flange.

NOTE

When removing the dummy flange and installing the (classified) ordnance extreme care must be exercised not to damage components mounted in the decoy.

- D. Install the (classified) ordnance into the decoy.

CAUTION

Do not remove initiator shorting plug at this time.

- E. Reassemble the cable and balloon support assembly to the rear of the decoy.
- F. Perform no voltage and open circuit readings through connector J-1 of payload per FTP 1018.
- G. Conduct spurious voltage checks at payload connector P-4 per FTP 1018.
- H. Remove shorting plug from initiator and mate with payload connector P-4.

Major Function 8.0 - Assembly Payload

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Hughes Aircraft Company Decoy Shipping Container	PSK 1119 (Supplied by AFMTC)
Electrical Test Equipment FTP 1018	
Work Bench	
S-9371-3 Twine	
Balloon Separation Retrofit Kit	399603

Sub-Function 8.1 - Retrofit Balloon Assembly

- A. Remove the four (4) captive screws from the balloon plate assembly.
- B. Release the balloon assembly straps and remove the canister segments.

CAUTION

Manually restrain folded balloon during this operation until the balloon can be tied with twine without unfolding.

- C. Tie the balloon with twine.

Sub-Function 8.2 - Assemble Tubing to Exit Adapter/Filter Housing Adapter

- A. Bond and tape tubing to Exit Adapter assembly.
- B. Route tubing through rings that are mounted to (classified) ordnance.

NOTE

When making bends in tubing, twist or crinkle tubing to ensure free passage of gas. Examine closely to see that passage does exist.

- C. Position the balloon plate assembly over the balloon support assembly oriented for mating.
- D. Pivoting about the exit adapter, rotate the balloon plate assembly 90° from the decoy/balloon mating interface. Support the balloon assembly in this position.
- E. Bond and tape the tubing to the filter housing assembly.

Sub-Function 8.3 - Assemble Balloon Plate to Balloon Support Bracket

- A. Tie a piece of nylon cord to each of the four (4) retainers.

NOTE

Leave several inches of slack in each cord for ease of assembly. For this and subsequent operations, the balloon plate is to be supported a few inches directly above the balloon support bracket.

- B. Thread the cords through the captive nut in the balloon plate and "T" slot in the balloon support.

NOTE

All four (4) cords are to be worked simultaneously.

- C. Position protective sleeving over the cords as they pass through the captive nut and "T" slot and the piece used as protection through the balloon support.
- D. Continue threading the cords through the balloon support across the (classified) ordnance and through the directly opposite balloon support.
- E. Pull all the cords taut to seat the balloon plate to the balloon support and rest on roll pins.
- F. Position another piece of protective sleeving on the cord and wind the cord/sleeving around the adjacent screws (under the washer) in the (classified) ordnance flange one (1) or two (2) turns.
- G. Torque screws to values given in RAD-P40009, Type I.

Sub-Function 8.4 - Assemble the Canister Segments

- A. Place the canister segments around the balloon assembly.

NOTE

Align the slots in the canister segments with keys in the decoy assembly.

- B. Place clamp assemblies over canister segments while holding the canister segments in position.
- C. Equally tighten clamp assemblies to pull canister segments in position.

NOTE

Do not pull canister segments into their final position at this time.

- D. Through the openings between segments, cut and remove the twine restraining the balloon.
- E. Push three pieces of Teflon (1/8 x 12) between the balloon and canister segments.
- F. Check the position of the canister segments for proper alignment.
- G. Finish tightening clamp assemblies until the segments are in position.
- H. Remove the teflon from between the balloon and the canister segments.

Sub-Function 8.5 - Assemble Flange Assemblies and Strap Assembly to Payload

- A. Assemble the spring and flange adapter to the driving flange.

NOTE

The driving flange is to be attached to the base of the assembly stand with the hand nut.

- B. Remove the decoy/balloon assembly from the Hughes Aircraft Shipping Container and place in the assembly stand on the driving flange. (Decoy is in a nose-down attitude).

NOTE

Align the segmented flange and driving flange.

- C. Close and secure the assembly stand doors around the decoy.
D. Assemble the forward flange to the rear of the balloon canister assembly.

NOTE

Align this flange with the segmented flange.

- E. Assemble the three (3) straps to the latch slides on the driving flange.
F. Encircle the latch slide with the bead chain and secure.

NOTE

Adjust the bead chain so that latch slide pads form a twelve (12) inch diameter circle.

- G. Torque the strap nuts to eight (8) to ten (10) inch-pounds.
H. Release the nut on the spring washer retaining bolt.
I. Perform munitions area no voltage and open circuit readings through connector J-1 of payload per FTP 1018.

Major Function 9.0 - Prepare the Payload for Transfer to Aeronautics Hangar F

<u>Equipment Required</u>	<u>Model No.</u>
Assembly Stand	LA 3677
Shipping Container	PSK 1119
Stencil Kit	(Supplied by AFMIS)

Sub-Function 9.1 - Install Payload in Shipping Container

- A. Release the payload from the assembly stand by disengaging door around decoy and hand screw from the driving flange.
- B. Lift the payload from the assembly stand and install the shipping container pallet to the driving flange.
- C. With the payload standing on the shipping container pallet slip the cylindrical tube over the payload.
- D. Wrap the cylindrical tube with cardboard and place in the wooden shipping container.
- E. Replace packing material and secure the top of the wooden shipping container.
- F. Stencil shipping container as follows: "Contains Class B Explosives"

NOTE

The payload can now be stored in an air-conditioned bunker in the Munitions Area or transferred immediately to Aeronautics Hangar F. When the payload is to be transported to Hangar F, a PAA Solid propellant escort and a PAA Security Police escort will be required.

Major Function 10.0 - Mate Payload to Aeronautics Launch Tube

<u>Equipment Required</u>	<u>Model No.</u>
Electrical Test Equipment	(Supplied by AFMS)
Shipping Container	PSK 1119
Spring Scale	(Extension Type) 0-40 lbs. capacity
Torque Wrench	

Sub-Function 10.1 - Remove Payload from the Shipping Container

- A. Remove the top of the shipping container.
- B. Remove the packing material.
- C. Open the cardboard container and lift the container/payload clear of the shipping container while maintaining a level attitude.
- D. Stand the payload on its wooden base pallet by lifting on the cylindrical container and restraining the pallet end.
- E. Remove the cylindrical container by carefully slipping it up until free.
- F. Place payload on padded work bench and remove base pallet.

Sub-Function 10.2 - Perform Visual/Electrical/Mechanical Pre-Mating Checks

- A. Visually inspect the payloads exterior for possible damage.
- B. Remove cap from connector J-1.
- C. Electrically check payload per FTP 1018.
- D. "Fit-Check" the payload to the launch tube.

NOTE

Check alignment of payload flanges and keyway to the launch tube spin rail.

Sub-Function 10.3 - Adjust Latch Slide Pad Load

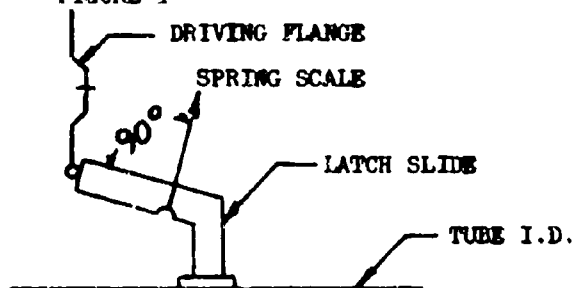
- A. Insert the payload into the launch tube making certain that the driving flange assembly is properly engaged with the launch tube spin rail.

NOTE

Breech plate on launch tube must be removed in order to perform the pad load adjustments.

- B. Back off nut on spring compression bolt to insure that the full spring preload is transmitted into the tension straps and pads.
- C. Remove bead chain encircling latch slides.
- D. Flex each latch slide several times to ensure the proper seating of the assemblies and latch slide.
- E. Proceed to check the pad loads (three (3) locations) using a calibrated spring scale. Locate the hook end of the scale in the radius notch on the latch slide as shown in Figure I. The pad load value shall be 13.5 ± 1.5 pounds.

FIGURE I



NOTE

Scale readings is to be recorded just as pad lifts away from launch tube inside diameter.

- F. Adjust the pad loads to the value in E above by adjusting the nut located on the forward end of the strap assembly. The adjustment procedure shall be as follows.
1. Condition I - All loads are below the minimum value.
 - a. Tighten adjustment nuts uniformly on all straps until the load is within the specified tolerance.
 2. Condition II - All loads are above the maximum value.
 - a. Loosen the adjustment nuts uniformly on all straps until the load is within the specified tolerance.
 3. Condition III - Loads above and below the maximum and minimum value.
 - a. Proceed to loosen adjustment nut on strap with low values and tighten adjustment nut on strap which have high values until the pad loads have become equalized. Then adjust the pad loads per condition I or II, whichever is applicable.

NOTE

Flex latches several times by pulling inward, and releasing each latch. This will tend to seat the pivots on the strap assembly and latches. This must be done after each adjustment and prior to reading the scale.

Sub-Function 10.4 - Turn Payload over to Aeronutronic Personnel for Mating to Launch Tube

- A. Remove the spring washer retaining bolt.
- B. Remove the balloon canister segment clamps.
- C. Remove all caution tags.
- D. Load the payload all the way into the launch tube.
- E. Turn the payload over to Aeronutronic Personnel for electrical/mechanical mating to the launch tube.

NOTE

As the payload contractor, Avco will maintain cognizance of the operations performed which involve the payload from the time it is delivered to Aeronutronic through launch, with support provided as required.

MARK 6 MOD 2 DECOY PROGRAM
HANDLING AND STORAGE PROCEDURES
AVCO/HUGHES MARK 6 OPaDec DECOY

1.0 GENERAL

1.1 This document describes the handling and storage procedures which are necessary to assure quality and reliability of the OPaDec Decoy.

2.0 APPLICATION

2.1 These procedures apply in all instances of handling after the heat shield has been applied to the substructure and the contour machining is completed, such as:

Shipping
Storage
Final assembly and test
Arming and safing
Insertion into and removal from ejection pod

3.0 LIMITATION OF APPLICATION

3.1 This procedure is intended for use only when handling, shipping, and storage affect the Hughes ablative shield. This procedure is not intended to be applied to internal components or other structures manufactured or assembled by Avco except as is necessary for protection of the heat shield.

4.0 GENERAL HANDLING AND STORAGE REQUIREMENTS

4.1 Handling and storage shall be accomplished at all times in such a manner as to avoid damage to the heat shield from such causes as contamination, shock, scratching, or pitting. The ablative material is extremely soft; therefore, much care is required.

5.0 SPECIFIC REQUIREMENTS

- 5.1 Flexing -- Cone should not be lifted solely at small end. Resilient packaging should be used to prevent flexing while in transit.
- 5.2 Twisting -- No torque (parallel to axis of cone) shall be applied to the heat shield.
- 5.3 Crushing -- Application of large sustained forces to small localized areas shall be avoided.
- 5.4 Vibration -- During manufacturing processes, handling and shipping shall not exceed 4 g from 5 to 17 cps and 8 g from 17 to 2000 cps.

- 5.5 Shock -- During manufacturing process, handling and shipping shall not exceed 100g, with a rise time not exceeding 0.006 second.
- 5.6 Moisture -- Does not affect properties of heat shield. No precautions necessary.
- 5.7 Heat -- Shield temperature shall not exceed the range of -65°F to +170°F.
- 5.8 Surface damage

5.8.1 Contamination -- The surface shall not be contaminated from grease, oil, metallic particles, etc. Fingerprints are not injurious.

5.8.2 Surface irregularities

Scratches will appear readily because of the soft material used in the heat shield. Most scratches will not be injurious to the performance of the decoy; however, scratches shall not exceed 0.005 inch in depth.

Any crack which may appear will be cause for possible rejection of unit.

Small pits may occur without deterioration of performance; however, pits in surface of heat shield exceeding 0.060 inch in depth or diameter shall be cause for rejection.

Chips on aft edge of heat shield in excess of 0.125 inch in greatest dimension shall be cause for rejection.

Minor changes in appearance of surface luster in the absence of scratches, chips, pits, and cracks will be considered acceptable.

In general, the heat shield shall not be rested or drawn across a hard surface without the interposition of a soft, protective material.

- 5.9 Position during storage -- Vertical with nose up unless support is provided along entire length of cone.

6.0 SPECIAL PROTECTIVE AND HANDLING DEVICES REQUIRED

- 6.1 Preservation packaging -- None required.
- 6.2 Protective wrappings -- Soft cushioning material which provides support at all points shall be used.
- 6.3 Special handling equipment -- None required.

7.0 REPORTS OF DAMAGE

- 7.1 If damage is observed or suspected, a report of such condition shall be made immediately to the local Hughes Aircraft Company CPaDec Program representative. If no representative is at hand, the report shall be made to the CPaDec Program Manager at El Segundo, California (Telephone (Area code 213) 648-4952).

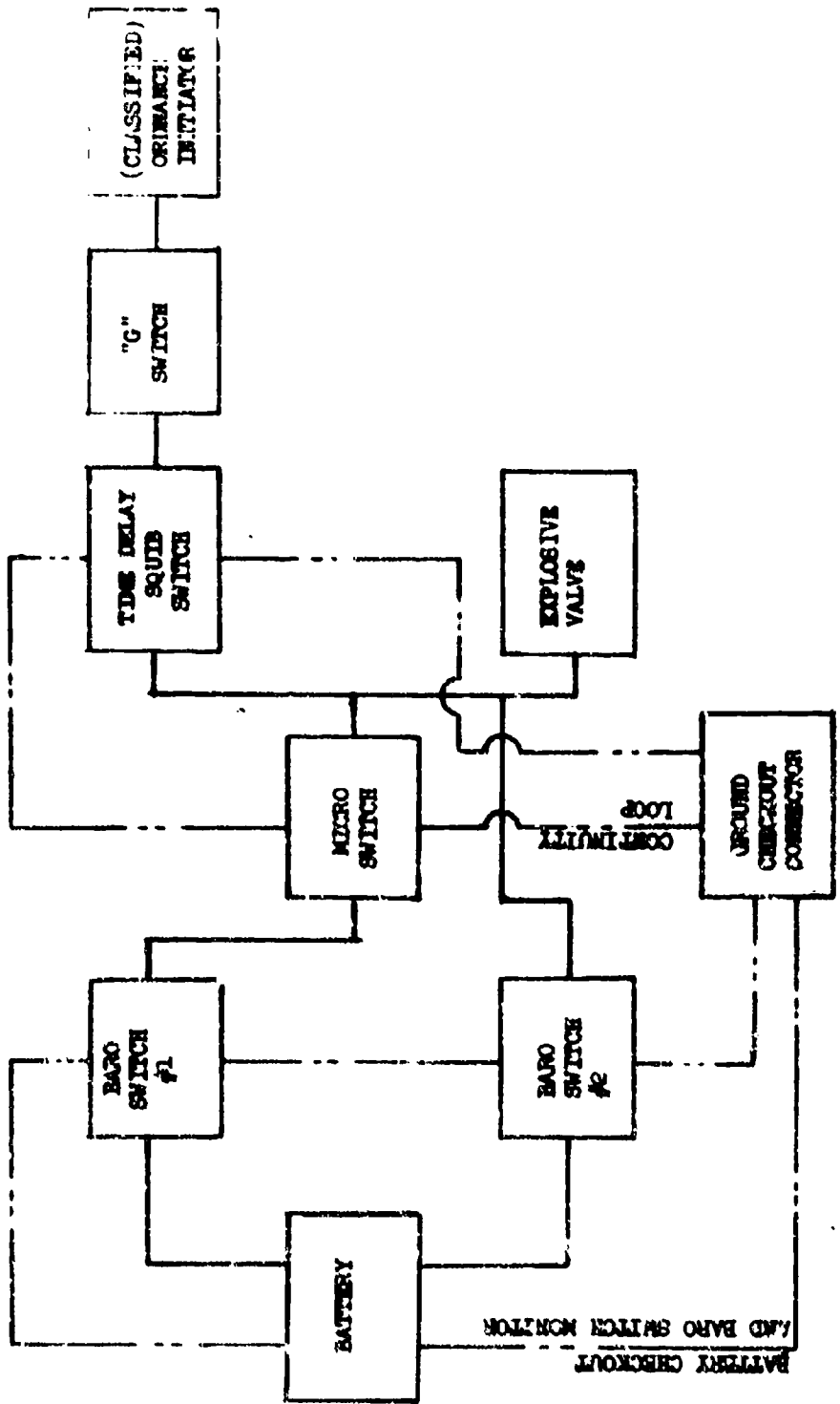


FIGURE 2 MARK 6 MOD 2 PAYLOADS (LB-1 AND LB-1A)
DECOY IGNITION SYSTEM

DESCRIPTION OF THE DECOY IGNITION SYSTEM

1. The baro switches close at approximately 50,000 feet.
2. Current from the battery passes through the baro switches and the microswitch which closed previously when the payload was ejected from the launch tube.
3. The time delay squib switch and the explosive valve activate simultaneously. The activation of the explosive valve allows the balloon to inflate.
4. At the end of twenty (.20) seconds after the delay switch has fired initially, the switch that arms the (classified) ordnance closes.
5. On sensing "G's", current passes through the closed "G" switch and activates the initiator, which fires the (classified) ordnance.

EXPLOSIVE VALVE CHARACTERISTICS

Part No. - Avco Standard Drawing 88909

Mfr. - Conax Corporation, Buffalo, New York

Purpose - To allow balloon to inflate

- | | |
|-----------------------------------|------------------------------|
| 1. Maximum No Fire | .15 amperes for 5 minutes |
| 2. Minimum All Fire | 2 amperes for 2 microseconds |
| 3. Bridge Wire Resistance | .9 \pm .3 ohms |
| 4. Maximum Allowable Test Current | 10 milliamperes |

Ordnance Classification (AFM 32-6)

Class 1

ICC Classification

Class C

PYROTECHNIC TIME DELAY

SWITCH CHARACTERISTICS

PART NO. - AVCO STANDARD DRAWINGS S8910

MRFG. - ATLAS CHEMICAL INDUSTRIES, INCORPORATED
ORDNANCE MATERIAL DEPARTMENT
WILMINGTON 99, DELAWARE

PURPOSE - To allow current to activate the (classified) ordnance initiator at the proper time.

- | | |
|-----------------------------------|-------------------------------|
| 1. Maximum No Fire | .1 ampere for 5 minutes |
| 2. Minimum All Airo | 1.0 ampere for 5 microseconds |
| 3. Bridge Wire Resistance | 1.8 \pm .2 ohms |
| 4. Maximum allowable test current | 10 milliamperes |

Ordnance classification (AFM 32-6) Class 1

ICC Classification Class C

INITIATOR CHARACTERISTICS

MRPG. - HERMITE POWDER CO., SAUGUS, CALIFORNIA

PURPOSE - To activate the (Classified) ordnance

1. Maximum No Fire	1.0 ampere for 5 minutes
2. Minimum All Fire	1.5 ampere
3. Minimum Recommended All Fire	2.0 ampere
4. Bridge Wire Resistance	.95 to 1.05 ohms
5. Maximum allowable current for continuity check	50 milliamperes
6. Main Charge	Approximately 200 milligrams of HM6

The ordnance classification (AFM 32-6) of the initiator is Class 1.
It is also RF safe. ICC Classification is Class C.

(CLASSIFIED) ORDNANCE CHARACTERISTICS

AFGR - BERMITE POWDER CO., SAUGUS, CALIFORNIA

The (classified) ordnance composition and characteristics are defined in RAD Document 63-539 (Classified).

The composition and characteristics for the special (classified) ordnance to be used on the first two flights are per Bermite Powder Company, Drawing 600536, Avco Drawing 321507-1.

SAFETY ASPECTS

1. The battery current is prevented from activating the system by two barometric pressure operated switches.
2. There must be a malfunction in both switches (redundant system) during pre-launch preparations before any premature firing of the (classified) ordnance can occur. The microswitch must also malfunction at the same time.
3. The circuit may be checked on the ground through the ground checkout connector J-1, to make certain that the baro switches are open and that current is not reaching the ordnance items.

CATASTROPHIC CONDITIONS

- 1- The vehicle should be approached with caution from the side.
- 2- Observe whether or not any gases or liquids are still exhausting from the Decoy. If so, remain away from the area until they have been dissipated.
- 3- It is then safe to approach the vehicle

CAUTION

Do not handle the (classified) ordnance housing since its temperature is approximately 600° Fahrenheit after activation.

- 4- If no gases or liquids are exhausting from the Decoy, the electrical connector must be removed from the (Classified) ordnance.
- 5- It is then safe to remove the (classified) ordnance by uncrewing it and disposing of it in accordance with approved Range Safety ordnance procedures.
- 6- In the event that the balloon did not open, the retaining bands should be reinstalled.
- 7- Cable and bracket assembly and balloon assembly must be removed before the (classified) ordnance can be removed.
- 8- In the event that the Decoy was enveloped in flames, a 400° Fahrenheit temperature would also activate the (classified) ordnance.

REFERENCE DRAWINGS

308560	Safing and Initiation System - Sub Assembly
308561	Schematic Diagram Safing and Initiation System (Flight Test)
308563	Switch, Inertial (0.2 - 0.35 G)
308570	Cable Assembly Safing and Initiation System (Flight Test)
308571	Valve and Connector Assembly
308572	Cable and Bracket Assembly
S8909	Valve, Squib Actuated
S8910	Switch, Squib Actuated Delay Type
S8915	Baroswitch
321079	Storage Chamber Assembly
321080 (Secret)	Decoy Assembly
321100 (Secret)	Decoy and Launcher Assembly

<u>TITLE</u>	<u>DWG. NO.</u>	<u>QUANTITY</u>	<u>PURPOSE</u>	<u>WHERE REQUIRED</u>
*Assembly Stand	LA 3677	1	Serves as assembly and disassembly work stand for the payload and components. Will have a decoy body cradle and assembled payload cradle. Approx. 24" wide, 48" long, 33" high. The stand is made of wood and its approx. weight will be 50 lbs.	Avco Hangar N and Pan American Munitions Assembly Area
*Shipping Container	PSK 1119	4	To provide a means of protecting the payload from damage during shipping. The base of this container will serve as a pallet for moving the payload. Will be fabricated of wood. Approx. Size 52" long, 25" high, and 25" wide.	AVCC RAD Avcc Hangar N, Pan American Munitions Assembly Area and Aeronutronic Hangar F.
*Twine	S-9371-3	100ft.	To tie the balloon as an aid to reassemble the canister segments.	Pan American Munitions Assembly Area
*Hughes Aircraft Company Shipping Container		1	To serve as a decoy assembly holder for Avco/Hughes Payloads	AVCC Hangar N, Pan American Munitions Assembly Area
*Balloon Separation Retrofit Kit	399603	1/ Payload	To retrofit payloads	Pan American Munitions Assembly Area
*Teflon (4" x 12" x 1/8")		3	To aid in the folding of the balloon and placement of the canister segments.	Pan American Munitions Assembly Area.

<u>TITLE</u>	<u>QTY.</u>	<u>QTY.</u>	<u>PURPOSE</u>	<u>WHERE REQUIRED</u>
**Electrical Test Set	1		This test set and associated equipment consisting of a Sanborn Recorder, 28 volt DC power supply, digital volt and ohm meters and interconnecting cables provides the capability of connecting to the payloads: battery for load and no-load tests and to payloads' electrical system for continuity checks.	Avco Hangar N, Pan American Munitions Assembly Area and Aeronutronic Hangar F
**Hand Tools	1 set		Needed for assembly/disassembly, check repairs, etc.	Avco Hangar N, Pan American Munitions Assembly Area and Aeronutronic Hangar F
**Station Wagon/ Pick up Truck	Rented	1	To transport personnel, equipment and payload as required.	Avco Hangar N
**Fork Lift Truck	F8M3930-554-5182 or Similar	1	For moving the shipping container.	Avco Hangar N, Pan American Munitions Assembly Area and Aeronutronic Hangar F
**Work Bench	3		Wooden work bench to provide for maintenance repair, tool storage etc.	1 each at Avco Hangar F Pan American Munitions Area and Aeronutronics Hangar F
**Stencil Kit	1		To mark shipping containers once pyrotechnics are installed in the payload.	Pan American Munitions Assembly Area
**Heat Shield Repair Kit	3		To make minor repairs to Avcoast.	Avco Hangar N, Pan American Munitions Assembly Area and Aeronutronic Hangar F
***Ordnance Carrier (Approved for Class 3 Explosives)	1		For transporting payload from the Pan American Munitions Area to Aeronutronic Hangar F.	Pan American Munitions Area.

WHERE REQUIRED

Aeronutronic
Hangar F

PURPOSE

To adjust Pad load while payload is in Launch tube

QUANTITY

1

DWG. NO.

TITLE

***Spring Scale
(Extension Type
0-40 lbs capacity

*Furnished by AVCO/RAD to AFMCS
**To be furnished by AFMCS
***To be furnished by Pan American
****To be furnished by Aeronutronic

DISTRIBUTION

<u>Addressee</u>	<u>No. of Copies</u>
AFBSD. Attn: Capt. Stultz, NAFB	1
AFBSD. Attn: BSYDF, Lt. K. Jefferson, NAFB	1
AFBSD. Attn: Capt. Mauldin, NAFB	1
Aeronutronics Division of Ford Motor Company Newport Beach, California Attn: J. Geary	2
Aerospace Corporation San Bernardino, California Attn: H. Clailin	1
Attn: R. A. Merkle	1
Attn: H. Bek (AFMTS Florida)	1
Attn: D. E. Allmond	1
Attn: E. L. Miller	1
Attn: R. Rooney	1
Attn: H. Sullivan	1
Hughes Aircraft Company Culver City, California Attn: E. Chrysler	1
Attn: L. E. Harrison	1
Attn: G. S. Campbell	1
Attn: R. F. Ollis	1
AFMTS Attn: P. Y. Byrd	1
Attn: J. R. Carden	6
Attn: L. DuBose	1
Attn: J. J. Jungermann	1
Attn: W. S. Roden	1
Attn: P. Toland	2
Central Files	1
Document Control	5
Research Library	85