

# ALSET™ USERS MANUAL

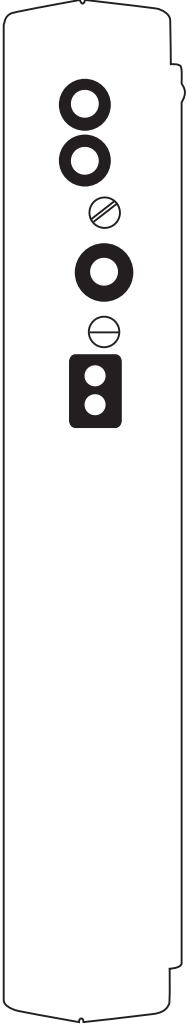
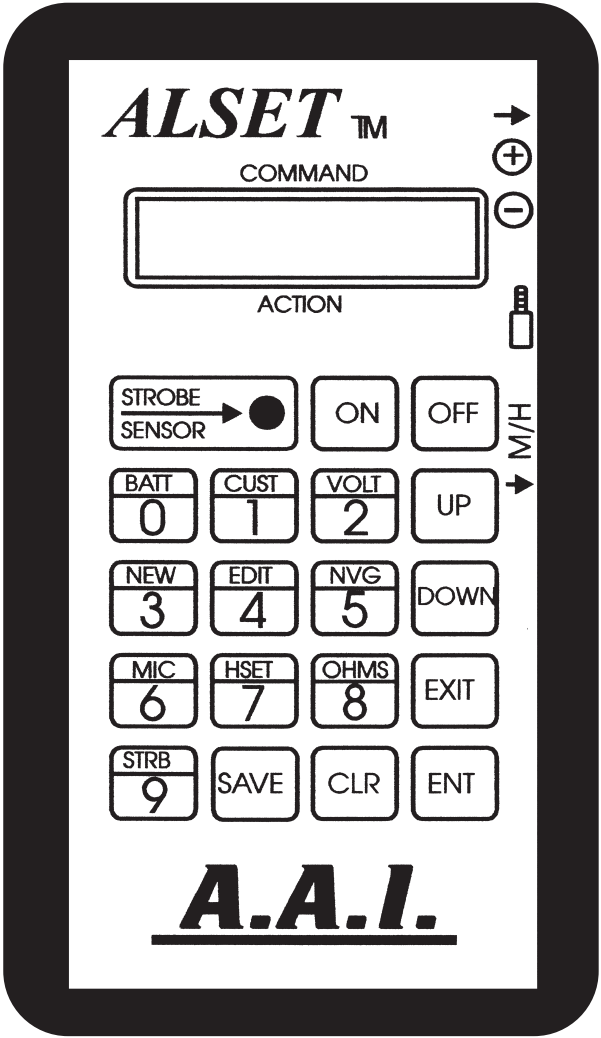
## MODELS 100/200/400 AVIATION LIFE SUPPORT EQUIPMENT TESTER



**A.A.I.**



Rev. C 1 June 2012  
For S/N 500+



**ALSET™**

**“AVIATION LIFE SUPPORT EQUIPMENT TESTER”**

**MODELS 100/200/400**

The “ALSET” Tester is a digital, lightweight/compact, hand held multi-purpose Aviation Life Support Equipment Tester. It is engineered and programmed to test **military and commercial lithium & alkaline batteries, distress marker strobe lights, flight helmet earphones, boom microphones, oxygen mask microphones, headsets and Night Vision Goggle ANVIS brackets & battery voltage.** The “ALSET” Tester is also an **OHM** and **Volt** meter used to isolate defective component parts using the test leads provided.

The Pre-Programmed Battery Mode easily allows the user to test batteries with and without OHMS resistance and time as per Technical Orders. **50** additional **custom batteries** of your choice may be programmed into the custom memory for future use. This Custom Battery Mode allows you the choice of testing **VOLTAGE, OHMS RESISTANCE** and **TIME** if required.

The “ALSET” Tester has the capability of testing both the **MS-2000M & SDU-5E Distress Marker Strobe Lights** for the flash rate per minute test as required. The flash rate per minute reading is shown on the digital Screen Display with only two flashes of the strobe light over the strobe sensor window.

An **NVG LBI Test Adapter** is included and will test all 4 of the NVG Helmet Bracket (ANVIS) electrical contacts, continuity of the wiring, switch and battery voltage. It places the exact milli-amp resistance load on the NVG Support System as an actual Night Vision Goggle in the “ON” mode for 5 seconds, testing the entire system with load accuracy. It will perform the LBI Light Circuit Test by illuminating the LBI Light and displaying the voltage reading on the Screen Display when illuminated. The NVG LBI Test Adapter is powered by two 1.5V AA batteries and requires no calibration.

By plugging the **Helmet or Headset** communications cord plug (U-174/U) into the “ALSET” Tester, the OHMS and continuity of the **earphones, boom & oxygen mask microphones** as well as **communications cords** can all be tested.

The “ALSET” Tester measures 8 ½” x 4 ½” x 1 ½” and is housed in a high impact protective rubber boot with stand. It is powered by four AA 1.5 Volt commercial batteries with 50+ hours of continuous use. An automatic 10 minute shut-off feature after no activity will save your battery power. A storage/deployment case, test leads, NVG LBI Test Adapter and Users Manual are included.

**MANUFACTURED BY:**

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## **GENERAL INFORMATION**

- **WARNING:** ALSET does **Not** Test Volts AC, refer to Instructions for Voltage Mode
- **WARNING:** Maximum allowable DC input test voltage is **50 Volts DC**, refer to Instructions for Voltage Mode
- **WARNING:** Check batteries periodically (30 days) for acid leakage that may cause damage to the battery terminals and compartment
- Refer to Official Technical Orders for Equipment Testing Requirements
- To adjust contrast of Screen Display, turn ALSET on and press UP or DOWN key repeatedly to adjust to desired contrast
- When test leads are in operation, insure proper contact with test item has been made and test leads are clean, or a possible faulty reading may occur
- If Screen Display indicates “ALSET BAT LOW” or Screen Display is blank when turned on, refer to Instructions for Battery Replacement
- Calibration Check is recommended on a 24 month cycle or as required by End User

## **GENERAL CARE AND MAINTENANCE**

- Do not immerse tester in liquids
- Keep free of dust and dirt
- Do not clean face with abrasives or solvents
- Tester may be wiped clean with damp cloth
- Insure test leads are free of grease and oil, periodically clean tips with alcohol
- Store tester in case when traveling or not in use
- Before operation, inspect test leads and NVG adapter for damaged insulation or exposed wires
- If Tester and/or NVG LBI Test Adapter are stored for extended periods of time, the internal batteries should be removed to prevent corrosion and possible damage to units

## **STROBE LIGHT MODE**

### **MS-2000M & SDU-5/E Distress Marker Strobe Lights**

**Strobe Light Mode allows users to test the Flash Rate Per Minute as required  
Refer to Official T.O. for testing requirements.**

*\*Note: Test may be performed with the IR (Infra Red) Filter attached if required*

1. Press ALSET “ON” key
2. Press “STRB” key
3. Turn Strobe Light ON, allow to flash per T.O. requirement before testing
4. Hold “Flashing” Strobe Light within 1” over STROBE SENSOR on face of ALSET
5. Allow Strobe Light to flash a minimum of 2 flashes
6. Remove Strobe Light from STROBE SENSOR and turn OFF
7. Screen Display will indicate Flash Rate Per Minute (FR/PM) reading, test is complete
8. To test additional Strobe Lights, Press “STRB” key twice and repeat Step 3
9. To leave STROBE MODE or to turn off ALSET, Press “EXIT” key first

## COMMUNICATIONS TEST MODE

The Communications Test Modes allows users to test the communication cords of flight helmets, oxygen masks, dynamic microphones, high or low impedance dynamic headset earphones. (Impedance must not exceed 999 OHMS) \* ALSET does not test electric amplified microphones or earphones.

*\*Note: For Custom Earphone Systems “CEP” and “ACCES” acceptable readings, refer to Manufacturer’s Test Specifications*

*\* Note: Prior to any testing insure microphone and earphone set screws are securely tightened, if not, you may receive faulty readings.*

### HGU-55/P & HGU-56/P HELMETS

1. Connect Comm Cord large single pin (U-174 or TPSJ-101 plug) to Comm Cord jack port on right side of ALSET
2. Press ALSET “ON” key
3. Press “MIC” key
4. Microphone OHMS reading will appear on Screen Display. (**Acceptable reading is ...4-7 OHMS**)
- 4a. If using a Boom MIC (HGU-55/P Airlift A/C) select the Plug (TPSJ-101) switch to “BOOM” then “MASK” and the OHMS reading will appear for each on the Screen Display. (**Acceptable reading is...4-7 OHMS**)
5. Press “EXIT” key
6. Press “HSET” key
7. Headset OHMS reading will appear on Screen Display. (**Acceptable reading is...8-12 OHMS**)

**\*If using the Oxygen Mask Light refer to Official T.O. for OHMS readings**

**\*If using the “JSAM” CB Mask refer to Official T.O. for OHMS readings**

**If Oxygen Mask (BOOM) Microphone and Headset OHMS readings are within their acceptable ranges, test is now complete, remove Comm Cord from ALSET.**

**\*\*\*If Screen Display shows an “OPEN” or if OHMS readings are not in acceptable ranges, see; Communication Cords, Headset Earphone, Boom & Oxygen Mask Microphone & OHMS Testing to isolate defective component parts.**

## COMMUNICATION CORDS

### HGU-55/P with Coil Communication Cord

#### (CX-4707C or equivalent; Helmet & Oxygen Mask) Fighter, Tanker A/C

1. Remove Communications Cord from helmet earphones and oxygen mask microphone
2. Connect Comm Cord large single pin (U-174 plug) to Comm Cord jack port on right side of ALSET
3. Connect Microphone Comm Cord small two pin (U-173 plug) to two pin Comm Cord jack port on right side of ALSET
4. Press ALSET "ON" key
5. Press "MIC" key
6. Microphone reading of 9-11 OHMS should appear on Screen Display. If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty
7. Remove Microphone Comm Cord (U-173 plug) from side of ALSET
8. Connect Headset Comm Cord small two pin (U-173 plug) to Comm Cord jack port on right of ALSET
9. Press "EXIT" key
10. Press "HSET" key
11. Headset reading of 9-11 OHMS should appear on Screen Display. If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty
12. Remove Comm Cord from side of ALSET

**\*Coil Communications Cord (CX-4707C or equivalent) Test is now complete**



**HGU-55/P with Straight Communication Cord**

**(NSN 5995-00-296-8037 or equivalent; Helmet, Boom MIC & Oxygen Mask)**

**AIRLIFT A/C**

1. Remove communications cord from helmet earphones, boom microphone & oxygen mask microphone
2. Connect Comm Cord large single pin (TPSJ-101 plug or equivalent with slide switch) to Comm Cord jack port on right side of ALSET
3. Connect Boom Microphone Comm Cord small two pin (U-173 plug) to two pin Comm Cord Jack port on right side of ALSET
4. Select "BOOM" setting on Comm Cord plug
5. Press ALSET "ON" key
6. Press "MIC" key
7. Boom Microphone Comm Cord reading of 9-11 OHMS should appear on Screen Display. If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty
8. Remove Boom Microphone Comm Cord (U-173 plug) from side of ALSET
9. Connect Oxygen Mask Comm Cord small two pin (U-173 plug) to two pin Comm Cord jack port on right side of ALSET
10. Select "MASK" setting on Comm Cord plug
11. Oxygen Mask Microphone Comm Cord reading of 9-11 OHMS should appear on Screen Display. If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty
12. Remove Oxygen Mask Comm Cord (U-173 plug) from side of ALSET
13. Connect Headset Comm Cord small two pin (U-173 plug) to Comm Cord jack port on right side of ALSET
14. Press "EXIT" key
15. Press "HSET" key
16. Headset Comm Cord reading of 9-11 OHMS should appear on Screen Display. If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty
17. Remove Comm Cord from side of ALSET

**\*Straight Communications Cord (NSN 5595-00-296-8037 or equivalent) Test is now complete**

## COMMUNICATION CORD

### HGU-56/P

To isolate unacceptable readings during the Communication Test Mode and to check the continuity of the Comm Cord

1. Remove the Comm Cord (U-173) plug from the Boom Microphone and connect it to the Comm Cord jack port on the right side of the ALSET
2. Connect Comm Cord large single pin (U-174 plug) to Comm Cord jack port on right side of ALSET
3. Turn ALSET "ON" key
4. Press "MIC" key
5. Microphone reading of 9-11 OHMS should appear on Screen Display (a 10 OHM ALSET internal resistor is providing OHMS for this test) If reading is not between 9-11 OHMS or if an "OPEN" reading appears, the Comm Cord is faulty

To isolate unacceptable readings of the Earphones, each earphone must be removed from the Comm Cord and tested individually

1. Plug Test Leads into right side of ALSET, "**RED**" to positive (+), "**BLACK**" to negative (-)
2. Press ALSET "ON" key
3. Press "OHMS" key
4. Test each Earphone by Inserting Test Leads into Earphone openings until reading is shown
5. Earphone reading of 17-24 OHMS should appear on Screen Display for each Earphone. If reading is between 17-24 OHMS for each Earphone, the Earphones are good and the Comm Cord is faulty. If reading of each Earphone is not between 17-24 OHMS or an "OPEN" reading is shown, REPLACE faulty Earphone and reassemble Comm Cord completely. Retest using Communications Test Mode for HGU-56/P, Page 3.

## **BOOM & OXYGEN MASK MICROPHONE OHMS TEST (Dynamic)**

### **HGU-55/P & HGU-56/P HELMETS**

1. Using Test Leads, plug “**RED**” into positive (+) and “**BLACK**” into negative (-) jacks on right side of ALSET
2. Press ALSET “ON” key
3. Press “OHMS” key
4. Remove microphone (Boom or Mask) from Comm Cord and touch Test Leads directly to Microphone connector screws or contacts
5. A reading of 4-7 OHMS should appear on Screen Display. If reading is not between 4-7 OHMS or if an “OPEN” reading appears, the microphone is faulty

**\*ALSET does not test electric amplified microphones or microphones with impedance over 999 OHMS**

## **HEADSET EARPHONE TEST (Dynamic)**

### **HGU-55/P & HGU-56/P HELMETS**

1. Remove Earphone elements/speakers from helmet and Comm Cord
2. Using Test Leads, plug “**RED**” into positive (+) and “**BLACK**” into negative (-) jacks on right side of ALSET
3. Press ALSET “ON” key
4. Press “OHMS” key
5. Insert Test Leads directly into openings on Earphones until reading is shown
6. A reading of 17-24 OHMS should appear on Screen Display. If reading is not between 17-24 OHMS or if an “OPEN” reading appears, the Earphone is faulty

**\*ALSET does not test electric amplified Earphones or Earphones with impedance over 999 OHMS each. For Commercial Headsets see manufactures’ specifications.**

## OHMS TESTING

**\* Do Not Test Voltage in this mode, damage to ALSET may occur**

OHMS Mode allows user to measure the resistance of individual communication components and compare them to Official T.O. requirements.

1. Using Test Leads, plug “**RED**” into positive (+) and “**BLACK**” into negative (-) jacks on right side of ALSET
2. Press ALSET “ON” key
3. Press “OHMS” key
4. Touch Test Leads directly onto connections of individual communication components to be tested
5. Screen Display will show test reading, refer to official T.O. for requirements

## VOLTAGE TESTING

- **WARNING: ALSET DOES NOT TEST VOLTS AC (Alternating Current= House & Building) DAMAGE WILL OCCUR TO ALSET AND VOID ALL WARRANTIES.**
- **WARNING: Maximum allowable Volts DC (Direct Current= Batteries) INPUT VOLTAGE IS 50 Volts DC. Load resistance must not exceed either of the following: (DAMAGE WILL OCCUR TO ALSET AND VOID ALL WARRANTIES)**
  - a) 6Watts = (V<sup>2</sup> divided by load)
  - b) 1 Amp internally limited

## VOLTAGE TESTING

1. Using Test Leads, plug “**RED**” into positive (+) and “**BLACK**” into negative (-) to plugs on right side of ALSET
2. Press ALSET “ON” key
3. Press “VOLT” key
4. Touch Test Leads directly onto Battery Terminals, “**RED**” to positive (+) end and “**BLACK**” to negative (-) end of battery
5. Screen Display will show test reading, refer to T.O. Manual requirements

\* Reversing Battery Terminals will show a - (Negative) reading on Screen Display, correct and retest. This will not harm ALSET or battery

\* Always inspect Batteries for damage and leakage before testing

**\* Keep Test Leads clean and free of dirt, grease or corrosion**

## PRE-PROGRAMMED BATTERY MODE

The Pre-Programmed Battery Mode List allows user to test battery with OHMS resistance and time:

AA-AAA-C-D 1.5V ALKALINE

9 VOLT ALKALINE

SDU-5/E 6.4V LITHIUM

100 OHMS-10 SEC. TEST

PRC-90 12V LITHIUM

130 OHMS-10 SEC. TEST

URT 33C/M-D 9V LITHIUM

130 OHMS-10 SEC. TEST

OXYGEN MASK LIGHT 3.0V LITHIUM

NVG LOW PROFILE BATTERY PACK 3.0V ALKALINE

NVG 3.2V LITHIUM

NVG 3.6V LITHIUM

### ➤ **Refer to Official Technical Orders for Testing Requirements**

1. Plug test leads into side of tester, “**RED**” to positive (+), “**BLACK**” to negative (-)
2. Press ALSET “ON” key
3. Press “BATT” key
4. Press UP or DOWN key to select the desired pre-programmed battery
5. Press “ENT” key for battery to be tested
6. Touch test leads to battery with the “**RED**” lead touching positive terminal and “**BLACK**” lead touching negative terminal, hold in place  
*\*Note: A negative reading will occur if test leads are not touching the correct terminal. This will NOT harm the ALSET tester or battery.*
7. 1<sup>st</sup> beep indicates test has begun, continue to hold test leads to battery, wait until 2<sup>nd</sup> beep, test is now complete
8. Remove test leads from battery terminals
9. Screen Display will indicate battery voltage
10. To test same battery type, Press “ENT” key twice, proceed with Step 6
11. To test a different battery type, Press “EXIT” key once, proceed with Step 4
12. Press “EXIT” key twice to leave PRE-PROGRAMMED BATTERY MODE

## CUSTOM BATTERY MODE

Custom Battery Mode allows user to program up to 50 new batteries into the memory of the ALSET, including voltage, OHMS resistance and time (V-R-T). User may test, edit or delete any batteries within the Custom Battery Mode.

### **Programming New Custom Battery:**

1. Press ALSET “ON” key
2. Press “NEW” key
3. Input voltage using numeric keys (example: For 12.3 volts, type in 1230, 12.30V will be displayed on screen), Press “ENT” key
4. Input resistance (if required) using numeric keys, Press “ENT” key
5. Input test time (in seconds) (if required) using numeric keys, Press “ENT” key
6. Press “EXIT” key
7. Press “SAVE” key, the new battery is saved into Custom Mode

### **Test User Programmed Custom Battery:**

1. Press ALSET “ON” key
2. Press “CUST” key
3. Press UP or DOWN key to select the desired custom battery
4. Press “ENT” key for battery to be tested
5. Touch test leads to battery with the “RED” lead touching positive terminal and “BLACK” lead touching negative terminal, hold in place  
*\*Note: A negative reading will occur if test leads are not touching the correct terminal. This will NOT harm the battery or ALSET tester.*
6. 1<sup>st</sup> beep indicates test has begun, continue to hold leads to battery, wait until 2<sup>nd</sup> beep, test is now complete
7. Remove test leads from terminals
8. Screen Display will indicate battery voltage
9. Press “CUST” key twice to continue test on custom batteries
10. Press “EXIT” key to leave CUSTOM BATTERY MODE

### **Edit User Programmed Custom Battery:**

1. Press ALSET “ON” key
2. Press “EDIT” key
3. Press UP or DOWN key to select the desired custom battery to be edited, once battery is selected on screen, user can begin to edit ANY field (V-R-T)
4. Press “ENTER” key to advance to the next appropriate field (V-R-T) to be edited, edit is complete
5. Press “EXIT” key, battery is now saved with changes in CUSTOM MODE

### **Delete User Programmed Custom Battery:**

1. Press ALSET “ON” key
2. Press “EDIT” key
3. Press UP or DOWN key to select the desired custom battery to be deleted
4. Press “CLR” key twice, battery is deleted from CUSTOM MODE
5. Press “EXIT” key to leave EDIT MODE

## NVG MODE

NVG Mode allows user to test the ANVIS Helmet Mount Bracket & Low Profile Battery Pack. In this mode user will be able to test the Low Battery Indicator Light (LBI), voltage of the batteries, the switch, continuity of the wiring and all (4) Helmet Mount electrical contacts. The ALSET places the same mili-amp load on the NVG system as an actual Night Vision Goggle in the “ON” Mode for 5 seconds, testing the entire system load with accuracy.

- **Refer to Official Technical Orders for Testing Requirements**

### **HGU-55/P**

#### **Low Battery Indicator Light (LBI) Circuit Functional Check**

#### **With NVG LBI Test Adapter P/N 14229-7**

1. Remove any batteries from Helmet Mount Bracket
2. Disconnect Low Profile Battery Pack if connected
3. Place Helmet Mount Bracket battery switch to the “Off” position
4. Turn Helmet Mount Bracket over so LBI Light is facing upward, the Helmet Mount Bracket battery switch is now located on the left
5. With NVG LBI Test Adapter switches facing upward, connect the NVG LBI Test Adapter to Helmet Mount Bracket until locked
6. Plug the NVG LBI Test Adapter cord into side of ALSET, “**RED**” to positive (+), “**BLACK**” to negative (-)
7. Press ALSET “ON” key
8. Press “VOLT” key
9. Turn Test Adapter Adjustment Voltage Knob to the full POSITIVE position
10. Pull down and hold the “Red” LBI Test Toggle Switch (Voltage reading on Screen Display must indicate a minimum of 2.4V)

***\*Note: If reading on Screen Display is below 2.4V, the internal batteries for the NVG LBI Test Adapter must be replaced. Discontinue test until corrected. Refer to Battery Replacement instructions for NVG LBI Batteries.***

***\*Note: If reading on Screen Display is 2.4V and above, proceed with Step 11.***

11. Continue to hold down the “Red” LBI Test Toggle Switch
12. Slowly turn Adjustment Voltage Knob to the negative position until the LBI Light located on the NVG Helmet Mount Bracket begins to flash
13. Screen Display will indicate voltage reading, (compare reading with current T.O. specifications for Low Battery Indicator (LBI) Circuit Functional Check)
14. Release “Red” LBI Test Toggle Switch, test is complete

***\*If reading is NOT within T.O. specifications, the Helmet Mount Assembly is faulty, discontinue test. Refer to Official T.O. specifications.***

***\*If reading is within Official T.O. specifications, the Low Battery Indicator Light (LBI) Circuit Functional Check is now complete.***

## HGU-55/P NVG Helmet Mount Bracket Battery and Electrical Contacts Test

### \*\*\* With Low Profile Battery Pack \*\*\*

This will test the voltage of the Low Profile Battery Pack batteries and the backup Lithium battery in the NVG Helmet Mount, all under the same load resistance as a Night Vision Goggle plugged into the NVG Helmet Mount and turned on for 5 seconds. The test also checks all 4 of the NVG Bracket Electrical Contacts, the wiring, connections and the battery selector switches.

➤ **WARNING: DO NOT USE “RED” TOGGLE SWITCH DURING THIS TEST**

1. Install 1 Lithium backup battery in NVG Helmet Mount Bracket with switch in “OFF” position
2. Connect Low Profile Battery Pack with batteries installed and switch in the “OFF” position to NVG Helmet Mount Bracket
3. Turn NVG Helmet Mount Bracket over so LBI Light is facing upward, the NVG Helmet Mount Bracket battery switch is now located on the left
4. With NVG LBI Test Adapter switches facing upward, connect the NVG LBI Test Adapter to NVG Helmet Mount Bracket until locked; place “Blue” Toggle switch to position “1”
5. Plug the NVG LBI Test Adapter cord into side of ALSET, “RED” to positive (+), “BLACK” to negative (-)
6. Press ALSET “ON” key
7. Press “NVG” key, 3V NVG BATT PACK will appear on Screen Display
8. Place Low Profile Battery Pack switch to primary position.
9. Place NVG Helmet Mount Bracket Battery switch to “Down” or Low Profile Battery Pack position.
10. Press “ENT” key to start test
11. 1st beep indicates test has begun, 2nd beep indicates test is complete
12. Screen Display will indicate battery voltage
13. Place Low Profile Battery Pack switch to alternate position.
14. Press “EXIT” key
15. Press “ENT” key
16. 1st beep indicates test has begun, 2nd beep indicates test is complete
17. Screen Display will indicate battery voltage

**\* Side 1 Battery & Electrical Contacts Tests are complete. Continue to Step 18 to test Side 2.**



18. Place NVG LBI Test Adapter “Blue” Toggle Switch to position “2”
19. Press “EXIT” key
20. Press “ENT” key
21. 1st beep indicates test has begun, 2nd beep indicates test is complete
22. Screen Display will indicate battery voltage
23. Place Low Profile Battery Pack switch to primary position
24. Press “EXIT” key
25. Press “ENT” key
26. 1st beep indicates test has begun, 2nd beep indicates test is complete
27. Screen Display will indicate battery voltage

**\* Side 2 Battery & Electrical Contacts Tests are complete. Continue to Step 28 to test the Lithium Backup Battery.**

28. Press “EXIT” key to return to NVG Battery Menu
29. Press “UP” key to select the NVG Lithium Backup Battery to be tested
30. Place NVG Helmet Mount Bracket battery switch to the “UP” or to NVG Lithium Backup Battery position
31. Place “Blue” Toggle Switch to position “1”
32. Press “ENT” key
33. 1st beep indicates test has begun, 2nd beep indicates test is complete
34. Screen Display will indicate battery voltage
35. Place “Blue” Toggle Switch to position “2”
36. Press “EXIT” key
37. Press “ENT” key
38. 1st beep indicates test has begun, 2nd beep indicates test is complete
39. Screen Display will indicate battery voltage
40. Remove NVG LBI Test Adapter from NVG Helmet Mount Bracket
41. Press “EXIT” key twice to leave NVG MODE.

**\* NVG Lithium Backup Battery and Electrical Contacts Tests are complete.**

**\*\*\* If battery voltage reads below minimal acceptance range, battery should be replaced. If an “OPEN” reading appears during any of the above tests, a faulty NVG electrical contact is present on the NVG Helmet Mount and should be repaired or replaced before use.**

## HGU-55/P NVG Helmet Mount Bracket Battery and Electrical Contacts Tests

### \*\*\* Without Low Profile Battery Pack \*\*\*

This will test the voltage of the batteries under the same load resistance as a Night Vision Goggle plugged into the NVG Helmet Mount and turned on for 5 seconds. The test also checks all 4 of the NVG Bracket Electrical Contacts, the wiring and the battery selector switch.

➤ **WARNING: DO NOT USE “RED” TOGGLE SWITCH DURING THIS TEST**

1. Install batteries (2) into NVG Helmet Mount Bracket with switch in “OFF” position
2. Turn Helmet Mount Bracket over so LBI Light is facing upward, the Helmet Mount Bracket Battery switch is now located on the left
3. With NVG LBI Test Adapter switches facing upward, connect the NVG LBI Test Adapter to the NVG Helmet Mount Bracket until locked
4. Plug the NVG LBI Test Adapter cord into side of ALSET, “**RED**” to positive (+), “**BLACK**” to negative (-)
5. Press ALSET “ON” key
6. Press “NVG” key
7. Press UP or DOWN key on ALSET to select the desired NVG Battery to be tested
8. Place NVG Helmet Mount Bracket Battery switch to “Up” position and the NVG LBI Test Adapter “Blue” Toggle Switch to position “1”
9. Press “ENT” key
10. 1st beep indicates test has begun, 2nd beep indicates test is complete
11. Screen Display will indicate battery voltage
12. Place NVG Helmet Mount Bracket Battery switch to “Down” position
13. Press “EXIT” key
14. Press “ENT” key
15. 1st beep indicates test has begun, 2nd beep indicates test is complete
16. Screen Display will indicate battery voltage
17. Press “EXIT” key

**\* Side 1 Battery & Electrical Contacts Tests are complete. Continue to Step 18 to test Side 2.**

18. Place NVG LBI Test Adapter “Blue” Toggle Switch to position “2”
19. Press “ENT” key
20. 1st beep indicates test has begun, 2nd beep indicates test is complete
21. Screen Display will indicate battery voltage
22. Place Helmet Mount Bracket Battery switch to “Up” position
23. Press “EXIT” key
24. Press “ENT” key
25. 1st beep indicates test has begun, 2nd beep indicates test is complete
26. Screen Display will indicate battery voltage
27. Place Helmet Mount Bracket Battery switch to “Off” position
28. Remove NVG LBI Test Adapter from NVG Helmet Mount Bracket
29. Press “EXIT” key twice to leave NVG MODE

**\*\*\* If battery voltage reads below minimal acceptance range, battery should be replaced. If an “OPEN” reading appears during any of the above tests, a faulty NVG electrical contact is present on the NVG Helmet Mount and should be repaired or replaced before use.**

## HGU-56/P

### Low Battery Indicator Light (LBI) Circuit Functional Check

#### With NVG LBI Test Adapter P/N 14229-7

ITT, the manufacturer of the ANVIS Helmet Mount assembly, has a voltage circuit functional check for the NVG LBI Light. The NVG LBI Light must flash when battery pack voltage drops to **2.1V (+/- .1V)**. You may use the ALSET NVG LBI Test Adapter (P/N 14229-7) to verify this LBI circuit functional check.

1. Connect Low Profile Battery Pack to ANVIS Mount
2. Place Low Profile Battery Pack switch to the "Off" position
3. Turn Helmet with ANVIS Mount over so LBI Light is facing upward
4. With NVG LBI Test Adapter switches facing upward, connect the NVG LBI Test Adapter to ANVIS Mount until locked
5. Plug the NVG LBI Test Adapter cord into right side of ALSET, "**RED**" to positive (+), "**BLACK**" to negative (-)
6. Press ALSET "ON" key
7. Press "VOLT" key
8. Turn Test Adapter Adjustment Voltage Knob to the full POSITIVE position
9. Pull down and hold the "Red" LBI Test Toggle Switch (Voltage reading on Screen Display must indicate a minimum of 2.4V)  
*\*Note: If reading on Screen Display is below 2.4V, the internal batteries for the NVG LBI Test Adapter must be replaced. Discontinue test until corrected. Refer to Battery Replacement Instructions for NVG LBI Batteries.*  
*\*Note: If reading on Screen Display is 2.4V and above, proceed with Step 10.*
10. Continue to hold down the "Red" LBI Test Toggle Switch
11. Slowly turn Adjustment Voltage Knob to the Negative Position until the LBI Light located on the ANVIS Mount begins to flash
12. Screen Display will indicate voltage reading, (compare reading with current T.O. specifications for Low Battery Indicator (LBI) Circuit Functional Check)
13. Release "Red" LBI Test Toggle Switch, test is complete

*\*If reading is NOT within T.O. specifications, the ANVIS Mount is faulty, discontinue test. Refer to T.O. specifications.*

*\*If reading is within T.O. specifications, the Low Battery Indicator Light (LBI) Circuit Functional Check is now complete.*

## HGU-56/P ANVIS Helmet Mount Bracket Battery and Electrical Contacts Test

**\*\*\* This test is for batteries to be used in flight; for HGU-56/P ANVIS Mount continuity check, see page 19.**

**This will test the voltage of the Low Profile Battery Pack batteries and the ANVIS Helmet Mount, under the same load resistance as a Night Vision Goggle plugged into the ANVIS Mount and turned on for 5 seconds. The test also checks all 4 of the ANVIS Mount Electrical Contacts, the wiring, connections and the battery selector switch.**

➤ **WARNING: DO NOT USE “RED” TOGGLE SWITCH DURING THIS TEST**

1. Connect Low Profile Battery Pack with good batteries installed to the HGU-56/P ANVIS Helmet Mount
2. Place battery selector switch on the Low Profile Battery Pack to “OFF” position
3. Turn helmet with Low Profile Battery Pack attached to ANVIS Mount over so the LBI (Low Battery Indicator Light) is facing upward
4. With NVG LBI Test Adapter (P/N 14229-7) switches upward, connect the NVG LBI Test Adapter into the ANVIS Mount until locked, place “Blue” Toggle switch to position “1”
5. Plug the NVG LBI Test Adapter cord into side of ALSET Tester, “**RED**” to positive (+), “**BLACK**” to negative (-)
6. Press ALSET “ON” key
7. Press “NVG” key, 3V NVG BATT PACK will appear on Screen Display
8. Place Low Profile Battery Pack switch to primary position
9. Press “ENT” key to start test
10. 1st beep indicates test has begun, 2nd beep indicates test is complete
11. Screen Display will indicate battery voltage
12. Place Low Profile Battery Pack switch to alternate position
13. Press “EXIT” key
14. Press “ENT” key
15. 1st beep indicates test has begun, 2nd beep indicates test is complete
16. Screen Display will indicate battery voltage

**\* Side 1 Battery & Electrical Contacts Tests are complete. Continue to Step 17 to test Side 2.**

17. Place NVG LBI Test Adapter “Blue” Toggle switch to position “2”
18. Press “EXIT” key
19. Press “ENT” key
20. 1st beep indicates test has begun, 2nd beep indicates test is complete
21. Screen Display will indicate battery voltage
22. Place Low Profile Battery Pack switch to primary position
23. Press “EXIT” key
24. Press “ENT” key
25. 1st beep indicates test has begun, 2nd beep indicates test is complete
26. Screen Display will indicate battery voltage
27. Place Low Profile Battery Pack switch to “OFF” position
28. Remove NVG LBI Test Adapter from ANVIS Helmet Mount
29. Press “EXIT” twice to leave NVG MODE

**\* Side 2 Battery & Electrical Contacts Tests are complete.**

**\*\*\* If battery voltage reads below minimal acceptance range, battery should be replaced. If an “OPEN” reading appears during any of the above tests, a faulty NVG electrical contact is present on the ANVIS Mount and should be repaired or replaced before use.**

## HGU-56/P

### ANVIS HELMET MOUNT CONTINUITY CHECK

**This will test all 4 NVG Electrical Contacts, ANVIS Mount Wiring and Battery Voltage. NO NVG load resistance is applied during this test, actual battery voltage is displayed.**

1. Connect Low Profile Battery Pack with good batteries installed to the HGU-56/P ANVIS Helmet Mount
2. Place battery selector switch on Low Profile Battery Pack to “OFF” position
3. Turn Helmet with Low Profile Battery Pack attached to ANVIS Mount over so the LBI (Low Battery Indicator Light) is facing upward
4. With NVG LBI Test Adapter (P/N 14229-7) switches facing upward, connect the NVG LBI Test Adapter into the ANVIS Mount until locked
5. Plug the NVG LBI Test Adapter cord into right side of ALSET Tester, “**RED**” to positive (+), “**BLACK**” to negative (-)
6. Press ALSET “ON” key
7. Press “VOLT” Key
8. With the “Blue” NVG Toggle on the Test Adapter in Position 1, place battery selector switch on the Low Profile Battery Pack to the “Primary” position
9. The battery voltage reading should appear on the ALSET Screen Display
10. With the “Blue” NVG Toggle still in Position 1, place the battery selector switch on the Low Profile Battery Pack to the “Alternate” position
11. The battery voltage reading should appear on the ALSET Screen Display
12. With the battery selector switch on the Low Profile Battery Pack still in the “Alternate” Position, switch the “Blue” NVG Toggle on the Test Adapter to Position 2
13. The battery voltage reading should appear on the ALSET Screen Display
14. With the “Blue” NVG Toggle still in Position 2, place the battery selector switch on the Low Profile Battery Pack to the “Primary” position
15. The battery voltage reading should appear on the ALSET Screen Display
16. Continuity Check is now complete; Remove NVG LBI Test Adapter from ANVIS Helmet Mount
17. Press “EXIT” key twice to leave NVG MODE

**\*\*\* If an “OPEN” reading or a battery voltage fails to appear on the ALSET Screen Display during any of the above tests, a faulty NVG electrical contact is present on the ANVIS Helmet Mount and should be repaired or replaced before use.**

## **BATTERY REPLACEMENT**

- **WARNING: Check Batteries periodically (30 days) for acid leakage that may cause damage to the battery terminals and compartment**

### **Instructions for ALSET Battery:**

The ALSET is powered by four AA 1.5V batteries. Use the following procedure for replacement:

1. Remove any and all test leads from ALSET
2. Insure ALSET is turned off
3. Remove Protective Rubber Boot from ALSET
4. Remove Battery Cover from back of ALSET
5. Remove all old batteries from compartment
6. Install four new AA 1.5V batteries, insure contacts are positive (+) to positive (+), negative (-) to negative (-)
7. Reinstall Battery Cover
8. Reinstall Protective Rubber Boot to ALSET
9. ALSET is ready for use

### **Instructions for NVG LBI Test Adapter (P/N 14229-7) Battery:**

The NVG LBI Test Adapter is powered by two AA 1.5V batteries. Use the following procedure for replacement:

1. Remove NVG LBI Test Adapter from ALSET
2. Remove 4 screws from back plate of Adapter
3. Lift and separate back plate of Adapter until Battery Compartment is exposed
4. Remove both AA 1.5V batteries from compartment
5. Install two new AA 1.5V batteries, insure contacts are positive (+) to positive (+), negative (-) to negative (-)
6. Reposition back plate to Adapter, reinstall all 4 screws, DO NOT over tighten
7. NVG LBI Test Adapter is ready for use



## **CALIBRATION**

To insure the ALSET performs according to its specifications, a calibration check is recommended on a 24 month cycle or to the end user's requirements. For calibration questions contact A.A.I. at 1-800-845-1994 or visit our website at [www.ALSET.us](http://www.ALSET.us) for instructions or specifications. Military users please refer to Official PMEL/TMDE Files.

## **WARRANTY AND REPAIR**

The "ALSET" Tester is warranted for a period of one (1) year from the date of shipment for manufacturing defects. During the warranty, A.A.I. will repair or replace the defective "ALSET" Tester free of charge. All warranty terms are per GSA Schedule Contract #GS-07F-5380R.

A.A.I. makes no additional warranties of any kind with regards to the "ALSET" Tester under this agreement. Any such warranties are hereby expressly disclaimed to the maximum extent permitted by law.

A.A.I. shall not be liable for consequential damages resulting from any defect, misuse or deficiencies in items accepted under this agreement.

A.A.I. shall have no liability or entity with respect to any liability, loss or damage caused or alleged to be caused directly or indirectly by this equipment.

"ALSET" Tester must have original serial code label on unit in order for warranty to be valid. Any unit received without or altered original serial code label will be terms for voiding warranty agreement.

A.A.I. assumes no risk for damage in transit.

To submit a warranty claim, please contact A.A.I. directly to obtain a Return Authorization Claim Number. Send your "ALSET" Tester with test leads and NVG Adapter in its case properly packaged with your phone number, email address, claim number and accurate UPS shipping address to: **A.A.I., 1213 Sandstone Drive, St. Charles, MO 63304.**

**Phone: 1-800-845-1994 Website: [www.alset.us](http://www.alset.us)**

For any and all repairs not associated with warranty please contact:  
**A.A.I. directly at 1-800-845-1994**

## **SPECIFICATIONS**

Internal Fuse	1 Amp, 154 Series Omni-Blok (P/N 0154001)
Operating Temperature	-20 degrees C to +70 degrees C
Storage Temperature	-30 degrees C to +80 degrees C

## **REPLACEMENT PARTS**

Replaceable parts are listed below. To order contact A.A.I. at 1-800-845-1994

Test Lead Set	P/N 14229-4
Users Manual	P/N 14229-5
Protective Rubber Boot	P/N 14229-6
NVG LBI Test Adapter	P/N 14229-7
Plastic Storage Case	P/N 14229-11
IHADSS Adapter Cable	P/N 14229-15



P/N 14229-5

***A. A. I.***



**1213 Sandstone Drive  
St. Charles, MO 63304  
(800) 845-1994**

**[www.aaiusa.us](http://www.aaiusa.us)**