# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *AUTOMATIC ACTUATION DEVICE* SYSTEM: *CREW ESCAPE SYSTEM* REVISION:

ASSY P/N: *SK1102440187* SUBSYSTEM: *PERSONAL PARACHUTE ASSY.* PAGE *10* OF *79*

| FMEA REF | FMEA REV | NAME, QTY & DRAWING REF DESIGNATION | CRIT'Y | FAILURE MODE AND CAUSE | FAILURE EFFECT ON END ITEM | RATIONALE FOR ACCEPTANCE |
|---|---|---|---|---|---|---|
| 161 | | AUTOMATIC ACTUATION DEVICE, (1) SK1102440187 | 2/1R | 1.6.1<br>Mode:<br>AAD fails to arm<br><br>Cause:<br>• defective material<br>• cable breaks<br>• Kevlar line breaks | Drogue release mechanism fails to automatically release the drogue chute and deploy the main chute if the "D" ring emergency backup fails | **1. DESIGN FEATURES TO MINIMIZE FAILURE MODES**<br>a. The pull force to activate the AAD is 2 to 3 pounds<br>b. The Kevlar line is rated at 500 pounds.<br>c. The cable is stainless steel 1/16 inch in diameter.<br>d The AAD is in Navy fleet use<br>e. The Kevlar line and cable are connected by a terminal end (eyelet)<br>f The connection is swagged to the cable at 150 pounds.<br>**2. TEST OR ANALYSIS TO DETECT FAILURE MODE**<br>a. <u>Acceptance Test</u>.<br>(1) Functional test, altitude firing at 14,000 ± 1,000 feet<br>(2) Proof load swagged eyelet on arming cable to 150 pounds.<br>(3) The Kevlar line is proof load to 500 pounds<br>b <u>Certification Test</u><br>(1) Four air drop dummy tests from 10,000 feet<br>(2) Four air drop dummy tests from 25,000 feet.<br>(3) Four air drop live jumps from 10,000 feet<br>(4) Four air drop live jumps from 25,000 feet |

PREPARED BY: *R. L. ALLISON, M. HERR* SUPERSEDING DATE *101* BY *J. O. SCHLOSSER* DATE *8/7/89*

# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *AUTOMATIC ACTUATION DEVICE* SYSTEM: *CREW ESCAPE SYSTEM* REVISION:

ASSY P/N: *SK1102440187* SUBSYSTEM: *PERSONAL PARACHUTE ASSY.* PAGE *11* OF *79*

| FMEA REF | FMEA REV | NAME, QTY & DRAWING REF DESIGNATION | CRIT'Y | FAILURE MODE AND CAUSE | FAILURE EFFECT ON END ITEM | RATIONALE FOR ACCEPTANCE |
|---|---|---|---|---|---|---|
| 1 6 1 | | AUTOMATIC ACTUATION DEVICE, (1) SK1102440187 | 2/1R | 1.6.1 Mode: AAD fails to arm<br><br>Cause:<br>• defective material<br>• cable breaks<br>• Kevlar line breaks | Drogue release mechanism fails to automatically release the drogue chute and deploy the main chute if the "D" ring emergency backup fails | (5) Ten firings at JSC TTA facility.<br>c. Turnaround Test. (In accordance with PIA 23028)<br>The PPA will be unpacked, inspected, and repacked prior to each flight.<br>3. INSPECTION<br>a. The AAD is Government source inspected.<br>b. Visual inspection of AAD for defects<br>c. Verify firing pin indents cartridge during functional altitude test at 14,000 ± 1,000 feet.<br>d. Visual inspection of stainless steel cable for defects.<br>e. Verify eyelet is properly swagged on power cable.<br>f. Verify cartridge is installed prior to packing.<br>g Verify arming pin is installed prior to packing<br>h Verify acceptance data package.<br>Turnaround Inspection (In accordance with PIA 23028)<br>a. The PPA will be repacked and inspected once a year.<br>b Visual inspection of AAD for defects<br>c Visual inspection of stainless steel cable for defects |

PREPARED BY: *R. L. ALLISON, M. HERR* SUPERSEDING DATE: *10/2* BY: *J. O. SCHLOSSER* DATE *8/7/89*

# CRITICAL ITEMS LIST

ASSY NOMENCLATURE: *AUTOMATIC ACTUATION DEVICE* SYSTEM: *CREW ESCAPE SYSTEM* REVISION:

ASSY P/N: *SK1102440187* SUBSYSTEM: *PERSONAL PARACHUTE ASSY.* PAGE 12 OF 79

| FMEA REF | FMEA REV | NAME, QTY & DRAWING REF DESIGNATION | CRIT'Y | FAILURE MODE AND CAUSE | FAILURE EFFECT ON END ITEM | RATIONALE FOR ACCEPTANCE |
|---|---|---|---|---|---|---|
| 161 | | AUTOMATIC ACTUATION DEVICE, (1) SK1102440187 | 2/1R | 1.6.1<br>Mode:<br>AAD fails to arm<br><br>Cause:<br>• defective material<br>• cable breaks<br>• Kevlar line breaks | Drogue release mechanism fails to automatically release the drogue chute and deploy the main chute if the "D" ring emergency backup fails | d. Verify eyelet is properly swagged on power cable.<br>e. Verify cartridge is installed prior to packing.<br>f. Verify arming pin is installed prior to packing<br>4. **FAILURE HISTORY**<br>None. The AAD is in fleet use by the Navy.<br>5. **OPERATIONAL USE**<br>a. Operational Effect of Failure - Possible loss of life if manual backup fails.<br>b. Crew Action - Pull manual drogue release (red apple).<br>c. Crew Training - Crew is trained to pull manual backup (red apple) if necessary<br>d Mission Constraints - None. Mission would be terminated prior to use of this equipment<br>e. In-Flight Checkout - None. |

PREPARED BY: *R. L. ALLISON, M. HERR* SUPERSEDING DATE: *10/24/88* APPROVED BY: *J. O. SCHLOSSER* DATE *8/7/89*