

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: POLE ARRESTOR ASSEMBLY

SYSTEM: CREW ESCAPE SYSTEM

REVISION:

ASSY P/N: SED27101363

SUBSYSTEM: POLE CREW ESCAPE SYSTEM

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRIT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
1.2.1		ENERGY ABSORBER ASSEMBLY (4), SED27101365-301	1/1	1.2.1 Mode: Energy absorber binds Cause: • Contamination • Corrosion	Damage to pole or Orbiter brackets during deployment if one energy absorber binds and stop plate fails	<p>1. Design Features. The design features which minimize the probability of this failure mode are:</p> <p>a. The absorbers are fabricated of materials not conducive to corrosion. Dry lubricant is applied to the rod and friction washers during assembly, and design tolerances are established to minimize the probability of binding.</p> <p>b. The absorber rod is fabricated from inconel 718 in accordance with specifications AMS 5662 and 5663. The rod is passivated after machining, and dye penetrant inspected in accordance with MIL-STD-6866, with no cracks permissible.</p> <p>c. The friction washers are machined from CRES 416 material, specification QQ-S-763, passivated after machining, and heat treated. Dry lubricant, MS-122 is applied to the rod and washers during assembly.</p> <p>d. The absorber body is machined from 6061-T651 aluminum, in accordance with QQ-A 225/B, and anodized.</p> <p>e. The retainer plug is fabricated by the bonding together of nylon and aluminum with Hysol adhesive. The aluminum portion is anodized after machining.</p> <p>f. The four shock absorbers are installed on centers at least 2.8 inches apart on the stop plate. The stop plate is fabricated from .875 inch thick aluminum plate and anodized after machining. The stop plate is designed to an ultimate safety factor of 1.4 for all mission phases.</p> <p>g. The energy absorbers are designed to an ultimate safety factor of 1.4 for all mission phases.</p>

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1.2.1		ENERGY ABSORBER ASSEMBLY (4), SED27101363-301	1/1	<p>1.2.1 Mode: Energy absorber binds</p> <p>Cause:</p> <ul style="list-style-type: none"> Contamination Corrosion 	Damage to pole or Orbiter brackets during deployment if one energy absorber binds and stop plate fails	<p>(7) Fungus (by analysis).</p> <ul style="list-style-type: none"> Non-nutrient to fungi in accordance with MIL-STD-810D, method 508.3 or materials adequately treated (refer to MF0004-014C, paragraph 3.1.1.c.) <p>(8) Humidity (by analysis).</p> <ul style="list-style-type: none"> The PCES materials list was analyzed to certify compliance with MF0004-014, paragraph 3.1.1.e. <p>(9) Salt spray (by analysis)</p> <ul style="list-style-type: none"> The PCES materials list was analyzed to certify compliance with MF0004-014, paragraph 3.3.3.7. <p>(10) Sand/dust (by analysis).</p> <table border="0"> <tr> <td> <ul style="list-style-type: none"> Sand diameter 0.0031 to 0.039 inches suspended sand 1.2 lbs. per cubic ft. wind speed 33 ft/sec hardness 7 to 8 Moh scale </td> <td> <ul style="list-style-type: none"> Dust diameter 0.0000039 to 0.003 inches suspended dust 3.7 to 0.7 lb/cu ft wind speed 33 ft/sec hardness 7 to 8 Moh scale </td> </tr> </table> <p>(11) Additional certification tests/analyses.</p> <ul style="list-style-type: none"> Transportation - packaging, shock, and vibration: Packaging designed and protective procedures developed in accordance with FED-STD-101 On/off cycle life test (by testing): PCES deployed 20 times, refer to (4) above Transient vibration (by analysis) Structural fatigue (by analysis) Corrosion: (by analysis) Handling shock, crash shock, and landing shock (by analyses) Acceleration and cabin atmosphere (by analysis) Full life and limited life certification (by analysis) 	<ul style="list-style-type: none"> Sand diameter 0.0031 to 0.039 inches suspended sand 1.2 lbs. per cubic ft. wind speed 33 ft/sec hardness 7 to 8 Moh scale 	<ul style="list-style-type: none"> Dust diameter 0.0000039 to 0.003 inches suspended dust 3.7 to 0.7 lb/cu ft wind speed 33 ft/sec hardness 7 to 8 Moh scale
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