

REVISIONS

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DRAWN: F. Kasparian		DEA/DPA/Support Structure Assembly SIM Installation Procedure			
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Scale NONE	Sheet 1 OF 5	Size T	CAGE Code 80230	Drawing Number 36-02033	REV A

Installation Procedure of DEA/DPA/Support Structure onto the SIM

Necessary Equipment

- Lifting Fixture
- Facility Hoist
- Height Gauge
- Dial Indicator
- Hoist Scale
- (4) 10-32UNFx1.00L Jacking Screws
- (8) NAS1351N4-20 (1/4-28UNFx1.250L) and washer NAS620C416 (1/4 ID)
- Vernier Micrometer
- Fiber Light
- Inspection Mirrors
- Braycote 601 (Vacuum Conditioned) diluted 10:1 with Freon
- Back Stay Adjuster
- Ground Strap
- (2) 10-32UNFx.500L and washers Ground Lugs

Procedure

Step	Team	Action	QA Sign Off
a		Ground the shipping Container. Observe all ESD Protection requirements. Open shipping container and unbag DEA/DPA/Support Structure/Support Structure Assembly MIT P/N 36-30000.	
b		Attach ground strap to the ACIS DEA/DPA/Support Structure Assembly.	
c		Remove (22) #10-32x1/2 and washers attaching the -X panel. Remove the panel.	
d		Loosen captive hardware attaching the upper and lower +Z panel. Do not remove hardware from panel.	

Step	Team	Action	QA Sign Off
e		Remove each of ten (10) CCD Cable Assemblies (W7 through W16) from the Detector Assembly Mock Up. Use care to turn each Jack Screw in small increments so as to walk the connector out. Record in the Mate-Demate Log.	
f		Attach Hoist Scale and back stay adjuster to facility hoist.	
g		Remove both Connectors of the Heater Control Cable (W6) and the Ground Lug (E1)	
h		Remove the Cable Brackets from the Detector Assembly Back Plate. Do not remove the Cables from the Brackets. Bag the connectors.	
i		Perform lift certification on lift fixture.	
i		Remove mounting hardware from the +Y and -Y flexure feet.	
j		Install the ACIS DEA/DPA/Support Structure Assembly Lifting Fixture using care to install the end with the notch next to the DPA. Install screws and record running torque. Torque screws to 30 in. lbs. above running torque. Support the Cables (W6 through W16) from the Lifting Fixture.	
k		Lubricate the antirotation pins on the SIM with Bray 601 Diluted 10:1 with Freon.	
l		Take the strain out of the hoist by preloading to an indicated reading of 30 pounds.	
m		Remove -Z flexure foot hardware.	
n		Lift the DEA/DPA/Support Structure Assembly using great care that it comes up straight and level, and that the load does not exceed 130 pounds. Gentle rocking about the Z Axis usually frees the Lower +Z Panel. At least three (3) observers are required to insure that nothing snags. The crane operator shall be able to view the scale at all times during the lift.	
o		Lubricate the jacking screws (#10-32UNFx1.00L) with Bray 601 Diluted 10:1 with Freon.	
p		While suspended, insert jacking screws into each flexure foot. Adjust the length so that when the DEA/DPA/Support Structure Assembly is lowered on to the SIM, the flexures are at least 0.06 inch above the pins.	
q		Note the weight of the DEA/DPA/Support Structure Assembly	

Step	Team	Action	QA Sign Off
r		Remove the lower +Z panel from the shipping container and install on the SIM.	
s		With great care lower the DEA/DPA/Support Structure Assembly engaging the Lower + Z Panel. At least three (3) observers are required to insure that nothing snags as it passes the DA. It is essential that the DEA/DPA/Support Structure Assembly remain level and that the load does not drop below 115 pounds. Gently rocking the unit about the Z axis will usually relieve the binding. The hoist operator shall be able to view the scale at all times.	
t		Stop lowering the DEA/DPA/Support Structure Assembly when the flexure feet are 4.00 inches above the SIM and install the Survival Heater Cable per Ball Aerospace Systems Division (BASD) procedure. After attaching the cable, continue to lower the DEA/DPA/Support Structure Assembly.	
u		Lubricate the flexure mounting screws, NAS1351N4H20, with Bray 601 diluted 10:1 with Freon.	
v		Insert screw, NAS1351N4H20 (1/4-28UNFx1.250L) and washer NAS620C416 (1/4 ID) into each flexure screw hole. Engage each screw enough to steady the assembly. Do not torque.	
w		Once the jacking screws have contacted the table, lower the indicated scale reading by 20 pounds to allow the assembly to be positioned and centered over the antirotation pins. Use the fiber light and inspection mirrors, if necessary, to help illuminate the anti-rotation pins on the SIM and position the assembly.	
x		Gauge the flexures as necessary to keep the flexure fleet coplanar with the SIM	
y		Lower the DEA/DPA/Support Structure Assembly jacking screws each by 1/2 turn. Note the reading of the scale and lower the hoist tension to re-establish the reading in step w. using the back stay adjuster	
z		Continue to lower the assembly on the jacking screws by 1/2 turn, adjusting the weight and gauge the flexure feet until the anti-rotation pins are just engaged.	
aa		Snug the 1/4-28 hardware on the flexure feet.	

Step	Team	Action	QA Sign Off
ab		Continue lowering the assembly on the jacking screws by 1/4 turn on all the jacking screws, adjusting the scale reading and gauge the flexure feet to keep the DEA/DPA/ Support Structure Assembly level.	
ac		Snug the 1/4-28UNF hardware on the flexure feet after each lowering of the jackscrews.	
ad		Repeat steps aa and ab until the assembly is fully seated on the SIM.	
ae		Lower the scale to zero and remove the cables from the lifting fixture and remove the lifting fixture.	
af		Torque the flexure screws to 95 in-lbs. plus running torque.	
ag		Engage and record running torque of the fourteen (14) captive screws that connect the Upper and Lower +Z Panels. Torque to 30 in. lbs. above the running torque.	
ah		Install the Cable Brackets and ground wire. Install screws and record the running torque. Torque the fasteners to 10 in. lbs. above the running torque.	
ai		<u>Observing all ESD protection requirements</u> , install both Connectors of the Heater Control Cable (W6P3 and W6P2) and the Ground Lug. Torque the Jack Screws to 32 in. oz. and spot bond. Torque the Ground Lug Screw to 20 in. lbs. Spot bond all of the Connector Hardware for final assembly on the SIM.	
aj		<u>Observing all ESD protection requirements</u> , remove the shorting plug on the Detector Assembly for each of the CCD Cable Assemblies (W7 through W16), one at a time, and mate the corresponding cable from the DEA in turn. Note: the W7 through W16 connectors are extremely fragile and the pins can be easily damaged. Use care to turn each Jack Screw in small increments so as to walk the Shorting Plug off and the Connector on. Torque the Jack Screws to 32 in. oz. Record in connector Mate-Demate Log. Note: Remove shorting connector ground after all detector connectors have been mated.	
ak		Install -X Detector Assembly MLI.	
al		Reinstall -X panel and torque hardware to 30 in-lbs. plus running torque.	
am		Install the PSMC Interface Cables (W1, W2) onto the DEA and DPA. Note the positive lock and confirm the "Blue Dot" in the view port. Record in the Mate-Demate Log.	

Step	Team	Action	QA Sign Off
an		Install the RCTU Interface Cables onto the DPA per BASD procedure.	
ao		Install the ISIM Ground Straps onto the DPA per BASD procedure.	