

LV POWER/COMMS HOUSING ASSEMBLY PROCEDURE– MARS

DRAFT

PROGRAM	ASSEMBLY NAME AND NUMBER	REFERENCE
MARS	MARS LV POWER/COMMS HOUSING ASSEMBLY 110410	
SERIAL #/LOT #	NEXT HIGHER ASSEMBLY	REVISION
	NODE MODULE ASSEMBLY 110505	A

Operation #	Operation Description	Initial / Date
100	CHASSIS INSTALLATION SETUP	
101	Prepare the HOUSING, LV POWER/COMMS (110404) rolling, work table complete with the housing support cradle.	
102	Lift the housing onto the table and into position in the support cradle.	
103	Insure that the DIVIDER BULKHEAD, LV POWER/COMMS (110512) has been properly installed in the housing and that all wires and stiffeners have the maximum helix angle within the housing. If the divider bulkhead has not been previously installed, refer to the drawing LV POWER/COMMS HOUSING – DIVIDER BULKHEAD SUBASSEMBLY (110563) for the components required and their orientation. Utilize the specially developed alignment bars and threaded rods to install the bulkhead in its proper alignment.	
104	Inspect the housing sealing surfaces for nicks, cuts, and scratches. Repair or replace as necessary to insure an integral seal.	
105	Prepare the Comms chassis rolling, work table with the end cap support stand and the temporary chassis support cradle.	
106	Lift the END CAP, COMMS HOUSING (110405) into position against its support stand and bolt it into place. Assure that the elevation of the end cap is approximately equal to that of the HOUSING, LV POWER/COMMS (110404). Final elevation adjustments to allow the end cap to be assembled with the housing will be made by adjusting the elevation of the housing.	
107	Clean and prepare the end cap for assembly. Clean, inspect and install large o-rings and backup rings as required. Prepare connectors, penetrators and plugs for installation into end cap. Clean, inspect and replace o-rings as required. Torque fasteners per MARS LV POWER/COMMS HOUSING ASSEMBLY (110410). Wrap the o-ring and sealing surface area of end cap with electrical tape to protect it from damage during later assembly tasks.	
108	Lift the completed COMMS ELECTRONICS ASSEMBLY (110556) onto its support cradle. Move the Comms chassis into position in front of the end cap.	
109	Mount the COMMS ELECTRONICS ASSEMBLY (110556) onto the END CAP, LV/COMMS HOUSING (110406) using the fasteners called out on Drawing Number 110410.	
110	Remove the chassis support cradle from underneath the Comms chassis to allow later assembly into the housing.	

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111	Prepare the LV Power chassis rolling, work table with the end cap support stand and the temporary chassis support cradle.	
112	Lift the END CAP, COMMS HOUSING (110405) into position against its support stand and bolt it into place. Assure that the elevation of the end cap is equal to that of the END CAP, LV/COMMS HOUSING (110406). Final elevation adjustments to allow the end cap to be assembled with the housing will be made by adjusting the elevation of the housing.	
113	Clean and prepare the end cap for assembly. Clean, inspect and install large o-rings and backup rings as required. Prepare connectors, penetrators and plugs for installation into end cap. Clean, inspect and replace o-rings as required. Torque fasteners per Drawing Number 110410. Wrap the o-ring and sealing surface area of end cap with electrical tape to protect it from damage during later assembly tasks.	
114	Lift the completed LV POWER ELECTRONICS ASSEMBLY (110555) onto its support cradle. Move the chassis into position in front of the end cap.	
115	Mount the LV POWER ELECTRONICS ASSEMBLY (110555) onto the END CAP, COMMS HOUSING (110405) using the fasteners and brackets called out on Drawing Number 110410.	
116	Remove the chassis support cradle from underneath the LV Power chassis to allow later assembly into the housing.	
200	COMMS CHASSIS INSTALLATION	
201	Adjust the height of the housing support table to align its elevation with that of LV Power and the Comms end cap/chassis assemblies. The elevation of the housing is adjusted using the four jacking screws on the work table.	
202	Align the housing with Comms chassis. If necessary, clock the housing such that the tapped holes line up with the thru holes on the end cap.	
203	Make all connections from the divider bulkhead wiring harness to the chassis per the wiring list contained on LV POWER/COMMS HOUSING – DIVIDER BULKHEAD SUBASSEMBLY (110563). Assure that all connections are secure and that wiring is routed without binding.	
204	Remove temporary heat sink brackets from the chassis before mounting heat sink to end cap as shown in Drawing Number 110410. Assure that the thermal pad has been installed under the heat sink.	

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205	Adjust lift table as required while installing the Comms chassis. Watch for component interference. Lightly lubricate o-rings with castor oil and install the penetrator end cap into the housing. Torque fasteners per Drawing Number 110410.	
206	Unbolt the end cap from the work table support stand and move the work table aside.	
300	COMMS SIDE HELIUM LEAK TEST	
301	Helium leak test assembly per MP105382. Record He leak reading _____	
302	Backfill the Comms side with dry nitrogen until it reaches atmospheric pressure.	
400	LV POWER CHASSIS INSTALLATION	
401	Align the housing with LV Power chassis. If necessary, clock the housing such that the tapped holes line up with the thru holes on the end cap.	
402	Make all connections from the divider bulkhead wiring harness to the chassis. Assure that all connections are secure and that wiring is routed without binding.	
403	Adjust lift table as required while installing the LV Power chassis. Watch for component interference. Lightly lubricate o-rings with castor oil and install the penetrator end cap into the housing. Torque the end cap fasteners per 110410.	
404	Unbolt the end cap from the work table support stand and move the work table aside.	
500	LV POWER SIDE HELIUM LEAK TEST	
501	Helium leak test assembly per MP105382. Record He leak reading _____	
502	Backfill the LV Power side with dry nitrogen until it reaches atmospheric pressure.	
600	LV POWER SIDE FLUORINERT (FC-77) FILL PREPARATIONS	
601	If not previously performed, remove all helium leak check equipment connections to the LV Power side of the housing.	

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Operation #	Operation Description	Initial / Date
602	Record the weight of the dry LV Power/Comms Housing Assembly: _____ This may be performed anytime prior to filling with FC-77. All hardware not part of this assembly should be removed for an accurate measurement.	
700	LV POWER SIDE FLUORINERT (FC-77) FILL AND SEAL	
701	Remove both fill plugs from the LV Power side of the housing.	
702	Rotate the housing assembly so that one of the fill ports (Port B) is at its highest elevation. Verify that the housing is level lengthwise.	
703	Install one of the fill plugs onto the shaft of the ADAPTER, FC-77 FILL SYSTEM (110549) and install the complete assembly on the lower port of the housing.	
704	Assemble a FC-77 filling arrangement consisting of a valve, two short lengths of clear tubing, and a hand pump. The valve should have ¾ inch NPT threads for connection to the adapter body.	
705	Place the FC-77 container at an elevation approximately equal to that of the housing top fill port.	
706	Connect the valve to the adapter and tubing between the valve and the hand pump outlet. Run the tubing from the inlet of the hand pump into the FC-77 container.	
707	Operate the hand pump to transfer FC-77 to fill the housing. Monitor the outlet line and the reservoir to verify the fill process is progressing as planned.	
708	Stop the fill process when FC-77 begins to flow from the top fill port and sufficient time has elapsed for any trapped air to exit the housing. Close the valve at the lower fill port.	
709	Install the upper fill plug. Install the lower fill plug by connecting a wrench to the adapter shaft and threading the plug into the end cap.	
710	Disconnect the fill plumbing and hand pump from the adapter. Drain any excess FC-77 from the adapter back into the container.	
711	Record the weight of the filled LV Power/Comms Housing Assembly: _____ All hardware not part of this assembly (i.e. fill adapters, external plumbing) should be removed for an accurate measurement. Weight of FC-77 in LV Power/Comms Housing = Dry weight – Filled weight = _____	

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Operation #	Operation Description	Initial / Date
900	LV POWER SIDE DISASSEMBLY and RECOVERY OF FC-77	
901	Lift housing assembly onto lift table outfitted with UHMW saddles. Orient such that one of the fill ports on the LV Power end cap is at 6 o'clock.	
902	Install fill adapters and external plumbing used for the fill procedure, above. Drain, filter and recover FC-77.	
903	Move LV Power work table into position so that its end cap support stand is adjacent to the LV Power end cap.	
904	Remove the bolts securing the end cap to the housing.	
905	Orient the housing so that the end cap threaded holes are in alignment with the support stand. Bolt the end cap onto the support stand.	
906	Slide the end cap out of housing until o-rings have cleared. Continue moving housing away until it is clear of the electronics chassis. Support mid-span as required.	
907	Install the support cradle between the chassis and the work table.	
1000	COMMS SIDE DISASSEMBLY	
1001	Move Comms work table into position so that its end cap support stand is adjacent to the Comms end cap.	
1002	Remove the bolts securing the end cap to the housing.	
1003	Orient the housing so that the end cap threaded holes are in alignment with the support stand. Bolt the end cap onto the support stand.	
1004	Slide the end cap out of housing until o-rings have cleared. Continue moving housing away until it is clear of the electronics chassis. Support mid-span as required.	
1005	Install the support cradle between the chassis and the work table.	