MATeF Assembly Manual

Checklist

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Mission	Date

Integration Engineer(s)	Supervisor(s)

Table of Contents

1 Bill of Material

Qty	Part
2	Small separator (D108)
1	Large separator (D148)
10	M3 Screws (11mm)
2	37mm spacer (M-FM)
2	15mm spacer (FM-FM)
1	15mm spacer (M-FM)
1	20mm spacer (M-FM)
1	Assembled UPRA-MATeF Flight Computer
1	Experimental APRS Module
1	Backup GPS Tracker
1	Battery Holder
4	AA Battery
1	External Temperature Sensor
1	GPS Antenna
1	TOP Insulation Shell
1	Bottom Insulation Shell (w/ antenna and RBF pins)
2	RBF pin
1	APRS Antenna
1	SMA Coaxial extender cable
1	Radar Reflector
1	APRS Data Cable
1	APRS Power Cable
10cm	Shrink Tube
1roll	Kapton Tape
1roll	Kite Line
1roll	Duct Tape
8	Zip-tie
2	Information Plaque
1	Mission Patch

2 Internal Frame

2.1	Attach 2 zip-ties to D108 separator DO NOT CLOSE ZIP-TIES!	
2.2	Attach D108 separator to bottom side of UPRA-MATeF flight computer using M3 screws ZIP-TIES Facing down	
2.3	Attach APRS Data Cable to UPRA-MATeF flight computer	
2.4	Add 2 15mm (FM-FM) spacers to hole #4 and #5 on D148 separator using M3 screws	
2.5	Attach D148 separator to top side of UPRA-MATeF flight computer • Use 37mm spacer (M-FM) on hole #1 and #2 • Use 15mm spacer (M-FM) on hole #3	
2.6	Attach Experimental APRS module to D148 separator (15mm spacers) using M3 screws and 20mm spacer (M-FM)	
2.7	Connect APRS Data Cable to Experimental APRS module GPS port	
2.8	Connect APRS Power cable to Experimental APRS PWR screw terminal • RED: +5V5 • BLK: GND	
2.9	Connect APRS Power Cable to UPRA-MATeF flight computer (EPS)	
2.10	Attach 2 zip-ties to D108 separator DO NOT CLOSE ZIP-TIES!	
2.11	Attach D108 separator to top side of payload compartment using M3 screws ZIP-TIES Facing up	
2.12	Lead kite line (50cm) through all separators in a loop	

3 Battery and Backup GPS

3.1	Add AA batteries to battery holder	
3.2	Secure batteries with duct tape	
3.3	Attach battery holder to bottom D108 separator by zip-ties	
3.4	Fasten zip-ties	
3.5	Secure Backup GPS battery cover with duct tape	
3.6	Attach Backup GPS to top D108 separator by zip-ties	
3.7	Fasten zip-ties	

4 Insulation capsule

BOTTOM Insulation Shell

4.1	Insert RBF pins to circuit breakers	
4.2	Connect UHF antenna cable (UHF ANT) to UPRA-MATeF flight computer	
4.3	Connect battery cable to BAT-RBF circuit breaker (BAT IN)	
4.4	Connect BAT-RBF circuit breaker (EPS-IN) to UPRA-MATeF flight computer	
4.5	Connect APRS-RBF circuit breaker to APRS Power Cable (APRS-RBF)	
4.6	Secure cable connectors with shrink tubes	
4.7	Arrange cables using the cable holders on separators	
4.8	Place assembled internal frame to insulation shell USE MARKERS ON INSULATION	

TOP Insulation Shell

4.9	Connect external temperature sensor to UPRA-MATeF flight computer	
4.10	Fix the cable with shrink tube on connector	
4.11	Lead GPS antenna cable through TOP insulation shell opening	
4.12	Lead SMA Coaxial extender cable through TOP insulation shell opening	
4.13	Lead kite line through TOP insulation shell opening	
4.14	Connect GPS antenna cable to main GPS pigtail	
4.15	Connect SMA Coaxial extender cable to Experimental APRS (APRS ANT)	
4.16	Lead External temperature sensor through sensor boom	
4.17	Place TOP insulation shell on BOTTOM shell	
4.18	Fasten GPS antenna and SMA Coaxial extender cable to the kite line with zip-tie	

5 Sealing

5.1	Use duct tape to seal the connection between insulation shells	
5.2	Use duct tape diagonally to secure the insulation shells	
5.3	Attach information plaques to insulation	
5.4	Attach mission patch to insulation	

6 Radar reflector

6.1	Attach radar reflector to kite line	