

# Mission Assurance

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# Introduction

**Reliability**

**System Safety**

**Contamination Control**

**EEE Parts**

**Materials**

**Quality Assurance**

**MIT/CSR & MAM: 40 Years of Space Flight  
Experience**

# **Fabrication**

## **Assembly Work Order**

**Electrical AWO, Continuation Sheet, and Revision Sheet**

**Mechanical AWO, Continuation Sheet, and Revision Sheet**

**Crimp Connector AWO**

**Solder Connector AWO**

**Configuration Traceability Sheet**

**Assembly Fault Log**

**Conformal Coat Worksheet**

**Polymeric Mix Record**

**Potting Log**

**Mate / De-mate Log**

**AWO Final Check List**

# Workmanship/ Certification

<b>Soldering</b>	<b>NASA-STD-8739.3/NASA-STD-8739.2</b>
<b>Cable, Crimp, Harness</b>	<b>NASA-STD-8739.4</b>
<b>Spot Bond/Conformal</b>	<b>NASA-STD-8739.1</b>
<b>ESD</b>	<b>NASA-STD-8739.7</b>
<b>PCB Design</b>	<b>IPC-2221/IPC-2222</b>
<b>PCB Fabrication</b>	<b>IPC-6011/IPC-6012</b>
<b>PCB Coupons</b>	<b>Independent Analysis</b>

# **MIT/CSR Standard Procedures**

**Build for Space Flight**

**Processes and Procedures are documented**

**Bonded Stockroom**

**Failure process per MIT/CSR procedure 99-02004**

**Class 10K Assembly; Class 1K Laminar Flow**

**Temperature and Humidity are Controlled**

# Recent NASA Space Programs

XTE/Rossi \*

ACIS/AXAF/Chandra

ASTRO-E 2 \*

SPIDR \*

VOILA

Mars LaserCom (MLCD) \*

\* GSFC Programs

## Questions

GSFC Contact for EEE parts and QA ?

Variance from the PIP to the PAIP and MAR

## Assembly Work Order

Project:

Page: of:

Assembly Name:	Drawing Number:	Build To Rev.	Assembly Serial Number:
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Special Instructions:

Authorizing Engineer:

Date:

Build Data Package Approval:	Document Control	R&QA:
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Build History/Changes Incorporated:

Step No.	Type	Description	Performed By:	Date

Final Acceptance:

Engineering:	Date	R&QA:	Date:
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## Mechanical Work Order

Work Order MIT		Originator & Date		Approval & Dates		Copy No.	
Part No:	Rev.	Part Description:	Qty/Pld:	Req'd by:	Engineer		
Description of Work (including Quantity):							
Operations		Location		Signature		Date	
Remarks:							

Routing	<u>Outside</u>	Close Out
Quotes Requested	_____ (Date)	W.O. Closed _____ (Date)
Quotes Received	_____ (Date)	Comments: _____
Successful Bidder	_____ (Date)	_____
P.O. Let	_____ (Date)	_____
Work Received	_____ (Date)	_____

**Solder Connector  
Assembly Work Order**



Project:

Page: of:

Assembly Name:	Drawing Number:	Build To Rev.	Assembly Serial Number:
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Build History/Changes Incorporated:

Step No.	Type	Description	Perf By:	Date
1		SOLDER WIRES IN CONNECTOR # PER SCHEMATIC:		
		-BLOW OUT SOLDER CUPS		
		-INSPECT SOLDER CUPS INSURE FREE OF DEBRIS AND THAT GOLD PLATING IS FREE OF FLAWS		
		-TIN CUPS AND REMOVE SOLDER (3X)		
		-AVOID SPILLOVER		
		-INSTALL WIRES PER SCHEMATIC		
		-CUT AND STRIP WIRES		
		-INSPECT STRIPS		
		-TIN WIRES		
		-INSPECT TINNING		
		-SOLDER WIRES IN CUPS		
		-CLEAN EACH SOLDER CONNECTION AFTER SOLDERING, USE ISOPROPANOL.		
		-AFTER ALL CONNECTIONS MADE CLEAN CONNECTIONS USING XYLENE AND RINSE USING ISOPRPOANOL.		
		-INSPECT		
		M.I.T. QA		
		ONR		
		-SLEEVE CONNECTIONS USING SHRINK TUBING		

**Crimp Connector  
Assembly Work Order**

Project:

Page: of:

Assembly Name:	Drawing Number:	Build To Rev.	Assembly Serial Number:
J# or P#	Connector	Contact	
Prepared By:	R&QA	Project	

Step No.	Type	Description	Perf By:	Date
1	A	PREPARE WIRES AND CRIMP CONTACTS PER NASA SPEC		
2	A	PREPARE WIRES FOR CRIMPING		
		-STRIP WIRES WITH MECHANICAL STRIPPER LABELLED PER WIRE GAUGE WIRE STRIPPER SET #		
		-CLEAN WIRES USING WIPES AND ISOPROPANOL		
3	A	PREPARE CONTACTS FOR CRIMPING		
		-BLOW OUT CONTACT BARREL USING COMPRESSED AIR		
		-VISUALLY INSPECT CRIMP CONTACTS INSURING NO DEBRIS IN CONTACT BARREL		
4	A	CRIMP TOOL QUALIFICATION		
		-CRIMP TOOLS USED		
		-TOOL: M22520/2-01 RECALIBRATION DATE		
		- TURRET: M22520/2-		
5	A/I	TEST		
		-GO/NO GO TEST WITH TOOL M22520/3-01		
		-VERIFY PULL TEST PERFORMED PER "TENSILE TEST DAILY LOG"		
6	A/I	CRIMP PINS/SOCKETS FOR CONNECTOR J# or P# PER SCHEMATIC DRAWING 42- REV		
		-CONNECTOR TYPE PER PARTS LIST 42-		
		-CONTACT TYPE		
		-USE TOOL SPECIFIED IN STEP 4		
		-CRIMP TOOL SETTING WIRE TYPE #1		
		-CRIMP TOOL SETTING WIRE TYPE #2		
		-CRIMP TOOL SETTING WIRE TYPE #3		
		-VISUAL INSPECTION M.I.T. Q.A.		
7	A	INSERT CONTACTS IN CONNECTOR PER ATTACHED WIRING LIST		
		-LABEL CONTACT PIN #'S ON WIRES		
8	A/I	VERFIY PIN RETENTION BU/CSP. Q.A.		
9	A	CLEAN, BAG, AND TAG HARNESS; INSTALL CONN COVERS		
10	A	STORE IN FLIGHT ASSEMBLY AREA FOR NEXT LEVEL OF ASS'Y		

### NONCONFORMING MATERIAL REPORT

<b>MIT</b>		<b>N M R</b>	
<b>Center for Space Research</b>		<b>SERIAL NUMBER</b>	
<b>PART DESCRIPTION</b>	<b>PART NO. REV.</b>	<b>ORIGINATED BY</b>	<b>DATE</b>

SERIAL/LOT NO		OPERATION NO	PROJECT NAME	MIT/CSR REF. NO.			
SUPPLIER NAME / LOCATION				QTY REC'D	SAMPLE SIZE	XXXXX	
P.O. NUMBER		REQUISITIONER	LOT DISPOSITION	QTY ACCEPT	QTY REJECT		
ITEM	QTY	DISCREPANCY (BRIEF BUT SPECIFIC; INCLUDE TOL. OR SPEC. LIMIT)		DISPOSITION			
<b>CAUSE/DIAGNOSIS &amp; CORRECTIVE ACTION (ITEMIZE):</b>							
QTY	REWORK/REPAIR INSTRUCTION				OPER	DATE	INSP

PRELIMINARY REVIEW/ACTION (SIGNATURE & DATE):

MRB APPROVAL		MATERIAL REVIEW DISPOSITION					
ENGINEERING	DATE	RTV	ITEM	RWK TO SPEC	ITEM	SCRAP	ITEM
QUALITY ASSURANCE	DATE	USE AS IS	ITEM	REPAIR	ITEM	OTHER	ITEM
GOVERNMENT REPRESENTATIVE	DATE	NO REJ.	ITEM	*INVALID OR NOT RELEVANT TO ITEM			

Q A CLOSE OUT AND DATE \_\_\_\_\_