1. Approving Civil Aviation Authority/Country:	2.	3. Form Tracking Number:
FAA/United States	**AUTHORIZED RELEASE CERTIFICATE** FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG	**RMA88070**

4. Organization Name and Address:	5. Work Order/Contract/Invoice Number:
FAA APPROVED REPAIR STATION NO. AH4R050M **ASTRONICS ADVANCED ELECTRONIC SYSTEMS, 12950 WILLOWS RD. N.E.** **KIRKLAND, WA 98034**	**S178247**

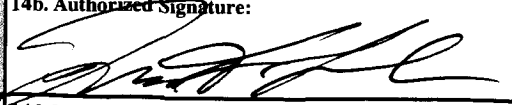
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	IN-SEAT POWER SUPPLY,AC,2 OUTPUT,CIRCULAR	1191-38	1	112232	REPAIRED

12. Remarks:

The work specified has been accomplished in accordance with CMM 25-21-11 Rev 3, 11 Oct 2016.
Hardware is Mod: A

Certifies that the work specified in block 11/12 was carried out in accordance with EASA Part 145 and in respect to that work the component is considered ready for release to service under EASA Part-145 Approval Number: EASA.145.4787.
The aircraft component identified above was tested and inspected in accordance with current regulations of the Federal Aviation Administration and is approved for return to service. Pertinent details of the work performed are on file at this repair station under work order in block 5.

13a. Certifies the items identified above were manufactured in conformity to:	14a.
☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.	☑ 14 CFR 43.9 Return to Service ☑ Other regulation specified in Block 12 Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

13b. Authorized Signature:	13c. Approval/Authorization No.:	14b. Authorized Signature:	14c. Approval/Certificate No.:
			AH4R050M
13d. Name (Typed or Printed):	**13e. Date (dd/mmm/yyyy):**	**14d. Name (Typed or Printed):**	**14e. Date (dd/mmm/yyyy):**
		RUSSELL FARNSWORTH	28 FEB 2018

User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the county specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1.

Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

ASTRONICS
ADVANCED ELECTRONIC SYSTEMS

CRR Maintenance Report
RMA Number: RMA88070

Customer:	WOW AIR						
Reference Number:	14010	**Aircraft Number:**	NA	**Mod In:**	A	**Receipt Date:**	11/28/2017
Part Number:	1191-38	**AES Project:**	R01258.1191	**Mod Out:**	A	**Mfg Date:**	2/8/2014
Serial Number:	112232	**Sales Order:**	S178247			**Last Ship Date:**	2/13/2014

Reason For Return: NO LIGHT UP AT EL OUTLET

AES Comments: Electrical: Inop, A1 C41 vented; A1 Assy is Non-Repairable.
Miscellaneous: Replace A1 Assy; Scrap to Engineering for investigation.

Assy	Ref Des	Mfg Part Number	Part Description	Rework Date	Operator	Inspector	Description
CHAS	1	1191111-11	CIRCUIT CARD ASSEMBLY,	2/27/2018	NTHAI	TGASPA	A1 Assy Non-Repairable, R&R w/ New
UNIT	UNIT	1191-38	IN-SEAT POWER SUPPLY,AC,2	2/28/2018	A76	TGASPA	Assemble LRU

Primary Defect: A1 C41 **Cust Resp:** Yes **NFF Elec:** No **NFF Cosm:** Yes **Acceptance Test:** ATE Ann McVey(AMCVEY) 2/28/2018

The aircraft component identified above was tested/repaired/modified and inspected in accordance with current regulations of the Federal Aviation Agency and is approved for return to service. Pertinent details of the work performed are on file at this repair station under the above RMA number.

Final Inspection: Russell Farnsworth 02/28/2018
for Astronics AES
FAA Approved Repair Station AH4R050M

ATP ACCEPTANCE TEST REPORT

ATP Core SW: SM1307-004 Rev A

ATP Test Script: SM1191-006-038 Rev C, 1191-38 ATP Mod_A Ver_2.2 Rev_C.xml

ATP Test Lib: SM1191-006 Rev Y

Astronics P/N: 1191-38 AAES 70 FT S/N: 112232

Test Personnel: _____

Quality Assurance: _____ I-8 AAES

Computer Name: W7T1980

Test Result: **PASS**

Run Time: 02/28/18 11:28:44

Date: FEB 28 2018

Date: _____

User: apctest

Step	Description	Value	Result
4.1.9	Verify AC source settings: 115VAC 400Hz	114.58|399.97	PASS
5.1.3a	400Hz Power LEDs are ON: 0.0V to 1.0V	0.96|0.88|0.84	PASS
5.1.3b	IN-USE LEDs are ON: -1.0V to 2.5V	1.59|1.47	PASS
5.1.4	RS-485 Address Data = 0xB	0xB	PASS
5.1.6	Software Version Number = R02.20	R02.20	PASS
5.1.7	Program UUT Serial Number	'112232'	PASS
5.2.8	LED_V (In-Use A) is OFF: 4.5VDC to 5.5VDC	4.6752	PASS
5.3.1	Internal Temperature (RS-485 readback): 18C to 30C	24.0000	PASS
5.4.2	RS-485 Address Data = 0xB	0xB	PASS
5.4.5	RS-485 Address 2 Data = 0x13	0x13	PASS
5.4.8	RS-485 Address 3 Data = 0x23	0x23	PASS
5.4.11	RS-485 Address 4 Data = 0x43	0x43	PASS
5.4.17	RS-485 Address 1 Data = 0xB	0xB	PASS
5.5.1a.1-AMCU	AMCU to RESTRICTED; Turn Off In-Use LEDs		PASS
5.5.1a.2-AMCU	PWR IN Data Line: 9.5VDC to 14.5VDC	12.3003	PASS
5.5.1b.1-AMCU	Pwr Avail LEDs are OFF: -1.0V to 1.0V	0.0|0.0	PASS
5.5.1b.2-AMCU	In-Use LEDs are OFF: 2.5V to 5.0V	3.68|3.91	PASS
5.5.1c-AMCU	RS-485 DISABLED Indicator: F0 78 01	F0 78 1	PASS
5.5.2a-AMCU	AMCU to ENABLED; Pwr Avail LEDs are GREEN: 1.0V to 2.5V	2.05|2.04	PASS
5.5.2b-AMCU	RS-485 ENABLED Indicator: F0 20 02	F0 20 2	PASS
5.5.3a-AMCU	In-Use LEDs are ON: -1.0V to 2.5V	1.59|1.46	PASS
5.5.3b-AMCU	RS-485 ENABLED Indicator: F6 20 02	F6 20 2	PASS
5.5.4a-AMCU	In-Use LEDs are ON: -1.0V to 2.5V	1.59|1.46	PASS
5.5.5a-AMCU	In-Use LEDs are OFF: 2.5V to 5.0V	3.86|3.88	PASS
5.5.5b-AMCU	Pwr Avail LEDs are OFF: -1.0V to 1.0V	0.0|0.0	PASS
5.5.6a-AMCU	In-Use LEDs are OFF: 2.5V to 5.0V	3.68|3.94	PASS
5.5.6b-AMCU	Pwr Avail LEDs are OFF: -1.0V to 1.0V	0.0|0.0	PASS
5.6.1	Individual Mode; Turn Off In-Use LEDs		PASS
5.6.5	In-Use LED 2 is ON (-1.0V to 2.5V)/LED 3 is OFF	1.59|3.90	PASS
5.6.7	In-Use LED 3 is ON (-1.0V to 2.5V)/LED 2 is OFF	3.87|1.46	PASS
5.7.1	Change Load Mangement Limits to 250VA/225VA/200VA	250|225|200	PASS
5.8.2	AC #2 No Load Voltage: 111VAC to 121VAC	114.6039	PASS
5.8.4a	AC #2 @150W Full Load Voltage: 104.5VAC to 115.5VAC	107.0542	PASS
5.8.4b	AC #2 Frequency: 57Hz to 63Hz	59.2417	PASS
5.8.4c	AC #2 @150W Power (RS-485) Full Load: 135VA to 165VA	141VA	PASS
5.9.2	AC #3 No Load Voltage: 111VAC to 121VAC	114.3588	PASS
5.9.3a	AC #3 @150W Full Load Voltage: 104.5VAC to 115.5VAC	107.1890	PASS
5.9.3b	AC #3 Frequency: 57Hz to 63Hz	59.3120	PASS
5.9.3c	AC #3 @150W Power (RS-485) Full Load: 135VA to 165VA	140VA	PASS
5.11.4a.1	AC #2 @150W: Pwr Avail LED GREEN Full Load: 1.0V to 2.5V	2.0500	PASS
5.11.4a.2	AC #2 @150W: AC Out LED ON Full Load: -1.0V to 1.5V	0.9200	PASS
5.11.4c.1	AC #2 200W Overload: Pwr Avail LED OFF: -1.0V to 1.0V	0.0000	PASS
5.11.4c.2	AC #2 200W Overload: AC Out LED OFF: 2.5V to 5.0V	4.0200	PASS
5.12.4a.1	AC #3 @150W: Pwr Avail LED GREEN Full Load: 1.0V to 2.5V	2.0400	PASS
5.12.4a.2	AC #3 @150W: AC Out LED ON Full Load: -1.0V to 1.5V	0.9200	PASS
5.12.4c.1	AC #3 200W Overload: Pwr Avail LED OFF: -1.0V to 1.0V	0.0000	PASS
5.12.4c.2	AC #3 200W Overload: AC Out LED OFF: 2.5V to 5.0V	3.9500	PASS

5.12.9a	Cycle input power; Load Mgmnt Limits to 250VA/225VA/200VA	250|225|200	PASS
5.13.4	USB B No Load Voltage: 4.5VDC to 5.5VDC	5.0942	PASS
5.13.5	USB C No Load Voltage: 4.5VDC to 5.5VDC	5.1167	PASS
5.13.7b	USB B Full Load Voltage 4.5VDC to 5.5VDC	4.9509	PASS
5.13.7c	USB C Full Load Voltage 4.5VDC to 5.5VDC	4.9705	PASS
5.14.2	400Hz Input Current: 1.8A to 2.39A	2.1866	PASS
5.14.3	400Hz Power Factor greater than 0.99	0.9996	PASS
5.14.8	AC Source to 115VAC, 800Hz	114.14|799.94	PASS
5.14.10	800Hz Input Current with Full Load: 1.8A to 2.4A	2.1988	PASS
5.14.10a	800Hz Power Factor greater than 0.98	0.9979	PASS
5.14.5	AC Source to 115VAC, 400Hz		PASS
5.14.6	400Hz No Load Input Power: 3.0VA to 14.0VA	11.9500	PASS
5.15.6a	AC #2 @75W: Pwr Avail LED GREEN Nom Load: 1.0V to 2.5V	2.0500	PASS
5.15.6a.1	AC #2 @75W: AC Out LED ON Nom Load: -1.0V to 1.5V	0.8900	PASS
5.15.6b	AC #2 Shorted Load: Pwr Avail LED OFF: -1.0V to 1.0V	0.0000	PASS
5.15.6c	AC #2 Shorted Load: AC Output: 111VAC to 121VAC	114.5928	PASS
5.15.9a	AC #3 @75W: Pwr Avail LED GREEN Nom Load: 1.0V to 2.5V	2.0400	PASS
5.15.9a.1	AC #3 @75W: AC Out LED ON Nom Load: -1.0V to 1.5V	0.8900	PASS
5.15.9b	AC #3 Shorted Load: Pwr Avail LED OFF: -1.0V to 1.0V	0.0000	PASS
5.15.9c	AC #3 Shorted Load: AC Output: 111VAC to 121VAC	114.3893	PASS
5.15.13b	USB B Short Test: USB Voltage: 4.5VDC to 5.5VDC.	5.0965	PASS
5.15.13c	USB C Short Test: USB Voltage: 4.5VDC to 5.5VDC.	5.1191	PASS
5.16.14a	GFI #2 Cycle 400Hz Input Power and Check BIT	240.0000	PASS
5.16.15a	GFI #2 Trip Time: 1ms to 30ms	11.1600	PASS
5.16.15b.1	GFI #2 Pwr Avail LEDs are RED: -5.0V to -1.0V	-1.8|-1.8	PASS
5.16.15b.2	GFI #2 AC Out LEDs are OFF: 2.5V to 5.0V	4.04|3.95	PASS
5.16.15c	GFI #2 In-Use LEDs are blinking: less than 150ms|1200ms	104.0|1000.0	PASS
5.16.15d	GFI #2 RS-485 GFI indicator is ON	241.0000	PASS
5.16.17a	GFI #3 Cycle 400Hz Input Power and Check BIT	240.0000	PASS
5.16.18a	GFI #3 Trip Time: 1ms to 30ms	8.5600	PASS
5.16.18b.1	GFI #3 Pwr Avail LEDs are RED: -5.0V to -1.0V	-1.8|-1.8	PASS
5.16.18b.2	GFI #3 AC Out LEDs are OFF: 2.5V to 5.0V	4.03|3.96	PASS
5.16.18c	GFI #3 In-Use LEDs are blinking: less than 150ms|1200ms	105.0|1000.0	PASS
5.16.18d	GFI #3 RS-485 GFI indicator is ON	241.0000	PASS

Astronics - AES **CAL REVERSE RECALL REPORT** **2/28/2018**

Part Nbr:1191-38 **Part Desc:**IN-SEAT POWER SUPPLY,AC,2 OUTPUT,CIRCULAR **Serial Nbr:**112232
Part Nbr Out: **Part Desc Out:**
MO/SO Nbr:S178247 **Test Date:**2/28/2018 **Part Category:** CRR
Technician: Ann McVey **RMA Nbr:**RMA88070

Control ID	Nomenclature	Status	Cal Exp Date
12509	WT210 Digital Power Meter	Completed	11/9/2018
12514	Multimeter/Switch System	Completed	11/8/2018
12706	AC Programmable Power Supply	Indication Only	
12845	1191 Power and Control Test Fixture	Completed	2/5/2019
72959	1191 AC Load Test Fixture	Completed	2/12/2019
72977	1191 AC Load Test Fixture	Completed	2/12/2019
72998	1191 AC Load Test Fixture	Completed	2/12/2019
73868	1191 In_Use LEDs and Reading Lamps Test Fixture	Completed	2/12/2019
77025	Oscilloscope	Completed	6/1/2018
78030	Differential Probe	Completed	11/14/2018

Total Records = 10