ECLIPSE AVIATION

ALERT

SERVICE BULLETIN

NUMBER: **SB 500-57-003 Rev B**

MODEL: **Eclipse EA500**

SUBJECT: **Wing – Electrical Bonding Rework**

1. Planning Information

A. Effectivity

Aircraft Model EA500, Serial Numbers 000001 and 000003

B. Reason

EAC Quality Assurance discovered improper electrical bonding between the wing structure and several components of the wing fuel or electrical systems.

This electrical bonding deficiency could create a safety of flight issue by decreasing the lightning protection of the wing fuel system components.

C. Description

This Service Bulletin (SB) provides a rework procedure that allows the fuel system and electrical system components to meet the original Type Design electrical bonding criteria with the wing structure, therefore restoring the Type Design lightning protection.

D. Compliance

Eclipse Aviation Corporation considers this to be a mandatory rework that ***must*** be accomplished immediately, with no further operations until this SB is accomplished.

E. Approval

This Service Bulletin is based on engineering data that is FAA-approved, and the modification herein complies with the applicable regulations.

F. Weight and Balance Change

None.

G. Electrical Load Data Change

None.

H. Software Accomplishment Summary

Not Applicable.

I. References

Aircraft Maintenance Manual (AMM) PN 06-117751, latest revision

EAC P 1005 Process Specification – The cleaning of Metallic, Plastic, and Composite Parts

EAC P 1008 Process Specification – Chemical Conversion Coating of Aluminum Alloys Low Electrical Resistance

EAC P1020 Process Specification – Installation of Fasteners

EAC P 1024 Process Specification – Application of Epoxy Primer, Integral Fuel Tank Primer, and Polyurethane Topcoat

EAC P 1026 Process Specification – Electrical Bonding and Grounding

2. Material Information

A. Materials

This SB requires Kit SB500-57-003-1

The following is the Bill of Material for Kit SB500-57-003-1

Part Number	Description	Qty Required
28-105433 latest Rev 28-105434 latest Rev	EAC Drawing Instl, Fuel System – Wing, LH EAC Drawing Instl, Fuel System – Wing, RH	One each
57-105241 latest Rev 57-105246 latest Rev	EAC Drawing Instl Wiring – LH Wing Root EAC Drawing Instl Wiring – RH Wing Root	One each
28-109600 latest Rev	EAC Drawing Fuel System Installation, Wing Fairing, LH – Fuel	one
39-108113 latest Rev	EAC Drawing Production Illustration, Wire Harness Instl – Wing, Power Left	one
39-112249 latest Rev	EAC Drawing Production Illustration, Wire Harness Instl – Fairing – Left	one
39-112073 latest Rev	EAC Drawing Fuel, Wire Harness Instl – LH Wing	one
28-121737-1001 Rev A	EAC Drawing Mod Instl, Bonding Strap, Engine Start Pump. Parts and Hardware.	Per Dwg Bill of Material

B. Tooling

The following special equipment or equivalent is required to accomplish this Service Bulletin.

Nomenclature	Part Number	Use
ExTech Milliohm Meter	Model 380460	Electrical Bond Meter

3. Accomplishment Instructions

A. Consumable Materials

Material	Specification	Product
1. Chemical conversion coating (Electrical Bond)	EAC P1008	ALODINE 1032
2. Sealant	EAC P1010	
3. Primer	EAC P1024	

B. Procedure

B.1 Fuel System – Make Safe for Maintenance per AMM-28-00-00-051-921-001 (Defuel)

B.2 Starting with the Left Hand (LH) Wing, remove Wing to Body fairings and remove panels 511 AB Bay 1 & 511 BB Bay 1.

B.3 Low Level Sensor Port:
B.3.1 Disconnect 39-120496-1001 electrical harness from 62065 sensor.
B.3.2 Remove 62065 sensor from 57-103638-2009 root rib.

B.4 Temperature Sensor Port:
B.4.1 Disconnect 39-120496-1001 electrical harness from 62034 sensor.
B.4.1 Remove 62034 sensor from 57-103638-2009 root rib.

B.5 Gauging Harness Assembly Port:
B.5.1 Disconnect 39-114198-1004 electrical harness from 39-108881-1003 gauging electrical harness
B.5.2 Disconnect 39-108881-1003 electrical harness from 57-103638-2009 root rib.

B.6 Plumbing and Components
B.6.1 ESP Feed Port:

CAUTION NOTE: BACK UP TUBE JAM NUT TO PREVENT TWISTING OF 28-106488-1003 TUBE ASSEMBLY.

B.6.1.1 Remove 28-104071-1004 tube assembly.
B.6.1.2 Disconnect 28-106488-1003 tube assembly from 90-112078-12D flared fitting.

B.6.2 Motive Port:

CAUTION NOTE: BACKUP 62299 FILLER FITTING WHEN REMOVING THE 28-110355 TUBE ASSEMBLY.

B.6.2.1 Disconnect 28-104041-1004 tube assembly from 90-112080D0608 fitting.
B.6.2.2 Disconnect 28-110355-1003 tube assembly from 90-112080D0608 fitting.
B.6.2.3 Remove 90-112080D0608 fitting from 57-103638-2009 root rib.

B.6.3 Motive Overpressure Port:
B.6.3.1 Disconnect 28-110212-1002 tube assembly from 90-112078-6D flared fitting.
B.6.3.2 Remove 90-112078-6D flared fitting from 57-103638-2009 root rib.

B.6.4 Boost Supply Port:
B.6.4.1 Disconnect 28-106498-1003 tube assembly from 90-112092D1012 flared fitting.
B.6.4.1 Disconnect 28-105631-1003 tube assembly from 90-112092D1012 flared fitting.
B.6.4.1 Remove 90-112092D1012 flared fitting from 57-103638-2009 root rib.

B.6.5 Electric Start Pump (ESP):
B.6.5.1 Remove 28-104071-1004 tube assembly from ESP if not already done so.
B.6.5.1 Remove 28-105631-1003 tube assembly from ESP and 28-113968-2002 fuel fitting.
B.6.5.1 Disconnect electrical harness from 62256-3 ESP.
B.6.5.1 Remove 62256-3 ESP from 28-106455-1003 bracket assembly.

B.7 Cleaning for Electrical Bond Preparation (EAC P1005):
B.7.1 Clean 62065 sensor and 57-103638-2009 root rib of cured sealant.
B.7.2 Clean 62034 sensor and 57-103638-2009 root rib of cured sealant.
B.7.3 Clean harness connector and 57-103638-2009 root rib of cured sealant.
B.7.4 Clean 90-112078-12D flared fitting, AS5178D12 nut, and 57-103638-2009 root rib of cured sealant.
B.7.5 Clean 90-112080D0608 fitting and 57-103638-2009 root rib of cured sealant.
B.7.6 Clean 90-112078-6D flared fitting and 57-103638-2009 root rib of cured sealant.
B.7.7 Clean 90-112092D1012 flared fitting and 57-103638-2009 root rib of cured sealant.

B.8 Inspect the following components and areas are clean and ready for Electrical Bond Preparation
B.8.1 62065 sensor and 57-103638-2009 root rib.
B.8.2 62034 sensor and 57-103638-2009 root rib.
B.8.3 Harness connector and 57-103638-2009 root.
B.8.4 90-112078-12D flared fitting, AS5178D12 nut, and 57-103638-2009 root rib.
B.8.5 90-112080D0608 fitting and 57-103638-2009 root rib.
B.8.6 90-112078-6D flared fitting and 57-103638-2009 root rib.
B.8.7 90-112092D1012 flared fitting and 57-103638-2009 root rib.

B.9 Prepare the following areas for Electrical Bonding per EAC P1026

CAUTION MUST BE TAKEN WHEN REMOVING PAINT. DO NOT APPLY EXCESSIVE FORCE WHEN ABRADING SURFACES TO PREVENT DAMAGE TO METAL SURFACE. ABRADE BY HAND.

B.9.1 Low Level Sensor Port: Electrical Bond prep (remove paint) on outer mating surfac of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.2 Temperature Sensor Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.3 Gauging Harness Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.4 ESP Feed Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.5 Motive Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.6 Motive Overpressure Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.7 Boost Supply Port: Electrical Bond prep (remove paint) on outer mating surface of the 57-103638-2009 wing root 1/8" beyond mounting hardware.
B.9.9 **Inspect** all abraded areas above (Para B.9.1 to B.9.8) **to verify** the absence of damage due to the abrasion process.

B.10 Reinstall components as follows:

B.10.1 Reinstall 62065 sensor per 28-105433.
B.10.2 Reinstall 62034 sensor per 28-105433.
B.10.3 Reinstall 39-108881-1003 electrical harness per 39-112073.
B.10.4 Reinstall 90-112078-12D flared fitting, AS5178D12 nut, and 28-106488-1003 tube assembly per 28-105433.
B.10.4 Reinstall 90-112080D0608 fitting per 28-105433.
B.10.6 Reinstall 90-112078-6D flared fitting per 28-105433.
B.10.7 Reinstall 90-112092D1012 flared fitting per 28-105433.
B.10.8 Reinstall 62256-3 ESP per 28-109600 and install Bonding Strap per 28-121737.

B.11 Sealing of reinstalled components (per EAC P1010):

B.11.1 Low Level Sensor Port: Verify internal and external fillet sealing has been accomplished per flag notes 14 and 22 of Drawing 28-105433-1006.
B.11.2 Temperature Sensor Port: Verify internal and external fillet sealing has been accomplished per flag notes 14 and 22 of Drawing 28-105433-1006.
B.11.3 Gauging Harness Port: Verify internal fillet sealing has been accomplished per flag note 11 of Drawing 39-112073-1004.
B.11.4 Motive Port: Verify internal and external fillet sealing has been accomplished per flag notes 14 and 22 of Drawing 28-105433-1006.
B.11.5 Boost Supply Port: Verify internal and external fillet sealing has been accomplished per flag notes 14 and 22 of 28-105433-1006.

B.12 Electrical Bond Verification:

B.12.1 Low Level Sensor Port: Verify electrical bond is less than 10 milli-Ohms between the 62065 sensor and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.2 Temperature Sensor Port: Verify electrical bond is less than 10 milli-Ohms between the 62034 sensor and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.3 Gauging Harness Port: Verify electrical bond is less than 2.5 milli-Ohms between the harness connector and 57-103638-2009 root rib per 39-112073-1004 field note 2. Record value obtained on the SB Compliance Record.
B.12.4 ESP Feed Port: Verify electrical bond is less than 10 milli-Ohms between the 90-112078-12D flared fitting and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.5 Motive Port: Verify electrical bond is less than 10 milli-Ohms between the 90-112080D0608 fitting and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.6 Motive Overpressure Port: Verify electrical bond is less than 10 milli-Ohms between the 90-112078-6D flared fitting and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.7 Boost Supply Port: Verify electrical bond is less than 10 milli-Ohms between the 90-112092D1012 flared fitting and 57-103638-2009 root rib per 28-105433-1006 field note 20. Record value obtained on the SB Compliance Record.
B.12.8 ESP: Verify electrical bond is less than 10 milli-Ohms between the 62256-3 ESP and 57-103638-2009 root rib per 28-109600-1006 note 11. Record value obtained on the SB Compliance Record.
B12.9 Reinstall wing panels 511 AB Bay 1 & 511 BB Bay 1

B.13 Perform Fuel Leak Check per FTP E440-TP-0018.

B.14 Left Wing Task Completion:

B.14.1 Reinstall 39-120496-1001 harness to 62065 and 62034 sensors per 39-108113-1009.
B.14.2 Reinstall 39-114198-1004 harness to 39-108881-1003 gauging electrical harness per 39-112249-1003
B.14.3 Reinstall 28-104071-1004 tube assembly to 90-112078-12D fitting per 28-105433-1006 and 62256-3 ESP per 28-109600-1006.
B.14.4 Reinstall 28-105631-1003 tube assembly to 62256-3 ESP and 28-113968-2002 per 28-109600-1006
B.14.5 Reinstall 28-104041-1004 tube assembly to 90-112080D0608 fitting per 28-105433-1006.
B.14.6 Reinstall 28-110355-1003 tube assembly to 90-112080D0608 fitting per 28-105433-1006.
B.14.7 Reinstall 28-110212-1003 tube assembly to 90-112078-6D fitting per 28-105433-1006.
B.14.8 Reinstall 28-106498-1003 tube assembly to 90-112092D1012 fitting per 28-105433-1006.
B.14.9 Reinstall 28-105631-1003 tube assembly to 90-112092D1012 fitting per 28-105433-1006.
B.14.10 Touch-up all exposed bare metal surfaces on 57-103638-2009 root rib with primer per EAC P1024.
B.14.11 Reinstall wing to body fairings.

B.15 RH Wing Modification:

There is symmetry between the RH Wing and the LH Wing
B.15.1 Remove Wing to Body fairings and remove two lower wing panels for access
B.15.2 Repeat steps B.3 to B.14.11 on the RH Side.

B.16 Return to Service:

B.16.1 Fill the right and left wings with Jet A fuel (per AMM – 12-10-01 – FUEL SERVICING)
B.16.2 Check for leaks around areas where components were removed and reinstalled (Wing Access Panels, Fittings, Fuel Lines, etc.)
B. 16.3 Perform engine run, check for leaks in motive lines and fittings after switch from ESP to Ejector Pumps.
B.16.4 If all other maintenance is complete, return aircraft to service. Refer to AMM – 20-00-02 – RETURN TO SERVICE (AFTER MAINTENANCE).

C. Limitations and Procedures

This Service Bulletin will be accomplished at and by the Eclipse Aviation Service Center.

D. Cost

Parts (if required) and Labor will be supplied at no charge to the aircraft owner by Eclipse Aviation Corporation.

4. Record of Compliance

Upon completion of this Service Bulletin, make an appropriate maintenance-record entry specifying the Service Bulletin number.

5. Notifying Eclipse Aviation

On completing this service bulletin, the operator/maintainer shall complete the attached *Compliance Record* and send it to Eclipse Aviation via regular mail, fax, or e-mail.

Mailing Address: Eclipse Aviation Corporation
ATTN: Customer Care
2503 Clark Carr Loop SE
Albuquerque, NM 87106

Fax: 1-505-241-8802

E-mail: customercare@EclipseAviation.com

SERVICE BULLETIN COMPLIANCE RECORD

SB 500-57-003 REV B: Wing – Electrical Bonding Rework

MODEL _____ AIRPLANE S/N _____ REG. NO. _____ TOTAL TIME _____ (Hours)

OWNER NAME: _____

ADDRESS: _____

_____

TELEPHONE NO. ( ) _____ FAX NO. ( ) _____

COMPLIANCE WITH SB 500-57-003 REV B

Description of Work Performed
(Inspection | Modification | Repair | Option Installation | Defect or Damage Found, if applicable)

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DATE _____

WORK PERFORMED BY _____ (Printed)

_____ (Signature)

COMPANY _____

ADDRESS _____

_____

TELEPHONE _____ FAX _____