NUMBER: SB 500-57-012, Rev A

MODEL: ECLIPSE EA500

SUBJECT: Overbraid Inspection

Mandatory

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1. PLANNING INFORMATION

A. Effectivity

Aircraft Serial Numbers: 000001 to 000239, Post SB 500-57-008 (Revisions A or B).

B. Reason

This Service Bulletin inspects the wire harness between the inboard flap actuator and the external position sensor for overbraid installation.

C. Description

Some aircraft that were upgraded to Tamagawa flap actuators per SB 500-57-008 prior to February 19, 2016 may not have the inboard flap actuator to external position sensor wire harness protected with overbraid. This Service Bulletin inspects for that overbraid and details how to install if it is not installed.

D. Relevant Publications

SB 500-57-008 - Flap Actuator Upgrade

E. Compliance

Eclipse Aerospace Incorporated considers this to be a mandatory inspection that must be performed at the next 300 hr / 24 month inspection.

F. Approval

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

G. Labor Requirements

The following information is for planning purposes only.

(1) Suggested number of personnel: 2

Estimated labor hours to perform:

Overbraid Inspection: 0.5 Hour

Overbraid Installation (if needed): 16 Hours

Total labor hours: Up to 16.5 Hours

The above is an estimate based on properly equipped and experienced personnel complying with this Service Bulletin. Actual labor hours may vary depending on workforce experience, concurrent maintenance, discovery of other discrepancies, etc.

(2) Qualification of personnel:

- A person properly authorized under 14 CFR 43 to perform aircraft maintenance.

H. Weight and Balance Change

Negligible

I. Electrical Load Data Change

None.

J. Software Accomplishment Summary

N/A

K. References

Aircraft Maintenance Manual (AMM), P/N 06-117751, latest revision

Illustrated Parts Catalog (IPC), P/N 06-117752, latest revision

Wiring Repair Manual (WRM), P/N 06-120792, latest revision

L. Publications Affected

None.

2. MATERIAL INFORMATION

A. Materials

None.

B. Consumables

The following consumables are required for this Service Bulletin if the overbraid installation is required.

Material	Specification	Use
Tie Strap	MS3367-( )-0 or equivalent	Secure Wire Harness
Teflon Tape	3M 5180 or any equivalent per MIL I 23594	Wire Protection (Optional)
Sealant	PRC-Desoto PR-2001 or equivalent[1]	Wire Protection
22 Gauge Twisted Triple Wire	M27500-22SD3T23	Wiring Harness Rework
.020 Diameter Lockwire	MS20995C20	Safety Electrical Connector
Overbraid Sleeving	1233/2 (or alternate overbraid sleeving meeting QQ-W-343E or QQ-B-575B specifications)	Wiring Harness Rework
Heat Shrink Tubing	TAT-125-1/2	Wire Protection

[1] Permissible to use RTV-162.

C. Tooling

The following special tooling/support equipment is required to accomplish this Service Bulletin if the overbraid installation is required.

Nomenclature	Specification	Use
Flap Position Board	EAC 27T109846-RT-001	Adjustment flap actuator
Flap Position Board	EAC 27T109846-RT-002	Adjustment flap actuator
Banding Tool	600-061	Wire Harness Rework
Banding Tool	600-058	Wire Harness Rework
Avio Maintenance Computer (AMC)	EAI, P/N 20-120576-1001 or 20-121926-1001, SW version “2.5.10 or higher”	Flap Potentiometer Adjustment/ Test
AMC DFS Software Download Cable	EAI, P/N 20-122715-1001	Flap Potentiometer Adjustment/ Test
Avio Maintenance Computer to Avio Processing Center Download Box	EAI, P/N 87-120876-1003	Flap Potentiometer Adjustment/ Test

D. Interchangeability/Intermixability of Parts

None

E. Part Re-identification

None

F. Cost

Contact Eclipse Aerospace Customer Care for information and availability.

3. ACCOMPLISHMENT INSTRUCTIONS

A. Procedure

Sign Off

(1) Inspection

CAUTION: FOLLOW ALL SAFETY PRECAUTIONS WHEN WORK IS DONE AROUND AN OPEN FUEL TANK OR INJURY TO PERSONAL AND OR DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Perform an inspection of the flaps to determine if the overbraid has been applied to the wire harness. Refer to AMM-27-50-00-021-801 - FLAPS - INSPECTION/CHECK.

(b) If the overbraid is present then the bulletin is complete. If there is no overbraid, then proceed to 3.A.(2) Electrical Harness Rework to Add Overbraid, as follows.

(2) Electrical Harness Rework to Add Overbraid, LH

Parts Required:

39-120496 Electrical Harness Rework

Part Number	Description	Qty
M39029/56-351[1]	22 Gauge Socket D38999	3
800-008-06M5-3SN[1]	Connector, Series 80 Plug (27R01P01)	1
809-002[1]	22 Gauge Series 80 Socket	3
M27500-22SD3T23[1]	22 Gauge Twisted Triple Wire	13 ft.
MS3367-()-0, PLT()-76	Tie Straps (allowed in SWAMP areas)	As Required
M85049/93-()[1][2]	Split Support Ring	As Required
A10088, A10089, A31189, A31089 or equivalent[2]	Metal Banding Material	As Required
1233/2[2]	Overbraid Sleeving (or alternate overbraid sleeving meeting QQ-W-343E or QQ-B-575B specifications)	As Required

[1] If needed.

[2] Part number dependent upon which overbraiding method is used and size desired.

Refer to Wiring Diagram Manual 27-50-10 for wiring diagram:

Sign Off

(a) Cut existing tie straps holding existing bundle.

(b) Remove the unsleeved wire P/N M27500-22SD3T23 from the 39-120496 wire harness bundle.

1. If the wire is damaged, discard and cut to fit wire P/N M27500-22SD3T23 and overbraid sleeving P/N 1233/2 at least 150 inches, thread wire through overbraid, label FCI0220-22 before routing with existing bundle from inboard flap actuator electrical connector (27A03P01) to Flap Position Potentiometer electrical connector (27R01P01).

NOTE: Optional step: Wrap the unsleeved wire in teflon tape prior to sleeving through the overbraid.

2. If wire P/N M27500-22SD3T23 can remain in service, cut to fit overbraid sleeving P/N 1233/2 at least 150 inches and sleeve existing wire through overbraid.

NOTE: Optional step: Wrap the unsleeved wire in teflon tape prior to sleeving through the overbraid.

(c) Tie new wire & existing bundle together to existing tie mounts (refer to Figure 1) and no more than 6 inches apart to secure between the attach points using tie straps P/N MS3367-()-0, PLT()-76.

(d) At the inboard flap actuator (27A03P01; Figure 2), the overbraid band is removed and the overbraid is pulled back to allow access to the connector. Refer to Wiring Repair Manual, “Band Removal”.

One of three methods will be used to re-terminate the overbraid:

Method 1

Reattach overbraid to backshell and reband if practical.

- Method 1 will be used if the existing overbraid at the inboard flap actuator (27A03P01) is sufficiently long enough to re-band after the new wiring is added. This is the preferred method.

Method 2

Wiring Repair Manual, “Shield Support Banding Ring”.

- Method 2 requires adding overbraid sleeving P/N 1233/2.

Method 3

Wiring Repair Manual, “Unaided Overlap”.

- Method 3 requires adding overbraid sleeving P/N 1233/2.

(e) Trim to finish length, and terminate at inboard flap actuator connector 27A03P01 using contact P/N M39029/56-351 as follows:

Contact / Conductor

- P / FCI0220-22 BL
- Y / FCI0220-22 OR
- X / FCI0220-22 WH
- Backshell / FCI0220-22 SH (shield)

If overbraid termination method 1 or 2 is used, continue at step (f). If method 3 is used, either step (f) or step (g) can apply.

(f) No closer than 1 inch to the backshell, route the wire through the overbraid. This is accomplished using an awl or similar tool to pierce a hole through the overbraid so the wire can be run through it. Attach overbraid to 27A03P01 using banding material PNs A10088, A10089, A31189 or A31089 or equivalent. Continue at step 6.

(g) **Skip this step if** overbraid termination method 1 or 2 is used (step (e)). The wiring may route between the existing overbraid and the added overbraid sleeving before applying the tie straps PN MS3367-()-0, PLT()-76. Attach overbraid to 27A03P01 using banding material PNs A10088, A10089, A31189 or A31089 or equivalent.

(h) If overbraid termination method 2 or 3 was used, insure an adequate electrical bond between the two sections of overbraid (no greater than 2.5 mili Ohm).

(i) Trim to finish length and terminate at flap position potentiometer connector 27R01P01 (Figure 3) using contact P/N 809-002 as follows:

Contact / Conductor

- B / FCI0220-22 BL
- C / FCI0220-22 OR
- A / FCI0220-22 WH
- Backshell / FCI0220-22 SH (shield) using metal banding material PNs A10088, A10089, A31189 or A31089 or equivalent.

NOTE: Finished length is ~143 inches.

(j) Apply a 2 inch piece of heat shrink tubing (TAT-125-1/2) over the backshell and metal overbraiding of connector and shrink in place (Figure 4). _____

(k) Slide a second 2 inch piece of heat shrink tubing (tat-125-1/2) past connector (Figure 4). _____

(l) Connect the electrical connector and torque jam nut (15) to 35-45 lbf.in (4.0-5.1 Nm). _____

(m) Position second piece of heat shrink tubing (TAT-125-1/2) over complete connector (19, Figure 4) and shrink in place. _____

(n) Safety the connector (20, Figure 4) to angle bracket with new .020 dia. lockwire (MS20995C20). _____

(o) Seal exposed area of connector (Figure 4) with PRC-Desoto epoxy sealant (PR-2001). _____

(p) Re-dress harness. Refer to Wiring Repair Manual. _____

NOTE: Instructions are similar for the right side as compared to the left side with exception of the wire numbers.

(3) Electrical Harness Rework to Add Overbraid, RH

Parts Required:

39-120497 Electrical Harness Rework

Part Number	Description	Qty
M39029/56-351[1]	22 Gauge Socket D38999	3
800-008-06M5-3SN[1]	Connector, Series 80 Plug (27R01P01)	1
809-002[1]	22 Gauge Series 80 Socket	3
M27500-22SD3T23[1]	22 Gauge Twisted Triple Wire	13 ft.
MS3367-()-0, PLT()-76	Tie Straps (allowed in SWAMP areas)	As Required
M85049/93-()[1][2]	Split Support Ring	As Required
A10088, A10089, A31189, A31089 or equivalent[2]	Metal Banding Material	As Required
1233/2[2]	Overbraid Sleeving (or alternate overbraid sleeving meeting QQ-W-343E or QQ-B-575B specifications)	As Required

[1] If needed.

[2] Part number dependent upon which overbraiding method is used and size desired.

Refer to Wiring Diagram Manual 27-50-10 for wiring diagram: **Sign Off**

(a) Cut existing tie straps holding existing bundle.

(b) Remove the unsleeved wire P/N M27500-22SD3T23 from the 39-120497 wire harness bundle.

1. If the wire is damaged, discard and cut to fit wire P/N M27500-22SD3T23 and overbraid sleeving P/N 1233/2 at least 150 inches, thread wire through overbraid, label FCI0230-22 before routing with existing bundle from inboard flap actuator electrical connector (27A03P01) to Flap Position Potentiometer electrical connector (27R01P01).

NOTE: Optional step: Wrap the unsleeved wire in teflon tape prior to sleeving through the overbraid.

2. If wire P/N M27500-22SD3T23 can remain in service, cut to fit overbraid sleeving P/N 1233/2 at least 150 inches and sleeve existing wire through overbraid.

NOTE: Optional step: Wrap the unsleeved wire in teflon tape prior to sleeving through the overbraid.

(c) Tie new wire & existing bundle together to existing tie mounts (refer to Figure 1) and no more than 6 inches apart to secure between the attach points using tie straps P/N MS3367-()-0, PLT()-76.

(d) At the inboard flap actuator (27A04P01), the overbraid band is removed and the overbraid is pulled back to allow access to the connector. Refer to Wiring Repair Manual, “Band Removal”.

One of three methods will be used to re-terminate the overbraid:

Method 1

Reattach overbraid to backshell and reband if practical.

- Method 1 will be used if the existing overbraid at the inboard flap actuator (27A03P01) is sufficiently long enough to re-band after the new wiring is added. This is the preferred method.

Method 2

Wiring Repair Manual, “Shield Support Banding Ring”.

- Method 2 requires adding overbraid sleeving P/N 1233/2.

Method 3

Wiring Repair Manual, “Unaided Overlap”.

- Method 3 requires adding overbraid sleeving P/N 1233/2.

(e) Trim to finish length, and terminate at inboard flap actuator connector 27A04P01 using contact P/N M39029/56-351 as follows:

Contact / Conductor

- P / FCI0230-22 BL
- Y / FCI0230-22 OR
- X / FCI0230-22 WH
- Backshell / FCI0230-22 SH (shield)

If overbraid termination method 1 or 2 is used, continue at step (f). If method 3 is used, either step (f) or step (g) can apply.

(f) No closer than 1 inch to the backshell, route the wire through the overbraid. This is accomplished using an awl or similar tool to pierce a hole through the overbraid so the wire can be run through it. Attach overbraid to 27A03P01 using banding material PNs A10088, A10089, A31189 or A31089 or equivalent. Continue at step 6.

(g) **Skip this step if** overbraid termination method 1 or 2 is used (step (e)). The wiring may route between the existing overbraid and the added overbraid sleeving before applying the tie straps PN MS3367-()-0, PLT()-76. Attach overbraid to 27A03P01 using banding material PNs A10088, A10089, A31189 or A31089 or equivalent.

(h) If overbraid termination method 2 or 3 was used, insure an adequate electrical bond between the two sections of overbraid (no greater than 2.5 mili Ohm).

(i) Trim to finish length and terminate at flap position potentiometer connector 27R01P01 (Figure 3) using contact P/N 809-002 as follows:

Contact / Conductor

- B / FCI0230-22 BL
- C / FCI0230-22 OR
- A / FCI0230-22 WH
- Backshell / FCI0230-22 SH (shield) using metal banding material PNs A10088, A10089, A31189 or A31089 or equivalent.

NOTE: Finished length is ~143 inches.

(j) Apply a 2 inch piece of heat shrink tubing (TAT-125-1/2) over the backshell and metal overbraiding of connector and shrink in place (Figure 4).

(k) Slide a second 2 inch piece of heat shrink tubing (TAT-125-1/2) past connector (Figure 4).

(l) Connect the electrical connector and torque jam nut (15) to 35-45 lbf.in (4.0-5.1 Nm).

(m) Position second piece of heat shrink tubing (TAT-125-1/2) over complete connector (19, Figure 4) and shrink in place.

(n) Safety the connector (20, Figure 4) to angle bracket with new .020 dia. lockwire (MS20995C20).

(o) Seal exposed area of connector (Figure 4) with PRC-Desoto epoxy sealant (PR-2001).

(p) Re-dress harness. Refer to Wiring Repair Manual.

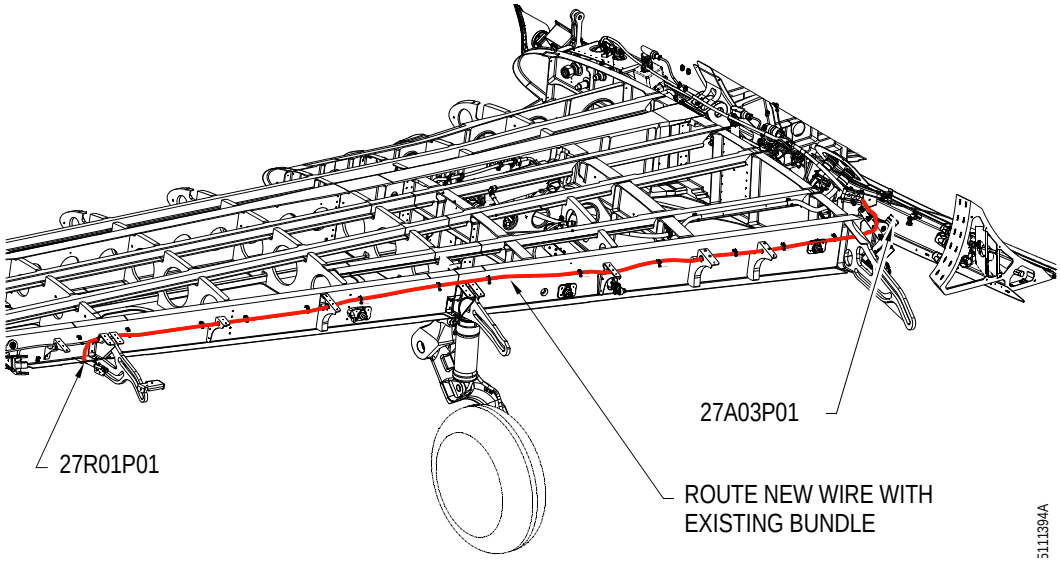

Figure 1. Inboard Flap Actuator & Flap Position Potentiometer

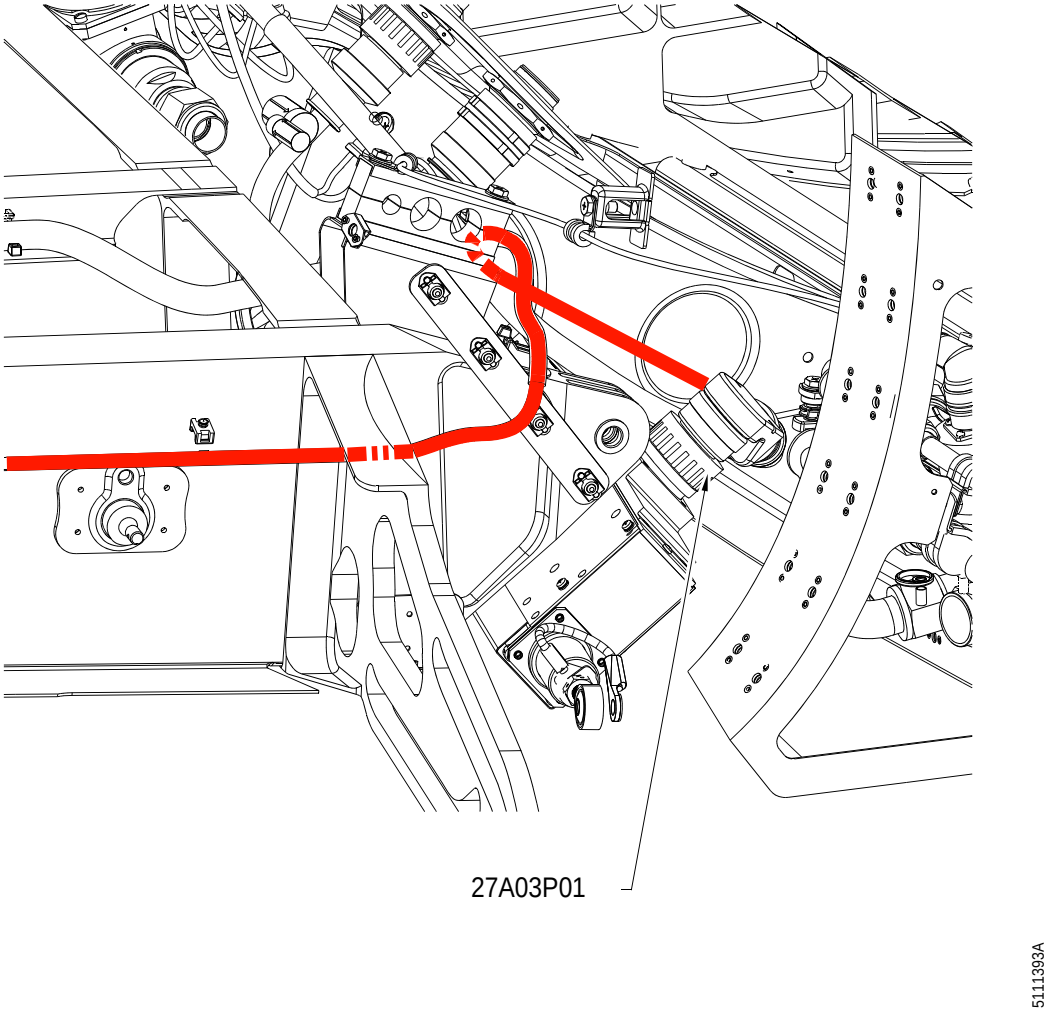

Figure 2. Inboard Flap Actuator

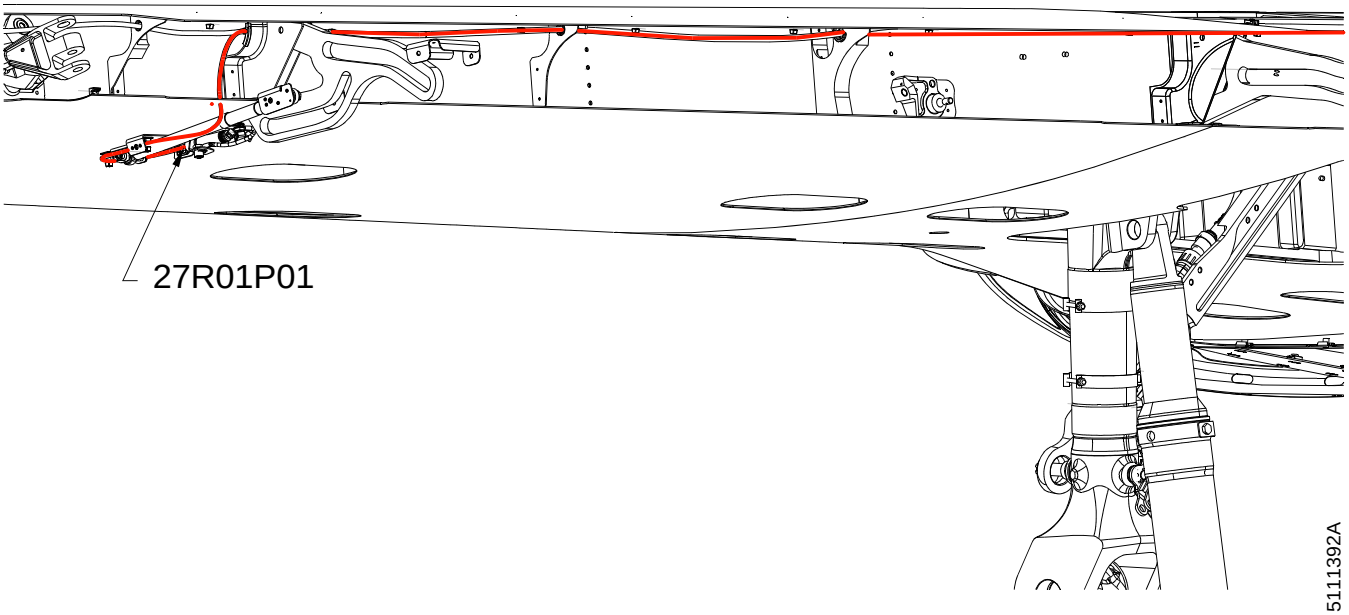

Figure 3. Flap Position Potentiometer

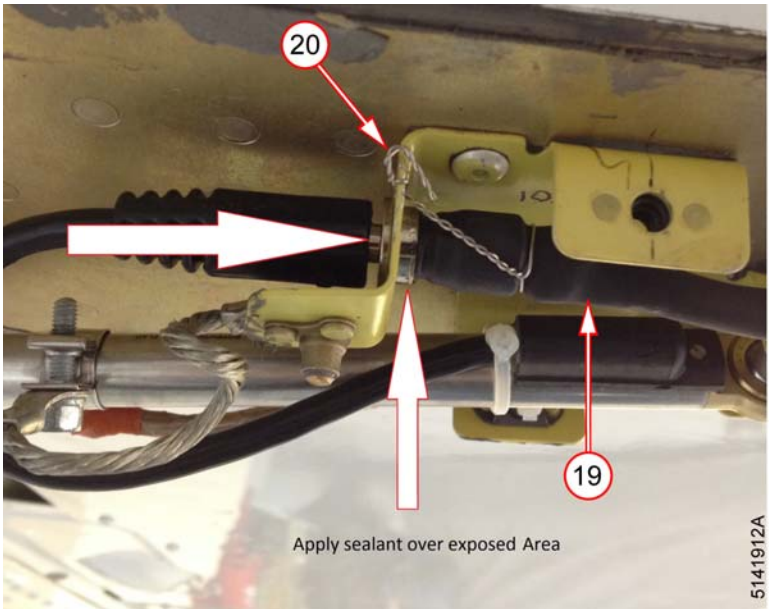

Figure 4. Heat Shrink and Safety Connector

B. Limitations and Procedures

N/A

C. Parts Disposition

N/A

4. RECORD OF COMPLIANCE

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

5. NOTIFYING ECLIPSE AEROSPACE

On completing this Service Bulletin, the operator/maintainer shall complete the attached Compliance Record and send it to Eclipse Aerospace via regular mail, fax, or e-mail.

Mailing Address	Eclipse Aerospace Incorporated ATTN: Service Engineering 2503 Clark Carr Loop SE Albuquerque, NM 87106
Fax	1-505-241-8802
E-mail	sbcompliance@eclipse.aero

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SERVICE BULLETIN COMPLIANCE RECORD

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

OWNER NAME: _____

ADDRESS: _____

_____

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

COMPLIANCE WITH SB 500-57-012, Rev A

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 _____