



SERVICE BULLETIN

NUMBER: SB 500-31-015, REV D
MODEL: ECLIPSE EA500
SUBJECT: ELECTRONIC FLIGHT INSTRUMENT SYSTEM (EFIS) 1.3 SOFTWARE UPDATE

1. PLANNING INFORMATION

A. Effectivity

Aircraft Serial Numbers 000001 through 000104, 000113 through 000115, 000120 and 000123 through 000124 – Post SB 500-99-002. 000105 through 000112, 000116 through 000119, 000121 through 000122 and 000125 – 000265 unless modified by SB 500-99-005 - Avionics Upgrade to Avio NG + 1.5 Configuration are eligible for this Service Bulletin.

B. Reason

Instances of anomalies have occurred in Avio NG aircraft with uncommanded switching of transponder codes and active/standby radio frequencies, as well as uncommanded syncing of selected altitude. This Service Bulletin (SB) provides for the replacement of the Avio NG (ISS), EFIS PFD and EFIS MFD software with improved software.

Revision D changes include the following:

- Revised software tables (tables 1 & 2) to show version zero place holder.
- Revised MFD Software Load Verification.
- Revised PFD Software Load Verification.

C. Description

This software release contains improved PFD and MFD software which includes the following functional changes:

- Corrected uncommanded transponder code changes
- Corrected uncommanded active/standby radio frequency changes
- Corrected uncommanded syncing of selected altitude

D. Relevant Publications

SB 500-99-002 - Avionics Upgrade To Avio NG Configuration

Eclipse Aviation Customer Pilot Communication CPC No. 500-2008-013 - Avio NG Anomalies

E. Compliance

Eclipse Aviation Corporation considers this to be a required upgrade that must be accomplished within 75 flight hours or 120 days from the issue date of this service bulletin, whichever occurs first.

Compliance with revisions A ,B, and C of this Service Bulletin constitutes compliance with revision D.

Service Bulletin SB 500-99-002 - Avionics Upgrade to Avio NG Configuration must be accomplished on aircraft S/N 000001-000104,000113-000115, 000120, and 000123-000124 prior to accomplishment of this Service Bulletin.



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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) Estimated labor hours to perform:

Suggested number of personnel: 1

EFIS Software update: 1 Hour

MFD and PFD tests: 1 Hour

Total labor hours: 2

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

None.

I. Electrical Load Data Change

None.

J. Software Accomplishment Summary

This Service Bulletin updates the EFIS software from version 1.1 or 1.2 to version 1.3.

EFIS version 1.3 consists of software part numbers 7H-84100-013 and 7H84098-011.

K. References

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

L. Publications Affected

Airplane Flight Manual (AFM) P/N 06-122204, Revision 01 or Revision 02.

Quick Reference Handbook (QRH) P/N 06-122205, Revision 01 or Revision 02.



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2. MATERIAL INFORMATION

A. Materials

There are no parts necessary for this Service Bulletin.

B. Tooling

The following special tooling/support equipment is required to accomplish this Service Bulletin.

Nomenclature	Specification	Use
USB Storage Device	Lexar Jumpdrive JDSW2GB	To load EFIS Software
Avio Maintenance Computer Kit ^[1]	Avio Maintenance Computer Kit (CF-19, 20-121925-1001 or CF-18, 20-120575-1001), "2.2.02 or higher" for Avio NG aircraft	To reload Weight and Balance data and aircraft registration number (if necessary).

^[1] Only required if Weight & Balance and registration number is incorrect and requires correction. Refer to paragraphs 3.A.(7)(g)1 and 3.A.(7)(j)(1).

C. Interchangeability/Intermixability of Parts

None

D. Part Re-identification

None.

3. ACCOMPLISHMENT INSTRUCTIONS

A. Procedure

- (1) Obtain EFIS software from Eclipse Aviation Customer Care Web site (<http://customers.eclipseaviation.com>). Load onto a formatted USB Storage Device.
NOTE: Make sure that no other files are on the USB Storage Device before copying the EFIS load software files.
- (2) Make aircraft safe for maintenance. Refer to AMM 20-00-01 MAKE SAFE FOR MAINTENANCE.
- (3) Log aircraft data as follows:
 - (a) Power on aircraft systems by placing START BATT and SYS BATT switches to ON and BUS TIE switch to AUTO.
 - (b) Press the PROCEED softkey on the start up screen of the MFD.
 - (c) Scroll to the OPS synoptic page.
 - (d) Log the following information from the TOTALS block:
 - Flight Hours
 - Left Engine Hours
 - Right Engine Hours
 - Left Engine Starts
 - Right Engine Starts
 - (e) Select the Weight and Balance softkey on the MFD.



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(f) Log the following Weight and Balance information:

- Empty Weight
- Empty ADJ

(4) Power off aircraft systems by placing START BATT, BUS TIE, and SYS BATT switches to OFF.

(5) Upload EFIS Software as follows:

NOTE: This procedure may be performed on battery power or with external power. External power is recommended. If performed on battery power, ensure aircraft batteries are charged prior to starting the following steps, which will take approximately 20 minutes to perform.

NOTE: Aircraft must have Weight on Wheels = GROUND during this procedure.

(a) Start with aircraft systems de-powered. On the Left Instrument Panel, make sure that the L GEN, START BATT, BUS TIE, SYS BATT, and R GEN switches are OFF. EXT POWER LED should be on if external power is being used.

(b) Power on aircraft systems by placing START BATT and SYS BATT switches to ON and BUS TIE switch to AUTO.

NOTE: After EFIS SERVICE MODE is selected and during the load process, normal EFIS control of aircraft systems will not be available.

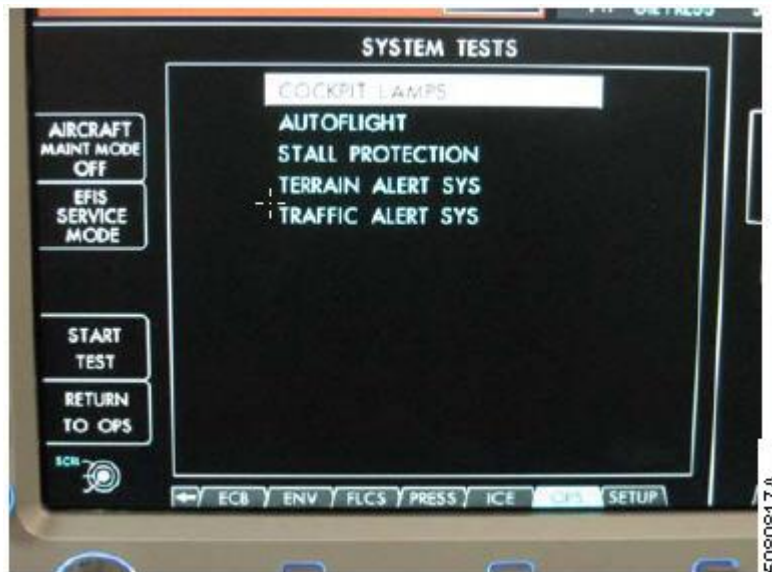
NOTE: Following step must be completed within 60 seconds of power up, else EFIS SERVICE MODE will not be available. If EFIS SERVICE MODE selection is not shown, re-start this section.

(c) Select EFIS Service Mode on the MFD as follows:

1. Once the MFD is powered, press either PRESS TO PROCEED softkey on the MFD.
2. Using the tab select knob, scroll to the OPS tab.
3. On the OPS page, press SYSTEM TESTS.
4. On the SYSTEM TESTS page, press SELECT EFIS SERVICE MODE softkey ([Figure. 1](#)), then press the CONFIRM EFIS SELECT softkey.



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EFIS Service Mode Softkey
Figure 1 (Sheet 1 of 2)

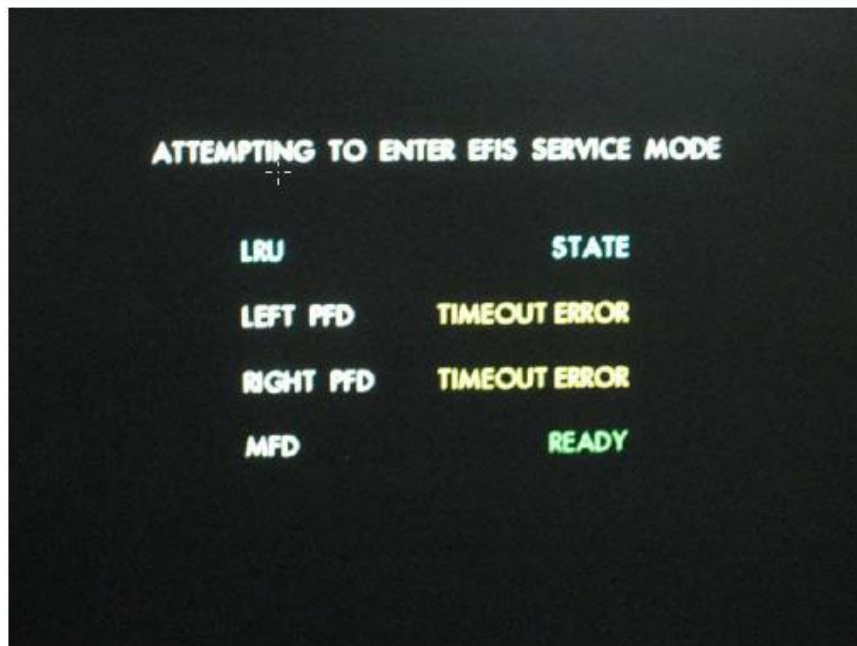


Confirm EFIS Select Softkey
Figure 1 (Sheet 2 of 2)

5. Approximately 5 seconds after selecting EFIS Service Mode, verify that the MFD indicates MFD READY (Figure 2). PFD TIMEOUT ERROR is a normal indication and should not be cause for concern.



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**MFD READY Indication
Figure 2**

6. Power off aircraft systems by placing START BATT, BUS TIE, and SYS BATT switches to OFF.
7. Connect the USB drive containing EFIS 1.3 software, to the USB port located in the pilot armrest (23A01J03).
8. Power on aircraft systems by placing START BATT and SYS BATT switches to ON and BUS TIE switch to AUTO.
9. MFD will run system tests for approximately 20 seconds (Figure 3), then will begin downloading software files. Download of software will be indicated by green progress bars. This process will typically take 15 minutes.

NOTE: Software versions shown in Figure 3 are for reference only. Actual Software Versions will differ from the figure.



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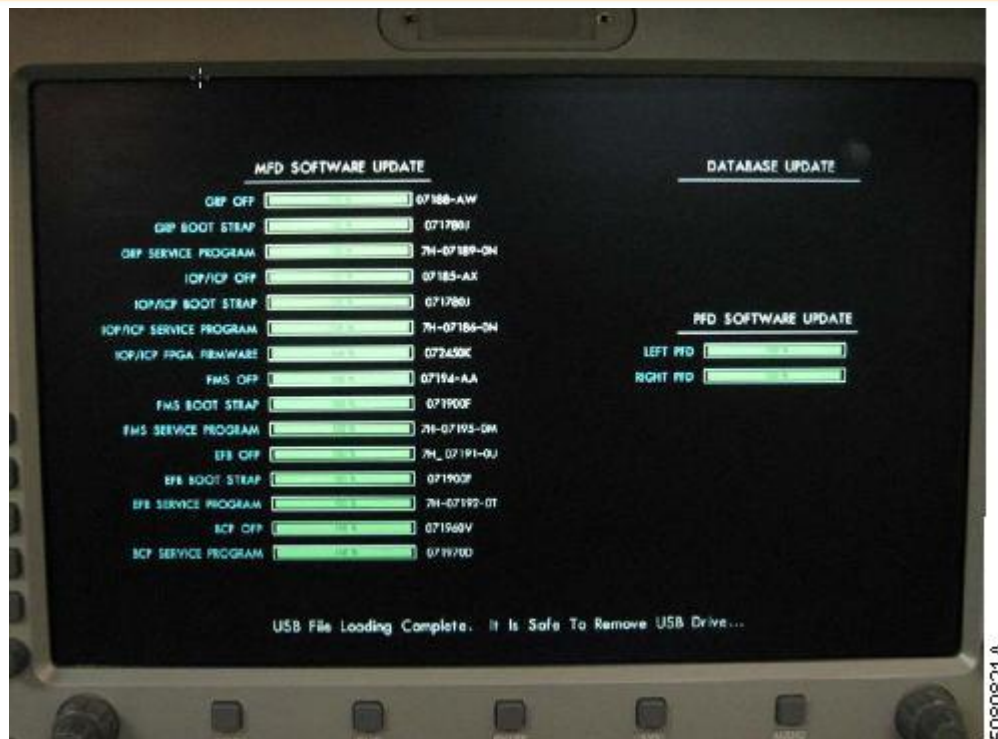
MFD Service Mode System Tests
Figure 3

NOTE: Following notes apply to the load process

- PFD screens will be black during the load and softkeys will be inoperative.
 - It is normal for the PFDs and MFD to appear to reset during the load process.
10. After files have been loaded, MFD will display "USB File Loading Complete" at the bottom of the screen. Refer to [Figure 4](#).



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**MFD Display at Load Completion
Figure 4**

11. Power off aircraft systems by placing START BATT, BUS TIE, and SYS BATT switches to OFF.
NOTE: Cycling aircraft power is required to exit Service Mode.
 12. Remove the USB drive from the USB port located in the pilot armrest.
- (6) Verify Upload as follows:
- (a) Power up aircraft systems by placing START BATT and SYS BATT switches to ON and BUS TIE switch to AUTO.
 - (b) Press the PROCEED softkey on the start up screen of the MFD.
 - (c) Verify all three displays appear to operate normally.
 - (d) MFD Software Load Verification
 1. Scroll to the Setup synoptic page on the MFD. Once the Setup synoptic page is selected, scroll clockwise using the inner knob.
 2. Verify the version readings for all of the MFD components listed in Table 1. Refer to [Figure 5](#) for layout.
NOTE: Software versions shown in [Figure 5](#) are for reference only. Actual Software Versions will differ from the figure. Refer to Table 1 for actual software versions.



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Table 1

MFD Software

IOP/ICP OFF	7H-07185-05
IOP/ICP BOOT STRAP	7H-07178-01
IOP/ICP SERVICE MODE	7H-07186-03
GRP OFF	7H-07188-03
GRP BOOT STRAP	7H-07178-01
GRP SERVICE MODE	7H-07189-03
FMS OFF	7H-07194-01
FMS BOOT STRAP	7H-07190-01
FMS SERVICE MODE	7H-07195-03
BCP OFF	7H-07196-11
BCP SERVICE MODE	7H-07197-01
EFB OFF	7H-07191-01
EFB BOOT STRAP	7H-07190-01
EFB SERVICE MODE	7H-07192-03
FPGA	10H-07245-0K



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Software Versions
Figure 5

(e) PFD Software Load Verification

1. Select PFD to verify on keyboard - L PFD or R PFD key.

NOTE: The LED will illuminate above the selected keyboard key - L PFD or R PFD.

2. On the left keyboard, select PFD COMPOSITE key.
3. Press SYSTEM softkey.
4. Scroll clockwise to the Setup synoptic page.

5. Verify the version readings for all of the PFD components listed in Table 2. Refer to Figure 5 for layout.

NOTE: Software versions shown in Figure 5 are for reference only. Actual Software Versions will differ from the figure. Refer to Table 2 for actual software versions.



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Table 2

PFD Software

IOP/ICP OFF	7H-07179-11
IOP/ICP BOOT STRAP	7H-07178-01
IOP/ICP SERVICE MODE	7H-07180-03
GRP OFF	7H-07182-05
GRP BOOT STRAP	7H-07178-01
GRP SERVICE MODE	7H-07183-03
BFP1 OFF	7H-07196-11
BFP1 SERVICE MODE	7H-07197-01
BFP2 OFF	7H-07196-11
BFP2 SERVICE MODE	7H-07197-01
FPGA	10H-07245-0K

6. Repeat steps 1 - 4 on the right PFD.
- (f) Power down aircraft systems by placing START BATT and SYS BATT switches to OFF.
- (7) Do Test Procedures as follows:
 - (a) Power on aircraft systems by placing START BATT and SYS BATT switches to ON and BUS TIE switch to AUTO.
 - (b) Check that the Nav Database is still valid.
 1. The Nav Database can be checked on the splash screen which shows during boot up.
 2. If the Nav Database is not valid, reload the database. Refer to Airplane Flight Manual (AFM) Navigation Database Update in Section 8– 37 for procedures.
 - (c) Press the PROCEED softkey on the start up screen of the MFD.
 - (d) Scroll to the OPS synoptic page.
 - (e) Make sure the following parameters match what was previously logged in section 3.A.(3)(d) from the TOTALS block:
 - Flight Hours
 - Left Engine Hours
 - Right Engine Hours
 - Left Engine Starts
 - Right Engine Starts
 1. If the parameters are incorrect, reload using logged data. Refer to AMM - 31-10-00, Subtask AMM-31-10-00-071-B-701-022, paragraph A.(2).
 - (f) Select the Weight and Balance softkey on the MFD.
 - (g) Make sure the following parameters match what was previously logged in section 3.A.(3)(f) Weight and Balance.
 - Empty Weight
 - Empty ADJ



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1. If the parameters are incorrect, reload using logged data. Refer to AMM - 31-40-00-051-801 - AIRCRAFT COMPUTER SYSTEMS - MAINTENANCE PRACTICES.
 - (h) Scroll to the SetUp synoptic page on the MFD.
 - (i) Select the Settings softkey.
 - (j) Make sure that the Registration Number matches the aircraft tail number.
 1. If the Registration Number is incorrect, reload the Registration Number. Refer to AMM - 31-40-00-051-801 - AIRCRAFT COMPUTER SYSTEMS - MAINTENANCE PRACTICES.
- (8) Make sure that no new CAS messages are present.
- (9) Power down aircraft systems by placing START BATT and SYS BATT switches to OFF.
- (10) Remove all tools, equipment, and unwanted material from work area.
- (11) Return aircraft to service, refer to AMM - 20-00-02 - RETURN TO SERVICE (AFTER MAINTENANCE).
- (12) Make Maintenance Log Book entry "Ensure applicable AFM Temporary Revision (TR) 010, Airplane Flight Manual (AFM) P/N 06-122204, Revision 01 or TR 010A, Airplane Flight Manual (AFM) P/N 06-122204 Revision 02 is inserted in the AFM."
NOTE: AFMs Revision 3 or higher do not require a Temporary Revision.

B. Limitations and Procedures

Temporary Revision (TR) 010, Airplane Flight Manual (AFM) P/N 06-122204, Revision 01 or TR 010A, Airplane Flight Manual (AFM) P/N 06-122204, Revision 02 must be used after completion of this SB.

TR 009, Quick Reference Handbook (QRH) P/N 06-122205, Revision 01 or TR 009A, Quick Reference Handbook (QRH) P/N 06-122205, Revision 02 must be used after completion of this SB.

C. Cost

Software will be provided at no cost. Labor and additional materials (if required) will not be covered or reimbursed by Eclipse Aviation.

Contact Eclipse Aviation Customer Care for additional information and availability.

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.

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