

	SB-A500A-3140-01	Revision:	--
		Type:	EA 400
Model:		EA 400-500	
Project:		A500A-15-06	
Date:		03-12-2015	
Design Organisation EASA.21J.551			

SERVICE BULLETIN

AVIDYNE SW RELEASE 9-3-3

Contents

1. Subject	3
2. Affected Aircraft	3
3. Introduction	3
4. Compliance Time	3
5. Approval	3
6. Instructions	4
6.1. Software installation	4
6.1.1. R9.3.3 Software Upload Procedure	4
6.1.2. Software confirmation	10
6.1.3. Jeppesen database upload	12
6.2. Return to service checks	14
6.2.1. Avionics systems check-out	14
7. Material required	16
8. Weight and balance	16
9. Electrical load analysis	16
10. Operating instructions	16
11. Instructions for continued airworthiness	16
12. Effectivity date	17
13. Installation check-out log	17
13.1. Continued airworthiness data	18
13.2. Installed configuration	18
13.3. A/C Documentation checks	18
13.4. Installation accomplishment statement	18

1. Subject

Installation of Avidyne Software Release R9.3.3 on IFD5000i displays.

2. Affected Aircraft

All serial numbers of the model EA400-500 in two IFDs or optional three IFDs avionics configuration having SW Release R9.3 installed.

3. Introduction

We are issuing this Service Bulletin for the installation of the Avidyne Software Release R9.3.3 on the IFD5000i displays to solve technical problems and to provide other system improvements.

Compliance with this SB will repair the following issues:

- failures of the GPS system when flying in EGNOS coverage areas.
- the 9.3 version of Maintenance mode incorrectly flags a VHF blade as having an error when the cross-side VHF disappears. This scenario could prove confusing to a technician performing routine checks on a dual IFD system.
- a FMS issue in which a user is erroneously allowed to replace an arrival in such a way as to corrupt the active flight plan.

Compliance with this SB will provide the following improvements:

- the maintenance mode allow DSF operations to be conditionally executed for simpler, more robust field update utilities.
- prior releases distinguish between small variations in fuel types available. For example, if the filter is set to display only airports providing Jet A fuel, an airport offering Jet A-1 fuel will not be displayed. The new release relaxes this excessive specificity.
- allows the system to recognize newer, larger USB thumb drives.
- support of Bottlang charts (VFR Charts)

4. Compliance Time

SST-Flugtechnik considers compliance highly recommended within the next 6 months.

5. Approval

“The technical content of this document is approved under the authority of DOA EASA.21J.551.”

6. Instructions

6.1. Software installation

Read entire procedures before beginning work. The following procedures detail installation of the Avidyne IFD5000i R9.3.3 software update in the EA400-500. It should be conducted first on the left IFD and subsequently on the right IFD or in three IFD configuration on the middle IFD and then on the right IFD.

NOTE:

Perform the procedures in the following order to ensure the expected results. Power-off the IFD(s) not involved in the upload by means of the relating CBs. If the system reports an error on any of the steps listed below, power off the IFD and start over. If the failure persists, contact SST-Flugtechnik.

The installation of the new software is organized as follows:

- R9.3.1 Software Upload Procedure (required to accept R9.3.3 upload)
- R9.3.3 Software Upload Procedure
- R9.3.3 Software Confirmation
- Jeppesen Navigation Database Upload
- Return to Service Checks

6.1.1. R9.3.3 Software Upload Procedure

With the following procedure the IFDs software will be uploaded to release R9.3.1. Refer to chapter 7 for required materials. Before starting the SW upload power on the avionics and check if the version R9.3 is installed.

6.1.1 TASK ID	TASK	VERIFY
1.	CONNECT EXTERNAL POWER	
2.	ON FLIGHTDECK CHECK:	ALL SWITCHES OFF
3.	CB PANELS CHECK	IFD-1-A CB IN IFD-1-B CB IN IFD-2-A CB OUT IFD-2-B CB OUT IFD-3 CB OUT ATC CB IN KEYPAD CB IN A/P-CMPT CB IN Pull CBs (for noise reduction): GEAR CTRL, FUEL TRANS LEFT+RIGHT, TURN COORD, STBY GYRO. STROBE switch OFF Internal Lights as required.

4.	<p>NOTE: Do not interrupt power to the aircraft at any time during this procedure. Interruption of power could result in damage to the equipment.</p> <p>Install USB flash device part number USB-9-3-1 into the USB connector on the bezel of IFD-1 (2 or 3, see step 18 and 19).</p>	
5.	SWITCH ON:	BATT + EXT PWR + AVIONICS
6.	<p>Access Maintenance Mode: On the IFD-1 → Press the "SYS" key. → Press the right-side of the "SYS" key until the "Setup" tab is selected. → Press "Update Databases". → Press "Confirm" and wait until the "System Update Page" is displayed. → Press "Un-Select All" to disable the check marks. **CRITICAL**</p>	
7.	<p>Using the right knob to access by turning the knob and select items by pressing the knob, select: → "Update From 9.2.x to 9.3.1 Phase I"</p>	<p>Note that there will now be a green check mark next to the "Update From 9.2.x to 9.3.1 Phase I" selection. NOTE: Do NOT select the items marked "Update to 9.3.1" or "Start 9.3.1 conformity check".</p>
8.	→ Press "PROCEED".	<p>When complete, the system should display "All Items Completed with No Error" at the top of the screen, and "Completed OK" is alongside each of the items selected in step 17. If the system reports any errors, please contact SST-Flugtechnik.</p>
9.	→ Press the right-side of the "SYS" key and immediately press the left side of the same key	
10.	→ Press the "DONE" key to reboot the box into flight mode. **CRITICAL**	Wait for the flight display to become active.
11.	Power down the avionics.	The R9.3.1 upgrade is now complete for this IFD.
12.	Continue with the IFD-2 (middle) starting on step 14.	<p>IFD-1-A CB OUT IFD-1-B CB OUT IFD-2-A CB IN IFD-2-B CB IN</p>

		IFD-3 CB OUT ATC CB IN KEYPAD CB IN A/P-CMPT CB IN
13.	Continue with the optional (fares right) IFD-3 starting on step 14.	IFD-1-A CB OUT IFD-1-B CB OUT IFD-2-A CB OUT IFD-2-B CB OUT IFD-3 CB IN ATC CB IN KEYPAD CB IN A/P-CMPT CB IN
END OF 9.3.1 UPLOAD PROCEDURE		

With the following procedure the IFDs software will be uploaded to release R9.3.3

continued	TASK	VERIFY
14.	<p>NOTE: Do not interrupt power to the aircraft at any time during this procedure. Interruption of power could result in damage to the equipment.</p> <p>Install USB flash device part number USB-9-3-3 into the USB connector on the bezel of IFD-1(2 or 3, see step 36 and 37).</p>	
15.	SWITCH ON:	BATT + EXT PWR + AVIONICS
16.	<p>Access Maintenance Mode: On the IFD-1 → Press the "SYS" key. → Press the right-side of the "SYS" key until the "Setup" tab is selected. → Press "Update Databases". → Press "Confirm" and wait until the "System Update Page" is displayed. → Press "Un-Select All" to disable the check marks. **CRITICAL**</p>	
17.	<p>Using the right knob to access by turning the knob and select items by pressing the knob, select: → "Update From 9.2.x to 9.3.3 Phase I"</p>	<p>Note that there will now be a green check mark next to the "Update From 9.2.x to 9.3.3 Phase I" selection. NOTE: Do NOT select the items marked "Update to 9.3.3" or "Start 9.3.3 conformity check".</p>
18.	→ Press "PROCEED".	<p>When complete, the system should display "All Items Completed with No Error" at the top of the screen, and "Completed OK" is alongside each of the items selected in step 17. If the system reports any errors, please contact SST-Flugtechnik.</p>
19.	→ Press the right-side of the "SYS" key and immediately press the left side of the same key	
20.	→ Press the "DONE" key to reboot the box into flight mode. **CRITICAL**	Wait for the flight display to become active.
21.	<p>Access Maintenance Mode on the IFD-1: → Press the "SYS" key.</p>	

	→ Press the right-side of the "SYS" key until the "Setup" tab is selected.	
22.	→ Press "Update Databases" → Press "Confirm"	Wait until the "System Update Page" is displayed
23.	→ Press "Un-Select All" to disable the check marks. **CRITICAL**	
24.	Using the right knob to access by turning the knob and select items by pressing the knob, select: "Update to 9.3.3"	Note that there will now be a green check mark next to the "Update to 9.3.3" selection. Note: Do NOT select the items marked "Update to 9.3.3 Phase I" or "Start 9.3.3 conformity check".
25.	→ Press "PROCEED".	When complete, the system should display "All Items Completed with No Error" at the top of the screen, and "Completed OK" is alongside each of the items selected in step 24. If the system reports any errors, please contact SST-Flugtechnik.
26.	→ Press the right-side of the "SYS" key and immediately press the left side of the same key	
27.	→ Press the "DONE" key to reboot the box into flight mode. **CRITICAL**	Wait for the flight display to become active.
28.	Access Maintenance Mode on the IFD-1: → Press the "SYS" key. → Press the right-side of the "SYS" key until the "Setup" tab is selected.	
29.	→ Press "Update Databases" → Press "Confirm"	Wait until the "System Update Page" is displayed. Wait 5 minutes for the system to analyze and collect the newly loaded software. **CRITICAL**
30.	→ Press "Un-Select All" to disable the check marks. **CRITICAL**	
31.	→ Use right inner knob by turning the knob to place the cursor on "Start 9.3.3 conformity check".	
32.	→ Press the right inner knob to select the item.	Note that there will now be a green check mark next to the "Start 9.3.3 conformity check selection". Note: Do NOT select the items marked "Update to 9.3.3 Phase I" or "Update to 9.3.3".
33.	→ Press "PROCEED".	When complete, the system should display "All Items Completed with No

		Error" at the top of the screen, and "Completed OK" is alongside the Start 9.3.3 conformity check item. If the system reports any errors, please contact SST-Flugtechnik.
34.	→ Press "DONE".	Wait for the flight display to become active.
35.	Power down the avionics.	The upgrade is now complete.
36.	Continue with the IFD-2 starting on step 14.	IFD-1-A CB OUT IFD-1-B CB OUT IFD-2-A CB IN IFD-2-B CB IN IFD-3 CB OUT ATC CB IN KEYPAD CB IN A/P-CMPT CB IN
37.	Continue with the optional IFD-3 starting on step 14.	IFD-1-A CB OUT IFD-1-B CB OUT IFD-2-A CB OUT IFD-2-B CB OUT IFD-3 CB IN ATC CB IN KEYPAD CB IN A/P-CMPT CB IN
END OF UPLOAD PROCEDURE		

6.1.2. Software confirmation

- (1) Power-on all IFDs.
- (2) Access Maintenance mode.
- (3) Press the right side of the “SYS” key until the “System Status” tab is displayed.
- (4) On the right side of the bezel, press the right side of the “Info” button until “Software” is displayed.
- (5) On the right side of the bezel, press the right side of the “System” button until the appropriate IFD is selected. i.e., left, right (middle or right).
- (6) Wait until all checksums are populated on the screen.

Note:

If the checksums for all installed equipment do not appear within 3 minutes, press “Done” and re-attempt this section from the beginning.

Note:

The lower right outer knob can be used to scroll the checksum list up and down to view all the checksums.

- (7) Verify that the items listed below match those displayed on the IFD screen:

Component	Part Number	Revision	CRC
ACR 440 Flight	510-00278-000	03	2A04DD0A
ACR 440 Mx	510-00802-003	02	58FF60AB
ACR 440 Boot	510-00799-005	01	C1347233
ACR 9S12 #1 App	510-00797-002	00	EE7587C8
ACR 9S12 #1 Boot	510-00240-001	02	9669D773
ACR 9S12 #2 App	510-00797-002	00	EE7587C8
ACR 9S12 #2 Boot	510-00240-001	02	9669D773
ACR FPGA	052-00155-001	00	00000050
FPSM 9S12 App	510-00796-001	00	A0B1A356
FPSM 9S12 Boot	510-00239-001	00	B0FD9B5E
MPIO 9S12 App	510-00800-002	00	1D197382
MPIO 9S12 Boot	510-00239-001	00	B0FD9B5E
MPIO FPGA	052-00157-000	01	0610
VHF 9S12 App	510-00775-001	06	E11BCA10
VHF 9S12 Boot	510-00239-001	00	B0FD9B5E
VHF DSP App	510-00778-001	00	5DEE
VHF DSP Boot	510-00237-000	00	C3DF
VHF FPGA	052-00140-000	00	5317
GPS 9S12 App	510-00256-000	05	BC6AA051
GPS 9S12 Boot	510-00239-001	00	B0FD9B5E
GPS ARM App	510-00257-000	02	E9F5
GPS ARM Boot	510-00258-000	00	5901
GPS OEM	510-00259-000	01	FC05
ADAHRS MPU	n/a	n/a	11EE
ADAHRS IRU	n/a	n/a	BAC6
ADAHRS ADU	n/a	n/a	56AF
MAG	n/a	n/a	CA87
KEYBOARD App	510-00803-001	00	004BBE5D
KEYBOARD Boot	510-00239-001	00	B0FD9B5E

 EASA.21J.551	SB-A500A-3140-01 AVIDYNE SW RELEASE 9-3-3	Rev.:	--
			03-12-2015

Make documentation entries into the relevant aircraft documentation. If any item differs from the table above, please do not continue and contact SST-Flugtechnik.

6.1.3. Jeppesen database upload

With the following procedure the IFDs will upload the current Jeppesen databases. Refer to chapter 7 for required materials.

Upload to the aircraft configuration and the current Jeppesen databases		
1.	INSERT:	USB sticks with NAV databases in all IFD-s (the ones with charts in IFD-2 and -3)
2.	PRESS:	All IFD-s: SYS – setup <input type="checkbox"/> 'main'
3.		All IFD-s: Update Databases
4.		All IFD-s: Confirm
5.		All IFD-s: Unselect all
6.	SELECT:	All IFD-s: NAV database, obstacle database and on IFD-2 and -3: charts (using RH lower knob)
7.	PRESS:	All IFD-s: Proceed
8.	CHECK:	'All tasks performed with no error'
9.	REMOVE:	USB sticks
10.	PRESS:	Done
11. IRU Calibration Check		
12.	PRESS: IFD-s 1 and 2: 'SYS – setup'	
13.	SELECT: 'Update Databases'	
14.	PRESS CONFIRM	LSK after it appears. The screen will blank for several seconds before displaying the "System Update Page
15.	Assure 'System Update " tab is selected, simultaneously press and hold the top left LSK, and third down from top left LSK buttons until the countdown timer in the upper right corner of the display counts down to zero seconds.	The "Technician Maintenance Mode" " page will be displayed
16.	PRESS "PROCEED"	
17.	Press the right side of the "SYS" page function key to select the "Cal" tab. Select the right side of the	The "IRU Calibration" page will appear

	"Cal Select" LSK until "IRU" appears.	
18.	CHECK:	Pitch is set to 8 deg
19.		Roll is set to 0 deg
20.		Yaw is set to 0 deg
21.	If the values shown are incorrect, enter the correct values and then select "Save Offsets"	
22.	Upon completion of the IRU calibration, the saved offset values will appear in the "Received Values" column, shaded in green.	The words "IRU Calibration Completed" will be displayed below.
23.	Select "Done" then power of the IFD for a minimum of 1 minute.	The left IFD will update the ACM after selecting "Done". Power down the IFD after this process is complete.
END OF UPLOAD PROCEDURE		

6.2. Return to service checks

The following tests shall be carried out on the ground with the airplane connected to external power and relevant test equipment.

6.2.1. Avionics systems check-out

6.2.1 TASK ID	TASK	VERIFY
1.	ATTACH EXTERNAL POWER	
2.	CHECK:	ALL SWITCHES OFF
3.	SWITCH ON:	BATT + EXT PWR + AVIONICS
4.	WAIT:	Until all IFD-s have aligned (max 3 min)
5.	PERFORM: Use e.g. IFR model NAV-401L or Aeroflex model IFR-6000	Functional check on VOR1/2
6.	PERFORM: Use e.g. IFR model NAV-401L or Aeroflex model IFR-6000	Functional check on ILS1/2
7.	PERFORM: Use e.g. IFR model NAV-401L or Aeroflex model IFR-6000	Functional check Marker Beacon
8. Option	PERFORM:	Functional check TAS (when installed) The TAS switched off (CB out), appropriate CAS message appeared. It disappeared after power to the unit was restored
9. Option	PERFORM:	Functional check TWX (when installed) The TWX was switched off (CB out), appropriate CAS message appeared. It disappeared after power to the unit was restored.
10.	This section requires the aircraft to be outside with unobstructed view of the sky or in the shop with an appropriated GPS connectivity. Note: The initial position acquisition can take up to 5 minutes. Subsequent GPS warm starts will take up to 20 seconds. If the GPS has not calculated a position after >10 minutes, the GPS may need to be Reset.	Functional check on GPS1/2

	<p>Once the GPS position has been acquired for each IFD, perform the following steps:</p> <ol style="list-style-type: none"> 1. On the GPS Status page, verify that the lat/long agree with a known reference position. 2. View the GPS Status page and verify that at least 4 satellites have been acquired. 3. Verify the GPS satellite signal strength is not affected by VHF Communication or any other source. 	
11.	PERFORM:	Functional check on COM1/2
12.	Use e.g. Aeroflex model ATC-601 or Aeroflex model IFR-6000	Functional check on XPDR. The transponder switched off (CB out), appropriate CAS message appeared. It disappeared after power to the unit was restored
13.	PERFORM	Functional check of autopilot. The autopilot switched off (CB out), appropriate CAS message appeared. It disappeared after power to the unit was restored
14. Option	<p>The source frequency for the DME can be selected using the keypad AUX and FMS knobs.</p> <p>Press AUX, select Nav1, press ENTER '1' is indicated</p> <p>Press AUX, select Nav2, press ENTER '2' is indicated</p> <p>Press AUX, select Nav1 Hold, press ENTER '1 H' is indicated</p> <p>Press AUX, select Nav2 Hold, press ENTER 'H 2' is indicated</p>	Functional check on DME. Indication of correct data on DME indicator as well as the tuning by the keyboard (AUX knob) as the 'hold' function in the keyboard and the external hold switch

7. Material required

- (1) USB flash drive part number USB-9-3-1

containing:

- a. *IFD Release 9.3.1 Software Update Utility Phase I, Part Number 500-00127-005*

- (2) USB flash drive part number USB-9-3-3

containing:

- b. *IFD Release 9.3.3 Software Update Utility Phase I, Part Number 500-00127-005*
c. *IFD Release 9.3.3 Software Update Utility , Part Number 500-00128-005*
d. *IFD Release 9.3.3 Conformity Checker Utility, Part Number 500-00132-004*

Note:

Only marked USB flash devices should be used to accomplish the procedure in this service bulletin.

- (3) USB flash drive containing the following database:

- a. • *current NAV database (Jeppesen; central Europe, north Americas, worldwide, on all IFD-s), obstacle and charts databases if required only.*

- (4) COM / NAV / XPDR and TAS avionics ramp test instruments

- (5) EA400-500 Aircraft Flight Manual AFM-A500A-0210-01 Rev --

- (6) Avidyne Pilot's Guide part number 600-00190-000 Rev. 05 (to be available for the flight crew).

8. Weight and balance

No change.

9. Electrical load analysis

No change.

10. Operating instructions

Replace existing EXTRA POH EA-0B701 by the EASA approved SST AFM No: AFM-A500A-0210-01 Rev --.

Replace existing Avidyne Pilot's Guide by Pilot's Guide 600-00190-000 Rev. 05.

11. Instructions for continued airworthiness

No change.

12. Effectivity date

This mandatory service bulletin is effective upon the date of issuance.

13. Installation check-out log

Submit a signed copy of the accomplishment statement to:

support@sst-flugtechnik.com

SST FLUGTECHNIK GmbH
tel. +49-8331-972980
Am Flughafen 12a
D-87766 Memmingerberg

If problems with the implementation of this Service Bulletin occur, please contact SST-Flugtechnik by the contact details above.

13.1. Continued airworthiness data

INSTALLING AGENCY		AIRCRAFT OWNER	
Name:		Name:	
Organisation No.:		Postal Address:	
Contact Person:			
Postal Address:		Telephone No.:	
		E-Mail:	
Telephone No.:		MODIFIED AIRCRAFT	
E-Mail:		Aircraft Type:	EA400
Date of installation:		Aircraft Model:	EA400-500
		Serial Number:	
		Registration:	

13.2. Installed configuration

INSTALLED ITEM	
Manufacturer:	AVIDYNE
Model:	IFD5000i (all IFDs)
SW Version:	Entegra R9.3.3
SW Part Number:	510 00278-000 Rev. 03

13.3. A/C Documentation checks

Equip List Equipment List updated.
 AFM new AFM inserted.
 A/C Release Certificate _____ (insert release approval number).

13.4. Installation accomplishment statement

I hereby confirm
 that all conditions and requirements set forth in this Service Bulletin are met;
 that the installation and check-out instructions of this Service Bulletin have been followed;
 that the information provided in this check-out log is complete and correct.

 Date Name in block letters Signature