



Service Bulletin #: SB09

Title: EX500 Software & Satellite Communicator Software  
Field Update

**1. Planning Information**

**1.1 Effectivity/Compatibility**

This Service Bulletin applies to all Avidyne EX500 units with the following hardware part number:

Part Number	Rev.
700-00007-00X	07

**1.2 Concurrent Requirements**

None

**1.3 Reason**

Installation of new software for the FlightMax EX500.

**1.4 Description**

This service bulletin describes the procedure to update the software on the EX500 from Rev 00 to Rev 01 and also to update the software on the internal datalink transceiver. The modification consists of removing the old compact flash card, and replacing it with the new one, which has a newer version of software. This procedure also requires the use of the Avidyne data loader (zip drive) to save and restore the system configuration and to update the international datalink transceiver. This operation is conducted in the aircraft and on the bench.

**1.5 Compliance**

This Service Bulletin is applicable to the FlightMax EX500 and is accomplished on condition for the upgrade of software, 530-00120-000 from Rev 00 to Rev 01. The existing software revision level is shown on the lower line of the display after the unit is powered up and the message "Press any bezel key to continue" is displayed. The lower line displays the software part number, 530-00120-000 followed by the revision.

**1.6 Approval**

The accomplishment instructions contained in Section 3 & 6 are FAA approved.



### **1.7 Manpower**

Replacement of the software should take one person approximately 60 minutes.

### **1.8 Weight and Balance**

No change.

### **1.9 Electrical Load Data**

No change.

### **1.10 Software Accomplishment**

Installation of new software.

### **1.11 Reference**

None.

### **1.12 Publications affected**

None.

## **2. Material – Cost and Availability**

The Service Bulletin #09, part number 850-00010-206, maybe obtained by calling Avidyne at 1-800 AVIDYNE

**NOTE: This modification must be performed by a FAA authorized Avionics Repair Station.**

## **3. Accomplishment Instructions**

### **3.1 Saving the FlightMax EX500 configuration**

Required Materials:

1. \_\_\_\_\_ EX500, Avidyne P/N 700-00007-XXX-() with 530-00120-000 Rev 00 software as displayed on splash screen after initial power-up.
2. \_\_\_\_\_ 1 Data loader (Zip) drive, Avidyne P/N 200-00029-000
3. \_\_\_\_\_ System Configuration Save& Restore Utility Disk, Avidyne P/N 510-00108-000.

#### **3.1.1 Configuration Utility Save Procedure**

This procedure describes the use of the configuration utility to save the current configuration state of an EX500 MFD.

4. \_\_\_\_\_ Power up the FlightMax EX500



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5. \_\_\_\_\_ Verify the software part number and revision are displayed as 530-00120-000 Rev 00.
6. \_\_\_\_\_ When instructed, press any button to continue operation and rotate the page knob to highlight "setup".
7. \_\_\_\_\_ Depress and hold (for approximately 5 seconds) the upper most and middle buttons on the left side of the bezel to enter the "Maintenance Mode" page (press the "Cancel" button if a maintenance mode sub-page is displayed to return to the "Maintenance Page" ).
8. \_\_\_\_\_ Press the "System Info" button. The "Port Info" page will be displayed.
  
9. \_\_\_\_\_ Record the following information:
  - RS232 1 \_\_\_\_\_
  - RS232 2 \_\_\_\_\_
  - RS232 3 \_\_\_\_\_
  - RS232 4 \_\_\_\_\_
  - RS232-5 DL \_\_\_\_\_
  - RS232-6 DL \_\_\_\_\_
  - ARINC429 1 \_\_\_\_\_
  - ARINC429 2 \_\_\_\_\_
  - ARINC429 3 \_\_\_\_\_
  - ARINC429 4 \_\_\_\_\_
  - ARINC453 1 \_\_\_\_\_
  - ARINC453 2 \_\_\_\_\_
  
10. \_\_\_\_\_ Power down the FlightMax EX500.
11. \_\_\_\_\_ Insert the **System Configuration Save& Restore Utility Disk**, P/N 510-00108-000 into data loader.
12. \_\_\_\_\_ Plug the data loader cord into data loader port the FlightMax EX500.
13. \_\_\_\_\_ Power up the FlightMax EX500.
14. \_\_\_\_\_ When "Field Configuration Utility" is viewed on the screen, press "**Save**".
15. \_\_\_\_\_ If there has been a previous "Save" performed to the utility media, a message "**Overwrite Previous Save?**" will be displayed. If this is desired press "**Confirm**" otherwise press "**Cancel**" to return to the normal system startup process.

**Note:**

**The utility will only record the last "save" performed. It is important that a save/restore pair be executed against the same serial number unit.**



16. \_\_\_\_ At the end of the save operation the “**Configuration Saved**” is displayed for 5 seconds, the utility will exit and the flight software will start. In the event of any failure a “Field Configuration Utility failed” message in red text will be displayed and the system will wait for a user confirmation.
17. \_\_\_\_ If the save was successful, the disk will be ejected and the normal system startup will continue.
18. \_\_\_\_ If the save was unsuccessful, attempt the procedure a second time. If after a second attempt the system still shows a failure contact Avidyne Technical Support at 1-888-723-7592.
19. \_\_\_\_ Record the serial number of the unit on the zip disk and when complete with any other modifications the Restore procedure may be performed.

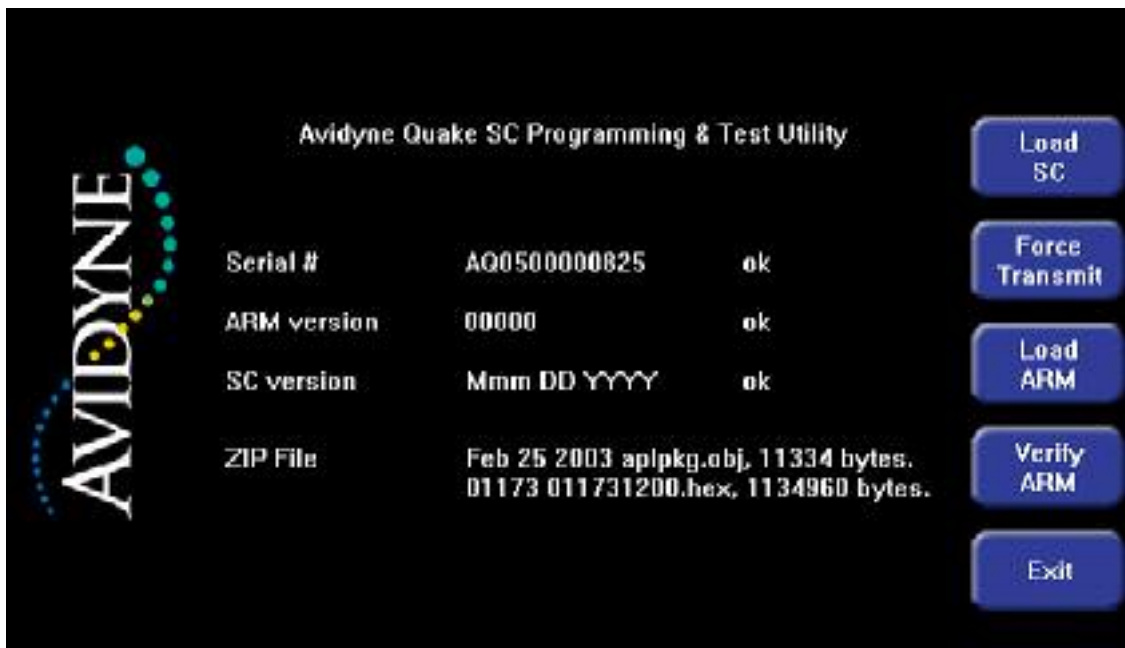
### **3.2 Installing new datalink transceiver software**

#### Required materials

20. \_\_\_\_ Avidyne 700-00007-XXX-() MFD with 530-00120-000 Rev 00 software as displayed on splash screen after initial power-up.
21. \_\_\_\_ 1 Data loader (Zip) drive, Avidyne P/N 200-00029-000, connected to the FlightMax EX500
22. \_\_\_\_ 1 EX500 SC Loader Disk, Avidyne P/N 510-00085-000

#### **3.2.1 Update procedures:**

23. \_\_\_\_ Power-up the FlightMax EX500 with the Zip drive attached and disk 510-00085-000 inserted in the zip drive.
24. \_\_\_\_ Verify that after initialization, the following screen is displayed (ARM version may differ; SC version may differ or be dashed)



25. \_\_\_\_ Press the Load SC button
26. \_\_\_\_ Verify that the loader proceeds through the following stages:
  - a. \_\_\_\_ Loading file...
  - b. \_\_\_\_ Reading back...
  - c. \_\_\_\_ Rebooting SC...
  - d. \_\_\_\_ Checking versions...
  - e. \_\_\_\_ Load completed and verified successfully
27. \_\_\_\_ Press the Load ARM button
28. \_\_\_\_ Verify that the loader proceeds through the following stages:
  - f. \_\_\_\_ Rebooting SC...
  - g. \_\_\_\_ Launching Loader...
  - h. \_\_\_\_ Loading ARM X% complete...
  - i. \_\_\_\_ Completed, waiting for result...
  - j. \_\_\_\_ Success, waiting for SC reboot...
  - k. \_\_\_\_ Screen returns to format shown above
29. \_\_\_\_ Verify ARM version and SC versions now match the following values.

- a. \_\_\_\_ SC version matches date Feb 25 03
- b. \_\_\_\_ ARM version matches number 04213.
- 30. \_\_\_\_ If the update procedure fails reattempt the process. If the procedure fails again, call Avidyne Technical Support at 1-888-723-7592
- 31. \_\_\_\_ Press Exit to close the loader and continue with EX500 start -up.

**4. Installing New EX500 Operating Software**

**4.1 Removal of the EX500 from the aircraft**

- 32. \_\_\_\_ Loosen the unit rack locking key with a size 3/32" hex-wrench. Note the length of this wrench must be a minimum of 2 inches.
- 33. \_\_\_\_ Remove the unit from the radio rack.

**4.2 EX500 Modification**

This procedure should be performed on the bench. Power should NOT be applied to the unit. Use anti-static precautions when handling the unit. An anti-static wrist strap and mat are recommended. Place masking tape or other suitable material on edges of bezel and knobs to protect them from being scratched.



- 34. \_\_\_\_ Carefully Peel back aluminum tape from the bottom of the unit (the tape is to be reapplied at the end of this procedure). Leave attached to the cover.



- 35. \_\_\_\_ Remove the 24x #4-40 Flathead Screws, and 3x black #4-40 Flathead Screws.



36. \_\_\_\_\_Lift rear end of cover as shown.



37. \_\_\_\_\_Slide cover back - front end may "stick" for first half-inch of travel.



38. \_\_\_\_\_Lift rear of cover to reveal white Flex-Cable.



39. \_\_\_\_\_Lift top of ZIF (Zero Insertion Force) connector up.



40. \_\_\_\_ Remove Flex-Cable from connector.



41. \_\_\_\_ Set cover aside. There is no need to remove the coax



42. \_\_\_\_ Remove the 3x #4-40 Flathead Screws from bottom of Display Assembly cable which connects the cover to the chassis.



43. \_\_\_\_ Slide Display Assembly forward.





44. \_\_\_\_ Remove Compact Flash. Replace with new Compact Flash from Avidyne. The Compact Flash is oriented with the arrow up, and pointing in the direction of insertion. It is keyed such that it will only go in one way, so no excessive force should be necessary. Return the original Compact Flash to Avidyne.

Visually inspect all the internal cables to ensure none have been disconnected during dis-assembly.



45. \_\_\_\_ Re-assemble Display Assembly with 3x #4-40 Flathead Screws.



46. \_\_\_\_ Position cover in place, holding the rear end up.



47. \_\_\_\_ Insert white Flex-Cable into ZIF connector. Make certain it is inserted until the cable hits the stop. Push top of ZIF connector down.



48. \_\_\_\_ Squeeze front end of cover into bezel. It may be slightly stiff.



49. \_\_\_\_ Re-assemble cover with 24x #4-40 Flathead Screws and 3x black #4-40 Flathead Screws.



50. \_\_\_\_ Re-apply aluminum tape as shown.

51. \_\_\_\_ Reinstall unit in the aircraft, or connect to bench power.

## 5. Configuration Utility Restore Procedure

This procedure describes the use of the configuration utility to restore the configuration state of a FlightMax EX500. This procedure will require that the Save procedure has been executed first (Section 3.2 of this Service Bulletin). **It is required that a restore be performed to the same unit from which a save was performed.**



### 5.1 Required Material

52. \_\_\_\_\_ Avidyne 700-00007-XXX-() MFD with 530-00120-000 Rev 01 software as displayed on splash screen after initial power-up.
53. \_\_\_\_\_ 1 Data loader (Zip) drive, Avidyne P/N 200-00029-000, connected to the FlightMax EX500
54. \_\_\_\_\_ 1 System Configuration Save& Restore Utility Disk, PN 510-00108-000

#### 5.1.1 Restore Procedure

55. \_\_\_\_\_ Power up FlightMax EX500
56. \_\_\_\_\_ Start the FlightMax EX500 and verify the software part number on the splash screen is 530-00120-000 Rev 01.
57. \_\_\_\_\_ Power down FlightMax EX500
58. \_\_\_\_\_ Insert the **System Configuration Save& Restore Utility Disk**, PN 510-00108-000 into data loader.
59. \_\_\_\_\_ Plug the data loader cord into data loader port of the FlightMax EX500.
60. \_\_\_\_\_ Verify that the serial number of the EX500 recorded on the utility disk matches that of the EX500 that is to be restored.
61. \_\_\_\_\_ Power up the FlightMax EX500.
62. \_\_\_\_\_ When "Field Configuration Utility" is viewed on the screen, press "**Restore**".
63. \_\_\_\_\_ At the end of the save operation the "**Configuration Restored**" is displayed for 5 seconds, the utility will exit and the flight software will start. In the event of any failure a "Field Configuration Utility failed" message in red text will be displayed and the system will wait for a user confirmation.
64. \_\_\_\_\_ If the restore was successful, press the Eject button on the data loader
65. \_\_\_\_\_ If the restore failed, this procedure may be retried. If the unit cannot be restored without failure the unit must be removed from service and returned to the factory for repair.
66. \_\_\_\_\_ Power down the unit and remove the Dataloader cable from the Dataloader port on the EX500.

**6. Update Validation**

**6.1 Software Updated**

- 67. \_\_\_\_ Power on the FlightMax EX500
- 68. \_\_\_\_ Verify splash-screen appears as follows (Data validity dates may vary). In particular, verify that the part number (at the bottom of the screen) reads 530-00120-000 Rev 01.



- 69. \_\_\_\_ Press any bezel key to clear the splash-screen.
- 70. \_\_\_\_ Verify that the BRT button shows a brightness window.
- 71. \_\_\_\_ On a system with dual-concentric knobs, press BRT to show the brightness window and verify that turning the knob varies brightness as follows:
  - 72. \_\_\_\_ Right Outer Knob clockwise increases brightness in coarse steps
  - 73. \_\_\_\_ Right Outer Knob counter-clockwise decreases brightness in coarse steps
  - 74. \_\_\_\_ Right Inner Knob clockwise increases brightness in fine steps
  - 75. \_\_\_\_ Right Inner Knob counter-clockwise decreases brightness in fine steps
- On a system with single knobs, press BRT to show the brightness window and verify that turning the knobs varies brightness as follows:
  - 76. \_\_\_\_ Left Knob clockwise increases brightness in coarse steps
  - 77. \_\_\_\_ Left Knob counter-clockwise decreases brightness in coarse steps
  - 78. \_\_\_\_ Right Knob clockwise increases brightness in fine steps
  - 79. \_\_\_\_ Right Knob counter-clockwise decreases brightness in fine steps



80. \_\_\_\_\_ Change Page to Setup and back to Map
81. \_\_\_\_\_ Change Map range up and down
82. \_\_\_\_\_ Verify operation of each bezel key (you may need to change pages to find active buttons for each key). If no active button can be found to match a key, re-start the system and use the key to clear the splash screen.
83. \_\_\_\_\_ On a system with dual-concentric knobs, verify operation of the left knob by operating Radar bearing and tilt.
84. \_\_\_\_\_ Repeat steps 4 thru 10 & verify the port information recorded in step 10
85. \_\_\_\_\_ Verify that pressing and holding the PWR key brings up a countdown window and that, after 4 seconds, the system is powered off.

### **6.2 Datalink Operational Check**

86. \_\_\_\_\_ Change page to " Setup Page".
87. \_\_\_\_\_ Depress and hold (for approximately 5 seconds) the upper most and middle buttons on the left side of the bezel to enter the "Maintenance Mode" page (press the "Cancel" button if a maintenance mode sub-page is displayed to return to the "Maintenance Page" ).
88. \_\_\_\_\_ Press the "System Info" button. The "Port Info" page will be displayed.
89. \_\_\_\_\_ Select "Datalink Info" with the change knob.
90. \_\_\_\_\_ Verify that the Quake Software Version is: 4213
91. \_\_\_\_\_ Verify that the Custom Software Version is Feb. 25, 2003

The EX500 may now be powered down by pressing and holding the "PWR" button. The software change is now complete.

Please send back removed Compact Flash in the return addressed envelope supplied with this service Bulletin to:

Avidyne Corporation  
55 Old Bedford Road  
Lincoln, MA 01773