

***FlightMax EX500-Series
Instructions For Continued Airworthiness***

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1. Introduction

1.1 Aircraft Description

Make:

Model:

Reference Avidyne 700-00007-XXX-() MFD Approved Model List
STC No. SA00161BO

1.2 Scope

This document identifies the Instructions For Continued Airworthiness (ICA) for the modification of the above aircraft by installation of an Avidyne 700-00007-XXX-() EX500-Series Multi-Function Display (MFD).

This ICA satisfies the requirements of 14 CFR 23.1529.

1.3 Applicability

This document applies to aircraft altered by the installation of an Avidyne 700-00007-XXX-() FlightMax EX500-Series Multi-function Display (MFD).

1.4 Definitions and Abbreviations

ICA – Instructions for Continued Airworthiness

STC – Supplemental Type Certificate

MFD – Multi-function Display

AEG – Aircraft Evaluation Group

1.5 Precautions

This section not applicable.

1.6 Units of Measure

This section not applicable.

1.7 Referenced Publications

FlightMax EX500-Series MFD Installation Manual, P/N 600-00079-000

FlightMax EX500-Series MFD Pilot's Guide, P/N 600-00078-000

1.8 Distribution

This Instructions For Continued Airworthiness is to be furnished with new production EX500-Series MFD's and is to become part of the permanent aircraft record upon installation.

A current revision of this ICA shall be available on the Avidyne website at www.avidyne.com (Technical Publications in the Products section).

2. Description

The Avidyne 700-00007-XXX-() MFD is a radio rack mounted Multi-Function Display that provides the following capabilities:

1. A moving map display that provides terrain, geo-political boundaries, airspace, nav aids, airports, airways, and obstacles;
2. Used with an external traffic detection system, it displays a pictorial representation of nearby transponder-equipped aircraft overlaid on the moving map display;
3. Used with an external lightning detection system, it presents a visual display of lightning strikes or cells overlaid on the moving map display;
4. Used with an external radar receiver/transmitter, it displays radar echo image data on a radar display page, or overlaid on the moving map display;
5. Used with an external Terrain Awareness Warning System, it displays EGPWS terrain image data on a TAWS display page;
6. Used with an external GPS navigator, it displays the current active flight plan overlaid on the moving map display and in textual formats;
7. Using an internal digital data link transceiver, it displays strategic weather information in graphical and textual formats.

3. Control and operation information

The Front Bezel serves as the physical interface to the pilot and consists of the following user interface controls and display:

1. Ten backlit line select keys;
2. Variable function knobs, as discussed below;
3. An LCD active matrix color graphics display;
4. Display brightness control with backlit labeling;
5. Power on-off pushbutton with backlit labeling;
6. A USB port for performing nav database updates.

The system is equipped with two sets of concentric knobs; the two left knobs select bearing line and radar tilt in Map, Radar, and TAWS pages, while the two right knobs select page and range on Map, Radar, and TAWS pages, and page and line selection on other pages. Complete operational details are provided in the referenced FlightMax EX500-Series MFD Pilot's Guide.

4. Servicing information

This section is not applicable.

5. Maintenance instructions

Scheduled Maintenance Program tasks to be added to the aircraft operator's appropriate aircraft maintenance program are as follows:

5.1 Recommended periodic scheduled servicing tasks

The Avidyne EX500-Series MFD contains a 3-volt lithium battery that maintains CMOS memory on an internal processor board and should be replaced after 10 years of service, or when CMOS memory fails to retain configuration data, whichever occurs first. The Avidyne EX500 must be returned to an authorized FAA repair station to perform this maintenance function. Failure of the CMOS memory is indicated by the message "WARNING: CMOS battery failure. Check database expiration date. Press any bezel key to continue" on a blue background prior to system boot up. After system boot up, the MFD will function normally, but will not have retained the system date and time. If the system is interfaced to the GNS 430 through ARINC 429, it will acquire current date and time from the GNS 430 when valid data is received.

5.2 Recommended periodic scheduled preventive maintenance tests/checks

None required.

5.3 Recommended periodic scheduled inspections

None required.

5.4 Recommended periodic structural inspections

None required.

6. Troubleshooting information

The Avidyne MFD incorporates a message bar located at the bottom of the display. Messages are generated by the system and displayed on the message bar and are helpful in troubleshooting system problems. Refer to Sensor manufacturer installation and users manual to assist in troubleshooting. The following tables present the messages that are generated by each application.

Table 1 - GPS/FMS Messages

<i>Message</i>	<i>Meaning/Action</i>
Nav Source Is Not Communicating	No RS 232 or ARINC 429 GPS data is being received.
Nav Source Data Is Not Valid	Data is being received from the external GPS. However, insufficient information is available from the GPS to determine position. <ul style="list-style-type: none"> ○ Verify that the GPS has determined its "fix" or location
Nav Source Data Format Error	The MFD does not recognize the data being received from the GPS.
Nav Source Can't Open Port (err=x)	The MFD is incorrectly setup with two devices on the same port.
Nav Source Reconnecting ...	The data between the MFD and the GPS is being synchronized.
Heading Data Is Not Valid	When the GPS is being used as the heading source, heading data is no longer available from the GPS. <ul style="list-style-type: none"> ○ Verify that the GPS has determined its "fix" or location.

Table 2 - Lightning Messages

<i>Message</i>	<i>Meaning/Action</i>
Lightning Sensor Error	The sensor system has reported an error. <ul style="list-style-type: none"> ○ Refer to lightning sensor user's manual to troubleshoot.
Lightning Sensor Has Failed	The sensor system has reported an error. <ul style="list-style-type: none"> ○ Refer to lightning sensor user's manual to troubleshoot.
Lightning Sensor Is Not Communicating	Communication of strike data from the lightning sensor to the MFD has been lost. <ul style="list-style-type: none"> ○ Verify that the sensor is turned on.
Lightning Heading Source Failed	When the lightning sensor is being used as the heading source, heading data is no longer available from the sensor. <ul style="list-style-type: none"> ○ Refer to lightning sensor user's manual to troubleshoot.
Lightning –Antenna Location Changed (Maintenance Mode)	Present when the antenna installation configuration between the MFD and the WX500 is different.

Table 3 - Traffic Messages

<i>Message</i>	<i>Meaning/Action</i>
Traffic Sensor Is Not Communicating	The traffic sensor is reporting a failure condition or not receiving valid data. <ul style="list-style-type: none"> ○ Refer to traffic system user's manual to troubleshoot.
TCAD Altitude Unavailable {TCAD}	Altitude data is not being received by the traffic sensor. <ul style="list-style-type: none"> ○ Verify that the sensor is turned on. ○ Refer to traffic sensor user's manual to troubleshoot.
Traffic Sensor Heading Source Is Failed {TCAS, TAS}	When the traffic sensor is being used as the heading source, heading data is no longer available from the sensor. <ul style="list-style-type: none"> ○ Refer to traffic sensor user's manual to troubleshoot.

Table 4 - RADAR Messages

<i>Message</i>	<i>Meaning/Action</i>
Radar Sensor Data Is Invalid	Data received from the RADAR sensor system can not be used by the EX500 <ul style="list-style-type: none"> ○ Cycle power on the EX500. ○ Refer to RADAR Sensor user's manual to troubleshoot.
Radar Sensor Has Failed	The RADAR sensor system has reported an error. <ul style="list-style-type: none"> ○ Refer to RADAR Sensor user's manual to troubleshoot.
Radar Sensor Is Not Communicating	Communication of return data from the RADAR sensor to the MFD has been lost. <ul style="list-style-type: none"> ○ Verify that the RADAR sensor is turned on.
Invalid GPS Data and Radar is ON	The RADAR is ON and the EX500 has no ground speed data available from the GPS/FMS. <ul style="list-style-type: none"> ○ Verify the GPS/FMS is ON. ○ Refer to RADAR Sensor user's manual to troubleshoot.
Radar Automatic Standby Disabled	The RADAR is ON, the EX500 RADAR automatic standby mode is disabled, and the EX500 has no ground speed data available from the GPS/FMS.

Table 5 - TAWS Messages

<i>Message</i>	<i>Meaning/Action</i>
TAWS Display Failed	An incorrect system configuration or failure in one of the system components has occurred. <ul style="list-style-type: none"> ○ Verify that the sensor is turned on.
TAWS Display Initializing	If message does not clear within 60 seconds, communication between the EX500 and the terrain sensor has not been established. <ul style="list-style-type: none"> ○ Verify that the sensor is turned on. ○ Refer to terrain sensor user's manual to troubleshoot.
TAWS Not Communicating	Indicates that the EX500 is not receiving data from the terrain sensor. <ul style="list-style-type: none"> ○ Verify that the sensor is turned on. ○ Refer to TAWS sensor user's manual to troubleshoot.
TAWS Display Unavailable	The TAWS Sensor has declared itself inoperative. <ul style="list-style-type: none"> ○ Verify that the sensor inputs to the TAWS are turned on. ○ Refer to TAWS sensor user's manual to troubleshoot.
TAWS Sensor Self-Test	The TAWS Sensor is performing a Self-Test. The message will remain until the self-test is finished. <ul style="list-style-type: none"> ○ Verify that the "INHIBIT" mode has been not been selected at the separate TAWS control panel. ○ Refer to TAWS sensor user's manual to troubleshoot.
TAWS Display Inhibited	The TAWS sensor is in the "Self-Test" mode. <ul style="list-style-type: none"> ○ Verify that the "Self-Test" mode has been not been selected at the separate TAWS control panel. ○ Refer to TAWS sensor user's manual to troubleshoot.

Table 6 - Datalink Messages

<i>Message</i>	<i>Meaning/Action</i>
Datalink Sensor Data Is Invalid	The EX500 has received unreadable satellite data.
Datalink Sensor Configuration Error	The EX500 is improperly configured for datalink. <ul style="list-style-type: none"> ○ Requires factory servicing. Refer to Factory Service Policies section of this manual.
Datalink Sensor Is NOT Communicating	The EX500 is experiencing a communication failure with the internal Satellite transceiver. <ul style="list-style-type: none"> ○ Requires factory servicing. Refer to Factory Service Policies section of this manual.

Table 7 - Heading Messages

<i>Message</i>	<i>Meaning/Action</i>
Synchro Heading is NOT Valid	The EX500 not receiving or is receiving bad heading synchro data.

Upon loss of unit functionality post-installation, the following post-flight actions may be taken:

- i. Perform post-installation checkout procedures in accordance with the procedures contained with in the FlightMax EX500-Series MFD Installation Manual,
- ii. Perform installation checkout or self-test procedures for sensors (EGPWS, RADAR, etc.) interfaced to the EX500,
- iii. Contact Avidyne for return authorization and instructions. Contact information is available at www.avidyne.com.

7. Removal and replacement information

Removal and replacement instructions, including system set-up and installation verification, are contained in the referenced FlightMax EX500-Series MFD Installation Manual. Unit removal, installation, setup and checkout should be performed by an Avidyne Authorized Service Center. A current list of authorized centers may be found on the Web at www.avidyne.com.

7.1 Removal

To remove the EX500 MFD from the radio rack, loosening the unit locking key with 3/32" Allen wrench having a minimum length of 3.5 inches. With power off the system, pull the unit from its rack.

7.2 Installation

With power off the system, insert the EX500 MFD into the radio rack tray and tighten the locking key with a 3/32" Allen wrench having a minimum length of 3.5 inches.

Upon reinstallation, a functional check should be performed in accordance with the System Setup and Checkout procedures detailed in Section 7.3

7.3 System Setup and Checkout

Any time the Avidyne MFD is removed and sent to the factory for service, or is replaced with another unit, these system setup procedures should be performed to assure that the unit is properly configured for the installation. System set-up and installation verification procedures are contained in the FlightMax EX500-Series MFD Installation Manual.

8. Diagrams

This section is not applicable.

9. Special inspection requirements

This section is not applicable.

10. Application of protective treatments

This section is not applicable.

11. Data

This section is not applicable.

12. List of special tools

A size 3/32" Allen wrench, with a minimum length of 3.5 inches, is required to loosen the tray locking mechanism.

13. For commuter category aircraft

This section is not applicable.

14. Recommended overhaul periods

This section is not applicable.

15. Airworthiness limitation section

The Airworthiness Limitations section is FAA approved and specifies maintenance required under §43.16 and §91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no additional airworthiness limitations as a result of this modification.

16. Revision

Revisions to this document shall be coordinated through the Boston Aircraft Certification Office, the Kansas City AEG, and the STC holder. Inquiries relating to the ICA should be made to Avidyne Corporation. If you would like to be notified of future revisions to this manual please furnish the information listed below:

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