Avidyne 700-00182-XXX, 700-00179-XXX and 700-00194-XXX
Integrated Flight Display
Instructions for Continued Airworthiness

As installed in

_____

(Make and Model Airplane)

Reg. No. _____ S/N_____

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Important Notice

With respect to the AML STC, the physical mounting of antennas are specifically excluded from the approval in the case of installations on the pressure vessel of pressurized aircraft or composite aircraft unless approved data is listed in the Master Document List of the STC.

Document Revision History

Document Number	AVIFD-315	**Control Category**	
Revision	**Description**	**ECO**	**Date**
00	Initial Release	ECO-13-199	08/30/13
01	AEG Comments	ECO-13-350	09/27/13
02	Update Part Numbers	ECO-13-405	01/20/14
03	Removing ADS-B	ECO-14-059	03/03/14
04	Added 700-00179-XXX	ECO-15-129	03/20/15
05	AEG Comments	ECO-15-169	04/22/15
06	FAA Comments	ECO-15-193	05/05/15
07	Update f or Release 10.2. Added IFD410, IFD510, IFD545, IFD550, ARS troubleshooting instructions and IFD550 figure	ECO-16-326	12/21/16
08	Address AEG comments sections 2, 6, 7	ECO-17-013	01/18/17
09	Add additional configuration to table1, section 1.5	ECO-19-050	04/17/19
10	Add additional part numbers and Atlas	ECO-21-196	09/30/21

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1. Introduction

This document identifies the Instructions for Continued Airworthiness (ICA) for the modification of the aircraft listed in AVIFD-318 Integrated Flight Display STC Approved Model List by installation of an Avidyne 700-00182-XXX (IFD5XX) and/or 700-00179-XXX (IFD4XX) and/or 700-00194-XXX (Atlas) Integrated Flight Display.

This ICA satisfies the requirements of 14 CFR 23.1529.

Modification of an aircraft by this Supplemental Type Certificate obligates the aircraft operator to include the maintenance information provided by this document in the operator's Aircraft Maintenance Manual and the operator's Aircraft Scheduled Maintenance Program.

1.1 Applicability

This document applies to aircraft altered by the installation of the following equipment. Equipment should be installed using data listed in 700-00182-XXX/700-00179-XXX/700-00194-XXX Integrated Flight Display Master Document List, document number AVIFD-306:

Table 1 IFD Part Number Variants

Part Number	Description
700-00179-010 700-00179-210 700-00179-710	INTEGRATED FLIGHT DISPLAY, IFD410, BLACK BEZEL
700-00179-110 700-00179-310 700-00179-810	INTEGRATED FLIGHT DISPLAY, IFD410, GREY BEZEL
700-00179-000 700-00179-200 700-00179-700	INTEGRATED FLIGHT DISPLAY, IFD440, BLACK BEZEL
700-00179-100 700-00179-300 700-00179-800	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL
700-00182-010 700-00182-210 700-00182-710	INTEGRATED FLIGHT DISPLAY, IFD510, BLACK BEZEL
700-00182-110 700-00182-310 700-00182-810	INTEGRATED FLIGHT DISPLAY, IFD510, GREY BEZEL
700-00182-000	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL

Part Number	Description
700-00182-200 700-00182-700	
700-00182-001 700-00182-201 700-00182-701	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL WITH VIDEO
700-00182-002	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL, 16W VHF
700-00182-100 700-00182-300 700-00182-800	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL
700-00182-101 700-00182-301 700-00182-801	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL WITH VIDEO
700-00182-102	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL, 16W VHF
700-00182-030 700-00182-230 700-00182-730	INTEGRATED FLIGHT DISPLAY, IFD545, BLACK BEZEL
700-00182-031 700-00182-231 700-00182-731	INTEGRATED FLIGHT DISPLAY, IFD545, BLACK BEZEL, WITH VIDEO
700-00182-130 700-00182-330 700-00182-830	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL
700-00182-131 700-00182-331 700-00182-831	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL, WITH VIDEO
700-00182-020 700-00182-220 700-00182-720	INTEGRATED FLIGHT DISPLAY, IFD550, BLACK BEZEL
700-00182-021 700-00182-221 700-00182-721	INTEGRATED FLIGHT DISPLAY, IFD550, BLACK BEZEL, WITH VIDEO
700-00182-120 700-00182-320 700-00182-820	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL
700-00182-121 700-00182-321 700-00182-821	INTEGRATED FLIGHT DISPLAY, IFD550, GREY BEZEL, WITH VIDEO

Part Number	Description
700-00194-020	INTEGRATED FLIGHT DISPLAY, ATLAS, BLACK BEZEL
700-00194-021	INTEGRATED FLIGHT DISPLAY, ATLAS, BLACK BEZEL WITH VIDEO
700-00194-120	INTEGRATED FLIGHT DISPLAY, ATLAS, GREY BEZEL
700-00194-121	INTEGRATED FLIGHT DISPLAY, ATLAS , GREY BEZEL WITH VIDEO

1.2 Definitions and Abbreviations

AML - Approved Model List

ARS – Attitude Reference Sensor

ICA - Instructions for Continued Airworthiness

IFD - Integrated Flight Display

STC - Supplemental Type Certificate

AMM – Aircraft Maintenance Manual

1.3 Precautions

This section is not applicable.

1.4 Units of Measure

This section is not applicable.

1.5 Referenced Publications

Document Number	*Title*
600-00299-000	IFDSeries Installation Manual
600-00300-001	IFD5XX Series Pilot's Guide
600-00300-002	Atlas Series Pilot Guide
600-00304-000	IFD4XX Series Pilot's Guide
89000039-010	Bendix King AeroNav 900 and 910 Pilot's Guide
89000041-008	Bendix King AeroNav 800 Pilot's Guide
89000046-013	Bendix King KSN 9XX AERONAV Installation Manual

Distribution

This Instruction for Continued Airworthiness is to be furnished with new production IFD systems and is to become part of the permanent aircraft records 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).

In the event of a service bulletin or other circumstances that require an update, Avidyne will notify the contact as listed on the owner registration.

2. Description

The IFD system is a panel mounted integrated system that provides navigation, communication, and multifunction display capability in one display. The IFD can display information from a wide variety of aircraft sensors. The IFD's are available in the following variations:

IFD540 - AeroNav 900	Baseline 5.7" Display unit with GPS/NAV/COM
IFD550 - AeroNav 910	Same as IFD540 but with integral attitude reference sensor ARS, add'l page button (SVS)
IFD545 -	Same as IFD540 but with integral attitude reference sensor ARS, add'l page button (SVS) without NAV/COM functions, GPS only, left knob removed
IFD510 -	Same as IFD540 but without NAV/COM functions, GPS only, left knob removed
IFD440 - AeroNav 800	Baseline 4.8" Display unit with GPS/NAV/COM
IFD410 -	Same as IFD440 but without NAV/COM functions, GPS only, left knob removed
ATLAS	Baseline 5.7" Display same as IFD550, Dzus mount unit with GPS/NAV/COM

The IFD410 and IFD440 can be a plug-and-play replacement for the Garmin GNS4XX series of NAV/COM/GPS units.

The IFD510, IFD545, IFD540 and IFD550 can be a plug-and-play replacement for the Garmin GNS5XX series of NAV/COM/GPS units.

When replacing a Garmin unit, follow the existing approved ICA, STC manual, or OEM instructions.

2.1 Equipment Locations

The installer should indicate on the outlines below the locations for the following items at the time of installation: IFD unit, wire harness location and routing, coaxial cables, and antennas. Use Figure 1 for single engine airplanes or Figure 2 for multi engine airplanes and Figure 3 for Jet Aircraft.

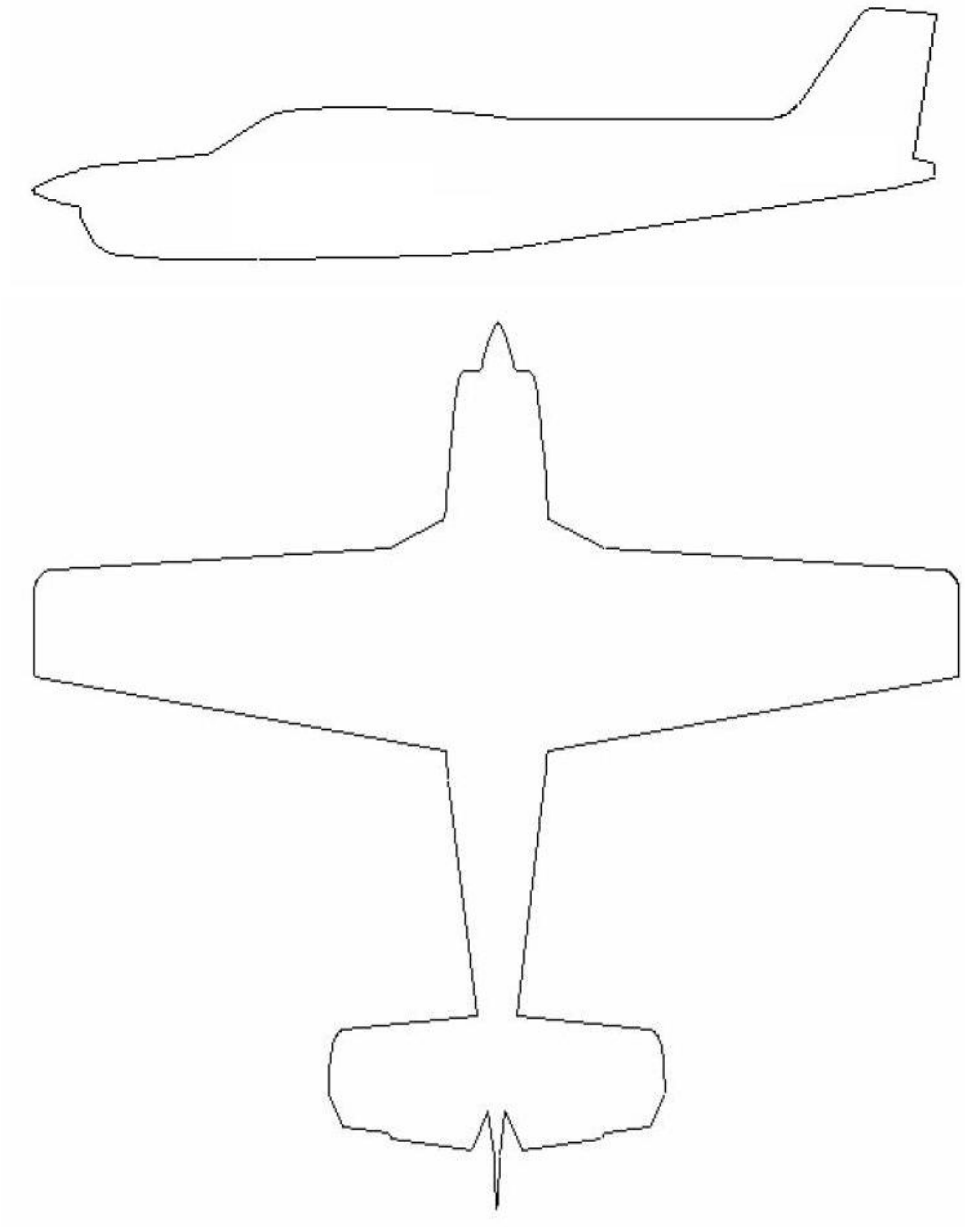


Figure 1: IFD Location - Single Engine

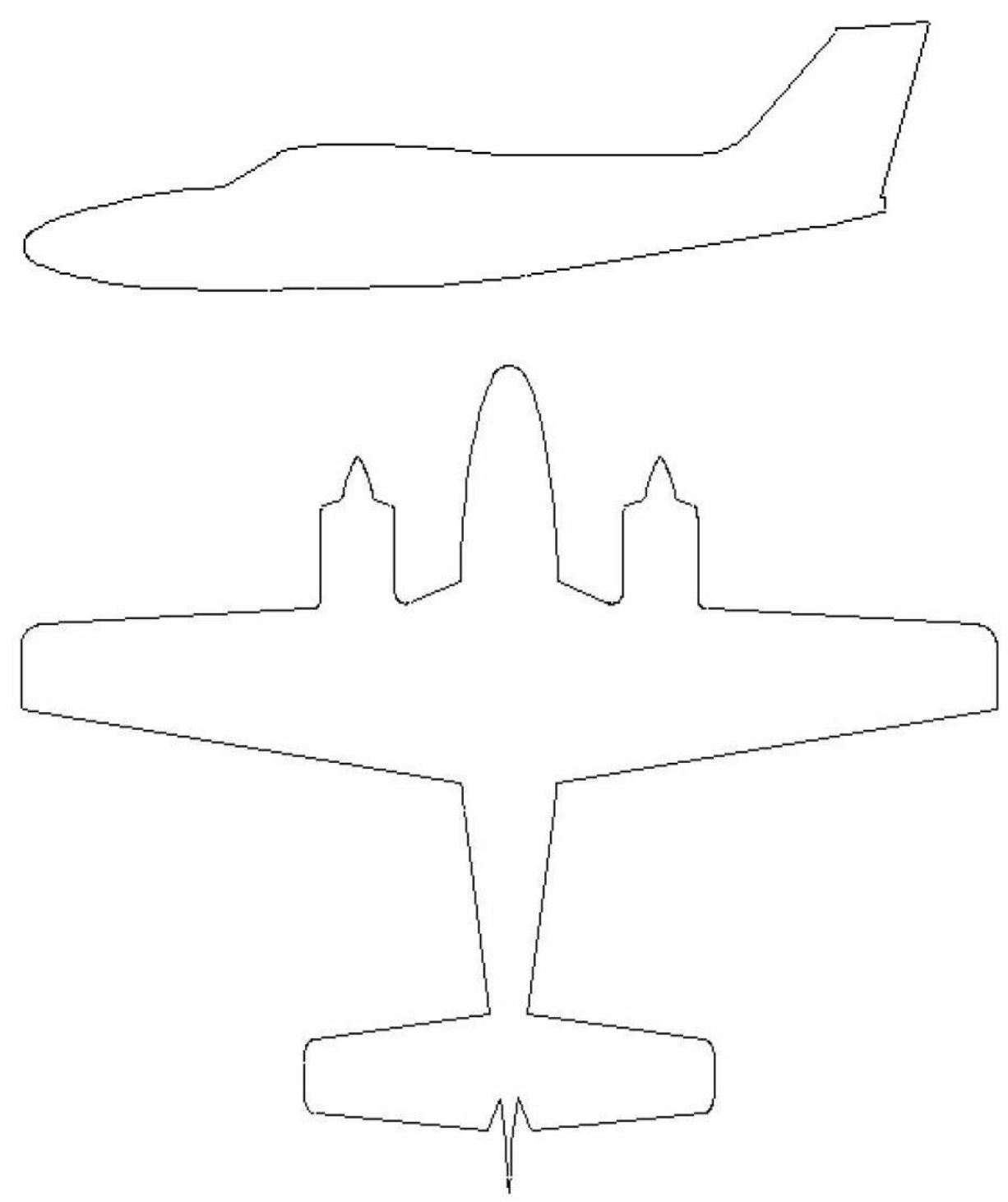
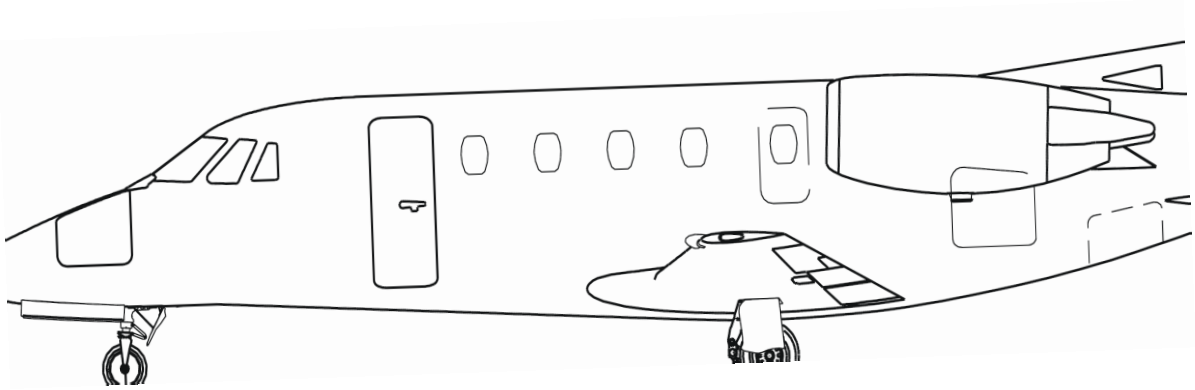


Figure 2: IFD Location – Multi Engine



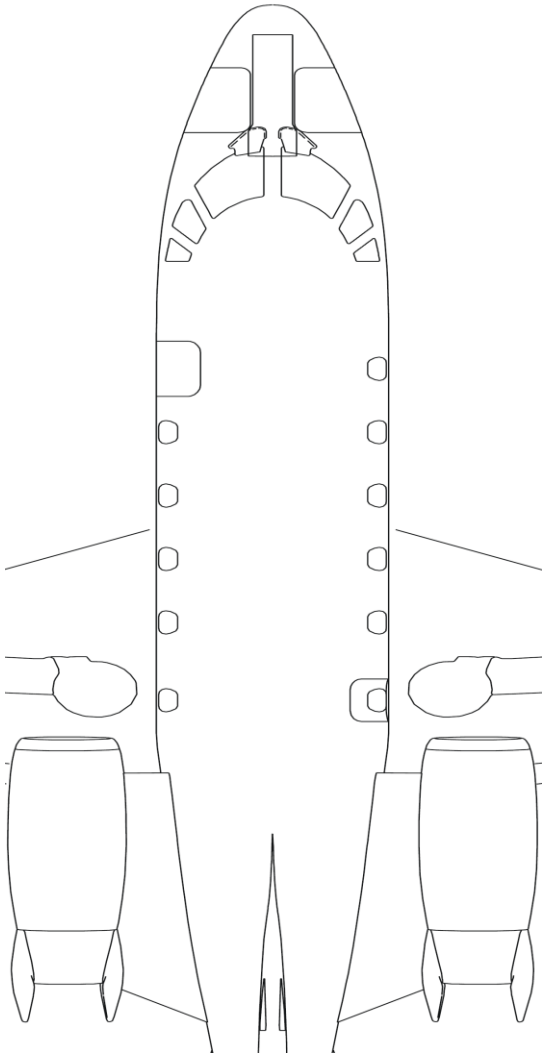


Figure 3: IFD Location – Jet Aircraft

3. Control and Operation Information

The IFD System can be controlled using the button and knobs on the bezel of the unit. Alternately, some functions can be controlled using the touch-screen on the unit's display.

Figure 4: IFD540/510 Unit

Figure 5: IFD4XX Unit

Figure 6: IFD545/550 Unit

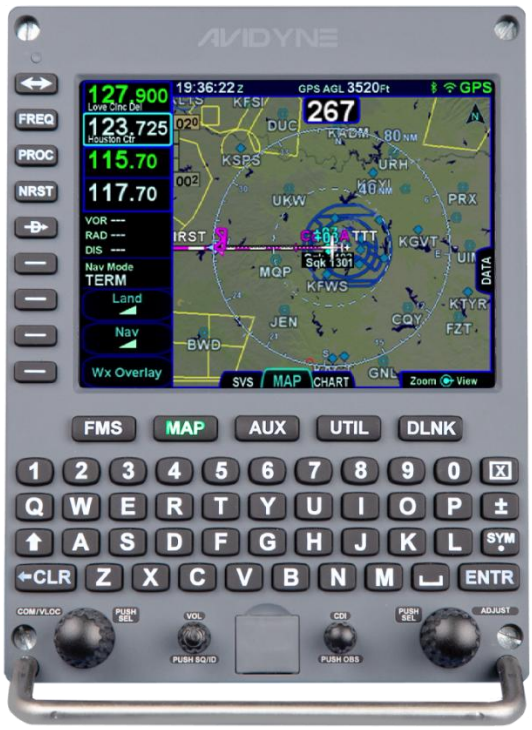


Figure 7: Atlas Unit

3.1 Page Function Keys

The 3 buttons along the bottom of the IFD bezel are called Page Function Keys. Each key is labeled by function:

- ***FMS (Flight Management System)***
- ***Map (Moving Map)***
- ***AUX (Auxiliary Pages)***

Each page has a number of associated tabs. Each Page Function key has a left and right rocker nature to it. Select the page of interest by pressing the middle of the Page Function Key and navigate through the available tabs by pressing the left or right.

3.2 Line Select Keys

Line Select Keys, typically abbreviated to LSK, are the buttons found along the left side of the bezel. A label, just inside the bezel – adjacent to the physical LSK, indicates the function of the LSK. Pressing the LSK or the label either performs the labeled action or changes the state. For the cases where there is a list of selectable options, browse the list by repeatedly pressing the LSK or label.

4. Servicing Information

The 700-00182-XXX, 700-00179-XXX IFD and 700-00194-XXX Atlas can only be serviced by qualified and properly rated facility.

5. Maintenance Instructions

Other than the scheduled and periodic inspection tasks discussed below, maintenance of the Avidyne IFD is based on condition and function only; no other periodic maintenance is required.

5.1 Scheduled Maintenance

The following tasks may be required on the IFD:

a. If the IFD is providing GPS position to the ELT, every 12 months verify the Emergency Locator Transmitter (ELT) is operating correctly per the ELT maintenance instructions.

5.2 Recommended periodic scheduled servicing tasks

There are no life limited components in the IFD that require scheduled inspection or service. Perform the following inspections during annual/100 hour maintenance interval to establish airworthy condition and function.

Operations under Approved Maintenance Programs or Part 135 Operations: (Ref: 23.1529) The following is consistent with the requirements of **14 CFR 91.409(a)(b)(c)(d)(e)(f)** and **Part 135 APPROVED MAINTENANCE / INSPECTION PROGRAMS** required by **135.419** for periodic inspection of certificated aircraft and installed equipment.

1. During any maintenance activities involving the IFD System perform (i.e. IFD removal, cable repair…) a post-installation check as described in Installation Manual, Integrated Flight Display Installation Manual 600-00299-000.
2. Visually inspect (no magnification required) wire/bundle, coaxial cables, overbraid (if installed), and routing for evidence of damage, chafing, grounding, security, bonding, integrity of shields, and connector backshell condition.
3. Visually inspect (no magnification required) the mechanical installation for any defects or damage to the aircraft structure or to the IFD.
4. Visually inspect (no magnification required) the GPS, COM, NAV, and Glideslope antennas. Verify bonding of the antennas is no greater than 2.5 milliohm.
5. Verify that the bonding between the aircraft and each unit of the IFD system should have a resistance no greater than 2.5 milliohm as described in the Integrated Flight Display Installation Manual 600-00299-000.

6. Verify that all mandatory Service Alerts and/or Service Bulletins for the IFD System have been accomplished. (This can be done using the internet at www.avidyne.com).

5.3 Software Upgrade

The following procedures should be followed when performing optional or mandatory software change to the IFD System:

1. Acquire the software image and associated loading procedure from the manufacturer.
2. Verify the software part number configuration before and after maintenance is performed on the airborne equipment using the loading procedure instructions.
3. It is the responsibility of maintenance personnel to ensure the identified part is recorded in the necessary maintenance logs.
4. It is the maintenance personnel's responsibility to ensure that the software part identification has been logged. When new software is loaded into the unit, the correct software part number should be verified according to the instructions accompanying the software change before the unit is returned to service. Hardware versions are identified on the data label by brackets following the main part number.
5. Changes to software part number, version, and/or operational characteristics should be reflected in the Operator's Manual, Aircraft Flight Manual, Aircraft Flight Manual Supplement, and/or any other appropriate document.

6. Troubleshooting Information

Refer to the manufacturers' installation and user's manuals to assist in troubleshooting. The following items present common installation problems and recommended actions for the Avidyne IFD System.

Component	Trouble	Probable Cause	Solution
GPS	The IFD is not computing a position	Aircraft is not positioned in a location to receive GPS satellites	Move aircraft to a better location
		GPS Antenna System	Check Antenna coaxial cables for proper assembly
			Check or replace the GPS antenna
	The GPS Signal Levels drop when avionics are turned on.	Noise interference from other avionics	Turn off all avionics off, then turn on each piece one at time to isolate the interference to the
	The GPS signal levels are very low.	Antenna	Verify the GPS antenna is connected to the correct antenna
			Repair or Replace antenna
		Antenna shaded from satellites	Move aircraft to a better location
		Interference from avionics	Re-route GPS antenna system away from sources of interference.
		Interference from a VHF Communication transmitter	Move GPS antenna away from the VHF Communication antenna or install a 1575.22 MHz notch filter.
VHF Communication	VHF Communication transceiver is not transmitting	The PTT input is not being grounded	Check PTT input to the IFD
	VHF Communication transceiver power is low	VSWR too high	Check VSWR is less than 3:1
		Coaxial Cable	Repair or replace coaxial cable
		Antenna	Repair or Replace VHF Com antenna
Navigation Receiver	VHF Navigation Receiver not receiving VOR/LOC station	VHF Navigation station not tuned correctly.	Tune the IFD to the correct station
		Antenna	Repair or Replace Antenna
		Diplexer	Repair or Replace Diplexer
		Coaxial Cables	Repair or Replace Cable
Attitude Reference System (ARS) (IFD545 /550 / Atlas)	The pitch ladder and horizon are replaced with Red X	ARS Failure	Replace IFD
RMI pointer	RMI not displaying indicating correctly	Wiring	Check wiring
		Desired RMI not selected	Select the IFD on the RMI

Component	Trouble	Probable Cause	Solution
		VHF Navigation station not tuned correctly.	Tune the IFD to the correct station
DME	IFD is not tuning the DME correctly	IFD configuration	Verify the IFD is configured for the correct DME
		Wiring	Check wiring
		VHF Navigation station not tuned correctly	Tune the IFD to the correct station
ARINC device	ARINC 429 is not receiving / transmitting data from the IFD	Wiring	Make sure wire harness is connected. Check the wire harness and repair or replace if needed.
		IFD configuration	Verify the IFD is configured for the ARINC device Verify the ARINC 429 device speed is set correctly on the IFD
RS-232 device	ARINC 429 is not receiving / transmitting data from the IFD	Wiring	Make sure wire harness is connected. Check the wire harness and repair or replace if needed.
		IFD configuration	Verify the IFD is configured for the RS-232 device Verify the RS-232 device speed is set correctly on the IFD
Battery Replacement	Battery Annunciation on IFD	The IFD internal battery has failed	Contact Avidyne for Repair

7. Removal and Replacement Information

Removal and replacement instructions, including system set-up and installation verification, are contained in the Integrated Flight Display Installation Manual. Unit removal, installation, setup and checkout should be performed by an Avidyne Authorized Service Center.

Caution: Prior to removing any piece of electronic equipment, aircraft power must be removed from the system.

7.1 IFD5XX/IFD4XX Removal

1. Insert a 3/32" hex wrench into the hole on the front panel on the IFD5XX/IFD4XX and engage locking screw.
2. Turn the locking screw counter-clockwise to loosen locking cam. Cam will move the unit out ¼" and disengage the electrical connectors.
3. Remove unit from tray.

7.2 IFD5XX/IFD4XX Installation

1. Slide the IFD5XX/IFD4XX unit into the tray.
2. Insert a 3/32" hex wrench into the hole on the front panel on the IFD5XX/IFD4XX and engage locking screw.
3. Turn the locking screw clockwise to tighten the locking cam until the unit is flush to the tray.
4. Perform post-installation verification per Section 7.9.

7.3 ATLAS Removal

1. Dsuz.

   Use an appropriate flat blade screwdriver to disengage the four dzus fasteners (1/4 turn CCW) which are captive in the atlas bezel. Disconnect electrical and coax connectors.

7.4 ATLAS Installation

Use an appropriate flat blade screwdriver to engage the four dzus fasteners (1/4 turn CW) which are captive in the atlas bezel. Connect electrical and coax connectors. Ensure cable bundles and coaxial cables are appropriately secured.

7.5 GPS Antenna Removal

1. Remove sealant from around the base of the antenna.
2. Disconnect coaxial cable

3. Remove fasteners from antenna
4. Lift antenna clear of fuselage

7.6 GPS Antenna Installation

1. Position antenna on aircraft
2. Attach antenna to fuselage with fasteners
3. Verify the GPS antenna is bonded to the airframe. With the coaxial cable disconnected, the bond between the antenna base plate and the aircraft metallic skin must measure ≤ 2.5 milliohm
4. Seal any minor gaps between the antenna base plate or gasket and the aircraft skin with RTV silicone adhesive sealant
5. Connect GPS coaxial cable
6. Perform post-installation verification per Section 7.9.

7.7 Tray Removal

1. Remove IFD from Tray, See Section 7.1
2. Remove fasteners from Tray and Connectors
3. Remove tray from instrument panel

7.8 Tray Installation

1. Re-install fasteners in connectors and tray
2. Re-install IFD, see Section 7.2
3. Verify the tray is bonded to the airframe. The bond between the tray and the airframe must measure ≤ 2.5 milliohm
4. Perform post-installation verification per Section 7.9.

7.9 System Setup and Checkout

After any maintenance activity involving the IFD System, the post-installation checkout should be performed. Verify the following functions of the IFD are operating correctly, reference the IFD Installation Manual and Pilot Guide as need.

The installation manual, Avidyne Document 600-00299-000 Rev. 23 (or later FAA approved revision), contains detail setup and testing information if needed.

7.9.1 VHF Communication Checkout

Tune the VHF Communication Transceiver to an unused frequency, verify the IFD can receive and transmit on that frequency.

7.9.2 Navigation Checkout

Verify the IFD GPS Navigation and VHF Navigation (if installed) is operating correctly including navigation source selection. If installed, verify the following is operating correctly: navigation displayed on a CDI/HSI, external annunciation, and audio output.

7.9.3 External Sensor Checkout

The IFD can be connected to several different external sensors. Verify each sensor is operating correctly per the manufacturer's maintenance information.

8. Application of Protective Treatments

This section is not applicable.

9. Data

Reference the STC Master Document List, Avidyne Document AVIFD-306, for installation data. The Installation Manual, Avidyne Document 600-00299-000 Rev. 23 (or later FAA approved revision), contains the wiring diagrams for the system. Also, reference FAA AC 43.13 as needed.

10. List of Special Tools

No special tools are required for this installation.

11. For Commuter Category Aircraft

This section is not applicable.

12. Recommended Overhaul Periods

No overhaul periods are required for this installation.

13. Airworthiness Limitations Section

There are no Airworthiness Limitations as defined in 14 CFR § 23, Appendix G. 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.

14. Revision

Revisions to this document shall be coordinated through the Boston Aircraft Certification Office, the Kansas City AED, and the STC holder. If you would like to be notified of future revisions to this manual please furnish the information listed below:

Name
Address
City, State, and ZIP Code
Part Number of Manual
Current Revision Status of the Manual
E-mail address
Phone Number

Please submit this information to:

Avidyne Corporation
710 North Drive
Melbourne, FL 32934

15. Assistance

For questions or assistance regarding this ICA, contact Avidyne Corporation.

16. Database Assurance

Data quality requirements for databases utilized by the IFD4XX/5XX/Atlas IFDs are contained in Avidyne document AVFMS-025. It is the responsibility of the IFD operator to review the released statement(s) associated with the databases loaded in the IFD4XX/5XX/Atlas. Release statements (ref AC 20-153B paragraph 13) are published on the Avidyne website

https://www.avidyne.com/customer-technical-support/

17. Implementation and Record Keeping

This ICA must be incorporated into applicable section for aircraft inspections, 91.409 for annual/100 hour inspections or 135.419 for FAA approved alternate inspections.