



SkyView HDX

General Maintenance Manual

Includes Instructions for Continued Airworthiness (ICA)

STC SA02594SE

103221-000

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Revision History

REV	DYNON SUBMITTAL DATE	CHANGE DESCRIPTION
O	3/9/2026 ECO 403002	<ul style="list-style-type: none"> Revised the Altimeter row of Table 10 of Section 7.1: Periodic Maintenance to list specific CFR tests that are not required and explain why they are not required. <p>Accepted as Minor Change by FAA on March 9, 2026.</p>
N	10/11/2024 ECO 394548	<ul style="list-style-type: none"> Revised Figure 24 in Section 4.5.10 to show SV-COM-PANEL with OLED screen. Revised verbiage in Section 6.11.16 to include Kavlico MAP sensor. <p>Accepted by Anchorage ACO on 10/22/2024.</p>
M	05/08/2024 ECO 391623	<ul style="list-style-type: none"> Added Mooney M20 Autopilot Kit to Sections 3, 6.24, and 7.1. Revised figures and text in Sections 4.6.5, 5.15.6, and 6.27 for SV-BUTTON-APDISC Autopilot Disconnect Button. Revised figures and text in Sections 4.6.6, 5.15.7, and 6.29 for Autopilot Level Button. Added Section 5.15.3: Yaw Servo Calibration Failure. Added Section 6.22: Autopilot Servos with Capstans and Bridle Cables. Added Section 6.23: Autopilot Servos with Arms and Pushrods. Added Section 6.24: Autopilot Servo Shear Screw. Added Section 6.25: Autopilot Servo Arm and Capstan. Revise Table 10 in Section 7.1 to include autopilot servo information. Rearranged order of Sections 7.5 through 7.8 to reflect order of operations. Added Section 7.10: Autopilot Servo Calibration. Added Section 7.11: Autopilot Servo Test procedure Added Section 7.12: Autopilot Servo Operation Check Added Section 7.13: Autopilot Servo Cable Guard Adjustment. <p>Accepted by Anchorage ACO on 09/26/2024.</p>
L	06/05/2023 ECO 381380	<ul style="list-style-type: none"> Revised Section 1.6: Reference Documents to add Beechcraft Baron 58 Autopilot Installation and Maintenance Manual document. Revised Section 3: Installed Components and ICA Locations with Beechcraft Baron 58 autopilot components. Revised Section 4.5.1: Standby Flight Display to be more specific about requiremnt and point to the EFIS-D10A Installation and Maintence Manual document. Revised and updated alert artwork in Section 4.7: Flight Crew Alerting System per latest software and per DER feedback on similar AFMS document. (No change bars if change was only new artwork.) Updated screenshots in Section 4.5.9.2: Single-Engine Airplanes. Revised Section 6.22: Autopilot Servos with Beechcraft Baron 58 autopilot installation document. <p>Accepted by Anchorage ACO on 12/21/2023.</p>
K	06/01/2023 ECO 386804	<ul style="list-style-type: none"> Removed FAA Acceptance column from Revision History table per feedback from AACO. (No change bar for this change). Revised FAA office location in Section 2: Airworthiness Limitations. Revised Section 1.6: Reference Documents to add D30 Installation and Maintenance Manual document. Revised Section 3: Installed Components and ICA Locations with D30 standby flight display components. Revised Section 4.5.1: Standby Flight Display to be more specific about requirement and point to the EFIS-D10A Installation and Maintenance Manual and the D30 Installation and Maintenance Manual documtns. <p>Accepted by Anchorage ACO on 07/11/2023.</p>
J	01/19/2022 ECO 377366	<ul style="list-style-type: none"> Revised Contact Information section and links within doc with current info and addresses. Revised Section 1.6: Reference Documents with Cessna 182 autopilot installation document. Revised Section 3: Installed Components and ICA Locations with Cessna 182 autopilot components. Revised Section 6.22: Autopilot Servos with Cessna 182 autopilot installation document. <p>Accepted by Seattle ACO on 2/11/2022</p>

I	10/21/2021 ECO 355957	<ul style="list-style-type: none"> • Updated document page numbering and headers/footers to follow GAMA2 standard. • Revised Revision History table to be clearer that some submitted revisions were not accepted by FAA. • Removed FAA Approval section per FAA feedback received on 9/21/2021. • Revised Section 2 per FAA feedback received on 9/21/2021. • Added new Section 3: Installed Components and ICA Locations to provide a list and description of components and point to where ICAs are located for the components per FAA feedback received on 9/21/2021. Subsequent sections renumbered. • Renamed and renumbered old Section 3.1.1: Controls to 4.2: Basic Control and Operation and made old Sections 3.1.2 and 3.1.3 subsections to 4.2. Subsequent sections renumbered. • Revised and moved Section 4: System Operation to Section 4.3 to be continuous with other operational sections. Subsequent sections renumbered. • Revised verbiage in Section 4.5.1: Standby Flight Display to clarify EFIS-D10A role in SkyView HDX system. • Updated Yaw Damper annunciation in Section 4.7.4: Messages per FAA feedback received on 10/5/2021. • Revise Sections 6.9.2 and 6.9.3 to make it clear GPS is not grounded to airplane skin. • Added correct thread sealant specification to Sections 6.11.6 and 6.11.7. • Removed thread sealant specification from Sections 6.11.10 and 6.11.12. • Updated removal and replacement procedures in Section 6.14. • Renamed and renumbered old Section 7: Component Removal and Installation to Section 6: Component Removal and Replacement to be consistent with nomenclature in 8110.54a. • Revised Section 7.1 to state that Altimeter test must be logged per 43.9. <p>Accepted by Seattle ACO on 11/12/2021</p>
H	9/3/2021 ECO 355957	<ul style="list-style-type: none"> • Revised Revision History table per FAA feedback received on 9/2/2021. • Revised intro in Section 1 per FAA feedback received on 9/2/2021. • Added SkyView HDX System Equipment Installation Record document to Section 1.5. • Revised Section 2 per FAA feedback received on 9/2/2021. • Added Section 4: System Operation and referenced the SkyView HDX Airplane Flight Manual Supplement document per FAA feedback received on 9/1/2021. Subsequent sections renumbered. • Revised Section 5.15.2 per updated troubleshooting procedures and clarity. • Added Section 5.15.3 as a result of revising Section 10.2. Subsequent sections renumbered. <p>Revised Table 7 (Section 6.3) and Table 8 (Section 6.4) which noted using comparable hardware per FAA feedback received on 9/1/2021. Also updated both tables to sync with hardware listed and recommended in Installation Manual.</p>

G	4/15/2021 ECO 355957	<ul style="list-style-type: none"> • Completely updated first 1/3 of document to reflect modular system architecture. This aligns document with other SkyView HDX documents. And more accurately reflects system installation and use. Removed: <ul style="list-style-type: none"> ▪ Section 2: Document Introduction ▪ Section 3: Skyview HDX System Overview (except Section 3.3: System Components) ▪ Section 4: Functional Description and Operation ▪ Section 5: Major Display Functions Added: <ul style="list-style-type: none"> ▪ Section 1: Introduction ▪ Section 3: SkyView HDX System (except Section 3.3: System Components) • Updated Section 3.3.1 from EFIS-D10A to Standby Flight Display, and added reference to the EFIS-D10A Installation and Maintenance Manual document. All EFIS-D10A maintenance information and procedures removed from document. • Revised Section 3.4.2: Yaw Damper Control for language usage/clarity. • Added Section 3.4.6: SV-AP-TRIMAMP Trim Motor Adapter • Updated Section 3.5: Flight Crew Alerting System to reflect current system software functionality. • Revised Section 4.1: Identifying Issues for language usage/clarity. • Updated Section 4.15.2: Servo Slip Messages to make content more detailed and procedural. • Added Section 4.15.3: SV-AP-TRIMAMP Trim Motor Adapter • Updated Section 5.2, 5.3, and 5.4 with information for new Installation Aids. Added link references to new Table 7 in Component Removal and Installation sections. • Updated Section 5.4 with information for SV-AP-TRIMAMP Trim Motor Adapter. • Revised Section 5.11.7: Fuel Flow Sensor for language usage/clarity. • Revised Section 5.22: Autopilot Servos to include references to airplane-specific autopilot servo installation and maintenance manuals. • Added Section 5.27: System Check to include needed system testing after component installation. • Added configuration file information to Section 6.2: Updating SkyView HDX System Software. • Updated Section 6.6: Pitot/Static System Testing to make content more detailed and procedural.
F	3/3/2020 ECO 340089	<ul style="list-style-type: none"> • Document title changed to "General Maintenance Manual". • Glossary (Section 1.2) moved to end of document (now Section 7). • Airworthiness Limitations (Section 6) moved to beginning of document (now Section 1). Subsequent sections renumbered. • SkyView HDX System Overview (Section 1.3) made into own section (now Section 3). • System Description and Operation (Section 2) split into 3 sections (now Section 4: Functional Description and Operation, Section 5: Major Display Functions, Section 6: System Components). • Section 4.4 Function Control Menu and Section 4.5: Setup Menus created to better detail menu usage. • SV-EMS-220 EMS Module (Section 2.8) updated to with twin-engine functionality. Single-Engine Airplanes (Section 6.9.1) and Twin-Engine Airplanes (Section 6.9.2) created. • COM Control Panel and Transceiver (SV-COM-X83) (Section 2.11 updated for X25 COM radio (now Section 6.10: SV-COM-X25/X83 COM Radio Control Panel & Transceiver). • Yaw Damper Control (Section 6.13.2) created to include Yaw Damper functionality. • COM Transceiver & Control Panel (Section 3.11) updated for X25 COM radio (now Section 7.11: SV-COM-X25/X83 COM Radio Control Panel & Transceiver). • Servos (Section 3.14.1) renamed to Servo Offline Messages (now Section 7.14.1). • Servo Slip Messages (Section 7.14.2) created. <p>Accepted by Seattle ACO on 10/19/2020</p>

E	6/24/2019 ECO 330857	<ul style="list-style-type: none"> • Fixed document number field. • Fixed link to software download in Sections 5.2 and 5.3. • Changed ICA to Maintenance Manual in Section 1.1.1. and Cover Page. • Removed references to STC number. • Added words “includes instructions for continued airworthiness” to the cover. • Added website link and verbiage regarding revision notification to Section 1.1.1. • Fixed cross-links in Section 3.2. • Added Section 4.3: Replacement Hardware, all subsequent sections renumbered. • Updated all subsections of Section 4 with specific fastener information. <p>Accepted by Seattle ACO on 7/11/2019</p>
D	6/3/2019 ECO 329407	<ul style="list-style-type: none"> • Renamed document SkyView HDX System Maintenance Manual • Document generally updated to standardize language, nomenclature, and layout/style. • Document restructured to demonstrate more clearly compliance with §23.1529 Instructions for continued airworthiness, Appendix A. • Added operating information to System Description. • Troubleshooting sections verified, edited, and standardized • Removal and Installation sections verified, edited, and standardized. • Added EMS Sensors information to Troubleshooting and Removal and Installation sections. • Added Servicing section and included within the instructions for continued airworthiness <p>Removed the Appendix A Aircraft Specific Data forms to new document.</p>
C	02/12/2019	<ul style="list-style-type: none"> • Added information supporting the following new functions: <ul style="list-style-type: none"> ▪ Switch-controlled monitoring circuits used for systems such as retractable landing gear ▪ 6 cylinders EGT/CHT sensing and display • Revised block diagrams. • Revised Section 6 to become the airplane- specific data repository. <p>Revised Appendix A to be a repository of forms to be used by the installer to populate Section 6.</p>
B	08/25/2018	<ul style="list-style-type: none"> • Added information supporting the following components: <ul style="list-style-type: none"> ▪ Second Display ▪ HDX-800 ▪ VHF COM ▪ Autopilot Panel ▪ Knob Panel • Moved Autopilot Servo Removal and Installation content to airplane-specific document(s). <p>Accepted by Seattle ACO on 10/11/2018</p>
A	03/05/2018	Initial Submission

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1 Introduction

The information herein is general to all airplanes on the Approved Model List (AML) of Supplemental Type Certificate (STC) SA02594SE.

This document provides Instructions for Continued Airworthiness (ICA) for use by authorized personnel to maintain the Dynon SkyView HDX system according to Federal Aviation Regulation (FAR) 14 CFR § 23.1529 and 14 CFR 23 Appendix G.

This document does not provide ICA for the EFIS-D10A and D30 Standby Flight Displays and SkyView Autopilot servos. That information is provided in the *103914-000 EFIS-D10A Installation & Maintenance Manual* document, *104003-000 D30 Installation & Maintenance Manual*, document, and the *Autopilot Servo Installation & Maintenance Manual* document for specific aircraft makes/models at dynoncertified.com/docs.

1.1 Document Control

This document is released, archived, and controlled according to the Dynon Avionics document control system. To revise this document, a letter is submitted to the FAA with the revision. The FAA then accepts and approves any revision to Section 2: [Airworthiness Limitations](#). After FAA acceptance/approval, Dynon posts the revised document for customer use at dynoncertified.com/docs, and STC owners and installers are notified of the new revision via an official Dynon Marketing email release.

1.2 Using this Manual

To save paper, Dynon Avionics does not provide a printed version of this manual. However, Dynon grants permission to third parties to print this manual, as necessary. The most recent PDF version is available for download at dynoncertified.com/docs. This manual is updated periodically. It is important to use the most recent version when servicing SkyView components.

Dynon suggests keeping a PDF version of the manual on a smartphone, tablet, or laptop computer while servicing SkyView components. Using the manual electronically allows quick navigation of the document, figures to be viewed in color, and keyword searches.

1.3 Intended Audience

This document is intended for FAA-certified Airframe and Powerplant Technicians. It assumes technicians have the typical aircraft knowledge and training required to perform the procedures in this manual.

1.4 SkyView HDX Overview

If unfamiliar with the SkyView HDX system, its architecture, and how it operates, it is highly recommended that technicians read the *103014-000 Skyview HDX System Functional Overview* document at dynoncertified.com/docs before beginning maintenance activities.

1.5 Manual Iconography

This manual uses the following iconography:



Alerts reader to important information that mitigates potential unsafe conditions and/or equipment damage.



Alerts reader to noteworthy technical information.



Alerts reader to information regarding FAA compliance.



Alerts reader to helpful tips or suggestions.

1.6 Reference Documents

- 103014-000 Skyview HDX System Functional Overview (*current revision*)
- 103261-000 SkyView HDX System Installation Manual (*current revision*)
- 103914-000 EFIS-D10A Installation & Maintenance Manual (*current revision*)
- 104003-000 D30 Installation & Maintenance Manual (*current revision*)
- 103272-000 SkyView HDX System Airplane Flight Manual Supplement (*current revision*)
- 103777-000 SkyView HDX System Equipment Installation Record (*current revision*)
- 103488-000 SkyView HDX System Wiring Diagram - Single Engine (*current revision*)
- 103947-000 SkyView HDX System Wiring Diagram - Twin Engine (*current revision*)
- 103526-000 AP Servo Installation & Maintenance Manual - Cessna 172F-S (*current revision*)
- 104142-000 AP Servo Installation & Maintenance Manual - Cessna 182 (*current revision*)
- 103662-000 AP Servo Installation & Maintenance Manual - Beechcraft Bonanza P35-V35BTC (*current revision*)
- 103736-000 AP Servo Installation & Maintenance Manual - Beechcraft Bonanza 36 (*current revision*)
- 104257-000 AP Servo Installation & Maintenance Manual - Beechcraft Bonanza 58 (*current revision*)
- 103741-000 AP Servo Installation & Maintenance Manual - Piper Seneca PA-34 (*current revision*)
- 104368-000 AP Servo Installation Manual – Mooney M20J and M20K (*current revision*)
- AC 43.13-1B Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repair
- AC 43.13-2B Acceptable Methods, Techniques and Practices - Aircraft Alterations

1.7 Mechanical Drawings

All mechanical drawings included in this manual are for *reference purposes only*. They should not be scaled or copied and used as templates or patterns.

2 Airworthiness Limitations

There are no new (or additional) airworthiness limitations associated with SkyView equipment and/or installation.

"The Airworthiness Limitations Section is FAA approved and specifies maintenance required under 14 CFR §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved."

3 Installed Components and ICA Locations

Table 1 lists and describes the SkyView components that may be installed in an aircraft under STC SA02594SE, as well as where to find Instructions for Continued Airworthiness (ICA) for those components.

Technicians should refer to the 103777-000 SkyView HDX System Equipment Installation Record document associated with the aircraft to determine what and where SkyView components are installed.

Table 1: Components and ICA Locations

COMPONENT	DESCRIPTION	ICA LOCATION
SKYVIEW COMPONENTS		
SV-HDX1100	SkyView HDX 11" EFIS Display	Included in this document.
SV-HDX800	SkyView HDX 8" EFIS Display	Included in this document.
SV-BAT-320	Backup Battery for SkyView HDX Displays	Included in this document.
SV-ADAHRS-200	Air Data, Attitude, and Heading Reference System (ADAHRS) Module	Included in this document.
SV-MAG-236	Remote Magnetometer	Included in this document.
SV-OAT-340	Outside Air Temp Sensor	Included in this document.
SV-GPS-2020	GPS Antenna/Receiver	Included in this document.
SV-XPNDR-261	Class 1, TSO, Mode-S Transponder	Included in this document.
SV-ADSB-472	ADS-B IN Receiver	Included in this document.
SV-EMS-220	Engine Monitoring (EMS) Module	Included in this document.
	Engine and Aircraft Sensors	Included in this document.
SV-COM-T25	COM Radio Transceiver, 25 kHz	Included in this document.
SV-COM-T8	COM Radio Transceiver, 8.33 / 25 kHz	Included in this document.
SV-COM-PANEL	COM Radio Control Panel	Included in this document.
SV-ARINC-429	ARINC 429 Connection Module	Included in this document.
AoA Probe	Angle of Attack Probe	Included in this document.
SV-KNOB-PANEL	Knob Control Panel	Included in this document.
SV-NET-HUB	SkyView Network Hub	Included in this document.
Panel Mount USB Port	USB Port	Included in this document.
SV-AP-TRIMAMP	Trim Motor Adapter	Included in this document.
SV-BUTTON-APDISC	Autopilot Disconnect Button	Included in this document.
SV-BUTTON-LEVEL	Autopilot Level Button	Included in this document.

COMPONENT	DESCRIPTION	ICA LOCATION
STANDBY FLIGHT DISPLAY		
EFIS-D10A	EFIS Display for Airspeed, Attitude, and Altitude	See the 103914-000 EFIS-D10A Installation & Maintenance Manual document at dynoncertified.com/docs
D30	Electronic Flight Display for Airspeed, Attitude and Altitude.	See the 104003-000 D30 Installation & Maintenance Manual document at dynoncertified.com/docs
INSTALLATION AIDS		
SV-HDX1100 Universal Tray Kit	Universal Module Mounting Tray for HDX1100	Included in this document.
SV-HDX1100 Avionics Tray	10" Avionics Tray for HDX1100	Included in this document.
SV-HDX800 Avionics Tray	7" Avionics Tray for HDX800	Included in this document.
Radio Module Tray Kit	Radio Stack Module Tray for COM/XPNDR	Included in this document.
EMS to ADAHRS/ARINC Stacking Plate Kit	EMS Module Stacking Plate	Included in this document.
ADAHRS to ARINC Module Stacking Plate Kit	ADAHRS Module Stacking Plate	Included in this document.
AUTOPILOT SERVOS AND BRACKETRY		
Cessna 172F-S Autopilot Kit	SV42 Servos (including capstans and bridle cables / clamps). Servo Brackets and Hardware	See the 103526-000 Autopilot Installation & Maintenance Manual - Cessna 172F-S document at dynoncertified.com/docs
Cessna 182E-T, T182, R/TR182 Autopilot Kit	SV42 Servos (including capstans and bridle cables / clamps). Servo Brackets and Hardware	See the 104142-000 Autopilot Servo Installation & Maintenance Manual - Cessna 182 document at dynoncertified.com/docs
Beechcraft Bonanza V35 Autopilot Kit	SV32 and SV42 Servos (including capstans and bridle cables / clamps) Servo Brackets and Hardware	See the 103662-000 Autopilot Servo Installation & Maintenance Manual - Beechcraft Bonanza P35 - V35BTC document at dynoncertified.com/docs
Beechcraft Bonanza A36 Autopilot Kit	SV32 and SV42 Servos (including capstans and bridle cables / clamps) Servo Brackets and Hardware	See the 103736-000 Autopilot Servo Installation & Maintenance Manual - Beechcraft Bonanza 36 document at dynoncertified.com/docs
Beechcraft Bonanza 58 Autopilot Kit	SV42 Servos (including capstans and bridle cables / clamps). Servo Brackets and Hardware	See the 104257-000 Autopilot Servo Installation & Maintenance Manual - Beechcraft Bonanza 58 document at dynoncertified.com/docs

COMPONENT	DESCRIPTION	ICA LOCATION
Mooney M20J and M20K Autopilot Kit	SV42 Servos (including servo arms, capstans, and bridle cables / clamps) Servo Brackets and Hardware	See the <i>104368-000 Autopilot Servo Installation Manual – Mooney M20J and M20K</i> document at dynoncertified.com/docs
Piper Seneca PA-34 Autopilot Kit	SV42 Servos (including capstans and bridle cables / clamps). Servo Brackets and Hardware	See the <i>103741-000 Autopilot Servo Installation & Maintenance Manual - Piper Seneca PA-34</i> document at ddynoncertified.com/docs

4 SkyView HDX System

SkyView HDX is an integrated Electronic Flight Instrument System (EFIS) that aggregates numerous flight and aircraft data inputs (see Section 4.3 for more information) for presentation to the pilot on a SkyView HDX display unit.

4.1 SkyView HDX Display Units

The most integral component of the SkyView HDX system is the SkyView HDX display unit. SkyView HDX display units are multi-functional, high-definition, LCD color displays that process data inputs to generate graphical representations of flight instrumentation and other aircraft information on-screen. SkyView HDX display units use LED backlighting technology for increased lifespan, more uniform brightness, and superior dimming control.

Pilots interact with all system functions through the SkyView HDX display unit. The system functions available to the pilot are dependent upon the systems (major and ancillary) installed as part of the SkyView HDX system. Major systems require the installation of at least one display unit to function. Up to three SkyView HDX display units, in any combination of the two sizes, can be installed in the airplane's instrument panels as space permits.

SkyView HDX display units are available in two sizes:

- the SV-HDX1100 is a 10.1-inch, 1280 x 800-pixel display,
- the SV-HDX800 is a 7.1-inch, 1280 x 800-pixel display.



Figure 1: SV-HDX1100 and SV-HDX800 Display Units

The structure surrounding the lighted LCD screen is referred to as the bezel. All tactile controls for the system are located on the tilted shelf at the bottom of the bezel, or on the screen itself. Pilot interaction with the display using two knobs with buttons on the sides of the bezel, eight buttons along the bottom of the bezel, and by pressing touchable screen items. There is also a light sensor that is used for automatic screen brightness control.

A SkyView HDX display screen contains three main regions, described from top to bottom:

- The Top Bar is located on the top of the screen. It is configurable and presents important airplane information, including time or a timer (when running), Autopilot status, backup battery status, COM radio frequency, and transponder status.
- The main portion of the screen (i.e., main screen) is configurable and can present Primary Flight Display (PFD), Map, and Engine Monitoring System (EMS) information. It can also present the system alerts and messages, function control menus, and configuration menus.
- The Button Bar is located on the bottom of the screen. It is displayed when the system is fully powered-on. It presents knob and button soft labels. Knob and button functionality are contextual, depending upon what is presented on the screen. Labels will always show the current function.

Display layout options are selected by pressing the DISPLAY button. The pilot then selects whether the display should present PFD, Map, or EMS information, or a combination thereof. Information can be presented in 100%-page layouts, 50%-page layouts, and a bottom band layout. See Figure 2 for PFD, Map, and EMS configured for 50% page layout with bottom band; see Figure 3 for PFD configured for 100% page layout.



Figure 2: 50% PFD and Map Page Layout with EMS Bottom Band.

4.2 Basic Control and Operation

SkyView HDX displays have knobs and buttons to control various functions, including powering the display *ON* and *OFF*, accessing and navigating menus, selecting, or activating features, and adjusting values.



Figure 3: SkyView HDX Display Controls

Buttons generally require a single action (i.e., momentarily press). Pressing the button will provide a distinct tactile "click" response to the pilot. The click occurs when the button is fully pressed, but the action does not occur until the button is released. When a button is pressed in this manner, a function or action denoted by the label above the button is invoked. Button labels are contextual and may change depending on the menus and feature control pages the pilot selects.

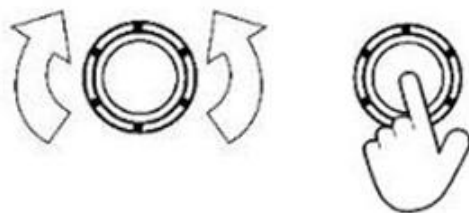


Figure 4: Knob Rotation and Button Push Action

A button has a function if a label is displayed above it. If there is no label, then no function is available. Some buttons have additional behavior when the button is pressed and held down for two seconds. An example is Button #1. When you press-and-hold Button #1, the SkyView HDX display will power *ON/OFF*. Additional press-and-hold behaviors for other buttons are described in the 103272-000 *SkyView HDX Airplane Flight Manual Supplement* document.

Knobs rotate in both directions and can be pushed. The current knob function is indicated by the label above the knob. Knob function is contextual and can change when the content of the screen is changed by the pilot.

On some menu pages with both vertical lists and a horizontal group of tabs, one or both knobs have a "push and rotate" behavior, which controls horizontal scrolling of the cursor across rows and columns.

4.2.1 Function Control Menu

A SkyView HDX display has a Function Control Menu (Figure 5) for controlling various system functions. To access the MENU, press Button #7. The icons in MENU are tactile and touching them opens the Control Page for the function. For example, touching the COM RADIO icon opens its Control Page (Figure 6). There are also shortcut icons on the Info Bar for Autopilot, COM Radio, and Transponder functions. Information about using the function controls is available in the 103272-000 SkyView HDX Airplane Flight Manual Supplement document.



Figure 5: Function Control Menu (MENU)



Figure 6: COM RADIO Control Menu

4.2.2 Setup Menus

Setup Menu and In-Flight Setup Menu are used for controlling the overall configuration, calibration, and behavior of a SkyView HDX System. Information about configuring and calibrating a SkyView HDX System is available in the *103261-000 SkyView HDX System Installation Manual* document.

To enter the Setup Menu, press-and-hold Buttons #7 and #8 simultaneously. If the airplane is grounded and stationary, the entire display changes to present the SETUP MENU (Figure 7). While the SETUP MENU screen is displayed, the regular display is not available to the pilot. If the airplane is in flight or taxiing, the display changes to a 50% page layout with the Primary Flight Display (PFD) on the left and IN FLIGHT SETUP MENU (Figure 8) on the right. Only a select few configuration and calibration options are available from this menu.



Figure 7: SETUP MENU



Figure 8: IN FLIGHT SETUP MENU

4.3 System Operation

No special operating procedures are required for using the SkyView HDX system or SkyView Autopilot system. Detailed operating procedures for the SkyView HDX and Autopilot are found in the *103272-000 SkyView HDX Airplane Flight Manual Supplement* document at dynoncertified.com/docs.

Operating limitations for the SkyView HDX system and SkyView Autopilot system are listed in the *103272-000 SkyView HDX Airplane Flight Manual Supplement* document at dynoncertified.com/docs.

4.4 Integrated System

The Skyview HDX system can integrate three different major systems (see Section 4.4.1) and six ancillary systems (see Section 4.4.2). Systems can be combined per need and preference to provide a wide array of functions and present useful aircraft information to the pilot.

The SkyView HDX system is centered around the SkyView HDX display. Up to three displays may be installed in a SkyView HDX system. At least one display is required for installation of a major system. A single display can present all information from and provide access to all functions associated with the major and ancillary systems.

Third-party equipment can also integrate with the Skyview HDX system. NAV radio receivers, IFR GPS Navigators, position-reporting ELT transmitters, and COM transmitters are commonly integrated with the Skyview HDX system. Devices using the RS-232 protocol can connect directly to the SkyView HDX system, while ARINC-429 Navigators require the installation of the IFR Navigation Integration System.

It is important to note that certain requirements must be met to ensure a regulatory-compliant Primary Flight Information (PFI) system installation. If the SkyView HDX system is not being used to provide PFI, installation compliance, like placement of a Skyview HDX display, becomes less critical. Design guidance and requirements for a compliant installation are described in the *103261-001 SkyView HDX System Installation Manual* document.

4.4.1 Major Systems

The following major systems can be integrated into the Skyview HDX system:

- Primary Flight Information System
- Navigation System
- Engine Monitoring System

4.4.2 Ancillary Systems

The following ancillary systems can be integrated into the Skyview HDX system with some conditions:

- Autopilot System
- Communication System
- Transponder System
- IFR Navigation Integration System
- Traffic and Weather Information System
- Angle of Attack Indicating System

For more information about SkyView systems and their required and optional avionics components, refer to the *103014-000 Skyview HDX System Functional Overview* document.

4.4.3 Data Communications

The SkyView HDX system is made up of a combination of required and optional remotely mounted avionics components that communicate with SkyView HDX display units' internal processor by either the proprietary SkyView Network, or by RS-232 serial data protocols.

The components that connect via the SkyView Network are:

- SVHDX1100 / SVHDX800 Display Unit,
- SV-AP-PANEL,
- SV-COM-PANEL,
- SV-KNOB-PANEL,
- SV-ADAHRS-200 Air Data, Attitude, Heading Reference System (ADAHRS),
- SV-MAG-236 Remote Magnetometer,
- SV-EMS-220 Engine Monitoring System,
- SV-ARINC-429 ARINC-429 Converter.

The optional Autopilot servos also communicate with the SkyView Network, using a special network harness only used by Autopilot servos. Specially designed harnesses are required because the SkyView Network alone does not provide the power necessary to operate the servos.

SkyView has a total of five RS-232 serial input/output communication ports. The components that connect via serial connection are:

- SV-XPNDR-261 Transponder,
- SV-ADSB-472 ADS-B IN Receiver,
- SV-GPS-2020 GPS Antenna/Receiver,
- SV-COM-T25/T8 Transceiver.
- Third-Party serial devices.

See [Figure 9](#) and [Figure 10](#) for a graphical representation of the communication paths for a SkyView HDX system with two display units. SkyView HDX systems with one or three display units are similar.

SkyView components that typically mount to the instrument panel have two network connection ports. This allows similar, nearby components to be connected in a “Daisy-Chain” fashion. This simplifies the installation.

The SkyView Network components not mounted to an instrument panel only have one network connection. This means that a central hub is likely employed to connect the equipment to the network.

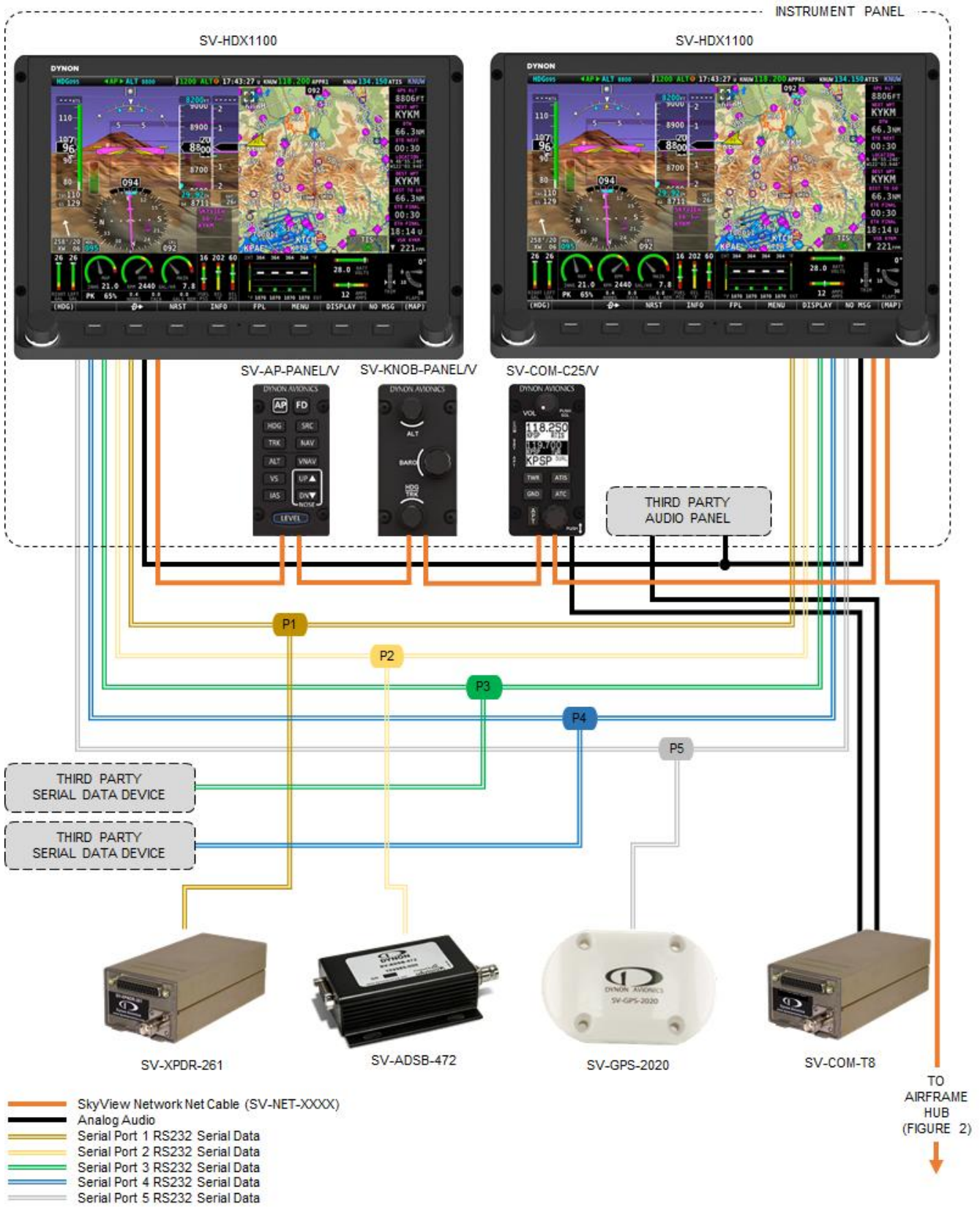


Figure 9: Overview of SkyView HDX System, Part 1

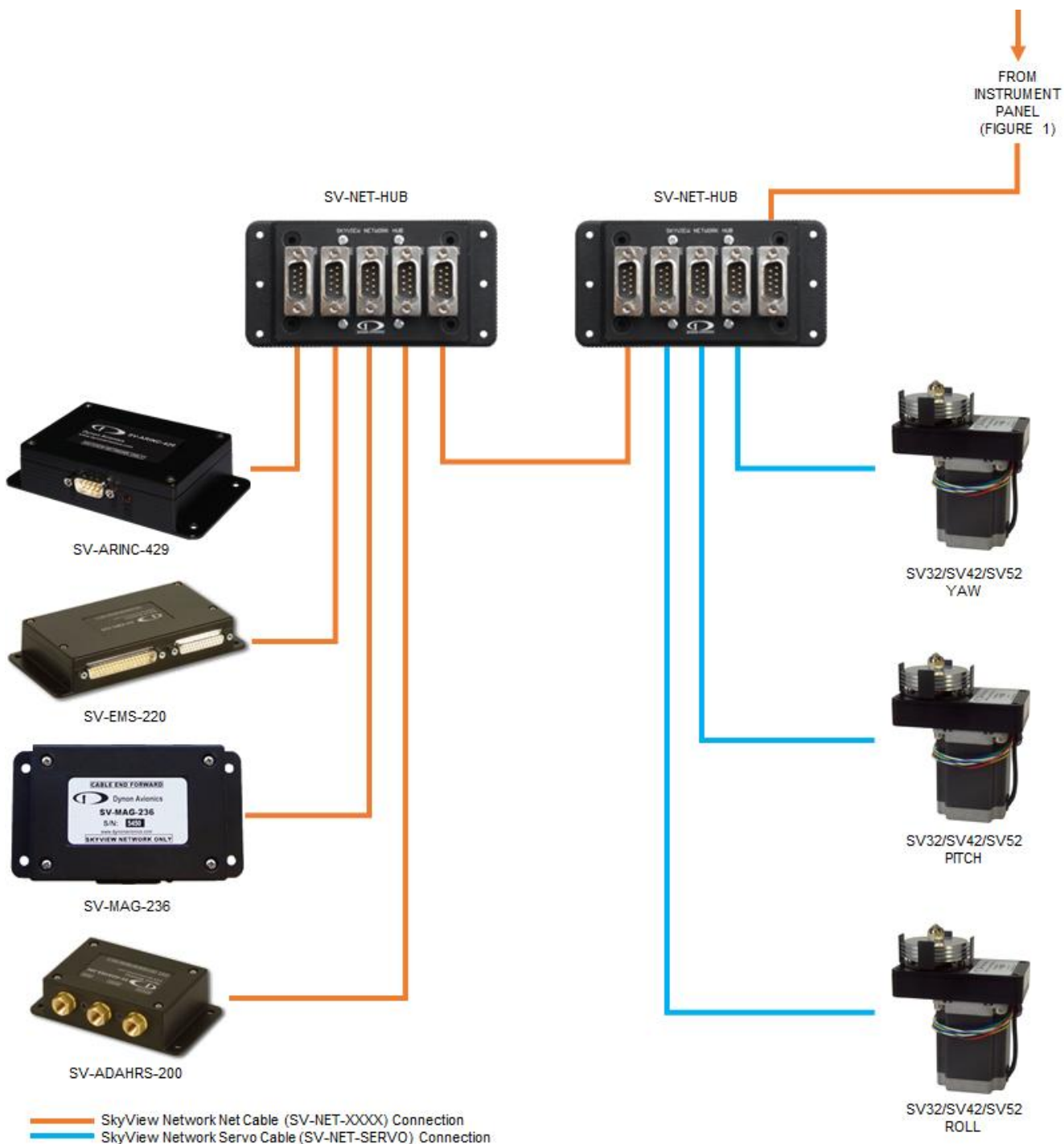


Figure 10: Overview of SkyView HDX System, Part 2

4.5 System Components

This section provides an overview of SkyView system components.

4.5.1 Standby Flight Display

Approved standby flight displays operate independently of the SkyView HDX system, as required by STC SA02594SE. This allows the standby flight display to supplement the Primary Flight Display (PFD) by providing redundant airspeed, attitude, and altitude information to the pilot for comparison, as well as immediate replacement of Primary Flight Information (PFI) should the PFD fail.

For installation and maintenance information about Dynon standby flight displays, including Instructions for Continued Airworthiness (ICA), see the *103914-000 EFIS-D10A Installation & Maintenance Manual* document or the *104003-000 D30 Installation & Maintenance Manual* document.

4.5.2 SV-BAT-320 Backup Battery

If avionics power is lost in flight, a properly operating SV-BAT-320 backup battery (Figure 11) can provide power to a SkyView HDX display unit and critical SkyView HDX system components, including a GPS Antenna/Receiver for at least 45 minutes. An SV-BAT-320 can power up a SkyView HDX display unit without external power, allowing engine parameter monitoring during engine start. An SV-BAT-320 is automatically charged by the SkyView HDX display unit during flight. One SV-BAT-320 is required for each SkyView HDX display unit installed in a SkyView HDX system.



Figure 11: SV-BAT-320

4.5.3 SV-ADAHRS-200 ADAHRS Module

ADAHRS is an acronym for Air Data Attitude Heading Reference System. The Primary Flight Display (PFD) functions on a SkyView HDX display unit are generated using data from a group of calibrated sensors built into an SV-ADAHRS-200 module (Figure 12). All sensors are solid state (i.e., there are no moving parts). These sensors include accelerometers, which measure forces in all three directions; rotational rate sensors, which sense rotation about all three axes; pressure transducers for measuring air data; and magnetometers on all three axes for measuring magnetic heading.

Pitot, Static, and AoA lines are connected to an SV-ADAHRS-200 module. An OAT sensor can also be connected to an SV-ADAHRS-200.



Figure 12: SV-ADAHRS-200

4.5.4 SV-MAG-236 Remote Magnetometer

The SV-MAG-236 remote magnetometer (Figure 13) is used in SkyView HDX systems to locate a magnetometer in an area free of magnetic disturbances. Although the SV-ADAHRS-200 module has an integrated magnetometer, it should be installed in an area free of magnetic disturbances while remaining within proximity of the airplane's center of gravity. An OAT sensor can be connected to an SV-MAG-236.



Figure 13: SV-MAG-236

4.5.5 Outside Air Temperature (OAT) Sensor

An OAT sensor (Figure 14) is externally mounted where it can accurately measure the air temperature. Only one OAT sensor is required in a SkyView HDX system. An OAT sensor can be connected to either an SV-ADAHRS-200 module or an SV-MAG-236 remote magnetometer.



Figure 14: SV-OAT-340

4.5.6 SV-GPS-2020 GPS Antenna/Receiver

The SV-GPS-2020 antenna/receiver (Figure 15) is externally mounted and specifically designed for use in a SkyView HDX system. It has a much higher refresh rate than common third-party GPD devices, which ensures smooth Map operation. The SV-GPS-2020 is powered by the SkyView HDX display unit, and it will continue to provide position updates when the SkyView HDX display unit is operating on backup battery power. An SV-GPS-2020 provides high-integrity GPS (position and time) data to a SkyView HDX display unit that is required by the FAA 2020 ADS-B Out mandate (14 CFR § / FAR 91.227).



Figure 15: SV-GPS-2020

4.5.7 SV-XPNDR-261 Transponder

An SV-XPNDR-261 transponder (Figure 16) is a Class 1, Technical Standard Ordered (TSO), remote-mounted, Mode-S transponder. It receives TIS-B (U.S. only) and transmits ADS-B Out. The FAA 2020 ADS-B Out Mandate (14 CFR § / FAR 91.227) requires a Class 1 transponder for flight in Class B or Class C airspaces. Up to two SV-XPNDR-261 transponders can be installed in a SkyView HDX system.



Figure 16: SV-XPNDR-261

4.5.8 SV-ADSB-472 ADS-B IN Receiver

The SV-ADSB-472 (Figure 17) is a dual band ADS-B IN receiver. It receives weather and traffic data via 978 MHz UAT (U.S. only) and 1090 MHz ES. In the U.S., it receives free weather and airspace restriction information (FIS-B) from the FAA's network of ADS-B ground stations. FIS-B traffic information is also available if the SV-ADSB-472 is paired with an SV-XPNDR-261 transponder.



Figure 17: SV-ADSB-472

4.5.9 SV-EMS-220 EMS Module

The engine gauges presented on a SkyView HDX display unit are generated from data acquired by the SV-EMS-220 Engine Monitoring System (EMS) module (Figure 18) and its connected sensors and inputs. An SV-EMS-220 supports popular four- and six-cylinder engines in single- and dual-engine airplanes. It can measure a wide variety of engine and environmental parameters, including:

- Tachometer
- Manifold Pressure
- Propeller Synchroscope
- Fuel Flow
- Fuel Pressure
- Fuel Level
- Oil Pressure
- Oil Temperature
- Cylinder Head Temperature
- Exhaust Gas Temperature
- Turbine Inlet Temperature
- Battery Voltage
- Electrical Load (Amps)
- Landing Gear Position
- Flap Position
- Pitot Heat
- Configurable Annunciator Lights



Figure 18: SV-EMS-220

SkyView HDX can monitor more than one engine, provided a dedicated EMS module is installed for each engine.

A SkyView HDX display unit uses configuration files to map sensors inputs to pins on the SV-EMS-220 module and configure engine gauge styles, colors, and organizational layout of the Bottom Band, 50% Page, and 100% Page. Dynon provides generic configuration files that generate FAA-approved EMS setups; however, installers are required to configure engine gauge color bands to correspond with the engine limitations that are published in the airplane's flight manual. For information about configuring an EMS, see the *103261-000 SkyView HDX System Installation Manual* document.

4.5.9.1 Single-Engine Airplanes

There are three display options (Bottom Band, 50% Page, 100% Page) for viewing engine monitoring information on the SkyView HDX display unit. The Bottom Band provides the ability to keep the engine display visible along with other required flight information all on one screen. Generic configuration files are available to configure the Bottom Band display.

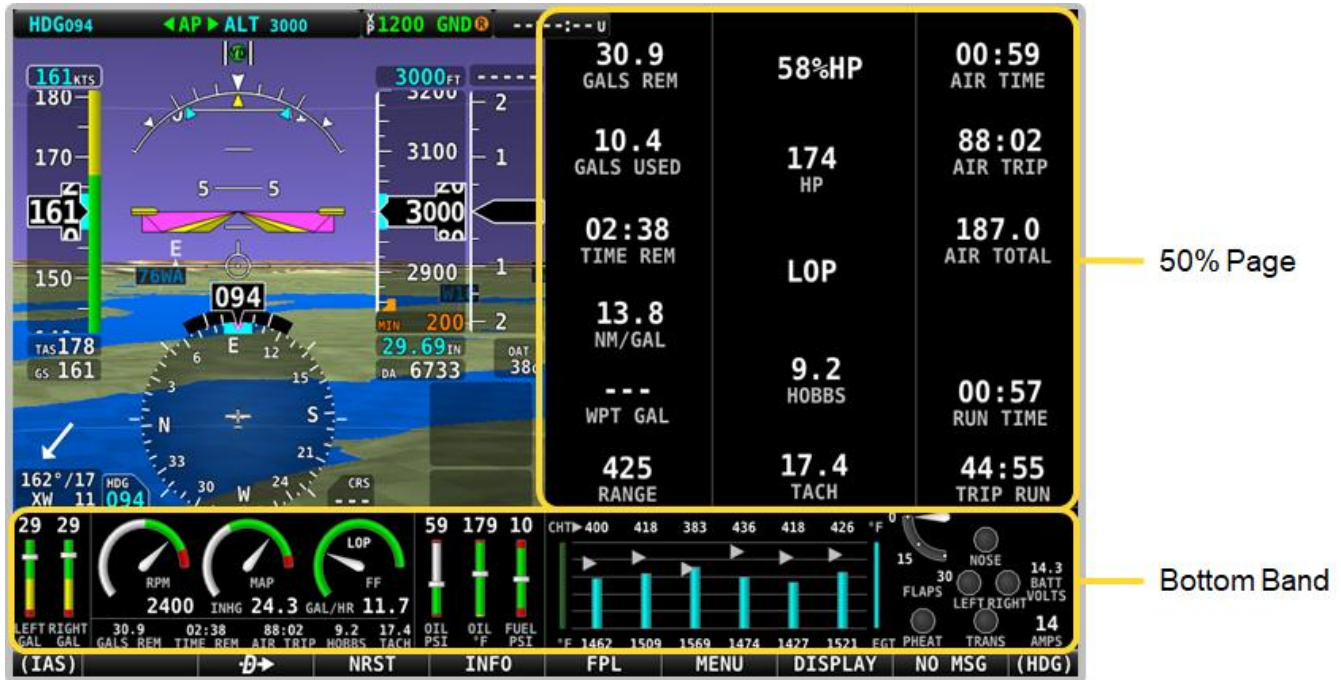


Figure 19: Typical Single Engine EMS in 50% Page Layout and Bottom Band

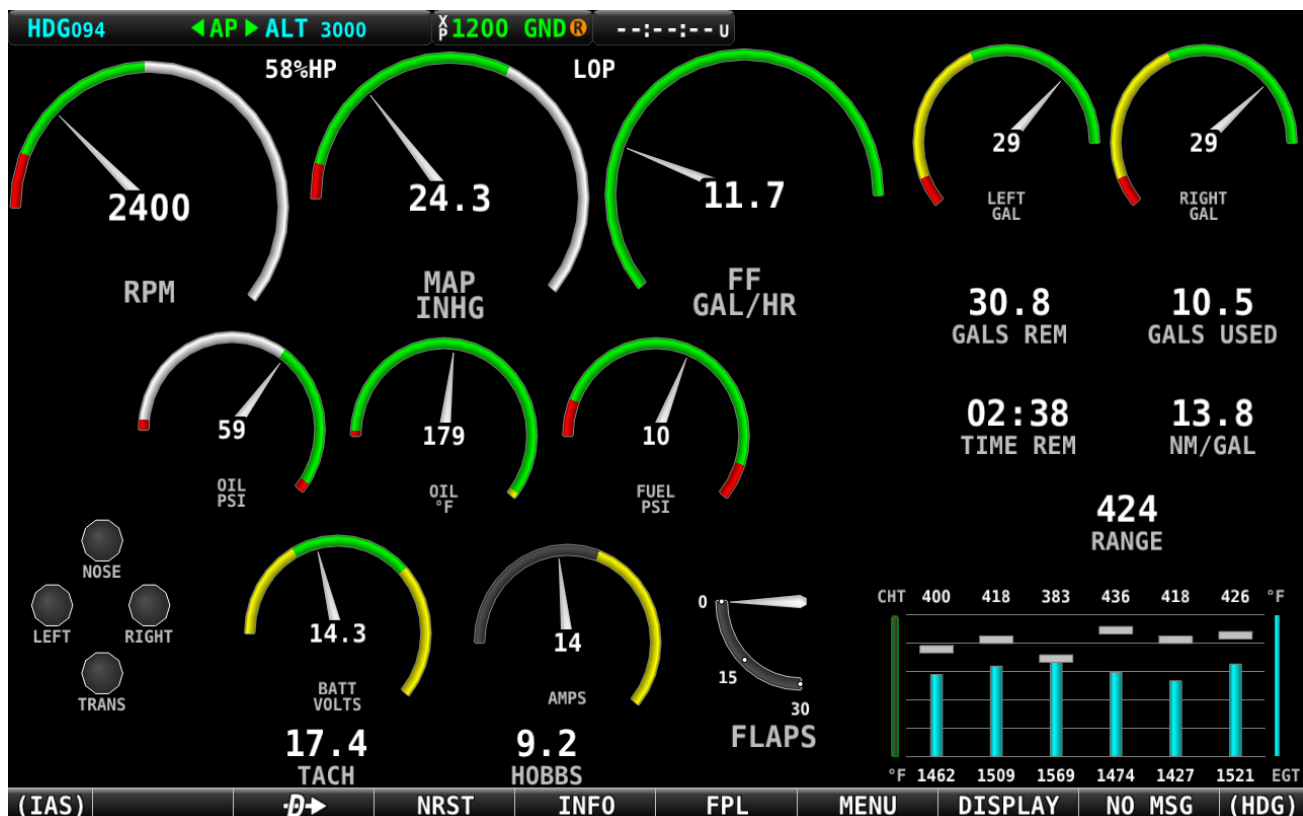


Figure 20: Typical Single Engine EMS Presentation in 100% Page Layout

4.5.9.2 Twin-Engine Airplanes

Due to limited space on the Bottom Bar and 50% Page displays, twin-engine airplanes require a dedicated display to present EMS information. This is because FAA regulations require this information always be displayed to the pilot.

Loading the EMS configuration file for the specific airplane is required to configure the system for dual EMS modules and the dedicated EMS display. This file will also include a 50% Page and Bottom Bar displays intended to be used if the dedicated engine display fails. The EMS configuration file configures the EMS display to appear similar to what is shown in [Figure 21](#), [Figure 22](#), and [Figure 23](#).

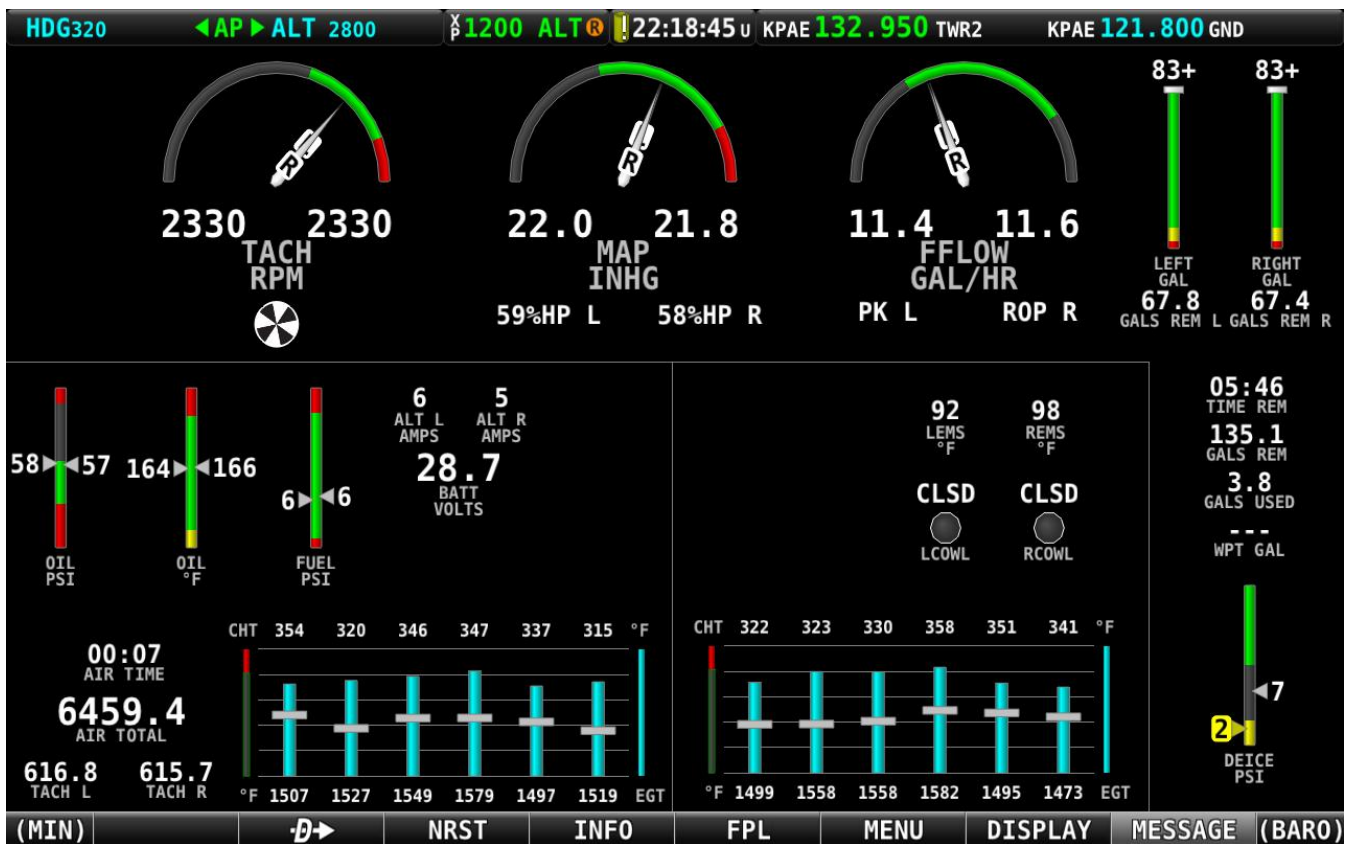


Figure 21: Typical Twin Engine EMS Presentation in 100% Page Layout



Figure 22: Typical Twin Engine EMS Presentation in 50% Page Layout



Figure 23: Typical Twin Engine EMS Presentation in Bottom Bar

4.5.10 SV-COM-X25/X83 COM Radio Control Panel & Transceiver

The SV-COM-X25/X83 is an integrated VHF COM Radio consisting of two components: the SV-COM-PANEL control panel (Figure 24) and the SV-COM-T25/T8 transceiver (Figure 25). The control panel is installed on an instrument panel, and the transceiver is installed remotely in the airplane. The control panel is available in horizontal and vertical orientations.

The SV-COM-X25 operates at 118.000 MHz to 136.992 MHz with 25 kHz channel spacing. The SV-COM-X83 operates at 118.000 MHz to 136.992 MHz with configurable 8.33 kHz or 25 kHz channel spacing. Both COM radios provide button-touch and number-dial frequency tuning. Up to two COM radios can be installed in a SkyView HDX system. If two COM radios are installed, only one can provide frequency information to the SkyView HDX display unit for presentation on the Info Bar.



Figure 24: SV-COM-PANEL (Horizontal and Vertical Configurations)



Figure 25: SV-COM-T25/T8 Transceiver

4.5.11 SV-ARINC-429 ARINC 429 Module

The SV-ARINC-429 module (Figure 26) allows the SkyView HDX system to connect to advanced third-party GPS IFR Navigators.



Figure 26: SV-ARINC-429

4.5.12 Angle of Attack (AoA) Probe

The Angle of Attack (AoA) system consists of a remotely-mounted AoA probe (Figure 27) on the airplane's exterior. Because mounting methods vary from aircraft to aircraft, the installation will require the fabrication or acquisition of an appropriate sensor mount.



Figure 27: AoA Probe

4.5.13 SV-KNOB-PANEL Knob Control Panel

The Knob Control Panel (Figure 28) is an optional control panel for a SkyView HDX system that provides dedicated function knobs for ALT, BARO, and HDG/TRK bugs. The control panel is available in horizontal and vertically orientations to accommodate various instrument panel layouts. Operationally, the two versions are identical.

Without the Knob Control Panel, ALT, BARO, and HDG/TRK bugs are adjusted from the multifunction knobs on a SkyView HDX Display. Each Knob Control Panel knob can be pressed to sync each bug/setting, the same as using the knobs on the SkyView display unit. When a Knob Control Panel is installed in a SkyView HDX system, the knobs on a SkyView HDX display unit can still be set to ALT, BARO, and HDG/TRK if desired. Up to two Knob Control Panels can be installed in a SkyView HDX system.



Figure 28: SV-KNOB-PANEL (Horizontal & Vertical Configurations)

4.5.14 SV-NET-HUB Network Hub

The SV-NET-HUB network hub (Figure 29) is an optional accessory that is typically installed behind an instrument panel near SkyView HDX system components, as well as near Autopilot servo installations. The SV-NET-HUB simplifies component connection to the SkyView Network.



Figure 29: SV-NET-HUB

4.5.15 Panel Mount USB Port

The Panel Mount USB Port (Figure 30) is an optional accessory that is typically installed on an instrument panel. It extends access to the USB ports on a SkyView HDX display unit. USB ports are used for transferring files (e.g., firmware updates/backups, database updates, configuration file uploads/downloads) to a SkyView HDX display unit.



Figure 30: Panel Mount USB Port

4.6 Autopilot System

SkyView HDX Autopilot is an optional, digitally controlled two-axis (roll and pitch) or three-axis (roll, pitch, and yaw) servo-activated system that provides flight path control functions to the pilot. The Autopilot can follow a heading by reference to the compass, follow direction over the ground by reference to GPS track information, or navigate according to a CDI when coupled to SkyView HDX's internal GPS Navigation data, or when coupled to external navigation source providing VOR, localizer, cross track error or GPS navigation data.

The Autopilot can also hold altitude, and transition between altitudes at either a selected climb rate or airspeed. The Autopilot will also follow vertical guidance including glideslope and glidepath information when coupled to an external navigation source.

In addition, the Autopilot can have a third servo connected to the rudder. The rudder servo acts as a yaw damper to reduce and prevent yaw excursions while cruising or maneuvering, whenever the autopilot is engaged. The Yaw Damper (YD) function may also be activated during manual flight.

4.6.1 Autopilot Control

Operating the Autopilot requires selection of the correct control mode to complete the desired Autopilot task. The lateral and vertical servos can be engaged individually or simultaneously. The servos can be engaged using the Autopilot Control Page (Figure 31), located on the display, or by using the Autopilot Control Panel (Figure 34). Both controls provide the same buttons and functions, with two exceptions:

1. The Autopilot Control Page does not provide the LEVEL button or function.
2. The Autopilot Control Panel does not provide the Yaw Damper button or function.



Figure 31: Autopilot Control Page

NOTE: Only the AP and the LEVEL buttons will engage the Autopilot servos.

Table 2: Autopilot Control Modes

CONTROL MODE	FUNCTIONALITY DESCRIPTION
LEVEL	Rolls wings level, simultaneously raises nose above horizon, then holds zero vertical speed.
HDG	Turns toward and holds compass heading as selected by HDG/TRK bug.
TRK	Turns toward and holds ground track as selected by HDG/TRK bug.
ROLL	Holds current bank angle, within bank angle limits. NOTE: This mode can only be activated when the autopilot is activated and no other lateral mode (HDG, TRK, or NAV) has been selected at the moment of engagement.

CONTROL MODE	FUNCTIONALITY DESCRIPTION
NAV	<p>Intercepts course by turning towards CDI needle, then maintains selected OBS course.</p> <p>VOR/LOC: Reverts to HDG mode if CDI is lost with HDG target set to OBS value, or to current HDG if OBS is not set.</p> <p>GPS: Reverts to TRK mode if CDI is lost with TRK target set to OBS value, or to current GPS ground track if OBS is not set.</p>
ALT	<p>Holds altitude commanded in the Autopilot status bar.</p> <p>NOTE: When activating this mode, commanded altitude is automatically set to the current indicated altitude.</p>
VS	<p>Maintains the selected vertical speed as airplane performance allows, until approaching the altitude bug, then transitions to ALT mode.</p> <p>NOTE: If VS mode is selected when altitude is near the selected altitude the Autopilot will not automatically capture altitude. This allows the pilot to initiate a VS climb/descent away from the altitude bug.</p> <p>NOTE: A VS setting of 0 will not maintain a specific altitude. However, if a specific altitude is not required, a VS setting of 0 can provide a more comfortable ride quality than ALT mode in turbulent conditions.</p>
IAS	<p>Maintains the selected air speed during climb (if not aircraft performance limited) until the selected altitude approaches, then transitions to ALT to maintain selected altitude.</p>
VNAV	<p>Automatically captures and tracks a glideslope or glidepath when intercepted from below, regardless of selected lateral mode. It will not capture if descending from above the glideslope or glidepath.</p> <p>CAUTION: It is possible for the Autopilot to capture and track a glideslope or glidepath prior to the airplane reaching the final approach course of an instrument approach. If this is not desired, do not arm VNAV mode until established on the final approach course.</p>

4.6.2 Yaw Damper Control

The Yaw Damper is automatically engaged by the Autopilot, but it also can be engaged independently (i.e., when Autopilot is not engaged). The Yaw Damper control selector appears only on the Autopilot Control Page (Figure 31). The Yaw Damper control selector will turn green when engaged. The Slip/Skid indicator will also appear green with the letters YD in black when the Yaw Damper is turned ON, and white when the Yaw Damper is turned OFF, as shown in Figure 32.

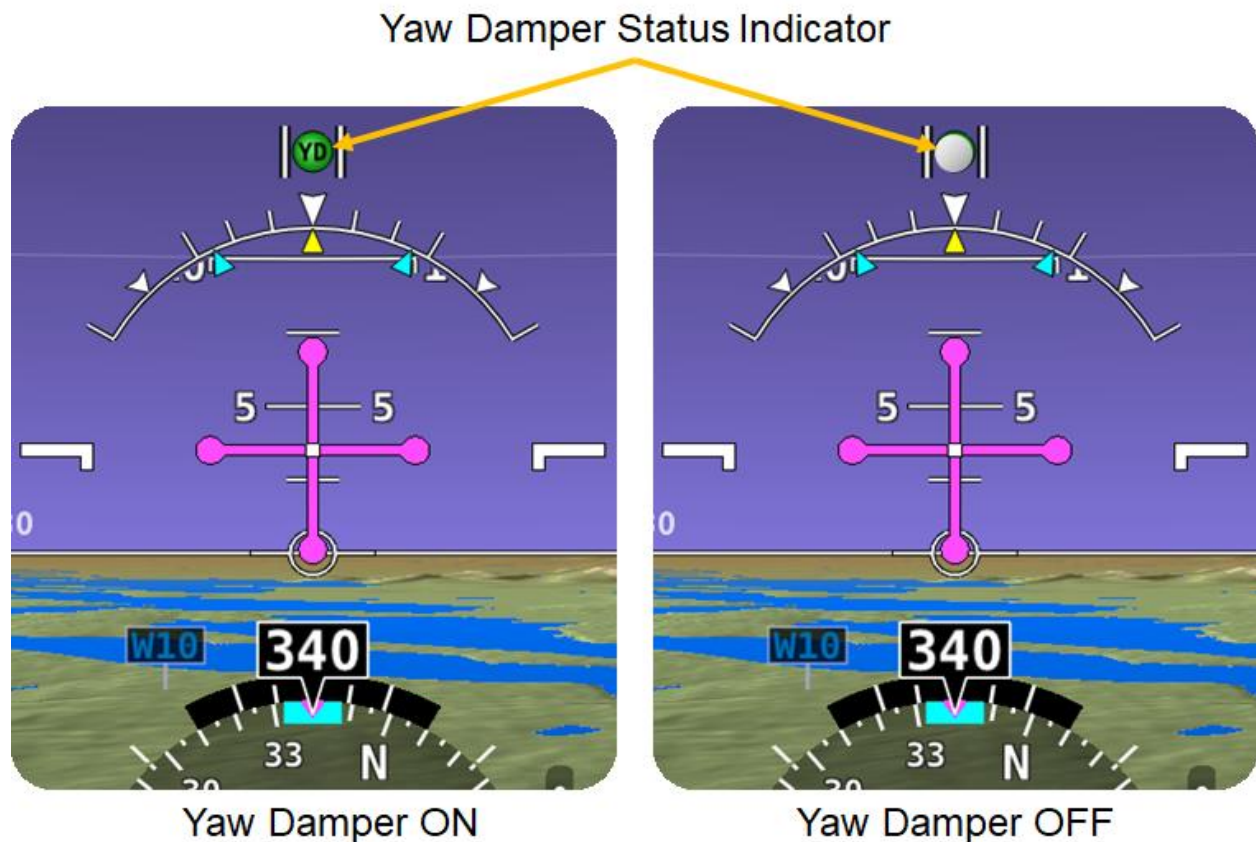


Figure 32: Yaw Damper Indicator

Table 3: Yaw Damper Disconnect Methods

Disconnect Method	AP Engaged?	Result
Press YD button on AP Control Menu	YES or NO	Yaw Damper servo disengages (autopilot is not affected)
AP Disconnect Switch	YES	Yaw Damper and Autopilot servos disengage
	NO	Yaw Damper servo disengages

4.6.3 SV-AP-TRIMAMP Trim Motor Adapter

The SV-AP-TRIMAMP trim motor adapter ([Figure 33](#)), in conjunction with the SV-AP-PANEL, allows system integration with electric Trim systems in certified airplanes. The SV-AP-TRIMAMP provides the following functions:

- Signal amplification for integration with high-current DC motors.
- Compatibility with motors with and without a clutch.
- Hardware interrupt via disconnect switch to remove power from trim motor.
- Provides monitoring feedback to SkyView HDX for Flight Crew Alerting.



Figure 33: SV-AP-TRIMAMP

4.6.4 SV-AP-PANEL Autopilot Control Panel

The SV-AP-PANEL (Figure 34) is an optional control panel for SkyView HDX Systems with Autopilot that is installed on an instrument panel. It provides dedicated buttons for engaging the Flight Director, Autopilot, and all control modes, including setting up fully coupled approaches, VNAV, IAS Hold, and mode sequencing (provided that IFR navigation sources are installed). It also has a LEVEL button to immediately return the aircraft to straight and level flight.



Figure 34: SV-AP-PANEL (Horizontal and Vertical Versions)

4.6.5 SV-BUTTON-APDISC Autopilot Disconnect Button

The SV-BUTTON-APDISC (Figure 35) is an Autopilot Disconnect (AP DISC) button for SkyView HDX systems with Autopilot. An AP DISC button is required on SkyView HDX systems with Autopilot. The button can be mounted on the instrument panel or affixed to the control yoke. The button's purpose is to immediately disengage the Autopilot.



Figure 35: SV-BUTTON-APDISC

4.6.6 SV-BUTTON-LEVEL Autopilot Level Button

The SV-BUTTON-LEVEL (Figure 36) is an optional LEVEL button for SkyView HDX Autopilot that is installed on an instrument panel. The button's purpose is to engage/disengage Level Mode. Level Mode (or Straight and Level Mode) will immediately attempt to reach zero vertical speed and a roll angle of zero. It will not attempt to fly the aircraft to any previous altitude or track, and it will not respect any bug inputs. Level Mode causes the Autopilot to engage if it was not already engaged.



Figure 36: SV-BUTTON-LEVEL

4.7 Flight Crew Alerting System

The Flight Crew Alerting System is a central feature of the SkyView HDX system. This system provides the pilot and crew with system information organized by priority for all installed SkyView HDX sub-systems. The alerts and messages will vary depending upon the installed equipment. This section describes all possible alerts and messages.



The information in this section is provided as an aid for technicians servicing the SkyView HDX system. It does not provide flight crew response actions or emergency procedures for Warnings, Cautions, and Messages generated by the SkyView HDX system. That information is available in the *SkyView HDX Airplane Flight Manual Supplement* document.

System information is delivered in the form of flight crew Alerts and Messages that are organized by severity into one of three categories:

1. **WARNING** Warning Alerts:

Warning alerts are for conditions that require immediate flight crew awareness and immediate flight crew response.

Most warning alerts are displayed in the Alert Notification Window (see [Figure 38](#)) and are identified with Red and have both visual and aural annunciations. Some warning alerts are aural only to reduce screen clutter when the display already presents a related indication. If a warning alert is flightpath or autopilot related, its visual annunciation is displayed directly on the PFD or on/near the AP Info Bar.

2. **CAUTION** Caution Alerts:

Caution alerts are for conditions that require immediate flight crew awareness and subsequent flight crew response.

Most caution alerts are displayed in the Alert Notification Window (see [Figure 38](#)) and are identified with Yellow and have both visual and aural annunciations. Some caution alerts are aural only to reduce screen clutter when the display already presents a related indication. If a caution alert is flightpath or autopilot related, its visual annunciation is displayed directly on the PFD and Map or on/near the AP Info Bar.

3. **MESSAGE** Messages

Messages are for conditions that require immediate flight crew awareness and may require subsequent flight crew response.

Most messages are displayed in the Alert Notification Window (see [Figure 38](#)) and are identified with Grayscale and have both visual and aural annunciations. Some messages are aural only to reduce screen clutter when the display already presents a related indication. If a message is flightpath or autopilot related, its visual annunciation is displayed directly on the PFD or on/near the AP Info Bar.

4.7.1 Notification Methods

Whenever a new non-flightpath alert is triggered, the Alert Notification Indicator (i.e., button label) shown in [Figure 37](#), flashes Red for Warning alerts, Yellow for Caution alerts, and Gray for informational Messages. A corresponding voice aural annunciates a spoken word such as "WARNING", "CAUTION" or "MESSAGE" depending on the alert type. Some alerts, like engine-related Warnings, will announce the actual message name, such as "OIL PRESSURE", or "AUTOPILOT DISCONNECT".



Figure 37: Warning Notification Indication

Pressing the WARNING, CAUTION, or MESSAGE button (i.e., Button #8) opens the Alert Notification Window. This window displays text associated with each active alert. After pressing the button, the alerts present in the window are considered acknowledged and the indicator stops flashing. The indicator color corresponds with highest alert level that is currently being triggered. Individual alerts may be configured by the installer to require acknowledgement after they have been triggered for the alert to disappear.

The appearance of alerts within the Alert Notification Window change when first triggered and after acknowledgement. The difference between an un-acknowledged and acknowledged message is shown in [Figure 38](#). This difference is consistent with all alerts, regardless of color. When no alerts are active, the Alert Indicator states, "NO MSG".

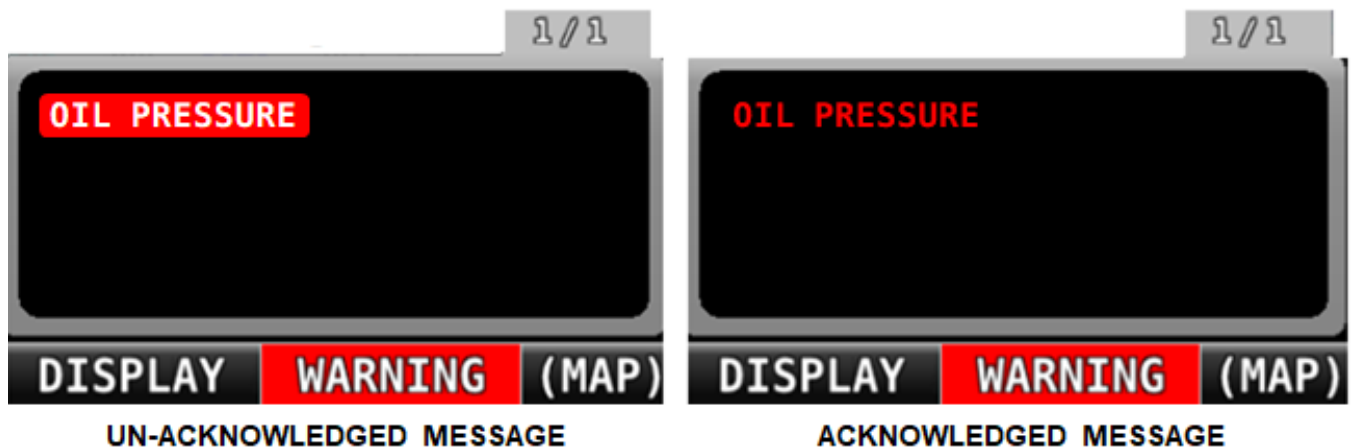


Figure 38: Alert Notification Window, Alert Appearance

4.7.2 Warning Alerts

Table 4 lists all SkyView system warning alerts alphabetically by 1) visual and 2) aural annunciation. Alerts are dependent upon installed systems and components.

Table 4: Warning Alert Conditions and Associated Crew Responses

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>ADAHRS CAL CORRUPT</p> <p>"WARNING"</p>	The calibration of the ADAHRS module is corrupt.
<p>ADAHRS FAIL</p> <p>"WARNING"</p>	SkyView has detected a problem with the ADAHRS module.
<p>ADAHRS INTERNAL ERROR</p> <p>"WARNING"</p>	System sensor tests performed on the ADAHRS module failed.
<p>AMPS HIGH</p> <p>"ELECTRICAL CURRENT"</p>	Electrical current indicator has entered configured red high range.
<p>AMPS LOW</p> <p>"ELECTRICAL CURRENT"</p>	Electrical current indicator has entered configured red low range.
<p>ARINC-429 OFFLINE</p> <p>"WARNING"</p>	The ARINC-429 module is not communicating with the SkyView HDX display unit.
<p>AUDIO OUTPUT FAIL</p> <p>"WARNING"</p>	The audio alert system has failed. AoA system not operating.
<p><i>Near AP Info Bar:</i></p> <p>ASPD HIGH</p> <p>"AUTOPILOT AIRSPEED HIGH"</p>	The autopilot is applying nose up inputs to protect the airplane from exceeding the configured maximum autopilot airspeed. Visual annunciation appears immediately; aural after 10 seconds.
<p><i>Near AP Info Bar:</i></p> <p>ASPD LOW</p> <p>"AUTOPILOT AIRSPEED LOW"</p>	The autopilot is applying nose down inputs to protect the airplane from slowing below the configured autopilot minimum airspeed. Visual annunciation appears immediately; aural after 10 seconds.
<p><i>On AP Info Bar:</i></p> <p><i>Status bar changes color and temporarily flashes.</i></p> <p>"AUTOPILOT DISCONNECT"</p>	Both pitch and roll autopilot axes have been disconnected.

VISUAL & AURAL ANNUNCIATION	CONDITION
<p><i>On AP Info Bar:</i></p> <p><i>Status bar changes color and temporarily flashes.</i></p> <p>"AUTOPILOT PITCH DISCONNECT"</p>	<p>The autopilot pitch axis has been disconnected.</p>
<p><i>On AP Info Bar:</i></p> <p><i>Status bar changes color and temporarily flashes.</i></p> <p>"AUTOPILOT ROLL DISCONNECT"</p>	<p>The autopilot roll axis has been disconnected.</p>
<p>BACKUP BATT LOW</p> <p>"WARNING"</p>	<p>The backup battery connected to the SkyView HDX display unit is in use and has entered a low charge state.</p>
<p>BATT VOLTS HIGH</p> <p>"VOLTAGE"</p>	<p>Voltage indicator has entered configured red high range.</p>
<p>BATT VOLTS LOW</p> <p>"VOLTAGE"</p>	<p>Voltage indicator has entered configured red low range.</p>
<p><i>On PFD:</i></p> <p>CHECK PITOT HEAT</p> <p>"WARNING"</p>	<p>Airspeed is no longer available, or is unreliable. GPS ground speed is being used to aid attitude computations.</p>
<p>CHT # HIGH</p> <p>"CYLINDER HEAD TEMPERATURE"</p>	<p>CHT indicator for identified sensor has entered configured red high range.</p>
<p>CHT # LOW</p> <p>"CYLINDER HEAD TEMPERATURE"</p>	<p>CHT indicator for identified sensor has entered configured red low range.</p>
<p><i>On PFD:</i></p> <p>CROSS CHECK ATTITUDE</p> <p>"WARNING"</p>	<p>Airspeed is no longer available, or is unreliable. All GPS sources have failed.</p>
<p>DEMO MODE</p> <p>"WARNING"</p>	<p>The SkyView HDX display unit is in Demo Mode and is not airworthy.</p>
<p>EGT # HIGH</p> <p>"EXHAUST GAS TEMPERATURE"</p>	<p>EGT indicator for identified sensor has entered configured red high range.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>EGT # LOW</p> <p>"EXHAUST GAS TEMPERATURE"</p>	<p>EGT indicator for identified sensor has entered configured red low range.</p>
<p>EMS # FAIL</p> <p>"WARNING"</p>	<p>The identified EMS module has failed.</p>
<p><i>Visual indication varies by configuration.</i></p> <p>"ENGINE MONITOR"</p>	<p>A system monitored by EMS and configured as a general purpose input has entered the configured red range.</p>
<p><i>No visual indication.</i></p> <p>"FLAPS OVERSPEED"</p>	<p>The value configured for V_{FE} has been exceeded with flaps extended.</p>
<p>FUEL FLOW HIGH</p> <p>"FUEL FLOW"</p>	<p>Fuel flow indicator has entered configured red high range.</p>
<p>FUEL FLOW LOW</p> <p>"FUEL FLOW"</p>	<p>Fuel flow indicator has entered configured red low range.</p>
<p>FUEL PRES HIGH</p> <p>"FUEL PRESSURE"</p>	<p>Fuel pressure indicator has entered configured red high range.</p>
<p>FUEL PRES LOW</p> <p>"FUEL PRESSURE"</p>	<p>Fuel pressure indicator has entered configured red low range.</p>
<p><i>Near AP Info Bar:</i></p> <p>G LIMIT</p> <p><i>No aural indication.</i></p>	<p>Autopilot is engaged and vertical acceleration has exceeded the 0.5G to 1.5G range.</p>
<p><i>No visual indication.</i></p> <p>"GEAR OVERSPEED"</p>	<p>The value configured for V_{LE} has been exceeded with gear extended.</p>
<p>LEVEL HIGH</p> <p>"FUEL QUANTITY"</p>	<p>Fuel quantity indicator has entered configured red high range.</p>
<p>LEVEL LOW</p> <p>"FUEL QUANTITY"</p>	<p>Fuel quantity indicator has entered configured red high range.</p>
<p>OIL PRES HIGH</p> <p>"OIL PRESSURE"</p>	<p>Oil pressure indicator has entered configured red high range.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>OIL PRES LOW</p> <p>"OIL PRESSURE"</p>	<p>Oil pressure indicator has entered configured red low range.</p>
<p>OIL TEMP HIGH</p> <p>"OIL TEMPERATURE"</p>	<p>Oil temperature indicator has entered configured red high range.</p>
<p>OIL TEMP LOW</p> <p>"OIL TEMPERATURE"</p>	<p>Oil temperature indicator has entered configured red low range.</p>
<p><i>No visual indication.</i></p> <p>"OVER GEES"</p>	<p>The G-Meter has entered the configured red range.</p>
<p><i>No visual indication.</i></p> <p>"OVERSPEED"</p>	<p>The value configured for V_{NE} has been exceeded.</p>
<p><i>On left side of AP Info Bar.</i></p> <p>PTCH ERR</p> <p><i>No aural indication.</i></p>	<p>An internal servo error has occurred or ADAHRS data is unreliable.</p>
<p><i>On left side of AP Info Bar.</i></p> <p>ROLL ERR</p> <p><i>No aural indication.</i></p>	<p>An internal servo error has occurred or ADAHRS data is unreliable.</p>
<p>RPM HIGH</p> <p>"ENGINE SPEED"</p>	<p>Tachometer indicator has entered configured red high range.</p>
<p>RPM LOW</p> <p>"ENGINE SPEED"</p>	<p>Tachometer indicator has entered configured red low range.</p>
<p>SKYNET POWER FAULT</p> <p>"WARNING"</p>	<p>A fault has been detected in wiring that provides power to SkyView Network.</p> <p>Failure of Flight, Engine, and/or Navigation information may be imminent.</p>
<p><i>Near AP Info Bar.</i></p> <p>SLIP TRIM NOSE DOWN</p> <p><i>No aural indication.</i></p>	<p>The autopilot has carried a large trim load for an extended period, and the affected servo is slipping.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>Near AP Info Bar:</p> <p>SLIP TRIM NOSE UP</p> <p>No aural indication.</p>	The autopilot has carried a large trim load for an extended period, and the affected servo is slipping.
<p>TRIM FEEDBACK STUCK</p> <p>"WARNING"</p>	The trim feedback monitor received a positive activity signal during system boot.
<p>On PFD:</p> <p>TRIM RUNAWAY</p> <p>"TRIM RUNAWAY"</p>	SkyView detected electric trim motor activity that was not commanded.

4.7.3 Caution Alerts

Table 5 lists all SkyView system caution alerts alphabetically by 1) visual and 2) aural annunciation. Alerts are dependent upon installed systems and components.

Table 5: Caution Alert Conditions and Associated Crew Responses

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>ACTV ADAHRS VIBRATION</p> <p>"CAUTION"</p>	ADAHRS module has detected vibration that affects performance of G-Meter, attitude indicator, and autopilot.
<p>ADAHRS CAL OLD</p> <p>"CAUTION"</p>	Calibration of the ADAHRS module is out-of-date.
<p>On PFD:</p> <p>ADD POWER</p> <p>"GO AROUND"</p>	The autopilot Go Around function has been engaged.
<p>AP DISCONNECT BROKEN</p> <p>"CAUTION"</p>	The autopilot disconnect monitor has detected a wiring fault.
<p>AP DISCONNECT STUCK</p> <p>"CAUTION"</p>	The autopilot disconnect monitor has detected a wiring fault.
<p>AP PANEL OFFLINE</p> <p>"CAUTION"</p>	Autopilot Control Panel is not communicating with SkyView.

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>AP TRIM MALFUNCTION</p> <p>"CAUTION"</p>	<p>SkyView sent a command to move the trim motor, but did not receive feedback that the motor is moving.</p> <p>A trim switch was held <i>ON</i> continuously for more than 5 seconds while SkyView Auto-trim was enabled.</p>
<p>BACKUP BATT IN USE</p> <p>"CAUTION"</p>	<p>The SkyView HDX display unit presenting the alert has switched to backup battery power.</p>
<p>BACKUP BATT UNAVAIL</p> <p>"CAUTION"</p>	<p>The SkyView HDX display unit presenting the message no longer detects the backup battery.</p>
<p>BACKUP BATT TEST FAIL</p> <p>"CAUTION"</p>	<p>Backup battery test did not pass.</p>
<p><i>No visual indication.</i></p> <p>"CHECK GEAR"</p>	<p>Gear is not DOWN, and airspeed is below configured Landing Gear Check Speed.</p>
<p>CPU TEMP CRITICAL</p> <p>"CAUTION"</p>	<p>The SkyView HDX display unit presenting the message has critically high internal temperature.</p> <p>The display will automatically shutdown.</p>
<p>EMS SFG FILE MISMATCH</p> <p>"CAUTION"</p>	<p>EMS configuration files in SkyView HDX display units do not match.</p>
<p>EXT LEVEL BUTTON STUCK</p> <p>"CAUTION"</p>	<p>The system has detected a wiring fault in the LEVEL button.</p>
<p><i>On PFD:</i></p> <p><i>G-Meter is displayed.</i></p> <p>"GEES"</p>	<p>The G-Meter has entered the configured yellow range.</p>
<p>GPS # FAIL</p> <p>"CAUTION"</p>	<p>The identified GPS position source has failed.</p> <p>SkyView has switched to the next available GPS position source.</p>
<p>HEADING SOURCE FAIL</p> <p>"CAUTION"</p>	<p>The Remote Magnetometer module has failed or is not communicating with SkyView.</p> <p>Heading information is unavailable.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>KNOB PANEL OFFLINE "CAUTION"</p>	<p>Knob Control Panel is not communicating with SkyView.</p>
<p>MAG FACT CAL CORRUPT "CAUTION"</p>	<p>The Remote Magnetometer's factory calibration is no longer valid. Heading information is unavailable.</p>
<p>NEED COMPASS CAL "CAUTION"</p>	<p>Compass calibration for ADAHRS module not performed.</p>
<p>NEED USER AOA CAL "CAUTION"</p>	<p>Angle of Attack (AoA) calibration for ADAHRS module not performed.</p>
<p>NO HI-RES TERRAIN "CAUTION"</p>	<p>No high-resolution terrain database is installed for airplane's current position.</p>
<p>OTHER DISPLAY OFFLINE "CAUTION"</p>	<p>One SkyView HDX display is not communicating with the other.</p>
<p>POSITION SOURCE # FAIL "CAUTION"</p>	<p>The identified position source has failed.</p>
<p>SOFTWARE MISMATCH "CAUTION"</p>	<p>Software versions in SkyView HDX display units do not match.</p>
<p>STANDBY NETWORK ERROR "CAUTION"</p>	<p>SkyView Network has lost a redundant network connection to one or more system components.</p>
<p>TOUCH PANEL FAULT "CAUTION"</p>	<p>Touch screen functionality of affected SkyView HDX unit display not working.</p>
<p><i>On PFD and Map:</i> TRAFFIC "TRAFFIC"</p>	<p>A new Traffic Advisory (TA) target has been identified.</p>
<p><i>Near AP Info Bar:</i> TRIM NOSE DOWN "TRIM NOSE DOWN"</p>	<p>The autopilot requires pitch trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<i>Near AP Info Bar:</i> <div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM NOSE UP</div> "TRIM NOSE UP"	The autopilot requires pitch trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.
<i>Near AP Info Bar:</i> <div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM ROLL LF</div> "TRIM ROLL LEFT"	The autopilot requires roll trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.
<i>Near AP Info Bar:</i> <div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM ROLL RT</div> "TRIM ROLL RIGHT"	The autopilot requires roll trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.
<div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM SWITCH STUCK</div> "CAUTION"	The system has detected a wiring fault in the Trim switch.
<i>Near AP Info Bar:</i> <div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM YAW LF</div> "TRIM YAW LEFT"	The autopilot requires yaw trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.
<i>Near AP Info Bar:</i> <div style="background-color: yellow; padding: 2px; display: inline-block;">TRIM YAW RT</div> "TRIM YAW RIGHT"	The autopilot requires yaw trim in direction indicated. Visual annunciation appears immediately; aural after 10 seconds.

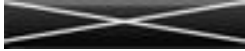

4.7.4 Messages

Table 6 lists all SkyView system messages alphabetically by 1) visual and 2) aural annunciation. Messages are dependent upon installed systems and components.

Table 6: Messages and Associated Crew Responses

VISUAL & AURAL ANNUNCIATION	CONDITION
<div style="background-color: #cccccc; padding: 2px; display: inline-block;">ADS-B IN OFFLINE</div> "MESSAGE"	ADS-B module has failed or not communicating with SkyView.
<i>No visual indication.</i> "APPROACHING ALTITUDE"	The airplane is approaching the bugged altitude.
<i>No visual indication.</i> "APPROACHING MINIMUMS"	The airplane's altitude is 200 feet above the selected MINIMUM altitude.

VISUAL & AURAL ANNUNCIATION	CONDITION
<p><i>No visual indication.</i> "APPROACHING WAYPOINT"</p>	<p>The airplane is within 30 seconds of crossing flight plan enroute waypoint.</p>
<p><i>On AP Info Bar.</i> <i>Status bar flashes momentarily</i> "AUTOPILOT"</p>	<p>The autopilot has been engaged.</p>
<p><i>On AP Info Bar.</i> <i>Status bar flashes momentarily</i> "AUTOPILOT MODE"</p>	<p>An autopilot mode has changed either manually or automatically since it was engaged.</p>
<p>BACKUP BATTERY LOW CHARGE "MESSAGE"</p>	<p>The backup battery connected to the SkyView HDX display unit has a low charge, but is not in use.</p>
<p>BATTERY TEST NEEDED "MESSAGE"</p>	<p>A year has passed since the previous backup battery test.</p>
<p>CHECK BARO SETTING "MESSAGE"</p>	<p>The current BARO setting and the nearest METAR-based altimeter setting are more than 0.1 INHG apart; or, the airplane has descended below FL180 and the BARO should be reset.</p>
<p>COM RADIO PNL OFFLINE "MESSAGE"</p>	<p>COM Control Panel is not communicating with SkyView.</p>
<p>COM XCEIVER OFFLINE "MESSAGE"</p>	<p>COM Radio receiver is not communicating with SkyView.</p>
<p>CPU TEMP HIGH "MESSAGE"</p>	<p>The SkyView HDX display unit's internal temperature is high.</p>
<p><i>No visual indication.</i> "FLIGHT PLAN UPDATED"</p>	<p>A new flight plan has been received by SkyView from the external flight plan source.</p>
<p><i>No visual indication.</i> "LEAVING ALTITUDE"</p>	<p>The airplane is leaving the bugged altitude.</p>
<p><i>On PFD:</i> MINIMUMS <i>Minimums bug appears on Altimeter.</i></p>	<p>Airplane has descended below set MINIMUM altitude.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>NO ADS-B OUT: GPS LOST</p> <p>"MESSAGE"</p>	<p>The Transponder's GPS source is not communicating with SkyView.</p> <p>ADS-B Out is not available.</p>
<p>PITCH SERVO OFFLINE</p> <p>"MESSAGE"</p> <p><i>On left side of AP Info Bar:</i></p> 	<p>The autopilot pitch servo is not communicating or is not powered on.</p>
<p><i>Near AP Info Bar:</i></p> <p>PITCH SLIP</p> <p>"PITCH SLIP"</p>	<p>Autopilot servo is unable to move controls in direction commanded by autopilot.</p> <p>Slip messages are generally transient.</p>
<p>ROLL SERVO OFFLINE</p> <p>"MESSAGE"</p> <p><i>On right side of AP Info Bar:</i></p> 	<p>The autopilot roll servo is not communicating or is not powered on.</p>
<p><i>Near AP Info Bar:</i></p> <p>ROLL SLIP</p> <p>"ROLL SLIP"</p>	<p>Autopilot servo is unable to move controls in direction commanded by autopilot.</p> <p>Slip messages are generally transient.</p>
<p>SWITCH FUEL TANK</p> <p>"SWITCH FUEL TANK"</p>	<p>A reminder to switch fuel tanks at a user-selectable elapsed time or quantity.</p>
<p>SYSTEM EVENT #: SEE SETUP</p> <p>"MESSAGE"</p>	<p>SkyView has logged a system event for the Dynon Diagnostic file.</p> <p>The airplane can be flown.</p>
<p>TAIL # MISMATCH</p> <p>"MESSAGE"</p>	<p>Tail numbers entered in SkyView HDX display units do not match.</p>
<p>TIMER EXPIRED</p> <p>"TIMER EXPIRED"</p>	<p>A user-determined timer has expired.</p>
<p><i>No visual indication.</i></p> <p>"TRAFFIC NOT AVAILABLE"</p>	<p>Traffic information is no longer available.</p>

VISUAL & AURAL ANNUNCIATION	CONDITION
<p>XPNDR ALT ENCODER FAIL</p> <p>"MESSAGE"</p>	<p>The transponder is not communicating with the altitude source.</p>
<p>XPNDR ERROR</p> <p>"MESSAGE"</p>	<p>The transponder has detected a problem and notified SkyView.</p> <p>The transponder may not function correctly.</p>
<p>XPNDR FAIL</p> <p>"MESSAGE"</p>	<p>Transponder has failed.</p>
<p>XPNDR HEX CODE NOT SET</p> <p>"MESSAGE"</p>	<p>Transponder hex code is not entered in SkyView HDX display units.</p>
<p>XPNDR NOT IN ALT MODE</p> <p>"MESSAGE"</p>	<p>Airplane is in the air and transponder is not set to ALT Mode.</p>
<p><i>On PFD:</i></p> <p><i>Slip/Skid indicator turns green with "YD".</i></p> <p>"YAW DAMPER"</p>	<p>The autopilot yaw damper has been engaged.</p>
<p><i>On PFD:</i></p> <p><i>Slip/Skid indicator turns white.</i></p> <p>"YAW DAMPER DISCONNECT"</p>	<p>The autopilot yaw damper has been disengaged.</p>
<p>YAW SERVO OFFLINE</p> <p>"MESSAGE"</p> <p><i>On PFD:</i></p> <p><i>Slip/Skid indicator turns white.</i></p>	<p>The autopilot yaw damper servo is not communicating or is not powered on.</p>
<p><i>On PFD near Slip/Skid indicator:</i></p> <p>YAW SLIP</p> <p>"YAW SLIP"</p>	<p>Autopilot servo is unable to move controls in direction commanded by autopilot.</p> <p>Slip messages are generally transient.</p>

5 Troubleshooting

5.1 Identifying Failures

If a major failure occurs that prevents a SkyView HDX display unit from presenting information, it will respond with a Red X and a descriptive label of which input failed. The Red X may overlay the entire page if a data source such as the ADAHRS module fails. [Figure 39](#) is an example of an ADAHRS module not being configured, and thus preventing a SkyView HDX display unit from presenting information.

If an EMS module fails there will be a Red X over the entire EMS display segment (bottom band, 50% page, etc.) and a yellow "EMS FAIL" caution alert will be set in the notification window (see [Figure 41](#)). If a sensor fails, only the area associated with the display of that sensor's data will have a Red X displayed over it (see [Figure 42](#)).

Fundamentally, the Red X indicates a failure to communicate with a SkyView HDX component or a sensor connected to a component.

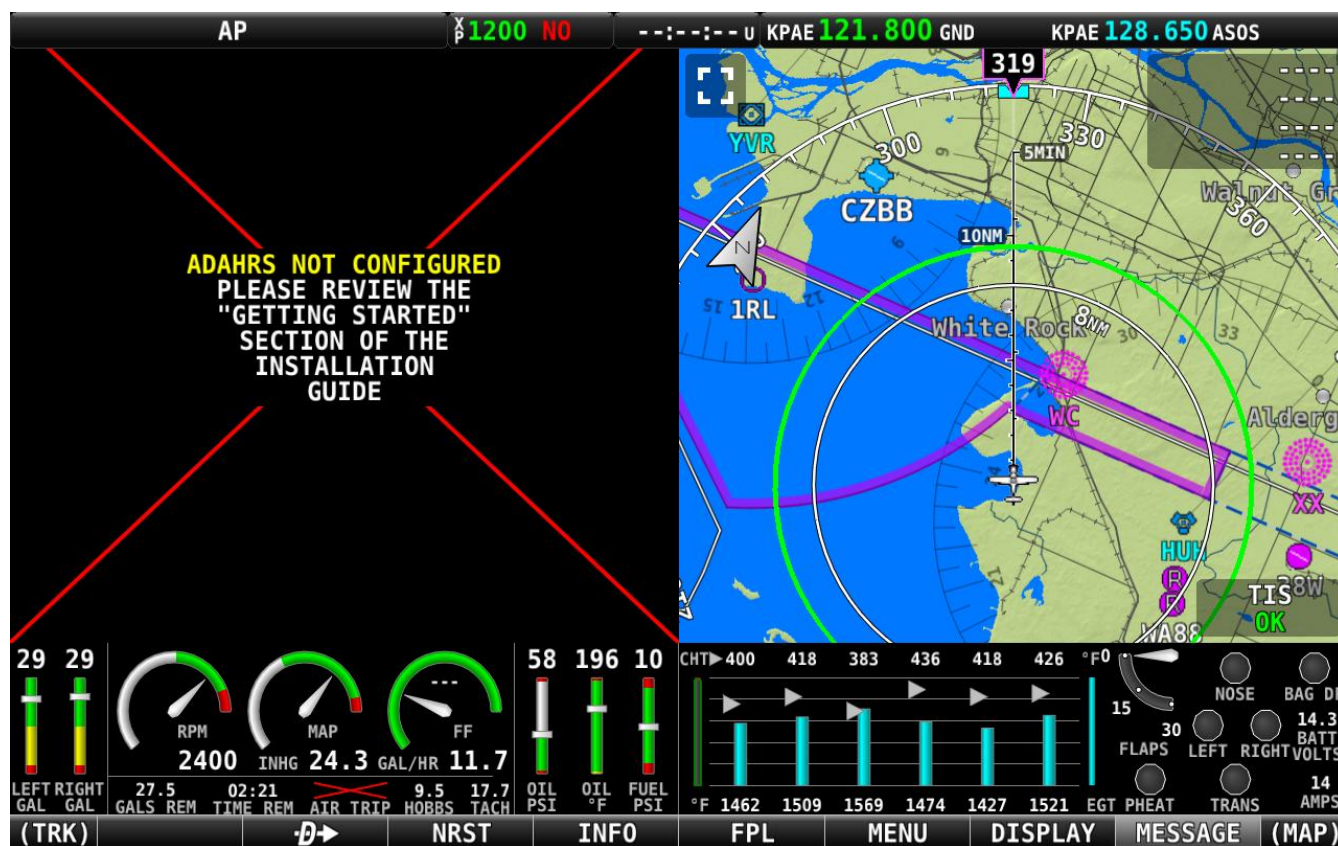


Figure 39: Example of ADAHRS Module Failure

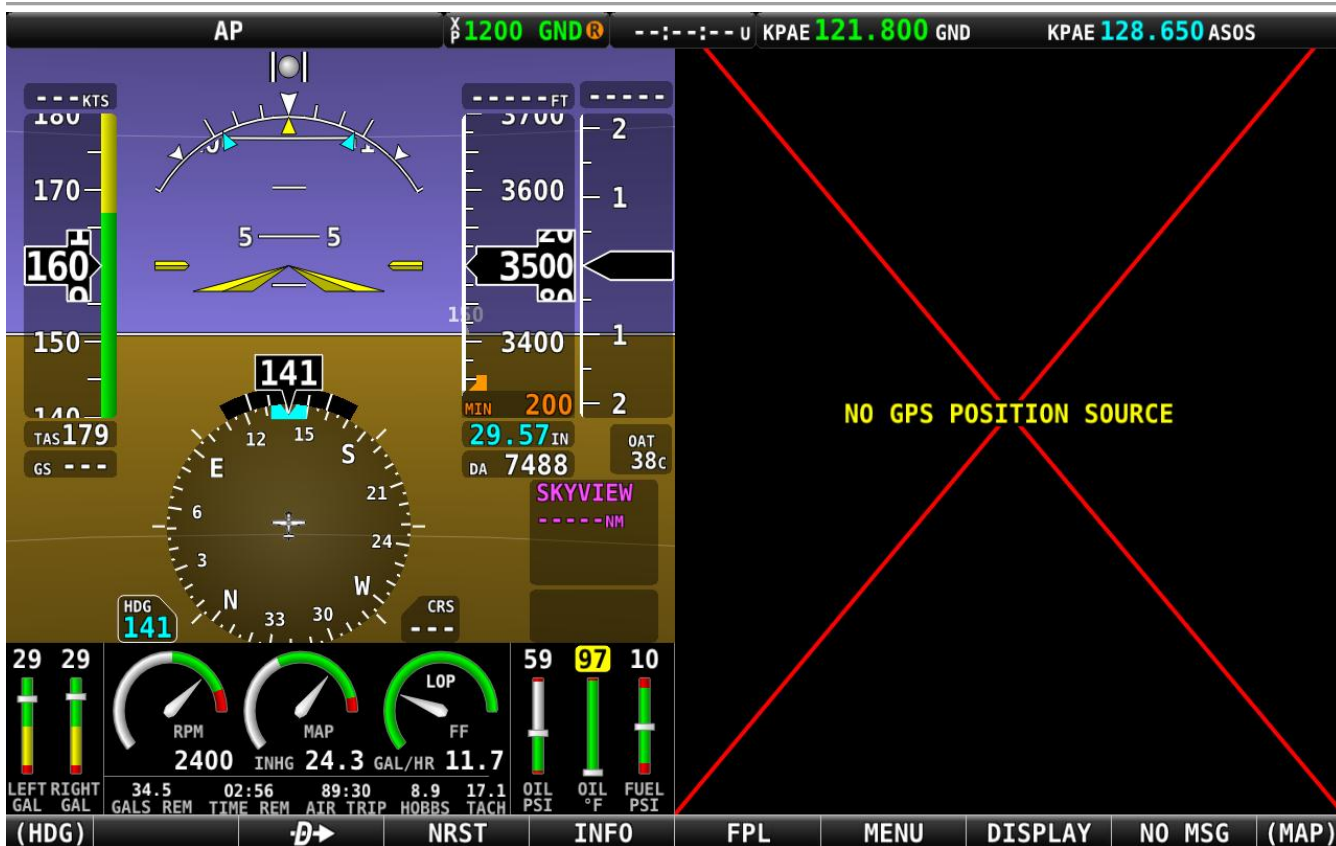


Figure 40: Example of GPS Antenna/Receiver Failure



Figure 41: Example of EMS Module Failure



Figure 42: Example of an EMS Sensor Failure

5.2 SV-HDX1100 & SV-HDX800 Displays

If troubleshooting requires accessing or removing the SkyView HDX display unit, refer to Section 6.5.

5.2.1 Blank Screen

If SkyView HDX display unit(s) has a blank screen:

1. Verify airplane has power.
2. Make sure Master Switch is *ON*. The Primary Display will normally turn on when Master Power is applied.
3. Make sure Avionics Master Switch is *ON*. The Secondary Display(s) will normally turn on when Avionics Master Power is applied.

If the Primary and/or Secondary display unit(s) continue to appear blank, press and hold Button #1 on each affected display. The SkyView HDX display unit should power up on the Back up battery.

If the display unit does not power up, complete the following steps:

1. Access rear of SkyView HDX display unit (see Section 6.5).
2. Observe the lights on the ethernet port. Unlike other ethernet ports, these lights are used for display status.
 - Yellow light *ON*: Power is connected to pin 1, and ground is connected to pin 20.
 - Yellow light *OFF*: SkyView HDX display unit not connected to power.
 - Green light *ON* (flashing): Normal when SkyView HDX display unit is turned *ON* or *OFF* with an SV-BAT-320 connected.
 - Green light *ON* (steady, not flashing) or *OFF*: Something is wrong with the SkyView HDX display unit. Contact Dynon Technical support. Always have a properly rated mechanic or qualified facility remove unit.
3. If there is no power to SkyView HDX display unit and everything is *ON*, check circuit breakers and wiring to unit.

5.2.2 Fault Messages

Caution or Message Alert: CPU TEMP CRITICAL or CPU TEMP HIGH:

1. Access rear of SkyView HDX display unit (see Section 6.5).
2. Turn unit on and, during bootup, verify both fans in the back of unit are working.
3. If both are not working, contact Dynon technical support. Always have a properly certified mechanic or facility remove unit.

Caution Alert: TOUCH PANEL FAULT

- Turn unit *OFF* and *ON* again. If message persists, the unit is not working correctly. Contact Dynon Technical Support.

5.2.3 No Audio

If audio messages are not heard when a message appears, complete the following procedure:

1. With airplane on ground, press LEVEL button and verify Autopilot engages and the aural message “Autopilot” is heard.
2. If Step #1 passes, audio is okay.
3. If Step #1 fails, then there could be a problem with wiring from SkyView HDX display unit to airplane intercom.
4. Access rear of SkyView HDX display unit (see Section 6.5). Test all wiring leads and make sure wiring is correct per the *103488-000 SkyView HDX Wiring Diagram – Single Engine* document or the *103947-000 SkyView HDX Wiring Diagram – Twin Engine* document.

5.3 SV-ADAHRS-200 ADAHRS Module

5.3.1 Red X Over Primary Flight Display

The ADAHRS module is not communicating with the SkyView HDX display unit. To check the connection, complete the following:

1. Access ADAHRS module (see Section 6.6).
2. Check LED light on rear of ADAHRS module to determine status:
 - Red light *OFF*: The module is not receiving power.
 - Red light *ON* (flashing quickly): The module is connected to the SkyView Network and communicating properly.
 - Red light *ON* (flashing slowly): The module is receiving power and operating normally but is not fully communicating with SkyView HDX display unit.
 - Red light *ON* (not flashing): The module has a problem, contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.3.2 Airspeed Indication Frozen / Indicates Zero

If the airspeed indication is a fixed value of zero, and does not change, or only increases slightly, the pitot sensor and lines may be either disconnected or leaking. To resolve, inspect the entire Pitot system for loose or open connections and repair on condition.

If the airspeed indication is a fixed number value and does not change, the Pitot sensor and lines may be obstructed. To check for and remove the obstruction, complete the following:

1. Access ADAHRS module (see Section 6.6).
2. Disconnect Pitot tube from ADAHRS Pitot connection.
3. Blow pressurized air through Pitot tube from ADAHRS connection end out through Pitot sensor. Take note of any foreign objects or water that exits Pitot sensor.
4. Make sure air flows readily through tube/lines and out Pitot sensor.

5. Re-connect Pitot tube to ADAHRS Pitot connection.
6. Test the system to ensure proper functionality.

5.3.3 Altitude Indication Frozen

If the altitude indication is a fixed value that does not change, the static sensor and tube may be obstructed. To check for and remove the obstruction, complete the following:

1. Access ADAHRS (see Section 6.6).
2. Disconnect Static tube from ADAHRS Static connection.
3. Blow pressurized air through Static tube from ADAHRS connection end out through Static sensor. Take note of any foreign objects or water that exits Static sensor.
4. Make sure air flows readily through tube/lines and out Static sensor.
5. Re-connect Static tube to ADAHRS Static connection.
6. Test the system to ensure proper functionality.

5.3.4 Density Altitude and OAT Indications Incorrect

If the Density Altitude or the OAT indications read low or high, or do not change, the OAT sensor may have become disconnected from the ADAHRS module or may have failed. To test the OAT sensor, complete the following:

1. Compare OAT indication on PFD to that of ambient temperature. The two values should be close to the same.
2. If values are similar, apply low heat to OAT sensor while monitoring OAT indication on PFD. The indication should increase as heat is applied to the sensor.
3. If the sensor fails to respond to heat, access the ADAHRS or Remote Magnetometer (see Sections 6.6 and 6.7) and inspect OAT sensor connection to make sure the OAT sensor is connected to the module.

The OAT sensor can be connected to either the ADAHRS module or the Remote Magnetometer module. If the sensor is not connected to the ADAHRS module, check to see it is connected to the Remote Magnetometer instead.

4. Assuming all other functions of the ADAHRS/Remote Magnetometer function correctly, if the sensor is properly connected and continues to not function correctly, replace the OAT sensor.

5.3.5 No AoA Audio Alerts

Normally the AoA probe will produce audible “beeps” as the aircraft approaches a stall. If no AoA audio alerts are heard approaching a stall, perform the following checks:

1. Verify audio is heard for other SkyView HDX display unit Alerts (see Section 5.2.3). If audio is heard for other messages, then there may be a problem with the pneumatic tube from the AoA probe to the ADAHRS module.

2. Check for disconnection of AoA probe tubing:
 - a. Remove AoA probe and make sure the pneumatic tube is securely attached (see Section 6.18).
 - b. Access ADAHRS module (see Section 6.6) to ensure the AoA tube is securely attached.
3. Check for blockage of AoA probe tubing:
 - a. Blow pressurized air through AoA tube from ADAHRS connection end out through AoA sensor. Take note of any foreign objects or water that exits AoA sensor.
 - b. Make sure air flows readily through tube/lines and out Pitot sensor.
 - c. Re-connect Pitot tube to ADAHRS Pitot connection.
4. Complete AoA Probe calibration (see Section 7.8).
5. Test the system to ensure proper functionality.

If all steps pass, the ADAHRS module likely needs to be replaced. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.4 SV-MAG-236 Remote Magnetometer

Caution Alert: COMPASS FAIL

If the SkyView HDX Display generates this message, the Remote Magnetometer module is not communicating with the SkyView HDX display unit.

To gain access to the Remote Magnetometer module, see Section 6.7. The Remote Magnetometer module has an LED light to determine its status as follows:

- Red light *OFF*: The module is not receiving power.
- Red light *ON* (flashing slowly): The module is not connected to the SkyView Network, but it is getting power.
- Red light *ON* (flashing quickly): The module is connected to the SkyView Network and communicating properly.
- Red light *ON* (not flashing): The module has a problem. Contact Dynon technical support. Always have a properly certified mechanic or facility remove unit.

5.5 SV-GPS-2020 GPS Antenna/Receiver

5.5.1 Red X Over Moving Map

The GPS Antenna/Receiver is not communicating with the SkyView HDX display unit. To check the connection, complete the following:

1. Access rear of SkyView HDX display unit (see Section 6.5) and check/fix wiring connections.

2. If wiring appears correct, and GPS is still not communicating with SkyView HDX display unit, contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.5.2 GPS Position Incorrect

1. Verify GPS Antenna/Receiver has an unobstructed view of the sky.
2. Check the GPS status page on SkyView HDX display unit.

5.6 SV-BAT-320 Backup Battery

Message Alert: BACKUP BATT LOW CHARGE or BATTERY TEST NEEDED

If the SkyView HDX display unit generates this message, perform battery test on each Backup Battery (see Section 7.4). If a Backup Battery is determined to be bad, contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

Caution Alert: BATTERY MISSING/FAULT

If the SkyView HDX display unit generates this message, check Backup Battery wiring connections. If wiring appears correct, then the Backup Battery has likely failed. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.7 SV-EMS-220 EMS Module

5.7.1 Red X Over Entire Engine Display

The Engine Monitoring System (EMS) module is not communicating with the SkyView HDX display unit. To gain access to the EMS module, see Section 6.11. The EMS module has an LED light to determine its status as follows:

- Red light *OFF*: The module is not receiving power.
- Red light *ON* (flashing slowly): The module is not connected to the SkyView Network, but it is getting power.
- Red light *ON* (flashing quickly): The module is connected to the SkyView Network and communicating properly.
- Red light *ON* (not flashing): The unit has a problem. Contact Dynon technical support. Always have a properly certified mechanic or facility remove unit.

5.7.2 Sensor Failures

The following list represents the sensors that may be installed in the airplane:

- Tachometer
- Manifold Pressure
- Propeller Synchroscope
- Fuel Flow
- Fuel Pressure
- Fuel Level
- Oil Pressure
- Oil Temperature
- Cylinder Head Temperature
- Exhaust Gas Temperature
- Turbine Inlet Temperature
- Battery Voltage
- Electrical Load (Amps)
- Landing Gear Position
- Flap Position
- Pitot Heat
- Configurable Annunciator Lights

A Red X will be displayed over the widget on the bottom of the SkyView HDX display unit whenever the following occur:

- Wiring faults,
- Switches in the circuitry (if installed) fail in the incorrect position,
- A sensor fails.

To remove the Red X:

1. Check wiring and repair as required. Some sensors require 5 volts of power from EMS D37 harness (pin 18, white/red wire) to operate.
2. Inspect and test position switches, if installed in the circuitry, and replace as required.

If a sensor fails and needs to be replaced, contact Dynon technical support. Always have a properly certified mechanic or facility remove unit.

5.8 SV-XPNDR-261 Transponder

The Transponder includes limited self-diagnostic capability. If a fault with the Transponder is detected, a system message will be displayed on the SkyView HDX Display: XPNDR WARNING MESSAGE. To see detailed information on the fault, go to SETUP MENU > TRANSPONDER SETUP. The words TRANSPONDER WARNING will be displayed in Yellow. Right-click the knob and see the specific warning. The following table provides a recommendation for each specific warning.

Table 7: Transponder Self Diagnostic Messages

Annunciation	Description	Possible Causes
ANT FAULT <value>	Antenna Fault; value is Power output.	Generally, this is an installation issue with antenna, feedline, or the connector. Check the antenna, feedline, or connector. A visual inspection is often not enough to find the fault with the antenna, feedline, or connector.
NO ADSB POSITION	GPS data is not being received by transponder.	Check connection to GPS receiver or transponder configuration.
DPSK UNLOCK	Internal diagnostic warning.	Internal fault, contact Dynon technical support to arrange for repair or replacement.
REMOTE HOT <value>	Transponder is receiving excessive heat; value is Temperature (°C).	Check location of transponder for exposure to excessive heat.
RX PSU FAIL	Internal diagnostic warning.	Internal fault, contact Dynon technical support to arrange for repair or replacement.
SQUITTER FAIL	Extended Squitter data not transmitted.	Internal fault, contact Dynon technical support to arrange for repair or replacement.
TX POWER LOW <value>	Transmit power output is low; value is Power output.	Generally, this is an installation issue with antenna, feedline, or the connector. Check the antenna, feedline, or connector. A visual inspection is often not enough to find the fault with the antenna, feedline, or connector.
TX PSU HIGH <value>	Transmitter power supply output is abnormally high; value is Volts.	Internal fault, contact Dynon technical support to arrange for repair or replacement.
TX PSU LOW <value>	Transmitter power supply output is abnormally low; value is Volts.	Check power being supplied to SV-XPNDR-261.

Annunciation	Description	Possible Causes
TX RESTART	Internal diagnostic warning	Remove and re-apply power to transponder.
TXPNDR FAULT	Generic fault message	Internal fault, contact Dynon technical support to arrange for repair or replacement.

5.9 SV-ADSB-472 ADS-B IN Receiver

If no traffic or weather is appearing on the PFD or Map, the ADS-B IN Receiver is not communicating with the SkyView HDX display unit.

To gain access to the ADS-B IN Receiver, see Section 6.13. A multicolored LED indicator on the ADS-B IN receiver module confirms hardware operation:

- Green light *ON*: The module has power.
- Green light *OFF*: The module is not receiving power.
- Green light *ON* (with brief yellow flash): The module is connected to the SkyView Network and communicating properly.

5.10 SV-COM-X25/83 COM Control Panel & Transceiver

The COM System is made up of two modules: the COM Transceiver (SV-COM-T25/T8) and the COM Control Panel (SV-COM-PANEL). To gain access to the modules, see Sections 6.15 and 6.16.

COM Panel is not illuminated:

1. Make sure COM Transceiver module is powered on.
2. Check harness for proper connections between COM Control Panel and COM Transceiver modules.
3. Check rear of COM Control panel. A red LED indicator on rear of module confirms hardware operation:
 - Red light *OFF*: The module is not receiving power.
 - Red light *ON* (flashing quickly): The module is connected to SkyView Network and communicating properly.
 - Red light *ON* (flashing slowly): The module is receiving power and operating normally but is not fully communicating with SkyView HDX display unit.
 - Red light *ON* (not flashing): The module has a problem. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

COM Panel Message: NoSV

The COM Control Panel is not communicating with SkyView HDX Display:

1. Make sure SkyView HDX system is powered on. (The COM Control Panel receives power from the COM Transceiver module.)
2. Check SkyView Network harness(es) for proper connections between COM Control Panel and SkyView HDX display unit.

COM Panel Message: NoDB

The COM Control Panel is not communicating with SkyView HDX system database:

- Load Aviation and Obstacle databases in SkyView HDX system (see Section 7.3).

5.11 SV-ARINC-429 ARINC 429 Connection Module

If the SkyView HDX display unit is not receiving advanced GPS/NAV data, the ARINC 429 Connection Module is not communicating with the SkyView HDX display unit.

To gain access to the ARINC 429 Connection Module, see Section 6.17. The ARINC 429 Connection Module has an LED light to determine its status as follows:

- Red light *OFF*: The module is not receiving power.
- Red light *ON* (flashing quickly): The module is connected to SkyView Network and communicating properly.
- Red light *ON* (flashing slowly): The module is receiving power and operating normally but is not fully communicating with SkyView HDX display unit.
- Red light *ON* (not flashing): The module has a problem. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.12 Angle of Attack (AoA) Probe

Normally the AoA system will produce audible “beeps” as the airplane approaches a stall. If no AoA audio alerts are heard approaching a stall, perform the following checks:

1. Verify audio is heard for other SkyView HDX system Alerts (see Section 5.2.3). If audio is heard for other messages, then there may be a problem with the pneumatic tube from the AoA probe to the ADAHRS module.
2. Remove AoA probe and make sure the pneumatic tube is securely attached.
3. Check for blockage of AoA probe.
4. If Steps 1-3 pass, inspect the AoA connector going into the AoA port on ADAHRS module. To gain access to ADAHRS module, see Section 6.6.
5. Complete AoA Probe calibration (see Section 7.8).

If all steps pass, the ADAHRS module likely needs to be replaced. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.13 SV-KNOB-PANEL Knob Control Panel

If the knobs on Knob Control Panel do not control the Barometer (BARO), Altitude (ALT), and Heading/Track (HDG/TRK) functions on SkyView HDX Display, complete the following:

1. Access electrical connectors on rear of SkyView HDX Display (see Section 6.5).
2. Check lights on rear of panel. The control panel has a LED light to determine its status as follows:
 - Red light *OFF*: The control panel is not receiving power.
 - Red light *ON* (flashing slowly): The control panel is not connected to SkyView Network but is getting power.
 - Red light *ON* (flashing quickly): The control panel is connected to SkyView Network and is communicating properly.
 - Red light *ON* (not flashing): The control panel has a problem. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.14 Panel Mount USB Port

1. Connect a USB-compatible device to all ports on Panel Mount USB Port to confirm proper operation.
2. If all ports fail, access rear of SkyView HDX display unit (see Section 6.5) and check USB cable connection from SkyView HDX display unit to Panel Mount USB Port.
3. If USB cable connection is good, Panel Mount USB Port has a problem. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.15 Autopilot System

5.15.1 Servos Offline Messages

Condition: One or more of the following messages appear:

1. PITCH SERVO OFFLINE
2. ROLL SERVO OFFLINE
3. YAW SERVO OFFLINE

If all three messages annunciate:

1. Verify Master Power is *ON*.
2. Verify Autopilot circuit breaker and switch are *ON*.
3. Verify all harness connectors for all servos are properly mated.
4. Verify electrical power to all servos.
5. Verify adequate ground quality for all servos.

If condition persists, or if only one message annunciates:

1. Enter SETUP menu (hold Buttons #7 and #8)
2. Enter SYSTEM SETUP -> SKYVIEW NETWORK SETUP-> NETWORK STATUS
3. Locate the SV32/SV42 devices (servos) in list of network devices. If necessary, use knobs to scroll through entire list. If you do not see a servo entry in the list of network devices for each servo installed, press BACK button, and perform a SkyView Network Configuration.
4. If any servos are highlighted in RED:
 - a. Verify Autopilot circuit breaker and switch are *ON*.
 - b. Inspect/fix wiring to affected servo, or common wiring if multiple servos are offline.
5. If any servos are highlighted in YELLOW, a software upgrade did not complete properly.
6. If all above fails, contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.15.2 Servo Slip Messages

Condition: One or more of the following messages appear and persist on SkyView HDX display unit:

1. PITCH SERVO SLIP
2. ROLL SERVO SLIP
3. YAW SERVO SLIP

The momentary appearance of SERVO SLIP messages is expected due to certain weather conditions during Autopilot operation. If a SERVO SLIP message persists, contact Dynon Technical Support for assistance.

5.15.3 Yaw Servo Calibration Failure

Condition:

Yaw servo calibration failed.

Make sure the yaw servo disconnect circuit is not connected to the pitch and roll servo disconnect (AP DISC) circuits.

5.15.4 Abnormal Autopilot Operation

Condition:

One or more Autopilot axes fail to move as expected or operate in an unexpected manner.

To test for bridle cable clamp slippage:

1. On ground, engage the Autopilot into Level Mode.
2. From exterior of the airplane, grasp, and gently attempt to move the affected control surface (elevator, aileron, rudder).
3. Have an assistant observe the bridle cable clamps during Step #2.
4. If cable clamp slips, remove and install the clamp per guidance in the *Autopilot Servo Installation Manual* document for the specific airplane make/model.

To test for broken shear screw:

1. On ground, engage the Autopilot into Level Mode.
2. From exterior of the airplane, grasp, and gently attempt to move the affected control surface (i.e., elevator, aileron, rudder).
3. If Autopilot does not resist attempt to move flight controls, contact Dynon Technical Support to request a 102991-000 Shear Screw Replacement Kit.

5.15.5 SV-AP-TRIMAMP Trim Motor Adapter

To gain access to the SV-AP-TRIMAMP module, see Section [6.21](#).

- If trim control is not moving as expected:
 - Confirm SV-AP-TRIMAMP is communicating with SkyView HDX. A multicolored LED indicator on the module confirms operation:
 - LED *OFF*: Module is not receiving power.
 - LED *GREEN*: Module has power.
 - LED *ORANGE*: Module has power and is receiving a signal to activate trim motor.
 - Confirm proper electrical connection and motor operation by activating electric trim manually using pilot yoke switches.
 - Confirm Trim Motor Calibration has been successfully completed. If not, perform calibration on ground (see the *SkyView HDX System Installation Manual* document for instructions).

- Confirm trim system is properly lubricated in accordance with the airplane manufacturer's maintenance procedures.
- Confirm TRIM MOTOR SPEED settings are configured to 100%. If not, configure settings (see the *SkyView HDX System Installation Manual* document for instructions).



TRIM MOTOR SPEED must be set to 100% for both high and low speed settings unless the manufacturer of the trim motor explicitly supports high-frequency pulse width modulation (PWM) speed control. Using PWM speed control on a motor which does not support it may damage the trim motor circuitry.

- If trim control oscillates back and forth in level flight, reduce TRIM MOTOR PULSE RATE (see instructions below).
- If pilot-activated electric trim functions normally, but Auto-Trim is not moving trim controls at all or enough, increase TRIM MOTOR PULSE RATE (see instructions below).
- If the pitch servo is slipping during Auto Trim operation, contact Dynon Avionics technical support.

To test Auto Trim and decrease trim pulse rate:



Airplane must be in flight for the following test procedure.



The default configuration file provided by Dynon contains default settings that are compatible with most electric trim systems. Significant changes from default settings should alert technicians that there may be other issues with the electric trim system such as inadequate lubrication, weak motor, etc.

1. Configure airplane for cruise flight.
2. When safe to do so, engage Autopilot in HDG and ALT mode.
3. Allow airplane to fly undisturbed for at least 60 seconds, observing pitch trim control. If trim control oscillates back and forth in level flight:
 - a. Press and hold Button #7 and #8 simultaneously to enter IN-FLIGHT SETUP MENU.
 - b. Navigate to TRIM MOTOR CONFIGURATION > MOTOR 1.
 - c. Reduce TRIM MOTOR PULSE RATE until oscillation stops, and then monitor trim control performance for 60 seconds after changing setting.
 - d. Press EXIT.
4. With Autopilot engaged, steadily reduce airplane speed to 10 knots above minimum Autopilot speed, confirming Autopilot applies appropriate trim input during speed change.
5. If needed, repeat Step 3.

To test Auto Trim and increase trim pulse rate:



Airplane must be in flight for the following test procedure.



The default configuration file provided by Dynon contains default settings that are compatible with most electric trim systems. Significant changes from default settings should alert technicians that there may be other issues with the electric trim system such as inadequate lubrication, weak motor, etc.

1. Configure airplane for cruise flight.
2. When safe to do so, engage Autopilot in HDG and ALT mode.
3. Allow airplane to fly undisturbed for at least 60 seconds, and then activate electric trim functions manually, observing pitch trim control. If pilot-activated electric trim functions normally, but Auto Trim is not moving trim controls at all or enough:
 - a. Press and hold Button #7 and #8 simultaneously to enter IN-FLIGHT SETUP MENU.
 - b. Navigate to TRIM MOTOR CONFIGURATION > MOTOR 1.
 - c. Increase TRIM MOTOR PULSE RATE until Auto Trim moves trim controls without oscillations, and then monitor trim control performance for 60 seconds after changing setting.
 - d. Press EXIT.
4. With Autopilot engaged, steadily reduce airplane speed to 10 knots above minimum Autopilot speed, confirming Autopilot applies appropriate trim input during speed change.
5. If needed, repeat Step 3.

5.15.6 SV-AP-PANEL Autopilot Control Panel

If buttons on Autopilot Control Panel do not control Autopilot functions on SkyView HDX display unit, complete the following:

1. Access connectors on rear of SkyView HDX display unit (see Section 6.5).
2. Check lights on rear of control panel. The control panel has a LED light to determine its status as follows:
 - Red light *OFF*: The control panel is not receiving power.
 - Red light *ON* (flashing slowly): The control panel is not connected to SkyView Network but is getting power.
 - Red light *ON* (flashing quickly): The control panel is connected to SkyView Network and is communicating properly.
 - Red light *ON* (not flashing): The control panel has a problem. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.15.7 Autopilot Disconnect Button

An AP DISC button is required for SkyView HDX Autopilot operation. The button can be mounted on the panel and/or a suitable button can be affixed to the control yoke.

1. With Autopilot engaged, press AP DISC button.
2. Check SkyView HDX display for the following:
 - If AP DISCONNECT BROKEN message annunciates, and Autopilot fails to disconnect, the switch is faulty and needs to be replaced. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.
 - If AP DISCONNECT STUCK message annunciates, and Autopilot fails to disconnect, check the wiring. If wiring is correct, the switch is faulty and needs to be replaced. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

5.15.8 SV-BUTTON-LEVEL Autopilot Level Button

1. Engage Autopilot by pressing LEVEL button.
2. Check SkyView HDX display for the following:
 - If EXT LEVEL BUTTON STUCK message annunciates, and Autopilot fails to engage, check the wiring. If wiring is correct, the switch is faulty and needs to be replaced. Contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove unit.

6 Component Removal and Replacement

This section contains removal and replacement instructions for SkyView HDX system components. It is intended to be used in conjunction with Section 5: [Troubleshooting](#).

If a component requires changes to its configuration, refer to the *103261-000 SkyView HDX System Installation Manual* document.



Always disconnect aircraft battery before starting removal and installation activities.



Unless otherwise specified, torque all fasteners per specifications in AC 43.13-1B, Table 7-1. Include specified friction drag value when torquing screws.

6.1 Equipment Installation Record

Maintenance technicians should refer to the *103777-000 SkyView HDX System Equipment Installation Record* document for locations, weights, and serial numbers of installed SkyView components. Dynon encourages installers to fill-out, save, and store a copy of document with the airplane's permanent maintenance records.

6.2 Access to Equipment

The majority of SkyView HDX system equipment is usually located on or behind the instrument panel. Locations may differ depending on installation, so maintenance technicians should refer to the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane to determine the locations of the installed SkyView components.

Every SkyView HDX system installation will differ, so specific examples of how each component is installed is not possible. Therefore, a general example of installed instrument panel equipment is provided (see [Figure 43](#) and [Figure 44](#)).

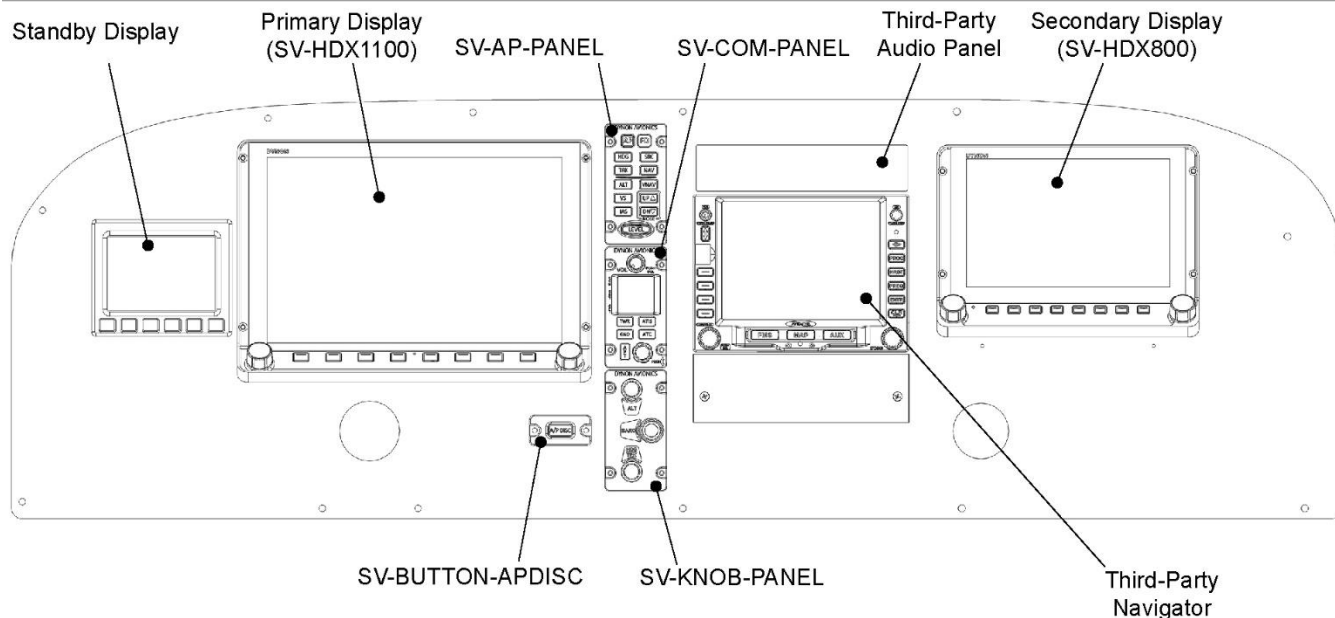


Figure 43: Example of Instrument Panel Components – Front

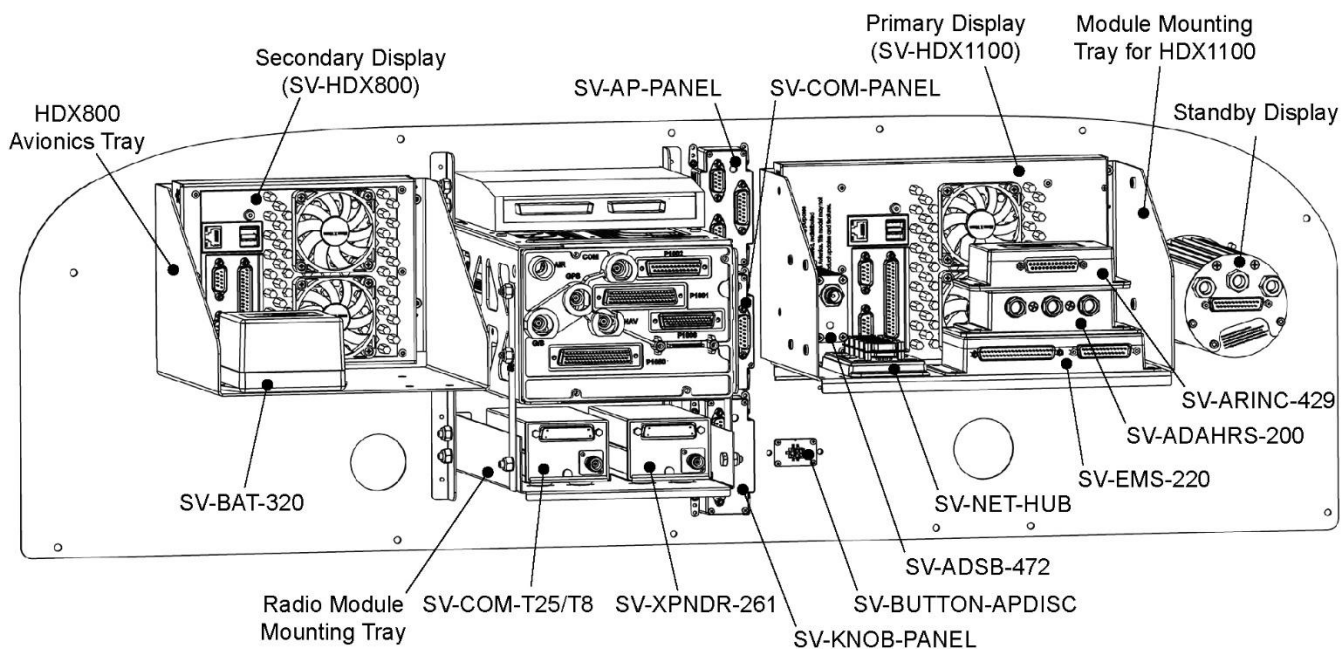


Figure 44: Example of Instrument Panel Components – Rear

6.3 Installation Aids

Dynon Avionics offers several installation aids, including avionics trays, module stacking kits, and a radio stack module mounting kit. Dynon's installation aids allow for orderly installation and maintenance of SkyView HDX system equipment. Avionics trays provide mounting for SkyView HDX display units, most SkyView component modules, and other equipment. Module stacking kits allow EMS, ADAHRS, and ARINC modules to be combined into one installable/removable unit. The radio stack module mounting kit provides mounting for SkyView COM radios and transponders.

Dynon's avionics trays do not need to be removed or disassembled to access SkyView HDX system equipment. Accessing equipment that is mounted to an avionics tray is accomplished by simply removing a SkyView HDX display unit (see Section 6.5). Accessing equipment mounted to a radio stack module mounting kit is accomplished by simply removing the avionics stack cover, or from underneath the instrument panel in airplanes that provide such access.

Although Dynon's installation aids do not require regular maintenance, it may be necessary to replace lost mounting hardware (see Table 8).

Table 8: Replacement Hardware – Installation Aids

NAME	HARDWARE NUMBER	HARDWARE DESCRIPTION	NOTES
ALL AVIONICS TRAYS	504244-000	STABILIZING STRAP	AVAILABLE FROM DYNON
	MS35206-241	PHILLIPS HEAD MACHINE SCREW #8-32, 1/4"	
	AN960-8	FLAT WASHER #8	
	AN365-832A	LOCK NUT #8-32	
RADIO STACK MODULE MOUNTING KIT	MS35206-229	PHILLIPS HEAD MACHINE SCREW #6-32, 7/16"	
	AN960-6	FLAT WASHER #6	
	AN365-632A	LOCK NUT #6-32	
EMS to ADAHRS / ARINC Stacking Kit	101040-000	PHILLIPS COUNTERSUNK MACHINE SCREW #4-40, NYLOK	AVAILABLE FROM DYNON
	AN960-8	FLAT WASHER #8	
	AN365-832A	LOCK NUT #8-32	
ADAHRS to ARINC Stacking Kit	102544-000	PHILLIPS COUNTERSUNK MACHINE SCREW #4-40, STAINLESS, NYLOK	AVAILABLE FROM DYNON
	MS35333-72	STAR WASHER INTERNAL #8, STAINLESS	
	MS35206-243	PHILLIPS HEAD MACHINE SCREW #8-32, 3/8", STAINLESS	

6.4 Component Replacement Hardware

The mounting hardware required to install SkyView HDX system components is listed below.

Table 9: Replacement Hardware – System Components

NAME	HARDWARE NUMBER	HARDWARE DESCRIPTION	NOTES
SV-ADAHRS-200	MS35206-243	PHILLIPS HEAD MACHINE SCREW #8-32, 3/8", STAINLESS	
	AN960-C8	FLAT WASHER #8, STAINLESS	
SV-BAT-320	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-GPS-2020	MS24693-CXX	COUNTERSUNK MACHINE SCREW #8-32, STAINLESS	SCREW LENGTH VARIES BY APPLICATION
SV-BAT-320	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-XPNDR-261	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-EMS-220	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-COM-T25/T8	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-ARINC-429	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-MAG-236	MS35214-14	NON-MAGNETIC BLACK ANODIZED PAN HEAD BRASS INSTRUMENT MACHINE SCREW	
	AN960-C8	FLAT WASHER #8, STAINLESS	
SV-ADSB-472	MS35206-229	PHILLIPS HEAD MACHINE SCREW #6-32, 7/16"	
	AN960-6	FLAT WASHER #6	

NAME	HARDWARE NUMBER	HARDWARE DESCRIPTION	NOTES
SV-AP-TRIMAMP	MS35206-244	PHILLIPS HEAD MACHINE SCREW #8-32, 7/16"	
	AN960-8	FLAT WASHER #8	
SV-OAT-340	503291-000	OAT PROBE ASSEMBLY	AVAILABLE FROM DYNON
AOA SENSOR MAST	AN526-1032XX	PHILLIPS HEAD MACHINE SCREW #10-32	SCREW LENGTH VARIES BY APPLICATION
	AN960-10	FLAT WASHER #10	
	AN365-1032	LOCK NUT #10	
AOA SENSOR	MS35190-251-8R6	COUNTERSUNK MACHINE SCREW #8-32, 3/8"	
MAP SENSOR	AN526-1032XX	PHILLIPS HEAD MACHINE SCREW #10-32	SCREW LENGTH VARIES BY APPLICATION
	AN960-10	FLAT WASHER #10	
	AN365-1032	LOCK NUT #10	
FUEL FLOW SENSOR	AN526-1032XX	PHILLIPS HEAD MACHINE SCREW #10-32	SCREW LENGTH VARIES BY APPLICATION
	AN960-10	FLAT WASHER #10	
	AN365-1032	ELASTIC STOPLOCK NUT #10	
AMP SENSOR	AN526-1032XX	PHILLIPS HEAD MACHINE SCREW #10-32	SCREW LENGTH VARIES BY APPLICATION
	AN960-10	FLAT WASHER #10	
	AN365-1032	LOCK NUT #10	
SV-HDX1100	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT
SV-HDX800	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT

NAME	HARDWARE NUMBER	HARDWARE DESCRIPTION	NOTES
SV-KNOB-PANEL	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT
SV-AP-PANEL	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT
SV-COM-PANEL	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT
SV-BUTTON- APDISC	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT
SV-BUTTON-LEVEL	101281-007	SCREW 5/64" HEX BTTN STL #6-32, 5/8" BLK ZINC	PURCHASE KIT 102487-000 SALE ASSY KIT SCREWS PANEL MOUNT

6.5 SV-HDX1100 & SV-HDX800 Display Units

This section provides removal and installation instructions for SkyView HDX display units (see [Figure 45](#) and [Figure 46](#)).

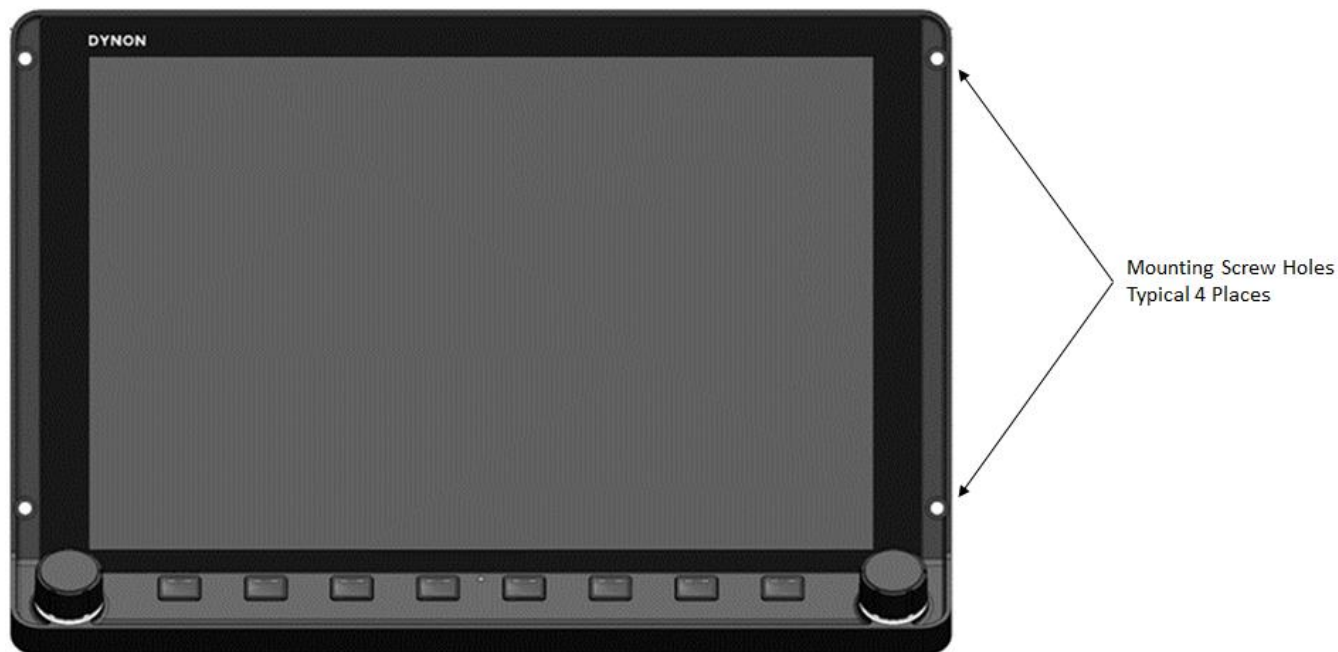


Figure 45: SV-HDX1100 or SV-HDX800 – Front View

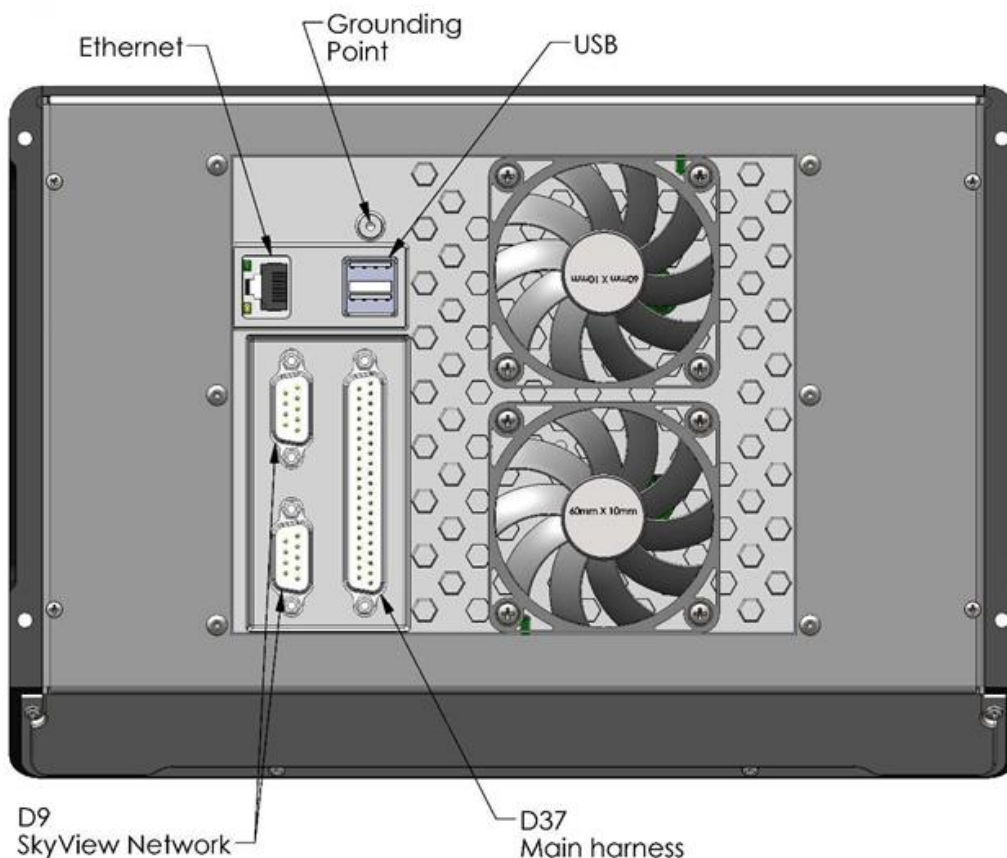


Figure 46: SV-HDX1100 or SV-HDX800 – Rear View

6.5.1 Location

Primary display units are typically located on left side of the instrument panel; secondary display units are typically located on right instrument panel. For specific location, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the installation.

6.5.2 Removal

1. Save a system configuration settings file:
 - a. Insert a 16-32GB USB drive into a SkyView USB port.
 - b. Go to SETUP MENU > SYSTEM SOFTWARE > EXPORT SETTINGS..., enter a file name, and then click EXPORT. A .dfg file is saved to the USB drive.



With a configuration settings file, a new or repaired SkyView HDX display unit can be mostly returned to service by just loading the saved file. Dynon Avionics will also preload the file on a repaired display unit if the file was emailed to Dynon Technical Support (support@dynoncertified.com) as part of the return process.

2. Shut down airplane power and disconnect battery.
3. Remove screws that secure display unit to instrument panel or avionics tray. Keep screws for reinstallation.
4. Slide display unit out of instrument panel to expose backside of unit and gain access to connectors.
5. Disconnect D37 and D9 harness connectors and all cables from back of display unit.

6.5.3 Replacement

1. Connect D37 and D9 harness connectors and all cables to back of display unit.
2. Slide display unit back into instrument panel.
3. Install screws that secure display unit to instrument panel or avionics tray (see [Table 9](#) if screws need to be replaced).
4. If all other removed components are reinstalled, reconnect battery and provide power to display unit and other system components.
5. Make sure display unit powers up normally and no unexpected messages appear. If an issue occurs, see [Section 5.2](#) for troubleshooting information.
6. If available, load a saved system configuration settings file:
 - a. Insert the USB drive on which the file was saved into a SkyView USB port.
 - b. Go to the Load Files Wizard (SETUP MENU > SYSTEM SOFTWARE > LOAD FILES...), select the saved .dfg file, and then press LOAD.
7. Perform applicable steps in System Check (see [Section 6.30](#))

6.6 SV-ADAHRS-200 ADAHRS Module

This section provides removal and installation instructions for the SV-ADAHRS-200 ADAHRS module (see [Figure 47](#)).

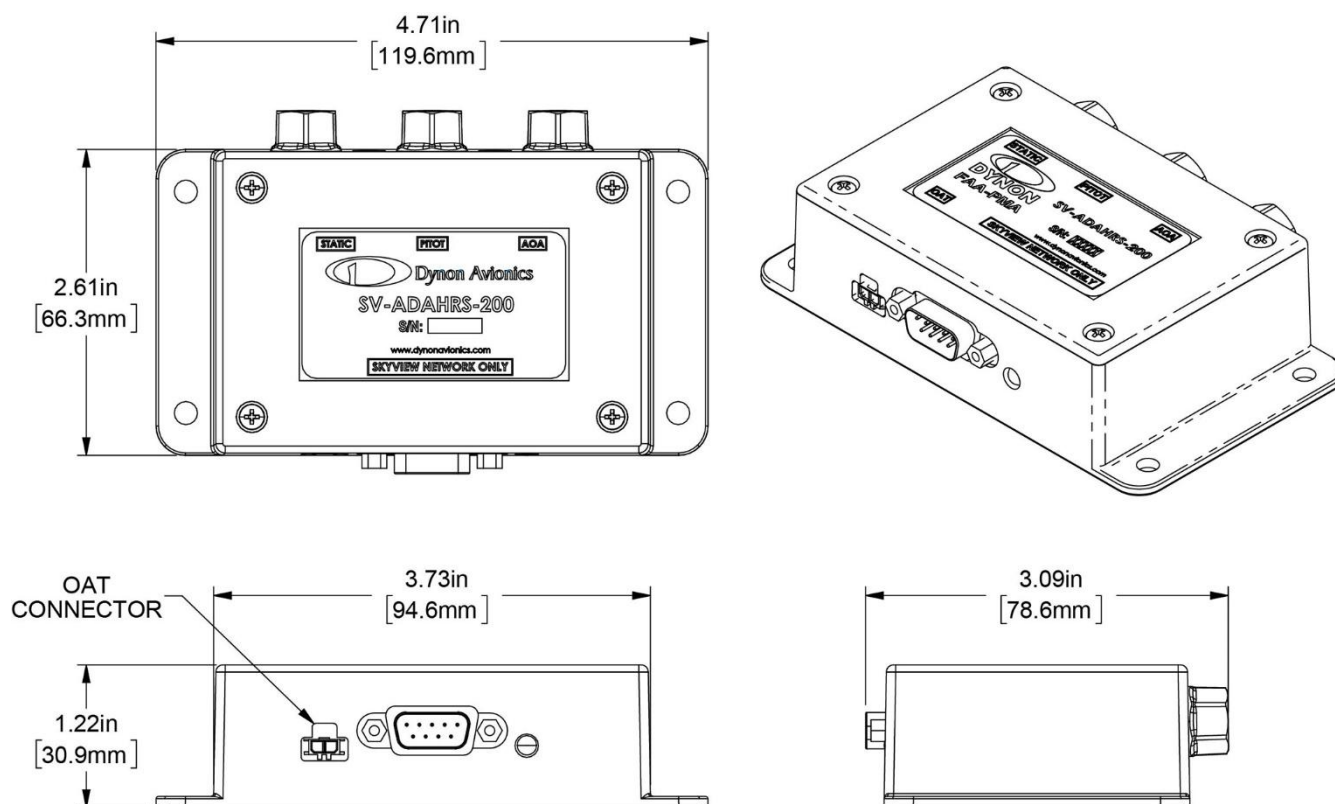


Figure 47: SV-ADAHRS-200

6.6.1 Location

The ADAHRS module is typically mounted behind a SkyView HDX display unit on an avionics tray. For specific location, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.6.2 Removal

1. If necessary, remove SkyView HDX display unit (see [Section 6.5](#)).
2. If necessary, remove ARINC module from ADAHRS mounting plate. Keep screws for reinstallation.
3. Disconnect pitot, static, and AoA (if installed) tubes.
4. Cap pitot, static, and AoA (if installed) tubes and ports on ADAHRS module.
5. Disconnect D9 harness connector from ADAHRS module.
6. If necessary, disconnect OAT sensor wire connector from ADAHRS module.
7. Remove ADAHRS module from EMS mounting plate, avionics tray, or structure. Keep screws for reinstallation.

8. If necessary, remove ADAHRS mounting plate from ADAHRS module. Keep screws for reinstallation.

6.6.3 Replacement

1. If necessary, attach ADAHRS mounting plate to ADAHRS module using same hardware (see [Table 8](#) if hardware needs to be replaced).
2. Install ADAHRS module in same location on EMS mounting plate, avionics tray, or structure using same hardware (see [Table 9](#) if hardware needs to be replaced).
3. Remove caps from pitot, static, and AoA (if installed) tubes and ports.
4. Connect pitot, static, and AoA (if installed) tubes.
5. Connect D9 harness connector to ADAHRS module.
6. If necessary, connect OAT sensor wire connector to ADAHRS module.
7. If necessary, install ARINC module in same location on ADAHRS mounting plate using same hardware (see [Table 8](#) if hardware needs to be replaced).
8. If necessary, install SkyView HDX display unit (see [Section 6.5](#)).
9. Restore power to airplane, and then turn SkyView HDX system *ON*. If an issue occurs, see [Section 5.3](#) for troubleshooting information.
10. If original ADAHRS module is reinstalled, perform a Pitot/Static Leakage Test (see [Section 7.5](#)).
11. If new ADAHRS module is installed, perform applicable steps in System Check (see [Section 6.30](#)), and then perform a Pitot/Static Leakage Test (see [Section 7.5](#)) and a Zero Pressure IAS/AoA Calibration (see [Section 7.6](#)).

6.7 SV-MAG-236 Remote Magnetometer

This section provides removal and installation instructions for the SV-MAG-236 remote magnetometer (see [Figure 48](#)).

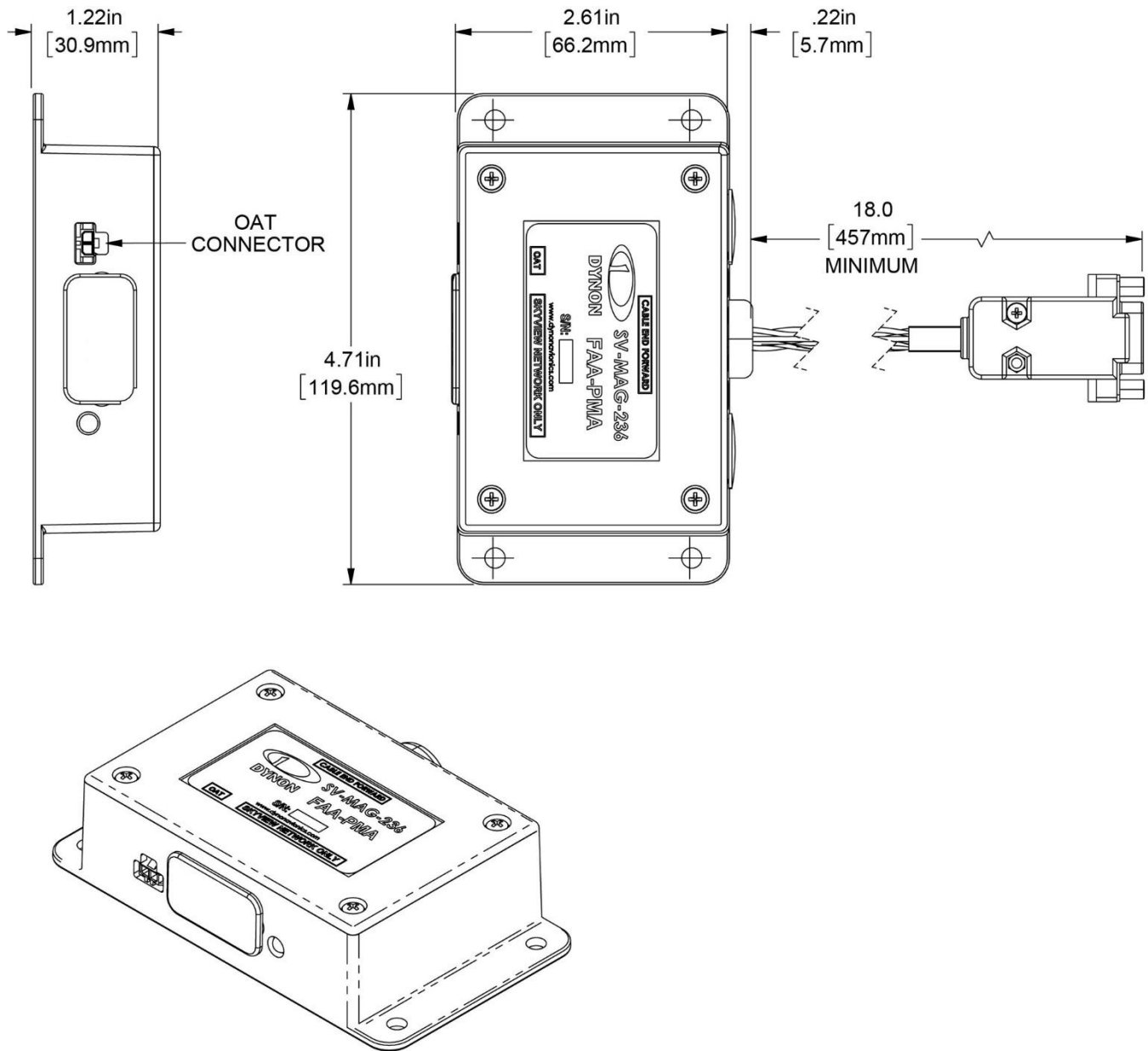


Figure 48: SV-MAG-236

6.7.1 Location

For specific location, see the 103777-000 *SkyView HDX Equipment Installation Record* document associated with the airplane.

6.7.2 Removal

1. Disconnect D9 harness connector from Mag module.
2. If necessary, disconnect OAT sensor wire connector from Mag module.
3. Remove Mag module from structure. Keep screws for reinstallation.

6.7.3 Replacement

1. Install Mag module in same location using same screws (see [Table 9](#) if screws need to be replaced).
2. Connect D9 harness connector to Mag module.
3. If necessary, connect OAT sensor wire connector to Mag module.
4. Restore power to airplane, and then turn SkyView HDX system ON. If an issue occurs, see [Section 5.4](#) for troubleshooting information.
5. Perform applicable steps in System Check (see [Section 6.30](#)), and then perform a Compass Calibration (see [Section 7.5](#)).

6.8 SV-OAT-340 Outside Air Temperature (OAT) Sensor

This section provides removal and installation instructions for the SV-OAT-340 OAT sensor (see [Figure 49](#)).

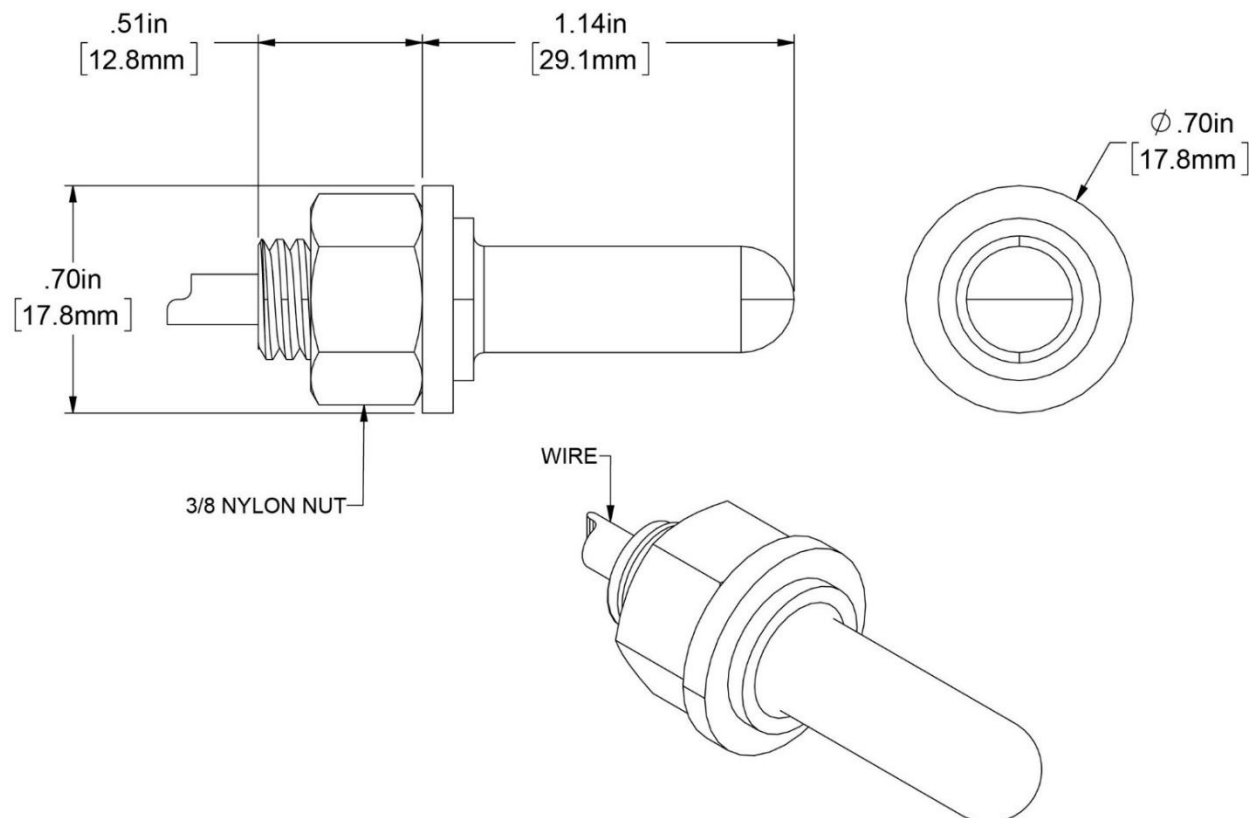


Figure 49: SV-OAT-340

6.8.1 Location

The OAT sensor is typically located under the left wing on the same plate as the AoA probe. For specific location, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.8.2 Removal

1. Unscrew nylon nut threaded onto OAT sensor inside airplane.
2. Disconnect OAT sensor wire connector from the ADAHRS or Mag module. It may be necessary to de-pin connector from wiring to remove.
3. Remove nylon nut and washer from OAT sensor, and then remove it and wiring from airplane. Keep nylon nut and washer for reinstallation.

6.8.3 Replacement

1. Install OAT sensor in same location using nylon nut and washer (see [Table 9](#) if nylon nut and washer need to be replaced).
2. Connect OAT sensor wire connector to the ADAHRS or Mag module. It may be necessary to re-pin connector to wiring.
3. Restore power to airplane, and then turn SkyView HDX system *ON*.
4. Make sure OAT data is displayed on the SkyView HDX display unit.

6.9 SV-GPS-2020 GPS Antenna/Receiver

This section provides removal and installation instructions for the SV-GPS-2020 GPS antenna/receiver (see [Figure 50](#)).

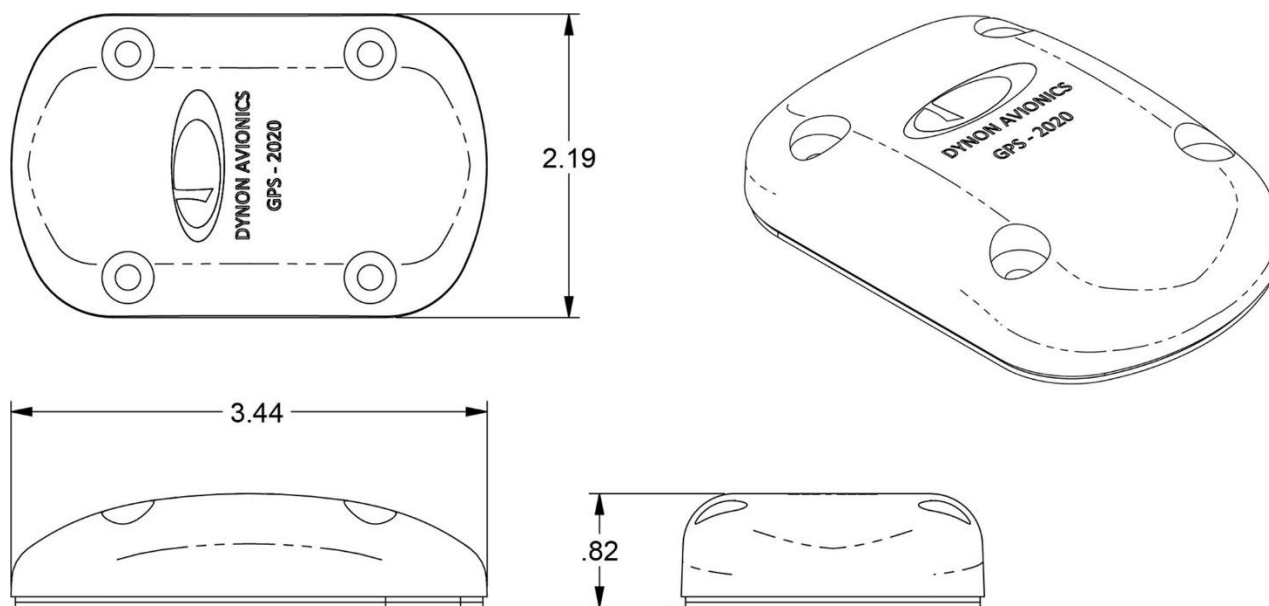


Figure 50: SV-GPS-2020

6.9.1 Location

The GPS antenna/receiver is typically located on the top surface of the airplane. For specific location, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.9.2 Removal

1. Disconnect GPS module wiring (Power, Ground, TX/RX) from SkyView HDX display units. It may be necessary to de-pin connectors from wiring.
2. Remove screws that secure GPS module to airplane, and then remove it from airplane. Keep screws for reinstallation.

6.9.3 Replacement

1. Install GPS module in same location using same screws (see [Table 9](#) if screws need to be replaced).



To keep moisture from entering airplane, apply weather sealant around fasteners and fastener holes, as well as wire pass-through hole. For extra protection, apply sealant around outside of module where it meets skin of airplane.

2. Connect GPS module wiring (Power, Ground, TX/RX) to SkyView HDX display units. It may be necessary to re-pin connectors to wiring.
3. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.5](#) for troubleshooting information.
4. Perform applicable steps in System Check (see [Section 6.30](#)).
5. With airplane unobstructed from view of sky, verify GPS position is received.

6.10 SV-BAT-320 Backup Battery

This section provides removal and installation instructions for the SV-BAT-320 Backup Battery (see [Figure 51](#)).

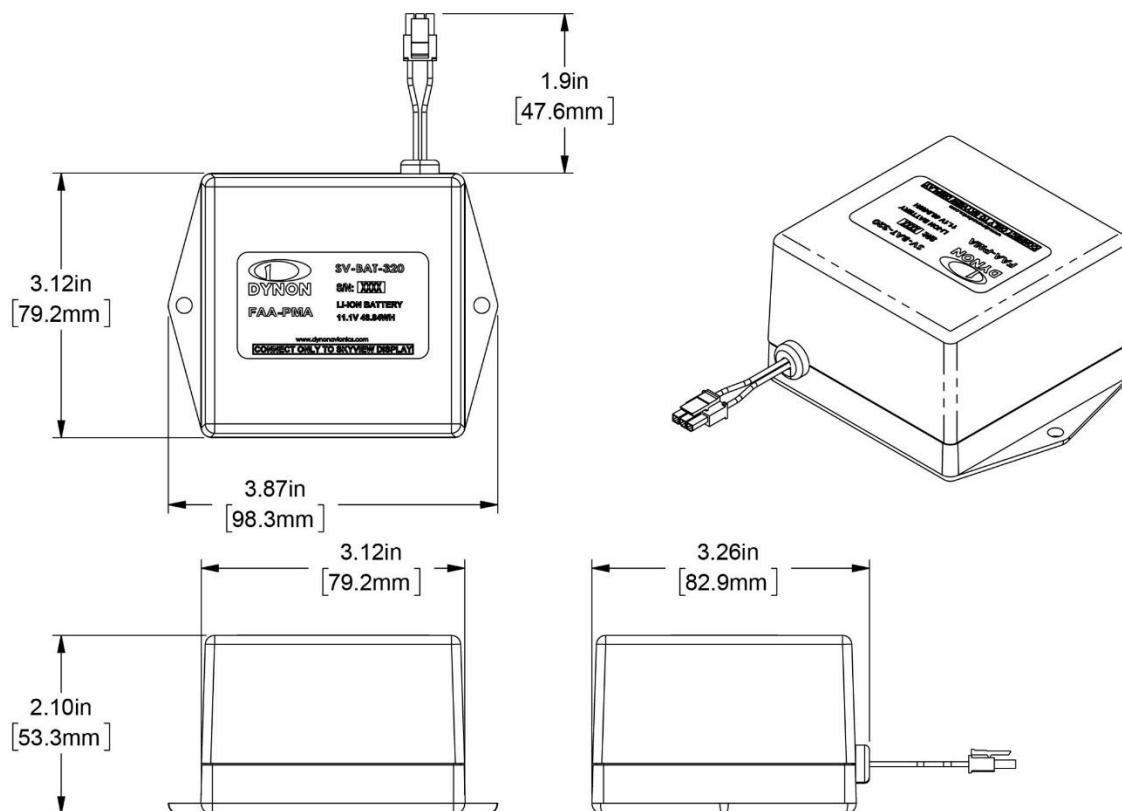


Figure 51: SV-BAT-320

6.10.1 Location

The backup battery is typically located behind a SkyView HDX display unit on an avionics tray. For specific locations, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.10.2 Removal

1. Make sure SkyView HDX display unit is turned *OFF*.
2. If necessary, remove SkyView HDX display unit (see [Section 6.5](#)).
3. Disconnect wire connector from backup battery. Protect battery leads from shorting.
4. Remove screws that secure backup battery to avionics tray or structure. Keep screws for reinstallation.
5. Remove backup battery from avionics tray or structure.

6.10.3 Replacement

1. Install backup battery in same location on avionics tray or structure using same screws (see [Table 9](#) if screws need to be replaced).
2. Connect wire connector to backup battery.
3. If necessary, install SkyView HDX display unit (see [Section 6.5](#)).
4. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.6](#) for troubleshooting information.
5. Perform SkyView HDX System Backup Battery Test (see [Section 7.4](#)).

6.11 SV-EMS-220 EMS Module

This section provides removal and installation instructions for the SV-EMS-220 EMS module (see [Figure 52](#)).

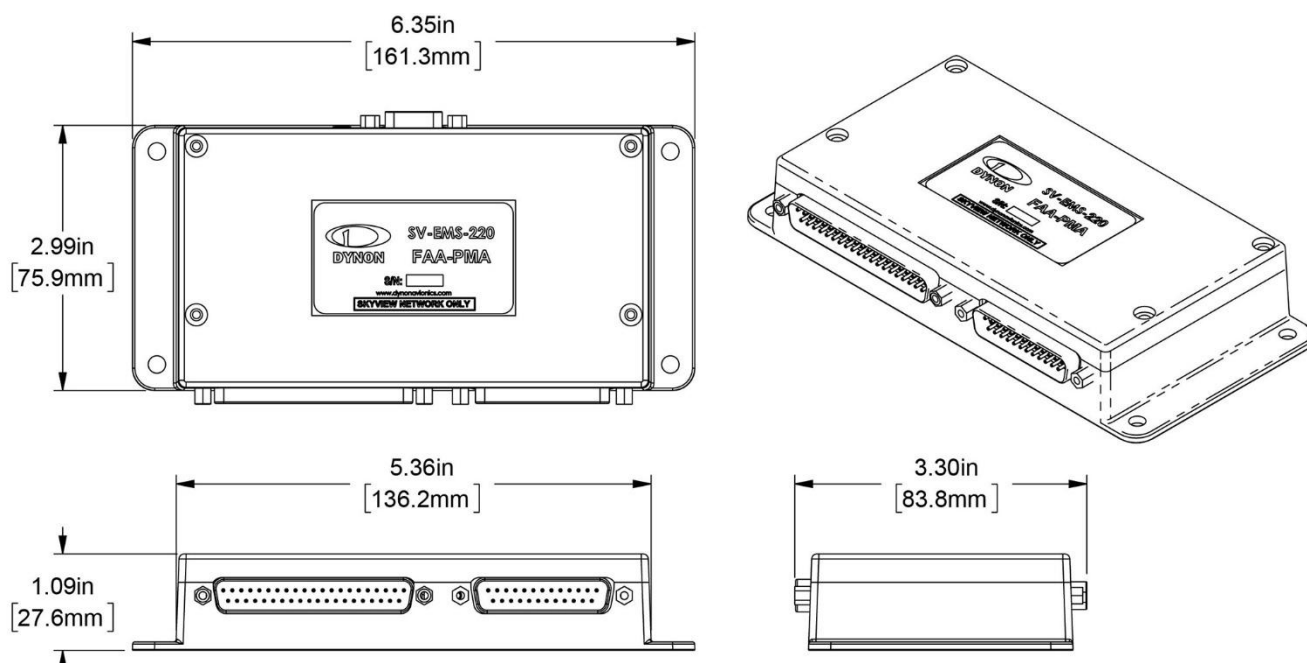


Figure 52: SV-EMS-220

6.11.1 Location

On single-engine airplanes, the EMS module is typically located behind a SkyView HDX display unit on an avionics tray. On twin-engine airplanes, the common location is in each engine nacelle, behind the firewall. For specific location, see the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.11.2 Removal

1. If necessary, remove SkyView HDX display unit (see [Section 6.5](#)).
2. Disconnect D9, D25, and D37 harness connectors from EMS module.
3. If necessary, remove ARINC module from ADAHRS mounting plate. Keep screws for reinstallation.

4. If necessary, remove ADAHRS module from ADAHRS mounting plate. Keep screws for reinstallation.
5. Remove EMS module from avionics tray or structure. Keep screws for reinstallation.
6. If necessary, remove EMS mounting plate from EMS module. Keep screws for reinstallation.

6.11.3 Replacement

1. If necessary, attach EMS mounting plate to EMS module using same hardware (see [Table 8](#) if hardware needs to be replaced).
2. Install EMS module in same location on avionics tray or structure using same screws (see [Table 9](#) if screws need to be replaced).
3. Connect D9, D25, and D37 harness connectors to EMS module.
4. If necessary, install ADAHRS module in same location on EMS mounting plate using same hardware (see [Table 8](#) if hardware needs to be replaced).
5. If necessary, install ARINC module in same location on ADAHRS mounting plate using same hardware (see [Table 8](#) if hardware needs to be replaced).
6. If necessary, install SkyView HDX display unit (see [Section 6.5](#)).
7. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.7](#) for troubleshooting information.
8. Perform applicable steps in System Check (see [Section 6.30](#)).
9. Verify that no error messages and no failure indications appear on SkyView HDX display unit.

6.11.4 Oil Pressure Sensor

The SV-EMS-220 supports a variety of oil pressure sensors. The oil pressure sensor is threaded directly into the accessory housing of your airplane's engine, or remotely located away from the engine connected by a flexible oil pressure hose. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove the oil pressure sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals.

Replacement:

To install the oil pressure sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals.

6.11.5 Oil Temperature Sensor

The SV-EMS-220 supports a variety of oil temperature sensors. The oil temperature sensor is threaded directly into the accessory housing of your airplane's engine. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove the oil temperature sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals.

Replacement:

To install the oil temperature sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals.

6.11.6 Fuel Pressure Sensor

The fuel pressure sensor is normally located in the fuel plumbing downstream of the fuel pressure pump(s), and upstream of the fuel metering device. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

If your airplane did not originally come equipped with this sensor, refer to the *103777-000 SkyView HDX Equipment Installation Record* document to see where the sensor is located on your airplane.

Removal:

To remove the fuel pressure sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector at sensor.
2. Using a wrench, unthread sensor from its threaded mounting boss.
3. Remove sensor from boss.
4. If sensor is not immediately replaced, temporarily cover open boss to prevent system contamination.

Replacement:

To install the fuel pressure sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Apply Permatex® High-Performance Thread Sealant or equivalent to pipe threads.
2. Thread sensor into boss and tighten to prevent fluid leak.
3. Connect wiring harness connector to sensor.
4. Conduct an operation test to confirm correct operation and that there are no fluid leaks.

6.11.7 Fuel Flow Sensor

The fuel flow sensor is normally located in the fuel plumbing downstream of the fuel metering device if fuel injected, and upstream if carbureted. If the airplane did not originally come equipped with this sensor, refer to the *103777-000 SkyView HDX Equipment Installation Record* document to see where the sensor is located on the airplane. If the airplane is equipped with an original sensor, refer to the airplane or engine manufacturer's maintenance manuals for location information.

Removal:

To remove the fuel flow sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector from sensor.
2. Disconnect fuel hoses or lines connected to sensor inlet and outlet.
3. Remove sensor from bracket.
4. If sensor is not immediately replaced, temporarily cover open hose or lines to prevent system contamination.

Replacement:

To install the fuel flow sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Attach sensor to bracket (see [Table 9](#) if screw needs to be replaced.)
2. Apply Permatex® High-Performance Thread Sealant or equivalent to pipe threads.
3. Connect fuel hoses or lines connected to sensor inlet and outlet.
4. Connect wiring harness connector to sensor.
5. Conduct an operation test to confirm correct operation and that there are no fluid leaks.

6.11.8 Fuel Level Sensor

The SV-EMS-220 utilizes the fuel level sensors originally installed in your airplane and are typically located in the airplane's fuel tanks. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove the fuel level sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals.

Replacement:

To install the fuel level sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals.

6.11.9 Carburetor Temperature Sensor

The carburetor temperature sensor is typically installed in a threaded boss that leads to the venturi of the engine carburetor.

Removal:

To remove the fuel pressure sensor, follow the removal instructions in the airplane, the engine or the carburetor manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector at sensor.
2. Using a wrench, unthread sensor from its threaded mounting boss.
3. Remove sensor from boss.
4. If sensor is not immediately replaced, temporarily cover open boss to prevent system contamination.

Replacement:

To install the carburetor temperature sensor, follow the installation instructions in the airplane, the engine, or the carburetor manufacturer's maintenance manuals, or complete the following steps:

1. Thread sensor into boss and tighten to prevent fluid leak.
2. Connect wiring harness connector to sensor.
3. Conduct an operation test to confirm correct operation and that there are no fluid leaks.

6.11.10 Cylinder Head Temperature Sensor

The SV-EMS-220 supports a variety of cylinder head temperature (CHT) sensors. The CHT sensor is threaded into bottom side of each cylinder head. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove a CHT sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector at sensor.
2. Using a wrench, unthread sensor from its threaded mounting boss.
3. Remove sensor from boss.

4. If sensor is not immediately replaced, temporarily cover open boss to prevent system contamination.

Replacement:

To install a CHT sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Thread sensor into boss and tighten.
2. Connect wiring harness connector to sensor.
3. Conduct an operation test to confirm correct operation.

6.11.11 Exhaust Gas Temperature Sensor

The SV-EMS-220 supports a variety of exhaust gas temperature (EGT) sensors. The EGT sensor attaches to the engines exhaust stacks near each cylinder's exhaust port. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove an EGT sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Loosen attachment clamp completely.
2. Remove sensor from hole in exhaust stack.

Replacement:

To install an EGT sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Insert sensor into hole in exhaust stack.
2. Connect and tighten attachment clamp to secure sensor.

6.11.12 Turbine Inlet Temperature Sensor

The SV-EMS-220 supports a variety of turbine inlet temperature (TIT) sensors. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

Removal:

To remove a TIT sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector at sensor.
2. Using a wrench, unthread sensor from its threaded mounting boss.
3. Remove sensor from boss.
4. If sensor is not immediately replaced, temporarily cover open boss to prevent system contamination.

Replacement:

To install a TIT sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Thread sensor into boss and tighten to prevent gas leak.
2. Connect wiring harness connector to sensor.
3. Conduct an operation test to confirm correct operation and that there are no gas leaks.

6.11.13 Amps Sensor

The SV-EMS-220 utilizes an ammeter shunt to sense amps. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

If your aircraft did not originally come equipped with this sensor, refer to the *103777-000 SkyView HDX Equipment Installation Record* document to see where the sensor is located on your airplane.

Removal:

To remove the Amp sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Temporarily label wires connected to sensor to ensure correct orientation when reconnecting wires.
2. Remove screws that secure large input wire cable terminals to sensor.
3. Remove screws that secure large output wire cable terminals to sensor.
4. Remove screws that secure small signal wire connected to input side of sensor.
5. Remove screws that secure small signal wire connected to output side of sensor.
6. Remove screws that secure sensor to airframe, and then remove sensor.

Replacement:

To install the Amp sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Locate sensor and install screws that secure sensor to airframe (see [Table 9](#) if screws need to be replaced).
2. Install screws that secure small signal wire connected to input side of sensor.
3. Install screws that secure small signal wire connected to output side of sensor.
4. Install screws that secure large input wire cable terminals to sensor.
5. Install screws that secure large output wire cable terminals to sensor.
6. Restore power to airplane.

6.11.14 Voltmeter Sensor

The SV-EMS-220 utilizes the existing wire connected to the main battery bus supplying your airplane's original volt indicator to provide the voltage indication in the SkyView HDX Display. This wire connects to the EMS module wiring harness as depicted in the *103488-000 SkyView HDX Wiring Diagram - Single Engine* document or the *103947-000 SkyView HDX Wiring Diagram - Twin Engine* document.

6.11.15 Tachometer Sensor

The SV-EMS-220 utilizes the existing P-lead wires connecting the left and right magnetos to the magneto control switch mounted to the airplane instrument panel to provide left and right magneto pulse signals to the Skyview HDX Display. The left and right tachometer sensing wires on the EMS module wiring harness connect to the magneto control switch as depicted in the *103488-000 SkyView HDX Wiring Diagram - Single Engine* document or the *103947-000 SkyView HDX Wiring Diagram - Twin Engine* document.

Alternatively, third-party tachometer sending units that provide a low voltage DC pulsed signal can be used instead of magneto P-leads.

6.11.16 Manifold Air Pressure Sensor

The Manifold Air Pressure (MAP) sensor is typically connected to the engine induction system by a flexible hose. This hose may be attached to a boss or bung on an intake pipe, or it may be connected to an unused primer plug near an intake port of a cylinder. The MAP sensor may be mounted on a bracket remote from the engine. Refer to the airplane or engine manufacturer's maintenance manuals for detailed location information.

If your aircraft did not originally come equipped with this sensor, refer to the *103777-000 SkyView HDX System Equipment Installation Record* document to see where the sensor is located on your airplane.

Removal:

To remove the MAP sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. Disconnect wiring harness connector from sensor.
2. Disconnect flexible hose connected to sensor.
3. If needed, remove screw that secures sensor to bracket, and then remove sensor.
4. If sensor is not immediately replaced, temporarily cap open hose to prevent system contamination.

Replacement:

To install the MAP sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals, or complete the following steps:

1. If needed, mount sensor to bracket with same screw (see [Table 9](#) if screw needs to be replaced).
2. Connect hose to sensor.
3. Connect wiring harness connector to sensor.

6.11.17 Flap Position Sensor

The SV-EMS-220 utilizes the Flap Position sensor originally installed in your airplane. Refer to the airplane manufacturer's maintenance manuals for detailed location information.

Removal:

To remove the Flap Position sensor, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals.

The SkyView HDX system also utilizes the existing Flap Position signal wires connected to the Flap Position signal wires on the EMS module wiring harness as depicted in the *103488-000 SkyView HDX Wiring Diagram - Single Engine* document or the *103947-000 SkyView HDX Wiring Diagram - Twin Engine* document.

Replacement:

To install the Flap Position sensor, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals.

6.11.18 Landing Gear Position Sensor

The SV-EMS-220 utilizes the Landing Gear position sensing switches originally installed in your airplane. Refer to your airplane manufacturer's maintenance manuals for detailed location information.

The SkyView HDX system also utilizes the existing Landing Gear Position signal wires connected to the Landing Gear Position signal wires on the EMS module wiring harness as depicted in the *103488-000 SkyView HDX Wiring Diagram - Single Engine* document or the *103947-000 SkyView HDX Wiring Diagram - Twin Engine* document.

Removal:

To remove the Landing Gear position sensing switches, follow the removal instructions in the airplane or engine manufacturer's maintenance manuals.

Replacement:

To install the Landing Gear position sensing switches, follow the installation instructions in the airplane or engine manufacturer's maintenance manuals.

6.12 SV-XPNDR-261 Transponder

This section provides removal and installation instructions for the SV-XPNDR-261 transponder (see [Figure 53](#)).

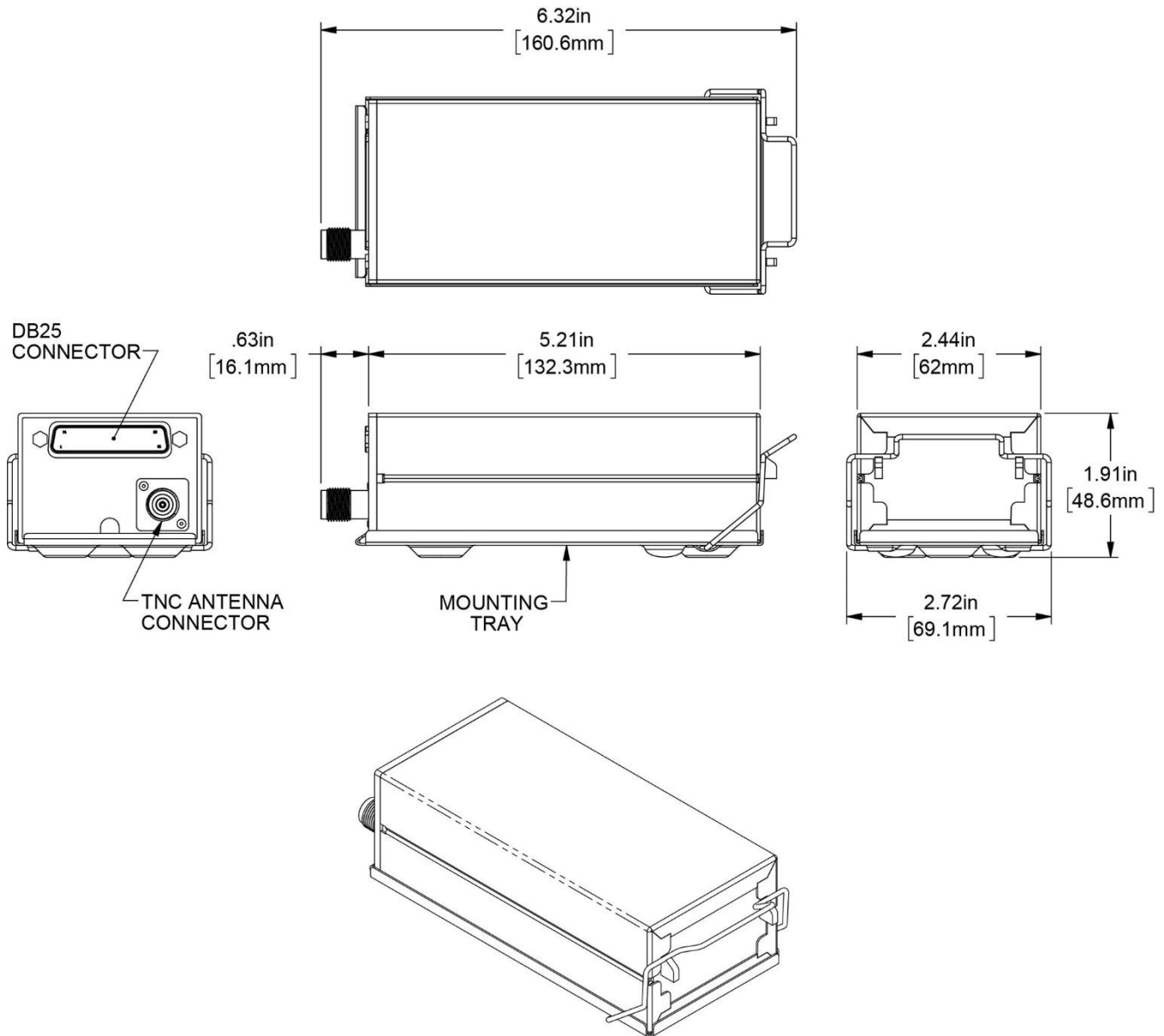


Figure 53: SV-XPNDR-261

6.12.1 Location

The transponder is typically mounted on a radio module mounting tray or as close to its antenna as possible. For specific location, see the refer to the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.12.2 Removal

1. If necessary, remove avionics stack cover.
2. Disconnect D25 harness connector and antenna connector from transponder.
3. Release retaining clip, and then remove transponder from its mounting tray.

6.12.3 Replacement

1. Place transponder into its mounting tray and secure with retaining clip.
2. Connect D25 connector and antenna connector to transponder.
3. If necessary, install avionics stack cover.
4. Restore power to airplane, and then turn SkyView system ON. If an issue occurs, see Section 5.8 for troubleshooting information.
5. Perform applicable steps in System Check (see Section 6.30), and then perform the Transponder Tests (see Section 7.9).

6.13 SV-ADSB-472 ADS-B IN Receiver

This section provides removal and installation instructions for the SV-ADSB-472 ADS-B IN receiver (see Figure 54).

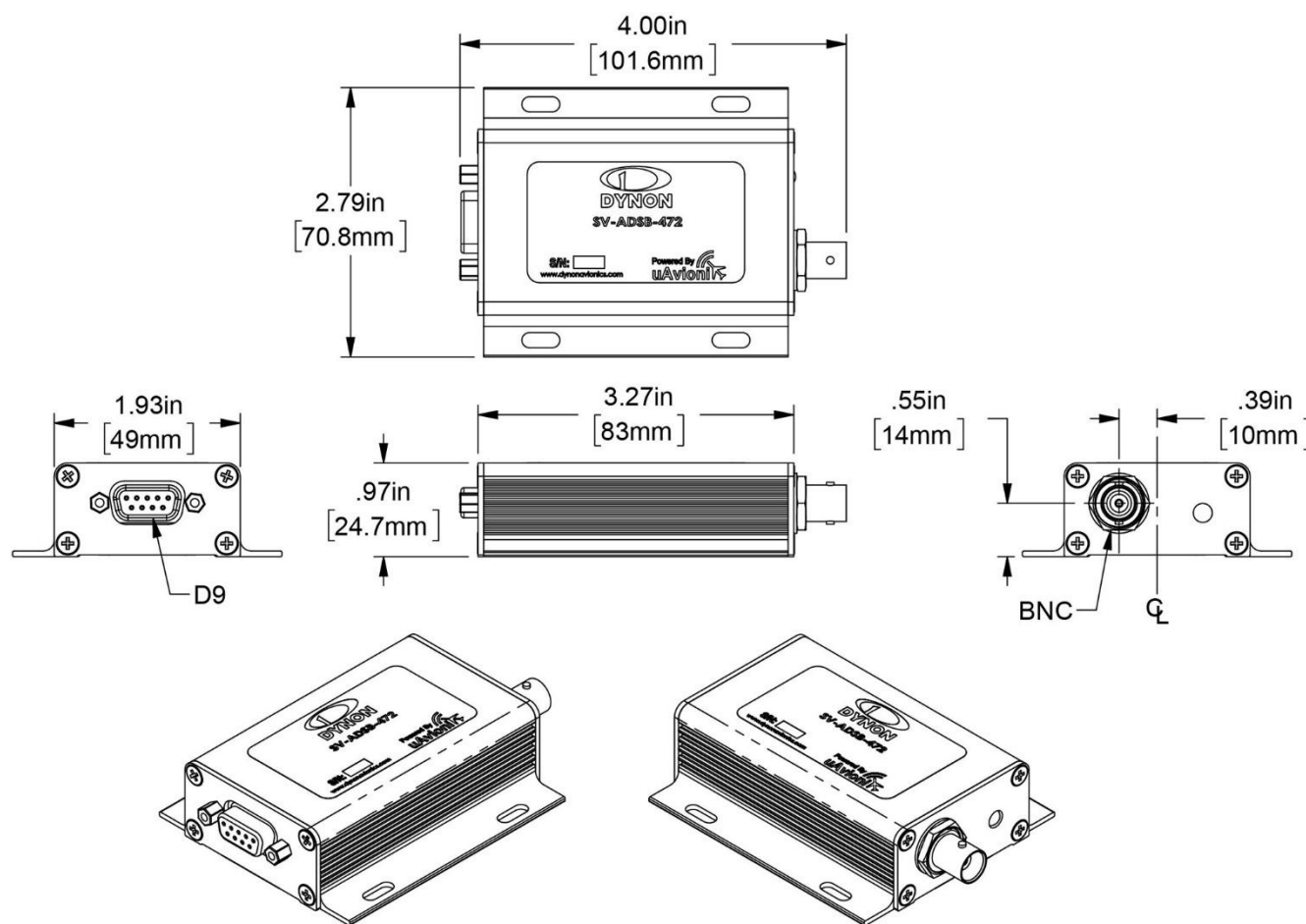


Figure 54: SV-ADSB-472

6.13.1 Location

The ADS-B IN receiver is typically located behind a SkyView HDX display unit on an avionics tray. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.13.2 Removal

1. If necessary, remove SkyView HDX display unit (see Section 6.5).
2. Disconnect D9 harness connector and antenna connector from ADS-B IN receiver.
3. Remove screws that secure ADS-B IN receiver to avionics tray or structure. Keep screws for reinstallation.
4. Remove ADS-B IN receiver from avionics tray or structure.

6.13.3 Replacement

1. Install ADS-B IN receiver in same location on avionics tray or structure using same screws (see Table 9 if screws need to be replaced).
2. Connect D9 harness connector and antenna connector to ADS-B IN receiver.
3. If necessary, install SkyView HDX display unit (see Section 6.5).
4. Restore power to airplane, and then turn SkyView system ON. If an issue occurs, see Section 5.9 for troubleshooting information.
5. Go to SETUP MENU > ADS-B STATUS.
6. Confirm DEVICE line reads SV-ADSB-472.
7. View STATUS line to see if SV-ADSB-472 is communicating with SkyView HDX:
 - NOT FOUND: The device is not communicating with SkyView HDX. This usually means a connectivity/wiring problem between the ADS-B IN receiver and SkyView HDX, or that the ADS-B IN receiver is not receiving power.
 - NO SIGNAL: The device is communicating with SkyView HDX, but data is not being received from an ADS-B ground station. This may occur when airplane is on the ground and does not have line-of-sight reception of an ADS-B ground station, or if it is in the air and is out of range of all ADS-B ground stations. If there is an ADS-B ground station in range, and NO SIGNAL is persistently displayed, it may mean a connectivity problem with your ADS-B antenna or an installation issue that is preventing the ADS-B antenna from receiving ADS-B ground station broadcasts. When in flight, the Map Page displays a status widget in its lower left corner that contains the same information as the STATUS line. That widget will be more useful for ascertaining proper operation once the airplane is in the air and are more likely to be receiving data from ADS-B ground stations.
 - RECEIVING: The device is communicating with SkyView HDX and data is being received from an ADS-B ground station.
8. If needed, perform applicable steps in System Check (see Section 6.30).

6.14 ADS-B Antenna

This section provides removal and installation instructions for the ADS-B antenna (see [Figure 55](#)). Dynon offers an ADS-B antenna; however, a variety of antennas can be used. If a third-party antenna was used, refer to the manufacturer's installation manual for removal and replacement instructions.

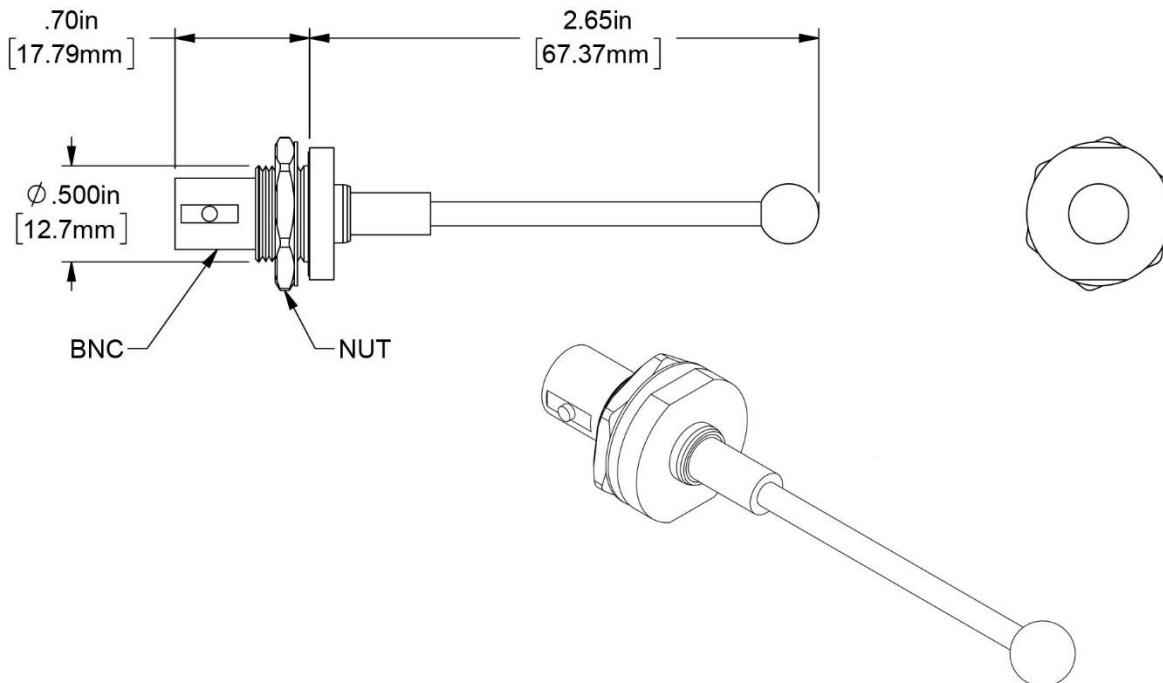


Figure 55: ADS-B Antenna

6.14.1 Location

The ADS-B antenna is typically located on the underside of the airplane. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.14.2 Removal

1. Disconnect coaxial cable from ADS-B antenna.
2. Remove retaining nut and washer from antenna body.



Use masking tape to temporarily hold antenna in hole.

3. Remove antenna from outside of airplane.

6.14.3 Replacement

1. Remove retaining nut and washer from antenna body.
2. From outside of airplane, feed antenna body through hole.



Use masking tape to temporarily hold antenna in hole.

3. Replace washer, and then hand-tighten nut onto threaded portion of antenna body.
4. Carefully tighten nut with a wrench. DO NOT overtighten nut!
5. Ensure ground of antenna is well bonded to airplane skin, or for fabric airplanes, the ground plane. Resistance should be less than 1Ω .
6. Connect coaxial cable to ADS-B antenna.
7. Restore power to airplane.

6.15 SV-COM-T25/T8 COM Radio Transceiver

This section provides removal and installation instructions for the SV-COM-T25 and SV-COM-T8 COM Radio transceivers (see [Figure 55](#)).

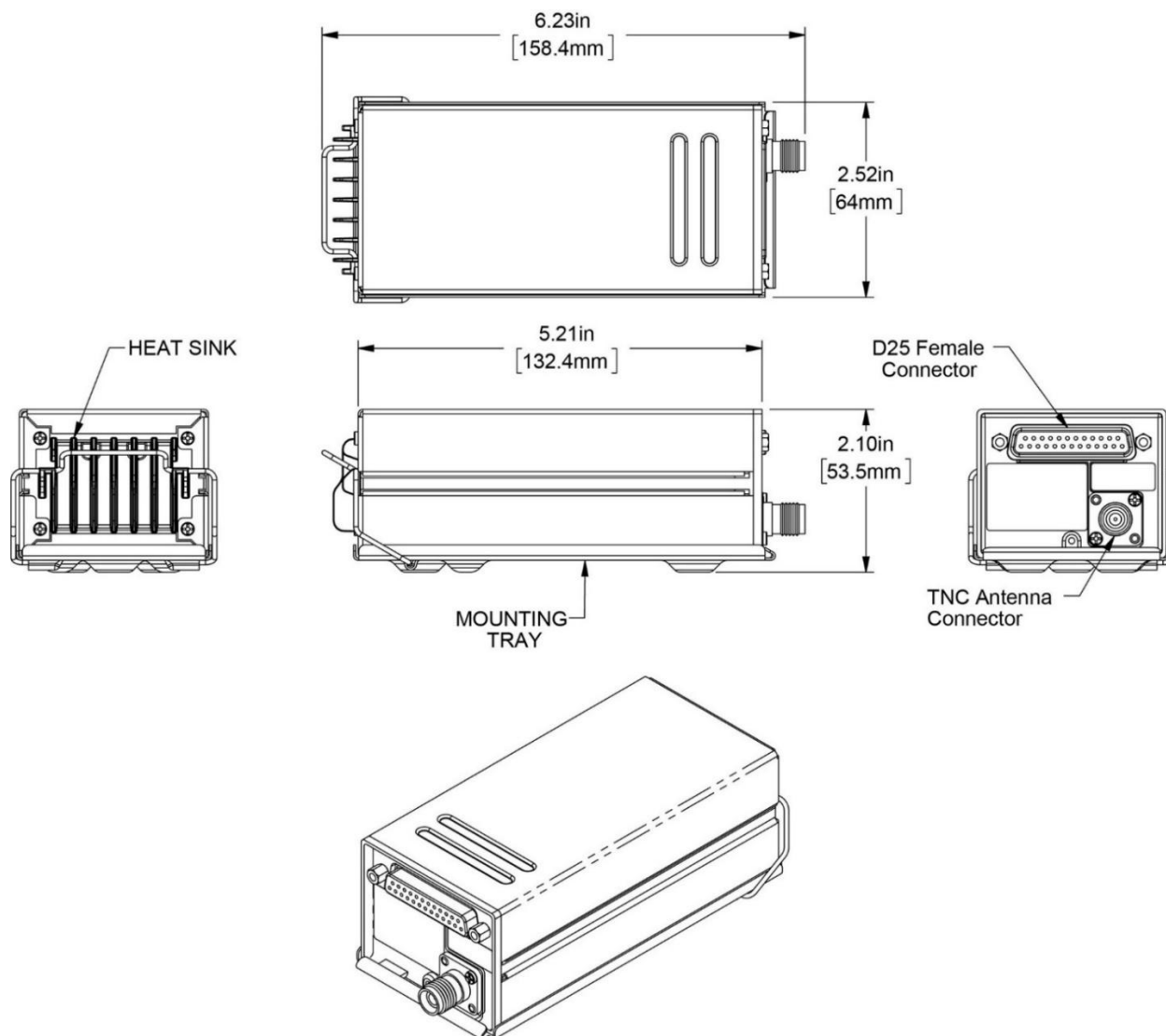


Figure 56: SV-COM-T25/T8

6.15.1 Location

The transceiver is typically mounted on a radio module mounting tray or as close to its antenna as possible. For specific location, see the refer to the *103777-000 SkyView HDX Equipment Installation Record* document associated with the airplane.

6.15.2 Removal

1. If necessary, remove avionics stack cover.
2. Disconnect D25 harness connector and antenna connector from transceiver.
3. Release retaining clip, and then remove transceiver from its mounting tray.

6.15.3 Replacement

1. Place transceiver into its mounting tray and secure with retaining clip.
2. Connect D25 connector and antenna connector to transceiver.
3. If necessary, install avionics stack cover.
4. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see Section 5.10 for troubleshooting information.
5. Perform applicable steps in System Check (see Section 6.30).
6. Verify there are no error messages associated with COM system.

6.16 SV-COM-PANEL COM Radio Control Panel

This section provides removal and installation instructions for the COM Radio control panel (see Figure 57). The COM Radio control panel can be oriented horizontally or vertically.

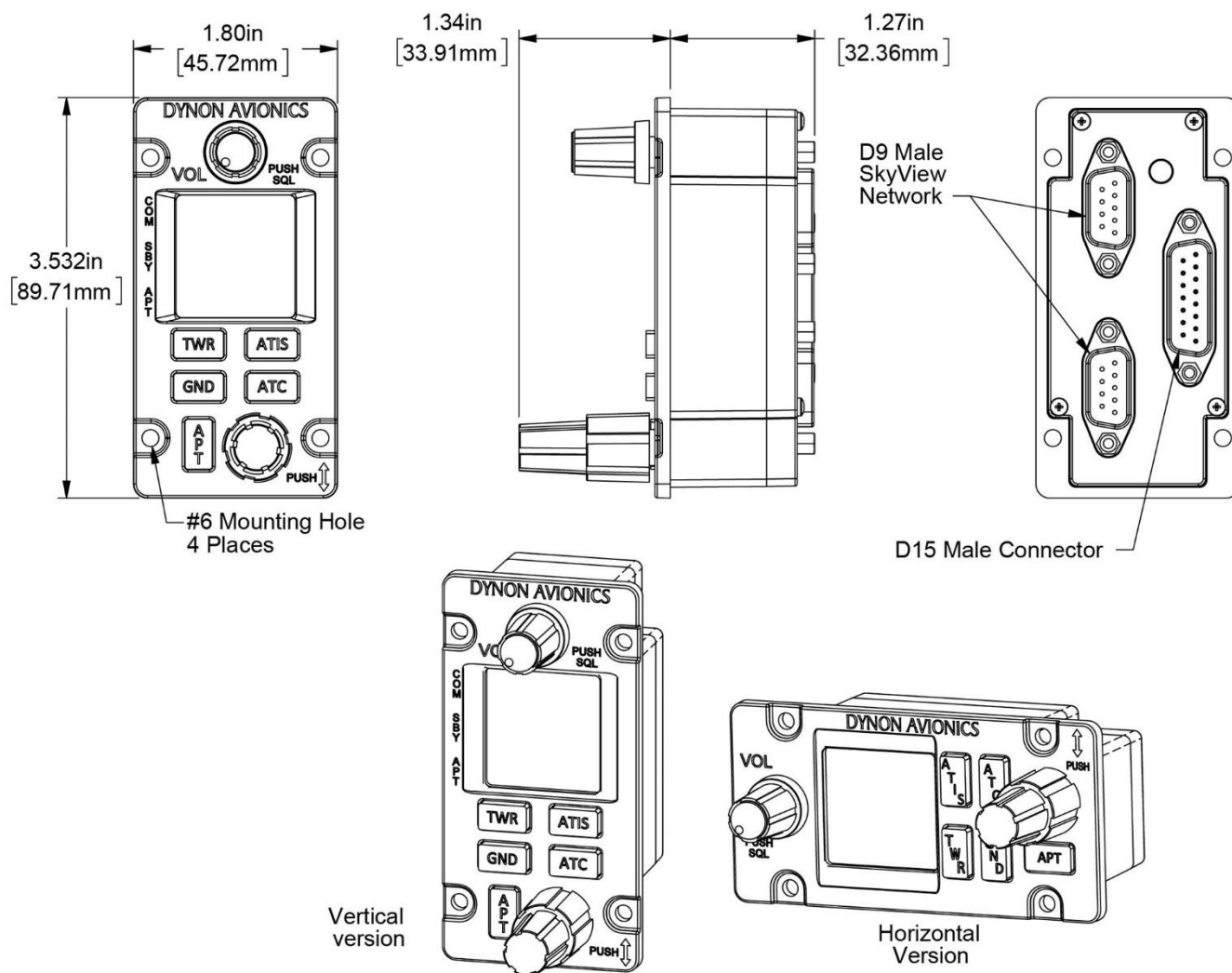


Figure 57: SV-COM-PANEL

6.16.1 Location

The COM Radio control panel is typically located on the left-side of the instrument panel to the right of the primary SkyView HDX display unit. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.16.2 Removal

1. Remove screws that secure control panel to instrument panel. Keep screws for reinstallation.
2. Slide control panel out of instrument panel, and then disconnect D9 and D15 harness connectors from control panel.

6.16.3 Replacement

1. Connect D9 and D15 harness connectors to control panel.
2. Install control panel in same location on instrument panel using same screws (see [Table 9](#) if screws need to be replaced).
3. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.10](#) for troubleshooting information.
4. Perform applicable steps in System Check (see [Section 6.30](#)).
5. Verify there are no error messages associated with COM system.

6.17 SV-ARINC-429 ARINC 429 Connection Module

This section provides removal and installation instructions for the SV-ARINC-429 ARINC 429 connection module (see [Figure 58](#)).

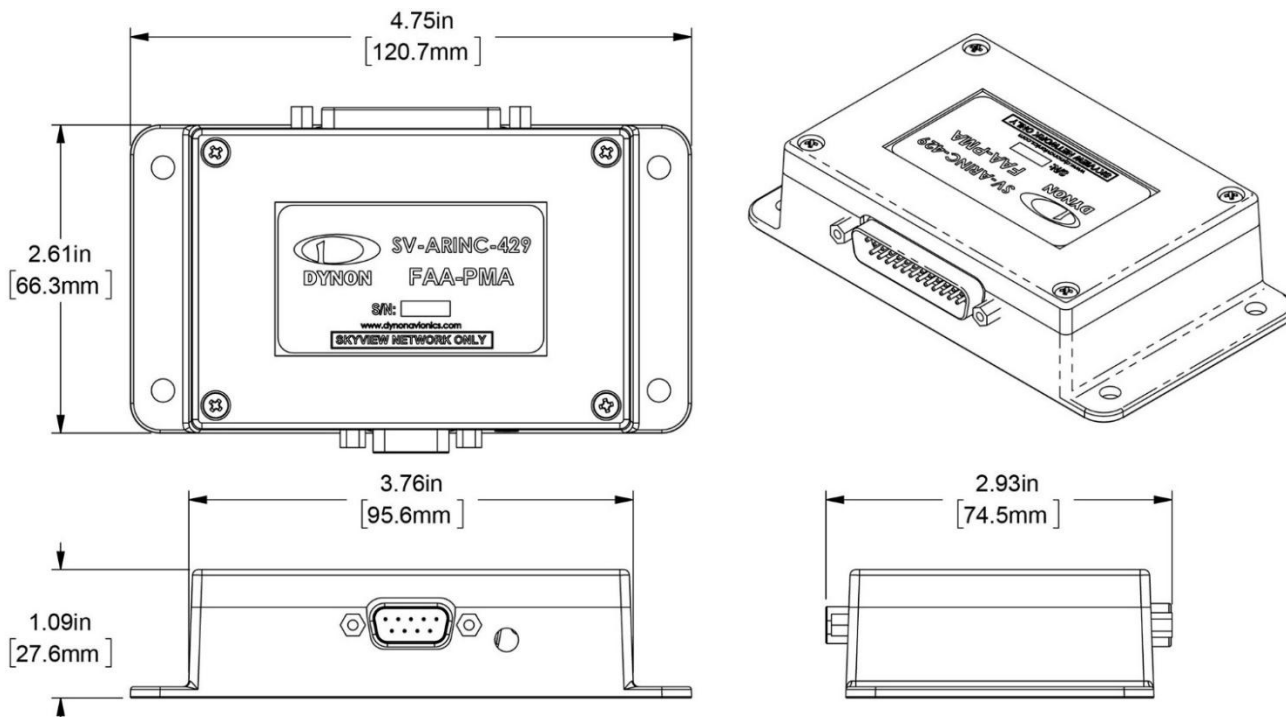


Figure 58: SV-ARINC-429

6.17.1 Location

The ARINC module is typically located behind a SkyView HDX display on an avionics tray. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.17.2 Removal

1. If necessary, remove SkyView HDX display unit (see [Section 6.5](#)).
2. Remove D9 and D25 harness connectors from ARINC module.
3. Remove ARINC module from ADAHRS mounting plate or structure. Keep screws for reinstallation.

6.17.3 Replacement

1. If necessary, attach ADAHRS mounting plate to ADAHRS module using same hardware (see [Table 8](#) if hardware needs to be replaced).
2. Install ARINC module in same location on ADAHRS mounting plate or structure using same hardware (see [Table 9](#) if screws need to be replaced).
3. Connect D9 and D25 harness connectors to ARINC module.
4. If necessary, install SkyView HDX display unit (see [Section 6.5](#)).

5. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see Section 5.11 for troubleshooting information.
6. Perform applicable steps in System Check (see Section 6.30).
7. On SkyView HDX display unit, make sure Navigator can be selected for HSI source.

6.18 Angle of Attack (AoA) Probe

This section provides removal and installation instructions for the AoA probe.

6.18.1 Location

Typically, the AoA probe is located underneath the left or right wing. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.18.2 Removal

1. Remove screws that secure AoA probe to mounting mast. Keep screws for reinstallation.
2. Gently and firmly pull AoA probe in a downward motion and pull plumbing lines through mast.



Because the pitot and AoA plumbing lines have not been annealed, they work-harden rapidly when manipulated. Make gentle bends, and only bend any given section once.

3. Disconnect tubing from AoA probe plumbing line. Plug tube end.

6.18.3 Replacement

1. Insert the AoA plumbing lines through the mast and into the airplane.
2. With a firm upward motion insert AoA probe into mounting mast.
3. Secure AoA probe to mast using same screws (see Table 9 if screws need to be replaced).
4. Remove tube plug.
5. Connect tubing to the AoA probe plumbing line.
6. If original equipment is re-installed in the same location, no calibration is required. Performance of system should be verified in flight.
7. If an issue occurs, see Section 5.12 for troubleshooting information.
8. If new equipment is installed or installed in a new location perform the Zero Pressure IAS/AoA Calibration (see Section 7.6) and AoA Calibration (see Section 7.8). Performance of system should be verified in flight.

6.19 SV-KNOB-PANEL Knob Control Panel

This section provides removal and installation instructions for the SV-KNOB-PANEL Knob control panel (see Figure 59). It is an optional control panel that can be oriented horizontally or vertically.

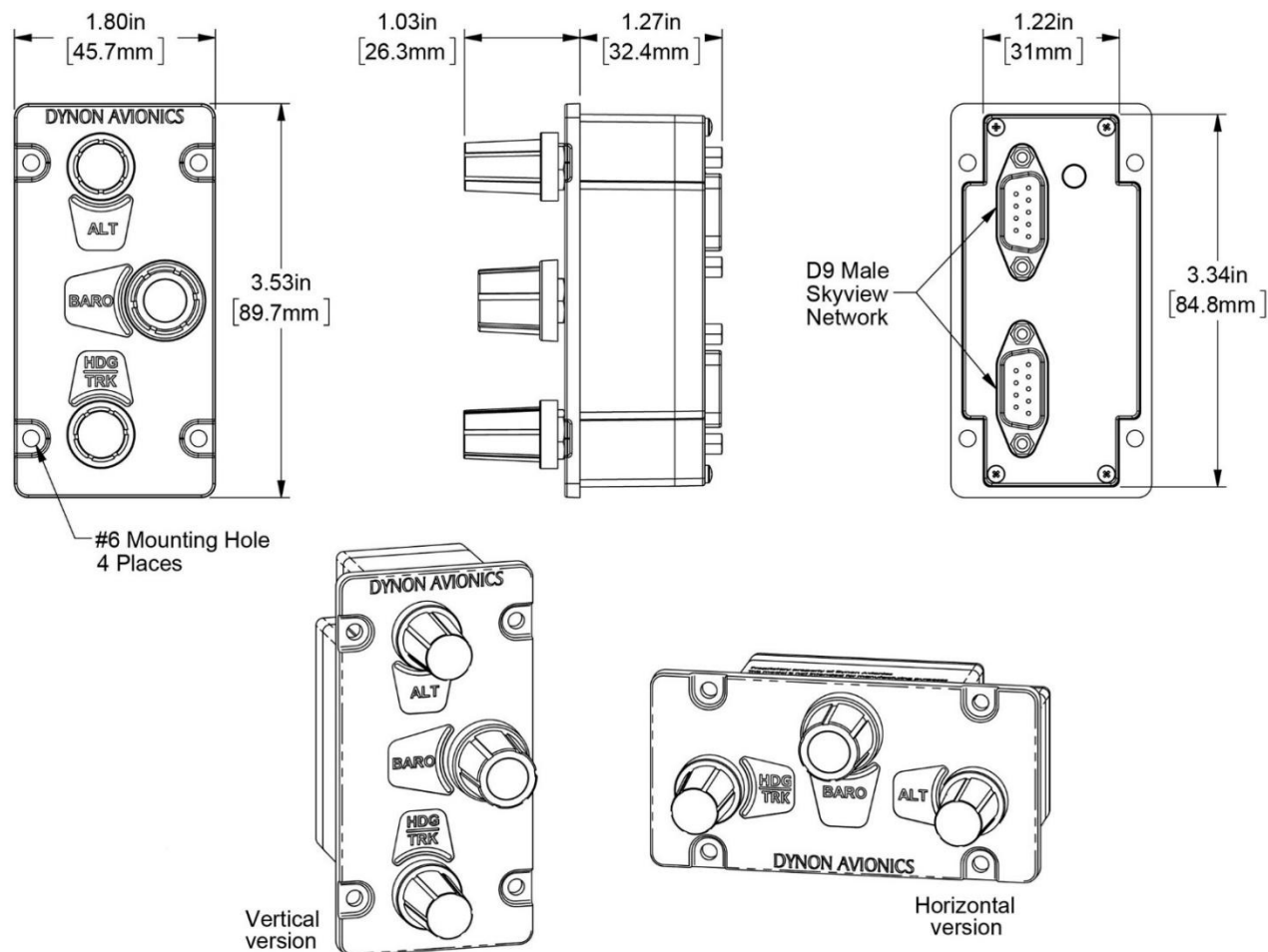


Figure 59: SV-KNOB-PANEL

6.19.1 Location

The Knob control panel is typically located on the left-side of the instrument panel to the right of the SkyView HDX display unit. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.19.2 Removal

1. Remove screws that secure control panel to instrument panel. Keep screws for reinstallation.
2. Slide control panel out of instrument panel, and then disconnect D9 harness connectors from control panel.

6.19.3 Replacement

1. Connect D9 harness connectors to control panel.
2. Install control panel in same location on instrument panel using same screws (see [Table 9](#) if screws need to be replaced).
3. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.13](#) for troubleshooting information.
4. Perform applicable steps in System Check (see [Section 6.30](#)).
5. Make sure control panel is operational.

6.20 Panel Mount USB Port

This section provides removal and installation instructions for the Panel Mount USB Port.

6.20.1 Location

The USB port is typically located on the left-side of the instrument panel underneath a SkyView HDX display unit. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.20.2 Removal

1. Remove SkyView HDX display unit (see [Section 6.5](#)).
2. Unplug USB cable from USB port on rear of SkyView HDX display unit.
3. Remove screws that secure USB port to instrument panel. Keep screws for reinstallation.
4. Slide USB port and cable out of instrument panel.

6.20.3 Replacement

1. Install USB port in same location on instrument panel using same.
2. Plug USB cable into USB port on rear of SkyView HDX display unit.
3. If necessary, install SkyView HDX display unit (see [Section 6.5](#)).
4. Restore power to airplane, and then turn SkyView system *ON*. If an issue occurs, see [Section 5.14](#) for troubleshooting information.
5. Make sure USB port is operational.

6.21 SV-AP-TRIMAMP Trim Motor Adapter

This section provides removal and installation instructions for the SV-AP-TRIMAMP Trim Motor Adapter (see [Figure 60](#)).

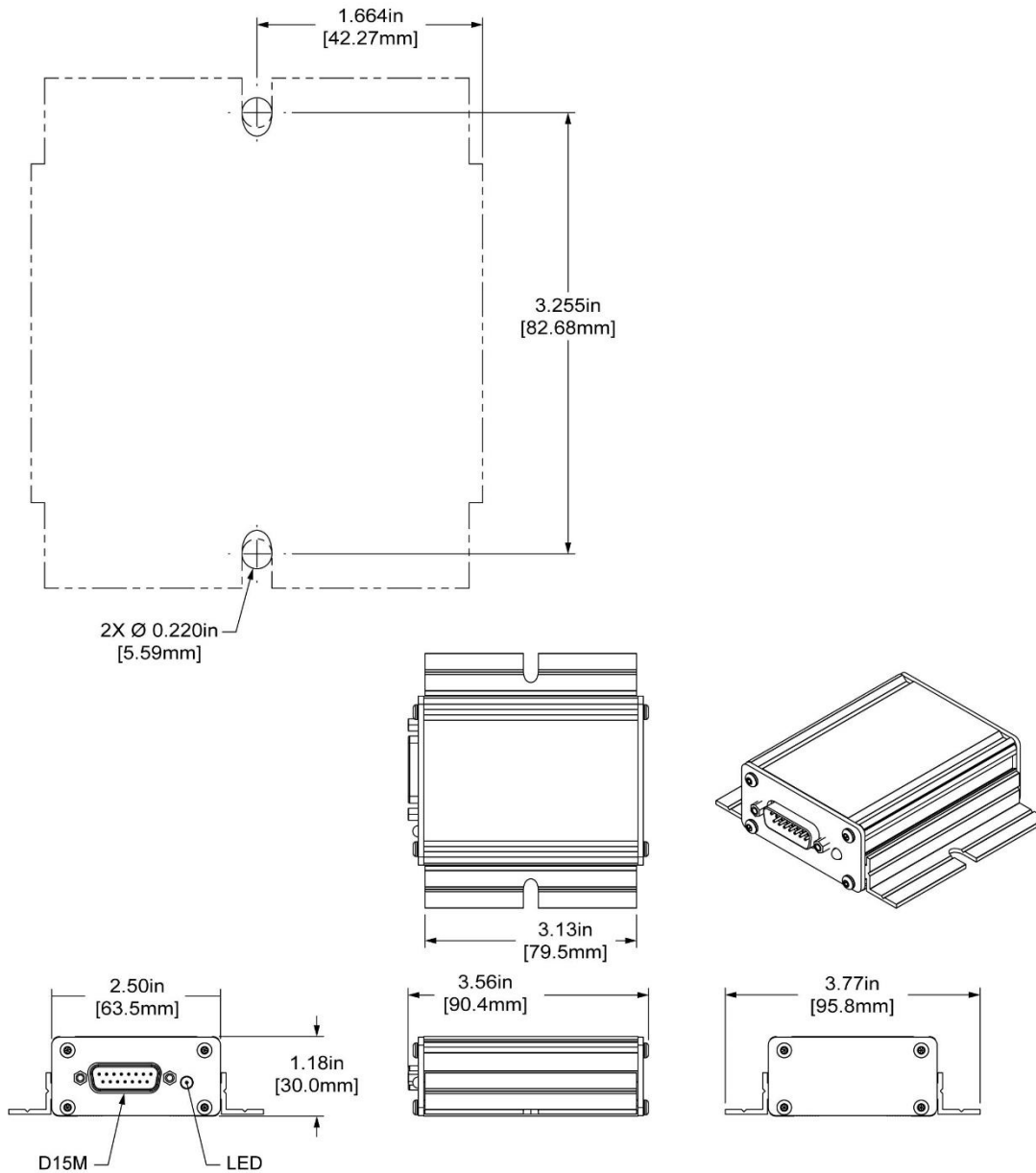


Figure 60: SV-AP-TRIMAMP

6.21.1 Location

For specific location, see the 103777-000 *SkyView HDX Equipment Installation Record* document associated with the airplane.

6.21.2 Removal

1. Disconnect D15 harness connectors from amplifier.
2. Remove screws that secure unit to structure. Keep screws for re-installation.
3. Remove amplifier from structure.

6.21.3 Replacement

1. Install unit in same location on structure using same screws (see [Table 9](#) if screws need to be replaced).
2. Connect D15 connector to amplifier.
3. Restore power to airplane.
4. Turn SkyView system *ON*.
5. If original equipment is reinstalled, no calibration is required. Verify performance of Trim system in flight.
6. If new equipment is installed, perform calibration:
 - A. Make sure all trim tabs on airplane are centered.
 - B. On SkyView HDX display unit, press and hold Button #7 and #8 simultaneously to enter SETUP MENU.
 - C. Navigate to **HARDWARE CALIBRATION > TRIM MOTOR CONFIGURATION > MOTOR 1 > AUTO-TRIM FUNCTION**, and then push **START**.
 - D. Follow on-screen instructions. When complete, trim for pitch axis is enabled.
 - E. Press **BACK** or **EXIT**.
7. Verify functionality of electric trim motor using yoke switches and interrupt switch.

6.22 Autopilot Servos with Capstans and Bridle Cables

This section provides removal and replacement instructions for SkyView Autopilot servos equipped with capstans and bridle cables.

6.22.1 Location

For specific location of a servo, see the *SkyView HDX Equipment Installation Record* document included with the airplane, or see the *Autopilot Servo Installation* document associated with the airplane make/model at dynoncertified.com/docs.

6.22.2 Removal

1. Secure flight control in neutral position.
2. Disconnect D9 cable harness connector from servo and secure it out of the way.
3. Note the following:
 - Position of servo capstan orientation mark in relation to servo face.
 - Position of servo swage engagement hole in relation to flight control cable or pushrod.
 - Position of servo's bridle cable guard.
 - Positions where bridle cable exits servo capstan.



Consider manually sketching this to help reassembly.

4. Secure bridle cable to servo capstan grooves with tape to prevent unraveling.
5. If equipped, remove bridle cable's turnbuckle clips and release tension on bridle cable assembly. Retain clips for installation.
6. If bridle cable attaches to a flight control cable with clamps, mark locations of bridle cable clamps on control cable, and then unfasten and remove clamps from control cable. Retain fasteners and clamps for installation.
7. If bridle cable attaches to a flight control pushrod with clamps, unfasten and remove clamps from pushrod. Retain fasteners and clamps for installation.
8. If bridle cable attaches to a flight control pushrod via a pivot bolt, unfasten and remove hardware pushrod pivot bolt. Retain fasteners and hardware for installation.



Reference the *Autopilot Servo Installation* document associated with the airplane make/model if unsure about bridle cable location and type of flight control attachment.

9. Remove servo capstan (see Section 6.25), with bridle cable, from servo. Retain hardware for installation.



DO NOT remove the shear screw from the servo disc!

10. Remove safety wiring from servo bolts.
11. Unfasten hardware that secures servo to bracketry. Retain hardware for installation.
12. Remove servo from aircraft.



Aircraft remains airworthy when autopilot servos and bridle cables are removed from aircraft for maintenance. Autopilot must be placarded "INOPERABLE" when flown in this configuration.

6.22.3 Replacement

1. Ensure flight control is secured in neutral position.
2. Temporarily attach servo capstan, with bridle cable, to new servo. Cotter pin not needed yet.



Align capstan so servo capstan orientation mark faces position noted during removal and is fully seated on servo disc. The capstan has a hole that fits over shear screw head.

3. Permanently attach new servo to bracket with retained hardware.
4. Safety wire servo bolts.
5. Rotate capstan so swage engagement hole faces position noted during removal. Make sure bridle cable exits servo capstan at positions noted during removal.
6. Make sure bridle cable does not contact cable guard.



The bridle cable will prematurely wear if it contacts the cable guard throughout its travel.

7. If cable guard interferes with bridle cable, adjust cable guard position (see Section 7.13 for instructions), and then repeat Step 6.
8. If bridle cable clamps attach to a flight control cable, complete the following:
 - A. Loosely connect bridle cable ends to control cable at marks made during removal process. Make sure clamps contact swage stops at each end of bridle cable.
 - B. Tension and temporarily secure bridle cable to 15–20 lbs (use turnbuckle if equipped). Make sure capstan swage engagement hole continues to face position noted during removal, and bridle cable continues to exit servo capstan at positions noted during removal.



When connected to control cables, the tension on bridle cables should never exceed the tension on control cables.

- C. Use a feeler gauge to measure gaps between bridle cable clamp halves (top and bottom). Make sure gaps meet the following criteria:
 - Gap measurements on both sides of clamp are not less than 0.003" and not more than 0.050".



If clamp gap measurements do not meet criteria above, measure diameter of control cable, and then contact Dynon Technical Support for a resolution.

Out-of-specification clamps can slip under load.

9. If bridle cable clamps attach to a flight control pushrod or pushrod pivot bolt, complete the following:
 - A. Use retained hardware and fasteners to connect bridle cable assembly to pushrod clamps or pivot bolt.
 - B. Use turnbuckle to tension bridle cable to 15–20 lbs. Make sure capstan swage engagement hole continues to face position noted during removal, and bridle cable continues to exit servo capstan at positions noted during removal.



The tension on the bridle cable should never exceed the tension on control cable.

10. If equipped, use turnbuckle clips to safety wire turnbuckle.
11. Finger-tighten castle nut onto servo shaft, and then use a wrench to tighten to 1-4 in-lbs and slot in castle nut lines up with hole for cotter pin in servo shaft.



DO NOT overtighten the castle nut!

Tightening the castle nut beyond 4 in-lbs may prevent the capstan from rotating freely in the event of shear screw failure.

12. Install new cotter pin to secure castle nut to servo shaft.
13. Release flight control.
14. Move flight control through full range of motion per manufacturer's maintenance instructions, and verify the following:
 - Control is smooth throughout (i.e., no grinding, rubbing, or roughness).
 - Servo bridle cable and connecting ends do not contact any other controls, structures, wiring, insulation, or interior materials during entire travel.
 - At extents of travel in both directions, there is a minimum of 30 degrees of bridle cable engagement with capstan from swage engagement hole to where bridle cable departs capstan.
 - Control travel is limited by manufacturer's control stops.
15. Cycle flight control several times, return it to neutral, and verify the following:
 - Servo swage engagement hole faces direction noted during removal.
 - Servo bridle cable tension has not changed.
16. Connect D9 cable harness connector to servo.



After replacing all autopilot servos, perform the Servo Calibration Procedure (see Section 7.10 for instructions).

6.23 Autopilot Servos with Arms and Pushrods

This section provides removal and replacement instructions for SkyView Autopilot servos equipped with arms and pushrods.

6.23.1 Location

For specific location of a servo, see the *103777-000 SkyView HDX Equipment Installation Record* document included with the airplane, or see the *Autopilot Servo Installation* document associated with the airplane make/model at dynoncertified.com/docs.

6.23.2 Removal

1. Secure flight control in neutral position.
2. Disconnect D9 cable harness connector from servo and secure it out of the way.
3. Note the position of servo arm in relation to servo face and how the servo arm connects to pushrod end (i.e., servo arm hole used and order and direction of fasteners).



Consider manually sketching this to help reassembly.

4. Remove safety wiring from servo bolts.
5. Remove servo arm limiter from servo (see [Figure 62](#)). Retain hardware for installation.
6. Disconnect servo arm from pushrod end. Retain hardware for installation.
7. Disconnect pushrod end from control attachment point. Retain hardware for installation.
8. Remove pushrod with ends from aircraft.
9. If needed, remove servo arm from servo (see [Section 6.25](#)). Retain hardware for installation.



DO NOT remove the shear screw from the servo disc!

10. Unfasten hardware that secures servo to bracketry. Retain hardware for installation.
11. Remove servo from aircraft.



Aircraft remains airworthy when autopilot servos and servo pushrods are removed from aircraft for maintenance. Autopilot must be placarded "INOPERABLE" when flown in this configuration.

6.23.3 Replacement

1. Ensure flight control is secured in neutral position.
2. Permanently attach new servo to bracketry with retained hardware.
3. If needed, attach servo arm to servo (see Section 6.25).
4. Attach servo arm limiter to roll servo (see Figure 62).
5. Safety wire roll servo bolts.
6. Manually move servo arm to position noted during removal.
7. Connect servo arm to pushrod end.



Make sure to reconnect servo arm to pushrod end as noted during removal.

8. Connect pushrod end to control attachment point.
9. Release flight control.
10. Move flight control through full range of motion per manufacturer's maintenance instructions, and verify the following:
 - Control is smooth throughout (i.e., no grinding, rubbing, or roughness).
 - Servo pushrod and bellcrank do not contact any other controls, structures, wiring, insulation, or interior materials during entire travel.
 - At extents of travel in both directions, servo arm never rotates more 60 degrees in either direction from neutral.
 - Control travel is limited by manufacturer's control stop, not the servo arm limiter.
12. Cycle flight control several times, return it to neutral, and verify arm to position noted during removal.
13. Connect D9 cable harness connector to servo.



After replacing all autopilot servos, perform the Servo Calibration Procedure (see Section 7.10 for instructions).

6.24 Autopilot Servo Shear Screw

Dynon autopilot servos come equipped with either a servo arm or capstan. Arms and capstans are connected to the servo via a frangible shear screw. The shear screw can be broken by the pilot to restore system movement should a servo become jammed. It is possible for turbulence loads acting on the airplane to cause a shear screw to fail, even though the servo never jammed.



In the event of a shear screw failure, contact Dynon Technical Support to request a 102991-000 Shear Screw Replacement Kit.



Shear screw replacement instructions are provided in the *Dynon Servo Shear Screw Replacement Instructions* document included in the Shear Screw Replacement Kit.

6.25 Autopilot Servo Arm and Capstan

Dynon's autopilot servos are shipped with servo arms and capstans installed. Servo replacement requires the removal and attachment of arms and capstans.

6.25.1 Removal and Attachment

1. Remove servo (see Section 6.22 or Section 6.23).
2. Remove cotter pin that secures castle nut to servo shaft (see Figure 61 or Figure 62).
3. Mark position of castle nut in relation to servo shaft, and then remove castle nut from servo shaft.
4. Remove wave washer, nylon washer, and then arm or capstan from servo shaft.



The shear screw does not need to be removed from the servo disc. The capstan has a hole that fits over the shear screw head.



If the shear screw is loosened, it must be completely removed and replaced (see Section 6.24 for instructions).

5. Place arm or capstans onto output shaft, aligning hole in capstan with shear screw head located in servo disc.
6. Replace nylon washer and wave washer on servo shaft.
7. Finger-tighten castle nut onto servo shaft, and then use a wrench to tighten to 1-4 in-lbs and slot in castle nut lines up with hole for cotter pin in servo shaft.



DO NOT overtighten the castle nut!

Tightening the castle nut beyond 4 in-lbs may prevent the capstan from rotating freely in the event of shear screw failure.

8. Install new cotter pin to secure castle nut to servo shaft.

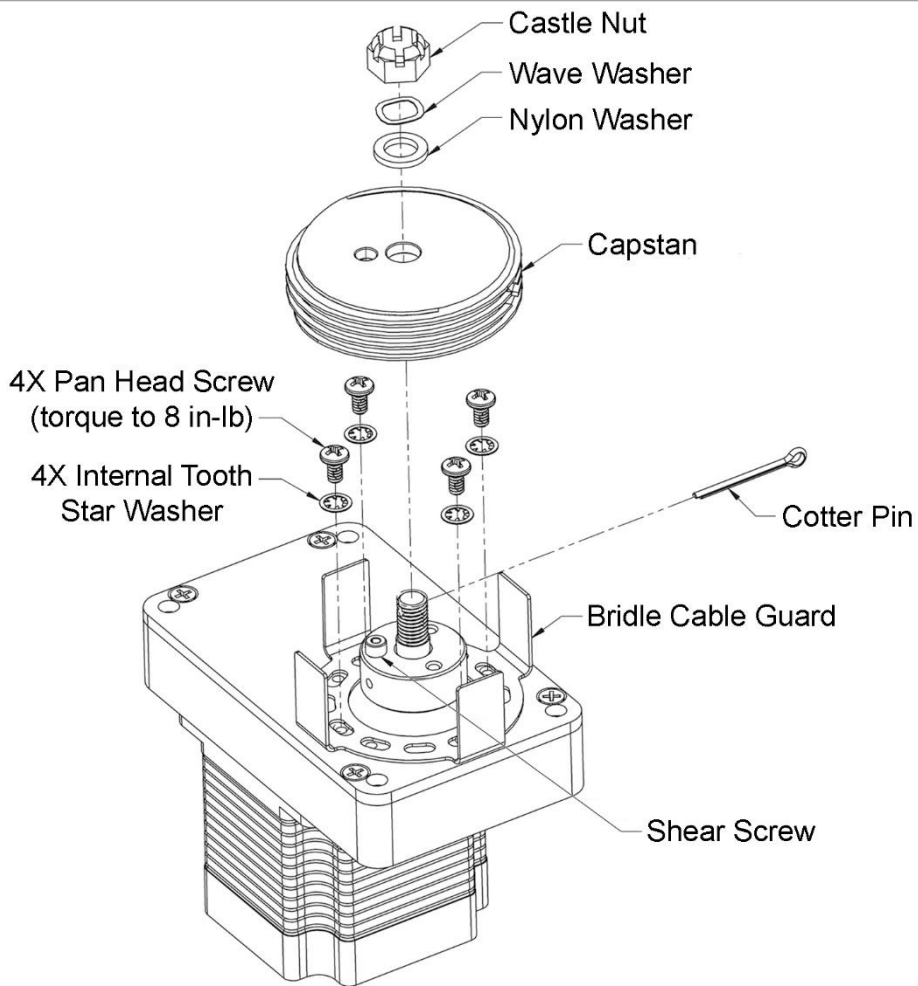


Figure 61: Exploded View of a Typical Servo Capstan Assembly

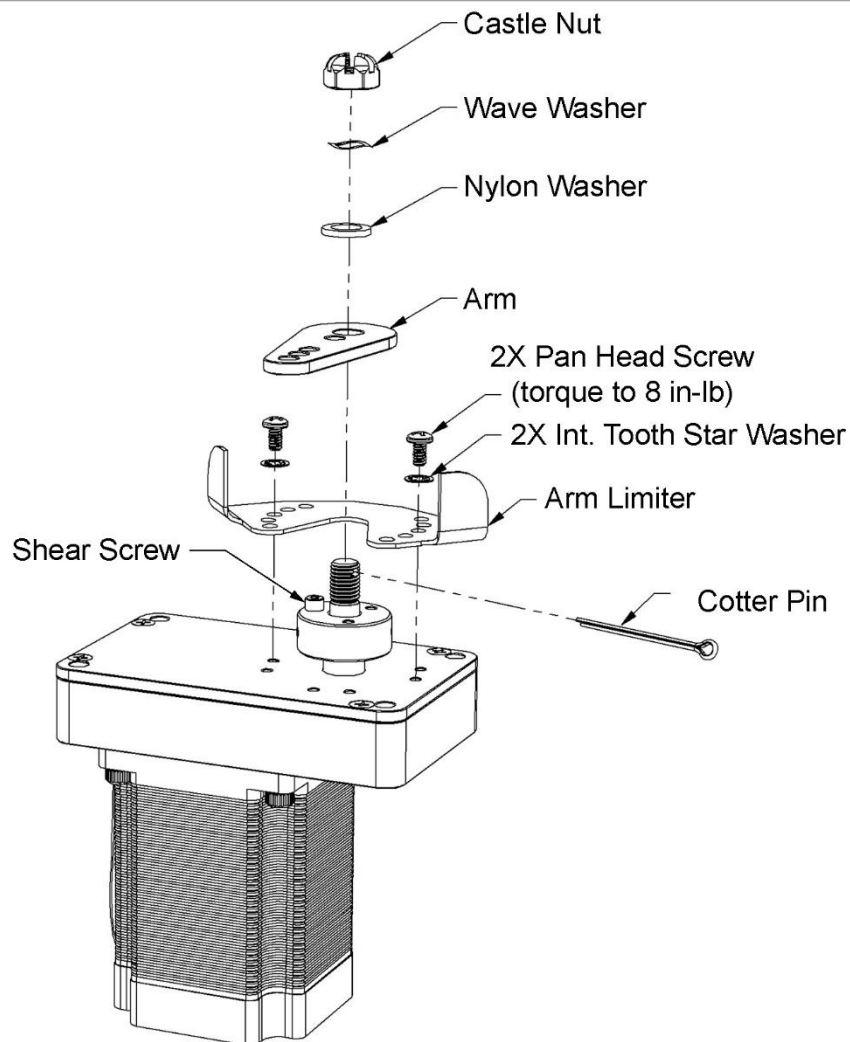


Figure 62: Exploded View of a Typical Servo Arm Assembly

6.26 SV-AP-PANEL Autopilot Control Panel

This section provides removal and installation instructions for the SV-AP-PANEL Autopilot control panel (see Figure 63). The Autopilot control panel can be oriented horizontally or vertically.

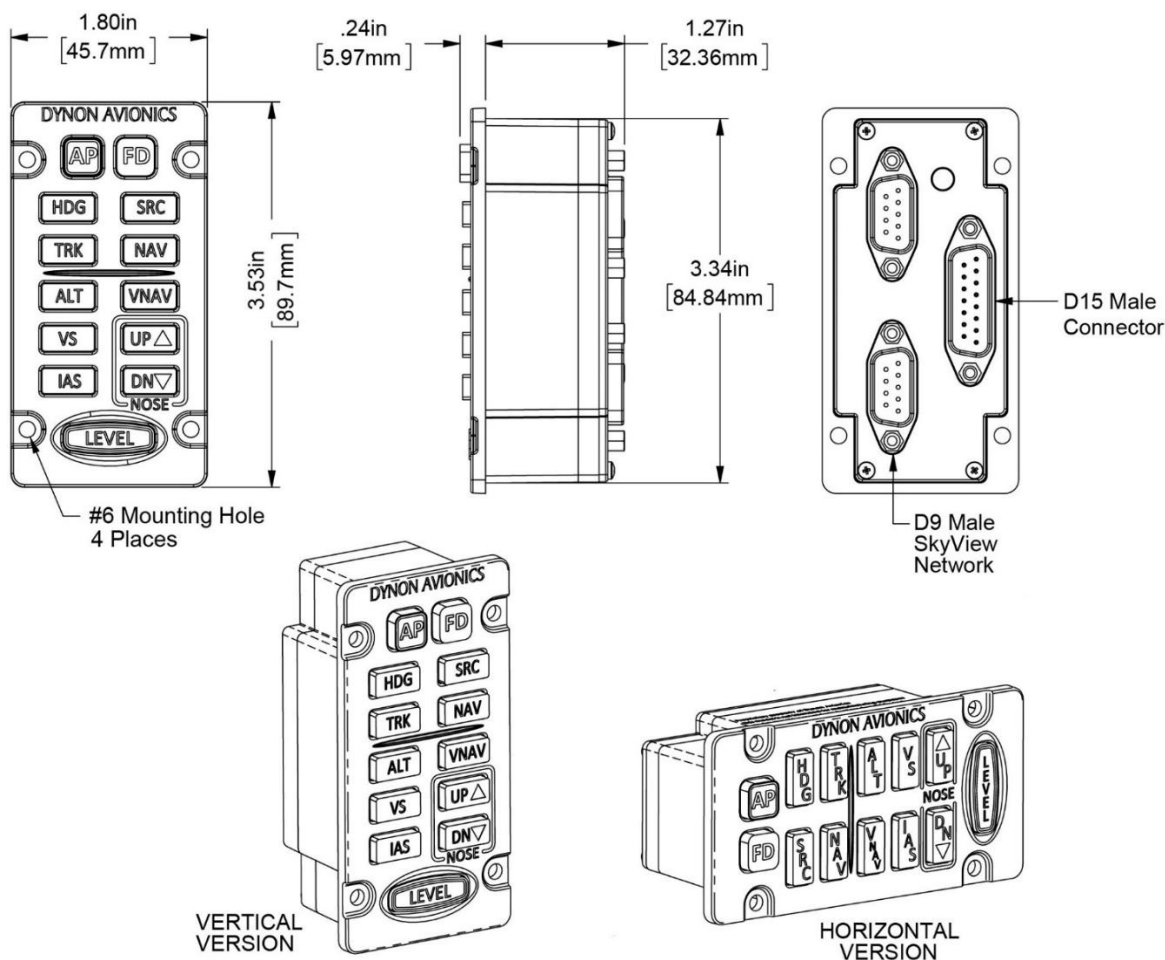


Figure 63: SV-AP-PANEL

6.26.1 Location

The Autopilot control panel is typically located on the left-side of an instrument panel to the right of the primary SkyView HDX display unit. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.26.2 Removal

1. Shut down airplane power and disconnect battery.
2. Remove screws that secure control panel to instrument panel. Keep screws for reinstallation.
3. Slide control panel out of instrument panel, and then disconnect D9 and D15 harness connectors from control panel.

6.26.3 Replacement

1. Connect D9 and D15 harness connectors to control panel.
2. Install control panel in same location on instrument panel using same screws (see [Table 9](#) if screws need to be replaced).
3. Restore power to airplane, and then turn SkyView system ON. If an issue occurs, see [Section 5.15.6](#) for troubleshooting information.
4. Perform applicable steps in System Check (see [Section 6.30](#)).
5. Make sure control panel is operational.

6.27 SV-BUTTON-APDISC Autopilot Disconnect Button

This section provides removal and installation instructions for the Autopilot Disconnect (AP DISC) button (see [Figure 64](#)).

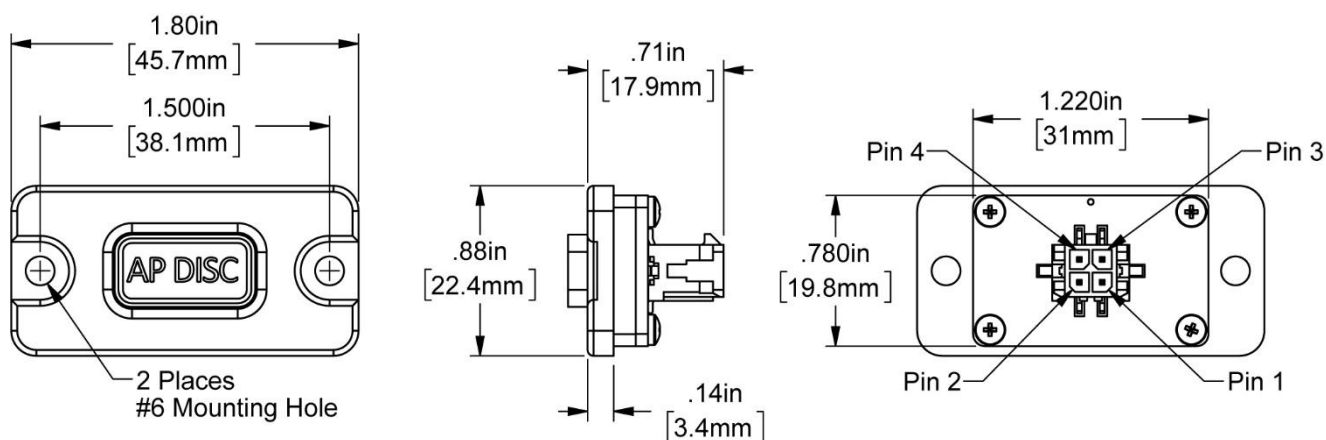


Figure 64: AP DISC Button

6.27.1 Location

The AP DISC button is typically located on the left-side of an instrument panel. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.27.2 Removal

1. Shut down airplane power and disconnect battery.
2. Remove screws that secure button to instrument panel. Keep screws for reinstallation.
3. Slide button out of instrument panel, and then disconnect wire connector from button.

6.27.3 Replacement

1. Connect wire connector to button.
2. Install button in same location on instrument panel using same screws (see [Table 9](#) if screws need to be replaced).
3. Restore power to airplane, and then turn SkyView system *ON*.
4. Verify AP DISCONNECT STUCK / BROKEN caution alert is not displayed on SkyView HDX display unit.
5. Make sure button is operational.

6.28 Yoke-Mount Autopilot Disconnect Button

This section provides removal and installation instructions for a yoke-mounted Autopilot Disconnect button.

6.28.1 Location

A yoke-mounted Autopilot Disconnect button is installed on the control stick or yoke in a shop-manufactured bracket.

6.28.2 Removal

1. Shut down airplane power and disconnect battery.
2. Remove button from yoke bracket by removing retaining nut. Keep retaining nut for reinstallation.
3. Remove button and disconnect electrical connector from button.

6.28.3 Replacement

1. Connect electrical connector to button.
2. Install button in same location on yoke bracket using retaining nut (contact button manufacturer if retaining nut needs to be replaced).
3. Restore power to airplane, and then turn SkyView system *ON*.
4. Verify AP DISCONNECT STUCK / BROKEN caution alert is not displayed on SkyView HDX display unit.
5. Make sure button is operational.

6.29 SV-BUTTON-LEVEL Autopilot Level Button

This section provides removal and installation instructions for the external LEVEL button (see [Figure 65](#)).

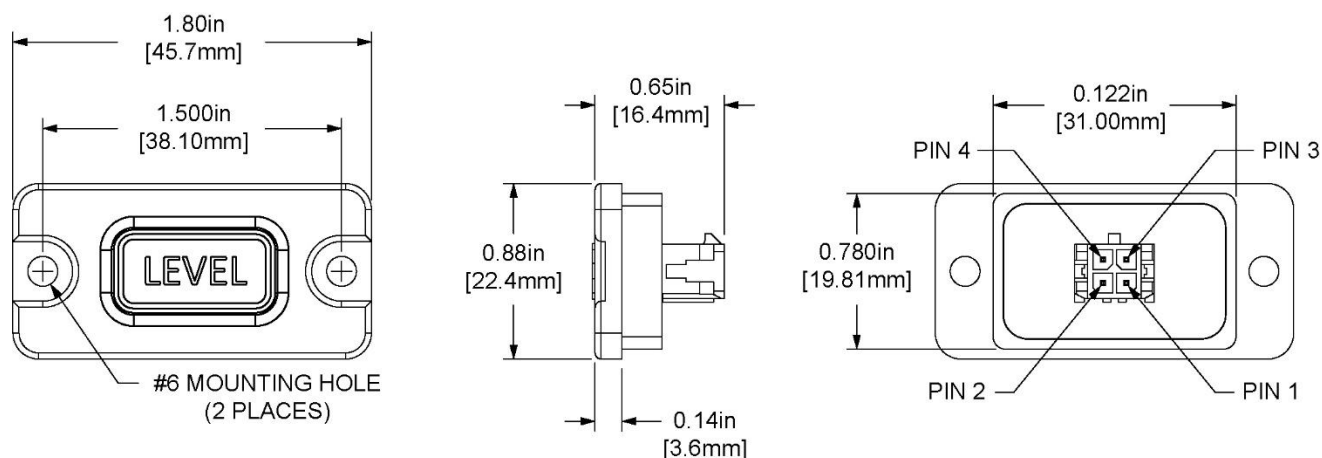


Figure 65: LEVEL Button

6.29.1 Location

The external LEVEL button is typically located on the left-side of an instrument panel. For specific location, see the *103777-000 SkyView HDX System Equipment Installation Record* document associated with the airplane.

6.29.2 Removal

1. Shut down airplane power and disconnect battery.
2. Remove screws that secure button to instrument panel. Keep screws for reinstallation.
3. Slide button out of instrument panel, and then disconnect wire connector from button.

6.29.3 Replacement

1. Connect wire connector to button.
2. Install button in same location on instrument panel using same screws (see [Table 9](#) if screws need to be replaced).
3. Restore power to airplane, and then turn SkyView system *ON*.
4. Verify EXT LEVEL BUTTONT STUCK / BROKEN caution alert is not displayed on SkyView HDX display unit.
5. Make sure button is operational.

6.30 System Check

This section is a procedure to check the SkyView HDX system immediately after new SkyView components have been installed in the airplane.

1. Manually power ON the SkyView HDX display unit(s) by pushing and holding Button #1 (the leftmost button). Ensure the following:
 - Display unit(s) are receiving 10-30V DC. Note that current for each display unit can be up to 3.5A @ 12V.
 - Both wires to POWER and both wires to GROUND on D37 harness are properly connected/pinned. See the *SkyView HDX Wiring Diagram – Single Engine* or the *SkyView HDX Wiring Diagram – Twin Engine* document for connection/pinning information.
 - If SV-BAT-320 battery is connected and being charged, current can be up to +1.5A. Use a larger battery or power supply if needed.
2. Ensure components connected to SkyView that receive their power from the SkyView Network (SV-ADAHRS-200, SV-ARINC-429, SV-EMS-220, SV-MAG-236, SV-KNOB-PANEL, SV-COM-PANEL, SV-AP-PANEL) are powered ON. Ensure the following:
 - SV-NET harnesses between components and display unit(s) are properly connected.
 - For SV-EMS-220, ensure the 9-pin connector on the D37 Main Sensor harness is removed. The 9-pin connector should be removed during installation so Pin 11, 12 and 30 can be used to connect sensors to the SV-EMS-220.
 - For SV-EMS-220, ensure wires on D37 and D25 harnesses to newly installed sensors are properly connected/pinned. See the *SkyView HDX Wiring Diagram – Single Engine* or the *SkyView HDX Wiring Diagram – Twin Engine* document for connection/pinning information.
3. Ensure components connected to SkyView that do not receive their power from the SkyView Network (SV-XPNDR-261, SV-ADSB-472, SV-GPS-2020, and SV-COM-X25/X83) are powered ON. Ensure the following:
 - Components receiving 10-30V DC, except SV-XPNDR-261, which requires 11-33V DC.
 - Both wires to POWER and both wires to GROUND on D25 harness are properly connected/pinned. See the *SkyView HDX Wiring Diagram – Single Engine* or the *SkyView HDX Wiring Diagram – Twin Engine* document for connection/pinning information.
4. Enter the SkyView SETUP MENU by pushing and holding Buttons 7 and 8 on a display unit together for 2-3 seconds.

5. If a new SkyView HDX was installed, setting the Tail Number is required before configuring the SkyView Network:
 - AIRCRAFT INFORMATION > TAIL NUMBER.
If the Tail Number has not yet been issued for the airplane, set the TAIL NUMBER to something other than DYNON AVIONICS. Note that for U.S. planes, the leading N is a required part of the TAIL NUMBER. The TAIL NUMBER should not include dashes (-) or spaces.
For example:
Correct: N120AB
Incorrect: N-120AB, N120OAB, 120AB, or N 12AB
6. Run a SkyView Network configuration:
 - SYSTEM SETUP > SKYVIEW NETWORK SETUP > CONFIGURE > (right click one more time).
Make sure all installed components and display units are "talking" on SkyView Network. If a component is noted as "requires update", press the UPDATE button. Otherwise, press the FINISH button.
NOTE: Flight and engine instruments may not be displayed before a SkyView Network configuration is performed, even if the SV-ADAHRS-200 and SV-EMS-220 have been wired/pinned properly and are connected.
7. Configure serial devices:
 - SYSTEM SETUP > SERIAL PORT SETUP.
Devices that do not utilize the SkyView Network are connected via RS-232 serial port connections. Dynon Avionics devices that use RS-232 serial ports include the SV-XPNDR-261, SV-ADSB-472, SV-GPS-2020, and SV-COM-X25/X83. As RS-232 serial devices are not part of the SkyView Network, they will not be seen on the list of devices seen during SkyView Network configuration (above). Instead, configuring SkyView to communicate with serial devices is done manually via SERIAL PORT SETUP. See the *103261-000 SkyView HDX System Installation Manual* document for serial port configuration information.
NOTE: If a new SV-GPS-2020 was installed, make sure its SERIAL IN FUNCTION is set to POS 1.
8. After configuring the SkyView Network and any newly installed serial devices, exit SETUP MENU. The SkyView display unit(s) should now display PFD, EMS, COM, and Transponder information, depending upon components installed. The Map will not be displayed without a GPS fix (the airplane symbol on the Map page will also flash with "?" if it does not have a GPS fix).

- The SkyView HDX System may require various updates, such as system software and aviation databases. See Sections 7.2 and 7.3 for system software and aviation database update instructions.

9. Common issue for setting up SV-EMS-220:

- The factory configuration and EMS page layout of sensors installed on a SkyView HDX display unit is generic. Therefore, Red "Xs" on the EMS page for some sensors may appear. This is normal until a sensor configuration is completed for the specific engine. See Section 7.2 for EMS configuration file update instructions.

10. Common issues for setting up SV-XPNDR-261:

- Ensure that a valid tail number has been set (see above).
- Ensure that a valid HEX CODE has been set:
 - SETUP > TRANSPONDER SETUP > TRANSPONDER HEX CODE.
A caution message – XPNDR HEX CODE NOT SET will appear if a transponder is configured in the SkyView HDX system, but the HEX CODE is not set to a valid number.
- TIS traffic will not be displayed unless you are in an area covered by an TIS radar site (US only).

7 Servicing

The Skyview HDX system does not require special servicing. In the event of system failures, contact Dynon technical support. Always have a properly rated mechanic or qualified facility remove a failed component.



No special tools or facility are required to maintain and service the Skyview HDX system and its components.

If replacing a SkyView Autopilot servo, a calibrated tensiometer is required.

7.1 Periodic Maintenance

The Skyview HDX system components are designed to detect internal failures. A thorough self-test is performed upon application of power to the components, and BITs (Built-In Tests) are continuously executed. Detected errors are indicated on the SkyView HDX Display. See Section 5: [Troubleshooting](#) for more information.

Service information and procedures for Dynon Standby Displays is provided in the *EFIS-D10A Installation & Maintenance Manual* document and the *D30 Installation & Maintenance Manual* document at dynoncertified.com/docs.

Table 10: Periodic Maintenance

ITEM	DESCRIPTION / PROCEDURE	INTERVAL
Component Troubleshooting, Removal, and Installation	<ul style="list-style-type: none"> • SV-HDX1100 / SV-HDX800 Display Units • SV-ADAHRS-200 ADAHRS • SV-OAT-340 OAT Probe • SV-MAG-236 Remote Magnetometer • SV-GPS-2020 GPS • SV-BAT-320 Backup Battery • SV-EMS-220 EMS • SV-XPNDR-261 Transponder • SV-ADSB-472 ADS-B IN Receiver • ADS-B Antenna • SV-COM-T25/T8 COM Transceiver • SV-COM-PANEL COM Control Panel • SV-ARINC-429 ARINC 429 Connection Module • AoA Probe • Autopilot Servos and Associated Bracketry • SV-AP-PANEL, Autopilot Control Panel 	On condition, see Section 5: Troubleshooting and Section 6 Component Removal and Replacement

ITEM	DESCRIPTION / PROCEDURE	INTERVAL
	<ul style="list-style-type: none"> • SV-BUTTON-LEVEL Autopilot Level Button • SV-BUTTON-APDISC Autopilot Disconnect Button • SV-AP-TRIMAMP Trim Motor Adapter • SV-KNOB-PANEL Knob Control Panel • Panel Mount USB Port 	
Cleaning the Displays	SV-HDX1100 / SV-HDX800 Display Units: The front bezel, keypad, and display can be cleaned with a soft cotton cloth dampened with clean water. DO NOT use any chemical-based cleaning agents. Take care to not scratch surface of display.	On condition
Display Backlight	SV-HDX1100 / SV-HDX800 Display Units: The backlight lamp may dim over time, and the display may not perform as well in direct sunlight conditions. User must determine by observation when the display brightness is not suitable for intended use. Contact Dynon technical support.	On condition or every 24 calendar months.
Backup Battery	The SkyView HDX System Backup Battery (SV-BAT-320) has an internal test performed at shut down. If the test fails at shut down, see Section 5.6. The battery must be tested every 12 calendar months; an alert will display if not done within that time period. See Section 7.4 for backup battery test. Regular planned replacement is not necessary.	On Condition, or every 12 calendar months.
Altimeter	SV-HDX1100 / SV-HDX800 Display Units: When certifying the SkyView HDX System for IFR operations, the altimeter function must be tested in accordance with 14 CFR Part 43, Appendix E, by an appropriately-rated person or facility, except for the following paragraphs, which are not applicable to digital EFIS systems: <ul style="list-style-type: none"> • paragraph (b)(1)(iv) – Friction, • paragraph (b)(1)(vi) – Barometric Scale Error. The paragraphs above apply to mechanical altimeters that rely on aneroid capsules, linkages, and mechanical barometric scales. SkyView HDX displays utilizes solid-state air data sensors and digital processing and does not incorporate mechanical components subject to friction or barometric scale indexing error. As a result, those specific test items are not applicable to SkyView HDX displays.	For IFR Operations, every 24 calendar months in accordance with §91.411 and document in accordance with §43.9.
ATC Transponder Test	SV-XPNDR-261: Test in accordance with 14 CFR, Part 43, Appendix E.	Every 24 calendar months in accordance with §91.413 and document in accordance with §43.9.

ITEM	DESCRIPTION / PROCEDURE	INTERVAL
Visual Inspection	<p>SV-HDX1100 / SV-HDX800 Display Units:</p> <ul style="list-style-type: none"> • Inspect for security of attachment, which includes visual inspection of mounting trays and other supporting structures that attach the components to the airplane. • Inspect fans, bezel, and buttons for dust, dirt, or obstructions. Clean as needed (see above). <p>Skyview HDX system components, switches, and wiring harnesses:</p> <ul style="list-style-type: none"> • Inspect for security of attachment, which includes visual inspection of mounting trays and other supporting structures that attach the components to the airplane. • Inspect for signs of corrosion. • Inspect all switches, knobs, panels, and buttons for damage. • Inspect condition of wiring, shield terminations, routing and attachment/clamping, along with any airplane penetration points. <p>SkyView HDX System Backup Battery:</p> <ul style="list-style-type: none"> • Inspect backup battery for damage. <p>GPS Antenna/Receiver:</p> <ul style="list-style-type: none"> • Inspect unit for damage and wear. • Inspect wiring for integrity, damage, chafing, or excessive wear. • Inspect installation for cracks in the fuselage, and loose, or damaged fasteners. <p>OAT Probe:</p> <ul style="list-style-type: none"> • Inspect unit for damage and wear. • Inspect wiring for integrity, damage, chafing, or excessive wear. • Inspect installation for cracks in the fuselage, and loose, or damaged fasteners. <p>AoA Probe:</p> <ul style="list-style-type: none"> • Inspect unit for damage and wear. • Inspect tubing for integrity, damage, chafing, or excessive wear. • Inspect installation for cracks in the fuselage, and loose, or damaged fasteners. <p>Autopilot Components:</p> <ul style="list-style-type: none"> • Inspect for security of servo attachment, which includes visual inspection of brackets and other supporting structures that attach to the airplane. • Inspect servo capstan for roughness, sharp edges, and presence of foreign material embedded in grooves. • Inspect bridle cables for wear and broken wires strands. 	Every 12 calendar months.

ITEM	DESCRIPTION / PROCEDURE	INTERVAL
	<ul style="list-style-type: none">• Inspect pushrod ends for wear, pitting, or roughness.• Inspect for signs of corrosion.• Inspect condition of wiring, shield terminations, routing, and attachment/clamping, along with any airplane penetration points.	

7.2 Updating System Software and Configuration Files

Download Software and Configuration Files:

1. Navigate to Dynon Certified SkyView HDX website: dynoncertified.com/download.
2. Download latest software bundle and configuration files to a 16-32GB USB drive. *Files must be in root directory of USB drive or will not be recognizable by the SkyView HDX display.*

Load Software into SkyView HDX Display Unit:



The following process only loads system software into SkyView HDX displays and SkyView Network components. The ADS-B IN Receiver, Transponder, COM Radio, GPS Antenna/Receiver, or third-party devices connected to SkyView HDX via serial ports are not SkyView Network components.



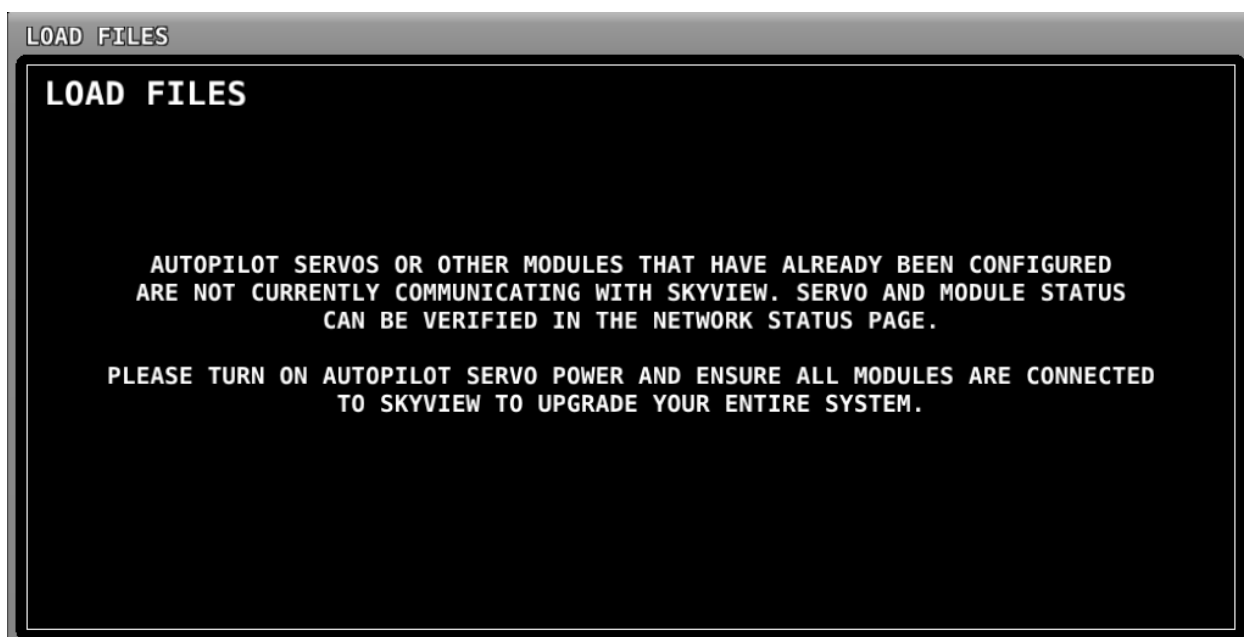
The software in SkyView Network components is updated at the same time the first SkyView HDX display is updated.

1. If Autopilot is installed, turn the AP Power switch to *ON*.
2. Insert USB drive into one of the SkyView HDX display unit's USB ports.
3. On SkyView HDX display, go to **SETUP MENU > SYSTEM SOFTWARE > UPGRADE SYSTEM SOFTWARE**. SkyView HDX detects that a newer software build is on the USB drive and enables the Update Software function.

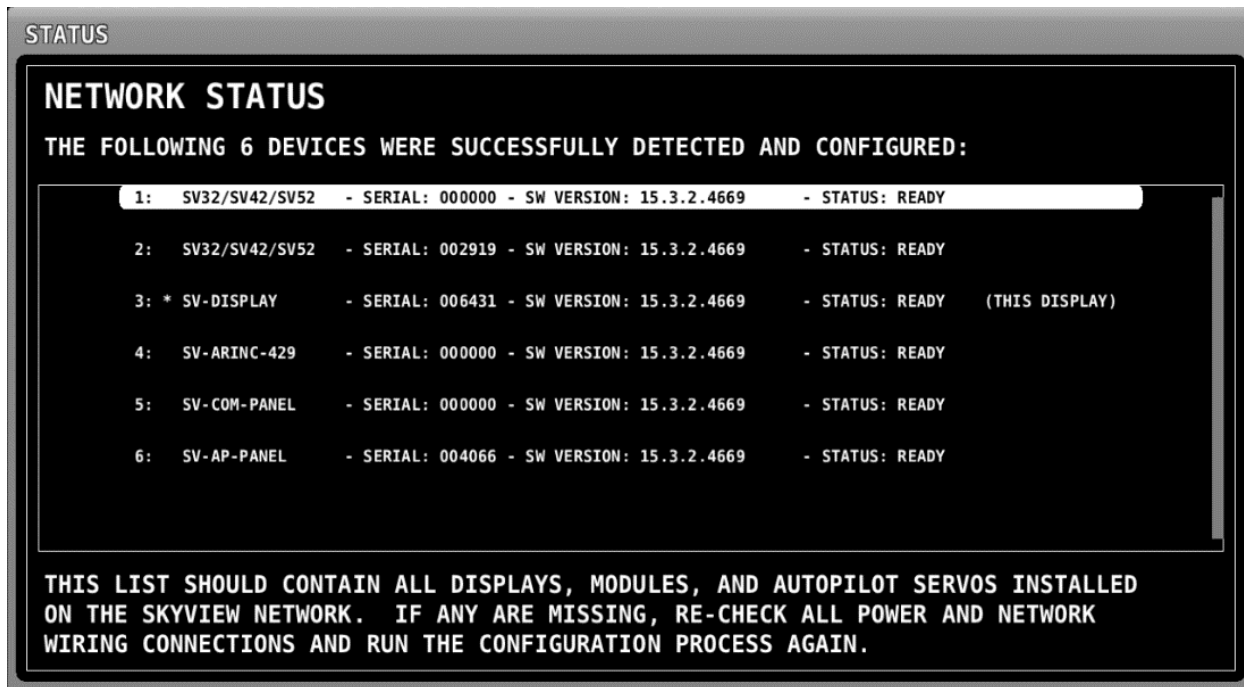


If some SkyView components are not powered on or connected to the SkyView Network, SkyView HDX will generate a dialog like the figure below.

4. If SkyView HDX generates a dialog like figure below, confirm that all SkyView Network devices are connected and powered on, and that the AP Power switch is *ON*.



5. Press UPDATE to load software, or press CANCEL to return to the SYSTEM SOFTWARE Menu. SkyView HDX indicates progress of software update and may restart automatically. SkyView HDX then generates a dialog stating that update process completed.
6. When done, go to SETUP MENU > SYSTEM SETUP > SKYVIEW NETWORK SETUP > NETWORK STATUS and confirm software version is correct (see figure below).



7. Remove USB drive from SkyView HDX display, and repeat process on remaining SkyView HDX displays.

Load Configuration Files:



To simplify the configuration effort of the EMS system, Dynon provides generic EMS configuration files for single-engine airplanes with Lycoming or Continental four- and six-cylinder engines. These files will generate FAA-approved EMS widget styles, colors, and organizational layout of the Bottom Band, 50% page, and 100% page. These files will also map the sensors to EMS pins. Some parameters need to be entered in the SkyView system for engine/airframe application and operating limitations. See the *103261-000 SkyView HDX System Installation Manual* for more information.



Dynon also provides airplane-specific EMS and Autopilot configuration files for airplanes approved for Autopilot installation. The EMS file completes the same configuration as the generic file, plus entering the engine/airframe application and operating limitations parameters. The Autopilot file completes the Autopilot system configuration for engine/airframe application and operating limitations. Installers still need to review all parameters against the airplane's Pilot's Operating Handbook (POH). See the *103261-000 SkyView HDX System Installation Manual* for more information.

- Go to the Load Files Wizard (SETUP MENU > SYSTEM SOFTWARE > LOAD FILES...), select the configuration file, and then press LOAD.

Load Software into Serial Devices:

On rare occasions, software for serial connected SkyView components is included in the software package. Additional steps are required to load software on the following components:

- SV-XPNDR- Transponder,
- SV-ADSB-472 ADS-B Receiver,
- SV-COM-T25/T8 COM Radio Transceiver.

In the SETUP MENU, navigate to the TRANSPONDER SETUP MENU, ADS-B SETUP MENU, and COM RADIO SETUP MENU, and look for a yellow message indicating that new software is available. SkyView HDX provides instructions for updating serial-connected components on the SkyView HDX display.

7.3 Updating Aviation Databases

Download Database:

1. Navigate to the Dynon Certified website: dynoncertified.com/download.
2. Download latest FAA database files to a 16-32GB USB drive. Files must be in root directory of USB drive or will not be recognizable by the SkyView HDX display.

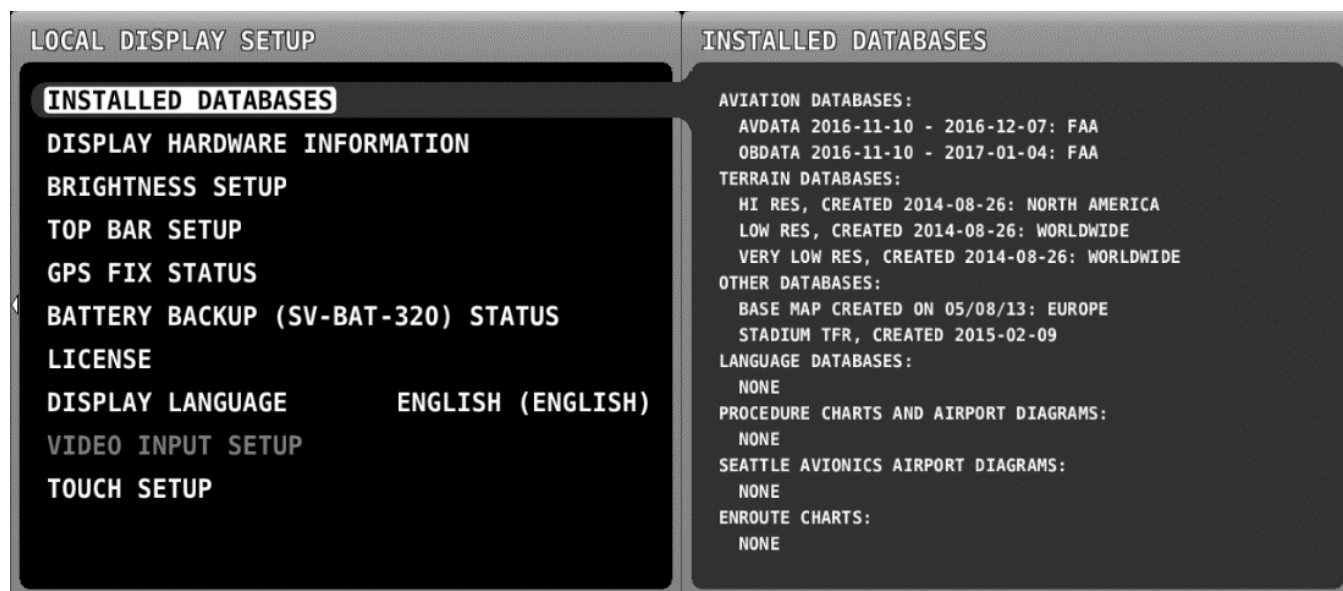
Third-party chart databases are different than the aviation databases described here, and are downloaded from the subscribed provider.



Charts require the USB drive containing them to remain engaged with SkyView HDX during operation in order to function. Follow the chart providers instructions.

Load Databases into SkyView HDX Display Unit:

1. Insert USB drive into one of the SkyView HDX display unit's USB ports.
2. On SkyView HDX display, go to SETUP MENU > SYSTEM SOFTWARE > LOAD FILES.
3. Use knob on display to select database file and press LOAD. SkyView HDX indicates progress of loading process.
4. Repeat Step 3 for additional databases and charts.
5. Once databases and charts have been loaded, navigate to SETUP MENU > LOCAL DISPLAY SETUP > INSTALLED DATABASES and verify databases and charts are current (see figure below).



7.4 System Backup Battery Test

The Backup Battery for the SkyView HDX system must be tested once every 12 months to ensure it is operational and meets the nominal 45-minute expected backup operation period. Each SkyView HDX display unit requires a Backup Battery, and each Backup Battery must be tested. The Backup Battery must be fully charged prior to beginning the test. To test the battery, complete the following steps:

1. Remove power from SkyView HDX display unit by turning off Master Switch.
2. On SkyView HDX display, during the 30-second power off countdown, press TEST BAT button (see



Figure 66: TEST BAT Button

3. The BATTERY TEST screen will appear, displaying the status of the test. If the Backup Battery can power the system for at least 45 minutes, the battery passes the test.
4. After test completes, the SkyView HDX display unit will automatically power itself off.

To see the results of the test, go to SETUP MENU > LOCAL DISPLAY SETUP > BATTERY BACKUP (SV-BAT-320) STATUS>TEST RESULTS. Make sure the TEST RESULT says PASS. If PASS is displayed, battery is good. If FAIL is displayed, battery needs to be replaced (see Section 6.10)



This test discharges the Backup Battery. Recharging the Backup Battery after the test is recommended by flying for approximately four hours or by powering on SkyView HDX display unit with ground power greater than 12.25 volts for approximately four hours.

7.5 Compass Calibration

Performing an in-flight compass calibration after an on-ground compass calibration can increase the magnetic heading accuracy of the compass. The best compass performance will be achieved by performing the on-ground compass calibration, then performing the in-flight compass calibration. It is not required that the in-flight compass calibration be performed immediately after the on-ground compass calibration.

The on-ground compass calibration requires pointing the airplane in four (4) directions and acquiring data at each direction. An accurate method of aligning the airplane with magnetic north, east, south, and west, such as an airport's compass rose, is required.

During the compass calibration, the airplane's configuration and major systems should be in a state that resembles flight conditions (i.e., the aircraft's pitch attitude matches SkyView HDX's attitude depiction and all electronic devices used in flight should be on).

7.5.1 On-ground Compass Calibration

1. Turn on SkyView HDX system and allow it to warm up for a minimum of 5 minutes.
2. Using a compass rose, move aircraft into position so that it is convenient to orient it in four (4) cardinal directions.
3. Enter Setup Menu on SkyView HDX Display and go to Compass Calibration Wizard (SETUP MENU > HARDWARE CALIBRATION > ADAHRS CALIBRATION > COMPASS CALIBRATION).
4. NOTE: GPS data on the Compass Calibration Page must be green. If it is red, GPS data is not valid.
5. Orient airplane to north, south, east, or west.
6. When airplane is stable at chosen orientation, push button indicating the direction the airplane is oriented. For example, when the airplane is pointed north, push the NORTH button.
7. Wait for data collection to reach 100%.
8. Rotate to next cardinal direction and repeat steps 4, 5, and 6 for all remaining headings.
9. When calibration is complete, a CALIBRATION COMPLETE message appears. Press FINISH to return to menu navigation mode.

7.5.2 In-flight Compass Calibration

While the in-flight compass calibration is optional, it will likely improve the dynamic performance of the heading indications of your airplane.



The in-flight compass calibration should be conducted on a clear, VFR day. Before commencing the compass calibration, ensure that you have adequate altitude, clear weather, no traffic, no obstructions in the flight path, great visibility, and no airspace conflicts. It is recommended that clearing turns be performed before executing each procedure.

It is recommended that you bring someone along for the in-flight compass calibration procedure. Otherwise, the pilot's attention will be divided between reading documentation, configuring the SkyView HDX Display, and flying the airplane and maintaining situational awareness.



The best compass performance will be achieved by performing the in-flight compass calibration *AFTER* the on-ground compass calibration has been performed.

1. If you have two (2) SkyView displays, the in-flight compass calibration can be performed from either display.
2. After observing the cautions above, push buttons 7+8 to enter the IN FLIGHT SETUP MENU. Note – this menu is not accessible while on the ground.
3. Select COMPASS CALIBRATION.
4. Right-click the knob to enter the in-flight COMPASS CALIBRATION menu. You will see a screen similar to this:

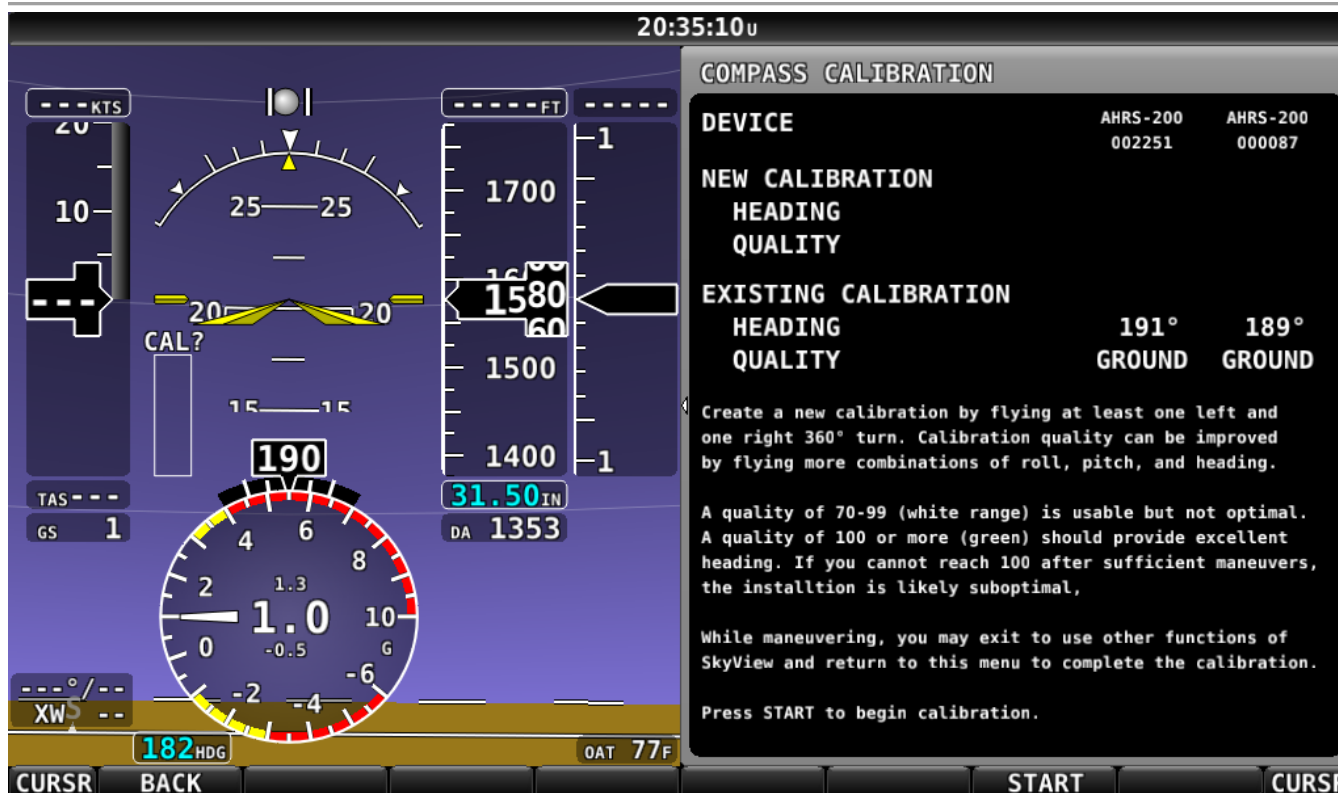


Figure 67: In-Flight Compass Calibration Menu

5. Push the START button to begin the calibration.
6. Observe the NEW CALIBRATION section of the menu. The goal of the in-flight compass calibration is to achieve a compass calibration "quality" of at least 100.
7. The minimum maneuvers for in-flight compass calibration is one (1) 360° turn clockwise, and one (1) 360° turn counterclockwise. Flying additional maneuvers incorporating pitch and roll changes will likely improve the in-flight compass calibration.
8. When the quality is as high as you can obtain (above 70, the minimum), push the FINISH button to complete the in-flight compass calibration. Flying additional maneuvers beyond the minimum may improve the in-flight compass calibration but will not make it worse.

QUALITY of 70-99 is acceptable, but not optimum; the accuracy of your magnetic heading may not be acceptable. Additionally, a sub-optimal QUALITY may have the following effects:

- Degraded performance of the SkyView Autopilot (AP) in HDG and NAV modes.
- Degraded accuracy of wind direction and velocity.

If, after multiple attempts at in-flight compass calibration, you cannot achieve QUALITY of at least 70, the compass sensor in the SV-ADAHRS-200 cannot sense the earth's magnetic field with enough precision (excessive magnetic interference). It should be considered to change the location of the SV-ADAHRS-200.

7.6 Zero Pressure IAS/AoA Calibration

This Zero Pressure IAS calibration samples pitot, static, and AoA pressures. It should be performed before the AoA calibration. This calibration should be performed in a windless environment to allow the SkyView HDX system to provide the best possible Indicated Airspeed (IAS) readings at very low airspeeds.

- To calibrate, go to SETUP > HARDWARE CALIBRATION > ADAHRS CALIBRATION > ZERO PRESSURE IAS/AOA CALIBRATION and follow the on-screen instructions.

7.7 Pitot/Static System Testing

A Pitot/Static system test is performed to make sure there are no leaks in the Pitot or Static pneumatic tubes. The test must be accomplished in accordance with:

- Appendix E to Part 43—Altimeter System Test and Inspection, as required by §91.411 Altimeter System and Altitude Reporting Equipment Tests and Inspections
- Appendix F to Part 43—ATC Transponder Tests and Inspections, as required by §91.413 ATC transponder tests and inspections.

This section does not describe how to use the test equipment or conduct the test, but it does describe how to configure the SkyView HDX system for testing, and how to adjust if necessary.

Required Equipment:

- Calibrated and certified Pitot/Static leak testing equipment

Before performing Pitot/Static testing, consider the following:

- The aircraft's temperature should be stable. For example, if the aircraft is moved from outside in sunlight to a hangar for testing, tests should not be started until the aircraft's temperature has stabilized to the hangar's temperature.
- Turn SkyView HDX on and let it warm up for at least 5 minutes, until the altitude reading is stabilized. This may need to be longer depending on environmental conditions.
- SkyView HDX must be put into Pitot/Static Test Mode to perform the test (SETUP MENU > HARDWARE CALIBRATION > ADAHRS CALIBRATION > PITOT STATIC TEST MODE).



The Pitot/Static Test must be performed with the SkyView HDX System set in Pitot/Static Test Mode. The ADAHRS module uses airspeed in the calculation of attitude during normal flight.

If leak test is performed while not in Pitot/Static Test Mode, the ADAHRS module will incorrectly adjust its internal calibrations, resulting in poor in-flight behavior.



Do not fly airplane with SkyView HDX in the Pitot/Static Test Mode. The Airspeed, Altitude, and Attitude indications will not function correctly.

Connect the vacuum pressure source to the pitot port, static port, and AoA port (if installed) when testing.

7.8 AoA Calibration

Perform the following calibration after the Zero Pressure IAS/AoA Calibration. If a Dynon Avionics AoA/Pitot Sensor is re-installed, a calibration is required. This calibration is performed while flying.

- Once you are flying straight and level at a safe altitude for stalls, go into the AoA Calibration Wizard (IN FLIGHT SETUP MENU > AOA CALIBRATION) and follow the onscreen instructions to calibrate angle of attack while in flight.

7.9 Transponder Tests

The transponder must be tested and inspected per FAR 91.413 and AC 43.13-1B.

Post-installation tests should be carried out in accordance with your certification requirements. These tests should include the following:

- Mode-S interrogations to verify correct address programming.
- Verification of the reported altitude using a static tester.
- Where installed, verification of correct squat switch ground/airborne indications. In an aircraft with a squat switch, setting the Mode switch to ALT when the aircraft is on the ground should leave the Transponder in GND mode; when the aircraft becomes airborne, the mode should switch automatically to ALT.
- Interrogations to verify the receiver sensitivity. A Mode-S transponder should have a minimum triggering level (MTL) of between -77 dBm and -71 dBm. Failure to meet this requirement usually indicates antenna or coaxial cable problems.
- Interrogations to verify the transmitted power. A Class 1 installation should have no less than 125 Watts at the antenna (and no more than 500 Watts). A Class 2 installation should have no less than 71 Watts at the antenna (and no more than 500 Watts). Failure to meet this requirement is also generally due to antenna or wiring issues.
- Verification of the GPS position source and ADS-B outputs. Whenever a valid position is received by the Transponder and it is in any mode other than Standby, ADS-B Extended Squitter should be observed on the Transponder test set.

7.9.1 Manual ALT/GND Mode Switching

Transponder checks require manual switching to ALT and GND mode.

1. The Transponder is normally configured to automatically switch between GND and ALT mode, based on airspeed and other parameters – SETUP MENU > TRANSPONDER SETUP > AUTO ALT/GND > AUTOMATIC (AIR DATA). In this mode, in the XPNDR menu, the GND button does not appear, and the ALT button will not change mode unless you are in flight.
2. Some aircraft may be equipped with a squat switch for Transponder mode control; before changing AUTO ALT/GND, record which squat switch configuration is set. You will need this information to restore AUTO ALT/GND to this setting after Transponder testing is complete.

3. To be able to manually switch the Transponder between ALT and GND mode, you must temporarily reconfigure the transponder: SETUP MENU > TRANSPONDER SETUP > AUTO ALT/GND > NONE > EXIT (button).
4. The Transponder can now be manually switched to ALT and GND modes: XPNDR > ALT and XPNDR > GND.SV-ADSB-472 ADS-B IN Receiver.



After transponder testing is complete, remember to return the transponder to its normal configuration: SETUP MENU > TRANSPONDER SETUP > AUTO ALT/GND > AUTOMATIC (AIR DATA).

7.9.2 Manipulating Altitude

If the test on your Transponder requires manipulating the static pressure, be sure to manipulate static pressure only after activating SkyView HDX's pitot/static test mode. Pitot/static test mode is accessed via SETUP MENU > HARDWARE CALIBRATION.

Connect Pitot and Static to the same test pressure altitude, or strange attitude behaviors may occur.

7.10 Autopilot Servo Calibration

The SkyView Autopilot servo settings are available for download as a configuration file that is loaded into the SkyView HDX display. This file configures the autopilot servo performance settings to meet the applicable certification regulations. Servo calibration cannot be performed without the following:

- An ADAHRS module (SV-ADAHRS-200) installed and configured in the SkyView network.
- All servos installed and configured in the SkyView Network.
- V-speeds correctly entered in SkyView HDX. (See the *SkyView HDX System Installation Manual* document for instructions.)

To make a new servo appear on the SkyView HDX display, configure the SkyView Network (SYSTEM SETUP > NETWORK SETUP > CONFIGURE). (See the *SkyView HDX System Installation Manual* document for instructions.)

To calibrate the servos, enter the Servo Calibration Wizard (SETUP MENU > HARDWARE CALIBRATION > AP SERVO CALIBRATION > CALIBRATION) and follow the onscreen instructions to calibrate the servo(s).

SkyView checks the status of the AP DISC button. If SkyView detects that the button is pressed (the input is grounded) upon entering AP SERVO CALIBRATION, the AP DISC button is assumed to be stuck (or incorrectly installed), resulting in the following message being displayed, and the autopilot servo calibration is aborted:

"The servo disconnect switch appears to be pressed and may be installed incorrectly. The servo disconnect switch should be a type Momentary, Push Button Normal Open (PBNO). Press cancel below to return to the servo calibration menu."

If the servo calibration procedure is not successful, inspect the button and servo wiring. (See the *103261-000 SkyView HDX System Installation Manual* document for instructions.) If button type and wiring is correct, call Dynon Technical Support.

If the servo calibration procedure is successful, SkyView will automatically instruct you to run the servo test procedure (see Section 7.11).

7.11 Autopilot Servo Test Procedure

The servo test procedure requires a successful servo calibration. The servo test procedure verifies that each servo is configured properly by moving the control surfaces while the installer verifies the correct movement. You may run this procedure on its own at any time after a successful servo calibration. SkyView will not display AP status on the Top Bar until after this test procedure is successfully completed.

To run this procedure on its own (after a successful servo calibration procedure), enter the Servo Test Wizard (SETUP MENU > HARDWARE CALIBRATION > AP SERVO CALIBRATION > TEST) and follow the onscreen instructions to test the servo(s).

7.12 Autopilot Servo Operation Check

Complete the following procedures to confirm the servos are operating correctly.

To check autopilot disconnect functionality:

1. Make sure master power and autopilot servo power are *ON*.
2. Engage autopilot.
3. Complete the following:
 - Press AP button in Autopilot Control menu, and make sure autopilot disconnects.
"AUTOPILOT DISCONNECT" aural indication should be heard.
 - Turn autopilot servo power switch *OFF*, and make sure autopilot disconnects.
"AUTOPILOT DISCONNECT" aural indication should be heard.
 - If installed, press AP button on Autopilot Control Panel, and make sure autopilot disconnects.
"AUTOPILOT DISCONNECT" aural indication should be heard.
 - If installed, press panel-mounted AP DISC button, and make sure autopilot disconnects.
"AUTOPILOT DISCONNECT" aural indication should be heard.
 - If installed, press yoke-mounted autopilot disconnect button, and make sure autopilot disconnects.
"AUTOPILOT DISCONNECT" aural indication should be heard.

To check the pitch and roll axes:

1. Make sure master power and autopilot servo power are *ON*.
2. Center, and lightly hold in place, flight control yoke.
3. Align HDG/TRK bug with current heading.
4. Select ALT and HDG.
5. Engage autopilot.
6. Set vertical speed to +1000.
7. Set altitude 1000 feet above current.

Yoke should move in Nose Up direction.

8. Press and hold ALT button to return altitude bug to current.

Yoke should move back to neutral position.

9. Change HDG/TRK bug to right of current heading.

Yoke should move in direction of a right roll.

10. Change HDG/TRK bug to left of current heading.

Yoke should move in direction of a left roll.

To check the yaw axis:

1. Make sure master power and autopilot servo power are *ON*.
2. Move rudder pedals left and right to feel operation.
3. Center, and lightly hold in place, rudder pedals.
4. Engage autopilot.
5. Move rudder pedals to the Left.

Rudder pedals should encounter some resistance to movement. The servo may slip. Resistance by the servo indicates the system is operating normally.

6. Move rudder pedals to the right.

Rudder pedals should encounter some resistance to movement. The servo may slip. Resistance by the servo indicates the system is operating normally.

7. Disconnect autopilot.
8. Move rudder pedals left and right to feel operation.

Resistance should not occur.

7.13 Autopilot Servo Bridle Cable Guard Adjustment

Dynon's autopilot servos equipped with capstans are shipped with bridle cable guards installed. The cable guard may need to be repositioned to avoid interference with the flight control cables or the bridle cables during servo installation procedures. The following procedure details the task of adjusting a cable guard.



Unless otherwise specified, torque all fasteners per specifications in AC 43.13-1B, Table 7-1. Include specified friction drag value when torquing screws.

Reference [Figure 68](#) when performing the following procedure.

To adjust the cable guard:

1. Remove capstan from servo shaft (see [6.25.1](#) for instructions).
2. Remove screws and star washers that secure capstan guard to servo.
3. Rotate capstan guard to correct position.
4. Secure capstan guard to servo with screws and star washers.
5. Re-install capstan (see [6.25.1](#) for instructions).

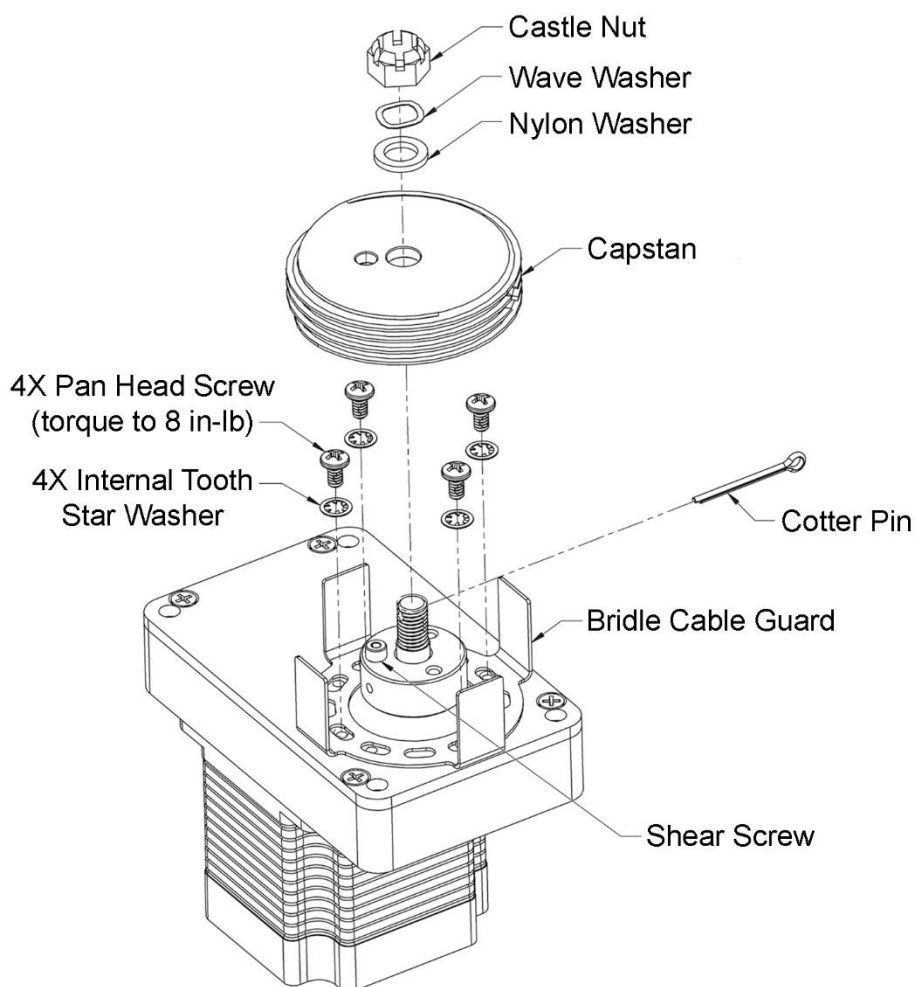


Figure 68: Exploded View of a Typical Servo Capstan Assembly

8 Appendix 1: Glossary

The following abbreviations/acronyms are used within this document:

ACO	Aircraft Certification Offices (FAA)
ADAHRS	Air Data, Attitude and Heading Reference System
ADS-B	Automatic Dependent Surveillance Broadcast
AHRS	Attitude and Heading Reference System
AEG	Airplane Evaluation Group (FAA)
ALT	Altitude
AML	Approved Model List
AoA	Angle of Attack
AP	Autopilot
ARINC	Aeronautical Radio Incorporated
ATC	Air Traffic Control
BARO	Barometric Indication
BAT	Battery
BIT	Built-In Test
CFR	Code of Federal Regulations
CHT	Cylinder Head Temperature
COM	Communications
EFIS	Electronic Flight Instrument System
EGT	Exhaust Gas Temperature
EMS	Engine Monitoring System
ES	Extended Squitter
FAA	Federal Aviation Administration
FD	Flight Director
FAR	Federal Aviation Regulations
GND	Ground

GPS	Global Positioning System
GNSS	Global Navigation Satellite System
HDG	Heading
HSI	Horizontal Situation Indicator
ICA	Instructions for Continued Airworthiness
IFR	Instrument Flight Rules
LRU	Line Replaceable Unit
MAG	Magnetic
MHz	Mega-Hertz
NAV	Navigation
OAT	Outside Air Temperature
PFD	Primary Flight Display
STC	Supplemental Type Certificate
TIS	Traffic Information Service
TRK	Track
TSO	Technical Standard Order
VFR	Visual Flight Rules
VSI	Vertical Speed Indicator
XPDR	Transponder