Honeywell International, Inc.
9201-B San Mateo Blvd N.E.
Albuquerque, New Mexico 87113 USA.
CAGE: 6PC31
Telephone: 855-250-7027 (Toll Free U.S.A./Canada) Telephone: 602-365-7027 (International Direct) Website:
www.bendixking.com

AeroNav 780/8XX/9XX Integrated Flight Deck Navigator Series AML STC Document for Part 23 Aircraft

STC Number SA00343BO

The attached documents are distributed by BendixKing to provide technical support for installation of the Honeywell International, Inc. AeroNav 780/8XX/9XX IFD Navigator Series using AML STC Number SA00343BO.

Export Control

This document contains technical data and is subject to U.S. export regulations. These commodities, technology, or software were exported from the United States in accordance with the export administration regulations. Diversion contrary to U.S. law is prohibited.

ECCN: 7E994

DOCUMENT REVISIONS

Revision	Description of Change	DATE
(-)	Initial release	29 JUL 2019

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BendixKing
9201-B San Mateo Blvd, NE
Albuquerque, NM 87113

Subject: AeroNav 780 / 8XX / 9XX IFD Navigator Series Letter of Model Designation for Avidyne IFD4XX & IFD5XX Navigators

This letter of model designation is intended to provide the limited purpose of associating the BendixKing AeroNav 780, 800, 880, 900, 905 and 910 Series Navigator model names with the Avidyne IFD 410, IFD440, IFD510, IFD540, IFD545, and IFD550 Navigators, respectively, autopilot that is manufactured for Honeywell and BendixKing by Avidyne. Refer to the *Cross Reference of BendixKing Part Numbers to Avidyne Part Numbers* table below for a mapping of the Avidyne part numbers to the BendixKing part numbers.

This letter of model designation does not replace any terms of the letter of authorization “LOA” for the Avidyne IFD4XX & IFD5XX Navigators and simply updates the model name as described above. The recipient shall not use this letter of model designation for any other purpose other than those established under the LOA provided to the recipient.

Without prejudice to this letter of model designation, authorization to use the AeroNav 780, 800, 880, 900, 905 and 910 Series Navigator names or any portion thereof may not be assigned or sub-licensed by recipient without the express written consent of BendixKing or Honeywell. Additionally, BendixKing’s general conditions of purchase apply to this letter as if fully included herein and to all purchases of the AeroNav 780, 800, 880, 900, 905 and 910 Series Navigator.

Sincerely,

BendixKing

Table 1 Cross Reference of BendixKing Part Numbers to Avidyne Part Numbers

Avidyne P/N	Description	BendixKing P/N
700-00182-700	IFD540 (Black Bezel)	89000039-001
700-00182-701	IFD540 with Video (Black Bezel)	89000039-002
850-00182-700	IFD540 Ship Kit (Black Bezel)	89000039-003
850-00182-701	IFD540 Ship Kit with Video (Black Bezel)	89000039-004
850-00188-002	IFD5XX Fixed Wing Tray and Install Kit	89000039-007
850-00188-003	IFD5XX Helicopter Tray and Install Kit	89000039-009
700-00182-730	IFD545 (Black Bezel)	89000039-013
700-00182-731	IFD545 with Video (Black Bezel)	89000039-014
850-00182-730	IFD545 Ship Kit (Black Bezel)	89000039-011
850-00182-731	IFD545 Ship Kit with Video (Black Bezel)	89000039-012
700-00182-720	IFD550 (Black Bezel)	89000040-001
700-00182-721	IFD550 with Video (Black Bezel)	89000040-002
850-00182-720	IFD550 Ship Kit (Black Bezel)	89000040-003
850-00182-721	IFD550 Ship Kit with Video (Black Bezel)	89000040-004
700-00179-700	IFD440 (Black Bezel)	89000041-001
850-00179-700	IFD440 Unit Ship Kit (Black Bezel)	89000041-002
850-00184-002	IFD4XX Fixed Wing Tray and Install Kit IFD440	89000041-005
850-00184-003	IFD4XX Helicopter Tray and Install Kit IFD440	89000041-007
700-00182-710	IFD510 (Black Bezel)	89000041-012
700-00182-711	IFD510 with Video (Black Bezel)	89000041-013
850-00182-710	IFD510 Ship Kit (Black Bezel)	89000041-009
850-00182-711	IFD510 Ship Kit with Video (Black Bezel)	89000041-010
700-00179-710	IFD410 (Black Bezel)	89000045-001
850-00179-710	IFD410 Unit Ship Kit (Black Bezel)	89000045-003

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number SA00343BO

This certificate issued to:

Avidyne Corporation
4 Middlesex Green, Suite 221
561 Virginia Road
Concord, MA 01742

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 23 of the Federal; Aviation Regulations.

Original Product - Type Certificate Number:
Make:
Model:

See attached FAA Approved Model List (AML), Document No. AVIFD-318, Revision 03, FAA approved on March 06, 2017, or later FAA approved revision, for the list of approved airplane models, applicable installation data requirements, and specific limitations.

Description of Type Design Change:

Installation of a single configuration or of a dual configuration Avidyne Corporation Integrated Flight Display, Model IFD5XX and/or Model IFD4XX, loaded with Release 10.2 software (or later FAA approved release), in accordance with Avidyne Corporation Master Document List (MDL), Document Number AVIFD-306, Revision 11, dated February 28, 2017, or later FAA approved revision.

Limitations and Conditions: See Page 2

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, and revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of Application: February 14, 2013

Date of Issuance: July 24, 2014

Date reissued:

Date amended: June 18, 2015, March 06, 2017

By direction of the Administrator

Signature _____

Nicholas Faust

Acting Manager, Boston Aircraft Certification Office

Title _____

INSTRUCTIONS: The transfer endorsement below may be used to notify the appropriate FAA Aircraft Certification Office of the transfer of this Supplemental Type Certificate. The FAA will reissue the certificate in the name of the transferee and forward it to him.

TRANSFER ENDORSEMENT

Transfer the ownership of Supplemental Type Certificate Number:

To *(Name of transferee)*

(Address of transferee)

(Number and street)

(City, State, and ZIP Code)

From *(Name of grantor)*

(Address of grantor)

(Number and street)

(City, State, and ZIP Code)

Extent of Authority (if licensing agreement):

Date of Transfer:

Signature of grantor:

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number SA00343BO
March 06, 2017

Limitations and Conditions:

1. Operation must be in accordance with the Avidyne Corporation Aircraft Flight Manual Supplement (AFMS) Document Number 600-00298-000, Revision 05, FAA approved on March 06, 2017, or later FAA approved revision.

   The AFMS must be carried in the aircraft during all flights.

2. Maintenance must be in accordance with Instructions for Continued Airworthiness (ICA), Document Number AVIFD-315, Revision 08, dated January 18, 2017, or later FAA accepted revision.

   The ICA must be made available to the operator at the time of installation.

3. The compatible approved software for the IFD4XX and IFD5XX are identified in the installation manual identified on the approved MDL.

4. Model IFD4XX and/or Model IFD5XX can interface only with proven compatible avionics systems as identified by vendor name and model number in Avidyne Corporation Installation Manual Section 2.3, Document Number 600-00299-000, Revision 04, dated April 09, 2015, or later FAA approved revision.

5. Compatibility of this design with previously approved modifications must be determined by the installer.

Certification Basis:
Based on 14 CFR § 21.115 and § 21.101, and the FAA policy for design changes that are identified as not significant in FAA Order 8110.48, the certification basis for the Make Model aircraft is as follows:

a. The type certification basis for parts **not changed or not affected** by the change is shown on the applicable TCDS.

(continued on Page 4 of 4)

United States of America
Department of Transportation
Federal Aviation Administration

Supplemental Type Certificate

Number SA00343BO
March 06, 2017

Certification Basis: (continued from Page 3 of 4)

b. The modification certification basis for parts **changed or affected** by the change since the reference application date, February 14, 2013, is based upon part 23 as amended by Amendment 23-62 as follows:

Regulations at the latest amendment 23-0 through 23-62

23.301(a), 23.303, 23.305, 23.307(a), 23.337, 23.473(d)(g), 23.561(a)(b)(3)(e), 23.601, 23.603, 23.605, 23.607(b), 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a)(b), 23.853(a), 23.867(b), 23.301, 23.1306(b), 23.1307, 23.1308(b), 23.1309, 23.1311(a)(1)(2)(3)(4)(6)(7), 23.1321(a)(c)(e), 23.1322, 23.1329(h), 23.1331(a)(b)(1), 23.1351(a), 23.1353(h), 23.1357(a)(b)(c)(d), 23.1359(c), 23.1365(a)(b)(d)(e), 23.1367, 23.1381, 23.1431(a)(b)(d)(e), 23.1501, 23.1523, 23.1525, 23.1529, 23.1541 (a)(2)(b), 23.1555(a)(b), 23.1559(c)(d), 23.1581(a)(b)(c)(f), 23.1583(h)(m), 23.1585(j)

Regulations at an intermediate amendment

None

Regulations at the amendment level in the applicable TCDS

None

----------END----------

SUPPLEMENTAL TYPE CERTIFICATE

10058132 REV. 2

This Supplemental Type Certificate is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation and in accordance with Commission Regulation (EU) No. 748/2012 to:

AVIDYNE CORPORATION

55 OLD BEDFORD ROAD
LINCOLN MA 01773
USA

and certifies that the change in the type design for the product listed below with the limitations and conditions specified meets the applicable Type Certification Basis and environmental protection requirements when operated within the conditions and limitations specified below:

Original Type Certificate Number: SEE EASA APPROVED MODEL LIST
Type Certificate Holder: SEE EASA APPROVED MODEL LIST
Type: SEE EASA APPROVED MODEL LIST
Model: SEE EASA APPROVED MODEL LIST
Original STC Number: FAA STC SA00343BO

Description of Design Change:
Installation of a single configuration or of a dual configuration Avidyne Corporation Integrated Flight Display, Model IFD5xx and/or Model IFD4xx, loaded with Release 10.2 software (or later approved release).

EASA Certification Basis:
The Certification Basis for the original product as amended by the following additional or alternative airworthiness requirements:
The certification basis for the Make, Model aircraft is as follows:
a. The type certification basis for parts not changed or not affected by the change is shown on the applicable

See Continuation Sheet(s)

For the European Aviation Safety Agency

Date of Issue: 04 August 2017

Dominique ROLAND
Head of General Aviation and
Remotely Piloted Aircraft Systems (RPAS)

TCDS.

b. The modification certification basis for parts changed or affected by the change since the reference application date, February 14, 2013, is based upon FAR Part 23 as amended by Amendment 23-62 as follows:

Regulations at the latest amendment 23-0 through 23-62
23.301(a), 23.303, 23.305, 23.307(a), 23.337, 23.473(d)(g), 23.561(a)(b)(3)(e), 23.601, 23.603, 23.605, 23.607(b), 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a)(b), 23.853(a), 23.867(b), 23.301, 23.1306(b), 23.1307, 23.1308(b), 23.1309, 23.1311(a)(1)(2)(3)(4)(6)(7), 23.1321(a)(c)(e), 23.1322, 23.1329(h), 23.1331(a)(b)(1), 23.1351(a), 23.1353(h), 23.1357(a)(b)(c)(d), 23.1359(c), 23.1365(a)(b)(d)(e), 23.1367, 23.1381, 23.1431(a)(b)(d)(e), 23.1501, 23.1523, 23.1525, 23.1529, 23.1541(a)(2)(b), 23.1555(a)(b), 23.1559(c)(d), 23.1581(a)(b)(c)(f), 23.1583(h)(m), 23.1585(j).

The requirements for environmental protection and the associated certified noise and/ or emissions levels of the original product are unchanged and remain applicable to this certificate/ approval.

Associated Technical Documentation:
Installation in accordance with Avidyne Corporation Master Document List (MDL), Document Number AVIFD-306, Revision 11, dated February 28, 2017, or later approved revision.

Operation in accordance with the Avidyne Corporation Aircraft Flight Manual Supplement (AFMS) Document Number 600-00298-000, Revision 05, FAA approved on March 06, 2017, or later FAA approved revision, and EASA AFMS ref Part No 600-00298-001 Rev 01, dated April 2017.

Maintain in accordance with Instructions for Continued Airworthiness (ICA), Document Number AVIFD-315, Revision 08, dated January 18, 2017

or later revisions of the above listed documents approved by EASA in accordance with EASA ED Decision 2004/04/CF (or subsequent revisions of this decision)" and/ or the Technical Implementation Procedures of EU/ USA Bilateral Agreement.

Model IFD4xx and/or Model IFD5xx can interface only with proven compatible avionics systems as identified by vendor name and model number in Avidyne Corporation Installation Manual Section 2.3, Document Number 600-00299-000, Revision 04, dated April 09, 2015, or later FAA approved revision.

Limitations/Conditions:
Prior to installation of this design change it must be determined that the interrelationship between this design change and any other previously installed design change and/ or repair will introduce no adverse effect upon the airworthiness of the product.

- End -

EASA Approved Model List (AML)
10058132 Rev. 2
Avidyne Corporation

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
Aermacchi S.p.A.	F.260, F.260B, F.260C, F.260D, F.260E, F.260F	EASA.A.586	
	S.205-18/F, S205-18/R, S.205-20/F, S205-20/R, S.205-22/R, S208, S.208A	EASA.A.587	
Aerostar Aircraft Corporation	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P	USA A17WE	PA-60-601P/602P/700P requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Alexandria Aircraft (Bellanca)	17-30, 17-31, 17-31TC	USA 1A3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	17-30A, 17-31A, 17-31ATC	USA A18CE	
American Champion	8KCAB, 8GCBC	USA A21CE	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	7ECA, 7GCAA, 7GCBC	USA A-759	
Aviat Aircraft, Inc.	A-1, A-1A, A-1B, A-1C-180	EASA.IM.A.294	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	S-1SS-2A, S-2S, S-2B, S-2C	USA A8SO	
B-N Group LTD	BN-2A-8, BN-2A-20, BN-2A-21, BN-2A-26, BN-2A-27, BN-2B-20, BN-2B-21, BN-2B-26, BN-2B-27, BN-2T, BN-2T-4R, BN-2A-9	EASA.A.388	
	BN-2	AAN 9405.1	
	BN-2A	AAN 10101	
	BN-2A-2	AAN 10918	
	BN-2A-3	AAN 11105	
	BN-2A-6	AAN 11108	
	BN2A MK III, BN2A MK III-2, BN2A MK III-3	UK BA6	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
Burkhart GROB Luft- und Raumfahrt	G520, G520T	DE 2066	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Beechcraft Corporation	19A, B23, B19, C23, M19A, A24, 23, A24R, A23, B24R, A23A, C24R, A23-19, A23-24	USA A1CE	
	H35, J35, K35, M35, 35-33, N35, 35-A33, 35-B33, P35, S35, 35-C33, E33, F33, V35, V35A, V35B, 35-C33A, E33A, E33C, 36, A36, F33A, F33C, G33, A36TC, B36TC	USA 3A15	
	95, B95, 95-55, 95-A55, B95A, D95A, E95, 95-B55, 95-B55A, 95-B55B, 95-C55, D55, 95-C55A, D55A, E55, E55A, 56TC, A56TC, 58, 58A	USA 3A16	
	58P, 58PA, 58TC, 58TCA	USA A23CE	58P, 58PA require previously installed GPS antenna(s) to utilize this STC for installation approval.
	50, B50, C50, D50, D50A, D50B, D50C, D50E, D50E-5990, E50, F50, G50, H50, J50	USA 5A4	
	B200, B200C, B200GT, B200CGT	EASA.IM.A.277	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	200, A100-1, 200C, 200CT, 200T, A200, A200C, A200CT, B200CT, B200T, 300,300LW, 1900, 1900C, 1900D	USA A24CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	B300, B300C	EASA.IM.A.277	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	99, 99A, A99, A99A, B99, C99, 100, A100 (U-21F), A100A, B100	USA A14CE	100, A100, A100A, B100 require previously installed GPS antenna(s) to utilize this STC for installation approval.
	F90	USA A31CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	60, A60, B60	USA A12CE	100, A100 (U-21F), A100A, A100C, B100
	76	USA A29CE	
	77	USA A30CE	
	65, 65-A90-1, A65, 65-A90-2,	USA 3A20	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
	A65-8200, 65-A90-3, 65-80, 65-A90-4, 65-A80, 65-A80-8800, 65-B80, 65-88, 65-90, 65-A90, 70, B90, C90, E90, H90,		
	C90A, C90GT, C90GTi	EASA.IM.A.503	
	390 (Premier I, Premier IA)	EASA.IM.A.073	
Cessna Aircraft Company	F150F, F150G, F150H, F150J, F150K, F150L, FA150L, F150M, FA150K, FA150M F152, FA152	USA A13EU	
	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P	USA A1EU	
	FR172E, FR172F, FR172G, FR172H, FR172J, FR172K 175, 175A, 175B, 175C	USA A18EU	
	F177RG	USA A26EU	
	F182P, F182Q, FR182	USA A42EU	
	F337E, FT337E, F337F, FT337F, F337G, FT337GP, F337H, FT337HP	USA A23EU	
Cirrus	SR-20, SR-22	EASA.IM.A.007	Wire Harness overbraid is required for IFR Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
CPAC, Inc (Commander Aircraft)	112, 114, 112TC, 112B, 112TCA, 114A, 114B, 114TC	USA A12SO	
Viking Air Limited (de Havilland Inc.)	DHC-2 Mk. III	CA A-22	
	(Twin Otter) DHC-6-1, DHC-6-100, DHC-6-200, DHC-6-300	CA A-82	
Diamond Aircraft Industries	DA 20-A1, DA20-C1	EASA.IM.A.223	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	DA40	EASA.A.022	
RUAG Aerospace Services (Dornier Luftfahrt GmbH)	Do 28 D, Do 28 D-1, Do 28 A-1, Do 28 B-1	EASA.A.360	
	Dornier 228-100/228-200 Series	EASA.A.359	
Dynac Aerospace Corp. (Aero Commander)	10, 10A, 100	USA 1A21	
Embraer	EMB-110P1, EMB-110P2	BR EA-7202	Requires previously installed GPS antenna(s) or separate approval to utilize

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
			this STC for installation approval.
Extra	EA300, EA300/L, EA300/S, EA300/200	EASA.A.362	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
GA8 Airvan (Pty) Ltd	GA8	EASA.IM.A.042	
Grob	G120A	EASA.A.075	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	G115, G115A, G115B, G115C, G155C2, G115D, G115D2, G115EG	EASA.A.364	
Interceptor Aircraft Corporation	200D	USA 3A18	
Liberty	XL-2	EASA.IM.A.343	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Learjet	23	USA A5CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
M7 Aerospace LLC (Fairchild)	SA26-T, SA26-AT, SA226-T, SA226-AT, SA226-T(B), SA227-AT, SA227-TT	USA A5SW	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	SA-226-TC, SA227-AC, SA227-BC, SA227-PC	USA A8SW	
	SA227-CC, SA227-DC	USA A18SW	
Maule Aerospace Technology, Inc.	Bee Dee M-4, M-5-180C, MXT-7-160, M-4, MX-7-180A, M-4C, M-5-210C, MXT-7-180A, M-4S, MX-7-180B, M-4T, M-5-235C, M-7-235B, M-6-235, M-4-210, M-7-235, MX-7-180C, M-4-210C, MX-7-235, MX-7-180, M-4-220, MXT-7-180, M-4-220C, MT-7-235, M-4-220S, MXT-7-160	EASA.IM.A.018	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Mitsubishi Heavy Industries, Ltd.	MU-2B-10, MU-2B-20, MU-2B-25, MU-2B-26	USA A2PC	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	MU-2B-26A, MU-2B-36A, MU-	USA A10SW	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
	2B-40A, MU-2B-60A		
	MU-2B, MU-2B-20, MU-2B-25, MU-2B-26	JP 19	
	MU-2B-30, MU-2B-35, MU-2B-26	JP 25	
Mooney Aircraft Corp.	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20S	USA 2A3	
	M20M, M20R	EASA.IM.A.266	
	M22	USA A6SW	
Moravan	Z-143L	EASA.A.028	
	Z-242-L	EASA.A.027	
	526L	EASA.A.353	
Pacific Aerospace Limited	750XL	EASA.IM.A.081	
(Piaggio) Industrie Aeronautiche e Meccaniche	P.166, P166B, P.166C, P.166 DL3	EASA.A.384	
Piaggio Aero Industries S.p.A.	P.180 Series Avanti, Avanti II	EASA.A.059	
Pilatus Aircraft Limited	PC-12, PC-12/45, PC-12/47	EASA.A.089	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PC-6, PC-6-H1, PC-6-H2, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/B2-H4, PC-6/C-H2, PC-6/C1-H2	Switzerland F 56-10	
Piper Aircraft	PA-28-140, PA-28-160, PA-28-150, PA-28-151, PA-28-161, PA-28-180, PA-28S-160, PA-28S-180, PA-28-235, PA-28R-180, PA-28R-200, PA-28-181, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28-201T, PA-28-236, PA-28RT-201T	USA 2A13	
	PA-32R-301T, PA-32-301FT, PA-32-301XTC, PA-32R-301	EASA.IM.A.239	
	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301 (SP), PA-32-301,PA-32-301T	USA A3SO	
	PA-32R-301 (HP)	EASA.IM.A.239	
	PA-23-235, PA-E23-250, PA-23-	USA 1A10	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
	250		
	PA-30, PA-39, PA-40	USA A1EA	
	PA-31, PA-31-300, PA-31-325, PA-31-350	USA A20SO	
	PA-31P, PA-31T, PA-31T1, PA-31T2, PA-31T3, PA-31P-350	USA A8EA	PA-31P requires previously installed GPS antenna(s) to utilize this STC for installation approval.
	PA-24, PA-24-250, PA-24-260, PA-24-400	USA 1A15	
	PA-34-200, PA-34-200T, PA-34-220T	USA A7SO	
	PA-34-220T	EASA.IM.A.090	
	PA-42, PA-42-720, PA-42-1000	USA A23SO	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PA-42-720R	USA A32SO	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PA-44-180, PA-44-180T	EASA.IM.A.232	
	PA-38-112	USA A18SO	
	PA-46-310P, PA-46-350P, PA-46R-350T, PA-46-500TP	EASA.IM.A.077	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
PZL-MIELEC	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA Wilga 2000	EASA.A.061	
	PZL-KOLIBER 150A, PZL-KOLIBER 160A	EASA.A.091	
	PZL M26 03	EASA.A.057	
Reims Aviation S.A. (ASI)	F406	EASA.A.109	
REVO, Inc.	LA-4A, LA-4P, Lake LA-4-200, Lake 250	USA 1A13	
SOCATA	Rallye 100S, Rallye 100ST, Rallye 150T, MS880B, MS885	EASA.A.377	
	Rallye 235E, Rallye 235C, MS894A, MS893A, MS892A-150, MS892E-150, MS893E, MS894E	EASA.A.379	
	TB9, TB10, TB20, TB21, TB200	EASA.A.378	
	TBM 700 (TBM850)	EASA.A.010	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	GA-7 (Cougar)	France 190	
Short Brothers & Harland LTD	SC-7 Series 2, SC-7 Series 3	A15EU	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
Slingsby Aviation Ltd.	T67M260, T67M260-T3A	EASA.A.390	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
SST Flugtechnik	EA-400	EASA.A.011	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Symphony Aircraft Industries	OMF-100-160	EASA.IM.A.031	
Textron Aviation Inc	140A	USA 5A2	
	120, 140	USA A768	
	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, A150K, A150L, A150M, 152, A152	USA A319	
	170, 170A, 170B	USA A799	
	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S,	USA 3A12	
	172RG, P172D, R172E, R172F, R172G, R172H, R172J, R172K	3A17	
	172R, 172S	EASA.IM.A.051	
	175, 175A, 175B, 175C	3A17	
	177, 177A, 177B	USA A13CE	
	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	USA 5A6	
	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, R182, T182, TR182	USA 3A13	
	182S, 182T, T182T	EASA.IM.A.052	
	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	USA 3A24	
	190, 195, 195A, 195B	USA A-790	
	206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D,	USA A4CE	

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
	TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G		
	206H, T206H	EASA.IM.A.053	
	207, 207A, T207, T207A	USA A16CE	
	208, (208A), 208B	EASA.IM.A.226	
	210, 210A, 210B, 210C, 210D, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, 210N, 210R, 210-5 (205), 210-5A (205A), P210N, P210R, T210F, T210G, T210H, T210J, T210K, T210L, T210M, T210N, T210R	USA 3A21	P210N, P210R require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	T303	A34CE	
	310, 310A, 310B, 310C, 310D, 310E, 310F, 310G, 310H, 310I, 310J, 310J-1, 310K, 310L, 310N, 310P, E310H, E310J, T310P, 310Q, T310Q, 310R, T310R	USA 3A10	
	320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F 340, 340A, 335	USA 3A25	340, 340A, 335, 340A require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	336	USA A2CE	
	337, 337A, 337B, 337C, 337D, 337E, 337F, 337G, 337H, M337B, P337H, T337B, T337C, T337D, T337E, T337F, T337G, T337H, T337H-SP	USA A6CE	T337H, T337H-SP require previously installed GPS antenna(s) to utilize this STC for installation approval.
	401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	USA A7CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	404	USA A25CE	
	LC40-550FG	USA A00003SE	
	LC41-550FG, LC42-550FG	EASA.IM.A.516	
	441	USA A28CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	501, 551	USA A27CE	The aircraft's equipment list must be updated for single pilot operation Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	525, 525A	EASA.IM.A.078	The aircraft's equipment list must be

Aircraft Make	Aircraft Model(s)	Type Certificate Number	Model Specific Information
			updated for single pilot operation. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
True Flight Holdings (American General)	AA-1, AA-1A, AA-1B	USA A11EA	
	AA-5, AA-5A, AA-5B, AG-5B	USA A16EA	
Twin Commander	500, 500-A, 500-B, 500-U, 500-S, 520, 560, 560-A, 560-E	USA 6A1	
	560-F, 680, 680E, 680F, 680FL, 680FL(P), 680T,	USA 2A4	690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 720 require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	680V, 680W, 681, 685, 690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 720		
	700	USA A12SW	
Vulcanair S.p.A. (Partenavia Costruzioni Aeronauticas S.p.A.)	P68, P68B, P68C, P68C-TC, P68 "Observer 2", P68 TC "Observer", AP68TP 300 "Spartacus", AP68TP 600 "Viator"	EASA.A.385	
WACO	YMF F5, F5C	EASA.IM.A.055	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Zenair	CH2000	CA A-185	
Zlin Aircraft	ZLIN Z-242-L	EASA.A.027	
	Z-143L	EASA.A.028	
	Zlin 526L	EASA.A.353	

For the European Aviation Safety Agency,

Date of Issue: 04 August 2017

Dominique ROLAND
Head of General Aviation and
Remotely Piloted Aircraft Systems (RPAS)

Department of Transport

Transport Canada / Transports Canada

Supplemental Type Certificate

This approval is issued to:

Avidyne Corporation
55 Old Bedford Road
Lincoln, Massachusetts
United States of America 01773

Number: SA14-78
Issue No.: 3
Approval Date: November 26, 2014
Issue Date: June 23, 2016

Responsible Office: Ontario

Aircraft/Engine Type or Model: See Continuation Sheet

Canadian Type Certificate or Equivalent: See Continuation Sheet

Description of Type Design Change: Installation of a Single or Dual Configuration Avidyne Corporation Integrated Flight Display in accordance with FAA STC SA00343BO

Installation/Operating Data, Required Equipment and Limitations:

Installation of a single configuration or a of dual configuration Avidyne Corporation Integrated Flight Display, Model IFD540 and/or Model IFD440 loaded with Release 10.1 software (or later FAA approved release), in accordance with Avidyne Corporation Master Document List (MDL), Document Number AVIFD-306, Revision 04, dated May 27, 2015, or later FAA approved revision.

Aircraft specific installation requirements are specified in Avidyne Corporation Approved Model List, Dcoument Number AVFID-318, Revision 01, dated March 20, 2015, or later FAA approved revision.

Operation must be in accordance with the Avidyne Corporation Aircraft Flight Manual Supplement (AFMS) Document Number 600-00298-000, Revision 02, FAA approved on June 18, 2015, or later FAA approved revision.

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

Thomas Gretton
For Minister of Transport

Canada

UP793797

Maintenance must be in accordance with Instructions for Continued Airworthiness (ICA), Document Number AVIFD-315, Revision 06, dated March 04, 2015, or later FAA accepted revision.

Model IFD440 loaded with Release 10.1 software is defined as:

Article Part Number		Article Description
700-00179-( ) with		IFD440 Integrated Flight Display
Software Part Number	Software Description	
530-00236-( )	ACR Software	
530-00226-( )	FPSM Software	
530-00239-( )	LIO Application Processor	
530-00238-( )	LIO I/O Processor	
530-00229-( )	GPS Software	
530-00231-( )	VHF Software	

Model IFD540 loaded with Release 10.1 software is defined as:

Article Part Number		Article Description
700-00182-( ) with		IFD540 Integrated Flight Display
Software Part Number	Software Description	
530-00236-( )	ACR Software	
530-00226-( )	FPSM Software	
530-00239-( )	LIO Application Processor	
530-00238-( )	LIO I/O Processor	
530-00229-( )	GPS Software	
530-00231-( )	VHF Software	

Model IFD 440 and/or IFD540 can interface only with proven compatible avionics systems as identified by vendor name and model number in Avidyne Corporation Installation Manual Section 2.3, Document Number 600-00299-000, Revision 04, dated April 09,2015, or later FAA approved revision.

Certification Basis:
Based on 14 CFR § 21.115 and § 21.101, and the FAA policy for design changes that are identified as not significant in FAA Order 8110.48, the certification basis for the Make Model aircraft is as follows:

a. The type certification basis for parts not changed or not affected by the change is shown on the applicable TCDS.

b. The modification certification basis for parts changed or affected by the change since the reference application date, February 14, 2013, is based upon part 23 as amended by Amendment 23-62 as follows:

   Regulations at the latest amendment 23-0 through 23-62
   23.301(a), 23.303, 23.305, 23.307(a), 23.337, 23.473(d)(g), 23.561(a)(b)(3)(e), 23.601, 23.603, 23.605, 23.607(b), 23.609, 23.611, 23.613, 23.627, 23.771(a), 23.773(a)(2), 23.777(a)(b), 23.853(a), 23.867(b), 23.1301, 23.1306(b), 23.1307, 23.1308(b), 23.1309, 23.1311(a)(1)(2)(3)(4)(6)(7), 23.1321(a)(c)(e), 23.1322, 23.1329(h), 23.1331(a)(b)(1), 23.1351(a), 23.1353(h), 2301357(a)(b)(c)(d), 23.1359(c), 23.1365(a)(b)(d)(e), 23.1367, 23.1381, 23.1431(a)(b)(d)(e), 23.1501, 23.1523, 23.1525, 23.1529, 23.1541(a)(2)(b), 23.1555(a)(b), 23.1559(c)(d), 23.1581(a)(b)(c)(f), 23.1583(h)(m), 23.1585(j)

Canada

FLEET ELIGIBILITY LIST

MAKE	MODEL (CDN./U.S. TC#)
Aeronautica Macchi	AL 60-C5(A-89)
Aeronautica Macchi	AL 60-F5(A-89)
Aerostar	360(A11WE)
Aerostar	400(A11WE)
Aviat Aircraft Inc.	A-1(A-165)
Aviat Aircraft Inc.	A-1A(A-165)
Aviat Aircraft Inc.	A-1B(A-165)
Aviat Aircraft Inc.	A-1C-180(A-165)
Aviat Aircraft Inc.	A-1C-200(A-165)
Aviat Aircraft Inc.	S-2C(A-252)
Aviatech	OMF-100-160(A-229)
Beechcraft Corporation	200(A24CE)
Beechcraft Corporation	200C(A24CE)
Beechcraft Corporation	200CT(A24CE)
Beechcraft Corporation	200T(A24CE)
Beechcraft Corporation	35-33(3A15)
Beechcraft Corporation	35-A33(3A15)
Beechcraft Corporation	35-B33(3A15)
Beechcraft Corporation	35-C33(3A15)
Beechcraft Corporation	35-C33A(3A15)
Beechcraft Corporation	36(3A15)
Beechcraft Corporation	A200(A24CE)
Beechcraft Corporation	A200C(A24CE)
Beechcraft Corporation	A200CT(A24CE)
Beechcraft Corporation	A36(3A15)
Beechcraft Corporation	A36TC(3A15)
Beechcraft Corporation	B200(A24CE)
Beechcraft Corporation	B200C(A24CE)
Beechcraft Corporation	B200CT(A24CE)

Beechcraft Corporation	B200T(A24CE)
Beechcraft Corporation	B36TC(3A15)
Beechcraft Corporation	E33(3A15)
Beechcraft Corporation	E33A(3A15)
Beechcraft Corporation	E33C(3A15)
Beechcraft Corporation	F33(3A15)
Beechcraft Corporation	F33A(3A15)
Beechcraft Corporation	F33C(3A15)
Beechcraft Corporation	G33(3A15)
Beechcraft Corporation	H35(3A15)
Beechcraft Corporation	J35(3A15)
Beechcraft Corporation	K35(3A15)
Beechcraft Corporation	M35(3A15)
Beechcraft Corporation	N35(3A15)
Beechcraft Corporation	P35(3A15)
Beechcraft Corporation	S35(3A15)
Beechcraft Corporation	V35(3A15)
Beechcraft Corporation	V35A(3A15)
Beechcraft Corporation	V35B(3A15)
Bellanca	14-13(A-773)
Bellanca	14-13(A773)
Bellanca	14-13-2(A-773)
Bellanca	14-13-2(A773)
Bellanca	14-13-3(A-773)
Bellanca	14-13-3(A773)
Bellanca	14-19(1A3)
Bellanca	14-19-2(1A3)
Bellanca	14-19-3(1A3)
Bellanca	14-19-3A(1A3)
Bellanca	17-30(1A3)
Bellanca	17-30A(A18CE)

Bellanca	17-31(1A3)
Bellanca	17-31A(A18CE)
Bellanca	17-31ATC(A18CE)
Bellanca	17-31TC(1A3)
Britten Norman	BN-2(A-92)
Britten Norman	BN-2A(A-92)
Britten Norman	BN-2A-2(A-92)
Britten Norman	BN-2A-20(A-92)
Britten Norman	BN-2A-21(A-92)
Britten Norman	BN-2A-26(A-92)
Britten Norman	BN-2A-27(A-92)
Britten Norman	BN-2A-3(A-92)
Britten Norman	BN-2A-6(A-92)
Britten Norman	BN-2A-8(A-92)
Britten Norman	BN-2A-9(A-92)
Britten Norman	BN-2B-20(A-92)
Britten Norman	BN-2B-21(A-92)
Britten Norman	BN-2B-26(A-92)
Britten Norman	BN-2B-27(A-92)
Bushmaster	2000(A19WE)
CPAC, Inc.	112(A12SO)
CPAC, Inc.	112B(A12SO)
CPAC, Inc.	112TC(A12SO)
CPAC, Inc.	112TCA(A12SO)
CPAC, Inc.	114(A12SO)
CPAC, Inc.	114A(A12SO)
CPAC, Inc.	114B(A-237)
CPAC, Inc.	114TC(A-237)
Cessna	120(A-768)
Cessna	120(A768)
Cessna	140(A-768)

Cessna	140(A768)
Cessna	140A(5A2)
Cessna	150(3A19)
Cessna	150A(3A19)
Cessna	150B(3A19)
Cessna	150C(3A19)
Cessna	150D(3A19)
Cessna	150E(3A19)
Cessna	150F(3A19)
Cessna	150G(3A19)
Cessna	150H(3A19)
Cessna	150J(3A19)
Cessna	150K(3A19)
Cessna	150L(3A19)
Cessna	150M(3A19)
Cessna	152(3A19)
Cessna	170(A-799)
Cessna	170(A799)
Cessna	170A(A-799)
Cessna	170A(A799)
Cessna	170B(A-799)
Cessna	170B(A799)
Cessna	172(3A12)
Cessna	172A(3A12)
Cessna	172B(3A12)
Cessna	172C(3A12)
Cessna	172D(3A12)
Cessna	172E(3A12)
Cessna	172F(3A12)
Cessna	172G(3A12)
Cessna	172H(3A12)

Cessna	172I(3A12)
Cessna	172K(3A12)
Cessna	172L(3A12)
Cessna	172M(3A12)
Cessna	172N(3A12)
Cessna	172P(3A12)
Cessna	172Q(3A12)
Cessna	172R(3A12)
Cessna	172R(A-199)
Cessna	172RG(3A17)
Cessna	172S(3A12)
Cessna	172S(A-199)
Cessna	175(3A17)
Cessna	175A(3A17)
Cessna	175B(3A17)
Cessna	175C(3A17)
Cessna	177(A13CE)
Cessna	177A(A13CE)
Cessna	177B(A13CE)
Cessna	177RG(A20CE)
Cessna	180(5A6)
Cessna	180A(5A6)
Cessna	180B(5A6)
Cessna	180C(5A6)
Cessna	180D(5A6)
Cessna	180E(5A6)
Cessna	180F(5A6)
Cessna	180G(5A6)
Cessna	180H(5A6)
Cessna	180J(5A6)
Cessna	180K(5A6)

Cessna	182(3A13)
Cessna	182A(3A13)
Cessna	182B(3A13)
Cessna	182C(3A13)
Cessna	182D(3A13)
Cessna	182E(3A13)
Cessna	182F(3A13)
Cessna	182G(3A13)
Cessna	182H(3A13)
Cessna	182J(3A13)
Cessna	182K(3A13)
Cessna	182L(3A13)
Cessna	182M(3A13)
Cessna	182N(3A13)
Cessna	182P(3A13)
Cessna	182Q(3A13)
Cessna	182R(3A13)
Cessna	182S(A-204)
Cessna	182T(A-204)
Cessna	185(3A24)
Cessna	185A(3A24)
Cessna	185B(3A24)
Cessna	185C(3A24)
Cessna	185D(3A24)
Cessna	185E(3A24)
Cessna	190(A-790)
Cessna	190(A790)
Cessna	195(A-790)
Cessna	195(A790)
Cessna	195A(A-790)
Cessna	195A(A790)

Cessna	195B(A-790)
Cessna	195B(A790)
Cessna	206(A4CE)
Cessna	206H(A-212)
Cessna	207(A16CE)
Cessna	207A(A16CE)
Cessna	208(A37CE)
Cessna	208B(A37CE)
Cessna	210(3A21)
Cessna	210-5(3A21)
Cessna	210-5A(3A21)
Cessna	210A(3A21)
Cessna	210B(3A21)
Cessna	210C(3A21)
Cessna	210D(3A21)
Cessna	210E(3A21)
Cessna	210F(3A21)
Cessna	210G(3A21)
Cessna	210H(3A21)
Cessna	210J(3A21)
Cessna	210K(3A21)
Cessna	210L(3A21)
Cessna	210M(3A21)
Cessna	210N(3A21)
Cessna	210R(3A21)
Cessna	310(3A10)
Cessna	310A(3A10)
Cessna	310B(3A10)
Cessna	310C(3A10)
Cessna	310D(3A10)
Cessna	310E(3A10)

Cessna	310F(3A10)
Cessna	310G(3A10)
Cessna	310H(3A10)
Cessna	310I(3A10)
Cessna	310J(3A10)
Cessna	310J-1(3A10)
Cessna	310K(3A10)
Cessna	310L(3A10)
Cessna	310N(3A10)
Cessna	310P(3A10)
Cessna	310Q(3A10)
Cessna	310R(3A10)
Cessna	320(3A25)
Cessna	320-1(3A25)
Cessna	320A(3A25)
Cessna	320B(3A25)
Cessna	320C(3A25)
Cessna	320D(3A25)
Cessna	320E(3A25)
Cessna	320F(3A25)
Cessna	335(3A25)
Cessna	336(A2CE)
Cessna	337(A6CE)
Cessna	337A(A6CE)
Cessna	337B(A6CE)
Cessna	337C(A6CE)
Cessna	337D(A6CE)
Cessna	337E(A6CE)
Cessna	337F(A6CE)
Cessna	337G(A6CE)
Cessna	337H(A6CE)

Cessna	340(3A25)
Cessna	340A(3A25)
Cessna	401(A7CE)
Cessna	401A(A7CE)
Cessna	401B(A7CE)
Cessna	402(A7CE)
Cessna	402A(A7CE)
Cessna	402B(A7CE)
Cessna	402C(A7CE)
Cessna	404(A25CE)
Cessna	406(A25CE)
Cessna	411(A7CE)
Cessna	411A(A7CE)
Cessna	414(A7CE)
Cessna	414A(A7CE)
Cessna	421(A7CE)
Cessna	421A(A7CE)
Cessna	421B(A7CE)
Cessna	421C(A7CE)
Cessna	425(A7CE)
Cessna	441(A28CE)
Cessna	501(A27CE)
Cessna	525(A-190)
Cessna	525A(A-190)
Cessna	551(A27CE)
Cessna	A150K(3A19)
Cessna	A150L(3A19)
Cessna	A150M(3A19)
Cessna	A152(3A19)
Cessna	A185E(3A24)
Cessna	A185F(3A24)

Cessna	E310H(3A10)
Cessna	E310J(3A10)
Cessna	F 337G(A-206)
Cessna	F150F(A-230)
Cessna	F150G(A-230)
Cessna	F150H(A-230)
Cessna	F150J(A-230)
Cessna	F150K(A-230)
Cessna	F150L(A-230)
Cessna	F150M(A-230)
Cessna	F152(A-230)
Cessna	F182P(A-218)
Cessna	F182Q(A-218)
Cessna	FA150K(A-230)
Cessna	FA150L(A-230)
Cessna	FA150M(A-230)
Cessna	FA152(A-230)
Cessna	FR182(A-218)
Cessna	FRA150L(A-230)
Cessna	FRA150M(A-230)
Cessna	FT337GP(A-206)
Cessna	LC40-550FG(A-225)
Cessna	LC41-550FG(A-225)
Cessna	LC42-550FG(A-225)
Cessna	M337B(A6CE)
Cessna	P172D(3A17)
Cessna	P206(A4CE)
Cessna	P206A(A4CE)
Cessna	P206B(A4CE)
Cessna	P206C(A4CE)
Cessna	P206D(A4CE)

Cessna	P206E(A4CE)
Cessna	P210N(3A21)
Cessna	P210R(3A21)
Cessna	P337H(A6CE)
Cessna	R172E(3A17)
Cessna	R172F(3A17)
Cessna	R172G(3A17)
Cessna	R172H(3A17)
Cessna	R172J(3A17)
Cessna	R172K(3A17)
Cessna	R182(3A13)
Cessna	T182(3A13)
Cessna	T182T(A-204)
Cessna	T206H(A-212)
Cessna	T207(A16CE)
Cessna	T207A(A16CE)
Cessna	T210F(3A21)
Cessna	T210G(3A21)
Cessna	T210H(3A21)
Cessna	T210J(3A21)
Cessna	T210K(3A21)
Cessna	T210L(3A21)
Cessna	T210M(3A21)
Cessna	T210N(3A21)
Cessna	T210R(3A21)
Cessna	T303(A34CE)
Cessna	T310P(3A10)
Cessna	T310Q(3A10)
Cessna	T310R(3A10)
Cessna	T337B(A6CE)
Cessna	T337C(A6CE)

Cessna	T337D(A6CE)
Cessna	T337E(A6CE)
Cessna	T337F(A6CE)
Cessna	T337G(A6CE)
Cessna	T337H(A6CE)
Cessna	T337H-SP(A6CE)
Cessna	T50(A-722)
Cessna	T50(A722)
Cessna	TP206A(A4CE)
Cessna	TP206B(A4CE)
Cessna	TP206C(A4CE)
Cessna	TP206D(A4CE)
Cessna	TP206E(A4CE)
Cessna	TR182(3A13)
Cessna	TU206A(A4CE)
Cessna	TU206B(A4CE)
Cessna	TU206C(A4CE)
Cessna	TU206D(A4CE)
Cessna	TU206E(A4CE)
Cessna	TU206F(A4CE)
Cessna	TU206G(A4CE)
Cessna	U206(A4CE)
Cessna	U206A(A4CE)
Cessna	U206B(A4CE)
Cessna	U206C(A4CE)
Cessna	U206D(A4CE)
Cessna	U206E(A4CE)
Cessna	U206F(A4CE)
Cessna	U206G(A4CE)
Cirrus Design	SR20(A-216)
Cirrus Design	SR22(A-216)

Cub Crafters	CC18-180(A-253)
Diamond	DA 40(A-224)
Diamond	DA20-A1(A-191)
Diamond	DA20-C1(A-191)
Dornier	Do28D(A-90)
Dynac Aerospace	100(1A21)
Dynac Aerospace	100-180(1A21)
Dynac Aerospace	100A(1A21)
EADS PZL	PZL-104 Wilga 80(A-133)
EADS PZL	PZL-104M Wilga 2000(A-133)
Embraer	EMB-110P1(A-135)
Embraer	EMB-110P2(A-135)
Extra	EA 300(A-192)
Extra	EA 300/200(A-192)
Extra	EA 300/L(A-192)
Extra	EA 300/S(A-192)
Found Bros	FBA CENTENNIAL 100(A-88)
Found	FBA-2C(A-67)
Found	FBA-2C1(A-67)
Found	FBA-2C2(A-67)
GA8 Airvan	GA8(A-235)
Grob	G 115(A-203)
Grob	G 115A(A-203)
Grob	G 115B(A-203)
Grob	G 115C(A-203)
Grob	G 115C2(A-203)
Grob	G 115D(A-203)
Grob	G 115D2(A-203)
Grumman	G-21(654)
Grumman	G-21(654AIR)
Grumman	G-21A(654)

Grumman	G-21A(654AIR)
Gulfstream Aerospace	G-44(A-734)
Gulfstream Aerospace	G-44(A734)
Gulfstream Aerospace	G-44A(A-734)
Gulfstream Aerospace	G-44A(A734)
Gulfstream Aerospace	SCAN TYPE 30(A-734)
Gulfstream Aerospace	SCAN TYPE 30(A734)
Helio	15 A(3A3)
Helio	20(3A3)
Helio	500(A2EA)
Helio	H-250(1A8)
Helio	H-295(1A8)
Helio	H-391(1A8)
Helio	H-391B(1A8)
Helio	H-395(1A8)
Helio	H-395A(1A8)
Helio	H-700(1A8)
Helio	H-800(1A8)
Helio	HST-550(A4EA)
Helio	HST-550A(A4EA)
Helio	HT-295(1A8)
Howard	DGA-15P(A-717)
Howard	DGA-15P(A717)
Interceptor	200(3A18)
Interceptor	200A(3A18)
Interceptor	200B(3A18)
Interceptor	200C(3A18)
Interceptor	200D(3A18)
Interceptor	400(3A18)
King's Engineering	4500-300 SERIES II(A17CE)
King's Engineering	4500-300(A17CE)

Learjet	23(A5CE)
Lockheed Martin	12A(616)
Lockheed Martin	12A(616AIR)
Lockheed Martin	18(A723)
Lockheed Martin	402-2(2A11)
M7 Aerospace	SA226-AT(A5SW)
M7 Aerospace	SA226-T(A5SW)
M7 Aerospace	SA226-T(B)(A-158)
M7 Aerospace	SA226-TC(A8SW)
M7 Aerospace	SA227-AC (Metro III)(A-158)
M7 Aerospace	SA227-AT (Merlin IVC)(A-158)
M7 Aerospace	SA227-TT(A5SW)
M7 Aerospace	SA26-AT(A5SW)
M7 Aerospace	SA26-T(A5SW)
Maule	M-4(3A23)
Maule	M-4-180C(3A23)
Maule	M-4-180S(3A23)
Maule	M-4-180T(3A23)
Maule	M-4-210(3A23)
Maule	M-4-210C(3A23)
Maule	M-4-210S(3A23)
Maule	M-4-210T(3A23)
Maule	M-4-220(3A23)
Maule	M-4-220C(3A23)
Maule	M-4-220S(3A23)
Maule	M-4-220T(3A23)
Maule	M-4C(3A23)
Maule	M-4S(3A23)
Maule	M-4T(3A23)
Maule	M-5-180C(3A23)
Maule	M-5-200(3A23)

Maule	M-5-210C(3A23)
Maule	M-5-210TC(3A23)
Maule	M-5-220C(3A23)
Maule	M-5-235C(3A23)
Maule	M-6-180(3A23)
Maule	M-6-235(3A23)
Maule	M-7-235(3A23)
Maule	M-7-235A(A-200)
Maule	M-7-235B(A-200)
Maule	M-7-235C(A-200)
Maule	M-7-260(A-200)
Maule	M-7-260C(A-200)
Maule	M-8-235(A-200)
Maule	MT-7-235(A-200)
Maule	MT-7-260(A-200)
Maule	MX-7-160C(A-200)
Maule	MX-7-180(3A23)
Maule	MX-7-180A(A-200)
Maule	MX-7-180AC(A-200)
Maule	MX-7-180B(A-200)
Maule	MX-7-180C(A-200)
Maule	MX-7-235(3A23)
Maule	MXT-7-160(A-200)
Maule	MXT-7-180(A-200)
Maule	MXT-7-180A(A-200)
Mitsubishi	MU-2B(A-96)
Mitsubishi	MU-2B-10(A-96)
Mitsubishi	MU-2B-15(A-96)
Mitsubishi	MU-2B-20(A-96)
Mitsubishi	MU-2B-25 *(A-156)
Mitsubishi	MU-2B-25(A-96)

Mitsubishi	MU-2B-26 *(A-156)
Mitsubishi	MU-2B-26(A-96)
Mitsubishi	MU-2B-26A(A-156)
Mitsubishi	MU-2B-30(A-96)
Mitsubishi	MU-2B-35 *(A-156)
Mitsubishi	MU-2B-35(A-96)
Mitsubishi	MU-2B-36 *(A-156)
Mitsubishi	MU-2B-36(A-96)
Mitsubishi	MU-2B-36A(A-156)
Mitsubishi	MU-2B-40(A-156)
Mitsubishi	MU-2B-60(A-156)
Mooney Aircraft Corp.	M20(2A3)
Mooney Aircraft Corp.	M20A(2A3)
Mooney Aircraft Corp.	M20B(2A3)
Mooney Aircraft Corp.	M20C(2A3)
Mooney Aircraft Corp.	M20D(2A3)
Mooney Aircraft Corp.	M20E(2A3)
Mooney Aircraft Corp.	M20F(2A3)
Mooney Aircraft Corp.	M20G(2A3)
Mooney Aircraft Corp.	M20J(2A3)
Mooney Aircraft Corp.	M20K(2A3)
Mooney Aircraft Corp.	M20L(2A3)
Mooney Aircraft Corp.	M20M(A-221)
Mooney Aircraft Corp.	M20R(A-221)
Mooney Aircraft Corp.	M20S(A-221)
Mooney Aircraft Corp.	M20TN(A-221)
Mooney Aircraft Corp.	M22(A6SW)
Pilatus	PC-12(A-201)
Pilatus	PC-12/45(A-201)
Pilatus	PC-12/47(A-201)
Pilatus	PC-6(A-78)

Pilatus	PC-6-H1(A-78)
Pilatus	PC-6-H2(A-78)
Pilatus	PC-6/350(A-78)
Pilatus	PC-6/350-H1(A-78)
Pilatus	PC-6/350-H2(A-78)
Pilatus	PC-6/A(A-78)
Pilatus	PC-6/A-H1(A-78)
Pilatus	PC-6/A-H2(A-78)
Pilatus	PC-6/B-H2(A-78)
Pilatus	PC-6/B1-H2(A-78)
Pilatus	PC-6/B2-H2(A-78)
Piper	PA-12(A-780)
Piper	PA-12(A780)
Piper	PA-12S(A-780)
Piper	PA-12S(A780)
Piper	PA-18(1A2)
Piper	PA-18-105 (SPECIAL)(1A2)
Piper	PA-18-125(1A2)
Piper	PA-18-135(1A2)
Piper	PA-18-150(1A2)
Piper	PA-18A(1A2)
Piper	PA-18A-135(1A2)
Piper	PA-18A-150(1A2)
Piper	PA-18AS-125(1A2)
Piper	PA-18AS-135(1A2)
Piper	PA-18AS-150(1A2)
Piper	PA-18S(1A2)
Piper	PA-18S-105 (SPECIAL)(1A2)
Piper	PA-18S-125(1A2)
Piper	PA-18S-135(1A2)
Piper	PA-18S-150(1A2)

Piper	PA-19(1A2)
Piper	PA-19S(1A2)
Piper	PA-20(1A4)
Piper	PA-20-115(1A4)
Piper	PA-20-135(1A4)
Piper	PA-20S(1A4)
Piper	PA-20S-115(1A4)
Piper	PA-20S-135(1A4)
Piper	PA-22(1A6)
Piper	PA-22-108(1A6)
Piper	PA-22-135(1A6)
Piper	PA-22-150(1A6)
Piper	PA-22-160(1A6)
Piper	PA-22S-135(1A6)
Piper	PA-22S-150(1A6)
Piper	PA-22S-160(1A6)
Piper	PA-23(1A10)
Piper	PA-23-160(1A10)
Piper	PA-23-235(1A10)
Piper	PA-23-250(1A10)
Piper	PA-24(1A15)
Piper	PA-24-250(1A15)
Piper	PA-24-260(1A15)
Piper	PA-24-400(1A15)
Piper	PA-28-140(2A13)
Piper	PA-28-150(2A13)
Piper	PA-28-151(2A13)
Piper	PA-28-160(2A13)
Piper	PA-28-161(2A13)
Piper	PA-28-180(2A13)
Piper	PA-28-181(2A13)

Piper	PA-28-201T(2A13)
Piper	PA-28-235(2A13)
Piper	PA-28-236(2A13)
Piper	PA-28R-180(2A13)
Piper	PA-28R-200(2A13)
Piper	PA-28R-201(2A13)
Piper	PA-28R-201T(2A13)
Piper	PA-28RT-201(2A13)
Piper	PA-28RT-201T(2A13)
Piper	PA-28S-160(2A13)
Piper	PA-28S-180(2A13)
Piper	PA-30(A1EA)
Piper	PA-31(A20SO)
Piper	PA-31-300(A20SO)
Piper	PA-31-325(A20SO)
Piper	PA-31-350(A20SO)
Piper	PA-31P(A8EA)
Piper	PA-31P-350(A8EA)
Piper	PA-31T(A8EA)
Piper	PA-31T1(A8EA)
Piper	PA-31T2(A8EA)
Piper	PA-31T3(A8EA)
Piper	PA-32-260(A3SO)
Piper	PA-32-300(A3SO)
Piper	PA-32-301(A3SO)
Piper	PA-32-301FT(A-211)
Piper	PA-32-301FT(A3SO)
Piper	PA-32-301T(A3SO)
Piper	PA-32-301XTC(A-211)
Piper	PA-32-301XTC(A3SO)
Piper	PA-32R-300(A3SO)

Piper	PA-32R-301 (SP)(A3SO)
Piper	PA-32R-301T(A-211)
Piper	PA-32R-301T(A3SO)
Piper	PA-32RT-300(A3SO)
Piper	PA-32RT-300T(A3SO)
Piper	PA-32S-300(A3SO)
Piper	PA-34-200(A7SO)
Piper	PA-34-200T(A7SO)
Piper	PA-34-220T(A7SO)
Piper	PA-38-112(A18SO)
Piper	PA-39(A1EA)
Piper	PA-40(A1EA)
Piper	PA-42(A23SO)
Piper	PA-42-1000(A-168)
Piper	PA-42-720 R(A32SO)
Piper	PA-42-720(A23SO)
Piper	PA-44-180(A19SO)
Piper	PA-44-180T(A19SO)
Piper	PA-46-310P(A25SO)
Piper	PA-46-350P(A25SO)
Piper	PA-46-500TP(A-222)
Piper	PA-46R-350T(A-222)
Piper	PA-E23-250(1A10)
Reims	F 406(A-208)
Revo	250(1A13)
Revo	C-1(1A13)
Revo	C-2(1A13)
Revo	LA-4 P(1A13)
Revo	LA-4(1A13)
Revo	LA-4-200(1A13)
Revo	LA-4A(1A13)

Short Brothers & Harland	SC7(A-94)
Socata	GA7(A-231)
Socata	TB 10(A-153)
Socata	TB 20(A-153)
Socata	TB 200(A-153)
Socata	TB 21(A-153)
Socata	TB 9(A-153)
Socata	TBM700(A-176)
Stol	UC-1(A6EA)
True Flight	AA-1(A11EA)
True Flight	AA-1A(A11EA)
True Flight	AA-1B(A11EA)
True Flight	AA-1C(A11EA)
True Flight	AA-5(A16EA)
True Flight	AA-5A(A16EA)
True Flight	AA-5B(A16EA)
True Flight	AG-5B(A16EA)
Twin Commander	500(6A1)
Twin Commander	500-A(6A1)
Twin Commander	500-B(6A1)
Twin Commander	500-S(6A1)
Twin Commander	500-U(6A1)
Twin Commander	520(6A1)
Twin Commander	560(6A1)
Twin Commander	560-A(6A1)
Twin Commander	560-E(6A1)
Twin Commander	560-F(2A4)
Twin Commander	680(2A4)
Twin Commander	680-E(2A4)
Twin Commander	680-F(2A4)
Twin Commander	680-FL(2A4)

Twin Commander	680-FL(P)(2A4)
Twin Commander	680-T(2A4)
Twin Commander	680-V(2A4)
Twin Commander	680-W(2A4)
Twin Commander	681(2A4)
Twin Commander	685(2A4)
Twin Commander	690(2A4)
Twin Commander	690A(2A4)
Twin Commander	690B(2A4)
Twin Commander	690C(2A4)
Twin Commander	690D(2A4)
Twin Commander	695(2A4)
Twin Commander	695A(2A4)
Twin Commander	695B(2A4)
Twin Commander	720(2A4)
Viking Air Limited	DHC-2 Mk.I(A-22)
Viking Air Limited	DHC-2 Mk.II(A-22)
Viking Air Limited	DHC-2 Mk.III(A-22)
Viking Air Limited	DHC-3(A-27)
Viking Air Limited	DHC-6 SERIES 1(A-82)
Viking Air Limited	DHC-6 SERIES 100(A-82)
Viking Air Limited	DHC-6 SERIES 200(A-82)
Viking Air Limited	DHC-6 SERIES 300(A-82)
Vulcanair S.P.A.	P.68 Observer 2(A-150)
Vulcanair S.P.A.	P.68C(A-150)
Vulcanair S.P.A.	P.68C-TC(A-150)
WACO	YMF(ATC 542)
WACO	YMF(ATC542)
Zenair	CH2000(A-185)

-END-

SCT
SECRETARÍA DE COMUNICACIONES Y TRANSPORTES

Subsecretaría de Transporte
Dirección General de Aeronáutica Civil
Dirección General Adjunta de Aviación

Convalidación IA-486/2018 del Certificado de Tipo Suplementario No. SA00343BO

La Secretaría de Comunicaciones y Transportes, con base en la Carta de Política AV-01/02 R4, de fecha 24 de Enero de 2012, y al Artículo 21, Fracción XIV del Reglamento Interior de la Secretaría de Comunicaciones y Transportes, a través de la Dirección General de Aeronáutica Civil, otorga este documento a favor de:

The Secretaría de Comunicaciones y Transportes, based in the Carta de Política AV-01/02 R4, dated January 24, 2012, and the Article 21, Section XIV of the Reglamento Interior de la Secretaría de Comunicaciones y Transportes, by means of the Dirección General de Aeronáutica Civil, issues this document to:

AVIDYNE CORPORATION
4 Middlesex Green, Suite 221
561 Virginia Road
Concord, Massachusetts 01742
USA

Convalidando el Certificado de Tipo Suplementario No. SA00343BO, expedido el 24 de julio de 2014, enmendado por última vez el 06 de marzo de 2017, por la Administración Federal de Aviación (FAA).

Validating the Supplemental Type Certificate No. SA00343BO, issued on July 24, 2014, amended last time on March 06, 2017, by the Federal Aviation Administration (FAA).

Lo enunciado a continuación, reúne las especificaciones aplicables para su operación segura de acuerdo con las Normas, Procedimientos y Reglamentaciones requeridas por esta Dirección General de Aeronáutica Civil (DGAC).

The described below meets the applicable specifications for safe operation in accordance with the Standards, Procedures and Regulations required by the Dirección General de Aeronáutica Civil (DGAC).

No. control DGAC *DGAC control No.*	**IA-486/2018**
Titular / *Holder*	**Avidyne Corporation**
Modificación *Modification*	Instalación de una configuración simple o de una configuración dual de Display de Vuelo Integrado, Modelo IFD5XX y/o Modelo IFD4XX, de Avidyne Corporation, cargado con el lanzamiento del software 10.2 (o lanzamiento posterior aprobado por la FAA), de acuerdo con Lista Maestra de Documentos (MDL) de Avidyne Corporation, Documento No. AVIFD-306, revisión 11, de fecha 28 de febrero de 2017, o revisión posterior aprobada por la FAA. *Installation of a single configuration or of a dual configuration Avidyne Corporation Integrated Flight Display, Model IFD5XX and/or Model IFD4XX, loaded with Release 10.2 software (or later FAA approved release), in accordance with Avidyne Corporation Master Document List (MDL), Document Number AVIFD-306, Revision 11, dated February 28, 2017, or later FAA approved revision.*
Limitaciones y Condiciones *Limitations and Conditions*	1. La operación debe llevarse a cabo de acuerdo con el Suplemento al Manual de Vuelo de la Aeronave (AFMS), Documento No. 600-0298-000, Revisión 05, aprobado por la FAA el 06 de marzo de 2017, o revisión posterior aprobada por la FAA. El AFMS debe llevarse a bordo de la aeronave durante todos los vuelos. 2. El mantenimiento debe efectuarse de acuerdo con las Instrucciones de Aeronavegabilidad Continua (ICA), Documento No. AVIFD-315, Revisión 08, de fecha 18 de enero de 2017, o revisión posterior aceptada por la FAA. Las ICA deben estar disponibles para el operador al momento de la instalación. 3. Los software aprobados compatibles para el IFD4XX e IFD5XX están identificados en el manual de instalación indicado en la MDL aprobada. 4. El Modelo IFD4XX y/o el Modelo IFD5XX pueden interactuar solo con sistemas probados de aviónica compatibles como se identifican por nombre de vendedor y número de modelo, en la sección 2.3 del Manual de Instalación de Avidyne Corporation, Documento No. 600-00299-000, Revisión 04, de fecha 09 de abril de 2015, o revisión posterior aprobada por la FAA.

No. control DGAC *DGAC control No.*	IA-486/2018
Limitaciones y Condiciones (Cont.) *Limitations and Conditions Modification (Cont.)*	5. La compatibilidad de este diseño con modificaciones previamente aprobadas debe ser determinada por el instalador. 6. Cualquier enmienda al STC No. SA00343BO, por parte de la FAA, deberá ser notificada por la FAA a esta DGAC para efectos de actualización de la presente convalidación. *1. Operation must be in accordance with the Avidyne Corporation Aircraft Flight Manual Supplement (AFMS) Document Number 600-00298-000, Revision 05, FAA approved on March 06, 2017, or later FAA approved revision.* *The AFMS must be carried in the aircraft during all flights.* *2. Maintenance must be in accordance with Instructions for Continued Airworthiness (ICA), Document Number AVIFD-315, Revision 08, dated January 18, 2017, or later FAA accepted revision.* *The ICA must be made available to the operator at the time of installation.* *3. The compatible approved software for the IFD4XX and IFD5XX are identified in the installation manual identified on the approved MDL.* *4. Model IFD4XX and/or Model IFD5XX can interface only with proven compatible avionics systems as identified by vendor name and model number in Avidyne Corporation Installation Manual Section 2.3, Document Number 600-00299-000, Revision 04, dated April 09, 2015, or later FAA approved revision.* *5. Compatibility of this design with previously approved modifications must be determined by the installer.* *6. Any amendment to STC No. SA00343BO by the FAA, must be notified by the FAA to the DGAC for update purposes of this validation.*

SCT
SECRETARÍA DE COMUNICACIONES Y TRANSPORTES

No. control DGAC *DGAC control No.*	**IA-486/2018**
Aplicable a las aeronaves *Applicability*	Ver la Lista de Modelos Aprobados por la FAA (AML), Documento No. AVIFD-318, Revisión 03, aprobada por la FAA el 06 de marzo de 2017, o revisión posterior aprobada por la FAA, para la lista de modelos de aeronaves aprobadas, los requerimientos de información para la instalación aplicables, y las limitaciones específicas. *See the FAA Approved Model List (AML), Document No. AVIFD-318, Revision 03, FAA approved on March 06, 2017, or later FAA approved revision, for the list of approved airplane models, applicable installation data requirements, and specific limitations.*

VIGENCIA: Esta convalidación se mantendrá vigente hasta que sea cancelada, suspendida o revocada o si se establece una fecha de terminación por la Dirección General de Aeronáutica Civil (DGAC).

Validity: This validation shall remain in effect until surrendered, suspended or revoked or a termination date is otherwise established by the Dirección General de Aeronáutica Civil (DGAC).

FECHA DE EMISIÓN
Date of Issue

26 de febrero de 2018
February 26, 2018

Ing. Pablo Carranza Plata
Director General Adjunto de Aviación

ANAC
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

CERTIFICADO SUPLEMENTAR DE TIPO

(*Supplemental Type Certificate*)

NÚMERO: 2014S12-04

(Number)

Este Certificado, emitido com base na Lei n° 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de 1986,
This Certificate, issued in the basis of the Law No 7565 "Código Brasileiro de Aeronáutica", dated 19 December 1986,

é conferido ao (à): Avidyne Corporation
is granted to: 55 Old Bedford Road
Lincoln, MA 01773
USA

por ter a modificação ao projeto de tipo do produto abaixo citado, observadas as limitações e condições
for having the change to the type design of the product mentioned below, with the limitations and conditions

especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.
conditions there for as specified hereon, met the applicable airworthiness requirements.

Produto Original - Número do Certificado de Tipo: * See attached ANAC Approved Model List (AML), Rev. 02, dated 10 Apr. 2017, or later approved revision.
Original Product - Type Certificate No:

Fabricante: *
Manufacturer:

Modelo(s): *
Model (s):

DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO:

Description of Type Design Change:

Installation of a single configuration or a dual configuration Avidyne Corporation Integrated Flight Display, model IFD5XX and/or model IFD4XX, loaded with Release 10.2 software (or later approved release), in accordance with the Avidyne Corporation Master Document List, Document No. AVIFD-306, Rev. 11, dated 28 Feb. 2017, or later approved revision.

This CST validates in Brazil the STC No. SA00343BO, issued by FAA (USA).

LIMITAÇÕES E CONDIÇÕES:

Limitations and Conditions:

See continuation sheet for applicable data.

DATAS: *Dates of:*

Do requerimento: 30 July 2014 *Aplication:*

Da emissão: 15 Dec. 2014 *Issuance:*

Da reemissão: *Reissuance:*

Da emenda: 10 Apr. 2017 *Amendment:*

MÁRIO IGAWA
Gerente-Geral, Certificação de Produto Aeronáutico
(General Manager, Aeronautical Product Certification)

ROBERTO JOSÉ SILVEIRA HONORATO
Superintendente de Aeronavegabilidade
(Airworthiness Superintendent)

Nota:
(Note:)

a) Este Certificado e os dados técnicos com base nos quais ele foi emitido são válidos até que sejam cancelados,
(*This Certificate and the supporting technical data used for approval shall remain in effect until surrended,*
suspensos, revogados ou um prazo limite seja estabelecido pela Agência Nacional de Aviação Civil.
suspended, revoked or a termination date is otherwise established by the Agência Nacional de Aviação Civil.)

b) No caso de transferência de propriedade deste Certificado, o transferente deve preencher o quadro "Endosso
(*In case of transfer of the property of this Certificate, the grantor should fill the blanks of*
de Transferência", e o adquirente deve enviar este Certificado à Gerência Geral de Certificação de
"Transfer Endorsement", and the transferee must remit this Certificate to the Gerência Geral de Certificação de
Produto Aeronáutico para que seja reemitido em seu nome.
Produto Aeronáutico to permit reissuance of the Certificate in his name.)

ENDOSSO DE TRANSFERÊNCIA
(*Transfer Endorsement*)

Transfiro a propriedade deste Certificado Suplementar de Tipo para:
(*I transfer the property of this Supplemental Type Certificate to:*)

ADQUIRENTE
(*Transferee*)

Nome: .....
(*Name:*)

Rua: .....
(*Street*:)

CEP: ..... (*Zip*:)
Cidade: ..... (*City:*)
Estado:..... (*State:*)
País: ..... (*Country:*)

TRANSFERENTE
(*Grantor*)

Nome: .....
(*Name:*)

Rua: .....
(*Street*:)

CEP: ..... (*Zip*:)
Cidade: ..... (*City:*)
Estado:..... (*State:*)
País: ..... (*Country:*)

Data de Transferência: **.....**
(*Date of Transfer:*)

Assinatura do Transferente: **.....**
(*Signature of the Grantor:*)

Nome: .....
(*Name:*)

Cargo: .....
(*Function:*)

ANAC
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

Folha de Continuação ao
(*Continuation Sheet to*)

CERTIFICADO SUPLEMENTAR DE TIPO

(*Supplemental Type Certificate*)

NÚMERO: 2014S12-04

(Number)

LIMITAÇÕES E CONDIÇÕES:
Limitations and Conditions:

I. The approval of this type design change should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in Type Design, will introduce no adverse effect upon the airworthiness of that aircraft.

II. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

III. Operation must be performed in accordance with FAA approved Aircraft Flight Manual Supplement (AFMS), Document No. 600-00298-000, Rev. 05, approved on 06 Mar. 2017, or later approved revision.

IV. The maintenance of the aircraft shall be performed in accordance with the Instructions for Continued Airworthiness (ICA), Avidyne Corporation Document No. AVIFD-315, Rev. 08, dated 18 Jan. 2017 or later FAA accepted revision. The ICA must be available to the operator at the time of installation.

V. The compatible approved software for the IFD4XX and IFD5XX are identified in the installation manual identified on the approved MDL.

VI. Model IFD4XX and/or model IFD5XX can interface only with proven campatible avionics systems as identified by vendor name and model number in Avidyne Corporation Installation Manual Section 2.3, Document No. 600-00299-000, Rev. 04, dated 09 Apr. 2015, or later FAA approved revision.

VII. The Certification Basis for parts changed or affected by this change, as specified on the FAA STC No. SA00343BO is applicable.

VIII. A copy of this Certificate, the Supplement referred in item III above and the ANAC Approved Model List (AML) for CST No. 2014S12-04 shall be maintained as part of the permanent records for the modified aircraft.

IX. Amended on 23 Dec. 2014 to include the items 108 through 114 in the ANAC Approved Model List (AML) for CST No. 2014S12-04.

X. Amended on 04 Sep. 2015 to include the IFD440 model and update the documentation.

XI. Amended on 10 Apr. 2017 to include additional models of the IFD and Software Release 10.2; to update the Masted Document List (MDL), the Aircraft Flight Manual Supplement (AFMS) and the Instructions for Continued Airworthiness (ICA); and to include items 115 through 123 on the ANAC Approved Model List (AML) for CST No. 2014S12-04, and update items 7, 12, 15, 17, 21, 23, 25, 29, 30, 34, 36, 39, 43, 61, 68, 80, 82, 85 and 91 on the ANAC Approved Model List (AML) for CST No. 2014S12-04.

----------END----------

sei! assinatura eletrônica

Documento assinado eletronicamente por **MARIO IGAWA**, **Gerente-Geral de Certificação de Produtos Aeronáuticos**, em 13/04/2017, às 16:30, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do Decreto nº 8.539, de 8 de outubro de 2015.

Documento assinado eletronicamente por **ROBERTO JOSÉ SILVEIRA HONORATO**, **Superintendente de**

Aeronavegabilidade, em 13/04/2017, às 19:56, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do Decreto nº 8.539, de 8 de outubro de 2015.

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ANAC
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

ANAC LISTA DE MODELOS APROVADOS (LMA) PARA CST

(*ANAC APPROVED MODEL LIST (AML) FOR (CST)*)

NÚMERO: 2014S12-04

(Number)

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
1	Aeronautica Macchi S.p.A	AL60	7A12 (FAA)	CAR 3	-
2	Aviat Aircraft, Inc.	A-1	9801 (ANAC)	14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
3	Aviat Aircraft, Inc.	S-2A	A8SO (FAA)	14 CFR Part 23	-
4	Dynac Aerospace Corp.	Aero Commander 100	1A21 (FAA)	CAR 3	-
5	Alexandria Aircraft	14-19-3, 17-30	1A3 (FAA)	CAR 3	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
6	American Champion	8KCAB, 8GCBC	A21CE (FAA)	14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
7	American Champion	7ECA, 7EC, 7GCB, 7GCAA, 7GCBC, 7KCAB	A-759 (FAA)	14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements.
8	B-N Group LTD	BN-2A-8, BN-2A-9, BN-2A-21, BN-2A-27, BN-2B-21	BA6 (CAA/UK)	BCAR 3	-
9	Boeing	AT-6D, T-6G	A-2-575 (FAA)	CAR 4a	-
10	Textron Aviation	140A	5A2 (FAA)	CAR 3	-
11	Textron Aviation	120, 140	A-768 (FAA)	CAR 3	-
12	Textron Aviation	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, A150L, 150M, 150K, A150M, 152, A152	3A19 (FAA)	CAR 3 14 CFR Part 23	-
13	Textron Aviation	T-50	A-722 (FAA)	CAR 4a	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
14	Textron Aviation	170, 170A, 170B	A-799 (FAA)	CAR 3	-
15	Textron Aviation	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q	3A12 (FAA)	CAR 3 14 CFR Part 23	-
16	Textron Aviation	172R, 172S	9705 (ANAC)	RBHA 23 14 CFR Part 23	-

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
17	Textron Aviation	172RG, R172K, 175, 175A, 175B, 175C	3A17 (FAA)	CAR 3	-
18	Textron Aviation	177, 177A, 177B	A13CE (FAA)	14 CFR Part 23	-
19	Textron Aviation	177RG	A20CE (FAA)	14 CFR Part 23	-
20	Textron Aviation	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6 (FAA)	CAR 3	-
21	Textron Aviation	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, R182 T182, TR182	3A13 (FAA)	CAR 3 14 CFR Part 23	-
22	Textron Aviation	182S, 182T, T182T	9706 (ANAC)	RBHA 23 14 CFR Part 23	-
23	Textron Aviation	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24 (FAA)	CAR 3	-
24	Textron Aviation	190, 195	A-790 (FAA)	CAR 3	-
25	Textron Aviation	206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G	A4CE (FAA)	14 CFR Part 23	-
26	Textron Aviation	206H, T206H	1999T06 (ANAC)	RBHA 23 14 CFR Part 23	-
27	Textron Aviation	207, 207A, T207, T207A	A16CE (FAA)	14 CFR Part 23	-
28	Textron Aviation	208, 208B	8805 (ANAC)	RBHA 23 14 CFR Part 23	-
29	Textron Aviation	210, 210A, 210B, 210C, 210D, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, 210N, 210R, 210-5 (205), 210-5A (205A), 210N, P210R, T210F, T210G, T210H, T210J, 210K, T210L, T210M, T210N, T210R	3A21 (FAA)	CAR 3	-
30	Textron Aviation	310, 310A, 310B, 310C, 310D, 310F, 310G, 310H, 310I, 310J, 310K, 310L, 310N, 310P, 310Q, 310R, T310R	3A10 (FAA)	CAR 3	-
31	Textron Aviation	320A, 320C, 320E, 340, 340A	3A25 (FAA)	CAR 3	-
32	Textron Aviation	336	A2CE (FAA)	CAR 3	-
33	Textron Aviation	337A, 337C, 337D, 337G	A6CE (FAA)	CAR 3 14 CFR Part 23	-
34	Textron Aviation	401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421B, 421C	A7CE (FAA)	CAR 3	-
35	Textron Aviation	404	A25CE (FAA)	14 CFR Part 23	-
36	Textron Aviation	LC41-550FG, LC42-550FG, T240	2007T01 (ANAC)	RBAC 23 14 CFR Part 23	-
37	Textron Aviation	501, 551	A27CE (FAA)	14 CFR Part 23	The aircraft's equipmanent list must be updated for single pilot operation.

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
38	Textron Aviation	525, 525A	9304 (ANAC)	RBAC 23 14 CFR Part 23	The aircraft's equipmanent list must be updated for single pilot operation.
39	Cirrus	SR20, SR22, SR22T	2005T05 (ANAC)	RBAC 23 14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
40	CPAC Inc.	112, 114	A12SO (FAA)	CAR 3	-
41	Viking Air Limited	DHC-2 Mk I, DHC-2 Mk II, DHC-2 Mk III	A-806 (FAA)	CAR 3	-
42	Diamond Aircraft Industries	DA20-C1	2009T04 (ANAC)	RBHA 23 14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements
43	Diamond Aircraft Industries	DA 40, DA 40F, DA 40NG	2008T04 (ANAC)	RBHA 23 14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements.
44	Embraer	EMB-110P1, EMB-110P2	7202 (ANAC)	RBHA 23 14 CFR Part 23	-
45	Extra	EA300/L	2012T14 (ANAC)	RBHA 23 14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements.
46	M7 Aerospace LLC	SA227-AT	2007T07 (ANAC)	RBHA 23 CAR 3 14 CFR Part 23	-
47	M7 Aerospace LLC	SA227-AC	2007T05 (ANAC)	RBHA 23 14 CFR Part 23	-
48	M7 Aerospace LLC	SA227-CC, SA227-DC	2007T06 (ANAC)	RBHA 23 14 CFR Part 23	-
49	Maule Aerospace Tecnology, Inc.	M-4, M-4-210C, M-6-235, M-7-235, M-7-235B, MT-7-235, MX-7-180, MX-7-235, MXT-7-180	3A23 (FAA)	CAR 3	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements.
50	Maule Aerospace Tecnology, Inc.	M-7-235C, MXT-7-160, MX-7-180A, MX-7-180B, MX-7-420, MXT-7-160, MXT-7-180A, M-8-235	9310 (ANAC)	RBHA 23 CAR 3 14 CFR Part 23	Wire Harness overbraid is required for IFR Installations. Reference the Installation Manual for installation requirements.
51	Mitsubishi Heavy Industries Ltd.	MU-2B, MU-2B-10, MU-2B-20, MU-2B-15, MU-2B-30, MU-2B-35, MU-2B-25, MU-2B-26, MU-2B-36	A2PC (FAA)	CAR 3	-
52	Mitsubishi Heavy Industries Ltd.	MU-2B-25, MU-2B-35, MU-2B-26, MU-2B-36, MU-2B-26A, MU-2B-36A, MU-2B-40, MU-2B-60	A10SW (FAA)	CAR 3	-
53	Mooney Aircraft Corp.	M20A, M20B, M20C, M20E, M20F	2A3 (FAA)	CAR 3	-
54	Mooney Aircraft Corp.	M20J, M20K, M20M, M20R, M20TN	8701 (ANAC)	RBHA 23 CAR 3 14 CFR Part 23	-
55	Sierra Hotel Aero Inc.	Navion, Navion E, Navion G, Navion H	A-782 (FAA)	CAR 3	-
56	SOCATA	MS885, MS894 E	7A14 (FAA)	CAR 3	-
57	Vulcanair S.p.A.	P68C, P68 "Observer 2"	2008T10 (ANAC)	RBAC 23 14 CFR Part 23	-
58	Piaggio Aero Industries S.p.A	P-180	2010T08 (ANAC)	RBHA 23 RAI Parte 223 14 CFR Part 23	-

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
59	Pilatus Aircraft Limited	PC-12, PC-12/45, PC-12/47	9605 (ANAC)	RBHA 23 14 CFR Part 23	-
60	Pilatus Aircraft Limited	PC-6/B2-H4	2011T04 (ANAC)	CAR 3	-
61	GA8 Airvan	GA8, GA8-TC320	2014T05 (ANAC)	RBAC 23 14 CFR Part 23	-
62	FS2003 Corporation	PA-12	A-780 (FAA)	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
63	Piper Aircraft	PA-28-140, PA-28-160, PA-28-150, PA-28-151, PA-28-161, PA-28-180, PA-28-235, PA-28R-180, PA-28R-200, PA-28-181, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28-236, PA-28RT-201T	2A13 (FAA)	CAR 3	-
64	Piper Aircraft	PA-18, PA-18A, PA-18 “105” (Special), PA-18 “135”, PA-18A “135”, PA-18 “150”, PA-18A “150”	1A2 (FAA)	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
65	Piper Aircraft	PA-20 and PA-20 “135”	1A4 (FAA)	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
66	Piper Aircraft	PA-22, PA-22-108, PA-22-135, PA-22-150, PA-22-160	1A6 (FAA)	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
67	Piper Aircraft	PA-32-260, PA-32-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301(HP), PA-32R-301(SP), PA-32-301, PA-32R-301T, PA-32-301FT, PA-32-301XTC	A3SO (FAA)	CAR 3	-
68	Piper Aircraft	PA-23, PA-23-160, PA-23-235, PA-23-250	1A10 (FAA)	CAR 3	-
69	Piper Aircraft	PA-30, PA-39	A1EA (FAA)	CAR 3	-
70	Piper Aircraft	PA-31, PA-31-300, PA-31-325, PA-31-350	A20SO (FAA)	CAR 3	-
71	Piper Aircraft	PA-31P, PA-31T, PA-31T1, PA-31T2	A8EA (FAA)	CAR 3	-
72	Piper Aircraft	PA-24, PA-24-250, PA-24-260, PA-24-400	1A15 (FAA)	CAR 3	-
73	Piper Aircraft	PA-34-200, PA-34-200T, PA-34-220T	A7SO (FAA)	CAR 3	-
74	Piper Aircraft	PA-42, PA-42-720, PA-42-1000	9206 (ANAC)	RBHA 23 14 CFR Part 23	-
75	Piper Aircraft	PA-44-180	2013T06 (ANAC)	RBHA 23 14 CFR Part 23	-
76	Piper Aircraft	PA-38-112	8402 (ANAC)	RBHA 23 14 CFR Part 23	-
77	Piper Aircraft	PA-46-350P, PA-46R-350T, PA-46-500TP	9501 (ANAC)	RBHA 23 14 CFR Part 23	-
78	ASI Aviation	F406	2006T01 (ANAC)	RBHA 23 14 CFR Part 23	-
79	Beechcraft Corporation	C23, 23, A24R, A23, B24R, A23-24	A1CE (FAA)	CAR 3	-

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
80	Beechcraft Corporation	H35, J35, K35, M35, 35-33, N35, 35-A33, 35-B33, P35, S35, 35-C33, V35, V35A, V35B, 35-C33A, E33A, E33C, 36, A36, G36, F33A, F33C, G33, A36TC, B36TC	3A15 (FAA)	CAR 3	-
81	Beechcraft Corporation	35, A35, B35, C35, D35, E35, F35, G35	A-777 (FAA)	CAR 3	-
82	Beechcraft Corporation	95, B95, 95-55, 95-A55, B95A, 95-B55, 95-C55 D55, E55, 56TC, A56TC, 58, G58	3A16 (FAA)	CAR 3	-
83	Beechcraft Corporation	58P, 58TC	A23CE (FAA)	14 CFR Part 23	-
84	Beechcraft Corporation	D50, D50A, D50B, J50	5A4 (FAA)	CAR 3	-
85	Beechcraft Corporation	200, 200T, A200, B200, B200T, B200GT, B200CGT	A24CE (FAA)	14 CFR Part 23	-
86	Beechcraft Corporation	300, B300, B300C	9008 (ANAC)	RBHA 23 14 CFR Part 23	-
87	Beechcraft Corporation	99, C99, 100, A100, A100A, B100	A14CE (FAA)	14 CFR Part 23	-
88	Beechcraft Corporation	F90	A31CE (FAA)	14 CFR Part 23	-
89	Beechcraft Corporation	60, A60, B60	A12CE (FAA)	14 CFR Part 23	-
90	Beechcraft Corporation	D17S	A-649 (FAA)	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
91	Beechcraft Corporation	65, A65, 65-80, 65-A80, 65-B80, 65-88, 65-90, 65-A90, 70, B90, C90, C90A, C90GT, G90GTi, E90	3A20 (FAA)	CAR 3 14 CFR Part 23	-
92	Beechcraft Corporation	3NM, D18S, E18S, G18S, H18, C-45H, TC-45H	A-765 (FAA)	CAR 3	-
93	Beechcraft Corporation	390	2001T07 (ANAC)	RBHA 23 14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
94	Helio Aircraft	H-295, HT-295, H-391B	1A8 (FAA)	CAR 3	-
95	Howard	DGA-15P	A-717 (FAA)	CAR 4a	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
96	Lockheed Martin Aeronautics Co.	18	A-723 (FAA)	CAR 4a	-
97	REVO Inc.	Lake LA-4, Lake LA-4A, Lake LA-4-200	1A13 (FAA)	CAR 3	-
98	REVO Inc.	Lake Model 250	8704 (ANAC)	CAR 3 RBHA 23 14 CFR Part 23	-
99	SOCATA	TB 9, TB 10, TB 20, TB 21	9211 (ANAC)	RBHA 23 14 CFR Part 23	-
100	SOCATA	TBM 700 (TBM 850)	9307 (ANAC)	RBHA 23 14 CFR Part 23	-

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
101	Sky Enterprices Inc.	RC-3	A-769 (FAA)	CAR 3	-
102	Short Brothers & Harland Ltd.	SC-7 Series 3	A15EU (FAA)	14 CFR Part 23	-
103	True Flight Holdings	AA-1	A11EA (FAA)	14 CFR Part 23	-
104	True Flight Holdings	AA-5	A16EA (FAA)	14 CFR Part 23	-
105	Twin Commander	500, 500-B, 500-U, 500-S, 520, 560, 560-E	6A1 (FAA)	CAR 3	-
106	Twin Commander	560-F, 680E, 680F, 680FL, 680V, 680W, 681, 690, 690A, 690B, 690C, 690D, 695, 695A	2A4 (FAA)	CAR 3	-
107	Univair Aircraft Corporation	108, 108-1, 108-2, 108-3	A-767 (FAA)	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
108	Indústria Aeronáutica Neiva	EMB-710D	7503 (ANAC)	CAR 3	-
109	Indústria Aeronáutica Neiva	EMB-711B, EMB-711C, EMB-711ST, EMB-711T	7502 (ANAC)	CAR 3	-
110	Indústria Aeronáutica Neiva	EMB-712	7801 (ANAC)	CAR 3	-
111	Indústria Aeronáutica Neiva	EMB-720C, EMB-720D	7504 (ANAC)	CAR 3	-
112	Indústria Aeronáutica Neiva	EMB-721C, EMB-721D	7506 (ANAC)	CAR 3	-
113	Indústria Aeronáutica Neiva	EMB-810C, EMB-810D	7501 (ANAC)	RBAC 23 14 FR Part 23	-
114	Indústria Aeronáutica Neiva	EMB-820C	7505 (ANAC)	CAR 3	-
115	Air Tractor Inc.	AT-401, 401B, AT-402A, AT-402B, AT-501, AT-502, AT-502B, AT-503A, AT-504	8801 (ANAC)	RBAC 23 14 FR Part 23	-
116	Air Tractor Inc.	AT-602, AT-802, AT-802A	2001T03 (ANAC)	RBHA 23 14 CFR Part 23	-
117	Alexandria Aircraft	17-30A	A18CE (FAA)	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
118	Britten-Norman	BN2A Mark III	BA8 (CAA/UK)	BCAR 3	-
119	Diamond Aircraft Industries	DA 42NG, DA 42M-NG	2010T03 (ANAC)	RBHA 23 14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
120	Pacific Aerospace	750XL	2015T03 (ANAC)	RBAC 23 14 FR Part 23	-

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL(S)	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS	MODEL SPECIFIC INFORMATION
121	Reims Aviation	FR182	A42EU (FAA)	CAR 3	-
122	Viking Air Limited	DHC-6 Series 400	2016T07 (ANAC)	RBHA 23 14 CFR Part 23	-
123	The Waco Aircraft, Co.	YMF	2016T05 (ANAC)	Aero 7A	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.

Aprovação ANAC:
(ANAC Approval:)

MÁRIO IGAWA
Gerente-Geral, Certificação de Produto Aeronáutico
(General Manager, Aeronautical Product Certification)

Data da aprovação ANAC: 11 Apr. 2017
(ANAC Approval Date:)

Revisão: 02
(Rev.:)

Documento assinado eletronicamente por **MARIO IGAWA**, **Gerente-Geral de Certificação de Produtos Aeronáuticos**, em 12/04/2017, às 09:24, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do Decreto nº 8.539, de 8 de outubro de 2015.

A autenticidade deste documento pode ser conferida no site http://sistemas.anac.gov.br/sei/controlador_externo.php?acao=documento_conferir&id_orgao_acesso_externo=0, informando o código verificador **0563323** e o código CRC **10FB83DD**.

中国民用航空局

CIVIL AVIATION ADMINISTRATION OF CHINA

补充型号认可证

VALIDATION OF SUPPLEMENTAL TYPE CERTIFICATE

编号/NO. VSTC0887

本证颁发给/*This Certificate is issued to* Avidyne Corporation
4 Middlesex Green, Suite 221, 561 Virginia Road,
Concord, MA 01742

适用机型/*Applicable Aircraft Model*:
See FAA Approved Model List(AML), Document No.AVIFD-318, Revision 03, FAA approved on March 06,2017 or later FAA approved revision for the list of approved airplane models.

叙述/*Description*:
Installation of a single configuration or of a dual configuration Avidyne Corporation Integrated Flight Display, Model IFD 5XX and/or Model IFD 4XX, loaded with Release 10.2 software (or later FAA approved release), in accordance with Avidyne Corporation Master Document List (MDL), Document Number AVIFD-306, Revision 11, dated February 28, 2017,or later FAA approved revision.

使用限制/*Limitation*:
See "Limitation and Condition" section of STC No. SA00343BO issued by FAA.

Approved Chinese Placards and Markings: N/A.

经中国民用航空局审查确认，上述民用航空产品的设计更改符合中国民用航空规章的有关规定。中国民用航空局对由美国联邦航空局颁发的第SA00343BO号补充型号合格证给予认可。

This is to certify that design change of above civil aeronautical product meets applicable China Civil Aviation Regulations. Civil Aviation Administration of China validates the Supplemental Type Certificate No. SA00343BO *issued by* FAA

局长授权：
For the Administrator of CAAC:

签字/*Signature* 徐超群

Xu Chaoqun

职务/*Title* Director General

部门/*Department* CAAC-AAD

日期/*Date* 2018-11-08

AAC-156(02/2014)

Avidyne 700-00182-XXX and 700-00179-XXX GPS/Nav/Comm Approved Model List for STC SA00343BO

AVIDYNE CORPORATION

4 Middlesex Green, Suite 221
561 Virginia Road
Concord MA 01742

NICHOLAS REDIESS Digitally signed by NICHOLAS REDIESS Date: 2019.06.11 10:48:35 -04'00'

FAA Approved: _____
for Manager
Boston Aircraft Certification Office
Federal Aviation Administration
Burlington, MA

Document Number	AVIFD-318	*Control Category*	N/A
Revision	*Description*	*ECO*	*Date*
00	Initial Release	ECO-14-200	07/11/14
01	Added 700-00179-XXX	ECO-15-129	03/20/15
02	Updated Table	ECO-16-185	06/02/16
03	Updates for 10.2	ECO-16-326	12/21/16
04	Fixed tables, added Quest Kodiak, Dornier 228, top cub CC19, Extra EA300LC	ECO-18-067	04/10/18
05	Added Ruschmeyer R90-230RG	ECO-19-035	02/14/19
06	Add Swift Museum Globe GC-1A, GC-1B	ECO-19-111	05/09/19

Table of Contents

FAA Approved Date: _____

1. Introduction

This document is the FAA Approved Model List for STC SA00343BO for the installation of the Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX GPS/Nav/Comm into eligible aircraft. Revisions to the AML must be coordinated through the STC holder, and require FAA approval.

IMPORTANT NOTICE

This STC is only applicable to the 14 CFR Part 23 aircraft which are listed in this AML.

Installations in 14 CFR Part 25, Part 27 and Part 29 aircraft are not authorized under this STC.

IMPORTANT NOTICE

With respect to the AML STC, the physical mounting of the antenna is specifically excluded from the approval in the case of installations on the pressure vessel of pressurized aircraft, composite aircraft, and aircraft with a certification basis of Amendment 23-45 or later, unless approved data is listed in the Master Document List of the STC.

FAA Approved Date: _____

2. Approved Model List

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Aermacchi S.p.A.	F.260, F.260B, F.260C, F.260D, F.260E, F.260F	A10EU	CAR 3	
	S.211A	A86EU	14 CFR Part 23	
	S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R, S.205-22/R, S.208, S.208A	A9EU	14 CFR Part 23	
Aeronautica Macchi S.p.A	AL 60, AL 60-B, AL 60-F5, AL 60-C5	7A12	CAR 3	
Aeronautica Macchi S.p.A. & Aerfer-Industrie S.p.A.	AM-3	A19EU	14 CFR Part 23	
Aerostar Aircraft Corporation	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P (Aerostar 700P)	A17WE	14 CFR Part 23	
	360, 400	A11WE	14 CFR Part 23	
Air Tractor Inc.	AT-250, AT-300, AT-301, AT-302, AT-400, AT-400A	A9SW	14 CFR Part 23	
	AT-401, AT-401A, AT-401B, AT-402, AT-402A, AT-402B, AT-501, AT-502, AT-502A, AT-502B, AT-503, AT-503A, AT-504	A17SW	14 CFR Part 23	
	AT-602, AT-802, AT-802A	A19SW	14 CFR Part 23	
Alexandria Aircraft, LLC (Bellanca)	14-19, 14-19-2, 14-19-3, 14-19-3A, 17-30, 17-31, 17-31TC	1A3	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	17-30A, 17-31A, 17-31ATC	A18CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.

FAA Approved Date: _____

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
American Champion Aircraft Corp.	8KCAB, 8GCBC	A21CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	7ECA, 7EC, 7FC, 7GC, 7GCA, 7GCB, 7GCBA, 7GCAA, 7GCBC, 7HC, 7JC, 7KCAB, 7KC	A-759	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	402	A3CE	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Atlantic Coast Seaplanes, LLC	G-21C, G-21D, G-21E, G-21G	4A24	CAR 3	
Aviat Aircraft, Inc.	A-1, A-1A, A-1B, A-1C-180, A-1C-200	A22NM	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	S-1S, S-1T, S-2, S-2A, S-2S, S-2B, S-2C	A8SO	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
B-N Group Ltd. (Britten-Norman)	BN2, BN2A, BN2A-2, BN2A-3, BN2A-6, BN2A-8, BN2A-20, BN2A-21, BN2A-26, BN2A-27, BN2B-20, BN2B-21, BN2B-26, BN2B-27, BN2T, BN2T-4R, BN2A-9	A17EU	14 CFR Part 23	
	BN.2A MK III, BN.2A MK III-2, BN.2A MK III-3	A29EU	14 CFR Part 23	
Textron Aviation Inc. (Beechcraft)	18A, S18A	TC 630	Aero 7A	
	G17S	TC 779	Aero 7A CAR 4	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.

FAA Approved Date: _____

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Textron Aviation Inc. (Beechcraft)	D17S (Army UC-43, UC-43B, Navy GB-1, GB-2), SD17S	A-649	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	18D, A18A, A18D, S18D, SA18A, SA18D	A-684	Aero 7A	
	3N, 3NM, 3TM, JRB-6, D18C, D18S, E18S, RC-45J (SNB-5P), E18S-9700, G18S, H18, C-45G, TC-45G, C-45H, TC-45H, TC-45J, UC-45J (SNB-5)	A-765	CAR3	
	35, A35, B35, C35, D35, E35, F35, G35, 35R	A-777	CAR 3	
	H35, J35, K35, M35, 35-33, N35, 35-A33, 35-B33, P35, S35, 35-C33, E33, F33, V35, V35A, V35B, 35-C33A, E33A, E33C, 36, A36, G36, F33A, F33C, G33, A36TC, B36TC, G36	3A15	CAR 3	
	95, B95, 95-55, 95-A55, B95A, D95A, E95, 95-B55, 95-B55A, 95-B55B, 95-C55, D55, 95-C55A, D55A, E55, E55A, 56TC, A56TC, 58, 58A, G58	3A16	CAR 3	
	65, 65-A90-1, A65, 65-A90-2, A65-8200, 65-A90-3, 65-80, 65-A90-4, 65-A80, 65-A80-8800, 65-B80, 65-88, 65-90, 65-A90, 70, B90, C90, C90A, C90GT, C90GTi, E90, H90,	3A20	CAR3, 14 CFR Part 23	
	45 (YT-34), A45 (T-34A) or (B-45), D45 (T-34B)	5A3	CAR 3	
	50 (L-23A), B50 (L-23B), C50, D50 (L-23E), D50A, D50B, D50C, D50E, D50E-5990, E50 (L-23D, RL-23D), F50, G50, H50, J50	5A4	CAR 3	
	19A, B23, B19, C23, M19A, A24, 23, A24R, A23, B24R, A23A, C24R, A23-19, A23-24	A1CE	CAR 3	
	60, A60, B60	A12CE	14 CFR Part 23	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Textron Aviation Inc. (Beechcraft)	99, 99A, 99A(FACH), A99, A99A, B99, C99, 100, A100 (U-21F), A100A, A100C, B100	A14CE	14 CFR Part 23	
	58P, 58PA, 58TC, 58TCA	A23CE	14 CFR Part 23	
	200, A100-1 (U-21J), 200C, 200CT, 200T, A200 (C-12A) or (C-12C), A200C (UC-12B), A200CT (C-12D) or (FWC-12D) or (RC-12D) or (C-12F) or (RC-12G) or (RC-12H) or (RC-12K) or (RC-12P), or (RC-12Q), B200, B200C (C-12F) or (UC-12F) or (UC-12M), or (C-12R), B200CT, B200T, 300, B300, B300C, 300LW, 1900, 1900C (C-12J), 1900D, B200GT, B200CGT	A24CE	14 CFR Part 23	
	T-34C (T-34C-1) (34C)	A26CE	14 CFR Part 23	
	76	A29CE	14 CFR Part 23	
	77	A30CE	14 CFR Part 23	
	F90	A31CE	14 CFR Part 23	
	2000	A38CE	14 CFR Part 23	
	3000	A00009WI	14 CFR Part 23	
	390DD	A00010WI	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Bellanca Aircraft Corporation	14-13, 14-13-2, 14-13-3, 14-13-3W	A-773	CAR 4a	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Bernd Hager/Anatoli Strobbe GbR (Ruschmeyer Luftfahrttechnik GmbH)	R90-230RG	A77EU	14 CFR Part 23	
The Boeing Company	BC-1A, AT-6 (SNJ-2), AT-6A (SNJ-3), AT-6B, AT-6C (SNJ-4), AT-6D (SNJ-5), AT-6F (SNJ-6), SNJ-7, T-6G	A-2-575	CAR 4a	
	NA-260	1A18	CAR 3	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Bushmaster Aircraft Corporation	Bushmaster 2000	A19WE	CAR 3	
Cirrus Design Corporation	SR20, SR22, SR22T	A00009CH	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	SF50	A00018CH	14 CFR Part 23	
Commander Aircraft Corporation	112, 114, 112TC, 112B, 112TCA, 114A, 114B, 114TC	A12SO	CAR 3	
Cub Crafters, Inc.	CC19-180	A00053SE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Top Cub Aircraft, Inc.	CC18-180, CC18-180A	A00006SE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Diamond Aircraft Industries Inc. (Canada)	DA 20-A1, DA 20-C1	TA4CH	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Diamond Aircraft Industries GmbH (Austria)	DA 40, DA 40 F, DA 40 NG	A47CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	DA 42, DA 42 NG, DA 42 M-NG, DA 62	A57CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Discovery Aviation, Inc. (Liberty)	XL-2	A00008DE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Dynac Aerospace Corp. (Aero Commander)	Volaire 10, Volaire 10A, Aero Commander 100, Aero Commander 100A, Aero Commander 100-180	1A21	CAR 3	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
EADS-PZL "Warazawa-Okecie" S.A.	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA WILGA 2000	A55EU	14 CFR Part 23	
	PZL-KOLIBER 150A, PZL-KOLIBER 160A	A69EU	14 CFR Part 23	
Embraer S.A.	EMB-110P1, EMB-110P2	A21SO	14 CFR Part 23	
Extra Flugzeuproduktions- und Vertriebs	EA 400, EA 400-500	A43CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	EA 300, EA 300/L, EA 300/S, EA 300/200, EA 300/LC	A67EU	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
FS2003 Corporation (Piper Super Cruiser)	PA-12, PA-12S	A-780	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Found Aircraft Canada, Inc.	FBA-2C, FBA-2C1, FBA-2C2, FBA-2C3, FBA-2C4, FBA-2C3T, FBA-2C4T	A7EA	CAR 3 14 CFR Part 23	
Found Brothers Aviation Limited	FBA Centennial "100"	A13EA	14 CFR Part 23	
Fuji Heavy Ind.	FA-200-160, FA-200-180, FA200-180AO	A4PC	CAR 3	
GA 8 Airvan (Pty) Ltd	GA8, GA8-TC 320	A00011LA	CAR 3	
GROB Aircraft AG	G520, G520T	A63EU	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	G109, G109B	G43EU	FAR 21	
	G120A	A49CE	14 CFR Part 23	
	G120TP-A	A00067CE	14 CFR Part 23	
	G115, G115A, G115B, G115C, G115C2, G115D, G115D2, G115EG	A57EU	14 CFR Part 23	
Grumman American Aviation Corporation	Grumman G-21, Grumman G-21A	TC 654	Aero 7a	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Gulfstream American Corporation	G-44, G-44A, SCAN Type 30	A-734	CAR 4a	
Helio Aircraft, LLC (Taylorcraft)	H-250, H295, HT-295, H391, H391B, H-395, H395A, H-700, H-800	1A8	CAR 3	
	15A, 20	3A3	CAR 4a	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	500	A2EA	CAR 3	
	HST-550, HST-550A	A4EA	CAR 3	
Howard Aircraft Foundation	DGA-15P (Army UC-70; Navy GH-1, GH-2, GH-3, NH-1), DGA-15J (Army UC-70B), DHA-15W	A-717	CAR 4a	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Industrie Aeronautiche e Meccaniche (Piaggio)	P.166, P.166B, P.166C, P.166 DL3	7A4	CAR 3 FAR 21 FAR 23	
Interceptor Aviation Inc. (Meyers)	200, 200A, 200B, 200C, 200D, 400	3A18	CAR 3	
JGS Properties, LLC (Luscombe)	11A, 11E	A-804	CAR 3	
King's Engineering Fellowship, The (TKEF)	4500-300, 4500-300 Series II	A17CE	14 CFR Part 23	
	Model 44 (Angel)	A2WI	14 CFR Part 23	
Learjet Inc.	23	A5CE	CAR3	
Lockheed Martin Aeronautics Company	402-2	2A11	CAR 3	
	18	A-723	CAR 4a	
Lockheed Aircraft Corporation	12-A (Army UC-40, UC-40A; Navy JO-1, JO-2)	TC 616	Aero 7a	
M7 Aerospace LLC (Fairchild)	SA26-T, SA26-AT, SA226-T, SA226-AT, SA226-T(B), SA227-AT, SA227-TT	A5SW	CAR3	
	SA-226-TC, SA227-AC (C-26A), SA227-BC (C-26A), SA227-PC	A8SW	14 CFR Part 23	
	SA227-CC, SA227-DC (C-26B)	A18SW	14 CFR Part 23	

FAA Approved Date: _____

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Maule Aerospace Technology, Inc.	Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-180C, M-4-180S, M-4-180T, M-4-180V, M-4-210, M-4-210C, M-4-210S, M-4-210T, M-4-220, M-4-220C, M-4-220S, M-4-220T, M-5-180C, M-5-200, M-5-210C, M-5-210TC, M-5-220C, M-5-235C, M-6-180, M-6-235, M-7-235, M-7-235A, M-7-235B, M-7-235C, M-7-260, M-7-260C, M-7-420, M-7-420A, M-7-420AC, MT-7-235, MT-7-420, MX-7-160, MX-7-160C, MX-7-180, MX-7-180A, MX-7-180B, MX-180C, MX-7-180AC, MX-7-235, MX-7-420, MXT-7-160, MXT-7-180, MXT-7-180A, M-8-235	3A23	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
MICCO Aircraft Company Inc.	MAC-125C, MAC-145, MAC-145A, MAC-145B	3A1	CAR 4a 14 CFR Part 23	
Mitsubishi Heavy Industries, Ltd.	MU-2B, MU-2B-10, MU-2B-20, MU-2B-15, MU-2B-30, MU-2B-35, MU-2B-25, MU-2B-36, MU-2B-26	A2PC	CAR 3	
	MU-2B-25, MU-2B-35, MU-2B-26, MU-2B-36, MU-2B-26A, MU-2B-36A, MU-2B-40, MU-2B-60	A10SW	CAR 3	
Mooney International Corp.	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S, M20TN, M20U, M20V	2A3	CAR 3	
	M22	A6SW	CAR 3	
Pacific Aerospace Limited	750XL	A50CE	14 CFR Part 23	
Piaggio Aero Industries S.p.A.	Piaggio P-180	A59EU	14 CFR Part 23	
Pilatus Aircraft Limited	PC-12, PC-12/45, PC-12/47, PC-12/47E	A78EU	14 CFR Part 23	
	PC-7	A50EU	14 CFR Part 23	

FAA Approved Date: _____

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Pilatus Aircraft Limited	PC-6, PC-6-H1, PC-6-H2, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/B2-H4, PC-6/C-H2, PC-6/C1-H2	7A15	CAR3	
Piper Aircraft	PA-18, PA-18S, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125", PA-18S "125", PA-18AS "125", PA-18 "135", PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA18S "150", PA-18AS "150", PA-19, PA-19S	1A2	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	PA-20, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135"	1A4	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160	1A6	CAR 3	
	PA-23, PA-23-160, PA-23-250 (Navy UO-1), PA-23-235, PA-E23-250, PA-23-250	1A10	CAR 3	
	PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3	
	PA-28-140, PA-28-160, PA-28-150, PA-28-151, PA-28-161, PA-28-180, PA-28S-160, PA-28S-180, PA-28-235, PA-28R-180, PA-28R-200, PA-28-181, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28-201T, PA-28-236, PA-28RT-201T	2A13	CAR 3	
	PA-30, PA-39, PA-40	A1EA	CAR 3	
	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301 (HP), PA-32R-301 (SP), PA-32-301, PA-32R-301T, PA-32-301FT, PA-32-301XTC, PA-32-301T	A3SO	CAR 3	

FAA Approved Date: _____

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Piper Aircraft	PA-34-200, PA-34-200T, PA-34-220T	A7SO	CAR 3	
	PA-31P, PA-31T, PA-31T1, PA-31T2, PA-31T3, PA-31P-350	A8EA	CAR3	
	PA-38-112	A18SO	14 CFR Part 23	
	PA-44-180, PA-44-180T	A19SO	14 CFR Part 23	
	PA-31, PA-31-300, PA-31-325, PA-31-350	A20SO	CAR3	
	PA-42, PA-42-720, PA-42-1000	A23SO	14 CFR Part 23	
	PA-46-310P, PA-46-350P, PA-46R-350T, PA-46-500TP	A25SO	14 CFR Part 23	
	PA-42-720R	A32SO	14 CFR Part 23	
Polskie Zaklady Lotnicze Spolka zo.o.	PZL M18, PZL M18A, PZL M18B	A47EU	14 CFR Part 23	
	PZL M26 01	A44CE	14 CFR Part 23	
	PZL M28 05	A56CE	14 CFR Part 23	
Quest Aircraft Design LLC	Kodiak 100	A00007SE	14 CFR Part 23	
Reims Aviation S.A. (Cessna)	F150F, F150G, F150H, F150J, F150K, F150L, F150M, F152, FA150K, FA150L, FA150M, FA152, FRA150L, FRA150M	A13EU	CAR 3 FAR 21	
	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, FP172D	A4EU	CAR 3 FAR 21	
	FR172E, FR172F, FR172G, FR172G, FR172H, FR172J, FR172K	A18CE	CAR 3 FAR 21	
	F182P, F182Q, FR182	A42EU	CAR 3 14 CFR Part 23	
	F177RG	A26EU	14 CFR Part 23	
	F337E, FT337E, F337F, FT337F, F337G, FT337GP, F337H, FT337HP	A23EU	CAR 3 FAR 21	
	F406	A54EU	CAR 3 FAR 21	
REVO, Inc. (Lake)	Colonial C-1, Colonial C-2, Lake LA-4, Lake LA-4A, Lake LA-4P, Lake LA-4-200, Lake Model 250	1A13	CAR 3, 14 CFR Part 23	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Robert E. Rust Jr. (de Havilland)	DHC-1 Chipmunk, Mk 21, Mk 22, Mk 22A	A44EU		
RUAG Aerospace Services GmbH (Dornier)	Do 27 Q-6	A8IN	CAR 3	
	Do 28 D, Do 28 D-1, Dornier 228-100, Dornier 228-101, Dornier 228-200, Dornier 228-201, Dornier 228-202, Dornier 228-212	A16EU	14 CFR Part 23	
Short Brothers & Harland Ltd.	SC-7 Series 2, SC-7 Series 3	A15EU	14 CFR Part 23	
Sierra Hotel Aero, Inc. (Navion)	Navion (L-17A), Navion A (L-17B) or (L-17C), Navion B, Navion D, Navion E, Navion F, Navion G, Navion H	A-782	CAR 3	
Sky Enterprises, Inc. (Republic)	RC-3	A-769	CAR 3	
Slingsby Aviation Ltd.	T67M260, T67M260-T3A	A73EU	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
SOCATA (Morane Saulnier)	Rallye 100S, Rallye 150ST, Rallye 150T, Rallye 235E, Rallye 235C, MS 880B, MS 885, MS 894A, MS 893A, MS 892A-150, MS 892E-150, MS 893E, MS 894E	7A14	CAR 3	
SOCATA	TB 20, TB 10, TB 21, TB 9, TB 200	A51EU	14 CFR Part 23	
	TBM 700A, TBM700B, TBM700C1, TBM700C2, TBM700N	A60EU	14 CFR Part 23	See note 14 on the TCDS for all the models
SOCATA, S.A. (Grummond)	GA-7 (Cougar)	A17SO	14 CFR Part 23	
SOCATA - Groupe AEROSPATIAL (Morane Saulnier)	M.S. 760, M.S. 760 A, M.S. 760 B	7A3	14 CFR Part 23	
Legend Aviation and Marine LLC (STOL Aircraft)	UC-1	A6EA	CAR 3	
Swift Museum Foundation (Globe)	GC-1A, GC-1B	A-766	14 CFR Part 23	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Symphony Aircraft Industries Inc.	OMF-100-160, SA 160	A46CE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Textron Aviation Inc. (Cessna)	T-50 (Army AT-17, UC-78 series, and Navy JRC-1)	A-722	CAR 4a	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	120, 140	A-768	CAR 3	
	190 195, 195A, 195B	A-790	CAR 3	
	170, 170A, 170B	A-799	CAR 3	
	310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF U-3B), 310F, 310G, 310H, 310I, 310J, 310J-1, 310K, 310L, 310N, 310P, E310H, E310J, T310P, 310Q, T310Q, 310R, T310R	3A10	CAR 3	
	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S,	3A12	CAR 3, 14 CFR Part 23	
	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, R182, T182, T182T, TR182	3A13	CAR 3, 14 CFR Part 23	
	172RG, P172D, R172E, R172F, R172G, R172H, R172J, R172K 175, 175A, 175B, 175C	3A17	CAR 3	
	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, A150L, 150M, A150K, A150M, 152, A152	3A19	CAR 3 14 CFR Part 23	
	210, 210A, 210B, 210C, 210D, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, 210N, 210R, 210-5 (205), 210-5A (205A), P210N, P210R, T210F, T210G, T210H, T210J, T210K, T210L, T210M, T210N, T210R	3A21	CAR 3	
	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Textron Aviation Inc. (Cessna)	320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F 340, 340A, 335	3A25	CAR 3	
	140A	5A2	CAR 3	
	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3	
	525, 525A, 525B, 525C	A1WI	14 CFR Part 23	The aircraft's equipment list must be updated for single pilot operation.
	336	A2CE	CAR 3	
	206, 206H, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, T206H, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G	A4CE	CAR 3, 14 CFR Part 23	
	337, 337A (USAF O2B), 337B, 337C, 337D, 337E, 337F, 337G, 337H, M337B (USAF O2A), P337H, T337B, T337C, T337D, T337E, T337F, T337G, T337H, T337H-SP	A6CE	CAR 3, 14 CFR Part 23	
	401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	A7CE	CAR3	
	188, 188A, 188B, A188, A188B, T188C	A9CE	14 CFR Part 23	
	177, 177A, 177B	A13CE	14 CFR Part 23	
	207, 207A, T207, T207A	A16CE	14 CFR Part 23	
	177RG	A20CE	14 CFR Part 23	
	404, 406	A25CE	14 CFR Part 23	
	501, 551	A27CE	14 CFR Part 23	The aircraft's equipment list must be updated for single pilot operation
	441	A28CE	14 CFR Part 23	
	T303	A34CE	14 CFR Part 23	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
Textron Aviation Inc. (Cessna)	208, 208B	A37CE	14 CFR Part 23	
	LC40-550FG, LC41-550FG, LC42-550FG	A00003SE	14 CFR Part 23	
Triton Aerospace LLC (Adam Aircraft)	A500	A00009DE	14 CFR Part 23	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
True Flight Holdings LLC (American General)	AA-1, AA-1A, AA-1B, AA-1C	A11EA	14 CFR Part 23	
	AA-5, AA-5A, AA-5B, AG-5B	A16EA	14 CFR Part 23	
Twin Commander Aircraft LLC	500, 500A, 500B, 500U, 500S, 520, 560, 560A, 560E	6A1	CAR 3	
	560-F, 680, 680E, 680F, 680F(P), 680FL, 680FL(P), 680T, 680V, 680W, 681, 685, 690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 720	2A4	CAR 3	
	700	A12SW	14 CFR Part 23	
Univair Aircraft Corporation (Stinson)	108, 108-1, 108-2, 108-3, 108-5	A-767	CAR 3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
Viking Air Limited (de Havilland)	DHC-2 Mk. I, DHC-2 Mk. II, DHC-2 Mk. III	A-806	CAR 3	
	DHC-3	A-815	CAR 3	
	DHC-6-1, DHC-6-100, DHC-6-200, DHC-6-300 DHC-6-400	A9EA	CAR3	
Vulcanair S.p.A. (Partenavia)	P.68, P.68B, P.68C, P.68C-TC, P.68 Observer, P.68 "Observer 2", P.68-TC "Observer", AP68TP-300 "Spartacus", AP68TP-600 "Viator", P.68R	A31EU	14 CFR Part 23	
	SF600, SF600A	A61EU	14 CFR Part 23	
The Waco Aircraft Company	2T-1A, 2T-1A-1, 2T-1A-2	A18EA	Aero 7A	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	YMF	ATC 542	Aero 7A	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Certification Basis*	*Model Specific Information*
WSK PZL MIELEC and OBR SK MIELEC	PZL M20 03	A68EU	14 CFR Part 23	
Zenair Ltd.	CH2000	TA5CH	14 CFR Part 23	
Zlin Aircraft A.S.	Z-242L, Z-143L	A76EU	14 CFR Part 23	
	ZLIN 526L	A30EU	14 CFR Part 23	

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Avidyne 700-00182-XXX and 700-00179-XXX GPS/Nav/Comm EASA Approved Model List for STC SA00343BO

AVIDYNE CORPORATION

4 Middlesex Green - Suite 221

561 Virginia Road

Concord MA 01742

FAA approved
on the behalf of EASA

Approved: NICHOLAS REDIESS Digitally signed by NICHOLAS REDIESS Date: 2019.02.21 08:49:43 -05'00'

Document Number	AVIFD-485	*Control Category*	N/A

Revision	*Description*	*ECO*	*Date*
00	Initial Release	ECO-16-123	04/13/16
01	Harmonized with 8 Apr 2016 EASA Aircraft List	ECO-16-138	05/02/16
02	Add Textron 177RG, Quest, Slingsby, Short Bros, Quest,	ECO-18-067	04/11/18
03	Added Ruschmeyer R90-230RG	ECO-19-035	02/14/19

Table of Contents

EASA Approved Date: ____*21 Feb 2019*_____

1. Introduction

This document is the EASA Approved Model List for STC SA00343BO for the installation of the Avidyne 700-00182-XXX and 700-00179-XXX GPS/Nav/Comm into eligible aircraft. Revisions to the AML must be coordinated through the STC holder, and require EASA approval.

IMPORTANT NOTICE

This STC is only applicable to CS 23 aircraft which are listed in this AML.

Installations in CS 25, CS 27 and CS 29 aircraft are not authorized under this STC.

IMPORTANT NOTICE

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

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2. Approved Model List

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
Aerostar Aircraft Corporation	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P), PA-60-700P	US A17WE	PA-60-601P/602P/700P require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Air Tractor Inc.	AT-250, AT-300, AT-301, AT-302, AT-400, AT-400A	US A9SW	
	AT-401, AT-401A, AT-401B, AT-402, AT-402A, AT-402B, AT-501, AT-502, AT-502A, AT-502B, AT-503, AT-503A	US A17SW	
	AT-602, AT-802, AT-802A	US A19SW	
Alexandria Aircraft, LLC (Bellanca)	17-30, 17-31, 17-31TC	US 1A3	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	17-30A, 17-31A, 17-31ATC	US A18CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
American Champion Aircraft	8KCAB, 8GCBC	US A21CE	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	7ECA, 7GCAA, 7GCBC (160HP), 7GCBC (180HP)	US A-759	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
ASI Aviation (Reims)	F406	EASA.A.109 (A54EU)	
Aviat Aircraft, Inc.	A-1, A-1A, A-1B, A-1C-180	EASA.IM.A.294 (A11EA)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.
	S-1S, S-2A, S-2S, S-2B, S-2C	US A8SO	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Beechcraft Corporation (Textron Aviation)	19A, B23, B19, C23, M19A, A24, 23, A24R, A23, B24R, A23A, C24R, A23-19, A23-24	US A1CE	

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
Beechcraft Corporation (Textron Aviation)	H35, J35, K35, M35, 35-33, N35, 35-A33, 35-B33, P35, S35, 35-C33, E33, F33, V35, V35A, V35B, 35-C33A, E33A, E33C, 36, A36, F33A, F33C, G33, A36TC, B36TC	US 3A15	
	G36	EASA.IM.A.279 (3A15)	
	95, B95, 95-55, 95-A55, B95A, D95A, E95, 95-B55, 95-B55A, 95-B55B, 95-C55, D55, 95-C55A, D55A, E55, E55A, 56TC, A56TC, 58, 58A	US 3A16	
	G58	EASA.IM.A.280 (3A16)	
	58P, 58PA, 58TC, 58TCA	US A23CE	58P, 58PA require previously installed GPS antenna(s) to utilize this STC for installation approval.
	50, B50, C50, D50, D50A, D50B, D50C, D50E, D50E-5990, E50, F50, G50, H50, J50	US 5A4	
	B200, B200C, B200GT, B200CGT, B300, B300C	EASA.IM.A.277 (A24CE)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	200, A100-1, 200C, 200CT, 200T, A200, A200C, A200CT, B200CT, B200T, 300,300LW, 1900, 1900C, 1900D	US A24CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	99, 99A, A99, A99A, B99, C99, 100, A100 (U-21F), A100A, B100	US A14CE	100, A100, A100A, B100 require previously installed GPS antenna(s) to utilize this STC for installation approval.
	F90	US A31CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	60, A60, B60	US A12CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	76	US A29CE	
	77	US A30CE	
	65, 65-A90-1, A65, 65-A90-2, A65-8200, 65-A90-3, 65-80, 65-A90-4, 65-A80, 65-A80-8800, 65-B80, 65-88, 65-90, 65-A90, 70, B90, C90, E90, H90,	US 3A20	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
Beechcraft Corporation (Textron Aviation)	C90A, C90GT, C90GTi	EASA.IM.A.503 (3A20)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	390 (Premier I, Premier IA)	EASA.IM.A.073 (A00010WI)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Bernd Hager/Anatoli Strobbe GbR (Ruschmeyer Luftfahrttechnik GmbH)	R90-230RG	EASA A.539	
Britten-Norman Aircraft LTD	BN2A-8, BN2A-20, BN2A-21, BN2A-26, BN2A-27, BN2B-20, BN2B-21, BN2B-26, BN2B-27, BN2T, BN2T-4R, BN2A-9	EASA.A.388 (A17EU)	
	BN2	AAN 9405.1 (A17EU)	
	BN2A	AAN 10101 (A17EU)	
	BN2A-2	AAN 10918 (A17EU)	
	BN2A-3	AAN 11105 (A17EU)	
	BN2A-6	AAN 11108 (A17EU)	
	BN.2A MK III, BN.2A MK III-2, BN.2A MK III-3	UK BA6 (A29EU)	
Cessna Aircraft Company (Reims Aviation)	F150F, F150G, F150H, F150J, F150K, F150L, FA150L, F150M, FA150K, FA150M, F152, FA152, FRA150L, FRA150M	US A13EU	
	F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, FP172D	US A4EU	
	FR172E, FR172F, FR172G, FR172H, FR172J, FR172K	US A18EU	
	F177RG	US A26EU	
	F182P, F182Q, FR182	US A42EU	
	F337E, FT337E, F337F, FT337F, F337G, FT337GP, F337H, FT337HP	US A23EU	

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
Cirrus Design Corporation	SR-20, SR-22, SR22T	EASA.IM.A.007 (A00009CH)	Wire Harness overbraid is required for IFR Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	SF50	EASA.IM.A.615 (A00018CH)	
Commander Aircraft Corporation	112, 114, 112TC, 112B, 112TCA, 114A, 114B, 114TC	US A12SO	
Cub Crafters, Inc.	CC19-180	EASA.IMA.A.638 (A00053SE)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Diamond Aircraft Industries Inc. (Canada)	DA 20-A1, DA 20-C1	EASA.IM.A.223 (TA4CH)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Diamond Aircraft Industries GmbH (Austria)	DA 40, DA 40F, DA 40NG,	EASA.IM.A.022 (A47CE)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	DA 42, DA 42M-NG, DA 42NG	EASA.A.005 (A57CE)	
	DA 62	EASA.IM.A.629 (A57CE)	
Dynac Aerospace Corp.(Aero Commander)	(Aero Commander) 100	US 1A21	
Embraer S.A.	EMB-110P1, EMB-110P2	BR EA-7202 (A21SO)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Extra	EA 300, EA 300/L, EA 300/LC, EA 300/S, EA 300/200	EASA.A.362 (A67EU)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Fuji Heavy Industries LTD.	FA-200-160	JP 20-10 (A4PC)	

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Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
	FA-200-180	JP 22-2 (A4PC)	
	FA-200-180AO	JP 22-6 (A4PC)	
GA8 Airvan (Pty) Ltd	GA8, GA8-TC 320	EASA.IM.A.042 (A00011LA)	
GROB Aircraft AG	G120A	EASA.A.075 (A49CE)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	G115, G115A, G115B, G115C, G155C2, G115D, G115D2, G115EG	EASA.A.364 (A57EU)	
	G120TP-A	EASA.A.565 (A00067CE)	
	G520, G520T	DE 2066 (A63EU)	
Interceptor Aviation Inc.	200D	US 3A18	
Learjet	23	US A5CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Leonardo S.p.A. (Aermacchi S.p.A.)	F.260, F.260B, F.260C, F.260D, F.260E, F.260F	EASA.A.586 (A10EU)	
	S.205-18/F, S205-18/R, S.205-20/F, S205-20/R, S.205-22/R, S208, S.208A	EASA.A.587 (A9EU)	
Liberty (Discovery)	XL-2	EASA.IM.A.343 (A00008DE)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
M7 Aerospace LLC (Fairchild)	SA26-T, SA26-AT, SA226-T, SA226-AT, SA226-T(B), SA227-AT, SA227-TT	US A5SW	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	SA-226-TC, SA227-AC, SA227-BC, SA227-PC	US A8SW	
	SA227-CC, SA227-DC	US A18SW	
Maule Aerospace Technology, Inc.	Bee Dee M-4, M-5-180C, MXT-7-160, M-4, M-4-180V, MX-7-180A, M-4C, M-5-210C, MXT-7-180A, M-4S, MX-7-180B, M-4T,	EASA.IM.A.018 (3A23)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
	M-5-235C, M-7-235B, M-6-235, M-4-210, M-7-235, MX-7-180C, M-4-210C, MX-7-235, MX-7-180, MX-7-180A, MX-7-180B, M-4-220, MXT-7-180, MX-7-180B, M-4-220C, MT-7-235, M-4-220S		Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Mitsubishi Heavy Industries, Ltd.	MU-2B-25, MU-2B-26, MU-2B-35, MU-2B-36, MU-2B-26A, MU-2B-36A, MU-2B-40, MU-2B-60	US A10SW	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	MU-2B, MU-2B-10, MU-2B-15, MU-2B-20, MU-2B-25, MU-2B-26	JP 19 (A2PC)	
	MU-2B-30, MU-2B-35, MU-2B-36	JP 25 (A10SW)	
Mooney Aircraft Corp.	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20S	US 2A3	
	M20M, M20R	EASA.IM.A.266 (2A3)	
Pacific Aerospace Limited	750XL	EASA.IM.A.081 (A50CE)	
Piaggio Aero Industries S.p.A.	P.166, P.166B, P.166C, P.166 DL3	EASA.A.384 (7A4)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	P.180 Series Avanti, Avanti II	EASA.A.059 (A59EU)	
Pilatus Aircraft Limited	PC-12, PC-12/45, PC-12/47, PC-12/47E	EASA.A.089 (A78EU)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PC-6, PC-6-H1, PC-6-H2, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/B2-H4, PC-6/C-H2, PC-6/C1-H2	CH F 56-10 (7A15)	
Piper Aircraft	PA-28-140, PA-28-160, PA-28-150, PA-28-151, PA-28-161, PA-28-180, PA-28S-160, PA-28S-180, PA-28-235, PA-28R-180, PA-28R-200, PA-28-181 (Archer II), PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28-201T, PA-28-236, PA-28RT-201T	US 2A13	

EASA Approved Date: ____*21 Feb 2019*_____

EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
Piper Aircraft	PA-32R-301T, PA-32-301FT, PA-32-301XTC, PA-32R-301 (HP)	EASA.IM.A.239 (A3SO)	
	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301 (SP), PA-32-301,PA-32-301T	US A3SO	
	PA-23-235, PA-E23-250, PA-23-250	US 1A10	
	PA-30, PA-39, PA-40	US A1EA	
	PA-31, PA-31-300, PA-31-325, PA-31-350	US A20SO	
	PA-31P, PA-31T, PA-31T1, PA-31T2, PA-31T3, PA-31P-350	US A8EA	PA-31P requires previously installed GPS antenna(s) to utilize this STC for installation approval.
	PA-24, PA-24-250, PA-24-260, PA-24-400	US 1A15	
	PA-34-200, PA-34-200T, PA-34-220T(Seneca IV)	US A7SO	
	PA-34-220T (Seneca V)	EASA.IM.A.090 (A7SO)	
	PA-42, PA-42-720, PA-42-1000	US A23SO	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PA-42-720R	US A32SO	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	PA-44-180, PA-44-180T	EASA.IM.A.232 (A19SO)	
	PA-38-112	US A18SO	
	PA-28-181 (Archer III)	EASA.IM.A.234 (2A13)	
	PA-46-310P, PA-46-350P, PA-46R-350T, PA-46-500TP	EASA.IM.A.077 (A25SO)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Polskie Zaklady Lotnicze SP.	PZL M18, PZL M18A, PZL M18B	EASA.A.056 (A47EU)	
	PZL M26 01	EASA.A.057 (A44CE)	

EASA Approved Date: ____*21 Feb 2019*_____

EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
	PZL M28 05	EASA.A.058 (A56CE)	
PZL WARSZAWA-OKECIE S.A.	PZL-104 WILGA 80, PZL-104M WILGA 2000, PZL-104MA WILGA 2000	EASA.A.061 (A55EU)	
	PZL-KOLIBER 150A, PZL-KOLIBER 160A	EASA.A.091 (A69EU)	
Quest Aircraft Design LLC	Kodiak 100	EASA.IM.A.632 (A00007SE)	
REVO, Inc.	LA-4A, LA-4P, Lake LA-4-200, Lake Model 250	US 1A13	
RUAG Aerospace Services GmbH (Dornier)	Do 28 D, Do 28 D-1,	EASA.A.360 (A8IN)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	Dornier 228-100, Dornier 228-101, Dornier 228-200, Dornier 228-201, Dornier 228-202, Dornier 228-212	EASA.A.359 (A16EU)	
Slingsby Advanced Composites	T67M260, T67M260-T3A	EASA.A.390 (A73EU)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
SOCATA	Rallye 100S, Rallye 150T, Rallye150ST, MS880B, MS885	EASA.A.377 (7A14)	
	MS892A-150, MS892E-150, MS893A, MS893E, MS894A, MS894E, Rallye 235C, Rallye235E	EASA.A.379 (7A14)	
	TB9, TB10, TB20, TB21, TB200	EASA.A.378 (A51EU)	
	TBM 700A, TBM700B, TBM700C1, TBM700C2, TBM700N	EASA.A.010 (A60EU)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	GA-7 (Cougar)	FR TCDS 190 (A17SO)	
SST Flugtechnik GmbH (Extra)	EA 400, EA 400-500	EASA.A.011 (A43CE)	Wire Harness overbraid is required for IFR installations. Reference the Installation Manual for installation requirements.

EASA Approved Date: ____*21 Feb 2019*_____

EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
			Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
Symphony Aircraft Industries	OMF-100-160	EASA.IM.A.031 (A46CE)	
Textron Aviation Inc.	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, A150K, A150L, A150M, 152, A152	US A319	
	170, 170A, 170B	US A799	
	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S,	US 3A12	
	172RG, 175, 175A, 175B, 175C, P172D, R172E, R172F, R172G, R172H, R172J, R172K	US 3A17	
	172R, 172S	EASA.IM.A.051 (3A12)	
	175, 175A, 175B, 175C	US 3A17	
	177, 177A, 177B	US A13CE	
	177RG	US A20CE	
	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	US 5A6	
	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N 182P, 182Q, 182R, R182, T182,TR182	US 3A13	
	182S, 182T, T182T	EASA.IM.A.052 (3A13)	
	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	US 3A24	
	188, 188A, 188B, A188, A188B, T188C	US A9CE	
	190, 195, 195A, 195B	US A-790	
	206, P206, P206A, P206B, P206C, P206D, P206E, TP206A, TP206B, TP206C, TP206D, TP206E, TU206A, TU206B, TU206C, TU206D, TU206E, TU206F, TU206G, U206, U206A, U206B, U206C,	US A4CE	

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
(Cessna)Textron Aviation Inc. (Cessna)	U206D, U206E, U206F, U206G		
	206H, T206H	EASA.IM.A.053 (A4CE)	
	207, 207A, T207, T207A	US A16CE	
	208, 208B	EASA.IM.A.226 (A37CE)	
	210, 210A, 210B, 210C, 210D, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, 210N, 210R, 210-5 (205), 210-5A (205A), P210N, P210R, T210F, T210G, T210H, T210J, T210K, T210L, T210M, T210N, T210R	US 3A21	P210N, P210R require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	T303	US A34CE	
	310, 310A, 310B, 310C, 310D, 310E, 310F, 310G, 310H, 310I, 310J, 310J-1, 310K, 310L, 310N, 310P, E310H, E310J, T310P, 310Q, T310Q, 310R, T310R	US 3A10	
	320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F 340, 340A, 335	US 3A25	340, 340A, 335, require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	336	US A2CE	
	337, 337A, 337B, 337C, 337D, 337E, 337F, 337G, 337H, M337B, P337H, T337B, T337C, T337D, T337E, T337F, T337G, T337H, T337H-SP	US A6CE	T337G, P337H require previously installed GPS antenna(s) to utilize this STC for installation approval.
	401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	US A7CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	404	US A25CE	
	LC41-550FG, LC42-550FG	EASA.IM.A.516 (A00003-SE)	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	441	US A28CE	Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	501, 551	US A27CE	The aircraft's equipment list must be updated for single pilot operation Requires previously installed GPS

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
			antenna(s) or separate approval to utilize this STC for installation approval.
Textron Aviation Inc. (Cessna)	525, 525A, 525B, 525C	EASA.IM.A.078 (A1WI)	The aircraft's equipment list must be updated for single pilot operation. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
True Flight Holdings LLC (Grumman American)	AA-1, AA-1A, AA-1B, AA-1C	US A11EA	
	AA-5, AA-5A, AA-5B, AG-5B	US A16EA	
Twin Commander Aircraft LLC	500, 500-A, 500-B, 500-U, 500-S, 520, 560, 560-A, 560-E	US 6A1	
	560-F, 680, 680E, 680F, 680FL, 680FL(P), 680T,	US 2A4	690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 700, 720 require previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval. Requires previously installed GPS antenna(s) or separate approval to utilize this STC for installation approval.
	680V, 680W, 681, 685, 690, 690A, 690B, 690C, 690D, 695, 695A, 695B, 720		
	700	US A12SW	
Viking Air Limited (de Havilland Inc.)	DHC-2 Mk. III	CA A-22 (A-806)	
	DHC-6-1, DHC-6-100, DHC-6-200, DHC-6-300 DHC-6-400	CA A-82 (A9EA)	
Vulcanair S.p.A. (Partenavia Costruzioni Aeronauticas S.p.A.)	P.68, P.68B, P.68C, P.68C-TC, P.68 Observer, P.68 "Observer 2", P.68-TC "Observer", AP68TP-300 "Spartacus", AP68TP-600 "Viator", P.68R	EASA.A.385 (A31EU)	
	SF600, SF600A	EASA.A.608 (A61EU)	
WACO Classic Aircraft Corp.	2T-1A, 2T-1A-1, 2T-1A-2	US A18EA	
	YMF F5, YMF F5C	EASA.IM.A.055 (ATC 542)	
Zenair	CH2000	CA A-185 (TA5CH)	
Zlin Aircraft A.S.	Z-242L	EASA.A.027 (A76EU)	
	Z-143L	EASA.A.028 (A76EU)	

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EASA Approved Model List for STC SA00343BO

Aircraft Make	*Aircraft Model(s)*	*Type Certificate Number*	*Model Specific Information*
	ZLIN 526L	EASA.A.353 (A30EU)	

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700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX
Integrated Flight Display
AML STC Master Document List
STC No. SA00343BO

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Concord MA 01742

Document Number	AVIFD-306	***Control Category***	N/A
Revision	***Description***	***ECO***	***Date***
01	Updates for software 10.0.1.0	ECO-14-283	08/26/14
02	Updates for software 10.0.2.0	ECO-14-356	11/14/14
03	Updates for software 10.0.3.0	ECO-14-424	01/26/15
04	Updates for 10.1, 700-00179-XXX	ECO-15-187	05/27/15
05	IM Revision for MLB100 edits	ECO-15-385	09/25/15
06	WiFi/Bluetooth Updates	ECO-15-468	11/06/15
07	Updates for software 10.1.1.0	ECO-15-490	11/18/15
08	Updates for software 10.1.2.0	ECO-16-054	03/01/16
09	EASA Updates, add Air Tractor to AML	ECO-16-185	06/06/16
10	Updates for software 10.1.3.0	ECO-16-182	06/23/16
11	TIA support for software 10.2.0.	ECO-17-054	02/28/17
12	Update ADSB Notes in IM	ECO-17-060	03/08/17
13	Update to IM and AFMS	ECO-17-066	03/16/17
14	Update for EASA AFMS and Checklist	ECO-17-237	09/07/17
15	Updates for software 10.2.1.0	ECO-18-013	02/09/18
16	IM, EASA AML, Pilot Guides	ECO-18-066	04/11/18
17	Updates for 10.2.2	ECO-18-135	05/29/18
18	Add Proline AFMS	ECO-18-160	05/30/18
19	Update for GPS roll-over of the 10 bit number of weeks, IM update	ECO-19-025	02/08/19
20	Added Ruschmeyer R90-230RG to AML	ECO-19-035	02/14/19
21	Updates for 10.2.3.1, add TDR94 Transponder report	ECO-19-050	04/17/19

Table of Contents

1. Purpose

This Master Document List is for the Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX Integrated Flight Display, STC SA00343BO. Section 2 lists all applicable documents that support the installation of the Integrated Flight Display and associated components into various aircraft.

2. Master Document List Applicable to All Aircraft

2.1 Substantiation Data List – Compliance Data

Document Source	Document Number	Revision	Description
Avidyne	AVIFD-310	05	700-00182-XXX IFD540 Nav/Comm/GPS in Approved Model List STC Certification Plan
	AVIFD-305	03	700-00182-000/700-000179-XXX Integrated Flight Display Functional Hazard Assessment
	AVIFD-306	21	700-00182-XXX/700-00179-XXX Integrated Flight Display AML STC Master Document List
	AVIFD-307	04	700-00182-XXX Integrated Flight Display System EMI and Functional Ground Test Plan
	AVIFD-308	01	700-00182-XXX IFD540 Nav/Comm/GPS Navigator Flight Test Plan
	AVIFD-309	02	Avidyne 700-00182-XXX IFD540 Structural Analysis Report
	AVIFD-311	03	700-00182-XXX IFD540 Nav/Comm/GPS Electrical Load Analysis – Cessna 182P – N1291S
	AVIFD-312	02	700-00182-XXX Integrated Flight Display Lightning Indirect Effect and HIRF
	AVIFD-313	05	700-00182-XXX Nav/Comm/GPS System Safety Assessment
	AVIFD-314	00	700-00182-XXX Integrated Flight Display Compliance Report
	AVIFD-315	09	700-00182-XXX Integrated Flight Display Instructions for Continued Airworthiness
	AVIFD-316	02	700-00182-XXX IFD AML STC Environmental Compatibility Report
	AVIFD-317	00	700-00182-XXX IFD540 Nav/Comm/GPS Navigator Flight Test Report
	AVIFD-318	05	700-00182-XXX Integrated Flight Display AML STC Approved Model List
	AVIFD-320	01	ITL Integration Verification Test Report
	AVIFD-340	00	700-00182-XXX Integrated Flight Display System EMI and Functional Ground Test Report
	AVIFD-342	04	700-00182-XXX Integrated Flight Display AML Model Qualification Process
	AVIFD-343	04	700-00182-XXX Model Qualification Report
	AVIFD-414	02	700-00182-XXX and 700-00179-XXX Certification Plan, 10.1
	AVIFD-424	00	700-00182-XXX and 700-00179-XXX Ground Test Plan, 10.1
	AVIFD-425	02	700-00182-XXX and 700-00179-XXX Flight Test Plan, 10.1
	AVIFD-426	00	700-00182-XXX and 700-00179-XXX Release 10.1 Compliance Report
	AVIFD-427	01	700-00182-XXX and 700-00179-XXX Flight Test Report, 10.1
	AVIFD-428	00	700-00182-XXX and 700-00179-XXX Ground Test Report, 10.1
	AVIFD-415	00	700-00182-XXX and 700-00179-XXX Ground Test Plan 10.1 WiFi/Bluetooth

700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX AML STC Master Document List

Document Source	Document Number	Revision	Description
	AVIFD-416	01	700-00182-XXX and 700-00179-XXX Flight Test Plan 10.1 WiFi/Bluetooth
	AVIFD-417	00	700-00182-XXX and 700-00179-XXX Compliance Report 10.1 WiFi/Bluetooth
	AVIFD-418	00	700-00182-XXX and 700-00179-XXX Flight Test Report 10.1 WiFi/Bluetooth
	AVIFD-431	04	700-00182-XXX and 700-00179-XXX Certification Plan, WiFi/Bluetooth
	AVIFD-471	00	700-00182-XXX and 700-00179-XXX Flight Test Report 10.1.1.0
	AVIFD-476	05	Avidyne 700-00182-XXX IFD5XX and 700-00179-4XX IFD-4XX s/w Release 10.2 Certification (amendment) Plan
	AVIFD-477	00	Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX s/w Release 10.2 Ground Test Plan
	AVIFD-478	01	Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX s/w Release 10.2 Flight Test Plan
	AVIFD-479	00	Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD4XX s/w Release 10.2 STC Compliance Report
	AVIFD-480	00	Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD-4XX s/w Release 10.2 Flight Test Report
	AVIFD-481	00	Avidyne 700-00182-XXX IFD5XX and 700-00179-XXX IFD-4XX s/w Release 10.2 Ground Test Report
	AVIFD-521	00	AFS ADSB Out Data IFD/GTX330ES, Release 10.2
	AVIFD-522	00	AFS ADSB Out Data IFD/GTX345, Release 10.2
	AVIFD-523	00	ADSB Out IFD/GTX330ES, Release 10.2 Test Results
	AVIFD-524	00	ADSB Out IFD/GTX345, Release 10.2 Test Results
	AVIFD-551	00	Minor Change for Integrated Flight Display STC Sa00343BO release 10.2.2 and Collins Proline Avionics
	AVIFD-593	00	TDR94 Transponder, Detailed Analysis of Flight Test Data - N43BH
	600-00298-000	07	Airplane Flight Manual Supplement for Installations with the 700-00182-XXX and 700-00179-XXX IFD540/440 Integrated Flight Display
	600-00298-002	01	Avidyne Integrated Flight Displays p/n 700-00182-XXX and 700-00179-XXX installed with Collins ProLine 21 Avionics

2.2 Installation Data List

Document Source	Document Number	Revision	Description
Avidyne	600-00299-000	17	IFD540/440 Installation Manual
	600-00298-000	07	Airplane Flight Manual Supplement for Installations with the 700-00182-XXX and 700-00179-XXX Integrated Flight Display
	AVIFD-315	09	700-00182-XXX and 700-00179-XXX Integrated Flight Display Instructions for Continued Airworthiness
	600-00298-002	01	Avidyne Integrated Flight Displays p/n 700-00182-XXX and 700-00179-XXX installed with Collins ProLine 21 Avionics

2.3 Manufacturer's Supporting Data List

Document Source	Document Number	Revision	Description
Avidyne/ Bendix King	600-00300-001	07	IFD5XX Series Integrated Flight Display Pilot Guide
	600-00304-000	07	IFD4XX Series Integrated Flight Display Pilot Guide
	89000039-010	00	Bendix King AeroNav 900 and 910
	89000041-008	00	Bendix King AeroNav 800
	600-00317-000	03	IFD550 and IFD545 Pilot's Guide
	600-00318-000	03	IFD510 Pilot's Guide
	600-00319-000	03	IFD410 Pilot's Guide

2.4 EASA STC 10058132 Supporting Data List

Document Source	Document Number	Revision	Description
Avidyne	600-00298-001	03	Airplane Flight Manual Supplement for Installations with the 700-00182-() and 700-00179-XXX Integrated Flight Display - **EASA**
	AVIFD-484	02	IFD5XX/IFD4XX EASA Installation Checklist
	AVIFD-485	03	IFD5XX/IFD4XX EASA Approved Model List

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FAA Approved

Airplane Flight Manual Supplement

For

_____
Make and Model Airplane

with

Avidyne Integrated Flight Displays p/n 700-00182-XXX and 700-00179-XXX

Registration No. _____

Serial No. _____

This supplement must be attached to the applicable FAA Approved Airplane Flight Manual when Avidyne 700-00182-XXX Integrated Flight Display (IFD) and/or 700-00179-XXX Integrated Flight Display installed in accordance with STC SA00343BO. The information contained herein supplements or supersedes the basic manual only in those areas listed. For limitations and procedures not contained in this supplement consult the basic Airplane Flight Manual.

FAA Approved WILLIAM P WITZIG Digitally signed by WILLIAM P WITZIG Date: 2019.05.03 14:25:28 -04'00'

Manager, Northeast Flight Test Section
Federal Aviation Administration
Burlington, MA

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LOG OF REVISIONS

Revision Number	*Revised Pages*	*Description of Revisions*	*FAA Approval*	*Date*
00	ALL	Initial Release	Robert Mann	Jul 24 2014
01	Pages 1,2, 3, 4, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 21	Add IFD440 and Software Release 10.1.0.0	-	-
02	Pages 13, 14, 19	AEG comments	Robert Mann	Jun 18 2015
03	Pages 2, 3, 4, 7, 8. 9, 10, 11, 12, 13, 18, 19, 20, 21, 24	Add models IFD410, IFD510, IFD545, IFD550 and software version 10.2	-	-
04	Pages 4 - 24	Added 91.227 compliance statement	-	-
05	Pages 11, 13, 22	Added limitation regarding use of radar display, added EmProc for disabling wireless connectivity.ACO comments incorporated	Anthony Pigott	Mar 06 2017
06	Pages 13	Added note regarding IFD4XX FLTA aural alert conflicts with other sensors	Anthony Pigott	Mar 20 2017
07	Pages 4, 5, 8, 26	Added TDR ADS-B out compliance statement, BK pilot guide references, ADS-B in only limitations	W. Witzig	5/3/2019

A vertical black line in the margin shows revised portions of affected pages.

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Section 1 – General

This airplane is equipped with an Avidyne p/n 700-00182-XXX IFD5XX Integrated Flight Display (IFD) and /or Avidyne p/n 700-00179-XXX IFD4XX Integrated Flight Display. Both part numbers may be referred to in this document as simply IFD.

The IFD contains a GPS (SBAS) receiver (all IFD models), VHF Nav/Com transceiver (IFD440, IFD540 and IFD550) and processing to accomplish control, display, navigation and input/output to other avionic systems. The IFD 545 and IFD550 include an internal ARS and are capable of displaying attitude information and ego-centric synthetic vision (SVS).

GPS/SBAS TSO-C146c Class 3 Operation
The IFD4XX and IFD5XX has airworthiness approval for navigation using GPS and SBAS (Satellite Based Augmentation System complying with ICAO Annex 10) for IFR en route, terminal area, and non-precision approach operations (“GPS”, “or GPS”, and “RNAV (GPS)” approaches). The IFD4XX and IFD5XX are approved for approach procedures with vertical guidance including “LPV” and “LNAV/VNAV” and approaches without vertical guidance including “LP” and “LNAV”.

The IFD4XX and IFD5XX comply with the requirements for GPS Class II oceanic and remote navigation (RNP-10) and (RNP-4) without time limitations. A second navigation source may be required for these operations to meet availability requirements.

Database Accuracy and Completeness
The operator is responsible to ensure that the navigation data used in the unit has the accuracy, resolution, and timeliness appropriate for the purpose of the flight operation being conducted. Using navigation data from an Avidyne authorized supplier will ensure that the navigation data has the same accuracy and resolution provided by

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official sources, in a format compatible with the intended function of the unit.

Avidyne requests that any observed database discrepancies are reported. These discrepancies may be in the form of an incorrect procedure, incorrectly identified terrain, obstacles, navigation fixes, or any other displayed item used for navigation or communication in the air or on the ground. Use the Service Hotline listed on the back cover of the IFD4XX and IFD5XX Pilot Guides.

Avidyne accurately processes and validates the database data, but cannot guarantee the accuracy and completeness of the data provided by various state sources and their suppliers.

Avidyne Corporation holds a FAA Type 2 Letter of Acceptance (LOA) in accordance with AC 20-153 for database integrity, quality, and database management practices for the navigation database. Flight crew and operators can view the LOA at www.avidyne.com.

ADS-B OUT Compliance

The IFD4XX and/or IFD5XX installed per this STC in conjunction with the following transponders/ UAT transceivers have been shown to meet the equipment requirements of 14 CFR 91.227 for ADS-B OUT:

Garmin GTX330ES
Garmin GTX335/345
Collins TDR94(D)

IFD4XX and IFD5XX have been approved for ADS-B Out compliance with other transponders under separate installation approvals (STCs). Check the aircraft's transponder or UAT transceiver AFMS for the statement above indicating ADS-B out compliance for the navigator and transmitter combination.

ADS-B In Only

The IFD4XX and/or IFD5XX installed per this STC may be interfaced with an ADS-B UAT or 1090MHz receiver (ADS-B In) that does not provide ADS-B out capability. If no ADS-B out system is installed, this installation will not be able to receive TIS-B client status, and will not receive ADS-R or TIS-B broadcasts from ATC

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unless the aircraft is in the same area as a valid TIS-B client broadcasting that it has ADS-B In capability.

Figure 1. Avidyne IFD540 700-00182-XXX Integrated Flight Display (IFD).

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Figure 2. Avidyne IFD440 700-00179-XXX Integrated Flight Display (IFD).

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Figure 3. Avidyne IFD550 700-00182-XXX Integrated Flight Display Ego-centric SVS.

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Section 2 – Limitations

1. The appropriate IFD4XX and IFD5XX Integrated Flight Display Pilot Guides must be available to the pilot during all flight operations:

   P/N 600-00300-001 for the IFD5XX Series
   P/N 600-00304-000 for the IFD4XX Series
   P/N 89000039-010 Bendix King AeroNav 900 and 910
   P/N 89000041-008 Bendix King AeroNav 800
   P/N 600-00317-000 for the IFD545 and IFD550
   P/N 600-00318-000 for the IFD510
   P/N 600-00319-000 for the IFD410

2. For Class I airplanes (single engine, piston, under 6,000# GTOW), a single IFD5XX or IFD4XX is sufficient for flight under instrument flight rules (IFR). IFR is prohibited when the GPS or VHF navigation receiver is inoperable unless the airplane has an additional approved GPS and/or VHF receiver.

   For all other Airplanes (Class II, III and IV), dual VHF communications transceivers and dual GPS or VHF Navigation receivers are required for flight under instrument flight rules (IFR). One communication transceiver, or one GPS receiver, or one VHF navigation receiver may be inoperable for IFR flight.

   In all airplanes, an approved navigation display (external CDI, HSI, or EHSI) is required for flight under instrument flight rules (IFR).

3. The IFD4XX and/or IFD5XX installed with an SBAS approved antenna, provides pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):
   - VOR, LOC, ILS instrument approach procedures (procedures using VHF radio guidance) – IFD440, IFD540, IFD550 only

- RNP instrument approach procedures using the following lines of minima:
  - LNAV minima (including when using advisory vertical guidance from the system);
  - LNAV/VNAV minima;
  - LPV minima; and
  - LP minima.

  Note: The U.S. titles RNP instrument approach procedures "RNAV (GPS) Rwy XX". Other States may use similar titling or may title these procedures "RNAV (GNSS) Rwy XX".
- RNP terminal procedures, including RNP arrival procedures and RNP departure procedures.
- RNAV terminal procedures, including RNAV arrival procedures and RNAV departure procedures.

The IFD4XX and/or IFD5XX when installed with a non-SBAS antenna, provide pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):

- VOR, LOC, ILS procedures (procedures using VHF radio guidance) – IFD440, IFD540, IFD550 only;
- RNP instrument approach procedures using the following lines of minima:
  - LNAV minima.
- RNP terminal procedures, including RNP arrival procedures and RNP departure procedures.
- RNAV terminal procedures, including RNAV arrival procedures and RNAV departure procedures.

4. When GPS is available, the IFD440 and/or IFD540/550 , may serve as an RNAV alternate or substitute means of navigation for ground-based navigation aids that are out-of-service or unavailable.

5. GPS/SBAS based IFR enroute, oceanic, and terminal navigation is prohibited unless current Navigation and Procedure databases are installed.

6. Use of RNP terminal operations and RNP instrument approach procedures containing RF leg segments (identified on the approach plate) is prohibited.

7. In areas where SBAS coverage is not available, the pilot must check RAIM availability.

8. The Avidyne moving map display provides visual depiction of the aircraft's own-ship, GPS position on a moving map for situational awareness (SA) purposes only. The pilot shall not use the moving map display as a sole means of navigation. The external CDI, HSI, or EHSI display must be used as the primary navigation instrument.

9. The Avidyne electronic checklists display supplements the Pilot Operating Handbook checklists and are advisory only. The pilot shall not use the electronic checklists as the primary set of on-board aircraft checklists. FAA Approved Flight Manual paper checklist must be available to the pilot as the primary reference.

10. The IFD integrates with separately approved system installations such navigation indicators, remote annunciators. Adherence to limitations in installation AFM supplements for those systems is mandatory.

11. The use of datalink, traffic and lightning sensor information displayed on the IFD4XX and IFD5XX must be in compliance with the approved AFM supplements for those systems.

12. Gloves may not be used to operate the IFD4XX and IFD5XX touch functions unless the Glove Qualification Procedure located in the IFD4XX/IFD5XX Pilot's Guides has been successfully completed.

13. The IFD545 and IFD550 may not be used for primary attitude information or standby attitude information (If required by type design). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for attitude information.

NOTE

The IFD545 and/or IFD550 may be used in conjunction with air data and turn rate indicators in determining if a primary or standby attitude source has failed e.g. in the case of primary/standby attitude indicator mis-compare.

14. The IFD545 and/or IFD550 may not be used for primary navigation deviation information (horizontal of vertical). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for this information.

15. The Avidyne IFD4XX and IFD5XX may only be operated in IMC conditions as a radar display when used in conjunction with an independent lightning detection and display system (Approved Thunderstorm Detection Equipment).

CAUTION

Terrain information shown on the MAP page display is provided to the pilot as an aid to situational awareness. The MAP page terrain color representations should not be used as a sole basis for terrain avoidance.

CAUTION

Traffic information shown on the Map page display is provided to the pilot as an aid to visually acquiring traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic. Avoidance maneuvers should not be made based only on a Traffic Advisory.

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CAUTION

In IFD545 and IFD550 units the inertial reference accelerometers may be irreparably damaged by exposure to temperatures below -40°C. The units are capable of operating at -40°C, but exposure to temperatures below this, even when powered off, can stress the parts internally causing a detectable and annunciated failure of the sensors.

Section 3 – Emergency Procedures

Loss of GPS

In the event of the loss of the IFD440 or IFD540 GPS receiver, the FMS will enter dead reckoning mode for 5 minutes, after that all FMS functions are lost and the ownship is removed from map depictions. The pilot should revert to remaining navigation receiver (required for IFR operations).

Loss of VHF Nav/Com

In the event of the loss of IFD440, IFD540 or IFD550 VHF navigation, the pilot should revert to remaining navigation receiver (required for IFR operations).

Warning Messages

Caution and warning messages provided by the IFD4XX and IFD5XX are related to functions performed by the IFD4XX and IFD5XX and are additional to the caution and warning annunciation system provided by the aircraft.

NOTE

The original caution and warning annunciator panel remains as the primary indication. POH/AFM Emergency procedures are not affected by this installation.

CAUTION

IFD4XX units lack an audio inhibit output to preclude other sensors aural alerts from sounding while IFD4XX forward looking terrain awareness (FLTA) aural alerts are issued. Simultaneous alerts are possible. Example; a TIS-B aural traffic alert could be issued at the same time as an FLTA terrain or obstacle aural caution or warning.

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To Disable WiFi/Bluetooth Connectivity on IFD4XX/IFD5XX:

1. Press and hold the IFD4xx/IFD5XX power button/knob for 1 second (upper left bezel) ----------
2. ALLOW/IGNORE WiFi Bluetooth dropdown is presented. Press IGNORE---------- Dropdown is removed
3. Verify the WiFi and Bluetooth icons on the upper right of the display are removed---------- Extinguish

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Caution Messages

The Caution and Warning panel is not altered as part of this modification and remains the primary means of providing Caution and Warning messages.

Caution and Warning messages are provided in the following table:

EXCEEDANCES | WARNINGS RED

Short Text	Long Text	Comments
Terrain Pull-Up*	Terrain Pull-Up	The FLTA algorithm has detected an imminent ground collision - Initiate an immediate recovery maneuver.
Warning Obstacle*	Warning Obstacle	The FLTA algorithm has detected an imminent obstacle collision. Initiate an immediate recovery maneuver.
Unit Overtemp – Unit Unreliable	Unit Overtemp: <internal component name> Unit reliability in question – Get IFD serviced	One or more of the internal components has exceeded its maximum design temperature and reliability cannot be ensured until the unit is tested by the Avidyne Service Center. Contact the Avidyne Service Center or a local dealer for service. This message will be present on every subsequent power cycle until reset by the Avidyne Service Center.
Low Volts – off in <countdown from 60> sec	Low Volts – IFD powers down in <countdown from 60> sec	Main supply voltage has fallen below 9 VDC. Contact a local dealer for service.
Pull Up	Excessive Descent Rate	The TAWS Excessive Descent Rate algorithm has detected a CFIT potential – initiate an immediate recovery maneuver.

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EXCEEDANCES | CAUTIONS YELLOW

Short Text	Long Text	Comments
Caution Terrain*	Caution Terrain	The FLTA algorithm is predicting a likely ground collision within approximately 60 seconds – initiate a proper recovery maneuver.
Caution Obstacle*	Caution Obstacle	The FLTA algorithm is predicting a likely obstacle collision with approximately 60 seconds – initiate a proper recovery maneuver.
GPS Integrity Lost	GPS Integrity Lost – Crosscheck Nav	This is alerting about imminent exceedence of horizontal fault detection limits or protection levels. Crosscheck the nav solution and determine the best course of action. If on a GPS based approach, Missed Approach is required.
GPS Fault Dead Reckoning	Position updated via dead reckoning	The system will use the last known position and groundspeed (and heading if available) to estimate the aircraft position following loss of GPS for up to 5 minutes. Since Dead Reckoning assumes no directional or groundspeed change, it will not be reliable even during those first 5 minutes if either or both of these factors have changed. Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.

Short Text	Long Text	Comments
GPS Fault No Position	No position available	The navigation solution cannot compute a position, typically after dead reckoning has expired. Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.
Configuration Error	Configuration Error – IFD Requires Service	The configuration of the IFD or the devices to which it is communicating with has changed or experienced an error. Contact the Avidyne Service Center or a local dealer for service.
LPV Unavailable Use L/VNAV DA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LPV Unavailable Use LNAV MDA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LP Unavailable Use LNAV MDA	GPS integrity is insufficient for LP Approach	Transition to a non-LP approach and the appropriate minima.
L/VNAV Unavail. Use LNAV MDA	GPS integrity is insufficient for L/VNAV Approach	Transition to a non-L/VNAV approach and the appropriate minima.
VNAV Lost Use LNAV MDA	Excessive XTK or Low GPS Integrity for Vertical Guidance	Transition to LNAV minima.

Short Text	Long Text	Comments
Check Altitude Too Low	Aircraft is below the glide slope altitude at FAF	Correct aircraft altitude as required to safely conduct the approach or initiate a climb to a published safe altitude and abort the approach.
Traffic Sensor Fault*	No communication with traffic sensor (local) OR Traffic sensor has failed (global)	Contact a local dealer for service.
Traffic <Low | High> <Bearing in clock direction> <Distance in NM>*	Traffic [Brg (e.g. 1:00)] [dist (e.g. 2 NM)] [alt (e.g. 200 ft)]	Traffic advisories - Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <Low | High> <Distance in NM>*	Traffic <Distance in NM> <Signed relative altitude in feet> FT	Traffic advisories with no bearing information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.

Short Text	Long Text	Comments
Traffic <Bearing in clock direction> <distance in NM>*	Traffic <bearing in clock direction> <distance in NM>	Traffic advisories with no relative altitude information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <distance in NM>*	Traffic <distance in NM>	Traffic advisories with no relative altitude information and no bearing – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
COM TX Fault	Transmitter Fault, No TX Ability	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
COM Stuck TX	Stuck Mic Timeout, Transmitter Disabled	Requires 35 seconds of continuous transmission. Verify the PTT is stuck and contact a dealer for service as required.

Short Text	Long Text	Comments
No Comm with VHF	No communication with the VHF radio	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
Unit Overtemp – Check cooling	Unit Overtemp: <internal component identification>	One or more of the internal components has exceeded 80°C. Contact the Avidyne Service Center or a dealer for service – consider adding a source of cooling and/or improving air flow in/around the IFD.
Low Volts	Backlight reduced to 25%	Main supply voltage has fallen to approximately 11VDC. Check the aircraft alternators are on and functional. Consider load shedding the power bus that is powering the IFD.
Manual Sequence Req'd	Altitude invalid – leg will not auto sequence	In basic E-M aircraft where the IFD does not have altitude input, this message will appear when the FMS active leg is a Heading→Altitude leg. In this case, the FMS flight plan will need to be manually sequenced to the next leg. Failure to do so will keep the FMS flying the heading indefinitely.
Heading Lost	Using ground track for SVS	Indicates loss of the TVV and the aircraft reference symbol ("wedge") now points at ground track, not aircraft heading. "TRK" will also be displayed below the digital compass on the SVS page.

Short Text	Long Text	Comments
No ADS-B Position	AXP322 Lost GPS Position Data	ADS-B position data had previously been valid and then transitions to invalid. Check the ADS-B position source device.
Xpndr Fault	AXP322 Transponder Fault	Any fault other than loss of ADS-B GPS position. Contact the Avidyne Service Center if this persists across power cycles.
No Comm With Xpdr	No Communication with Remote Transponder	No data has been received from the remote transponder for greater than 2 seconds. Contact the Avidyne Service Center if this persists across power cycles.
Radar: Echos Ahead	Radar: Heavy Echos Ahead	Generated when a number of red and/or magenta echos are present within the area ±22° off the nose of the aircraft at the current displayed radar range.
Radar: Target Alert	Radar: Target Alert Detected	Alerts the pilot to the presence of a significant weather cell that exists beyond the currently selected display range.
Radar Sensor Fault	No Communication with Radar Sensor, or; Radar Data is Invalid, or; Sensor mode is [selected] Selected mode is [reported], or; Radar fault code: any active fault codes.	No data is received from the sensor for at least 2 seconds, or; The data stream from the radar contains information that the data stream should not be used, or; If the requested mode and the reported mode do not match, or; Any specific fault code is active from the sensor.

Short Text	Long Text	Comments
TIS Removed	TIS Traffic Removed	TIS traffic communications have ceased for >12 seconds
TIS Unavailable	TIS Traffic Unavailable	No TIS ground station is available or communications have ceased for >60 seconds
Too Low, Terrain	Premature Descent, below glide path	TAWS PDA algorithm has determined the aircraft is below glide path.
Sink Rate	Excessive Descent Rate	TAWS EDR algorithm has determined a potential CFIT scenario is developing – recover the aircraft
Don't Sink	Negative climb rate or altitude loss	TAWS NCR algorithm has determined corrective action should be t aken immediately.
TAWS Fail	Invalid GPS Positon/Velocity	The GPS solution is lost or the GPS velocity quality parameters drop below required accuracy limits. A "bing-bong" chime is played if this condition occurs. Contact the Avidyne Service Center if this persists across power cycles.
TAWS System Failure	TAWS Failed Self-Test [reason why]	TAWS failed self-test for the reason provided and TAWS will be degraded or not available for the power cycle. Contact the Avidyne Service Center if this persists across power cycles.

The pilot should utilize available instruments/data displays to verify message(s) and take appropriate action(s) (ref POH/AFM) by selection of alternate systems or settings. Invalid messages generally indicate a failed sensor and that other messages associated with that system will be unavailable. Caution messages indicate the possibility of a pilot action.

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Section 4 – Normal Procedures

To Activate the IFD4XX/IFD5XX :

1. Verify IFD circuit breakers (2) ---------- IN
2. Verify Battery Master Switch ----------ON
3. Avionics or Radio Master (if equipped) ---------- ON

To Deactivate the IFD4XX/IFD5XX :

4. Avionics or Radio Master (if equipped) ---------- OFF
   or
5. Press and hold the Power Knob---------- OFF

IMC Operations with Weather Radar

1. While operating in IMC conditions with weather radar active, activate lightning detection system and monitor. Correlate lightning strike information with painted radar information to confirm proper system operation.
2. In the event that radar data and lightning do not coincide, contact ATC for the latest severe weather information.

Also see Avidyne IFD4XX/IFD5XX Pilot's Guides for Normal operation procedures.

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Section 5 – Performance

No change from basic Handbook.

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Section 6 – Weight and Balance

No change from basic Handbook. See AFM/POH for current weight and balance for this aircraft.

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Section 7 – Systems Description

See Avidyne IFD4XX and IFD5XX FMS/GPS/Nav/Com Pilot Guides

P/N 600-00300-001 for the IFD5XX Series
P/N 600-00304-000 for the IFD4XX Series
P/N 89000039-010 Bendix King AeroNav 900 and 910
P/N 89000041-008 Bendix King AeroNav 800
P/N 600-00317-000 for the IFD545 and IFD550
P/N 600-00318-000 for the IFD510
P/N 600-00319-000 for the IFD410

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EASA Approved

Airplane Flight Manual Supplement

For

_____
Make and Model Airplane

with

Avidyne Integrated Flight Displays p/n 700-00182-XXX

and 700-00179-XXX

Registration No. _____

Serial No. _____

This supplement must be attached to the applicable FAA Approved Airplane Flight Manual when Avidyne 700-00182-XXX Integrated Flight Display (IFD) and/or 700-00179-XXX Integrated Flight Display installed in accordance with EASA STC 10058132. The information contained herein supplements or supersedes the basic manual only in those areas listed. For limitations and procedures not contained in this supplement consult the basic Airplane Flight Manual.

FAA Approved on behalf of the European Aviation Safety Agency (EASA): _____

WILLIAM P WITZIG Digitally signed by WILLIAM P WITZIG
Date: 2019.05.03 14:33:00 -04'00'

Manager, Northeast Flight Test Section
Federal Aviation Administration
Burlington, MA

EASA Approval Number:
_____

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LOG OF REVISIONS

Revision Number	*Revised Pages*	*Description of Revisions*	*EASA Approval*	*Date*
00	ALL	Initial Release	Yves Morier	17 May 2016
01	3, 4, 5, 8, 9, 10, 17, 18, 22	Add IFD 410, IFD 510 models. Address new limitations and messages associated with software release 10.2	N. Faust manager Boston ACO FAA on behalf of EASA	06 April 2017
02	1, 2, 3, 5, 6, 8, 9, 12, 17, 23	Add IFD 545, IFD 550 models, add new limitations and messages associated	W Witzig AIR711 FAA on Behalf of EASA	16 August 2017
03	5, 24	BK pilot guide references	W. Witzig FAA AIR711 for EASA 5/3/2019	

A vertical black line in the margin shows revised portions of affected pages.

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Section 1 – General

This airplane is equipped with an Avidyne p/n 700-00182-XXX IFD5XX Integrated Flight Display (IFD) and /or Avidyne p/n 700-00179-XXX IFD4XX Integrated Flight Display. Both part numbers may be referred to in this document as simply IFD.

The IFD contains a GPS (SBAS) receiver (all IFD models), VHF Nav/Com transceiver (IFD440, IFD540 and IFD550) and processing to accomplish control, display, navigation and input/output to other avionic systems. The IFD 545 and IFD550 include an internal ARS and are capable of displaying attitude information and ego-centric synthetic vision (SVS). All IFD models can be configured for Bluetooth and WiFi in/out communication (optional).

The information in the supplement is EASA approved material and must be attached to the EASA Approved Airplane Flight Manual, when the airplane has been modified by the installation of an Avidyne Integrated Flight Display (IFD) in accordance with STC 10058132.

The Avidyne Integrated Flight Displays (IFD) complies with the equipment requirements for P-RNAV and BRNAV/RNAV-5 operations in accordance with AC 90-96A CHG 1. This does not constitute an operational approval.

Within Europe, RAIM availability can be determined using the AUGER GPS RAIM Prediction Tool at http://augur.ecacnav.com/augur/app/home.

1.2 Reference Materials

Temporary Guidance leaflet (TGL) 10 – Rev 1 Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace.

Acceptable Means of Compliance 20-27 Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations including APV BARO-VNAV Operations

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Acceptable Means of Compliance 20-28 Airworthiness Approval and Operational Criteria for RNAV GNSS Approach Operations to LPV Minima using SBAS

Acceptable Means of Compliance 20-4 Airworthiness Approval and Operational Criteria for the use of Navigation Systems in European Airspace Designated for Basic RNAV Operations (BRNAV)

1.3 Database Accuracy and Completeness

The operator is responsible to ensure that the navigation data used in the unit has the accuracy, resolution, and timeliness appropriate for the purpose of the flight operation being conducted. Using navigation data from an Avidyne authorized supplier will ensure that the navigation data has the same accuracy and resolution provided by official sources, in a format compatible with the intended function of the unit.

Avidyne requests that any observed database discrepancies are reported. These discrepancies may be in the form of an incorrect procedure, incorrectly identified terrain, obstacles, navigation fixes, or any other displayed item used for navigation or communication in the air or on the ground. Use the Service Hotline listed on the back cover of the IFD4XX and IFD5XX Pilot Guides.

Avidyne accurately processes and validates the database data, but cannot guarantee the accuracy and completeness of the data provided by various state sources and their suppliers.

Avidyne Corporation holds a FAA Type 2 Letter of Acceptance (LOA) in accordance with AC 20-153 for database integrity, quality, and database management practices for the navigation database. Flight crew and operators can view the LOA at www.avidyne.com.

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Section 2 – Limitations

1. The Avidyne IFD4XX and IFD5XX Integrated Flight Display Pilot Guides:
   P/N 600-00300-001 for the IFD5XX Series
   P/N 600-00304-000 for the IFD4XX Series
   P/N 89000039-010 Bendix King AeroNav 900 and 910
   P/N 89000041-008 Bendix King AeroNav 800
   P/N 600-00317-000 for the IFD545 and IFD550
   P/N 600-00318-000 for the IFD510
   P/N 600-00319-000 for the IFD410
   must be available to the pilot during all flight operations.

2. For Class I airplanes (single engine, piston, under 6,000# GTOW), a single IFD540 or IFD440 is required for flight under instrument flight rules (IFR). IFR is prohibited when the GPS or VHF navigation receiver is inoperable.

   For all other Airplanes (Class II, III and IV), dual VHF communications transceivers and dual GPS or VHF Navigation receivers are required for flight under instrument flight rules (IFR). One communication transceiver, or one GPS receiver, or one VHF navigation receiver may be inoperable for IFR flight.

   In all airplanes, an approved navigation display (external CDI, HSI, or EHSI) is required for flight under instrument flight rules (IFR).

3. WiFi and Bluetooth wireless features may not be used during critical phases of flight to include takeoff, approaches, landing. WiFi and Bluetooth must be selected off on the user setup tab (SYS/Setup) during these phases of flight.

4. Any portable electronic device (PED) that transmits data to IFD4XX/IFD5XX units must be checked and approved prior to use in flight.

5. All IFD models are prohibited from use of Bluetooth and WiFi communications features in Class IV airplanes. These features, if not disabled by installation configuration, must be selected off in user setup by the pilot.

6. The IFD4XX and/or IFD5XX installed with an SBAS approved antenna, provides pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):

   Note: That models IFD410, IFD510 and IFD545 do not include VHF capabilities and VHF navigation and approaches are not applicable to these models.

   - VOR, LOC, ILS instrument approach procedures (procedures using VHF radio guidance)
   - Instrument approach procedures using the following lines of minima:
     - LNAV minima (including when using advisory vertical guidance from the system);
     - LNAV/VNAV minima;
     - LPV minima;
     - LP minima
   - B-RNAV/ RNP-5/RNAV-5, RNP-10, RNP-APCH [titled RNAV (GPS) or RNAV(GNSS)] terminal procedures, including arrival and departure procedures.
   - RNP-1/RNAV-1, RNP-2/RNAV-2, RNAV terminal procedures, including RNAV arrival and RNAV departure procedures. P-RNAV, RNAV Routes (DPs, STARS, Q and T Routes)
   - Oceanic and Remote Areas of Operation

7. The IFD4XX and/or IFD5XX when installed with a non-SBAS antenna, provide pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):
   - VOR, LOC, ILS instrument approach procedures (procedures using VHF radio guidance)

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- Instruction approach procedures using the following lines of minima:
  - LNAV minima
- B-RNAV/ RNP-5/RNAV-5, RNP-10, RNP-APCH [titled RNAV (GPS) or RNAV(GNSS)] terminal procedures, including arrival and departure procedures.
- RNP-1/RNAV-1, RNP-2/RNAV-2, RNAV terminal procedures, including RNAV arrival and RNAV departure procedures. P-RNAV, RNAV Routes (DPs, STARS, Q and T Routes)
- Oceanic and Remote Areas of Operation

8. GPS/SBAS based IFR enroute, oceanic, and terminal navigation is prohibited unless a current navigation database is installed.

9. Use of RNP terminal operations and RNP instrument approach procedures containing RF leg segments (identified on the approach plate) is prohibited.

10. In areas where SBAS coverage is not available, the pilot must check RAIM availability.

11. The Avidyne moving map display provides visual depiction of the aircraft's own-ship, GPS position on a moving map for situation awareness (SA) purposes only. The pilot shall not use the moving map display as a sole means of navigation. The external CDI, HSI, or EHSI display must be used as the primary navigation instrument.

12. The Avidyne electronic checklists are not EASA approved and may not be loaded or used. Use of this feature will require further certification and operational approval.

13. The IFD integrates with separately approved system installations such navigation indicators, remote annunciators, weather, traffic and terrain alerting systems. Adherence to limitations in installation AFM supplements for those systems is mandatory.

14. The use of datalink, traffic and lightning sensor information displayed on the IFD4XX and IFD5XX must be in

compliance with the approved AFM supplements for those systems.

15. Gloves may not be used to operate the IFD4XX and IFD5XX touch functions unless the Glove Qualification Procedure located in the respective IFD Pilot's Guides, has been successfully completed.

16. For flight planning purposes, in areas where SBAS coverage is not available, the flight crew must check RAIM availability.

    In the event of a predicted continuous loss of RAIM of more than five minutes for any part of the intended route of flight, the flight shall be delayed, canceled, or rerouted on a track where RAIM requirements can be met. The flight may also be re-planned using non-GPS based navigational capabilities.

    For flight planning purposes for operations within European B-RNAV/RNAV-5 and P-RNAV airspace, if more than one satellite is scheduled to be out of service, then the availability of GPS RAIM shall be confirmed for the intended flight (route and time). In the event of a predicted continuous loss of RAIM of more than five minutes for any part of the intended flight, the flight shall be delayed, canceled, or rerouted on a track where RAIM requirements can be met.

NOTE

Within Europe, RAIM availability can be determined using Europe's AUGER GPS RAIM Prediction Tool at http://augur.ecacnav.com/augur/app/home.

17. Coupling to an installed autopilot that is not identified as an approved, compatible autopilot in the approved installation manual for AML STC 10058132 is not authorized.

18. The Avidyne IFD4XX and IFD5XX Terrain Alerting (TA) and Forward Looking Terrain Alerting (FLTA) non-TSO'd features are to be used for improved terrain/obstacle

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awareness and do not meet TAWS-B requirements for specific operations.

CAUTION

Terrain information shown on the MAP page display is provided to the pilot as an aid to situational awareness. The MAP page terrain color representations should not be used as a sole basis for terrain avoidance.

CAUTION

Traffic information shown on the Map page display is provided to the pilot as an aid to visually acquiring traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic. Avoidance maneuvers should not be made based only on a Traffic Advisory.

19. For CS23 Class IV airplanes the IFD545 and IFD550 may not be used for primary attitude information or standby attitude information (If required by type design). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for attitude information.

NOTE

The IFD545 and/or IFD550 may be used in conjunction with air data and turn rate indicators in determining if a primary or standby attitude source has failed e.g. in the case of primary/standby attitude indicator mis-compare.

20. The IFD545 and/or IFD550 may not be used for primary navigation deviation information (horizontal of vertical). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for this information.

21. The Avidyne IFD4XX and IFD5XX may only be operated in IMC conditions as a radar display when used in conjunction with an independent lightning detection and display system (Approved Thunderstorm Detection Equipment).

CAUTION

Terrain information shown on the MAP page display is provided to the pilot as an aid to situational awareness. The MAP page terrain color representations should not be used as a sole basis for terrain avoidance.

CAUTION

Traffic information shown on the Map page display is provided to the pilot as an aid to visually acquiring traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic. Avoidance maneuvers should not be made based only on a Traffic Advisory.

CAUTION

In IFD545 and IFD550 units the inertial reference accelerometers may be irreparably damaged by exposure to temperatures below -40°C. The units are capable of operating at -40°C, but exposure to temperatures below this, even when powered off, can stress the parts internally causing a detectable and annunciated failure of the sensors.

Section 3 – Emergency Procedures

Loss of GPS

In the event of the loss of the IFD4XX or IFD5XX GPS receiver, the FMS will enter dead reckoning mode for 5 minutes, after that all FMS functions are lost and the ownship is removed from map depictions. The pilot should revert to remaining navigation receiver (required for IFR operations).

Loss of VHF Nav/Com

In the event of the loss of IFD4XX or IFD5XX VHF navigation, the pilot should revert to remaining navigation receiver (required for IFR operations).

Warning Messages

Caution and warning messages provided by the IFD4XX and IFD5XX are related to functions performed by the IFD4XX and IFD5XX and are additional to the caution and warning annunciation system provided by the aircraft.

NOTE

The original caution and warning annunciator panel remains as the primary indication. POH/AFM Emergency procedures are not affected by this installation.

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Caution and Warning Messages

The Caution and Warning panel is not altered as part of this modification and remains the primary means of providing Caution and Warning messages.

Caution and Warning messages are provided in the following table:

EXCEEDANCES | WARNINGS RED

Short Text	Long Text	Comments
Terrain Pull-Up*	Terrain Pull-Up	The FLTA algorithm has detected an imminent ground collision - Initiate an immediate recovery maneuver.
Warning Obstacle*	Warning Obstacle	The FLTA algorithm has detected an imminent obstacle collision. Initiate an immediate recovery maneuver.
Unit Overtemp – Unit Unreliable	Unit Overtemp: <internal component name> Unit reliability in question – Get IFD serviced	One or more of the internal components has exceeded its maximum design temperature and reliability cannot be ensured until the unit is tested by the Avidyne Service Center. Contact the Avidyne Service Center or a local dealer for service. This message will be present on every subsequent power cycle until reset by the Avidyne Service Center.
Low Volts – off in <countdown from 60> sec	Low Volts – IFD powers down in <countdown from 60> sec	Main supply voltage has fallen below 9 VDC. Contact a local dealer for service.
Pull Up	Excessive Descent Rate	The TAWS Excessive Descent Rate algorithm has detected a CFIT potential – initiate an immediate recovery maneuver.

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EXCEEDANCES | CAUTIONS YELLOW

Short Text	Long Text	Comments
Caution Terrain*	Caution Terrain	The FLTA algorithm is predicting a likely ground collision within approximately 60 seconds – initiate a proper recovery maneuver.
Caution Obstacle*	Caution Obstacle	The FLTA algorithm is predicting a likely obstacle collision with approximately 60 seconds – initiate a proper recovery maneuver.
GPS Integrity Lost	GPS Integrity Lost – Crosscheck Nav	This is alerting about imminent exceedence of horizontal fault detection limits or protection levels. Crosscheck the nav solution and determine the best course of action. If on a GPS based approach, Missed Approach is required.
GPS Fault Dead Reckoning	Position updated via dead reckoning	The system will use the last known position and groundspeed (and heading if available) to estimate the aircraft position following loss of GPS for up to 5 minutes. Since Dead Reckoning assumes no directional or groundspeed change, it will not be reliable even during those first 5 minutes if either or both of these factors have changed. Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.

Short Text	Long Text	Comments
GPS Fault No Position	No position available	The navigation solution cannot compute a position, typically after dead reckoning has expired. . Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.
Configuration Error	Configuration Error – IFD Requires Service	The configuration of the IFD or the devices to which it is communicating with has changed or experienced an error. Contact the Avidyne Service Center or a local dealer for service.
LPV Unavailable Use L/VNAV DA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LPV Unavailable Use LNAV MDA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LP Unavailable Use LNAV MDA	GPS integrity is insufficient for LP Approach	Transition to a non-LP approach and the appropriate minima.
L/VNAV Unavail. Use LNAV MDA	GPS integrity is insufficient for L/VNAV Approach	Transition to a non-L/VNAV approach and the appropriate minima.
VNAV Lost Use LNAV MDA	Excessive XTK or Low GPS Integrity for Vertical Guidance	Transition to LNAV minima.

Short Text	Long Text	Comments
Check Altitude Too Low	Aircraft is below the glide slope altitude at FAF	Correct aircraft altitude as required to safely conduct the approach or initiate a climb to a published safe altitude and abort the approach.
Traffic Sensor Fault*	No communication with traffic sensor (local) OR Traffic sensor has failed (global)	Contact a local dealer for service.
Traffic <Low | High> <Bearing in clock direction> <Distance in NM>*	Traffic [Brg (e.g. 1:00)] [dist (e.g. 2 NM)] [alt (e.g. 200 ft)]	Traffic advisories - Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <Low | High> <Distance in NM>*	Traffic <Distance in NM> <Signed relative altitude in feet> FT	Traffic advisories with no bearing information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.

Short Text	Long Text	Comments
Traffic <Bearing in clock direction> <distance in NM>*	Traffic <bearing in clock direction> <distance in NM>	Traffic advisories with no relative altitude information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <distance in NM>*	Traffic <distance in NM>	Traffic advisories with no relative altitude information and no bearing – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
COM TX Fault	Transmitter Fault, No TX Ability	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
COM Stuck TX	Stuck Mic Timeout, Transmitter Disabled	Requires 35 seconds of continuous transmission. Verify the PTT is stuck and contact a dealer for service as required.

Short Text	Long Text	Comments
No Comm with VHF	No communication with the VHF radio	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
Unit Overtemp – Check cooling	Unit Overtemp: <internal component identification>	One or more of the internal components has exceeded 80°C. Contact the Avidyne Service Center or a dealer for service – consider adding a source of cooling and/or improving air flow in/around the IFD.
Low Volts	Backlight reduced to 25%	Main supply voltage has fallen to approximately 11VDC. Check the aircraft alternators are on and functional. Consider load shedding the power bus that is powering the IFD.
Manual Sequence Req'd	Altitude invalid – leg will not auto sequence	In basic E-M aircraft where the IFD does not have altitude input, this message will appear when the FMS active leg is a Heading→Altitude leg. In this case, the FMS flight plan will need to be manually sequenced to the next leg. Failure to do so will keep the FMS flying the heading indefinitely.
Heading Lost	Using ground track for SVS	Indicates loss of the TVV and the aircraft reference symbol ("wedge") now points at ground track, not aircraft heading. "TRK" will also be displayed below the digital compass on the SVS page.

Short Text	Long Text	Comments
No ADS-B Position (s/w 10.1 or later)	AXP322 Lost GPS Position Data	ADS-B position data had previously been valid and then transitions to invalid. Check the ADS-B position source device.
Xpndr Fault (s/w 10.1 or later)	AXP322 Transponder Fault	Any fault other than loss of ADS-B GPS position. Contact the Avidyne Service Center if this persists across power cycles.
No Comm With Xpdr (s/w 10.1 or later)	No Communication with Remote Transponder	No data has been received from the remote transponder for greater than 2 seconds. Contact the Avidyne Service Center if this persists across power cycles.
Radar: Echos Ahead	Radar: Heavy Echos Ahead	Generated when a number of red and/or magenta echos are present within the area ±22° off the nose of the aircraft at the current displayed radar range.
Radar: Target Alert	Radar: Target Alert Detected	Alerts the pilot to the presence of a significant weather cell that exists beyond the currently selected display range.
Radar Sensor Fault	No Communication with Radar Sensor, or; Radar Data is Invalid, or; Sensor mode is [selected] Selected mode is [reported], or; Radar fault code: any active fault codes.	No data is received from the sensor for at least 2 seconds, or; The data stream from the radar contains information that the data stream should not be used, or; If the requested mode and the reported mode do not match, or; Any specific fault code is active from the sensor.
TIS Removed	TIS Traffic Removed	TIS traffic communications have ceased for >12 seconds

Short Text	Long Text	Comments
TIS Unavailable	TIS Traffic Unavailable	No TIS ground station is available or communications have ceased for >60 seconds
Too Low, Terrain	Premature Descent, below glide path	TAWS PDA algorithm has determined the aircraft is below glide path.
Sink Rate	Excessive Descent Rate	TAWS EDR algorithm has determined a potential CFIT scenario is developing – recover the aircraft
Don't Sink	Negative climb rate or altitude loss	TAWS NCR algorithm has determined corrective action should be taken immediately.
TAWS Fail	Invalid GPS Position/Velocity	The GPS solution is lost or the GPS velocity quality parameters drop below required accuracy limits. A "bing-bong" chime is played if this condition occurs. Contact the Avidyne Service Center if this persists across power cycles.
TAWS System Failure	TAWS Failed Self-Test [reason why]	TAWS failed self-test for the reason provided and TAWS will be degraded or not available for the power cycle. Contact the Avidyne Service Center if this persists across power cycles.

The pilot should utilize available instruments/data displays to verify message(s) and take appropriate action(s) (ref POH/AFM) by selection of alternate systems or settings. Invalid messages generally indicate a failed sensor and that other messages associated with that system will be unavailable. Caution messages indicate the possibility of a pilot action.

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Section 4 – Normal Procedures

To Activate the IFD4XX/IFD5XX :

1. Verify IFD circuit breakers (2) ---------- IN
2. Verify Battery Master Switch ----------ON
3. Avionics or Radio Master (if equipped) ---------- ON

To Deactivate the IFD4XX/IFD5XX :

1. Avionics or Radio Master (if equipped) ---------- OFF
   or
2. Press and hold the Power Knob---------- OFF

Autopilots

Reference autopilot Pilots Guide and AFMS.

The IFD4XX/IFD5XX may be coupled to an autopilot. Autopilots coupled to the IFD4XX/IFD5XX in (NAV) mode will follow GPS or VHF navigation guidance as they would with any VOR/LOC receiver. Autopilots providing GPSS (GPS Roll Steering) course guidance will lead course changes (curved transition), fly arcs, holds and procedure turn/reversals.

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Section 5 – Performance

No change from basic Handbook.

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Section 6 – Weight and Balance

No change from basic Handbook. See POH for current weight and balance for this aircraft.

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Section 7 – Systems Description

See Avidyne IFD4XX and IFD5XX FMS/GPS/Nav/Com Pilot Guides

P/N 600-00300-001 for the IFD5XX Series
P/N 600-00304-000 for the IFD4XX Series
P/N 89000039-010 Bendix King AeroNav 900 and 910
P/N 89000041-008 Bendix King AeroNav 800
P/N 600-00317-000 for the IFD545 and IFD550
P/N 600-00318-000 for the IFD510
P/N 600-00319-000 for the IFD410

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FAA Approved

Airplane Flight Manual Supplement

For

_____
Make and Model Airplane

with

Avidyne Integrated Flight Displays p/n 700-00182-XXX and 700-00179-XXX installed with Collins ProLine 21 Avionics

Registration No. _____

Serial No. _____

This supplement must be attached to the applicable FAA Approved Airplane Flight Manual when Avidyne 700-00182-XXX Integrated Flight Display and/or 700-00179-XXX Integrated Flight Display (Release 10.2.2 or later approved version) installed in accordance with STC SA00343BO. The information contained herein supplements or supersedes the basic manual only in those areas listed. For limitations and procedures not contained in this supplement consult the basic Airplane Flight Manual.

FAA Approved WILLIAM P WITZIG Digitally signed by WILLIAM P WITZIG Date: 2019.05.03 13:26:35 -04'00'

Manager
Northeast Flight Test Section
Federal Aviation Administration
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LOG OF REVISIONS

Revision Number	*Revised Pages*	*Description of Revisions*	*FAA Approval*	*Date*
00	ALL	Initial Release	WP Witzig	6/18/18
01	4, 5, 8, 27	Add Configurations	Added TDR ADS-B out compliance statement, BK pilot guide references	W Witzig 5/3/2019

A vertical black line in the margin shows revised portions of affected pages.

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Section 1 – General

This airplane is equipped with an Avidyne p/n 700-00182-XXX IFD5XX Integrated Flight Display and /or Avidyne p/n 700-00179-XXX IFD4XX Integrated Flight Display. Both Integrated Flight Display part numbers may be referred to in this document as simply IFD.

The IFD contains a GPS (SBAS) receiver (all IFD models), VHF Nav/Com transceiver (IFD440, IFD540 and IFD550) and processing to accomplish control, display, navigation and input/output to other avionic systems. The IFD 545 and IFD550 include an internal ARS and are capable of displaying attitude information and ego-centric synthetic vision (SVS).

GPS/SBAS TSO-C146c Class 3 Operation
The IFD4XX and IFD5XX has airworthiness approval for navigation using GPS and SBAS (Satellite Based Augmentation System complying with ICAO Annex 10) for IFR en route, terminal area, and non-precision approach operations (“GPS”, “or GPS”, and “RNAV (GPS)” approaches). The IFD4XX and IFD5XX are approved for approach procedures with vertical guidance including “LPV” and “LNAV/VNAV” and approaches without vertical guidance including “LP” and “LNAV”.

The IFD4XX and IFD5XX comply with the requirements for GPS Class II oceanic and remote navigation (RNP-10) and (RNP-4) without time limitations. A second navigation source may be required for these operations to meet availability requirements.

NOTE

The IFD4XX and IFD5XX must be at software Release 10.2.2 or later approved version to be capable of GPS precision approaches with vertical guidance when installed with ProLine 21 Avionics.

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Database Accuracy and Completeness

The operator is responsible to ensure that the navigation data used in the unit has the accuracy, resolution, and timeliness appropriate for the purpose of the flight operation being conducted. Using navigation data from an Avidyne authorized supplier will ensure that the navigation data has the same accuracy and resolution provided by official sources, in a format compatible with the intended function of the unit.

Avidyne requests that any observed database discrepancies are reported. These discrepancies may be in the form of an incorrect procedure, incorrectly identified terrain, obstacles, navigation fixes, or any other displayed item used for navigation or communication in the air or on the ground. Use the Service Hotline listed on the back cover of the IFD4XX and IFD5XX Pilot Guides.

Avidyne accurately processes and validates the database data, but cannot guarantee the accuracy and completeness of the data provided by various state sources and their suppliers.

Avidyne Corporation holds a FAA Type 2 Letter of Acceptance (LOA) in accordance with AC 20-153 for database integrity, quality, and database management practices for the navigation database. Flight crew and operators can view the LOA at www.avidyne.com.

ADS-B OUT Compliance

The IFD4XX and/or IFD5XX installed per this STC in conjunction with the following transponders/ UAT transceivers have been shown to meet the equipment requirements of 14 CFR 91.227 for ADS-B OUT:

Garmin GTX330ES
Garmin GTX335/345
Collins TDR94(D)

IFD4XX and IFD5XX have been approved for ADS-B Out compliance with other transponders under separate installation approvals (STCs). Check the aircraft's transponder or UAT transceiver AFMS for the statement above indicating ADS-B out compliance for the navigator and transmitter combination.

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ADS-B In Only

The IFD4XX and/or IFD5XX installed per this STC may be interfaced with an ADS-B UAT or 1090MHz receiver (ADS-B In) that does not provide ADS-B out capability. If no ADS-B out system is installed, this installation will not be able to receive TIS-B client status, and will not receive ADS-R or TIS-B broadcasts from ATC unless the aircraft is in the same area as a valid TIS-B client broadcasting that it has ADS-B In capability.

Figure 1. Avidyne IFD540 700-00182-XXX Integrated Flight Display (IFD).

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Figure 2. Avidyne IFD440 700-00179-XXX Integrated Flight Display (IFD).

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Figure 3. Avidyne IFD550 700-00182-XXX Integrated Flight Display Ego-centric SVS.

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Section 2 – Limitations

1. The Avidyne IFD4XX and IFD5XX Integrated Flight Display Pilot Guides:
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   P/N 600-00304-000 for the IFD4XX Series
   P/N 89000039-010 Bendix King AeroNav 900 and 910
   P/N 89000041-008 Bendix King AeroNav 800
   P/N 600-00317-000 for the IFD545 and IFD550
   P/N 600-00318-000 for the IFD510
   P/N 600-00319-000 for the IFD410
   must be available to the pilot during all flight operations.

   In all airplanes, the approved navigation display (external CDI, HSI, or EHSI) is required for flight under instrument flight rules (IFR).

2. To display GPS approaches with vertical guidance from an IFD4XX/IFD5XX on the Pro Line 21 Primary Flight Display (PFD), VLOC1/2 must be selected once established inbound on the final approach course. A separate annunciator indicating GPS as the active navigation source selection is required in the pilot's primary field of view.

3. The IFD4XX and/or IFD5XX installed with an SBAS approved antenna, provides pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):
   - VOR, LOC, ILS instrument approach procedures (procedures using VHF radio guidance) – IFD440, IFD540, IFD550 only
   - RNP instrument approach procedures using the following lines of minima:
     - LNAV minima (including when using advisory vertical guidance from the system);
     - LNAV/VNAV minima;
     - LPV minima; and
     - LP minima.

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Note: The U.S. titles RNP instrument approach procedures "RNAV (GPS) Rwy XX". Other States may use similar titling or may title these procedures "RNAV (GNSS) Rwy XX".

- RNP terminal procedures, including RNP arrival procedures and RNP departure procedures.
- RNAV terminal procedures, including RNAV arrival procedures and RNAV departure procedures.

The IFD4XX and/or IFD5XX when installed with a non-SBAS antenna, provide pilot and automatic flight control guidance for the following operations conducted under instrument flight rules (IFR):

- VOR, LOC, ILS procedures (procedures using VHF radio guidance) – IFD440, IFD540, IFD550 only;
- RNP instrument approach procedures using the following lines of minima:
  - LNAV minima.
- RNP terminal procedures, including RNP arrival procedures and RNP departure procedures.
- RNAV terminal procedures, including RNAV arrival procedures and RNAV departure procedures.

4. When GPS is available, the IFD440 and/or IFD540/550 , may serve as an RNAV alternate or substitute means of navigation for ground-based navigation aids that are out-of-service or unavailable.
5. GPS/SBAS based IFR enroute, oceanic, and terminal navigation is prohibited unless current Navigation and Procedure databases are installed.
6. Use of RNP terminal operations and RNP instrument approach procedures containing RF leg segments (identified on the approach plate) is prohibited.
7. In areas where SBAS coverage is not available, the pilot must check RAIM availability.

8. The Avidyne moving map display provides visual depiction of the aircraft's own-ship, GPS position on a moving map for situational awareness (SA) purposes only. The pilot

   shall not use the moving map display as a sole means of navigation. The external CDI, HSI, or EHSI display must be used as the primary navigation instrument.

9. The Avidyne electronic checklists display supplements the Pilot Operating Handbook checklists and are advisory only. The pilot shall not use the electronic checklists as the primary set of on-board aircraft checklists. FAA Approved Flight Manual paper checklist must be available to the pilot as the primary reference.

10. The IFD integrates with separately approved system installations such navigation indicators, remote annunciators. Adherence to limitations in installation AFM supplements for those systems is mandatory.

11. The use of datalink, traffic and lightning sensor information displayed on the IFD4XX and IFD5XX must be in compliance with the approved AFM supplements for those systems.

12. Gloves may not be used to operate the IFD4XX and IFD5XX touch functions unless the Glove Qualification Procedure located in the IFD4XX/IFD5XX Pilot's Guides has been successfully completed.

13. The IFD545 and IFD550 may not be used for primary attitude information or standby attitude information (If required by type design). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for attitude information.

NOTE

The IFD545 and/or IFD550 may be used in conjunction with air data and turn rate indicators in determining if a primary or standby attitude source has failed e.g. in the case of primary/standby attitude indicator mis-compare.

14. The IFD545 and/or IFD550 may not be used for primary navigation deviation information (horizontal or vertical). The IFD545 and/or IFD550 may only be used as a secondary (non-required) source for this information.

15. The Avidyne IFD4XX and IFD5XX may only be operated in IMC conditions as a radar display when used in conjunction with an independent lightning detection and display system (Approved Thunderstorm Detection Equipment).

CAUTION

Terrain information shown on the MAP page display is provided to the pilot as an aid to situational awareness. The MAP page terrain color representations should not be used as a sole basis for terrain avoidance.

CAUTION

Traffic information shown on the Map page display is provided to the pilot as an aid to visually acquiring traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic. Avoidance maneuvers should not be made based only on a Traffic Advisory.

CAUTION

In IFD545 and IFD550 units the inertial reference accelerometers may be irreparably damaged by exposure to temperatures below -40°C. The units are capable of operating at -40°C, but exposure to temperatures below this, even when powered off, can stress the parts internally causing a detectable and annunciated failure of the sensors.

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Placards

The following is required to be affixed adjacent to the left and right Primary Flight Displays. Placard font must be at least 3/16" of contrasting color and easily legible from the crew positions.

To display GPS approaches with vertical guidance from an IFD4XX/IFD5XX Navigator, VLOC1 must be selected on the Primary Flight Display once established inbound on the final approach course.

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Section 3 – Emergency Procedures

Loss of GPS

In the event of the loss of the IFD440 or IFD540 GPS receiver, the FMS will enter dead reckoning mode for 5 minutes, after that all FMS functions are lost and the ownship is removed from map depictions. The pilot should revert to remaining navigation receiver (required for IFR operations).

Loss of VHF Nav/Com

In the event of the loss of IFD440, IFD540 or IFD550 VHF navigation, the pilot should revert to remaining navigation receiver (required for IFR operations).

Warning Messages

Caution and warning messages provided by the IFD4XX and IFD5XX are related to functions performed by the IFD4XX and IFD5XX and are additional to the caution and warning annunciation system provided by the aircraft.

NOTE

The original caution and warning annunciator panel remains as the primary indication. POH/AFM Emergency procedures are not affected by this installation.

CAUTION

IFD4XX units lack an audio inhibit output to preclude other sensors aural alerts from sounding while IFD4XX forward looking terrain awareness (FLTA) aural alerts are issued. Simultaneous alerts are possible. Example; a TIS-B aural traffic alert could be issued at the same time as an FLTA terrain or obstacle aural caution or warning.

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To Disable WiFi/Bluetooth Connectivity on IFD4XX/IFD5XX:

1. Press and hold the IFD4xx/IFD5XX power button/knob for 1 second (upper left bezel) ----------
2. ALLOW/IGNORE WiFi Bluetooth dropdown is presented. Press IGNORE---------- Dropdown is removed
3. Verify the WiFi and Bluetooth icons on the upper right of the display are removed---------- Extinguish

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Caution Messages

The Caution and Warning panel is not altered as part of this modification and remains the primary means of providing Caution and Warning messages.

Caution and Warning messages are provided in the following table:

EXCEEDANCES | WARNINGS RED

Short Text	Long Text	Comments
Terrain Pull-Up*	Terrain Pull-Up	The FLTA algorithm has detected an imminent ground collision - Initiate an immediate recovery maneuver.
Warning Obstacle*	Warning Obstacle	The FLTA algorithm has detected an imminent obstacle collision. Initiate an immediate recovery maneuver.
Unit Overtemp – Unit Unreliable	Unit Overtemp: <internal component name> Unit reliability in question – Get IFD serviced	One or more of the internal components has exceeded its maximum design temperature and reliability cannot be ensured until the unit is tested by the Avidyne Service Center. Contact the Avidyne Service Center or a local dealer for service. This message will be present on every subsequent power cycle until reset by the Avidyne Service Center.
Low Volts – off in <countdown from 60> sec	Low Volts – IFD powers down in <countdown from 60> sec	Main supply voltage has fallen below 9 VDC. Contact a local dealer for service.
Pull Up	Excessive Descent Rate	The TAWS Excessive Descent Rate algorithm has detected a CFIT potential – initiate an immediate recovery maneuver.

EXCEEDANCES | CAUTIONS YELLOW

Short Text	Long Text	Comments
Caution Terrain*	Caution Terrain	The FLTA algorithm is predicting a likely ground collision within approximately 60 seconds – initiate a proper recovery maneuver.
Caution Obstacle*	Caution Obstacle	The FLTA algorithm is predicting a likely obstacle collision with approximately 60 seconds – initiate a proper recovery maneuver.
GPS Integrity Lost	GPS Integrity Lost – Crosscheck Nav	This is alerting about imminent exceedence of horizontal fault detection limits or protection levels. Crosscheck the nav solution and determine the best course of action. If on a GPS based approach, Missed Approach is required.
GPS Fault Dead Reckoning	Position updated via dead reckoning	The system will use the last known position and groundspeed (and heading if available) to estimate the aircraft position following loss of GPS for up to 5 minutes. Since Dead Reckoning assumes no directional or groundspeed change, it will not be reliable even during those first 5 minutes if either or both of these factors have changed. Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.

Short Text	Long Text	Comments
GPS Fault No Position	No position available	The navigation solution cannot compute a position, typically after dead reckoning has expired. Execute a missed approach if this occurs while performing a GPS based approach. Use an alternate GPS or VHF navigation receiver.
Configuration Error	Configuration Error – IFD Requires Service	The configuration of the IFD or the devices to which it is communicating with has changed or experienced an error. Contact the Avidyne Service Center or a local dealer for service.
LPV Unavailable Use L/VNAV DA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LPV Unavailable Use LNAV MDA	GPS integrity is insufficient for LPV Approach	Transition to a non-LPV approach and the appropriate minima if possible. Otherwise execute a missed approach.
LP Unavailable Use LNAV MDA	GPS integrity is insufficient for LP Approach	Transition to a non-LP approach and the appropriate minima.
L/VNAV Unavail. Use LNAV MDA	GPS integrity is insufficient for L/VNAV Approach	Transition to a non-L/VNAV approach and the appropriate minima.
VNAV Lost Use LNAV MDA	Excessive XTK or Low GPS Integrity for Vertical Guidance	Transition to LNAV minima.

Short Text	Long Text	Comments
Check Altitude Too Low	Aircraft is below the glide slope altitude at FAF	Correct aircraft altitude as required to safely conduct the approach or initiate a climb to a published safe altitude and abort the approach.
Traffic Sensor Fault*	No communication with traffic sensor (local) OR Traffic sensor has failed (global)	Contact a local dealer for service.
Traffic <Low | High> <Bearing in clock direction> <Distance in NM>*	Traffic [Brg (e.g. 1:00)] [dist (e.g. 2 NM)] [alt (e.g. 200 ft)]	Traffic advisories - Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <Low | High> <Distance in NM>*	Traffic <Distance in NM> <Signed relative altitude in feet> FT	Traffic advisories with no bearing information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.

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Short Text	Long Text	Comments
Traffic <Bearing in clock direction> <distance in NM>*	Traffic <bearing in clock direction> <distance in NM>	Traffic advisories with no relative altitude information – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
Traffic <distance in NM>*	Traffic <distance in NM>	Traffic advisories with no relative altitude information and no bearing – Alert to be used to facilitate visual acquisition of traffic. Pilots should maneuver their aircraft based only on ATC guidance or positive visual acquisition of the conflicting traffic.
COM TX Fault	Transmitter Fault, No TX Ability	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
COM Stuck TX	Stuck Mic Timeout, Transmitter Disabled	Requires 35 seconds of continuous transmission. Verify the PTT is stuck and contact a dealer for service as required.

Short Text	Long Text	Comments
No Comm with VHF	No communication with the VHF radio	Transition to a backup VHF com radio (if available) or initiate lost communication procedures. Contact the Avidyne Service Center or a dealer for service.
Unit Overtemp – Check cooling	Unit Overtemp: <internal component identification>	One or more of the internal components has exceeded 80°C. Contact the Avidyne Service Center or a dealer for service – consider adding a source of cooling and/or improving air flow in/around the IFD.
Low Volts	Backlight reduced to 25%	Main supply voltage has fallen to approximately 11VDC. Check the aircraft alternators are on and functional. Consider load shedding the power bus that is powering the IFD.
Manual Sequence Req'd	Altitude invalid – leg will not auto sequence	In basic E-M aircraft where the IFD does not have altitude input, this message will appear when the FMS active leg is a Heading→Altitude leg. In this case, the FMS flight plan will need to be manually sequenced to the next leg. Failure to do so will keep the FMS flying the heading indefinitely.
Heading Lost	Using ground track for SVS	Indicates loss of the TVV and the aircraft reference symbol ("wedge") now points at ground track, not aircraft heading. "TRK" will also be displayed below the digital compass on the SVS page.

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Short Text	Long Text	Comments
No ADS-B Position	AXP322 Lost GPS Position Data	ADS-B position data had previously been valid and then transitions to invalid. Check the ADS-B position source device.
Xpndr Fault	AXP322 Transponder Fault	Any fault other than loss of ADS-B GPS position. Contact the Avidyne Service Center if this persists across power cycles.
No Comm With Xpdr	No Communication with Remote Transponder	No data has been received from the remote transponder for greater than 2 seconds. Contact the Avidyne Service Center if this persists across power cycles.
Radar: Echos Ahead	Radar: Heavy Echos Ahead	Generated when a number of red and/or magenta echos are present within the area ±22° off the nose of the aircraft at the current displayed radar range.
Radar: Target Alert	Radar: Target Alert Detected	Alerts the pilot to the presence of a significant weather cell that exists beyond the currently selected display range.
Radar Sensor Fault	No Communication with Radar Sensor, or; Radar Data is Invalid, or; Sensor mode is [selected] Selected mode is [reported], or; Radar fault code: any active fault codes.	No data is received from the sensor for at least 2 seconds, or; The data stream from the radar contains information that the data stream should not be used, or; If the requested mode and the reported mode do not match, or; Any specific fault code is active from the sensor.

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Short Text	Long Text	Comments
TIS Removed	TIS Traffic Removed	TIS traffic communications have ceased for >12 seconds
TIS Unavailable	TIS Traffic Unavailable	No TIS ground station is available or communications have ceased for >60 seconds
Too Low, Terrain	Premature Descent, below glide path	TAWS PDA algorithm has determined the aircraft is below glide path.
Sink Rate	Excessive Descent Rate	TAWS EDR algorithm has determined a potential CFIT scenario is developing – recover the aircraft
Don't Sink	Negative climb rate or altitude loss	TAWS NCR algorithm has determined corrective action should be t aken immediately.
TAWS Fail	Invalid GPS Positon/Velocity	The GPS solution is lost or the GPS velocity quality parameters drop below required accuracy limits. A "bing-bong" chime is played if this condition occurs. Contact the Avidyne Service Center if this persists across power cycles.
TAWS System Failure	TAWS Failed Self-Test [reason why]	TAWS failed self-test for the reason provided and TAWS will be degraded or not available for the power cycle. Contact the Avidyne Service Center if this persists across power cycles.

The pilot should utilize available instruments/data displays to verify message(s) and take appropriate action(s) (ref POH/AFM) by selection of alternate systems or settings. Invalid messages generally indicate a failed sensor and that other messages associated with that system will be unavailable. Caution messages indicate the possibility of a pilot action.

Section 4 – Normal Procedures

See Avidyne IFD4XX/IFD5XX Pilot's Guides for Normal operation procedures.

To Activate the IFD4XX/IFD5XX :

1. Verify IFD circuit breakers (2) ---------- IN
2. Verify Battery Master Switch ----------ON
3. Avionics or Radio Master (if equipped) ---------- ON

To Deactivate the IFD4XX/IFD5XX :

4. Avionics or Radio Master (if equipped) ---------- OFF
   or
5. Press and hold the Power Knob---------- OFF

IMC Operations with Weather Radar

1. While operating in IMC conditions with weather radar active, activate lightning detection system and monitor. Correlate lightning strike information with painted radar information to confirm proper system operation.
2. In the event that radar data and lightning do not coincide, contact ATC for the latest severe weather information.

GPS Approach(es) with Vertical Guidance – ProLine 21

1. Select FMS1/2 associated with desired IFD4XX/IFD5XX navigator to fly all enroute, transition and initial approach procedure legs.
2. Once established inbound on GPS procedure with vertical guidance, Select VLOC1/2 on the ProLine 21 Primary Flight Display. Adjust course pointer to published inbound course.
3. Verify GPS annunciation on remote annunciator.

4. Track lateral and vertical guidance on ProLine 21 Primary Nav Indicator per the current published procedure.

5. For missed approach (Published) switch the ProLine 21 Primary Nav Indicator source to FMS1/2 appropriate to the IFD4XX/IFD5XX in use. Verify course is set to active missed approach leg published course.

NOTE

When VLOC1/2 is selected on the ProLine 21 Avionics during GPS approaches with vertical guidance, FMS waypoint information is not displayed on the PFD. This information can be selected for display on the IFD5XX/IFD4XX if desired.

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Section 5 – Performance

No change from basic Handbook.

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Section 6 – Weight and Balance

No change from basic Handbook. See AFM/POH for current weight and balance for this aircraft.

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Section 7 – Systems Description

See Avidyne IFD4XX and IFD5XX FMS/GPS/Nav/Com Pilot Guides

P/N 600-00300-001 for the IFD5XX Series
P/N 600-00304-000 for the IFD4XX Series
P/N 89000039-010 Bendix King AeroNav 900 and 910
P/N 89000041-008 Bendix King AeroNav 800
P/N 600-00317-000 for the IFD545 and IFD550
P/N 600-00318-000 for the IFD510
P/N 600-00319-000 for the IFD410

AVIDYNE

IFD5XX & IFD4XX Navigators
Installation Manual

UP793797

Revision History

Document Number	600-00299-000	*Control Category*	CC2

Revision	*Description*	*ECO*	*Date*
00	Initial Release	ECO-14-207	07/09/14
01	Release 10.0.1.0	ECO-14-283	08/21/14
02	Release 10.0.2.0	ECO-14-356	11/12/14
03	Release 10.0.3.0	ECO-14-424	02/02/15
04	Release for TSO	ECO-15-154	04/09/15
05	Define MLB100 TSO part number	ECO-15-385	09/29/15
06	Support WiFi Bluetooth activation utility	ECO-15-425	11/06/15
07	Release 10.1.1.0	ECO-15-469	12/04/15
08	Release 10.1.2.0	ECO-16-054	03/01/16
09	Add EASA Verbiage and 10.1.3	ECO-16-054	06/23/16
10	Release 10.2	ECO-17-001	02/03/17
11	Minor error correction to D-44, D-45, Table 73	ECO-17-060	03/08/17
12	Minor error correction to D-44, D-45, Table 73	ECO-17-066	03/15/17
13	Release 10.2.1.0	ECO-18-013	02/09/18
14	Release 10.2.1.0 minor corrections	ECO-18-066	03/07/18
15	Add Proline 21 EFIS /APS 3000 AP	ECO-18-138	05/16/18
16	Update for GPS roll-over of the 10 bit number of weeks, Update Table 1 and 2	ECO-19-025	02/08/19
17	Release 10.2.3.1	ECO-19-050	04/17/19

The latest installation manuals are available to authorized dealers on the web at www.avidyne.com.

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Table of Contents

Notes to Installers:

The following important issues regarding the Avidyne 700-00182-XXX and 700-00179-XXX GPS/NAV/COM System installation should be noted during the planning stages.

1. **These installation instructions assume that the GPS/NAV/COM transceiver and GPS antenna can be installed in a structurally sound manner in accordance with the installation manual and AC 43.13-( ). All the aircraft certification requirements must remain in compliance.**
2. **Mounting the GPS antenna on composite and pressurized aircraft requires engineering guidance beyond the scope of this manual. With respect to the Approved Model List STC, the physical mounting of the antenna is specifically excluded from the approval in the case of installations on the pressure vessel of pressurized aircraft, composite aircraft, and aircraft with a certification basis of Amendment 23-45 or later, unless approved installation data is listed in the Master Document List of the STC. All early amendment, metal construction, non-pressurized aircraft antenna installations must be installed consistent with accepted industry practices. The installation must be structurally sound and in accordance with FAA Advisory Circular 43.13-1B and 43.13-2B. All other antennas must be mounted using the manufacturers' installation data.**
3. **An Electrical Load Analysis must be accomplished to determine that the electrical limits of the specific aircraft are not exceeded. The Electrical Load Analysis, Functional Hazard Assessment and other certification requirements for the aircraft must remain in compliance.**
4. **The IFD5XX/4XX Forward Looking Terrain Alerting is not a TSO-C151 system, and does not satisfy any Part 91/135 TAWS requirements.**
5. **Prior to starting IFD5XX/4XX installation, verify the aircraft make and model is on the STC Approved Model List (AML). Also, note any installation specific data for the make and model in the AML.**
6. **IFD545 and IFD550 may not be stored, or installed in any aircraft that is expected to be stored, in areas where the temperature is expected to be below -40°C**
7. **IFD545 and IFD550 cannot be used as a required attitude indicator and must only be used as a "secondary (non required) source of attitude information".**

1. General Information

1.1 Introduction

This manual contains information about the physical, mechanical, and electrical characteristics of the Avidyne IFD5XX/IFD4XX GPS/Navigation/Communication, and provides installation instructions for its components.

1.2 Applicability

This manual applies to the following part numbers in Table 1 and Table 2

[1] This component is only present in 530-00243-000 configurations and specified 700-00182-XXX Configurations

[2] This component is only present in 530-00243-001 configurations specified 700-00182-XXX Configurations

Model Number	Hardware Part Number	Software Part Number (or later approved revision)
IFD510 (Black Bezel)	700-00182-010(1)	**ACR**: 530-00240-000 Rev. 03(1) 530-00240-001 Rev. 00(2) • 510-00340-000 Rev. 00 • 510-00341-000 Rev. 00 • 510-00310-000 Rev. 00 • 510-00311-001 Rev. 00 • 510-00312-000 Rev. 04(1) • 510-00312-005 Rev 00 (2) • 510-00346-000 Rev. 00 **FPSM**: 530-00226-000 Rev. 04 • 510-00294-000 Rev. 04 • 510-00291-000 Rev. 00 **LIO App:** 530-00239-000 Rev. 05 • 510-00328-000 Rev. 00 • 510-00329-000 Rev. 05 **LIO I/O:** 530-00238-000 Rev. 05 • 510-00343-000 Rev. 00 • 510-00289-000 Rev. 01 • 510-00290-000 Rev. 02 • 510-00291-000 Rev. 00 **GPS:** 530-00229-000 Rev. 08 • 510-00876-000 Rev. 07 • 510-00877-000 Rev. 02 **VHF:** 530-00231-000 Rev. 04 NOTE: Not Installed in IFD510, IFD545
IFD510 with Video (Black Bezel)	700-00182-011(1)	
IFD510 (Gray Bezel)	700-00182-110(1)	
IFD510 with Video (Gray Bezel)	700-00182-111(1)	
IFD510 (Black Bezel)	700-00182-710(2)	
IFD510 with Video (Black Bezel)	700-00182-711(2)	
IFD510 (Gray Bezel)	700-00182-810(2)	
IFD510 with Video (Gray Bezel)	700-00182-811(2)	
IFD540 (Black Bezel)	700-00182-000(1)	
IFD540, 16W (Black Bezel)	700-00182-002(1)	
IFD540 with Video (Black Bezel)	700-00182-001(1)	
IFD540 (Gray Bezel)	700-00182-100(1)	
IFD540, 16W (Gray Bezel)	700-00182-102(1)	
IFD540 with Video (Gray Bezel)	700-00182-101(1)	
IFD540 (Black Bezel)	700-00182-700(2)	
IFD540 with Video (Black Bezel)	700-00182-701(2)	
IFD540 (Gray Bezel)	700-00182-800(2)	
IFD540 with Video (Gray Bezel)	700-00182-801(2)	
IFD545 (Black Bezel)	700-00182-030(1)	
IFD545 with Video (Black Bezel)	700-00182-031(1)	
IFD545 (Gray Bezel)	700-00182-130(1)	
IFD545 with Video (Gray Bezel)	700-00182-131(1)	
IFD545 (Black Bezel)	700-00182-730(2)	
IFD545 with Video (Black Bezel)	700-00182-731(2)	
IFD545 (Gray Bezel)	700-00182-830(2)	
IFD545 with Video (Gray Bezel)	700-00182-831(2)	

IFD550 (Black Bezel)	700-00182-020(1)	• 510-00314-000 Rev. 00
IFD550 with Video (Black Bezel)	700-00182-021(1)	• 510-00239-001 Rev. 00
IFD550 (Gray Bezel)	700-00182-120(1)	• 510-00316-000 Rev. 05
IFD550 with Video (Gray Bezel)	700-00182-121(1)	• 510-00237-000 Rev. 00
IFD550 (Black Bezel)	700-00182-720(2)	**ARS:** 530-00223-000 Rev. 00
IFD550 with Video (Black Bezel)	700-00182-721(2)	NOTE: Installed in IFD545 and IFD550
IFD550 (Gray Bezel)	700-00182-820(2)	• 510-00283-000 Rev. 01
IFD550 with Video (Gray Bezel)	700-00182-821(2)	• 510-00332-000 Rev. 00

Table 1 IFD5XX Variants

[1] This component is only present in 530-00243-000 configurations and specified 700-00179-XXX Configurations

[2] This component is only present in 530-00243-001 configurations specified 700-00179-XXX Configurations

Model Number	Hardware Part Number	Software Part Number (or later approved revision)
IFD410 (Black Bezel) IFD410 (Gray Bezel) IFD410 (Black Bezel) IFD410 (Gray Bezel)	700-00179-010(1) 700-00179-110(1) 700-00179-710(2) 700-00179-810(2)	**ACR**: 530-00240-000 Rev. 03(1) 530-00240-001 Rev. 00(2) • 510-00340-000 Rev. 00 • 510-00341-000 Rev. 00 • 510-00310-000 Rev. 00 • 510-00311-001 Rev. 00 • 510-00312-000 Rev. 04(1) • 510-00312-005 Rev 00 (2) • 510-00346-000 Rev. 00 **FPSM**: 530-00226-000 Rev. 04 • 510-00294-000 Rev. 04 • 510-00291-000 Rev. 00
IFD440 (Black Bezel IFD440 (Gray Bezel) IFD440 (Black Bezel IFD440 (Gray Bezel)	700-00179-000(1) 700-00179-100(1) 700-00179-700(2) 700-00179-800(2)	**LIO App:** 530-00239-000 Rev. 05 • 510-00328-000 Rev. 00 • 510-00329-000 Rev. 05 **LIO I/O:** 530-00238-000 Rev. 05 • 510-00343-000 Rev. 00 • 510-00289-000 Rev. 01 • 510-00290-000 Rev. 02 • 510-00291-000 Rev. 00 **GPS:** 530-00229-000 Rev. 08 • 510-00876-000 Rev. 07 • 510-00877-000 Rev. 02 **VHF:** 530-00231-000 Rev. 04 NOTE: Not Installed in IFD410 • 510-00314-000 Rev. 00 • 510-00239-001 Rev. 00 • 510-00316-000 Rev. 05 • 510-00237-000 Rev. 00

Table 2 IFD4XX Variants

1.3 Unit Modifications

The following tables list the hardware modifications since initial release of the IFD540 and IFD440. The IFD510, IFD545, IFD550 and IFD410 do not have any unit modifications at the time of this revision.

Modification	Change	Hardware PN	Hardware Revision	Software	HW Release Date
MOD 2	OBS UPDATE	700-00182-000 700-00182-002 700-00182-100 700-00182-102	01 01 01 01	10.0.0.0 or later	9/25/2014
MOD 4	SERIAL DME UPDATE	700-00182-000 700-00182-002 700-00182-100 700-00182-102	03 03 03 03	10.0.3.0 or later	11/21/2014
MOD 5	STANDBY AUDIO IMPLEMENTATION	700-00182-000 700-00182-002 700-00182-100 700-00182-102	04 04 04 04	10.1 or later	12/11/2014
MOD 8	GPS MAXIM B, HIGH GAIN LNA1	700-00182-000 700-00182-002 700-00182-100 700-00182-102	07 07 07 07	10.1 or later	05/05/2015
MOD 11	REPLACEMENT OF MAIN GPS OSCILLATOR	700-00182-000 700-00182-002 700-00182-100 700-00182-102	10 10 10 10	10.1 or later	07/22/2015
MOD 12	CHANGE RESOLVER INPUTS TO AC COUPLED	700-00182-000 700-00182-002 700-00182-100 700-00182-102	11 11 11 11	10.1 or later	11/04/2015

Table 3 IFD540 Modification History

Modification	Change	Hardware PN	Hardware Revision	Software	HW Release Date
MOD 03	CHANGE RESOLVER INPUTS TO AC COUPLED	700-00179-000 700-00179-100	03 03	10.1 or later	11/04/2015

Table 4 IFD440 Modification History

1.4 Technical Specifications

This section gives mechanical and electrical characteristics for the IFD5XX and IFD4XX.

1.4.1 IFD5XX Specifications

The IFD5XX unit has the following characteristics:

1.4.1.1 IFD5XX Physical and Electrical Specifications

Physical Specifications	
Bezel Height	4.58 inches (116 mm)
Bezel Width	6.25 inches (159 mm)
Depth (w/Connectors)	11.00 inches (279 mm)
Weight	Table 10 IFD Installed weights
Connectors (Aircraft Mating Connector)	P1001/P1050 - 78-position High Density D-Subminiature (male) P1002- 25-position Standard D- Subminiature (female) P1006- 44-position High Density D-Subminiature (male)
Electrical Requirements	
Voltage	9-33 VDC
Current	**IFD510:** 4.4A main at 14VDC 3.0A main at 28VDC **IFD540:** 4.4A main, 6.5A COM, 0.5A NAV at 14VDC 3.0A main, 1.0A NAV at 28VDC 3.6A @ 10W, 4.1A @ 16W COM at 28VDC **IFD550:** 5.4A main, 6.5A COM, 0.5A NAV at 14VDC 3.5A main, 1.0A NAV at 28VDC 3.6A @ 10W, 4.1A @ 16W COM at 28VDC **IFD545:** 5.4A main at 14VDC 3.5A main at 28VDC
Dimming Bus	28VDC/14VDC/5VDC/5VAC
Cooling Requirements	Not Required
Operating Limits	Reference Appendix A: Environmental Qualification Form

Table 5 IFD5XX Specifications

1.4.1.2 IFD5XX Display Specifications

Display Size	5.7 inches diagonal
Active Area	4.53 inches (w) x 3.40 inches (h)
Resolution	640x480 pixels
Viewing Angle	**IFD5XX Designed and Tested Limits:** Left/Right: 45° Up: 35° Down: 35° **LCD Specification:** Left/Right: 80° Up: 80° Down: 60°

Table 6 IFD5XX Display Specifications

1.4.1.3 IFD5XX GPS Specifications

Channels	16 channels (13 GPS, 3 GPS/WAAS/SBAS)
Velocity	1000 knots maximum (below 60,000 ft)
TTFF (Time to First Fix)	150 seconds
Reacquisition	20 seconds
Position Update Interval	0.2 seconds (5 Hz)
PPS Signal (Time Mark)	(UTC Epoch) +100ns ± 50ns over all conditions 1 sec ±75ns between pulses
Lat/Long Position Accuracy	3.4 meters
Fault Detection/RAIM	RAIM/FDE WAAS Beta 3 Compliant @ 5 Hz
Sensitivity	-123 dBm
GPS System Design Assurance (SDA)	DO-178B Level B, DO-254 Level B
GPS Source Integrity Level (SIL)	3 – Enroute
Source Integrity Level Supplement (SIL_{SUPP})	0 – "per hour"
Navigation Accuracy Category Velocity (NAC_V)	Category 3 [< 1 m/s] ADS-B installations should use a NACv of 1 unless GPS tests support a higher category. The AXP340 requires a NACv of Category 1 [< 10 m/s] or better.
Receiver Class	TSO-C146d Class Gamma 3 receiver that complies with AC 20-138C

Table 7 IFD5XX GPS Specifications

1.4.1.4 IFD540, IFD550 VHF Communication Transceiver Specification

Audio Output	65 mW into 150Ω load
Audio Response	<6dB Variation from 350 to 2500 Hz, 4kHz -18dB
AGC Characteristics	<6dB Variation from 10uV to 10mV
Sensitivity	4uV (6dB (S+N)/N 30% mod @ 1KHz)
Spurious Response	10mV spurious signal produces no more output than a desired signal at 6dB (S+N)/N
Transmitter Power	16W or 10W @ 28V, 10W @ 14V (Typical)
Transmitter Duty Cycle	Recommended 10% maximum
Modulation Capability	70%
Carrier Noise Level	-39dB (S+N)/N
Frequency Stability	>2.5 ppm
Demodulation Audio Distortion	<12% @ 70% modulation
Sidetone Fidelity	300-2500 Hz
Demodulation Audio Response	<6dB Variation from 300 to 2500 Hz

Table 8 VHF Communication Transceiver Specifications

1.4.1.5 IFD545, IFD550 ARS (Inertial Reference) Specifications

Attitude Static Accuracy	+/- 1.0 degree
Attitude Dynamic and Flight Accuracy	+/- 2.5 degrees
Slip output	Provided
Heading, Turn Rate, and Standard Turn Bank Angle Outputs	Not provided

Table 9 ARS Specification

1.4.1.6 IFD5XX Installed unit weight in pounds

Unit	Unit Weight	Installed Weight Without Backshells (Less Wiring)	Installed Weight with Backshells (Less Wiring)
IFD510	5.65	7.04	7.52
IFD540	6.75	8.38	9.20
IFD545	6.00	7.39	7.87
IFD550	7.15	8.78	9.60

Table 10 IFD Installed weights

1.4.1.7 IFD540, IFD550 VHF Navigation Specification

Glideslope Receiver	-
Selectivity	0 +/-.0091 ddm w/ test signal varied +/-17kHz. 60dB for +/- 132kHz offset
Sensitivity (flag)	10uV max
Spurious Response	>-60 dB
Centering Accuracy	0 ± 0.02 DDM or better
Deflection Response	67% of final value in 600msec
Localizer Receiver	-
Selectivity	6dB at least ±17kHz, 40dB no more than ±80kHz
Sensitivity (flag)	10uV max
Sensitivity (aural)	10uV max for 20dB (S+N)/N with 1kHz 30%mod
Centering Accuracy	+/-3mV
Deflection Response	67% of final value in 600msec
Audio Response	<6dB Variation from 350 to 2500 Hz, -20dB <150Hz >9kHz

Table 11 VHF Navigation Specification

1.4.2 IFD4XX Specifications

The IFD4XX unit has the following characteristics:

1.4.2.1 IFD4XX Physical and Electrical Specifications

Physical Specifications	
Bezel Height	2.66 inches (67 mm)
Bezel Width	6.25 inches (159 mm)
Depth (w/Connectors)	11.00 inches (279 mm)
Weight	Table 13 IFD Installed weights
Connectors (Aircraft Mating Connector)	P1001 - 78-position High Density D-Subminiature (male) P1002- 25-position Standard D- Subminiature (female) P1006- 44-position High Density D-Subminiature (male)
Electrical Requirements	
Voltage	9-33 VDC
Current	**IFD410:** 4.4A main at 14VDC 3.0A main at 28VDC **IFD440:** 4.4A main, 6.5A COM, 0.5A NAV at 14VDC 3.0A main, 1.0A NAV at 28VDC 3.6A @ 10W, 4.1A @ 16W COM at 28VDC
Dimming Bus	28VDC/14VDC/5VDC/5VAC
Cooling Requirements	Not Required
Operating Limits	Reference Appendix A: Environmental Qualification Form

Table 12 IFD4XX Specifications

1.4.2.2 IFD4XX Installed unit weight in pounds

Unit	Unit Weight	Installed Weight Without Backshells (Less Wiring)	Installed Weight with Backshells (Less Wiring)
IFD410	4.00	4.81	5.05
IFD440	5.16	6.21	6.78

Table 13 IFD Installed weights

1.4.2.3 IFD4XX Display Specifications

Display Size	4.8 inches diagonal
Active Area	4.53 inches (w) x 1.70 inches (h)
Resolution	640x480 pixels
Viewing Angle	**IFD4XX Designed and Tested Limits:** Left/Right: 45° Up: 35° Down: 35° **LCD Specification:** Left/Right: 80° Up: 80° Down: 60°

Table 14 IFD4XX Display Specifications

1.4.2.4 IFD4XX GPS Specifications

Channels	16 channels (13 GPS, 3 GPS/WAAS/SBAS)
Velocity	1000 knots maximum (below 60,000 ft)
TTFF (Time to First Fix)	150 seconds
Reacquisition	20 seconds
Position Update Interval	0.2 seconds (5 Hz)
PPS Signal (Time Mark)	(UTC Epoch) +100ns ± 50ns over all conditions 1 sec ±75ns between pulses
Lat/Long Position Accuracy	3.4 meters
Fault Detection/RAIM	RAIM/FDE WAAS Beta 3 Compliant @ 5 Hz
Sensitivity	-123 dBm
GPS System Design Assurance (SDA)	DO-178B Level B, DO-254 Level B
GPS Source Integrity Level (SIL)	3 – Enroute
Source Integrity Level Supplement (SIL_{SUPP})	0 – "per hour"
Navigation Accuracy Category Velocity (NAC_V)	Category 3 [< 1 m/s] ADS-B installations should use a NACv of 1 unless GPS tests support a higher category. The AXP340 requires a NACv of Category 1 [< 10 m/s] or better.
Receiver Class	TSO-C146d Class Gamma 3 receiver that complies with AC 20-138C

Table 15 IFD4XX GPS Specifications

1.4.2.5 IFD440 VHF Communication Transceiver Specifications

Audio Output	65 mW into 150Ω load
Audio Response	<6dB Variation from 350 to 2500 Hz, 4kHz -18dB
AGC Characteristics	<6dB Variation from 10uV to 10mV
Sensitivity	4uV (6dB (S+N)/N 30% mod @ 1KHz)
Spurious Response	10mV spurious signal produces no more output than a desired signal at 6dB (S+N)/N
Transmitter Power	16W or 10W @ 28V, 10W @ 14V (Typical)
Transmitter Duty Cycle	Recommended 10% maximum
Modulation Capability	70%
Carrier Noise Level	-39dB (S+N)/N
Frequency Stability	>2.5 ppm
Demodulation Audio Distortion	<12% @ 70% modulation
Sidetone Fidelity	300-2500 Hz
Demodulation Audio Response	<6dB Variation from 300 to 2500 Hz

Table 16 VHF Communication Transceiver Specifications

1.4.2.6 IFD440 VHF Navigation Specification

Glideslope Receiver	-
Selectivity	0 +/-.0091 ddm w/ test signal varied +/-17kHz. 60dB for +/- 132kHz offset
Sensitivity (flag)	10uV max
Spurious Response	>-60 dB
Centering Accuracy	0 ± 0.02 DDM or better
Deflection Response	67% of final value in 600msec
Localizer Receiver	-
Selectivity	6dB at least ±17kHz, 40dB no more than ±80kHz
Sensitivity (flag)	10uV max
Sensitivity (aural)	10uV max for 20dB (S+N)/N with 1kHz 30%mod
Centering Accuracy	+/-3mV
Deflection Response	67% of final value in 600msec
Audio Response	<6dB Variation from 350 to 2500 Hz, -20dB <150Hz >9kHz

Table 17 VHF Navigation Specification

1.5 Power Requirements

The IFD5XX/4XX is capable of operating from 9-33 VDC. The following table shows the maximum current requirements for 14VDC and 28VDC aircraft electrical systems.

Voltage	14VDC	28VDC
Main Power IFD540/510/440/410	4.4A	3.0A
Main Power IFD550/545	5.4A	3.5A
COM Power 10W*	6.5A	3.6A
COM Power 16W*	N/A	4.1A
NAV Power*	0.5A	1.0A

*Not applicable for IFD510/ 545/410

Table 18 Power Requirements

1.6 Regulatory Compliance

1.6.1 Applicable TSOs

This section identifies Technical Standard Orders (TSOs) applicable to the IFD5XX/4XX system. The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approvals for installation in aircraft. The article may be installed only if performed under 14 CFR Part 43 or the applicable airworthiness requirements.

TSO Number	Title	Type/Categories
TSO-C34e*	ILS Glide Slope Receiving Equipment Operating within the Radio Frequency Range of 328.6-335.4 Megahertz (MHz)	
TSO-C36e*	Airborne ILS Localizer Receiving Equipment Operating within the Radio Frequency Range of 108-112 Megahertz (MHz)	
TSO-C40c*	VOR Receiving Equipment Operating within the Radio Frequency Range of 108-117.95 Megahertz (MHz)	
TSO-C44c	Fuel Flowmeters	
TSO-C63d	Airborne Weather Radar Equipment	Class C (Display Functions Only)

TSO Number	Title	Type/Categories
TSO-C110a	Airborne Passive Thunderstorm Detection Equipment	
TSO-C112e	Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment	
TSO-C113a	Airborne Multipurpose Electronic Display	
TSO-C118a	Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS I	
TSO-C128a*	Devices that Prevent Blocked Channels Used in Two-Way Radio Communications Due to Unintentional Transmissions	
TSO-C146d	Stand-Alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS).Airborne Supplemental Navigation Equipment Using the Global Positioning System (GPS) - Gamma 3	
TSO-C147a	Traffic Advisory System (TAS) Airborne Equipment	Class A (Display Functions Only)
TSO-C157a	Aircraft Flight Information Services – Broadcast (FIS-B) Datalink Systems and Equipment	
TSO-C165	Electronic Map Display Equipment for Graphical Depiction of Aircraft Position	
TSO-C169a*	VHF Radio Communications Transceiver Equipment Operating Within The Radio Frequency Range 117.975 To 137.000 Megahertz	Class C, E, 3 and 5
TSO-C195b	Avionics Supporting Automatic Dependent Surveillance – Broadcast ADS-B Aircraft Surveillance Applications	
TSO-C201	Attitude and Heading Reference Systems AHRS	A4HXT7

*Not applicable for IFD510/ 545/410

Table 19 IFD5XX/4XX TSO Functions

1.6.2 TSO Deviations

TSO	Deviation(s)
TSO-C34e - ILS Glideslope Receiving Equipment	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C36e - Airborne ILS Localizer Receiving Equipment	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C40c - VOR Receiving Equipment	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C44c - Fuel Flowmeters	1. Environmental qualification performed in accordance with DO-160G rather than a combination of DO-160B and AS407C. AS407C requirements apply to portions of the instrument not implemented by the IFD system; 2. The fuel flow indicators will not use matte white material for all graduations, numerals, pointers and indicators. Color coded indications are used where appropriate for rapid pilot recognition of exceedances; 3. The fuel flow indicators are a digital readout instead of pointer and dial.
TSO-C110a – Airborne Passive Thunderstorm Detection Equipment	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C113a – Airborne Multipurpose Electronic Display	1. The IFD5XX/4XX display response time is not less than 1 second during Short-Time Operating Low Temperature environmental conditions as defined in Section 4.0 of RTCA/DO-160G.
TSO-C118a - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS I	1. The IFD5XX/4XX used the exceptions listed in appendix 1 of TSO-C147 in lieu of the corresponding minimum operational performance standards specified in the TSO.
TSO-C128a - Equipment that Prevents Blocked Channels used in two-ways Radio Communications due to unintentional transmissions	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.

TSO	Deviation(s)
TSO-C146d - Stand-alone Airborne Navigation Equipment using the Global Position System augmented by the Satellite based Augmentation System	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C147a – Traffic Advisory System (TAS) Airborne Equipment	1. The IFD5XX/4XX map does not place a range ring at 2 NM from the own aircraft symbol when a display range of 10 NM or less is selected;
TSO-C157a – Aircraft Flight Information Services – Broadcast (FIS-B) Data Link Systems and Equipment	1. Smoothing and scaling algorithms at high map ranges remove small patches of high-intensity NEXRAD returns in favor of surrounding lower-intensity returns.
TSO-C165 – Electronic Map Display Equipment for Graphical Depiction of Aircraft Position	1. De-cluttering on chart page not provided. 2. Location of traffic symbols in the absence of heading information
TSO-C169a - VHF Radio Communications Transceiver Equipment	1. Environmental qualification performed in accordance with DO-160G rather than DO-160B.
TSO-C201 - Attitude and Heading Reference Systems AHRS	1. The IFD5XX/4XX system does not provide minor graduations at 5° intervals on the heading indicator

Table 20 IFD5XX/4XX TSO Deviations

Table 20 above lists the TSO Deviations and a brief description of the nature of the deviation that have been granted for those applicable TSOs.

1.6.3 Non-TSO Functions

The following IFD5XX/4XX functions are not TSO'd:

IFD5XX/4XX Function
Display of Terrain Alerting
Display of Aircraft Checklists
Calculators (Air Data, Fuel Planner, etc)

IFD5XX/4XX Function
Display of Timers and Schedulers
Display of RS-170 Video from an approved device
Synthetic Vision
Display of Navigation Charts
WiFi in and out
Bluetooth in
Auxiliary Radar Display (IFD4XX only)

Table 21 Non-TSO Functions

1.6.4 Partial TSO Functions

The following IFD5XX/4XX TSOs are partial function:

TSO	Description	Comment
TSO-C44c	Fuel Flowmeters	Display Only
TSO-C110a	Airborne Passive Thunderstorm Detection Equipment	Display Only
TSO-C118a	Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS I	Display Only
TSO-C147a	Traffic Advisory System (TAS) Airborne Equipment	Display Only
TSO-C157a	Aircraft Flight Information Services - Broadcast (FIS-B) Datalink Systems and Equipment	Display Only

Table 22 Partial Function TSOs

1.6.5 Open Problem Report

At the time of this revision, the IFD5XX/4XX does not have any open problems that affect safety or design assurance level of the unit.

1.7 Software and Hardware Design Assurance Levels

The IFD5XX/4XX contains software developed in accordance with DO-178B Level B, C, and D design assurance levels. The following table lists functions of the IFD5XX/4XX system and their corresponding software design assurance level.

All complex electronic hardware devices were developed in compliance with DO-254 Level B.

Component	Function	DO-178B Design Assurance Level
IFD5XX/4XX	Traffic	C
	Lightning	D
	Digital Moving Map (including Terrain and Synthetic Vision Display)	C
	Terrain Alerting	C
	Wx Datalink	D
	FMS	B (Precision Approach) C (All other Functions)
	VHF Communication (N/A for IFD510/545/410)	C
	VHF Navigation (N/A for IFD510/545/410)	C
	GPS Navigation	B
	Checklist	C
	Fuel Display	C
	Charts (N/A for IFD510/545/410)	C
	Timers/Schedulers	C
	Calculators	C
	Maintenance Mode	D
	Airborne Weather Radar	C
	Display of External Video	C
	Data to ADS-B Out	C

Table 23 DO-178B Software Design Assurance Levels

1.8 Environmental Qualification Forms

The environmental Qualification for the IFD5XX/4XX is listed in Appendix A: Environmental Qualification Form.

Note: If the IFD5XX/4XX has been exposed to extreme cold temperature prior to start, it may take a warm up period to achieve standard performance.

1.9 Databases

The IFD5XX/4XX utilizes several databases. All the databases can be loaded on the IFD using the USB port on the IFD. Reference the IFD5XX or IFD4XX Pilot's Guide for updating the IFD5XX/4XX databases.

1.10 Fault Detection and Exclusion (FDE)

FDE software is part of all IFD5XX/4XX systems and does not require any installer or pilot action to operate. This FDE software is running at all times and if it detects an issue, it will alert the pilot through Caution-Alerting System (CAS) messages.

When the IFD5XX/4XX is installed per the directions in this Installation Manual, it complies with the governing requirements for GPS Primary Means of Navigation in Oceanic and Remote Airspace (more than 200 nm from the nearest airport), when used with any commercially available RAIM/FDE Prediction Program. Examples of these prediction programs include the FAA's raimprediction.net, Fltplan.com, www.sapt.faa.gov, and the Garmin FDE Prediction Program.

These programs only need to be run under the following scenarios for 14 CFR Parts 91, 121, 125, and 135 operations where the IFD5XX/4XX is being used as the primary means of navigation and:

- TSO-C146d compliant antenna equipped aircraft that experience a WAAS failure or when operating outside of SBAS coverage areas;
- Non-TSO-C146d compliant antenna equipped aircraft (e.g. TSO-C129a only compliant systems) when operating in Oceanic and Remote airspace, Enroute and Terminal airspace, or during any LNAV/VNAV, LP, or LPV approach.

Prior to conducting Class II navigation (remote/oceanic), the owner/operator must obtain operational approval for using the IFD5XX/4XX system for long-range navigation from the appropriate flight standards district office.

1.11 Part 23 STC Approved Model List

The aircraft listed on the Approved Model List STC are eligible to install the IFD5XX/4XX. However, the installer must determine if the installation is in compliance with the limitations stated in the STC and this manual. Any deviations from the STC and/or this manual must have a separate installation approval.

The aircraft listed on the Part 27 Helicopter Approved Model List STC are eligible to install the IFD5XX/4XX in the helicopters listed in the STC Approved Model List. However, the installer must determine if the installation is in compliance with the limitations stated in the STC and this manual. Any deviations from the STC and/or this manual must have a separate installation approval.

Installations in Part 25/27/29 aircraft or Part 23 airplanes not listed on the AML STC may install the IFD5XX/4XX, however, it will require additional installation approval (e.g. Field approval, STC, or TC amendment), reference FAA Advisory Circular 23-22 as needed. If installing a IFD5XX/4XX on a Part 27/29 aircraft via field approval, the Avidyne Helicopter tray must be used, reference Table 26 and Table 27. Reference the IFD5XX/4XX Helicopter Installation Manual 600-00333-000.

The installation of antennas on composite and/or pressurized aircraft requires engineering guidance beyond the scope of this manual. With respect to the Approved Model List STC, the physical mounting of the antenna is specifically excluded from the approval in the case of installation on the pressure vessel of a pressurized aircraft, composite aircraft, and aircraft with a certification basis of Amendment 23-45 or later, unless approved installation data is listed in the Master Document List of the STC. All early amendment, metal construction, non-pressurized aircraft may install the GPS antenna using this manual. The installation must be structurally sound and in accordance with FAA Advisory Circular 43.13-( ). All other antennas must be installed using the antenna manufacturer's installation data or FAA Advisory Circular 43.13-( ).

1.12 Avidyne Supplied Material

The following Ship Kits are available for ordering from Avidyne Corporation. The Part 27 Helicopter ship kits are listed in the IFD5XX/4XX Helicopter Installation Manual 600-00333-000.

Note: Ship Kit content and/or Part numbers may change without notice, verify before ordering.

1.12.1 Product Ship Kits

Component	Ship Kit Black Bezel	Ship Kit Gray Bezel	Ship Kit Black Bezel With Video	Ship Kit Gray Bezel With Video
IFD540 Unit	850-00182-000 850-00182-700	850-00182-100 850-00182-800	850-00182-001 850-00182-701	850-00182-101 850-00182-801
IFD510 Unit	850-00182-010 850-00182-710	850-00182-110 850-00182-810	850-00182-011 850-00182-711	850-00182-111 850-00182-811
IFD545 Unit	850-00182-030 850-00182-730	850-00182-130 850-00182-830	850-00182-031 850-00182-731	850-00182-131 850-00182-831
IFD550 Unit	850-00182-020 850-00182-720	850-00182-120 850-00182-820	850-00182-021 850-00182-721	850-00182-121 850-00182-821

Table 24 IFD5XX Ship Kit

Component	Ship Kit Black Bezel	Ship Kit Gray Bezel
IFD440 Unit	850-00179-000 850-00179-700	850-00179-100 850-00179-800
IFD410 Unit	850-00179-010 850-00179-710	850-00179-110 850-00179-810

Table 25 IFD4XX Ship Kit

1.12.2 Optional Ship Kits

Component	Fixed Wing Aircraft Ship Kits	Helicopter Ship Kit
IFD5XX Tray	850-00188-000	850-00188-001
IFD5XX Install kit (no tray) IFD540 & IFD550	820-00113-000	820-00113-000
IFD5XX Install kit (no tray) IFD510 & IFD545	820-00113-001	820-00113-001
IFD5XX Tray and Install Kit IFD540 & IFD550	850-00188-002	850-00188-003
IFD5XX Tray and Install Kit IFD510 & IFD545	850-00188-004	850-00188-005

Table 26 IFD5XX Optional Ship Kits

Component	Fixed Wing Aircraft Ship Kits	Helicopter Ship Kit
IFD4XX Tray	850-00184-000	850-00184-001
IFD4XX Install kit (no tray) IFD440	820-00114-000	820-00114-000
IFD4XX Install kit (no tray) IFD410	820-00114-001	820-00114-001
IFD4XX Tray and Install Kit IFD440	850-00184-002	850-00184-003
IFD4XX Tray and Install Kit IFD410	850-00184-004	850-00184-005

Table 27 IFD4XX Optional Ship Kits

Component	Ship Kit 850-00217-001
GPS Antenna	200-00282-000

Table 28 GPS Antenna Kit

Component	Ship Kit 820-00101-001
ByteFlight Cable, 20 ft.	033-00102-000

Table 29 ByteFlight Ship Kit

1.13 Materials Required but not Supplied

The IFD5XX/4XX will require common installation supplies. The following items may be required for installation, but not supplied:

- Wire (Shielded and Un-shielded)
- Hardware (Screws, washers, nuts, ring terminals, etc)
- Circuit Breakers
- Tie wrap or Lacing Cord
- Coaxial Cables
- Wire Splices
- Solder Sleeves
- Antenna(s)
- Diplexers

2. Installation Considerations

The following section will describe installation instructions for the IFD5XX/4XX Unit. The IFD5XX/4XX should be installed using standard industry practice while following guidance in FAA AC 43.13-( ), AC 20-138 ( ), and AC 20-67( ).

2.1 Plug & Play Considerations

The IFD5XX/4XX is designed to be a slide-in replacement for a GNS-530/W or GNS-430/W. For those replacement installations in fixed wing aircraft, the existing aircraft tray and wiring can all be reused. However, all electrical wiring, including power(s) and ground(s), should be verified per installation data shown in Appendix D: Electrical Interface Drawings. Note that 14v aircraft may be required to replace the installed circuit breaker and power and ground wiring to accommodate the IFD5XX/4XX.

If the unit being replaced was a WAAS-enabled device, then the WAAS antennas previously installed can be reused, assuming they are one of the GPS WAAS antennas identified in Section 3.3.5.

If the unit being replaced was not a TAWS-enabled device, or if the TAWS Audio output signals were not already connected to the aircraft audio panel(s), then some additional wiring will be required from the IFD5XX/4XX tray to the aircraft audio panel(s) as identified in Section 6.11.1 in order to supply IFD5XX/4XX terrain alerting audio (Forward Looking Terrain Alerting FLTA functionality) and TOD chime to the headsets.

For those installations that use a combined IFD5XX/4XX – Avidyne AXP340/AXP322 Mode S ADS-B transponder, the on-ground/in-air discrete signal wire may need to be added from the IFD5XX/4XX tray to the AXP340/322 tray as identified in Section 6.12.

Note: Installations replacing an existing non-WAAS GPS/NAV/COM transceiver can upgrade to a WAAS installation using section 3 of this manual.

Note: Installations replacing a GNS-530/W or GNS-430/W must verify the aircraft is on the IFD5XX/4XX Approved Model List, Avidyne Document Number AVIFD-318.

Note: It is imperative that only one source of terrain cautions and warnings be enabled on the airplane so as to avoid the potential for conflicting information to be presented to the pilot. If a TAWS system is installed but the IFD's internal TA and FLTA functions are to be used for terrain avoidance, the TAWS system ***must*** be fully disabled. If a separate TAWS system is to be used the caution and warning indications generated by the TAWS system can be displayed on a remote third party annunciator and the IFD's TA and FLTA displays and audio must be inhibited. See section 7.5.4.

Note: If the unit being replaced was a TAWS-enabled device used for 91/135 TAWS compliance, the IFD5XX/4XX cannot be installed without a separately installed EGWPS/TAWS unit.

Avidyne TA/FLTA is not an approved TSO-C151 EGPWS unit.

Note: The IFD system supports a Honeywell KGP560/860 system with a remote third party annunciator only. All other external TAWS/EGPWS systems must be disabled if the internal TA and FLTA are to be operational on the IFD system.

All installations must verify the aircraft complies with either Section 2.4.1 or 2.4.2 after completing the IFD5XX/IFD4XX installation.

2.2 Optional Installation Features

This section summarizes optional features that may require extra wiring.

Feature	Description	Reference Section for Installation Details
Audio Panel Aurals	Allows IFD5XX/4XX produced aural alerts (e.g. FLTA terrain alerts, Top of Descent alerts, 500' callouts, etc) to be heard in the headsets.	Section 6.11.1
Transponder Support	Allows IFD5XX/4XX GPS position transmission to the transponder for ADS-B operation and IFD5XX/IFD4XX Air/Ground output to the transponder for automatic Ground-Alt transition.	Section 6.12
Video In	Allows input from any RS-170 format video.	Section 6.15
Radar display	Allows display of digital radar display. The IFD5XX can control the radar as a standalone display.	Section 6.16
Com Presets, Forward*	Enables external command (e.g. yoke-mounted button) to select frequencies forward in the com preset list to be loaded into the #1 Standby com slots.	Section 6.1.12.4
Com Presets Reverse *	Enables external command (e.g. yoke-mounted button) to reverse selected frequencies in the com preset list to be loaded into the #1 Standby com slots.	Section 6.1.12.4
Com Frequency Active-Standby Swap*	Enables external command (e.g. yoke-mounted button) to swap the Active and #1 Standby com frequencies.	Section 6.1.12.4
Nav Frequency Active-Standby Swap *	Enables external command (e.g. yoke-mounted button) to swap the Active and #1 Standby nav frequencies.	Section 6.1.12.4
Synchro Heading Input *	Allows the IFD5XX/4XX to take heading data in via synchro protocol.	Section 6.1.6
Standby Com Monitor*	Allows the com frequency in the #1 standby slot to be heard in the headsets when installed with a compatible audio panel (e.g. Avidyne AMX240).	Section 6.1.12.5
WiFi/Bluetooth	Allows the connection of portable electronic equipment to the IFD5XX/4XX.	Requires Ship Kit (Field load) 850-00179-501 KIT, IFDXXX WIFI BLUETOOTH ACTIVATION Reference Service Bulletins: 601-00182-020 SERVICE BULLETIN, ACTIVATION, IFD540 WIFI BLUETOOTH 601-00179-005 SERVICE BULLETIN, ACTIVATION, IFD440 WIFI BLUETOOTH
IFD4XX/5XX Helicopter Enablement	Enables the IFD4XX/5XX for use in helicopters	Requires Ship Kit (Field load) 500-00258-001

*N/A for IFD510/545/410

Table 30 Optional Installation Features

2.3 IFD5XX/4XX Interfaces

The IFD5XX/4XX can interface with a host of other avionics equipment. The following list represents the proven interfaces. There may be other devices that can be configured the same as one on the below list but Avidyne has not tested it and can therefore not make any compatibility claims.

Category	Vendor	Model
Air Data	B&D	2600 ADC
	B&D	2601 ADC
	B&D	2800 ADC
	B&D	900004-003 ADC
	Bendix King	KAD 280/480 ADC (KDC 281, 481)
	Shadin	8800T Alt Computer
	Shadin	9000T Alt Computer
	Shadin	9200T Alt Computer
	Shadin	9628XX-X Fuel/Air Data Computer
	Insight	TAS 1000 ADC
	Icarus	Instrument 3000
	Sandia	SAC7-35
	Garmin	GDC74A
Encoding Altimeter or Blind Encoders	Bendix King	KEA-130A
	Bendix King	KEA-346
	Terra	AT-3000
	Sandia	SAE5-35
	Trans-Cal Industries	IA-RS232-X
	Trans-Cal Industries	SSD120
	ACK Technologies	A-30
EFIS	Bendix King	EFS 40/50
	Avidyne	EXP5000
	Aspen	Pilot PFD (EFD1000)
	Collins	Proline 21
	Collins	EFIS 84
	Honeywell	Primus 1000
	Sextant	SMD 45

Category	Vendor	Model
	Garmin	G500/600/TXi
	Garmin	G5
Displays	Garmin	MX20
	Garmin	GMX200
	Garmin	GPSMAP 195
	Garmin	GPSMAP 295
	Garmin	GPS III Pilot
	Garmin	GPSMAP 196
	Garmin	GPSMAP 296
	Garmin	GPSMAP 396
	Garmin	GPSMAP 496
	Garmin	GPSMAP 695
	Garmin	GPSMAP 696
	Garmin	Aera 796/795
	Argus	3000
	Argus	5000
	Argus	7000
	Horizon	DDMP
	Avidyne	EX500
	Avidyne	EX600
	Avidyne	EX5000
	Avidyne	FlightMax Series
Heading	Bendix King	KAH 460 Inertial System (KAU 461 also)
	Collins	AHC 85 Inertial System Laseref
	Honeywell	HG 1075AB, HG 1095AG Inertial Systems
	Litef	LTR 81 Inertial System
	Litton	LTN 90-100 Inertial System
	Litton	LTN 91 Inertial System
	Litton	LTN 92 Inertial System
EHSI	Sandel	SN3308
	Sandel	SN3500

Category	Vendor	Model
Fuel	Shadin	91053XP and 91053XT-D "Digiflo-L" Digital Fuel Mgmt Systems
	Shadin	91204XT(38)D and 91204XT-D "Miniflo-L" Digital Fuel Mgmt Systems
	Shadin	91802-() "DigiData" Fuel/Airdata
	JPI	EDM-700 Engine Monitor
	JPI	EDM-760 Engine Monitor
	JPI	FS-450
	ARNAV	FC-10
	ARNAV	FT-10
	EI	FP-5L
	EI	CGR-30P
	Insight	GEM 3
Traffic	L3	SKY497 SkyWatch
	L3	SKY899 SkyWatchHP
	Bendix King	KTA-870
	Bendix King	KTA-970
	Bendix King	KMH980
	Bendix King	KMH880
	Garmin	GTS800/820/850
	Ryan	TCAD 9900B
	Ryan	TCAD 9900BX
	Avidyne	TAS-6XXA series
Transponder	Garmin	GTX330 (transponder functionality only)
	Garmin	GTX330 ES *
	Garmin	GTX 330D ES *
	Garmin	GTX335 *
	Garmin	GTX 345 *
	Garmin	GTX 327
	Honeywell Bendix/King	KT74

Category	Vendor	Model
	L-3	NGT9000 Series
	Trig	TT31/22
	Rockwell Collins	TDR94/TDR94D
	Avidyne	AXP340/322
Lightning	L3	WX500
	Avidyne	TWX670 ("Native" format)
Datalink	Garmin	GDL-69/69A***
	Avidyne	MLB700/100
	WSI	AV-300/350
	Heads-up Technologies	XMD076
Autopilot	Avidyne	DFC90
	Bendix King	KFC400
	Bendix King	KCP320
	Bendix King	KFC325
	Bendix King	KFC300
	Bendix King	KFC225
	Bendix King	KFC200
	Bendix King	KFC250
	Bendix King	KFC275
	Bendix King	KFC150
	Bendix King	KAP150
	Bendix King	KAP140
	Bendix King	KAP100
	Century	I
	Century	II
	Century	III
	Century	IV
	Century	21
	Century	31/41
	Century	2000
	Century	Triden
	Century	AK 1081 GPSS Converter

Category	Vendor	Model
	Collins	APC-65 Series
	Collins	FGC-65
	Collins	FYD-65
	STec	20
	STec	30
	STec	40
	STec	50
	STec	55
	STec	55X
	STec	60 PSS
	STec	60-1
	STec	60-2
	STec	65
	STec	ST901 GPSS Converter
Miscellaneous	Garmin	GAD42 Interface Adapter
EGPWS	Bendix King	KGP560
DME	Bendix King	KN 61
	Bendix King	KN 62/62A
	Bendix King	KN 63
	Bendix King	KN 64
	Bendix King	KN65
	Bendix King	KDI 572
	Bendix King	KDI 574
	Bendix King	KDM706
	Collins	DME 40
	Collins	DME 42
	Collins	TCR 451
	Narco	DME 890
	Narco	IDME 891
	ARC (Cessna)	RTA-476A
Nav Indicator	Garmin	GI 102/A
	Garmin	GI 106/A

Category	Vendor	Model
	Bendix King	KI 202
	Bendix King	KI 203
	Bendix King	KI 204
	Bendix King	KI 206
	Bendix King	KI 208
	Bendix King	KI 208A
	Bendix King	KI 209
	Bendix King	KI 209A
	Bendix King	KI 525A
	Bendix King	KPI 552/B
	Bendix King	KPI 553/A/B
	Century	NSD 360A
	Century	NSD 1000
	Collins	331A-6P
	Collins	331A-9G
	Collins	PN-101
	Mid Continent	MD 222-402/-406
	Mid Continent	MD 200-20X/-30X
	STec	ST 180
	Sperry	RD444
	Sperry	RD 550A
	Sperry	RD 650
RMI	Bendix King	KI 229
	Bendix King	KNI 582
	Bendix King	KDA 692
External GPS Annunciator	Mid Continent	MD41-Series
	Staco Switch	992561
	Vivisun	95-40-( )
	Vivisun	95-45-( )
Remote TAWS Annunciator	Garmin	013-0079-XX
	Mid Continent	MD41-10XX
Audio Panel	Avidyne	AMX240

Category	Vendor	Model
	Apollo (Garmin)	SL10
	Apollo (Garmin)	SL15
	Garmin	GMA 340
	Garmin	GMA 347
	PS Engineering	6000
	PS Engineering	7000
	PS Engineering	8000/8000BT
	Bendix King	KMA 24/24H
	Bendix King	KMA 26
	Bendix King	KMA 28
406 ELT	Artex	ME406
	Ameri-King	AD 451-()
	Ack	E-04
	Narco	Not specified
	Pointer	3000
	Kannad	Not specified
Radar	Bendix King	RDR 2000 *
UAT	Avidyne	Skytrax100 (formerly MLB100)
	Avidyne	SkyTrax100B*
	Freeflight Systems	FDL-978-RX**
	Garmin	GDL 88**

*IFD Software version 10.2 or higher

**IFD Software version 10.2.1 or higher

*** Compatibility with P/N 011-00986-00 or 011-00987-00 only pre software 10.2.3.1. With software 10.2.3.1 or higher P/N 011-03177-X0 will function

Table 31 IFD5XX/4XX Compatible Equipment

2.4 Minimum System Configuration

The IFD5XX/4XX can be installed in one of two configurations.

2.4.1 VFR Installation

This section is intended for stand-alone IFD5XX/4XX installations intended for VFR navigation on un-pressurized aircraft less than 6000 pounds.

The following items must be installed in IFD5XX/4XX VFR Configuration:

- IFD5XX or IFD4XX unit
- GPS Antenna (TSO-C144a or TSO-C190, reference Section 3.3.5 for approved antennas)
- VHF Communication Antenna is needed for communication functions (N/A for IFD510/545/410)

- VHF Navigation Antenna is needed for VOR functions (N/A for IFD510/545/410)

All VFR installations must install a "GPS APPROVED FOR VFR USE ONLY" placard.

All VFR installations, as described in this Section, are considered a minor alteration when installed on a no-hazard basis to supplement VFR navigation.

2.4.2 IFR Installation

This section is intended for IFR installations. The following items must be installed in IFD5XX/4XX IFR Configuration:

- IFD5XX or IFD4XX unit;
- GPS Antenna (TSO-C190 or approved antennas listed in Section 3.3.5)
- VHF Communication Antenna is needed for communication functions; (N/A for IFD510/545/410)
- Navigation Antenna(s) is needed for VOR/LOC/GS functions; (N/A for IFD510/545/410)
- Remote Annunciator is required if the IFD5XX/4XX is not in the field of view of the pilot, reference Section 5.1.2;
- IFD5XX/4XX should be interfaced to an Airdata source for automatic altitude leg sequencing (optional). If no baro-altitude data is supplied, altitude leg types must be manually sequenced for IFD5XX with Software 10.0.3.0 or earlier.
- The IFD5XX/4XX must be connected to an external CDI/HSI/EHSI indicator installed in the pilot's field of view. The CDI must have a Vertical Deviation Indicator;
- Second navigation receiver or communication transceiver must be installed on all multi-engine or turbine-powered aircraft with a gross takeoff weight greater than 6000 lbs. Aircraft using GPS Oceanic/Remote navigation must have a second navigation receiver installed in the aircraft. In both cases, the second navigation receiver or communication transceiver must be a FAA TSO'd unit.
- Separately approved Marker Beacon System.

All aircraft approved for GPS Oceanic/Remote navigation must have dual electrical power/ground connections to both IFD5XX/4XX units as shown in Section 4.9 and described in FAA AC 20-138( ) Appendix 1.

Figure 1 shows an IFR installation. IFR installation must be installed as major alteration to the aircraft.

Note: All equipment required by 14 CFR 91.205 must be previously installed on the aircraft for IFR operations.

If the IFD54XX/4XX is installed per this section, it can provide guidance for the following operations conducted under instrument flight rules (IFR):

- VOR, LOC, ILS instrument approach procedures (procedures using VHF radio guidance)
- RNP instrument approach procedures using the following lines of minima:
  - LNAV minima (including when using advisory vertical guidance from the system);
  - LNAV/VNAV minima;
  - LPV minima; and
  - LP minima.

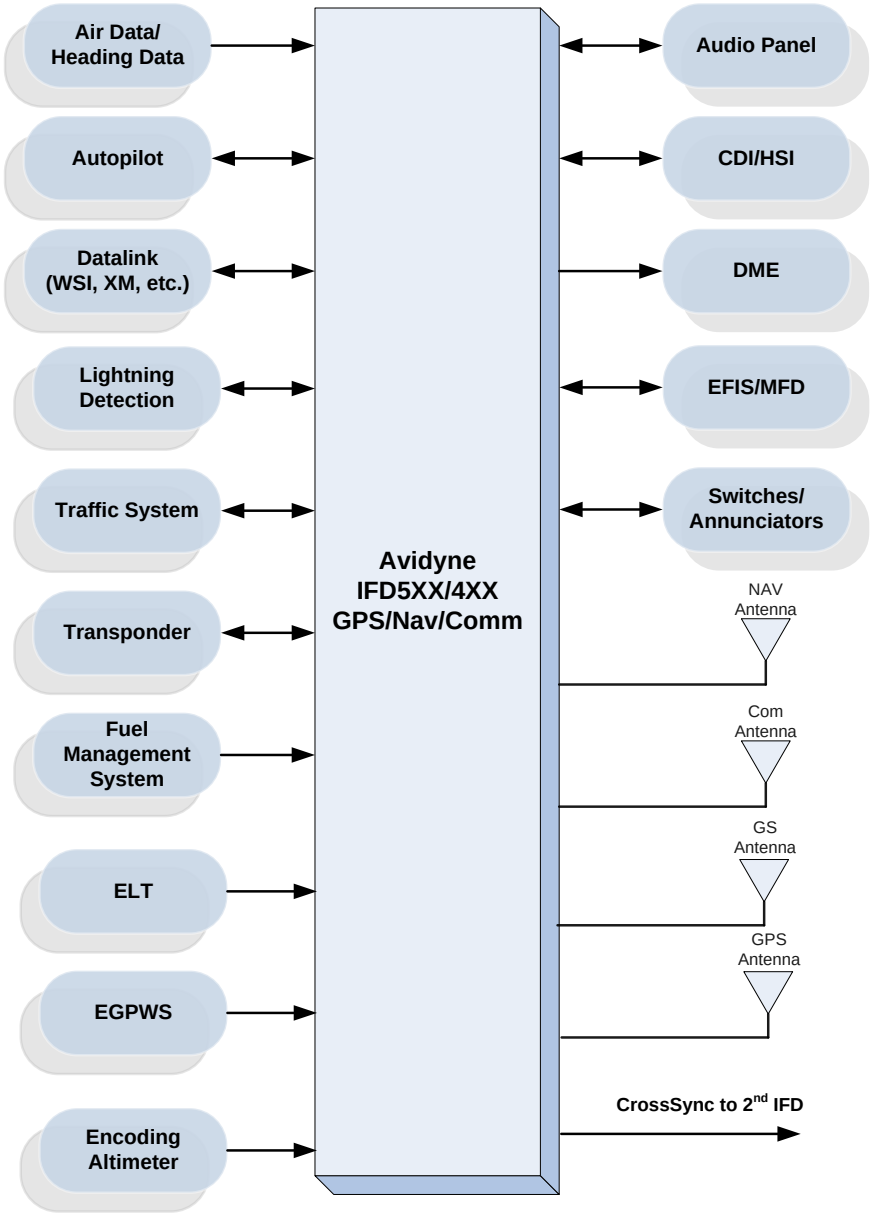


Figure 1 Full IFR Installation (IFD5XX/4XX)

2.5 Pre-Installation Checklist

Prior to beginning installation of the IFD5XX/4XX, complete the following pre-installation checklist. This checklist will help in determining installation requirements. If the Installation Items below are not complete, additional installation approval may be required.

Installation Item	Reference	IFD5XX	IFD4XX	Complete
Is the aircraft on the Avidyne STC Approved Model List?	Avidyne Document AVIFD-306	✓	✓	□
Is IFD5XX/4XX replacing an existing GPS/NAV/COM used for Part 91/135 TAWS compliance?	If yes, a separate TAWS system must be installed. (Ref. Section 2.1)	✓	✓	□
Can the IFD5XX/4XX tray be installed per the data in this manual?	If No, additional installation approval is required.	✓	✓	□
Navigation(s) Antenna Installed (N/A for IFD510/545/410)	Section 3.5	✓	✓	□
Communication Antenna Installed (N/A for IFD510/545//410)	Section 3.4	✓	✓	□
Is the IFD5XX/4XX, or remote annunciator lights, installed within the Pilot's Field of View?	Section 5.1 or 5.2	✓	✓	□
Does the aircraft have an approved GPS antenna installed on the aircraft? Or, can the GPS antenna be installed per this manual?	Section 3.3.5	✓	✓	□
Does the aircraft have a previously approved Marker Beacon System installed in the aircraft? (Not needed for VFR installations)	Section 2.4.2	✓	✓	□
Does the aircraft have a second NAV or COMM installed?	Section 2.4.2	✓	✓	□
Does the aircraft have a sufficient electrical power for the IFD5XX/4XX installation?	Section 1.5	✓	✓	□
Does the installation location comply with the Environmental Testing of the IFD5XX/4XX unit?	Appendix A: Environmental Qualification Form	✓	✓	□
Does the Airplane Flight Manual Supplement adequately cover the installation?	If no, additional installation approval is required. (Reference: Avidyne Document 600-00298-000 or 600-00305-000)	✓	✓	□

Table 32 Pre-Installation Checklist

3. Antenna Installation

This section describes the installation of the GPS, NAV, and Glideslope antennas on unpressurized, metallic fuselage airplanes. The installer is responsible to ensure the structural aspects of the installation meet all regulatory requirements and are adequate for the aircraft type. Antenna installations on airplanes with composite or pressurized fuselages, and aircraft with certification basis of Amendment 23-45 or later, are beyond the scope of this manual and a separate installation approval is required.

3.1 Antenna Bonding

All antennas should be well bonded to the aircraft. Reference AC 43.13-2b paragraph 307 for additional information.

3.2 Antenna Environmental Qualifications

Verify the antenna is appropriately qualified to be installed on the aircraft. Reference the antenna manufacturer's RTCA DO-160(x) qualification form.

3.3 GPS Antenna

The GPS Antenna should be installed using practices acceptable to the antenna and aircraft manufacturers. Regulatory guidance for antenna installations can be found in AC 20-138( ) Chapter 12, AC 43.13-2B Chapter 3, and AC 43.13-1B Chapter 4. Also reference Appendix C in this manual.

The GPS antenna listed in Table 28 can be installed on unpressurized metal airplanes with a certification basis of Amendment 23-43, or earlier, using the data below. All other GPS Antenna installations are beyond the scope of this manual and a separate installation approval is required.

The Avidyne GPS antenna, Avidyne Part Number 200-00282-000, can be installed as shown in Figure C - 5 through Figure C - 9. The GPS Antenna must be installed using the following guidelines to be in compliance with the STC.

GPS Antenna Location:

- Fuselage skin must be 2024-T3 aluminum (or equivalent)
- Fuselage skin thicknesses beyond the range provided in Table 33Table 33 below are outside the scope of this installation
- Selected antenna location may not be within one full bay of other cutouts, skin joints, or load introduction points
- Doubler installation on, or adjacent to, primary or fatigue critical structure, as defined by the aircraft manufacturer or regulatory guidance, requires separate approval
- Evaluate the installation per AC43.13-2B, Chapter 3, paragraph 303(b) for gaps due to fuselage curvature. If a saddle is required, fabrication should be per AC 43.13-1B, and should completely fill the curvature gaps, and should not be riveted to the fuselage skin. The only purpose of the saddle is to act as a tapered shim and is not intended to transfer load into the skin

Doubler Fabrication:

- Doubler material is to be 2024-T3 clad aluminum per AMS QQ-A-250/5
- Form the doubler to match the fuselage curvature
- Etch, alodine, and prime the doubler per the guidance provided in AC43.13-1B
- Drill holes and install rivets per AC43.13-1B
    - It is acceptable to slightly vary the rivet and row spacing to accommodate existing frames and stringers provided 2D edge distance and 4D minimum rivet spacing is maintained and no rivet is installed within 0.75″ of the antenna mounting holes
    - Rivet type is dependent on the type of rivets in the adjacent fuselage structure. If the adjacent rivets in the structure around the bay selected for the doubler installation are protruding head type, install MS20470AD rivets in the outer row of the doubler. If the adjacent rivets are countersunk or dimpled, install either MS20426AD or NAS1097AD rivets per the table below. Reference Table 124 for rivet type and doubler thickness appropriate for the aircraft's skin thickness.

Fuselage Thickness	Doubler Thickness	Doubler Drawing
0.016-0.025"	0.020"	See Figure C - 8 in Appendix C.
0.032-0.050	0.032"	

Table 33 Doubler Thickness

3.3.1 GPS Location

The following recommendations should be followed when choosing an installation location for the GPS antenna. Prior to installing the GPS antenna, it is recommended to temporarily mount the GPS antenna in the desired location and functional ground test the GPS system.

- The antenna must be mounted on the exterior upper fuselage of the aircraft
- The GPS antenna should be mounted more than 2 feet from any transmitting antenna.
- The GPS antenna should be mounted in a location that minimizes the effects of shadowing by the aircraft structure.
- The GPS antenna should be installed more than 6 inches from any other antenna, including another GPS antenna.
- The GPS antenna should be installed in a location that allows the antenna to be level in normal cruise flight.

- For multiple GPS installations, the antennas should not be mounted in a straight line from front to rear of the aircraft along the longitudinal axis on the aircraft to prevent simultaneous antenna damage from lightning strikes.
- Antennas should be installed 3" or more from the windshield.

3.3.1.1 Aircraft Lightning Zone

If installing an Avidyne GPS Antenna (Avidyne Part Number 200-00282-000), the GPS antenna is qualified to be installed in aircraft lightning zone 2A as defined by SAE ARP5414A and RTCA DO-160G. The ***No Installation Area*** can be determined using Figure 2. The distance found by using Figure 2 defines a zone immediately aft of the nose of the aircraft, or propeller in the case of single engine propeller driven aircraft, where the GPS antenna should not be installed. Aircraft locations aft of the ***No Installation Area*** are acceptable to install the GPS antenna. Figure 3 below shows an example of the ***No Installation Area***.

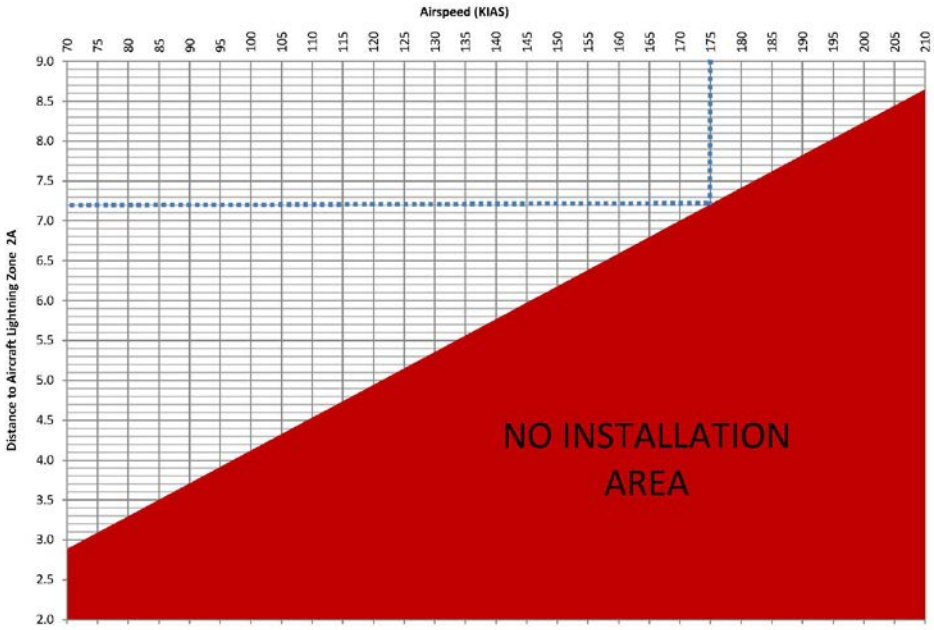


Figure 2 Distance to Aircraft Lightning Zone 2A

Procedure:

1. Determine the Maximum Cruising Speed (V_{no}) for the aircraft. **Note:** Indicated Airspeed in knots (KIAS) must be used in the table.
2. Locate the Airspeed for the aircraft on the Horizontal Axis of the table. Draw a vertical line from the Airspeed to the No Installation Area.
3. Draw a horizontal line from the No Installation Area, found in Step 2, to the Vertical Axis on the chart.
4. Determine the Distance (in feet) to Aircraft Lightning Zone 2A for the aircraft on the Vertical Axis.

Example:

For example, if an aircraft shown in Figure 3 has a V_{no} of 175 KIAS, the No Installation Area will be 7.2 feet. This is shown on Figure 2 with a dotted line and Figure 3 with a shaded area.

Aircraft with a V_{no} greater than 210 KIAS may install the GPS antenna 8.6 feet aft of the nose of the aircraft (excluding propeller).

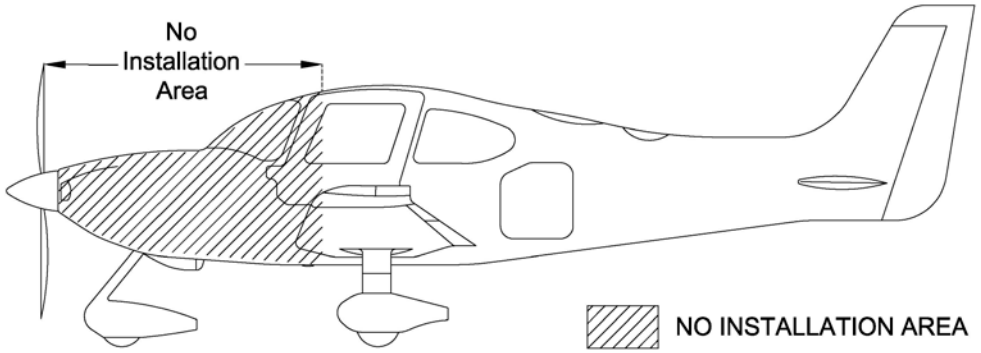


Figure 3 Aircraft No-Installation Area

Note: Locating the GPS antenna in the correct aircraft lightning zone is the responsibility of the installing agency. If a System Equipment DER is necessary, the Aircraft Electronics Association is a good source of information. The telephone number is +1 (816) 347-8400.

3.3.2 GPS Antenna Bonding

The GPS Antenna should have ≤ 2.5 milliohm resistance to the aircraft fuselage.

3.3.3 GPS Antenna Cable

The GPS Antenna Cable must be RG-142B, RG-400, or an equivalent 50Ω double shielded coaxial cable. The GPS antenna cable loss should not be greater than 6.5dB or less than 1.5 dB. Each connector on the GPS coaxial cable will add an additional 0.2 dB loss to the cable.

The GPS antenna cable should not be routed with high power wires or transmitting antenna cables.

If dual GPS Systems are installed on the aircraft, the GPS coaxial cables should be routed in such a manner to provide maximum separation between the two GPS coaxial cables.

3.3.4 GPS Coaxial Cable Connector

The connectors on the GPS coaxial cable should be assembled per the connector manufacturer's assembly instructions.

3.3.5 Approved GPS Antennas

Model Number	Description	Supplier
CI-428-200	GPS WAAS Antenna	Cobham (Comant)
CI-2580-200	VHF/GPS WAAS Antenna	Cobham (Comant)
CI-2728-410	VHF/GPS/XM Antenna	Cobham (Comant)
GA-35	GPS/WAAS Antenna	Garmin
GA-36	GPS/WAAS Antenna	Garmin
GA-37	GPS/WAAS Antenna	Garmin
GA-56A	GPS/WAAS Antenna	Garmin
GA-56W	GPS/WAAS Antenna	Garmin
GA-57	WAAS/XM Antenna	Garmin
A33 (AT575-9UW)	GPS/WAAS Antenna	Garmin /AeroAntenna
A34	GPS/WAAS Antenna	Garmin /AeroAntenna
AV-801	GPS/WAAS Antenna	RAMI
AT575-93AVW-TNCF-000-RG-27-NM	GPS/WAAS Antenna	AeroAntenna Technology

Table 34 Approved GPS Antennas for SBAS Operation

The IFD5XX/4XX can be interfaced to all TSO-C190 antennas and the approved antennas listed in the table above. If connected to an approved WAAS Antenna, the IFD5XX/4XX is approved for TSO-C146d Gamma 3 operation.

The IFD5XX can be interfaced to non-WAAS antennas but the system will not be approved for any type of WAAS operations. In this case, the Antenna Type selection as described in Section 7.5.11 must be selected as "Non-WAAS". This will result in the FMS functionality of the IFD5XX/4XX inhibiting selection of any WAAS (SBAS) approach in the database.

Installing a new GPS antenna listed in Table 34 requires additional structural approval beyond the scope of this manual.

3.3.6 GPS Interference

After installing the IFD5XX/4XX System, the GPS antenna must be tested to insure no interference is present. The GPS Antenna System is subject to interference from VHF COM

transceiver, Emergency Locator Transmitter (ELT) antenna, or Direction Finder (DF) receiver which can radiate harmonics that can potentially interfere with the GPS antenna.

If a VHF Communication transceiver is found to be the problem, installing a 1.57542 GHz notch filter may help to reduce the problem.

3.3.7 Ground Plane

The GPS Antenna should be mounted on a minimum of 8 x 8 inch metal surface or ground plane.

3.3.8 Dual IFD5XX/4XX Installations

If the aircraft has dual IFD5XX/4XX, the aircraft is permitted to have a non-WAAS system and a WAAS system installed, however, if the two antennas are not of the same type (i.e. dual non-WAAS or dual WAAS installation), then FMS-related data (flight plans, waypoints, routes, etc) will not be shared between IFDs.

3.3.9 Anti-Ice Protection

If the aircraft is approved for flight into known icing, verify the GPS antenna is installed in location that is not susceptible to ice buildup or complies with FAA AC 20-138( ) paragraph 13-2.

3.4 VHF Communication Antenna

Note: This section is N/A for the IFD510/545/410.

The VHF communication antenna should be installed using this manual, FAA AC 43.13-( ), AC 20-67B and the antenna manufacturer's guidance.

The antennas should be installed to allow maximum separation between antennas. If possible, one antenna should be installed on the top of the aircraft, and the other on the bottom of the aircraft.

3.4.1 Antenna Environmental Qualifications

Verify the antenna is appropriately qualified to be installed on the aircraft. Reference the antenna manufacturer's RTCA DO-160(x) qualification form.

3.4.2 VHF Communication Cable

The antenna cable should be RG-142B, RG-400, or an equivalent 50Ω coaxial cable.

3.4.3 VHF Coaxial Cable Connector

The connectors on the VHF communication coaxial cable should be assembled per the connector manufacturer's assembly instructions.

3.4.4 Voltage Standing Wave Ratio

The VSWR should not exceed 2:1 over the VHF communication radio frequency range. A VSWR over 2:1 may result in loss in transmitting power up to 50%.

3.4.5 VHF Antenna

The VHF Communication Antenna should meet one of the following Technical Standard Orders (TSO): TSO-C37( ), TSO-C38( ), TSO-C169( ).

3.4.6 Antenna Ground Plane

The VHF Communication Antenna should be mounted on a minimum of 18 x 18 inch metal surface or ground plane.

3.5 Navigation Antennas

Note: This section is N/A for the IFD510/545/410.

3.5.1 VOR/LOC Antenna

The NAV Antenna should be a standard 50Ω horizontally polarized antenna. The VOR/LOC antenna should be installed using the manufacturer's installation instructions and FAA AC 43.13-( ).

The VOR/LOC Antenna should meet Technical Standard Order (TSO): TSO-C36 ( ), TSO-C40 ( ).

3.5.2 Navigation Coaxial Cable

The antenna cable should be made of RG-142B, RG-400, or an equivalent 50Ω coaxial cable.

3.5.3 Navigation Coaxial Cable Connector

The connectors on the VHF navigation coaxial cable should be assembled per the connector manufacturer's assembly instructions.

3.5.4 Diplexer

The IFD5XX/4XX requires separate Glideslope and Navigation antenna inputs. A diplexer will be required if a single navigation coax delivers both VHF navigation and Glideslope navigation signals to the IFD5XX/4XX location, such as if a combined Nav/Glideslope antenna is used, or a Nav/Glideslope diplexer is installed to combine signals at the antenna location. The diplexer should be installed per the manufacturer's installation manual.

The Diplexer should be located in a position on the aircraft to minimize the amount of coaxial cable required.

3.6 Glideslope Antenna

Note: This section is N/A for the IFD510/545/410.

The Glideslope Antenna should be standard 50Ω horizontally polarized antenna. The Glideslope antenna should be installed using the manufacturer's installation instructions and FAA AC 43.13-( ). The IFD5XX/4XX has separate VOR/LOC and Glideslope antenna inputs. See Diplexer text in Section 3.5.4.

3.6.1 Glideslope

The Glideslope Antenna should also be installed with a clear line of sight. The Glideslope Antenna should meet Technical Standard Order (TSO): TSO-C34( ).

4. Electrical Installation

The electrical wiring should be installed in accordance with FAA AC 43.13-1B Chapter 11, sections 8 through 13 and in accordance with this manual. The following section will describe requirements for the electrical wiring when installing the IFD5XX/4XX.

4.1 Wire Type

MIL-C-27500 and MIL-W-22759 wire is recommended. Select the appropriate wire type and size for the aircraft type and installation location per FAA AC 43.13-1B.

4.2 Wire and Connector Identification

Wires and connectors should be marked per FAA AC 43.13-1B.

4.3 Wire Routing

All wires and wire bundles must be routed and secured in such a way to eliminate risk of mechanical damage and minimize exposure to heat and fluids. Also, consider the following when installing wire harnesses in the aircraft:

- In dual GPS installations, route wire harnesses separately to prevent dual GPS failures
- Do not route harness near high power electrical lines
- Equipment should be installed with separation between redundant systems to prevent loss of navigation due to a single event

4.4 Shield Grounds

All shield grounds should be grounded using the ground block on the IFD5XX/4XX tray backplate. Shield grounds should be as short as possible (shorter than 3.0", if possible)

Shield grounds on non-Avidyne equipment should be grounded per the manufacturer's installation instructions. In the absence of any installation data, the shield wires can be connected to the connecter backshell or aircraft ground.

4.5 Wire Harness Overbraid

Copper overbraid is not required on the IFD5XX/4XX wire harness. However, in the following cases, copper overbraid is required.

4.5.1 Existing Equipment

If interfacing to any existing avionics equipment with copper overbraid over the wire harness, it must be installed on all new wiring to that existing piece of equipment. The copper overbraid must meet the specification in Section 4.5.3.

4.5.2 Severe Lightning Transient Environment

Aircraft Installations where the aircraft actual transients level is higher than the IFD5XX/4XX equipment transient design level must install copper overbraid on the entire IFD5XX/4XX wire harness. This does not include the antenna coaxial cables. The copper overbraid must be installed per Section 4.5.3.

The Approved Model List for the STC will indicate if an aircraft is required to install wire harness overbraid on the IFD5XX/4XX wiring. Note: Overbraid is not required on VFR only installations as defined in Section 2.4.1.

4.5.3 Copper Overbraid Installation

The copper overbraid must be a minimum 90% optical coverage per ASTM-B-33. The overbraid must be grounded at both ends. If the aircraft wiring passes through wire disconnects or bulkheads, the overbraid should be continued on each segment.

The wire harness overbraid should also be installed per FAA AC 43.13-1B Chapter 11-189.

4.6 IFD5XX/4XX Connectors

The following special tools may be needed during installation of the IFD5XX/4XX:

Connector Number	Connector Part number	Contact Part Numbers	Crimp Tool	Die/ Positioner	Extraction Tool	Insertion Tool
P1001	M24308/4- 268( )	M39029/58-360 (ORG/BLU/BLK)	M22520/02-01	M22520/2-09	M81969-1-04	M81969/1-04
P1002	M24308/2-3( )	M39029/63-368 (ORG/BLU/GRY)	M22520/02-01	M22520/2-08	M81969/1-02	M81969/1-02
P1006	M24308/4- 266( )	M39029/58-360 (ORG/BLU/BLK)	M22520/02-01	M22520/2-09	M81969-1-04	M81969/1-04
P1050	M24308/4- 268( )	M39029/58-360 (ORG/BLU/BLK)	M22520/02-01	M22520/2-09	M81969-1-04	M81969/1-04
Ground Block	583861-7 (TE Connectivity)	5-583853-4 (TE Connectivity)	91535-1 (TE Connectivity)		91073-1 (TE Connectivity)	

Table 35 D-Sub Connector Tools

Please note: The P1050 is available on the IFD5XX Series only.

4.7 Byteflight Digital Data Bus Consideration – Dual IFD Installations

Dual IFD installations use a Byteflight digital Databus protocol when connected via RS-232 Channel 3 and configured for CrossSync. The following must be considered for replacement and new installations.

4.7.1 Databus Wiring - Replacement Installations

For installations that are replacing two previously connected GNS4xx/5xx systems, the Byteflight digital Databus is capable of using the pre-existing wiring between the two pre-existing trays with no additional wiring or modifications required. All bus termination is built into the IFD units. However, the existing wire length on the CrossSync connection must not exceed 8 feet in length on IFD5XX/4XX RS-232 Channel 3 on P1001. Installations with longer installation lengths between IFD5XX/4XX units must use Byteflight cable. The ByteFlight wire is available from Avidyne, reference Table 29.

Installations with significant amount of Byteflight data interruptions should consider installing Byteflight cable.

4.7.2 Databus Wiring – New Installations

For all new installations of dual IFDs (not replacing pre-existing GNS4xx/5xx systems), the recommended wiring for the RS-485 data protocol is shielded twisted- pair cable with an approximate characteristic impedance of 100-120 Ohms. The wire material must meet 14 CFR 23.1359 (c).

4.8 Circuit Protection

Circuit Breakers must be installed in a location easily accessible to the pilot and must be resettable trip free devices. The Circuit Breaker must be clearly identified and visible under all lighting conditions. Circuit breaker size is identified in installation data shown in Appendix D: Electrical Interface Drawings. Note that 14v aircraft may be required to replace the installed circuit breaker and power wiring to accommodate the IFD5XX/4XX.

4.9 Power Distribution

Note: The references in the below images to the COM block are N/A for the IFD510/545/410.

Aircraft installing one IFD5XX/4XX should connect the power and grounds as shown in Figure 4.

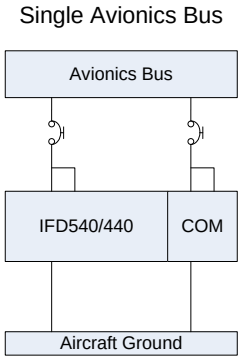


Figure 4 IFD5XX/4XX Power Distribution

Aircraft with a maximum certified gross takeoff weight less than 6000 pounds must connect the dual IFD5XX/4XX as shown in Figure 5.

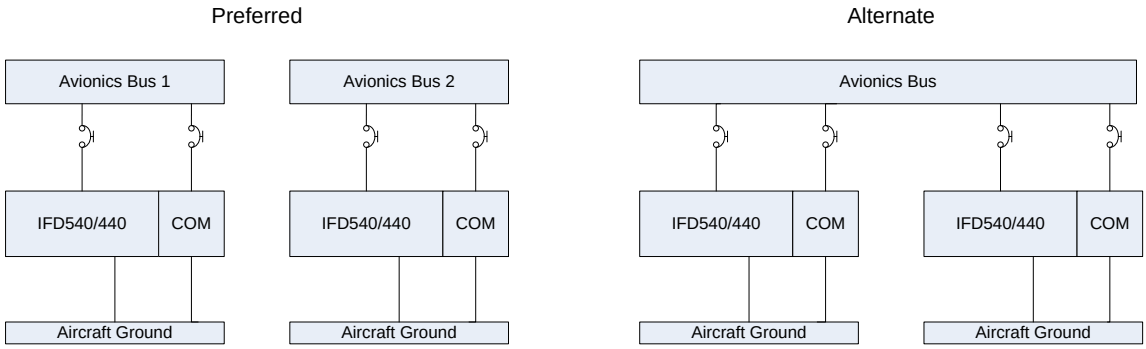


Figure 5 Dual IFD5XX/4XX Power Distribution (Aircraft <6000 lbs)

Aircraft with a maximum certified gross takeoff weight greater than 6000 pounds must install the dual IFD5XX/4XX as shown in Figure 6.

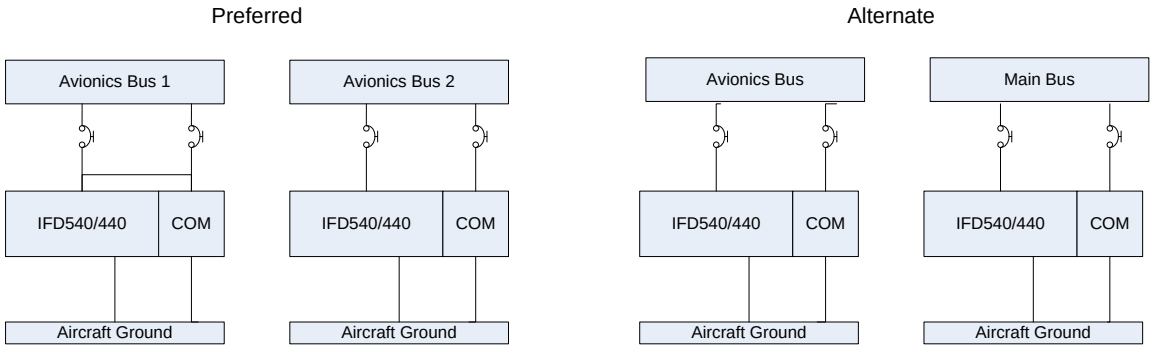


Figure 6 Dual IFD5XX/4XX Power Distribution (Aircraft >6000 lbs)

If installing a 3rd party NAV and/or COM and IFD5XX/4XX, connect the IFD5XX/4XX as shown in Figure 7.

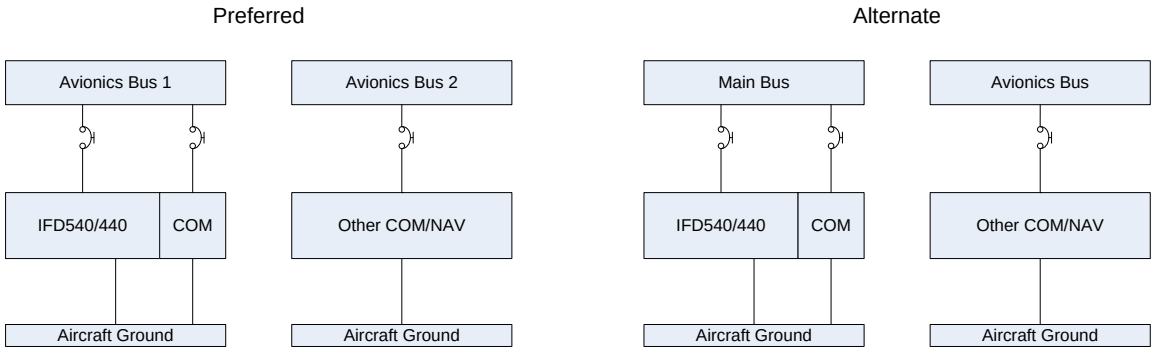


Figure 7 Dual NAV/COM Aircraft Bus Installation (Aircraft >6000 lbs)

The installer is responsible for preservation of multiple power busses on the aircraft in accordance with manufacturer's original design and the requirements of 14 CFR Part 23. This includes maintaining electrical power to essential equipment.

4.10 Electrical Load Analysis

Prior to installing the IFD5XX/4XX, an electrical load analysis (ELA) must be performed. The aircraft's electrical load should be less than 80% of the total generator output following the IFD5XX/4XX installation, reference Section 1.5 for IFD5XX/4XX power requirements. Also reference FAA AC 43.13-2B Paragraph 208 for more information on performing an aircraft electrical load analysis.

The purpose of the ELA is to show compliance to 14 CFR §23.1351 and §23.1353 (h).

4.11 Low Power Behaviors

The IFD5XX/4XX can accept input power ranging from 9VDC to 33VDC but has the following low power behaviors.

Functions are restored if the IFD input voltage rises 1VDC above threshold voltage for 1 second.

Input Voltage Level	Behavior
19.9VDC	16W VHF radio output power reduces to 10W *
≥ 18VDC	High power USB charging (dedicated charging port drawing 2.1A).
< 18VDC	USB port drops from High power USB charging to Low power USB charging (dedicated charging port drawing 1.0A).
12.75VDC	USB port is turned off (no charging available).
11.5VDC	Bezel and LCD display dimmed down to 25% and a yellow "Low Volts" CAS message is presented.
10.9VDC	VHF radio output power reduces to 6W *
10.0VDC	VHF radio output power reduces to 4W *
9VDC	Start a 60 second power down sequence and a red "Low Volts Off in <x> sec" CAS message is presented. With 5 seconds to go until power down, the full power down message is overlaid in the middle of the display.

*N/A for IFD510/545/410

Table 36 IFD5XX/4XX Low Power Behavior

5. Mechanical Installation

This section will describe the physical mounting of the IFD5XX/4XX in the aircraft.

Aircraft installing the IFD5XX/4XX for VFR use only, as defined in Section 2.4.1, can install the IFD5XX/4XX unit in any location easily accessible to the pilot. However, the IFD5XX/4XX installation must not introduce any new hazards. All other installations must follow the guidance below.

5.1 Equipment Location – New Installations

If the IFD5XX/4XX is used for IFR navigation, course deviation information and navigation annunciation must be installed in the Pilot's Field of View (FOV). The FAA has provided clarification regarding the intent of TSO-C146 and acceptable source annunciation location, navigation annunciation, and FOV requirements on similar products in the past. Therefore, the installation data as follows must be followed to maintain compliance with the STC. Otherwise, additional installation approval will be required.

Aircraft requiring two pilots must have this annunciation at each pilot station or unobstructed view of the IFD5XX/4XX display. The IFD5XX/4XX should be located in a position easily reached by both pilots.

5.1.1 Determining the Field of View

The navigation source selection ("GPS" or "VLOC") field of view is approximately ±30° or 13.856" horizontally from the center of the attitude indicator, or centerline of the pilot's seat/yoke. The navigation annunciation field of view is approximately ±35° or 16.805" horizontally from the center of the attitude indicator. Both of these angles and distances are determined with the pilot seated at a minimum of 24" from the instrument panel. For aircraft without a basic instrument 'T' or an offset control yoke/control, use the center of the pilot's seat as the primary view centerline.

The vertical field of view will be from the top of the instrument panel to the portion of the instrument panel that is immediately below the basic 'T' instruments, reference Figure 8. Note, if the existing type certified HSI/CDI/PFD is lower than the basic 'T', use that as the lower limit.

Figure 8 below indicates the acceptable field of view for the IFD5XX/4XX. If the IFD5XX/4XX can be installed in this area, remote navigation annunciation is not required. If the IFD5XX/4XX cannot be installed within the acceptable field of view, the installation must have navigation annunciations installed per Section 5.1.2.

Note: The dimensions shown in Figure 8 and Figure 9 for the IFD5XX also apply to the IFD4XX.

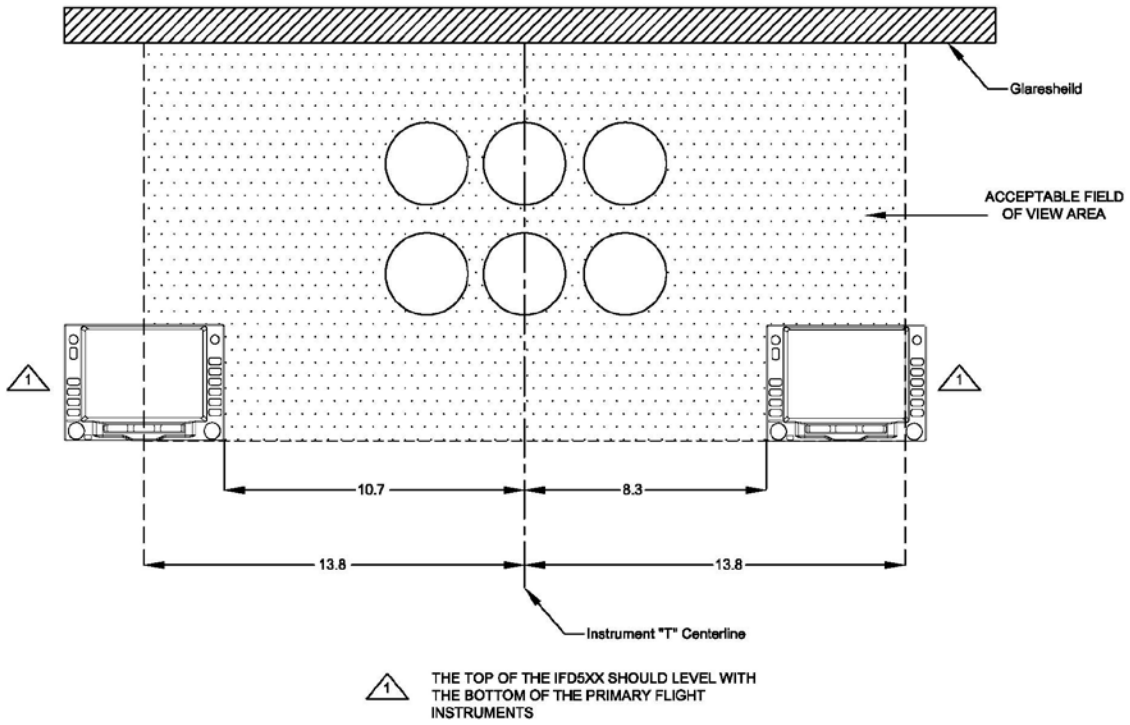


Figure 8 Field of View

5.1.2 Navigation Annunciation

The navigation annunciations listed in Table 37 must be installed in the Pilot's Field of view. This may be accomplished in several ways. The following are acceptable:

- Use Navigation Annunciation on an existing Primary Flight Display or Horizontal Situation Indicator located in the Pilot's primary field of view. CDI/HSI indicators with navigation annunciation is acceptable (e.g. GI 106, MD200-306, or similar). The CDI/HSI must be located within the primary field of view.
- If the IFD5XX/4XX is located within the acceptable field of view, as shown in Figure 8, external annunciation is not needed
- Install external annunciation lights in the acceptable field of view, as shown in Figure 9.

The IFD5XX/4XX should have the following annunciation within the Pilot's Field of View when installing an external annunciator:

Navigation Annunciation Type
VLOC Annunciate‡
GPS Annunciate‡
OBS Annunciate (optional)
Waypoint Annunciate
Terminal Annunciate
Approach Annunciate
Message Annunciate
LOI, INTEG, or INTG Annunciate

Table 37 Navigation Annunciation

‡ Must be located ±30° or 13.856", see Section 5.1.1

The navigation annunciators should be readable under all lighting conditions. The annunciators must be able to be tested prior to flight. The field of view in Figure 8 is based on ±35° from the Instrument "T" centerline at 24" aft of the panel.

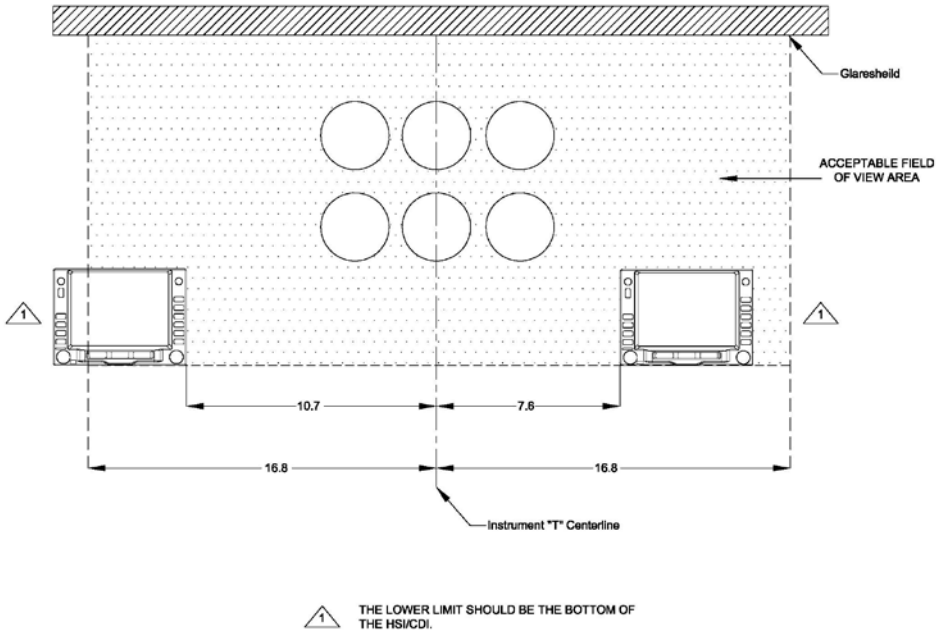


Figure 9 Navigation Annunciation Field of View

5.1.3 Course Deviation Indicator

The course deviation information must be located in the Pilot's Primary Field of view if the IFD5XX/4XX is used for IFR navigation. Installation of a CDI/HSI requires a separate installation approval.

5.1.4 Instrument Panel Cutout

The IFD5XX and IFD4XX tray is designed to be installed on the backside of the instrument panel. The instrument panel requires either a 6.320" x 4.600" or 6.320" x 2.70" hole for the IFD5XX or IFD4XX respectively. If the instrument panel in the aircraft is considered primary structure, additional installation approval will be required for the instrument panel cutout. The installer is responsible to ensure the structural aspects of this installation meet the requirements of AC 43.13-2B, Chapter 11, Paragraph 1104(a).

5.1.5 Requirements for Tray Installation

The Avidyne Tray must be installed in the aircraft as described below in order to satisfy the structural requirements for the STC. Deviations to these requirements will require separate approval.

1. Rear Tray Support (Instrument Panel)
    a. The existing instrument panel must be fabricated from 2024-T3 aluminum with a minimum thickness of 0.050". The tray brackets must be fabricated from 3/4" x 3/4" x 1/16" 2024-T3 aluminum angle extrusion for mounting the tray, as shown in Figure C - 1 and Figure C - 2.
    b. If new components are fabricated, the fabrication methods must follow the requirements of FAA Advisory Circular 43.13-1B, Chapter 4 for general airframe fabrication criteria, including hole tolerances, edge distances, rivet spacing, and corrosion protection, and Advisory Circular 43.13-2B Chapters 2 and 11 for structural adequacy.
2. Forward Tray Support
    a. The Avidyne Tray must have forward support brackets, reference Figure C - 1 or Figure C - 2. The forward support brace must be 0.032” 5052-H32 aluminum. (Note: equivalent or stronger is acceptable)
    b. If new forward support brackets are fabricated, the fabrication methods must follow the requirements of either Figure C - 1 or Figure C - 2, FAA Advisory Circular 43.13-1B, Chapter 4 for general airframe fabrication criteria, including hole tolerances, edge distances, rivet spacing, and corrosion protection, and Advisory Circular 43.13-2B, Chapters 2 and 11 for structural adequacy.

The IFD5XX should be installed using six #6-32 flat head screws and self locking nuts. The IFD4XX should be installed using four #6-32 flat head screws and self locking nuts.

5.2 Equipment Location - Replacement Unit

If the IFD5XX/4XX is being installed as replacement unit on a previously approved IFR installation, the existing installation location is acceptable and does not require any changes.

5.3 Angle of Regard

The IFD5XX/4XX should be mounted in a location where the viewing angle of the display does not exceed the following angles:

- From the Left: 45°
- From the Right: 45°
- From the Top: 35°
- From the Bottom: 35°

5.4 Unit Installation/Removal

The IFD5XX/4XX should be installed using 3/32-inch hex drive tool. The hex drive is inserted into the hole in the front bezel.

5.5 Internal Cooling

The IFD has several internal fans and heat sinks as part of its basic design. There are exhaust vents on the left and right sides of the chassis with cut outs in the tray to facilitate venting. The left and right side of the front bezel have intake louvers to help pull ambient cockpit air through the unit. While not necessary, if installation flexibility permits, the unit will benefit from these intake and exhaust vents remaining as clear as feasible.

5.6 External Cooling

The IFD5XX/4XX does not require external cooling, however, additional cooling may prolong product life. A 5/8" diameter air fitting is provided in the rear of the IFD5XX/4XX mounting tray, if forced air cooling is installed.

IFD5XX/4XX installations in a tightly packed avionics stack should consider installing an electric avionics cooling fan. As a minimum, plan to leave space for clear intake and exhaust venting when able. If a fan is installed, ensure the intake air flow to the fan is not located near the exhaust of other fans or near other hot equipment.

In the event the system feels excessively hot or if an Overtemp Caution Advisory System message is presented on the display, there are some diagnostic tools provided in the IFD5XX/4XX to assist in finding more optimal cooling installations. In Maintenance Mode, select the "Status" tab along to bottom edge of the display and then press the "Info" Line Select Key as needed until "Temps" is displayed. Note the hottest source(s) on that page and supply that information to Avidyne Technical Support to include both the source and the associated temperature for follow-on guidance.

The metal bezel of the IFD5XX/4XX is intentionally designed to radiate heat away from the internal components and out of the unit. This can have the effect of a bezel that may be warm to the touch. This is considered normal. Note that the rubber bezel buttons will not conduct this heat and should not be warm. This condition will be more noticeable on hot days or during long ground runs.

5.7 Electrical Bonding

The electrical bonding between the IFD5XX/4XX tray and aircraft ground should be ≤ 10 milliohm.

5.8 Aircraft Considerations

Installing wires or antennas on a pressurized aircraft, composite aircraft, or with an aircraft certification basis of Amendment 23-45 or later is beyond the scope of this manual and requires additional installation approval, unless the aircraft model is listed on the STC AML.

5.9 Weight and Balance

After installing the IFD5XX/4XX, the aircraft's weight and balance must be updated after installation is complete.

For those installations where an IFD540/545/440 is replacing a GNS530/430 (any variant), since the IFD540/545/440 is within 5% of the weight of the removed GNS530 (less than 1 pound difference), no new weight and balance must actually be performed according to AC 43.13-1B Change 1 Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair (Chapter 10) and AC 120-27E Aircraft Weight and Balance Control.

5.10 Compass Safe Distance

The IFD5XX/4XX should be installed 12" or more away from the aircraft's magnetic compass. Perform an aircraft compass swing/calibration after completing the IFD5XX/4XX installation.

Note: The 12" minimum distance is a TSO-driven value that is designed to ensure the unit will have no impact on the aircraft compass. If an installation is made where this distance is less than 12", then a compass swing/calibration must be accomplished after completing the IFD5XX/4XX installation.

6. System Installation

The following section will describe interfacing the IFD5XX/4XX to various other avionics and aircraft equipment.

6.1 Pin Function List

The following Section Lists the Pin function for each connector.

6.1.1 P1001 Main Connector

Pin	Description	Signal Type
1	VLOC Annunciate	Output
2	GPS Annunciate	Output
3	Waypoint Annunciate	Output
4	Terminal Annunciate	Output
5	Approach Annunciate	Output
6	Message Annunciate	Output
7	OBS Annunciate	Output
8	Weight on Wheels (WOW) Output	Output
9	Integrity Annunciate	Output
10	Annunciate D	Output
11	Annunciate E	Output
12	Reserved	Output
13	GPS Select	Output
14	ILS/GPS Annunciate (Approach)	Output
15	Aircraft Power 2	Input
16	Time Mark Out	Output
17	Main Lateral Superflag	Output
18	Main Vertical Superflag	Output
19	Aircraft Power 1	Input
20	Aircraft Power 1	Input
21	Main +Left	Output
22	Main +Right (1.65V COM)	Output
23	Main Lat +Flag	Output
24	Main Lat -Flag (GND)	-
25	Main +To (1.65V Common)	Output

Pin	Description	Signal Type
26	Main +From	Output
27	Main +Up (1.65V Common)	Output
28	Main +Down	Output
29	Main Vertical +Flag	Output
30	Main Vertical -Flag (GND)	-
31	Main OBS Rotor C	Output
32	Main OBS Rotor H(GND)	-
33	Main OBS Stator D	Input
34	Main OBS Stator E (2.5V Common OBS)	Output
35	Main OBS Stator F	Input
36	Main OBS Stator G (2.5V Common OBS)	Output
37	Audio 1 HI (Alert audio)	Output
38	Audio 1 LO (Alert audio)	Output
39	LTG Bus HI	Input
40	LTG Bus LO (GND)	Input
41	GPS RS232 Out 3	Output
42	GPS RS232 In 3	Input
43	Main OBI Clock	Output
44	Main OBI Data	Output
45	Main OBI Sync	Output
46	GPS Arinc-429 Out A	Output
47	GPS Arinc-429 Out B	Output
48	GPS Arinc-429 In 1 A	Input
49	GPS Arinc-429 In 1 B	Input
50	GPS Arinc-429 In 2 A	Input
51	GPS Arinc-429 In 2 B	Input
52	Audio 2 HI	Output
53	Audio 2 LO	Output
54	GPS RS232 Out 4	Output
55	GPS RS232 In 4	Input
56	GPS RS232 Out 1	Output
57	GPS RS232 In 1	Input

Pin	Description	Signal Type
58	GPS RS232 Out 2	Output
59	GPS RS232 In 2	Input
60	Altitude Common (GND)	-
61	Altitude C4	Input
62	Altitude C2	Input
63	Altitude C1	Input
64	Altitude B4	Input
65	Altitude B2	Input
66	Altitude B1	Input
67	Altitude A4	Input
68	Altitude A2	Input
69	Altitude A1	Input
70	Altitude D4 / Weight on Wheels Input (Helicopter use)	Input
71	OBS Mode Select	Input
72	Aircraft Power 2	Input
73	CDI Source Select	Input
74	COM Remote Recall Forward	Input
75	COM Remote Recall Reverse	Input
76	LTG BUS 2 HI	Input
77	Aircraft GND	-
78	Aircraft GND	-

Table 38 P1001 Pin Description

6.1.2 P1002 Communication Connector

Note: This connector is not used in the IFD510/545/410.

Pins	Description	Signal Type
1	Reserved	-
2	Ethernet 1 TX+	Output
3	Ethernet 1 TX-	Output
4	COM Microphone Key	Input
5	Intercom Microphone Audio HI	Input
6	COM Microphone Audio HI	Input
7	COM Audio HI	Output
8	Ethernet 1 RX+	Input
9	Ethernet 1 RX-	Input

Pins	Description	Signal Type
10	Synchro X	Input
11	Aircraft Power	Input
12	Aircraft Power	Input
13	Synchro Reference Signal +	Input
14	Transmit Interlock (Unused)	Input
15	COM Remote Transfer	Input
16	Reserved	-
17	Intercom Microphone Audio LO	Input
18	COM Microphone Audio LO	Input
19	COM Audio LO	Output
20	Reserved	-
21	Aircraft GND	-
22	Aircraft GND	-
23	Synchro Y	Input
24	Synchro Z	Input
25	Synchro Reference Signal -	Input

Table 39 P1002 Pin Description

6.1.3 P1006 Navigation Connector

Note: This connector is not used in the IFD510/545/410.

Pins	Description	Signal
1	VOR/LOC +To	Output
2	VOR/LOC +From (VOR/LOC 2.5V Common)	Output
3	VOR/LOC +Flag	Output
4	VOR/LOC -Flag (VOR/LOC 2.5V Common)	Output
5	VOR/LOC +Left	Output
6	VOR/LOC +Right (VOR/LOC 2.5V Common)	Output
7	Com Monitor Audio HI	Output
8	VOR/LOC Composite Out	Output
9	VOR OBS Rotor C	Output
10	VOR OBS Rotor H (GND)	-
11	VOR OBS Stator E/G (VOR/LOC 2.5V Common)	Output
12	VOR OBS Stator F	Input
13	VOR OBS Stator D	Input
14	Parallel DME - 8MHz	Output
15	VOR/LOC Superflag	Output
16	VOR/ILS Audio HI	Output
17	VOR/ILS Audio LO	Output
18	Serial DME - Clock	Output
19	Serial DME - Data	Output
20	Ser DME-Chan REQ/PAR DME - 4MHz	Input/output

Pins	Description	Signal
21	Ser DME-RNAV Mode/PAR DME - 2MHz	Input/output
22	DME Common	Input
23	VOR/ILS Arinc-429 Out B	Output
24	VOR/ILS Arinc-429 Out A	Output
25	VOR OBI Clock	Output
26	VOR OBI Sync	Output
27	VOR OBI Data	Output
28	VLOC Remote Transfer	Input
29	ILS Energize	Output
30	Glideslope +Flag	Output
31	Glideslope +Down/-Flag (Glideslope 2.5V Common)	Output
32	Glideslope +Up	Output
33	Parallel DME - 1MHz	Output
34	Com Monitor Audio LO	Output
35	VOR/ILS Arinc-429 In B	Input
36	VOR/ILS Arinc-429 In A	Input
37	Parallel DME - 800KHz	Output
38	Glideslope Superflag	Output
39	Parallel DME - 400KHz	Output
40	Parallel DME - 200KHz	Output
41	Aircraft GND	-
42	Parallel DME - 100KHz	Output
43	Parallel DME - 50KHz	Output
44	Aircraft Power	Input

Table 40 P1006 Pin Description

6.1.4 P1050 Additional I/O Connector

Please note: This connector is not available on the IFD4XX.

Pins	Description	Signal
1	TAWS Inhibit IN	Input
2	TAWS Audio Inhibit IN	Input
3	Spare Input 4	Input
4	Spare Input 3	Input
5	Spare Input 2	Input
6	Spare Input 1	Input
7	Reserved	-
8	Reserved	-
9	Terrain Not Available Annunciate	Output
10	Terrain Warning Annunciate	Output

Pins	Description	Signal
11	Terrain Caution Annunciate	Output
12	TAWS Inhibit Annunciate	Output
13	Spare Annunciate 2	Output
14	Spare Annunciate 1	Output
15	TAWS Audio Active Out	Output
16	Reserved	-
17-21	Ground	-
22-39	NO CONNECT	-
40	ARINC 453 RX+	Input
41	ARINC 453 RX -	Input
42	GPS ARINC-429 Out 2A	Output
43	GPS ARINC-429 Out 2B	Output
44-59	NO CONNECT	-
60	RS232 Out 5	Output
61	RS232 IN 5	Input
62	RS232 Out 6	Output
63	RS232 IN 6	Input
64	Ground	-
65-76	NO CONNECT	-
77	RS170 Video IN	Input
78	Ground	Input

Table 41 P1050 Pin Description

6.1.5 Altitude Gray Code

Altitude Gray code input is connected on the following pins:

Description	Connector	Pin	Signal Type
Altitude D4	P1001	70	Input
Altitude A1	P1001	69	Input
Altitude A2	P1001	68	Input
Altitude A4	P1001	67	Input
Altitude B1	P1001	66	Input
Altitude B2	P1001	65	Input
Altitude B4	P1001	64	Input
Altitude C1	P1001	63	Input
Altitude C2	P1001	62	Input
Altitude C4	P1001	61	Input
Altitude Common	P1001	60	Input

Table 42 Altitude Gray Code Description

NOTE: Some transponders and altitude encoders do not have internal isolation diodes to prevent the unit from pulling the encoder lines to ground when the unit is off. These units will require the installation of a diode into harness for each encoder line.

6.1.6 Heading Input

Note: This section is N/A for the IFD510/545/410.

The IFD5XX/4XX can accept a 3-wire ARINC 407 Synchro heading input on the following connectors and pins:

Description	Connector	Pin	Signal Type
Synchro X	P1002	10	Input
Synchro Reference Signal + (26VAC 400 Hz)	P1002	13	Input
Synchro Y	P1002	23	Input
Synchro Z	P1002	24	Input
Synchro Reference Signal - (GND)	P1002	25	Input

Table 43 Synchro Heading Input

6.1.7 Main Course Deviation Indicator Output

The main indicator displays both lateral and vertical deviations, TO/From, and Flag indications from the NAV and GPS receivers.

6.1.7.1 Lateral/Vertical Deviations

The lateral and vertical deviations are on the following connector and pins:

Description	Connector	Pin	Signal Type
Main +Left	P1001	21	Output
Main +Right	P1001	22	Output
Main +Up	P1001	27	Output
Main +Down	P1001	28	Output

Table 44 Main Course Deviation Output

6.1.7.2 TO/FROM Indication Flag

The To/From Flag indication flags are on the following connector and pins:

Description	Connector	Pin	Signal Type
Main +To	P1001	25	Output
Main +From	P1001	26	Output

Table 45 Main TO/From Flag Output

6.1.7.3 Navigation Flags

The Navigation Flags is on the following connector and pins:

Description	Connector	Pin	Signal Type
Main Lateral +Flag	P1001	23	Output
Main Lateral -Flag	P1001	24	Output
Main Vertical +Flag	P1001	29	Output
Main Vertical -Flag	P1001	30	Output

Table 46 Main Navigation Flag Output

6.1.7.4 Navigation Superflags

The Navigation Superflags is on the following connector and pins:

Description	Connector	Pin	Signal Type
Main Lateral Super Flag	P1001	17	Output
Main Vertical Super Flag	P1001	18	Output

Table 47 Main Navigation Superflag Output

Superflag outputs system voltage when valid and <.25 VDC when not valid. This output is capable of driving 500mA at 28 VDC or 250mA at 14 VDC.

6.1.7.5 OBS

The OBS is on the following connector and pins:

Description	Connector	Pin	Signal Type
Main OBS Rotor C	P1001	31	Output
Main OBS Rotor (Ground)	P1001	32	Output
Main OBS Stator D	P1001	33	Input
Main OBS Stator E	P1001	34	Output
Main OBS Stator F	P1001	35	Input
Main OBS Stator G	P1001	36	Output

Table 48 Main OBS Output

6.1.7.6 Annunciators Electrical Output

Description	Connector	Pin	Signal Type
VLOC Annunciate	P1001	1	Output
GPS Annunciate	P1001	2	Output
Waypoint Annunciate	P1001	3	Output
Terminal Annunciate	P1001	4	Output
Approach Annunciate	P1001	5	Output
Message Annunciate	P1001	6	Output
OBS Annunciate	P1001	7	Output
Integrity Annunciate	P1001	9	Output
LNAV GPS Select	P1001	13	Output
ILS/GPS Approach	P1001	14	Output

Table 49 Annunciator Output

All outputs sink up to 500 mA when activated.

6.1.7.7 Switch Inputs

Description	Connector	Pin	Signal Type
OBS Mode Select	P1001	71	Input
CDI Source Select	P1001	73	Input

Table 50 Switch Inputs

The inputs are considered active if voltage to ground <1.9V or resistance to ground <375 Ω. These inputs are considered inactive if voltage to ground is 11-33 VDC.

6.1.7.8 Time Mark Out

Description	Connector	Pin	Signal Type
Time Mark Out	P1001	16	Output

Table 51 Time Mark Output

Outputs a 1ms ± 1µs wide pulse once every 1.0 Second ± 2 ms. Output sources 1 mA at >3.8 V and sinking 1 mA at less than 0.4 V.

6.1.8 Serial Data

6.1.8.1 RS-232

Description	Connector	Pin	Signal Type
RS-232 Output 1	P1001	56	Output
RS-232 Input 1	P1001	57	Input
RS-232 Output 2	P1001	58	Output
RS-232 Input 2	P1001	59	Input
RS-232 Output 3	P1001	41	Output
RS-232 Input 3	P1001	42	Input
RS-232 Output 4	P1001	54	Output
RS-232 Input 4	P1001	55	Input
RS-232 Output 5‡	P1050	60	Output
RS-232 Input 5‡	P1050	61	Input
RS-232 Output 6‡	P1050	62	Output
RS-232 Input 6‡	P1050	63	Input

Table 52 RS-232 Input / Output

‡ IFD5XX Only

6.1.9 ARINC 429

Description	Connector	Pin	Signal Type
GPS ARINC 429 OUT A	P1001	46	Output
GPS ARINC 429 OUT B	P1001	47	Output
GPS ARINC 429 IN 1 A	P1001	48	Input
GPS ARINC 429 IN 1 B	P1001	49	Input
GPS ARINC 429 IN 2 A	P1001	50	Input
GPS ARINC 429 IN 2 B	P1001	51	Input
VOR/ILS ARINC 429 OUT A *	P1006	24	Output
VOR/ILS ARINC 429 OUT B *	P1006	23	Output
VOR/ILS ARINC 429 IN A *	P1006	36	Input
VOR/ILS ARINC 429 IN B *	P1006	35	Input
GPS ARINC 429 OUT A‡	P1050	42	Output
GPS ARINC 429 OUT B‡	P1050	43	Output

Table 53 ARINC 429 Input / Output

‡ IFD5XX only, * N/A for IFD510/545/410

6.1.10 ARINC 453

Description	Connector	Pin	Signal Type
ARINC 453 RX +	P1050	40	Input
ARINC 453 RX -	P1050	41	Input

Table 54 ARINC 453 Input

6.1.11 RS170 Video

Description	Connector	Pin	Signal Type
RS170 Video In High	P1050	77	Input
RS170 Video In Low	P1050	78	Input

Table 55 RS170 Video Input

6.1.12 Com/VOR/ILS Audio Electrical Characteristics

Note: This section is N/A for IFD510/545/410.

6.1.12.1 Com Microphone Key

Description	Connector	Pin	Signal Type
COM MIC Key	P1002	4	Input

Table 56 VHF Communication Microphone Key

This input is active if either the voltage to ground <1.9V or the resistance to ground is <375Ω. This input is considered inactive if the voltage to ground is 11-33 VDC.

Activating the COM MIC Key will cause the transmitter to transmit the audio on the COM MIC Audio HI.

6.1.12.2 Com Microphone Audio, INTERCOM Microphone Audio

Description	Connector	Pin	Signal Type
COM MIC Audio HI	P1002	6	Input
COM MIC Audio LO	P1002	18	Input
INTERCOM MIC HI	P1002	5	Input
INTERCOM MIC LO	P1002	17	Input

Table 57 VHF Communication Audio

520Ω input impedance, supply 9V via 620Ω.

6.1.12.3 Com Audio, VOR/ILS Audio

Description	Connector	Pin	Signal Type
Com Audio HI	P1002	7	Output
Com Audio LO	P1002	19	Output
VOR/ILS Audio HI	P1006	16	Output
VOR/ILS Audio LO	P1006	17	Output

Table 58 VHF Communication and Navigation Audio Output

Each supply 65mW into 150Ω . They are balanced outputs and LO output must be connected.

6.1.12.4 Discrete Inputs

Description	Connector	Pin	Signal Type
Transmit Interlock (Unused)	P1002	14	Input
Com Remote Transfer	P1002	15	Input
VLOC Remote Transfer	P1006	28	Input
Com Remote Recall, Forward	P1001	74	Input
Com Remote Recall, Reverse	P1001	75	Input

Table 59 VHF Communication and Navigation Switch Inputs

This input is active if either the voltage to ground <1.9V or the resistance to ground is <375Ω. This input is considered inactive if the voltage to ground is 11-33 VDC.

COM Remote Transfer and VLOC Remote Transfer are momentary inputs. Momentarily depressing the VLOC or Com Remote transfer button toggles the active and #1 standby frequencies. Momentarily depressing the COM Remote Recall button inserts the next frequency in the Com preset list into the #1 standby slot.

6.1.12.5 Standby Com Monitor

Description	Connector	Pin	Signal Type
Com Monitor Audio HI	P1006	7	Output
Com Monitor Audio LO	P1006	34	Output

Table 60 Standby Communication Output

This optional signal use can be used with audio panels that have a means of selecting the #1 standby com audio (e.g. Avidyne AMX240).

6.1.13 VOR/ILS Indicator Electrical Characteristics

Note: This section is N/A for IFD510/545/410.

6.1.13.1 Superflag

Description	Connector	Pin	Signal Type
VOR/LOC Superflag	P1006	15	Output
Glideslope Superflag	P1006	38	Output

Table 61 Navigation Superflag Output

The output supplies not less than 500 mA on a 28 volt system and 250 mA on a 14 volt system with the output voltage at (Aircraft voltage – 3VDC) when the flag is to be out of view. The output voltage with respect to ground is less than 3 VDC when the flag is to be in view.

6.1.13.2 RMI/OBI Electrical Characteristics

Description	Connector	Pin	Signal Type
Main OBI Clock	P1001	43	Output
Main OBI Sync	P1001	45	Output
Main OBI Data	P1001	44	Output

Table 62 P1001 OBI Output

Description	Connector	Pin	Signal Type
VOR OBI Clock	P1006	25	Output
VOR OBI Sync	P1006	26	Output
VOR OBI Data	P1006	27	Output

Table 63 P1006 OBI Output

The output is active low.

6.1.14 DME Tuning

Note: This section is N/A for IFD510/545/410.

The IFD5XX/4XX can channel a DME based on the tuned VLOC frequency. The IFD5XX/4XX can be connected to a DME via 2x5, BCD, Slip parallel, or King Serial DME channeling format.

6.1.14.1 Serial/Parallel Tuning

Description	Connector	Pin	Signal Type
NAV PAR DME – 8MHz	P1006	14	Output
SER DME – CHAN REQ/PAR DME – 4MHz	P1006	20	Output*

SER DME – RNAV MODE/PAR DME – 2MHz	P1006	21	Output*
NAV PAR DME – 1MHz	P1006	33	Output
NAV PAR DME – 800 kHz	P1006	37	Output
NAV PAR DME – 400 kHz	P1006	39	Output
NAV PAR DME – 200 kHz	P1006	40	Output
NAV PAR DME – 100 kHz	P1006	42	Output
NAV PAR DME – 50 kHz	P1006	43	Output
NAV DME COMMON	P1006	22	Input

Table 64 DME Serial/Parallel Output

* Used for 2x5 parallel DME tuning.

NAV DME Common must be pulled low for the IFD5XX/4XX to channel the DME. DME is active if the voltage to ground is <1.9 V or the resistance to ground is <375 Ω.

Outputs is not more than 1.0V while sinking 20 mA.

6.1.14.2 King Serial DME Tuning

Description	Connector	Pin	Signal Type
NAV Serial DME – DATA	P1006	19	Output
NAV Serial DME – Clock	P1006	18	Output*
Serial DME – CHAN REQ/PAR DME – 4MHz	P1006	20	Output*
Serial DME – RNAV Mode/PAR DME – 2MHz	P1006	21	Output
NAV DME Common	P1006	22	Output

Table 65 DME Serial Tuning

Output high is >8V when driving a 360Ω and < 10mV for a low.

NAV DME Common must be pulled low for the IFD5XX/4XX to channel the DME. DME is active if the voltage to ground is <1.9 V or the resistance to ground is <375 Ω.

6.2 Bezel Lighting

The IFD5XX/4XX can be connected to any of the following avionics lighting sources: 5/14/28VDC or 5 VAC. Dimming controls are described in Section 7.5.6.

6.3 Traffic System

The IFD5XX/4XX can be connected to Traffic Systems either by RS232 or ARINC 429. The IFD5XX/4XX supports the following Traffic Systems:

Manufacturer	Model	Data Format	Notes
Avidyne Corporation	TSA6XX, TAS6XXA, 9900BX	RS232 or ARINC 429	RS-232 preferred
Avidyne Corporation	Skytrax100 (formerly MLB100) (Navworx 200-0011-()-())	RS232 or ARINC 429	RS-232 preferred
Avidyne Corporation	Skytrax100B	RS232 or ARINC 429	RS-232 preferred
L3 Communications	SKY497, SKY899	ARINC 429	
Bendix/King	KTA-870, KMH880	ARINC 429	
Garmin	GTS800/820/850	ARINC 429	

Table 66 Traffic Systems

6.4 Lightning Detection System

The IFD5XX/4XX can be connected to Lightning Detection Systems via RS232. The IFD5XX/4XX supports the following Lightning Detection Systems:

Manufacturer	Model	Data Format	Notes
Avidyne Corporation	TWX670	RS232	"Native" format
L3 Communications	WX500	RS232	WX500 must set both the 232 Input and 232 Output on the IFD5XX/4XX.

Table 67 Lightning Detection System

6.5 Datalink Weather

The IFD5XX/4XX can be connected to Datalink Weather Systems via RS232. The IFD5XX/4XX supports the following Datalink Weather Systems:

Manufacturer	Model	Data Format	Notes
Avidyne Corporation	MLB700	RS232	
	SkyTrax100(formerly MLB100) [Navworx 200-0011-()-()]	RS232	IFD with s/w 10.1.0 or later
	Skytrax 100B	RS232	IFD with s/w 10.1.0 or later
Freeflight Systems	FDL-978-RX	RS232	IFD with s/w 10.1.0 or later
Heads-up Technologies	XMD-076	RS232	IFD with s/w 10.2.3.1 or later
Garmin	GDL69/69A P/N 011-00986-00 or 011-00987-00 only Pre Software 10.2.3.1 With Software 10.2.3.1 or later P/N 011-03177-X0 will also work	RS232	Garmin Software version 4.01 or later For first generation GDL's
Garmin	GDL 88	RS232	
WSI	AV300 AV350	RS232	

Table 68 Weather Datalink

6.6 Audio Panels

The IFD5XX/4XX can be connected to various Audio Panels via analog connections. The IFD5XX/4XX supports the following Audio Panels:

Manufacturer	Model	Data Format	Notes
Avidyne	AMX240	Analog Audio	
Garmin	SL10/ SL10MS/ SL10M/ SL10S/ SL15/ SL15M/ GMA340/ GMA347	Analog Audio	
Honeywell (Bendix/King)	KMA24/ KMA24H-70/71 KMA26/ KMA28	Analog Audio	
PS Engineering	PMA6000/ PMA 7000 Series/ PMA 8000 Series	Analog Audio	

Table 69 Audio Panels

6.7 GAD 42

The IFD5XX/4XX can be connected to the Garmin GAD42 Interface Adapter.

If the IFD5XX/4XX is replacing a GNS530/W or GNS430/W that had previously been connected to a GAD42, then no action is required since the configuration is already saved in the GAD42.

If this is a new installation of an IFD5XX/4XX (i.e. not replacing an existing GNS-530/W or GNS-430/W) or if the GAD42 had to be replaced for service, then the GAD42 must be configured via a manual strapping method as described in Garmin P/N 190-00159-00 GAD42 Installation Manual, Section 5.1.

6.8 Air Data System Sources

The IFD5XX/4XX can be connected to either Uncorrected or Baro-corrected Altitude Sources. The IFD5XX/4XX can be connected to the following Air Data Systems:

Manufacturer	Model	Data Format	Notes
Aspen	EFD1000	ARINC 429	Low Speed
Avidyne	Entegra PFD	ARINC 429	Low Speed
Garmin	G500/600	ARINC 429	Low Speed
B & D	90004-003	ARINC 429	Low Speed
Honeywell (Bendix/King)	KDC281/481	ARINC 429	Low Speed
Insight	TAS 1000	RS232	

Table 70 Air Data Systems

6.8.1.1 Uncorrected Pressure Altitude Sources

The IFD5XX/4XX can accept uncorrected altitude from multiple sources in the following formats: ARINC 429, RS232, or a Gray Code altitude encoder. If multiple altitude sources are connected, the IFD5XX/4XX will use the altitude sources in this order (highest first):

1. ARINC 429 ADC
2. ARINC 429 EFIS
3. ARINC 429 Traffic Advisory System
4. RS232 FADC
5. RS-232 Altitude Encoder
6. Parallel Altitude Encoder (Gray Code)

6.8.1.2 Baro-corrected Altitude Sources

The IFD5XX/4XX can accept baro-corrected altitude from multiple sources. The IFD5XX/4XX can accept Altitude information from altitude Air Data Systems in the following formats: ARINC 429 or RS232. If multiple altitude sources are connected to the IFD5XX/4XX, the IFD5XX/4XX will use the altitude sources in this order (highest first):

1. ARINC 429 INS/IRU
2. ARINC 429 EFIS
3. ARINC from Transponder
4. RS232 FADC

6.8.1.3 Other Air Data Sources

The IFD5XX/4XX can be connected to Air Data Systems that transmit the following labels via ARINC 429 if all the following is true:

- The Air Data Computer provides the following labels:
  - 203 – Pressure Altitude
  - 204 - Barometric- Corrected Altitude
  - 210 – True Airspeed
  - 211 – Total Air Temperature
  - 213 – Static Air Temperature
- The Air Data source is TSO approved and has a separate installation approval
- All wiring must be installed per the Air Data Computer's installation data

6.9 Heading System Sources

The IFD5XX/4XX can accept Heading data from multiple sources. The IFD5XX/4XX can accept heading information from Heading Systems in the following formats: ARINC 429 or RS232. If multiple heading sources are connected to the IFD5XX/4XX, the IFD5XX/4XX will use the heading sources in this order (highest first):

1. ARINC 429 INS/IRU
2. ARINC 429 EFIS
3. ARINC 429 from GAD42
4. ARINC 429 from EHSI
5. ARINC 429 from GTX 33/330
6. ARINC 429 Traffic Advisory System
7. Synchro Heading (N/A for IFD510/545/410)
8. RS232 FADC
9. RS232 Lightning Detection System (The WX500 can only be used as a heading source if it is configured for a Synchro output.)

The IFD5XX can be connected to the following IRU/AHRS systems:

Manufacturer	Model	Data Format	Notes
Collins	AHS-85E	ARINC 429	High Speed

Table 71 IRU/AHRS Systems

The Avidyne IFD5XX/4XX can accept heading information via ARINC 429 from other IRU/AHRS sources if the following labels are provided:

- 314 - True Heading
- 320 - Magnetic Heading

IRU/AHRS not listed in the table above can still be approved if the following conditions are met:

- The IRU/AHRS provides ARINC 429 labels 314 and/or 320;
- The IRU/AHRS installation is previously FAA approved;
- The IFD5XX/4XX must be installed per Section 4.5.1.
- The IFD5XX/4XX must pass the ground test in Section 7.6.16 before returning aircraft to service

6.10 Multifunction Displays

The IFD5XX/4XX can be connected to Multifunction Display Systems via RS232 or ARINC 429. The IFD5XX/4XX supports the following Multifunction Display Systems:

Manufacturer	Model	Data Format	Notes
Garmin	MX20	RS232	• Aviation No Alt format for MX20 version 5.5 and earlier • Aviation format for MX20 version 5.6 and later.
Garmin	GMX200	RS232	• Aviation format for all GMX200 versions
Avidyne Corporation	EX500/EX600/EX5000	ARINC 429	• Use GAMA format 2, low speed • MFD software P/N 530-00193-( ) or later is required
Avidyne Corporation	FlightMax FSD Series	RS232	• GAMA output may also be used. However, flight plans with an Arc will be displayed as a gap.

Table 72 Multifunction Display

6.11 Forward Looking Terrain Alerting

This section will describe the external interfaces for the FLTA interface. Note: The IFD5XX/4XX does not contain TSO-C151()-compliant TAWS functionality and may not be used to satisfy the 14 CFR 91.223 TAWS requirement on those airplanes where it applies. FLTA does provide aural alerting to the pilot of projected terrain (ground and obstacle) conflicts. FLTA also has the ability to command the various TAWS remote annunciators to light up as appropriate. Section 7.5.4 has instructions for turning FLTA on or off.

6.11.1 Audio

Pin Name	Connector	Pin	I/O
Audio 1 HI	P1001	37	Output
Audio 1 LO	P1001	38	Output
Audio 2 HI	P1001	52	Output
Audio 2 LO	P1001	53	Output

Table 73 Terrain Awareness Audio Output

The audio output 1 is a low impedance output. 100mW at 500-ohm.

The audio output 2 has an output impedance of 240-ohm and is capable of driving 100mW into a 500-ohm load.

6.11.2 Annunciators

Pin Name	Connector	Pin	I/O
Terrain not available annunciate	P1050	9	Output
Terrain Warning Annunciate	P1050	10	Output
Terrain Caution Annunciate	P1050	11	Output
TAWS Inhibit Annunciate	P1050	12	Output

Table 74 Terrain Awareness Annunciator Output

6.12 TAWS/EGPWS Output

The IFD does not accept any data for use or display from any TAWS or EGPWS system.

The IFD5XX/4XX is capable of sending position data to the following EGPWS systems:

Manufacturer	Model	Notes
Honeywell	KGP560	Serial GPS position output to the KGP560 only

Table 75 TAWS/EGPWS Output

6.13 ADS-B Transponder/UAT Output

The IFD5XX/4XX will transmit ADS-B GPS position data to the following compatible ADS-B capable transponders/UAT. The ADS-B out transmitters listed in the Table below have been tested with Avidyne IFD4XX/IFD5XX GPS receivers (GPS position source(s)) and have been found to be compliant combinations to meet all ADS-B out requirements compliant with 14 CFR 91.217.

Manufacturer	Model	Notes
Avidyne	AXP340	• ADS-B output requires a separate installation approval. See Avidyne AXP322/AXP340 AML STC SA00352BO. • For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of one of the IFD5XX/4XX. Set the transponder to accept an active low when performing that squat switch setup. • The IFD5XX/4XX retransmits the Altitude data received from external altitude devices to AXP340. This is a non-TSO function of the IFD5XX/4XX and must be tested and approved by the installer prior to returning the aircraft to service. The IFD5XX/4XX will use the airdata source with the highest priority, reference Section 6.8.1.1. Installers must ensure the airdata source being used for transponder Mode C transmissions complies with 14 CFR 91.217. After installation, the transponder system must be tested per 14 CFR 91.411 to verify the airdata retransmitted by IFD5XX/4XX is operating correctly prior to return to service. The Hardware and Software Design Assurance for the Altitude Retransmission is Level B and C respectively. The IFD5XX/4XX has a maximum internal latency of 340 mS for retransmission the altitude data. • See Figure D - 44 for AXP340 interconnect.
Avidyne	AXP322	• ADS-B output requires a separate installation approval. See Avidyne AXP322/AXP340 AML STC SA00352BO. • For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of one of the IFD5XX/4XX. In either case, set the transponder to "Avidyne" when performing the squat switch setup. See section 7.5.13 • The IFD5XX/4XX retransmits the Altitude data

		received from external altitude devices to AXP322. This is a non-TSO function of the IFD5XX/4XX and must be tested and approved by the installer prior to returning the aircraft to service. The IFD5XX/4XX will use the airdata source with the highest priority, reference Section 6.8.1.1. Installers must ensure the airdata source being used for transponder Mode C transmissions complies with 14 CFR 91.217. After installation, the transponder system must be tested per 14 CFR 91.411 to verify the airdata retransmitted by IFD5XX/4XX is operating correctly prior to return to service. The Hardware and Software Design Assurance for the Altitude Retransmission is Level B and C respectively. The IFD5XX/4XX has a maximum internal latency of 340 mS for retransmission the altitude data. • See Figure D - 44 for AXP322 interconnect. • IFD5XX/4XX must have software 10.1.0 or later
Garmin	GTX330ES	• The IFD4XX/IFD5XX AML STC SA00343BO approves ADS-B out capability for this ADS-B OUT transmitter and GNSS position sensor combination to comply with 91.227. • For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of one of the IFD5XX/4XX. Set the transponder to accept an active low when performing that squat switch setup. • The IFD5XX/4XX retransmits the Altitude data received from external altitude devices to GTX330ES. This is a non-TSO function of the IFD5XX/4XX and must be tested and approved by the installer prior to returning the aircraft to service. The IFD5XX/4XX will use the airdata source with the highest priority, reference Section 6.8.1.1. Installers must ensure the airdata source being used for transponder Mode C transmissions complies with 14 CFR 91.217. After installation, the transponder system must be tested per 14 CFR 91.411 to verify the airdata retransmitted by IFD5XX/4XX is operating correctly prior to return to service. The Hardware and Software Design Assurance for the Altitude Retransmission is Level B and C respectively. The IFD5XX/4XX has a maximum internal latency of 340 mS for retransmission the altitude data. • See Figure D - 50 for GTX330ES interconnect. • IFD5XX/4XX must have software 10.2 or later

Garmin	GTX335 GTX345	• The IFD4XX/IFD5XX AML STC SA00343BO approves ADS-B out capability for this ADS-B OUT transmitter and GNSS position sensor combination to comply with 91.227. • For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of one of the IFD5XX/4XX. Set the transponder to accept an active low when performing that squat switch setup. • The IFD5XX/4XX retransmits the Altitude data received from external altitude devices to GTX3X5. This is a non-TSO function of the IFD5XX/4XX and must be tested and approved by the installer prior to returning the aircraft to service. The IFD5XX/4XX will use the airdata source with the highest priority, reference Section 6.8.1.1. Installers must ensure the airdata source being used for transponder Mode C transmissions complies with 14 CFR 91.217. After installation, the transponder system must be tested per 14 CFR 91.411 to verify the airdata retransmitted by IFD5XX/4XX is operating correctly prior to return to service. The Hardware and Software Design Assurance for the Altitude Retransmission is Level B and C respectively. The IFD5XX/4XX has a maximum internal latency of 340 mS for retransmission the altitude data. • See Figure D - 48 and Figure D - 49 for GTX3X5 interconnect. • IFD5XX/4XX must have software 10.2 or later
L-3 Avionics	NGT9000R NGT9000R+ NGT9000RD NGT9000RD+	• ADS-B output requires a separate installation approval. This system utilizes an internal position source for ADS-B out compliance. See L3 STC. • For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of the controlling IFD5XX/4XX for IFD's with software 10.0.0 or higher. Set the transponder to accept an active low on ground when performing that squat switch setup. • The NGT9000XX needs a pressure altitude input • The NGT9000XX has its own internal GPS receiver • IFD5XX/4XX must have software 10.2.3.1 or later for the control logic

Table 76 ADS-B Output

6.14 Autopilot

The IFD5XX/4XX can be connected to various Autopilot Systems via analog or ARINC 429 connections. The IFD5XX/4XX supports the following Autopilot Systems:

Manufacturer	Model	Data Format	Notes
Avidyne	DFC90	Serial	Avidyne and Aspen PFDs
Honeywell (Bendix/King)	KAP100/140/150, KFC150/200/250/275 /300/325 KCP 320	Analog Deviation, Discrete	
	KFC225	Analog Deviation, Discrete, ARINC 429 GPSS	Dual IFD installations require only the IFD connected to the autopilot be setup for Prompt (See section 7.5.4)
	KFC400	ARINC 429	
Century	I/II/III/IV, 21/31/41, 2000, Trident	Analog Deviation, Discrete	
	AK 1081	ARINC 429 GPSS	
S-TEC (Cobham)	System 20/30/40/50/ 55/61/62/GPSS/65	Analog Deviation, Discrete	
	System 55X	Analog Deviation, Discrete, ARINC 429 GPSS	
	ST-901	ARINC 429 GPSS	
Collins	APS 65 ( )	Analog Deviation, Discrete	
	APS 3000	ARINC 429	Requires Software 10.2.2 or higher

Table 77 Autopilot Systems

6.15 Video Input

The IFD5XX can be connected to the following RS-170 video sources:

Manufacturer	Model	Data Format	Notes
Various	FAA Approved	RS-170	

Table 78 Video Systems

6.16 Radar Display and Control

The IFD5XX/4XX can be connected to the following radar system:

Manufacturer	Model	Data Format	Notes
Honeywell (Bendix/King)	RDR2000	ARINC 429 (out) ARINC 453 (in)	Only the IFD5XX can control and display radar. The IFD4XX can display radar via crossfill if a IFD5XX is the primary connection

Table 79 Radar Systems

7. Configuration and Checkout

After completing installation, a complete installation checkout should be performed. Complete the following sections to verify the installation is installed correctly. Prior to configuring the IFD5XX/4XX unit, the following checks should be performed.

7.1 Wiring Check

Verify wiring is properly installed and secured. Verify the wiring does not interfere with the flight controls. Verify all wiring connected to IFD5XX/4XX is connected correctly to the unit. **Caution:** Failure to properly connect aircraft wiring to the IFD5XX/4XX may result in damage to the IFD5XX/4XX or to the equipment connected to the IFD5XX/4XX.

7.2 Mounting Check

Verify the IFD5XX/4XX tray is securely installed to the airframe.

7.3 Chassis ID Setting

For dual IFD5XX/4XX installations, it is imperative that the proper Chassis ID settings are established for each IFD via dip switches located along the right side of the IFD5XX/4XX outer chassis. Not doing so will result in multiple error messages and degraded performance when two or more IFDs are installed in an airplane.

Figure 10 IFD5XX/4XX DIP Switches

At installation time, determine which IFD is to be designated as IFD #1 and which is to be designated as IFD #2 (Note, there is no operational difference, This is a Databus address assignment necessity). Set the side chassis ID dip switches per the table below:

IFD Position Designation	DIP switch selections
IFD #1	↑ ↑ ↑ (up, up, up)
IFD #2	↓ ↑ ↑ (down, up, up)

Table 80 DIP Switch Configuration

7.4 Unit Installation

Install unit in the tray using the captive 3/32" Hex screw. Verify the connectors are fully engaged prior to powering on the unit.

7.5 Configuration

The IFD5XX/4XX can be configured in the aircraft. This section will describe the procedures for configuring the IFD5XX/4XX.

Configuration consists of setting up communication protocols in Maintenance Mode, designating specific types of equipment to be integrated and setting up system settings.

Configuration also consists of setting up User Options preferences in non-Maintenance Mode via the SYS tab of the AUX page.

For new installations, use this section to configure the IFD5XX/4XX for the specific airplane.

For replacement installations in which the IFD5XX/4XX is replacing a GNS 530/W or GNS 430/W, use Appendix F: Configuration Setup of this manual to first record the configuration of the GNS530/W or GNS430/W that is being replaced by the IFD5XX/4XX and then using that recorded data, use the IFD5XX/4XX Maintenance Mode pages as defined in this section and Appendix F: Configuration Setup to properly set up and record configurations.

7.5.1 Maintenance Mode

The Maintenance Mode can be accessed by using the following procedures (on the ground only):

1. Power on the IFD5XX/4XX
2. Acknowledge all start up screens by pressing "Enter"
3. Press Proceed Line Select Key (LSK) followed by the Confirm LSK on the database acknowledgement screen (if shown)
4. Select the "AUX" function key to display the Auxiliary Page. Press on the right side of the "AUX" Function key until the "SYS" tab is shown
5. Select "Status/Software" LSK by pressing associated button until "Update Databases" appears. (If shown)
6. Select "Update Databases" LSK by pressing the associated button. Press the "Confirm" LSK after it appears. The screen will blank for several seconds before coming up in Maintenance Mode

Please note: Screen Page numbers shown below may not match unit.

7.5.2 ARINC 429 Port Configuration (Page 1)

The ARINC 429 can be selected individually for each ARINC 429 Transmit and Receive Port. Each Transmit and Receive Port will have a "Speed" selection and "Data" selection.

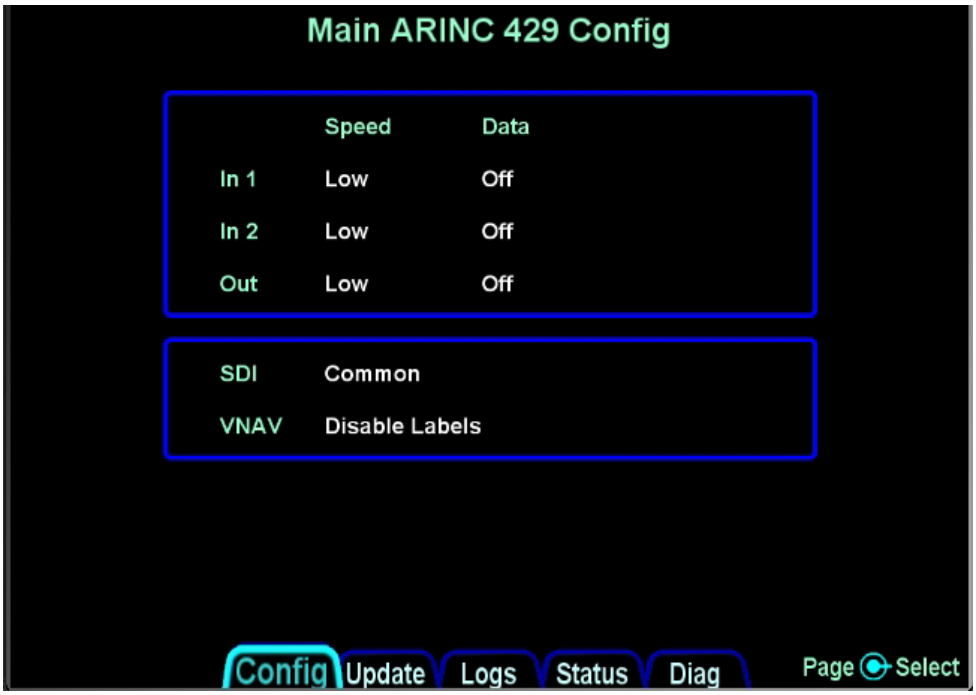


Figure 11 IFD5XX ARINC 429 Configuration Page

Note: Shown is the IFD4XX ARINC 429 Config Page. The IFD5XX Config Page has an OUT 1 and OUT 2. OUT 2 on the IFD5XX has only 3 settings, OFF, ARINC 743A, and Onboard Radar

The "Speed" Selection will have the following options:

Selection	Description
Low	Standard low-speed ARINC 429 (nominally 12.5 Kb per second)
High	High-speed ARINC 429 (nominally 100Kb per second)

Table 81 ARINC 429 Speed Selection

The "Data" will have the following INPUT options:

Selection	Description
Off	No device connected to this ARINC 429 input
Airdata	Altitude, temperature, and speed information from the following Air Data Systems: B&D 2600, 2601, 2800, 90004-003, Bendix/King KAD 280/480, Shadin ADC 2000
Airdata/AHRS	Heading, altitude, temperature, and speed information from an Air Data/AHRS system.
EFIS	Selected course, heading, and joystick waypoint information from a EFIS system. Certain versions of the Collins and Honeywell EFIS may be compatible with this format.
EFIS/Airdata	Selected course, heading, joystick waypoint, altitude, temperature, and speed information.
Flight Control	Selected course information from the following Flight Control systems: Bendix/King KFC400
Garmin GAD 42	Selected course, heading, and true airspeed data from Garmin GAD 42.
Garmin GDL 88 Traffic	Garmin GDL 88 Traffic from the GDL 88/GTX 345 This ARINC 429 speed should be set to the high speed.
Garmin GDL 88 Traffic W/TCAS	Garmin GDL 88 with a Garmin GTS 800/820/825 or a L-3 SKY497/SKY 899 System Unsupported, reserved for future use This ARINC 429 speed should be set to the high speed.
Garmin GDL 88 Traffic W/TCAD	Garmin GDL 88 with a Avidyne TAS6XX or Ryan 9900BX System Unsupported, reserved for future use This ARINC 429 speed should be set to the high speed.
Garmin GDU	Selected course, heading, altitude, temperature and speed information from the following systems: Garmin GDU (G500/G600)
Garmin GTX 330	Garmin GTX330 (No TIS) This ARINC 429 speed should be set to the high speed.
Garmin GTX 330 w/Traffic	Garmin GTX 330 w/TIS This ARINC 429 speed should be set to the high speed.

Honeywell EFIS	Selected course, heading, and joystick waypoint information from the following EFIS systems: Aspen EFD1000 (If connected to an ACU1, set the ARINC 429 speed to low speed. If connected to an ACU2 and using ADF, RADALT or Remote OAT data set the ARINC 429 speed to high speed, otherwise low speed.) Honeywell Primus 1000 Avidyne EXP5000*
INS/IRU	Heading information from the following Inertial systems: Bendix/King KAH 460 Collins AHC 85 Honeywell Laseref Litef LTR 81 Litton LTN 90-100, LTN 91, LTN 92
RADAR Graphics	Joystick waypoint information from a RADAR graphics unit
Sandel EHSI	Selected course and heading information from the following EHSI systems: Sandel SN 3308 Sandel SN 3500 Avidyne EXP5000*
Traffic Advisory	Traffic information from the following traffic advisory systems: Bendix/King KTA-870, KMH880 Garmin GTS 800/820/850 Garmin GDL 88 Avidyne TAS6XX (but RS-232 is preferred) Ryan 9900BX (but RS-232 is preferred) L3 Communications SKY497 SkyWatch L3 Communications SKY899 SkyWatch HP
MLB 100 Traffic	Avidyne SkyTrax100/MLB100 or Freeflight FDL-978-RX Traffic (But RS232 is preferred)

Table 82 ARINC 429 Input Selection

*Honeywell EFIS selection is preferred as it has more label information

Note: Only ARINC 429 Traffic is shared between IFDs on the CrossSync line, all other ARINC 429 devices should be wired to both IFDs in dual IFD installations since ARINC 429 data is not shared between IFDs on the CrossSync line.

The "Data" will have the following OUTPUT options:

Selection	Description
Off	No device(s) connected to ARINC 429 output
ARINC 429	Standard ARINC 429 output (non-GAMA)
GAMA 429	ARINC data as define by the General Aviation Manufacturers' Association (GAMA) General Aviation Subset, 2nd Edition. The output data includes navigation, flight plan information to the following systems: Garmin GAD 42 Interface Adapter Collins EFIS 84 (select "Non-WAAS" on the IFD) Bendix/King EFS 40/50 with update SW15/01 (GPS vertical guidance provided on EFIS) Certain other versions of Collins EFIS may also be compatible with this format.
GAMA 429 Bendix/King	ARINC 429 data as defined by the GAMA General Aviation Subset, 2nd Edition. The output data includes navigation, flight plan and GPS vertical guidance information to the following systems: Bendix/King EFS 40/50 without SW15/01 update (GPS vertical guidance provided on EFIS)
GAMA 429 Graphics	ARINC 429 data as defined by the GAMA General Aviation Subset, 2nd Edition including GAMA Graphics Protocol 'A'. This format outputs intersection symbols as generic waypoint symbols. The output data includes navigation and flight plan information (including graphical representation of the flight plan procedures) to the following systems: Honeywell Primus 1000
GAMA 429 Graphics w/ INT	ARINC 429 data as defined by the GAMA General Aviation Subset, 2nd Edition including GAMA Graphics Protocol 'A'. The output data includes navigation and flight plan information (including graphical representations of flight plan procedures) to the following systems: Sandel SN3308 Sandel SN3500 Aspen EFD1000 (see note below) Avidyne EX500 Avidyne EX600 Avidyne EX5000 Note: When integrating an Aspen EFD1000 with a dual IFD5XX/4XX installation, ensure the "CRS SDI" field in the Aspen setup pages (page 18) is set to Nav 1/2 and not Common.
GAMA 429 Pro Line 21	ARINC 429 data as defined by the GAMA General Aviation Subset, 2nd Edition.

Selection	Description
GAMA 429 Sextant	ARINC 429 data as defined by the GAMA General Aviation Subset, 2nd Edition
GAMA 429 Non-standard	ARINC 429 data that is not necessarily conforming to the GAMA General Aviation Subset, 2nd Edition.
ARINC 743A	ARINC 429 - 743A labels
Onboard Radar	Honeywell RDR2000

Table 83 ARINC 429 Output Selection

SDI

Note: It is important in dual IFD installations that the corresponding SDI selection be made properly. That typically means selecting LNAV 1 or LNAV 2.

Selection	Description
Common	Rx: Accepts all 429 inputs Tx: Generates all 429 outputs with SDI = 0
LNAV 1	Number 1 (Pilot) long-range navigator RX: Accepts 429 inputs with SDI = 0 or 1. TX: Generates all 429 outputs with SDI = 1.
LNAV 2	Number 2 (Copilot) long-range navigator RX: Accepts 429 inputs with SDI = 0 or 2. TX: Generates all 429 outputs with SDI = 2.

Table 84 SDI Selection

VNAV

Selection	Description
Disable Labels	ARINC 429 labels associated with GPS-based vertical guidance (labels 117G and 327G) are not transmitted in the output data stream. Note: If replacing an existing GNS-530 and the VNAV field was not present on the 530, then select "Disable" on the IFD5XX/4XX.
Enable Labels	ARINC 429 labels associated with GPS-based vertical guidance (labels 117G and 327G) are transmitted in the output data stream. ARINC 429 vertical: Sandel SN3500 Aspen EFD1000 Other systems may also use these labels.

Table 85 VNAV Selection

7.5.3 RS-232 Port Configuration (Page 2)

The RS-232 Configuration Page allows the configuration Inputs and Outputs to match that of the equipment installed in the aircraft.

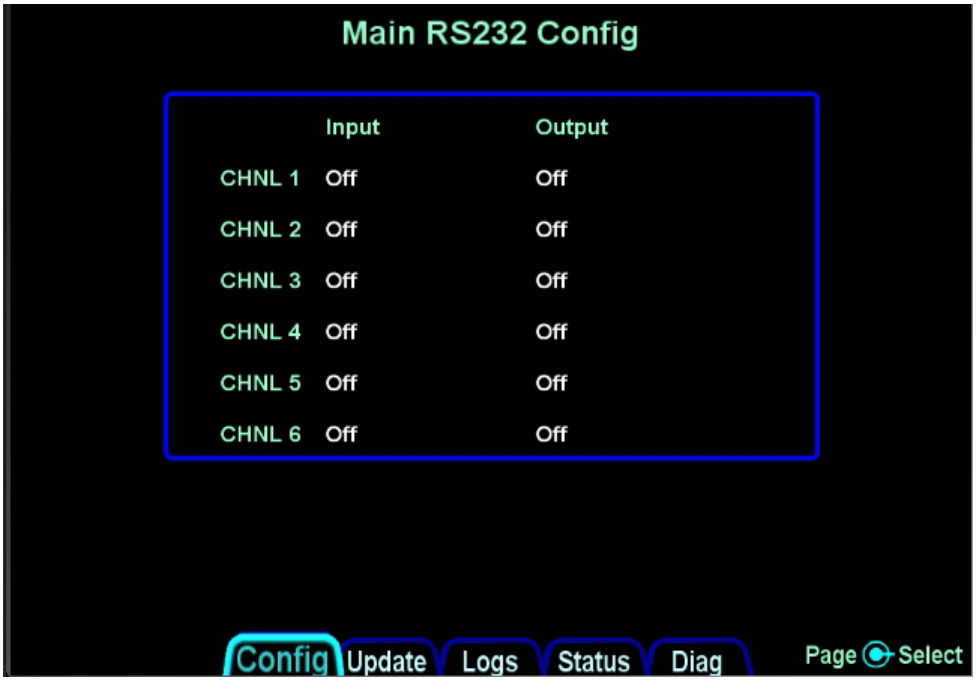


Figure 12 RS-232 IFD5XX Configuration Page

Note: Shown is an IFD5XX Main RS232 Config Page. The IFD4XX only has 4 inputs and outputs

Note: For s/w 10.2.0 and earlier, if you configure Skytrax WX, Capstone Wx, MLB Wx, or WX500 on any input channel, the same numbered output channel cannot be configured with any of the following; ADS-B (Avi), ADSB, ADS-B+ (G), GDL 88, Aviation, Avtn no alt, HW EGWS, MapMX.

The following selections can be made on the RS-232 Input.

Channel Inputs

Selection	Description
Off	No device(s) connected to input of this channel
Arnav/ei-fuel	Serial fuel flow information from the following units: ARNAV FC-10, FT-10 Electronics International FP-5L
AXP322	Select for Avidyne AXP322 Remote Transponder
CrossSync	Serial transfer of flights plans and user waypoints and cross-side data (e.g. RS-232 Datalink, traffic, lightning, etc) between IFD5XX/4XX units. (Transponder and VHF control are not cross synced) **Note: This is only an option for CHNL 3.**

Selection	Description
GDL 69[1]	Serial data input for in-flight access to weather and messaging from the following units: Garmin GDL69/69A P/N 011-00986-00 or 011-00987-00 only (Garmin software version 4.01 or later) pre Avidyne software 10.2.3.1. With software 10.2.3.1 and later P/N 011- 03177-X0 will also work
MLB700[1]	Serial weather data information from the Avidyne MLB700
XMD076[1]	Serial weather data information from the Heads-up XMD-076
XMD076 AUX[1]	Read-only serial weather data information from the Heads-up XMD-076 to be used when a different device is controlling the Heads-up device.
Skytrax Wx[1]	Serial weather data only information from the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
SkyTrax Trfc[2]	Serial traffic data only information from the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
SkyTrax Trfc+Wx[1,2]	Serial traffic and weather data information from the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
Capstone Wx[1]	Garmin GTX 345 and other 3rd party compatible ADS-B weather devices transmitting at 38400 baud.
Capstone Trfc[2]	Garmin GTX 335/345 and other 3rd party compatible ADS-B traffic devices transmitting at 38400 baud.
Capstone Trfc+Wx[1,2]	Garmin GTX 345 and other 3rd party compatible ADS-B traffic and weather devices transmitting at 38400 baud.
Capstone HS Wx[1]	Serial weather data information from any High Speed Capstone compliant ADS-B device transmitting at 115200 baud.
Capstone HS Trfc[2]	Serial traffic data information from any High Speed Capstone compliant ADS-B traffic device at 115200 baud.
Capstone HS Trfc+Wx[1,2]	Serial traffic and weather data information from any High Speed Capstone compliant ADS-B traffic device at 115200 baud.
MLB100 Wx[1]	Serial weather data only for existing MLB100 installs.
Freeflight[1,2]	Serial Freeflight transponder control protocol along with High Speed Capstone ADS-B traffic and weather data information from a Freeflight Ranger device.
NGT9000R	Serial transponder control protocol to control an L3 NGT9000R remote mount transponder.
Icarus-alt	Serial altitude data from the following units: Icarus Instruments 3000 Sandia SAE5-35 Garmin GTX 327 Transponder Trans-Cal Industries IA-RS-232-X, SSD120 ACK Technologies A-30 (Mod 8 and above)
Ryan TCAD[2]	Traffic information from a Ryan 9900B, 9900BX, or TAS6XX Series System.
Shadin-adc	Serial airdata information from the following units: Shadin ADC 200, 200+, 2000

Selection	Description
Shadin-alt	Serial altitude data from the following units: Shadin 8800T, 9000T, 9200T
Shadin-fadc	Shadin 9628XX-X Fuel/Air Data Computer Insight TAS 1000 Air Data Computer
Shadin-Fuel	Serial fuel flow information from the following units: Shadin 91053XP and 91053XT-D "Digiflo-L" Digital Fuel Management Systems Shadin 91204XX(38)D and 91204XT-D "Miniflo-L" Digital Fuel Management Systems JP Instrument EDM-700 or EDM-760 Engine Monitor Other JPI systems (e.g. JPI FS-450) can use this setting but see the specific format guidance from JPI for the Garmin GNS series.
WX-500	Serial lightning data information from the L3 Communications WX-500 Stormscope
TWX	Serial lightning data information from the Avidyne TWX670 in "Native" format
Vhf Ctrl	Reserved for future VHF remote control

Table 86 RS-232 Input Selection

[1] **These weather receiving devices are mutually exclusive. Only one source can be displayed at one time. Both weather sources can be wired to the IFD so that the higher priority weather overlay can display on the IFD and the lower priority weather data can be streamed out of the IFD via WiFi for display on a compatible tablet/wireless device application. The current display priority is GDL-69, MLB700, AV300/350, MLB/SkyTrax100.**

[2] **These Traffic receiving devices are mutually exclusive. Multiple devices should not be installed/configured on a single unit.**

Channel Outputs

Selection	Description
Off	No device(s) connected to output of this channel
ADS-B (Avi)[3]	Serial position data to the following units: Trig TT31 (V 3.1 or later) Avidyne AXP340
ADS-B+ (G)	Garmin GTX 330 Low Speed 9,600 Baud
ADS-B+ (G2)	Garmin GTX 335/GTX345/GDL 88 High Speed 38,400 Baud
Aviation[3]	Serial position, altitude, velocity, and navigation data to the following units: Argus 3000, 5000, or 7000 Moving Map Avidyne FSD Series Garmin MX20 (V5.6 or later), GMX200 Garmin GPSMAP 195, GPSMAP 295 or GPS III Pilot Garmin GPSMAP 196, GPSMAP 296, and GPSMAP 396

Selection	Description
	Garmin GPSMAP 496, and GPSMAP 696 Garmin Aera 796/795 Garmin GTX 327 Transponder JP Instruments EDM-700 or EDM-760 Engine Monitor Shadin 91204XM Digital Fuel Management System Shadin 91053XP Digital Fuel Management System Shadin 9628XX-X Fuel/Air Data Computer Stormscope Series II (with NAVAID) Moving Map
Aviation no Alt[3]	Serial position, velocity, and navigation data to the following units: Garmin MX20 (V5.5 or earlier) Horizon DDMP Insight TAS 1000 Air Data Computer
AXP322	Select for Avidyne AXP322 Remote Transponder
CrossSync	Serial transfer of flights plans and user waypoints and cross-side data (e.g. Datalink, traffic, lightning, etc) between IFD5XX/4XX units **Note: This is only an option for CHNL 3.**
GDL 69[1]	Serial data output to a Garmin GDL69/69A P/N 011-00986-00 or 011-00987-00 only (Garmin software version 4.01 or later) pre Avidyne software 10.2.3.1. With software 10.2.3.1 and later P/N 011- 03177-X0 will also work
MLB700[1]	Serial weather data information to the Avidyne MLB700 and WSI AV-300 / 350
XMD076[1]	Serial weather data only information to the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
SkyTrax Trfc[2]	Serial traffic data only information to the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
SkyTrax Trfc+Wx[1,2]	Serial traffic and weather data information to the Avidyne Skytrax100/MLB100 or Freeflight FDL-978-RX
Capstone Trfc[2]	Garmin GTX 335/345 and other 3rd party compatible ADS-B traffic devices
Capstone Trfc+Wx[1,2]	Garmin GTX 345 and other 3rd party compatible ADS-B traffic and weather devices.
Capstone HS Trfc[2]	Serial traffic data information from any High Speed Capstone compliant ADS-B traffic device at 115200 baud.
Capstone HS Trfc+Wx[1,2]	Serial traffic and weather data information from any High Speed Capstone compliant ADS-B traffic device at 115200 baud.
MLB100 Wx[1]	Serial weather data only for existing MLB100 installs.
HW EGPWS[3]	Serial communication to a Bendix/King KGP 560 EGPWS
Freeflight[1,2]	Serial Freeflight transponder control protocol along with High Speed Capstone ADS-B traffic and weather data information from a Freeflight Ranger device.
NGT9000R	Serial transponder control protocol to control an L3 NGT9000R remote mount transponder.

Selection	Description
MapMX[3]	Serial position, altitude, velocity, and navigation data to the following units: Garmin MX20 (V5.7 or later), GMX 200
Ryan TCAD[2]	Traffic information to a Ryan 9900B, 9900BX, or TAS6XXA Series System.
WX-500	Serial communication to L3 Communications WX500 Stormscope
TWX	Serial communication to the Avidyne TWX670
Vhf Ctrl	Reserved for future VHF remote control

Table 87 RS-232 Output Selection

[1] **These weather receiving devices are mutually exclusive. Only one source can be displayed at one time.** both weather sources can be wired to the IFD so that the higher priority weather overlay can display on the IFD and the lower priority weather data can be streamed out of the IFD via WiFi for display on a compatible tablet/wireless device application. The current display priority is GDL-69, MLB700, AV300/350, MLB/SkyTrax100.

[2] **These traffic receiving devices are mutually exclusive. Multiple devices should not be installed/configured on a single unit.**

[3] **The following RS232 Output protocols may be configured on two or more RS232 ports: Aviation, Aviation No Altitude, ADS-B (avi), HW EGPWS, and MapMx**.

7.5.4 Main System Configuration (Page 3)

This is a general page for miscellaneous configurations.

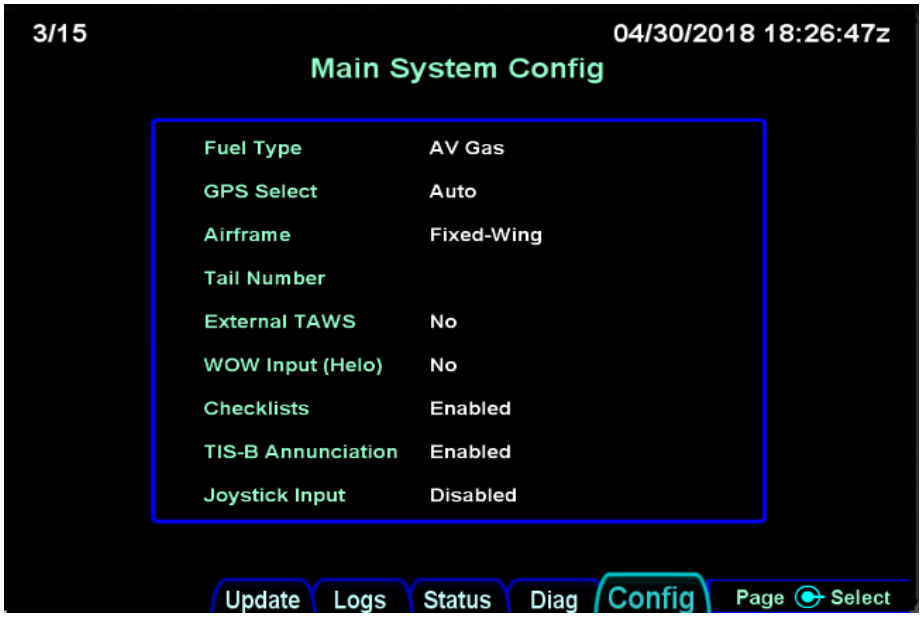


Figure 13 Main System Configuration Page

The Main System Configuration Page (Page 3 of 15) allows the configuration of the following Airframe Options and GPS Parameters on the IFD5XX/4XX.

Fuel Type Selections:

Select Fuel in the Configure field, the following options can be selected:

Selection	Description
Avgas	The aircraft is using Aviation gas (5.967 lbs/gal)
Jet A	The aircraft is using Jet A or Jet A-1 fuel (6.843 lbs/gal)
Jet B	The aircraft is using Jet B (JP-4) fuel (6.467 lbs/gal)

Table 88 Aircraft Fuel Type

GPS Select Selections:

Selection	Description
Auto	In GPS mode on the IFD5XX/4XX, the GPS Select discrete will not be active (open) in a GPS approach, and no messages will annunciate on the IFD5XX/4XX and no pilot action is required. This setting allows the pilot to use the GPS → VLOC Capture option on the User Options part of the Setup tab on the AUX page.
Prompt	In dual IFD installations, only the IFD connected to a KFC225 autopilot should be setup for prompt. In GPS mode, the user will be prompted to enable the approach in KFC225 equipped aircraft When Prompt is selected, and a GPS approach mode is active, a CAS message will prompt the pilot to "Enable A/P Approach" on the FPL tab. At that point, the pilot may then enter APR mode on the autopilot. This setting will also ignore the GPS → VLOC Capture option on the User Options part of the Setup tab on the AUX page.

Table 89 GPS Sequencing

Airframe Selections:

Selection	Description
Fixed Wing	For Fixed Wing installations
Helicopter	For Helicopter installations
High Speed	For Jet installations

Table 90 Airframe Selection

Tail Number:

Tail number is a text field and is used for various purposes (i.e. Jeppesen data subscription and transponder function).

External TAWS Selections:

Selection	Description
Yes	Select if an external EGPWS or TAWS device (e.g. KGP 560) is connected to the IFD5XX/4XX or if you want to turn off the FLTA. It will disable FLTA and TA functionality as well as aural alerts in the IFD5XX/4XX
No	Select when no external EGPWS or TAWS device is connected to the IFD5XX/4XX, thereby enabling all FLTA and TA functionality on the IFD5XX/4XX.

Table 91 External TAWS Selection

Weight on Wheels (WOW)

Selection	Description
Yes	When set to "Yes" and the Airframe Selection is set to "Helicopter" Pin 70 on P1001 is used as a discrete input to control the in-air or on-ground state of the IFD. Logic state required is "low when on ground"
No	Select "No" when WOW discrete input is unavailable.

Table 92 Weight on Wheels

Checklist

Selection	Description
Enabled	Select Enabled to allow the user editable checklists to be displayed/accessible.
Disabled	Default setting

Table 93 Checklist Setting

TIS-B Annunciation

Selection	Description
Enabled	Select Enabled for installations in U.S.
Disabled	Outside US airspace

Table 94 TIS-B Annunciations

Joystick

Selection	Description
Enabled	Enables joystick input commands. Controls the automatic creation of user waypoints using external EFIS input. This setting shall be disabled when interfacing to the Proline 21 installations.
Disabled	Default setting

Table 95 Joystick Input

Note: It is imperative that only one source of terrain cautions and warnings be enabled on the airplane so as to avoid the potential for conflicting information to be presented to the pilot. If a TAWS system is installed but the IFD's internal TA and FLTA functions are to be used for terrain avoidance, the TAWS system ***must*** be fully disabled. If a separate TAWS system is to be used the caution and warning indications generated by the TAWS system can be displayed on a remote third party annunciator and the IFD's TA and FLTA displays and audio must be inhibited.

Avidyne TA/FLTA is not an approved TSO-C151 EGPWS unit.

Note: The IFD system supports a Honeywell KGP560/860 system with a remote third party annunciator only. All other external TAWS/EGPWS systems must be disabled if the internal TA and FLTA are to be operational on the IFD system.

7.5.5 Main Input Configuration (Page 4)

The Main Input Page displays information received from ARINC 429, RS-232, and other electrical inputs. This page is helpful during troubleshooting of the IFD5XX/4XX system. This is used for verifying electrical interfaces during installation and troubleshooting.

Field	Description
OAT	Outside Air Temperature
SAT	Static Air Temperature
TAT	Total Air Temperature
IAS	Indicated Airspeed
W SPD	Wind Speed
HDG	True Heading
W DIR	Wind Direction
GPS SC	GPS Selected Course
VLC SC	VOR/LOC Selected Course (Not on IFD510/545/410)
CDI	Status of the CDI Key (Not on IFD510/545/410)
B ALT	Baro Corrected Altitude
D ALT	Density Altitude
P ALT	Pressure Altitude
JOYSTICK WPT	Latitude and longitude of a joystick waypoint sent by an EFIS or Radar indicator

Table 96 Discrete Toggles

7.5.6 Main Lighting Configuration (Page 5)

The source of the lighting for the IFD5XX/4XX can be the bezel photocell sensor or the dimming bus. 28VDC, 14VDC, 5VDC and 5VAC dimming buses are all supported and are automatically detected by the IFD5XX/4XX.

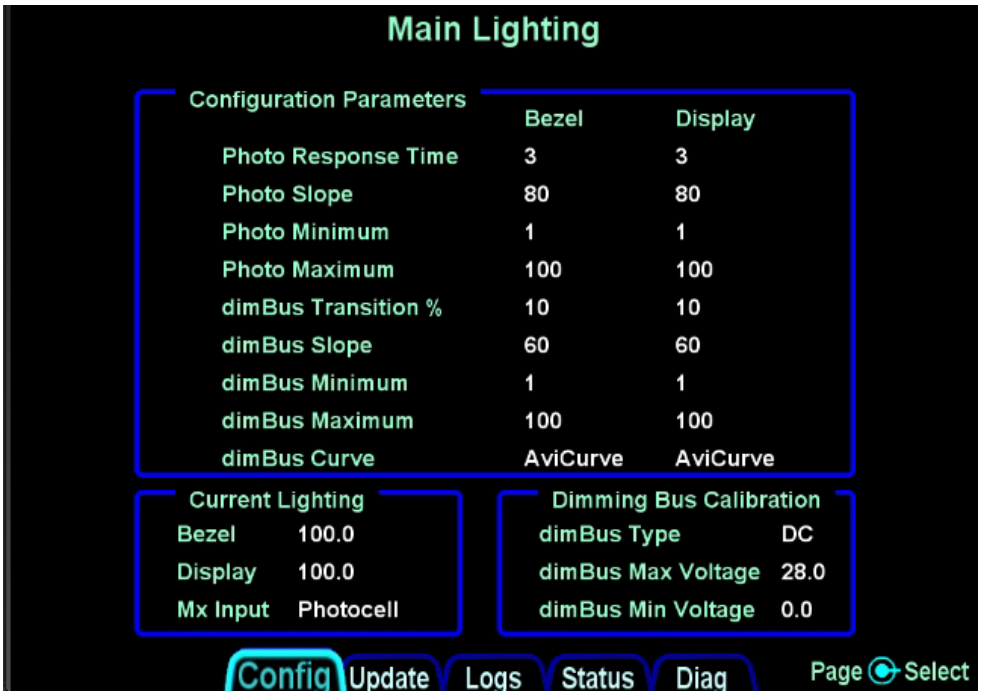


Figure 14 Main Lighting Configuration Page

Photo Response Time

Sets the speed at which the brightness changes when photocell is selected as the lighting source. Both the Bezel and Display fields have a range of 1 to 5, and the factory default is 3.

Photo Slope

The Photo Slope sets the sensitivity of the display/bezel to changes in the input when the dimming source is the IFD5XX/4XX photocell. This field has a range of 15 to 100, and the factory default is 80.

Photo Minimum

The Photo Minimum sets the minimum brightness when the dimming source is the photocell. Both the Bezel and Display fields have a range of 1 to 50, and the factory default is 1.

Photo Maximum

The Photo Maximum sets the maximum brightness when the dimming source is the photocell. Both the Bezel and Display fields have a range of 50 to 100, and the factory default is 100.

dimBus Transition %

The dimBus Transition % sets the threshold where the aircraft dimming bus takes over from the photocell. Below this threshold, the aircraft dimmer controls the IFD5XX/4XX lighting. Both the Bezel and Display fields have a range of 0 to 100, and the factory default is 10.

Note: If it is not desired to hand brightness control over to the dimming bus from the photocell at any point, set dimBus Transition % to 0 (zero). Doing so will prevent the scenario where, in increasingly darker environments (e.g. flying past sunset into dark night), the display automatically dims and dims and dims and then suddenly jumps to bright.

dimBus Slope

The dimBus Slope sets the sensitivity of the display/bezel to the aircraft dimmer. Both the Bezel and Display fields have a range of 15 to 100, and the factory default is 60.

Note: Previous to Release 10.1.1.0, a dimBus slope value of 100 on the AviCurve resulted in a maximum brightness value of 21%. In Release 10.1.1.0 and later, a slope value of 100 will result in 100% maximum brightness.

dimBus Minimum

The dimBus Minimum sets the minimum brightness when the aircraft dimmer is the dimming source. Both the Bezel and Display fields have a range of 1 to 50, and the factory default is 1.

dimBus Maximum

The dimBus Maximum sets the maximum brightness when the aircraft dimmer is the dimming source. Both the Bezel and Display fields have a range of 50 to 100, and the factory default is 100.

dimBus Curve

The dimBus Curve sets the aircraft dimming bus to either a Proportional Curve or AviCurve on the IFD5XX/4XX.

The Proportional Curve tracks the aircraft lighting bus as follows: Maximum night lighting at maximum aircraft lighting bus voltage, Minimum night lighting at minimum aircraft lighting bus voltage (linear in-between).

The AviCurve tracks the aircraft dimming bus as follows:

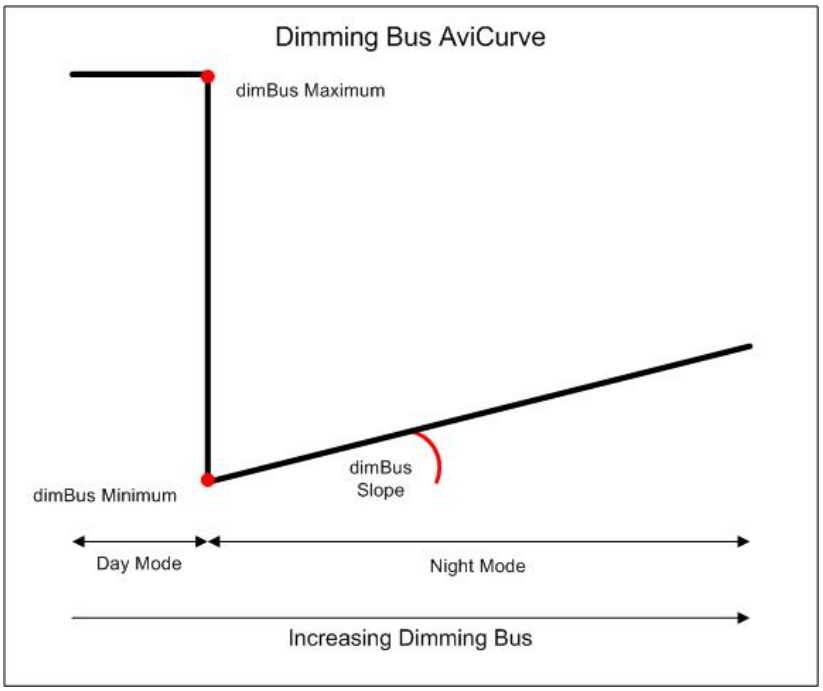


Figure 15 Lighting Curve - AviCurve

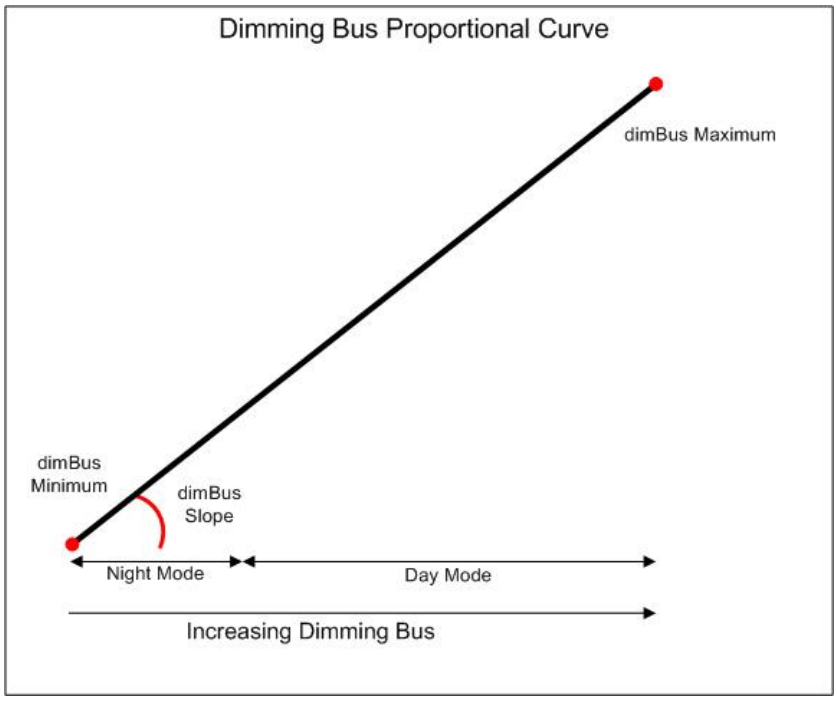


Figure 16 Lighting Curve - Proportional Curve

Field	Selection
Bezel	Value displayed represents the current % brightness of the bezel backlighting
Display	Value displayed represents the current % brightness of the display backlighting
Mx Input	Photocell – Maintenance Mode will use this method if selected. This is the default setting. This setting uses the Photocell on the IFD5XX/4XX bezel or display. dimBus – Maintenance Mode will use this method if selected. This setting uses the aircraft lighting buss to control the lightning of the bezel or display.

Table 97 Lighting Bus Configuration

Dimming Bus Calibration

The section will calibrate the IFD5XX/4XX to the aircraft avionics lighting bus.

Selection	Description
dimBus Type	DC – select this option if the dimming bus is a DC bus. AC – select this option if the dimming bus is an AC bus. The IFD needs to know the bus type in order to alter internal configuration as well as properly perform the calibration.
dimBus Max Voltage	Sets the maximum aircraft dimming bus voltage. Range is 0 – 28V.
dimBus Min Voltage	Sets the minimum aircraft dimming bus voltage. Range is 0 – 28V.

Table 98 Lighting Bus Configuration

To calibrate the dimming bus:

1. Select desired dimBus Type;
2. Select the dimBus Max Voltage field;
3. Push the right bezel knob;
4. Set the dimming bus to the maximum value (e.g. full clockwise position on dimming rheostat);
5. Push the right bezel knob to store;

Repeat the process for the minimum value (use full counter-clockwise position of rheostat)

7.5.7 Main Discrete I/O (Page 6)

This page will test the Main Discrete outputs on the IFD5XX/4XX.

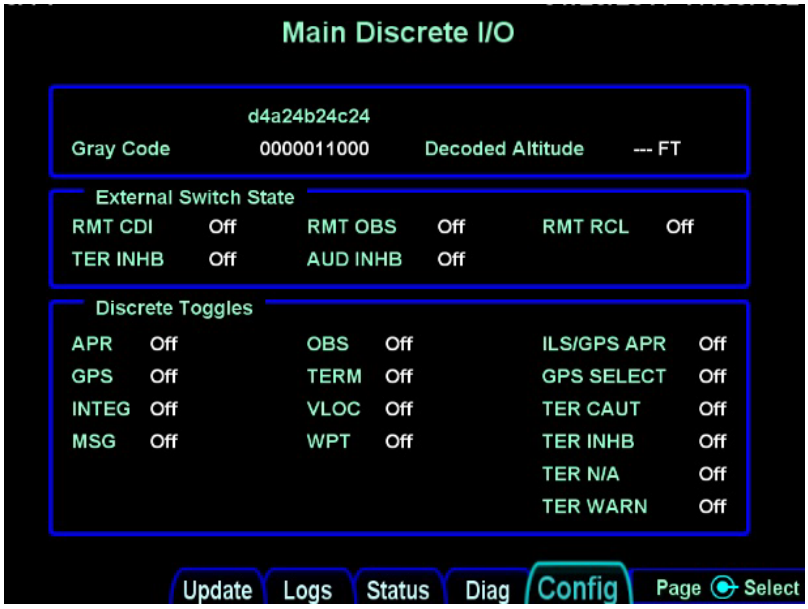


Figure 17 Main CDI/OBS Configuration Page

Selection	Verify That
RMT CDI	On is displayed when a remote CDI source select switch is pressed.
RMT OBS	On is displayed when a remote OBS switch is pressed.
TER INHB	On is displayed when a remote TERRAIN INHIBT switch is pressed.
RMT RCL	On is displayed when the COM REMOTE RECALL switch is pressed.

Table 99 External Switch State

Selection	Verify That
APR	The APR annunciator is on or off as selected on this page.
GPS	The GPS source select annunciator is on or off as selected on this page.
INTEG	The INTEG annunciator is on or off as selected on this page.
MSG	The MSG annunciator is on or off as selected on this page.
OBS	The OBS annunciator is on or off as selected on this page.
TERM	The TERM annunciator is on or off as selected on this page.
VLOC	The VLOC source select annunciator is on or off as selected on this page.
WPT	The WPT annunciator is on or off as selected on this page.

Selection	Verify That
ILS/GPS APR	The ILS/GPS APR output is on or off as selected on this page (NOTE: This output is connected to the autopilot ILS ENGAGE input, not to an annunciation, and therefore this is for bench testing purposes only).
GPS SELECT	The GPS SELECT output is on or off as selected on this page (NOTE: This output is connected to the autopilot GPS SELECT input, not to an annunciation, and therefore this is for bench testing purposes only).
TER CAUT	The TER CAUT annunciator is on or off as selected on this page.
TER INHB	The TER INHB annunciator is on or off as selected on this page.
TER N/A	The TER N/A annunciator is on or off as selected on this page.
TER WARN	The TER WARN annunciator is on or off as selected on this page.

Table 100 Discrete Toggles

7.5.8 Main CDI/OBS Config Page (Page 7)

This page will test the Main CDI/OBS output on the IFD5XX/4XX.

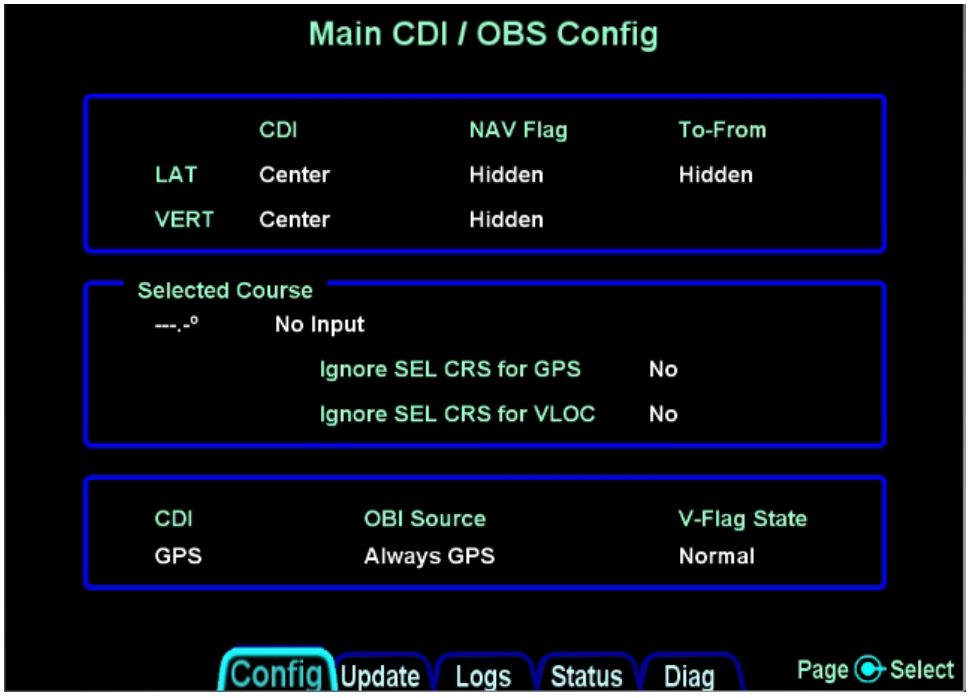


Figure 18 Main CDI/OBS Configuration Page

The following parameters can be tested:

CDI (LAT/VERT)

Selection	Description
Max Left	The remote CDI will be off-scale full deflection to the left/up
Full Left	The remote CDI will be deflected to the left/up
Center	The remote CDI will be centered
Full Right	The remote CDI will be deflected to the right/down
Max Right	The remote CDI will be off-scale full deflection to the right/down

Table 101 Main CDI Test Page

NAV Flag (LAT/VERT)*

Selection	Description
Hidden	The lateral and vertical flag on the external indicator is hidden
In view	The lateral and vertical flag on the external indicator is in view

****This function will only test the low level flags, and does not support the testing of Super Flags***

Table 102 Main CDI Flag Test Page

TO-FROM

Selection	Description
FROM	The FROM flag on the external indicator is in view
Hidden	The TO/FROM flag on the external indicator is hidden
TO	The TO flag on the external indicator is in view

Table 103 Main CDI Flag Test Page

Selected Course

This section will calibrate the external CDI/HSI to the IFD5XX/4XX.

1. Select 150° on the CDI/HSI;*
2. Verify the Selected Course is displayed on the IFD5XX/4XX and press the ENTR button on the IFD5XX/4XX;
3. After calibrating, verify 30° increments on the CDI/HSI are properly displayed on the IFD5XX/4XX ±2°.

* In order to do the OBS calibration on a KI208A or KI209A, you have to toggle to the "Main Discrete I/O" page, and turn "ON" the GPS discrete toggle. Then turn to the Main CDI/OBS config page (without toggling back to the Discrete I/O page) and calibrate the OBS by dialing 150 degrees on the indicator.

Ignore Options

Selection	Description
Ignore SEL CRS for GPS	Yes/No – Nav Source knob used in OBS. Yes = ignore analog or 429 selected course. OBS mode then uses the Nav Source knob to dial the course.
Ignore SEL CRS for VLOC (N/A for IFD510/545/410)	Yes/No – Yes = Lateral navigation flag displays VOR validity, deviation data for VOR is always centered. No = deviation and flag data is based on OBS selection.

Table 104 Ignore Options Selection

CDI Selection

Selection	Description
GPS	The GPS is the navigation source. The GPS annunciator will also be active. This is the setting for IFD510/545/410
VLOC (N/A for IFD510/545/410)	The VLOC is the navigation source. The VLOC annunciator will also be active.
GPS Only (N/A for IFD510/545/410)	The VLOC selection on the IFD5XX/4XX Nav Source knob has been disabled. Therefore, GPS and OBS are the only two available choices via the IFD5XX/4XX Nav Source knob

Table 105 CDI Source Selection

OBI Source

Selection	Description
Always GPS	The MAIN Serial OBI output will always be selected to GPS.
Track CDI	The MAIN Serial OBI will track the Nav Source knob selection.

Table 106 OBI Source Selection

V-Flag State

Selection	Description
Declutter	The vertical deviation bar will be in parked in the maximum UP position when the vertical flag is removed, except in the following cases: • VLOC is selected on the Nav Source knob and an ILS frequency is tuned (N/A for IFD510/545/410) • GPS is selected on the Nav Source knob and valid GPS approach is active (precision GPS with vertical guidance)
Normal	The vertical deviation bar will be in the center position when vertical navigation is invalid and the vertical flag will be present.

Table 107 V-Flag State

7.5.9 VOR/LOC/GS CDI (Page 8)

Note: This page is not applicable for the IFD510/545/410.

This will test the operation of the VOR/LOC/GS output from the IFD5XX/4XX on the P1006 connector to an external CDI/HSI display.

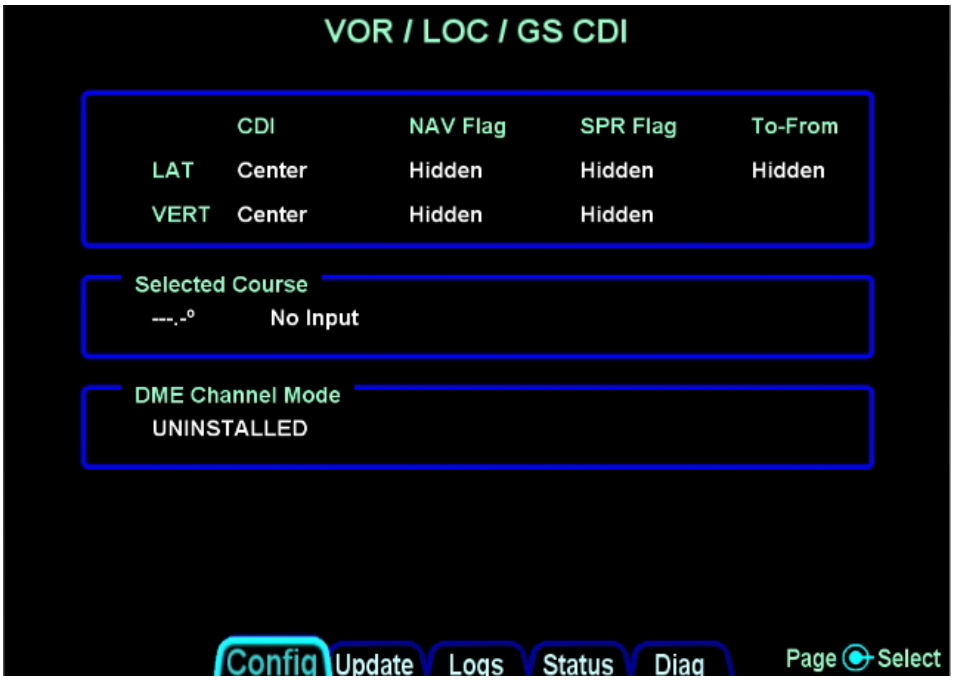


Figure 19 CDI Test Page

Note: This page currently will only test low level flags and does not support the testing of super flags

CDI (LAT/VERT)

Selection	Description
Max Left	The external CDI will be off-scale full deflection to the left/up
Full Left	The external CDI will be deflected to the left/up
Center	The external CDI will be centered
Full Right	The external CDI will be deflected to the right/down
Max Right	The external CDI will be off-scale full deflection to the right/down

Table 108 Navigation CDI Test Page

NAV Flag (LAT/VERT)

Selection	Description
Hidden	The lateral and vertical flag on the external indicator is hidden
In view	The lateral and vertical flag on the external indicator is in view

Table 109 Navigation Flag Test Page

SPR Flag (LAT/VRT Super Flag)

Selection	Description
Hidden	The lateral and vertical flag on the external indicator is hidden
In view	The lateral and vertical flag on the external indicator is in view

Table 110 NAV Superflag Test Page

TO-FROM

Selection	Description
FROM	The FROM flag on the external indicator is in view
Hidden	The TO/FROM flag on the external indicator is hidden
TO	The TO flag on the external indicator is in view

Table 111 Navigation TO/FROM Page

Selected Course

This section will calibrate the external CDI/HSI to the IFD5XX/4XX.

1. Select 150° on the CDI/HSI;*
2. Verify the Selected Course is displayed on the IFD5XX and press the ENTR button on the IFD5XX/4XX;
3. After calibrating, verify 30° increments on the CDI/HSI are properly displayed on the IFD5XX/4XX ±2°.

   * In order to do the OBS calibration on a KI208A or KI209A, you have to toggle to the "Main Discrete I/O" page and turn on the GPS discrete toggle. Then turn to the Main CDI/OBS config page (without toggling back to the Discrete I/O page) and calibrate the OBS by dialing 150 degrees on the indicator

DME Channel Mode

This configuration allows you to set the format for the DME tuning data output.

Selection	Description
UNINSTALLED	No DME installed/configured
King Serial	King Serial DME tuning
Parallel 2x5	2 of 5 parallel DME tuning
Parallel BCD	Shifted BCD (Binary Coded Decimal) parallel DME tuning
Parallel Slip	Slip-code parallel DME tuning
Narco 890/891	2 of 5 parallel DME tuning, compatible with the following DME units: Narco DME 890 Narco DME 891 ARC (Cessna) RTA-476A

Table 112 DME Channel Mode

7.5.10 VOR/LOC/GS ARINC 429 Configuration (Page 9)

Note: This page is not applicable for the IFD510/545/410.

This page will configure the ARINC 429 for the VOR/LOC/GS output.

Figure 20 VOR/LOC ARINC 429 Configuration Page

The following parameters can be configured.

Speed:

Selection	Description
Low	Standard Low-speed ARINC 429
High	High-speed ARINC 429

Table 113 VOR/LOC/GS ARINC 429 Speed Configuration

Format:

Selection	Description
VHF 429	Standard VOR, Localizer, Glideslope, and Frequency information
VHF/GPS 429	Standard VOR, Localizer, Glideslope, Frequency information as well as Pseudo Localizer and Pseudo Glideslope during GPS approach with CDI set to GPS.[1]

Table 114 VOR/LOC/GS ARINC429 Format Selection

SDI:

Selection	Description
Common	RX: Accepts all 429 inputs TX: Generates all 429 outputs with SDI =0
VOR/ILS 1	Number 1 (Pilot) VOR/ILS Receiver RX: Accepts 429 inputs with SDI = 0 or 1 TX: Generates all 429 outputs with SDI = 1
VOR/ILS 2	Number 2 (Copilot) VOR/ILS Receiver RX: Accepts 429 inputs with SDI = 0 or 2 TX: Generates all 429 outputs with SDI = 2

Table 115 VOR/LOC/GS SDI Selection

DME Mode:

Selection	Description
Directed Freq 1	If the IFD5XX/4XX is connected to a single-channel or multi-channel ARINC429 DME, Direct Freq 1 will channel Receiver 1.
Directed Freq 2	If the IFD5XX/4XX is connected to a multi-channel ARINC429 DME, Direct Freq 2 will channel Receiver 2

Table 116 DME Mode Selection

7.5.11 GPS Vertical Offset (Page 10)

This page will configure the GPS Receiver for the antenna offset on the aircraft and designate if the IFD5XX/4XX will use the WAAS functionality of the system.

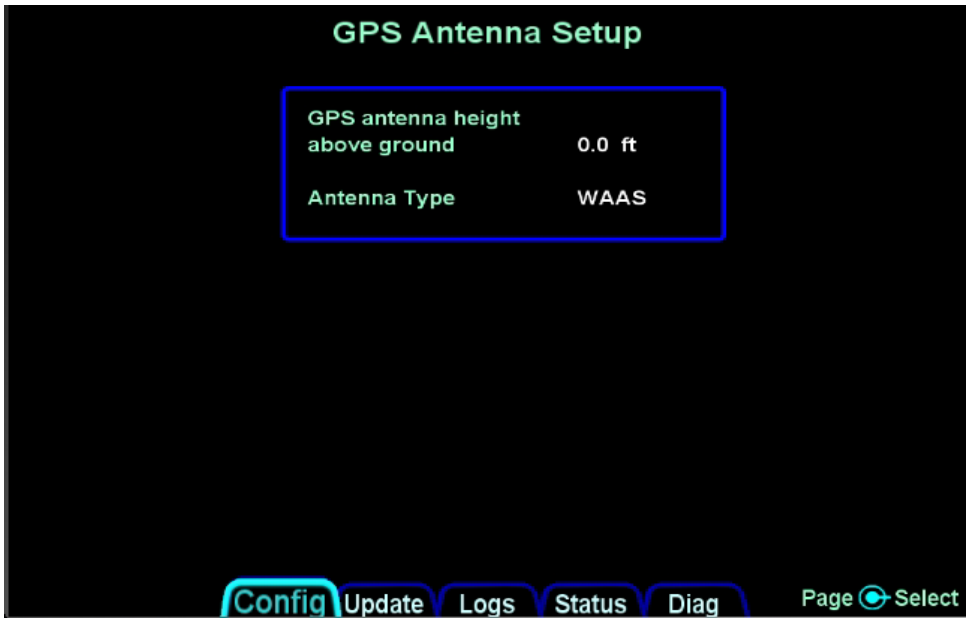


Figure 21 GPS Antenna Setup

Measure the distance from the ground to the top of the GPS antenna to nearest tenth of a foot, as shown in the image below, and enter the value into the IFD5XX/4XX (to the nearest 1/10th foot).

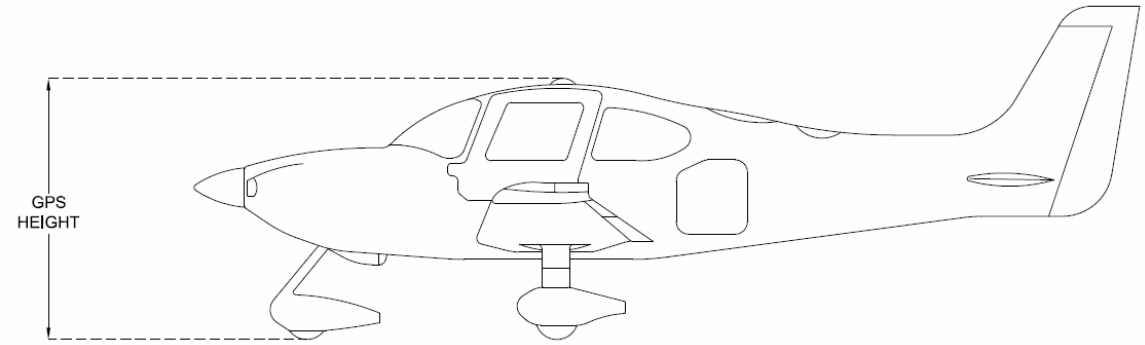


Figure 22 GPS Height

7.5.12 GDL Configuration Pages (Page 11)

This page allows the configuration of the Garmin GDL 69/69A. This page is always displayed in Maintenance Mode. The GDL 69/69A must be activated prior to configuring the IFD5XX/4XX, reference the GDL installation manual for setup and configuration information.

Figure 23 GDL Configuration Page

GDL Selection Page

This page selects the attenuation and the type of GDL receiver connected to the IFD5XX/4XX.

Selection	Description
Attenuation	This parameter sets the attenuation GDL 69/69A. Reference the Garmin GDL69/69A installation manual for more information.
Model	This parameter sets the model to either GDL 69 (weather only) or GDL 69A (weather and audio) models.

Table 117 GDL Selection Page

Note Compatibility with P/N 011-00986-00 or 011-00987-00 only pre software 10.2.3.1. With software 10.2.3.1 or higher P/N 011-03177-X0 will also function

Note: If the GDL69/69A is connected to any other display in the aircraft, this attenuation setting must be set to match them

7.5.13 Remote XPDR Configuration (Page 12)

This page will configure the Avidyne AXP322 Remote transponder. Reference the AXP322 installation manual as needed. The transponder must be configured to operate.

Please note; it may take up to 3 minutes to update the transponder configuration after changing a parameter below.

A dual AXP322 transponder installation will require that this function is performed on both transponders

Selection	Description
Hex Code	Enter the aircraft's Mode S Address issued by the registration authority. This code must be entered as a hexadecimal value.
A/C Width	Enter the aircraft's width in meters
A/C Length	Enter the aircraft's length in meters
GPS Lin. Offset	Enter the distance from the front of the aircraft to the GPS antenna in meters
1090 MHz Receiver	Enter "Yes" if the aircraft is equipped with 1090 MHz ADS-B In receiver
UAT Receiver	Enter "Yes" if the aircraft is equipped with UAT ADS-B In receiver
Squat Input	For ADS-B out compliance, a squat switch is required for automatically selecting the transponder air or ground mode of operation. For aircraft without a squat switch, connect the squat switch input of the transponder to P1001 pin 8 of one of the IFD5XX/IFD4XX for IFD's with software 10.0.0 or higher. In either case, set the transponder to "Avidyne" when performing the squat switch setup.
A/C Class	Enter the aircraft category

Selection	Description
A/C Speed	Enter the aircraft speed
GPS Lat. Offset	Enter the lateral distance in meters for the GPS antenna
Certification	VFR installations, aircraft with a non-WAAS antenna (reference Section 7.5.11), or unapproved ADS-B out installations must set this field to "uncertified". All other installations reference the Avidyne AXP322 installation manual for certification level.

Table 118 Remote XPDR Configuration Selections

7.5.14 Network (WiFi) Setup (Page 13)

If the IFD is equipped with the optional Wi-Fi and Bluetooth options, configuration of these interfaces may be desired using the WiFI Configuration Page in Maintenance Mode.

7.5.14.1 Wi-Fi Configuration

The IFD Wi-Fi system can be configured in one of two ways. The IFD may operate as a Wi-Fi access point (WAP) or can connect to an external access point provided by another accessible device.

NOTE: The IFD Maintenance mode refers to a WAP configuration as "Local". Similarly, Maintenance mode refers to a configuration in which the IFD connects to a separate access point as "Remote".

NOTE: The IFD Maintenance page **Network Configuration** offers Mode options that include **Local Wired**, **Remote Wired DHCP** and **Remote Wired Static**. These options are not applicable to installations approved by the IFD4XX/IFD5XX AML STC SA00343BO. Please contact Avidyne Customer Service for additional details on these interfaces.

When configuring the IFD as a WAP, it is necessary to define the SSID (i.e. the name of the network) and a PSK (i.e. the network password). The factory default settings are "LIO_WIFI" for the SSID and "abcdef1234" for the password. When configured as a WAP, the IFD ignores the IP address field. In order to configure the IFD as a WAP, proceed as follows:

To configure the Mode

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

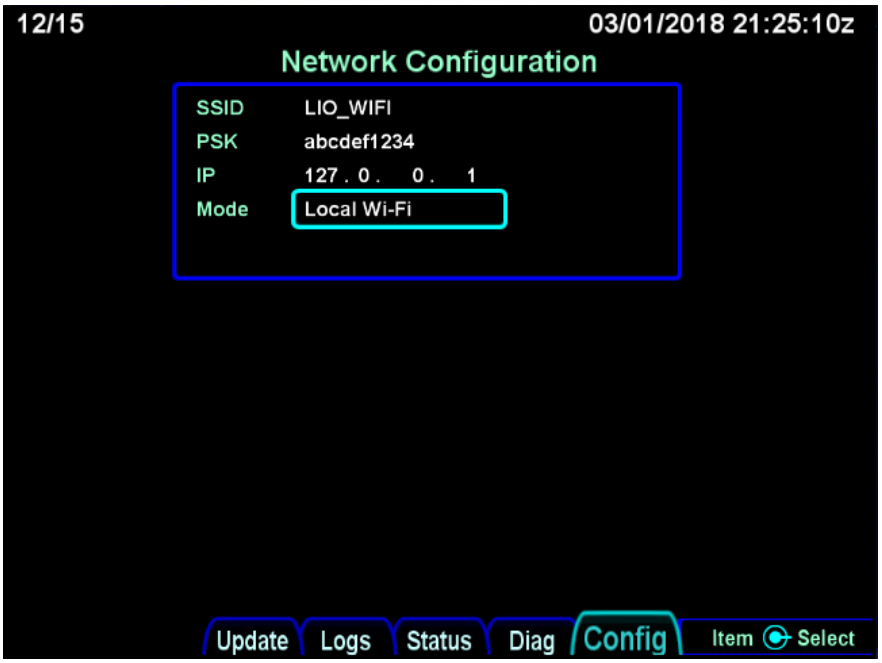


Figure 24 Network Configuration Page

4. If the "Mode" value is not set to "Local WiFi", press the lower right knob and use the outer knob to select the mode value.
   a. Once selected, use the inner knob to change the value to "Local Wi-Fi"
   b. Press the knob again to exit edit mode.

To configure the network name (SSID)

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

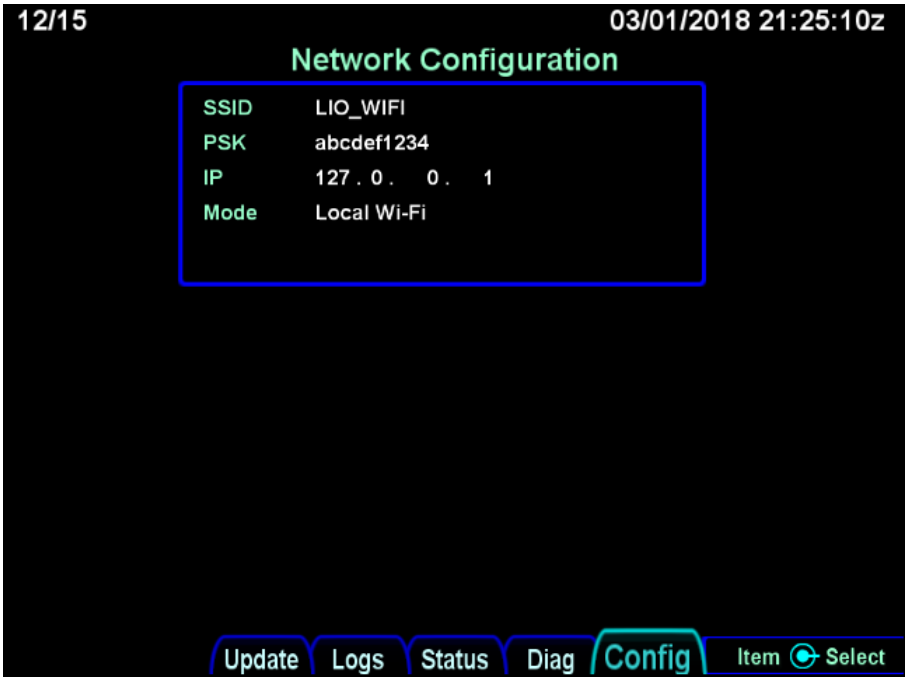


Figure 25 Network Configuration Page

1. Press the lower right knob
2. Using the outer right knob, advance the selection rectangle until the current SSID field is selected as shown:

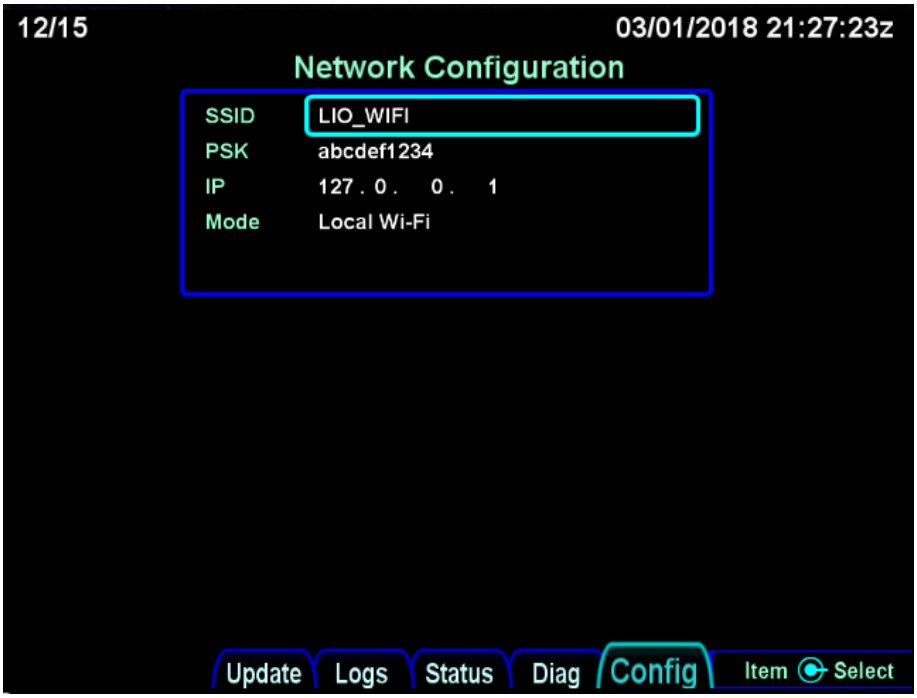


Figure 26 Network Configuration Page

4. Press the right knob
5. The inner knob can now be used to advance through the available characters. The outer knob will advance to the next character in the name.

   NOTE: One of the possible character selections is a space character. Spaces at the end of the name will not be contained in the final name. In other words, "NAME<SP><SP>" will present a network name of "NAME".
6. Press the right knob to complete the edit

To configure the network password (PSK)

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

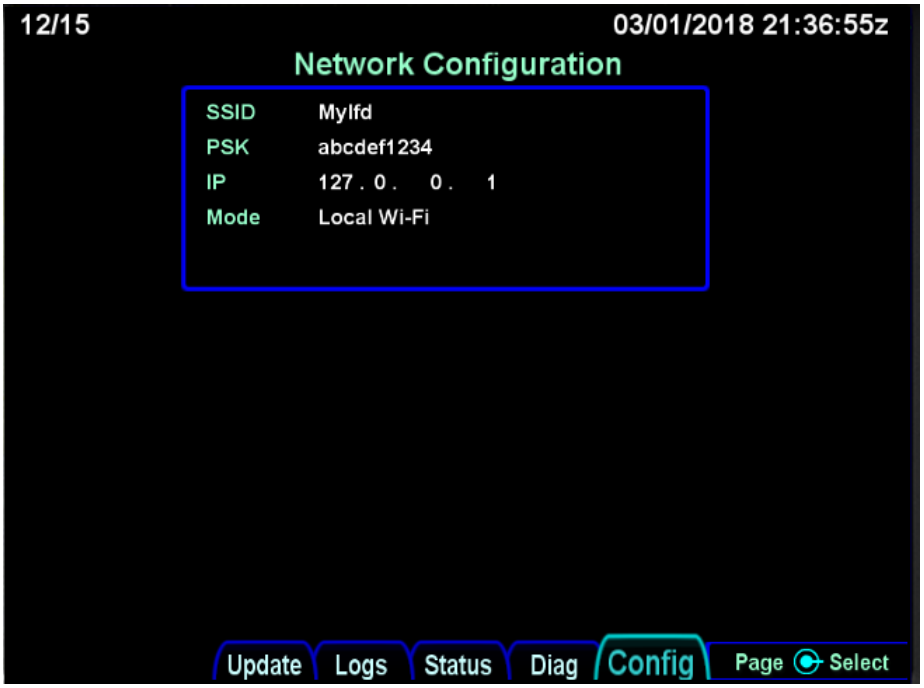


Figure 27 Network Configuration Page

1. Press the lower right knob
2. Using the outer right knob, advance the selection rectangle until the PSK field is selected as shown:

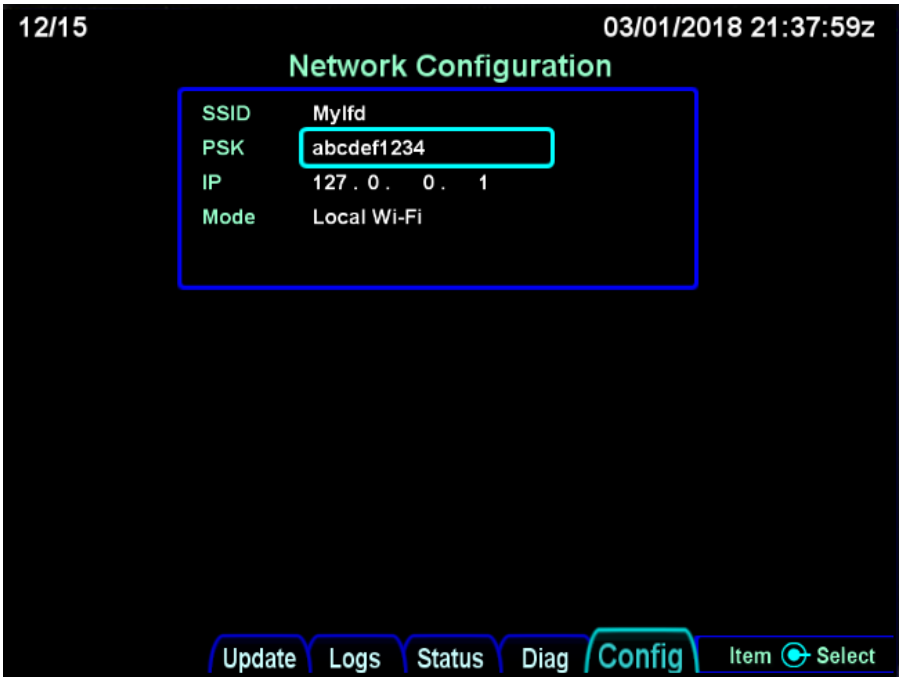


Figure 28 Network Configuration Page

4. Press the right knob
5. The inner knob can now be used to advance through the available characters. The outer knob will advance to the next character in the PSK.

   NOTE: One of the possible character selections is a space character. Spaces at the end of the PSK will not be contained in the final PSK. In other words, "PASSWORD<SP><SP>" will present a network PSK of "PASSWORD".

   NOTE: Non empty PSKs must contain at least 8 characters. If there are fewer than 8 characters, the system will fill missing characters with a '?' character.

   NOTE: Empty PSKs are allowed though not recommended.
6. Press the right knob to complete the edit.

7.5.14.1.1 Configuring the IFD as a Client to an External WAP

In some cases, an aircraft may have an existing WAP in use. For example, some aircraft may be accustomed to connecting 3rd party iPad applications to a Stratus ADS-B receiver. These pilots will likely wish to also have access to the IFD from their iPads. In order to achieve this configuration, the IFD must be configured to connect to the Stratus receiver. This will allow tablet devices to access data from both the Stratus and the IFD simultaneously.

To configure the Mode

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

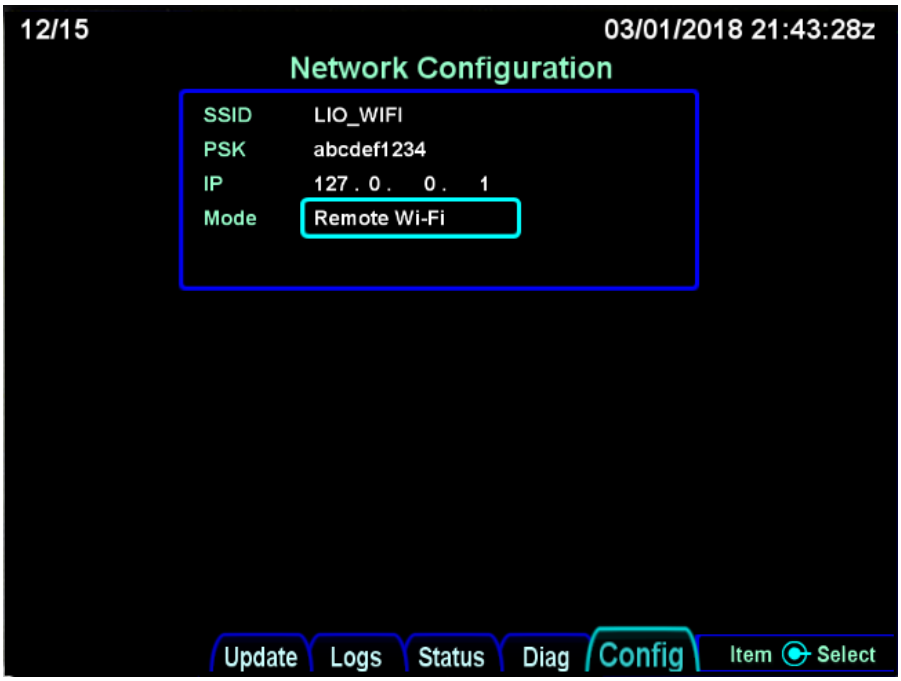


Figure 29 Network Configuration Page

4. If the "Wifi Mode" value is not set to "Remote", press the lower right knob and use the outer knob to select the mode value.
   a. Once selected, use the inner knob to change the value to "Remote Wi-Fi"
   b. Press the knob again to exit edit mode.

Designate the Network to Connect To:

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

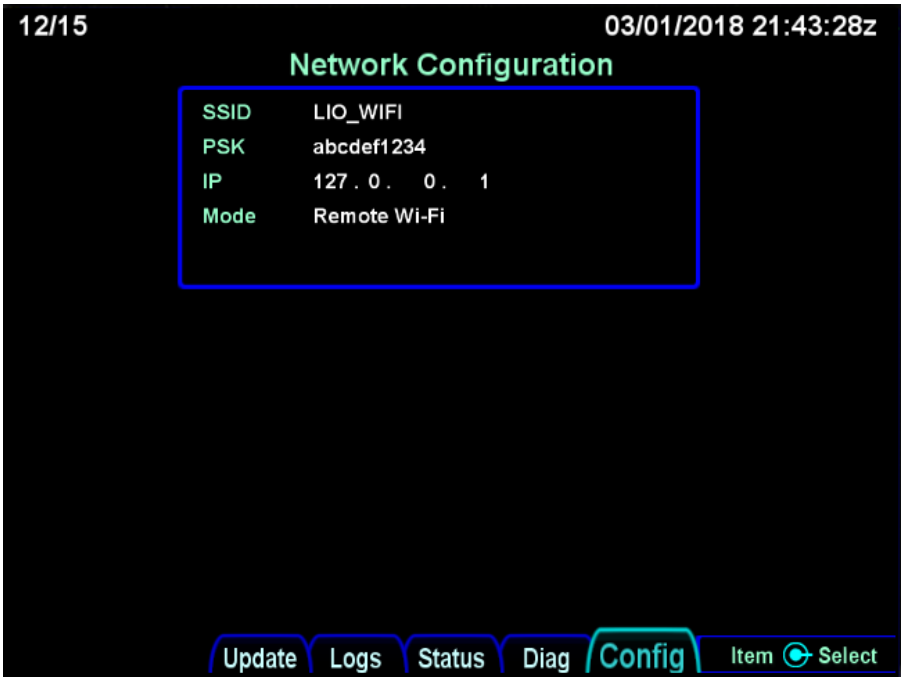


Figure 30 Network Configuration Page

1. Press the lower right knob
2. Using the outer right knob, advance the selection rectangle until the SSID field is selected as shown:

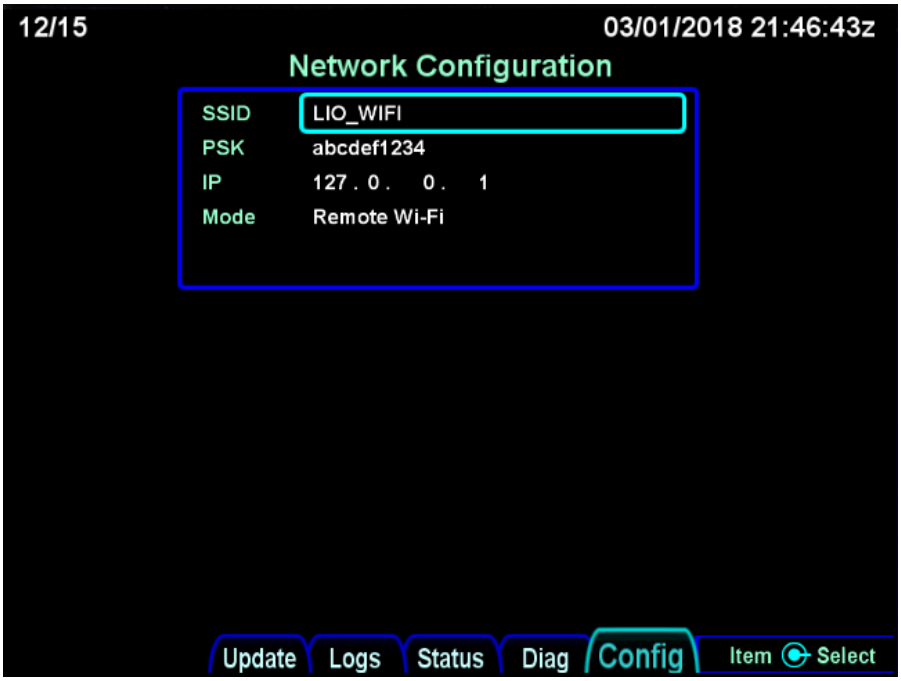


Figure 31 Network Configuration Page

4. Press the right knob

5. The inner knob can now be used to advance through the available characters. The outer knob will advance to the next character in the name. Set this field to the name of the remote network to which you wish to attach. This will be provided by the device that supplies the network.
6. Press the right knob to complete the edit.

Configure the network password (PSK)

NOTE: This value will be supplied by the device to which you are attempting to connect.

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Network Configuration" Page is displayed as shown in the image below.

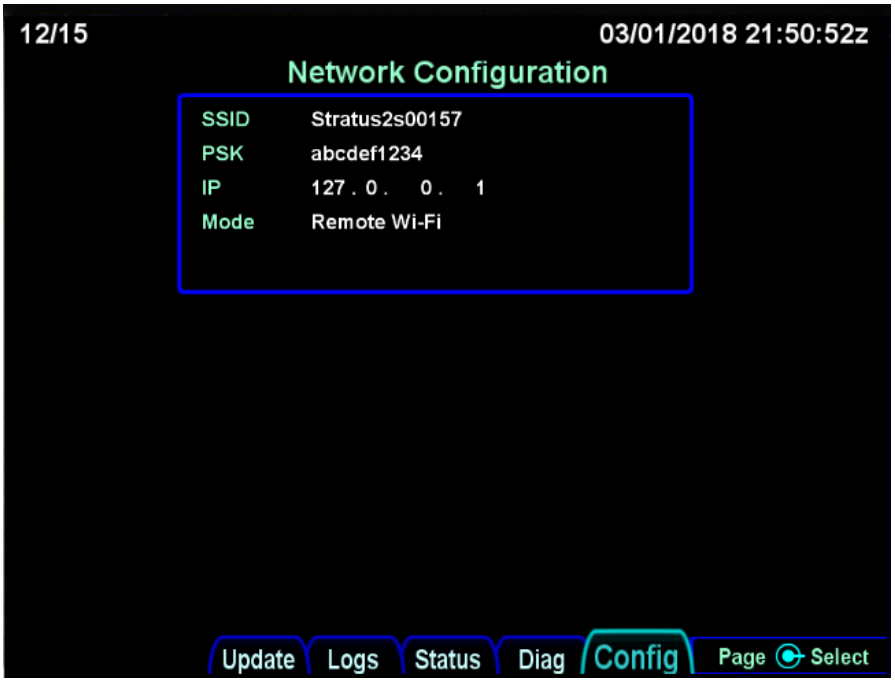


Figure 32 WiFi Configuration Page

1. Press the lower right knob
2. Using the outer right knob, advance the selection rectangle until the Remote PSK field is selected as shown:

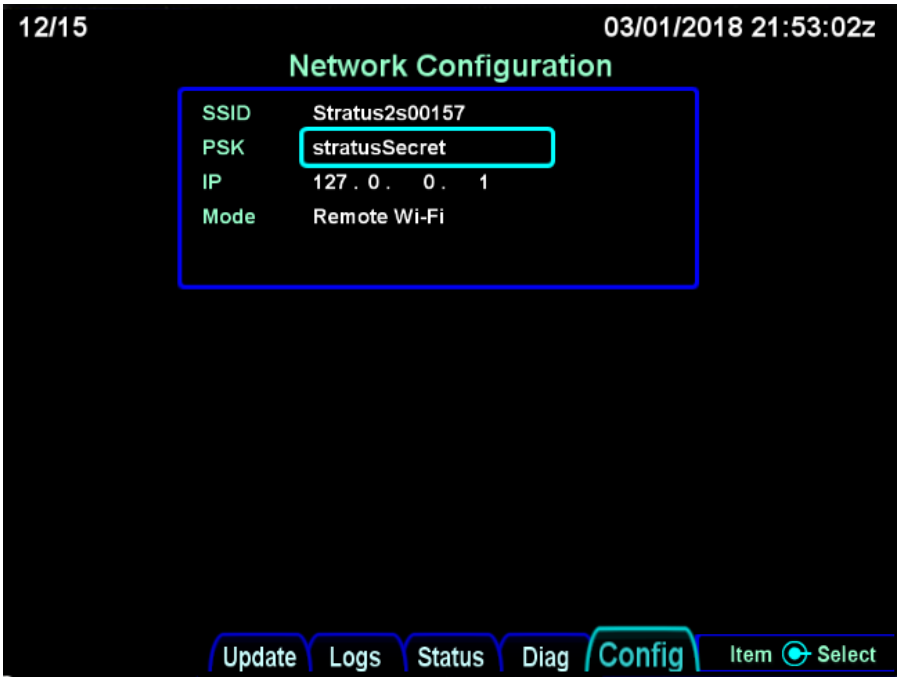


Figure 33 Network Configuration Page

1. Press the right knob
2. The inner knob can now be used to advance through the available characters. The outer knob will advance to the next character in the PSK.

   NOTE: One of the possible character selections is a space character. Spaces at the end of the PSK will not be contained in the final PSK. In other words, "PASSWORD<SP><SP>" will present a network PSK of "PASSWORD".

   NOTE: Non empty PSKs must contain at least 8 characters. If there are fewer than 8 characters, the system will fill missing characters with a '?' character.

   NOTE: Empty PSKs are allowed though not recommended.

   NOTE: IP address field is unused with this option.

   Press the right knob to complete the edit

7.5.15 Bluetooth Setup (Page 14)

7.5.15.1 Configuring the Bluetooth Interface

1. Boot the IFD to Maintenance mode.
2. Select the "Config" tab.
3. Turn the right knob until the "Bluetooth Setup" Page is displayed as shown in the image below.

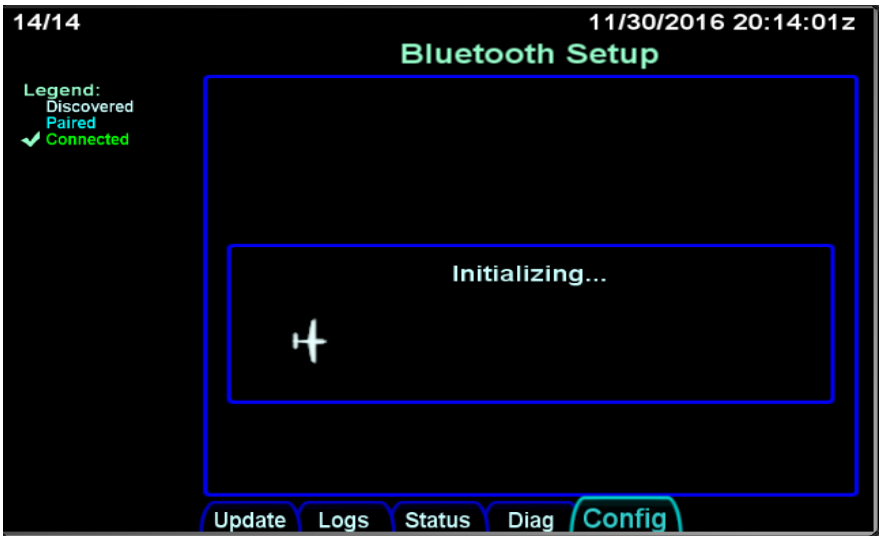


Figure 24 Bluetooth Setup Page

4. Once initialized, the page will present a button on the left side reading "Start Scan". Press this button to allow the system to find all discoverable Bluetooth devices in range of the IFD.

   NOTE: You will likely need to put the Avidyne Bluetooth keyboard into discoverable mode by pressing the button on the rear of the keyboard.

5. Once the device you wish to pair with appears in the list presented on the IFD screen, press the "Stop Scan" button if the scan has not yet completed.
6. Select the device of interest but using the outer ring of the lower right knob.
7. Press "Pair Device"
   a. You will now be prompted to enter a number and press ENTER.
   b. Enter the specified number on the Avidyne Bluetooth Keyboard and then press the keyboard's ENTER key.

7.5.16 IRU Calibration, IFD545, IFD550 (Page 15)

In order to calibrate the IFD550 or IFD545 you must access the IRU Calibration page. This page can be found by:

1. Entering maintenance mode.
2. Accessing the Config tab by pressing the right side of the AUX key.
3. Turn the outer right knob until you see the IRU Calibration page (see picture below).

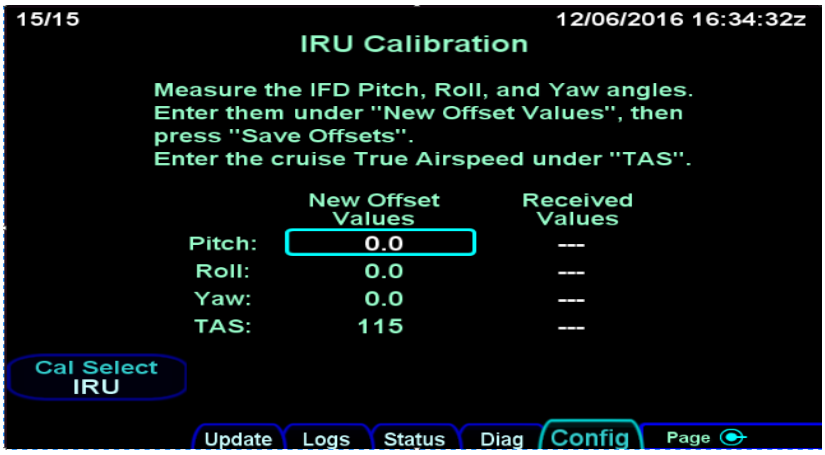


Figure 25 IRU Calibration Page

IFD550 and IFD545 IRU require minimal calibration. The adjustment parameters available and their impact on the system behavior is discussed below.

In order to adjust each of the parameters, you will press the right knob until the cursor advances to the value to be set. Use the inner knob to adjust the value.

Once all settings have been adjusted as desired, press the "Save Offsets" LSK to save the values you have configured.

7.5.16.1 Setting TAS:

Press the right knob until the cursor advances and the TAS field is selected. Turn the right knob to change the value until it represents the cruise airspeed of the aircraft in knots. Look in the POH and set the TAS value to the 75% power at 6,000 ft. value.

NOTE: Setting of the TAS value is mandatory.

7.5.16.2 Adjusting Pitch Roll and Yaw

Your installation may not require the setting of pitch, roll and yaw values. These values need only be set if the installation orientation of the IFD545/IFD550 is not aligned with the lateral, vertical or longitudinal lines of the aircraft (see diagram below).

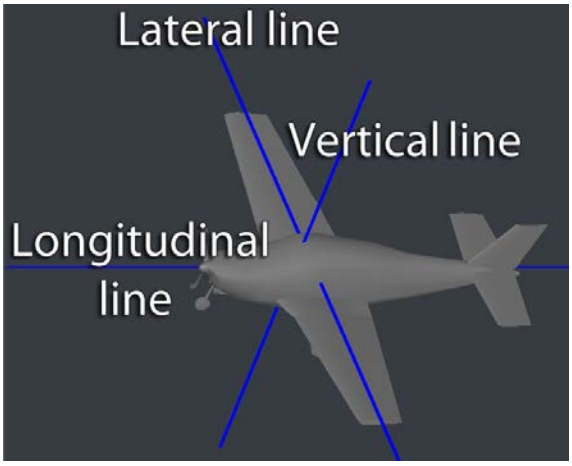


Figure 26 Calibration Line Locations

7.5.16.2.1 Adjusting Pitch

For installations in which the IFD system is not at a right angle with respect to the horizontal axis of the aircraft, the Pitch value will need to be adjusted. If the rear of the IFD is pitched down with respect to the horizontal axis of the aircraft, you will need to enter a negative number for the Pitch value. If the rear of the IFD is pitched up with respect to the horizontal axis of the aircraft you will need to enter a positive number for Pitch.

7.5.16.2.2 Adjusting Roll

For installations in which the IFD system is not aligned with the lateral line of the aircraft, the roll value needs to be adjusted. If the IFD is tilted toward the left wing of the Aircraft, you will need to enter a positive number for the Roll value. If the IFD is tilted toward the right wing of the Aircraft, you will need to enter a positive number for the Roll value.

7.5.16.2.3 Adjusting Yaw

For installations in which the IFD system is not parallel to the longitudinal line of the aircraft, the yaw value will need to be adjusted. If the rear of IFD is skewed to the right of longitudinal line, then you will need to enter a positive number for the Yaw value. If the IFD is skewed to the left of longitudinal line, you will need to enter a negative number for the Yaw value.

7.5.16.3 Post Calibration Check

Once you have entered all calibration values as desired, boot the IFD into flight mode. Press the SVS button to display the synvis screen. The display should accurately reflect the aircraft orientation. If this is not the case, readjust the Pitch, Roll and Yaw settings as described above.

7.5.17 RDR2000 Radar Configuration (Page 16)

7.5.17.1 Configuration Module Setup

7.5.17.2 Primary Radar Setup

1. Power on the primary IFD in Maintenance Mode and select the Config/Radar Calibration page.
2. Press the “Radar” LSK, then place the radar into “Test”
3. Press the Diagnostics LSK to display the diagnostics page.
4. Press the Knob-Func LSK until “Gain” is selected
5. Turn the left inner knob counter-clockwise until ‘Gain Pot’ displays -31.0
6. Press the Knob-Func LSK until “Tilt” is selected
7. Turn the left inner knob clock-wise until “15.00°” is displayed in the “Tilt Setting” field.
8. Press the Diagnostics LSK to return to the standard radar page.
9. Adjust the left outer knob to select a range of 240 NM.
10. Press the “Diagnostics” LSK to return to the diagnostics page. Six Yellow faults shall quickly flash several times and then “-none-” shall be displayed. This confirms that the radar has been placed into calibration mode.

7.5.17.3 Antenna Clearance Check

Set the Knob-Func LSK back to 'Gain' then turn the left inner knob clock-wise to obtain a value between -26.5 and -28.0 in the "Gain Pot" field. This will initiate the antenna clearance scan. The antenna will move to each of the extreme positions to determine that there is no interference with the antenna movement and all scan motors are working properly.

7.5.17.4 Radar Stabilization (IFD545, IFD550 only)

1. For stabilization ARINC labels outputs to become active, check the stabilization box "ON"

7.5.17.5 Calibrate Radar Pitch and Roll

1. Set the Knob-Func LSK to 'Roll Trim'.
2. Rotate the left inner knob to adjust the "Roll Trim" setting to "0.000°".
3. Level the aircraft.
4. Set the Knob-Func LSK to 'Gain' and rotate the left inner knob to obtain a value between -11 and -12. This will allow adjustment of the "Pitch Angle".
5. Set the "Pitch Angle" to 0.0° +/- 1.0 degrees as follows:
    a. Set the Knob-Func LSK to 'Tilt'.
    b. To increment the value of the "Pitch Angle" use the left inner knob to select a "Tilt Setting" between 5 and 10. When the "Tilt Setting" is between 5 and 10, the value of the "Pitch Angle" field will slowly increase.
    c. To decrement the value of the "Pitch Angle" use the left inner knob to select a "Tilt Setting" between -5 and -10. When the "Tilt Setting" is between -5 and -10, the value of the "Pitch Angle" field will slowly decrease.
    d. When the desired setting is reached, quickly adjust the "Tilt Setting" to above 10 or below -10 to "lock in" the setting.
6. Set the Knob-Func LSK to 'Gain' and rotate the left inner knob to obtain a value between -7 and -9. This will allow adjustment of the "Roll Angle".
7. Set the "Roll Angle" to 0.0° +/- 1.0 degrees as follows:
    a. Set the Knob-Func LSK to 'Tilt'.
    b. To increment the value of the "Roll Angle" use the left inner knob to select a "Tilt Setting" between 5 and 10. When the "Tilt Setting" is between 5 and 10, the value of the "Roll Angle" field will slowly increase.
    c. To decrement the value of the "Roll Angle" use the left inner knob to select a "Tilt Setting" between -5 and -10. When the "Tilt Setting" is between -5 and -10, the value of the "Roll Angle" field will slowly decrease.
    d. When the desired setting is reached, quickly adjust the "Tilt Setting" to above 10 or below -10 to "lock in" the setting.
8. To save the changes into the radar perform the following steps:
    a. Set the Knob-Func LSK to 'Gain' and rotate the left outer knob to obtain a "Gain Pot" setting between -4 and -5.
    b. The "Faults" field shall display "Gyro Input".
    c. Set the Knob-Func LSK to 'Tilt' then change the "Tilt Setting" to -15.00°. The "Faults" field shall flash indicating that the calibrations settings have been saved.

If the save procedure is successful the "Gyro Input" fault will be removed and the "Scan Angle" will cycle through the entire number range. A "transmitter inhibit" fault shall be displayed in the "Faults" field.

7.5.18 Stormscope Test Page (Page 17)

The Maintenance Mode Stormscope Test page is accessible from the Maintenance Mode Config Tab when one set of the RS232 ports has been configured as WX-500 and at least one power cycle has been executed since configuration.
Stormscope Test page contains the following LSKs: Change Mode, Strikes Clear, Get Data

Change Mode LSK - Changes to the Stormscope test mode as shown in the LSK. The mode selected will be returned by the WX-500 and will display within the strike display. Repeated presses of the Change Mode LSK will step through each of the modes, cycling back to the first mode in the list (Weather).
These are the Stormscope test modes:

- Weather - basically a fixed heading version of normal flight mode - will display real lightning strikes if any are generated.
- Noise - similar to Weather mode but with the WX-500 sensitivity set to determine where excess noise might be generated.
- Strike Test - a target displaying test strikes as generated by a WX-500 strike generating test set.
- Demo - similar to Weather mode with the strikes generated internally by the WX-500's Demo mode.
- Self-Test - executes the WX-500 internal Self-Test sequence which will return to Weather mode after 10 seconds.

Strikes Clear LSK - Pressing this LSK will send a "clear strikes" command to the WX-500, clearing its internal buffer of strikes.

Get Data LSK -Pressing the Get Data LSK will Download Data from the WX-500. The Stormscope Downloadable Data page will display ASCII data as retrieved verbatim from the Stormscope. Repeated presses of the Get Data LSK will step through each of the Downloadable Data modes, cycling back to the first mode in the list (SW Version).
These are the Stormscope Downloadable Data modes:

- SW Version - displays the WX-500 Main SW Version / Main Boot SW Version / DSP SW Version
- Config - displays the WX-500 configuration settings (Serial Jumpers, Hdg Valid Flag, Flag Sense, Hdg Value, Inhibit Line and Antenna Mount).
- Environment - displays the WX-500 environmental parameters (voltages and processor temp)
- Fault Log - displays the WX-500 fault log history of the last 20 faults.
  d.

7.5.19 GAD 42 Configuration

The IFD5XX/4XX can be connected to the Garmin GAD42 Interface Adapter but there is no dedicated GAD42 configuration page in the IFD5XX/4XX.

If the IFD5XX/4XX is replacing a GNS530/W or GNS430/W that had previously been connected to a GAD42, then no action is required since the configuration is already saved in the GAD42.

If this is a new installation of an IFD5XX/4XX (i.e. not replacing an existing GNS530/W or GNS430/W) or if the GAD42 had to be replaced for service, then the GAD42 must be configured via a manual strapping method as described in Garmin P/N 190-00159-00 GAD42 Installation Manual, Section 5.1.

If the IFD5XX/4XX displays a "GAD 42 Needs Service" message, return the GAD 42 unit to the manufacturer.

7.5.20 Other System Diagnostics Pages

The IFD provides other miscellaneous diagnostics pages that are shown here for reference. Each page variant is accessed by pressing the L4 LSK labeled "Info".

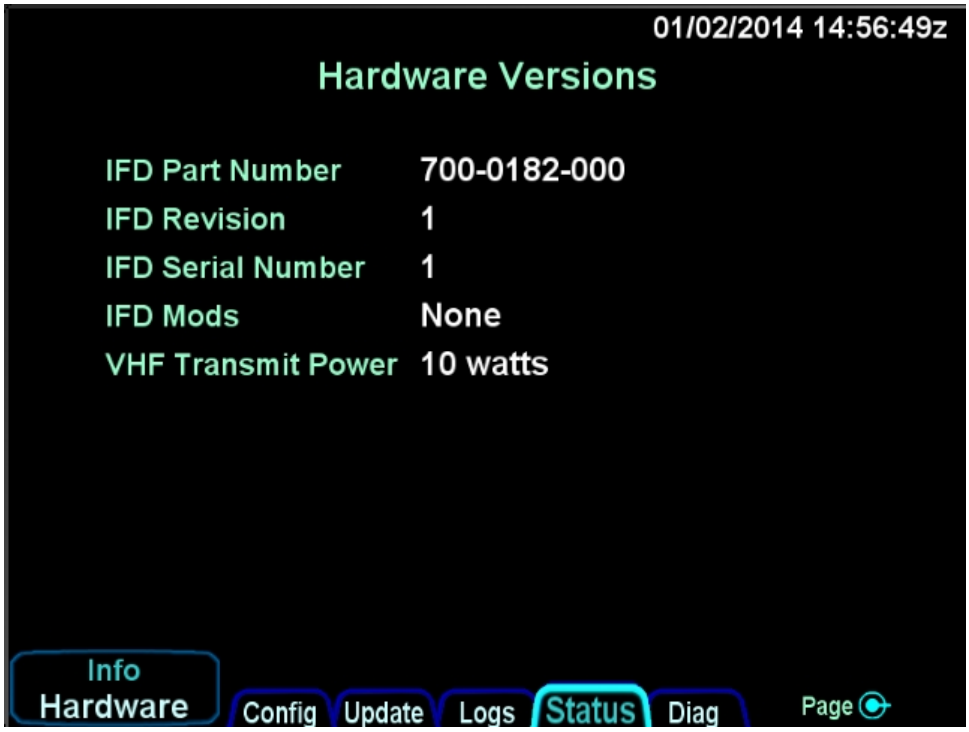


Figure 27 Hardware Version Page

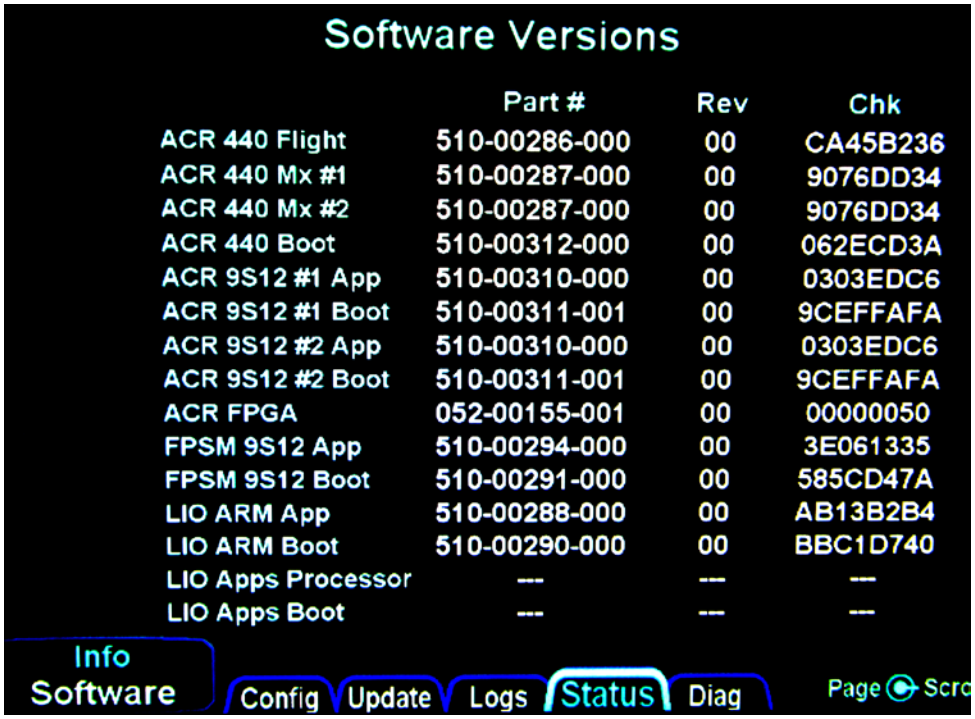


Figure 28 Software Version Page

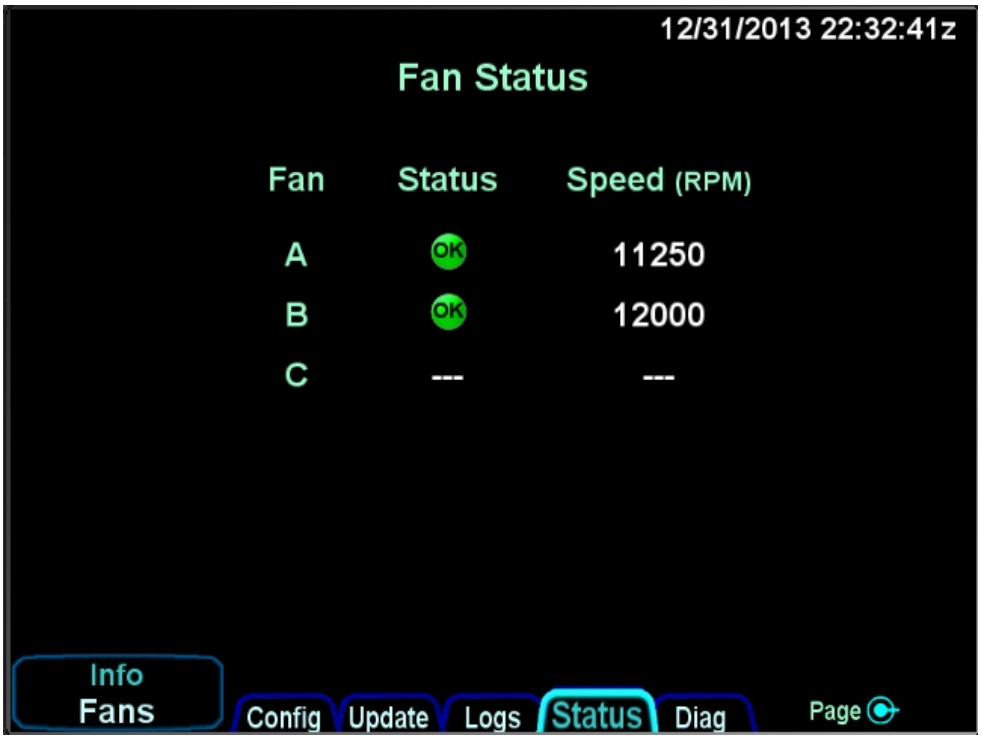


Figure 29 Fan Status Page

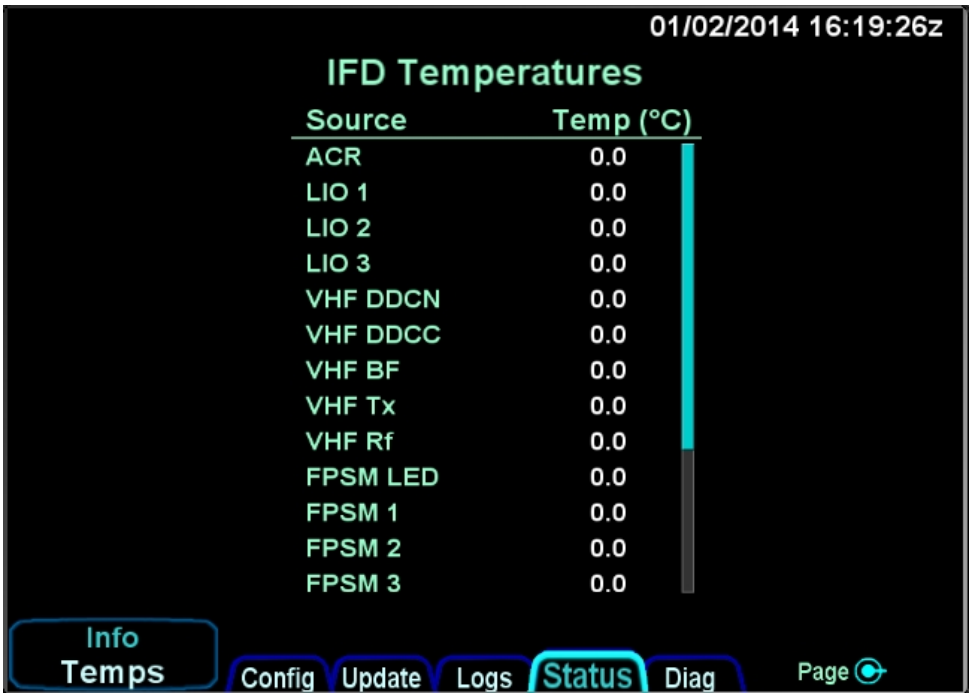


Figure 30 IFD Temperature Status Page

The pages on the "Diag" tab are for Avidyne Service Center diagnostics purposes and are not described in this manual.

7.6 Checkout

After configuring the IFD5XX/4XX, the following post-installation tasks should be performed.

7.6.1 Database Check

Verify the Navigation, Chart, and Obstacle databases are up-to-date. If the databases need to be updated, reference the IFD5XX/4XX Pilot's Guide or Section 10.1 for update procedures.

7.6.2 Airplane Flight Supplement Check

Complete and install the IFD5XX/4XX Airplane Flight Manual Supplement in the aircraft's Flight Manual or Pilot's Operating Manual.

7.6.3 Instructions for Continued Airworthiness

Complete and install the IFD5XX/4XX Instruction for Continued Airworthiness in the aircraft maintenance records.

7.6.4 Aircraft Weight and Balance

Update the Aircraft's Weight and Balance in the aircraft records.

For those installations where an IFD5XX/4XX is replacing a similar equipped GNS530 or GNS430 (a like variant) no weight and balance must actually be performed. If a GPS only

Garmin unit is being replaced with a full featured IFD5XX/4XX, the weight change is more than one pound and a weight and balance must be prepared.

Since a full featured IFD5XX/4XX is within 5% of the weight of the removed GNS530/430 (less than 1 pound difference), no new weight and balance must actually be performed according to AC 43.13-1B Change 1 Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair (Chapter 10) and AC 120-27E Aircraft Weight and Balance Control.

7.6.5 Electrical Load Analysis

Verify the aircraft's electrical load is within limits, reference Section 4.10.

7.6.6 GPS Signal Acquisition

After installation, position the aircraft outside with clear unobstructed view of the sky. Verify the IFD5XX/4XX acquires and calculates a GPS position. Verify no interference from other aircraft equipment is observed (e.g. TCAS, SATCOM, etc)

7.6.7 VHF COM Checkout

Note: This section is not applicable for IFD510/545/410.

7.6.7.1 VHF COM Interference

After installation, the VHF Communication should be tested. In 1 MHz increments between 118-136.000 MHz, transmit for 35 seconds on each frequency. Verify, no interference between VHF Comm and other aircraft systems.

Evaluate the GPS system on the following frequencies. The GPS system should not experience complete signal loss on when transmitting on the VHF Comm.

25 kHz channels

- 121.150
- 121.175
- 121.200
- 131.250
- 131.275
- 131.300

8.33 kHz channels

- 121.185
- 121.190
- 130.285
- 131.290

7.6.7.2 VHF Antenna Checkout

Verify the VSWR is less than 2:1 through the entire frequency band. This can be verified using an aviation navigation test set (e.g. IFR 4000 or similar test equipment). VSWR higher than 2:1 will have reduced VHF Communication performance. If >2:1 VSWR, verify in-flight performance is acceptable.

7.6.7.3 Receiver/Transmitter Operation

Test VHF Com's ability to receive and transmit to another VHF Com station. Verify using a low/middle/high frequency.

7.6.8 VOR/LOC/ GS Checkout

Note: This section is not applicable for IFD510/545/410.

If installed, test the VOR/LOC/GS system using a local frequency or test set. Verify the OBS (selected course) is functioning, CDI/HSI/PFD is indicting correctly, and NAV audio is received. Also, verify no EMI on the VOR/LOC/GS system.

7.6.9 Autopilot

If the IFD5XX/4XX can be coupled to an Autopilot system, verify the Autopilot is operating correctly with the IFD5XX/4XX as the navigation source.

7.6.10 Magnetic Compass Swing

After installation and EMI checks are complete, perform a magnetic compass "swing" in accordance with the aircraft installation manual for updating the heading correction card in accordance with 14 CFR 23.1327 and 23.1547.

7.6.11 IFD5XX/4XX Bezel and Display Lighting

Verify the Bezel and Display Lighting for the IFD5XX/4XX can be set to an appropriate level for Day and Night flight conditions. Likewise, verify any external HSI/CDIs can be properly adjusted for day and night lighting conditions.

7.6.12 External Annunciators and Switches

If installed, verify external annunciators and switches are operating correctly. Verify the external annunciator lighting can be adjusted for Day and Night flight conditions (Bright and Dim setting, but never off). Verify all external switches are functioning correctly.

7.6.13 Placards

Verify all circuit breaker(s), switches, and limitation placards (if needed) are installed.

If required per Section 2.4.1, there must be a placard in clear view of the pilot that specifies the kind of operations to which the operation of the airplane is limited or from which it is prohibited under 14 CFR 23.1525. The limitation placard must be installed in a conspicuous place in the Pilot's field of view. The placard text height must be a minimum of 0.10 inches in contrasting color to the surrounding area. The text must be high-quality solid-color font of at least 300 DPI (dots per inch). The placard must not be easily disfigured, erased, or obscured.

7.6.14 Self-test Page

For the duration that the notification of legal rights page is displayed during normal power up on the ground, all remote annunciator lamps are lit up and the system generates a specific set of electrical outputs for the purpose of self-test and troubleshooting. The table below defines the outputs transmitted during this time.

Parameter	Self-test Value
Course Deviation	Half-scale left deviation, TO indication, flag stowed
Glideslope/Vertical Deviation	Half-scale up deviation, flag stowed
Annunciators	All on
Bearing to Waypoint (RMI)	135°
Selected Course (OBS)	150° when interfaced to an HSI with course pointer
Desired Track	150°
Distance To Go	10.0 NM
Time To Go	4 minutes
Active Waypoint	"AVDYN"
Groundspeed	150 knots
Present Position	N39°04.05', W094°53.86'
Waypoint Alert	Active
Phase of Flight	Enroute
Message Alert	Active
GPS Integrity	Invalid
Roll Steering (if applicable)	Flight Director commands 0° bank (level flight) for 5 seconds; commands increasing right bank at 1°/second for 5 seconds; commands 5° right bank for 5 seconds; commands decreasing right bank at 1°/second for 5 seconds, until command is 0° bank again. This cycle repeats continuously.

Table 119 Self-test Output

7.6.15 Dual IFD5XX/4XX Configuration

If installing two IFD5XX/4XX units, verify duplex communication between the two units. Reference Section 3.3.8 and 7.3 for limitations and configuration.

7.6.16 Heading Interface Check

Verify the IFD5XX/4XX is receiving heading information from an external source. This can be verified on the Main Input Page in maintenance mode, reference Section 7.5.5. If power is removed from the external heading source, the Main Input Page will display dashed lines for heading. Note: If the IFD5XX/4XX is connected to a Primary Flight Display, it must be turned off before performing this check.

7.6.17 ADS-B Output

If the IFD5XX/4XX is connected to ADS-B out transponder, verify the position information transmitted is correct per 14 CFR 91.227. Also, if using the IFD5XX/4XX for transponder Mode-C altitude information, verify the transponder is using the correct altitude source from the IFD5XX/IFD4XX, reference Section 6.12.

8. Flight Checks

The IFD5XX/4XX must be flight tested to verify the installation is operating properly. The following items should be tested in flight to verify the IFD5XX/4XX function.

8.1 GPS Verification

Verify the following in flight:

- Verify the GPS reception during all phases of flight. (e.g., bank angles of up to 30 degrees and pitch angles associated with take-off, departures, landing and missed approaches)
- Verify the following GPS/FMS operation:
  - Hold at a designated waypoint
  - Intercept and track to or from a waypoint on a selected course
  - Waypoint sequencing
  - Verify the overall operation of procedures or paths
  - Selection of an approach
- Evaluate the display of navigation parameters on the flight instruments (PFD, HSI, CDI) is correct
- Verify annunciation is correct and in the Pilot's field of view

8.2 VHF COM Flight Check

Note: This section is not applicable for IFD510/545/410.

Verify in-flight the IFD5XX/4XX VHF communication transceiver in the high, mid, and low frequency ranges. Verify the VHF at least 50 nautical miles and at an appropriate altitude.

8.3 VOR Flight Checks

Note: This section is not applicable for IFD510/545/410.

Verify in-flight the IFD5XX/4XX VHF navigation receiver by tuning a local VOR station within 50 nautical miles. Verify the audio tone is heard and course deviation information and flag information is correct.

8.4 ILS Flight Checks

Note: This section is not applicable for IFD510/545/410.

Verify in-flight the IFD5XX/4XX VHF navigation receiver by tuning an airport with an ILS. Verify the NAV ID audio tone is heard and the course deviation and flag information is correct.

8.5 Autopilot Checks

Verify the IFD5XX/4XX interface to the autopilot is correct. Reference the Autopilot Manual installation/maintenance manual for test procedures. Verify the following functions:

- Evaluate the steering response while in Flight Director (FD) and when the autopilot is coupled
- Execute several fly-by-turns with varying wind conditions for the FD and autopilot
- Evaluate the autopilot's response to a GNSS fault (e.g., pulling the IFD5XX/4XX Circuit Breakers)

8.6 Sensors Verification

Verify the IFD5XX/4XX interface to other aircraft sensors are operating correctly (e.g., Traffic, Lightning, Weather, etc).

9. Glove Validation Procedures

Many types of gloves can be used with the IFD touch screen display. The key parameter for the effectiveness of a glove with touch screen is the distance between the finger and the glass and to a lesser extent, the type of material separating the skin from the glass. The thinner the glove or the more compatible the material (e.g. leather, fine cotton, etc), the greater the likelihood of success will be. Likewise, the more surface area that comes in contact with the glass, the greater the success may be. Each glove must be qualified for compatibility with the display and those glove calibration procedures (specific to the glove and the pilot combination) are immediately below. If all verification steps are marked as a "Pass" then the glove/pilot combination is considered to be a qualified pair.

Pilot Name		
Description of Glove		
Verification Step	Circle	one
Touch the standby frequency window and verify a virtual keyboard is displayed.	Pass	Fail
Type 121.7, press the "ENTER" button on the virtual keyboard and confirm 121.700 is the displayed frequency in the #1 Standby Com window.	Pass	Fail
Press each of the page tabs displayed on the present page and verify the IFD changes to the selected tab.	Pass	Fail
With the FMS FPL tab displayed, use touch to type in a typical flight plan and verify that all entries were recognized.	Pass	Fail
With the Map page and tab displayed, attempt to pan the map.	Pass	Fail
With the Map page and tab displayed, attempt to pinch zoom (in or out) the map to produce a range change.	Pass	Fail
With the Map page and tab displayed, attempt to graphically flight plan ("rubber band") and verify the intended change was made.	Pass	Fail
Press the "Freq" function key on the bezel and then double tap a frequency from the list to place it into the #1 standby slot.	Pass	Fail

Table 120 Glove Validation Procedure

10. Software and Database Update Procedures

10.1 Data Updates

Periodic updates to navigation data, charts data, and obstacle data are all made through the USB port on the front of each IFD. Updates must be performed in accordance with 14 CFR Part 43, Appendix A (c) and FAA AC 20-153( ) paragraph 11.

The table below summarizes the databases update periods:

Database	Update Cycle	Comments & Source
Chart Data	14 days	Expiration watermark displayed after 14 days indefinitely until data updated (Jeppesen) (N/A for IFD4XX)
Nav Data	28 days	Airport, airway, navaid, airspace, and FMS data (Jeppesen)
Obstacle Data	56 days	Displayed on map and used for TA and FLTA functions (Jeppesen)
Terrain Data	As required	Displayed on map and used for TA and FLTA functions. The IFD is shipped from the factory with this database already loaded and updates are anticipated to be a rare occurrence.

Table 121 Database Update Cycle

In the event the terrain data ever needs updating, this is also performed through the front panel USB port.

Use one of the formatted fobs supplied by Avidyne (marked by the Avidyne logo printed on one side). In the event one of those fobs are not available, either call Avidyne for a replacement fob (a nominal fee will be charged) or purchase a replacement through other means. Acceptable alternative USB drives are FAT32 format, between 1-16 GB, and manufactured by WINTEC filemate. (http://www.wintecind.com/features/FileMate/USBFlashDrives.html).

To perform a data update, ensure the data to be updated is placed onto one of the acceptable USB fobs. Carefully insert the USB fob into the IFD USB slot while power is turned off. When the IFD is powered up, select the "Setup" tab of the SYS page and then pick the "Update Databases" LSK.

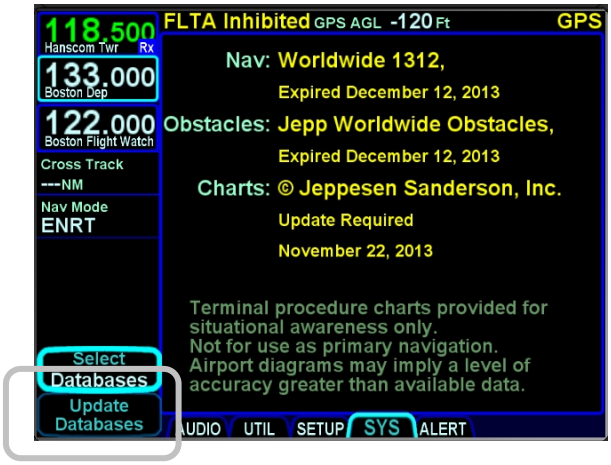


Figure 31 Update Databases LSK

You will be prompted to "Confirm" or "Cancel". Assuming you selected "Confirm", you should see a dialog box presented in the middle of the screen and all uploadable files on that fob will be individually listed and check marks may be visible next to each file name.

Figure 32 Confirm and Cancel LSK

Use the "Select All", "Un-select All" LSKs and the IFD knob as required to ensure check marks are associated with all the desired files to upload to the IFD. Now press the "Proceed" LSK to begin the file upload.

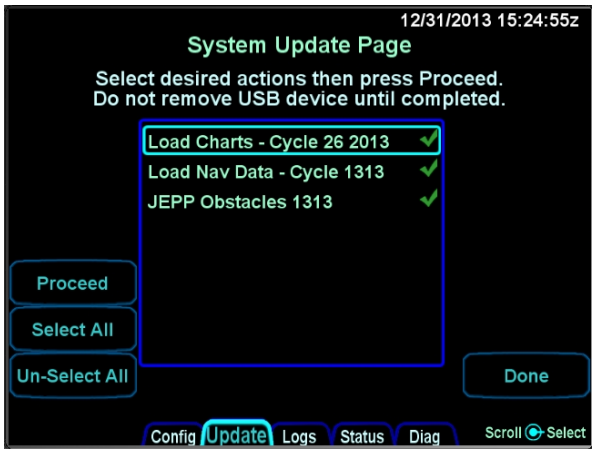


Figure 33 LSK Options

A progress bar will be presented to help provide an idea of how much longer the upload will take.

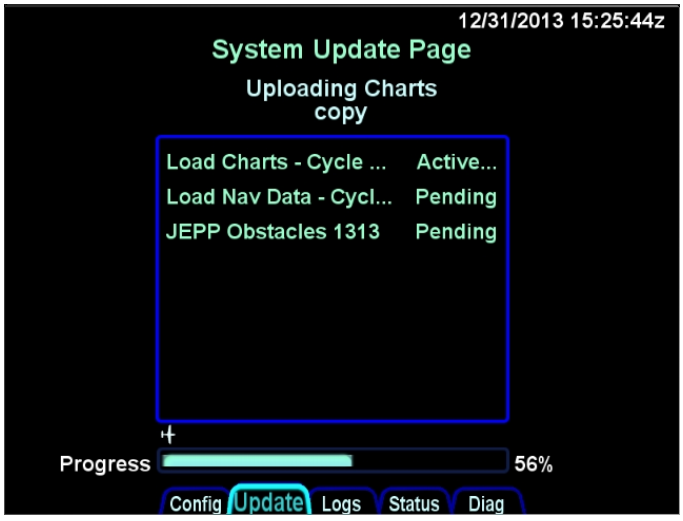


Figure 34 Progress Bar

Typical upload times are:

- Worldwide Obstacles (1.5 MB) – 5 sec
- Eastern US Charts (100 MB) – 3 min
- US Charts (180 MB) – 5 ½ min
- Worldwide Charts (430 MB) – 13 min
- US Nav Data (8 MB) – 3 ½ min
- Europe Nav Data (10 MB) – 2 ½ min
- Australian Nav Data (1.5 MB) – 30 sec
- Worldwide Nav Data (15 MB) – 7 Min

For multiple IFD installations, the database uploads must be performed individually for each IFD to be updated.

Due to some of the upload durations, Avidyne recommends creating a fob for each IFD to be updated so that the updates can happen in parallel and not stacked serially, thereby extending the overall time to accomplish a full update.

A clear indication is presented when the data uploads have been completed. Likewise, if the USB fob was removed prior to finishing the data upload, an error message will be presented and the entire process will need to be manually restarted once the fob is reinserted in the IFD.

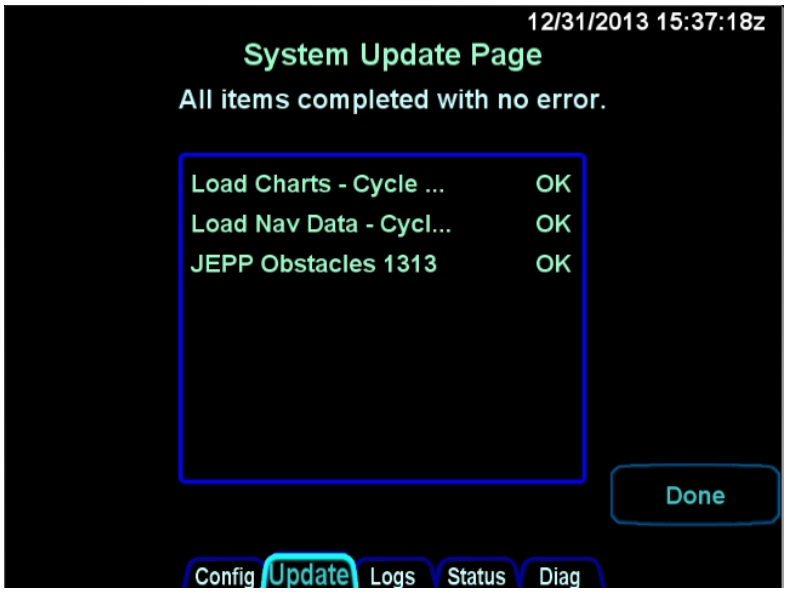


Figure 35 Update Complete Indication

When you are all done press the "Done" LSK, which will restart the IFD into flight mode. Remove the USB fob and perform a normal start up. It is highly recommended to verify the data was updated from the "Setup" LSK of the SYSTEM tab on the AUX page.

If an IFD is in normal operating mode (not maintenance mode), the presence of a USB fob is ignored and these pages cannot be accessed.

10.2 Datalogs Download

There is extensive data-logging that is automatically done on all IFDs. These datalogs can be accessed post-flight and used for a number of purposes.

There are five types of datalogs employed in the IFDs:

- **System Log –** This log provides an in-depth record of the navigation state. From this log, you can re-create many aspects of the FMS output and IFD state. It logs at a rate of approximately 1Hz;
- **Flight Log –** This log provides a detailed record of your aircraft state as measured by the various IFD sensors. It logs at a rate of approximately 5Hz;

- **Engine Log –** This log provides details on fuel flow sensor data (if configured). It logs at a rate of approximately ¼ Hz;
- **Event Log –** This log contains miscellaneous data such as all alerts, keystrokes, system status and error messages, etc. It is designed to be diagnostics log for Avidyne Service Center technicians and not expected to be used by owners/operators. It logs at an on-condition rate;
- **Voltage Log –** This log contains internal diagnostic data such as the voltages and currents on sub-system boards, temperatures and internal fan status. It logs at a rate of approximately 1Hz.
- **Download Configuration Info -** This log contains the system configuration for the unit.
- **GPS Log** - This log contains detailed internal state data for the GPS.

The "Download Logs" LSK is presented when "Software" is selected on the SYS tab and the system is not in-air. When the "Download Logs" LSK is pressed, a pair of Confirm/Cancel LSKs are presented. Selecting Confirm will launch the Maintenance Mode of the IFD5XX/4XX. From Maintenance Mode, press the right side of the AUX page function key to select the "Logs" tab. Ensure a USB fob is inserted in the IFD front bezel USB port and then use a combination of the left side LSKs and the bottom right IFD knob to select the desired combination of logs and type of action to perform.

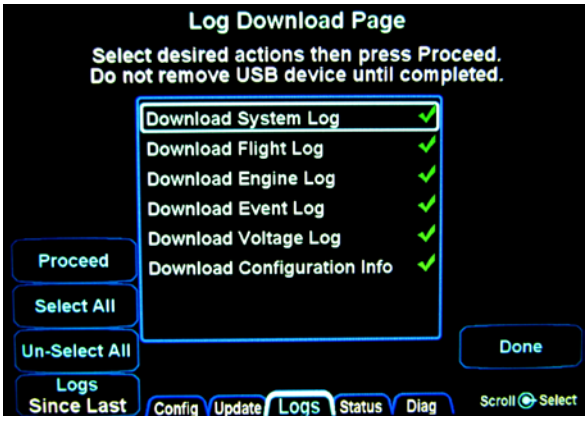


Figure 36 Datalogs Download Page

Pressing the "Proceed" LSK will immediately start downloading all logs listed in the center of the page with green check marks adjacent to them. If only a subset of the logs are to be downloaded, use the "Un-Select All" LSK to deselect all logs and then use the bottom right IFD knob to highlight the desired log and push in to generated a green check mark.

The "Logs" LSK on that Maintenance Mode page provides two options for downloading this data via dedicated LSKs. The first option ("Full") allows a download of all data logs onto the USB fob. The second option ("Since Last") downloads the data logged since the last time a download was completed. Since the logs contain a large amount of data, the second option will be a quicker option in almost every case.

Download times are highly dependent on the number and types of logs being downloaded and how it's been since the last download. Times can range from a few seconds to more than 15 minutes. The more often logs are downloaded, the shorter the download times will be.

In order to provide an indication of download progress, a progress bar will be presented with both a symbolic aircraft indicating download in progress and a % complete estimate. The files to be downloaded can have one of several states – "OK", "In progress…", "Pending", "Skipped", "Active", "Failed".

When downloaded to the USB fob, the data logs will be saved in .csv files. This can be imported into newer versions of Microsoft Excel into a table format. The data can then be plotted or analyzed by several 3rd party tools. Note that files can easily contain 50MB or more of data.

10.3 Software Update

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

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

Changes to software part number, version, and/or operational characteristics should be reflected in the Operator's Manual, Aircraft Flight Manual, Aircraft Flight Manual Supplement, and/or any other appropriate document.

11. Periodic Maintenance

The IFD5XX/4XX does not require any periodic or preventative maintenance. Maintenance on the IFD5XX/4XX is on condition.

11.1 Equipment Calibration

The IFD5XX/4XX has no required servicing tasks.

11.2 VOR Checks

Every 30 days, verify the limits of the VOR per 14 CFR §91.171. Only required for IFR operations. (N/A for IFD510/545/410)

11.3 Cleaning

The front display and bezel may require cleaning periodically, reference Section 13.

12. Factory Service Policies and Procedures

12.1 Technical Support

Avidyne's website contains information that may assist the operator and installer with questions or problems with their Avidyne IFD5XX/4XX. Technical support questions may be submitted, via the following:

- Email: techsupport@avidyne.com
- Fax: 781-402-7599
- Voice: 1-888-723-7592
- Internet: www.Avidyne.com

An Avidyne Technical Support Representative will respond as soon as possible. Avidyne business hours are:

- Monday through Friday: 8:00 AM to 5:00 PM Eastern Time

Please include the part number, revision number and serial number of the unit in all correspondences. For problem reporting, please provide as many details associated with the problem as possible.

For After Hours Technical Support, via the following:

- AOG Support: 877-900-4AOG (4264)

12.2 General Service Procedures

Repair of the IFD5XX/4XX are performed at authorized Part 145 service centers and the Avidyne factory.

Prior to returning a unit for service, contact Avidyne at 1-888-723-7592 to obtain a Return Merchandise Authorization (RMA) number.

When calling or emailing for product-related help, please have the following information available:

1. Customer Name/Account Information

2. IFD5XX/4XX Serial Numbers either read it from the label physically attached to back of IFD (need to partially remove the IFD to see it), or get it from the aircraft maintenance records.

3. IFD5XX/4XX Software Part Numbers: Press the "SYS" page function key and then tab over to the "Setup" tab. Record the "Software Version" and the "Flight Software Part Number". Also make a note of any other yellow text on that page.

4. Be prepared to download the aircraft flight logs and email/transmit them to Avidyne Customer Service.

13. Bezel and Display Cleaning

If the IFD screen should become dirty due to fingerprints or dust, clean the screen using the following materials and methods:

A clean, soft lint-free cloth such as 3M Ultra-Brite Cloth #2011 or similar;

A cleaning solution composed of a 1:1 ratio of de-ionized water and isopropyl alcohol (IPA). Use caution, as it may be flammable. Always apply the cleaning solution directly on the cloth. Never spray cleaner directly on the screen.

In general, isopropyl alcohol is a safe and effective cleaner. Methanol and most acidic solutions can be toxic or damaging to glass coatings if misused.

Excessive or unnecessary cleaning should be avoided to prevent damage to the coated optical filter surfaces. Never allow excess amounts of cleaning agents to dry if they have formed into pools, streaks or droplets to help avoid spotting of the glass surface.

The use of any 3rd party screen protector, especially those that adhere directly to the IFD display glass, is not endorsed by Avidyne due to the touch-screen nature of the display and may void the warranty for any display related issue.

Appendix A: Environmental Qualification Form

IFD540, IFD510, IFD440, IFD410

Environmental Tests	RTCA/DO-160G Section	Test Category
Temperature and Altitude	4.0	
Low Temp	4.5.2	Equipment qualified to Category C1
High Temp	4.5.3 & 4.5.4	Equipment qualified to Category C1
In-Flight Loss of Cooling	4.5.5	Equipment qualified to Category W
Altitude	4.6.1	Equipment qualified to Category C1
Decompression	4.6.2	Equipment qualified to +55,000 Ft.
Overpressure	4.6.3	Equipment qualified to -15,000 Ft.
Temperature Variation	5	Equipment qualified to Category B
Humidity	6	Equipment qualified to Category A
Operational Shocks & Crash Safety	7	Equipment qualified to Category E
Vibration‡	8	Equipment qualified to Category S, Curves B and M, Category U, Curve G
Explosive Atmosphere	9	Category X, no test performed
Waterproofness	10	Category X, no test performed
Fluids Susceptibility	11	Category X, no test performed
Sand and Dust	12	Category X, no test performed
Fungus Resistance	13	Category X, no test performed
Salt Spray	14	Category X, no test performed
Magnetic Effects	15	Equipment qualified to Class Z
Power Input	16	Equipment qualified to Category B
Voltage Spike	17	Equipment qualified to Category A
Audio Frequency Conducted Susceptibility	18	Equipment qualified to Category B
Induced Signal Susceptibility	19	Equipment qualified to Category ZC
Radio Frequency Susceptibility	20	Equipment qualified to Category W (conducted)/WR (radiated)
Emission of Radio Frequency Energy	21	Equipment qualified to Category M
Lightning Induced Transient Susceptibility	22	Category B4HZL4 (Power) and B3K4L4 (All other I/O)
Lightning Direct Effects	23	Category X, no test performed
Icing	24	Category X, no test performed
Electrostatic Discharge	25	Equipment qualified to Category A
Fire and Flammability	26	Category X, no test performed

‡ Avidyne recommends the following for helicopter installations:
Plug & Play VFR Installations – Installer has option to use existing tray;
New VFR Installations – Installer should use Avidyne's Helicopter Tray, reference Table 26 or Table 27;
All IFR Installations – Installer must use Avidyne's Helicopter Tray, reference Table 26 or Table 27.

Table 122 Environmental Qualification Form - IFD540/510/440/410

IFD550, IFD545

(Low Temp and Vibration Categories Differ From Table 122)

Environmental Tests	RTCA/DO-160G Section	Test Category
Temperature and Altitude	4.0	
Low Temp	4.5.2	Equipment qualified to Category X (non-standard category) Equipment tested to C1 with Ground Survival Low limited to -40C
High Temp	4.5.3 & 4.5.4	Equipment qualified to Category C1
In-Flight Loss of Cooling	4.5.5	Equipment qualified to Category W
Altitude	4.6.1	Equipment qualified to Category C1
Decompression	4.6.2	Equipment qualified to +55,000 Ft.
Overpressure	4.6.3	Equipment qualified to -15,000 Ft.
Temperature Variation	5	Equipment qualified to Category B
Humidity	6	Equipment qualified to Category A
Operational Shocks & Crash Safety	7	Equipment qualified to Category E
Vibration	8	Equipment qualified to Category S, Curves B and M
Explosive Atmosphere	9	Category X, no test performed
Waterproofness	10	Category X, no test performed
Fluids Susceptibility	11	Category X, no test performed
Sand and Dust	12	Category X, no test performed
Fungus Resistance	13	Category X, no test performed
Salt Spray	14	Category X, no test performed
Magnetic Effects	15	Equipment qualified to Class Z
Power Input	16	Equipment qualified to Category B
Voltage Spike	17	Equipment qualified to Category A
Audio Frequency Conducted Susceptibility	18	Equipment qualified to Category B
Induced Signal Susceptibility	19	Equipment qualified to Category ZC
Radio Frequency Susceptibility	20	Equipment qualified to Category W (conducted)/WR (radiated)
Emission of Radio Frequency Energy	21	Equipment qualified to Category M
Lightning Induced Transient Susceptibility	22	Category B4HZL4 (Power) and B3K4L4 (All other I/O)
Lightning Direct Effects	23	Category X, no test performed
Icing	24	Category X, no test performed
Electrostatic Discharge	25	Equipment qualified to Category A
Fire and Flammability	26	Category X, no test performed

Table 123 Environmental Qualification Form - IFD550/545

Appendix B: STC Permission

Avidyne Corporation hereby grants to all National Aviation Authorities (FAA, CAA, JAA, etc) approved installers the use of data from STC SA00343BO to install the Avidyne IFD5XX/4XX System. This also includes any international validations of the STC (e.g. EASA, ANAC, etc). Copies of the STC data are available on the Avidyne website Technical Publications page or upon request. The latest data revisions are listed in Avidyne 700-00182-XXX/700-00179-XXX Master Document List, AVIFD-306.

Installers must abide by the conditions and limitations stated in both the STC and in the Installation Manual in order to maintain compliance. The use of this data by itself does not constitute installation approval.

Appendix C: Mechanical Drawings

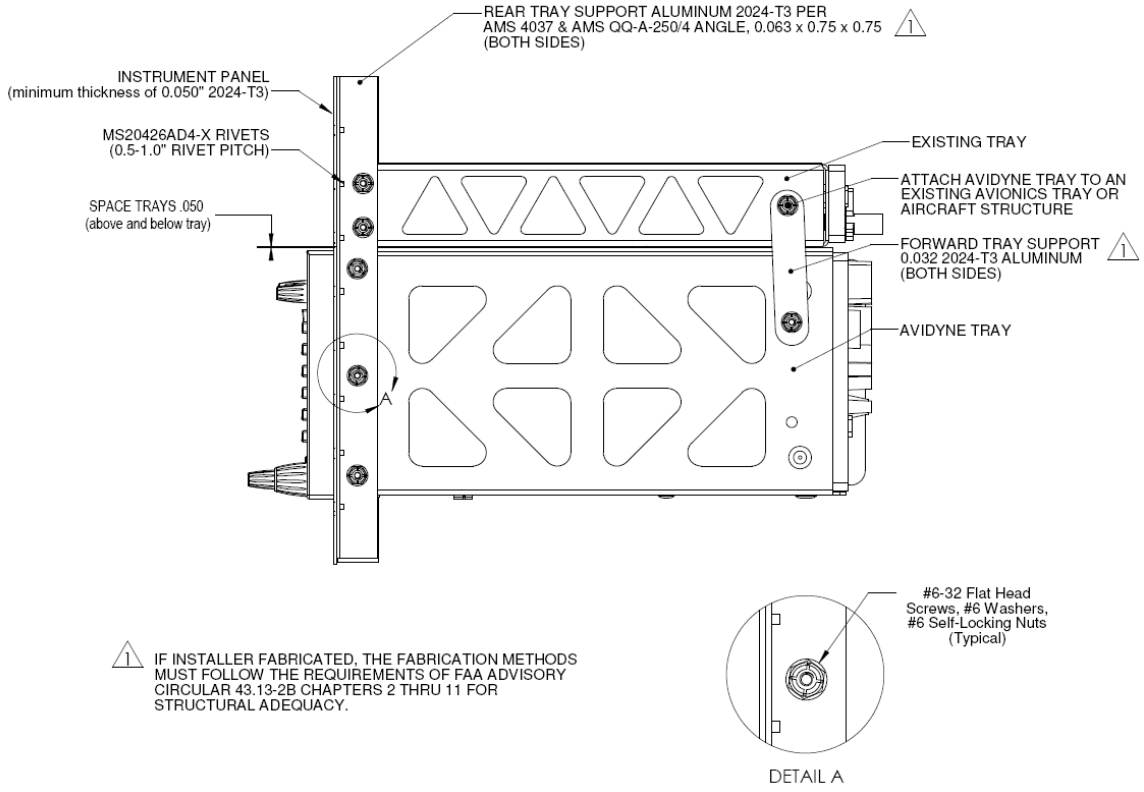


Figure C - 1 IFD5XX Tray Installation

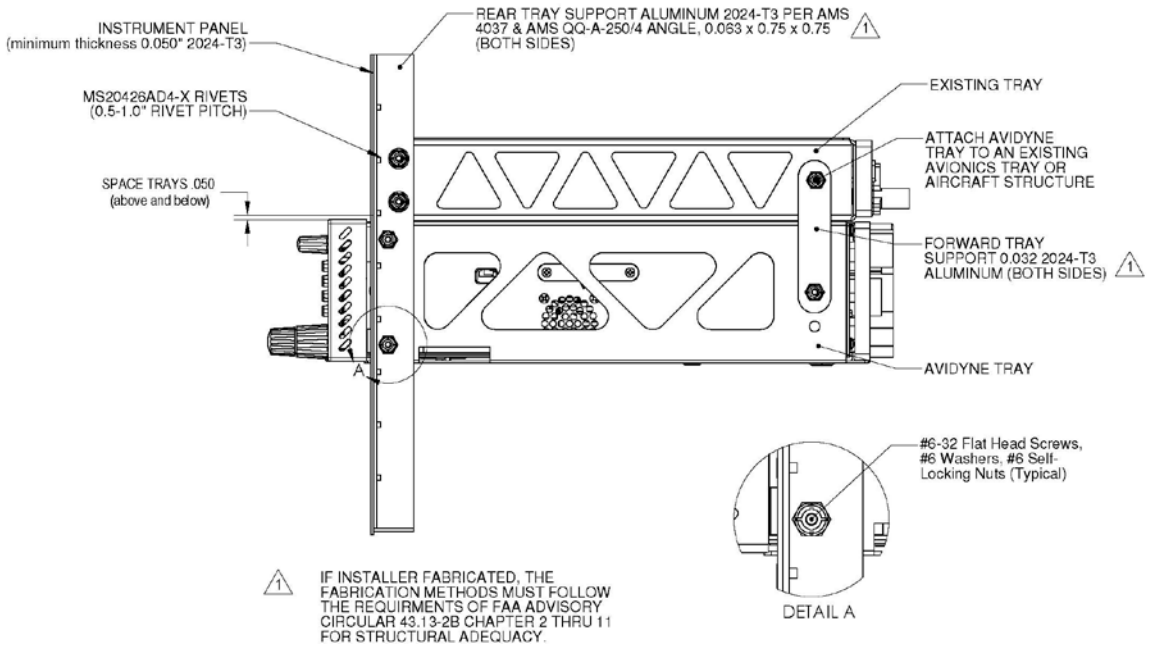
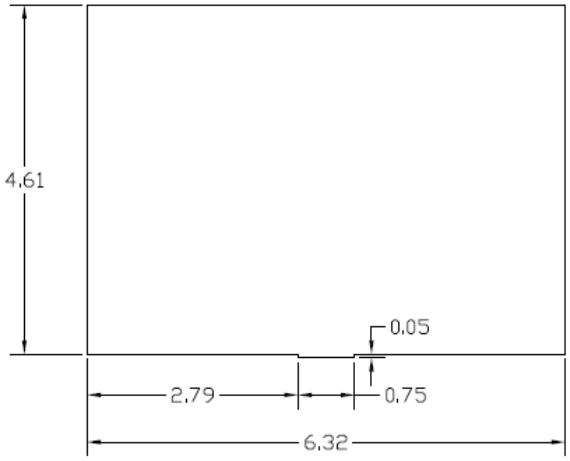


Figure C - 2 IFD4XX Tray Installation

INSTRUMENT PANEL CUTOUT
UNIT INSTALLED FROM THE FRONT OF INSTRUMENT PANEL



INSTRUMENT PANEL CUTOUT
UNIT INSTALLED FROM THE REAR OF THE INSTRUMENT PANEL
MAXIMUM PANEL THICKNESS .125 INCHES

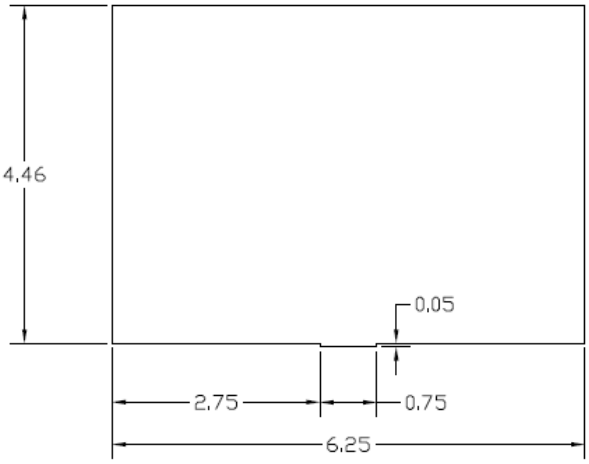


Figure C - 3 IFD5XX Instrument Panel Cutout

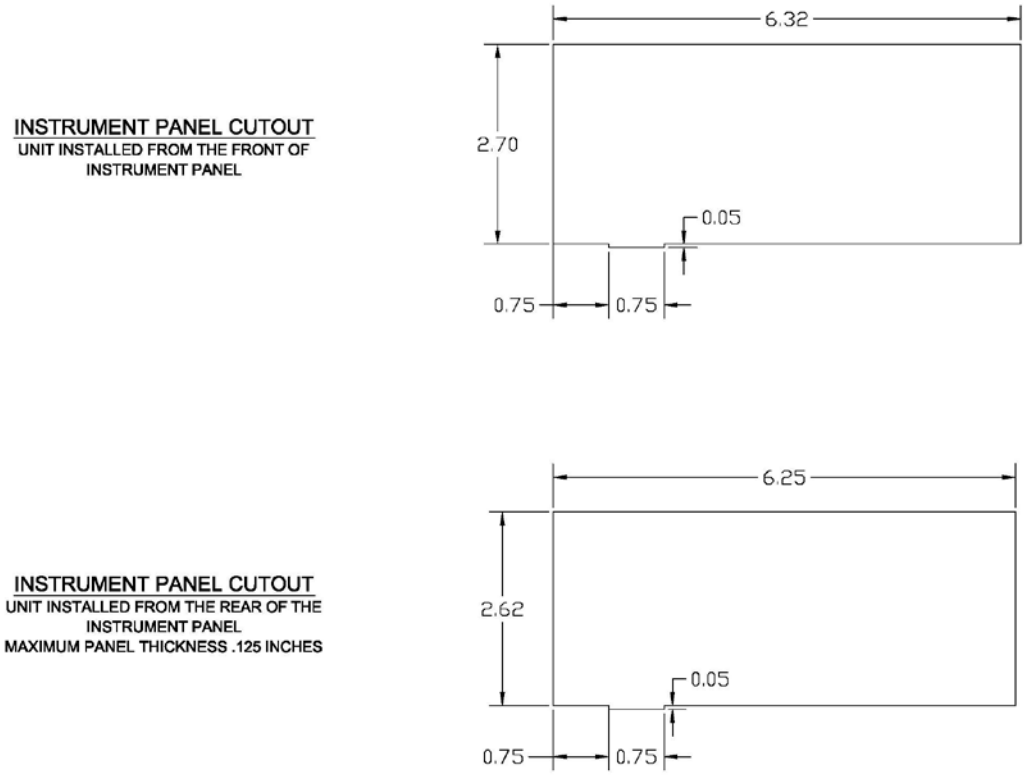


Figure C - 4 IFD4XX Instrument Panel Cutout

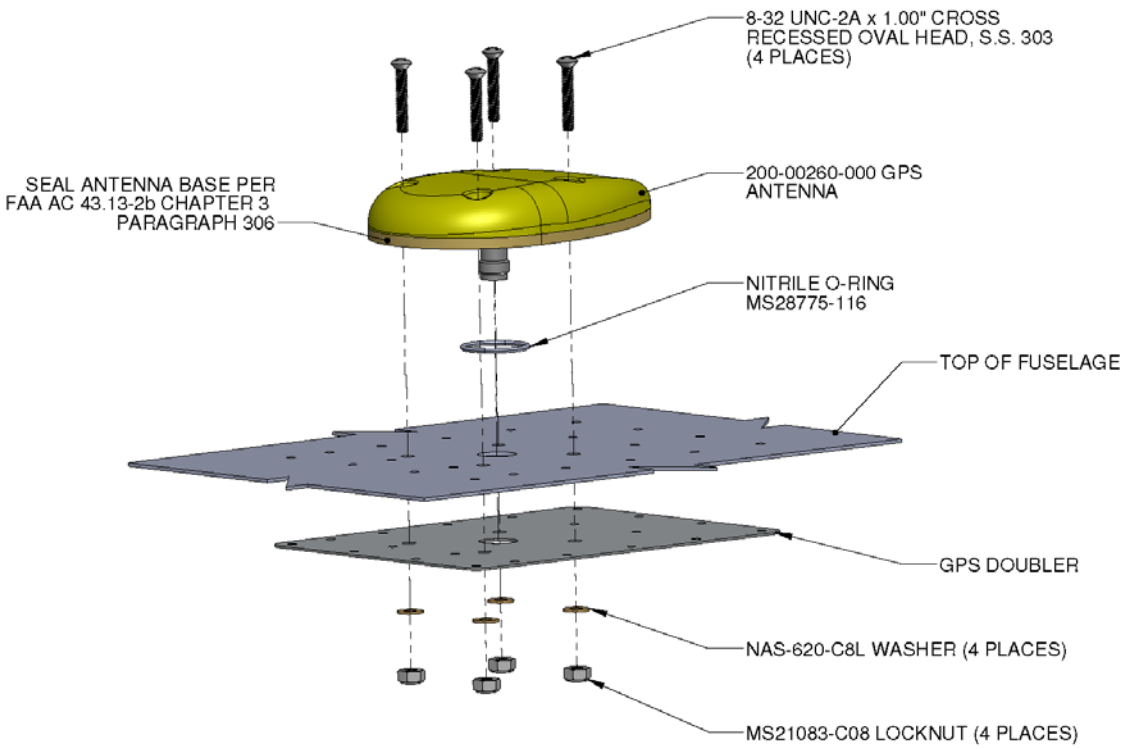


Figure C - 5 Typical GPS Antenna Installation

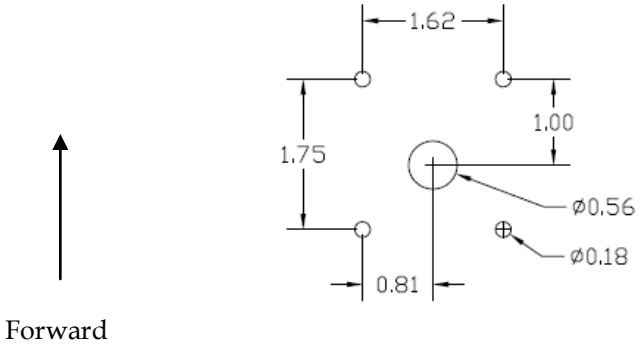


Figure C - 6 AT-575 GPS Antenna Hole Pattern

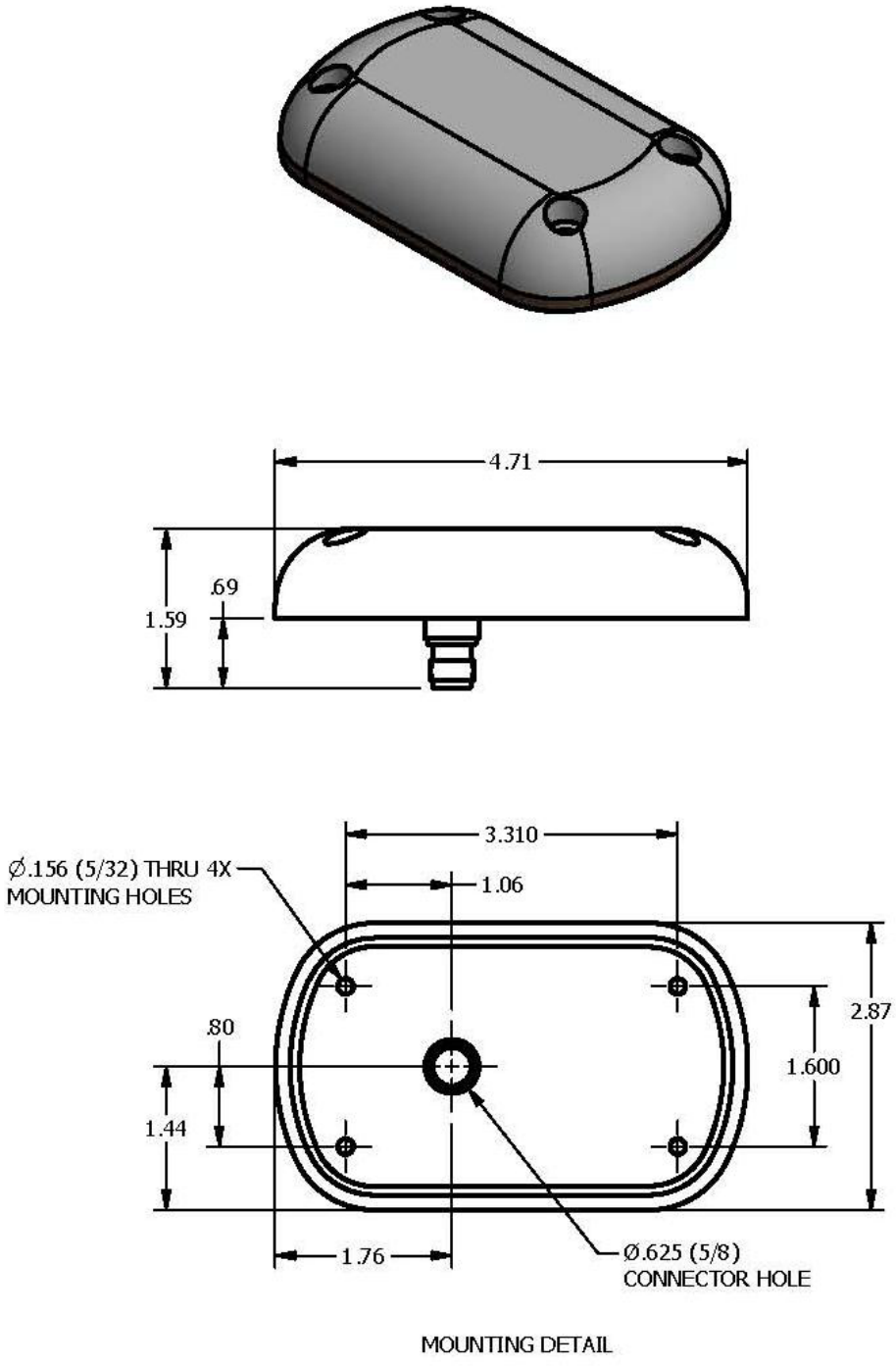


Figure C - 7 ***AV-801 GPS Antenna Hole Pattern***

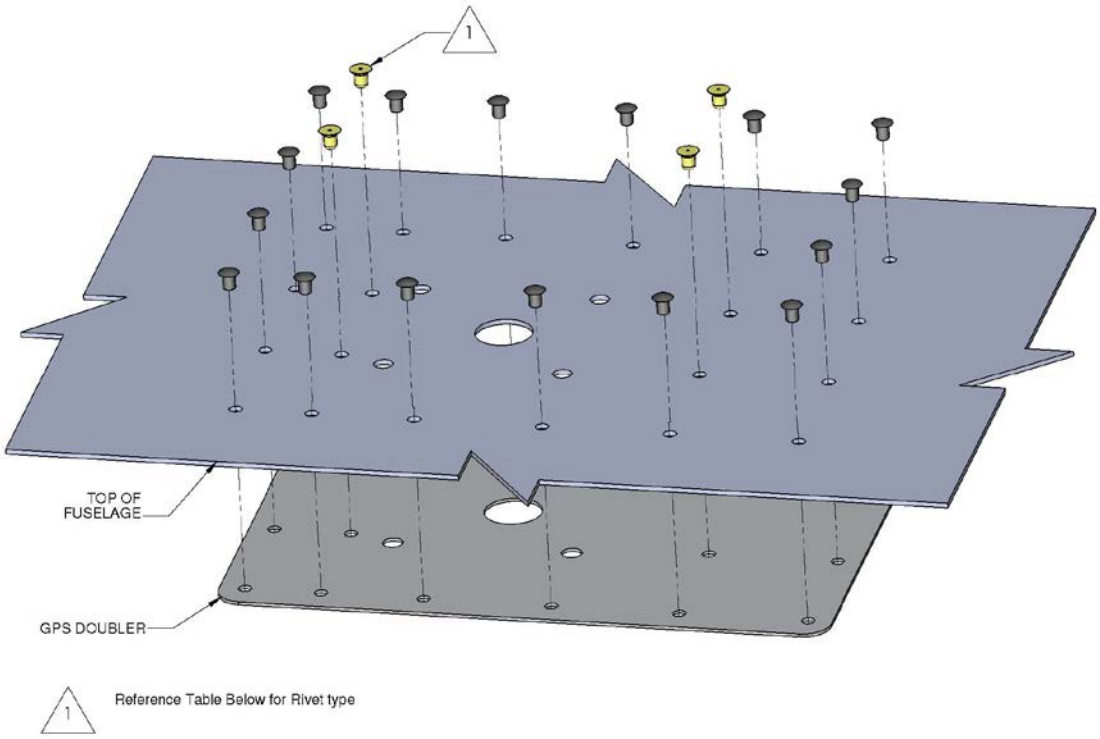


Figure C - 8 Typical GPS Antenna Doubler Installation

Fuselage Skin Thickness	Adjacent Structure ‡ Rivet Type	Doubler Thickness	Outer Rivet Row in Doubler	Inner Four Rivet in Doubler
0.016" - 0.025"	***Dimpled skin / Countersunk Rivets***	***0.020"***	***MS20426AD3 (Double Dimple)***	***MS20426AD3 (Double Dimple)***
0.016" - 0.025"	***Protruding Head Rivets***	***0.020"***	***MS20470AD3***	***MS20426AD3 (Double Dimple)***
0.032" - 0.050"	***Countersunk Skin / Countersunk Rivets***	***0.032"***	***NAS1097AD4 (Countersunk)***	***NAS1097AD4 (Countersunk)***
0.032" - 0.050"	***Protruding Head Rivets***	***0.032"***	***MS20470AD4***	***NAS1097AD4 (Countersunk)***

Table 124 Rivet/ Doubler Selection

‡ Rivet type is dependent on the type of rivets in the adjacent fuselage structure. If the adjacent rivets in the structure around the bay selected for the doubler installation are protruding head type, install MS20470AD rivets in the outer row of the doubler. If the adjacent rivets are countersunk or dimpled, install either MS20426AD or NAS1097AD rivets per the table above.

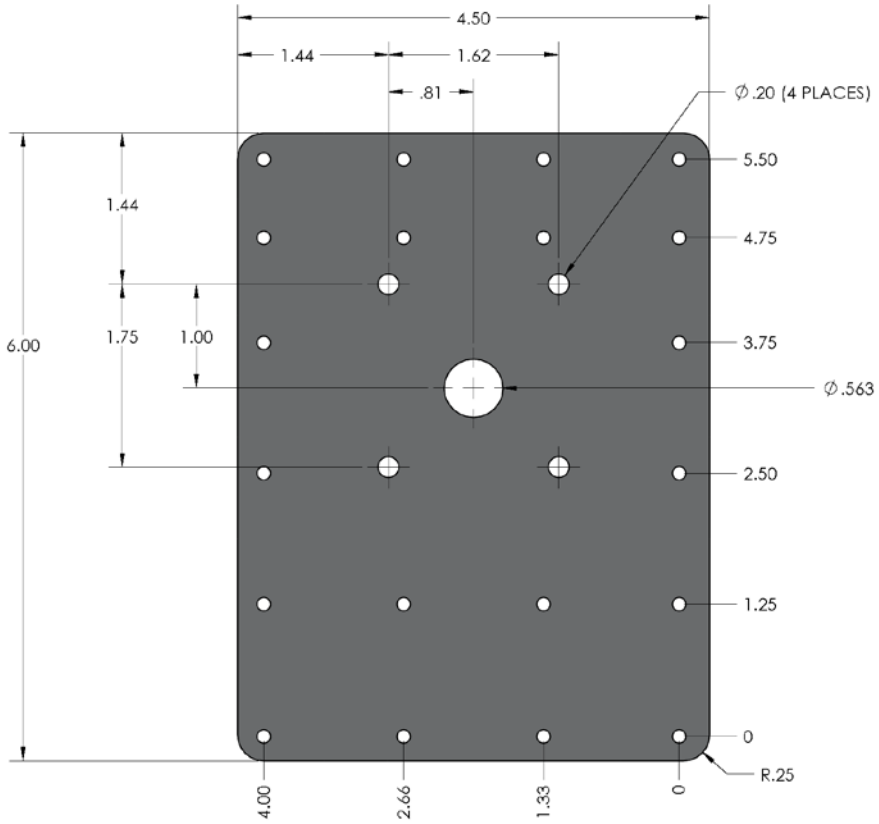


Figure C - 9 Typical GPS Antenna Doubler

Appendix D: Electrical Interface Drawings

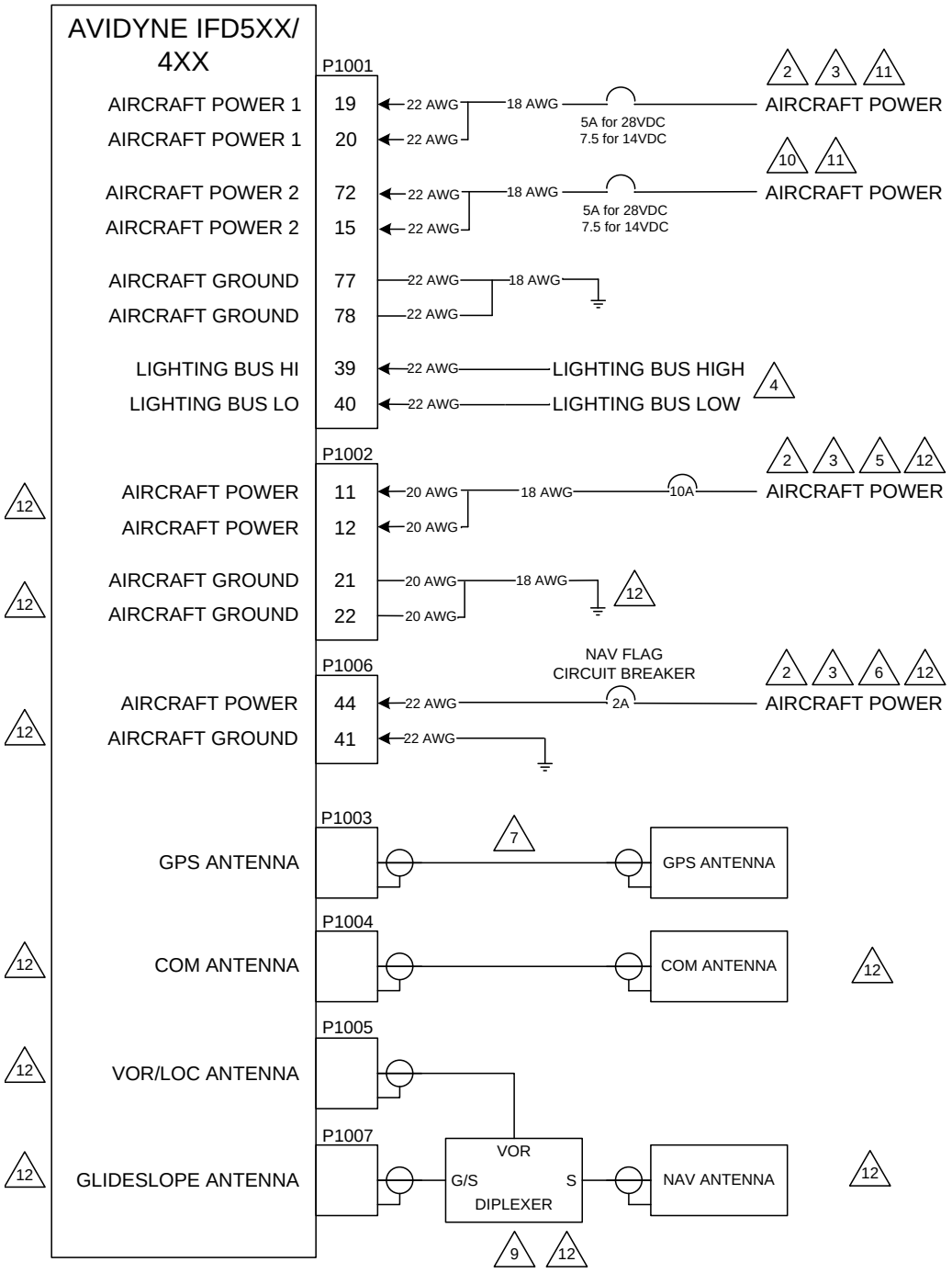
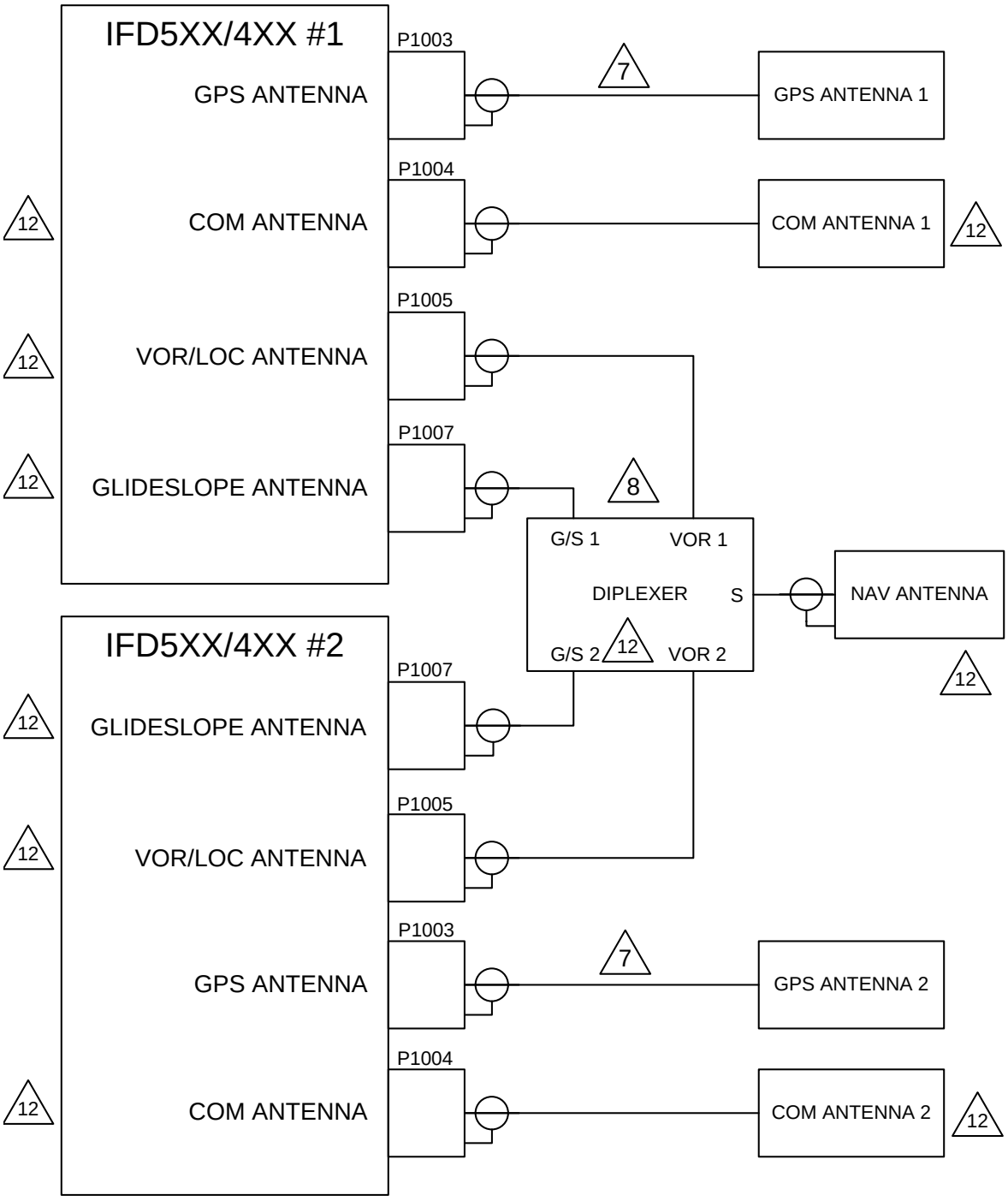


Figure D - 1: Lighting, Power, and Antenna Interconnect



Page 2 of 3

NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. IF AIRCRAFT HAS MULTIPLE POWER BUSSES, IT IS RECOMENDED THAT IFD54XX/4XX POWER CONNECTIONS BE CONNECTED AS DESCRIBED IN SECTION 4.

3. AIRCRAFT POWER INPUT TO THE IFD5XX/4XX MAY BE 9-33 VDC.

4. THE IFD5XX/4XX SHOULD BE CONFIGURED FOR THE CORRECT LIGHTING BUS VOLTAGE POST-INSTALLATION. NO DAMAGE WILL OCCUR IF THE UNIT IS CONFIGURED INCORRECTLY. IN ADDITION, LIGHTING CAN BE SET TO AUTOMATICALLY COMPENSATE FOR AMBIENT LIGHTING CONDITIONS USING ITS LIGHT SENSOR. A MANUAL LIGHTING CONTROL OPTION IS ALSO AVAIABLE. REFER TO THE POST-INSTALLATION CONFIGURATION PROCEDURE.

5. MAXIMUM ALLOWABLE WIRE GAUGE INTO P1002 PINS IS 20 AWG.

6. THE AIRCRAFT POWER INPUT P1006-44 PROVIDES POWER FOR THE VOR/LOC SUPERFLAG (P1006-15) AND GLIDESLOPE SUPERFLAG (P1006-38) OUTPUTS. NO POWER CONNECTION IS REQUIRED ON P1006-44 IF THESE FLAG OUTPUTS ARE NOT USED.

7. THE GPS ANTENNA COAXIAL CABLE MUST BE DOUBLE OR TRIPLE SHIELDED AND THE LOSS (INCLUDING CONNECTORS) MUST BE GREATER THAN 1.5 dB AND LESS THAN 6.5 dB.

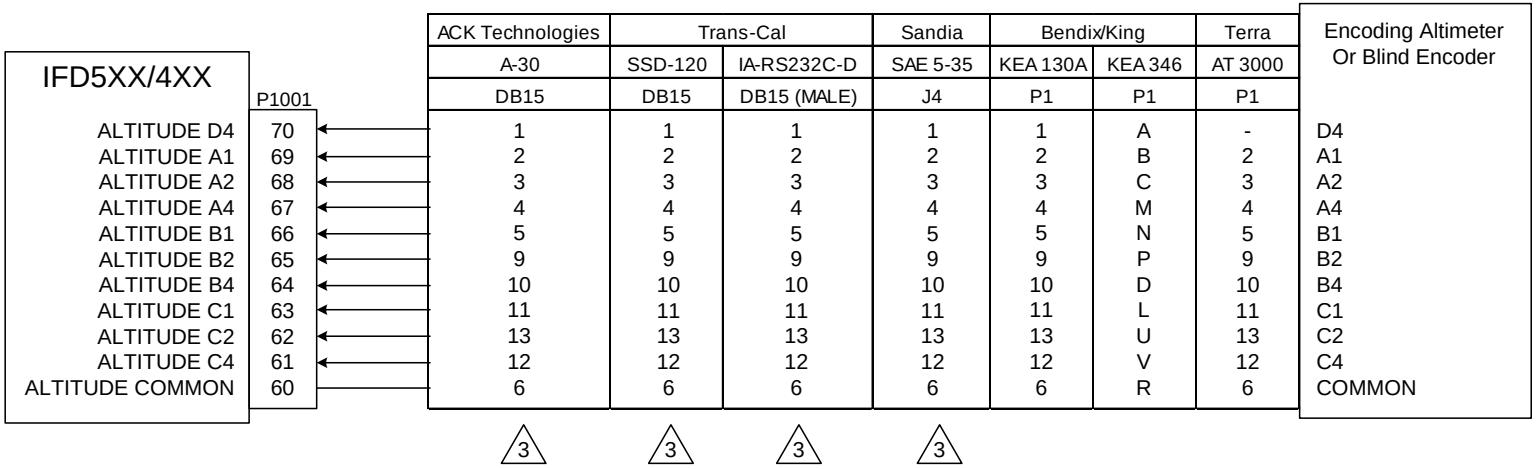
8. COMMANT CI1125 DIPLEXER, OR EQUIVALENT, SHOULD BE USED.

9. COMMANT CI507 DIPLEXER, OR EQUIVALENT, SHOULD BE USED.

10. ACFT PWR 1 IS INTERNALLY DIODE ISOLATED FROM ACFT PWR 2. ONLY ONE POWER INPUT IS REQUIRED FOR NORMAL OPERATION.

11. FOR THE MAIN POWER INPUT, A 14VDC INSTALLATION REQUIRES TWO AIRCRAFT POWER INPUTS AND TWO AIRCRAFT GROUND CONNECTIONS BE USED FOR EACH MAIN POWER INPUT USED. A 28VDC INSTALLATION REQUIRES A MINIMUM OF ONE POWER AND GROUND CONNECTION, BUT TWO ARE RECOMMENDED.

12. NOT APPLICABLE FOR IFD510/545/410



NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

△3 THIS ENCODER MAY ALSO BE CONNECTED VIA RS-232.

Figure D - 2: Blind Altitude Encoders Interconnect

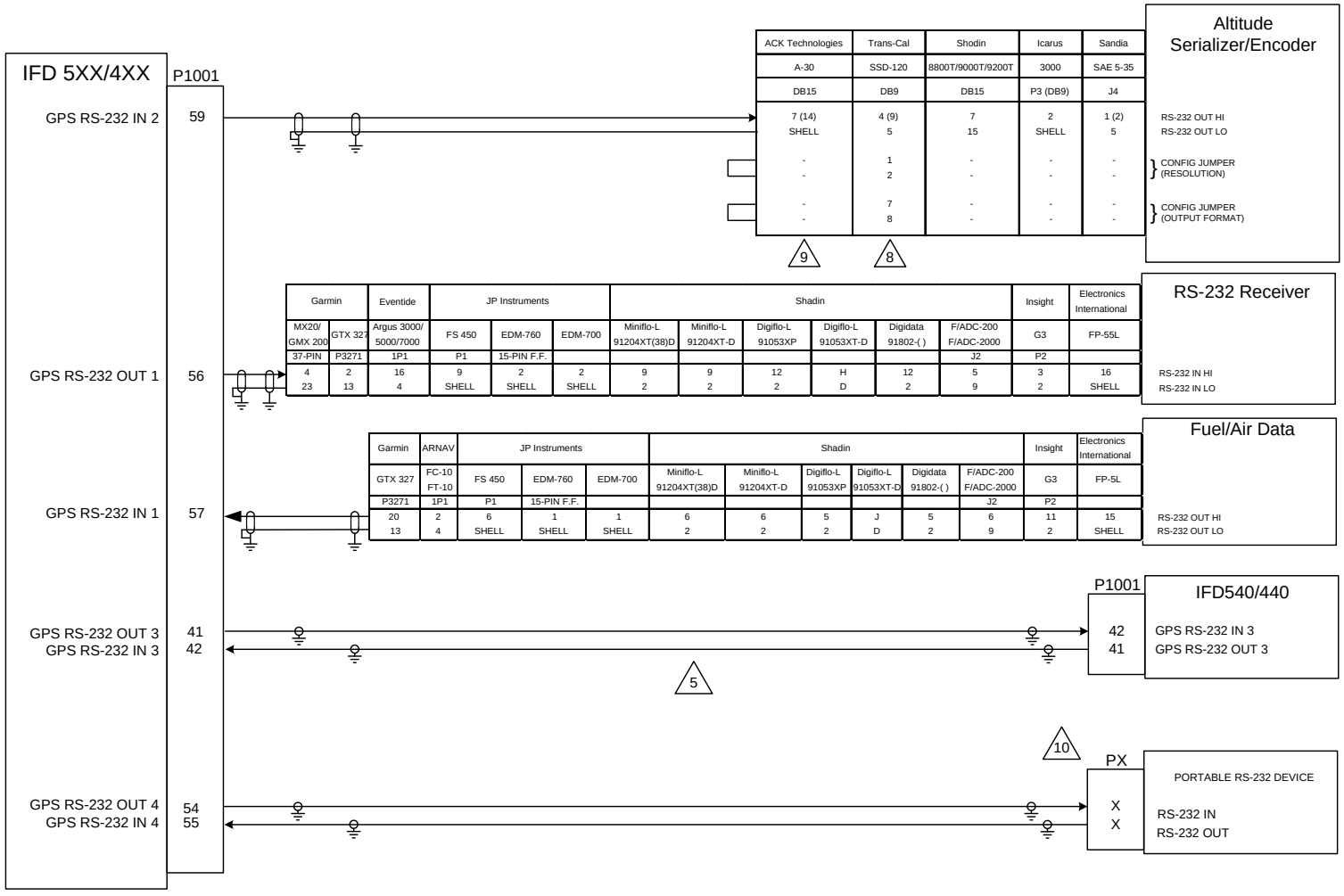


Figure D - 3: RS-232 Serial Data Interconnect

Page 1 of 2

NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.

3. REFER TO SECTION 7 FOR RS-232 CHANNEL SETTINGS

4. REFER TO THE GTX 327 TRANSPONDER INSTALLATION MANUAL, 190-00187-02, FOR COMPLETE INFORMATION.

△5 IF TWO OR MORE IFD4XX/5XX SERIES UNITS ARE INSTALLED, THE RS-232 LINE ON P1001-41 AND P1001-42 MAY BE CROSS-CONNECTED TO CROSSFILL FLIGHT PLANS AND USER WAYPOINTS. TO CROSSFILL FLIGHT PLANS, IT IS REQUIRED THAT BOTH UNITS HAVE IDENTICAL DATABASE CYCLE DATES AND MAY BE REQUIRED THAT THEY HAVE IDENTICAL VERSIONS OF THE MAIN SOFTWARE. REFERENCE SECTION 4 FOR WIRING INFORMATION.

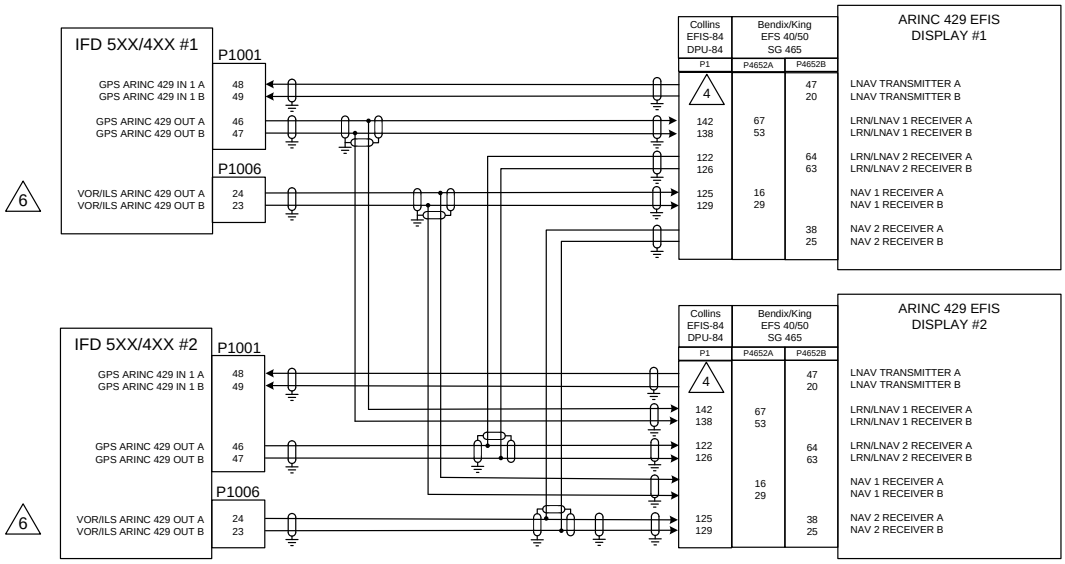
6. MAPMX (MAIN SOFTWARE VERSION 3.10 AND LATER) IS THE PREFERRED COMMUNICATION PROTOCOL FOR THE MX20/GMX200. OTHER INPUT PORTS ON MX20/GMX200 MAY BE USED INSTEAD OF THE PORT SHOWN. REFER TO APPROPRIATE MANUFACTURER'S INSTALLATION DOCUMENTATION.

7. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

△8 IF USING THE SERIAL PORT SOFTWARE METHOD TO CONFIGURE THE OUTPUT OF THE ENCODER, ENSURE THAT THE "TRIMBLE/GARMIN 9600 BPS" FORMAT IS SELECTED.

△9 MOD LEVEL 8 (OR HIGHER) IS REQUIRED TO SUPPORT RS-232 INTERFACE. ENSURE THAT JUMPERS ARE SET FOR "TRIMBLE/GARMIN 9600 BPS" AND "10 FOOT RESOLUTION."

△10 THE IFD5XX/4XX STC DOES NOT PROVIDE INSTALLATION APPROVAL OF ANY PORTABLE ELECTRONIC DEVICES. ADDITIONAL INSTALLATION APPROVAL IS REQUIRED FOR THESE DEVICES.



NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

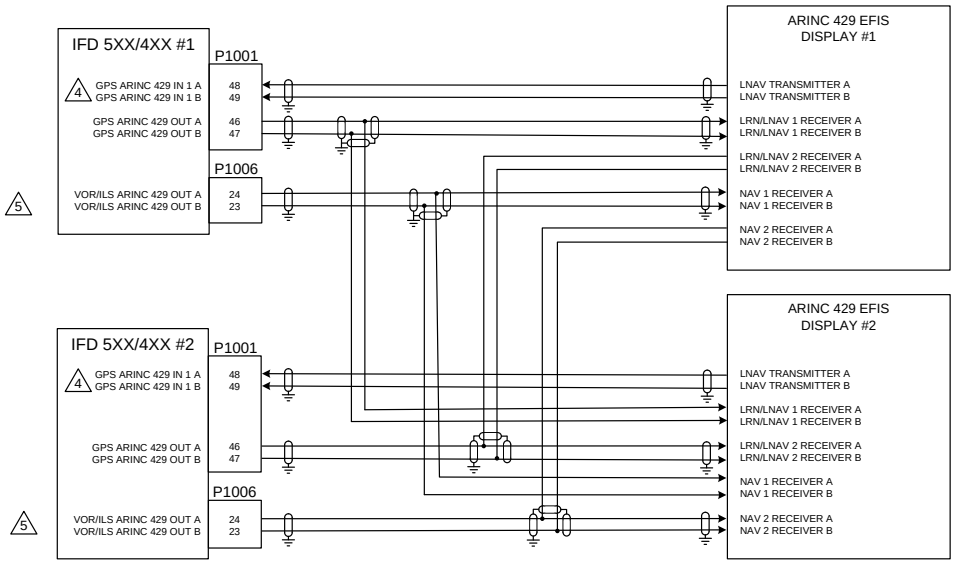
3. IF THE GPS ARINC 429 IN 1 PORT (P1001-48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE, THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.

4. THE DEPICTED COLLINS EFIS-84 INTERFACE DOES NOT SUPPORT SELECTION OF THE GPS COURSE VIA THE EFIS CONTROL PANEL, A GAD 42 IS REQUIRED FOR GPS SELECTED COURSE.

5. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

6. NOT APPLICABLE TO IFD 510/545/410

Figure D - 4: EFIS Interconnect



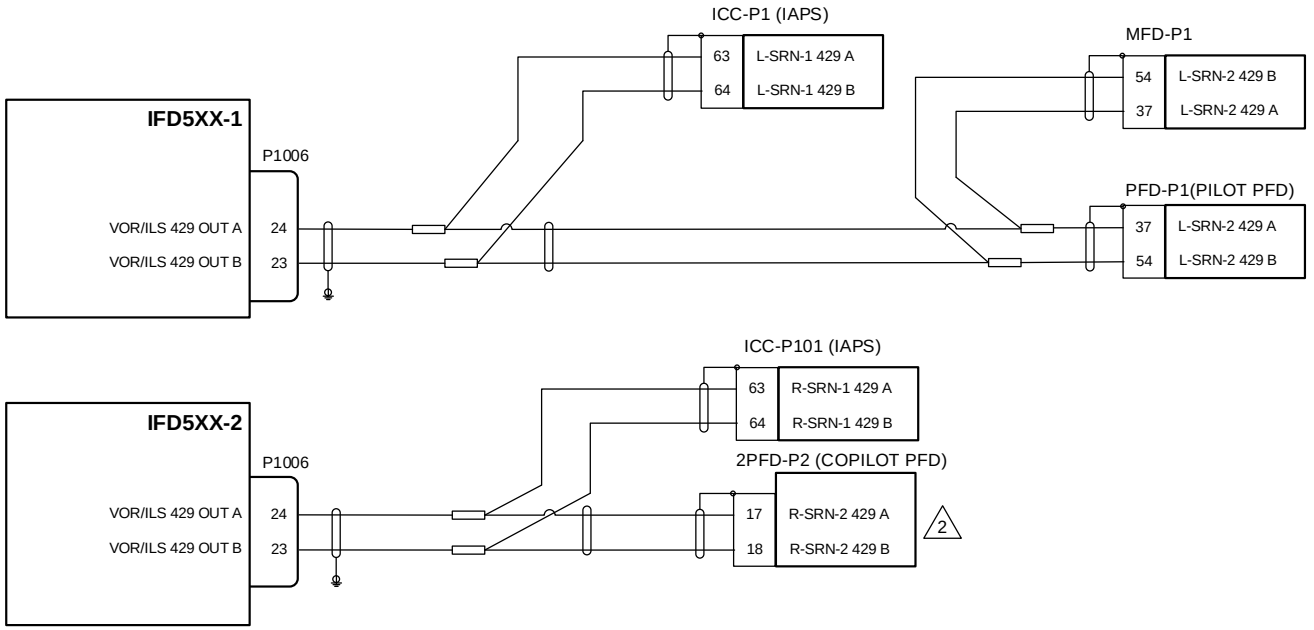
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. IF RS-232 PORT 1 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

△4 IF ARINC 429 PORT 1 IS NOT AVAILABLE, USE ANOTHER AVAILABLE PORT.

△5 NOT APPLICABLE FOR IFD510/545/410

Figure D - 5: Generic EFIS Interconnect



NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.

2 IF INSTALLED

4. ON IFD-1 VOR/LOC/GS ARINC 429 CONFIG PAGE, SET SPEED TO LOW FOR RX AND TX, FORMAT TO VHF/GPS 429, SDI TO VOR/ILS1 AND DME MODE TO DIRECTED FREQ 1

5. ON IFD-2, VOR/LOC/GS ARINC 429 CONFIG PAGE, SET SPEED TO LOW FOR RX AND TX, FORMAT TO (VHF/GPS 429 IF CONFIGURING FOR LPV SUPPORT, OTHERWISE SET TO VHF 429), SDI TO VOR/ILS2 AND DME MODE TO DIRECTED FREQ 2

6. ADDITIONAL REMOTE ANNUNCIATIONS ARE REQUIRED FOR IFD-2 IF CONFIGURED FOR VHF/GPS 429 (LPV). REFER TO SECTION 5 FOR ANNUNCIATOR REQUIREMENTS

7. REFER TO PROLINE 21 CONFIGURATION STRAPPING INSTRUCTIONS FOR MARKER BEACON CHANGES.

Figure D - 6: Proline 21 EFIS & APS 3000 AP

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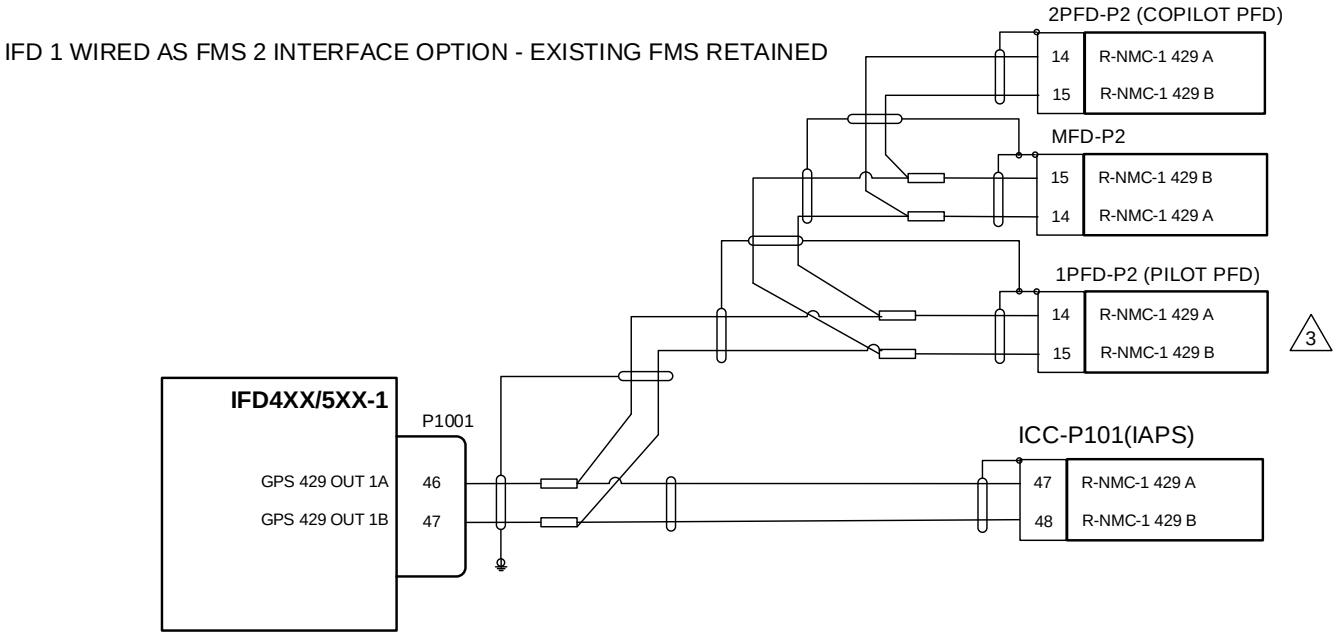

NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IN MAINTENANCE MODE, MAIN ARINC 429 CONFIGURATION PAGE, SET OUT TO GAMA 429 PROLINE 21, LOW SPEED, SDI TO LNAV2, AND VNAV TO DISABLE LABELS.

△3 IF INSTALLED.

4. PROLINE 21 CONFIGURATION STRAPPING FOR IFD 1 AS FMS 2 MOD:

SWITCH BANK	STRAP	DEFINITION	SETTING
WORD 14	10	FMS2 TYPE CODE	1
	11		1
	12		0

Figure D - 7: Proline 21 EFIS & APS 3000 AP

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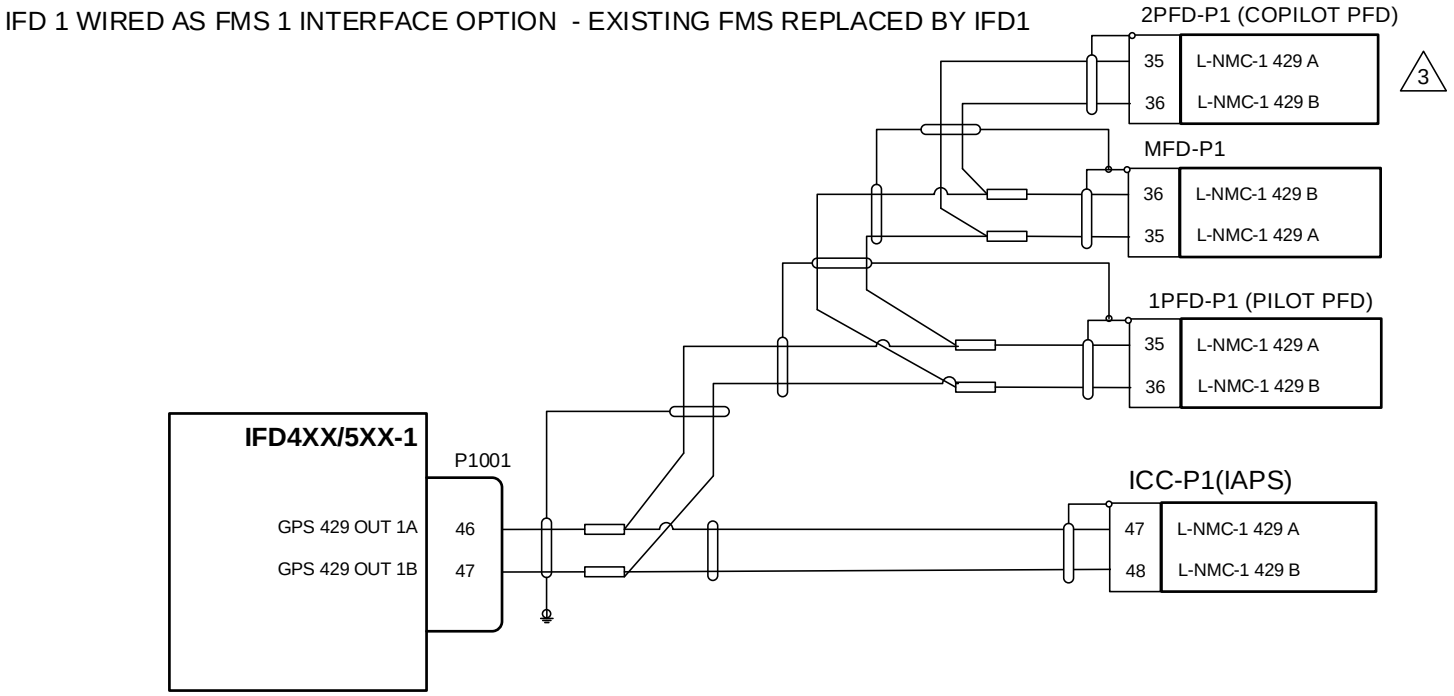

NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IN MAINTENANCE MODE, MAIN ARINC 429 CONFIGURATION PAGE, SET OUT TO GAMA 429 PROLINE 21, LOW SPEED, SDI TO LNAV1, AND VNAV SET TO DISABLE LABELS.

3 IF INSTALLED.

Figure D - 8: Proline 21 EFIS & APS 3000 AP

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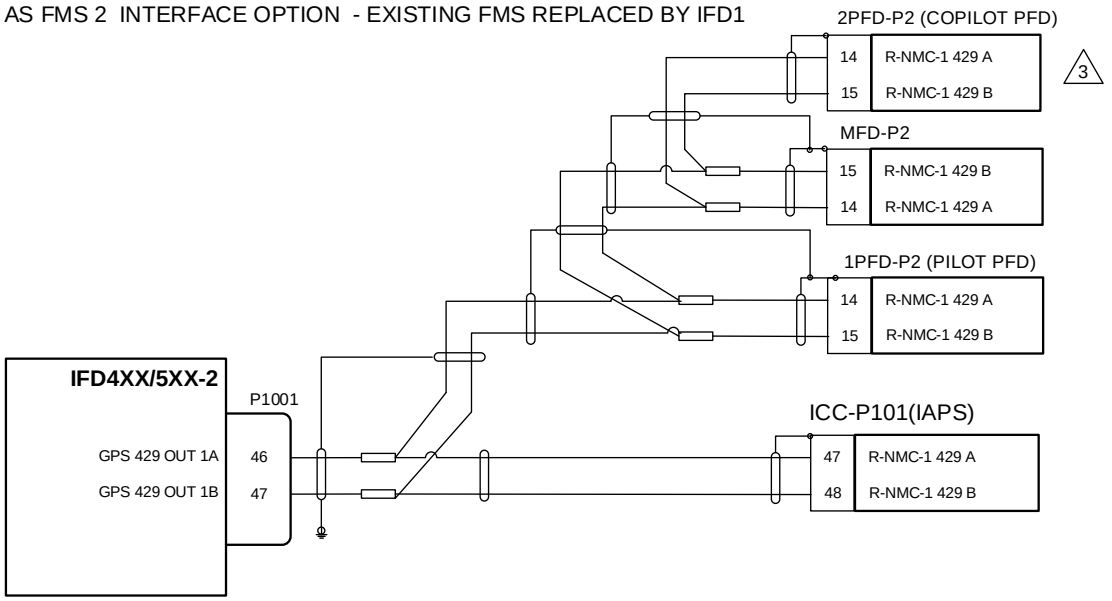
IFD 2 WIRED AS FMS 2 INTERFACE OPTION - EXISTING FMS REPLACED BY IFD1



NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IN MAINTENANCE MODE, MAIN ARINC 429 CONFIGURATION PAGE, SET OUT TO GAMA 429 PROLINE 21, LOW SPEED, SDI SET TO LNAV2, AND VNAV SET TO DISABLE LABELS.

3 IF INSTALLED

4. PROLINE 21 CONFIGURATION STRAPPING FOR MOD:

SWITCH BANK	STRAP	DEFINITION	SETTING
WORD 14	7	FMS1 TYPE CODE	1
	8		1
	9		0

SWITCH BANK	STRAP	DEFINITION	SETTING
WORD 14	10	FMS2 TYPE CODE	1
	11		1
	12		0

Figure D - 9: Proline 21 EFIS & APS 3000 AP

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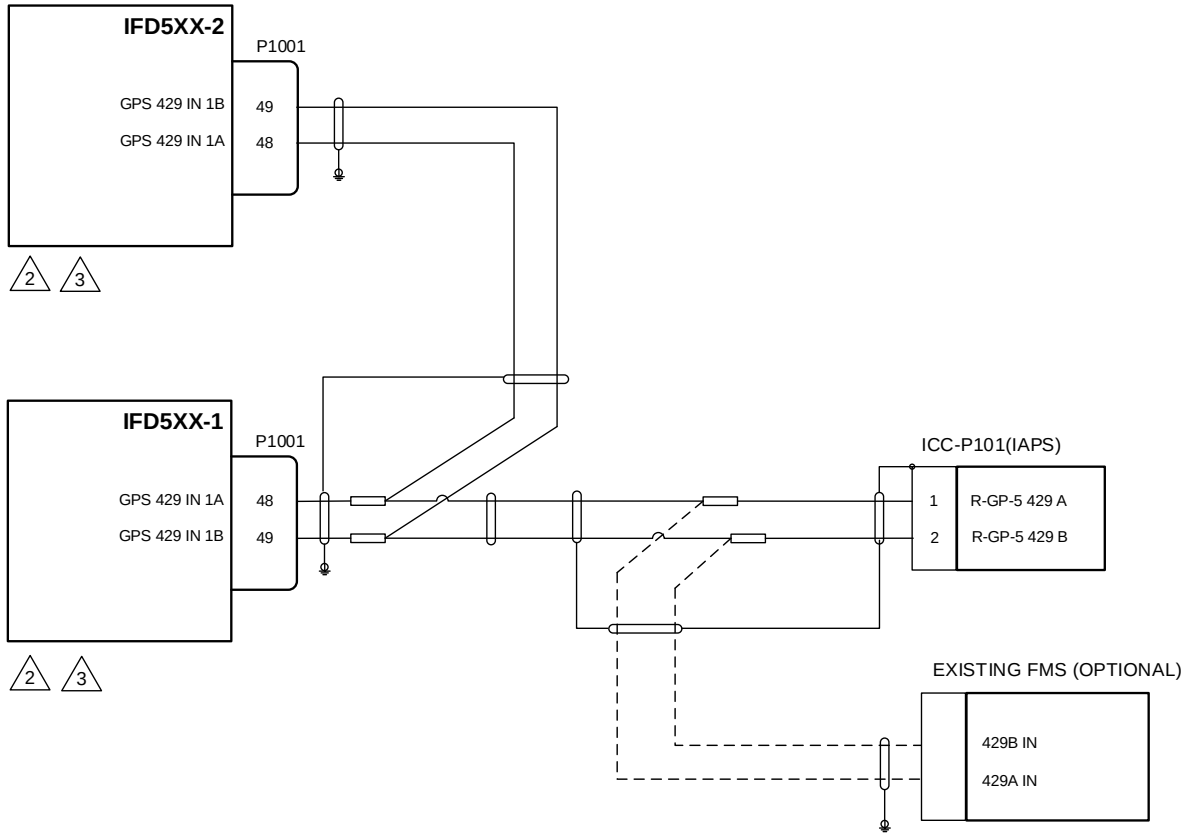

NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.

2 FOR EACH IFD CONFIGURE THE IFD MAIN ARINC 429 INPUT SPEED TO HIGH, AND DATA TO EFIS/AIRDATA.

3 FOR EACH IFD SELECT THE IFD MAIN SYSTEM CONFIG. PAGE AND SET JOYSTICK INPUT TO DISABLED.

Figure D - 10: Proline 21 EFIS & APS 3000 AP

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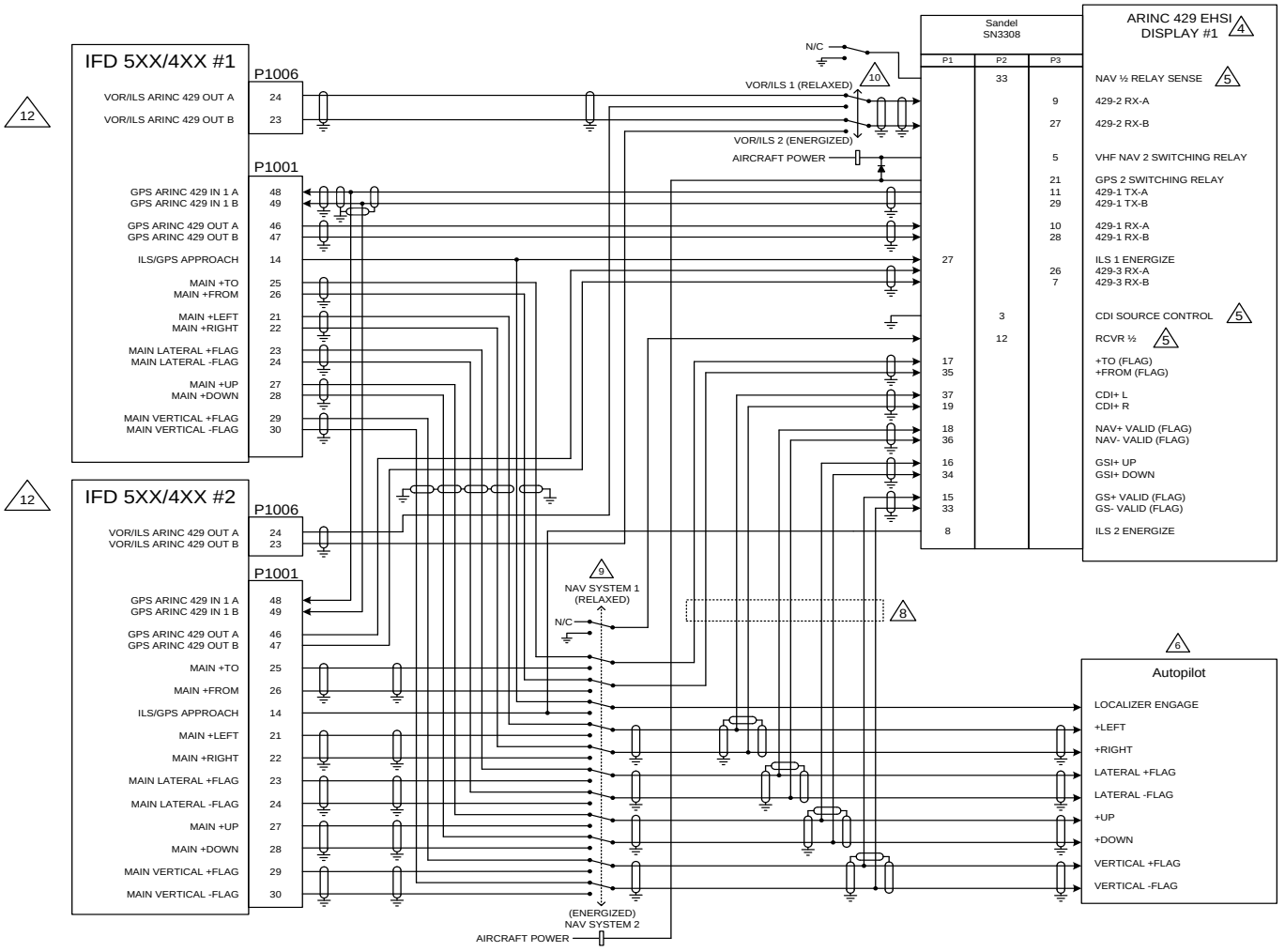


Figure D - 11: EHSI ARINC 429 Interconnect, Dual IFD5XX/4XX, Sandel SN3308 Interconnect

Page 1 of 2

NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.

3. **IFD540/440 #1 SETUP**

MAIN ARINC 429 CONFIG:	IN 1:	LOW, SANDEL EHSI
	OUT:	LOW, GAMA 429 GRPH W/INT
	SDI:	LNAV 1
	VNAV:	DISABLE LABELS
VOR/LOC/GS ARINC 429:	SDI:	VOR/ILS 1
	SPEED: RX:	LOW SPEED
	TX:	LOW SPEED

IFD540/440 #2 SETUP

MAIN ARINC 429 CONFIG:	IN 1:	LOW, SANDEL EHSI
	OUT:	LOW, GAMA 429 GRPH W/INT
	SDI:	LNAV 2
	VNAV:	DISABLE LABELS
VOR/LOC/GS ARINC 429:	SDI:	VOR/ILS 2
	SPEED: RX:	LOW SPEED
	TX:	LOW SPEED

4. **SANDEL SN3308 #1 AND #2 SETUP ITEMS:**

LNAV 1/2 SELECT:	IFD540	NAV CHANGE:	NAV-1 ENABLE: YES
			PORT: 429 PORT-2*
			NAV-2 ENABLE: YES
			PORT: 429 PORT-2*
ANNUN:	SERIAL	RELAY SENSE:	NAV-2: P2-33
COURSE:	OBS/LEG		GPS-1: OFF
DEVIATION:	ANALOG/IN		GPS-2: OFF
OBS ROT:	NORMAL		CDI SRC SEL: P2-3
OBS CAL:	000.0		RCVR 1/2: P2-12

*NAV 1 /2 MUST TEMPORARILY BE SET TO “ANALOG” AND ILS MUST BE SET TO “VALID LOW” FOR PROPER OPERATION OF THE VDI.

5. THESE PINS ON THE SANDEL SN3308 ARE CONFIGURABLE AND CAN BE CHANGED TO SUIT THE PARTICULAR INSTALLATION.

6. AUTOPILOT SHOWN FOR REFERENCE ONLY. REFER TO APPROPRIATE AUTOPILOT INTERCONNECT DIGRAM.

7. IF IT IS DESIRED TO USE THE NAV RECEIVERS AS A SOURCE FOR THE SN3308 BEARING POINTERS, IT IS RECOMMENDED THAT THE IFD540/440 #1/#2 COMPOSITE OUTPUTS (P1006-8) BE CONNECTED TO THE SN3308 COMPOSITE INPUTS (P1-29 AND P1-10, #1 AND 2# RESPECTIVELY) AND THE SN3308 BRG NAV-1/NAV-2 BE SET TO “429+COMP”.

8. ANALOG CONNECTIONS TO THE SN3308 ARE REQUIRED TO ALLOW VERTICAL GUIDANCE TO BE DISPLAYED FOR GPS APPROACHES.

9. USE RELAY AMERI-KING P/N AK-950-R12-()V OR EQUIVALENT.

10. USE RELAY LEACH P/N WN460-() () () OR EQUIVALENT.

11. REFER TO MANUFACTURER’S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

12. NOT APPLICABLE FOR IFD510/545/410

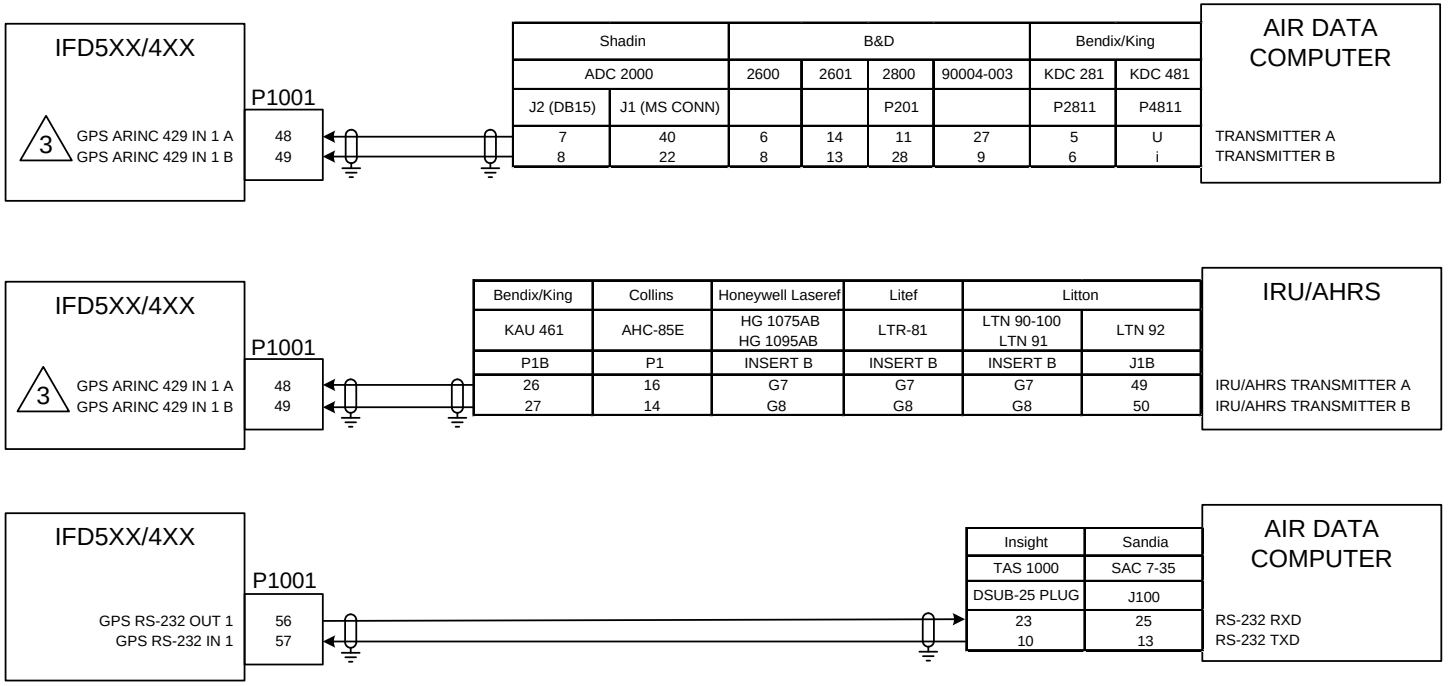


Figure D - 12: ARINC 429/RS-232 Air Data/IRU/AHRS Interconnect

Page 1 of 2

NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

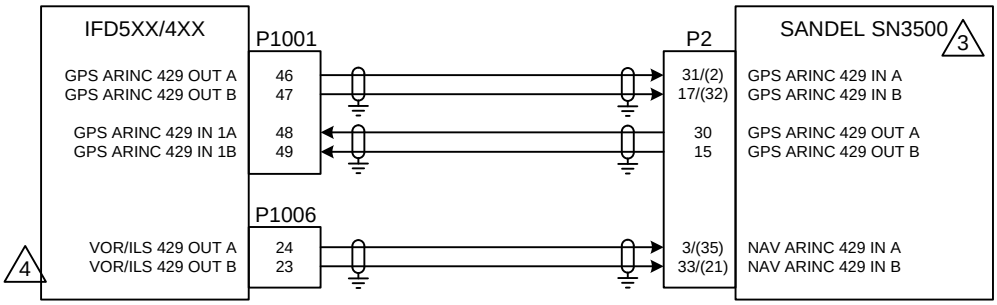
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE. THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

3. IF THE GPS ARINC 429 IN 1 PORT (P1001-48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE, THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.

4. REFER TO SECTION 7 FOR ARINC 429 CHANNEL SETTINGS.

5. REFER TO SECTION 7 FOR RS-232 CHANNEL SETTINGS.

6. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPELTE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT INFORMATION AND CONFIGURATION.

4. NOT APPLICABLE FOR IFD510/545/410

Figure D - 13: Sandel SN3500 Interconnect

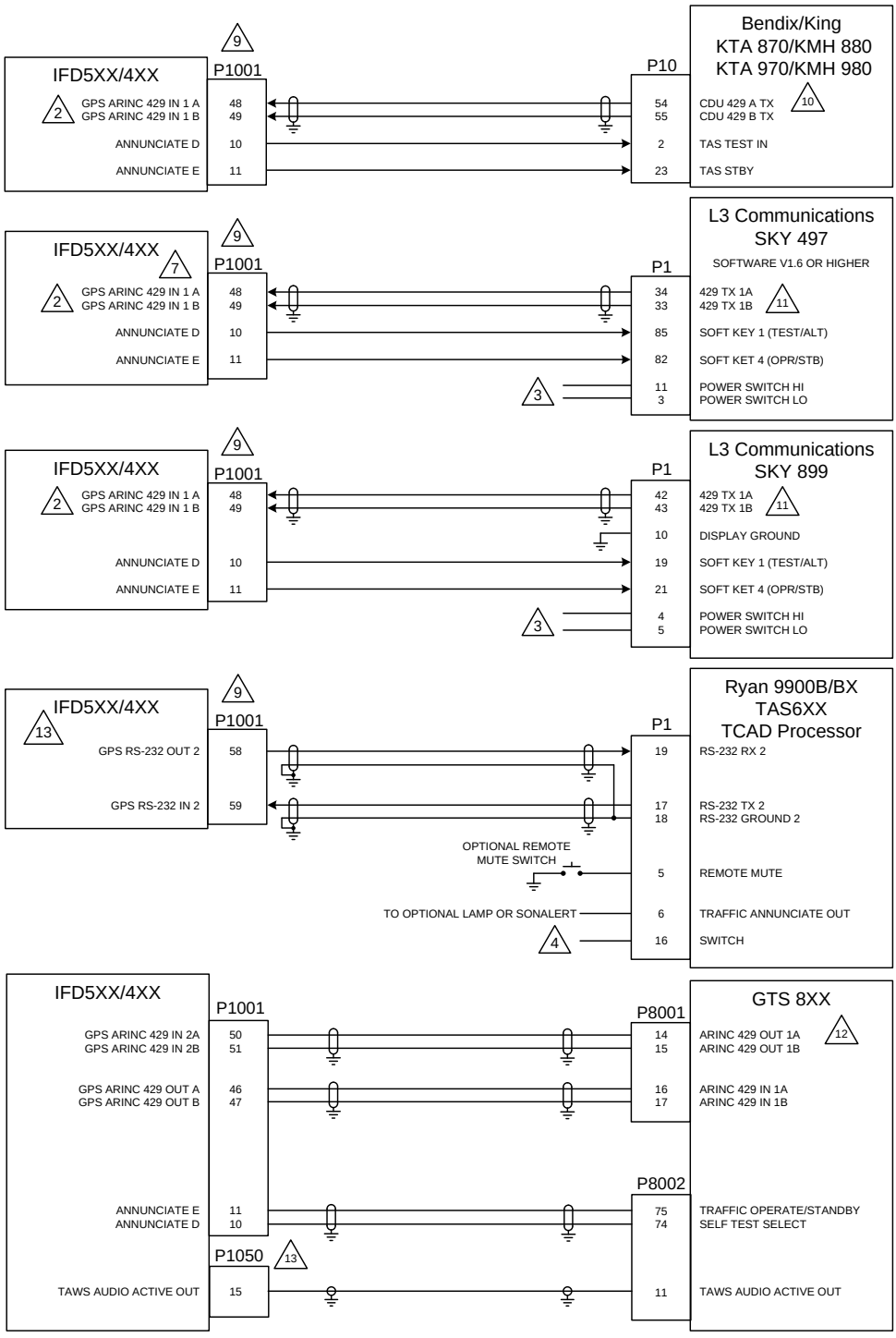


Figure D - 14: Traffic Advisory Interconnect

Page 1 of 2

NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. IF THE GPS ARINC 429 IN 1 PORT (P1001-48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE. THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.

3. THE SKYWATCH POWER SWITCH PINS, SHOWN ON P1, SHOULD BE CONNECTED TOGETHER TO TURN THE PROCESSOR UNIT ON AND DISCONNECTED TO TURN IT OFF. IF A SKYWATCH CONTROL/DISPLAY UNIT IS NOT IN THE INSTALLATION, A DEDICATED SWITCH MAY BE REQUIRED TO TURN THE SKYWATCH PROCESSOR UNIT ON OR OFF.

4. THE AVIDYNE/RYAN TAS PROCESSOR SWITCH PIN (P1-16) SHOULD BE GROUNDED TO TURN THE PROCESSOR UNIT ON, AND OPEN TO TURN THIS UNIT OFF. IF A RYAN TCAD DISPLAY UNIT IS NOT IN THE INSTALLATION, A DEDICATED SWITCH MAY BE REQUIRED TO TURN THE TAS PROCESSOR UNIT ON AND OFF.

5. IF ANY OF THESE TRAFFIC SYSTEMS ARE INSTALLED WITHOUT A CONTROL/DISPLAY UNIT, A PLACARD IS REQUIRED NEAR THE IFD 5XX/4XX UNIT, INDICATING THAT A TRAFFIC ADVISORY SYSTEM IS INSTALLED, AND ITS DATA MAY BE DISPLAYED ON THE IFD5XX/4XX UNIT.

6. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER INPUTS SHOWN FOR REFERENCE ONLY.

7. IN ORDER FOR SKYWATCH DATA TO BE DISPLAYED ON THE IFD5XX/4XX UNIT'S MAP PAGE, THE IFD5XX/4XX UNIT MUST HAVE A DIGITAL HEADING SOURCE, OR THE SKYWATCH MUST HAVE A SYNCHRO OR SERIAL HEADING SOURCE. A STEPPER HEADING SOURCE WILL NOT ALLOW SKYWATCH DATA TO BE DISPLAYED ON THE MAP PAGE.

8. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

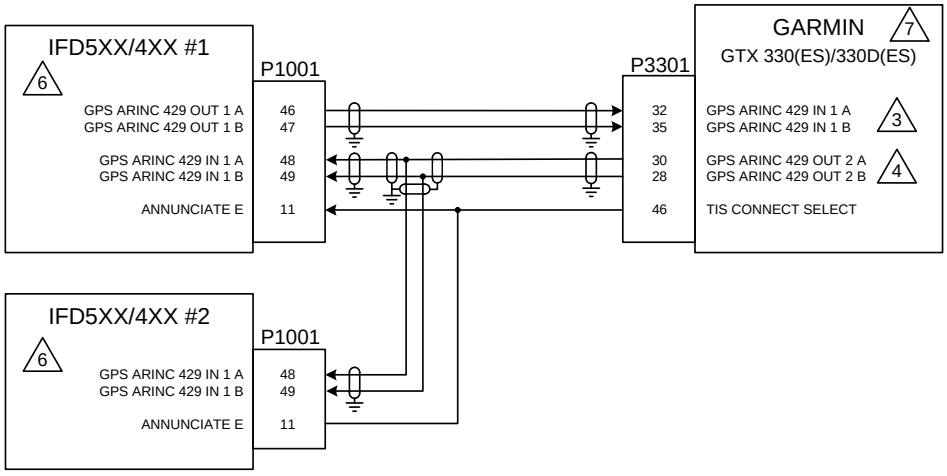
9. REFER TO SECTION 7.0 FOR ARINC 429 AND FOR RS-232 SETTINGS. IF AN ARINC 429 TRAFFIC SOURCE IS USED, THE CORRESPONDING ARINC 429 INPUT MUST BE SET TO HIGH SPEED.

10. KTA 870/KMH 880/KTA 970/KMH 980 SYSTEMS MUST HAVE TRAFFIC CONFIGURED FOR "CONTROLLER TYPE: DISCRETE" AND "DISPLAY VALID: IGNORE".

11. SKYWATCH MUST BE CONFIGURED FOR AN ARINC 735 TYPE 1 DISPLAY.

12. FOR GTX 8XX CONFIGURATION SETTINGS, SEE THE GTX 8XX INSTALLATION MANUAL.

13. THE P1050 CONNECTOR IS NOT AVALIABLE ON IFD4XX UNITS.



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE. THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

3 ARINC 429 IN 1 (P3301-32 AND -35) INPUT ALLOWS AUTOMATED START AND STOP OF FLIGHT TIMER AND PLACES THE TRANSPONDER IN GROUND (GND) MODE UPON LANDING.

4 IF EXTERNAL STBY SELECT IS CONNECTED IN THIS INSTALLATION USE GTX 330 ARINC 429 OUT 1 A AND 1 B, (PINS 37 AND 34) RATHER THAN ARINC 429 OUT 2 A AND 2 B (PINS 30 AND 28) SHOWN. ALTITUDE DATA WILL NOT BE TRANSMITTED OVER ARINC 429 PORT 2 TO THE IFD540/440 UNIT WHEN EXTERNAL STBY SELECT IS GROUNDED.

5. WHEN TIS IS USED IN THE AIRCRAFT DO NOT CONNECT ANOTHER TRAFFIC SYSTEM TO THE SAME IFD540/440 UNIT.

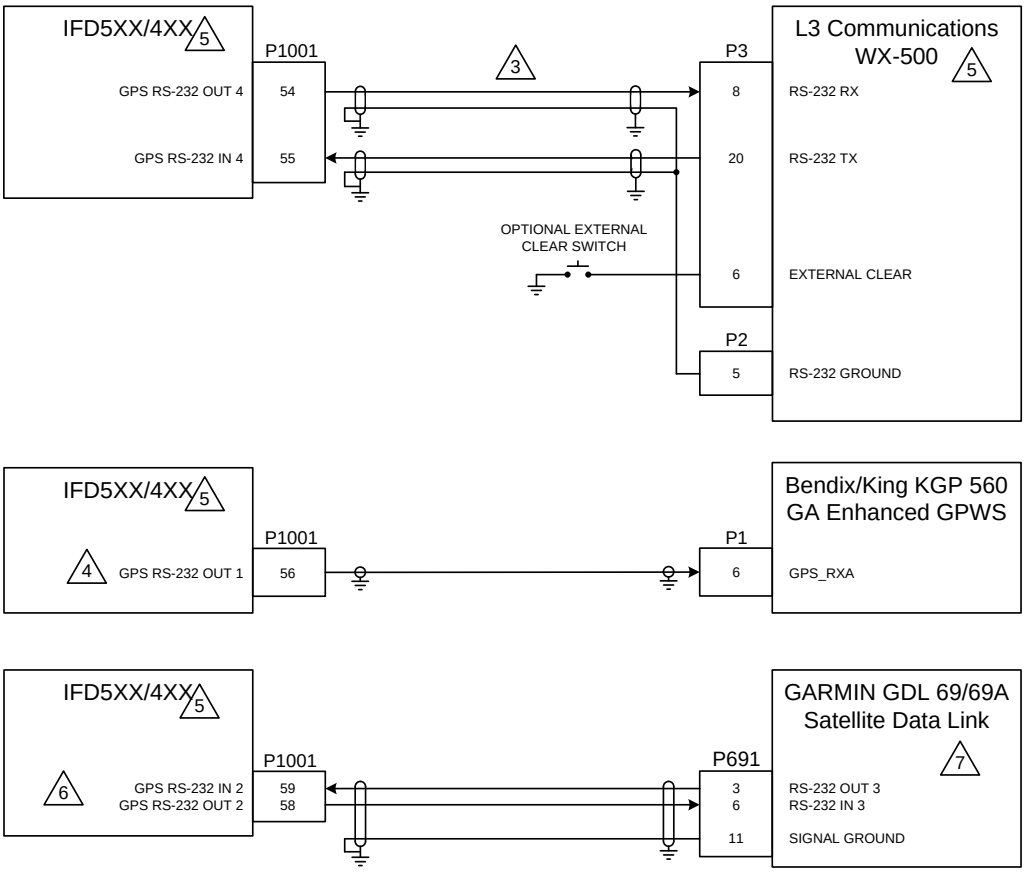
6 IFD540/440 SETUP:

MAIN ARINC 429 CONFIG: IN 1: HIGH, GARMIN GTX 330
OUT: SET TO MATCH INSTALLATION

7 GTX 330 SETUP:

429 INPUT CHANNEL 1: GPS (SPEED SET TO MATCH IFD540/440 #1 OUTPUT)
429 OUTPUT CHANNEL 2: GARMIN W/TIS

Figure D - 15: GTX 330 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE. THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

△3 IN ORDER FOR WX-500 DATA TO BE DISPLAYED ON THE IFD540 UNIT'S MAP PAGE, THE IFD540/440 MUST HAVE A DIGITAL HEADING SOURCE, OR THE WX-500 MUST HAVE A SYNCHRO OR SERIAL HEADING SOURCE. A STEPPER HEADING SOURCE WILL NOT ALLOW WX-500 DATA TO BE DISPLAYED ON THE MAP PAGE.

△4 IF AN RS-232 OUTPUT PORT IS CONFIGURED FOR THE HONEYWELL EGPWS, THE CORRESPONDING RS-232 INPUT OF THE SAME PORT MAY NOT BE USED.

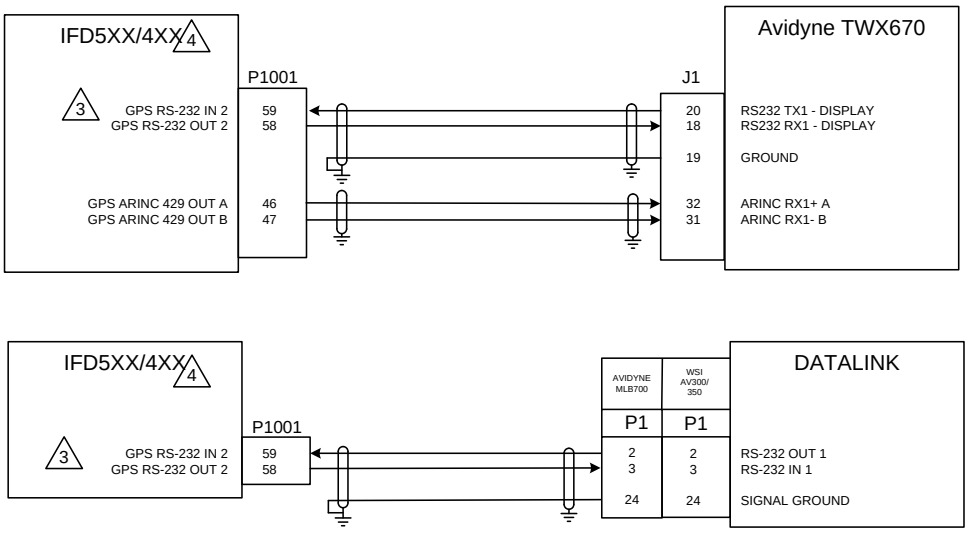
△5 REFER TO SECTION 7.0 FOR RS-232 CHANNEL SETTINGS.

△6 CONNECTION TO RS-232 PORT #2 OF THE IFD540/440 UNIT IS SHOWN. IF PORT #2 IS ALREADY IN USE, ANY OTHER AVAILABLE RS-232 PORT MAY BE USED AS WELL.

△7 CONNECTION TO RS-232 PORT #2 OF THE GDL 69/69A MAY BE USED AS WELL.

8. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUT OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

Figure D - 16: Terrain and Weather Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD540/440 UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE. THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

△3 CONNECTION TO RS-232 PORT #2 OF THE IFD540/440 UNIT IS SHOWN. IF PORT #2 IS ALREADY IN USE, ANY OTHER AVAILABLE RS-232 PORT MAY BE USED AS WELL.

△4 REFER TO SECTION 7.0 FOR RS-232 CHANNEL SETTINGS.

Figure D - 17: Weather Interconnect

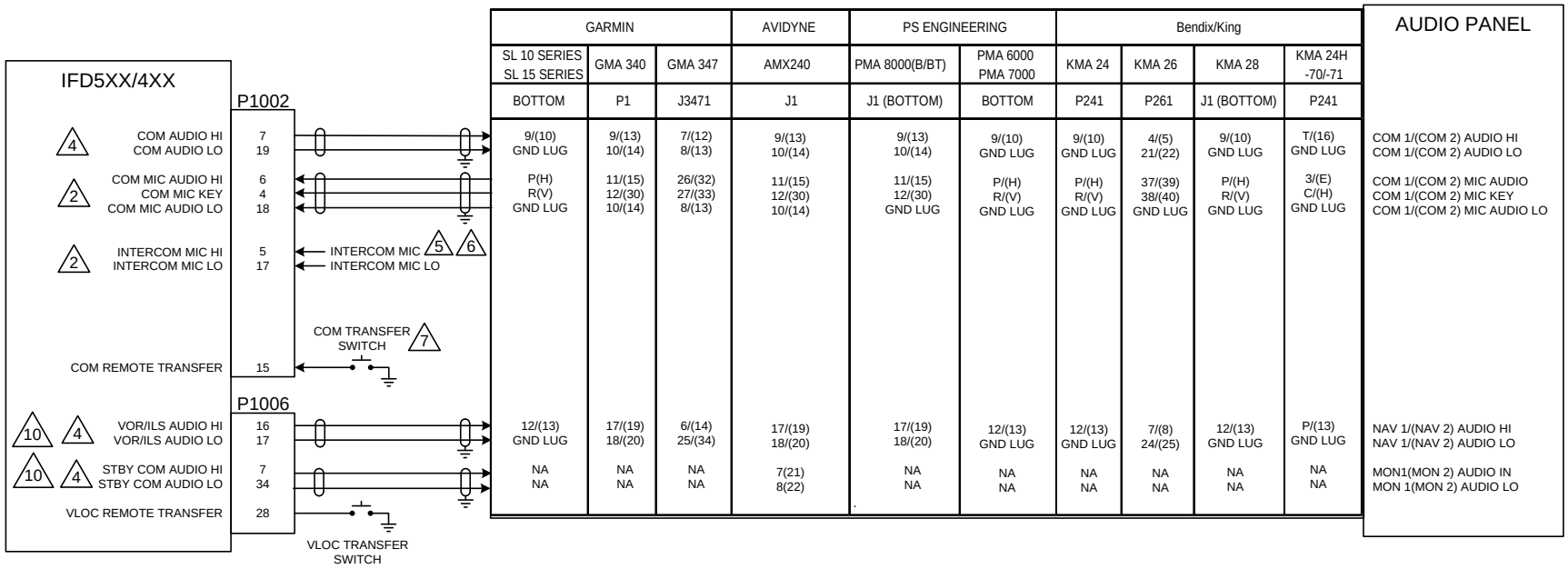


Figure D - 18: Audio Panel Interconnect

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NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

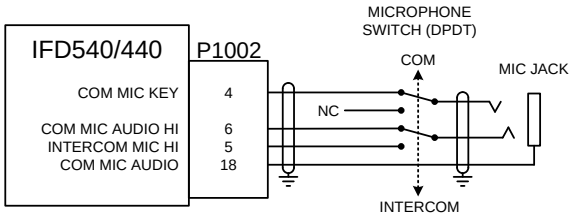
2 CONNECTING TWO MICROPHONES TO MIC AUDIO HI/LO OR INTERCOM MIC HI/LO AT THE SAME TIME MAY RESULT IN WEAK OR DISTORTED AUDIO. MIC ISOLATION RELAYS ARE RECOMMENDED SO THAT ONLY ONE MIC IS ACTIVE AT A TIME.

3. RESERVED

4 IF THE AUDIO PANEL DOES NOT HAVE A LO INPUT. IT SHOULD BE CONNECTED TO A GROUND LUG AT THE AUDIO PANEL.

5 THE IFD540/440 INTERCOM FUNCTION SHOULD ONLY BE USED IF THERE IS NO OTHER INTERCOM SYSTEM IN THE AIRCRAFT.

6 INTERCOM WIRING OPTION:

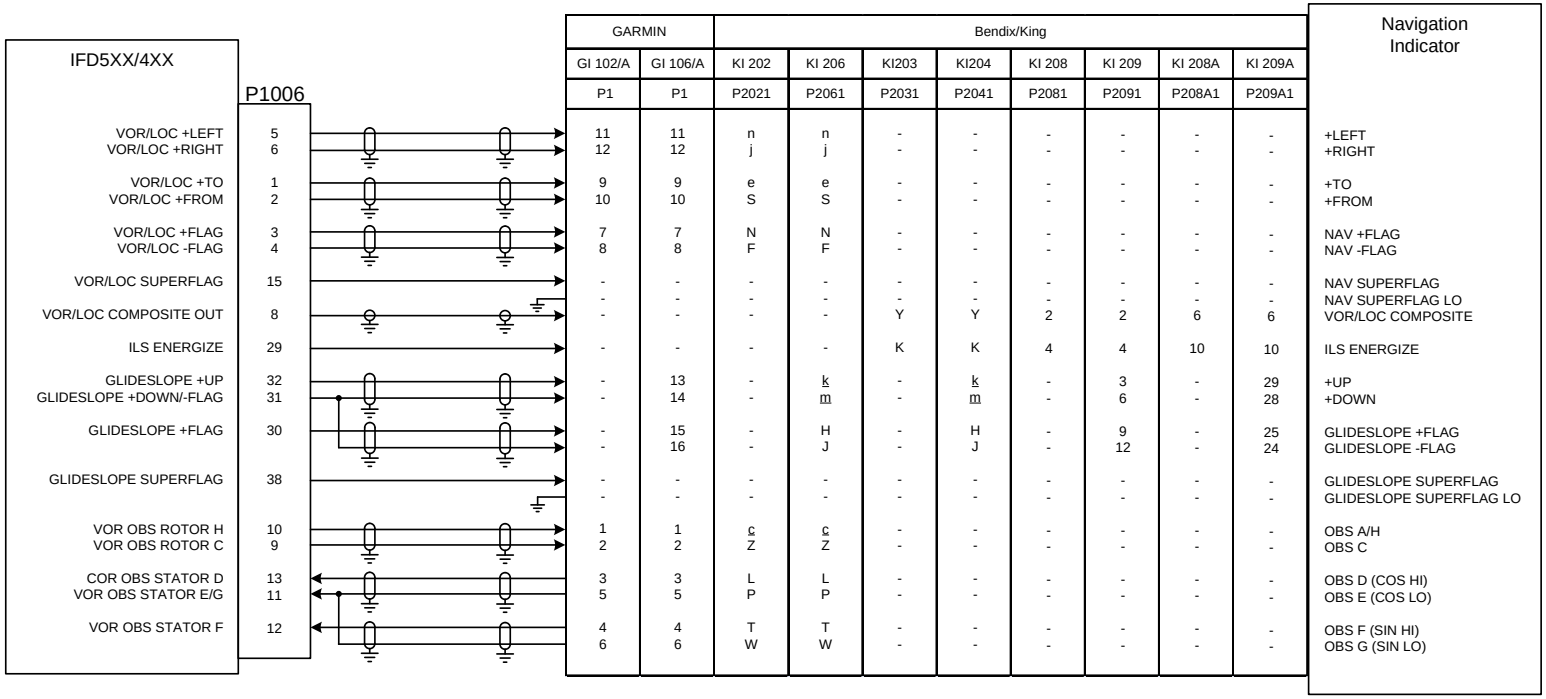


7 THE COM REMOTE TRANSFER INPUT (P1002-15) MAY BE USED FOR EMERGENCY OPERATION OF THE COM TRANSMITTER. IF THE REMOTE TRANSFER SWITCH IS ACTIVE FOR THREE SECONDS, THE ACTIVE COM FREQUENCY WILL CHANGE TO 121.50 MHZ.

8. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUT OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

9. SHIELDS FOR AUDIO CABLES SHOULD BE GROUNDED AT ONE END (WITH LEADS LESS THAN 3.0 INCHES) AND LEFT FLOATING AT THE OTHER END. IF SHIELDED AUDIO CABLE IS CARRIED THROUGH DISCONNECT, CARRY SHIELD GROUND THROUGH DISCONNECT ON SEPARATE PIN.

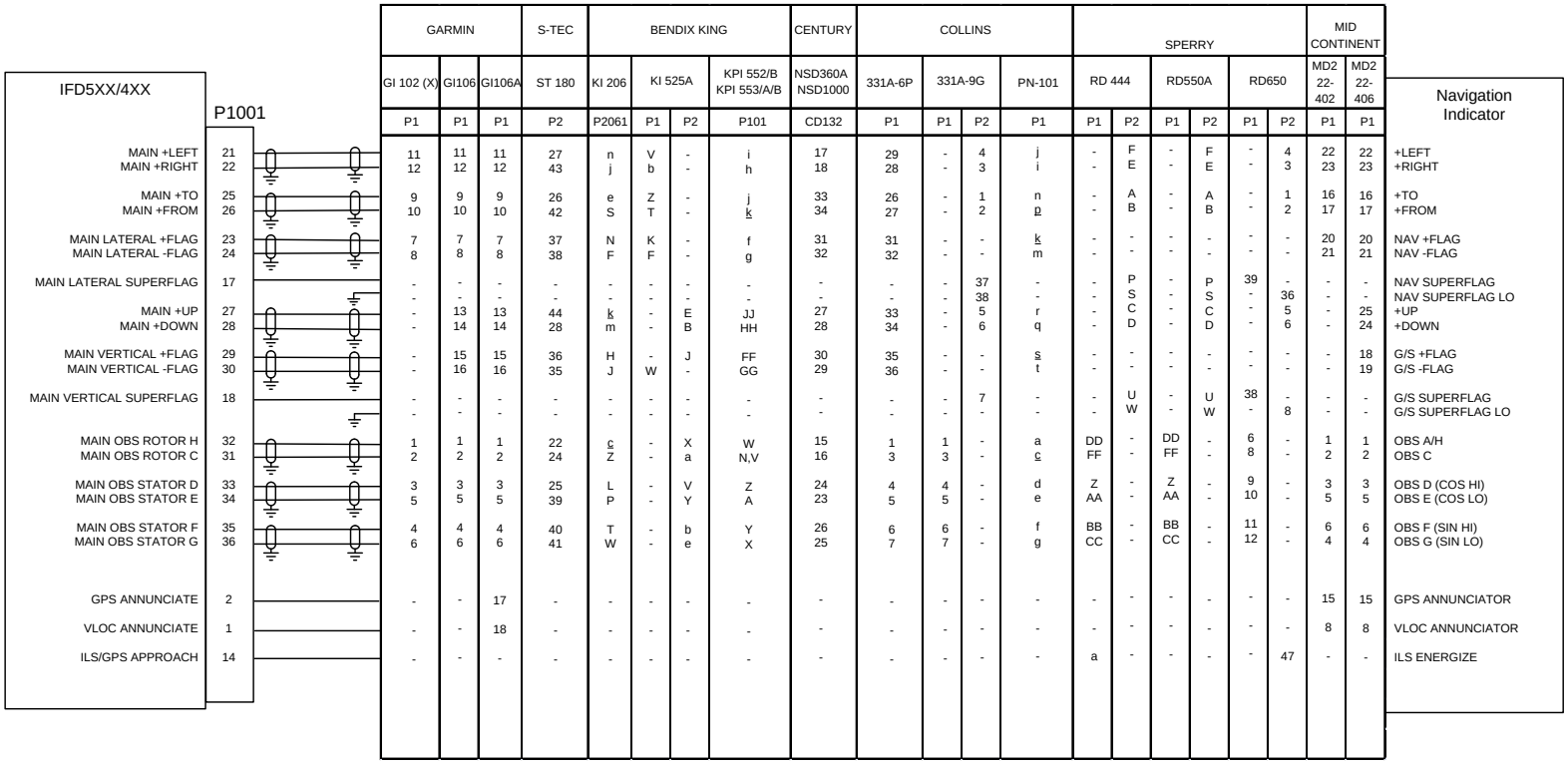
10 NOT APPLICABLE FOR IFD510/545/410



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. THIS INTERCONNECT APPLIES ONLY WHEN IT IS DESIRED FOR A SEPARATE INDICATOR TO DISPLAY IFD540/440 VOR/ILS INFORMATION (REGARDLESS OF THE SELECTED NAVIGATION SOURCE).
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.
4. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.
5. NOT APPLICABLE FOR IFD510/545/410

Figure D - 19: VOR/ILS Indicator Interconnect



NOTES:

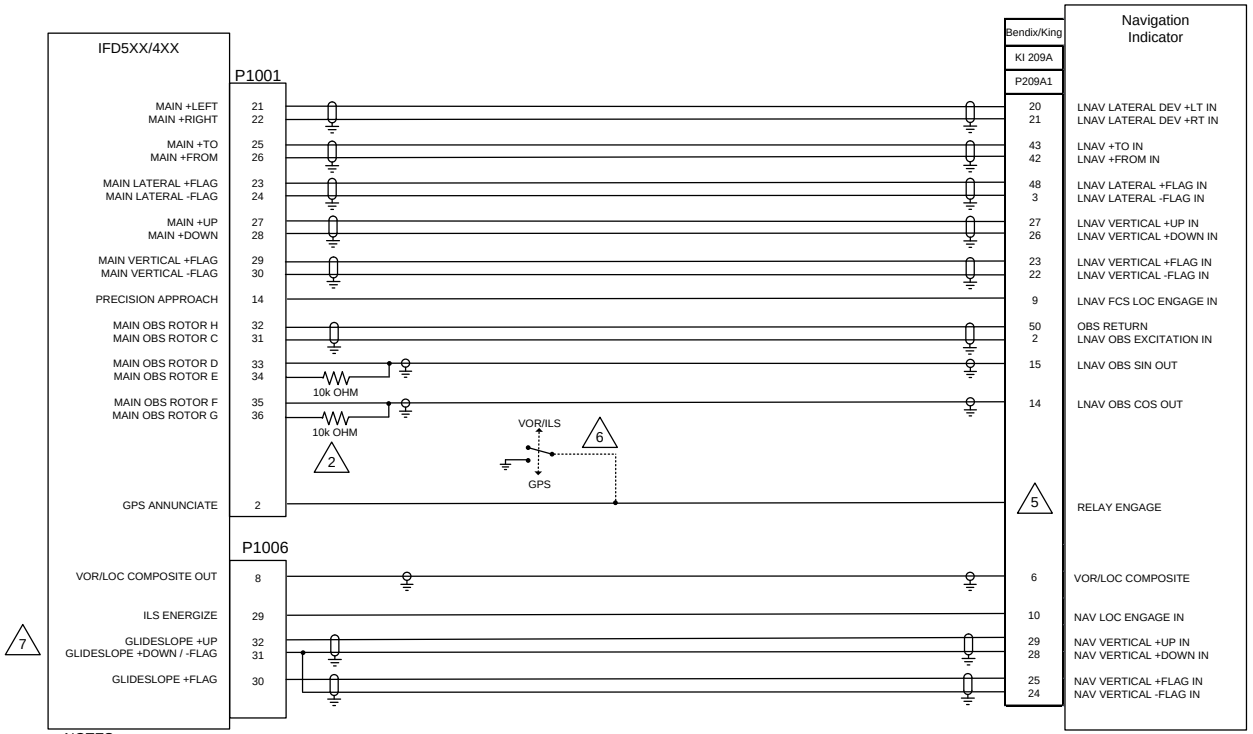
1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

3. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. LOWER CASE PIN DESIGNATORS ARE SHOWN AS UNDERLINED LETTERS.

Figure D - 20: Main Indicator Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. TO CONNECT THE IFD5XX/4XX TO A KI209A INDICATOR, ADD TWO 10K OHM, ¼ WATT RESISTORS AS SHOWN.

3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

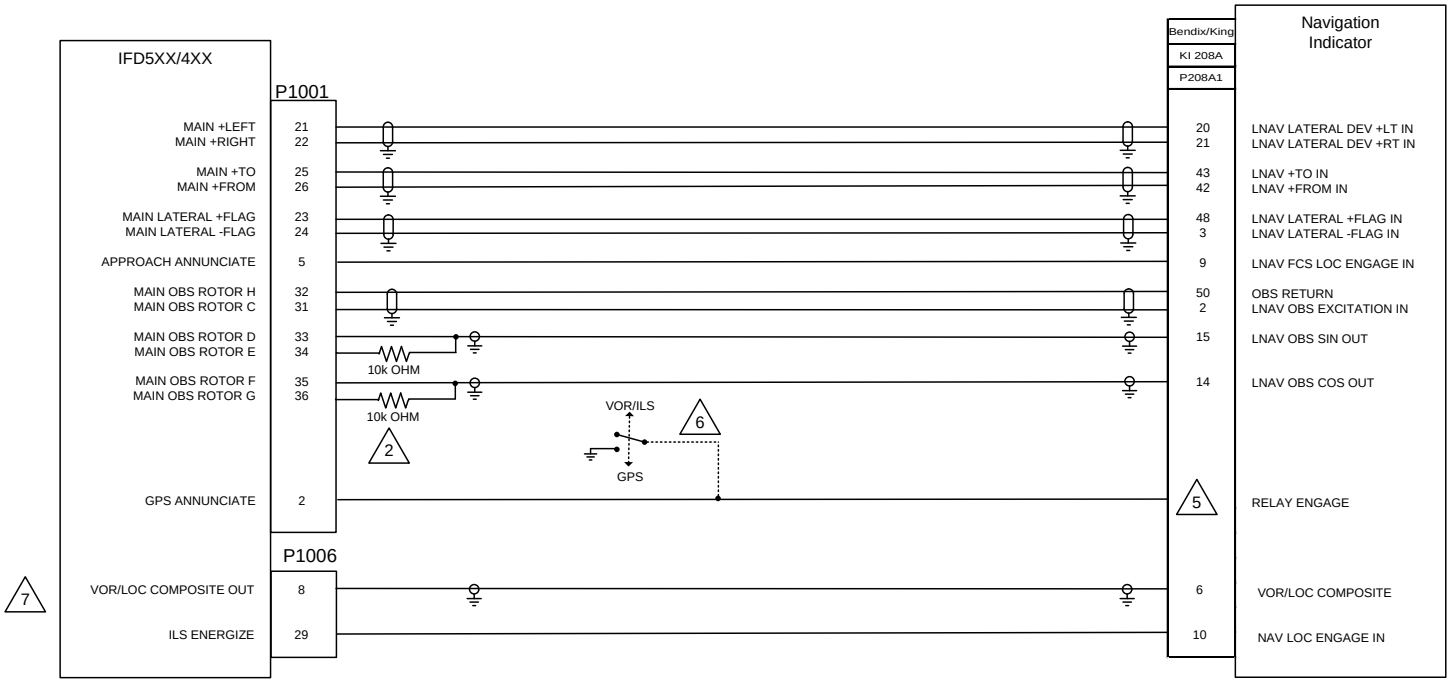
4. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

5. PROPER CONNECTION OF THE RELAY ENGAGE INPUT OF THE KI 209A IS DEPENDENT ON ITS POWER SUPPLY VOLTAGE. REFER TO KI 209A DOCUMENTATION FOR PROPER CONNECTION.

6. IF THE IFD5XX/4XX IS INSTALLED, AND ANOTHER VOR/ILS RECEIVER IS AVAILABLE TO DRIVE THE NAVIGATION INDICATOR, AN EXTERNAL SOURCE SELECTION SWITCH MUST BE USED IN LIEU OF THE GPS ANNUNICATE OUTPUT.

7. NOT APPLICABLE FOR IFD 510/545/410

Figure D - 21: Main Indicator KI209 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. TO CONNECT THE IFD5XX/4XX TO A KI209A INDICATOR, ADD TWO 10K OHM, ¼ WATT RESISTORS AS SHOWN.

3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

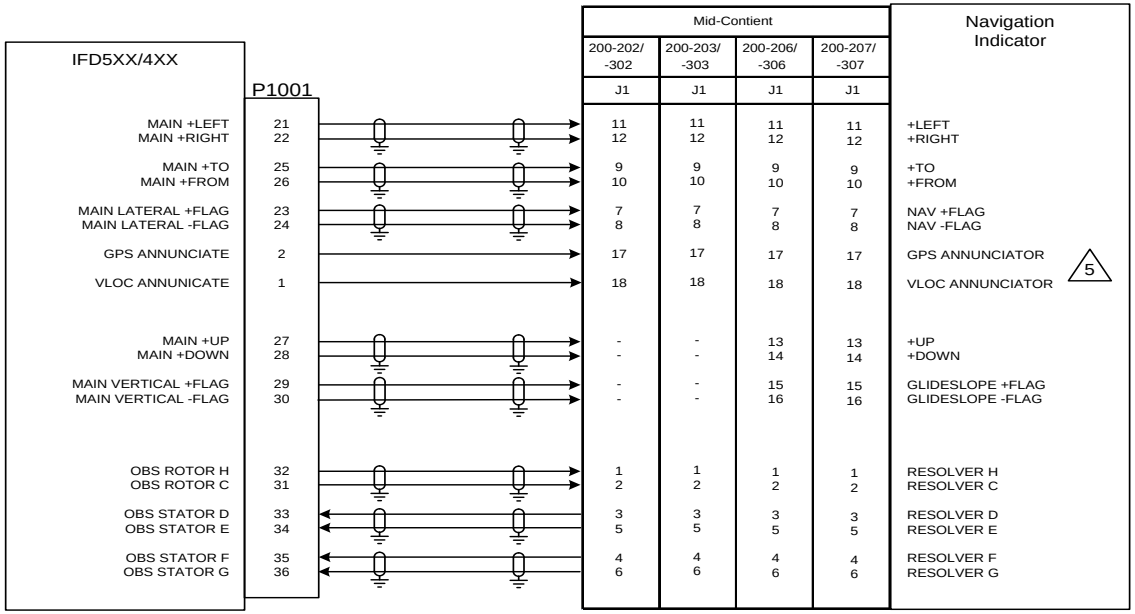
4. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

5. PROPER CONNECTION OF THE RELAY ENGAGE INPUT OF THE KI 208A IS DEPENDENT ON ITS POWER SUPPLY VOLTAGE. REFER TO KI 208A DOCUMENTATION FOR PROPER CONNECTION.

6. IF THE IFD540/440 IS INSTALLED, AND ANOTHER VOR/ILS RECEIVER IS AVAILABLE TO DRIVE THE NAVIGATION INDICATOR, AN EXTERNAL SOURCE SELECTION SWITCH MUST BE USED IN LIEU OF THE GPS ANNUNICATE OUTPUT.

7. NOT APPLICABLE TO IFD 510/545/410

Figure D - 22: Main Indicator KI208 Interconnect

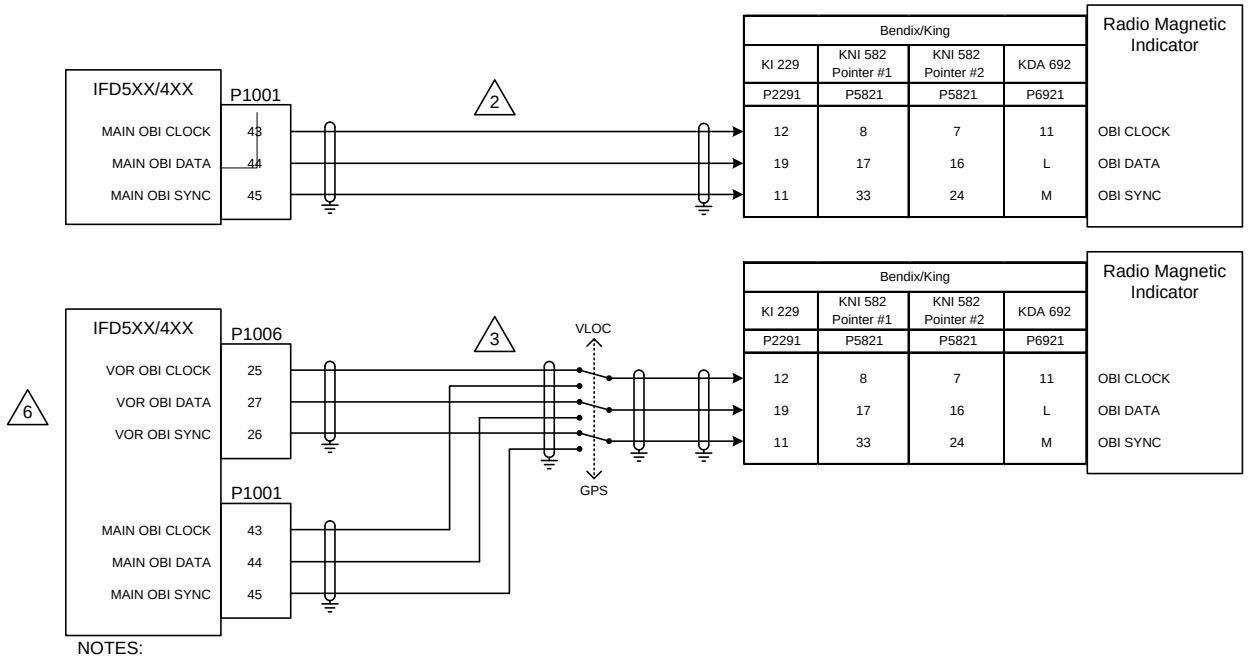


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. THE 200-202/-203/-302/-303 DOES NOT HAVE VERTICAL DEVIATION INDICATOR. DO NOT USE FOR IFR NAVIGATION.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.
4. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

5 NAVIGATION ANNUNCIATION

Figure D - 23: Main Indicator MD200-20X/-30X Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. IF IT IS DESIRED FOR THE RMI POINTER TO SWITCH WITH THE CDI BUTTON ON THE FRONT PANEL OF THE IFD540/440. INSTALL AS PER THE TOP DIAGRAM. AND SELECT TRACK CDI FOR THE OBI SOURCE FIELD OF THE MAIN CDI/OBS CONFIG PAGE.

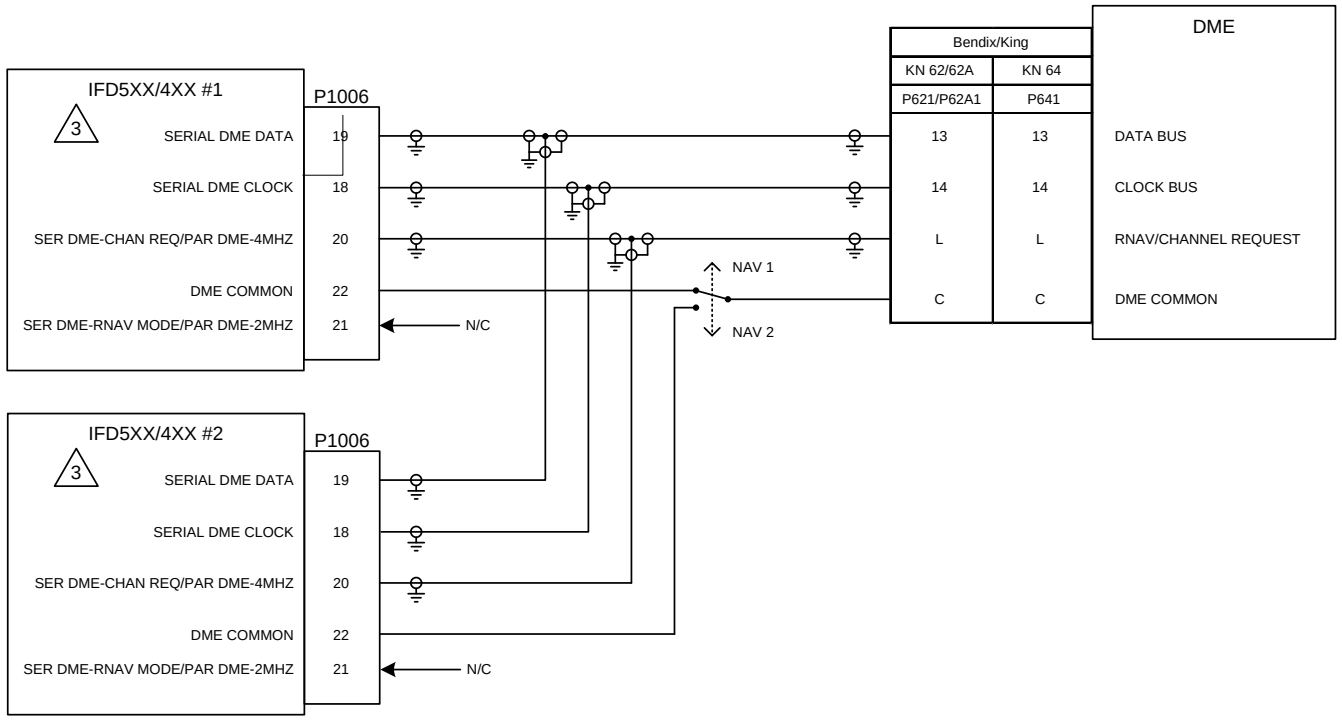
3. IF IT IS DESIRED TO USE A SEPARATE SWITCH FOR THE RMI POINTER, INSTALL AS PER BOTTOM DIAGRAM AND SELECT ALWAYS GPS FOR THE OBI SOURCE FIELD OF THE MAIN CDI/OBS CONFIG PAGE.

4. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

5. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

6. NOT APPLICABLE FOR IFD510/545/410

Figure D - 24: RMI/OBI Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

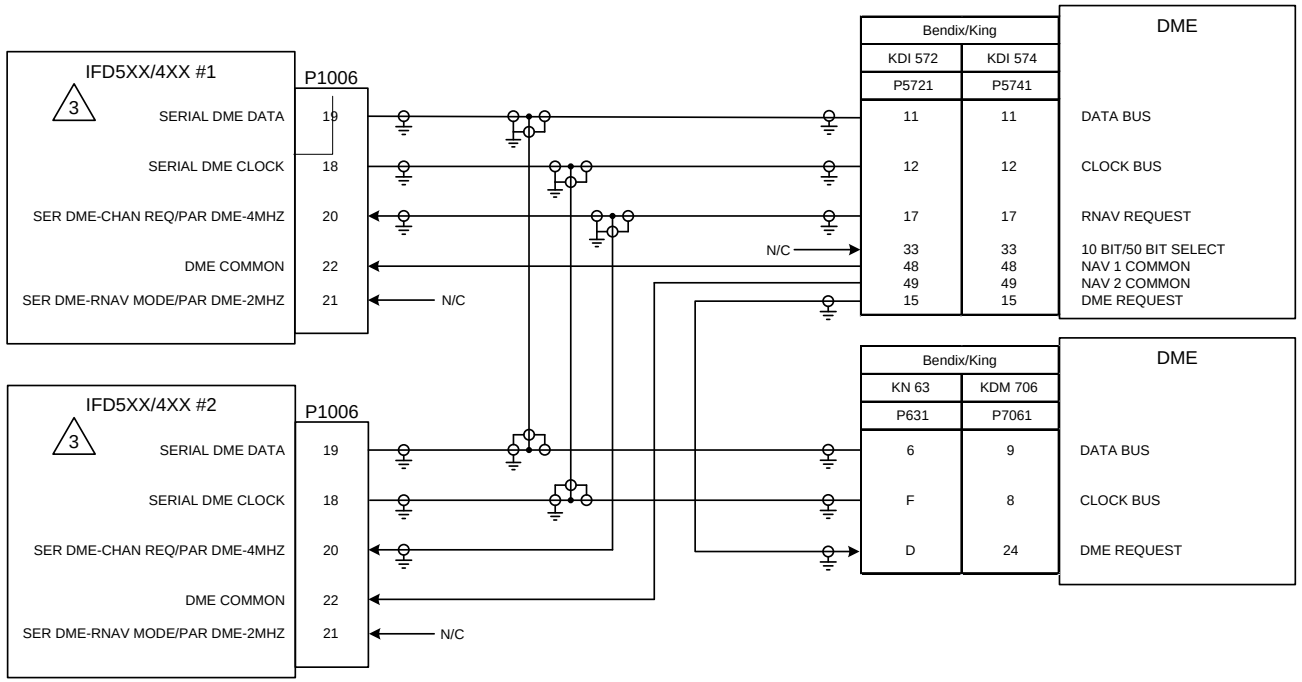
3. THE IFD5XX/4XX MUST BE CONFIGURED AT INSTALLATION TO OUTPUT KING SERIAL DME TUNING DATA UNDER THE DME CHANNEL MODE.

3

4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

5. NOT APPLICABLE FOR IFD510/545/410

Figure D - 25: King Serial DME Tuning Interconnect, Panel Mount



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

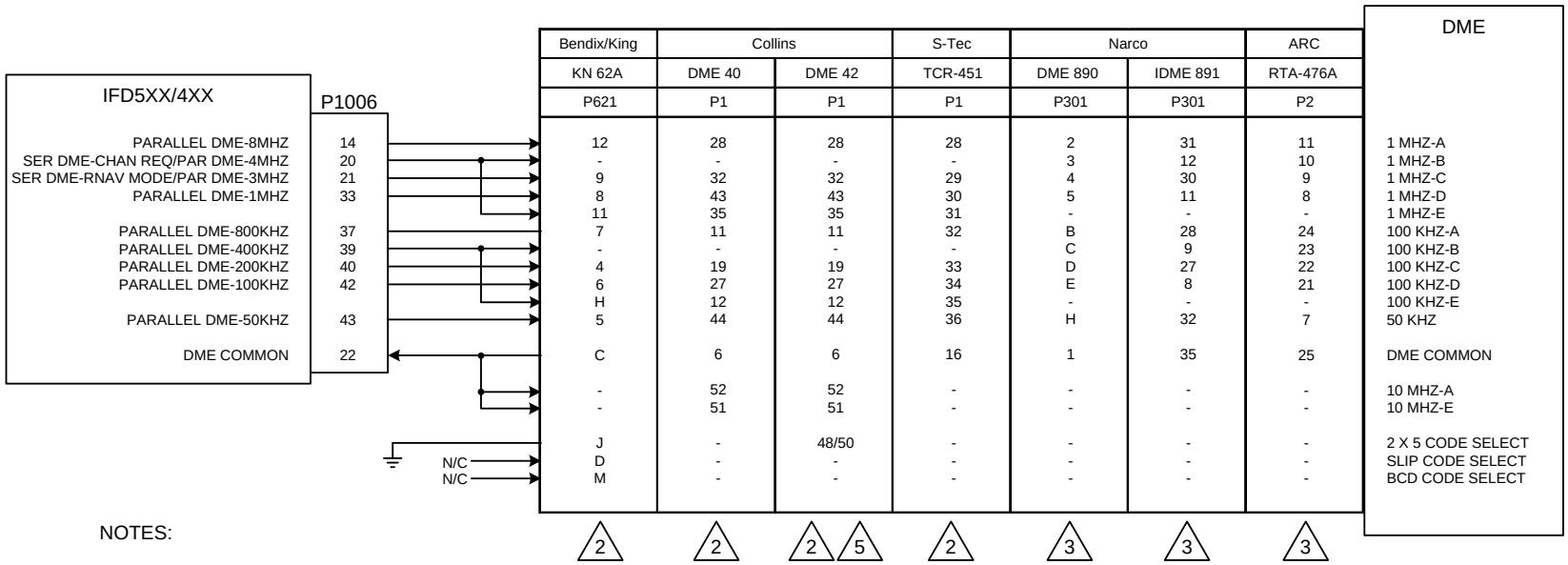
3. THE IFD540/440 MUST BE CONFIGURED AT INSTALLATION TO OUTPUT KING SERIAL DME TUNING DATA UNDER THE DME CHANNEL MODE.

3

4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

5. NOT APPLICABLE FOR IFD 510/545/410

Figure D - 26: King Serial DME Tuning Interconnect, Remote Mount



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2 OR THE IFD5XX/4XX MUST BE CONFIGURED FOR PARALLEL 2X5 DME CHANNELING MODE FOR PROPER OPERATION WITH THIS MODEL DME TRANSCEIVER.

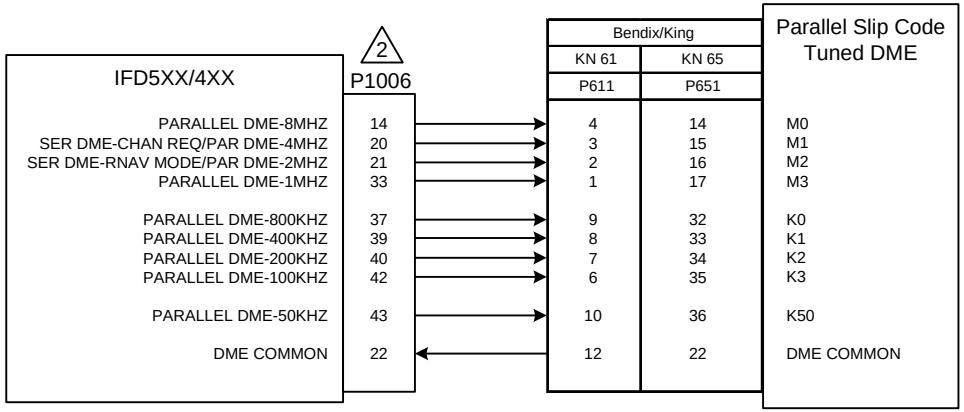
3 THE IFD540/440 MUST BE CONFIGURED FOR NARCO 890/891 DME CHANNELING MODE FOR PROPER OPERATION WITH THIS MODEL OF DME TRANSCEIVER.

4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

5 DME 42 MUST BE STRAPPED FOR 2X5 TUNING. REFER TO DME 42 INSTALLATION MANUAL FOR STRAPPING INFORMATION.

6. NOT APPLICABLE FOR IFD 510/545/410

Figure D - 27: Parallel DME Tuning Interconnect



NOTES:

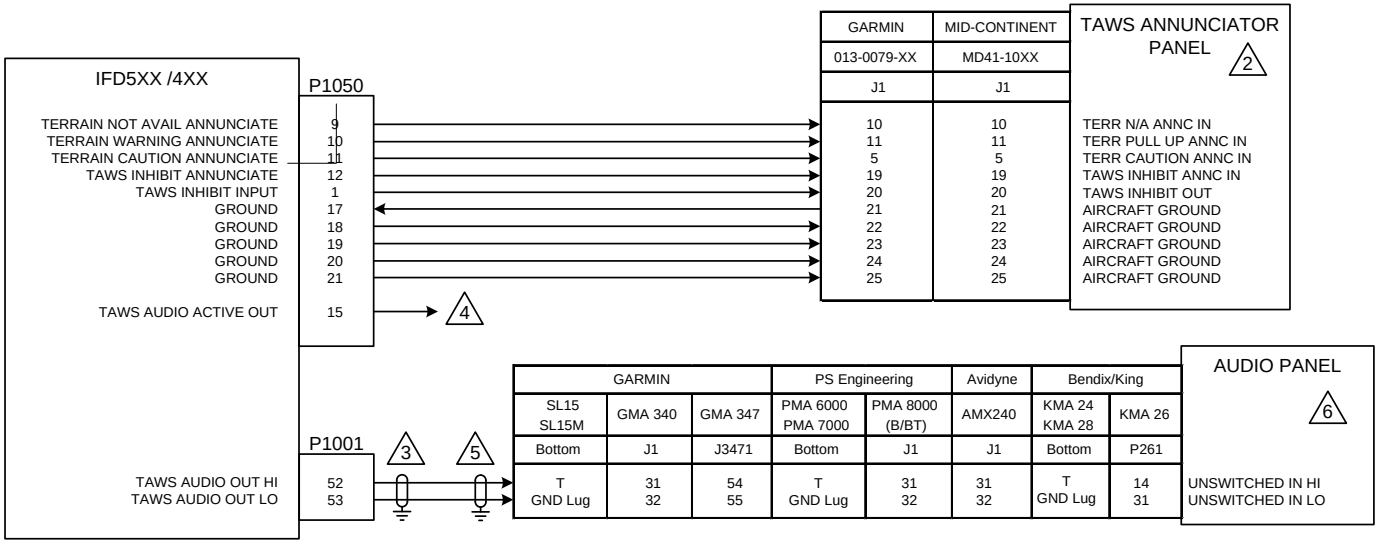
1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. THE IFD540 MUST BE CONFIGURED TO OUTPUT SLIP CODE DME TUNING DATA FOR PROPER OPERATION IN THIS CONFIGURATION.

3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

4. NOT APPLICABLE FOR IFD510/545/410

Figure D - 28: Parallel DME Tuning Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. THE TERRAIN ALERTING ON THE IFD5XX/4XX DOES NOT SATISFY ANY PART 91/135 REQUIRMENT FOR A TAWS SYSTEM. INSTALLING AN EXTERNAL ANNUNCIATOR IS NOT REQUIRED.

3. WHEN TWO TAWS-EQUIPPED UNITS ARE INSTALLED IN AN AIRCRAFT, ONLY ONE SHOULD UTILIZE P1001-52/53 TO AVOID COMPETING AUDIO MESSAGES.

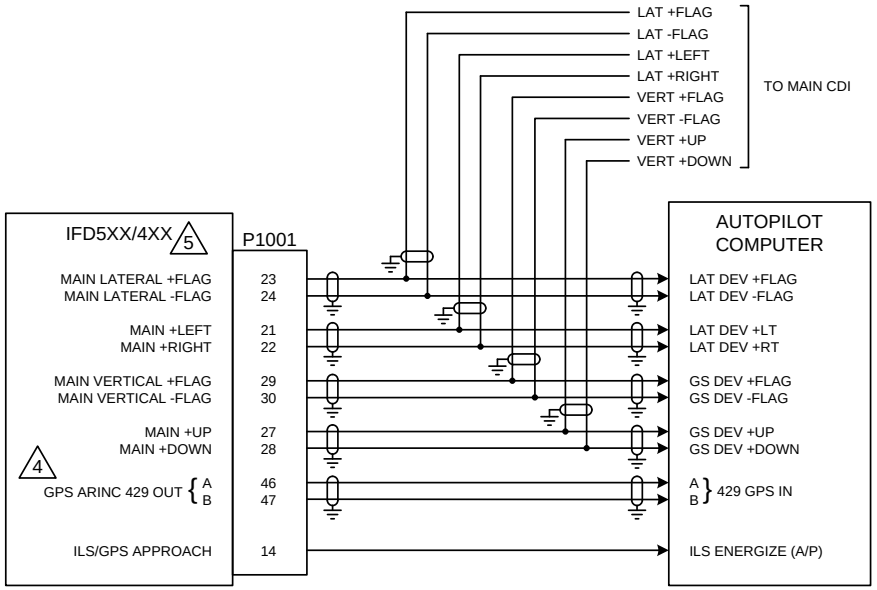
4. CONNECT TO THE AUDIO INHIBIT INPUTS OF OTHER SYSTEMS WITH LOWER PRIORITY AURALS THAN TAWS. THIS CONNECTOR IS NOT AVAILABLE ON THE IFD4XX.

5. SHIELDS FOR AUDIO CABLES SHOULD BE GROUNDED AT ONE END (WITH LEADS LESS THAN 3.0 INCHES) AND LEFT FLOATING AT THE OTHER END. IF SHIELDED AUDIO CABLE IS CARRIED THROUGH A DISCONNECT, CARRY SHIELD GROUND THROUGHOUT DISCONNECT ON A SEPARATE PIN.

6. OTHER UNSWITCHED INPUTS ON THE AUDIO PANEL MAY BE USED IN LIEU OF THOSE SHOWN.

7. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION. PINOUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

Figure D - 29: TAWS Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

3. ONLY CONNECTIONS SUPPORTED BY THE AUTOPILOT ARE REQUIRED.

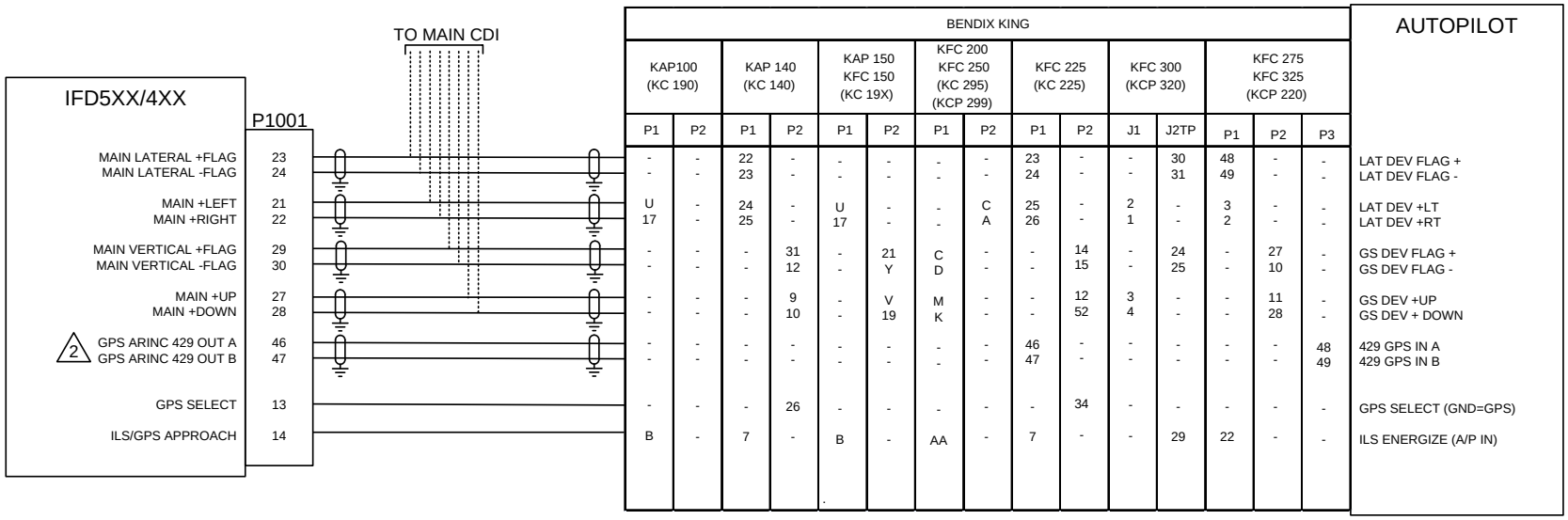
4. ALL “GAMA 429” CONFIGURATIONS OF THE GPS ARINC 429 OUTPUT PROVIDE DATA REQUIRED BY THE AUTOPILOT FOR GPSS. THE “ARINC 429” CONFIGURATION CANNOT BE USED.

5. IFD5XX/4XX SETUP ITEMS:

   MAIN SYSTEM CONFIG PAGE: DISCRETES – ILS/GPS APR: APPROACH ONLY.

6. IF GPSS UNIT HAS AUTOMATIC LINE SPEED DETECTION, THE IFD OUTPUT SHOULD BE SET TO “LOW SPEED”.

Figure D - 30: Autopilot Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

   ALL GAMA 429 CONFIGURATIONS OF THE GPS ARINC 429 OUTPUT PROVIDE DATA REQUIRED BY AUTOPILOT FOR GPSS. THE ARINC 429 CONFIGURATION CANNOT BE USED.

3. SETUP ITEMS: MAIN SYSTEM CONFIG PAGE: GPS SELECT: PROMPT (KAP 140 AND KFC 225)
   AUTO (FOR ALL EXCEPT KAP 140 AND KFC 225)

4. IF AN EFIS IS INSTALLED, NONE OF THE CONNECTIONS SHOWN ARE REQUIRED. THESE AUTOPILOT SIGNALS ARE PROVIDED BY THE EFIS SYSTEM.

5. IF GPSS UNIT HAS AUTOMATIC LINE SPEED DETECTION, THE IFD OUTPUT SHOULD BE SET TO “LOW SPEED”.

Figure D - 31: Bendix/King Autopilot Interconnect

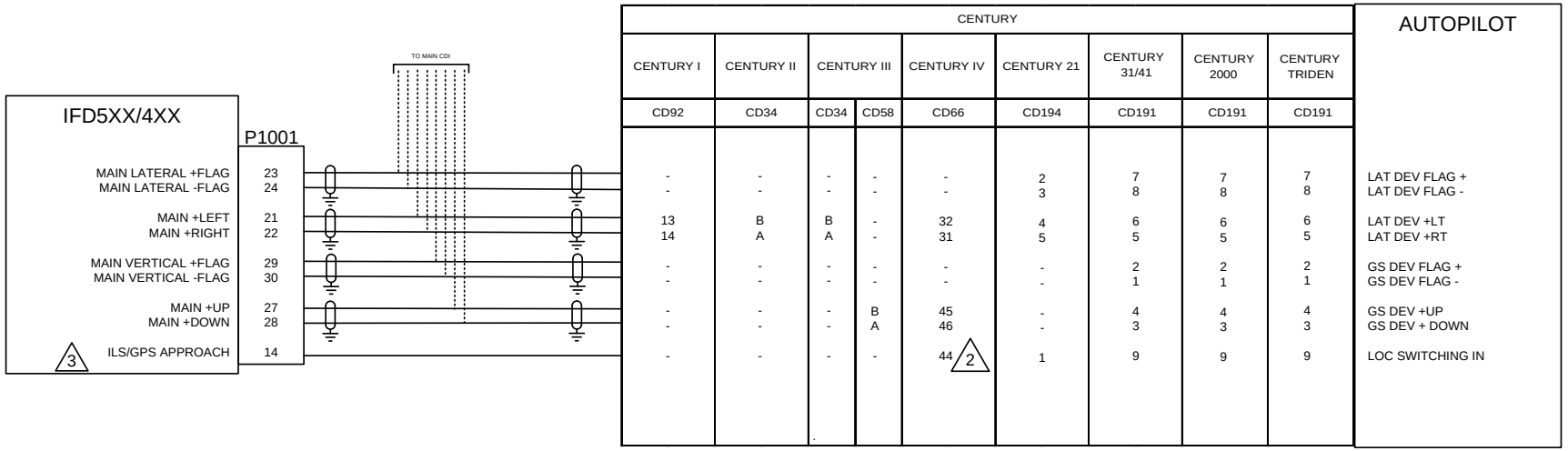


Figure D - 32: Century Autopilot Interconnect

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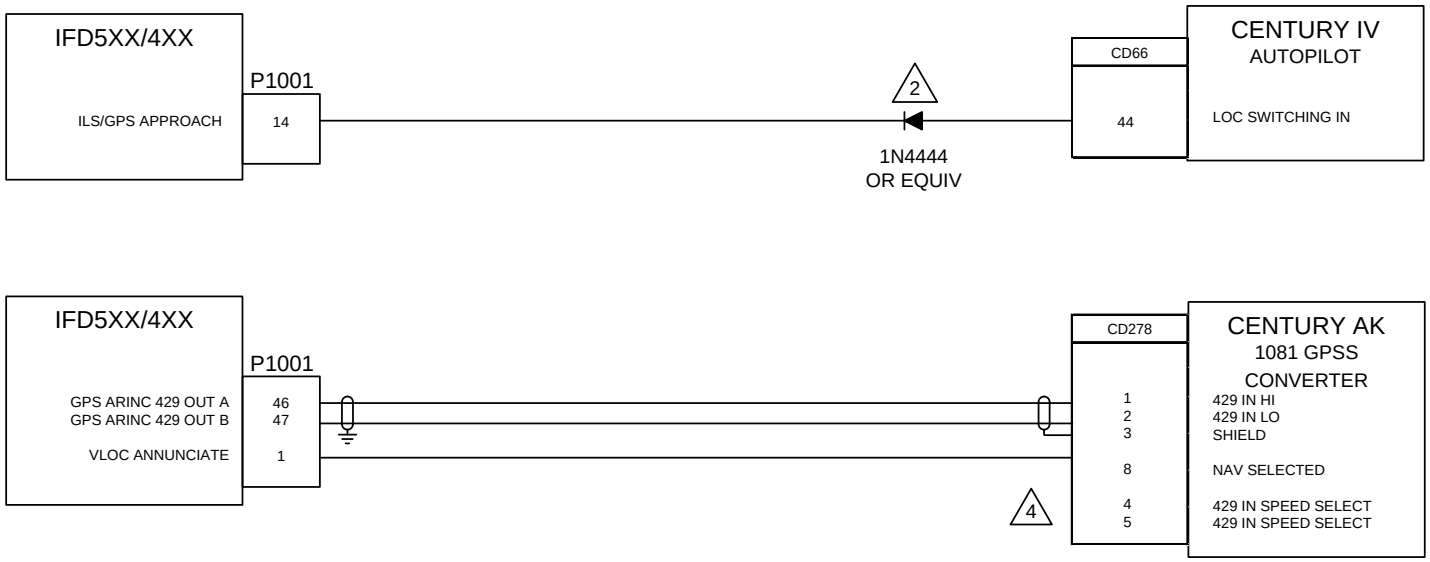


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. THE CENTURY IV REQUIRES THAT AN ISOLATION DIODE BE INSTALLED ON THE LOC SWITCHING INPUT AS SHOWN.

3. SETUP ITEMS, MAIN SYSTEM CONFIG PAGE: GPS SELECT: AUTO

4. INSTALL JUMPER AS REQUIRED TO SET AK 1081 ARINC 429 INPUT SPEED TO MATCH IFD5XX/4XX OUTPUT SETTING. REFER TO MANUFACTURER'S DOCUMENTATION FOR ADDITIONAL DETAILS.

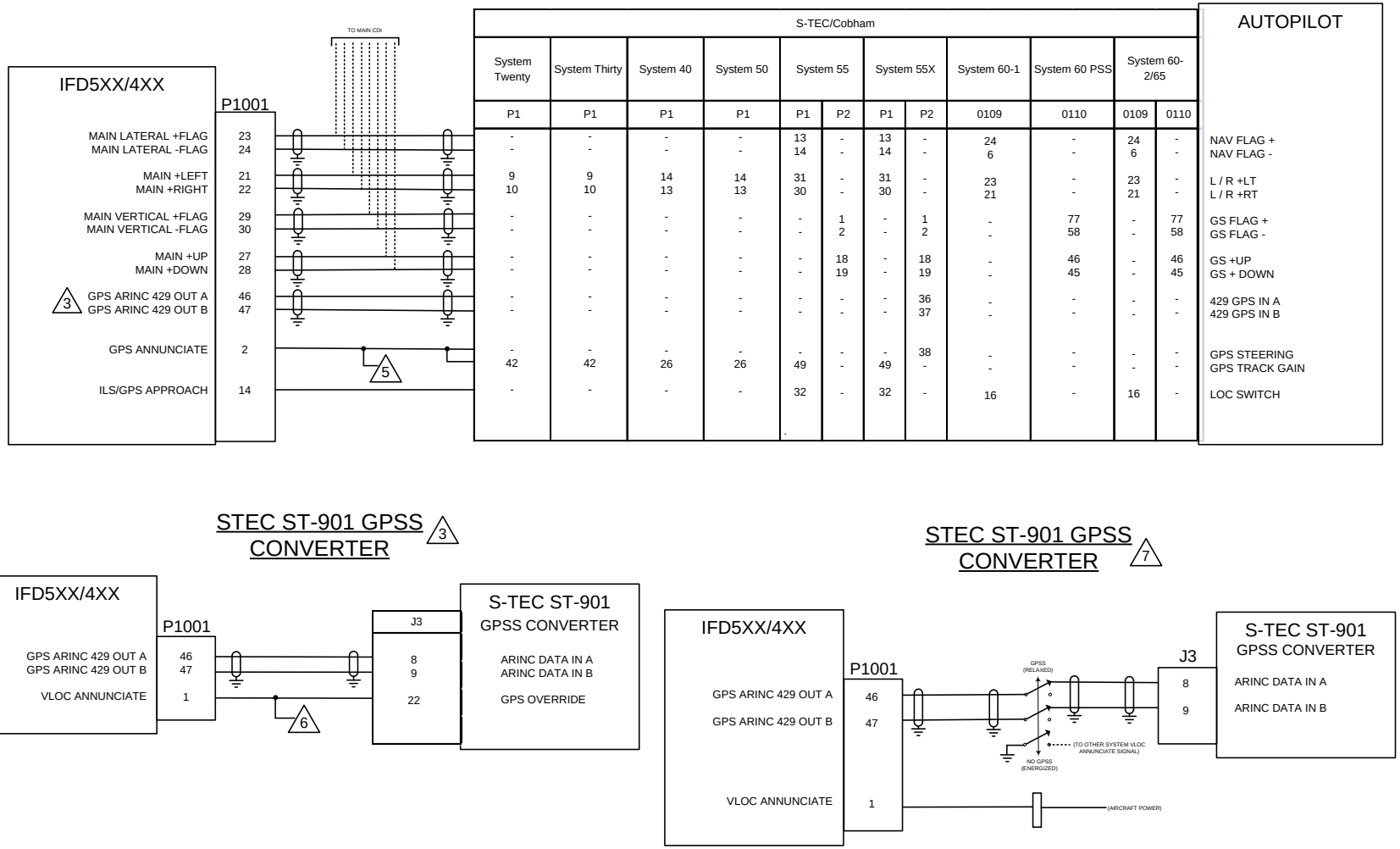
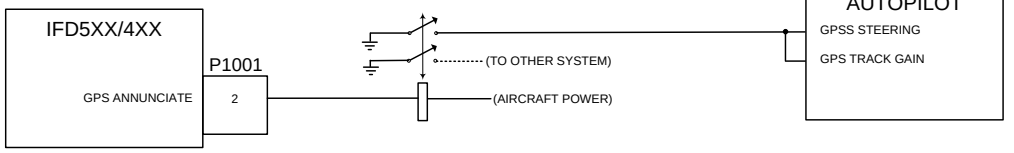


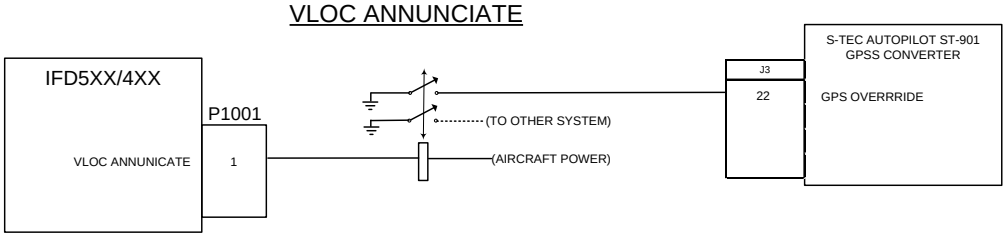
Figure D - 33: S-Tec Autopilot Interconnect

Sheet 1 of 2

GPS ANNUNCIATE



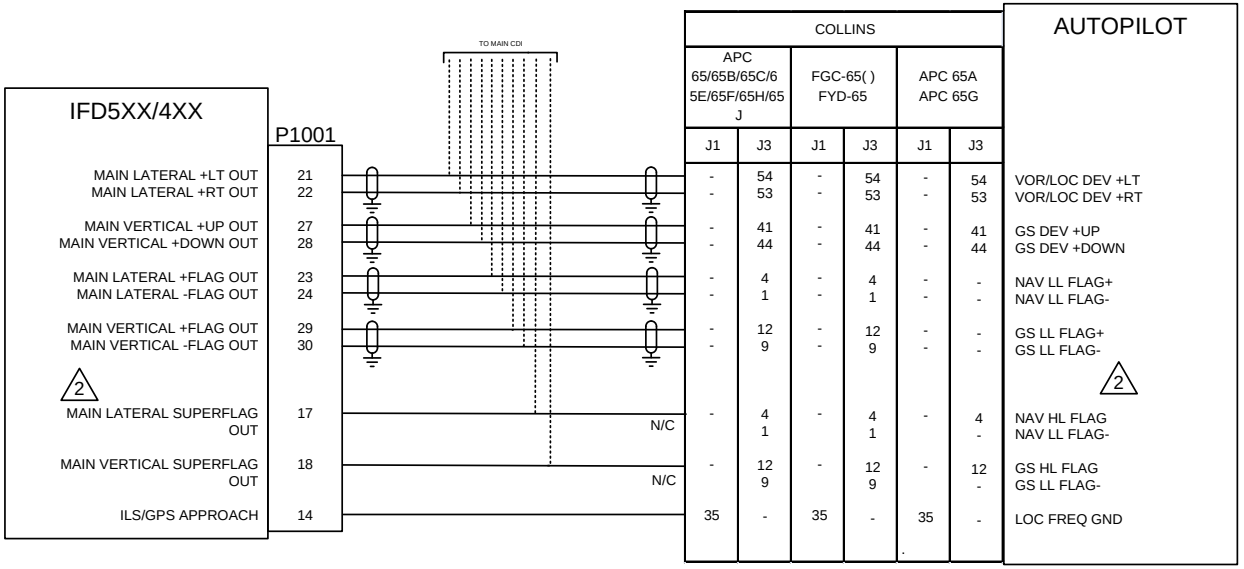
VLOC ANNUNCIATE



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. RESERVED
3. FOR CONVERTERS 01278-( ) S/N 600A AND ABOVE.
4. INSTALL JUMPER AS REQUIRED TO SET AK 1081 ARINC 429 INPUT SPEED TO MATCH IFD540 OUTPUT SETTING. REFER TO MANUFACTURER'S DOCUMENTATION FOR ADDITIONAL DETAILS.
5. IF THE GPS ANNUNCIATE SIGNAL IS ONLY USED BY THE AUTOPILOT, THIS MAY BE CONNECTED DIRECTLY.
6. IF THE VLOC ANNUNCIATE SIGNAL IS ONLY USED BY THE AUTOPILOT, THIS MAY BE CONNECTED DIRECTLY.
7. FOR CONVERTERS 01278-( ) 599 AND BELOW.

Sheet 2 of 2

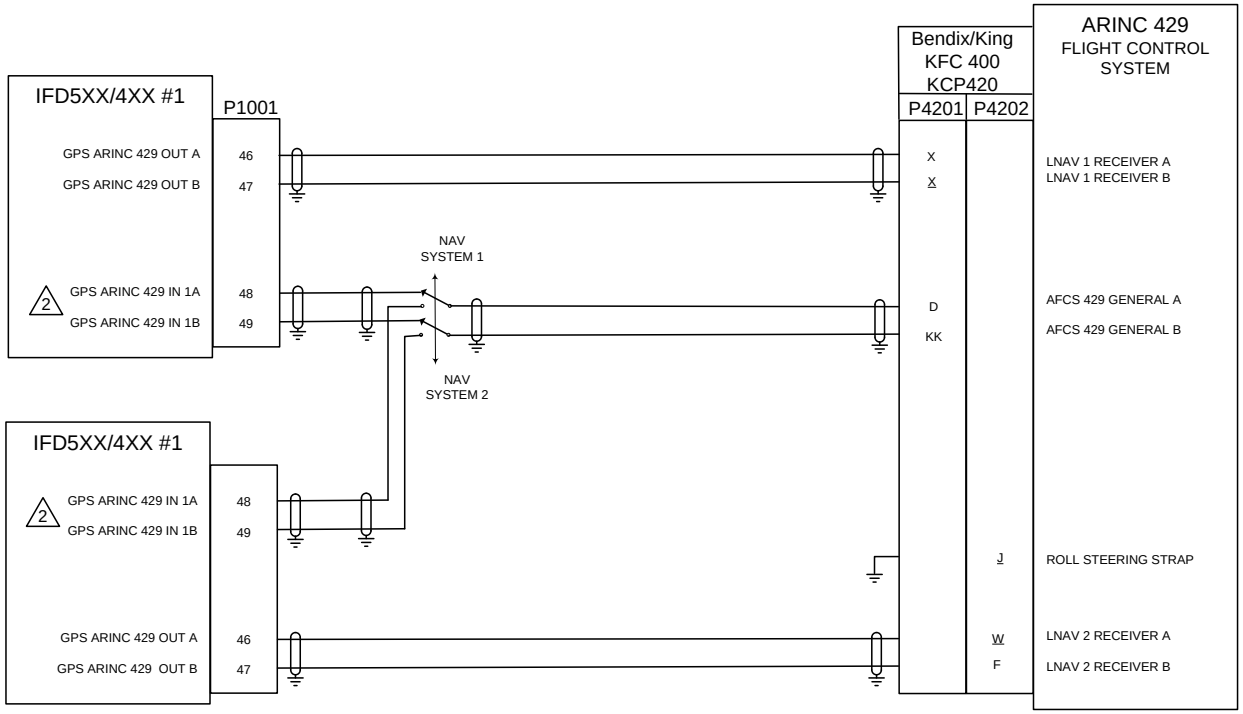


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2 CONNECT EITHER THE LOW-LEVEL FLAGS OR THE SUPERFLAGS. DO NOT CONNECT BOTH SETS OF FLAGS IN A PARTICULAR INSTALLATION

Figure D - 34: Collins Autopilot Interconnect

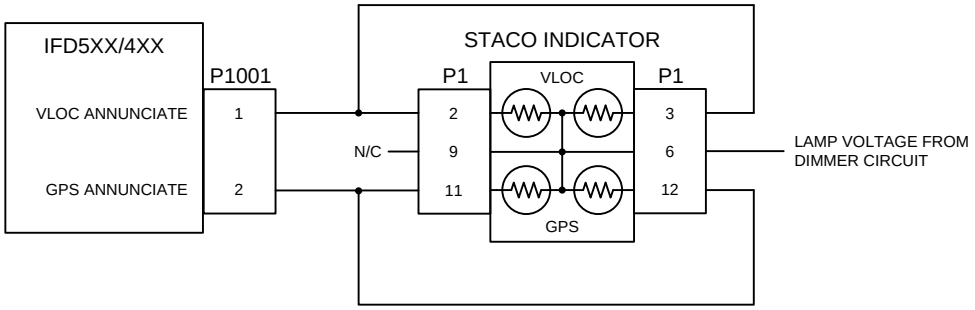


NOTES:

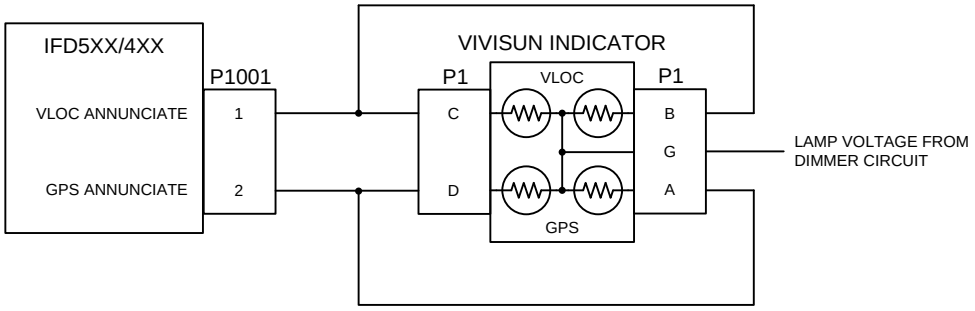
1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IF THE GPS ARINC 429 IN PORT 1 IS ALREADY BEING USED, GPS ARINC PORT MAY BE USED.
3. LOWER CASE LETTERS SHOWN UNDERLINED.
4. REFER TO MANUFACTURERS' DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

Figure D - 35: Bendix King KFC400 Autopilot Interconnect

STACO INDICATOR CONNECTION 4



VIVISUN INDICATOR CONNECTION 5



VIVISUN INDICATOR/SWITCH CONNECTION 6

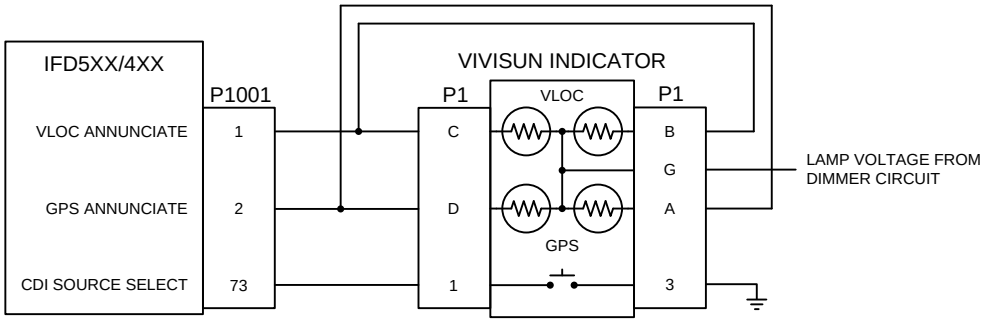


Figure D - 36: External Navigation Source and GPS Annunciators Interconnect

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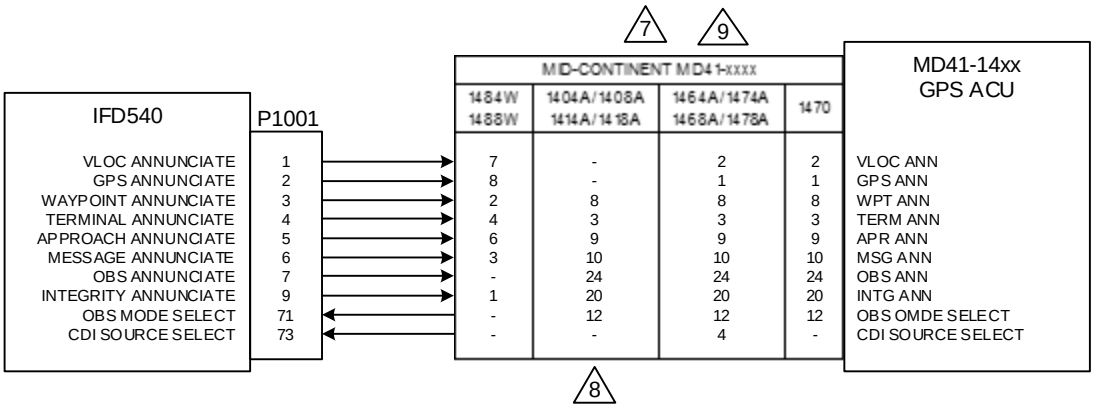


NOTES:

1. ALL WIRES TO BE 24 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. IF NAVIAGATION ANNUNCIATORS IS REQUIRED, INDICATORS ON THIS PAGE ARE SUITABLE TO MEET THE ANNUNCIATION REQUIREMENT.

3. THE PREFERRED ANNUNCIATION IS VLOC/GPS, ALTHOUGH NAV/GPS WILL BE ACCEPTABLE.

4. STACO SWITCH INDICATOR P/N 992561-1241762200 (14V SYSTEMS) AND P/N 992561-1241862200 (28V SYSTEMS) SHOWN.

5. VIVISUN INDICATOR P/N 95-40-17-B6-AW724 (28V SYSTEMS) SHOWN. INDICATOR MAY BE CONVERTED TO 14V OPERATION BY REPLACING 28V LAMPS WITH 14V LAMPS P/N 14-113.

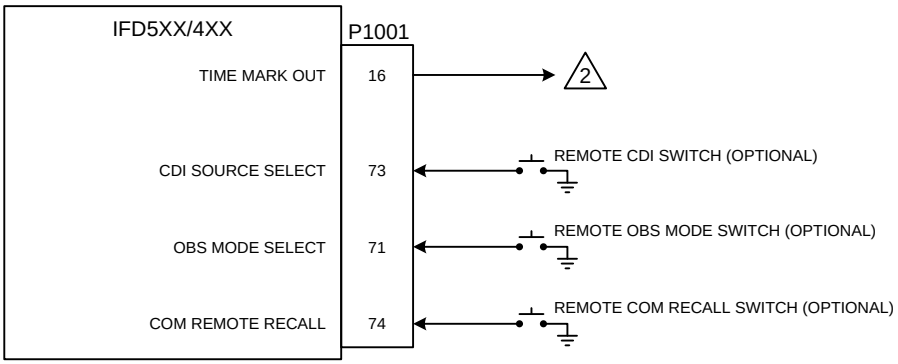
6. VIVISUN INDICATOR WITH MOMENTARY SWITCH P/N 95-45-11-B6-AW724 (28V SYSTEMS) SHOWN. INDICATOR MAY BE CONVERTED TO 14V OPERATION BY REPLACING 28V LAMPS WITH 14V LAMPS P/N 14-113.

7. THESE UNITS ALSO PROVIDE NAVIGATION SOURCE SELECTION ANNUNCIATION. MID-CONTINENT ANNUNCIATION CONTROL UNITS FOR BOTH 14V AND 28V SYSTEMS SHOWN. THIS DIAGRAM IS PROVIDED TO SHOW INTERCONNECTION BETWEEN IFD540 AND ACU ONLY. REFER TO MID-CONTINENT INSTALLATION MANUAL FOR ADDITIONAL INSTALLATION INFORMATION.

8. CDI SOURCE SELECTION AND ANNUNCIATION IS DONE WITH EXTERNAL RELAYS. REFER TO MID-CONTINENT INSTALLATION MANUAL FOR ADDITIONAL INSTALLATION INFORMATION.

9. 5VDC VERSIONS: 146XA(5V) OR 147XA(5V).

10. ANNUNCIATOR PART NUMBER 146X HORIZONTAL ORIENTATION. PART NUMBER 147XA ARE VERTICAL ORIENTATION



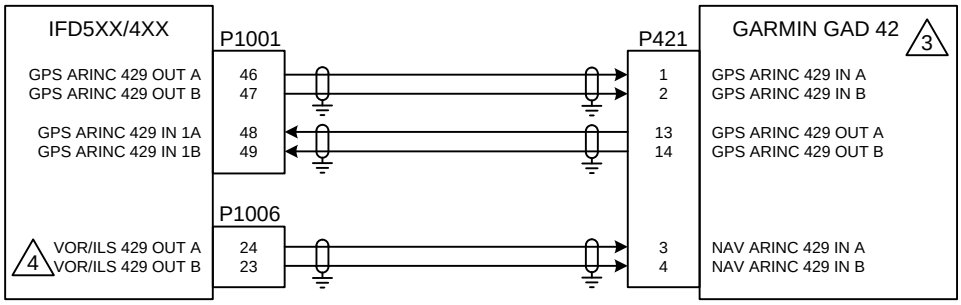
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. TIME MARK OUT (P1001-16) OUTPUTS A 1 MILISECOND WIDE PULSE ONCE PER SECOND.

3. COM REMOTE RECALL (P1001-74) INPUT MAY BE USED TO SCROLL THROUGH A LIST OF PRESET COM FREQUENCIES.

Figure D - 37: Switch Interconnect



NOTES:

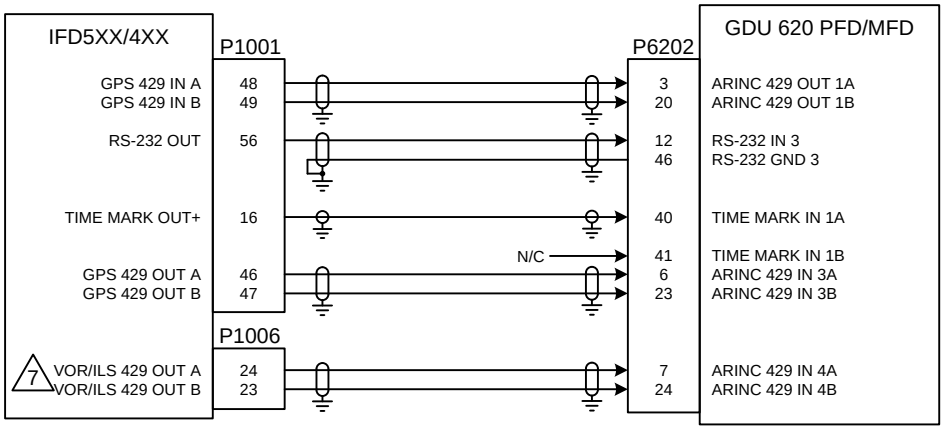
1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

3. SEE GARMIN GAD 42 INSTALLATION MANUAL FOR COMPLETE PIN-OUT AND INTERCONNECTION INFORMATION. GAD42 MUST BE CONFIGURED USING STRAPS ON THE UNIT.

4. NOT APPLICABLE FOR IFD IFD 510/545/410

Figure D - 38: Garmin GAD 42 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.

2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

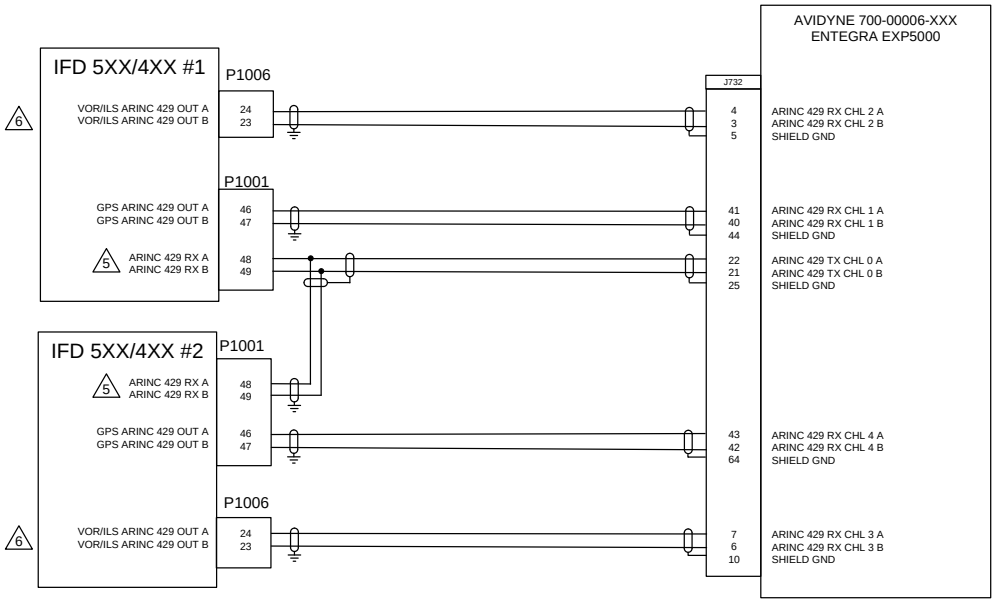
3. REFER TO THE MANUFACTURER'S DOCUMENTATION FOR COMPLETE PIN-OUT AND INTERCONNECT INFORMATION. PIN-OUTS OF OTHER UNITS SHOWN FOR REFERENCE ONLY.

4. FOR PROPER SETUP TO INTERFACE WITH THE G600. REFER TO THE G600 INSTALLATION MANUAL. APPENDIX E (P/N 190-00601-06).

6. FOR OTHER CONNECTION OPTIONS REFER TO THE G600 INSTALLATION MANUAL.

7 NOT APPLICABLE FOR IFD 510/545/410

Figure D - 39: Garmin G600 Interconnect



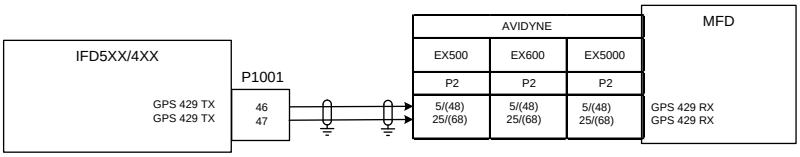
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.
3. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

5 IF THE GPS ARINC 429 IN 1 PORT (P1001-48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE, THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.

6 NOT APPLICABLE FOR IFD510/545/410

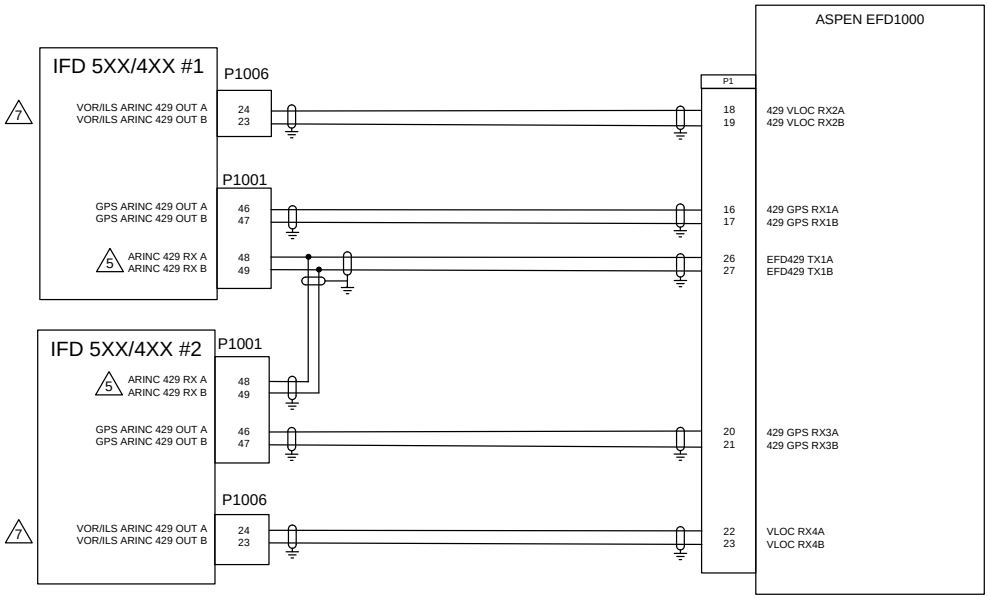
Figure D - 40: Avidyne Entegra Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.
3. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

Figure D - 41: Avidyne EX500/600/5000 Interconnect



NOTES:

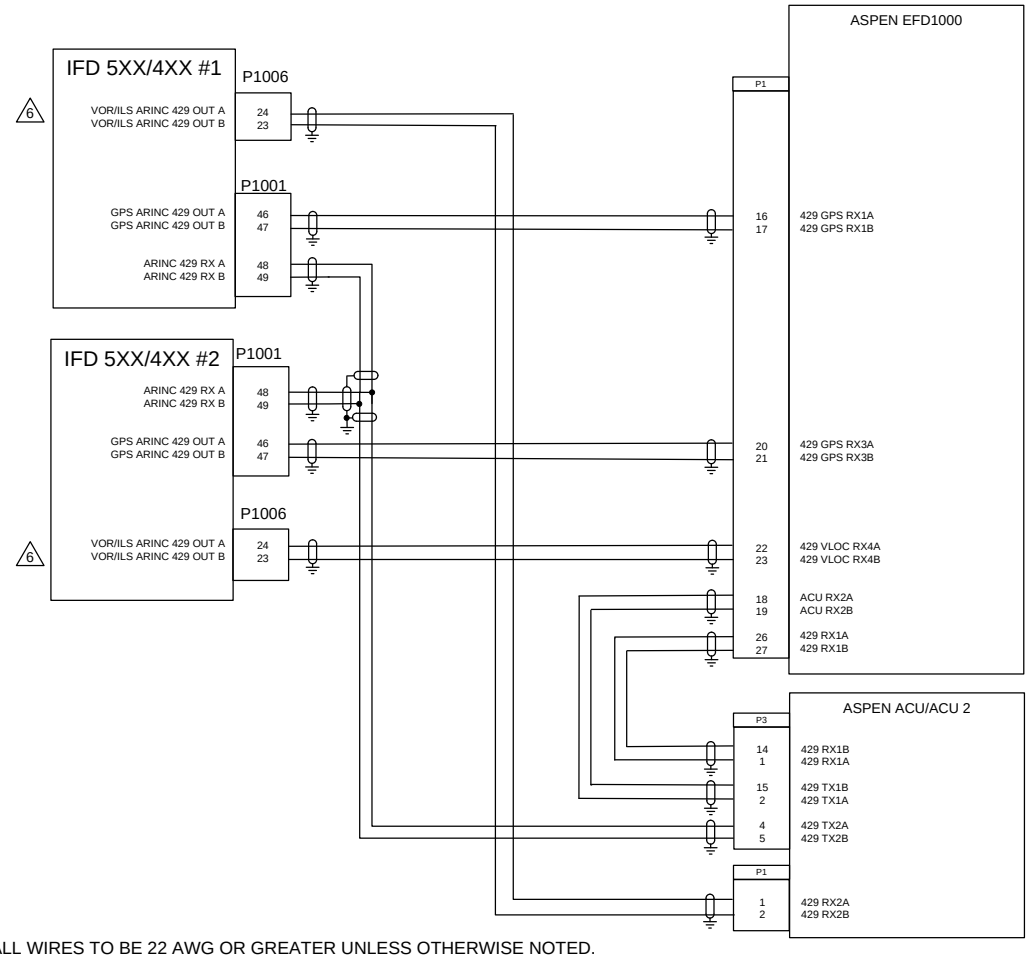
1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.
3. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

△5 IF THE GPS ARINC 429 IN 1 PORT (P1001-48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE, THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.

6. REFER TO MANUFACTURER'S INSTALL MANUAL FOR AIRDATA CONNECTION. ASPEN EFD1000 S/W 2.X OR LATER WILL TRANSMIT AIRDATA ON THE ARINC 429 TRANSMIT.

△7 NOT APPLICABLE FOR IFD510/545/410

Figure D - 42: Aspen EFD1000 Interconnect (without ACU)

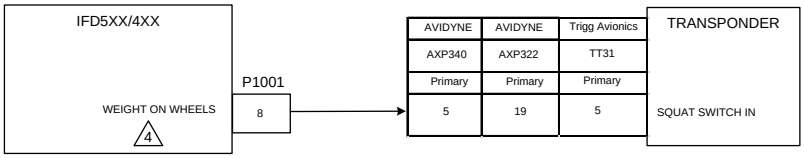


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.
3. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
4. IF THE GPS ARINC 429 IN 1 PORT (P1001 -48 AND -49) IS ALREADY USED FOR ANOTHER PURPOSE, THE GPS ARINC 429 IN 2 PORT (P1001-50 AND -51) MAY BE CONNECTED INSTEAD.
5. THE ACU AND ACU2 TRANSMITS DIFFERENT ARINC 429 LABELS. REFER TO MANUFACTURER'S INSTALL MANUAL FOR DIFFERENCES BETWEEN THE ACU AND ACU2.

△6 NOT APPLICABLE FOR IFD510/545/410

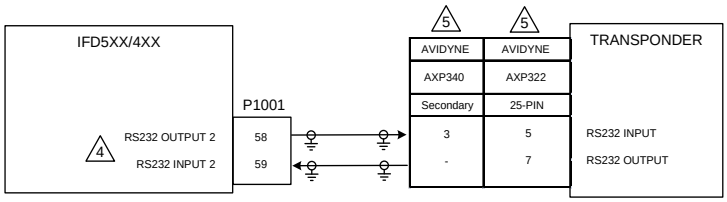
Figure D - 43: Aspen EFD1000 Interconnect (with ACU)



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

4 IF THE AIRCRAFT HAS AN EXISTING WEIGHT ON WHEELS OUTPUT, DO NOT CONNECT.



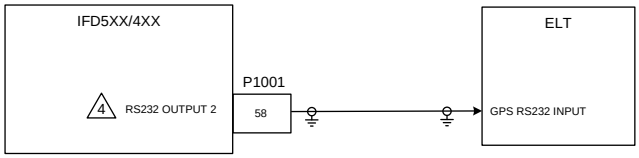
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

4 IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

5 ADS-B OUTPUT REQUIRES A SEPARATE INSTALLATION APPROVAL.

Figure D - 44: Transponder Interconnect

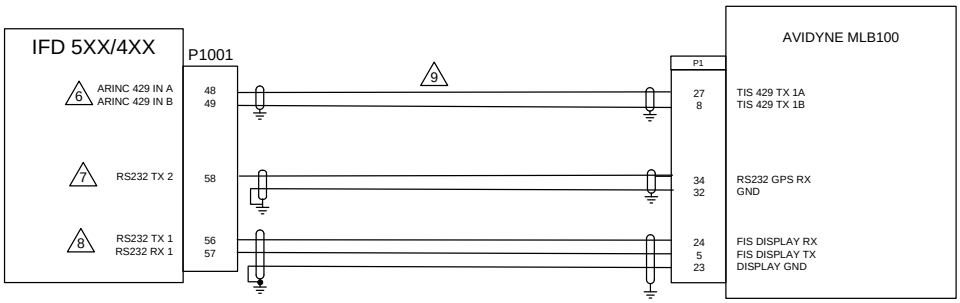


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

4 IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

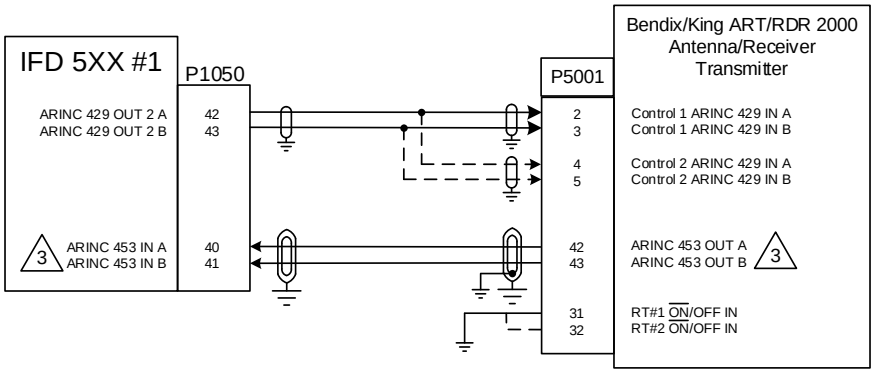
Figure D - 45: ELT Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. AT IFD5XX/4XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE.
3. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
4. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.
5. IF RS232 OR ARINC429 PORTS ARE UNAVAILABLE, USE ANY OTHER AVAILABLE PORT.
6. IF SW VERSION 10.1.1, 10.1.2, OR 10.1.3 IS INSTALLED CONFIGURE ARINC 429 PORT FOR MLB **Traffic, Port Speed: High**
7. CONFIGURE GPS RS232 PORT FOR **ADS-B+(G)**
8. IF SW VERSION 10.2 OR LATER IS INSTALLED CONFIGURE DISPLAY RS232 PORT FOR **SkyTrax100.**
9. TRAFFIC DATA IS COMBINED WITH WEATHER OVER RS232 WITH SW VERSION 10.2 OR LATER. ARINC 429 CONNECTION IS NOT REQUIRED.

Figure D - 46: Skytrax100B (formerly MLB100) ADS-B IN Receiver Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.

2. IN DUAL IFDXXX INSTALLATIONS RADAR INPUT MUST BE CONNECTED TO THE UNIT WITH CHASSIS ID CONFIGURED FOR IFD #1. IFD4XX UNITS DO NOT SUPPORT ARINC 453 INPUT, BUT CAN DISPLAY RADAR DATA SHARED OVER CrossSync.

3. ARINC 453 DATA BUS: BOTH SHIELDS GROUNDED TO CONNECTOR SHELL AT ART/RDR 2000; OUTER SHIELD GROUNDED ONLY AT IFD5XX UNIT END. WIRE TO BE QUADRAX, NON-PVC JACKET, KPN: 024-00064-0000.

4. AT IFD5XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

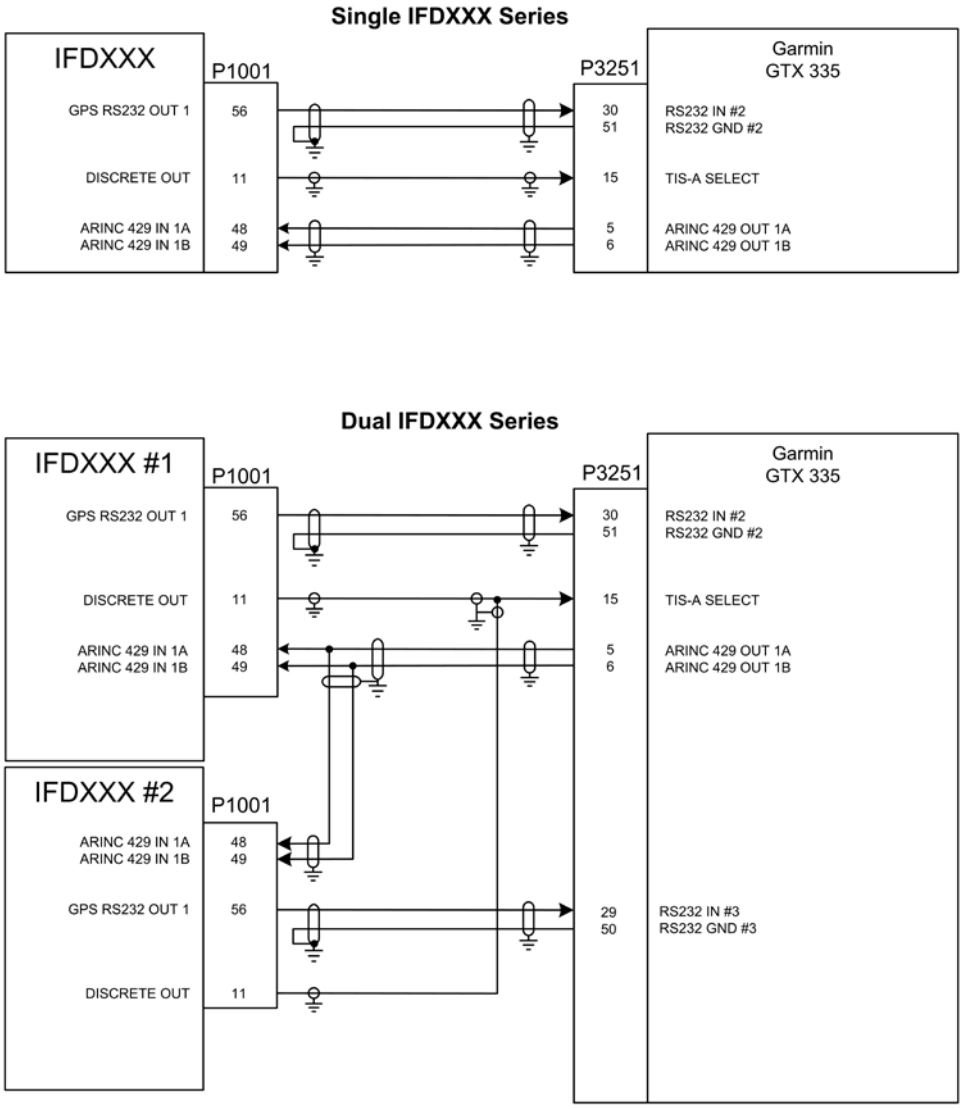
5. ALL SHIELD GROUND CONNECTIONS SHOWN FOR THE ART/RDR 2000 ARE TO BE CONNECTED TO THE UNIT BACKSHELL GROUND.

6. THE IFD545.550 HAVE RADAR STABILIZATION, GO TO THE RADAR SETUP PAGE AND SELECT STABILIZATION ON.

7. SET THE IFD ARINC 429 #2 OUT TO ARINC 743A.

8. THESE ARE THE ELECTRICAL CONNECTIONS BETWEEN THE AVIDYNE IFD AND THE BENDIX / KING RDR2000 SYSTEM R/T UNITS. ALL OTHER WIRING IS AT THE DISCRETION OF THE INSTALLER.

Figure D - 47: RDR2000 Interconnect



NOTES:

1. ALL WIRES TO BE 24 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.

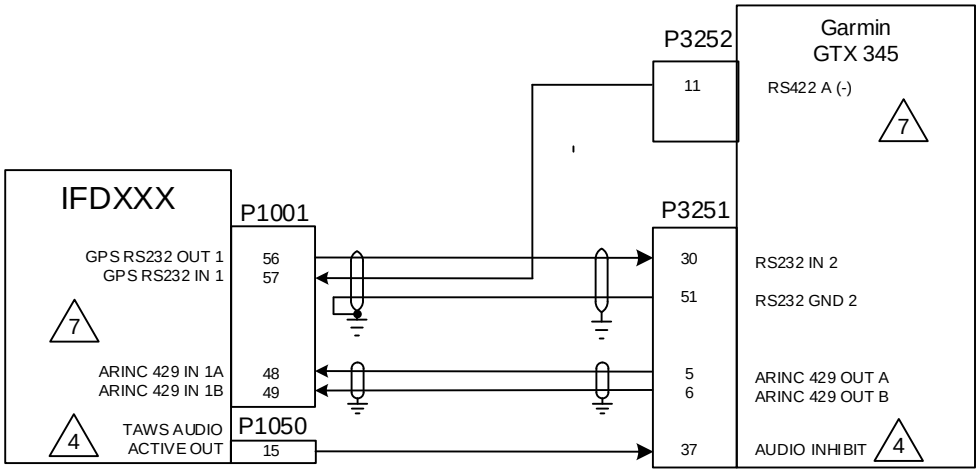
2. ALL GROUND CONNECTIONS SHOWN FOR THE GTX335 ARE TO BE CONNECTED TO SHIELD BLOCK GROUND.

3. AT IFDXXX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. IFDXXX SERIAL PORTS (RS232 AND ARINC 429) OTHER THAN THE ONES SHOWN ABOVE MAY BE SUBSTITUTED WITH APPROPRIATE UNIT SOFTWARE CONFIGURATION.

Figure D - 48: GTX 335 Interconnect

Single IFDXXX Series



Dual IFDXXX Series

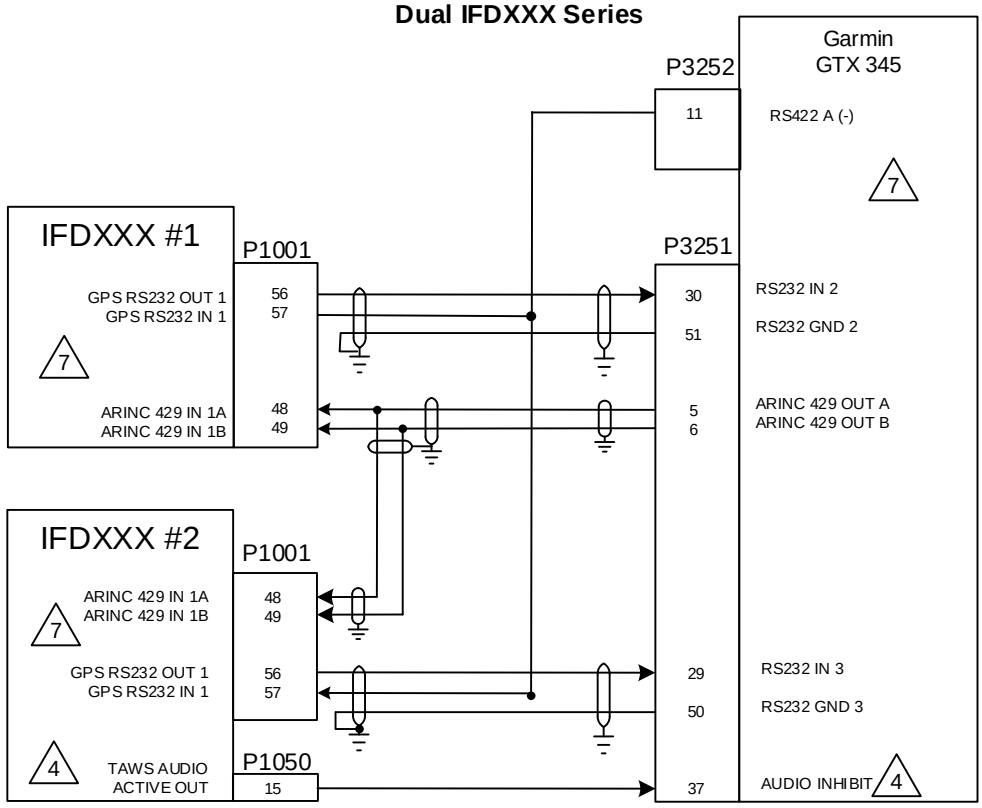


Figure D - 49: GTX 345 Interconnect

(see below for notes)

NOTES:

1. ALL WIRES TO BE 24 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.

2. ALL GROUND CONNECTIONS SHOWN FOR THE GTX345 ARE TO BE CONNECTED TO SHIELD BLOCK GROUND.

3. AT IFD5XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

4. AUDIO INHIBIT MAY BE USED TO INHIBIT GTX-345 TIS-B ALERTS DURING IFD4XX/IFD5XX FLTA AURAL ANNUNCIATIONS. THIS DOES NOT AFFECT THE APPROVAL OF THE TIS-B FUNCTIONS OF THE GTX 345. GTX345 AUDIO INHIBIT MAY BE DRIVEN BY IFD#1 OR IFD#2 IN DUAL IFDXXX INSTALLATIONS. IFD4XX UNITS DO NOT DRIVE AUDIO INHIBIT. IN IFD4XX UNITS SIMULTAINEOUS TIS-B AND FLTA AURAL ANNUNCIATIONS ARE POSSIBLE (ADDRESSED IN AFMS).

5. IFDXXX SERIAL PORTS (RS232 AND ARINC 429) OTHER THAN THE ONES SHOWN ABOVE MAY BE SUBSTITUTED WITH APPROPRIATE UNIT SOFTWARE CONFIGURATION.

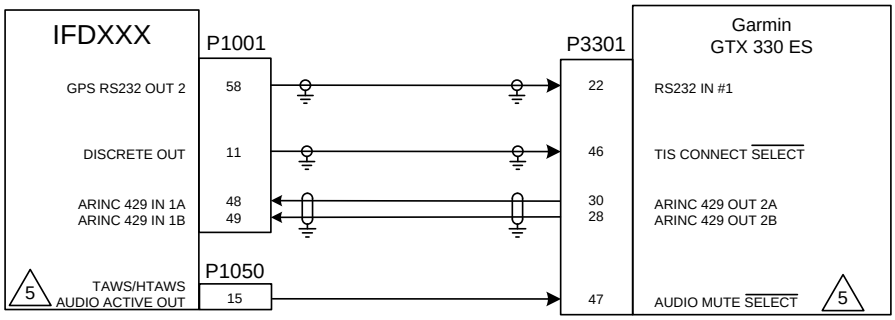
6. IFD4XX/IFD5XX FLTA FEATURE MUST BE DISABLED IF INSTALLED IN AIRCRAFT WITH APPROVED TAWS/EGPWS. THIS IS ACCOMPLISHED BY SELECTING “Yes” FOR THE “External TAWS” OPTION IN THE CONFIG TAB OF MAINTENANCE MODE.

7. CONFIGURE SELECTED POTS WITH THE FOLLOWING SETTINGS:

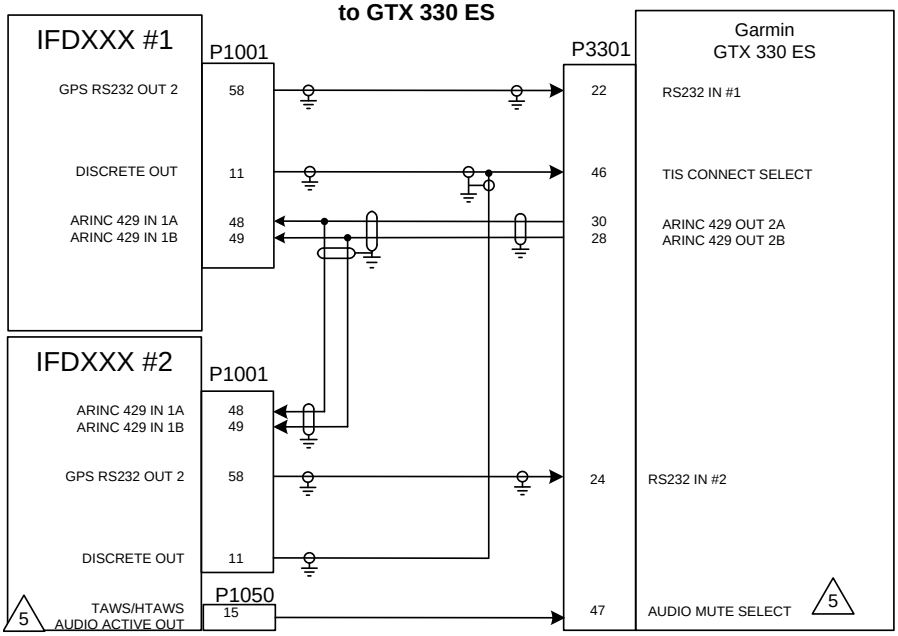
- If the GTX 345 has an internal GPS receiver, the RS 232 position output connection and configuration setup is **not** required
- IFDXXX RS232 output setting: ADS-B+ (G2)…. GTX 345 RS 232 input setting: ADS-B+ FMT 2
- IFDXXX RS232 input setting: Capstone HS Wx …. GTX 345 RS 422 output setting: Optimized Legacy ADS-B
- IFDXXX ARINC429 receive setting: GDL 88 Traffic at High Speed…. GTX 345 ARINC429 transmit setting: Traffic
- Minimum Software Versions Required: IFD XXX v10.2.1 or higher….GTX 345 v2.05 or higher

Figure D -49: GTX 345 Interconnect (con’t)

Single IFDXXX Series to GTX 330 ES



Dual IFDXXX Series to GTX 330 ES



NOTES:

1. ALL WIRES TO BE 24 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.

2. ALL GROUND CONNECTIONS SHOWN FOR THE GTX 330 ES ARE TO BE CONNECTED TO SHIELD BLOCK GROUND.

3. AT IFDXXX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICAL.

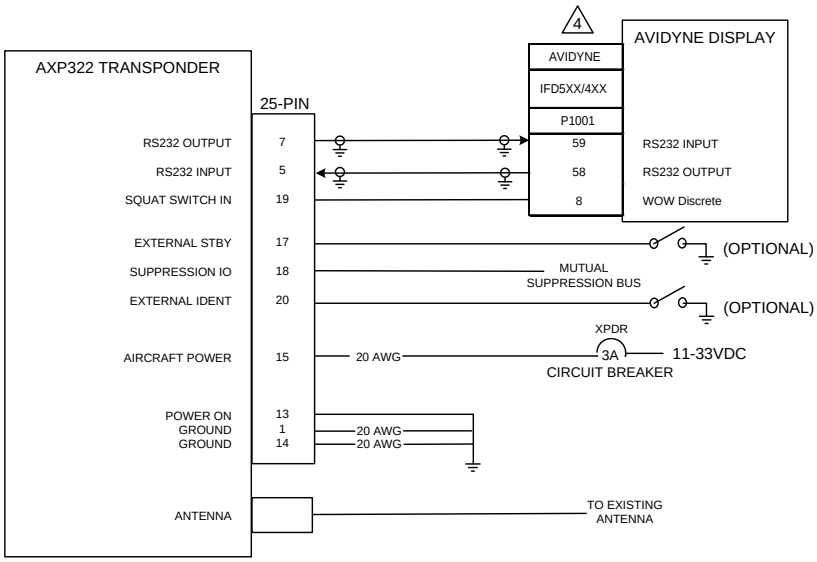
4. IFDXXX SERIAL PORTS (RS232 AND ARINC 429) OTHER THAN THE ONES SHOWN ABOVE MAY BE SUBSTITUTED WITH APPROPRIATE UNIT SOFTWARE CONFIGURATION.

5. AUDIO INHIBIT MAY BE USED TO INHIBIT GTX330ES TIS ALERTS DURING IFD4XX/IFD5XX FLTA AURAL ANNUNCIATIONS. THIS DOES NOT AFFECT THE APPROVAL OF THE TIS FUNCTIONS OF THE GTX 330ES. AUDIO INHIBIT MAY BE DRIVEN BY IFD#1 OR IFD#2 IN DUAL IFDXXX INSTALLATIONS. IFD4XX UNITS DO NOT DRIVE AUDIO INHIBIT. IN IFD4XX UNITS SIMULTAINEOUS TIS-B AND FLTA AURAL ANNUNCIATIONS ARE POSSIBLE (ADDRESSED IN AFMS).

6. GTX 330 MUST BE “ES” ENABLED.

7. IFD4XX/IFD5XX FLTA FEATURE MUST BE DISABLED IF INSTALLED IN AIRCRAFT WITH APPROVED TAWS/EGPWS. THIS IS ACCOMPLISHED BY SELECTING “Yes” FOR THE “External TAWS” OPTION IN THE CONFIG TAB OF MAINTENANCE MODE.

Figure D - 50: GTX 330ES Interconnect

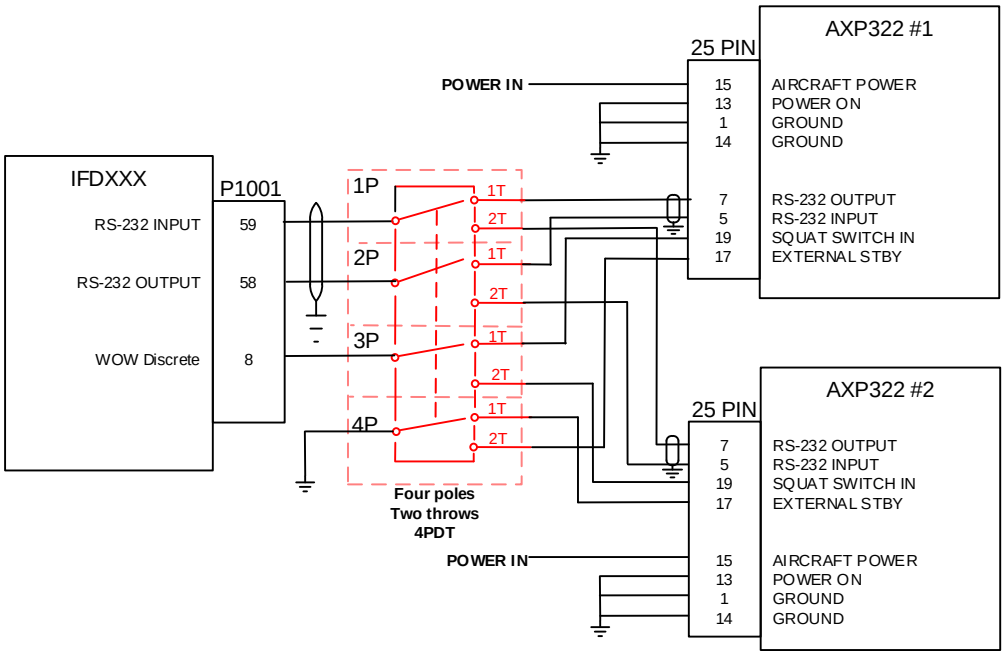


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

4 IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

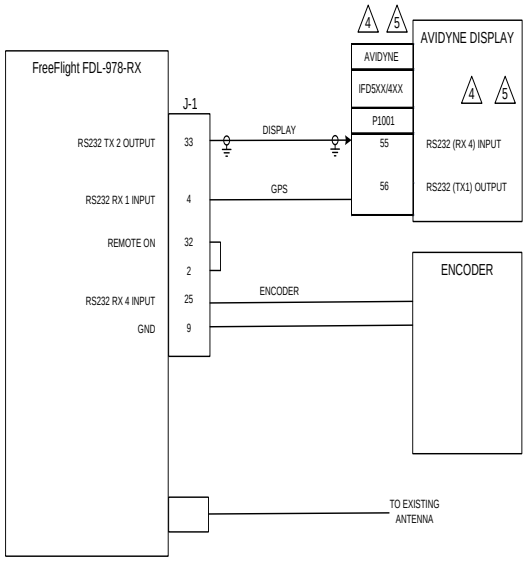
Figure D - 51: Avidyne AXP322 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PIN-OUT AND INTERCONNECT INFORMATION.
4. IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.
5. EACH TRANSPONDER MUST BE CONFIGURED.
6. CONFIGURE AXP322 WOW SELECTION TO AVIDYNE.

Figure D - 52: Avidyne Dual AXP322 Interconnect



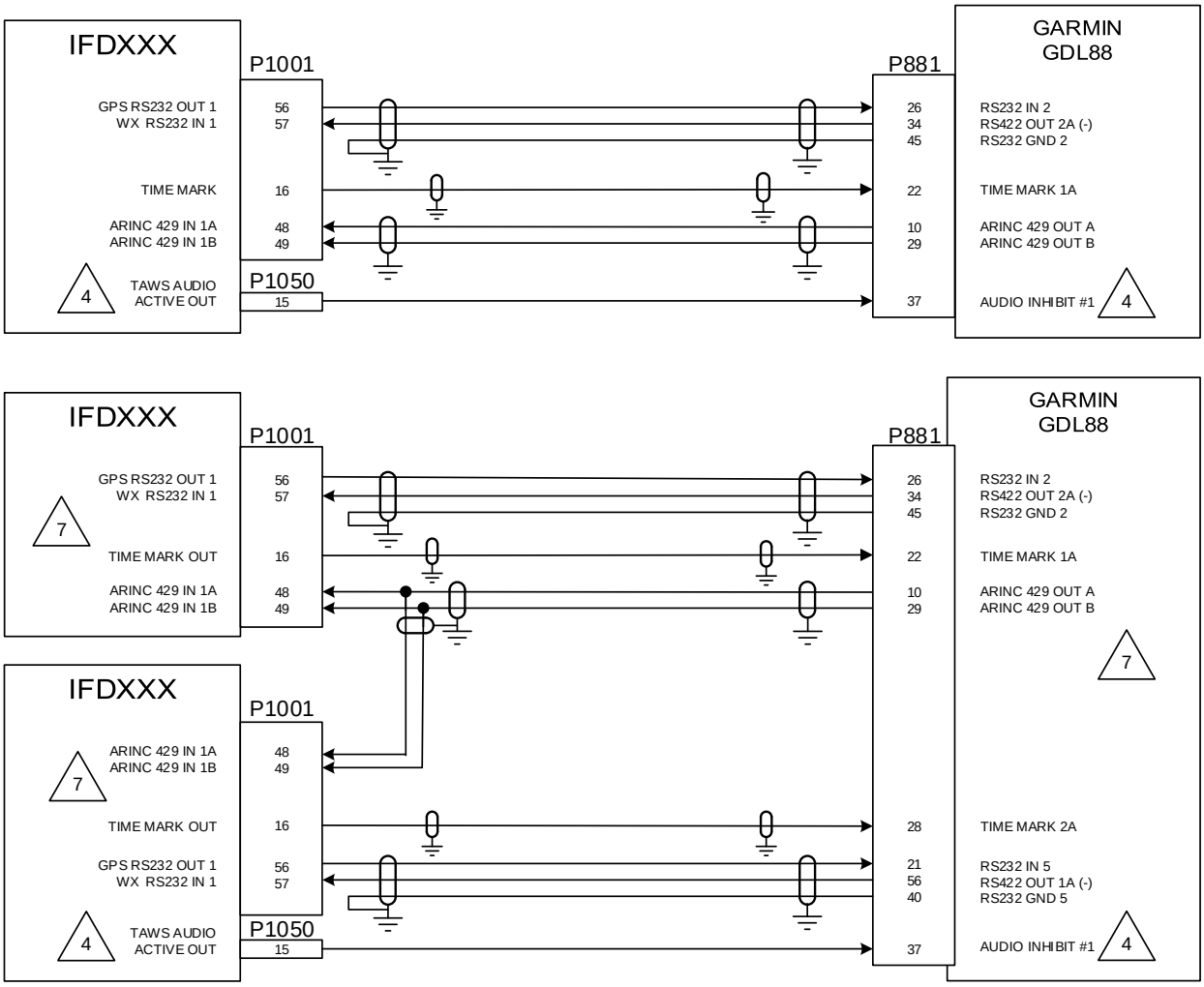
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

4 IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

5 SET IFD DISPLAY INPUT PORT TO **CAPSTONE TRAFFIC & WX** LOW SPEED (9600 BAUD) FOR S/W 10.2.0, **CAPSTONE HS TRAFFIC & WX** HI SPEED (38,400 BAUD) FOR S/W 10.2.1 AND LATER, GPS OUTPUT PORT TO **ADS-B+(G)** LOW SPEED (9,600 BAUD)

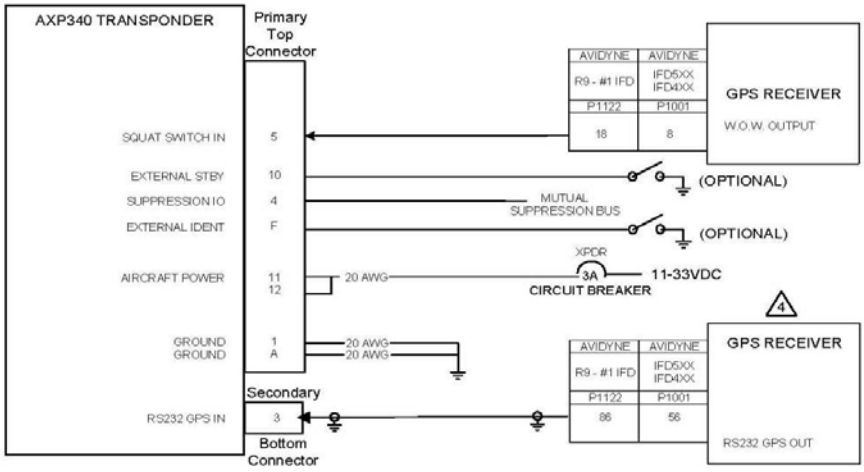
Figure D - 53: FreeFlight FDL 978RX Interconnect



NOTES:

1. ALL WIRES TO BE 24 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.
2. ALL GROUND CONNECTIONS SHOWN FOR THE GDL88 ARE TO BE CONNECTED TO SHIELD BLOCK GROUND.
3. AT IFD5XX UNIT, TERMINATE SHIELD GROUNDS TO THE CONNECTOR BACKSHELL OR USE CARD-EDGE CONNECTOR TO TERMINATE SHIELD GROUNDS TO BACK PLATE – THE SHIELD LEADS MUST BE LESS THAN 3.0 INCHES. CONNECT OTHER SHIELD GROUNDS TO AIRCRAFT CHASSIS WITH AS SHORT A CONDUCTOR AS PRACTICLE.
   AUDIO INHIBIT MAY BE USED TO INHIBIT GDL88 ITS-B ALERTS DURING IFD4XX/IFD5XX FLTA AURAL ANNUNCIATIONS. THIS DOES NOT AFFECT THE APPROVAL OF THE TIS-B FUNCTIONS OF THE GDL88. GDL88 AUDIO INHIBIT MAY BE DRIVEN BY THE IFD#1 OR IFD#2 IN DUAL IFDXXX INSTALLATIONS. IFD4XX UNITS DO NOT DRIVE AUDIO INHIBIT. IN IFD4XX UNITS SIMULTAINEOUS TIS-B AND FLTA AURAL ANNUNCIATIONS ARE POSSIBLE (ADDRESSED IN AFMS).
5. IFDXXX SERIAL PORTS (RS232 AND ARINC 429) OTHER THAN THE ONES SHOWN ABOVE MAY BE SUBSTITUTED WITH APPROPRIATE UNIT SOFTWARE CONFIGURATION.
6. IFD4XX/IFD5XX FLTA FEATURE MUST BE DISABLED IF INSTALLED IN AIRCRAFT WITH APPROVED TAWS/EGPWS. THIS IS ACCOMPLISHED BY SELECTING "YES" FOR THE "EXTERNAL TAWS" OPTION IN THE CONFIG TAB OF MAINTENANCE MODE.
7. CONFIGURE SELECTED PORTS WITH THE FOLLOWING SETTINGS;
   If the GDL 88 has an internal GPS receiver, the RS 232 position output connection and configuration setup is **not** required
   IFDXXX RS 232 output setting: ADS-B+ (G2)....GDL88 RS 232 input setting: ADS-B Format 2 #1 and/or #2 as appropriate
   IFDXXX RS 232 input setting: Capstone HS Wx .... GDL 88 RS 422 input/output setting: Optimized Legacy ADS-B
   IFDXXX ARINC 429 receive setting: GDL88 Traffic at High Speed....GDL88 ARINC 429 transmit setting: Traffic Out at High Speed
   Minimum Software Versions Required: IFD XXX v10.2.1 or higher....GDL 88 v3.33 or higher

Figure D - 54: GDL 88 Interconnect

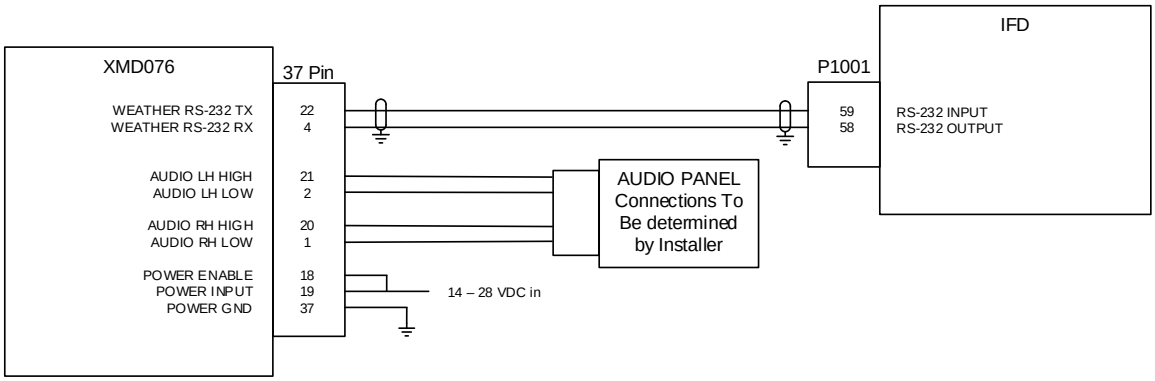


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. REFER TO MANUFACTURER'S DOCUMENTATION FOR COMPLETE PINOUT AND INTERCONNECT INFORMATION.

⚠4 IF RS-232 PORT 2 IS NOT AVAILABLE, USE ANY OTHER AVAILABLE PORT.

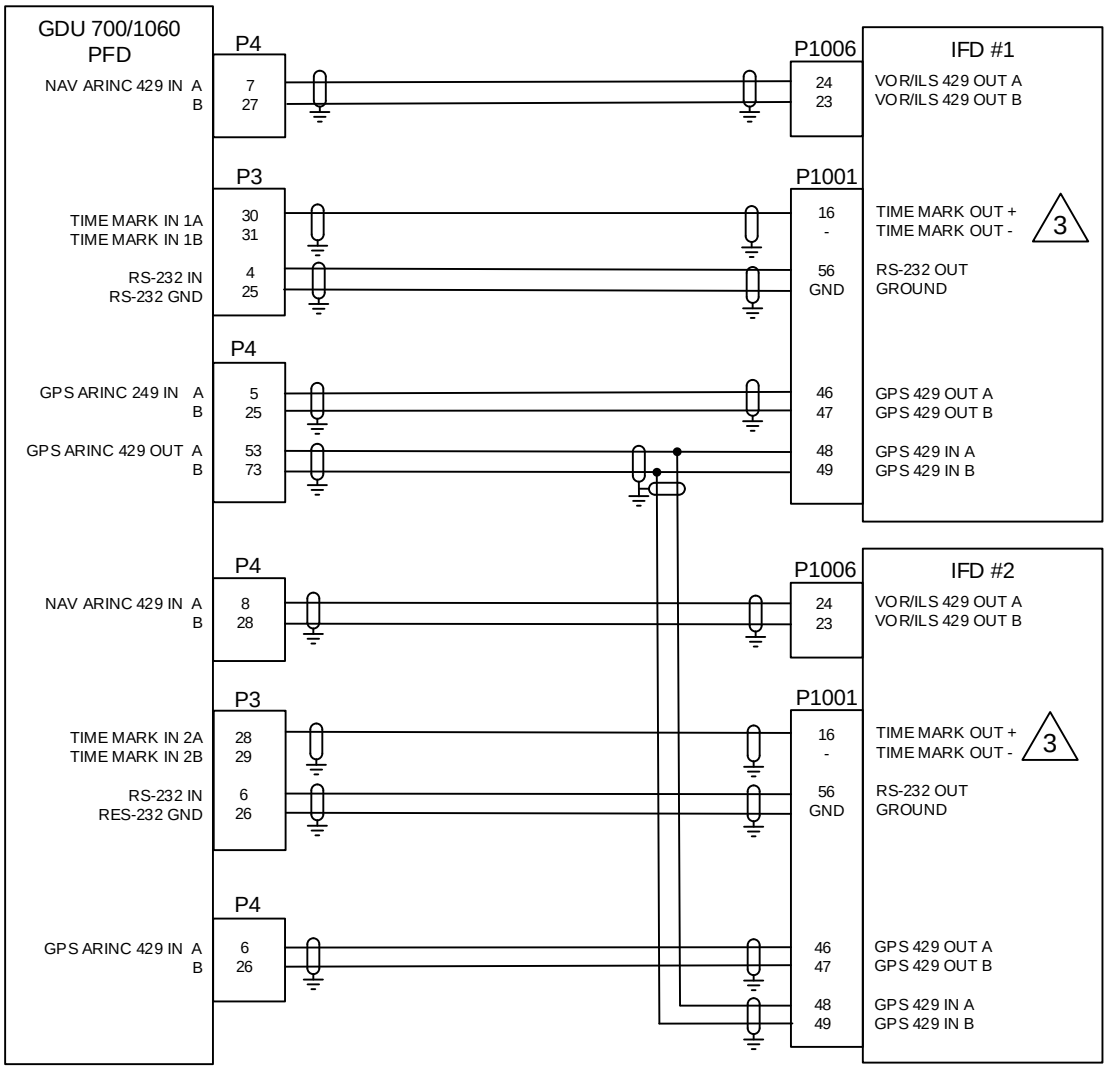
Figure D - 55: Avidyne AXP340 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IFD NEEDS SOFTWARE 10.2.3.1 OR HIGHER.
3. IFD WILL NOT CONTROL AUDIO FUNCTIONS.
4. WEATHER DISPLAY IS 115, 200 BAUD.

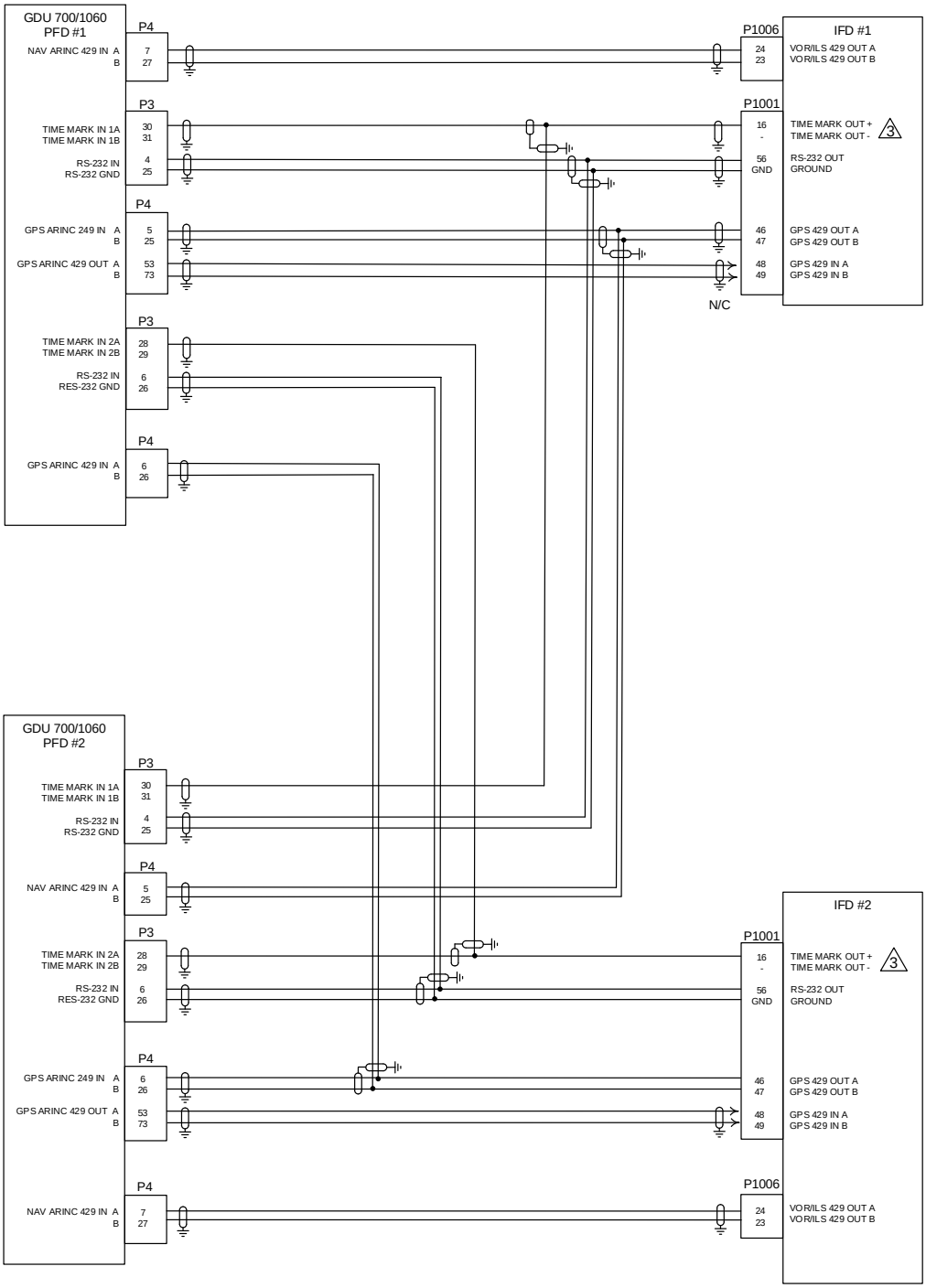
Figure D - 56: XMD076 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED
3. THE TIME MARK B CONNECTION MUST BE LEFT UNCONNECTED FOR THE INSTALLATION OF IFD SERIES UNITS. A SINGLE CONDUCTOR SHILDED WIRE MAY BE USED FOR THE TIME MARK IN THIS CASE
4. SHOWN ARE CONNECTIONS TO THE IFD's, ALL OTHER WIRING IS AT THE DESCRETION OF THE INSTALLER.

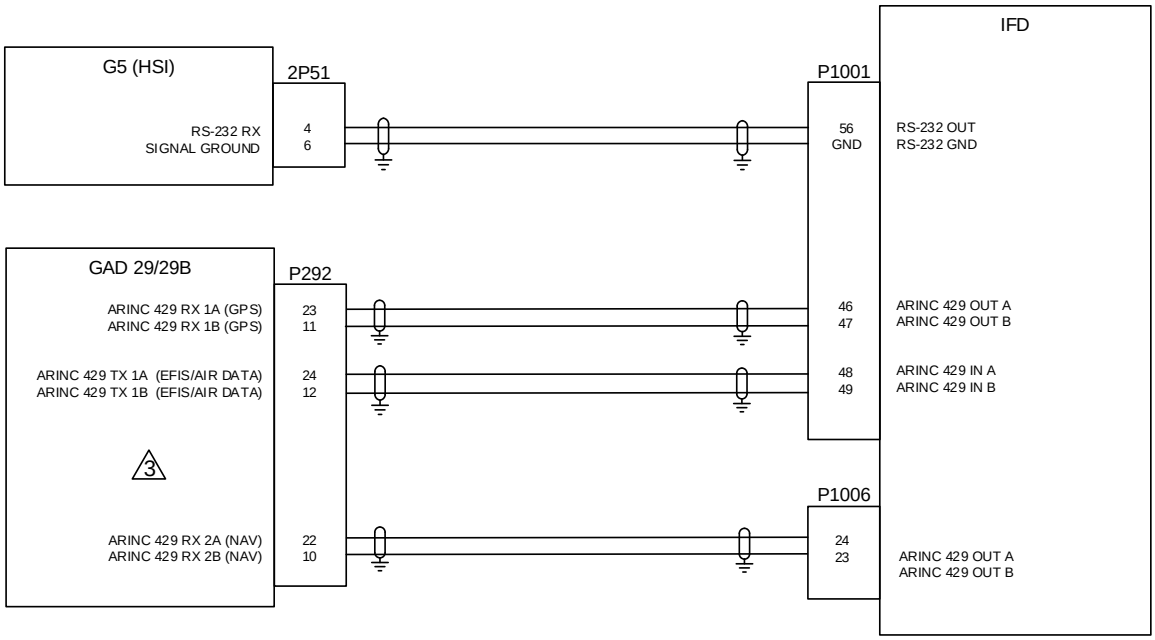
Figure D - 57: Single GDU700/1060 PFD Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED
3. THE TIME MARK B CONNECTION MUST BE LEFT UNCONNECTED FOR THE INSTALLATION OF IFD SERIES UNITS. A SINGLE CONDUCTOR SHILDED WIRE MAY BE USED FOR THE TIME MARK IN THIS CASE
4. SHOWN ARE CONNECTIONS TO THE IFD's, ALL OTHER WIRING IS AT THE DESCRETION OF THE INSTALLER.

Figure D - 58: Dual GDU700/1060 PFD Interconnect

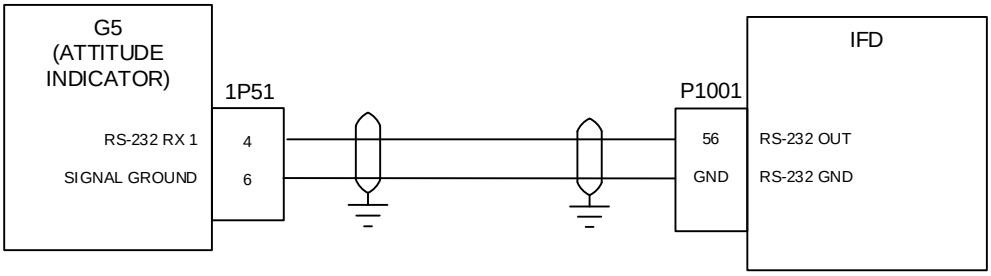


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IFD NEEDS SOFTWARE 10.2.3.1 OR HIGHER.
3. GAD29B INSTALLED WHEN INTERFACING TO A THIRD PARTY AUTOPILOT SEE GAD29B INTERFACE TO THIRD PARTY AUTOPILOT INTERCONNECT DIAGRAMS FOR FURTHER INFORMATION.

IFD Config Page	Config Option	Configuration Setting
MAIN ARINC 429 CONFIG Page	IN (x)	Speed = Low Data = EFIS / Airdata
	OUT	Speed = Low Data = GAMA 429
	VNAV	ENABLED
MAIN RS-232 CONFIG Page		Input = OFF Output = MapMX (WAAS GPS) AVIATION (non WAAS GPS)
VOR/LOC/GS ARINC 429 CONFIG Page		RX = Low TX = Low VOR/ILS 1

Figure D - 59: Garmin G5 EHSI Interconnect

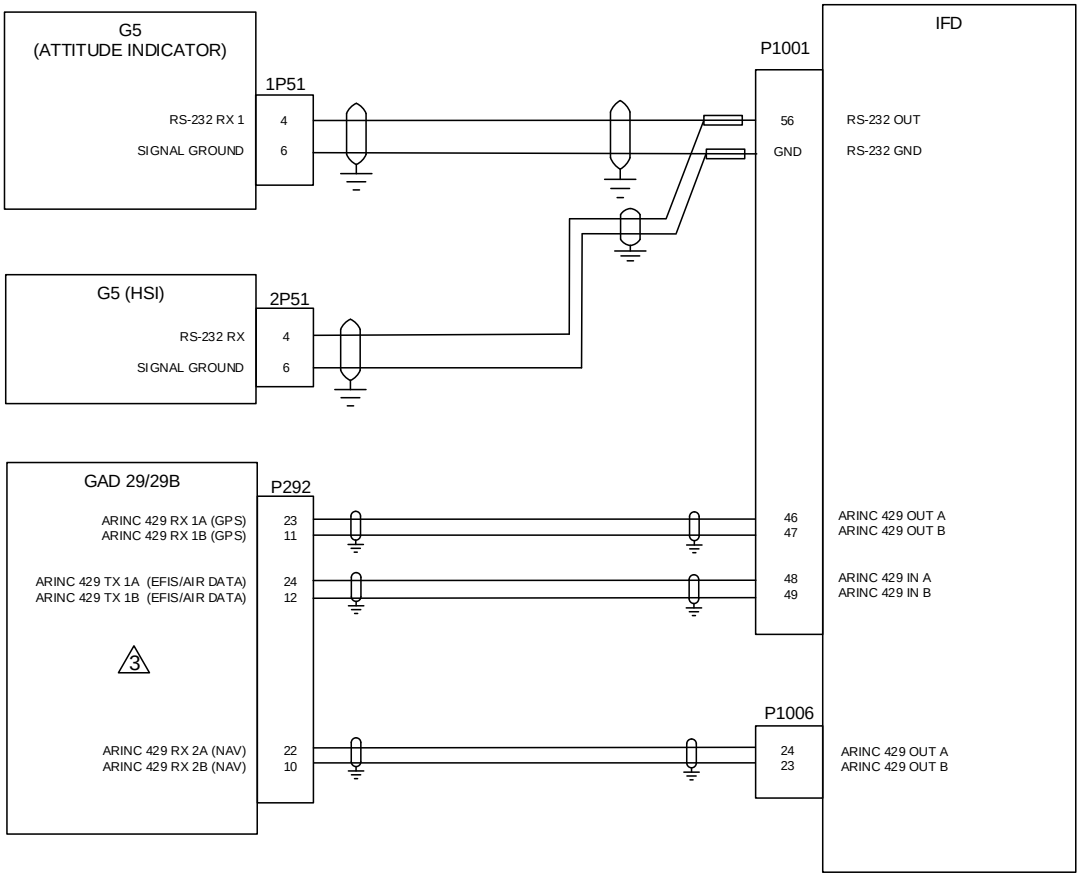


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.

IFD Config Page	Configuration Setting
MAIN RS-232 CONFIG PAGE	Input = OFF Output = MapMX (WAAS GPS) AVIATION (non WAAS GPS)

Figure D - 60: Garmin G5 EADI Interconnect

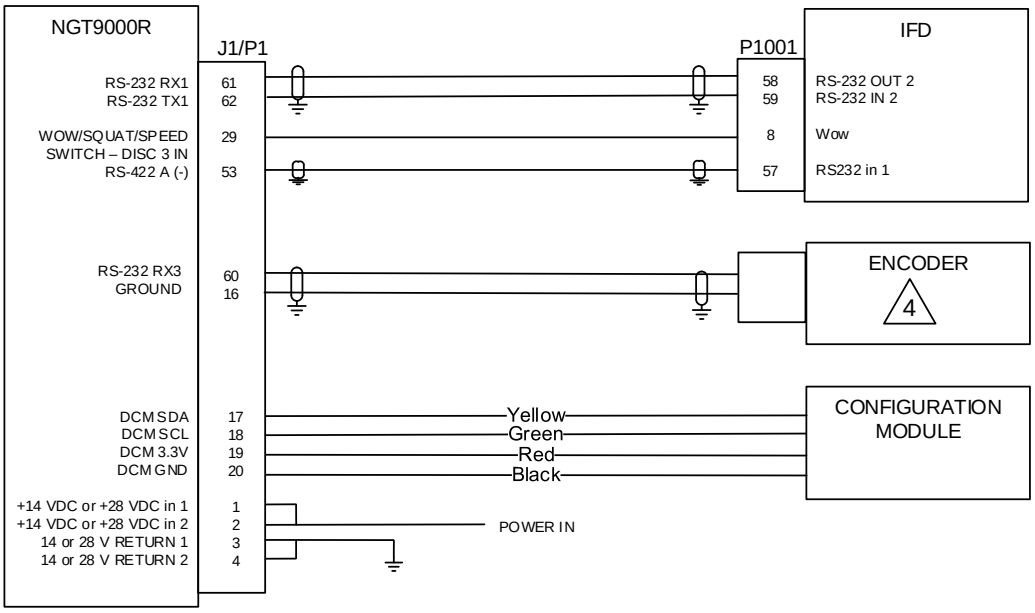


NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. IFD NEEDS SOFTWARE 10.2.3.1 OR HIGHER.
3. GAD29B INSTALLED WHEN INTERFACING TO A THIRD PARTY AUTOPILOT SEE GAD29B INTERFACE TO THIRD PARTY AUTOPILOT INTERCONNECT DIAGRAMS FOR FURTHER INFORMATION.

IFD Config Page	Config Option	Configuration Setting
MAIN ARINC 429 CONFIG Page	IN	Speed = Low Garmin GAD42
	OUT	Speed = Low Data = GAMA 429
	VNAV	ENABLED
MAIN RS-232 CONFIG Page		Input = OFF Output = MapMX (WAAS GPS) Aviation (Non WAAS GPS)
VOR/LOC/GS ARINC 429 CONFIG Page	SPEED	RX = Low TX = Low
	SDI	VOR/ILS 1

Figure D - 61: Garmin G5 EFIS Interconnect



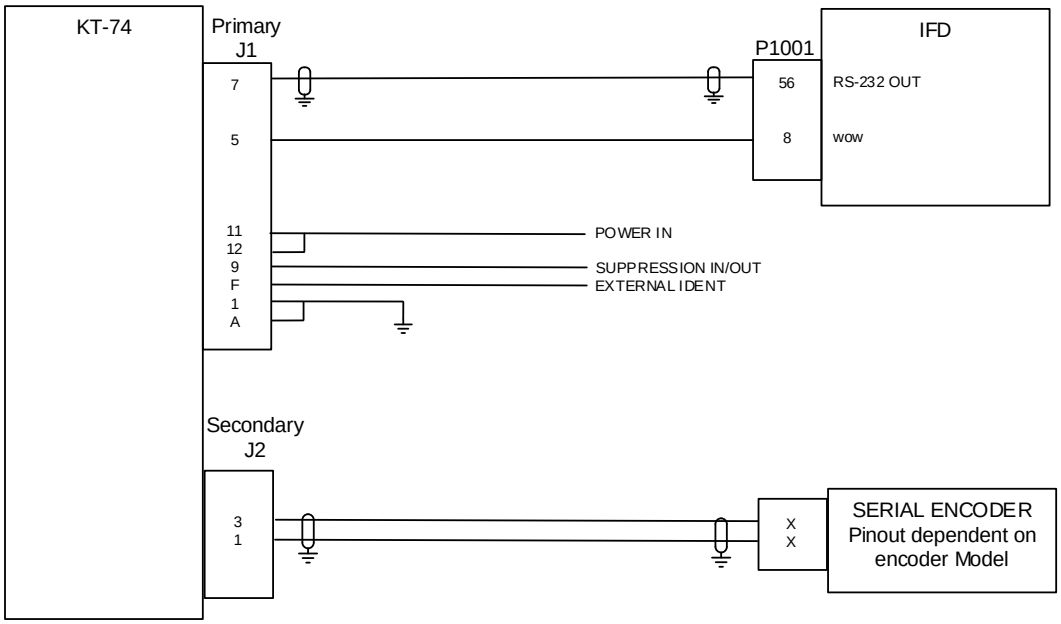
NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED
3. CONFIGURE NGT9000R WOW INPUT TO OPEN IN AIR.

⚠4 REFER TO THE INSTALLATION MANUAL OF THE ALTITUDE ENCODER FOR PINOUT AND FORMAT SETTINGS.

5. CONFIGURE NGT9000R RS-232 OUT BAUD TO 115,200.
6. CONFIGURE IFD RS-232 INPUT TO CAPSTONE TFC + Wx HIGH SPEED.
7. CONFIGURE THE IFD RS-232 OUTPUT/INPUT TO NGT9000R

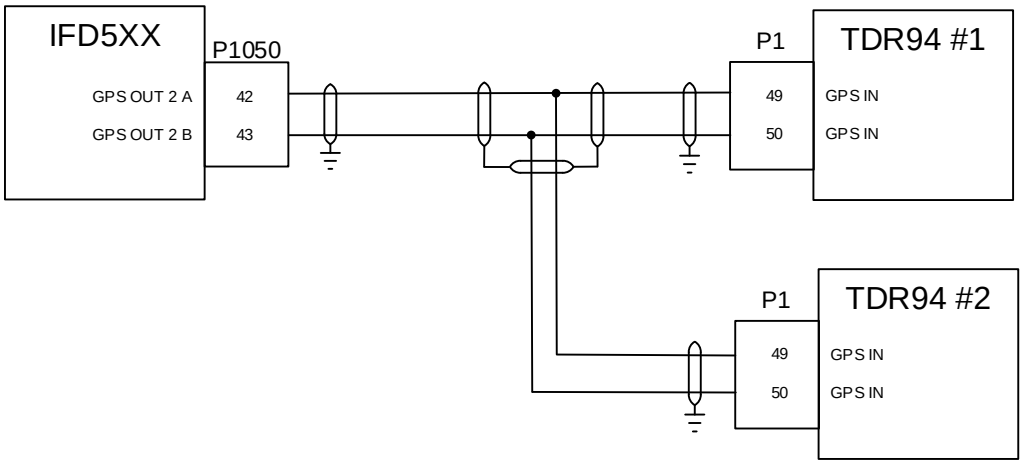
Figure D - 62: NGT9000R Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG OR GREATER UNLESS OTHERWISE NOTED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED.
3. SET SQUAT SWITCH SETTING TO LOW WHEN GROUND.
4. SET GPS POSITION SOURCE TO TRIG ADS-B AT 9600 BPS.
5. SET GPS CERTIFICATION TO LEVEL C.
6. SET GPS NACv TO 1 OR < 10m/SECOND.
7. SET THE IFD OUTPUT TO ADS-B (AVI).
8. PARALLEL ALTITUDE WIRING, NOT SHOWN, CAN BE USED IN PLACE OF SERIAL ALTITUDE.

Figure D - 63: KT-74 Interconnect



NOTES:

1. ALL WIRES TO BE 22 AWG MINIMUM UNLESS OTHERWISE SPECIFIED.
2. WIRE HARNESS OVERBRAID IS NOT SHOWN BUT MAY BE REQUIRED .
3. CONFIGURE IFD ARINC 2 OUT TO HIGH SPEED, ARINC 743A.
4. SHOWN IS THE CONNECTIONS TO THE IFD. ALL OTHER WIRING IS AT THE DISCRETION OF THE INSTALLER.

Figure D - 64: TDR-94 Interconnect

Appendix E: Troubleshooting Guide

Component	Trouble	Probable Cause	Solution
IFD5XX/4XX	The unit is not getting power to the main connector	The unit is not getting power.	Check Circuit Breaker
			Check wiring and unit seating in tray
	The IFD5XX/4XX is not computing a position	Wiring	Check Coaxial Cables
		Antenna	Verify antenna has a clear unobstructed view of the sky
	The GPS Signal levels are very low	Wiring	Check coaxial cable and connectors
			Check routing
		Antenna shading	Verify the antenna is mounted on top of the aircraft
			Verify antenna is clear of hangars, buildings, etc.
		Interference	Verify another piece of aircraft equipment is not interfering with the GPS system
	VHF Com is not transmitting (Not Applicable for IFD510/545/410)	Wiring	Check the aircraft's PTT switch
			Check Audio Panel (if installed)
			Check wiring
	The IFD5XX/4XX is not tuning the DME (Not Applicable for IFD510/545/410)	Configuration	Verify the IFD5XX/4XX is configured correctly.
		Wiring	Checking wiring
		DME	Verify the DME is configured for the IFD5XX/4XX tuning type
	RS-232 Device is not communicating	Configuration	Verify the IFD5XX/4XX is configured for the appropriate device.
		Wiring	Check wiring and unit seating in tray
	ARINC 429 is not communicating	Configuration	Verify the IFD5XX/4XX is configured for the appropriate device.
		Wiring	Check wiring and unit seating in tray

Component	Trouble	Probable Cause	Solution
IFD5XX/4XX	Display appears excessively dim or off	Configuration (configured for "night mode")	Check cockpit dimming rheostat position
			Check Flight Mode settings on User Options page for Display and Bezel Brightness and source
			Check power button on IFD
			Check Mx Mode settings on Lighting page for proper setting
	CMOS Battery Dead CAS Message	The 10-year life expectancy of the CMOS battery has been reached. This may result in longer GPS satellite acquisition times.	Return the IFD to Avidyne Service Center for battery replacement
	VHF Radio Slots displaying Red-Xs (Not Applicable for IFD510/545/410)	No power on the P1002 Connector	Ensure all governing circuit breakers have power
		Chassis ID not set to 0 or 1	Check and set as required the Chassis ID per section 7.3
	Unit starts up in Maintenance Mode	USB fob installed at power up	Ensure fob is not in the USB slot and reapply power to the IFD
		IFD last shut down in Maintenance Mode	Press the left or right side of the AUX page until the "DONE" Line Select Key is visible and press that LSK to force the IFD to restart into flight mode
	Unable to get out of Maintenance Mode or not sure how to		Press the left or right side of the AUX page until the "DONE" Line Select Key is visible and press that LSK to force the IFD to restart into flight mode
	IFD to IFD Communication is not functional as indicated by either "CROSSYNC FAIL" CAS message or no data sharing observed between the IFDs	IFD is misconfigured	Ensure RS-232 Channel 3 is set to CrossSync on each IFD
		Wiring incorrect	Ensure serial Channel 3 wiring is installed per Section 4.7
	"Config Mismatch" CAS message on IFD5XX/4XX (dual IFD5XX/4XX only)	Configuration mismatch between the two IFD units	Power cycle the IFD units Verify configuration on IFD5XX/4XX units If problem persists, send IFD5XX/4XX log data to Avidyne Technical Support

Appendix F: Configuration Setup

In order to support the requirements of some validations of the AML STC, this section should be easily removable and inserted into the aircraft logs.

For those installations where an IFD5XX/4XX is replacing a GNS-530/W or GNS-430, please record the following parameters from the GNS-530/W or GNS-430/W setup pages before removing the unit (***Note: this will need to be conducted for each GNS-530/W or GNS-430/W being replaced***):

WAAS Enabled (530**W** or 430**W** with approved antenna)? Yes ☐ No ☐ 2nd unit: Yes ☐ No ☐ N/A ☐

530/W or 430/W Hardware Part Number and Revision Number (back of unit or aircraft logs) _____/_____

530/W or 430/W Software Part Number ("Main SW Version" on start up splash screen) __-_____/_____

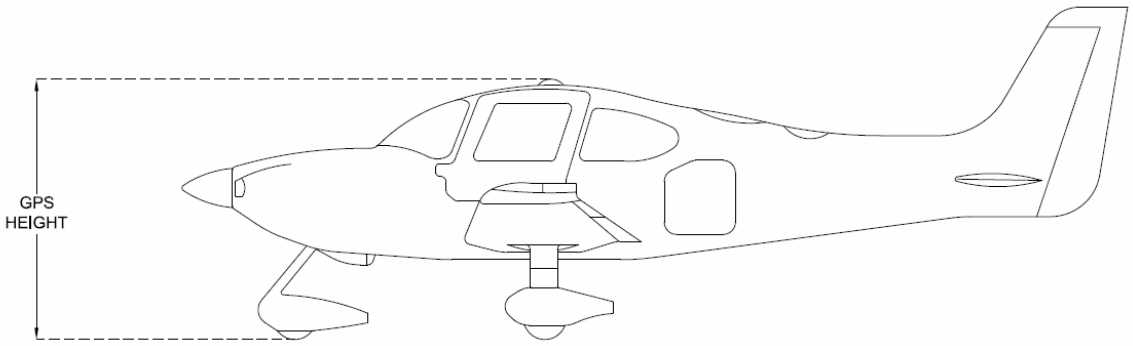
If multiple GNS-530/W or GNS-430/W were installed, describe the slot/location that this specific unit was removed from.

Cockpit Location of Unit(s) in Question

Description of location/slot in the cockpit (Include rough sketch if deemed helpful)	

Measure the distance from the ground to the top of the GPS antenna to nearest tenth of a foot, as shown in the image below, and enter the value in the box below: (to the nearest 1/10th foot).

Measured Height of GPS Antenna



Please list the other avionics that are installed in the aircraft (please be as specific as possible with make and models of the gear) and connected to the GNS-530/W or GNS-430/W. Enter "None" or "Don't Know" as required. The GNS-530/W or GNS-430/W Setup pages will be captured on subsequent pages.

Identification of Devices Connected to the GNS-530/W or GNS-430/W

	1st GNS 530/W or GNS 430/W	2nd GNS 530/W or GNS-430/W (if applicable)
Traffic		
Datalink		
Lightning Sensor		
Autopilot		
Fuel Flow System		
Display(s)		
CDI(s)		
RMI(s)		
Transponder		
DME		
ADF		
Air Data		
IRU/INS		
Other		
Other		
Other		

Please list the other avionics that are installed in the aircraft and connected to the IFD5XX/4XX. Enter "None" or "Don't Know" as required. The IFD5XX/4XX Setup pages will be captured on subsequent pages.

Identification of Devices Connected to the IFD5XX/4XX at time of Install

	1st IFD5XX/4XX	2nd IFD5XX/4XX (if applicable)
Traffic		
Datalink		
Lightning Sensor		
Autopilot		
Fuel Flow System		
Display(s)		
CDI(s)		

RMI(s)		
Transponder		
DME		
ADF		
Air Data		
IRU/INS		
Other		
Other		
Other		

GNS-530/W or GNS-430/W Maintenance Mode Entry:

GNS-530 configuration data is accessed from the GNS-530/W Maintenance Mode settings which is entered via holding ENTR button on 530/W bezel during power application.

GNS-530/W or GNS-430/W Page Navigation:

Use the inner right knob on the GNS-530/W to scroll through the maintenance mode pages. Each clockwise click of the knob selects the next page. On pages where selectable fields exist, a push of the right knob will produce a flashing cursor. The outer right knob moves through the fields on a page when there is a flashing cursor. Twist the inner right knob clockwise to see a list of choices. Use the inner right knob to scroll through the list of choices and press the "ENT" button to select the desired choice.

IFD5XX/4XX Maintenance Mode Entry:

IFD5XX/4XX configuration data is accessed via Mx Mode which is entered by starting the IFD with a USB Fob already installed or selecting the AUX page, SYS tab, ensuring that the "Select" LSK = Software, and then pressing the "Download Logs" LSK, followed by the "Confirm" LSK. These tables contain all the data that can be entered at time of installation to ensure the IFD5XX/4XX is properly configured. There are additional setup options that selectable by the pilot (Display Options on AUX Setup tab) that are not documented here.

IFD5XX/4XX Page Navigation:

To reach the IFD pages on which this data is to be entered, select the CONFIG tab in Maintenance Mode. Use the outer right knob to select the page – each clockwise click of the outer right knob selects the next page in the list. Push the right knob in to generate a cursor and then use the outer right knob to select an individual field with the cursor. Then twist the inner right knob to scroll through the selectable options for that field and push in the right knob when done with each field selection.

For retrofit installations (those installations in which an IFD5XX/4XX is replacing a GNS-530/W or GNS-430/W), enter the data in the following tables/menu pages from the corresponding fields recorded below in the GNS-530/W or GNS-430/W tables on the left side of each page. Repeat for each retrofit IFD5XX/4XX.

For new installations (those installations in which an IFD5XX is NOT replacing a GNS-530/W or GNS-430/W), select and record the appropriate settings for each configuration page per the descriptive material below each table.

Garmin 530/W or 430/W - MAIN ARINC 429 CONFIG page

	Speed	*Data*
IN 1		
IN 2		
OUT		
SDI		
VNAV (if present)		

IFD5XX/4XX - Main ARINC 429 Config Page (1/12)

	Speed	*Data*
In 1		
In 2		
Out		
SDI		
VNAV		

For new IFD5XX installations, see Section 7.5.2 for selections and descriptions

GNS-530/W or 430/W – MAIN RS232 CONFIG Page

	Input	*Output*
CHNL 1		
CHNL 2		
CHNL 3		
CHNL 4		
CHNL 5		

IFD5XX/4XX - Main RS232 Config Page (2/12)

	Input	*Output*
CHNL 1		
CHNL 2		
CHNL 3		
CHNL 4		
CHNL 5		
CHNL 6		

For new IFD5XX Installations, see Section 7.5.3 for selections and descriptions. IFD4XX do not have Channels 5 and 6.

GNS-530/W or 430/W – MAIN SYSTEM CONFIG Page (Fuel)

CONFIGURE	*Fuel*
FUEL TYPE	

GNS-530/W or 430/W – MAIN SYSTEM CONFIG Page (Terrain) [if present]

CONFIGURE	*Terrain*
TERRAIN TYPE	
TEST CARD?	
HW CONFIG	
012-00296-	
012-00401-	

GNS-530/W or 430/W– MAIN SYSTEM CONFIG Page (Discretes) [if present]

CONFIGURE	*Discretes*
GPS SELECT	
COM PRESETS	

Note: Com Presets are always enabled on the IFD5XX/4XX

GNS-530/W or 430/W– MAIN SYSTEM CONFIG Page (Airframe) [if present]

CONFIGURE	*Airframe*
AIRFRAME	
AIR/GROUND (if present)	

Note: The Air/Ground selection is only present when helicopter is selected for the airframe and is a trigger to look for squat switch input. No equivalent in IFD5XX/4XX.

IFD5XX/4XX – Main System Config page (3/12)

Fuel Type	
GPS Select	
Airframe	
Tail Number	
External TAWS	
WOW Input (Helo)	
Checklists	
TIS-B Annunciation	
Joystick Input	

Tail Number is a free text field and is used for JSUM.

GNS-530/W or 430/W – MAIN INPUTS Page

OAT		*HDG*		*B ALT*	
SAT		*W DIR*		*D ALT*	
TAT		*GPS SC*		*P ALT*	
IAS		*VLC SC*		*L FF*	
TAS		*CDI*		*R FF*	
W SPD				*T FF*	
				T FOB	
JOYSTICK WPT					

IFD5XX/4XX – MAIN INPUTS Page (4/12)

OAT		*HDG*		*B ALT*	
SAT		*W DIR*		*D ALT*	
TAT		*GPS SC*		*P ALT*	
IAS		*VLC SC*		*L FF*	
TAS		*CDI*		*R FF*	
W SPD				*T FF*	
				T FOB	
JOYSTICK WPT					

Note: There is no data to enter on the IFD5XX/4XX from this page – it is for diagnostics only

GNS-530/W or 430/W – INSTRUMENT PANEL SELF TEST (For reference only)

CDI		*FUEL CAPACITY*
FLG		
VCDI		*FUEL ON-BOARD*
VFLG		
TO/FRM		*FUEL FLOW*
ANNUN		
RMI		*Set Fuel Flow?*
OBS		
DTK		

No IFD5XX/4XX Equivalent Page

GNS-530/W or 430/W– MAIN LIGHTING Page

	Display		*Key*	
LIGHTING				
SOURCE				
RESP TIME / MIN				
SLOPE / OFFSET				
PHOTO TRANS % (if applicable)				
PHOTO SLP / OFST (if applicable)				

IFD5XX/4XX – MAIN LIGHTING Page (5/12)

	Bezel	*Display*
Photo Response Time		
Photo Slope		
Photo Minimum		
Photo Maximum		
dimBus Transition %		
dimBus Slope		
dimBus Minimum		
dimBus Maximum		
dimBus Curve		

Current Lighting		*Dimming Bus*	*Calibration*
Bezel		*dimBus Type*	
Display		*dimBus Max Voltage*	
Mx Input		*dimBus Min Voltage*	

See Section 7.5.6 for instructions on this page.

GNS-530/W or 430/W – DATE / TIME SETUP Page (No Need to Fill In – For Reference Only)

UTC DATE	*UTC TIME*

No IFD5XX/4XX Equivalent Page

GNS-530/W or 430/W – MAIN DISCRETE I/O Page

GRAY CODE		*DECODED ALTITUDE*	
	EXTERNAL SWITCH STATE		
	RMT CDI ☐	*OBS* ☐	
	DISCRETE TOGGLE		
APR ☐	*OBS* ☐	*ILS/GPS APR* ☐	
GPS ☐	*TERM* ☐		
INTEG ☐	*VLOC* ☐		
MSG ☐	*WPT* ☐		

Note: Check off the squares, as required, to match the solid squares on the GNS-530/430 unit – these check that discretes are wired correctly.

IFD5XX/4XX – MAIN DISCRETE I/O Page (6/12)

GRAY CODE		*DECODED ALTITUDE*	
EXTERNAL SWITCH STATE			
RMT CDI ☐	*RMT OBS* ☐	*RMT RCL* ☐	
TER INHB ☐	*AUD INHB* ☐		
DISCRETE TOGGLES			
APR ☐	*OBS* ☐	*ILS/GPS APR* ☐	
GPS ☐	*TERM* ☐	*GPS SELECT* ☐	
INTEG ☐	*VLOC* ☐	*TER CAUT* ☐	
MSG ☐	*WPT* ☐	*TER INHB* ☐	
		TER N/A ☐	
		TER WARN ☐	

Note; ON or OFF will be Displayed

GNS-530/W or 430/W – MAIN CDI / OBS CONFIG Page

	CDI	*NAV FLAG*	*TO-FROM*
LAT			
VERT			
SELECTED	*COURSE*		
CDI	*OBI SOURCE*	*V-FLAG STATE*	

IFD5XX/4XX – MAIN CDI / OBS CONFIG Page (7/12)

	CDI	*NAV FLAG*	*TO-FROM*
LAT			
VERT			
SELECTED	*COURSE*		
	Ignore SEL CRS for GPS		
	Ignore SEL CRS for VLOC		
CDI	*OBI SOURCE*	*V-FLAG STATE*	

For new IFD5XX/4XX installations, see Section 7.5.8 for selections and descriptions.

GNS-530/W or 430/W – COM SETUP Page (GNS-530W/430W Only)

FREQ		*SQ 250*	
SPACING		*SQ 833*	
		SIDETN	
		MIC	
		STORE	*CALIBRATION?*
PTT ☐	*XFR*	☐ ☐	*TX* ☐

Note: The squares above do not need to be recorded – they fill in when/if that function is activated.

No IFD5XX/4XX Equivalent Page

(Use the User Options tab to select 25 or 8.33 kHz spacing)

GNS-530/W or 430/W – VOR/LOC/GS CDI Page

	CDI	*NAV FLAG*	*SPR FLAG*	*TO-FROM*
LAT				
VERT				
SELECTED COURSE				
DME CHANNEL MODE				

GNS-530W or GNS-430W Only

IFD5XX/4XX – VOR/LOC/GS CDI Page (8/12)

	CDI	*NAV FLAG*	*SPR FLAG*	*TO-FROM*
LAT				
VERT				
SELECTED COURSE				
DME CHANNEL MODE				

For new IFD5XX/4XX installations, see Section 7.5.9 for selections and descriptions.

GNS-530/W or 430/W – VOR/LOC/GS ARINC 429 CONFIG Page (GNS-530W/430W Only)

	RX	*TX*
SPEED		
SDI		
DME MODE		

IFD5XX/4XX – VOR/LOC/GS ARINC 429 CONFIG Page (9/12)

	RX	*TX*
SPEED		
FORMAT		
SDI		
DME MODE		

For new IFD5XX/4XX installations, see Section 7.5.10 for selections and descriptions.

GNS-530/W or 430/W– GPS Vertical Offset (if present)

GPS Antenna Height Above Ground	

IFD5XX/4XX – GPS Antenna Setup Page (10/12)

GPS Antenna Height Above Ground	
Antenna Type	

Note: Use the data recorded at the beginning of Appendix F to enter the Antenna Type field.

GNS-530/W or 430/W– STORMSCOPE CONFIG Page (if configured for Stormscope)

STATUS:	*MODE:*
SW VERSION:	*ANT MOUNT:*
HDG FORMAT	*HDG FLG SENSE*
☐ *HDG FLAG*	☐ *SYNC ANGLE*
☐ *HDG STAB*	☐ *SYNC REF*
☐ *HDG VALID*	

Note: Squares should all be green if no issues.

IFD5XX/4XX STORMSCOPE CONFIG Page (Software version 10.2 or higher)

Accessible via the TEST page, select GET DATA, scroll to Config, and record the jumpers installed and grounded

HEADING INPUT	*J3-1* ☐ *OPEN* ☐ *GND* *J3-2* ☐ *OPEN* ☐ *GND*
HEADING FLAG SENSE	*J3-4* ☐ *OPEN* ☐ *GND*
ANTENNA MOUNT	*J3-3* ☐ *OPEN* ☐ *GND*

GNS-530/W or 430/W – STORMSCOPE TEST Page (if configured for Stormscope)

MODE
STATUS
TRIGGER COUNT
HDG

IFD5XX/4XX – STORMSCOPE TEST Page

(Software version 10.2 or higher)

MODE
STATUS
TRIGGER COUNT

HDG

GNS-530/W or 430/W– STORMSCOPE DATA DOWNLOAD Page (if configured for Stormscope)

SOFTWARE VERSIONS:	
Model	
Main SW Ver	
Main Boot SW Ver	
DSP SW Ver	

SOFTWARE VERSIONS:	
Model	
Main SW Ver	
Main Boot SW Ver	
DSP SW Ver	

IFD5XX/4XX – STORMSCOPE DATA Page

(Software version 10.2 or higher)

GNS-530/W or 430/W – Traffic Config Page (if configured for Traffic)

ALT	
LIM A *(if 429 interface)*	
LIM B *(if 429 interface)*	
HDG *(if 429 interface)*	
BARO ALT ☐	*(if 429 interface)*
RAD ALT ☐	*(if 429 interface)*
TEST MODE?	*(if 429 interface)*

No IFD5XX/4XX Equivalent Page

Note: Traffic monitoring is accomplished after a 3 minute suppression period in-flight when any faults are announced. There should be no Red-X on the traffic thumbnail if configured on the Setup pages.

Note: Check off the squares, as required, to match the solid squares on the GNS-530 unit.

GNS-530/W or 430/W– RYAN TCAD CONFIG Page (if configured for Ryan TCAD]

MODE	
APPROACH MODE	
HEIGHT	
RANGE	
GND/FLD ELEVATION	
VOLUME	
MUTE DURATION	
VOICE ALERT	
UNKNOWN DEVICE	☐ *STATUS* ☐ *MUTE*

No IFD5XX/4XX Equivalent Page

Note: Use the presence of the traffic thumbnail and the Audio Volume Control page to control these parameters in the IFD5XX/4XX.

GNS-530/W or 430/W – GAD 42 Config Page (if configured for an ARINC 429 input from GAD 42)

MAIN RMI/OBI		*ROLL STEERING*	
NAV RMI/OBI		*REMOTE CRS SEL*	
SEL CRS DRIVE		*TAS INPUT*	
DIST SERIAL		*GPS/NAV 429 L/H*	
		HEADING 429 L/H	

GAD SW VER:	
STATUS:	

No IFD5XX/4XX Equivalent Page

Note: Manually strap the GAD42 or ensure stored configuration is not lost.

The IFD5XX/4XX alerts in flight mode if the GAD42 reports a fault.

GNS-530/W or 430/W– TAWS Audio Config Page 1 (if installed)

TAWS CONFIG	
VOICE GENDER	
VOLUME	
PLAY AUDIO MSG	

No IFD5XX/4XX Equivalent Page

(Use the User Options LSK and Volume Control LSK of the Audio Tab instead)

GNS-530/W or 430/W – TAWS Audio Config Page 2 (if installed)

ALERT	*Reduced Terrain Clearance*
CAUT	
WARN	
ALERT	*Reduced Obstacle Clearance*
CAUT	
WARN	
ALERT	*Imminent Terrain Impact*
CAUT	
WARN	
ALERT	*Imminent Obstacle Impact*
CAUT	
WARN	

No IFD5XX/4XX Equivalent Page

(Use the User Options Tab instead)

GNS-530/W or 430/W – GDL Config Page (if installed)

ATTENUATION	
MODEL (if displayed)	

IFD5XX/4XX – GDL Config Page (if installed) (11/12)

ATTENUATION	
MODEL	

GNS-530/W or 430/W – DATALINK DIAGNOSTICS Page (if installed)

QOS	*TERR*
SAT 1	*SAT 2*
TUNER	

No IFD5XX/4XX Equivalent Page

Note: Use the Datalink Status page on the AUX-SYS tab for datalink status data.

Notice:

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FCC APPROVAL AND CAUTIONS: THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE CONDITION THAT THIS DEVICE DOES NOT CAUSE HARMFUL INTERFERENCE. THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUPMENT.

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

As installed in

_____

(Make and Model Airplane)

Reg. No. _____ S/N_____

AVIDYNE CORPORATION

Avidyne Corporation
4 Middlesex Green, Suite 221
561 Virginia Road
Concord MA 01742

Important Notice

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

UP793797

Document Revision History

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

Table of Contents

List of Figures

1. Introduction

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

This ICA satisfies the requirements of 14 CFR 23.1529.

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

1.1 Applicability

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

Table 1 IFD Part Number Variants

Part Number	Description
700-00179-010 700-00179-710	INTEGRATED FLIGHT DISPLAY, IFD410, BLACK BEZEL
700-00179-110 700-00179-810	INTEGRATED FLIGHT DISPLAY, IFD410, GREY BEZEL
700-00179-000 700-00179-700	INTEGRATED FLIGHT DISPLAY, IFD440, BLACK BEZEL
700-00179-100 700-00179-800	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL
700-00182-010 700-00182-710	INTEGRATED FLIGHT DISPLAY, IFD510, BLACK BEZEL
700-00182-110 700-00182-810	INTEGRATED FLIGHT DISPLAY, IFD510, GREY BEZEL
700-00182-000 700-00182-700	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL
700-00182-001 700-00182-701	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL WITH VIDEO

Part Number	Description
700-00182-002	INTEGRATED FLIGHT DISPLAY, IFD540, BLACK BEZEL, 16W VHF
700-00182-100 700-00182-800	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL
700-00182-101 700-00182-801	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL WITH VIDEO
700-00182-102	INTEGRATED FLIGHT DISPLAY, IFD540, GREY BEZEL, 16W VHF
700-00182-030 700-00182-730	INTEGRATED FLIGHT DISPLAY, IFD545, BLACK BEZEL
700-00182-031 700-00182-731	INTEGRATED FLIGHT DISPLAY, IFD545, BLACK BEZEL, WITH VIDEO
700-00182-130 700-00182-830	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL
700-00182-131 700-00182-831	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL, WITH VIDEO
700-00182-020 700-00182-720	INTEGRATED FLIGHT DISPLAY, IFD550, BLACK BEZEL
700-00182-021 700-00182-721	INTEGRATED FLIGHT DISPLAY, IFD550, BLACK BEZEL, WITH VIDEO
700-00182-120 700-00182-820	INTEGRATED FLIGHT DISPLAY, IFD545, GREY BEZEL
700-00182-121 700-00182-821	INTEGRATED FLIGHT DISPLAY, IFD550, GREY BEZEL, WITH VIDEO

1.2 Definitions and Abbreviations

AML - Approved Model List

ARS – Attitude Reference Sensor

ICA - Instructions for Continued Airworthiness

IFD - Integrated Flight Display

STC - Supplemental Type Certificate

AMM – Aircraft Maintenance Manual

1.3 Precautions

This section is not applicable.

1.4 Units of Measure

This section is not applicable.

1.5 Referenced Publications

Document Number	Title
600-00299-000	IFD5XX/IFD4XX Installation Manual
600-00300-001	IFD5XX Series Pilot's Guide
600-00304-000	IFD4XX Series Pilot's Guide
89000039-010	Bendix King AeroNav 900 and 910 Pilot's Guide
89000041-008	Bendix King AeroNav 800 Pilot's Guide
600-00317-000	IFD550 and IFD545 Pilot's Guide
600-00318-000	IFD510 Pilot's Guide
600-00319-000	IFD410 Pilot's Guide

1.6 Distribution

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

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

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

2. Description

The IFD system is a panel mounted integrated system that provides navigation, communication, and multifunction display capability in one display. The IFD5XX/IFD4XX can display information from a wide variety of aircraft sensors. The IFD's are available in the following variations:

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

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

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

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

2.1 Equipment Locations

The installer should indicate on the outlines below the locations for the following items at the time of installation: IFD5XX/IFD4XX unit, wire harness location and routing, coaxial cables, and antennas. Use Figure 1 for single engine airplanes or Figure 2 for multi engine airplanes.

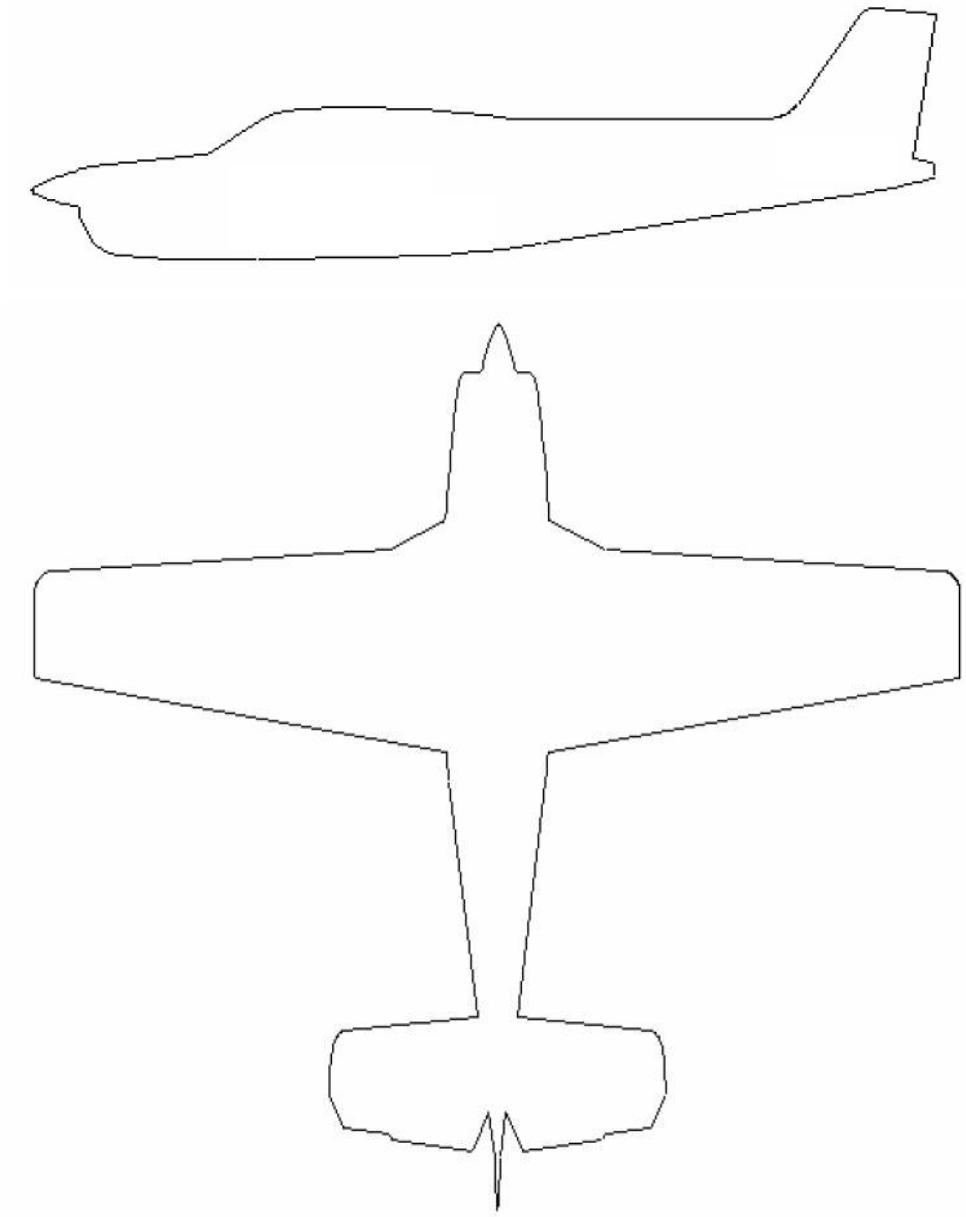

Figure 1: IFD5XX/IFD4XX Location - Single Engine

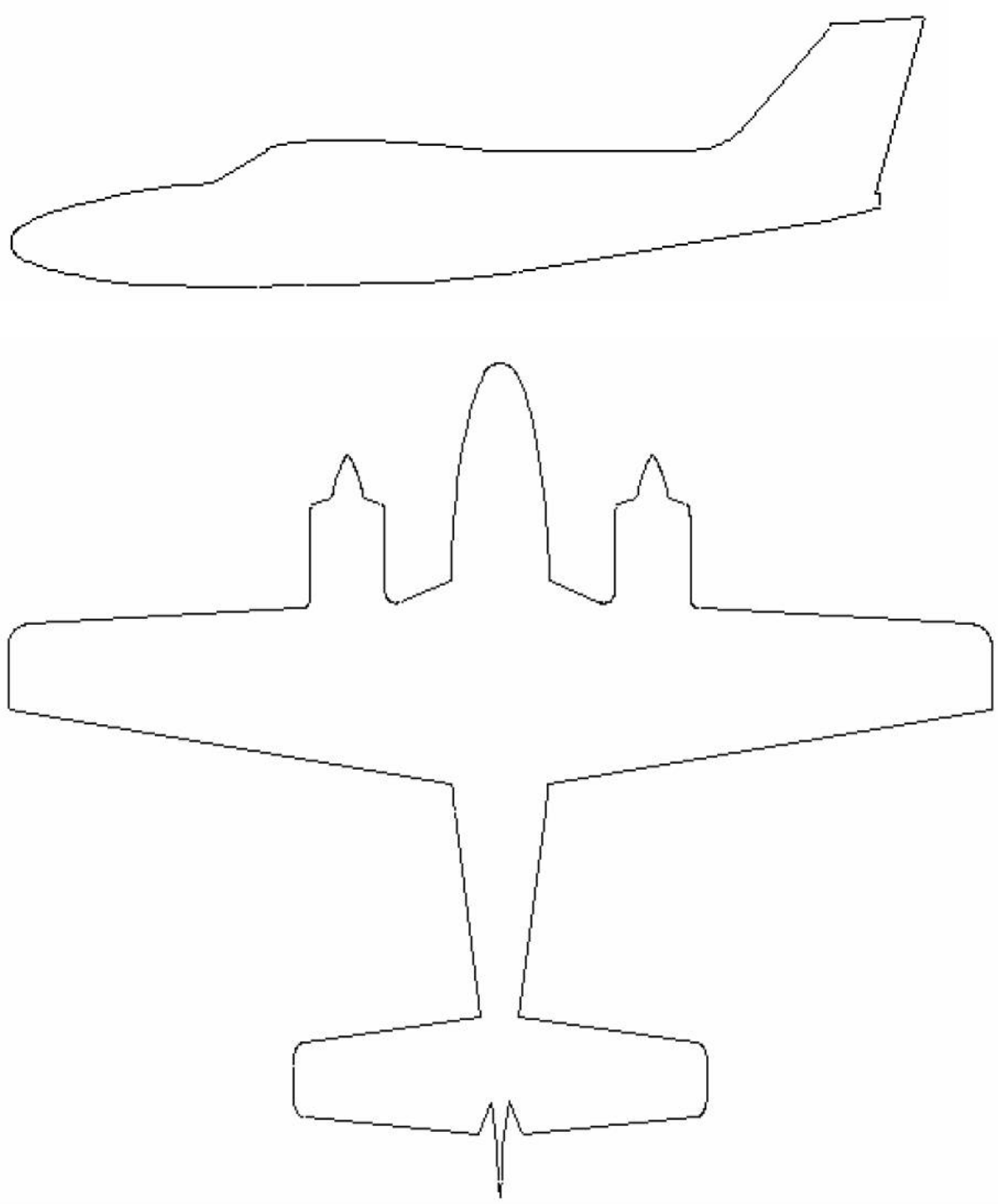

Figure 2: IFD5XX/IFD4XX Location – Multi Engine

3. Control and Operation Information

The IFD5XX/IFD4XX System can be controlled using the button and knobs on the bezel of the unit. Alternately, some functions can be controlled using the touch-screen on the unit's display.

Figure 3: IFD540/510 Unit

Figure 4: IFD4XX Unit

Figure 5: IFD545/550 Unit

3.1 Page Function Keys

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

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

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

3.2 Line Select Keys

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

4. Servicing Information

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

5. Maintenance Instructions

Other than the scheduled and periodic inspection tasks discussed below, maintenance of the Avidyne IFD5XX/IFD4XX is based on condition and function only; no other periodic maintenance is required.

5.1 Scheduled Maintenance

The following tasks may be required on the IFD5XX/IFD4XX:

a. If the IFD5XX/IFD4XX is providing GPS position to the ELT, every 12 months verify the Emergency Locator Transmitter (ELT) is operating correctly per the ELT maintenance instructions.

5.2 Recommended periodic scheduled servicing tasks

There are no life limited components in the IFD5XX/4XX that require scheduled inspection or service. Perform the following inspections during annual/100 hour maintenance interval to establish airworthy condition and function.

1. During any maintenance activities involving the IFD System perform (i.e. IFD removal, cable repair…) a post-installation check as described in Installation Manual, Integrated Flight Display Installation Manual 600-00299-000.
2. Visually inspect (no magnification required) wire/bundle, coaxial cables, overbraid (if installed), and routing for evidence of damage, chafing, grounding, security, bonding, integrity of shields, and connector backshell condition.
3. Visually inspect (no magnification required) the mechanical installation for any defects or damage to the aircraft structure or to the IFD5XX/IFD4XX.
4. Visually inspect (no magnification required) the GPS, COM, NAV, and Glideslope antennas. Verify bonding of the antennas is no greater than 2.5 milliohm.
5. Verify that the bonding between the aircraft and each unit of the IFD system should have a resistance no greater than 2.5 milliohm as described in the Integrated Flight Display Installation Manual 600-00299-000.
6. Verify that all mandatory Service Alerts and/or Service Bulletins for the IFD System have been accomplished. (This can be done using the internet at www.avidyne.com).

5.3 Software Upgrade

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

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

6. Troubleshooting Information

Refer to the manufacturers' installation and user's manuals to assist in troubleshooting. The following items present common installation problems and recommended actions for the Avidyne IFD5XX/IFD4XX System.

Component	Trouble	Probable Cause	Solution
GPS	The IFD5XX/IFD4XX is not computing a position	Aircraft is not positioned in a location to receive GPS satellites	Move aircraft to a better location
		GPS Antenna System	Check Antenna coaxial cables for proper assembly
			Check or replace the GPS antenna
	The GPS Signal Levels drop when avionics are turned on.	Noise interference from other avionics	Turn off all avionics off, then turn on each piece one at time to isolate the interference to the
	The GPS signal levels are very low.	Antenna	Verify the GPS antenna is connected to the correct antenna
			Repair or Replace antenna
		Antenna shaded from satellites	Move aircraft to a better location
		Interference from avionics	Re-route GPS antenna system away from sources of interference.
		Interference from a VHF Communication transmitter	Move GPS antenna away from the VHF Communication antenna or install a 1575.22 MHz notch filter.
VHF Communication	VHF Communication transceiver is not transmitting	The PTT input is not being grounded	Check PTT input to the IFD5XX/IFD4XX
	VHF Communication transceiver power is low	VSWR too high	Check VSWR is less than 3:1
		Coaxial Cable	Repair or replace coaxial cable
		Antenna	Repair or Replace VHF Com antenna
Navigation Receiver	VHF Navigation Receiver not receiving VOR/LOC station	VHF Navigation station not tuned correctly.	Tune the IFD5XX/IFD4XX to the correct station
		Antenna	Repair or Replace Antenna
		Diplexer	Repair or Replace Diplexer
		Coaxial Cables	Repair or Replace Cable
Attitude Reference System (ARS) (IFD545/550)	The pitch ladder and horizon are replaced with Red X	ARS Failure	Replace IFD
RMI pointer	RMI not displaying indicating	Wiring	Check wiring

Component	Trouble	Probable Cause	Solution
	correctly	Desired RMI not selected	Select the IFD5XX/IFD4XX on the RMI
		VHF Navigation station not tuned correctly.	Tune the IFD5XX/IFD4XX to the correct station
DME	IFD5XX/IFD4XX is not tuning the DME correctly	IFD5XX/IFD4XX configuration	Verify the IFD5XX/IFD4XX is configured for the correct DME
		Wiring	Check wiring
		VHF Navigation station not tuned correctly	Tune the IFD5XX/IFD4XX to the correct station
ARINC device	ARINC 429 is not receiving / transmitting data from the IFD5XX/IFD4XX	Wiring	Make sure wire harness is connected. Check the wire harness and repair or replace if needed.
		IFD5XX/IFD4XX configuration	Verify the IFD5XX/IFD4XX is configured for the ARINC device Verify the ARINC 429 device speed is set correctly on the IFD5XX/IFD4XX
RS-232 device	ARINC 429 is not receiving / transmitting data from the IFD5XX/IFD4XX	Wiring	Make sure wire harness is connected. Check the wire harness and repair or replace if needed.
		IFD5XX/IFD4XX configuration	Verify the IFD5XX/IFD4XX is configured for the RS-232 device Verify the RS-232 device speed is set correctly on the IFD5XX/IFD4XX
Battery Replacement	Battery Annunciation on IFD540/440	The IFD540/440 internal battery has failed	Contact Avidyne for Repair

7. Removal and Replacement Information

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

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

7.1 IFD5XX/IFD4XX Removal

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

7.2 IFD5XX/IFD4XX Installation

1. Slide the IFD5XX/IFD4XX unit into the tray.
2. Insert a 3/32" hex wrench into the hole on the front panel on the IFD5XX/IFD4XX and engage locking screw.
3. Turn the locking screw clockwise to tighten the locking cam until the unit is flush to the tray.
4. Perform post-installation verification per Section 7.7.

7.3 GPS Antenna Removal

1. Remove sealant from around the base of the antenna.
2. Disconnect coaxial cable
3. Remove fasteners from antenna
4. Lift antenna clear of fuselage

7.4 GPS Antenna Installation

1. Position antenna on aircraft
2. Attach antenna to fuselage with fasteners
3. Verify the GPS antenna is bonded to the airframe. With the coaxial cable disconnected, the bond between the antenna base plate and the aircraft metallic skin must measure ≤ 2.5 milliohm
4. Seal any minor gaps between the antenna base plate or gasket and the aircraft skin with RTV silicone adhesive sealant
5. Connect GPS coaxial cable
6. Perform post-installation verification per Section 7.7.

7.5 Tray Removal

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

7.6 Tray Installation

1. Re-install fasteners in connectors and tray
2. Re-install IFD, see Section 7.2
3. Verify the tray is bonded to the airframe. The bond between the tray and the airframe must measure ≤ 2.5 milliohm
4. Perform post-installation verification per Section 7.7.

7.7 System Setup and Checkout

After any maintenance activity involving the IFD System, the post-installation checkout should be performed. Verify the following functions of the IFD5XX/IFD4XX is operating correctly, reference the IFD5XX/IFD4XX Installation Manual and Pilot Guide as need.

The installation manual, Avidyne Document 600-00299-000 Rev. 10 (or later FAA approved revision), contains detail setup and testing information if needed.

7.7.1 VHF Communication Checkout

Tune the VHF Communication Transceiver to an unused frequency, verify the IFD5XX/IFD4XX can receive and transmit on that frequency.

7.7.2 Navigation Checkout

Verify the IFD5XX/IFD4XX GPS Navigation and VHF Navigation (if installed) is operating correctly including navigation source selection. If installed, verify the following is operating correctly: navigation displayed on a CDI/HSI, external annunciation, and audio output.

7.7.3 External Sensor Checkout

The IFD5XX/IFD4XX can be connected to several different external sensors. Verify each sensor is operating correctly per the manufacturer's maintenance information.

8. Application of Protective Treatments

This section is not applicable.

9. Data

Reference the 700-00182-XXX and 700-00179-XXX STC Master Document List, Avidyne Document AVIFD-306, for installation data. The Installation Manual, Avidyne Document 600-00299-000 Rev. 10 (or later FAA approved revision), contains the wiring diagrams for the system. Also, reference FAA AC 43.13 as needed.

10. List of Special Tools

No special tools are required for this installation.

11. For Commuter Category Aircraft

This section is not applicable.

12. Recommended Overhaul Periods

No overhaul periods are required for this installation.

13. Airworthiness Limitations Section

There are no Airworthiness Limitations as defined in 14 CFR § 23, Appendix G. The Airworthiness Limitations section is FAA approved and specifies maintenance required under § §43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

14. Revision

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

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

Please submit this information to:

Avidyne Corporation
4 Middlesex Green, Suite 221
561 Virginia Road
Concord MA 01742

15. Assistance

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

16. Implementation and Record Keeping

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

EASA Installation Checklist
IFD4XX and IFD5XX Series AML STC

AVIDYNE
CORPORATION

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561 Virginia Road

Concord MA 01742

Document Number	AVIFD-484	*Control Category*	CC2

Revision	*Description*	*ECO*	*Date*
00	Initial Release	ECO-16-110	04/06/16
01	Software 10.2 revision	ECO-17-041	02/28/17
02	Wi-Fi Bluetooth update	ECO-17-237	09/07/17

Table of Contents

1. Purpose

This installation checklist is intended to document the installation of the Avidyne IFD4XX and IFD5XX series Integrated Flight Display.

For installations on aircraft registered in countries under EASA oversight, this installation checklist controls and limits the IFD4XX and IFD5XX Installation Manual, part number 600-00299-000. In some cases, European rules provided more explicit requirements; this checklist limits the applicability of certain configurations in the IFD4XX and IFD5XX Installation Manual to those permitted for EASA-registered aircraft. Reference the IFD4XX and IFD5XX Installation Manual for instructions on the installation of the IFD4XX series and IFD5XX series Integrated Flight Display. For installations on aircraft registered in the United States, this installation checklist supplements the IFD4XX and IFD5XX Installation Manual, part number 600-00299-000 but is not approved data under FAA STC SA00343BO.

NOTE: The IFD4XX/IFD5XX STC does not cover installation of antennas or drilling of holes through pressurized vessels or composite structures. Separate approval will be needed if those changes are made while installing the IFD4XX and IFD5XX.

NOTE: When installing the IFD4XX and IFD5XX under this STC, separate approval is required if the operational capabilities of the aircraft are to be changed (i.e., change from VFR-only to IFR)

NOTE: EASA aircraft operating rules have priority over any conflicting data or instructions in the IFD4XX and IFD5XX Installation Manual, part number 600-00299-000 except when specifically addressed in this Installation Checklist.

2. EASA Regulatory Compliance

When the data required by this installation checklist is completed, it can be used by the DOA/applicant to show compliance to the following EASA Certification Specifications:

EASA CS 23	Compliance Data	Notes
23.1301(c)	Installation Checklist	This regulation is met if the equipment installed by this STC is installed according to the data in this document (AVIFD-484) and the IFD 5XX/4XX Installation Manual.
23.1301(d)	Installation Checklist	This regulation is met upon successful completion of the System Configuration/Checkout in Section 7 of the IFD 5XX/4XX Installation Manual and the Post-Installation Verification in Section 7 of this document.
23.1309(c)(1)	Installation Checklist	This regulation is met upon successful completion of the ELA required by Section 6.
23.1351(a)	Installation Checklist	This regulation is met upon successful completion of the ELA required by Section 6.
23.1353(h)	Installation Checklist	This regulation is met upon successful completion of the ELA required by Section 6.
23.1357(d)	Installation Checklist	This regulation is met upon successful verification of the circuit breaker checks in Section 7.
23.1365(c)	Installation Checklist	This regulation is met upon successful verification of the wiring checks in Section 7. For 23.1365, although the overall rule is the same, individual subparts of the rule are lettered in a different order between the EASA CS and U.S. FARs: • CS 23.1365(c) maps to 14 CFR 23.1365(d)
23.1365(d)	Installation Checklist	This regulation is met if the equipment installed by this STC is installed according to the data in this document and the IFD 5XX/4XX Installation Manual. For 23.1365, although the overall rule is the same, individual subparts of the rule are lettered in a different order between the EASA CS and U.S. FARs: • CS 23.1365(d) maps to 14 CFR 23.1365(e
23.1431(b)	Installation Checklist	This regulation is met upon successful completion of the interference checks in Section 7.
23.1519	Installation Checklist	This regulation is met upon successful completion of the weight and balance required by Section 5.

3. Installation Checklist Instructions

Follow the instructions below for completion of the airworthiness approval after installation of the IFD4XX Series and IFD5XX Series under this STC.

1. Fill out Appendix F of 600-00299-000, IFD 5XX/4XX Installation Manual to document the installation. Section 4 of this document contains configuration setting requirements for installations on aircraft registered in countries under EASA oversight.

2. Complete the Post Installation Checkout Procedure in Section 7.6 of the 600-00299-000, IFD5XX/IFD4XX Installation Manual.

3. For installation on aircraft registered in countries under EASA oversight:

    a. Application of this STC in countries under EASA oversight no longer requires the installation to be approved as a minor change. Installers must make sure the installation is fully within the bounds of the IFD5XX/IFD4XX Installation Manual 600-00299-000. For example, if the IFD is interfaced to equipment listed in Section 2.3 of the IFD5XX/IFD4XX Installation Manual, then those interfaces are within the bounds of the IFD5XX/IFD4XX Installation Manual. Only the interfaces to equipment models explicitly listed in Section 2.3 are approved by this STC (with the exception of COM and NAV radios as dictated by the NOTE below). Autopilot coupling is not permitted under this STC unless that autopilot is explicitly listed in Section 2.3 of the IFD5XX/IFD4XX Installation Manual.

    NOTE: COM and NAV radios that are not listed in Section 2.3 but meet all of the criteria in that section are approved by this STC.

    b. As part of the aircraft modification, fill out the data in Sections 5 through 7 of this document (AVIFD-484).

    The purpose of this data is to document the manner in which the STC was applied to your particular aircraft.

    c. Keep a copy of the following completed forms with the aircraft permanent records:

        i. Section 5 through 7 forms

        ii. Appendix F of 600-00299-000, IFD5XX/IFD4XX Installation Manual

        iii. Post Installation Checkout Procedure in Section 7.6 of the 600-00299-000, IFD5XX/IFD4XX Installation Manual

4. If the installation is beyond the bounds of the IFD5XX/IFD4XX Installation Manual, then further airworthiness approval may be required.

4. Additional Requirements

The following requirements are in addition to those specified in the IFD5XX/IFD4XX Installation Manual for installations on aircraft registered in countries under EASA oversight.

- The EASA Approved Flight Manual Supplement for this alteration must be attached to the airplanes existing AFM/POH; EASA Approved Airplane Flight Manual Supplement For (make and model) with Avidyne Integrated Flight Displays p/n 700-00182-XXX and 700-00179-XXX, document number 600-00298-001, Rev 00 or later approved revision.
- The V-Flag State setting in maintenance mode under Main CDI / OBS Config page must be set to Normal.
- Com Frequency Spacing setting under AUX page/Setup tab/User Options must be set to 8.33 KHz.
- Pressure Units setting under AUX page/Setup tab/User Options must be set to mbar.
- Temperature Units setting under AUX page/Setup tab/User Options must be set to Celsius.
- Fuel Units setting under AUX page/Setup tab/User Options may be set to Gallons, Imp. Gallons or Liters.
- The pilot-selectable field 'DIS' (Distance to Current Waypoint) datablock must be configured in the location on the Map page (IFD4XX and IFD5XX) and Default Nav page (IFD4XX only) that is closest to the pilot's primary field of view. Reference the 'Map Data Fields' section of the IFD440 Pilot's Guide (600-00304-000), IFD410 Pilot's Guide (600-00319-000) and IFD540 Pilot's Guide (600-00300-001), IFD510 Pilot's Guide (600-00318-000) or IFD545 / IFD550 Pilot's Guide (600-00317-000).
- No aircraft, performance or procedure checklists may be loaded into the IFD4XX/IFD5XX.
- The IFD4XX/IFD5XX are <u>not</u> approved TAWS-B sensor/displays. Terrain alerting functions of the IFD4XX/IFD5XX are non-TSO functions that are advisory only.
- WiFi and Bluetooth wireless features may not be used during critical phases of flight to include takeoff, approaches, landing. WiFi and Bluetooth must be selected off on the user setup tab (SYS/Setup) during these phases of flight.
- ADS-B out capability is not approved for State aircraft operating IFR/GAT in Europe for the Avidyne IFD4XX/IFD5XX navigator installed in conjunction with Garmin GTX330ES or Garmin GTX335/GTX345.

5. Weight and Balance

Complete a weight and balance calculation according to Section 5.9 of the IFD 5XX/4XX Installation Manual and record the calculations in Table 5-1.

Description of items added to aircraft	Weight	Arm	Moment
Subtotal:			

Description of Items Removed from Aircraft	Weight	Arm	Moment
Subtotal:			

Total Change:			

Previous aircraft weight and balance			
Change in aircraft weight and balance			
New aircraft weight and balance			
Are results within operating limits of aircraft? (circle one)	**YES**		**NO**
Comments:			

Table 5-1. Weight and Balance

6. Electrical Load Analysis

An electrical load analysis (ELA) must be completed on each aircraft prior to installation to verify that the aircraft electrical system is capable of supporting the equipment installed using this STC. The purpose of the ELA is to show compliance with EASA CS 23.1351 and 23.1353(h). If it is determined that the modification results in an increase in electrical load then it must be further verified that the aircraft electrical system remains in compliance which includes verification of electrical generation capacity and verification that reserve battery capacity remains adequate to support loads essential to continued safe flight and landing.

There are several approaches that may be taken, as described in the following sections. For each approach, use the instructions in Section 4.10 of the IFD5XX/4XX Installation Manual.

6.1 Aircraft with Existing Electrical Load Analysis

If there is an existing ELA for the aircraft, it must be updated to reflect the modification. It must show that the alternators/generators have adequate capacity to supply power to the modified systems in all anticipated conditions. Add the applicable typical current draw values from Section 1-4 of the IFD 5XX/4XX Installation Manual to the existing ELA under continuous operating conditions. Ensure that the new aircraft electrical load does not exceed the rated capacity of the installed generator/alternator.

If the new aircraft electrical load does not exceed the rated capacity of the installed generator/alternator, include the updated ELA along with this document (AVIFD-484).

After performing the calculations, if the additional load of the IFD4XX and/or IFD5XX exceeds the rated capacity of the generator/alternator, proceed to Section 6.4. If the additional electrical load still exceeds the generator rated capacity, alternate regulatory approval is required for installation of the equipment in the aircraft.

6.2 Aircraft without Existing Electrical Load Analysis

Prior to undertaking a complete electrical load analysis, the net change to the electrical load resulting from the IFD4XX and/or IFD5XX installation should be determined. The results of this analysis will determine how to proceed further.

Description of Items Added to Aircraft	Electrical Load (A)
Subtotal:	

Description of Items Removed from Aircraft	Electrical Load (A)
Subtotal:	

Net Change in Bus Load:	

Table 6-1. Electrical Load Analysis (Calculated)

6.3 Electrical Load is Reduced Following Modification

In many instances when older systems are replaced with newer equipment, the electrical load presented to the power system may be reduced. If the overall load on the electrical system is reduced as a result of the equipment installation, no further analysis is required. This assumes that the electrical system was within all limits prior to the IFD4XX and/or IFD5XX installation.

This amended electrical load calculation (Table 6-1) must be included with this document (AVIFD-484) to document the electrical load reduction.

6.4 Electrical Load is Increased Following Modification

If it is determined that the electrical load has increased, a complete electrical load analysis must be performed to show that the capacity of the alternator/generator and battery are sufficient for the additional electrical load. For guidance on preparing an ELA, refer to ASTM F 2490-05: Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis.

This complete electrical load analysis must be included with this document (AVIFD-484) to document the electrical load analysis results.

Alternatively, the loads under various operating conditions may be measured, as described in Section 6.5.

6.5 Performing an Electrical Load Analysis by Measurement

NOTE: According to EASA CS 23.1351(a) (2) (ii), performing an ELA using electrical measurements is not acceptable for commuter category airplanes.

If measurements are used for the electrical load, follow the instructions in Section 9 of ASTM F 2490-05: Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis to complete Table 6-2. If the Blank Emergency Power Calculation Form is utilized, include a completed copy of the form with this document.

Date: ____________

Electrical Load Measurement

Registration No: ____________________

				Normal Operation			Emergency Operation	
				Taxing 10 min	TO/Land 10 min	Cruise 60 min	Cruise (calculated)	Land 10 min
Circuit/ System	Circuit Breaker No.	Load	Operating Time	Used in this phase of flight?	Used in this phase of flight?	Used in this phase of flight?	Used in this phase of flight?	Used in this phase of flight?
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Table 6-2. Electrical Load Analysis (Measured)

Electrical Load Measurement (cont'd)

Circuit/ System	Circuit Breaker No.	Load	Operating Time	Normal Operation: Taxing 10 min — Used in this phase of flight?	Normal Operation: TO/Land 10 min — Used in this phase of flight?	Normal Operation: Cruise 60 min — Used in this phase of flight?	Emergency Operation: Cruise (calculated) — Used in this phase of flight?	Emergency Operation: Land 10 min — Used in this phase of flight?
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MEASURED VALUE	(Amps) ______	(a)	*Ldg light ON* (b1) / *Ldg light OFF* (b2)	(c)	(d)	(e)
Alternator Rating	(Amps): ______					
Percent of Alternator Capacity Used:		(< 80 %)	*Ldg light ON* (< 95%) / *Ldg light OFF* (< 80%)	(< 80 %	N/A	N/A

It is permissible to exceed 80% of the alternator data plate rating during the takeoff/landing phase of flight when the pitot heat and landing light are switched on simultaneously. However, for this condition (i) you must not exceed 95% of the alternator data plate rating, and (ii) you must not exceed 80% of the alternator data plate rating with the pitot heat on and the landing light off.

7. Post Installation Verification

The following items are to be verified after the installation has been completed.

- Circuit breaker(s) installed as part of this STC are labeled as specified in Section 4.8 of the IFD 5XX/IFD4XX Installation Manual.
- Circuit breaker(s) installed as part of this STC are readily accessible to the pilot.
- Wiring is routed in a safe manner as described in Section 4.3 of the IFD 5XX/IFD4XX Installation Manual.
- Structural aspects of the installation follow the instructions in Section 5 and Appendix C in the IFD 5XX/IFD4XX Installation Manual, or from separate installation approval that has been or will be obtained.
- IFD's do not cause objectionable interference with other equipment in the aircraft. Verify by completing the EMI/RFI Checks in Section 7.6.7 of the IFD 5XX/IFD4XX Installation Manual.

7.1 Database updates

Periodic updates to navigation data, charts data, and obstacle data are all made through the USB port on the front of each IFD. Database updates (SW) require EASA Form 1 or equivalent approved means such as Jepp online data retrieval method(s).

The table below summarizes the databases update periods:

Database	Update Cycle	Comments & Source
Chart Data	14 days	Expiration watermark displayed after 14 days indefinitely until data updated (Jeppesen)
Nav Data	28 days	Airport, airway, navaid, airspace, and FMS data (Jeppesen)
Obstacle Data	56 days	Displayed on map and used for TA and FLTA functions (Jeppesen)
Terrain Data	As required	Displayed on map and used for TA and FLTA functions. The IFD is shipped from the factory with this database already loaded and updates are anticipated to be a rare occurrence.