Honeywell International, Inc.

9201-B San Mateo Blvd N.E.

Albuquerque, New Mexico 87113 U.S.A.

Telephone: 855-250-7027 (Toll Free U.S.A./Canada)

Telephone: 602-365-7027 (International Direct)

APPROVED GPS AND SOFTWARE LIST
FOR VIZION PMA AUTOPILOT
AND
PROCEDURE FOR APPROVING ADDITIONAL GPS OR
SOFTWARE

P/N 186 Rev 7

Jan 2020

Export Control

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RECORD OF REVISIONS

Revision	Revision Date	Description
IR	7/5/2017	Preliminary manual created
A	2/14/2018	Added Aera 660, GPS connection and configuration to flight check report, added KLN 89B, and 696.
B	4/30/2018	Added Garmin 796 and GPS 150XL
C	9/7/2018	Added Garmin 296, Apollo GX60 and Bendix King KSN770, Avidyne IFD 4XX/5XX, Garmin 300XL, Updated Garmin configurations for GDL 39 usage
D	6/12/2019	Added EFIS settings and Vizion PV.40 software
E	9/16/2019	Added Garmin GDU 460 (G3X), and updated Aspen software version
F	12/18/2019	Added Garmin GPS 175/GNX 375, GNS 480
7	1/31/2020	Formatted to BendixKing, Added Garmin GNX 375 approval, Garmin GPS 400W

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1   INTRODUCTION

How to Use This Manual

1.1.1   General

(1) This publication gives installation and maintenance instructions for the equipment shown on the Title page.

(2) Standard maintenance procedures that technicians must know are not given in this manual.

(3) Warnings, cautions, and notes in this manual give the data that follows:

> ⚠️ A WARNING gives a condition or tells personnel what part of an operation or maintenance procedure, which if not obeyed, can cause injury or death.

> ⚠️ A CAUTION gives a condition or tells personnel what part of an operation or maintenance procedure, which if not obeyed, can cause damage to the equipment.

> 𝒩 A NOTE gives data, not commands. The NOTE helps personnel when they do the related instruction.

(4) Warnings and cautions go before the applicable paragraph or step. Notes follow the applicable paragraph or step.

1.1.2   Observance of Manual Instructions

(1) Make sure that you carefully obey all safety, quality, operation, and shop procedures for the unit.

(2) All personnel who operate equipment and do maintenance specified in this manual must know and obey the safety precautions.

1.1.3   Symbols

(1) The symbols and special characters are in agreement with IEEE Publication 260 and IEC Publication 27. Special characters in text are spelled out.

(2) The signal mnemonics, unit control designators, and test designators are shown in capital letters.

(3) The signal names followed by an "*" show an active low signal.

(4) The symbols in **Error! Reference source not found.** show ESDS and moisture sensitive devices.

Figure 1-1 Symbols

1.1.4 Units of Measure

Measurements, weights, temperatures, dimensions, and other values are expressed in the USMS followed by the appropriate SI metric units in parentheses. Some standard tools or parts such as drills, taps, bolts, nuts, etc. do not have an equivalent.

1.1.5 Electrostatic Discharge

Touch the items susceptible to electrostatic discharge in accordance with MIL-HDBK-263. Refer to MIL-STD-1686 for definition of the standards and conditions.

1.1.6 Other Publications

These publications are standard references. Check for latest version of publication.

Table 1-1 Publications

Document Number	Description
	The United States GPO Style Manual (available at http://www.gpo.gov/fdsys/pkg/GPOSTYLEMANUAL-2008/content-detail.html)
IEEE Std 260.1	Standard Letter Symbols for Units of Measurement (available from the American National Standards Institute at http://www.ansi.org)
ASME Y14.38	Abbreviations for Use on Drawings and Related Documents (available from the American National Standards Institute at http://www.ansi.org)
ASME Y14.5	Dimensioning and Tolerancing (available from the American National Standards Institute at http://www.ansi.org)
ANSI/IEEE Std 91	Graphic Symbols for Logic Functions (available from the American National Standards Institute at http://www.ansi.org)
	H4/H8 CAGE Codes (available from DLA Logistics Information Services at http://www.logisticsinformationservice.dla.mil)
IEEE 315/ANSI Y32.2	Graphic Symbols for Electrical and Electronics Diagrams (available from the American National Standards Institute at http://www.ansi.org)
MIL-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices) (Metric) (available from any military standards database)
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices) (Metric) (available from any military standards database).

Acronyms and Abbreviations

(1) The abbreviations are used in agreement with ASME Y14.38.

(2) Acronyms and non-standard abbreviations used in this publication are as follows in Table 1-2.

Table 1-2 Acronyms and Abbreviations

Acronyms and Abbreviations	Definition
AC	Advisory Circular
AHRS	Attitude and Heading Reference System
AMP	Ampere
ANSI	American National Standards Institute
AP	Autopilot
ARS	Attitude Reference System
ARINC	Aeronautical Radio, Incorporated
AS	Aerospace Standard
ASME	American Society of Mechanical Engineers
AWG	American Wire Gauge
BNR	Binary Number
C	Celsius
CAGE	Commercial and Government Entity
CBIT	Continuous Built-in Test
CFR	Code of Federal Regulations
CG	Center of Gravity
CMT	Configuration and Maintenance Tool
CPU	Central Processing Unit
DAL	Design Assurance Level
DC	Direct Current
ECCN	Export Control Classification Number
ESD	Electrostatic Discharge
ESDS	Electrostatic Discharge Sensitive
F	Fahrenheit
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FCS	Flight Control System
FD	Flight Director
GPO	Government Printing Office
I/O	Input/Output
ICA	Instructions for Continued Airworthiness
ID	Identification
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IM	Installation Manual
IMM	Installation and Maintenance Manual
inHg	Inch of mercury

Acronyms and Abbreviations	Definition
in-lb	inch-pound
kbps	kilobytes per second
kg	Kilogram
kPa	kilopascal
lb	Pound
m	Meter
mb	millibars
Min	minute
mm	Millimeter
Mph	Miles per hour
NA	Not Applicable
NiMh	Nickel-Metal Hydride
No.	Number
Nm	Newton Meter
NVM	Non-Volatile Memory
PBA	Printed Board Assembly
PBIT	Power-up Built-in Test
PC	Personal Computer
PN	Part Number
Pub.	Publication
RAM	Random Access Memory
RF	Radio Frequency
RTCA	Radio Technical Commission for Aeronautics
SAE	Society of Automotive Engineers
SDI	Serial Digital Interface
SI	International System of Units
SN	Serial Number
STC	Supplemental Type Certificate
SW	Software
TR	Temporary Revision
TSO	Technical Standard Order
U.S.A.	United States of America
USB	Universal Serial Bus
USMS	United States Measurement System
V	Volt
VDC	Volts Direct Current
VFR	Visual Flight Rule

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2   HARDWARE AND SOFTWARE COVERED

Table 2-1 Hardware & Software

Vizion PMA Hardware	Vizion PMA Software
Rev A	PV.30, PV.40

3   APPROVED TSO GPS UNITS AND SOFTWARE VERSIONS

Table 3-1 GPS Units and Software Versions

GPS	GPS Software Version	Vizion PMA PV3.0	Vizion PMA PV4.0
Apollo GX60	1.22	X	
	3.5	X	
Avidyne IFD 440	10.2.2.0	X	
	10.2.2.0.A		X
Avidyne IFD 540	10.2.0.0	X	
Avidyne IFD 550	10.2.0.0	X	
Bendix King KLN 89B	00880-0007	X	
Bendix King KSN770	0106	X	
Garmin GDU 460	2.70	X	
Garmin GNC 150XL	2.07	X	
Garmin GNC 250XL	2.09	X	
Garmin GNC 300XL	2.09	X	
Garmin GNS 430/430W	5.20	X	
	5.40	X	X
Garmin GPS 175	2.02	X	
	3.03	X	
Garmin GPS 400W	5.10	X	
Garmin GNS 480	2.4		X
Garmin GNX 375	8.4		X
Garmin GTN 650	4.10	X	

4   APPROVED NON-TSO (PORTABLE) GPS UNITS AND SOFTWARE VERSIONS

Table 4-1 Non-TSO GPS Units and Software Versions

GPS	GPS Software Version	Vizion PMA PV3.0	Vizion PMA PV4.0
Garmin 296	6.10	X	
Garmin 496	3.50	X	
	4.80	X	
Garmin Aera 500/510/550/560	5.60	X	
Garmin Aera 660	2.30	X	
	3.20	X	
Garmin 696	6.90	X	
	7.70	X	
Garmin 796	5.20	X	

5   APPROVED EFIS UNITS AND SOFTWARE VERSIONS

Table 5-1 EFIS Units and Software Versions

EFIS	EFIS Software Version	Vizion PMAPV3.0	Vizion PMAPV4.0
Aspen E5/EFD1000	2.9	Not Compatible	X
	2.10		X
Garmin G5	4.10		X

6   GPS APPROVAL REQUIREMENTS

The Vizion PMA(P/N 8000-174, 8000-175, 8000-176, 89000033-001, 89000033-002, 8000-183, 8000-184, 8000-185) autopilot can be interfaced to multiple different types of GPS units for navigation input. The STC requires that the GPS and GPS software be on the approved list before connection to the Vizion PMA is allowed. If the GPS is listed but the software to be used is not, refer to section 5 of this document for the procedure for approving a new software version.

7   CONNECTION PINOUTS
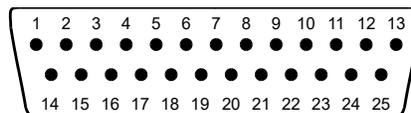
Figure 7-1 Rear 25-Pin Connector P101 Viewed from rear of unit

7.1.1   TSO GPS Pin Connections to Vizion PMA

Table 7-1 TSO GPS Pin Connections

GPS Connector/Pin	~~Autpilot~~Autopilot Pin
Apollo GX-50/60/65	
If GX does NOT have GPSS Nav Interface Connector/5	17
If GX has GPSS Nav Interface Connector/22	17
Avidyne IFD 410/440/510/540/545/550	
P1001/54	17
P1001/46	14
P1001/47	15
Bendix King KLN 89B/94	
P941/2	17
BendixKing KSN770	
J1/62	17
J1/71	14
J1/51	15
Garmin GNS 430/430W GPS 400W	
P4001/56	17
P4001/46	14
P4001/47	15
Garmin GNS 530/530W	
P5001/56	17
P5001/46	14
P5001/47	15
Garmin GTN 650/750	
P1001/8	17
P1001/10	14
P1001/29	15
Garmin GNS 480/Apollo CNX80	
P1/22	17
P5/4	14
P5/24	15
Garmin GNC 155XL/250XL/300XL	
J1/19	17
J1/16	14
J1/15	15
Garmin GNX 375	
RS-232 Out 1 J3752/5 or	17

GPS Connector/Pin	~~Autpilot~~Autopilot Pin
RS-232 Out 2 J3752/6	
J3752/1	14
J3752/2	15
Garmin GPS 175	
RS-232 Out 1 J1751/9 or RS-232 Out 2 J1751/8 or RS-232 Out 3 J1751/7	17
J1751/5	14
J1751/6	15
Garmin GDU 460 (serial only)	
RS-232 Out 1 J3701/13 or RS-232 Out 2 J3701/30 or RS-232 Out 3 J3701/48	17

7.1.2   Non-TSO GPS Pin Connections to Vizion PMA

Table 7-2 Non-TSO GPS Pin Connections

GPS Connector/Pin	Autopilot Pin
Garmin 695/696/795/796 without GDL 39	
Blue Wire	17
Garmin 695/696/795/796 with GDL 39	
Orange Wire	17
Garmin Aera 500/510/550/560/660 without GDL 39	
Blue Wire	17
Garmin Aera 500/510/550/560/660 with GDL 39	
Orange Wire	17
Garmin 296/396/496	
Blue Wire	17

7.1.3   EFIS Connection Vizion PMA

Software PV.40 and later accommodates interfaces with the following EFIS systems. For connection to the Vizion PMA, a DPDT autopilot ARINC source switch must be installed as shown in Figure 7-2 and labeled accordingly. In the case that the installed GPS does not provide an ARINC output, the ARINC source switch must be installed with no connection to the GPS ARINC OUT.
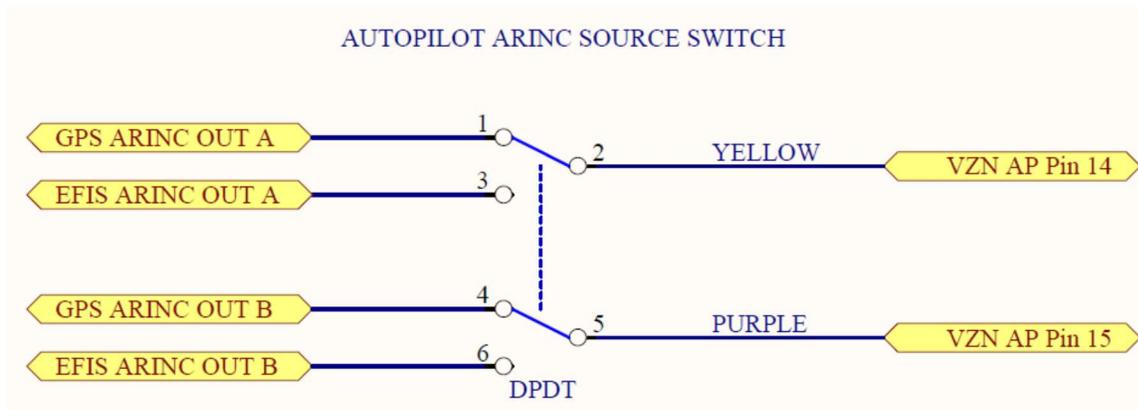
Figure 7-2 ARINC Source Switch

Table 7-3 EFIS ARINC Connections

EFIS	Output	EFIS ARINC Out	EFIS ARINC Out B
Aspen E5/EFD1000	PFD 429 TX1	26	27
Garmin G5 (Requires GAD29/29B)	ARINC 429 OUT 1	GAD 29/29B J292 Pin 24 or 25	GAD 29/29B J292 Pin 12 or 13
	OR		
	ARINC 429 OUT 2	GAD 29/29B J292 Pin 18 or 19	GAD 29/29B J292 Pin 6 or 7

8   GPS/EFIS CONFIGURATION

8.1.1   TSO GPS Configuration Procedures

8.1.1.1   GNS 430/430W/530/530W GPS 400W

1. Press and hold the ENT button while powering up.

2. Release the ENT button once GARMIN is shown on the display.

3. Cycle through the Instrument Panel Self-Test Page like normal, this will bring up the MAIN ARINC 429 CONFIG page.

4. Cycle the cursor down to OUT, select GAMA 429 as the format.

5. Cycle the cursor down to SPEED, select LOW.

6. Cycle the cursor down to VNAV LABEL (430W/530W only), select ENABLE.

7. Rotate the large knob to access the RS232 SETUP page.

8. Cycle the cursor to the OUTPUT column of the CHNL 1 row.

9. Select Aviation.

10. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.2 GTN 650/750

1. Press and hold the HOME button while powering up.

2. Release the HOME button when GARMIN is shown on the display.

3. From the CONFIG MODE screen, touch GTN SETUP.

4. Touch RS232.

5. On channel 1 output, select Aviation, then touch the back arrow.

6. Touch ARINC 429.

7. On channel 1 output, select GAMA 1, Speed LOW, then touch the back arrow.

8. Touch Update Config Module.

9. Autopilot baud rate must be 9600, Installation Guide Appendix corresponding to aircraft type.

8.1.1.3 GNC 155XL/250XL/300XL

1. Press and hold the MSG button.

2. Rotate the outer knob until the I/O Setup page is displayed.

3. Press the CRSR button twice and rotate the inner knob to select Plotting

4. Rotate the outer knob to advance the cursor to the baud rate selection, choose 9600

5. Press CRSR.

6. Power down the GPS.

7. Remove the database card.

8. Power the unit on.

9. Press the ENT button when asked "Select operating mode Normal?".

10. Press the ENT button again when asked "user wpts ok?"

11. After the satellite status page is displayed for five seconds, turn the unit off.

12. Press and hold the ENT button then turn the power on. Release the ENT button when the display activates.

13. Press the CRSR button, then rotate the outer knob to select ARINC 429 CHANNEL.

14. Press the CRSR button, then rotate the inner knob to cycle the cursor to OUTPUT, select w/o GAMA labels.

15. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.4 GNS 480/CNX 80

1. Immediately after power up of GPS, press the 1, 4, and MENU/ENTER buttons together.

2. After the unit reboots, it will be in the SETUP page.

3. Press the button next to SERIAL PORTS.

4. Press the small knob and move the cursor to the TX column for channel 2.

5. Select MAPCOM and 9600. Press the small knob to save.

6. Press BACK to return to the setup page.

7. Press the button next to ARINC PORTS SETUP.

8. Move the cursor to Channel 1 OUT.

9. For DATA, select ARINC 429.

10. For SPEED, select LOW.

11. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.5   GX50/60/65 with GPS

1. Power the GX-50/60/65 up and turn it on while holding down the leftmost and rightmost "smart keys."

2. Rotate the LARGE knob to the Serial Interface Configuration "CH RX TX" page.

3. Press SEL

4. Rotate the large knob to select CH2

5. Rotate the small knob to select GPSS

6. Press ENT

7. Switch power of then back on to restore the GX-50/60/65 to normal operation.

8. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.6   GX50/60/65 without GPS

1. Power the GX-50/60/65 up and turn it on while holding down the leftmost and rightmost "smart keys."

2. Rotate the LARGE knob to the Serial Interface Configuration "CH RX TX" page.

3. Press SEL

4. Rotate the large knob to select CH1

5. Rotate the small knob to select MovMap

6. Press ENT

7. Switch power of then back on to restore the GX-50/60/65 to normal operation.

8. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type

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8.1.1.7   Avidyne IFD 410/440/510/540/545/550

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

7.   On the Main ARINC 429 Config page set output data to Low Speed, data to GAMA 429, and enable VNAV labels

8.   Advance to the Main RS232 Config page and set the output of the wired channel to Aviation

9.   Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.8   Bendix King KSN770

Requires the Bendix King ICT available to Bendix King Dealers

1.   Insert a USB drive with ICT installed

2.   Power up the KSN770

3.   Select "CONFIG NAVIGATION" from the ~~the~~ ICT Main Screen

4.   Press the "1/2" button to advance to Config Nav Screen 2

5.   Set the GAMA Output Type to "EFIS 40/50 (Low Speed)"

6.   Select "Save & Return"

7.   Press the "Save Config File" button on the ICT if saving the config file to USB is desired.

8.   Remove the USB drive and cycle power to return to normal operation.

9.   Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.9   Garmin GDU 460 (serial only)

1.   Press and hold the MENU button while powering up.

2.   Release the MENU button once CONFIGURATION MODE is shown on the display.

3.   Select the RS232 page

4.   Configure RS232 the by selecting NMEA 9600 and FAST on the connected output channel.

_____

5. Press BACK button

6. Press SAVE & EXIT

7. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.1.10 Garmin GPS 175/ GNX 375

1. Push and hold the inner knob.

2. Push the power key.

3. When the configuration mode home page displays, release the knob.

4. Tap Setup.

5. Tap Interfaces.

6. Tap ARINC 429.

7. Set the ARINC TX Port 1 Format to "GAMA Format 1" and Speed to "Low".

8. Tap Back.

9. Tap RS 232.

10. Set the appropriate RS 232 channel to "Aviation Output 1".

11. Autopilot baud rate must be 9600, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2 Non-TSO GPS Configuration Procedures

8.1.2.1 Garmin GPSMAP 296

1. Press the MENU button twice.

2. Scroll down to SETUP.

3. Scroll right to the COM 1 tab.

4. Scroll down to the FORMAT field.

5. Press ENTER, a window will popup.

6. Use the rocker pad to select NMEA IN/NMEA OUT.

7. Press ENTER.

8. Select 4800 for the baud rate.

9. Press MENU to enter the Advanced NMEA Output Setup.

10. Press ENTER

11. Use the rocker pad to select FAST OUTPUT in the Output Rate field.

12. Press ENTER

13. Autopilot baud rate must be 4800, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.2 Garmin GPSMAP 395/396/495/496

1. Press the MENU button twice.

2. Scroll down to SETUP.

3. Scroll right to the Interface tab.

4. Scroll down to select the Serial Data Format field.

5. Press ENTER, a window will popup.

6. Scroll to NMEA IN/NMEA OUT

7. Press the MENU button.

8. Select Advanced NMEA Setup and press ENTER.

9. Select FAST OUTPUT, then press ENTER.

10. Autopilot baud rate must be 4800, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.3 Garmin Aera 500/510/550/560/660 without GDL 39

1. From the Main Menu, touch Tools->Setup->Interface

2. Touch the Serial Data Format button

3. Select one of the following serial data formats:

GTX TIS-A In/NMEA &VHF Out (9600 BAUD)

OR

Aviation In/NMEA & VHF Out (9600 BAUD)

OR

NMEA Out (4800 BAUD)

4. Touch the NMEA Output Mode button to toggle to Fast

5. Autopilot baud rate must be set to match, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.4 Garmin Aera 500/510/550/560/660 with GDL 39

1. From the Main Menu, touch Tools->Setup->Interface

2. Touch the Serial Data Format button

3. Touch Garmin Data Transfer

4. Touch the GDL 39 Pass-Through Serial Format button

5. Select one of the following serial data formats:

    GTX TIS-A In/NMEA &VHF Out (9600 BAUD)

    OR

    Aviation In/NMEA & VHF Out (9600 BAUD)

    OR

    NMEA Out (4800 BAUD)

6. Touch the NMEA Output Mode button to toggle to Fast

7. Autopilot baud rate must be set to match, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.5   Garmin 695/696 without GDL 39

1. Press the MENU button twice.

2. Scroll down and highlight "System Setup"

3. Press the ENT key

4. Scroll down and highlight "Interface"

5. Press the ENT key

6. Rotate the FMS joystick to set the Serial Data Format to one of the following:

    GTX TIS-A In/NMEA &VHF Out (9600 BAUD)

    OR

    Aviation In/NMEA & VHF Out (9600 BAUD)

    OR

    NEMA In/NMEA Out (4800 BAUD)

7. Use the FMS joystick to highlight the NMEA Output Mode field

8. Turn the FMS joystick to select "Fast"

9. Autopilot baud rate must be set to match, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.6   Garmin 695/696 with GDL 39

1. Press the MENU button twice.

2. Scroll down and highlight "System Setup"

3. Press the ENT key

4. Scroll down and highlight "Interface"

5. Press the ENT key

6. Rotate the FMS joystick to select "Garmin Data Transfer" for the Serial Data Format

7. Rotate the FMS joystick to set the GDL 39 PASS-THROUGH SERIAL FORMAT to one of the following:

<p style="text-align:center">GTX TIS-A In/NMEA &VHF Out (9600 BAUD)</p>

<p style="text-align:center">OR</p>

<p style="text-align:center">Aviation In/NMEA & VHF Out (9600 BAUD)</p>

<p style="text-align:center">OR</p>

<p style="text-align:center">NMEA Out (4800 BAUD)</p>

8. Use the FMS joystick to highlight the NMEA Output Mode field

9. Turn the FMS joystick to select "Fast"

10. Autopilot baud rate must be set to match, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.2.7   Garmin 795-796

1. From the Main Menu, touch Tools->Setup->Interface

2. Touch the Serial Data Format button

3. Select one of the following serial data formats:

<p style="text-align:center">TIS-A In/NMEA & VHF Out (9600 Baud)</p>

<p style="text-align:center">OR</p>

<p style="text-align:center">Aviation In/NMEA &VHF Out (9600 Baud)</p>

<p style="text-align:center">OR</p>

<p style="text-align:center">NMEA Out (4800 Baud)</p>

4. Touch the NMEA Output Mode button to toggle to Fast

5. Autopilot baud rate must be set to match, refer to Installation Guide Appendix corresponding to aircraft type.

8.1.3   EFIS Configuration Procedures

8.1.3.1   Aspen E5/EFD1000

Set Vizion PMAEFIS TYPE to 1. Refer to aircraft specific installation appendix lateral autopilot settings.

No configuration is required on Aspen

8.1.3.2   Garmin G5

Set Vizion PMAEFIS TYPE to 2. Refer to aircraft specific installation appendix lateral autopilot settings.

1. Hold down the knob on the G5 while powering on the G5.

2. Rotate the knob to highlight ARINC 429 then press the knob to enter the ARINC 429 configuration.

3. Rotate the knob to select the output connected to the autopilot ARINC source select switch then press the knob.

4. Rotate the knob to select one of the EFIS/AIRDATA formats then press the knob.

5. Rotate the knob to select BACK then press the knob.

6. Rotate the knob to select Exit Configuration Mode then press the knob.

7. When prompted to reboot unit and return to normal operation rotate the knob to select yes then press the knob.

9   GROUND CHECK PROCEDURE FOR GPS UNITS WITH SELF-TEST FEATURE

This section will apply mostly to TSO GPS units that have a self-test page. However, any GPS that has a mode to output signals on the ground can use this procedure. Refer to the manual for the specific GPS unit for instructions on how to access the self-test/demo mode of the GPS.

9.1.1   RS232 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. If GPS unit has a test page, instrument panel self-test, or demo page, leave the GPS at this page for the duration of the ground check.

3. Check upper left corner of autopilot display.

4. GPS OK indicates proper RS232 communication.

5. NO GPS indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) to verify GPS settings.

9.1.2   ARINC 429 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. If GPS has a test page, instrument panel self-test page, or demo page, leave the GPS at this page for the duration of the ground check.

3. Engage the autopilot by pressing the KNOB on the autopilot controller.

4. Press the MODE button on the autopilot.

5. Check the lower left area of the display.

6. GPSS indicates good ARINC 429 communication.

7. No change or response indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) to verify GPS settings.

10 TAXI CHECK PROCEDURE FOR GPS UNITS WITHOUT SELF-TEST FEATURE

This section will apply mostly to Non-TSO GPS and some older TSO GPS units that do not have a self-test page. This check will require two crew members, a pilot-in-command and an auxiliary crew member to verify proper autopilot interface to the GPS unit.

10.1.1 RS232 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. Power up the GPS and autopilot.

3. Check upper left corner of autopilot display.

4. GPS OK indicates proper RS232 communication.

5. NO GPS indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (Section 8 of this document) to verify GPS settings.

10.1.2 ARINC 429 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. Program a waypoint into the GPS.

3. Taxi the aircraft at a speed greater than 10 knots.

4. Engage the autopilot by pressing the KNOB on the Vizion controller.

5. Press the MODE button on the autopilot.

6. Check the lower left area of the display.

7. GPSS indicates good ARINC 429 communication.

8. No change or response indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) to verify GPS settings.

11 PROCEDURE FOR GPS MODEL APPROVAL

All GPS units interfaced to the Vizion PMA are required to be on the approved list along with their software. Refer to Table 3-1 and Table 4-1 of this document for approved GPS units and ~~softwares~~software. Follow the procedure in this section to gain approval for a GPS model that is not on the approved list. New GPS models will require a verified flight check to ensure proper interface to the autopilot.

11.1.1 Wiring Verification

Using GPS installation manuals and Installation Guide, verify proper connections to autopilot inputs.

11.1.2 RS232 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. If GPS unit has a test page, instrument panel self-test, or demo page, leave the GPS at this page for the duration of the ground check.

3. Check upper left corner of autopilot display.

4. GPS OK indicates proper RS232 communication.

5. NO GPS indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) to verify GPS settings.

11.1.3 ARINC 429 Communication Verification

1. Verify that wiring connections are correct for the GPS model interfaced.

2. If GPS has a test page, instrument panel self-test page, or demo page, leave the GPS at this page for the duration of the ground check.

3. Engage the autopilot by pressing the KNOB on the Vizion controller.

4. Press the MODE button on the autopilot.

5. Check the lower left area of the display.

6. GPSS indicates good ARINC 429 communication.

7. No change or response indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) or GPS installation manual to verify GPS settings.

8. If wiring and settings are verified with no correct response received, proceed to section 6.4 for the ARINC 429 Communication Verification Taxi Check

11.1.4 ARINC 429 Communication Verification (Taxi Check)

1. Verify that wiring connections are correct for the GPS model interfaced.

2. Program a waypoint into the GPS.

3. Taxi the aircraft at a speed greater than 10 knots.

4. Engage the autopilot by pressing the KNOB on the Vizion controller.

5. Press the MODE button on the autopilot.

6. Check the lower left area of the display.

7. GPSS indicates good ARINC 429 communication.

8. No change or response indicates no or improper communication. Refer to Installation Guide to troubleshoot wiring. Refer to GPS Configuration (section 4 of this document) to verify GPS settings.

11.1.5 GPS Flight Check

After ground check verifications, currently unapproved GPS units must be flown to verify correct interface to the autopilot. A report must be sent to BendixKing verifying a successful check flight. The following points must be covered in the check flight. Fill out the table on page 13 of this document and return

1. Verify autopilot displays TRK and the current ground track in the upper left corner of the display.

2. Verify autopilot follows current track when engaged.

3. Make several left and right turns of greater than 90°, verify autopilot rolls out at correct track.

4. Program a waypoint in the GPS

5. Press the MODE button on the autopilot, verify the autopilot enters GPS NAV mode and tracks to the currently set course and waypoint. (NOTE: If ARINC 429 steering is present, GPS NAV mode will not be accessible.)

6. Verify the autopilot enters GPSS mode on the lower left of the display and tracks to the currently set course (ARINC 429 interface only).

7. Submit a completed copy of section 12 Flight Report to BendixKing.

12 FLIGHT REPORT

Table 12-1 Check Flight Report

Settings	Flight Report	
Software Version		
GPS Model		
GPS Software Version		
RE232 Pin Connection	Connector	Pin
RS232 Configuration Setting		
Baud Rate		
EFIS Type Setting		
ARINC 429 A Pin Connection	Connector	Pin
ARINC 429 B Connection	Connector	Pin
ARINC 429 Configuration Setting		

Table 12-2 Check Flight Report

Check Flight Parameter	Pass/Fail/NA
TRK and current ground track displayed in top left	
Autopilot follows current track when engaged	
Autopilot turns and rolls out correctly	
Autopilot enters GPS NAV mode and correctly tracks course	
Autopilot enters GPSS mode and correctly tracks course	
Follows external EFIS bugs	

Authorized Signature _____

Company Name (if applicable) _____

Date of flight _____

13 INSTALLATION SUPPORT

For Installation Support Please Contact
Technical Support: techsupport@bendixking.com

US and Canada: 1-855-250-7027
Worldwide: 1-505-903-6148

https://www.bendixking.com/en/contact-us

BendixKing