ADVANCED Panel System – Advanced Control Module Installation Manual

LIMITED WARRANTY / AGREEMENT

Advanced Flight Systems Inc. (“AFS”) warrants its aircraft monitoring system instrument and system components to be free from defects in materials and workmanship for a period of one year commencing on the date of the first flight of the instrument or one year after the invoice date, whichever comes first. AFS will repair or replace any instrument or system components under the terms of this Warranty provided the item is returned to AFS prepaid.

This Warranty shall not apply to any unit or component that has been repaired or altered by any person other than AFS, or that has been subjected to misuse, abuse, accident, incorrect wiring, or improper or unprofessional installation by any person. THIS WARRANTY DOES NOT COVER ANY REIMBURSEMENT FOR ANYONE'S TIME FOR INSTALLATION, REMOVAL, ASSEMBLY OR REPAIR. AFS reserves the right to determine the reason or cause for warranty repair.

1. This Warranty does not extend to any engine, machine, aircraft, boat, vehicle or any other device to which the AFS monitoring system may be connected, attached, or used with in any way.

2. THE REMEDIES AVAILABLE TO THE PURCHASER ARE LIMITED TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE OF THE PRODUCT, AT THE SOLE DISCRETION OF AFS. CONSEQUENTIAL DAMAGES, SUCH AS DAMAGE TO THE ENGINE OR AIRCRAFT, ARE NOT COVERED, AND ARE EXCLUDED. DAMAGES FOR PHYSICAL INJURY TO PERSON OR PROPERTY ARE NOT COVERED, AND ARE EXCLUDED.

3. AFS is not liable for expenses incurred by the customer or installer due to AFS updates, modifications, improvements, upgrades, changes, notices or alterations to the product.

4. The pilot must understand the operation of this product before flying the aircraft. Do not allow anyone to operate the aircraft that does not understand the operation of the monitoring system. Keep the operating manual in the aircraft at all times.

5. AFS is not responsible for shipping charges or damages incurred during shipment.

6. No one is authorized to assume any other or additional liability for AFS in connection with the sale of AFS products.

7. IF YOU DO NOT AGREE TO ACCEPT THE TERMS OF THIS WARRANTY, YOU MAY RETURN THE PRODUCT FOR A FULL REFUND. IF YOU DO NOT AGREE TO ACCEPT THE TERMS OF THIS WARRANTY, DO NOT INSTALL THE PRODUCT.

8. This warranty is made only to the original purchaser and is not transferable. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR OBLIGATIONS, EXPRESS OR IMPLIED, ORAL OR WRITTEN. AFS EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER AGREES THAT IN NO EVENT SHALL AFS BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING DAMAGES TO THE ENGINE OR AIRCRAFT, LOST PROFITS, LOSS OF USE, OR OTHER ECONOMIC LOSS. EXCEPT AS EXPRESSLY PROVIDED HEREIN, AFS DISCLAIMS ALL OTHER LIABILITY TO THE PURCHASER OR ANY OTHER PERSON IN CONNECTION WITH THE USE OR PERFORMANCE OF AFS' PRODUCTS, INCLUDING BUT NOT LIMITED TO STRICT PRODUCTS LIABILITY IN TORT.

IMPORTANT PRE-INSTALLATION NOTICE

Before installing the monitoring system, READ THE LIMITED WARRANTY / AGREEMENT. There is information in the Limited Warranty / Agreement that may alter your decision to install this product. IF YOU DO NOT ACCEPT THE TERMS OF THE LIMITED WARRANTY / AGREEMENT DO NOT INSTALL THE PRODUCT. The product may be returned for a refund if you do not accept the terms of the Limited Warranty / Agreement.

Before starting the installation, make sure that your planned installation will not interfere with the operation of any controls. The installer should use current aircraft standards and practices to install this product. Refer to AC 43.13-2A, *Acceptable Methods, Techniques, and Practices - Aircraft Alterations* and AC 43.13-1B, *Acceptable Methods, Techniques, and Practices--Aircraft Inspection and Repair*.

Table of Contents

MANUAL REVISION HISTORY

REVISION	DATE	DESCRIPTION
1.0	12/31/2014	Original Release
2.0	4/9/2015	Updates
2.4	11/5/2015	IFD540 Configuration, Crimpers
2.5	12/23/2015	Updates
2.7	10/11/2016	SV EMS
3.0	12/16/2016	RV-14 Data, ACM Torque
4.0	9/1/2017	ACM-ECB
4.4	1/2/2018	Updated RV-14 Canopy and Harness Drawings
4.5	2/21/2018	Updated test procedure and CHT setup
4.6	2/23/2018	Updated IFR/VFR Testing
4.7	3/8/2018	Added Serial Port to plug chart
4.8	3/12/2018	Updated Install Checklist and Flap Testing
5.0	3/23/2018	Updated for ACM-ECB
5.1	4/6/2018	Added ACM-ECB Switch Settings
5.2	7/3/2018	Added Harness Drawing Section
5.3	2/1/2018	Added Panel Switch Operation Section
6.0	2/8/2018	Added ACM-ECB and Switch Operation, Harness Drawings
6.1	2/18/2018	Updated RV-14 schematics, Added Sportsman Drawings , RV-10 drawings
6.2	9/25/2018	Updated Sportsman and Front Harness Drawings

Overview

The Advanced Quick Panel system is based on our Advanced Control Module "ACM". The ACM is available in two different versions, fused or electronic circuit breaker. The fused version uses lighted ATO style fuses for circuit protection. The electronic circuit breaker "ECB" version has internal circuit current monitoring and will shut off a circuit if the current is too high. With the ACM-ECB you can monitor the current of each circuit and reset any tripped circuits from the EFIS. The ACM is the main power distribution center for the aircrafts electrical system. The avionics, headsets, aircraft lights, autopilot servos, trim servos, flap motor, control sticks and panel switches all get connected to the ACM. Using the ACM with its plug and play features vastly simplifies an aircraft's wiring and troubleshooting. The ACM also makes future upgrades extremely easy. Want to add an IFR Navigator in the future? No problem, just plug it into the ACM NAV-COM and GPS NAVIGATOR plugs. The complicated and time consuming (Audio Panel, GPS RS-232 data, NAV ARINC data and GPS ARINC) wiring is already done.

The ACM must never be used to power anything critical to Engine operation, including: Electronic Ignition, Electronic Fuel Injection or high pressure main electric fuel pumps.

ACM module with Electronic Circuit Breakers

ACM module with Fuses

ACM Features

- **27 dedicated channels of circuit protection including**: PFD, MFD, BACKUP EFIS, TRANSPONDER-ADSB, COM 1, NAV 1, COM 2, NAV 2, GPS NAVIGATOR, AUDIO PANEL, CABIN LIGHTS, DEFROST, ALTERNATOR, AUX POWER, STARTER, BOOST PUMP, PITOT HEAT, LEFT LANDING LIGHT, RIGHT LANDING LIGHT, NAV LIGHTS, STROBE LIGHTS, TRIM MOTORS, AP SERVOS, FLAP MOTOR.

  ACM-ECB ONLY: BACKUP ALTERNATOR, TAXI LIGHTS, SPARE POWER CIRCUIT, CABIN LIGHT SWITCH
- **Built in SV-ARINC module**
- **Multi Step Flap Positioning System**
- **Wig-Wag Lighting Circuit (airspeed controlled)**
- **Panel Dimmer**
- **Trim Controller (must have SV-AP-PANEL)**
- **SV Network Hub (4 Port + AP Servos)**
- **Panel Switch Interface with support for switch lights**
- **Control Stick Interface**

Advanced Panel Customer Order Form

Customer Contact Information

Name : _____

EMAIL: _____

Phone Number: _____

Address : _____

City : _____

State: _____

Country: _____

Aircraft Information

Aircraft Model: _____

Aircraft N Number: _____

Panel Color: Dark Gray Metallic __ Other _____

Canopy: Slider __ Tip Up __ Other __

Aircraft Kit Pre-Punched: Yes __ No __

Engine Model: _____ Carbureted: __ Injected: __

Left Ignition: _____ Right Ignition: _____

Panel Type	AFS __	HDX __	Other __
Heated Pitot:	Yes __	No __	
Landing Lights:	Yes __	No __	
Separate Taxi Light:	Yes __	No __	
Boost Pump:	Yes __	No __	
Defrost Fan:	Yes __	No __	
Cabin Light:	Yes __	No __	
Autopilot:	Yes __	No __	

Special Requirements :

_____

_____

_____

ACM Panel Switch Operation

The ACM can be used with either our standard switch modules using a 25 pin ribbon cable or custom switches wired to the ACM ***PANEL SWITCHES*** DSUB-25 pin connector. The operation of the panel switches should be the same for either a Skyview or AF-5000 equipped panel.

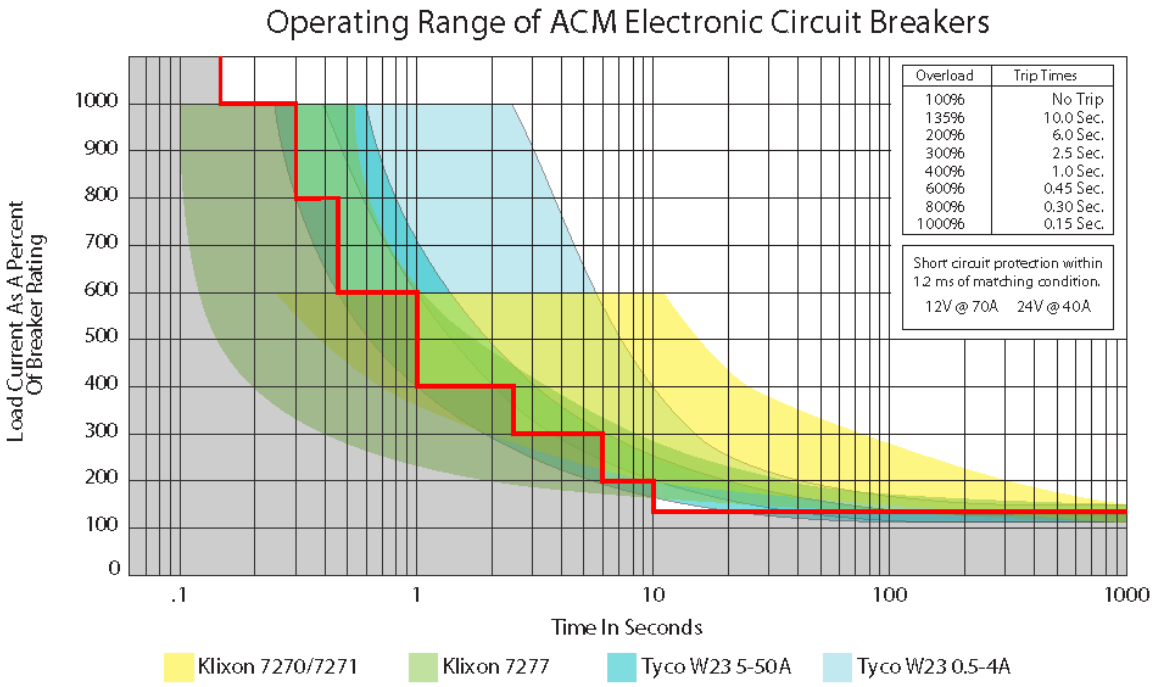
CAUTION: Do not fly the aircraft until you review and completely understand the proper use of each panel switch.

MASTER	Turns on the Aircraft Master relay providing power to the ACM Main Power Input Red Post, this will turn on the EFIS PFD. This switch does not connect to an ACM Input.
ALT	Signal to ACM to turn on the Alternator Field Power. ***You should never turn ON the ALT switch with the MASTER switch OFF***
AVIONICS	Signal to ACM to turn on the Avionics Bus in the ACM (EFIS MFD, Com1, Com2, Nav1, Nav2, Transponder, ADSB, Audio Panel)
AUTOPILOT	Signal to ACM to turn on the Autopilot Servo power. ***This switch must be ON before the Master Switch is turned on***. We recommend that this switch be left in the ON position and only turned off if you need to turn OFF power to the Autopilot Servos.
BOOST PUMP	Signal to ACM to turn on the Electric Boost Pump
STROBE /	Signal to ACM to turn on the STOBE and NAV Lights
NAV	Signal to ACM to turn on the NAV Lights only, No Strobe. This is normally used when flying in the clouds.
LAND LT /	Signal to ACM to turn on the Left and Right Landing Lights
PULSE	Signal to ACM to alternate the Left and Right Landing Lights "wig-wag mode" when above the configured airspeed. The pulse airspeed is set in the **SET** > **CAL** > 21. **Electrical Configuration** menu.
PITOT	Signal to ACM to turn on the Pitot Heat
DEFROST	Signal to ACM to turn on the Defrost fans
FLAPS	Optional panel switch to run the flaps up and down. Many installations will only have a flap switch on the control stick.

ACM-ECB Electronic Circuit Breaker Operation

The ACM-ECB is a solid-state system that replaces traditional buss bars, thermal circuit breakers, fuses and mechanical relays. The electronic circuit breaker is a solid-state circuit that monitors and reports the current for each circuit to an attached EFIS. If the current in the circuit exceeds the trip setting the ACM-ECB will turn off the circuit and report it on the EFIS screen. The tripped ECB can then be reset from the EFIS > ELECTRICAL menu. The current tripped state is preserved over a Master Relay power cycle for all channels other than the PFD EFIS circuit. All the circuits can be monitored from the EFIS Electrical page giving you far more information than a traditional circuit breaker or fuse.

CAUTION: Do not fly the aircraft until you review and completely understand the proper use of the EFIS Electrical Circuit Breaker Page.



The red line indicates the trip level of the ACM-ECB Channel

AF-5000 Electrical Circuit Breaker Page

You access the Circuit Breaker electrical page by pressing the [CHECK] button followed by the [ELEC] button.

Total ACM-ECB Current AMPs being used

ACM-ECB Input Voltage

ACM-ECB Status

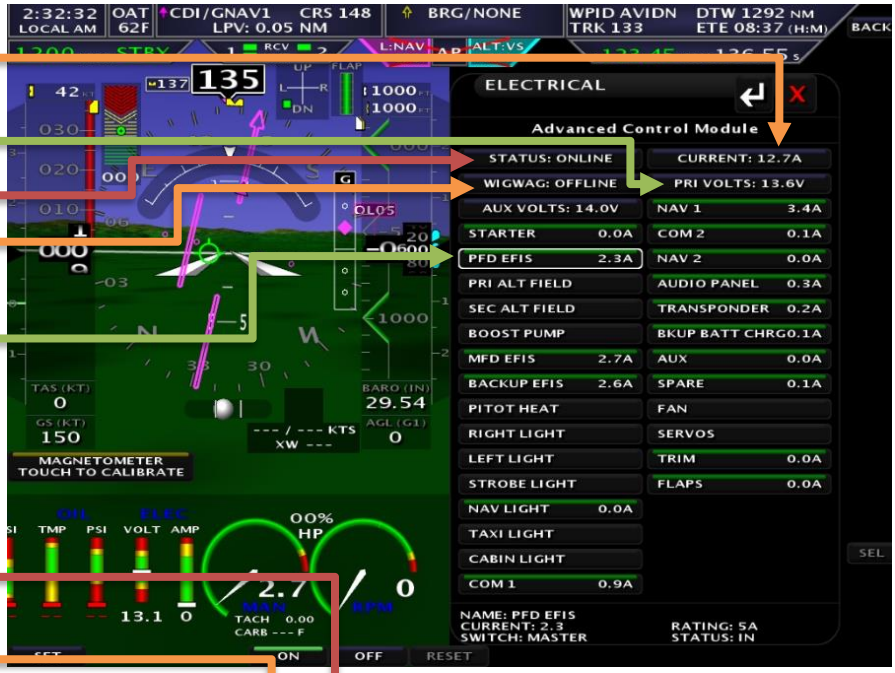
Landing Light Mode

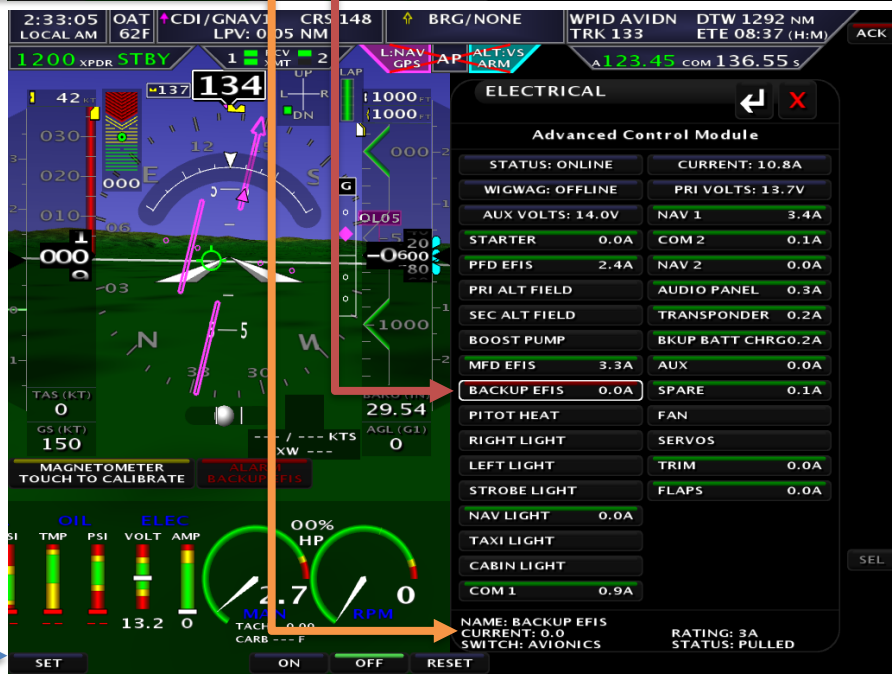
A **Green Bar** indicates the circuit is turned ON. The current Circuit Amperage being used is displayed to the right of the circuit name.

A **Red Bar** indicates the circuit is Tripped and turned OFF.

The bottom of the page displays the circuit information for the highlighted circuit:

- **Circuit Name**
- **Rating in AMPS**
- **Controlling Switch**
- **Status**





Highlighted Circuit Control Buttons

[SET] Lets you change the circuit breaker size

[ON] Turn ON the Circuit, Ignores the switch position

[OFF] Trip the Circuit, must be RESET before you can turn it back ON

[RESET] Reset the Circuit Breaker

The FLAPS circuit also has buttons that enable you to move the flaps UP and DOWN independent of the control stick or panel FLAP switch. You should verify proper flap direction from this page before programming the flap positions. If the flaps are backwards you can reverse the polarity from the EFIS CAL Flap Menu. ***If the panel or stick flap control buttons are backwards you will need to swap the button wiring.***

[DOWN] Move Flaps down

[UP] Move Flaps up

Total ACM-ECB Current AMPs being used

ACM-ECB Input Voltage

A **Green Bar** indicates the circuit is turned ON. The current Circuit Amperage being used is displayed to the right of the circuit name.

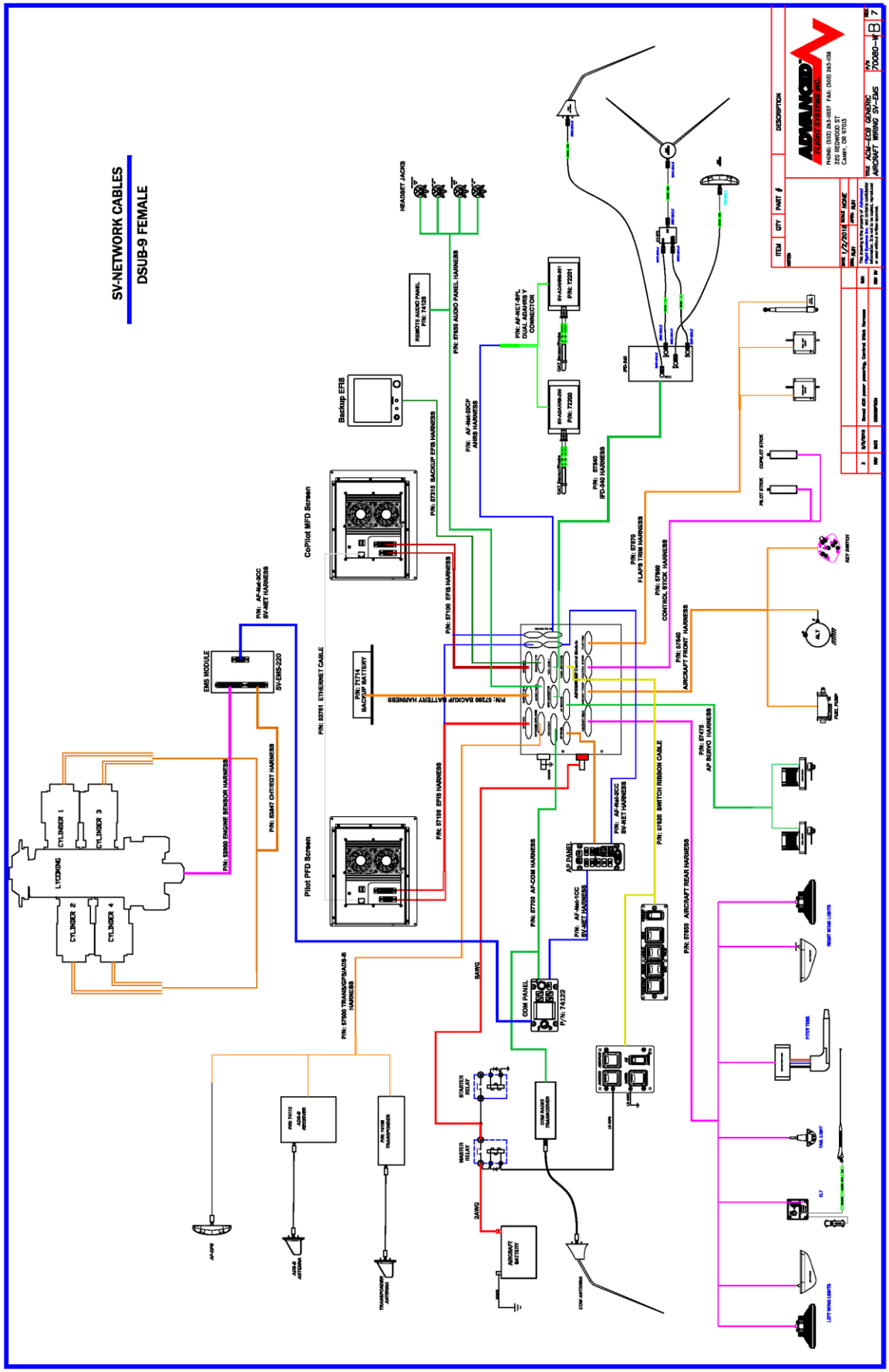
A **Yellow Bar** indicates the circuit is Tripped and turned OFF.

To Reset the Tripped circuit, use the right knob cursor to select and then press the knob.

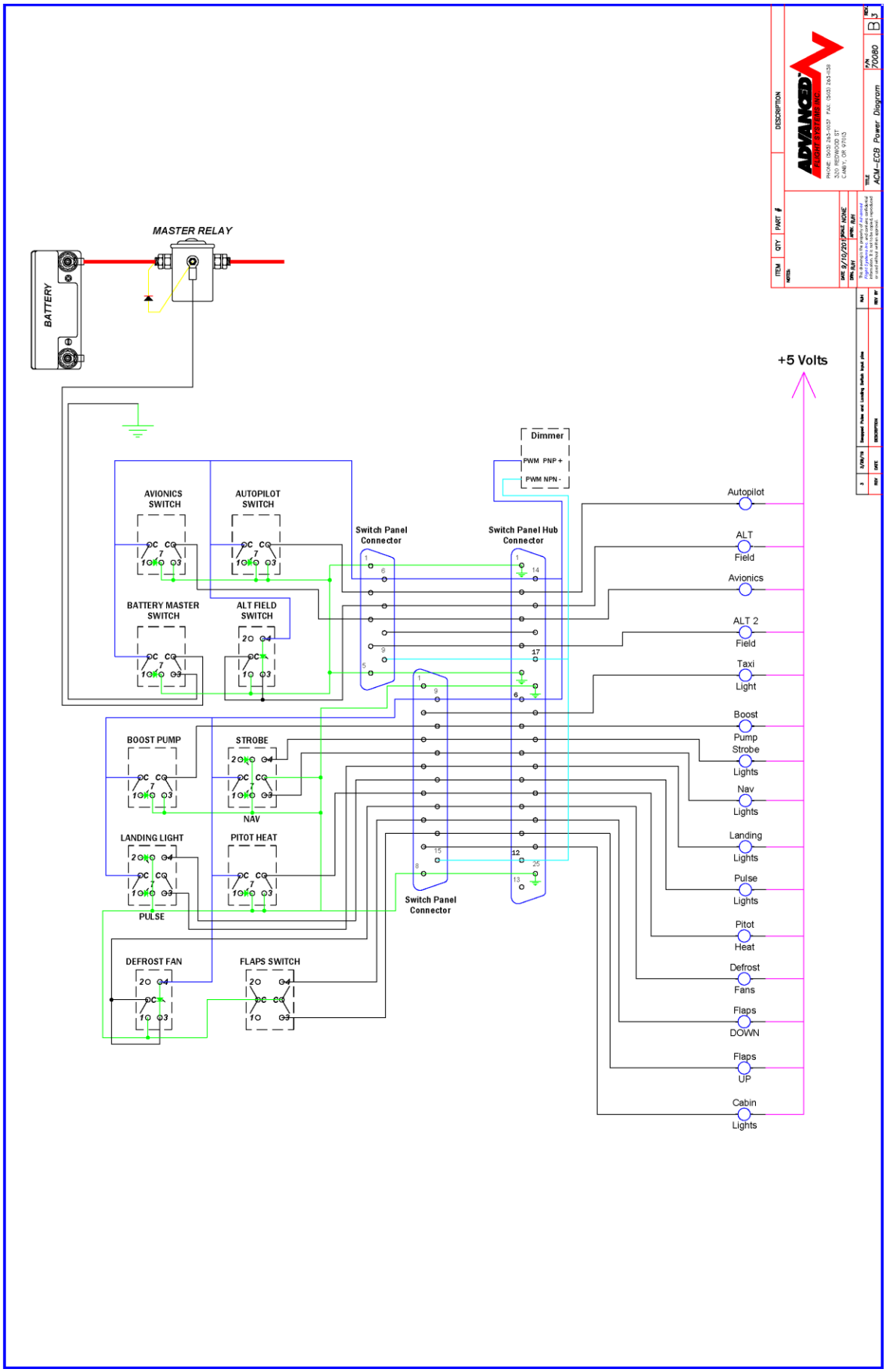
In Flight Emergencies

Tripped Circuit Breaker	Advanced Flight Systems does not recommend RESET-ing a circuit breaker in flight. If a circuit breaker trips you should trouble shoot the overcurrent problem after landing.
Electrical Smoke	Turn **OFF** the **ALT** and **Master** switches (Red Switches), Turn OFF all the remaining panel switches. The PFD and MFD EFIS along with the attached Dynon GPS should continue to operate from the backup battery. When the electrical smoke stops you can if necessary, turn **ON** the **MASTER** Switch followed by individual critical circuits from the EFIS Electrical Page. ***If you detect smoke after turning on a circuit, you should immediately turn it back OFF***
Failed Switch	On an AF-5000 you can turn on individual circuits from the EFIS Electrical Page, Skyview does not have this capability

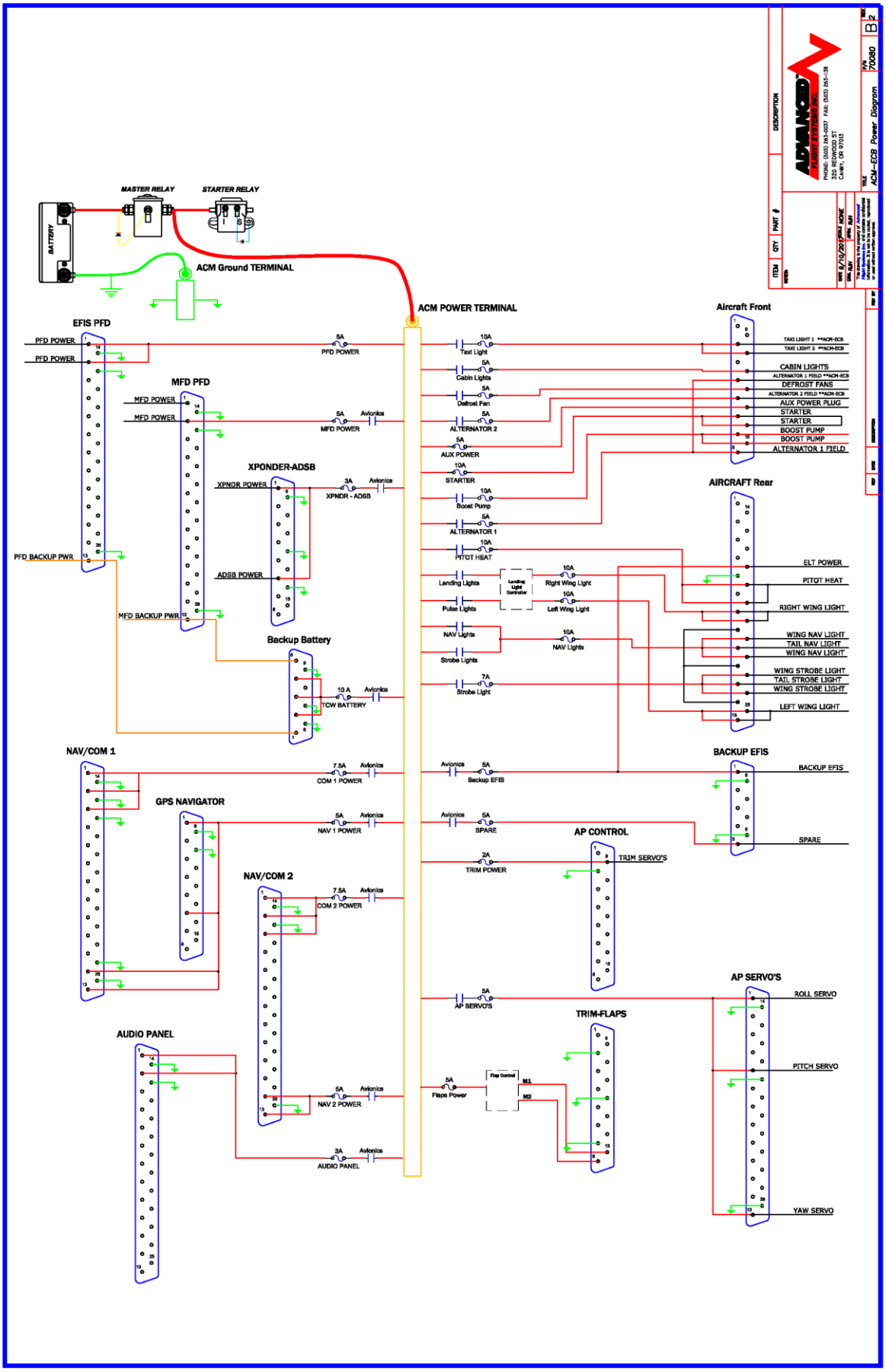
ACM Aircraft Wiring Overview



ACM Panel Switch Wiring & Logic



ACM Power Diagram & Logic



Getting Started

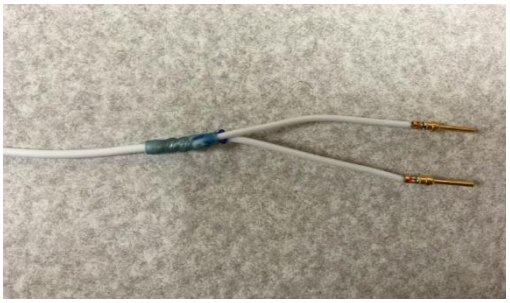
The following is a general recommendation on the steps required to install the Advanced Quick Panel:

- Disconnect the Aircraft Battery
- Remove the old panel from the aircraft (if upgrading). Label each wire as you disconnect them from the old panel switches and components.
- Mark all remote component locations and drill mounting holes using the information from the Remote Component Mounting section of this manual or supplied layout drawings.
- Cut any required clearance holes in the sub-panel.
- Remove EFIS screens from the new Panel for sub panel access. You will need to press the release buttons on the side of the USB data connector to get the cable to release
- Test fit new panel and trim panel ribs for clearance if required.
- Configure the ACM-ECB Jumpers on the back of the unit
- Mount the ACM Module.
- Connect the #8 main power wire from the battery master relay to the red power lug on the ACM. The main power wire should have a ¼" (0.250") ring terminal with a molded plastic cover. Torque to 30 in-lbs
- Connect the #10 airframe ground wire from the airframe ground to the black power lug on the ACM. The ACM main ground wire should have a #10 ring terminal with a molded plastic cover. Torque to 24 in-lbs
- Connect your existing aircraft Landing Lights, Nav Lights, Strobe Lights, Pitot Heat, and ELT to the supplied P/N: 57850 Aircraft Rear Harness ACM connector. You must limit the power on each D-Sub pin to less than 5 amps by using multiple pins at the connector. The recommended procedure is to use 20ga wire for each pin and then use a Solder Sleeve to connect the multiple wires to the larger gage wire going to the device.

SOLDER SLEEVE/1/4", Outside diameter: .050" - .200"

EDMO #: L-C-3
MFR #: STS L-C-3

Termination jackets consist of a heat-shrinkable, transparent, polyvinylidene fluoride jacket with an inner, pre-fluxed, solder preform and two thermoplastic sealing inserts. When heat is applied, the solder melts and flows to provide a superior connection between the ground lead and the shield. At the same time, the two thermoplastic sealing inserts melt and the outer sleeve shrinks to provide an environmentally protected termination. This L-C series of solder jackets does not have a ground lead.

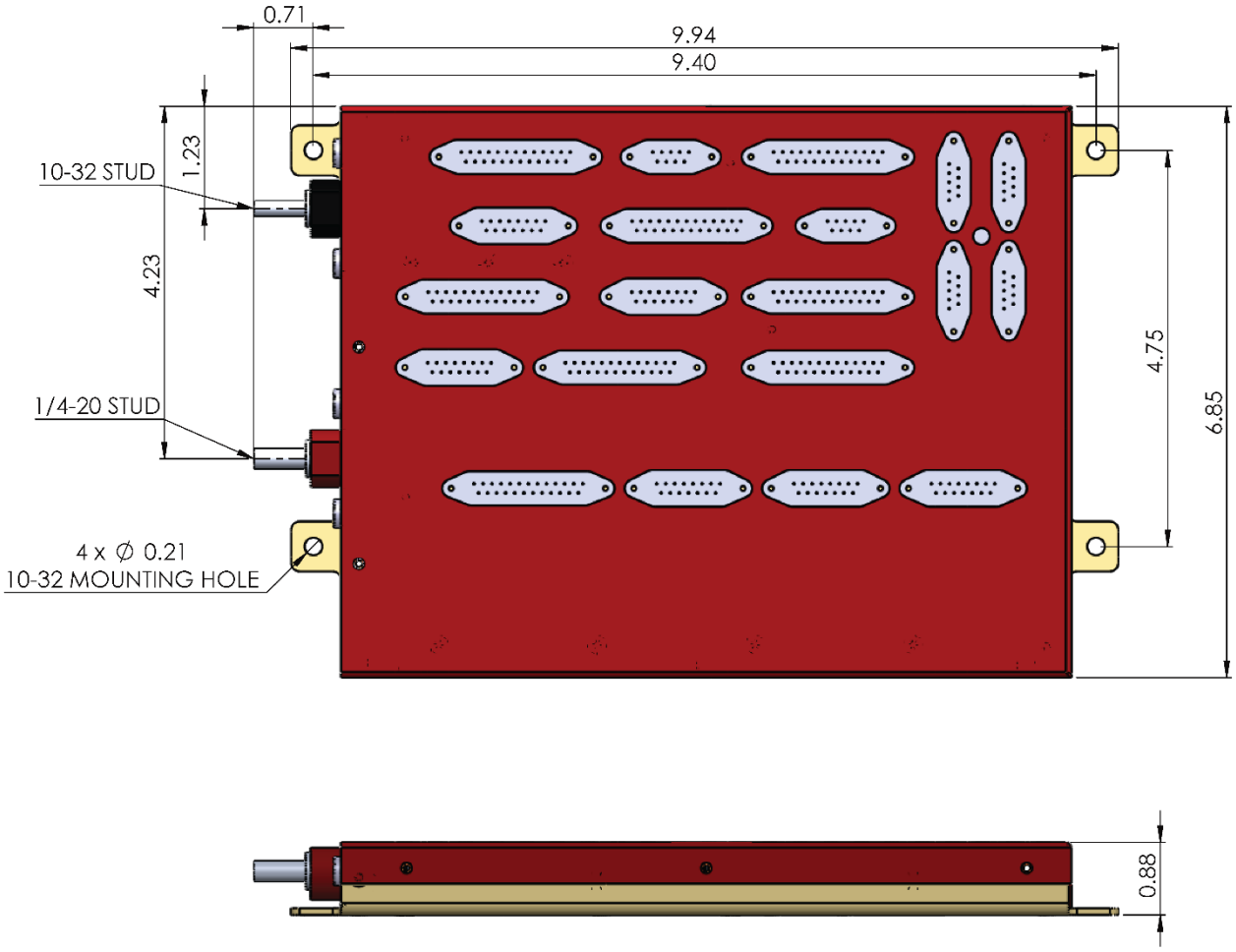


- Connect your existing aircraft Fuel Pump, Alternator, and Starter Switch to the supplied P/N: 57840 Aircraft Front Harness ACM connector.
- Connect your existing aircraft Control Stick switches to the supplied P/N: 57860 Aircraft Control Stick ACM connector.
- Connect your existing aircraft flap and trim motor wiring to the supplied P/N: 57870 Flap and Trim motor ACM connector.
- Mount the SV-200 and SV-201 ADAHRS units in the aircraft using the instructions from the AF-5000 manual.
- Mount the OAT sensor to the bottom of the wing. Wire the OAT sensor to the ADAHRS
- Plump Pitot,Static and AOA to the mounted ADAHRS
- Wire the ADAHRS to the spare SV Network DSUB-9 connector on the ACM module
- Wire the Autopilot servos to the ACM AP Servo connector
- Mount the remote components to the sub panel.
- Mount the AF-GPS module and connect to the ACM harness
- Connect aircraft Antennas to the remote radios (Transponder, Com, ADS-B in, …)
- Install the Engine Sensors
- Connect the Engine Sensors to the EMS and CHT/EGT Harness. The Engine Harnesses should route to the Left PFD EFIS display in the panel. BE sure to leave service loop of cable to make installing the EFIS PFD easier.
- Mount the Panel using the supplied mounting screws.
- Connect the aircraft Master relay to the screw terminals on the back of the Master Switch PCB board.
- Verify that you have protection diodes installed in your master and starter relay.
- Wire Aircraft Magneto P-Leads to the Key Switch.
- Carefully connect and route all the supplied panel harnesses to the ACM module.
- Double check that all ACM harnesses are connected to the correct DSUB connector.
- Install the EFIS PFD connecting the EFIS Main Connector, EFIS AUX connector, Ethernet, and USB data port wire.
- Install the EFIS MFD and connectors
- Connect the Aircraft Battery, verify that it is charged
- Turn on the Autopilot Panel Power Switch (should always be on before EFIS power up)
- Turn on the Panel Master Switch and verify that the EFIS PFD powers up
- Turn on the Panel Avionics Switch and verify that the EFIS MFD and Radios power up.

ACM-ECB Specifications

The ACM should be mounted on the sub panel behind the instrument panel. The Fused and Electronic Circuit Breaker versions are the same size and mounting. The ACM module should be mounted to the sub panel using four 10-32 screws and nut plates.

ACM Mounting



Do not over-torque the power terminal nuts, they are soft copper and will break if over-torqued.

Red Main Power Terminal Nut Torque: 30 in-lbs

Black Main Ground Terminal Nut Torque: 24 in-lbs

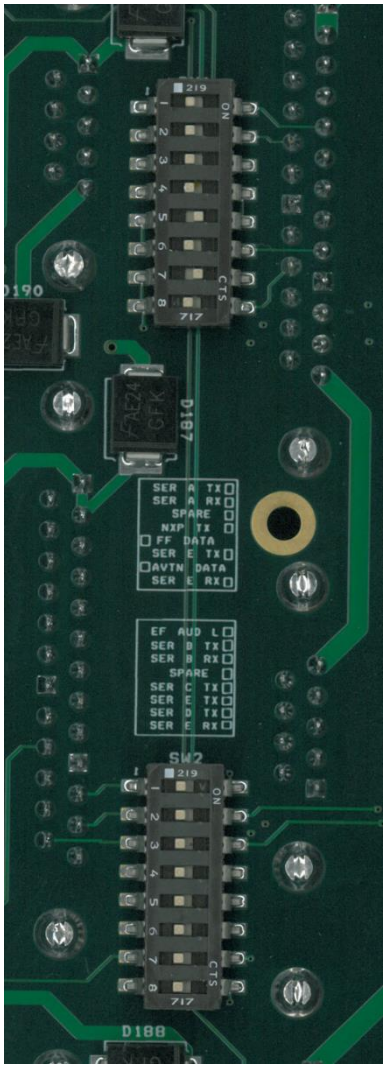
Component Weights

ACM-ECB Module	2 Lbs	3 oz
Master Switch Module		5 oz
Lower Switch Module		7 oz

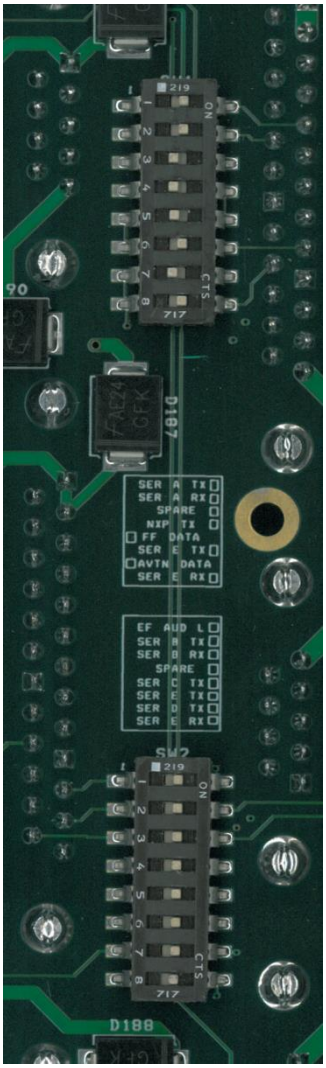
ACM-ECB Configuration Switch Settings

The Electronic Circuit Breaker version of the ACM has configuration switches on the back of the unit must be set for proper RS-232 serial port operation. The switch settings control how the EFIS PFD and MFD serial ports are routed to the attached devices. On a dual (PFD/MFD) EFIS screen AF-5000 system you will have a total of 10 serial ports to control attached devices. On a Skyview system both the PFD and MFD serial ports must be tied together so you end up with only 5 serial ports.

AF-5000 Settings



Skyview Settings



Dual EFIS AF-5000 Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED (ON) Grey is Switch Position

EFIS AUDIO L			AUDIO PANEL
ACM TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

Single EFIS AF-5000 Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED (ON)

EFIS AUDIO L			AUDIO PANEL
AUDIO P TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
AUDIO P RX<	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

SKYVIEW EFIS Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED

EFIS AUDIO L			AUDIO PANEL
AUDIO P TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
AUDIO P RX<	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

Daniels Mil Spec Crimper AFM8
Part Number: M22520/2-01

AFM8 Positioner for Standard D-Sub Connectors
DMC Part Number: K13-1

Less expensive crimpers are available from a number of sources.
Crimper, D-Sub, Closed Barrel Contacts, 4-Way Indent AWG 26-20

CAUTION: Do not fly the aircraft until the following check list has been completed.

Never Power the system with an automotive battery charger and the aircraft battery disconnected.

Before Power is applied for the First Time

- Verify ACM-ECB Configuration Switch Settings
- Aircraft ground is properly connected to the ACM Module **BLACK** Terminal Verify relay protection diodes are installed on all large aircraft relays (Master, Starter, Avionics...etc)
- Pitot/Static and AOA plumbing is secured to the correct ports on the ADAHRS
- All Component Harnesses have been properly connected to the correct ports on the ACM module.

Applying Power for the First Time

- The **BLACK** Autopilot switch controls power to the autopilot servos. The Autopilot switch should be ON before powering up the EFIS screens.
- The **RED** Master Switch controls power to the Pilot PFD EFIS screen.
- The **BLACK** Avionics switch controls power to the MFD EFIS and all radios

AF-5000 EFIS Software Configuration (Must be done before first engine start and flight)

- Enter the EFIS instrument calibration menu by pressing the [SET] button followed by holding the [CAL] button on both EFIS screens.
- Scan for Network devices using the 2. SV-NETWORK Menu from the PFD EFIS.
- Press the PFD Update Button in the SV-Network Menu is any devices indicate they need updating.
- Verify that both EFIS screens are getting ADAHRS and Engine Data.
- Calibrate Trim Positions
- Configure and Test the Flaps

Flap Buttons

a. Verify that the flaps run in the correct direction using the Flaps Up and Down Buttons on the CHECK > ELECTRICAL Page. If they are backwards swap the motor leads or use the Reverse Polarity setting in the CAL > FLAPS menu

b. Verify that the flaps run in the correct direction using the panel mounted flap switch or Stick Grip buttons. ***If they are backwards you MUST Swap the wires to the flap switch or buttons.***

c. Verify that the Flap position value changes in the CAL > Flaps menu when you move the flaps.

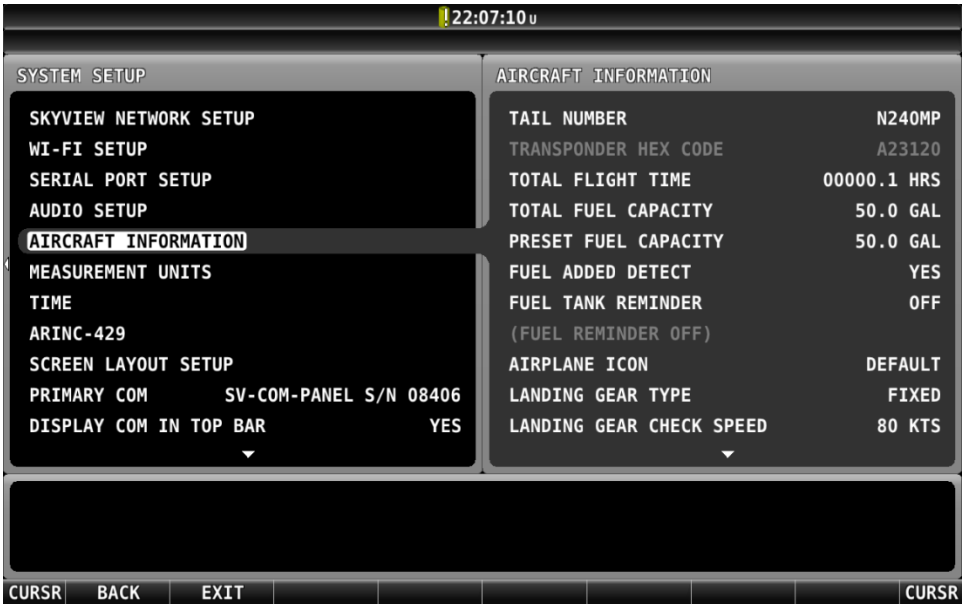
d. Program the Flap positions in the CAL > Flaps menu

e. Verify that the flaps stop at the correct locations.

- Calibrate Autopilot servos
- Test Autopilot servos
- Verify that the Engine parameters are correct on both EFIS screens. Configure the engine sensor types and range markings for your engine. (CHT – J type, EGT K-type, Oil Pressure, Fuel Pressure, …._
- Verify that all transponder settings are correct in both EFIS screens, including aircraft N Number
- Calibrate and verify the Fuel Tank sensors.
- Get a Pitot/Static and Transponder Test before the first flight.

Skyview HDX EFIS Software Configuration (Must be done before first engine start and flight)

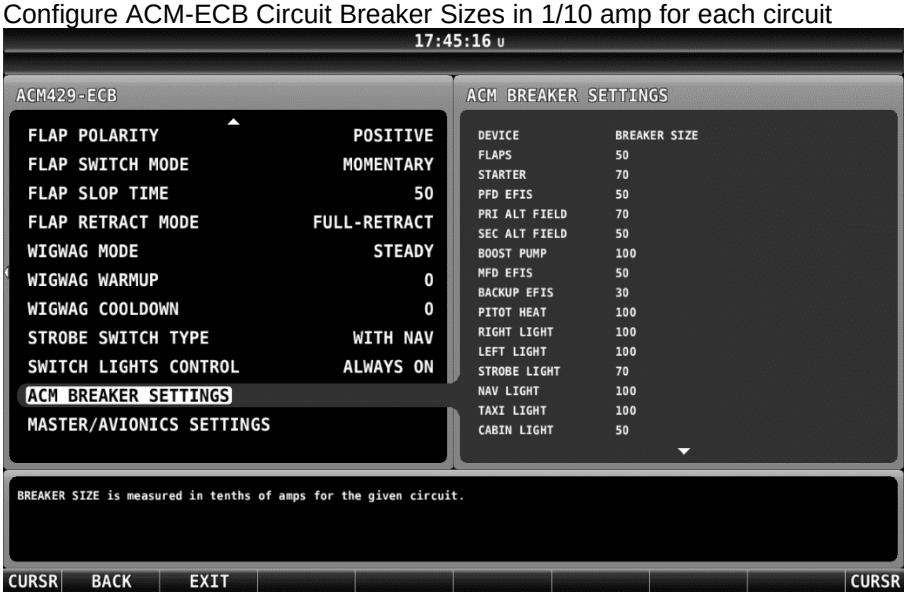
- ***Verify that your HDX screens are running software version 15.4 or newer, update if needed.***
- Enter the EFIS instrument calibration menu by holding down the right two buttons on the PFD
- Enter Aircraft Information: Tail Number, Total Fuel Capacity, …



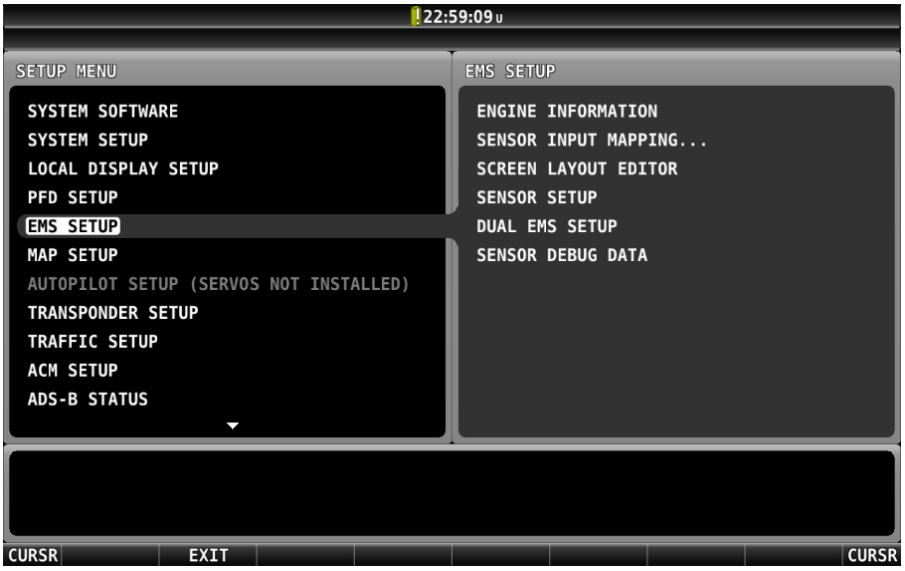
- Scan for Network devices by pressing the DETECT button in SKYVIEW NETWORK SETUP

- Configure ACM SETUP

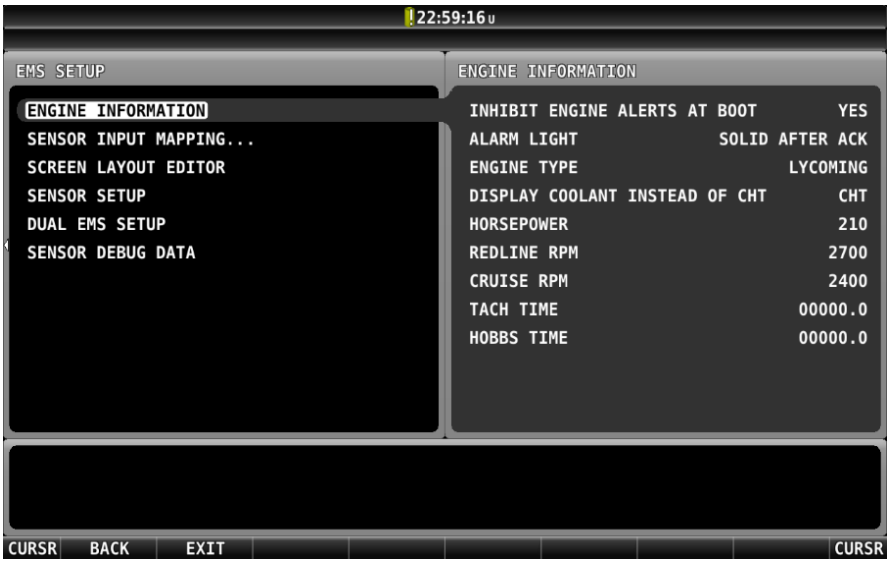
- Configure ACM-ECB Circuit Breaker Sizes in 1/10 amp for each circuit



- Configure SV-EMS from the EMS Setup page to match your engine sensors.

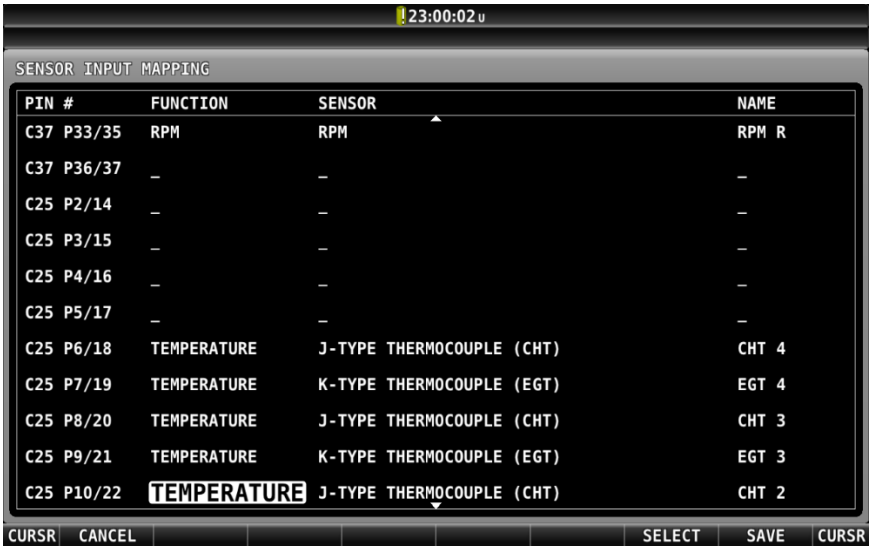


- Configure Engine Information

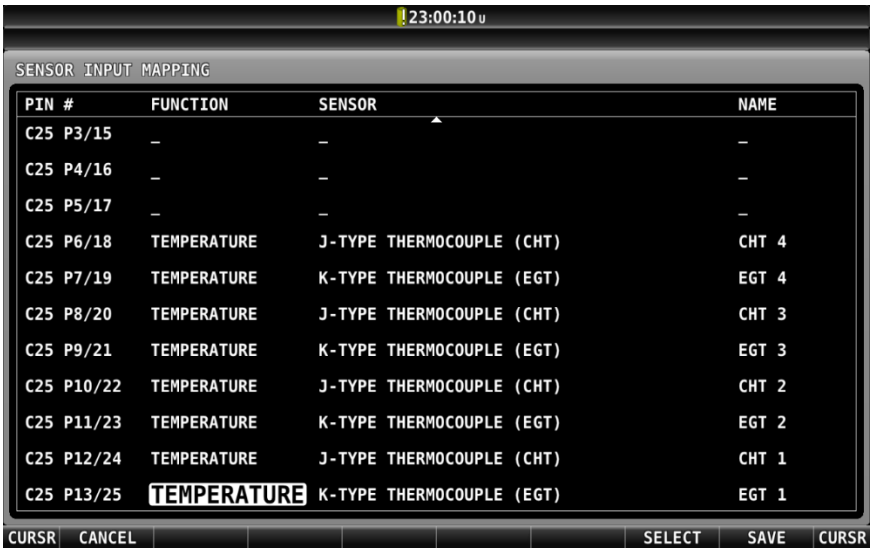


- Configure SV-EMS Sensor Input Mapping to match your engine sensor wiring

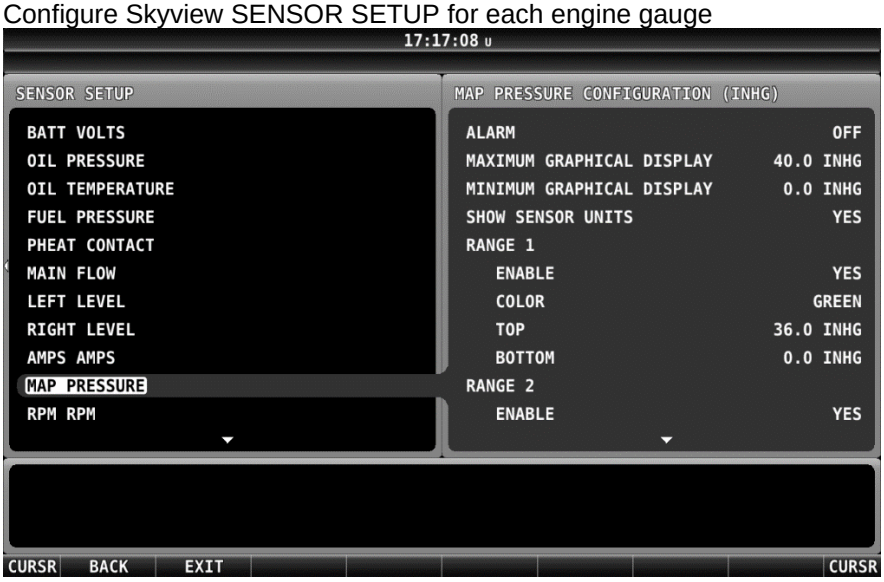
*The Flaps, Aileron and Elevator Trim do not use the SV-EMS inputs



- Configure SV-EMS C25 Pins for CHT and EGT Probes



- Configure Skyview SENSOR SETUP for each engine gauge



- Configure Skyview Serial Ports

  Serial Port 1 : Advanced CTRL Module

  Serial Port 2 : NMEA 9600 OUT for ELT Data

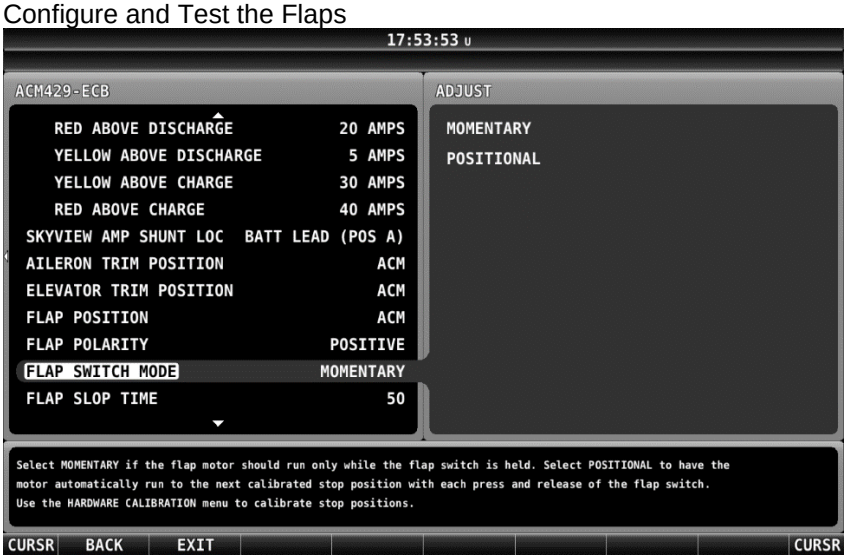
  Serial Port 3 : SV-XPNDR-261

Serial Port 4 : SV-ADSB-472

Serial Port 5 : SV-GPS-250 or SV-GPS-2020

- Calibrate Trim Positions

- Configure and Test the Flaps

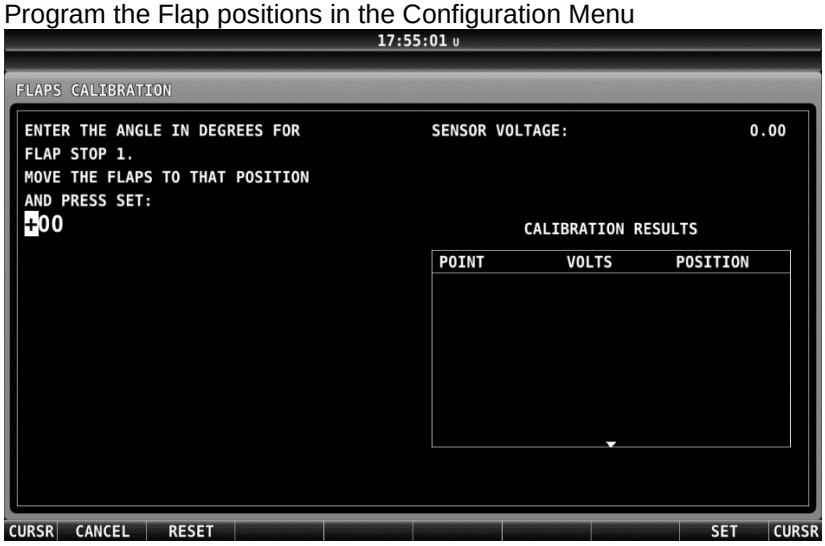


a. Verify that the flaps run in the correct direction using the Flaps Up and Down Buttons on the ELECTRICAL Page. If they are backwards swap the motor leads or use the Reverse Polarity setting in setup menu.

b. Verify that the flaps run in the correct direction using the panel mounted flap switch or Stick Grip buttons. ***If they are backwards you MUST Swap the wires to the flap switch or buttons.***

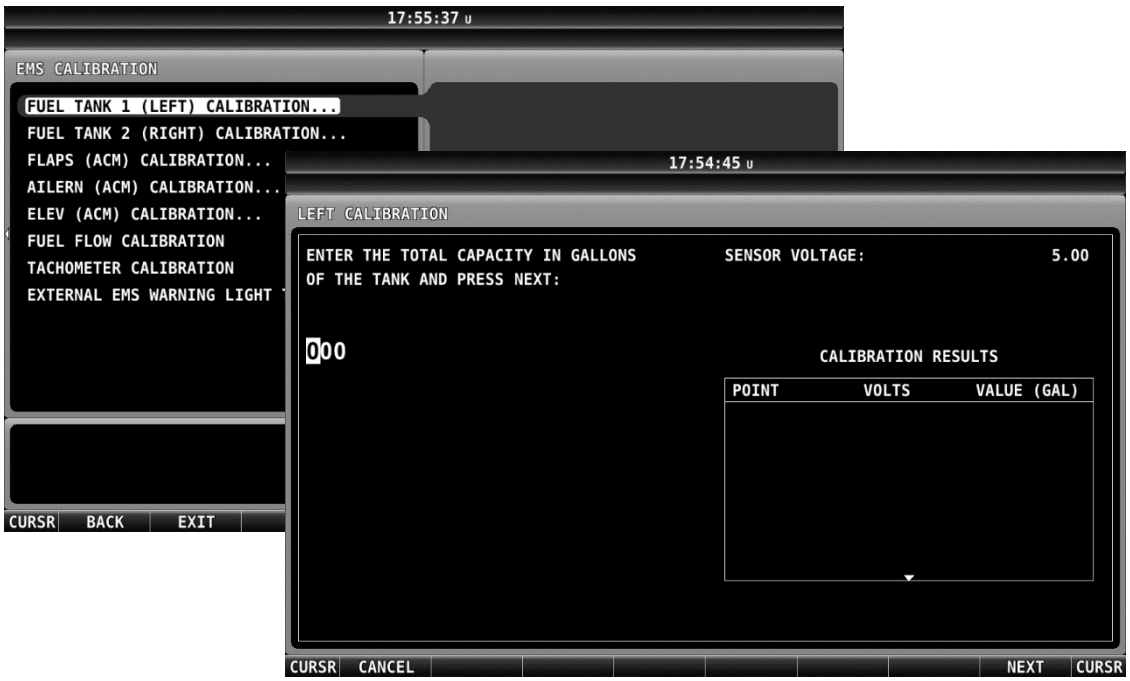
c. Verify that the Flap position value changes in the Setup > Flaps menu when you move the flaps.

d. Program the Flap positions in the Configuration Menu



e. Verify that the flaps stop at the correct locations.

- Calibrate Autopilot servos
- Test Autopilot servos
- Calibrate and verify the Fuel Tank sensors.



- Verify that both EFIS screens are getting ADAHRS and Engine Data

- Get a Pitot/Static and Transponder Test before the first flight.

First Engine Start

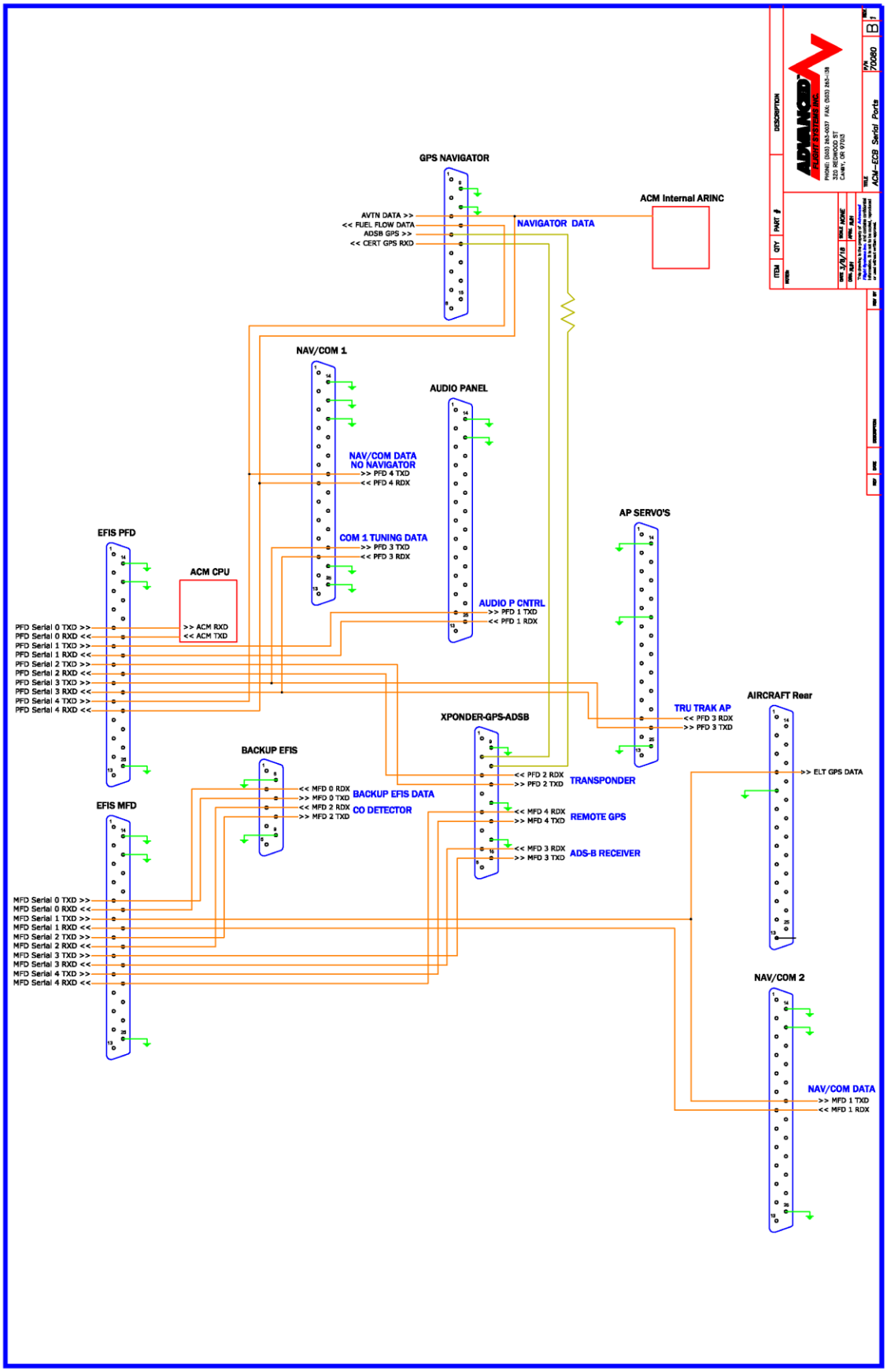
- With relay protection diodes installed, your EFIS screens can be turned on before the engine is started.
- After the engine has started, verify oil pressure and temperature. If none is indicated **SHUT DOWN,** the engine. Verify all wiring and consult your local A&P, the engine manufacturer, and/or AFS technical support.
- Verify all engine indications are correct per your **engine manufacturers** manual.

Before First Flight

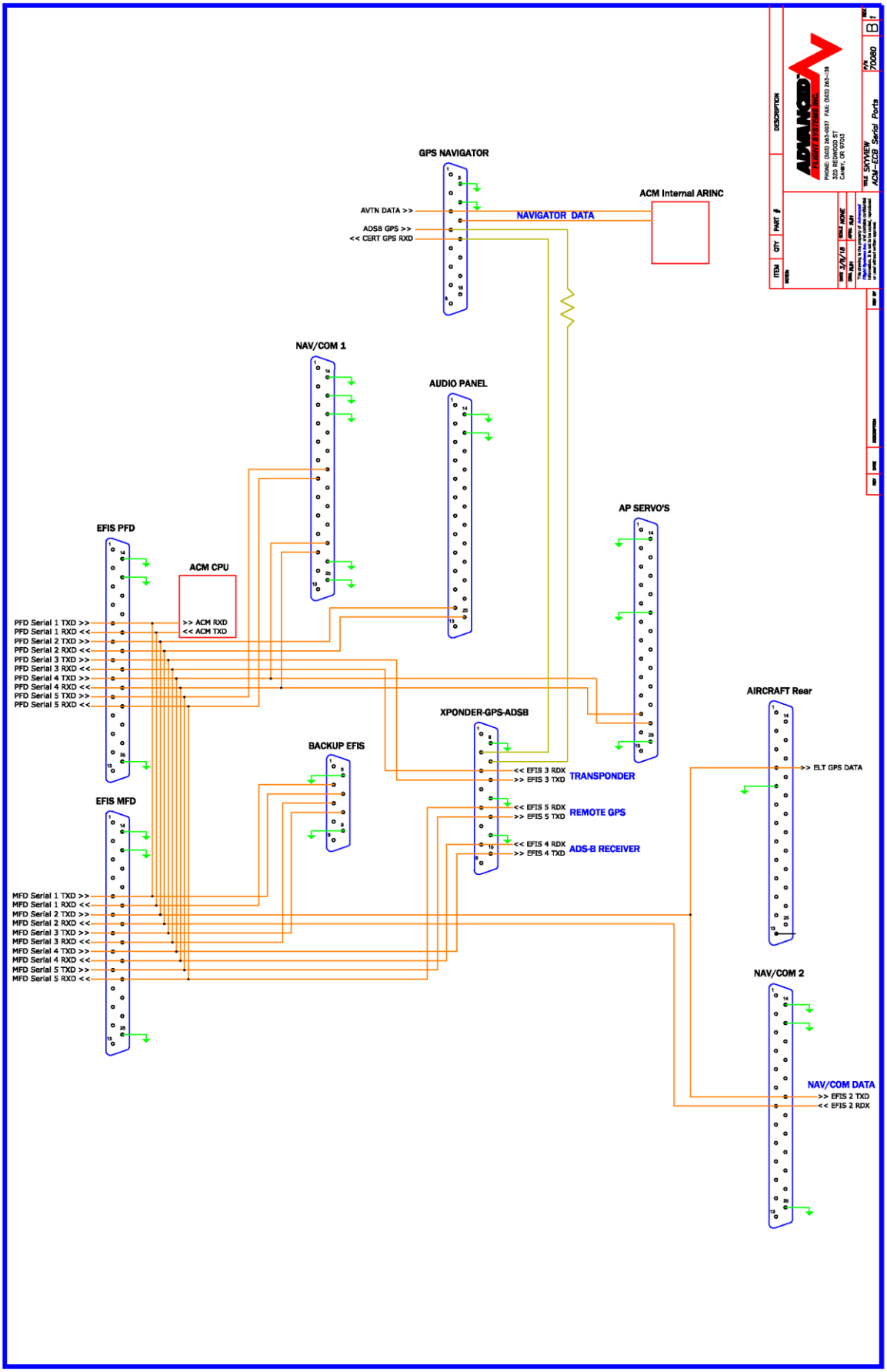
- Verify you have the latest system software and mapping data (if applicable) - Visit the Dynon/AFS Website for latest software and map data
- Weight & Balance page updated with **your** aircrafts data
- Checklist pages updated with information from your **aircraft manufacturer**
- Magnetometer ADAHRS Alignment completed
- Pitot/Static check completed from an authorized FAA Repair Station.
- **Verify that both aircraft ignition system are properly wired and functioning**
- **Verify that Aircraft fuel system (Flow Meter, Pressure Transducer) is properly plumbed and not leaking.**
- **Perform a minimum fuel flow test and verify each tanks unusable fuel quantity.**

Verify that the RPM, Oil Pressure, Fuel Pressure, Fuel Flow, Manifold Pressure, Oil Temperature, CHT and EGT temperatures are correct and reasonable during a high-power run-up. ***Never take-off with high temperatures or abnormal readings.***

ACM-EFIS RS-232 Serial Port Mapping AF-5000



ACM-EFIS RS-232 Serial Port Mapping Skyview



Advanced IFR with IFD540

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		NMEA/AVTN	Backup EFIS
1	PDA360 Audio Panel		ACK ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detect Option
3	GTR/GNC-2xx	IFD Tuning	SV-ADSB-47X	
4	AVTN/RNAV		SV-GPS-250/2020	

Advanced RV-10 3 Screen IFD540

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		IFD-ADSB	Send ADSB to IFD
1	PDA360 Audio Panel		ACK ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detector
3	GTR/GNC-2xx	IFD Tuning	SV-ADSB-47X	AFS-ADSB
4	AVTN/RNAV		SV-GPS-250	

Skyview Serial Ports

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
1	ACM-ECB		ACM-ECB	
2	NMEA 9600		NMEA 9600	ELT Signal
3	TRANSPONDER		TRANSPONDER	
4	ADS-B		ADS-B	
5	SV-GPS-250 *GPS-220		SV-GPS-250 *GPS-2020	

Advanced IFR with GTN-650

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		NMEA 9600	D6 GPS Signal
1	PDA360 Audio Panel		ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detect Option
3	NONE		74112 AFS-ADSB	
4	AVTN/FADC1		SV-GPS-250 *GPS-2020	

IFR Panel ACM Fuse Sizes

LABEL	SIZE	DESCRIPTION
LEFT LT	**10**	Left Landing Light
STROBE	**7.5**	Strobe Lights
NAV LT	**10**	Nav Lights
RIGHT LT	**10**	Right Landing Light
PITOT H	**10**	Pitot Heat
TRIM	**2**	Trim Motors
FLAPS	**5**	Flap Motor
ALT FLD	**5**	Alternator Field Power
BOOST P	**10**	Boost Pump
STARTER	**7.5**	Starter contactor
AUX PWR	**5**	Auxiliary power plug (ACM-FUSE: Cabin Light, Fans, Aux Plug)
AUTO P	**5**	Autopilot Servos
NAV 2		Nav 2 Radio
COM 2	**5**	Com 2 Radio
XPONDER	**3**	Transponder and ADS-B Power
AUDIO P	**3**	Remote Audio Panel Power
BACKUP	**3-5**	Dynon D6 EFIS, ELT, CO Detector (5 AMP for AF-5000/HDX)
NAV 1	**7.5**	Navigator NAV Power
COM 1	**10**	Navigator Com Power
MFD	**5**	Copilot EFIS Screen
CHARGE	**10**	TCW Battery, Charge and Pass through power
PFD	**5**	Pilot EFIS Screen

VFR Panel Fuse Sizes

LABEL	SIZE	DESCRIPTION
LEFT LT	**10**	Left Landing Light
STROBE	**7.5**	Strobe Lights
NAV LT	**10**	Nav Lights
RIGHT LT	**10**	Right Landing Light
PITOT H	**10**	Pitot Heat
TRIM	**2**	Trim Motors
FLAPS	**5**	Flap Motor
ALT FLD	**5**	Alternator Field Power
BOOST P	**10**	Boost Pump
STARTER	**7.5**	Starter contactor
AUX PWR	**5**	Auxiliary power plug (ACM-FUSE: Cabin Light, Fans, Aux Plug)
AUTO P	**5**	Autopilot Servos
NAV 2	**3**	Nav 2 Radio
COM 2	**5**	Com 2 Radio
XPONDER	**3**	Transponder and ADS-B Power
AUDIO P	**2**	Intercom
BACKUP	**3**	Backup EFIS
NAV 1	**3**	Nav 1 Radio
COM 1	**5**	Com 1 Radio
MFD	**5**	Copilot EFIS Screen
CHARGE	**10**	TCW Battery, Charge and Pass through power
PFD	**5**	Pilot EFIS Screen

AF-5000 Panel Configuration Checklist

(Completed by AFS before panel shipment)

N Number:_____ Customer:_____

Aircraft:_____ Tank Size:_____ INJ or Carb:_____

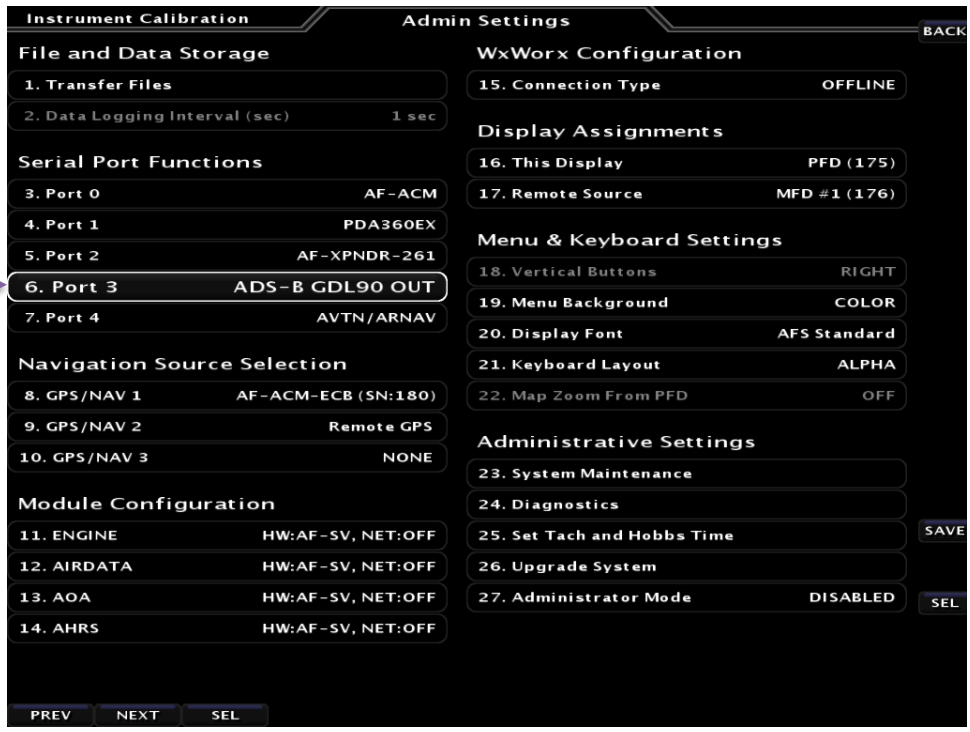
Verify Fuse or Circuit Breaker Sizes

1. Verify ELT Panel Battery (green sticker with date)
2. Configure EFIS ADMIN Settings

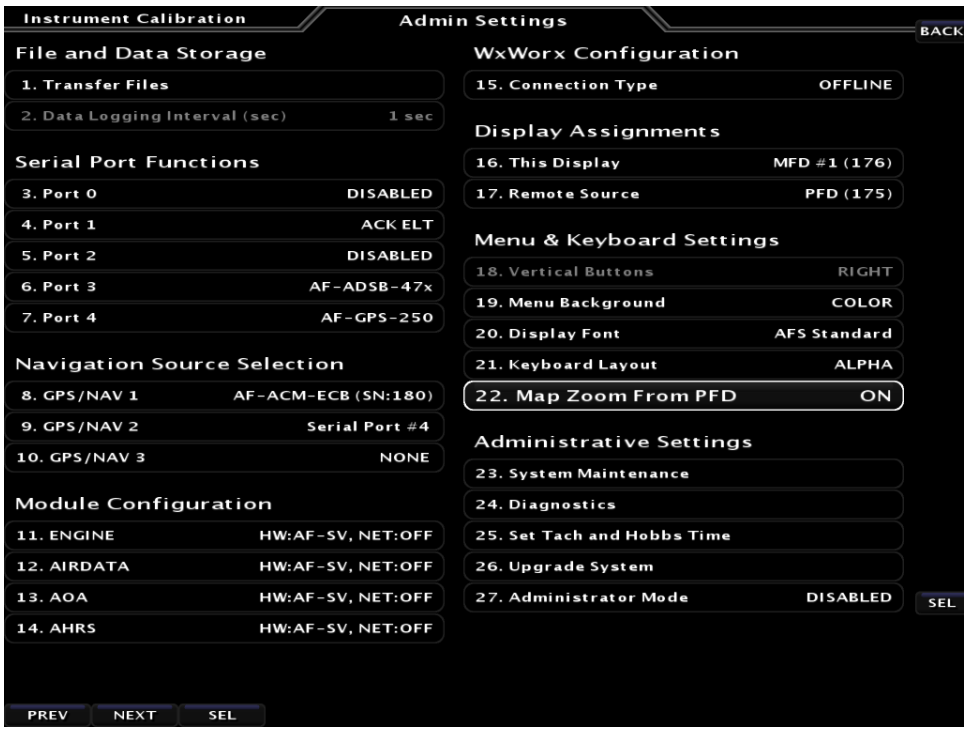
DUAL EFIS SCREEN IFR Panel Settings

PFD

ADS-B data sent to IFD

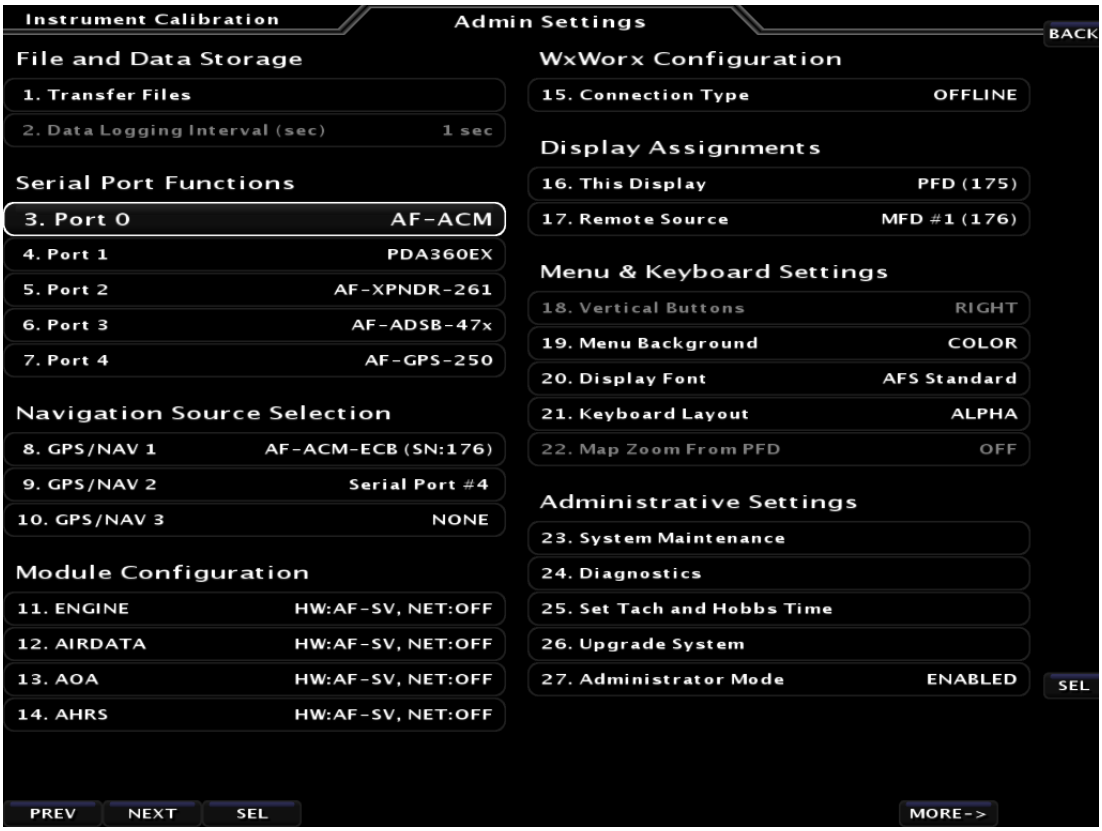


MFD



SINGLE EFIS SCREEN IFR Panel Settings

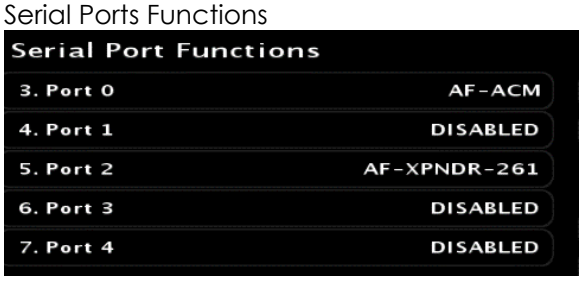
PFD

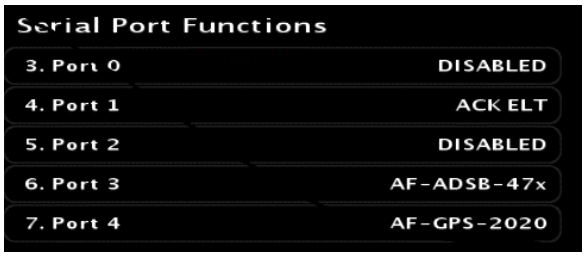


DUAL SCREEN VFR Settings

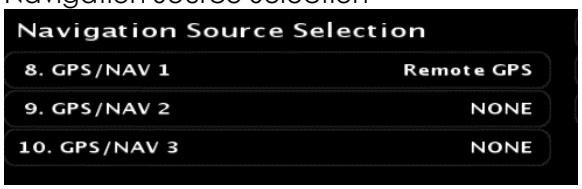
PFD **MFD**

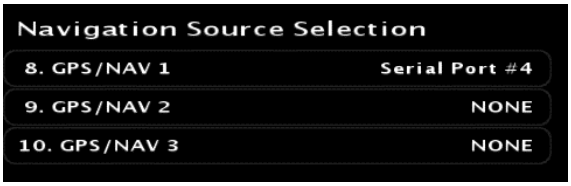
Serial Ports Functions



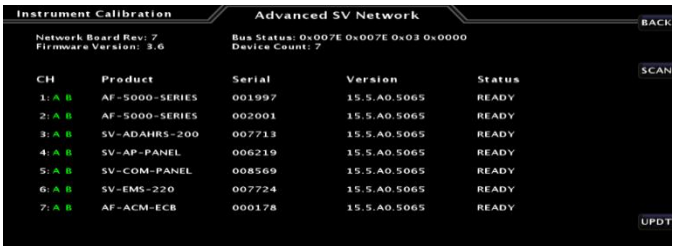


Navigation Source Selection

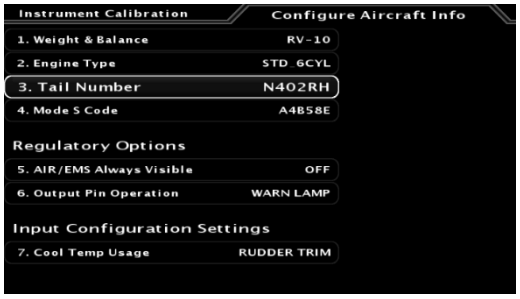




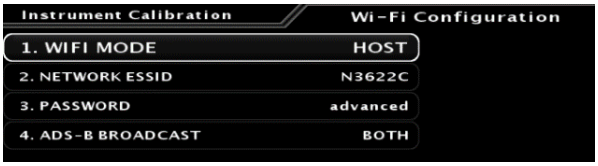
3. SV Network Configuration. Press **SCAN** and verify that all attached SV-Network devices are detected. Press **UPDT** to load the current software in all devices. Channel A and B should be green for all devices.



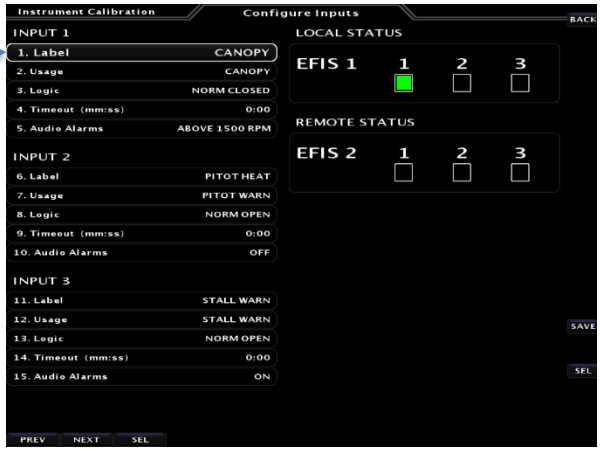
4. Configure Aircraft Info



5. Verify that the Wi-Fi module is installed in MFD and configure Wi-Fi Settings on MFD Screen. Set the NETWORK ESSID to the aircraft N Number.



6. Configure PFD EFIS Inputs if RV-14 (Canopy, Pitot Heat, Stall Warning Tab)



7. Configure Test Audio to 75 and verify that EFIS audio warnings are playing in headset.

8. Configure Autopilot Settings

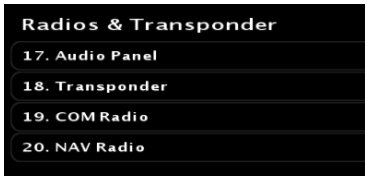
9. Configure Yaw Damper settings if present.

10. Verify Altitude Settings

11. Configure Airspeed Settings for aircraft

12. Configure AoA Settings for aircraft

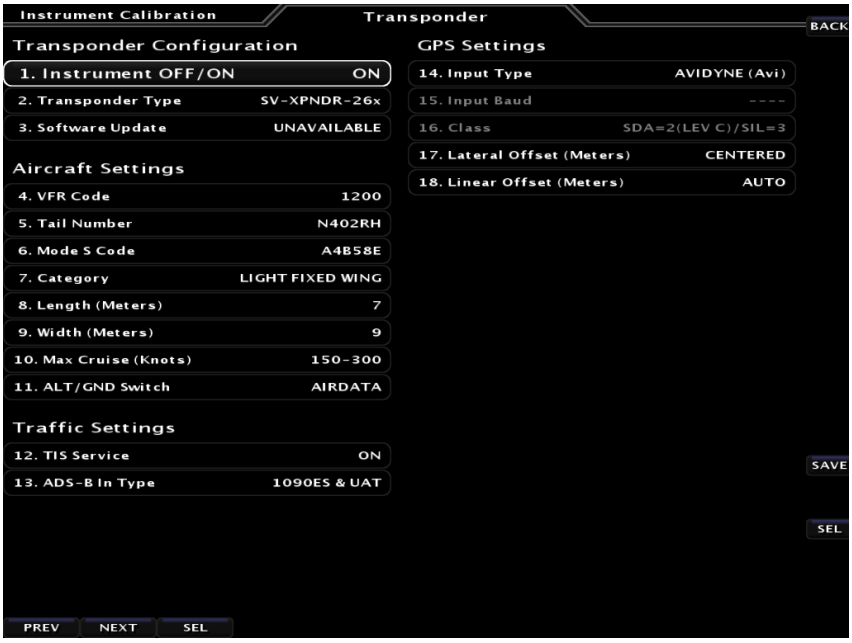
Radios & Transponder Settings



17. Configure Audio Panel Settings on PFD and MFD to PDA360

18. Configure Transponder Settings on PFD and MFD

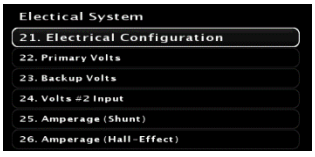
-Tail Number
-Length
-Width
-Max Cruise
-ALT/GND Switch
-ADS-B In Type
-GPS Input Type



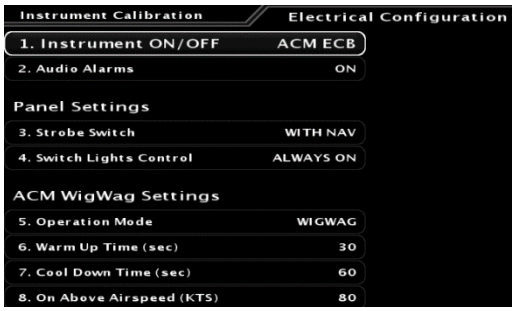
19. Configure Com Radio Setup on PFD and MFD
    Primary S/N (from SV-NET Scan)
    Radio Type SV-COM
    Squelch 70
    Side Tone 25
    Mic Gain 50

20. NAV Radio Configuration DISABLED

Electrical System Settings



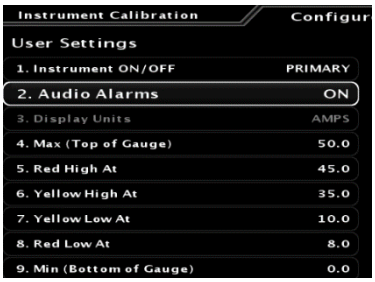
21. **Configure Electrical System for ACM-ECB**



The ACM-ECB configuration is what controls how the panel switches operate.

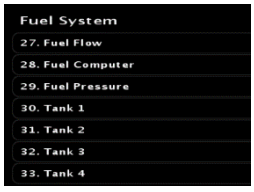
2. Audio Alarms — Turns on ACM audio warnings
3. Strobe Switch — Three Position Strobe/Nav or separate switches.
4. Switch Lights — Controls Backlite always ON or turn on with NAV switch
5. Operation Mode — Landing Lights with WIGWAG
6. Warm Up Time — Time delay in seconds before landing lights start to flash
7. Cool Down Time — Time delay in seconds after landing lights are turned OFF before they can be turned back ON.
8. On Above Airspeed — Above this Airspeed (Knots) the landing lights will flash when the Panel switch is in the **PULSE** mode. Below this airspeed they will remain ON.

22. Configure Primary Volts — Settings for the EFIS Primary Volt Meter
23. Configure Backup Volts — Settings for the EFIS Backup Volt Meter. When enabled the Backup Voltmeter splits the volt meter bar to display both voltages.
24. Configure Amperage (Shunt)

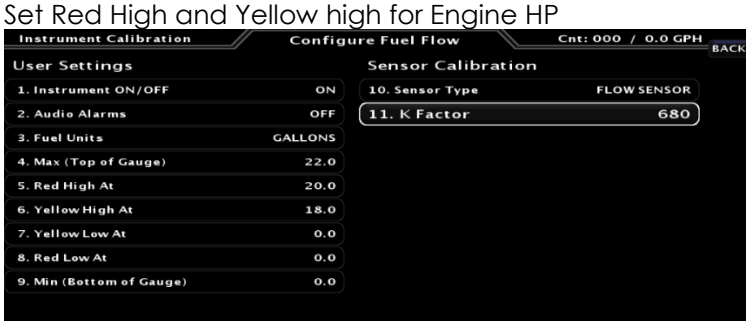


25. Configure Amperage (Hall-effect) — EFIS Amp meter display settings from the optional shunt transducer.

Fuel System Settings



27. Verify Fuel Flow Settings
    Set Red High and Yellow high for Engine HP

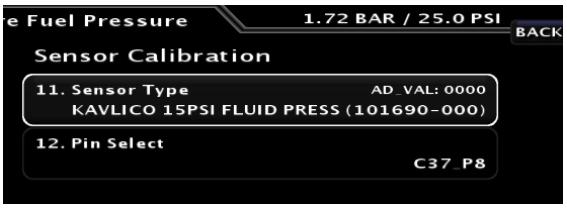


28. Verify Fuel Computer settings

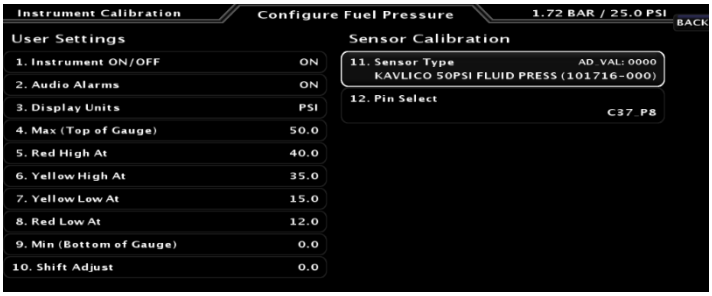
29. Configure Fuel Pressure Sensor and Ranges

	Carburated	**Injected**
Sensor	**41201 (0-15PSI) 101690-000**	**41301 (0-50PSI) 101716-000**
Max	15	40
Red High	10	35
Yellow High	8	30
Yellow Low	3	15
Red Low	2	12
Min	0	0

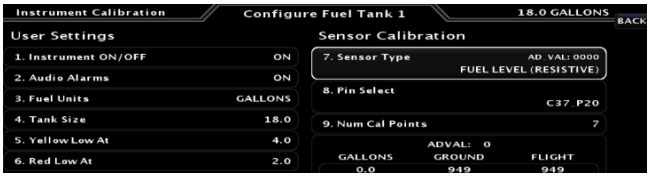
Carb Setting



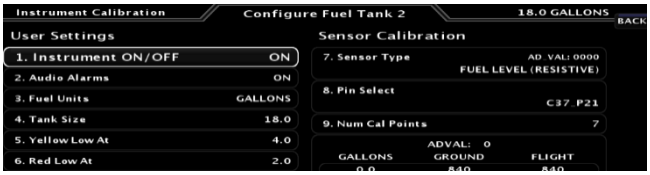
Injected Settings



30. Configure Tank 1

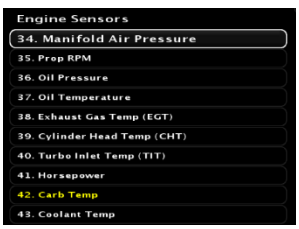


31. Configure Tank 2

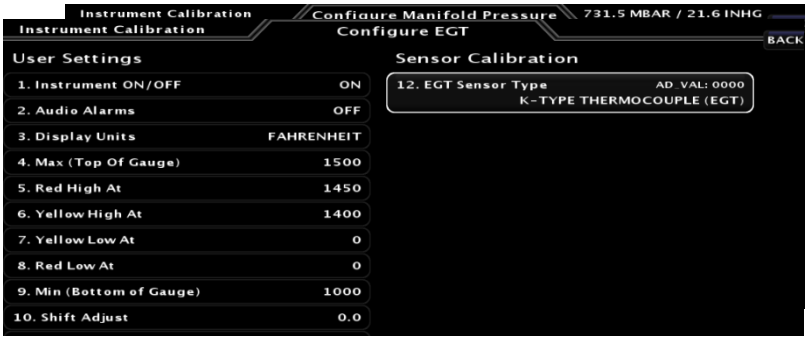


32. Set Tank 3 to Zero Gallons and OFF
33. Set Tank 4 to Zero Gallons and OFF

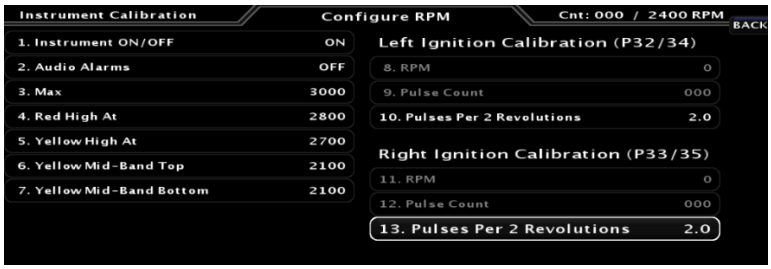
Engine Sensor Settings



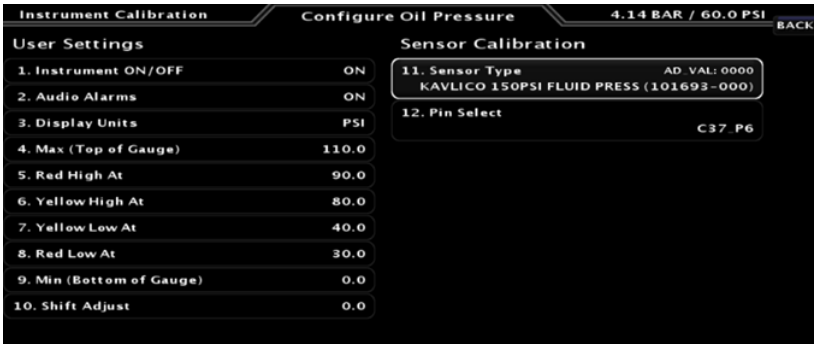
34. Verify Manifold Sensor Configuration



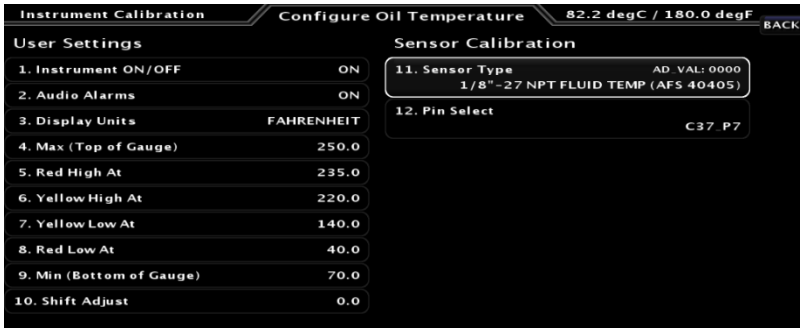
35. Verify RPM set to 2 Pulses for 4 Cylinder and 3 Pulses for 6 Cylinder



36. Configure Oil Pressure
41101 (0-150) 101693-000 Kavlico

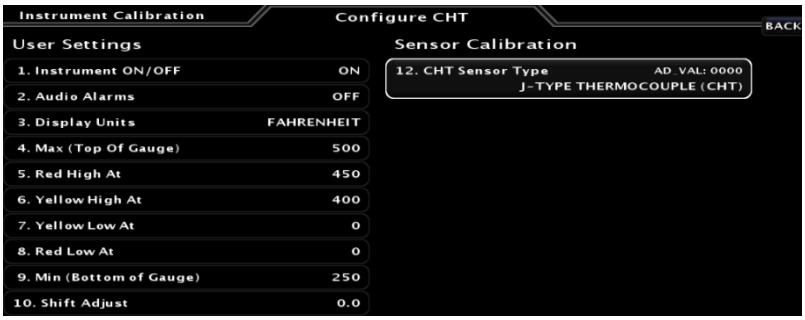


37. Configure Oil Temp
40405 VDO



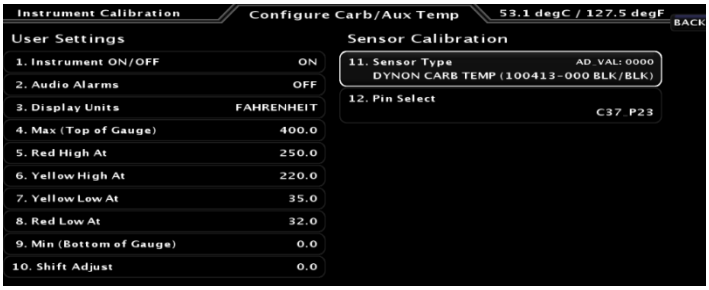
38. Verify that EGT Sensor Type is K

39. Verify that CHT Sensor type is J



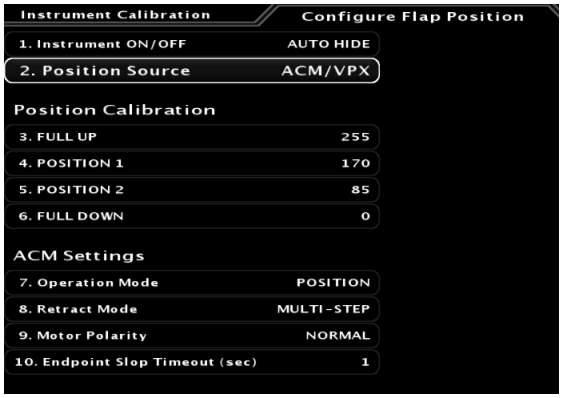
41. Configure HP Engine Type and Horse Power

42. Configure Carb Temp Carb = ON INJ = OFF



Flaps & Trim Settings

44. Configure Flap Position



Operation Mode
The Flaps can be configured for MOMENTARY or POSITION mode if you are using a RayAllen POS12 flap sensor.

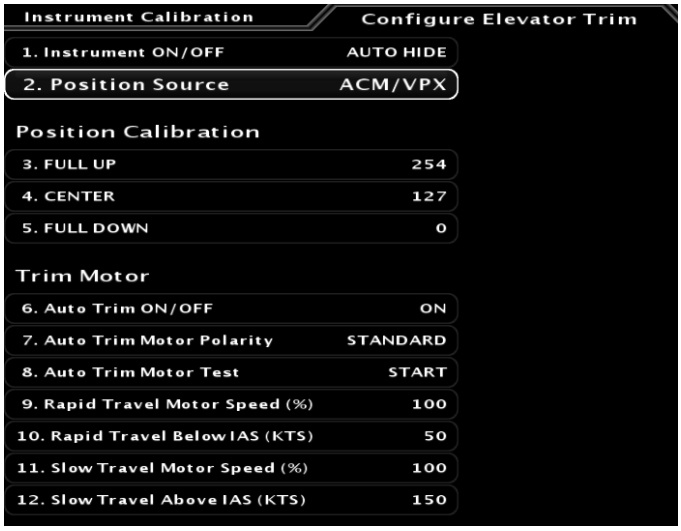
Position Calibration
You can program 4 unique flap positions.

Retract Mode
Selects if the flap move all the way UP or Multi-Step to the programed positions.

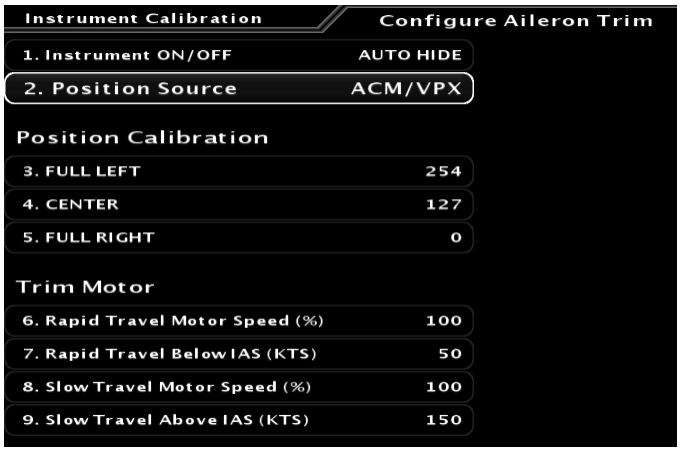
Motor Polarity
Used to change motor direction for the **CHECK** > **ELECTRICAL** > FLAPS > UP / DOWN buttons. ***Do not use this setting to change flap direction from the stick buttons.*** If the ELECTRICAL Page buttons work in the correct direction and the stick buttons are backwards you must swap the push button wiring at the sticks.

Endpoint Slop Timeout
This setting is used to make sure the flaps move up and down all the way in position mode. The flap motor will continue to run for this settings seconds in the UP and DOWN positions.

45. Configure Elevator Trim to ACM



46. Configure Aileron Trim to ACM

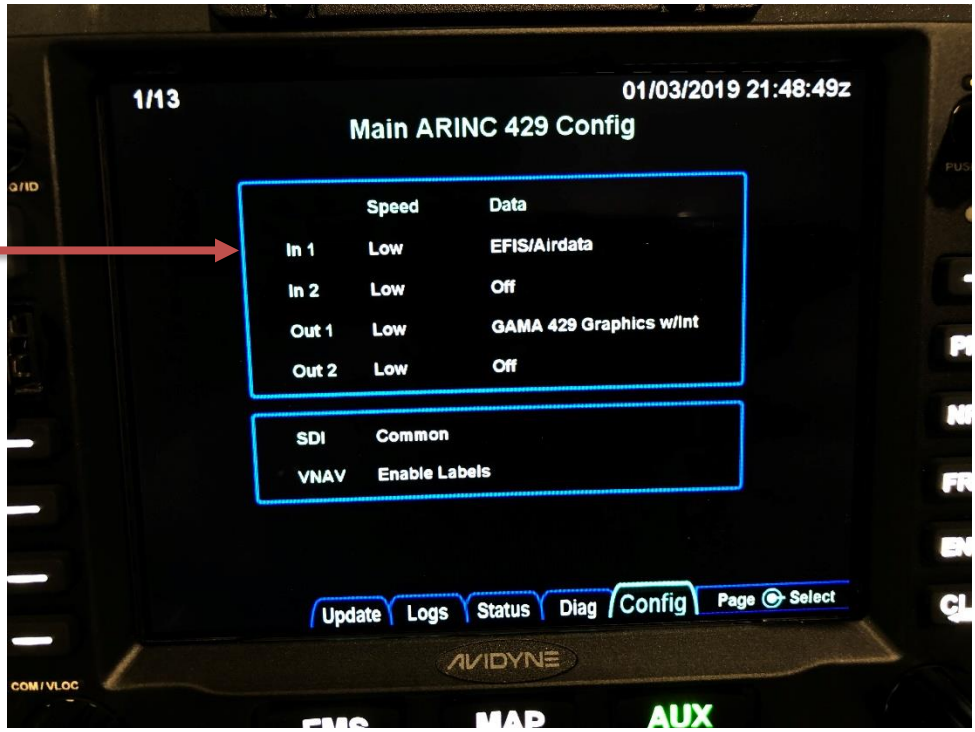


USB Slot

To enter configuration mode you will need to power up the IFD with a USB memory stick.

ARINC configuration

Set all channels to HIGH Speed for Skyview HDX systems, Low for AF-5000

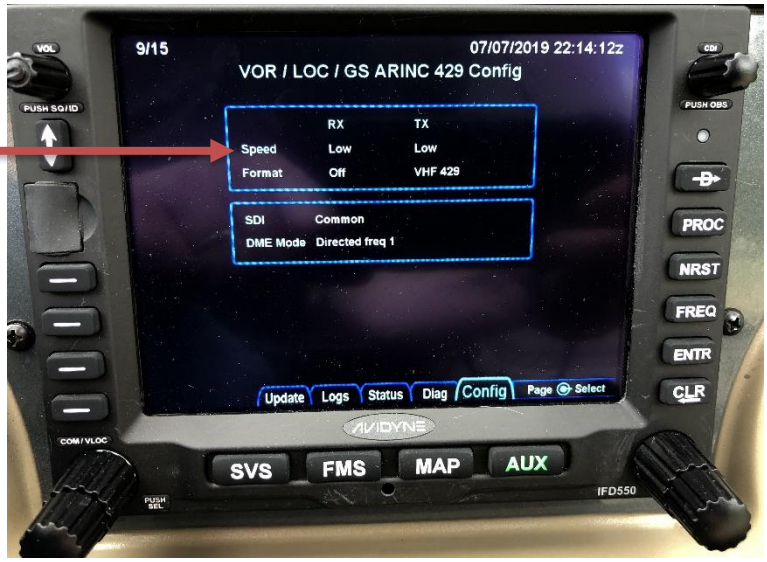


Serial Port Configuration

Only set for dual AF-5000 EFIS systems, used to get ADS-B data from AF-5000 EFIS.

VOR / LOC / GS ARINC 429 Configuration

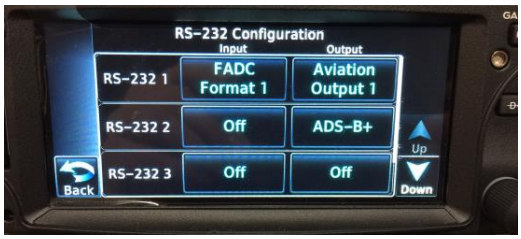
Set to HIGH Speed for Skyview HDX systems, Low for AF-5000



GTN-650 Configuration

ARINC Settings

RS-232 Settings



VOR/LOC/GS Settings

Garmin GPS-175 Configuration

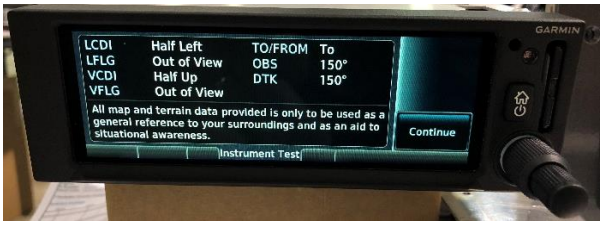
The GPS-175 plugs into the ACM GPS NAVIGATOR connector using harness P/N: 57536

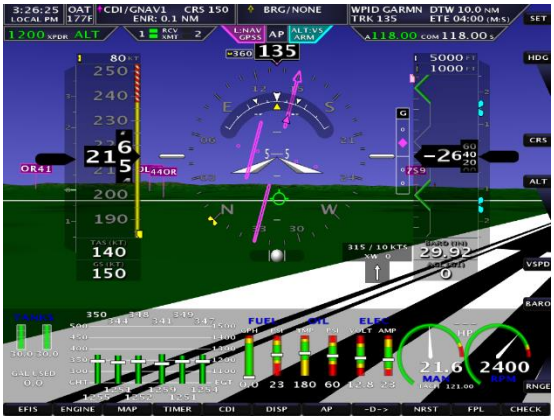
The GPS-175 needs to be configured (hold knob during power on) using the following settings:

AF-5000 EFIS

Skyview EFIS

You can verify that the interface is working from the GPS-175 start up Instrument Test page. The EFIS LCDI, VCDI, Flag, OBS and DTK should match the GPS-175 display settings with the waypoint GARMN.





- ADAHRS 1 and 2 working
- Verify all buttons
- Verify Knobs
- Verify Joystick (AF-5600)
- Test Dimmer
- Verify Ethernet (EMS and Bugs work on both screens)
- Test AP Panel FD Button
- Verify Map Database is current and High Res Terrain from USB sticks
- Verify ADAHRS cross check is working
- Verify Bugs are turned ON (Heading, ALT, Speed)
- Verify EFIS Backup Battery (Shutdown and Button 1 Power Up)

RADIO and Audio Panel Tests

- Pilot PTT – Radio TX is displayed on the AF-COM Panel and radio transmits.
- Copilot PTT – Radio TX is displayed on the AF-COM Panel and radio transmits.
- Radio receives from handheld
- Intercom works between headsets, verify squelch and volume work.
- Music input works
- EFIS PFD sets and displays radio freq
- EFIS MFD sets and displays radio freq.
- Radio displays airport data from EFIS
- EFIS audio works, test using EFIS timer
- EFIS PFD and MFD screens can flip-flop radio

Trim Servo Tests

- Trim and Flap motors work from control sticks
- Flap motor works from panel flap switch
- Trim and Flap positions change on EFIS PFD and MFD.
- Program and test flap positions

Panel Dimming

- Panel buttons dim with EFIS screens
- AP Panel Module buttons dim with EFIS screens
- Dynon Radio dims with EFIS screens

Aircraft Lights

- Left Landing light turns on
- Right Landing light turns on
- Landing lights flash in Pulse Mode
- Nav lights turn on
- Strobe lights turn on

Auto Pilot Tests

- AF-SV Scan for Servos
- Set Travel Limits
- Motors turn ON and OFF

ELT Tests

- Test GPS Signal to ELT using scope on pin 4.

D6 EFIS Tests

- Compass Wiring?
- D6 Receiving GPS data?

Pitot Tube Tests

- Pitot Status line

+12V Power Plug

- Verify Power

Backup EFIS PFD and MFD to Customer Panel Folder

Verify Switch Modules

Switch Color
Mounting Screw
Master Relay Screws
All Lences intact

Panel Shipping Checklist

Take Photo of completed running panel

Verify All Components have screws and are tight

1 Verify all Cables have a Description and Part Number Label

2 Check EFIS Seral Number Labels

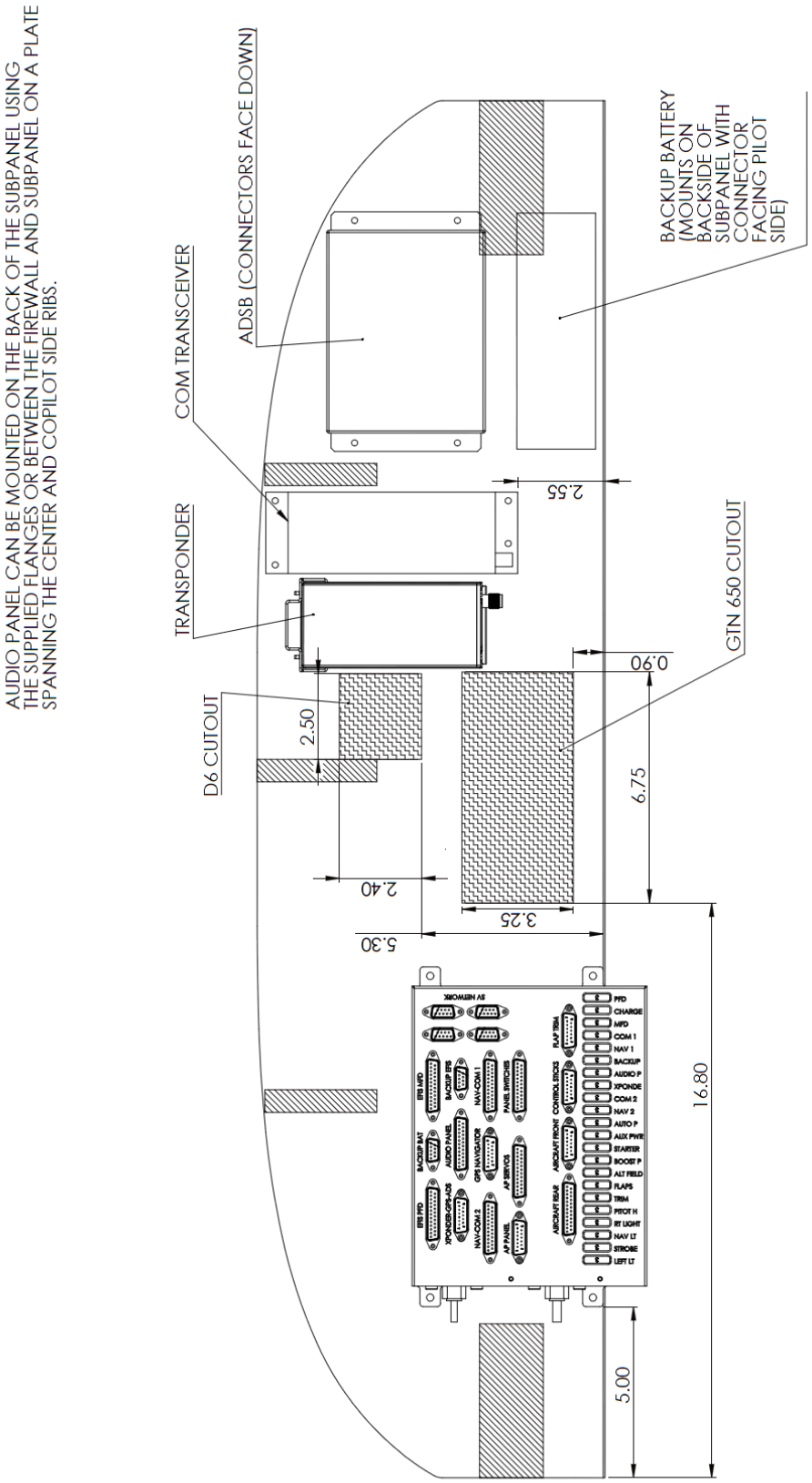
3 Use BOM to check off every item going into the box and serial number

4 Take photo of components in box

5 Verify Panel Mounting Hardware included.

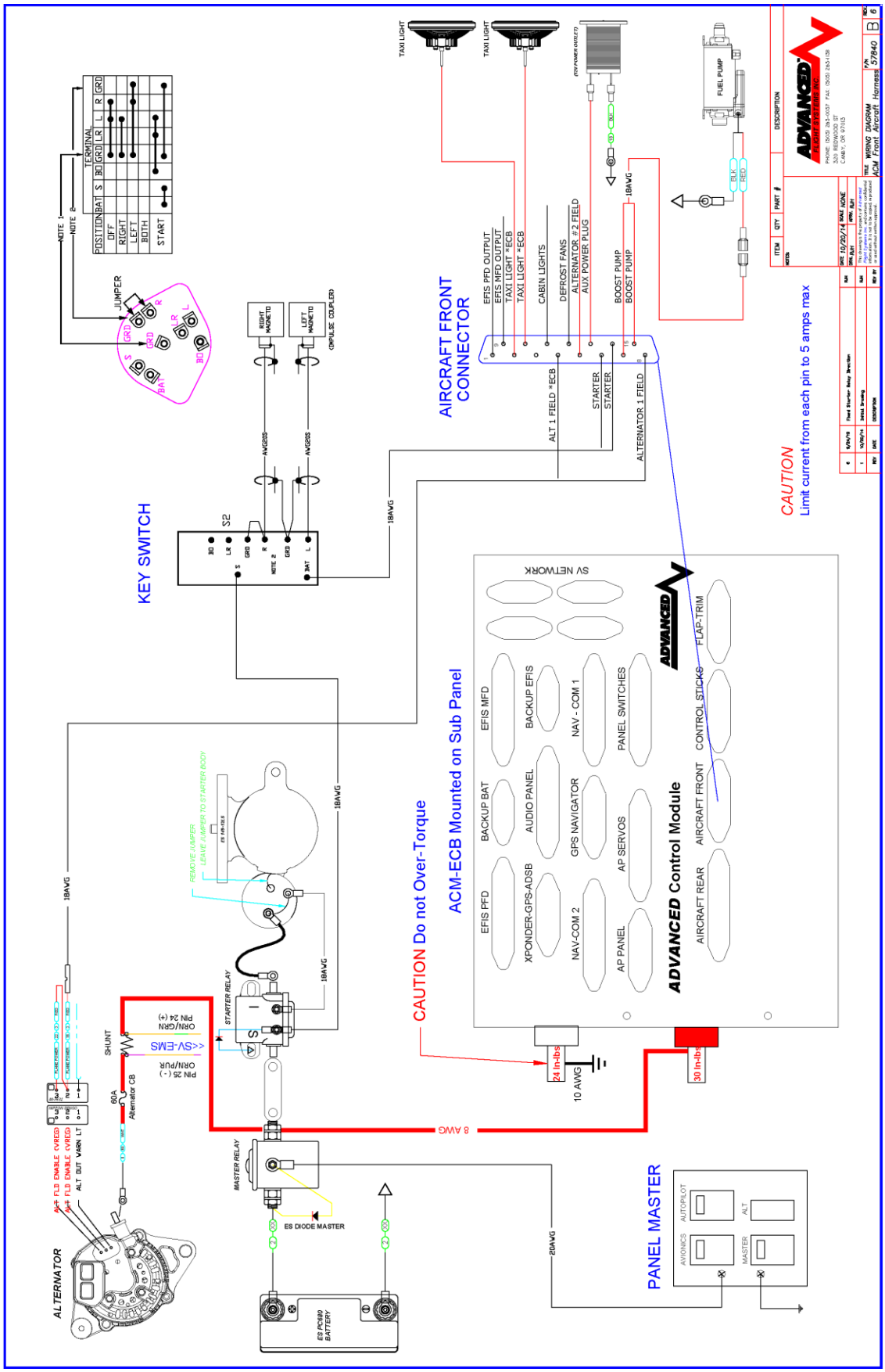
6 Check Starter Switch Key and Terminal screws

RV-7 Slider Panel



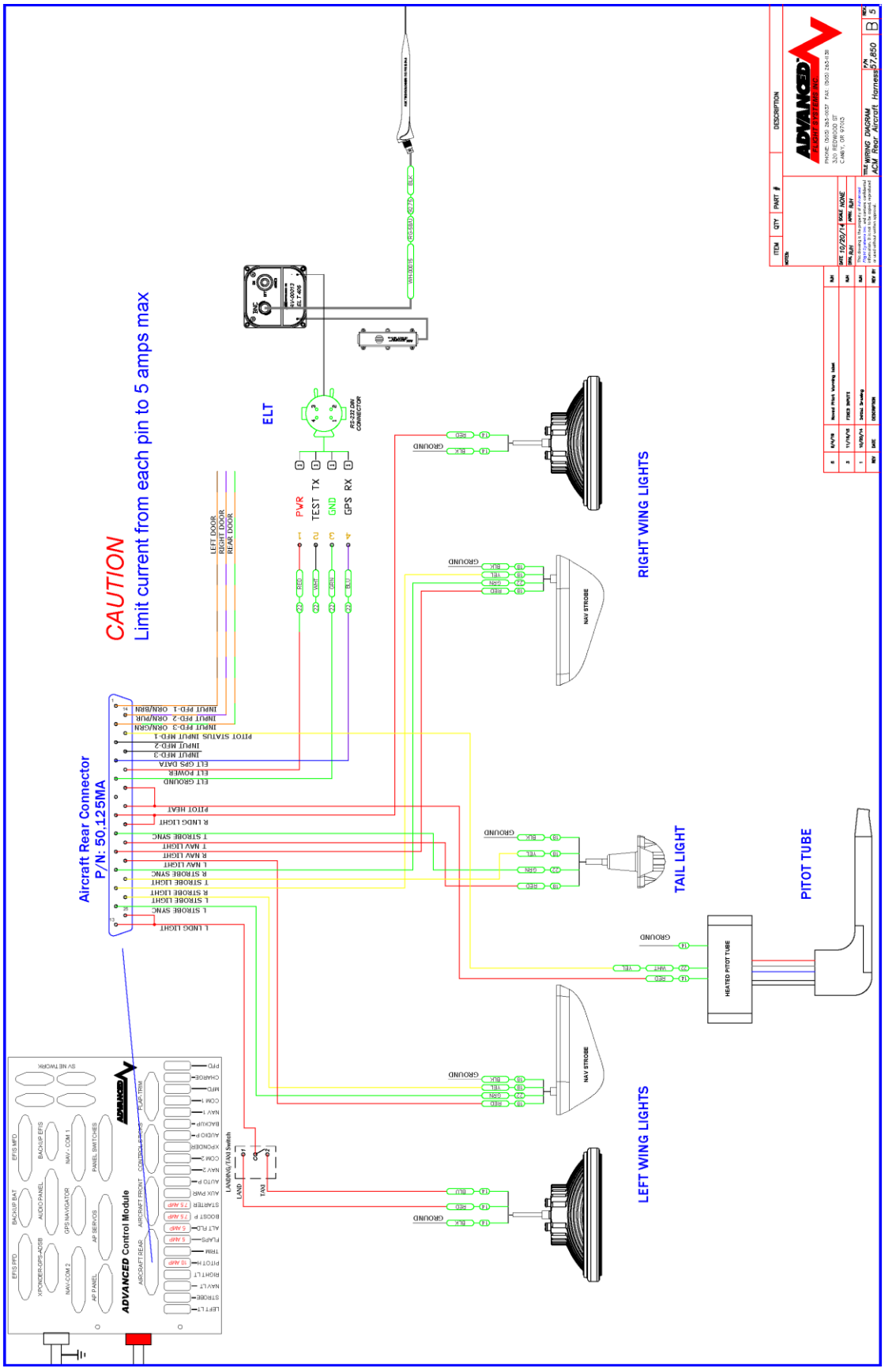
57840 Aircraft Front Harness

Use the supplied DSUB 15 Pin male connector assembly P/N: 50115MA and schematic to wire the aircraft front connector. Verify wire sizes from this drawing.

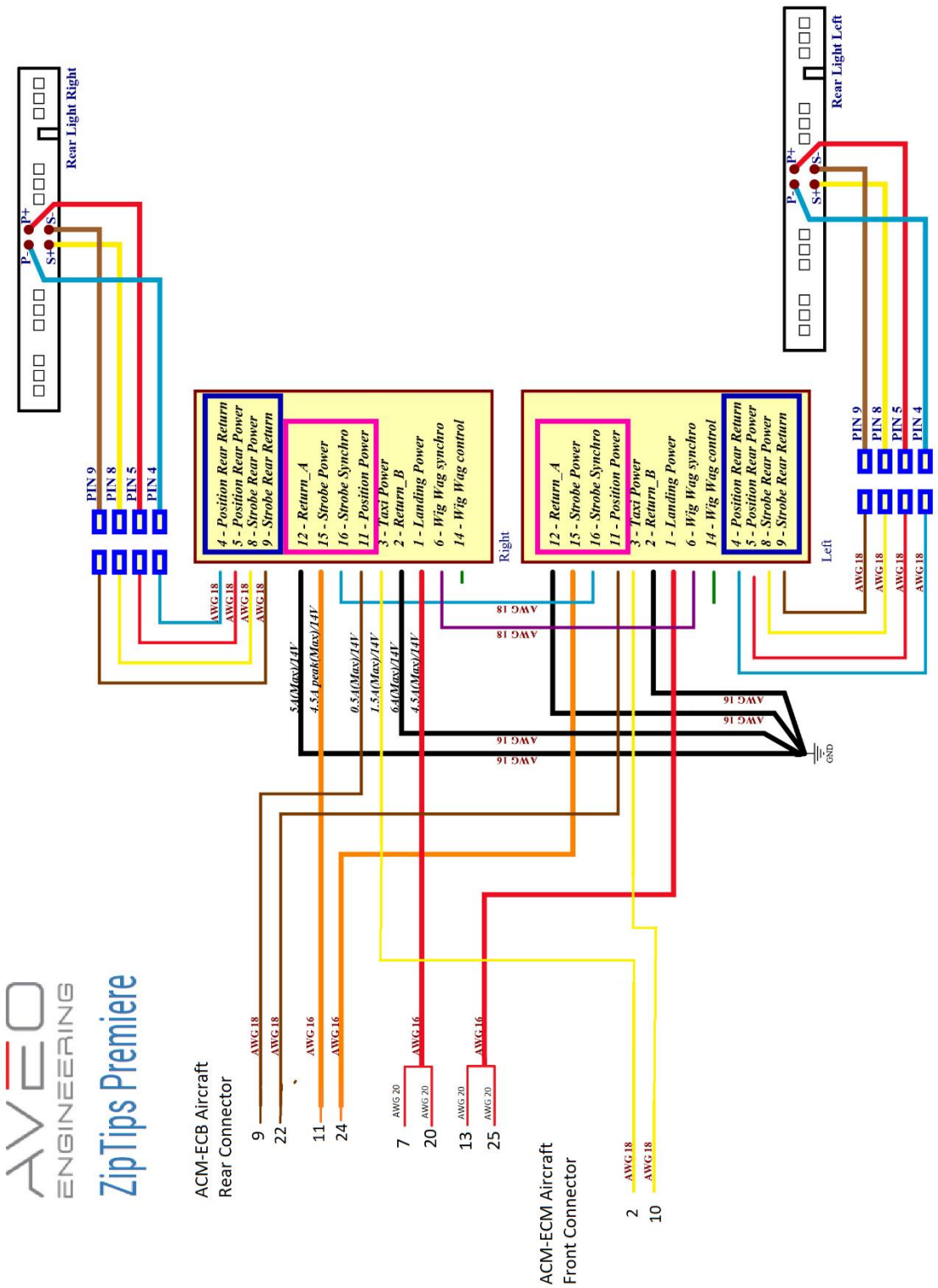


57850 AIRCRAFT REAR HARNESS

Use the supplied DSUB 25 Pin male connector assembly P/N: 50125MA and schematic to wire the aircraft front connector. Verify wire sizes from this drawing.

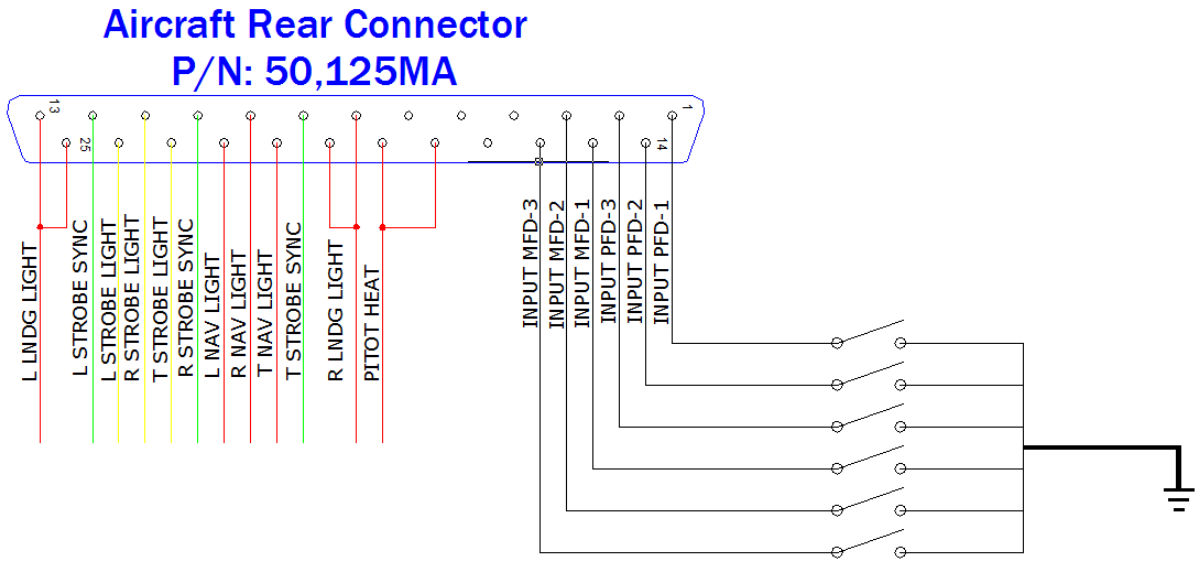


AVEO Engineering ZIP TIP Wiring



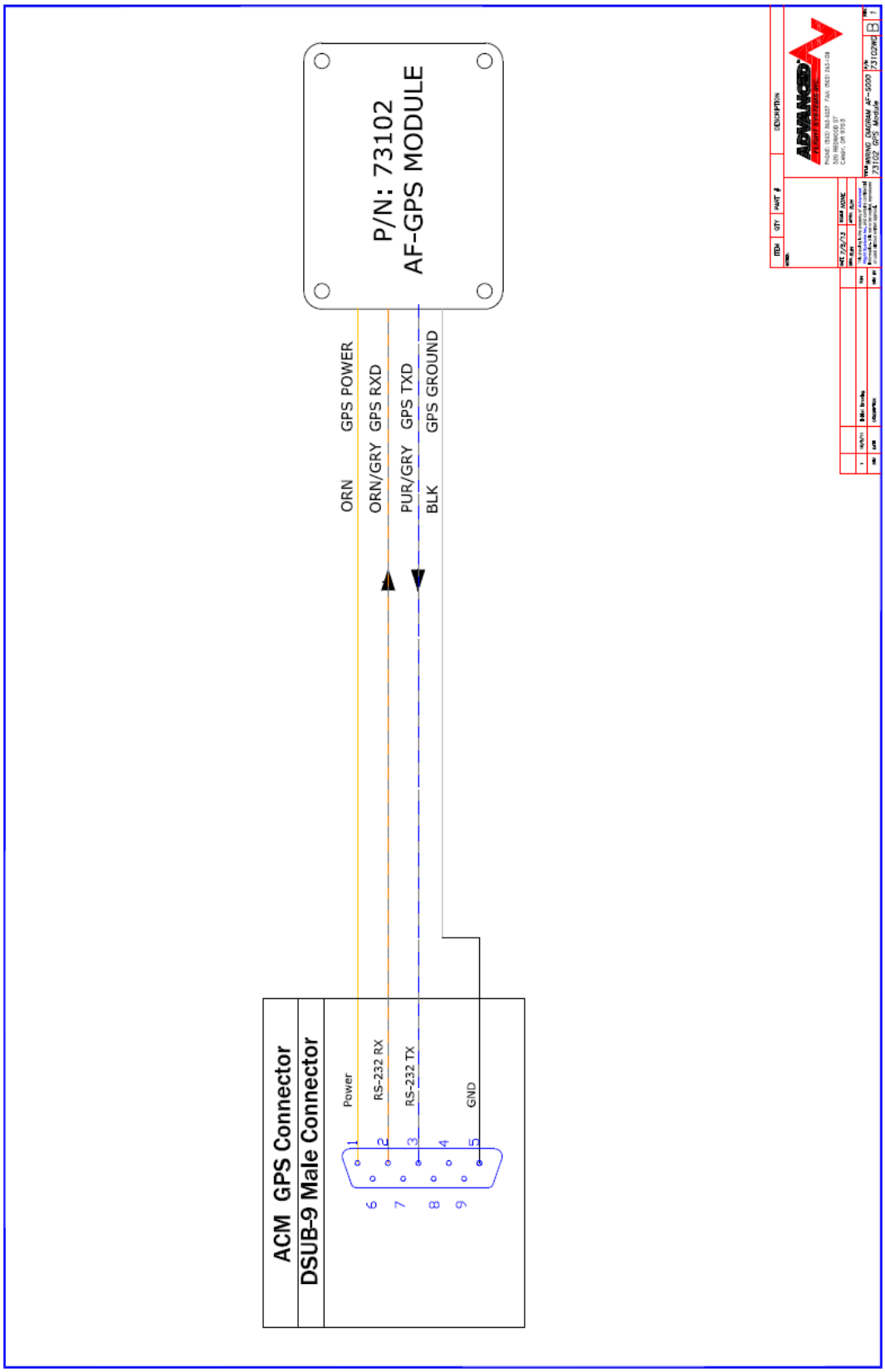
EFIS Inputs

The PFD and MFD EFIS screen digital inputs (1,2,3) are wired to the ACM Aircraft Rear Connector and configured in the EFIS calibration menu. The EFIS inputs are designed to activate when connected to ground.



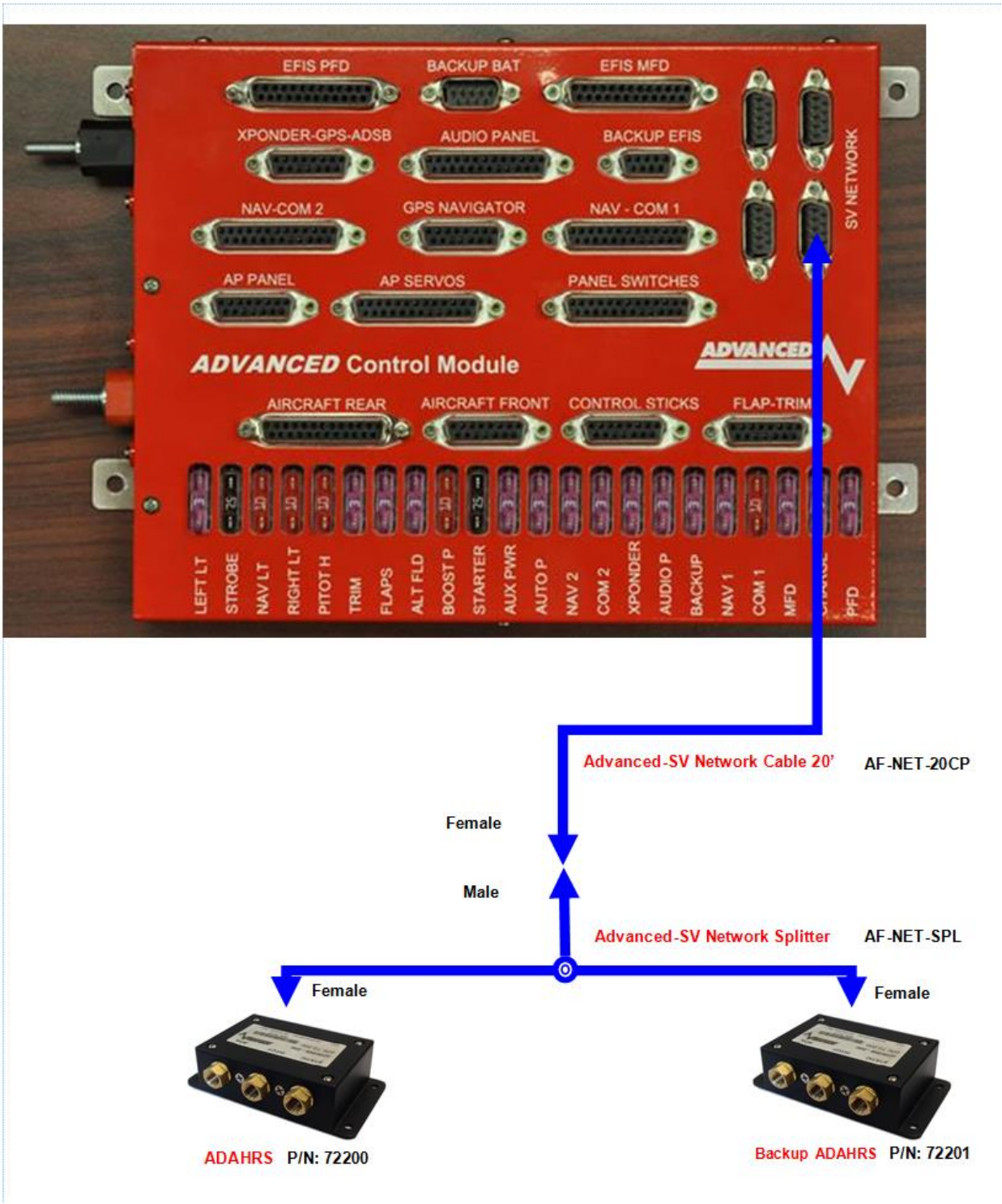
SV-GPS-250 GPS / SV-GPS-2020 / AFS P/N: 73102 GPS Wiring

After routing the AF-GPS wires through the fuselage install the supplied DSUB-9 Male connector and plug into the Female AF-GPS harness from the ACM Module. The SV-250-GPS and SV-GPS-2020 all have the same mounting and wiring.



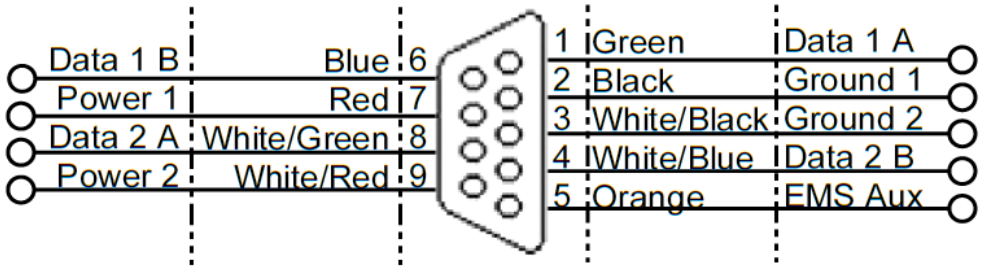
ADAHRS SV-ADAHRS 200/201 Wiring

After mounting the ADAHRS in the rear fuselage you should connect it to the spare SV-NETWORK port on the ACM module. The ADAHRS uses the standard SV-NETWORK DSUB-9 Female cables and should be wired using the following:



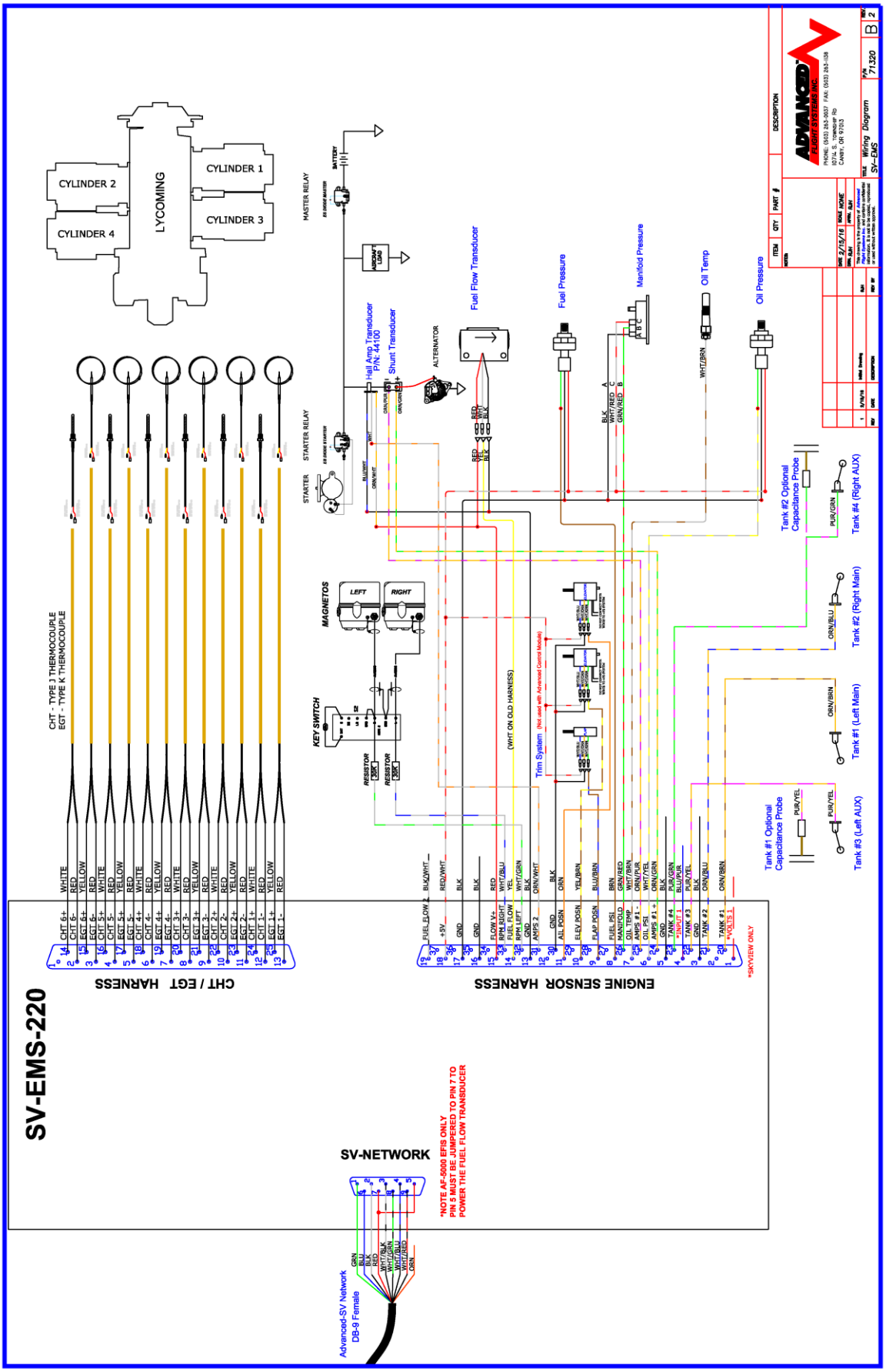
Advanced SV Network Wiring

Advanced-SV Network Female D9 Pin	Advanced-SV Network Cable Wire Color	Description
1	Green	Network Data 1 A
2	Black	Network Ground 1
3	White with Black Stripe	Network Ground 2
4	White with Blue Stripe	Network Data 2 B
5	Orange	EMS Auxiliary Voltage
6	Blue	Network Data 1 B
7	Red	Network Power 1
8	White with Green stripe	Network Data 2 A
9	White with Red stripe	Network Power 2

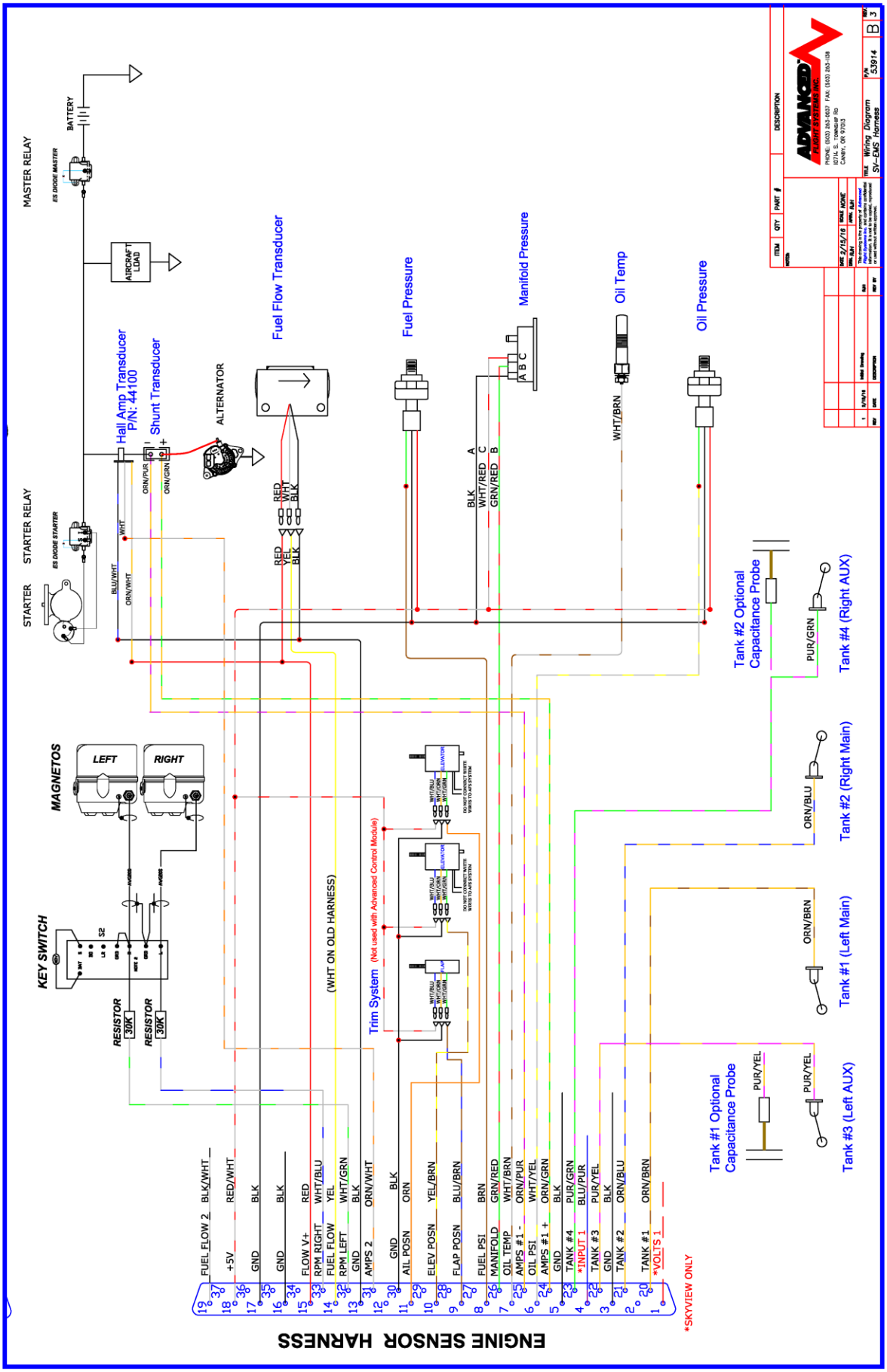


Network Female D9 Pin Insertion View (Rear)

71320 SV-EMS-220 Wiring



53914 SV EMS Engine Sensor Harness Diagram



P/N: 53914-AFS Engine Sensor Harness Wires

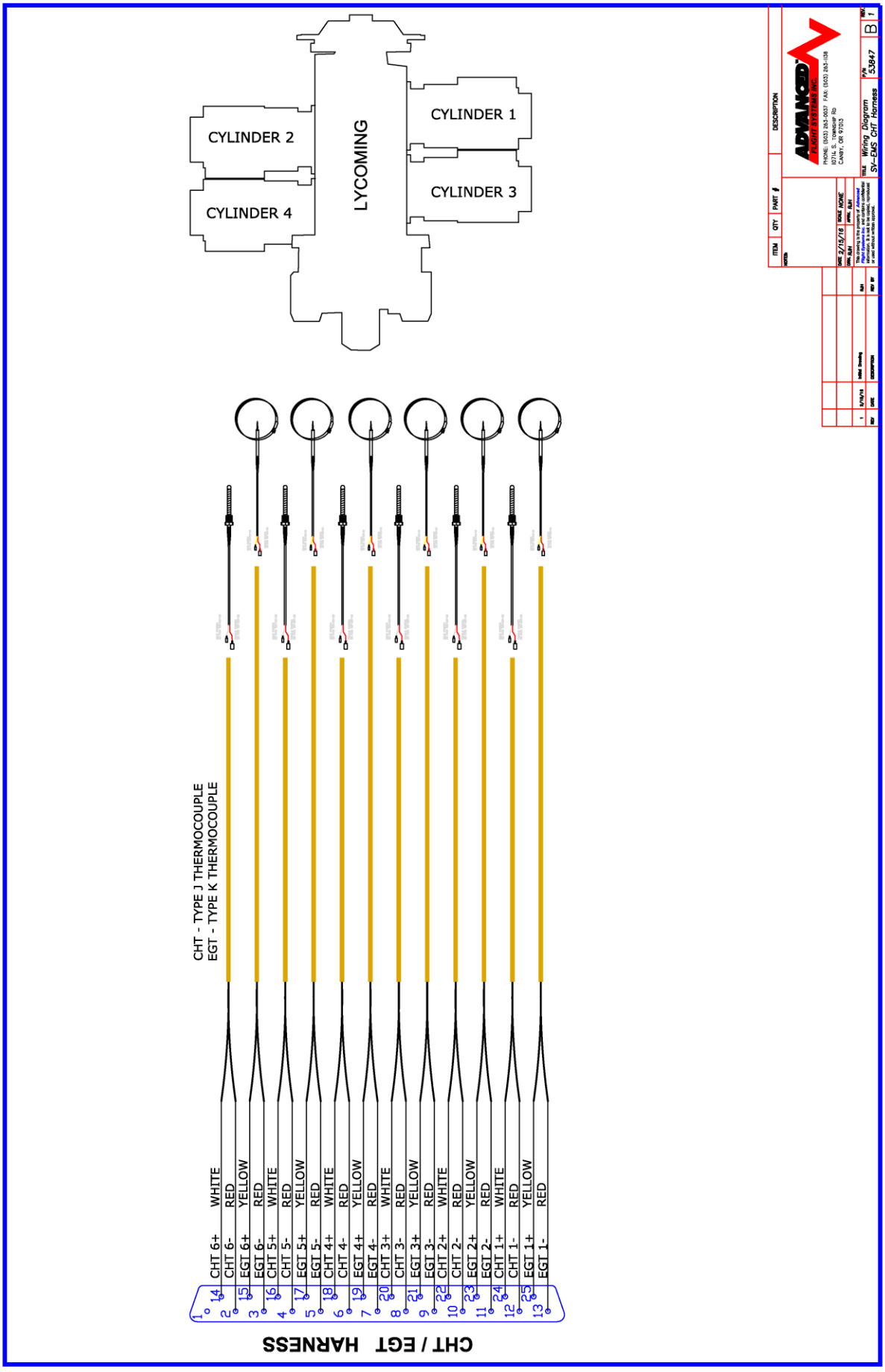
Pin	EMS 37-pin Harness Wire Color	Sensor
1		
2		
3		
4		
5		
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9		
10		
11		
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	+8V Fuel Flow & Amps Hall Transducer Power. (*Must have SV-EMS Network Pin 7 jumper to Pin 5)
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1 – Float Sensor Only
21	Orange/Blue	Tank 2 – Float Sensor Only
22	Violet/Yellow	Tank 3 or Capacitance Tank 1
23	Violet/Green	Tank 4 or Capacitance Tank 2
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31		
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

P/N: 53914-HDX Engine Sensor Harness Wires

You can remove all unused wires from the Engine Sensor Harness using a pin removal tool

Pin	EMS 37-pin Harness Wire Color	Sensor
1	Red	Skyview Voltmeter 1
2		
3		
4		
5		
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9	Brown/Blue	GP Input 5 – RV14 Pitot Warning
10	Brown/Yellow	GP Input 6 – RV14 Canopy
11	Orange	GP Input 7 – RV14 Stall Tab
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	Fuel Flow & Amps Hall Transducer Power.
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1 – Float Sensor Only
21	Orange/Blue	Tank 2 – Float Sensor Only
22		
23		
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31		
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

53847 SV EMS EGT-CHT Harness Diagram

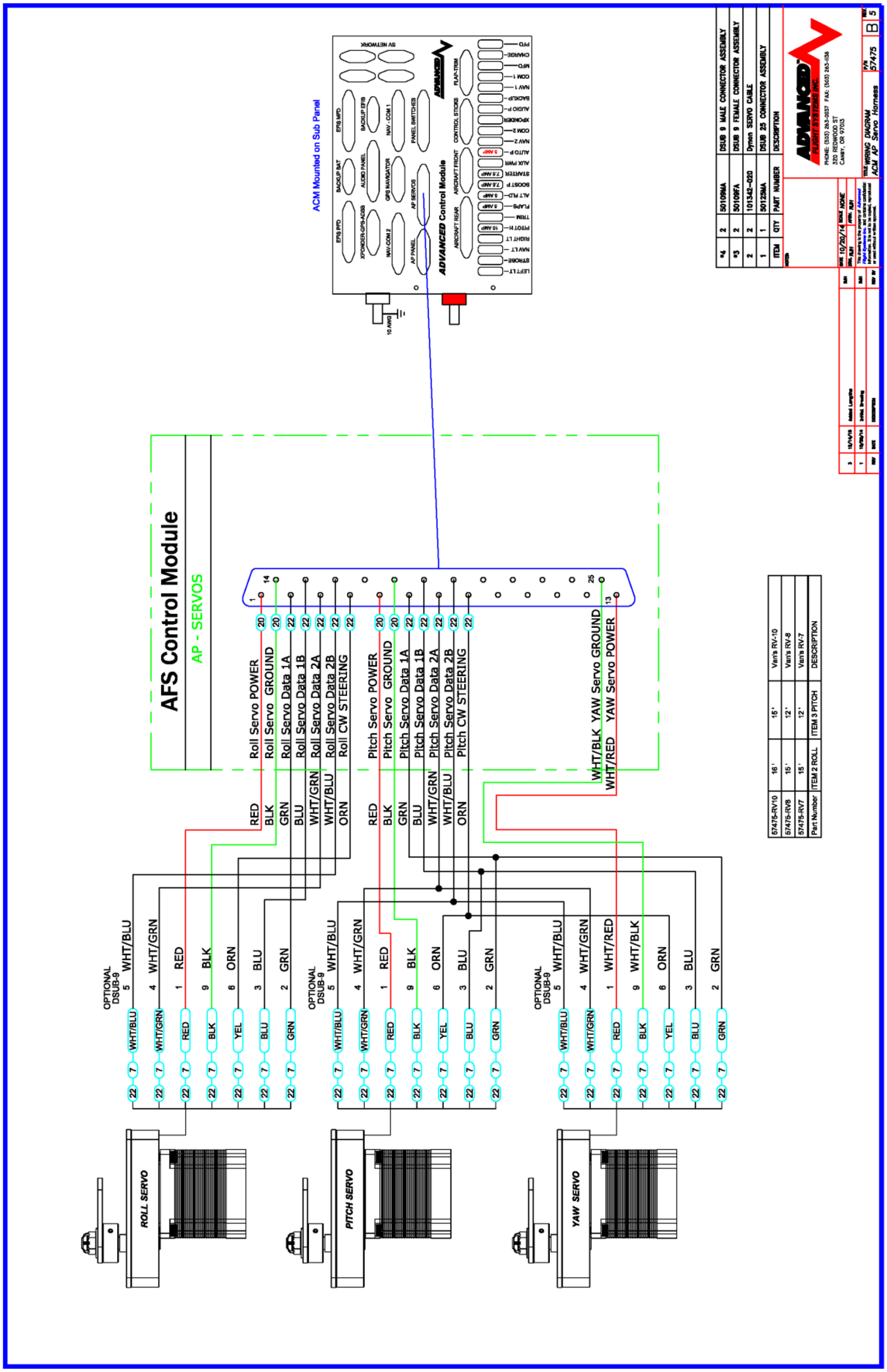


Advanced Control Module Fuses				
Fuse	**Description**	**Max Amps**	**Connector (Pins)**	**Control**
1	Left wing landing light	**10**	**AIRCRAFT REAR (13,25)**	**CPU**
2	Stobe Lights	**10**	**AIRCRAFT REAR (11,23,24)**	**CPU**
3	Nav Lights	**10**	**AIRCRAFT REAR (9,21,22)**	**CPU**
4	Right wing landing light	**10**	**AIRCRAFT REAR (7,20)**	**CPU**
5	Pitot Heat	**15**	**AIRCRAFT REAR (18,19)**	**Switch**
6	Trim Servos	**5**	**AP PANEL (9)**	**Vin-Power**
7	Flap Motor	**10**	**FLAP-TRIM**	**CPU**
8	Alternator Field	**5**	**AIRCRAFT FRONT (8)**	**Switch**
9	Boost Pump	**10**	**AIRCRAFT FRONT (7,15)**	**Switch**
10	Starter Contactor	**10**	**AIRCRAFT FRONT (6,14)**	**Vin-Power**
11	AUX Power (Defrost, AUX Plug)	**5+5**	**AIRCRAFT FRONT (12,13)**	**Switch**
12	Autopilot servos	**10**	**AP SERVOS (1,5,13)**	**Switch**
13	Nav 2 Radio	**10**	**NAV-COM 2 (12,13)**	**AV2 Relay**
14	Com 2 Radio	**10**	**NAV-COM 2 (1,2,3)**	**AV2 Relay**
15	Transponder + ADS-B	**5**	**XPONDER-GPS-ADSB (1,6)**	**AV2 Relay**
16	Audio Panel	**5**	**AUDIO PANEL (1,2)**	**AV2 Relay**
17	Backup EFIS - CO Detector	**5**	**BACKUP EFIS (1,5)**	**AV2 Relay**
18	NAV 1 Radio + GPS	**10**	**NAV-COM 1 (12,13)** **GPS NAVIGATOR (1,2)**	**AV1 Relay**
19	Com 1 Radio	**10**	**NAV-COM 1 (1,2,3)**	**AV1 Relay**
20	MFD EFIS	**5**	**EFIS MFD (1,2)**	**AV1 Relay**
21	Backup Battery Charger	**10**	**BACKUP BAT (2,3)**	**AV1 Relay**
22	PFD EFIS	**5**	**EFIS PFD (1,2)**	**Vin-Power**

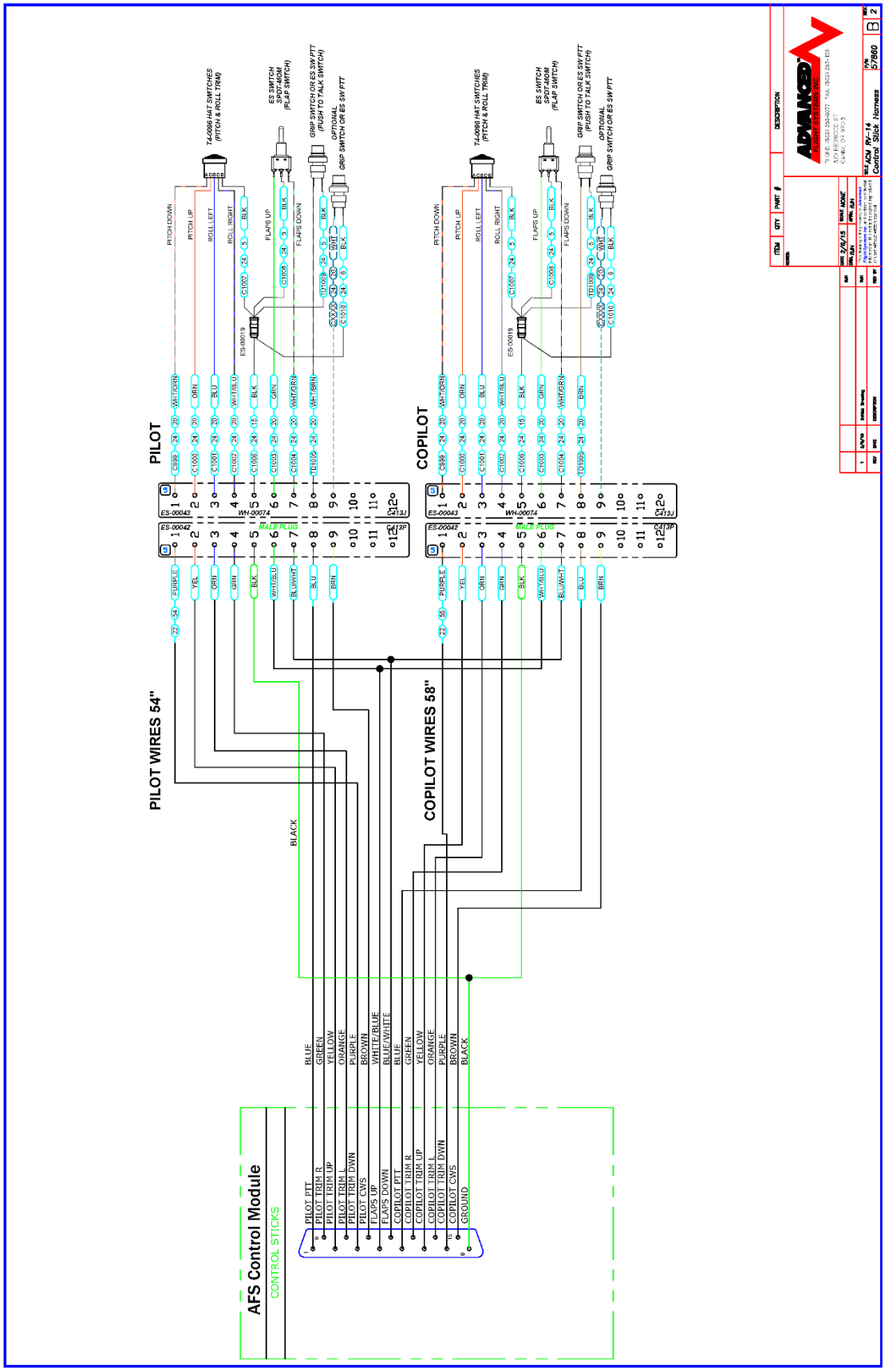
ACM-ECB Electronic Circuit Breakers

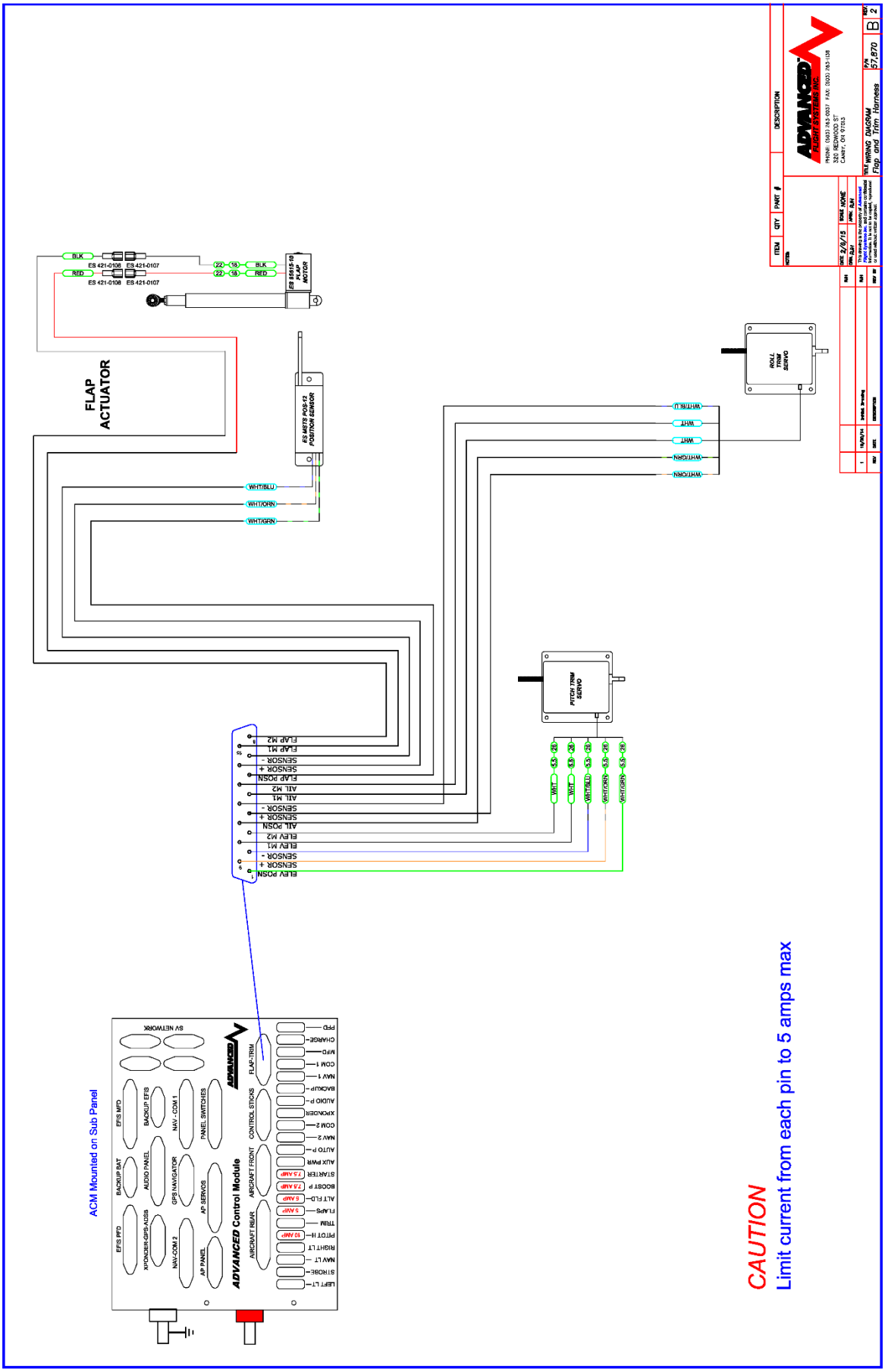
The ACM-ECB module uses electronic circuit breakers that can be reset or shut off from the EFIS screen.

57475 AP Servo Harness

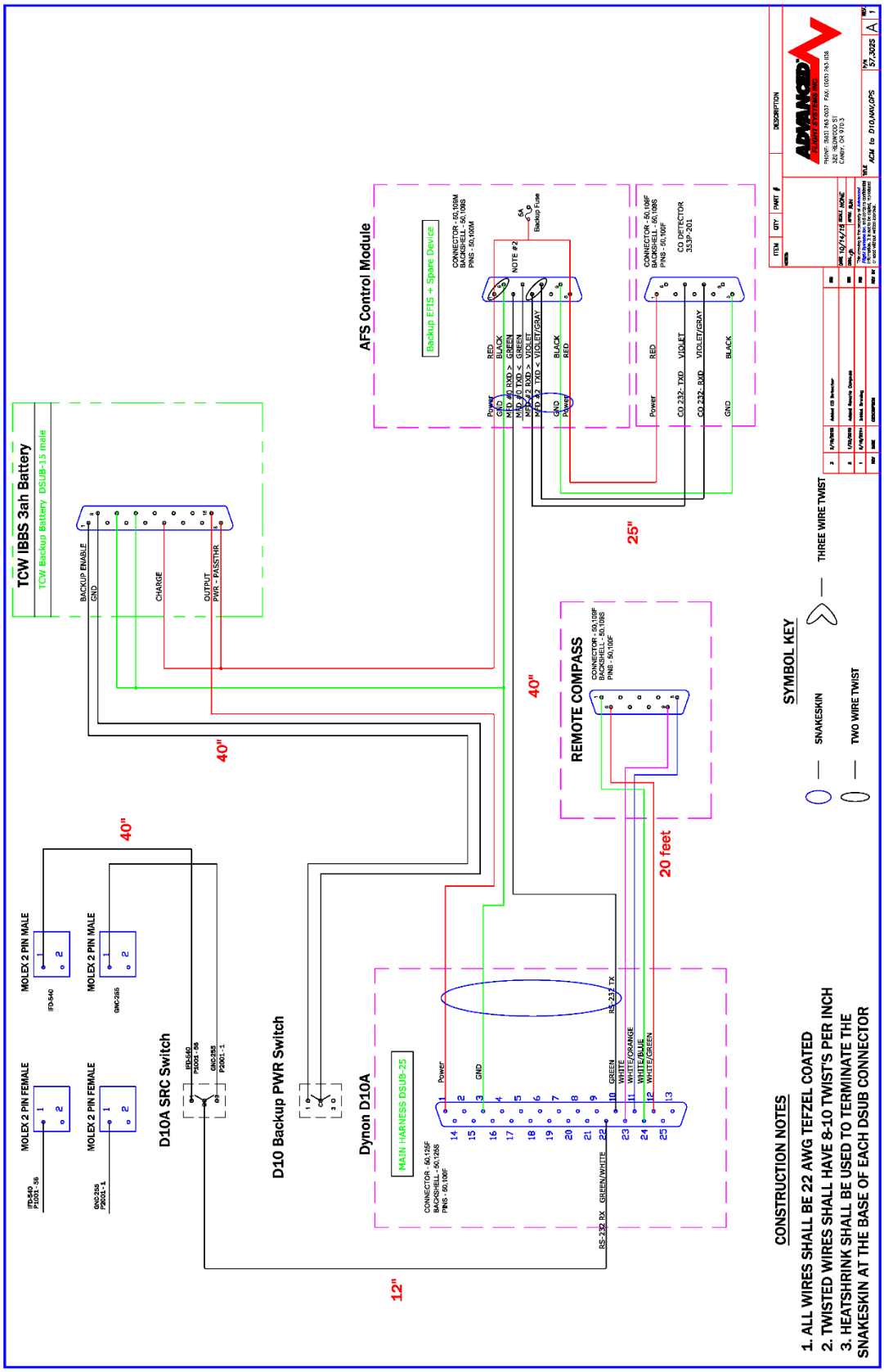


57860 Control Stick Harness




FLAP ACTUATOR
ES 55515-10 FLAP MOTOR
ES 421-0106
ES 421-0107
ES 421-0108
ES 421-0107
BLK
RED
ES M575 POS-12 POSITION SENSOR
WHT/BLU
WHT/ORN
WHT/GRN
ROLL TRIM SERVO
PITCH TRIM SERVO
FLAP M2
FLAP M1
SENSOR -
SENSOR +
FLAP POSN
AIL M2
AIL M1
SENSOR -
SENSOR +
AIL POSN
ELEV M2
ELEV M1
SENSOR -
SENSOR +
ELEV POSN
ACM Mounted on Sub Panel
ADVANCED Control Module
CAUTION
Limit current from each pin to 5 amps max
ADVANCED Flight Systems Inc.
TITLE WIRING DIAGRAM Flap and Trim Harness
P/N 57870
REV B
DWG NO 2
DATE 2/6/15
SCALE NONE

57302 D10 Backup Harness with CO and TCW Battery



Use RG400 Cable and Contact airframe manufacturer for recommended mounting locations.

Antenna Installation

AFS does not supply COM antennas, radio coaxial cable, or antenna BNC connectors. The antenna (including coaxial cable and connector) should be installed according to the manufacturer's instructions.

The following considerations should be taken into account when siting the antenna:

- The antenna should be well removed from any projections, the engine(s) and propeller(s). It should also be well removed from landing gear doors, access doors or others openings which will break the ground plane for the antenna.
- Separation of COM antenna(s) from transponder(s) and GPS receivers / antennas: 1 foot (12 inches).
- Separation of COM antenna(s) from Automatic Direction Finder (ADF) or 121.5 MHz Emergency Locator Transmitter (ELT): 4 feet (48 inches)
- Separation of COM antenna from another COM or NAV antenna: Recommended separation between COM antenna(s), NAV antenna(s), and ELT antennas is 6 feet (72 inches). Minimum required separation between antennas is 4 feet (48 inches). Ideally, install the primary COM antenna on the lower fuselage, and install the secondary / standby COM antenna on the upper fuselage.
- The COM antenna(s) should not be installed in close proximity to AF-5000 displays, modules, or servos to avoid RF interference.
- Where practical, plan the antenna location to keep the cable lengths as short as possible and avoid sharp bends in the cable to minimize the VSWR (voltage standing wave ratio).
- Double-shielded coaxial cable is superior to single shield coax – more of the transmit power will be coupled to the antenna, and less received signal will be lost.
- Electrical connection to the antenna should be protected to avoid loss of efficiency as a result of the presence of liquids or moisture. All antenna feeders shall be installed in such a way that a minimum of RF energy is radiated inside the aircraft.

Antenna Ground Plane

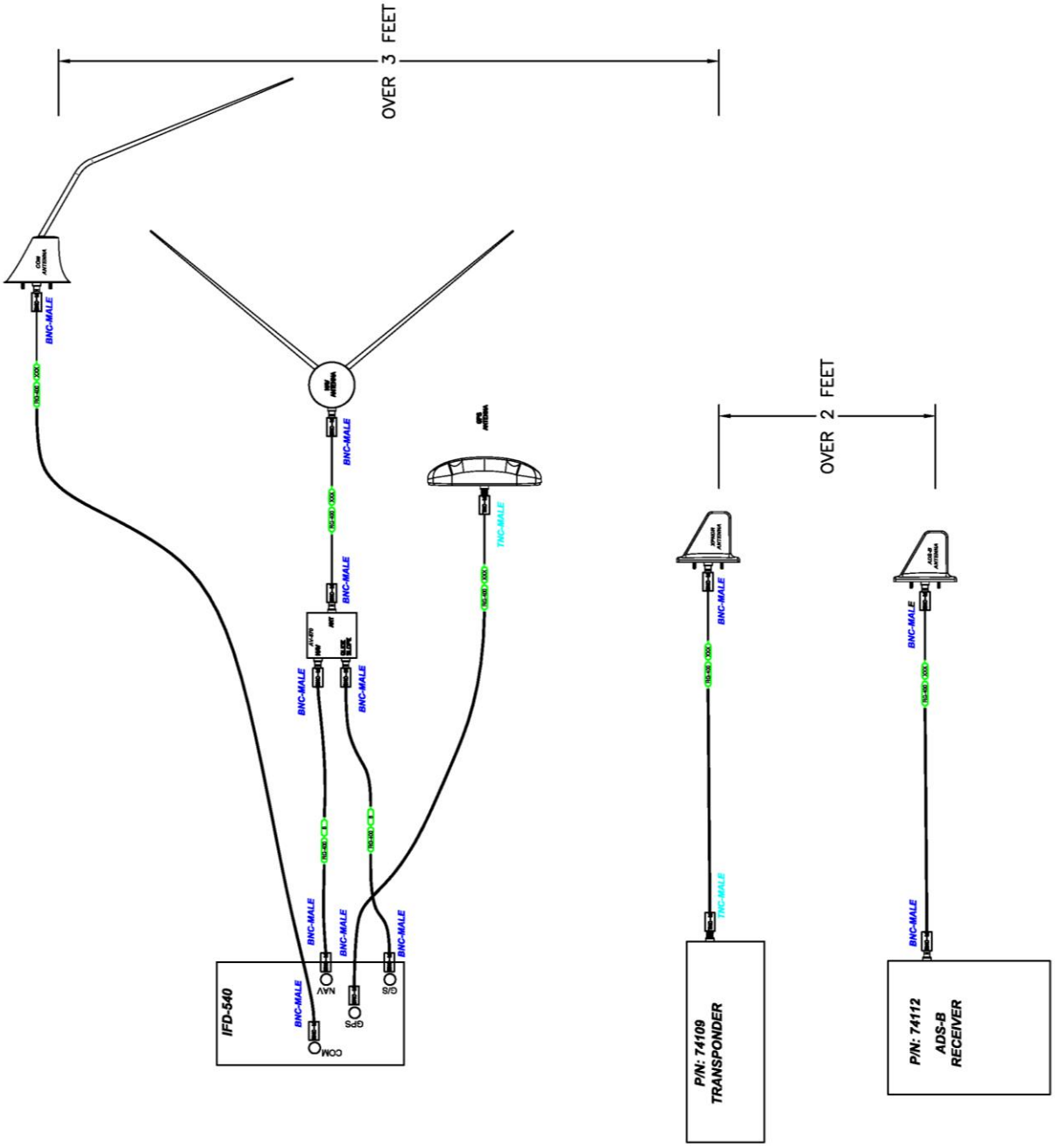
When a conventional aircraft monopole antenna is used it relies on a ground plane for correct behavior. For ideal performance the ground plane should be very large compared to the wavelength of the transmission, which is approx. 7.5 feet. In a metal skinned aircraft this is usually easy to accomplish, but is more difficult in a composite or fabric skinned aircraft. In these cases a metallic ground plane should be fabricated and fitted under the antenna.

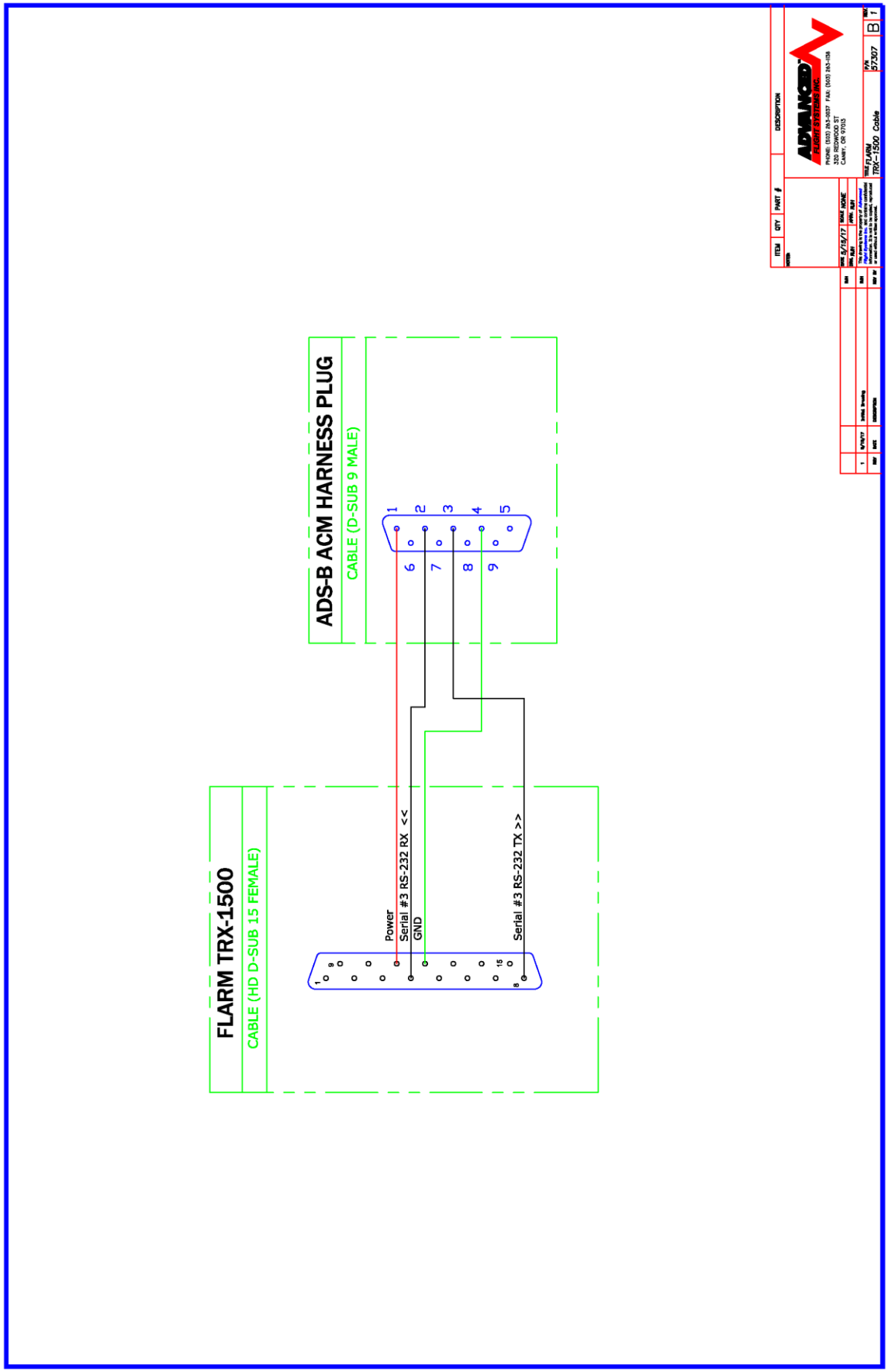
As the ground plane is made smaller, the actual dimensions of the ground plane become more critical, and small multiples of the wavelength should be avoided, as should circles. Rectangles or squares are much less likely to create a critical dimension that resonates with the transmissions. The thickness of the material used to construct the ground plane is not critical, providing it is sufficiently conductive. A variety of proprietary mesh and grid solutions are available. Heavyweight cooking foil meets the technical requirements, but obviously needs to be properly supported.

Antenna Cable

When routing the cable, ensure that you:

- Route the cable away from sources of heat.
- Avoid routing antenna cables together.
- Route the cable away from potential interference sources such as ignition wiring, 400Hz generators, fluorescent lighting and electric motors.
- Allow a minimum separation of 300 mm (12 inches) from an ADF antenna cable.
- Keep the cable run as short as possible.
- Avoid routing the cable around tight bends.
- Avoid kinking the cable even temporarily during installation.
- Secure the cable so that it cannot interfere with other systems.




ADS-B ACM HARNESS PLUG
CABLE (D-SUB 9 MALE)
1
2
3
4
5
6
7
8
9
FLARM TRX-1500
CABLE (HD D-SUB 15 FEMALE)
Power
Serial #3 RS-232 RX <<
GND
Serial #3 RS-232 TX >>
1
9
15
8
ITEM
QTY
PART #
DESCRIPTION
FLARM
TRX-1500 Cable
97307
B
1

Use the TRX PC configuration software set the TRX-1500 to:

Serial Port 3 Output format: GARMIN TIS

Baud Rate: 9600

On the MFD EFIS screen:

Calibration->Admin Settings. Set item, '**6. Port 3**' to '**ZAON TRFC**'

RV-14 Remote Component Mounting

The remote radio transceiver, backup battery and audio panel mount on new ribs mounted in the glove compartment area. The following modifications need to be done:

- Remove glove compartment ring from the RV-14 sub panel P/N: F-01455B
- Install new ribs to the RV-14 sub panel P/N:68102 and P/N:68103
- Install new center console cover plate with Alternator Circuit breaker and Alternator Shunt P/N: 68101

Avidyne IFD-540 Tray Mounting

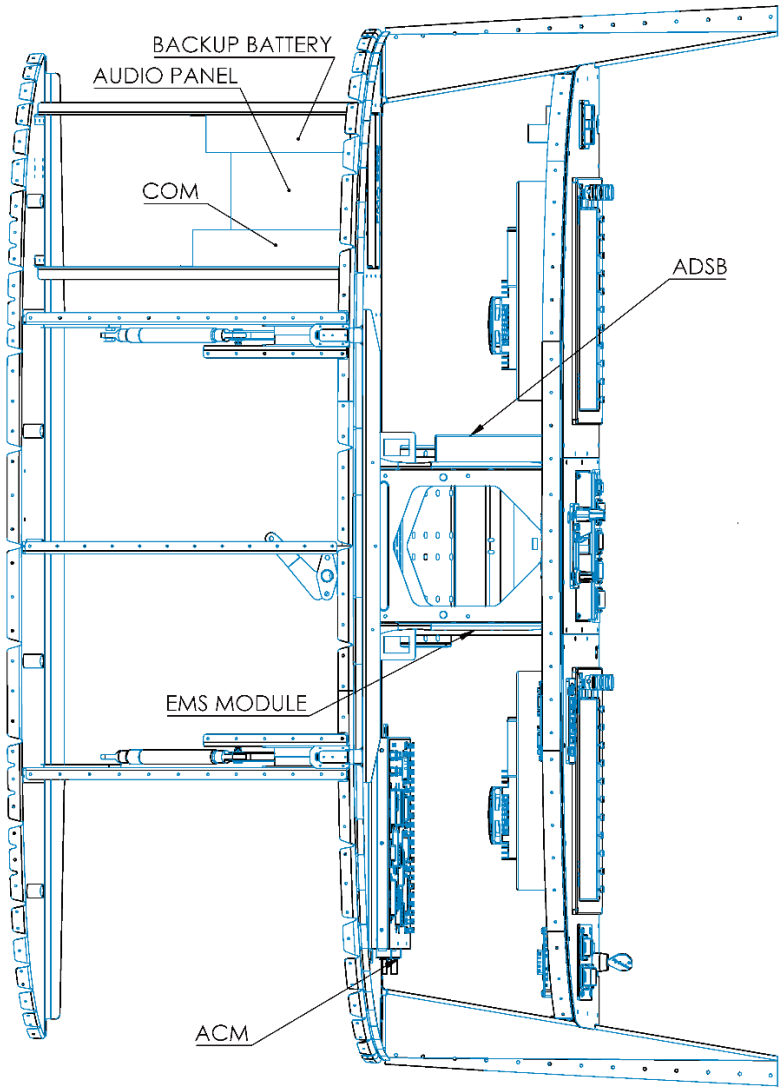
The IFD Tray mounts to the RV-14 airframe panel ribs. You will need to use the IFD tray as a template to mark the side hole locations on the airframe panel ribs. After marking the 8 hole locations, 4 on each side you will need to drill for 6-32 screws. Mount the tray to the airframe panel ribs using qty 8 6-32 x 3/8" counter sunk screws and nylon lock nuts.

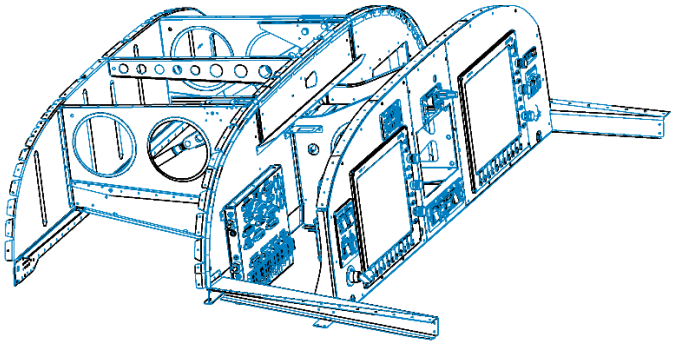
RV-14 EMS-220 Module Install

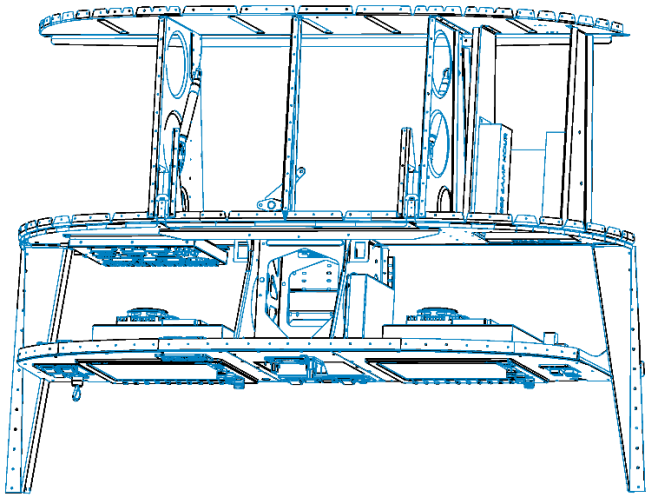
Mount the EMS-220 to the left side panel mounting rib, see P/N: 25014 RV-14 remote component mounting drawing.

RV-14 SV-ADSB-470/472 ADS-B Module Install

Mount the ADSB receiver to the right side panel mounting rib, see P/N: 25014 RV-14 remote component mounting drawing.







REVISION TITLE: RV 14 AVIONICS ASSEMBLY
DRAWING NUMBER:

ADVANCED FLIGHT SYSTEMS INC.

ADVANCED FLIGHT SYSTEMS INC.
PO Box 270 Canby, OR 97013
Tel: (503) 263-0037 Fax: (503) 263-1138
Email: Rob@Advanced-Flight-Systems.com
www.Avanced-Flight-Systems.com

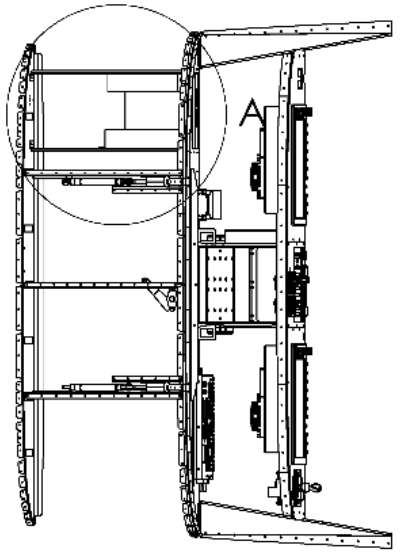
DWN: VR | EDIT DATE: 3/16/2017 | CHK: -
SHEET: 1 OF 1 | SIZE: B | SCALE:
CONFIGURATION: Default
REVISION: | DRAWING NUMBER: 25014

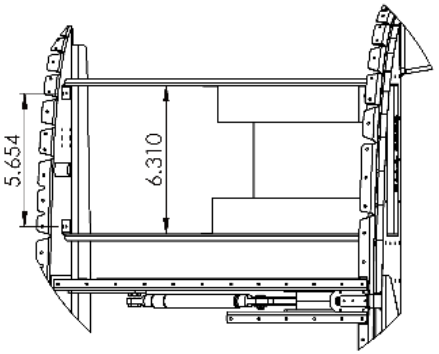
TOLERANCES
.XX ±.010
.XXX ±005
HOLES: +.010/-.000
ANGLES: ±0.25°
SURFACE FIN.:

SolidWorks

TITLE: 14 COMPONENTS

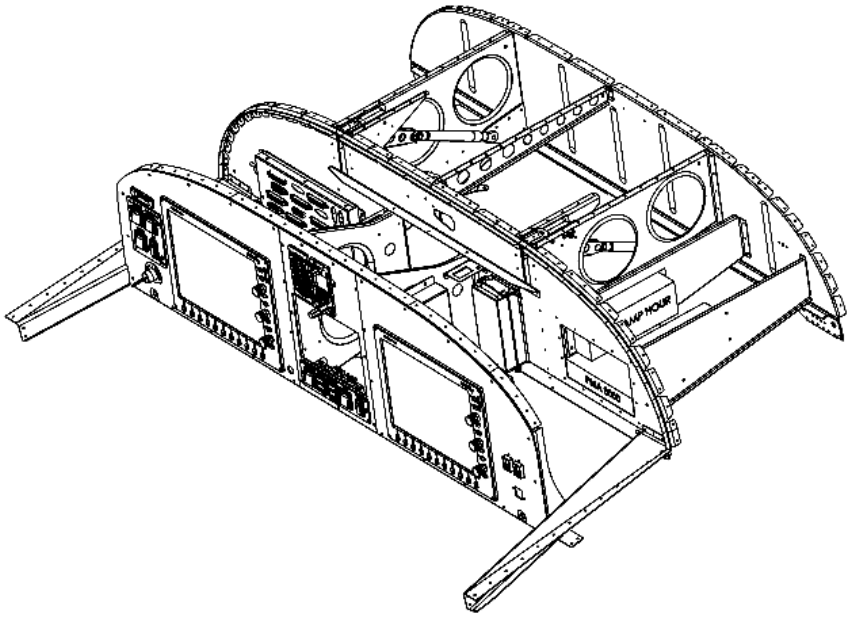
DUE TO FAXES AND PDF FORMATS, DRAWING SCALE IS NOT CONSIDERED ACCURATE UNLESS SIGNED AND DATED BY ADVANCED FLIGHT SYSTEMS, INC. STATING ACCURATE SCALE.



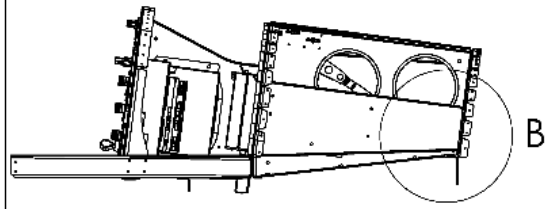


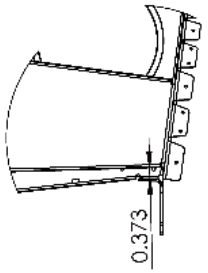
DETAIL A

SCALE 1 : 5



Avionics Assembly





DETAIL B

SCALE 1 : 4

ADVANCED FLIGHT SYSTEMS INC.

Advanced Flight Systems Inc.
PO Box 270 Canby, OR 97013
Tel: (503) 263-0037 Fax: (503) 263-1138
Email: Rob@Advanced-Flight-Systems.com
www.Avanced-Flight-Systems.com

Pat Pending ® Copyrighted

DRAWN JRH | CHECKED | DATE 10/20/2015 | QA | MFG

SHEET 2 OF 2 | SIZE B | SCALE

CONFIGURATION Default

TOLERANCES
.XX ±.010
.XXX ±.005
HOLES: +.010/-.000
ANGLES: ±0.25°
SURFACE FIN.:

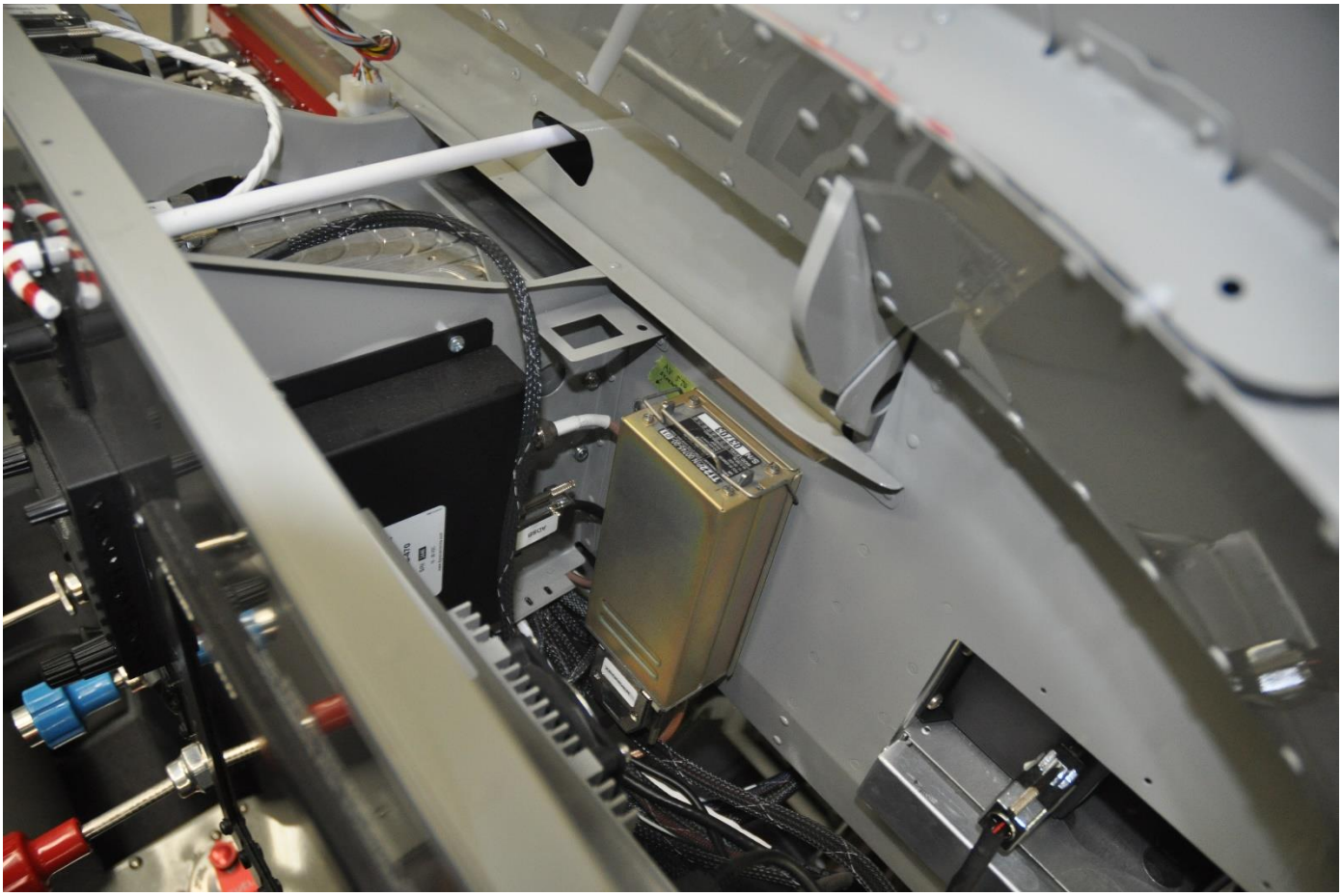
SolidWorks

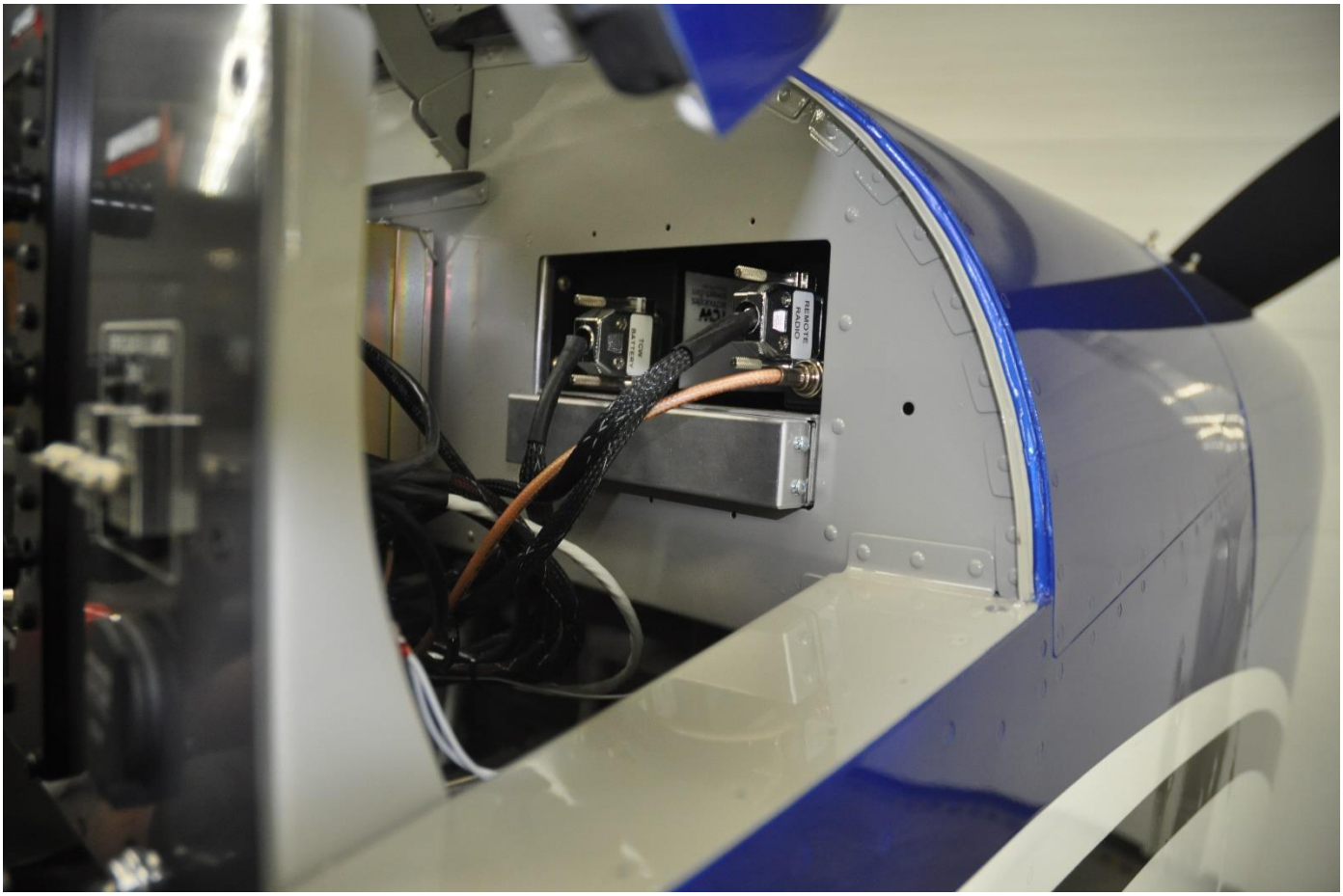
THIS DRAWING AND THE DESCRIBED HEREON IS THE SOLE PROPERTY OF ADVANCED FLIGHT SYSTEMS, INC. AND IS SUBJECT TO RETURN ON DEMAND. THIS DRAWING IS NOT TO BE REPRODUCED, DISTRIBUTED OR USED FOR MANUFACTURING WITHOUT THE EXPRESSED PERMISSION OF ADVANCED FLIGHT SYSTEMS, INC.

DUE TO PAPER AND PDF FORMATS, DRAWING SCALE IS NOT CONSIDERED ACCURATE UNLESS STATED AND DATED BY ADVANCED FLIGHT SYSTEMS, INC. STATING ACCURATE SCALE.

VERSION | DESCRIPTION

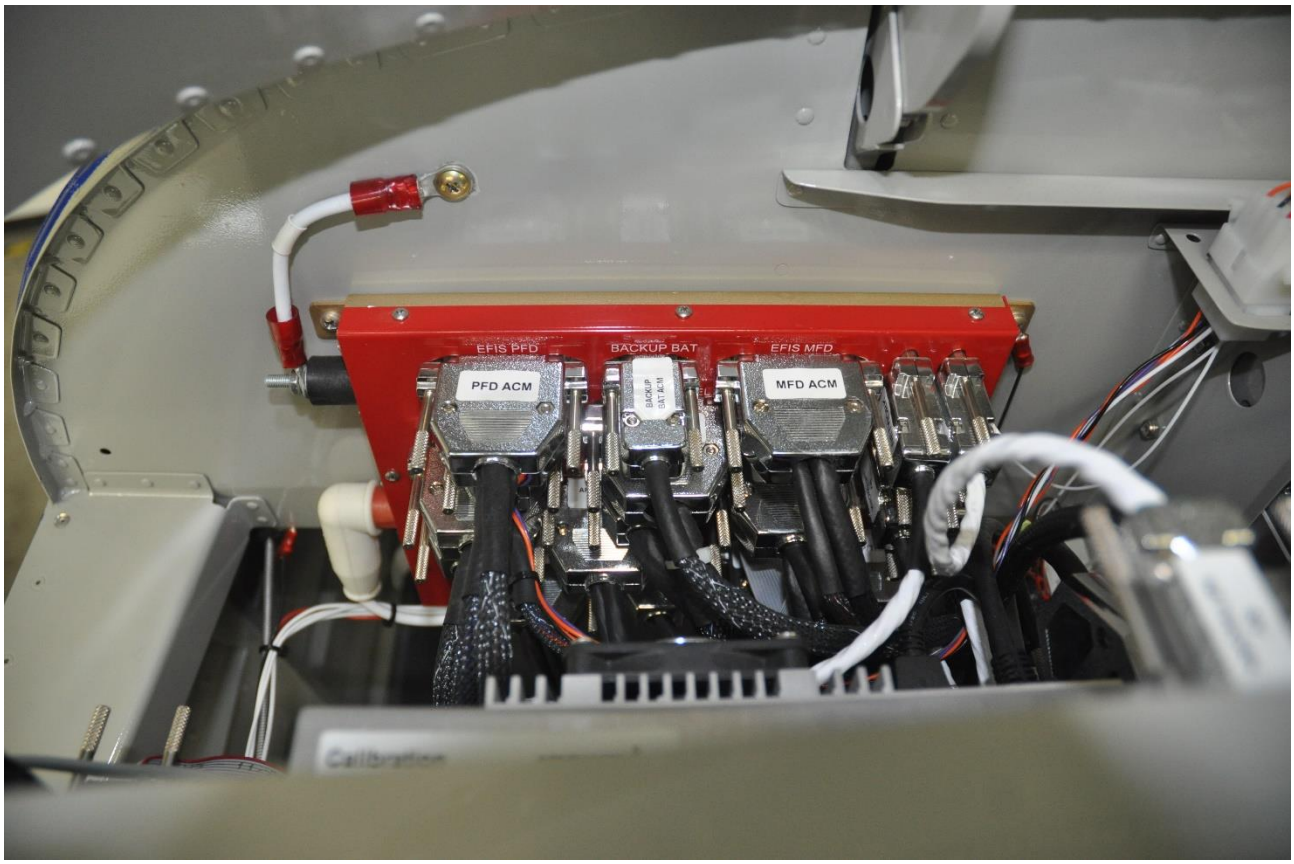
TITLE: RV14 INSTALLATION




REMOTE
RADIO

Advanced Control Module (ACM)

The P/N: 70050 ACM or 70080 ACM-ECB module mounts on the sub panel behind the EFIS PFD. You will need to drill the sub-panel using the ACM module as a template. The ACM module should be connected using QTY:4 10-32 x .5" screw, washer and nylon lock nut. You will also need to drill the sub-panel for the ACM ground wire, make sure you remove the paint for a good electrical contact using a 10-32 x .5" screw, washer and nylon lock nut.



- Connect the main power wire from the battery master relay to the red power lug on the ACM. The Van's supplied main power wire should have a ¼" (0.250") ring terminal with a molded plastic cover.

- Connect the ground power wire from the airframe ground to the black power lug on the ACM. The ACM main ground wire should have a #10 ring terminal with a molded plastic cover.

Do not over-torque the power terminal nuts, they are soft copper and will break if over-torqued.

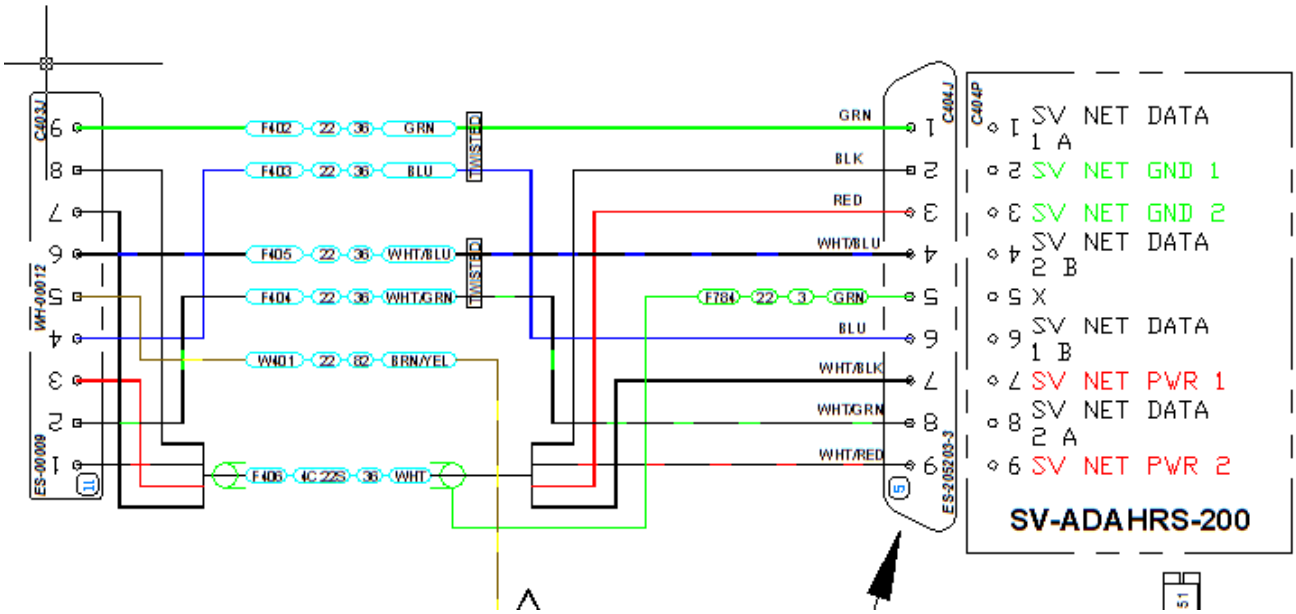
Red Main Power Terminal Max Nut Torque: 30 in-lbs

Black Main Ground Terminal Max Nut Torque: 24 in-lbs

RV-14 ADAHRS Mounting and Wiring

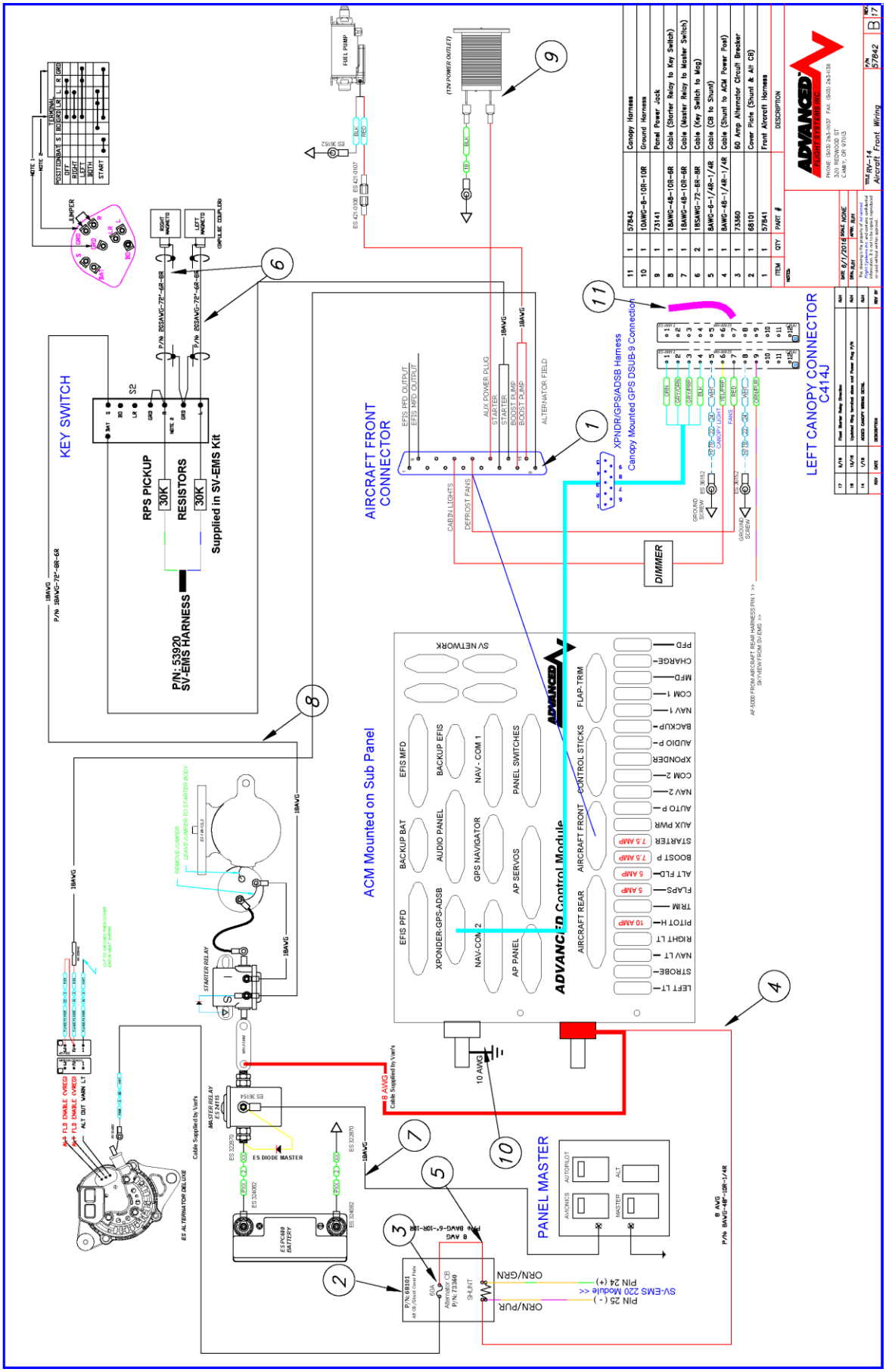
The RV-14 ADAHRS mounts in the left wing using the Van's supplied slide in mounting bracket. The Van's ADAHRS bracket has a built-in tab that will hold the ADAHRS into the slide in mounting bracket. The ADAHRS should slide into the bracket slots and not have any slop or looseness. If the ADAHRS is loose in the bracket you will need to shim the ADAHRS with UHMW tape. If you are using a dual ADAHRS system you should bolt the backup ADAHRS to the primary ADAHRS using the AFS supplied Dual ADAHRS mounting kit and instructions. When the ADARS is properly installed the PITOT/STATIC ports should point forward.

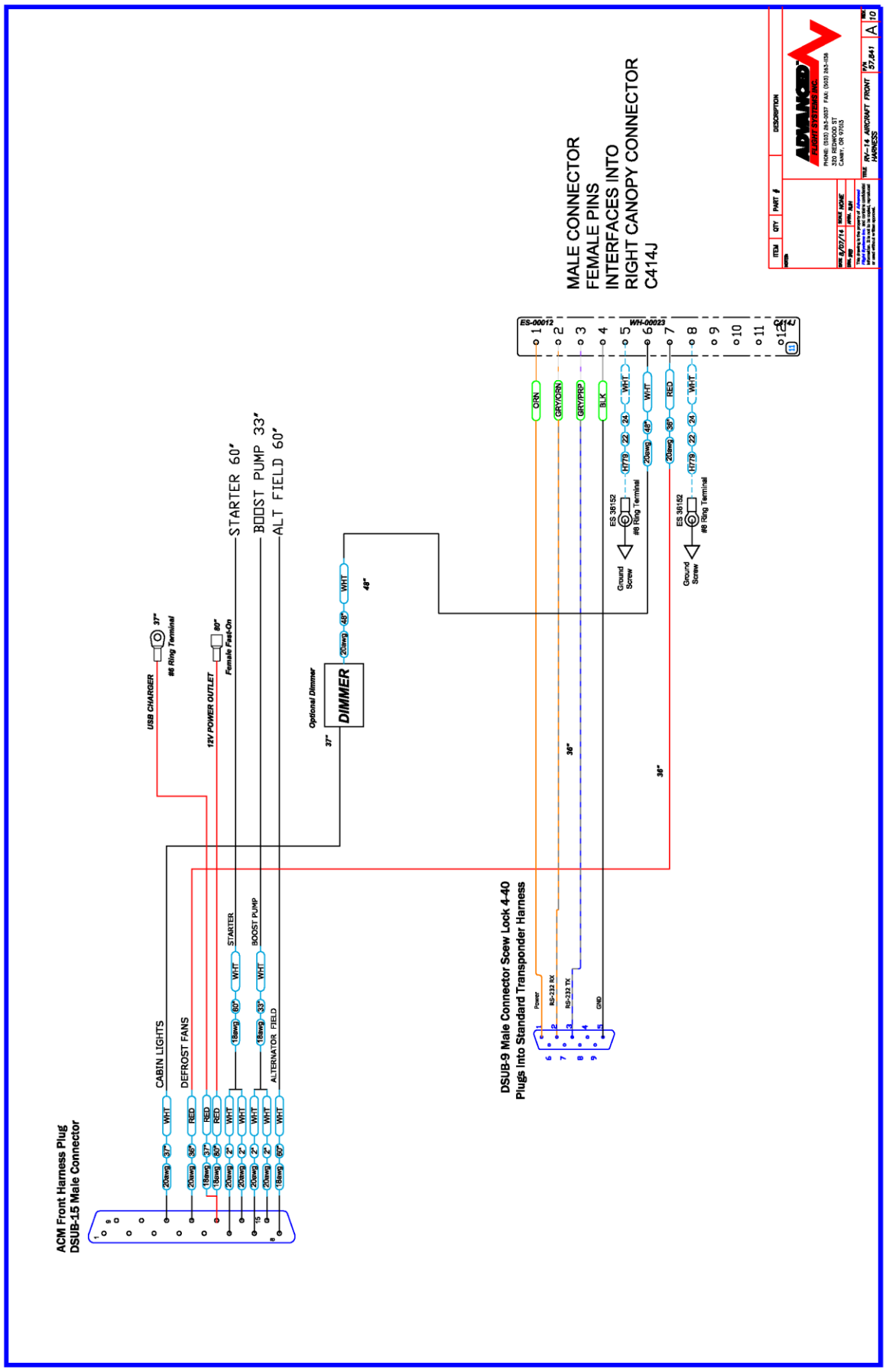
The ADAHRS wires are supplied in the Van's wing kit, you will need to insert the pre-wired female pins into the AFS supplied DSUB 9 female connector and connector Shell.



RV-14 Aircraft Front Wiring (P/N: 57842)

Complete the aircraft front wiring using the following drawing and items.



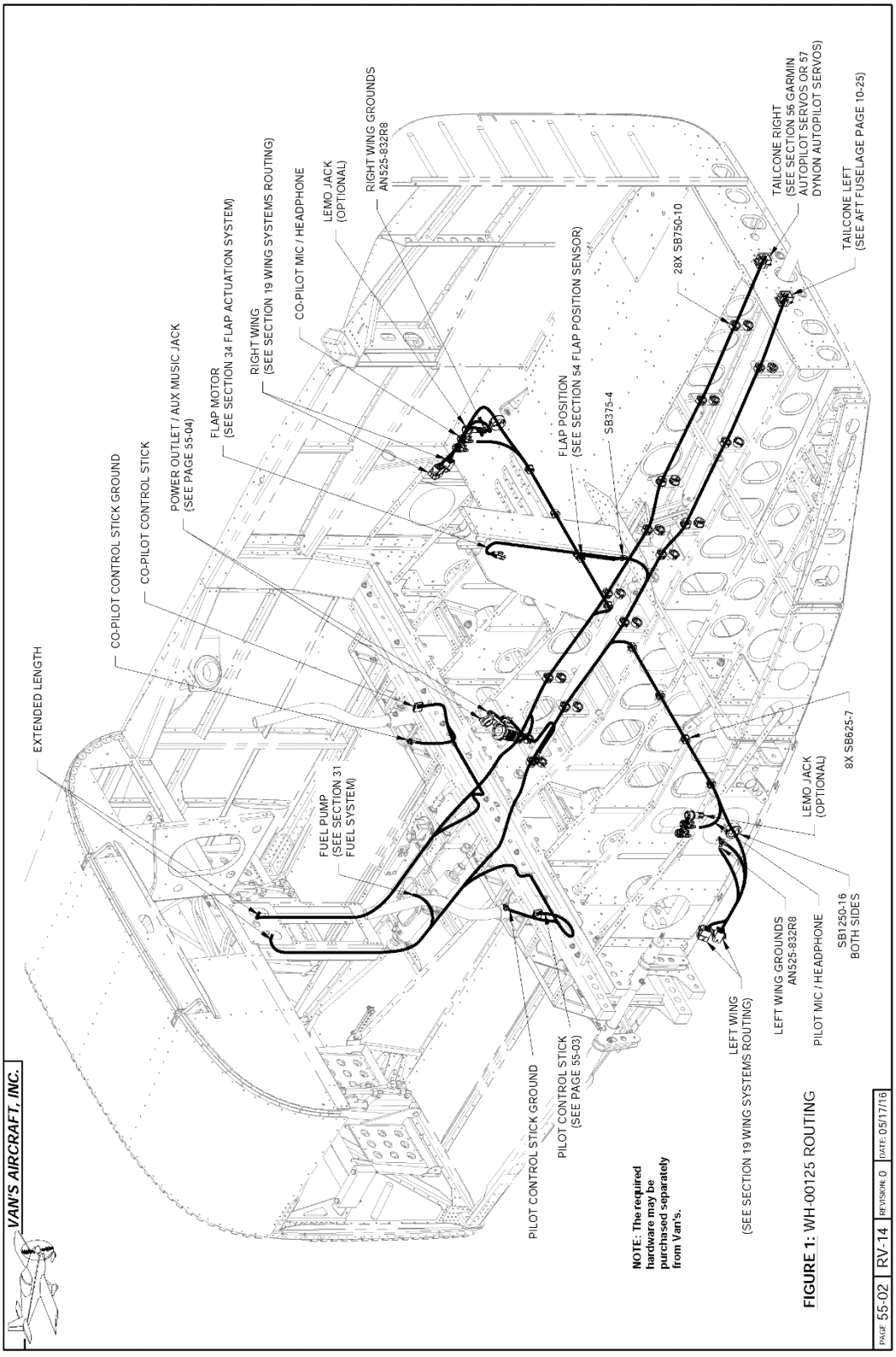

ACM Front Harness Plug
DSUB-15 Male Connector
CABIN LIGHTS
DEFROST FANS
ALTERNATOR FIELD
BOOST PUMP
STARTER
USB CHARGER
#8 Ring Terminal
12V POWER OUTLET
Female Fast-On
STARTER 60"
BOOST PUMP 33"
ALT FIELD 60"
Optional Dimmer
DIMMER
DSUB-9 Male Connector Scew Lock 4-40
Plugs into Standard Transponder Harness
Power
RS-232 RX
RS-232 TX
GND
ES-00012
WH-00023
ORN
GRY/ORN
GRY/PRP
BLK
WHT
RED
ES 36152
#8 Ring Terminal
Ground Screw
MALE CONNECTOR
FEMALE PINS
INTERFACES INTO
RIGHT CANOPY CONNECTOR
C414J
ADVANCED FLIGHT SYSTEMS INC.
RV-14 AIRCRAFT FRONT HARNESS
57,841
A
10

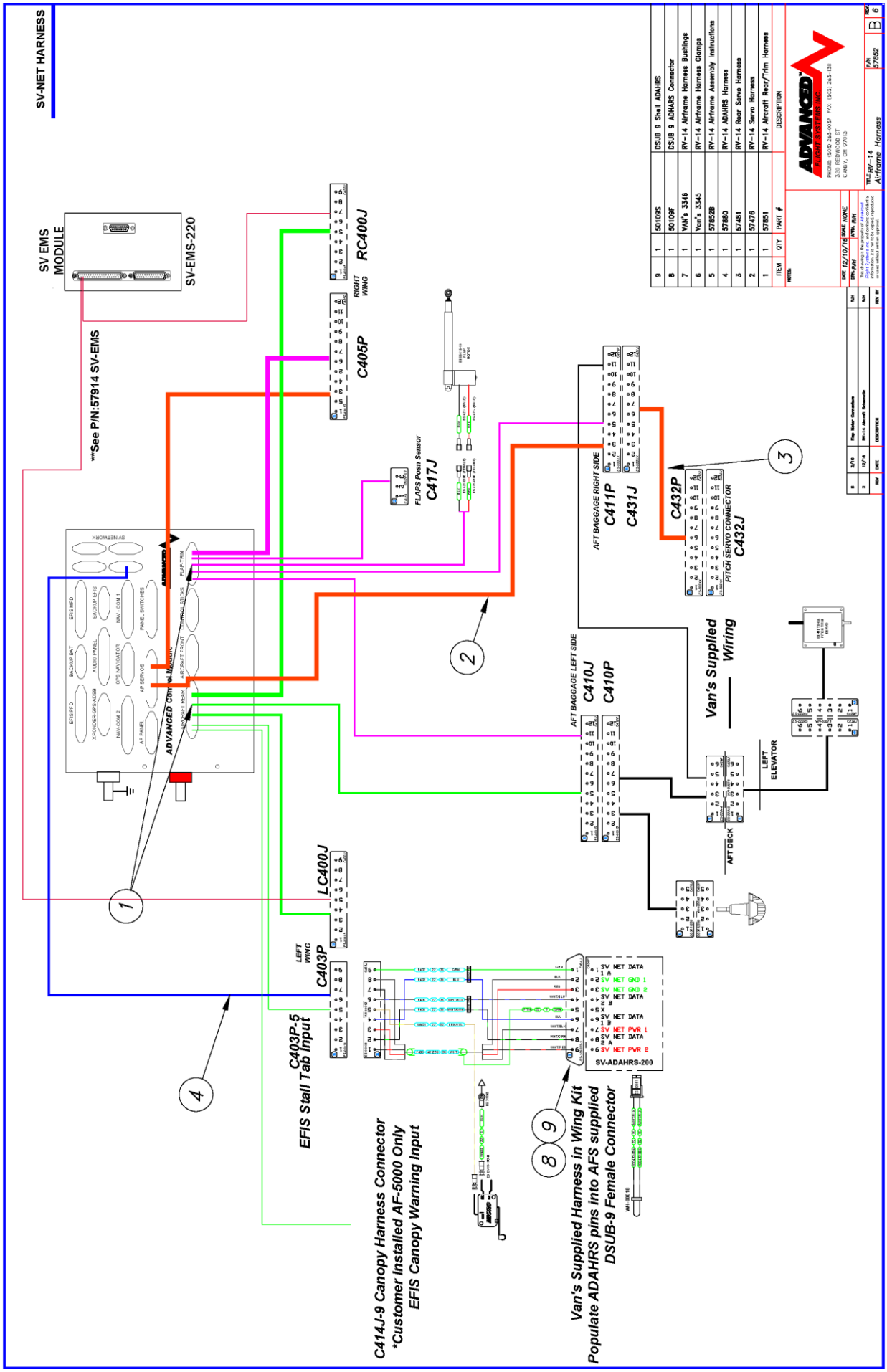
RV-14 Airframe Harnesses (P/N: 57852)

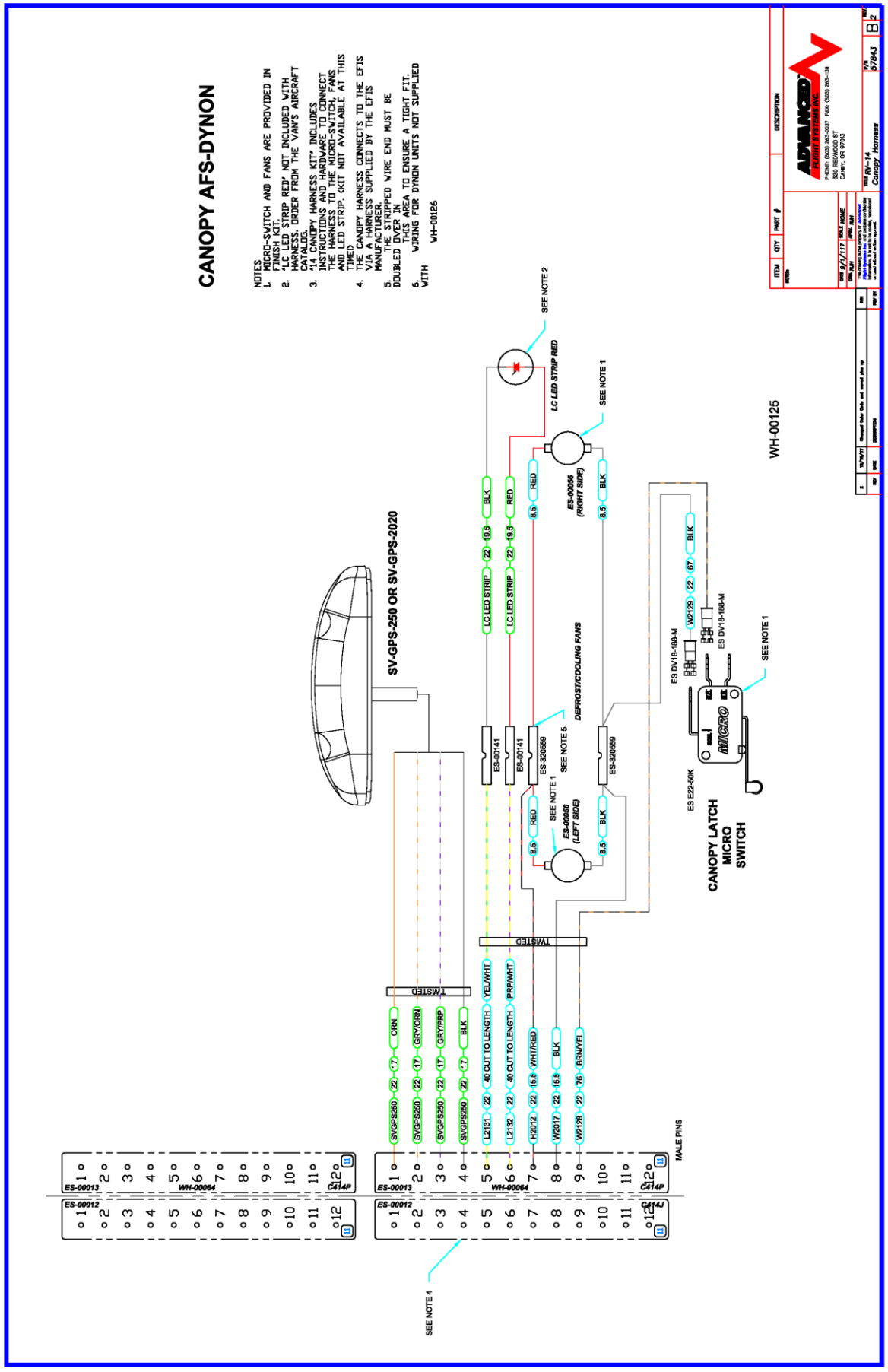
Install the AFS supplied RV-14 airframe harness

Do not purchase or use Van's RV-14 Airframe Harness

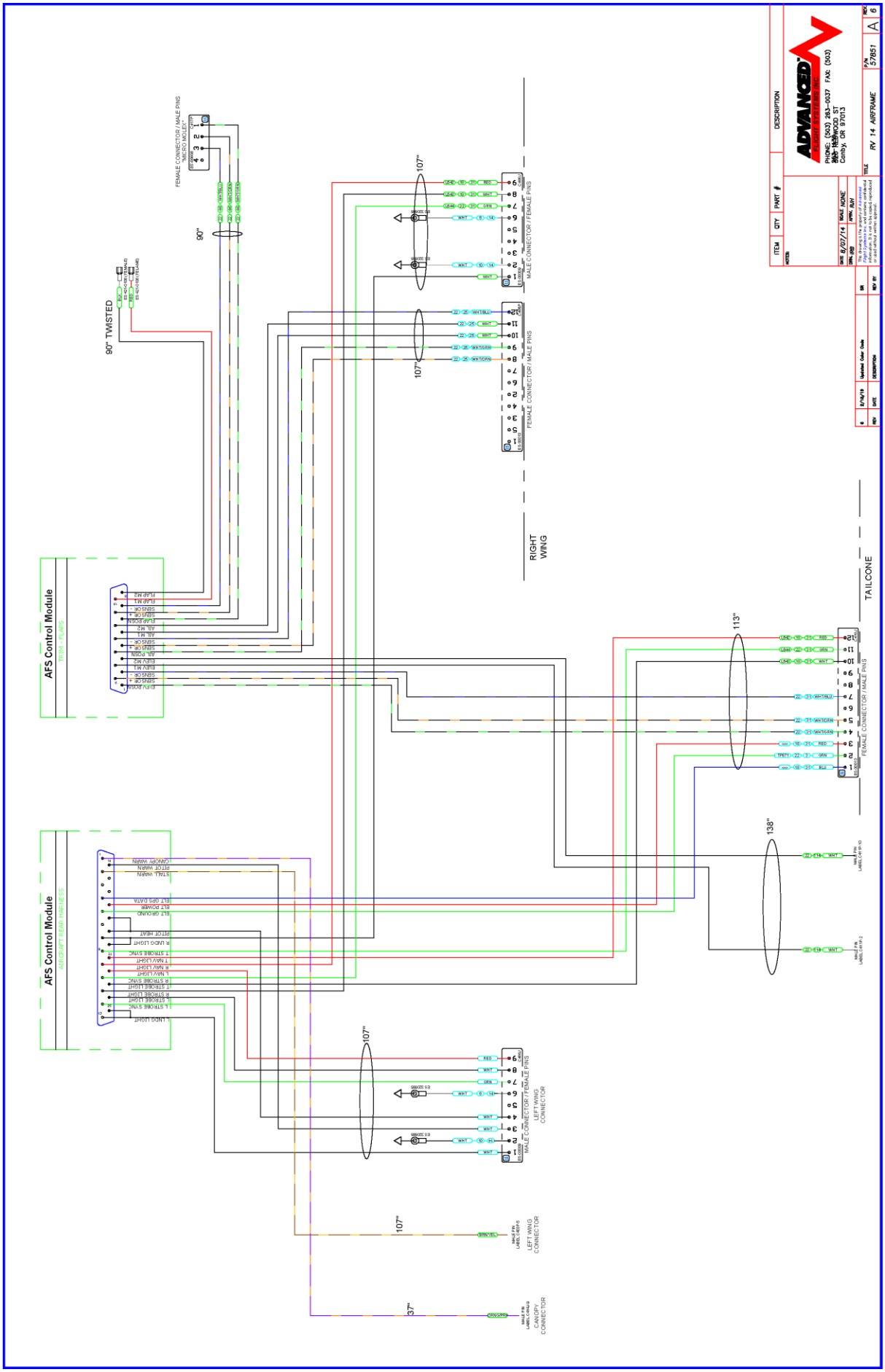
P/N: 57852AFS for AF-5600 install or P/N: 57852HDX for a Skyview HDX install. Start in the middle of the fuselage and work toward the ACM connector end (Aircraft Rear, AP Servo, Flap Trim, ADAHRS SVN-Net) routing the harness using Van's instructions Section 55-02 RV-14 Harness install. You will need to use the supplied Van's airframe harness bushing kit P/N: Van's 3346



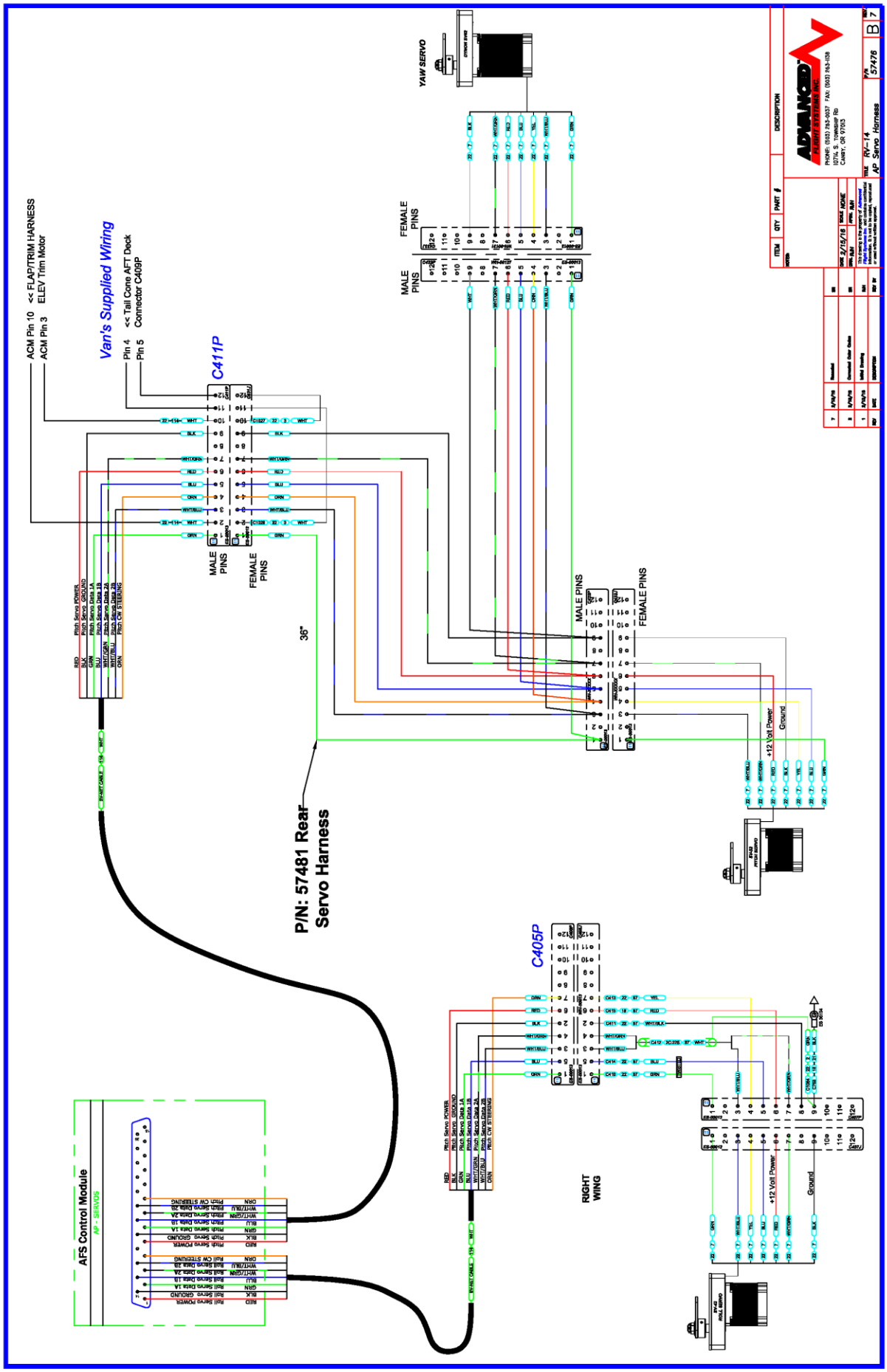

SV-NET HARNESS
SV EMS MODULE
SV-EMS-220
**See P/N:57914 SV-EMS
RC400J
RIGHT WING
C405P
FLAPS Posn Sensor
C417J
AFT BAGGAGE RIGHT SIDE
C411P
C431J
C432P
PITCH SERVO CONNECTOR
C432J
AFT BAGGAGE LEFT SIDE
C410J
C410P
Van's Supplied Wiring
LEFT ELEVATOR
AFT DECK
LC400J
LEFT WING
C403P
C403P-5
EFIS Stall Tab Input
SV-ADAHRS-200
C414J-9 Canopy Harness Connector
*Customer Installed AF-5000 Only
EFIS Canopy Warning Input
Van's Supplied Harness in Wing Kit
Populate ADAHRS pins into AFS supplied
DSUB-9 Female Connector
ADVANCED Flight Systems Inc.
TITLE RV-14 Airframe Harness
P/N 57852

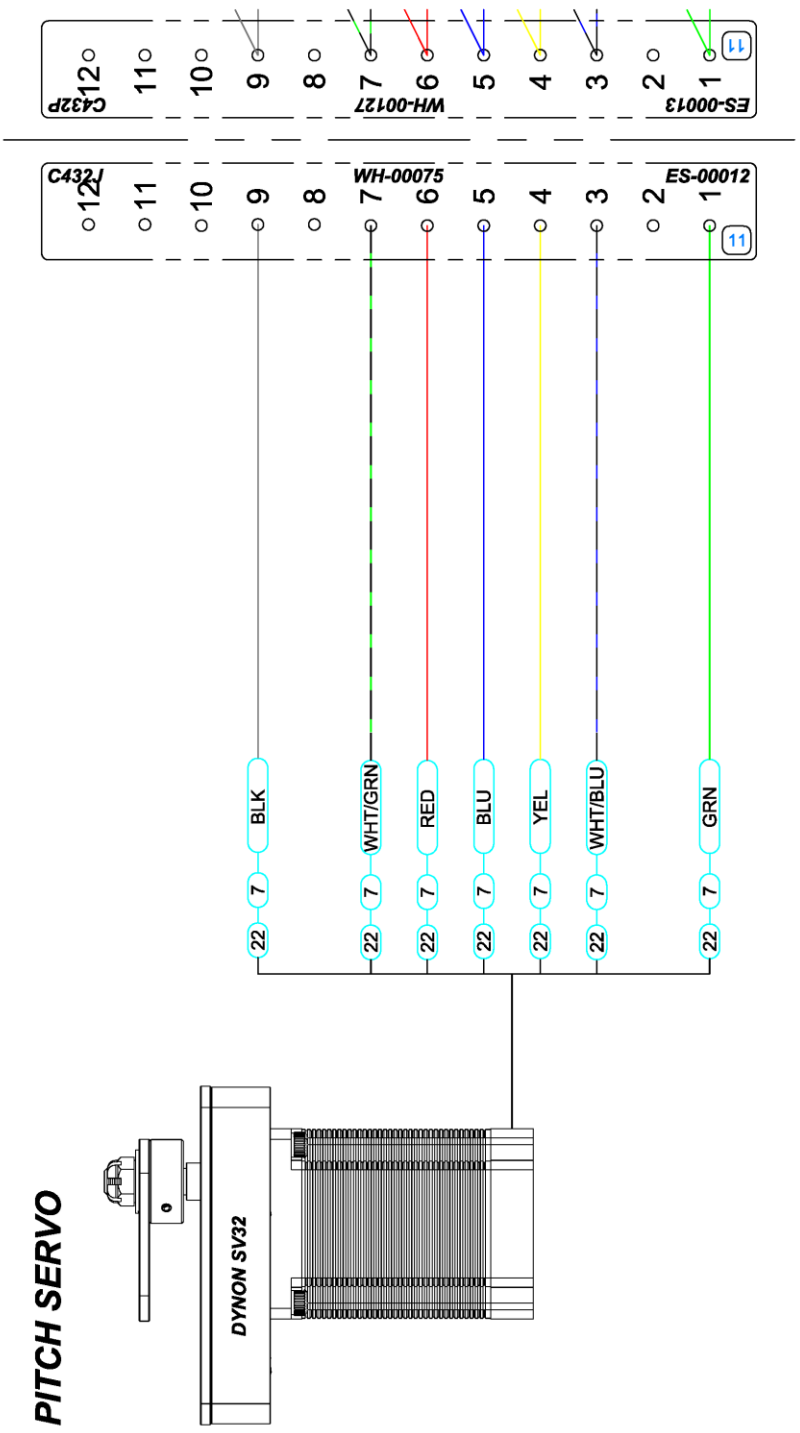

CANOPY AFS-DYNON
NOTES
1. MICRO-SWITCH AND FANS ARE PROVIDED IN FINISH KIT.
2. LC LED STRIP REF' NOT INCLUDED WITH HARNESS. ORDER FROM THE VAN'S AIRCRAFT CATALOG.
3. 'I4 CANOPY HARNESS KIT' INCLUDES INSTRUCTIONS AND HARDWARE TO CONNECT THE HARNESS TO THE MICRO-SWITCH, FANS AND LED STRIP. CKIT NOT AVAILABLE AT THIS TIME)
4. THE CANOPY HARNESS CONNECTS TO THE EFIS VIA A HARNESS SUPPLIED BY THE EFIS MANUFACTURER.
5. THE STRIPPED WIRE END MUST BE DOUBLED OVER IN THIS AREA TO ENSURE A TIGHT FIT.
6. WIRING FOR DYNON UNITS NOT SUPPLIED WITH WH-00126
WH-00125
SV-GPS-250 OR SV-GPS-2020
SEE NOTE 2
LC LED STRIP RED
SEE NOTE 1
ES-00056 (RIGHT SIDE)
LC LED STRIP
ES-00141
ES-320569
SEE NOTE 5
DEFROST/COOLING FANS
ES-00056 (LEFT SIDE)
SEE NOTE 1
ES DV18-188-M
W2129
ES DV18-188-M
SEE NOTE 1
ES 522-50K
CANOPY LATCH MICRO SWITCH
TWISTED
SVGPS250
L2131
L2132
H2012
W2017
W2128
YEL/WHT
PRP/WHT
WHT/RED
BLK
BRN/YEL
ORN
GRY/ORN
GRY/PRP
.40 CUT TO LENGTH
MALE PINS
ES-00013
ES-00012
WH-00064
C414P
SEE NOTE 4
ADVANCED FLIGHT SYSTEMS INC.
320 REDWOOD ST
CAMP, OR 97303
TITLE RV-14 Canopy Harness
P/N 57843
B2

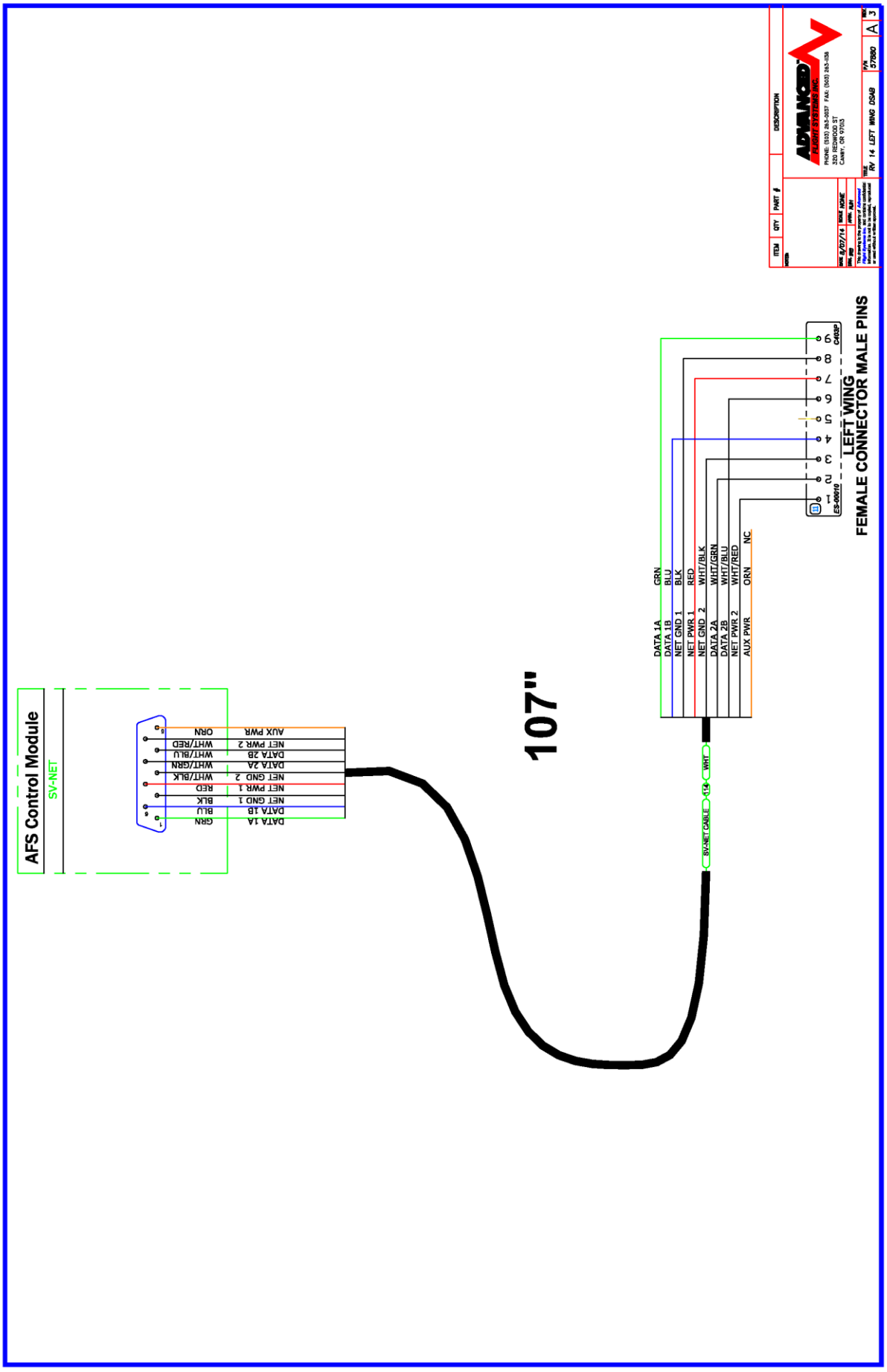
57851 RV-14 Aircraft Rear / Trim Harness

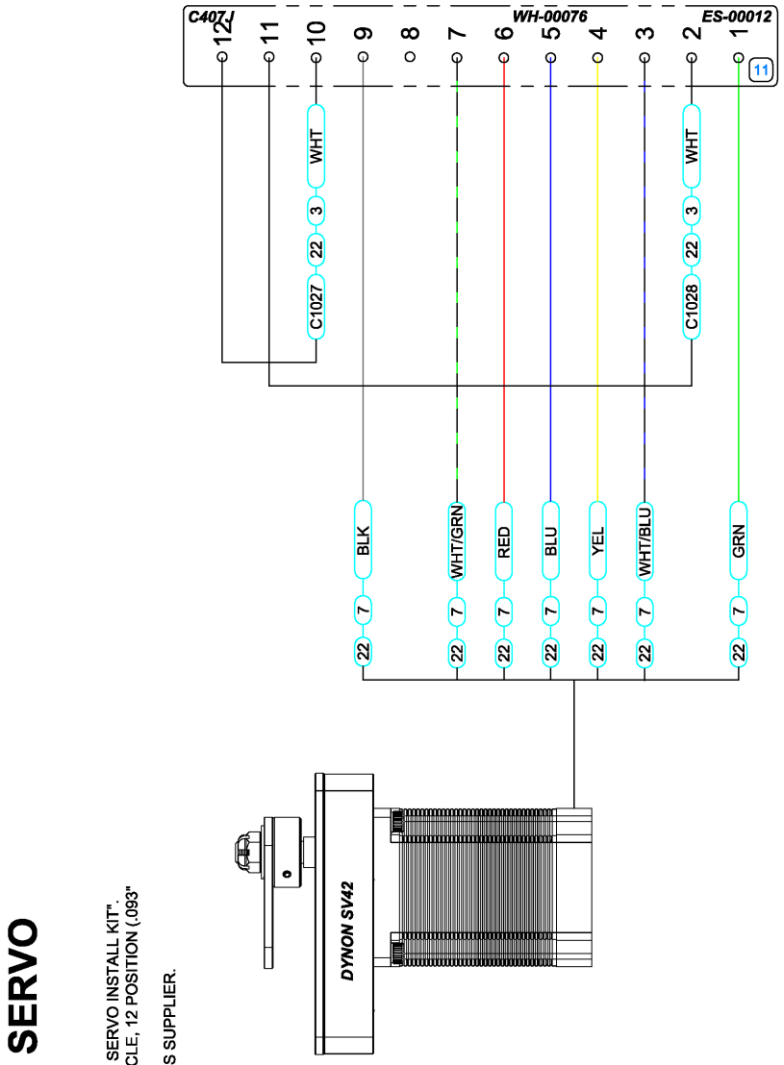


57476 RV-14 Servo Harness




C432P
ES-00013
WH-00127
C432J
ES-00012
WH-00075
BLK
WHT/GRN
RED
BLU
YEL
WHT/BLU
GRN
22
7
PITCH SERVO
DYNON SV32


AFS Control Module
SV-NET
DATA 1A
DATA 1B
NET GND 1
NET PWR 1
NET GND 2
DATA 2A
DATA 2B
NET PWR 2
AUX PWR
GRN
BLU
BLK
RED
WHT/BLK
WHT/GRN
WHT/BLU
WHT/RED
ORN
107"
SV-NET CABLE
C402
WHT
C402P
E3-00010
LEFT WING
FEMALE CONNECTOR MALE PINS
1
2
3
4
5
6
7
8
9
NC
ITEM
QTY
PART #
DESCRIPTION
ADVANCED FLIGHT SYSTEMS INC.
RV 14 LEFT WING DSAB
57880
A
3



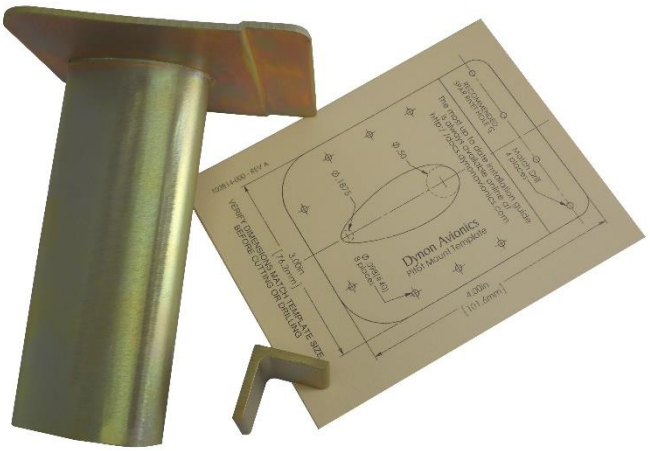
DYNON/AFS ROLL SERVO

NOTES
1. MOLEX PINS PROVIDED IN "14 SV AFS AP SERVO INSTALL KIT".
2. CONNECTOR ES-00012 MOLEX RECEPTACLE, 12 POSITION (.093" SOCKETS) SUPPLIED IN THE WING KIT.
3. PURCHASE SERVO FROM YOUR AVIONICS SUPPLIER.

RV-14 Heated Pitot Tube

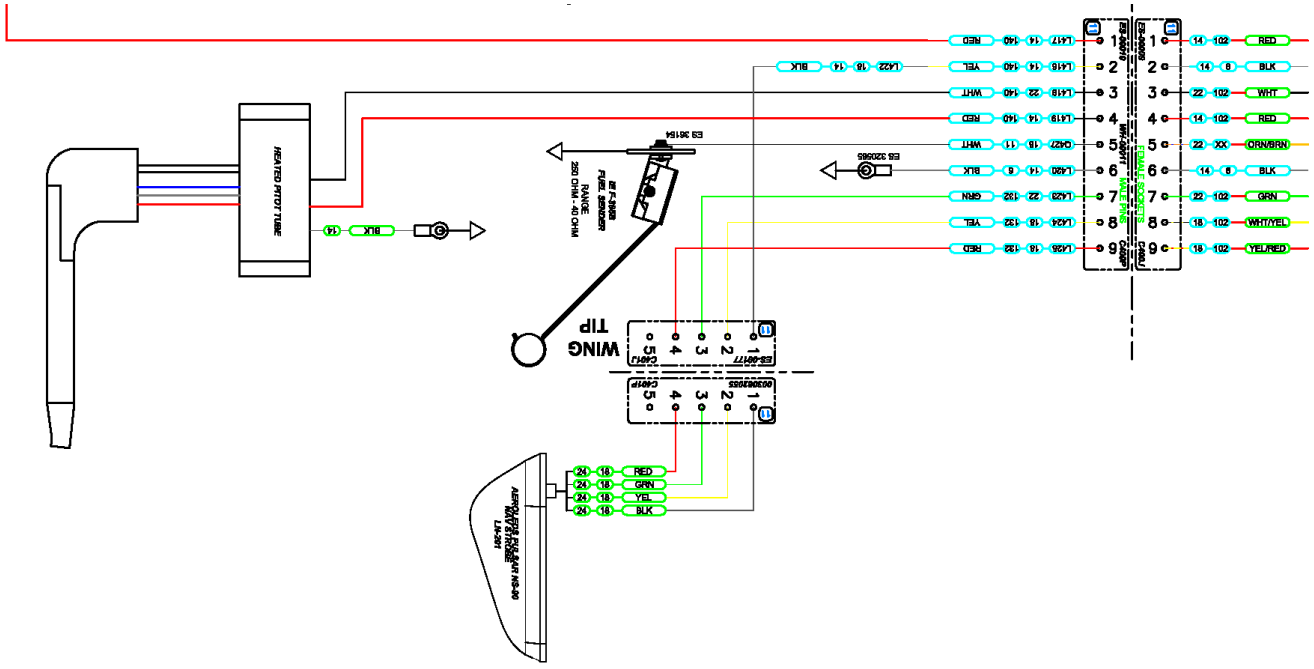
The Dynon heated pitot tube is mounted in the left wing using the Dynon Pitot Mast P/N: 102813-000

- Mount the controller box to one of the wing ribs near the pitot tube mounting location.



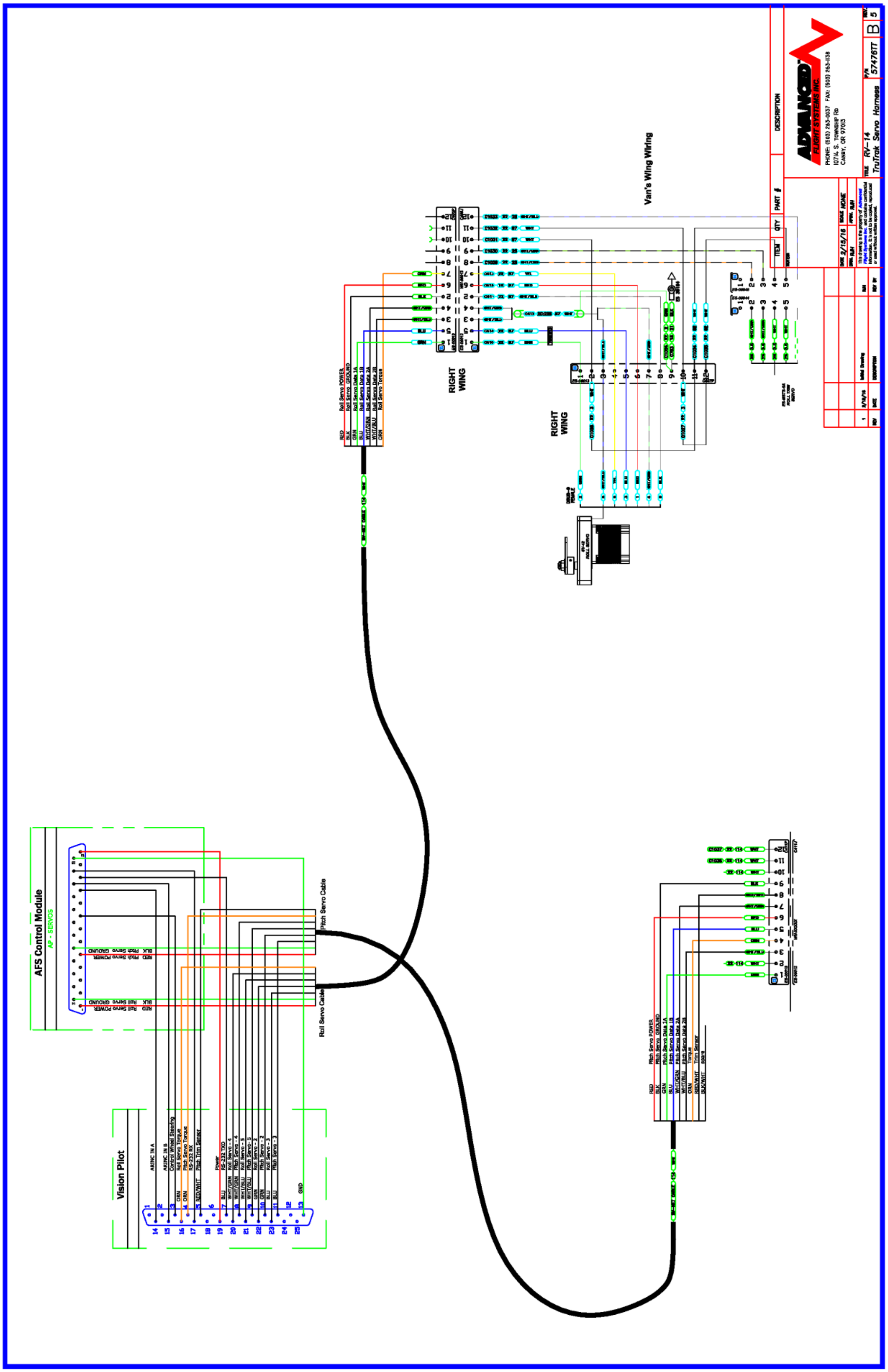
- Extend the Pitot Tube controller wires and connect to the Left Wing C400P Molex connector using the following:

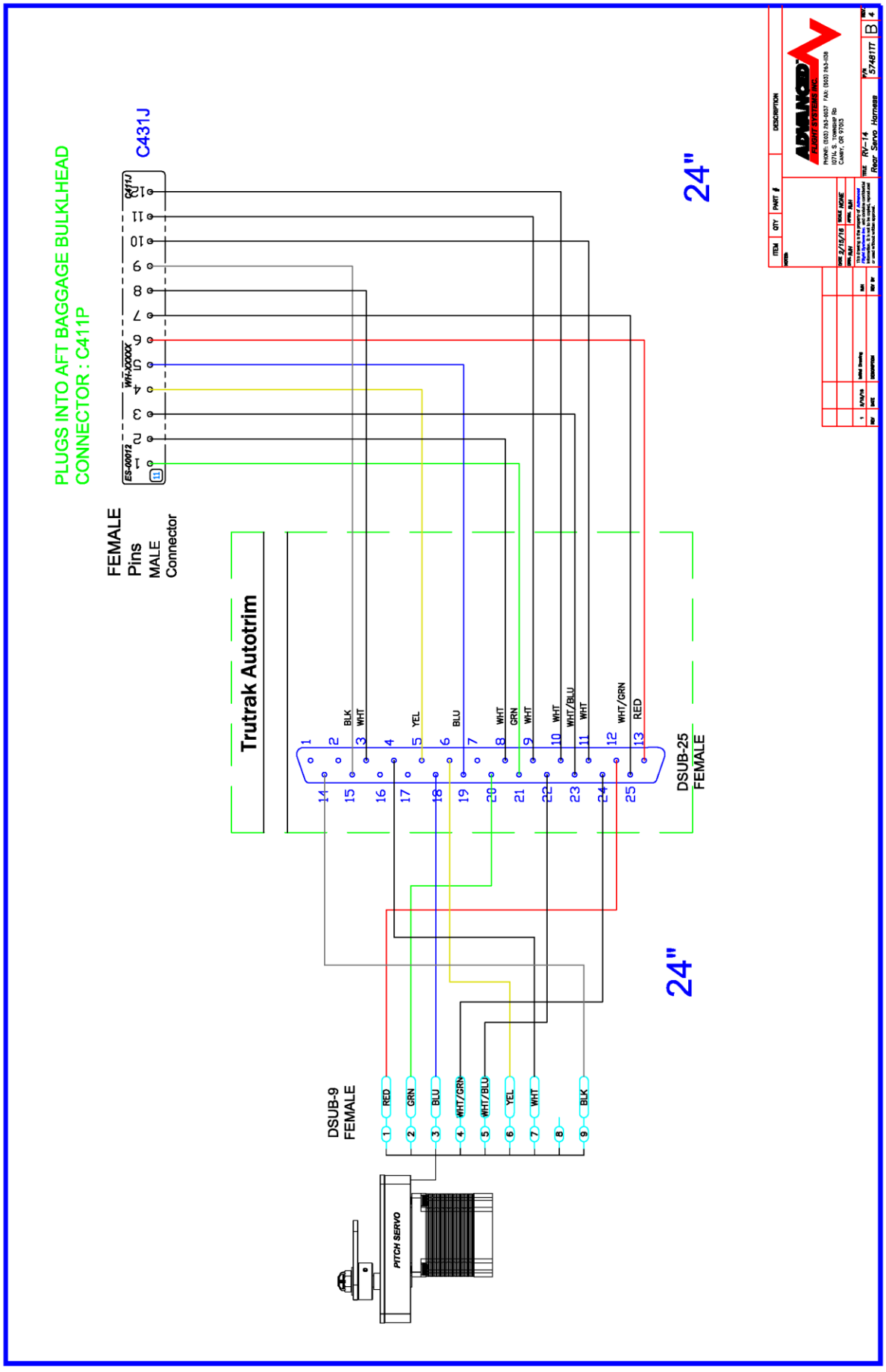
Pitot Controller	Description	Wire Size	C400P Male Pin
Red	+12V Power	#14	4
Black	Ground	#14	Locally grounded using ring terminal
White	Signal	#22	3

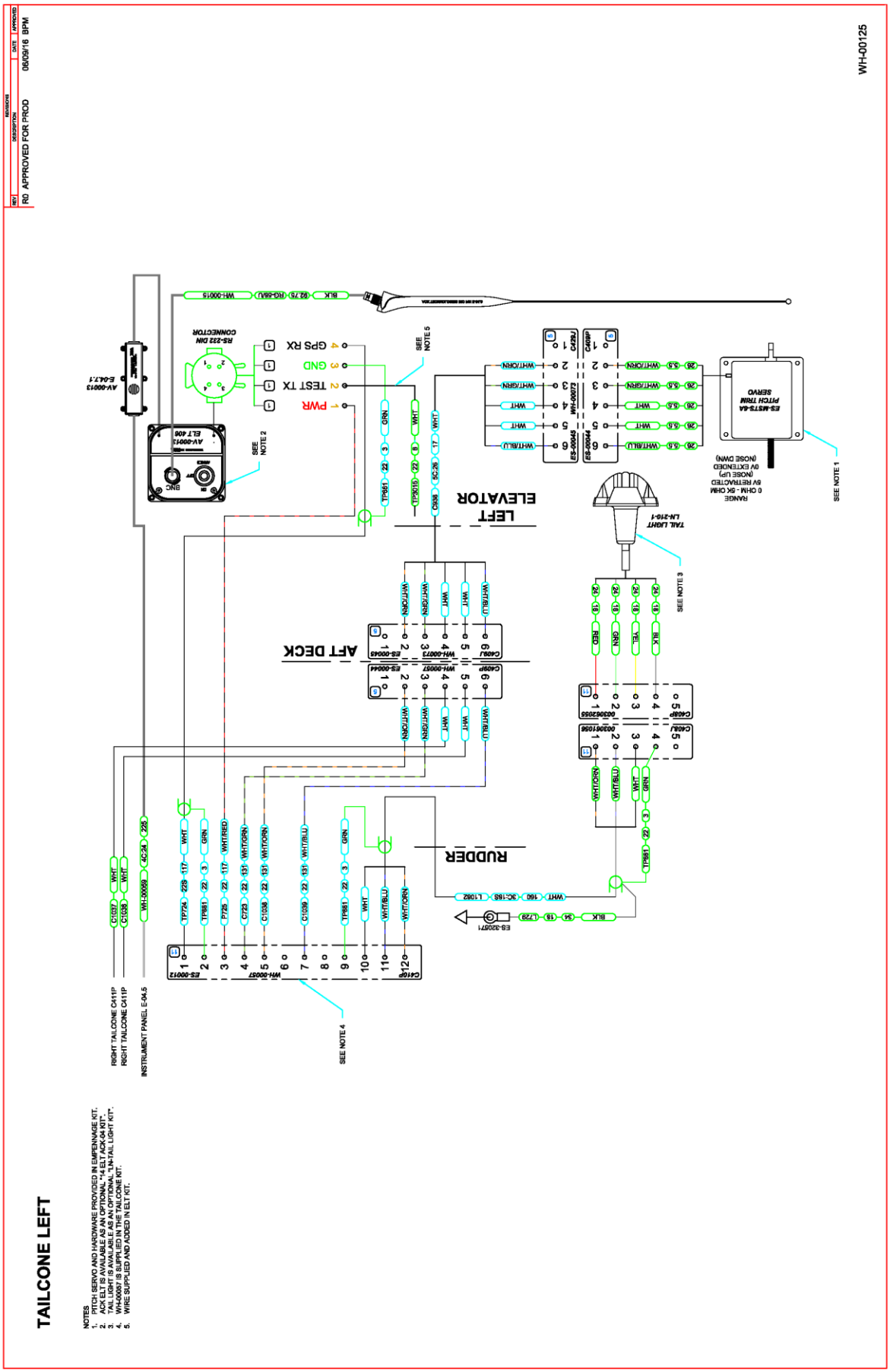


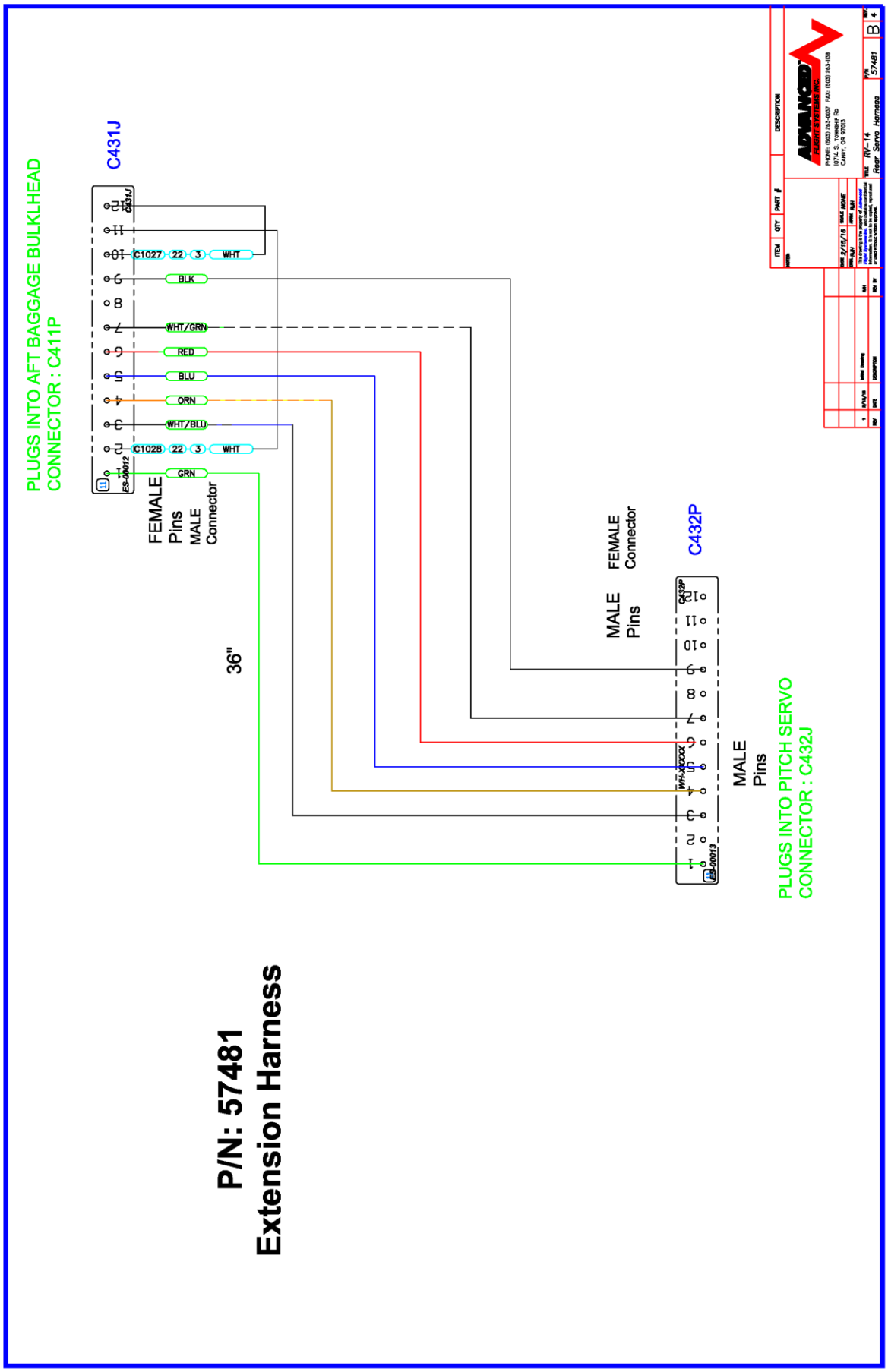
The Pitot line and AOA line should be connected to the Dynon ADAHRS using the Dynon Pitot/Static Plumbing Kit P/N: 102628-000

RV-14 Optional TruTrak Autopilot Wiring



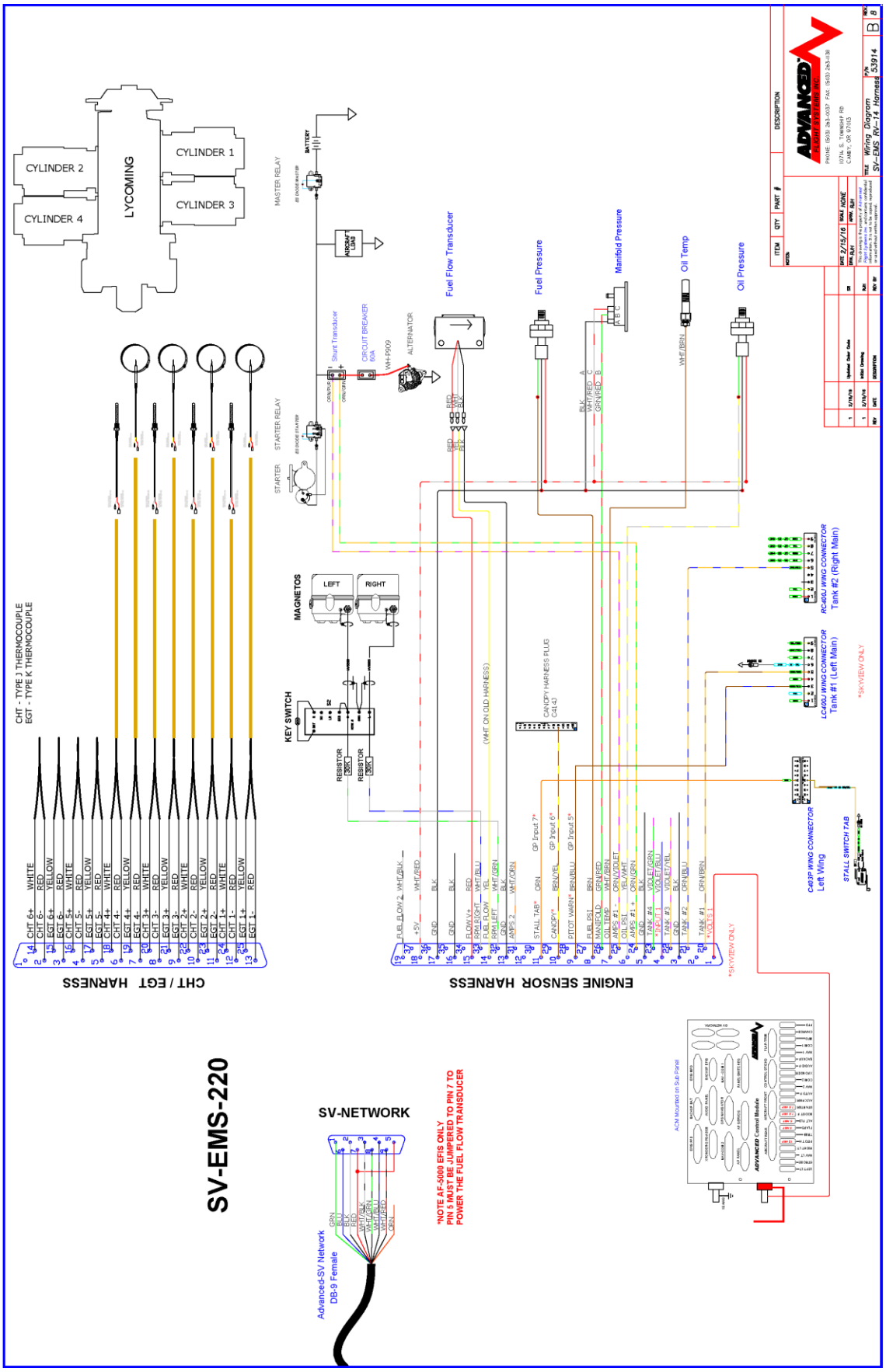

PLUGS INTO AFT BAGGAGE BULKHEAD
CONNECTOR : C411P
C431J
FEMALE
Pins
MALE
Connector
Trutrak Autotrim
DSUB-25
FEMALE
DSUB-9
FEMALE
24"
24"
PITCH SERVO
RED
GRN
BLU
WHT/GRN
WHT/BLU
YEL
WHT
BLK
RED
BLK
WHT
YEL
BLU
WHT
GRN
WHT
WHT
WHT/BLU
WHT
WHT/GRN
RED
RV-14
Rear Servo Harness
5748111


WIH-00125
R0 APPROVED FOR PROD
06/09/16 BPM
TAILCONE LEFT
NOTES
1. PITCH SERVO AND HARDWARE PROVIDED IN EMPENNAGE KIT.
2. ACK ELT IS AVAILABLE AS AN OPTIONAL "14 ELT ACK-04 KIT".
3. TAIL LIGHT IS AVAILABLE AS AN OPTIONAL "LN-TAIL LIGHT KIT".
4. WIRING IS SHOWN FOR THE "LEFT TAILCONE KIT".
5. WIRE SUPPLIED AND ADDED IN ELT KIT.
LEFT ELEVATOR
AFT DECK
RUDDER
GPS RX
GND
TEST TX
PWR
TAIL LIGHT
PITCH TRIM SERVO
INSTRUMENT PANEL E-04.5
RIGHT TAILCONE C411P
SEE NOTE 1
SEE NOTE 2
SEE NOTE 3
SEE NOTE 4
SEE NOTE 5

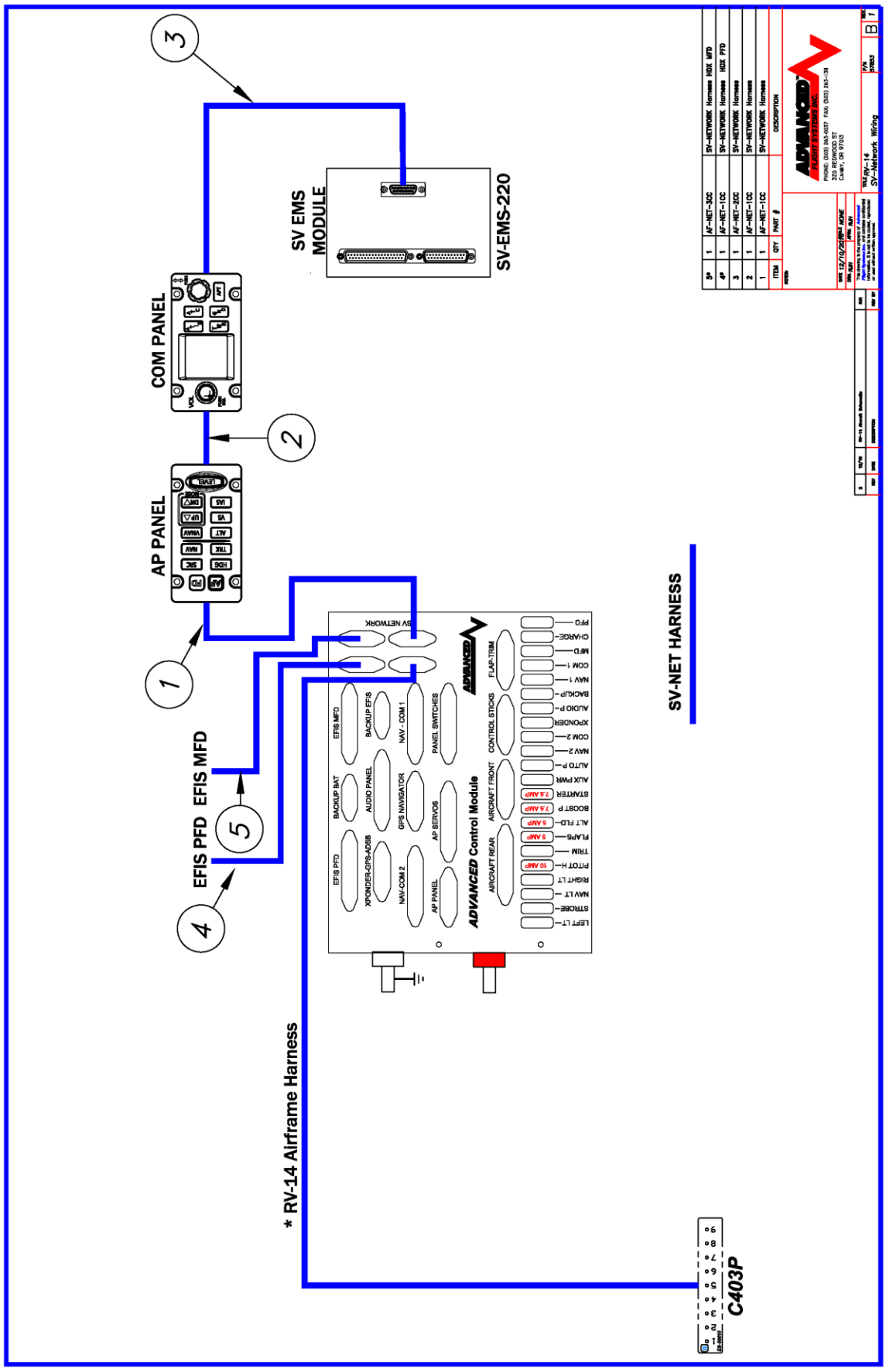

PLUGS INTO AFT BAGGAGE BULKHEAD
CONNECTOR : C411P
C431J
C1027 22 3 WHT
BLK
WHT/GRN
RED
BLU
ORN
WHT/BLU
C1028 22 3 WHT
GRN
FEMALE
Pins
MALE
Connector
36"
MALE
Pins
FEMALE
Connector
C432P
PLUGS INTO PITCH SERVO
CONNECTOR : C432J
P/N: 57481
Extension Harness

RV-14 EMS-220 Harness Install (P/N: 53914)

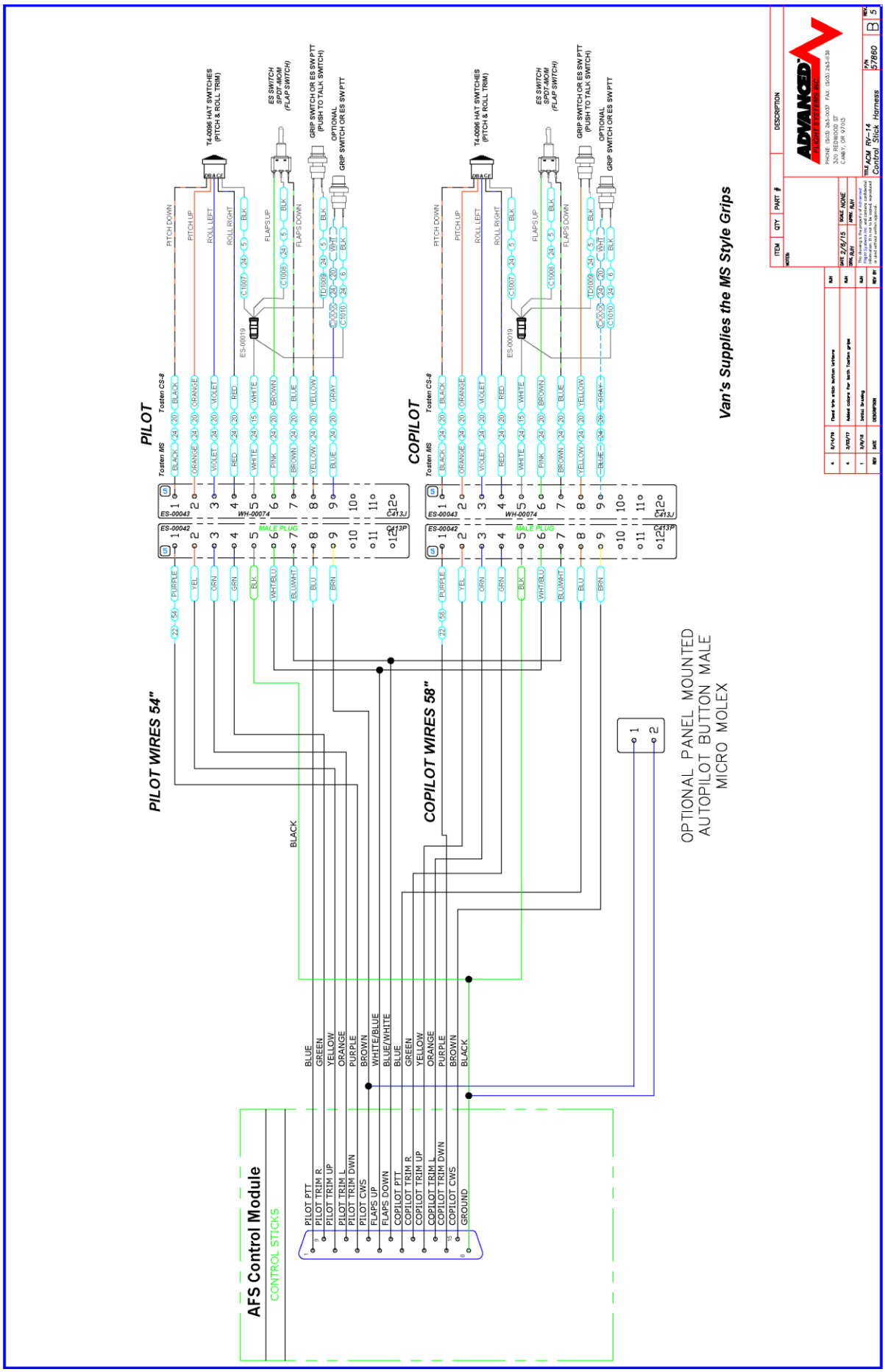
If you are installing a Skyview EFIS you will need to wire the SV-EMS input pins (9,10,11) to the RV-14 airframe harness near the ACM connectors. An AF-5600 system uses the EFIS inputs for (Canopy, Stall Tab, and Pitot Heat warning).



RV-14 SV-Network Wiring (P/N: 57853)

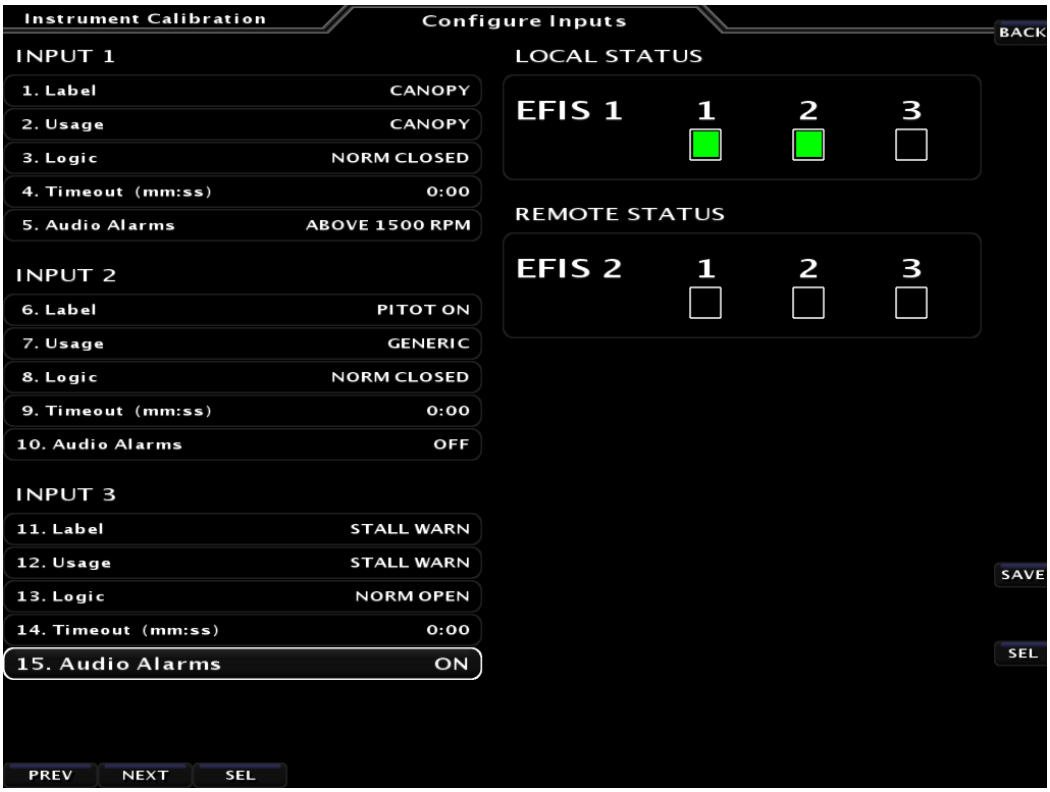


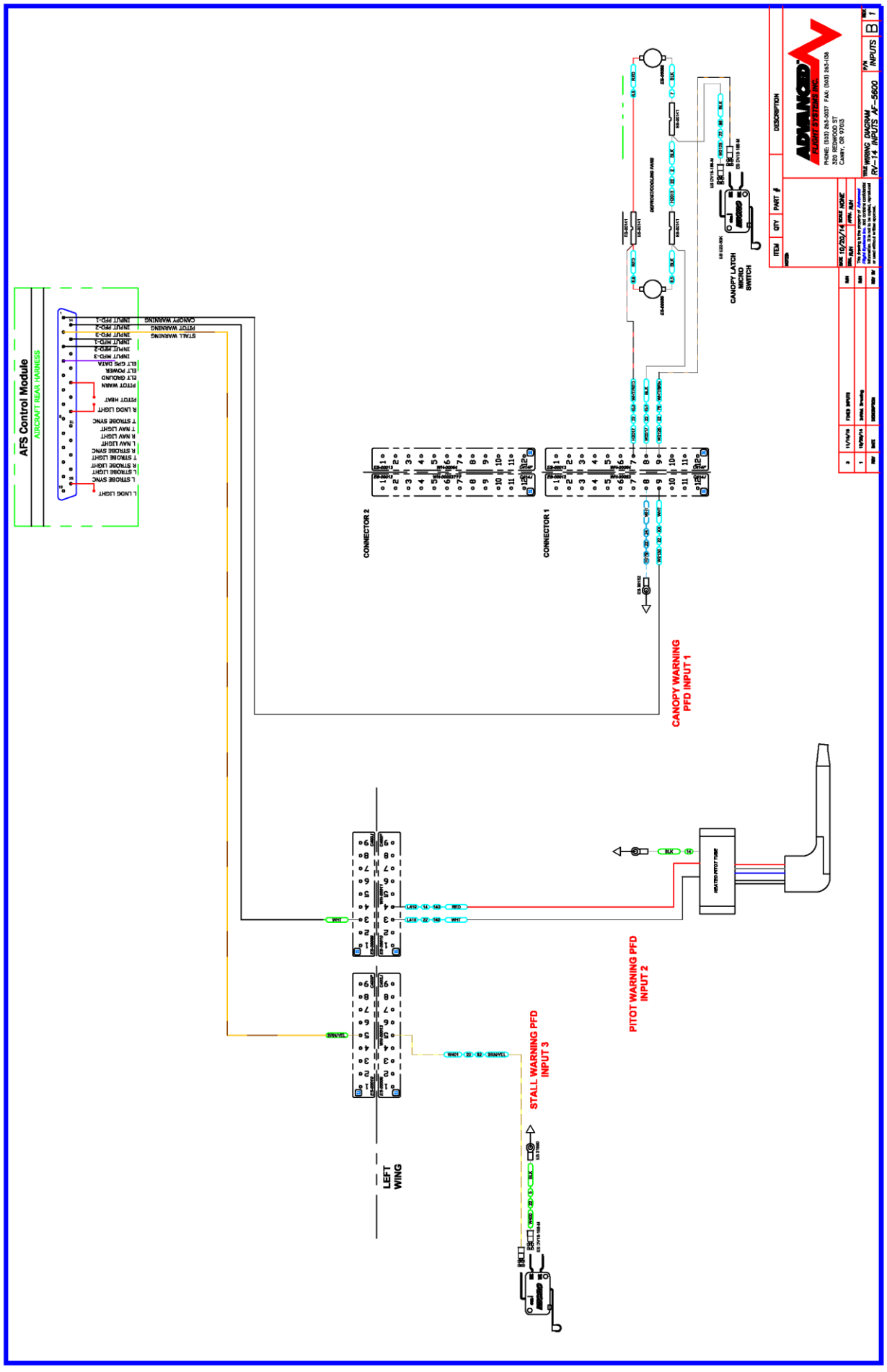
RV-14 Control Stick Wiring (P/N: 57860)



RV-14 Input Wiring and Configuration (AF-5000)

The RV-14 uses the EFIS PFD inputs to monitor the Canopy Latch, Pitot Heat and wing mounted stall tab. The inputs are wired to the ACM aircraft rear harness and can be tested in the EFIS PFD Configure Inputs page in calibration.



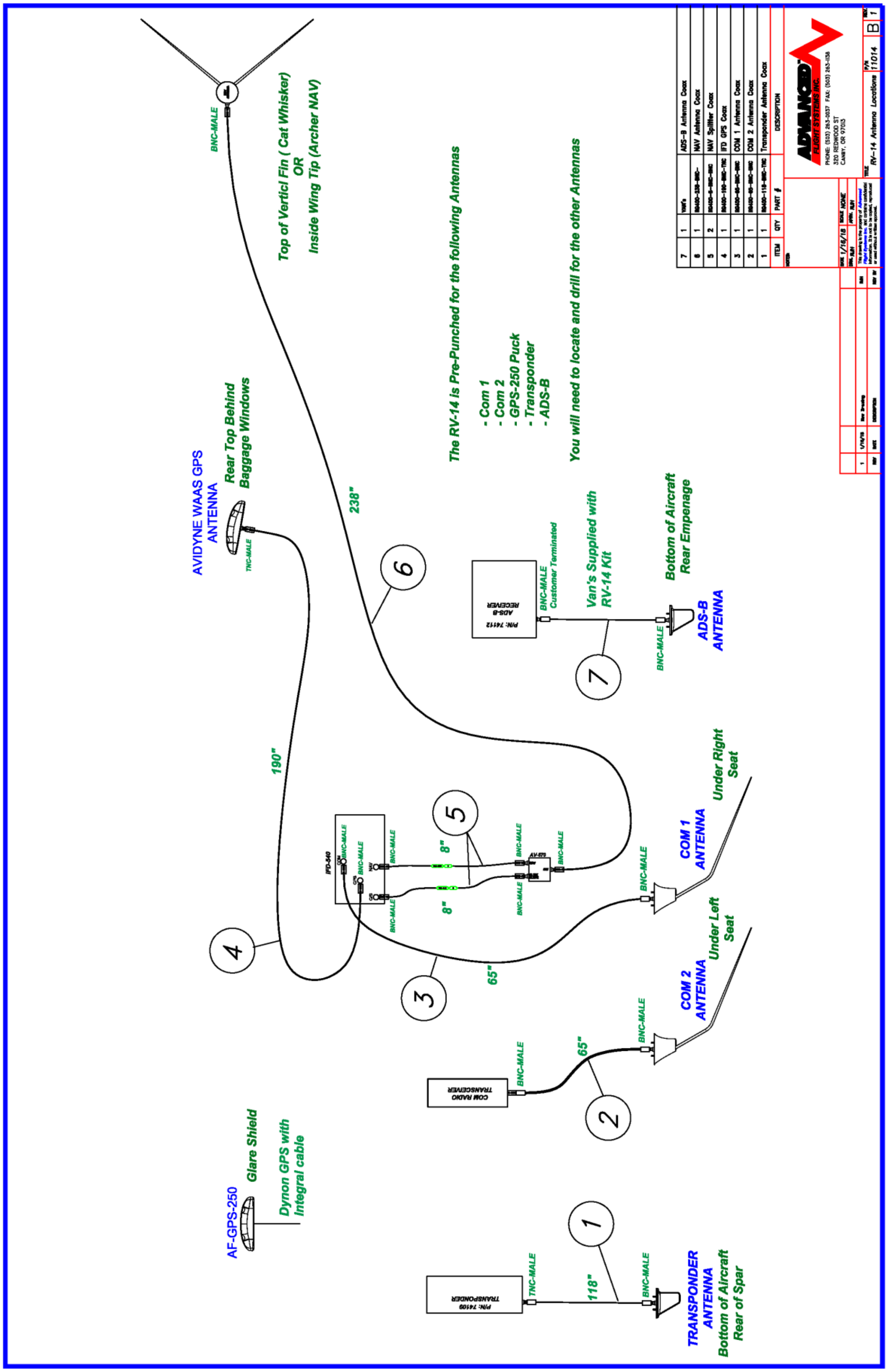

AFS Control Module
AIRCRAFT REAR HARNESS
CANOPY WARNING
PITOT WARNING
STALL WARNING
CONNECTOR 2
CONNECTOR 1
CANOPY LATCH MICRO SWITCH
CANOPY WARNING PFD INPUT 1
PITOT WARNING PFD INPUT 2
STALL WARNING PFD INPUT 3
LEFT WING
ADVANCED FLIGHT SYSTEMS INC.
RV-14 INPUTS AF-5600
INPUTS

RV-14 Input Wiring and Configuration (Skyview)

The Skyview EFIS inputs cannot be used to monitor the Canopy, Pitot Heat or Stall Tab so you will need to connect the inputs from the RV-14 airframe harness to the SV-EMS harness. The RV-14 airframe harness should have three labeled wires to connect to the same color wires in the SV-EMS harness.

Function	Pin	Color	Input #	RV-14 Connector	Pin
Canopy Latch	10	Brown/Yellow	GP6	C414J	9
Stall Tab	11	Orange	GP7	C403P	5
Pitot Warning	9	Brown/Blue	GP5	LC400J	3

Using the Skyview Inputs Configuration menu you will need to configure the inputs

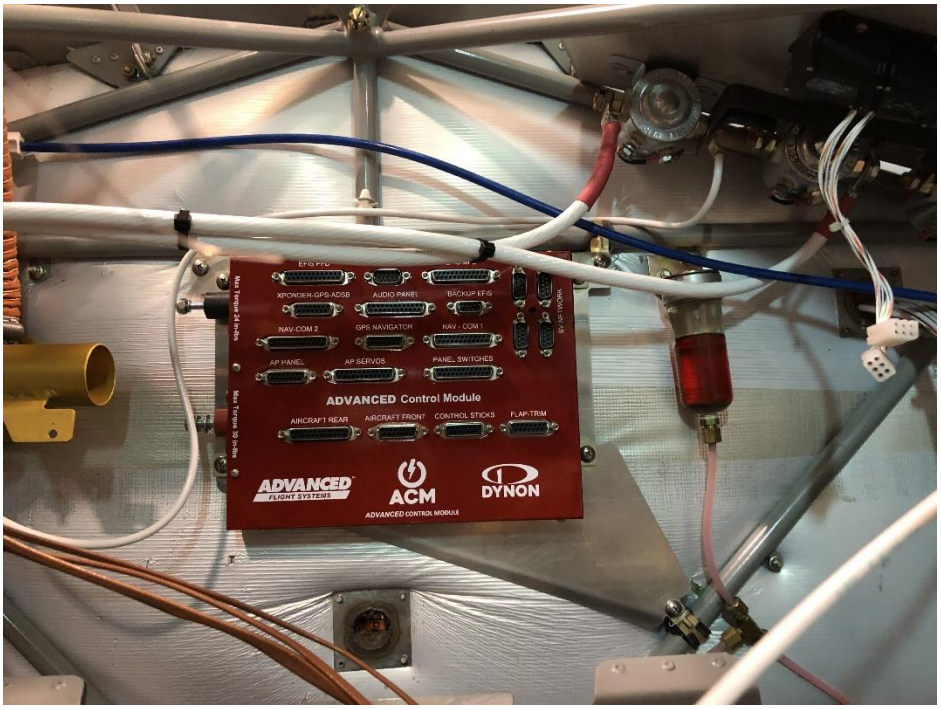


Top of Verticl Fin (Cat Whisker)
OR
Inside Wing Tip (Archer NAV)
BNC-MALE
The RV-14 is Pre-Punched for the following Antennas
- Com 1
- Com 2
- GPS-250 Puck
- Transponder
- ADS-B
You will need to locate and drill for the other Antennas
AVIDYNE WAAS GPS ANTENNA
Rear Top Behind Baggage Windows
TNC-MALE
238"
190"
BNC-MALE
Customer Terminated
Van's Supplied with RV-14 Kit
Bottom of Aircraft Rear Empenage
ADS-B ANTENNA
ADS-B RECEIVER
P/N: 74112
Under Right Seat
COM 1 ANTENNA
Under Left Seat
COM 2 ANTENNA
IFD-540
AV-875
8"
65"
COM RADIO TRANSCEIVER
AF-GPS-250
Glare Shield
Dynon GPS with Integral cable
TNC-MALE
118"
TRANSPONDER
P/N: 74109
TRANSPONDER ANTENNA
Bottom of Aircraft
Rear of Spar
ADS-B Antenna Coax
NAV Antenna Coax
NAV Splitter Coax
IFD GPS Coax
COM 1 Antenna Coax
COM 2 Antenna Coax
Transponder Antenna Coax
ITEM
QTY
PART #
DESCRIPTION
RV-14 Antenna Locations
11014

Sportsman Remote Component Mounting

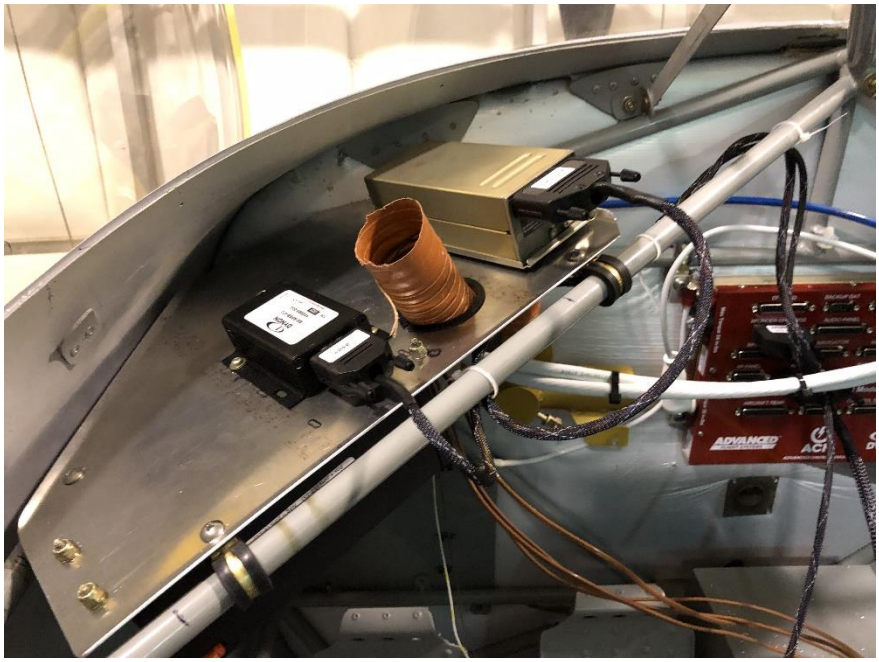
ACM-ECB

The ACM-ECB module should be mounted to the forward fuselage weldment with three cushioned Adel mounting clamps using the supplied ACM mounting plate. Locate the module so that the clamps connect to the weldment bars.



ADSB-472, Transponder, TCW Backup Battery

The Transponder and ADS-B receiver should mount on the top of the left front plate. The TCW backup battery mounts on the bottom side of the plate. You can see the TCW Battery mounting nuts in this view, located the components as to not interfere with components on the other side of the plate.

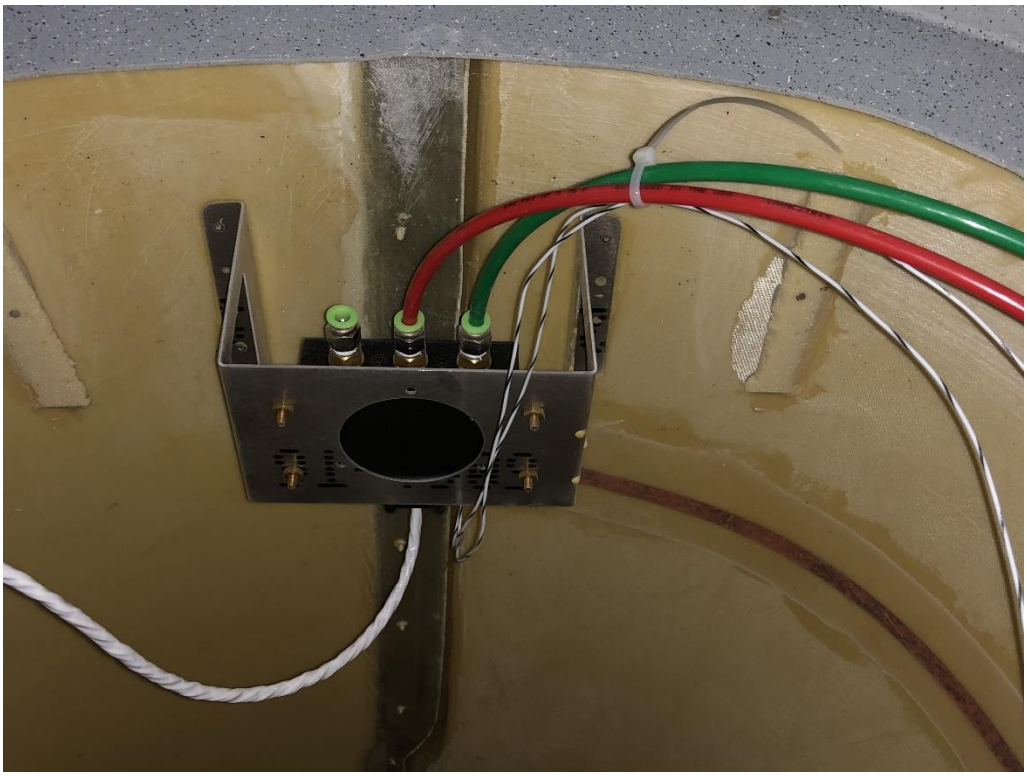


SV-EMS

Mount the SV-EMS module on the right forward fuselage mounting plate. The master and starter relays are normally mounted on the bottom of this plate.

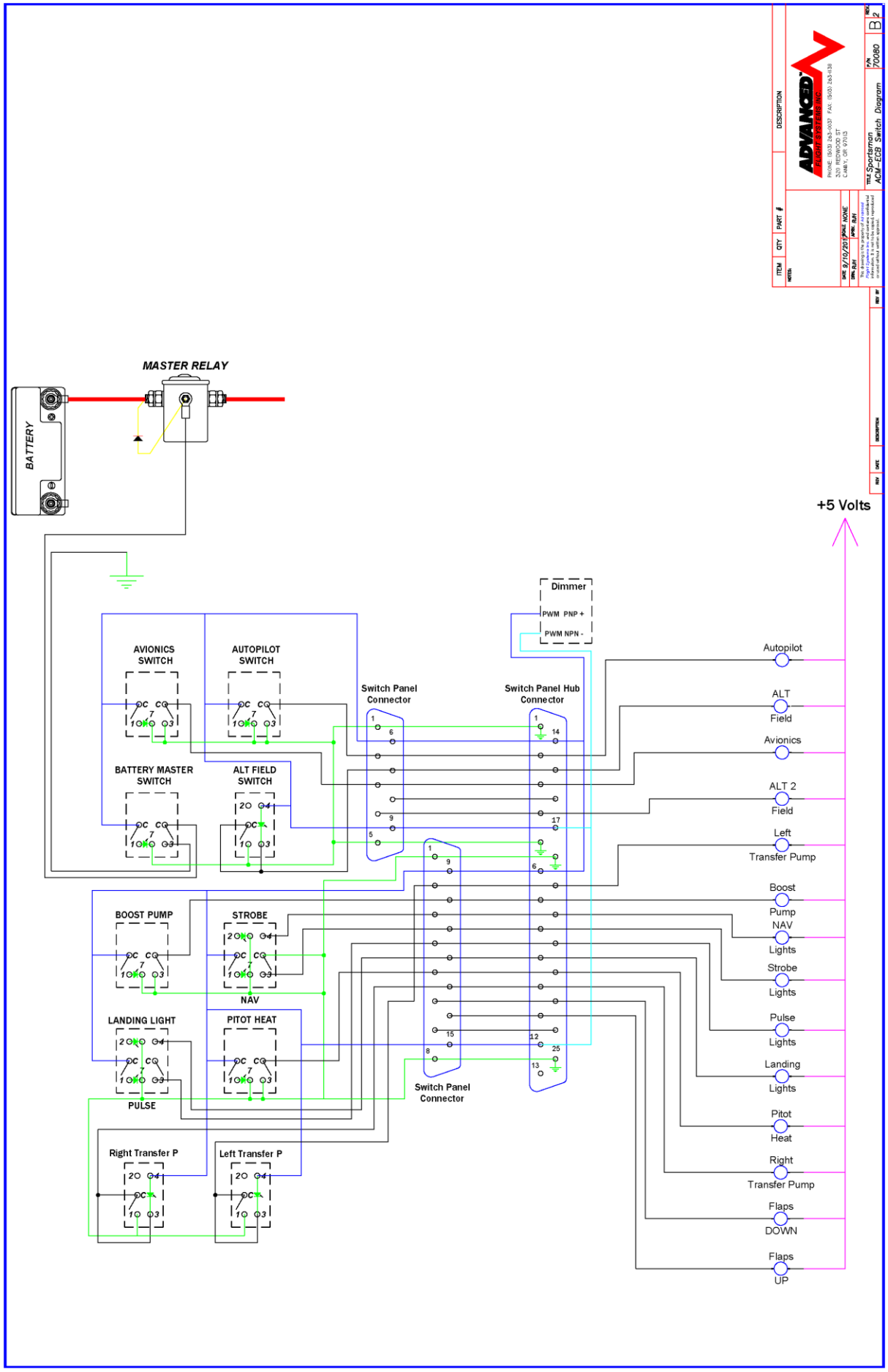
SV-ADAHRS-200/201

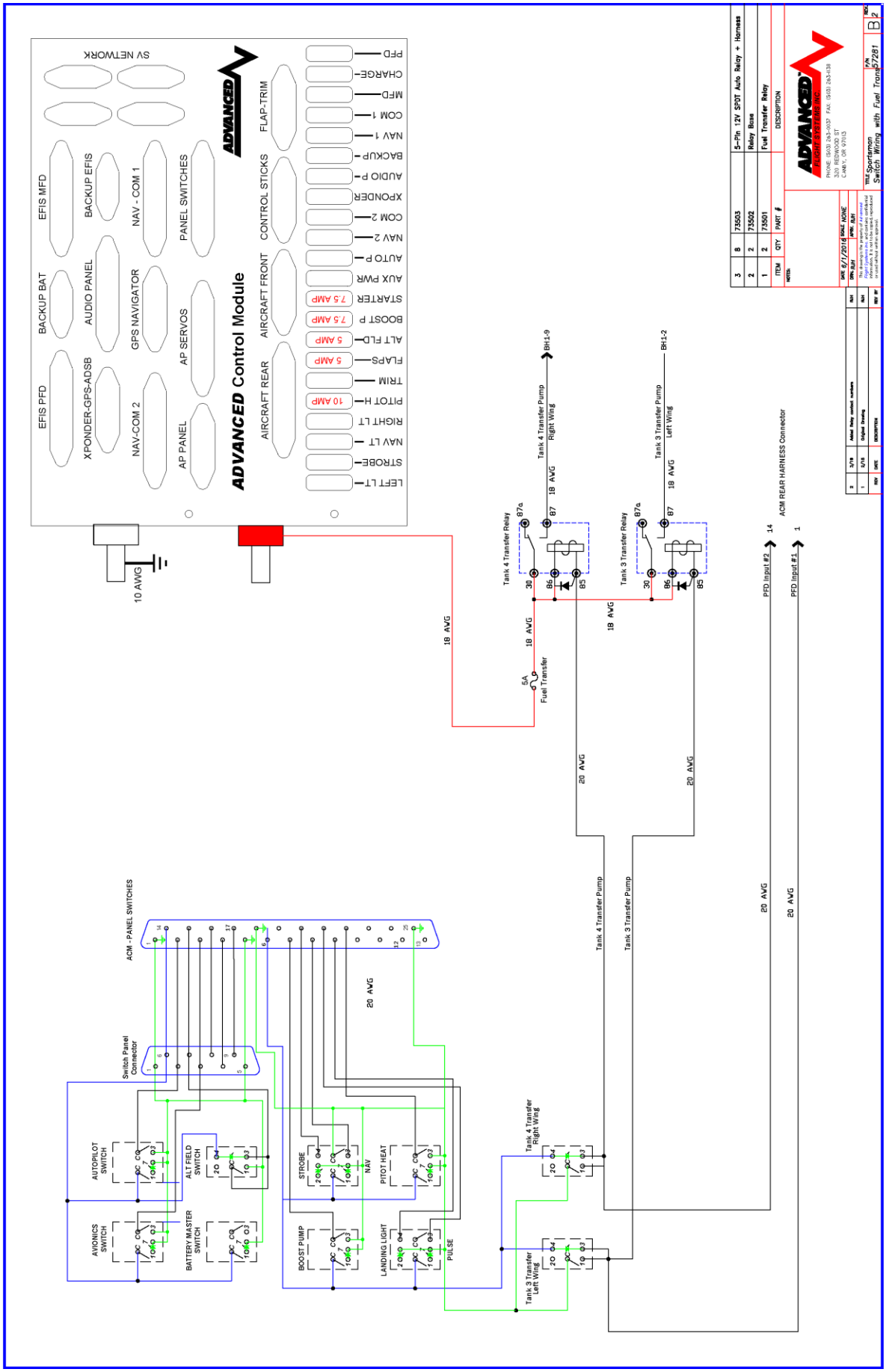
The SV-ADAHRS are mounted on the top of the rear fuselage skin using the Glasair supplied ADAHRS mounting bracket. Carefully drill ***only through the inner layer of fiberglass*** and use pop rivets and epoxy resin to attach the bracket.

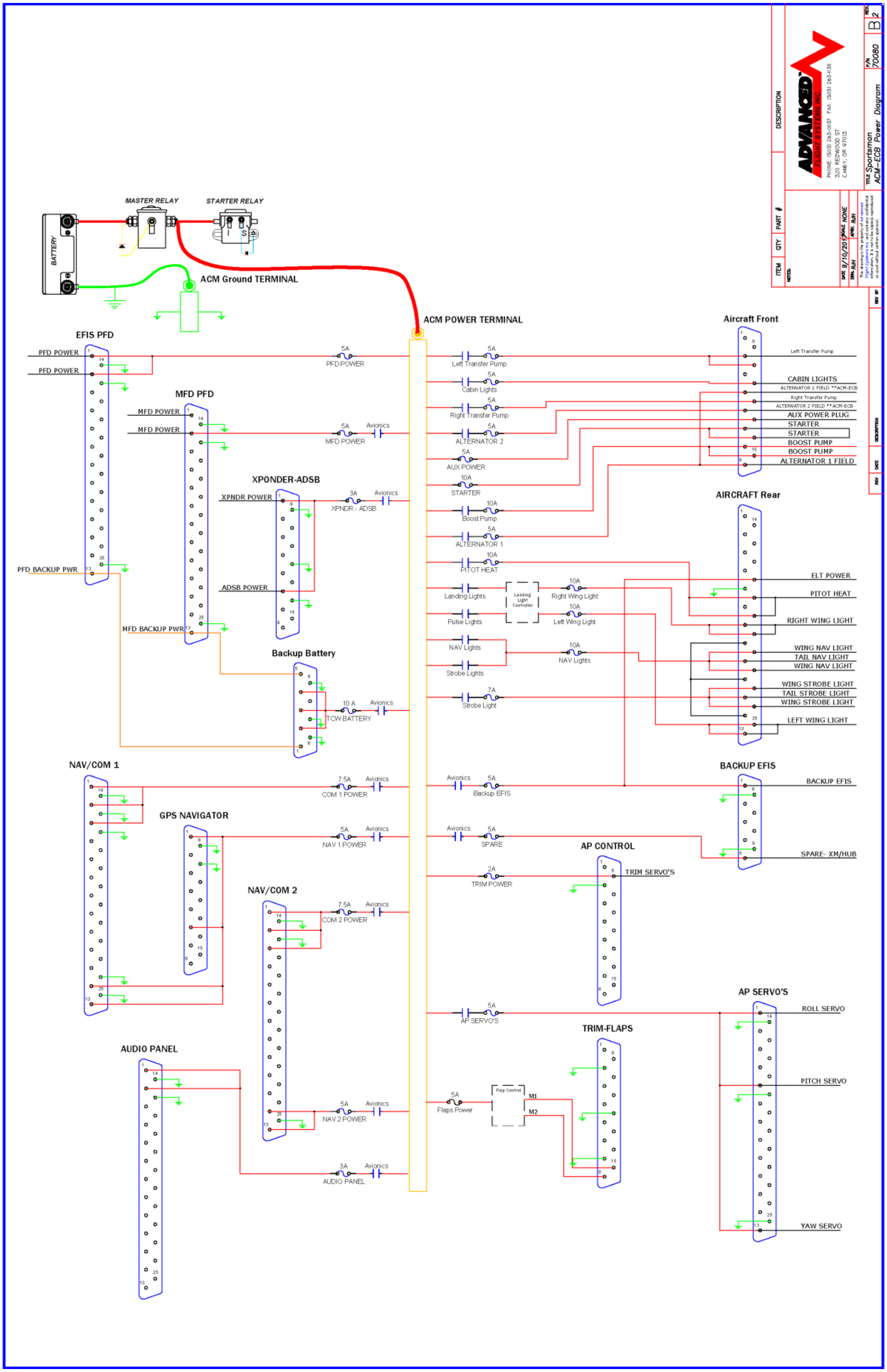


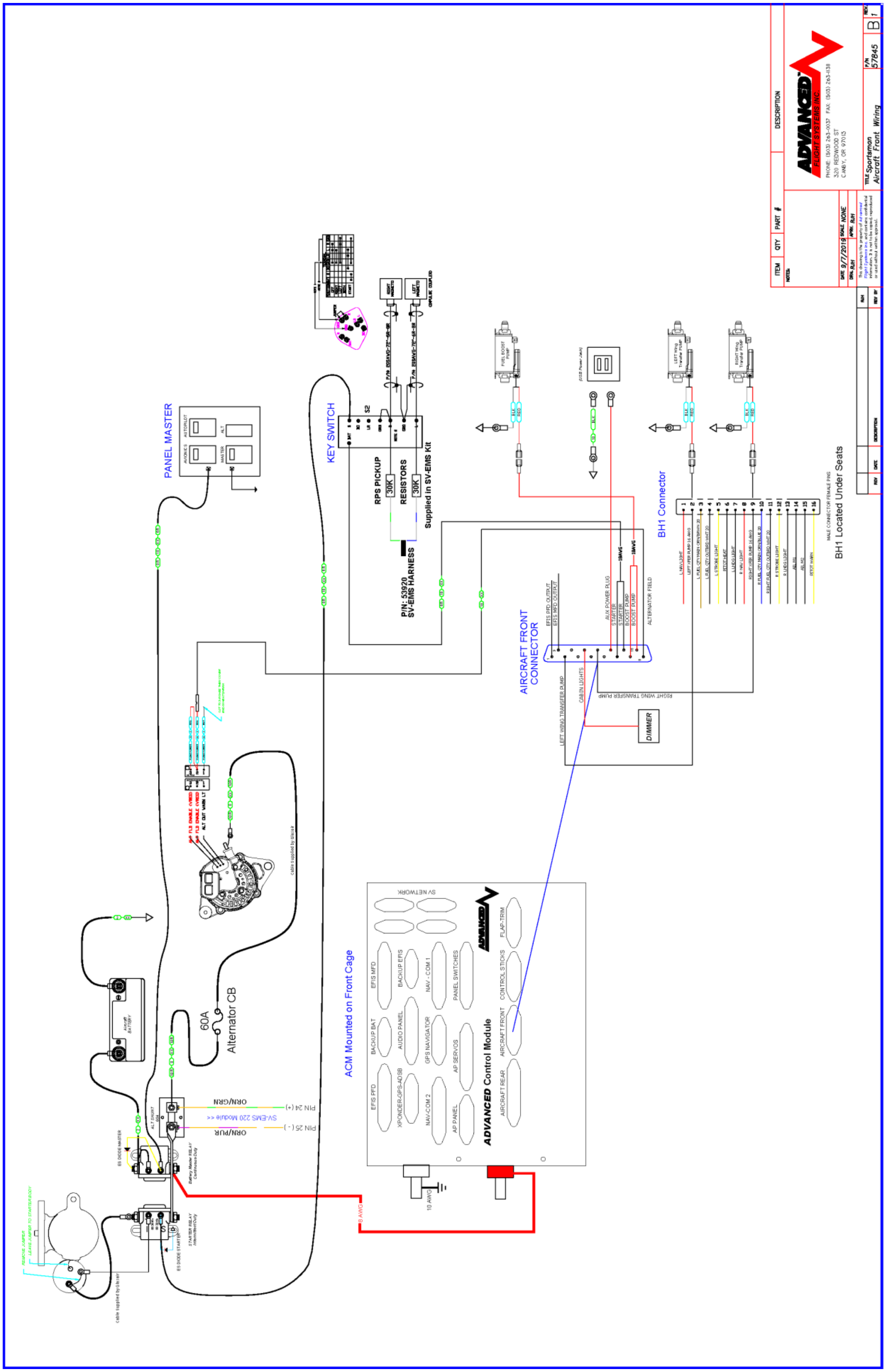
OAT Probe

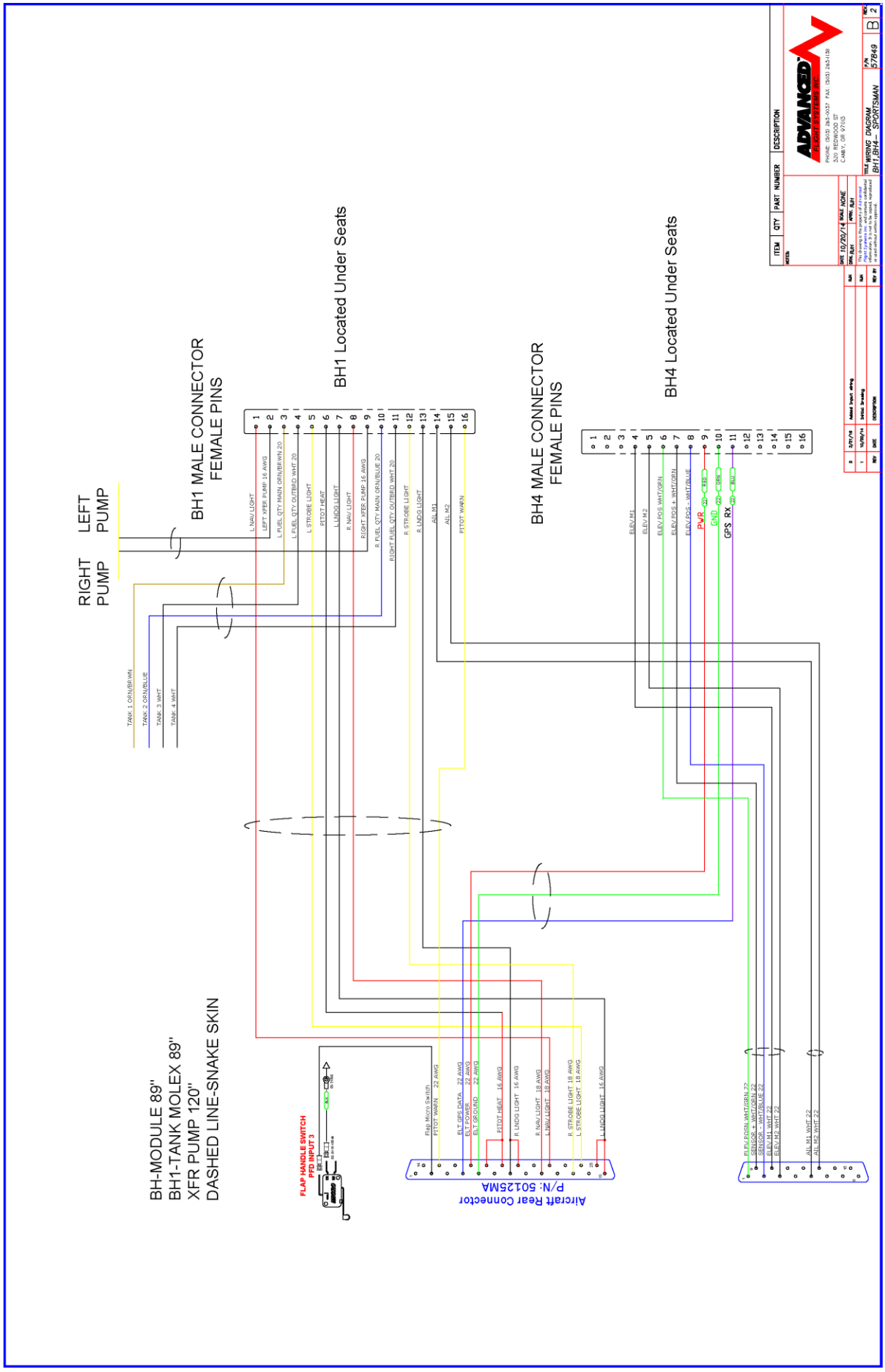
The OAT probe should mount to the wing inspection plate and the wires should run down the strut.


MASTER RELAY
BATTERY
+5 Volts
Dimmer
PWM PNP +
PWM NPN -
AVIONICS SWITCH
AUTOPILOT SWITCH
BATTERY MASTER SWITCH
ALT FIELD SWITCH
BOOST PUMP
STROBE
NAV
LANDING LIGHT
PITOT HEAT
PULSE
Right Transfer P
Left Transfer P
Switch Panel Connector
Switch Panel Hub Connector
Switch Panel Connector
Autopilot
ALT Field
Avionics
ALT 2 Field
Left Transfer Pump
Boost Pump
NAV Lights
Strobe Lights
Pulse Lights
Landing Lights
Pitot Heat
Right Transfer Pump
Flaps DOWN
Flaps UP


ADVANCED Control Module
SV NETWORK
EFIS MFD
BACKUP EFIS
NAV - COM 1
PANEL SWITCHES
FLAP-TRIM
CONTROL STICKS
EFIS PFD
BACKUP BAT
AUDIO PANEL
GPS NAVIGATOR
AP SERVOS
AIRCRAFT FRONT
XPONDER-GPS-ADSB
NAV-COM 2
AP PANEL
AIRCRAFT REAR
PFD
CHARGE
MFD
COM 1
NAV 1
BACKUP
AUDIO P
XPONDER
COM 2
NAV 2
AUTO P
AUX PWR
STARTER
BOOST P
ALT FLD
FLAPS
TRIM
PITOT H
RIGHT LT
NAV LT
STROBE
LEFT LT
7.5 AMP
5 AMP
10 AMP
10 AWG
18 AWG
20 AWG
5A
Fuel Transfer
Tank 4 Transfer Relay
Tank 3 Transfer Relay
Tank 4 Transfer Pump
Right Wing
Tank 3 Transfer Pump
Left Wing
BH1-9
BH1-2
PFD Input #2
PFD Input #1
ACM REAR HARNESS Connector
ACM - PANEL SWITCHES
Switch Panel Connector
AUTOPILOT SWITCH
ALT FIELD SWITCH
AVIONICS SWITCH
BATTERY MASTER SWITCH
STROBE
NAV
PITOT HEAT
BOOST PUMP
LANDING LIGHT
PULSE
Tank 4 Transfer Right Wing
Tank 3 Transfer Left Wing
5-Pin 12V SPDT Auto Relay + Harness
Relay Base
Fuel Transfer Relay
DESCRIPTION
PART #
QTY
ITEM
73503
73502
73501
ADVANCED FLIGHT SYSTEMS INC.
Sportsman Switch Wiring with Fuel Transfer
57281


MASTER RELAY
STARTER RELAY
BATTERY
ACM Ground TERMINAL
ACM POWER TERMINAL
EFIS PFD
PFD POWER
PFD POWER
PFD BACKUP PWR
MFD PFD
MFD POWER
MFD POWER
MFD BACKUP PWR
XPONDER-ADSB
XPNDR POWER
ADSB POWER
Backup Battery
NAV/COM 1
GPS NAVIGATOR
NAV/COM 2
AUDIO PANEL
PFD POWER
MFD POWER
XPNDR - ADSB
TCW BATTERY
COM 1 POWER
NAV 1 POWER
COM 2 POWER
NAV 2 POWER
AUDIO PANEL
Left Transfer Pump
Cabin Lights
Right Transfer Pump
ALTERNATOR 2
AUX POWER
STARTER
Boost Pump
ALTERNATOR 1
PITOT HEAT
Landing Lights
Pulse Lights
NAV Lights
Strobe Lights
Strobe Light
Right Wing Light
Left Wing Light
NAV Lights
Backup EFIS
SPARE
TRIM POWER
AP SERVO'S
Flaps Power
Aircraft Front
CABIN LIGHTS
AUX POWER PLUG
STARTER
STARTER
BOOST PUMP
BOOST PUMP
ALTERNATOR 1 FIELD
AIRCRAFT Rear
ELT POWER
PITOT HEAT
RIGHT WING LIGHT
WING NAV LIGHT
TAIL NAV LIGHT
WING NAV LIGHT
WING STROBE LIGHT
TAIL STROBE LIGHT
WING STROBE LIGHT
LEFT WING LIGHT
BACKUP EFIS
BACKUP EFIS
SPARE- XM/HUB
AP CONTROL
TRIM SERVO'S
AP SERVO'S
ROLL SERVO
PITCH SERVO
YAW SERVO
TRIM-FLAPS
M1
M2
Sportsman ACM-ECB Power Diagram
70080
B2


PANEL MASTER
KEY SWITCH
RPS PICKUP
RESISTORS
Supplied in SV-EMS Kit
P/N: 53920
SV-EMS HARNESS
AIRCRAFT FRONT CONNECTOR
BH1 Connector
BH1 Located Under Seats
DIMMER
60A
Alternator CB
ACM Mounted on Front Cage
ADVANCED Control Module

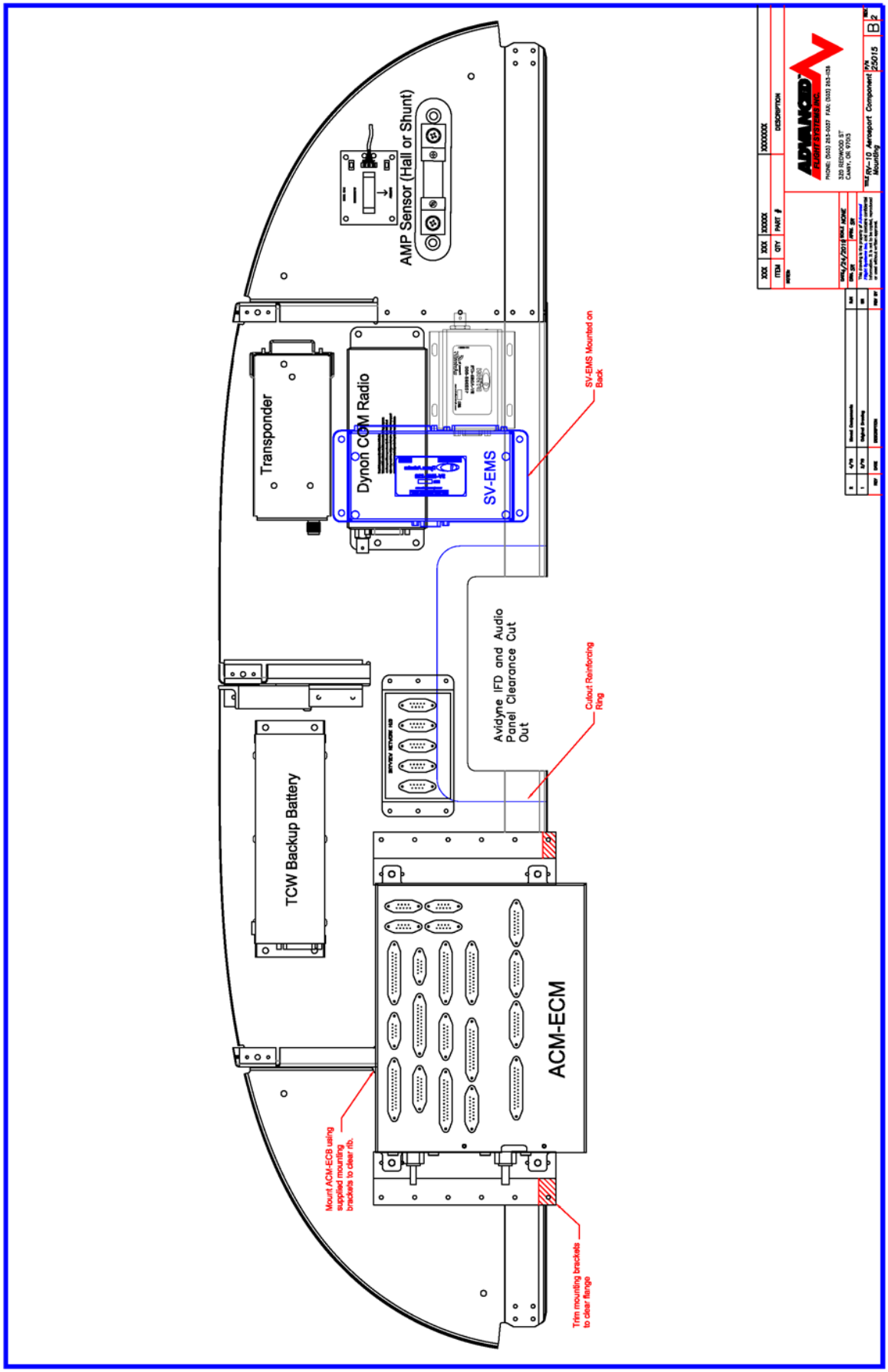

BH-MODULE 89"
BH1-TANK MOLEX 89"
XFR PUMP 120"
DASHED LINE-SNAKE SKIN
RIGHT PUMP
LEFT PUMP
BH1 MALE CONNECTOR
FEMALE PINS
BH1 Located Under Seats
BH4 MALE CONNECTOR
FEMALE PINS
BH4 Located Under Seats
FLAP HANDLE SWITCH
PIN OUT 3
Aircraft Rear Connector
P/N: 50125MA
PWR
GND
GPS RX
WIRING DIAGRAM
BH1,BH4 - SPORTSMAN
57849

P/N: 53914-AFS Sportsman Engine Sensor Harness Wires

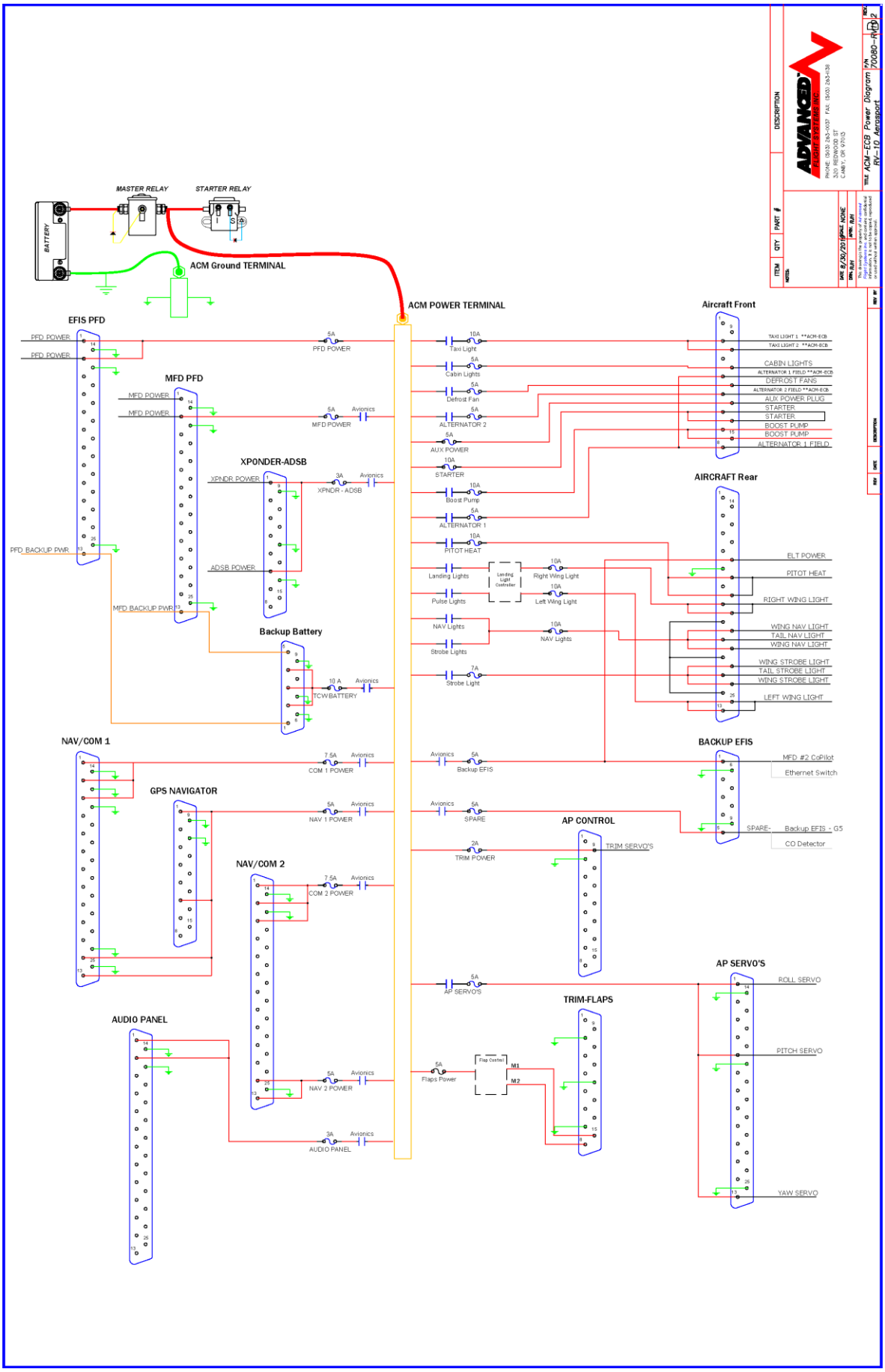
Pin	EMS 37-pin Harness Wire Color	Sensor
1		
2		
3		
4		
5		
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9		
10		
11		
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	+8V Fuel Flow & Amps Hall Transducer Power. (*Must have SV-EMS Network Pin 7 jumper to Pin 5)
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1
21	Orange/Blue	Tank 2
22	Violet/Yellow	Tank 3
23	Violet/Green	Tank 4
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31		
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

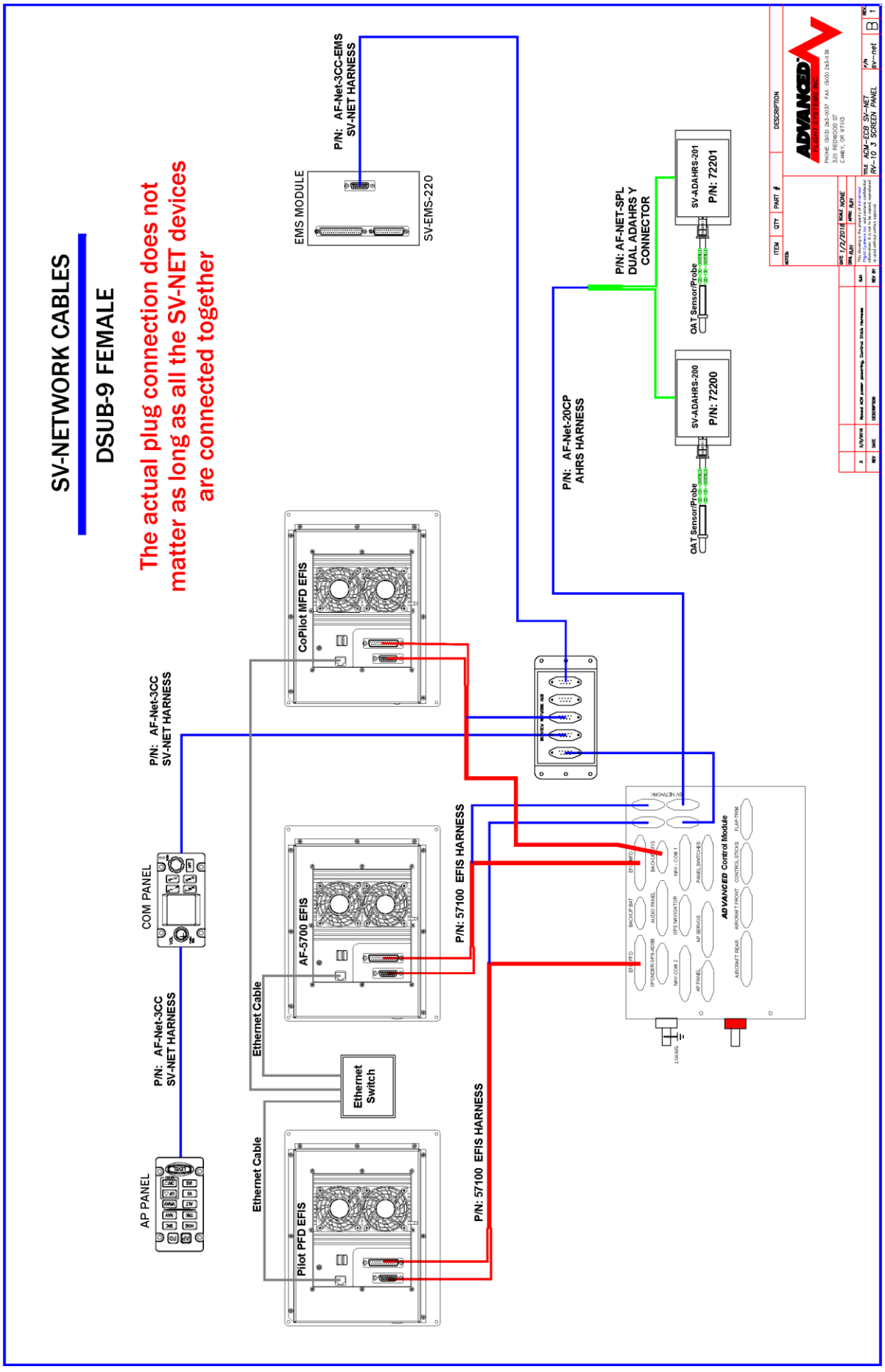
The Aerosport installation instructions for the 310 panel can be downloaded from the following link:

http://www.aerosportproducts.com/wp-content/uploads/2019/02/RV-10-Panel-Install-Doc.pdf

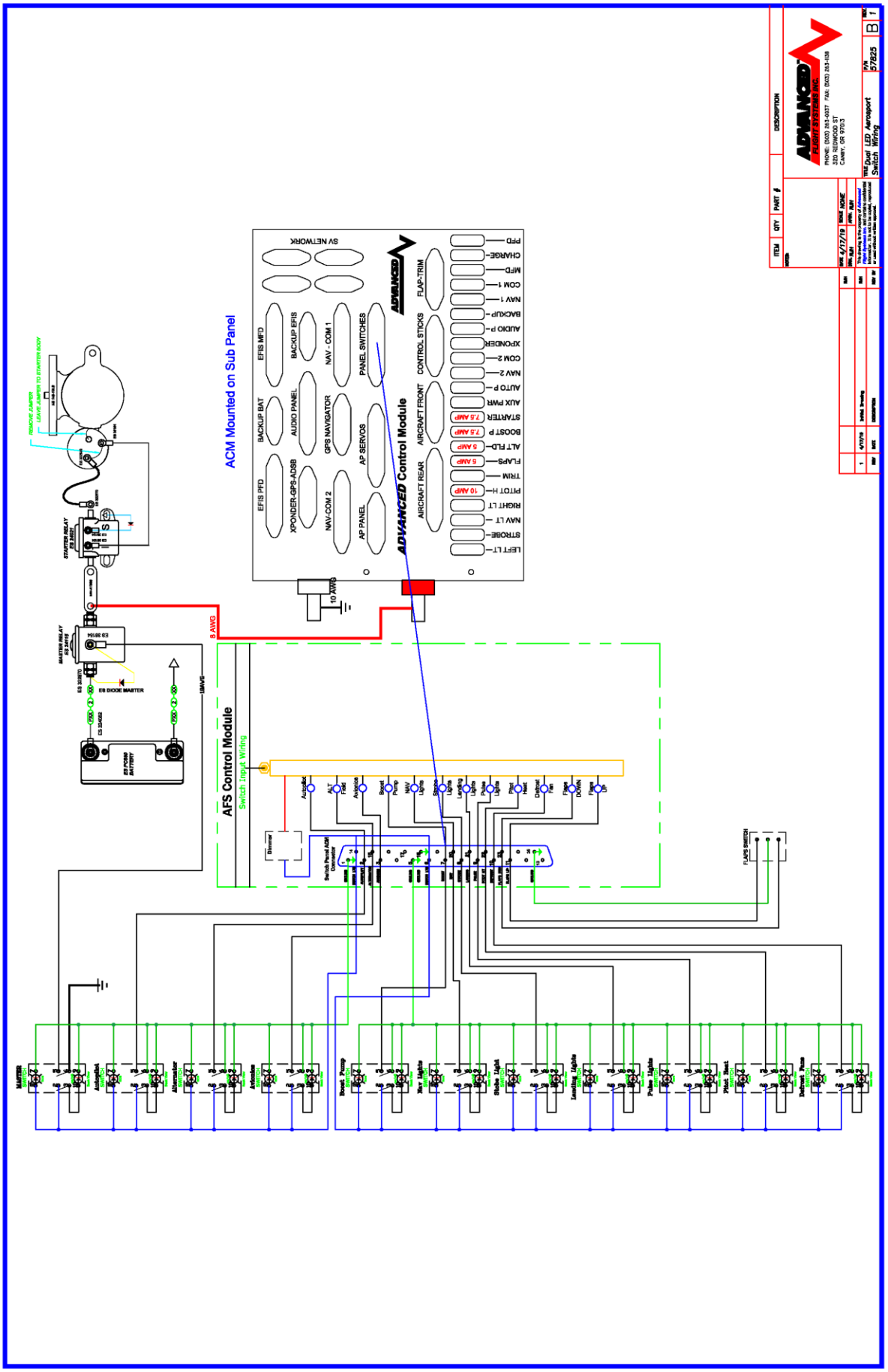

AMP Sensor (Hall or Shunt)
Transponder
Dynon COM Radio
SV-EMS
SV-EMS Mounted on Back
Avidyne IFD and Audio Panel Clearance Cut Out
Cutout Reinforcing Ring
TCW Backup Battery
ACM-ECM
Mount ACM-ECB using supplied mounting brackets to clear rib.
Trim mounting brackets to clear flange

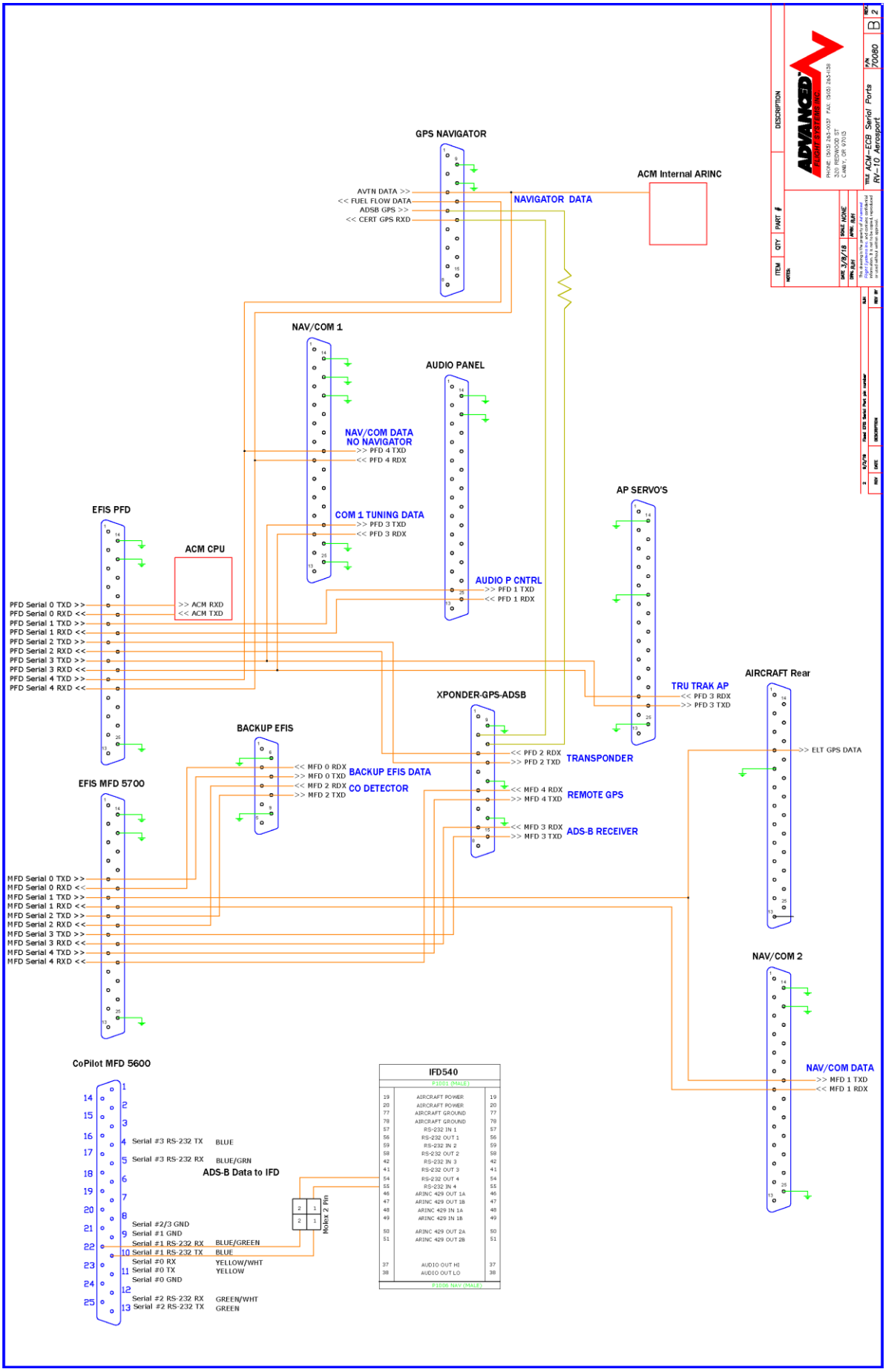
RV-10 Aerosport Power Diagram

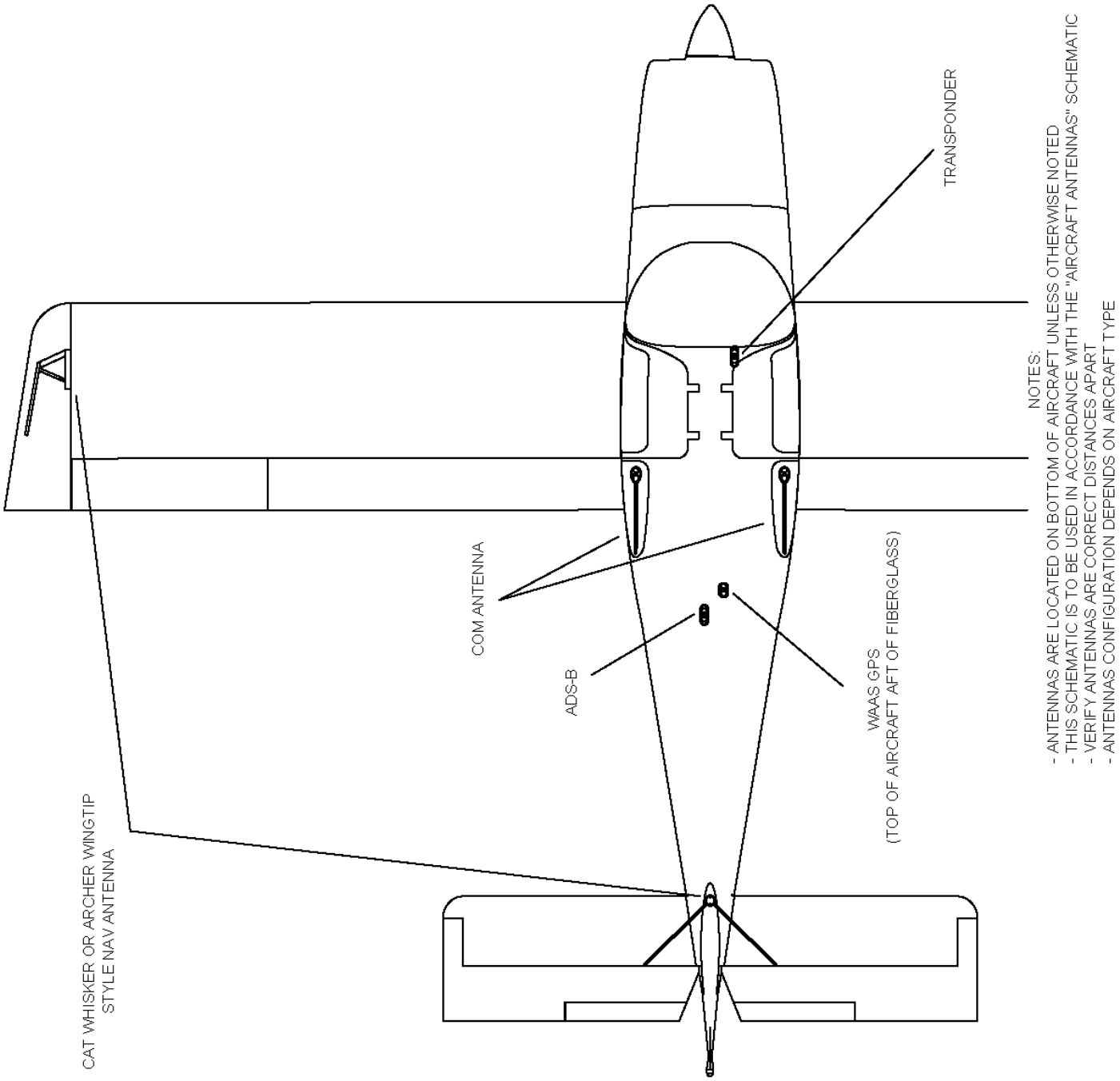



SV-NETWORK CABLES
DSUB-9 FEMALE
The actual plug connection does not matter as long as all the SV-NET devices are connected together
P/N: AF-Net-3CC-EMS SV-NET HARNESS
EMS MODULE
SV-EMS-220
P/N: AF-Net-SPL DUAL ADAHRS Y CONNECTOR
SV-ADAHRS-201 P/N: 72201
OAT Sensor/Probe
SV-ADAHRS-200 P/N: 72200
OAT Sensor/Probe
P/N: AF-Net-20CP AHRS HARNESS
CoPilot MFD EFIS
P/N: AF-Net-3CC SV-NET HARNESS
COM PANEL
AF-5700 EFIS
P/N: 57100 EFIS HARNESS
Ethernet Cable
Ethernet Switch
P/N: AF-Net-3CC SV-NET HARNESS
AP PANEL
Ethernet Cable
Pilot PFD EFIS
P/N: 57100 EFIS HARNESS
ADVANCED Control Module
ADVANCED FLIGHT SYSTEMS INC.
ADV-ECG SV-NET RV-10 3 SCREEN PANEL

Aerosport Duel LED Switch Wiring




GPS NAVIGATOR
AVTN DATA >>
<< FUEL FLOW DATA
ADSB GPS >>
<< CERT GPS RXD
NAVIGATOR DATA
ACM Internal ARINC
NAV/COM 1
AUDIO PANEL
NAV/COM DATA
NO NAVIGATOR
>> PFD 4 TXD
<< PFD 4 RDX
COM 1 TUNING DATA
>> PFD 3 TXD
<< PFD 3 RDX
AUDIO P CNTRL
>> PFD 1 TXD
<< PFD 1 RDX
AP SERVO'S
EFIS PFD
ACM CPU
>> ACM RXD
<< ACM TXD
PFD Serial 0 TXD >>
PFD Serial 0 RXD <<
PFD Serial 1 TXD >>
PFD Serial 1 RXD <<
PFD Serial 2 TXD >>
PFD Serial 2 RXD <<
PFD Serial 3 TXD >>
PFD Serial 3 RXD <<
PFD Serial 4 TXD >>
PFD Serial 4 RXD <<
TRU TRAK AP
<< PFD 3 RDX
>> PFD 3 TXD
AIRCRAFT Rear
XPONDER-GPS-ADSB
BACKUP EFIS
<< MFD 0 RDX
>> MFD 0 TXD
BACKUP EFIS DATA
<< MFD 2 RDX
>> MFD 2 TXD
CO DETECTOR
<< PFD 2 RDX
>> PFD 2 TXD
TRANSPONDER
>> ELT GPS DATA
EFIS MFD 5700
<< MFD 4 RDX
>> MFD 4 TXD
REMOTE GPS
<< MFD 3 RDX
>> MFD 3 TXD
ADS-B RECEIVER
MFD Serial 0 TXD >>
MFD Serial 0 RXD <<
MFD Serial 1 TXD >>
MFD Serial 1 RXD <<
MFD Serial 2 TXD >>
MFD Serial 2 RXD <<
MFD Serial 3 TXD >>
MFD Serial 3 RXD <<
MFD Serial 4 TXD >>
MFD Serial 4 RXD <<
NAV/COM 2
CoPilot MFD 5600
Serial #3 RS-232 TX
BLUE
Serial #3 RS-232 RX
BLUE/GRN
ADS-B Data to IFD
Serial #2/3 GND
Serial #1 GND
Serial #1 RS-232 RX
BLUE/GREEN
Serial #1 RS-232 TX
BLUE
Serial #0 RX
YELLOW/WHT
Serial #0 TX
YELLOW
Serial #0 GND
Serial #2 RS-232 RX
GREEN/WHT
Serial #2 RS-232 TX
GREEN
Molex 2 Pin
IFD540
P1001 (MALE)
AIRCRAFT POWER
AIRCRAFT POWER
AIRCRAFT GROUND
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 IN 2
RS-232 OUT 2
RS-232 IN 3
RS-232 OUT 3
RS-232 OUT 4
RS-232 IN 4
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
ARINC 429 OUT 2A
ARINC 429 OUT 2B
AUDIO OUT HI
AUDIO OUT LO
P1006 NAV (MALE)
NAV/COM DATA
>> MFD 1 TXD
<< MFD 1 RDX
TITLE ACM-ECB Serial Ports
RV-10 Aerosport
ADVANCED FLIGHT SYSTEMS INC.


TRANSPONDER
COM ANTENNA
ADS-B
WAAS GPS
(TOP OF AIRCRAFT AFT OF FIBERGLASS)
CAT WHISKER OR ARCHER WINGTIP
STYLE NAV ANTENNA
NOTES:
- ANTENNAS ARE LOCATED ON BOTTOM OF AIRCRAFT UNLESS OTHERWISE NOTED
- THIS SCHEMATIC IS TO BE USED IN ACCORDANCE WITH THE "AIRCRAFT ANTENNAS" SCHEMATIC
- VERIFY ANTENNAS ARE CORRECT DISTANCES APART
- ANTENNAS CONFIGURATION DEPENDS ON AIRCRAFT TYPE

ACM Flap Control – AF-5000

The ACM flap control can be configured from the PFD EFIS calibration menu:

SET > CAL > 44. Flap Position

7. Operation Mode:

POSTION
Flaps will stop at the programed Position Calibration points (FULL UP, POSITION 1, POSITION 2, FULL DOWN). You must have a POS-12 position sensor installed and working to use position mode. Move the flaps to each position and use the COPY and SAVE buttons to record the position. *If the AD_VAL in the upper right hand EFIS screen corner does not change when you move the flaps you do not have the POS-12 correctly wired.*

MOMENTARY
Flaps will only move when you hold the Flap Up or Flap Down button. Momentary mode does not require a flap sensor.

8. Retract Mode:

MULTI-STEP
Flaps will move to the next position when the Flaps Up button is pressed

CONTINUOUS
Flaps will move to fully retracted position when the Flaps Up button is pressed

MOMENTARY
Flaps will only move when you hold the Flap Up button.

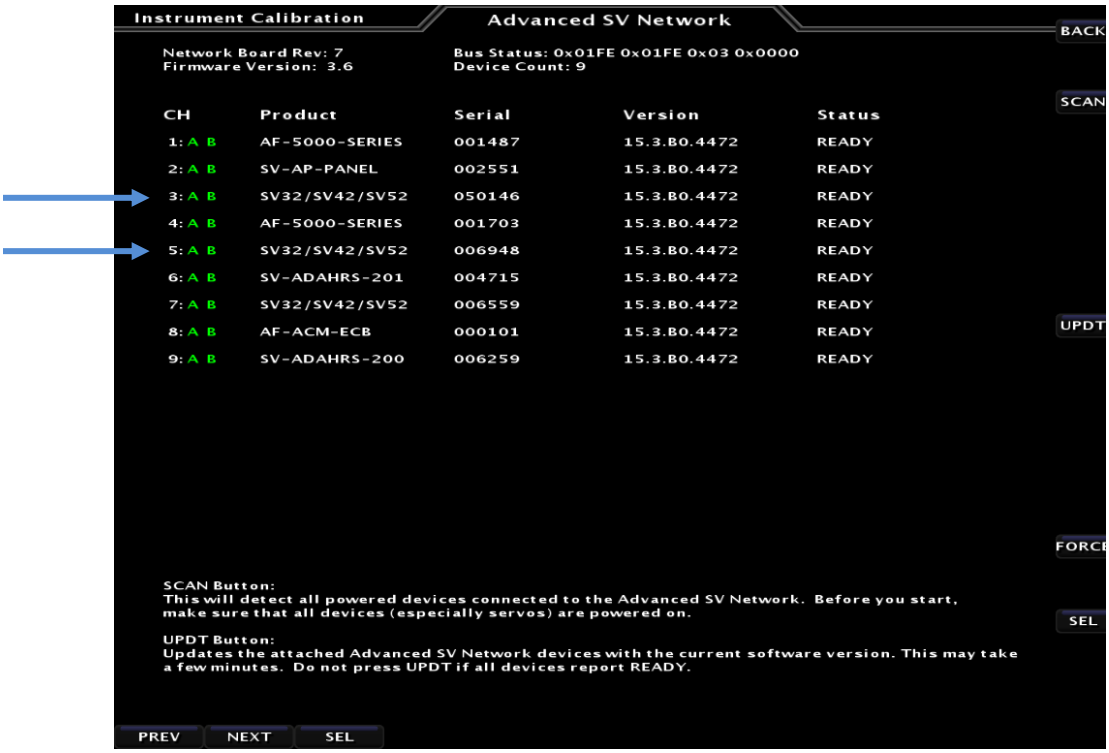
9. Motor Polarity (NORMAL or REVERSED) Verify that the Flaps move in the correct direction using the EFIS **CHECK** > **ELEC** menu buttons. If the Stick mounted buttons are backwards you will need to swap the stick Up and Down button wiring.

10. Endpoint Slop Timeout The Flap Motor will continue to run for this number of seconds to make sure the flaps are fully retracted or extended. The flap positioning system should not be used to provide an accurate position stop for full flap up or down settings.

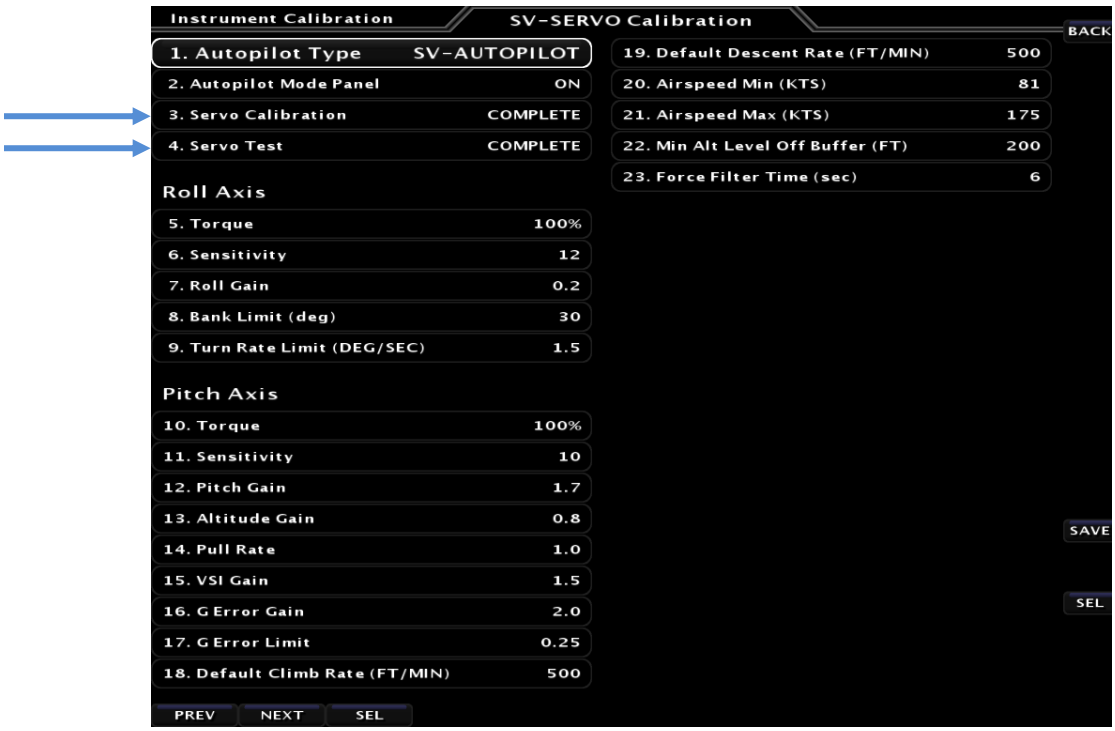
SV Autopilot Setup

To configure the SV Autopilot you will need to do the following:

1. Verify that the ROLL and Pitch AP Servo Status is READY in the SV-NETWORK PFD EFIS Menu. If the Status shows needs update press the **UPDT** button



2. Perform the **3. Servo Calibration** and **4. Servo Test** following the PFD EFIS on screen directions. After completing these steps both items ***MUST*** show **COMPLETE** before the Autopilot can be used. The following settings are from a Van's RV-14 and RV-10.



Advanced Control Module AF-GPS Routing Table

AFS GPS	Cable Color	DSUB-9	ACM 15 Pin ACM: XPND,GPS,ADSB	ACM 25 Pin ACM: MFD	EFIS MFD AUX 15 Pin
PWR +8V	Orange	1	4	12	1
Ground	Black	5	12	24	9
RS-232 TXD	Blue/Gray	3	5	22	10
RS-232 RXD	Orange/Gray	2	13	9	2

Advanced Control Module Skyview EFIS Audio Routing Table

Skyview PFD Function	Cable Color	Skyview DSUB-37	ACM 25 Pin ACM: PFD	ACM 25 Pin Audio Panel	SV-INTERCOM DSUB-25
Audio Left	Brown	13	11	11	19
Audio Right	Gray	31	10	10	6
Audio Ground	Black	30	23	23	20

Advanced Control Module AF-5000 EFIS Audio Routing Table

AF-5000 PFD Function	Cable Color	AF-5000 DB-25	ACM 25 Pin ACM: PFD	ACM 25 Pin Audio Panel	PDA-360 Audio P J1
Audio		18	11	11	J1-31
Audio Ground		16	23	23	J1-32

Advanced Control Module ADS-B Routing Table

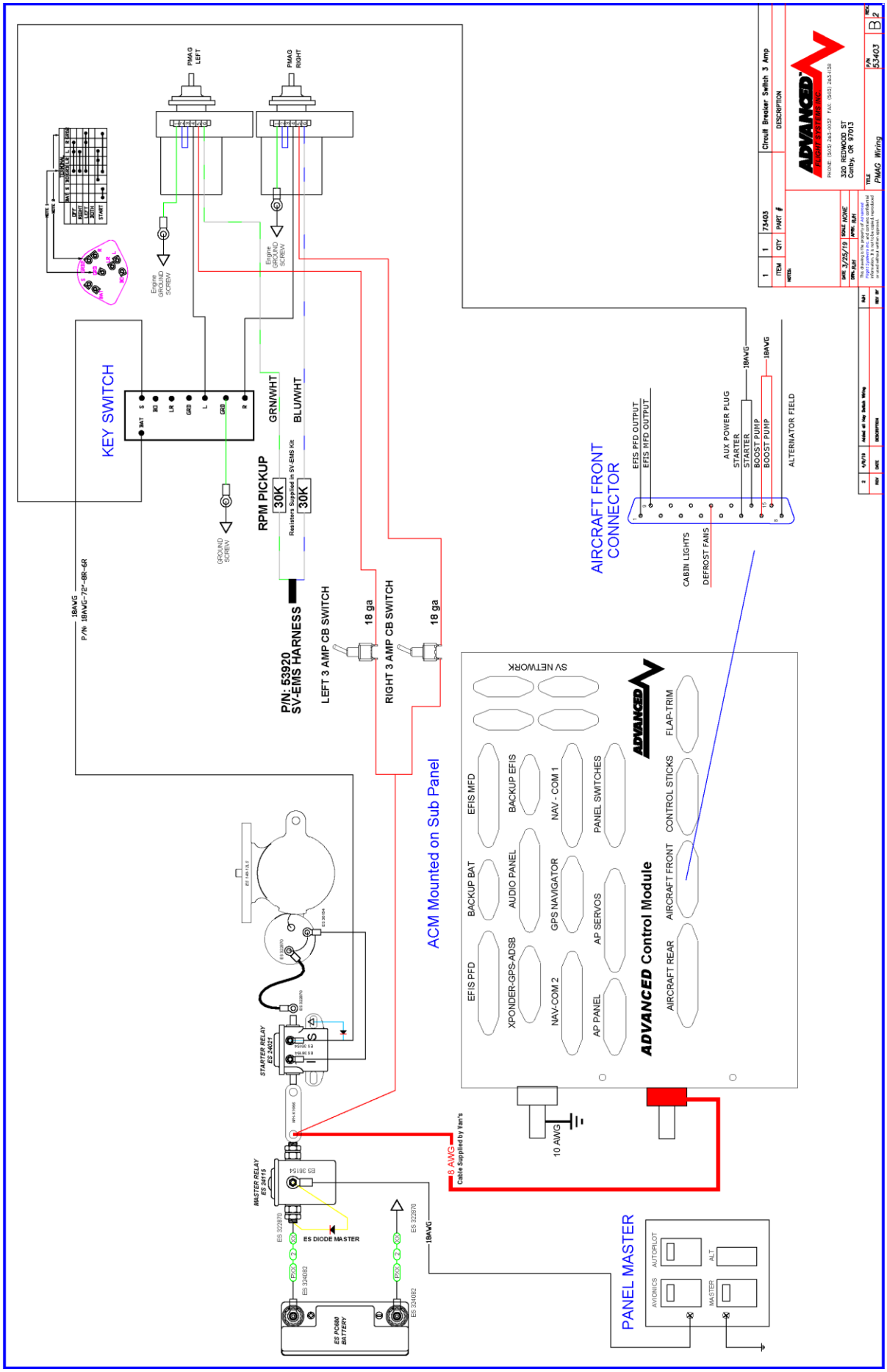
AFS ADS-B	Cable Color	DSUB-9	ACM 15 Pin ACM: XPND,GPS,ADSB	ACM 25 Pin ACM: MFD	EFIS MFD Serial #3 DSUB 25 Pin
PWR +12V	Red	1	6	nc	nc
Ground		4	14	nc	nc
RS-232 TXD		3	7	21	5
RS-232 RXD		2	15	8	4

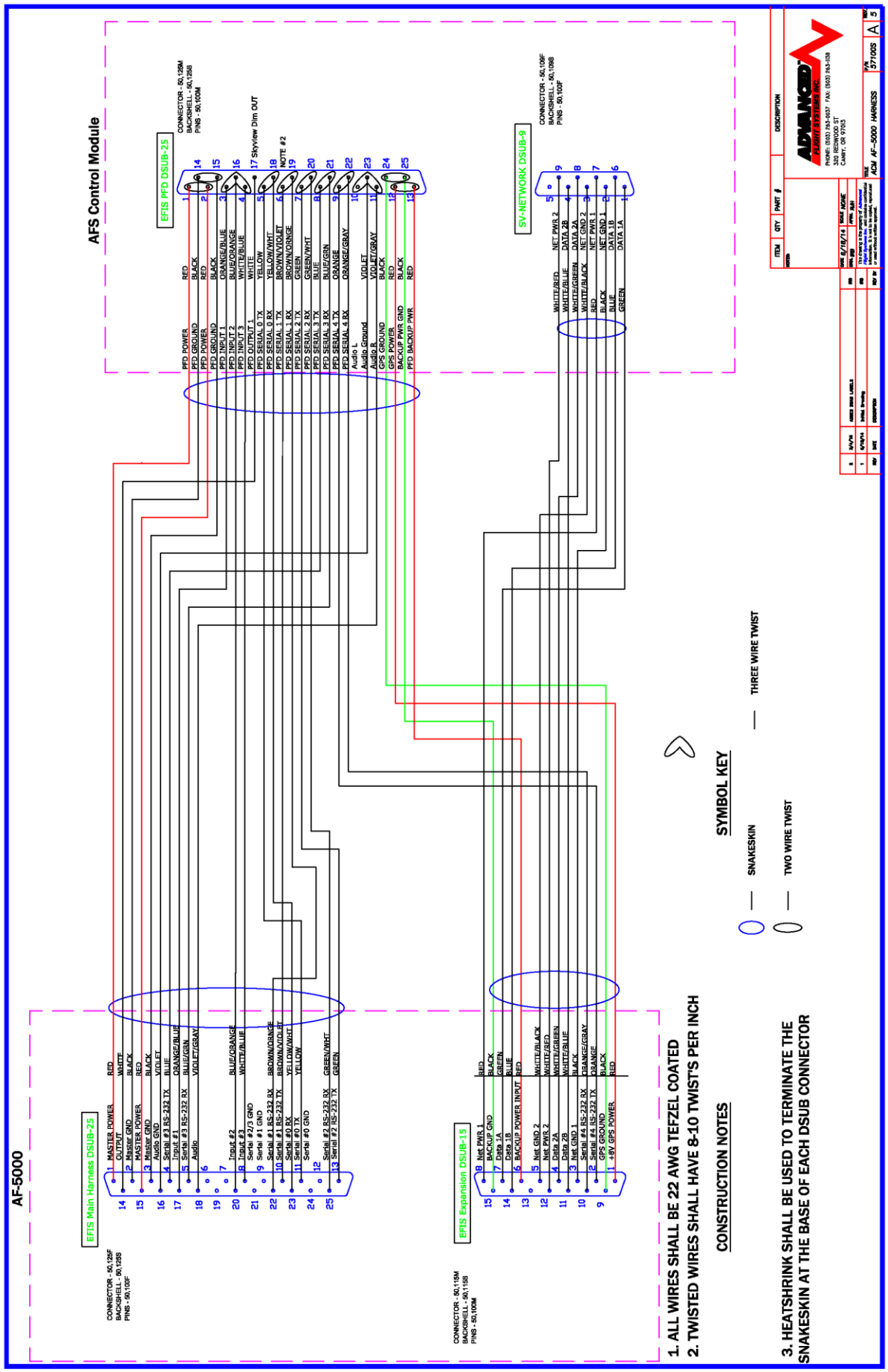
Advanced Control Module CO Detector Routing Table

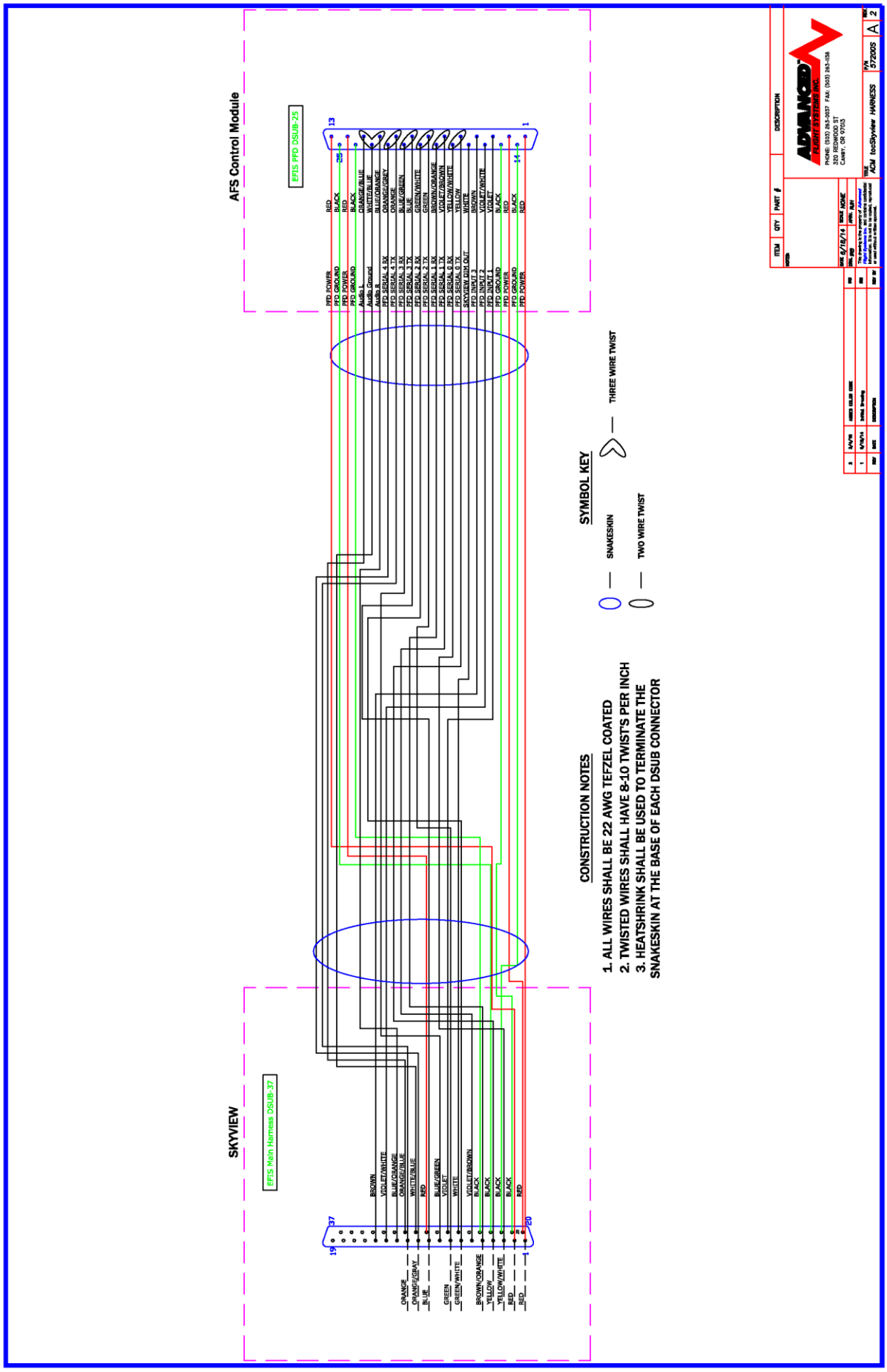
CO Guardian	Cable Color	CO DSUB-9	ACM 9 Pin ACM: BACKUP EFIS	ACM 25 Pin ACM: MFD	EFIS MFD Serial #2 DSUB 25 Pin
PWR +12V	Red	1	5	nc	nc
Ground	Black	5	9	nc	nc
RS-232 TXD >>		7	3	20	25
RS-232 RXD <<		8	8	7	13

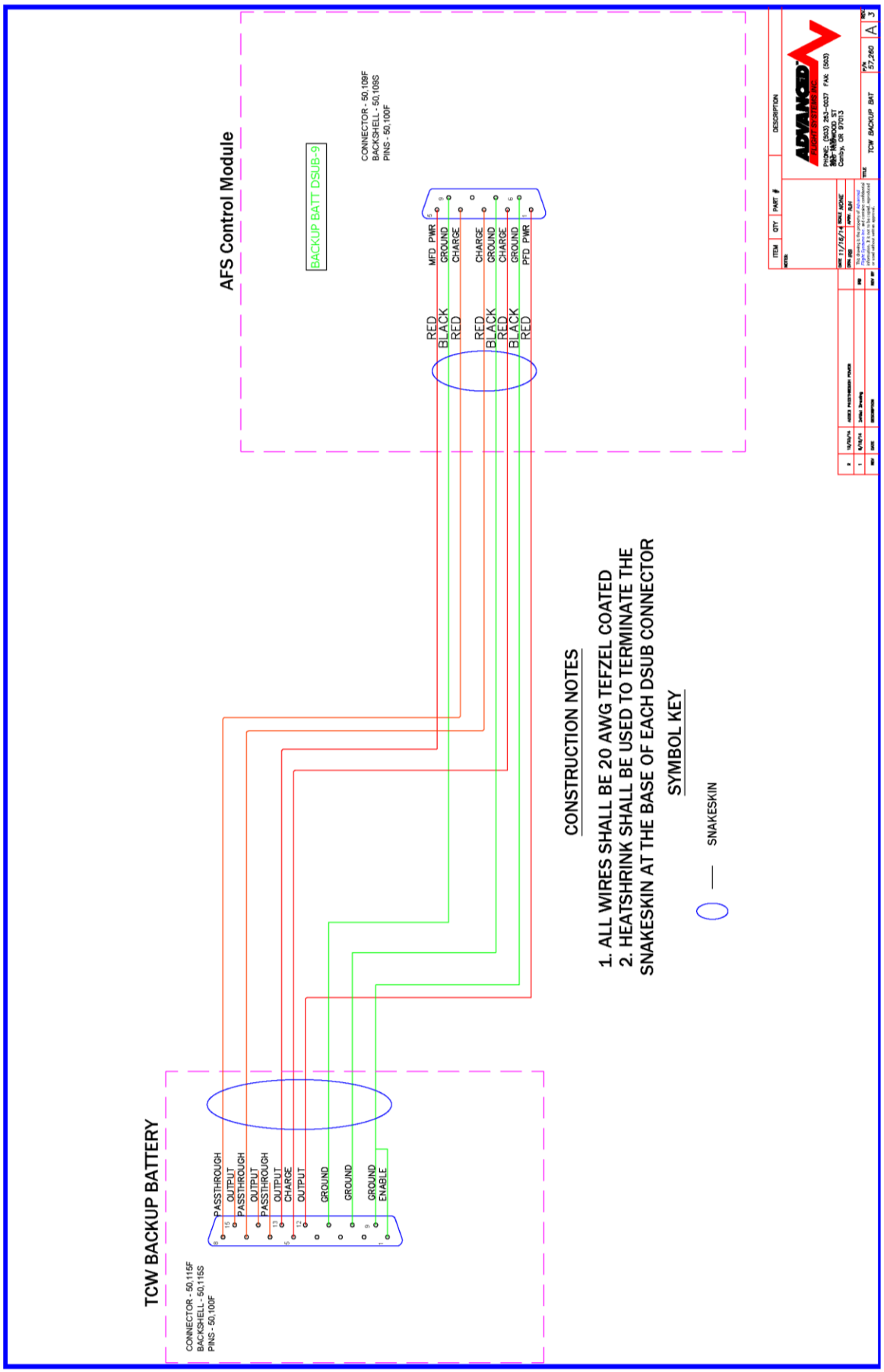
Advanced Control Module RV-14 Pitch Servo Routing Table

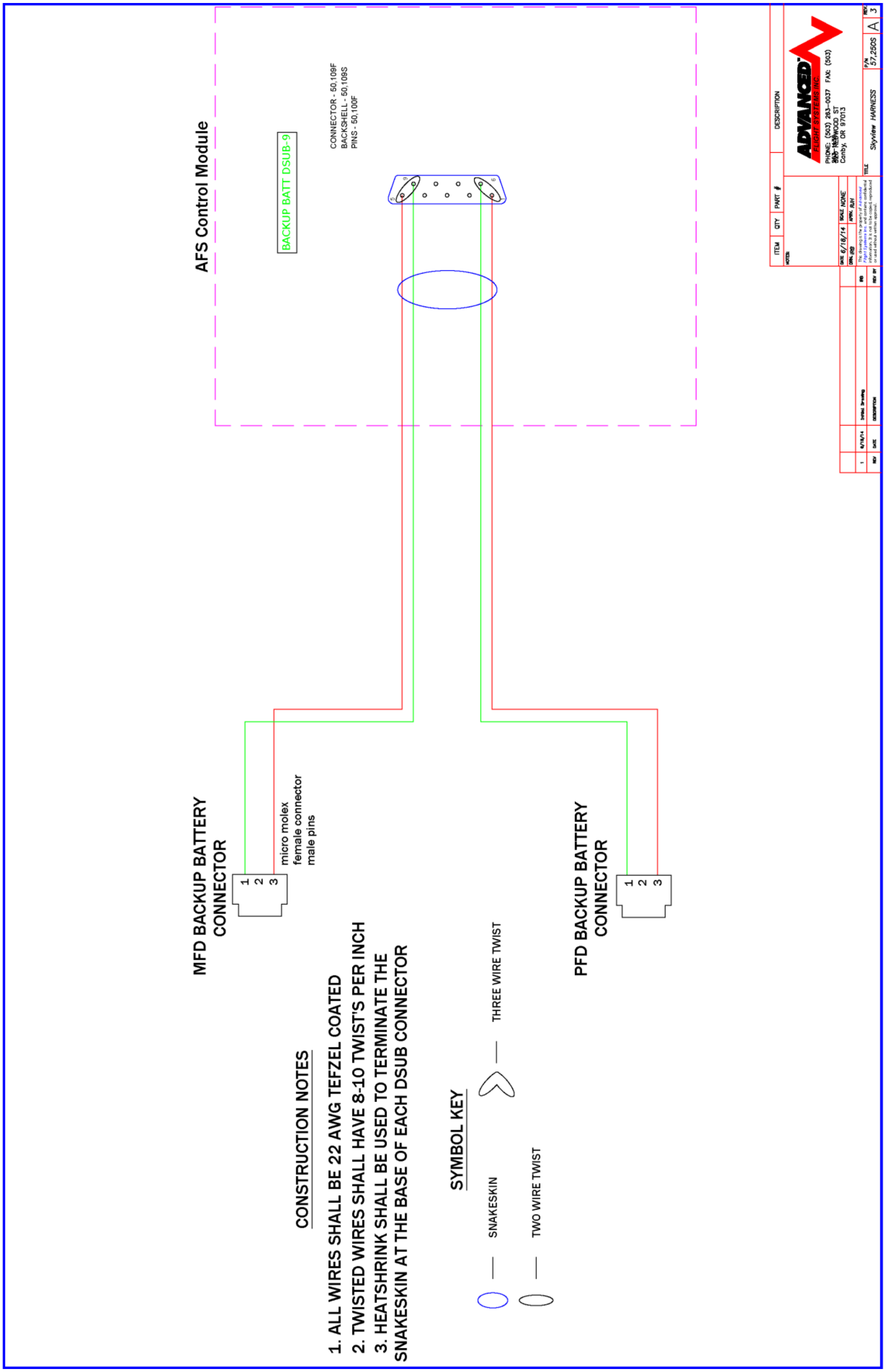
		Servo	Rear Bulkhead	ACM Servo
Pitch Servo	**Cable Color**	**Molex C411P/C431J**	**Molex C432P/C432J**	**DSUB-25**
Data 1A	Green	1	1	6
Data 2B	WHT/BLU	3	3	20
CW Steering	Yellow	4	4	8
Data 1B	Blue	5	5	19
PWR +12V	Red	6	6	5
Data 2A	WHT/GRN	7	7	7
Ground	BLK	9	9	18

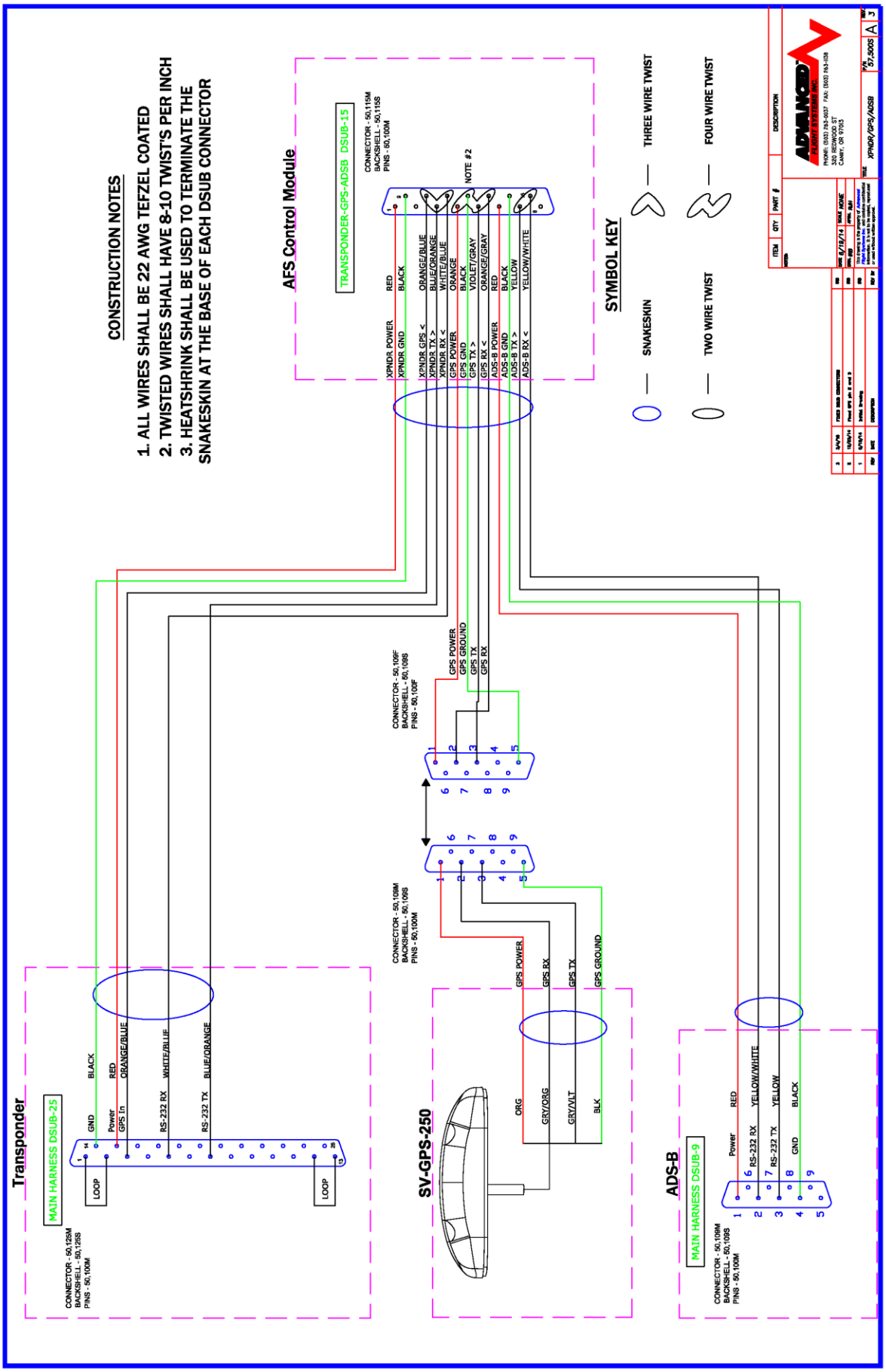

PMAG LEFT
PMAG RIGHT
Engine GROUND SCREW
KEY SWITCH
BAT S
RPM PICKUP
30K
30K
Resistors Supplied in SV-EMS Kit
GRN/WHT
BLU/WHT
GROUND SCREW
P/N: 53920
SV-EMS HARNESS
LEFT 3 AMP CB SWITCH
RIGHT 3 AMP CB SWITCH
18 ga
18 ga
18AWG
P/N: 18AWG-72"-BR-6R
ACM Mounted on Sub Panel
AIRCRAFT FRONT CONNECTOR
EFIS PFD OUTPUT
EFIS MFD OUTPUT
AUX POWER PLUG
STARTER
STARTER
BOOST PUMP
BOOST PUMP
ALTERNATOR FIELD
CABIN LIGHTS
DEFROST FANS
SV NETWORK
ADVANCED Control Module
EFIS PFD
BACKUP BAT
EFIS MFD
BACKUP EFIS
XPONDER-GPS-ADSB
AUDIO PANEL
NAV - COM 1
PANEL SWITCHES
NAV-COM 2
GPS NAVIGATOR
AP SERVOS
FLAP-TRIM
AP PANEL
AIRCRAFT REAR
AIRCRAFT FRONT
CONTROL STICKS
10 AWG
8 AWG
Cable Supplied by Van's
STARTER RELAY ES 34022
MASTER RELAY ES 34115
ES DIODE MASTER
ES PC680 BATTERY
PANEL MASTER
AVIONICS
AUTOPILOT
MASTER
ALT
Circuit Breaker Switch 3 Amp
ADVANCED FLIGHT SYSTEMS INC.
320 REDWOOD ST
Canby, OR 97013
PMAG Wiring
P/N 53403

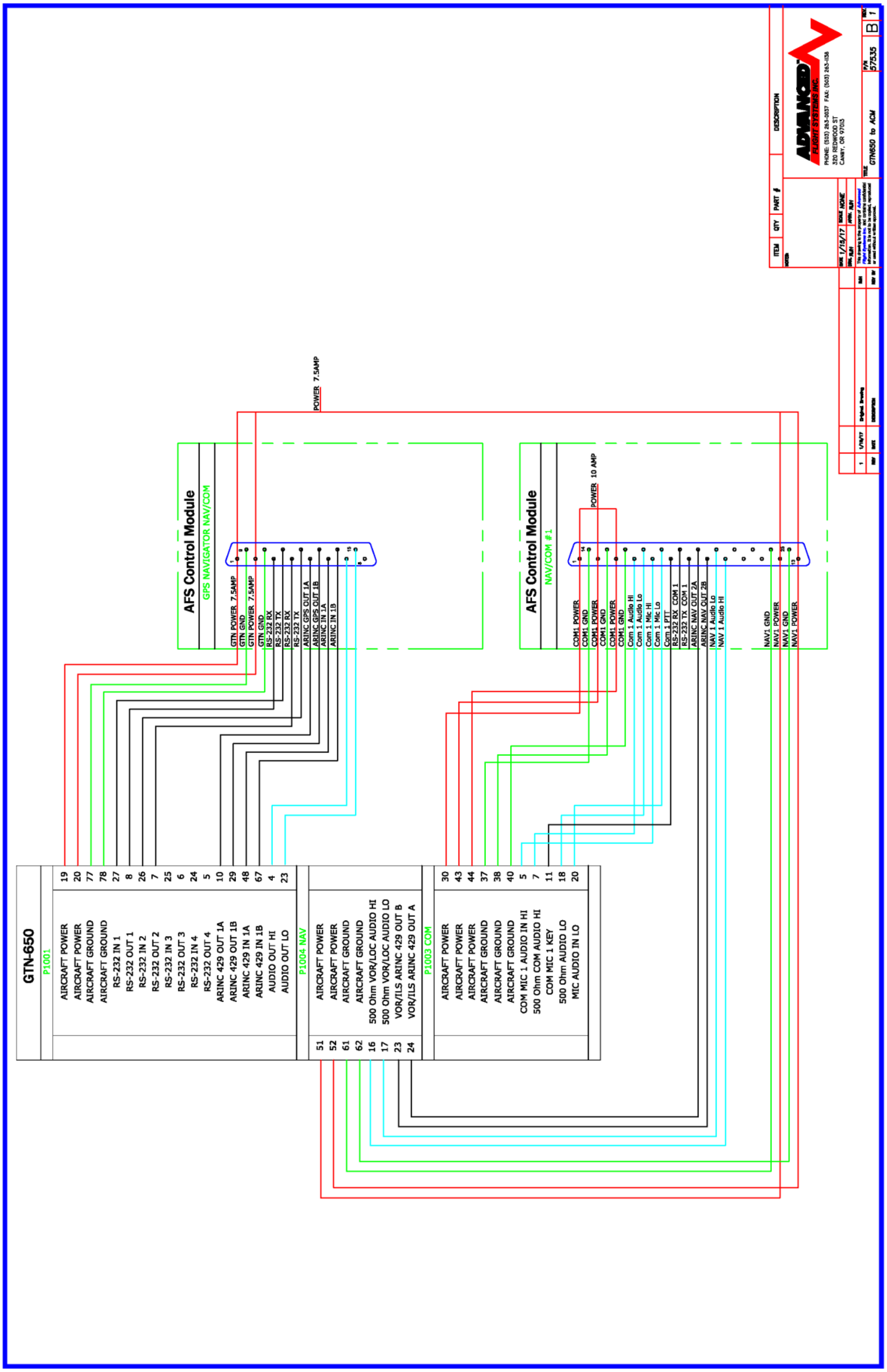

AF-5000
AFS Control Module
EFIS Main Harness DSUB-25
EFIS PFD DSUB-25
SV-NETWORK DSUB-9
EFIS Expansion DSUB-15
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ADVANCED FLIGHT SYSTEMS INC.
ACM AF-5000 HARNESS
57100S

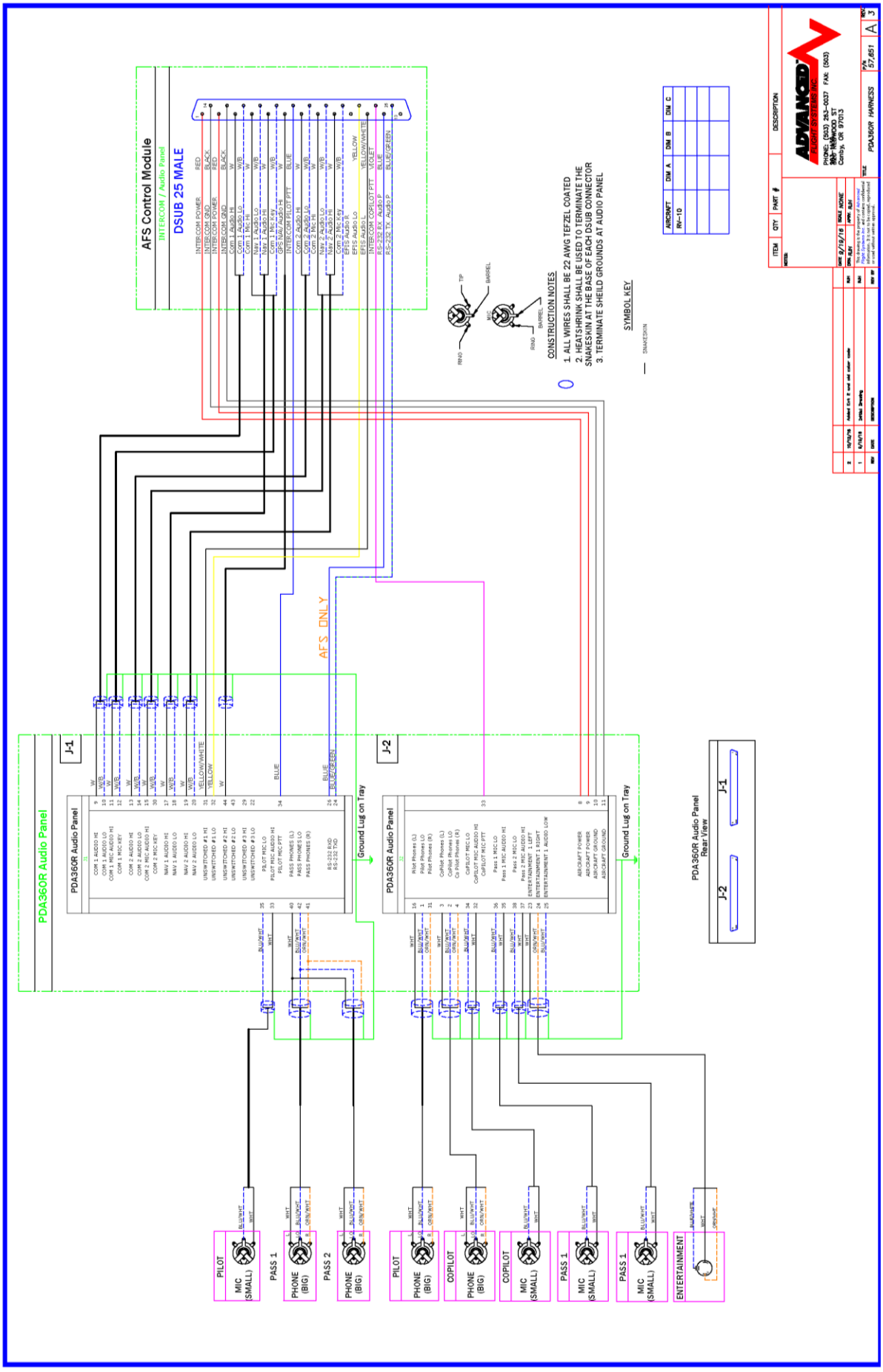

AFS Control Module
EFIS PFD DSUB-25
SKYVIEW
EFIS Main Harness DSUB-37
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR

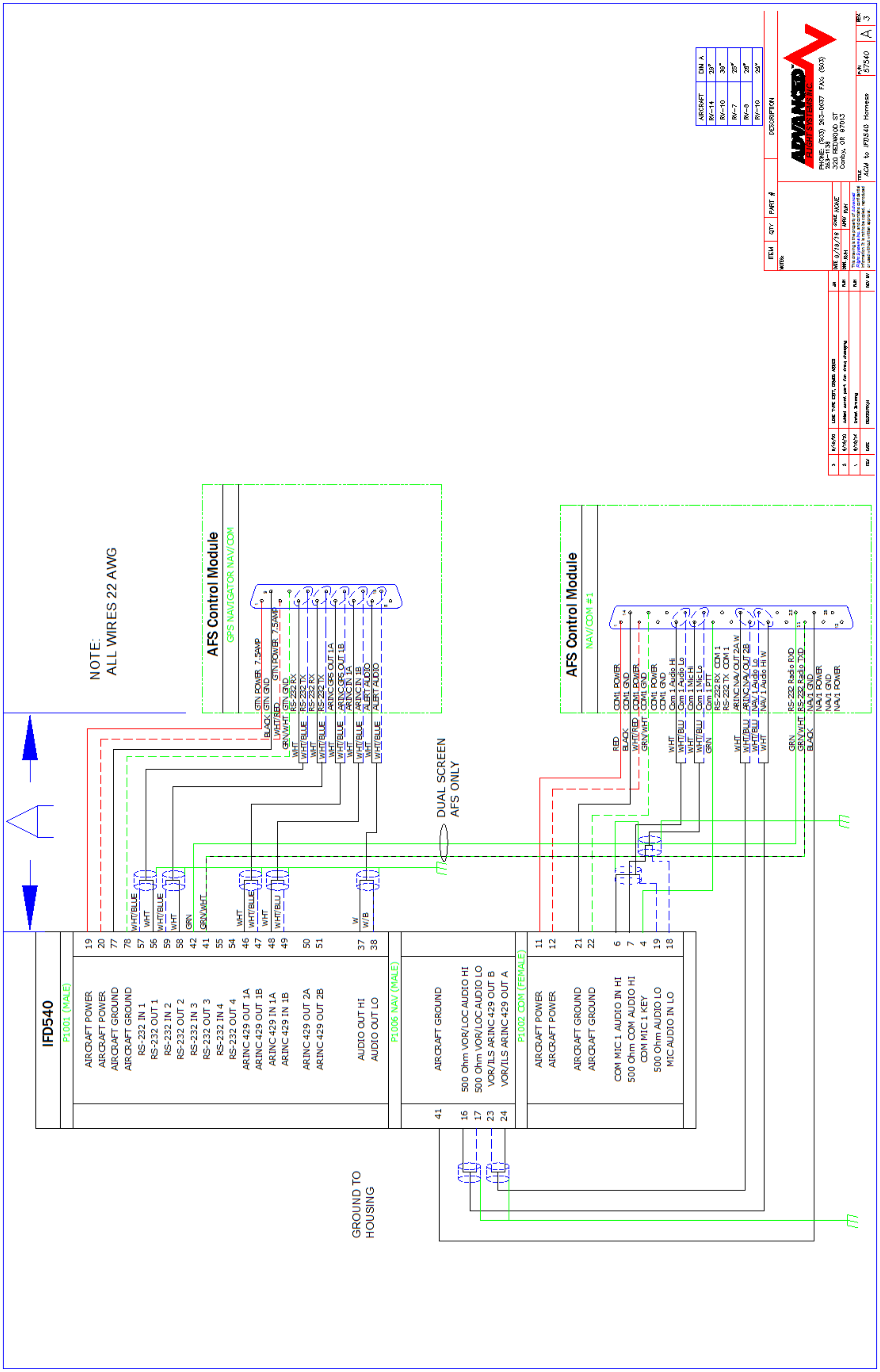

AFS Control Module
BACKUP BATT DSUB-9
CONNECTOR - 50.109F
BACKSHELL - 50.108S
PINS - 50.100F
MFD_PWR
GROUND
CHARGE
RED
BLACK
RED
CHARGE
GROUND
CHARGE
GROUND
PFD_PWR
RED
BLACK
RED
BLACK
RED
TCW BACKUP BATTERY
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
PASSTHROUGH
OUTPUT
PASSTHROUGH
OUTPUT
PASSTHROUGH
OUTPUT
CHARGE
OUTPUT
GROUND
GROUND
GROUND
ENABLE
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 20 AWG TEFZEL COATED
2. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
ADVANCED
TCW BACKUP BAT
57260

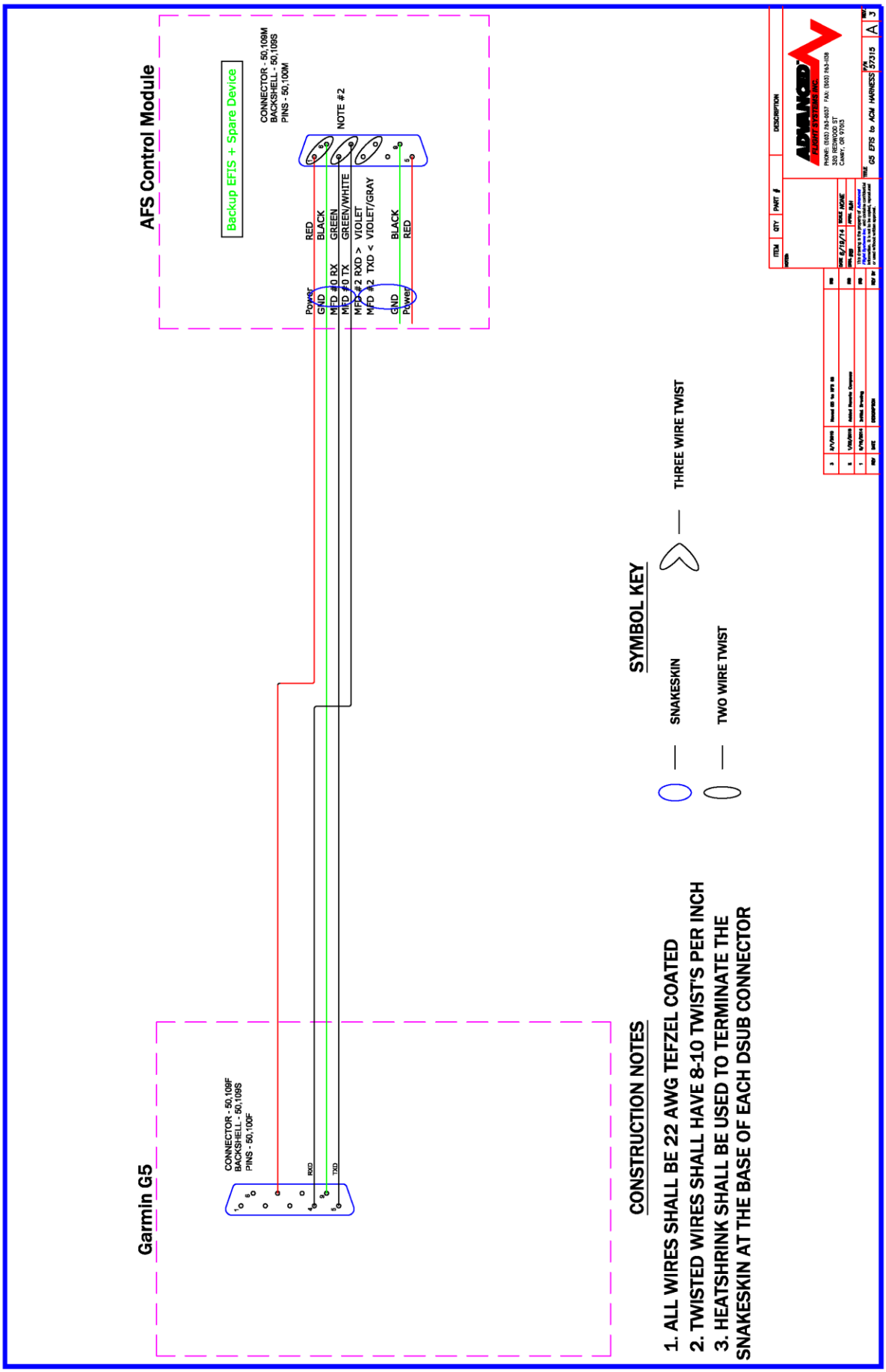

AFS Control Module
BACKUP BATT DSUB-9
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
MFD BACKUP BATTERY CONNECTOR
micro molex female connector male pins
PFD BACKUP BATTERY CONNECTOR
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
Skyview HARNESS

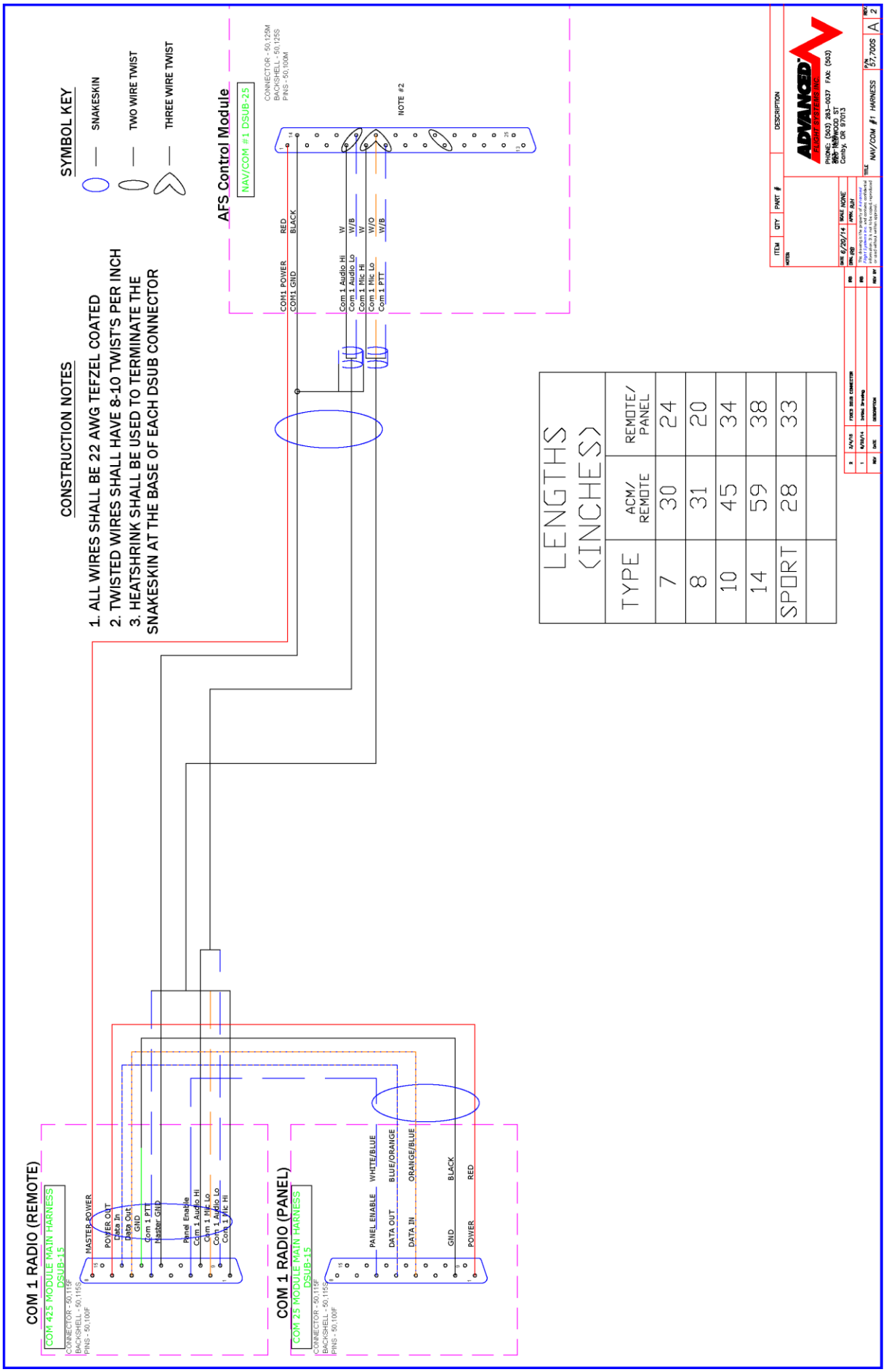

CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
FOUR WIRE TWIST
AFS Control Module
TRANSPONDER-GPS-ADSB DSUB-15
CONNECTOR - 50.115M
BACKSHELL - 50.115S
PINS - 50.100M
NOTE #2
XPNDR POWER
XPNDR GND
XPNDR GPS <
XPNDR TX >
XPNDR RX <
GPS POWER
GPS GND
GPS TX >
GPS RX <
ADS-B POWER
ADS-B GND
ADS-B TX >
ADS-B RX <
RED
BLACK
ORANGE/BLUE
BLUE/ORANGE
WHITE/BLUE
ORANGE
VIOLET/GRAY
ORANGE/GRAY
YELLOW
YELLOW/WHITE
Transponder
MAIN HARNESS DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
GND
Power
GPS In
RS-232 RX
RS-232 TX
LOOP
SV-GPS-250
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
GPS POWER
GPS GROUND
GPS TX
GPS RX
ORG
GRY/ORG
GRY/VLT
BLK
ADS-B
MAIN HARNESS DSUB-9
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
Power
RS-232 RX
RS-232 TX
GND
YELLOW/WHITE
YELLOW
BLACK
XPNDR/GPS/ADSB
57.5000
ADVANCED FLIGHT SYSTEMS INC

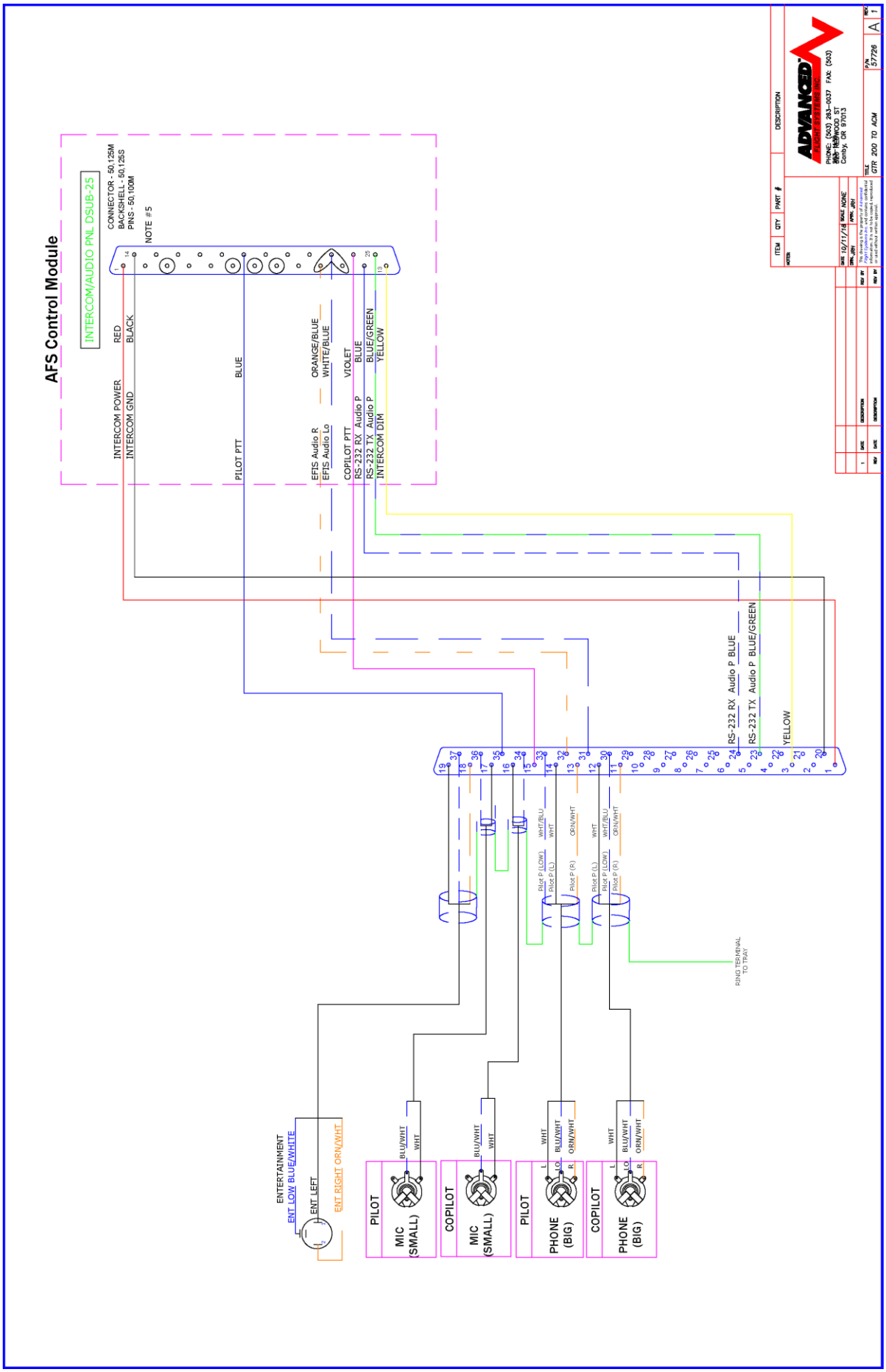

GTN-650
P1001
AIRCRAFT POWER 19
AIRCRAFT POWER 20
AIRCRAFT GROUND 77
AIRCRAFT GROUND 78
RS-232 IN 1 27
RS-232 OUT 1 8
RS-232 IN 2 26
RS-232 OUT 2 7
RS-232 IN 3 25
RS-232 OUT 3 6
RS-232 IN 4 24
RS-232 OUT 4 5
ARINC 429 OUT 1A 10
ARINC 429 OUT 1B 29
ARINC 429 IN 1A 48
ARINC 429 IN 1B 67
AUDIO OUT HI 4
AUDIO OUT LO 23
P1004 NAV
AIRCRAFT POWER 51
AIRCRAFT POWER 52
AIRCRAFT GROUND 61
AIRCRAFT GROUND 62
500 Ohm VOR/LOC AUDIO HI 16
500 Ohm VOR/LOC AUDIO LO 17
VOR/ILS ARINC 429 OUT B 23
VOR/ILS ARINC 429 OUT A 24
P1003 COM
AIRCRAFT POWER 30
AIRCRAFT POWER 43
AIRCRAFT POWER 44
AIRCRAFT GROUND 37
AIRCRAFT GROUND 38
AIRCRAFT GROUND 40
COM MIC 1 AUDIO IN HI 5
500 Ohm COM AUDIO HI 7
COM MIC 1 KEY 11
500 Ohm AUDIO LO 18
MIC AUDIO IN LO 20
AFS Control Module
GPS NAVIGATOR NAV/COM
GTN POWER 7.5AMP
GTN GND
GTN POWER 7.5AMP
GTN GND
RS-232 RX
RS-232 TX
RS-232 RX
RS-232 TX
ARINC GPS OUT 1A
ARINC GPS OUT 1B
ARINC IN 1A
ARINC IN 1B
POWER 7.5AMP
AFS Control Module
NAV/COM #1
POWER 10 AMP
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
Com 1 Audio HI
Com 1 Audio Lo
Com 1 Mic HI
Com 1 Mic Lo
Com 1 PTT
RS-232 RX COM 1
RS-232 TX COM 1
ARINC NAV OUT 2A
ARINC NAV OUT 2B
NAV 1 Audio Lo
NAV 1 Audio HI
NAV1 GND
NAV1 POWER
NAV1 GND
NAV1 POWER
GTN650 to ACM
57535
B

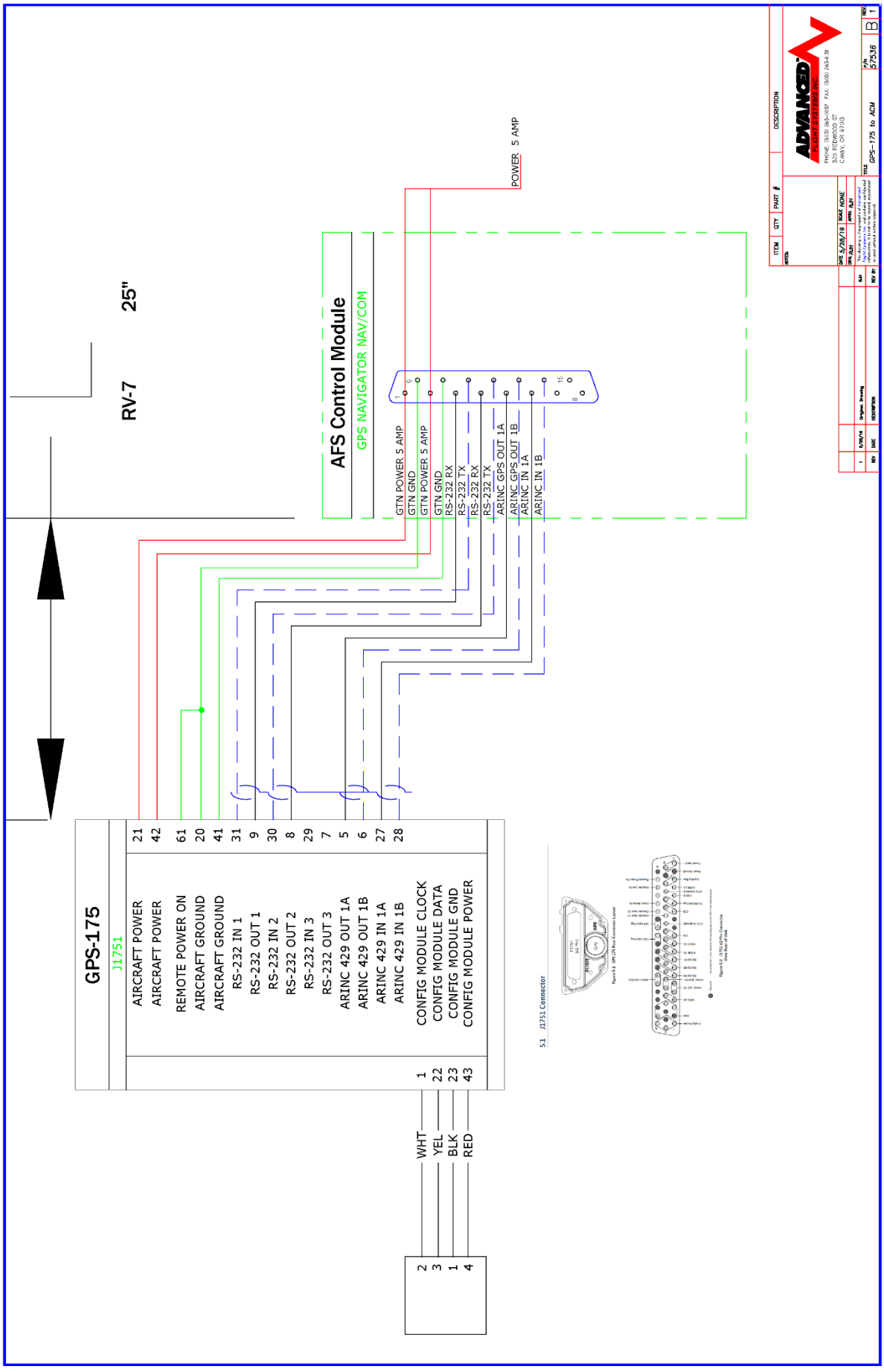

PDA360R Audio Panel
AFS Control Module
INTERCOM / Audio Panel
DSUB 25 MALE
PDA360R Audio Panel
J-1
J-2
AFS ONLY
Ground Lug on Tray
PDA360R Audio Panel
Rear View
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
3. TERMINATE SHIELD GROUNDS AT AUDIO PANEL
SYMBOL KEY
SNAKESKIN
PILOT MIC (SMALL)
PASS 1 PHONE (BIG)
PASS 2 PHONE (BIG)
PILOT PHONE (BIG)
COPILOT PHONE (BIG)
COPILOT MIC (SMALL)
PASS 1 MIC (SMALL)
PASS 1 MIC (SMALL)
ENTERTAINMENT
ADVANCED FLIGHT SYSTEMS INC.
PDA360R HARNESS
P/N 57651

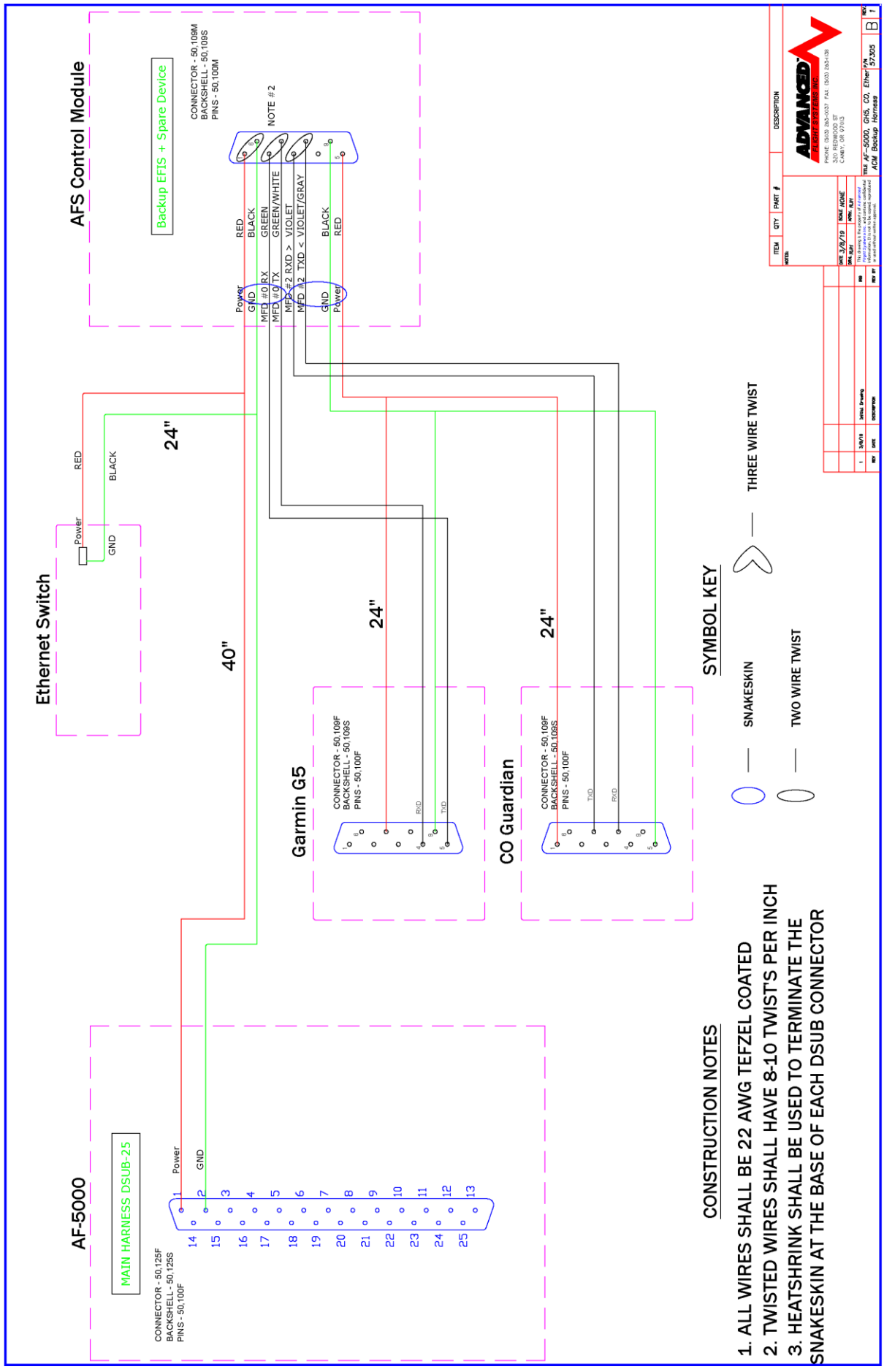

NOTE:
ALL WIRES 22 AWG
AFS Control Module
GPS NAVIGATOR NAV/COM
AFS Control Module
NAV/COM #1
IFD540
DUAL SCREEN
AFS ONLY
GROUND TO
HOUSING


AFS Control Module
Backup EFIS + Spare Device
CONNECTOR - 50,109M
BACKSHELL - 50,109S
PINS - 50,100M
NOTE #2
RED
BLACK
GREEN
GREEN/WHITE
VIOLET
VIOLET/GRAY
BLACK
RED
Power
GND
MFD #0 RX
MFD #0 TX
MFD #2 RXD >
MFD #2 TXD <
GND
Power
Garmin G5
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
RXD
TXD
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ITEM
QTY
PART #
DESCRIPTION
ADVANCED FLIGHT SYSTEMS INC.
PHONE: (503) 783-1037 FAX: (503) 783-1138
330 REDWOOD ST
CANBY, OR 97013
G5 EFIS to ACM HARNESS
57315
A
3


SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
AFS Control Module
NAV/COM #1 DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
COM1 POWER
COM1 GND
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
RED
BLACK
W
W/B
W
W/O
W/B
NOTE #2
COM 1 RADIO (REMOTE)
COM 425 MODULE MAIN HARNESS
DSUB-15
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
MASTER POWER
POWER OUT
Data In
Data Out
GND
Com 1 PTT
Master GND
Panel Enable
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
COM 1 RADIO (PANEL)
COM 25 MODULE MAIN HARNESS
DSUB-15
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
PANEL ENABLE
DATA OUT
DATA IN
GND
POWER
WHITE/BLUE
BLUE/ORANGE
ORANGE/BLUE
BLACK
RED
LENGTHS (INCHES)
TYPE
ACM/ REMOTE
REMOTE/ PANEL
7 30 24
8 31 20
10 45 34
14 59 38
SPORT 28 33
ADVANCED
NAV/COM #1 HARNESS
P/N 57.7005
REV A 2


AFS Control Module
INTERCOM/AUDIO PNL DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
NOTE #5
INTERCOM POWER
INTERCOM GND
PILOT PTT
EFIS Audio R
EFIS Audio Lo
COPILOT PTT
RS-232 RX Audio P
RS-232 TX Audio P
INTERCOM D/M
RED
BLACK
BLUE
ORANGE/BLUE
WHITE/BLUE
VIOLET
BLUE
BLUE/GREEN
YELLOW
RS-232 RX Audio P BLUE
RS-232 TX Audio P BLUE/GREEN
YELLOW
RING TERMINAL TO TRAY
ENTERTAINMENT
ENT LOW BLUE/WHITE
ENT LEFT
ENT RIGHT ORN/WHT
PILOT MIC (SMALL)
COPILOT MIC (SMALL)
PILOT PHONE (BIG)
COPILOT PHONE (BIG)
BLU/WHT
WHT
ORN/WHT
ADVANCED FLIGHT SYSTEMS INC.
PHONE: (903) 283-0037 FAX: (903)
885 KENWOOD ST
Canby, OR 97013
GTR 200 TO ACM
57726


RV-7
25"
AFS Control Module
GPS NAVIGATOR NAV/COM
POWER 5 AMP
GTN POWER 5 AMP
GTN GND
GTN POWER 5 AMP
GTN GND
RS-232 RX
RS-232 TX
RS-232 RX
RS-232 TX
ARINC GPS OUT 1A
ARINC GPS OUT 1B
ARINC IN 1A
ARINC IN 1B
GPS-175
J1751
AIRCRAFT POWER
AIRCRAFT POWER
REMOTE POWER ON
AIRCRAFT GROUND
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 IN 2
RS-232 OUT 2
RS-232 IN 3
RS-232 OUT 3
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
CONFIG MODULE CLOCK
CONFIG MODULE DATA
CONFIG MODULE GND
CONFIG MODULE POWER
WHT
YEL
BLK
RED
J1751 Connector
ADVANCED
GPS-175 to ACM
P/N 57536


AFS Control Module
Backup EFIS + Spare Device
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
NOTE #2
RED
BLACK
GREEN
GREEN/WHITE
VIOLET
VIOLET/GRAY
BLACK
RED
Power
GND
MFD #0 RX
MFD #0 TX
MFD #2 RXD > VIOLET
MFD #2 TXD < VIOLET/GRAY
GND
Power
Ethernet Switch
RED
BLACK
Power
GND
24"
40"
24"
24"
Garmin G5
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
RXD
TXD
CO Guardian
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
TXD
RXD
AF-5000
MAIN HARNESS DSUB-25
CONNECTOR - 50.125F
BACKSHELL - 50.125S
PINS - 50.100F
Power
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ADVANCED FLIGHT SYSTEMS INC
TITLE AF-5000, G5, CO, Ethernet P/N 57305
ACM Backup Harness

B & C Alternators

B & C sells two different linear regulators for a 12V system:

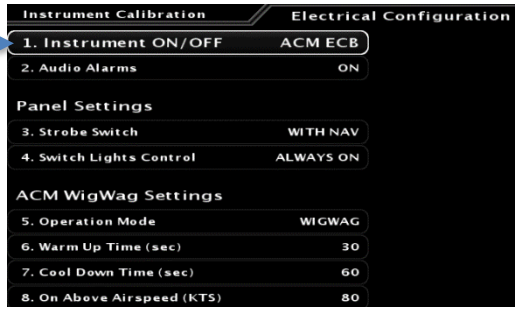
LR3C14 Main Alternator Regulator designed to turn on with the panel mounted ALT switch. Can be used as the backup alternator regulator with an ALT2 panel switch.

SB1B14 Backup Alternator Regulator designed to automatically turn on when the buss voltage drops below 13 volts. The S1B14 does not use a backup alternator switch on the panel. The SB1B14 has a warning line that can be connected to an EFIS input. The warning line will pull to ground when the backup alternator field is turned on and the backup alternator is being used. If the backup alternator is outputting more than 20amps the warning line will flash at 2hz.

Upgrading from an ACM-FUSE to ACM-ECB – AF-5000

If you are upgrading from an ACM-FUSE to ACM-ECB you will need to do the following:

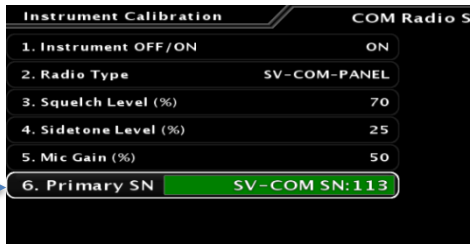
1. Remove all connectors from the ACM
2. Unbolt power and ground harnesses from ACM red and black posts.
3. Remove ACM module mounting screws and remove ACM from aircraft
4. Install the new ACM module in aircraft using the 4 mounting screws
5. Install power and ground harnesses to the red and black ACM posts - ***DO NOT OVERTORQUE THE POST NUTS, THEY ARE BRASS AND WILL BREAK IF OVERTORQED.***
6. Install ACM Harness connectors. Verify that you are connecting them to the correct location.
7. Turn ON the AUTOPILOT panel switch
8. Turn ON the MASTER switch
9. Turn ON the AVIONICS switch.
10. From the EFIS PFD go into the Calibration Advanced SV-NETWORK page SET > CAL > 2. Advanced SV-Network
11. Press SCAN
12. Press UPDATE is any item is RED
13. On the EFIS PFD and MFD change the Electrical setting from ACM to ACM-ECB



14. Reconfigure the Flap positions
15. Verify the Circuit Breaker sizes from the **CHECK > ELEC** menu.

Changing a SV-COM Radio

1. Remove all connectors from the SV-COM
2. Replace the SV-COM
3. Install ACM Harness connectors. Verify that you are connecting them to the correct location.
4. Turn ON the AUTOPILOT panel switch
5. Turn ON the MASTER switch
6. Turn ON the AVIONICS switch.
7. From the EFIS PFD go into the Calibration Advanced SV-NETWORK page SET > CAL > 2. Advanced SV-Network
8. Press SCAN
9. Press UPDATE is any item is RED
10. On the ***EFIS PFD and MFD*** select the new Primary SN for the new SV-COM



AF-5000 EFIS Messages

The **EFIS Status Message Bar** can display a number of Status or Warning messages from connected components.

EFIS Messages

ACM Messages

ALARM

ELEC COM

ELEC OFFLINE

GTR/GNC

COM NEEDS SERVICE

PUSH-TO-TALK KEY STUCK

COM TX POWER LIMITED

COM LOCKED TO 121.500 MHZ

GNC-255

VLOC NEEDS SERVICE

GLIDE SLOPE NEEDS SERVICE

NAV REMOTE TRANSFER STUCK

Autopilot

CWS ACTIVE / RELEASE WHEN READY

AP ENGAGE ARMED / RELEASE WHEN READY

AUTOPILOT / MIN SPEED

AUTOPILOT / MAX SPEED

AP SERVOS NOT FOUND / TOUCH TO SCAN

AP SERVO CAL REQD / TOUCH TO BEGIN

AP SERVO TEST REQD / TOUCH TO BEGIN

ADAHRS

USING AHRS:# /

SV-ADAHRS

XBOW500-AHRS

XBOW525-AHRS

AFS-AHRS

FSX-AHRS

DEMO-AHRS

VN200-AHRS

D6/10/100-AHRS

GARMIN-G5

MAGNETOMETER /

ERROR

TOUCH TO CALIBRATE

CALIBRATION

WARNING: /

AHRS MISMATCH

AHRS 1 OFFLINE

AHRS 2 OFFLINE

BACKUP EFIS OFFLINE

AHRS AIDING FAIL

AHRS AIDING OFF

Landing Gear

GEAR: UP

GEAR: DOWN

GEAR: TRANS

GEAR: ERROR

OVERSPEED

RAISE GEAR

POSN SWITCH

RUNWAY

WATER

Misc

TOUCH TO VERIFY / EMERGENCY SETTINGS

PLEASE VERIFY / EMERGENCY SETTINGS

GPS OFFLINE

GNAV1

GNAV2

GNAV3

GPS1

GPS2

GPS3

GPS INTEGRITY

GNAV1

GNAV2

GNAV3

GPS1

GPS2

GPS3

HIGH RES TERRAIN / NOT FOUND

AOA CAL /

FLAPS UP, CP: ***

FLAPS DN, CP: ***

SAVING SCREENSHOT <name> /

PLEASE WAIT

OUT-OF-MEMORY

HW ERROR DETECTED / PLEASE CONTACT AFS

MAINTENANCE DUE / TOUCH TO UPDATE

ON BATTERY / ## VOLTS

SD CARD / READY

SD CARD / NOT FOUND

USB MEDIA / READY

PLAYBACK MODE ACTIVE / DO NOT OPERATE AIRCRAFT

WARNING: INSUFFICIENT MEMORY / PLEASE CONTACT AFS_SUPPORT

CO Detector

CO-DETECT /

OFFLINE

CHECK BIO DATA

CABIN ALTITUDE ### FEET

CABIN ALTITUDE ### METERS

CO LEVEL ## PPM

SPO2 ##%

HR: ## BPM

Flight Planning

VERTICAL TRANSITION /

CLIMB TO ### IN ## SEC

DESCEND TO ### IN ## SEC

LEVEL AT ### ## IN ## SEC

LATERAL TRANSITION / TURN TO HDG: ### IN ## SEC

SET ILS / INBOUND COURSE

CROSSING FL180 BARO / SET TO STD

ADJUST ALTITUDE BUG / AT OR BELOW ##

Transponder

TRANSPONDER /

UPGRADE AVAILABLE

TX RESTART

DPSK UNLOCK

RX PSU FAIL

RX FAULT3

RX FAULT4

SYTH UNLOCK

TX FAULT2

ANT FAULT (#W)

TX LOW PWR (#W)

TX PSU HI (#V)

TX PSU LO (#V)

SQTR FAIL

REMOTE HOT (#C)

NO ADSB POS

GENERIC FAULT

TRANSPONDER UPGRADE: #% / DO NOT REMOVE POWER

UPGRADE FAILED / CONTACT AFS FOR SUPPORT

UPGRADE COMPLETE / CYCLE POWER TO TRANSPONDER

COPYING FILE #%

ERROR COPY FILE / *filename*

COPY FILE DONE

WRITING FILE

TRAFFIC AUDIO / ENABLED

TRAFFIC AUDIO / DISABLED

SV NETWORK / TOUCH TO UPDATE

SV NETWORK / NEEDS UPDATE

Audio Panel

CALL FROM: # / TOUCH TO ANSWER

CALL TIME: ##:##

TOUCH TO HANG UP

CALL ENDED

Engine Alarms

ALARM /

ALTITUDE

AOA

AIRSPEED

BAT VOLTS

MAIN VOLTS

OAT

AUX VOLTS

VERTSPEED

FUEL_COMP

RPM

MANIFOLD

FUEL PSI

FUEL FLOW

AMPS

OIL PSI

OIL TEMP

CARB TEMP

TANK 1-4

ELEV TRIM

AIL TRIM

FLAP ANG

EGT 1-6

TIT 1-2

CHT 1-6

COOLENT

LANDING GEAR

GEAR OVERSPEED

MACH LIMIT

Inputs

EFIS 1-3 /

TANK TRANSFER

CANOPY

FLAPS

GEAR DOWN

CONFIRM

GEAR UP

TANK 3 XFER

TANK 4 XFER

PITOT WARN

STALL WARN

Registration Information

To receive important notification of Service Bulletins, and service difficulty reports, please EMAIL the following information to:

Info@Advanced-Flight-Systems.com

Or Mail to:

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320 S. Redwood St.
Canby OR 97013 USA

*Owner's Name:*_____

Address: _____

_____

City: _____

*State:*_____*Postal Code ZIP:* _____

Country: _____

Home telephone: _____

Business Telephone: _____

E-mail: _____

Aircraft Model and N#: _____

*Engine Model :*_____

*System Model #:*_____*Serial Number:*_____

*Installer:*_____