Digital Avionics Stack
Installation & Operations Supplement

Thank you for purchasing our Digital Avionics Stack and Remote Instrument Console (RIC).

We utilize quality electronic components throughout the Avionics and RIC to insure years of enjoyment with little or no maintenance required. The panels/components are modular in design and are easily removed for repair or upgrade should it be required. Service and or upgrade can only be done via our service center located at our headquarters in Mather California.

Please keep in mind that these are " simulated avionics" and cannot be used in an aircraft.

Although our hardware simulates aircraft avionics and is similar in design and function this supplement does not substitute for real aircraft avionics or aircraft manufactures operating principles, procedures or training.

Always when using sophisticated devices such as ours you should consult approved flight instruction materials and licenced flight instructors for questions regarding proper operations.

Once again thank you for being a Precision Flight Controls customer.

Digital Avionics Stack
Installation and Setup

Digital Avionics

Graphic displayed
on instrument
screen (if equipped)

Avionics Rear Panel

RIC PWR 12V | PWR 12V | SLAVE BUS | USB TO PC | FIRMWARE UPDATE
PWR XMIT

Optional

Power Supply

Power Supply

Remote Instrument Console (RIC)
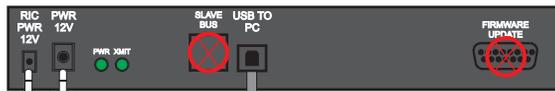
INSTRUMENT
COMPUTER (BACK)

VIDEO

TO POWER   POWER

SOUND

SERIAL
PORT

1394
FIRE
FIREWIRE

MOUSE NIC

USB
PORTS

Hardware
Avionics and Remote Instrument Console:

Install Avionics Stack

Set the avionics console on a flat surface or
on top of your flight console.

Plug in the power connector to the back of the
avionics and then plug in the power supply to
your power source (wall outlet or power strip)

Plug in the USB cable to the back of
the avionics stack and to your computers
USB port or USB hub.

Install Remote Instrument Console (RIC)

Plug in the power connector to the back of the
RIC and then plug in the power supply to your
power source (wall outlet or power strip)

Plug in the USB cable to the back of
the RIC and to your computers USB port or
USB hub.

Software:
Install PFC Plug-In for X-Plane
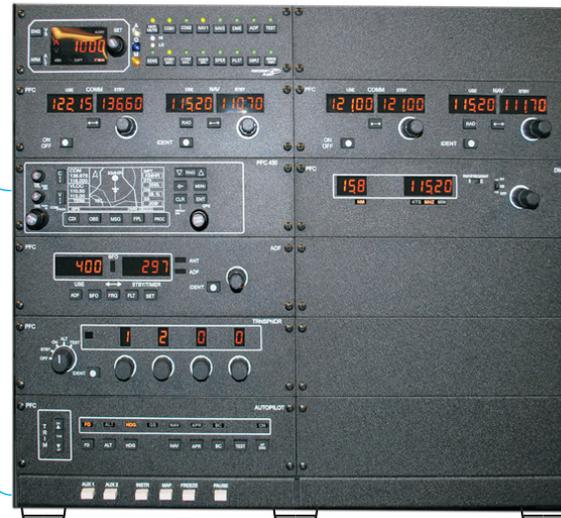or install PFCHID DLL for Flight Simulator.

Components Included:

1- Avionics Console
1- Remote Instrument Console (RIC)
2- Power Supply
1- Power Splitter
2- USB cables
1- Driver CD
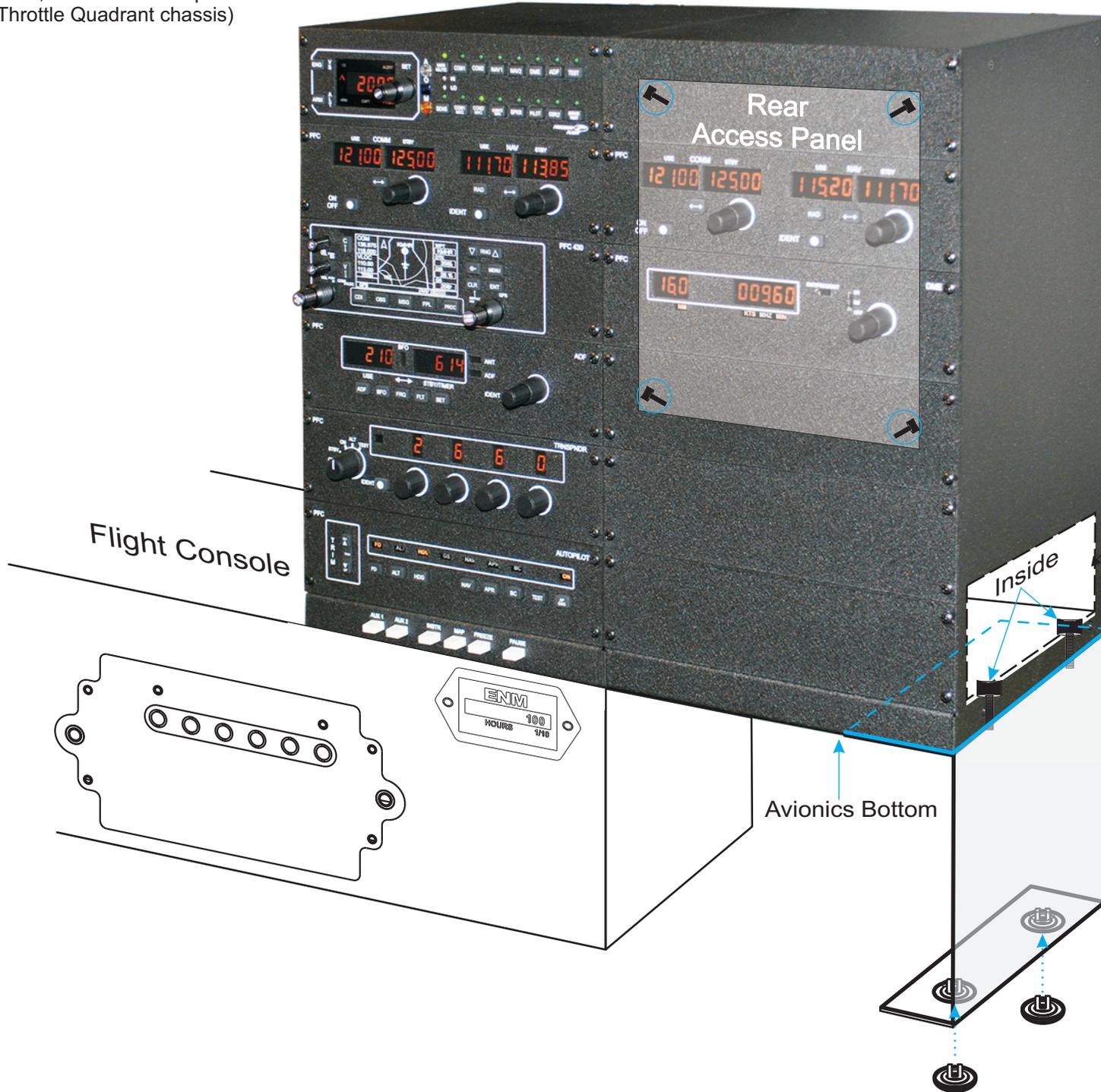
Digital Avionics Stack Support Bracket Installation

(only required when installing onto a C2, Cirrus II or on top of a Throttle Quadrant chassis)

Rear Access Panel

Flight Console

Note:
If you place the avionics on its side it will be easier to align the thumb screws

(1)

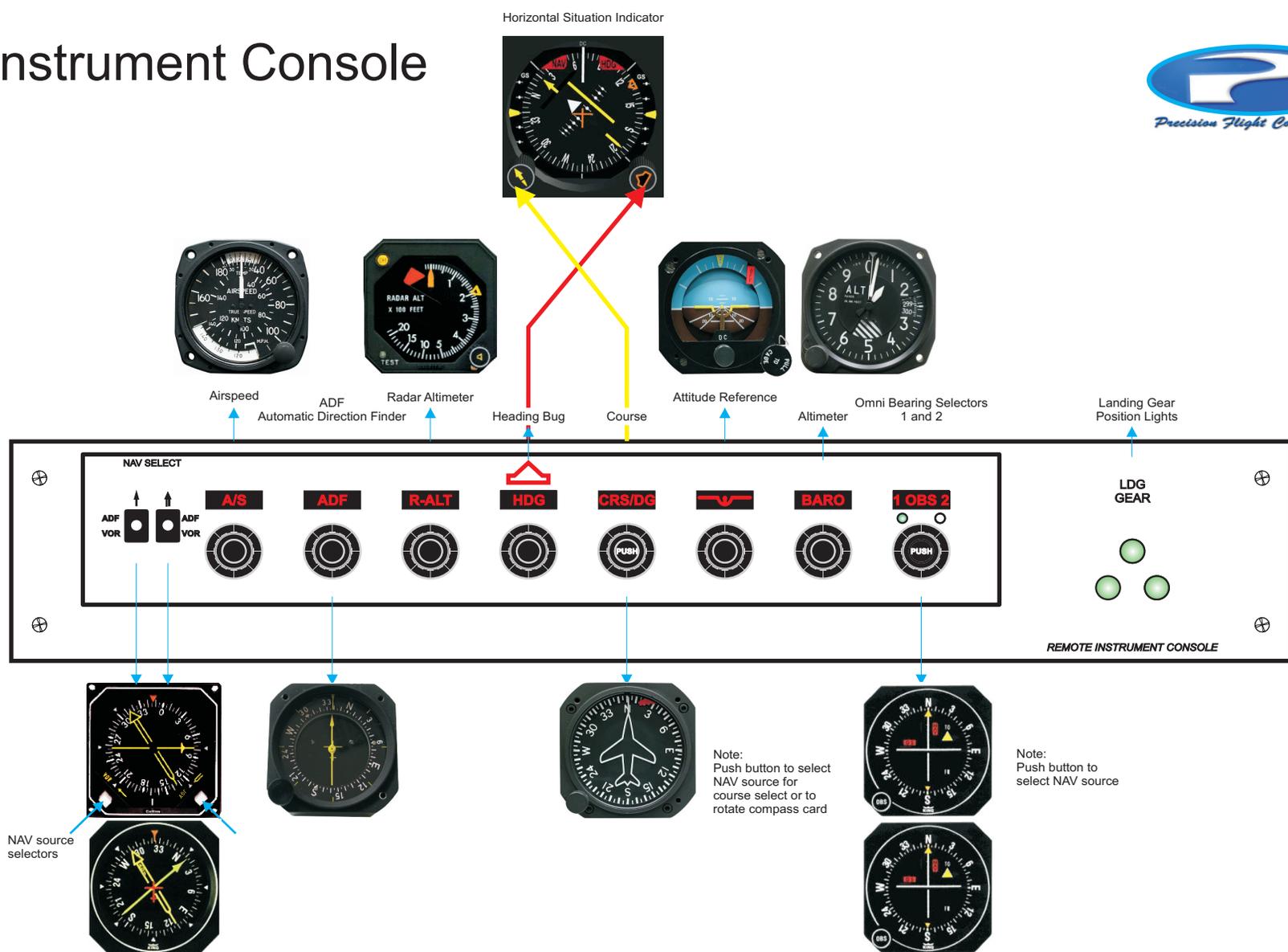Remove Rear Access Panel thumb screws (4)

"cut away view"

Inside

(2)

Reach inside to install thumb screws (2)

Note:
Depending on your console a spacer may be required (provided with your avionics)

Place between **Support Mount** and avionics bottom

Avionics Bottom

Support Mount

Rubber Feet (2)
(push in from bottom)

Remote Instrument Console (RIC)

Precision Flight Controls, Inc.

Airspeed

ADF
Automatic Direction Finder

Radar Altimeter

Heading Bug

Course

Attitude Reference

Altimeter

Omni Bearing Selectors
1 and 2

Landing Gear
Position Lights

NAV SELECT

ADF
VOR

ADF
VOR

A/S   ADF   R-ALT   HDG   CRS/DG   BARO   1 OBS 2

PUSH

PUSH

LDG
GEAR

REMOTE INSTRUMENT CONSOLE

NAV source
selectors

Note:
Push button to select
NAV source for
course select or to
rotate compass card

Note:
Push button to
select NAV source

Note:
Not all aircraft panels are equipped with the above instruments.
If the instrument is not on the panel the encoder or associated pushbutton
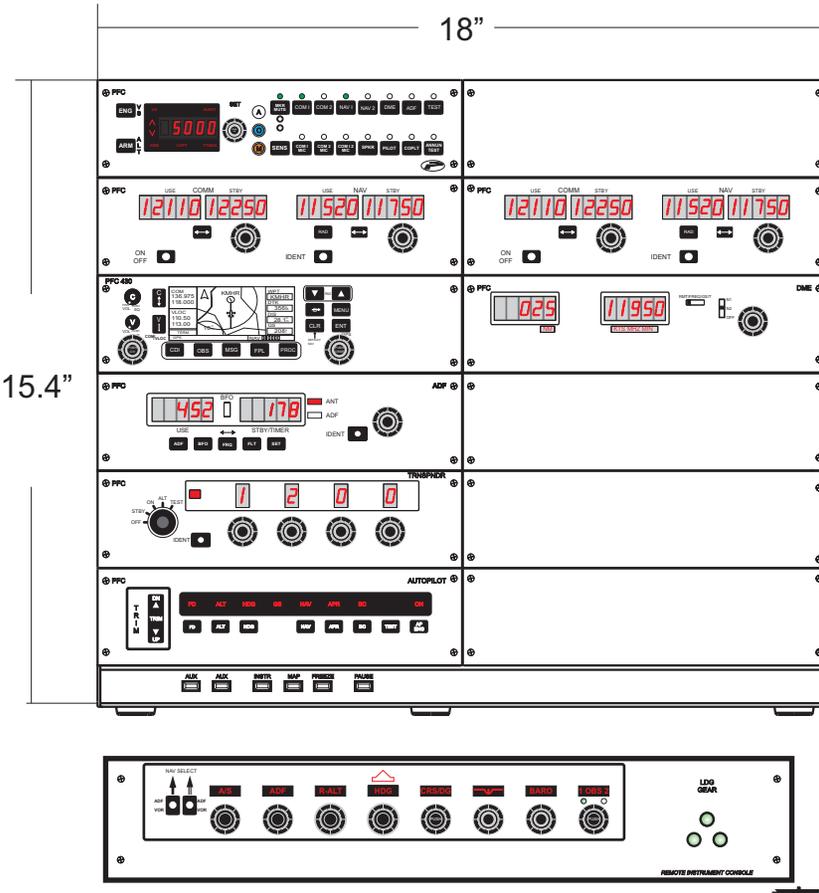will have no function.

Connections:
USB
12v power supply
Microsoft FSX and X-Plane compatible
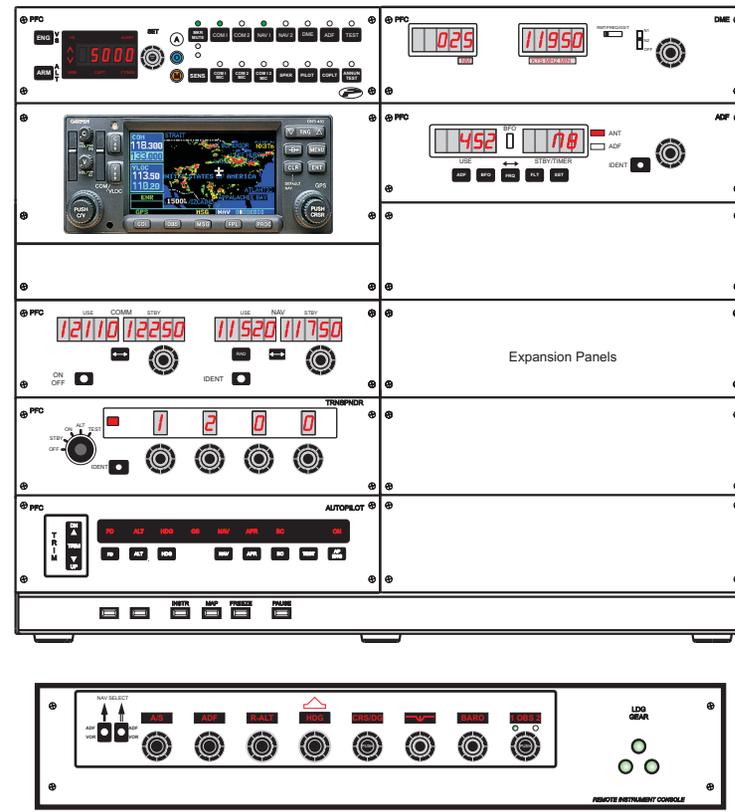
4

Digital Avionics Configurations
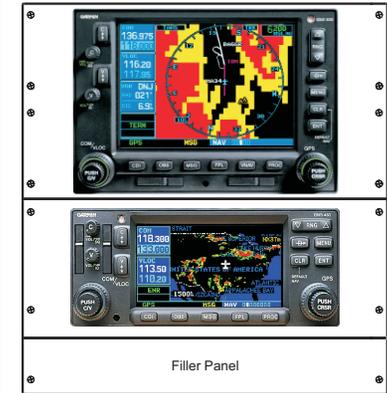
(typical, yours may vary)

Standard Configuration

18"

15.4"

Optional support stand
for use with flight consoles

- Altitude Pre-Selector / Audio Panel
- Dual Nav/Comms
- PFC G430 GPS Control Interface
- ADF
- Transponder
- DME
- Autopilot
- Remote Instrument Console

Optional configuration with Garmin GNS 430

Expansion Panels

- Altitude Pre-Selector / Audio Panel
- Nav/Comm
- Garmin GNS 430 GPS
- ADF
- Transponder
- DME
- Autopilot
- Remote Instrument Console

Optional Garmin GNS 430 or GNS 530 or Both


Filler Panel

PFC G430 Control Interface

The PFC G430 GPS Control Interfaces with X-Plane's generic, Microsoft's FSX GPS, FTS's 430 and Reality XP's interface to Garmin's GNS 430W training software.

Refer to our PFC G430 Control Interface Manual for more information.

Visit the respective web sites for current updates and information concerning the use and operation of this and other products. Reality XP, FTS, Precision Flight Controls, Inc. ®,Garmin®, Apollo, SafeTaxi®, FliteChart®, and MapSource® are trademarks of Garmin Ltd. or its subsidiaries and may not be used without the express permission of Garmin. NavData® is a trademark of Jeppesen, Inc.
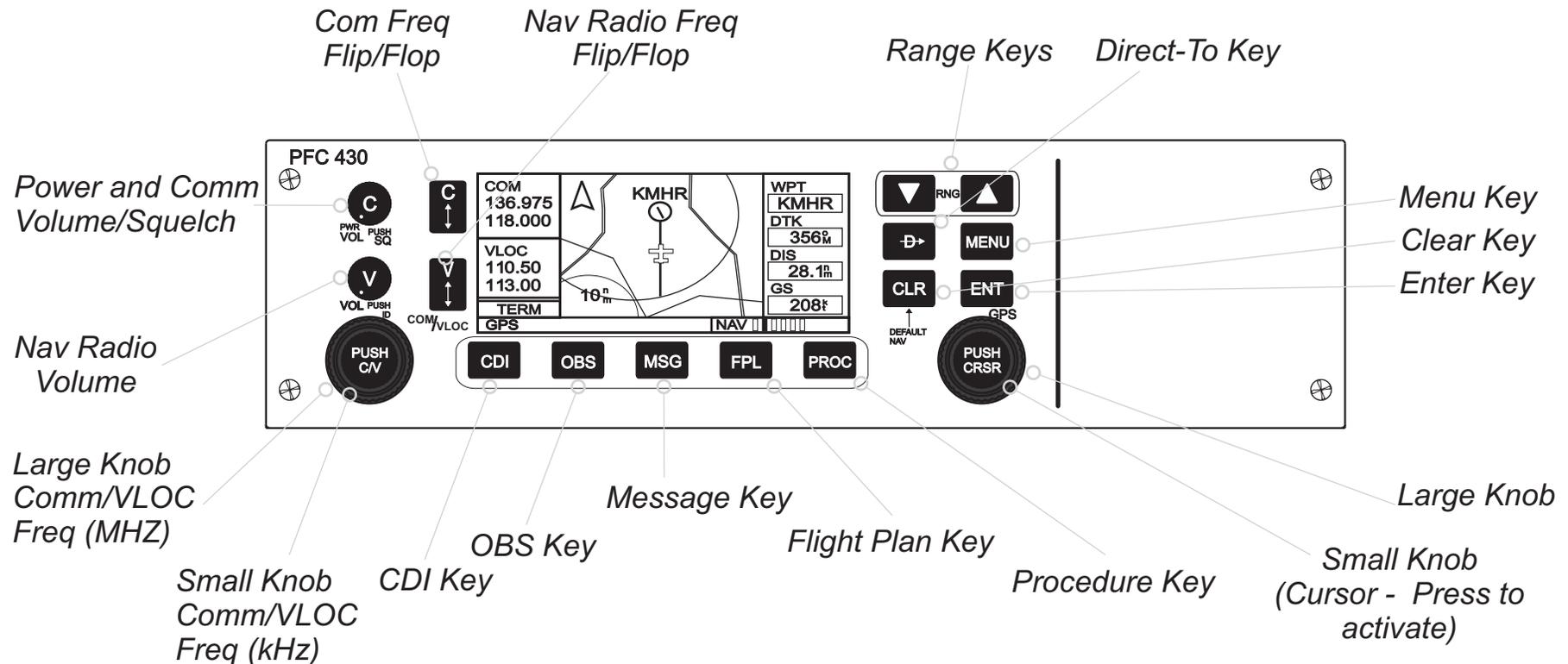
Altitude Pre-selector / Audio Panel

Altitude Pre-Selector
Note: Our Altitude pre-selectors functionality is similar to the Bendix King KAS 297 model .

Description:

The altitude selector permits the pilot to preselect a desired altitude in a climb or descent. The system provides automatic capture and hold upon reaching selected altitudes. The altitude display indicates the selected altitude. A knob on the altitude select controller, is used to set the altitude in the display

The Altitude Pre-select mode is selected by pressing the ALT ARM button on the mode selector. The desired altitude is selected on the altitude pre-select controller via the control knob. Vertical Speed (VS) can be selected to fly to the selected altitude. When outside the altitude bracket trip point (± 300ft), the ALERT annunciator, along with the selected pitch mode, is illuminated on the mode selector. When reaching the bracket altitude, the system automatically switches to the CAPT mode and the previously selected pitch mode is canceled.
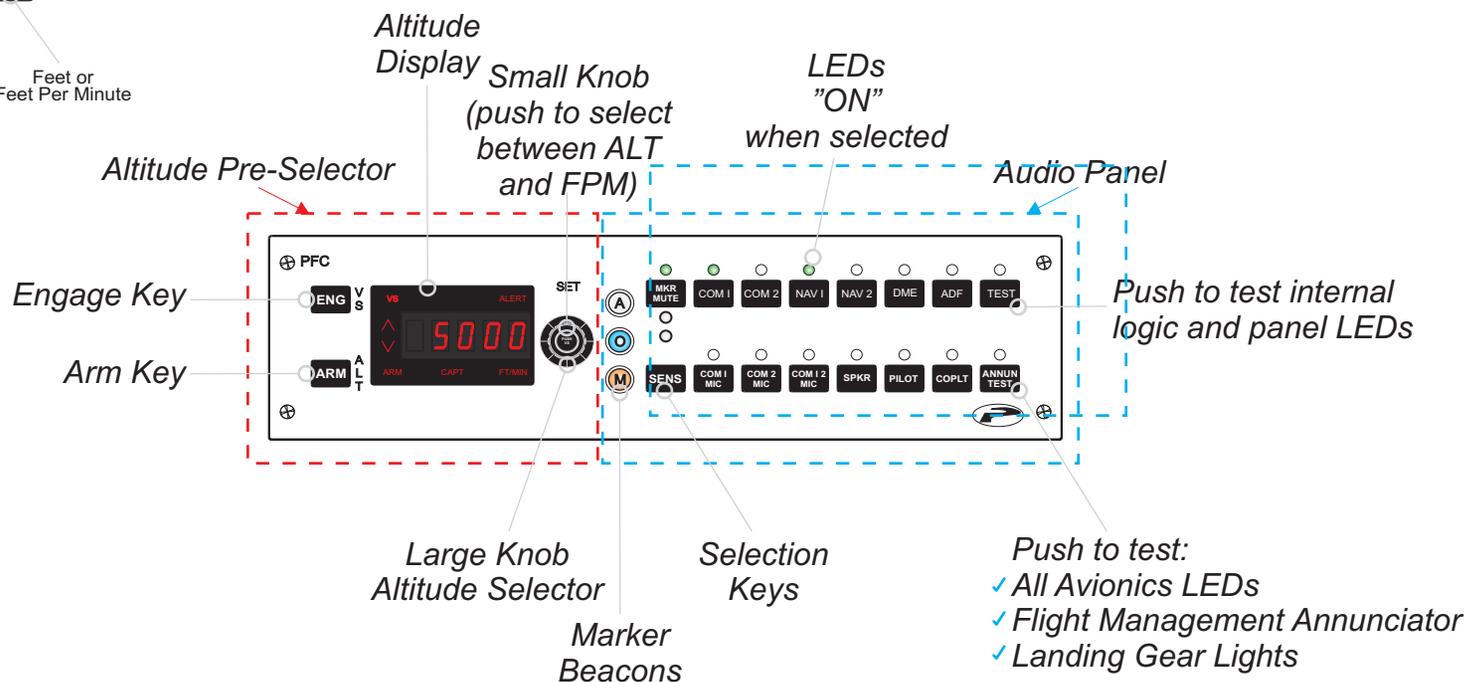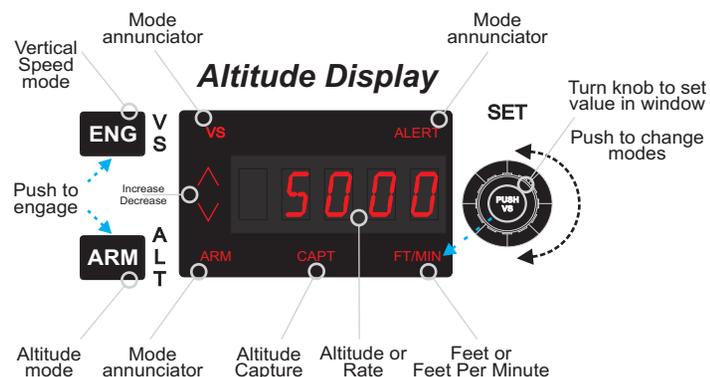
Autopilot Operations
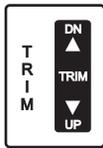
Vertical Trim

This rocker switch allows you to make small corrections in selected altitude while in altitude hold, or adjust pitch attitude at a rate of approximately .9 degrees per second when not in altitude hold.

FD

Flight Director V-bar will appear and command wings level and pitch attitude of the aircraft at the time of mode selection.

ALT

Altitude hold. The V-bar will command the pitch attitude necessary to maintain the engaged altitude.
Note: For smoother operation, press the "ALT" button when the vertical velocity is no more than 500 fpm.)

HDG

Heading. In the heading mode, the autopilot will intercept and fly a selected heading. Select a desired heading on navigation instrument then select HDG mode. The V-bar will command the necessary bank to turn to and maintain the selected heading.

NAV

Navigate (VOR/RNAV). The V-bar will command the bank necessary to turn to and maintain a VOR or RNAV course selected by the pilot. The V-bar will command the bank and pitch necessary to capture and track localizer and glideslope for ILS approaches, or to capture and track the appropriate course for VOR or RNAV. The V-bar will command the bank necessary to capture and track a reverse localizer course.

NOTE: You should consider using HDG select mode just prior to VOR station passage. If the autopilot is engaged in NAV mode it may cause erratic maneuvers while following a rapidly changing course deviation needle as the aircraft flies in the cone of confusion.

APR

Approach (ILS, VOR or RNAV). This arms the automatic capture function. (The "APR" light will flash to signify the approach mode is armed.) **NOTE:** GS is locked out in VOR or RNAV APR.

BC

The back course (BC) mode provides guidance to the pilot (or autopilot) in intercepting and tracking a reverse course. The V-bar will command the bank necessary to capture and track a reverse localizer course. Glideslope is locked out.

Test Button

Depressing the test button initiates a test of the KFC 150 circuitry, including operation of various modes and of the trim. The test must be performed after power is applied and before the autopilot can be engaged, but the flight director can be used without the test being performed.

AP ENG

Autopilot Engage Aircraft control surfaces (ailerons and elevators) smoothly respond to all selected Flight Director mode commands with automatic pitch trim engages Yaw Damper if present.

Autopilot Operations

Precision Flight Controls, Inc.
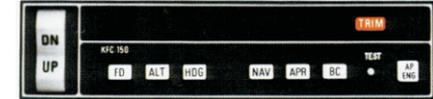
Autopilot Note: *Our Autopilot functionality is similar to the Bendix King KFC 150.*

Note: Not all aircraft are equipped with a Flight Director
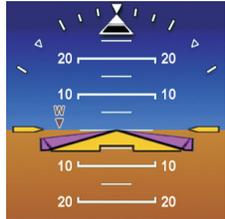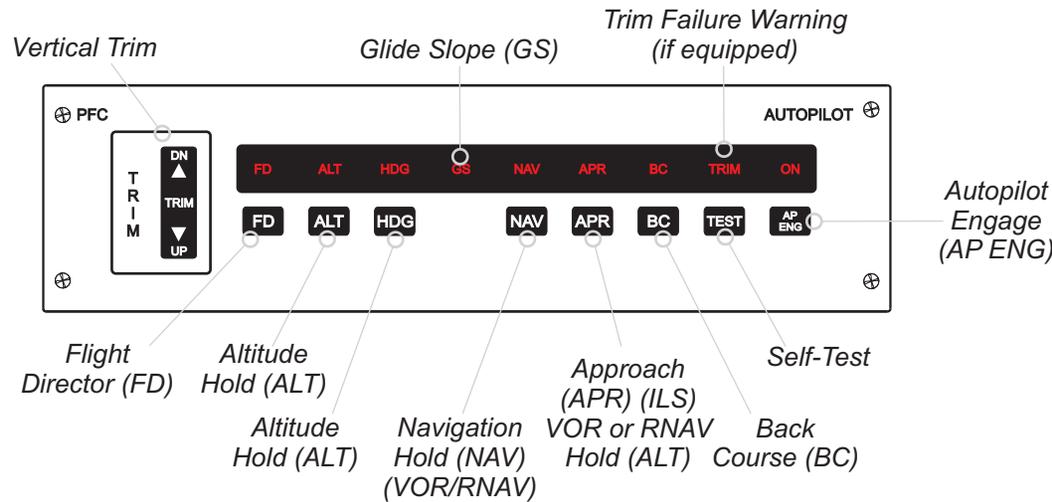
The PFC autopilot is a panel mounted digital flight control system. It has the autopilot capability you need, plus a complete flight director system. The flight director provides attitude commands for the pilot to hand-fly, or displays to the pilot the commands being followed by the autopilot.

Vertical Trim · Glide Slope (GS) · Trim Failure Warning (if equipped) · Autopilot Engage (AP ENG) · Flight Director (FD) · Altitude Hold (ALT) · Approach (APR) (ILS) VOR or RNAV Hold (ALT) · Self-Test · Altitude Hold (ALT) · Navigation Hold (NAV) (VOR/RNAV) · Back Course (BC)

Flight Director:

The flight director system is a computer which calculates and displays the appropriate pitch and roll attitudes required to intercept and maintain a course, an approach path, an altitude or a heading. Once computed, the commands are displayed to the pilot on a single cue steering command on the Attitude Indicator (AI). The autopilot and flight director functions combine to provide sophisticated digital flight control capability for singles and twin engine aircraft.

Pressing FD (Flight Director) button on the autopilot control interface activates the Flight Director bars on the attitude indicator (AI).

Audio Panel PFA340

The PFC Audio panel is located on the right side of the Altitude Pre-Selector panel. Functionality of the panel is dependent of the flight simulation software you are using. Pushing any of the buttons once turns "ON" it's function and pushing it again turns "OFF" it's function. The "ON" position will be indicated by a LED located above the button.

Marker Mute

On / Off LEDS

COM 1&2

NAV 1&2 DME ADF

Push to test internal logic and panel LEDs

Push to test:
✓ All Avionics LEDs
✓ Flight Management Annunciator
✓ Landing Gear Lights

Marker Beacon Lamps

Marker Beacon Receiver Sensitivity

Transmitter (Audio/Mic) Selection Buttons

Speaker Function Button

Pilot / Co-Pilot Monitor Buttons
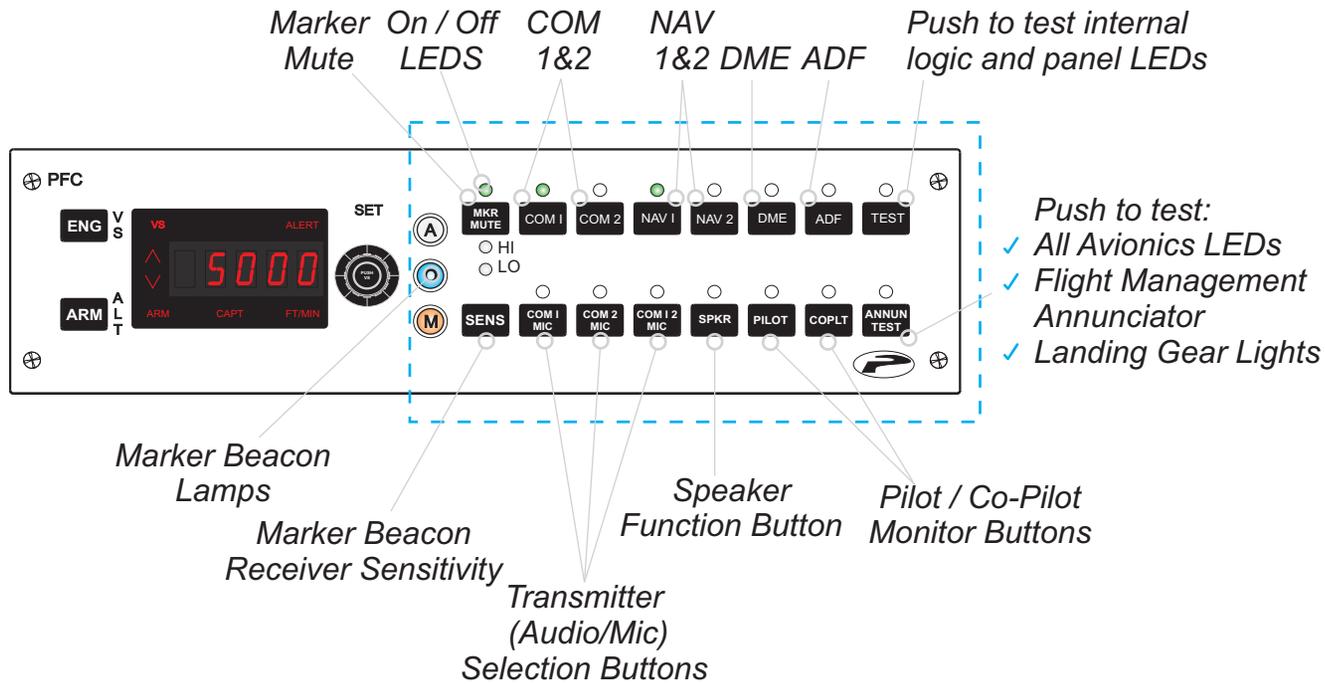
NAV/COMMs

The PFC Avionics Stack comes with two independent NAV/COMM radios. The COMM side is used for communication while the NAV side is used for Navigation. Turning the associated knob with increase or decrease the frequency selection for the associated radio. The radio frequencies are displayed in four separate windows and denoted by either 'USE" or "STBY". The "RADIAL" button will change the active frequency window to radial mode and display which radial you are currently tracking.

DME
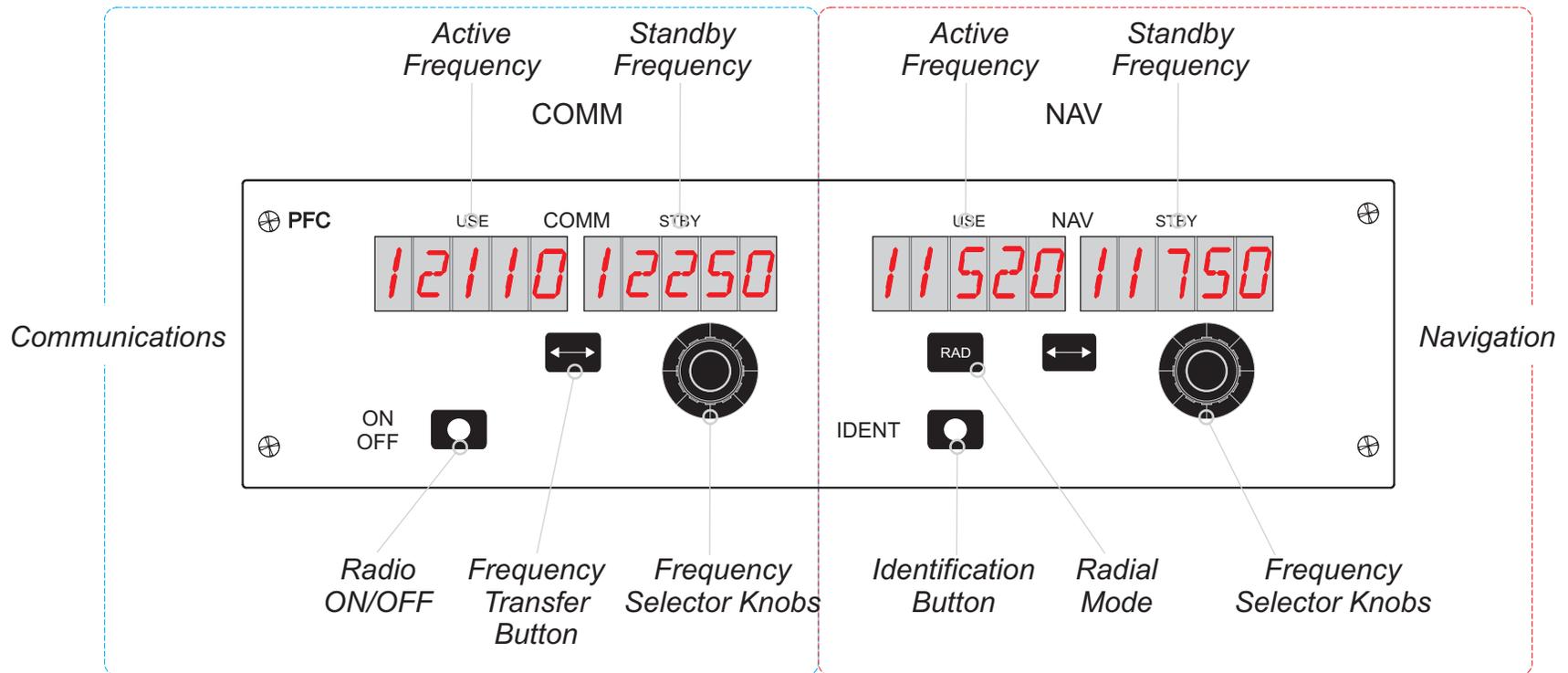
DME is still one of the most capable and useful tools in the IFR-equipped aircraft. It provides the essential distance, ground speed, and time enroute information that you need to navigate the airspace system. It also gives a pilot lower minimums on most approaches, including many that are published specifically for VOR-DME-equipped aircraft. This can make the difference between landing at home or having to divert to an alternate in bad weather. The PFC DME operates similar to a Bendix King DME KN62 model.

Range

Active Frequency
Ground Speed
Time To Station

Function
Switch

NAV Source
Selector Switch
3 Position

N1 = Selects NAV 1 Radio
N2 = Selects NAV 2 Radio
OFF= Radio Off

Note: *Mode Selector Switch must be "RMT" position*

Frequency
Selector Knobs

MHZ

KHz

Tune your frequency by using the two frequency selection knobs

PFC

025

NM

11950

KTS MHZ MIN

RMT/FREQ/GS/T

N1
N2
OFF

DME
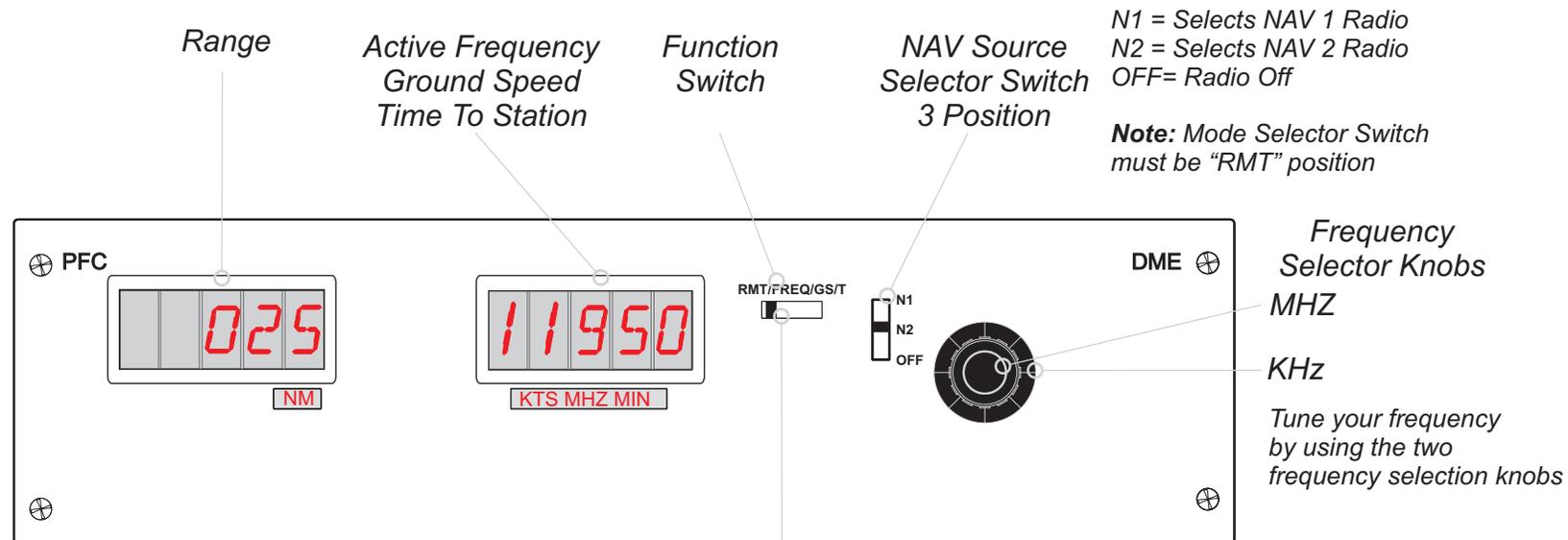
3-POSITION FUNCTION SWITCH
This switch determines both the information displayed and the channeling source.

On the Frequency (FREQ) setting, the unit can be channeled internally.

On Ground speed/Time-to-Station (GS/T), the unit holds the internally selected frequency and also displays distance, Ground speed and time-to-station information.

On Remote (RMT), the DME is channeled when you select your NAV frequency on the NAV receiver and displays distance, Ground speed and time-to-station once it locks in on a ground station.

ADF

An ADF still is a highly useful navigation instrument, particularly for IFR flying. Easy operation is its long suit. It is tough to beat a system that simply points to the station you tune in. Furthermore, instrument approaches into many small airports, especially outside the USA are still NDB-based. Lastly, if you are equipping an aircraft for operation outside of the USA you are generally required to have an ADF. The PFC DME operates similar to a Bendix King DME KR87 model.

In USE
Frequency

BFO
Annunciation

Standby
Frequency

ANT/ADF
Mode Annunciation
(Lit LED indicates selection)

PFC

BFO

452   178

USE   STBY/TIMER

ANT

ADF

IDENT

ADF

Frequency
Selector Knobs
Tune your frequency
by using the two
frequency selection knobs

KI229

ADF   BFO   FRQ   FLT   SET

Selects ANT
or
ADF mode

Select
BFO
Button

Frequency
Transfer
Button

Select Flight
Timer or
Elapsed Timer

Set and Reset
Elapsed Timer

Identification
Button

TRANSPONDER

Our Transponder looks and functions like the Bendix King's KT76A model. To operate the transponder make sure that the Functions Selector Knob is turned "ON". Normally after engine start you will palace the Function Selector in the "SBY" (Standby) position giving your transponder about 45-50 seconds to become operational. As soon as you are airborne turn the Function Selector to "ON", which places the transponder in normal Mode A operation. If your aircraft is equipped with an encoding altimeter, turn the Function Selector to the ALT (Altitude) position, for altitude reporting (Mode C) to ATC. Altitude reports are automatically updated in 100-foot increments, from -1,000 feet to 35,000 feet.

Important Codes

Code 7700: Reserved for emergencies. Use it to gain immediate attention and help form ATC monitoring your location.
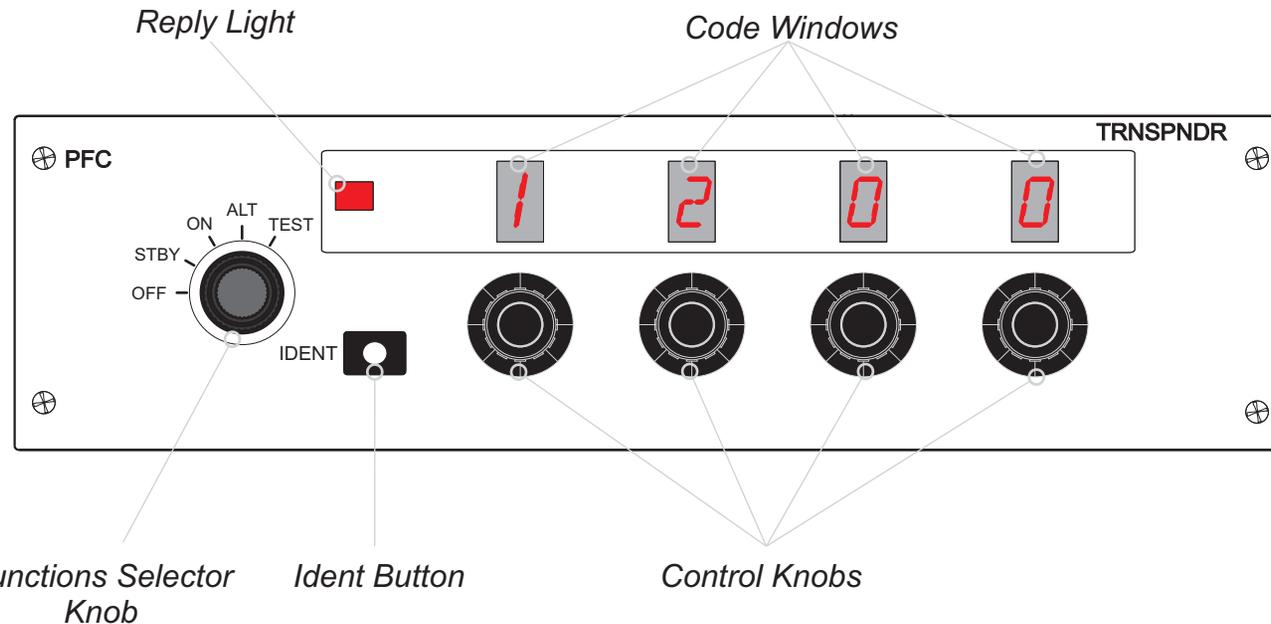**Code 7600:** Signifies communications failure. Use it to tell the controller that you COMM radio is not working. If you can still receive transmissions, respond to ATC with your transponder, following ATC instruction.
Code 7500: Used to report a hijacking.
Code 0000: Reserved for military aircraft. **Do not use this code!**

Reply Light

During normal peration, the flashing Relply Light indicates that the ransponder is functioning properly and replying to interrogations from ground radar. Interrogations occur at 10-15 second intervals corresponding to each radar sweep.

Reply Light   Code Windows

PFC   TRNSPNDR

Functions Selector Knob

Ident Button

Control Knobs

Squawk Ident

When you are asked to "ident" by ATC, briefly press the Ident pushbutton. Your aircraft will be positively identified to the Air Traffic Controller.

Altitude Encoding Altimeter