

C 172 Garmin 1000





AGENDA

- Forkortelser
- Draining av bensin på nye C172 maskiner
- Start av injection motor og tiltak ved feil startprosedyre
- Flight Display Indications
- Primary Flight Display
- Multi-Function Display
- Radio
- WARNINGS
- ABNORMAL OPERATION
- ANNUNCIATIONS & ALERTS
- Ta vare på flyene
- Fly sammen



IKKE på agendaen

- IFR
- GPS
- Navigasjon

Mål for gjennomgangen

- Få medlemmene opp i flyet for å fly VFR i en G 1000 maskin på en rask og sikker måte
- Gi mulighet til å få svar på spørsmål
- Senke terskelen for å ta utsjekk på G 1000
- Forebygge feil bruk og unødvendig slitasje/feil på utstyret



Forkortelser

PFD = Primary Flight Display

MFD = Multi Function Display

TAWS = Terrain Awareness & Warning System

LRU = Line-Replaceable Units

AHRS = Attitude & Heading Reference System

ADC = Air Data Computer

AFCS = Automatic Flight Control System

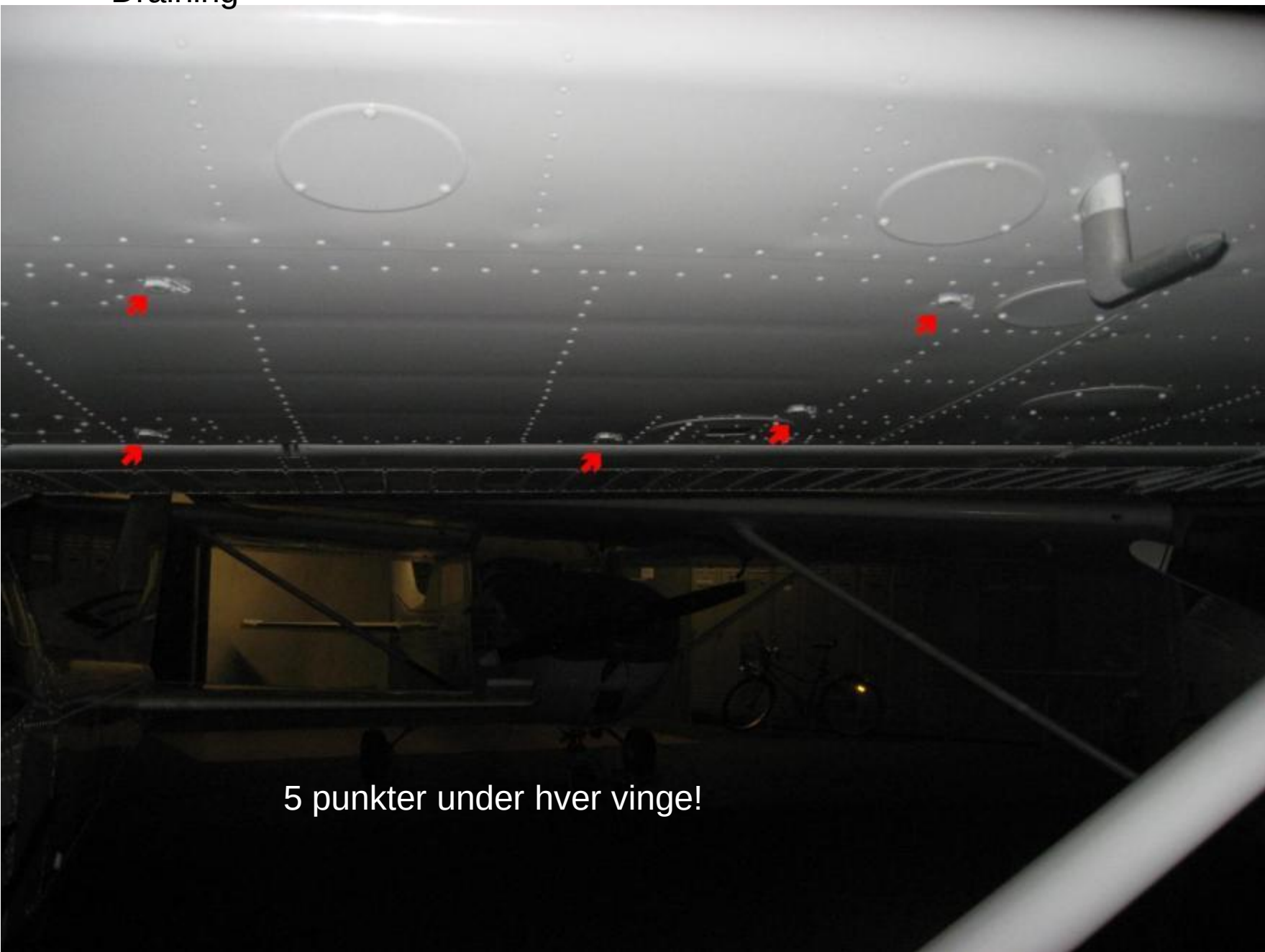
CDI = Course Deviation Indicator

OBS = Omni Bearing Selector

HSI = Horizontal Situation Indicator

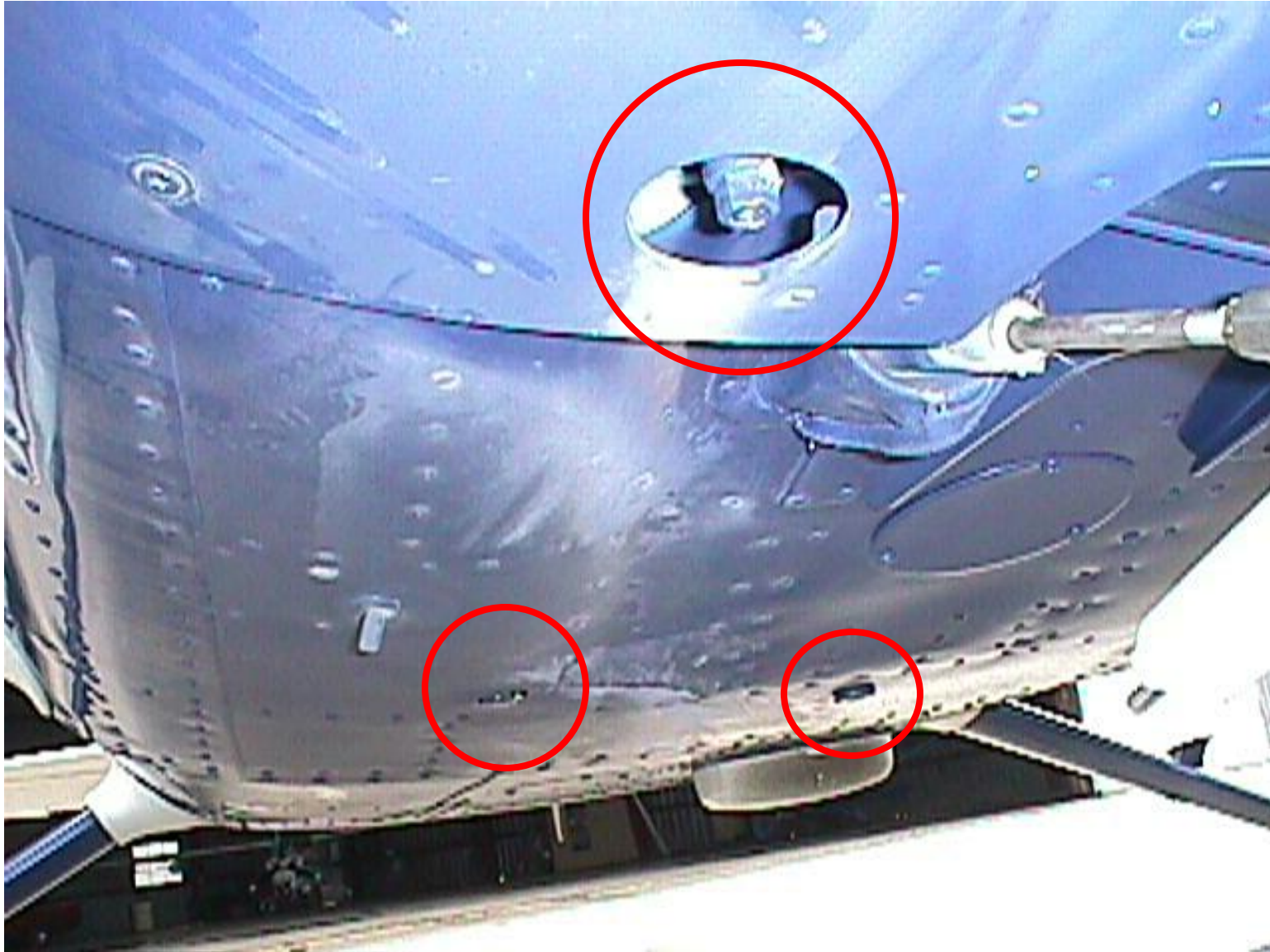
EIS = Engine Indication System

Draining



5 punkter under hver vinge!

Draining



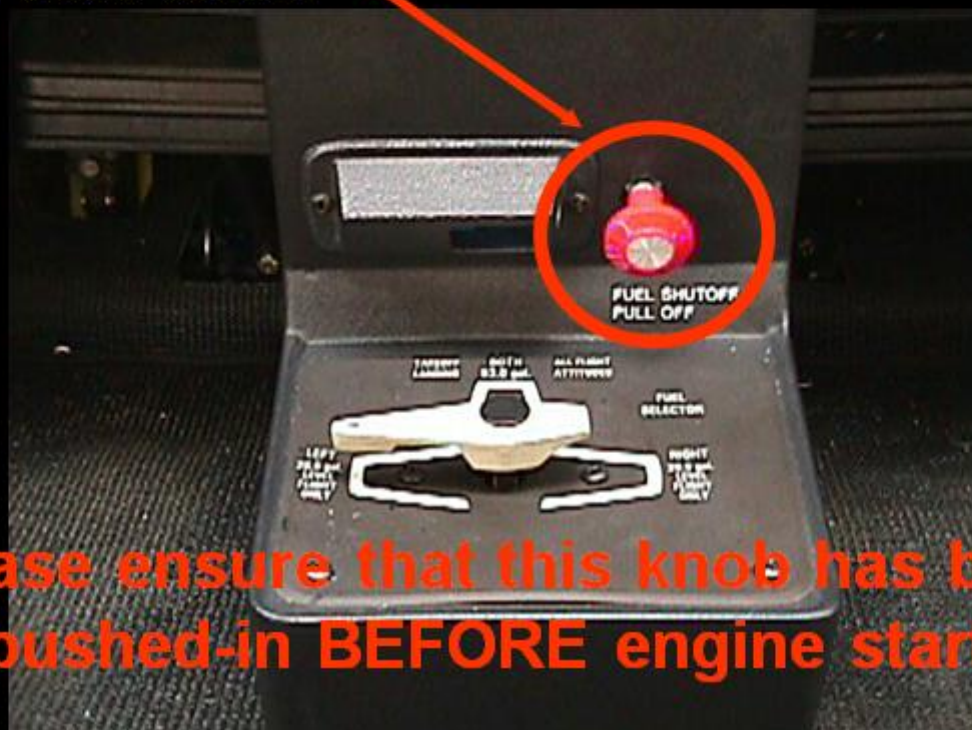
Tenk på miljøet når du drainer

- [GATS JAR FUEL SAMPLER](#)
- Lar oss draine store mengder, og så helle tilbake på tanken
- Sparer fuel
- Sparer miljø
- Bedre omdømme
- Bedre økonomi
- Filteret stopper vann, jet og urenheter



The Little Red Knob...

- There is a **red** fuel shut off valve located on the center pedestal above the fuel selector valve. Push-in to turn fuel ON, and Pull-out to shut fuel OFF.



Please ensure that this knob has been pushed-in BEFORE engine start.

Engine Start Checklist...

- 
- A decorative graphic consisting of a horizontal line with a color gradient from dark blue on the left to bright yellow on the right, ending in a large, stylized, multi-layered arrowhead pointing to the right.
- Open the Throttle 1/4 of an inch.
 - Set Mixture back to IDLE CUT OFF.
 - Propeller area... CLEAR!!!
 - Master Switch... ON.

Engine Start Checklist...



- Auxiliary Fuel Pump Switch...ON
- Mixture...ADVANCE until FF just starts to rise. THEN return to idle cut off position.
- Auxiliary Fuel Pump Switch...OFF
- OMIT this step if engine is warm.

Engine Start Checklist (Part 2)...

- Ignition Switch...START (release when engine starts).
- Mixture...ADVANCE *smoothly* to RICH when engine starts.

NOTE

If engine floods, turn OFF auxiliary fuel pump, place mixture in idle cut off, open throttle 1/2 to full, and crank engine. When the engine fires, advance mixture to full rich and retard throttle promptly.

Engine Start Checklist (Part 3)...

After the engine starts...

- Oil Pressure...CHECK.
- Auxiliary Fuel Pump...OFF.

- Tips: Hvis du er usikker på om motoren er varm eller kald; begynn med prosedyren for varm motor. Fortsett med prosedyren for kald motor dersom du ikke får start. Dette hindrer "flooding".

G 1000



Oversikt

Samme

Samme



Com/Nav/Intercom

Standby instrumenter

- **Flight Display Indications**
 - Primary Flight Display
 - Multi-Function Display
 - Flight Director/Autopilot Introduction
 - Operational Overview

Flight Display Indications



Traditional Panel Layout vs. G1000 Display

Flight Display Indications

• Current Airspeed

• Trend Vectors

• Vspeed References

Airspeed



View of "Six Pack"



View of PFD

Flight Display Indications



- Current Airspeed
- **Trend Vectors**
- Vspeed References

Trend Vectors – Airspeed and Altitude

Flight Display Indications



- Current Airspeed
- Trend Vectors
- Vspeed References

Flight Display Indications



View of "SIX" Pack



Current Altitude

Vertical Speed

Flight Display Indications

Altitude Reference "Bug"

Selected Altitude Reference Box



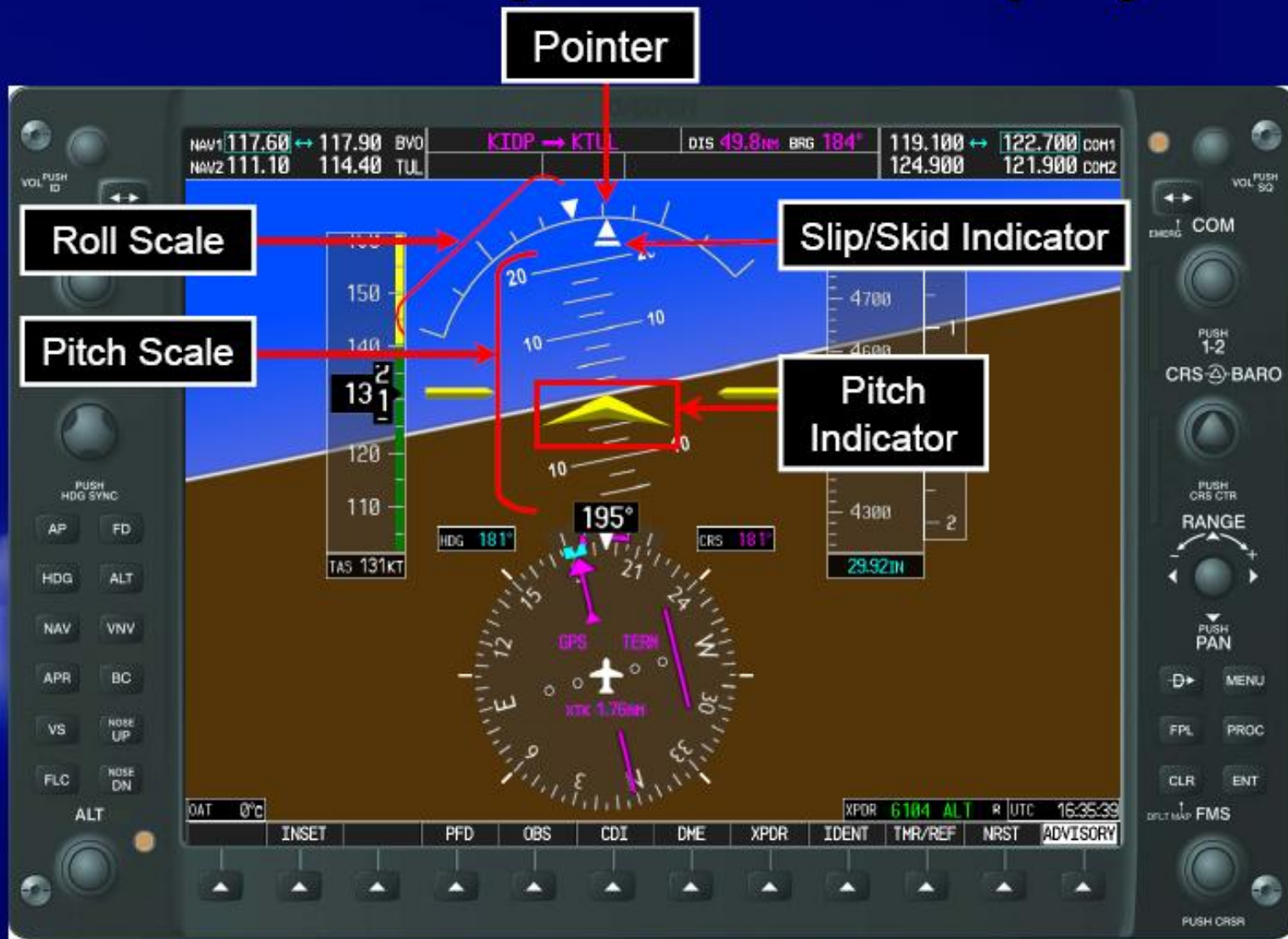
View of "SIX" Pack



Altitude Knob

Barometric Setting Box

Flight Display Indications



View of PFD

Flight Display Indications

Indicator (HSI)



(HSI Exploded)

- Flight Display Indications
- **Primary Flight Display (PFD)**
- Multi-Function Display
- Flight Director/Autopilot Introduction
- Operational Overview

Primary Flight Display



CYAN - Pilot Adjustable

GREEN – Active/VHF

MAGENTA – GPS

YELLOW – Caution

RED – Warning

Primary Flight Display



Primary Flight Display



Softkeys

Primary Flight Display



Transponder (XPDR) Softkey

Primary Flight Display



Code Softkey

Primary Flight Display



Primary Flight Display

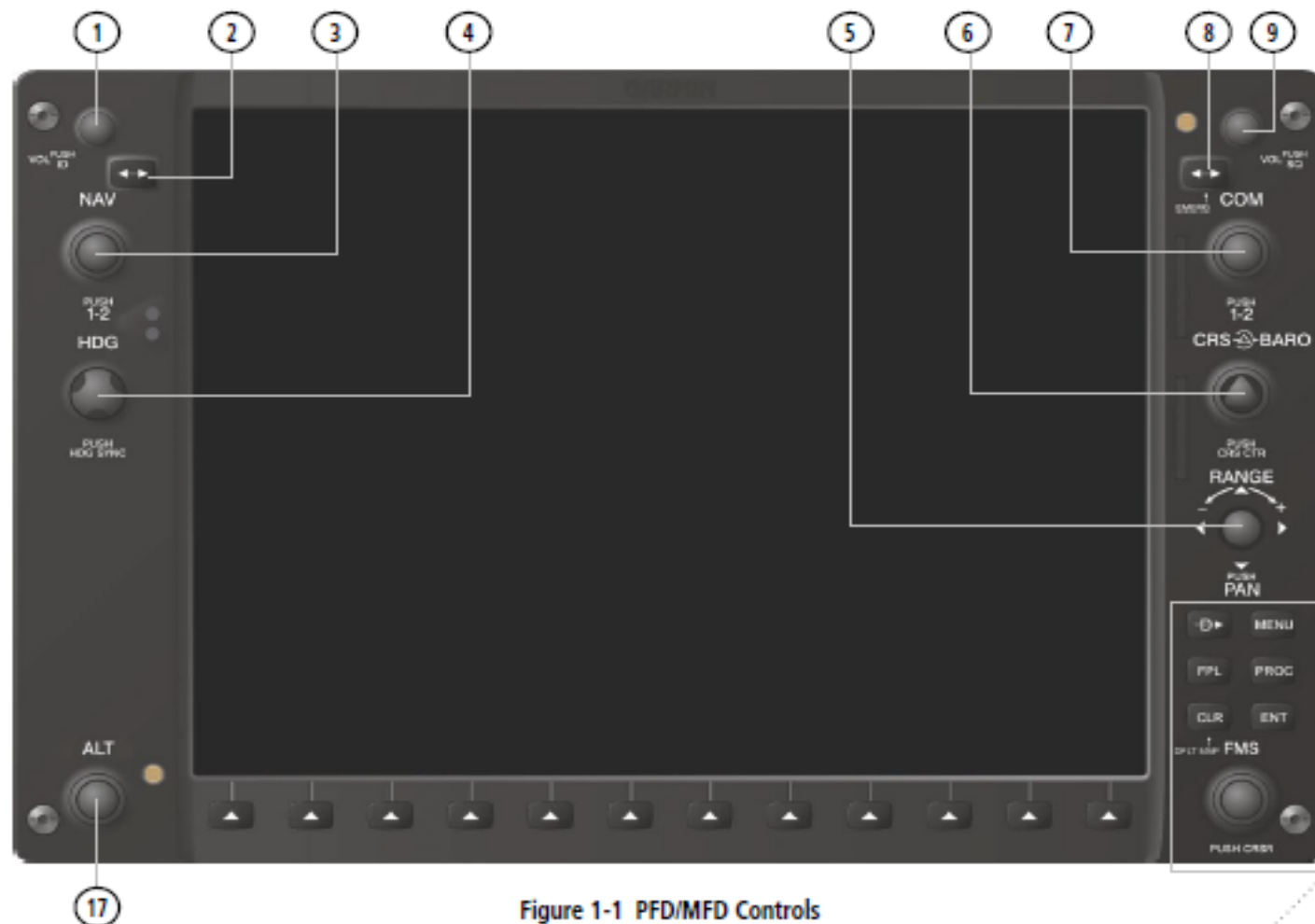
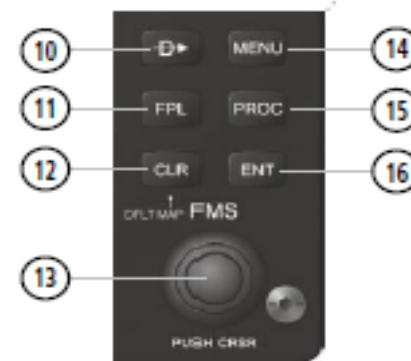


Figure 1-1 PFD/MFD Controls

- | | |
|----------------------------|---------------------------------|
| ① NAV VOL/ID Knob | ⑩ Direct-to Key |
| ② NAV Frequency Toggle Key | ⑪ Flight Plan Key |
| ③ NAV Knob | ⑫ Clear Key |
| ④ Heading Knob | ⑬ Flight Management System Knob |
| ⑤ Range Joystick | ⑭ Menu Key |
| ⑥ Course/Baro Knob | ⑮ Procedure Key |
| ⑦ COM Knob | ⑯ Enter Key |
| ⑧ COM Frequency Toggle Key | ⑰ Altitude Knob |
| ⑨ COM VOL/SQ Knob | |



Primary Flight Display

- (1) **NAV VOL/ID Knob** – Controls the NAV audio level. Press to toggle the Morse code identifier ON and OFF. Volume level is shown in the field as a percentage.
- (2) **NAV Frequency Toggle Key** – Toggles the standby and active NAV frequencies.
- (3) **Dual NAV Knob** – Tunes the MHz (large knob) and kHz (small knob) standby frequencies for the NAV receiver. Press to toggle the tuning cursor (light blue box) between the NAV1 and NAV2 fields.
- (4) **Heading Knob** – Turn to manually select a heading on the HSI. When pressed, it synchronizes the heading bug with the compass lubber line.
- (5) **Joystick** – Changes the map range when rotated. Activates the map pointer when pressed.
- (6) **CRS/BARO Knob** – The **large** knob sets the altimeter barometric pressure and the **small** knob adjusts the course. The course is only adjustable when the HSI is in VOR1, VOR2, or OBS/SUSP mode. Pressing this knob centers the CDI on the currently selected VOR.
- (7) **Dual COM Knob** – Tunes the MHz (large knob) and kHz (small knob) standby frequencies for the COM transceiver. Pressing this knob toggles the tuning cursor (light blue box) between the COM1 and COM2 fields.
- (8) **COM Frequency Toggle Key** – Toggles the standby and active COM frequencies. Pressing and holding this key for two seconds automatically tunes the emergency frequency (121.5 MHz) in the active frequency field.
- (9) **COM VOL/SQ Knob** – Controls COM audio level. Pressing this knob turns the COM automatic squelch ON and OFF. Audio volume level is shown in the field as a percentage.
- (10) **Direct-to Key** – Allows the user to enter a destination waypoint and establish a direct course to the selected destination (specified by the identifier, chosen from the active route, or taken from the map cursor position).
- (11) **FPL Key** – Displays the active Flight Plan Page for creating and editing the active flight plan, or for accessing stored flight plans.
- (12) **CLR Key (DFLT MAP)** – Erases information, can-

- cells an entry, or removes page menus. To display the Navigation Map Page immediately, press and hold **CLR** (MFD only).
- (13) **Dual FMS Knob** – Used to select the page to be viewed (only on the MFD). The **large** knob selects a page group (MAP, WPT, AUX, NRST), while the **small** knob selects a specific page within the page group. Pressing the **small** knob turns the selection cursor ON and OFF. When the cursor is ON, data may be entered in the different windows using the **small** and **large** knobs. The **large** knob is used to move the cursor on the page, while the **small** knob is used to select individual characters for the highlighted cursor location. When the G1000 displays a list that is too long for the display screen, a scroll bar appears along the right side of the display, indicating the availability of additional items within the selected category. Press the **FMS/PUSH CRSR knob** to activate the cursor and turn the **large FMS** knob to scroll through the list.
- (14) **MENU Key** – Displays a context-sensitive list of options. This list allows the user to access additional features, or to make setting changes that relate to certain pages.
- (15) **PROC Key** – Selects approaches, departures and arrivals from the flight plan. If a flight plan is used, available procedures for the departure and/or arrival airport are automatically suggested. If a flight plan is not used, the desired airport and the desired procedure may be selected. This key selects IFR departure procedures (DPs), arrival procedures (STARs) and approaches (IAPs) from the database and loads them into the active flight plan.
- (16) **ENT Key** – Accepts a menu selection or data entry. This key is used to approve an operation or complete data entry. It is also used to confirm selections and information entries.
- (17) **Dual ALT Knob** – Sets the reference altitude in the box located above the Altimeter. The **large** knob selects the thousands, while the **small** knob selects the hundreds. Selected altitude provides an altitude setting to the altitude alerter function.

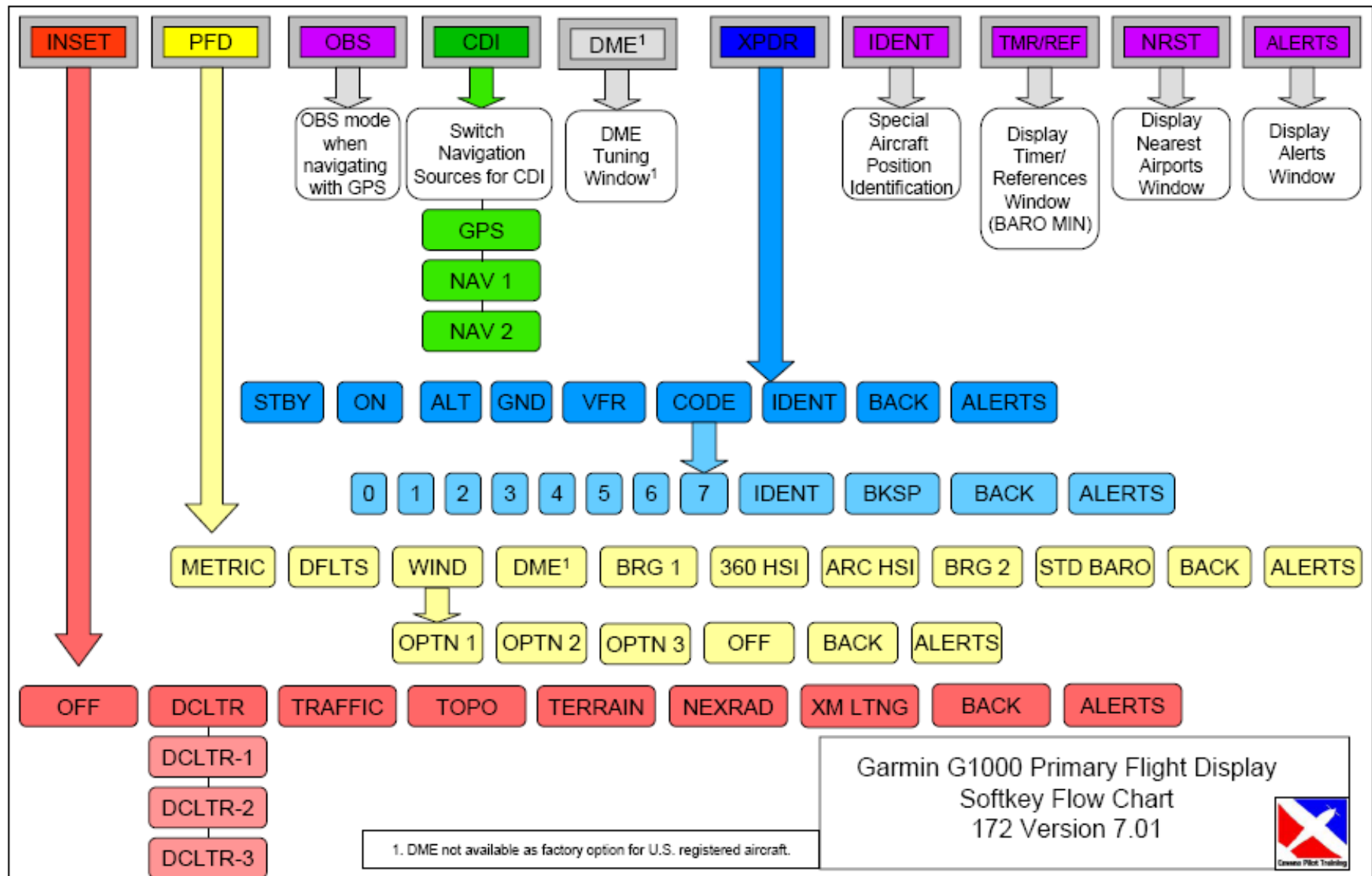


Primary Flight Display



All tuning in flight should be accomplished in the highlighted tuning area with the hand closest to the engine controls.

Primary Flight Display



- Flight Display Indications
- Primary Flight Display
- **Multi-Function Display (MFD)**
- Flight Director/Autopilot Introduction
- Operational Overview

Multi Function Display

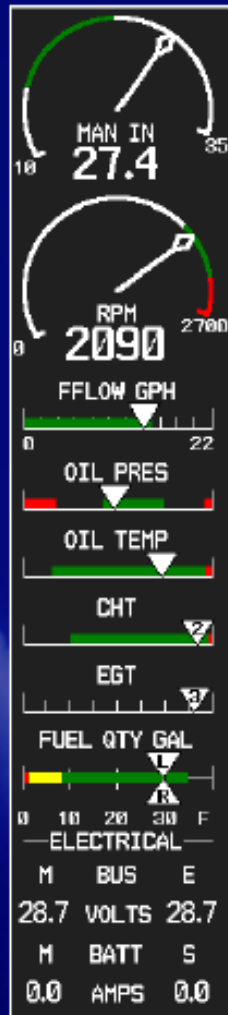
NAV Navigation Status Window COM



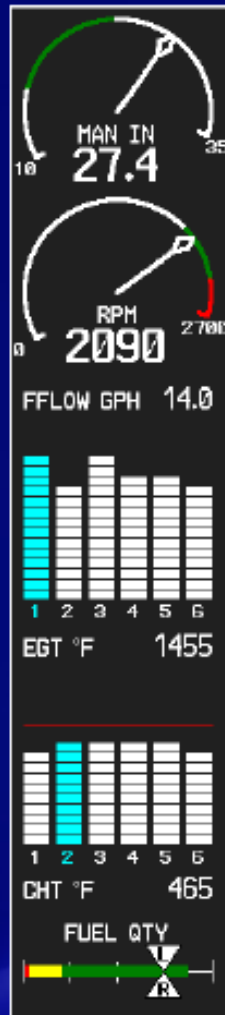
Page Group Window

Multi Function Display

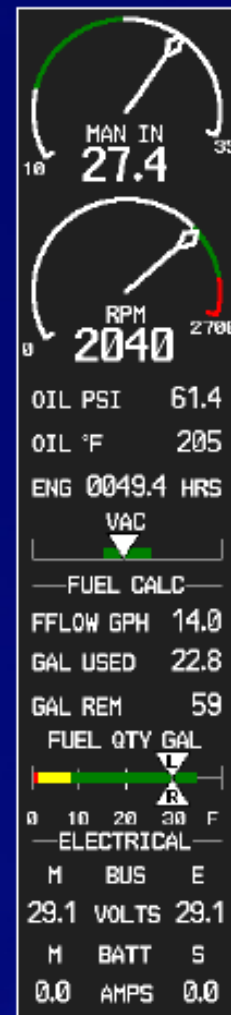
(EIS)



ENGINE



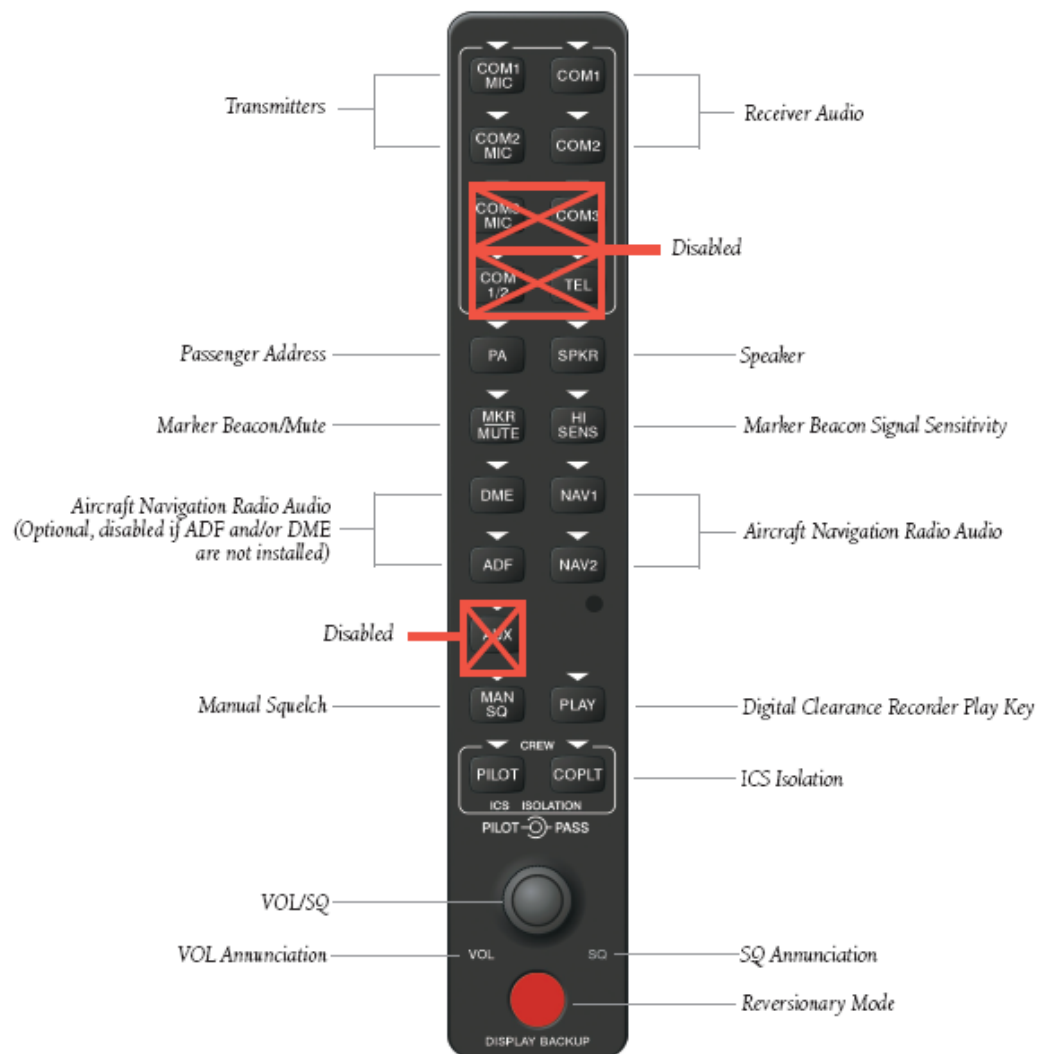
LEAN



SYSTEM

SECTION 5: AUDIO PANEL

Radio



5.6 DIGITAL CLEARANCE RECORDER WITH PLAYBACK CAPABILITY

Each reception of primary active COM audio is automatically recorded in a memory block. When the next transmission is received, it is recorded in the next memory block, and so on. Once the 2.5 minutes of recording time has been reached, the recorder begins recording over the stored memory blocks, starting from the oldest block. Powering off the unit automatically clears all recorded blocks.



Figure 5-8 Playback

- Pressing **PLAY** once plays back the latest recorded memory block, then returns to normal operation.
- Pressing **PLAY** during playback of a memory block halts the playback of this block and plays back the preceding recorded block. The **PLAY** key can be used to backtrack through the recorded memory blocks to reach and play back any desired block. Pressing the **MKR/MUTE** key during playback halts playback and returns the recorder/playback to normal operation.

If a COM input signal is detected during playback, playback is halted and the new COM input signal is recorded as the latest block.

Radio

5.1 COM RADIO SELECTION

Pressing the **COM1 MIC** or **COM2 MIC** key selects the active transmitter (i.e., microphone). The associated receiver audio (**COM1** or **COM2**) also becomes selected when the COM MIC key is pressed.

To prevent deselecting the desired received audio when pressing another COM MIC key, press the already selected **COM1** or **COM2** key before pressing the other COM MIC key.



Figure 5-2 Transceivers

WARNINGS



WARNING: *The Garmin G1000, as installed in Cessna Nav III aircraft, has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical. Although unlikely, it may be possible for erroneous operation to occur without a fault indication shown by the G1000. It is thus the responsibility of the pilot to detect such an occurrence by means of cross-checking with all redundant or correlated information available in the cockpit.*



WARNING: *To reduce the risk of unsafe operation, carefully review and understand all aspects of the G1000 Pilot's Guide documentation. Thoroughly practice basic operation prior to actual use. During flight operations, carefully compare indications from the G1000 to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety purposes, always resolve any discrepancies before continuing navigation.*

ABNORMAL OPERATION

REVERSIONARY MODE



Normal PFD Display



Normal MFD Display



MFD in Reversionary Mode

ABNORMAL OPERATION

11.3 UNUSUAL ATTITUDES

The PFD will 'declutter' when the aircraft enters an unusual attitude. Only the basic primary functions will be displayed in these situations.

Red extreme pitch warning chevrons pointing toward the horizon are displayed starting at 50 degrees above and 30 degrees below the horizon line.

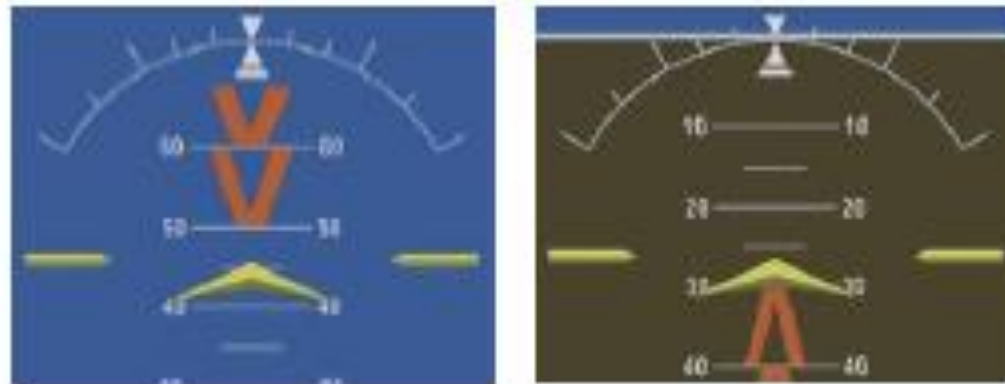


Figure 11-2 Extreme Pitch Indication

ANNUNCIATIONS & ALERTS

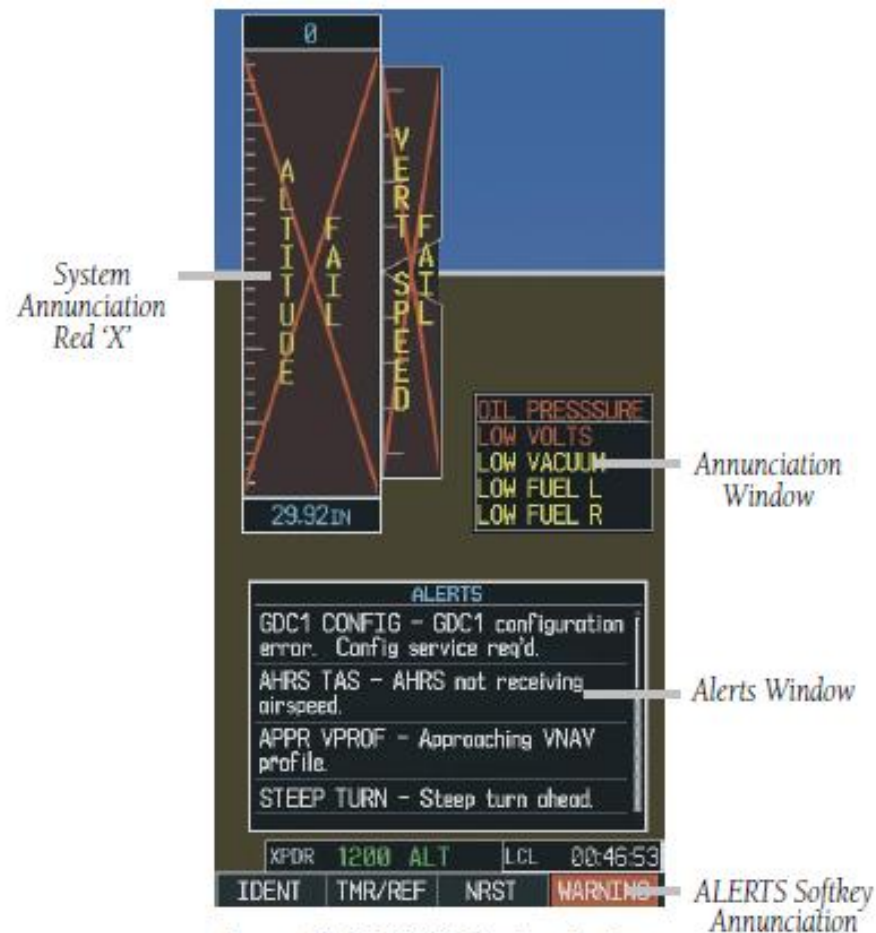


Figure 12-1 G1000 Alerting System



Når noe går galt!

1. Aviate
2. Navigate
3. Communicate

BRUK STANDBY INSTRUMENTENE
BRUK SJEKKLISTENE



Ta vare på flyene

- Bruk sjekklistene ferdig
- Ikke legg headsett i vinduet (hvorfor ikke?)
- Rydd bort søppel
- Ikke la setebelter ligge løst
- **G1000 flyene skal stå i hangar!**
- Sett på alle låser, beskyttelseshetter/deksler osv
- Ikke bruk is-skraper på noen del av flyene
- Ikke tørk av innsiden eller utsiden av vinduene med hender/hansker/klær/oljefiller/papir
- FORLAT FLYET SLIK DU SELV VIL FINNE DET!



Skjermvask!

CAUTION: *The PFD and MFD displays use a lens coated with a special anti-reflective coating that is very sensitive to skin oils, waxes, and abrasive cleaners.*

CLEANERS CONTAINING AMMONIA WILL HARM THE ANTIREFLECTIVE COATING.

It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coating



Fly sammen

- Til å begynne med etter utsjekken er det lurt å fly sammen:
 - Alltid en til å holde utkikk, det er jo så mye fint å se på inni flyet
 - 4 øyne ser mer enn 2
 - 2 hoder tenker bedre enn 1
 - Man kan diskutere ting som dukker opp
 - Den som sitter i høyre setet får bedre mulighet til å gjøre seg kjent med MFD/GPS
 - Mulighet til å gjøre seg kjent med utstyret under drift uten å også måtte holde kontinuerlig utkikk
 - Sosialt
 - Rimelig måte å øke kunnskapen

Ordet fritt

THE END

