

# NAV III Overview

The title "NAV III Overview" is centered in a bold, yellow, sans-serif font. The background is a dark, starry space scene with a blue and white horizon glow at the bottom.

Information on the following pages explains the many features and benefits associated with the NAV III (G1000) equipped Skylanes and Stationairs.

# NAV III / G1000

## What is the G1000?

- **Two CDUs (Reversionary) – PFD / MFD**
- **Attitude Heading & Reference System (AHRS)**
- **Air Data Computer (ADC)**
- **Two Communication, Navigation Interface Adaptor Units. (Dual Nav/Com/GPS)**
- **Engine / Airframe Monitoring Unit**
- **Digital Audio Panel**
- **XPDR (Mode S)**
- **Magnetometer (3-axis)**
- **Improved LED Cabin Lighting, Control & Reliability**
- **Mode S XPDR with TIS**

What is the G1000?

The G1000 is an advanced all-glass integrated EFIS system produced by Garmin.

**The G1000 integrated EFIS system consist of the following:**

Two 10.4" Control Display Units consisting of a Primary Flight Display and Multi Function Display

Solid State Attitude Heading & Reference System (AHRS)

Solid State Airdata Computer,

Two Communication, Navigation & Interface Adaptor Units

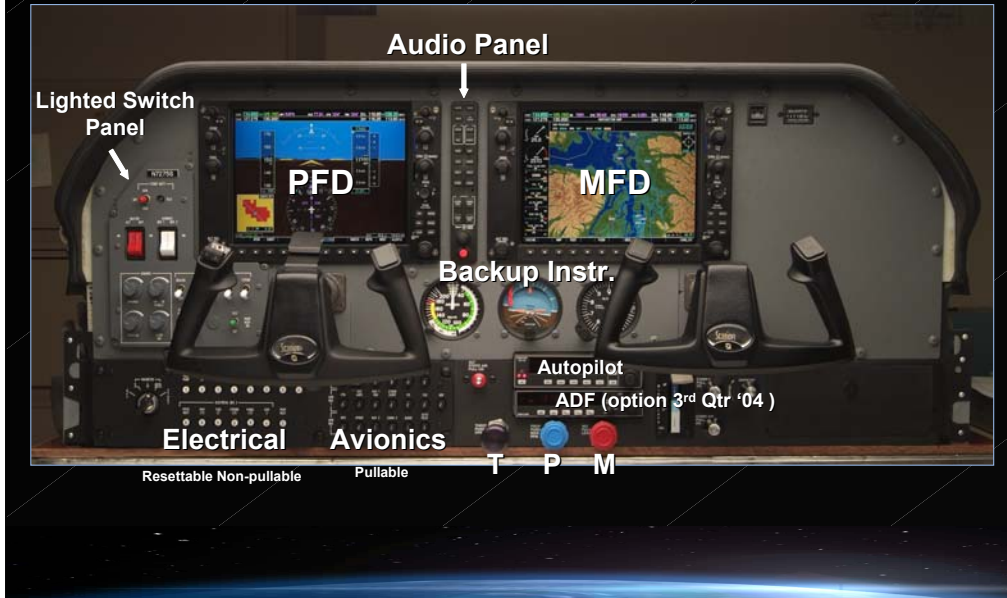
Engine and Airframe Monitoring Unit

Digital Audio Panel

Magnetometer – Providing full three axis magnetic field information in all flight attitudes

and Mode S XPDR with TIS Traffic

# NAV III



Nav III installs two large 10.4" glass displays, integrated into a completely redesigned instrument panel.

Between the Primary Flight Display and the Multifunction Display lies the Digital Audio Panel.

"Jet Like" lighted switch and circuit breaker panels have been incorporated as well.

The lighted switch panel is now located on the LH side of the instrument panel where the engine instruments used to be.

All avionics and electrical circuit breakers are conveniently located below the pilot's control wheel.

Located in the center of the instrument panel below the PFD and MFD are three conventional backup flight instruments which includes - Airspeed - Attitude and Altitude indicators.

The KAP 140 autopilot controller is located below the backup flight instruments.

# What is NAV III?

- G1000 Incorporation
- Panel Redesign
- Improved Cabin / Crew Lighting
- Mode S XPDR
- TIS - Traffic
- Stormscope
- Terrain



The NAV III consist of:

- G1000 Incorporation
- Panel Redesign
- Improved LED cabin and crew lighting
- Mode S XPDR
- Traffic Information Service (TIS) Traffic
- Stormscope (WX-500)
- Active Terrain

# NAV III - AHRS



The G1000 uses a solid-state Attitude Heading & Reference system which integrates data from the GPS's, an air data computer and magnetometer to provide extremely accurate and reliable attitude information necessary for flight.

AHRS Technical Advantages Include:

- On the move initialization. Other AHRS units like the Avidyne Entegra System require several minutes of stationary initialization before attitude information is available.
- In-Flight initialization of the AHRS at bank angles up to 20 degrees. Not possible with the competition, so any momentary loss of power means the competitions AHRS system is gone for the rest of the flight.
- Reversionary Display Capabilities. The Avidyne Entegra has no reversionary capabilities
- The solid state design reduces weight and increases reliability. There are no mechanical parts like spinning gyros to precess or wear out over time.
- Continuous System Integrity Monitoring, adds a whole new level of safety to the aircraft.
- The AHRS system does not rely on any one sub-system for continued operation.
- Subsystems include GPS1, GPS2, Air Data, and Magnetometer.

# NAV III



The PFD and MFD are identical CDU1045 Control Display Units.

As a result, the side controls, and softkey buttons are the same.

Either unit can be used as a PFD or MFD; the displays role is determined by its avionics harness connection.

In the unlikely event of a CDU failure, each display can work in reversionary mode.

In reversionary mode, both CDUs display the primary flight instruments with the engine instruments displayed on the LH side of the displays.

In addition, moving map, traffic, and terrain can be display in 2"X2" insets or view-in-view pop-ups that can be toggled on an off.

Built in each bezel is an infrared port to accommodate future data entry and retrieval using a PDA.



The GMA1347 audio panel provides four intercom modes: ALL, PILOT, COPILOT, and CREW.

Capacity of the audio panel allows for the support of crew and up to eight additional passengers.

Support for three communication radios, two navigation radios, DME, ADF, and auxiliary audio.

More capacity is available when using external switches and annunciators.

Manual selection of the big red reversionary button located on the audio panel, places both the displays in reversionary mode.

Audio playback functionality is also included.

# NAV III

## Lighted Switch Panel



At the top of the lighted switch panel you will find a three position standby battery test switch and light, followed by both the Master and Avionics switches.

The health of the standby battery is checked before engine start, using this simple test switch.

A green light means the battery is charged and ready to power the PFD, primary flight sensors, engine monitoring and a single nav/com for well over 30 minutes in needed.

The test switch is installed as a safety enhancement and is not required equipment.

LED backlighting is controlled by four rotary dimmers separately controlling the Avionics, Pedestal, Switch and CB Panels and Standby Indicators.

On the turbocharged models you will find a hot prop test switch and backlit annunciator.

# NAV III

## Circuit Breakers



The circuit breakers are backlit and grouped by system and bus making identification quick and easy.

# NAV III

## Backup Instruments

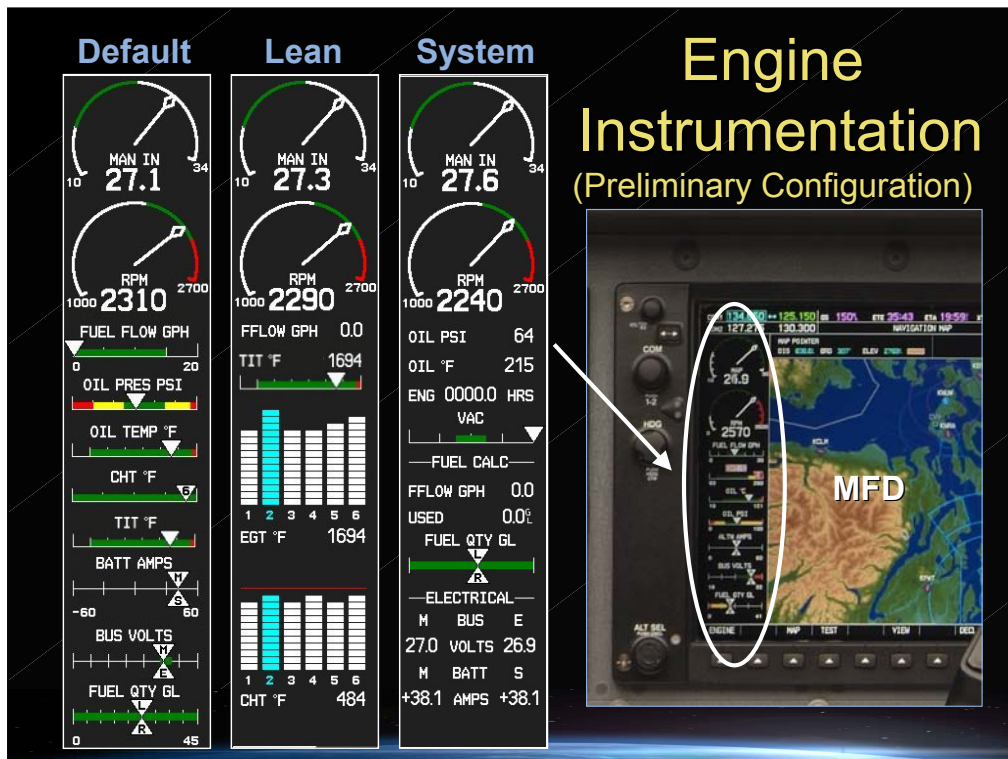


The aircraft is kept simple and redundant by using the same non-electric airspeed indicator, vacuum attitude gyro, altimeter and magnetic compass. This reduced the complexity and certification costs associated with an all electric system.

In the highly unlikely event of a complete electrical system failure, aircraft control can be maintained through the conventional mechanical pitot, static and vacuum instrumentation.

The power distribution system uses the same split bus design for the electrical and avionics, with an additional essential bus ready to takeover.

The essential bus uses a standby battery and battery controller which constantly monitors the main electrical system voltage and when required will automatically power the essential bus.



The engine instrumentation and monitoring is located on the LH side of the PFD as shown.

In reversionary mode, this information is displayed on the LH side of the PFD as well.

Shown are the preliminary - **Default, Lean, System** pages.

Full screen engine monitoring pages will be incorporated at a later date through a software only upgrade.

## G1000 / NAV III Traffic & Terrain

- Traffic Information System – TIS
- Relative Terrain and Obstacle Information



The standard traffic system offered on the Nav III aircraft is Traffic Information Service or “TIS”.

This functionality comes with the GTX33 mode S XPDR providing traffic datalink information at Mode S primary radar sites.

Not to be confused with a TAS system that provides active interrogation of all Mode A, C and S traffic within 40 nm of the aircraft.

TAS will be an offered option in the 3<sup>rd</sup> quarter of '04, using the king KTA-870 system.

Wiring provisions TAS traffic will be standard on all Nav III aircraft.

Initially, the Nav III package will provide Relative Terrain and Obstacle avoidance through topographical and obstacle color shading, with no aural warning.

Garmin is working on a Terrain Awareness and Warning System (TAWS B), which will provide aural alerting similar to the King Enhanced Ground Proximity & Warning System currently offered.

## G1000 / NAV III FUTURE OPTIONS

- FIS Weather GDL69A – 3Q04
- XM Radio - GDL69A – 3Q04
- Traffic Advisory System – TAS – 3Q04
- Terrain Awareness & Alerting – TAWS B
- ADF – 3Q04
- “3D” Terrain
- Electronic Charts



The G1000 has a number of exciting future enhancements currently be developed. The FIS satellite based weather should be available in the 3<sup>rd</sup> Quarter of '04, offered in various subscription package levels.

FIS Wiring provisions will be standard for all NAV III equipped aircraft.

Garmin's move from the GDL49 datalink receiver to the 69A is being done to provide a faster, higher resolution datalink system to compliment the G1000 and provide satellite based weather, with the speed and resolution typically associated with ground based systems.

The satellite based weather will have the advantage of seamless weather coverage, with no altitude limitations.

Cessna chose to use the GDL69A transceiver with XM satellite Radio capabilities. An XM radio subscription will be required for this service.

Terrain Awareness & Warning System - TAWS B will be available in the 3<sup>rd</sup> qtr of '04.

This system will provide both obstacle and terrain aural alerting.

The optional king KR87 ADF will be available in the the 3<sup>rd</sup> quarter of '04 as well. ADF wiring provisions will not be standard.

Jeppeson or equivalent electronic charting services will be supported. Expected availability is in '05.

## NAV III SELLING POINTS

- All Glass 10.4" PFD / MFD Displays
- Solid State AHRS System
- Air Data Computer
- Solid State Magnetometer (3D Mag.Field Info)
- Integrated Dual NAV/COM/GPS Receivers
- Engine / Airframe Monitoring
- Digital Audio Panel with ATC Playback
- Backup Vacuum Instrumentation and Battery
- "Jet Like" Lighted Switch & CB Panels
- In-flight and on the move Initialization
- Reversionary Capability

In closing, let's summarize the major selling points of this great new system.

- All Glass 10.4" PFD / MFD Displays (1024 X 768 XGA)
- Solid State Attitude Heading & Reference System (AHRS)
- A solid state digital Air Data Computer, adding computational simplicity, and highly accurate air data.
- Integrated Dual NAV/COM/GPS Receivers. (16 Watt Coms / WAAS Upgradable GPSs)
- Solid State Magnetometer
- "Jet Like" Lighted Switch & CB Panels
- Engine and Airframe Monitoring
- Digital Audio Panel with Playback
- Backup Vacuum Instrumentation, to compliment a highly reliable solid state electrical system. (and backup battery)
- In-flight and on the move Initialization (The competition can't do this)
- and Reversionary capabilities – (The competition can't do this either!)

## NAV III EQUIPPED PRICE

\$297,500 - SKYLANE

\$322,500 - TURBO SKYLANE

\$413,000 - STATIONAIR

\$443,000 - TURBO STATIONAIR