

G1000[™]

*engine indication system
pilot's guide for Cessna Nav III*

Record of Revisions

Revision	Date of Revision	Revision Page Range	Description
A	11/23/04	7-1 – 7-13	Initial Release.

The G1000 Engine Indication System (EIS) is designed to provide gauges, bar graphs and numeric readouts of engine parameters to the flight crew. The EIS is displayed on the left side of the MFD during normal operations. In reversionary mode, the CDUs are re-configured to present the PFD symbology together with the EIS (the EIS is displayed on the left side).

The EIS contains three distinct pages, which are accessed by the **ENGINE** softkey:

- Engine (default)
- Lean
- System

7.1 ENGINE

This is the default page, which displays all critical engine, fuel and electrical indicators.

- **172** – Atop this page is a round dial gauge with a white pointer and digital readout for revolutions per minute (RPM). Below the tachometer are color-coded horizontal bar indicators with triangular pointers indicating fuel flow, oil pressure, oil temperature, vacuum pressure and fuel quantity. The exhaust gas temperature (EGT) of the hottest cylinder (for normally aspirated aircraft) is displayed on a horizontal bar indicator with no color-coding. Beneath the fuel quantity indicator resides the numeric readout for the engine hours.
- **182, T182, 206 & T206** – Atop this page are round dial gauges with a white pointer and digital readouts for manifold pressure and revolutions per minute (RPM). Below those gauges are color-coded horizontal bar indicators with triangular pointers indicating fuel flow, oil pressure, oil temperature, cylinder head temperature (CHT) of the hottest cylinder, turbine inlet temperature (TIT) – for turbocharged aircraft, and fuel quantity. The exhaust gas temperature

(EGT) of the hottest cylinder (for normally aspirated aircraft) is displayed on a horizontal bar indicator with no color-coding.

The pointer on the horizontal bar indicators appears in white, which represents acceptable areas of operation. The pointer color changes to yellow or red upon exceeding areas of normal operation. The green band is indicative of normal areas of operation. Located at the bottom of the page for all aircraft are the electrical indicators. A numeric readout is provided for the bus voltage and the battery amperage. The numeric readouts change to yellow or red upon exceeding areas of normal operation.

Manifold Pressure Gauge

The Manifold Pressure gauge displays the engine power in inches of mercury (in Hg). A white tick mark is displayed indicating the cruise manifold pressure (T182 only).

- **White** (bottom of arc) – Below normal operating range.
- **Green** – Normal operating range.
- **White** (top of arc) – Above normal operating range
- **Red** – Maximum manifold pressure (turbocharged).



NOTE: *The 172 Engine Page does not display a Manifold Pressure gauge.*

Tachometer

The Tachometer displays propeller speed in revolutions per minute (RPM).

- **White** (bottom of arc) – Below normal flight operating range.
- **Green** – Normal flight operating range.
- **White** (top of arc) – Above normal flight operating range (206 & T206 only).
- **Red** – Propeller overspeed.

Fuel Flow GPH Indicator

The Fuel Flow indicator displays current fuel flow in gallons per hour (GPH). Green indicates normal fuel flow, while any area beyond the green band is an indication of abnormal fuel flow. The Fuel Flow indicator on the turbocharged aircraft displays a wide, vertical white tick mark (T182 only) indicating the maximum cruise fuel flow and a small standalone green band indicating maximum takeoff fuel flow.

Oil Pressure Indicator

The Oil Pressure indicator displays the pressure of the oil supplied to the engine in pounds per square inch (PSI).

- **Green** – Normal
- **Red** – Warning (minimum and maximum)

Oil Temperature Indicator

The Oil Temperature indicator displays the engine oil temperature in degrees Fahrenheit.

- **Green** – Normal
- **Red** – Warning

CHT Indicator

The CHT (Cylinder Head Temperature) indicator displays the temperature of the hottest cylinder in degrees Fahrenheit. The number of the hottest cylinder appears in the triangle.

- **Green** – Normal
- **Red** – Warning

EGT Indicator (Normally Aspirated)

The EGT (Exhaust Gas Temperature) indicator displays the exhaust gas temperature of the hottest cylinder in degrees Fahrenheit. The number of the associated cylinder is indicated in the triangle. There are no color bands associated with this indicator.

TIT Indicator (Turbocharged)

The TIT (Turbine Inlet Temperature) indicator displays the temperature at the turbine inlet in degrees Fahrenheit.

- **Green** – Normal
- **Red** – Warning



NOTE: The pilot should refer to the Aircraft Flight Manual (AFM) for limitations.

Fuel Qty GAL Indicator

The Fuel Quantity indicator displays the quantity of fuel in the tanks in gallons. The indicator ranges from 0 to F (full). Tick marks are present at 10 and 20 gallons on the 172 and at 10, 20 and 30 gallons on the 182, T182, 206 & T206. Two pointers labeled L (left) and R (right) indicate the number of gallons in each fuel tank.

- **Green** – Normal
- **Yellow** – Caution (low)
- **Red** – Warning



NOTE: The Fuel Quantity indicator only displays to 26 gallons per side when full on the 172.



NOTE: The Fuel Quantity indicator only displays to 35 gallons per side when full on the 182, T182, 206 & T206.

Voltmeter

The Voltmeter displays the main and essential bus voltage.

- **White** – Normal
- **Yellow** – Caution (low and high)
- **Red** – Warning (minimum and maximum)

Ammeter

The Ammeter displays the main and standby battery load in amperes.

- **White** – Normal
- **Yellow** – Caution

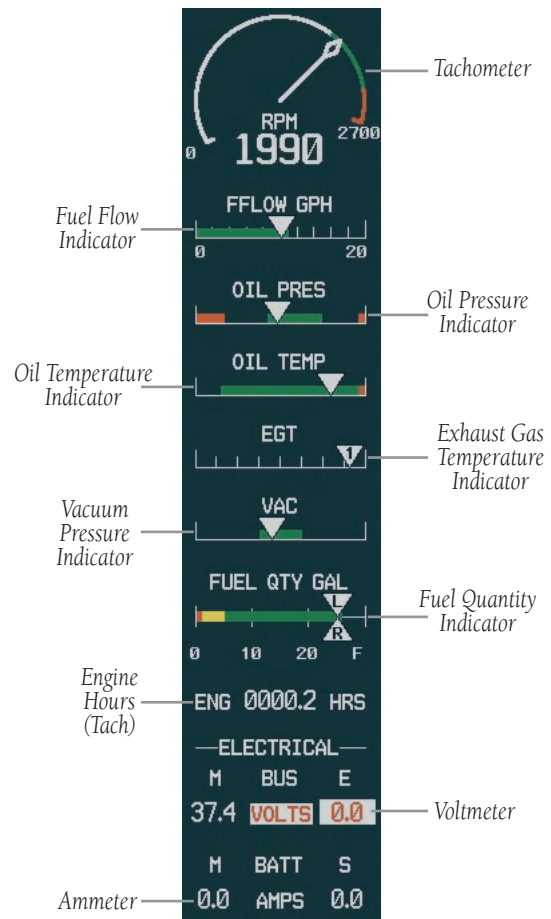


Figure 7.1.1 ENGINE Page (172)

ENGINE INDICATION SYSTEM

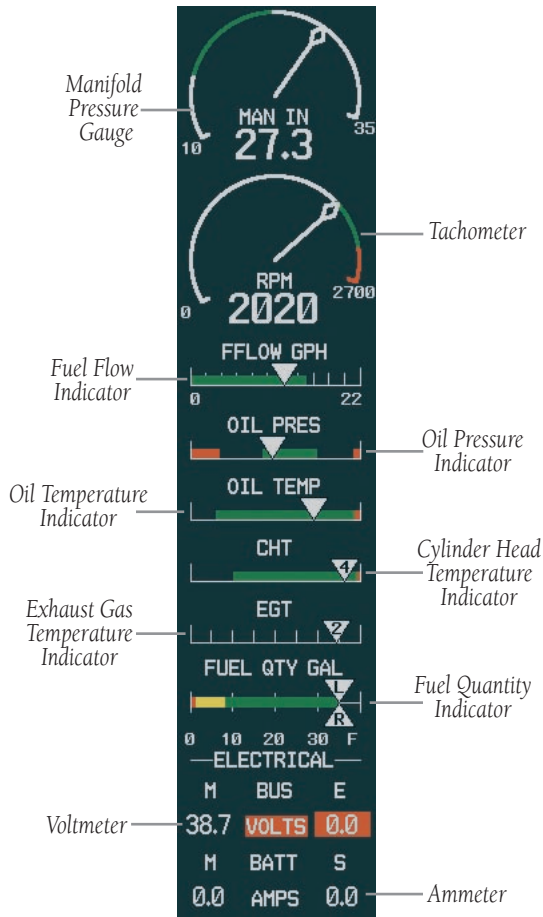


Figure 7.1.2 ENGINE Page (182)

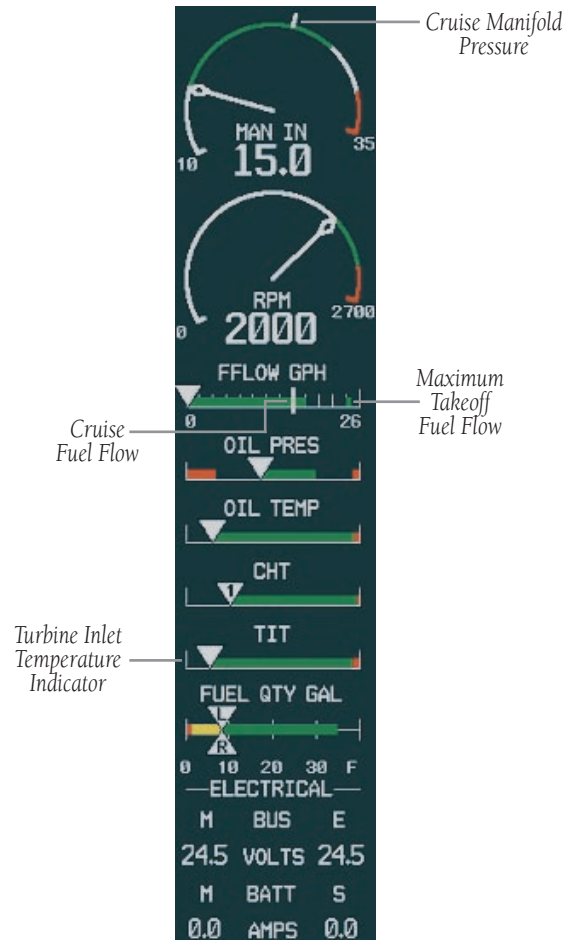


Figure 7.1.3 ENGINE Page (T182)

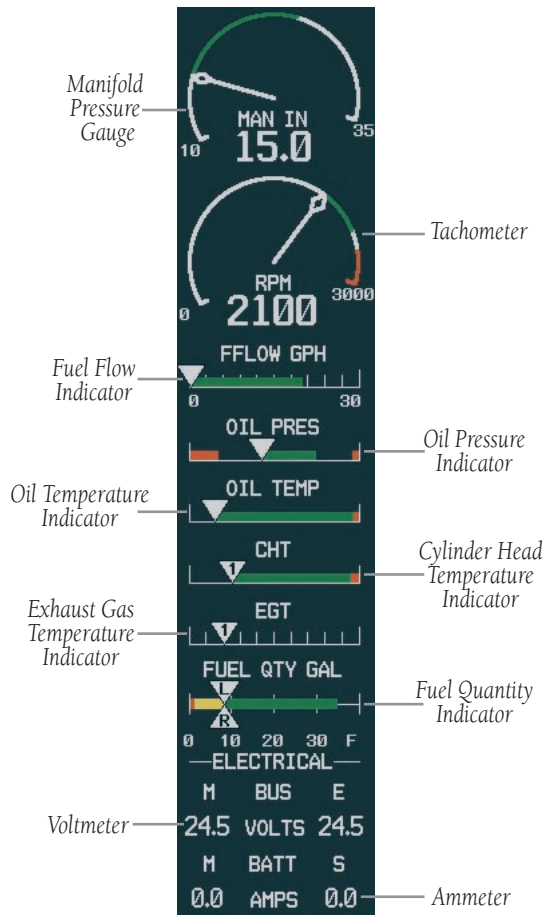


Figure 7.1.4 ENGINE Page (206)

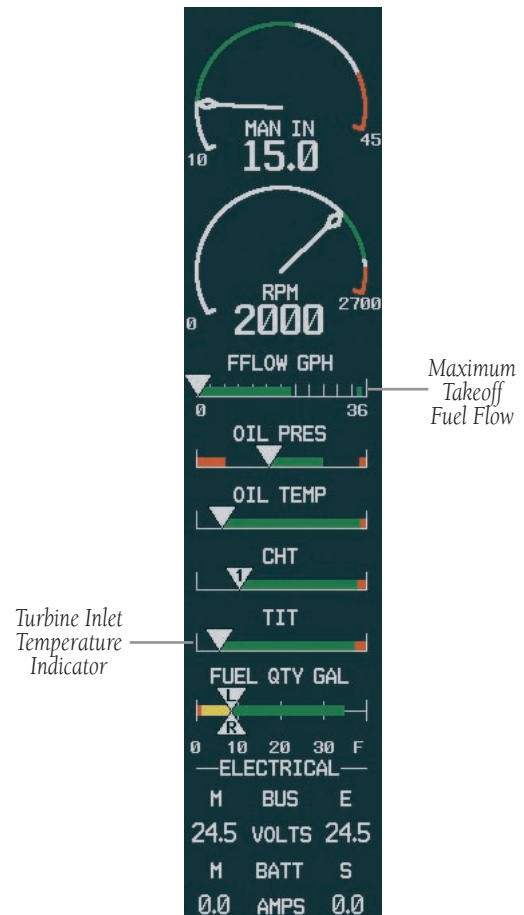


Figure 7.1.5 ENGINE Page (T206)

7.2 LEAN

The Lean Page provides information and a user interface to perform engine leaning.

- **172** – Beneath the tachometer are bar graphs and numeric readouts for exhaust gas temperature (EGT), temperature from peak and cylinder head temperature (CHT) in degrees Fahrenheit. Below the CHT is a numeric readout for fuel flow.
- **182, T182, 206 & T206** – Beneath the tachometer is a numeric readout for fuel flow and, for turbocharged aircraft, a turbine inlet temperature (TIT) indicator. Below these indicators are bar graphs and numeric readouts for exhaust gas temperature (EGT), temperature from peak and cylinder head temperature (CHT) in degrees Fahrenheit.

By default, the numeric readouts of EGT and CHT are associated with the hottest cylinder and are graphically indicated in cyan. Color coding for the EGT and CHT bar graphs is listed below:

- **Cyan (light blue)** – Selected Cylinder (EGT and CHT)
- **White** – Normal (EGT and CHT)
- **Yellow** – Caution (CHT only)
- **Red** – Warning (CHT only)

Located at the bottom of the page for all aircraft is a color-coded horizontal bar indicator for the fuel quantity.

Cylinder Select

The **CYL SLCT** softkey can be utilized to obtain information about a particular cylinder.

The **CYL SLCT** softkey becomes disabled when a particular cylinder turns yellow (caution) or red (warning), until the temperature decreases and returns to normal, which is indicated by white on the bar graph, or when the **ASSIST** softkey is pressed.

The **CYL SLCT** softkey is available by pressing the **LEAN** softkey.

To monitor the desired cylinder(s):

1. From the Lean Page, press the **CYL SLCT** softkey to cycle through each cylinder and view the EGT and CHT.

Assist

The **ASSIST** softkey can be utilized to assist in the leaning process.

Normally Aspirated

When a cylinder peaks, its peak is represented by a hollow bar on the EGT bar graph. The EGT readout for the peaked cylinder, indicated in cyan (light blue), appears directly beneath the bar graph. The system automatically switches to the first peak obtained and displays the temperature deviation from peak in degrees Fahrenheit below the EGT readout.

Turbocharged

Leaning is done by reference to the turbine inlet temperature (TIT) indicator. When the temperature peaks the numeric readout appears below the TIT indicator and displays the difference between peak and current TIT in degrees Fahrenheit. If a peak is not displayed underscores are shown until one is established. The TIT indicator does not graphically display peaks.



NOTE: *The pilot should follow the engine manufacturer's recommended leaning procedures in the Aircraft Flight Manual (AFM).*

The **ASSIST** softkey is available by pressing the **LEAN** softkey.

To select the Assist function:

1. From the Lean Page, press the **ASSIST** softkey to identify the peak.

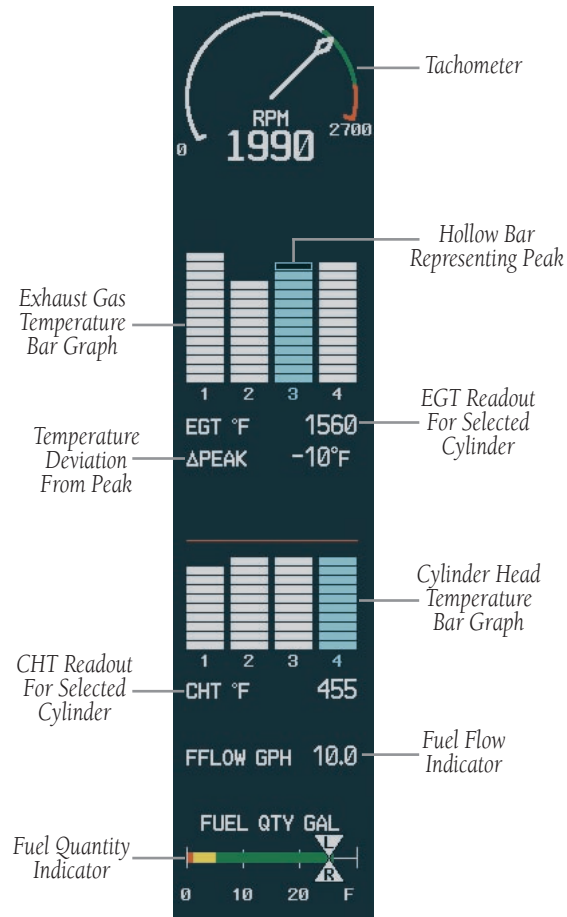


Figure 7.2.1 LEAN Engine Page (172)

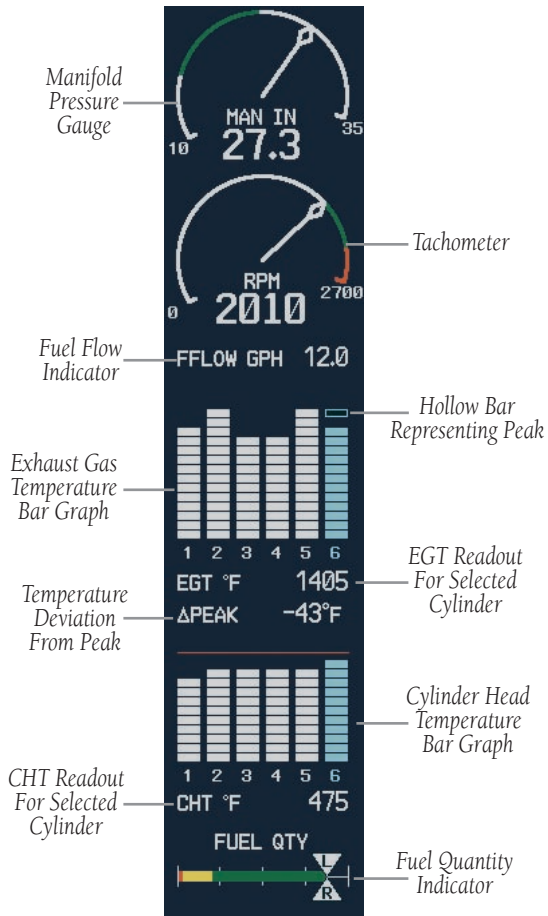


Figure 7.2.2 LEAN Engine Page (182)

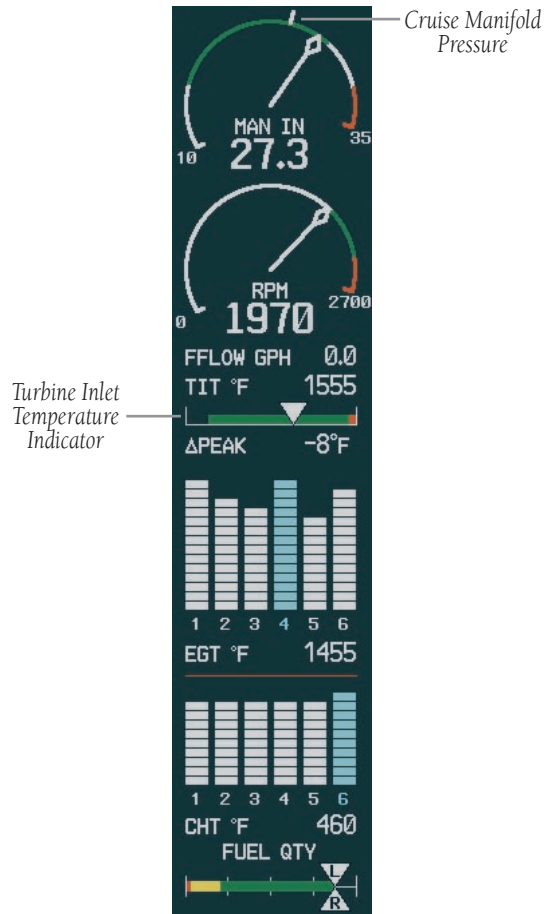


Figure 7.2.3 LEAN Engine Page (T182)

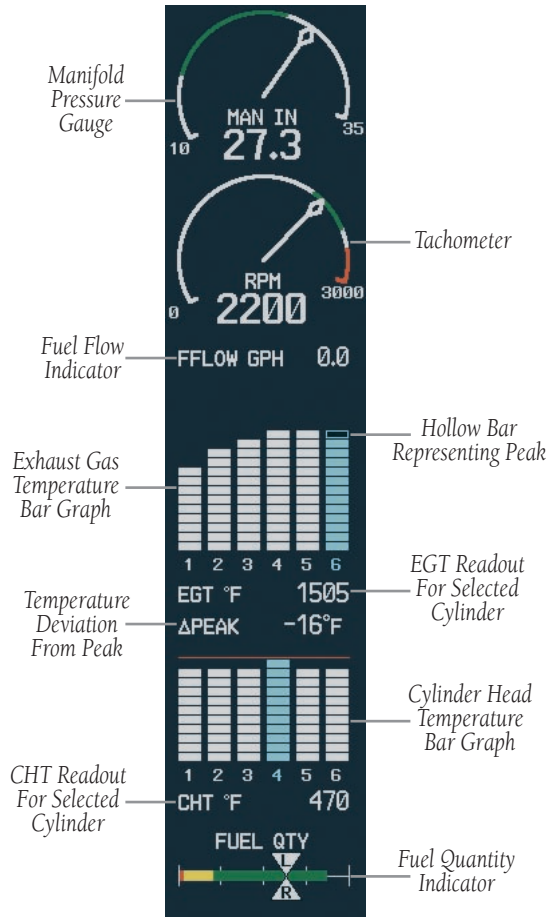


Figure 7.2.4 LEAN Engine Page (206)

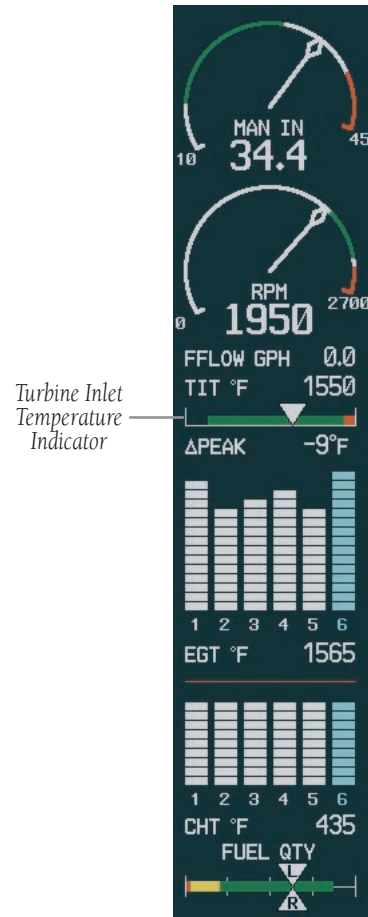


Figure 7.2.5 LEAN Engine Page (T206)

7.3 SYSTEM

The System Page displays a numeric readout for the critical engine, fuel and electrical indicators.

- **172** – Beneath the tachometer are numeric readouts for oil pressure and oil temperature. Below the oil temperature indicator are the fuel calculations. A numeric readout is provided for the fuel flow and gallons used followed by a color-coded horizontal bar indicator for the fuel quantity.
- **182, T182, 206 & T206** – Beneath the tachometer are numeric readouts for oil pressure, oil temperature and engine (tach) hours followed by a color coded, horizontal bar indicator for vacuum pressure. Below the vacuum pressure indicator are the fuel calculations. A numeric readout is provided for fuel flow and gallons used followed by a color coded, horizontal bar indicator for the fuel quantity.

The system indications (for all aircraft) appear in white, which represents acceptable areas of operation. The color changes to yellow (caution) or red (warning) upon exceeding areas of normal operation.

The fuel calculation portion of the System Page is based on the fuel flow totalizer and displays the following:

- **FFLOW GPH** – Fuel flow in gallons per hour.
- **GAL USED** – Quantity of fuel used in gallons.



NOTE: Fuel calculations do not use the aircraft fuel quantity indicators and are calculated from the last time the fuel was reset.

Located at the bottom of the page for all aircraft are the electrical indicators. A numeric readout is provided for the main and essential bus voltage and for the main and standby battery amperage.

If desired, the pilot can utilize the **RST USED** softkey to reset the GAL USED indicator.

A second-level softkey, **RST USED**, is available by pressing the **SYSTEM** softkey:

- **RST USED** – Reset totalizer-based fuel used display to zero.

To reset the fuel-used totalizer to zero:

1. From the System Page, press the **RST USED** softkey. This resets the GAL USED to zero.



NOTE: Fuel calculations do not use the aircraft fuel quantity indicators and are calculated from the last time the fuel was reset.



NOTE: The pilot should refer to the Aircraft Flight Manual (AFM) for fuel values and limitations.

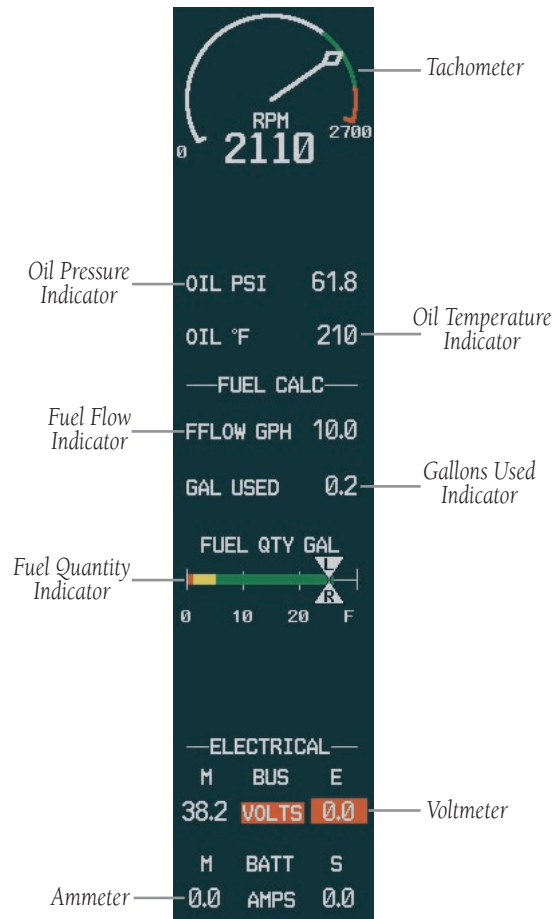


Figure 7.3.1 SYSTEM Engine Page (172)

ENGINE INDICATION SYSTEM

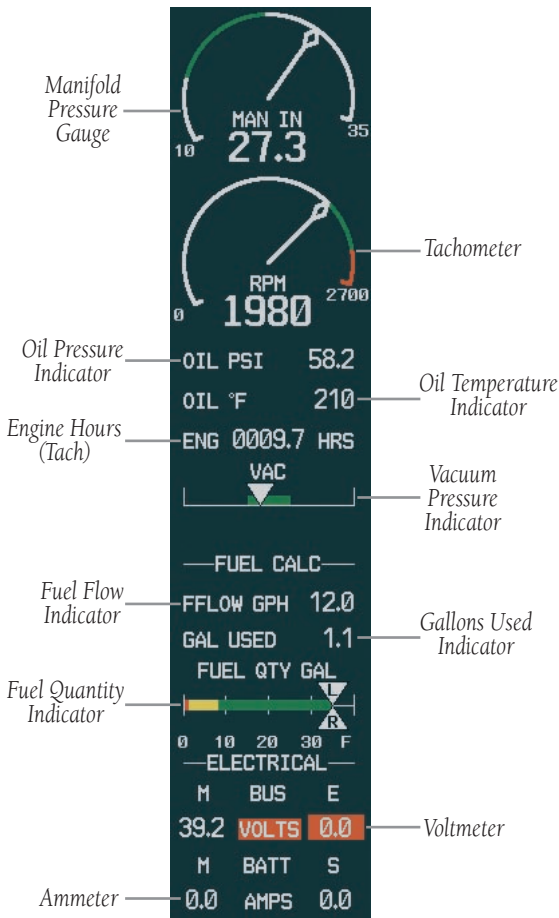


Figure 7.3.2 SYSTEM Engine Page (182)

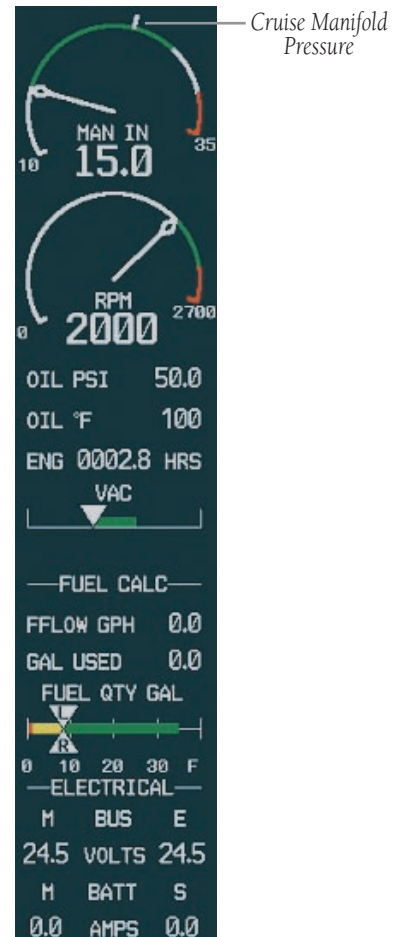


Figure 7.3.3 SYSTEM Engine Page (T182)

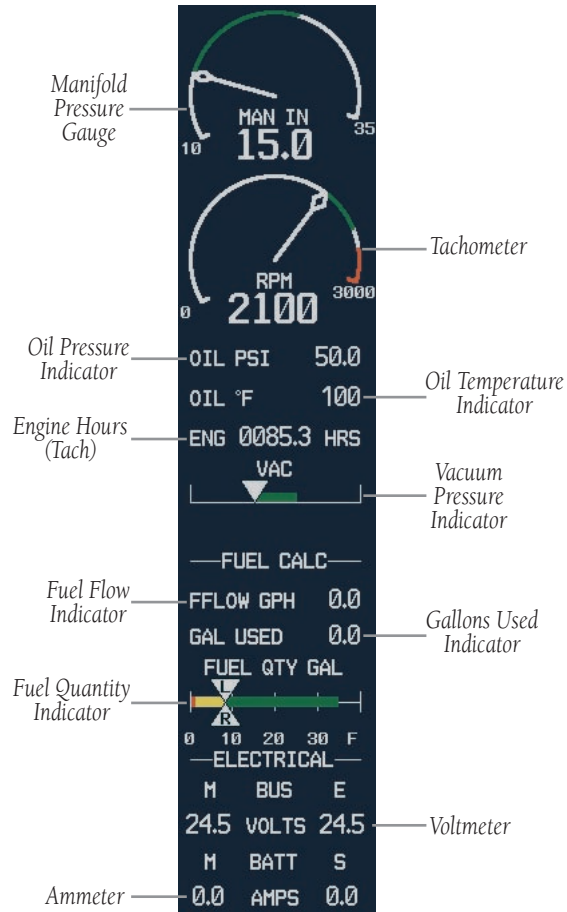


Figure 7.3.4 SYSTEM Engine Page (206)

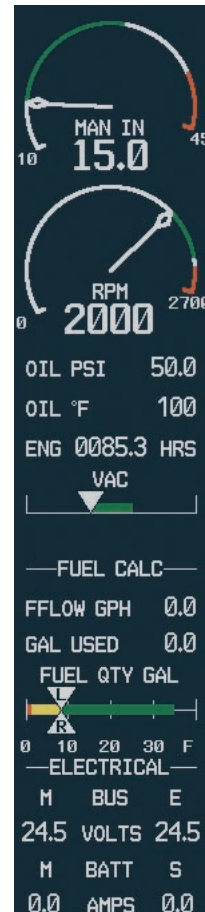


Figure 7.3.5 SYSTEM Engine Page (T206)



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