GARMIN

G1000™

engine indication system

pilot's guide for the Diamond DA42

Record of Revisions			
Revision	**Date of Revision**	**Revision Page Range**	**Description**
A	12/03/04	7-1 – 7-5	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 displayed on the left side.

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

- Engine (default)
- System
- Fuel

7.1 ENGINE

This is the default page, which displays all critical engine and fuel indicators. Atop this page are color-coded vertical bar indicators with white pointers and numeric readouts for engine load and tachometer (the engine load and tachometer displays are common to all three EIS pages). Beneath those indicators is a numeric readout for fuel flow. Below the fuel flow indicators are color-coded horizontal bar indicators with two white triangle pointers labeled L (left) and R (right), indicating oil temperature, oil pressure, coolant temperature, fuel temperature and fuel quantity. The pointers on the horizontal bar indicators appear in white, representing 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.

Engine Load Indicator

The Engine Load indicator displays the current engine load as a percentage on a vertical bar gauge. Numeric labels and tick marks are shown at intervals of 20 percent. The scale ranges from 0 to 100 percent. There is one green color band on the Engine Load indicator.

Tachometer

The Tachometer displays propeller speed in revolutions per minute (RPM). The scale ranges from 0 to 3,000 RPM with numeric labels and tick marks shown at intervals of 600 RPM.

The Tachometer indications follow propeller speed information provided by the FADEC. The overspeed warning is a visual annunciation which consists of the tachometer digital reading and units flashing white text on a red background then red text on a white background.

- **Green –** Normal operating range.
- **Red –** Indicates engine overspeed.

Fuel Flow GPH Indicator

The Fuel Flow indicator is a digital gauge which displays current fuel flow in gallons per hour (GPH) and has no color bands.

Oil Temperature Indicator

The Oil Temperature indicator displays the engine oil temperature.

- **Green –** Normal
- **Yellow –** Caution
- **Red –** Warning

Oil Pressure Indicator

The Oil Pressure indicator displays the engine oil pressure.

- **Green** – Normal
- **Yellow** – Caution
- **Red** – Warning

Coolant Temperature Indicator

The Coolant Temperature indicator displays the temperature of the engine coolant.

- **Green** – Normal
- **Yellow** – Caution
- **Red** – Warning

Fuel Temperature Indicator

The Fuel Temperature indicator displays the fuel temperature.

- **Green** – Normal
- **Yellow** – Caution
- **Red** – Warning

Fuel Quantity Indicator

The Fuel Quantity indicator displays the quantity of fuel in the tanks, in gallons. The indicator ranges from 0 to 25 with tick marks at 5, 10, 15 and 20 gallons.

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

NOTE: The Fuel Quantity Indicator displays 25 gallons per side when full.

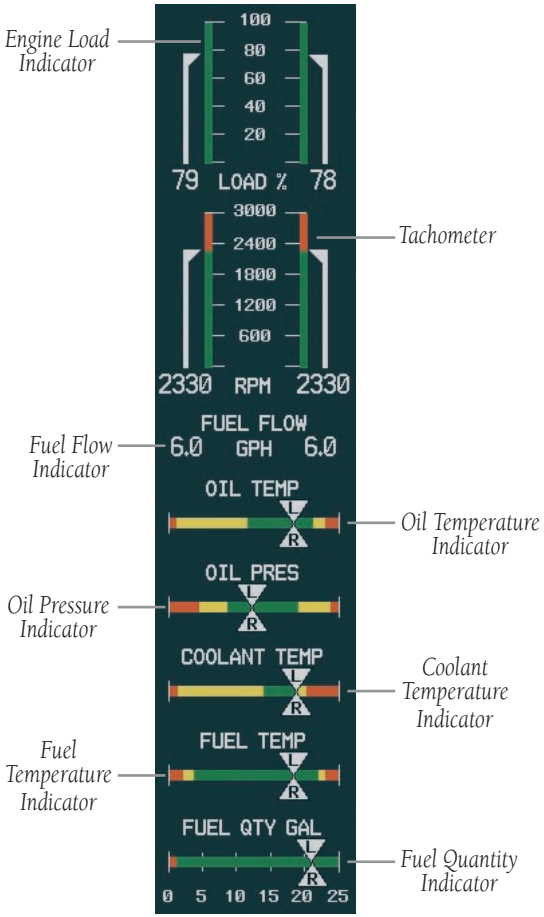

Figure 7.1.1 ENGINE Page

7.2 SYSTEM

The System Page provides digital readouts for several of the analog bar indicators on the Engine Page. In addition, the System Page adds the voltmeter, ammeter and gearbox temperature indicators. The electrical indicators are located beneath the tachometer and consist of color-coded horizontal bar indicators with numeric readouts for primary bus voltage and alternator load. Below these indicators are the engine indicators which consists of a color-coded horizontal bar indicator with numeric readout for the gearbox temperature and numeric readout only for coolant temperature, oil temperature and oil pressure. The numeric indications appear in white, representing acceptable areas of operation. The color changes to black text on a yellow background (caution) or white text on a red background (warning) upon exceeding areas of normal operation. The System Page can be displayed by pressing the **ENGINE** softkey followed by the **SYSTEM** softkey.

Voltmeter

The Voltmeter displays the primary bus voltage for each side.

- **Green** – Normal
- **Yellow** – Caution
- **Red** – Warning

Ammeter

The Ammeter displays each alternator load in amperes. The ammeter ranges from 0 to 75.

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

Gearbox Temperature Indicator

The Gearbox Temperature indicator displays the temperature of each gearbox in degrees Celsius.

- **Green** – Normal
- **Yellow** – Caution
- **Red** – Warning

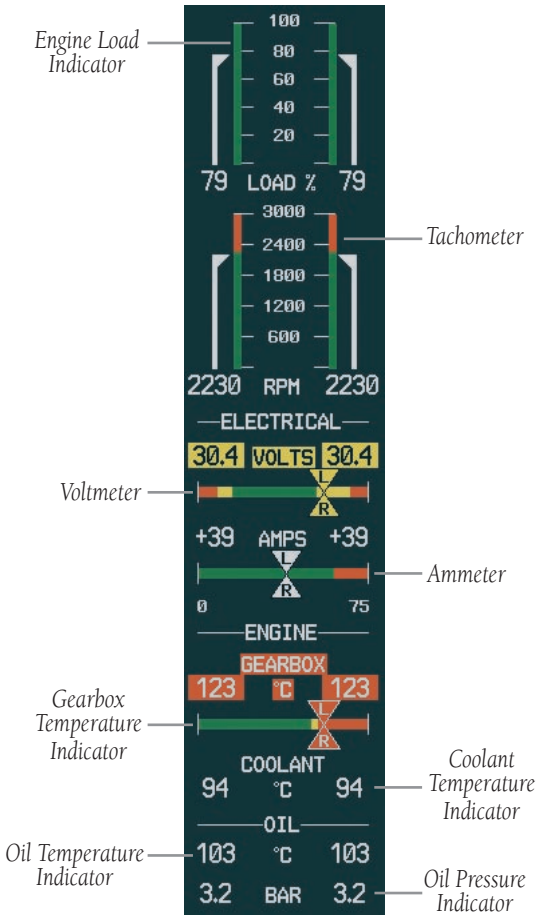

Figure 7.2.1 SYSTEM Page

7.3 FUEL

The Fuel Page displays a numeric readout for the fuel indicators and the fuel calculations. Located beneath the Tachometer are numeric readouts for fuel quantity, fuel flow and fuel temperature. Beneath the fuel temperature readout are the fuel calculations. A numeric readout is provided for gallons remaining, gallons used, endurance, and range in nautical miles.

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

- **GAL REM –** Current fuel remaining in gallons as set by the pilot and adjusted for fuel burn since last set.
- **GAL USED –** Quantity of fuel used in gallons.
- **ENDUR –** Flight time remaining with fuel onboard. HH:MM when more than an hour remains.
- **RANGE NM –** Aircraft range in nautical miles.

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

NOTE: *Pilot's should refer to the Aircraft Flight Manual (AFM) for limitations.*

Located at the bottom of the page is a numeric readout for total time in service which is displayed in hours.

- **TTL TIME IN SVC –** Displays the total flight hours and is activated when the aircraft becomes airborne.

If desired the pilot can utilize the **DEC FUEL, INC FUEL** and **RST FUEL** softkeys to adjust the amount of fuel remaining for totalizer calculations.

The second-level softkeys are available by pressing the **FUEL** softkey:

- **DEC FUEL –** Decreases totalizer based fuel quantity remaining in one gallon increments.
- **INC FUEL –** Increases totalizer based fuel quantity remaining in one gallon increments.
- **RST FUEL –** Reset totalizer based fuel quantity remaining to the aircraft's fuel capacity. Performing the fuel reset also sets the GAL USED display to zero.

To decrease the fuel totalizer quantity:

1. From the Fuel Page, press the **DEC FUEL** softkey to obtain the desired number of gallons remaining.

To increase the fuel totalizer quantity:

1. From the Fuel Page, press the **INC FUEL** softkey to obtain the desired number of gallons remaining.

To reset the fuel totalizer:

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

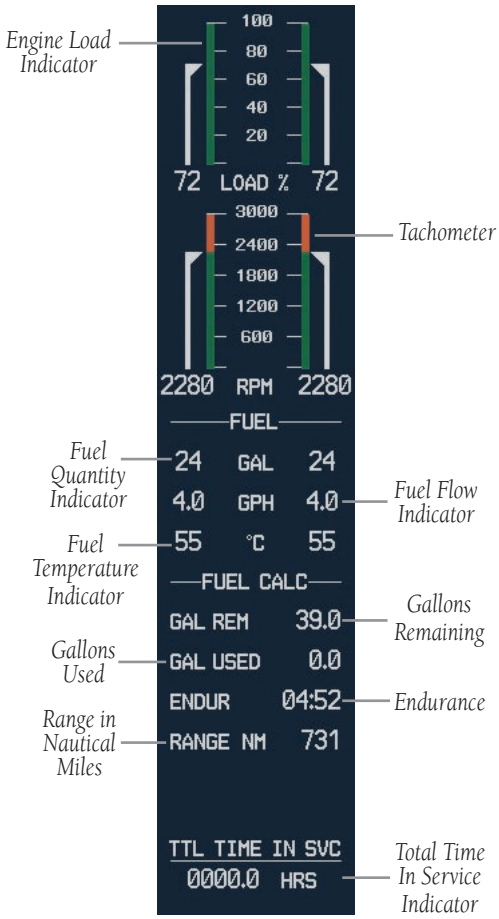

Figure 7.3.1 FUEL Page

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