Pilot's Operating Handbook

For

SDI/HOSKINS

FT-101

FUEL FLOW/TOTALIZER

SYSTEM

SDI P/N 702165

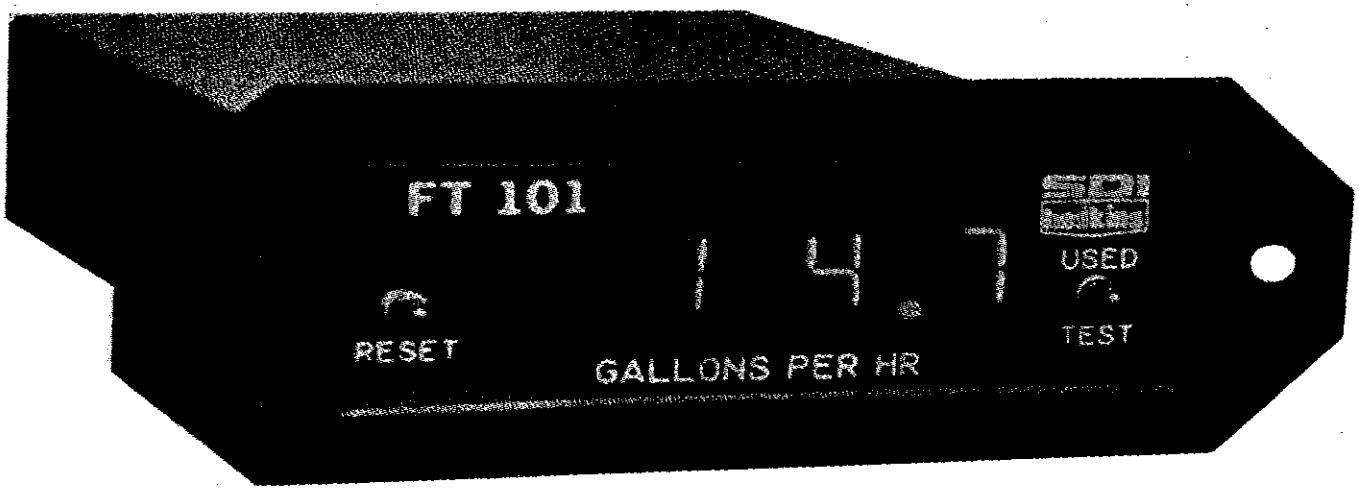
SDI hoskins

SYMBOLIC DISPLAYS, INC.
A SHELDAHL COMPANY

FT - 101

FUEL MANAGEMENT SYSTEM

For Single Engine Aircraft



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FT-101 FUEL SYSTEMS

1.0 GENERAL SYSTEM DESCRIPTION

The Flow Totalizer 101 utilizes the latest in microcomputer technology from Symbolic Displays' increasing line of Fuel Management products. The FT-101 system is designed to maximize the efficiency of fuel system management by displaying the fuel consumption rate (fuel flow) of the engine and the precise amount of fuel the engine has consumed. This information is displayed in one of the following formats, US Gallons, Pounds, or Liters, depending on which model you have purchased.

The FT-101 system consist of a panel mounted instrument and a fuel flow transducer which is installed in the aircraft fuel line.

The system is designed for use in all single engine fuel injected aircraft having no more than 60 GAL/HR continuous consumption or 78 GAL/HR intermittent consumption. (take off power)

1.1 PANEL MOUNTED INSTRUMENT

The panel mounted instrument contains all system electronics and may be divided into four groups.

Display

The display uses one mini lamp and four seven segment incandescent digits that are fully sunlight readable and dim automatically during night and low light level flight conditions.

Microprocessor

The microprocessor in the FT-101 contains a crystal controlled oscillator that controls all timing and computing functions for precise fuelflow and totalizing computations.

Power Supply

The FT-101 power supply is a high speed switching regulator type for optimum efficiency and the lowest possible power drain on the aircraft electrical system.

Memory

The FT-101 microprocessor continuously stores and updates the totalized fuel quantity in a random access memory chip. The Total Fuel Used quantity is retained during aircraft shut down by connecting the FT-101 memory wire to the aircraft battery. The drain on the aircraft battery is very small due to the low power CMOS memory chip which uses only 2 milliamps at 24 VDC and 0.7 milliamps at 12 VDC.

1.2 FUEL FLOW TRANSDUCER

The turbine flow transducer, mounted in the engine fuel line, measures flow of hydrocarbon fuel such as gasoline or kerosene. The transducer is rated for a continuous operation to 60 gallons per hour. In addition, the transducer is accurate down to 0.6 gallons per hour.

The transducer supplies the FT-101 Flow Totalizer with a pulse signal from a self contained opto-electronic pickup. A neutrally buoyant rotor spins with the liquid between V-jewel bearings. The rotor movement is sensed when notches in the rotor interrupt an infra-red light beam between a light emitting diode and a photo-transistor.

The transducer design is totally safe and complete rotor blockage cannot interrupt fuel flow. The transducer life expectancy is 1500 Hours.

2.0 GENERAL OPERATING PROCEDURES

Turn on the aircraft master switch. On activating the aircraft electrical system, the FT-101 display will flash zeros (000.0). This flashing is a prompt for the pilot to reset or check the fuel used number by pressing either the RESET or USED/TEST buttons. Once the RESET or USED/TEST button is depressed, the display will stop flashing and read fuel flow.

After starting the aircraft engine, the FT-101 will continuously display fuel flow. Total Fuel Used may be displayed by pressing and holding the USED/TEST button on the right of the instrument. Total Fuel Used will be displayed as long as the USED/TEST button is depressed (or for 2 seconds), whichever comes first. This number may be reset to zero (0.0) by depressing and holding the RESET button for at least 1 second.

The totalizer function in the FT-101 may be used as a single flight totalizer or as a long term totalizer. Both methods are explained below.

2.1 SINGLE FLIGHT TOTALIZER

The aircraft should be topped with fuel before each flight so the total usable fuel will be known. Turn on the aircraft master switch. On activating the aircraft electrical system, the FT-101 will flash zero (000.0) fuel flow. Push and hold the reset button, located on the left of the instrument, for at least 1 second. The RESET button has a one half second delay to prevent accidental reset.

On starting the engine, the FT-101 will begin displaying fuel flow. Total fuel used may be checked by depressing the USED/TEST button.

2.2 LONG TERM TOTALIZER

Turn on the aircraft master switch. On activating the aircraft electrical system, the FT-101 will flash zero (000.0) fuel flow. Depress and hold the USED/TEST button. The FT-101 will display the total fuel used from previous flights. Do NOT push the RESET button! On starting the engine, the FT-101 will display fuel flow and continue counting fuel used up to 999.9 gallons, 9999 pounds, or 9999 Liters depending on the model.

3.0 TEST FUNCTION

A test function is provided in the FT-101, so the pilot may verify that all digits are functioning prior to each flight. To use the test function, depress and hold the USED/TEST button two times within one second and the FT-101 will display all eights (888.8).

FT-101

SYSTEM SPECIFICATIONS

OPERATING TEMPERATURE RANGE:	-30°C TO +55°C
ALTITUDE:	-1000 TO 45,000 FT
VIBRATION:	10 G'S
SHOCK:	15 G'S
HUMIDITY:	95% @ 55°C
ACCURACY:	+/-2%
APPLICABLE DOCUMENTS:	TSO C44A
INPUT VOLTAGE:	10 - 32 VDC
INPUT CURRENT:	.75 Amps @ 28VDC
MEMORY CURRENT:	2 Ma @ 24VDC
WEIGHT:	1.7 LBS.
MAXIMUM DISPLAY CAPABILITY:	999.9 OR 9999 UNITS
FLOW RATE RANGE:	0.6 TO 60.0 GPH

INSTALLATION RECORD

FT-101 SERIAL NUMBER _____

TRANSDUCER SERIAL NUMBER _____

INSTALLATION DATE _____

INSTALLATION SHOP _____

NOTES: