

PILOTS OPERATING HANDBOOK

FOR

**SHELD AHL CORPORATION
HOSKINS PRODUCTS GROUP**

FT-101A

FUEL FLOW/TOTALIZER

SYSTEM

P/N 702165-*



**SHELD AHL CORPORATION
HOSKINS PRODUCTS GROUP**

TABLE OF CONTENTS

	<u>PAGE</u>
1.0 GENERAL SYSTEM DESCRIPTION	2
1.1 PANEL MOUNTED INSTRUMENT	2
1.2 FUEL FLOW TRANSDUCER	3
2.0 GENERAL OPERATING PROCEDURES	3
2.1 SINGLE FLIGHT TOTALIZER	4
2.2 LONG TERM TOTALIZER	4
3.0 SWITCH TRUTH TABLE	5
SYSTEM SPECIFICATIONS	7
MOUNTING SPEC. DRAWING	8
INSTALLATION RECORD	9
WIRING DIAGRAM	10

FT-101A
FUEL MANAGEMENT SYSTEM
For Single Engine Aircraft

SECTION 1 GENERAL INFORMATION

SECTION 2 FUEL SYSTEM COMPONENTS

SECTION 3 FUEL SYSTEM OPERATION

SECTION 4 MAINTENANCE PROCEDURES

SECTION 5 TROUBLESHOOTING

SECTION 6 SAFETY PRECAUTIONS

SECTION 7 ACCESSORIES

SECTION 8 INDEX

FT-101A FUEL SYSTEMS

1.0 GENERAL SYSTEM DESCRIPTION

The Flow Totalizer 101A utilizes the latest in microcomputer technology from Hoskins' increasing line of Fuel Management products. The FT-101A 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-101A system consists 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..

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-101A contains a crystal controlled oscillator that controls all timing and computing functions for precise fuel flow and totalizing computations.

Power Supply

The FT-101A power supply is multiple output regulated type for optimum efficiency and the lowest possible power drain on the aircraft electrical system.

Memory

The FT-101A microprocessor continuously stores and updates the totalized fuel quantity in on-board random access memory. The Total Fuel Used quantity is retained during aircraft shut down by connecting the FT-101A memory wire to the aircraft battery. The drain on the aircraft battery is very small due to the low power MOS memory which uses only 13 milliamps.

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 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. Upon activating the aircraft electrical system, the FT-101A will temporarily display three functions:

- 1. All segments of the four digits will illuminate (lamp test).**
- 2. K-Factor selected:
1111 - LOW LOW LOW
2222 - LOW LOW
3333 - LOW
4444 - MEDIUM
5555 - HIGH
6666 - HIGH HIGH
7777 - HIGH HIGH HIGH**

3. "Fuel Used" as stored in the microprocessor memory.

At the completion of this cycle, the display will begin showing the rate of fuel usage. The total fuel used may be displayed at any time by depressing the USED button on the right of the instrument. Total fuel used will be displayed as long as this button is pressed, or for two seconds after the button is released. This number may be reset to zero by pressing the RESET button. The display will show the reset memory (0.0) and then repeat the power-on sequence before again displaying the rate of fuel usage.

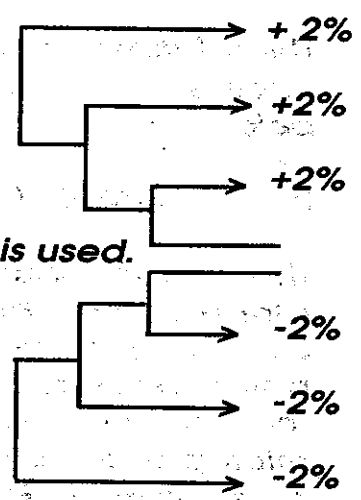
The totalizer function in the FT-101A may be used as a single flight totalizer or as a long term totalizer. Both methods are explained below:

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-101A will begin its power-on sequence. When this sequence is completed, press and momentarily hold the RESET button to zero the total fuel used in the microprocessor memory. The total fuel used may be checked by pressing the USED button.

2.2 LONG TERM TOTALIZER

Turn on the aircraft master switch. On activating the aircraft electrical system, the FT-101A will perform its power-on sequence. At the completion of this sequence, the FT101A will display the fuel rate usage. DO NOT press the RESET button. The FT-101A will continue counting fuel used up to 999.9 gallons, 9999 pounds or 9999 liters, depending on the model. Once this value is reached, the next display will be that of a RESET function and the fuel used value will begin at zero.



***When medium K transducer is used.**

NOTE: Same concept applies with low and high transducers.

3.0 SWITCH TRUTH TABLE

The programming switches found in the interior of the instruments are normally preset at the factory. In the event their position is changed, please refer to the table below:

K-FACTOR ADJUSTMENT

(1111) LOW LOW LOW

(2222) LOW LOW

(3333) LOW

(4444) MEDIUM*

(5555) HIGH

(6666) HIGH HIGH

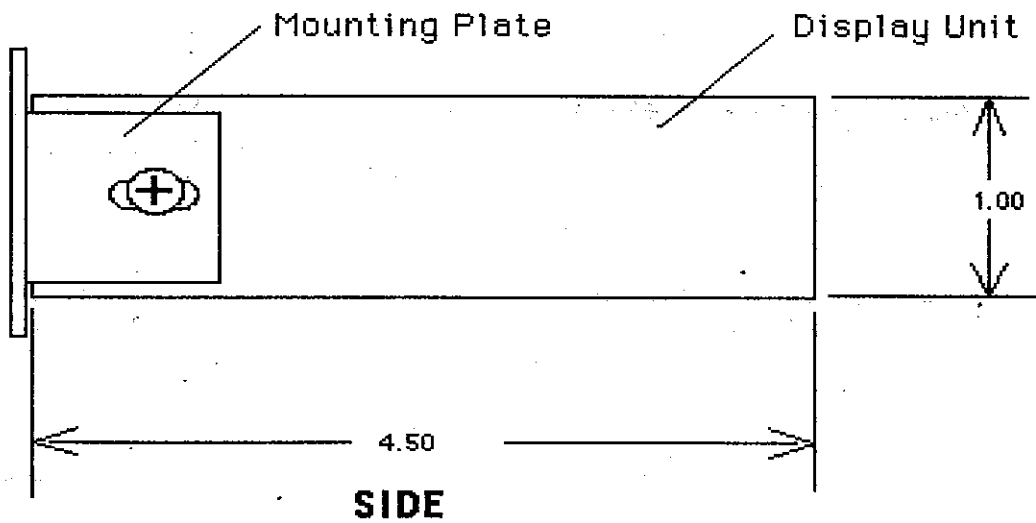
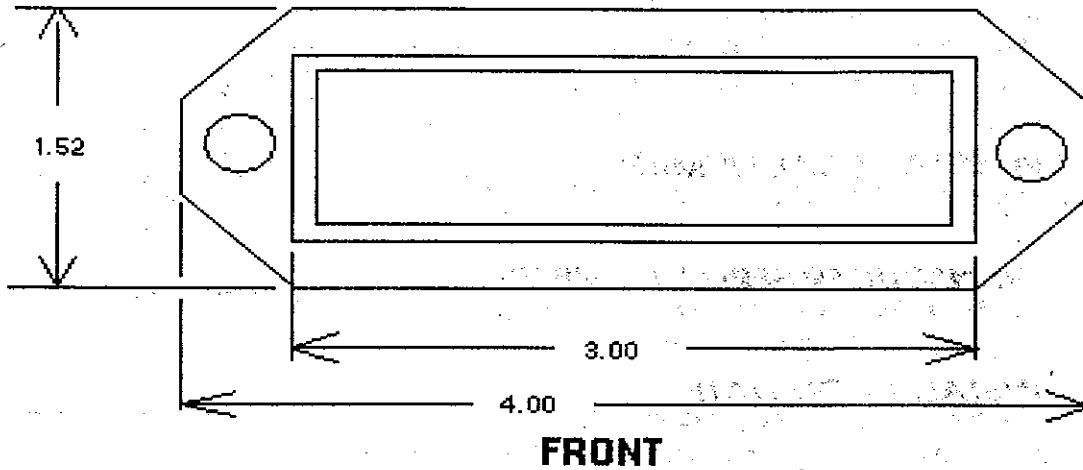
(7777) HIGH HIGH HIGH

	S1	S2	S3	S4	S5	S6	S7
(1111) LOW LOW LOW	Closed	Open	Open	X	X	NOT USED	X
(2222) LOW LOW	Open	Closed	Open	X	X		X
(3333) LOW	Closed	Closed	Open	X	X		X
(4444) MEDIUM*	Open	Open	Closed	X	X		X
(5555) HIGH	Closed	Open	Closed	X	X		X
(6666) HIGH HIGH	Open	Closed	Closed	X	X		X
(7777) HIGH HIGH HIGH	Closed	Closed	Closed	X	X		X
FUNCTIONS							
GALLONS	X	X	X	Open	Open	NOT USED	Closed
LITERS	X	X	X	Closed	Open		Open
POUNDS	X	X	X	Open	Closed		Open
KILOGRAMS	X	X	X	Closed	Closed		Open

FT-101A
SYSTEM SPECIFICATIONS

OPERATING TEMPERATURE RANGE:	-30oC to +55oC
ALTITUDE: FT	-1000 TO 45,000
VIBRATION:	10 G's
SHOCK:	15 G's
HUMIDITY:	95% @ 55oC
ACCURACY:	+/- 2%
APPLICABLE DOCUMENTS:	TSO C44A
INPUT VOLTAGE:	10 - 32 VDC
INPUT CURRENT: VDC	.75 Amps @ 28
MEMORY CURRENT:	13/MA
WEIGHT:	1.7 LBS.
MAXIMUM DISPLAY CAPABILITY: UNITS	999.9 OR 9999
FLOW RATE RANGE:	0.6 TO 60.0 GPH

MOUNTING SPECIFICATION :



INSTALLATION RECORD

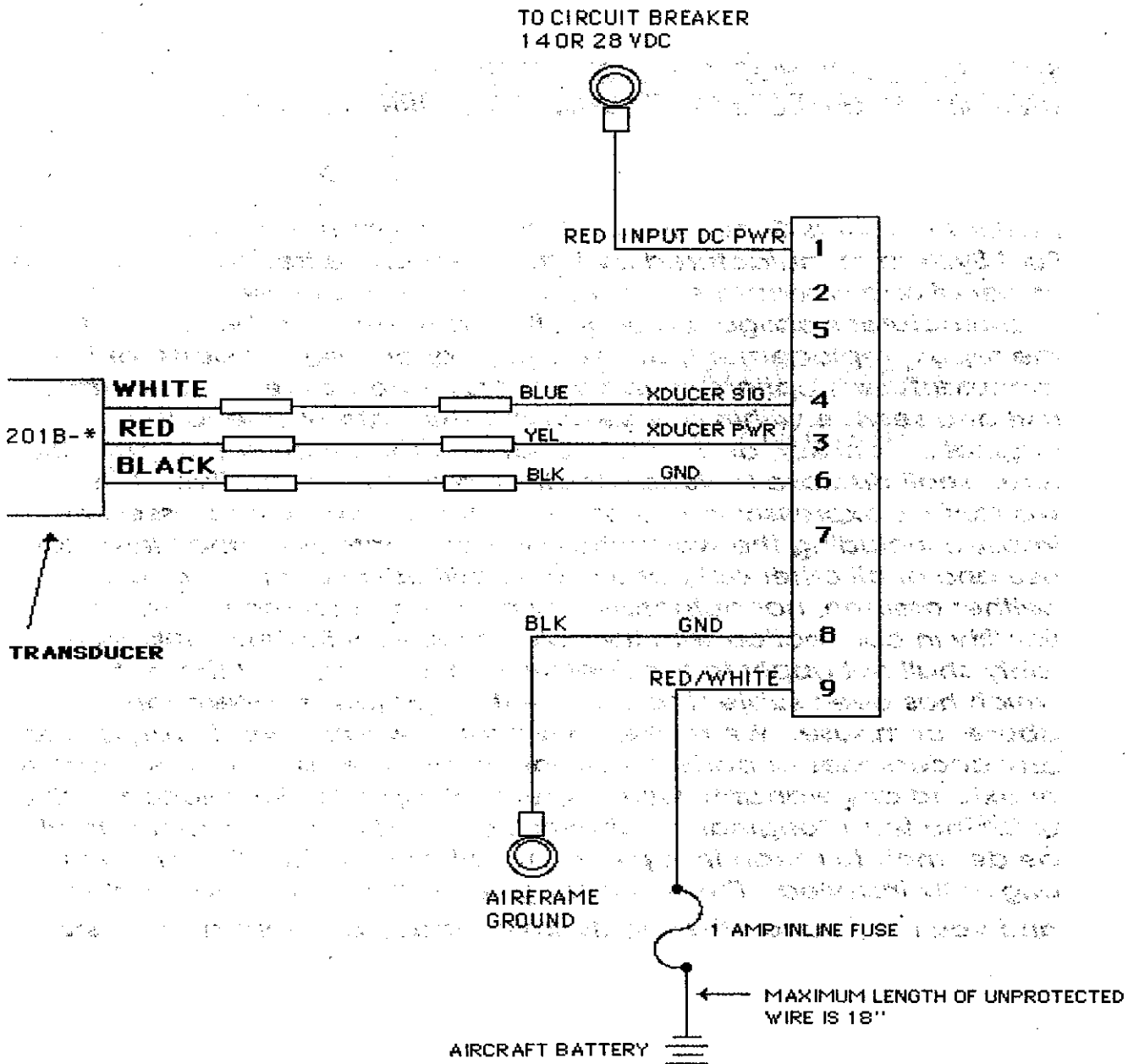
FT-101A SERIAL NUMBER

TRANSDUCER SERIAL NUMBER

INSTALLATION DATE

INSTALLATION SHOP

WIRING DIAGRAM



SHELDAHL CORP., HOSKINS PRODUCT GROUP
LIMITED WARRANTY OF MATERIALS AND WORKMANSHIP

Hoskins Products Group warrants to the original purchaser of the Fuel System manufactured by it that said unit is free from defects in material and workmanship under normal use and service. The manufacturer's obligation under this warranty shall be limited to the repair, replacement, or exchange of any part or parts, at the manufacturer's option, which may prove defective under normal use and service within one year from the date of sale to the original purchaser, and which, upon examination by the manufacturer, shall disclose to its satisfaction to be thus defective. This warranty is expressly in lieu of all other warranties, expressed or implied including the warranties of merchantability and fitness for use and of all other obligations or liabilities on our part, and we neither assume, nor authorize any person to assume for us, any liability in connection with the sale of the Fuel System. This warranty shall not apply to the Fuel System, nor any part thereof, which has been subject to accident, negligence, alteration, abuse, or misuse. We make no warranty whatsoever in respect to any accessories or parts not supplied by Hoskins, nor do we make or extend any warranty with respect to improper installation of this unit. The term "original purchaser", as used in this warranty, shall be deemed to mean that person for whom the Fuel System was originally installed. This warranty gives you specific legal rights and you may have other rights which may vary from state to state.