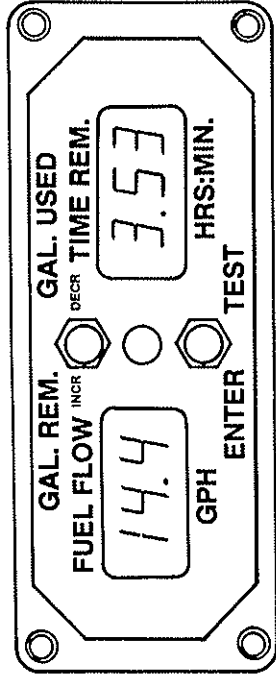


Miniflo™

DIGITAL FUEL MANAGEMENT SYSTEM



OPERATING MANUAL

P/N	Version
912001	Gallons
912003	LBs/Aviation Gas @ 5.8 Lb./Gal.
912005	LBs/Jet Fuel @ 6.7 Lb./Gal.
912007	Liters

SHADIN CO., INC.

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NOTES

MINIFLO™

Although the FAA does not require it, it is recommended that this manual be always kept onboard for handy reference.

1. SYSTEM DESCRIPTION

1.1 GENERAL:

MINIFLO is a Digital Fuel Management System designed to improve fuel monitoring and management through the calculation and display of the fuel flow, fuel remaining, fuel used, and time remaining within an accuracy of 2% (better than 1% in some models). It features solid state electronic components and a microprocessor designed to process the pulses generated by a fuel flow transducer installed in the fuel line.

The system is available with gallons, pounds, or liters readouts, and it can be installed virtually on any reciprocating or turbine engine by selecting the proper size fuel flow transducer.

It can be used with injected, carburetted, and pressure-carburetted engines. In the latter, an additional fuel flow transducer is added in the return line, enabling the instrument to subtract the return flow and display actual net fuel flow.

Fuel flow is continuously displayed in the left window. Time remaining, fuel used, and fuel remaining are continuously computed and either displayed or stored for later display in the right window.

During power shut-down, the amount of fuel remaining is stored in a non-volatile memory which requires no power to retain the data.

Time remaining calculations are based on fuel remaining and actual fuel flow, which means that reducing the power or leaning the mixture will result in increasing the time remaining.

If the calculated time remaining at any particular power setting drops below 30 minutes, the "Time Remaining" digits in the display window will start flashing.

A test function is provided to enable the pilot to check the software and the hardware against malfunction.

1.2 INDICATOR:

All system electronics, function controls, and digital displays are contained in a single instrument that mounts in a standard ½ ATI hole and requires no periodic maintenance, adjustment, or calibration once properly installed.

1.3 FUEL FLOW TRANSDUCER:

The fuel flow transducer(s) mounted in the fuel line(s) measures the flow of fuel and generates electrical pulses directly proportional to the amount of fuel flow. The transducers are fail-safe designed, i.e. rotor locking will not interrupt fuel flow.

2. Reserved for future use

5. SPECIFICATIONS

Digital Fuel Management System Part Number 91200X

Maximum useable fuel:	900 gallons
Maximum altitude:	40,000 ft.
Operating Temperature:	-30 to 50 C
Humidity:	up to 95% @ 32 C
Accuracy:	better than 2%
Functions:	Fuel Flow Fuel Used Fuel Remaining Time Remaining Low Fuel Warning

ELECTRICAL RATING:

Input voltage:	14-28 volt D.C.
Input current:	500 ma @ 14V. or 28V. Avg.

MECHANICAL RATING:

Vibration:	5g
Weight:	Panel Unit: 13 oz.

4.2 WARNING:

The time remaining display digits will flash whenever the endurance drops below 30 minutes.

4.3 EMERGENCY:

In case of an electrical power failure in flight, the instrument will cease to function. After restoring power, the left window will resume accurate fuel flow reading, but the Time Remaining, Fuel Used, and Fuel Remaining figures will not be accurate unless the duration of the power failure is known and the fuel consumption during the electric power failure is calculated and subtracted from the Fuel Remaining.

3. PREFLIGHT PROCEDURES

MINIFLO is a fuel flow measuring system and NOT a quantity sensing device. It can NOT determine the amount of useable fuel in the fuel tanks. Therefore, it is imperative that an accurate figure of the useable fuel onboard be entered into the system to ensure accurate readings.

3.1 TEST FUNCTION:

To start the test function press the "ENTER/TEST" button. All digits will display "8" sequentially for ten seconds. If the computer checks out the word "Good" will show for three seconds. If the test is not successful, the word "bAd" will be displayed; if such is the case the unit must be considered unserviceable until corrective action is taken.

The test will then display the software basic # and revision level. This is followed by the K-factor setting for the flow transducer (in the left window).

NOTE: Using the test function while the engines are running will cause the computer to lose 13 seconds of fuel count.

3.2 NO FUEL ADDED:

As data is already stored, no action is needed.

3.3 MAXIMUM USEABLE FUEL ADDED (FULL TANK):

1. Move the toggle switch to the "FUEL REM." position and hold.

2. Press the "ENTER/TEST" button to increment the fuel remaining (the longer you press, the faster the incrementing). When the total useable fuel figure is reached release the "ENTER" button and the "FUEL REM." toggle switch.

3. To verify, move the toggle switch to the "FUEL REM." position. The total useable fuel will be displayed in the right window.

3.4 PARTIAL FUEL ADDED (LESS THAN FULL TANK):

1. Find the amount of total fuel onboard by adding the amount of fuel remaining (from Miniflo) to the amount of fuel added (from the refueling meter).

2. Move the toggle switch to the "FUEL REM." position and hold.

3. Press the "ENTER/TEST" button to increment the fuel remaining figure. When the correct figure of fuel onboard is reached, release the "ENTER" button and the "FUEL REM." toggle switch.

4. To verify, move the toggle switch to "FUEL REM.". The current useable fuel remaining will be displayed in the right window.

3.5 CORRECTING INPUT ERROR:

In case an error has been made by exceeding the correct amount in entering the number of total useable fuel, select and hold the "FUEL USED" toggle switch and simultaneously press the "ENTER/TEST" button. The fuel used will be reset and the fuel remaining will appear and stay on display for 4 seconds. The figure will then start decrementing (the longer you press, the faster the decrementing). When the correct figure is reached, release both the "FUEL USED" toggle switch and the "ENTER" button. To avoid repeating the 4 second pause during the decrementing, do not release the "Fuel Used" toggle but use the "ENTER" button to control the decrementing.

4. IN-FLIGHT OPERATION

4.1 INSTRUMENT OPERATION:

The fuel flow is continuously displayed in the left window. The right window normally displays the time remaining in hours and minutes; otherwise it displays the fuel remaining or fuel used, depending on the position of the toggle switch. The time remaining display will be inhibited if the endurance exceeds 9 hours and 59 minutes. The fuel used may be reset to zero at any time by moving the toggle switch to the "FUEL USED" position and momentarily pressing the "ENTER/TEST" button (no longer than 4 seconds; otherwise, the computer will start decreasing the fuel remaining).

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