Please read the following instructions before installing. A visual inspection of this product for damage during shipping is recommended before mounting. It is your responsibility to have a qualified person install the unit and make sure installation conforms with NEC and local codes.

**GENERAL INFORMATION**

**WARNING**

**BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT**

- Disconnect all electrical power to the machine.
- Make sure the machine cannot operate during installation.
- Follow all safety warnings of the machine manufacturer.
- Read and follow all installation instructions.

### M2582 and M5081 Series

**Tripping Power From Engine Ignition System or Battery**

(Models available for magneto, CD ignition or 12/24 V battery)

These fuel shut-off valves are semi-automatic devices for shutdown of natural gas fueled engines. The standard valve opens by manual operation of the reset handle. A latch in the upper body of the valve will set and hold the valve open. At this point no electric power is used. The electromagnetic coil is de-energized, the snap-switch(es) is SET.

If a SWITCHAGE® contact closes, a circuit is completed from power through the snap-switch and coil. Now energized, the electromagnet trips the latch, (latch can be tripped manually), the valve closes, and the snap-switch resets. Power switches from the coil circuit to your choice of an open line, an electrical ground, or an alarm. After tripping, the vent seal opens, and on the M50 models, the open/close indicator (green button) retracts to indicate that the valve is closed.

Valve body is sandcast aluminum. Optional cast steel for M5081 models.

### M2582-P and M5180-P

**MURPHY-NUMATIC® Pneumatic Version for Pressure**

The M2582-P and M5180 pneumatically controlled valves can operate from pressure, and are designed to open and close automatically or semi-automatically (the supply can be air, oil or gas).

**NOTE:** If using oil as a pressure source, use a lightweight oil.

These valves will open on rising control pressure and close on decreasing control pressure. M2582-P and M5180-P automatically open at 2 psi (14 kPa) [0.14 bar] and fully open at 3 psi (21 kPa) [0.21 bar].

All models include a built-in lever to aid in opening the valve manually. The M2582-P can be manually opened against inlet pressure of 80 psi (552 kPa) [5.52 bar]. The M5180-P valve can be opened against inlet pressure of 100 psi (689 kPa) [6.89 bar].

Standard models include an escape vent for gas trapped forward in the line after shut-off.

### M5081FS

**Normandy Energized Circuit**

The M5081FS is manually opened, electrically latched open and tripped by interrupting the coil power circuit.

### Magnetic Switch Adapter

As ignition systems wear from usage, their power output becomes less and less. Ignition may not have the capacity to reliably trip the Fuel Valve. Therefore, the use of a Magnetic Switch Adapter for CD ignition systems is recommended. The Magnetic Switch Adapter is a device that stores energy from the CD ignition to trip the Fuel Valve. Three models are available:

- **65700053 (was 65020126):** For use with negative ground ignitions up to 240 VDC.
- **65700054 (was 65020127):** For use with positive ground ignitions up to 450 VDC.
- **65700055 (was 65020155):** For use with negative ground ignitions up to 450 VDC.

### 100 ohm, 2 watt Resistor

For Capacitor Discharge Ignitions that are specified to be grounded when the valve closes, and a Magnetic Switch Adapter is in use. The resistor must be connected in the system to prevent damage to the snap-switches in the fuel shut-off valve (see typical wiring diagrams).

### Diode Package

The Murphy diode package (65810065) is designed to allow the fuel shut-off valve to be used with dual Magneto Ignition systems.

**NOTE:** All aluminum versions of the M5081 Series Fuel Valve carry Canadian Registration Number OC1476.2.
Understanding the Basic Operation of the Fuel Shut-off Valve

The valve below is shown in the run (open) position. Pressure is equalized, seat (B) is open, allowing the fuel to flow. When valve is in the tripped position (closed), seat closes (C). The vent (D) opens to relieve trapped downstream fuel to vent to a non-hazardous area.

**TYPICAL MODEL (M5081) SHOWN**

- **A.** Main Stem
- **B.** Pressure Disc/seal (in run/open)
- **C.** Pressure Disc/seal (in trip/closed)
- **D.** Vent Seal Gland
- **E.** Reset Knob (latches valve open)
- **F.** Manual Trip Knob (not available for M5081FS)
- **G.** Indicator Button (out with valve open)
- **H.** Pipe Plug (remove to install vent tube).

**NOTE:** If the vent-after-tripping feature is not used, remove O-ring (D), to avoid condensation accumulation that can hamper trip action. Be sure to replace Pipe Plug (H) and to clean vent periodically.
CAUTION: THE ARROW ON THE SIDE OF THE FUEL VALVE MUST POINT TO THE CORRECT DIRECTION OF THE FLOW, FROM FUEL SOURCE TO THE ENGINE. APPLY PIPE DOPE ONLY TO FUEL PIPE, NOT TO THE FUEL VALVE.

M2582

1/2 NPT Conduit Connection
1 NPT (2 places)
7-5/16 in. (186 mm)
3-3/32 in. (79 mm)
5-1/2 in. (140 mm)

M2582-P

Latch Arm (see NOTE)
1/4 in. (6 mm) tube connection; control pressure 3 psi (21 kPa) [0.21 bar] minimum, 75 psi (517 kPa) [5.17 bar] maximum.

Breather/Vent
1/16 in. (2 mm)
1 NPT (2 places)
4-1/4 in. (107 mm)
3-3/32 in. (79 mm)
5-1/2 in. (140 mm)

NOTE: Thumb operated opening latch (2.5 psi [17 kPa] [0.17 bar] required to release cocking latch)

M5180-P

Latch Arm (see NOTE 2)
Breather Vent (see NOTE 1)
2 NPT (2 places)
10-7/16 in. (265 mm)
2-5/16 in. (59 mm)
3/8 in. (10 mm)
1-15/32 in. (37 mm)

Vent and Plug
1/2 NPT
9-3/8 in. (238 mm)

1/4 in. (6 mm) connection; control pressure 3 psi (21 kPa) [0.21 bar] minimum, 80 psi (552 kPa) [5.52 bar] maximum (see NOTE 1)

NOTE 1: Control pressure connection fitting and breather vent fitting can be swapped to convert to vacuum control.
NOTE 2: Thumb operated opening latch (2.5 psi [17 kPa] [0.17 bar] required to release cocking latch).

Magnetic Switch Adapters

65700053 (was 65020126); 65700054 (was 65020127); 65700055 (was 65020155)

Panel Mount screws
10-24 N.C. x 5/16 in. (8 mm) long

Terminal screws
8-32 N.C. x 1/4 in. (6 mm) long

Installation M-7980N page 3 of 12
CAUTION: THE ARROW ON THE SIDE OF THE FUEL VALVE MUST POINT TO THE CORRECT DIRECTION OF THE FLOW, FROM FUEL SOURCE TO THE ENGINE. APPLY PIPE DOPE ONLY TO FUEL PIPE, NOT TO THE FUEL VALVE.

M5081 and M5081FS

M5081-3 Steel Flanged Option
Connecting the Fuel Shut-off Valve

1. Before connecting the unit, apply pipe dope to plumbing male threads that will be inserted into the valve. Do not apply pipe dope to the valve.
2. Make sure that the arrow on the side of the valve indicates the correct direction of the flow.
3. Fuel shut-off valves can be installed in all three planes. However, mounting the valve horizontally (with vent pointing down) is recommended. Do not install valve with top down. (Refer to Figure 1.)
4. Hold valve in position, (use a tool on valve wrench flats) and tighten plumbing into inlet and outlet ends. (Refer to dimensions on pages 3-4.)

CAUTION: DO NOT TWIST THE VALVE BODY HOUSING.

5. To mount flanged models, follow the appropriate installation codes and ordinances for the application. (For dimensions see page 4.)
6. A vent line (to allow gas trapped forward between fuel valve and the carburetor to escape) should be attached to the vent connection at the bottom of the valve housing. Remove the plug and install the line. (Refer to Figure 1.)

Connecting Pneumatic Models M2582-P and M5180-P

1. Repeat the steps above (1 thru 5), and observe the necessary cautions.
2. A lever/arm (handle) and a cocking latch are provided to allow manual opening of the valve. The thumb-operated latch can be locked in place to hold the lever/arm latched. The cocking latch will be released when pilot pressure reaches 2.5 psi (17 kPa) [0.17 bar]. M2582-P and M5180-P automatically open at 2 psi (14 kPa) [0.14 bar], and fully open at 3 psi (21 kPa) [0.21 bar]. See Specifications, page 12 for maximum control pressure.
3. If vacuum control is desired, swap the Control Pressure connection fitting and the Breather Vent fitting on your M5180-P model (see Fig. 2).
**M2582 Internal Wiring**

Wiring shown in normal mode of operation (seat open). The 20 AWG (0.75 mm²) wire is color coded to the coil:

- **For CD Ignitions**: White and Orange
- **For Magneto Ignitions**: White and Green
- **For Battery**: White and Blue

**Conduit Installation**

Install a 1/2 NPT conduit from the M2582 conduit connection to the power source. See M2582 Dimensions (page 3) for location.

For wiring the M2582 fuel valve to Solid-State TATTLETALE® annunciators, refer to pages 9, 10, and 11.

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**M5081 Internal Wiring**

Wiring shown in normal mode of operation (seat open). The 18 AWG (1.0 mm²) wire is color coded to the coil:

- **For CD Ignitions**: White and Orange
- **For Magneto Ignitions**: White and Green
- **For Battery**: White and Blue

**Conduit Installation**

Install a 1/2 NPT conduit from the M5081 conduit connection to the power source. Refer to Dimensions (page 4) for location.

For typical wiring of the M5081 models refer to pages 7 and 8.

For wiring the M5081 fuel valves to Solid-State TATTLETALE® annunciators, refer to pages 9, 10, and 11.

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**M2582-C-LS Wiring**

**M5081-C-LS Wiring**

[Diagram showing wiring connections]

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**M5081FS Internal Wiring**

For typical wiring refer to page 8.

For wiring the M5081FS to MARK IV 12/24 refer to page 10.

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**Magnetic Switch Adapters for Use with Capacitor Discharge Ignitions**

Connect the Magnetic Switch Adapter between the fuel Valve terminal 1 and the CD Ignition. See wiring diagrams (pages 7 and 11).

- **65700053 (was 65020126)**: For use with negative ground ignitions up to 240 VDC.
- **65700054 (was 65020127)**: For use with positive ground ignitions up to 450 VDC.
- **65700055 (was 65020155)**: For use with negative ground ignitions up to 450 VDC.

[Diagram showing magnetic switch adapter connection]
TYPICAL WIRING for M5081-C (CD IGNITION MODELS)

NOTE 1: To CLOSE FUEL VALVE—NOT GROUNDING THE IGNITION (Single CD Ignition Systems) Remove the factory-installed jumper on terminals 6-5. Do NOT ground terminal 6.

NOTE 2: To CLOSE FUEL VALVE—NOT GROUNDING THE IGNITIONS (Dual CD Ignition Systems) Remove the jumper on terminals 6-5. Connect second ignition to Magnetic Switch Adapter terminal ALT2.

NOTE 3: To CLOSE FUEL VALVE and GROUND THE IGNITION (Single CD Ignition Systems) Remove the jumper on terminals 6-5. Connect a 100 ohm, 2 watt resistor between valve terminals 1-2. Ground terminal 6.

NOTE 4: To CLOSE FUEL VALVE and GROUND THE IGNITION (Dual CD Ignition Systems) Remove the jumper on terminals 6-5. Connect a 100 ohm, 2 watt resistor between valve terminals 1-2. Ground terminal 6. Connect second ignition to Magnetic Switch Adapter terminal ALT2.

TYPICAL WIRING for M5081-B (BATTERY IGNITION MODELS)

NOTE: IN4005 Diode for flyback protection.
NOTE 1: To CLOSE FUEL VALVE—NOT GROUNDING THE IGNITION (Single Magneto Systems) Remove the factory-installed jumper on terminals 6-5. Do NOT ground terminal 5.

NOTE 2: To CLOSE FUEL VALVE—NOT GROUNDING THE IGNITIONS (Dual Magneto Systems) Remove the factory-installed jumpers on terminals 6-5 and 9-8. Add 65010065 diode package as shown. Do NOT ground terminals.

NOTE 3: To CLOSE FUEL VALVE and GROUND THE IGNITION (Single Magneto Systems) The factory-installed jumpers (6-5 and 9-8) must be in place. Add ground wire to terminal 5.

NOTE 4: To CLOSE FUEL VALVE and GROUND THE IGNITION (Dual Magneto Systems) Remove the jumper on terminals 9-8. Add 65010065 diode package as shown. Add ground wire to terminal 5.
**WARNING:** PERFORM THE WIRING OPERATION WITH THE POWER SOURCE “OFF” AND THE AREA MADE NON-HAZARDOUS. MAKE SURE THE VOLTAGE AND CURRENT REQUIREMENTS ARE WITHIN THE FUEL SHUT-OFF VALVE RATINGS. HARD CONDUIT WITH APPROVED SEALS IS REQUIRED BY THE NEC FOR HAZARDOUS AREA INSTALLATIONS.

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**M2582-C to LCDT-PS-CD (R)-P (positive ground)**

- M2582 Fuel Valve
  - White
  - Black
  - Red

- LCDT-PS-CD (R)-P
  - IGN 1
  - GND
  - FV(+)
  - FV(-)
  - NO
  - C
  - NC

- Relay Contacts
  - Relay contacts rated: 3 A, 30 VDC, 4 A, 125/250 VAC

**M5081-C to LCDT-PS-CD (R)-P (positive ground)**

- M5081 Terminal block
  -IGN 1
  - GND
  - FV
  - FV(+)*
  - NO
  - C
  - NC

- LCDT-PS-CD (R)-P Terminal block
  - Relay Contacts
  - Relay contacts rated: 3 A, 30 VDC, 4 A, 125/250 VAC

* FV(+) FET output rated: 0.5 A @ 250 VDC max.

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**M2582-C to LCDT-PS-CD-N (negative ground)**

- M2582 Fuel Valve
  - White
  - Black
  - Red

- LCDT-PS-CD-N
  - IGN 1
  - FV(+)*
  - FV(-)
  - GND
  - NO
  - C
  - NC

- Relay Contacts
  - Relay contacts rated: 3 A, 30 VDC, 4 A, 125/250 VAC

**M5081-C to LCDT-PS-CD-N (negative ground)**

- M5081 Terminal block
  - IGN 1
  - GND
  - FV(+)*
  - FV(-)
  - NO
  - C
  - NC

- LCDT-PS-CD-N Terminal block
  - Relay Contacts
  - Relay contacts rated: 3 A, 30 VDC, 4 A, 125/250 VAC

* FV(+) FET output rated: 0.5 A @ 250 VDC max.

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**M2582-C to MARK IV-N (negative ground)**

- M2582 Fuel Valve
  - White
  - Black
  - Red

- Ground

- MARK IV-N terminal block
  - GRD
  - FV-
  - FV+
  - IGN 1

**M5081-C to MARK IV-N (negative ground)**

- M5081 Terminal block
  - GRD
  - FV-
  - FV+
  - IGN 1

- MARK IV-N* terminal block

* MARK IV has FET outputs rated: 0.5 A @ 250 VDC max.
**WARNING:** PERFORM THE WIRING OPERATION WITH THE POWER SOURCE “OFF” AND THE AREA MADE NON-HAZARDOUS. MAKE SURE THE VOLTAGE AND CURRENT REQUIREMENTS ARE WITHIN THE FUEL SHUT-OFF VALVE RATINGS. HARD CONDUIT WITH APPROVED SEALS IS REQUIRED BY THE NEC FOR HAZARDOUS AREA INSTALLATIONS.

(A) M5081-B to TTDJ-DC-(T)

(B) M2582-B to TTDJ-DC-(T)

TTDJ-DC-(T) to Relays

Connections Shown for Use with Diagrams (A), (B), (C), and (D) on this page.

(C) M2582-C w/Magnetic Switch Adaptor to CD Ignition

(D) M5081-C w/Magnetic Switch Adaptor to CD Ignition

- K1 and K2 are hermetically sealed auxiliary relays, third party certified for use in Class I, Div. 2, Gps. C & D areas.
- *1N4005 diode for flyback protection.
**SPECIFICATIONS**

**Valve Body:** Sandcast aluminum, painted red (corrosion resistance); 
Optional cast steel available for M5081 and M5081FS models only.

**Valve Seat:** Buna

**Maximum Valve Inlet Pressure:**
- M2582/M2582-P: 80 psi (552 kPa) [5.52 bar]
- M5081/M5081FSI: 5180-P: 100 psi (689 kPa) [6.89 bar]

**Maximum Control Pressure (Pneumatic Models):**
- M2582-P: 75 psi (517 kPa) [5.17 bar]
- M5180-P: 80 psi (552 kPa) [5.52 bar]

**Snap-switch:** M2582: One SPDT, 5 A @ 480 VAC
M5081, and M5081FS: Two SPDT, 5 A @ 480 VAC

**Wiring:** M2582: Wire leads; M5081, and M5081FS: Terminal blocks

**NOTE:** All aluminum versions of the M508/ Series Fuel Valve carry Canadian Registration Number OC1476.2.

**Coil Rating:** Intermittent duty; coil type must match power source;
- CD ignition coil resistance: 72 Ω
- CD ignition primary voltage: 1.38 to 3.8 A
- M5081FS: Energized to Run (continuous-duty coil) coil resistance:
  - 12 V model: 33 Ω
  - 24 V model: 136 Ω
- Magneto ignition coil resistance: 0.5 Ω
  - Magneto primary voltage: 1 to 5 A
- Battery coil resistance: 7 Ω
  - 12 or 24 VDC: 1.2 to 2.4 A

**Laboratory Approval:** CSA li ted for Cla I, Group C and D Hazardou Location . 5 amp maximum; intermittent duty; model M5081 and M5081-CD engine ignition powered, and model M5081-B, 12 or 24 VAC or VDC; switch contacts rated 5 A @ 480 VAC maximum. Maximum pressure 100 psi (689 kPa) [6.89 bar].

**SERVICE PARTS**

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**Warranty**

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm