



**Flaming River Ind.  
800 Poertner Dr  
Berea, OH 44017  
800-648-8022**

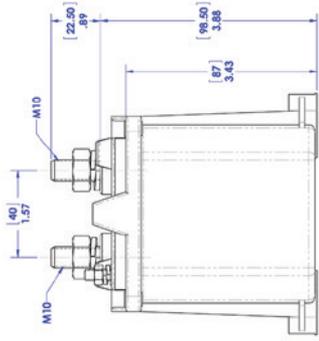
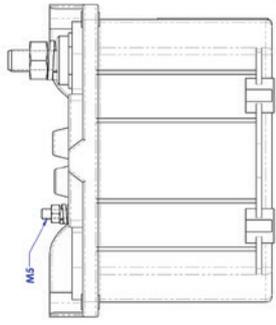
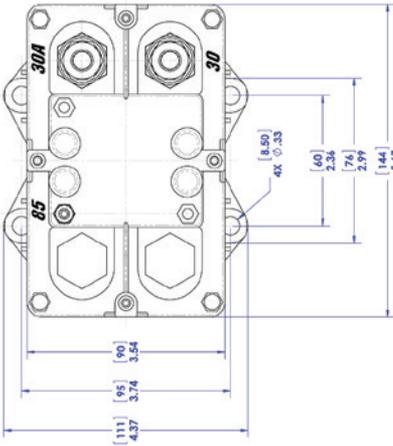
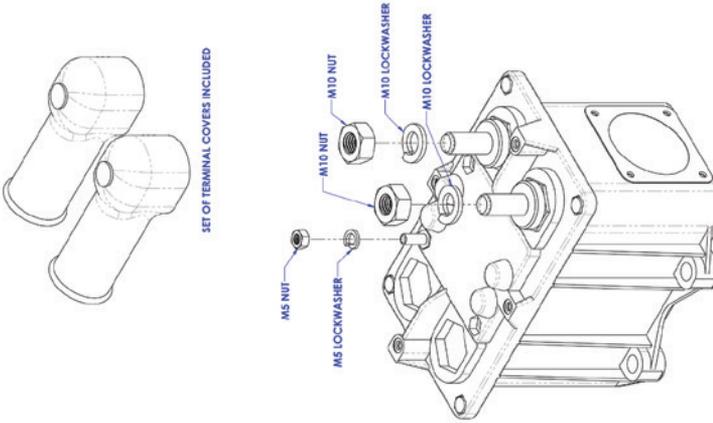
***Electro Wizard™  
Battery Disconnect Switch***



# FR1051 Mounting Diagram

## Positive Disconnection, 12V

## Grounded Solenoid (Power Supply Coil Negative)



**FR1051-ASM, SWITCH 12V GROUNDED SOLENOID**  
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FLAMING RIVER INDUSTRIES  
 400 ADDRESS RD  
 BENTON, MS 38822  
 TEL: 662-386-1111  
 FAX: 662-386-1112  
 WWW: WWW.FRI.COM

FR1051  
 REV A  
 01/05/17

# FR1051 Technical Specifications

*Positive Disconnection, 12V*

*Grounded Solenoid (Power Supply Coil Negative)*

| <b>CHARACTERISTICS</b>                          | <b>FR1051</b>                             |
|---|---|
| <b>Nominal tension</b>                          | <b>Max 12V</b>                            |
| <b>Max. continuous current on main contacts</b> | <b>250 A (23°C / 73.4°F)</b>              |
| <b>Max. short time current on main contacts</b> | <b>2500 A x 3 sec.</b>                    |
| <b>Recommended wire section</b>                 | <b>&gt;75mm<sup>2</sup> / 0.116 sq in</b> |
| <b>Protection degree</b>                        | <b>IP 65</b>                              |
| <b>Tightening torque M10 nuts</b>               | <b>20 Nm / 14.75ft lb</b>                 |
| <b>Tightening torque M5 nuts</b>                | <b>1.6 Nm / 1.18 ft lb</b>                |
| <b>Operating temperature range</b>              | <b>-40°C/+85°C -40°F/+185°F</b>           |
| <b>Contacts</b>                                 | <b>Silver plated copper</b>               |
| <b>Contact terminals</b>                        | <b>M10 tin-plated brass</b>               |
| <b>Nuts for contacts</b>                        | <b>Brass</b>                              |
| <b>Peak current coil rated input</b>            | <b>4.4 A</b>                              |
| <b>Max. retaining coil</b>                      | <b>3.2 A</b>                              |
| <b>Holding coil rated input</b>                 | <b>0.4 A</b>                              |

| <b>FITTING INSTRUCTIONS:</b>   | <b>ELECTRICAL DIAGRAM</b> |
|--|---------------------------|
| <ul style="list-style-type: none"> <li>· The battery isolator switch must be placed as close as possible to the batteries. To avoid corrosion to wires and terminals, mount in a protected location.</li> <li>· It can be fixed to the frame according to the fitting diagram shown in the drawing, using M 8 TCEI (cylindrical head – encased hexagon) screws UNI 5931: 1984, and plain washers 8,4x1.7 UNI 6592:1969.</li> <li>· The inversion of the power supply to the coil causes serious damage to the internal diode.</li> </ul> |                           |

# **FR1051**

## ***Positive Disconnection, 12V Grounded Solenoid (Power Supply Coil Negative)***

**The Flaming River FR1051 Disconnect Switch is designed to disconnect a vehicle electrical system using a toggle switch (Not Included). The disconnect switch should be located as close as possible to the battery. The toggle switch can be located in any convenient location for ease of operator use.**

- 1. Positive battery cable is connected to terminal 30 (POS BATT.)**
- 2. Vehicle load is connected to terminal 30A (POS.TEL.)**
- 3. From terminal 85 (NEG.BOB.), connect a wire to one side of the toggle switch. (Any style of “maintained” switch is acceptable, 10 amp or greater).**
- 4. Connect the other side of the toggle switch to chassis ground.**

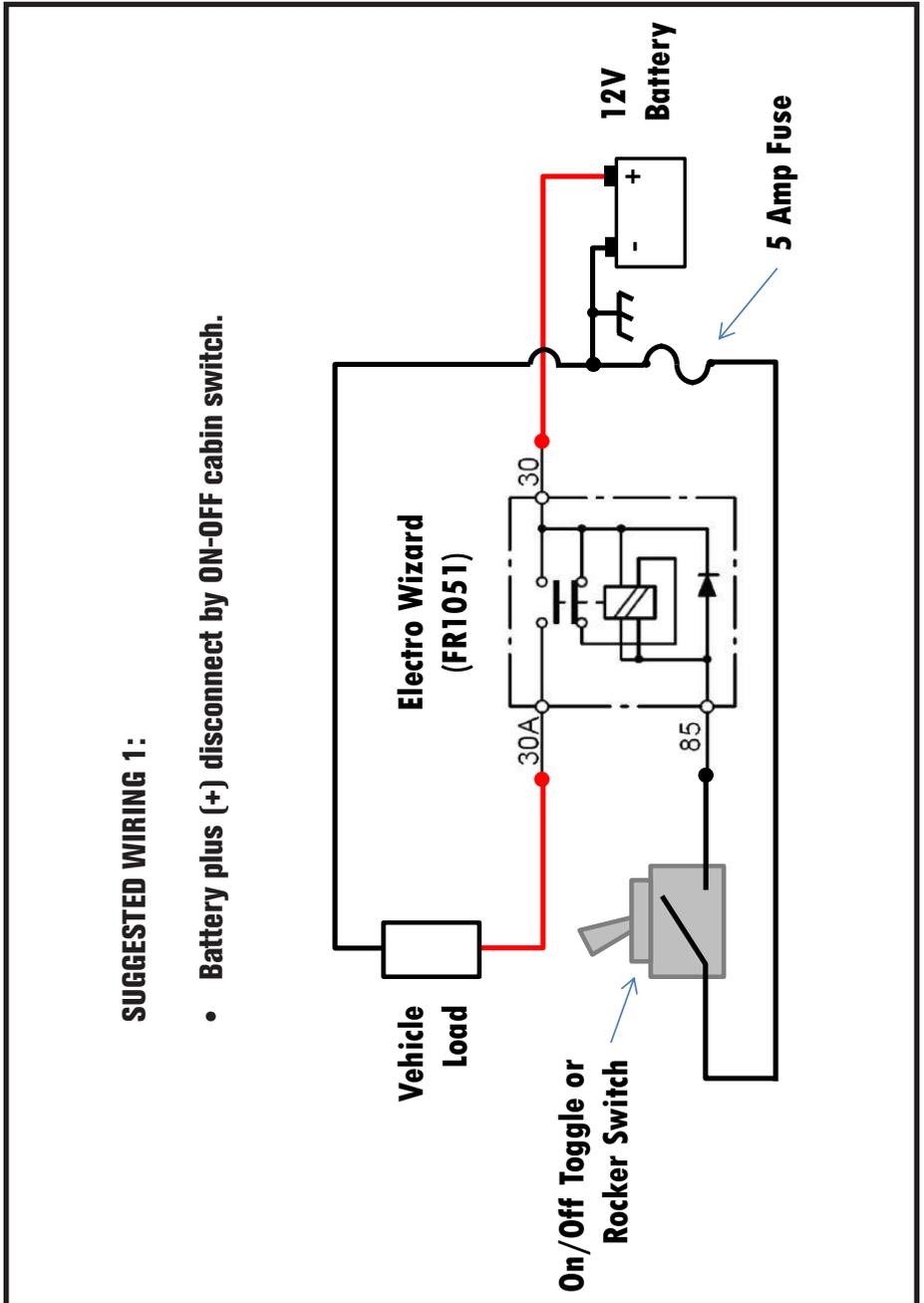
**When the operator closes the toggle switch, the solenoid in the disconnect switch is activated. The switch will remain closed (on) as long as terminal 85 is grounded.**

- Always use proper wiring techniques.**
- Wire size should be determined using industry standards based upon load requirements and length of cable needed.**
- Activation solenoid has a max draw of 4.4 amps, 0.4 amps continuous.**
- Main terminals are rated for 250 amps continuous, 2500 amps peak.**
- We always recommend the use of Battery Terminal Covers FR1003TM.**

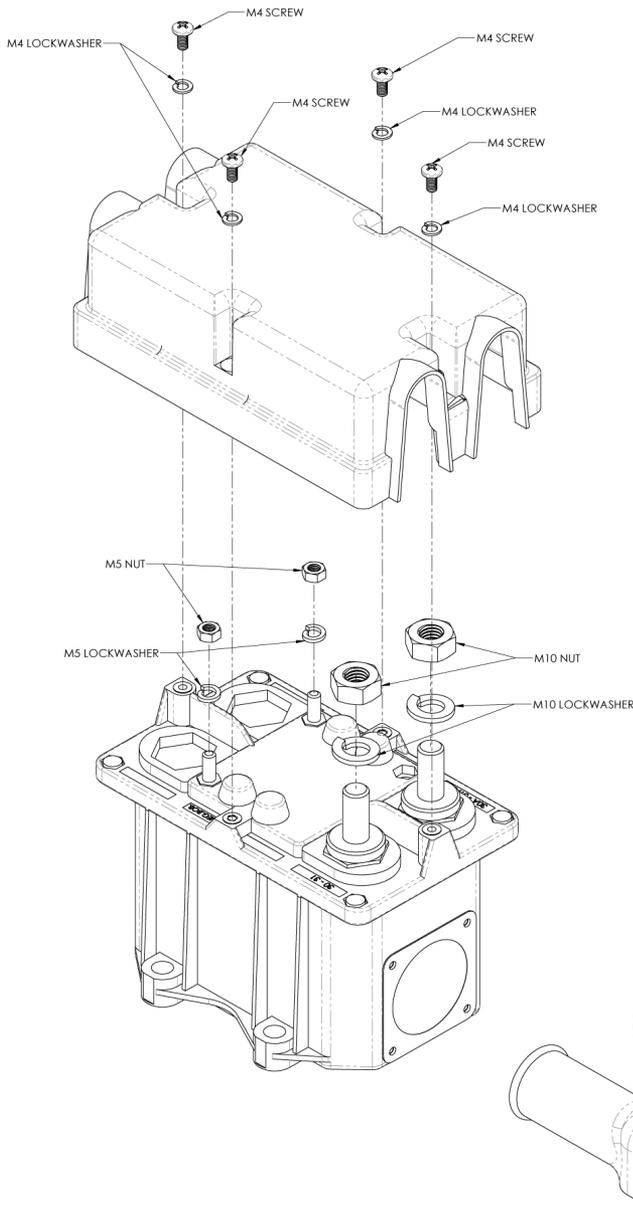
# FR1051 Wiring Diagram

Positive Disconnection, 12V

Grounded Solenoid (Power Supply Coil Negative)







☐ = KEY CHARACTERISTIC IDENTIFIER

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ANSI/ASME Y14.5M-1994  
UNLESS OTHERWISE SPECIFIED  
ALL DIMENSIONS ARE IN INCHES

NO SHARP EDGES OR BURRS ALLOWED

TOLERANCES:  
DECIMALS: .XX±.1  
          .XXX±.01  
FRACTIONS: .XXXX±.005  
          .1/64  
ANGLES: 1/2°  
UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING

**FLAMING RIVER INDUSTRIES**  
800 POERTNER DRIVE  
BEREA, OHIO  
44017

DESCRIPTION: **ASM. SWITCH 12V  
INSULATED SOLENOID**

DATE: 10/01/10  
SCALE: 1:1  
SHEET: 7 OF 7

# FR1052 Technical Specifications

*Positive Disconnection, 12V*

*Insulated Solenoid (Power Supply Coil From Battery)*

| <b>CHARACTERISTICS</b>                          | <b>FR1052</b>                             |
|---|---|
| <b>Nominal tension</b>                          | <b>Max 12V</b>                            |
| <b>Max. continuous current on main contacts</b> | <b>250 A (23°C / 73.4°F)</b>              |
| <b>Max. short time current on main contacts</b> | <b>2500 A x 3 sec.</b>                    |
| <b>Recommended wire section</b>                 | <b>&gt;75mm<sup>2</sup> / 0.116 sq in</b> |
| <b>Protection degree</b>                        | <b>IP 65</b>                              |
| <b>Tightening torque M10 nuts</b>               | <b>20 Nm / 14.75ft lb</b>                 |
| <b>Tightening torque M5 nuts</b>                | <b>1.6 Nm / 1.18 ft lb</b>                |
| <b>Operating temperature range</b>              | <b>-40°C/+85°C -40°F/+185°F</b>           |
| <b>Contacts</b>                                 | <b>Silver plated copper</b>               |
| <b>Contact terminals</b>                        | <b>M10 tin-plated brass</b>               |
| <b>Nuts for contacts</b>                        | <b>Brass</b>                              |
| <b>Peak current coil rated input</b>            | <b>4.4 A</b>                              |
| <b>Max. retaining coil</b>                      | <b>3.2 A</b>                              |
| <b>Holding coil rated input</b>                 | <b>0.4 A</b>                              |

| <b>FITTING INSTRUCTIONS:</b>   | <b>ELECTRICAL DIAGRAM</b>   |
|--|---|
| <ul style="list-style-type: none"> <li>· The battery isolator switch must be placed as close as possible to the batteries. To avoid corrosion to wires and terminals, mount in a protected location.</li> <li>· It can be fixed to the frame according to the fitting diagram shown in the drawing, using M 8 TCEI (cylindrical head – encased hexagon) screws UNI 5931: 1984, and plain washers 8,4x1.7 UNI 6592:1969.</li> <li>· The inversion of the power supply to the coil causes serious damage to the internal diode.</li> </ul> | <p>The diagram shows a solenoid coil with four terminals: 30A-31A, 30-31, 86, and 85. A switch is connected between terminals 30A-31A and 30-31. A diode is connected between terminals 86 and 85, with the cathode pointing towards terminal 86.</p> |

# **FR1052**

## ***Positive Disconnection, 12V***

### ***Insulated Solenoid (Power Supply Coil From Battery)***

The versatility of Flaming River's FR1052 Disconnect Switch allows for multiple installation options based upon user need and vehicle application.

#### **Options:**

- A. Include positive or negative electrical disconnection**
- B. Positive or negative switching.**
- C. Continuous operator controlled remote "on", and Passive disconnect via vehicle ignition off.**
- D. The addition of the FR1053 Time Delay Relay makes the switch suitable for vehicles requiring a Selective Catalytic Reduction cleaning cycle or other custom features.**

The disconnect switch should be located as close as possible to the battery.

#### **Common Installations:**

#### **Operator controlled ON-OFF (+/- disconnect and switching)**

- 1. Positive or negative battery cable is connected to terminal 30-31.**
- 2. Vehicle load (+/-) is connected to terminal 30A-31A**
- 3. User determines +/- switching. Term. 85 switched for negative, Term. 86 switched for positive. Un-switched side: 85 chassis ground, 86 positive. (Any style of "maintained" switch is acceptable, 10 amp or greater)**

# **FR1052**

## ***Positive Disconnection, 12V***

### ***Insulated Solenoid (Power Supply Coil From Battery)***

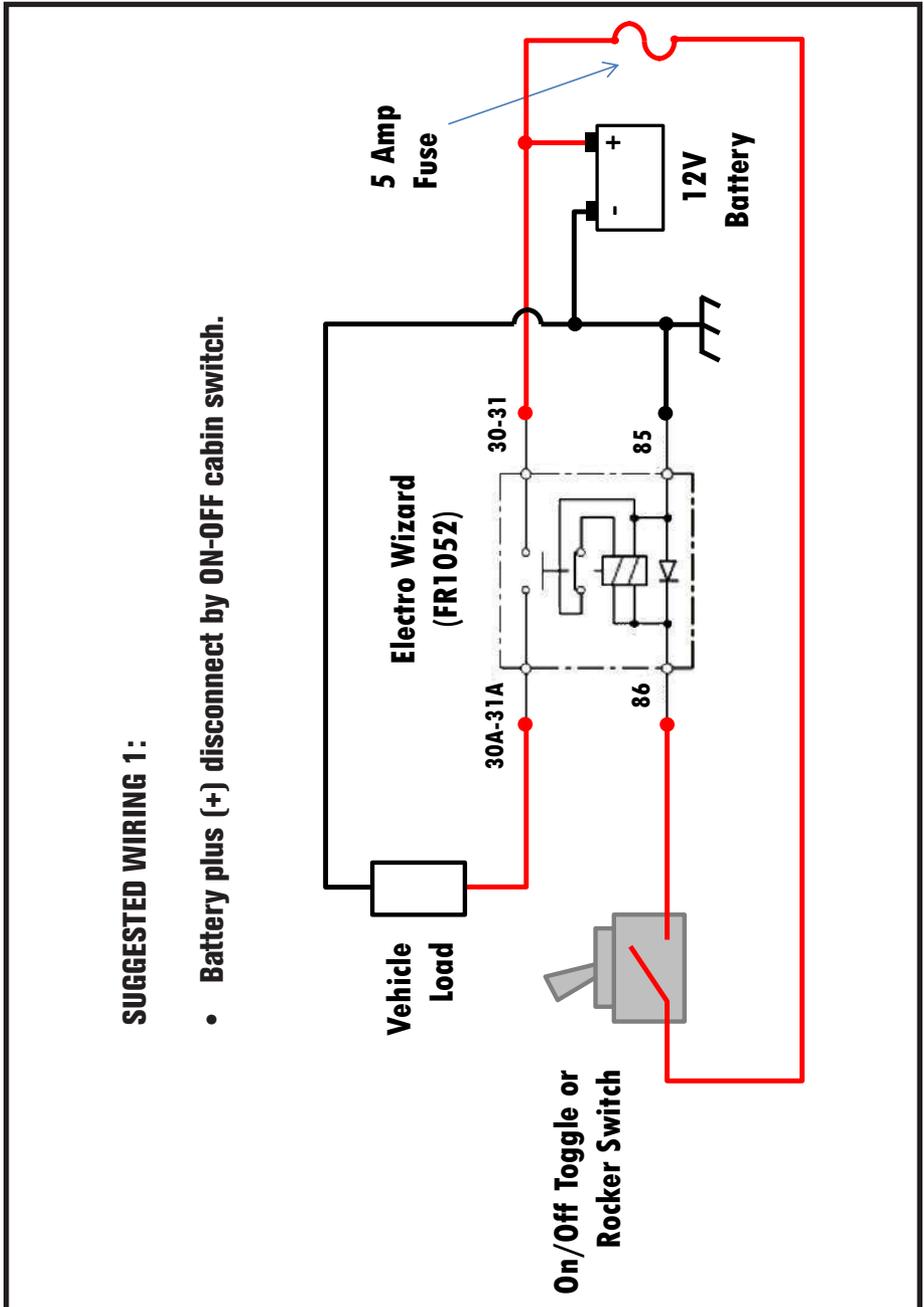
**Passive Disconnect (Ignition OFF Battery Disconnection)** This installation uses a momentary switch (Not Included) to energize the vehicles electrical system, then uses the ignition system to maintain the disconnect switch in the closed (on) position. When the ignition is turned off, the disconnect switch automatically opens (off) and the electrical system is disconnected.

- 1. Positive battery cable is connected to terminal 30-31**
  - 2. Vehicle load is connected to terminal 30A-31A**
  - 3. Terminal 85 (NEG.BOB.) is connected to chassis ground.**
  - 4. Terminal 86 (POS.BOB.) is connected to one side of momentary switch and is connected to an “ignition on” circuit (i.e. Switch “IGN/ RUN” terminal)**
  - 5. Other side of momentary switch is connected to constant positive. (Any style of momentary switch is acceptable, 10 amp or greater).**
- Always use proper wiring techniques.**
  - Wire size should be determined using industry standards based upon load requirements and length of cable needed.**
  - Activation solenoid has a max draw of 4.4 amps, 0.4 amps continuous.**
  - Main terminals are rated for 250 amps continuous, 2500 amps peak.**
  - We always recommend the use of Battery Terminal Covers FR1003TM.**

# FR1052 Wiring Diagram

Positive Disconnection, 12V

Insulated Solenoid (Power Supply Coil From Battery)



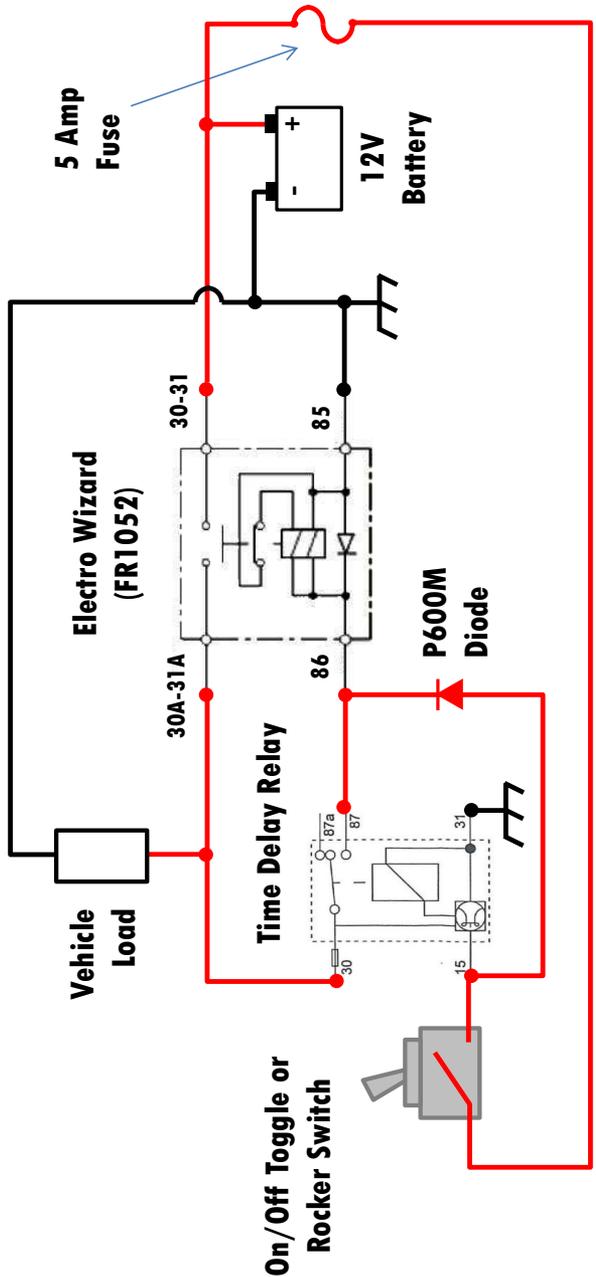
# FR1052 Wiring Diagram

Positive Disconnection, 12V

Insulated Solenoid (Power Supply Coil From Battery)

## SUGGESTED WIRING 2:

- \* Battery plus(+) disconnect by ON-OFF cabin switch. Delay-off timer relay (vehicles with SCR: Selective Catalytic Reduction) for DEF system needs a cleaning cycle.



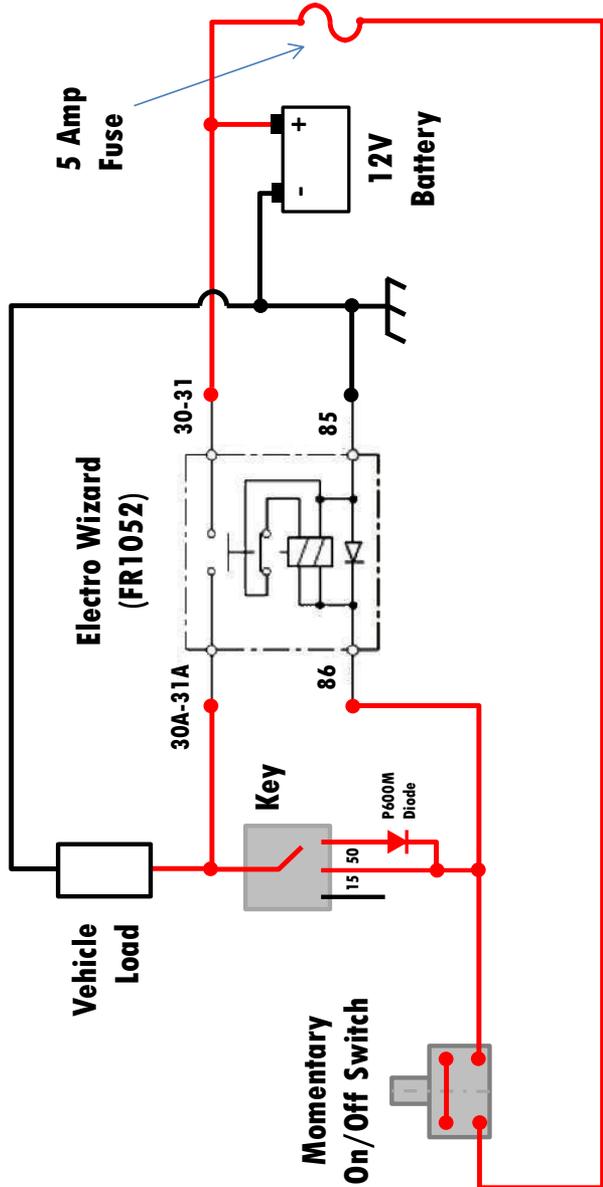
# FR1052 Wiring Diagram

Positive Disconnection, 12V

Insulated Solenoid (Power Supply Coil From Battery)

## SUGGESTED WIRING 3:

- Battery plus(+) disconnect by ignition key and OFF-ON cabin momentary switch.
- To close circuit: turn key ON, push momentary switch to connect battery
- To open circuit : turn key OFF.



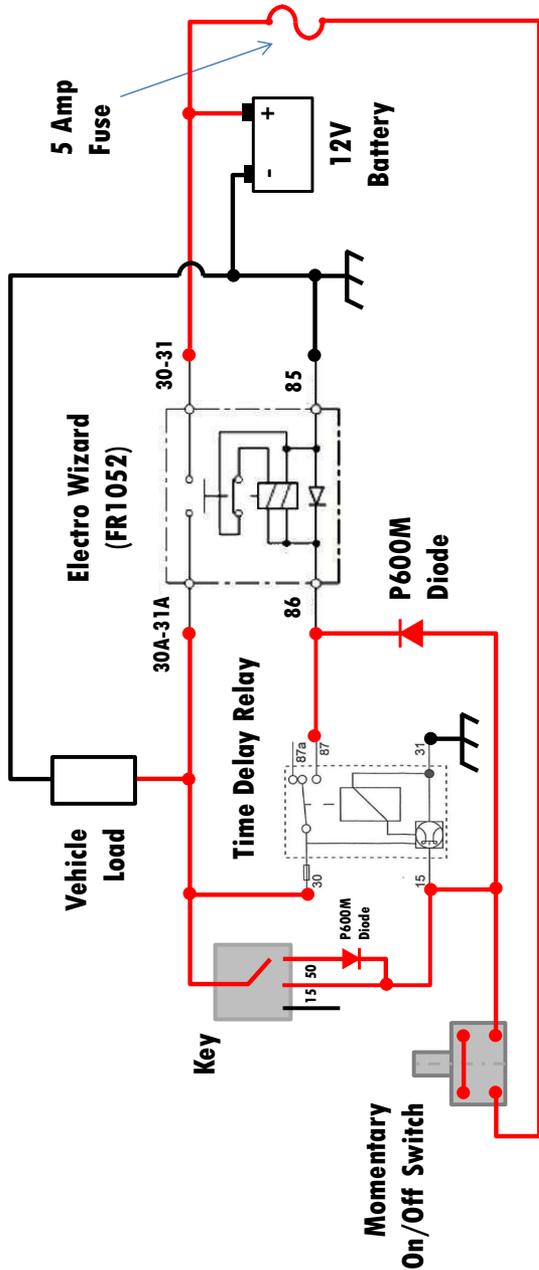
# FR1052 Wiring Diagram

Positive Disconnection, 12V

Insulated Solenoid (Power Supply Coil From Battery)

## SUGGESTED WIRING 4:

- \* Battery plus(+) disconnect by ignition key and ON-OFF cabin momentary switch.
- To close circuit: Turn key ON, push momentary switch to contact battery.
- To open circuit: Turn key OFF, circuit opens after 3 minutes.



## **WARRANTY**

**MENBER'S** guarantees the product 24 months (from the time of sale) against fabrication defects in compliance with applicable laws and terms of liability. All damages caused by improper – handling, installation, use, service or lack of service will void warranty. It is also excluded malfunctions attributable to outside phenomena, **MENBER'S** will take over the possible replacement of the defective product at its discretion. In case of controversies or disputes related to the product and/or interpretation of the warranty conditions the competent **FORM OF VERONA**.

**WARRANTY DISCLAIMER:** Flaming River's Limited Warranty Flaming River warrants its products to be free from defects in material and workmanship for a period of one (1) year after the date of purchase, except that: All steering columns are warranted for a period of three (3) years from the date of purchase. The Big Switch (part number FR1005) is warranted for a period of three (3) years from the date of purchase, provided that it is not mounted with a steel bracket and provided further that it is adequately protected from environmental conditions. All electrical products other than the Big Switch are warranted for a period of ninety (90) days from the date of purchase. Flaming River's warranty liability is limited to the replacement of defective products. Flaming River is not liable for any labor costs associated with any warranty claim, or for any incidental or consequential damages. Improper installation, abuse, racing, and/ or modification of the products voids this warranty. No warranty of merchantability or fitness for a particular purpose is made by Flaming River with respect to any of its products.

## **WARNINGS AND RECOMMENDATIONS**

It is the customer's responsibility to determine the suitability of a given Flaming River product for the customer's uses. Likewise, it is the customer's responsibility to install a Flaming River product. Contact the vehicle manufacturer whenever installing a switch to confirm the appropriateness of using such a switch and the recommended placement of the switch on the vehicle. Use qualified chassis specialists for the installation of all steering related components. Be aware that the installation of certain Flaming River products may adversely impact a manufacturer's warranty with respect to certain vehicles and other manufactured goods. Flaming River will repair or replace any product found to be defective in material or workmanship. Improper installation, abuse, racing and/or modification **VOID WARRANTY**. Flaming River is not responsible for any labor costs associated with any warranty.



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