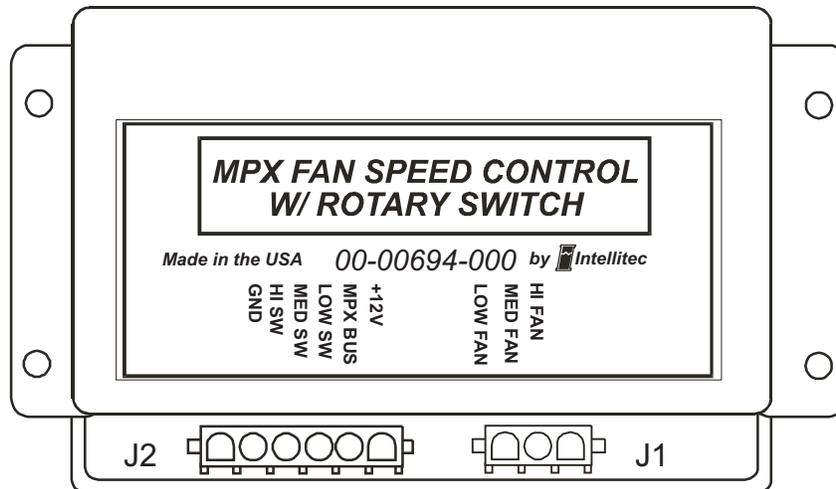


# ROTARY SWITCH REAR FAN CONTROLLER

## SERVICE MANUAL



### PRODUCT DESCRIPTION

The Rotary Switch MONOPLEX Rear Fan Controller is a member of Intellitec's MONOPLEX family of "one wire" controllers. Using this system, multiple switches connected with a single light gauge wire and ground, can be used to control a load such as the rear fan in a conversion van. This module can utilize a rotary switch typically found on the dash of a conversion van, as well as a push button switch in the rear, to change speeds of the fan.

To operate the fan, the ignition must be turned on. When the ignition is turned on, the fan will operate at the speed set by the rotary switch. The fan speed can be changed using the rotary switch by simply turning it to a new speed. The fan speed can also be changed using a momentary switch. Pressing the momentary switch will step the fan to the next lower speed. The next press of the switch will change the speed to the next lower speed, rotating around from off, to high, to medium, to low, and then to off, and so on.

#### NOTE

The MONOPLEX Rear Fan Controller is a device used to switch power from the battery in a conversion van. Power from the battery should be connected to the controller through some type of approved circuit protection. Inadvertent shorts of the wires coming to or going out of the controller could result in damage and/or injury.

**ALL SERVICING OF THE SYSTEM SHOULD BE DONE ONLY BY A QUALIFIED TECHNICIAN.**

Tools required: Low current test light, DC voltmeter

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The fan will only work when the ignition is on to prevent excessive battery drain. When the ignition is turned off, the fan will go off. When the ignition is turned on again, the fan will operate at the speed set by the rotary switch.

The controller must be used with Intellitec momentary switches, or the electrical equivalent. Use of any other switches will prevent the system from operating properly.

### HOW IT WORKS

The controller contains three relays that are used to supply power to the three speeds of the fan motor. (See Figure 1.) The power for these outputs is brought into the controller from a fused 20 Amp ignition source such as is available on the Smart Blok Plus. The controller operates by sensing the connections of the rotary switch, or the voltage on the MONOPLEX line, to determine the appropriate function. The voltage to the rotary switch is supplied from the module. The common connection of the rotary switch is grounded. This voltage can be measured with a voltmeter. The voltage of these inputs will be low for the speed selected.

The voltage on the MONOPLEX line has four discrete levels, 12 volts, 7 volts, 3 volts, and ground. These levels correspond to the following functions:

12 volts	Off
7 volts	Hold present speed (fan on, any speed, button released)
3 volts	Step to next speed (button held, any speed)
(All levels measured from MONO TO GND)	

#### **CAUTION:**

The switch circuit is a low current type. The voltages must be measured with a high resistance voltmeter, only. A test light connected to this circuit will prevent it from operating correctly.

The power for the MONOPLEX line comes from the back light power on the main switch panel. This power is supplied by the Smart Blok Plus and is available anytime a light or TV is on, or when the ignition light is on. When the FAN SPEED button on the main switch panel is pressed, it "pulls" the MONOPLEX line lower, to signal the controller to change speeds. When the ignition is on and the fan is off, the MONOPLEX line will go to 12 volts. On the first press of a switch, the MONOPLEX line will go to approximately 3 volts to signal the controller to change speeds. When the switch is released, the voltage will be at approximately 7 volts which lights the LED indicator on the main switch panel. The HIGH speed output from the control will be connected to 12 volts.

The next press of the switch indicates the controller to step to the next speed. When this is done, the high speed output will go off and the medium speed output will be connected to 12 volts. Low speed is done the same way.

If the ignition is turned off, the source of power for the main switch is no longer available and the MONOPLEX line will drop to 0 volts. This signals the controller to turn off the fan. When the ignition is turned back on, the fan will operate at the speed selected by the rotary switch.

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### TROUBLE SHOOTING

Before replacing or checking any components, check the fuse (F8 - 15A) in the Smart Blok Plus that is feeding the controller and the fuse (F10 - 1A) that is feeding power to the main switch panel back lighting. If these fuses are good, be sure and check the wiring of the harness, in particular the ground connections at the fan and controller.

#### PROBLEM

#### POSSIBLE CAUSE/SOLUTION

Fan won't come on.

Be sure ignition is on.

Check for 12 volt power at controller.

Replace fuse, F8.

Check for 12 volt power from main switch. The MONOPLEX line should be at +12 volts. Replace fuse, F10.

Check grounds at fan and controller.

Check wiring.

Replace Controller.

Fan won't on run all speeds.

Check outputs from controller. Disconnect motor and measure output @ proper pin - should be +12 volts with selected speed.

Check fan motor.

Replace controller

Fan doesn't run hi/med/lo sequence.

Check fan wiring.

Fan speed rotary switch not functional.

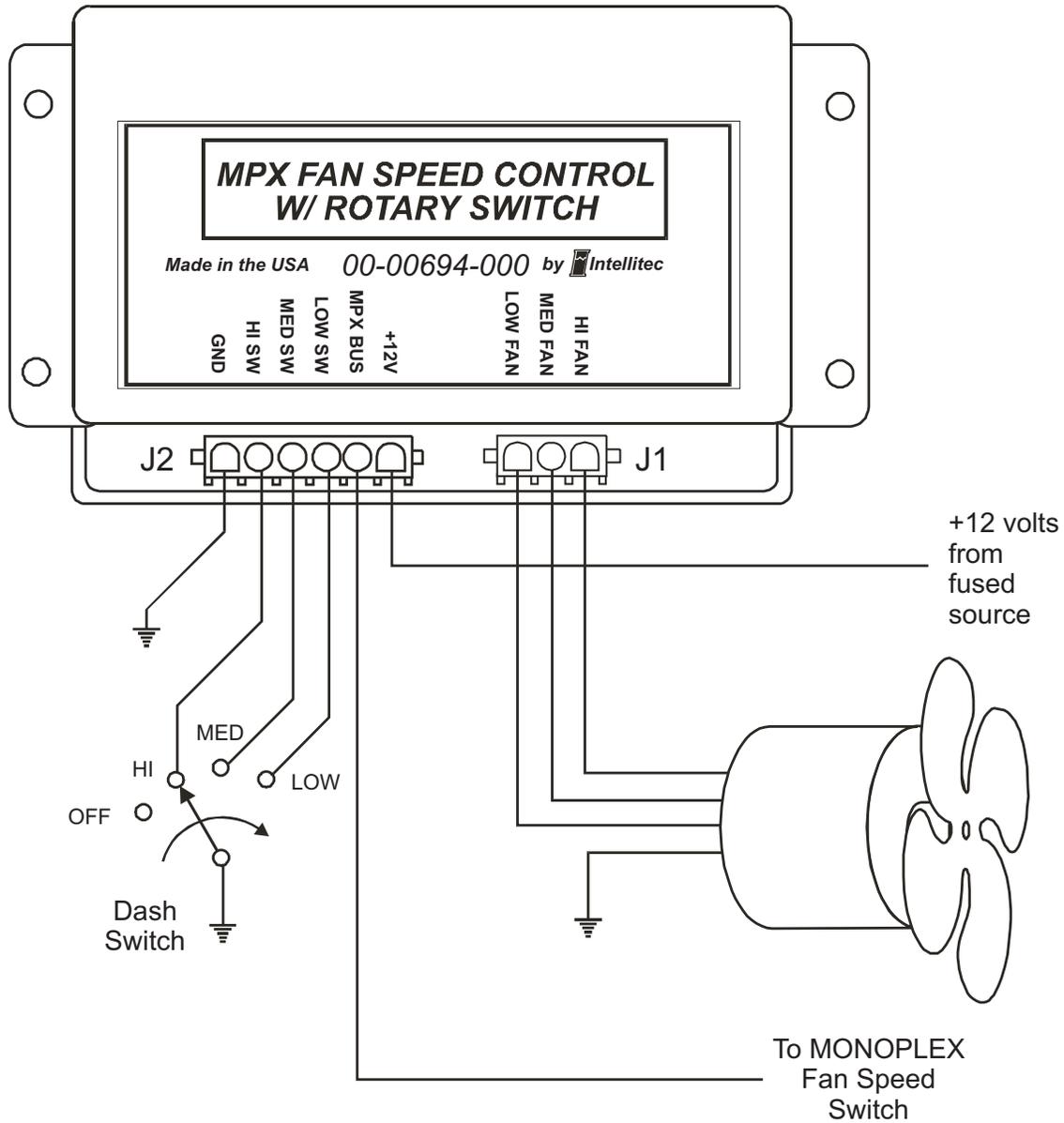
Check for ground from rotary switch.

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**FIGURE 1**

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