

## SWA676B THREE ELEMENT SPEED SWITCH

### INSTALLATION

The speed switch can be mounted in the electrical panel with other engine control equipment.

Battery power and a speed sensor signal are required to operate the speed switch.

A tachometer output is available.

### WIRING

When wiring the speed switch into the engine protection control system, proper wire sizes must be used. The speed switch relay contacts are rated for a maximum current of 5 amps. All other connections will have less than 1 amp current flow.

The speed switch can be wired as shown in the Wiring Diagram.

**Terminals 1 and 2** accept the magnetic PICK-UP input signal. The magnetic speed sensor connections **MUST BE TWISTED AND/OR SHIELDED** for their entire length and can be paralleled with the governor system speed sensor signal, if available. Connect the shield to Terminal 2 of the speed switch. The cable shield should be insulated to insure no part comes in contact with engine ground, otherwise, stray speed signals may be introduced into the speed switch.

**Terminals 3 and 4** are the BATTERY input connections. Terminal 3 is connected to battery supply (-). Terminal 4 is connected to battery supply (+).

The unit is factory set for 24 volt D.C. operation.

12 volt D.C. systems require a soldered jumper between circuit board posts E4 and E5.

32 volt D.C. systems require a soldered jumper between circuit board posts E4 and E6.

Posts E4, E5 and E6 are accessible through the top cover adjustment hole. (See Wiring Diagram)

**Terminal 5** is the TACHometer OUTPUT of 0-1 ma which is available for panel instrumentation. Terminal 3 is the instrument ground reference.

**Terminals 6, 7, and 8** are the CRANK termination N.O./COM/N.C. relay contacts.

**Terminals 9, 10, and 11** are the PARALLEL (AUX.) N.O./COM/N.C. relay contacts. These terminals have **no function on SSW 675** speed switches.

**Terminals 12, 13, and 14** are the OVERSPEED N.O./COM/N.C. relay contacts.

### ADJUSTMENTS

All elements are factory set at the maximum speed setting. Counterclockwise adjustment will lower the settings.

### CRANK TERMINATION

The engine fuel control should be held in the no fuel position to prevent the engine from starting.

Crank the engine and simultaneously turn the crank adjustment slowly counterclockwise until the proper crank termination speed is reached. When cranking termination set point is reached the green **CRANK LED** will illuminate.

The unit is factory set for manual reset. To re-initiate engine cranking, battery power must be removed.

Automatic reset when the engine speed falls below the cranking termination set point can be achieved by removing the 100k ohm resistor located between posts E1 and E2 on the circuit board. (See Wiring Diagram)

### PARALLEL (AUX.)

Raise the engine speed to the desired mid speed set point.

Turn parallel adjustment counterclockwise until the parallel relay energizes and the green **PARALLEL LED** illuminates. The parallel relay will automatically reset when the speed falls 6% below the set point.

This function is **NOT AVAILABLE** on SSW 675 speed switches.

### OVERSPEED

Raise the engine speed to 10% below the desired overspeed set point.

Press the OVERSPEED test button located on the top cover. This lowers the overspeed setting by 10%.

Turn the overspeed adjustment counterclockwise until the overspeed relay energizes and the red **OVERSPEED LED** illuminates.

Reset the overspeed relay by pressing the reset button or by removing power to the unit.

Adjust engine speed to normal operating speed.

It is recommended that each speed switch setting be checked periodically, when maintenance is being performed on the engine installation. The overspeed setting can be tested by pressing the speed switch test button.

## TACHOMETER OUTPUT

The tachometer output varies proportionally with speed. Rotate the **TACH CAL** clockwise to increase the current and counter-clockwise to decrease the current to the speed measuring instrument. The instrument range is 1 ma.

## TROUBLESHOOTING

Remove the tachometer connections.

Apply DC power and an input speed signal to the speed switch.

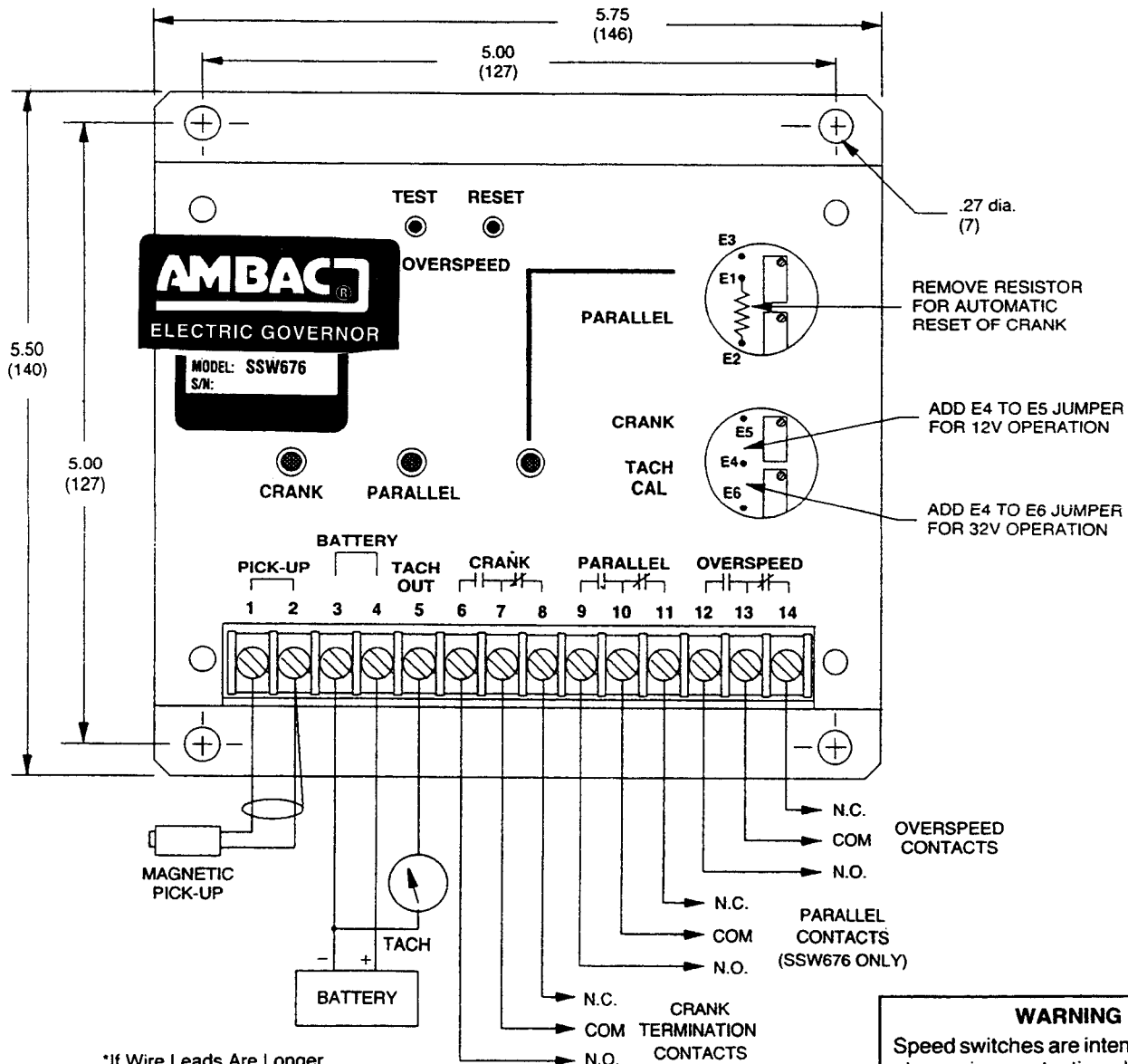
Measure the voltage on the TACH OUT Terminal as the speed input frequency is varied. An increase in frequency should cause a voltage increase.

If the voltage is proportional to frequency, check the wiring to the relays.

If the voltage is not proportional to frequency, check the output of the magnetic speed sensor.

If the speed sensor is operating, and the relays are wired correctly, the unit is defective.

## WIRING DIAGRAM



\*If Wire Leads Are Longer Than 3 Meters (10 ft.) A Shielded Cable Should Be Used. Ground Shield At One End Only.

**WARNING**  
Speed switches are intended to operate engine protection devices. The quality and reliability of the user selected protection devices must be considered to adequately protect equipment and personnel.



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