



# ENGINE GOVERNING SYSTEMS

PRODUCT INFORMATION BULLETIN

PIB4020

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## RSC 671 SPEED RAMPING CONTROL

### INTRODUCTION

The RSC671 Speed Ramping Control is a full time, linear electronic speed setting module. The function of the RSC671 is to smoothly accelerate and decelerate an engine at independently adjustable rates. Ramping of speed is useful in limiting the smoke and noise generally associated with a step change in engine speed.

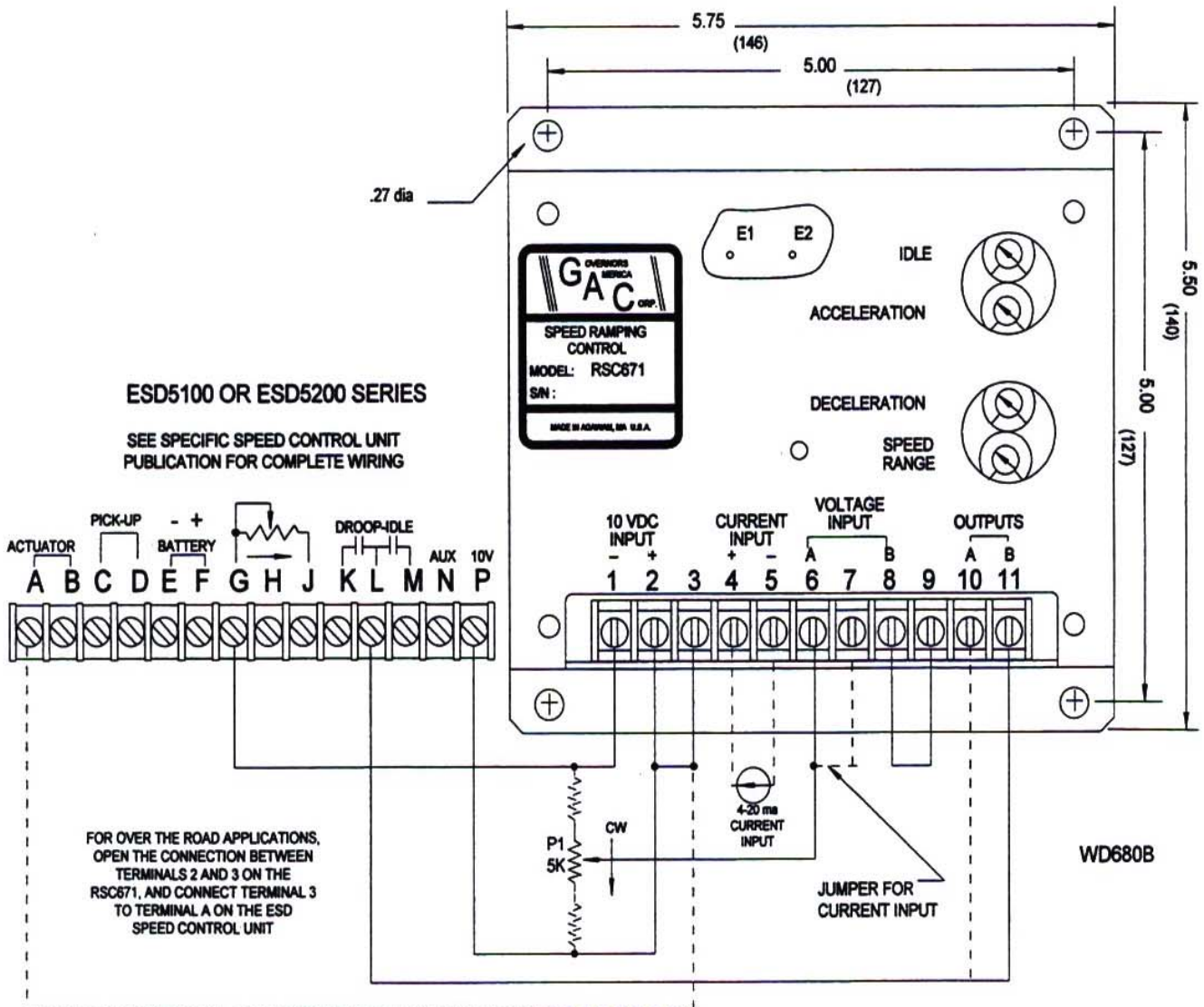
Applications include variable speed engine drives, wide speed range pumping systems, and special vehicles that require controlled speed acceleration and deceleration.

The RSC671 accepts speed setting signals from an external voltage source, potentiometer, or a 4-20 ma process control source. Contact GAC for 0-20 ma applications.

Adjustments are provided for acceleration rate, deceleration rate, idle speed, and maximum speed. The RSC671 is compatible with ESD5100 and ESD5200 Series speed control units from GAC.

The following procedure applies to a majority of applications. Contact GAC for non-standard installations.

### DIAGRAM 1 WIRING and OUTLINE



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## INSTALLATION

The RSC671 is built ruggedly and should be installed near its matching speed control unit. If water, mist, or condensation can come in contact with the unit, it should be mounted vertically to allow moisture to drain away.

## WIRING

The 10 VDC supply required to operate the RSC671 is obtained from the speed control unit. See Diagram 1 for wiring.

**ESD5100 and ESD5200 Series** Terminals P (+) and G (-) on the ESD are connected to Terminals 2 (+) and 1 (-) on the RSC671 respectively. The output from the RSC671, Terminal 11 (output "B"), is connected to Terminal L on the ESD speed control unit.

If the RSC671 is used for an over the road application, connect its Terminal 3 to Terminal A of the ESD speed control unit. Otherwise, connect a jumper wire between Terminals 2 and 3 of the RSC671.

## ADJUSTMENTS

**ESD Series** The SPEED adjustment on the ESD speed control unit must be set to about 80% of rated engine speed before the connection to Terminal 11 of the RSC671 is made.

After this adjustment, connect Terminal 10 or 11 of the RSC671.

### Speed Setting by Voltage Control

Terminal 6 of the RSC671 is the voltage input for speed control. An increase in voltage to Terminal 6 causes an increase in the governor speed setting. For a given voltage change at Terminal 6, a range of voltage change will occur at Terminal 10 or 11 based on the IDLE and SPEED RANGE settings of the RSC671. The input impedance of Terminal 6 is greater than 10K ohms.

A potentiometer is a convenient source of voltage input to Terminal 6. Resistors at one end, the other, or both ends of the potentiometer may be required to obtain speed ranges beyond those available with the IDLE and SPEED RANGE adjustments.

Set the idle speed by applying 0 volts to Terminal 6 and adjusting the IDLE on the RSC671 for the desired speed.

The SPEED RANGE adjustment is used to match a given voltage to a desired speed. For example, 5 VDC can be made to request 2100 RPM. An input voltage range of from 0 - 0.5 to 0 - 10 VDC will cover most speed ranges.

Apply the input voltage corresponding to the maximum speed and adjust the SPEED RANGE until this speed is reached. The idle speed may need to be readjusted, then recheck the maximum speed. If desired SPEED RANGE can not be obtained, switch the wiring connection on Terminal 11 to Terminal 10. Terminal 10's voltage range is 0 - 10V (output "A"). This is double the output of Terminal 11 (output "B").

### Speed Setting by 4-20 ma Current Control

If a current input is used to set the speed, connect the positive (+) source to Terminal 4 and the negative (-) to Terminal 5. A jumper wire must be connected between Terminals 6 and 7. No other connection must be made to Terminal 6. The sink impedance of the current input is less than 100 ohms.

Set the input to 4 ma and adjust the IDLE for the desired speed. Increase the current input to 20 ma and adjust the SPEED RANGE for the maximum speed. The idle speed may need to be readjusted, then recheck the maximum speed.

### Ramp Time Adjustment

Ramp time is controlled by the ACCELERATION and DECELERATION adjustments of the RSC671. Adjust each for the desired ramp times. A clockwise adjustment decrease the ramp time.

If a longer ramp time is required, a 30K resistor may be connected between posts E1 and E2 of the RSC671 to double the ramp time. Remove the screws that hold the circuit board in the case to access posts E1 and E2. See Diagram 1 for post locations.

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