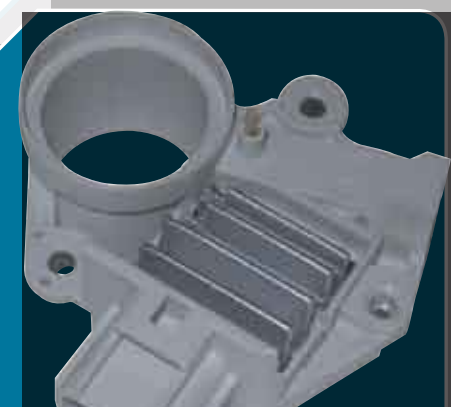


## LATE MODEL FORD REGULATORS

The following information refers to the operation of “regulators” that are found in some later model Ford Focus, Ford Transit 10/2002 on with 2.4 litre D4FA engine and Ford Taurus applications, for which the alternators contain the 45-28601 / RGX3060 voltage control units. Some alternators that are fitted with this regulator include 1S41 10300 BB, 98AZ 10346 FA, XF2U 10300 AB, XF2U 10300 BC, XF2U 10300 BD, XF2Z 10346 AA, XR8U 10300 AF, XW4U 10300 AA, XW4Z 10346 CC.

During alternator operation, the vehicles ECU monitors an output signal from the regulators “LI” pin and then provides a specific input signal to the regulator “RC” pin to control the regulation set point voltage. When sudden load is applied to the charge system, the ECU senses the load and effectively lowers the regulation set point voltage for a few seconds and then adjusts the signal to satisfy the demand of the vehicle electrical system. Note should be made that the ECU also monitors other vehicle peripheral loads including Air Conditioning & Transmission, and alters the PWM (Pulse Width Modulated) signal applied to regulator “RC” pin accordingly. This type of regulator control provides a charging system that responds very smoothly and limits the effect of the alternator load on performance.



### TERMINAL CONNECTION

**LI / LOAD INDICATOR:** This regulator ‘out put’ pin provides a PWM feedback signal to the vehicle ECU. This information signal is an indication of alternator load (how hard the alternator is working to support the required voltage set point). This regulator PWM signal has amplitude of 14volts and a frequency of 125Hz. It represents the field current signal, but is inverted. The LI terminal has no direct control over the warning lamp function. The warning lamp function is solely controlled by the vehicles ECU.

**RC/ REGULATOR CONTROL:** This regulator ‘input’ pin receives a vehicle ECU signal that is a 125 Hz PWM square wave. The ECU signal communicates the required voltage set point by providing a specific PWM duty cycle. Each duty cycle rate represents a specific voltage setting. The duty cycle rate of the PWM will fall between 5% and 95%.

**AS/ EXTERNAL VOLTAGE SENSE:** This regulator ‘input’ pin provides charging system reference voltage to the regulator. The regulator reacts to this by functioning in its primary voltage set point mode.