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Testing the Ford 6G Regulator

Confused about 6G's
Let's clear it up.

Lately there isn't a day go by that we don't get a call about 6G alternators asking how does this alternator work? These 6G alternators have many different Voltage Regulators with different terminals. There are three sets of terminals with variations in each of the three. (See table 1) The regulators are gray, white, white with a black cover, white with a orange cover, gray with a green cover, and probably some combination I haven't seen yet.
The most common question is why won't the light work on my test bench or test lead?
Well let's begin to answer this with a list of the Voltage Regulators and what we know about them.

Dubois # O.E. Number Color/Cover Terminals Features Test Lead
102-060 F8WU-10C359-AB Gray/Gray A, None, I None MK*
102-061 XS7U-10C359-AC White/White A, FR, I Soft Start MK*
102-063 XS7U-10C359-BA White/Orange A, FR, I Soft Start MK*
100-063 VP4L1U-10C359-AA Black/Black Soft Start MK*
102-062 XW4U-10C359-AB White/Black A, Sig, FR PCM MW*
VP3C3U-10C359-AA Gray/Green A, None, I MK*

*All Alternators may be tested with our Super 6G Alternator Test Lead or individually with the Alternator Test Lead indicated in the table.

Definition of terms;
A; Battery Sensing (note field current is not supplied through this wire on 6 G's, as in the 3G and 4G).

FR: This is a regulator output terminal that sends a "field response" signal to one or more of the on board computers. (PCM) It's signal represents the "duty cycle" of or "how hard" the alternator is working.

I; Charge Light on Fords

None; No connection

SIG: Signal wire from the PCM that controls the voltage set point.

Soft Start; a regulator function that delays the application of field current amperage so as to relieve the mechanical load of the alternator on the engine during cranking and start up.

PCM; Power Control Module (Driving Computer)

PCM Controlled: A Voltage regulator that the voltage is controlled by the PCM.
Ford and Chrysler use PCM controlled Voltage Regulators.

PCM Monitored: A Voltage Regulator that is monitored by the PCM to adjust engine performance.

The first voltage regulator 102-060 came out in 1998. It was found in Pickups, Mustangs and Crown Victoria's. This Voltage Regulator has Gray body and a Gray Cover. The 102-060 is marked "A", "NONE", and "I". This voltage regulator uses the two outer terminals. This alternator operates like most alternators that we are used to seeing. It has no extra features to test for.

The second voltage regulator 102-062 came out in 1999. It was found on Ford Windstar vans. In 2000 it was used in Ford Focus and is now used in most Ford and Lincoln Mercury applications. This Voltage Regulator has a White Body with a Black Cover. It is controlled by the PCM. The 102-062 is marked "A", "SIG", and "FR". Two of the Voltage Regulator terminals communicate with the PCM. The third terminal is the "A" (Battery Sense). The middle terminal is the "SIG" (signal or PCM control terminal). The "FR" (Field Response) is the second wire that lets the computer know how hard the alternator is working. The output from the "FR" terminal allows the PCM to make adjustments to engine performance based on the horsepower demands of the alternator. This alternator will not test without a special test lead that simulates the PCM signals to the Voltage Regulator. The "A" terminal is connected to the Battery. The Signal terminal is connected to the computer.

The Third Voltage Regulator 102-061 came out in 1999. It was found on Mercury Contour and Mystique. This Voltage Regulator has White Body and a white Cover and is PCM monitored. It is often confused with its close cousin the 102-063 that has a white body and an Orange cover. The 102-061 is marked "A", "FR", and "I". The PCM monitors the "FR" terminal to make adjustments to engine performance based on the horsepower demands of the alternator. The trick is to use this regulator only in Lester # 8309. If used on other applications the vehicle may leave the check engine light on and the vehicle may not idle correctly. This is because the "FR" terminal has a different output than its cousin the 102-063. The 102-063 can replace the 102-061 but the 102-061 will not replace the 102-063.

The fourth Voltage Regulator 102-063 came out in 2000. It is found on Mercury Contour, Mystique, Sable, Ford Taurus and many others. This Voltage Regulator has a White Body and an Orange Cover. It is marked "A", "FR", and "I". The PCM monitors the "FR" terminal to make adjustments to engine performance based on the horsepower demands of the alternator. The 102-063 Voltage Regulator has a different "FR" signal than the 102-061 does. This Voltage Regulator has the ability to replace the 102-061. The 102-061 will not replace the 102-063. The best way to verify the difference between these Voltage Regulators is with a lab scope, or use the Super 6G test lead. The test lead will show different voltage readings on the stator voltmeter of your Alternator Test Bench.

When more information becomes available for the two newest Voltage Regulators we will get that to you.

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