1967 Cougar Charging System

Covering both Indicator light and Ammeter systems

coachJack

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References:

http://www.mustangtek.com/Library6/1966AutoliteAlternatorService.html

1967 Mustang and Cougar Service Manual

Fundamentals of the 67 Cougar Charging System

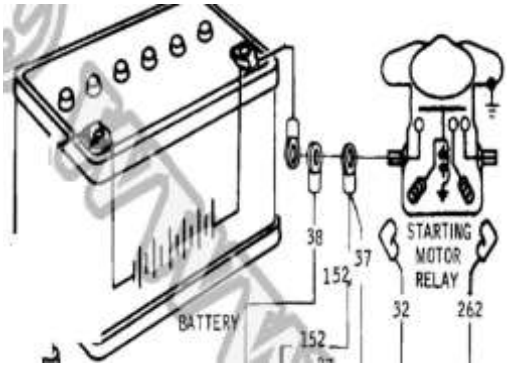
Alternator and Voltage Regulator Wiring and diagnosis.

The alternator provides power to run the vehicles electronics and charge the battery . The battery is actually used as a buffer or voltage reserve. For an alternator to produce energy, an initial magnetic field needs to be induced within the alternator's rotor, this is accomplished via the ignition switch as when the switch is turned from off to Run and Start, the Acc post on the ignition switch gets energized.

This circuit eventually powers the alternators Field circuit. This small current provides enough magnetic field so that when the engine starts, the alternators Stator produces power. The field is energized to kickstart the alternator charging system, once the system is running, the field is self powered.

It is important to note that the Indicator Light harnesses and the Ammeter light alternator harnesses ARE NOT INTERCHANGEABLE!! The vehicle harnesses are also different. Alternator indicator light has a different wiring harness on the vehicle side as well as the charging system side. This difference is in how the Voltage regulator provides power to the Alternator's field circuit when the system is initially started. The other difference is that the idiot light system monitors the charge differently than an ammeter system.

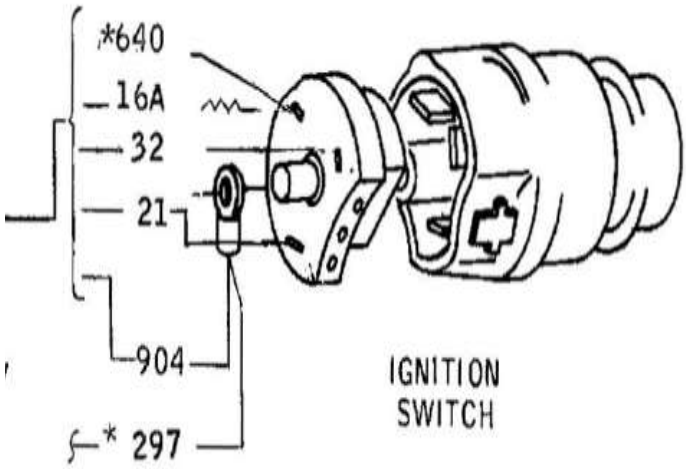
There are 3 circuits at the starter relay's Battery terminal that are important to the charging system



Circuit	Color	Description
38	Black	To Alternator's Bat post
152	Yellow	To Voltage Regulators A terminal
37	Red-Blue	To Ignition Switch circuit 21 Bat terminal

Note circuits 32 (starter input) and 262 (ignition coil) are not used for the charging system

And finally, the ignition switch also plays a role in completing the charging system's wiring.



As noted above for the starter relay wiring, circuit 37 eventually feeds the ignition switch via circuit 21 (battery power to the ignition switch) and in turn feeds circuit 904 (when the switch is in the Accessory, Run or Start/Crank mode) at the voltage regulator (for indicator light systems).

Standard Alternator Indicator Light Systems

Charging System Wiring Diagram

From the 67 cougar charging system diagrams (note this is a 67 Standard with Alternator Indicator Light

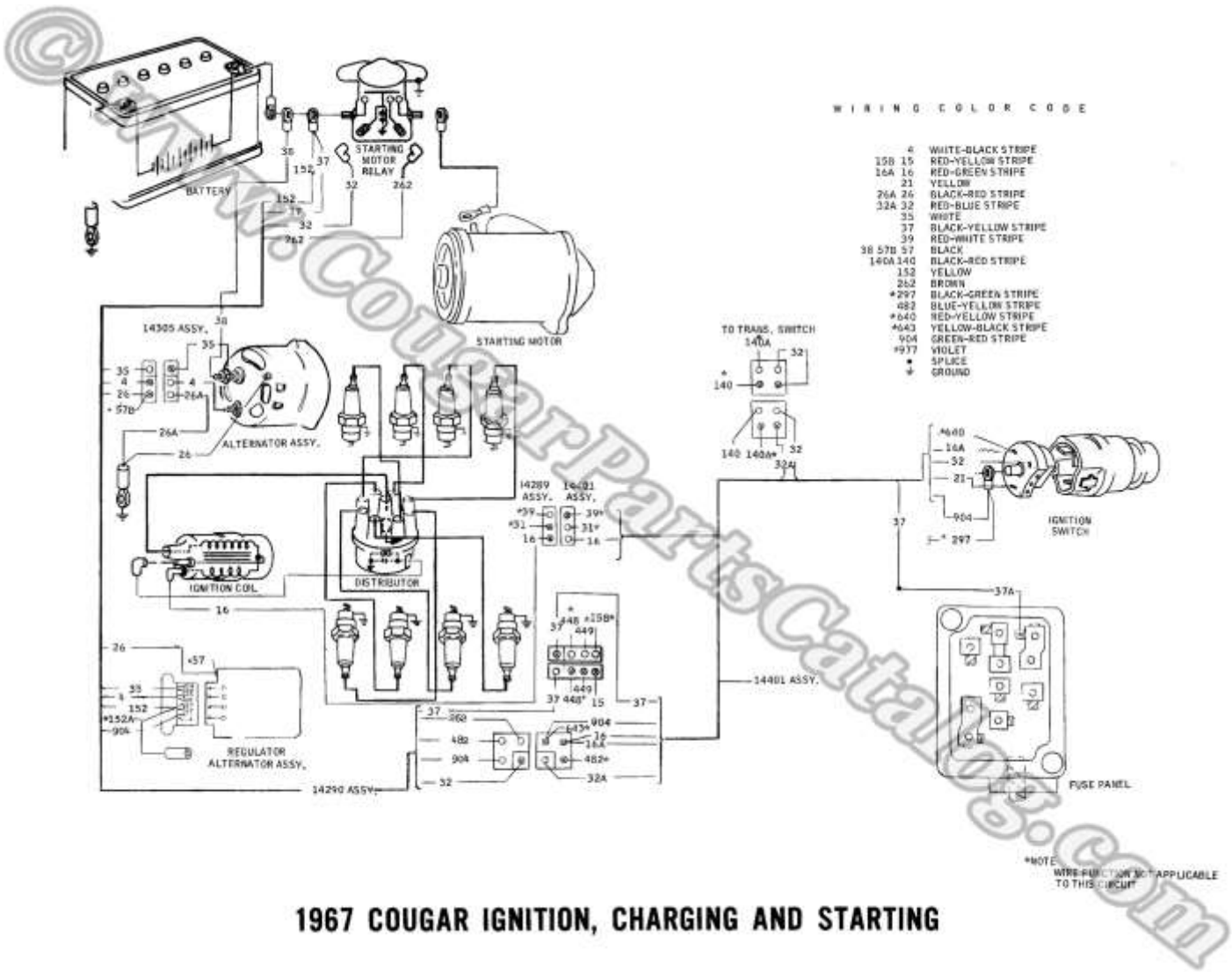


Figure 1 Standard Indicator Light Wiring Diagram

Voltage Regulator Wiring

The Voltage regulator schematic for a Indicator light has the following 4 connectors

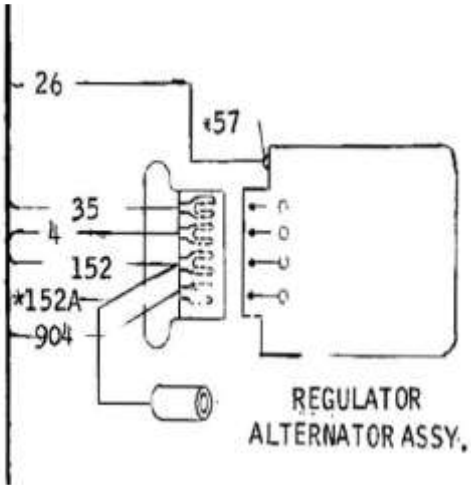


Figure 2 Indicator Light – Voltage Regulator Wiring Diagram

Circuit	Color	Description
35	White	F – Field, connects to alternator's F post
4	White-Black	S – Stator, connects to alternator's S post
152	Yellow	A – Battery, connects at starter solenoid battery post
904	Green-Red	I – Indicator light circuit, connects to ignition switch and light circuit

Note that the voltage regulator body/case acts as a ground as it attaches to the inner fender liner

Alternator Wiring Diagram

67 Standard Alternator wiring harness with Indicator light

The alternator has 4 posts relating to the following connectors

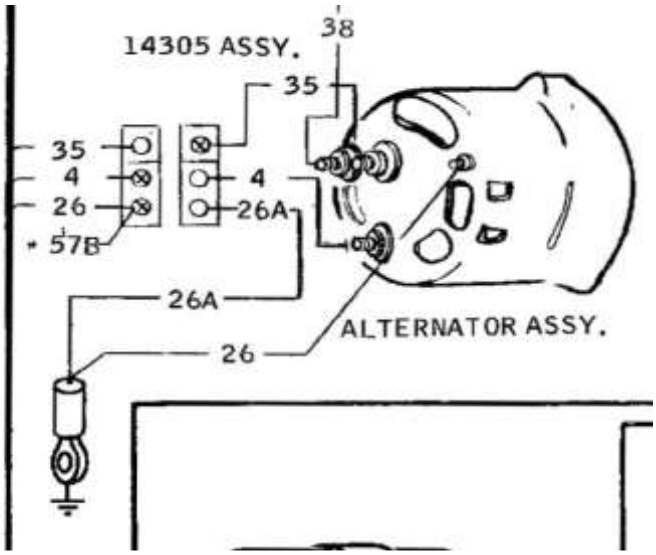


Figure 3 Alternator Wiring Diagram

Circuit	Color	Description
35	White	F – Field, connects to voltage regulators F terminal
38 (37?)	Black Black-Yellow	Bat - Battery, connects at starter solenoid battery post
4	White-Black	Stat – Stator , connects to Voltage regulator's S post
26	Black-Red	G - Ground

The alternator wiring harness with an alt indicator light in the dash has individual rubber boots that go onto the alternator terminals. The indicator light harness has a larger gauge black wire (circuit 38) that goes from the alternator bat terminal straight to the starter solenoid to charge the battery. It then has a 3 wire plug that plugs into the headlight harness and it contains a ground (black/red stripe), the stator wire (white/black stripe) and a field (white). Note that the connector has two female connections , one for the ground and the other for the stator (in the middle) and one male connector for the field wire.

Figure 4 Wiring Harness

XR7 Alternator with Ammeter

Charging System Wiring Diagram

Even though the following diagram is for a 1967 Mustang, the charging circuit is how the cougar with an ammeter is wired

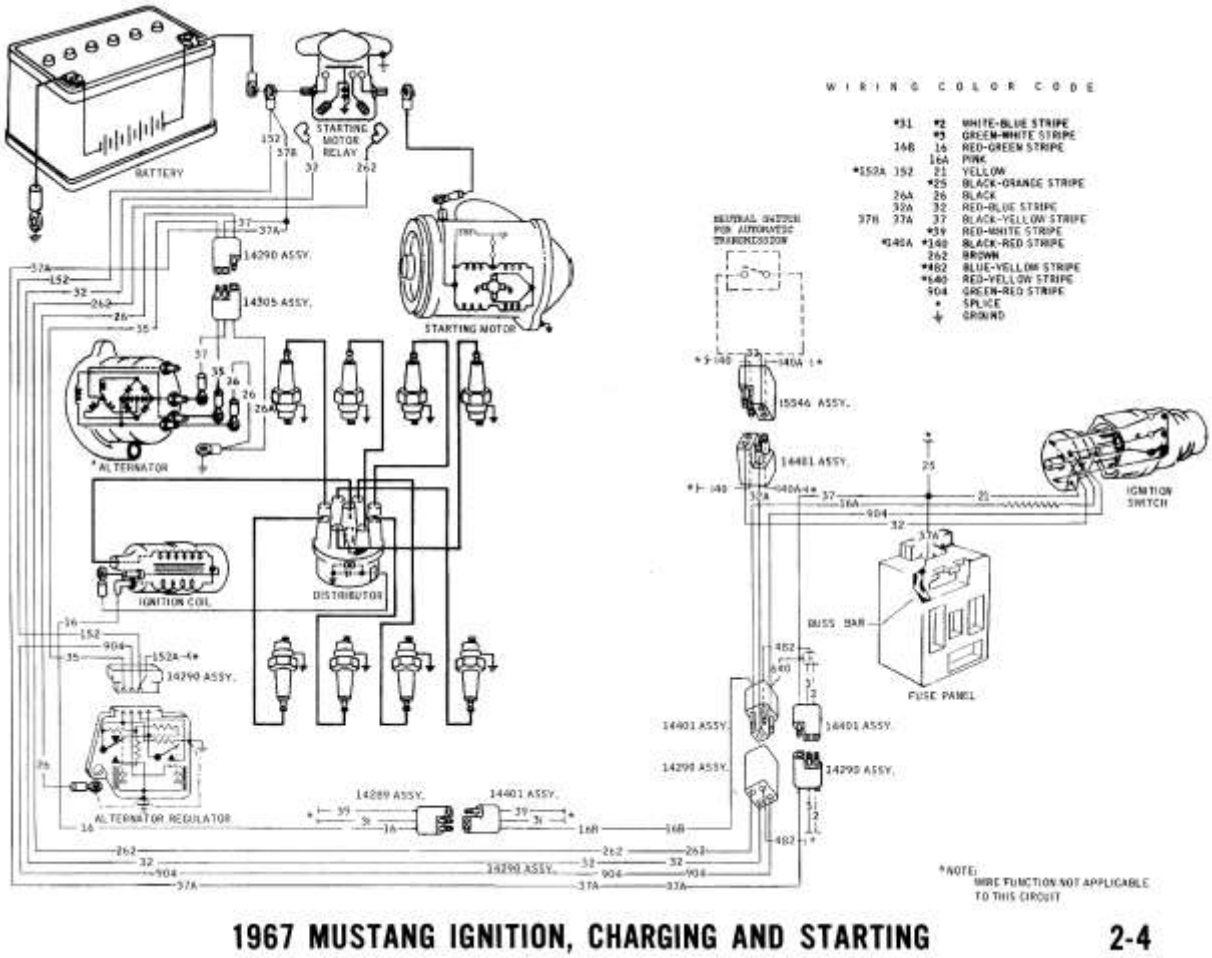
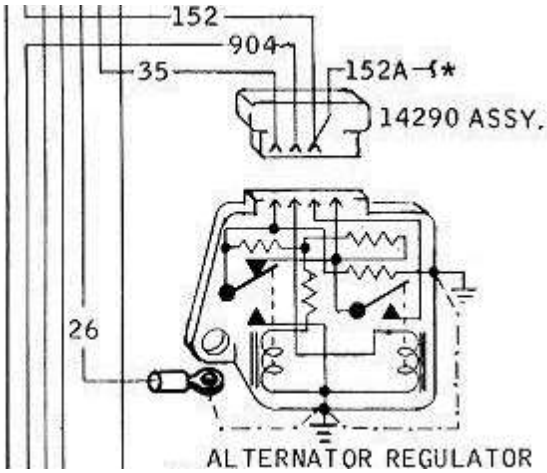


Figure 5 Charging System with ammeter

Voltage Regulator Wiring



Circuit	Color	Description
35	White	F – Field, connects to alternator's F post
904	Green-Red	S – Stator, powered from the ignition switch and ammeter circuit
152	Yellow	A – Battery, connects at starter solenoid battery post
N/A	N/A	I – Indicator light circuit, not used on Ammeter systems

Alternator Wiring Diagram

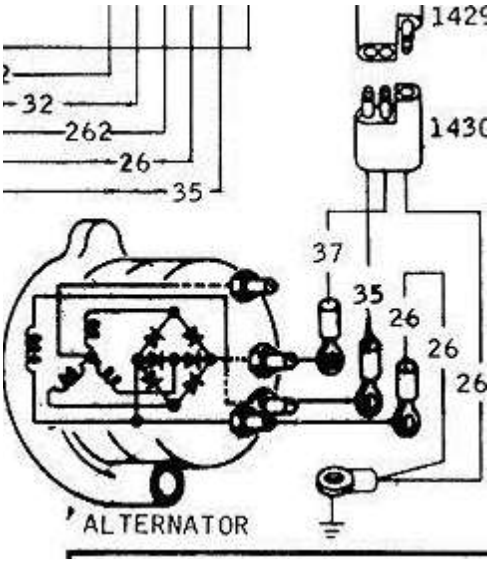


Figure 6 Alternator Wiring Diagram with Ammeter

Circuit	Color	Description
35	Orange	F – Field, connects to voltage regulators F terminal
38 (37?)	Black Black-Yellow	Bat - Battery, connects at starter solenoid battery post
N/A	N/A	Stat – Stator , not used on Ammeter systems
26	Black-Red	G - Ground

Alternator wiring harness with ammeter

On cars with an ammeter, you use the harness with the 2 wire Y shaped rubber boot that goes to the alternator terminals (Bat post and Field Post). Ammeter alternator harnesses have only a 2 wire connector because the stator post is not used (Note: the stator post on electric choke carburetors often use the alternators Stator post to power the choke). These harnesses have a ground (black/red stripe), a field (now orange instead of white), and a Bat (black) wire. Note that this connector has 2 male connections , one for the field and Bat (in the middle) and one female connection on the other end for the ground.

On ammeter equipped cars the stator wire is eliminated completely and at the other end where it would have plugged onto the "S" terminal of the regulator, the green red stripe wire is unplugged from the "I" terminal and plugged into this "S" terminal instead.