

# CONVERTING YOUR 1955 FORD FROM 6-VOLT POSITIVE GROUND TO 12-VOLT NEGATIVE GROUND

There are a number of guides on the internet. They are mostly very good, but in case they don't have something you need, here also is my experience. I converted my car 3 years ago and have driven it about 20,000 miles since then, so I think the conversion is a success :-)

If you have an average car with no special accessories, this is basically a pleasant weekend project. I lazed around and my car was down a whole month, but that is not necessary. This is for a basic car. If you have power seats, power windows, overdrive, or some item not covered here, I can't help you on those. It should go without saying you need all your parts and everything mapped out before you begin. You can't just do it a little at a time, and drive as you convert!

(1) Wiring. If your wiring is in good condition, everything can be used without modification. 50-year old wiring is usually cracked and would need replacing anyway. But if it's OK, there's nothing inherent in the wiring that makes it unsuitable for 12 volts. In fact, 12 volt can actually use SMALLER diameter wiring than 6 volt.

(2) 12-volt battery (make sure it will fit). Reverse the cables so you will have negative ground. You may need new cables to accommodate.

(3) 12-volt generator & regulator. For Fords they are all the same at least from 1956 to 1959 (whether Y-block or FE) and several years thereafter. Also, generators for 6-cyl and V8 are the same except the Ground and Field terminal posts are rotated to a different position; even so, the generator bolts on interchangeably and I have used either generator on either engine, V8 or 6. Generator & regulator are setup the same whether 12 or 6 volts, you wire them in the same way. The regulator is exactly the same whether V8 or 6. NOTE ... I would advise you to do away with the generator and regulator altogether and go with a modern alternator. I use a standard one-wire GM Alternator. More on that later.

(4) 12-volt coil. The coil is the only item on the car that is polarity-sensitive. When you replace the coil, reverse the leads. On Ford factory coils, the terminals were marked "Ignition" and "Distributor". If not marked as such, the coil will at least be marked Positive and Negative. Positive now goes to ignition (i.e., 12-volt power) and Negative goes to the distributor.

(5) Ballast resistor. 6 volt cars do not have a ballast resistor. They were added in 1956, to protect the points from the higher voltage. I have heard some people say the ballast resistor cuts the voltage by half, and so the points will continue to receive 6 volts as before. Actually that is not true, it drops only a few volts, so with a 12-volt system (actually running at 13 or 14 volts), with a ballast resistor of the correct rating, the points will still be getting 10 or 11 volts. Be that as it may. For 1956 the ballast resistor was mounted standing upright on the coil rear mounting bolt. That was not one of Ford's better ideas, as it seriously interferes with access to the distributor when you have to adjust points etc. Beginning I believe in 1957, the ballast resistor is mounted on the driver's side firewall, away from the distributor and I highly recommend that location for your '55. You'll have to drill a little hole for the screw. Make sure it doesn't interfere with the linkage or anything on the other side of the firewall. Cut the wire that leads to the Positive side of the coil, and wire the resistor inline.

(6) Solenoid. You will need a new 12-volt starter solenoid, even though they look very similar to the 6-volt solenoid. Ford 12-volt solenoids were the same beginning 1956 up at least into the early seventies. The extra little terminal on top is to be wired to the Positive side of the coil. This gives full voltage to the points (without going thru the resistor) during starting only.

(7) Starter motor. The starter motor does not have to be changed or modified, or touched. Just leave it as is and do nothing. Switching polarity on the car does not reverse the direction the starter motor turns. If you don't believe me, remove and test it both ways. Better yet, don't waste your time, many people have already tested it, including myself. If you eventually want to change over, 12-volt starter motors are all the same for all Y-blocks (272-292-312) 1956 and later. (I think they are the same starter motor for 223 6-cyl, Y-block, and 332-352 FE, but I am not absolutely positive about that.)

(8) Horns. Use any 12-volt horns, but be aware the two holes on the mounting bracket probably won't line up. I used Ford Mustang horns from the 1960's. I had to move the horns anyway when I installed A/C. They are mounted securely with one bolt each as I wasn't in the mood to drill new holes that particular day. You can continue to use the 6-volt horns if you choose but they will sound at a higher pitch.

(9) Horn Relay. You will need a 12-volt horn relay. 1956 12-volt horn relay looks the same as 1955 6-volt version. If you can't find one, you can get a generic horn relay from the auto parts store.

(10) Light bulbs. Label all the light bulbs with masking tape as you pull them. Otherwise you'll have trouble "finguring out" what goes where later. These are all common bulbs, and everything has a 12-volt counterpart at the auto parts store. Pay careful attention in the instrument panel. There are a lot of little bulbs, and some of them are different shapes. The short ones are short, and the long ones are long for a reason. Don't mix them up. Make sure you get all the lights. There are headlights, parking lights, taillights, backup lights, license plate light, dome light, instrument panel lights (I'll try to map them later), heater control light, radio light, clock light. *Messing around behind the instrument panel, especially if you're old like me, is probably the most difficult part of this whole project.*

(11) Flasher. The flasher on this car is an odd-looking little rectangular doo-dad clipped onto the inner dash near the ignition switch. Replace it with the common cylindrical 12-volt flasher you find at any auto parts store.

(12) Heater motor. Use a heater motor from a 1956 or 1957 Ford. You may have to switch out the mounting plate and/or the squirrel cage fan, if it doesn't clear the housing. It is not a big deal. You will need an Allen wrench. I thought the fan would be permanently seized on the motor shaft, but surprise, it loosened easily with the Allen wrench, and everything came apart with no problem.

(13) Instrument voltage regulator. Gas gauge and Temperature gauge are wired directly to 6-volt auxiliary supply. After your 12 volt conversion they will still need only 6 volts. I do NOT recommend R\*\*\*z Resistors, little electronic gadgets made for this purpose. They are expensive, you need one for each gauge, and they fail. Do what Ford did. Even after 12-volts, Ford retained the 6-volt gauges for many years. They have a voltage-drop "regulator" made just for this purpose. Get it from a Mustang dealer, or search Ebay for "Ford Instrument Regulator". I believe they are essentially the same from 1957 up into the early '70's. If you test the regulator with an analog voltmeter that is not too sensitive, it should show around 6-8 volts. But if you test it with a digital voltmeter, you'll get readings all over the place, from 0 to 13 and everything inbetween. This is because it doesn't put out one steady voltage, it pulses between open and closed, microscopically fast, giving an "average" of 6-8 volts which keeps the gauges happy. Hey, I'm not an electrical engineer, but works for me! You only need one such regulator, and branch output to both gauges. Also, don't just leave it hanging -- it must be mounted on "ground" in order to work. I have it bolted on the stationary brace above the brake pedal.

(14) Instrument dimmer switch (on the headlight switch). I have heard this is supposed to be changed, but I haven't done so. I believe it would entail changing the whole headlight switch assembly. I do often drive at night and have used the rheostat occasionally, but haven't had a problem.

(15) Lighter. The lighter element is also a 6-volt unit. I don't use the lighter, or allow smoking in my classic car! It's there for looks. The 6-volt lighter gets hot quickly and pops out forcefully if you try to use it. I'm sure it would burn out pretty soon if used too often.

(16) Radio. Don't connect your radio to 12 volts. It needs to be professionally rebuilt. Mine came from Ebay user "dbcuda"--highly recommended.

(17) Clock. Don't connect your clock to 12 volts. Get a wind-up version. 1955 was the last year for Ford wind-up clocks, and in my opinion, they're a Godsend. They don't keep time really well (don't tell me they did, because they didn't, even when new), but hey. Note, of course, the wind-up clock will still need a 12-volt light bulb.

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#### Miscellaneous Little FAQ's

Q. What happens if I forget to switch a lightbulb?

A. It will burn superbright like a spotlight, and then burn out in a minute or so.

Q. How can you get away with not changing the starter motor?

A. It is a very heavy duty electric motor, obviously designed for intermittent only, and it does happen to work. Anyway I do carry an extra 12-volt starter motor in the trunk on long trips (along with several other parts in case I wish I had them).

Q. Oh what all parts do you carry in the trunk if I may ask?

A. Starter motor; points & condensor; new water pump; new fuel pump; spare carb; one rear axle shaft w/ bearing (from a 53 ... make sure they have the same number of splines ... same from 49 to early 55 only); rear axle seal; spare generator & regulator (before I went to GM alternator); dwell meter and a few basic tools. Also used to carry a pair of exhaust manifolds when I was more paranoid than I am now.

Q. Running 12-volts thru existing 6-volt wiring is dangerous and a fire hazard. The wiring has to be twice the size as for 6-volt.

A. No, actually it is the other way around.

Q. What about the 6-volt points and condensor, and all the switches, the ignition switch, the door jamb light switches, the headlight dimmer switch, the heater switch etc.??

A. You don't need to replace them. They are not specific to either 6 or 12 volts. The ballast resistor protects the points.

Q. My brother-in-law, who is an electrician, says " \_\_\_\_\_ " (fill in the blank).

A. Follow whatever your brother-in-law says. My only qualification is that I drive the car every day.

Q. What about the wiper motor?

A. I've never seen a 6-volt wiper motor. Ford had vacuum wipers. (I have since heard there are modern aftermarket 6-volt electric wiper motors, but I don't see the point.)

Q. How about using voltage-drop resistors for the heater motor etc.

A. Those resistors run hot, you have to drill holes to mount them on sheet metal, and most people don't know the formula for how many are necessary. And why bother anyway? The later heater motors fit exactly.

Q. If you maintain a 6-volt car, it will run fine forever. They ran fine in 1955, and they will still run fine on 6 volts.

A. Be my guest. Running 6-volts is great for your show car. Not realistic for a daily driver in 2006, and not possible if you want air conditioning or (God forbid) a stereo.

Q. Chevies are better than Fords because they already had 12-volt in 1955.

A. Yeah but Fords are prettier.