12 Electrical Conversion
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ELECTRICAL CONVERSIONS
What do I have to do to change over to an electronic ignition on a '49 Ford original six-volt system, what do I have to change to make it a 12-volt system?
Les Morrill, Humble, TX
To go from 6 to 12 volts, you don't need to change your wires - 6-volt wiring is twice the thickness required for an equivalent 12-volt circuit. But you do need a 12-volt battery with the same or greater cold-crank amp rating as the 6-volt battery it replaces. The 12-volt battery will most likely be standard polarity (negative ground), but your old Ford is reverse polarity (positive ground). Therefore you will have to reverse the polarity on selected polarity-sensitive circuits and electrical devices.
You must address the charging system. You can install a 12-volt generator, but an alternator is much more efficient. The 6-volt starter and solenoid work: The starter will crank twice as fast, which means the engine should start more easily, at the possible cost of slightly reduced starter life. One way to extend starter life is to actually promote some voltage drop in the crank circuit by installing a smaller and longer starter cable than standard.
In theory, you can keep the existing points distributor and just install a 12-volt coil-but if you're going to all this trouble to install a modern electrical system, why not install a modern electronic ignition while you're at it? MSD has bolt-in flathead Ford billet electronic distributors that work with its MSD-6 control box. MSD distributor PN 8573 fits '49-53 flatheads originally equipped with a vertical-mount distributor.
You can retain most 6-volt switches, including the headlight switch, heater switch, and ignition switch. However, you must replace all 6-volt bulbs - including the headlights, taillights, brake lights, turn-signal lights, park lights, and instrument panel and interior bulbs - with 12.volt equivalents. Also replace the 6-volt turn-signal flasher with a 12.volt unit.
Finally, you'll have to deal with the 6-volt fuel gauges, electric oil and coolant temperature gauges, electric clocks, and motors like the heater/blower motor, A/C compressor clutch or solenoid, electric fuel pump, and/or windshield-wiper motor [stock Fords typically used vacuum-powered windshield wipers]. However, if it's a custom street rod, you could upgrade everything to modern 12-volt equivalents. If it's an original factory car, the best solution is to use an electronic voltage regulator.
Ron Francis is one source for a universal aftermarket version. It markets two units: PN VR-1 is designed to power low-current devices like instruments and radios with less than 6 watts/channel output. [Positive-ground radios usually don't respond well and should be converted to 12-volt operation by Antique Auto Radio or replaced entirely by a modern 12-volt radio.] The higher-current rated Francis unit (PNVR-4) can handle some electric wiper motors and early air-conditioner solenoids; it has a 15-amp rated output capacity.
Fifth Avenue Antique Auto Parts is another source for transistorized voltage drop units, conversion alternators, brackets, and instructions, and also sells for $10 The Official 12-Volt Conversion Guide. The guide covers alternators and generators, mounting brackets, pulleys, overdrives, ignition coils, and 6- to 12-volt bulb crossover numbers.
Yet another solution to your dash instruments is to install a factory-style

instrument cluster voltage regulator. Believe it or not, most '60s-vintage Fords, even though they had 12-volt electrical systems, still retained 6-volt electrical gauges-so there's a standard replacement regulator for those cars that could also be used for your application. A common stock application would be for a '68 Mustang (AutoZone PN IVR601 or equivalent).

The ammeter doesn't care if it sees 6 or 12 volts. However, if you're using a high-amp alternator that puts out a lot more juice than the original generator, consider converting to a voltmeter the old amp gauge won't read high enough to accurately report the alternator's output, and it's really not a great idea to run all that high-amp current through the dash anyway.

If you're handy with electronics and need to reduce voltage to a high-current motor (over 15 amps' draw), it's possible to build your own custom voltage regulator out of transistors, resistors, and a potentiometer. The current-carrying capacity would equal the rated output of the power transistor inside the unit. Newark Electronics is one source for high-end electronic components. Otherwise, there's always the old wire-wound ceramic resistor routine. But it's not a cure-all-only a crutch! Typical automotive-type heavy-duty resistors may have up to a 40 percent variance from their nominal rating. This means a resistor could take that 12-volt input and output it to any-thing from 2.4 to 8.4 volts. The input voltage can also vary widely depending on the battery's state of charge, changing electrical demand in the vehicle, and ambient temperature changes. Precision close-tolerance resistors are available, but if the input voltage varies significantly, they may not be able to handle the fluctuation in output without failure. And in any event high-power resistors radiate lots of heat. Because of these drawbacks, resistors should only be used as an absolute last resort, and only on devices like motors that are robust enough to handle current fluctuations. They should not be used for delicate instruments or electronic equipment.

SOURCES

ANTIQUE AUTOMOBILE RADIO INC.; Palm Harbor, FL;
800/933-4926 or 727/785-8733;
www.radiosforoldcars.com
AUTOZONE; Memphis, TN; 800/288-6966;
www.autozone.com
FIFTH AVENUE ANTIQUE AUTO PARTS; Clay Center, KS;
785/632-3450; www.fifthaveinternetgarage.com
M.A.D. ENTERPRISES; 5pringville, CA; 559/539-7128;
www.madelectrical.com
MALLORY IGNITION (MR. GASKET CO.); Cleveland, OH;
216/688-8300; www.malloryperformance.com
MSD IGNITION (AUTOTRONIC CONTROLS CORP.); El Paso, TX;
915/857-7200 [general] or 915/855-7123 [tech];
www.msdignition.com
NEWARK; Chicago, IL (branches nationwide]; 800/4-
NEWARK or 773/784.5100; www.newark.com
PERTRONIX PERFORMANCE PRODUCTS; San Dimas, CA;
909/599.5955; www.pertronix.com
RON FRANCIS WIRING; Chester, PA; 800/292-1940 [sales]
or 866/330-1933 [support); www.ronfrancis.com

Return To Home Index