

The Ammeter!

by Tom Endy

The ammeter in a Model A Ford can be a very useful tool in a variety of situations that will signal to the driver the car's electrical status.

Whenever you park a Model A and are about to exit the car, glance at the ammeter, the needle should be pointing to zero. If instead it is pointing slightly to the left it is telling you that somewhere within the car there is some unauthorized current flowing that is going to drain the battery if you leave it that way long enough.

The cause may be the headlight or dome light switch is turned on. It is also possible the contacts in the generator cutout switch have stuck closed. Another possibility is the brake light switch is closed due to a weak spring in the switch. What ever is the cause you will become aware of it and can immediately address the problem instead of returning to find a dead battery.

When you first climb into the car to go for a drive before starting the engine press your foot on the brake pedal while observing the ammeter. The needle should deflect to the left. This is telling you that your brake light switch works and at least one of the bulbs is not burned out.

When you start the engine and rev it up past idle the ammeter should deflect some distance to the right. This is telling you the generator has taken over the car's electrical load and is also supplying charging current to the battery. If the needle stays at zero or deflects to the left it is telling you the generator is not working.

The ammeter can also be used as a gauge to set the generator output. This is accomplished by moving the third brush in the generator. Moving the brush changes the generator output voltage level and will determine the amount of charging current that flows to the battery. The procedure is to have the engine running at an rpm higher than idle with everything accept the ignition turned off. The generator is then adjusted for a nominal 8-amp output as registered on the right side of the ammeter.

Eight amps is considered nominal, but you can set it for whatever value suits your driving needs.

In 1929 Ford moved the black primary wire that runs to the ignition coil from the passenger side terminal of the junction box on the firewall to the driver's side terminal (reference service bulletin page 390, November 1929). The purpose of this change is to have the ignition current pass through the ammeter to provide a diagnostic tool when starting the engine. If for some reason the car refuses to start while cranking it over, observe the ammeter. The needle should be alternately moving from left to right past the zero mark. This is being caused by the ignition points opening and closing and it is telling you the ignition primary circuit is working correctly and the problem is elsewhere.

If you have replaced the generator with a modern alternator, which has a regulator, the ammeter will tell you a number of things. When you first start the car up and are rolling down the road the ammeter will more than likely be far to the right side of the zero mark. This is telling you the regulator in the alternator has determined that the battery needs significant charging to replace the power that was used by the starter to start the engine. After some period of time the needle will pull back to zero as the battery regains its full charge. If the needle remains far to the right for an excessive period of time it may be telling you that you may have a defect in the battery, such as a dead cell.

On a long trip the ammeter needle should be sitting on zero indicating that the battery is fully charged. However, it may also be an indication that the alternator is not working. An easy check is to momentarily turn the headlights on. If the alternator is working properly it will immediately pick up the additional load. You may see the ammeter needle flicker slightly, but it should remain on zero. This tells you the alternator is working. If the needle deflects to the right significantly and stays there it is telling you the alternator is not working and the battery has picked up the additional load.

The ammeter is a great tool. The more you pay attention to it the more you can determine what is going on with the electrical system. ☺