

HARRY'S TOOLBOX

By
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Ferguson TO-20 Wiring and Ammeter Installation

At a recent meeting of FENA members in Wakarusa, IN, Brian Schultz, of Hamlet, IN raised a question about the wiring diagram for the TO-20 with indicator light on our web site. Brian questioned the accuracy of the diagram indicating he followed the diagram but was unable to get his tractor to start unless he bypassed the warning light. Bruce Eding, another former Ferguson dealer and FENA member, and I studied the diagram and concluded it was incorrect. When I returned home I checked my manuals and determined the wiring diagram for the TO-20 with indicator light was in fact, incorrect. The correct wiring diagram is shown in figure 1 and the diagram previously posted on the web site has been replaced with this one.

The red indicator light on TE and TO-20 models works the same way the charge indicator light on most cars and trucks operate today. When the electrical system draw exceeds generator output, the indicator light will glow red.

Ferguson owners from as far back as 1946 indicated a desire to have an ammeter on these tractors. Instructions for installing an ammeter on a TE or TO-20 were included in the Ferguson Factory Shop Manual. Here is how the factory manuals say to do it.

Installing an ammeter on the Ferguson TO-20 tractor:

1. Remove the large button plug on the left side of the instrument panel. If an instrument is already in that position, a 2 1/32" hole will have to be made to the top right of the present opening.
2. Remove the mounting bracket from the ammeter by removing nuts and washers on the terminals. Place the ammeter in the dash opening from the top.
3. Place ammeter mounting bracket on the ammeter from the back of the dash panel. Tighten the first nuts to the mounting bracket.
4. Disconnect the black wire with yellow traces from the starter switch, and also the black wire with yellow traces from the "Bat" terminal of the regulator. Tape the ends of this wire.
5. From the "Bat" terminal of the regulator, run a 12 gauge wire up to a terminal on the ammeter. From the other terminal of the ammeter, run a 12 gauge wire down to the "hot" side of the starter switch.
6. To determine if the ammeter is installed correctly, start the engine and open the throttle until a definite deflection in the needle of the ammeter is noted. If the ammeter reads "discharge", reverse the leads on the ammeter terminals.

Installing an ammeter on the Ferguson TE-20 tractor:

1. Proceed with Steps (1), (2) and (3) as listed for the TO-20.
2. Disconnect the wire from the “hot” side of the starter switch and attach this wire to one side of the ammeter.
3. Connect the other terminal of the ammeter to the “hot” side of the starter switch with a 12 gauge wire. To determine if it is installed correctly, refer to Step No. (6) listed for the TO-20.

You will note in both sets of instructions it mentions switching the wires if the ammeter does not indicate charging after the engine is started. This is quite common. Ammeters, even those of the same brand, are not consistent as to which terminal is which, making this step necessary. In both the TE-20 and TO-20, the charge indicator light remains operational with the ammeter installed.

For systems with generators use a 30-0-30 ammeter, like NAPA part # 701-2177. For systems with alternators, use a 60-0-60 ammeter, like NAPA part # 701-2178.

These ammeter installation instructions are the same whether the tractor is equipped with a generator or an alternator.

If your charge indicator light is not operating it may be something as simple as replacing the bulb. TO-20's with 6 volt systems use a # 51 bulb. If the tractor is converted to 12 volts, you will have to use a # 53 bulb. The 6 volt TE-20 uses a # 342 bulb and the 12 TE-20 uses a # 1446 bulb. The base of the indicator light must be grounded for the light to work so you may need to clean up the barrel of the red indicator jewel to create a good ground. Original parts for the TE-20 light are almost impossible to find today but you can substitute TO-20 parts. TO-20 parts are a little easier to locate. If the socket assembly needs replacing, you can substitute NAPA part # LS6429. Complete replacement indicator light assemblies are available from various replacement parts suppliers.

Replacement Pin for Ferguson Swinging Drawbar

In a recent column I wrote about the difficulty in locating the locking pin for the Ferguson Drawbar Clevis # 677 012 and Swinging Drawbar # 677 013. This drawbar is sometimes referred to as the horse shoe drawbar because of its shape. Some of you may have noticed a new ad in the “Gots ‘n Wants” column from Gene Kruse. Gene is now reproducing the original spring lock pin, MF part # 181 758 M91. I had the opportunity to see one of the pins at the get together in Wakarusa, IN and ordered one. Gene has done a remarkable job of reproducing this pin and I highly recommend it to anyone in need of one of these pins. The price is \$50 including shipping and it is well worth it.

Conclusion

What happened with this wiring diagram is a good example of how important your questions and feedback are and how we, as a group, work together to solve problems and provide you with the information you need to keep your Ferguson operating. So, keep the questions and feedback coming.

WIRING DIAGRAMS

COLOR CODE	1 Black	3 Red	5 Yellow	7 Green & Black
	2 White	4 Grey	6 Black & Yellow	8 Brown & White

