

Installation Instructions - Model 10505R-FT

The operation of your new voltage regulator for the FORD 9N tractor is such that the third brush on the generator sets the maximum charge rate obtainable from the generator while the voltage regulator circuitry senses the current state of charge of the battery and adjusts the generator output power in proportion to the needs of the battery and the electrical system of the tractor in much the same manner as a modern car voltage regulator.

WARNING!! - This voltage regulator is for use on 6 volt *positive ground* FORD 9N tractor systems only. These systems use a type 9N-10000-C generator. Permanent damage will result if the voltage regulator is connected even momentarily to any other system including 8 or 12 volt. This voltage regulator will *not* work on other 3 brush generators that were originally equipped with voltage regulators. Only those generators originally equipped with cut-outs will work with this voltage regulator. Check which post of the battery is connected to the tractor ground (frame). If the positive (+) terminal is *not* connected to the frame then you do not have the correct voltage regulator or your battery is installed incorrectly!! Do not attempt to proceed until the battery is installed properly! Follow all instructions carefully or you will destroy your new regulator.

Never short the voltage regulator terminals together as with a jumper wire to *test* the operation of the regulator or to *flash* the generator - The voltage regulator will be damaged. Remove the voltage regulator from the generator before performing any tests on the generator.

Proper operation of the voltage regulator requires a proper setting of the generator third brush. It is assumed that a good battery and a good generator have already been properly installed on the tractor and that the *main* generator brush assembly has been installed and adjusted properly. A voltage regulator is *not* a cure for a sick generator or sick battery. A voltage regulator is a great improvement to a good electrical system. **Only the generator *third* brush assembly will be adjusted and under no circumstances should the third brush assembly be set for more than 18 Amps of charge.**

Make certain that all electrical connections on the tractor are clean and tight. Pay particular attention to the wiring and all connections between the generator terminal and the battery. In order to preserve authenticity the regulator output "B" (Battery) terminal and the input "A" (Armature) terminal are insulated in the exact same manner as the original cutout and these terminals should be inspected regularly to make certain that there is no danger of these terminals shorting to the regulator cover. A 30 Amp fuse placed in series with the generator battery wire at or near the battery end is a very good safety measure for protection from shorts in the tractor and regulator wiring.

Important! - If your tractor is equipped with a radio, remove any radio interference suppressor capacitor which might be connected to the armature terminal of your generator. Your voltage regulator contains a built in suppressor and an external suppressor will cause improper operation and damage to your voltage regulator.

Install the regulator in place of the cutout and orient the voltage regulator so that the "A" terminal (marked on top of the regulator) is pointing down as was the original cutout. Make certain that regulator mounting bolts are tight.

Note: When making connections to the "A" and "B" terminals of the regulator, make certain that the thick insulating washer is between the connection and the metal cover of the regulator. **Never connect the battery wire to the "A" terminal! Check the wiring color codes to be certain.**

Connect the heavy "armature" wire that comes from the generator to the "A" (**Armature**) terminal of

(CONTINUED ON REVERSE SIDE)

the voltage regulator. Connect the battery wire to the "**B**" (**Battery**) terminal of the regulator. You may notice a momentary "spark" when the battery wire is first connected. **The Ammeter should not show any charge or discharge after the battery wire is connected. Any reading on the Ammeter indicates that something is wrong and your voltage regulator may already be damaged.** Check all connections for shorts to the regulator cover or regulator base.

Do not remove the voltage regulator cover as there are no user serviceable parts or adjustments inside the voltage regulator.

Setting the generator third brush

A) Set the third brush adjustment screw on the backplate of the generator to the minimum charge rate setting as indicated by the arrows near the adjusting screw.

B) Start the engine and bring the engine to a high speed that produces the maximum charge from the generator. Turn on lights and other items that will draw power when the tractor is operated and observe an Ammeter reading of 10 to 15 Amps discharge.

C) Advance the third brush setting by rotating the adjusting screw located on the backplate of the generator until the Ammeter shows a slight charge of 1/2 to 1 Amp with engine at same high speed. The generator is now putting out 13 to 15 Amps. This should be the correct setting for the third brush. **Do not advance the third brush further or the setting will be too high!** - The correct setting will occur with the third brush advanced only slightly further than the center of its mechanical range.

D) With engine still at high speed turn off lights and all other items and observe that the charge rate jumps to 13 to 15 Amps where the charge rate will remain until the battery reaches full charge. It may take a few seconds, a few minutes, or a few hours for the battery to reach full charge. When the battery is nearing full charge, the charging rate will taper off until only 1 to 4 Amps of charge current remain.

Make certain that the battery charge rate does not exceed 18 Amps during this charge time. A lower setting of 13 to 15 Amps is best and will result in longer generator life. If charge rate is ever allowed to exceed 18 Amps, generator damage will result. Do not attempt to readjust the third brush once the regulator has begun to taper the charge since the regulator will tend to compensate for the adjustment and it is very easy to advance the third brush too far which will result in generator or voltage regulator failure.

E) Check proper operation by idling the engine with lights off and then quickly increasing engine speed. The Ammeter should show a momentary high charge rate (13 to 15 Amps) then regulator action should be observed by a noticeable decrease in charge rate.

IMPORTANT! - A final check must be made after 24 hours of no operation of tractor or battery by starting the engine with the starter and bringing the engine immediately to high speed. With all lights off the Ammeter reading should be at or below 18 Amps. **If higher than 18 Amps, reduce the third brush setting immediately!** This is the maximum reading you should ever see and it will soon taper off once the battery comes up to charge. Thereafter the peak reading will be in the 13 to 15 Amp range. This first reading is higher right after the engine is first started because the battery voltage is lowest since the battery has not been charged for 24 hours.

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