NOTE: THE FOLLOWING INFORMATION IS FOR REFERENCE ONLY - CONSULT A QUALIFIED SERVICE PERSONNEL FOR FURTHER TESTING AND REPAIR.

Testing of Rectifiers

Unbolt the rectifier diode stud from the mounting clamp. Move rectifier away from the metal stud.

1. Connect black lead of meter to stud of rectifier and red lead to the solder terminal. Meter should read a low resistance.
2. Now, reverse the lead on rectifier terminals. Meter should read open circuit of infinite resistance.

A shorted diode will give low resistance reading in both directions.

An open diode will give a high resistance (infinite) reading in both directions.

Handling Procedures for Rectifier Diodes

1. Rectifier diodes should be handled in a manner which avoids the possibility of sudden shocks being applied, such as those encountered in dropping from a work bench to a hard floor. Damage done to the rectifier by such shocks may not be detected by subsequent testing, yet may cause poor system reliability.

2. Any lead trimming or forming operations should be done with care to avoid damaging the leads or the glass header seals.

3. Leads should never be bent or twisted. If lead forming is necessary the lead should be supported so that no bending occurs closer than 1/8 inch to the rectifier body, and that header seals are not fractured or broken. If this seal is broken, it removes mechanical support for the lead and allows entry of moisture into the rectifier, almost assuring early failure.

4. Care must be taken during all soldering operations. It is unsafe to exceed the general specification to which diodes are tested for solder ability. This is 10 +/- 2 seconds at a temperature of 230°C + 5°C at a point 1/16 +/- 1/32 inch from the diode body. This is not as restrictive as it may sound, since 230°C is 446°F and 60/40 solder melts at 375°F, and with proper procedure and soldering tools a solder joint can be made in 4 to 7 seconds. Also, solder joints are almost never made this close to the diode body. Heat sinks, such as a pair of needle nose pliers or alligator clips, can be attached to the lead between the solder joint and the diode body to further reduce the possibility of heat damage.

Also, precautions should be taken to prevent solder or flux bridging which causes a conductive path across the case of the rectifiers. As a precaution all flux should be removed by using alcohol and a small brush. Pay particular attention to assure that glass header seals are free of all flux.

Testing Stator

1. Instrument required - Volt-Ohmmeter. Set on Ohm X1 scale.

2. Check Ohmmeter by touching leads together. Read ing should be zero.

3. Tag and lift control wires from stator winding(s) to be checked.

4. **First**, check if stator winding(s) are grounded (most probable).
   a. Connect one lead of Ohmmeter to ground.
   b. Touch other lead to each stator wire. Meter should stay at infinite (not move).
   c. If reading is indicated, stator is grounded and should be replaced.
   d. Check all three windings.

5. **Second**, check if stator windings for opens. Symptom: when generator was running, no voltage on one line to neutral.

Stator - 6 Wires - 3 Windings 1 Phase

This armature has two power windings and one excitation (auxiliary) winding.

Power (A)	T1-T2	Starting on T1-red Ending on T2-green
Power (B)	T3-T4	Starting on T3-black Ending on T4-yellow
Auxiliary(C)	Z1-Z2	Starting on Z1-white Ending on Z2-brown

1. Connect ohmmeter one lead to T1-red.
   Other lead to T2-green. Meter should read near zero
   Then other lead to T3-black. Meter should read infinite.
   Then other lead to Z1-white. Meter should read infinite.

2. Connect one lead to T3-black. Other lead to T4-yellow
   Meter should read near zero.
   Then other lead to Z1-white. Meter should read infinite.

3. Connect one lead to Z1-white. Other lead to Z2-brown
   Meter should read near zero

TRACTOR DRIVE WINDING RESISTANCES
ROTATING FIELD TRACTOR DRIVE

	ROTOR		STATOR			
MODEL	MAIN	AUX.	POWER T1-T2	POWER T3-T4	AUX. Z1-Z2	450 VAC CAPACITOR
10/7PTCD	2.9	0.77	0.27	0.27	0.79	70 MFD
14/11PTCD	0.37	0.5	0.4	0.4	0.9	80 MFD
18/15PTCD	0.4	0.6	0.3	0.3	0.6	120 MFD

SERVICE DIAGNOSIS

POSSIBLE CAUSE	REMEDY
LOW OUTPUT VOLTAGE	
Low Speed	
1. Undersized/overloaded.	1. Check for overload on the tractor or undersized.
2. Defective governor.	2. Check tractor governor. Tight or defective throttle levers and joints.
3. Low power - worn engine.	3. Worn or defective tractor engine (see engine manufacturers check list.)
High line loss. Indicated by lower voltage at load than at generator terminals.	Increase size of line wiring. Might also be the result of loose connection indicated by excessive heating at the loose connection terminal.
Defective capacitor.	Test and replace if out of tolerance.
Shorted or grounded rotor coil.	Test and replace if defective.
HIGH OUTPUT VOLTAGE	
Excessive Speed	Check tractor engine speed. Governor linkage must be free from dirt and gum.
EXCESSIVE HEATING	
Clogged ventilating inlet and/or outlet.	Clean screens, make sure interior of generator is unobstructed.
NO OUTPUT VOLTAGE	
Broken or corroded connection.	Clean and tighten generator and receptacle connections.
Defective diode(s) on rotor.	Replace defective diode(s).
Open field circuit.	Repair or replace rotor assembly.
Grounded or shorted field winding.	Replace grounded rotor assembly.
Loss of residual magnetism. Usually occurs only after disassembly of field frame or severe mechanical stress/ abuse.	Take to dealer to reflash.
NO OUTPUT VOLTAGE Continued	
Shorted stator winding. This can be identified by the use of an internal "growler" at a competent rewinding shop.	Replace stator. (Include generator model and serial number on the order.)
Grounded stator. Check winding by test lamp or high potential tester from stator leads to lamination.	Same as above.
Open stator circuit. Measure circuit between leads with an ohmmeter. Should have a circuit between any pair of rings.	Same as above.
VOLTAGE UNSTEADY/ LIGHTS FLICKERING	
PTO drive line alignment.	Realign within 10 degrees.
Drive line knuckles out of sync. (See Figure 5.)	Resync drive line halves.