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KOHLER
GENERATORS

12.5 kW-RV troubleshooting guide

BLUE BIRD
BODY COMPANY

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Controller Operation

Starting

1. Push PREHEAT switch to energize *2CR* relay and close N.O. contacts to energize preheater.

2. Push START-STOP switch to close start contacts and energize *C* relay. *C* relay contacts close to energize starter solenoid (*S*). Starter solenoid S contacts close to energize starter motor; R contacts close to energize start-stop fuel solenoid. Start-stop solenoid also actuates limit switch to initiate field flashing and energize 1TS heater. Engine starts.

3. AC output from generator energizes *CR* relay. *CR* relay N.C. contacts open to disconnect cranking and field-flash circuits, along with 1TS heater circuit. *CR* relay N.O. contacts close to aid limit switch in energizing start-stop fuel solenoid (and energize GENERATOR ON lamp, if equipped).

Note

If engine starts but no AC output comes from generator, 1TS switch contacts will open to stop engine by deenergizing start-stop fuel solenoid.

Stopping

Push START-STOP switch to close stop contacts. Doing so shorts the start-stop fuel solenoid circuit to stop the engine.

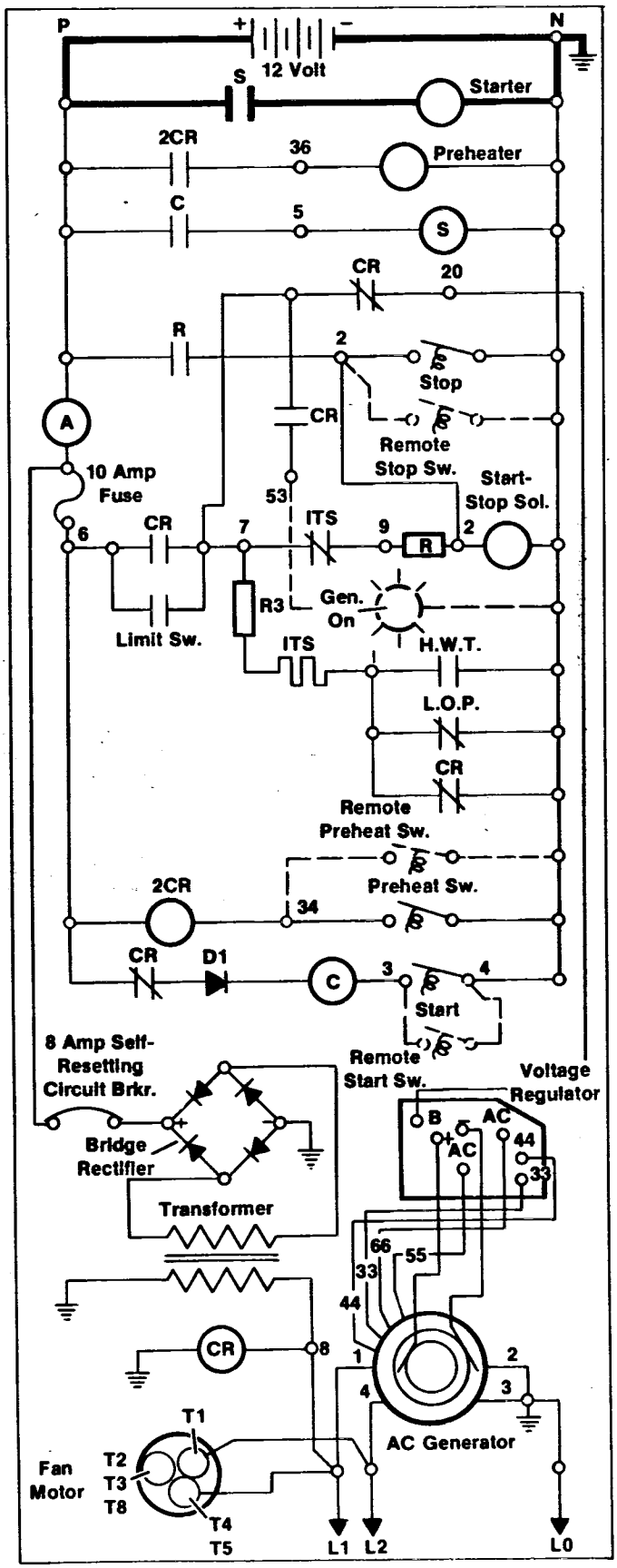

Figure 1. Controller Operation

Generator Circuits

- Stator leads 1 and 2 provide 52-A, 120 volts, as do leads 3 and 4.
- Leads 1 and 4 provide 52-A, 240 volts.
- Leads 33 and 44 provide 120 volts for monitoring by the voltage regulator.
- Leads 55 and 66 provide approximately 1-4-A, 120 volts AC to be rectified for exciter voltage, depending on load.
- Exciter winding offers advantages of improved motor starting and reduced line noise in output/load circuits.

Note

Cold rotor resistance is around 10 ohms.

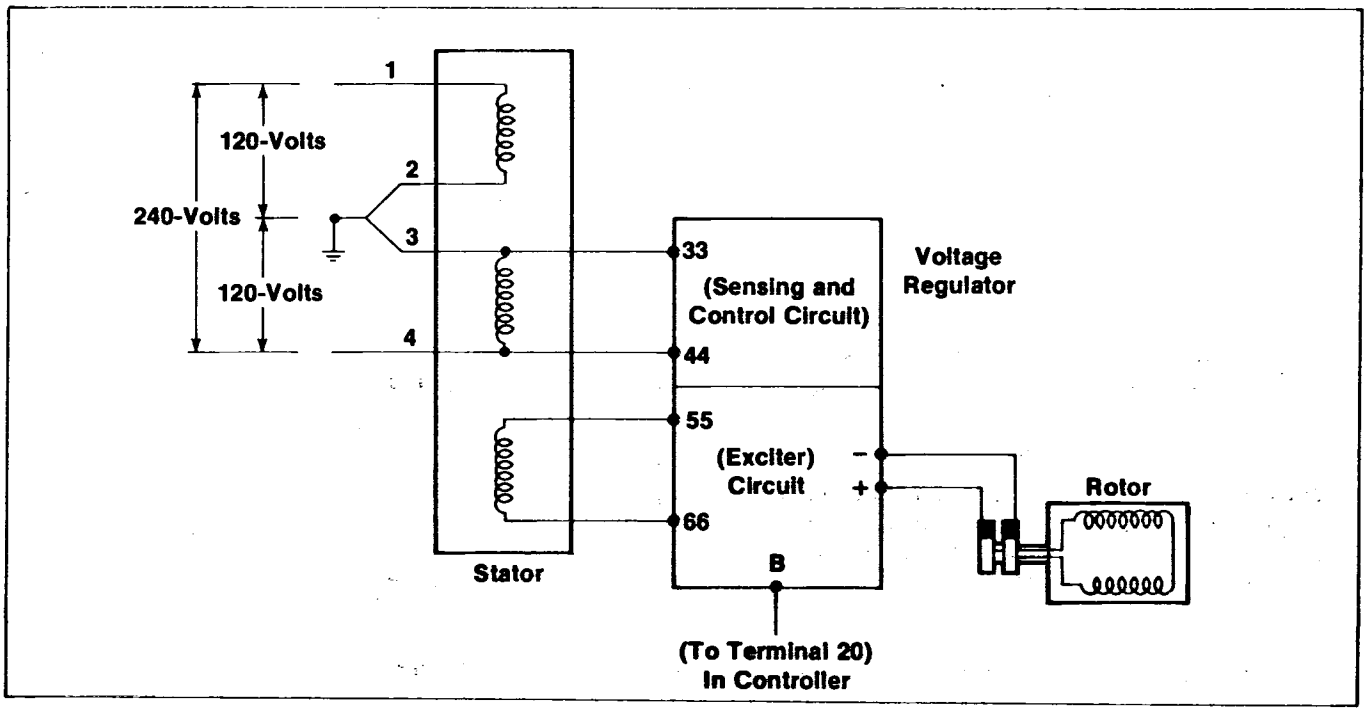

Figure 2. Exciter and Output Circuits

Voltage Regulator Bench Test and Adjustment

Equipment Required

- 2 100-Watt bulbs mounted and connected in parallel.
- 120-Volt AC power cord with 2-Amp fuse in line.
- 2 Jumper Wires (18 AWG minimum).

WARNING

HIGH VOLTAGE. Remember the function of a generator set is to produce electricity and whenever electrical energy is present, there's the potential danger of electrocution. Do not touch electrical equipment when standing in water or on wet ground or when your hands are wet. Remove rings, watches and other jewelry.

1. If regulator adjusting Pot. (See Figure 3) has not been factory sealed, set Pot. to its mid position.

2. Connect two 100-Watt bulbs across (+) and (–) regulator terminals. Connect jumper wire across regulator terminals 44 and the one unlabeled as shown in Figure 3. Connect power cord to regulator terminals 55 and 66.

WARNING

When the power cord is plugged in, the AC pins become "hot" and there is danger of electrocution.

3. Plug power cord into 120-Volt AC outlet. Light bulbs should light momentarily (and then go out) or light steadily.

WARNING

Always unplug power cord from AC power source before connecting or disconnecting wires from regulator.

4. Unplug power cord from outlet. If regulator Pot. has been factory sealed, carefully remove sealer and turn Pot. slider so slider works freely. Set Pot. to mid position.

5. Plug power cord into outlet and slowly turn Pot. to full clockwise position. Bulbs should light or remain lit.

6. Turn Pot. slowly counterclockwise until bulbs go out (preadjustment setting). **Unplug power cord from outlet.**

7. To check field flash circuit, plug power cord into outlet and momentarily contact 2nd jumper wire across regulator terminals B and 66. Bulbs should light and go out. **Unplug power cord from outlet;** remove jumper wires.

Note

If regulator has behaved as described in steps 3 through 7, regulator may be used in generator.

Note

When replacing regulators apply a light coating of thermal compound between the regulator and end bracket. This compound aids in dissipating heat from regulator to end bracket.

8. Install regulator in generator and connect as shown in Figure 1. Disconnect generator from load. Connect voltmeter across L0 and L1. Start engine. Adjust regulator Pot. so meter shows proper output voltage. Stop engine. Remove voltmeter and seal Pot. with RTV or suitable substitute.

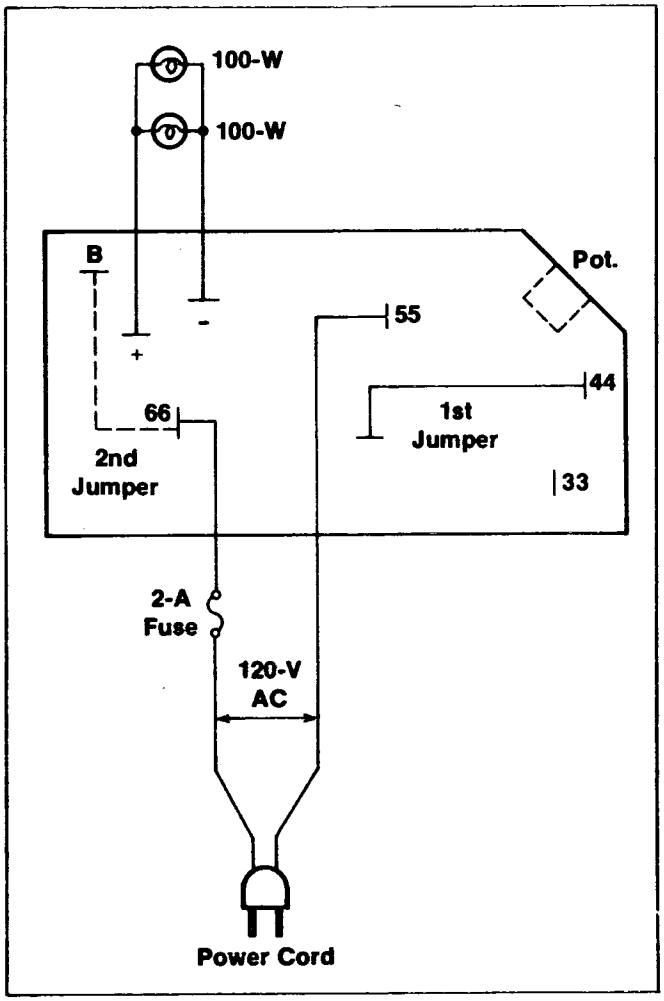

Figure 3. Voltage Regulator Bench Test

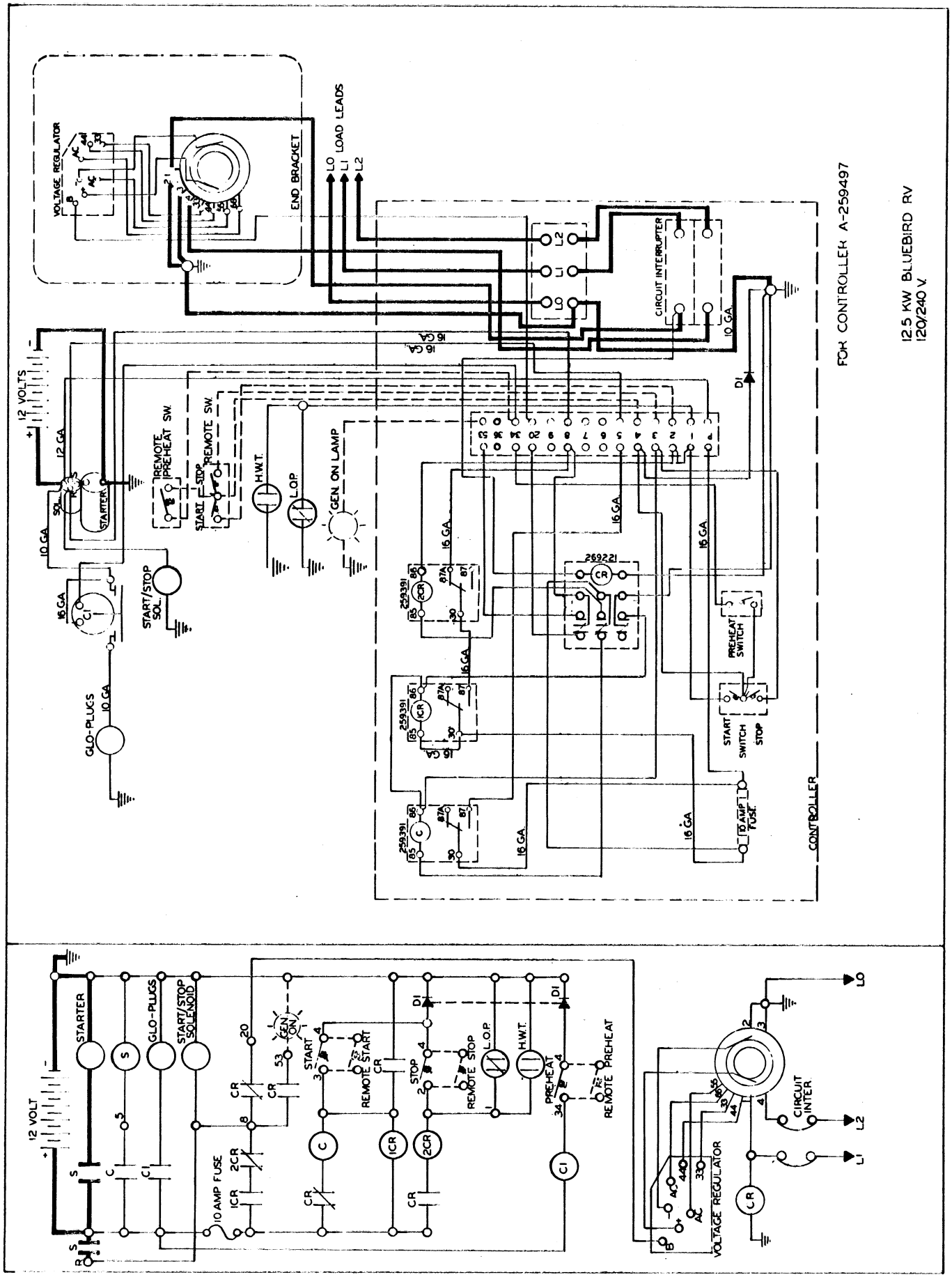

Figure 6. 12.5 RV, 120/240V with Radiator

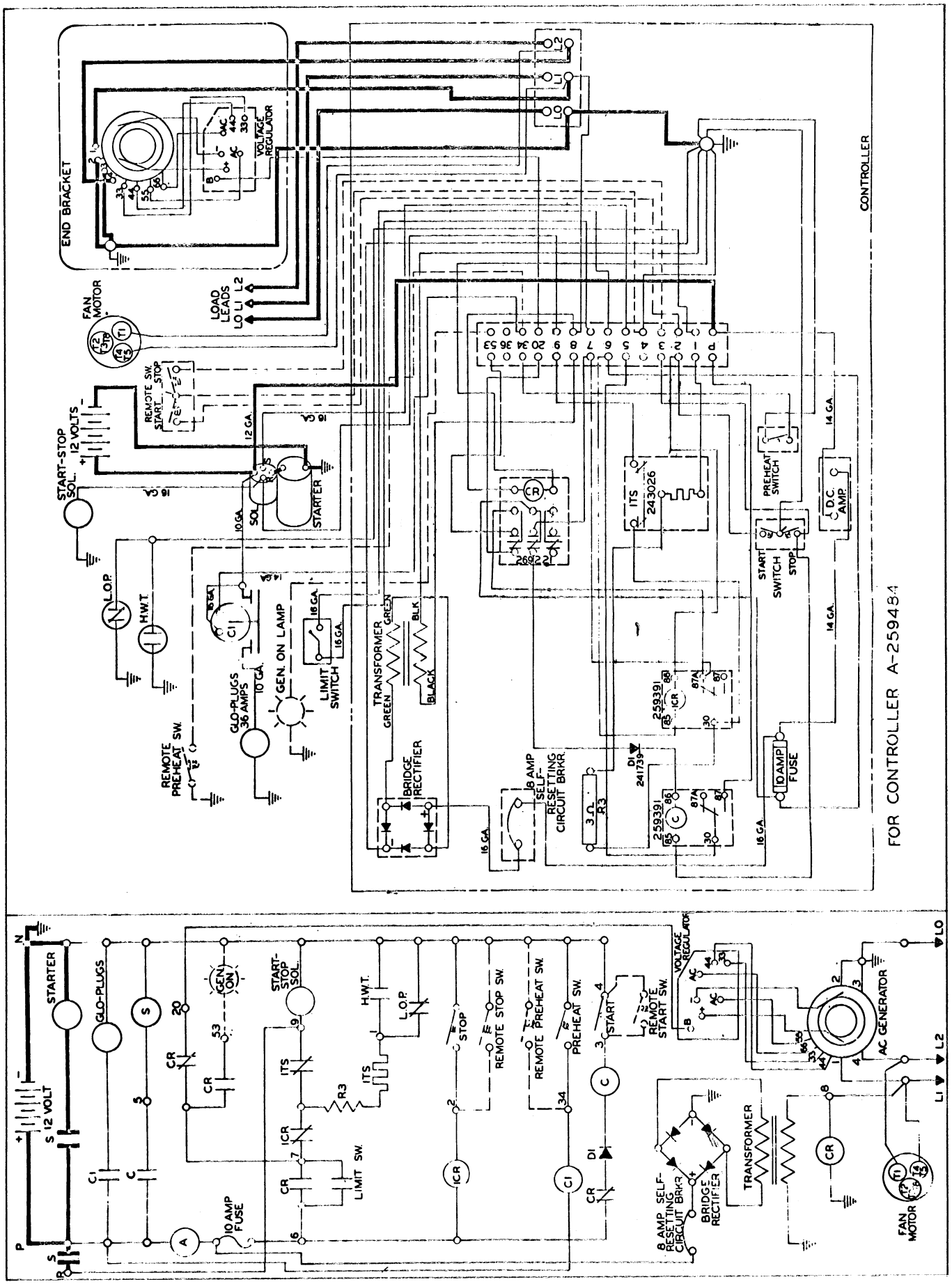

Figure 7. 12.5 RV, 120/240V with Remote Radiator