

ELECTRIC POWER PLANTS

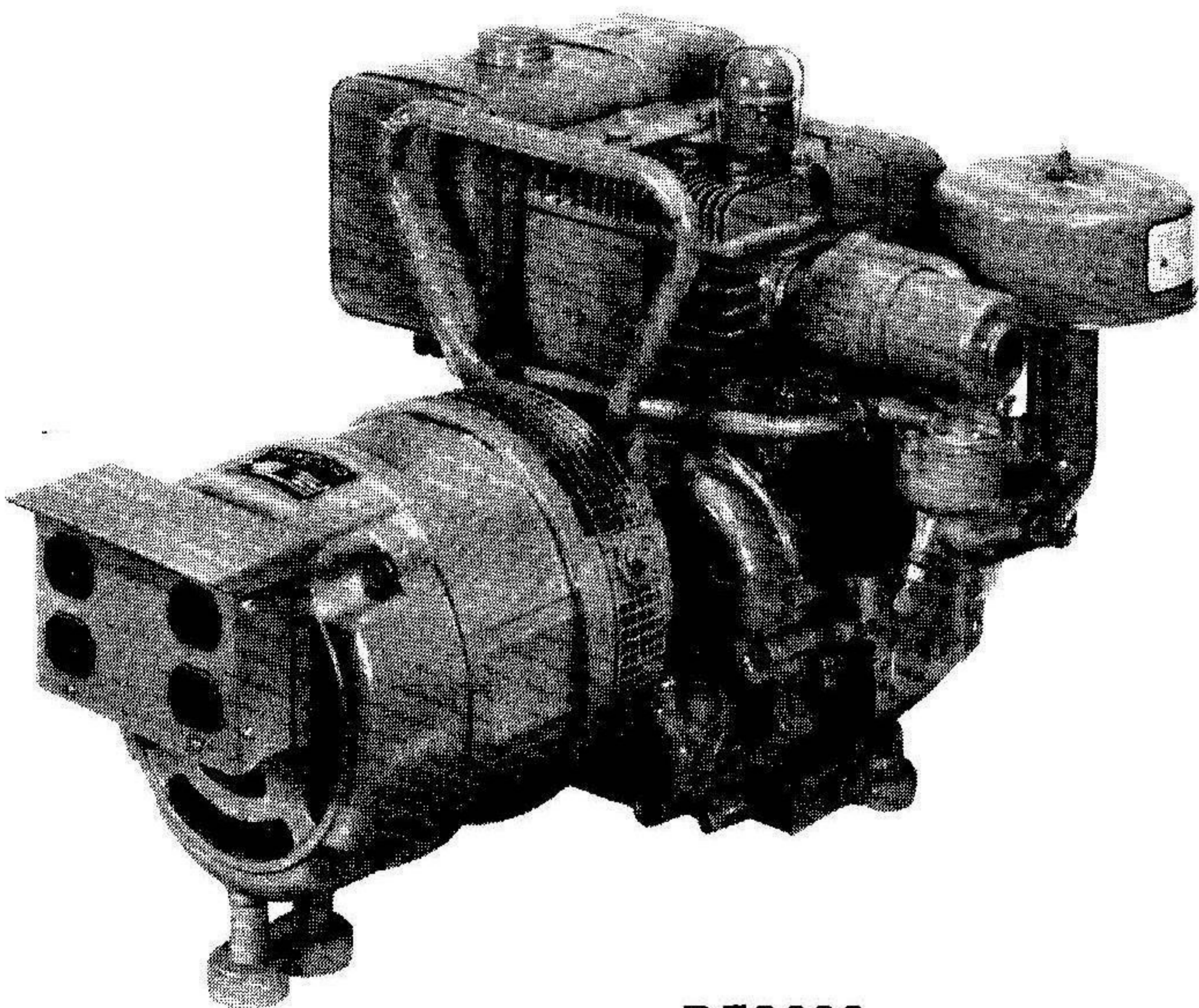
PIONEER GEN-E-MOTOR CORPORATION

GENERAL OFFICES
CHICAGO, ILLINOIS

AREA CODE 312
PHONE 237-4100

PINCOR

owner's guide and PARTS LIST

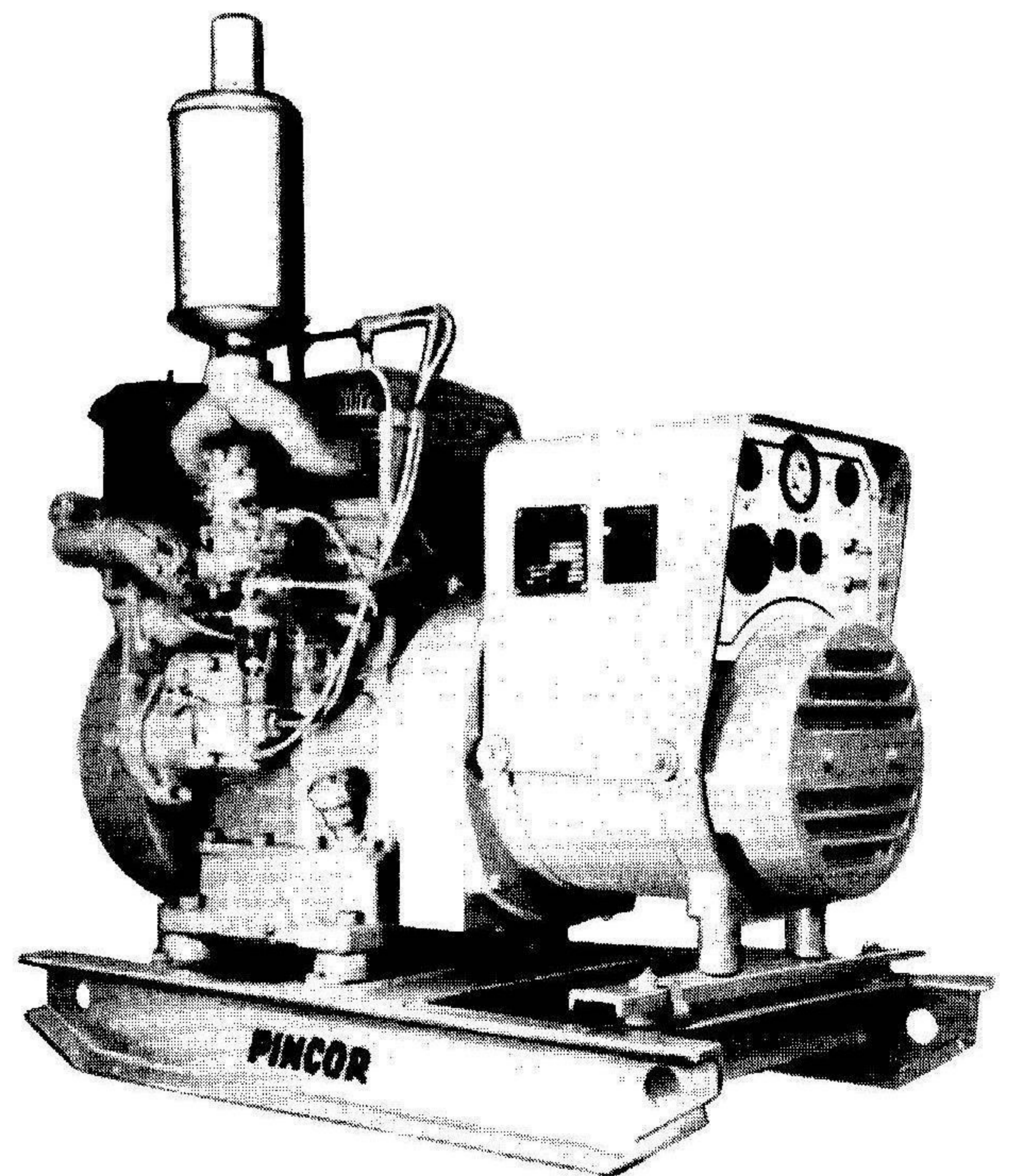


**RF3000
3000 WATTS**

For Models

RF1250H	RF4000H	RF5500HDVA
RF1500H	RF4000HDV	RF8000HDV
RF2000H	RF4000HDVE	RF8000HDVE
RF3000H	RF5500HDV	RF8000HDVR
RF3000HDV	RF5500HDVE	RF8000HDVA
RF3000HDVE	RF5500HDVR	

CUSTOM DESIGNED MODEL SS NO.



**RF8000
8000 WATTS**

5841-49 WEST DICKENS AVENUE, CHICAGO, ILLINOIS 60639

OWNER'S GUIDE and PARTS LIST

Air Cooled Electric Alternator Type Power Plants, 3600 RPM, 60 Cycle, Statically Excited

GENERAL

Your new Pincor Electric Alternator Type Power Plant is rugged and compact, designed and built for dependable, trouble-free operation. It will provide years of reliable service if given the proper care. This manual contains information for operating and maintaining the Pincor Power Plants listed below. Study this information carefully before operating your plant. Keep the manual in a convenient location and refer to it for operation and maintenance instructions.

INSTALLATION

Unpacking

Carefully unpack the power plant and visually inspect it for damage. If the unit is damaged, check with the transportation carrier for adjustment of the damage.

Inside Operation

The exhaust products of gasoline engines contain carbon monoxide, which is poisonous and can cause death. Connect a flexible metal hose (see Figures 1 and

2) from the engine exhaust to the outside air. This hose should be at least as large as the exhaust port of the engine. Avoid sharp bends in the hose to prevent back pressure on the engine. If the exhaust hose rises above the engine, install a condensation trap at the lowest point.

Do not fill gas tank while engine is running or if engine is hot.

Outside Operation

These plants may be operated out-of-doors. However, rain, snow, dust, dirt, etc., may damage the unit. Provide adequate protection.

Be sure engine is filled with oil before starting.

OPERATION

These units have been operated and adjusted to handle their full rated capacity. Before starting the unit, refer to the engine manual for instructions and location of choke, stop button, gas shut off. **WHEN STARTING THE ALTERNATOR DISCONNECT ALL LOADS. AFTER THE ALTERNATOR IS OPERATING, APPLY THE REQUIRED LOADS.**

MODEL	TYPE SS NO.	WATTS (Continuous)	VOLTS	AMPS	PHASE	WIRE	START
RF1250H	4999	1250	115	10.9	1	2	Manual
RF1500H	4927	1500	115	13	1	2	Manual
RF2000H	7268	2000	115	17.4	1	2	Manual
RF3000H	4978	3000	115	26	1	2	Manual
RF3000HDV	4965	3000	115/230	13	1	3	Manual
RF3000HDVE	5235	3000	115/230	13	1	3	Electric
RF3000HE	5369	3000	115	26	1	3	Electric
RF4000H	4979	4000	115	34.8	1	2	Manual
RF4000HDV	4966	4000	115/230	17.4	1	3	Manual
RF4000HDVE	5067	4000	115/230	17.4	1	3	Electric
RF4000HE	5424	4000	115	34.8	1	2	Electric
RF5500HDV	5377	5500	115/230	24	1	3	Manual
RF5500HDVE	5378	5500	115/230	24	1	3	Electric
RF5500HDVR	5391	5500	115/230	24	1	3	Remote
RF5500HDVA	5523	5500	115/230	24	1	3	Automatic
RF8000HDVE	5380	8000	115/230	34.8	1	3	Electric
RF8000HDVR	5392	8000	115/230	34.8	1	3	Remote
RF8000HDVA	5565	8000	115/230	34.8	1	3	Automatic

For special type power plants see reference material on back page.

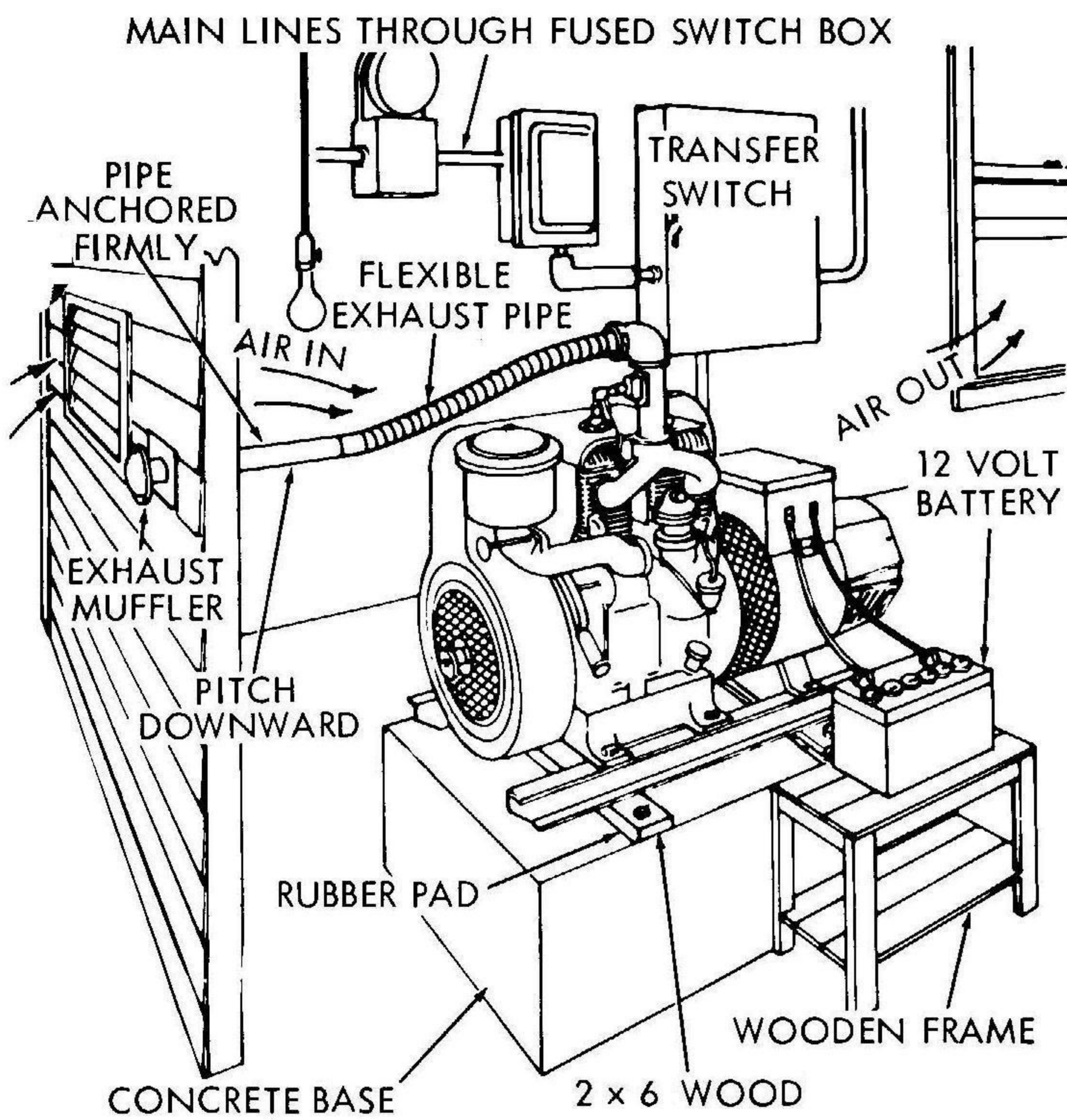


Figure 1. Typical Indoor Installation of Automatic Start Plant.

These Pincor Electric Alternator Type Power Plants are designed to provide 60 HZ alternating current at 3600 RPM. The output voltage is 115 volts, 230 volts, or a combination of 115/230 volts, depending on the model. All units are equipped with solid-state exciter systems and are coupled directly to the engine for permanent alignment.

The alternator is inherently self-regulating and its output automatically adjusts to the load. The alternator will not be damaged if it is operated at no-load condition. Your alternator has a large overload capacity, sufficient to handle momentary loads (such as starting motors) approximately 25% above its rating and 10% overloads for 1/4 to 1/2 hour.

CONNECTIONS AND WIRING

All wiring emanating from a Power Plant receptacle should conform to the National Electric Code and state and local regulations. Connecting the Power Plant to a house wiring circuit should be done through

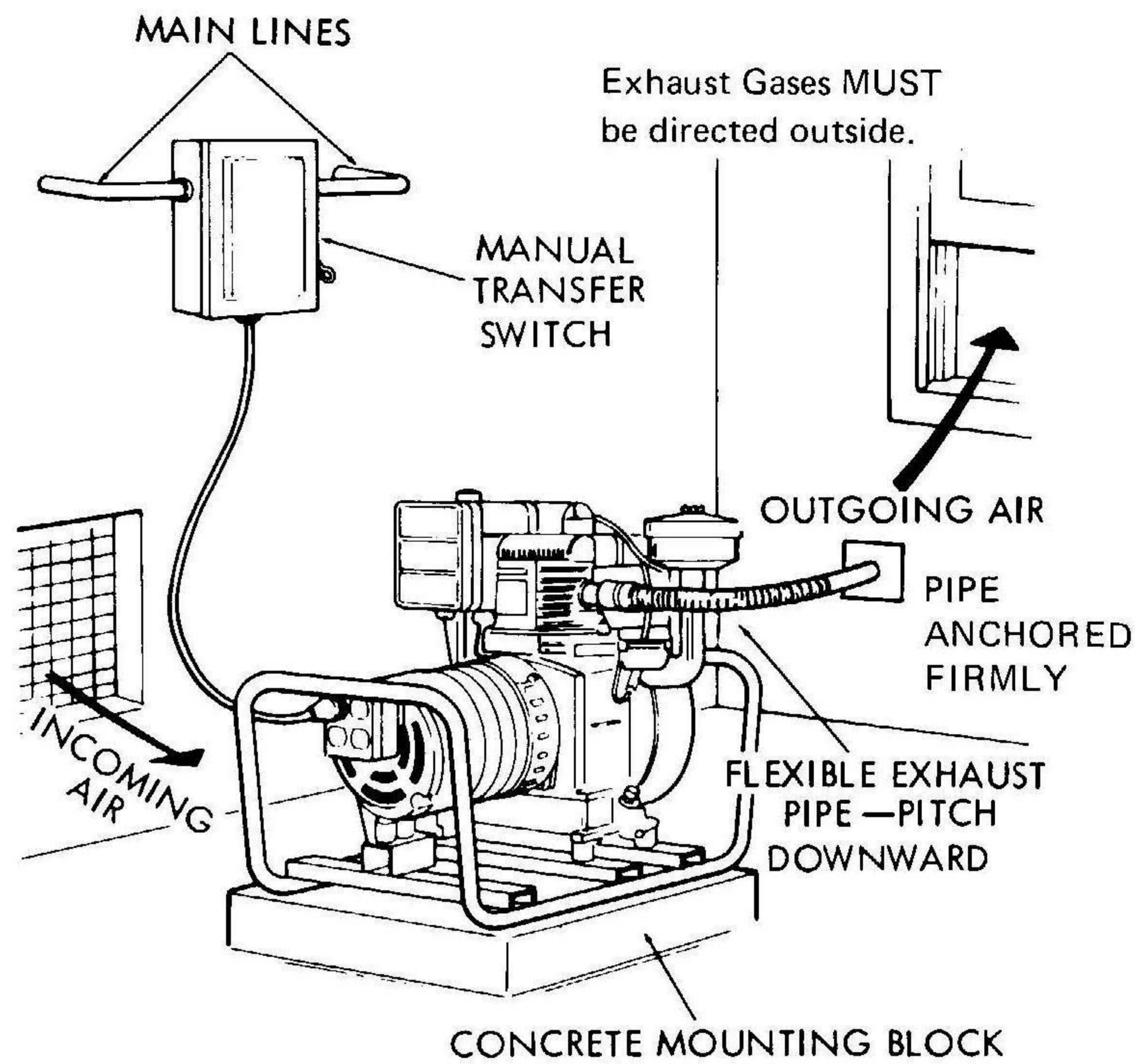


Figure 2. Typical Indoor Installation of Manual Start Plant.

a transfer switch. This will prevent damage to the alternator and circuit components if the commercial power is restored during operation. It will also prevent your Power Plant from feeding electrical energy into the commercial power system thus avoiding injury and damage.

If grounding is required in local codes, drive a 1/2" steel pipe into the ground as close to the plant as possible. This pipe must penetrate to approximately three feet. Connect an approved ground clamp to the pipe using a No. 10 or 12 wire from the clamp to the battery negative terminal on the control panel or alternator ground lead.

A grounding clamp is now provided on each alternator for your safety and convenience.

WIRING

When connecting the load to the alternator, use a wire size capable of handling the load, this will prevent excessive voltage drops in your lead wires.

ABILITY OF CORD TO CARRY CURRENT (2 or 3-WIRE CORD)		
Wire Size	Type	Normal Load
No. 18	S, SJ, SJT or POSJ	5.0 Amp. (600W) 7 Amp. (840W)
No. 16	S, SJ, SJT or POSJ	8.3 Amp. (1000W) 10 Amp. (1200W)
No. 14	S	12.5 Amp. (1500W) 15 Amp. (1800W)
No. 12	S	16.6 Amp. (1900W) 20 Amp. (2400W)

WIRING: Use sufficiently large insulated wire to connect load to alternator, this will prevent excessive voltage drops.

CONSULT LOCAL ELECTRICAL CONTRACTOR FOR PROPER WIRE SIZE AS PRESCRIBED BY YOUR LOCAL ELECTRICAL CODE.

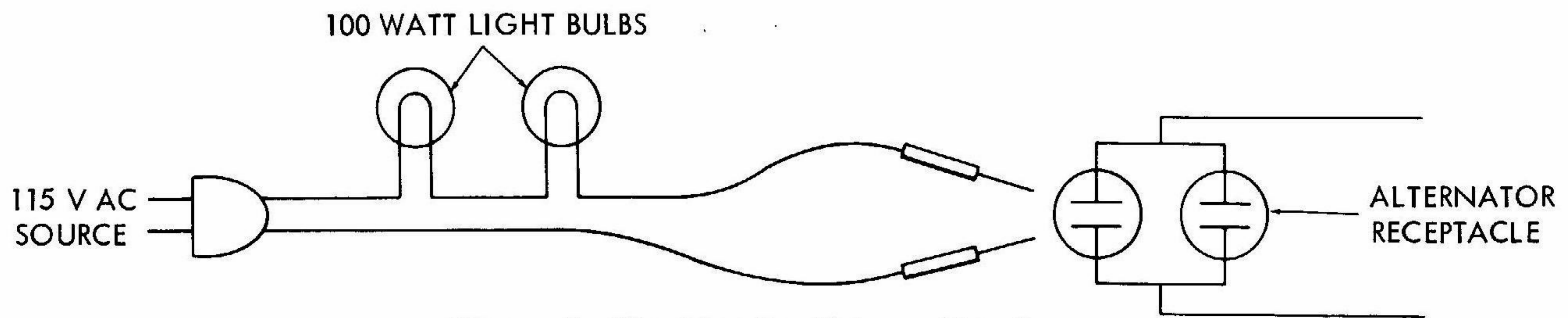


Figure 3. Flashing the Rotor - Step 2

MAINTENANCE

Brushes

Brushes are the only alternator parts which normally wear. Inspect the brushes every 1000 hours of operation. If the brushes are worn to approximately 5/16 inch, replace them. Replace only in sets, never a single brush.

Flashing the Rotor

After long periods of storage, or if residual magnetism is distorted, it may be necessary to flash the rotor to restore the magnetism. This may be accomplished by the following procedure. Operate the unit at each step.

1. Run the engine at a higher-than-normal speed (approximately 4000 rpm). If this does not restore output, proceed to step 2.
2. Connect two 100-watt bulbs in series (see Figure 3) to a 115 volt source. Touch test probes to both sides of alternator 115 volt receptacle for approximately 1 second - or:
3. Connect two wires to a 1-1/2 - 6 volt battery (figure 4) using the free ends of the wires as probes. Touch the positive wire to the positive brush and negative wire to negative brush for approximately one second.

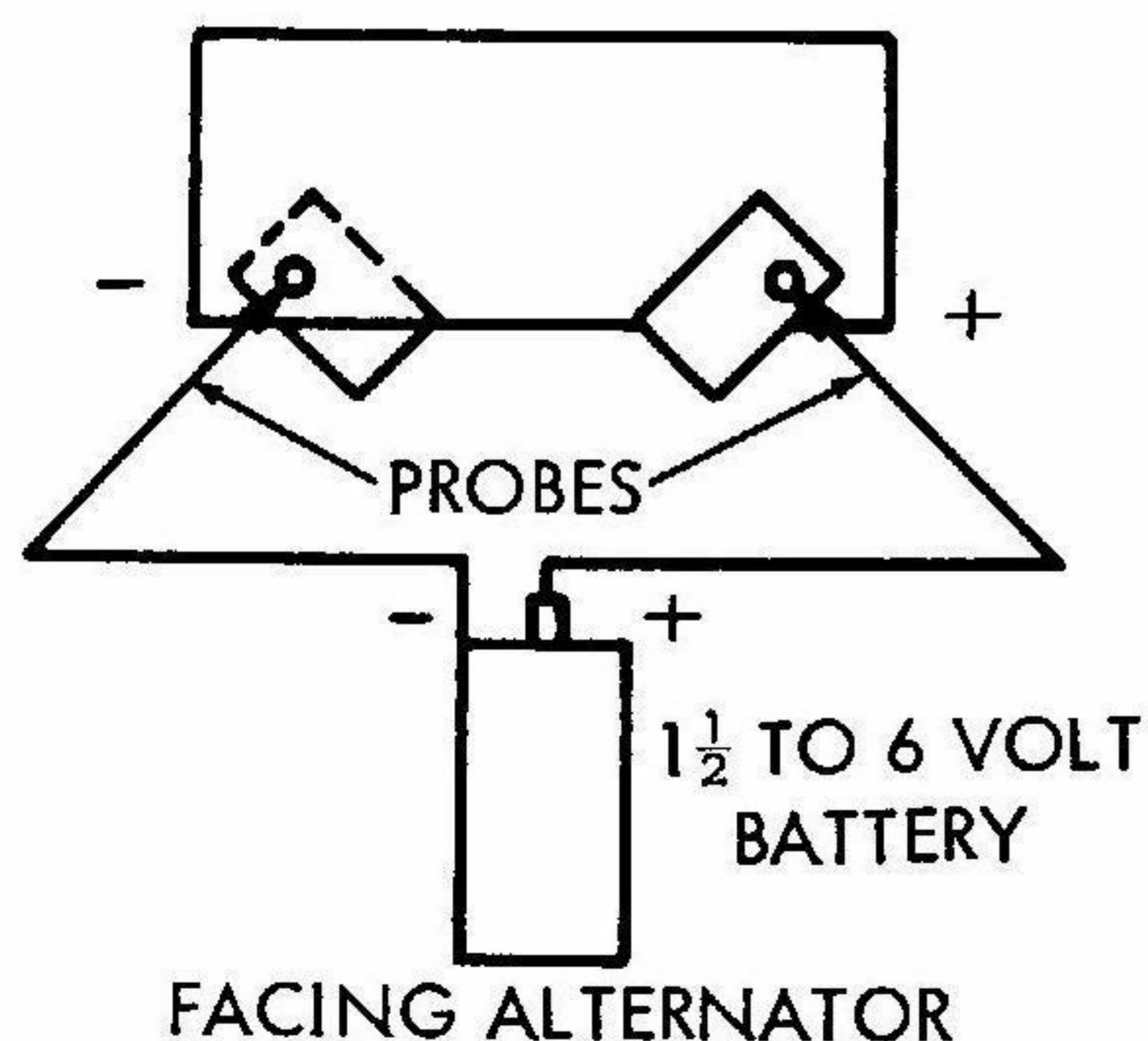


Figure 4. Flashing the Rotor - Step 3

ALTERNATE RECTIFIER TEST

Your silicon rectifier can be tested with a 1-1/2 volt D-size flash light battery and the bulb from an ordinary flash light if no meter is available.

1. Repeat Step 1 of the above procedure.
2. Connect a wire from the base (-) of the battery to the negative stud on the brush holder.
3. Connect a lead from the light bulb to the brush holder assembly. Touch the light bulb base to the positive anode of the battery. The light bulb should not glow.

By reversing the leads to the terminal board, the positive brush assembly should now complete the circuit allowing the light bulb to glow. Should the light bulb glow in either direction, the diode is defective. If the light bulb refuses to glow in either direction, the diode is also defective.

Frequency Adjustment

Check the frequency or rpm of your alternator as follows:

1. With the engine stopped, connect a cord with two 100 watt bulbs connected in series to the 115 volts alternator receptacles and to an outlet with 115 volts, 60 HZ power as illustrated in Figure 6. The two bulbs will burn dimly. CAUTION: Insert the Plug into the Alternator First.

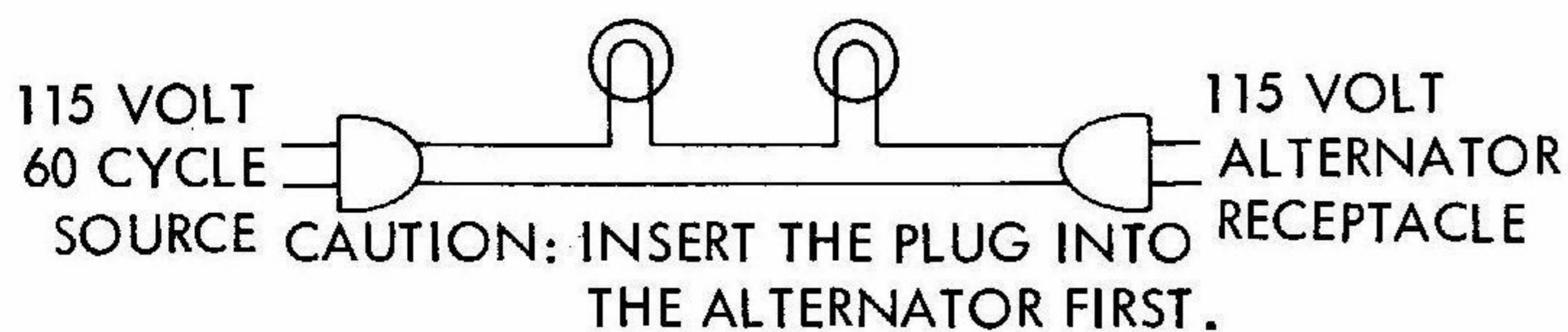


Figure 6. Adjusting the Frequency

2. Start the engine with the alternator connected as described in step 1. At no load run the engine at 3700 rpm (approximately 63 HZ). The bulbs should flash approximately three times per second.
3. Apply a full rated load to the remaining alternator receptacle. At this load the engine governor should adjust the speed to 3600 rpm (60 HZ) and the bulbs should remain either on or off. The frequency of the alternator then matches the frequency of the commercial power source.
4. If the bulbs flash, the frequency of the alternator is either greater or less than the 60 HZ source. To adjust the alternator frequency, increase or decrease the engine speed until the flashing stops and adjust the engine governor to maintain that speed.

Storage Battery Care

If your Power Plant is electric start, maintain the storage battery as follows:

1. Place the battery in a well ventilated room of

moderate temperature, free from vibration and not in contact with cement floor or stone wall.

2. Check the liquid level regularly. Add distilled water to keep the level 1/2 inch above the plates. Always use distilled water. DO NOT USE HYDRANT OR WELL WATER. Rain water may be used if it is caught in an earthen vessel.
3. To reduce corrosion, coat the terminals with a thin film of light grease.
4. If the battery is located in an unheated building, keep the battery fully charged to prevent freezing.
5. Check the condition of the battery by testing the specific gravity of the solution in each cell with a hydrometer. The specific gravity of the solution in a fully charged battery will be between 1.25 and 1.30.
6. Never allow the battery to remain discharged.
7. Charge the battery at regular intervals. Experience will indicate how often the battery will require charging. Charge the battery until all cells gas freely and the hydrometer reading stops rising in all cells.

TROUBLE SHOOTING CHART

Trouble	See Cause
No voltage	3, 4, 5, 7, 9, 10, 11, 12, 13, 19
Low voltage	2, 9, 10, 11, 13, 14
High voltage (normal range 130 volts no load, 105 volts full load)	18
Low power output	1, 2, 8, 9, 11, 12, 13, 14, 15, 17
Slow or no voltage build-up when starting engine	13, 14, 15, 17
Voltage build-up only after application of load	2, 3, 4, 5, 6, 9, 10, 11, 13, 20
Engine must be oversped to cause voltage to build up	2, 3, 13, 20
Intermittent voltage	9, 10, 11, 12
Repeated rectifier failure	18
Engine fires but does not come up to speed before stopping	1, 8, 14, 15, 16, 17
Inserted magnet rotor will not build up voltage	20
Bearing causes wear to shaft or housing	21, 22
Unit operates normally at rated speed but voltage does not rise above 90 volts	2, 6, 13

TROUBLE SHOOTING CHART (Cont)

Cause	Remedy
1. Rotor rubbing	<ul style="list-style-type: none"> A. Adapter housing not properly attached to engine. Check for concentricity. B. Extreme wear of engine main bearing. Re-bush main bearings. C. Dirt or chips on the engine shaft taper. Clean up and re-assemble.
2. Low speed	<ul style="list-style-type: none"> A. Overload connected to engine. Remove load. B. Rotor rubbing. (See Cause No. 1.) C. Governor improperly adjusted. (See frequency adjustment, Page 2.) D. Carburetor improperly adjusted or dirty. See engine service manual. E. Ignition problems. Check engine service manual.
3. Low residual voltage	Flash rotor (see Page 2). If not successful, replace rotor with new rotor.
4. Rectifier shorted	Most often caused by over-speeding of engine. Replace rectifier, re-calibrate governor (See Page 2) making sure governor operates freely.
5. Faulty reactor (5500 W and 8000 W models only)	Open circuit, check for continuity; if open, replace.
6. Defective reactor (field transformer)	See wiring diagram. Short out winding with jumper wire, which is connected to the rectifier assembly. With engine operating at 3750 rpm, if output voltage is below 135 volts, replace reactor.
7. Stator open	Check continuity for open circuit; if open, replace.
8. Shorted turns in stator	A shorting of a few turns will cause overheating and burn out these turns. Severe shorting of many turns will cause the engine to be badly loaded without a load connected to the generator. Replace stator.
9. Loose or poor connection	Check tightness of all terminal screws. Check all connections for signs of wearing which would indicate poor connections and loss of voltage and power.
10. Excessive brush wear	If brushes are shorter than 5/16", replace.
11. Severely coated slip ring	Ring can become severely coated, particularly if operated in a high oil atmosphere. Re-polish slip rings with extra fine sandpaper. <u>WARNING, DO NOT USE EMERY PAPER!</u>
12. Defective outlet receptacles	Replace.

TROUBLE SHOOTING CHART (Cont)

Cause	Remedy
13. Reactor polarity reversed	Check color coding against wiring diagram or reverse connections of series winding at reactor.
14. Extreme overload connected to generator	Remove load.
15. Faulty carburetion	Check engine service manual.
16. Out of gasoline	Add gas.
17. Out of oil	Add oil and operate engine at 1/4 load for approximately 2 hours to permit any possible scoring to "heal" before applying full load.
18. Engine speed too high	Check for sticky governor. Re-set governor for 3600 rpm at full load. (See page 2.)
19. Open rotor circuit	Check for continuity; if open, replace.
20. Polarity reversed at slip ring	Read brush polarity with dc voltmeter. The positive brush must be nearest the rotor bearing. If not, connect accordingly.
21. Bearing not properly secured	When re-assembling a unit, always clean thoroughly and apply Loc-tite to the outside and inside diameter of bearing before inserting into place.
22. Rotor through-bolt loose	Tighten.

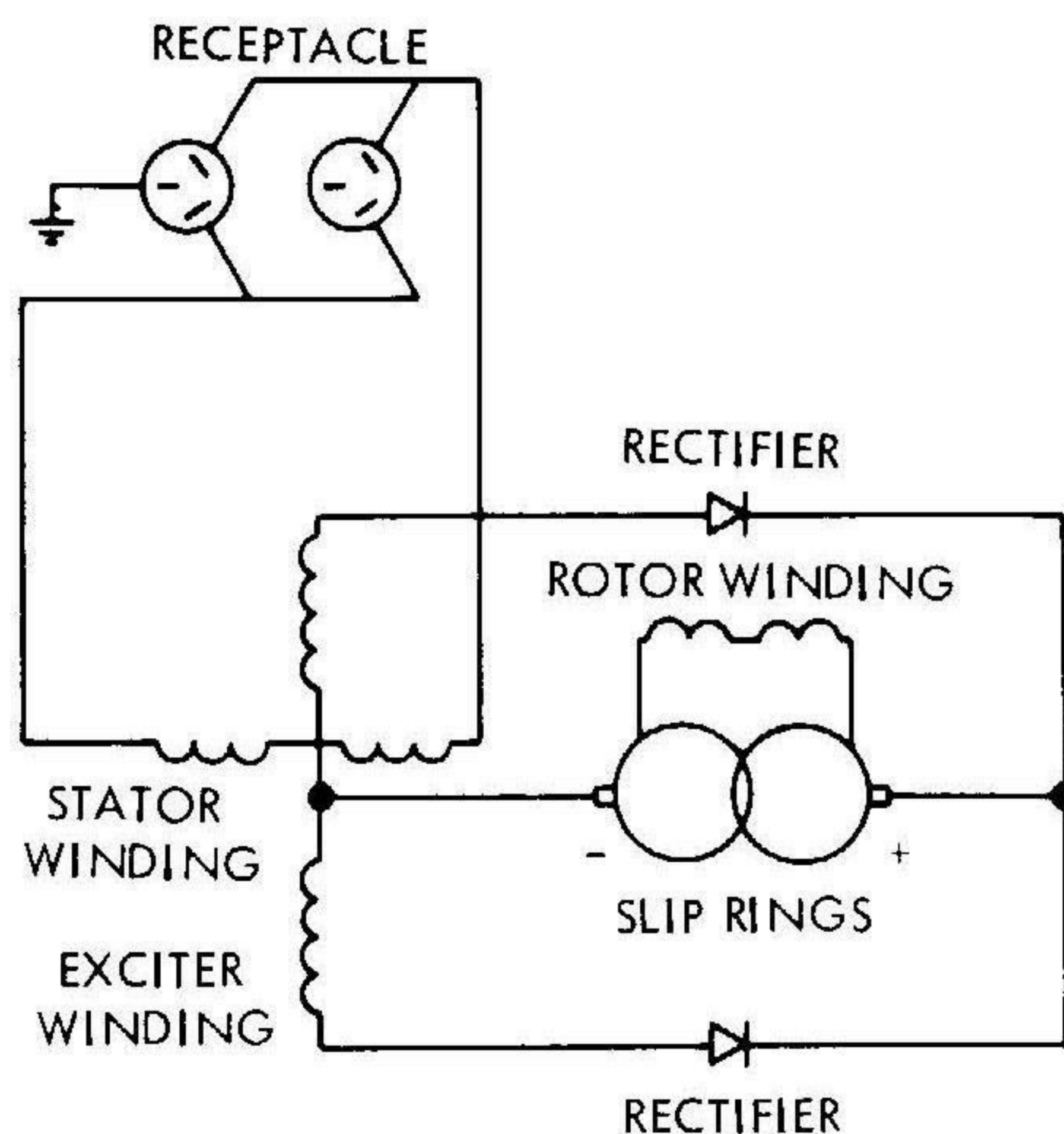


Figure 7. Schematic Diagram, 1250, 1500 and 2000 Watt Units - 115 Volts

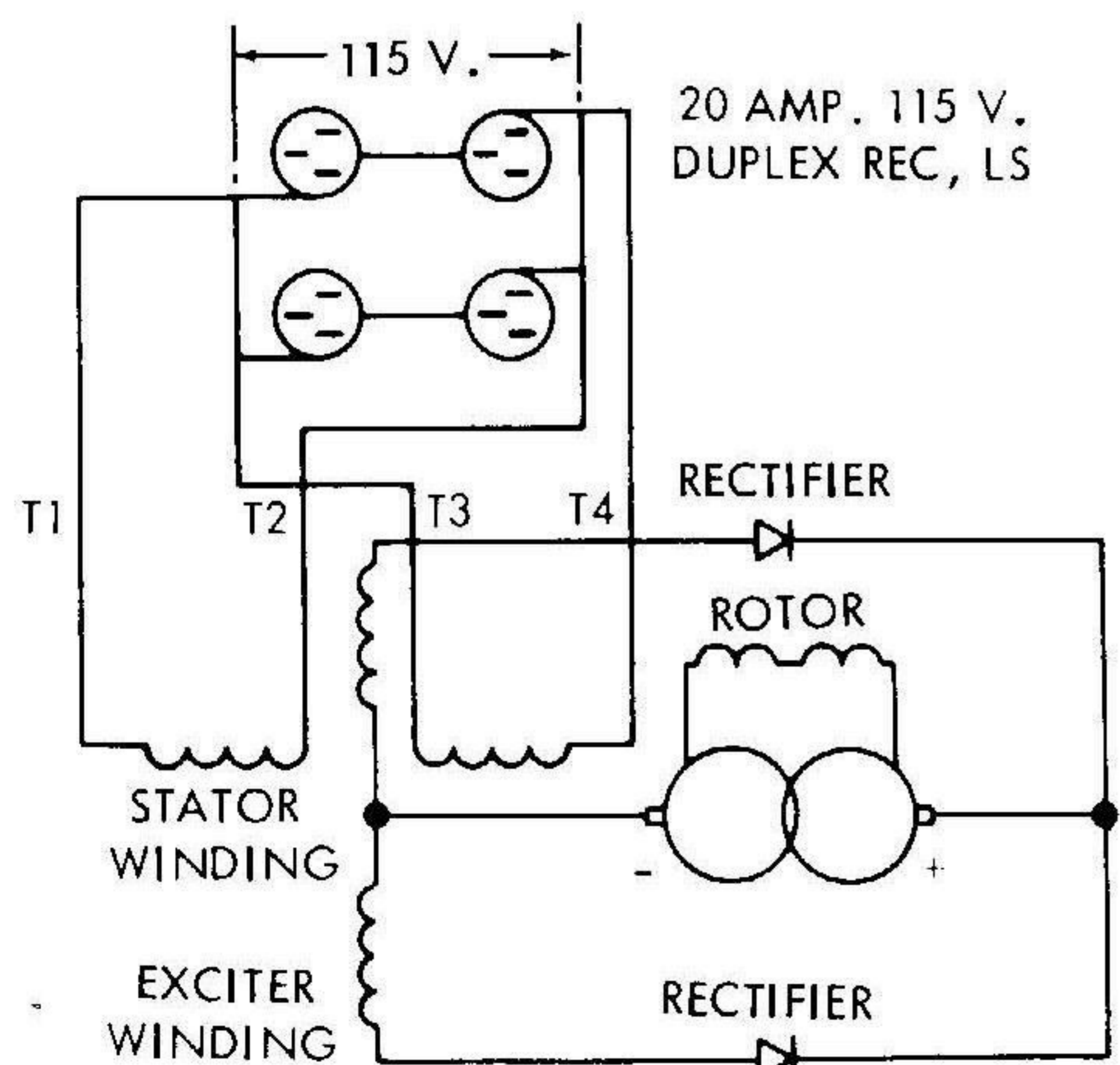


Figure 8a. Schematic Diagram, 3000 and 4000 Watt Units - 115 volts

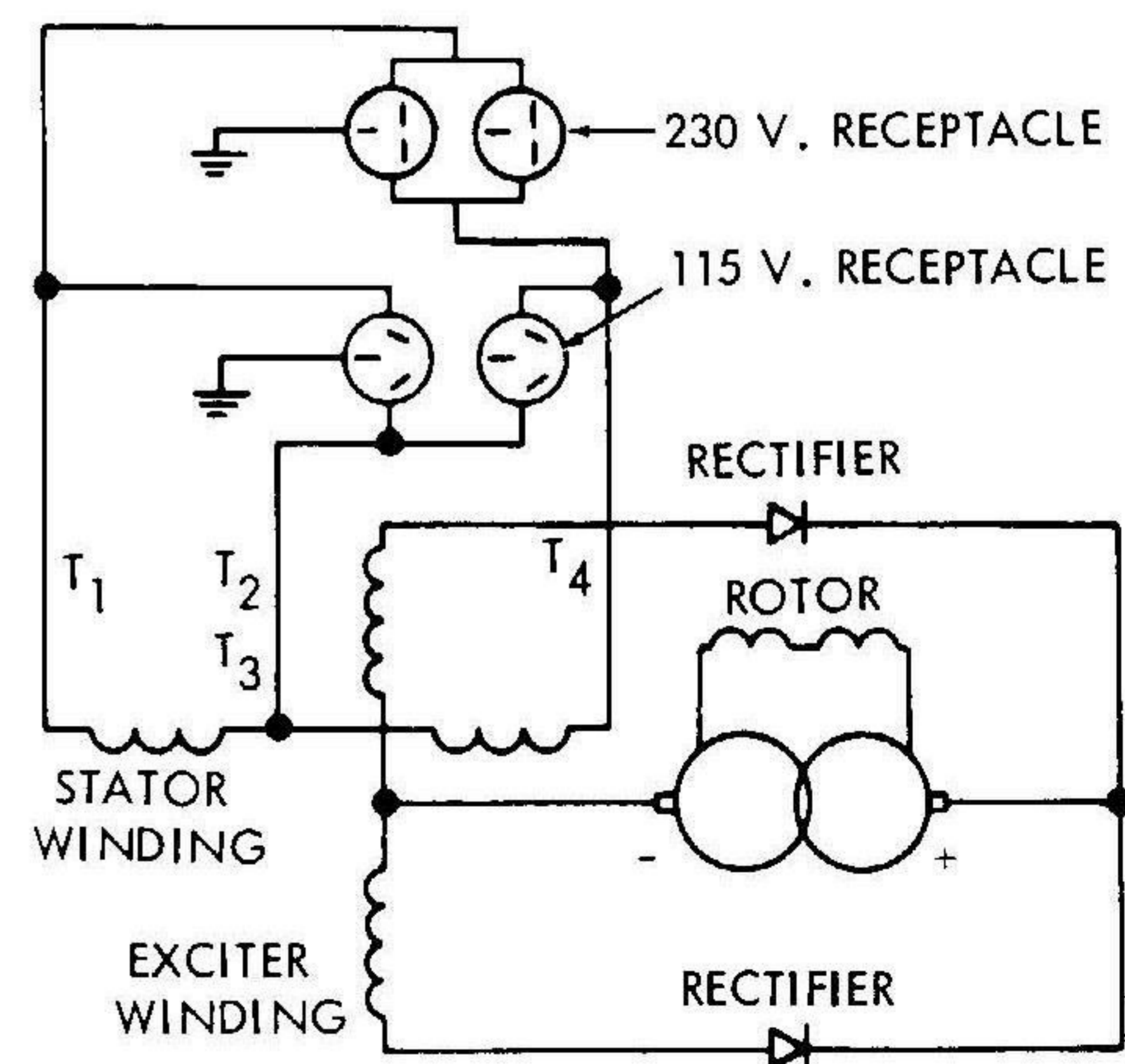


Figure 8b. Schematic Diagram, 3000 and 4000 Watt Units - 115/230 Volts

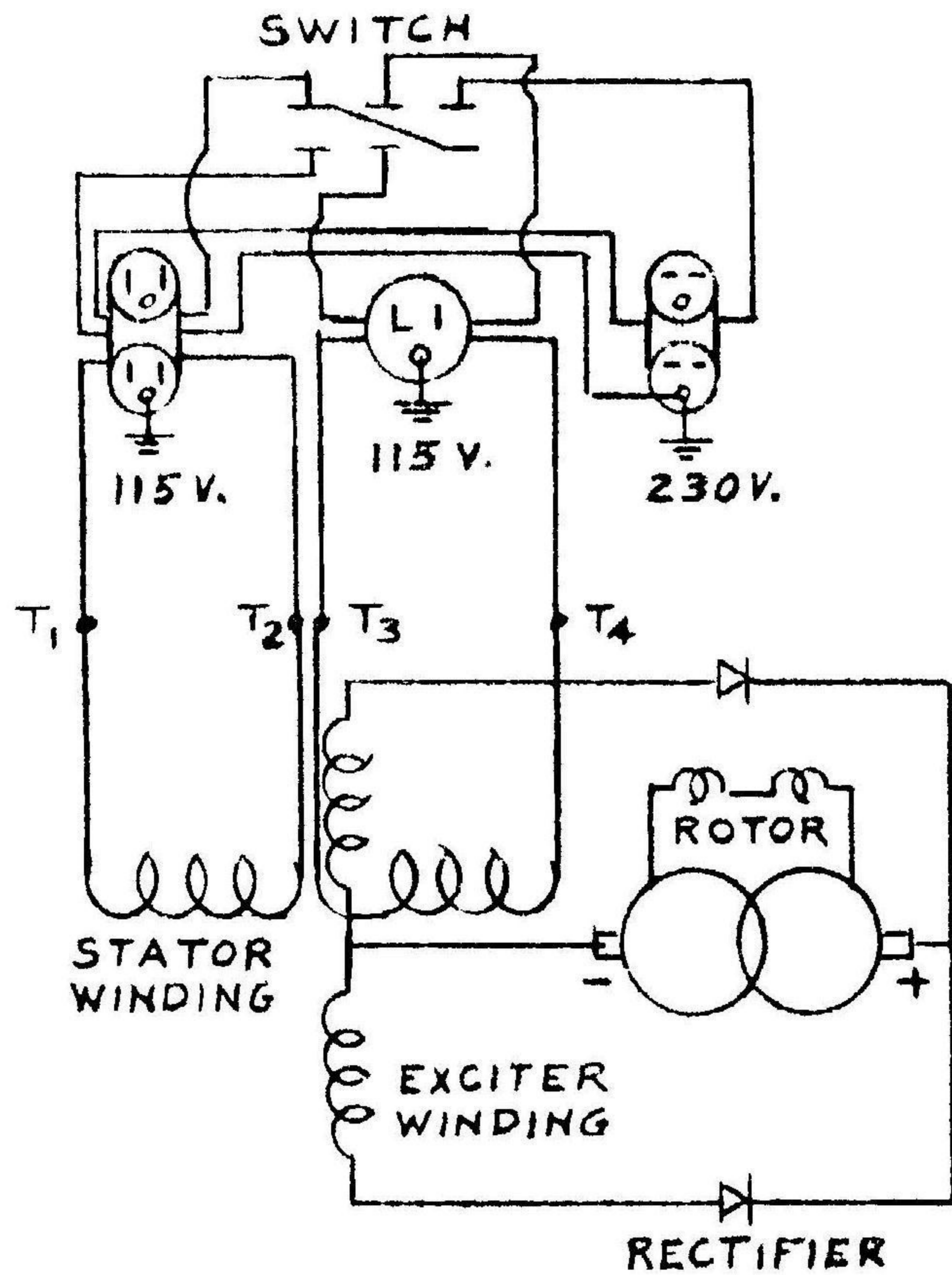


Figure 8c. Schematic Diagram, Full Power, 30 AMP Receptacle Circuit, RF 3000HDV and RF 4000HDV

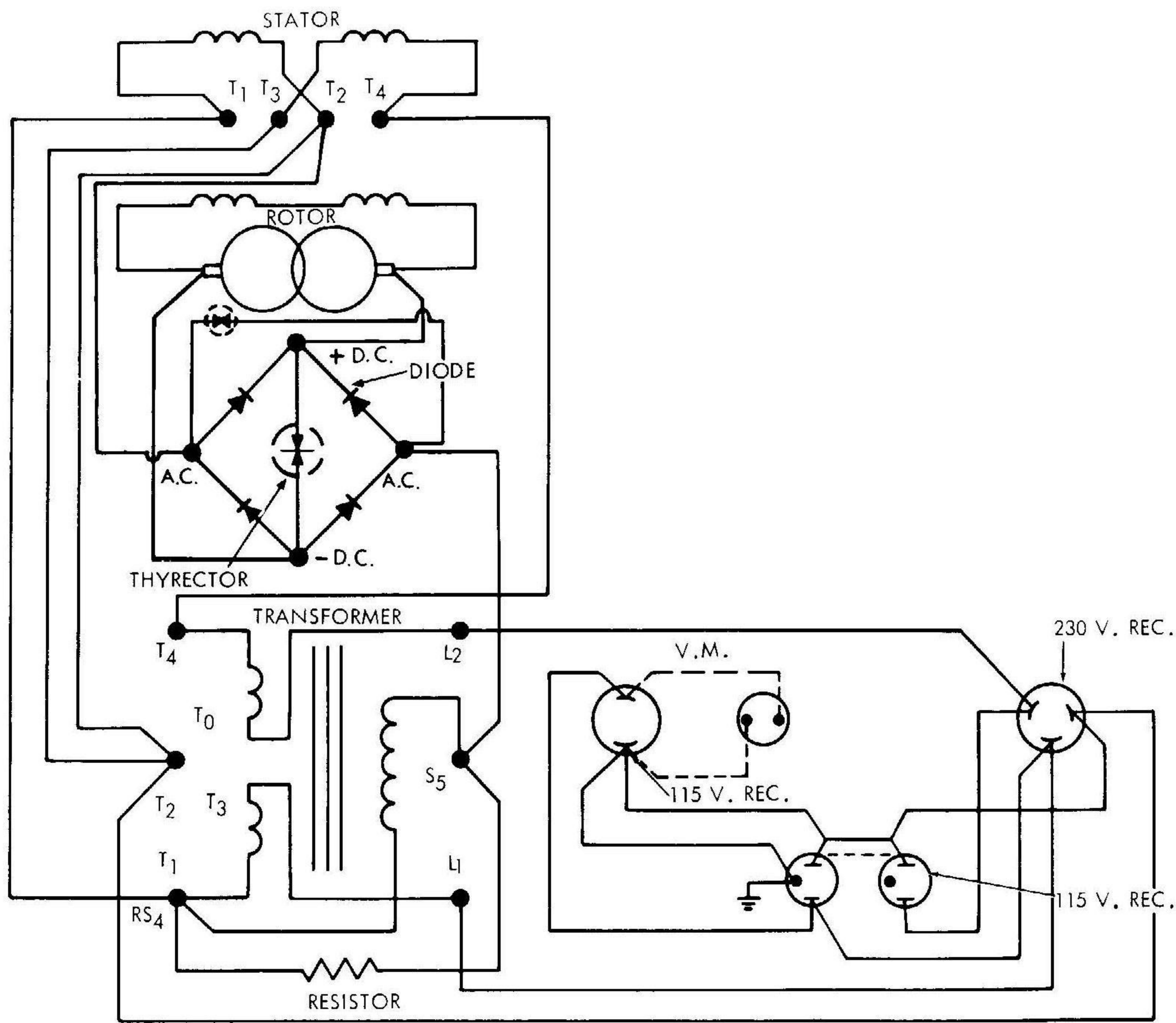


Figure 9a. Schematic Diagram, 5500 Watt Units - Manual Start

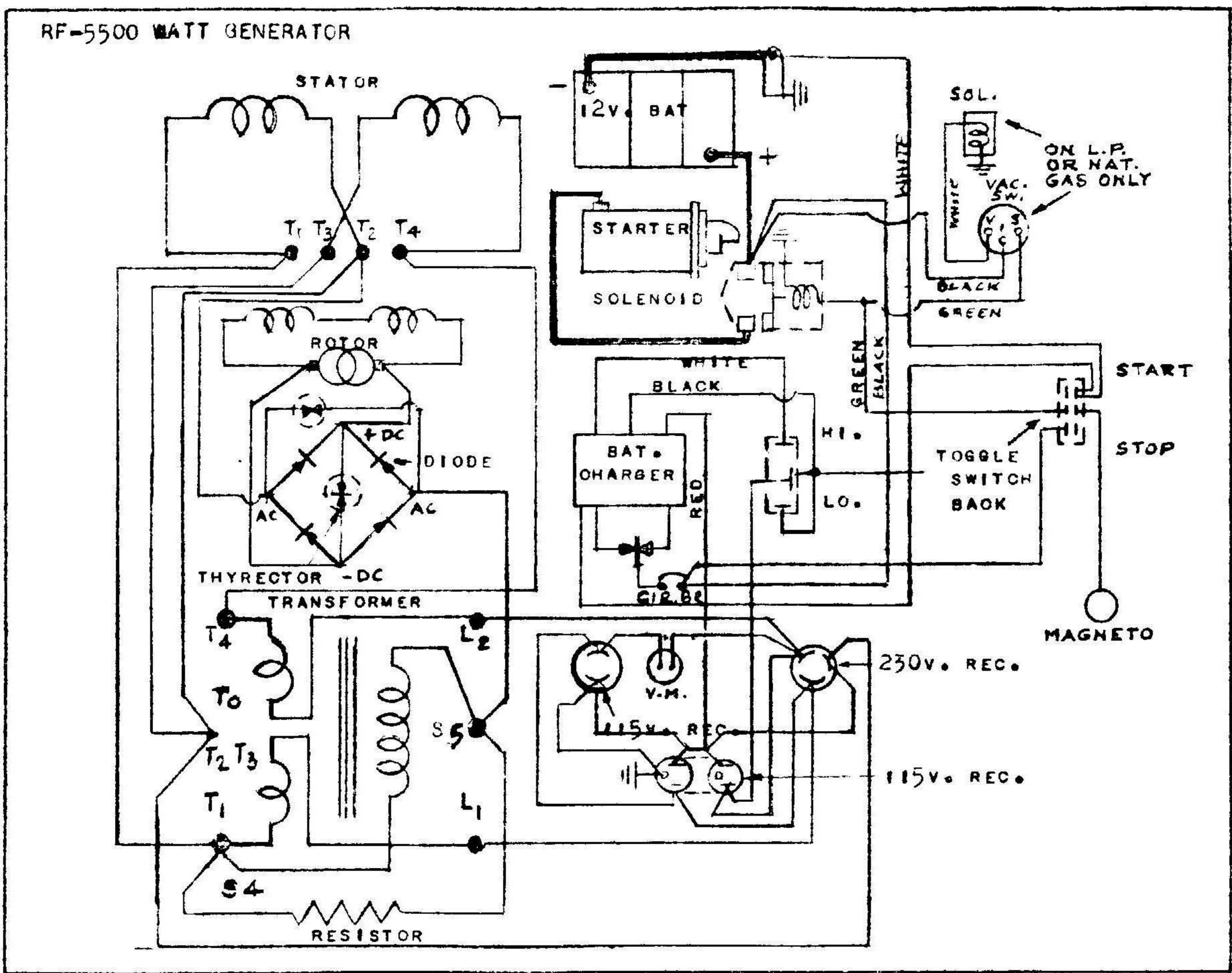


Figure 9b. Schematic Diagram, 5500 Watt Units - Electric Start

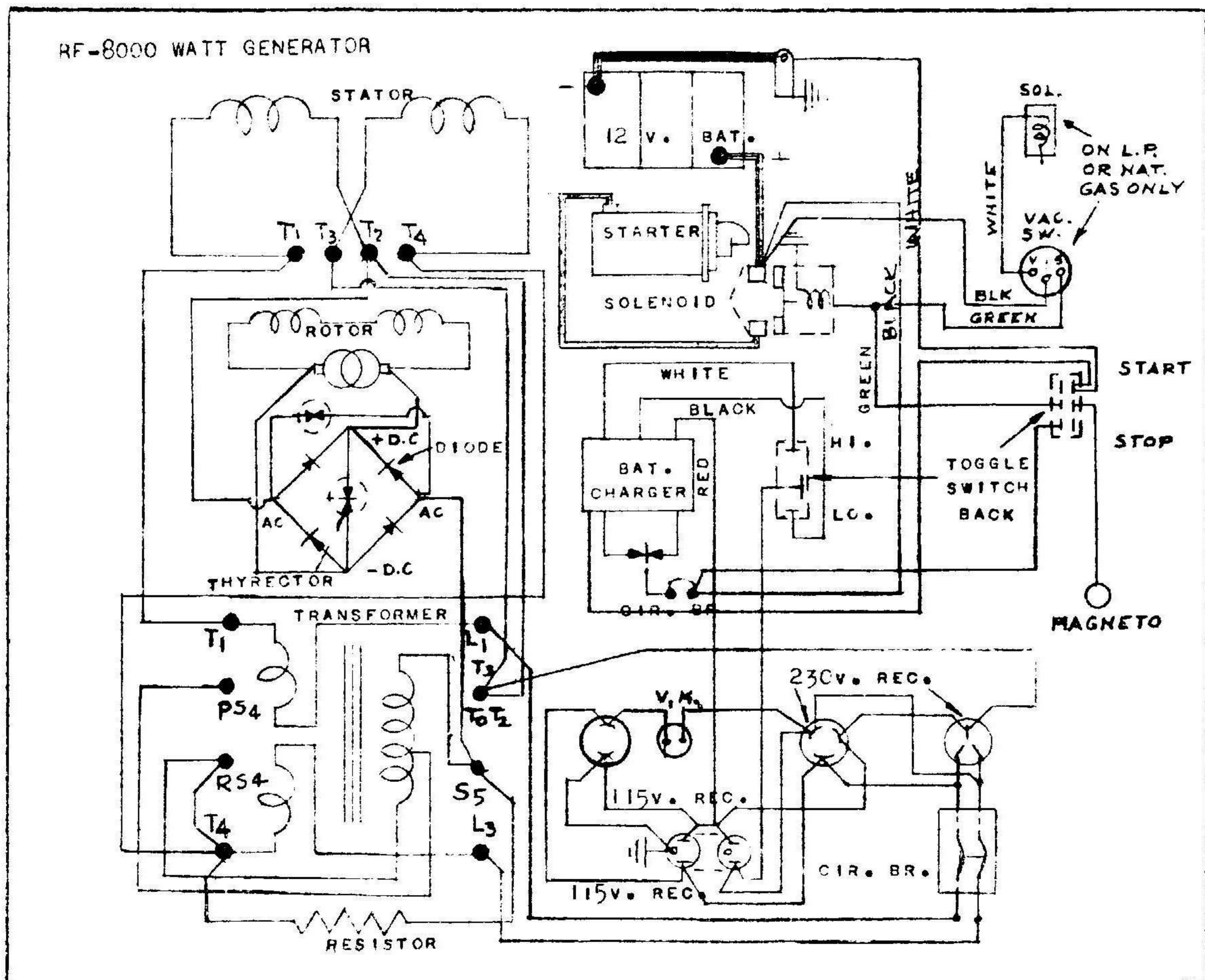


Figure 10a. Schematic Diagram, 8000 Watt Units - Electric Start

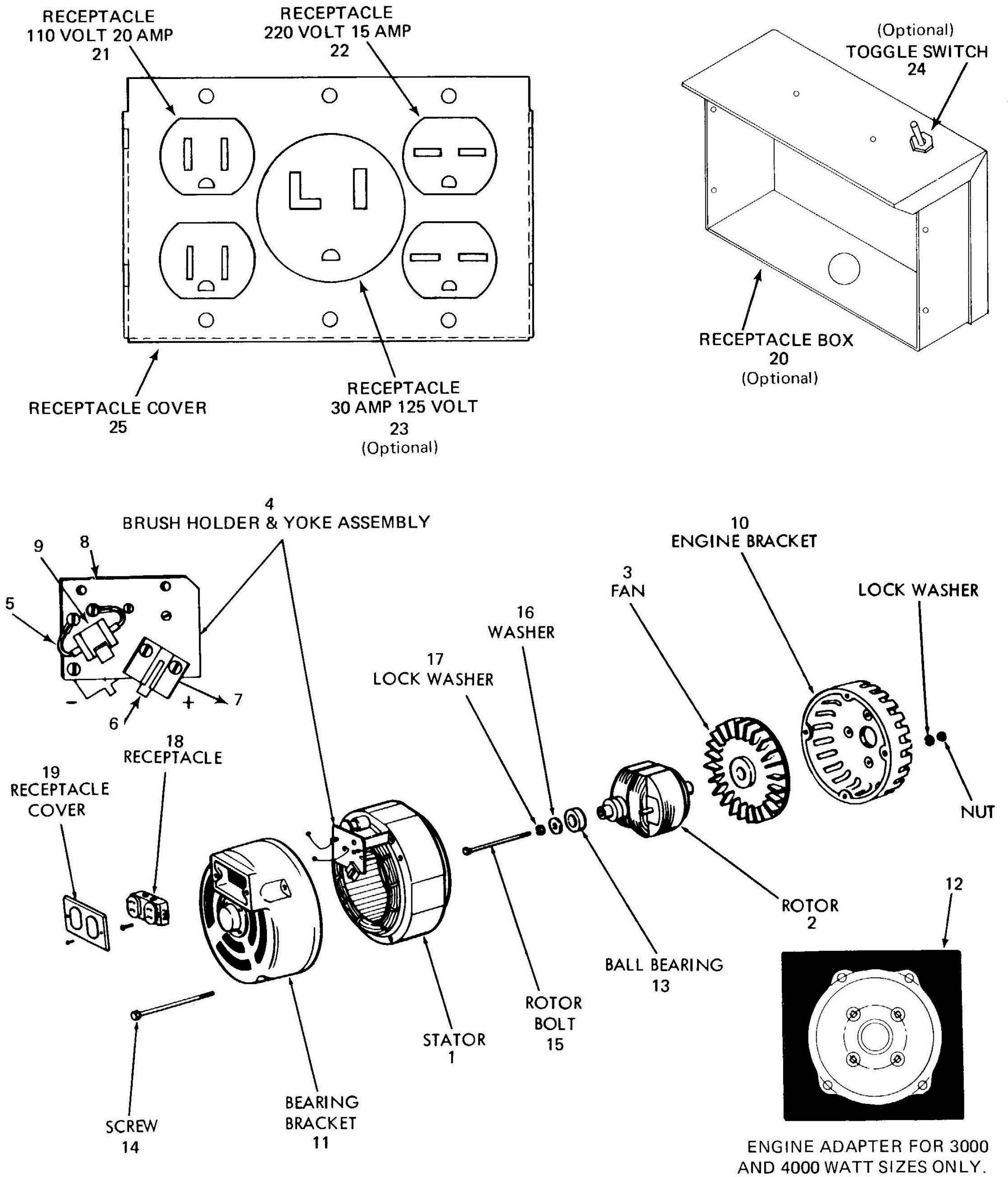


Figure 11. Repair Parts for Models RF1250, RF1500, RF2000, RF3000 and RF4000

REF. NO.	PART NO.	DESCRIPTION	RF 1250	RF 1500	RF 2000	RF 3000	RF 4000
1	RF-000-GR-1 RF-000-GR-2 RF-000-GR-3 RF-000-GR-4	Stator Stator Stator Stator	1	1	1	1	1
2	RF-500-GR-1 RF-500-GR-2 RF-500-GR-3 RF-500-GR-4	Rotor w/Fan Rotor w/Fan Rotor w/Fan Rotor w/Fan	1	1	1	1	1
3	16296	Fan	1	1	1	1	1
4	RF-650-GR 1 RF-650-GR 9	Brush Holder and Yoke Brush Holder and Yoke	1	1	1	1	1
5	17976	Rectifier	2	2	2	2	2
6	12212	Brush and Spring	2	2	2	2	2
7	16306	Brush Holder	2	2	2	2	2
8	16307	Brush Holder Plate	2	2	2	2	2
9	16244	Clamp	1	1	1	1	1
10	16302-1	Engine Bracket	1	1	1	1	1
11	16303	Bearing Bracket	1	1	1	1	1
12	16303-1 16371 16372	Bearing Bracket Engine Adapter Engine Adapter				1	1
13	15535	Ball Bearing	1	1	1	1	1
14	16350-2	Screw 1/4-20 x 4-1/2	4	4	4	4	4
NS	16373 16374 17827	Screw 1/4-20 x 5-1/4 Stud Screw 1/4-20 x 7-1/2 Hex Nut 1/4"-20	4	4	4	4	8
15	11056 8258	Rotor Bolt 5/16-24 x 5 Rotor Bolt 5/16-24 x 5-1/4	1	1	1	1	1
16	16375 16397 13631	Rotor Bolt 5/16-24 x 6 Rotor Bolt 5/16-24 x 7-7/8 Washer	1	1	1	1	1
17	1590	Lockwasher 5/16	1	1	1	1	1
18	16310	Receptacle 110 V 15 Amp	1	1	1	1	1
19	16308 19397	Receptacle Cover Receptacle Cover	1	1	1	1	1
20	19598	Receptacle Box			1	1	1
NS	15271	Receptacle Box (Standard)			1	1	1
21	16378	Receptacle 110 V 20 Amp			1	1	1
22	16379	Receptacle 220 V 15 Amp			1	1	1
23	19600	Receptacle 30 A 125 V			1	1	1
24	19601	Toggle Switch (full power)				1	1
NS	19617	Plug 30 A				1	1
25	19599	Receptacle Cover (optional)				1	1
NS	15272	Receptacle Cover (standard)				1	1
NS	16312 16376	Handle Handle	1	1	1	1	1
NS	16377	Skid					1
NS	13401	Bumper	3	3	3	4	6
NS	16365	Rubber Mount					6
NS	19048	Muffler	1	1	1	1	1
NS	19050	Muffler				1	1
	19052	Muffler					1
	19056	Muffler Band	1	1	1	1	1
	19068	Muffler Bracket	1	1	1	1	1
	19086	Muffler Bracket				1	1
	18929	Muffler Clamp	1	1	1	1	1
	19105	Muffler Clamp					1
	18936	Pipe Elbow	1				
	19065	Pipe Elbow		1	1		
	19070	Channel Base	1	1	1		
	17032	Channel Base				1	
	16541	Channel Base					2

NS -- Not Shown in Drawing

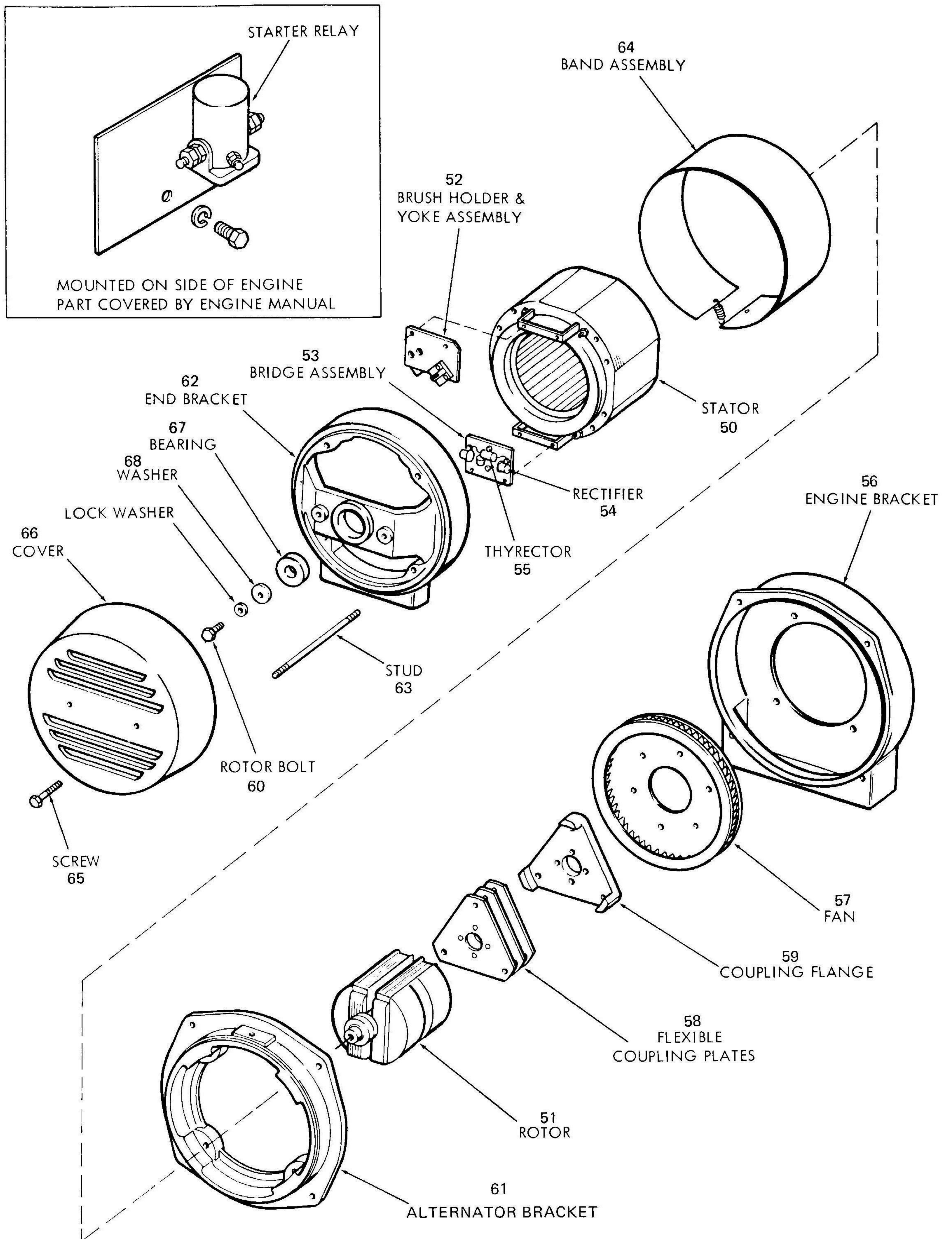


Figure 12. Repair Parts for Models HPG-27346A and HPG-27347A

REF. NO.	PART NO.	DESCRIPTION	RF 5500	RF 8000
50	RF 000-Gr. 11	Stator	1	—
	RF 000-Gr. 12	Stator	—	1
	RF 500-Gr. 12	Rotor	1	—
51	RF 500-Gr. 11	Rotor	—	1
52	RF 650-Gr. 5	Brush Holder and Yoke	1	1
53	RF 650-Gr. 11	Bridge Assembly	1	1
54	17976	Rectifier	4	4
NS	17690	Thyrector (Rectangular)	1	1
55	17842	Thyrector (Round)	1	1
56	17532	Engine Bracket	1	—
	17238	Engine Bracket	—	1
NS	2689	Hex Bolt 7/16-14 X 1	4	—
NS	5090	Hex Bolt 7/16-14 x 2	—	4
NS	3712	Lockwasher 7/16	4	4
57	17548	Fan	1	1
58	16634	Coupling Plate	5	5
59	17539	Coupling Flange	1	—
	17233	Coupling Flange	—	1
NS	7799	Key 1/4 x 1/4 x 1-3/4	1	—
NS	16645	Key 3/8 x 3/8 x 1-3/4	—	1
NS	17447	Set Screw 1/2-13 x 5/8	2	2
60	16653	Hex Bolt 5/16-24 x 3/4 Rotor Bolt	1	1
NS	1590	Lockwasher	11	11
NS	3848	Hex Bolt	4	4
61	17242	Alternator Bracket	1	1
62	17239	End Bracket	1	1
63	17527	Studs	4	—
NS	17827	Hex Nut 1/4-20	4	4
NS	17065	Screw 10-32 x 3/8	4	4
64	17531	Band	1	—
	17534	Band	—	1
NS	55-052	Locknut 1/4-20	1	1
65	77-179	Hex Bolt 1/4-20 x 1-3/8 Lg.	2	2
NS	16901	Hex Bolt 5/16-18 x 1-1/4	4	4
66	17241	Cover	1	1
67	15535	Ball Bearing	1	1
68	13631	Washer	1	1
63	17526	Stud	—	4
	5090	Hex Bolt 7/16-14 x 2	—	4
	17540	Skid Assembly	1	—
	17681	Skid Assembly	—	1
	17529	Shock Mounts	—	4
	16365	Shock Mounts	6	2
	17541	Engine Support	2	—
	17578	Alternator Support	—	1
	17579	Spacer	—	2
	17543	Engine Support	1	—
	17542	Spacer	2	—

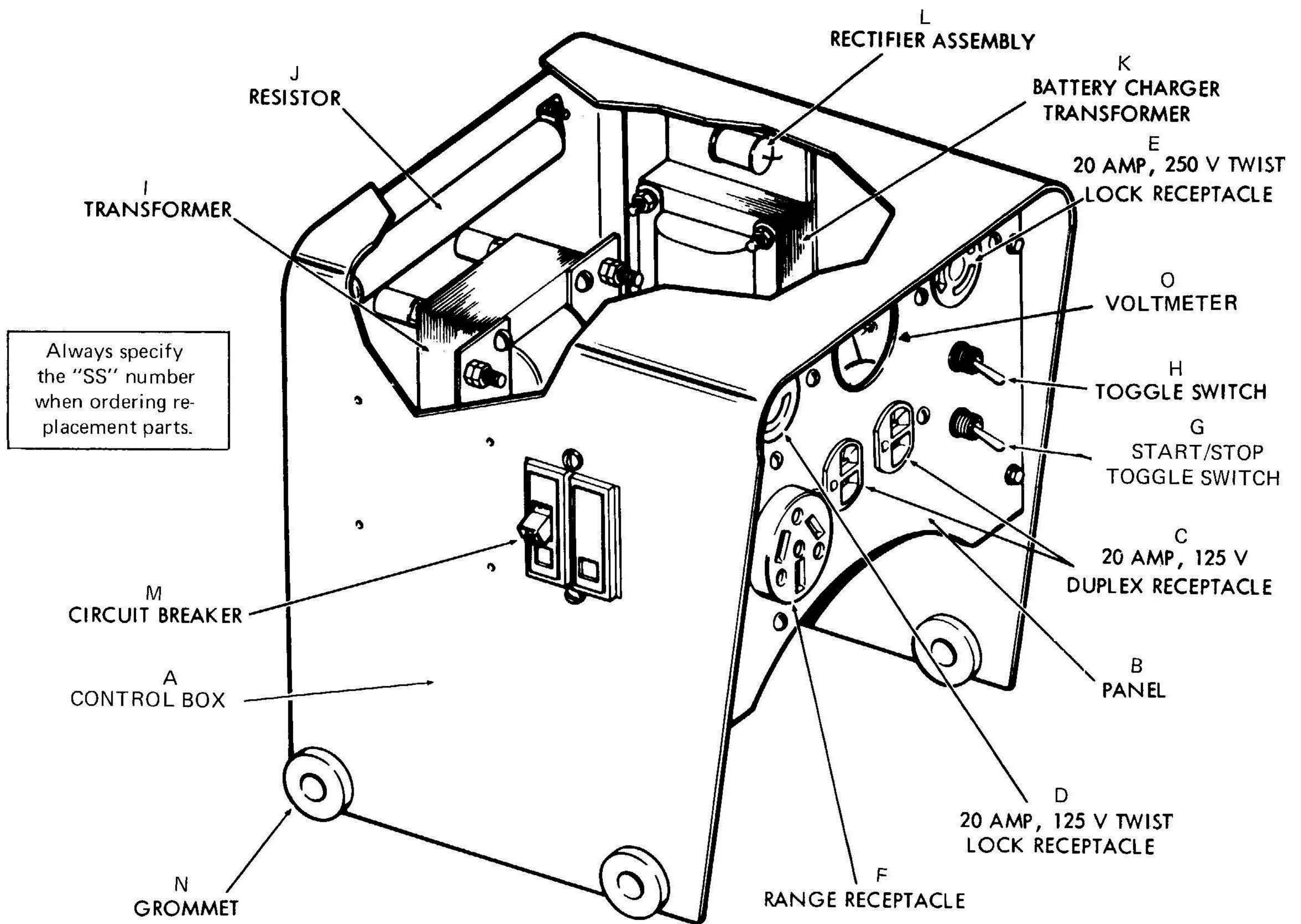


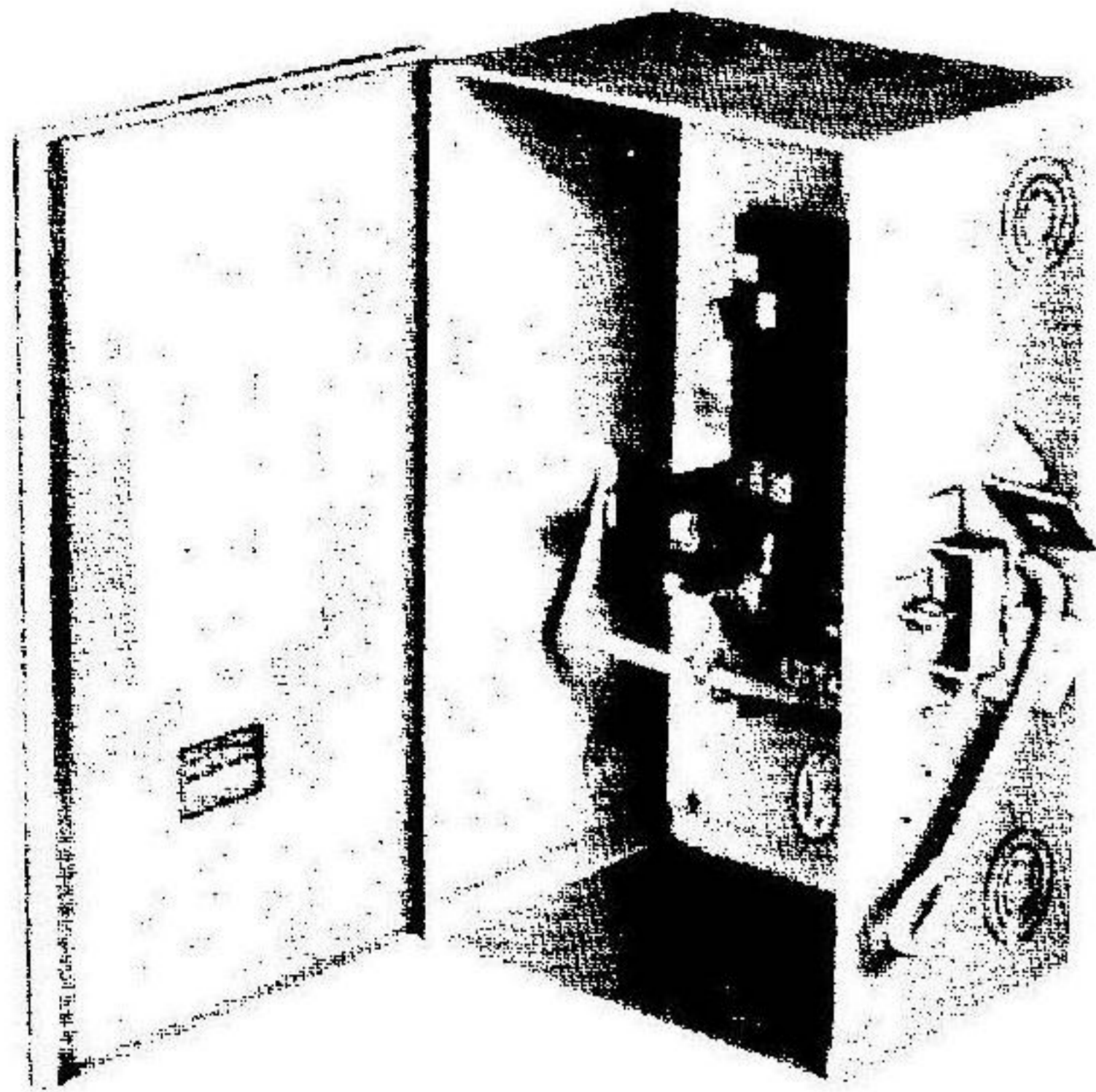
Figure 13. Repair Parts for Control Box

REF. NO.	PART NO.	DESCRIPTION	RF 5500	RF 8000
A	D-17552	Control Box	1	—
	E-17567	Control Box	—	1
B	C-17553	Panel	1	—
	C-17569	Panel	—	1
C	A-16378	Duplex Receptacle, 20 Amp., 125 V.	1	1
D	A-19953	Receptacle, 20 Amp., 125 V	1	1
E	A-14845	Receptacle, 20 Amp., 250 V	1	1
F	A-17074	Range Receptacle	—	1
G	A-15311	Toggle Switch (Start, Stop)	1	1
H	A-17464	Toggle Switch (Hi-Lo)	1	1
NS	A-2314	Push Button Switch	1	1
I	C-17563	Field Transformer	1	—
J	C-17575	Field Transformer	—	1
	A-17556	Resistor, 50 Ohm, 50 Watt	1	—
	B-17692	Resistor, 50 Ohm, 100 Watt	—	1
	B-17554	Battery Charger Assembly	1	—
NS	B-17554-1	Battery Charger Assembly	—	1
K	B-17281	Transformer (Battery Charger)	1	1
NS	A-17297	Battery Charger Board	1	1
L	A-17976	Rectifier Assembly	2	2
M	A-17670	Circuit Breaker, 5 Amp., 12 V.	1	—
	A-17687	Circuit Breaker, 40 Amp.	—	1
N	A-17701	Grommet	4	4
O	A-15203	Voltmeter (0-300)	1	1

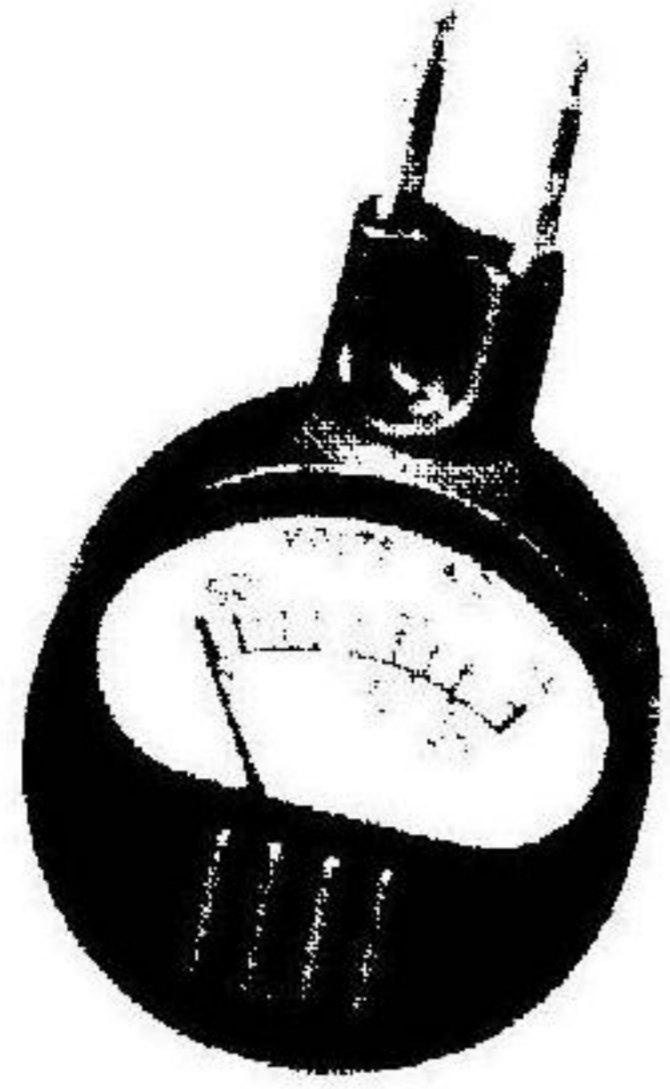
HERE IS THE REFERENCE MATERIAL FOR YOUR CUSTOM DESIGNED MODEL SS

PINCOR

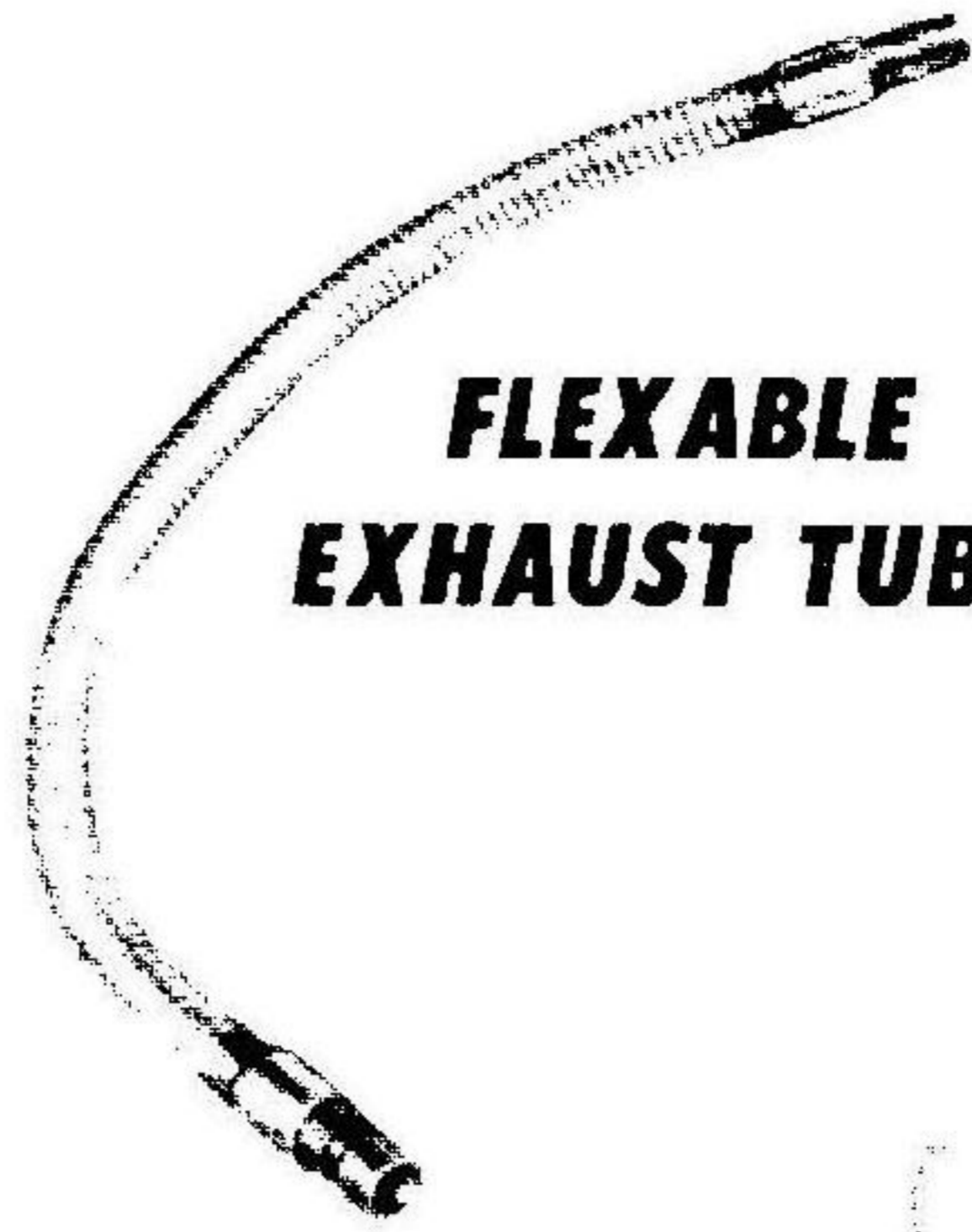
ACCESSORIES



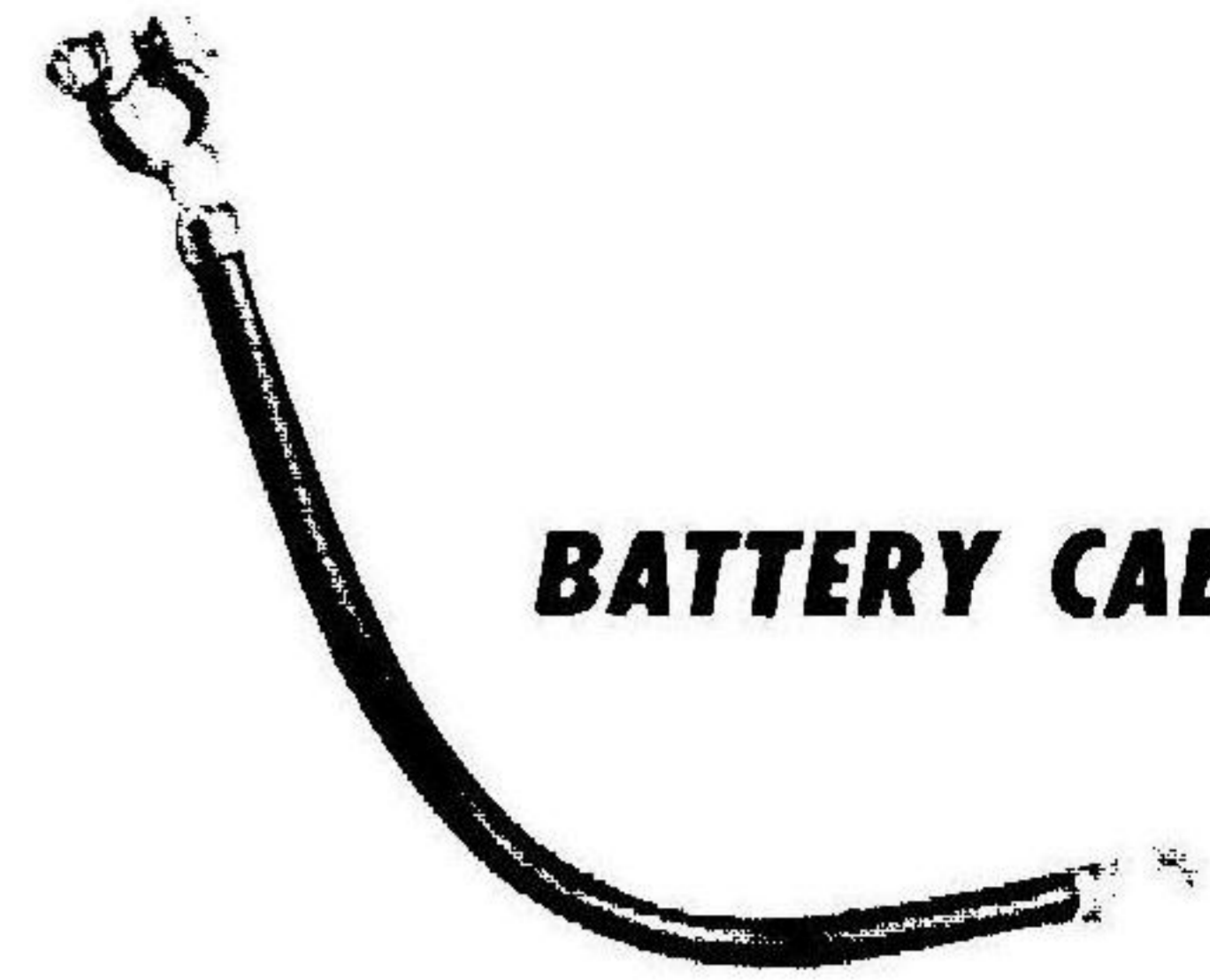
**MANUAL
TRANSFER PANEL**



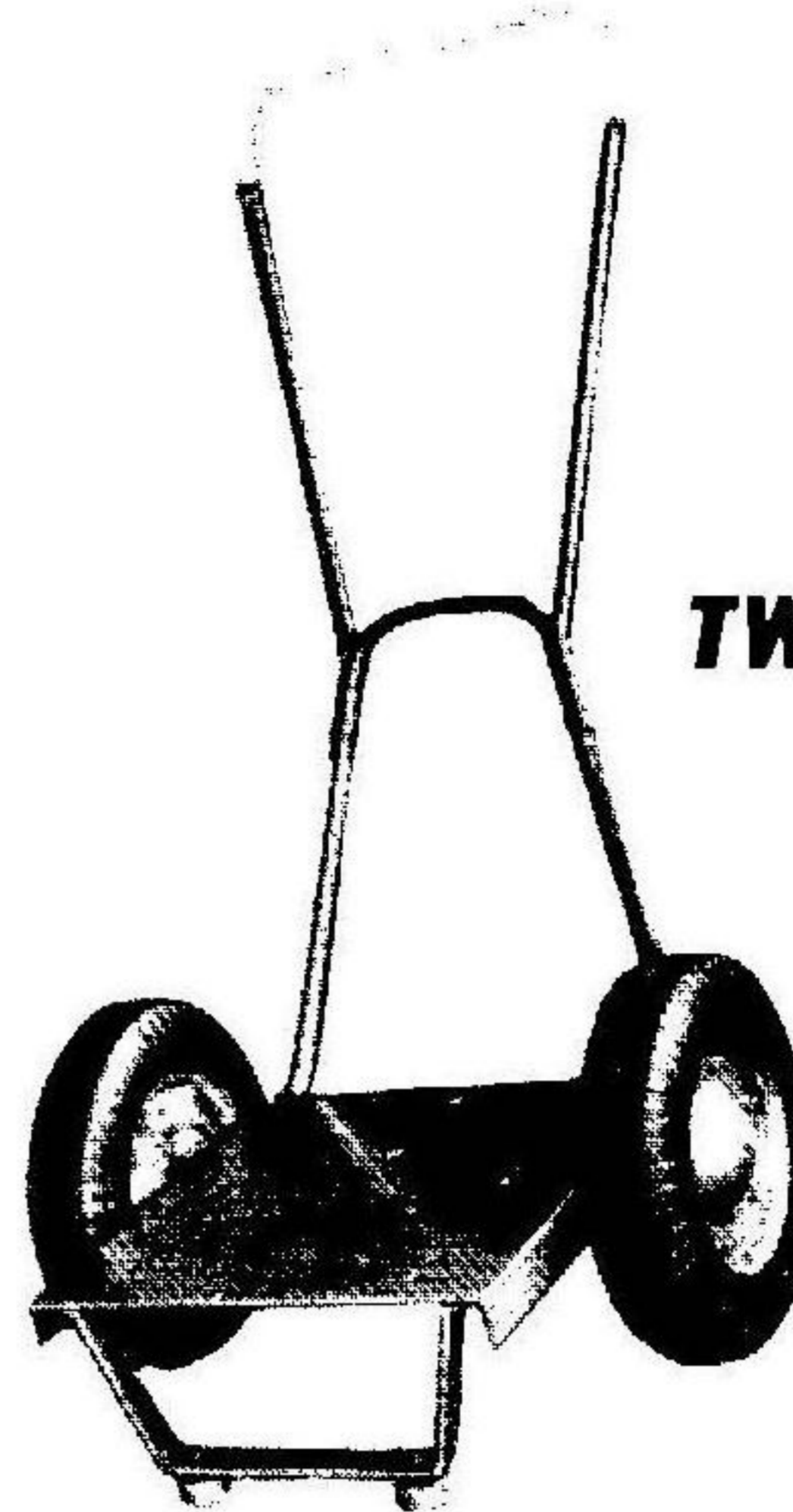
PLUG IN VOLT METER



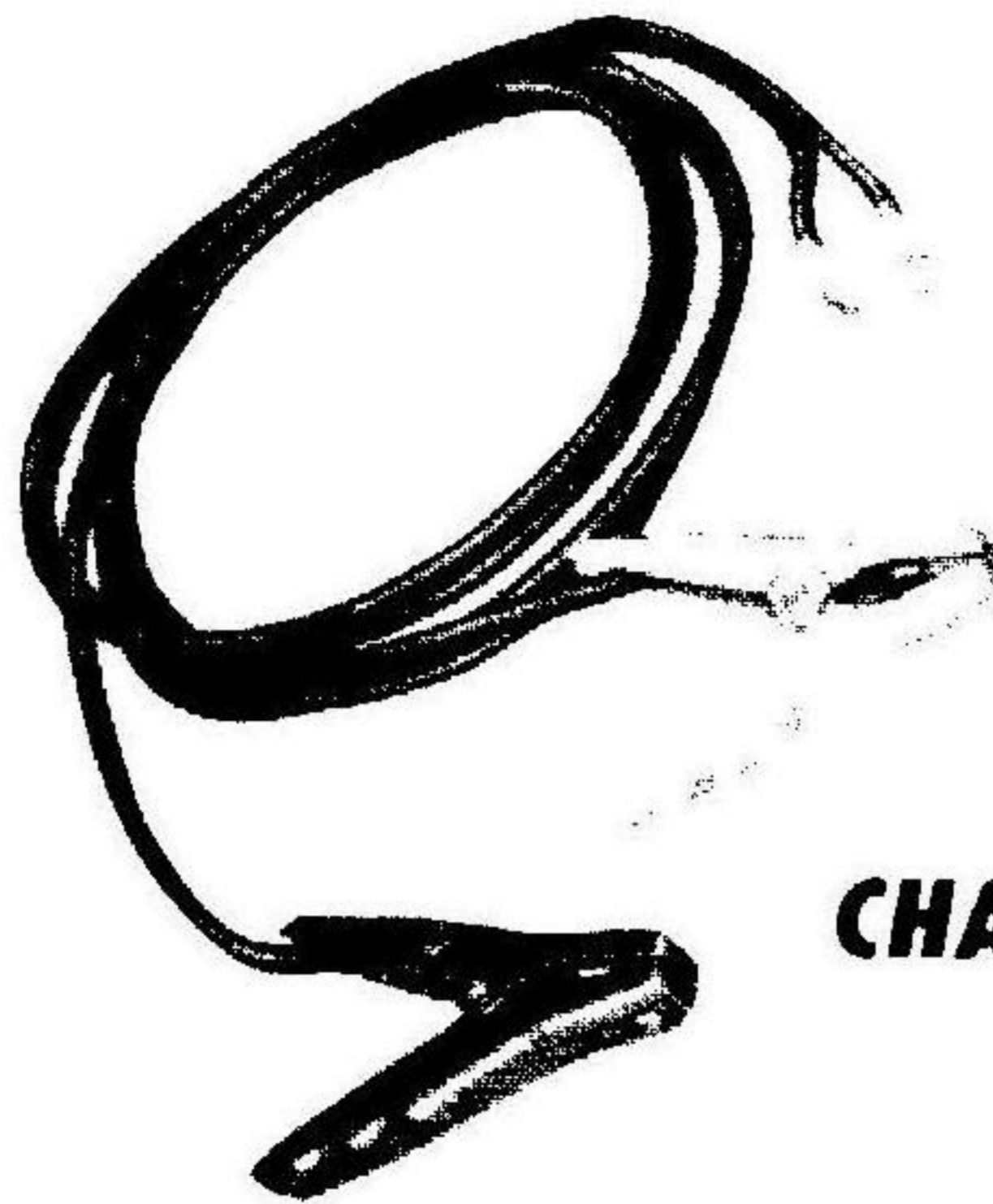
**FLEXIBLE
EXHAUST TUBE**



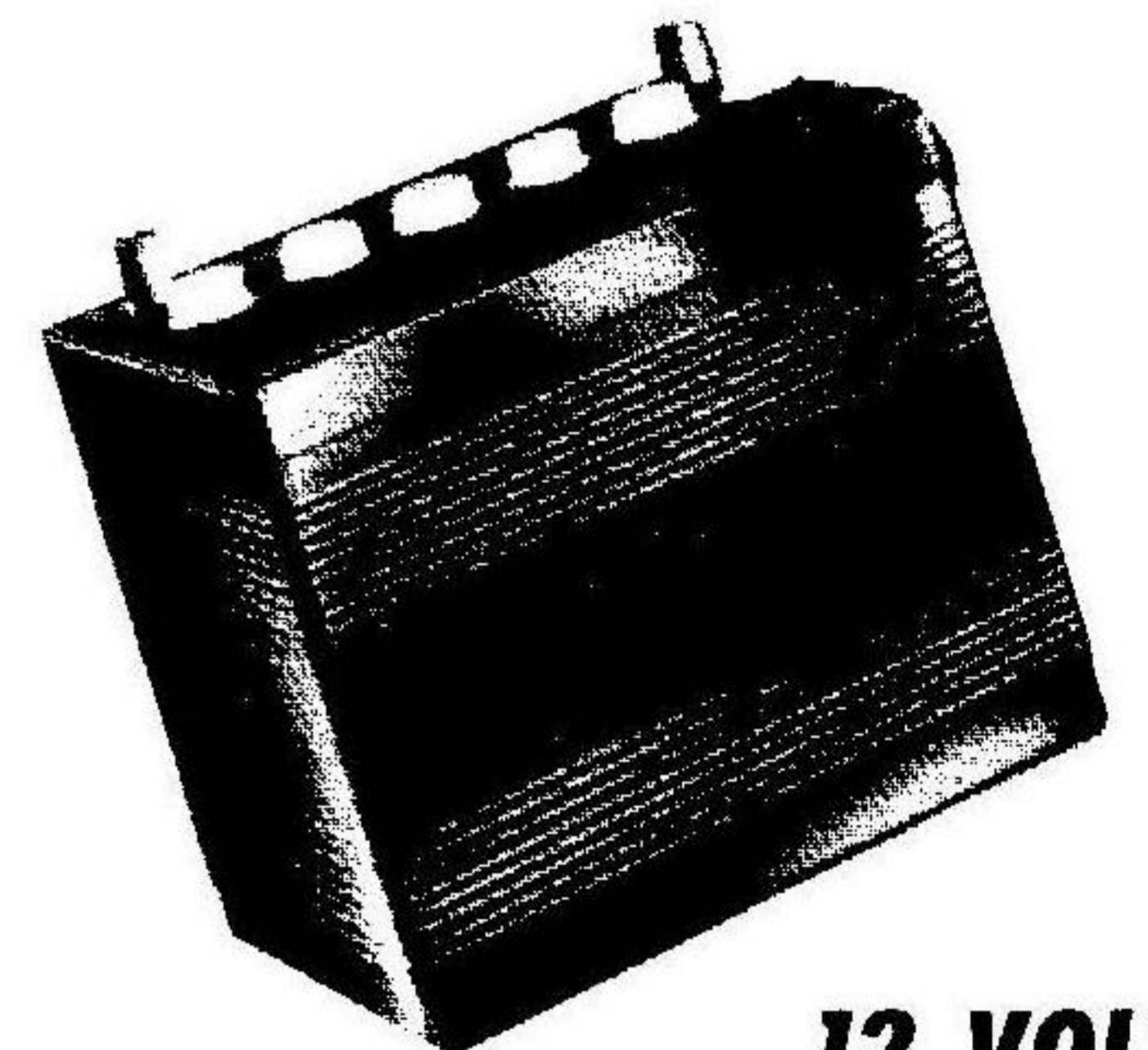
BATTERY CABLE KITS



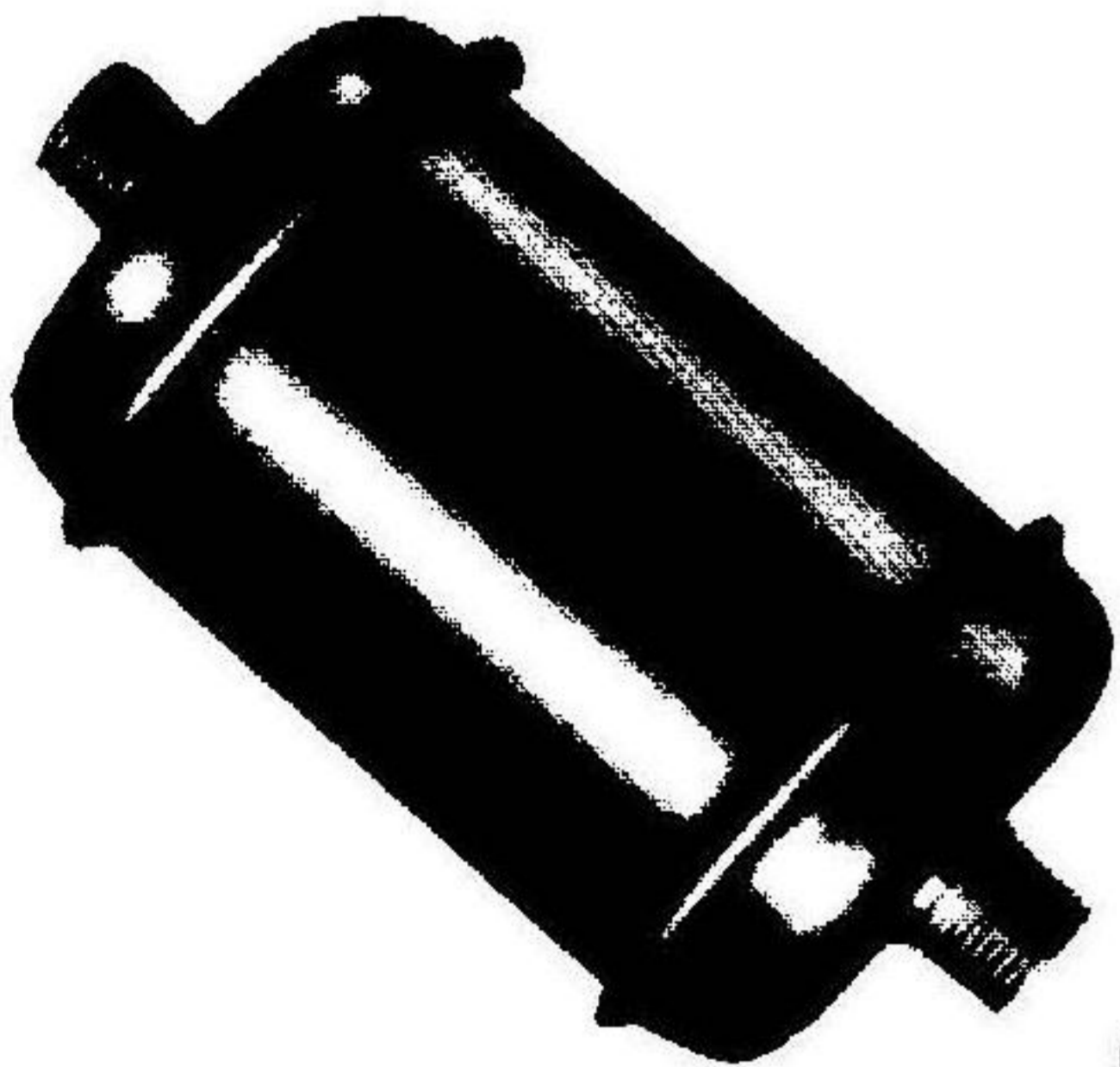
TWO WHEEL DOLLY



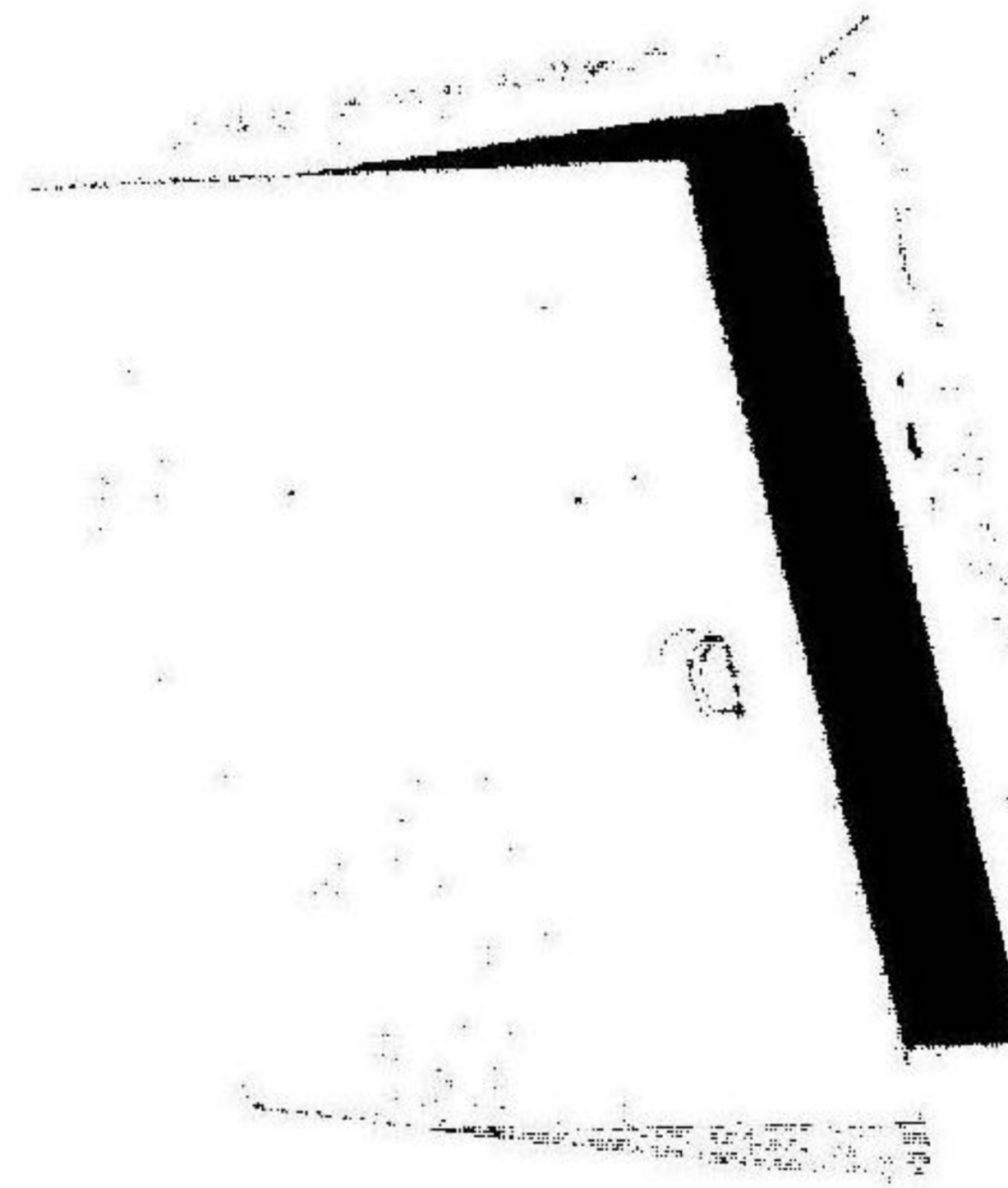
**BATTERY
CHARGING CABLES**



**12 VOLT
STARTING BATTERY**



SILENCING MUFFLER



**AUTOMATIC
TRANSFER PANEL**

• • • WARRANTY • • •

Pioneer Gen-E-Motor Corporation hereby guarantees for a period of one year as hereafter stated, that Pincor Generators are free from defects in material and workmanship if properly installed, serviced and operated under normal conditions according to our instructions.

The Manufacturer's obligation under this warranty is limited to correcting without further charge at its factory, any part or parts thereof which shall be returned transportation charges prepaid, and which upon examination shall disclose to the factory's satisfaction to have been originally defective. The warranty period of one year shall commence on the date of invoice to the original purchaser. This warranty does not apply to any of the manufacturer's products which may be replaced because of normal wear, which have been subject to misuse, negligence or accident or which have been repaired or altered outside of the manufacturer's factory unless authorized by the company.

The Manufacturer shall not be liable for loss, damage or expense directly or indirectly from the use of the product or from any other cause.

This Warranty supersedes and is in lieu of all other Warranties expressed or implied and of all other liabilities or obligations on the part of Pincor Generator Division. No person, agent or dealer is authorized to give any warranties on behalf of the Manufacturer or assume for the Company any other liability in connection with any of its products unless made in writing and signed by an official of Pioneer Gen-E-Motor Corporation.

WHEN POWER FAILS

SINCE 1932

Mfg. by Pioneer Gen-E-Motor Corporation, 5841 West Dickens Avenue
Chicago, Illinois 60639, phone 312-237-4100 U.S.A.

PINCOR
Products