SURGE

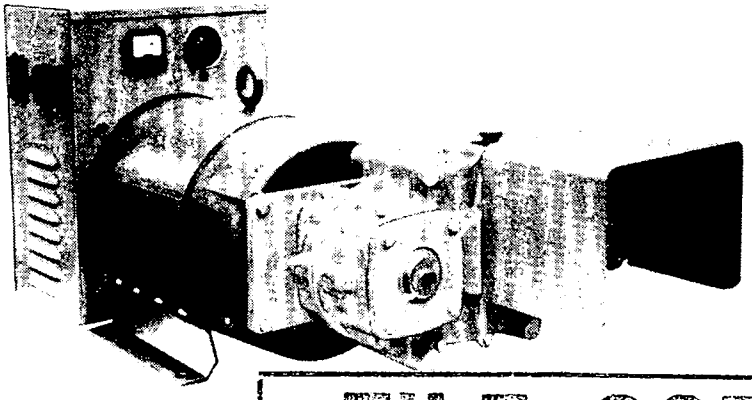
PTO-POWERED ALTERNATORS

OPERATORS MANUAL

AND PARTS CATALOG

15 KW

MODEL NO. 20004



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GENERAL INFORMATION

INTRODUCTION

This manual contains information for the proper installation, operation and maintenance of your alternator. We suggest you keep this book handy so it can be referred to when necessary.

If you wish to contact your dealer regarding this equipment, be sure to supply the complete MODEL NUMBER and the full SERIAL NUMBER of your equipment. This information is necessary to identify your equipment among the many units manufactured.

DESCRIPTION

These 15 KW models are revolving armature, 3600 RPM, 2 pole alternators with rectifier excitation. This eliminates the need for a commutator or commutator brushes. Output voltage is inherently regulated to produce a non-fluctuating source of electrical power. The alternator is completely wired internally and connected to the output receptacles. No further wiring is required nor recommended. The alternator is gear driven by a standard tractor PTO.

CAUTION *This alternator cannot be belt driven.*

The unit is complete with lifting eye, mounting feet, mounted gear box with splined shaft and safety shield and a mounted control box.

The control box contains a voltmeter; two 70 ampere circuit breakers for alternator protection; one 240 volt, 50 ampere, 3 blade range receptacle; one 120/240 volt, 60 ampere full output receptacle (3 blade with grounding post); and one duplex 120 volt, 15 ampere (fused) receptacle (see Figure 1). An auxiliary field timer switch is also provided which can be manually set for time intervals up to five minutes to provide added field strength when required for starting larger electric motors.

OPTIONAL ACCESSORIES

Power Take-Off Shaft: Telescoping, shielded, heavy duty power take-off shafts, recommended for use with PTO powered, gear drive alternators, provide maximum safety for the operator. The splined universal joint with snap ring type shield and quick disconnect feature, fits a 1-3/8 inch tractor PTO drive. Telescoping power take-off shaft operating lengths are: minimum 45 inch, maximum 60 inch; weight 35 pounds. Six spline universal for 520 rpm PTO.

SPECIFICATIONS

Watts	15,000 @ 1.0PF
Volts	120/240
Phase	1
Cycles	60
Current (Amperes)	63
Wire	3
Alternator Speed (RPM)	3600
Tractor PTO Speed (RPM)	520
Minimum Horsepower Required, Driving Source	30
Weight (Generator Set)	300

Gear Reduction Unit	VonRuden	Apex
Gear Ratio	6.9 to 1	6.78 to 1
Gear Box Oil Capacity, Pints (SAE 90)	1-1/2	2
Gear Box Weight	76	84
Tractor PTO Speed (RPM)	520	530

INSTALLATION

LOCATION

Select a site for the alternator with the following points in mind:

1. Ventilation: The alternator creates considerable heat when operating under load conditions. It is important that this heat be dissipated by proper ventilation. If installing the alternator inside a small room or compartment, provide a vent for entry of fresh, cool air. Provide a separate vent for exhausting the air heated by the alternator. Locate the heated air exhaust vent above the inlet vent. Heated air is discharged from the driveshaft end of the alternator.

WARNING *EXHAUST GAS IS DEADLY! If operating alternator inside a building, provide adequate ducting for tractor exhaust fumes.*

2. Convenience to Driving Power: Locate the alternator for easy connection to the tractor. Align the power take-off to the alternator. Stay within the limits of the power take-off shaft.
3. Dusty or Damp Condition: Avoid excessively dusty or damp conditions as much as possible. Dust and dirt are enemies of any piece of machinery. The alternator is drip proof in design, but unnecessary exposure to moisture should be avoided. The alternator should be mounted under cover or inside a building to protect it from the weather.
4. Servicing Convenience: Allow at least 24 inches of space on all sides of the alternator for convenient servicing.
5. Wiring Convenience: Do not locate the alternator in a location difficult to service or which would have poor ventilation, to save a few feet of wiring. Install the alternator as close to the load transfer switch as possible. Do not move the load transfer switch to the alternator. Refer to INSTALLING THE LOAD TRANSFER SWITCH.

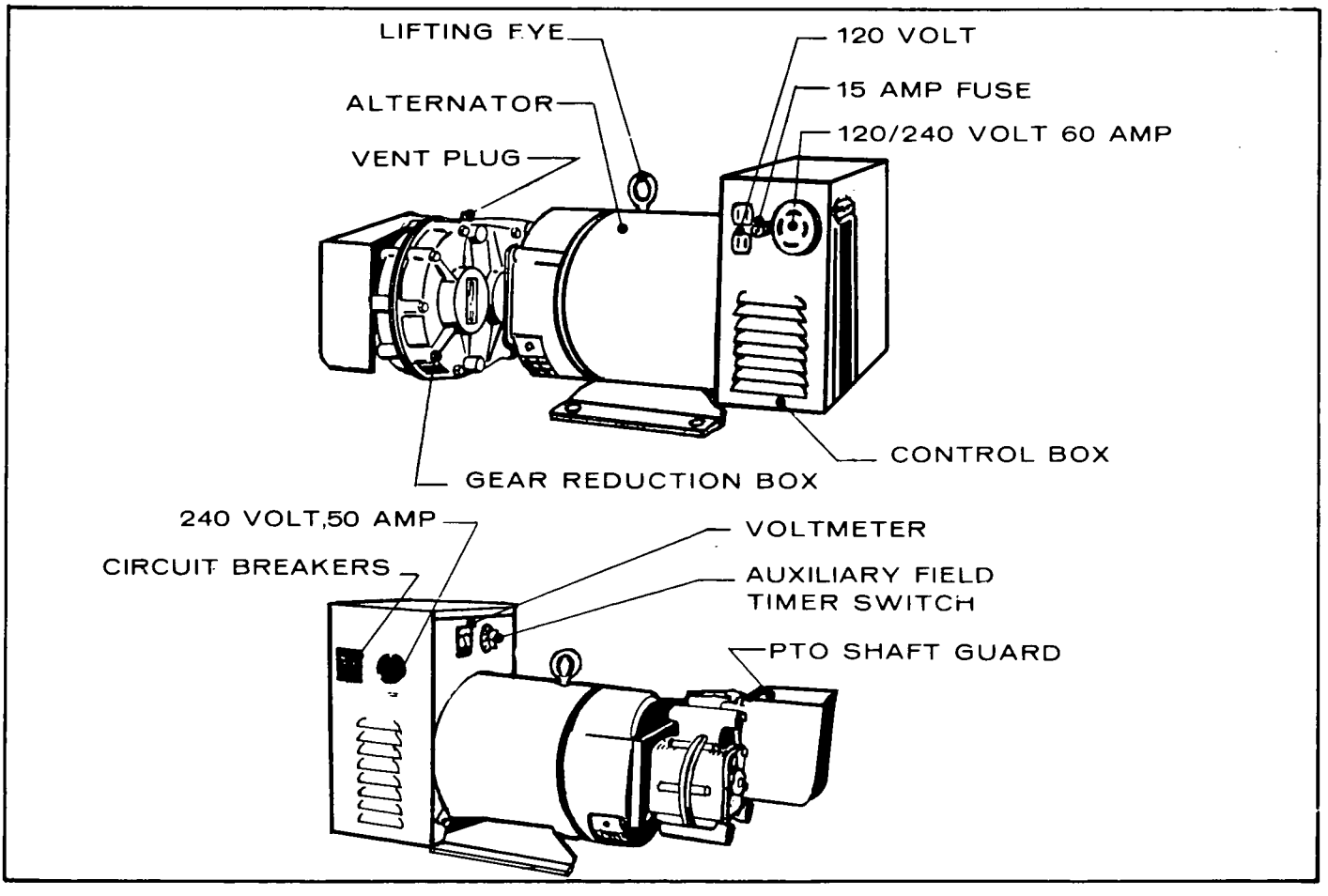


FIGURE I. ALTERNATOR DESCRIPTION

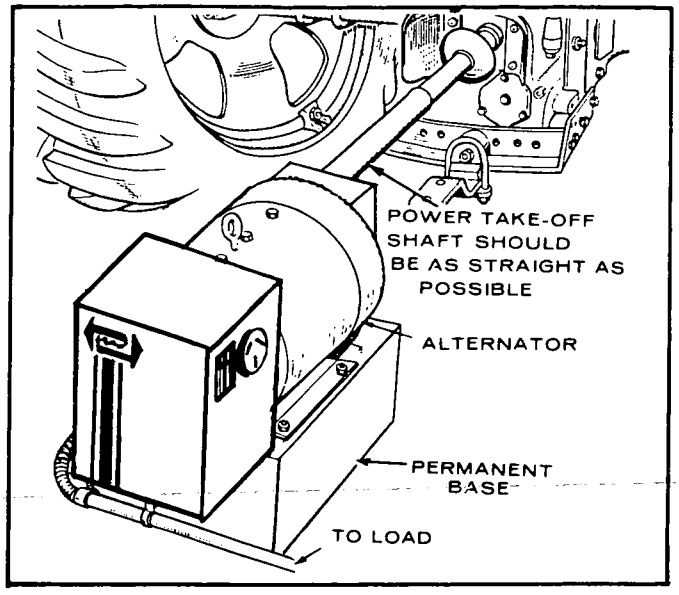


FIGURE 2. TRACTOR CONNECTION

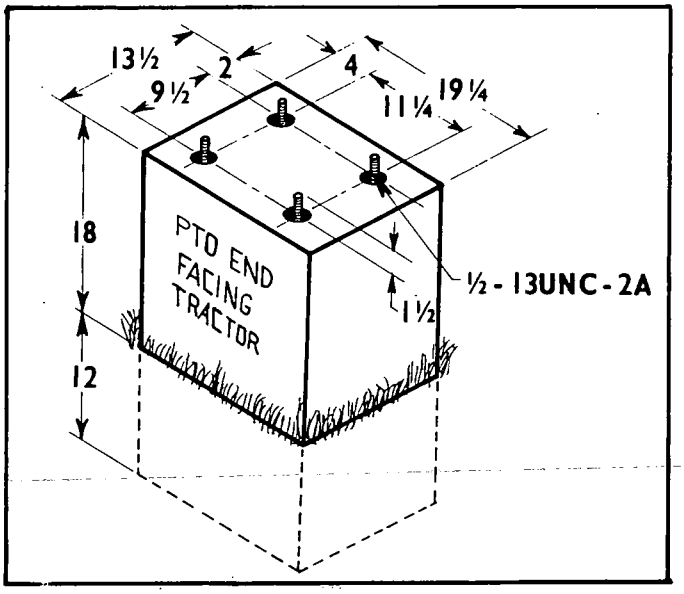


FIGURE 4. RECOMMENDED MOUNTING BASE

MOUNTING THE ALTERNATOR

Provide a substantial mounting base of concrete, wood or steel and use large bolts. The surface of the mounting base should be flat so that the alternator mounting brackets will not be sprung when tightening into place. It should be possible to turn the shaft by hand after the alternator is bolted down.

CAUTION *To develop 15 KW requires 30 to 35 horsepower at the power take-off. The torque will flip the alternator over unless secured to a strong substructure. A narrow (30 inch) trailer is not suitable for operation. A 40 inch hub to hub minimum measurement is required.*

Be sure that the alternator is properly aligned with the driving mechanism and that it will stay in alignment.

INSTALLING THE LOAD TRANSFER SWITCH

Before using the alternator for standby purposes, install a DOUBLE THROW LOAD TRANSFER SWITCH. The switch must have an ampere rating large enough to carry the total load when the main source of power is in use. Follow the local electrical code. The load transfer switch should always be installed close to the main line switch, and between the main line switch and the load. When properly installed, the load transfer switch in one position will connect the electrical load to the highline. When the load transfer switch is thrown to the other position, the load is first disconnected from the main source of power, and then connected to the tractor alternator. Using the load transfer switch makes it impossible to connect the alternator to the main source of power. The load lines must connect to

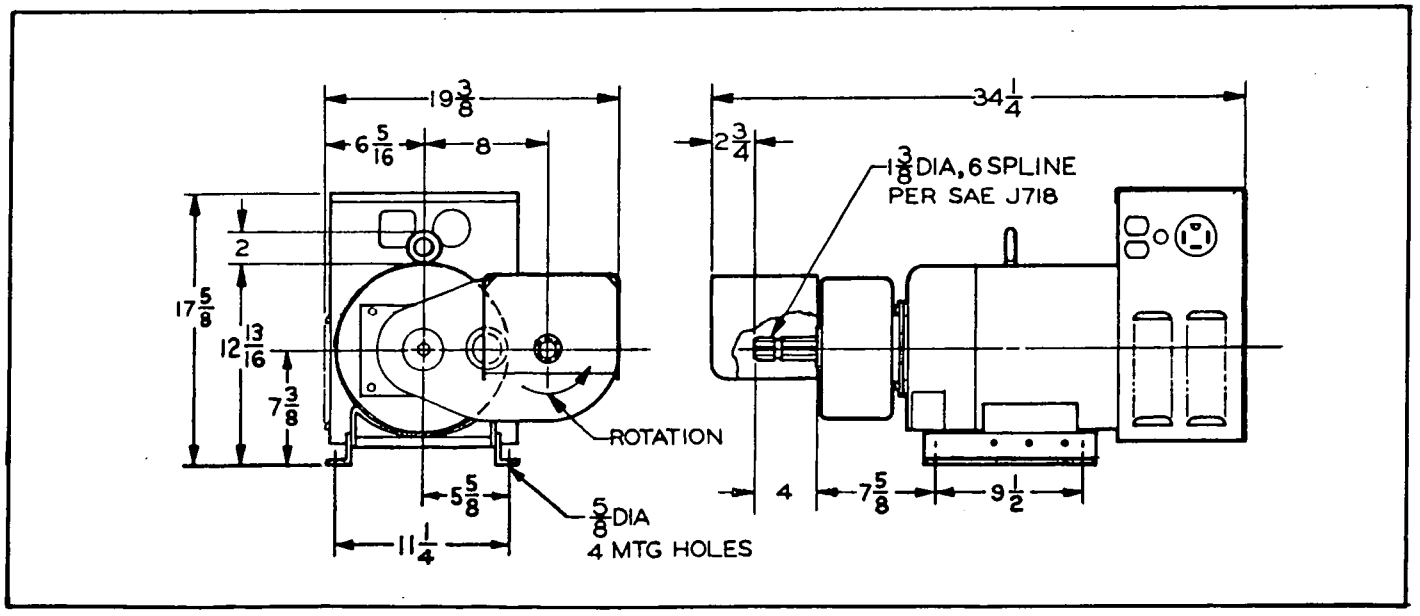


FIGURE 3. INSTALLATION OUTLINE

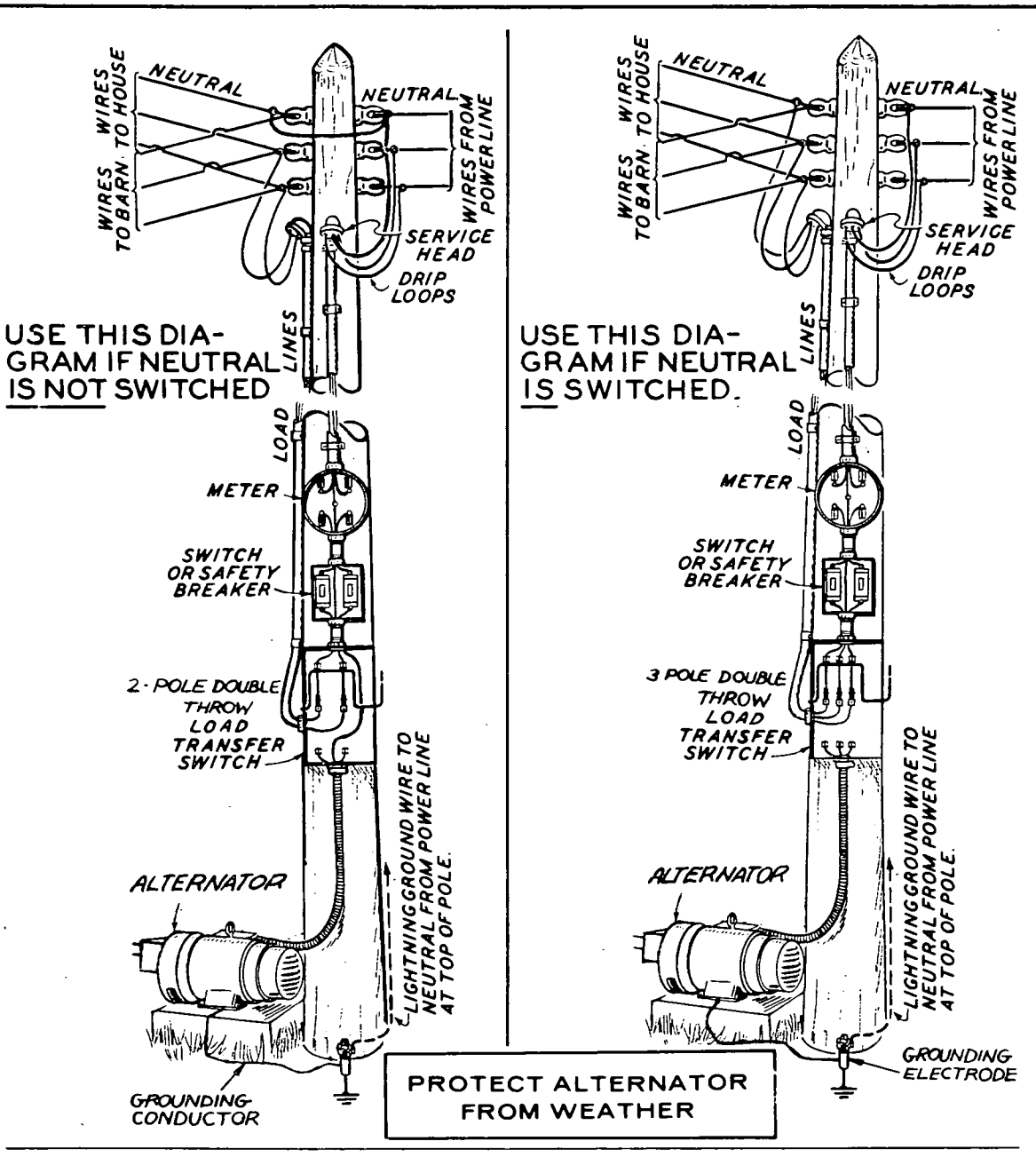


FIGURE 5. TYPICAL FARM STANDBY

the center terminals of the transfer switch. The alternator leads and the main power source leads must be connected at OPPOSITE ends of the switch.

POWER RETURN SIGNAL

When the generator is used for emergency applications, install a pilot light or alarm signal to indicate when the power is restored and when the alternator can be disconnected. Connect a signal light across the regular power line, just ahead of the load transfer switch. Install an on-off switch and a fuse for the signal light. When a power failure occurs, snap the signal switch to the ON position before putting the alternator into operation. When the normal power returns, the signal operates and the alternator can then be disconnected.

OPERATION

STARTING

Before engaging power take-off, proceed as follows in the order shown.

1. Alternator circuit breakers must be in the OFF position.
2. Connect power leads between the alternator and load transfer switch.
3. Throw transfer switch to connect load to alternator.
4. Turn power return signal ON if one has been installed.
5. Engine power take-off and bring PTO shaft speed to 520 rpm (530 rpm for Apex gear box). The alternator speed at this time will be 3600 rpm (60 cycle). The voltmeter on the alternator control box will read approximately 250 volts. A green segment on the voltmeter scale indicates the correct operating range.
6. Snap both alternator circuit breakers to the ON position. See Notes A and B.

OPERATING

Voltage will decrease or drop, as the alternator warms up even when constant speed is maintained. This is normal. However, if the power drops below the recommended operating voltage (230 to 240 volts) it will be necessary to increase the tractor PTO speed to compensate. Also, avoid over-voltage to prevent damage to electrical equipment and/or the alternator. Reduce voltage by decreasing PTO speed.

NOTE A: *Keep the alternator load within its nameplate rating. If the alternator is seriously overloaded the circuit breakers will automatically trip, disconnecting the entire electrical load. Reduce the load before throwing the circuit breakers back to the ON position.*

NOTE B: *Motors require four to five times more current for starting than running. If several motors start simultaneously, the total electrical load may overload the alternator causing the circuit breakers to open and disconnect the circuit. To avoid this, always start larger horsepower motors one at a time. Your alternator is equipped with an auxiliary field timer switch, which, when actuated, will connect an auxiliary winding for supplying added field strength for starting motors rated at 3 H.P. or larger. Set the timer at one minute or longer for proper timer operation. At the end of the preset time, the switch cuts out and the motor runs on normal current.*

CAUTION *If the tractor engine horsepower is less than 2 H.P. per kilowatt load, care should be exercised in disconnecting large loads. Governor speed changes can cause high voltage surges which could damage electrical equipment of lesser current draw than that which is removed from the line.*

TIPS ON OPERATION

Total the wattage requirements of all the equipment that could be operating simultaneously during a power failure. This can be done by taking the information either from the typical wattage requirement guide, or by taking the information from the nameplate on the equipment itself.

Start motors one at a time, beginning with the largest one, if possible. Then, after all motors are running, there will be extra power for other less critical equipment such as a television, air conditioner, etc. See Note B.

Check the motor nameplates for the horsepower rating of essential equipment: furnace blower motor, circulating heater, electric milking machine, milk pump, barn cleaner, feed conveyor, silage unloader, chick brooder, sump pump, well pump, ventilating fans, freezer, refrigerator, washing machine, etc.

TYPICAL WATTAGE REQUIREMENTS

SINGLE PHASE MOTORS* (CAPACITOR TYPE)	WATTS REQUIRED	
	START	RUN
1/2 horsepower	2800	550
3/4 horsepower	4300	775
1 horsepower	5500	1000
2 horsepower	7130	1960
3 horsepower	10350	2970
5 horsepower	16660	3500
7½ horsepower	23000	5250

* - Repulsion - induction motors require less starting wattage. Split phase motors require slightly more starting wattage.

SERVICE AND MAINTENANCE

PERIODIC SERVICE AND INSPECTION

Follow a definite schedule of inspection and servicing. Make a good visual check before, while and after alternator is operating; look for loose or broken leads and bad connections.

Internal alternator parts should be examined periodically. Remove end bell cover and inspect brushes, springs, bearings, etc.

GEAR BOX LUBRICATION

Use only SAE 90 multi-purpose gear lubricant. Drain the gear box after the first 100 hours of operation and refill with fresh lubricant of the recommended grade. Repeat this procedure every six months thereafter, or every 100 hours.

Maintain the proper oil level between changes. Overfilling will cause foaming, which can lead to an oil leak due to overheating. Remove the filler plug on top of the case and the oil level plug from the face of the gear case. Fill the case until the oil just begins to flow from the oil level plug hole. See Specifications for gear box capacity. Replace both plugs.

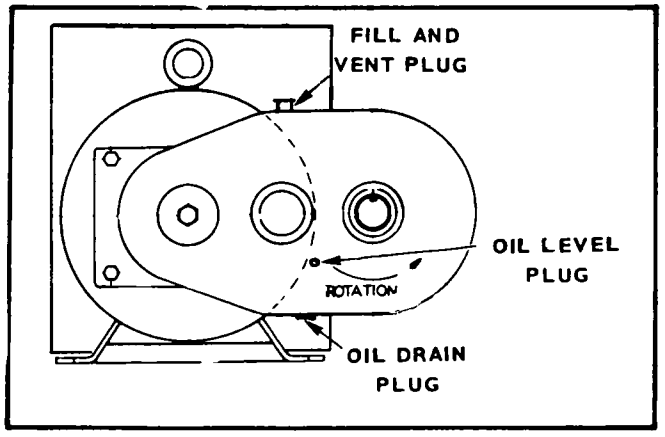


FIGURE 6. GEAR BOX LUBRICATION

POWER TAKE-OFF SHAFT

Grease the universal joints at least every 25 operating hours. Under adverse conditions, grease the joints as required, possibly every 4 to 8 hours. Never operate the alternator with the shield removed from the power take-off shaft.

SLIP RINGS

Slip rings must be clean and free of scratches and burrs (do not remove the dark brown film). If necessary to use an abrasive on the slip rings, use No. 00 sandpaper, *never use emery cloth or other conducting abrasives.*

BEARINGS

The ball bearings are doubled sealed and lubricated for life.

BRUSHES

Replace the brushes when they wear to about 5/8 inch in length. Order replacement brushes by part number, never by description: similar brushes may have different electrical characteristics.

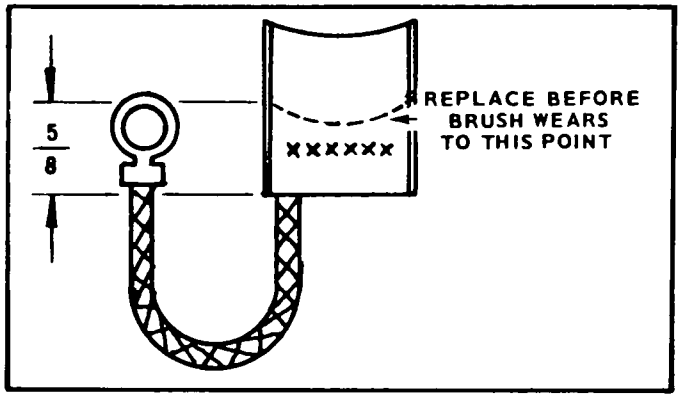


FIGURE 7. BRUSH REPLACEMENT

CAUTION *If brushes are not replaced by the time they wear past the stamped name and number, severe damage to the slip rings will take place.*

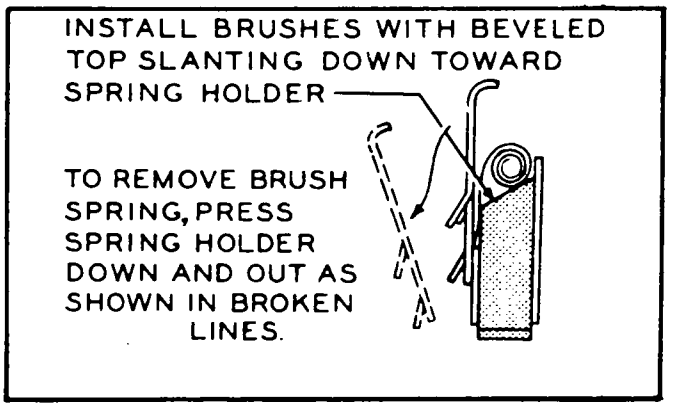


FIGURE 8. BRUSH REMOVAL

ARMATURE GROUNDED

See that all brushes are lifted high in their holders. Use a continuity type test lamp set. Place one test prod on one of the slip rings and one other prod on a bare clean part of the alternator frame or armature shaft. The prods must make good electrical contact. The test lamp set should not light. If it does light up, the slip ring is grounded. Test all of the slip rings in the same manner. If the armature tests grounded, replace with a new one.

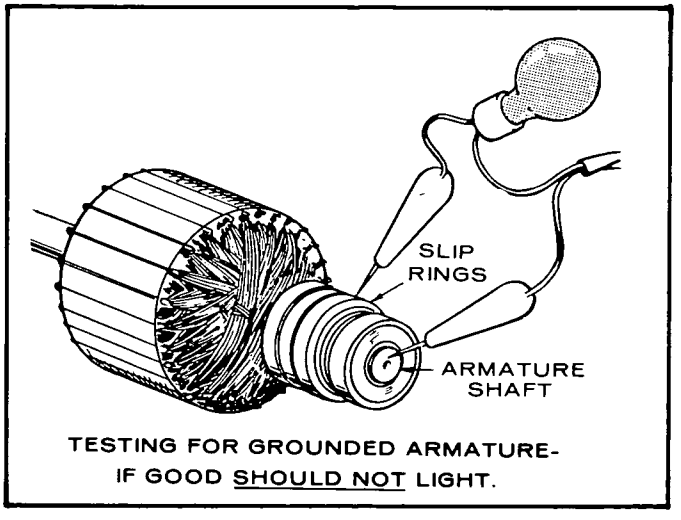


FIGURE 9. ARMATURE GROUNDED

ARMATURE OPEN

Use a continuity type test lamp.

1. Test between the two slip rings nearest the windings.
2. Test between the two slip rings nearest the bearing.
3. Test between the two outer slip rings.

NOTE: *In each of the above combinations the test lamp should glow. If the test lamp does not glow, an open armature is indicated.*

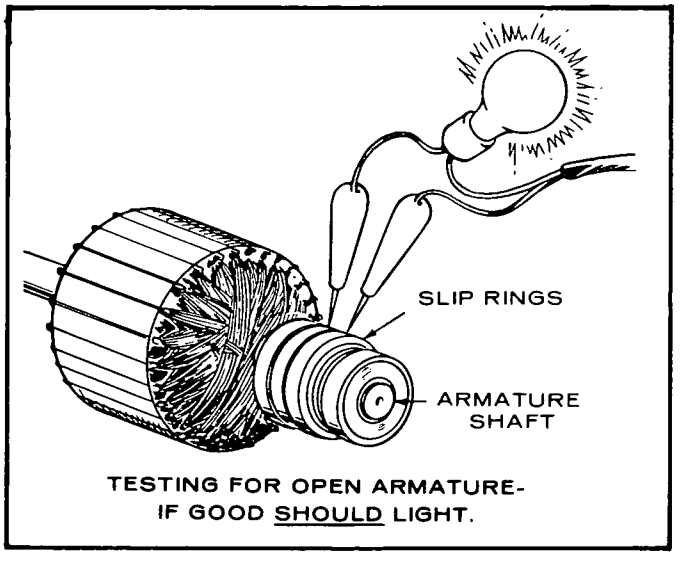


FIGURE 10. ARMATURE OPEN

ARMATURE, SHORT CIRCUIT

To test for a short circuit, use an armature growler. Place the armature in the growler which is connected to alternating current. Hold a steel knife blade (or old hacksaw blade) 1/4 inch from the armature laminations. If the steel blade is attracted to any magnetized armature laminations, either the armature windings or collector rings are short circuited. A piece of foreign material between the collector rings could be responsible. Do not test for magnetism at just one point of the armature laminations, but test all of the laminations from one side over to the other side (along the dotted line in illustration). After testing in one position, revolve the armature about 1/8 turn and test for magnetism in the new position. Continue to turn and test until the armature has been tested completely around.

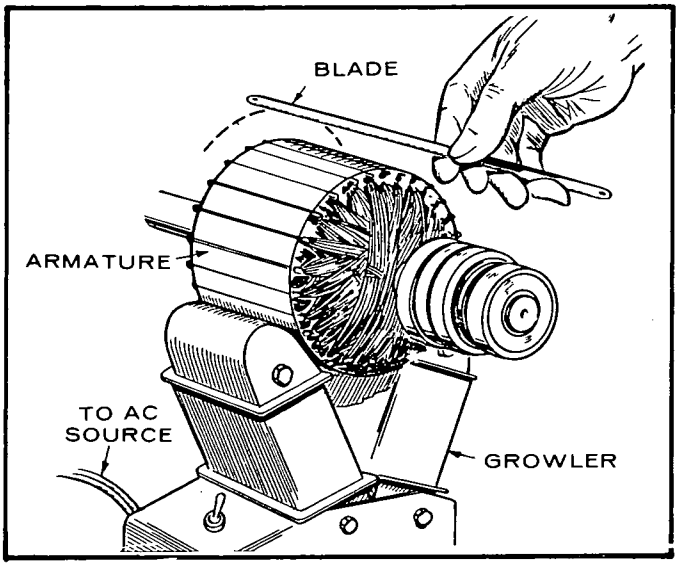


FIGURE 11. ARMATURE SHORTED

FIELD WINDINGS, OPEN CIRCUIT

A test lamp set can be used to test field windings for an open circuit. Place one test prod on one of the terminal ends of the field windings and the other test prod on the other terminal end of the winding. The test lamp should light. If it does not, an open circuit is indicated. Check carefully to see that the open circuit is not at the terminal leads or a loose terminal. An open circuit due to a broken lead or loose terminal is easily repaired. An open circuit within a coil requires replacement of the set of coils.

INSPECTING AND CLEANING DIODES (RECTIFIERS)

When inspecting the diodes, make sure they are kept free of dust, dirt and grease. Excessive foreign matter on these diodes causes overheating and eventual diode failure. Blow out the diode assembly periodically. Use filtered, compressed air.

Also check to see that the diodes are securely mounted and the lead wires are tight and in good condition.

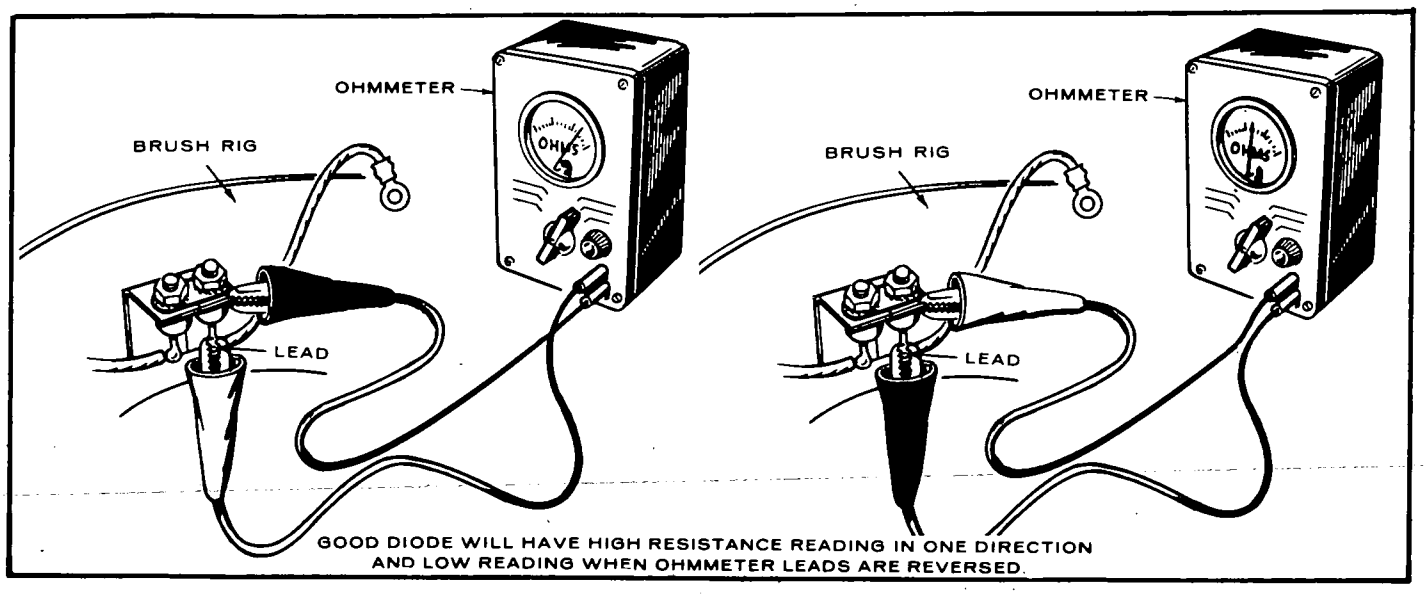


FIGURE 12. TESTING DIODES

TESTING DIODES

Faulty diodes (either shorted or open) will cause abnormal alternator operation. Check these individual diodes as follows:

1. Remove sheet metal end cover and band from end of the alternator.
2. Isolate each of the diodes before proceding by disconnecting one end from its connection point.
3. To check, use an ohmmeter to measure the resistance in the individual diode. Reverse the ohmmeter leads and repeat resistance measurement. A good diode should have a high resistance value for one measurement and a low measurement when leads are reversed. If diode is not in good condition, replace with one known to be in good condition.

REPLACEMENT OF DIODES

When replacing defective diodes, follow these steps:

1. Use proper size wrenches to hold the body of the diode while removing nut attaching the diode to the heat sink (bracket).
2. Push the diode free of its mounting hole in the heat sink.
3. Be sure to install the new diode in the same position (or direction) as the defective diode. These parts have directional arrows marked on them for this reason.
4. Insert new diode into its mounting hole in the heat sink or bracket, making sure heat sink surface is clean. Using nut and washer provided, secure diode, being careful not to allow it to turn while tightening nut. Tighten finger-tight plus 1/4 turn or 30 in-lb.
5. Connect lead wires to appropriate terminals.
6. Replace access cover.

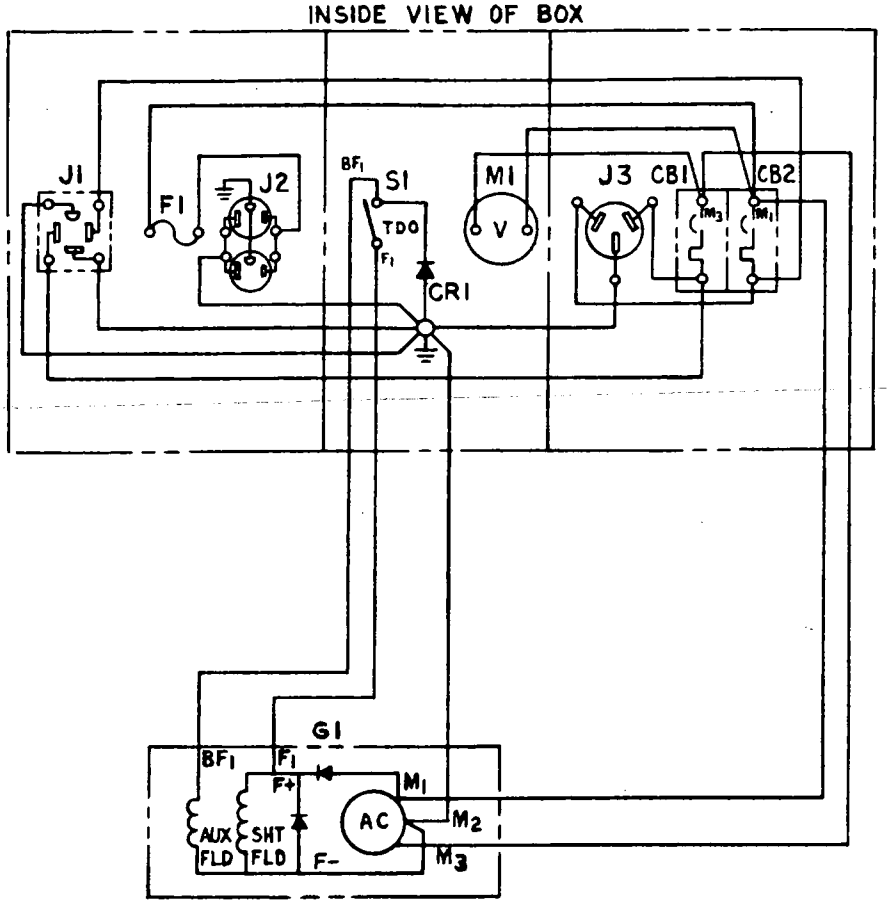
ALTERNATOR TROUBLESHOOTING GUIDE

We suggest that only a qualified mechanic or electrician perform any of the following tests.

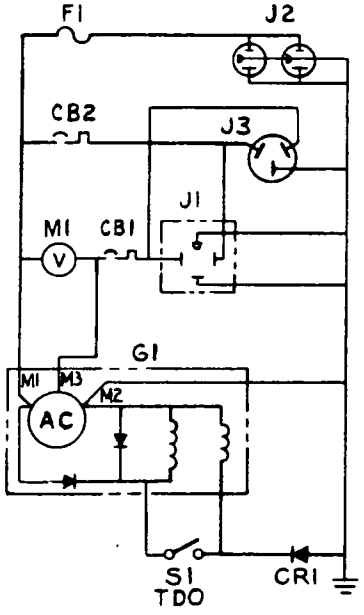
NATURE OF TROUBLE	PROBABLE CAUSE	REMEDY
Arcing or poor contact at alternator brushes	1. Brushes not seated properly 2. Alternator heavily overloaded 3. Brushes binding in holder 4. Brush tension insufficient 5. Brushes worn too short 6. Brush tension unequal 7. Wrong type brush	1. Sand brush to proper contour 2. If AC amperage is more than stated on the nameplate remove part of load 3. Clean each brush and holder 4. Replace brush springs 5. Replace brushes 6. Replace weak brush springs 7. Replace with correct type brush and spring
Alternator overheats	1. Windings and parts covered with dirt and oil 2. Overloaded 3. Short circuit or grounded circuit in the field winding or armature winding 4. Air intake is restricted or incoming air is too hot.	1. Clean alternator 2. Check load 3. Replace defective parts 4. Take necessary steps to allow for proper cooling
Noisy alternator	1. Alternator loose on base 2. Defective bearings or gears 3. Field pole rubbing armature 4. Loose gearbox bolts	1. Tighten mounting bolts 2. Replace. Check alignment 3. Tighten field poles to frame 4. Retorque
Alternator runs but does not produce current	1. Rectifier failed 2. Open, short or grounded circuit in alternator 3. Alternator leads broken or loose	1. Replace rectifier 2. Test windings and repair or replace defective parts 3. Tighten connections and replace broken leads
Low voltage output of alternator	1. Tractor governor set at wrong speed 2. External short circuit on line 3. Open circuit of shunt field winding 4. Short circuit of winding in the field or armature	1. Reset governor for correct speed (520RPM) 2. Test alternator with line wires disconnected 3. Make proper connections 4. Replace defective part
Flash over between rings	1. Poor maintenance-dirt, oil, cleaning solvent residues 2. Excessive humidity or water condensation 3. Poor shielding from environment	1. Damage can't be repaired, must be replaced
Slip rings out of round	1. Loose brushes or guides	1. Turn smooth on lathe or replace
Raw copper shows up on intermittent points on slip rings	1. Rings out of round 2. Not enough cooling air 3. Overloaded 4. Wrong brush grade	1. Turn smooth on lathe or replace 2. Correct situation 3. Remove part of load 4. Replace with correct type brushes
Raw copper shows up continuously around slip rings	1. Low humidity 2. High altitude 3. Dust and dirt	1. Turn smooth on lathe or replace

WIRING DIAGRAM

INSIDE VIEW OF BOX



SCHEMATIC

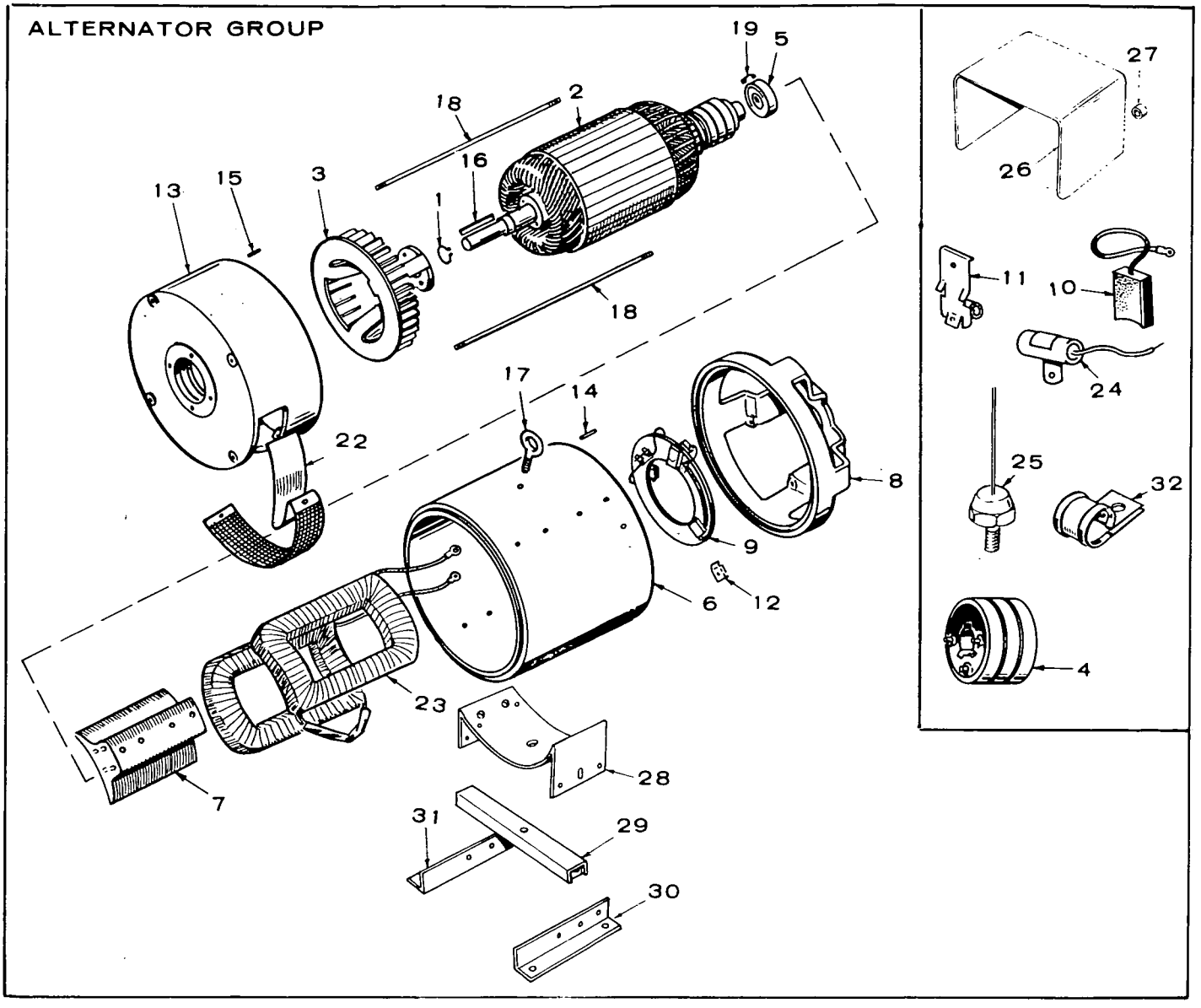


PARTS LIST	
REF	DESCRIPTION
CB1, 2	CIRCUIT BREAKER-70AMP
CR1	RECTIFIER-1 AMP, 400PIV
F1	FUSE - 15 AMP
	HOLDER - FUSE
G1	GENERATOR
J1	RECEPTACLE - OUTPUT
J2	RECEPTACLE - DUPLEX, 120V
J3	RECEPTACLE, 50 AMP
M1	VOLTMETER - AC, 0-300
S1	SWITCH - TIME, 5 MIN
	CONTROL BOX
	COVER - CONTROL BOX
	SILKSCREEN
	SILKSCREEN
	SILKSCREEN

WIRING DIAGRAM

PARTS CATALOG

ALTERNATOR GROUP



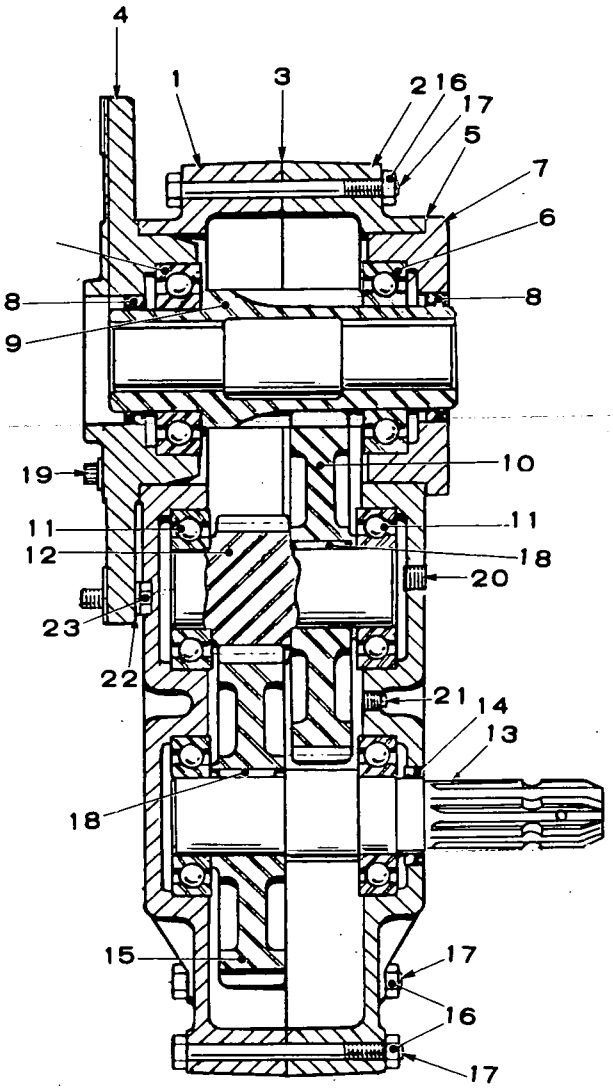
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	518-0014	1	Ring, Retaining
2	201-1444	1	Armature
3	205-0060	1	Blower
4	204-0010	1	Ring, Collector
5	510-0047	1	Bearing
6	210-0437	1	Frame
7	221-0154	2	Shoe, Pole
8	211-0097	1	Bell, End (Bearing Rig End)
9	212-0343	1	Rig Assembly, Brush
10	214-0056	6	Brush
11	212-1105	6	Spring, Brush
12	212-1214	4	Clamp, Brush Rig
13	211-0188	1	Bell, End (Drive End)
14	516-0103	1	Roll Pin, Brush Rig End
15	516-0176	2	Drive Pin, Drive End
16	515-0108	1	Key, Armature Shaft Drive
17	403-0095	1	Bolt, Eye-Lifting
18	520-0498	2	Stud, Generator Through
19	232-0596	1	Clip, Bearing
22	234-0077	1	Scroll & Screen, Blower
23	222-1674	1	Coil Set, Field
24	312-0058	2	Condenser, 1-Mfd.
25	358-0024	2	Rectifier
26	190-0323	1	Guard, Power Take-Off
27	190-0317	4	Spacer, Power Take-Off Guard
28	403-0989	1	Bracket, Generator Mounting
29	403-0990	1	Brace, Generator Mounting Bracket
30	403-0988	1	Angle, Base-Generator Mounting (Right Side)
31	403-0987	1	Angle, Base-Generator Mounting (Left Side)
32	332-0050	1	Clamp, Wire

GEAR DRIVE GROUP

Mfg. by Von Ruden Mfg. Co.

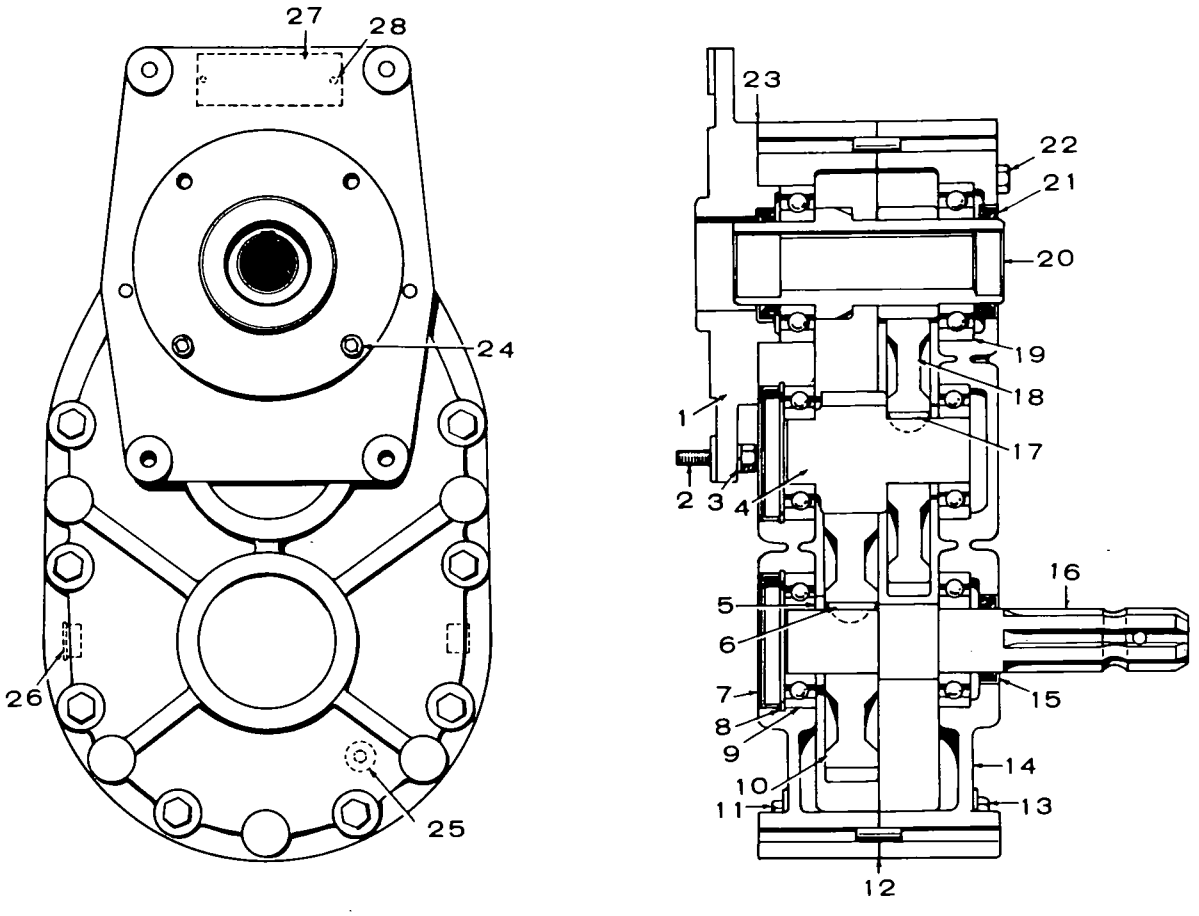
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	190-0294	1	Gear Drive Box (Complete Splined Shaft)
1	190-0358	1	Case
2	190-0359	1	Case
3	190-0280	1	Gasket
4	190-0360	1	Plate, End
5	190-0361	As Req.	Shim Set
6	190-0362	2	Bearing Ball
7	190-0363	1	Plate, Open End
8	190-0279	2	Seal, Oil
9	190-0365	1	Shaft, Gear
10	190-0366	1	Gear
11	190-0367	4	Bearing
12	190-0368	1	Gear & Shaft, Idler
13	190-0369	1	Shaft, Splined
14	190-0371	1	Seal, Oil
15	190-0372	1	Gear
16	190-0373	12	Nut
17	190-0374	12	Bolt
18	190-0375	2	Key, Woodruff
19	190-0376	4	Screw, Cap
20	190-0377	1	Plug, Drain
21	190-0378	1	Plug, Check
22	190-0379	2	Washer, Lock
23	190-0380	6	Screw, Cap
24	190-0381	2	Bushing, Line Up

* - **NOTE:** Check nameplate on gear box to identify manufacture.



GEAR DRIVE GROUP

Mfg. by Apex Industries



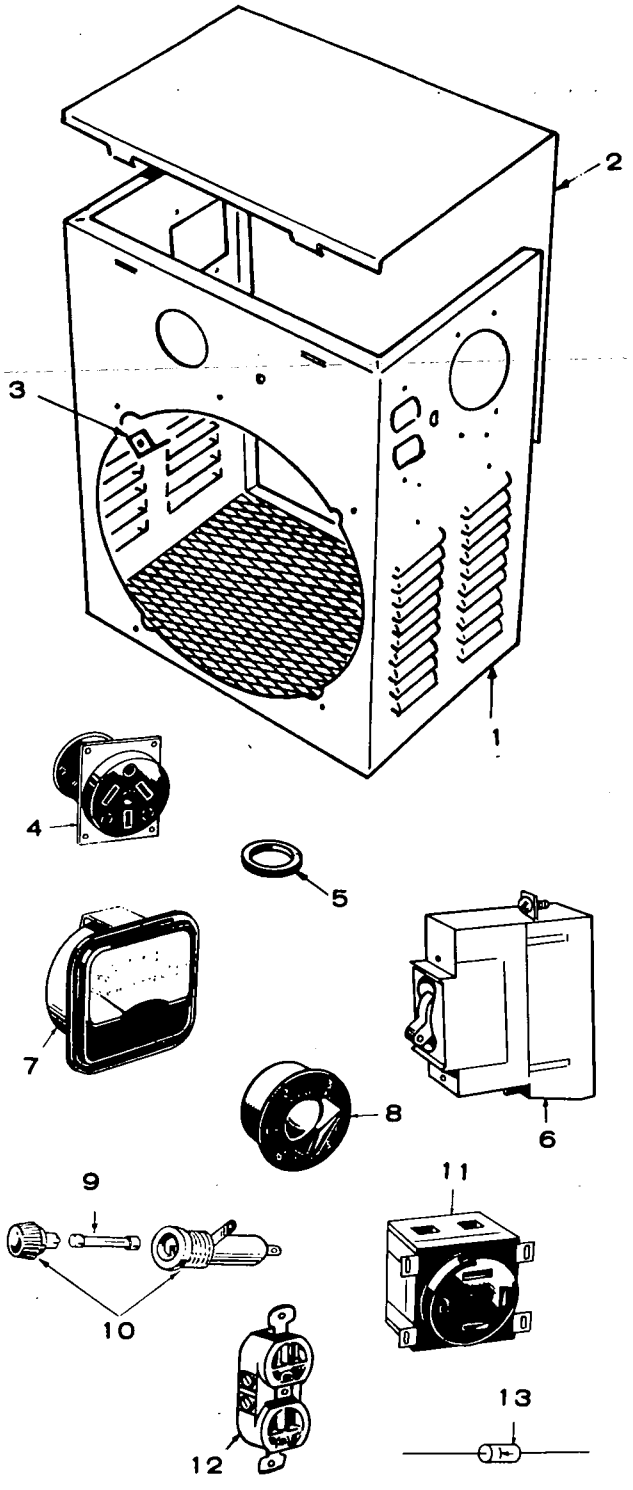
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	190-0386	1	Gear Drive Box (Complete Splined Shaft)
1	50046	1	Flange, Mounting
2	10178	2	Screw, Cap
3	10018	2	Washer, Lock
4	30073	1	Shaft & Gear, Idler (LH)
5	20100	2	Washer, Spacer
6	10035	1	Key, Woodruff
7	20098	2	Cover, Dust
8	10179	2	Ring, Retaining
9	10173	4	Bearing, Bell
10	40037	1	Gear, Right Hand
11	10181	8	Screw, Cap
12	50051	1	Gasket
13	10094	8	Nut
14	50047	1	Case, Sub Assembly

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
15	10206	1	Seal
16	30072	1	Shaft, Input
17	10180	1	Key, Woodruff
18	40038	1	Gear, Left Hand
19	10207	2	Bearing, Ball
20	30074	1	Gear, Pinion (RH)
21	10209	2	Seal
22	10177	4	Screw, Cap
23	20108	As Req.	Shim (.005)
24	10175	2	Screw, Socket Head Cap
25	10166	2	Plug, Oil Level Check Pipe
26	10176	1	Plug, Cap (3/8)
27	20020	1	Plate, Name
28	10024	2	Screw, Drive

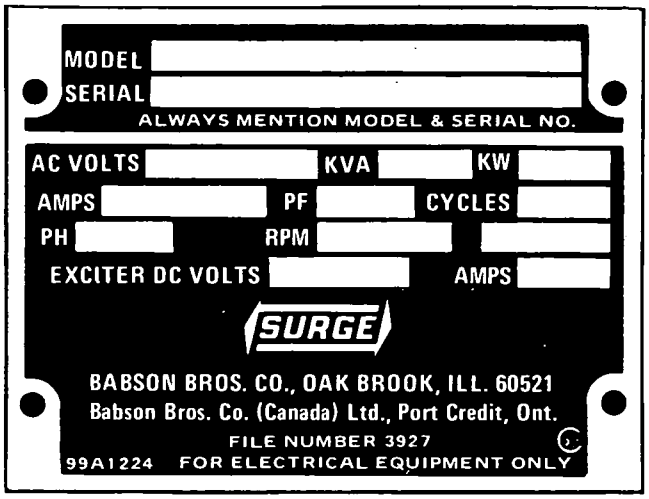
NOTE: Check nameplate on gear box to identify manufacturer.

CONTROL GROUP

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-3436	1	Box, Control
2	301-3441	1	Cover, Control Box
3	301-3443	2	Bracket, Mounting
4	323-0207	4	Receptacle, 50 Amp
5	508-0001	1	Grommet, Rubber
6	320-0148	2	Breaker, Circuit
7	302-0665	1	Voltmeter, AC (0-300)
8	308-0252	1	Switch, Time (5-Min)
9	321-0138	1	Fuse (15-Ampere)
10	321-0104	1	Holder, Fuse
11	323-0635	1	Receptacle, Output
12	323-0184	1	Receptacle, Duplex
13	305-0240	1	Rectifier



For PARTS, SERVICE & WARRANTY:



Always provide MODEL and SERIAL NO. found on Alternator nameplate when referring to any Surge Alternator. Contact the Authorized Surge Dealer from whom you purchased this equipment.

IMPORTANT:

Please fill out this information and return card within 10 days in order to establish your warranty.

RETURN TO:

BABSON BROS. CO.

2100 S. YORK ROAD

OAK BROOK, ILLINOIS 60521

CUT ALONG DOTTED LINE AND DETACH

WARRANTY VALIDATION CERTIFICATE for SURGE ALTERNATOR

Purchased from

Dealer _____

Address _____

_____ Date purchased _____

Model _____ Serial No. _____

Owner's Name _____

Address _____

Town _____ State/Province _____ Zip _____

SURGE ALTERNATOR WARRANTY

BABSON BROS. CO. warrants to the original user of this Alternator, that its manufacture is free from defects in material and factory workmanship – if properly installed, serviced and operated under normal conditions according to BABSON BROS. CO.'s instructions.

BABSON BROS. CO.'s obligation under this warranty is limited to correcting without charge for a period of one year any part or parts thereof which shall be returned to its factory or authorized service stations (transportation prepaid by customer) – and which upon examination shall disclose to BABSON BROS. CO.'s satisfaction to have been originally defective. Correction of such defects by repair to or supplying of replacements for defective parts shall constitute fulfillment of all obligations to original user.

This warranty shall not apply to any Surge Alternator which must be replaced because of normal wear, which has been subjected to misuse, negligence or accident or which has been repaired or altered outside the factory or Service Center authorized by BABSON BROS. CO.

BABSON BROS. CO. shall not be liable for loss, damage or expense directly or indirectly from the use of this Alternator or from any other cause.

The above warranty supersedes and is in lieu of all other warranties expressed or implied and of all other liabilities or obligations on the part of BABSON BROS. CO. No person, agent or dealer is authorized to give any warranties on behalf of BABSON BROS. CO., nor to assume any other liabilities in connection with any Surge Alternators, unless made in writing and signed by an officer of BABSON BROS. CO.

BABSON BROS. CO., OAK BROOK, ILLINOIS
BABSON BROS. CO., (Canada) LTD., PORT CREDIT, ONTARIO

CUT ALONG DOTTED LINE AND DETACH

PLACE STAMP HERE

GUARANTEE AND WARRANTY DEPARTMENT

BABSON BROS. CO.
2100 S. YORK ROAD
OAK BROOK, ILLINOIS 60521

IMPORTANT:

Please fill out information on reverse side of this card and return within 10 days – in order to establish your warranty.

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