

TYPE SK MOTORS AND GENERATORS—FRAMES F-20, W-204, W-224, W-225 AND F-225 (Direct-Current—Shunt, Compound and Series Wound) INSTRUCTIONS

Initial Inspection—After unpacking the motor or generator, examine it carefully to see that no damage has occurred during shipment. Turn the shaft by hand to see that it turns freely. Check the name plate data to make certain that the rating is correct for the power supply and load.

Mounting—The location for motors and generators not especially constructed for unusual operating conditions should be clean, dry and well-ventilated. If protecting shields or guards are used, they must permit a free flow of air over the machine.

Sleeve bearing machines are ordinarily designed for operation with the shaft horizontal. Unless otherwise specified when ordering, they are assembled for floor mounting. If it is desirable to mount on a wall or ceiling, the end brackets of the machine should be loosened and rotated 90° or 180° so that the main portion of the oil reservoir will be below the shaft. When the front bracket is rotated, the rocker ring in the bracket must be shifted so the brush holders will be in their original position relative to the frame and poles, and locked in place. If the adjusting plate has more than one locking hole, the screw should always be replaced in the same hole.

Ball bearing machines (grease lubricated) will operate in any position. For convenience in lubricating, it may be desirable to shift the brackets or bearing cartridges to obtain a more accessible location of the openings.

If desired, the leads may be brought out on the opposite side of the machine by bringing the leads out the other lead hole. The lead holes are the proper size for threading with a 3/4" pipe tap.

Direction of Rotation—The direction of rotation as referred to in this leaflet is that when viewing the machine from the end opposite the shaft extension. The direction of rotation of these motors is determined by the connections. Motors and generators with only one locking hole in the rocker ring adjusting plate may be operated in either direction of rotation without shifting the brushes. Generators with three locking holes in the adjusting plate are shipped with the brushes set for clockwise rotation unless ordered otherwise. If the generator is to be operated in the opposite direction of rotation, the brushes should be shifted so the locking screw will be in the hole on the opposite end of the adjusting plate.

MOTOR CONNECTIONS

Shunt and Compound Wound

Counterclockwise Rotation—Connect the two line wires to terminals on starter marked "Line +" and "Line —". Connect "A-1" to terminal on starter marked "Arm"; connect "F-1" to terminal on starter marked "FLD"; connect "A-2" to "S-1"; connect "S-2" and "F-2" to terminal on starter marked "Line—".

Clockwise Rotation—Connect the two line wires to terminals on starter marked "Line +" and "Line —". Connect "A-2" to terminal on starter marked "Arm"; connect "F-1" to terminal on

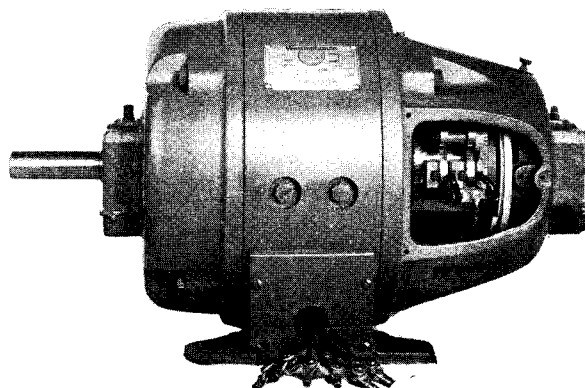


FIG. 1—TYPE SK MOTOR OR GENERATOR

starter marked "FLD"; connect "A-1" to "S-1"; connect "S-2" and "F-2" to terminal on starter marked "Line—".

MOTOR CONNECTIONS

Series Wound

Counterclockwise Rotation—Connect the two line wires to terminals on starter marked "Line +" and "Line —". Connect "A-1" to terminal on starter marked "Arm"; connect "A-2" to "S-1"; connect "S-2" to terminal on starter marked "Line—". When used without a starter connect "A-1" to one line wire; connect "A-2" to "S-1"; and connect "S-2" to the other line wire.

Clockwise Rotation—Connect the two line wires to terminals on starter marked "Line +" and "Line —". Connect "A-2" to terminal on starter marked "Arm"; connect "A-1" to "S-1"; connect "S-2" to terminal on starter marked "Line—". When used without a starter connect "A-2" to one line wire; connect "A-1" to "S-1"; and connect "S-2" to the other line wire.

GENERATOR CONNECTIONS

Shunt Wound

Clockwise Rotation—Connect "A-2" to + line wire; connect "A-1" and "F-2" to the — line wire; connect "F-1" to one terminal on the field rheostat and the other terminal on the field rheostat to "A-2". If a field rheostat is not used connect "F-1" to "A-2".

Counterclockwise Rotation—Connect "A-1" to the + line wire; connect "A-2" and "F-2" to the — line wire; connect "F-1" to one terminal on the field rheostat and the other terminal on the field rheostat to "A-1". If a field rheostat is not used connect "F-1" to "A-1".

GENERATOR CONNECTIONS

Compound Wound

Clockwise Rotation—Connect "A-2" to the + line wire; connect "S-1" to the — line wire; connect "A-1" and "F-2" to "S-2"; connect "F-1" to one terminal on the field rheostat and the other terminal on the field rheostat to "A-2". If a field rheostat is not used connect "F-1" to "A-2".

Counterclockwise Rotation—Connect "A-1" to the + line wire; connect "S-1" to the — line wire; connect "A-2" and "F-2" to "S-2"; connect

"F-1" to one terminal on the field rheostat and the other terminal on the field rheostat to "A-1". If a field rheostat is not used connect "F-1" to "A-1".

LUBRICATION

Ring Oiled Sleeve Bearings—Motors equipped with ring oiled sleeve bearings are drained before being shipped from the factory. Before operating the motor, fill each oil well through the overflow cup with a good grade of dynamo or machine oil until the level rises nearly to the top of the cup. In ordinary service the motor will run several months without refilling.

Ball Bearing—Standard ball bearing motors are properly lubricated when they leave the factory. In ordinary service, the motors will run for a year as received. It is recommended, however, that a small quantity of neutral medium consistency grease be added every four or six months to maintain an even lubricating condition.

Operation—These motors will operate satisfactorily on a 10% variation in voltage and the generators will operate satisfactorily on a 5% variation in speed, but not necessarily in accordance with the standards of performance established for operation at normal voltage or speed.

It is desirable to use a starting rheostat or controller with these motors. A circuit breaker or line switch with fuses should be installed in the circuit between the line and the starter.

With a controller, the motor should be started and stopped by using the controller handle. With a starting rheostat the motor should be started by using the rheostat handle, and stopped by opening the line switch.

Never start a series motor without load.

Care—Motors and generators should be inspected at regular intervals, noting particularly that all parts are tight and that the bearings are properly lubricated.

The commutator surfaces should be kept clean and smooth. Ordinarily this will require only occasional wiping with a piece of canvas. Do not use emery cloth. The carbon brushes supplied with these machines have been carefully selected for this particular service and, for best results, only this make and grade should be used.

TYPE SK MOTORS AND GENERATORS

Frames F-20, W-204, W-224, W-225 and F-225

(Direct Current, Shunt, Compound and Series Wound)

RENEWAL PARTS DATA

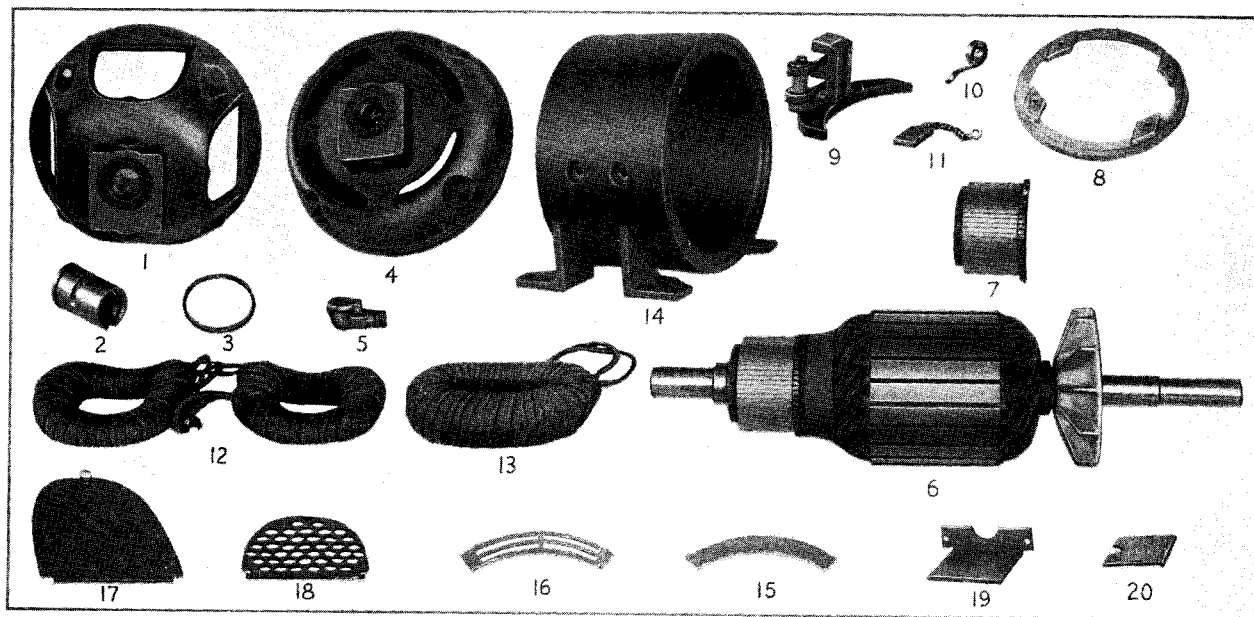


FIG. 2—RENEWAL PARTS OF TYPE SK SMALL MOTORS AND GENERATORS

RECOMMENDED STOCK OF RENEWAL PARTS

Motors or Generators in use.....			1	5
Ref. No.	Description of Part	No. Per Motor or Generator	Recommended For Stock	
1	Front Bracket with Bearing and Oil Ring.....	1	0	0
2	Bearing.....	1	1	1
3	Oil Ring.....	1	1	1
4	Rear Bracket with Bearing and Oil Ring.....	1	0	0
5	Bearing.....	1	1	1
6	Armature Complete.....	1	0	1
7	Commutator.....	1	0	0
8	Rocker Ring.....	1	0	0
9	Brush Holder Complete.....	2	0	1
10	Brush Holder Spring.....	△	1	1
11	Carbon Brush.....	△	4	8
12	Main Field Coils.....	1 set	0	1 set
13	Commutating Field Coil.....	1	0	0
14	Frame with Feet.....	1	0	0
15	**Enclosing Cover for Rear Bracket.....	**4	0	0
16	**Semi-Enclosing Cover for Rear Bracket.....	**4	0	0
17	**Enclosing Cover for Front Bracket.....	**4	0	0
18	**Semi-Enclosing Cover for Front Bracket.....	**4	0	0
19	Conduit Box.....	1	0	0
20	Conduit Box Cover.....	1	0	0

Parts indented are included in the part under which they are indented.
 ** Number of Covers required to enclose all openings in the bracket. Standard open motors should never be equipped with solid enclosing covers as they are not designed for operation without ventilation.
 △ Frames F-20 and 204 use two per motor. Frames 224 and 225 use four per motor.

This is a list of the Renewal Parts and the quantities of each that we recommend should be stocked by the user of this apparatus to minimize service interruptions caused by breakdowns. The parts recommended are those most subject to wear in normal operation, or to damage or breakage due to possible abnormal conditions.

This list of Renewal Parts is given only as a guide. When continuous operation is a primary consideration, additional insurance against shut-downs is desirable. Under such conditions more renewal parts stock should be carried, considering the severity of the service and the time required to secure replacements.

ORDERING INSTRUCTIONS

Name the part and give its style number. Give the complete name plate reading. State whether shipment is desired by express, freight or by parcel post. Send all orders or correspondence to nearest Sales Office of the Company. Small orders should be combined so as to amount to a value of at least \$1.00 net; where the total of the sale is less than this, the material will be invoiced at \$1.00.

Westinghouse Electric & Manufacturing Company

East Pittsburgh, Pa.