Film-Tech

The information contained in this Adobe Acrobat pdf file is provided at your own risk and good judgment.

These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjuatments to anything you may read about in these Adobe manual downloads

www.film-tech.com

Marine Theater Do not lose

INSTALLATION & OPERATING INSTRUCTIONS

Motor Generator should be set on a floor that is free from vibration. It is not necessary to bolt it down. Set the machine on the cork pads which are provided for the purpose.

WIRING: - Make connection from the A.C. line service to the starting switch and from the starting switch to motor terminals as shown in wiring diagram. On two or three phase equipment close the switch and make sure that the armature rotates in the direction indicated by the arrow on the end yoke. If the armature rotates in the wrong direction, it must be corrected by reversing the leads to one phase of the motor terminals.

CAUTION: - Do not change connections inside of motor generator unit to correct direction of rotation or polarity. The machines are all checked up complete with their equipment when tested. The motor must be connected to proper side of the line and connections to panel must be made correctly to bring polarity of the instruments and lamp carbons correct.

FUSES: - The A.C. fuses at the A.C. motor starting switch must be of large enough capacity to carry the maximum load of the machine. If line service is 220 volts, use 55 ampere fuses.

WIRING TO LAMPS: - Use # 1/0 or larger size wire to connect from L and A on the motor generator to panel board and lamps. No. 14 or No. 12 size wire may be used to connect F on Motor Generator to F on the Field Regulator in the panel board.

OPERATING INSTRUCTIONS

This Motor Generator will supply current at approximately constant voltage up to the capacity of the machine. The unit is designed to carry the high ampere load for such time as is required to burn in carbons or warm them up preparatory to a change over. The field regulator in the panel provides a means of regulating the voltage of the generator.

GENERAL CARE

Keep the machine clean.

Keep the commutator clean (but do not use sand or emery paper on it). If it becomes dirty, hold a pad of coarse canvas or cheese cloth against its surface while running and when free of dirt, wipe the surface with a clean cloth pad that is slightly moistened with pure vaseline.

Do not permit the carbon brushes to become too short as disastrous sparking will result. A new set of carbon brushes should be put in before the old ones are completely worn out. When putting in new brushes it is well to first put one in each holder at opposite ends of the commutator, then as soon as they are worn into a perfect fit to the surface of the commutator, replace the remaining old brushes with new ones.

As soon as the commutator wears such that any mica is flush with the commutator surface, this mica should be cut down. A commutator slotting file is a convenient tool to use for this purpose. The mica should be cut down to a depth of 1/32 inch between all the bars and no particles left flush with the brush wearing surface.

The machine has ball bearings and they require a very small amount of lubrication.

A small quantity of grease should be put in the bearings only once each month.

NOTE: Use Transverter grease only, as other kinds of grease will be likely to injure the highly polished steel balls and surfaces of the bearings.

Type [redacted] HIH-65-130 No. 11831 *

AC Motor 3 Phase 60 Cycles 220 Volts

*When requesting instructions, ordering supplies or parts, always give this number, which will be found on the nameplate of the Motor Generator.

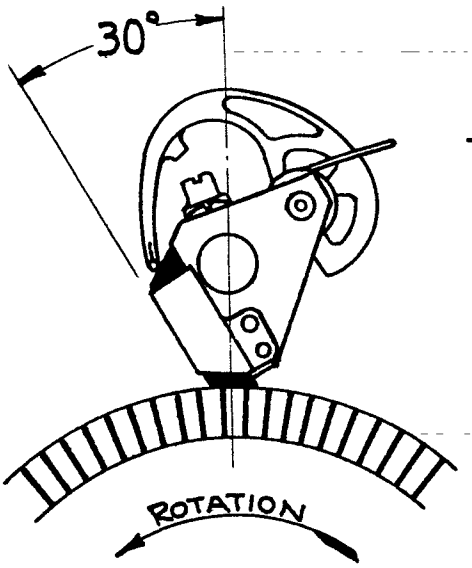


FIG. 1

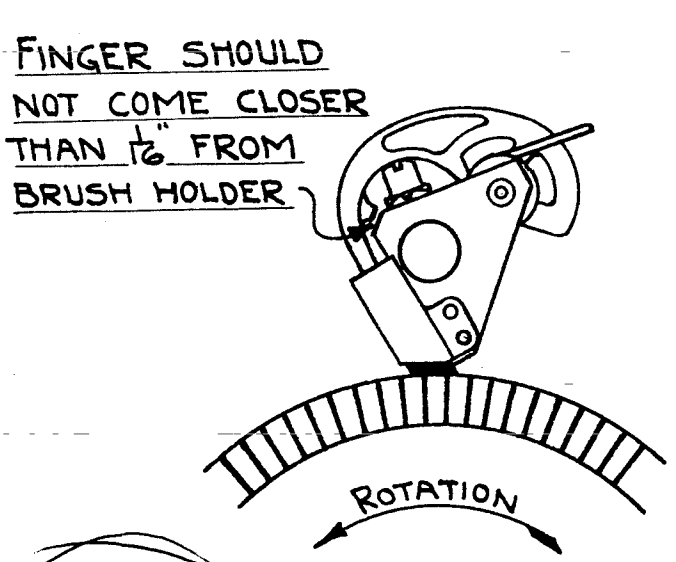


FIG. 2

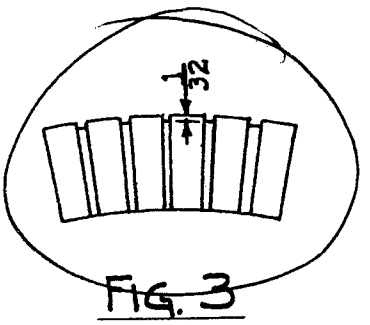


FIG. 3

Fig. 1. New brush properly set.

Fig. 2. Brush worn as far as it should be allowed to wear. Always replace brush when finger comes within 1/16" of brushholder. If the brushes are allowed to wear down more than shown, the brush will fail to make proper contact with the commutator, causing destructive sparking. This may necessitate disassembling the machine and expensive repairs.

Fig. 3. Commutator segments showing wearing surface and proper depth of mica below surface. If mica extends to surface, sparking and serious wear will result. If the slot is cut deeper than shown, dirt may collect and cause the commutator to short between segments.

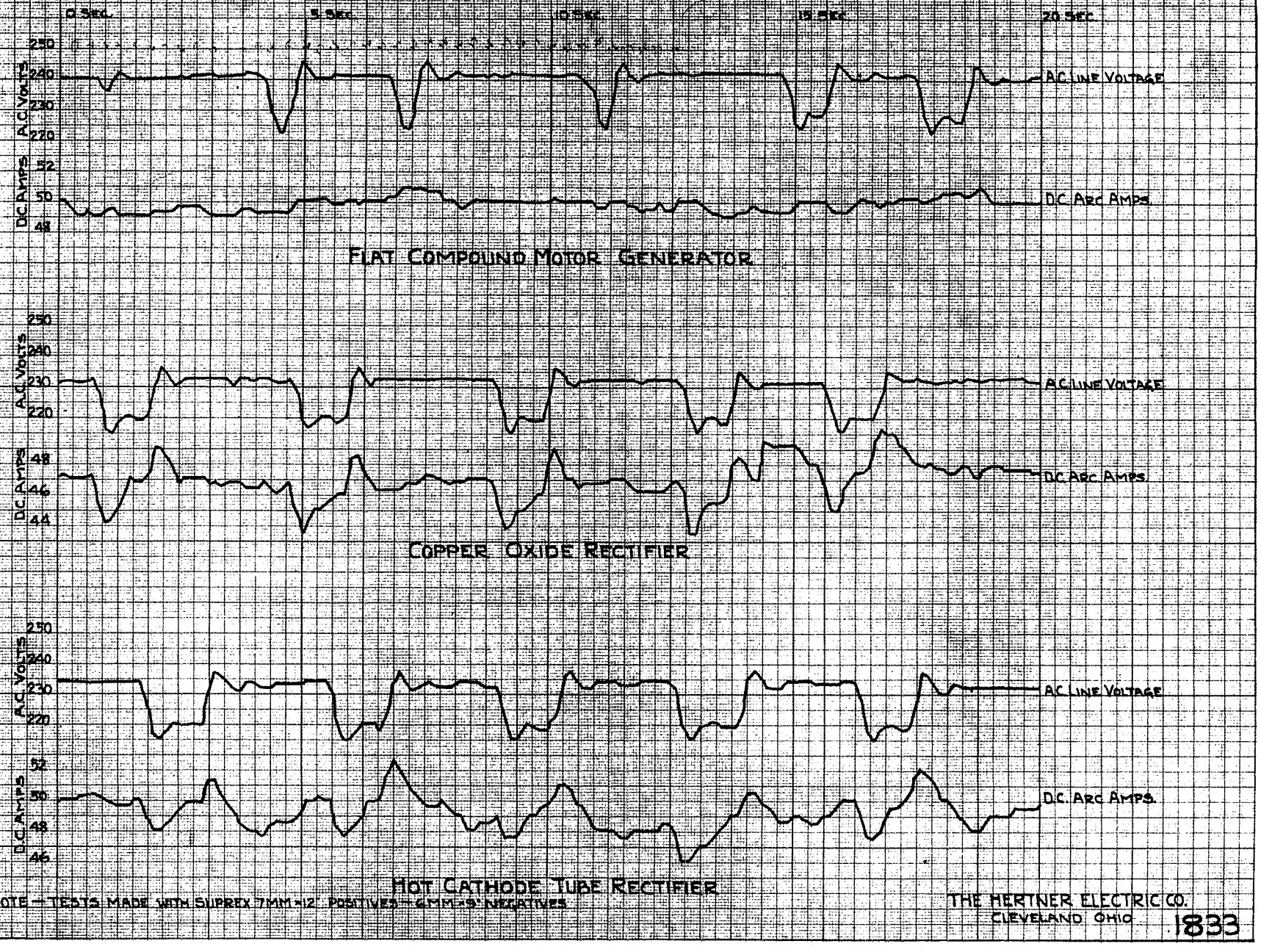
When putting in a new set of brushes the brushes must be ground in to fit the commutator or else sparking will result and the machine will not perform properly until the brushes wear themselves in. The brushes can be ground in by slipping a piece of sandpaper between the new brush and the commutator and sliding the sandpaper back and forth under the brush, holding the sandpaper to the curve of the commutator and exerting pressure on the top of the brush.

ALWAYS HAVE A FULL SET OF BRUSHES ON HAND IN CASE OF EMERGENCY.

USE ONLY BRUSHES RECOMMENDED BY THE HERTNER ELECTRIC CO.

WHEN ORDERING BRUSHES, PLEASE GIVE SERIAL NUMBER OF TRANSVERTER.

Graphic Curves Showing the Amount of Disturbance Transmitted by Various Types of Converting Equipment from the A.C. Line to the D.C. Arc Circuit of Low Voltage High Intensity Non-Rotating Arcs Due to A.C. Line Fluctuations



NOTE — TESTS MADE WITH SUPREX 7MM×12" POSITIVES — 6MM×9" NEGATIVES

THE HERTNER ELECTRIC CO.
CLEVELAND OHIO

1833

For HI-70 - 21-36 volt drop

INSTRUCTIONS FOR TYPE H.I. RHEOSTAT ADJUSTMENT FOR SUPREX ARCS

The jumper connectors on this rheostat have been set to deliver approximately 60 amperes to a Suprex type arc using 8 mm positive and 7 mm negative carbons, with the generator voltage adjusted to 60 volts and one arc burning. The jumpers as shipped are connected to short out 8 turns of the rheostat, that is, there is now a jumper connected across the studs with the Figure "8" between them and another connected across the studs with the Figure "—" between them, making a total of "8" turns shorted out of the rheostat.

To raise the current slightly connect another jumper across the studs with the figure "1" between them to make the total numerical value of the turns shorted 9 instead of 8. Likewise when desiring to decrease the current lower it gradually by dropping the jumper from across the studs with the figure "8" between them and connect jumpers across the studs with the figures "1", "2" and "4" between them, reducing the turns shorted from 8 to 7 turns, etc.

Do not indiscriminately put up or take down jumpers without regard to the numerical value of the total turns shorted as connecting a jumper across the studs with the Figure "8" between them gives eight times as much of a current increase as connecting a jumper across the studs with a Figure "1" between them. Always raise or lower the connectors so that the total number of turns shorted only increases or decreases one turn at a time.

Also the rheostat in one projector arc need not necessarily be adjusted to the same number of turns shorted as is the rheostat in the other projector arc circuit to give the same arc current, as the resistance of one arc circuit might be greater than the other due to longer length of wires, and more turns would have to be shorted out of the rheostat in the longer circuit.

Do not change the generator voltage from 60 volts to change the arc current,-- increase or decrease the turns shorted in the rheostat.

Always keep the arc length adjusted to the correct length as indicated on the lamp by the lamp manufacturer. The voltage across the arc will vary from about 30 to 36 volts, depending on the current to the arc and the type of arc lamp used.

The draft regulator in the lamp house should be adjusted to reduce the draft to a point where it does not noticeably affect the arc and just provides enough suction to remove the fumes.

10-14-37

The Hertner Electric Company
Cleveland, Ohio, U. S. A.

2257

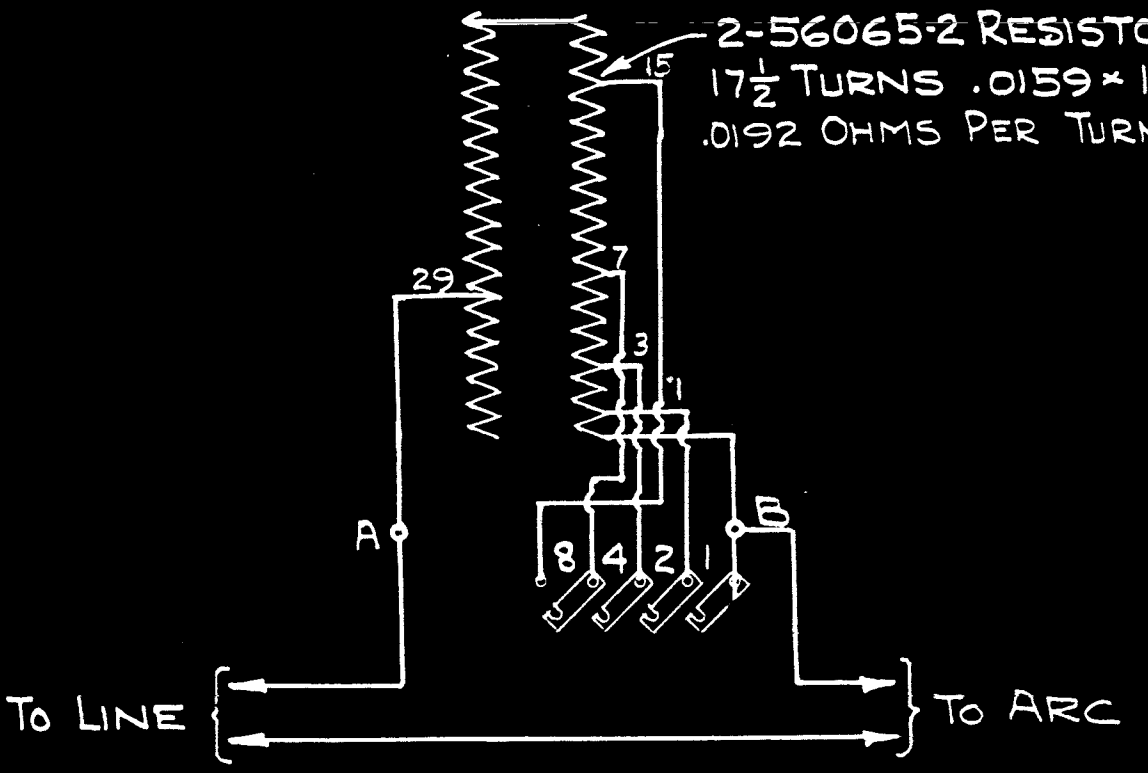
60001-41

WIRING DIAGRAM & CONNECTIONS

H. I. RHEOSTAT

21-36 V. DROP 70 AMPERE

.269 OHMS MIN. RES. = 14 TURNS
.557 OHMS MAX. RES. = 29 TURNS



ADJUSTABLE FROM 14 TO 29 TURNS IN ONE TURN STEPS OR FROM .269 OHMS TO .557 OHMS IN .0192 OHM STEPS.

BM-2043

THE HERTNER ELECTRIC CO.
CLEVELAND OHIO

5-4-36

2044

INSTRUCTIONS FOR USE OF TYPE H.I. SERIES TYPE RHEOSTAT

This rheostat should be connected in series with the arc, the incoming leads connected to terminals "A" and "B" on the rheostat.

With all of the jumper connectors hanging down, the full amount of resistance is being used, so that the maximum voltage drop and minimum current to the arc will be obtained.

To increase the current to the arc swing the connectors to the other studs in order to cut out the number of turns as designated between the studs. In other words, if one turn of resistance is to be cut out, connect the jumper between the two studs so that the No. 1 would be covered. If two turns are to be cut out, connect the jumper so that the No. 2 only is covered. If three turns are to be cut out, connect the jumpers so that the No. 1 and No. 2 are covered, and if nine turns are to be cut out, connect the jumpers so that No. 8 and No. 1 are covered, etc.

These examples are general and the turns between the taps might be different from the above description. However, the same general procedure can be followed and the turns can be cut out to produce a change in the current in the same manner on all rheostats, in one turn steps.

This manner of connection gives extreme flexibility and allows for a very small change in arc current when necessary. These changes can be made while the arc is burning.

These jumpers, when they are connected between studs, shunt out the number of turns designated between the studs, and it is necessary that in making the connections between studs that they are TIGHT to properly by-pass the current through the shunt instead of it passing through the resistance.

This rheostat should not be operated at a higher current than designated on the nameplate.

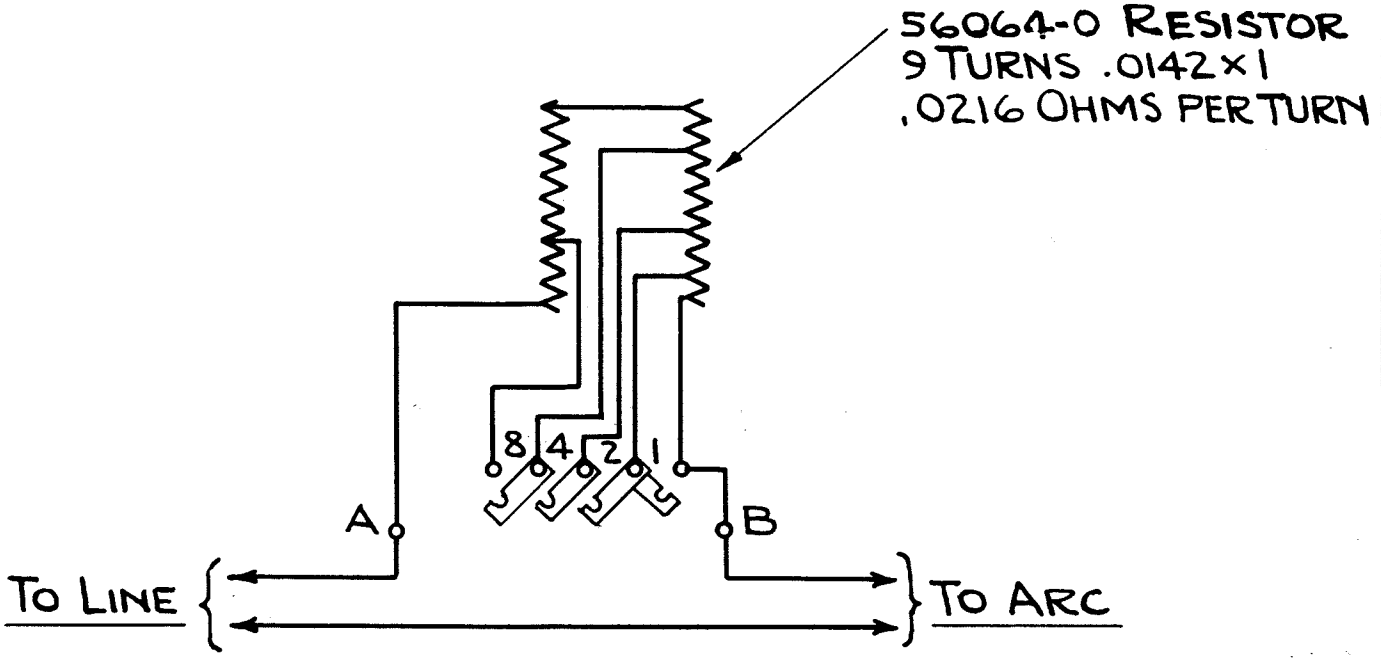
The Hertner Electric Company
Cleveland, Ohio, U. S. A.
REPRINT 12-24-37
2012

WIRING DIAGRAM & CONNETIONS
H.I. RHEOSTAT

3-13 V. DROP 70 AMPERE

PART NO. 60001-40A

.065 OHMS MIN. RES. = 3 TURNS
.389 OHMS MAX. RES. = 18 TURNS



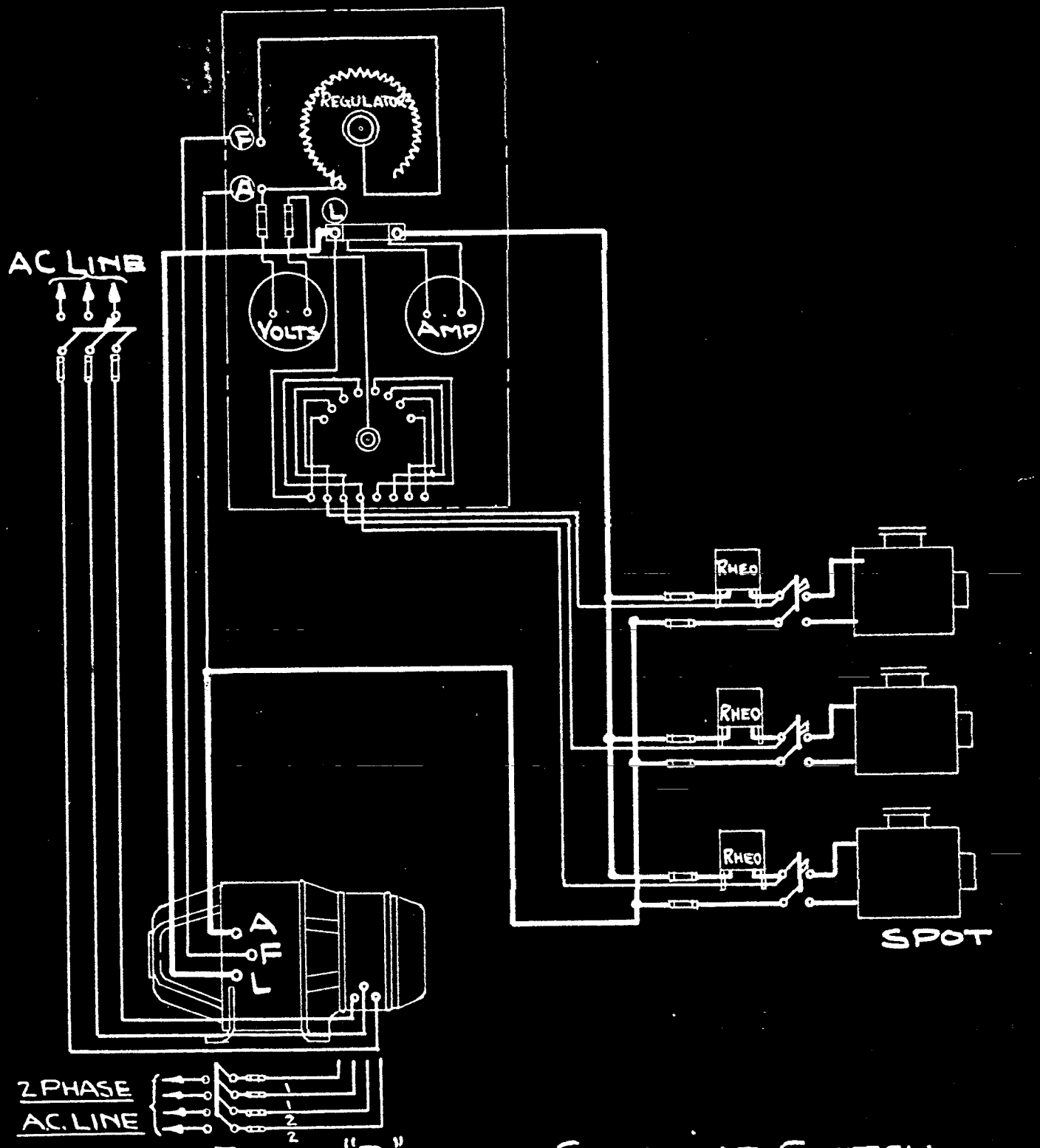
ADJUSTABLE FROM 3 TO 18 TURNS IN ONE TURN STEPS OR FROM .065 OHMS TO .389 OHMS IN .0216 OHM STEPS

B.M.-2308

THE HERTNER ELECTRIC CO.
CLEVELAND, OHIO.

2-1-38

2011-A



PANEL "D" WITH SELECTOR SWITCH & HIH TRANSVERTERS

THE HERTNER ELECTRIC CO.
CLEVELAND, OHIO

12-18-36

2133