

MORKRUM MULTIPLEX PRINTING TELEGRAPH SYSTEM

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WIRING DIAGRAMS INCLUDED

- Transmitting Distributor #843
- Receiving Distributor #844
- Test Distributor #845
- Auto Stop Relay Unit #857
- Transmitter #858

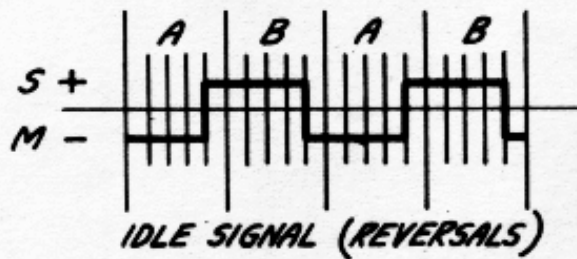
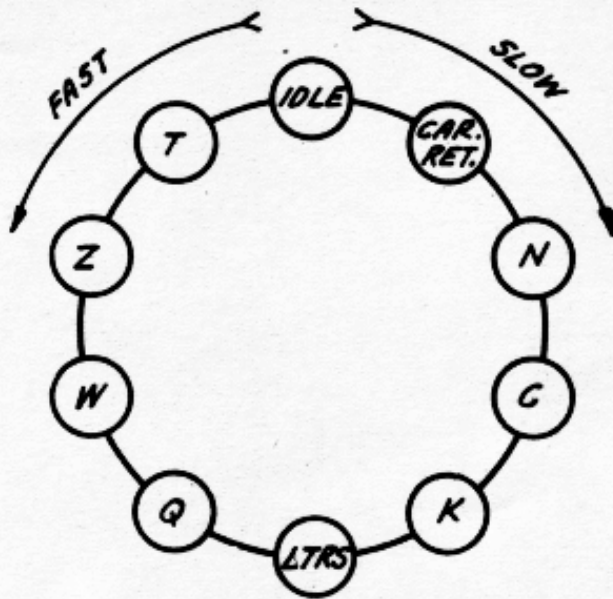


FIGURE 1.

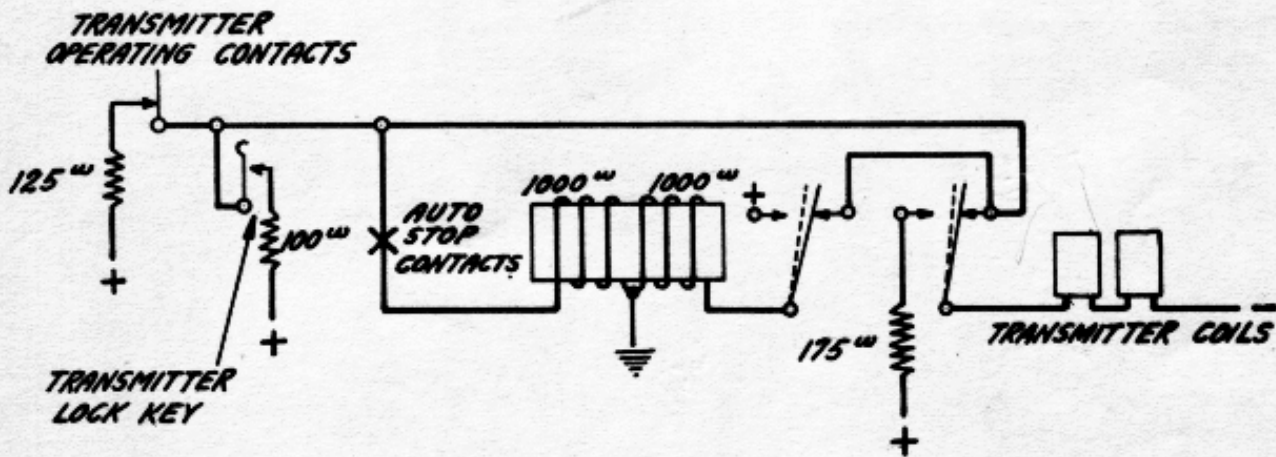


FIGURE 2.

DESCRIPTION

GENERAL

This supplement forms a part of Morkrum Specifications #111 and #112 dated January 1923 and February 1926, and covers the following new features:

1. Idle Signal
2. Phasing Signal ("E" instead of "R")
3. Auto-Stop Relay Unit
4. Phasing Switch Connections

NEW IDLE SIGNAL.

The system as described in bulletins #111 and #112 is so arranged that the transmitting distributor sends out five complete reversals per revolution when no traffic is being transmitted. It has been found possible to change the transmitter and distributor connections to give one reversal per revolution which reduces wear on relay contacts and inductive interference between line wires.

With the new idle signal the 1st, 2nd, 3rd and 4th pulses from each transmitter are of one polarity and the fifth of the opposite polarity. See figure 1.

The new idle signal makes it possible to get into phase if phase is lost while the distant station is not sending without asking the distant station to run correction. If the set runs out behind, the CAR. RET. signal will be received, and if it runs out ahead, letter "T" will be received. Figure 1 shows the sequence of letters obtained from the new idle signal.

When the circuit is out at both terminals, phasing must be done on the "E" signal (used instead of "R") so that each station will know when the other one is in phase.

The new idle signal involves wiring changes in transmitters, transmitting distributor, receiving distributor and test distributor. An AC switch must also be added to the transmitting distributor.

"E" PHASING SIGNAL

The "R" switch previously used has been rewired and is now known as the "E" switch. When thrown to the phasing position, it reverses the polarity of the first pulse of the A channel transmitter and sends out the letter "E" on the A channel instead of the letter "R".

The new phasing signal involves a wiring change in the distributor table.

AUTO STOP RELAY UNIT- WIRING DIAGRAM 857.

Multiplex transmitters in the past were equipped with auxiliary locking coils for locking up the transmitter. The locking coils are now being omitted and the transmitter held locked in by the operating coils. The auto stop relay unit has been re-designed to take care

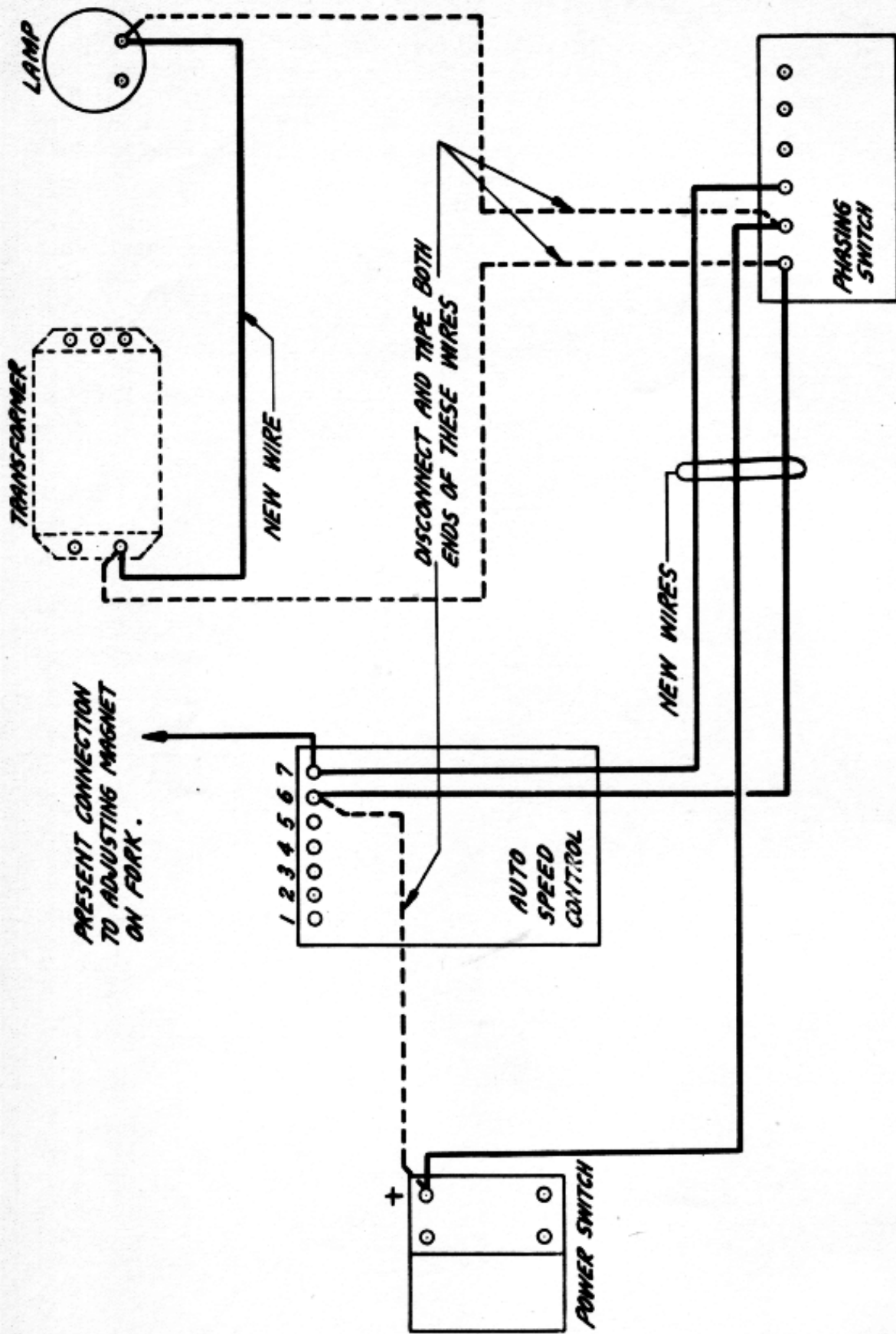


FIGURE 3.

of this new feature, the new circuits are shown in figure 3.

When the tape is slack and the auto stop contacts are closed, a current pulse will be sent through the two windings of the relay coil and through the transmitter magnets whenever the transmitting operating contacts on the distributor are closed. The relay coil is differentially wound and current flowing through both windings will neutralize,- thus preventing the relay from operating.

When the auto stop lever is pulled up, the circuit to one of the relay coil windings is opened and the following closing of the transmitter operating contacts will cause current to flow through one winding of the coil,- thus operating the relay which locks itself in through its left hand tongue and front contact. The transmitter is locked in through the right hand tongue and front contact.

When the auto stop contacts are again closed, a pulse from the transmitter operating contacts will send current through both windings of the relay coil de-energizing the relay and causing it to release the transmitter and unlock itself.

PHASING SWITCH CONNECTIONS.

The phasing switch on the distributor table shelf was wired so as to open the circuit on the AC side of the rotary when thrown to the right. This caused the rotary to run ahead quite rapidly and made it necessary for the operator to be very careful when throwing the switch so as to catch the rotary at exactly the correct speed.

The phasing switch has been re-wired as shown in figure 3. The switch has been removed from the AC side of the rotary and is arranged to short-circuit or open the auto speed control rheostat circuit. When the switch handle is towards the left (normal) the rheostat is in the circuit; with switch handle in center position the rheostat circuit is open; with switch handle to right, the rheostat is short-circuited.

If the sequence of printed letters indicate that the rotary should be slowed down, the switch is set in its center or slow position. The fork adjusting magnet circuit being opened, the fork will slow down. If the rotary speed is to be increased, the switch is thrown to the right and the rheostat short-circuited. This will increase the current through the adjusting magnets and cause the fork and rotary to speed up but not as abruptly as with the old switch connections.

METHOD FOR MAKING CHANGES

GENERAL.

All wires which are to be disconnected must be pulled out of the holes in the table, insulated with rubber and friction tape and where practicable should be laced to the cable. New wires should be neatly laced to the cable.

TRANSMITTER - WIRING DIAGRAM 858.

Remove wires and straps from upper and lower contacts and re-wire contacts as shown in drawing. Remove locking magnets and locking magnet

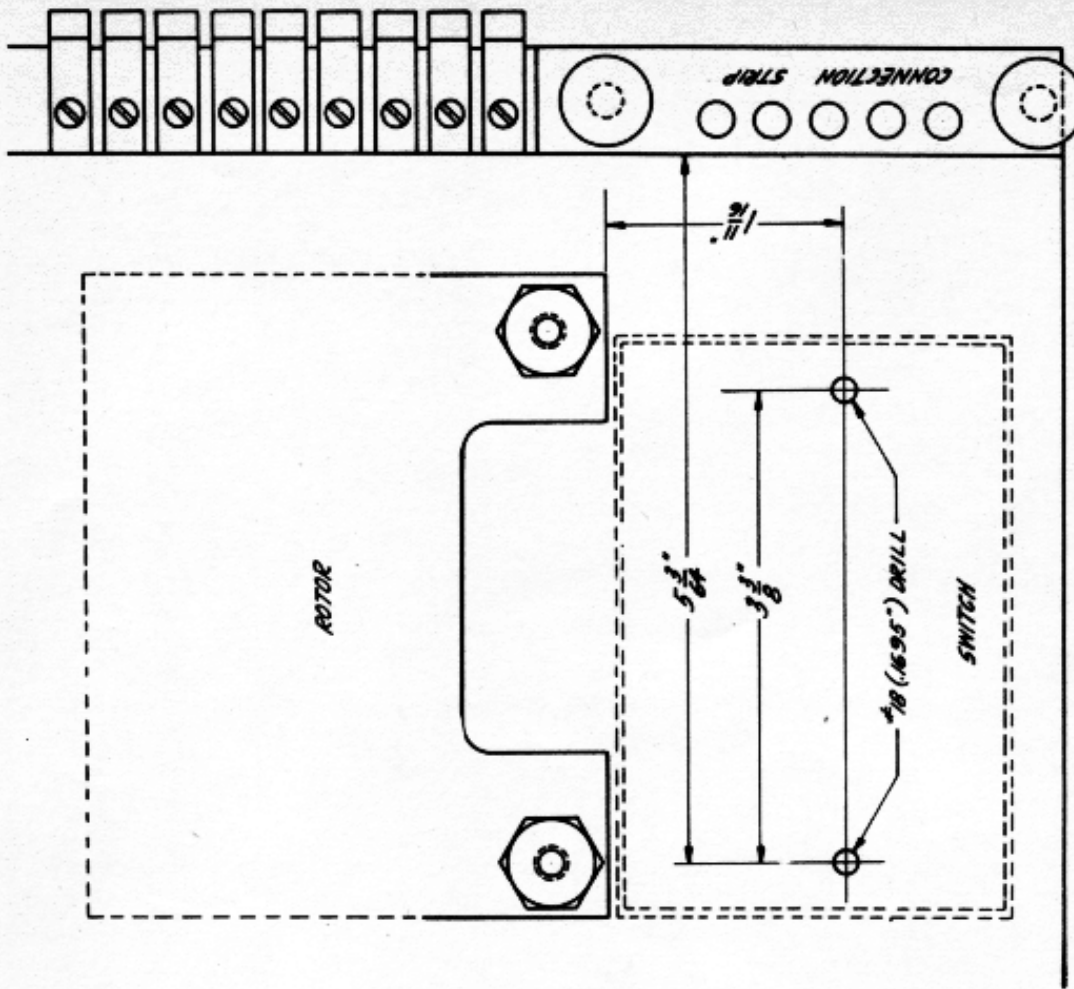


FIGURE 4.

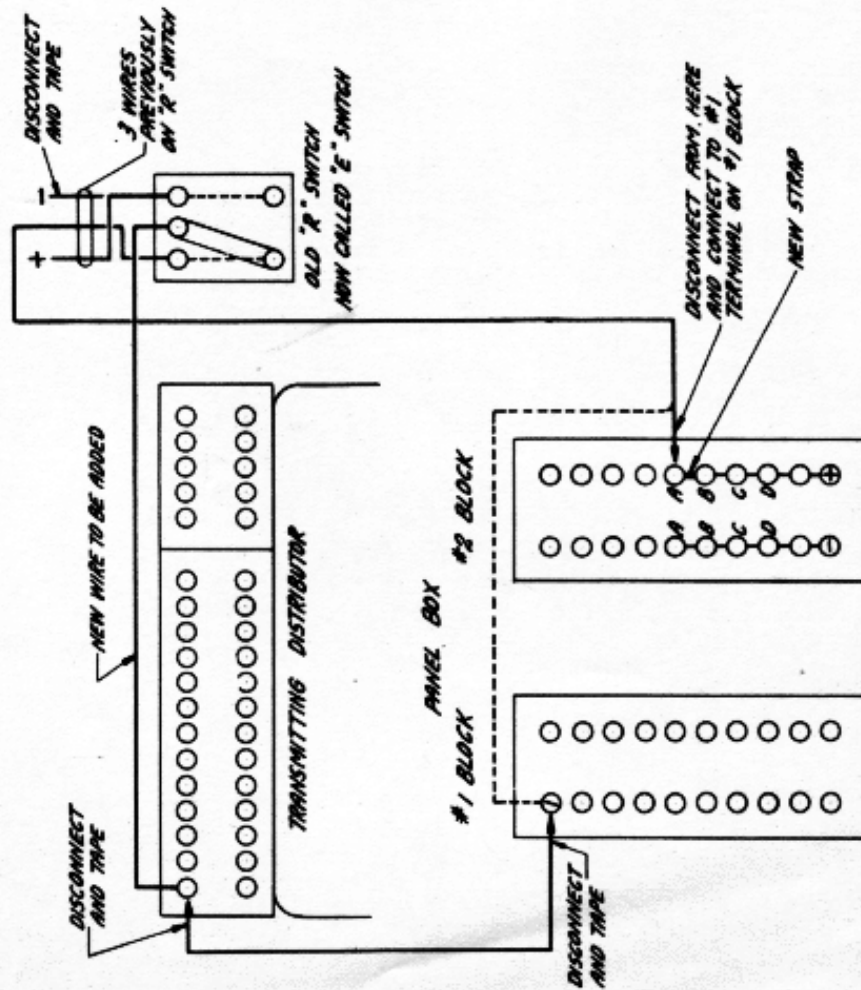


FIGURE 5.

armature from transmitter. Tape ends of two wires removed from locking coils.

NOTE: If changes for the new auto stop relay unit are not to be made at the same time as idle signal, the locking magnets and armature should not be removed from transmitter.

TEST DISTRIBUTOR - WIRING DIAGRAM 845

Remove wires and straps from commutator segments of inner ring and re-wire as shown in diagram.

TRANSMITTING DISTRIBUTOR - FIGURE 4 AND WIRING DIAGRAM 843

The following new parts are required for each transmitting distributor:

- 1- #6417 six point switch (AC switch)
- 2- #33-274 screw
- 2- #2263 nut

Mount the AC switch on distributor in the position shown in figure 4. Drill two holes with a #18 drill and fasten the switch to base with the screws and nuts. The holes must be accurately located to provide proper clearance for mounting nuts and also to permit positioning of rotor for gear and pinion clearance.

Re-wire distributor which is wired according to diagram #559 in Supplement #4 to conform to connections shown in diagram #843.

If for some reason it is not possible to have the AC switch added to the transmitting distributor at the time the change over to the new idle signal is made, it will be possible to transmit AC for balancing purposes by locking the letter "G" in the A and B channel transmitters.

RECEIVING DISTRIBUTOR-WIRING DIAGRAM 844

Change wiring of the ten receiving contacts from that shown on drawing #488 in bulletin 111 or 112 to conform to diagram 844. Note that the only changes are the straps on ten contacts and transposition of wires 13 and 24.

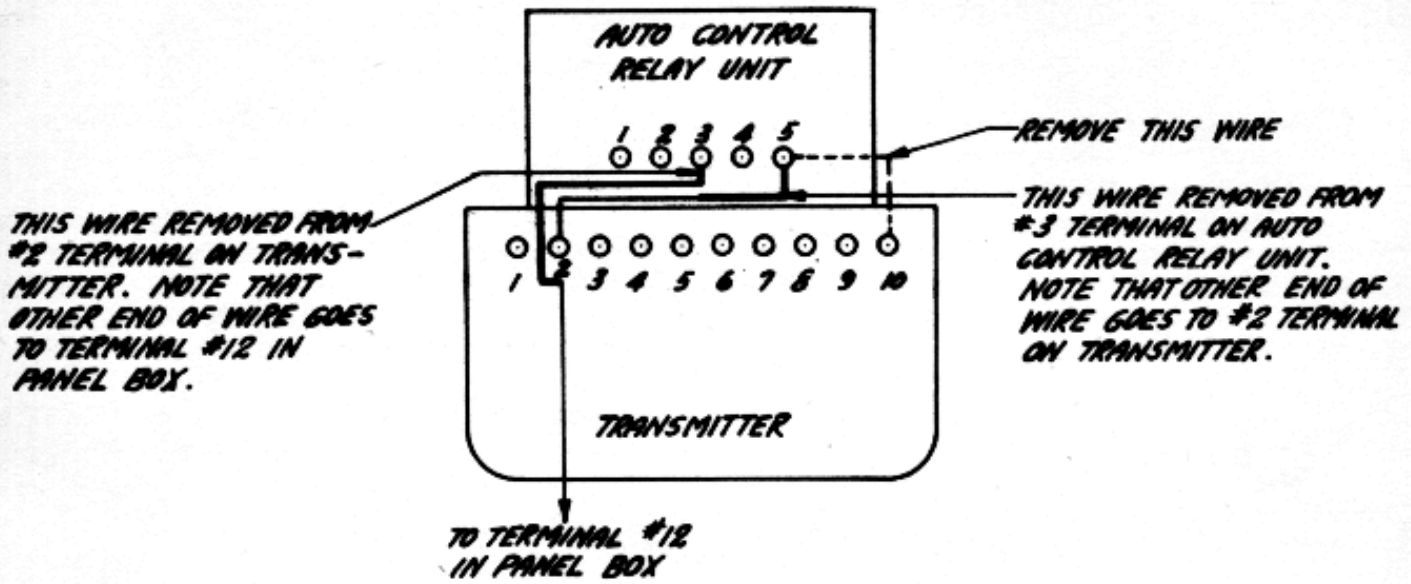
DISTRIBUTOR TABLE CHANGES FOR NEW "E" SWITCH - FIGURE 5.

Remove and tape the wire on #1 transmitting distributor table clip and #1 terminal on #1 block in panel box.

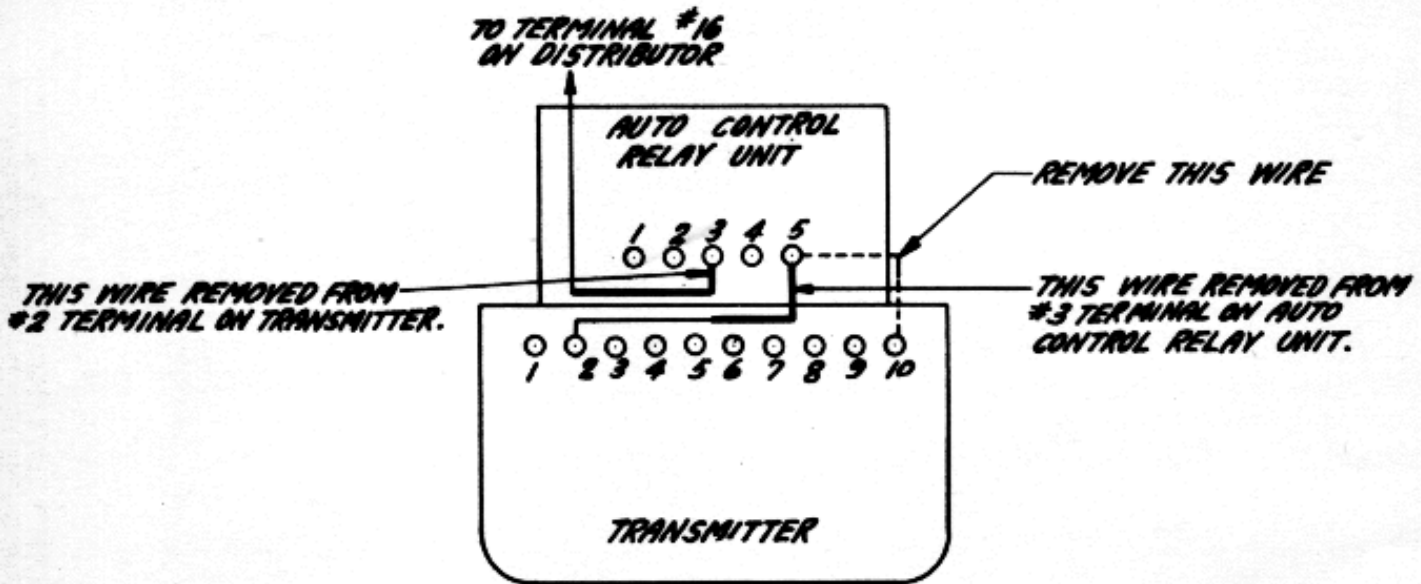
Remove and tape wire on right hand terminal of "R" switch. Move wire from left hand terminal to right hand terminal, and wire from center terminal to left hand terminal. Disconnect wire from +A terminal on #2 terminal block in panel box and connect this wire to #1 terminal on #1 terminal block.

Run wire from #1 transmitting distributor table clip to center terminal on "R" switch.

Add strap between +A and +B terminals on #2 terminal block in panel box.



OPERATING TABLE WIRING CHANGES
FIGURE 6.



TEST TABLE WIRING CHANGES
FIGURE 7.

PHASING SWITCH - FIGURE 3.

NOTE: THIS CHANGE CAN BE MADE AT ANY TIME AND IS NOT DEPENDENT ON ANY OTHER CHANGES.

Disconnect and tape two wires going to left hand and center terminals on phasing switch and also ends connected to transformer and lamp.

Disconnect and tape wire on #6 auto speed control unit table clip and other end of wire connected to + terminal on power switch.

Run new wires between transformer and lamp; phasing switch and auto speed control; and phasing switch and power switch as shown in figure 3.

CHANGE IN OPERATING AND TEST TABLE WIRING FOR NEW AUTO STOP RELAY UNIT.

Figure 6 shows the wiring changes in operating table and figure 7, the changes in test table.

The changes are made as follows: Remove wire between #5 terminal on relay unit and #10 terminal on transmitter. Remove wire from #3 terminal on relay unit and connect it to #5 terminal on relay unit. Remove wire from #2 terminal on transmitter and connect it to #3 terminal on relay unit.

Be sure that the proper wires are disconnected from #2 terminal on transmitter and #3 terminal on relay unit. See figures 6 and 7.

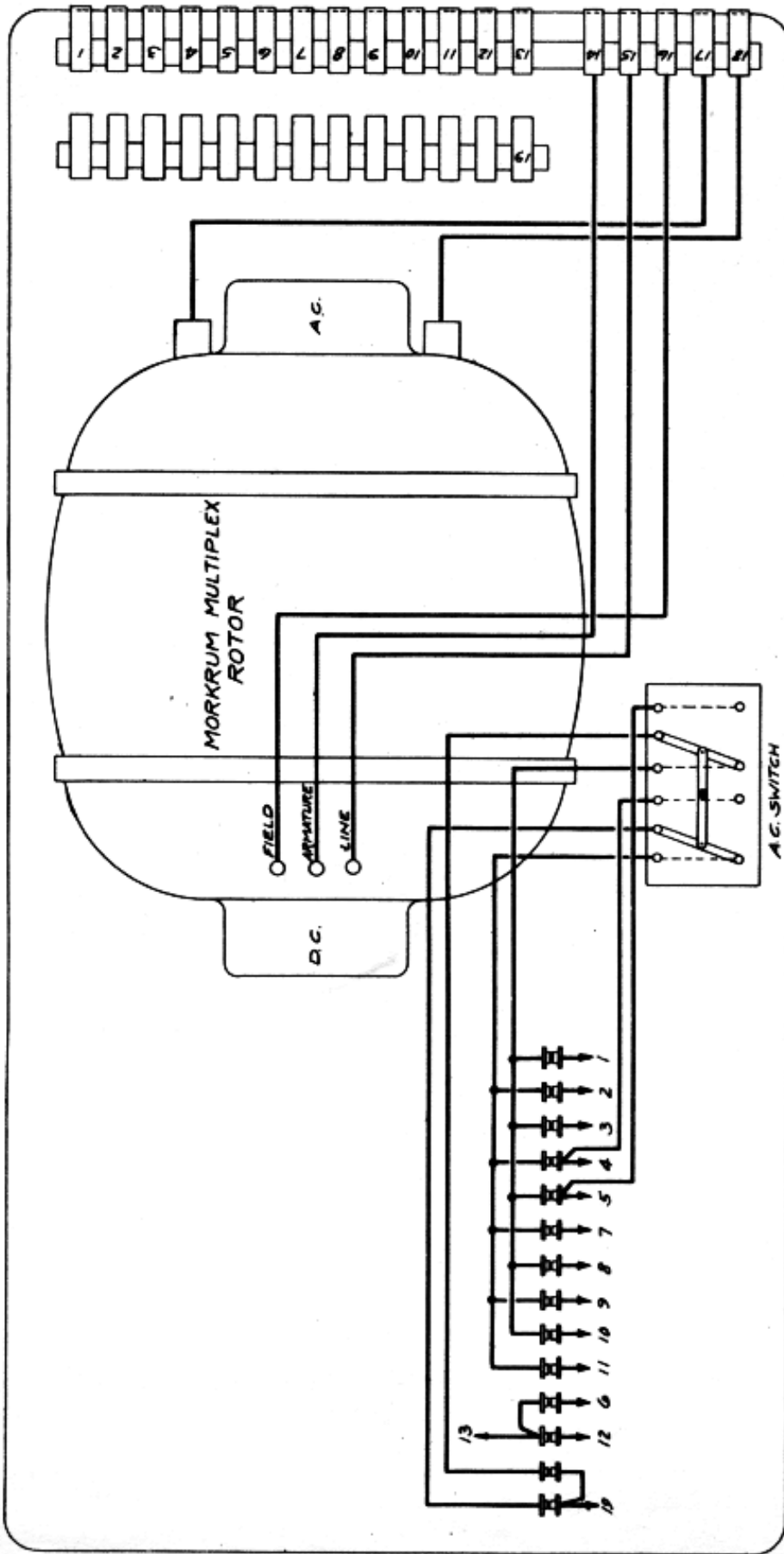
AUTO CONTROL RELAY ADJUSTMENTS

Adjustments of relay should be made as described in bulletin 121 excepting the armature spring tension should be 4 ounces instead of $3\frac{1}{2}$ ounces.

The "make before break tongue" should be adjusted to give .010" clearance between the two springs making up the double tongues. This clearance should be measured when the springs are not touching the contact. The clearance is adjusted by bending one of the springs.

SPECIAL NOTE: THE TRANSMITTER, TEST DISTRIBUTOR, TRANSMITTING DISTRIBUTOR, RECEIVING DISTRIBUTOR AND DISTRIBUTOR TABLE CHANGES MUST BE MADE SIMULTANEOUSLY AT BOTH ENDS OF CIRCUIT. BOTH TERMINALS MUST ARRANGE TO MAKE CHANGES AT THE SAME TIME.

ASB.



MORKRUM-
KLEINSCHMIDT
CORPORATION

843
1-13-27

WIRING
DIAGRAM
M2CXD7
DISTRIBUTOR

DRAWN A.S.B.
TRACED D.P.
CHECKED A.D.
ENG'R'D
APPROVED *AP*

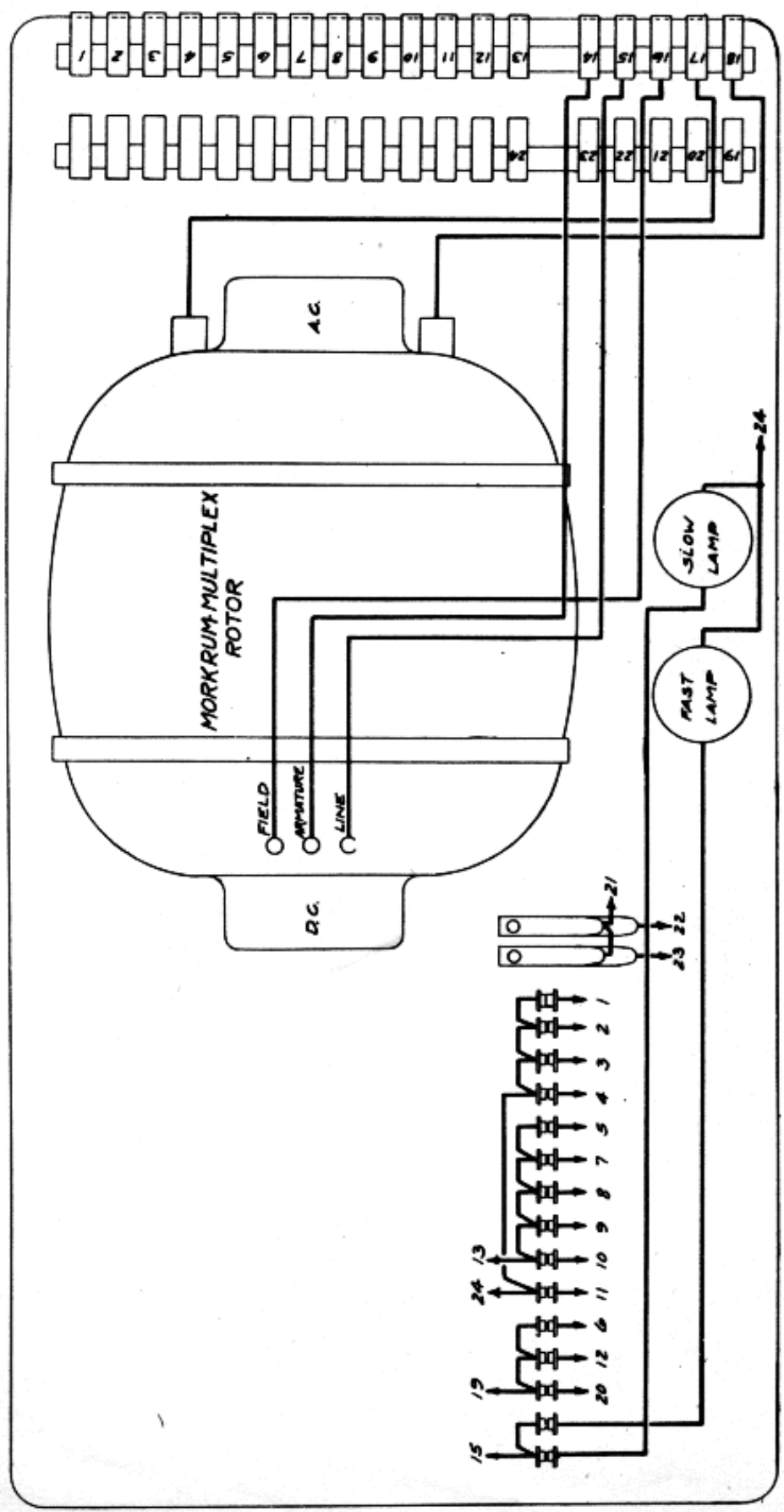
MORCRUM-
KLEINSCHMIDT
CORPORATION

844

1-13-27

WIRING
DIAGRAM
M2CRD 7
DISTRIBUTOR

DRAWN R.A.S.
TRACED G.P.
CHECKED A.B.
ENG'N'D
APPROVED *A.S.*



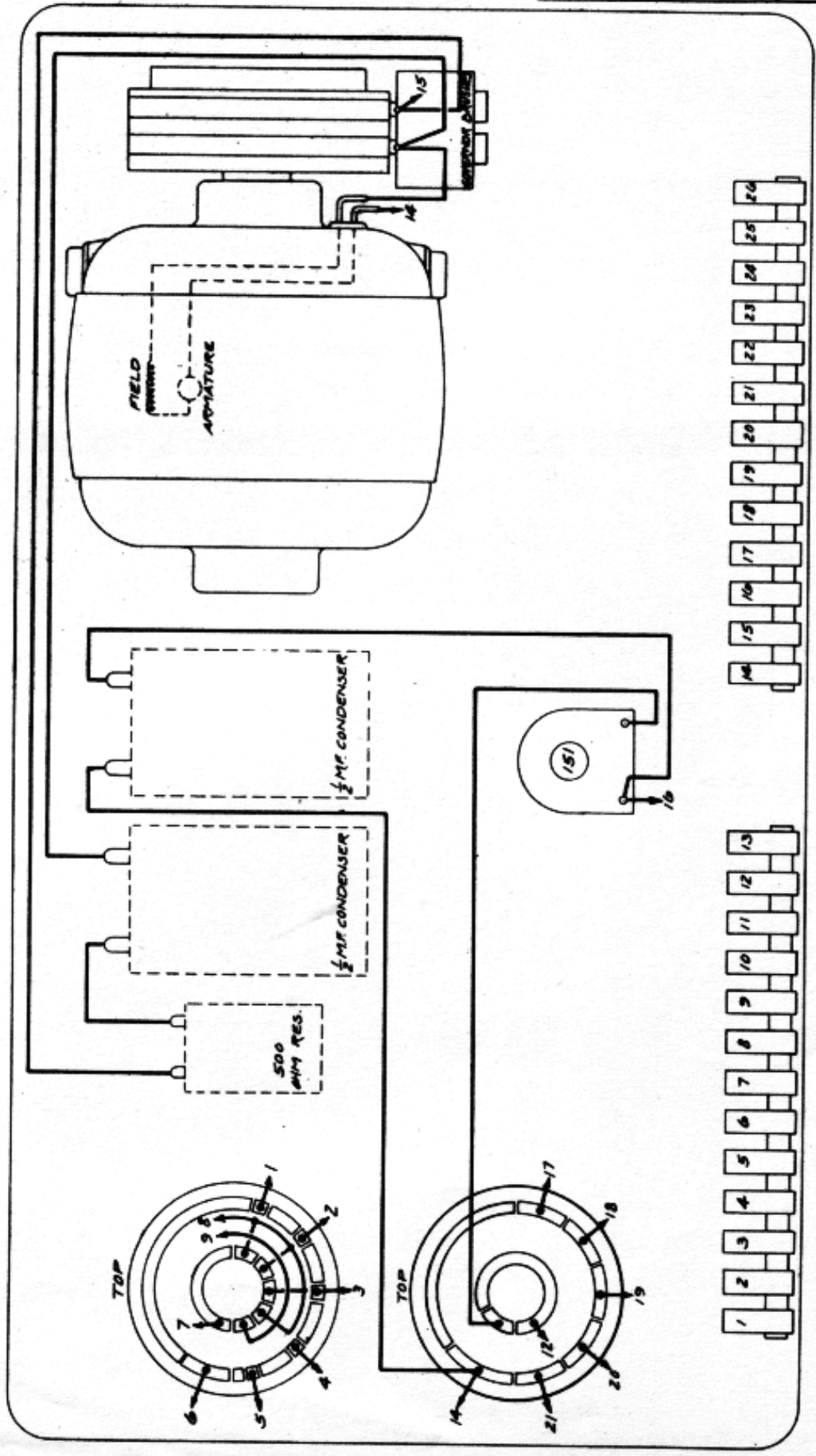
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KLEINSCHMIDT
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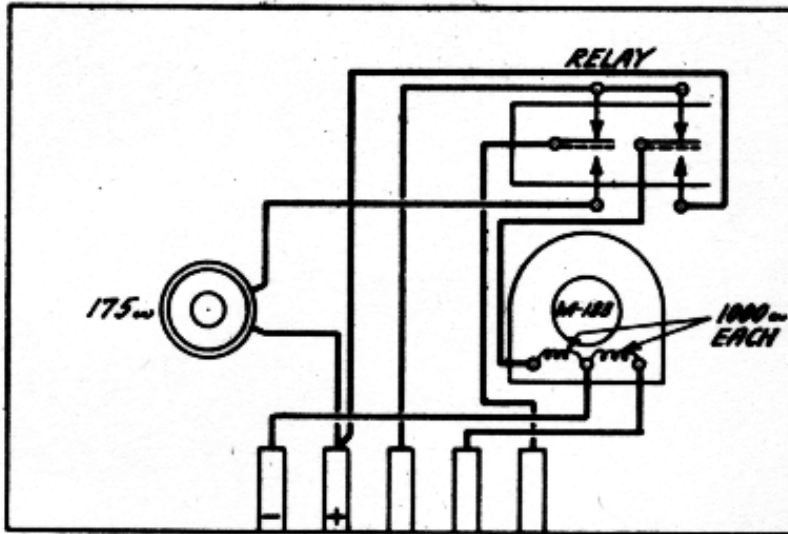
845
1-13-27

REVISED
6-10-27 A.S.B.

WIRING DIAGRAM
FOR DISTRIBUTOR
MTD 4

DRAWN A.J.B.
TRACED D.P.
CHECKED R.D.
ENG'N'G
APPROVED A.H.A.





**MORRUM-
KLEINSCHMIDT
CORPORATION.**

857

JULY 29-1926.

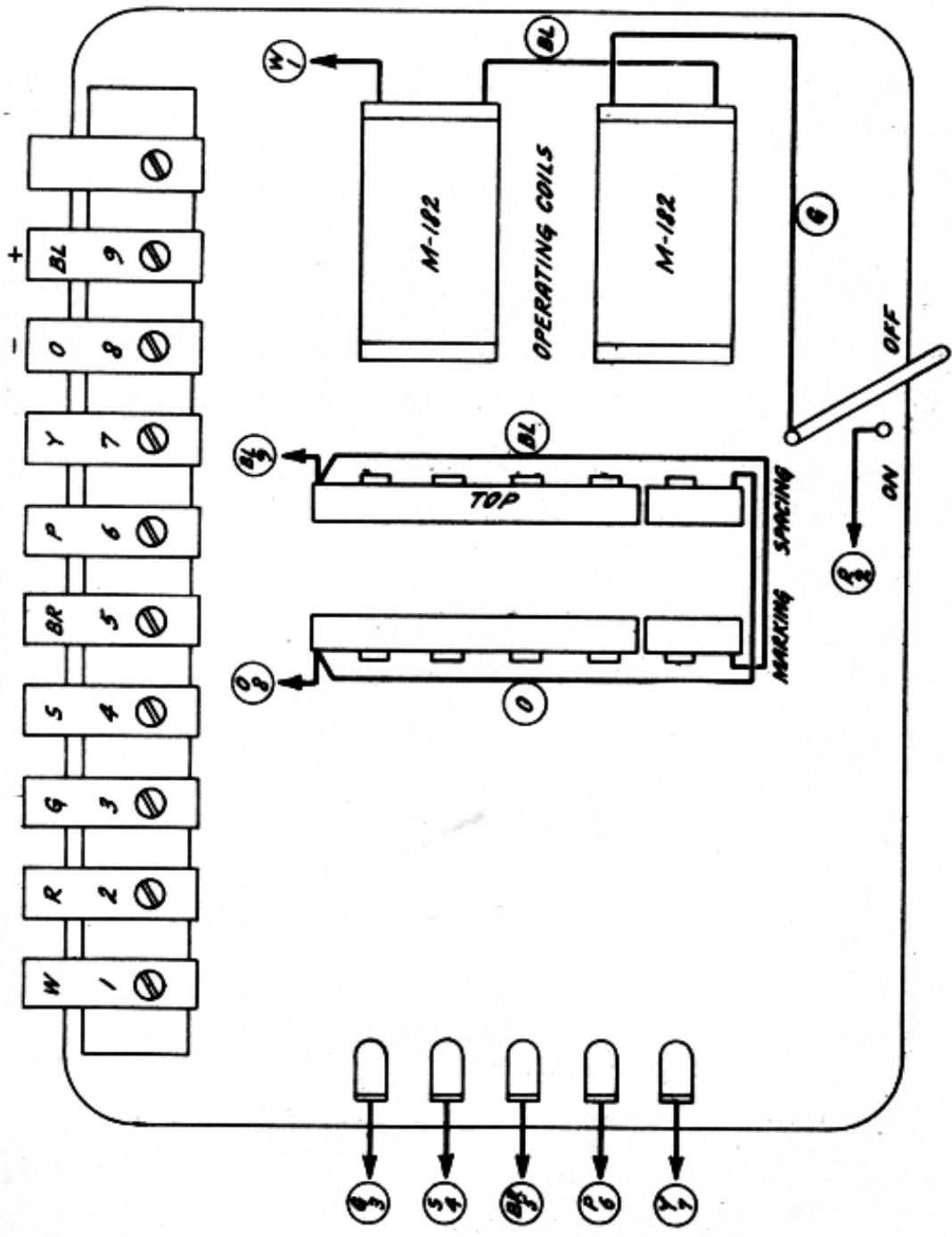
**CIRCUIT AND RELAY CHANGED
APRIL 5, 1927. A.S.B.**

**WIRING DIAGRAM
AS2**

AUTO STOP

**DRAWN A.D.
TRACED A.D.
CHECKED A.S.B.
ENG'R'D A.S.B.
APPROVED**

W - WHITE
 R - RED
 G - GREEN
 S - SLATE
 BR - BROWN
 BL - BLACK
 P - PURPLE
 Y - YELLOW
 O - ORANGE



MORRUM-KLEINSCHMIDT CORPORATION.

858

JAN. 28-1927.

COIL CHANGED
APRIL 5, 1927. A.S.B.

**WIRING DIAGRAM
X6
TRANSMITTER.**

DRAWN A.D.
 TRACED A.D.
 CHECKED A.S.B.
 ENG'R'D A.S.B.
 APPROVED *A.S.B.*