

TELETYPE MODEL 19 SET

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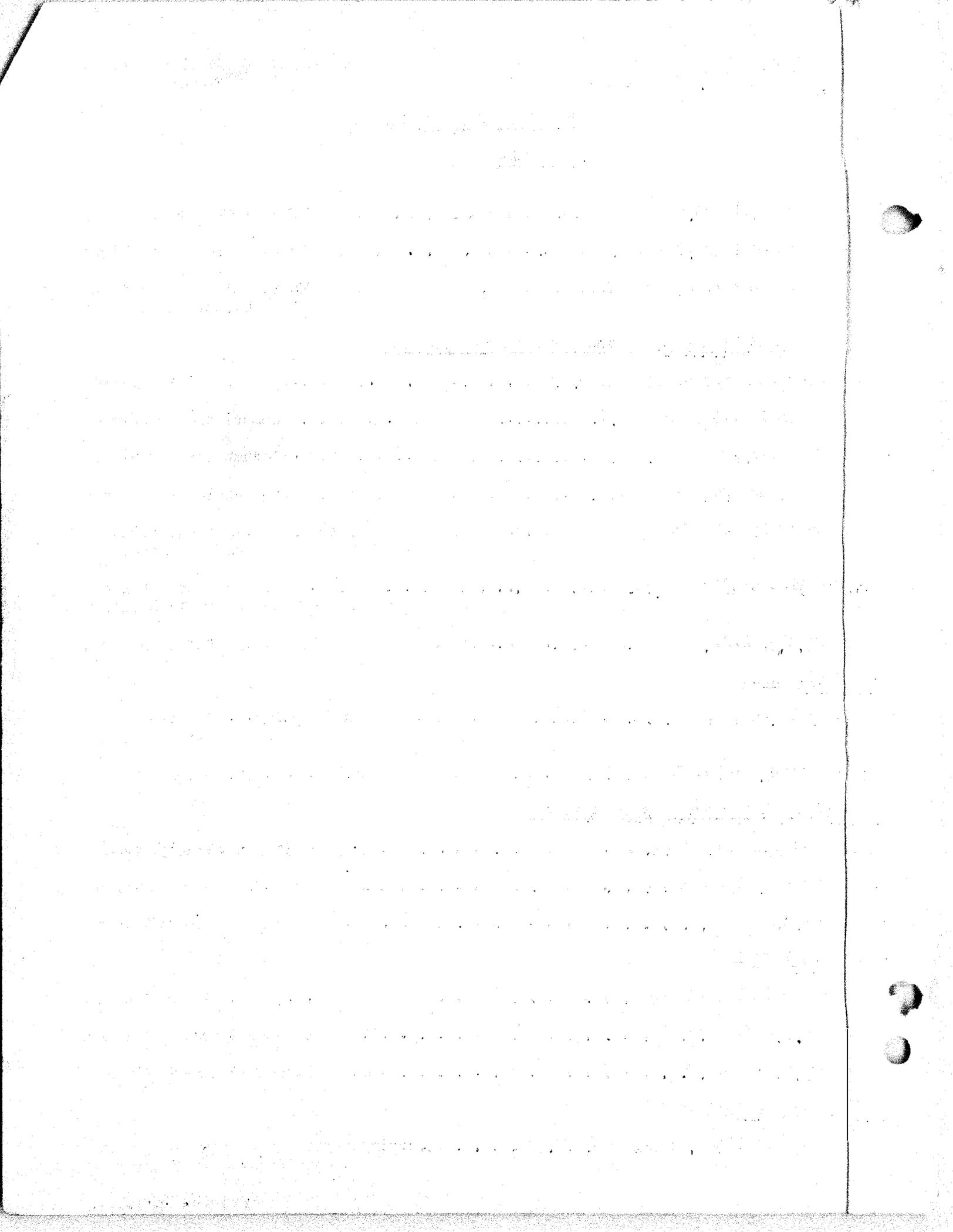
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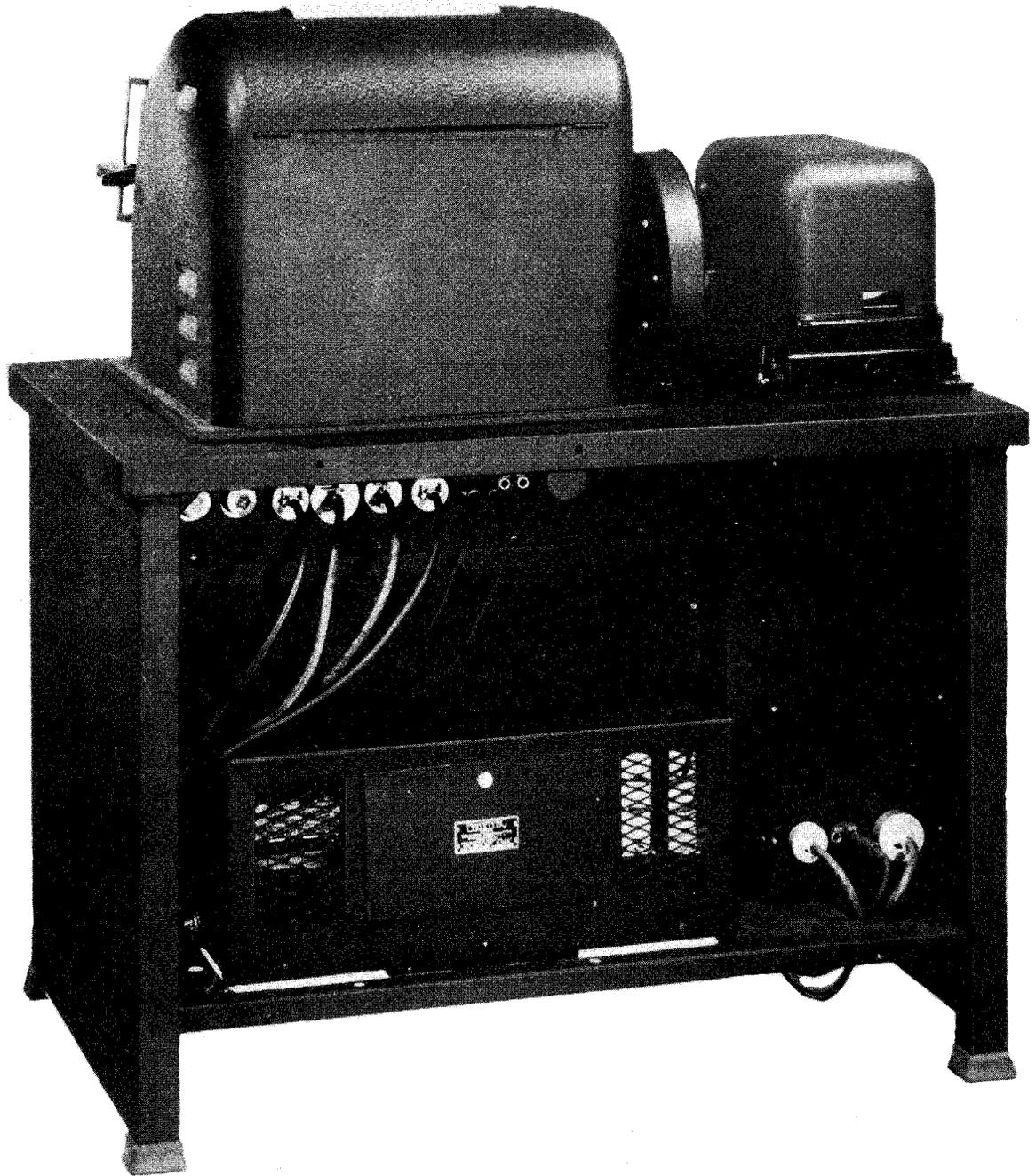
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TELETYPE MODEL 19 SET  
WITH  
MODEL 14 NONTYPING REPERFORATOR





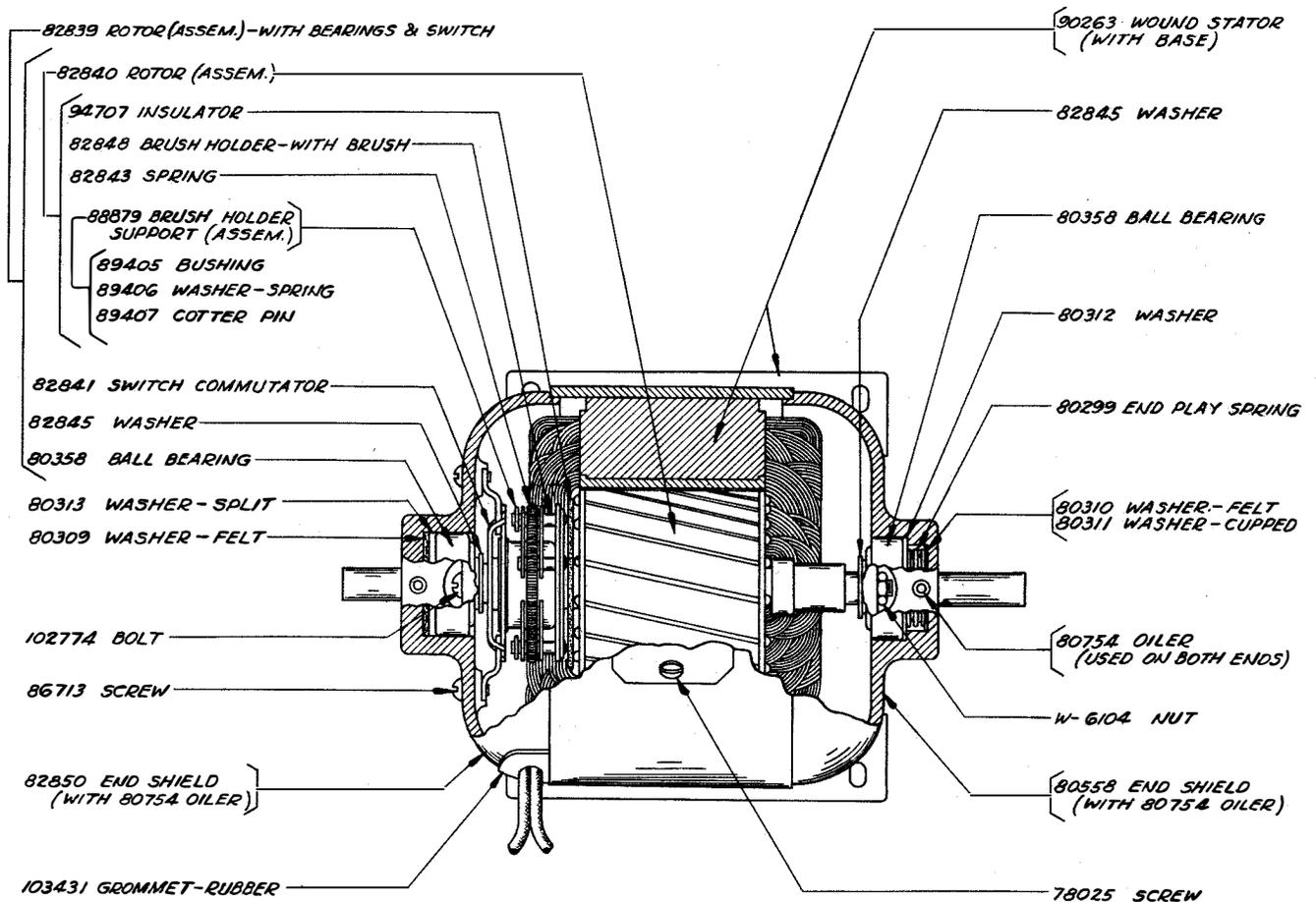
TELETYPE MODEL 19 SET  
( REAR VIEW )



CHANGES AND ADDITIONS TO BULLETINS

1030 ISSUE 2	1064 ISSUE 1	1084 ISSUE 1	1100 ISSUE 1	1107 ISSUE 1
1031 " 3	1075 " 2	1087 " 1	1101 " 1	1108 " 1
1037 " 4	1079 " 1	1088 " 2	1102 " 1	1109 " 1
1041 " 3	1080 " 1	1094 " 2	1103 " 1	1114 " 1
1048 " 2	1082 " 2	1095 " 1	1104 " 1	
1063 " 2	1083 " 1	1096 " 1	1106 " 1	

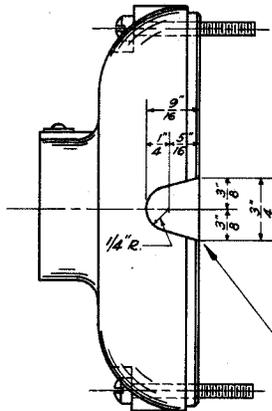
THIS CORRECTION SHEET COVERS ORDERING INFORMATION AND INTERCHANGEABILITY OF PARTS FOR THE OLD STYLE 82283 SYNCHRONOUS MOTOR (G.E. MODEL 5SH25AB11) AND THE NEW STYLE 82283 SYNCHRONOUS MOTOR (G.E. MODEL 5SH25AB11B)



NEW STYLE

82283 SYNCHRONOUS MOTOR, 1/40 H.P., 110 V., 60 CYCLE A.C. (G.E. MODEL 5SH25AB11B)

(SEE PAGE 2 FOR OLD STYLE)

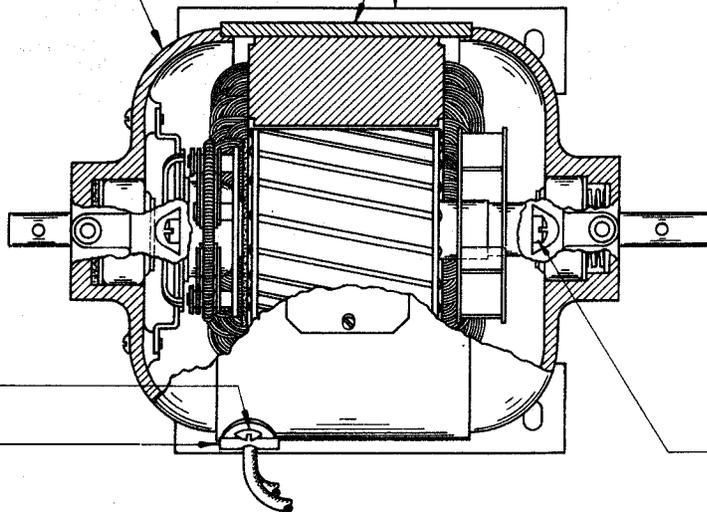


OLD STYLE 82850 END SHIELDS MAY BE WORKED OVER FOR USE WITH NEW STYLE MOTORS BY ADDING WIRE OUTLET HOLE AS ILLUSTRATED.

82850 END SHIELD - HAS BEEN REDESIGNED BUT RETAINS ITS ORIGINAL PART NUMBER. THE NEW STYLE END SHIELD (WITH WIRE OUTLET HOLE) CAN ALSO BE USED ON THE OLD STYLE MOTORS. THE OLD STYLE END SHIELD (WITHOUT WIRE OUTLET HOLE) CANNOT BE USED ON NEW STYLE MOTORS UNLESS IT BE WORKED OVER AS ILLUSTRATED ABOVE.

90263 WOUND STATOR (WITH BASE) - HAS BEEN REDESIGNED BUT RETAINS ITS ORIGINAL PART NUMBER. WHEN REPLACING AN OLD STYLE STATOR (WITH TAPPED HOLES FOR THE END SHIELD CLAMPING STUDS) WITH A NEW STYLE STATOR (WITH BODY HOLES FOR THE END SHIELD BOLTS) THE FOLLOWING NEW STYLE PARTS SHOULD BE ORDERED:

- 90263 WOUND STATOR (WITH BASE).....1
- 82850 END SHIELD.....1
- (OR WORK OVER OLD STYLE END SHIELD)
- 103431 GROMMET - RUBBER.....1
- 102774 BOLT.....2
- W-6104 NUT.....2



80351 SCREW

80307 OUTLET (WITH 80308 BUSHING - FIBRE)

80559 CLAMPING STUD

OLD STYLE

82283 SYNCHRONOUS MOTOR, 1/40 H.P., 110 V., 60 CYCLE A.C. (G.E. MODEL 5SH25AB11)

(PARTS NOT LISTED SAME AS ON NEW STYLE MOTOR, SHOWN ON PAGE 1)

LUBRICATION SUPPLIES  
AND DIRECTIONS FOR USE

The following lubricants have been standardized for use on all types of Teletype apparatus:

88970	1 Qt. of KS-7470 Oil
88971	1 Gal. of KS-7470 Oil
88973	1 Lb. of KS-7471 Grease
88975	KS-8319 Grease Gun
97116	4-oz. Tube of KS-7471 Grease

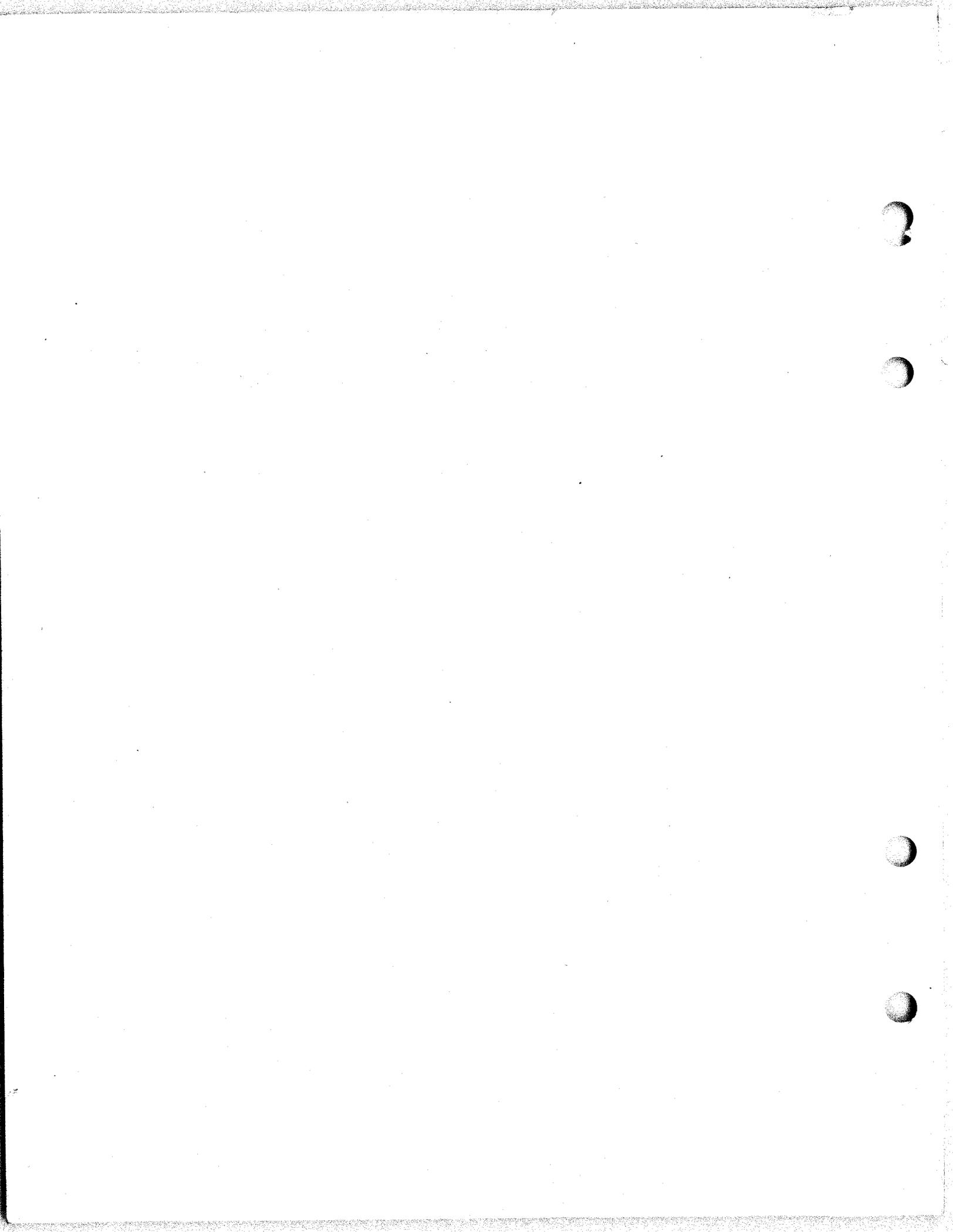
The above grease is recommended instead of oil for lubricating motors equipped with ball bearings. The 88975 grease gun should be used for injecting grease into the bearings of Teletype ball bearing motors. The gun may be used also for applying grease to other parts of the apparatus and no other grease container need be carried. If this grease gun is not available, the oil listed in the foregoing should be substituted for lubricating ball bearing motors.

Instructions for Filling the Grease Gun

1. Unscrew the lubricant tube from the cap casting of the grease gun.
2. Insert fresh lubricant through the open end of the tube with the fingers. Apply gradually to eliminate air pockets.
3. Tamp the lubricant down solidly in the tube by pounding the closed end solidly against the palm of the hand. Continue to add lubricant until the tube is completely filled and the metal follower rests against the perforated tube cover.
4. Fill the cap casting with lubricant flush to the bottom side of the tube threads.
5. Screw the lubricant tube into the cap casting part way only. Then insert a pencil or rod through the perforated tube cover and exert pressure against the metal follower so as to expel any entrapped air past the tube threads. When lubricant begins to ooze through the threads, tighten the lubricant tube securely in the cap casting.
6. Operate the handle back and forth for several strokes or until lubricant is pumped from the nozzle. The gun is then ready for use. If the lubricant does not flow from the nozzle in a solid stream, it is an indication that all air has not been expelled from the lubricant tube. Invert the gun and pound the cap casting end against the palm of the hand to jar the lubricant into the pump cylinder.

Instructions for Lubricating Motor Ball Bearings

The motor bearings are packed with grease before the motor leaves the factory and under ordinary operating conditions need no additional lubrication for approximately two months. At the regular lubricating intervals one or two strokes of the plunger of the gun should apply sufficient grease to each bearing. To lubricate, press the nozzle of the gun against the ball oiler and force the grease into the hole by pushing on the plunger of the gun. Care should be taken that the bearings are not overloaded. Overloading will result in the grease oozing out of the end castings and being forced into the motor or being thrown on other parts of the mechanism. After lubricating, the motor should be run for a few minutes and then any excess grease that has been forced out of the ends of the castings should be wiped off. Each time that the gun is used for lubricating a motor bearing, the plunger should first be depressed slightly to make sure that grease will be delivered.



INSTRUCTIONS FOR MOUNTING MODEL 15 PRINTER  
MOTOR, TYPING, AND KEYBOARD UNITS  
TO THE BASE UNIT

**NOTE:** The motor unit, typing unit, and the keyboard unit should be mounted on the base unit in the order named.

Motor Unit

The motor unit is to be mounted on the rear right hand corner of the base, by means of three hexagon head screws. These screws are found in place on the base.

Mount the motor pinion to the motor shaft using the screw and lock washer found in the shaft. The steel motor pinion is shipped with its associated main shaft bakelite gear in a separate container.

Remove the three motor unit mounting screws from the base and slide the motor unit in against the spring contacts. Holding it in this position, put the three mounting screws in place. Tighten the two front screws and then back them off about  $1/4$  of a turn. Do not tighten the rear mounting screw until the typing unit is in place.

Typing Unit

Underneath the typing unit are two hexagonal studs for the purpose of protecting the typing unit mechanism from injury when setting the unit on a bench, table, etc. These two studs enter clearance holes in the base unit.

Assemble the bakelite gear to the main shaft as follows: First remove the oil retaining plug from the right end of the shaft. Then remove the clamping screw and lock washer that hold the gear hub to the shaft and slide the gear hub off the shaft. Remove the three screws and lock washers from the hub and assemble the bakelite gear and hub, inserting the three screws and lock washers through the counter-bored holes of the gear. The gear hub with gear should then be slipped on the main shaft with the gear hub toward the outside of the typing unit until the slot on the main shaft permits the gear hub clamping screw with lock washer to be fastened in place.

The typing unit is held to the base unit by three thumb screws. Remove these screws from the base. The exact location of the typing unit on the base unit is determined by two dowel pins located in the two forward machined surfaces of the base unit. The right hand dowel pin fits into a hole in the typing unit casting, while the left hand dowel pin fits into a slot cut in the casting.

**CAUTION:** When setting the typing unit on the base unit, be very careful not to jam the bakelite main shaft gear against the motor pinion.

In lifting the typing unit, face the front of the unit. With the right hand, take hold of the flat projection on the right hand typing unit casting. With the left hand, take hold of the extreme lower front corner of the left hand casting. Lifting and moving should be done carefully so as not to put any part under undue strain which might throw it out of adjustment.

When setting the typing unit on the base unit, lower the left side down first all the way, holding the right side so that when the left side is resting on the base unit, the main shaft gear is just ready to mesh with the motor pinion. Now with the left hand, turn the motor fly wheel, while at the same time lower the right end of the typing unit, taking care that the motor pinion properly meshes with the main shaft gear.

Alignment of Motor Pinion and Main Shaft Gear

For printers equipped with motors having elongated mounting holes, use the following method for aligning the motor pinion and main shaft gear:

- A. Facing the front of the base unit and with the keyboard removed from the base, visually check the lateral alignment of the motor pinion and the main shaft gear to determine if a center line of the gear coincides with a vertical line through the center of the hole in the motor pinion. If these lines do not coincide, remove the typing unit from the base unit and loosen the four motor mounting screws.

Replace the typing unit on the base unit, and shift the motor to obtain the foregoing condition as nearly as it is possible to determine by eye. See that the edges of the motor base are parallel to the edges of the motor plate. Then remove the typing unit and tighten the four motor mounting screws.

- B. Loosen the rear motor plate mounting screw and the lock nut on the motor plate adjusting screw. Replace the typing unit and tighten the three typing unit mounting thumb screws. By means of the adjusting screw, adjust the vertical position of the motor pinion until there is a barely perceptible amount of backlash between the motor pinion and the main shaft gear, at the point where there is the least amount of backlash in one complete revolution of the main shaft.

Apply a film of grease to the motor pinion.

Start the motor. Carefully readjust the vertical position of the motor pinion, by means of the adjusting screw, until the gear noise is reduced to a minimum.

**CAUTION:** Care should be exercised in adjusting the vertical position of the motor pinion while the motor is running, in order to avoid damaging the main shaft gear or reducing the speed of the motor as the result of too close a mesh between the gear and the pinion.

Tighten the three motor plate mounting screws and the adjusting screw lock nut. Recheck the backlash between the motor pinion and the main shaft gear.

For printers equipped with motors not having elongated mounting holes:

Make adjustments "A" and "B" as described in the foregoing, except that in making adjustment "A", the motor mounting holes may not permit accurate gear alignment. In this case the motor should be adjusted to provide the best possible gear alignment.

#### Keyboard Unit

**CAUTION:** When mounting the keyboard unit to the base unit, be very careful not to jam the bakelite gear on the keyboard unit against the steel gear it meshes with on the main shaft of the typing unit.

The keyboard unit slides into the opening in front of the base unit upon two angle irons acting as rails. The two plates, fastened under the keyboard unit on the right and left hand sides, go under the rails. The keyboard unit is held in place by means of the two thumb screws located on the keyboard unit.

Slide the keyboard unit into place slowly and, at the same time, rotate the motor flywheel back and forth so that the keyboard unit gear will mesh properly with the gear on the typing unit. When the keyboard unit is in place, tighten the two thumb screws.

**NOTE:** All printers are thoroughly lubricated in the factory. However, if the printers are not installed shortly after they are received, or if any lack of lubrication is apparent, it is advisable to lubricate the machine immediately before installation according to the lubrication specification. It is suggested that an extra lubrication be given a new machine when it has been in service approximately half the time normally allowed between lubrications.

CARE AND ADJUSTMENT OF TELETYPE POLAR RELAYS  
RY-20 (W.E. 215-A), RY-28 (W.E. 215-H), and RY-30 (W.E. 255-A)

	<u>DESCRIPTION</u>		
	<u>RY-20</u> <u>(215-A)</u>	<u>RY-28</u> <u>(215-H)</u>	<u>RY-30</u> <u>(255-A)</u>
Number of windings	2	2	2
Resistance per winding, ohms	85	85	136
Signaling current, milliamperes	60	60	60) or (20
Biasing current, milliamperes	30	30	30) (10
Contact Metals:			
Armature	No. 4	No. 4	Extra Heavy No. 4
Contact screws	No. 4	Tungsten	Extra Heavy Tungsten
For use with Teletype apparatus:			
Equipped with radio filters		x	x
Not equipped with radio filters	x		
Finish of relay cover	Black	Black	Aluminum
Mounts in 6827 (18-B) connecting block	x	x	x

The RY-30 (255-A) relay is equipped with knurled tension knobs for increased convenience in adjusting the pole-piece screws.

\*Efficient operation of the RY-20, the RY-28 or the RY-30 relay in printer circuits depends upon a periodical routine of inspection, cleaning, and adjustment. The adjustments are so interrelated that it is essential for each adjustment to be made in the given sequence. If any adjustment is changed, it will be necessary to check all subsequent adjustments.

\*NOTE: Before cleaning or making any adjustments, loosen both pole-piece screw lock nuts (knurled tension knob on RY-30 relays) and back off both pole-piece screws as far as possible. Back off both contact screws.

CLEANING

To Clean Relay and Cover

Remove the relay cover and blow out any accumulated dust. Wipe the relay and the cover with a clean soft cloth.

To Clean Contacts

Pits and build-ups on the contacts should be removed with a contact file. (Back out contact screws to permit entrance of contact file.) When cleaning the armature contacts, the armature should be supported at its midposition by the opposite contact screw, to avoid bending the armature or the contact springs. Care should be taken in filing the armature contacts to use light pressure. After using the file, blow out any loose particles and polish the contacts with a burnisher.

To Remove Magnetic Particles from the Armature and Pole-Piece Screws

Any particles adhering to the armature or pole-piece screws should be removed by pressing a fresh piece of friction tape, wrapped around a piece of thin stiff non-magnetic metal, against the particles. Do not rub the tape against the armature or pole-piece screws as this will leave a residue which will collect further particles.

\*Pole-Piece Screws and Relay Terminals

Make sure that pole-piece screws and relay terminals are clean.

\*Indicates change.

PRINTED IN U.S.A.

## RELAY ADJUSTMENTS

### Armature Adjustment

The armature should not touch the inside of the spool and the contacts should align so that the centers of the contacts will not be out of alignment by more than 25% of the contact diameter.

To adjust, loosen the screws holding the spool heads to the relay frame and position the spool to meet the first requirement. Tighten the screws. Loosen the armature clamping screws (Figure 1) and position the armature both vertically and horizontally to meet the latter requirement. Tighten the screws.

NOTE: If necessary, position the contact screw brackets by means of the enlarged mounting holes in the relay frame to aid in meeting the latter requirement.

### \*Contact Screw Adjustment

The clearance between the armature in its normal unoperated position and either contact screw should be approximately equal and, when the armature is held against one contact screw, there should be .003" to .005" clearance between the armature and the other contact screw.

To adjust, back off the pole-piece screws as far as possible and position the contact screws to meet this requirement.

NOTE: The contact screws should be sufficiently tight in their brackets to hold any adjusted position. If necessary, remove the contact screw from the bracket and force the two portions of the split end of the bracket closer together to meet this requirement.

### \*Pole-Piece Screws Adjustment

#### Requirements:

1. When the armature is held against one pole-piece screw, the clearance between the armature and the other pole-piece screw should be .010" to .015".
2. The armature should be centered in the magnetic field between the pole-piece screws. That is, the armature should either "float" in the gap between the contact screws, or, it should stay against either contact, with approximately the same pressure, when moved there by hand.

#### Procedure:

1. Back off both pole-piece screws and check the contact screw adjustment. Readjust if necessary.
2. Advance the right pole-piece screw until, with its locknut tight (knurled tension knob on RY-30 relays), the right pole-piece screw pushes the armature far enough to just touch the left-hand contact point. Back off the right pole-piece screw 1/4 turn from this position and tighten the lock nut.
3. Advance the left pole-piece screw until requirement 2, above, is met. Tighten the lock nut. If this disturbs the adjustment, reposition the left pole-piece screw and retighten the lock nut to meet the requirement.

NOTE: When adjusting the pole-piece screws on RY-30 relays, the knurled tension nuts should be sufficiently tight to hold the pole-piece screws in the adjusted position.

## WIRING DIAGRAM

Figure 1 shows the relay wiring.

\*Indicates change.

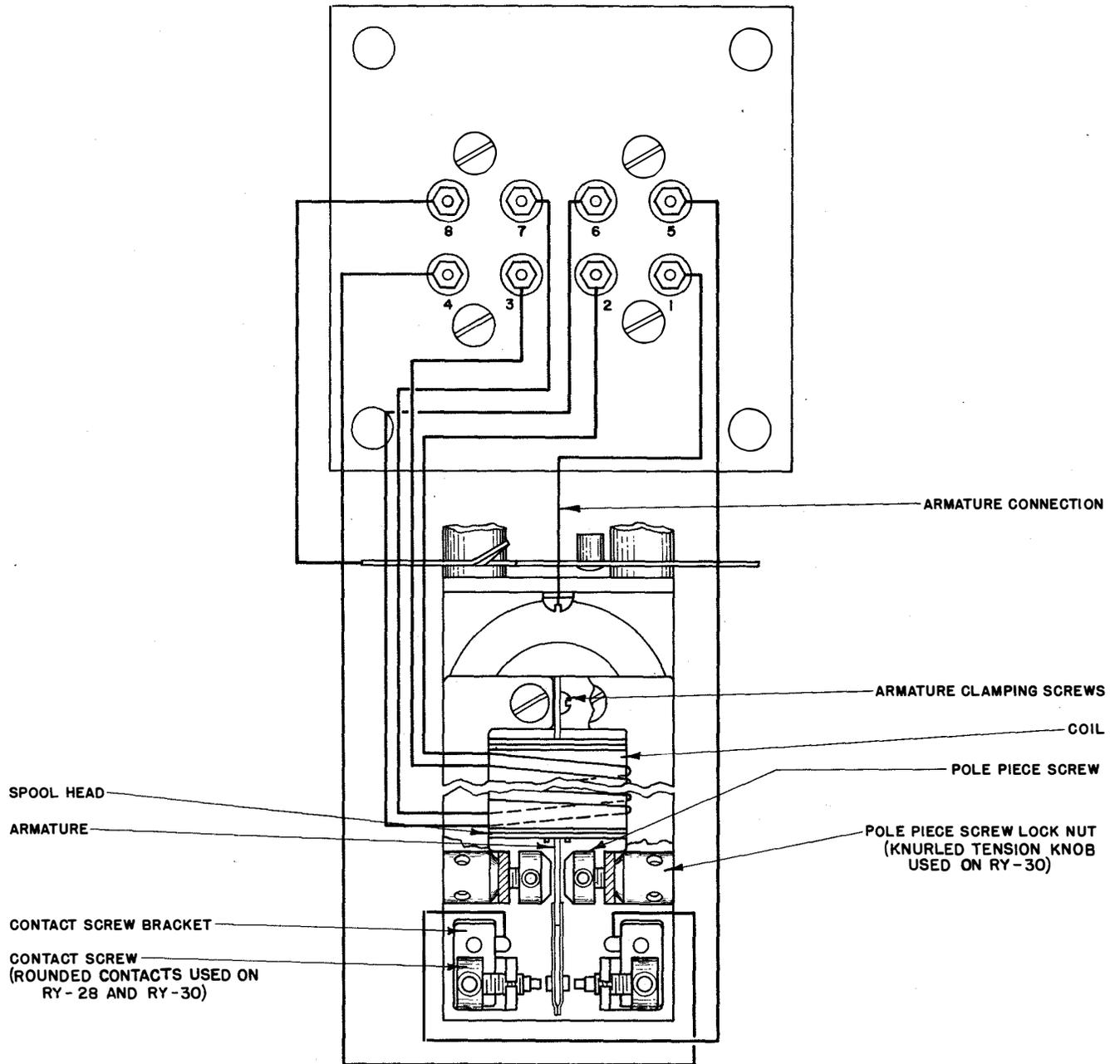
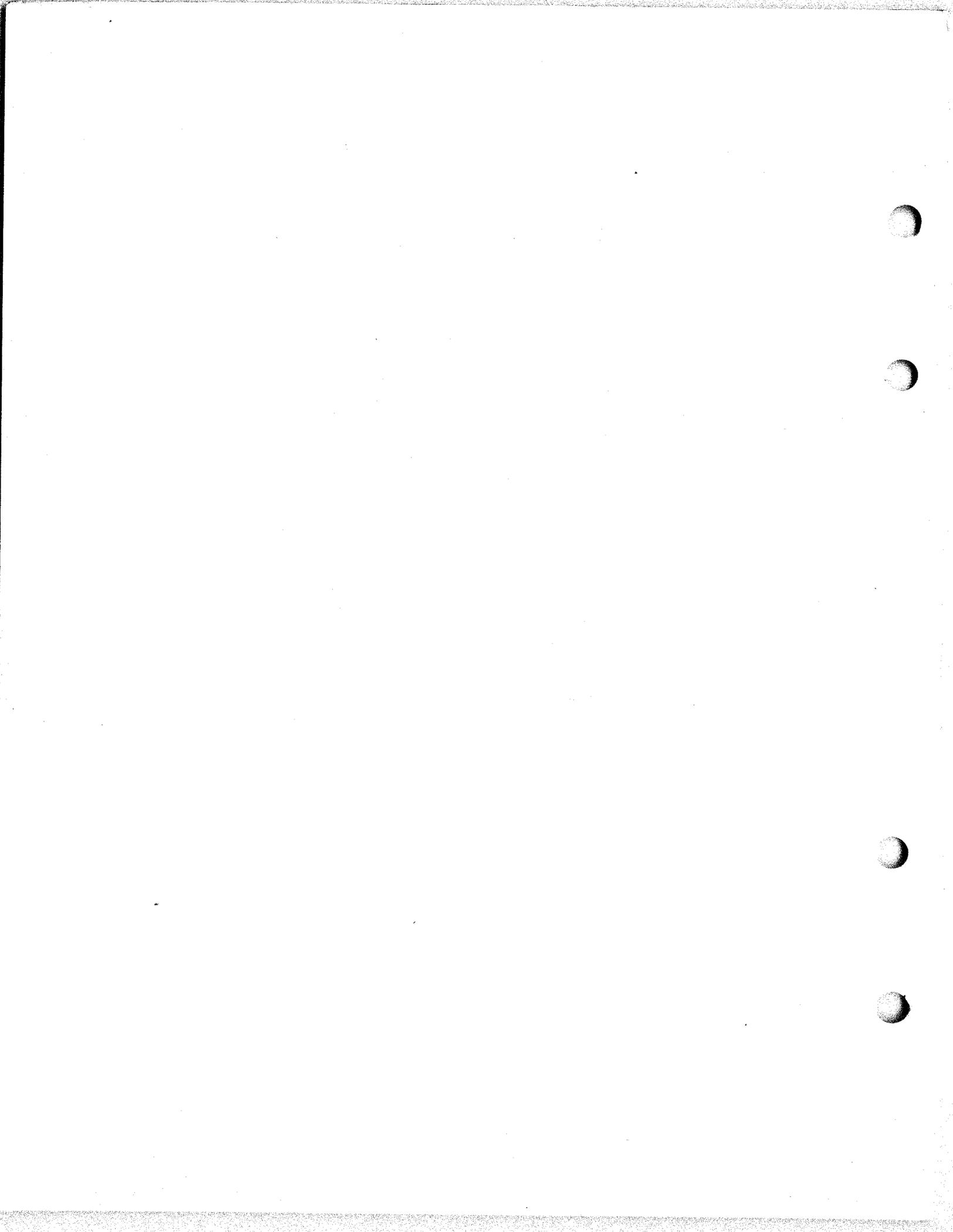
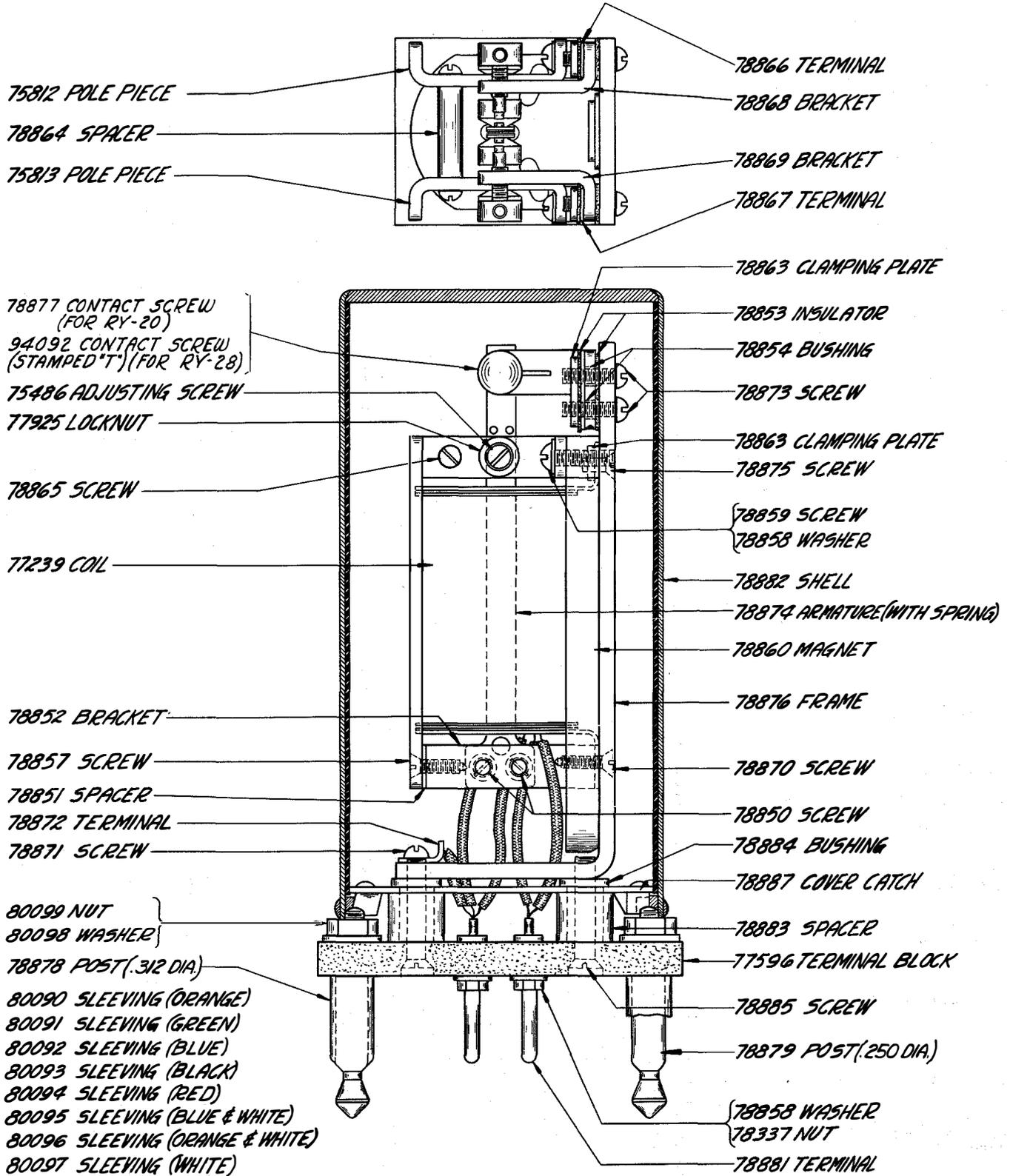


FIGURE 1





RY-20 LINE RELAY (W.E.CO 215-A)  
RY-28 LINE RELAY (W.E.CO 215-H)



DESCRIPTION, ADJUSTMENTS, AND ORDERING INFORMATION  
TELETYPE REC-13 RECTIFIER

Description

The REC-13 rectifier is designed to deliver continuously 0.6 ampere at 120 volts D.C. from a 105 to 125 volt 60 cycle A.C. single phase power supply. It consists of an insulated type input transformer with primary taps, a full wave selenium rectifying element, a power factor correction condenser, a filter consisting of a choke and condenser, a bleeder resistor, and a regulator with taps. All parts are secured to a metal base which has rubber feet for shelf mounting. The rectifier is furnished complete with cover, cords, and plugs for making A.C. and D.C. connections.

The metal cover which is fastened to the base by means of screws is finished in black wrinkle enamel.

The approximate dimensions of the rectifier are 20-1/4" long, 8" wide, and 9" high.

Rating

Input: 105 to 125 volt, 60 cycle A.C. single phase.

Output: 0.6 ampere at 120 volts D.C.

A.C. component in D.C. output voltage: 1% r.m.s. at 0.6 ampere load.

No load voltage when new: Not over 135 volts.

Adjustments

CAUTION: The secondary voltage of the power transformer is 300 volts. All the control elements including the power factor correcting condenser are therefore 300 volts above ground potential.

This rectifier is provided with a door in the front of its cover to permit access to two regulating panels within the cover. The left-hand panel has terminals for the transformer primary taps which are marked for input voltages of 105, 115, and 125. A 6 ampere fuse for protecting the transformer is also mounted on this panel. A flexible lead is used for connecting A.C. to the proper primary tap. The selection of the primary tap will depend on the voltage of the A.C. power supply. In no case should the connection to these taps be changed for the purpose of regulating the D.C. output voltage.

To regulate the D.C. output and to compensate for aging of the rectifying element, three coarse regulator taps marked L, M, and H and five fine regulator taps marked 1, 2, 3, 4, and 5 terminate on the right-hand panel. The regulating taps are set at the factory on "L" and either 1, 2, or 3 to deliver a minimum of 120 volts D.C. at 0.6 ampere. Each fine tap will change the D.C. output voltage

approximately two volts and each coarse tap, approximately 8 volts when the D.C. output current is 0.5 ampere. The method normally employed in checking the D.C. output of this rectifier is to disconnect all apparatus from the D.C. side and connect a 60 watt Mazda lamp in series with a suitable ammeter across the output. For correct adjustment of the output, the flexible leads should be connected to those taps which will cause the ammeter to register a current flow which is nearest to but not less than 0.5 ampere. This adjustment should be checked when the rectifier is installed and periodically thereafter. The amount of aging will be somewhat greater during the first few months of use. After this, the rectifier should operate for long periods without the necessity of readjusting.

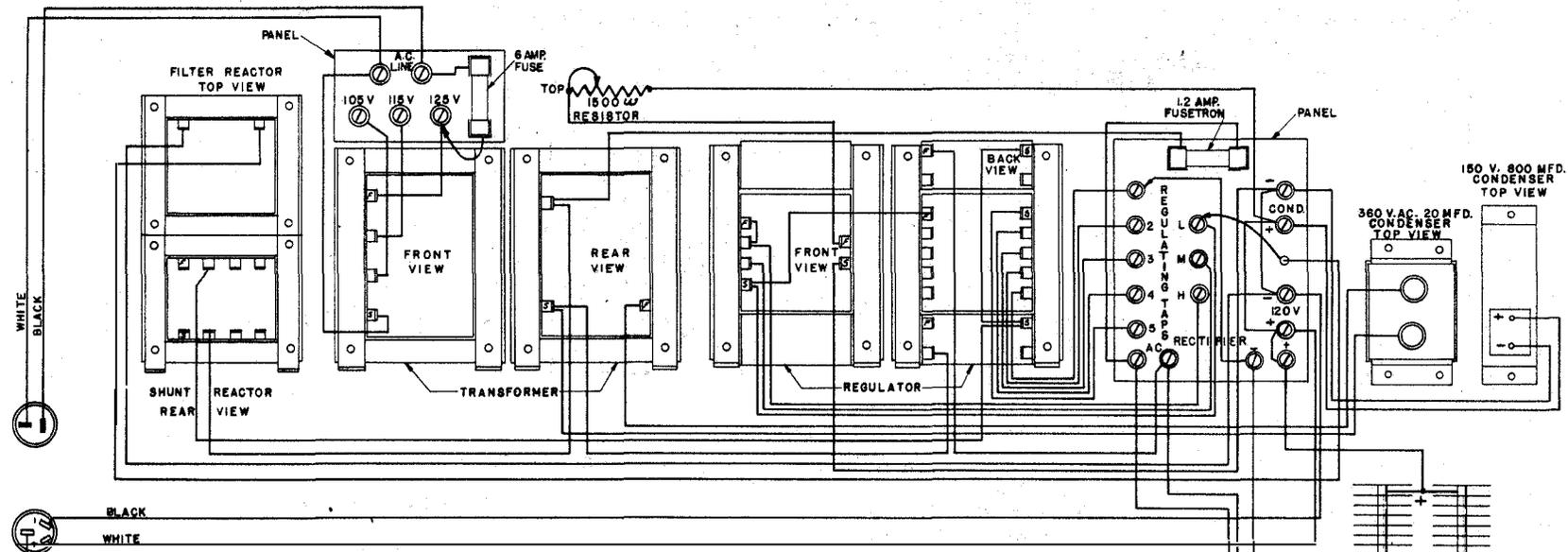
If at any time it is necessary to use the maximum regulating tap to obtain the proper output current, the rectifier should be withdrawn from service and repaired.

A 1.25 ampere fusetron is located on the right-hand panel for overload protection in the output circuit.

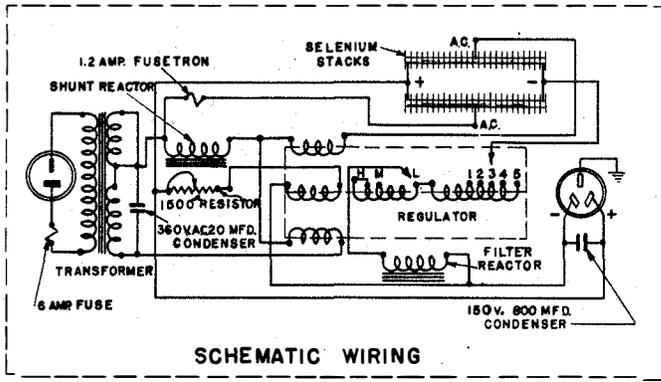
Wiring diagram W.D. 1959, which forms a part of this specification, shows the actual and theoretical wiring of the rectifier. An assembly drawing giving the names and numbers of the component parts is shown on the last page.

Reason for reissue: To correct the part number of the rectifying stack on the assembly drawing.

REVISIONS  
 ① CHANGED TO  
 CONFORM TO  
 C.R.A. STANDARDS  
 8-26-41 J.L.C.



ACTUAL WIRING

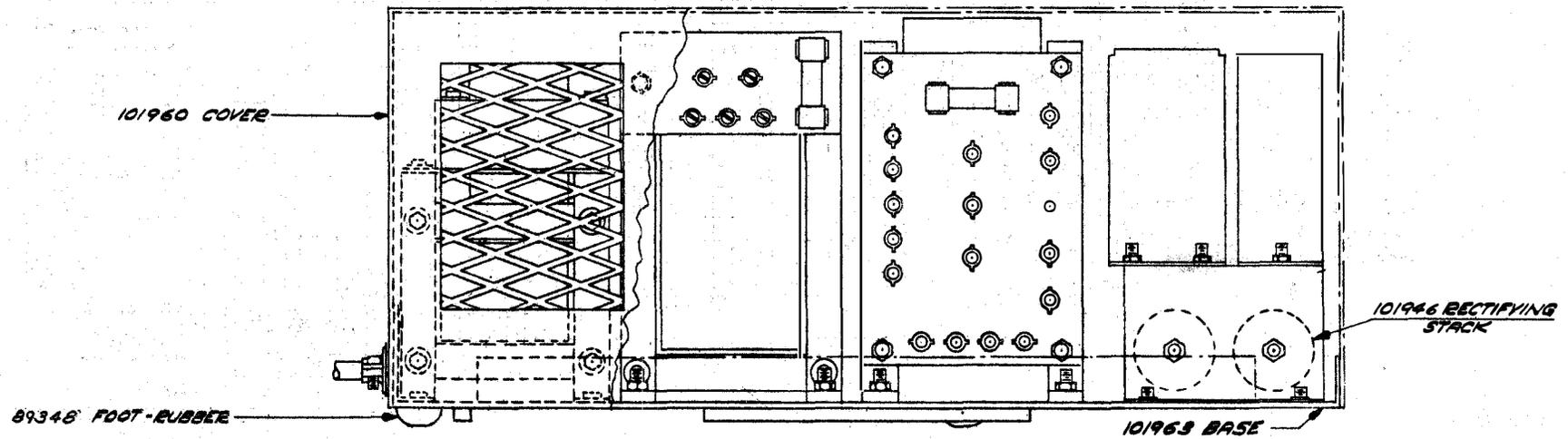
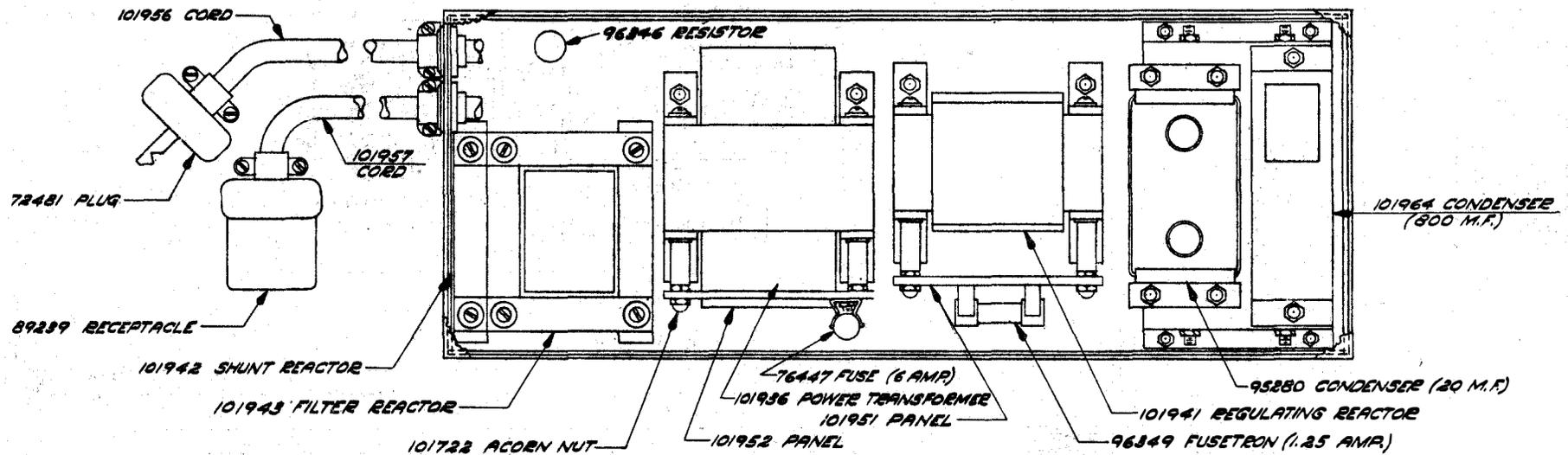


SCHEMATIC WIRING

TELETYPE  
 CORPORATION  
 WD-1959-A  
 8-13-50

WIRING DIAGRAM  
 FOR  
 REC-13

DRAWN A.T.B.  
 TRACED  
 CHECKED H.K.  
 ENGR'D. B.N.  
 APPROVED J.F.



REVISIONS  
 1-17-41 J.L.F.  
 2-1-41 J.L.F.  
 3-1-41 J.L.F.  
 4-1-41 J.L.F.  
 5-1-41 J.L.F.  
 6-1-41 J.L.F.  
 7-1-41 J.L.F.  
 8-1-41 J.L.F.  
 9-1-41 J.L.F.  
 10-1-41 J.L.F.  
 11-1-41 J.L.F.  
 12-1-41 J.L.F.  
 13-1-41 J.L.F.  
 14-1-41 J.L.F.  
 15-1-41 J.L.F.

NOTES

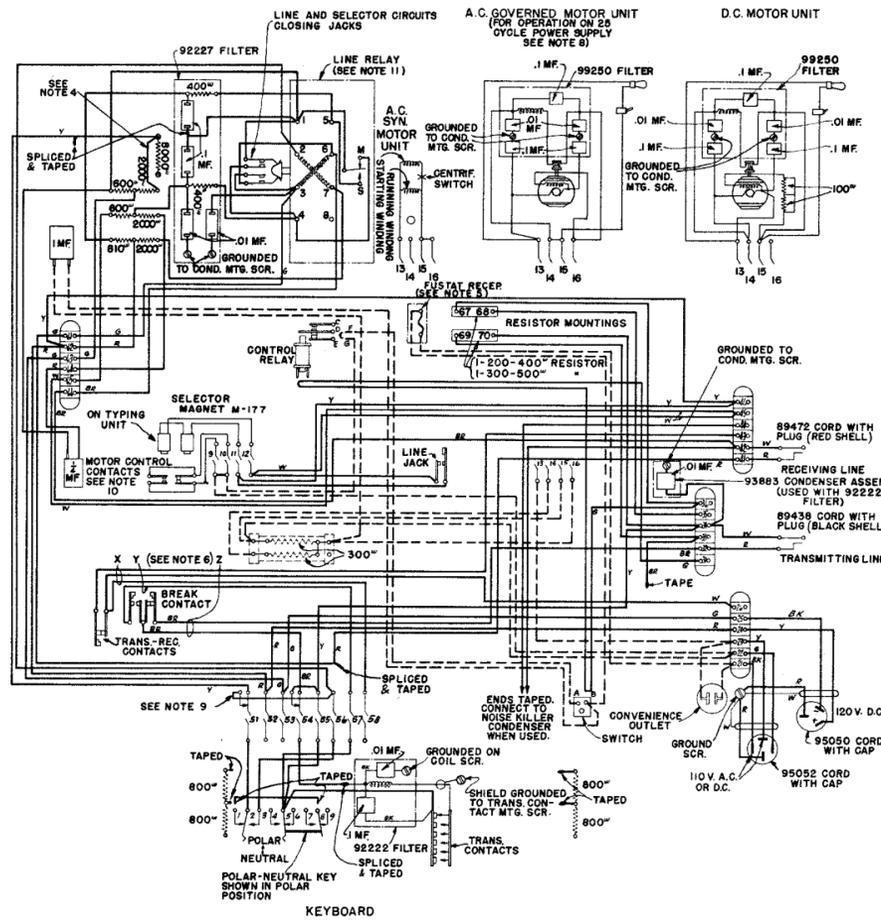
- BASE WIRING SHOWN WITHOUT CONTROL RELAY. WHEN CONTROL RELAY IS USED, WIRES SHOWN CONNECTED TO "A" AND "B" ON SWITCH ARE REMOVED, SPLICED TOGETHER AND TAPED. WIRE LOOPS AT SWITCH AND CONTROL RELAY COIL ARE CUT AND CONNECTED TO RESPECTIVE UNITS. WIRE LOOP AT CONTROL RELAY CONTACTS IS CUT, "e" IS CONNECTED TO "E" FOR "BREAK OPER." AND TO "c" FOR "MAKE OPER." "f" IS CONNECTED TO "d" IN EITHER CASE.
- FOR "BREAK OPER." INVERT POWER SWITCH TO MAKE "ON" AND "OFF" DESIGNATIONS ON COVER AGREE WITH OPERATION OF SWITCH.
- TO OPERATE PRINTER WITHOUT LINE RELAY MOVE YELLOW WIRE FROM TERMINAL 62 TO 61; MOVE WHITE WIRE FROM TERMINAL 65 TO 66; REMOVE AND TAPE GREEN WIRE GOING TO LINE RELAY FROM TERMINAL 61.
- FOR .020 AMP. SIGNAL LINE OPERATION, CONNECT THIS LEAD TO OTHER TERMINAL OF RESISTOR.
- RECOMMENDED FUSETRON OR FUSTAT (AND ALTERNATE FUSE) PROTECTION
 

MOTOR	FUSETRON OR FUSTAT	FUSE
110 V. AC-60 CYCLE SYN.	* 3.2 AMP.	6 AMP.
110 V. AC-60 CYCLE GOV.	1.60 AMP.	3 AMP.
110 V. DC GOV.	.8 AMP.	3 AMP.
110 V. AC-25 CYCLE GOV.	1.4 AMP.	3 AMP.

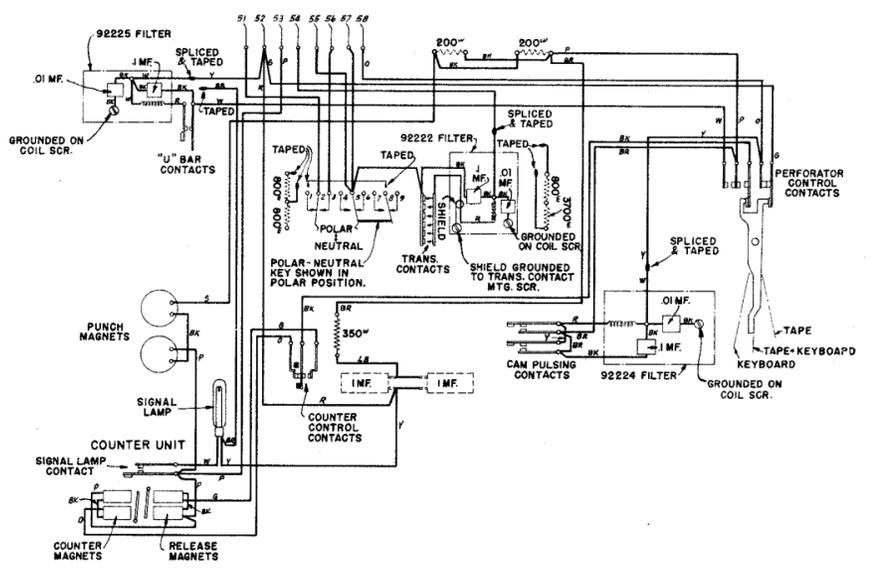
 \* A 3.2 AMP FUSETRON IS FURNISHED WITH NEW 15 PTR. BASES
- TO DISABLE SEND-RECEIVE BREAK MECHANISM:
  - SPLICE AND TAPE WIRES MARKED "X".
  - TAPE WIRE MARKED "Y".
  - SPLICE AND TAPE WIRES MARKED "Z".
- EQUIPMENT SHOWN DOTTED IS UNDERNEATH UNITS.
- WHEN A.C. SERIES MOTOR IS TO BE DRIVEN FROM 25 CYCLE POWER SUPPLY, A 25 OHM RESISTOR SHOULD BE CONNECTED IN THE POWER LEADS.
- WHEN POLAR SIGNALS ARE USED, REMOVE JUMPER BETWEEN BACK CONTACT NO. 51 AND SLIP CONNECTION CONTACT NO. 56 ON BASE.
- CONTACTS SHOWN BETWEEN TERMINALS 9 AND 10 ARE PRESENT ON TYPING UNIT ONLY WHEN MOTOR CONTROL ON FIGURE "H", OR FIGURE "M" IS USED. WHEN MOTOR CONTROL IS USED REMOVE STRAP BETWEEN 9 AND 10.
- RY-28 RELAY (W.E. 215-H) - 85 OHMS PER WINDING. (FOR .060 AMPERE SIGNALING ONLY)  
 RY-30 RELAY (W.E. 255-A) - 136 OHMS PER WINDING. (FOR .060 OR .020 AMPERE SIGNALING)
- COLOR CODE:
 

W - WHITE	Y - YELLOW	S - SLATE	BK - BLACK
R - RED	O - ORANGE	BR - BROWN	
G - GREEN	P - PURPLE	LB - LIGHT BLUE	
- ASSOCIATED CABLES:
 

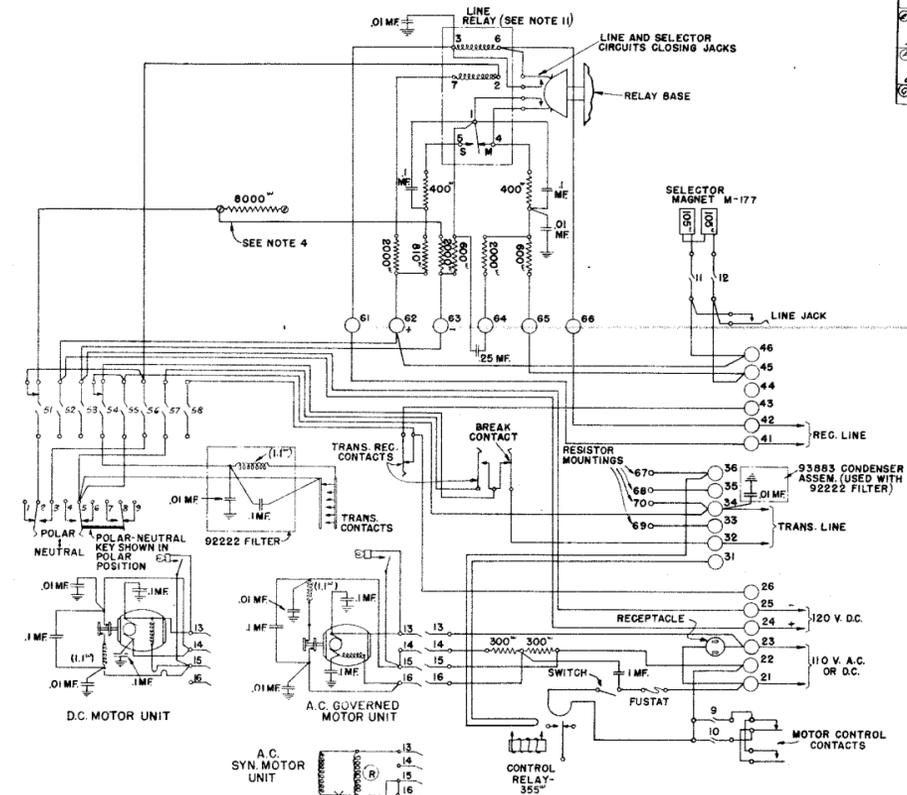
74574 BASE (LINE)	74788 A.C. MOTOR UNIT	92814 BASE
74573 BASE (POWER)	74572 KEYBOARD & PERF. TRANS.	99881 PERFORATOR & COUNTER (PERF. TRANS.)
74575 LINE RELAY UNIT	74625 SELECTOR MAGNET	83895 RESISTOR (PERF. TRANS.)
74571 D.C. MOTOR UNIT	74789 MOTOR CONTROL CONTACTS	
- ALL WIRES ARE NO. 18 DELTABESTON COTTON COVERED FIXTURE WIRE, EXCEPT MOTOR LEADS.
- THIN LINES INDICATE WIRES NOT IN CABLE.



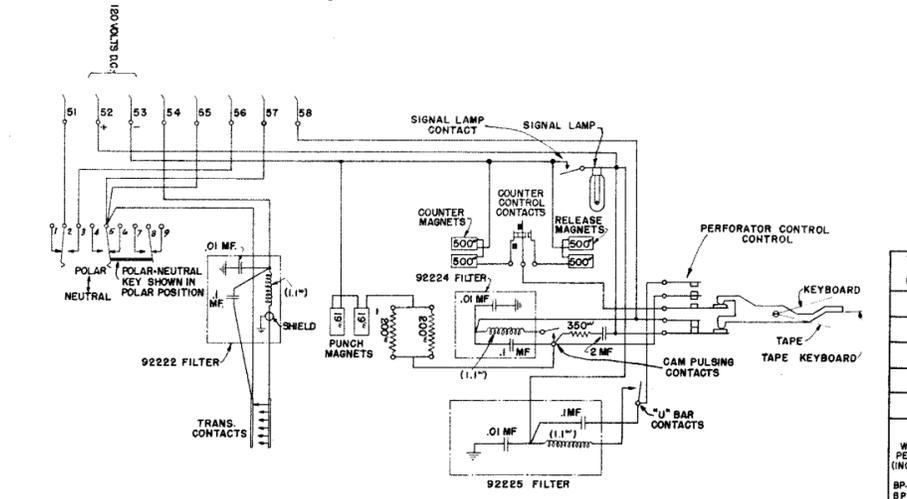
ACTUAL WIRING 15 PRINTER SET WITH KEYBOARD



ACTUAL WIRING - 15 TYPE PERFORATOR TRANSMITTER  
 (CHARACTER COUNTER UNIT MOUNTED ON PUNCH ASSEMBLY TO THE LEFT OF KEYBOARD)

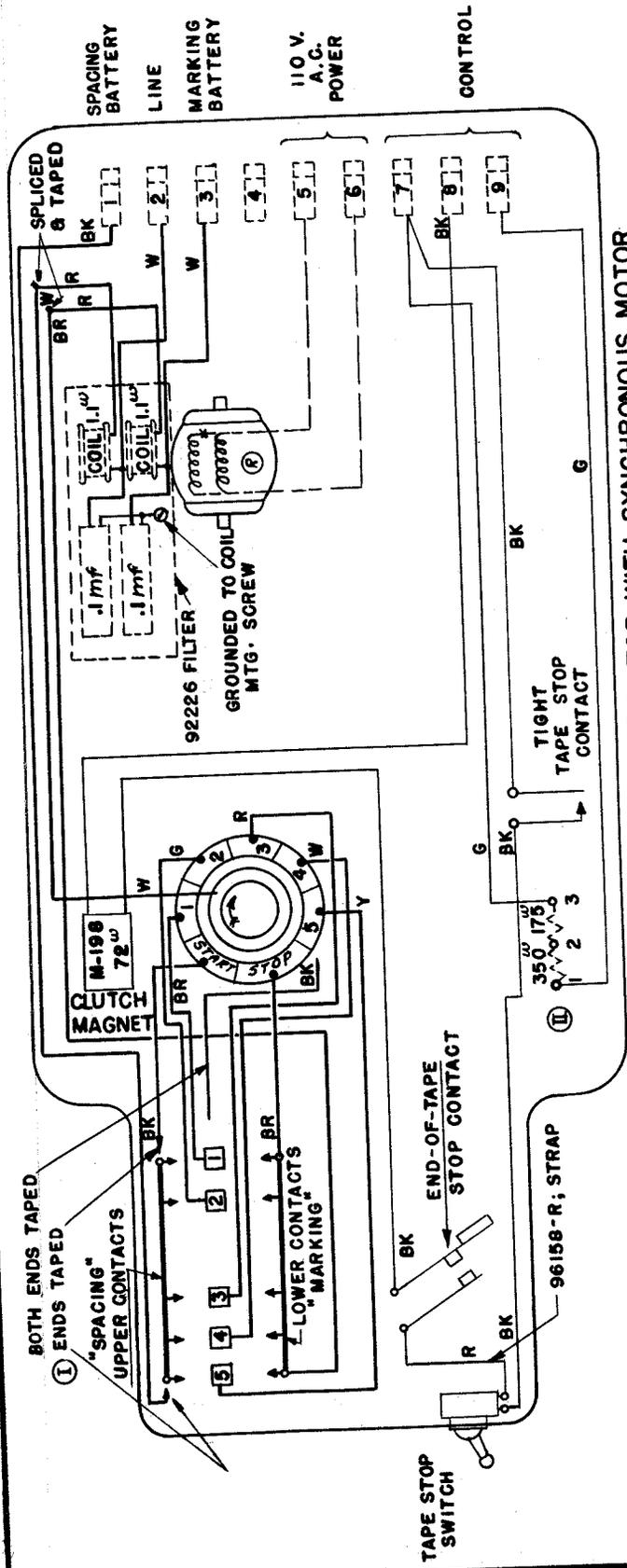


SCHEMATIC WIRING - 15 PRINTER SET WITH KEYBOARD



SCHEMATIC WIRING - 15 TYPE PERFORATOR TRANSMITTER

TELETYPE CORPORATION  
 WD-1986-G  
 WIRING DIAGRAM  
 MODEL 15 PRINTER  
 WITH KEYBOARD AND  
 PERFORATOR TRANSMITTER  
 (INCLUDING RADIO FILTERS)  
 BP-13, BP-22, BP-23, BP-93,  
 BP-107  
 BB-37  
 BK-12  
 PEX-20  
 DRAWN H.C.A. & J.S.M.  
 TRACED  
 CHECKED J.H.S.  
 ENG'D D. S.M.  
 APPROVED M.T.S. & M.C.



TRANSMITTER-DISTRIBUTOR WITH SYNCHRONOUS MOTOR

NOTES:  
 ① ALL WIRES "DELTABESTON" #18 COTTON COVERED  
 FIXTURE, EXCEPT MOTOR LEADS.  
 UNITS SHOWN DOTTED ARE UNDERNEATH BASE.  
 ---THIN LINES INDICATE WIRES NOT IN CABLE.  
 ② CONNECT LEADS WHEN POLAR SIGNALS ARE USED.  
 ③ UNITS, WHEN SHIPPED FROM TELETYPE, WIRED FOR 110 V. D.C. OPERATION OF  
 MAGNET (WITHOUT STRAP). WHEN START MAGNET IS OPERATED ON 110 V. A.C.,  
 TERMINALS 1 & 2 SHOULD BE STRAPPED (NOT DONE AT TELETYPE PLANT).

COLOR CODE
G-GREEN
R-RED
W-WHITE
Y-YELLOW
BR-BROWN
BK-BLACK

ASSOCIATED CABLES
#77136
#77135

REVISIONS

- ① REDRAWN AND #92226 FILTER ADDED 2-5-41
- ② LEAD TO FRONT END OF SPACING BAR REMOVED AND TAPED. 9-22-42 G.J.K.

TELETYPE CORPORATION  
 WD-1883-D  
 2-9-40

WIRING DIAGRAM  
 TRANSMITTER  
 DISTRIBUTOR  
 XD 71  
 WITH SYNCH. MOTOR  
 AND 92226 FILTER

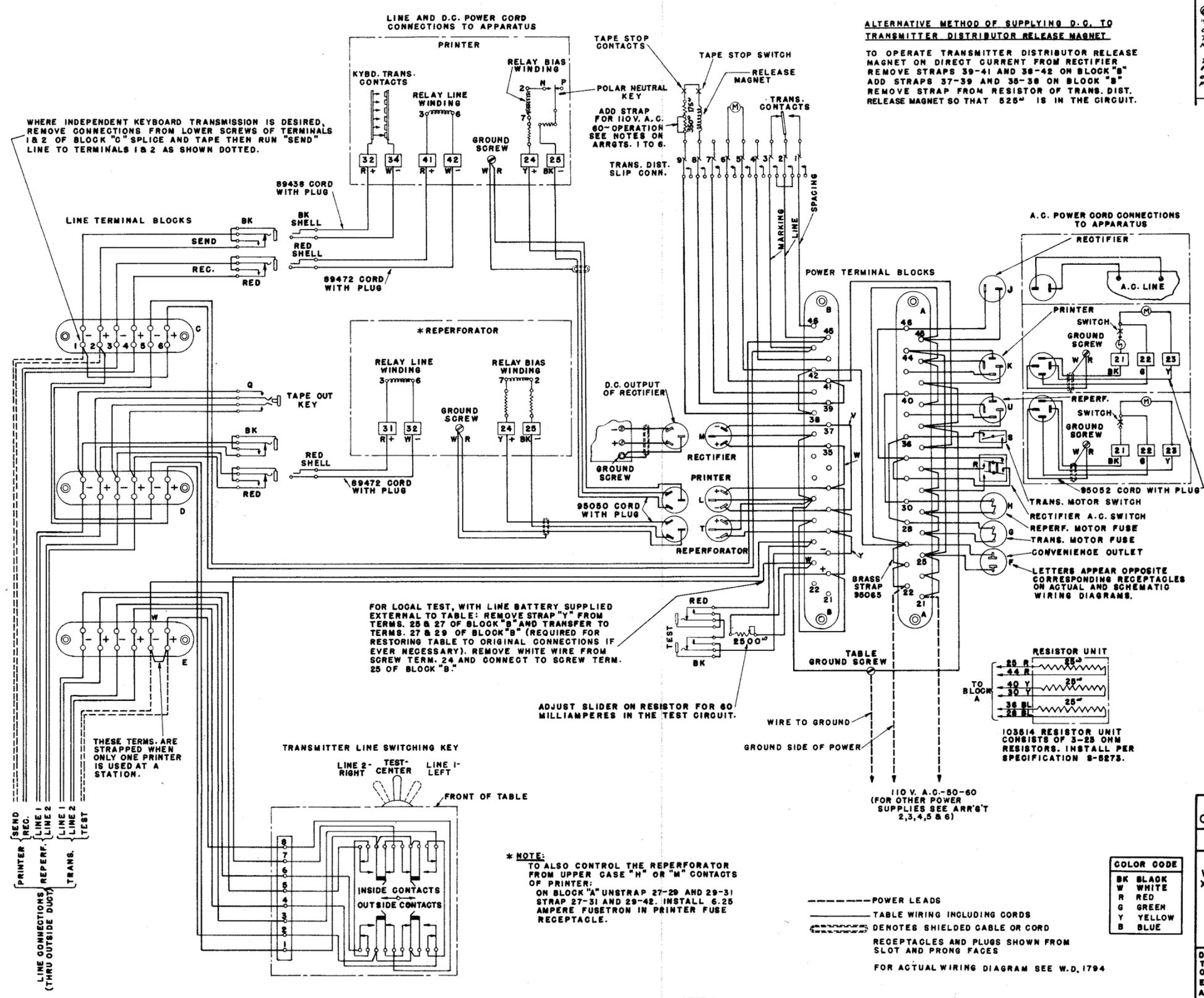
DRAWN A.T.B.  
 TRACED  
 CHECKED H.A.W.  
 ENG. RD. H.A.W.  
 APPROVED R.B.J.

TABLE CONNECTIONS FOR VARIOUS POWER SUPPLIES				
POWER SUPPLY FOR MOTOR	D.C. FOR RELAY CIRCUITS, TEST CIRCUITS AND PERFORATOR MAG.	POWER CONNECTIONS		
1 110 V. A.C. 50 OR 60 CYCLES	RECTIFIER ON TABLE	CONNECT GRD. SIDE OF A.C. TO TERM. 22, BLOCK A. } INSIDE DUCT † CONNECT UNGRD. SIDE OF A.C. TO TERM. 21, BLOCK A. } STRAP 350° RESIS. ON TRANS. DIST. WITH UNIVERSAL SINGLE COIL START MAG.		
2 110 V. A.C. 50 OR 60 CYCLES	110 V. D.C. POWER SUPPLY	CONNECT GRD. SIDE OF A.C. TO TERM. 22, BLOCK A. } INSIDE DUCT † CONNECT UNGRD. SIDE OF A.C. TO TERM. 21, BLOCK A. } STRAP 350° RESIS. ON TRANS. DIST. WITH UNIVERSAL SINGLE COIL START MAG. REMOVE END OF STRAP "V" FROM TERM. 37, BLOCK "B" AND CONNECT TO TERM. 21, BLOCK "B". REMOVE END OF STRAP "W" FROM TERM. 35, BLOCK "A" AND CONNECT TO TERM. 24, BLOCK "A". STRAP PRINTER AND REPERF. TERMS. 21 & 25. STRAP PRINTER AND REPERF. TERMS. 23 & 24. REMOVE STRAP FROM 350° RESIS. ON TRANS. DIST. EQUIPPED WITH UNIVERSAL SINGLE COIL START MAG.		
3	110 V. D.C. POWER SUPPLY EXTERNAL TO TABLE (+ GROUND)	CONNECT + D.C. (GRD.) TO TERM. 22, BLOCK "A". } OUTSIDE DUCT † CONNECT - D.C. (UNGRD.) TO TERM. 21, BLOCK "A". } OMIT 95050 GORD FROM PRINTER AND REPERF. REMOVE END OF STRAP "V" FROM TERM. 37, BLOCK "B" AND CONNECT TO TERM. 24, BLOCK "A". REMOVE END OF STRAP "W" FROM TERM. 35, BLOCK "B" AND CONNECT TO TERM. 23, BLOCK "A". STRAP PRINTER AND REPERF. TERMS. 23 & 25. STRAP PRINTER AND REPERF. TERMS. 21 & 24. REMOVE STRAP FROM 350° RESIS. ON TRANS. DIST. EQUIPPED WITH UNIVERSAL SINGLE COIL START MAG.		
4	110 V. D.C. POWER SUPPLY EXTERNAL TO TABLE (- GROUND)	CONNECT - D.C. (GRD.) TO TERM. 22, BLOCK "A". } OUTSIDE DUCT † CONNECT + D.C. (UNGRD.) TO TERM. 21, BLOCK "A". } OMIT 95050 GORD FROM PRINTER AND REPERF. REMOVE END OF STRAP "V" FROM TERM. 37, BLOCK "B" AND CONNECT TO TERM. 24, BLOCK "A". REMOVE END OF STRAP "W" FROM TERM. 35, BLOCK "B" AND CONNECT TO TERM. 23, BLOCK "A". STRAP PRINTER AND REPERF. TERMS. 23 & 25. STRAP PRINTER AND REPERF. TERMS. 21 & 24. REMOVE STRAP FROM 350° RESIS. ON TRANS. DIST. EQUIPPED WITH UNIVERSAL SINGLE COIL START MAG.		
5	110 VOLT A.C. 25 CYCLE	RECTIFIER ON TABLE	SAME AS (1) EXCEPT OMIT STRAP FROM 350° RESISTOR, STRAP 175 RESISTOR AND INSTALL 103514 RESIS. UNIT AS FOLLOWS: <b>RESISTOR UNIT INSTALLATION</b> REMOVE STRAP BETWEEN TERMS. 25 AND 44 OF POWER TERM. BLOCK "A". CONNECT RED WIRES FROM 103514 RESISTOR UNIT TO TERMS. 25 AND 44. REMOVE STRAP BETWEEN TERMS. 40 AND 30. CONNECT YELLOW WIRES TO TERMS. 40 AND 30. REMOVE STRAP BETWEEN TERMS. 36 AND 28. CONNECT BLUE WIRES TO TERMS. 36 AND 28.	
6	110 VOLT A.C. 25 CYCLE	110 VOLT D.C. POWER SUPPLY	SAME AS (2) EXCEPT OMIT STRAP FROM 350° RESISTOR AND STRAP 175° RESISTOR. INSTALL RESISTOR UNIT AS EXPLAINED UNDER RESISTOR UNIT INSTALLATION IN (5).	

RECOMMENDED FUSETRON PROTECTION					
EQUIPMENT	LOCATION OF FUSETRON	MOTOR DRIVE			
		110 V. A.C. 50-60~ SYNCHRONOUS	10 V. A.C. 50-60~ GOVERNED	110 V. A.C. 25~ GOVERNED	110 V. D.C. GOVERNED
PRINTER	ON PTR. BASE	3.2 AMP.	1.60 AMP.	1.40 AMP.	.8 AMP.
TRANS. DIST.	G	3.2 AMP.	1.25 AMP.	1.25 AMP.	.6 AMP.
REPERFORATOR	H	3.2 AMP.	1.60 AMP.	1.25 AMP.	.6 AMP.

† INDICATES DUCT THRU WHICH POWER WIRES ENTER TABLE.



**ALTERNATIVE METHOD OF SUPPLYING D.C. TO TRANSMITTER DISTRIBUTOR RELEASE MAGNET**

TO OPERATE TRANSMITTER DISTRIBUTOR RELEASE MAGNET ON DIRECT CURRENT FROM RECTIFIER REMOVE STRAPS 39-41 AND 38-42 ON BLOCK "B" ADD STRAPS 37-39 AND 35-38 ON BLOCK "B" REMOVE STRAP FROM RESISTOR OF TRANS. DIST. RELEASE MAGNET SO THAT 525° IS IN THE CIRCUIT.

**REVISIONS**

NOTE ADDED TITLED "ALTERNATIVE METHOD OF SUPPLYING D.C. TO TRANS. DIST. RELEASE MAGNET"

NOTE ADDED RELATING TO REPERF. CONTROL PART UPPER CASE "H" OR "M" CONTACTS OF PRINTER.

9-18-61 G.A.M.

**TELETYPE CORPORATION**

**WD-1795-G**

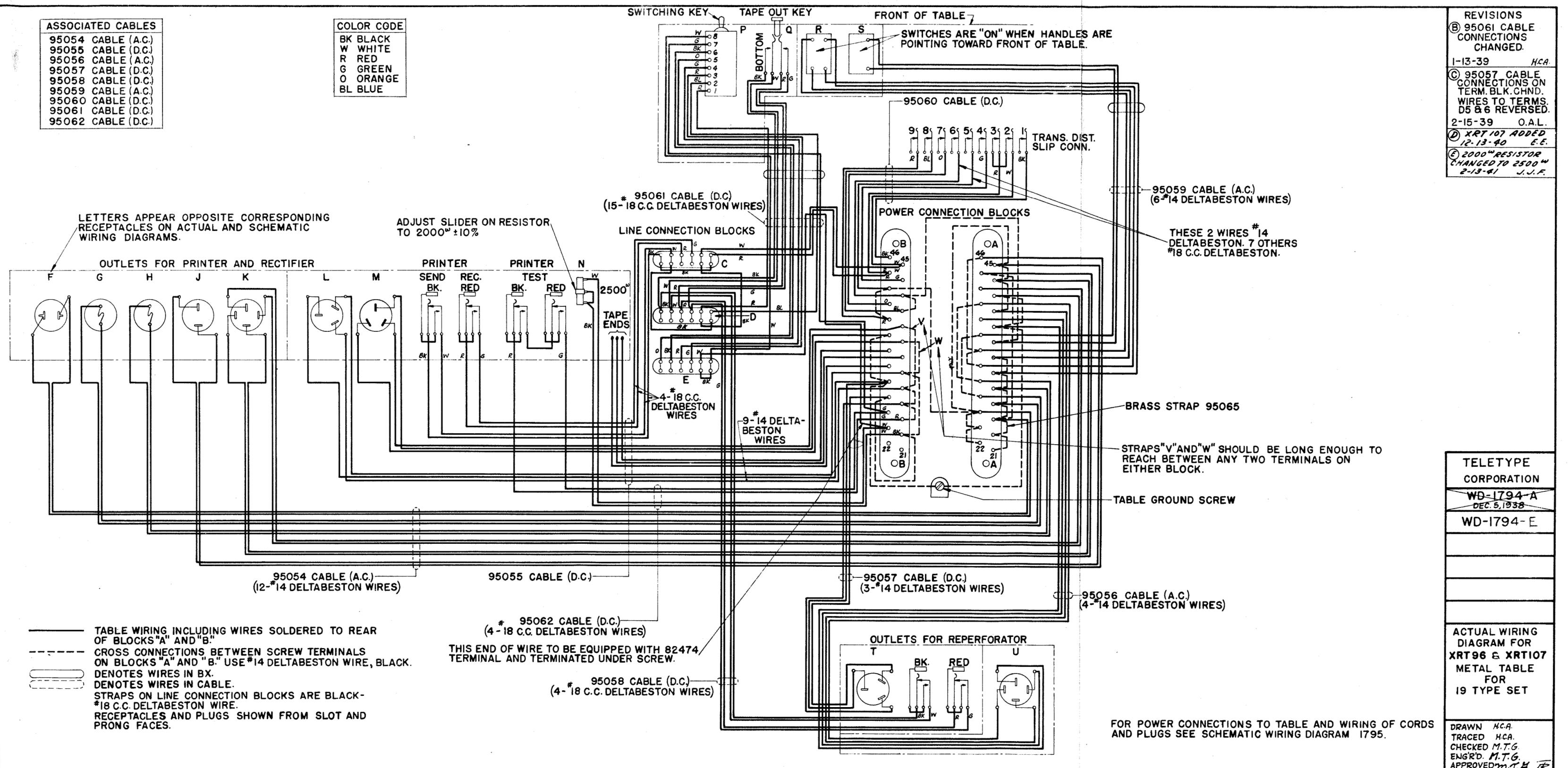
**SCHEMATIC WIRING DIAGRAM XRT-96 & XRT 107 METAL TABLE FOR 19 TYPE SET**

**DRAWN** Ruc  
**CHECKED** C.J.B.  
**ENGR'D** M.T.G.  
**APPROVED** M.T.G.

ASSOCIATED CABLES	
95054	CABLE (A.C.)
95055	CABLE (D.C.)
95056	CABLE (A.C.)
95057	CABLE (D.C.)
95058	CABLE (D.C.)
95059	CABLE (A.C.)
95060	CABLE (D.C.)
95061	CABLE (D.C.)
95062	CABLE (D.C.)

COLOR CODE	
BK	BLACK
W	WHITE
R	RED
G	GREEN
O	ORANGE
BL	BLUE

REVISIONS	
Ⓑ	95061 CABLE CONNECTIONS CHANGED. 1-13-39 HCA.
Ⓒ	95057 CABLE CONNECTIONS ON TERM. BLK. CHND. WIRES TO TERMS. D5 & 6 REVERSED. 2-15-39 O.A.L.
Ⓓ	XRT 107 ADDED 12-13-40 E.E.
Ⓔ	2000 <sup>W</sup> RESISTOR CHANGED TO 2500 <sup>W</sup> 2-13-41 J.J.F.



LETTERS APPEAR OPPOSITE CORRESPONDING RECEPTACLES ON ACTUAL AND SCHEMATIC WIRING DIAGRAMS.

ADJUST SLIDER ON RESISTOR TO 2000<sup>W</sup> ±10%

SWITCHES ARE "ON" WHEN HANDLES ARE POINTING TOWARD FRONT OF TABLE.

THESE 2 WIRES #14 DELTABESTON. 7 OTHERS #18 C.C. DELTABESTON.

STRAPS "V" AND "W" SHOULD BE LONG ENOUGH TO REACH BETWEEN ANY TWO TERMINALS ON EITHER BLOCK.

— TABLE WIRING INCLUDING WIRES SOLDERED TO REAR OF BLOCKS "A" AND "B."  
 - - - CROSS CONNECTIONS BETWEEN SCREW TERMINALS ON BLOCKS "A" AND "B." USE #14 DELTABESTON WIRE, BLACK.  
 ( ) DENOTES WIRES IN BX.  
 ( ) DENOTES WIRES IN CABLE.  
 STRAPS ON LINE CONNECTION BLOCKS ARE BLACK-#18 C.C. DELTABESTON WIRE.  
 RECEPTACLES AND PLUGS SHOWN FROM SLOT AND PRONG FACES.

THIS END OF WIRE TO BE EQUIPPED WITH 82474 TERMINAL AND TERMINATED UNDER SCREW.

FOR POWER CONNECTIONS TO TABLE AND WIRING OF CORDS AND PLUGS SEE SCHEMATIC WIRING DIAGRAM 1795.

TELETYPE CORPORATION
WD-1794-A
DEC. 5, 1938
WD-1794-E

ACTUAL WIRING DIAGRAM FOR XRT96 & XRT107 METAL TABLE FOR 19 TYPE SET

DRAWN HCA.  
 TRACED HCA.  
 CHECKED M.T.G.  
 ENGR'D. M.T.G.  
 APPROVED M.T.G.