

DESCRIPTION AND ADJUSTMENTS, TELETYPE POLAR
RELAYS RY20 (W. E. 215-A), RY28 (W. E. 215-H), AND
RY30 (W. E. 255-A)

DESCRIPTION

	<u>RY20</u> (215-A)	<u>RY28</u> (215-H)	<u>RY30</u> (255-A)
Number of windings	2	2	2
Resistance per winding, ohms	85	85	136
Signaling current, milliamperes	60	60	60) (20
Biasing current, milliamperes	30	30	30) (10
Contact Metals:		Extra Heavy	Extra Heavy
Armature	No. 4	No. 4	No. 4
Contact screws	No. 4	Tungsten	Tungsten
For use with Teletype Apparatus:			
Equipped with radio filters		x	x
Not equipped with radio filters	x		
Mounts in 6827 (18-B) connecting block	x	x	x

The RY30 (255-A) relay is equipped with knurled tension knobs for increased convenience in adjusting the pole-piece screws.

Efficient operation of the RY20, the RY28 or the RY30 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 RY30 relays) and back off both pole-piece screws as far as possible. Back off both contact screws.

ADJUSTMENTS (See Figure 1)

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 nonmagnetic 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.

ARMATURE ADJUSTMENT

The armature should not touch the inside of the spool and the contacts should align so that the centers of the contact 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.

*ARMATURE CONTACT SPRINGS ALIGNMENT

The armature contact springs should be parallel to the armature and the tips of the armature contact springs should rest against each other, approximately flat across their width, with a pressure of 20 to 50 grams measured on one spring at the contact with the other spring held so that it cannot follow its mate. If necessary, back off the contact screws. To adjust the tension of the armature contact spring, bend the spring toward or away from the other contact spring as required, and as close as practicable to the point where it is riveted to the armature. Reset the contact screws.

* Indicates Addition

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 first against one contact screw and then against the other, the armature stop pins should not touch the pole-piece screws.
- (2) The armature should be centered in the magnetic field between the pole-piece screws, i. e., 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 RY30 relays), the right pole-piece screw pushes the armature far enough to just touch the left-hand contact screw. Back off the right pole-piece screw approximately 1/4 turn from this position until REQUIREMENT (1) is met. Tighten the locknut.
- (3) Advance the left pole-piece screw until REQUIREMENT (2) is met. Tighten the locknut. If this disturbs the adjustment, reposition the left pole-piece screw and retighten the locknut to meet the requirement.

NOTE: When adjusting the pole-piece screws on RY30 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

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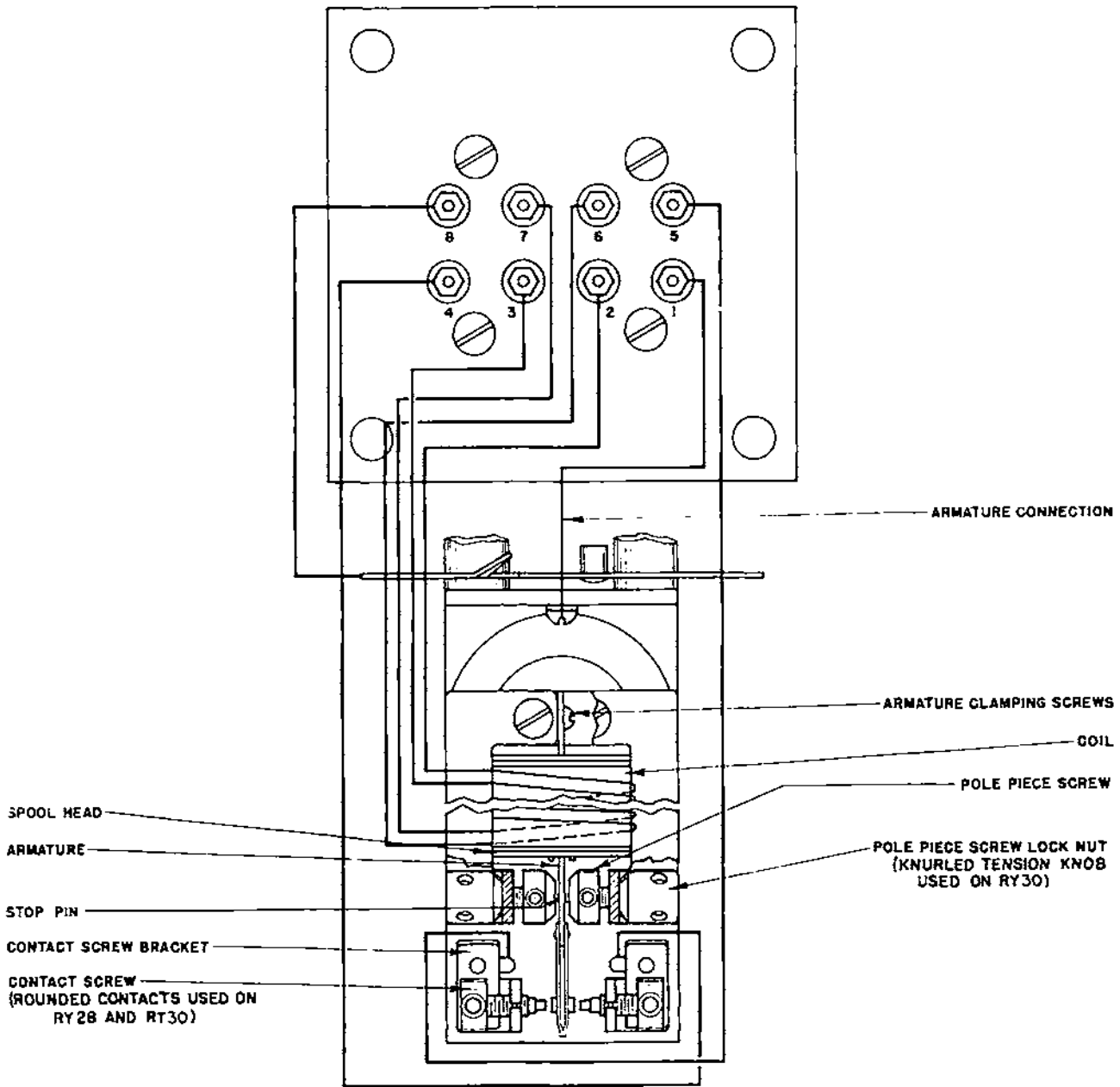
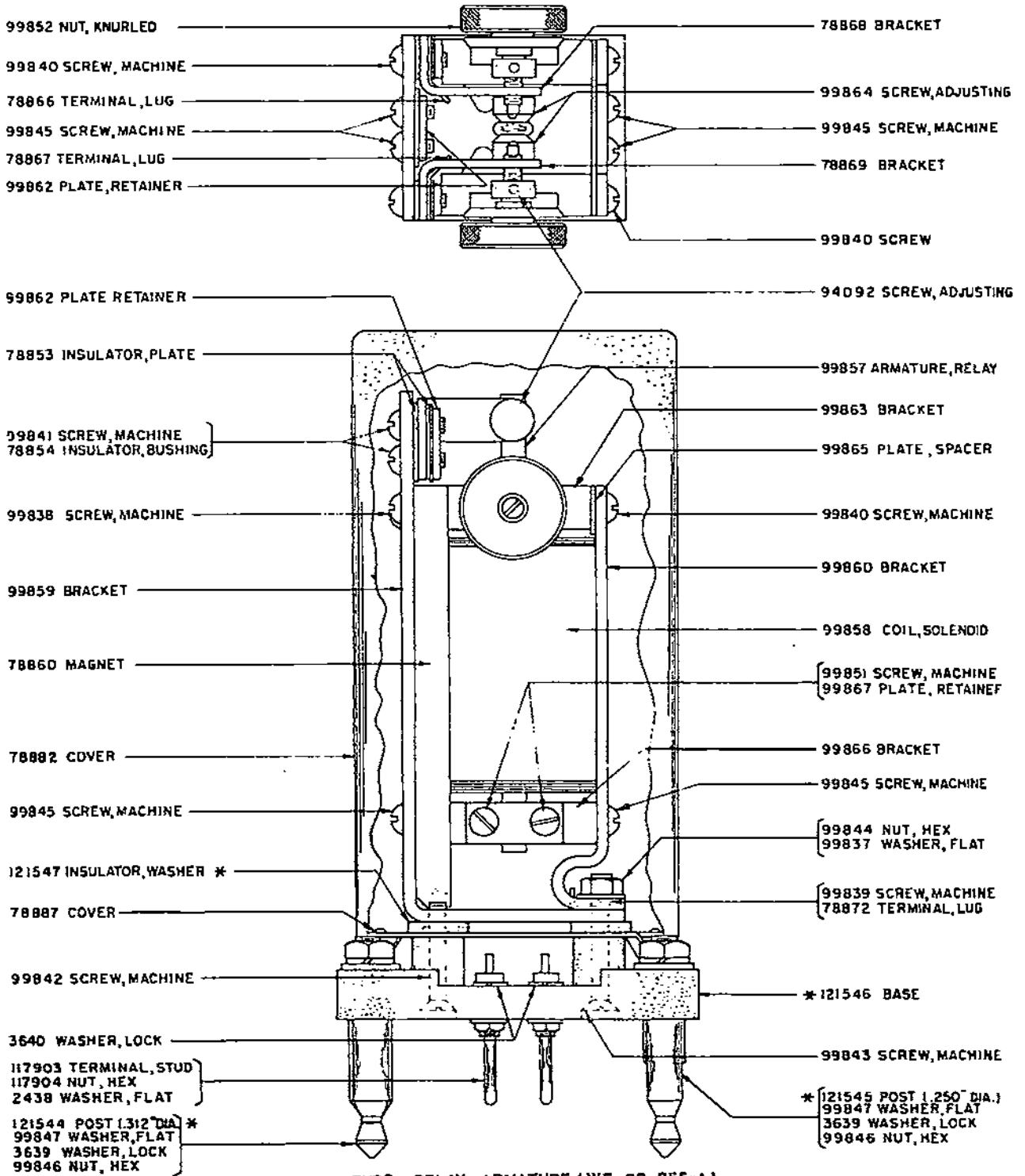


FIGURE 1

PARTS-LINE RELAY



99852 NUT, KNURLED

99840 SCREW, MACHINE

78866 TERMINAL, LUG

99845 SCREW, MACHINE

78867 TERMINAL, LUG

99862 PLATE, RETAINER

99862 PLATE RETAINER

78853 INSULATOR, PLATE

99841 SCREW, MACHINE
78854 INSULATOR, BUSHING

99838 SCREW, MACHINE

99859 BRACKET

78860 MAGNET

78882 COVER

99845 SCREW, MACHINE

121547 INSULATOR, WASHER *

78887 COVER

99842 SCREW, MACHINE

3640 WASHER, LOCK

117903 TERMINAL, STUD
117904 NUT, HEX
2438 WASHER, FLAT

121544 POST (1.312" DIA) *
99847 WASHER, FLAT
3639 WASHER, LOCK
99846 NUT, HEX

78868 BRACKET

99864 SCREW, ADJUSTING

99845 SCREW, MACHINE

78869 BRACKET

99840 SCREW

94092 SCREW, ADJUSTING

99857 ARMATURE, RELAY

99863 BRACKET

99865 PLATE, SPACER

99840 SCREW, MACHINE

99860 BRACKET

99858 COIL, SOLENOID

99851 SCREW, MACHINE
99867 PLATE, RETAINER

99866 BRACKET

99845 SCREW, MACHINE

99844 NUT, HEX
99837 WASHER, FLAT

99839 SCREW, MACHINE
78872 TERMINAL, LUG

* 121546 BASE

99843 SCREW, MACHINE

* 121545 POST (1.250" DIA.)
99847 WASHER, FLAT
3639 WASHER, LOCK
99846 NUT, HEX

RY30 RELAY, ARMATURE (W.E. CO. 255-A)

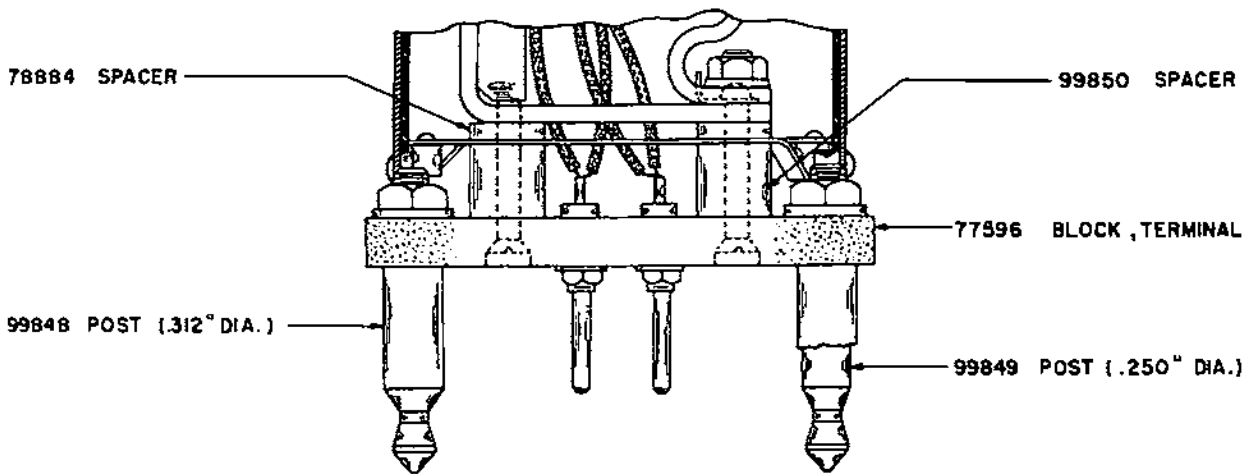
* SEE PAGE 2 FOR NOTES OF EXPLANATION

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NOTES OF EXPLANATION

THE RY30 LINE RELAY (W.E. CO. 255-A) SUPERSEDES BOTH THE RY20 LINE RELAY (W.E. CO. 215-A)
AND THE RY2B LINE RELAY (W.E. CO. 215-H)

THE PARTS SHOWN BELOW ARE NO LONGER MANUFACTURED, WHEN ANY ONE OF THESE PARTS ARE
REQUIRED FOR USE WITH AN OLD STYLE LINE RELAY, ALL THE PARTS INDICATED BY AN ASTERISK(*)
ON PAGE 1, SHOULD BE ORDERED.



RY30 LINE RELAY
(SHOWING OLD STYLE PARTS)