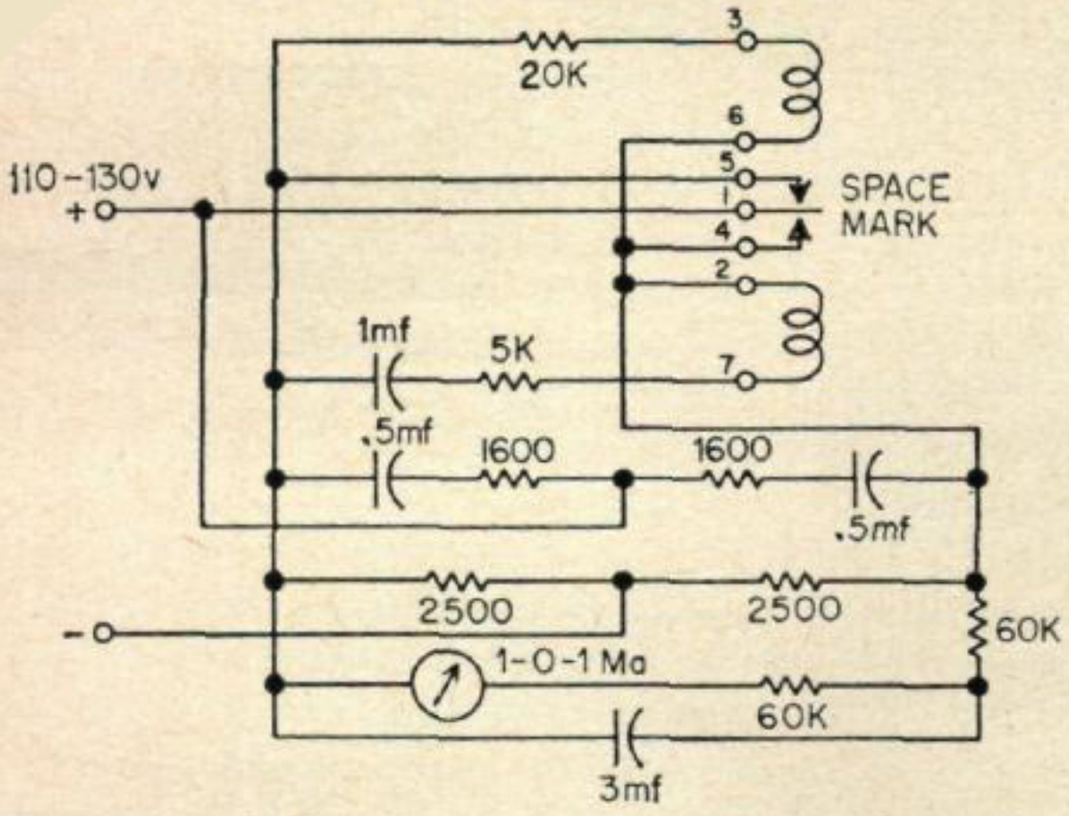

Fig. 3—Polar Relay Test Set schematic.

A reasonably good job of adjusting a polar relay can be done by a nail and a simple feeler gauge, but if possible beg, borrow, etc., *Teletype* tools. The gauge is a 74-D, and the "nail" is a No. 340 Tool or adjusting key. Also useful are the KS-2662 file and the No. 265-C contact burnisher.

Carefully inspect the relay visually to make sure that the contacts are unpitted and clean, that the surfaces of the flexible contact springs that bear against each other are clean and in contact with each other for at least 25% of their width, and that the armature swings freely inside the spool. Check, too, all slotted head screws for tightness.

Begin adjustment by backing off the contact screws and pole pieces with the 340 tool to find the natural mechanical position of the armature. You might find it necessary to center the armature horizontally by loosening the screws holding the front and rear spool heads to the base; then move the coil to the left or right to bring the armature into the center of the spool slot.

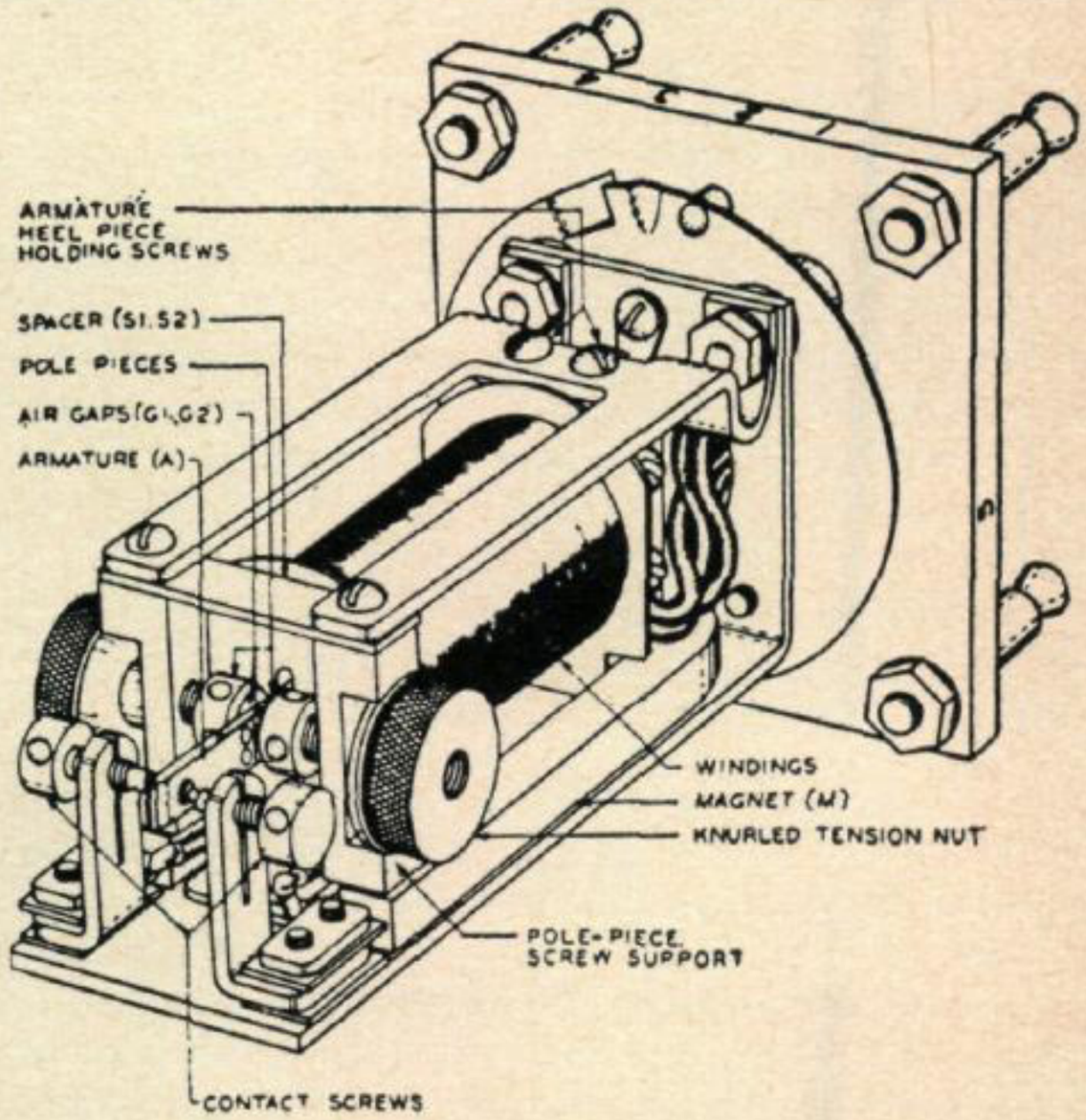

Fig. 4—255A Polar Relay, Cover Removed

Should it be necessary to center the armature vertically, loosen the heel piece holding screws; then adjust the armature vertically until the contacts are correctly aligned. Check for clearance between the armature and the slot in the spool at both top and bottom; then make doubly sure that all screws are tight.

To set the contacts, begin this phase of the adjustment with both pole pieces backed off and the armature in its natural position. Using the relay test set, or at least an ohmmeter, turn in one contact screw until it just touches the armature, then back it off .002-inch, using the feeler gauge. (One-twelfth of a turn of the contact screw is close to .002-inch.) Go through the same procedure for the other contact, then check, with the feeler gauge, the total contact travel, which, of course, should be .004-inch.

The next step is the pole piece adjustment. This is begun by turning in one pole piece until the armature just rests against the opposite contact screw, as indicated by electrical contact. Then back off the pole piece screw slightly less than one half turn and tighten the tension nut to hold it there. Now, turn in the other pole piece until the gaps on each side are as equal as can be judged by the eye and tighten the tension nut. If necessary, readjust the second pole piece until the armature either stands midway between contacts or flips to either contact when moved by hand. Sensitivity is increased, up to a point, by moving the pole pieces away from the armature. So far this has been a "by hand and by eye" adjustment. Now plug the relay into a test set and do the fine adjustment for zero bias by moving one or the other of the pole pieces. It should take only a few degrees of movement to set the relay at zero bias. Go very slow at this point or you will find yourself starting the whole procedure over, right from the beginning.