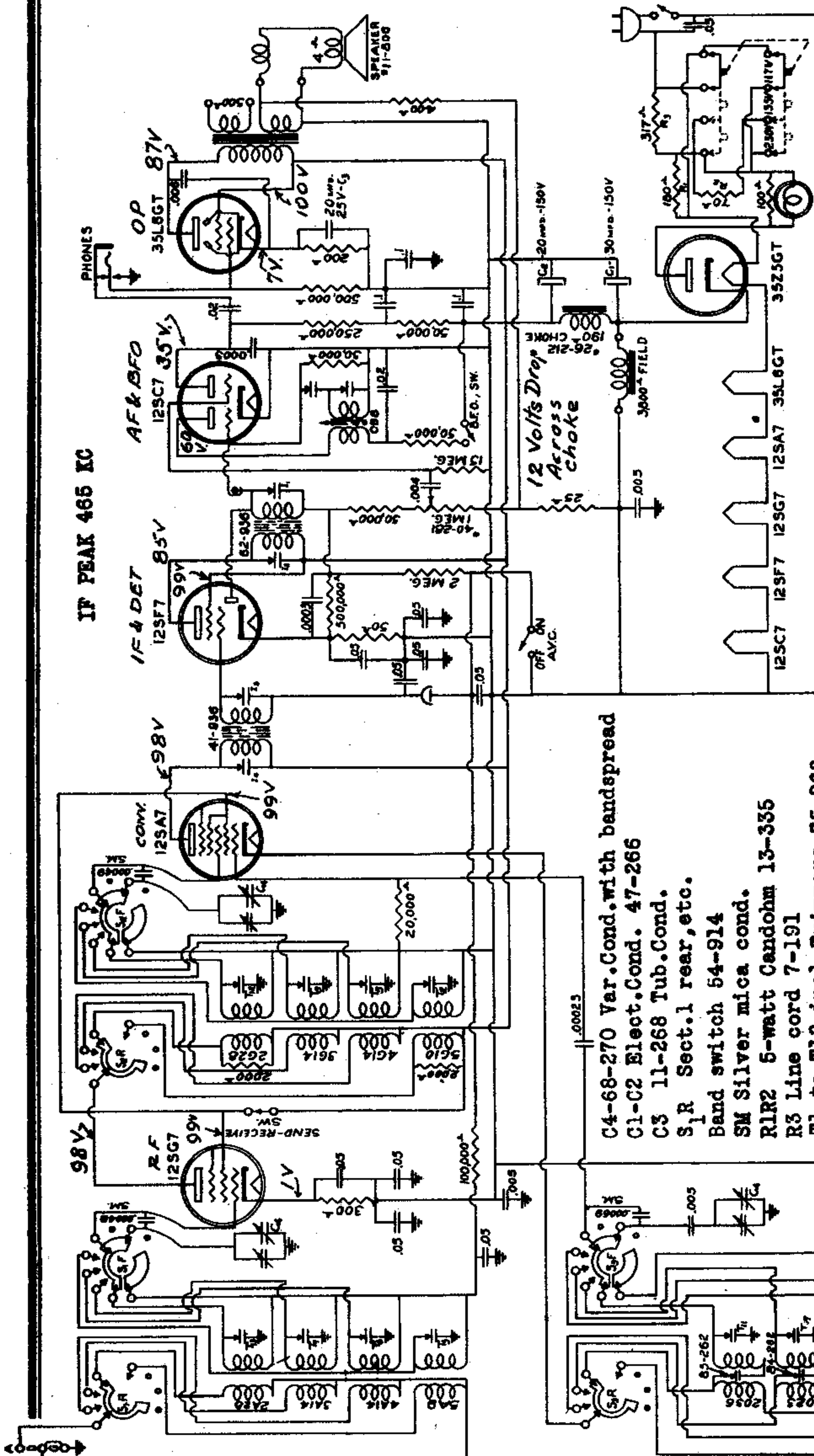
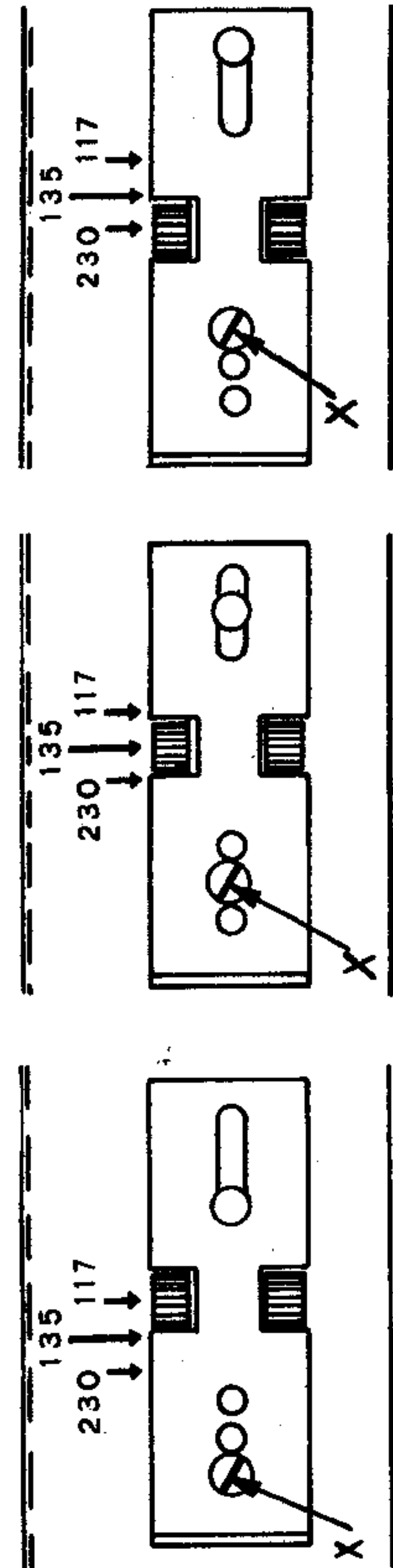


IT' PEAK 485 KC



**For line voltage between
125 and 150 Volts**

**For line voltage between
100 and 125 Volts**

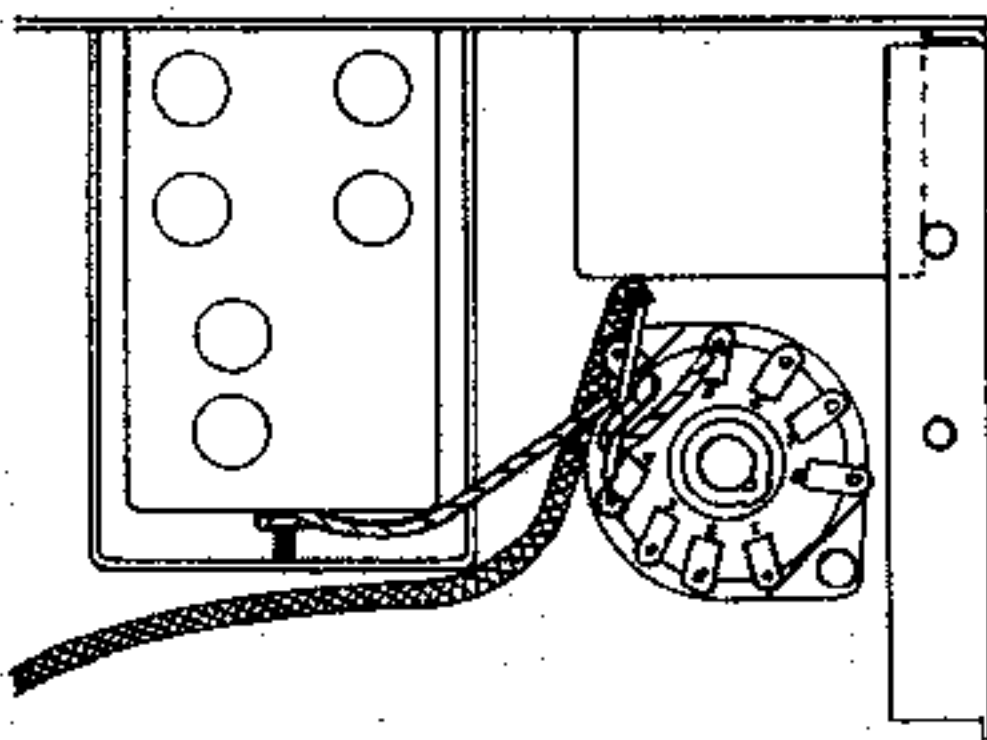


To change switch position, remove screw at "X" and slide guide plate until the black sections of the switch are opposite the required voltage range as shown by the arrow.

MODEL 445

HOWARD RADIO CO.

THE BEAT FREQUENCY OSCILLATOR



The adjacent figure shows an underneath view of the socket for the BFO 6J5 tube and its associated coil unit. The means of coupling this oscillator with the incoming signal is the conventional method of allowing small capacity between the BFO grid lead and the diode circuit. The shielded lead shown comes from the diode of the 2nd detector and is anchored on a dummy terminal of the BFO socket. The oscillator grid (green) lead is capacity coupled to this lead by one or more turns wrapped around the unshielded portion of the diode lead. THE AMOUNT OF THIS COUPLING IS CRITICAL.

INSUFFICIENT CAPACITY results in a weak beat oscillator or no apparent oscillator at all with weak incoming signals.

TOO MUCH CAPACITY COUPLING causes severe repeat BFO harmonics which appear all over the bands.

To increase or decrease the BFO action, remove the bottom from the cabinet and vary this coupling to suit. Keep in mind that should the turns be increased, there may be too much coupling if the turns are wound too TIGHT around the diode lead.

FOR TRIMMER LOCATIONS, SEE CHART BELOW

The alignment is made with the BFO Off, the AVC Off, and the Band Spread set to 100.

The main dial hand must stop EXACTLY ON the last line at the end of the scale when the condenser is fully closed without force on the tuning control.

There will be an overload effect on powerful broadcast stations when the AVC is OFF.

NOTE 1: After the alignment of the I.F. stages is completed, align the BFO system as follows:

1. Set pitch control 3 turns back from the "IN" position and turn on the BFO Switch.
2. Adjust the trimmer in the BFO can to obtain maximum sound which will be a hissing noise. Turn tuning knob to be sure this sound is not some tunable frequency that is causing it.
3. Check beats against some broadcast station to determine if the strength of the beat is normal.

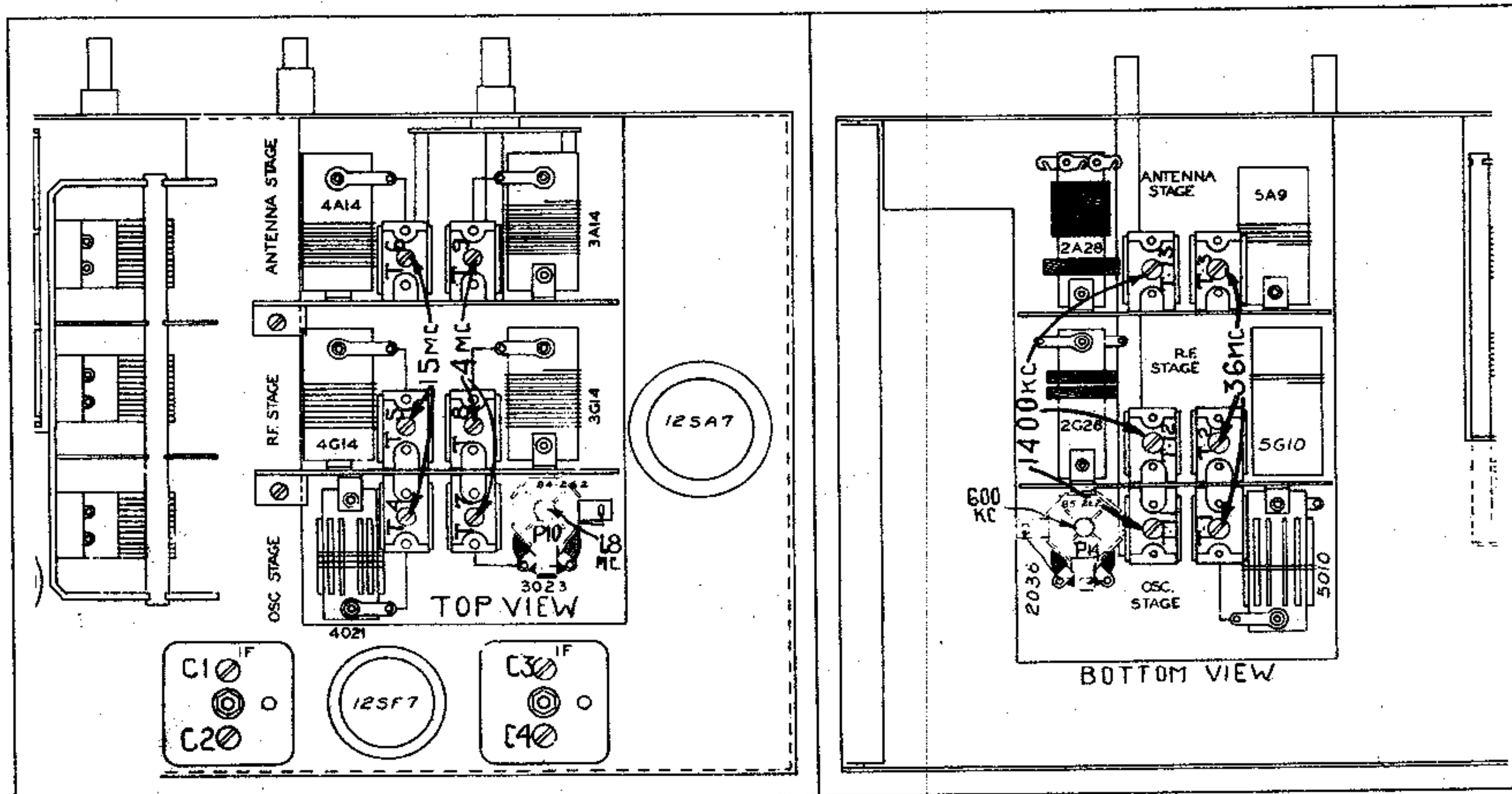
NOTE 2: In this band (17 to 43 MC) only the oscillator follows the received signal 465 KC lower in frequency. Therefore when checking for the image, if the alignment has been made at 36 MC, it will be found at about 37 MC. This will determine if the alignment was correctly made at 36 MC.

NOTE 3: Check for image on all bands except that 17 to 43 MC band at a point 930 KC lower on the dial.

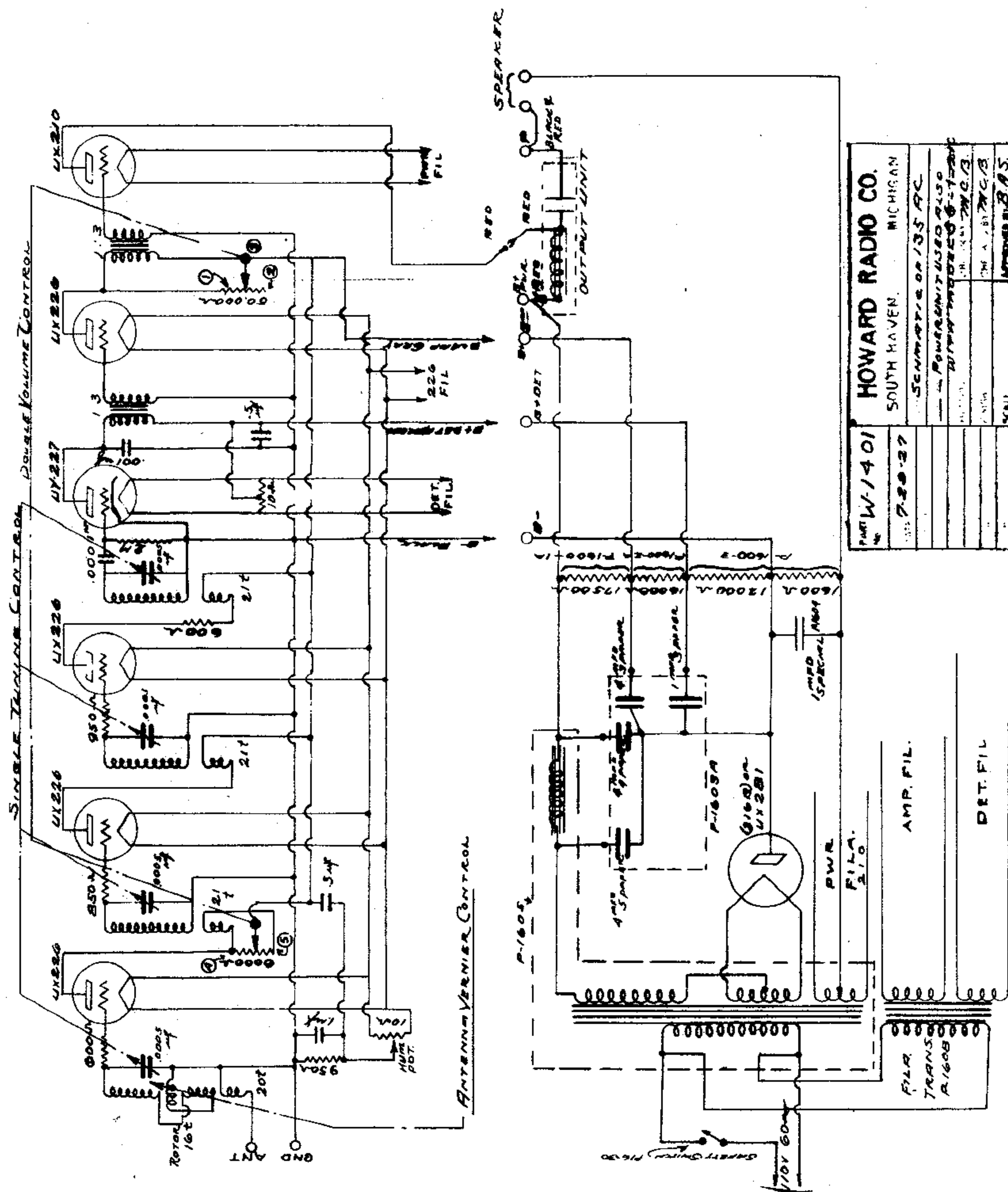
NOTE 4: Rock main dial slightly for point of maximum signal as the padding condenser is being adjusted.

ALIGNMENT PROCEDURE

| DUMMY ANTENNA | SIG. GEN. CONNECTION TO | GEN. FREQ. | BAND SW. POSITION | DIAL SETTING | SEE NOTE | ORDER OF TRIMMER ADJUSTMENTS | TRIMMER FUNCTION |
|---------------|-------------------------|------------|-------------------|--------------|----------|------------------------------|------------------|
| .05 mfd. | Grid of 12SA7 | 465 KC | 1.7-.55 | Off Station | 1 | C1, C2, C3, C4 | I.F.-peak |
| 400 Res. | A & DG | 1400 KC | 1.7-.55 | 1.4 | | T11, T12, T13 | Osc-RF-Ant. |
| " | " | 600 KC | 1.7-.55 | .60 | 4 | P14 | Osc. Pad. |
| " | " | 5 MC | 5.5-1.7 | 5 | 3 | T7, T8, T9 | Osc-RF-Ant. |
| " | " | 1.8 MC | 5.5-1.7 | 1.8 | 4 | P10 | Osc. Pad. |
| " | " | 16 MC | 18-5.6 | 16 MC | 3 | T4, T5, T6 | Osc-RF-Ant. |
| " | " | 36 MC | 43-17 | 36 MC | 2 | T1, T2, T3 | Osc-RF-Ant. |









HOWARD RADIO CO.



135, 395, 445, 495

(A.C.)

| | | |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| C-327 | CX-326 | CX-310 |
|  |  |  |
| Det. | 1st A.F. | 2nd A.F. |
| CX-326 | CX-326 | CX-326 |
|  |  |  |
| 3rd R.F. | 2nd R.F. | 1st R.F. |

| |
|-----------------------|
| W-1401 |
| 7-20-37 |
| HOWARD RADIO CO. |
| SOUTH HAVEN. MICHIGAN |
| SCHEMATIC OF 135 AC |
| POWER UNIT USED ALSO |
| WINDMILL |
| MAY 1938 |
| THE A. B. C. S. |
| THE A. B. C. S. |
| THE A. B. C. S. |
| THE A. B. C. S. |