DATE 3/31/53 SH. 1 OF 2 COMPILED BY G.T.O	TMC SPECIFICATION NO. S-162	
	TITLE: DVM TEST PROCEDURE	JOB
APPROVED G.T.O		

1. Quick check for unsoldered connections.
   Condenser C 34 should have enough panel clearance so as to prevent B+ short.

2. Check scope system, lock scope tube in place.
   Scope trace should be horizontal.

3. Pre-set the following chassis controls:
   a. V-gain - 90% max.
   b. C 38 - 25% of capacity.
   c. C 21 - 25% of capacity.
   d. R 40 - 90% of max.
   e. R 42 - 90% of max.
   f. C 61 - 25% of max.
   g. R 43 - 50% of max.

4. Make the following measurements on S3. (Switch Arm)
   ± 1KC; +0.6V _____ +1.2V

   ± 5KC; -0.5V _____ +1.5V

   Voltage range of ± 5KC can be obtained by setting control R 42.

   If voltages other than those listed are obtained then V 7 (12AU7) must be replaced.

5. Adjust sweep oscillator to 355KC (C 34 at mid capacity) using frequency meter with dial set to 1946. If buzz heard (earphones plugged into frequency meter) is higher in frequency for maximum inductance setting of L6, then sweep oscillator tank condenser C 35 (200 mmf) is low, add 5 to 10 mmf, whichever is required. Final adjustment of L6 should not require full setting of iron slug.

6. Pre-set IF's Z-1, Z-2 to 100 KC.

7. Feed 455KC into DVM and trace signal through to monitor scope tube.

8. Decrease V-gain 10% of maximum value or to point just below signal distortion.

9. C 21 and Z 3 are adjusted for best pulse shape and equal amplitudes between ± 1KC and ± 5KC. Ripples appearing on ± 5KC pulse which cannot be eliminated by means of C 21 and Z 3, then re-peak 100KC IF transformers on ± 5KC pulse.

10. Feed DVM with modulated 455KC signal and adjust trimmer C 61 for maximum tone (phones plugged into DVM jack). Check pulse amplitude between Pan and Audio with no modulation. If pulse amplitude differs mor than 20%, detune trimmer C 61 slightly to decreasing capacity. Frequency of 455KC IF will vary between 480-490 KC.

11. Turn frequency meter dial so that pulse in the + 5KC is made to move from left to right on monitor scope, using first Pan position and the Audio position. If + 5KC pulse falls off too rapidly on left hand side of scope tube, try re-setting of C 61 for less capacity. Note detuning of C 61 will decrease Audio.

12. Feed a signal to DVM rear jacks to check receiver positions 1,2 and 3.

13. Sweep Alignment

Set H-gain so that its length is 2" long. Feed a 455 KC signal into DVM from LM18 and swing frequency dial so that signal pulse moves to the right hand side of scope. A spurious pulse will appear on the left hand side, which increases in amplitude as signal pulse moves to extreme right. Decrease (counter-clockwise) intensity control and refocus.
(Note: A matter of judgement must be used, since completely eliminating the spurious pulse results in lower scope intensity, hence a compromise must be reached between spurious respons and scope intensity level.)
Remove signal input to DVM and adjust H-gain so that trace just extends ½ to 1 division beyond calibration points. H-centering control permits position of sweep trace to be symmetrical about the center line. Feed 455 KC signal into DVM and with "Cal Zero Set" center signal pulse. Swing frequency dial to end points of scope trace and, if total sweep is greater or less than 2KC, decrease or increase R 40 setting. Recenter 455 KC to center of trace and recheck sweep range. Should right hand side of sweep fall short of range, increase capacitor C 38.

Control C 38 permits linearity of the sweep trace and will increase or decrease high end of sweep range for increasing or decreasing capacity. After the + 1KC range has been calibrated, flip S3 to +5K and center 455KC signal pulse to center of scope screen. Swing frequency meter dial so that signal pulse moves from left to right and note total sweep range (10KC). If more or less range is required, adjust R 42 accordingly. The sweep range tolerance is ± ½ division at ends of sweep for each range. In order to meet sweep range tolerance, a judicious choice of control adjustments of R 40, R 42 and C 38 may be required.

14. After sweep adjustments have been made repeak 100KC IF's in Cal. position.