

WIRELESS SET CDN. No. 29

Unit Repair

This issue cancels pages 1 and 2 of issue 1 of Tels F 353 dated 20 Dec 1947, which have been amended throughout and will be destroyed.

BRIEF WORKING INSTRUCTIONS

1. To prepare the set for operation:—

- (a) Remove the 'B'-IC set and 'A' supply unit from their cases and ensure that the 12-24 V switches on the side of the 'B'-IC unit and on the top chassis of the 'A' supply unit just behind the front panel are set at the appropriate position for the LT source to be used. Ensure that the red tag on the front panel of each unit indicates the setting of the 12-24 V switches.
- (b) Ensure that the shorting link at the right hand side of the 'A' supply unit is open or closed as required. This link is normally open, being closed only when the set is used with a No. 19 set installation.
- (c) Properly connect the set to the aerial tuning unit, 'A' and 'B' aeriels, LT source and control-unit headgear.

2. The 'A' set may not be operated on any exact megacycle frequency, or at any frequency ending in 250 or 750 (such as 3750 kc) as these are heterodyne calibration check points.

3. To preset the 'A' set on a frequency of 6425 kc, for example:—

- (a) Loosen the two winghead studs and remove the preset knobs cover.
- (b) Turn the meter switch to DRIVE.
- (c) Set preset knob 1, 2 or 3 as desired to the nearest half megacycle below the desired frequency (6).
- (d) Loosen the locking screws on the OSCILLATOR and RF TUNING knobs.
- (e) Press the correspondingly numbered pushbutton. Hold this button fully depressed and after the dials have stopped turning, set the OSCILLATOR dial to 425, the last three figures of the desired frequency.
- (f) With the pushbutton still fully depressed, turn the RF TUNING knob to 6425 and rock for maximum drive reading on the meter. Release the pushbutton.
- (g) Frequencies may be set up on the other two channels at this point if desired.
- (h) Tighten the OSCILLATOR and RF TUNING dial locking screws. Do not press the pushbuttons while locking the dials. Once having released the pushbutton, however, turning the tun-

ing knobs, either before or during the locking operation, will not disturb the preset adjustment.

- (j) Replace the front cover. This closes the ATU MOTOR switch.
- (k) To operate the set, press the desired pushbutton and hold it depressed only until the OSCILLATOR and RF TUNING dials stop turning. If the pushbutton is held down the ATU will not stop. When the ATU motor stops, the set is ready for operation.

4. The 'A' set may be tuned manually without disturbing the setting of the preset channels. To tune the 'A' set to a frequency of 3492.5 kc, for example:—

- (a) Loosen the winghead studs and remove the preset knobs cover.
- (b) Turn the meter switch to DRIVE.
- (c) Turn the SELECTOR FREQ MC dial counterclockwise to the nearest half megacycle below the desired frequency, in this case, 3.
- (d) Loosen the OSCILLATOR and RF TUNING dial locking screws.
- (e) Turn the OSCILLATOR dial to 492.5, the last part of the desired frequency.
- (f) Turn the RF TUNING DIAL to 3492.5.
- (g) Press the microphone pressel switch and rock the RF TUNING knob for maximum DRIVE reading on the meter. Release the pressel switch.
- (h) Turn the meter switch to ANT and turn the LOW-HIGH POWER key to LOW.
- (j) Press in on the ATU tuning handle and turn clockwise until the ATU dial reads zero.
- (k) Press the microphone pressel switch and turn the ATU handle counterclockwise until the first aerial current peak is noted on the meter. Release the pressel switch.
- (l) Replace the front cover. High or low power may now be selected as desired.

ROUTINE TECHNICAL MAINTENANCE

- CAUTION:* (a) Do not assemble the ATU unless assembly instructions (para 13) are followed carefully when replacing parts.
- (b) Do not attribute hunting of the ATU to a fault in the ATU. A fault nearly anywhere in the set could cause this.

RESTRICTED

Daily Tasks

5. The following tasks will be carried out daily whether the use of the set is anticipated or not:—

- (a) Remove all dust, dirt and moisture from the exterior of the equipment.
- (b) Clean and adjust the Morse key if necessary.
- (c) Check that the spares are complete and serviceable.
- (d) Make a complete operational check to ensure that the set functions properly in all its facilities.
- (e) Check the mechanical action of all switches and controls.
- (f) Examine all cables and connectors for signs of damage or wear. Check for clean, tight connections.
- (g) Check the calibration of the OSCILLATOR dial as outlined in para 6.
- (h) Check that the securing wedges hold the sets securely in their cases.

6. To check the calibration of the OSCILLATOR dial:—

- (a) Set the CW-RT switch to RT.
- (b) Turn the GAIN control to a low setting.
- (c) Set the OSCILLATOR dial to zero and the RF TUNING dial to 2 mc.
- (d) Set the SELECTOR FREQ MC dial to 2.
- (e) Using the RF TUNING dial, tune for the loudest whistle.
- (f) Reset the OSCILLATOR dial to zero beat. This point should occur within $\pm 1/8$ of a division of the zero line.
- (g) Repeat with the OSCILLATOR dial at 250. Zero beat must occur within the same limits.

Weekly Task

7. Remove and clean the rubber microphone mouthpiece with a disinfectant such as Izal, creoline, hydrogen peroxide or alcohol.

Monthly Tasks

8. In addition to the daily and weekly tasks outlined above, the following tasks will be carried out once a month:—

- (a) Remove the units from their cases and clean the interior of each unit. Do not interfere with switch or relay contacts.
- (b) Remove the oscillator chassis cover and clean the interior thoroughly. Use compressed air if possible.
- (c) Ensure that all nuts and screws are tight. Do not disturb alignment adjustments.
- (d) Examine all switch and relay contacts. Clean by burnishing with the proper tool but only when absolutely necessary.
- (e) Lubricate the preselector mechanisms using a small amount of 3-GP-335a

Oil, instrument corrosion inhibiting, RCOC Cat No. 1H-21980/1. Oil should be applied with a Syringe, Hypodermic, Luer, all glass 10cc Medical Stores Part No. 6-6820 or a fountain type watch oiler.

- (f) Inspect the commutators in the 'A' supply unit and wipe with a clean soft cloth moistened with petrol. Replace brushes if they are worn or badly bedded. A 4 hour run-in period is necessary if new brushes are installed.
- (g) Ensure that the valves and the polarity changer are seated securely in their sockets.
- (h) Examine the plugs at the rear of the 'A' set and 'A' supply unit cases. Check the connecting cable for damage.
- (j) Examine all gaskets and then replace the units in their cases. Ensure that the sets make proper connections with the plugs at the rear of the case. Any difficulty encountered when replacing the sets in the case should be investigated for misalignment of the plugs or guiding studs
- (k) Straighten the 'A' aerial rods, clean the ends and apply a thin coating of petroleum jelly.
- (l) Check the tilting and locking action of the aerial bases and clean if necessary.
- (m) Check the springs at the 'B' aerial base and at the tip of the 'B' aerial. Remove the aerial tip and apply a thin coating of petroleum jelly to the threaded portion.
- (n) If the set is installed in a vehicle, switch on all electrical gear and, with the motor running, check for crackling noises indicating faulty suppression and screening.

FAULT FINDING

9. Unit construction prevents the measurement of current and voltages under operating condition.

10. Test the valves by replacing suspected faulty ones with known good valves from spares. Switch the set off before removing any valve and do not switch the set on until the set has been replaced in its case.

REPAIR INFORMATION

11. To remove the 'B' set top chassis:—

- (a) Remove five RH screws, two on the left and three on the right of the chassis as viewed from the rear.
- (b) Unsolder the aerial lead.
- (c) Ease the chassis slightly to the rear and raise upwards.

12. To change the position of the ATU window to one which allows the scale to be more easily read:—

- (a) Remove 8 screws securing the ATU end cover which carries the tuning knob. Remove the end cover.

This issue cancels Issue 1 of Page 3 of Tels F 353 dated 20 Dec 1947, which has been amended in para 13(d) and will be destroyed.

- (b) Note that the inner cover and dial assembly carries 8 posts numbered from 1 to 8. Ascertain which post position would give the desired effect.
- (c) Remove 4 retaining screws and reposition the dial so that the figure showing in the slot at the dial hub corresponds to the figure noted in (b) above. Replace the 4 retaining screws.
- (d) Replace the end cover with the dial window centre line at the new position.
13. To calibrate the ATU dial (not normally required unless the ATU has been stripped):—
- (a) Rotate the ATU knob fully clockwise.
- (b) Remove 8 screws securing the ATU end cover which carries the tuning knob. Remove the end cover.
- (c) Remove the 4 large screws securing the ATU inner cover and dial assembly.
- (d) Remove the 4 screws from the outer circumference of the ATU body. These also secure the inner cover and dial assembly. Note which of these screws is the shortest and replace it in the same hole from which it was removed upon assembly. The short screw should be positioned at seven o'clock when facing the dial end of the ATU.
- (e) Remove 3 screws at the end of the ATU motor cover. The inner cover and dial assembly may now be pulled outwards.
- (f) Remove the rectangular inspection plate on the side of the ATU.
- (g) Slide the trolley wheel along its shaft until it is resting on the fourth complete turn of wire from the end of the rotary inductance.
- (h) Rotate the dial hub on the inner cover and dial assembly fully clockwise as viewed from the outside until the relay armature is closed. Hold the hub in this position and re-fit the inner end plate to the ATU, allowing the hub to relax slightly counter-clockwise, if necessary, to properly mesh the Geneva gear with its drive.
- (i) Reassemble the ATU, positioning the dial window as outlined in Para 12. Rotate the knob fully clockwise and the dial should jam between the figures 5 and 0. Rotate the knob counter-clockwise and the dial should move in steps, with each number consecutively moving under the dial window hairline. Misalignment of numbers may be corrected by forcing the dial hub against its friction fit on the drive shaft.
14. The socket housing of the connecting cable from the ATU to the "A" set may be rotated at 180° by removing four small mounting screws.
15. To replace Insets, microphone, hand, No. Cl:—
- (a) Remove the rubber mouthpiece.
- (b) Loosen four grubscrews and remove the ring retaining the aluminum cover.
- (c) Pull off the aluminum cover.
- (d) Remove the RH screw beneath the retaining ring. This permits the two sections of the microphone case to be pried apart far enough to allow the inset to drop out of the case.
16. All fuses are accessible from the front panel of the "A" supply unit and the "B"—IC unit except the 5 A fuse, F223, which is located in the interior of the "A" supply unit at the rear.

END

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800-7-48 (1331)

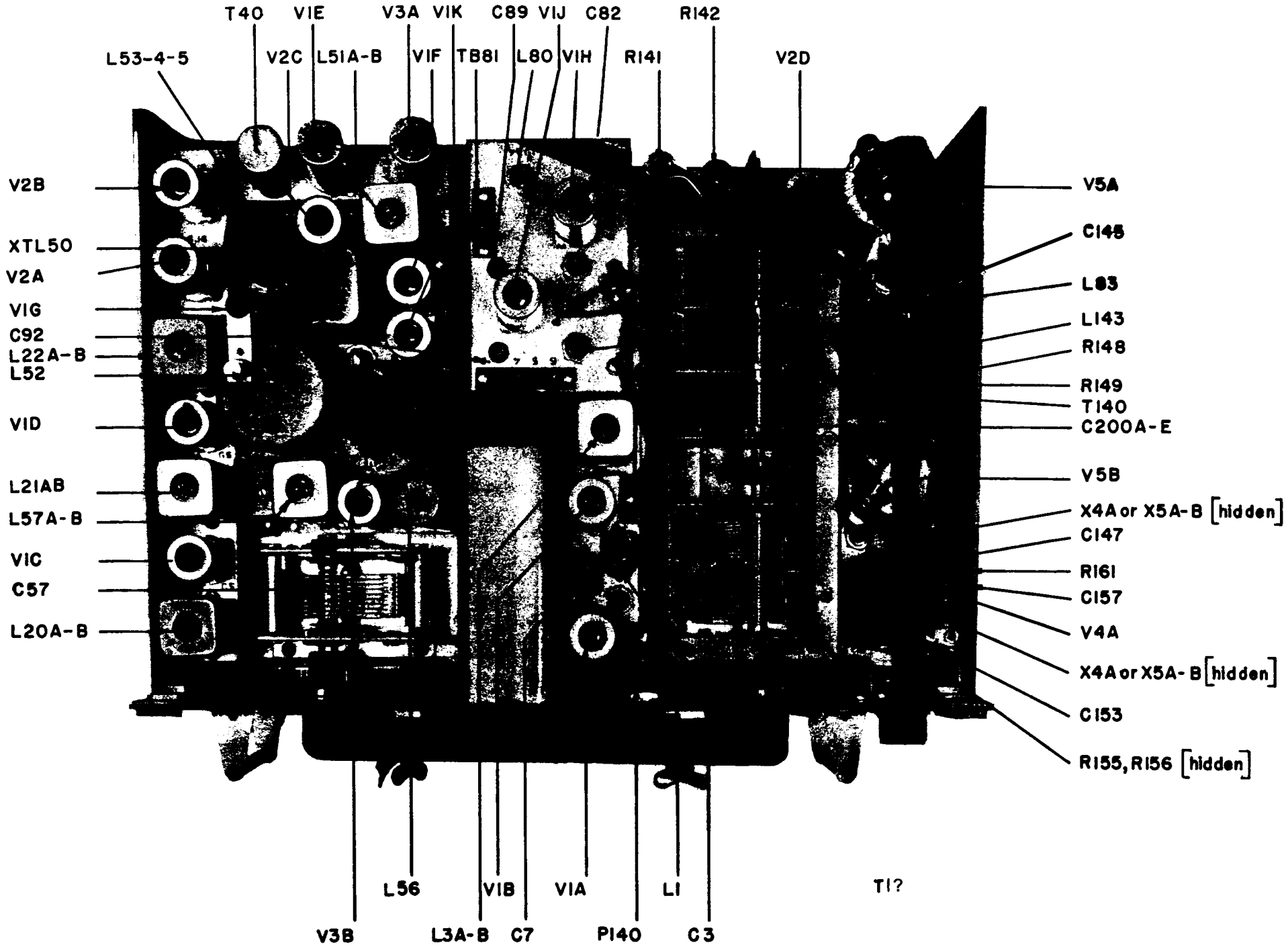


FIG. 1001—LAYOUT OF COMPONENTS WS Cdn No. 29 (TOP View)

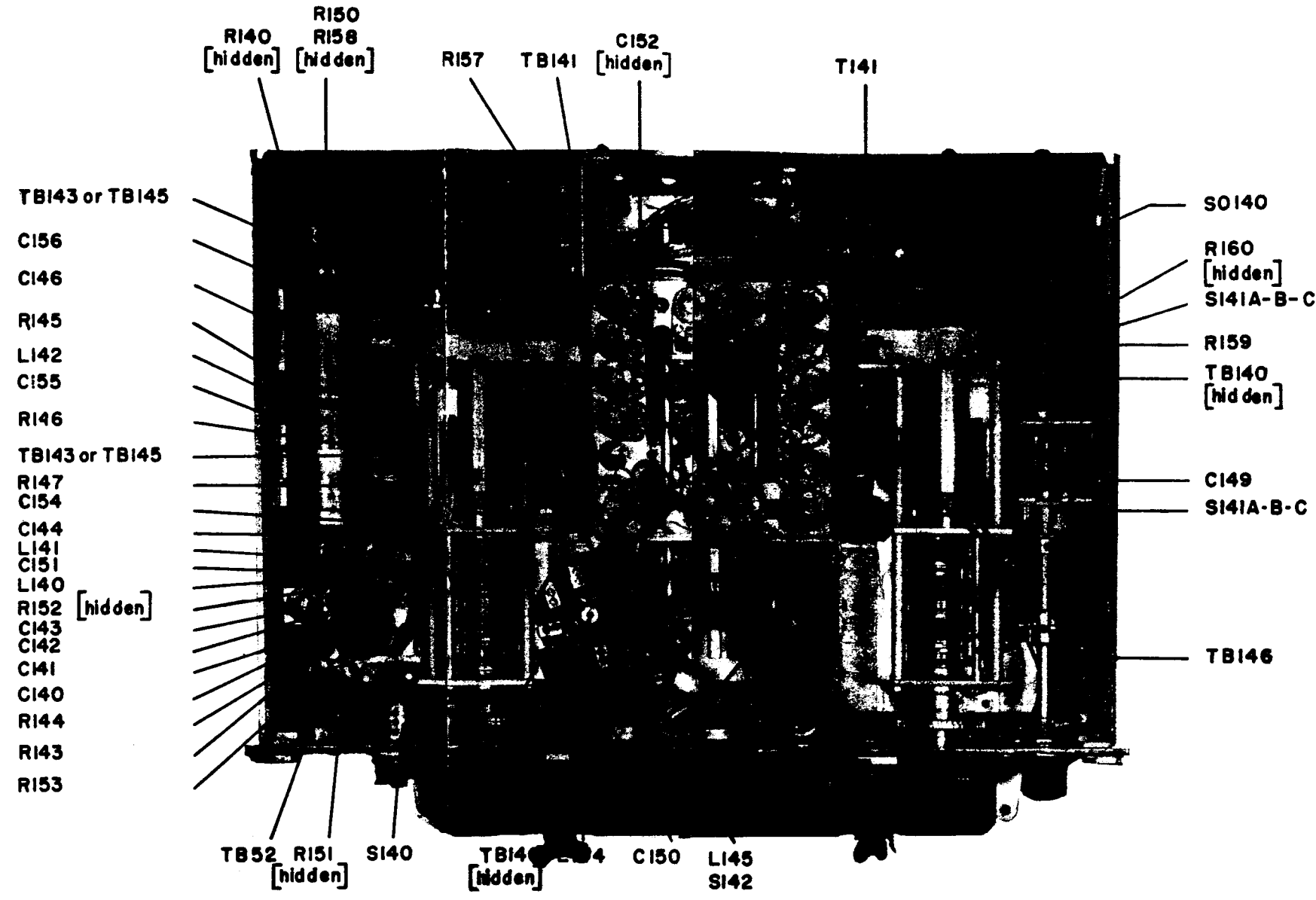


FIG. 1002 LAYOUT OF COMPONENTS WS Cdn No. 29 (BOTTOM View)

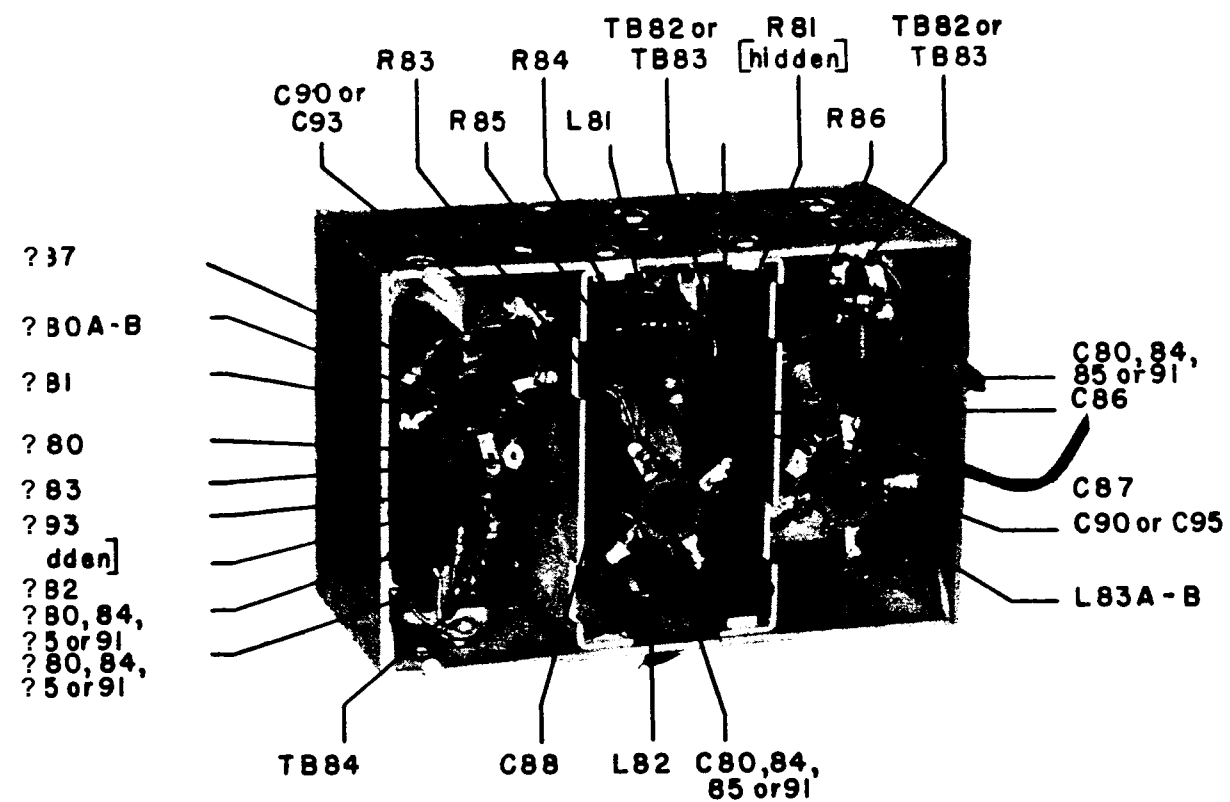


FIG. 1003—AMPLIFIER-MIXER ASSEMBLIES WS Cdn No. 29

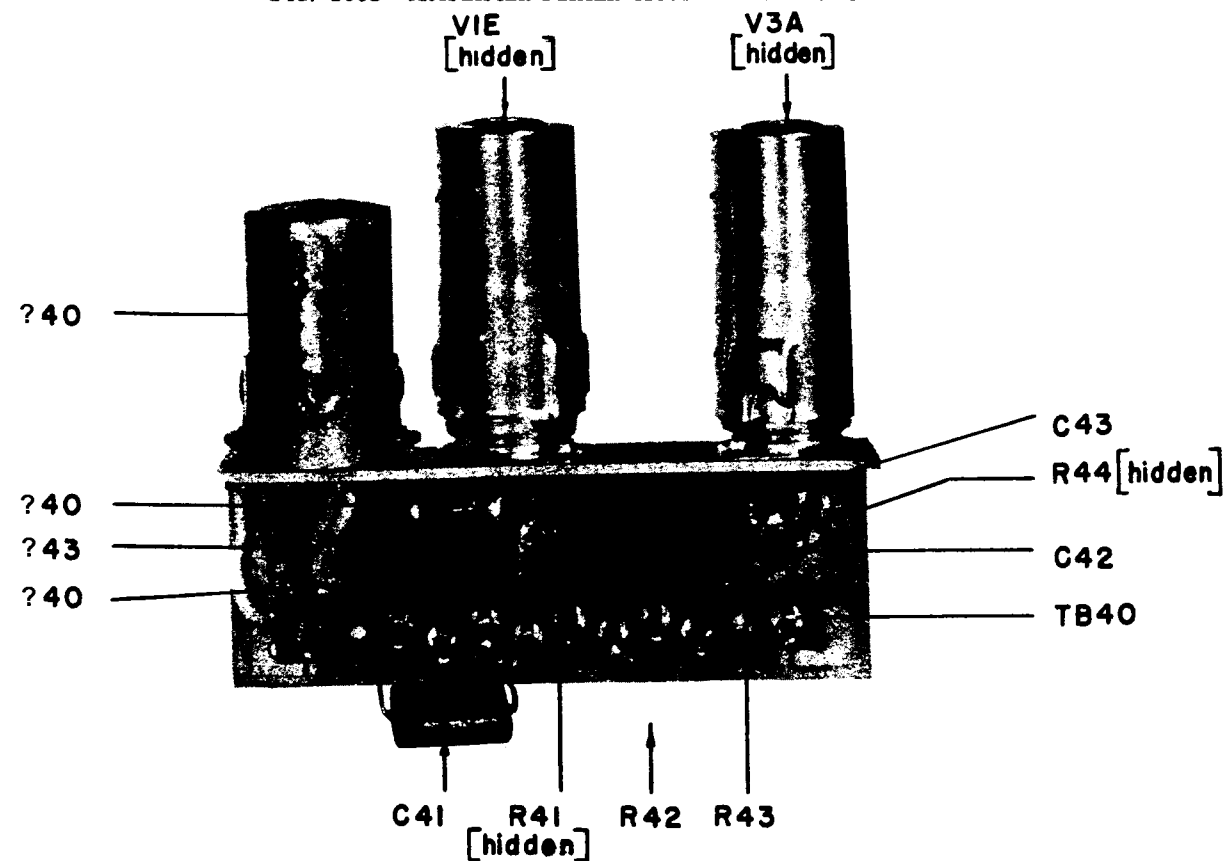


FIG. 1004—AUDIO AMPLIFIER ASSEMBLIES WS Cdn No. 29

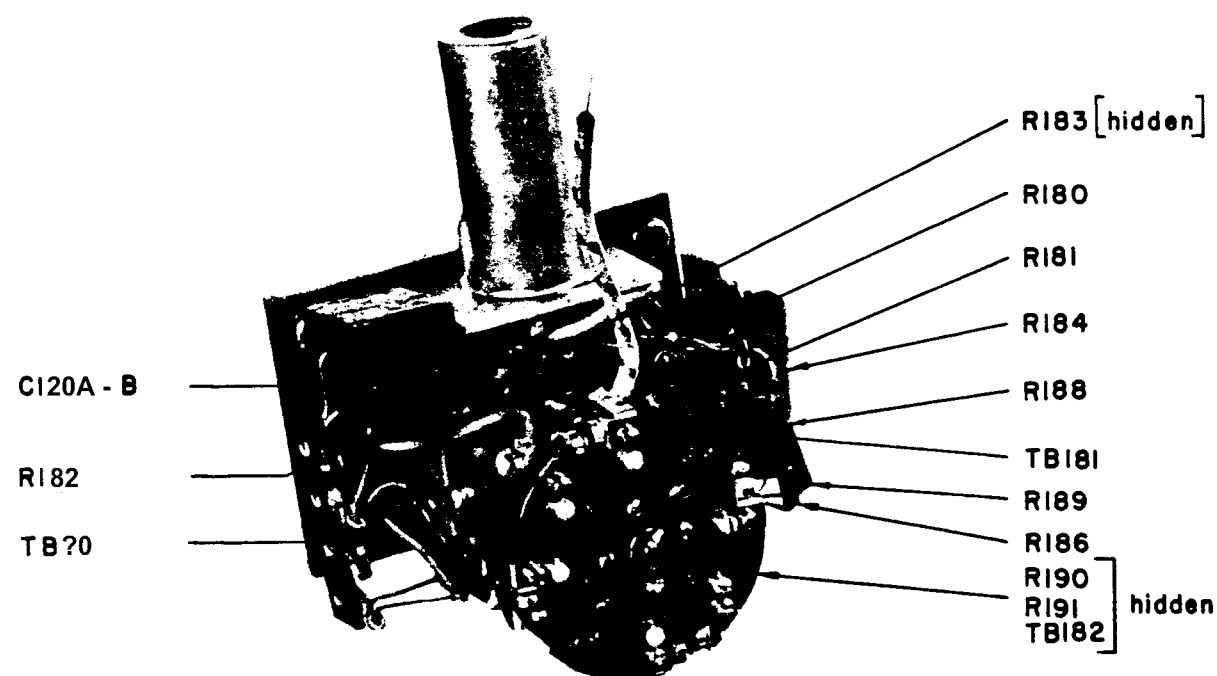


FIG. 1005—ELECTRONIC CONTROL ASSEMBLIES WS Cdn No. 29

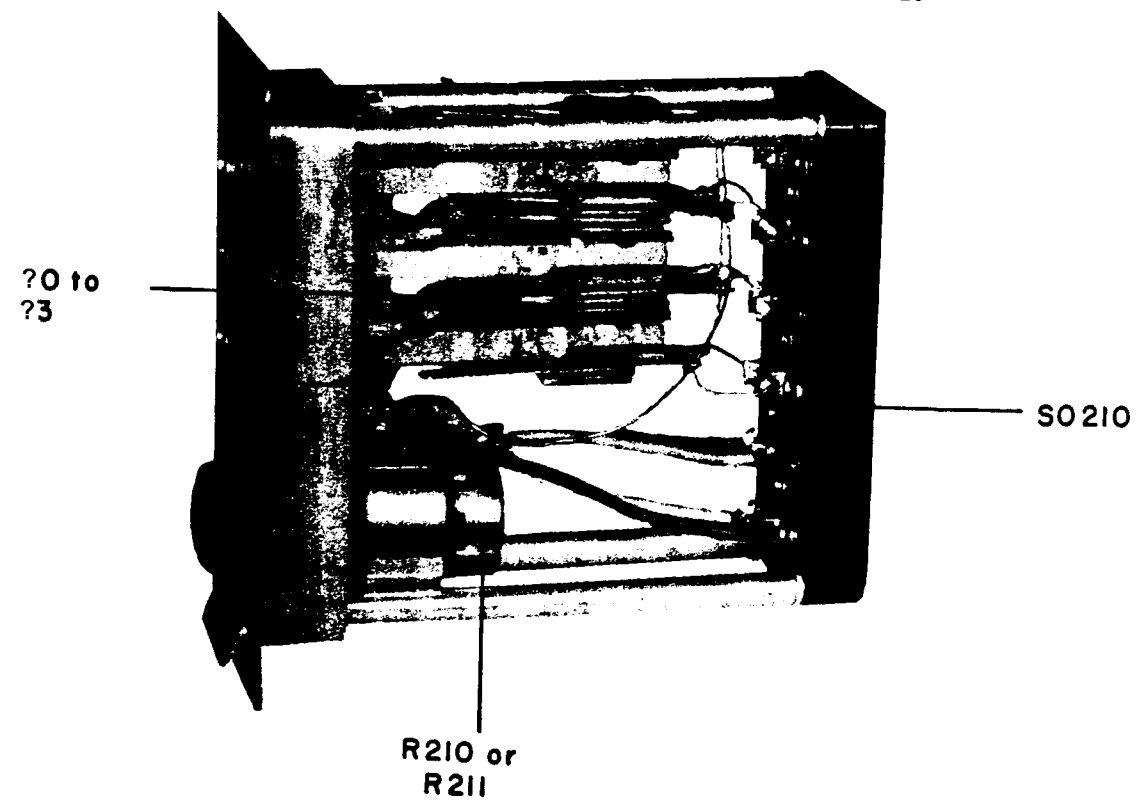


FIG. 1006—FREQUENCY CONTROL UNITS WS Cdn No. 29

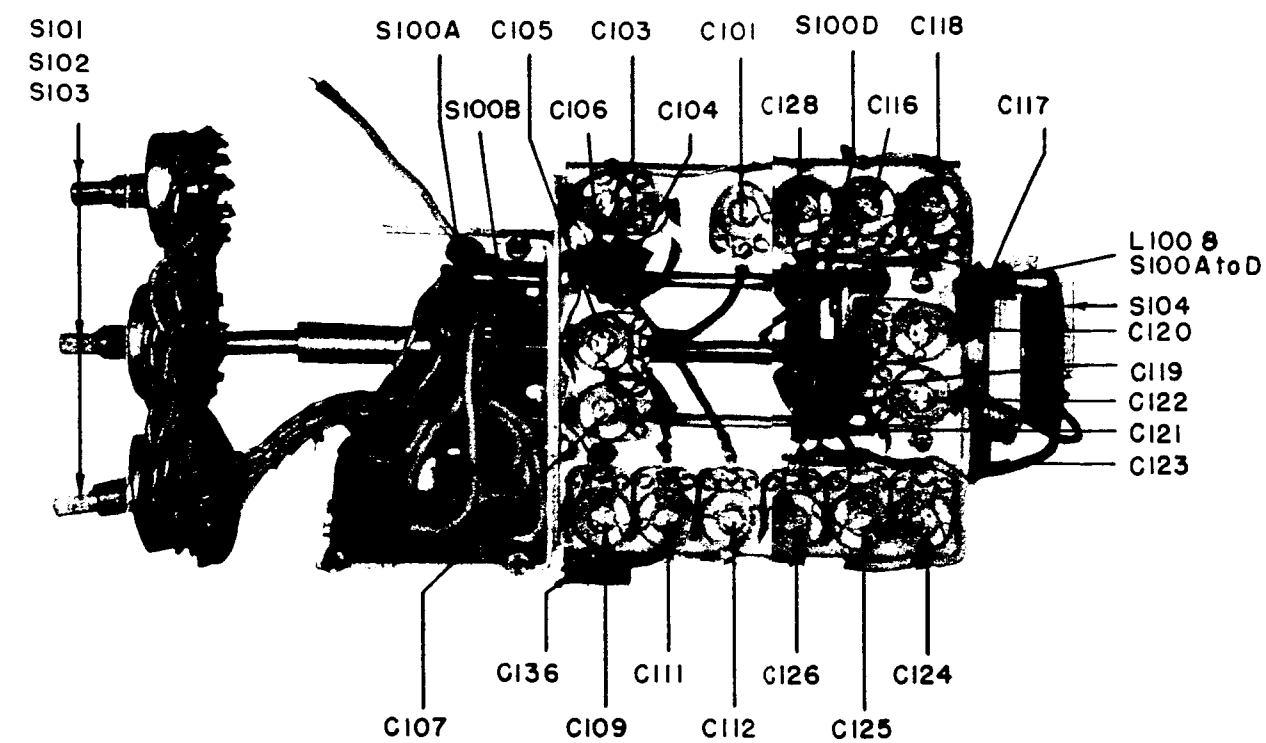


FIG. 1007—HARMONIC SELECTOR ASSEMBLIES WS Cdn No. 29 (TOP VIEW)

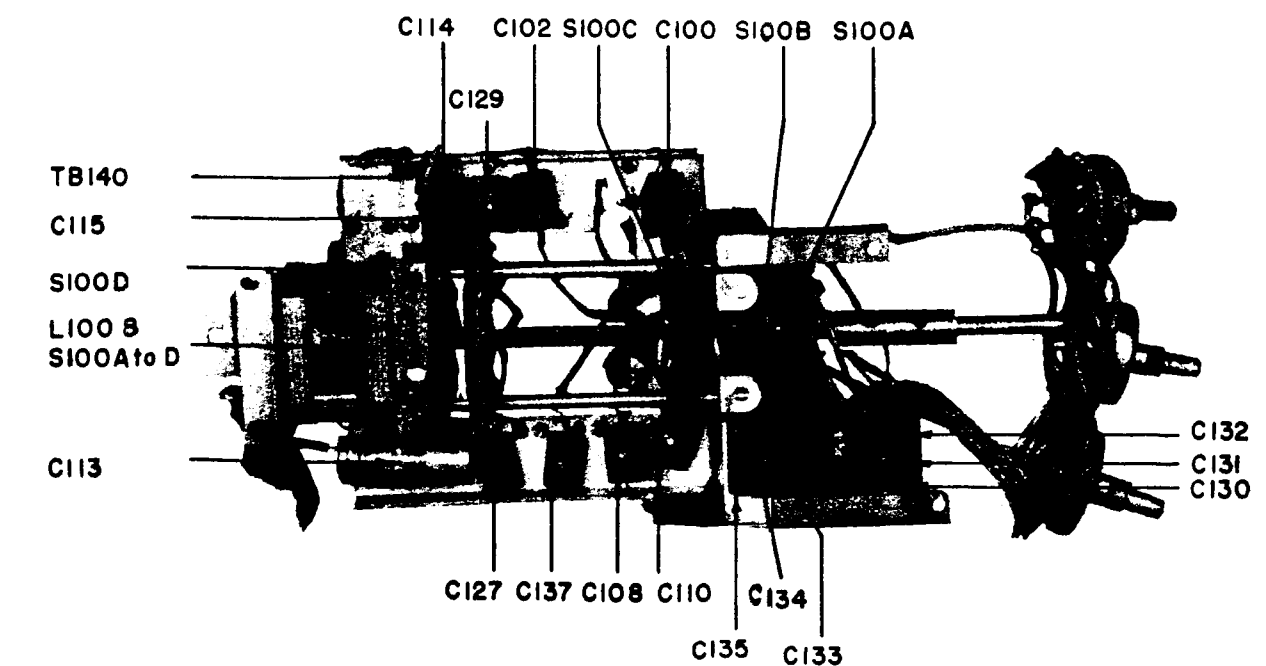


FIG. 1008—HARMONIC SELECTOR ASSEMBLIES WS Cdn No. 29 (BOTTOM VIEW)

Fig. 1009 was too badly damaged to include.

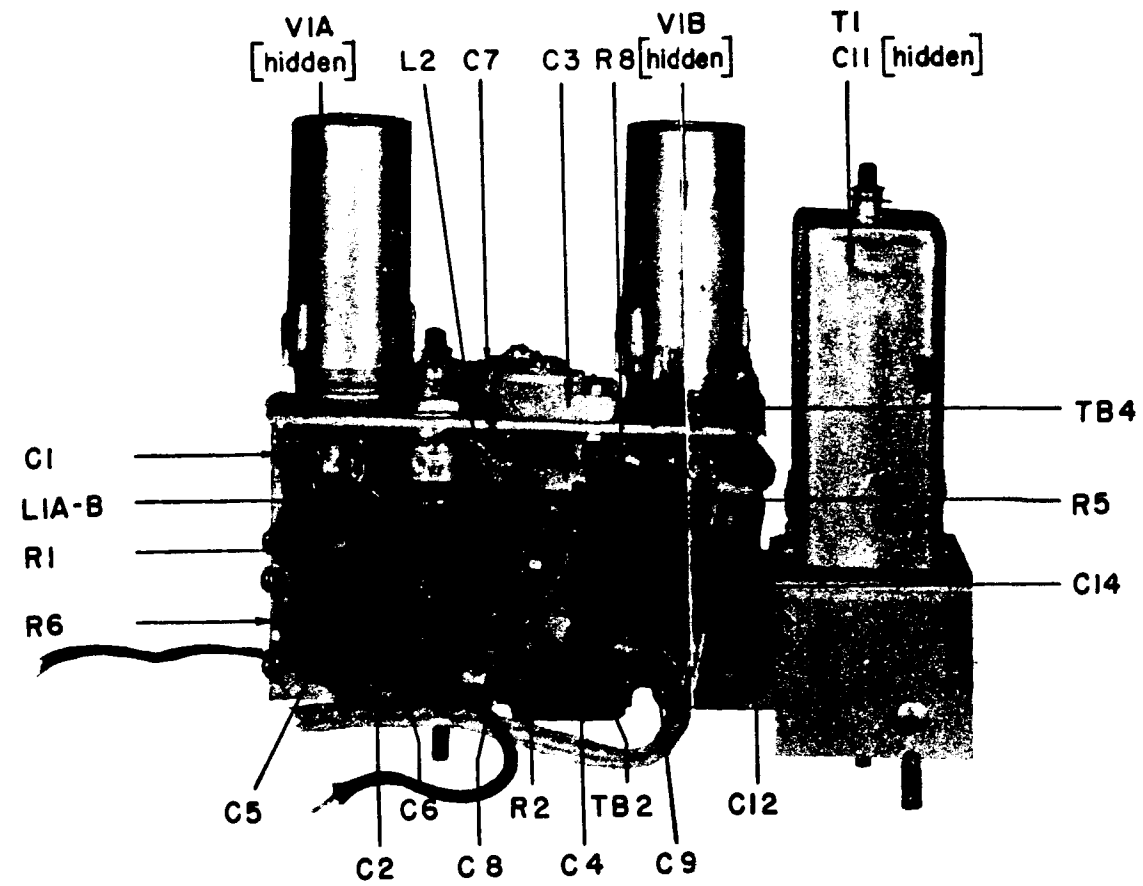


FIG. 1011—RF AMPLIFIER ASSEMBLIES WS Cdn No. 29 (SIDE VIEW)

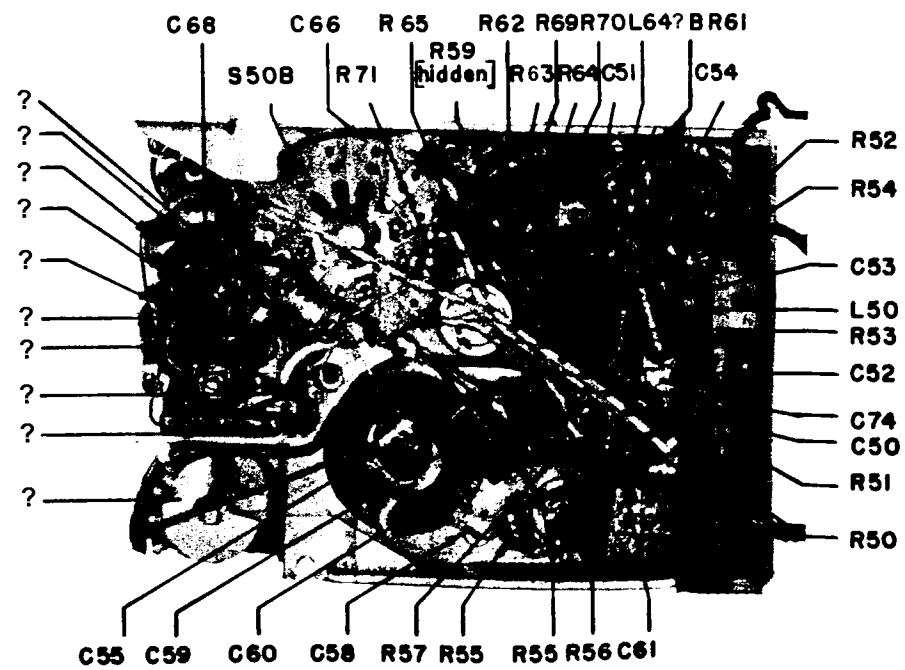


FIG. 1010—MASTER OSCILLATOR Assemblies WS Cdn No. 29 (BOTTOM VIEW)

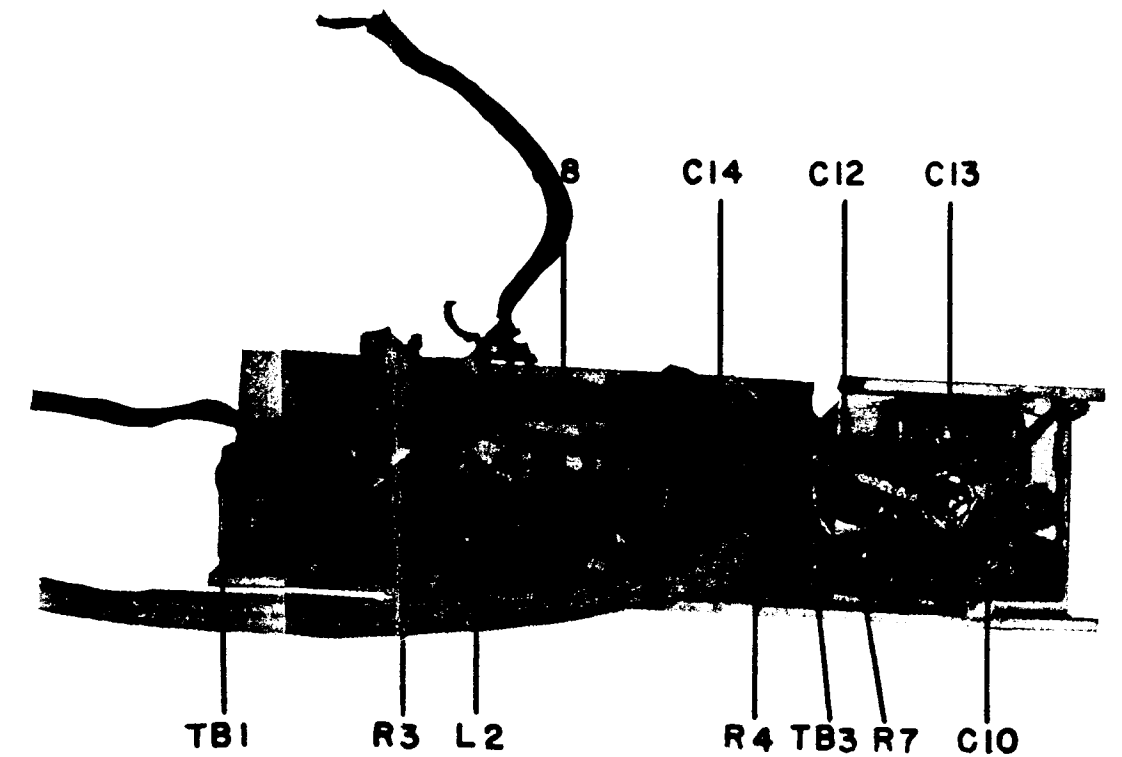


FIG. 1012—R.F. AMPLIFIER ASSEMBLIES WS Cdn No. 29 (BOTTOM VIEW)

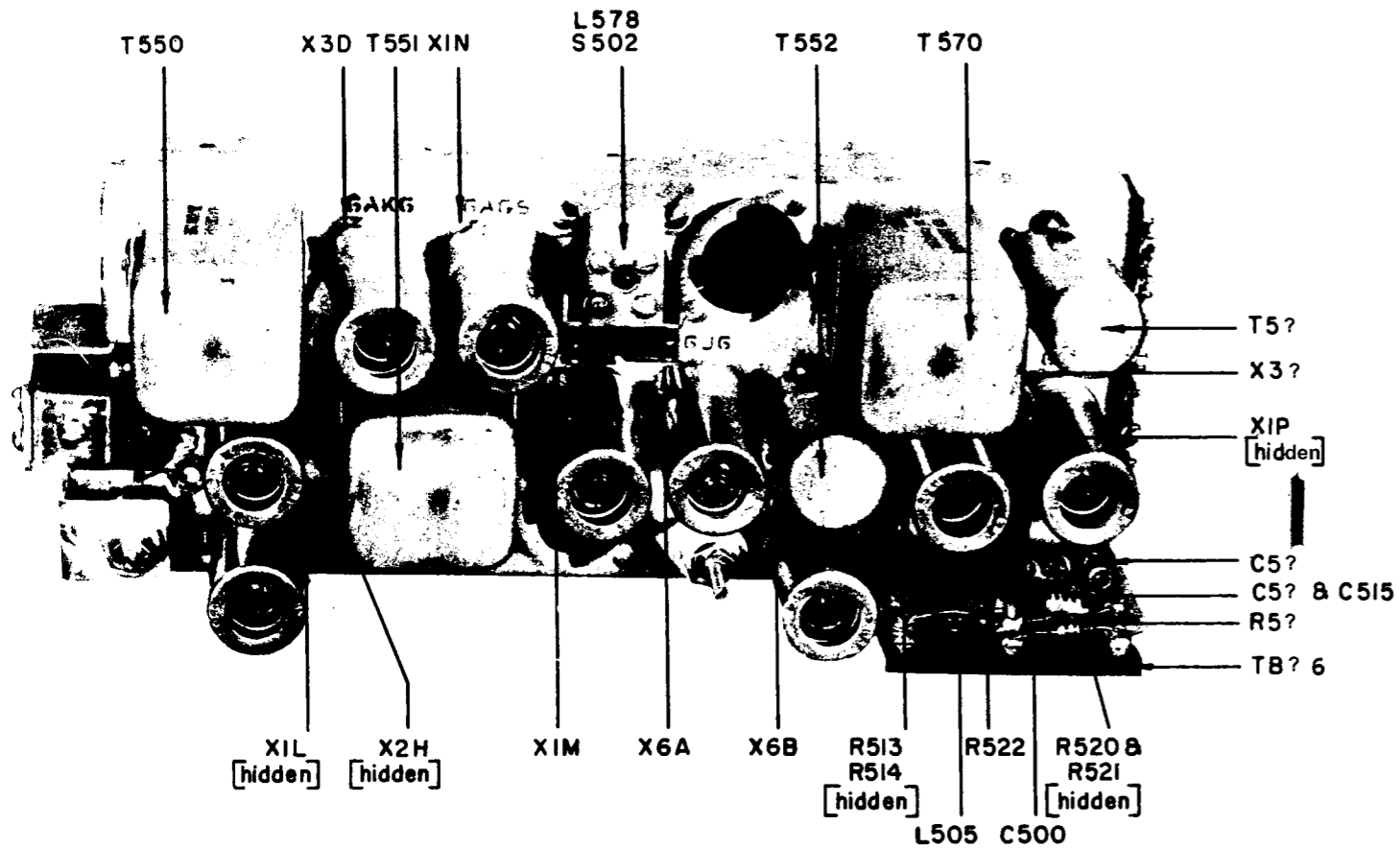


FIG. 1013—WS Cdn No. 29 "B" SET. (TOP VIEW)

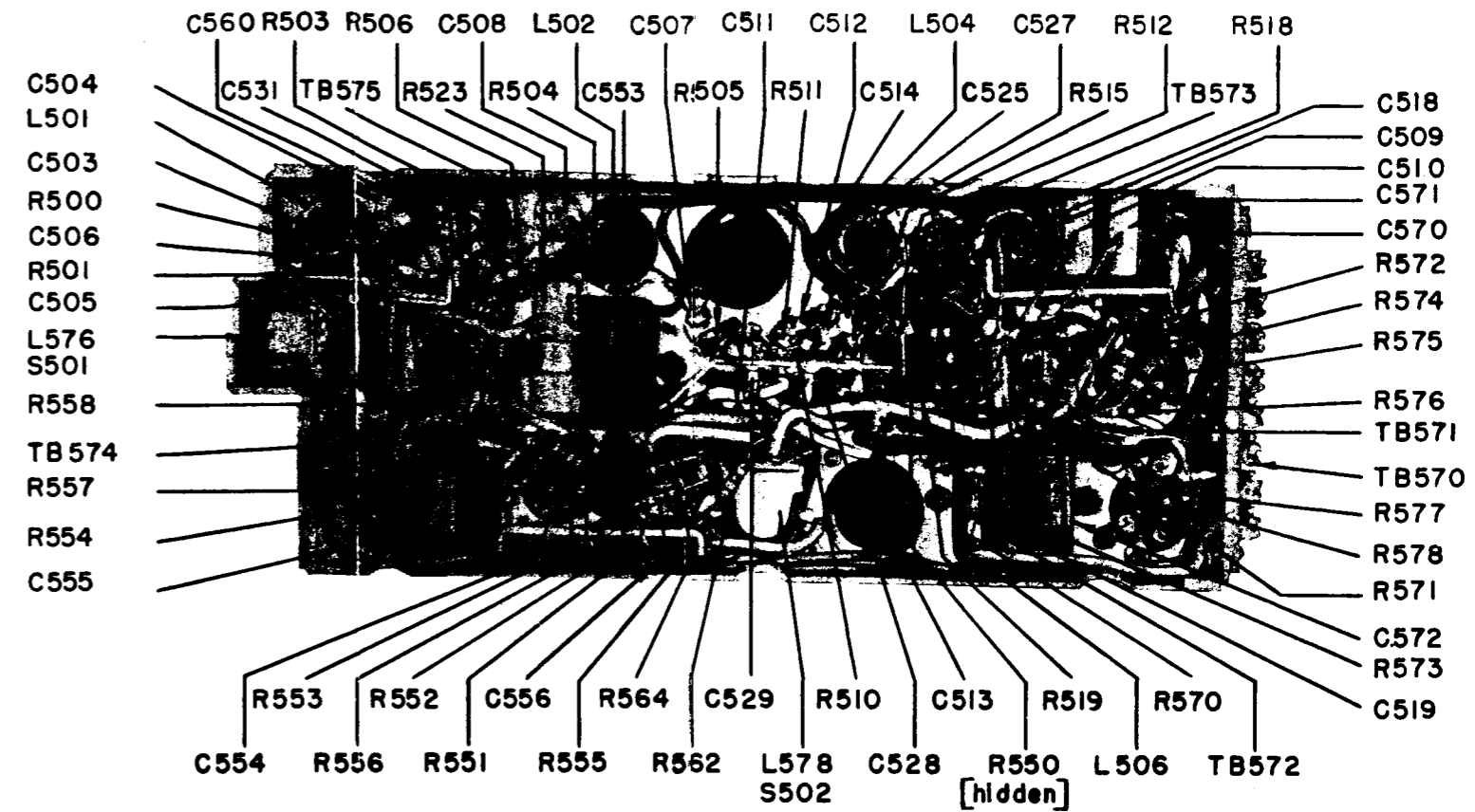


FIG. 1014—WS Cdn No. 20 "B" SET. (BOTTOM VIEW)

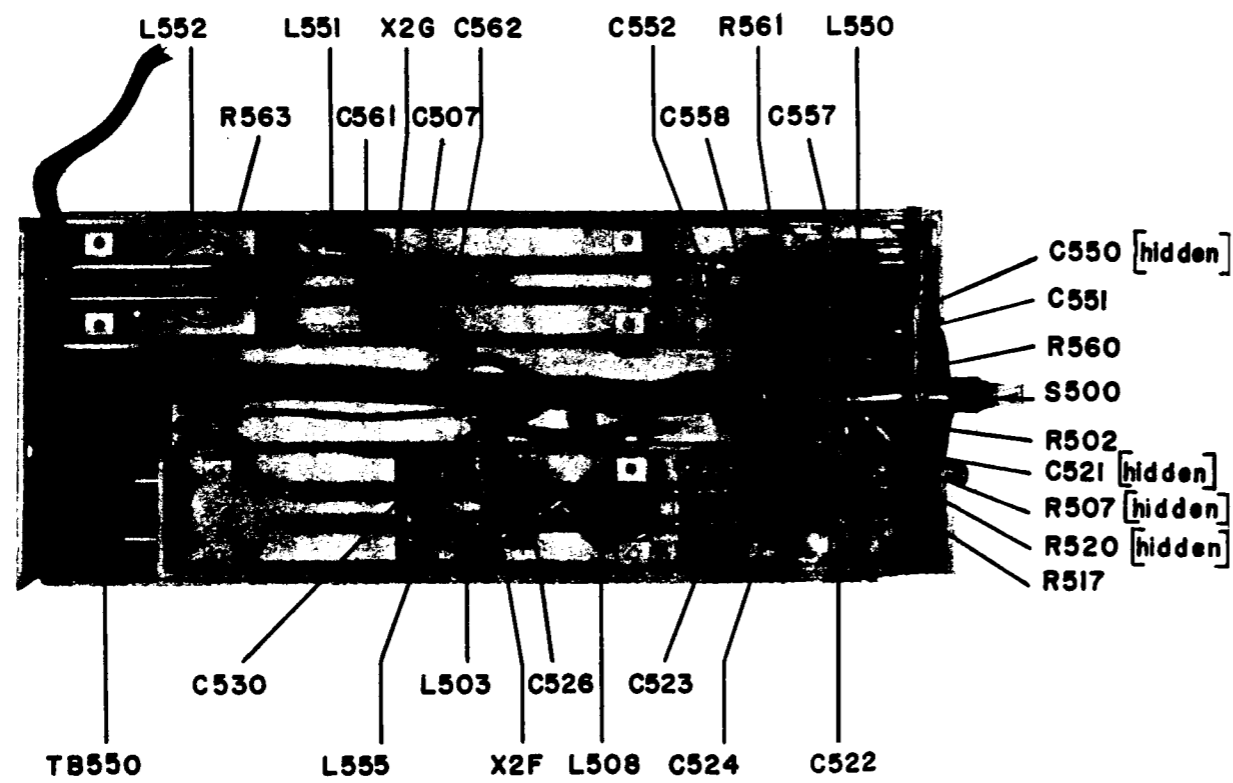


FIG. 1015—WS Cdn No. 29 "B" SET LINE ASSEMBLIES.

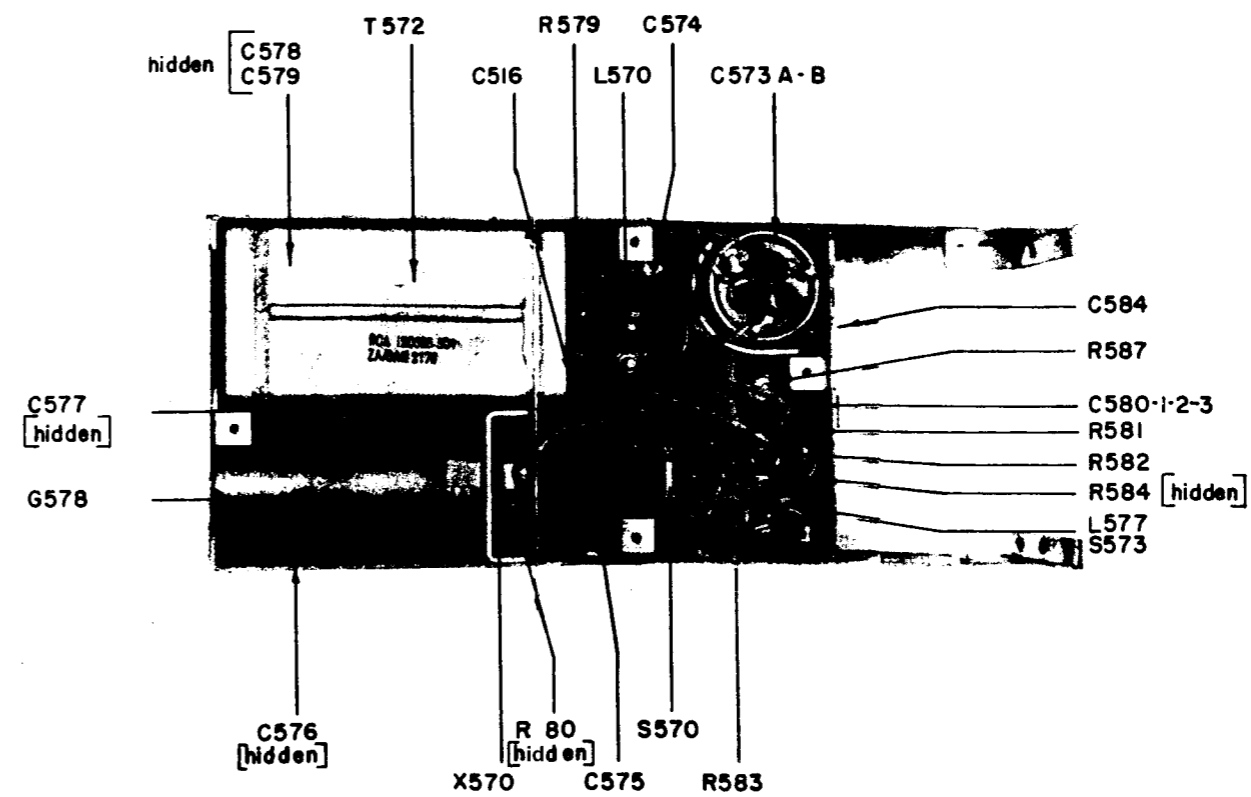


FIG. 1016—WS Cdn No. 29 "B" SET POWER SUPPLY. (BOTTOM VIEW)

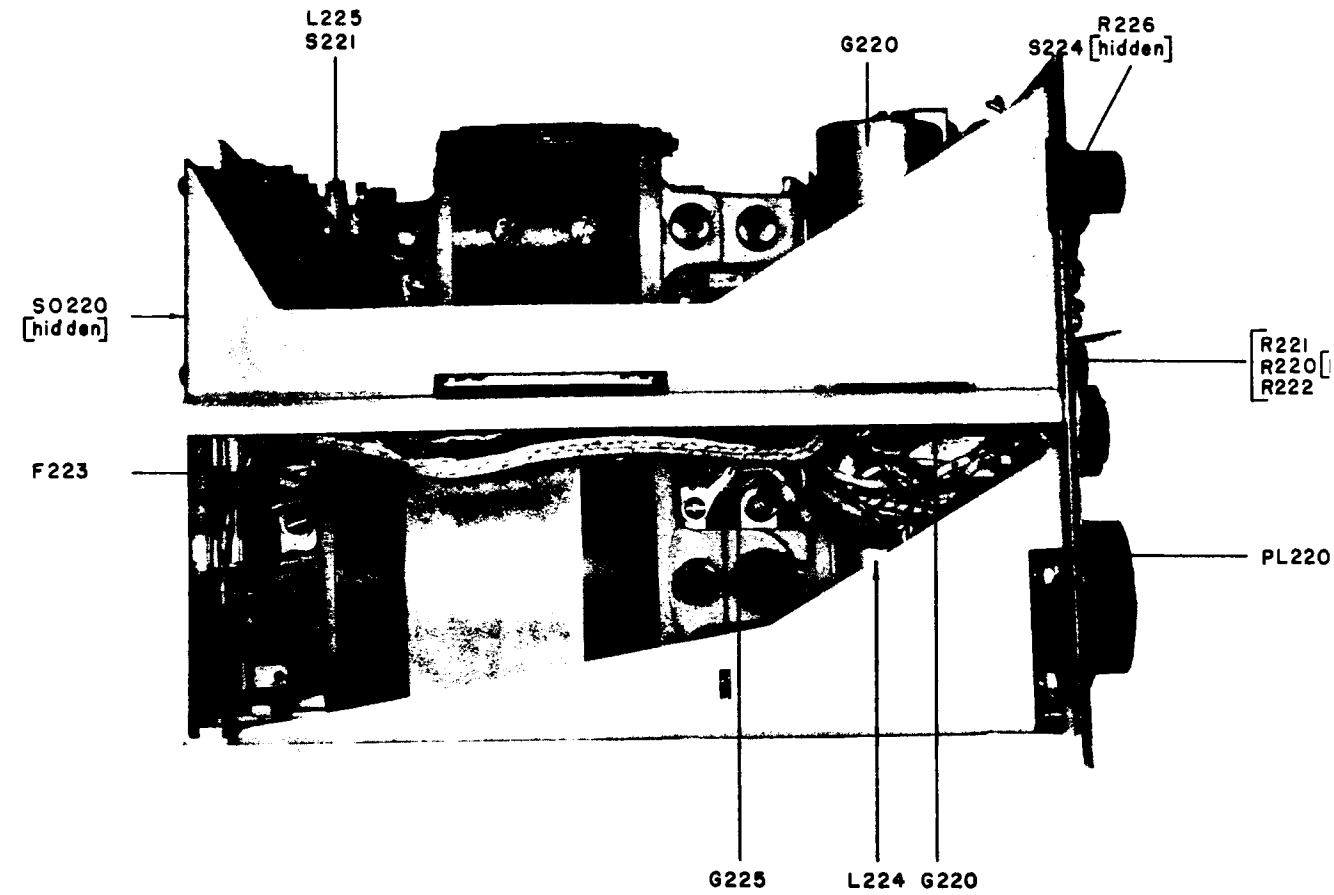


FIG. 1017—POWER SUPPLY UNIT, WS Cdn No. 29 (LEFT SIDE VIEW)

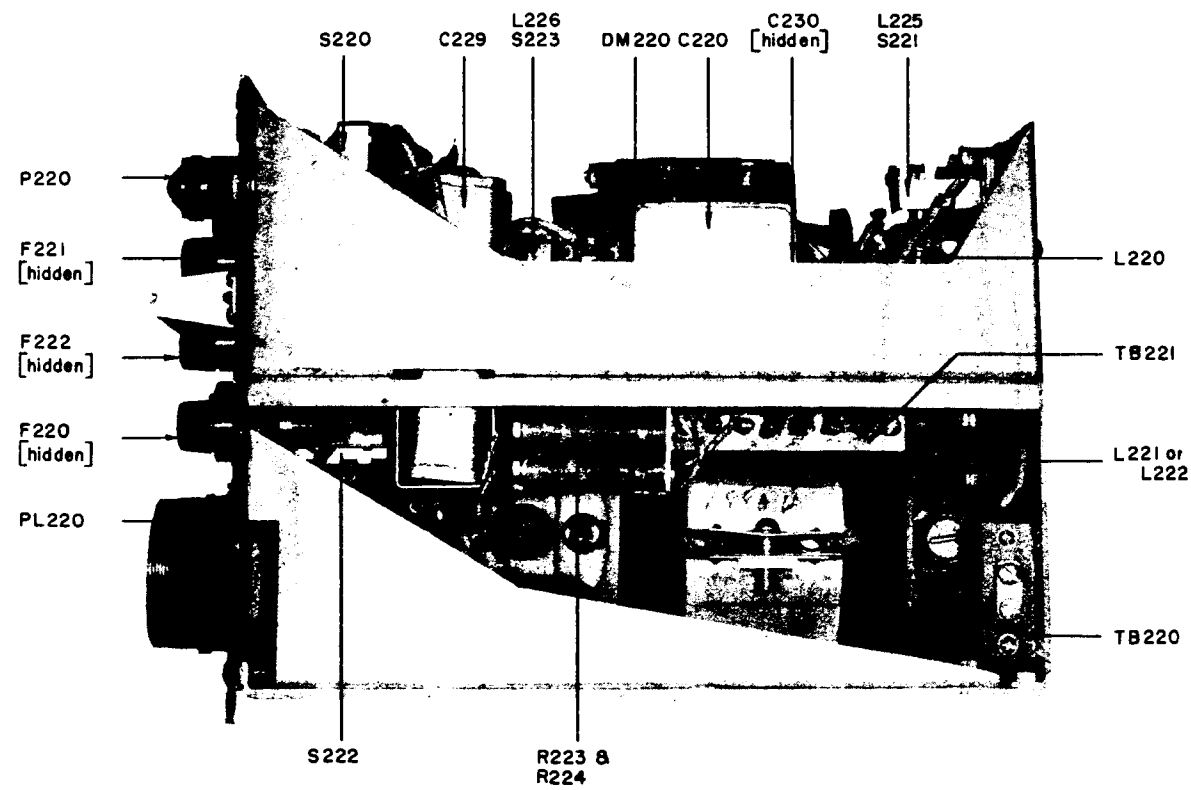


FIG. 1018—POWER SUPPLY UNIT, WS Cdn No. 29 (RIGHT SIDE VIEW)

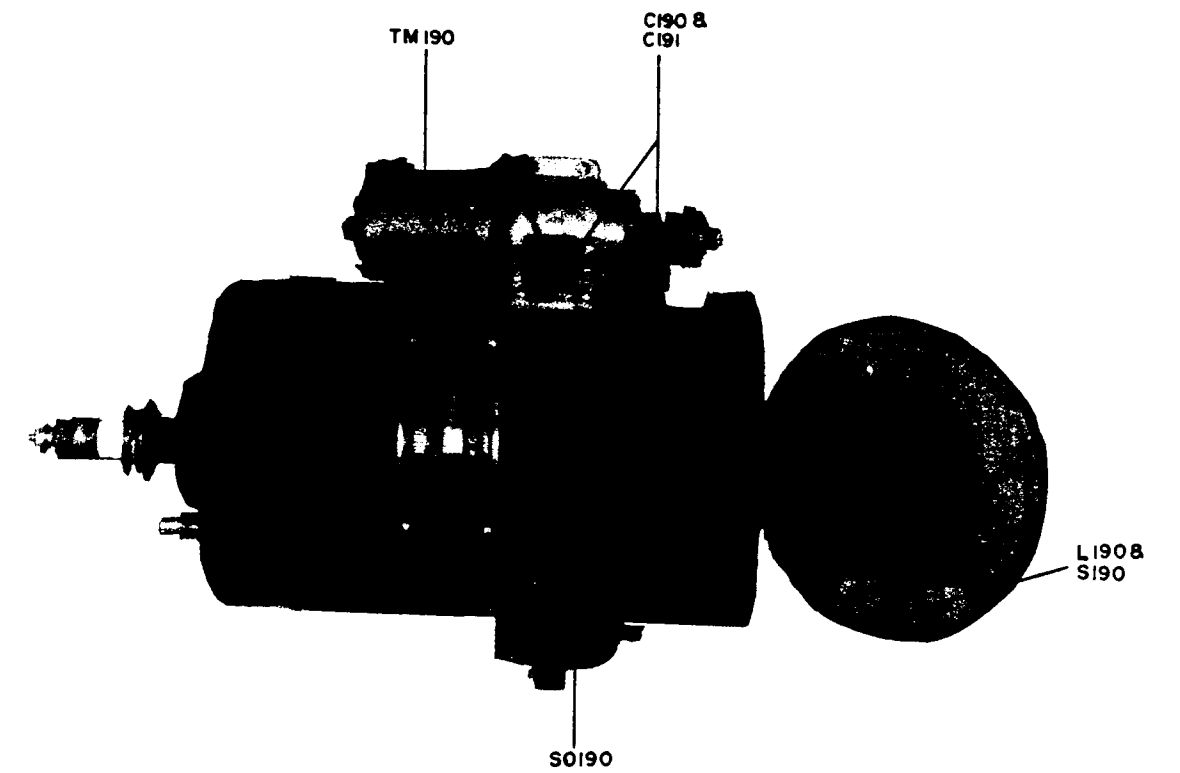


FIG. 1019—AERIAL TUNING UNIT, WS Cdn No. 29