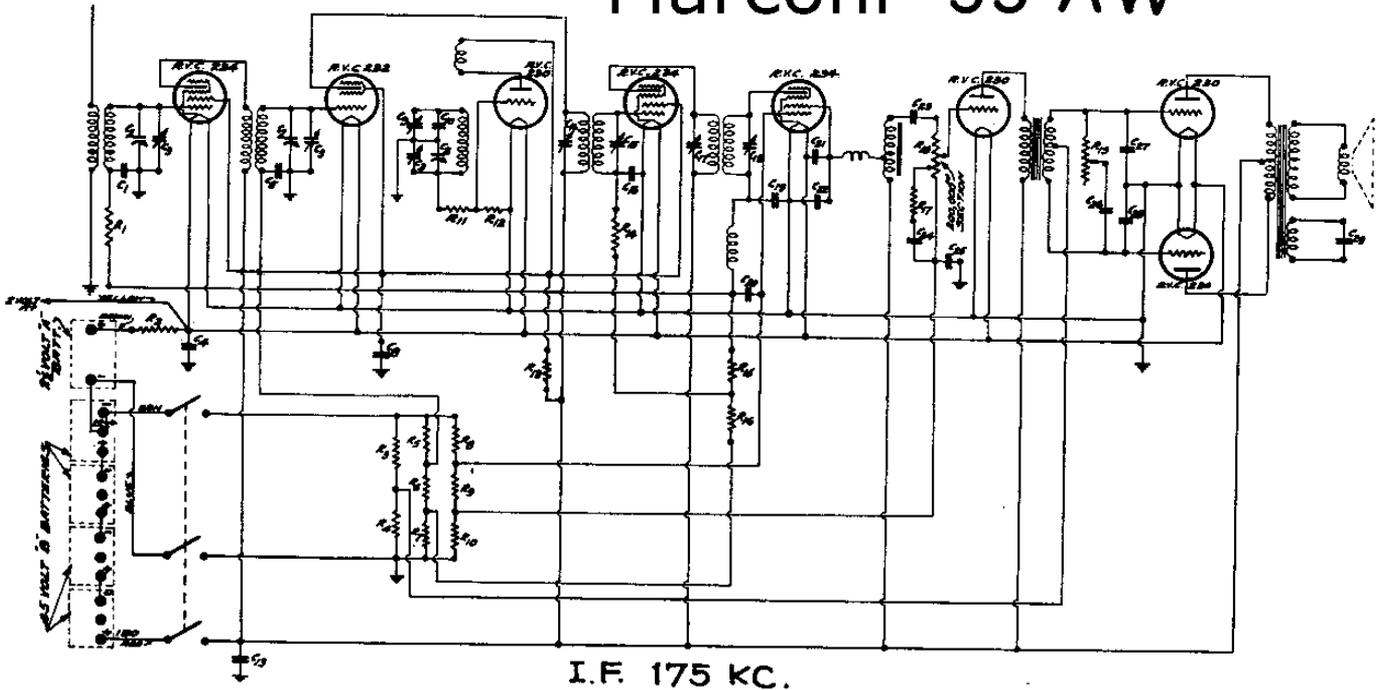


Marconi 33 AW



CONDENSERS FOR MODEL 32-B

RESISTORS FOR MODEL 32-B

| Ref. No. | Part No. | Capacity | Type | List Price |
|----------|----------|--------------------------------|------|------------|
| C1 | 1001 | .05 Mf. | 6317 | 1.20 |
| C2 | 1002 | 18-325 Mmf 3 gang. | 7501 | 9.60 |
| C3 | | 4-50 " Trimmer for C2 | | |
| C4 | 1003 | .75 Mf Bypass block | 7525 | 10.00 |
| C5 | 1003 | .1 " " " " | | 10.00 |
| C8 | 1003 | .25 " " " " | | 10.00 |
| C9 | 1004 | 15-75 Mmf Osc. Tracking | 7062 | 1.20 |
| C10 | 1005 | 670 " " " " | 6320 | .90 |
| C13 | 1003 | 8. Mf Bypass block | 7525 | 10.00 |
| C14 | 1006 | { 15-75 Mmf " I. F. Trimmers | 7062 | 1.20 |
| C15 | | { 140-220 " " " " | | |
| C16 | 1003 | .05 Mf Bypass block | 7525 | 10.00 |
| C17 | 1006 | { 140-220 Mmf " I. F. Trimmers | 7062 | 1.20 |
| C18 | | { 15-75 " " " " | | |
| C19 | 1007 | 400 " " " " | 3085 | .75 |
| C20 | 1008 | .005 Mf " " " " | 2962 | 1.25 |
| C21 | 1009 | 1200 Mmf " " " " | 2012 | .85 |
| C22 | 1009 | 1200 " " " " | 2012 | .85 |
| C23 | 1008 | .005 Mf " " " " | 2962 | 1.25 |
| C24 | 1003 | .025 " Bypass block | 7525 | 10.00 |
| C25 | 1003 | .5 " " " " " | 7525 | 10.00 |
| C26 | 1003 | .025 " " " " " | | 10.00 |
| C27 | 1003 | .005 " " " " " | | 10.00 |
| C28 | 1003 | .005 " " " " " | | 10.00 |
| C29 | 1010 | 2400 Mmf " " " " | 2749 | 1.80 |

| Ref. No. | Part No. | Resistance | Type No. | List Price |
|----------|----------|-----------------------|----------|------------|
| R1 | 1011 | 500,000 Ohms 1/4 Watt | S-1067 | .60 |
| R2 | 1012 | .8 " Wire Wound | 3043 | .80 |
| R3 | 1013 | 500 " 1/2 Watt | 3383 | .70 |
| R4 | 1014 | 750 " 1/2 " " | 3382 | .70 |
| R5 | 1015 | 700,000 " 1/4 " " | 6244 | .60 |
| R6 | 1016 | 140,000 " 1/4 " " | 6241 | .60 |
| R7 | 1017 | 65,000 " 1/4 " " | 6245 | .60 |
| R8 | 1018 | 1 Meg. " 1/4 " " | 3033 | .60 |
| R9 | 1018 | 1 " " 1/4 " " | " | .60 |
| R10 | 1019 | 2 " " 1/4 " " | 6242 | .60 |
| R11 | 1020 | 3,000 " 1/2 " " | 3358 | .70 |
| R12 | 1021 | 40,000 " 1/4 " " | | .60 |
| R13 | 1022 | 15,000 " 1/2 " " | S-1116 | .60 |
| R14 | 1011 | 500,000 " 1/4 " " | S-1067 | .60 |
| R15 | 1011 | 500,000 " 1/4 " " | " | .60 |
| R16 | 1011 | 500,000 " 1/4 " " | " | .60 |
| R17 | 1023 | 10,000 " 1/4 " " | 3381 | .60 |
| R18 | 1056 | 1 Meg. " Vol. Control | 6328 | 2.75 |
| R19 | 1055 | 150,000 " Tone " " | 6329 | 3.50 |

VOLTAGE READINGS—MODEL 32-B

| Radiotron No. | Control Grid to Filament Volts | Screen Grid to Filament Volts. | Plate to Filament Volts | Screen Current M.A. | Plate Current M.A. | Filament Volts |
|-----------------|--------------------------------|--------------------------------|-------------------------|---------------------|--------------------|----------------|
| 1. R.F. | 0.2 | 65 | 157 | 1.0 | 3.0 | 2.0 |
| 2. 1st Detector | 0.5 | 65 | 157 | 0.1 | 0.2 | 2.0 |
| 3. Oscillator | 1.0 | .. | 65 | .. | 4.0 | 2.0 |
| 4. I.F. | 0.5 | 65 | 157 | 1.0 | 3.0 | 2.0 |
| 5. 2nd Detector | 2.0 | 155 | 0 | 4.0 | 0 | 2.0 |
| 6. 1st A.F. | 1.0 | .. | 155 | .. | 2.5 | 2.0 |
| 7. Power | 14.0 | .. | 155 | .. | 1.2 | 2.0 |
| 8. Power | 14.0 | .. | 155 | .. | 1.2 | 2.0 |

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ALIGNMENT OF TRIMMING CONDENSERS

Before attempting to adjust the R.F. trimmers, be sure that the Intermediate Frequency trimmers are properly adjusted. The procedure is as follows:—

- I.F. TRIMMERS:**—(1) Connect the output meter to the voice coil terminals of the speaker. (2) See that the receiver chassis is properly grounded. (3) Remove the oscillator tube from the receiver. (4) Connect the Test Oscillator to the grid of the 1st detector tube and the chassis. (5) Turn the volume control on full and reduce the output of the test oscillator to give a low reading on the output meter. (6) Adjust the I.F. Trimmers in the following order:—

Models 32-B, 33, 33-AW and 34:—(a) 2nd Det. Grid. (b) I.F. Plate. (c) I.F. Grid. (d) 1st Det. Plate.

Models 35-36-37:—(a) 2nd I.F. Transformer, Secondary. (b) 1st I.F. Transformer, Secondary. (c) 1st I.F. Transformer, Primary. (d) Band pass coil. The position of these trimmers is shown on the data sheet for each receiver.

Model 33-AW 175 KC Plate Coil:—In addition to the regular I.F. Transformers the oscillator plate coil is tuned to 175 KC. After aligning the I.F. Transformers, connect the 175 KC Oscillator to "A" and "G," switch to the 125 meter band (Mauve) and adjust the S/W I.F. trimmer for maximum output.

See that the output of the Test Oscillator is kept as low as possible at all times, in order to avoid overloading any of the tubes or causing the Automatic Volume Control to function.

R.F. TRIMMERS:—With all tubes in place and the receiver grounded, connect the output meter as above and proceed as follows:—(1) Connect the Test Oscillator to the aerial and ground terminals. (2) Set the oscillator at 1,400 KC and the dial of the receiver to the same frequency. (3) Reduce the output of the oscillator to give a low reading on the output meter with the volume control on full. (4) Adjust the R.F. trimmers in the following order:—(a) Oscillator, (b) 1st Detector, (c) R.F. Amplifier. Reduce the output of the Test Oscillator as the sensitivity of the receiver is increased. (5) Set Oscillator at 600 KC and tune the receiver to this frequency. (6) Adjust the Oscillator tracking condenser for maximum output while rocking the tuning condenser back and forth.

ALIGNMENT OF SHORT WAVE TRIMMERS

The "All Wave" A.C. Models may be tuned to any frequency from 1,500 KC to 26,000 KC, as well as the broadcast band. Incoming signals of these frequencies are heterodyned by the S/W Oscillator to produce a resultant frequency of 1,520 KC which is applied to the grid of the R.F. amplifier. In order that the circuits of the broadcast receiver may be at maximum efficiency at this frequency (1,520 KC), adjustable condensers are substituted for the three sections of the gang tuning condenser. These condensers are located alongside of the first three sections of the tuning condenser and may be adjusted with a long screw-driver through holes in the top of the condenser shield. The procedure is as follows:—

1,520 KC TRIMMERS:—(1) Turn the selector switch to the 60-200 meter (Green) band. See that the receiver is grounded. (2) Remove the S/W Oscillator tube and connect the Test Oscillator to the grid of the S/W Detector and to chassis. (3) Set the Test Oscillator at exactly 1,520 KC and adjust the trimmers in the following order:—(a) Oscillator, (b) 1st Det., (c) R.F. Amplifier. If the Test Oscillator will not tune to 1,520 KC, set it at exactly 760 KC, the second harmonic of this frequency is 1,520 KC.

S/W TRACKING CONDENSERS:—The S/W Oscillator circuit is provided with three adjustable tracking condensers, one for each of the three short wave bands. We do not advise attempting to adjust these unless a calibrated S/W Oscillator is available. The procedure is similar to adjusting the 600 KC Tracking condenser. With the S/W Test Oscillator connected to "A" and "G," adjust for maximum output while rocking the tuning condenser back and forth at the following frequencies:—

| Band | Alignment Frequency | Dial Reading | Trimmer |
|-------------------|---------------------|--------------|---------|
| (1) S. S/W Red | 12,000 KC | 81° Approx. | Left |
| (2) M. S/W Yellow | 4,500 KC | 93° " | Center |
| (3) L. S/W Green | 1,650 KC | 90° " | Right |

Trimmer position shown when looking at back of chassis.

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It is absolutely essential that both the receiver and the S/W Test Oscillator be properly grounded.

If no short wave oscillator is available it may be possible to pick up a harmonic of a broadcast band oscillator. At all times the signal should be kept as low as possible to avoid picking up the image frequency.

In order to obtain a sufficiently weak signal it may be necessary to remove the Oscillator to some distance from the receiver.

ACTION OF DIODE (2nd) DETECTOR—MODELS 35, 36 and 37

Half wave rectification of the signal takes place in this tube between the cathode and each of the three other elements (counting the screen and suppressor grids as one). This pulsating direct current flows from each of these elements to the cathode. The rectified signal current flowing to the grid is applied to the grid of the 1st Audio tube through condenser C28. The rectified current flowing to the plate produces a voltage drop in resistor R17 which increases the bias on the R.F. Amplifier tube and automatically controls the sensitivity of the receiver. The current flowing to the screen and suppressor grids is used for Automatic Silent Tuning.

In **Model 34** a separate tube is used for automatic volume control. The grid of this tube is coupled to the 2nd Detector grid circuit by a small condenser (C17). The incoming signal causes the tube to draw more or less plate current which causes a voltage drop in resistor R14 which varies the bias on the grids of the R.F. and I.F. amplifiers, thus controlling the sensitivity of the receiver.

AUTOMATIC SILENT TUNING:—MODELS 35-37:—Silencing the receiver is accomplished by making the bias on the grid of the 1st Audio tube sufficiently negative to prevent this tube from operating. The action is as follows:—The grid of the Suppressor tube is at the same potential as the cathode due to the fact that it is connected to it through resistors R18 and R19, consequently, current flows to the plate through resistor R22. The voltage drop across this resistor produces the extra bias necessary to prevent the 1st Audio tube functioning and no sound is heard from the speaker. When a carrier wave is tuned in, current flows to the screen and suppressor grids of the detector through R19. The voltage drop across this resistor makes the grid of the Suppressor tube negative with respect to its cathode and prevents plate current from flowing, this in turn allows the bias on the 1st Audio grid to drop to normal and allows this tube to amplify the signal applied to its grid by the detector.

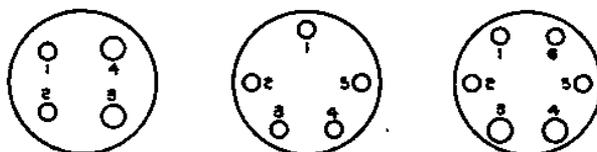
A three position switch is provided for controlling the action of this tube. In the **FULL** position the tube is actuated only by fairly powerful stations. In the **MEDIUM** position, stations of moderate power can be received. This position of the switch should be used wherever the noise level is sufficiently low to permit satisfactory reception.

Throwing the switch to the **OFF** position makes the grid of the Suppressor tube sufficiently negative to prevent plate current flowing at any time, consequently the bias on the 1st Audio tube remains normal and the receiver is not silenced.

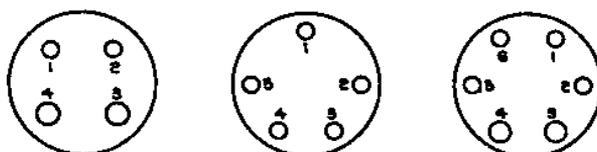
SPEAKERS:—A.C. MODELS. It is not feasible to replace the cone in these speakers, consequently, the entire head of the speaker must be replaced. In Model 37, twin speakers are used. These speakers are identical electrically but differ slightly in the construction of the cone and are therefore **not** interchangeable. The speakers are distinguished by marking one type with a Red spot.

In ordering speakers or cones, be sure to specify which type is required.

CAUTION:—Care should be taken not to turn on the Power switch (left hand knob) immediately after turning it off. Allow about twenty seconds for the tubes to cool off before turning the receiver on again in order to avoid possible damage to the Rectifier Tube.



TUBE BASES (BOTTOM VIEW)



SOCKETS (TOP VIEW)