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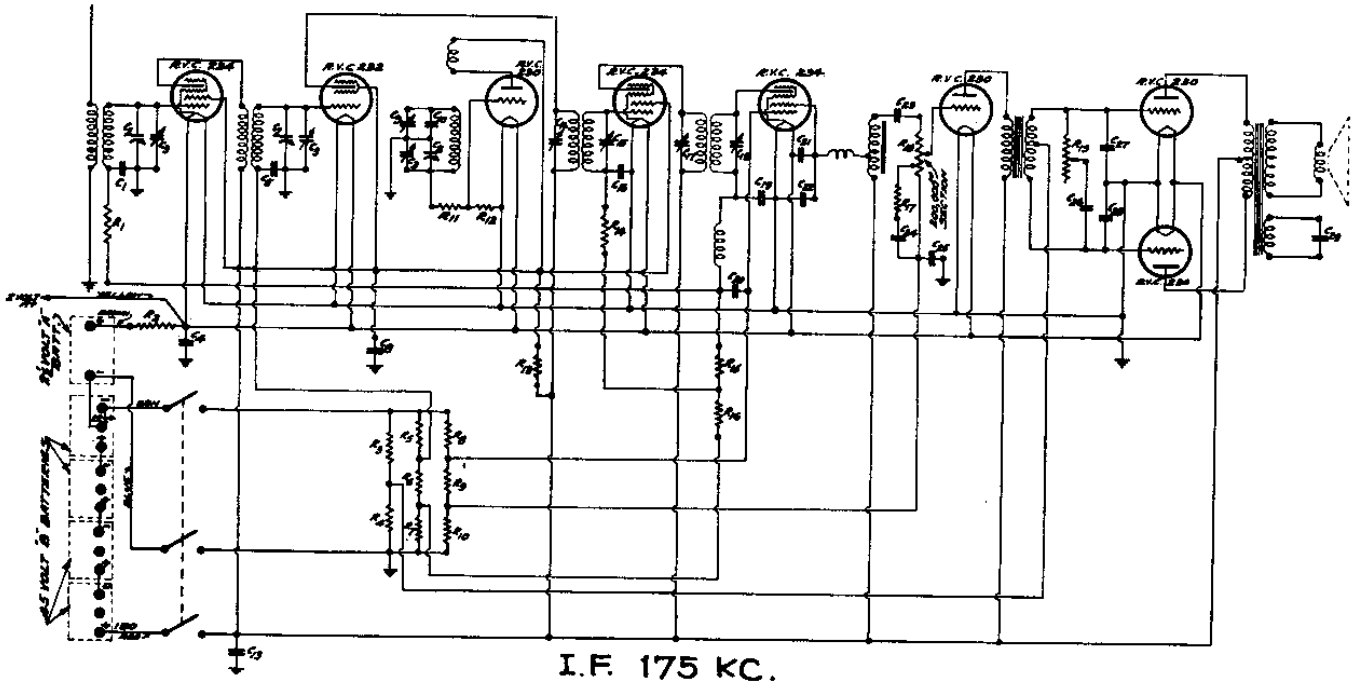

CONDENSERS FOR MODEL 32-B

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 C15	1006	15–75 Mmf / 140–220 " I. F. Trimmers	7062	1.20
C16	1003	.05 Mf Bypass block	7525	10.00
C17 C18	1006	140–220 Mmf / 15–75 " I. F. Trimmers	7062	1.20
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

RESISTORS FOR MODEL 32-B

Ref.	Part No.	Resistance	Type No.	List Price
R1	1011	500,000 Ohms ¼ Watt	S–1067	.60
R2	1012	.8 " Wire Wound	3043	.80
R3	1013	500 " ½ Watt	3383	.70
R4	1014	750 " ½ "	3382	.70
R5	1015	700,000 " ¼ "	6244	.60
R6	1016	140,000 " ¼ "	6241	.60
R7	1017	65,000 " ¼ "	3245	.60
R8	1018	1 Meg. " ¼ "	3033	.60
R9	1018	1 " " ¼ "	"	.60
R10	1019	2 " " ¼ "	6242	.60
R11	1020	3,000 " ½ "	3358	.70
R12	1021	40,000 " ¼ "		.60
R13	1022	15,000 " ½ "	S–1116	.60
R14	1011	500,000 " ¼ "	S–1067	.60
R15	1011	500,000 " ¼ "	"	.60
R16	1011	500,000 " ¼ "	"	.60
R17	1023	10,000 " ¼ "	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.

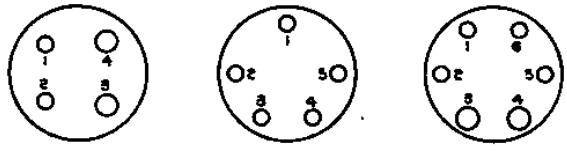
A three position switch is provided for controlling the action of this tube. In the FULL position the tube is actuated only by fairly powerful stations. In the MEDIUM position, stations of moderate power can be received. This position of the switch should be used wherever the noise level is sufficiently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

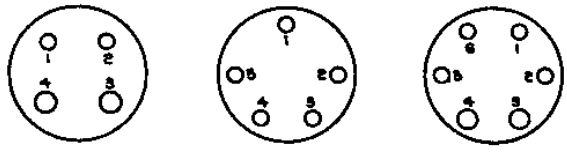
SPEAKERS:—A.C. MODELS. It is not feasible to replace the cone in these speakers, consequently, the entire head of the speaker must be replaced. In Model 37, twin speakers are used. These speakers are identical electrically but differ slightly in the construction of the cone and are therefore **not** 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)

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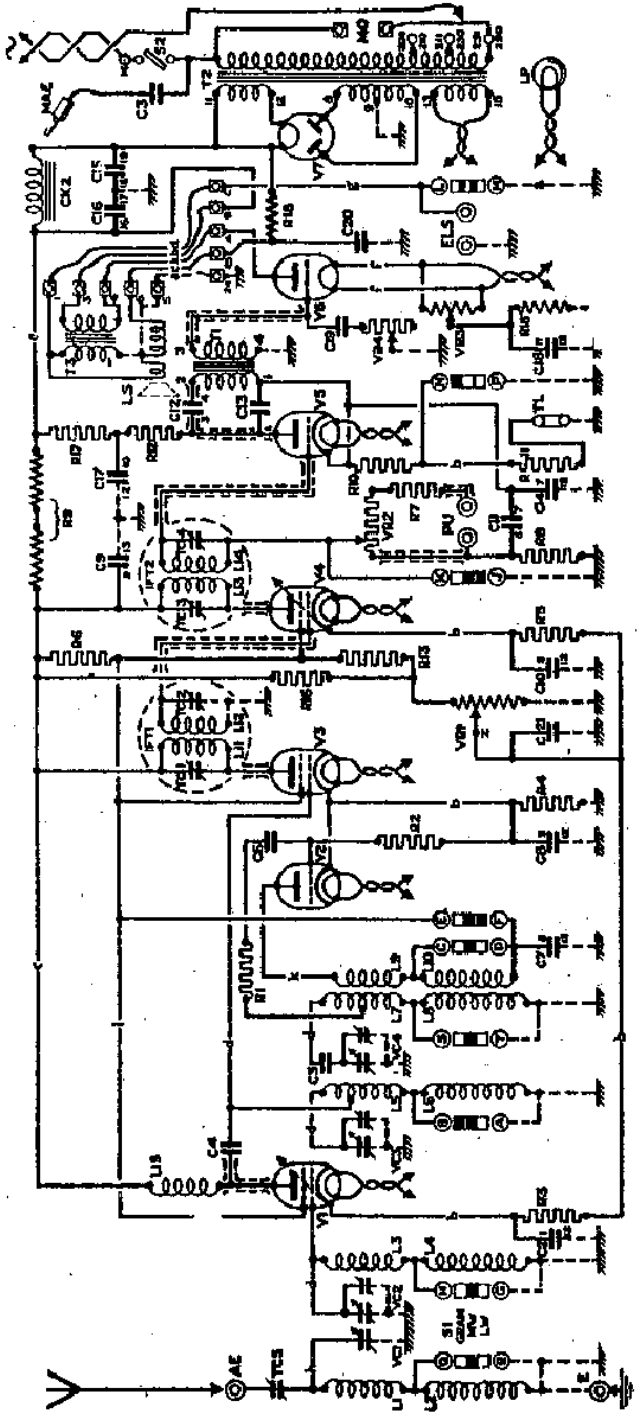
CONDENSERS FOR MODELS 35, 36-37

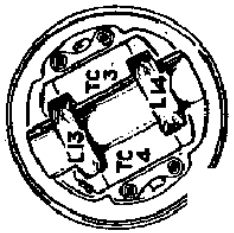
Ref.	Part No.	Capacity	Type No.	List Price
C1	1401	21–370 Mmf, 5 Gang Tuning	*35122	7.00
C1	1402	21–370 " 3 " "	†35193	5.00
C2		60 " Trimmer for C1		
C3	1403	250 " Mica	*	.50
C4	1404	850 " Osc. Tracking	35681	.75
C5	1405	.1 Mf 300 V. Tubular		.50
C6	1406	.05 " 200 V. "		.50
C7	1407	.1 " 200 V. "		.50
C8	1406	.05 " 200 V. "		.50
C9	1408	.1 " 300 V. "		.50
C10	1408	.1 " 300 V. "	*	.50
C11	1408	.1 " 300 V. "		.50
C12	1407	.1 " 200 V. "		.50
C13	1408	.1 " 300 V. "		.50
C14	1409	6–70 Mmf I.F. Trimmer No. 4	35233	.60
C15	1410	6–70 " " " No. 3	35217	.75
C16	1411	6–70 " " " No. 2	35217	.75
C17	1412	.004 Mf 300 V. Tubular		.50
C18	1413	.1 " 200 V. Bypass block	35699	2.50
C19	1408	.1 " 300 V. Tubular		.50
C20	1406	.05 " 200 V. "		.50
C21	1414	6–70 Mmf I.F. Trimmer No. 1	35700	.75
C22	1403	250 " Mica		.50
C23	1414	.01 Mf 200 V. Tubular		.50
C24	1414	.01 " 200 V. "		.50
C25	1415	.001 " Mica		.50
C26	1403	250 Mmf "		.50
C27	1414	.01 Mf 200 V. Tubular		.50
C28	1415	.02 " Mica		.75
C29	1416	.05 " 300 V. Tubular		.50
C31	1413	1. " 300 V. Bypass block	35699	2.50
C33	1415	.02 " Mica		.50
C34	1417	500 Mmf "		.50
C35	1413	1. Mf 200 V. Bypass block	35699	2.50
C36	1418	8 " 450 V. Electrolytic	2251	1.50
C37	1418	8 " 450 V. "	2251	1.50
C38, C39	1419	.02 " Line filter; .02 " "	35248	1.00
C40	1420	.004 " Mica		.50
C41	1421	.2 " 300 V. Tubular		.50
C42	1401	13–268 Mmf 5 gang tuning	*35122	7.00
C43	1422	360 " Mica	*	.50
C44	1403	250 " "	*	.50
C45	1423	.004 Mf "		.50
C46	1424	.002 " "	*	.50
C47	1408	.1 " 300 V. Tubular	*	.50
C48	1408	.1 " " "	*	.50
C49	1425	308 Mmf 22,000 K.C. Tracking	*	.75
C50	1426	665 " 4,200 K.C. "	*	.75
C51	1427	248 " 1,680 K.C. "	*	.75
C52	1428	4–20 " 1,520 Trimmer No. 1	*36241	.60
C53	1429	6–70 " 1,520 " No. 2	*35844	.75
C54	1430	6–70 " 1,520 " No. 3	*35844	.75

Bypass block, Part No. 1413, contains condensers C18, C31, C35. *Models 36, 37 only. †Model 35 only.

RESISTORS FOR MODELS 35, 36-37

Ref.	Part No.	Resistance	Type No.	List Price
R1	1441	100.000 Ohms ½ Watt	Model 35 only	.50
R2	1442	400 " ½ "		.50
R3	1441	100,000 " ½ "		.50
R4	1443	5 Meg. " ½ "	Models 36-37 only	.50
R5	1444	1,000 " ½ "		.50
R6	1445	15,000 " 1 "		.50
R7	1446	25,000 " ½ "		.50
R8	1447	40,000 " ½ "		.50
R9	1448	2,500 " ½ "		.50
R10	1444	1,000 " ½ "		.50
R11	1449	10,000 " ½ "		.50
R12	1444	1,000 " ½ "		.50
R13	1442	400 " ½ "		.50
R14	1450	.525 "	35841	.60
R15	1450	.525 "	35841	.60
R16	1451	500,000 " ½ "		.50
R17	1452	1 Meg. " ½ "		.50
R18	1452	1 Meg. " ½ "		.50
R19	1453	2 " " ½ "		.50
R20	1589	100,000 "	Vol. Control	1.20
R21	1452	1 Meg. Ohms ½ Watt		.50
R21	1452	1 " " ½ "		.50
R23	1454	315 " 1 "		.50
R24	1455	210 " 1 "		.50
R25	1456	485 " 1 "		.50
R26	1457	225 " 1 "		.50
R27	1525	6,350 "	Pot. Divider	1.00
R28	1449	10,000 " ½ "		.50
R29	1449	10,000 " ½ "		.50
R30	1458	200,000 " ½ "		.50
R31	1459	50,000 " ½ "		.50
R32	1531	6 "	Hum Control	1.00
R33	1460	20 "	Center tapped	.50
R35	1588	100,000 "	Tone control	1.75
R36	1452	1 Meg. " ½ "	Models 36-37 only	.50
R37	1461	250,000 " ½ "	" " "	.50
R38	1449	10,000 " ½ "	" " "	.50
R39	1462	29,000 " ½ "	" " "	.50
R40	1458	200,000 " ½ "	" " "	.50





I.F.T.2

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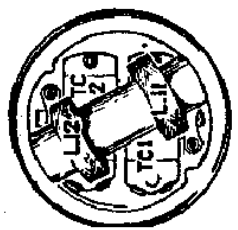

I.F.T.1

ZF: 125

SPARE PART LIST AND ELECTRICAL VALUES.

Ref. No.	Description.	Part No.	Ref. No.	Description.	Part No.
L 1	Tuning coil—			Fixed condenser—	
	M.W. aerial ..	11980B	C 13	2,000 M.M.F.	15719G
L 3	M.W.H.F. grid ..		C 14	·5 M.F.	7581A
L 2	L.W. aerial ..	11984C	C 15	4 ,, ..	15763B
L 4	L.W.H.F. grid ..		C 16	6 ,, ..	
L 5	M.W. 1st det. grid		C 17	1 M.F. ..	7581A
L 7	M.W. oscillator ..	11980B	C 18	4 ,, ..	
L 9	M.W. reaction ..		C 19	2,000 M.M.F.	15719G
L 6	L.W. 1st det. grid		C 20	4 M.F.	15764B
L 8	L.W. oscillator ..	11984A	C 21	1 ,, ...	8349A
L 10	L.W. reaction ..			Fixed resistance—	
L 11	Tuning coil ..		R 1	5,000 ohms	5787F
L 12	,, ,, .. 1st		R 2	25,000 ,, ...	5787D
TC 1	Trimming con- I.F.	7597D	R 3	320 ,, ...	5787V
	denser .. trans.		R 4	2,000 ,, ...	5787A
TC 2	70–140 M.M.F.		R 5	320 ,, ...	5787V
L 13	Tuning coil ..		R 6	25,000 ,, ...	5786C
L 14	,, ,, .. 2nd		R 7	200,000 ,, ...	5787D
TC 3	Trimming conden- I.F.	7597E	R 8	100,000 ,, ...	5786D
TC 4	sers, 70–140 M.M.F. trans.		R 9	2—(3,000 ohms each)	
				6,000 ohms	13525A
L 15	H.F. choke	11984A	R 10	1,000 ,, ...	5787K
TC 5	Trimming condenser, 5–70		R 11	5,000 ,, ...	5787F
	M.M.F.	11737C	R 12	50,000 ,, ...	5786A
VC 1			R 13	50,000 ,, ...	5787P
VC 2	Ganged condenser, 450		R 15	800 ,, ...	13525B
VC 3	M.M.F. and trimmers ..	10198A	R 16	100,000 ,, ...	5787Q
VC 4			R 17	25,000 ,, ...	5786C
CK 2	L.F. Choke	12045C	R 18	3,000 ,, ...	13525C
T 1	Intervalve transformer ..	4518E	S 1	Wave change switch ..	12540C
T 2	Mains transformer	7572A	S 2		
	Volume control—		LP	Lamp, 6-volt	1575A
VR 1	20,000 ohms- .	6000	V 1	VMS4 valve	
VR 2	100,000 ,, ..	K or Q	V 2	MH4—36MB valve	
VR 3	Potentiometer 20 ohms ..	10201B	V 3	MS4—11 MB valve ..	
VR 4	Tone control, 600,000 ohms	6000F	V 4	VMS4 valve	
	Fixed condenser—		V 5	MH4—36MB valve	
C 2	·1 M.F.	7581A	V 6	PX4—60 valve	
C 3	300 M.M.F.	15719D	V 7	U12 valve	
C 4	50 ,, ...	15719A			
C 5	1,700 ,, ...	15719L			
C 6	300 ,, ...	15719D			
C 7	1 M.F. ..				
C 8	·5 ,, ..				
C 9	1 ,, ..				
C 10	·1 ,, ..	7581A			
C 11	·5 ,, ..				
C 12	·1 ,, ..				