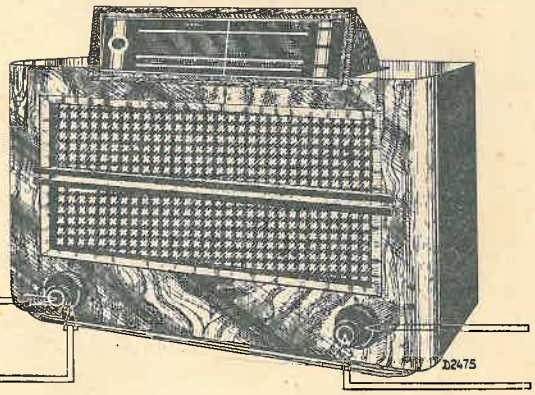
Mr. Carr

PHILIPS

SERVICE DOCUMENTATION

FOR THE RECEIVER

TYPE 361 A



GENERAL DATA.

This superhet receiver is equipped with:
Seven tuned circuits.
Filter for signals on intermediate frequency.
Automatic volume control.
Special noise-reducing H.F. penthode.
Distorsion reduction by means of L.F. counter-coupling.
Continuously regulable tone filter.
Visual tuning by means of a tuning cross.
Normal-foreign switch.
Permanently-energised moving-coil speaker with built in sound diffusor (type 9644).
Connection for low-ohmic speaker.
Connection for gramophone pick-up.
Voltage change-over switch for voltages between 105 and 255 V.
Safety contact.
High- and low speed tuning by means of a push-pull-switch.

Knob-arrangement.

Left:	larger knob	— tone control.
	smaller knob	— volume control.
	pushed in	— normal.
	pulled out	— foreign.
Right:	larger knob	— wave band selector and radio-gramophone switch.
	smaller knob	— tuning knob.
	pushed in	— coarse regulation.
	pulled out	— fine adjustment.
Knob on left panel		— mains switch [1]).

Wave-ranges:

C2:	9.5— 16.5 m.	(31.5 —18.2	Mc/s).
C1:	16.5— 48 m.	(18.2 — 6.25	Mc/s).
B :	48 —170 m.	(6.25— 1.76	Mc/s).
A :	170 —570 m.	(1760 — 525	kc/s).

Weight: 16.4 K.gr. (valves included)

Dimensions: height 37 cm.
breadth 54 cm.
depth 28.5 cm. (knobs included).

[1]) In some apparatus the mains-switch is controlled by the knob for the volume-control by turning it to the left as far as possible.

DESCRIPTION OF CIRCUITS.

Waveband C2: (9.5-16.5 m) (31.6-18.2 Mc/s).

Aerial coil: S6, (inductively coupled with S7).
Grid circuit of L1: S7, C60, tuning condenser C3, trimmer C47, coupling with L1 via C20.
Anode circuit of L1: S14 (inductively coupled with S15), series resistance R37.
Grid circuit of L2: S15, C62, tuning condenser C4, trimmer C6. R10 prevents parasitic oscillation of L2.
Circuit of oscillatorgrid of L2: S22, C63, tuning condenser C5, trimmers C12 and C64. Grid condenser C25, grid leak R7. R6 prevents parasitic oscillation.
Coil of oscillatoranode of L2: S23 (inductively coupled with S22).

Waveband C1: (16.5-48 m) (18.2-6.25 Mc/s).

Aerial coil: S8, inductively, and via C65 capacitively coupled with S9.
Grid circuit of L1: S9, C59, tuning condenser C3, trimmer C48.
Anode circuit of L1: S16 (inductively coupled with S17), series resistance R24.
Grid circuit of L2: S17, C61 with shunt R38, tuning condenser C4, trimmer C7.
Circuit of oscillatorgrid of L2: S24, tuning condenser C5, trimmer C13.
Coil of oscillatoranode of L2: S25, (inductively coupled with S24).

Waveband B: (48-170 m) (6.25-1.76 Mc/s).

Aerial coil: S10, inductively, and via C66 capacitively coupled with S11.
Grid circuit of L1: S11, tuning condenser C3, trimmer C49.
Anode circuit of L1: S18, inductively coupled with S19.
Grid circuit of L2: S19, tuning condenser C4, trimmer C8.
Circuit of oscillatorgrid of L2: S26, C27, tuning condenser C5, trimmer C14.
Coil of oscillatoranode of L2: S27 (inductively coupled with S26).

Waveband A: (170-570 m) (1760-525 Kc/s).

Aerial coil: S12 (inductively coupled with S13), C53.
Grid circuit of L1: S13, tuning condenser C3, trimmer C50.
Anode circuit of L1: S20 (inductively coupled with S21).
Grid circuit of L2: S21, tuning condenser C4, trimmer C9.
Circuit of oscillatorgrid of L2: S28, tuning condenser C5, trimmer C15, paddingcondenser C43, trimmer C10.
Coil of oscillatoranode of L2: S29 (inductively coupled with S28).

I.F. aerial filter: S40-C29. This filter shorts the aerial for signals of the I.F. to avoid whistling notes.

I.F. circuits:
1st band-pass filter: The anode circuit S30-C16 of L2 is coupled via coil S31 with the grid circuit S32-S31-C17 of L3.
2nd band-pass filter: The anode circuit S33-C18 of L3 is coupled via the coil S34 to the detector circuit S35-S41-S34-C19.
The anode of the detector diode is connected to a tapping of the coil in order to reduce damping along this circuit.

Detector circuit: First diode-anode of L4, S41, S34, R17, volume control R19, R36, R13, cathode L4; C33.

L.F. amplifier: From the volume control R19 the L.F. voltage is conducted via the condenser C36 to the grid of L4.
The amplified L.F. voltage over the coupling resistance R21 passes via the coupling condenser C38 on to R25 and from there via R35 to the grid of L5. C42 and C45 serve for suppressing any possible residual I.F. voltage. R35 and R26 prevent L5 oscillating.

Optical tuning indicator:

When tuning, the D.C. voltage across R30 of the potentiometer R29-R30 passes to the triode section of L10. As a consequence the anode current (the current through R32), and so too the voltage difference across R32, drops. The deflection plates in the tube connected to this anode then get a higher voltage, causing the screening effect to be reduced and the brightening cross to become wider. Tuning is correct when the greatest possible width has been reached.

Quality correction.

By leading back to the grid circuit of L4 a part of the output voltage of L5 it is achieved that the L.F. amplifier can deliver a greater power with less distortion. This leading back of the output voltage is effected as follows: The anode resistance R34-R16-R13 of L5 is bridged by the condenser C58, which allows high notes, but not low and middle notes to pass, so that over C58 a voltage of low and middle notes is obtained. The middle notes are led back via C57 (which holds back the low notes) - R33-R19 and C36 to the grid of L4 (in opposite phase with the original tension). The low notes are led back via R34 and R16 to the cathode (in phase) and via R34-R30-R29-R19-C36 to the grid of L4 (in opposite phase). This last part is controlled at the same time as the volume by R19, in which way it is achieved that for each volume of sound the counter coupling works in the best manner.

Automatic volume control.

The rectified d.c. voltage across R15 is conducted via S31 and S32 to the control grid of L3 and via R3 to the control grid of L1, in which way the amplification of these valves is controlled.

Details of the circuit diagram.

The receiver is provided with a "normal-foreign" switch which is operated by pulling out or pushing in the knob of the volume control. In the "normal" position the grid bias of L1 and L3 is greater than in the "foreign" position (see "supply of the receiver") in which way the sensitivity of the set is reduced in the first position, so that only the stronger stations are audible and the set almost has no back ground noise between the tuning of two stations. In the "foreign" position the sensitivity of the set is as great as possible.
In the wavebands C2 and C1 the oscillator frequency is 475 Kc/s lower than the tuning of the H.F. circuits. In the bands B and A the oscillator frequency is 475 Kc/s higher.

Supply of the receiver.

Power transformer : S1, S2, S3, S4.
Rectifier : L6.
Anti-hum condenser: C69.
Smoothing filter : C1, S5, (R2), C2.

Va of L1: via R28; uncoupled by C37, C32.
V3 of L1: via R28; uncoupled by C37, C32.
V1 of L1: see below.

Va of L2: via R9, R28; uncoupled by C31.
V3,5 of L2: via R5, R8; uncoupled by C24.
V2 of L2: via R8; uncoupled by C30, C11.
V4 of L2: tension across R4 + R39; uncoupled by C22.

V1 of L2: tension across R39.

Va of L3: tension on C2.

V2 of L3: from potentiometer R11, R12; uncoupled by C35.

V1 of L3: see below.

Va of L4: via R22, R21; uncoupled by C39.
V1 of L4: see below.
Va of diode of L4: see below.

Va of L5: tension on C2.
V2 of L5: via R26 (resistance to prevent parasitic oscillation).
V1 of L5: tension across R34 + R16 + R13; partly uncoupled by C58 (see "Quality correction").

V1 of L1, L3 and L4 and Va of diode of L4.

The d.c. of the set flowing through the resistance R2 delivers a d.c. tension across this resistance. In parallel to R2 are connected in the "normal" position the potentiometers R1, R18, R20 and R1, R15, R14, R17, R19, R36.
The controlgrid bias of L4 is delivered from the first potentiometer between R18 and R20. The controlgrid bias of L1 and L3 (uncoupled by C34) and Va of the diode-anode of L4 (uncoupled for I.F. by C33) are delivered from the second potentiometer resp. between R15 and R14 and between R14 and R17.
In the "foreign" position the resistance R40 is switched in parallel to R14, R17, R19, R36, so that the controlgrid bias of L1 and L3 and Va of the diode-anode of L4 become less and the set becomes more sensitive.
Remark. The resistance R42 is switched between the oscillatoranode of L2 and the chassis to prevent alteration of the tension when switching from the "foreign"- to the "normal" position.

ADJUSTING THE RECEIVER.

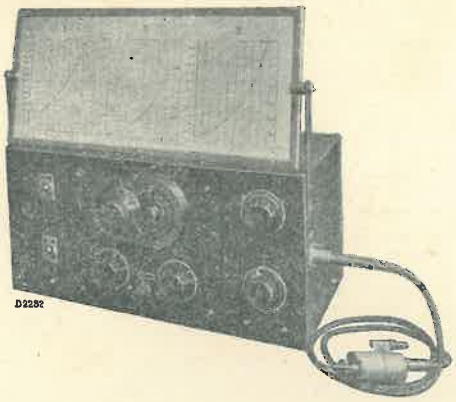


Fig. 1

For adjusting the receiver it is not necessary to remove it from its cabinet. By placing the cabinet on its left side on a piece of felt and removing the bottom and rear plates all the points necessary for trimming are accessible.

Re-adjustment is necessary:

1. After changing coils or condensers in the I.F. or H.F. section.
2. When the set is not sufficiently sensitive or selective (see E-sheets).

When adjusting use:

1. Service oscillator GM 2880 F (fig. 1).
2. Output indicator: Universal measuring apparatus 4256 or 7629.
3. Auxiliary receiver or aperiodic amplifier GM 2404.
4. Measuring pin for connection of the auxiliary set.
5. A 15° gauge for establishing the relation between condenser position and dial.
6. Trimming plug- in key 6 mm, without metal parts.
7. Insulated trimming plug-in key 6 mm.
8. Insulated trimming plug-in key 8 mm.
9. Insulated trimming screw-driver.
10. Wax for fixing the trimmers.
11. A condenser of 25 μμF.
12. A condenser of 0.1 μF.
13. A condenser of 32000 μμF.
14. A trimming transformer.
15. A tuning tester.

Use as artificial aerial:

1. For I.F.: a condenser of 32000 μμF.
2. For medium waves (170-570 m): a standard artificial aerial.
3. For short waves (9.5-170 m): a shortwave artificial aerial = red spot on standard artificial aerial.

Tuning tester.

When adjusting use a tuning tester. This instrument consists of a rubber tube, inside which a piece of copper is fitted to one side and a piece of socalled H.F. iron to the other.
Successively the two ends are put into the hole at the bottom side of the coil. When the output indicator falls back in both cases the concerning circuit is well-tuned, otherwise it will have to be adjusted.

Trimming transformer.

If the plug-socket plate of the loudspeaker is provided with the letter A, a trimming transformer will have to be used between the set and the output-indicator.

For the position of the trimmers see fig. 2.

Always use the customer's valves when trimming.

If during trimming the converter valve becomes defective then trim again (Pre-heat the new valve). Before proceeding to trim, the wax on the trimmers must be softened (for instance by means of a soldering iron).

Trim the set in the "foreign" position.

A. **I.F. circuits.**
   1. Connect grid 2 of L2 via 0.1 μF to earth.
   2. Set the wavelength switch to band A (170-570 m).
   3. Set the volume control and the variable condenser to maximum.
   4. Connect the outputmeter to the speaker sockets.
   5. Apply a modulated signal of 475 kc/s via 32000 μμF to grid 4 of L2.
   6. Trim consecutively C19, C18, C17 and C16 to maximum output.
   7. Remove the generator short-circuit and the condenser of 32.000 μμF.
   8. Seal the trimmers.

B. **I.F. aerial filter.**
   1. Set wavelength switch to band A (170-570 m).
   2. Set the variable condenser to maximum.
   3. Apply a modulated signal of 475 kc/s via the normal artificial aerial to the aerial socket.

4. Shift the core of S40 until minimum output is obtained. (This core is to be found between the L.F.- and the H.F. chassis almost above the plug socket plate for aerial and earth).
5. Seal the core of the coil.

C. **H.F. and oscillator circuits.**

Owing to the importance of the sections A and D (in the latter particularly ± 13 m) trimming in these sections is effected more precisely than in the others.

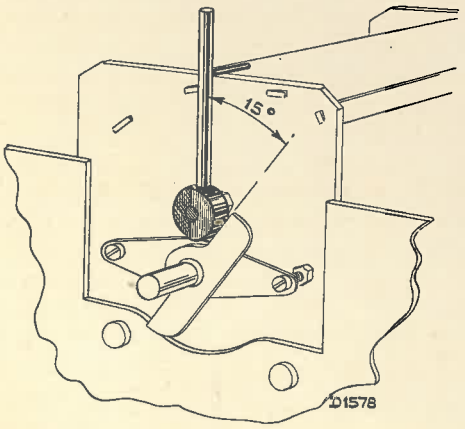


Fig. 4

Adjusting with harmonics.

When adjusting the receiver frequencies are needed, which are not furnished by the service-oscillator G.M. 2880. In this case the harmonics are used. This means that the oscillator is set at a wavelength which is two or three times the wanted wavelength. The exact harmonic is then filtered by the preselection of the set.

For the position of the trimmers see fig. 2.

Trim the set with the volume-control at maximum.

Band A: (170-570 m), (1760-525 kc/s).

1. Fit the 15° gauge (see fig. 4). Turn the variable condenser firmly against the gauge (smallest capacity).
2. Connect the outputmeter to the speaker sockets.
3. Apply to the aerial socket a modulated signal of 1650 kc/s. (182 m).
4. Trim C15, C9 and C50 to maximum output.
5. Short-circuit the generator circuit by interposing a condenser of 0.1 μF between grid 2 of L2 and earth.
6. Connect the anode of L2 via a condenser of 25 μμF to the aerial socket of the auxiliary set. The outputmeter must be after the auxiliary set.
7. Set the service oscillator at 600 kc/s. (500 m).
8. Tune the auxiliary receiver.
9. Tone the receiver under test.
10. Remove the connection of the auxiliary set and the generator short-circuit. Place the outputmeter after the set to be trimmed.
    Do not turn the variable condenser of the set to be trimmed.
11. Trim C10 to maximum output.
12. As point 1.
13. As point 3.
14. Re-trim C15.
15. Seal the trimmers.

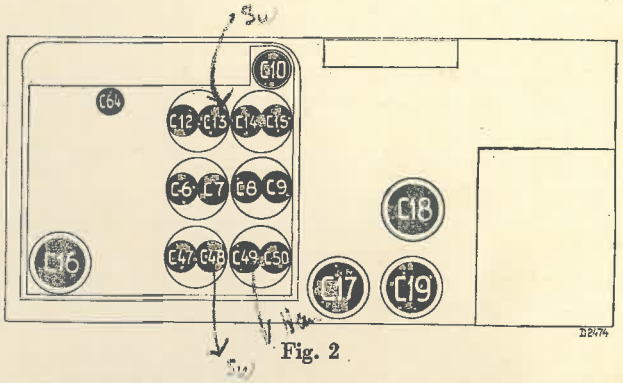


Fig. 2

Band B: (48—170 m.) (6.25—1.76 Mc/s).

1. Fit the 15° gauge (see fig. 4). Turn the variable condenser firmly against the gauge (smallest capacity).
2. Connect the outputmeter to the speaker sockets.
3. Apply a modulated signal of 5.75 Mc/s (52.1 m) to the aerial socket.
4. Trim C14, C8 and C49 to maximum output.
5. Seal the trimmers.

Band C1: (16.5—48 m) (18.2—6.25 Mc/s).

1. Fit the 15° gauge (see fig. 4). Turn the variable condenser firmly against the gauge (smallest capacity).
2. Short-circuit the generatorcircuit by interposing a condenser of 0.1 μF between grid 2 of L2 and earth.
3. Connect the anode of L2 via a condenser of 25 μμF to the aerial socket of the auxiliary set. The outputmeter must be after the auxiliary set.
4. Apply a modulated signal of 17.4 Mc/s (17.2 m) to the aerial socket of the set to be trimmed.
5. Tune the auxiliary set
6. Trim C48 and C7 to maximum output.
7. Remove the connexion of the auxiliary set and the generator short-circuit. Place the outputmeter after the set to be trimmed.
   Do not turn the variable condenser of the set to be trimmed.
8. Trim C13 to maximum output.
9. Seal the trimmers.

Band C 2: (9.5—16.5 m) (31.5—18.2 Mc/s).

1. Fit the 15° gauge (see fig. 4). Turn the variable condenser firmly against the gauge (smallest capacity).
2. Short-circuit the generator-circuit by interposing a condenser of 0.1 μF between grid 2 of L2 and earth.
3. Connect the anode of L2 via a condenser of 25 μμF to the aerial socket of the auxiliary

set. The outputmeter must be after the auxiliary set.

4. Apply a modulated signal of 32 Mc/s (9.4 m) to the aerial socket of the set to be trimmed.
5. Tune the auxiliary receiver.
6. Trim C47 and C6 to maximum output.
7. Remove the connection of the auxiliary set and the generator short-circuit. Place the outputmeter after the set to be trimmed.
   Do not turn the variable condenser of the set to be trimmed.
8. Trim C12 to maximum output.
9. Short-circuit the generatorcircuit by interposing a condenser of 0.1 μF between grid 2 of L2 and earth.
10. Connect the anode of L2 via a condenser of 25 μμF to the aerial socket of the auxiliary set. The outputmeter must be after the auxiliary set.
11. Apply a modulated signal of 23 Mc/s (13.0 m) to the aerial socket of the set to be trimmed.
12. Tune the auxiliary receiver.
13. Tune the receiver under test with the aid of the variable condenser.
14. Remove the connection of the auxiliary set and the generator short-circuit. Place the outputmeter after the set to be trimmed.
    Do not turn the variable condenser of the set to be trimmed.
15. Trim C64 to maximum output (with the trimming key without metal parts).
16. Fit the 15° gauge (see fig. 4). Turn the variable ble condenser firmly against the gauge (smallest capacity).
17. Apply a modulated signal of 32 Mc/s (9.4 m) to the aerial socket of the set to be trimmed.
18. Re-trim C12.
19. Seal the trimmers.

To adjust the tuning scale:

1. Connect the outputmeter to the L.S. sockets.
2. Apply a signal of 200 m (1500 kc/s) to the aerial socket and tune the receiver.
3. Set the pointer at exactly 200 m. with the aid of the screw that pinches the steel wire to the pointer.
4. Tune the receiver to signals of 350 m (858 kc/s) and 500 m (600 kc/s).
5. If the last two indications are not correct the driving drum must be shifted as shown in the table below.
6. Tune the receiver again to a signal of 200 m (1500 kc/s). If need be readjust the pointer and repeat the operations of 4 and 5.

	350 m.	500 m.	Direction of regulation plate
1	good	too high	↑ or ↖
2	good	too low	↙
3	too high	too high	←
4	too low	too low	→
5	too high	too low	↓
6	too high	good	↓
7	too low	too high	↑
8	too low	good	↑

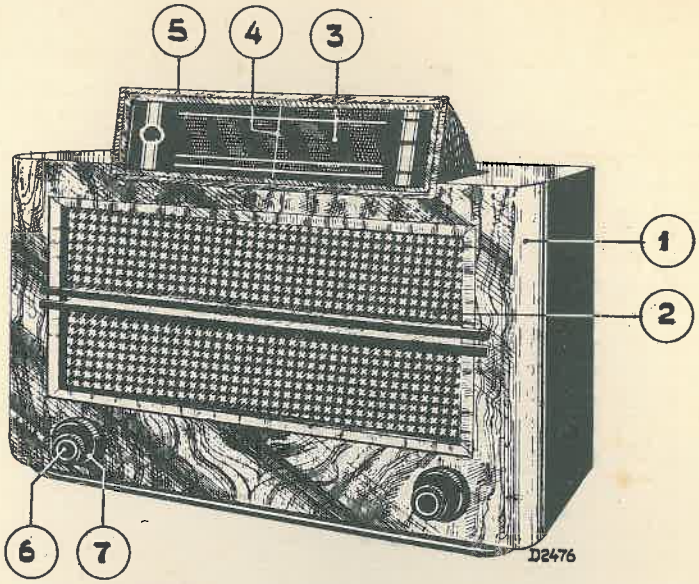


Fig. 13

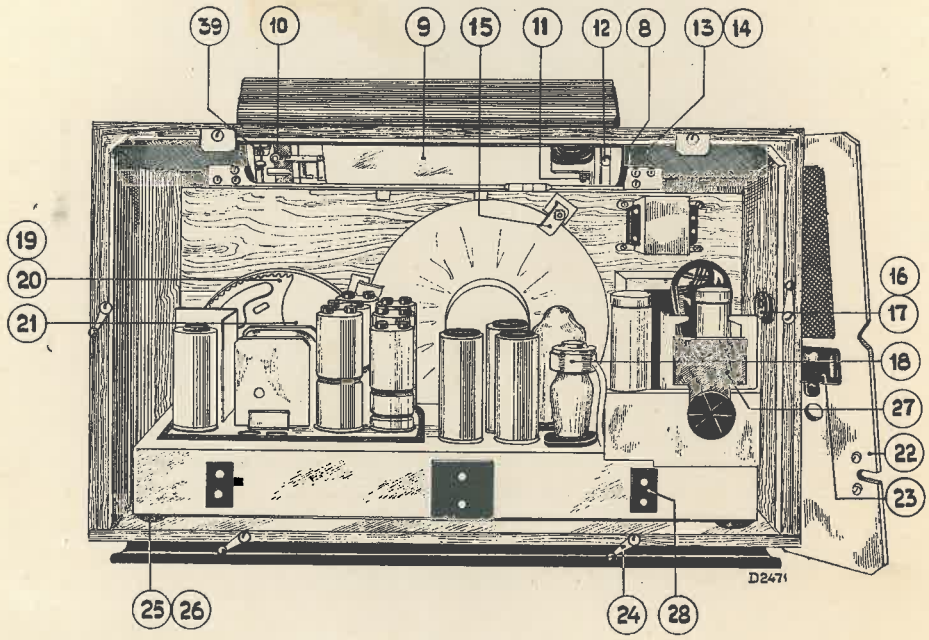


Fig. 14

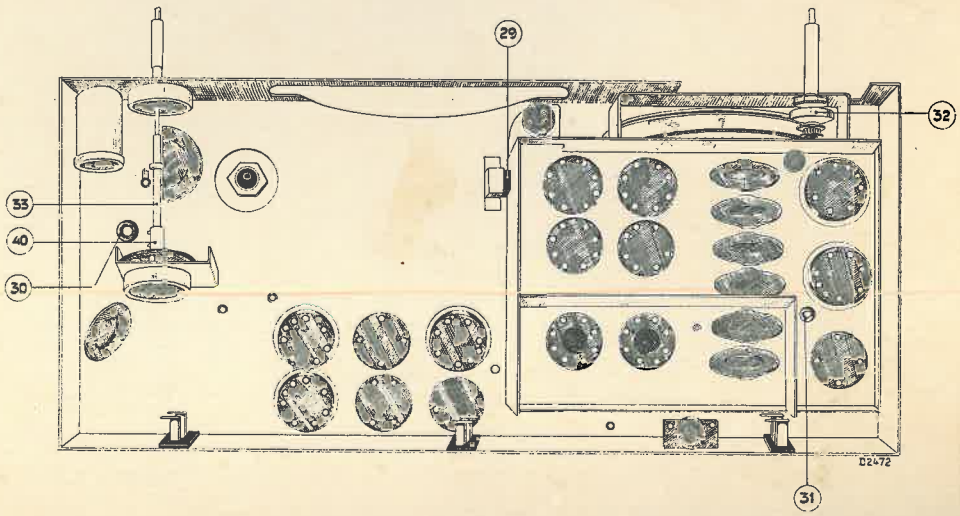


Fig. 15

TENSIONS AND CURRENTS

	normal	foreign		normal	foreign	
EF8 Va	247	224 V	*ia*	4,1	7,8	L1
V3	250	227	*i3*	0,12	0,19	
ECH2 Va	212	192	*ia*	0,72	0,69	L2
V3,5	50	49	*i3,5*	1,11	1,06	
V2	147	147	*i2*	3,1	3,1	
EF5 Va	267	256	*ia*	3,95	8	L3
V2	88	74	*i2*	1,04	2,1	
EBC3 Va	102	98	*ia*	0,78	0,75	L4
EL3 Va	246	237	*ia*	34	34	L5
V2	260	250	*i2*	4,8	4,7	
EM11 Vscreen	266	257	*ia*	0,11	0,11	L10
V.C1	295	287				
V.C2	266	257				

Total primary consumption 60 W.

These voltages are measured in respect of the chassis with the voltmeter having a resistance of 2000 Ω per Volt.
The above values are averages taken over a large numbers of receivers and a certain amount of deviation may therefore be met with.
If voltmeters are used of which the internal resistance is less, then the values obtained are generally speaking lower.

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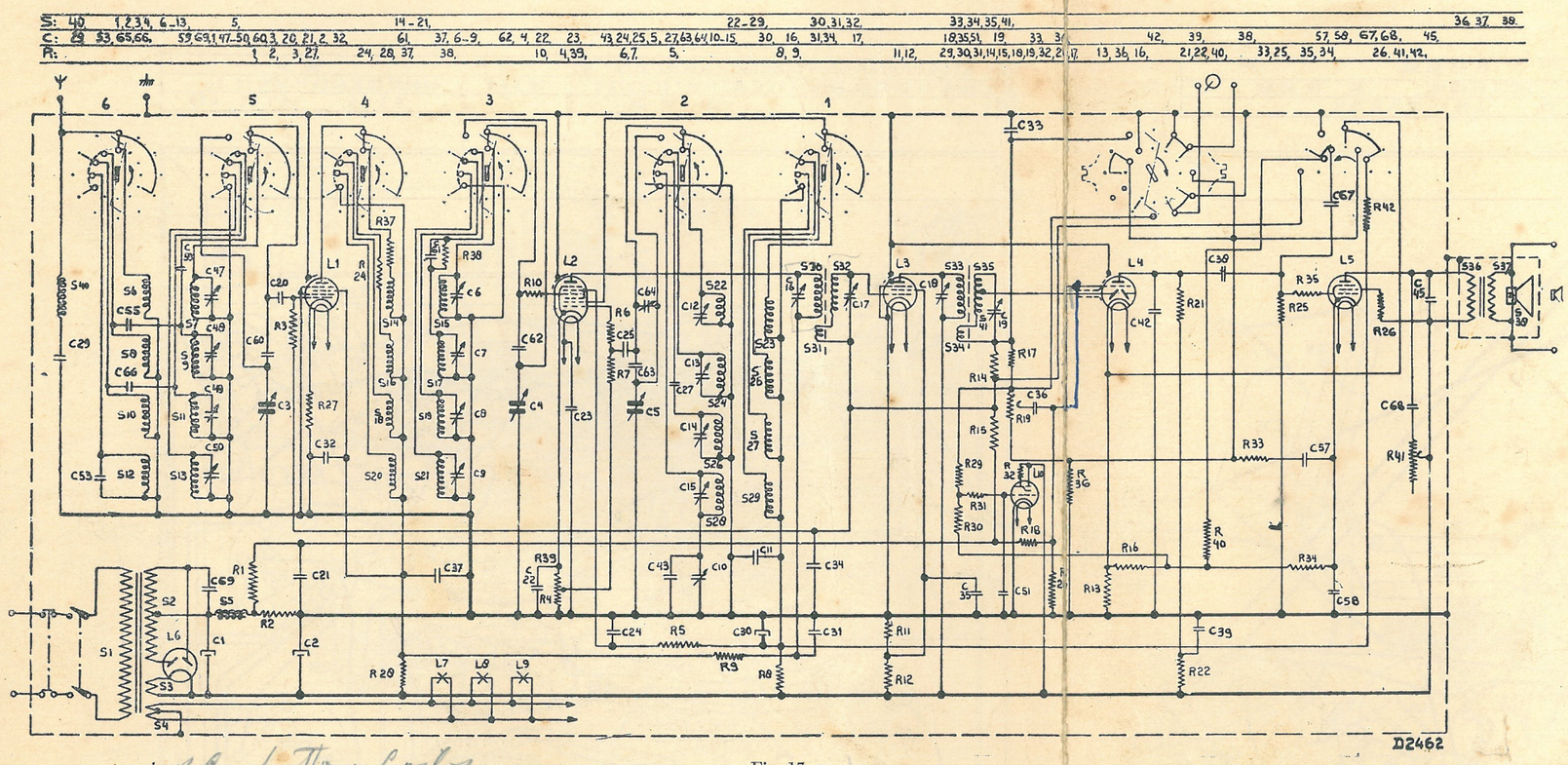
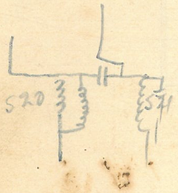


Fig. 17

BC = bottom Coils



RESISTANCES

No.	Value	Codenumber	Price	No.	Value	Codenumber	Price
R1	0,2 M. Ohm	28.773.930		R22	0,1 M. Ohm	28.773.900	
R2	200 Ohm	28 802 560		R24	25 Ohm	28.773.540	
R3	0,8 M. Ohm	28.773.990		R25	0,64 M. Ohm	28.773.980	
R4	500 Ohm	28.773.670		R26	50 Ohm	28.770.120	
R5	80000 Ohm	28.770.440		R27	64 Ohm	28.773.580	
R6	16 Ohm	28.773.520		R28	3200 Ohm	28.770.300	
R7	20000 Ohm	28.773.830		R29	0,64 M. Ohm	28.773.980	
R8	25000 Ohm	28.771.040		R30	0,25 M. Ohm	28.773.940	
R9	50000 Ohm	28.773.870		R31	1,6 M. Ohm	28.770.570	
R10	25 Ohm	28.773.540		R32	2 M.Ohm	28.771.230	
R11	16000 Ohm	28.771.020		R33	160 Ohm	28.773.620	
R12	25000 Ohm	28.803.100		R34	125 Ohm	28.770.160	
R13	9,5 Ohm	28.775.290		R35	1000 Ohm	28.773.700	
R14	3,2 M. Ohm	28.771.250		R36	20 Ohm	28.773.530	
R15	3,2 M. Ohm	28.771.250		R37	50 Ohm	28.773.570	
R16	32 Ohm	28.773.550		R38	0,64 M. Ohm	28.773.980	
R17	50000 Ohm	28.773.870		R39	125 Ohm	28.773.610	
R18	5 M. Ohm	28.771.270		R40	0,8 M. Ohm	28.773.990	
R19	0,5 M. Ohm	28.812.531		R41	50000 Ohm	28.815.541	
R20	1,6 M. Ohm	28.770.570		R42	0,4 M. Ohm	28.770.510	
R21	0,1 M. Ohm	28.773.900					

CONDENSERS

No.	Value	Codenumber	Price
C1	32 µF	28.182.400	
C2	32 µF	28.182.400	
C3	11—490 µµF		
C4	11—490 µµF	28.212.110	
C5	11—490 µµF		
C6	2,5—30 µµF		
C7	2,5—30 µµF	see "Coils"	
C8	2,5—30 µµF		
C9	2,5—30 µµF		
C10	12—170 µµF	28.211.310	
C11	16000 µµF	28.199.010	
C12	2,5—30 µµF		
C13	2,5—30 µµF		
C14	2,5—30 µµF		
C15	2,5—30 µµF	see "Coils"	
C16	12—170 µµF		
C17	12—170 µµF		
C18	12—170 µµF		
C19	12—170 µµF		
C20	100 µµF	28.206.270	
C21	0,32 µF	28.201.240	
C22	50000 µµF	28.201.150	
C23	10000 µµF	28.201.080	
C24	50000 µµF	28.199.060	
C25	100 µµF	28.206.270	
C27	1575 µµF	28.195.500	
C29	147 µµF	28.195.380	
C30	32 µF	28.182.400	
C31	50000 µµF	28.199.060	
C32	50000 µµF	28.199.060	
C33	100 µµF	28.206.270	
C34	50000 µµF	28.201.150	
C35	50000 µµF	28.199.060	
C36	10000 µµF	28.201.080	
C37	0,1 µF	28.199.090	
C38	20000 µµF	28.199.020	
C39	0,1 µF	28.199.090	
C42	320 µµF	28.190.180	
C43	400 µµF	28.190.400	
C45	2000 µµF	28.201.480	
C47	2,5—30 µµF		
C48	2,5—30 µµF	see "Coils"	
C49	2,5—30 µµF		
C50	2,5—30 µµF		
C51	0,1 µF	28.201.180	
C53	50 µµF	28.206.240	
C57	1 µF	28.160.950	
C58	1 µF		
C59	6400 µµF	28.195.730	
C60	214 µµF	28.195.490	
C61	6400 µµF	28.195.730	
C62	214 µµF	28.195.490	
C63	214 µµF	28.195.490	
C64	2,5—30 µµF	28.211.320	
C65	2 µµF	28.205.880	
C66	2×2 µµF	28.205.880	
C67	3200 µµF	28.198.940	
C68	50000 µµF	28.201.640	
C69	20000 µµF	28.201.650	

VALVES

L 1	L 2	L 3	L 4	L 5
EF 8	EK 2	EF 5	EBC 3	EL 3
L 6	**L 7**	**L 8**	**L 9**	**L 10**
AZ 1	8045-37	8045-37	8045-07	EM 1

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361

THE EF9 FOR EF5 VALVE SUBSTITUTION.

As is generally known, from the point of view of base and base connections the EF9 is a direct replacement for the now obsolete EF5.

However, due to the fact that the EF5 has a larger grid base than the EF9, whilst the latter has a higher amplification factor, modulation distortion is found to occur, particularly in Models 361 and 362.

This results in the necessity of decreasing the AVC applied to the new I.F. tube EF9. In some cases, e.g. the 362, it is also desirable to increase the AVC voltage applied to the mixer.

The recommended circuit changes for the 361, are shown in fig. 2 (a).

The recommended changes to that part of the 362 circuit shown in fig.2 (b) are as follows:-

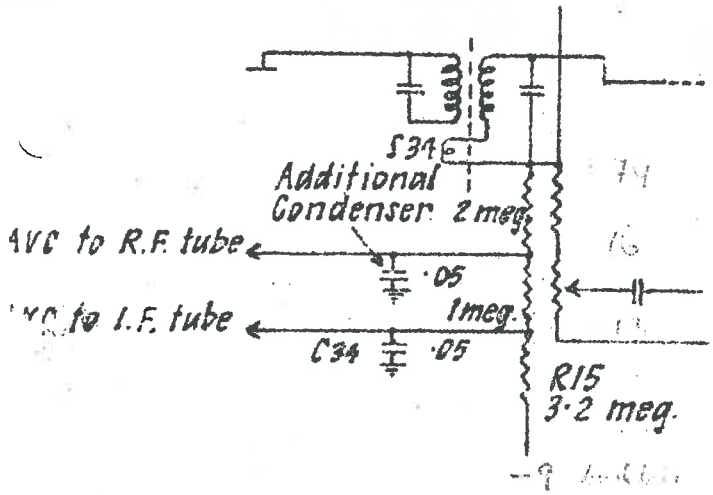
Disconnect resistor R24 from the connecting point C45, diode one L6, C74, R33, and reconnect it to the junction of R33 and R34.

Also disconnect R29 from the junction of R52, R53 and reconnect it to the connecting poing R52, C74 and diode two L6.

In other models, such as the 660, 650 etc. the only change generally found necessary, when substituting for an EF5 I.F. tube, is to decouple the EF9 plate by means of a 10,000 ohm resistor and 0.1 ufd decoupling condenser.

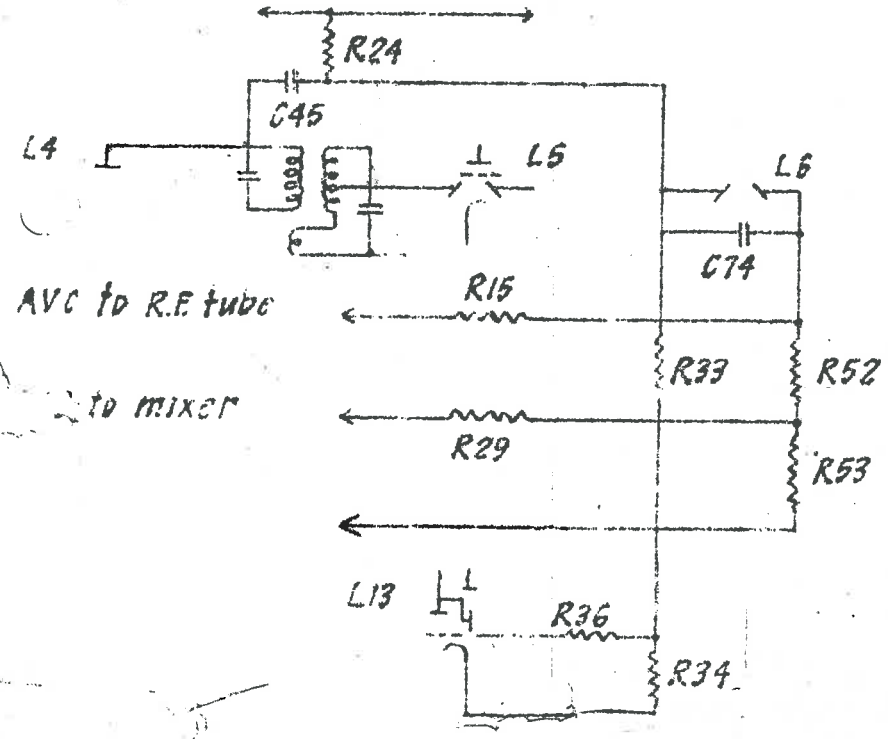
Apart from obviating instability, the above precaution also decreases the anode dissipation, which decreases the chance of the valve shield peeling off.

Both of the above problems are the direct outcome of substituting for the EF5, a tube with a much higher gain.



ALTERED 361 CIRCUIT

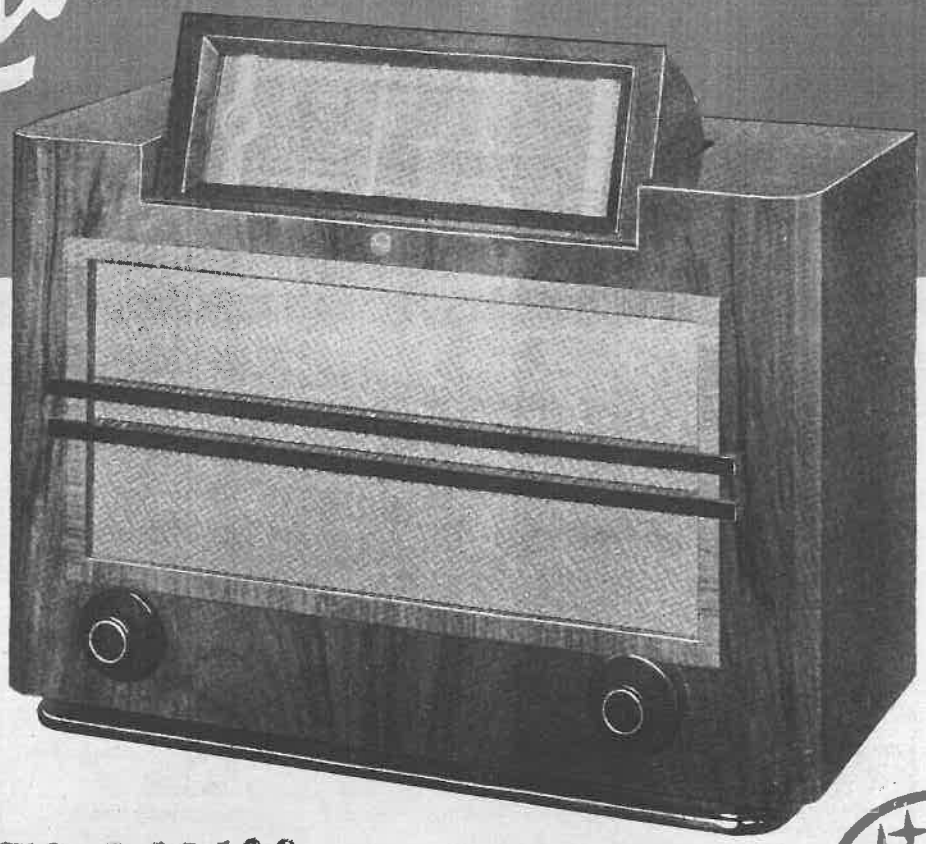
FIG. 2(a)



362 CIRCUIT
TO BE ALTERED

FIG. 2 (b)

"New Listening" MODEL 361A



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Beautiful cabinet, scientifically designed for correct acoustic response.

The new Silentode valve that eliminates background noises, and permits a remarkable increase in sensitivity.

The most perfect AVC system ever devised.

Foreign normal switch, an innovation which provides for high fidelity reception on the major stations and which readjusts the magic eye sensitivity and the tone quality for long distance stations. This switch is combined with the volume control knob which when pushed in is "normal", and when pulled out, is "Foreign"

Rubber-cushioned chassis.

Concert type high flux permanent magnet dynamic speaker, with sound diffuser.

Adjustable tilting glass edgelit dial and luminous waverange pointer.

For every position of the set, one has, standing or sitting, easy visibility by inclining the dial in the right direction.

Cathode ray tuning indicator and two-speed tuning. The tuning knob when pushed in gives fast tuning and when pulled out gives slow tuning.

Connections are provided for gramophone pick-up and extension speaker. The extension speaker connections are low impedance, which is a big advantage because the tone is not then impaired when extra speaker is connected.

WAVEBANDS: 9.5-16.5m.; (31.5-18.2Mc.) 16.5-48m.; (18.2-6.25Mc.) 48-170m.; (6250-1765kc.) 167.5-560m; (1791-536kc.)

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