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CHANGE NOTICE

M U R P H Y P A N H A R M O N I C -

MODEL B-301

Acceding to requests for increased bass response in the Murphy 'Panharmonic' radiogram Model B-301, we have made two simple changes in the circuitry to achieve this effect.

Please note that these changes have been made at the factory in all chassis from, and including, Serial No. 701351.

The two changes relate to circuit elements numbered C40 and R19, and are as follows -

(1) At C40 -

Capacitor .25 mfd., part no. 41045 is changed to Capacitor .1 mfd. part no. 49441.

(2) At R19

Resistance 68 ohm., part no. 24485, is changed to Resistance 150 ohm., part no. 24613.

Will you please amend your B-301 circuit diagram and B-301 parts list accordingly.

We recommend that you make the two changes above indicated to all B-301 radiograms of serial numbers lower than 701351 that you may be holding in stock. It would be advantageous also to modify any of this model that you have sold wherever this can conveniently be done.

FISHER & PAYKEL LIMITED

H.R. JAMES LTD.,
UNION STREET,
MILTON.

Edswan Valves in G202	Philips Equivalent
UU9	EZ40
6LD3	EBC41
6F15	EF41
6C10	ECH42

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MURPHY 'PANHARMONIC' MODEL B301 SERVICE INFORMATION:

REFERENCE LIST FOR CIRCUIT DIAGRAM.

Abbreviations:

cer	-	ceramic	elect.	-	electrolytic
p.s.m.	-	protected silver mica	v.d.c.	-	d.c. voltage rating
tub.	-	paper tubular	W.	-	wattage rating
m.tub	-	metallised paper tubular	-ve	-	negative temperature coefficient
log	-	logarithmic law			
i.s.tub.	-	insulated sealed paper tubular (metal case)			

Part No.	Circuit No.	Value	Tolerance & Remarks
25447	R1	27K ohm	.4W. 10%
27397	R2	470K ohm	.4W. 20%
24517	R3	82 ohm	.4W. 10%
24933	R4	1K ohm	.4W. 10%
26885	R5	1K ohm	.4W. 20%
27397	R6	470K ohm	.4W. 20%
25439	R7	18K ohm	1.0W. 10%
25669	R8	82K ohm	.4W. 10%
27653	R9	10M ohm	.4W. 20%
27333	R10	220K ohm	.4W. 20%
24229	R11	15 ohm	.4W. 10%
27525	R12	2.2M ohm	.4W. 20%
25471	R13	22K ohm	1.0W. 10%
27525	R14	2.2M ohm	.4W. 20%
27397	R15	470K ohm	.4W. 20%
27525	R16	2.2M ohm	.4W. 20%
27237	R17	68K ohm	.4W. 20%
27333	R18	220K ohm	.4W. 20%
24485	R19	68 ohm	.4W. 10%
26021	R20	680K ohm	.4W. 10%
27653	R21	10M ohm	.4W. 20%
27269	R22	100K ohm	.4W. 20%
25061	R23	2.2K ohm	.4W. 10%
25125	R24	3.3K ohm	.4W. 10%
27397	R25	470K ohm	.4W. 20%
27205	R26	47K ohm	.4W. 20%
25477	R27	27K ohm	.4W. 10%
24653	R28	180 ohm	.5W. 10%
25183	R29	3.9K ohm	1.0W. 10%
25183	R30	3.9K ohm	1.0W. 10%
24895	R31	680 ohm	1.0W. 10%
24895	R32	680 ohm	1W. 10%
24575	R33	100 ohm	1W. 10%

Part No.	Circuit No.	Value	Tolerance & Remarks
24575	R34	100 ohm	1W. 10%
27269	R35	100K ohm	.4W. 20%
27365	R36	330K ohm	.4W. 20%
66163	C1	33 pf	cer. G.P.1. ± 20% 500 v.d.c.
RP1223	C2	.005 mf	m.tub. ± 25% 350 v.d.c.
52149	C3	4.7 pf	cer. ± 20% 500 v.d.c.
28211	C4	77 pf	p.s.m. ± 2% 350 v.d.c.
56322	C5	4-40 pf	trimmer "S" Ae.
56326	C6	2.5-15 pf	trimmer "M" Ae.
41403	C7	.05 mf	tub. ± 20% 350 v.d.c.
66169	C8	100 pf	cer. ± 20% 500 v.d.c.
28278	C9	47 pf	p.s.m. ± 2% 350 v.d.c.
49454	C10	.04 mf	m.tub. ± 25% 150 v.d.c.
56323	C11	5-35 pf	trimmer "M" R.F.
41403	C12	.05 mf	tub. ± 20% 350 v.d.c.
RP1223	C13	.005 mf	m.tub. ± 25% 350 v.d.c.
66169	C14	100 pf	cer. ± 20% 500 v.d.c.
49454	C15	.04 mf	m.tub. ± 25% 150 v.d.c.
52631	C16	150 pf	p.s.m. ± 5% 350 v.d.c.
52631	C17	150 pf	p.s.m. ± 5% 350 v.d.c.
47039	C18	56 pf	-ve cer. ± 2½% 500 v.d.c.
28343	C19	92 pf	p.s.m. ± 1% 350 v.d.c.
23607	C20	100 pf	p.s.m. ± 10% 350 v.d.c.
28249	C21	3900 pf	p.s.m. ± 5% 350 v.d.c.
RP1224	C22	450 pf	p.s.m. ± 1% 350 v.d.c.
56323	C23	5-35 pf	trimmer "S" osc.
56325	C24	2.5-15 pf	trimmer "M" osc.
28346	C25	100 pf	p.s.m. ± 1% 350 v.d.c.
41403	C26	.05 mf	tub. ± 20% 350 v.d.c.
28345	C27	15 pf	p.s.m. ± 5% 350 v.d.c.
28266	C28	120 pf	p.s.m. ± 1% 350 v.d.c.
49454	C29	.04 mf	m.tub. ± 25% 150 v.d.c.
52631	C30	150 pf	p.s.m. ± 5% 350 v.d.c.
52631	C31	150 pf	p.s.m. ± 5% 350 v.d.c.
49447	C32	.01 mf	m.tub. ± 25% 150 v.d.c.
52646	C33	100 pf	p.s.m. ± 20% 350 v.d.c.
52646	C34	100 pf	p.s.m. ± 20% 350 v.d.c.
56159	C35	16 mf	elect. + 50%) 275 v.d.c. - 20%) combined with C41)
66165	C36	47 pf	cer. ± 20% G.P.1. 500 v.d.c.
49456	C37	.005 mf	m.tub. ± 25% 150 v.d.c.
49455	C38	.02 mf	m.tub. ± 25% 150 v.d.c.
53066	C39	.02 mf	i.s.tub. ± 20% 350 v.d.c.
41405	C40	.25 mf	tub. ± 20% 350 v.d.c.
56159	C41	16 mf	elect. + 50%) 275 v.d.c. - 20%) Combined with C35)
66177	C42	470 pf	cer. ± 20% G.P.1. 500 v.d.c.

Part No.	Circuit No.	Value	Tolerance & Remarks
41418	C43	.005 mf	tub. = 25% 1000 v.d.c.
56168	C44	50 mf	elect. + 50%) - 20%) 12 v.d.c.
56157	C45	50 mf	elect.) + 50% 350 v.d.c. (50 mf - 50 mf)
	C46	50 mf	elect.) - 20%
41419	C47	.01 mf	tub. ± 25% 1000 v.d.c.
49454	C48	.04 mf	m.tub. ± 25% 150 v.d.c.
23607	C49	100 pf	p.s.m. ± 10% 350 v.d.c.
49454	C50	.04 mf	m.tub. ± 25% 150 v.d.c.
49454	C51	.04 mf	m.tub. ± 25% 150 v.d.c.
74795	VC1	580 pf	
	VC2	swing	variable 3 ganged capacitor
	VC3		
52832	VR1	500K ohm	log. (volume control)
52840	VR2	250K ohm	log. W/S. (treble control)
52841	VR3	2M ohm	anti-log. (bass control)

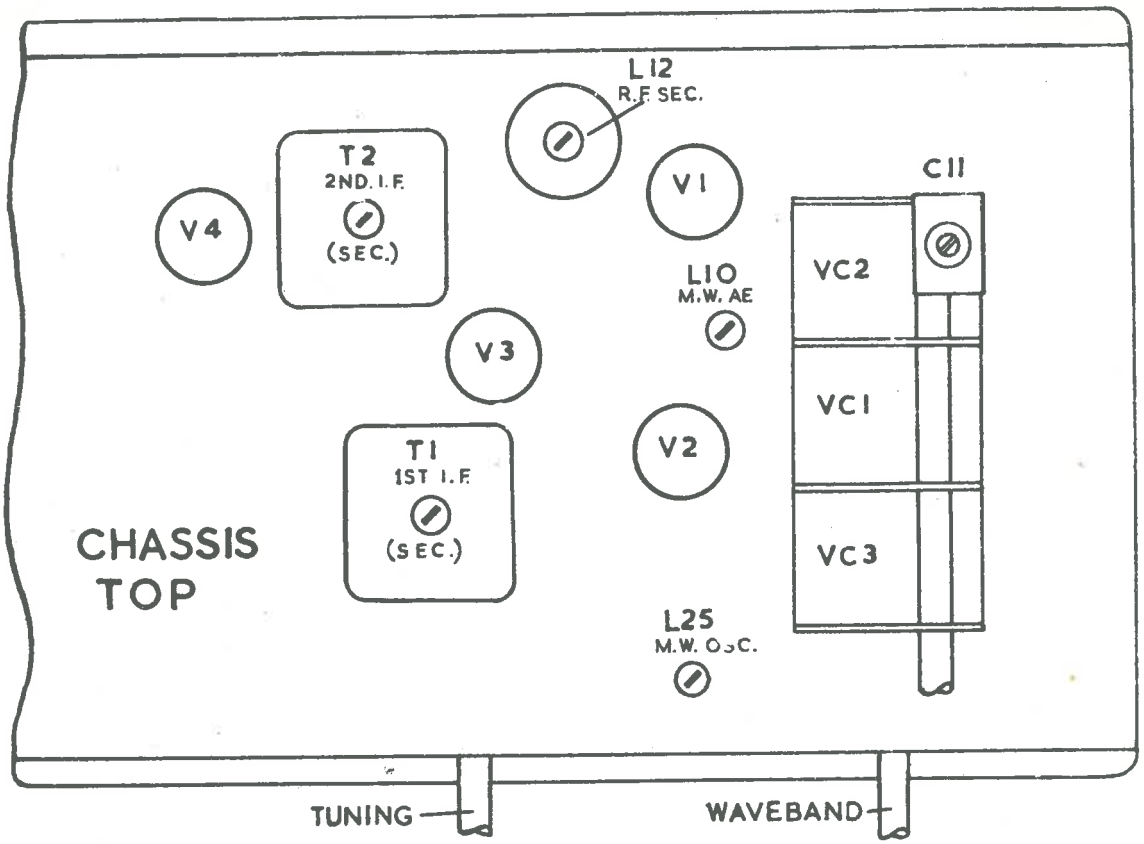
Part No.	Circuit No.	Description
16882	PL 1, 2, 3, & 4.	Panel lamp
65330	LS	Z10ZZ/2868 Loudspeaker
RP1139	V1	Valve 6F19 or EF85
RP1132	V2	Valve 6C9
RP1134	V3	Valve 6F15 or EF41
RP1135	V4	Valve 6LD3 or EBC41
RP1136	V5	Valve EL41
RP1138	V6	Valve UU9 or EZ40
RP1142	V7	Valve EM81 (tuning indicator)
74792	SK1	P.U. socket 2 pin (cinch 2624)
74794	SK2	L.S. socket 4 pin (cinch 75/444)
74792	SK3	T. Record socket 2 pin (cinch 2624)
RP1226	SK4	T. Playback socket 2 pin (cinch76/092)
74790	PL/SK1	Plug - P.U. 2 pin (cinch 2724)
74793	PL/SK2	Plug - L.S. 4 pin (cinch 2745)
74790	PL/SK3	Plug - Tape-record 2 pin (cinch 2724)
RP1228	PL/SK4	Plug - Tape-playback 2 pin (cinch 76/046)
74791		Shell (for plugs PL/SK1, PL/SK2, PL/SK3)
RP1028	PL5	3 pin power plug
RP1210	M1	Garrard unit RC88D 4 speed.
63625	S1	Switch, wave change
RA1326		Assembly of R.F. unit, wired.
60506	L1	11M Aerial
60507	L2	13M Aerial

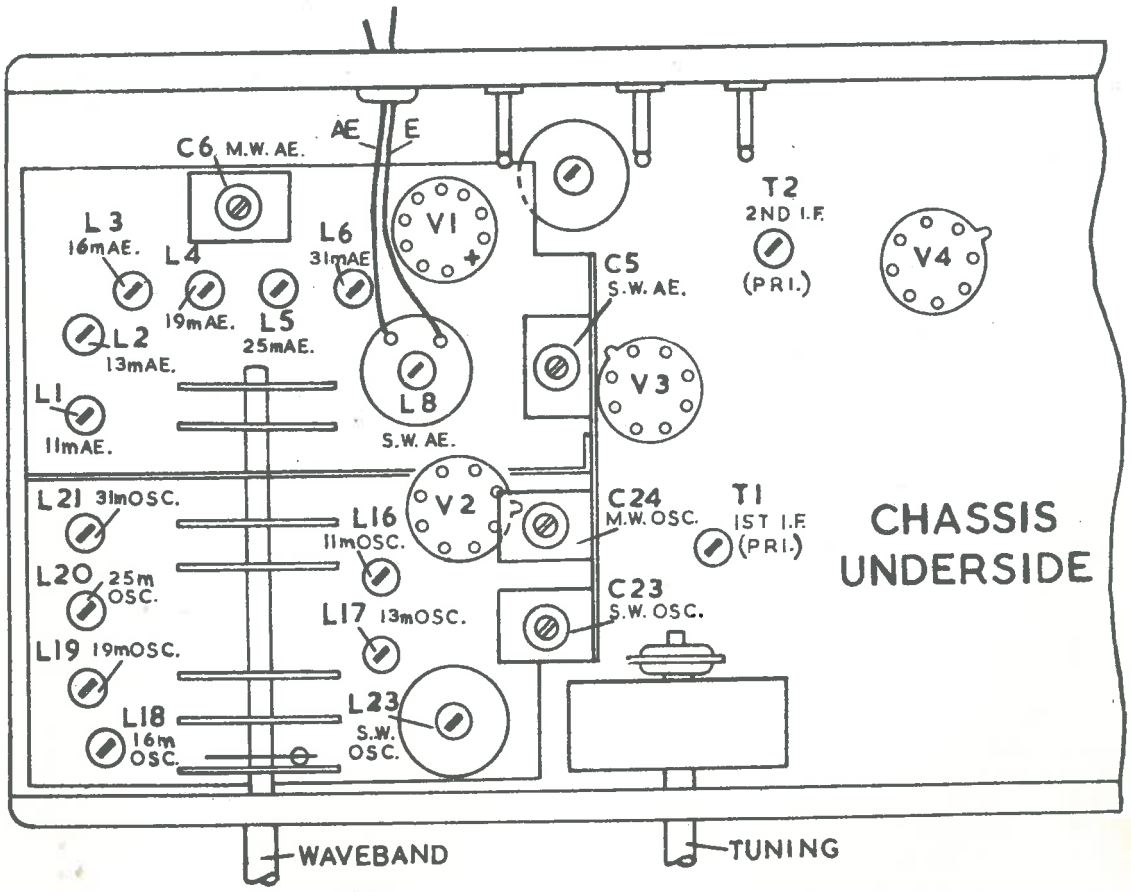
MURPHY PANHARMONIC MODEL B301 CIRCUIT ALIGNMENT TABLE

CIRCUIT	NOTES	SIGN. GEN. FREQUENCY	SIG. GEN TERMINATION	CONNECT SIG. GEN. TO	SCALE SETTING	ADJUSTMENTS
2nd I.F.	Connect damping unit to sec. (V4 pin 5 and chassis)	470 Kc/s	Via .01 mfd. capacitor	V3 control grid (pin 6)	13.85 cm M Band	T2 prim. (below chassis)
	Connect damping unit to prim. (V3 pin 2 and chassis)	470 Kc/s	As above	As above	13.85 cm M Band	T2 sec. (top of can)
1st I.F.	Connect damping unit to sec. (V3 pin 6 and chassis)	470 Kc/s	As above	V2 signal grid (pin 6)	13.85 cm M Band	T1 prim. (below chassis)
	Connect damping unit to prim. (V2 pin 2 and chassis)	470 Kc/s	As above	As above	13.85 cm M Band	T1 sec. (top of can)
M	Repeat these adjustments until there is no further improvement	600 Kc/s	Via dummy aerial	Aerial lead	11.2 cm	L25 osc. (above chassis) L12 RF (" ") L10 Ae (" ")
		1364 Kc/s	As above	As above	1.8 cm	C24 osc. (below chassis) C11 RF (top gang cond.) C 6 Ae (below chassis)
S	As above	3.75 Mc/s	As above	As above	10.4 cm	L23 osc. (below chassis) L 8 Ae (" ")
		7.25 Mc/s	As above	As above	2.6 cm	C23 osc. (below chassis) C 5 Ae (" ")
31M	Screw in osc. core to increase freq. check that the osc. freq. is above the signal freq.	9.6 Mc/s	As above	As above	5.15 cm	L21 osc. (below chassis) L 6 Ae. (" ")
25M	As above	11.81 Mc/s	As above	As above	6. 6 cm	L20 osc. (below chassis) L 5 Ae. (" ")
19M		15.23 Mc/s	As above	As above	4.65 cm	L19 osc. (below chassis) L 4 Ae (" ")
16M	Check that osc. freq. is above the signal freq. Rock tuning control for maximum sensitivity while adjusting aerial core.	17.79 Mc/s	As above	As above	6. 6 cm	L18 osc. (below chassis) L 3 Ae. (" ")
13M	As above	21.58 Mc/s	As above	As above	6.95 cm	L17 osc. (below chassis) L 2 Ae. (" ")
11M	As above	26.09 Mc/s	As above	As above	5.05 cm	L16 osc. (below chassis) L 1 Ae. (" ")

TRIMMING CHARTS - MODEL B301.

RP1429





MURPHY 'PANHARMONIC' MODEL B301 SERVICE INFORMATION

GENERAL REMARKS

1. RECEIVER OUTPUT: Make all adjustments for maximum output with the volume control at maximum. Adjust the signal generator so that this output does not exceed .5W, or 1.2V across the loudspeaker voice coil.

2. TRIMMING TOOL: A non-metallic tool must be used for adjusting the coil cores.

3. DAMPING UNIT: While adjusting one winding of an i.f. transformer, the other winding must be damped with a 4.7K ohm resistor connected in series with a 0.01 mfd. capacitor.

4. COIL CORES: These must be adjusted to a position between the middle of the winding and the outer end of the coil former. All the coils have iron dust cores excepting the 31, 25, and 19 metre oscillator coils, which have aluminium alloy cores. Of the alternative peaks possible with the 11 to 31 M Ae. coil cores, the correct peak is the one obtained with the core nearest to the middle of the winding.

5. RECEIVER OSCILLATOR FREQUENCY: On all wave bands this is above the signal frequency.

6. TUNING POINTERS: When the ganged capacitor is at maximum capacitance - not necessarily against the stop - the projection on the pointer carrier must register with 13.85 cm. and when the chassis is in the cabinet, the main pointers must register with the right-hand edges of the glass scale "apertures". Small adjustments to the pointer carrier position can be made through the holes for the control spindles in the cabinet, by locking the carrier with a small screwdriver and by rotating the dial drum the necessary amount from behind the cabinet with the right hand.

7. BANDSPREAD CIRCUITS: (11 to 31M Bands). The calibration of these circuits should preferably be checked against transmitting stations of known frequency as most normal signal generators are not sufficiently accurate for the purpose.

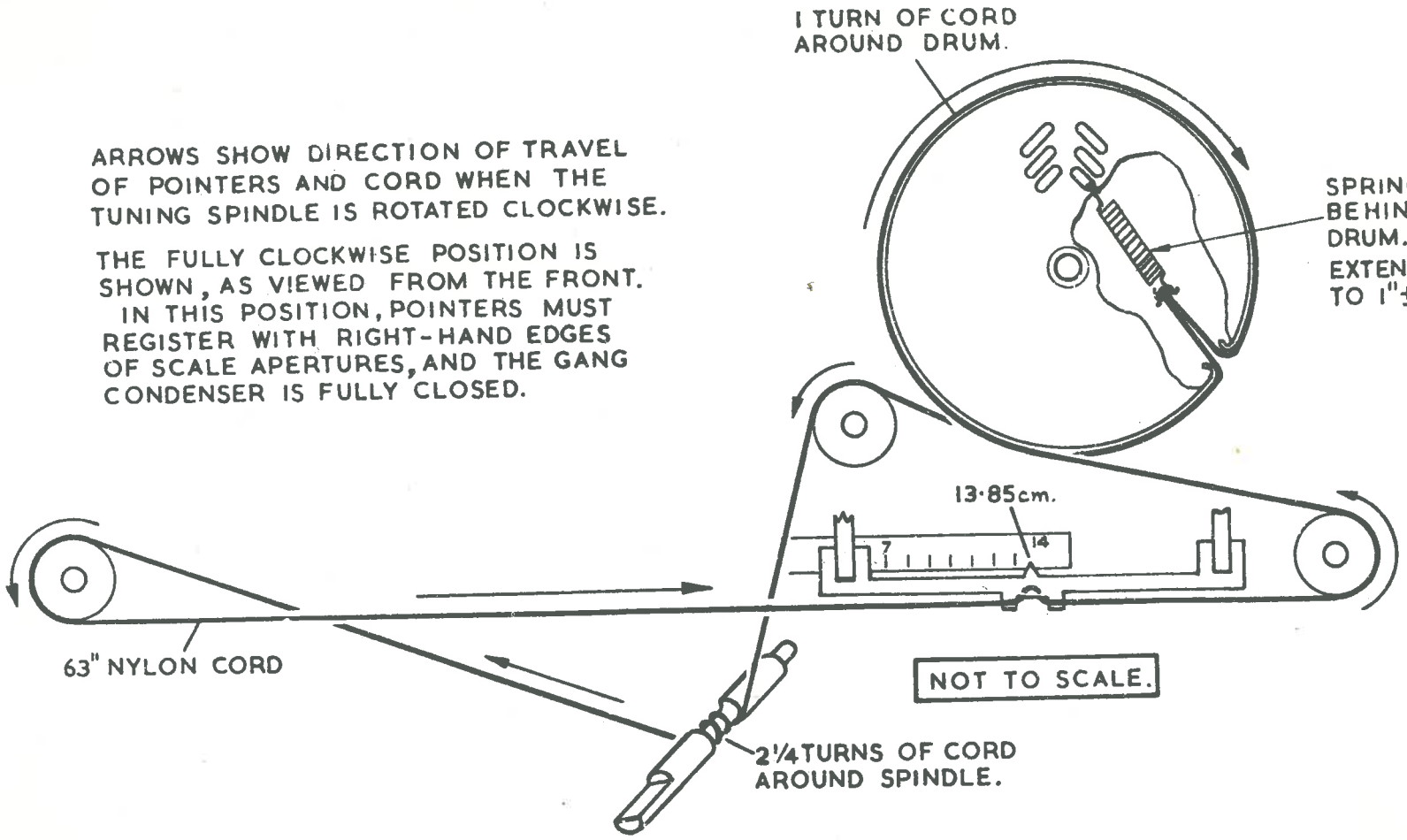
8. TAPE RECORDER OPERATION: Sockets are provided beneath the chassis for the recording of radio or gram programmes on to a tape, or the playing back of a tape recording through the receiver either with or without the radio or gram programme. The respective positions of these sockets are shown on the valve layout chart on the rear of the dial reflector, and also on the diagram on the front of the chassis mounting board.

a. Recording Radio or Gram: Connect a shielded lead from the tape "radio input" to a suitable plug, and insert into the "tape record" socket on the receiver chassis. This is accessible through the door of the record storage compartment. The selected programme can now be recorded. The receiver volume control does not alter or affect the strength of the recorded signal. This should be controlled on the tape recorder.

b. Replaying a Tape Recording: Connect a shielded lead from the tape "output" to a suitable plug, and insert into the "tape playback" socket on the receiver chassis. (This is also accessible through the door of the record storage compartment. If the tape "output" socket monitors what is being recorded, it may be necessary to remove the "radio input" plug from the recorder, so as to avoid feedback). The tape may now be played through the radio receiver, and would be normally operated on the "gram" position of the wavechange switch, using the receiver volume control.

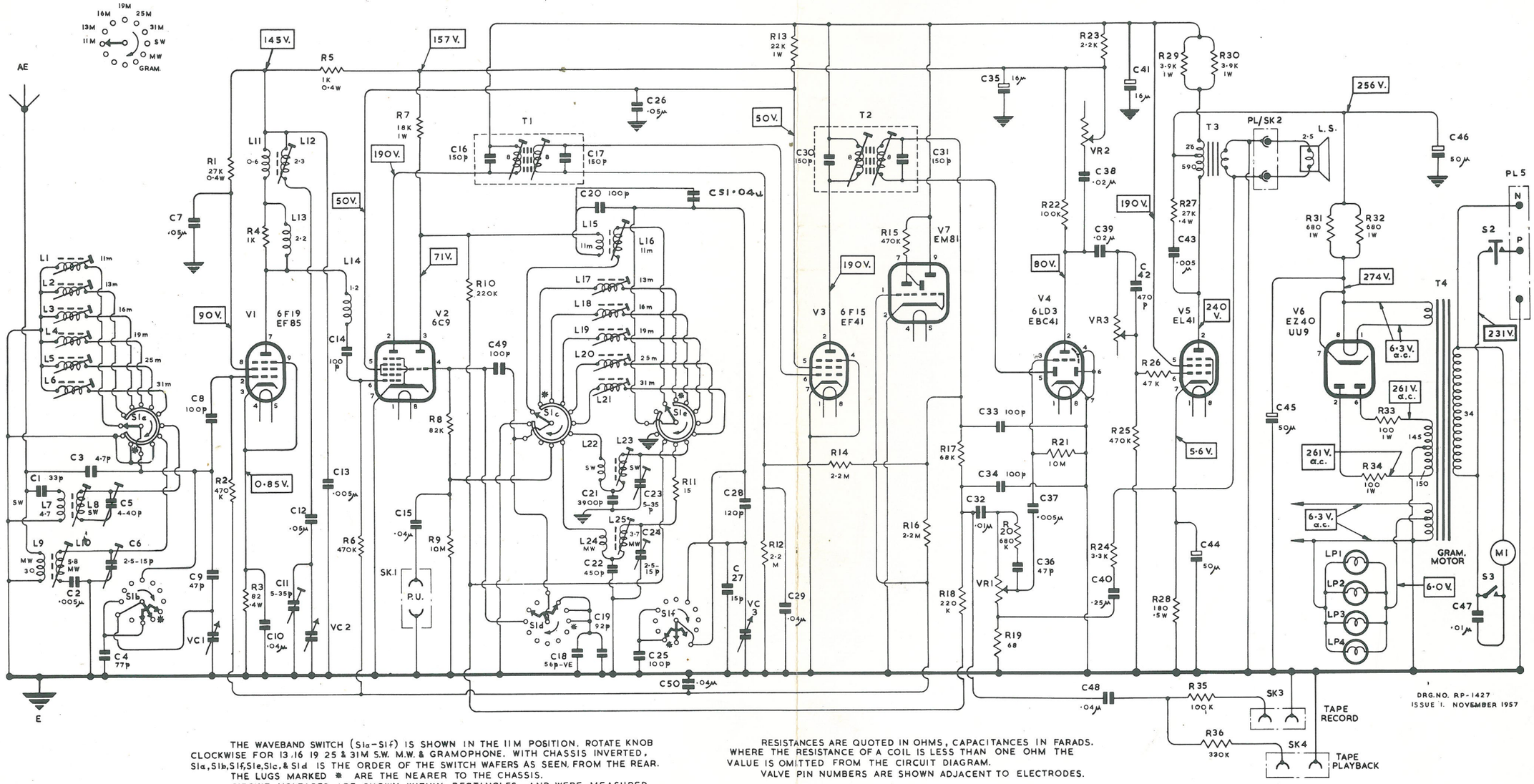
ARROWS SHOW DIRECTION OF TRAVEL OF POINTERS AND CORD WHEN THE TUNING SPINDLE IS ROTATED CLOCKWISE.

THE FULLY CLOCKWISE POSITION IS SHOWN, AS VIEWED FROM THE FRONT. IN THIS POSITION, POINTERS MUST REGISTER WITH RIGHT-HAND EDGES OF SCALE APERTURES, AND THE GANG CONDENSER IS FULLY CLOSED.



CORD DRIVE ARRANGEMENT - MODEL B301.

C	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 49 17 18 20 21 23 19 22 24 25 26 51 50 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 48 42 43 44 45 46 47	CAPACITORS
R	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 35 30 36 31 32 33 34	RESISTORS
MISC.	L1 2 3 4 5 6 S1a L9-10 L7-8 S1b VC1 L11 L12 V1 L13 VC2 L14 V2 SK1 T1 S1c S1d L15-16 L17 18 19 20 21 L22-23 L24-25 S1e S1f VC3 V3 T2 V7 VR1 V4 VR2 VR3 V5 T3 PL/SK2 SK3 SK4 L.S. V6 LP1 2 3 4 T4 M1 S2 S3 PL5	



THE WAVEBAND SWITCH (S1a–S1f) IS SHOWN IN THE 11M POSITION. ROTATE KNOB CLOCKWISE FOR 13.16 19 25 & 31M S.W. M.W. & GRAMOPHONE. WITH CHASSIS INVERTED, S1a, S1b, S1f, S1e, S1c, & S1d IS THE ORDER OF THE SWITCH WAFERS AS SEEN FROM THE REAR.

THE LUGS MARKED * ARE THE NEARER TO THE CHASSIS.

CIRCUIT VOLTAGES ARE SHOWN WITHIN RECTANGLES AND WERE MEASURED UNDER NO-SIGNAL CONDITIONS WITH THE RECEIVER SWITCHED TO THE M.W. BAND, AND USING A 20KΩ/V. METER.

RESISTANCES ARE QUOTED IN OHMS, CAPACITANCES IN FARADS. WHERE THE RESISTANCE OF A COIL IS LESS THAN ONE OHM THE VALUE IS OMITTED FROM THE CIRCUIT DIAGRAM.

VALVE PIN NUMBERS ARE SHOWN ADJACENT TO ELECTRODES.

DRG. NO. RP-1427
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RP-1427

CIRCUIT DIAGRAM MURPHY PANHARMONIC MODEL B301

REFER TO PARTS LIST FOR PART NUMBERS AND COMPLETE DESCRIPTIONS OF ELECTRICAL COMPONENTS. ORDER ALL REPLACEMENTS BY PART NUMBER AND LIST DESCRIPTION.