

*Gram*

# murphy service information

MURPHY 'MINSTREL' MODEL M401 - 'MELODEON 7' MODEL G402 - 'MELODIST 6' MODEL G403

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.	VALUE	TOLERANCE & REMARKS	CIRCUIT NO. USED ON:		
			M401	G402	G403
27461	1M ohm	.4W ± 20%	R1	R1	R1
27109	15K ohm	.4W ± 20%	R2	R2	R2
25445	22K ohm	.4W ± 10%	R3	R3	R3
24517	82 ohm	.4W ± 10%	R4	R4	R4
27237	68K ohm	.4W ± 20%	R5	R5	R5
24229	15 ohm	.4W ± 10%	R6	R6	R6
25439	18K ohm	1 W ± 10%	R7	R7	R7
25445	22K ohm	.4W ± 10%	R8	R8	R8
27461	1M ohm	.4W ± 20%	R9	R9	R9
27525	2.2M ohm	.4W ± 20%	R10	R10	R10
27493	1.5M ohm	.4W ± 20%	R11	R11	R11
27397	470K ohm	.4W ± 20%	R12	R12	R12
27333	220K ohm	.4W ± 20%		R13	R12
24485	68 ohm	.4W ± 10%	R13		
24613	150 ohm	.4W ± 10%		R14	R13
27237	68K ohm	.4W ± 20%	R14	R15	R14
25197	4.7K ohm	.5W ± 10%	R15	R16	R15
27333	220K ohm	.4W ± 20%	R16	R17	R16
27653	10M ohm	.4W ± 20%	R17	R18	R17
27397	470K ohm	.4W ± 20%		R19	R18
27333	220K ohm	.4W ± 20%		R20	R19
27397	470K ohm	.4W ± 20%	R18	R21	R20
27269	100K ohm	.4W ± 20%	R19	R22	R21
24653	180 ohm	.5W ± 10%	R20	R23	R22
25477	27K ohm	.4W ± 10%		R24	R23
25183	2 x 3.9K ohm	1 W ± 10%	R21	R25	R24
		Two wired in parallel. Part No. refers to 1 x 3.9K ohm only.			
25125	3.3K ohm	.4W ± 10%	R22	R26	R25

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PART NO.	VALUE	TOLERANCE & REMARKS	CIRCUIT NO. USED ON:		
			M401	G402	G403
52149	4.7 pf	± 20% 500V cer	C1	C1	C1
66177	470 pf	± 20% 750V cer - ve	C3	C3	C3
66177	470 pf	± 20% 750V cer - ve	C4	C4	C4
49454	.04 mfd	± 25% 150V m.tub	C5	C5	C5
52630	100 pf	± 5% 350V p.s.m.	C7	C7	C7
49454	.04 mfd	± 25% 150V m.tub	C8	C8	C8
28172	68 pf	± 5% 350V p.s.m.	C9	C9	C9
28288	520 pf	± 1% 350V p.s.m.		C10	C10
52630	100 pf	± 5% 350V p.s.m.	C10	C11	C11
28368	100 pf	± 10% 350V A.C. p.s.m.	C11	C12	C12
66162	27 pf	± 20% 750V cer - ve	C13	C14	C14
49454	.04 mfd	± 25% 150V m.tub	C14	C15	C15
52630	100 pf	± 5% 350V p.s.m.	C15	C16	C16
66169	100 pf	± 20% 750V cer - ve	C16	C17	C17
41412	.05 mfd	± 20% 500V tub	C17	C18	C18
28205	390 pf	± 5% 350V p.s.m.	C18	C19	C19
66169	100 pf	± 20% 750V cer - ve	C19	C20	C20
74816	40+40+20 mfd	+ 50% - 20% elect. 350V d.c.	( C20 ( C22 ( C27	C21 C24 C31	C21 C24 C31
49457	.002 mfd	± 25% 350V D.c. m.tub		C22	C22
49447	.01 mfd	± 25% 150V m.tub	C21	C23	C23
41412	.05 mfd	± 20% 500V tub	C23	C26	C26
66177	470 pf	± 20% 750V cer - ve		C25	C25
41411	.02 mfd	± 20% 500V tub		C27	C27
41424	.05 mfd	± 20% 750V tub	C24		
41418	.005 mfd	± 25% 1000V tub		C28	C28
56168	50 mfd	+ 100% - 20% 12V elect	C25	C29	C29
41405	.25 mfd	± 20% 350V tub	C26		
49441	.1 mfd	± 25% 150V m.tub		C30	C30
28288	520 pf	± 1% 350V p.s.m.	C28		
66165	47 pf	± 20% 750V cer - ve	C29	C32	C32
75670	( 528 pf	Ganged capacitor ae section	VC1	VC1	VC1
	( 528 pf	Ganged capacitor r.f. sect.	VC2	VC2	VC2
	( 528 pf	Ganged capacitor osc sect.	VC3	VC3	VC3
RP1551		2 position radiogram switch	S1	S1	S1
52832	1M ohm	Log Vol. control	VR1		VR1
52841	2M ohm	Rev. Log. Bass Control		VR3	VR3
75734	500K ohm	Log W/S Vol. Control		VR1	
75735	250K ohm	Log Treble Control		VR2	
52840	250K ohm	Log W/S Treble Control			VR2
52810	20K ohm	Log W/S Tone Control	VR2		
67694	( 14.5 ohm	Pri. 1st I.F.T.	T1	T1	T1
	( 14.5 ohm	Sec.			

PART NO.	DESCRIPTION	CIRCUIT TO BE USED ON:		
		M401	G402	G403
67695	( 14.5 ohm Pri.            2nd I.F.T. ( 5.5 ohm Sec.	T2	T2	T2
RW-1080	( 630 ohm Pri. (Total)        ) ( .8 ohm Sec.                    ) Output ( 26 ohm Pri. (Tap to Top)    ) Transformer	T3	T3	T3
RW1078	( 53 ohm Pri.                    ) ( 196-200 ohm H.T. Sec.        ) Mains ( .7 ohm 5V. Htr. Sec.         ) Transformer ( .2 ohm 6.3V. Htr. Sec.       )	T4	T4	T4
RW-1016	( 53 ohm Pri.                    ) ( 2.3 ohm Sec.                   ) Ae. Coil	( L1 ( L2	L1 L2	L1 L2
RW-1016	( 53 ohm Pri.                    ) ( 2.3 ohm Sec.                   ) R.F. Coil	( L3 ( L4	L3 L4	L3 L4
RW-1017	( .6 ohm Pri.                    ) ( 1.6 ohm Sec.                   ) Osc. Coil	( L5 ( L6	L5 L6	L5 L6
16882	Panel Lamp 6.5V. .3 amp M.E.S.	LP1, 2	LP 1, 2, 3	LP 1, 2
RP1134	Valve 6F15 or EF41	V1	V1	V1
RP1133	Valve 6C10 or ECH42	V2	V2	V2
RP1134	Valve 6F15 or EF41	V3	V3	V3
RP1142	Valve EM81 (DIRECT REPLACEMENT MUST BE ) (USED HERE UNLESS SOCKET CON- )	V4	V4	
RP1148	Valve EM85 (DITIONS ARE CHANGED. )	V4	V4	
RP1135	Valve 6 LD3 or EBC41	V5	V5	V4
RP1136	Valve EL41	V6	V6	V5
RP1138	Valve UU9 or EZ40	V7	V7	V6
74792	P.U. Socket 2 pin (Cinch 2624)	SK1	SK1	SK1
74794	L.S. Socket 4 pin (Cinch 75/444)	SK2	SK4	SK4
RP1226	Tape Playback 2 pin (Cinch 76/092)		SK2	SK2
RP1227	Tape Record 3 pin (Cinch 75/443)		SK3	SK3
74794	Extension SPKR 4 pin (Cinch 75/444)	SK3	SK5	SK5
74790	Plug - P.U. 2 pin (Cinch 2724)	PL/SK1	PL/SK1	PL/SK1
74793	Plug - L.S. 4 pin (Cinch 2745)	PL/SK2	PL/SK4	PL/SK4
RP1228	Plug - Tape Playback (Cinch 76/046)		PL/SK2	PL/SK2
RP1129	Plug - Tape Record (Cinch 2735)		PL/SK3	PL/SK3
74793	Plug - Ext. SPKR (Cinch 2745)	PL/SK3	PL/SK5	PL/SK5
RP1028	3 pin power plug	PL4	PL6	PL6
74791	Shell (for plugs PL/SK1, PL/SK4, PL/SK5)			
RP1230	Shell (for plug PL/SK3)			

PART NO.	DESCRIPTION	USED ON:		
		M401	G402	G403
RA1465	Speaker 8" Round J8D0/2820	*		
RM1012	Spindle Tuning	*	*	*
RP1678	Spring (Tuning Indicator)	*		
47478	Spring Dial	*	*	*
RM1054	Trim Dial		*	
RM1801	Trim Dial	*		
62710	Valve Socket B9A (Tuning Indicator)	*		
59142	Valve Socket B9A (Tuning Indicator with base)		*	
51451	Valve Socket B8A	*	*	*
34588	Washer Felt for small knobs	*	*	*
RP1084	Washer felt for large knobs		*	

'MURPHY' MODELS M401, G402, G403 SERVICE INFORMATION:

GENERAL REMARKS:

NOTES RE CHASSIS REMOVAL:

G402:

Remove control knobs at top and in front of the cabinet.

Remove two mounting screws from back lip of chassis.

Allow chassis to drop at the back end so that bottom-most part is two to three inches from the cabinet mounting board. This should allow the top controls to clear the panel and the chassis will then move easily backwards.

Replacement of the chassis is made by first entering the volume control shaft through the hole in the front of the cabinet, then allowing the top controls to enter their respective holes.

G403 and M401:

Remove control knobs in front of the cabinet.

Remove two mounting screws from back lip of chassis and slide the whole unit to the rear.

CIRCUIT ALIGNMENT for M401, G402, G403)

1. Receiver Output: Make all adjustments for greatest output with the volume bass and treble controls at the maximum

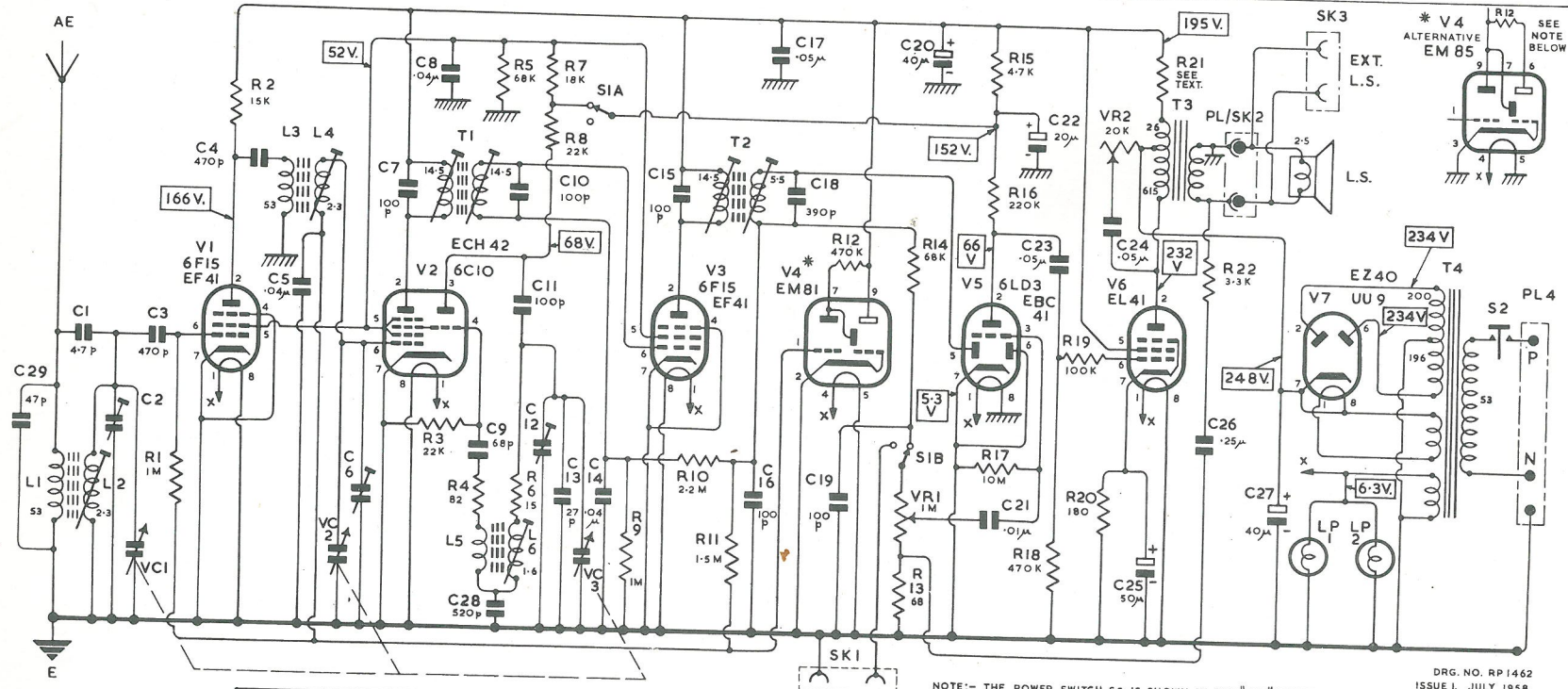
positions. Adjust the signal generator attenuator so that this output does not exceed 500 m.w. or approximately 1.2V across the loudspeaker voice coil.

2. Trimming Tool: A non-metallic tool must be used for adjusting the I.F.T. coils.
  
3. Tuning Pointer (Cursor) Setting: This must be correct before aligning the R.F. circuits, and is adjusted only with the ganged capacitor at maximum capacitance (not necessarily with fully closed plates). When the chassis is outside the cabinet, the left-hand edge of the cursor carrier must register with the extreme right-hand marker on the carrier rail. When the chassis is in the cabinet, the cursor itself must register with the back or right-hand edge of the dial scale calibration. If necessary, shift cursor carrier, or dial drum.
  
4. Alignment: This should be made according to the alignment table given.

'MURPHY' MODELS M401, G402, G403 ALIGNMENT TABLE

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	RECEIVER SETTING:	ADJUSTMENTS
2nd I.F.T.	Unscrew Sec. core (top of can) before starting adjustment.	470 Kc/s	Via .01 mfd. capacitor	V3 grid 1 (pin 6.)	Ganged capacitor fully meshed.	T2 (pri.) below chassis T2 (sec.) above chassis Do not readjust pri. core.
1st I.F.T.	as above	as above	as above	V2 grid 1 (pin 6.)	as above	T1 ) T1 ) as above
Medium Wave		1364 Kc/s	Dummy aerial	Aerial & Earth leads	Extreme left mark on carrier rail.	Osc. trimmer rear section of gang, RF trimmer middle section of gang, aerial trimmer front section of gang.
		600K Kc/s	as above	as above	3rd marker from left on carrier rail	Iron core on osc. coil (below). Iron core on R.F. coil (above). Iron core on aerial coil (above) Repeat this and previous adjustments if necessary.

C	29	1	2	3	4	5	6	7	8	9,28	10,11,12,13,14	15	16	17	18	19	20	21	22	23	24	25	26	27	CAPACITORS								
R		1	2					3	4	5	6,7,8	9	10	11		12	13,14	15,16,17	18	19	20	21	22			RESISTORS							
MISC.	L1	L2	VC1		VI	L3	L4	VC2		V2	TI	L5	L6	VC3	SIA	V3	T2	V4	SKI	SIB	VR1	V5	VR2	V6	T3	PL/SK2	SK3	V7	LPI	LP2	T4	S2	PL4



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

NOTE:- THE POWER SWITCH S2, IS SHOWN IN THE "OFF" POSITION. THE RADIO/GRAM. SWITCH S1A-S1B, IS SHOWN IN THE "RADIO" POSITION WITH ARROWS INDICATING CLOCKWISE ROTATION OF SWITCH SPINDLE. CIRCUIT VOLTAGES ARE SHOWN WITHIN RECTANGLES, AND WERE MEASURED UNDER NO-SIGNAL CONDITIONS WITH THE RECEIVER SWITCHED TO "RADIO" AND USING A 20KΩ/V METER. RESISTANCES ARE QUOTED IN OHMS, CAPACITANCES IN FARADS, WHERE THE RESISTANCE OF A WINDING IS LESS THAN ONE OHM THE VALUE IS OMITTED FROM THE CIRCUIT DIAGRAM. VALVE PIN NUMBERS ARE SHOWN ADJACENT TO ELECTRODES.

\* SPECIAL NOTE:- V4 MAY BE EITHER AN EM81 OR AN EM85 - IT MUST BE REPLACED WITH SAME VALVE TYPE UNLESS THE BASE IS REWIRED

RP 1462

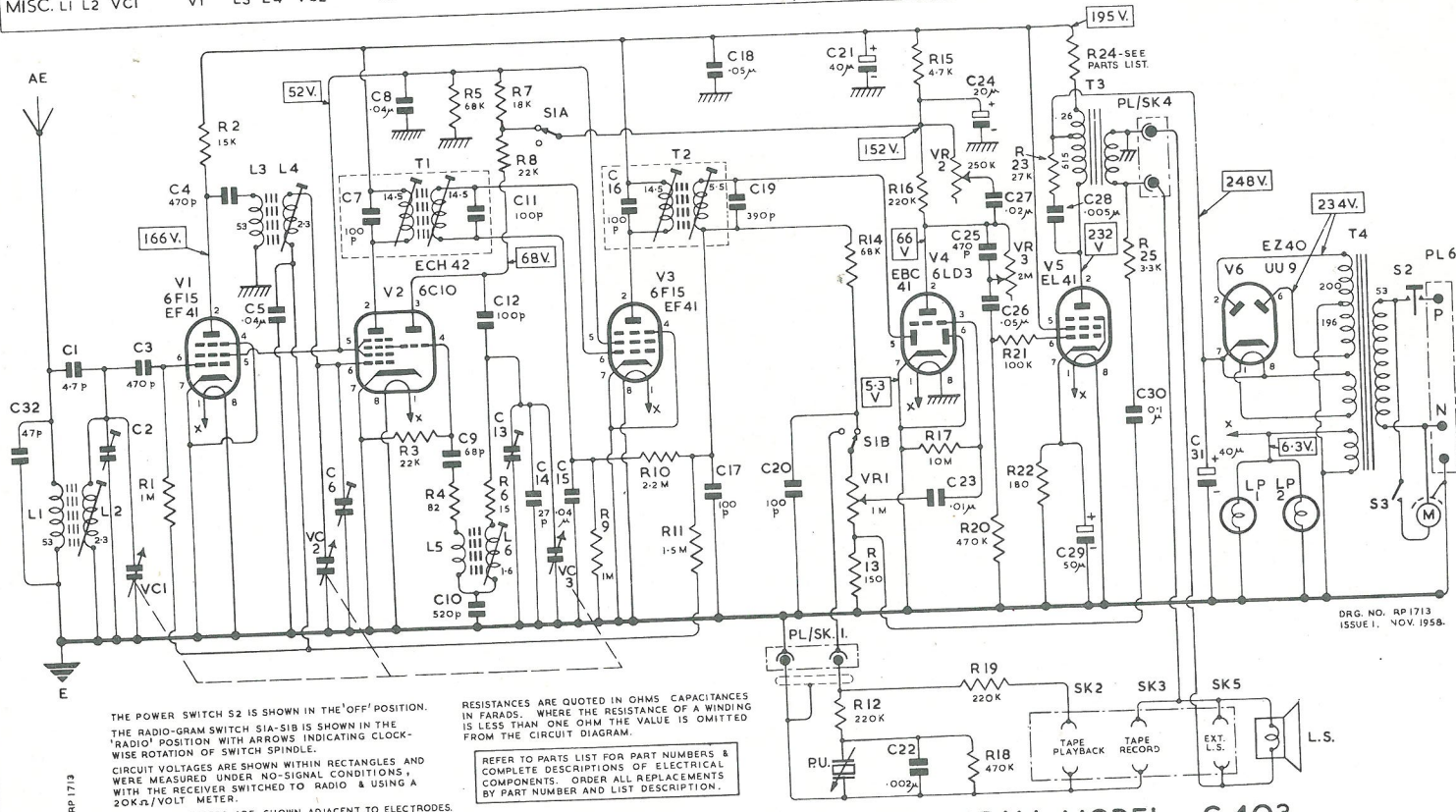
### CIRCUIT DIAGRAM MURPHY MINSTREL MODEL M401.

DRG. NO. RP1462  
ISSUE 1. JULY 1958.





C	32	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	30	31	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				RESISTORS						
MISC.	L1	L2	VC1		VI	L3	L4	VC2		V2	T1	L5	L6	VC3	SIA	V3	T2		SK1	SIB	VR1	V4	VR2	VR3	V5	T3	PL/SK4	L.S.	V6		
																			PL/SK1	PU.				SK2	SK3	SK5	LP1	LP2	T4	S2	PL6



THE POWER SWITCH S2 IS SHOWN IN THE 'OFF' POSITION.  
 THE RADIO-GRAM SWITCH S1A-S1B IS SHOWN IN THE  
 'RADIO' POSITION WITH ARROWS INDICATING CLOCK-  
 WISE ROTATION OF SWITCH SPINDLE.  
 CIRCUIT VOLTAGES ARE SHOWN WITHIN RECTANGLES AND  
 WERE MEASURED UNDER NO-SIGNAL CONDITIONS,  
 WITH THE RECEIVER SWITCHED TO RADIO & USING A  
 20K/Ω/VOLT METER.  
 VALVE PIN NUMBERS ARE SHOWN ADJACENT TO ELECTRODES.

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

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

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CIRCUIT DIAGRAM • MURPHY MELODIST - DE LUXE RADIOGRAM MODEL G 403.

RP1713  
 MISC  
 R25