

E R T SERVICE CHART 1691 MURPHY B841

BATTERY portable receiver with long, medium and VHF wavebands and MW bandspread.

Batteries. Two Ever Ready PP9 or equivalent, giving 18V.

Consumption. AM bands 19mA, FM band 21mA.

Transistors. TR1 FM RF amplifier AF178; TR2 FM mixer AF115; TR3 AM oscillator AF117; TR4 AM mixer/FM IF amplifier AF116; TR5 IF amplifier AF116; TR6 IF amplifier AF116; TR7 AF amplifier AC127; TR8 driver AC128/OC81; TR9 output AC127; TR10 output AC128/OC81.

Diodes. D1, D2 FM detector OA79; D3 AM detector OA90.

Thermistor. R46 VA1040 stabilising.

Wavebands. LW 1070-1900m (280-158 kc/s); MW 185-570m (1625-525kc/s); MW BS 185-210m (1625-1425kc/s); FM 87.5-100mc/s.

IFs. AM 470kc/s; FM 10.7mc/s.
Aerials. Ferrite rod for AM, telescopic for FM, socket for car aerial.

Outlets. Socket for earpiece of 500ohms, external speaker of 25ohms or for tape recording. Mutes internal speaker.

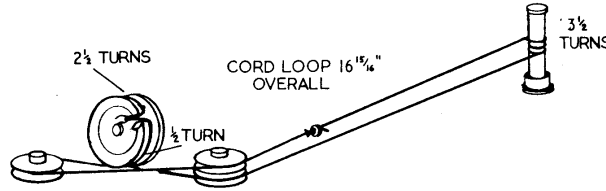
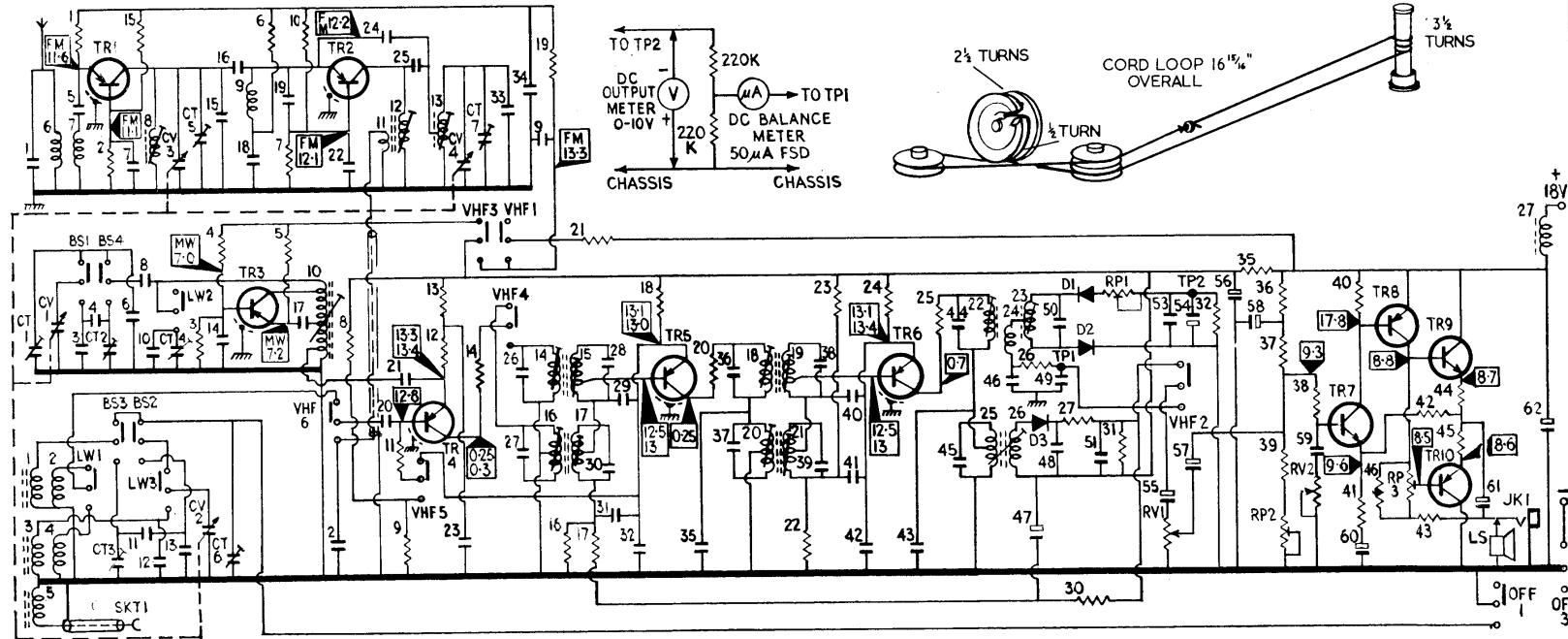
Speaker. 8×5in. elliptical, 25ohms impedance.

Manufacturer. Rank Bush Murphy Ltd.
Service Department. Drayton Road, Boreham Wood, Hertfordshire. Tel.: 01-953 6151. Telex: 262741. Cables: Rankbom Boreham Wood.

CAPACITORS				VARIABLE CAPACITORS							
C1	18pF	B3	C22	20KpF	B2	C42	20KpF	B1	CV1	392pF	A/B2
C2	100pF	B1	C23	10KpF	B2	C44	300pF	B1	CV2	392pF	A/B2
C3	47pF	B2	C24	3.9pF	A3	C45	200pF	B1	CV3	11pF	A/B2
C4	47pF	B2	C25	68pF	A3	C46	330pF	A1	CV4	11pF	A/B2
C5	47pF	A3	C26	180pF	B2	C47	10mF	B2	CT1	2-25pF	B2
C6	10pF	B2	C27	200pF	A2	C48	10KpF	B1	CT2	1-8pF	B2
C7	1KpF	A3	C28	180pF	B2	C49	22KpF	B1	CT3	1-8pF	B2
C8	430pF	B2	C29	4K7pF	A2	C50	50pF	B1	CT4	2-25pF	B2
C9	20KpF	B1	C30	200pF	A2	C51	4K7pF	B1	CT5	1-8pF	B2
C10	340pF	B2	C31	50KpF*	A2	C53	1KpF	B1	CT6	2-25pF	B2
C11	43pF	B2	C32	20KpF	B2	C54	1mF	A1	CT7	1-8pF	B3
C12	135pF	B2	C33	12pF	A3	C55	10mF	A2	RESISTORS		
C13	47pF	B2	C34	50KpF*	A3	C56	250mF	B1	R1	1K5	B3
C14	10KpF	B2	C35	100pF	A2	C57	10mF	A/B1	R2	47K	B3
C15	15pF	A3	C36	180pF	B1	C58	100mF	B1	R3	10K	B2
C16	47pF	A3	C37	200pF	A1	C59	47KpF	A1	R4	10K	B2
C17	15KpF	B2	C38	180pF	B2	C60	300mF	B1	R5	8K2	B2
C18	220pF	C18	C39	200pF	A1	C61	300mF	B1	R6	680	B3
C19	15pF	B2	C40	4K7pF	A1	C62	250mF	B1	R7	22K	A3
C20	10KpF	B2	C41	50KpF*	A1				R8	5K6	B1

* 47KpF on some models

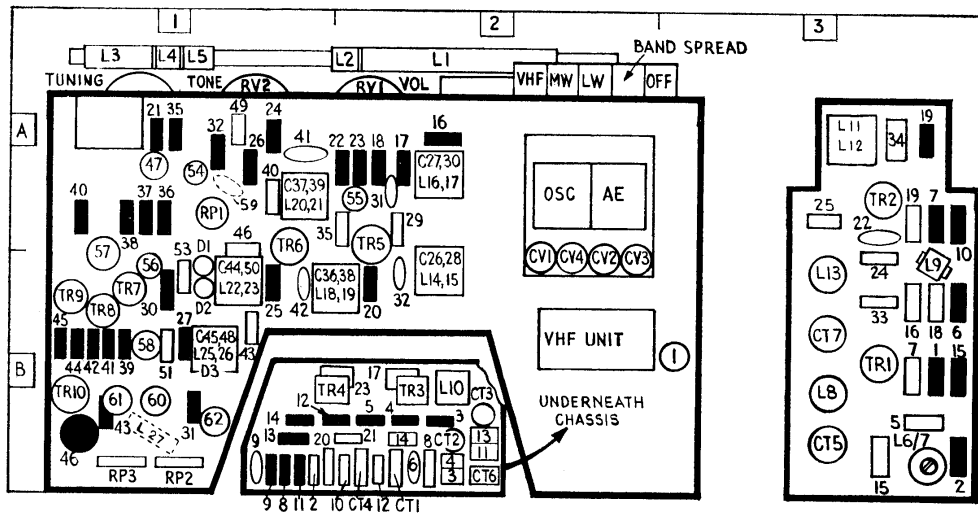
R	1	2	15	3	4	6	7	10	11	13	14	19	21	18	23	24	25	26	27	30	31	RV1	32	35	36	RV2	38	40	46	42	44																												
C	CV1	4	5	CT2	7	8	10	CV3	13	CT5	15	16	19	2	24	25	CV4	CT7	33	34	9	28	29	36	38	40	44	50	51	53	55	54	57	56	58	59	60	61	62																				
L	1	2	3	6	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62



R10	2K7	A3
R11	5K6	B1
R12	330	B2
R13	330	B1
R14	220	B1
R15	10K	B3
R16	120K	A2
R17	5K6	A2
R18	1K	A2
R19	220	A3
R20	220	B2
R21	1K	A1
R22	56K	A2
R23	5K6	A2
R24	330	A1
R25	220	B1
R26	3K9	A1
R27	680	A1
R30	5K6	B1
R31	5K6	B1
R32	15K	A1
R35	560	A1
R36	6K8	A1
R37	22K	A1
R38	2K2	A1
R39	27K	B1
R40	390	A1
R41	10	B1
R42	2K2	B1
R43	1K5	B1
R44	2.2	B1
R45	2.2	B1
R46	Thermistor	B1

VARIABLE RESISTORS
 RV1 25K A2
 RV2 2K A1
 RP1 2K2 A1
 RP 10K B1
 RP3 200 B1

Circuit for model B841 which is electrically similar to later production models of B831 receivers, differing only in presentation. Voltages shown are positive with respect to chassis, measured with AVO 8 under no signal conditions. Where two figures shown, upper one MW, lower VHF



SERVICE NOTES

Alternative transistors. Early versions of electrically similar B831 used OCS1 transistors for TR8 and TR10, AC128 transistors are currently used.

Preset adjustments. If output transistors are replaced, RP2 and RP3 may need resetting. Set slider of RP2 to mid-position and RP3 to minimum. Depress MW button and set volume control to minimum. Check battery voltage is 1.8V. Check consumption is about 13mA and increase by 4mA, adjusting RP3. Quiescent current should be 14-18mA. On FM band 18-22mA. Adjust RP2 to get 8.7V at junction of R44, R45 and C61.

ALIGNMENT

Equipment required. AM signal generator covering 158-1625kc/s, 10.7mc/s, and 87.5-100mc/s, with modulated signals as required; power output meter, 0-1W, 25ohm impedance; AVO 8 or DC valve voltmeter (0-2.5V) and microammeter (5-5 microamps); matched pair of 220K, 1/2W resistors; IF damper (470ohm resistor in series with 1KpF capacitor); trimming tools.

AM IF. Tune receiver to about 1000kc/s, MW. Turn volume to maximum and tone to maximum treble response. Inject 470kc/s signal. 30 per cent modulated at 400c/s. via 10KpF capacitor to centre tag of aerial coil L2, and chassis.

Align in turn IFT7, IFT5 top core, IFT5 bottom core, IFT3 top core and IFT3 bottom core to get maximum output. Input level should be adjusted to keep output below 50mW. Align each IFT once only selecting in each case the outer alignment peak.

FM IF. Connect DC output and balance meters and two 220K resistors into circuit as shown inset on circuit diagram. Set slider of balance control RP1 to point towards corner of IFT6. Tune to about 92mc/s, VHF band. Set volume to zero and maintain input level to give output of 0.5-1V DC on meter.

Set generator to 10.7mc/s modulated 30 per cent at 400c/s. Inject signal top end of CV3 and chassis. Adjust bottom core of IFT6 for maximum reading on DC output meter and adjust top core of IFT6 for zero reading on balance meter. Connect IF damper unit between chassis and pin 4 of IFT4 and adjust top core of IFT4 for maximum output.

Transfer damping to pin 1 of IFT4 and adjust bottom core of IFT4 for maximum output. Connect damping between chassis and pin 4 of IFT2 and adjust top core of

IFT2 to get maximum output. Transfer damping to pin 1 of IFT2 and adjust bottom core of IFT2 for maximum output. Remove damping and inject IF signal to top end of C1/L6 and adjust core of IFT1 to get maximum output. Adjust signal generator to give 1V on DC output meter. Set volume control to produce 50mW on power output meter. Adjust preset control RP1 for minimum audio output. Re-adjust bottom core of IFT6 for maximum on DC output meter; re-adjust top core for zero reading on DC balance meter. Repeat adjustments of RP1 and IFT6 until no further adjustment is needed.

AM RF. Inject signals to ferrite rod aerial via coupling loop about three feet from receiver. Fully mesh tuning capacitor and check that tuning pointer shows half its width at low frequency edge of scale. Tune set to 500m MW calibration marks. Inject 600kc/s modulated signal and adjust in turn L10 core and position of L1/L2 on ferrite rod to get maximum output.

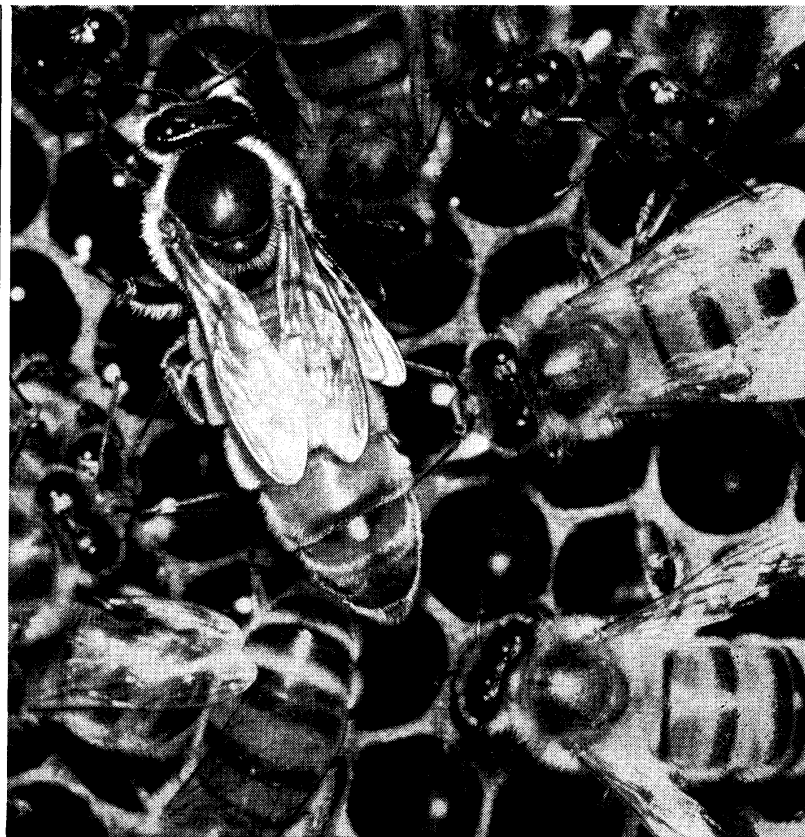
Tune set to 208 calibration mark and inject 1439kc/s signal. Adjust CT1 for maximum output. Tune signal generator to 1364kc/s and receiver to 208m. Adjust CT6 for maximum output. Repeat adjustments at 600, 1439 and 1364kc/s until tracking and calibration are correct.

Switch receiver to LW and tune to 1400m. Inject 214kc/s signal and adjust CT4 and position of L3/4/5 on ferrite rod to maximise output. Repeat these adjustments until no further improvement results. Select MW BS, set tuning pointer to centre of word Luxembourg and inject 1439kc/s signal. Adjust CT2 for maximum output. Tune set to 200m and inject 1500kc/s signal. Adjust CT3 for maximum output.

FM RF. Check screening cover to VHF unit is secure. Switch to VHF and inject signal between top end of C1/L6 and chassis. Connect DC output and balance meters as for FM IF alignment.

Tune set to 94mc/s and inject unmodulated 94mc/s signal. Adjust CT7 and CT5 for maximum output. Cores of L8 and L13 should not require adjustment unless disturbed, but may be reset as follows.

Tune set and generator to 87.5mc/s and adjust L13 for maximum DC output. Tune set and generator to 100mc/s and adjust CT7 for maximum DC output. Retune set and generator to 87.5mc/s and adjust L8 for maximum DC output. Tune set and generator to 100mc/s and adjust CT5 for maximum DC output. Repeat these adjustments to get optimum results. Check calibration at 94mc/s and adjust CT7 and CT5 if needed.



To keep her workers constantly busy, a Queen Bee lays five eggs per minute, three hundred per hour, one thousand eight hundred per day, month in and month out, until she finally collapses with exhaustion.

To keep our customers' workers busy we pack over six parcels per minute, some four hundred parcels per hour, over three thousand parcels per day, month in and month out, and we never collapse with exhaustion. Which comparison is a little unfair on the bee.



Radiospares

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