

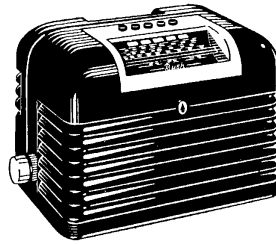
BUSH RADIO

Service Instructions

MODEL DAC.10

for

A.C. or D.C. Supply



Front View of DAC.10

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SPECIFICATION.

BASIC CIRCUIT.

A five valve (including rectifier) Long and Medium Wave Range A.C./D.C. superheterodyne receiver with six tuned circuits.

Five push buttons are provided, two being used for Long and Medium Wave Range switching on "manual" tuning while the remaining three are pre-tuned station selectors.

Internal frame aerials are incorporated for both Medium and Long Wave Ranges and iron dust cored coils are used in the "oscillator" and "intermediate" frequency circuits.

VALVES.

Mullard	UCH.42	14.0 V.	Heater,	Frequency Changer.
"	UF.41	12.6 V.	"	I.F. Amplifier.
"	UBC.41	12.6 V.	"	Detector, A.V.C. Rectifier and A.F. Amplifier.
"	UL.41	45.0 V.	"	" Output " Pentode.
"	UY.41	31.0 V.	"	Supply Rectifier.
Heater Current 0.1 A.				
All valves have British B.8A bases.				

VOLTAGE RANGE.

210-250 V. A.C.
200-250 V. D.C.

MAINS CONSUMPTION.

35 watts approximately.

AUDIO OUTPUT.

2 watts approximately.

WAVE RANGES.

Long ... 845-2070 metres (355-145 Kc/s.).
Medium ... 191- 560 " (1570-535 Kc/s.).

INTERMEDIATE FREQUENCY.

465 Kc/s.

CABINET DIMENSIONS.

Width 14½ ins. Height 9½ ins. Depth 8¼ ins.

WEIGHT.

12 lbs.

SCALE LAMPS.

The tuning scale is illuminated by two pilot lamps, each having a rating of 3.5 V., 0.15 Amps.

CONTROLS. (Front view of receiver.)

On/Off Switch & Volume ... Left-hand side control.
Tuning Right-hand side control.

Push Buttons—These are numbered 1-5 from left to right (front view), the wave range coverage being :—

Push Button No. 1—Any pre-selected station within wave range 325-550 metres (922-545 Kc/s.)
" " No. 2—Ditto 250-400 metres (1200-750 Kc/s.)
" " No. 3—Ditto 200-350 metres (1500-855 Kc/s.)
" " No. 4—Long wave range " Manual " tuning, 845-2070 metres (355-145 Kc/s.)
" " No. 5—Medium wave range " Manual " tuning, 191-560 metres (1570-535 Kc/s.)

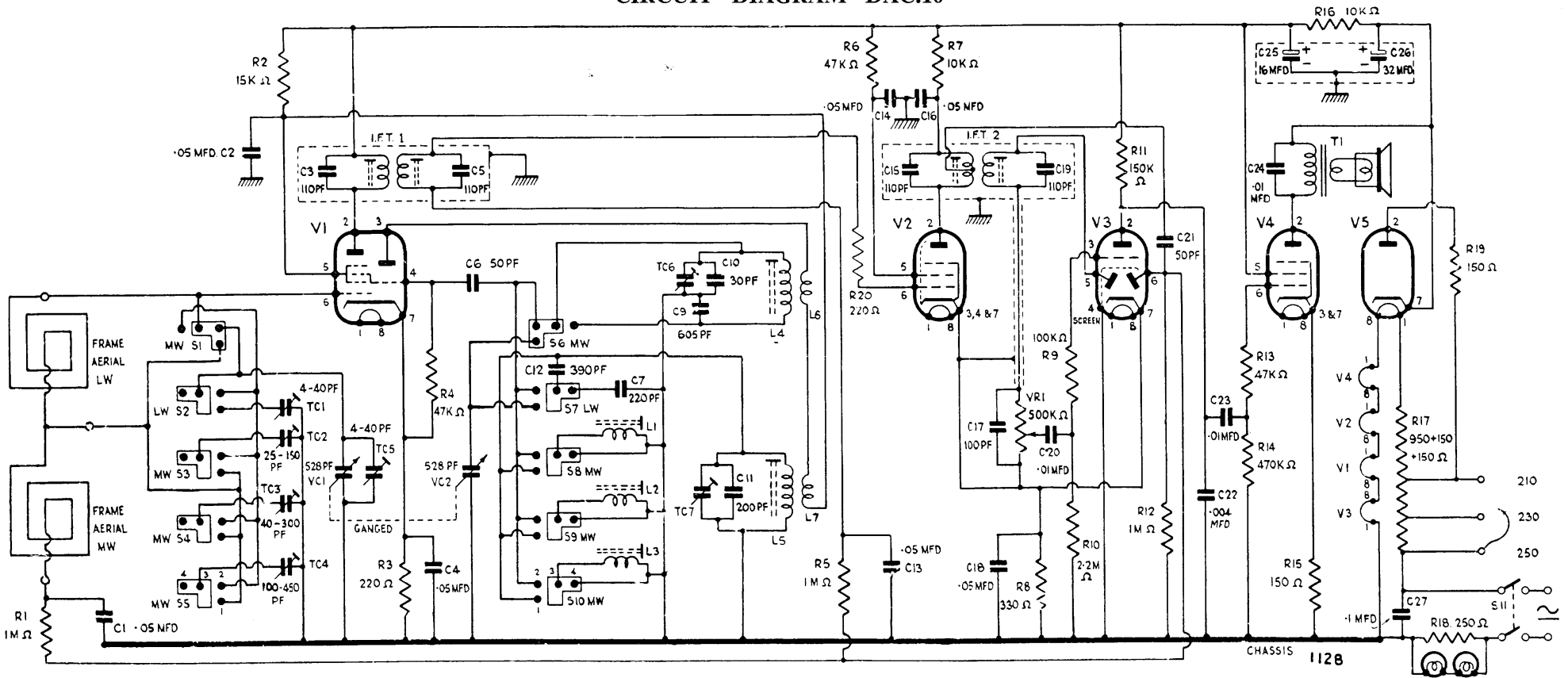
AERIAL AND EARTH.

Internal frame aerials are incorporated in the receiver for both Medium and Long Wave Ranges.

No direct earth connection must be made to any part of the receiver.

CIRCUIT DIAGRAM DAC.10

DAC10

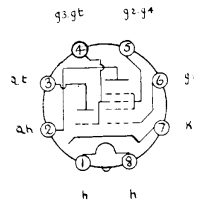


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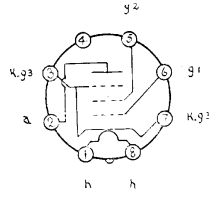
VALVE BASE CONNECTIONS

The pin connections are shown as they would appear when the base or its holder is viewed from the underside of the chassis.

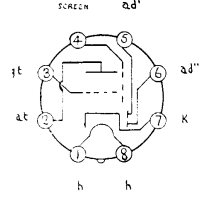
NOTE. C27 is now on switch side of R18.



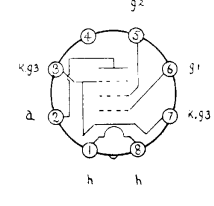
V1
UCH 42



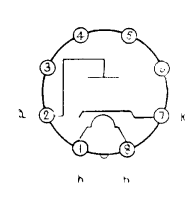
V2
UF 41



V3
UBC 41



V4
UL 41



V5
UY 41

CAPACITORS.

Ref.	Value		Type	D.C. Working Volts.	Tolerance \pm %	Part No.	Description.
	mfd.	mmfd.					
C 1	.05	—	Paper tubular	350	20	P 3770 P12363	V1 A.V.C. decoupling.
C 2	.05	—	" "	350	20	P 3770 P12363	V1 screen and oscillator anode decoupling.
C 3	—	110	Silvered mica	350	2	AP16304	1st I.F.T. primary capacitor.
C 4	.05	—	Paper tubular	350	20	P 3770 P12363	V1 cathode decoupling.
C 5	—	110	Silvered mica	350	2	AP16304	1st I.F.T. secondary capacitor.
C 6	—	50	" "	350	10	AP15066	V1 oscillator grid capacitor.
C 7	—	220	" "	350	1	AP16889	Parallel padding capacitor for P.B. master osc.
C 9	—	605	" "	350	1	AP15736	M.W. oscillator padding capacitor.
C10 *	—	30	" "	350	5	AP16505	M.W. oscillator tuning capacitor.
C11	—	200	" "	350	1	AP15069	L.W. oscillator tuning capacitor (fixed).
C12	—	390	" "	350	1	AP15735	L.W. oscillator padding capacitor.
C13	.05	—	Paper tubular	350	20	P 3770 P12363	V2 A.V.C. decoupling.
C14	.05	—	" "	350	20	P 3770 P12363	V2 screen decoupling.
C15	—	110	Silvered mica	350	2	AP16304	2nd I.F.T. primary capacitor.
C16	.05	—	Paper tubular	350	20	P 3770 P12363	V2 anode decoupling.
C17	—	100	Mica	350	20	P 3775	I.F. filter.
C18	.05	—	Paper tubular	350	20	P 3770 P12363	V2, V3 cathode bias.
C19	—	110	Silvered mica	350	2	AP16304	2nd I.F.T. secondary capacitor.
C20	.01	—	Paper tubular	350	25	P 3769 P12726	V3 grid coupling capacitor.
C21	—	50	Moulded mica	350	20	P 3774	Coupling to A.V.C. diode.
C22 *	.004	—	Paper tubular	350	25	AP17412	Tone correction.
C23	.01	—	" "	350	25	P 3769 P12726	A.F. coupling to V4
C24	.01	—	" "	350	25	P 3769 P12726	Tone correction.
C25	16	—	Electrolytic	275	—	AP16476	H.T. line smoothing.
C26	32	—	" "	275	—		H.T. line reservoir.
C27	.1	—	Paper tubular	500	20	P 8998 P12988	Mains R.F. by-pass.

* On later receivers :—C22 is .003 mfd. \pm 25%, Part No. P3731.
C10 is 33 mmfd. \pm 2%, Part No. AP17919.

RESISTORS.

Ref.	Value in Ohms.	Rating in Watts.	Part No.	Description.
R 1	1 meg.	1/4	P 7115	V1 A.V.C. decoupling resistor.
R 2	15,000	1/2	P 6652	Screen and oscillator anode decoupling V1.
R 3	220	1/4	P 6191	V1 cathode bias resistor.
R 4	47,000	1/4	P 6779	V1 oscillator grid cathode return.
R 5	1 meg.	1/4	P 7115	V2 grid A.V.C. decoupling.
R 6	47,000	1/4	P 6779	V2 screen feed and decoupling
R 7	10,000	1/4	P 6611	V2 anode decoupling.
R 8	330	1/4	P 6239	V2, V3 cathode bias resistor.
R 9	100,000	1/4	P 6863	V3 grid stabiliser.
R10	2.2 meg.	1/4	P 7199	V3 grid earth return.
R11	150,000	1/4	P 6905	V3 anode load.
R12	1 meg.	1/4	P 7115	V3 A.V.C. diode load.
R13	47,000	1/4	P 6779	V4 grid stabiliser.
R14	470,000	1/4	P 7031	V4 grid earth return.
R15	150	1/4	P 6155	V4 cathode bias resistor.
R16	10,000	2	P 6608	H.T. line smoothing.
R17	950 + 150 + 150	15	AP16474	Heater circuit ballast.
R18	250	7	AP16632	Pilot lamp shunt.
R19	150	1	P 6147	V5 surge current limiter.
R20	220	1/4	P 6191	V2 grid stabiliser.

The tolerance on all resistors is \pm 20% with the following exceptions—R15 \pm 10%, R17 \pm 7½% and R18 \pm 5%.
It may be found that the colour coding of some resistors does not correspond with the value shown in the above table.
The measured value of the component fitted, however, will come within the tolerance of the specified resistance.

VARIABLE RESISTOR.

Ref.	Value in Ohms.	Part No.	Description.
VR1	500,000	CP16613	Volume control with S11 ganged.

COILS.

Ref.	D.C. Resistance in Ohms.	Part No.	Description.
L1	2.0	S10010	M.W. Oscillator tuning (P.B No. 3, 200-350 metres)
L2	2.0	AS16871	M.W. Oscillator tuning (P.B. No.2, 250-400 metres)
L3	2.3	S10011	M.W. Oscillator tuning (P.B No. 1, 325-550 metres)
L4	3.0	BS15898	{ M.W. Oscillator tuning. M.W. Oscillator coupling.
L6	0.5		
L5	4.0	BS15899	{ L.W. Oscillator tuning. L.W. Oscillator coupling.
L7	1.0		
—	3.0	BS17006	{ M.W. Frame Aerial L.W. Frame Aerial
—	4.25		
—	12.5	ES16447	{ 1st I.F.T. Pri. 1st I.F.T. Sec.
—	12.5		
—	12.5	ES16448	{ 2nd I.F.T. Pri. 2nd I.F.T. Sec.
—	12.5		

VARIABLE CAPACITORS.

Ref.	Value mmfd.	Type	Part No.	Description.
TC1	4-40	Compression trimmers.	P12466	L.W. Aerial trimming capacitor P.B. No.4.
TC2	25-150		M.W. Aerial trimming capacitor P.B. No. 3.	
TC3	40-300		AP16885	M.W. Aerial trimming capacitor P.B. No. 2.
TC4	100-450		M.W. Aerial trimming capacitor P.B. No. 1.	
TC5	4-40		P12466	M.W. Aerial trimming capacitor P.B. No. 5.
TC6	—	Barrel trimmer	Special Assembly.	M.W. Oscillator trimming capacitor.
TC7	—			L.W. Oscillator trimming capacitor.
VC1	528	2 Gang.	P12422	Aerial tuning capacitor.
VC2				Oscillator tuning capacitor.

VALVE DATA.

Input 230 volts A.C. 50 cycles.

Receiver set to medium wave range with no signal.

All measurements taken on an Avometer, Model 7, with chassis negative: 1,000 volt range for H.T. and 10 volt (or appropriate) range for cathode measurements.

Valve.	Electrode.	Pin No.	Voltage.	Current.
V1 UCH42	Hexode Anode	2	98	1.5
	Oscillator Anode	3	47	0.5
	Screens	5	47	
	Cathode	7		
V2 UF41	Anode	2	74	2.5
	Screen	5	57	0.8
	Cathode	3, 4 & 7	0.8	
V3 UBC41	Triode Anode	2	74	0.2
	Cathode	7	1.3	
V4 UL41	Anode	2	190	27.5
	Screen	5	98	4.0
	Cathode	3 & 7	5	
V5 UY41	Anode	2	220 A.C.	
	Cathode	7	205	

DISMANTLING.

Remove the cabinet back by unscrewing its four retaining screws.

Unscrew the two chassis holding screws which are located at the bottom and on either side of the chassis (Back View).

Withdraw the chassis sufficiently to enable the two leads to the primary of the output transformer to be disconnected.

Withdraw chassis from cabinet.

CIRCUIT ALIGNMENT.

The use of a reputable signal generator with a variable and modulated output is essential for the accurate alignment of R.F. and I.F. circuits.

A single turn loop of wire approximately 10 by 8 ins. placed 12 to 18 ins. (according to the output of the signal generator) away from and parallel to the frame aerial should be used when aligning the aerial and oscillator circuits. The signal is fed into the single turn loop from the signal generator. A sensitive output meter should be used as a visual indicator.

To obtain accurate adjustment of the tuned circuits, use the lowest possible input to the receiver from the signal generator with the volume control of the receiver at maximum.

Check the position of the pointer in relation to the tuning condenser. With the plates fully meshed, the centre of the pointer should coincide with the datum line printed on the main and auxiliary calibration scales.

INTERMEDIATE FREQUENCY CIRCUITS 455 Kc/s.

Set the receiver to the medium wave range, with the tuning control at approximately 300 metres (1000 Kc/s) and away from powerful stations.

Sub-harmonics of the I.F. should be avoided. Unscrew all cores fully out.

Set the signal generator to 465 Kc/s. and connect it to V2 control grid (pin 6). Adjust the Sec. and Pri. of the 2nd I.F.T. in that order for maximum output.

Transfer the signal to V1 control grid (pin 6) and adjust the Sec. and Pri. of the 1st I.F.T. in that order for maximum output.

Each I.F.T. core should be adjusted once only.

MANUAL TUNING.

If all wave ranges require adjusting, they should be aligned in the following order.

OSCILLATOR AND SIGNAL FREQUENCY CIRCUITS.

Medium Wave Range.—1570 Kc/s–535 Kc/s (191–560 metres).

1. Set the signal generator and receiver to 600 Kc/s. (500 metres) and connect output of signal generator to the "single turn loop".

2. Adjust the core of L4/L6 (Oscillator coil) for maximum output.

3. Change the signal generator and receiver tuning to 1500 Kc/s. (200 metres) and adjust TC1 (oscillator coil) for maximum output.

4. Peak TC5 trimmer (aerial tuning) for maximum output.

5. Check calibration at 600 Kc/s. (500 metres) and repeat alignment procedure if necessary.

Long Wave Range.—355 Kc/s–155 Kc/s (845–2070 metres).

1. Set the signal generator and receiver to 150 Kc/s. (1,800 metres) and connect output of the signal generator to the "single turn loop."

2. Adjust the core of L5/L7 (oscillator coil) for maximum output.

3. Change the signal generator and receiver tuning to 300 Kc/s. (1,000 metres) and adjust TC7 (oscillator coil) for maximum output.

4. Peak TC1 (aerial tuning) for maximum output.

5. Check calibration at 150 Kc/s. (1,800 metres) and repeat alignment procedure if necessary.

PRE-SELECTED STATION ALIGNMENT.

Push Button Ranges:—

Left to right (front view).

No. 1 ... 925–545 Kc/s. (325–550 metres).

No. 2 ... 1,200–750 Kc/s. (250–400 metres).

No. 3 ... 1,500–855 Kc/s. (200–350 metres).

1. Connect signal generator to the "single turn loop".

2. Set signal generator to the frequency of the station required and press the corresponding push button.

NOTE.

The push button adjustments are located underneath the receiver in identical order to the buttons themselves.

They consist of one "projecting" (oscillator) and one "recessed" (aerial) screw for each button. (See Plate (1).)

3. Turn the corresponding "projecting" screw, until the groove around its head, is in approximate alignment with the wavelength required, as indicated on the metal scale adjacent to the screw; adjust for maximum output.

4. Peak the appropriate "recessed" screw for maximum output.

NOTE.

Unless the aerial circuit trimmer is tuned approximately to the desired frequency, it may not be possible to obtain the correct tuning with the oscillator circuit, as far as possible both the trimmer and core adjustment should be aligned together.

IMPORTANT.

Adjustment of the L.W. oscillator L5/L7 and TC7 will effect the tuning of the pre-selected stations.

After L.W. manual circuit adjustment, recheck L1, L2, and L3.

Adjustment of M.W. manual aerial trimmer TC5 will necessitate a re-adjustment of the M.W. pre-selected station trimmers TC2, TC3 and TC4.

The L.W. oscillator core and trimmer are painted red.

SERVICE NOTES.

Before commencing to locate a fault in the receiver it is important to ensure that all valves are up to standard and making good contact in their holders.

Valve heaters should be checked for continuity since failure in one valve will "open circuit" the entire heater chain.

Voltages on all valves should be checked with the valve data supplied.

A.F. SECTION.

If these preliminary tests give satisfactory results, apply an A.F. signal to the control grid of V3 (pin 3) in order to check the stage gain of V3 and V4.

If there is little or no output, check all components from the anode resistor of V3 to the output stage of V4, including the cathode circuits of both valves.

I.F. SECTION.

To check the I.F. Section of the receiver, inject a 465 Kc/s signal (mod.) into the control grid of V2 (pin 6). If the receiver output is low, check the 2nd I.F. transformer, the decoupling components and the detector and input circuits of V3.

Check the 1st I.F. transformer and the Hexode section of V1 by transferring the 465 Kc/s. signal to the control grid of V1 (pin 6). If a low figure is obtained, the following components should be checked:— 1st I.F. transformer, screen resistance and de-coupling condenser, cathode resistor, input of V2.

The above check is with the "local oscillator" working.

R.F. SECTION.

Apply an R.F. modulated signal within the limits of the particular wave range, to the control grid of V1 (pin 6). If the signal can be tuned, the local oscillator circuits are functioning and the input circuits of V1 should be checked. No signal would seem to indicate a fault in the oscillator circuits.

A check may be made by injecting into the oscillator grid of V1 (pin 4) an unmodulated signal which is 465 Kc/s. higher in frequency than a station known to be transmitting. Normal tuning should now be possible.

Transfer the R.F. modulated signal to the single turn loop as described in "Alignment Procedure" in order to check the frame aerial circuits.

PRE-SELECTOR PUSH BUTTONS, 1, 2 & 3.

Before commencing to locate a fault in the pre-selector Push Button stages, it is important to check that the manual tuning of the Long Waverange is correct as the L.W. local oscillator is used as a "master oscillator" for all the pre-selected Push Button stages.

COMPONENTS AFFECTING CALIBRATION.

M.W.	...	C9, C10, TC6, L4/L6.
L.W.	...	C12, C11, TC7, L5/L7.
Press Button 1	...	L1, L5/L7, C7, C12, C11, TC7.
" "	2	L2, L5/L7, C7, C12, C11, TC7.
" "	3	L3, L5/L7, C7, C12, C11, TC7.

A.V.C. LINE COMPONENTS.

R1, R5, R12, C1, C13, C21.

DECOUPLING AND BIAS COMPONENTS.

V1, Screen and oscillator anode R2, C2; Bias R3, C4.
 V2, Anode R7, Screen R6, C14; Bias R8, C18.
 V3, Bias R8, C18.
 V4, Bias R15.

COIL DECK CONNECTIONS TO CHASSIS.

COIL DECK PART NO. ES17186

After removing the two bolts holding the coil deck to the chassis the complete coil deck assembly can be withdrawn from the chassis upon unsoldering or disconnecting the following wires:—

- (1) Tag B frame aerial to tag No. 1 switch S1. on coil deck.
- (2) Tag A frame aerial to tag No. 3 switch S1. on coil deck.
- (3) Earth Braid from common earth on coil deck to frame of VC1./VC2.
- (4) C6 oscillator grid cond. from (pin 4) V1.
- (5) Lead from oscillator anode (pin 3) V1. to tag No. 1 L6.

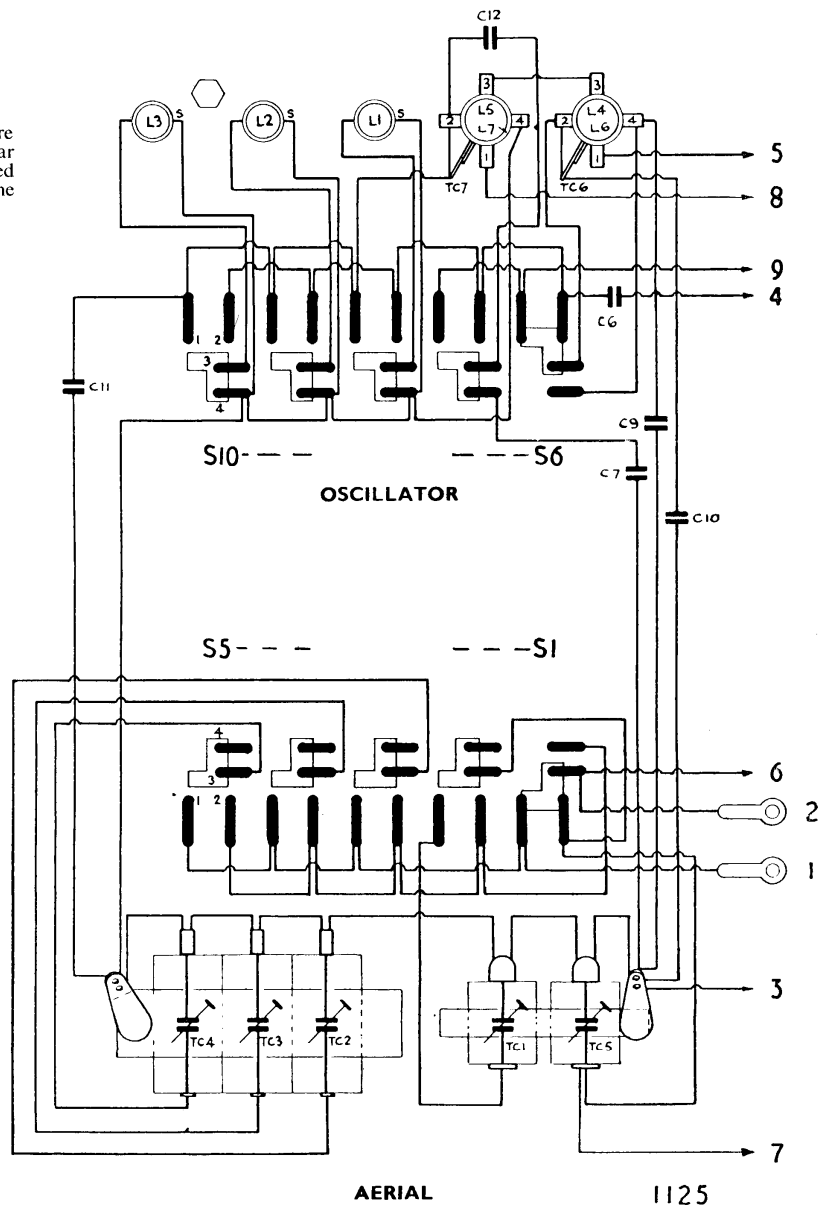
- (6) Lead from Hexode grid (pin 5) V1. to tag No. 3. switch S1. on coil deck.
- (7) Lead from switch S1. tag No. 2. coil deck, and fixed plate of TC5 to VC1 ganged tuning condenser.
- (8) Lead from C2. and R2. condenser resistor panel to tag No. 1 L7.
- (9) Lead from tag No. 1 switch S6 and S7 to VC2 fixed vanes.

IMPORTANT

When replacing the aerial and oscillator coils, note carefully the direction of the trimmer clips (at the base of each coil) in relation to the Push Button Unit. Replace the new coil in exactly the same position as the one taken out. Otherwise the wrong connections will be made to the coil tages.

COIL TAG NUMBERING.

The coil tag numbers are shown as they appear when the coil is viewed from the rear of the mounting plate.



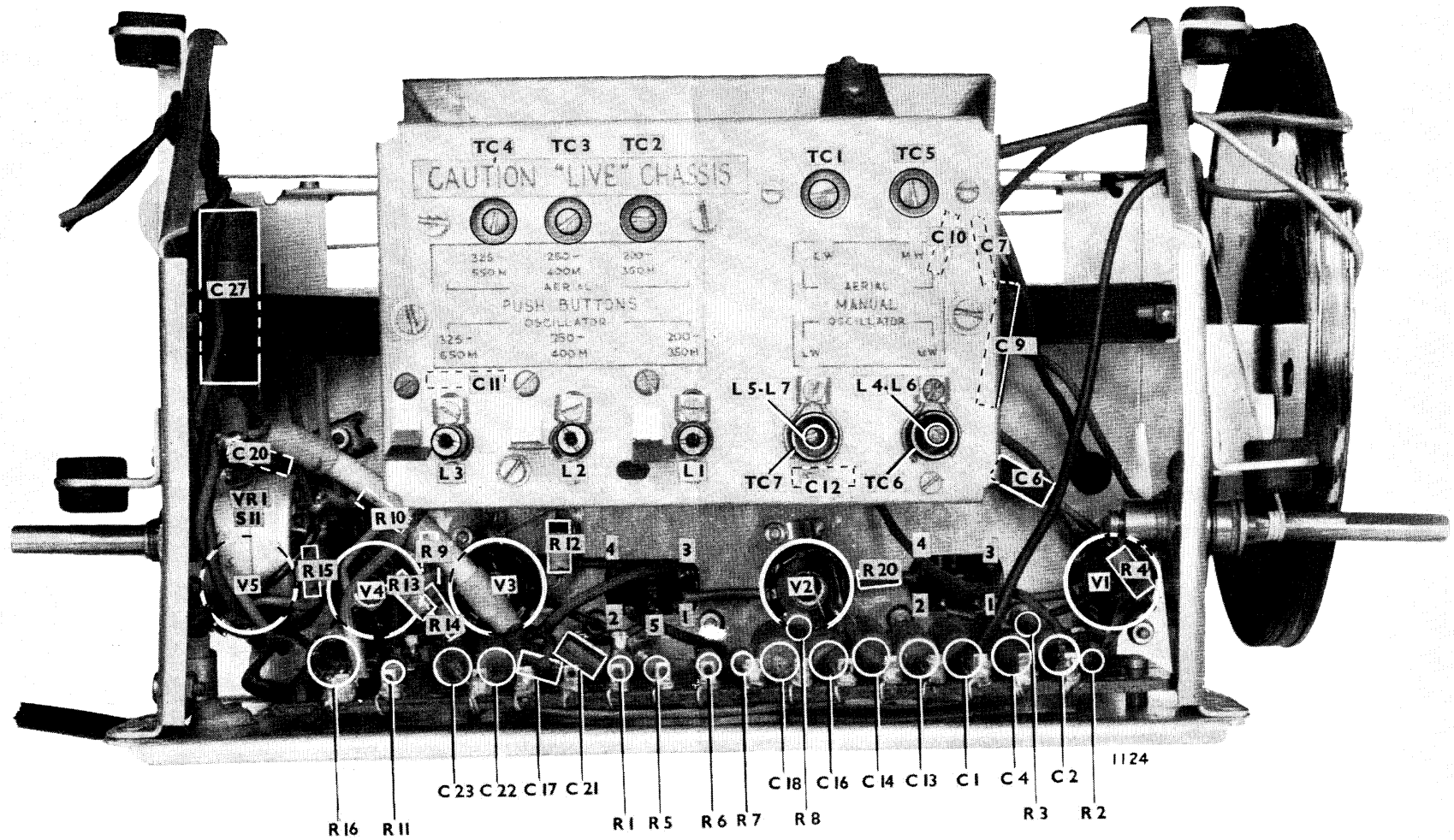


Plate 1

Underneath Chassis View DAC.10

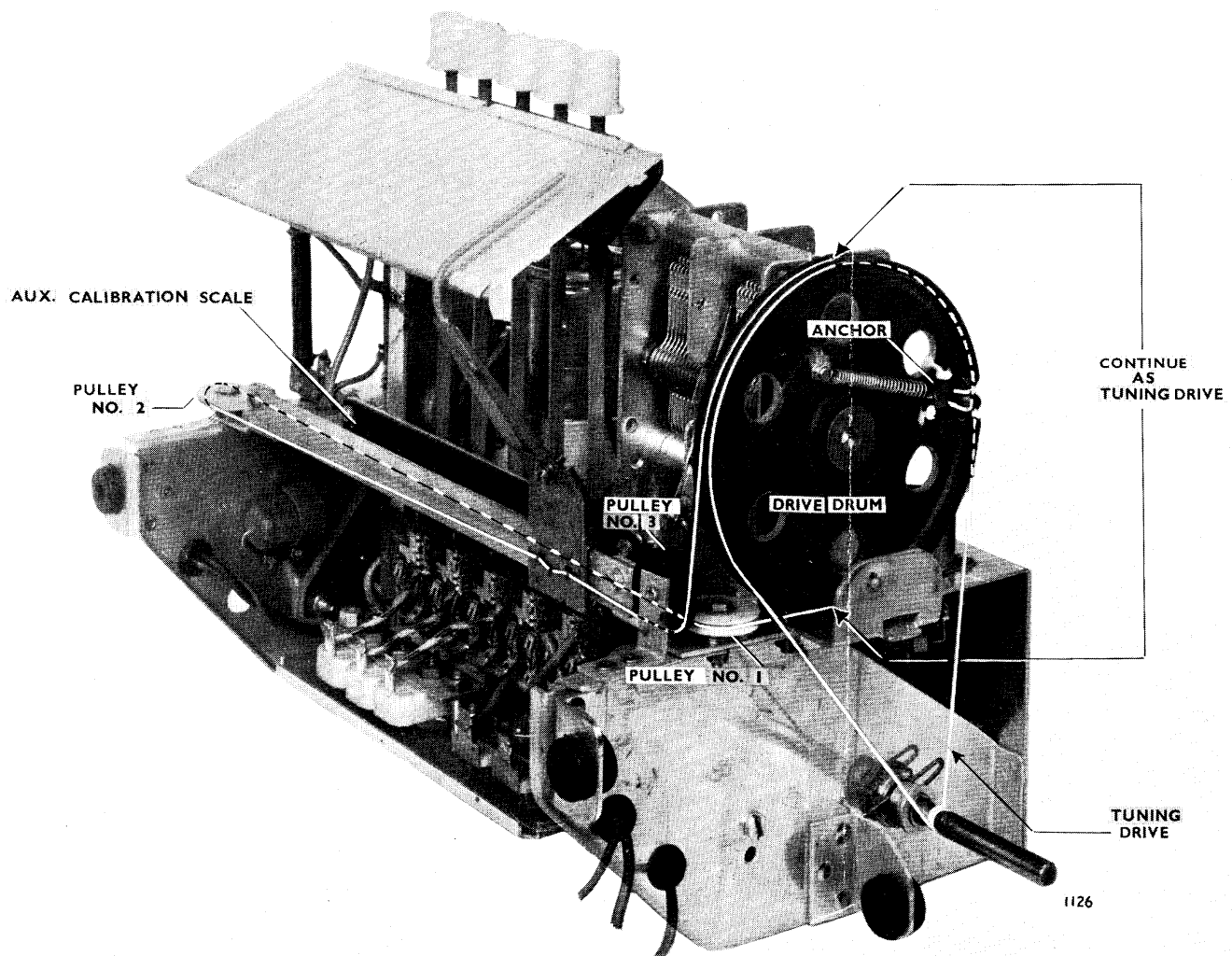


Plate 2.

View of Cord Drive DAC.10.

FITTING CORD DRIVES.

Part Numbers:

Anchor and Cord for Tuning Condenser Drive	AS17038
Anchor and Cord for Scale Pointer Drive ...	AS17037
Drive Pressure Spring	P1941
Carriage and Pointer Assembly AP16495/7 & AS17032	
Drive Drum	CP16394
Pulley	P12416

To gain access to the drive drum it is advisable to remove the frame aerial assembly.

FITTING TUNING CONDENSER DRIVE CORD

The length of the drive cord after clenching in the anchor is 17½ ins. Fit drive cord to the anchor and secure the anchor to the drive pressure spring, attach the opposite end of the spring to the drive drum (the "outside" track and spring securing pin must be used for this assembly).

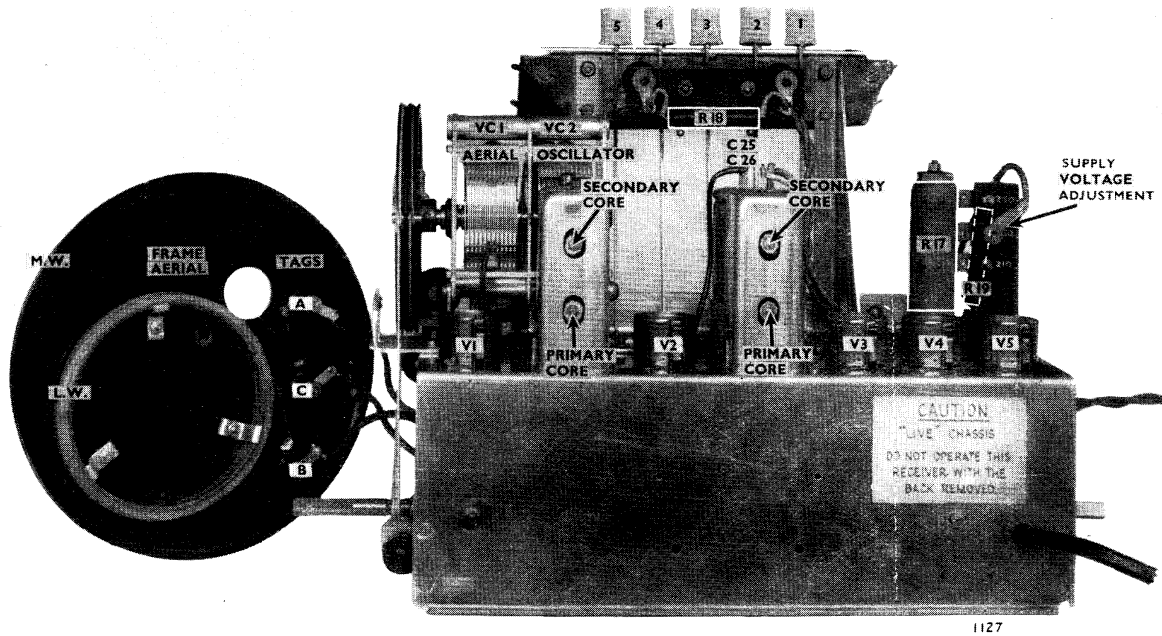
Set the tuning condenser to maximum capacity (fully meshed plates) pass the drive cord over the brass insert and complete by one half-turn round the tuning spindle and clockwise direction back over the brass insert and secure to the drive pressure spring and anchor.

FITTING SCALE POINTER DRIVE CORD

The length of the drive cord after clenching in the anchor is 32 ins. Remove tuning condenser drive cord, pass the pointer drive assembly over the drive drum and set the tuning condenser to maximum capacity (plates fully meshed). Secure the drive pressure spring and anchor to the drive drum and pass the cord over the brass insert and round the drive drum in a clockwise direction (using the inside track on the drum), continue round pulley No. 1 and No. 2 and under pulley No. 3, back over the drive drum in a clockwise direction, pass over brass insert and back to drive pressure spring and anchor.

ALIGNMENT OF SCALE POINTER AND TUNING CONDENSER

Set the tuning condenser to maximum capacity and adjust the pointer carriage such that the pointer is in alignment with the "datum line" on the right edge of the main and auxiliary calibration scales. Clip the pointer carriage to the drive cord and clench tightly.



1127

OUTPUT TRANSFORMER.

Part No. B.S.17030
 D.C. Resistance:
 Primary ... 500 ohms.
 Secondary ... 0.75 ohms.
 Ratio ... 40 : 1.
 Primary Inductance 6.4 H. at 400 cycles with 26 ma. D.C. flowing, no load on secondary.

SPEAKER.

Part No. C.P.16312
 Celestion 6" Permanent Magnet, inverted wafer type.
 D.C. Resistance of Speech Coil is 3 ohms.

INTERMEDIATE FREQUENCY TRANSFORMER CONNECTIONS.

For identification purposes the I.F. transformer tags are numbered as shown in the Under Chassis View of the receiver on page 7.

- Connections to these tags are as follows :
- 1st I.F. Transformer—Tag 1 to Pin 2, V.1.
 - ,, 2 ,, + Ve. H.T. (R.2).
 - ,, 3 ,, Junction R.5/C.13.
 - ,, 4 ,, Pin 6, V.2. Via R.20
 - 2nd I.F. Transformer—Tag 1 to Pin 2, V.2.
 - ,, 2 ,, Junction R.7/C.16.
 - ,, 3 ,, Junction VR.1/C.17.
 - ,, 4 ,, Pin 5, V.3.
 - ,, 5 ,, C.21 (Centre Tap Primary).

Plate 3.

Rear View of Chassis DAC.10.

FRAME AERIAL CONNECTIONS. Part No. BS.17006.

There are three tags located on the frame aerial assembly which for identification purposes are marked A, B and C on plate No. 3. The connections to these tags are as follows:

Tag.	Frame Aerial Connection.	Chassis Connection.
A	Start L.W. Frame Aerial.	Tag No. 3 on switch S.1 and Pin 6, V.1.
B	Finish L.W. Frame Aerial. } Start M.W. Frame Aerial. }	Tag No. 1 on switches S.1, S.3, S.4 and S.5.
C	Finish M.W. Frame Aerial.	Junction of R.1-C.1 on Main Resistance/Condenser Panel.

WARNING.

When servicing the DAC.10 remember that one side of the main electricity supply is connected directly to the chassis and may under certain conditions, be "live".

Do not connect any earthed equipment or a direct earth to the chassis without first isolating it by a fixed capacitor of approximately .005 mfd.

Care should be taken to avoid handling the chassis.

REPLACEMENT OF SCALE LAMPS.

To remove the scale lamps, detach the receiver back and unscrew the two knurled nuts holding the scale lamp assembly, which may then be withdrawn towards the rear of the receiver.

The pilot lamps may now be unscrewed and replaced by new ones having the correct rating. (3.5V., 0.15A.)

PART NUMBERS.

The following part numbers are not shown elsewhere in the Manual.

When ordering replacements or spare parts, please quote:—

- (a) Type and Serial Number of receiver.
- (b) Part Number and description of item.
- (c) Quantity required.

Cabinet Front	...	...	...	...	FP16347
Cabinet Back	...	...	...	...	FP16348

Escutcheon (moulded)	...	...	...	DP16349
Indicators (wavelength)	...	...	...	AP16845 /6/7
Knob, Control	...	...	...	CP16408
Knob, Push Button	...	...	...	AP16219
Switch, Push Button (5 section)	DP16473
Tuning Scale	DP16813
Valveholder, B.8A	AP16001

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OF

BUSH RADIO LTD.

POWER ROAD, LONDON, W.4

Telephone: London Chiswick 6491/9

Telegrams and Cables: Supasetz, Chisk, London

MODIFICATION : MODEL DAC.10

Page 3. Capacitors:

Capacitor C7, 220 mmfd. is changed to 200 mmfd., 350V D.C. working, $\pm 1\%$. Part No. AP.15069.
Capacitor C10, 30 mmfd. is changed to 33 mmfd., 350V D.C. working, $\pm 2\%$. Part No. AP.17919.

MODIFICATION : MODEL DAC.10.

Page 3. Resistors and Circuit Diagram.

On later receivers, R19, 150 ohm 1 watt, is changed for a 250 ohm 4 watt $\pm 20\%$. Part No. AP. 18039.

MODEL DAC.10.

MODIFICATIONS. WAVERANGE. On later receivers the frequency coverage of P.B. No. 1 & P.B. No. 2 has been altered, making the following amendments to the Service Instructions necessary.

Pages 1 & 5 PUSH BUTTON No. 1. 325 to 550 metres (925 to 545 Kc/s.).

PUSH BUTTON No. 2. 1100 to 1875 metres (273 to 160 Kc/s.).

Pages 2, 3 & 4. **CIRCUIT DIAGRAM. COIL DATA & VARIABLE CAPACITORS.**

1. Link from S.4 Tag 1 to S.5 Tag 1 deleted.
 2. C.8 350 mmfd. $\pm 1\%$ 350V. Wkg. Part No. AP.16187.
 3. TC.1 25—150 mmfd. }
TC.2 100—450 mmfd. } Part No. AP.18213.
TC.3 100—450 mmfd. }
 4. L.2 M.W. Oscillator P.B. No. 2 (325—550 metres)
Part No. S.10011.
L.3 L.W. Oscillator P.B. No. 1 (1100—1875 metres)
Part No. S.10012.
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