

SERVICE MANUAL



SPECIFICATION

Batteries

This receiver is designed for use with the following high tension and low tension dry batteries :—

	Ever Ready	Drydex	Vidor
High Tension 90V	B126	526	L5512
Low Tension 1.5V	All-Dry 35	H1184	L5040

Waveranges

Medium	-	-	182—557 Metres.
Long	-	-	1090—1920 Metres.

Valves

V1 DK96	Frequency Changer.
V2 DF96	IF Amplifier.
V3 DAF96	Detector and Audio Amplifier.
V4 DL96	Audio Output.

Loudspeaker

PM, 5 in. diameter, 3Ω speech coil.

Case Dimensions

9½ in. wide x 4 in. high x 8½ in. deep.

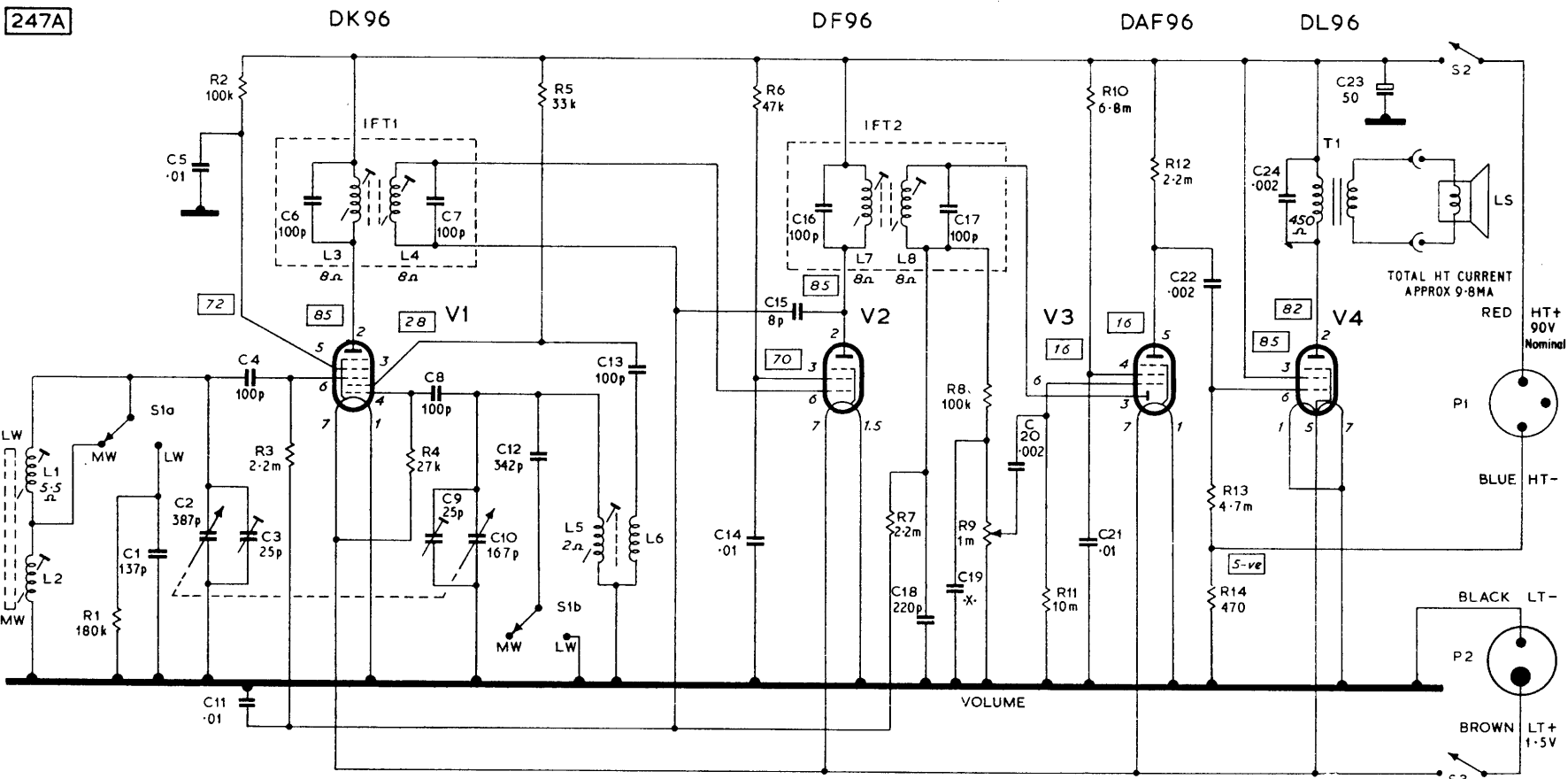


Fig. 1. Circuit diagram of model 346B. Numbers adjacent to valve electrodes denote pin connections. Voltage measurements are shown in rectangles.

CIRCUIT ALIGNMENT

IF Alignment

Switch receiver to MW, turn gang to minimum capacitance position and volume control to maximum. Inject a 470 Kc/s modulated signal through a 0.1μF capacitor at the control grid of V1 (pin 6).

Adjust L3, L4, L7 and L8 in that order for maximum output, reducing the input voltage as each circuit is brought to resonance in order to avoid AGC action.

It is important that the adjustments listed above are carried out in the sequence given, otherwise, use of the more conventional procedure will result in an unsatisfactory IF response.

RF Alignment

Sufficient signal voltage for alignment purposes can be induced in the ferrite-rod aerial if the output lead of the signal generator is terminated in a closed loop in close proximity to the receiver. Do not make a direct connection.

The Medium waveband must be aligned first.

1. Switch to MW and turn the tuning knob until the calibration marker at the edge of the scale, between 200 and 300 Metres, is over the cursor line. Inject 1300 Kc/s signal and adjust C9 for maximum output.
2. Tune to the calibration marker at 500

Metres and inject 600 Kc/s signal. Adjust L5 for maximum output.

3. Repeat 1 and 2 until no further improvement can be obtained.
4. Set tuning gang to the high frequency calibration marker, inject 1300 Kc/s and adjust C3 for maximum output.
5. With tuning dial set to the 500 Metres marker and with a 600 Kc/s signal, alter the position of the adjusting ring on the ferrite-rod aerial to give maximum output.
6. Switch to LW, inject 210 Kc/s and rotate the tuning knob until the signal is received. Adjust the position of the LW coil (L1) on the ferrite-rod aerial for maximum output.

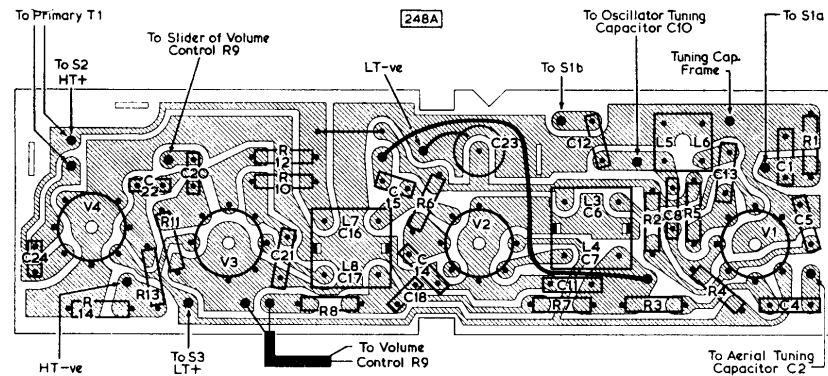


Fig. 2. Printed Board viewed from the components side.

THE CIRCUIT

Separate LW and MW coils are provided on the ferrite-rod aerial, the long wave winding, L1, being short circuited by S1A on medium waves. The aerial circuit is tuned by C2 with trimmer C3 effective on MW. On LW a fixed trimming capacitor C1, shunted by damping resistor R1, is switched across the circuit by S1A. C4 couples the signal to the frequency changer, V1 (DK96).

In the oscillator tuned circuit, no series padders are employed, tracking being maintained by the use of a special tuning capacitor.

The oscillator grid coil, L5, is tuned by C10 and trimmer C9 on medium waves and on long waves an additional capacitor, C12, is connected across the circuit by S1B. V2 (DF96) functions as an IF amplifier, neutralized by C15 and the diode section of V3 (DAF96) as the signal detector. The volume control R9 forms the diode load and the DC component of the rectified signal, decoupled by R7 and C11, is applied as AGC voltage to the grid circuits of V1 and V2.

The pentode section of V3 operates as an audio amplifier and is RC coupled to V4 (DL96) the output valve. The grid bias voltage for V4 is developed across R14 in the negative return circuit to the HT battery.

CAPACITORS

(All 350V 20% tolerance unless otherwise stated.)

Ref.	Value	Rating	Function and Part No.
C 1	137pF	2%	LW fixed aerial trimmer—45755
C 2	387pF	Variable	Aerial tuning—Z25409
C 3	5—25pF	Pre-set	MW aerial trimmer
C 4	100pF		V1 CG coupling
C 5	.01uF	150V	V1 SG decoupling
C 6	100pF		L3 tuning
C 7	100pF		L4 tuning
C 8	100pF	750V	Oscillator CG coupling
C 9	5—25pF	Pre-set	MW oscillator trimmer
C10	167pF	Variable	Oscillator tuning Z25409
C11	.01uF	150V	AGC decoupling
C12	342pF	2%	LW fixed oscillator trimmer—45754
C13	100pF	750V	Oscillator feedback coupling
C14	.01uF		V2 SG decoupling
C15	8pF	±½pF	V2 neutralizing
C16	100pF		L7 tuning
C17	100pF		L8 tuning
C18	220pF	750V	IF bypass
C19	*		IF filter
C20	.002uF		V3 CG coupling
C21	.01uF	150V	V3 SG decoupling
C22	.002uF		V4 CG coupling
C23	50uF	Electro 100V	HT decoupling
C24	.002uF		Tone correction

* Formed by self-capacitance of screened lead between R8 and top of volume control R9.

MISCELLANEOUS

Ref.	Description	Part No.
S1A } S1B }	Wavechange switch	Z25364
S2 } S3 }	On-Off switch	Z10791
P1	HT battery plug	Z7554
P2	LT battery plug	24580/1
L5	Loudspeaker, 5in. diameter, 3Ω speech coil.	16001/8

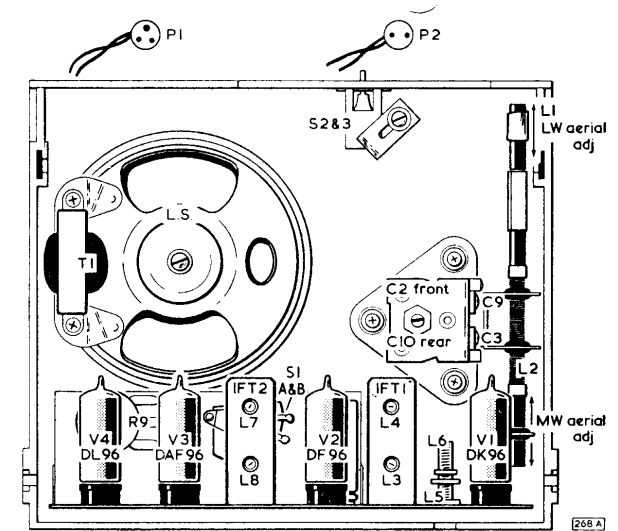


Fig. 3. Rear view of receiver showing location of main components and alignment trimming adjustments.

RESISTORS

(All ¼ Watt carbon. 20% tolerance unless otherwise stated.)

Ref.	Value	Rating	Function and Part No.
R 1	180KΩ	10%	LW aerial shunt
R 2	100KΩ		V1 SG HT feed
R 3	2.2MΩ	10%	V1 grid leak
R 4	27KΩ	10%	V1 oscillator grid leak
R 5	33KΩ		Oscillator HT feed
R 6	47KΩ		V2 SG HT feed
R 7	2.2MΩ	10%	AGC decoupling
R 8	100KΩ		IF filter
R 9	1MΩ	Log. Pot.	Volume control—Z25365
R10	6.8MΩ	10%	V3 SG HT feed
R11	10MΩ	10%	V3 grid leak
R12	2.2MΩ	10%	V3 anode load
R13	4.7MΩ	10%	V4 grid leak
R14	470Ω	5%	½W V4 grid bias

INDUCTORS AND TRANSFORMERS

Ref.	Description	Part No.
L1	LW aerial	Ferrite-rod Y10782
L2	MW aerial	
L3	Primary	IF transformer 1 Z25356
L4	Secondary	
L5	Oscillator tuning	Y25454
L6	Oscillator feedback	
L7	Primary	IF transformer 2 Z25356
L8	Secondary	
T1	AF output transformer	Z25447

PRINTED PANEL SERVICING

If it should be necessary to solder directly to a printed conductor, use a 60/40 resin cored solder and make the joint quickly to avoid overheating. Do not use a corrosive flux.

Resistor or Capacitor Replacement

Cut out the faulty component so that as much as possible of the original lead out wires remain for connecting the new component. Use a low consumption iron and solder to the connecting wires—not to the printed conductor. Do not apply the bit for longer than is necessary.

Other Components

Heavier components secured to the panel by clip lugs or tags which make electrical connections should be removed by a heavier type iron, but the heat and pressure must be applied to the lug or tag and not the copper conductor. A small stiff-haired brush may assist in breaking the connection.

Damaged Sections of the Printed Conductor

Restore the connection with a jumper wire on the component side of the panel.

CHASSIS REMOVAL

The control escutcheon is retained at its pivot points by spring wire pins which become accessible when the escutcheon is raised to its vertical position. Withdraw the pins to enable the complete assembly to be lifted out of the case. If it becomes necessary to remove the chassis, pull off the control knobs and withdraw the chassis and gang fixing screws.

MECHANICAL SPARES

Part Description	Part No.
Gang and Aerial rod support - - -	Y29329
Case (complete with handle, etc.) - -	V29331
Control knobs :—	
Tuning dial - - - - -	X29333
Volume - - - - -	Y29332
Wavechange - - - - -	Y29332/1
Tuning dial clip - - - - -	37309
Volume and Wavechange clip - -	45931
Cursor disc - - - - -	Z29335
Escutcheon - - - - -	V29327
Escutcheon pin - - - - -	Z17801
Escutcheon clip - - - - -	Z29350

The manufacturers reserve the right to vary specifications or use alternative materials as may be deemed necessary or desirable at any time.

FERGUSON RADIO CORPORATION LTD., Great Cambridge Road, Enfield, Middlesex

Service Depots :

LONDON : ELEY'S ESTATE, ANGEL ROAD, EDMONTON, N.18. *Telephone :* EDMonton 3060.
BIRMINGHAM : 24 SHEEPCOTE STREET, 15. *Telephone :* Midland 5291. *Telegrams :* Eleclampo, Birmingham.
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GLASGOW : 160/162 BATTLEFIELD ROAD, S.2. *Telephone :* Langside 9251/2/3/4