

Trader

SERVICE SHEET

A three-unit audio system, the Fidelity UA3 combines an AM/FM radio, BSR autochanger and 4 watt per channel amplifier in one unit, together with two external independent loudspeakers.

The radio covers long and medium wave on AM, using an internal ferrite aerial, and the VHF broadcast band on FM. Input sockets are provided for external AM and FM aerials. A stereo decoder is fitted, with beacon lamp indicator; switchable AFC operates on FM. Both radio and amplifier are solid-state, sharing a common printed circuit board; integrated circuits are used in the stereo decoder and amplifier power output.

A BSR C129R three-speed fully automatic record deck, with ceramic cartridge, completes the main unit.

Input from and output to an external amplifier or tape recorder is allowed via an AUX socket.

The receiver, amplifier and record deck are housed in a black plastics cabinet with wood teak-finish sides, and black with silver trim front fascia. A tinted acrylic dust cover protects the record deck.

Loudspeaker enclosures are in matching style, black with wood sides, on 12 feet (3.6m) leads terminated in 2-pin DIN plugs.

Brief Specification

General

Power supply	200 to 250V a.c. 50Hz mains
Consumption	45W
Fuses	1.25A } miniature cartridge 2A }
Lamps	Two 14V 40mA L.E.S.

Radio

Wavebands	AM: LW 1200 to 2000m (150 to 250kHz) MW 186 to 570m (525 to 1620kHz)
	FM: VHF 87.5 to 108MHz
Intermediate frequencies	AM: 470kHz FM: 10.7MHz
Transistors	BF594B, BF595 (two), BF595C, BF595D.
Integrated circuit	SN76110N (decoder)
Diodes	AA119 (four), BA102

Amplifier

Power output	4W per channel (sinewave)
Frequency response	40Hz to 15kHz at 1W output
Harmonic distortion	less than 1 per cent
Output impedance	8 ohms
Input sensitivity	(AUX) 100mV for 2W output } via 5-pin.
Output	(AUX) 24mV at low impedance } DIN socket
Transistors	BC184 (four), BFR40
Integrated circuit	SN76013 (two)
Diodes	KPB005 (rectifier)

Record deck

BSR C129R, with SX6M ceramic turnover cartridge and ST12 stylus

Dimensions and weights	Height	Width	Depth	Weight
Main unit (with cover):	7 $\frac{3}{8}$ in (187mm)	15 $\frac{3}{8}$ in (388mm)	16 $\frac{1}{2}$ in (412mm)	14 lb 7oz (6.6kg)
Speakers:	12in (304mm)	8in (203mm)	5 $\frac{1}{2}$ in (146mm)	4 lb 2oz (1.9kg)
Manufacturer	Fidelity Radio Ltd., Victoria Road, London NW10 6ND. 01-965 8771			
Service Department	2 Chase Road, London NW10 6HZ. 01-965 9235/6			

3189

Fidelity UA3

Unit Audio



Dismantling

(see interior view diagram)

1. Disconnect main unit from a.c. mains supply, unplug loudspeakers. Remove and carefully store record deck cover.
2. Lock tonearm to rest, fit stylus guard. Fully unscrew deck transit screws.
3. Rest complete unit on rear edge. Remove five screws (located at A) to free bottom cover.
4. This gives access to main chassis underside, tonearm tagboard, deck on/off switch, motor and input/output sockets.

5. To remove main chassis assembly:

- (a) From top side of cabinet, release four screws C holding front part of dial and control assembly to record deck mounting. Screws need NOT be completely removed as they pass into open slots in the front of the deck mounting board.

NOTE: It may assist if the turntable is removed, or the complete deck released. If removing the turntable (by taking out the centre spindle and removing the centre circlip) first check that the turntable is in the neutral (free to turn) position.

- (b) Completely remove two screws B from chassis underside.
- (c) Remove two screws D from chassis support frame.
- (d) Carefully ease complete chassis

Components

Resistors

R1	1kΩ	A1
R2	5.6kΩ	A1
R3	18kΩ	A1
R4	680Ω	A1
R5	5.6kΩ	A1
R6	18kΩ	A2
R7	220Ω	A1
R8	68kΩ	A2
R9	1kΩ	A2
R10	15kΩ	A2
R11	22kΩ	A2
R12	2.7kΩ	A2
R13	2.7kΩ	A2
R14	22Ω	A2
R15	220Ω	A2
R16	330Ω	A2
R17	330kΩ	A2
R18	220Ω	A2
R19	5.6kΩ	A2
R20	5.6kΩ	A2
R21	1kΩ	A1
R22	2.7kΩ	A1
R23	470Ω	A1
R24	5.6kΩ	A2
R25	15kΩ	A2
R26	1kΩ	B2
R27	1kΩ	B2
R28	15kΩ	B2
R29	15kΩ	B2
R30	10kΩ	B1
R31	33kΩ	A2
R32	68kΩ	A2
R33	330kΩ	A2
R34	4.7kΩ	B2
R35	250Ω	B1*
R36	330Ω	B1
R37	4.7kΩ	B2
R38	3.3kΩ	A2
R39	10kΩ	B2
R40	47kΩ	B2
R41	330kΩ	B2
R42	330kΩ	B2
R43	22kΩ	B2
R44	4.7kΩ	B2
R45	100kΩ	B2*
R46	5.6kΩ	B2
R47	39kΩ	B2
R48	100kΩ	B2*
R49	4.7kΩ	B2
R50	22kΩ	B2
R51	100kΩ	B2
R52	1.5kΩ	B2
R53	3.3kΩ	B2
R54	1.5kΩ	B2
R55	20kΩ	B2*
R56	1kΩ	B2
R57	100kΩ	B2
R58	180Ω	B1
R59	1kΩ	B1
R60	10Ω	A2
R61	100Ω	B2
R62	12Ω	A2
R63	12Ω	A2
R64	100Ω	A2
R65	3.9kΩ	A2
R66	4.7kΩ	A2
R67	3.3kΩ	A2
R68	10kΩ	B2
R69	330kΩ	B2
R70	330kΩ	B2
R71	47kΩ	B2
R72	22kΩ	B2
R73	4.7kΩ	B2
R74	100kΩ	B2*
R75	39kΩ	B2
R77	5.6kΩ	B2
R77	100kΩ	B2*
R78	4.7kΩ	B2
R79	100kΩ	A2
R80	22kΩ	B1
R81	1.5kΩ	B2
R82	3.3kΩ	B1
R83	1.5kΩ	B2
R84	20kΩ	B1*
R85	470Ω	B1
R86	1kΩ	B1
R87	50kΩ	B2*
R88	1kΩ	B1
R89	100kΩ	B1
R90	not quoted	B2
R91	180Ω	B1
R92	68Ω	B1
R93	1kΩ	B1
R94	10Ω	B2
R95	—	B1

Capacitors

C1	1000pF	A1
C2	not quoted	A1
C3	1nF	A1
C4	56pF	A1
C5	1000pF	A1
C6	1000pF	A1
C7	Trimmer	—
C8	4.7pF	A1
C9	27pF	A1
C10	510pF	A1
C11	50pF	A1
C12	1000pF	A2
C13	4.7pF	A2
C14	Trimmer	—
C15	6.8pF	A2
C16	12pF	A2
C17	100pF	A2
C18	1000pF	A2
C19	82pF	A2
C20	0.1μF	A2
C21	Trimmer	A2
C22	68pF	A2
C23	0.02μF	A2
C24	0.1μF	A2
C25	0.02μF	A2
C26	50pF	A2
C27	295pF	A2
C28	18pF	A1
C29	Trimmer	—
C30	82pF	A2
C31	1000pF	A2
—	Trimmer	—
C32	235pF	A2
C33	not quoted	A2
C34	10μF	A2
C35	0.22μF	A2
C36	330pF	A2
C37	82pF	A1
C38	1000pF	A2
C39	0.1μF	A2
C40	0.02μF	A2
C41	0.02μF	A2
C42	330pF	A1
C43	68pF	A1
C44	0.02μF	A2
C45	0.1μF	A2
C46	2nF	B1
C47	330pF	B1
C48	10μF	B1
C49	330pF	B1
C50	0.01μF	A2
C51	1nF	B2
C52	50μF	B2
C53	not quoted	—
C54	1.5μF	B2
C55	1μF	—
C56	0.01μF	—
C57	10μF	B2
C58	2.5nF	B2
C59	0.02μF	A1
C60	4700pF	—
C61	1μF	A1
C62	0.033μF	A2
C63	0.1μF	B1
C64	200pF	—
C65	0.1μF	—
C66	10μF	—
C67	2nF	B2
C68	0.33μF	B2
C69	0.1μF	B2
C70	2nF	—
C71	25μF	B2
C72	10μF	B2
C73	4.7nF	B1
C74	4.7μF	B2
C78	68pF	B1
C76	0.1μF	B1
C77	1nF	B1.
C78	200pF	—
C79	4.7nF	B1
C80	470μF	B2
C81	0.1μF	B2
C82	4700pF	B2
C83	0.1μF	B2
C84	0.033μF	A2
C85	0.1μF	B1
C86	200pF	B2
C87	10μF	B2
C88	0.1μF	B2
C89	2nF	B2
C90	0.033μF	B2
C91	0.1μF	B1
C92	2nF	B2
C93	10μF	B2
C94	25μF	B2
C95	4.7μF	B2

C96	68μF	B1
C97	4.7μF	B1
C98	10μF	B2
C99	300μF	B1
C100	68μF	B1
C101	1nF	B1
C102	200pF	B1
C103	4.7nF	B1
C104	0.1μF	B1
C105	470μF	B1
C106	3300μF	B1
C107	0.1μF	B1
C108	0.1μF	B1

Transistors

Tr1	BF595	A1
Tr2	BF595	A1
Tr3	BF594B	A2
Tr5	BF595C	A2
Tr5	BF595D	A2
Tr6	BC184	B2
Tr7	BC184	B2
Tr8	BC184	B2
Tr9	BC184	B2
Tr10	BFR40	B1

Integrated circuits

IC1	SN76110N	B2
IC2	SN76013	B1
IC3	SN76013	B1

Diodes

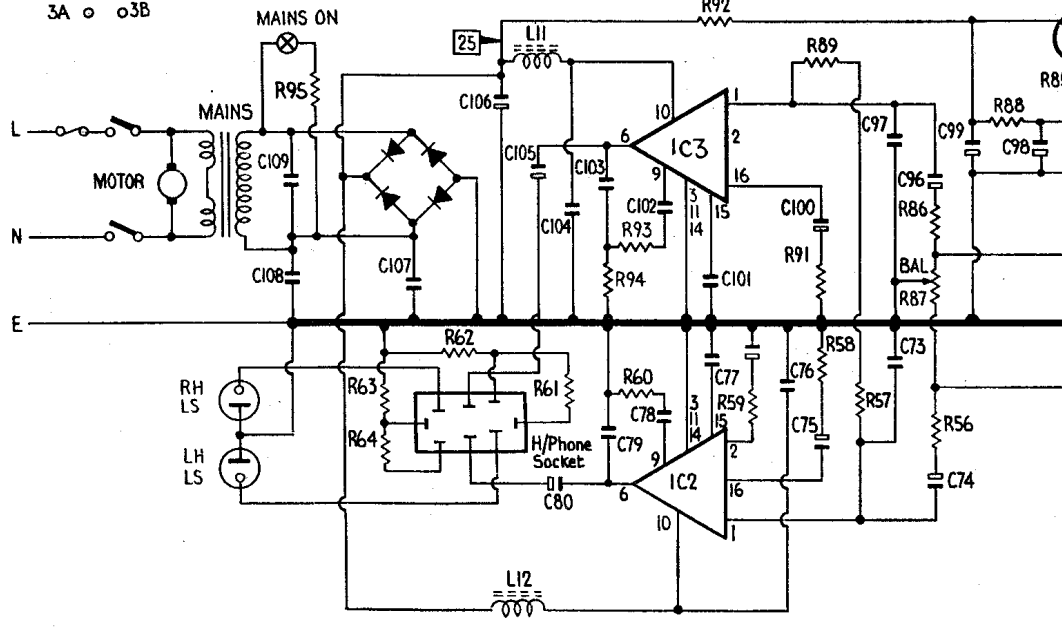
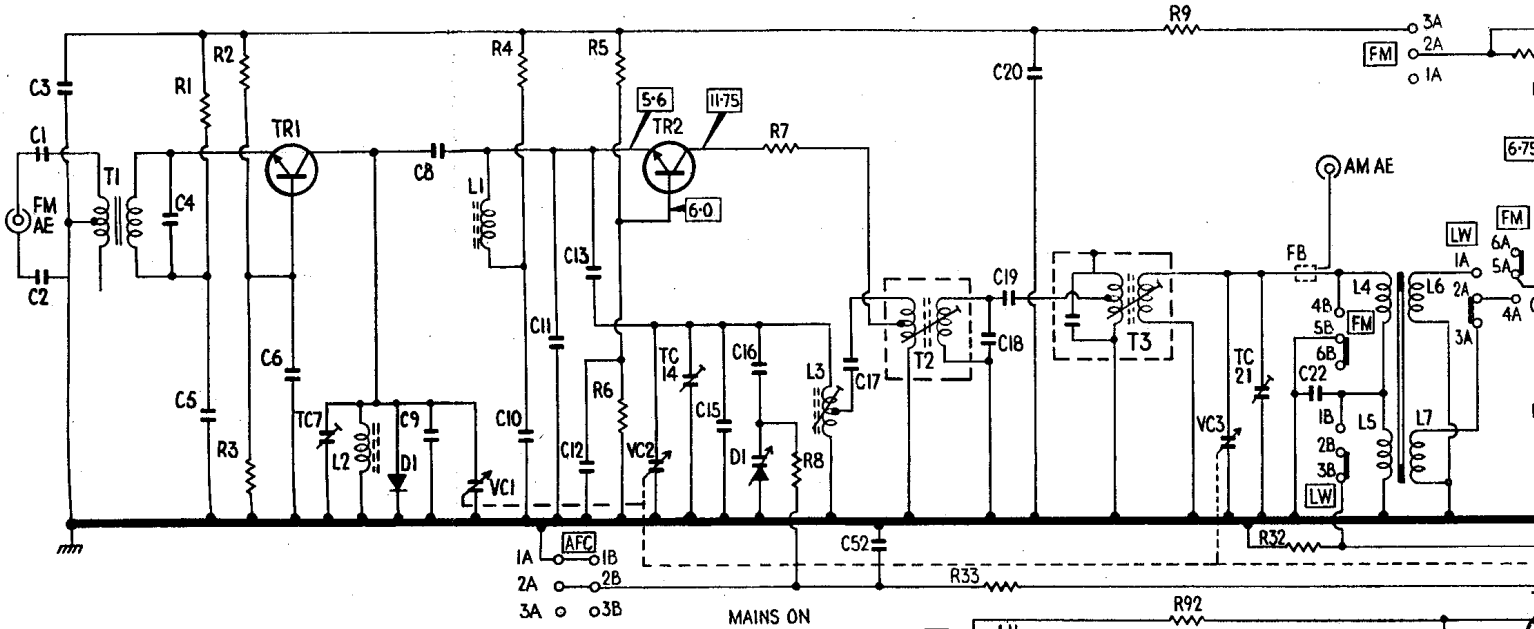
D1	AA119	A1
D2	BA102	A2
D3	AA119	A2
D4	AA119	A1
D5	AA119	B1
Rectifier	KPB005	B1

* Variable

Note:

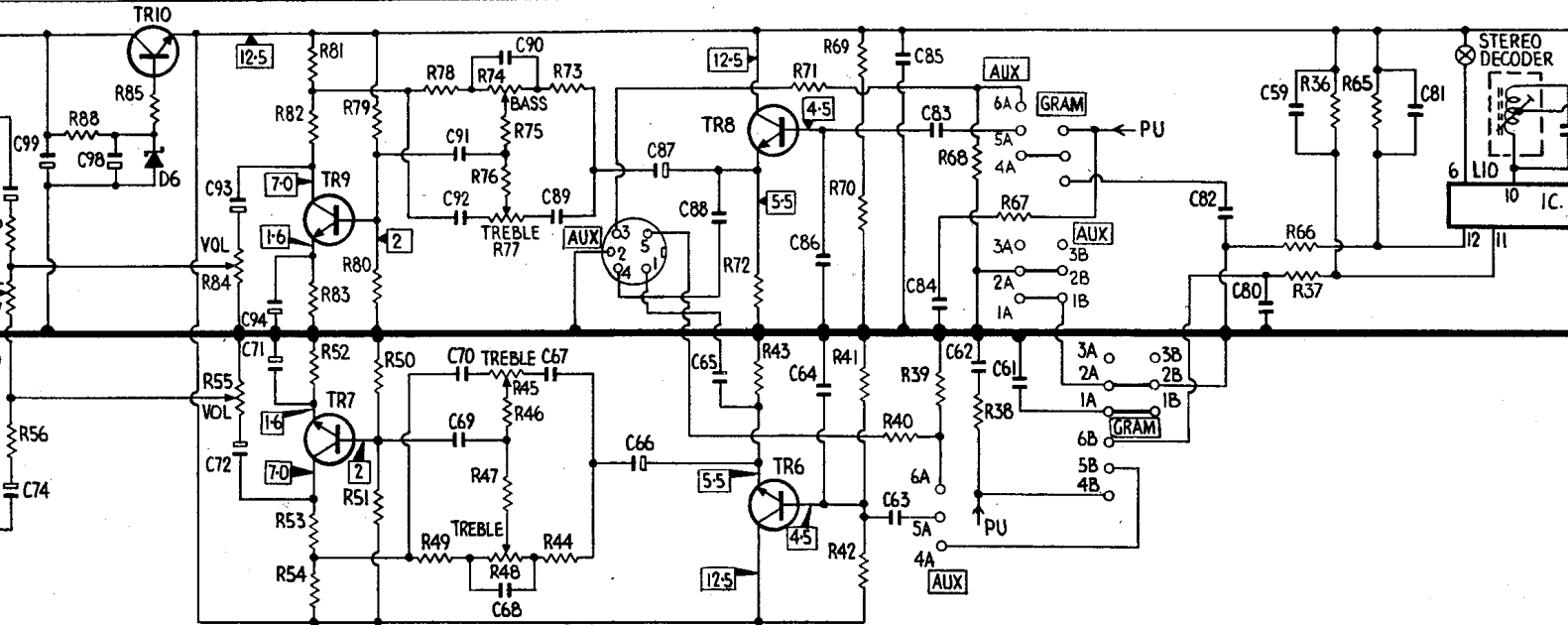
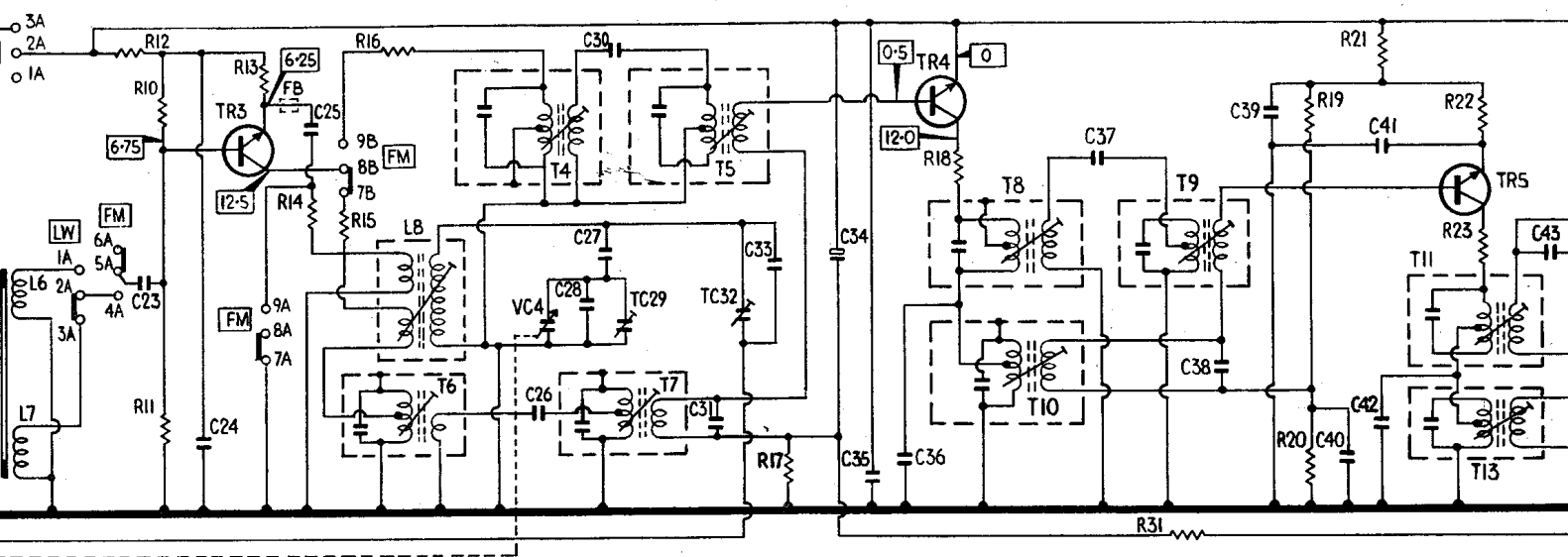
Later production models have a 2A fuse in the main dc+ line from the rectifier

C	1	3	4	5	6	TC7	9	8	VC1	10	11	12	13	VC2	TC4	15	16	17	52	18	19	20	VC3	TC21	22				
R			1	2	3				4			5	6			7	8			33			9		32	12			
L			T1				2		I										3	T2			T3			4	6	5	7



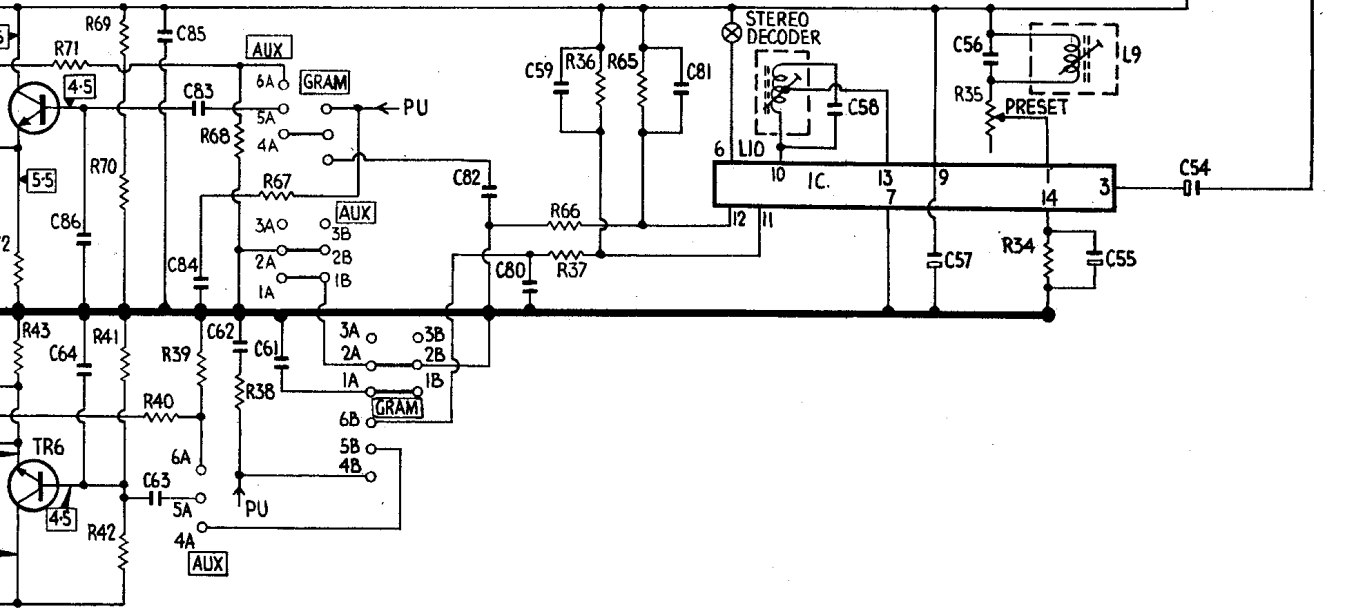
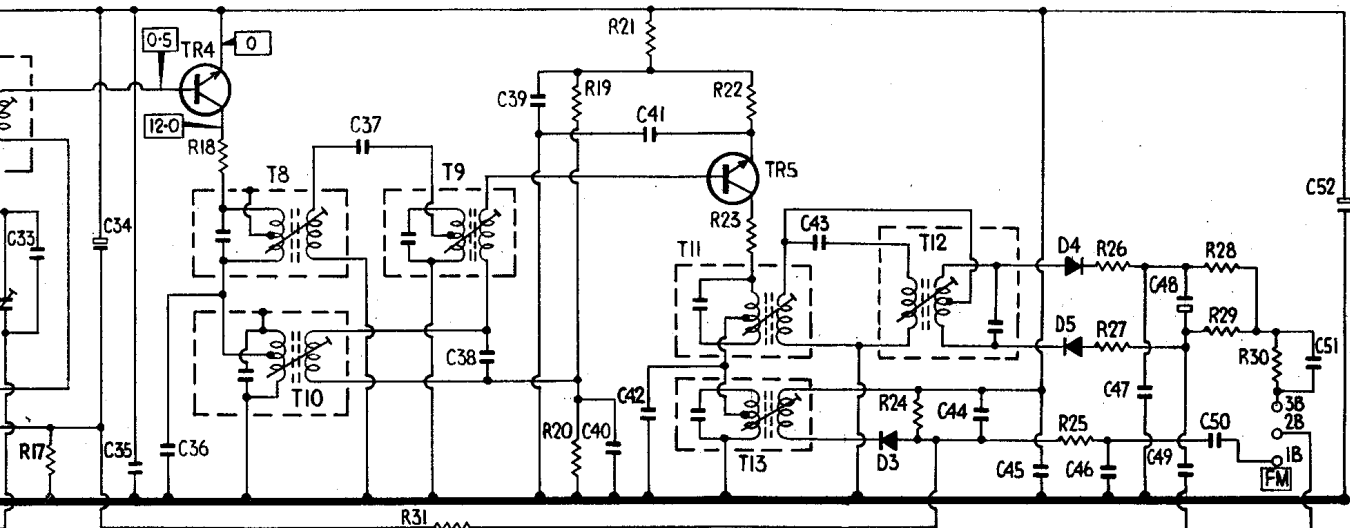
C																				80	79	101	100	97	96	99	98
R																											
L																											

23	24	25	VC4 26	28	27	30	TC29	31	TC32	33	34	35	36	37	38	39	40	41	42	43	
12	10	11	13	14	15	16		17		18					31		19	20	21	22	23
6	7		8	T6		T4	T7	T5			T8	T10		T9			T11	T13			

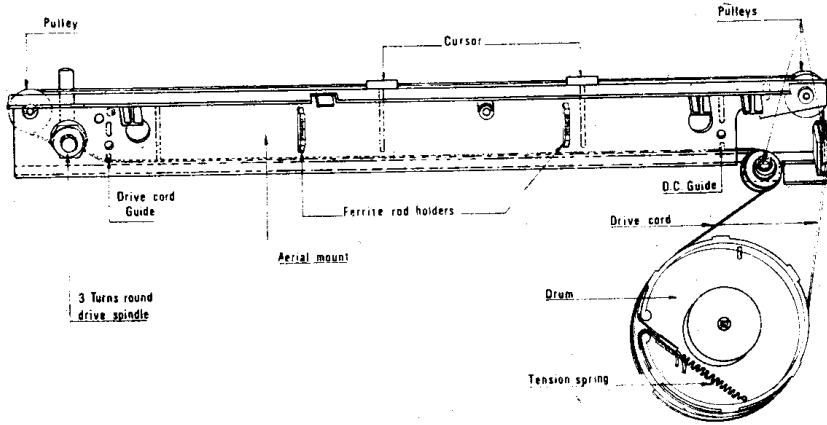
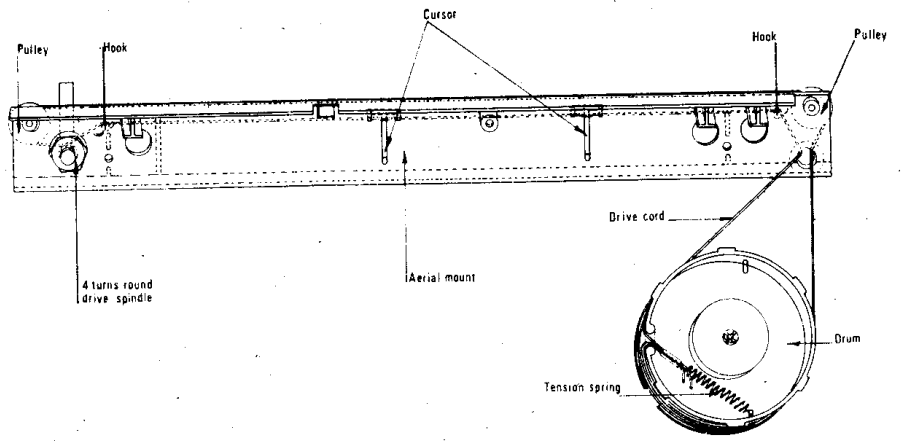


96	99	98	93	94	91	70	90	89	87	88	86	85	83	82	59							
74			72	71	92	69	68	67	66	65	64	63	84	62	61							
86	88	84	81	83	52	79	80	78	77	76	75	74	73			80					81	
87	56	85	55	82	53	54	50	51	49	45	46	47	48	44		66	65				37	36

32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
17		18				31		19	20	21	22	23	24		25	26	27		28	29	30
5					T8	T10		T9			T11	T13		T12							



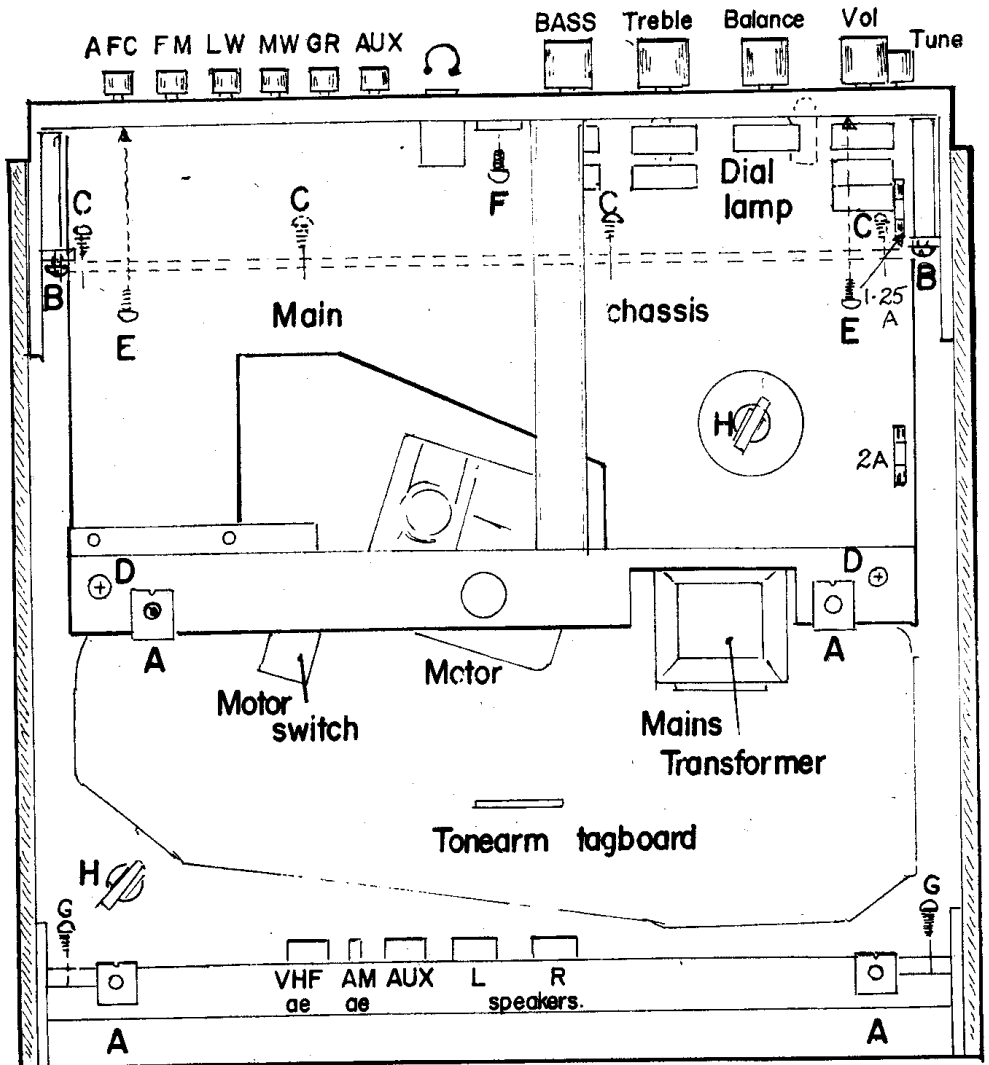
86	85	83		82	59		57	56		55	54
64	63	84	62	61	80	81					
71	69	70	40	39	68	38		35		34	
41	42				37	36					
							10				9



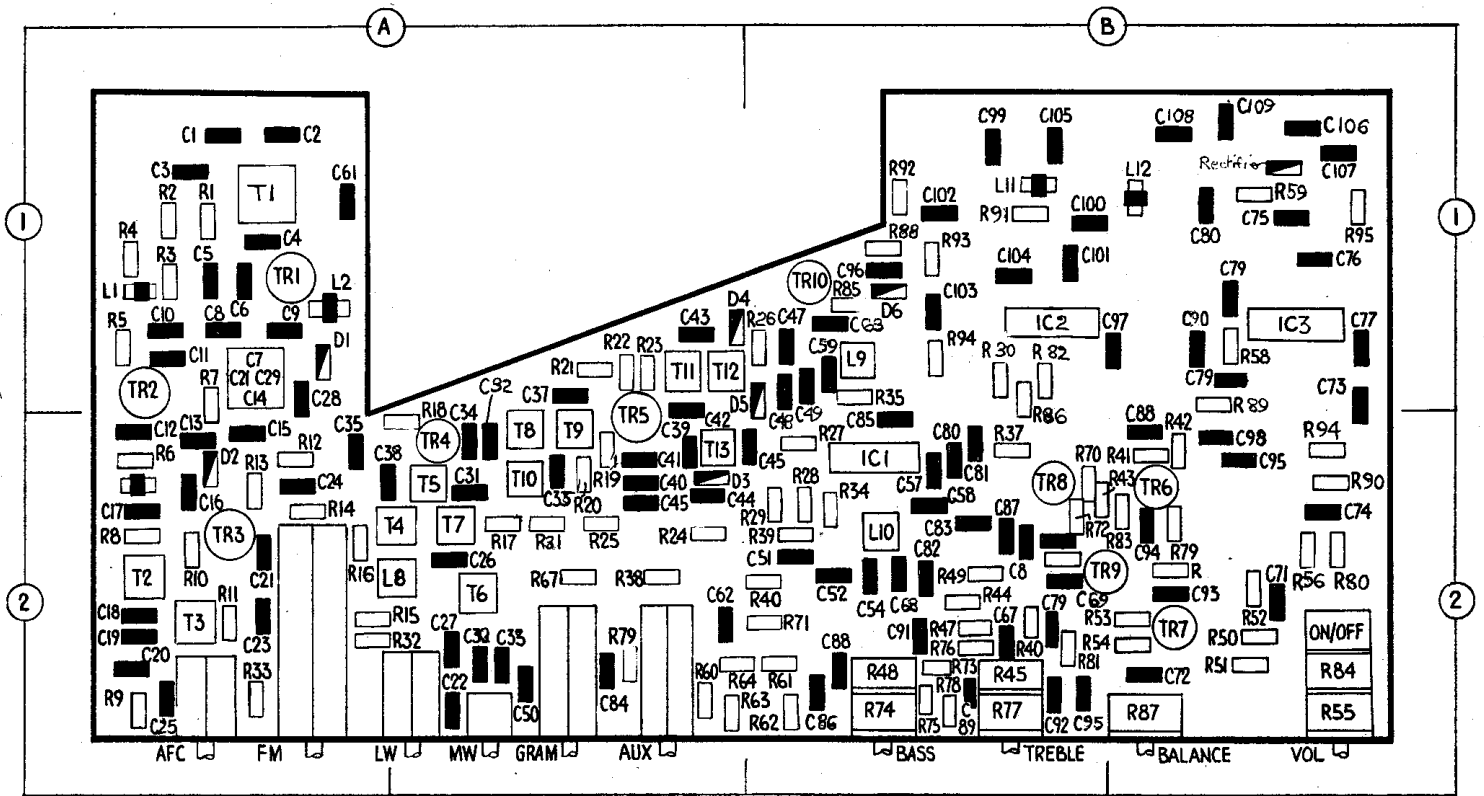
Dial cord lacing (early and current models)

assembly from deck mounting. If the unit cabinet is standing on its rear edge, the chassis can be laid in front of the unit without unduly straining leads.

6. To remove front escutcheon (for access to dial drive, removal of control potentiometers, lamp replacement):
 - (a) Remove bass, treble, balance and volume control knobs.
 - (b) Remove two screws E (accessible from upper side of chassis) and one screw F (from lower side of chassis).
 - (c) Carefully ease off front escutcheon assembly.
7. Input/output socket panel – remove two screws G.
8. Record deck. Set the two clips (H) to the vertical. Ease out deck to extent of leads.
9. Motor can be removed without dismantling main chassis, by releasing circlips in deck top well (after removing turntable), disconnecting leads, pulling out motor studs, and easing motor out from below deck and past chassis support frame. Motor Switch can be unscrewed from deck underside after disconnecting leads.



Interior view ►



▲ Main p.c. board

Alignment

Equipment required:

AM signal generator covering 150 to 1700kHz, modulated 1kHz at 30 per cent.
 FM signal generator covering 10.7MHz, 85 to 110MHz.

Sweep marker generator.

Oscilloscope

Suitable output meter (VTVM)

Input matching components as detailed in text.

I.F. Stages

AM

1. Render local oscillator inoperative by short-circuiting tuned winding of oscillator coil. Set volume control to maximum. Select "mono", check that Balance control is central, and connect output meter across one loudspeaker output socket.
2. Inject a 470kHz modulated signal from AM generator via a 0.1µF capacitor to Tr3 base.
3. Adjust AM ift's **T6**, **T7**, **T10**, and **T13** for maximum output, while progressively reducing signal generator output to maintain a 50mW a.f. output level.

FM

1. Connect sweep marker generator across FM oscillator coil **L3**. Connect oscilloscope input between junction **R28/R29** and chassis. Inject a 10.7MHz signal from FM generator via sweep generator.
2. Adjust FM ift's **T2**, **T3**, **T4**, **T5**, **T8**, **T9** and **T11** for maximum amplitude on display with symmetrical "S"-curve cutting display base line at 10.7MHz.

R.F. Stages

AM

Inject signals from AM generator via inductive loop to ferrite aerial. Connect output meter across one loudspeaker output socket. Check correct travel and calibration of pointer against tuning dial scale (AM section).

MW (select "MW")

1. Tune receiver to low frequency end of scale, and tune signal generator to 525kHz. Adjust MW oscillator coil **L8** for maximum.
2. Retune receiver to high frequency end of scale, and signal generator to 1620kHz. Adjust MW oscillator trimmer **C29** for maximum.
3. Repeat steps 1 and 2 for optimum result.
4. Retune receiver to 500m and signal generator to 600kHz. Adjust MW aerial coils **L4/L6** (by sliding them along ferrite rod) for maximum.
5. Retune receiver to 208m and signal generator to 1440kHz; adjust MW aerial trimmer **C21** for maximum.
6. Repeat steps 4 and 5 for optimum result.

LW (select "LW")

7. Tune receiver to 1500m and adjust LW oscillator trimmer **C32** for maximum output of Radio 2 broadcast.
8. Retune receiver to "ALLOUIS" (163kHz) and adjust LW aerial coils **L5/L7** for maximum.

FM (select "FM")

Inject signals from FM generator via FM aerial socket. Select "MONO" and connect output meter across one loudspeaker output socket.

9. Tune receiver to low frequency end of FM scale, and FM signal generator to 87.5MHz. Adjust FM oscillator and r.f. coils **L2** and **L3** (by varying turns spacing) for maximum.
10. Retune receiver to high frequency end of FM scale, signal generator to 108MHz. Adjust FM oscillator and r.f. trimmers **C7** and **C14** for maximum.
11. Repeat steps 9 and 10 for optimum result.

IMPORTANT. No instructions are given in this sheet for alignment of the stereo decoder, for which specialised equipment is required. If the decoder is suspected faulty, contact the manufacturer's Service Department.