

ERT

SERVICE CHART

1915



EKCO 350/351

mains/battery cassette and radio/cassette recorders.

THE Ekco 350, a radio/cassette player and the 351, just a cassette player, are both mains/battery operated.

The 350 is equipped with a MW/VHF radio and both models take a compact cassette C60 or C90. Direct recording from radio with optional monitoring facility and a filter switch on the tone control, feature in the 350.

Cabinet is moulded in black with brushed aluminium trim and fold away carry handle. Equipment also includes a microphone with remote stop/start switch, C30 cassette and mains lead.

Mains. 240V 50Hz AC.

Battery. 6 volts DC (4 × HP11).

Wave bands

MW 530-1620kHz (566-185 metres)
VHF 87-109MHz

IF

MW 470kHz
VHF 10.7MHz

Aerial. Telescopic.

Tape speed. 1½ ips.

Tracks. Twin track mono.

Frequency response. 100-8000Hz.

Signal/noise ratio. Better than 45dB.

Wow and flutter. Better than 0.2 per cent.

Level meter. Automatic.

Rewind time. 60 sec. for C60 cassette.

Microphone. Supplied with auto stop/start switch.

Transistors

TR1 2SC645C
TR2 2SC645B
TR3 2SC828B—B
TR4 2SC829B—Y
TR5 2SC829B—Y
TR6 2SA102BA
TR7 2SB439

TR8 2SB54
TR9 2SB54
TR10 2SB54
TR11 2SB364
TR12 2SB364
TR13 2SB54
TR14 2SC828
TR15 2SB324

Diodes

D1 20A90M
D2 1S352
D3 20A90M
D4 20A90M
D5 20A90M
D6 20A90M
D7 20A90M
D8 1S1212
D9 1S1212
D10 20A90M
D11 }
D12 } bridge
D16 } rectifier KS—05 × 4
D17 }
D13 1S12
D14 1S12

Cassette. C30 C60 or C90.

Speaker. 8ohm impedance.

Output. 650mV.

Outlets. Earphone or external loudspeaker.

Inlets. Microphone, auxiliary, mains.

Dimensions. 8½ × 9¼ × 3½in.

Price. £37.63 inc. VAT.

Manufacturer. Pye Ltd, PO Box 49, Cambridge, CB4 1DS.

Service Dept. CES, 604 Purley Way, Waddon, Croydon, CR9 4DR. Tel: 01-686 0505.

DISMANTLING

Firstly remove three screws recessed in back cover (model 351, one screw inside microphone compartment). Remove now the five screws/studs B and (model 350

RESISTORS		
R1	560	6D
R2	6K8	6D
R3	68K	6D
R4	2K7	6D
R5	15K	6C
R6	22K	6C
R7	2K7	6C
R8	470	6C
R9	270	5C
R10	180K	5C
R11	180	5C
R12	470	5C
R13	100K	5C
R14	33K	5C
R15	270	5C
R16	470	5C
R17	27K	5C
R18	180K	4D
R19	15K	4D
R20	1K	5D
R21	560K	4D
R22	1K	4D
R23	1K	4C
R24	1K2	4D
R25	6K8	4C
R26	6K8	4C
R27	12K	5D
R28	56K	5D
R29	1K8	5D
R30	47K	5D
R31	10K	4C
R32	1K	4C
R33	5K6	4C
R34	100K	—
R35	270	—
R36	22K	3A
R37	10K	3A
R38	18K	3A
R39	1K	3B
R40	270	3B
R41	10K	3A
R42	2K7	3A
R43	1K	3A

R44	10K	3B
R45	27K	3B
R46	3K9	2B
R47	680	3A
R48	10K	2A
R49	27K	3A
R50	56K	3A
R51	18K	2A
R52	2K7	3A
R53	47	3A

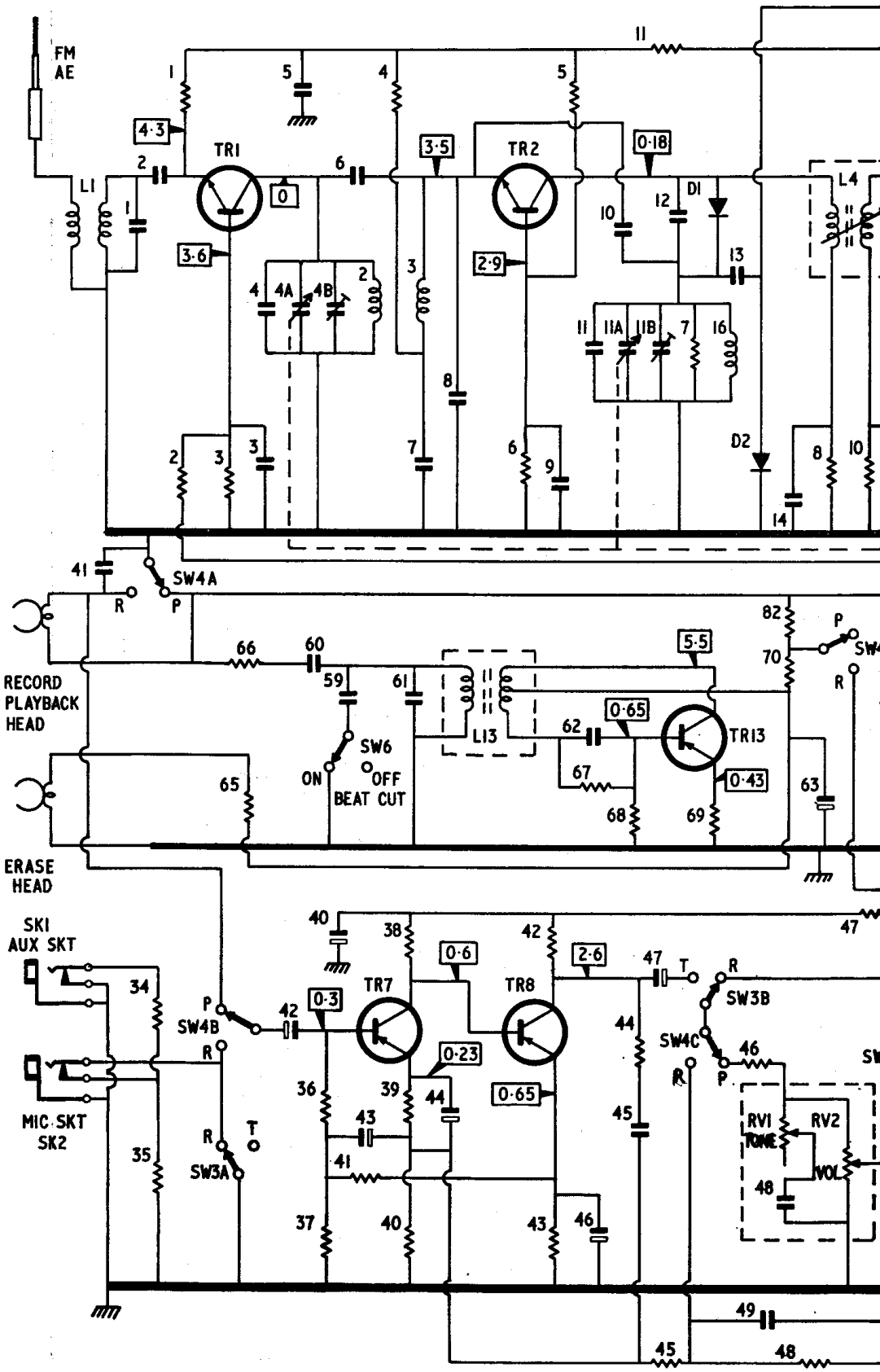
R54	12	2A
R55	270	3A
R56	39K	2A
R57	2K7	3B
R58	220	2B
R59	1K2	2B
R60	82	2B
R60A	thermistor	2A
R61	1.5	2B
R62	100	1B

R63	100	1A
R64	150	4D
R65	680	2A
R66	10K	8F
R67	22K	1A
R68	4K7	1A
R69	22	9F
R70	22	2A
R71	33K	9E
R72	220K	9E

R73	8.2	—
R74	390	mcp
R75	4.7	mcp
R76	6.8	mcp
R77	270	mcp
R78	1K5	mcp
R79	3K9	mcp
R80	1K8	mcp
R81	3K9	mcp
R82	220K	—

R83	—	CAPA
R84	—	C1
R85	—	C2
		C3
		C4
		C5

R	34	1	2	3	66	36	38	4	6	42	5	67	68	11	7	82	70	8	10			
	35				65	37	39	40		43		44	45		69	46	RV1	48	RV2	47		
C		1	2		3	4	5	6	43	7	8		9	11	10	11A	11B	12	13	14	51	
		41			42	4A	60	4B	59	40	61	44		62	46	45	47		49	48	63	50
L								2	3		13								16		4	



only) four screws A. Finally lift out chassis and if necessary untie leads.

Mechanical replacement and adjustments

Flywheel and drive belt

Remove three screws (22, 23) securing the flywheel bracket assembly (34), when the drive belt (43) can be taken off.

Before reassembly, clean the belt and flywheel. Adjust the flywheel bracket by loosening the three screws and repositioning the bracket with a screwdriver inserted in the appropriate slot.

Note:

Screws should be tightened with sealant or clear nail polish. Rubber parts or other parts that come into contact with rubber parts should be cleaned with soft lint-free cloth moistened with alcohol.

Take-up mechanism

Remove ring (33), take-up spring (31), ring (19) and washer (18). Reassemble in reverse order.

Cassette holder

Open cassette holder and remove mechanical chassis cover (2); also cassette spring (24), from holder bracket (25). Detach ring (23) and the cassette holder shaft (27) from the holder bracket (25). Reassemble in reverse order.

Fast rewind motor

Remove the cassette holder assembly as previously described and then remove drive belt (67), screw (22), spring washer (23), screw (10), washer (11), brake spring (14) and brake arm collar (15), in that order.

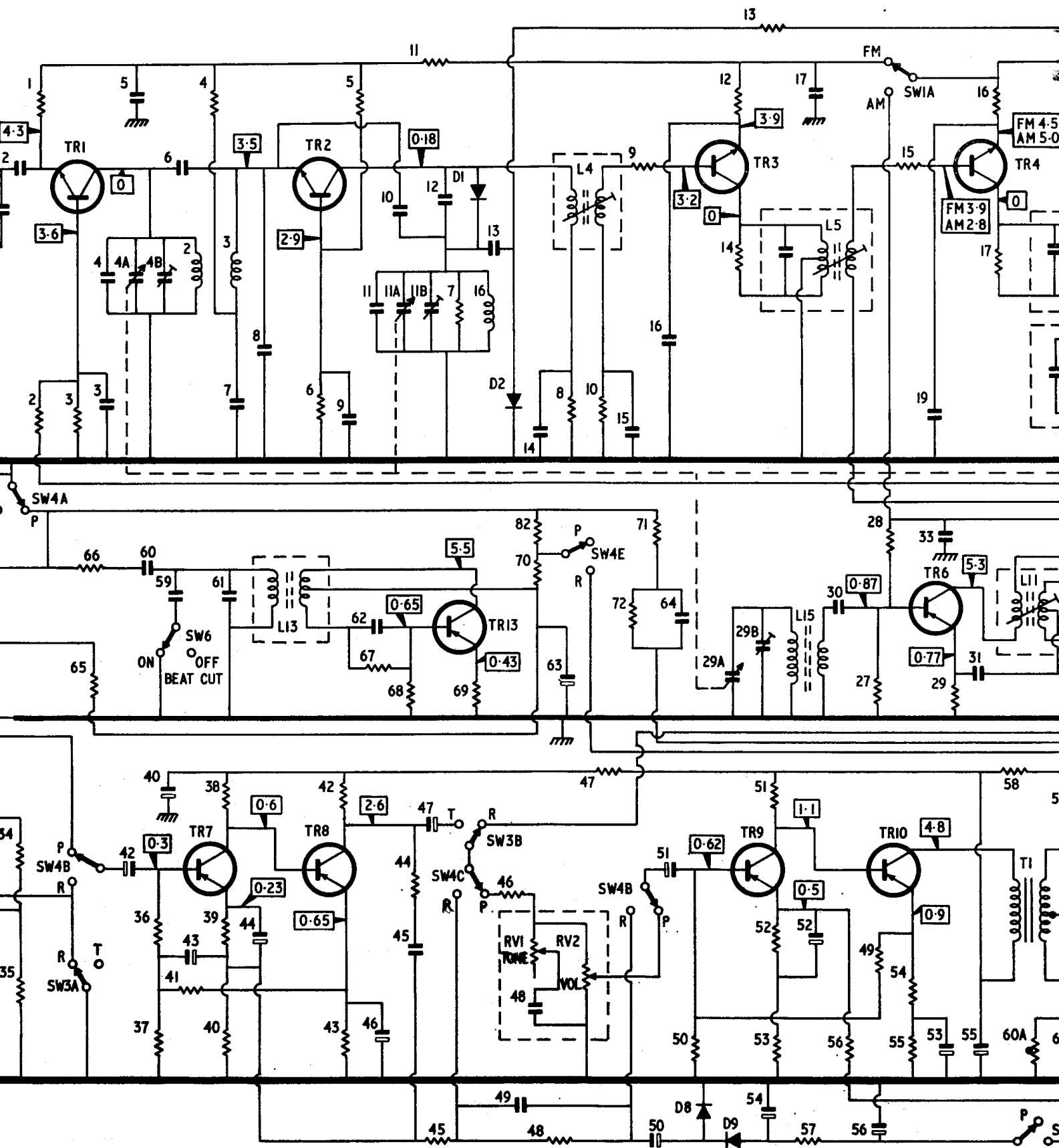
The motor (20) can now be removed. Reassembly is in the reverse order.

Record/Playback head azimuth

Insert a 5kHz test tape into the recorder and connect a valve voltmeter across the volume control. Set recorder in playback mode and adjust azimuth screw (81) for maximum output. Seal screw in this position after adjustment.

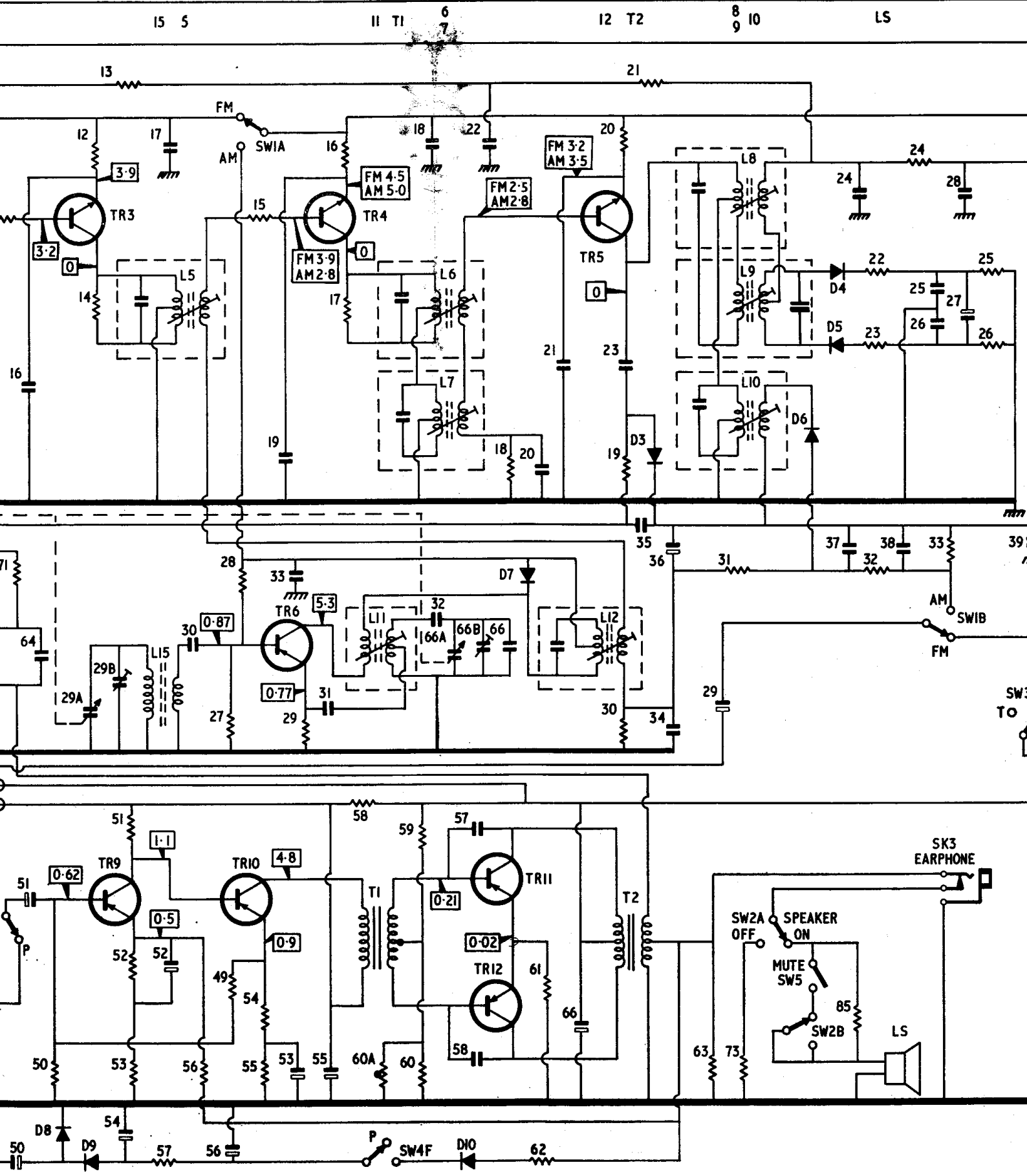
R54	12	2A	R63	100	1A	R73	8.2	—	R83	3.3	—	C6	4pF	6D	C16	0.02μF
R55	270	3A	R64	150	4D	R74	390	mcp	R84	56	—	C7	400pF	6D	C17	0.02μF
R56	39K	2A	R65	680	2A	R75	4.7	mcp	R85	27	—	C8	30pF	6D	C18	0.02μF
R57	2K7	3B	R66	10K	8F	R76	6.8	mcp	—	—	—	C9	5pF	6C	C19	0.02μF
R58	220	2B	R67	22K	1A	R77	270	mcp	—	—	—	C10	7pF	6C	C20	0.02μF
R59	1K2	2B	R68	4K7	1A	R78	1K5	mcp	—	—	—	C11	10pF	6C	C21	0.02μF
R60	82	2B	R69	22	9F	R79	3K9	mcp	C1	40pF	6D	C12	100pF	6C	C22	0.02μF
R60A	thermistor	2A	R70	22	2A	R80	1K8	mcp	C2	20pF	6D	C13	7pF	6C	C23	7pF
R61	1.5	2B	R71	33K	9E	R81	3K9	mcp	C3	0.005μF	6D	C14	0.02μF	6C	C24	0.001μF
R62	100	1B	R72	220K	9E	R82	220K	—	C4	18pF	6D	C15	0.02μF	6C	C25	0.001μF
									C5	10pF	6C					

34	1 2	3	66	36	38	4	6	42	5	67	68	11	7	82	70	8	10	72	9	71	12	14	13	57	27	28	15	29	16	17	59		
35			65	37	39	40		43		44	45		69	46	RV1	48	RV2	47		50		51	52	53	56	49	54	55		58	60A	60	
2	3	4	5	6	43	7	8	9	11	10	11A	11B	12	13	14		51	15	16					17				18	31				
				42	4A	60	4B	59	40	61	44		62	46	45	47	49	48	63	50	64	29A	29B	54	52	30	56	53	33	55			

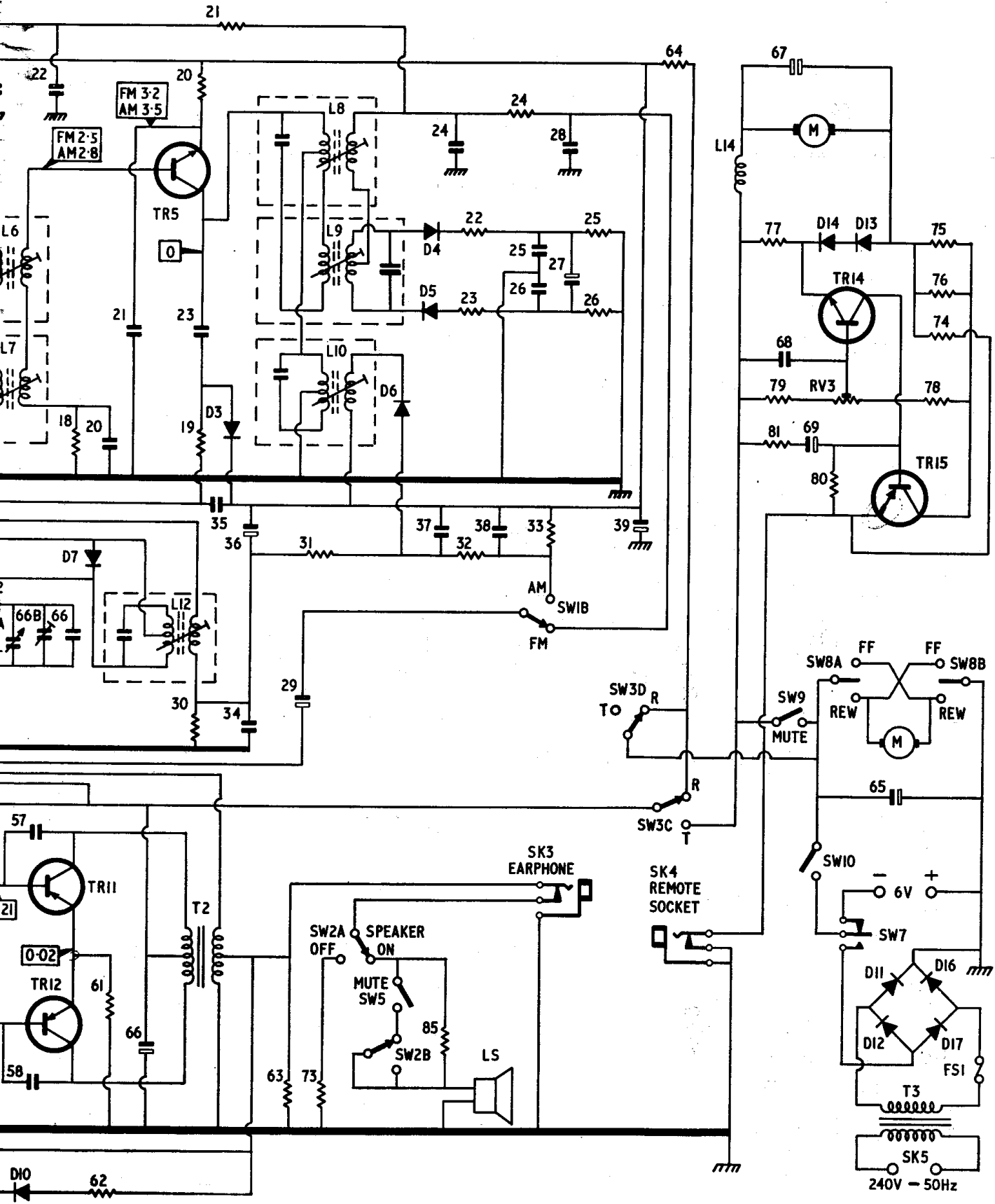
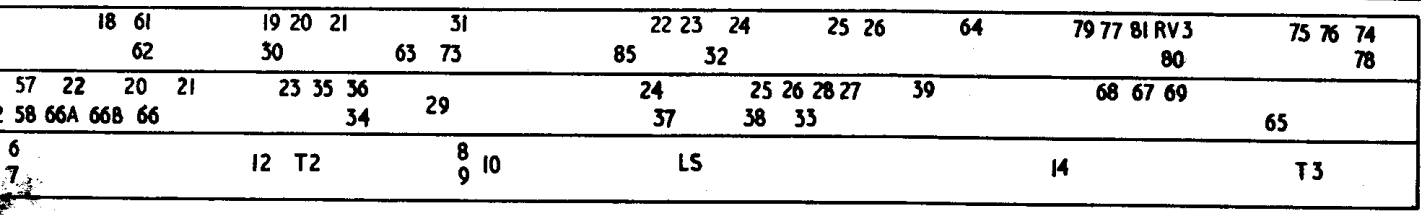


C6	4pF	6D	C16	0.02μF	5C	C26	0.001μF	4C	C36	10μF	5D	C46	33μF	3A	C
C7	400pF	6D	C17	0.02μF	5C	C27	10μF	4C	C37	0.01μF	4C	C47	10μF	3B	C
C8	30pF	6D	C18	0.02μF	5C	C28	0.022μF	4D	C38	0.022μF	4C	C48	0.1μF	7E	C
C9	5pF	6C	C19	0.02μF	5C	C29	1μF	6C	C39	470μF	4D	C49	0.003μF	2B	C
C10	7pF	6C	C20	0.02μF	4C	C30	0.02μF	5D	C40	220μF	3A	C50	10μF	2B	C
C11	10pF	6C	C21	0.02μF	4D	C31	0.01μF	5D	C41	0.0022μF	—	C51	10μF	2A	C
C12	100pF	6C	C22	0.02μF	5D	C32	140pF	5D	C42	10μF	3B	C52	100μF	7F	C
C13	7pF	6C	C23	7pF	4D	C33	0.02μF	5C	C43	0.5μF	3A	C53	100μF	3A	C
C14	0.02μF	6C	C24	0.001μF	4C	C34	0.02μF	5C	C44	10μF	3A				
C15	0.02μF	6C	C25	0.001μF	4C	C35	0.02μF	5D	C45	0.015μF	3B				

71	12	14	13	57	27	28	15	29	16	17	59	18	61	19	20	21	31	22	23	24	25	26
50	51	52	53	56	49	54	55	58	60A	60		62		30	63	73	85	32				
16	17	19	31	18	57	22	20	21	23	35	36	24	25	26	28	27						
64	29A	29B	54	52	30	56	53	33	55	32	58	66A	66B	66	34	29	37	38	33			



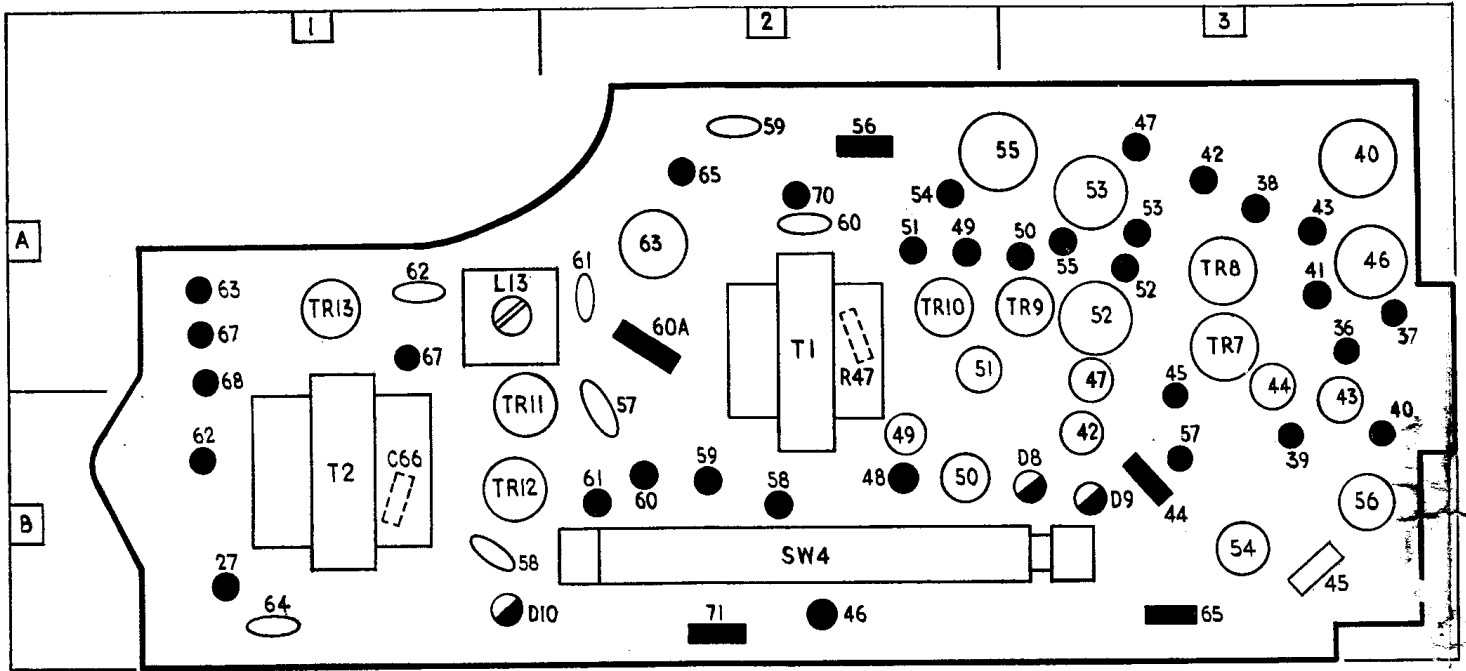
C26	0.001 μ F	4C	C36	10 μ F	5D	C46	33 μ F	3A	C56	100 μ F	3B	C62	0.0047 μ F	9F			
C27	10 μ F	4C	C37	0.01 μ F	4C	C47	10 μ F	3B	C57	0.01 μ F	2B	C63	220 μ F	2A	C64	300pF	1B
C28	0.022 μ F	4D	C38	0.022 μ F	4C	C48	0.1 μ F	7E	C58	0.01 μ F	1B	C65	2200 μ F	5C	C66	220 μ F	5C
C29	1 μ F	6C	C39	470 μ F	4D	C49	0.003 μ F	2B	C59	350pF	2A	C67	10 μ F	—	C68	0.02 μ F	mcp
C30	0.02 μ F	5D	C40	220 μ F	3A	C50	10 μ F	2B	C60	300pF	2A	C69	3.3 μ F	mcp			
C31	0.01 μ F	5D	C41	0.0022 μ F	—	C51	10 μ F	2A	C61	0.0047 μ F	2A	mcp-motor control panel					
C32	140pF	5D	C42	10 μ F	3B	C52	100 μ F	7F	C54	33 μ F	3A						
C33	0.02 μ F	5C	C43	0.5 μ F	3A	C53	100 μ F	3A	C55	220 μ F	3A						
C34	0.02 μ F	5C	C44	10 μ F	3A												
C35	0.02 μ F	5D	C45	0.015 μ F	3B												



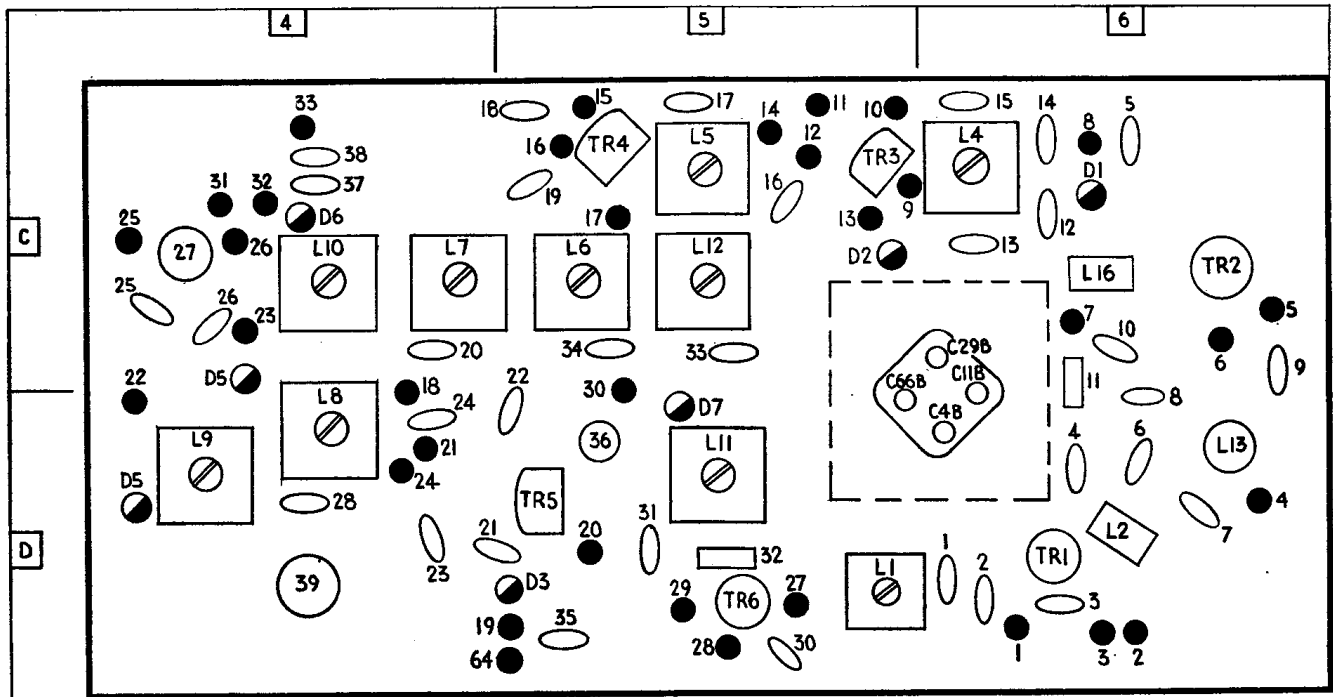
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EKO 350 351

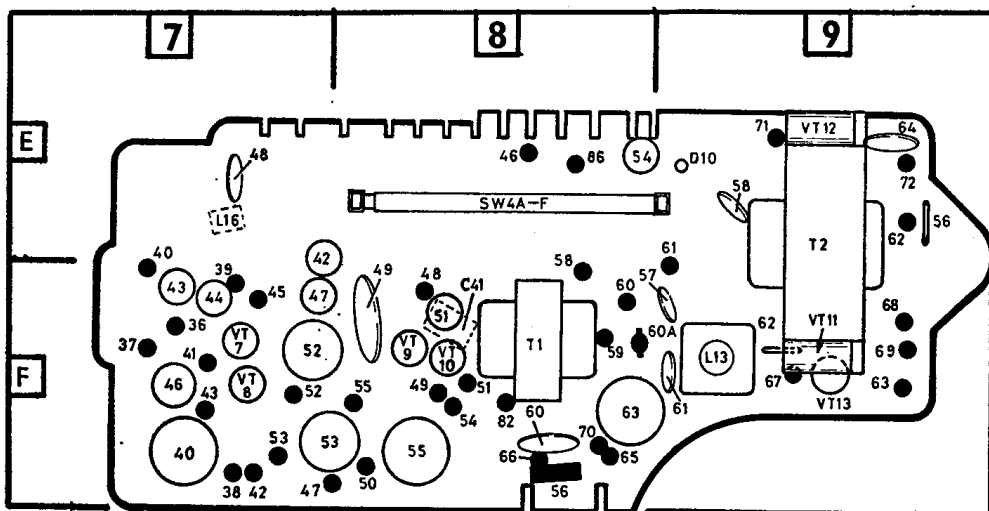


Above: Audio panel model 350



Left: Rad model 351

Below: Audio panel model 351

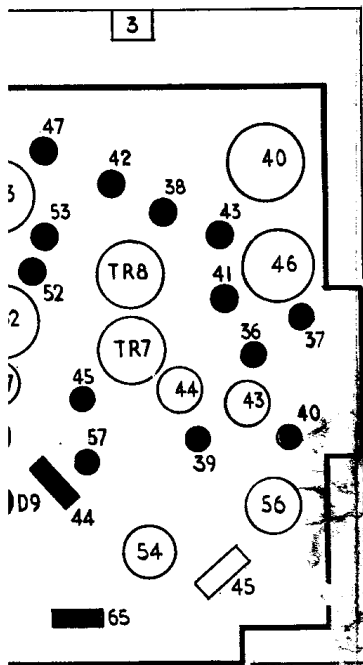


Pressure roller assembly

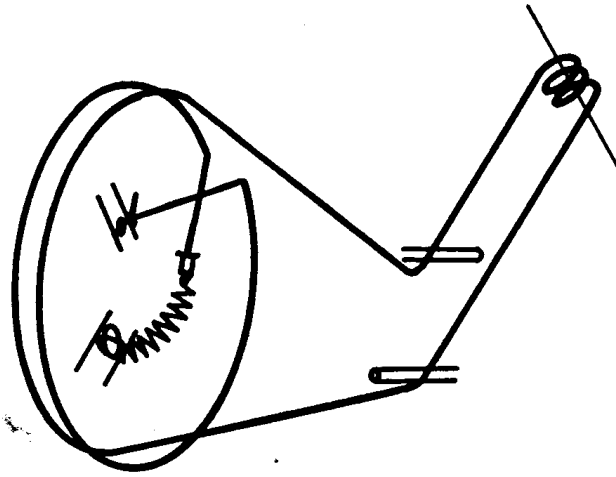
Depress the play button and pressure roller spring (85), us the force of the pressure roller direction of the arrow is between 450 gms.

Operation

- (a) Playback
- When the PLAY button is depressed the sliding sub-chassis assembly (7) the erase head (77) and reco head (80) are mounted, and (50) are pressed downward. The functions then occur:—
1. The brake arm assembly (16) from the turntables and the (64)—SW9 on circuit, turns drive motor and the audio
 2. Both heads are pressed against the tape whilst the pressure roller presses the tape against the
 3. Both turntables are free from



Above:
Cord drive
approx.
50cm. long



lever; thus the tape can be wound onto the take-up turntable.

4. Flywheel (51), which is rotated by the drive motor via belt (43) constantly transports the tape with its capstan shaft and also conveys its rotation to the take-up turntable via take-up mechanism assembly (32).

(b) Record

The function for tape transport is exactly the same as for playback mode. When RECORD and PLAY are depressed simultaneously, the record lever assembly (61) is moved to set the record/playback switch—SW4 on circuit—to the RECORD position.

(c) Fast Forward

When this button is held down, the FR plate assembly (49) slides to the left, turns on the switch (59)—SW8 on circuit—and presses down the brake lever (50), thus releasing brake arm (16) from the turntables.

The FR motor (20) turns in a clockwise direction, resulting in a fast wind on the take-up turntable, whilst the slide of the FR plate assembly (49) swings the FR pulley assembly (55) clockwise and drive belt (67) is pressed against the take-up turntable.

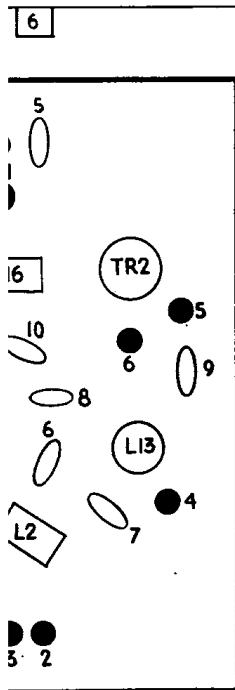
(d) Fast Rewind

When this button is held down, the FR plate assembly (49) slides to the right, similarly turning on the switch, pressing down the brake lever and releasing the brake arm. The FR motor turns anti-clockwise, so that a fast wind onto the supply turntable results, whilst the FR pulley assembly swings counter-clockwise and the drive belt is pressed against the supply turntable.

(e) Stop/Eject

The first depression halts all functions; the second rotates the hook kick plate (48) so that the coupling bar (41) pulls the hook assembly (40).

This in turn releases the cassette holder assembly (1).



Left: Radio panel
model 350

Pressure roller assembly

Depress the play button and adjust the pressure roller spring (85), using one of the four holes on the sub chassis, so that the force of the pressure roller in the direction of the arrow is between 350 and 450 gms.

Operation

(a) Playback

When the PLAY button is depressed the sliding sub-chassis assembly (70) on which the erase head (77) and record/playback head (80) are mounted, and brake lever (50) are pressed downward. The following functions then occur:—

1. The brake arm assembly (16) is detached from the turntables and the leaf switch (64)—SW9 on circuit, turns on both the drive motor and the audio amplifier.
2. Both heads are pressed against the tape, whilst the pressure roller assembly (84) presses the tape against the capstan.
3. Both turntables are free from the brake

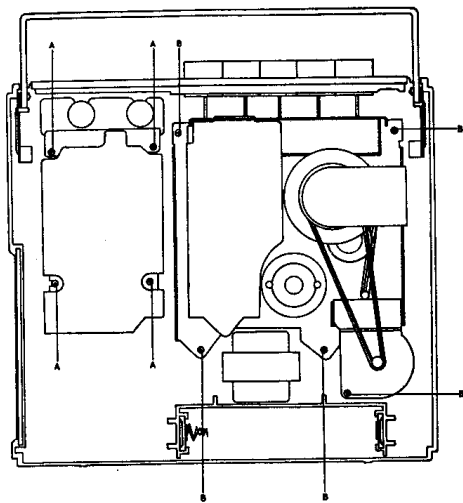
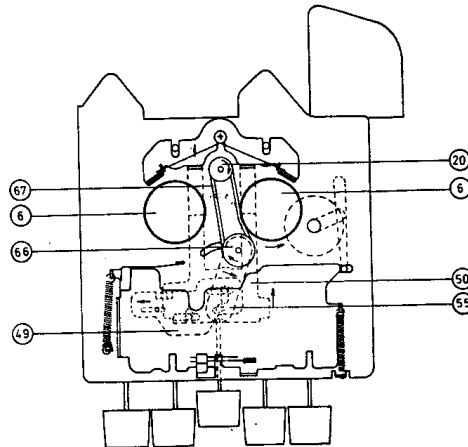
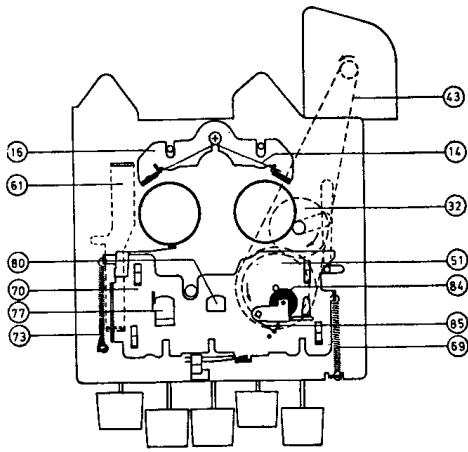
ALIGNMENT

AM

All signals are 30 per cent modulated and applied via a standard dummy aerial.

With vol. control at max. and receiver tuned to high frequency end of scale, inject 4700kHz and adjust L10, L7 and L12 for maximum output.

Now retune receiver to low frequency



end of scale, input 525kHz and adjust L11 for the best results.

Retune now to high frequency end, input 1650kHz and adjust trimmer C66B. Finally, inject a signal of 1400kHz, tune to signal and adjust C29B for max. output. Repeat, until no further improvement can be made.

FM

Set volume control to maximum and scale pointer to high frequency end of scale.

Connect a scope to TP2 (junction R24/C28), inject 10.7MHz modulated with sweep to L3 via coupler winding and adjust L8, L6, L5 and L4 for maximum height and symmetry of bandpass curve. Now adjust the core of L9 for S-curve symmetry.

Reconnect signal generator to TP2. Inject a signal of 86.5MHz and tune receiver to low frequency end of scale.

Adjust spacing of L16. Now retune to high frequency end of scale, inject 110MHz to L3 via coupler winding and trim C11B.

Repeat the above two steps until no further improvement can be obtained.

With the generator connected to L3 via a coupler winding, inject a signal of 90MHz, tune receiver to signal and adjust spacing of L2.

Finally, alter signal input to 106MHz, tune receiver to signal and adjust trimmer C4B.

Repeat last two steps until no improvement can be obtained.

Mechanical Assembly

Item No.	Description
1	Cassette Holder Assembly (350)
1	Cassette Holder Assembly (351)
4	Turntable Cap B
6	Turntable Assembly
7	Record Lock Spring
8	Record Safety Lever
14	Brake Arm Spring
15	Brake Arm Collar
16	Brake Arm Assembly
20	Fast-Forward/Rewind Motor
21	Drive Motor Assembly (350)
21	Drive Motor Assembly (351)
24	Cassette Holder Spring—Right (350)
24	Cassette Holder Spring (351)
26	Stud A
27	Cassette Holder Shaft
30	Motor Pulley
31	Take-Up Mechanism Spring (350)
31	Take-Up Mechanism Spring (351)
32	Take-Up Mechanism Assembly
37	Hook Spring
38	Flywheel Bushing
40	Record Safety Hook Assembly
41	Coupling Bar
43	Drive Belt
45	Fast/Rewind Plate Spring
46	Kick Plate Collar
48	Hook Kick Plate
49	Fast/Rewind Plate Assembly
50	Brake Lever with Pad
51	Flywheel
52	Brake Lever Spring
55	Fast/Rewind Pulley Plate Assembly
58	Ballbearing
59	Leaf Switch; SW8
61	Record Lever Assembly
62	Brake Lever Spring
63	Record Lever Boss
64	Leaf Switch; SW9
65	Holder; Sliding Sub-Chassis Assembly
66	Fast/Rewind Pulley
67	Fast/Rewind Belt
68	Cushion Rubber
69	Spring; Sliding Sub-Chassis Assembly (350)
69	Spring; Sliding Sub-Chassis Assembly (351)
72	Roller; Sliding Sub-Chassis Assembly
73	Spring; Sliding Sub-Chassis Assembly (350)
73	Spring; Sliding Sub-Chassis Assembly (351)
74	Back Tension Lever Assembly
77	Erase Head
80	Record/Playback Head
81	Azimuth Adjustment Spring
84	Pressure Roller Assembly
85	Pressure Roller Spring

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