

## "TRADER" SERVICE SHEET

1583

## EKCO SRG395 &amp; FERRANTI SRG1073

## A.M./F.M. Stereophonic Radiograms

## GENERAL DESCRIPTION

THESE two stereophonic radiograms Ekco SRG395 and Ferranti SRG1073 employ an identical chassis and both incorporate the Garrard "Auto Slim" record changer unit.

Mono-Stereo gram switching and waveband selection switching is arranged together with the receiver on/off switches in a single press-key unit. Designed to operate from 200-250V 50c/s a.c. mains supplies, the chassis employs five valves with a bridge rectifier supplying h.t. current.

Waveband ranges are 182-545m (m.w.), 1,200-2,000m (l.w.) and 86-100Mc/s (f.m.). Socket facilities are provided for an external f.m. aerial and a.m. aerial and earth. Audio output is approximately 2W per channel on stereo and 4W total on mono.

Release date and original price (both models): August 1961, £54 17s. Purchase tax extra.

## CIRCUIT DESCRIPTION

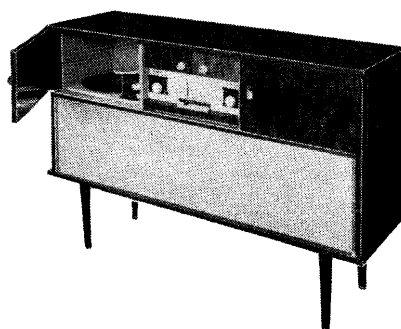
**Operation on F.M.**—Input from the f.m. aerial is via the wide band coupling L1, L2 to the cathode of V101a which is connected as an earthed grid r.f. amplifier. The anode of V101a is tuned by L3, C104 and is coupled to the grid of the mixer V101b via a bridge circuit comprising C105, C108, C109 and the valve cathode/grid capacitance, to prevent oscillator radiation through the aerial circuit. V101b is tuned at oscillator frequency by L4 and C106.

The 10.7Mc/s i.f. signal is passed by the first i.f. transformer L6, L7 to the control grid of V102b pentode section which operates on f.m. as first i.f. amplifier. Amplified output from V102b is then fed to the second i.f. amplifier V103 via L10, L12 and switch S11 which, in conjunction with S10, selects the appropriate secondary winding.

MR101 and MR102 are wired in a balanced ratio detector circuit, and after

de-emphasis by R117 and C144, the rectified audio output from the detector is fed via C147 and the appropriate switches to the volume controls RV1 a and b. The negative d.c. potential developed across R122 is a function of signal strength and is applied to the suppressor grid of V103 as a.g.c. On radio

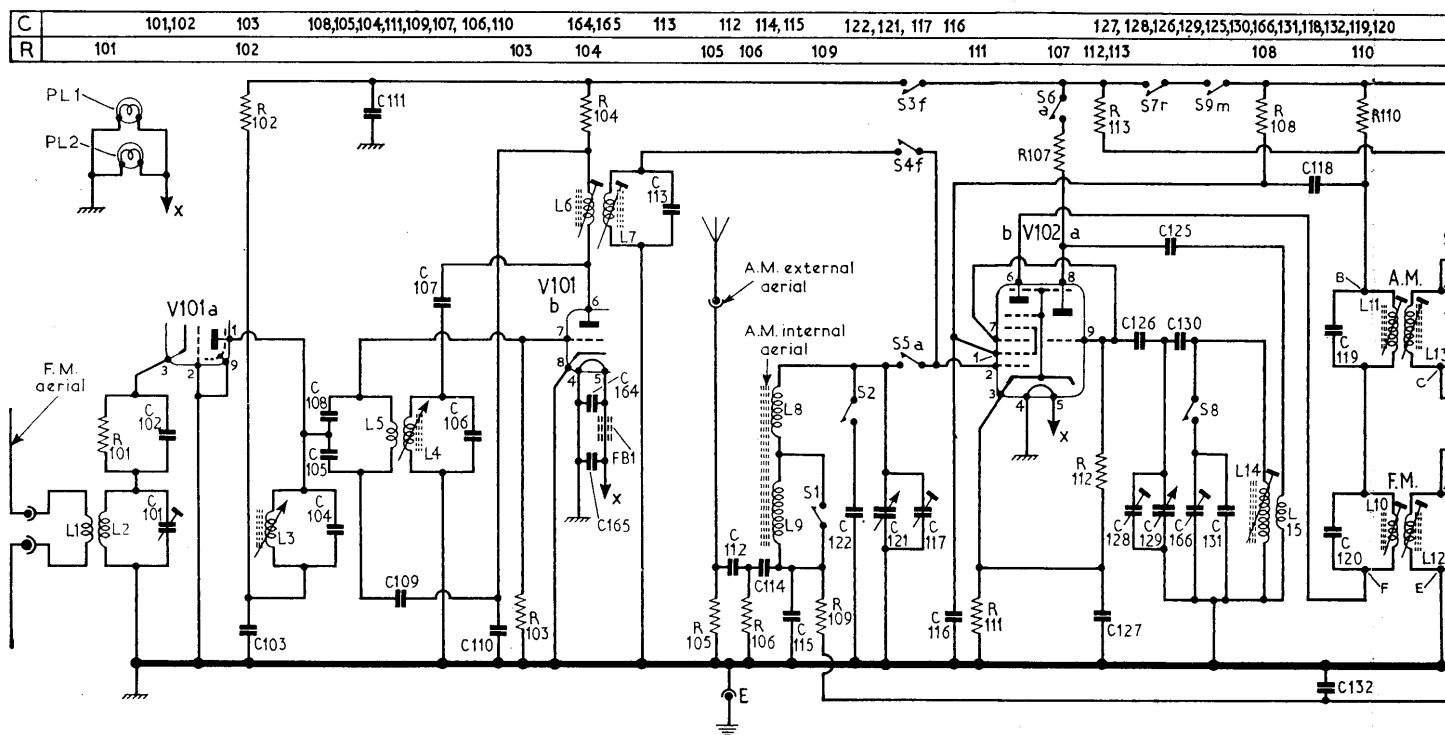
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Appearance of the Ekco SRG395. Ferranti SRG1073 cabinet styling is similar except that the tuning scale occupies a position on the extreme right-hand side instead of being positioned centrally as shown

## Resist

R1  
R2  
R3  
R4  
R5  
R6  
R7  
R8  
R9  
R10  
R11  
R12  
R13  
R14  
R15  
R16  
R101



Circuit diagram of the Ekco SRG395 and Ferranti SRG1073 chassis which are identical. On f.m. operation the a.g.c. voltage is derived from the balanced ratio detector and applied to the suppressor grid of the second i.f. amplifier V103

C133	5,000pF	F4
C134	5,000pF	F4
C135	350pF	B2
C136	8-2pF	B2
C137	0.04μF	F4
C138	350pF	B2
C139	35pF	B2
C140	220pF	E4
C141	1,000pF	E4
C142	1,000pF	E4

C143	220pF	E4
C144	500pF	E4
C145	220pF	E4
C146	2μF	B2
C147	0.01μF	E3
C148	500pF	B1
C149	220pF	F4
C150	500pF	B1
C163	50μF	B1
C164	1,000pF	†

C165	0.01μF	†
C166	30pF	B1
C168	220pF	E4

## Coils

L1, L2	—	A2
L3-L5	—	A1
L6, L7	—	A2
L8, L9	—	B1
L10-L13	—	A2

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Resistors														
R1	2.7kΩ	G5	R102	1.5kΩ	A1	R122	18kΩ	E4	C5	0.01μF	G5	C114	0.01μF	B1
R2	100Ω	G5	R103	1MΩ	†	R123	2.2MΩ	E4	C6	16μF	G6	C115	4,700pF	B1
R3	3.3kΩ	G5	R104	4.7kΩ	A1	R127	47kΩ	F4	C7	25μF	H5	C116	3,000pF	F4
R4	300Ω	G5	R105	1.5MΩ	B1	R148	300Ω	E3	C8	0.01μF	H6	C117	30pF	B1
R5	18kΩ	G6	R106	15kΩ	B1	R149	220kΩ	F4	C9	50μF	H6	C118	5,000pF	F4
R6	220kΩ	G5	R107	56kΩ	F4	R152	1MΩ	F4	C10	25μF	H5	C119	100pF	A2
R7	1MΩ	G6	R108	18kΩ	F4	RV1a	1MΩ	C1	C101	30pF	A2	C120	15pF	A2
R8	47kΩ	G6	R109	470kΩ	E4	RV1b	1MΩ	C1	C102	1,000pF	†	C121	—	A1
R9	220kΩ	H6	R110	1.5kΩ	F4	RV2a	1MΩ	B1	C103	1,000pF	†	C122	120pF	F3
R10	2.7kΩ	H6	R111	180Ω	F4	RV2b	1MΩ	B1	C104	3pF	†	C123	100pF	A2
R11	100Ω	H6	R112	47kΩ	F4	RV3	100kΩ	B1	C105	6pF	†	C124	15pF	A2
R12	390Ω	H5	R113	47kΩ	F4	RV4	500kΩ	E4	C106	17pF	†	C125	200pF	F4
R13	47kΩ	H5	R114	2.2kΩ	F4				C107	10pF	†	C126	82pF	F4
R14	1MΩ	H5	R115	150Ω	F4				C108	8.2pF	†	C127	0.04μF	F4
R15	3.3kΩ	H6	R117	100kΩ	E4				C109	12pF	†	C128	30pF	B1
R16	390Ω	H5	R118	2.7kΩ	E4				C110	44pF	†	C129	—	A1
R101	220Ω	†	R119	2.7kΩ	E4				C111	0.01μF	†	C130	495pF	F4
			R120	47kΩ	E4				C112	0.01μF	B1	C131	452pF	F3
			R121	18kΩ	E4				C113	8.2pF	†	C132	0.04μF	F4

## SWITCH CODING

a = Closed on a.m. (i.e. on m.w. and l.w.)

f = Closed on f.m.

r = Closed on radio (i.e. on m.w., l.w. and f.m.)

g = Closed on gram (i.e. on mono and stereo)

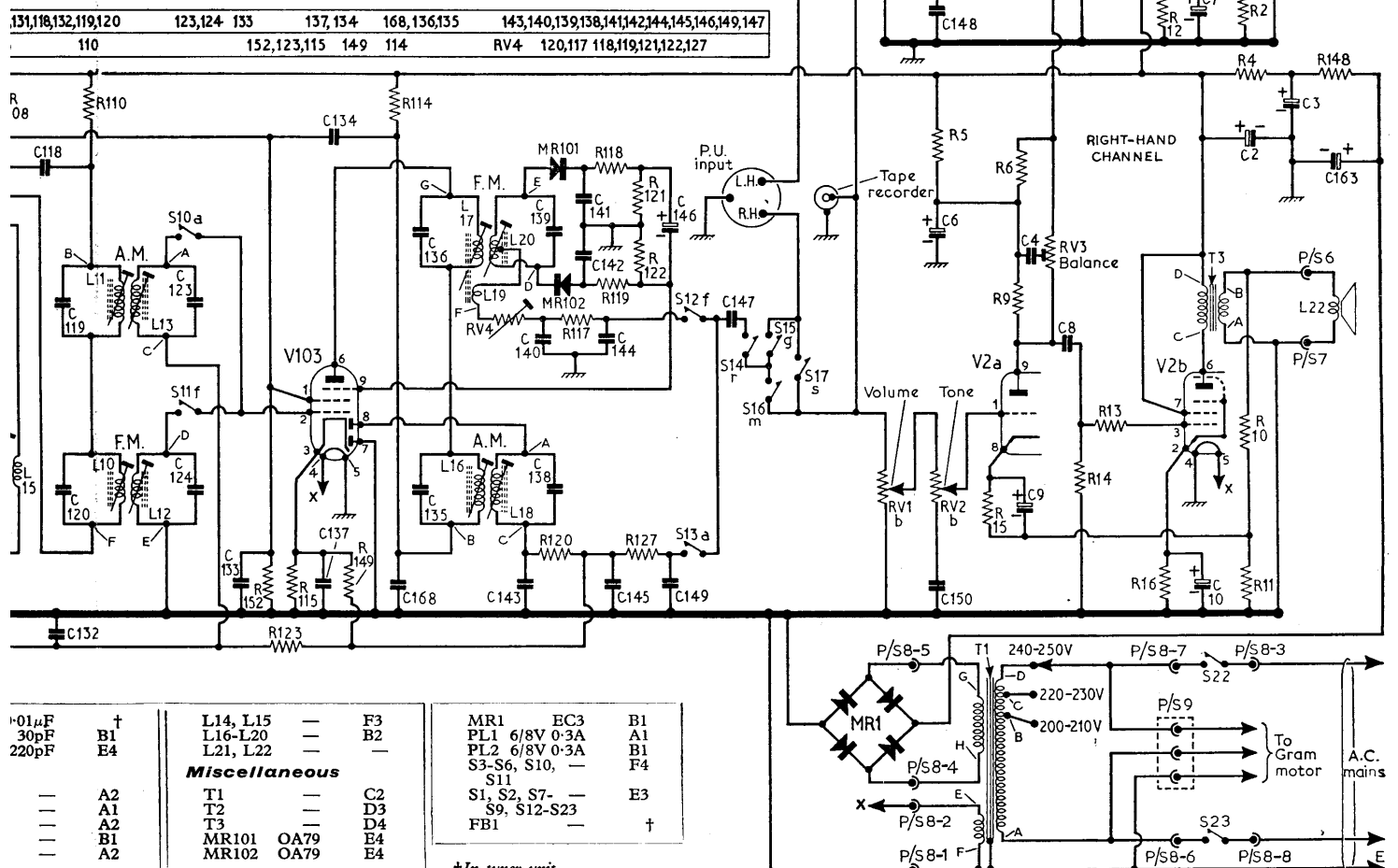
m = Closed on mono and radio

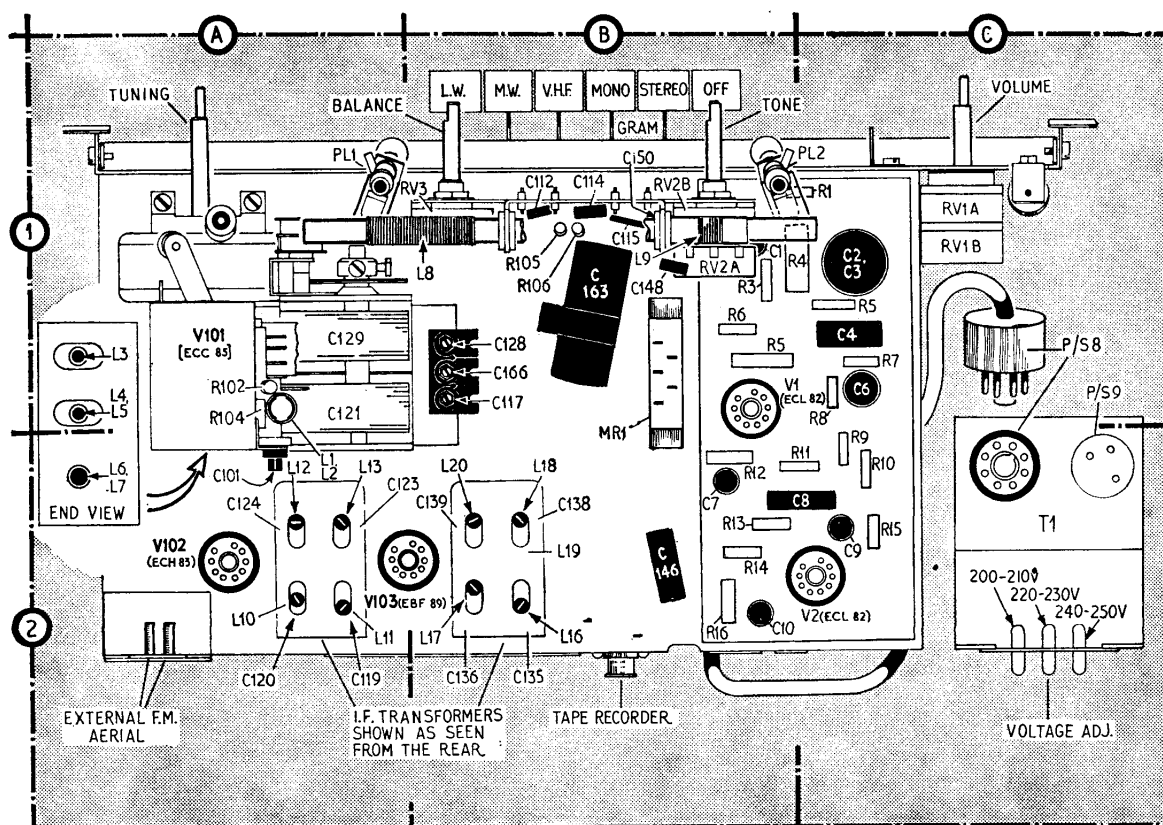
s = Closed on stereo

Of the switches which do not carry suffix letters, S1 is closed on m.w., and S2 and S8 are closed on l.w.

C	148,6,150	1,9,4,5,8	7,10	2	3	163	C
R	RV1a,b	RV2a,b,5	3,15,6,9,RV3,7,14,8,13	12,16	1,2,10,11,4	148	R

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Right: Underside view of the chassis. The f.m. slide switch assembly can be seen in location ref. F4

Left: Plan view (except i.f. transformers) of the chassis and mains unit. I.f. transformers are shown as seen from the rear

### Circuit Description—continued.

and mono the two audio amplifier and output stages operate in parallel driving their respective loudspeakers L21 and L22. A measure of output developed across R1 and R2 is coupled to V1a cathode as negative feedback and simi-

Valve Table

Valve	Anode (V)	Screen (V)	Cathode (V)
V101a ECC85 *	190	—	—
V101b ECC85 *	180	—	—
V102a ECH81 †	60	—	2-2
V102b ECH81 †	190	115	2-2
	205	80	2-2
	184	80	1-5
V103 EBF89 †	180	70	1-7
	90	—	1-4
V1a ECL82 †	93	—	1-4
V1b ECL82 †	185	202	15-0
	198	210	15-5
V2a ECL82 †	90	—	1-4
	93	—	1-4
V2b ECL82 †	185	202	15-0
	198	210	15-5

\*Receiver switched to f.m.  
†Receiver switched to a.m.

larly a portion of the output from the right-hand channel is fed to V2a cathode.

**Operation on A.M.**—H.t. supply is removed from the f.m. tuner by S3 and is restored to the a.m. oscillator section V102a by S6. V102 operates as the frequency changer on a.m. with r.f. signals applied to its pentode section control grid from the internal aerial coil L8 (m.w.) or L8 and L9 (l.w.) via S5, or from the bottom coupled external aerial. L14 and L15 are the local oscillator tuning and coupling coils. The intermediate frequency present in V2b anode circuit is selected by the tuned primary L11, C119 of the first a.m. i.f. transformer which is resonant at 470kc/s.

Output from the pentode amplifier section of V103 is coupled via L16 and L18 to the audio detector and a.g.c. diode anode. Audio signals developed across the anode load R149 are filtered by R127 and C149 and fed via S3 and C147 to the volume controls. A.g.c. voltage is fed via R123 to V103 control grid and via R109 to the control grid of V102b. Operation of the audio channels is the same as for f.m.

**Operation on Stereo.**—The two separate p.u. signals are fed to the l.h. volume control RV1a via S20 and to the r.h. volume control RV1b via S17. (The radio detector outputs are isolated by the opening of S14 and h.t. voltage is removed from V103 screen grid.) The two channels comprising triode amplifier and pentode output stages V1 and V2 operate as identical but separate ampli-

fiers providing left-hand and right-hand outputs. Equalization of the two channels is provided by the balance control RV3.

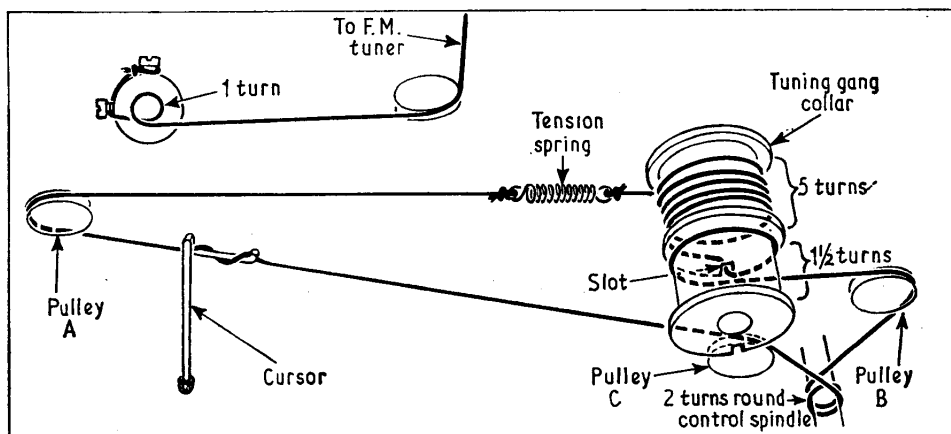
### CIRCUIT ALIGNMENT

**Equipment Required.**—An a.m./f.m. signal generator; an audio output meter; a 20,000  $\Omega/V$  meter; a 0.1 $\mu F$  capacitor; a 3 ohms 3 watt resistor and a bladed type trimming tool.

Connect the 3 ohms resistor across the output sockets of the channel not used for alignment, and connect the audio output meter across the output sockets of the channel which is used.

### F.M. Circuits

1.—Connect the 20,000 $\Omega/V$  meter switched to its 10v d.c. range across C146 (observe polarity). Connect the



Diagrams of the main tuning drive and f.m. tuning drive assemblies



Draw the cord round the pulley and on to the stirrup actuated by the press-button. When the button is depressed the slider should be in the fully drawn out position.

**Note:** RV4 is correctly set in production and should not be adjusted. If the setting has been accidentally disturbed it should be re-set for minimum noise on an accurately-tuned weak signal.

- L8 and L9 are adjusted by sliding the former along the ferrite rod.

