

SERVICE MANUAL
AND
PARTS LIST
FOR
CLAIRTONE
STEREOPHONIC
RADIO-PHONOGRAPH
Model
Model S-301 - COUNTESS

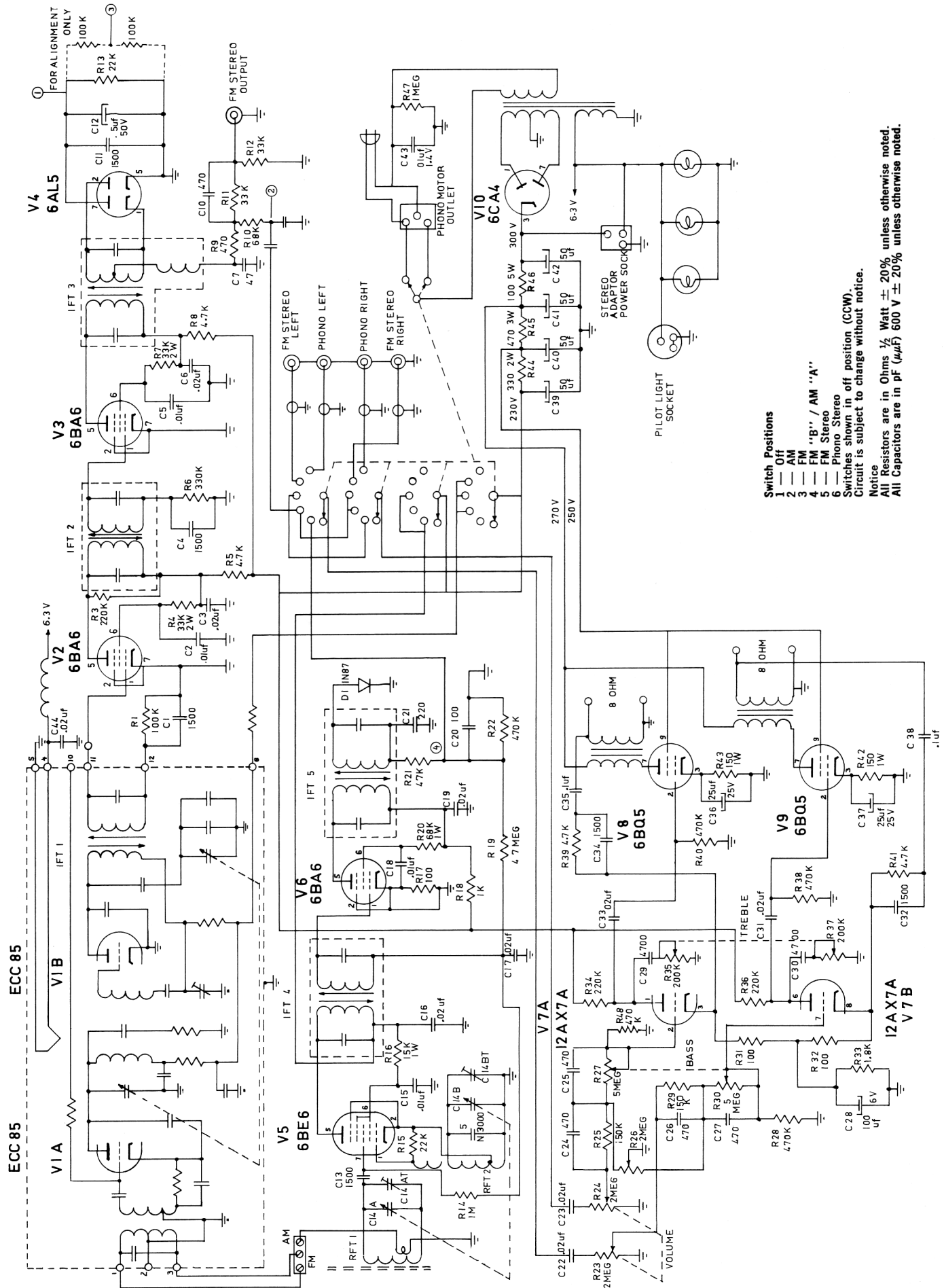
Printed in Canada

EFFECTIVE DATE
NOV. 28/61

PARTS LIST

Schematic Location	Part Number	Description
RESISTORS		
R1	33-41035	100 K ohm
R2	33-31565	15 K ohm 2 W
R3, R34, R36	33-422235	220 K ohm
R4, R7	33-33365	33 K ohm $\pm 10\%$ 2 W
R5, R8	33-24735	4.7 K ohm
R6	33-43335	330 K ohm
R9	33-14735	470 ohm
R10	33-36835	68 K ohm
R11, R12	33-33335	33 K ohm
R13, R15	33-32235	22 K ohm
R14, R47	33-51035	1 Meg ohm
R16	33-31575	15 K ohm 1 W
R17, R31, R32	33-11033	100 ohm
R18	33-21035	1 K ohm
R19	33-54735	4.7 Meg ohm
R20	33-36875	68 K ohm 1 W
R21	33-34735	47 K ohm
R22, R28, R38,		
R40, R48	33-44735	470 K ohm
R23, R24, R26	33-270208-1	Volume and Balance control
		2 Meg ohm
R25, R29	33-41535	150 K ohm
R27, R30	33-254595-10	Bass control 5 Meg ohm
R33	33-21833	1.8 K ohm $\pm 10\%$
R35, R37	33-254595-11	Treble control 200 K ohm
R39, R41	33-24735	4.7 K ohm
R42, R43	33-11573	150 ohm $\pm 10\%$ 1 W
R44	33-13365	330 ohm 2 W
R45	33-254644-14	470 ohm 3 W
R46	33-254644-13	100 ohm 5 W
CAPACITORS		
C1, C4, C11		
C13, C32, C34	32-9575-18	1500 pF GMV
C2, C5, C14,		
C17	32-200044-68	.01 μ F
C3, C6, C8,		
C15, C16, C18,		
C22, C23, C31,		
C33	32-200044-43	.02 μ F GMV
C7	32-200044-1	47 pF
C9, C24, C25,		
C26, C27, C10	32-250950-10	470 pF
C12	32-254587-2	5 μ F 50 V Tub. Electrolytic
C19	32-250950-44	100 pF
C20	32-250950-41	220 pF

Schematic Location	Part Number	Description
C21	32-250950-43	.01 μ F +80—20% 1.4 KV
C28	32-254587-6	100 μ F 6V Tub. Electrolytic
C29, C30	32-250950-42	4700 pF GMV
C35, C38	32-253659-6	.1 μ F 200 V paper
C36, C37	32-254587-7	25 μ F 25 V Tub. Electrolytic
C39, C40,		
C41, C42	32-254599-4	50-50-50-50 300 V Electrolytic
C14A, B,		
AT, BT	38-270198-1	Tuning capacitor
TRANSFORMERS AND COILS		
	75-254564-4	Power transformer
	75-254634-2	Audio output transformer
1FT2	1607-4	10.7 Mc I.F. transformer
1FT3	2607-5	10.7 Mc Ratio detector
1FT4 and 5	1655-6	455 Kc I.F. transformer
RFT1	83A270261-4	Rod Loop
RFT2	83A254592-2	B.C. oscillator coil
	39-12595-1	R.F. choke
MISCELLANEOUS PARTS		
	116-254724-3	FM tuner assembly
D1	63-251913-6	Germanium diode IN87
	15-254577-4	AM-FM antenna terminal board
	79-254578-3	3 prong socket Phono motor
	79-254578-4	3 prong socket Pilot light
	79-254578-6	3 prong socket Multiplex
	58-270225-1	Function switch
CABINET PARTS		
12-AL-73		Garrard Type A Changer C/W
		Acos 73-2 D/S Cartridge
14-106-3		EMI woofer Y200-106 (93870AP)
14-212-4		EMI tweeter TW34-2 (97492E)
20-21		Face plate 251-103D
21-21		Dial Glass 103D—S251—GD
22-16-1		Knob with dot
22-16-2		Knob without dot
24-2		.5 μ F 25 V A.C. capacitor
30-14		Pilot light assembly
33-5-10		3 pin power plug for changer
35-1		Pilot light lens
35-4		Stereo indicator lens



ALIGNMENT PROCEDURE

F.M. DETECTOR CURVE

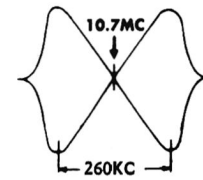


FIG. 1

F.M. I.F. PASSBAND

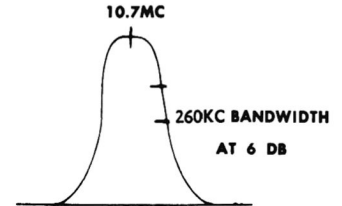


FIG. 2

Preliminary:

Alignment is an exacting procedure and should be undertaken only when necessary. The following equipment is required:

1. Signal generator with a frequency range of at least from 455 kc to 1625 kc.
2. Signal generator with a frequency range covering 10.7 mc. for FM-IF. alignment.
3. Vacuum tube voltmeter,
OR
2. F.M. (sweep) signal generator usable at 10.7 mc
3. 10.7 Crystal or other accurate marker generator
4. Oscilloscope

Notes: Allow at least five minutes for the set to warm up before attempting alignment. An (8 ohm) speaker or dummy load (5-10 ohms) must be connected across the audio output transformer secondaries at all times.

AM IF & RF ALIGNMENT

Step	Signal Generator Coupling	Signal Generator Frequency	Band Switch Position	Radio Dial Setting	Connect VTVM	Adjust	Remarks
1.	High Side to Pin 7 of V5 (6BE6) thru .001 MFD capacitor Low Side to Chassis.	455 KC	A.M.	Tuning Gang Fully Closed	High Side to Point 4, Low side to Chassis.	1FT5-1FT4	Adjust top and bottom cores for maximum keep VTVM reading at less than 3 volts by reducing generator output as required. Repeat adjustments in same sequence (1FT5-1FT4) until no further increase is noted.
2.	Loop (Radiated)	535 KC	A.M.	535 KC (A.M. Gang Fully Closed)	Same as in Step 1	T8	Remove A.V.C. short to Chassis and adjust for maximum reading.
3.	Same as in Step 2	1625 KC	A.M.	1625 KC (A.M. Gang Fully Open)	Same as in Step 1	A.M. Osc. Trimmer C14BT	Adjust for maximum reading.
4.							Repeat steps 2 & 3 until no further increase is noted.
5.	Same as in Step 2	1400 KC	A.M.	1400 KC	Same as in Step 1	R.F. Trimmer C14AT	Adjust for maximum reading.

F.M. - I.F. ALIGNMENT USING UNMODULATED SIGNAL GENERATOR AND VTVM

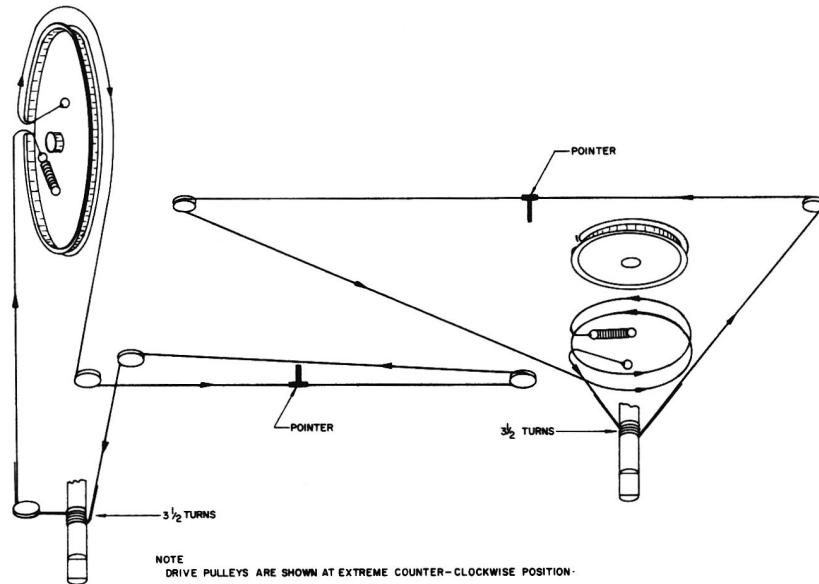
1.	High Side to Tube Shield Fitted over V1 (ECC 85) Low Side to Chassis.	10.7 (Unmod.)	F.M.	Point of Non-Interference	D.C. Probe to Point 1. Common lead to Chassis.	1FT3 Primary only (bottom) 1FT2 Pri. & Sec. & 1FT1 Pri. & Sec.	Adjust for maximum deflection.
2.	Same as in Step 1	10.7 (Unmod.)	F.M.	Same as in Step 1	D.C. Probe to Point 2. Common lead to Point 3 (Junction of added 100K 5% Resistors)	1FT3 Sec. (Top)	Adjust for zero reading a positive and Negative reading will be obtained on either side of correct setting.

F.M. - I.F. ALIGNMENT USING F.M. SIGNAL GENERATOR AND OSCILLOSCOPE

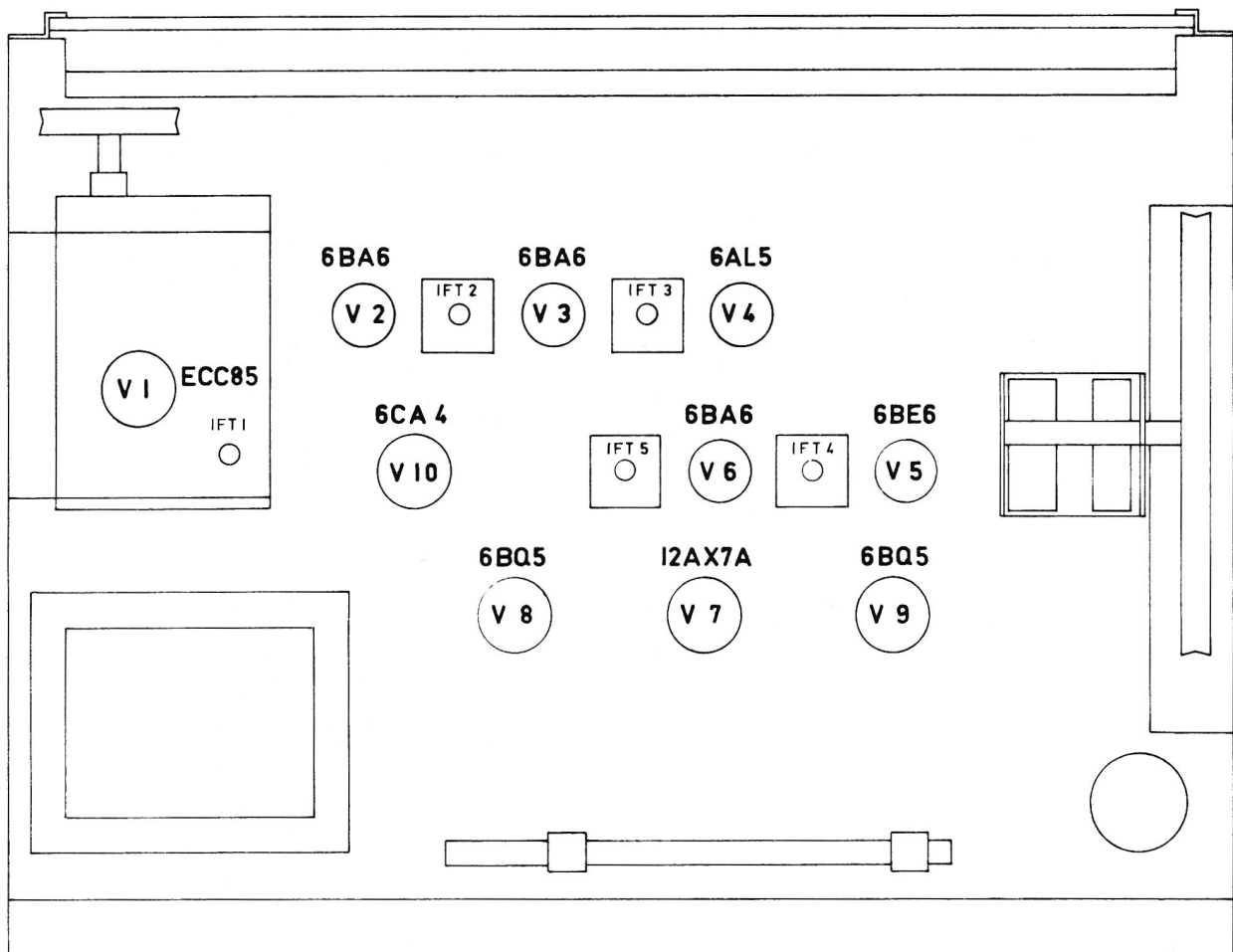
FREQUENCY MODULATE THE I.F. SIGNAL WITH 60 CYCLE SINE WAVE TO A TOTAL DEVIATION OF 450 KC. ADJUST THE SCOPE INTERNAL HORIZONTAL DEFLECTION VOLTAGE TO 120 CYCLES, AND SYNCHRONIZE IT WITH THE 60 CYCLE SINE WAVE.

1.	High Side to Pin. 1 of V3 (second 6BA6 F/M—I.F. Amplifier)	10.7 mc 450 KC Total Sweep Deviation	F.M.	Point of non-interference	Vert. Amp. Input to Point 1, Common to Chassis	1FT3 Primary only (bottom)	Disconnect 2 MFD. Stabilizing capacitor, adjust for curve of maximum amplitude & symmetry.
2.	Same as in step 1	Same	F.M.	Same as in Step 1	Vert. Amp. Input to Point 2, Common to Chassis	1FT3 Sec. only (top)	Re-connect 2 MFD. Stabilizing capacitor, adjust so that 10.7 mc. occurs at centre of cross-over lines, similar to Fig. 1. Slightly re-touch 1FT3 Primary for maximum amplitude and straightness of cross-over lines.
3. Repeat Step No. 1							
4.	High Side to Pin 1 of V2 (first 6BA6 F/M—I.F. Amplifier)	Same	F.M.	Same as in Step 1	Vert. Amp. Input to point 1, Common to Chassis	1FT2 Primary & Secondary	With Stabilizing capacitor remaining disconnected (from step 3). Adjust 1FT2 Top and Bottom for maximum amplitude and symmetry similar to Fig. 2.
5.	High Side to Tube Shield fitted over V1 (ECC 85), Low side to Chassis	Same	F.M.	Same as in Step 1	Same as in Step 4	1FT2 Primary & Secondary	Adjust for maximum amplitude and symmetry.
6.	Same as in Step 5	Same	F.M.	Same as in Step 1	Vert. Amp. Input to Point 2, Common to Chassis	1FT3 Sec. (Top)	Re-connect 2 MFD. Stabilizing Capacitor and Trim Secondary for maximum symmetry while maintaining 10.7 mc. at cross-over lines (Fig. 1).

A. M. — F. M. DIAL STRINGING



TOP VIEW OF CHASSIS



BACK VIEW OF CHASSIS

