

SERVICE MANUAL

AND

PARTS LIST

FOR

CLAIRTONE

STEREOPHONIC

RADIO-PHONOGRAPH

Model

S-401 - PRINCESS

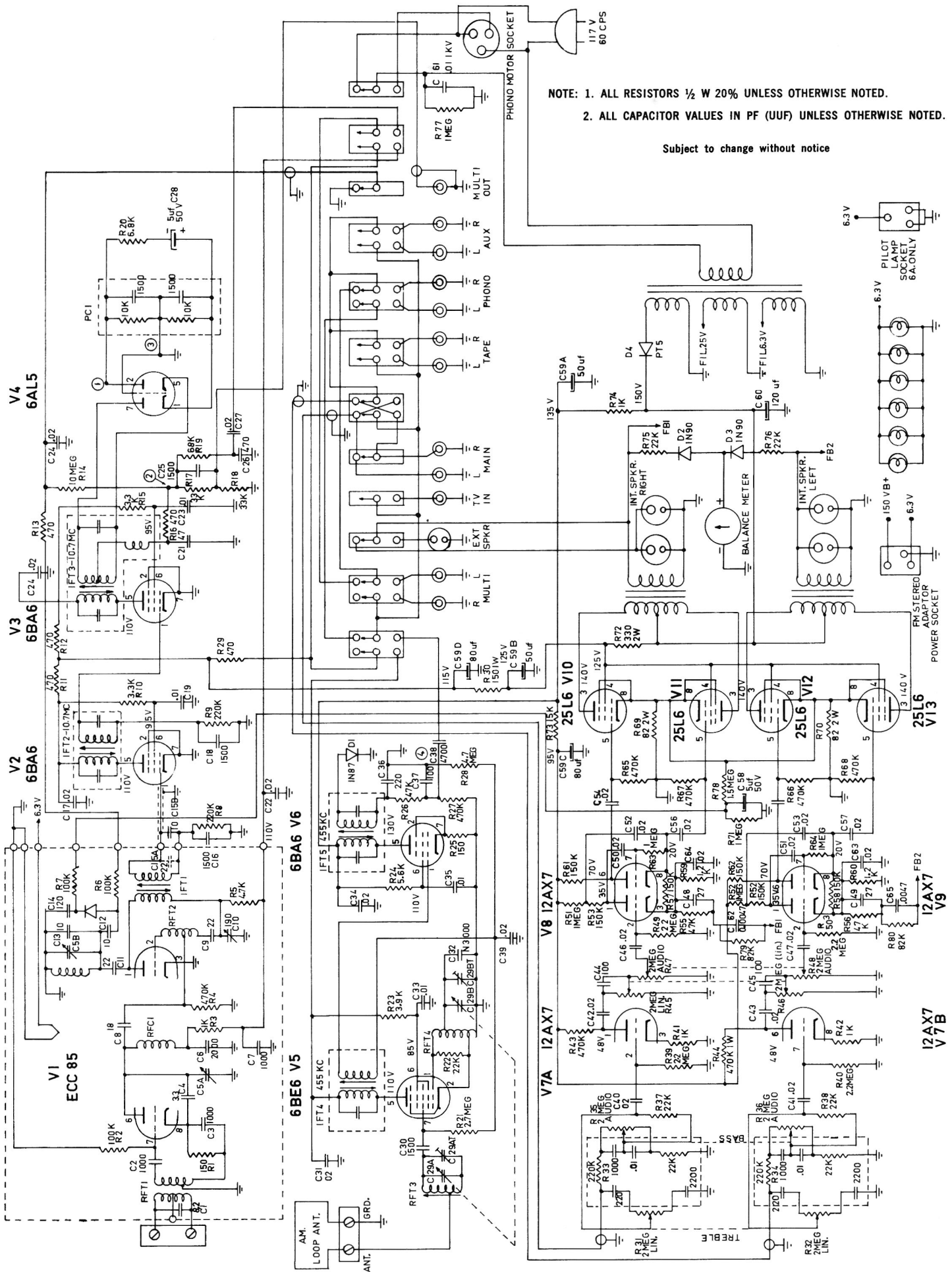
S-501 - DUCHESS

S-551 - BARONESS

PARTS LIST

Schematic Location	Part Number	Description
CAPACITORS C/401		
C15	32-250950-52	10 pF $\pm$ 5%
C16, 18, 25, 30	32-9575-18	1500 pF GMV
C17, 20, 22, 24, 27, 31, 34, 39, 40, 41, 42, 43, 46, 47, 50, 51, 52, 53, 54, 55, 56, 57, 63, 64	32-200044-43	.02 mfd GMV
C19, 23, 33, 35	32-200044-68	.01 mfd
C21	32-200044-1	47 pF
C26	32-250950-10	470 pF
C28, 58	32-254587-2	5 mfd 50 V Electrolytic
C29, A, AT	38-254594-1	AM tuning condensor
B, BT	32-250950-41	220 pF
C36	32-250950-44	100 pF
C37, 44, 45	32-250950-42	4700 pF GMV
C38, 62, 65	32-250960-69	27 pF
C48, 49	32-250950-43	.01 mfd 1.4 KV
C61	32-254599-1	Electrolytic 80 80 50 50 150V
C59, A, B, C, D	32-254587-9	Electrolytic 120 mfd 200V
C60		
RESISTORS C/401		
R8, R9	33-42235	220 K
R10, 15	33-23335	3.3 K
R11, 12, 16, 29	33-14735	470
R43, 45	33-44775	470 K 1 W
R13, 27, 65, 66, 67, 68	33-44735	470 K
R14	33-61035	10 Meg
R17, 18	33-33335	33 K
R19	33-36835	68 K
R20	33-26833	6.8 K $\pm$ 10%
R21	33-52733	2.7 Meg $\pm$ 10%
R22, 37, 38, 75, 76	33-32235	22 K
R23	33-23933	3.9 K $\pm$ 10%
R24	33-25633	5.6 K $\pm$ 10%
R25	33-11535	150
R26, 55, 56	33-34735	47 K
R28	33-54735	4.7 Meg
R30	33-11573	150 1 W
R31, 32	33-254595-8	2 Meg Treble control lin.
R33, 34	33-42235	220 K
R35, 36	33-254595-7	2 Meg Bass control audio
R39, 40, 49, 50	33-52235	2.2 Meg
R41, 42, R74	33-21035	1000
R45, 46	33-254595-9	2 Meg balance control lin.
R47, 48	33-254595-6	2 Meg volume control audio
R51, 52, 63, 64, 71, 77	33-51035	1 Meg
R53, 54, 57, 58, 61, 62	33-41535	150 K
R59, 60	33-21233	1.2 K $\pm$ 10%
R69, 70	33-08263	82 2 W
R72	33-13363	330 2 W
R73	33-31535	15 K
R78, 79	33-38235	82 K
Transformer and coils diodes		
I.F.T2	1607-4	10.7 Mc I.F. Transformer
I.F.T3	2607-5	10.7 Mc Ratio Detector
I.F.T4 } I.F.T5 }	1655-6	455 Kc I.F. Transformer

Schematic Location	Part Number	Description
RFT3	83A254591-1	B.C. antenna coil
RFT4	83A254592-2	B.C. oscillator coil
	75-254564-5	Power transformer
	75-254565-2	Audio output transformer
D1	63-251913-6	Germanium diode 1N87
D2, D3	63-251913-1	Germanium diode 1N90
D4	78-254566-1	Silicon diode PT5
ALL RESISTORS IN OHMS UNLESS OTHERWISE NOTED.		
Couplates		
PC1	32A270034-1	Ratio detector load
PC2, 3	32A254557-1	Tone couplate
MISCELLANEOUS PARTS		
	52-270162-1	Balance meter
	116-254724-2	FM tuner
AFC, T.V.	58-254780-1	Switch SPST
ext. Speaker	58-254780-3	Switch SPDT
Phono. CH.		
Reverse.		
Multi. AM	58-254780-4	Switch DPDT
FM, Aux. Tape	58-254780-5	Switch DPST
On-Off	58-254780-6	Switch SPDT 3A
	122-254783-2	Dial pointer assembly
	49-270223-4	Dial glass
	103A2005-TB-1	Push button
	79A254785-6	Phono socket panel
	79-254578-1	Speaker socket
	15-254577-1	FM antenna terminal board
	15-254577-2	AM antenna terminal board
	79-254578-4	Socket 3 prong Pilot light
	79-254578-6	Socket 3 prong Multiplex
	79-254578-3	Socket 3 prong Phono motor
CABINET PARTS		
Part Number	Description	
12-AL-73	Garrard Type A Changer c/w ACOS 73-2 D/S cartridge	
14-106-3	EM1 Woofer Y200-106 (93870AP)	
14-212-23	EM1 Tweeter TW 34-2 (97492J)	
20-22	Faceplate 401-103D	
22-16-1	Knob with dot	
22-16-2	Knob without dot	
24-2	.5 mfd 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	
	S/501/551	
14-149-2	EM1 Woofer C100-138 (92390T)	
	S/401 S/501/551	
10TLS-C-O/W	Lift lid support S501 oiled walnut	
10-TLS-B-O/W	Lift lid support S401 oiled walnut	
10-TLS-C-A/W	Lift lid support S501 antique white	
10-R-41 O/W	S401 basket weave O/W Right (facing set)	
10-L-41 O/W	S401 basket weave O/W Left	
10-R-51 A/W	S501 basket weave antique white Right	
10-L-51 A/W	S501 basket weave antique white Left	
10-R-51 O/W	S501 basket weave oiled walnut Right	
10-L-51 O/W	S501 basket weave oiled walnut Left	
10-R-51 CH	S501 basket weave cherrywood Right	
10-L-51 CH	S501 basket weave cherrywood Left	
10-R-55 FR	S551 basket weave fruitwood Right	
10-L-55 FR	S551 basket weave fruitwood Left	



- NOTE: 1. ALL RESISTORS $\frac{1}{2}$ W 20% UNLESS OTHERWISE NOTED.
2. ALL CAPACITOR VALUES IN PF (UUF) UNLESS OTHERWISE NOTED.

Subject to change without notice

ALIGNMENT PROCEDURE

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 1640 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.

F.M. DETECTOR CURVE

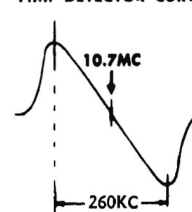


FIG. 1

F.M. I.F. PASSBAND

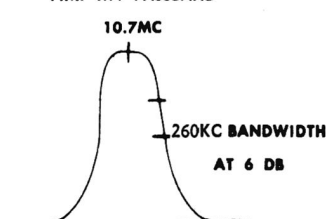


FIG. 2

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 V6 (6BE6) Low Side to Chassis.	455 KC	A.M.	Tuning Gang Fully Open	High Side to Point 4, Low side to Chassis.	T4-T5 TOP AND BOTTOM	Adjust for maximum deflection.
2.	Loop (Radiated)	535 KC	A.M.	535 KC (A.M. Gang Fully Closed)	Same as in Step 1	RFT-4	Adjust for maximum deflection.
3.	Same as in Step 2	1625 KC	A.M.	1625 KC (A.M. Trimmer C 29 BT Fully Open)	Same as in Step 1	A.M. Osc. Trimmer C 29 BT	Adjust for maximum deflection.
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	A.F.-R.F. Trimmer C 29 AT	Adjust for maximum deflection.
6.	Same as in Step 2	600 Kc	A.M.	600 KC	Same as in Step 1	RFT-3	Adjust for maximum deflection.

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

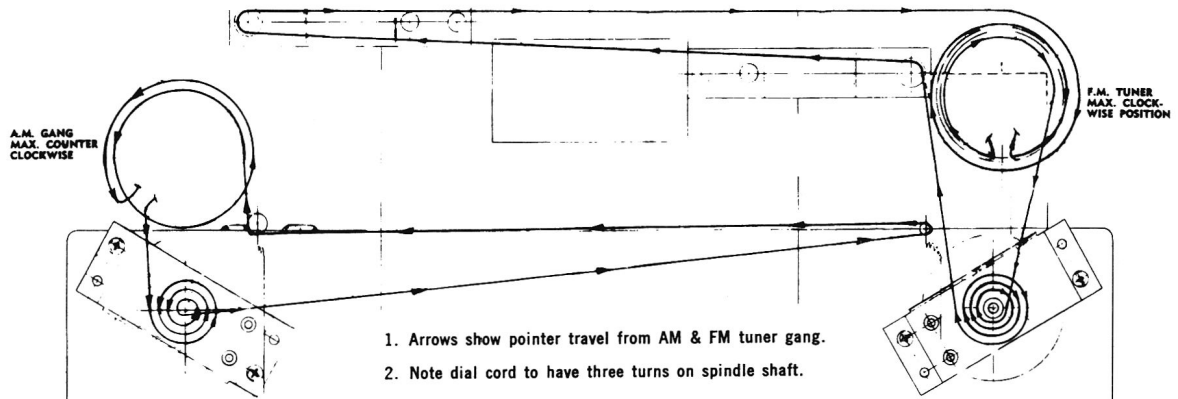
1A.	HIGH AND LOW SIDE TO F.M. ANTENNA	10.7 (Unmod.)	F.M.	Point of Non-Interference	D.C. Probe to Point 1. Common lead to Chassis.	T3 Primary only (bottom) T2 PRI & Sec. GT1 PRI & Sec.	Adjust for maximum deflection.
2A.	Same as in Step 1A	10.7 (Unmod.)	F.M.	Same as in Step 1A	D.C. Probe to Point 2. Common lead to Point 3	T3 Secondary (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

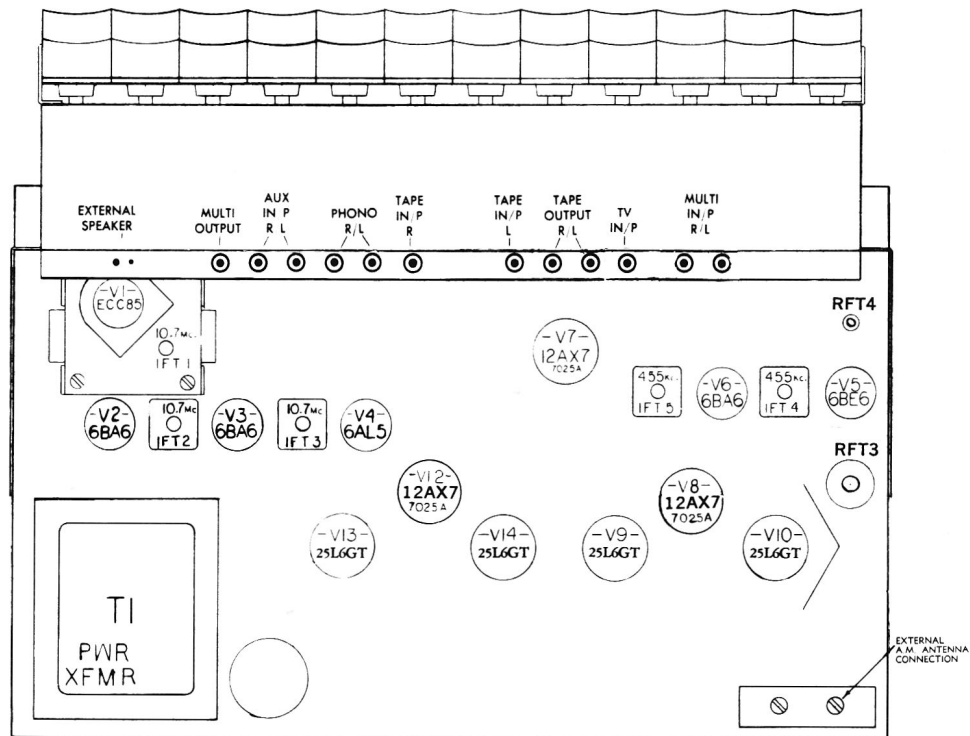
FREQUENCY MODULATE THE I.F. SIGNAL WITH 60 CYCLE SINE WAVE TO A TOTAL DEVIATION OF 450 KC. ADJUST THE SCOPE INTERNAL HORIZONTAL DEFLECTION VOLTAGE TO 120 CYCLES, AND SYNCHRONIZE IT WITH THE 60 CYCLE SINE WAVE.

1B.	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	T3 Primary only (bottom)	Adjust for curve of maximum amplitude and symmetry.
2B.	Same as in Step 1B	Same	F.M.	Same as in Step 1B	Vert. Amp. Input to Point 2, Common to Chassis	T3 Secondary only (top)	Adjust so that 10.7 mc. occurs at centre of cross-over lines, similar to Fig. 1. Slightly re-touch T4 Primary for maximum amplitude and straightness of cross-over lines.
3B.	Repeat Step No. 1B						
4B.	High Side to Pin 1 of V2 (first 6BA6 F/M—I.F. Amplifier)	Same	F.M.	Same as in Step 1B	Vert. Amp. Input to point 1, Common to Chassis	T2 Primary & Secondary	Adjust T2.Top and Bottom for maximum amplitude and symmetry similar to Fig. 2.
5B.	HIGH AND LOW SIDE TO F.M. ANTENNA	Same	F.M.	Same as in Step 1B	Same as in Step 4	T1 Primary & Secondary	Adjust for maximum amplitude and symmetry.
6B.	Same as in Step 5B	Same	F.M.	Same as in Step 1B	Vert. Amp. Input to Point 2, Common to Chassis	T3 Secondary (Top)	Trim Secondary for maximum symmetry while maintaining 10.7 mc. at cross-over lines (Fig. 1).
7B.	Repeat Step No. 2A using V.T.V.M.						Adjust for zero reading a positive and Negative reading will be obtained on either side of correct setting.

A. M. — F. M. DIAL STRINGING



TOP VIEW OF CHASSIS



BACK VIEW OF CHASSIS

