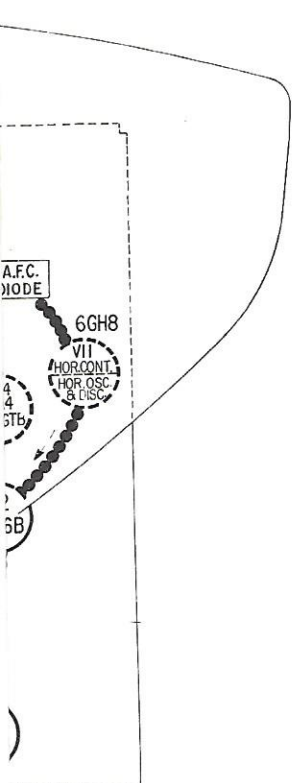
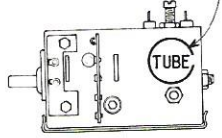


Fig. 31 Schematic Diagram 16E21, 16E21Q, 16D21 and 16D21Q Chassis

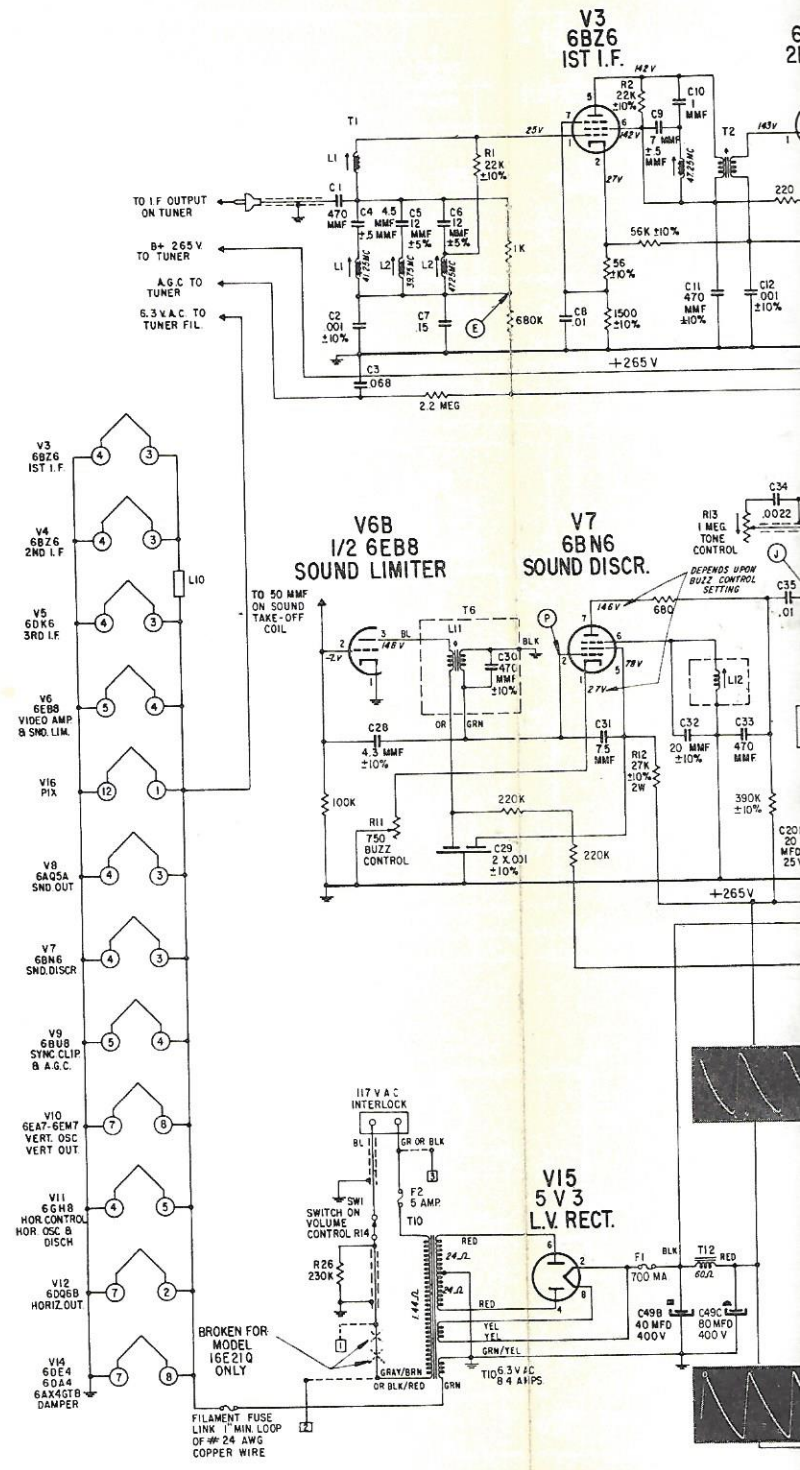


6AF4 OR 6AF4A
(OSC.) ("U" MODELS ONLY)

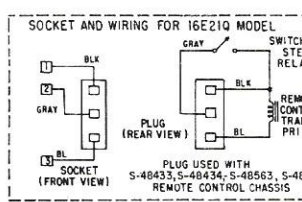
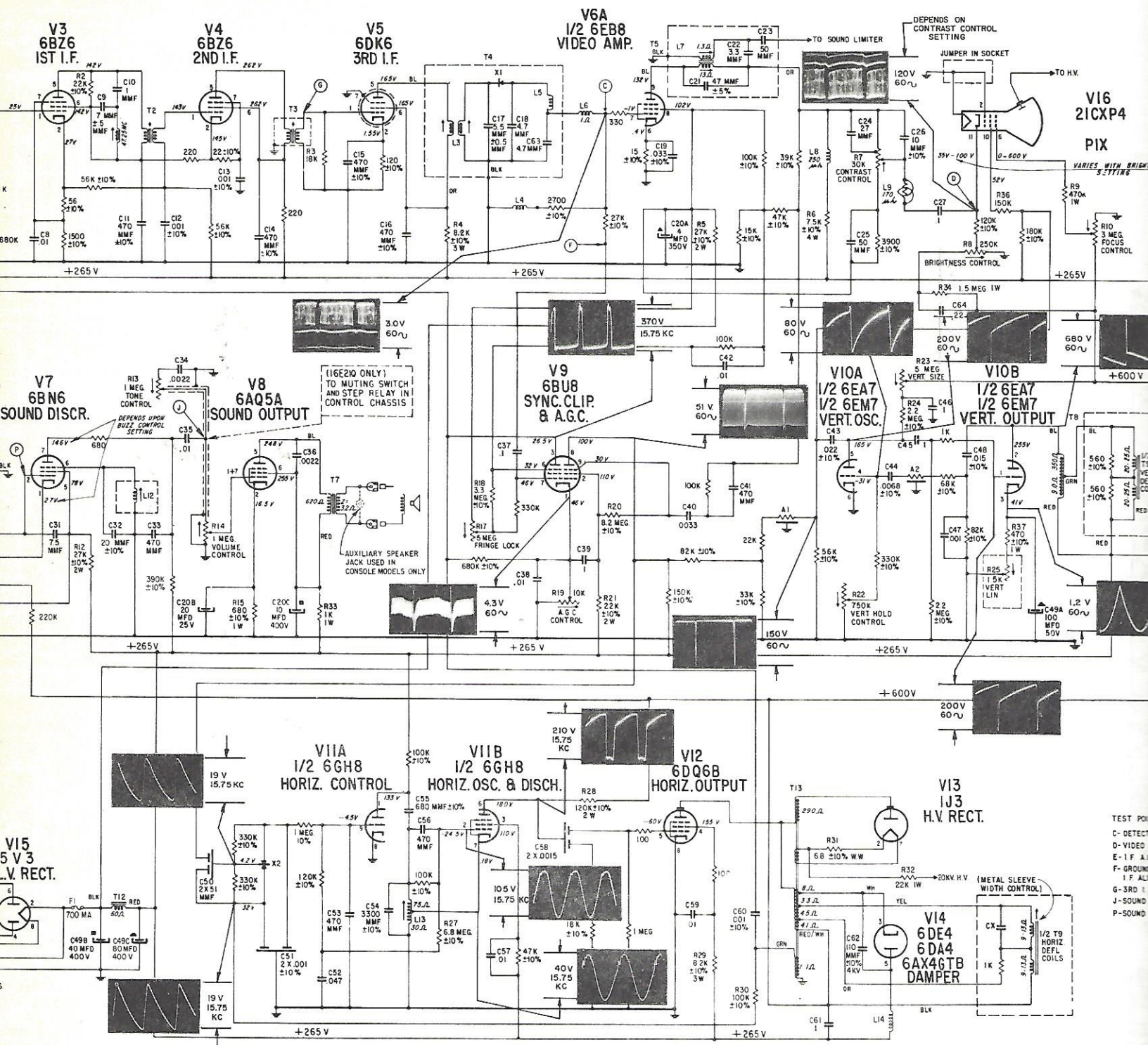


U.H.F. TUNER 175-8

●●●●●●●●●●
●●●●●●●●●●
ENCY
(16E21Q)
(16E21Q)



Note:
In late production receivers the R 34 and C 64 circuits are omitted and the brightness control is connected to the screen (Pin 8) of the Video amplifier tube.

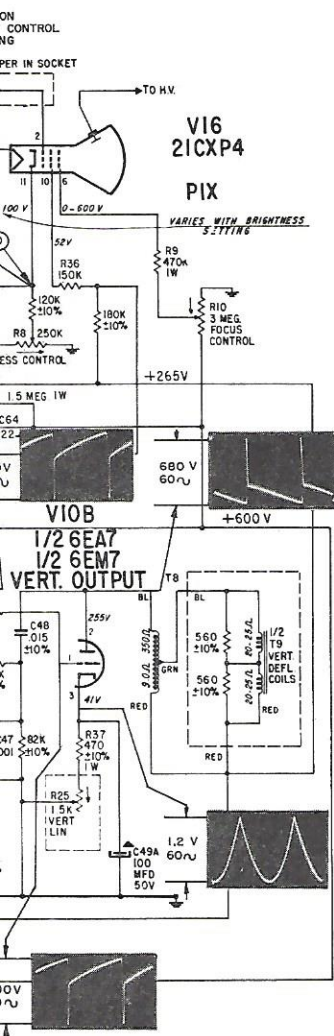


TEST POINTS:
 C- DETECT
 D- VIDEO
 E- I.F. A
 F- GROUND
 G- 3RD I.F. ALL
 J- SOUND
 P- SOUND

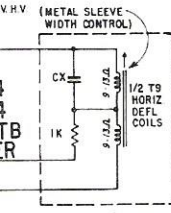
NOTES:
 ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
 ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
 ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
 ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT.
 NORMAL SETTINGS OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
 ALL CONDENSER VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
 ALL CONDENSER CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
 ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
 RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
 COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
 CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K OHM PER VOLT HIGH VOLTAGE METER.
 *RANGE ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.

(A) ALIGNMENT POINTS
 CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.

16E21, 16E21Q, 16D21 and 16D21Q Chassis



TEST POINTS
 C- DETECTOR OUTPUT
 D- VIDEO OUTPUT
 E- I.F. AGC
 F- GROUNDED FOR I.F. ALIGNMENT
 G- 3RD I.F. GRID
 J- SOUND OUTPUT
 P- SOUND DISC GRID



ITEM NO.	PART NUMBER	DESCRIPTION				
C1	22-3217	470 MMF DISC	500 V	R4	63-4098	8.2K OHM ±10%
C2	22-3222	.001 MFD DISC ±10%	500 V	R5	63-4093	27K OHM ±10%
C3	22-2572	.068 MFD MOLDED	200 V	R6	63-4055	7.5K OHM ±10%
C4	22-2303	4.5 MMF DISC ±.5 MMF	500 V	R7	63-4489	30K OHM CONTRAS
C5	22-3035	12 MMF DISC ±5%	500 V	R8	63-4676	250K OHM BRIGHT
C6	22-3035	12 MMF DISC ±5%	500 V	R9	63-2149	470K OHM
C7	22-3126	.15 MFD PAPER MOLDED	200 V	R10	63-4455	3 MEGOHM FOCUS
C8	22-3	.01 MFD DISC	500 V	R11	63-3284	750 OHM BUZZ CO
C9	22-2513	7 MMF DISC ±.5 MMF	500 V	R12	63-4093	27K OHM ±10% A.
C10	22-1762	1.0 MMF GIMMICK TYPE	500 V	R13	63-4679	1 MEGOHM TONE C
C11	22-16	470 MMF DISC ±10%	500 V	R14	63-4661	1 MEGOHM VOLUME
C12	22-17	.001 MFD DISC ±10%	1000 V	R15	63-2290	680 OHM ±10%
C13	22-17	.001 MFD DISC ±10%	1000 V	R16		
C14	22-16	470 MMF DISC ±10%	500 V	R17	63-4012	5 MEGOHM FRINGE
C15	22-16	470 MMF DISC ±10%	500 V	R18	63-4080	3.3 MEGOHM ±10%
C16	22-3022	470 MMF MICA ±10%	500 V	R19	63-4095	10K OHM A.G.C.
C17	22-3221	5.5 MMF DISC ±0.5 MMF	500 V	R20	63-4389	8.2 MEGOHM ±10%
C18	22-1516	4.7 MMF GIMMICK TYPE	500 V	R21	63-1566	22K OHM ±10%
C19	22-2510	.033 MFD PAPER MOLDED ±10%	200 V	R22	63-4677	750K OHM VERTIC.
C20A		4 MFD ELECTROLYTIC	350 V	R23	63-4660	5 MEGOHM VERT
C20B	22-2744	20 MFD ELECTROLYTIC 16D21, 16D21Q	25 V	R24	63-4077	2.2 MEGOHM ±10%
C20C		10 MFD ELECTROLYTIC	400 V	R25	63-4620	1.5K OHM VERTIC.
C21	22-2467	47 MMF ±5%	500 V	R26	63-3607	230K OHM
C22	22-2343	3.3 MMF GIMMICK TYPE	500 V	R27	63-4441	6.8 MEGOHM ±10%
C23	22-2460	50 MMF GIMMICK TYPE	500 V	R28	63-2309	120K OHM ±10%
C24	22-3065	27 MMF GIMMICK TYPE ±10%	500 V	R29	63-4098	8.2K OHM ±10%
C25	22-2460	50 MMF GIMMICK TYPE	500 V	R30	63-4482	100K OHM ±10%
C26	22-3066	10 MMF GIMMICK TYPE ±10%	500 V	R31	63 3205	6.8 OHM ±10% W
C27	22-3239	.1 MFD PAPER MOLDED	400 V	R32	63-4693	22K OHM A.B. OR
C28	22-3072	4.3 MMF GIMMICK TYPE ±10%	500 V	R33	63-1574	1K OHM
C29	22-3226	2 X .001 MFD DISC ±10%	500 V	R34	63-2315	1.5 MEGOHM
C30	22-2480	470 MMF MICA ±10%	500 V	R35		
C31	22-2742	7.5 MMF GIMMICK TYPE	500 V	R36	63-4628	150K OHM A.B. OR
C32	22-3139	20 MMF ±10%	500 V	R37	63-2398	470 OHM ±10%
C33	22-6	470 MMF DISC	1000 V	L1	S-48045	1ST I.F. & 41.25
C34	22-8	.0022 MFD DISC	500 V	L2	S-41883	ADJACENT CHANNEL
C35	22-3	.01 MFD DISC	500 V	L3	S-47968	4TH I.F. WINDING
C36	22-2622	.0022 MFD DISC	500 V	L4	S-43619	DETECTOR SHUNT P
C37	22-3239	.1 MFD PAPER MOLDED	400 V	L5	S-41879	DETECTOR SERIES
C38	22-3	.01 MFD DISC	500 V	L6	S-21888	CHOKE COIL ASSEM
C39	22-3239	.1 MFD PAPER MOLDED	400 V	L7	S-43125	SOUND TAKE-OFF W
C40	22-11	.0033 MFD DISC	500 V	L8	S-16011	SHUNT PEAKING CO
C41	22-6	470 MMF DISC	1000 V	L9	S-43618	SERIES PEAKING C
C42	22-3	.01 MFD DISC	500 V	L10	149-171	IRON CORE
C43	22-2621	.022 MFD PAPER MOLDED ±10%	400 V	L11	S-41899	INTERCARRIER COI
C44	22-2656	.0068 MFD PAPER MOLDED ±10%	200 V	L12	S-47702	QUADRATURE COIL
C45	22-3135	.1 MFD PAPER MOLDED	400 V	L13	S-45678	HORIZONTAL OSCILL
C46	22-3125	.1 MFD PAPER MOLDED	600 V	L14	S-22777	SPOOK COIL
C47	22-17	.001 MFD DISC ±10%	1000 V	T1	S-48046	1ST I.F. & TRAP
C48	22-3040	.015 MFD PAPER MOLDED ±10%	1000 V	T2	S-41889	2ND I.F. & TRAP
C49A		100 MFD ELECTROLYTIC	50 V	T3	S-46740	3RD I.F. TRANSFO
C49B	22-3137	40 MFD ELECTROLYTIC	400 V	T4	S-47967	4TH I.F. TRANSFO
C49C		80 MFD ELECTROLYTIC	400 V	T5	S-43126	SOUND TAKE-OFF CO
C50	22-25	2 X 51 MMF DISC	500 V	T6	S-43717	INTERCARRIER COI
C51	22-3226	2 X .001 MFD DISC ±10%	500 V	T7	95-1569	AUDIO OUTPUT TRA
C52	22-1778	.047 MFD MOLDED	200 V	T8	95-1656	VERTICAL OUTPUT
C53	22-6	470 MMF DISC	1000 V	T9	95-1654	DEFLECTION YOKE
C54	22-3093	3300 MMF MICA ±10%	300 V	T10	95-1680	POWER TRANSFORME
C55	22-2901	680 MMF MICA ±10%	500 V	T11		
C56	22-6	470 MMF DISC	1000 V	T12	95-1681	FILTER CHOKE
C57	22-3	.01 MFD DISC	500 V	T13	S-47071	HORIZONTAL SWEEP
C58	22-23	2 X .0015 MFD DISC	500 V	X1	103-23	DIODE CRYSTAL
C59	22-3	.01 MFD	500 V	X2	103-20	DUAL SELENIUM DI
C60	22-17	.001 MFD DISC ±10%	1000 V	A1	87-5	INTEGRATOR
C61	22-1841	.1 MFD PAPER MOLDED	600 V	A2	87-4	INTEGRATOR
C62	22-2694	110 MMF ±10%	4 KV	F1	136-38	700 MA. FUSE SL
C63	22-1516	4.7 MMF GIMMICK TYPE	500 V	F2	136-42	5 AMP. SLO-BLO FUS
C64	22-3219	22 MMF MOLDED	600 V	CX		SUPPLIED WITH Y
R1	63-2848	22K OHM ±10% A.B. ONLY	1/2 W			
R2	63-2848	22K OHM ±10% A.B. ONLY	1/2 W			
R3	63-4478	18K OHM A.B. ONLY	1/2 W			

63-4098	8.2K OHM ±10%	3 W
63-4093	27K OHM ±10%	2 W
63-4055	7.5K OHM ±10%	4 W
63-4489	30K OHM CONTRAST CONTROL	
63-4676	250K OHM BRIGHTNESS CONTROL	
63-2149	470K OHM	1 W
63-4455	3 MEGOHM FOCUS CONTROL	
63-3284	750 OHM BUZZ CONTROL	
63-4093	27K OHM ±10% A.B. ONLY	2 W
63-4679	1 MEGOHM TONE CONTROL	
63-4661	1 MEGOHM VOLUME CONTROL	
63-2290	680 OHM ±10%	1 W
63-4012	5 MEGOHM FRINGE LOCK	
63-4080	3.3 MEGOHM ±10% A.B. ONLY	1/2 W
63-4095	10K OHM A.G.C. DELAY CONTROL	1/2 W
63-4389	8.2 MEGOHM ±10% A.B. ONLY	2 W
63-1566	22K OHM ±10%	
63-4677	750K OHM VERTICAL HOLD CONTROL	
63-4660	5 MEGOHM VERTICAL SIZE CONTROL	
63-4077	2.2 MEGOHM ±10% A.B. ONLY	1/2 W
63-4620	1.5K OHM VERTICAL LINEARITY CONTROL	
63-3607	230K OHM	1/2 W
63-4441	6.8 MEGOHM ±10% A.B. OR STKPL. ONLY	1/2 W
63-2309	120K OHM ±10%	2 W
63-4098	8.2K OHM ±10%	3 W
63-4482	100K OHM ±10% I.R.C. ONLY	1/2 W
63-3205	6.8 OHM ±10% W.W.	1/2 W
63-4693	22K OHM A.B. OR STKP ONLY	1 W
63-1574	1K OHM	1 W
63-2315	1.5 MEGOHM	1 W
63-4628	150K OHM A.B ONLY	1/2 W
63-2398	470 OHM ±10%	1 W
S-48045	1ST I.F. & 41.25 MC TRAP COIL WIND. ASSEM.	
S-41883	ADJACENT CHANNEL TRAP COIL	
S-47968	4TH I.F. WINDING ASSEMBLY	
S-43619	DETECTOR SHUNT PEAKING COIL ASSEMBLY	
S-41879	DETECTOR SERIES PEAKING COIL	
S-21888	CHOKE COIL ASSEMBLY	
S-43125	SOUND TAKE-OFF WINDING ASSEMBLY	
S-16011	SHUNT PEAKING COIL	
S-43618	SERIES PEAKING COIL ASSEMBLY	
149-171	IRON CORE	
S-41899	INTERCARRIER COIL WINDING ASSEMBLY	
S-47702	QUADRATURE COIL ASSEMBLY	
S-45678	HORIZONTAL OSCILLATOR COIL ASSEMBLY	
S-22777	SPOOK COIL	
S-48046	1ST I.F. & TRAP COIL ASSEMBLY	
S-41889	2ND I.F. & TRAP COIL ASSEMBLY	
S-46740	3RD I.F. TRANSFORMER ASSEMBLY	
S-47967	4TH I.F. TRANSFORMER ASSEMBLY	
S-43126	SOUND TAKE-OFF COIL & CAP. ASSEMBLY	
S-43717	INTERCARRIER COIL CAP. & WIRE ASSEMBLY	
95-1569	AUDIO OUTPUT TRANSFORMER	
95-1656	VERTICAL OUTPUT TRANSFORMER	
95-1654	DEFLECTION YOKE	
95-1680	POWER TRANSFORMER	
95-1681	FILTER CHOKE	
S-47071	HORIZONTAL SWEEP TRANSFORMER	
103-23	DIODE CRYSTAL	
103-20	DUAL SELENIUM DIODE	
87-5	INTEGRATOR	
87-4	INTEGRATOR	
136-38	700 MA. FUSE SLO-BLO	
136-42	5 AMP. SLO-BLO FUSE SUPPLIED WITH YOKE	

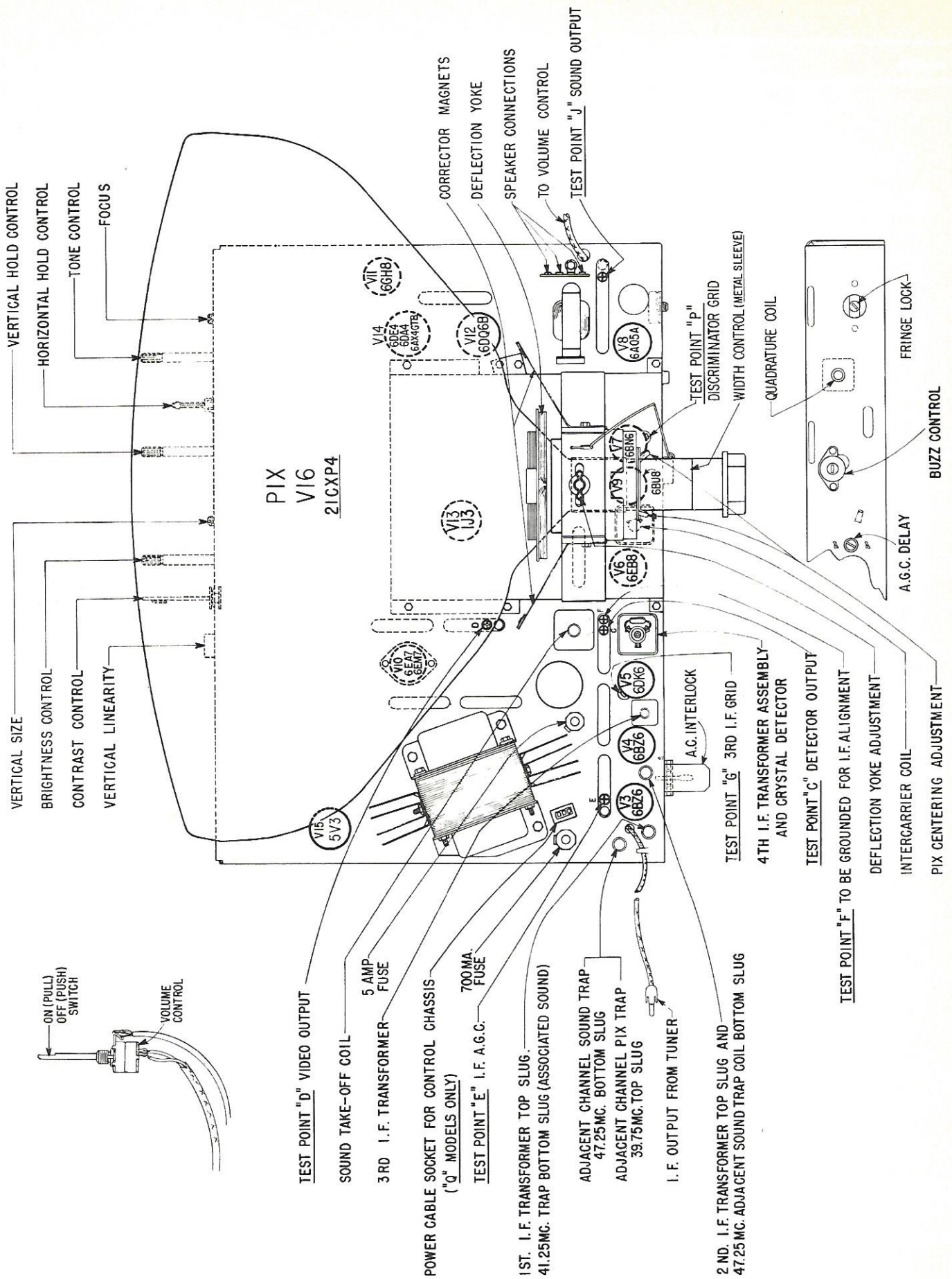


Fig. 19 Tube and Trimmer Layout 16E21, 16E21Q, 16D21 and 16D21Q Chassis