

ALIGNMENT PROCEDURES

Do not attempt alignment unless the following equipment is available.

EQUIPMENT DESCRIPTION

- | | |
|------------------------|------------------------|
| 1. FM Signal Generator | 5. Audio Generator |
| 2. AM Signal Generator | 6. Multiplex Generator |
| 3. Oscilloscope | 7. Sweep Generator |
| 4. AC V.T.V.M. | |

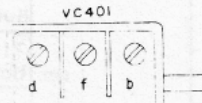
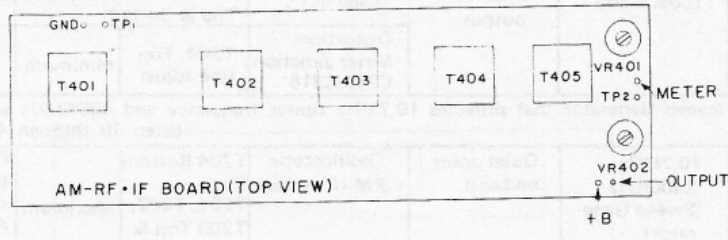


Fig. (4-1)

AM RF and IF ALIGNMENT

Function Selector in AM

Step	Signal Generator		Tuning Dial Setting	Output Indicator Connected to-	Adjust	Adjust for-	Note
	Connected to-	Frequency					
1a	TP1 (shown Fig.(4-1))	455KHz (400Hz,30% mod.)	Quiet point on band	V.T.V.M.	T403,T404 T405	Maximum	
Or adjust using Sweep Generator that provides 455KHz center frequency (Step 1b)							
1b	TP1	455KHz (Sweep Generator)	Quiet point on band		T403,T404, T405	Maximum	Adjust for maximum amplitude and proper linearity
2	Connected to loop antenna	515KHz (400Hz,30% Mod.)	Low freq. end	V.T.V.M. Tape out	T402	Maximum	VR402 Maximum
3		1,650KHz (400Hz,30% Mod.)	High freq.end				
4		Repeat step 2 and 3 until no further improvement is possible.					
5		600 KHz (400Hz,30% Mod.)	600 KHz	V.T.V.M. Tape out	T401, L1	Maximum	
6		1,300KHz (400Hz,30% Mod.)	1,300 KHz	V.T.V.M. Tape out	VC401b, VC401d	Maximum	
7	Repeat step 5 and 6 until no further improvement is possible.						
8		1,000KHz (400Hz,30% Mod)	1,000 KHz	V.T.V.M. Tape out	VR402	0.3V	L1 (Ferit antenna) input 5mV/m

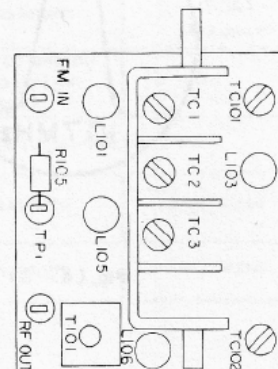
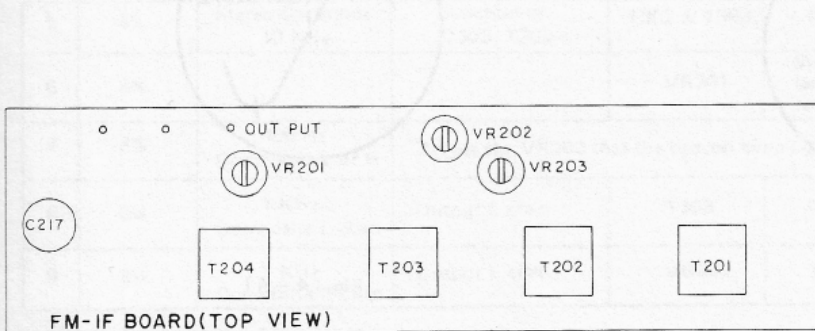


Fig. (4-2)

FM RF and IF ALIGNMENT

Function Selector in FM

Setp	Signal Generator		Tuning Dial Setting	Output Indicator	Adjust	Adjust for	Note
	Connected to-	Frequency					
1a	TP1	10.7 MHz (unmodulated)	Quiet point on band	V.T.V.M. across R211	T204 Bottom(Pri)	Maximum	
2a				V.T.V.M. (Set to center zero) Junction of C215, C216	T204 Top (sec.)	Zero voltage	
3a	Repeat step 1a and 2a as necessary to obtain a balanced "S" curve.						
4a	One FM antenna terminal	90 MHz (400Hz, 100% Mod.)	Tune for maximum output	Oscilloscope Tape out	T101, T102 T103, T203 Top & Bottom	Maximum	
5a				Distortion Meter Junction C215, C216	T204, Top fine adjust	Minimum	
Or adjust using Sweep Generator that provides 10.7MHz center frequency and 400KHz/s sweep width (Step 1b through 4b)							
1b	R105(TP1)	10.7MHz ±400KHz (Sweep Generator)	Quiet point on band	Oscilloscope FM IF output	T204 Bottom (Pri) T201, T202, T203 Top & Bottom	Maximum	Core of T204 [Top (sec.)] turn to counterclockwise Adjust for maximum amplitude and proper linearity between ±160KHz markers (Refer Fig.4-3)
2b					T101 Top & Bottom		
3b					T204 Top fine adjust	"S" curve	
4b	Connected to FM antenna terminal	98 MHz (400Hz, 100% Mod.)	Tune for maximum output	Distortion Meter Tape out	T204, Top fine adjust	Minimum Distortion	
5		87.5MHz (400Hz, 100% Mod.)	Low freq. end		V.T.V.M. Tape out	L106	Maximum
6		108.5MHz	High freq. end		TC102	Maximum	
7		Repeat step 5 and 6 until no further improvement is possible.					
8	90 MHz	90 MHz	V.T.V.M. Tape out	L101, L103, & L105 (Front end)	TC1, TC2, TC3, TR1M (Front end)	Maximum	
9	106 MHz	106 MHz					
10	Repeat step 8 and 9 until no further improvement is possible.						
11		98 MHz (400Hz, 100% Mod)	98 MHz	V.T.V.M. Tape out	TR201	1V	60dB input

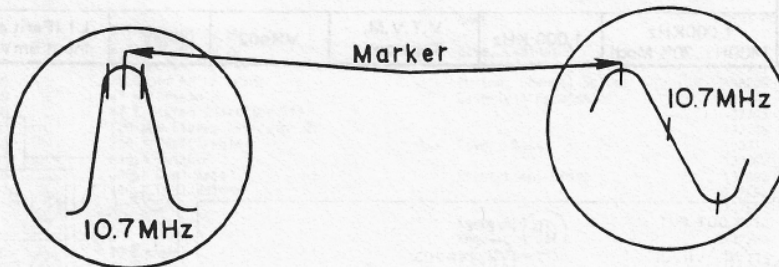


Fig. (4 - 3)

Fig. (4 - 4)

MPX ALIGNMENT

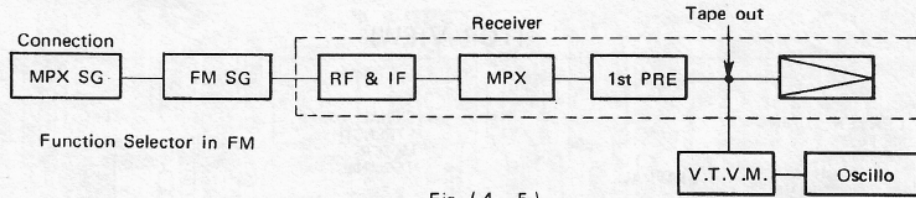


Fig. (4 - 5)

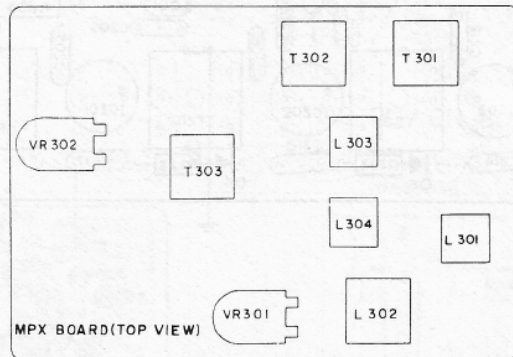


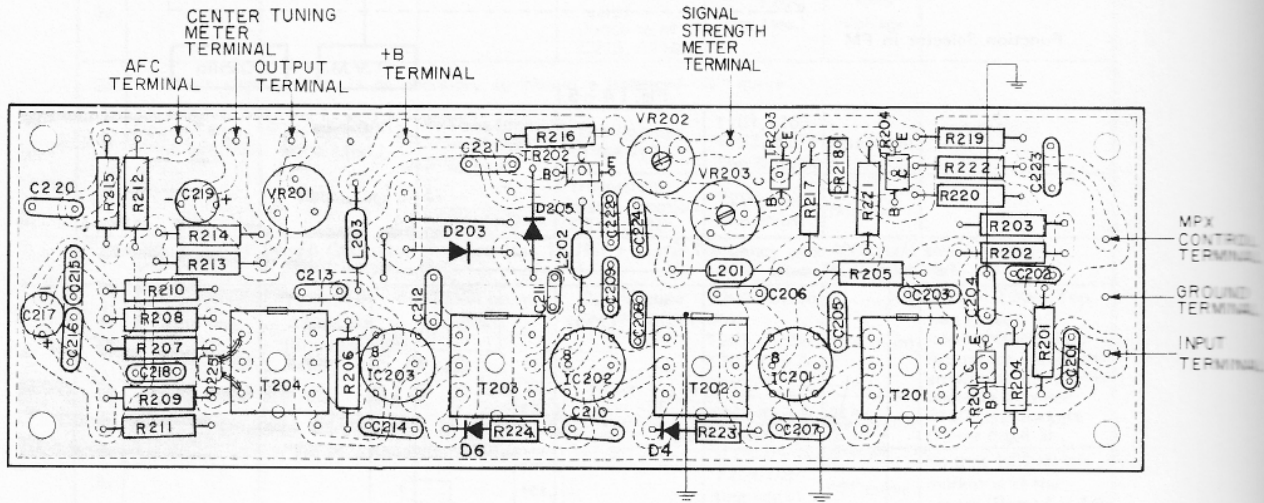
Fig. (4 - 6)

Tune for 98 MHz on Band (1mV input)

Step	19KHz Modulation level set	Signal Generator	Output Indicator	Adjust	Adjust for	Note
		Freq. set to	Connected to			
1		Audio Generator 67 KHz	Oscilloscope T303 Center Point(Sec.)	L301	Minimum	FMSG 67KHz 30% Modulated
2		Audio Generator 71 KHz	Oscilloscope T303 Center Point(Sec.)	L303	Minimum	FMSG 71KHz 30% Modulated
3		Audio Generator 38 KHz	Oscilloscope T303 Center Point(Sec.)	T304	Maximum	FMSG 38KHz 30% Modulated
4	6%	Stereo Generator 19 KHz	Junction of R336, T301	T301 & L302	Maximum	VR203 Maximum
5	6%	Stereo Generator 19 KHz	Junction of D303, T303	T302 & T303	Maximum	VR301 Maximum
6	6%			VR301	Stereo beacon lamp just extinguish	
7	8%	400 Hz Composite L or R	Adjust the VR203 that the beacon lamp lights. (input 10 μ V)			
8	8%	1 KHz Composite L chan	Output L chan	T303	Maximum	1mV input
9	8%	1 KHz Composite R chan	Output L chan	VR302	Minimum	1mV input

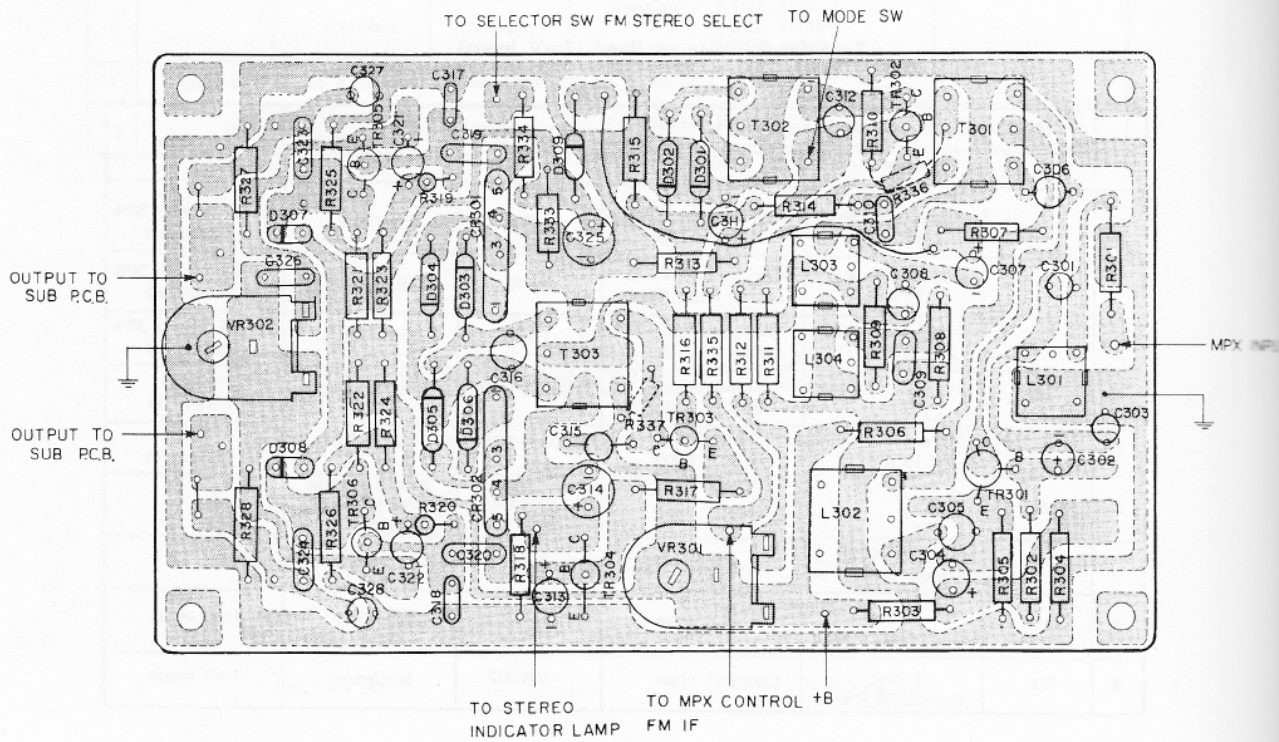
FM-IF BOARD

(TOP VIEW)

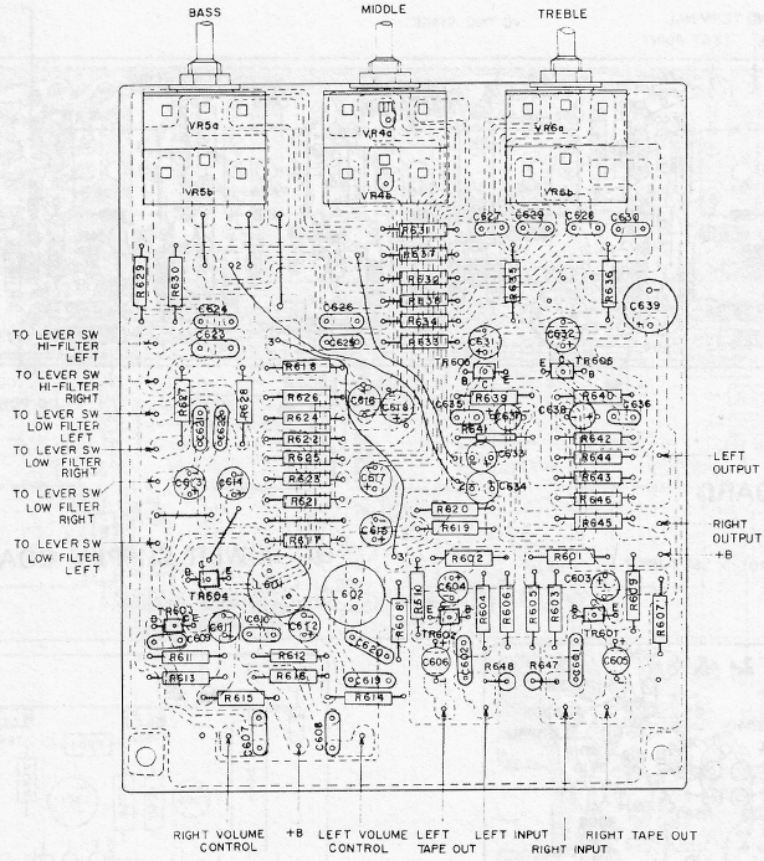


MPX BOARD

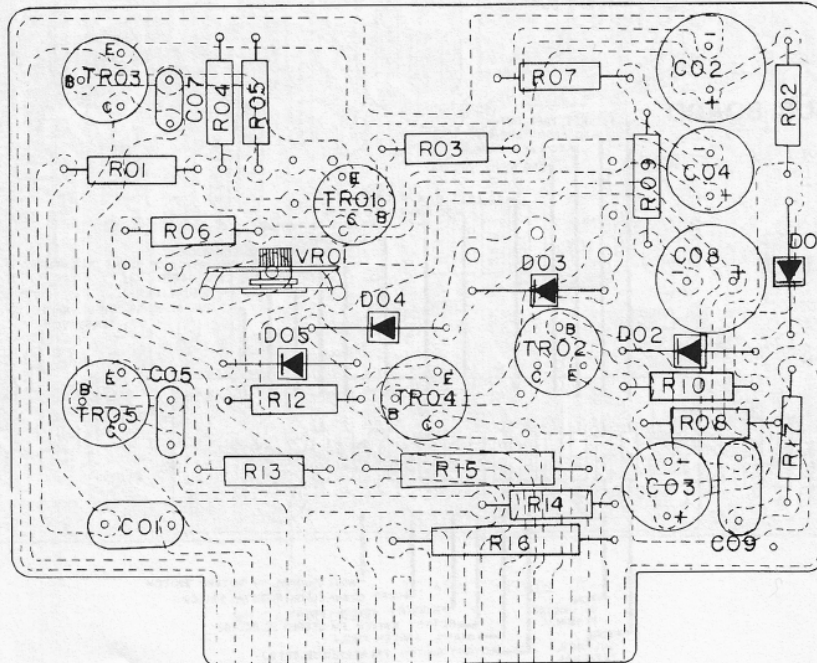
(TOP VIEW)



PRE-TONE BOARD

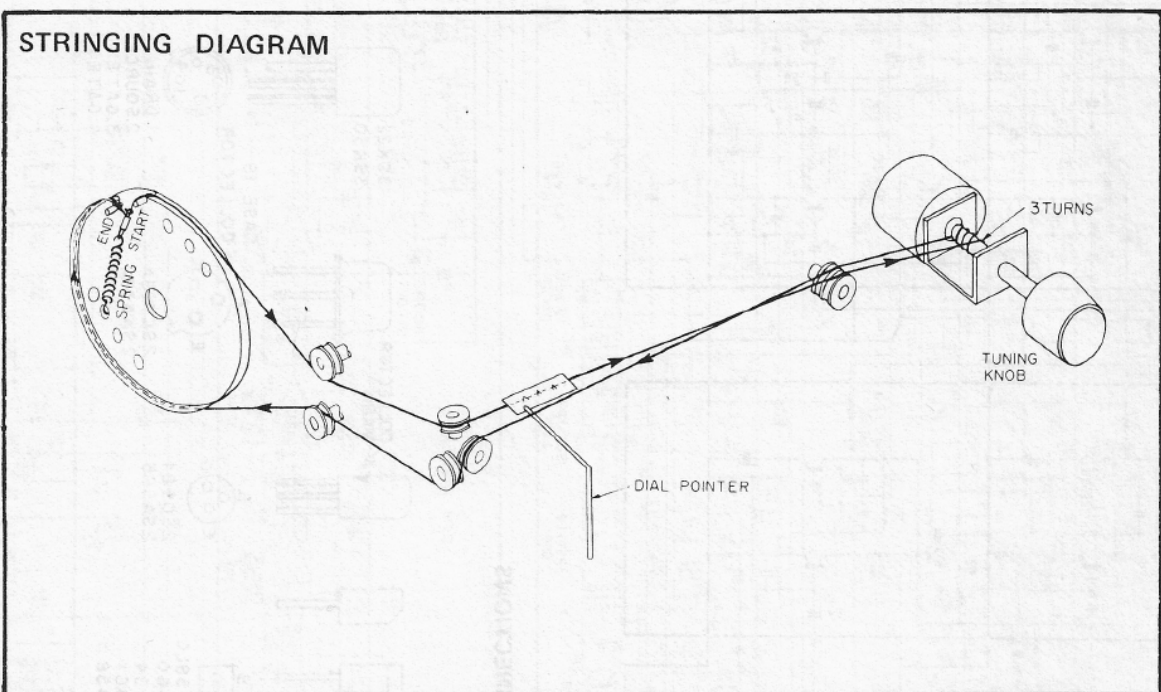


MAIN AMPLIFIER BOARD



5. MAIN AMPLIFIER ADJUSTMENT

1. Set Balance, Bass, Midrange and Treble control to their center.
2. Set Selector SWITCH at "AUX".
3. Connect 8 ohm resistor across L speaker terminals. In parallel with the load resistor connect the vertical input loads of the oscilloscope and V.T.V.M.
4. Connect an audio generator. Set for 1 KHz (sine wave output 300mV) to the "L-AUX" terminal.
5. Set VR801 to its center.
6. Connect AC Power cord and adjust VR801 until both side of the sine wave clip at the same time, when volume control lift.
7. Repeat preceding steps for right channel.



SEMICONDUCTORS

ITEM	TYPE		
D101	1N60 (P)	IC203	PA7703E
D102	1N60 (P)		(LM703L)
D103	1S85	TR1	2SC1030B
D203	1N60 (P)	TR2	2SC1030B
D204	1S2076	TR3	2SC1030B
D205	1N60 (P)	TR4	2SC1030B
D206	1S2076	TR101	2SC461(B)
D301	1N34A	TR201	3SK22GR
D302	1N34A	TR202	2SC458(C)
D303	1N34A	TR203	2SC458(C)
D304	1N34A	TR204	2SC458(C)
D305	1N34A	TR301	2SC458C
D306	1N34A	TR302	2SC458C
D307	1S2076	TR303	2SC458C
D308	1S2076	TR304	2SC984
D309	1S2076	TR305	2SC281(C)
D401	1N34A	TR306	2SC281(C)
D402	1N34A	TR401	2SC460(B)
D403	1N34A	TR402	2SC454(B)
D701	HV26	TR403	2SC460(B)
D702	HV26	TR404	2SC460(B)
D703	HV26	TR405	2SC460(B)
D704	HV26	TR501	2SC458LG(C)
D705	HV26	TR502	2SC458LG(C)
D801	HV26	TR503	2SC458LG(C)
D802	HV26	TR504	2SC458LG(C)
D803	HV26	TR601	2SC458LG(C)
D804	HV26	TR602	2SC458LG(C)
D805	HV26	TR603	2SC458LG(C)
D901	AW01-33	TR604	2SC458LG(C)
D902	V03C	TR605	2SC458LG(C)
D903	V03C	TR606	2SC458LG(C)
D904	V03C	TR701	2SA565(B)
D905	V03C	TR702	2SA537A(C)
D906	AW01-13	TR703	2SC708A(C) or (B)
D907	AW01-24	TR704	2SC708A(C) or (B)
FET101	3SK22GR	TR705	2SA537A(C) or (B)
FET102	3SK22GR	TR801	2SA565(B)
FET103	3SK30 (B) [3SK30(C)]	TR802	2SA537A(C)
IC201	PA7703E (LM703L)	TR803	2SA708A(C) or (B)
IC202	PA7703E (LM703L)	TR804	2SA708A(C) or (B)
		TR805	2SA537A(C) or (B)
		TR901	2SC1061(B)
		TR902	2SC1061(B)

C804	(0252625)	47 uF 25 V
C808	(0252831)	100 uF 50 V
C901	(0252831)	100 uF 50 V
C906	(0252631)	100 uF 25 V
TC101	(0283114)	Trimmer
T102	(0283115)	Trimmer
	C-4162	Tuning Gang

CONTROLS/SPECIAL RESISTORS

ITEM	PART NO.	DESCRIPTION
R715	(0149401)	0.5 ohm 2 W WW
R716	(0149401)	0.5 ohm 2 W WW
R815	(0149401)	0.5 ohm 2 W WW
R816	(0149401)	0.5 ohm 2 W WW
VR1	P-0551	100 K Dual
VR2	(0166411)	100 K Dual Volume
VR3	(0166411)	100 K Dual Volume
VR4	P-0557	20 K Dual Middle
VR5	P-0558	200 K Dual Bass
VR6	P-0558	200 K Dual Treble
VR201	P-0554	47 K
VR202	P-0556	100 K
VR203	P-0554	47 K
VR301	P-0550	10 K
VR302	P-0550	10 K Separation
VR401	(0151253)	47 K
VR402	(0151252)	10 K AM Level
VR701	P-0549	20 K
VR801	P-0549	20 K Main Amp

ELECTROLYTIC/VARIABLE CAPS

ITEM	PART NO.	VALUE
C4	(0252325)	47 uF 10 V
C5	(0252325)	47 uF 10 V
C8	C-0188	1000 uF 50 V
C9	C-0188	1000 uF 50 V
C10	C-0187	2200 uF 90 V
C13	(0252531)	100 uF 16 V
C14	(0252531)	100 uF 16 V
C18	(0252632)	220 uF 25 V
C217	(0252513)	3.3 uF 6 V
C219	(0252513)	3.3 uF 6 V
C302	(0252213)	3.3 uF 6.3 V
C304	(0252125)	47 uF 3 V
C307	(0252631)	10 uF 25 V
C311	(0252213)	3.3 uF 6.3 V
C314	(0252625)	47 uF 25 V
C321	(0252621)	10 uF 25 V
C322	(0252621)	10 uF 25 V
C325	(0252622)	22 uF 25 V
C404	(0252521)	10 uF 16 V
C419	(0252613)	3.3 uF 25 V
C420	(0252613)	3.3 uF 25 V
C424	(0252531)	100 uF 16 V
C428	(0252225)	47 uF 6.3 V
C501	(0252621)	10 uF 25 V
C502	(0252621)	10 uF 25 V
C509	(0252331)	100 uF 10 V
C510	(0252331)	100 uF 10 V
C515	(0252825)	47 uF 50 V
C516	(0252622)	22 uF 25 V
C603	(0252621)	10 uF 25 V
C604	(0252621)	10 uF 25 V
C611	(0252621)	10 uF 25 V
C612	(0252621)	10 uF 25 V
C613	(0252821)	10 uF 50 V
C614	(0252821)	10 uF 50 V
C615	(0252815)	4.7 uF 50 V
C616	(0252815)	4.7 uF 50 V
C617	(0252621)	10 uF 25 V
C618	(0252621)	10 uF 25 V
C631	(0252811)	1 uF 50 V
C632	(0252811)	1 uF 50 V
C633	(0252815)	4.7 uF 50 V
C634	(0252815)	4.7 uF 50 V
C637	(0252811)	1 uF 50 V
C638	(0252811)	1 uF 50 V
C639	(0252831)	100 uF 50 V
C702	(0252831)	100 uF 50 V
C703	(0252132)	220 uF 3 V
C704	(0252625)	47 uF 25 V
C802	(0252831)	100 uF 50 V
C803	(0252132)	220 uF 3 V

COILS/TRANSFORMERS

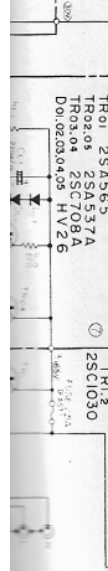
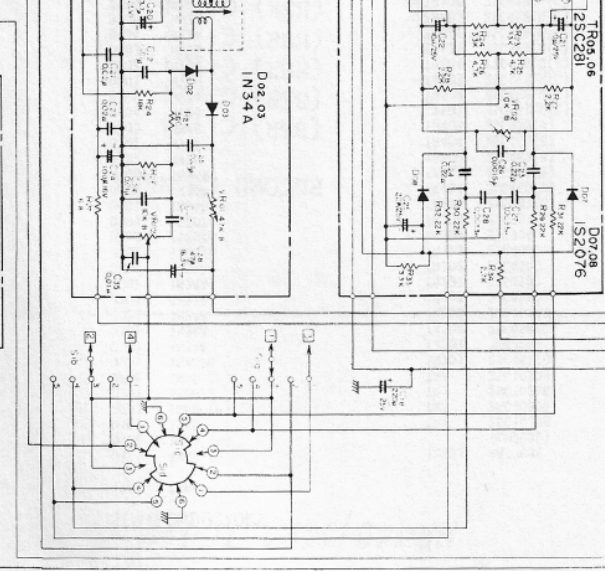
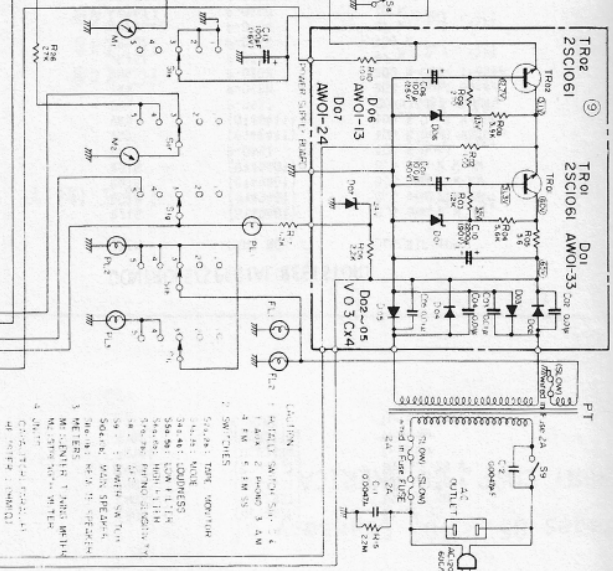
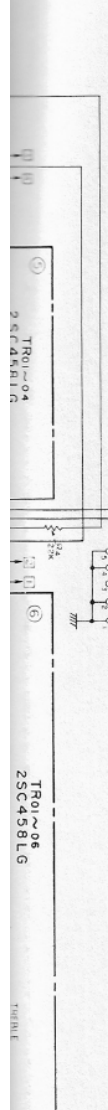
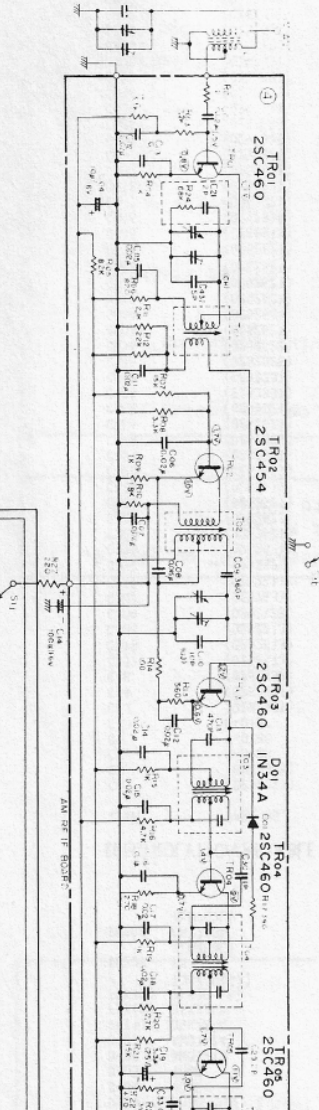
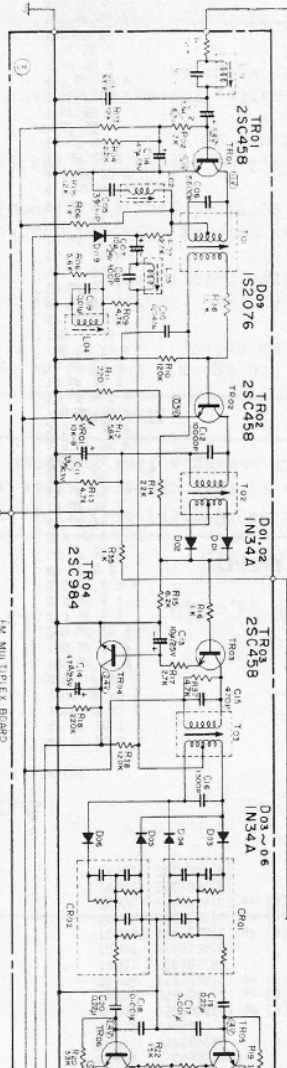
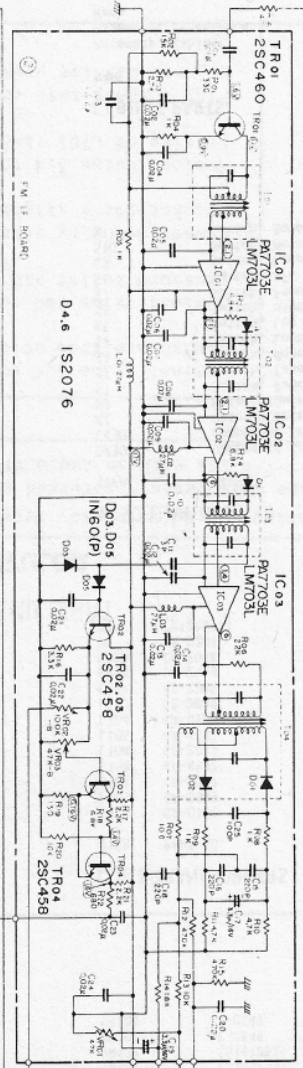
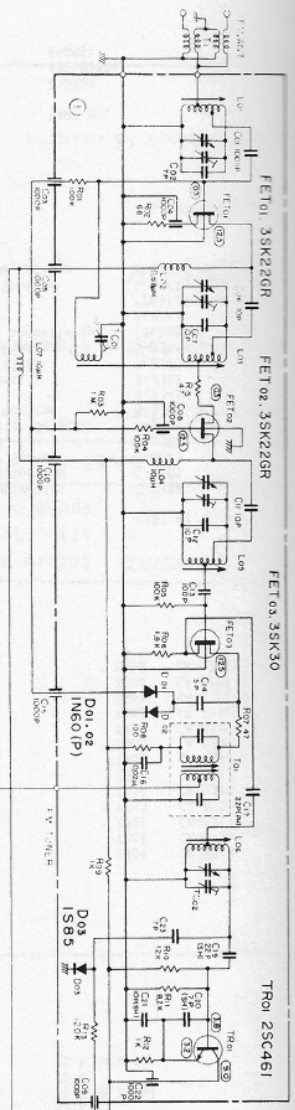
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L1	CA-0110	T101	CA-6723
L101	CA-2349	T201	CA-6725
L102	CB-2047	T202	CA-6727
L103	CA-4132	T203	CA-6727
L104	CB-2049	T204	CA-2346
L105	CA-4131	T301	CA-2343
L106	CA-4133	T302	CA-2343
L107	CB-2049	T303	CA-2343
L201	CB-2048	T401	CA-4130
L202	CB-2048	T402	CA-2344
L203	CB-2048	T403	CA-6724
PT	TA-0204	T404	CA-6722
T1	(2120871)	T405	CA-6726

MISCELLANEOUS

ITEM	NAME	PART NO.
CR301	Component Combination	C-0189
CR302	Component Combination	C-0189
M1	Meter, Center Tuning	M-0063
M2	Meter, Tuning	M-0064
S1	Switch, Function Selector	S-0495
S2	Switch, Tape Monitor	S-0343
S3	Switch, Mode	S-0343
S4	Switch, Loudness	S-0343
S5	Switch, Low Filter	S-0343
S6	Switch, High Filter	S-0343
S7	Switch, Phono Sensitivity	(2620054)
S8	Switch, AFC	S-0343
S9	Switch, Power	(2637381)
S10	Switch, Main Speaker	S-0423
S11	Switch, Remote Speaker	S-0423

CABINET PARTS

NAME	PART NO.
Assembly, Cabinet	Z-0256
Assembly, Escutcheon	(3240313)
Knob	K-0561



NOTATION
 1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY
 3. DIMENSIONS IN SQUARE BRACKETS ARE FOR REFERENCE ONLY
 4. DIMENSIONS IN CIRCLES ARE FOR REFERENCE ONLY
 5. DIMENSIONS IN TRIANGLES ARE FOR REFERENCE ONLY
 6. DIMENSIONS IN DIAMETERS ARE FOR REFERENCE ONLY
 7. DIMENSIONS IN SQUARE WAVES ARE FOR REFERENCE ONLY
 8. DIMENSIONS IN WAVES ARE FOR REFERENCE ONLY
 9. DIMENSIONS IN WAVES ARE FOR REFERENCE ONLY
 10. DIMENSIONS IN WAVES ARE FOR REFERENCE ONLY

