

SERVICE MANUAL

MODEL: H1406

CAUTION: Before servicing the chassis, read the “Important service safety information” section on page 2 of this manual.

PORTABLE CD/MP3 RADIO CASSETTE RECORDER



MAJOR SPECIFICATION

RADIO	AM	FM
Frequency Range	540~1610KHz	64~108MHz
IF	465KHz	10.7MHz
Antenna	Ferrite Bar	75Ω Telescope Antenna

POWER SUPPLY

AC ~ 230V 50Hz
DC 12V UM-1 / R20 / Size: “D” 1.5V x 8 Batteries

SPEAKER

8 Ω / Channel x 2

AUDIO POWER OUTPUT

2.5W / Channel x 2 10%THD

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SERVICE PUBLICATION

PART LIST

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Item	Part NO	Description	Qty	QTY.	PURPOSE
1		IC: SP 2111	1		
2		UTC 8227	1		
3		KA 7808	1		
4		KA 7805	1		
5		AN 7312	1		
6		LCD DEVICE PCB IC HT1621B (CAP: 22K OHM)	1		
7		CAP. 126PF/20PF (LA-126E20D-12TB)	1		
8		I.F.: PINK: (7mm) 7T	1		
9		RED: (7mm) 100: 7T	1		
10		YELLOW: (7mm) 157: 15T	1		
11		TRIMMER 10.7MHz(RED) <3PINS>	1		
12		465KHz <P3PINS>	1		
13		PCB: KW-89 VCD MAIN(V2.04)	1		
14		KW-89 VCD PECTIFER (V2.04)	1		
15		KW-89 VCD PREAMP (V2.04)	1		
16		KW-89VCD PHONES.JACK<V2.04>	1		
17		KW-89 MP3 KEY <V3.00>	1		
18		SWITCH: FUNCTION: SS 43 D06M13	1		8C
19		BRAND: SS43D06M13	1		
20		RECORD: PS6P2T	1		
21		TACT: 5mm<TS-1150AB>	6		
22		DEES: PS-22E06	1		
23		CD DOOR:<LF-323>	1		
24		FUSE HOLDER:	2		
25		FUSE: 5x20mm <250V/T2.5AL>	1		
26		FERRITE CORE: Φ 25mmx15mmx10mm	1		TRANSFORMER WIRE STEP ONE X1
27		FERRITE CORE: Φ 18mmx10mmx6mm	1		TRANSFORMER WIRE STEP TWO X1
28		FERRITE CHOKE CORE : Φ 9mmx6mm	1		
29		MAGNETIC INDUCTOR: 15uH	3		HEADPHONE JACK PCB
30		LCD DISPLAY: MP3 <11PIN><3.8>	1		
31		VOLUME POTENTIOMETER1615G12 A1 L=25MM	1		
32		HEADPHONE JAC3507-202	1		
33		LED: Φ 3mm GREEN L=19MM	1		
34		Φ 5mm FLAT BLUE LIGHT L=30MM	1		

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35		RECEIVER (5V)	1		
36	DIDOE:	IN 4148	4		
37		IN 4001	3		
38		IN 5392	6		
39		3.9V ZENER DIDOE	1		
40		6.8V ZENER DIDOE	1		
41	TRANSISTOR:	9014 C	3		
42		8050 C	1		
43	TRANSISTOR:	772B (NEC)	1		
44	FM COIL:	Φ0.75 5mm 2 ¹ / ₂ T	1		
45		Φ0.75 5mm 3 ¹ / ₂ T	2		
46	AM COIL:	110: 20T (3+1) L=125mm	1		
47	FERRITE BAR BRACKET:	Φ10x25mm	2		
48	FERRITE BAR:	Φ10x60mm	1		
49	CERAMIC PVC CAP.:<25V>NPO				
50		3pf	1		
51		22pf	1		
52		25pf	2		
53		30pf	3		
54		150pf	1		
55	CERAMIC PVC CAP:<25V>(±10%)				
56		102pf	1		
57		103(0.01uf)	1		
58		203(0.02uf)	9		MP3 PCB x1 pc
59		104(0.1uf)	6		
60		153(0.015uf)	2		
61		222(0.0022uf)	4		
62		333(0.033uf)	2		
63	CERAMIC CAP:(±10%)	332(0.0033uf)	2		
64	ELECTROLYTIC CAP:(±10%)				
65		0.22uf/50v (Φ5mmx11.5mm)	1		
66		1uf/50v (Φ5mmx11.5mm)	3		
67		3.3uf/50v (Φ5mmx11.5mm)	2		
68		4.7uf/50v (Φ5mmx11.5mm)	6		
69		10uf/25v (Φ5mmx11.5mm)	3		
70		47uf/16v (Φ5mmx11.5mm)	5		
71	ELECTROLYTIC CAP:(±20%)				
72		100uf/16v (Φ6mmx11.5mm)	4		

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73		220uf/16v (Φ6mmx12.5mm)	3		
74		220uf/25v (Φ8mmx12.5mm)	1		MOTOR X 1
75		1000uf/10v (Φ8mmx13.5mm)	3		
76		1000uf/25v (Φ10mmx17.5mm)	2		
77		2200uf/25v (Φ13mmx21.5mm)	1		
78		RESISTOR 1/4:(+/-10%)			
79		1 OHM	2		
80		10 OHM	4		TWEETER X2
81		15 OHM	2		
82		33 OHM	1		
83		82 OHM	1		
84		220 OHM	2		
85		330 OHM	2		
86		390 OHM	1		
87		820 OHM	1		
88		1K OHM	4		
89		2.2K OHM	4		
90		2.7K OHM	2		
91		3.3K OHM	1		
92		3.9K OHM	1		
93		4.7K OHM	5		
94		5.6K OHM	2		
95		6.8K OHM	2		
96		10K OHM	2		
97		12K OHM	2		
98		15K OHM	1		
99		18K OHM	2		
100		22K OHM	4		
101		39K OHM	3		
102		2.2M OHM	1		
103		RESISTOR 1/8:(+ 220 OHM	2		
104		1.5K OHM	2		
105		68K OHM	2		
106		HEADER :(2.0mm)			
107		2 PIN<VERICTAL>	1		
108		3PIN<VERICTAL>	1		
109		4 PIN<VERICTAL>	1		
110		5 PIN<VERICTAL>	1		

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111		7PIN<VERICTAL>	1		
112		HEADER:(2.54mm)			
113		11PIN<VERICTAL>	1		
114		SINGAL HOUSING WIRE (2.0mm)			
115		1 HSG 5PIN, WIRE: L=200MM	1		HEADPHONE JACK PCB X1
116		1 HSG 7PIN, WIRE:L=220MM	1		FRONT PCB X1
117		SINGAL HOUSING WIRE: (2.0mm) 26#			
118		1 HSG 2PIN W/ WIRE GREEN、 RED L=120MM	1		CD DOOR SWITCH x1
119		1 HSG 4PIN W/ WIRE BLACK、 RED L=160MM BLACK、 GREEN L=460MM	1		SPx1
120		1 HSG W/ WIRE 3PIN ORANGE BLACK L=160MM RED L=330MM	1		MOTOR X 1
121		1 HSG W/ WIRE 2 PIN RED、 BLACK L=250MM	1		POWER SUPPLY X1
122		STEREO HEAD WIF DOUBLE 3PIN SHIELD CABLE L=150MMΦ1.8M	1		9WIRE
123		1 HSG W/ WIRE<2.5MM>26#			
124		2PIN RED、 BLACK L=80MM	1		ZENER POWER PCB 8Vx1
125		2PIN BROWN , RED L=80MM	1		ZENER POWER PCB 5Vx1
126		1HSG W/ WIRE<2.0MM> 28#			
127		1 HSG W/ WIRE 6PIN YELLOW、 RED、 BLUE,BROWN、 GREEN、 WHITE L=280MM	1		DISPLAY PCB X 1
128		1 HSG W/ WIRE<2.0MM> 28#			
129		1 HSG W/ WIRE 7PIN 5WIRE BROWN、 GREEN、 YELLOW、 RED、 BLUE L=220MM	1		CD KEY PCB X 1
130		DOUBLE HOUSING WIRE: (2.0mm) 28#			
131		REVESED DOUBLE HSG 6PIN W/ WIRE L=60mm	1		CD DECK X 1
132		1 HSG SHIELD CABLE(2.5mm) (Φ1.8mm)			
133		3PIN L=130MM	1		MP3 PCB x1 pc
134		CONNECTOR PIN: (1.0mm)			
135	SAME WAY:	16 PIN CD LENS FLAT CABLE L=150MM	1		CD DECKx1
136	WIRE: 26#	RED 120MM	1		DC“+”至 AC SOCKET x1
137		BLACK 100MM	1		DC“-”TO POWER PCBx1
138		GREEN 100MM	2		AC SOCKET TO POWER PCB x1 FLOW WIREx1
139		GREEN 200MM	1		FM ANTEENAx1
140		RED 220MM	1		MP3 PCB POWER SUPPLY(+) FLOW WIREx1
141		BLACK 280MM	1		MP3 PCB POWER SUPPLY (-) FLOW WIREx1
142		BLACK 60MM	1		BLUE LIGHT X 1
143		GREEN 60MM	1		BLUE LIGHT X 1
144		RED 180MM	1		MOTOR TO CD DECK SWITCH“+”x1
145	WIRE: 28#	BLACK 50MM	1		DISLPAY DEVICE PCBx1
146		RED 50MM	1		DISLPAY DEVICE PCBx1

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147		GREEN 50MM	1		DISLPAY DEVICE PCBx1
148		RED 80MM	1		FM ST LIGHT WIREx1
149		GREEN 80MM	1		FM ST LIGHT WIREx1
150		BLACK 120MM	2		TWEETER"-x2
151		RED 120MM	2		TWEETER"+x2
152	SCREW:	MS/PH 2.6x5	1		PVC GEAR x1
153		TA/PH2x10	3		CD DOOR SWITCH X1CASSETTE DOOR GEAR HOLDERx2
154		TA/PH 3x16	6		BOTTOM CABINETx6
155		MS/BH 3x8	1		FM ANTENNA x1
156		TA/PH 3x8	17		PCB HOLDER x2 TUNING HOLDERx3 PCBx6 POWER PCBx2 MPEG BOARDx4
157		TA/PH 2x6	1		MAGNET HOLDER X 1
158		TA/PH 3x10	6		CD DECKx4 AC JACKx2
159		TA/kH 3x10	4		CD BRACKETx4
160		MS/KH 2.6x4	2		PVCx2
161		TA/WH 2.6x10	4		CD DECKx4
162		TA/PH3x12	1		PCB HOLDERx1
163		TA/PH 2.6x8	7		FRONT PCB x3 CD DISPLAY PCBx4
164		PST2x3	3		FRONT PCB BRACKETx3
165		MS/PH 3x6	2		7808x1 7805x1
166		TA/WH 3x25	2		TRANSFORMER X 2
167		TA/WH 3x10	11		SPx8 CD DOOR GEAR HOLDERx1 HEADPHONE JACK PCBx2
168	AC SOCKET	VDE APPROVAL	1		
169	SPEAKER:	8 OHM3W Φ 45 3.5" W/ SILVER CAP	2		V-10
170		BUZZER Φ 20MM	2		
171	TRANSFORMER:	EI 48x24 13V~ 230V	1		
172		SPEAKER GRILL "L" SILVER (877C)	1		
173		"R" SILVER (877C)	1		
174	SPRING:	CASSETTE DOOR SPRING KW-89	1		
175		CD DOOR SPRING KW-89	1		
176		"+" PLATE V-10	1		
177		"-" PLATE V-10	1		
178		"+-" PLATE (C) V-10	1		
179		"+-" (B) V-10	1		
180		"+-" (C) V-12	1		
181		FM ANTENNA (V-10)	1		
182		FM HOLD PLATE 6MM	1		
183		CASSETTE DECI MOTOR 12V STEREO HEAD L=30MM	1		
184		CD DECK: SAM SUNG B31V	1		

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185		MAGNET: 30x16 THICK:5mm	1		
186		CD DECK RUBBER FEET: RED TY-717<40C>	2		
187		GREEM TY-717<30C>	2		
188		RUBBER FEET: 8.5x8.5x2.5MM	4		
189		CD-10VCD7805/7808 HEAT SINK	1		
190		8227 HEAT SINK	1		
191		EYELET: 2x4	12		
192		TRANSFORMER DOUBLE INSULATION PLATE: KW-89MP3	1		
193		PLASTIC: "A" SPEAKER CLIP	2		
194		"B" SPEAKER CLIP	2		
195		"C" SPEAKER CLIP	2		
196		"D" SPEAKER CLIP	2		
197		TWEETER	2		
198		FRONT CABINET	1		
199		BACK CABINET	1		
200		CASSETTE DOOR	1		
201		HANDLE	1		
202		HANDLE PLATE	1		
203		BATTERY DOOR	1		
204		CD DOOR	1		
205		CD HOLDER	1		
206		CASSETTE KNOB	1SET		
207		CD KNOB	1SET		
208		CASSETTE DOOR LENS	1		
209		RING FOR TUNNING KNOB	1		
210		RING OF VOLUME KONB	1		
211		DIAL LENS	1		
212		DISPLAY LENS	1		
213		TUNNING KNOB	1		
214		FUNCTION KNOB	1		
215		VOLUME KNOB	1		
216		SPEAKER RING "L"	1		
217		SPEAKER RING "R"	1		
218		CASSETTE DOOR DECORATION PLATE	1		
219		DISPLAY LENS DECORATION PLATE	1		
220		DIAL POINTER	1		
221		BAND KNOB	1		
222		DIAL POINTER GEAR	1		

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223		CASSETTE DOOR GEAR	1		
224		CASSETTE DOOR GEAR HOLDER	1		
225		CD DOOR GEAR	1		
226		CD DOOR GEAR HOLER	1		
227		PCB BRACKER	2		
228		HEADPHONE JACK PCB HOLDER	2		
229		RECORDING PCB BRACKET	1		
230		MAGNET HOLDER	1		
231		MAGNET LOCK	1		
232		MAGNET COVER	1		
233		DUCT COVER (SAN SUNG)	1		
234	PACKING:	POLYFOAM"L"	1		
235		POLYFOAM"R"	1		
236		GIFTBOX	1		
237		CARTON	1		
238		INSTRUCTION MANUAL	1		
239		CLASS 1 LABEL	1		
240		WARNING LABEL	1		
241		LASER LABEL	1		
242		SERIAL LABEL	1		
243		FUSE LABEL	1		
244		RATING LABEL	1		
245		COLOR FILTER LABEL: 29x20mm	2		
246		AC CORD VDE APPROVAL L=1.8M	1		
247		PVC BLACK	1		STICK AT DUAL SWITCHER WINDOW
248		CD PROTECTION CARD	1		
249		WIRE: φ0.5x50mm	30		
250		<0.03X39x58Cm>	1		POLY BAG
251		<0.03X7.5X16CM>	1		RC POLY BAG
252		<0.03X8.5X30CM>	1		AC CORD POLY BAG
253		<0.03X15.5X25CM>	1		M POLY BAG
254		METAL WASHER OR PCB WASHER : 3x12x1mm	4		CD DECKx4
255		FILBER WASHER: 3x14x1mm	2		HEADPHONE JACK PCBx2
256		REBOUND PLASTIC 14x10x7mm	1		REMOTE CONTROL RECEIVER
257		OIL PLATE: Φ2.5x40mm	1		AC SOCKET
258		OIL PLATE: Φ2x10mm	26		
259		BELT: 70x900mm	1		
260		NYLON CABLE WIRE 80mm	5		

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1	PCB: SPCA718 MP3 BOARD V1.04	1	
2	IC: SAMSUNG SIL9226X01	1	
3	SAMSUNG SIL9290X01	1	
4	KA9259	1	
5	SUNPLUS SPCA718A	1	
6	2BE3L9J HCU04	1	
7	HYUNDAI HY57V161610D	1	
8	27C020(MP3 PROGRAMME)	1	
9	HSG:(2.0mm) 2PIN	1	
10	6PIN	2	
11	7PIN	1	
12	HSG:(2.5mm) 2PIN	2	
13	3PIN	1	
14	HSG:(1.0mm) 16PIN	1	
15	IC HSG HOLDER	1	
16	ELECTROLYTIC CAP.:(+/-10%) (Φ5.1mmx12mm)		
17	4.7UF/10V	1	
18	10UF/10V	4	
19	47UF/10V	4	
20	100UF/10V	8	
21	CERAMIC CAP.: SMT<25V> (+/-10%)(0603)		
22	22PF	8	
23	33PF	2	
24	39PF	1	
25	82PF	1	
26	390PF	2	
27	470PF	1	
28	680PF	2	
29	102(0.001UF)	3	
30	222(0.0022UF)	3	
31	103(0.01UF)	6	
32	333(0.033UF)	2	
33	683(0.068UF)	2	
34	104(0.1UF)	23	
35	CERAMIC CAP.: SMT<25V> (+/-10%)(0805)		
36	474(0.47UF)	2	
37	105(1UF)	1	
38	RESISTOR:SMT<+/-5%> (0603)		
39	0 OHM	4	
40	4.7 OHM	2	
41	10 OHM	1	
42	33 OHM	2	
43	82 OHM	1	
44	100 OHM	1	
45	220 OHM	10	

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46		1K OHM	2		
47		4.7K OHM	5		
48		8.2K OHM	1		
49		10K OHM	7		
50		12K OHM	1		
51		15K OHM	1		
52		18K OHM	1		
53		22K OHM	2		
54		33K OHM	2		
55		39K OHM	4		
56		47K OHM	1		
57		68K OHM	3		
58		82K OHM	3		
59		100K OHM	4		
60		120K OHM	1		
61		270K OHM	1		
62		1M OHM	2		
63		COIL: 10uH	1		
64		TRANSISTOR: IN4148	1		
65		ZENER DIOE:3.3V	1		
66		ZENER DIOE:3.9V	2		
67		TRANSISTOR: 8050	4		
68		9014	1		
69		9015	1		
70		A733	1		
71		CYSTRAL: 16.93MHz	1		
72		27MHz	1		
1		REMOTE CONTROL:			
2		IC: PT 2221	1		
3		P.B.C: KW-89MP3 REMOTE HANDSET V1.01	1		
4		INFRARED EMISSIVE TUBES:Φ5mm<WHITE>	1		
5		TRANSISTOR: 9014 C	1		
6		CERAMIC FILTEF 455KHz <2PINS>	1		
7		CERAMIC CAP: 200pf	2		
8		104<0.1uf>	1		
9		ELECTROLYTIC 47uf/10v (Φ5mmx11.5mm)	1		
10		RESISTOR 1/8W: 10 OHM	1		
11		BATTERY PLATE "+"PLATE (1860)	1		
12		"-"PLATE (1860)	1		
13		"+ -"PLATE (1860)	1		
14		REMOTE COTROL PLAST BOTTOM CABINET	1		
15		FRONT CABINET	1		
16		BATTERY DOOR	1		
17		PVC PLATE<8KEYS> (KW-89MP3)	1		
18		REMOTE CONTROL KNOBS: <8KEYS> (KW-89MP3)	1		

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ALIGNMENT PROCEDURES

AM IF. ALIGNMENT

- 1, Set the FUNCTION switch to "RADIO" position.
- 2, Set the BAND switch to "AM" position.
- 3, Connect a SWEEPSCOPE OUTPUT to AM standard radiating loop antenna and match the direction for built-in ferrite bar of AM antenna.
- 4, Connect a SWEEPSCOPE INPUT to pin 13 or 14 of IC1 through a 1uf capacitor and GND.

STEP	SET SIGNAL	SET DIAL	ADJUST	ADJUST FOR
1	465KHz	LOW-END OF BAND	T5(IFT,YELLOW)	CENTER & MAXIMUM OUTPUT

AM RF. ALIGNMENT

- 1, Connect a RF GENERATOR to the standard radiating loop antenna.
- 2, Connect a SCOPE and VTVM across the speaker output

STEP	SET SIGNAL	SET DIAL	ADJUST	ADJUST FOR
1	520KHz	LOW-END OF BAND	T2(AM OSC)	MAXIMUM OUTPUT
2	1620KHz	HIGH-END OF BAND	PVC3 (AM OSC TRIMMER)	MAXIMUM OUTPUT
3	REPEAT	STEP 1 & 2	TO MAXIMUM	
4	612KHz	NEAR 612KHz	L104(AM SENS COIL)	MAXIMUM OUTPUT
5	1404KHz	NEAR 1404KHz	PVC4 (AM ANT TRIMMER)	MAXIMUM OUTPUT
	REPEAT	STEP 4 & 5	TO MAXIMUM	

FM IF. ALIGNMENT

- 1, Set the BAND switch to "FM" position.
- 2, Connect a SWEEPSCOPE OUTPUT to pin 23 of IC1 through a 20pf capacitor and GND.
- 3, Connect a SWEEPSCOPE INPUT to pin 13 or 14 of IC1 through a 1uf capacitor and GND.

STEP	SET SIGNAL	SET DIAL	ADJUST	ADJUST FOR
1	10.7MHz		T6(FM DISCRI.,PINK)	WITH 10.7MHz AT ZERO CROSSOVER & MAKE THE "S" CURVE TO FINER.
2	REPEAT	STEP 1 TO	FINEL	

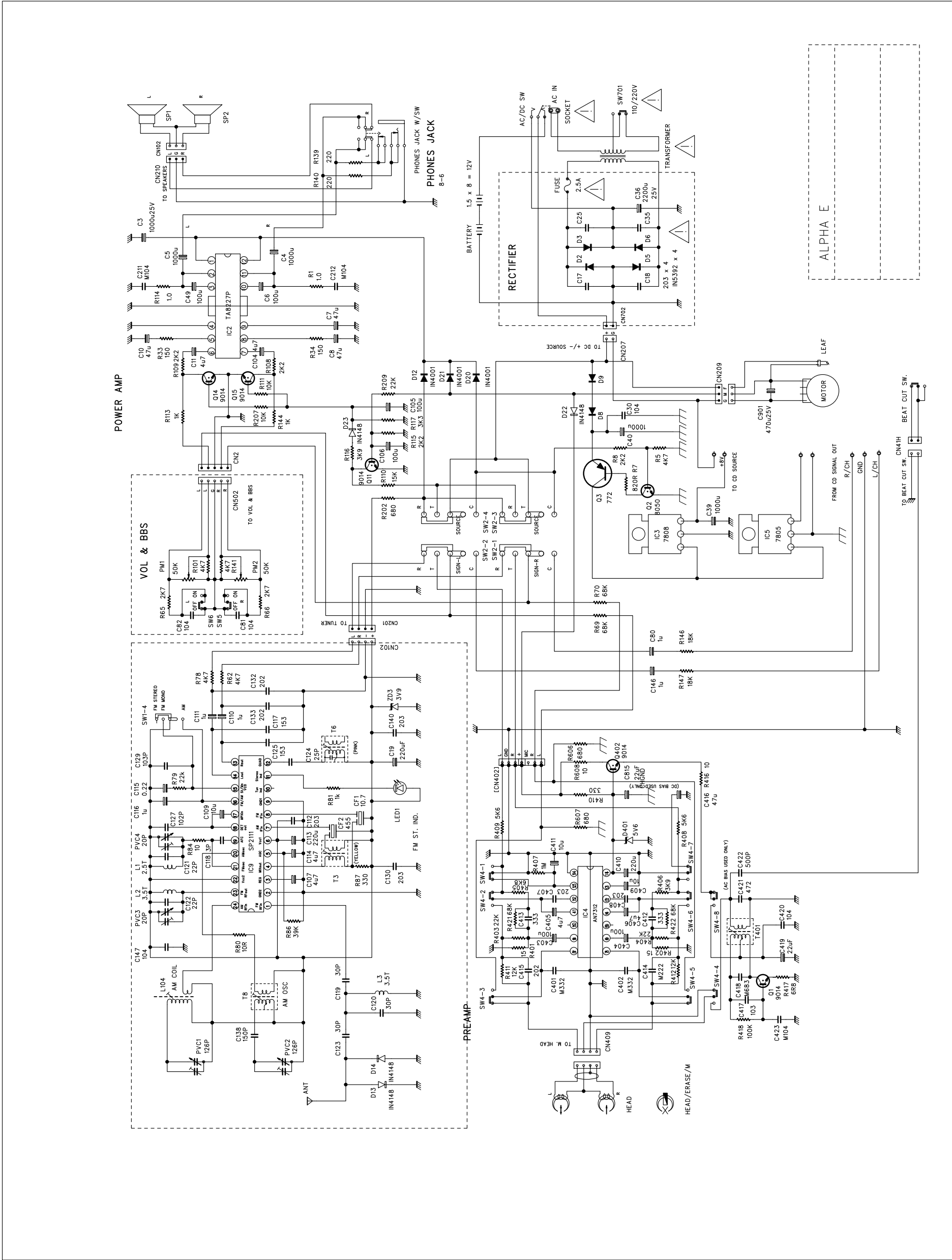
FM RF. ALIGNMENT

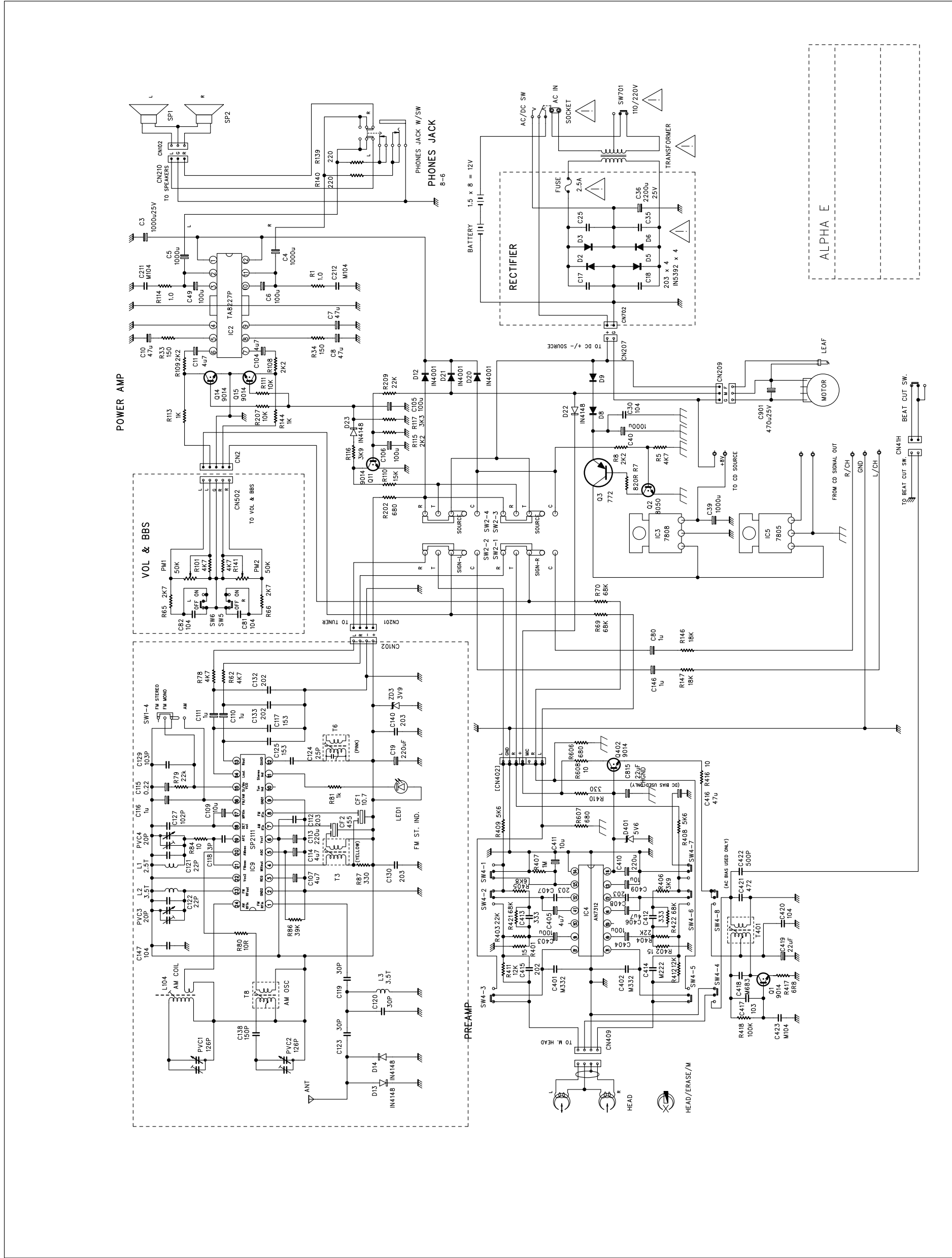
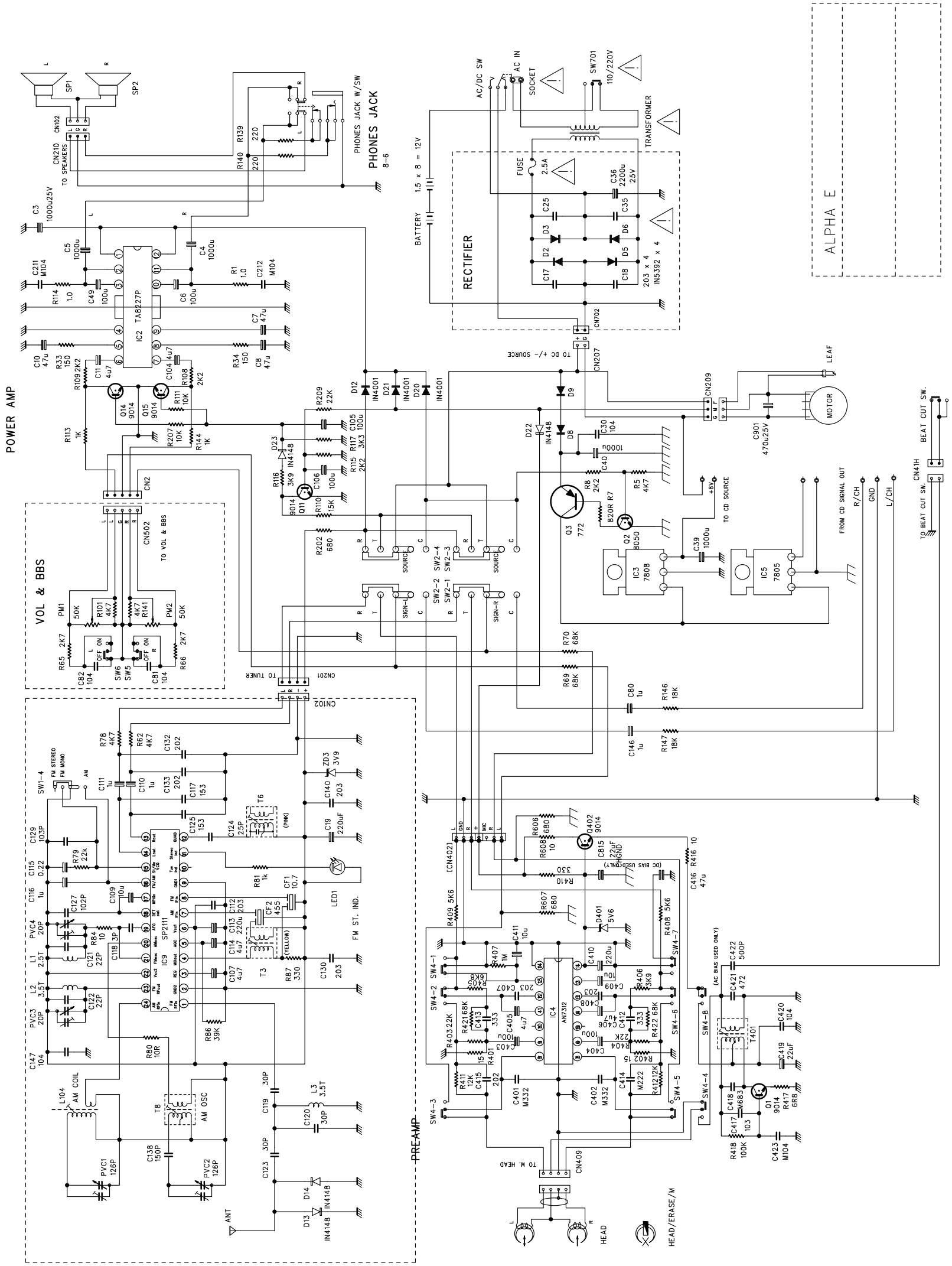
- 1, Connect a RF GENERATOR to the terminal of FM telescope antenna and GND.
- 2, Connect a SCOPE and VTVM across the speaker output.

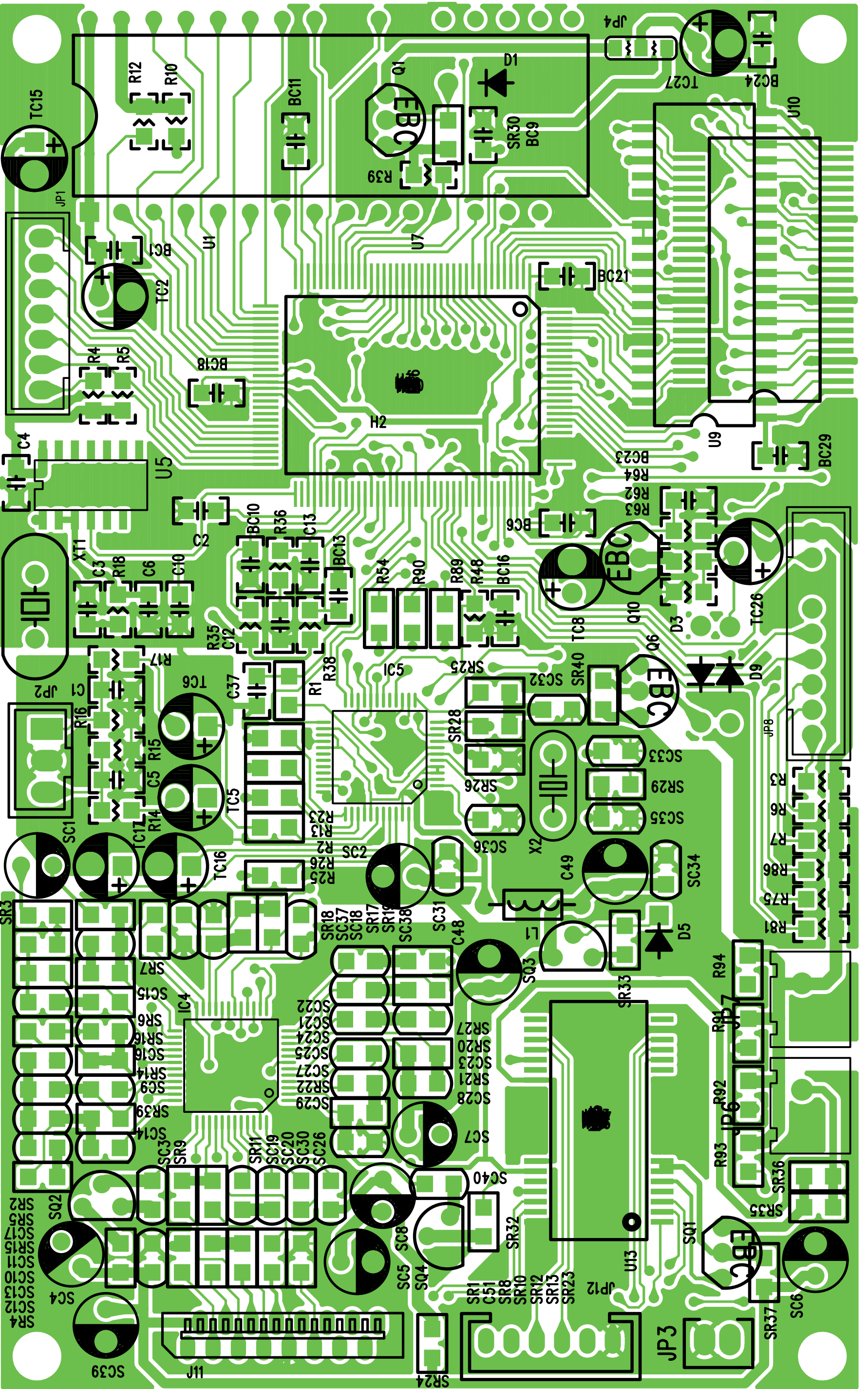
STEP	SET SIGNAL	SET DIAL	ADJUST	ADJUST FOR
1	64MHz	LOW-END OF BAND	L3 (FM OSC)	MAXIMUM OUTPUT
2	108MHz	HIGH-END OF BAND	PVC1 (FM OSC TRIMMER)	MAXIMUM OUTPUT
3	REPEAT	STEP 1 & 2	TO MAXIMUM	
4	90.1MHz	NEAR 90.1MHz	L4(FM SENS COIL)	MAXIMUM OUTPUT
5	106.1MHz	NEAR 106.1MHz	PVC2(FM ANT TRIMMER)	MAXIMUM OUTPUT
6	REPEAT	STEP 4 & 5	TO MAXIMUM	

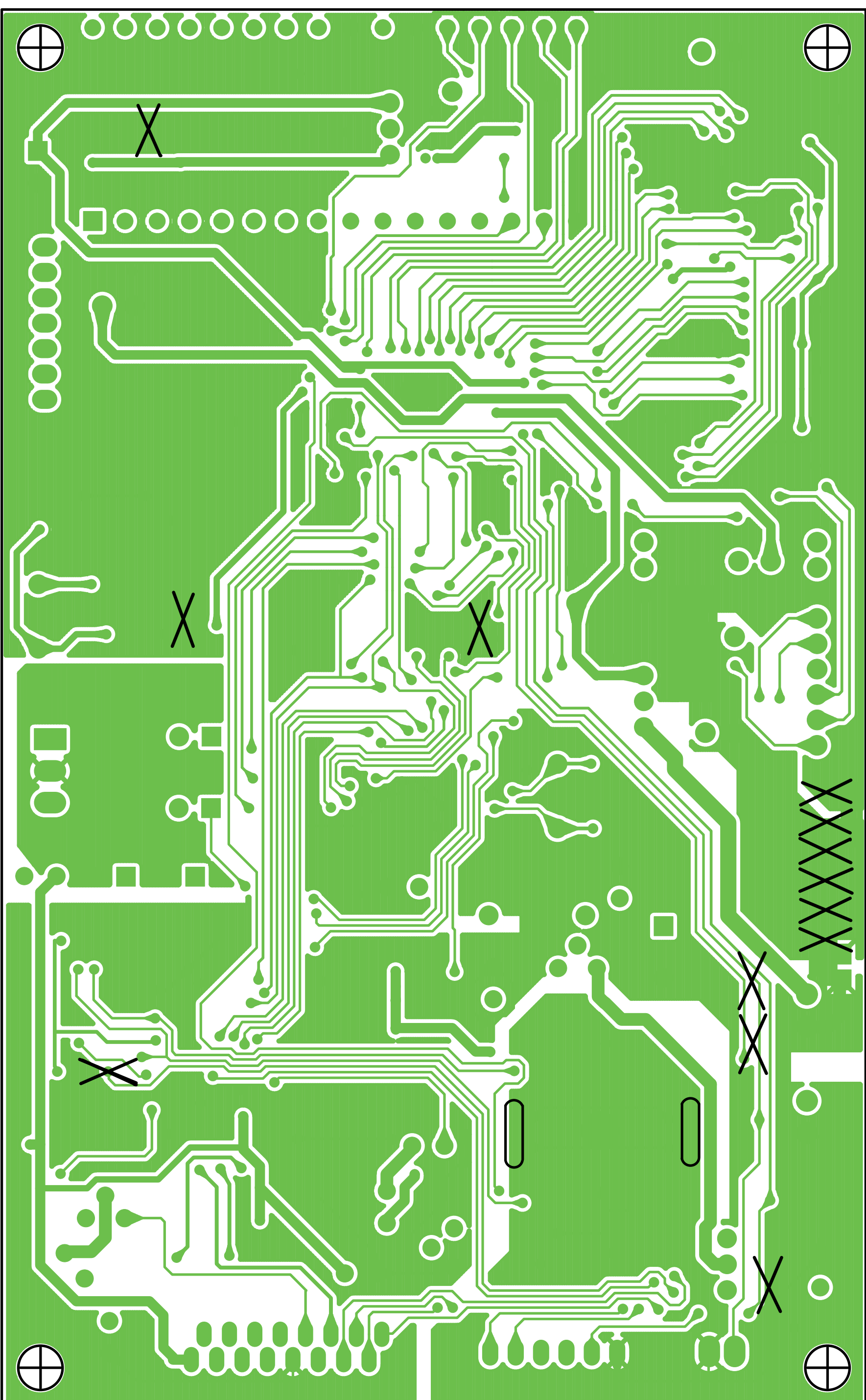
CASSETTE PARTS ALIGNMENT

- 1, MOTOR TURNSPEED: Adjust the screw at motor back side to make the output signal near 3KHz while play the 3KHz standard tape. It used frequency meter connected output.
- 2, HEAD AZIMUTH: Adjust the screw of head azimuth to make the 6.3KHz signal to maximum. It play the 6.3KHz standard tape and used VTVM connected output.



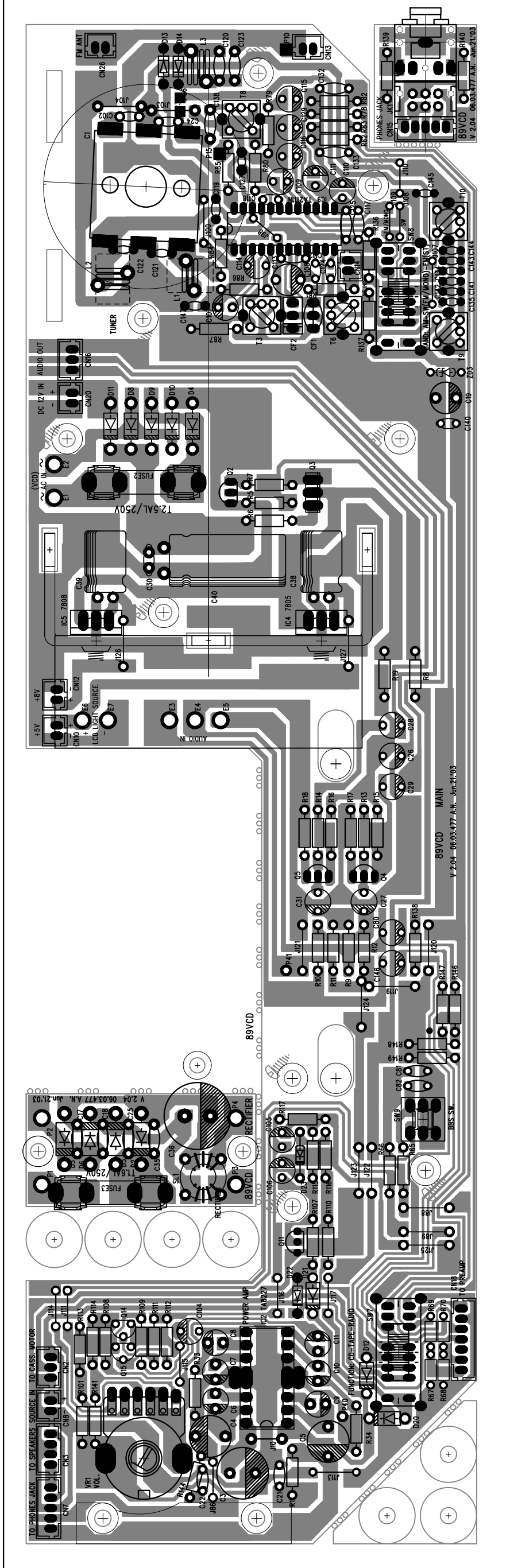


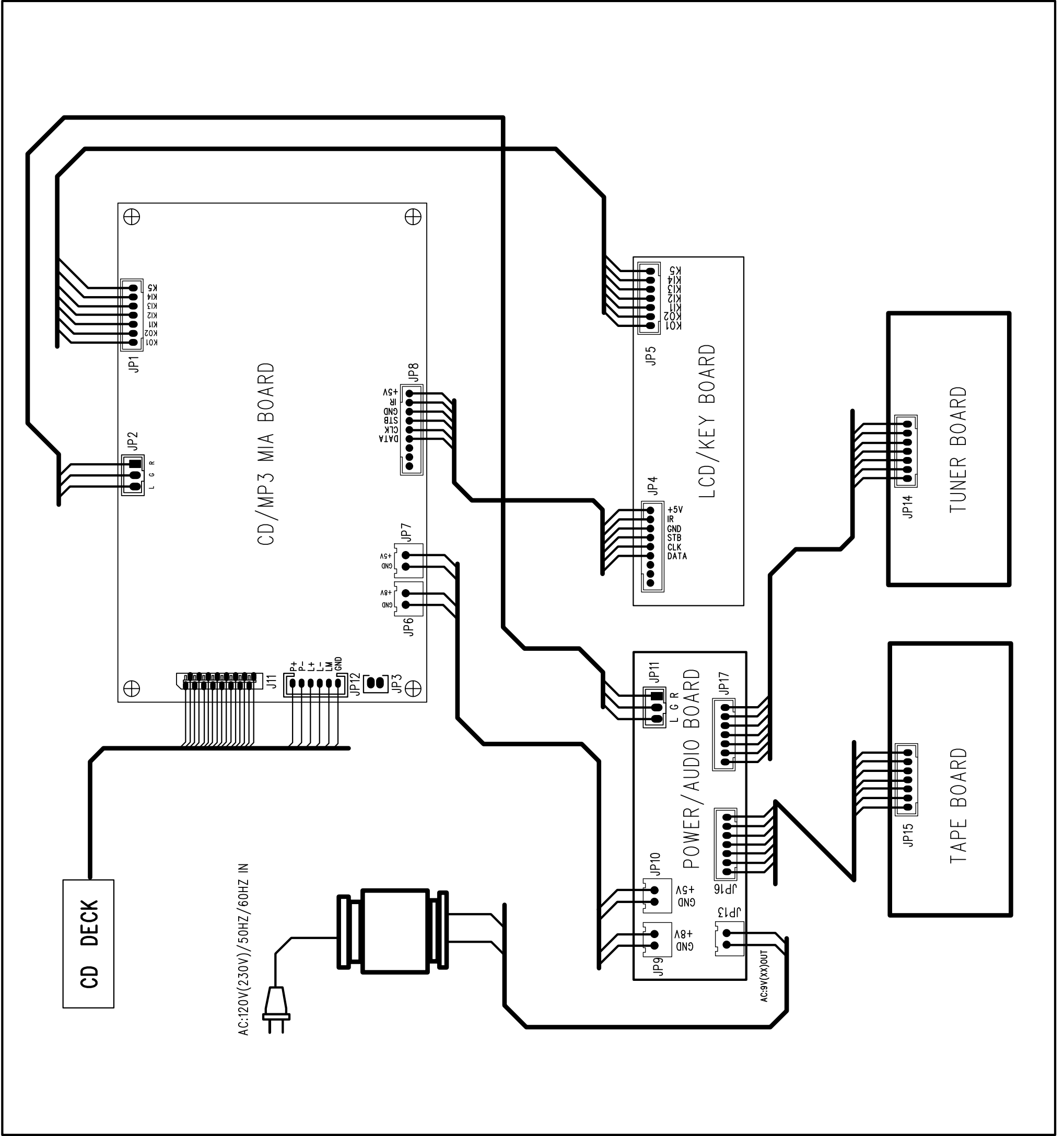




COMPONENT MASK





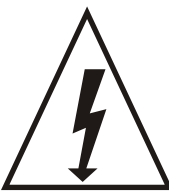



We are sure that this portable CD/CD-R/RW/MP3 audio system will provide you with many years of exceptional performance with a minimum of care and maintenance. Please review the contents of this instruction manual completely and carefully before operating your unit, to make sure that you understand all functions and operations and get the maximum benefit out of all the great features included in this product.

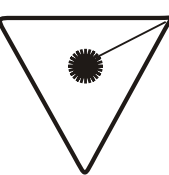
The serial number of your unit can be found on a label on the bottom of the cabinet. We suggest that you record the serial number in the provided below in case this information is ever needed at a future date.

	<p>CAUTION</p> <p>RISK OF ELECTRIC SHOCK DO NOT OPEN</p>	
<p>WARNING : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER - SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		

LASER SAFETY: This unit employs a laser. Only qualified service personnel should attempt to service this device due to possible eye injury. **CAUTION: USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE, PROCEDURE HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

	<p>DANGEROUS VOLTAGE</p> <p>The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>
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	<p>ATTENTION</p> <p>The exclamation point within an equilateral Triangle is intended to alert the used to the Presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>
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	<p>Danger:</p> <p>Invisible and hazardous laser radiation when Open and interlock failed or defeated. Or defeated. Avoid direct exposure to beam.</p>
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Dripping warning:
objects

“ The product shall not be exposed to dripping or splashing and that no filled with liquids, such as vases, shall be placed on the product. ”

Ventilation warning
use”

“ The normal ventilation of the product shall not be impeded for intended ”

CD PLAYING SPECIFICATION

Temp 20 °C Humidity 65 %
 A.C 240 V 50Hz D.C 12 V
 LOADS 8 ohm Ref.out 50 mW

SAMPLE: .

PAGE 7 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
CD MAX. OUTPUT POWER		MW	3500	300	3700	SONY YDES-7 1KHZ
CD 10% THD OUTPUT POWER		MW	2500	2200	2700	SONY YDES-7 1KHZ
CD LINE OUT VOLTAGE		V	--			0dB 1KHZ TCD-782
MAX. O/P DIS(BASS BOOST .OFF)	1KHZ. 0dB	%	24	28	27	SONY YDES-7 1KHZ
THD AT STANDARD OUTPUT	1KHZ	%	1	--	0.35	TCD-782 W/LOW PASS
SEPARATION	1KHZ	dB	40	35	R50/L49	TCD-782 (SPK O/P)
S/N RATIO	1KHZ	dB		>50	54	TCD-782 (SPK O/P)
INTERRUPTIONS	SCRATCH	MM	0.8	0.6		PHILIPS #5A/444A OR
	BLACK DOT	MM	0.8	0.6		ABEX TCD-725/725A
	FINGER PRINT	MM	ALL	CLEAR	ALL	(NO NOISE OUTPUT)
DYNAMIC RANGE		dB		>50		TCD-782 (SPK O/P)
INITIAL. READING TIME		SEC.		<7		TCD-782
ACCESS TIME	FIRST TRACK	SEC.		<5		TCD-782
	LAST TRACK	SEC.		<14		
ECCENTRICITY		MM		0.07		TCD-711
VERTICAL DEVIATION		MM		0.8		TCD-732R
HUM & NOISE	MIN. VOL.	MV		<3	1.3	TCD-782 TNO.8
	MAX. VOL	MV		<10	5.5	BASS BOOST OFF, TONE MAX.
SHOCK ABILITY TCD-782 TNO.1 & 23	CENTER	qm		>100		TENSION GUAGE IMPACT UNIT
	CORNERS	qm		>100		WITHOUT INTERRUPTION
FREQ. RESPONSE 1KHZ=0dB	63HZ	dB		-3	-1.5	CD-1 (SPK O/P) BASS BOOST OFF
	127HZ	dB		"±3	0	
	250HZ	dB				
	500HZ	dB				
	1KHZ	dB		0	0	
	2KHZ	dB				
	4KHZ	dB				
	6.3KHZ	dB				
	8KHZ	dB				
	10KHZ	dB	0	+3	0	
20KHZ	dB	+3	+6	-0.5		

REMARK : OTHER SPEC ARE SUBJECT TO CD MECHANISM SPECIFY.

CASSETTE RECORDING SPECIFICATION

Temp 20 °C Humidity 65 %

A.C 240 V 50Hz D.C 12 V

LOADS 8 ohm Ref.out 50 mW

SAMPLE:

PAGE 6 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
R/P MAX. OUTPUT POWER		MW	3500	3200		MTT-112BN/MTT-501
R/P 10% DIST. O/P POWER		MW	2500	2200	2400	MTT-112BN/MTT-501
R/P MAX. O/P DIS	1KHZ. 0dB	%	20	28	26	
DIST. AT STANDARD O/P		%	3	5	8	MTT-118N/MTT-501
R/P DIFFERENCE		dB		<3		MTT-118N/MTT-501
R/P SEPARATION		dB	35	28	R30/L31	MTT-114N/MTT-501
R/P CROSS TALK		dB	25	22	24	* W/B.P.F ____ W/O B.P.F
R/P S/N RATIO		dB	25	22	24	MTT-112BN/MTT-501
R/P ERASE RATIO		dB	25	22	24	MTT-112BN/MTT-501
TAPE SPEED AT HI-SPEED		HZ				MTT-111N
R/P CH BALANCE		dB		<3		MTT-118N/MTT-501
HI-SPEED REC. FIDELITY 1KHZ=0dB	125HZ	dB				MTT-257/MTT-501
	6.3KHZ	dB				
MIC RECORDING SENS		dBV				S.R.L.=-66dBV; MTT-118N
MIC REC.ALC EFFECT		dB				+30dBV OF S.R.L.
REC.LEVEL VS TAPE SAT.	FM:DOM.22.5KHZ.1KHZ	dB	0	+/-3	+5	
	FM:DOM.45KHZ.1KHZ.	dB	0	+/-3	+2	
	CD:-10dB.1KHZ	dB	0	+/-3	+5	
	CD:-20dB.1KHZ	dB	0	+/-3	+5	
ALC REC.DISTORTION		%				+30dBV OF S.R.L.
R/P FREQ . RESPONSE 315HZ=0dB	63HZ	dB				MTT-256R VOL AT 75% POSITION
	125HZ	dB		+/-3	-3	
	250HZ	dB				
	315HZ	dB				
	500HZ	dB				
	1KHZ	dB		0	0	
	2KHZ	dB				
	4KHZ	dB				
	6.3KHZ	dB		+3-4	+ 2	
	8KHZ	dB				
10KHZ	dB					

REMARK : OTHER SPEC ARE SUBJECT TO CASS. MECHANISM SPECIFY.

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
MIC SENSITIVITY	RATED POWER 1800MW	dBV				MAX. VOL/EQ CENTER 1KHZ
MIC OVERLOAD I/P CAPACITY	O/P <5% THD	dBV				EQ CENTER 1KHZ
MIC INPUT IMPEDANCE		K OHM				

CASSETTE PLAYBACK SPECIFICATION

Temp 20 °C Humidity 65 %

A.C 240 V 50Hz D.C 12 V

LOADS 8 ohm Ref.out 50 mW

SAMPLE:

PAGE 5 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
MAX. OUTPUT POWER		MW	3500	3200	3700	MTT-112BN
10% THD DIST. O/P POWER		MW	2500	2200	2700	MTT-112BN
MAX. O/P DIS(BASS BOOST OFF)	1KHZ. 0dB	%	23	28	25	MTT-112BN
DIST.AT STANDARD O/P		%	1	3	1.8	MTT-118N
TAPE SPEED		%	+2/-1	+3/-2	+0.1	MTT-111N
WOW & FLUTTER		%	0-2	0.35	0.2	MTT-111N
L/R CH SEPARATION		dB	35	30	R34/L36	MTT-141N
TRACK CROSS TALK		dB	60	50		. ____ MTT-141N, * W/O B.P.F.
HUM & NOISE	MIX. VOL	MV	1	3	2.4	MTT-501
	MAX. VOL	MV	20	80	40	BASS BOOST OFF
S/N RATIO		dB	35	30	48	MTT-112BN/MTT-501
WINDING TIME	F . FWD.	SEC		<170		C-60 TYPE
	F . REW.	SEC		<170		
L/R CH. DIFFERENCE		dB	0	<3		MTT-118N
FORWARD /REVERSE DIFF.		dB	--	--		MTT-118N
CASS. TAPE A/B O/P DIFF		dB	--	--		MTT-118N
TORQUE	PLAY	q-cm		35-70		TORQUE METER
	F . FWD.	q-cm		>55		
	F . REW.	q-cm		>55		
FREQ . RESPONSE 315HZ=0dB	63HZ	dB				MTT-256R
	125HZ	dB		+/-3	-1.5	
	250HZ	dB				
	315HZ	dB				
	500HZ	dB				
	1KHZ	dB		0	0	
	2KHZ	dB				
	4KHZ	dB				
	6.3KHZ	dB		+/-3	4	
	8KHZ	dB		+6		
10KHZ	dB					
LEVEL BALANCE	PHONO	dB				180MV RMS. PHONO
	AUX/CD	dB				180MV RMS. AUX/CD
	FM	dB		0		45KHZ DEV. IMV
	AM	dB		<3		60% MOD. 74dB/M
	CASS	dB		<3		MTT-112BN 0dB
	CD	dB		-5/+3		-10dB 1KHZ
BASS BOOST EFFECT	125HZ	dB	8	6	7	BASS BOOST FROM OFF TO ON

REMARK : OTHER SPEC ARE SUB JECT TO CASS. MECHANISM SPECIFY.

FM MPX SPECIFICATION

Temp 20 °C Humidity 65 %

A.C 240 V 50Hz D.C 12 V

LOADS 8 ohm Ref.out 50 mW

SAMPLE:

PAGE 2 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
MAX.SENSITIVITY	90MHZ	dB	--	--		75KHZ DEV
	98MHZ	dB	--	--		
	106MHZ	dB	--	--		
-30dB S/N SENS.	90MHZ	dB	24	30		
	98MHZ	dB	24	30		
	106MHZ	dB	24	30		
STEREO SEPARATION	100HZ	dB	26	20		WITH 19KHZ FILTER
	1kHz	dB	26	20	R25/L26	
	10KHZ	dB	26	20		
STEREO LIGHT SENS.	98MHZ	dB	24	28	20	
PILOT SIGNAL REJECTION	98MHZ	dB	40	35		75KHZ DEV.1MV
STEREO S/N RATIO	98MHZ	dB	--	--		75KHZ DEV.1MV WITH 19KHZ FILTER
MONO/STEREO O/P DIFFERENCE	98MHZ	dB	0	<3		
THD AT STANDARD OUTPUT	98MHZ	%	3	<5		WITH 19KHZ FILTER
ST-VCO FREQ.TEMP.DRIFT	76KHZ	HZ				AT 25 ⁰ C +/-25 ⁰ C
MIN.PILOT SIGNAL LEVEL		%	5	7		ST.LED START LIGHT UP

REMARK: MOD.	DESCRIPTION	L+R	L-R	PILOT
.....	45%	45%	10%

MEMORY BACK UP SPECIFICATION

MEASURING ITEMS	UNIT	NORMAL	LIMIT		TEST CONDITION
MEMORY BACKUP CURRENT WITH BATTERY	mA	--	--		DISCONNECT AC POWER
TUNER PRESET STATION BACK UP TIME	MIN	--	--		DISCONNECT AC POWER AND WITHOUT BATTERY

FM RADIO SPECIFICATION

Temp 20 °C Humidity 65 %

A.C 240 V 50Hz D.C 12 V

LOADS 8 ohm Ref.out 50 mW

SAMPLE:

PAGE 1 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
FREQUENCY RANGE	LOW END	MHZ	63.50	+/-0.5	63.3	
	HIGH END	MHZ	108.50	+/-0.5	108.40	
INTERMEDIATE FREQ		MHZ	10.70	+/-0.1	10.76	
MAX.SENSITIVITY	90MHZ	dB	16	20	10	
	98MHZ	dB	16	20	11	
	106MHZ	dB	16	20	12	
-30dB QUIETING SENSITIVITY	90MHZ	dB	22	26	20	
	98MHZ	dB	22	26	22	
	106MHZ	dB	22	26	21	
DIAL CALIBRATION	ALL POINTS	MHZ		<0.5		
IMAGE REJECTION	90MHZ	dB	26	20	24	
	98MHZ	dB	26	20	24	
	106MHZ	dB	26	20	23	
I.F. REJECTION	90MHZ	dB	65	55	>58	
SPURIOUS REJECTION	98MHZ	dB	55	45		
-3dB LIMITING SENS	98MHZ	dB	25	30	24	
-3dB AFC HOLDING RANGE	98MHZ	KHZ	450	350-600	400	
AM SUPPRESSION	98MHZ	dB	40	30	>35	
RF OVERLOAD DIST.	98MHZ	%	3	5	2.5	100dB 75KHZ DEV
10% DIST. O/P POWER	98MHZ	MW	2500	2200	2600	* 1KHZ ; ____ 400HZ 75KHZ DEV
MAX. O/P POWER	98MHZ	MW	3500	3200	3700	* 1KHZ ; ____ 400HZ 75KHZ DEV
MAX O/P DIST.(BASS BOOST OFF)	98MHZ	%	20	28	24	* 1KHZ ; ____ 400HZ 75KHZ DEV
-3dB AUDIO	LOW FREQ	HZ	200	250	68	75uS PRE-EMPHASIS
FIDELITY	HIGH FREQ	HZ	15K	10K	4K2	VOL AT 75%POSITION
S/N RATIO	98MHZ	dB	45	40	45	22.5KHZ DEV. 1MV
DIST .AT STANDARD O/P	98MHZ	%	1	3	0.8	
MODULATION HUM	98MHZ	dB	50	40	45	22.5KHZ DEV. 100dB
AUTO TUNING SEEK SENS	90MHZ	dB	--	--		
	98MHZ	dB	--	--		
	106MHZ	dB	--	--		
AUTO SEEK ACCURACY		KHZ	--	--		

MW RADIO SPECIFICATION

Temp 20 °C Humidity 65 %

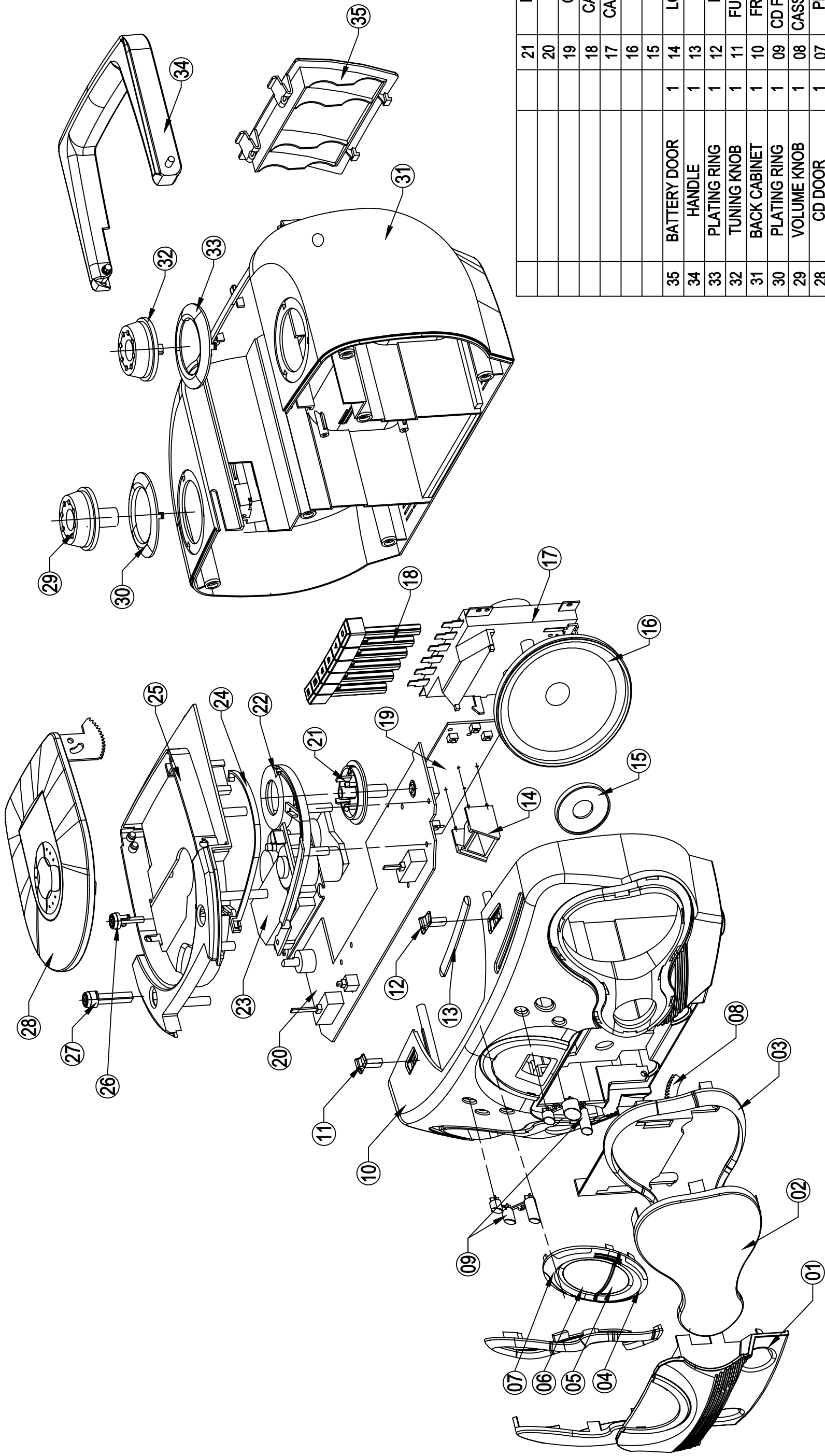
A.C 240 V 50Hz D.C 12 V

LOADS 8 ohm Ref.out 50 mW

SAMPLE:

PAGE 3 OF 7

MEASURING ITEMS	CONDITION	UNIT	NORMAL	LIMIT		TEST CONDITION
FREQUENCY RANGE	LOW END	KHZ	525	+/-5	523	
	HIGH END	KHZ	1630	+/-15	1633	
INTERMEDIATE FREQ		KHZ	465	+/-3	466	
MAX.SENSITIVITY	600KHZ	dB	50	58	49	
	1000KHZ	dB	50	58	47	
	1400KHZ	dB	50	58	46	
-20dB QUIETING SENSITIVITY	600KHZ	dB	58	64	58	
	1000KHZ	dB	58	64	56	
	1400KHZ	dB	58	64	55	
DIAL CALIBRATION	ALL POINTS	KHZ		<30		POINTER WITHIN LETTERING
IMAGE REJECTION	600KHZ	dB	50	40	>43	
	1000KHZ	dB	50	40		
	1400KHZ	dB	50	40	>44	
I.F. REJECTION	600KHZ	dB	45	40	>45	
-6dB BAND WIDTH	1000KHZ	KHZ		4-8	19	
ACA +/- 10KHZ	1000KHZ	dB	20	15	19	
AGC FIGURE OF MERIT	1000KHZ	dB	45	40		100dB/M
RF OVERLOAD DIST.	1000KHZ	%	3	5	2.4	100dB/M 60% MOD
10% DIST. O/P POWER	1000KHZ	MW	2500	2200	2400	* 1KHZ ; 400HZ 80% MOD.
MAX. O/P POWER	1000KHZ	MW	3500	3200	3400	* 1KHZ ; 400HZ 80% MOD.
MAX. O/P. DIS	1000KHZ	%	20	28	7	* 1KHZ ; 400HZ 60% MOD.
-6dB AUDIO	LOW FREQ	HZ	100	150	56	VOL. AT 75% POSITION
FIDELITY	HIGH FREQ	HZ	3K	2K2	3K6	ADJUST MOD .TO REF
TWEET AT 1MV/M - 5MV/M	2 IF	%		<10		
	3 IF	%		<10		
S/N WITH 74dB/M	1000KHZ	dB	35	30	35	
DIST. AT STANDARD O/P	1000KHZ	%	3	5	1.2	
MODULATION HUM 100dB/M	1000KHZ	dB	40	35	35	
MIN. VOL. FEEDTHROUGH NOISE & HUM	MIN. VOL	MV	1	3	1.8	
AUTO TUNING SEEK SENS	600KHZ	dB	--	--		
	1000KHZ	dB	--	--		
	1400KHZ	dB	--	--		
AUTO SEEK ACCURACY		KHZ	--	--		



ITEM	PART NAME	QTY	ITEM	PART NAME	QTY
35	BATTERY DOOR	1	21	PVC WHEEL	1
34	HANDLE	1	20	MANI PCB	1
33	PLATING RING	1	19	CD KEY PCB	1
32	TUNING KNOB	1	18	CASSETTE KEY	6
31	BACK CABINET	1	17	CASSETTE DECK	1
30	PLATING RING	1	16	SACKBUT	2
29	VOLUME KNOB	1	15	ALTHORN	2
28	CD DOOR	1	14	LCD BRACKET	1
27	BASS KNOB	1	13	DIAL LENS	1
26	CD OPEN KNOB	1	12	BAND KNOB	1
25	CD BRACKET	1	11	FUNCTION KNOB	1
24	POINTER	1	10	FRONT CABINET	1
23	CD DECK	1	09	CD FUNCTION KNOB	1
22	POINTER BRACKET	1	08	CASSETTE BRACKET	1
			07	PLATING RING	1
			06	DISPLAY LENS	1
			05	CASSETTE LENS	1
			04	PLATING RING	1
			03	PLATING RING	1
			02	SPEAKER WEB	1
			01	CASSETTE	1

TITLE: EXPLODE		MODEL NO.:		PART NO.:	
X<60 60<X<150 150<X<350 350<X<1000 1000<X		SCALE: 1:4		MATERIAL:	
±0.1	±0.2	±0.3	±0.4	±0.5	±0.6
DRAWN:		CHECKED:		DATE:	
APPROVED:		DATE:		DATE:	
				A4	