

DAEWOO
ELECTRONICS EUROPE, GMBH



Service Manual

MICRO SYSTEM WITH CD / MP3 PLAYER

MODEL : RG-431

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PRODUCT PERFORMANCE SPECIFICATION

* * * * *

1. MODEL NO. : RM-431 (MP3 VERSION)
2. SPEAKER INPEDANCE : 4 OHM
3. POWER SUPPLY : AC 230V
4. REFERENCE OUTPUT POWER : 50mW
5. RECEIVER INPUT TEST SIGNAL :

AM 30% MODULATION WITH 400Hz

FM 75KHz DEVIATION WITH 999Hz (22.5KHz FOR MONO)

MPX 46% L ONLY OR R ONLY AND 8% PILOT AT 1mV

RF INPUT SIGNAL.

BAND: MW

DATE: _____

Page 1

ITEM

FREQ (KHz)

UNIT

LIMIT

NORMAL

SAMPLE-1

1. FREQUENCY RANGE	LOW END	KHz	+/-5	522	_____
	HIGH END	KHz	+/-5	1620	_____
2. INTERMEDIATE FREQUENCY		KHz	+/-1	450	_____
4. SENSITIVITY AT 20dB S/N	612	uV/M	1250	707	_____
	999	uV/M	1250	707	_____
	1404	uV/M	1250	707	_____
5. S/N AT 5 mV/M	999	dB	28	34	_____
6. SPURIOUS REJECTION	999	dB		/	_____
7. IF REJECTION	612	dB	40	>50	_____
8. IMAGE REJECTION	1404	dB	26	36	_____
9. A. G. C FIGURE OF METRIC	999	dB	40	46	_____
10. SELECTIVITY +10KHz	999	dB	16	24	_____
-10KHz		dB	16	24	_____
11. BANDWIDTH -6 dB	999	KHz	4	6	_____
12. HUM & NOISE MIN. VOL.	999	mV	3	1.5	_____
13. MODU. HUM AT 100 mV/M	999	dB	32	40	_____
15. MAX. POWER (80% MOD.)	999	W	2.5	3.0	_____
16. 10% T. H. D POWER (80% MOD.)	999	W	2.0	2.5	_____
17. T. H. D AT 5 mV/M, 30% MOD.	999	%	3	1.5	_____
18. OVERLOAD T. H. D AT 100mV/M	999	%	12	5	_____
19. WHISTLE MOD. 5mV/M 2XIF		%	10	3	_____
5mV/M 3XIF		%	10	3	_____

ITEM

FREQ (KHz) UNIT LIMIT NORMAL SAMPLE-1

20. FREQ. RESPONSE -6dB	999	Hz	100-2.0K	80-2.6K	_____
21. MIN. OPER. VOLTAGE	ALL	V	200	190	_____
22. SCAN THRESHOLD SENS.	612	mV/M	1250	501	_____
	999	mV/M	1250	501	_____
	1404	mV/M	1250	501	_____

ITEM	FREQ (MHz)		UNIT	LIMIT	NORMAL	SAMPLE-1
1. FREQUENCY RANGE	LOW	END	MHz	+/-0.5	87.5	_____
	HIGH	END	MHz	+/-0.5	108.0	_____
2. INTERMEDIATE FREQUENCY			MHz	+/-0.2	10.7	_____
3. SELECTIVITY	+400KHz	98.1	dB	18	32	_____
75KHz DEV. 100uV	-400KHz		dB	18	32	_____
4. 30dB QUIETING SENS.		90.1	uV	20	10	_____
		98.1	uV	20	10	_____
		106.1	uV	20	10	_____
5. -3dB LIMITING SENS.		98.1	uV	10	5	_____
6. CAPTURE RATIO AT 100uV		98.1	dB	/	/	
	AT 1mV	98.1	dB	/	/	
7. HUM & NOISE MIN. VOL.		98.1	mV	3	1.5	_____
8. S/N AT 1mV		98.1	dB	40	46	_____
9. MAX. POWER (75kHz DEV.)		98.1	W	2.5	3.0	_____
10. 10% T. H. D POWER (75kHz DEV.)		98.1	W	2.0	2.5	_____
11. T. H. D AT 1mV, 22.5KHz DEV.		98.1	%	1.5	0.5	_____
T. H. D AT 1mV, 75KHz DEV.		98.1	%	3	1.0	_____
12. IF REJECTION		90.1	dB	40	50	_____
13. IMAGE REJECTION		106.1	dB	16	26	_____
14. SPURIOUS REJECTION		98.1	dB		/	
15. AM SUPPRESSION AT 1mV		98.1	dB	40	50	

ITEM	FREQ (MHz)	UNIT	LIMIT	NORMAL	SAMPLE-1
16. MODU. HUM AT 100 mV/M	98.1	dB	40	50	_____
17. OVERLOAD T. H. D AT 100mV/M	98.1	%	10	5	_____
18. FREQ. RESPONSE -6dB WITH 50uS PRE-EMPHASIS	98.1	Hz	100-6.3K	50-10K	_____
19. SCAN THRESHOLD SENS.	90.1	uV	100	30	_____
	98.1	uV	100	30	_____
	106.1	uV	100	30	_____

ITEM		UNIT	LIMIT	NORMAL	SAMPLE-1	
1. STEREO SEPERATION						
1mV INPUT	AT 100Hz	L-R	dB	22	27	_____
		R-L	dB	22	27	_____
	AT 1KHz	L-R	dB	26	30	_____
		R-L	dB	26	30	_____
	AT 10KHz	L-R	dB	15	20	_____
		R-L	dB	15	20	_____
2. BEACON SENSITIVITY		uV	20	10	_____	
3. PILOT MODULATION		%	8	4	_____	

FREQUENCY :98.1MHz DEVIATION : 75KHz

ITEM	TEST TAPE	UNIT	LIMIT	NORMAL	SAMPLE-1
1. TAPE SPEED	(MTT-111)	%	2	0.7	_____
2. WOW & FLUTTER WEIGHTED	(MTT-111)	%	0.4	0.15	_____
3. POWER OUTPUT AT 10% THD	(MTT-112B)	W	2.0	2.5	_____
4. POWER OUTPUT AT MAX.	(MTT-112B)	W	2.5	3.0	_____
5. T.H.D. AT REF. OUTPUT POWER	(MTT-118)	%	3	1.2	_____
6. S/N RATIO	(MTT-112B)	dB	40	46	_____
7. CHANNEL SEPERATION (WITH BANDPASS FILTER)	(MTT-141)	dB	26	36	_____
8. CROSS TALK (WITH BANDPASS FILTER)	(MTT-121)	dB	26	36	_____
9. HUM & NOISE LEVEL AT VOL. MIN.		mV	2	1	_____
10. HUM & NOISE LEVEL AT VOL. MAX.		mV	60	30	_____
11. FREQUENCY RESPONSE AT -6dB		Hz	125-8K	125-10K	_____
12. WINDING TIME AT F.F.		SEC.			_____
13. WINDING TIME AT REW		SEC.			_____
14. TORQUE AT PLAY		G-cm	30 / 60	48	_____
AT F.F.		G-cm	55/140	95	_____
AT REW		G-cm	55/140	95	_____
15. MIN. OPERATING VOLTAGE		V	190	180	_____

ITEM	UNIT	LIMIT	NORMAL	SAMPLE-1
1. DISTORTION AT MTT-118 LEVEL	%	5	2	_____
2. DISTORTION AT MTT-112B LEVEL	%	10	5	_____
3. S/N RATIO AT MTT112B LEVEL	dB	40	46	_____
4. ERASE RATIO AT MTT-112B LEVEL (WITH FILTER)	dB	40	46	_____
5. RECORDING FREQUENCY RESPONSE (-6dB)	Hz	125-8K	125-10K	_____

EQ SPECIFICATION

FREQUENCY (Hz)	UNIT	LIMIT	NORMAL	SAMPLE-1
100 (T-BASS)	dB	+/-6	+/-8	_____

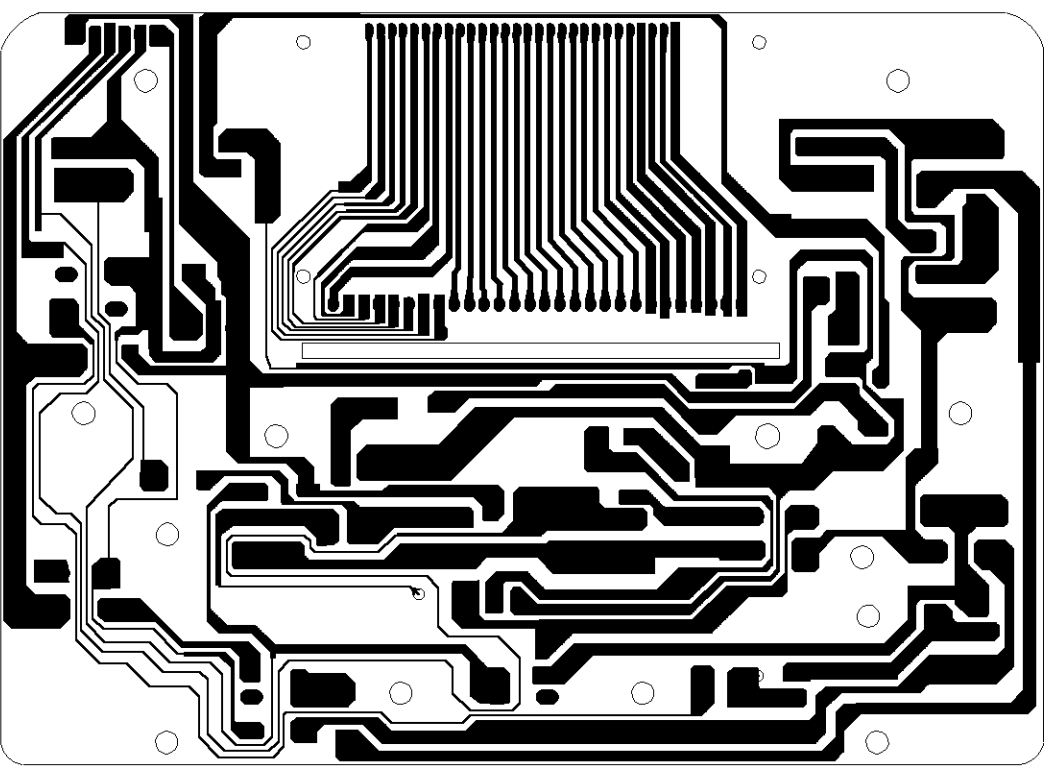
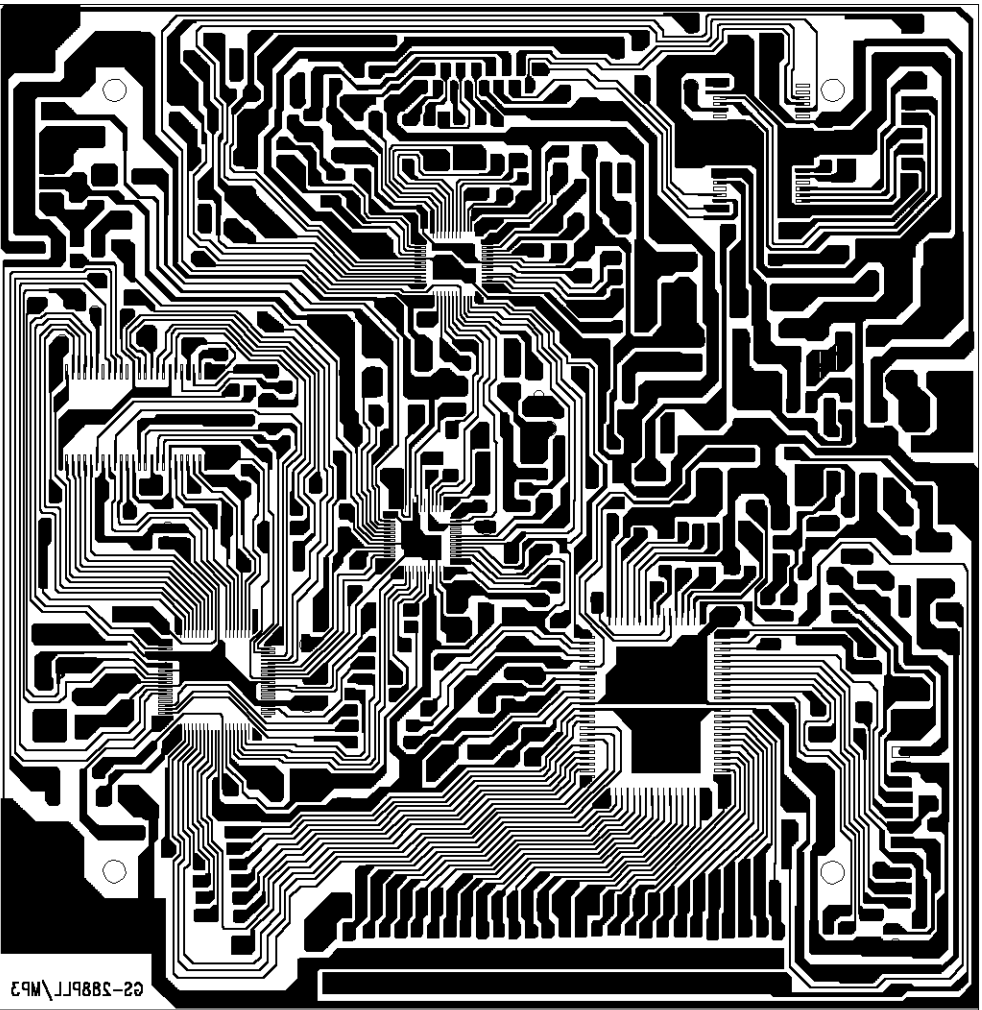
REMOTE SPECIFICATION

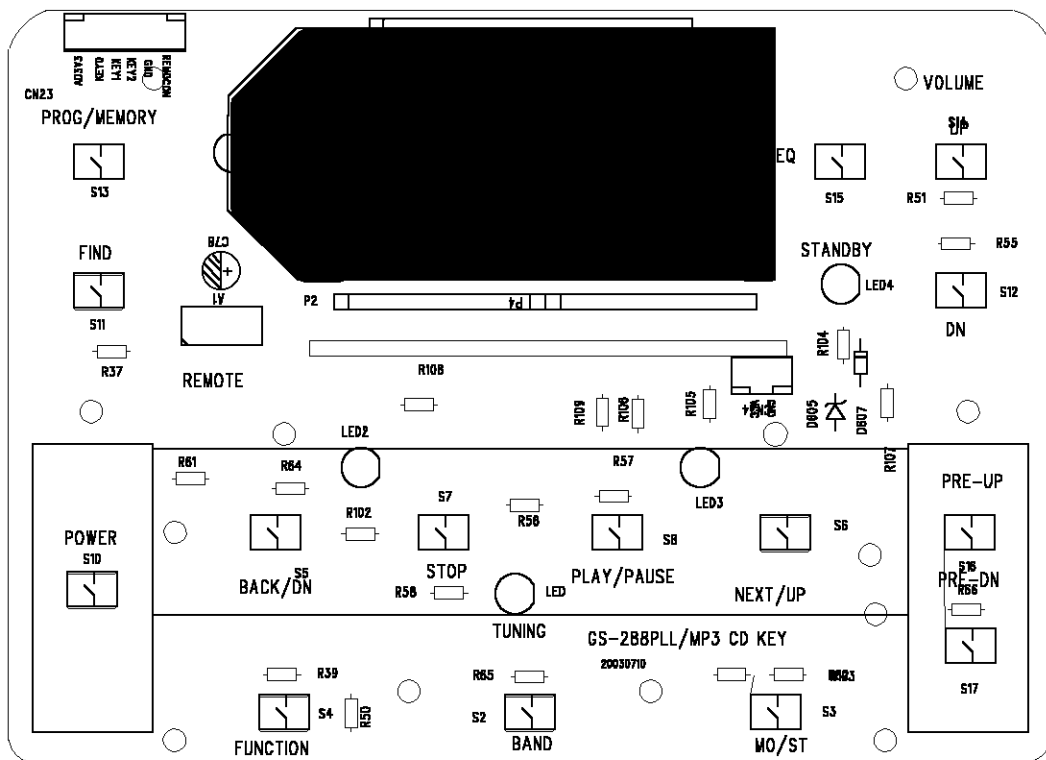
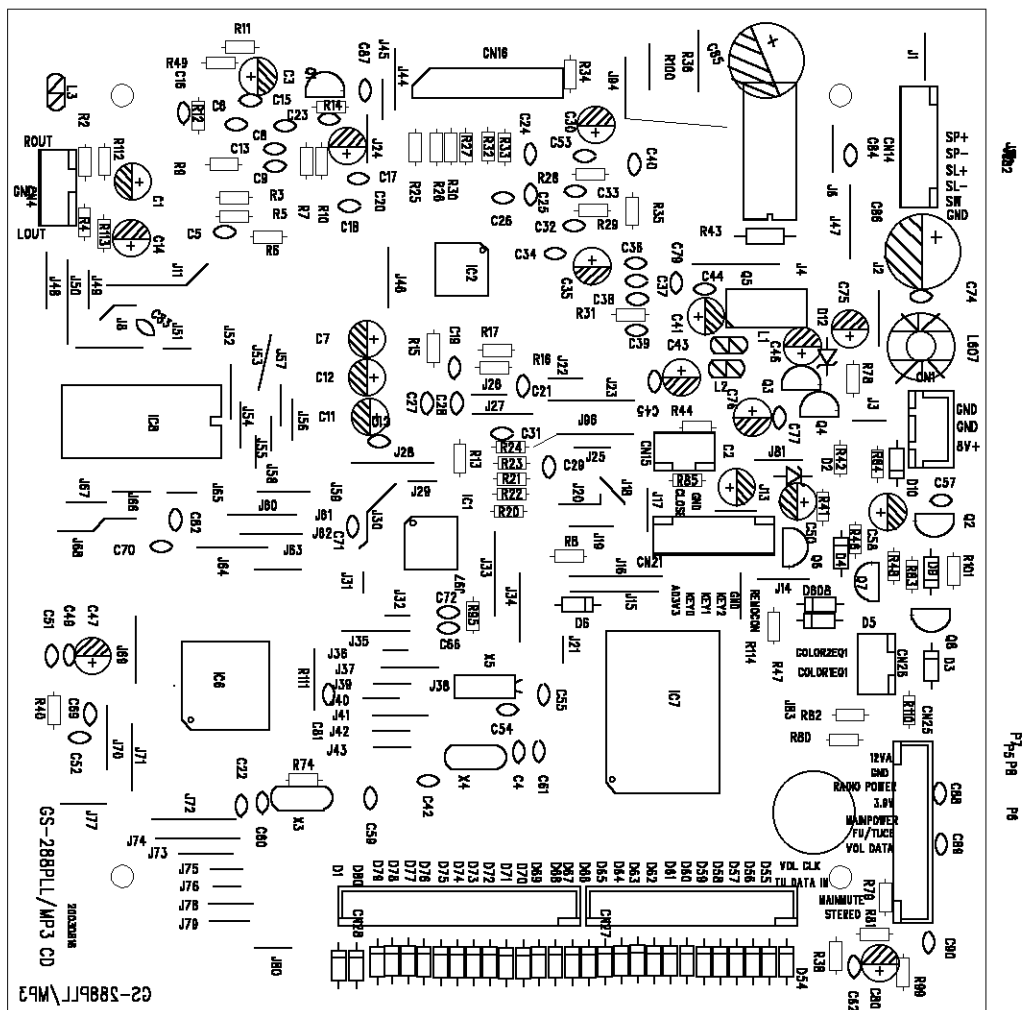
	UNIT	LIMIT	NORMAL	SAMPLE-1
DISTANCE	METER	7	10	

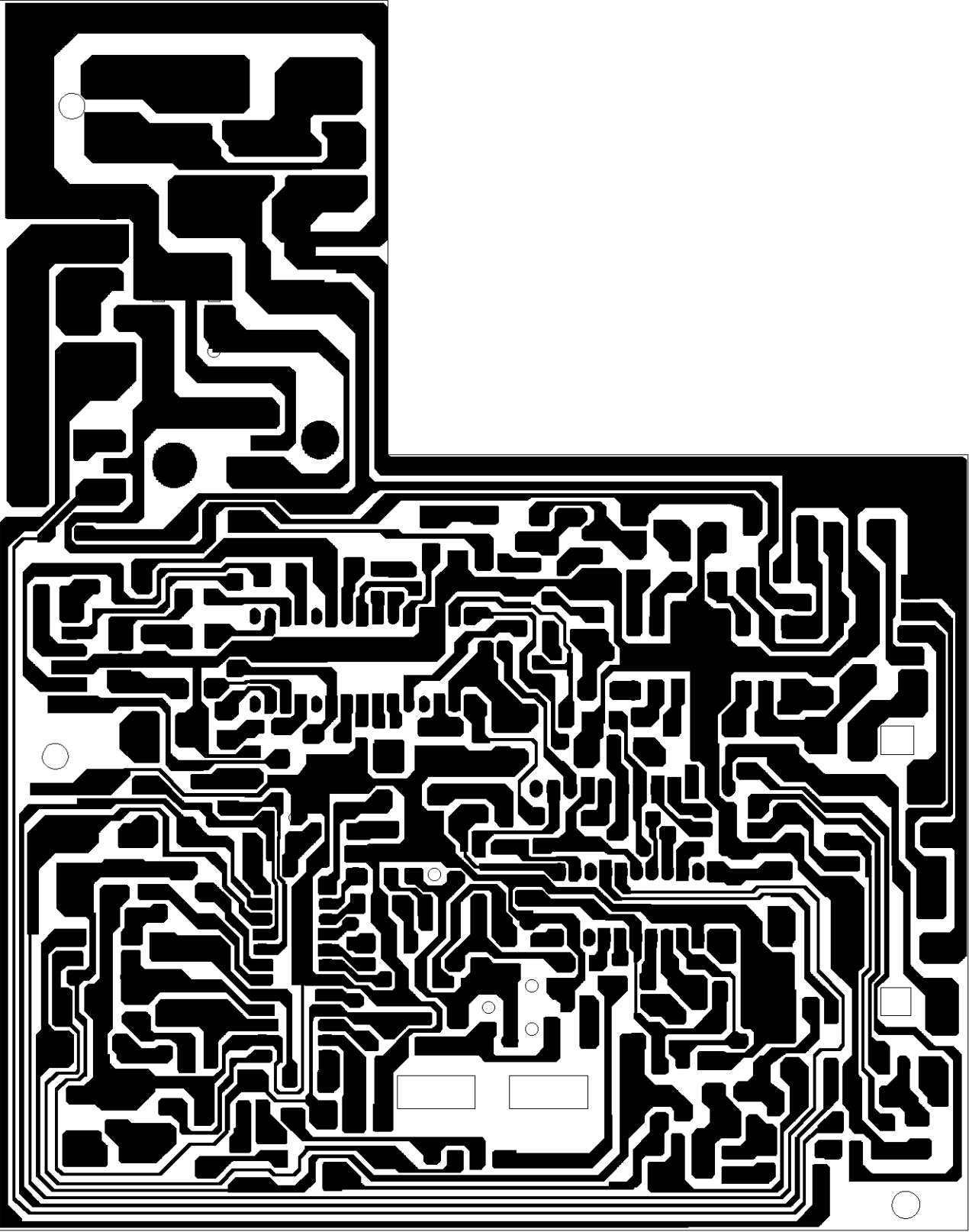
ITEM		UNIT	LIMIT	NORMAL	SAMPLE-1
1. T.H. DISTORTION (TEST CD TCD782 1KHz=0dB; WITH LPF Fc=30KHz)		%	0.8	0.3	_____
2. S/N RATIO (WITH 'A' CURVE BPF)		dB	46	52	_____
3. CHANNEL SEPARATION (WITH LPF Fc=30KHz)	AT 1KHz	dB	30	36	_____
4. FREQUENCY RESPONSE	AT -3dB	Hz	100-16K	50-20K	_____
5. INTERRUPTION	SCRATCH	uM	700	500	_____
(TEST CD TCD725A)	BLACK DOT	uM	700	500	_____
	FINGER PRINT	uM	700	500	_____
6. LEVEL MATCHING:					
MTT-118 AS 0 dB REFERENCE					
FM 22.5KHz DEV. 1mV INPUT		dB	+/-3	+0	_____
AM 30% MOD. 5mV/M INPUT		dB	+/-3	+0	_____
CD -20dB		dB	+/-3	-3	_____

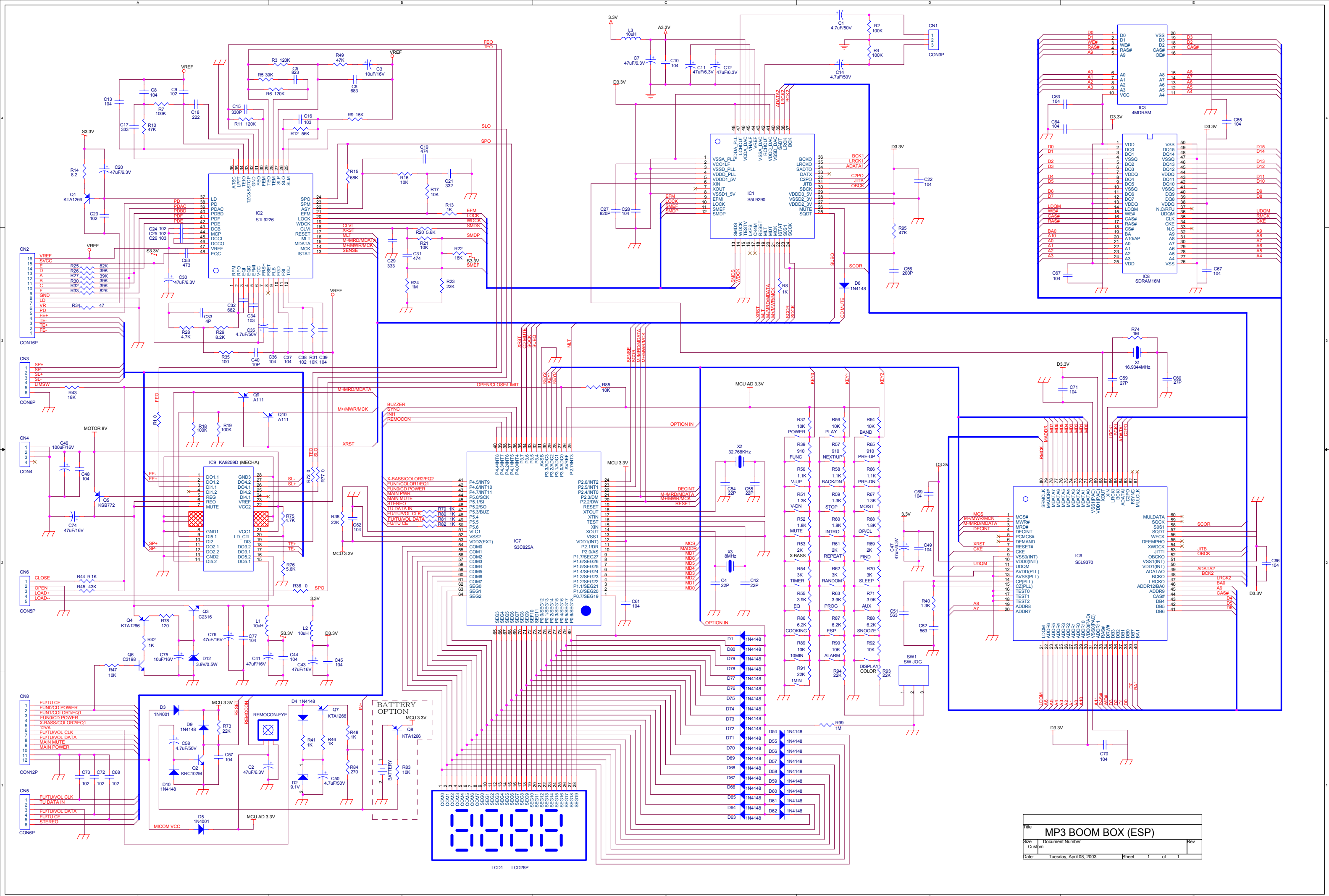
MAIN FEATURE

- * MULTI- FUNCTION LCD DISPLAY FOR CD AND DTS
- * UP/DOWN ELECTRICAL VOLUME CONTROL WITH AUTO LOUDNESS EFFECT
- * FM/AM 2-BAND DTS TUNER WITH 20 PRESET STATIONS(FM 10, AM 10,)
- * TOP LOADING CD
 1. 20 TRACKS PROGRAMMABLE
 2. NORMAL PLAY/ REPEAT ALL PLAY/ REPEAT ONE PLAY

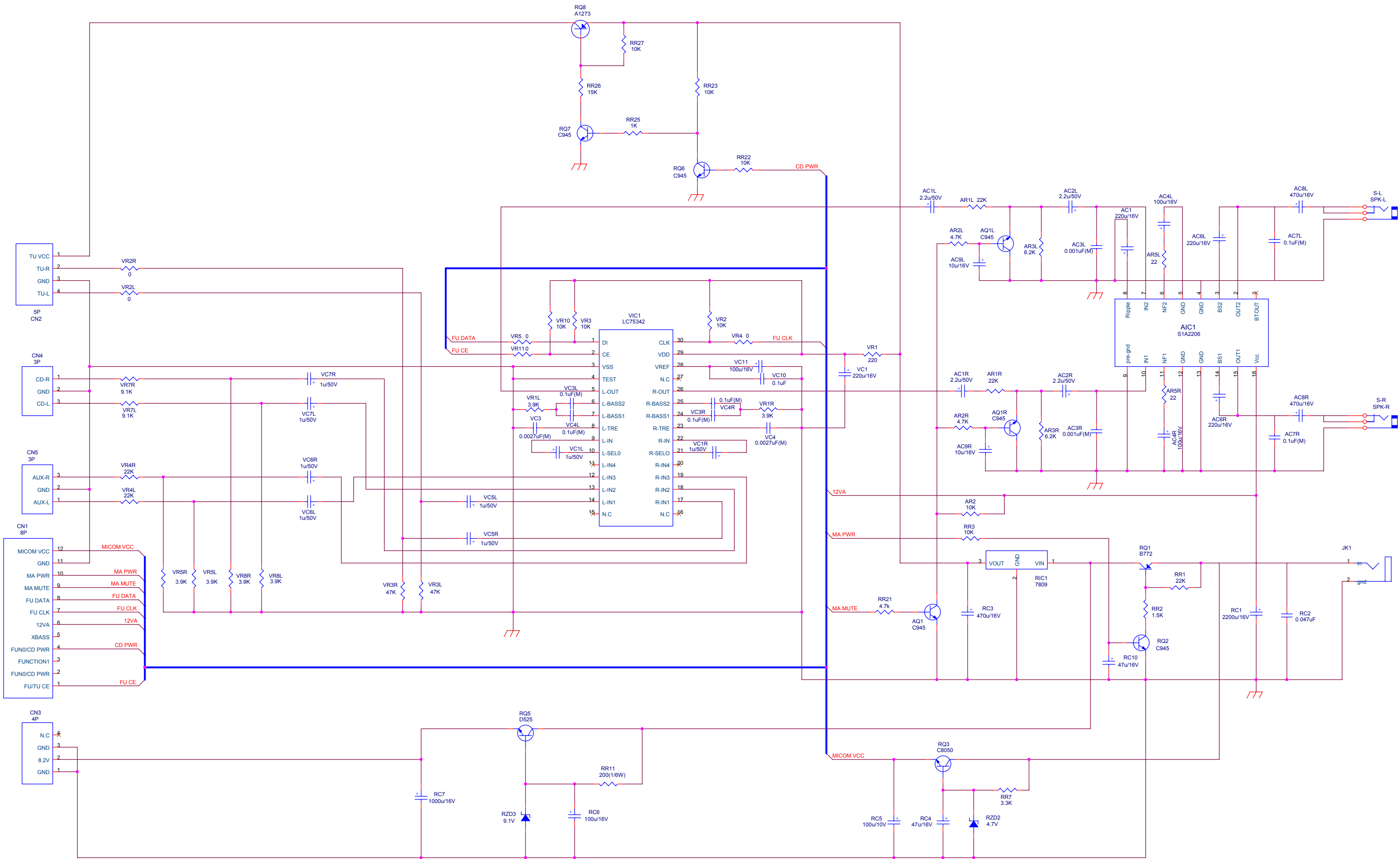


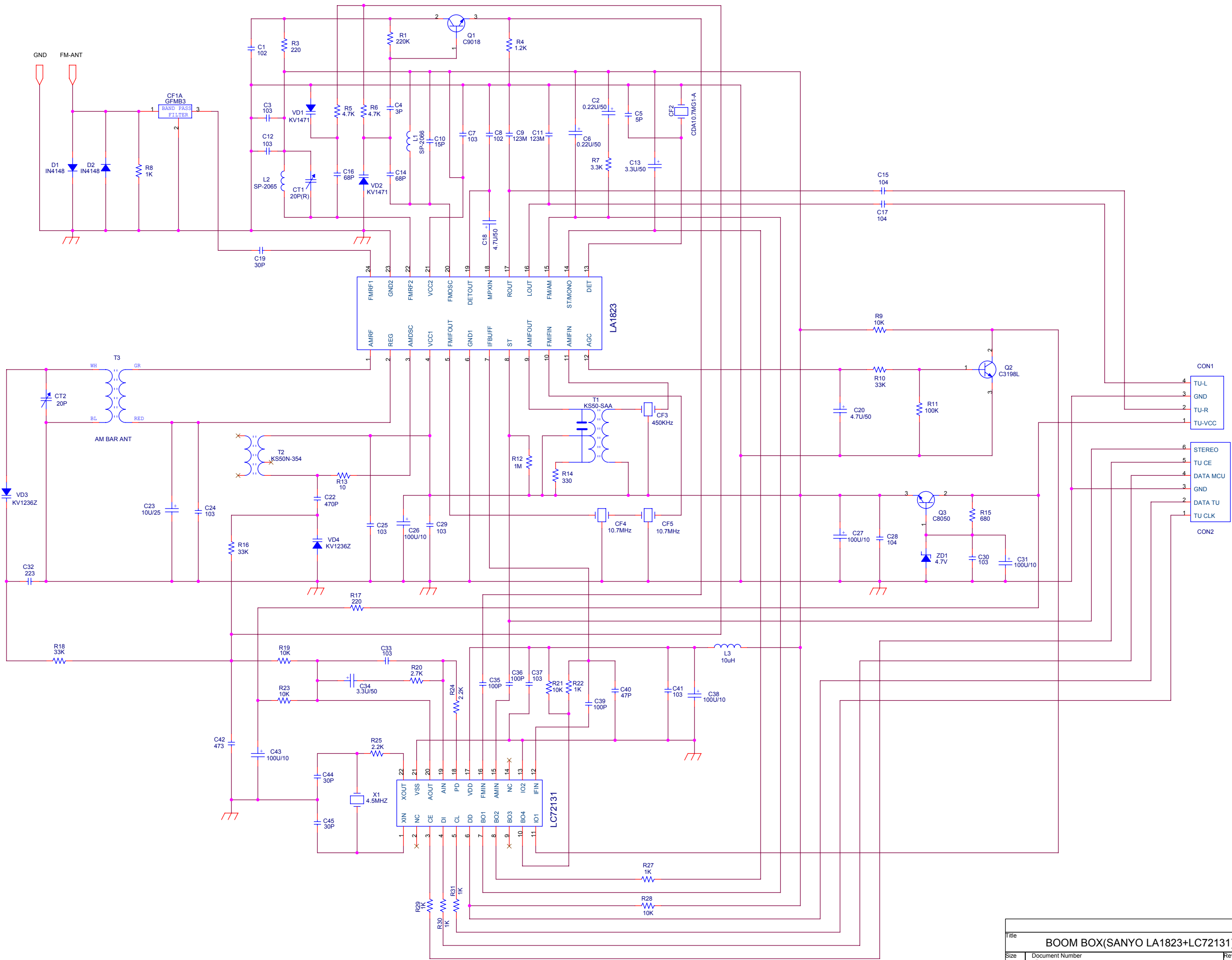




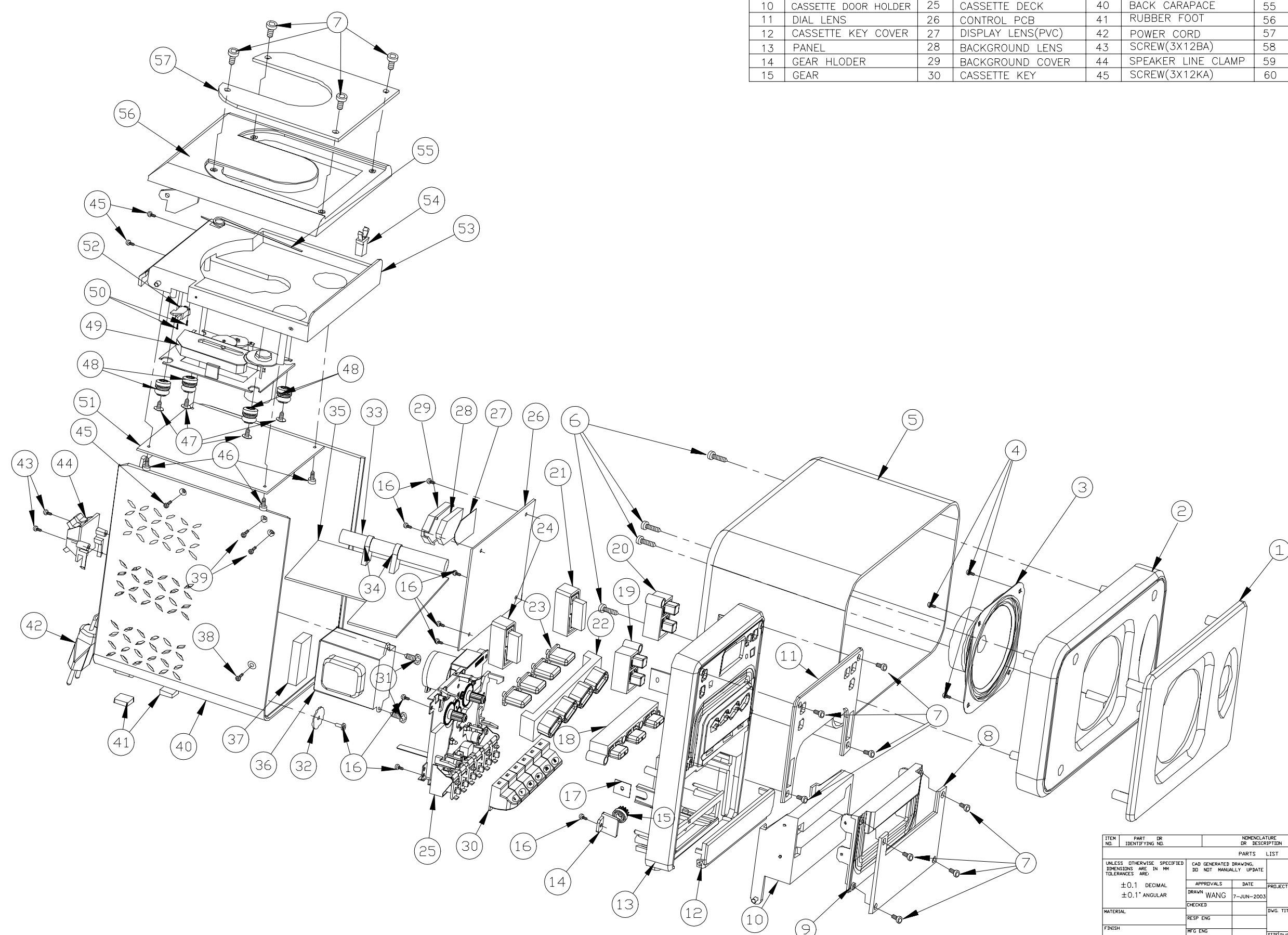


Title		MP3 BOOM BOX (ESP)	
Size	Document Number	Rev	
Custpm			
Date:	Tuesday, April 08, 2003	Sheet	1 of 1





Title				BOOM BOX(SANYO LA1823+LC72131)	
Size	Document Number			Rev	
	<Doc>			<RevCode>	
Date:	Wednesday, January 15, 2003	Sheet	1	of	1



INDEX	NAME	INDEX	NAME	INDEX	NAME	INDEX	NAME
1	CLOTH GRILL	16	SCREW (3X8PA)	31	SCREW(4X10BA)	46	SCREW(3X10PA)
2	SPEAKER BOX PANEL	17	SCREW HOLDER	32	FIBRE WASHER	47	SCRWE(2.6X8PWA)
3	SPEAKER(40HM 5W)	18	FUNCTION KNOB	33	FERRITE BAR	48	CD DECK SPRING(PVC)
4	SCREW(3X8BA)	19	CD REPEAT KNOB	34	FERRITE BAR HOLDER	49	CD DECK
5	SPEAKER BOX REAR	20	VOLUME CONTROL KNOB	35	AMP+RADIO PCB	50	SCREW(2X12PA)
6	SCREW(3X18BA)	21	TIME/SLEEP CONTROL KNOB	36	TRANSFORMER	51	CD PCB
7	SCREW(HEXAGON HEAD 3x6)	22	SHINE BOARD	37	HIGH SPONGE	52	LEAF SWITCH
8	CASSETTE LENS	23	CD CONTROL KNOB	38	SCREW(M3X8KB)	53	CD BASE
9	CASSETTE DOOR	24	POWER ON/OFF KNOB	39	SCREW(3X10KA)	54	CD DOOR LOCK
10	CASSETTE DOOR HOLDER	25	CASSETTE DECK	40	BACK CARAPACE	55	CD DOOR SPRING
11	DIAL LENS	26	CONTROL PCB	41	RUBBER FOOT	56	CD DOOR
12	CASSETTE KEY COVER	27	DISPLAY LENS(PVC)	42	POWER CORD	57	CD DOOR LENS
13	PANEL	28	BACKGROUND LENS	43	SCREW(3X12BA)	58	
14	GEAR HLODER	29	BACKGROUND COVER	44	SPEAKER LINE CLAMP	59	
15	GEAR	30	CASSETTE KEY	45	SCREW(3X12KA)	60	

ITEM NO.	PART OR IDENTIFYING NO.	NAME OR DESCRIPTION	MATERIAL SPECIFICATION	QTY REQD
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM TOLERANCES ARE:				
±0.1 DECIMAL		CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE		
±0.1° ANGULAR		DATE: 7-JUN-2003		
MATERIAL		PROJECT: MICRO SYSTEM		
FINISH		DWG. TITLE: EXPLODE DRAWING		
DO NOT SCALE DRAWING		SIZE: A4		
		SCALE: 1:1		
		SHEET 1 OF 1		

Bills Of Material Kit Usage Report

MODEL: **RG-431**

DESCRIPTION:PACKING

LN	PART	QTY	DESCRIPTION	DESTINATION
1	PA-288A01-00	1	GIFT BOX - W/O BRAND NAME	
2	PG-288A01-00	1	POLYFOAM TOP	
3	PG-288A01-01	1	POLYFOAM BOTTOM	
4	PI-288P01-01	1	INSTRUCTION BOOK (ENGLISH)	
5	PL-018801-01	1	WARNING LABEL	9 GENUS LANGUAGE
6	PL-018804-01	1	FUSE LABEL	BUILT-IN THERMALFUSE
7	PL-066807-00	1	QC PASSED LABEL	
8	PL-066807-01	1	HI-POT TEST PASSED LABEL	
9	PL-900005-01	1	EXPLODE TRIANGLE LABEL BLACK/YELLOW BACKGROUND	
10	PL-900005-03	1	CLASS 1 LASER PRODUCT LABEL	
11	PP-080150-01	2	POLYBAG 80(W)×150(H)mm W/WARNING & RECYCLE SIGN	FOR HANDSET X1,RUBBER FOOT ×1
12	PP-180250-01	1	POLYBAG 180(W)×250(H)mm W/WARNING & RECYCLE SIGN	FOR I/B
13	PP-350450-01	2	POLYBAG 350(W)×450(H)mm WARNING & RECYCLE SIGN	FOR SPEAKER BOX ×2
14	PP-450500-01	1	POLYBAG 450(W)×500(H)mm WARNING & RECYCLE SIGN	FOR MASTER
15	P3-315cd2-01	1	TOP CD REMOVE PAPER DISH	

DESCRIPTION:PLASTIC PARTS SUB.ASS'Y

16	AW-18802-M2	1	2PIN HOUSING UL 1533 AWG#22 WIRE P=2.5 mm L=280mm	FOR RECPCB (2)
17	AW-288MP3-01	1	2PIN HOUSING UL 1007 AWG#26 WIRE P=2.0 mm L=180mm	FOR SEREV PCB TO CD SWITCH (4)
18	AW-288MP3-03	1	6PIN HOUSING UL 2651 AWG#28 WIRE P=2.0 mm L=210mm	FOR SEREV PCB TO SAMSUNG CD (10)
19	EK-000017-00	1	SLIDE SWITCH 2P2T SS-22F25 G7	
20	EK-000039-00	1	ROCKER SWITCH 1P1T (SRA-1101)	
21	EK-651801-00	1	CD LOCK SWITCH	
22	EK-PCD001-00	1	LEAF SWITCH (LF-323)7.5 X 20mm	
23	EM-0TCP31-TK	1	SAMSUNG CD MECHANISM CMS-B31BG6U	
24	ET-160040-HS	1	HEAT SHRINKABLE k & S E214175	D=16mm L=40mm FOR POWER CORD
25	ET-200040-HS	1	HEAT SHRINKABLE k & S E214175	D=20mm L=40mm FOR POWER SWITCH
26	ET-160040-HS	1	HEAT SHRINKABLE k & S E214175	D=16mm L=40mm FOR POWER CORD
27	ET-400250-HS	2	HEAT SHRINKABLE K & S E214175	D=4mm L=25mmFOR POWER SWITCH×2
28	EX-288P48-AT	1	POWER TRANSFORMER EI=48 230V	VDE APP. W/FUSE
29	GM-02007P-BS	2	MACHINE SCREW M2 X 7 P/H	FOR BEAT CUT SWITCH X2
30	GM-02606P-N0	1	MACHINE SCREW M2.6 X 6 P/H	FOR DIAL DRUN
31	GM-03008K-B0	4	MACHINE SCREW M3 X 8 K	FOR BACK X4
32	GT-02012P-NT	2	ST. SCREW 2 x 12 PA NICKEL	FOR CD PU_IN SWITCH X2,
33	GT-02608P-NA	2	SELF TAPPING SCREW 2.6 X 8 P/A	SHINE LENS X2
34	GT-02610W-ZA	4	ST. SCREW 2.6 X 10 PWA (W=10mm)	FOR CD DECK X4
35	GT-03008B-CB	12	SCREW 3 X 8 "HEXAGON"(WITHIN)	CD DOOR X4,CASSETTE X4,DIAL LENS X4,
36	GT-03008P-NA	10	SELF TAPPING SCREW 3 X 8 P/A	FOR CD PCB X4,DISPLAY PCB X6
37	GT-03008W-NA	1	ST. SCREW 3 x 8 PWA NICKEL	FOR POWER CORD X1
38	GT-03010B-NA	10	SCREW 3 x 10 B/H,"BA" NICKEL	CASSETTE X4,DAMPING GEAR X2,SP JACKX2,
39	GT-03010P-NA	4	ST. SCREW 3 x 10 P/H,"PA" ZINC	FOR DISPLAY PCB X4
40	GT-03012K-NA	12	SELF TAPPING SCREW 3 X 12 K/A	FOR BACK CABINET X6,
41	GT-04012B-BA	2	ST. SCREW 4 x 12 B "A" BLACK	FOR TRANSFORMER X2,
42	IF-032016-10	1	FIBRE WASHER 3.2 X 16 X 1mm	FOR POWER CORD
43	MB-V18801-03	4	SCREW BRACKET (T=0.8mm)	

Bills Of Material Kit Usage Report

MODEL: **RG-431**

44	MS-288A01-01	1	CASSETTE DOOR SPRING (65Mn)	
45	MS-288A01-02	1	CD DOOR SPRING(65Mn)	
46	NB-288A01-00	1	CD BASE (HIPS)	
47	NB-288A01-02	1	CASSETTE DOOR HOLDER (ABS)	
48	NB-V18801-12	1	DUST COVER FOR SAMSUNG CMSB31BG6U	
49	NC-288A01-00	1	BACK COVER (HIPS)	
50	NE-288P01-01	1	FRONT PANEL (HIPS)	
51	NK-288A01-00	1	CD FUNCTION KNOB 1 X 4 (ABS)	
52	NK-288P01-01	1	FUNCTION KNOB (ABS)	
53	NK-288P01-02	1	POWER KNOB (ABS)	
54	NK-288P01-03	1	TIMER/SLEEP KNOB (ABS)	
55	NK-288P01-04	1	MEMORY/REP. KNOB (ABS)	
56	NK-288P01-05	1	VOLUME/BASS KNOB (ABS)	
57	NO-288A01-00	1	CD DOOR (ABS)	
58	NO-288A01-01	1	CASSETTE DOOR (ABS)	
59	NO-288A01-02	1	CASSETTE KNOB DOOR (ABS)	
60	NR-V18801-03	2	DAMPING GEAR (POM)	
61	NR-V18801-04	2	DAMPING GEAR HOLDER (POM)	
62	NT-288A01-00	1	CD DOOR LENS(AS)	
63	NT-288A01-02	1	CASSETTE DOOR LENS (ABS)	
64	NT-288A01-03	1	SHINE LENS (AS)	
65	NT-288P01-01	1	BACKGROUND LENS (ACRY)	
66	NT-288P01-02	1	BACKGROUND COVER (ABS)	
67	NT-288P01-03	1	BACKGROUND LENS (PVC)(T=0.3mm)	
68	PU-KSM213-G0	4	CUSHION FOR SAMSUNG B31-CDM (GREEN)	
69	VL-883301-10	2	CRIMPING TERMINAL	
70	VS-288A01-00	2	BOTTOM RUBBER FOOT W/TAPE	13.0X13.0X4mm
71	VS-288A01-01	4	BOTTOM RUBBER FOOT W/TAPE	14.0X14.0X4mm FOR SPEAKER BOX
72	WB-22A150-02	1	STD WIRE 1015 AWG#22 3+150+3MM RED	FOR POWER SWITCH TO POWER CORD X1
73	WP-281120-16	1	16 PIN FCC CABLE UL2896 PITCH=1mm TOTAL L=120mm (0.05mm)	CD SERVO PCB CN601 TO CD DECK X1. (15)
74	YP-VDEP01-A1	1	POWER CORD W/PLUG, VDE APPROVED,	L=6.5',BLACK,SHEATHED,2C,
75	WC-288MP3-00	3		
76	VS-288MP3-01	1		

Description : MAIN BOARD SUB.ASS`Y(AM/FM)

77	AW-288MP3-M2	1	6 PIN HOUSING UL 2547 AWG#28 WIRE P=2 mm L=180mm	CN204 ,FOR POWER PCB TO RECPCB (14)
78	AW-V18802-25	1	2 PIN HOUSING SINGLE SHIELD UL1007 AWG#22 WIRE P=2.5 L=300mm	CN203,FOR POWER PCB TO CD SERVO (6)
79	AW-F03300-03	1	3PIN HOUSING STD UL2547 AWG #28 WIRE P=2.0 L=300mm	CN205,FOR POWER PCB TO CD SERVO (9)
80	AW-F11300-01	1	11 PIN HOUSING UL 2651 AWG#28 WIRE P=2 mm L=300mm	CN206,FOR POWER PCB TO CD SERVO (11)
81	CC-050030-MV	1	CERAMIC CAP. 3PF +/-0.25PF 50V	c205
82	CC-050120-MV	1	CERAMIC CAP. 12PF +/-0.25PF 50V	c247,
83	CC-050150-MV	2	CERAMIC CAP. 15PF +/-0.25PF 50V	c209,c212
84	CC-050300-MV	5	CERAMIC CAP. 30PF +/-0.25PF 50V	c201,c202,c206,c250,c251
85	CC-050470-MV	1	CERAMIC CAP. 47PF +/-0.25PF 50V	c236
86	CC-050680-MV	2	CERAMIC CAP. 68PF +/-0.25PF 50V	c208,c217

Bills Of Material Kit Usage Report

MODEL: **RG-431**

87	CC-050101-MV	3	CERAMIC CAP. 100PF +/-0.25PF 50V	c207,c238c239
88	CC-050391-MV	1	CERAMIC CAP. 390PF +/-0.25PF 50V	c218
89	CC-050102-MV	2	CERAMIC CAP. 0.001uF 50V	c219,c231
90	CC-050103-MV	6	CERAMIC CAP. 0.01uF 50V	c215,c228,c234,c235,c240,c246
91	CC-050203-MV	11	CERAMIC CAP. 0.02uF 50V	c203,c203,c211,c229,c230,c244,c272,c280,c287
				c288,c289
92	CC-050104-MV	1	CERAMIC CAP. 0.1uF 50V	c290
93	CM-050104-MV	4	MYLAR CAP. 0.1uF +/-10% 50V	c262,263,268,269
94	CM-050272-MV	2	MYLAR CAP. 0.0027uF +/-10% 50V	c261,c271
95	CM-050472-MV	1	MYLAR CAP. 0.0047uF +/-10% 50V	c210
96	CM-050123-MV	1	MYLAR CAP. 0.012uF +/-10% 50V	c213
97	CM-050153-MV	2	MYLAR CAP. 0.015uF +/-10% 50V	c225,c226
98	CE-050224-ZV	4	ELECT. CAP. 0.22uF +80/-20% 50V	c243,c245,c282,c283
99	CE-050105-ZV	12	ELECT. CAP. 1uF +80/-20% 50V	c222,c224,c253,c254,c255,c256,c257,c258,c259
				c260,c273,c274
100	CE-050225-ZV	2	ELECT. CAP. 2.2uF +80/-20% 50V	c264,260
101	CE-050335-ZV	2	ELECT. CAP. 3.3uF +80/-20% 50V	c214,c223,
102	CE-050475-ZV	1	ELECT. CAP. 4.7uF +80/-20% 50V	c266
103	CE-050106-ZV	6	ELECT. CAP. 10uF +80/-20% 50V	c227,c232,c252,c242,267,270
104	CE-050476-ZV	2	ELECT. CAP. 47uF +80/-20% 50V	c248,c249
105	CE-050107-ZV	11	ELECT. CAP. 100uF +80/-20% 16V	c216,c220,c221,c233,c237,c241,c275,c276.
				c277.c278,c279
106	CE-050227-ZV	1	ELECT. CAP. 220uF +80/-20% 16v	c265
107	CE-050477-ZV	1	ELECT. CAP. 470uF +80/-20% 25V	c281
108	CE-050108-ZV	2	ELECT. CAP. 1000uF +80/-20% 16V	c284,c285
103	CE-050228-ZV	1	ELECT. CAP. 2200uF +80/-20% 25V	c286
104	CF-007100-0S	1	VARI. CAPACITOR 10PF PITCH=7mm	TC201
105	EB-228MP3-02	1	POWER AMP & TUNER PCB	
106	EC-200JS0-02	1	2 PIN "JS" CONNECTOR PITCH=2mm	CN202
107	EC-883304-03	1	4 PIN WAFER CONNECTOR "JST" P=2.5mm	CN201
108	EF-000003-A0	1	FUSE 1.6A SLOW BLOW 5 X 20 mm	W/ VDE SEMKO APPROVAL
109	EF-000003-A0	1	SPEAKER PUSH TERMINAL (+/-)x2	SP201
110	EO-010070-00	1	FERRITE BAR D=10 x 70mm	
111	EW-000001-40	20	JUMPER WIRE L=40mm	
112	FC-107002-00	2	CERAMIC FILTER 10.7MHz A(RED)	X205.X201
113	FC-107002-01	1	CERAMIC DISCRIMINATOR (2 PIN)10.7MHZ	X204
114	FF-SFU450-B0	1	CERAMIC FILTER SFU450B	X202
115	FC-04500-01	1	CERAMIC FILTER 4.5MHz	X203
116	GM-03010B-BA	1	MACHINE SCREW M3 X 10 B/A	FOR 7808
117	LA-070036-00	1	AM ANT. COIL 70:36 L=120	
118	LC-000010-00	1	CHOKE COIL 10uH	R235
119	LI-701082-PL	1	AM IFT COIL 7mm YELLOW	T202
120	LO-7M1132-WD	1	AM OSC COIL 7mm RED	T201
121	LS-03535A-06	1	SPRING COIL 0.6x3.5MMx3.5T	L203
122	LS-04535A-06	1	SPRING COIL 0.6x3.5MMx 4.5T	L202
123	LS-04545A-07	1	SPRING COIL 0.7x4.5mm x4.5T	L201
124	MH-018001-00	1	HEAT SINK FOR TA8227P	
125	MH-077801-00	2	FUSE HOLDER	F201
126	MH-GT1001-00	1	HEAT SINK FOR L78082 (15mm X 21mm)	

Bills Of Material Kit Usage Report

MODEL: **RG-431**

127	NH-003200-00	2	FERRITE BAR HOLDER 4A(1X6/PE/0.55g)	
128	RC-008472-JP	1	RESISTOR 4.7 OHM +/-5% 1/8W	R203,
129	RC-008103-JP	3	RESISTOR 10 OHM +/-5% 1/8W	R211,R229,R230
130	RC-008333-JP	1	RESISTOR 33 OHM +/-5% 1/8W	R245
131	RC-008683-JP	1	RESISTOR 68 OHM +/-5% 1/8W	R205
132	RC-008104-JP	1	RESISTOR 100 OHM +/-5% 1/8W	R240,
133	RC-008224-JP	5	RESISTOR 220 OHM +/-5% 1/8W	R206,R227,R257,R264,R265
135	RC-008105-JP	9	RESISTOR 1K +/-5% 1/8W	R244,R217,R220,R231,R239,R258,R261,R266,290.
136	RC-008125-JP	1	RESISTOR 1.2K +/-5% 1/8W	R213,
137	RC-008155-JP	1	RESISTOR 1.5K +/-5% 1/8W	R234,
138	RC-008225-JP	2	RESISTOR 2.2K +/-5% 1/8W	R226,R233
139	RC-008275-JP	1	RESISTOR 2.7K +/-5% 1/8W	R234,
140	RC-008335-JP	3	RESISTOR 3.3K +/-5% 1/8W	R207,281,284
142	RC-008475-JP	4	RESISTOR 4.7K +/-5% 1/8W	R248,R249,R250,282,
143	RC-008565-JP	4	RESISTOR 5.6K +/-5% 1/8W	R259,R260,253,254
144	RC-008685-JP	2	RESISTOR 6.8K +/-5% 1/8W	R219,R222
145	RC-008106-JP	13	RESISTOR 10K +/-5% 1/8W	R215,R218,R223,R224,R225,R228,R236,R237 R241,R262,R263,R273,269
146	RC-008156-JP	2	RESISTOR 15K +/-5% 1/8W	R255,R256
147	RC-008226-JP	4	RESISTOR 22K +/-5% 1/8W	R210,R216,R268,r283
148	RC-008336-JP	3	RESISTOR 33K +/-5% 1/8W	R201,R212,R221,
149	RC-008107-JP	4	RESISTOR 100K +/-5% 1/8W	R202,R204,R209,R246,R251,R252
150	RC-008227-JP	1	RESISTOR 220K +/-5% 1/8W	R208,
151	RC-008108-JP	1	RESISTOR 1M +/-5% 1/8W	R232,
152	SD-0005V6-00	1	ZENER DIODE BZX55-5V6 +/-5% 0.5W	DZ202
153	SD-0004V7-00	1	ZENER DIODE BZX55-4V7 +/-5% 0.5W	DZ201
154	SD-IN4148-00	2	DIODE IN4148	D209,D210
155	SD-IN5392-00	4	DIODE IN5392	D203,D205,D206,D207
156	SI-LA1823-B0	1	I.C. LA1823P	IC201
157	SI-TA8227-P0	1	I.C. TA8227P	IC204
158	SI-PT2313-P0	1	I.C. PT2313L	IC203
159	SI-LC72131-P0	1	I.C. LC72131	IC202
160	SI-LM7808-00	1	I.C. LM7808	Q203
161	ST-2SB772-00	1	TRANSISTOR 2SB772 (ECB)	Q204
162	ST-LM8550-C0	1	TRANSISTOR 8550-C	Q208
163	ST-SC9014-Y0	9	TRANSISTOR 2SC9014(EBC)	Q201,Q202,Q206,Q209,Q210,Q211,q231,230,234
164	ST-LM8050-C0	2	TRANSISTOR 8050-C (BCE)	Q207.Q212
165	ST-SC9018-Y0	1	TRANSISTOR 2SC9018(EBC)	Q205
166	SV-1SV101-00	2	FM TUNING DIODE 1SV101	D201 D204
167	SV-1SV149-00	2	AM TUNING DIODE 1SV149	D202 D208
168	VS-010005-05	2	SPONGE 5 x 5 x 10 mm (FOR FM COIL)	
169	WA-26GP02-00	1	STD WIRE 1007 AWG#26 0+1600+5 MM	BLACK (UL) (81)

Description : DISPLAY/KEY BOARD SUBASSEMBLY

170	AW-F06200-03	1	6PIN HOUSING UL 2651 AWG#28 WIRE P=2.0mm L=210mm	FOR KEYPCB TO SEREVO CN403 (8)
171	AW-F13200-01	1	13PIN HOUSING UL 2651 AWG#28 WIRE P=2.0mm L=180mm	FOR KEYPCB TO SEREVO LCD CN401 (12)
172	AW-V188S2-M2	1	2PIN HOUSING UL 1007 AWG#26 WIRE P=2.0mm L=250mm	FOR KEYPCB TO POWERPCB CN402 (5)

Bills Of Material Kit Usage Report

MODEL: RG-431

173	AW-F15200-01	1	15PIN HOUSING UL 2651 AWG#28 WIRE P=2.0mm L=180mm	FOR KEYPCB TO SEREVO LCD (13)
174	CE-010476-CV	1	ELECT. CAP. 47uF +80/-20% 10V	(4 X 8mm)C401
175	EB-288MP3-04	1	DISPLAY & KEY PCB	
176	EK-000023-A3	15	TACT SWITCH-PITCH=6.5mm H=5mm)	
177	RC-008683-JP	1	RESISTOR 100 OHM +/-5% 1/8W	R409,
178	RC-008335-JP	1	RESISTOR 330 OHM +/-5% 1/8W	R418
179	RC-008474-JP	2	RESISTOR 470 OHM +/-5% 1/8W	R406,R408,
180	RC-008684-JP	1	RESISTOR 680 OHM +/-5% 1/8W	R419
181	RC-008914-JP	3	RESISTOR 910 OHM +/-5% 1/8W	R403,R410,R414
182	RC-008105-JP	3	RESISTOR 1K +/-5% 1/8W	R412,R413,R417
183	RC-008125-JP	3	RESISTOR 1.2K +/-5% 1/8W	R404,R416,R421
184	RC-008395-JP	1	RESISTOR 3.9K +/-5% 1/8W	R415
185	RC-008106-JP	5	RESISTOR 10K +/-5% 1/8W	R401,R40,R405,R411,R420
186	SD-IN4148-00	1	DIODE IN4148	D401,
187	SD-0005V6-00	1	ZENER DIODE 5V6 0.5W / HZ6A1	DZ401
188	SI-12043T-M2	1	REMOTE CONTROL RECEIVER MODULE	(FRP-3052H)FOCUS REM401
189	SL-000005-00	1	LED BLUE MIDDLE-HIGH LIGHT D=3 mm WL:470~5nm,IV:1200~2000	LED401
190	SL-000006-00	2	LED BLUE MIDDLE - HIGH LIGHT D=3mm	LED402,LED403
191	SL-288LCD-02	1	LCD DISPLAY NO:	LCD401
192	SL-TLR124-00	1	LED RED DIA.=3mm L=23mm	LED404

Description : CD SERVO BOARD SUB.ASS'Y

193	CC-050040-MV	1	CERAMIC CAP. 4PF +/-0.25PF 50V	C33,
194	CC-050100-MV	1	CERAMIC CAP. 10PF +/-0.25PF 50V	C40,
195	CC-050220-MV	4	CERAMIC CAP. 22PF +/-0.25PF 50V	C4,C42,C54,C55
196	CC-050270-MV	2	CERAMIC CAP. 27PF +/-0.25PF 50V	C59,C60
197	CC-050221-MV	1	CERAMIC CAP. 220PF +/-0.25PF 50V	C72,
198	CC-050331-MV	1	CERAMIC CAP. 330PF +/-0.25PF 50V	C15,
200	CC-050102-MV	6	CERAMIC CAP. 0.001uF +/-20% 50V	C24,C25,C38,C88,C89,90
201	CC-050103-MV	2	CERAMIC CAP. 0.01uF +/-20% 50V	C16,C26
202	CC-050333-MV	1	CERAMIC CAP. 0.033uF +/-20% 50V	C29,
203	CC-050473-MV	1	CERAMIC CAP. 0.047uF +/-20% 50V	,C53,
205	CC-050104-MV	24	CERAMIC CAP. 0.1uF +/-20% 50V	C8,C10,C13,C97,C36,C37,C39,C44,C45,C49 C57,C61,C62,C66,C96,C70,,C74,C77,C79,C81, C93,C94,C84,C87
206	CC-050474-MV	2	CERAMIC CAP. 0.47uF +/-20% 50V	C19,C31,
207	CE-050475-ZV	5	ELECT CAP. 4.7uF +/-20% 16V	C1,C14,C50,C58,C35
208	CE-050106-ZV	2	ELECT CAP. 10uF +/-20% 16V	C3,C75
209	CE-050476-ZV	11	ELECT CAP. 47uF +/-20% 16V	C2,C7,C11,C12,C20,C30,C41,C43,C46,C47C76,
210	CE-050227-ZV	1	ELECT CAP. 220uF +/-20% 16V	C80,
211	CE-050108-ZV	2	ELECT CAP. 1000uF +/-20% 16V	C85,C86
212	CM-050122-KV	4	MYLAR CAP. 0.0012uF +/-10% 50V	,C98,99,100,101
212	CM-050102-KV	2	MYLAR CAP. 0.001uF +/-10% 50V	C9,C3,
213	CM-050222-KV	1	MYLAR CAP. 0.0022uF +/-10% 50V	C18,
214	CM-050332-KV	1	MYLAR CAP. 0.0032uF +/-10% 50V	C21
215	CM-050682-KV	1	MYLAR CAP. 0.0068uF +/-10% 50V	C32,
216	CM-050103-KV	1	MYLAR CAP. 0.01uF +/-10% 50V	C34,

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MODEL: **RG-431**

217	CM-050333-KV	1	MYLAR CAP. 0.033uF +/-10% 50V	C17,
218	CM-050683-KV	2	MYLAR CAP. 0.068uF +/-10% 50V	C5,C6,
219	EB-288MP3-N1	1	CD SERVO PCB	
220	EC-200JS0-02	1	2 PIN "JS" CONNECTOR PITCH=2mm	CN105
221	EC-200JS0-03	1	3 PIN "JS" CONNECTOR PITCH=2.0mm	CN104
222	EC-200JS0-06	2	6 PIN "JS" CONNECTOR PITCH=2.0mm	CN102,CN106
223	EC-200JS0-11	1	11 PIN "JS" CONNECTOR PITCH=2mm	CN107
224	EC-200JS0-13	1	13 PIN "JS" CONNECTOR PITCH=2mm	CN108
225	EC-200JS0-15	1	15 PIN "JS" CONNECTOR PITCH=2mm	CN109
226	EC-250JS0-02	1	2 PIN "JS" CONNECTOR PITCH=2.5mm	CN101
227	EC-FP1016-S2	1	16 PIN FFC CONNECTOR PITCH=1.0mm	CN103
228	EW-000001-40	83	JUMPER WIRE L=40mm	
229	FC-000327-68	1	CRYSTAL 32.768 KHz	X2
230	FC-169344-00	1	CRYSTAL 16.9344 MHz	X3
231	FC-800002-00	1	CRYSTAL .8.0MHz	X1
232	LC-002600-0J	1	INDUCTOR CHOKE COIL 26uH +/-10% (T10 X 6 X 5)	L4
232	LC-000010-00	3	CHOKE COIL 10uH	L1,L2,L3
234	RC-008223-JP	1	RESISTOR 22 OHM +/-5% 1/8W	R14
236	RC-008823-JP	1	RESISTOR 82 OHM +/-5% 1/8W	R34
238	RC-008104-JP	1	RESISTOR 100 OHM +/-5% 1/8W	R35,
240	RC-008124-JP	1	RESISTOR 120 OHM +/-5% 1/8W	R78,
242	RC-008274-JP	1	RESISTOR 270 OHM +/-5% 1/8W	R84,
244	RC-008105-JP	10	RESISTOR 1K +/-5% 1/8W	R8,R13,R41,R42,,R46,R48,R79,R80,R81,R82,
248	RC-008475-JP	3	RESISTOR 4.7K +/-5% 1/8W	R2,R4,R28,
250	RC-008565-JP	2	RESISTOR 5.6K +/-5% 1/8W	R20,R51
252	RC-008825-JP	1	RESISTOR 8.2K +/-5% 1/8W	R29,
254	RC-008915-JP	1	RESISTOR 9.1K +/-5% 1/8W	R44
256	RC-008106-JP	6	RESISTOR 10K +/-5% 1/8W	R16,R17,R21,R31,R47R85,
258	RC-008156-JP	1	RESISTOR 15K +/-5% 1/8W	R9,
260	RC-008186-JP	2	RESISTOR 18K +/-5% 1/8W	R43,22
262	RC-008226-JP	6	RESISTOR 22K +/-5% 1/8W	R38,R101,R110,R112,R113,R23
264	RC-008396-JP	1	RESISTOR 33K +/-5% 1/8W	R52
264	RC-008396-JP	5	RESISTOR 39K +/-5% 1/8W	R5,R26,R27,R30,R32,
266	RC-008476-JP	3	RESISTOR 47K +/-5% 1/8W	R10,R49,R95,
268	RC-008566-JP	1	RESISTOR 56K +/-5% 1/8W	R12,
270	RC-008686-JP	1	RESISTOR 68K +/-5% 1/8W	R15,
272	RC-008826-JP	2	RESISTOR 82K +/-5% 1/8W	R25,R33,
274	RC-008107-JP	1	RESISTOR 100K +/-5% 1/8W	R7,
276	RC-008127-JP	3	RESISTOR 120K +/-5% 1/8W	R3,R6,R11,
278	RC-008108-JP	3	RESISTOR 1M +/-5% 1/8W	R24,R74,99
280	SD-0005V6-00	1	ZENER DIODE 5V6 0.5W / HZ6A1	D2
282	SD-0003V9-00	1	ZENER DIODE 3V9 0.5W / HZ6A1	D12
284	SD-IN4002-00	2	DIODE IN4001	D3,D5
286	SD-IN4148-00	12	DIODE IN4148	D4,D6,D9,D10,D64,D67,71,78,102,75,72,73
288	SI-S3P825-F0	1	I.C. S3P825AXZZ	IC7
290	SI-5L9279-F0	1	I.C. S5L9279X01	U1
294	SI-9226X0-F0	1	I.C. 9226X01	IC2
296	SI-KA9258-F0	1	I.C. KA9258D	IC9

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MODEL: **RG-431**

298	SI-1MX162-F0	1	I.C. KS161622D(1MX16 SDRAM)	IC8
300	ST-SC1020-Y0	1	TRANSISTOR 2SC102-Y (ECB)	Q2
302	ST-SA1266-Y0	3	TRANSISTOR 2SA1266-Y (ECB)	Q1,Q4,Q7
304	ST-SC2316-Y0	1	TRANSISTOR 2SC2316-Y (ECB)	Q3
306	ST-SC3198-Y0	1	TRANSISTOR 2SC3198-Y (ECB)	Q6
164	ST-LM8050-C0	1	TRANSISTOR 8050-C (BCE)	Q9
308	ST-2SB772-00	1	TRANSISTOR 2SB772 (ECB)	Q5

Description : HANDSET SUB.ASS`Y

309	CC-050101-JV	2	CERAMIC CAP. 100PF +/-5% 50V	C301,C302
310	CE-010476-CV	1	ELECT. CAP. 47uF +80/-20% 10	(4 X 8mm)C303
311	EB-288MP3-03	1	REMOTE CONTROL PCB Size:39. X83.2MM	
312	FR-CSB455-EB	1	CERAMIC RESONATOR CSB455EB	X301
313	GT-01705K-NA	4	SCREW 1.7 X 5 K/A (NICKEL)	FOR REMOTE PCB X4
314	MS-V18801-00	1	HANDSET BATTERY SPRING (+)	
315	MS-V18802-00	1	HANDSET BATTERY SPRING (-)	
316	NC-188REM-00	1	HANDSET REAR CABINET	
317	NL-188001-02	1	IMPORTANT OPERATION LABEL	FOR HANDSET(32 X 28mm)T=0.3mm(PVC)
318	NL-288REM-01	1	HANDSET KEY PANEL (17 KEY)	
319	NO-188REM-00	1	HANDSET BATTERY DOOR	
320	PL-066807-00	1	QC PASSED LABEL	
321	RC-008222-JP	1	RESISTOR 2.2 OHM +/-5% 1/8W	R301
322	SI-PT2221-00	1	I.C. PT2221S	IC301
323	SR-481ST3-F0	1	INFRARED EMITTING DIODE SIR-481ST3F	D301
324	ST-SC9014-Y0	1	TRANSISTOR 2SC9014-Y	Q301

Description : RECORDER BOARD SUB.ASS`Y

325	CC-050203-MV	2	CERAMIC CAP. 0.02uf 50V	c513,c524
326	CE-050335-ZV	2	ELECT. CAP. 3.3uF +80/-20% 50V	c508,c527
327	CE-050475-ZV	2	ELECT. CAP. 4.7uF +80/-20% 50V	c509,c518
328	CE-016106-ZV	2	ELECT. CAP. 10uF +80/-20% 16V	c511,c514
329	CE-016476-ZV	3	ELECT. CAP. 47uF +80/-20% 16V	c505,c506,c528
330	CE-016107-ZV	1	ELECT. CAP. 100uF +80/-20% 16V	c512
331	CE-016227-ZV	2	ELECT. CAP. 220uF +80/-20% 16V	c526,c529
332	CM-050222-KV	4	MYLAR CAP. 0.0022uF +/-10% 50V	c501,c502 ,c503,c504
333	CM-050472-KV	2	MYLAR CAP. 0.0047UF +/-10% 50V	c521,c523
334	CM-050103-KV	1	MYLAR CAP. 0.01UF +/-10% 50V	c522
335	CM-050223-KV	2	MYLAR CAP. 0.022uF +/-10% 50V	c507,c517
336	CM-050683-KV	1	MYLAR CAP. 0.068UF +/-10% 50V	c512
337	EB-288MP3-05	1	RECORDER PCB	
338	EC-883302-03	1	2 PIN WAFER CONNECTOR "PITCH=2.5mm	CN502
339	EC-883304-03	1	4PIN WAFER CONNECTOR PITCH = 2.5mm	CN501
340	EC-200JS0-06	1	6 PIN "JS" CONNECTOR PITCH=2mm	CN503
341	EK-000007-00	1	RECORDER SWITCH 6P2T PS62D01	SW501
342	EW-000001-40	4	JUMPER WIRE L=40mm	
343	LA-033002-02	1	OSC COIL (10mm) BLACK	T501
344	RC-004472-JP	1	RESISTOR 4.7 OHM +/-5% 1/4W	R523
345	RC-004223-JP	1	RESISTOR 22 OHM +/-5% 1/4W	R526
346	RC-004333-JP	2	RESISTOR 33 OHM +/-5% 1/4W	R507,R508
347	RC-004104-JP	1	RESISTOR 100 OHM +/-5% 1/4W	R514

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MODEL: **RG-431**

348	RC-004564-JP	1	RESISTOR 560 OHM +/-5% 1/4W	R512
349	RC-004105-JP	1	RESISTOR 1K OHM +/-5% 1/4W	R525
350	RC-004475-JP	6	RESISTOR 4.7K OHM +/-5% 1/4W	R503,R506,R511,R513,R518,R519
351	RC-004825-JP	2	RESISTOR 8.2K OHM +/-5% 1/4W	R510,R520
352	RC-004106-JP	2	RESISTOR 10K OHM +/-5% 1/4W	R515,R516
353	RC-004156-JP	3	RESISTOR 15K OHM +/-5% 1/4W	R501,R502,R524
354	RC-004476-JP	2	RESISTOR 47K OHM +/-5% 1/4W	R509,R521
355	RC-004108-JP	1	RESISTOR 1M OHM +/-5% 1/4W	R517
356	SD-IN4148-00	2	DIODE IN4148	D501,D503
357	SD-0006V2-00	1	ZENER DIODE 6V2 0.5W / HZ6A1	D502
358	SI-AN7312-00	1	I.C. AN7312	IC501
359	ST-SC8050-Y0	2	TRANSISTOR 2SC8050-Y	Q501Q502

Description : CASSETTE DECK SUB.ASSEMBLY

360	AW-V188MP3-01	1	4PIN HOUSING DOUBLE SHIELD UL2547 AWG#26 WIRE P=2.5 L=180mm	DECK MG HEAD TO RECORDER PCB (3)
361	AW-288MP3-02	1	4 PIN HOUSING STD UL1007 m AWG #26 WIRE P=2.5 L=220mm	DECK SW/MOTOR TO POWER PCB (7)
362	EM-M09DMG-DL	1	SINGLE CASSETTE DECK DC 9V,W/CLUTCH (Head:KEAP-4211)	
363	GM-02003P-N0	1	MACHINE SCREW M2 X 3 P/H"TT"	FOR REC. SPRING PLATE
364	GM-02004P-N0	2	M. SCREW M2 X 4 P/H "TT" ZINC	FOR REC. HOLDER X2
365	GM-02007F-BS	2	M. SCREW M2 x 7 F/H, "S" BLACK	FOR CASSETTE KNOB HOLDER X2
366	GM-02606B-N0	2	M. SCREW M2.6 x 6 "TT" NICKEL	FOR REC. PCB X2
367	MB-066806-00	1	REC.SPRING PLATE THICKNESS 0.6mm	L=34mm
368	MB-V18801-01	2	RECORDER PCB HOLDER(A)	
369	MF-066801-00	1	SHAFT [SUPPLIED W/ DECK]	
370	NH-066802-00	6	KEY HOLDER	
371	NK-288A01-03	1	CASSETTE KNOB 1 X 6(ABS)	