

# Samsung Digital Component System



**-Digital Component System-**

**MAX-X55/56**

**Project : 07TULIP / Project Grade : 4**

**Samsung Electronics Co. LTD**  
**Digital Audio/Video Division**

# List Of Contents

1. Introduce of the MAX -X 55
2. General Feature of the MAX -X 55
3. Description of the SET
4. How to disassemble the Main set
5. Difference of MAX -X 55 and MAX -X 56
6. PCB block diagram
7. Communication Failure & Trouble shooting
8. Micom Update & Initialization method
9. MAX -X 55 BLOCK DIAGRAM /Schematic Diagram
10. Accessories

# 1. Introduction of MAX-X55/X56

- 2007' April
- **80W/160W** Power (2-CH)
- **Powerful Sound**
- **Various Audio Format** Playback
  - CD, mp3, WMA



160W  
MAX  
Power



MP3  
Playback



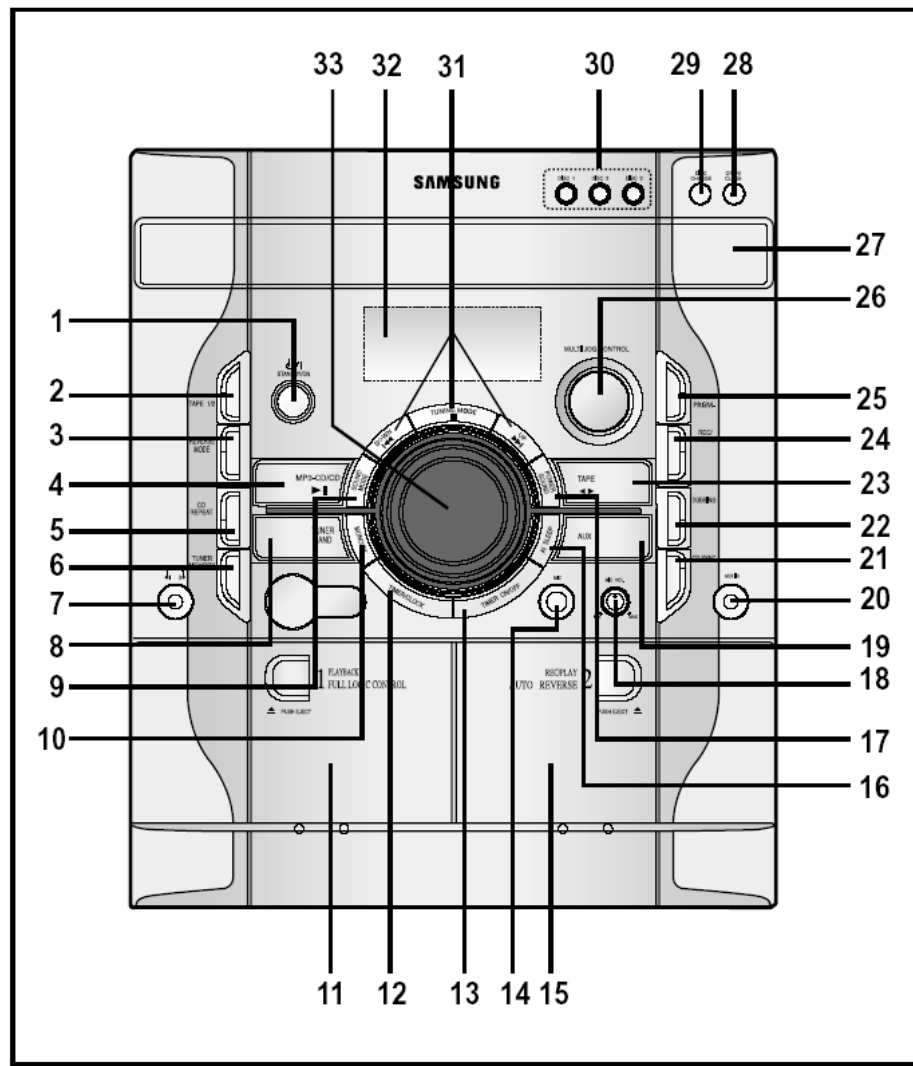
Plays  
Windows  
Media™  
Playback



## 2. General Feature

POWER (RMS]	MAX-X55:80W /MAX-X56:160W	6 ohm Load
Play Back	CD, MP3, WMA	
	3 Disc Change	
	TAPE	Full Logic Control
	FM/AM Preset	No RDS
IN&OUT	AUX Input (L/R Input)	3.5 mm Jack
	Headphone Output	3.5 mm Jack
	MIC INPUT	
SPEAKER	2 Way SPEAKER (Tweeter +Mid Range)	

# 3. Description



1. STANDBY/ON
2. TAPE 1/2
3. TAPE REVERSE MODE
4. MP3-CD/CD FUNCTION
5. CD REPEAT
6. TUNER MEMORY
7. HEADPHONE JACK CONNECTOR
8. TUNER BAND FUNCTION
9. SOUND MODE
10. FM MONO/STEREO
11. CASSETTE DECK 1
12. TIMER/CLOCK
13. TIMER ON/OFF
14. MIC(OPTION)
15. CASSETTE DECK 2
16. AI SLEEP
17. POWER SOUND
18. MIC VOL.
19. AUX
20. AUX IN
21. CD SYNCHRO RECORDING
22. DUBBING
23. TAPE FUNCTION
24. REC/PAUSE
25. ENTER/PROGRAM
26. MULTI JOG
27. COMPACT DISC COMPARTMENT
28. CD OPEN/CLOSE
29. CD DISC CHANGE
30. CD DISC SELECTION BUTTONS
31. SEARCH FUNCTION BUTTONS
32. TUNING MODE OR STOP BUTTON
33. WINDOW DISPLAY

# 3. Description

## Function Description

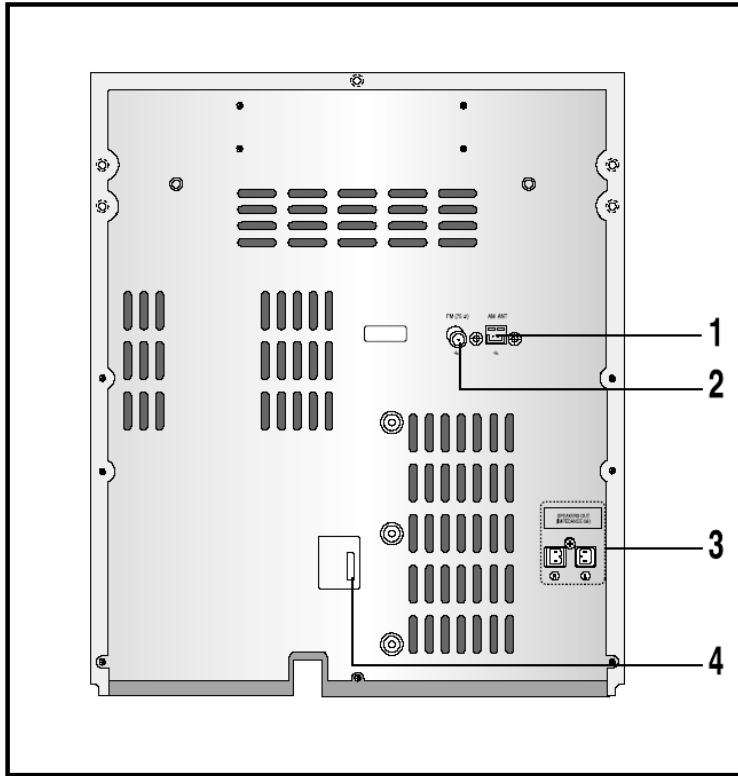
1. Standby/On	Power On/OFF
2. Tape 1/2	Select Tape 1 or 2
3. Tape Reverse Mode	Select Tape 2 Reverse Mode/Counter Reset
4. CD MP3-CD	CD Play or Pause
5. CD Repeat	CD Songs Repeat Mode Select Button
6. Tuner Memory	Save The Radio Channels to Memory
7. Headphone Jack Connector	3.5 mm Headphone Output Jack
8. Tuner Band Function	FM/AM Select Button
9. Sound Mode	EQ Select Button
10. FM Mono/Stereo	FM Mono or Stereo Select Button
11. Cassette Deck 1	Cassette 1
12. Timer Clock	Set What Time the Set Power On/Off Automatically
13. Timer On/Off	Timer On/Off Button
14. Mic	Mic Input Jack
15. Cassette Deck 2	Cassette 2
16. AI Sleep	15 Min to 90 Min Playtime Select
17. Power Sound	Press For Powerful Sound
18. Mic Vol.	Mic Volume Control Knob
19. AUX	AUX Select Button

# 3. Description

## Function Description

20.AUX In	3.5 mm AUX Input
21.CD Synchro Recording	Synchro Record CD Sound into Tape
22.Dubbing	Record Tape 1 to Tape 2
23.Tape Function	Tape Function Select Button
24.Rec/Pause	Record Start /Pause Button
25.Enter/Program	Enter The Function You Select/Load Saved Radio Station
26.Multi-Jog	Multi-Function Button, Such as Select Songs, Set Time, etc..
27.Disc Compartment	CD Deck
28.CD Open/Close	Select Disc Compartment Open or Close
29.Disc Change	Rotate The Disc Tray, Can Use Even when Disc is Playing
30.Disc Selection	Choose Disc 1,2, or 3 To Play
31.Stop/Search/Tuning Mode	Stop Function (CD Tape Play) /Tuning Mode Select ( Turner )
32.Window Display	Display The Present State of Main Set
33.Volume Control	Volume Control Knob

# 3. Description

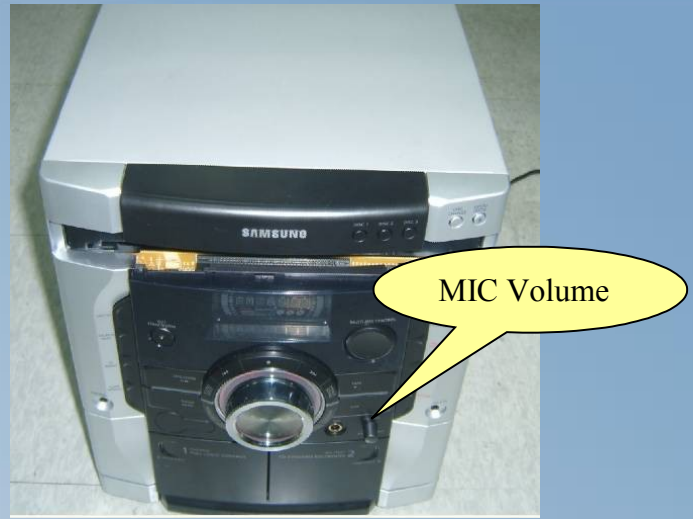
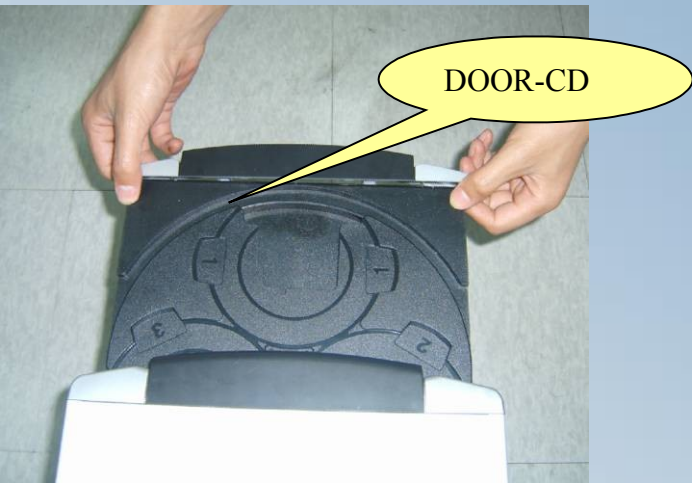


1. AM Aerial Connector Terminals
2. FM Aerial Connector Terminal
3. Speaker Connector Terminals
4. Voltage Selector(option)

1. AM Aerial Connector Terminal	AM Antenna Connector
2. FM Aerial Connector Terminal	FM Antenna Connector
3. S peaker Connector Terminals	S peak Connector
4. Voltage S elector (Option)	Voltage S elector, This is a Optional S elector

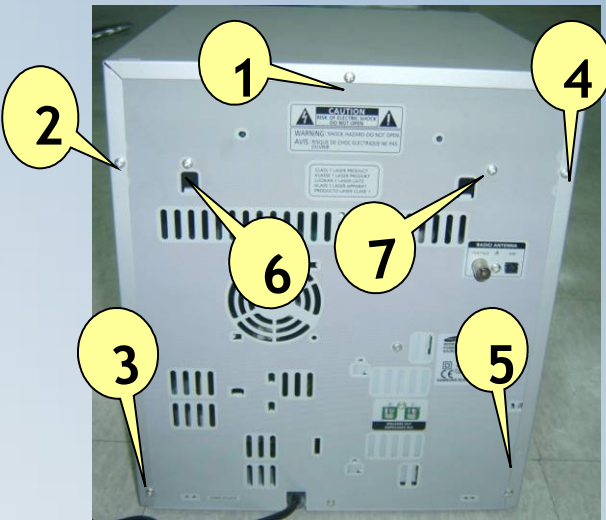
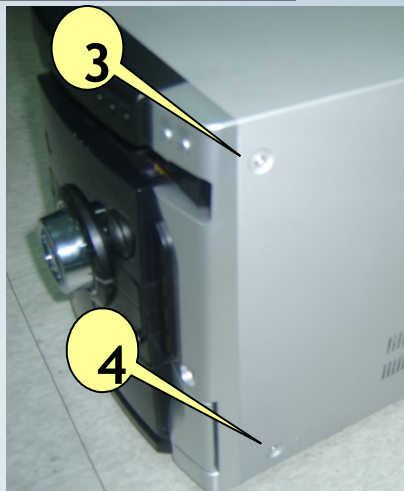
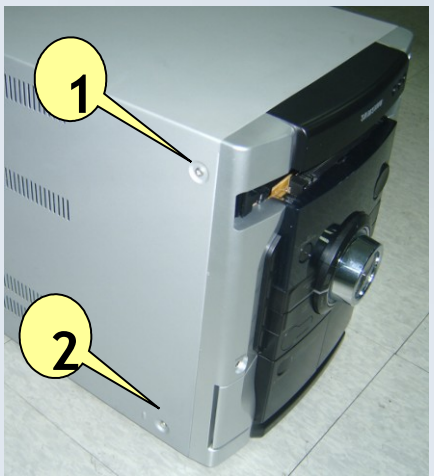


# 4. How to disassemble the Main Set



**1.Power on and open the disk, Separate Door-CD**

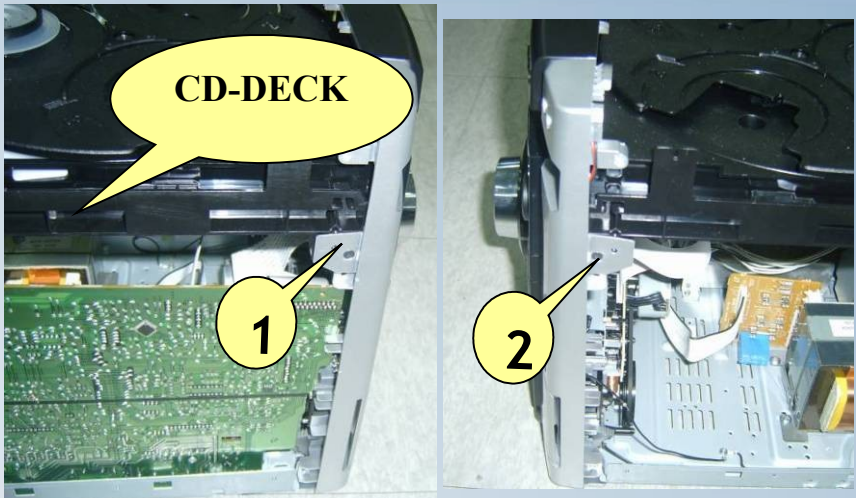
**2.Close the disk and Power off, Separate Mic Volume**



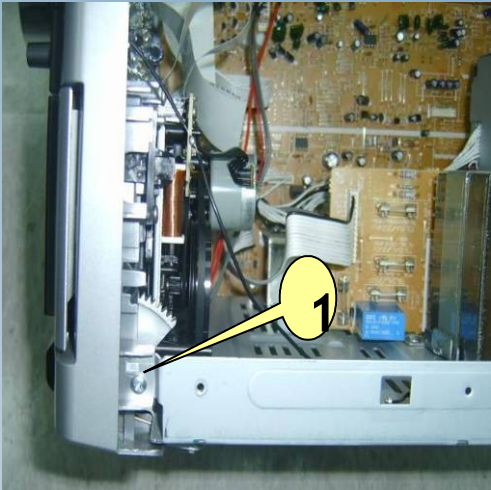
**3.Unfasten 4 screw(1,2,3,4)**

**4.Unfasten 7 screw(1,2,3,4,5,6,7)**

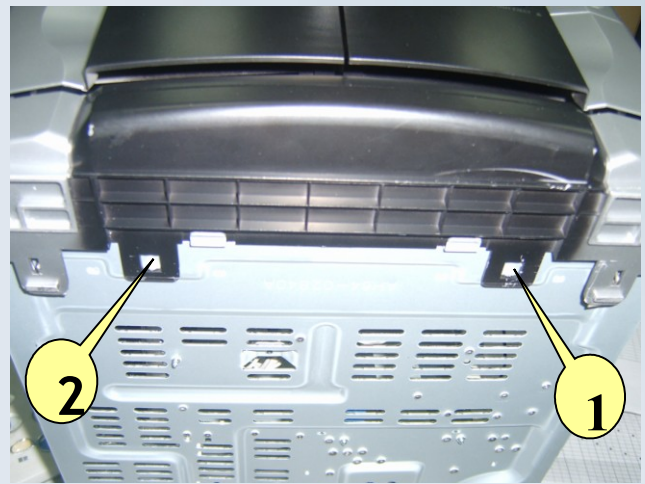
# 4. How to disassemble the Main Set



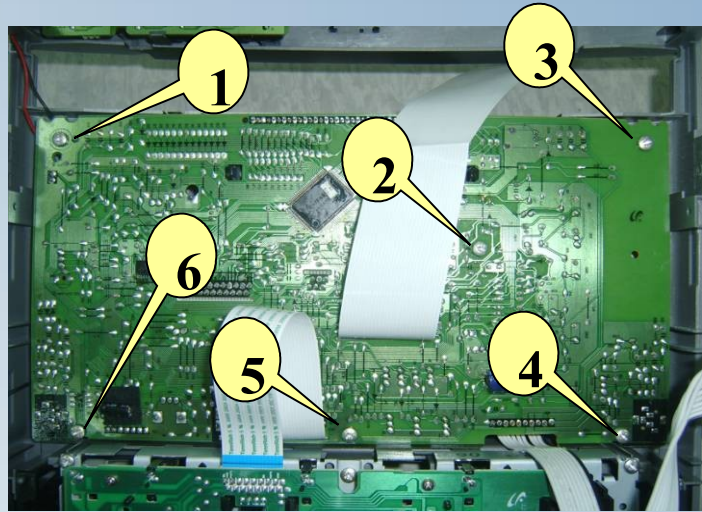
**5. Unfasten 2 screw(1,2)**



**6. Unfasten 2 screw(1,2)**



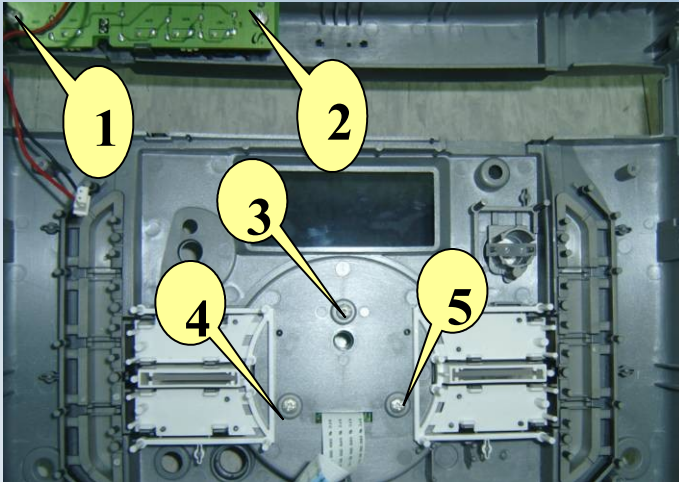
**7. Pull the hook at 1 and 2 of and separate ASSY-FRONT**



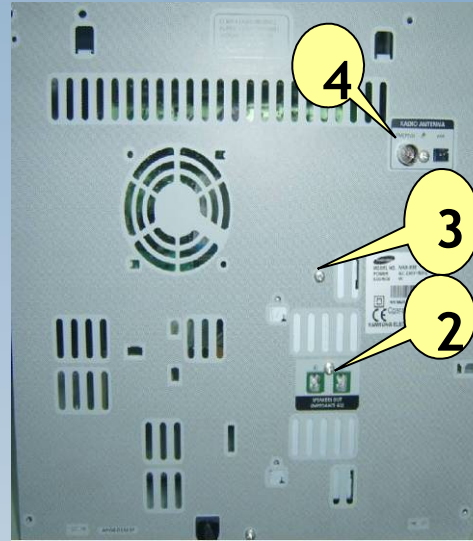
**8. Unfasten 6 screws(1,2,3,4,5,6), separate FRONT-PCB**



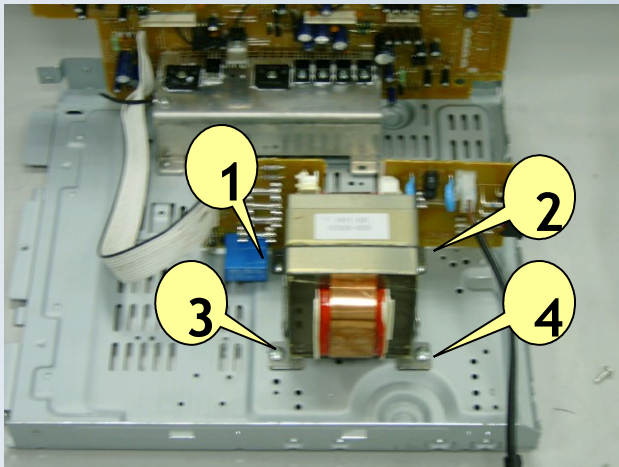
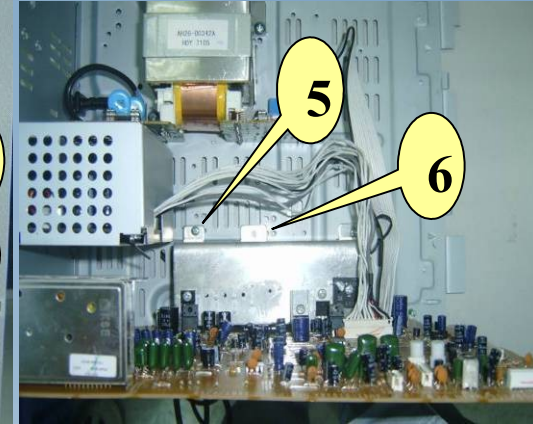
# 4. How to disassemble the Main Set



**9. Unfasten 5 screw(1,2,3,4,5) and separate VOLUME-PCB and DISK-PCB**

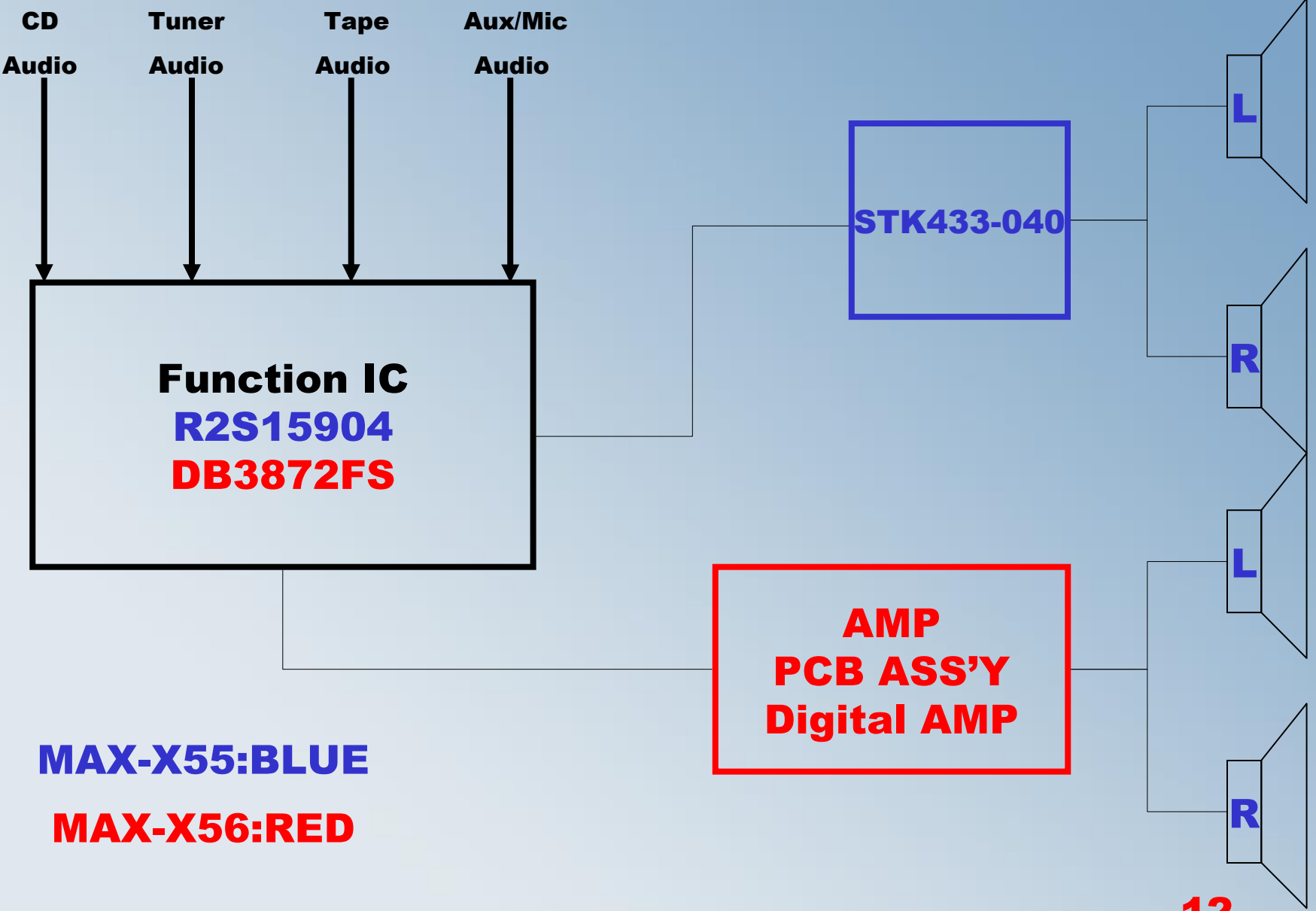


**10. Unfasten 4 screw(1,2,3,4) and unfasten 2 screw(5,6), separate MAIN PCB ASSY.**



**11. Unfasten 4 screw(1,2,3,4), Separate P/T**

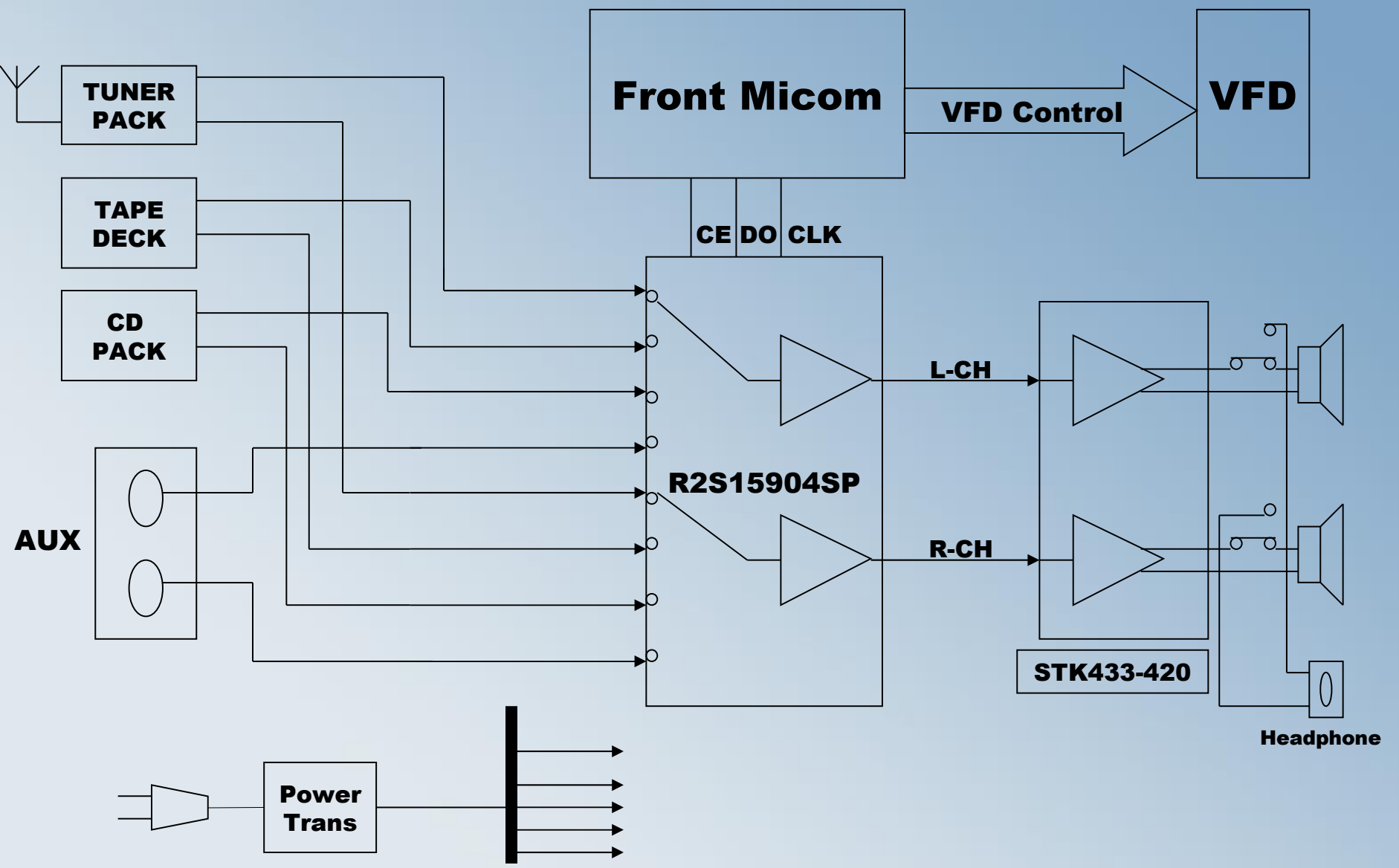
# 5. Difference Between MAX-X55 and MAX-X56



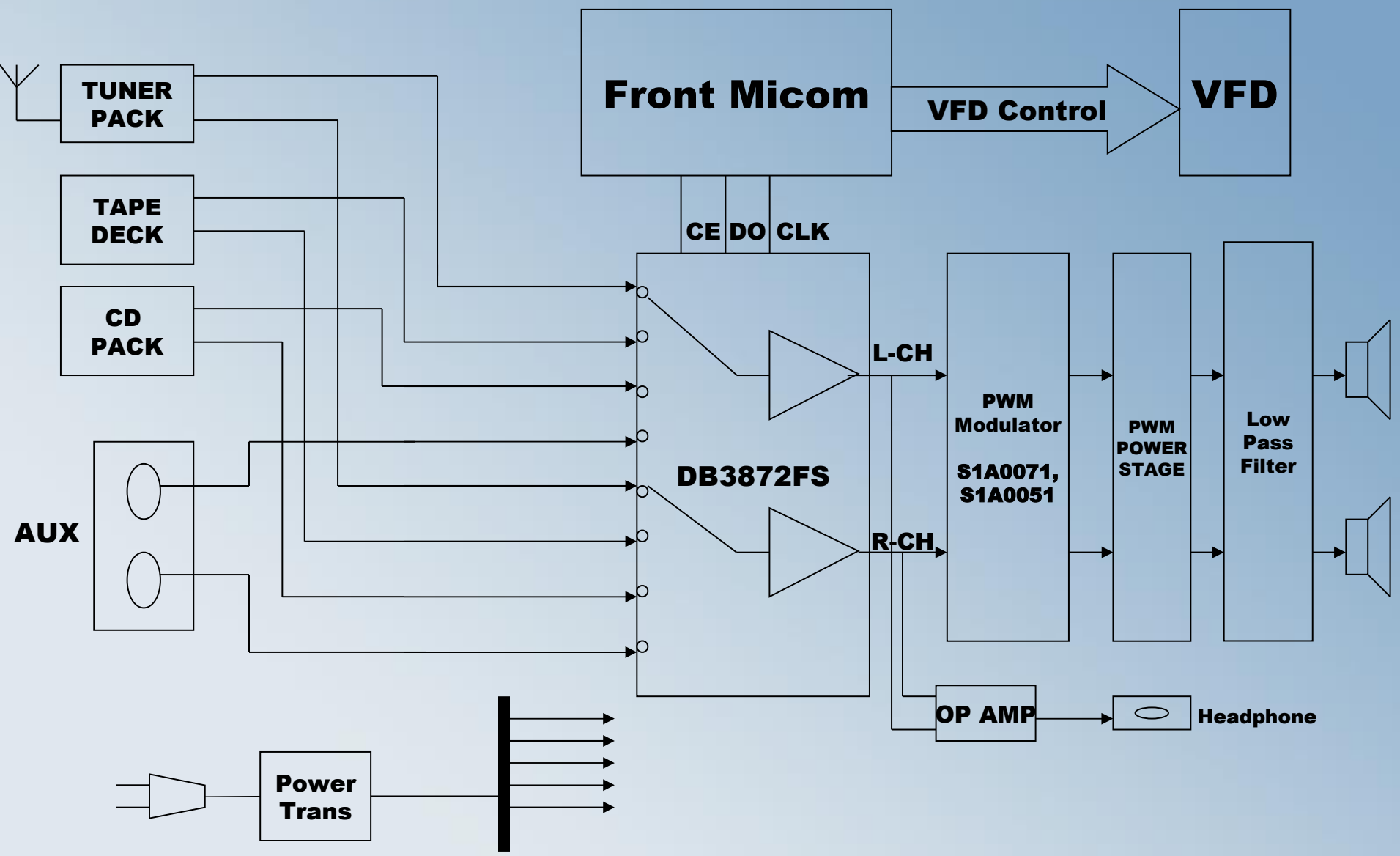
**MAX-X55:BLUE**

**MAX-X56:RED**

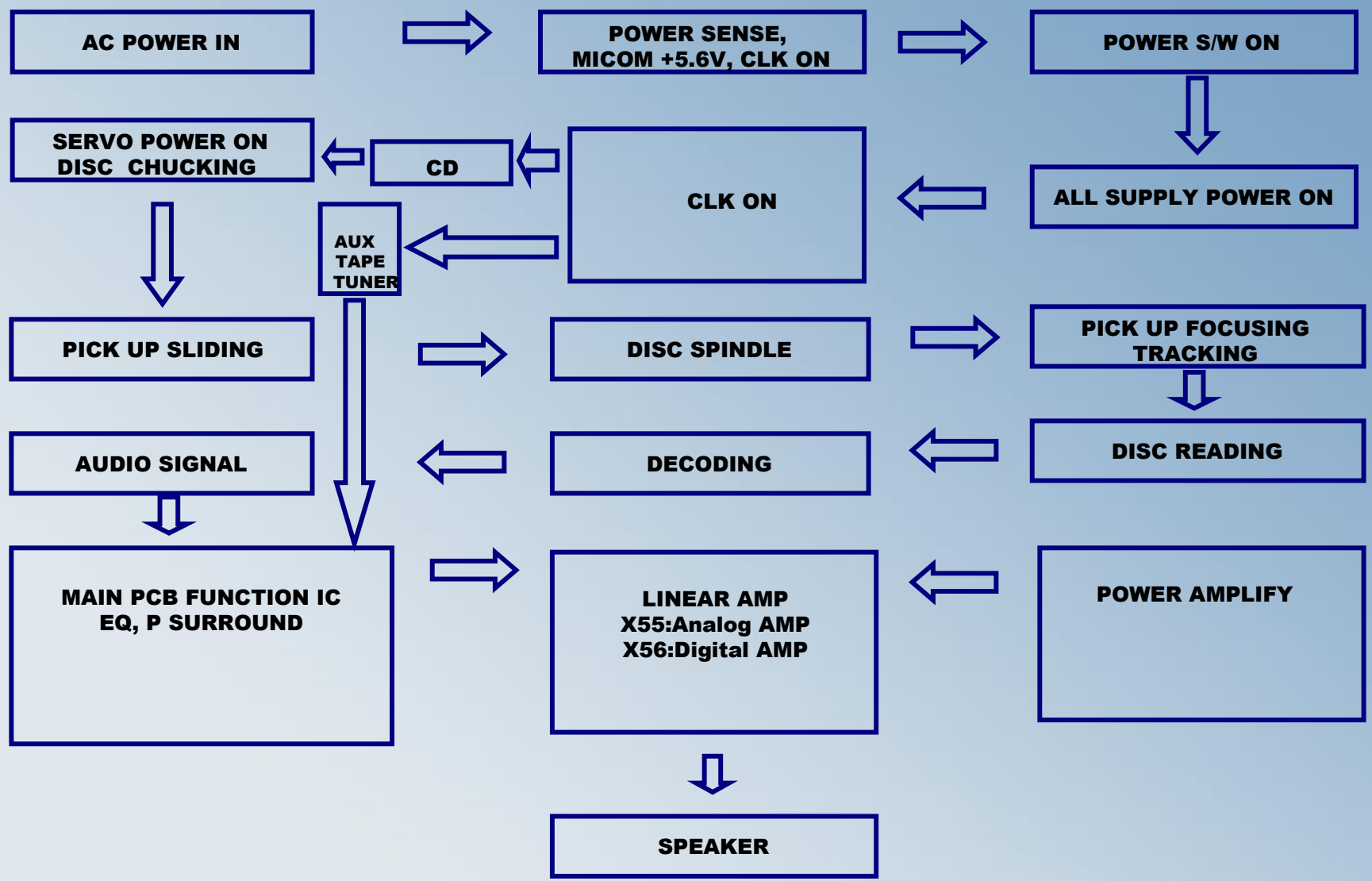
# 6. Block Diagram (MAX-X55)



# 6. Block Diagram (MAX-X56)



# 6. Block Diagram in detail( Time Chart)



# 6.Micom Port Define

PIN	PORT	NAME	IO	TYPE	VCD	FUNCTION	PIN	PORT	NAME	IO	TYPE	VCD	FUNCTION
1	P1 6	MCK	O	C	X	DSP/SSP CLK	51	VPP	VPP				-32V
2	P1 7	MDATA	O	C	X	DSP/SSP DATA	52	S20	SEG	O	U		SEG9 OF FLT UD10
3	P3 0	MLT	O	C		MLATCH	53	S21	SEG	O	U		SEG10 OF FLT UD9
4	P3 1	DO	O	C		TUNER CLK/FUNTION DO	54	S22	SEG	O	U		SEG11 OF FLT UD8
5	P3 2	CLK	O	C		TUNER DO/FUNTION CLK	55	S23	SEG	O	U		SEG12 OF FLT UD7
6	P3 3	TDI	I	C		TUNER DATAIN	56	S24	SEG	O	U		SEG13 OF FLT UD1
7	P3 4	TCE	O	C		TUNER CE	57	S25	SEG	O	U		SEG14 OF FLT UD2
8	P3 5	P_SENSE	I	C		POWER SENSOR	58	S26	SEG	O	U		SEG15 OF FLT UD3
9	P3 6	P_AUX	I	C		AUX SENSOR	59	S27	SEG	O	U		SEG16 OF FLT UD4
10	P3 7	RDSDATA	I	C		RDS DATA	60	S28	SEG	O	U		SEG17 OF FLT UD5
11	RES	RESET	I			MICOM RESET	61	S29	SEG	O	U		SEG18 OF FLT UD6
12	P7 4	CF1	I			SUB CLK IN 32.768KHZ	62	S30	SEG	O	U		SEG19 OF FLT
13	P7 5	CF2	O			SUB CLK OUT 32.768KHZ	63	S31	SEG	O	U		SEG20 OF FLT
14	VSS1	GND				GND	64	PE 0	P_MIC	I	N		MIC SENSOR
15	CF1	XT1	I			MAIN CLK 6M IN	65	PE 1	SW2	I	N	O	OPEN SW
16	CF2	XT2	O			MAIN CLK 6M OUT	66	PE 2	SW1	I	N	O	CLOSE SW
17	VDD1	VDD				VDD	67	PE 3	OPTION	I	N		OPTION IN
18	P8 0	AD0	AD			KEY A/D1	68	PE 4	P_JOG2	I	N		JOG DOWN
19	P8 1	AD6	AD			KEY A/D2	69	PE 5	P_JOG1	I	N		JOG UP
20	P8 2	P_PRO	I			PROTECTION	70	PE 6	VR1	I	N		VOLUME UP
21	P8 3	AD3	AD			MODE A/ HALF A	71	PE 7	VR2	I	N		VOLUME DOWN
22	P8 4	AD4	AD			MODE B/ HALF B	72	VDD4	VDD4				VFD 5V
23	P8 5	AD5	AD			KEY A/D3	73	PF 0	RL+	I	N	O	ROULETE+
24	P8 6	AD6	AD			B DECK (REC/R, REC/F)	74	PF 1	OPEN	O	N	O	OPEN MOTOR
25	P8 7	EQ IN	AD			EQ LEVEL CONTROL	75	PF 2	CLOSE	O	N	O	CLOSE MOTOR
26	P7 0	RDSCLK/SW	I			RDS CLK/SW1,2 SWITCH	76	PF 3	P_AB	O	N		TAPE 1/2
27	P7 1	RL_SENSE	I		O	ROULATE SENSER	77	PF 4	SOL_B	O	C		SOLENOID B
28	P7 2	SOSI	I		O	SOSI/SCOR /	78	PF 5	P_RELAY	O	N	O	RELAY ON
29	P7 3	REMOCON	I			REMOCON IN	79	PF 6	P_TUNCD	O	N	O	CD ON
30	S0	G1	O	N		GRID1 OF FLT	80	PF 7	MOTOR	O	N		TAPE MOTOR
31	S1	G2	O	N		GRID2 OF FLT	81	PG 0	E_DIN	I	C		IC709004 DATA IN
32	S2	G3	O	N		GRID3 OF FLT	82	PG 1	XRST	O			XRST
33	S3	G4	O	N		GRID4 OF FLT	83	PG 2	SOL_A	O			SOLENOID A
34	S4	G5	O	N		GRID5 OF FLT	84	PG 3	H_SPEED	O			P-HIGH SPEED
35	S5	G6	O	N		GRID6 OF FLT	85	P0 0	E_RES	O	C		IC709004 RESET
36	S6	G7	O	N		GRID7 OF FLT	86	P0 1	E_CS	O	C		IC709004 CHIPSELECT
37	S7	G8	O	N		GRID8 OF FLT	87	P0 2	E_CLK	O	C		IC709004 CLOCK
38	S8	G9	O	U		GRID9 OF FLT	88	P0 3	E_DO	O	C	O	IC709004 DATA OUT
39	S9	G10	O	U		GRID10 OF FLT	89	VSS2	GND				GND
40	S10	G11	O	U		GRID11 OF FLT	90	VDD2	VDD2				VDD2
41	S11	G12	O	U		GRID12 OF FLT	91	P0 4	HALL/B	I	C		HALL SNS B
42	S12	SEG	O	U		SEG1	92	P0 5	HALL/A	I	C		HALL SNS A
43	S13	SEG	O	U		SEG2	93	P0 6	LKFS	I	C	X	LKFS
44	S14	SEG	O	U		SEG3	94	P0 7	ISTAT	I	C	X	ISTAT
45	S15	SEG	O	U		SEG4	95	P1 0	MRD	O		X	CD/MP3 OUTPUT DATA
46	VDD3	VDD3				VDD	96	P1 1	MDATA0	I	C	X	CD/MP3 INPUT DATA
47	S16	SEG	O	U		SEG5	97	P1 2	MWE	O	C	O	CD/MP3 CLOCK
48	S17	SEG	O	U		SEG6	98	P1 3	MCS	O	C	O	MP3 CHIP ENABLE
49	S18	SEG	O	U		SEG7	99	P1 4	MADDR	O	C	O	CD/MP3 LATCH
50	S19	SEG	O	U		SEG8	100	P1 5	DECINT	I	C	O	CD MP3 DECORID INT

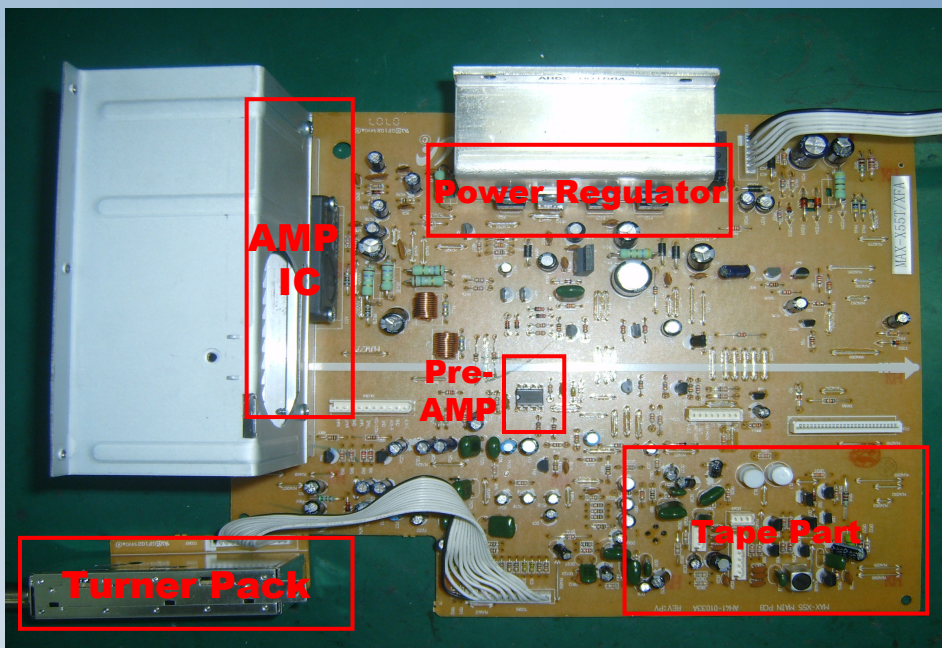
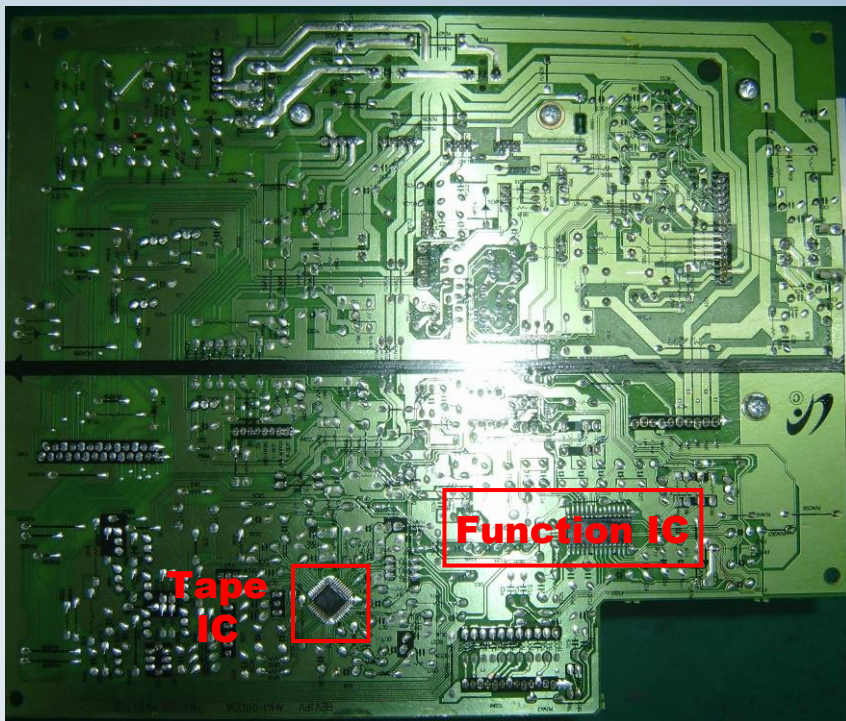


## 6.Micom Port Define (Expanded IC Port)

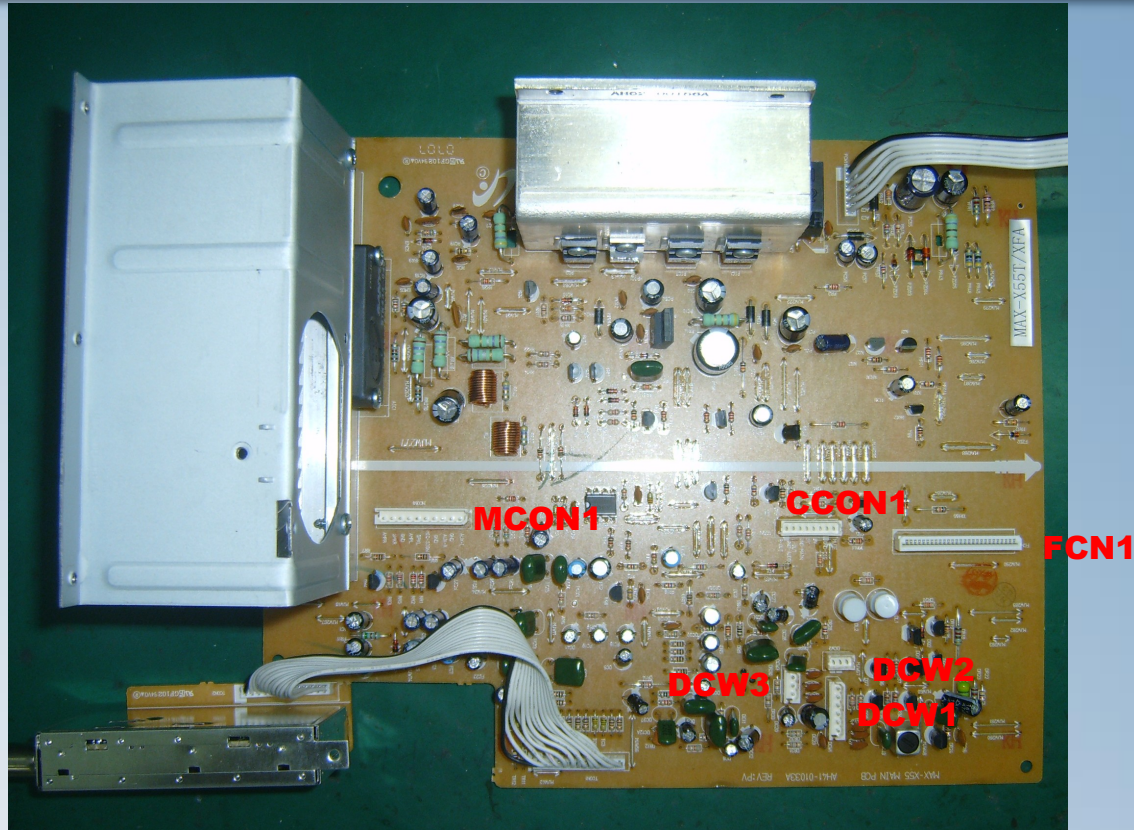
**MAX-X56 EXPANDER IC PORT ASSIGNMENT**

NO	PORT	I/O	ACTIVE	NAME	NO	PORT	I/O	NAME
1	DOUT				13	P12	0	LED10
2	DIN				14	P11	0	LED9
3	CLK				15	P10	0	LED8
4	CS				16	VDDP1		
5	VDD				17	P07	0	LED7
6	RESET				18	P06	0	LED6
7	VSS				19	P05	0	LED5
8	P17	0		CD MUTE	20	P04	0	REC ON
9	P16	0		LED1	21	P03	0	REC MUTE
10	P15	0		LED2	22	P02	0	TAPE MUTE
11	P14	0		LED3	23	P01	0	MAIN MUTE
12	P13	0		LED4	24	P00	0	P_POWER

# 6.MAIN PCB Block(MAX-X55)



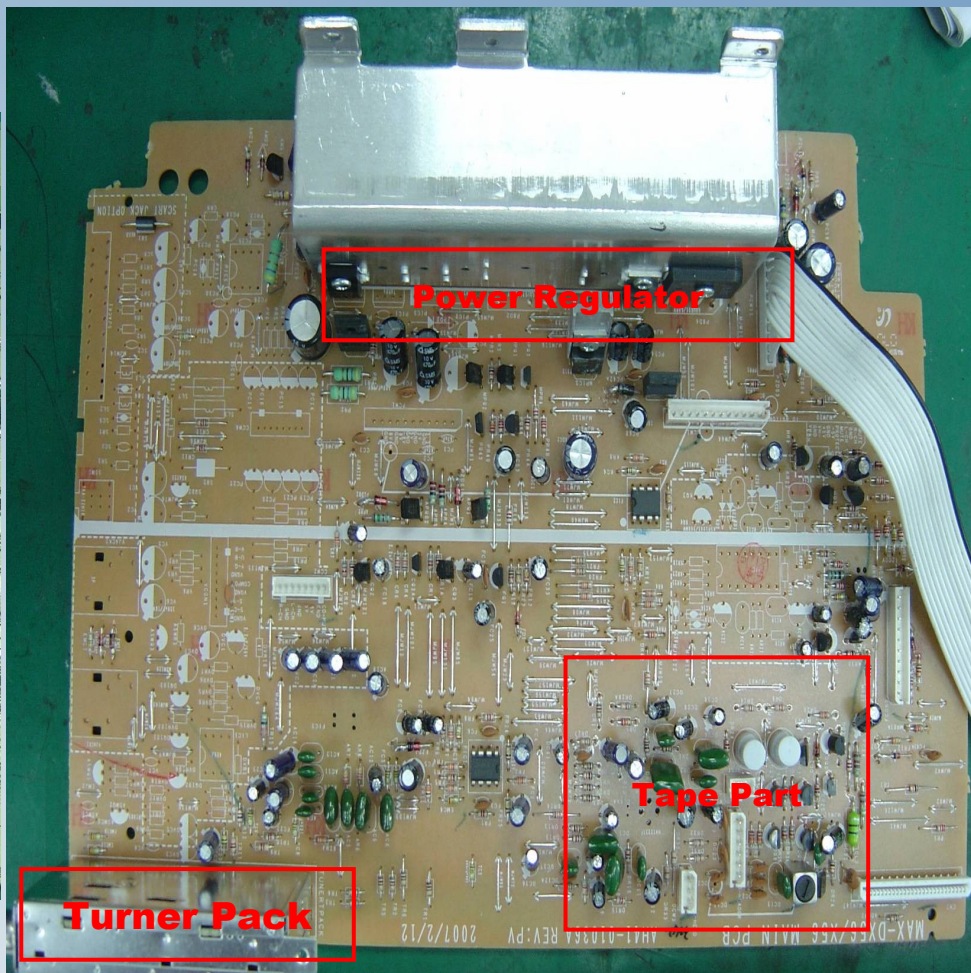
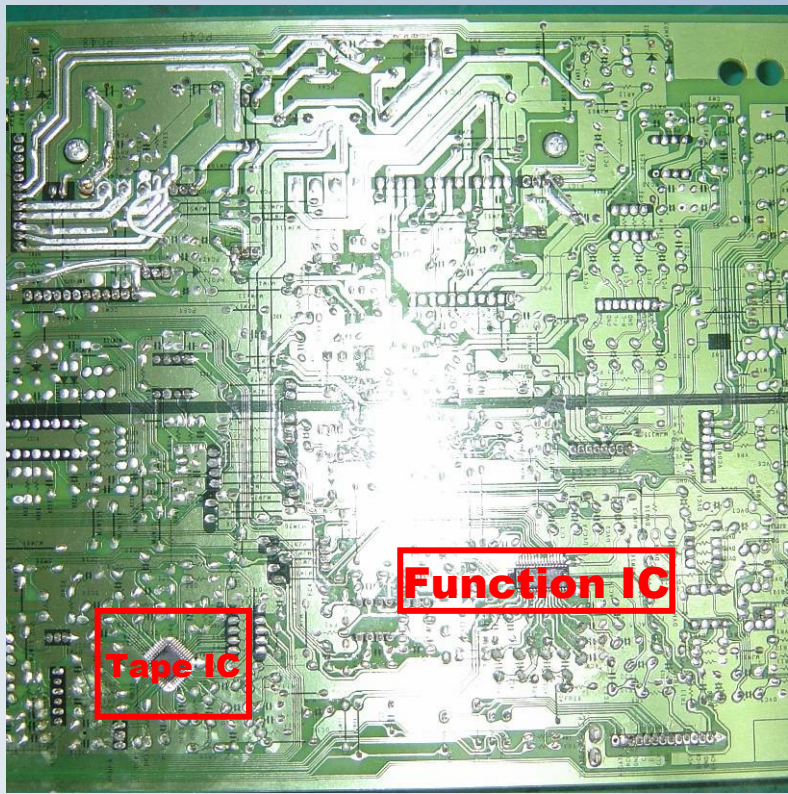
# 6.MAIN PCB Connectors (MAX-X55)



REF. NAME	PIN	CON. ASS'Y	FUNCTION
MCON1	10P	Front PCB	Signal Input, Mic signal, headphone,AUX
CCON1	8P	CD DECK	CD DECK Power Supply, CD Audio Input
FCN1	27P	Front PCB	Control Signal
DCW1	6P	Tape Deck	Tape signal
DCW2	3P	Tape Deck	Use for Test
DCW3	3P	Tape Deck	Tape signal

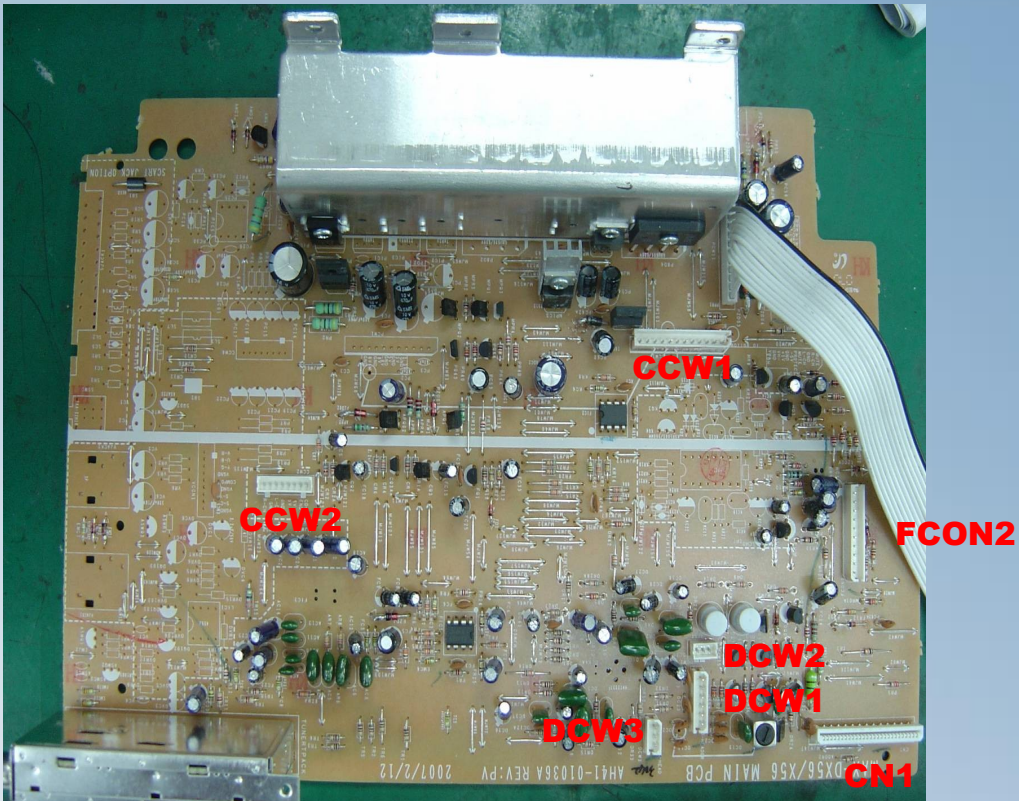


# 6.MAIN PCB Block(MAX-X56)



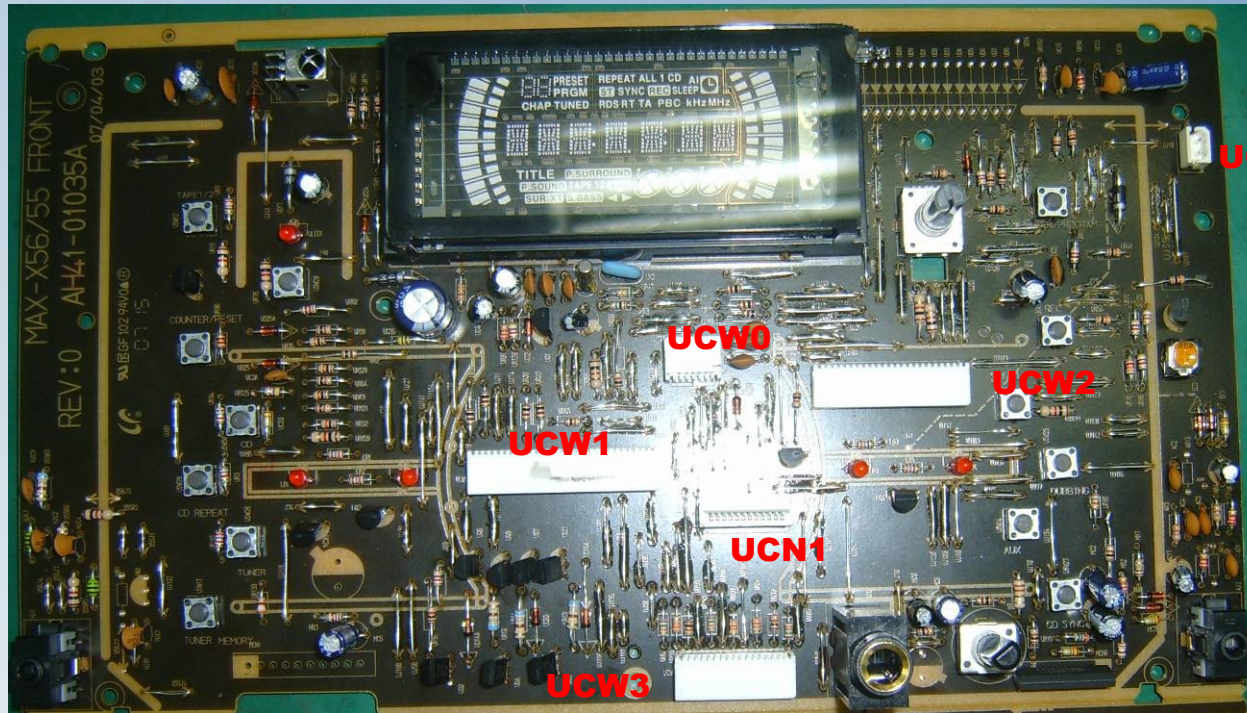


# 6.MAIN PCB Connectors (MAX-X56)



REF. NAME	PIN	CON. ASS'Y	FUNCTION
CN1	27P	Front PCB	Control Signal
FCON2	10P	Front PCB	Signal Input, Mic signal, headphone,AUX
CCW2	8P	CD DECK	CD DECK Power Supply, CD Audio Input
DCW1	6P	Tape Deck	Tape signal
DCW2	3P	Tape Deck	Use for Test
CCW1	12P	AMP PCB	AMP PCB Power Supply, Audio Signal Input
DCW3	3P	Tape Deck	Tape signal

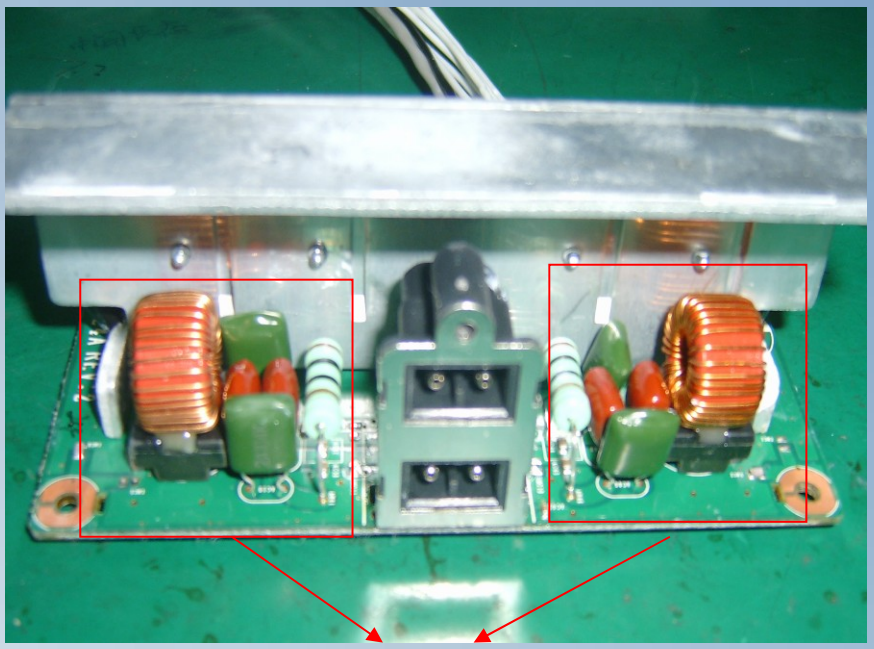
# 6.Front PCB Connectors(MAX-X55/MAX-X56)



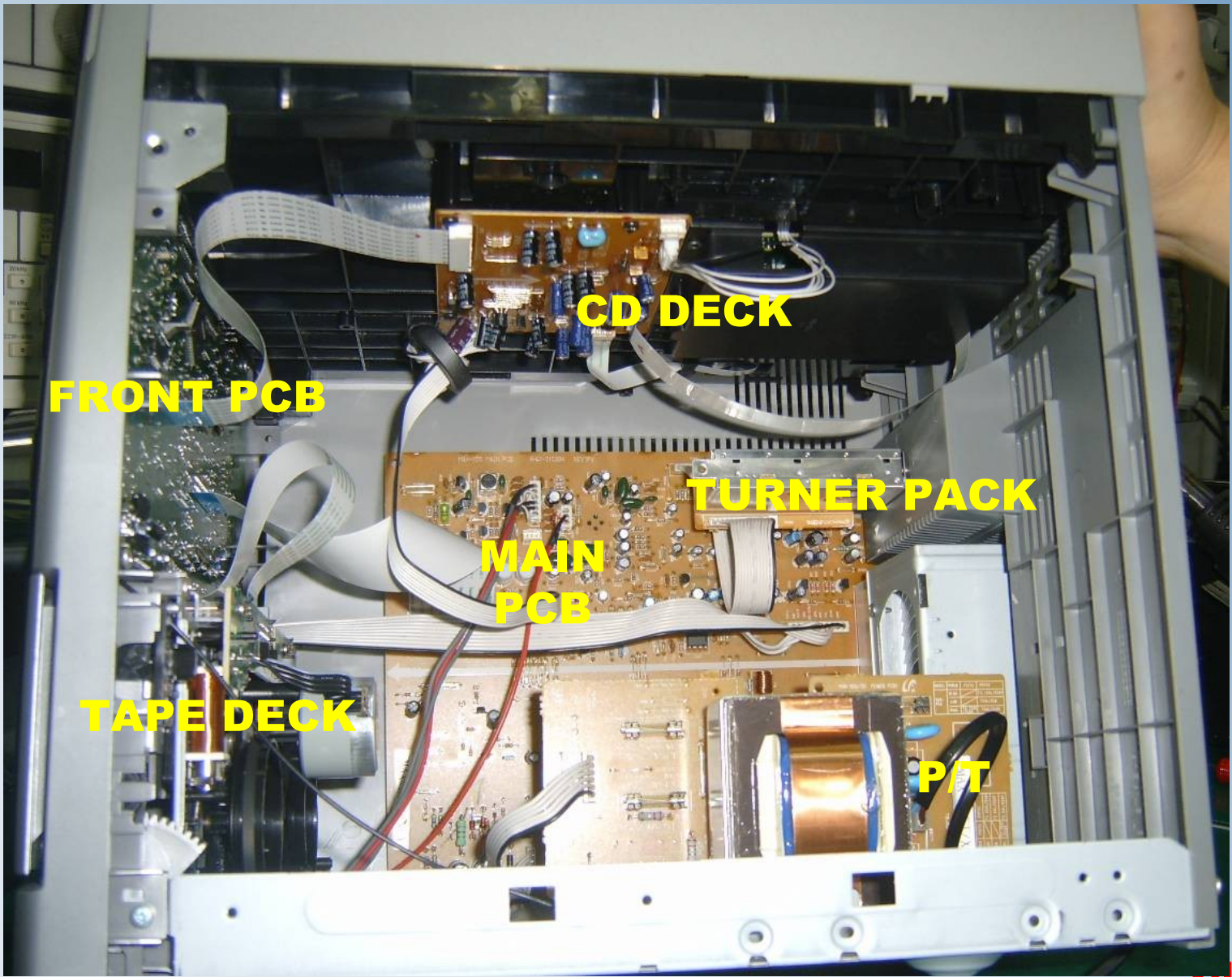
REF. NAME	PIN	CON. ASS'Y	FUNCTION
UCW4	2P	Key Sub PCB	Disc Select/ Open /Close
UCW2	22P	CD DECK	CD Control/ CD Audio Signal/ CD PCB Power Supply
UCW1	27P	Main PCB	Control Signal
UCN1	12P	Volume Control Sub PCB	LED Display and Volume Control
UCW3	16P	Tape Deck	Tape Control /Tape Audio signal
UCW0	6P	Update Port	Update Connector ,(For Flash Type Micom Only)



# 6.AMP PCB Connectors(MAX-X56)

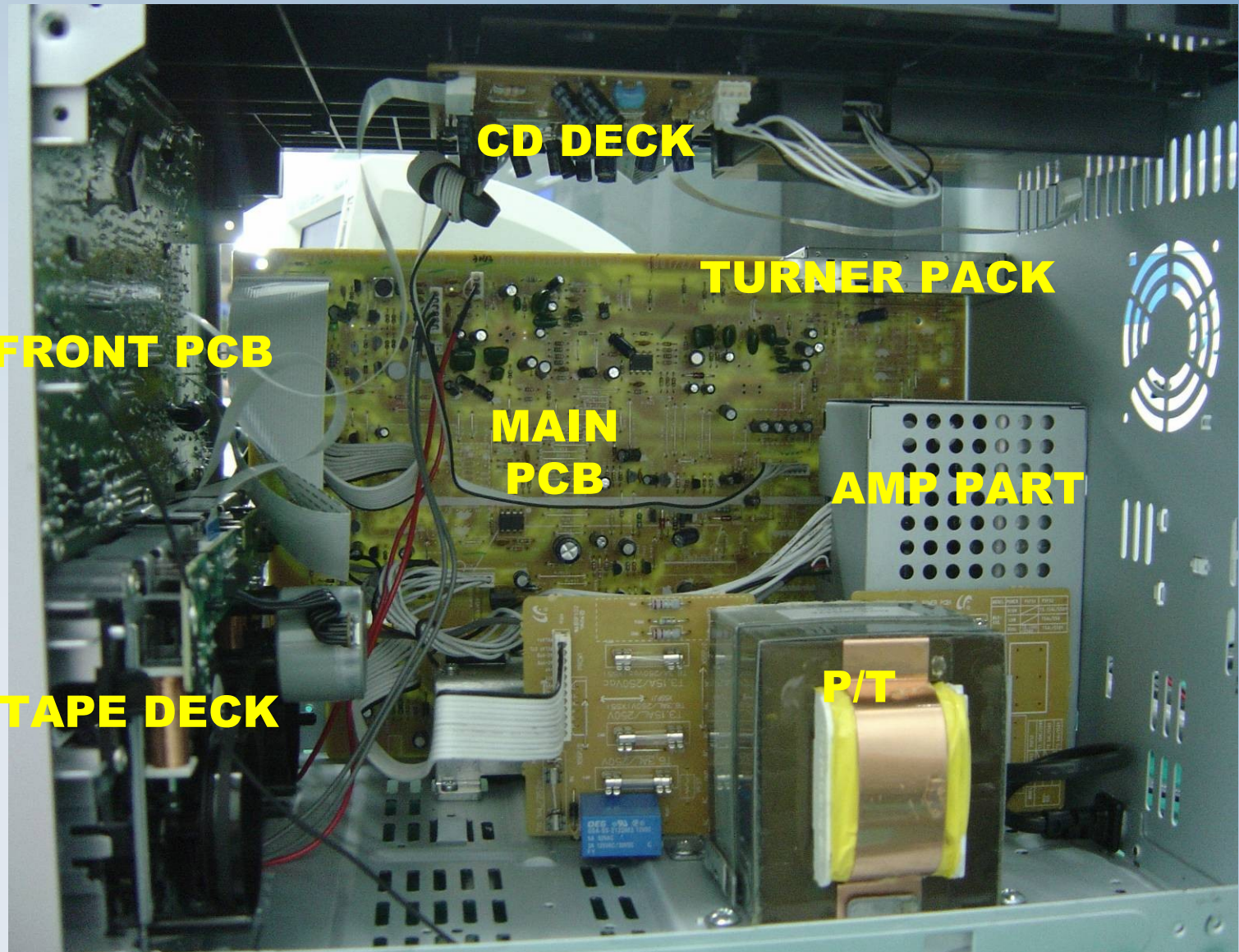


# 6.Main Set Lay out (MAX-X55)





# 6.Main Set Lay out (MAX-X56)



**CD DECK**

**TURNER PACK**

**FRONT PCB**

**MAIN  
PCB**

**AMP PART**

**TAPE DECK**

**P/T**

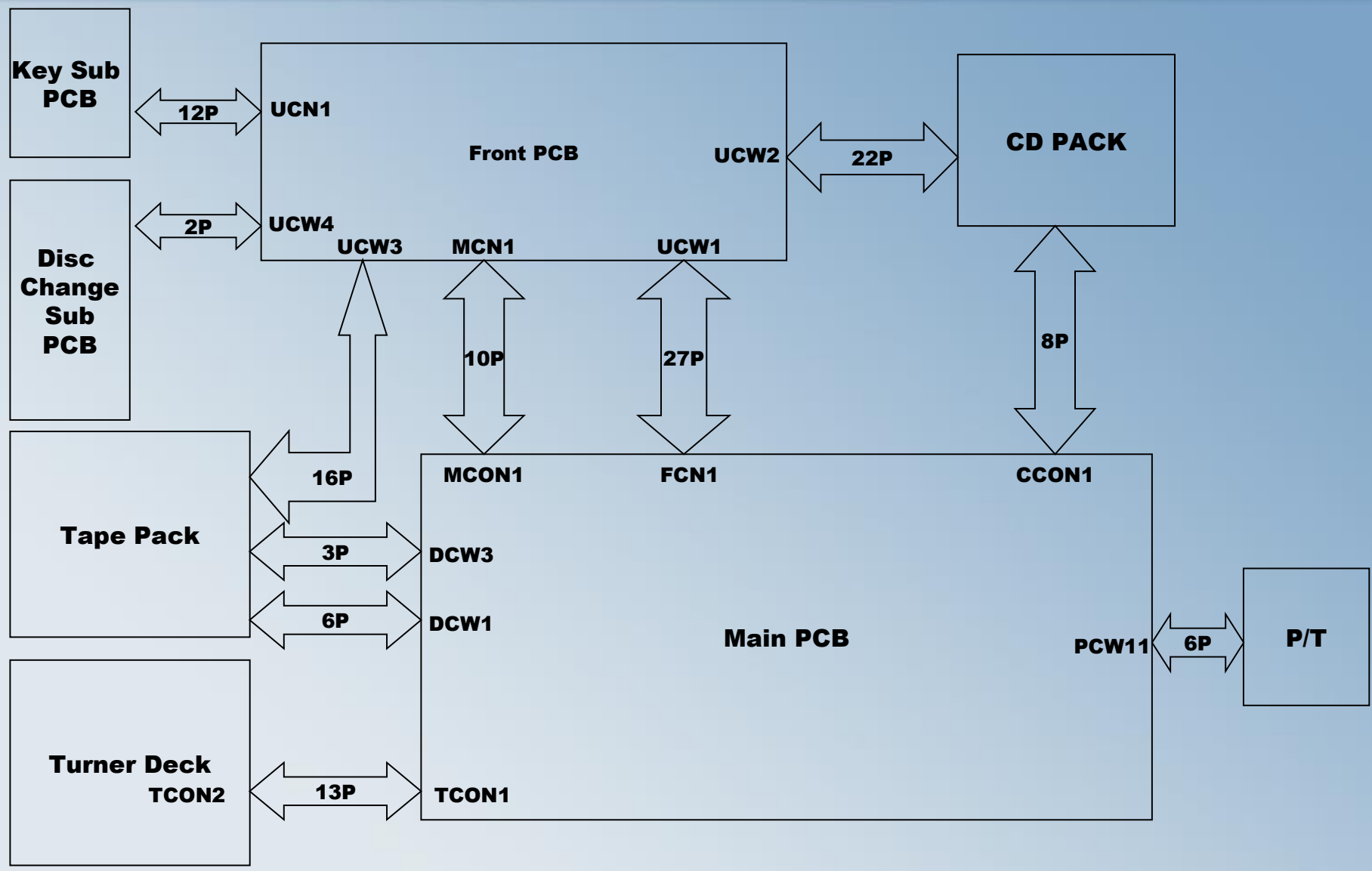
## 6. Block Diagram in detail( MAX-X55)

BLOCK	Description	Note
MAIN-PCB	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Power Supply Part</b> -+8V, +12V ,+5V,-VP,+,-VFD</li> <li><input type="checkbox"/> <b>Function Part</b> -R2S15904SP</li> <li><input type="checkbox"/> <b>AMP Part</b> - STK433-040(Dual)</li> </ul>	
FRONT-PCB	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>FRONT MICOM</b> - 10MHz Resonator - 32.768KHz Resonator</li> <li><input type="checkbox"/> <b>VFD and VFD DRIVER IC Circuit</b> - VFD operating - Auto Demo display when power connection,when power off,demo is off</li> <li><input type="checkbox"/> <b>FRONT PCB Part</b> REMOCON / Main Unit KEY operation</li> </ul>	

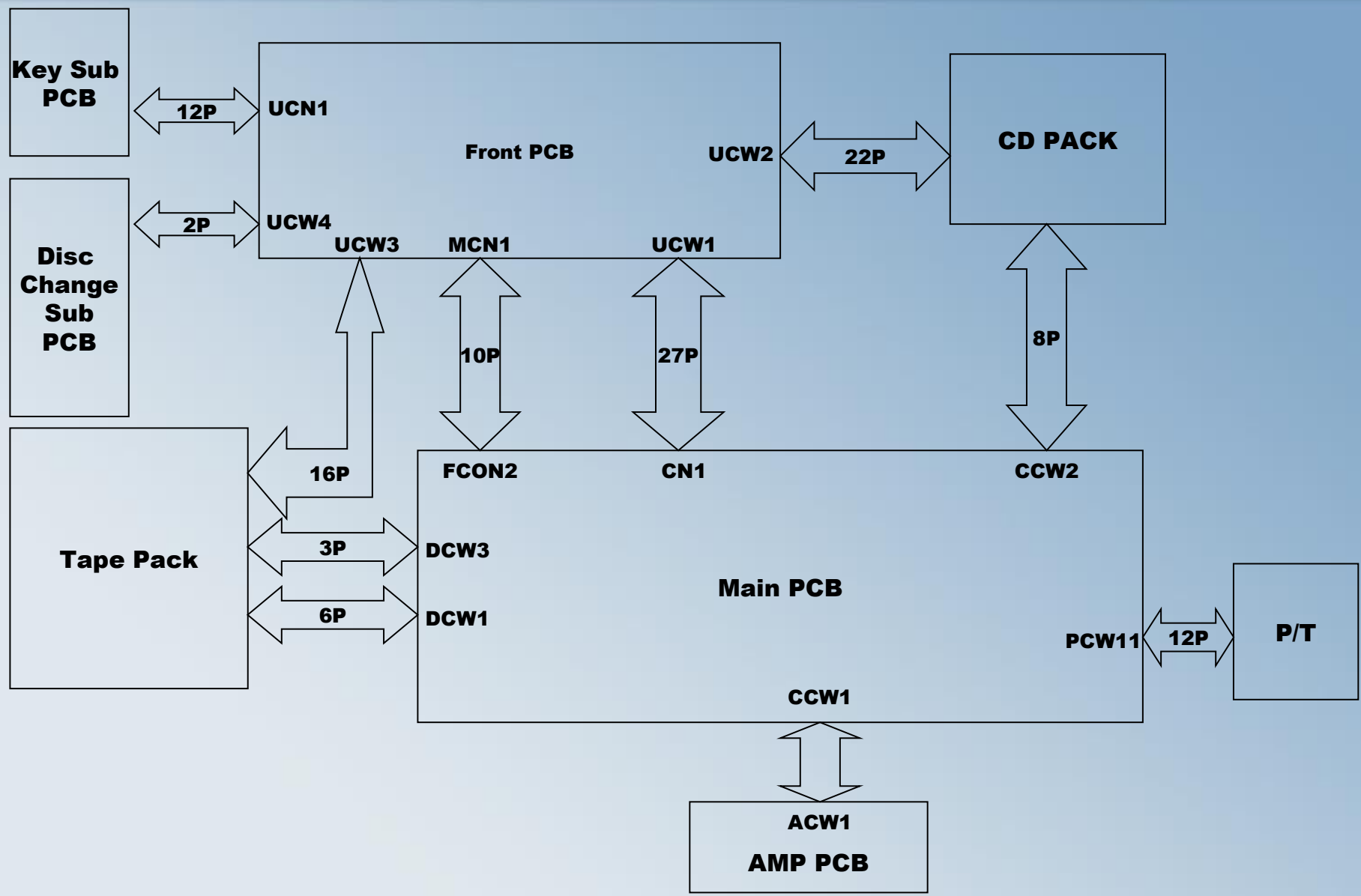
## 6. Block Diagram in detail(MAX-X56)

BLOCK	Description	Note
MAIN-PCB	<input type="checkbox"/> <b>Power Supply Part</b> - +/-12V,+8V,+5V,VFD,HV+,HV- <input type="checkbox"/> <b>Function Part</b> -DB3872FS	
AMP-PCB	<input type="checkbox"/> <b>Digital AMP</b> <b>-S1A0071,S1A0051</b>	
FRONT-PCB	<input type="checkbox"/> <b>FRONT MICOM</b> - 10MHz Resonator - 32.768KHz Resonator <input type="checkbox"/> <b>VFD and VFD DRIVER IC Circuit</b> - VFD operating - Auto Demo display when power connection,when power off,demo is off <input type="checkbox"/> <b>FRONT PCB Part</b> REMOCON / Main Unit KEY operation	

# 6. PCB Wiring (MAX-X55)



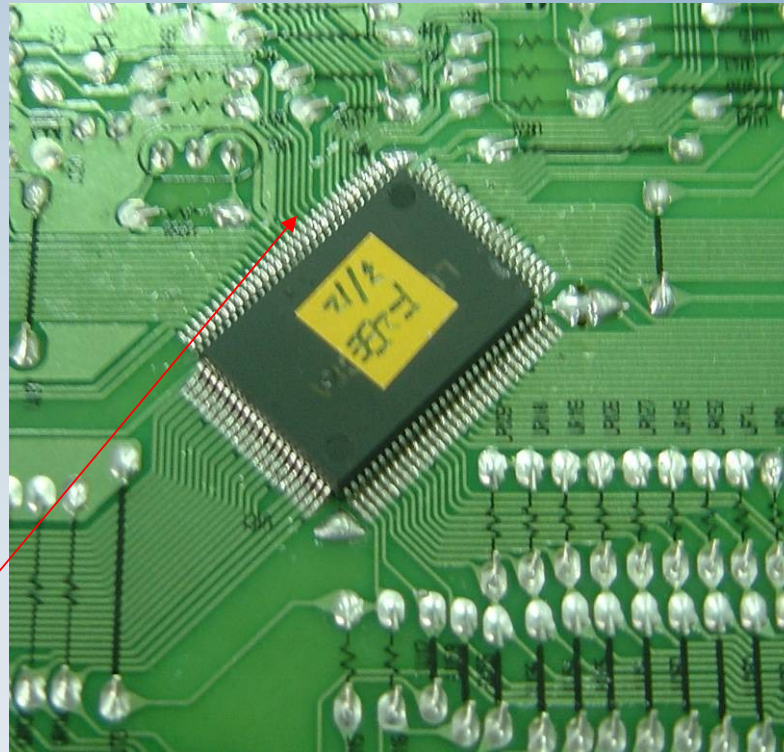
# 6. PCB Wiring (MAX-X56)





# 7.Communication Failure

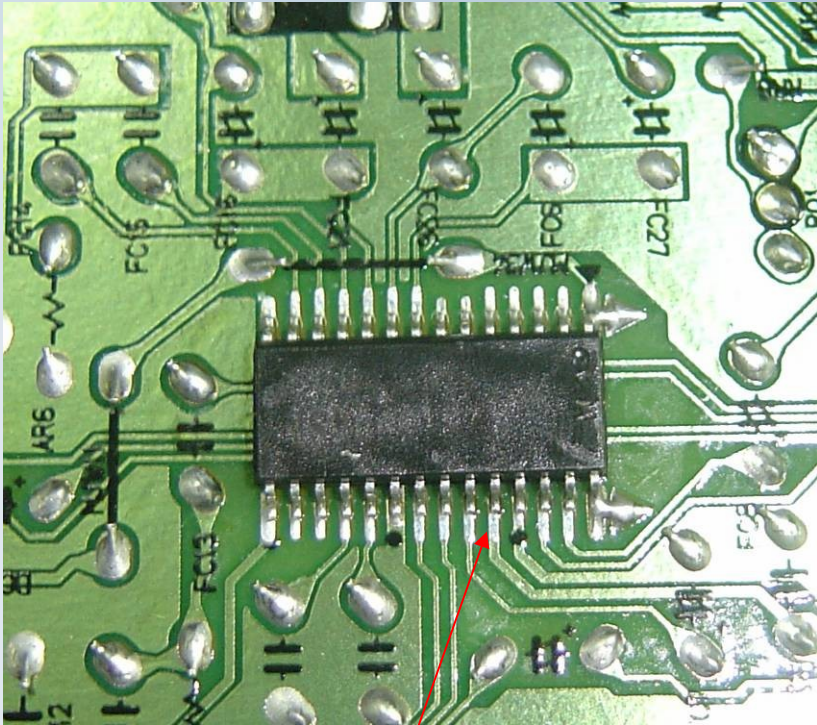
	Symptom	Cause	Check Point
1	SET Is Not Working.	Reset Line Problem	Reset Line (MICOM UIC1 #11)



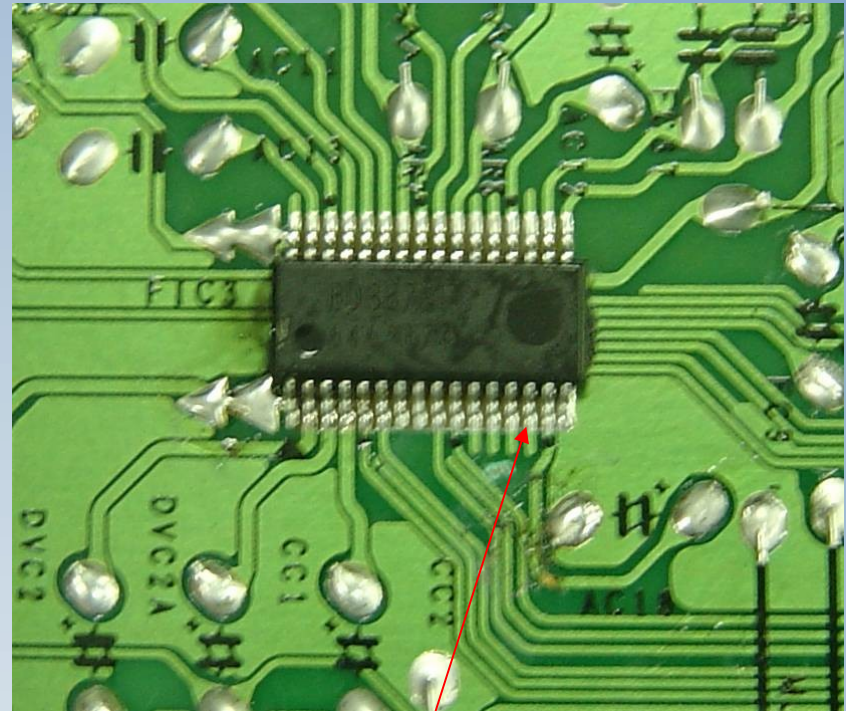
**RESET Insecure : It should be 3V after Power ON**

# 7.Communication Failure

	Symptom	Cause	Check Point
2-1	No Sound	Function IC Problem	Check pin #24 for 12v(X55,FIC 1),PIN #19 for +12v(X56,FIC 3)



**MAX-X55,Check pin #24**



**MAX-X56,Check pin #19**



# 7.Communication Failure

	Symptom	Cause	Check Point
2-2	No Sound	AMP IC Power Supply Problem	Check #2 For,#3,for (X55);ACW1 #1,#3,#4,#6 for +30V,-30V,+5V,-5V(x56)



**MAX-X55**

**-22V~-28V 22V~28V**



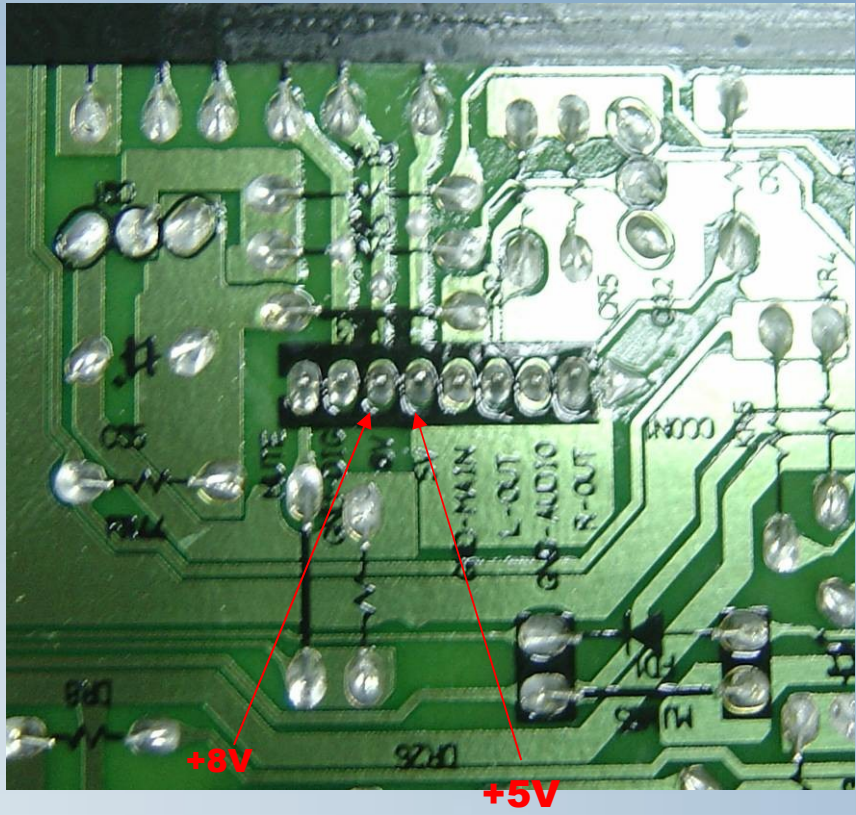
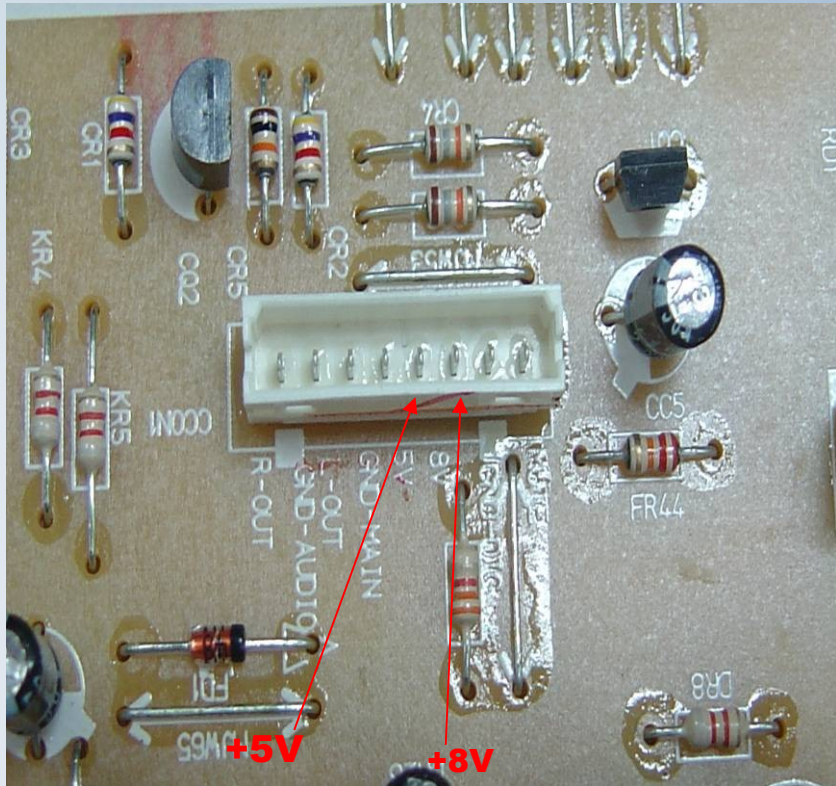
**MAX-X56**

**-30V 30V 5V -5V**



# 7.Communication Failure

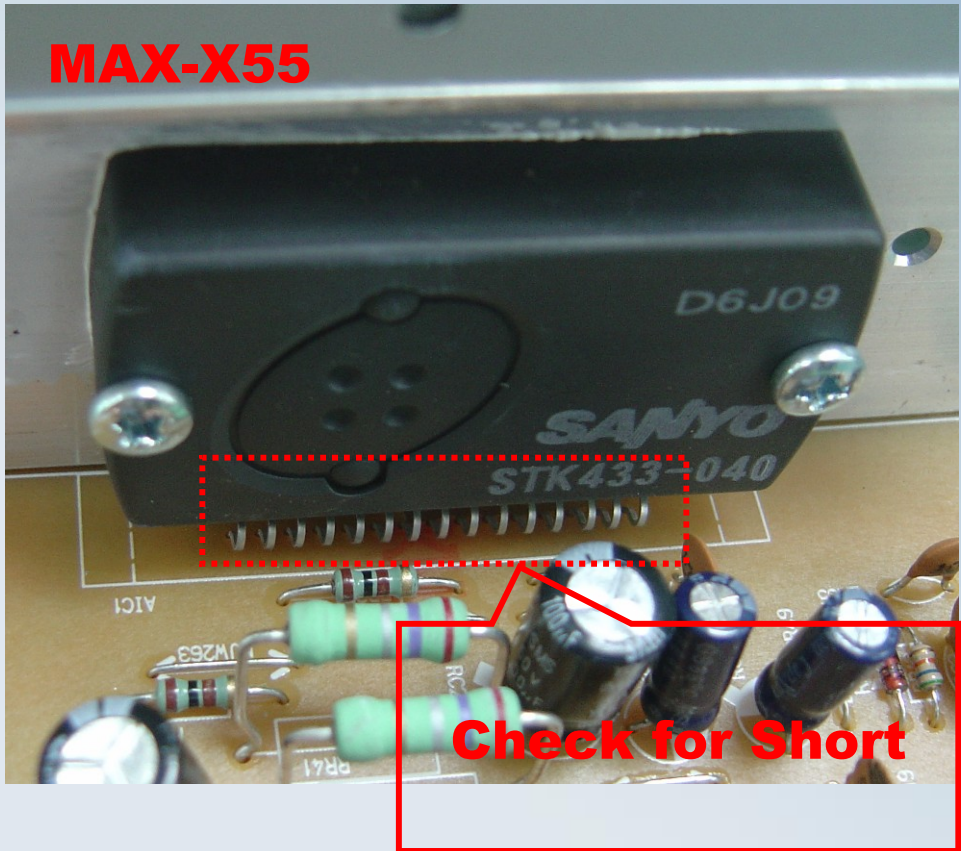
	Symptom	Cause	Check Point
3	Disc Can Not Play	CD Pack Power Supply Problem	Check CCON1(X55),CCW2(X56) #5,#6 pin for 5v,8v





# 7.Communication Failure

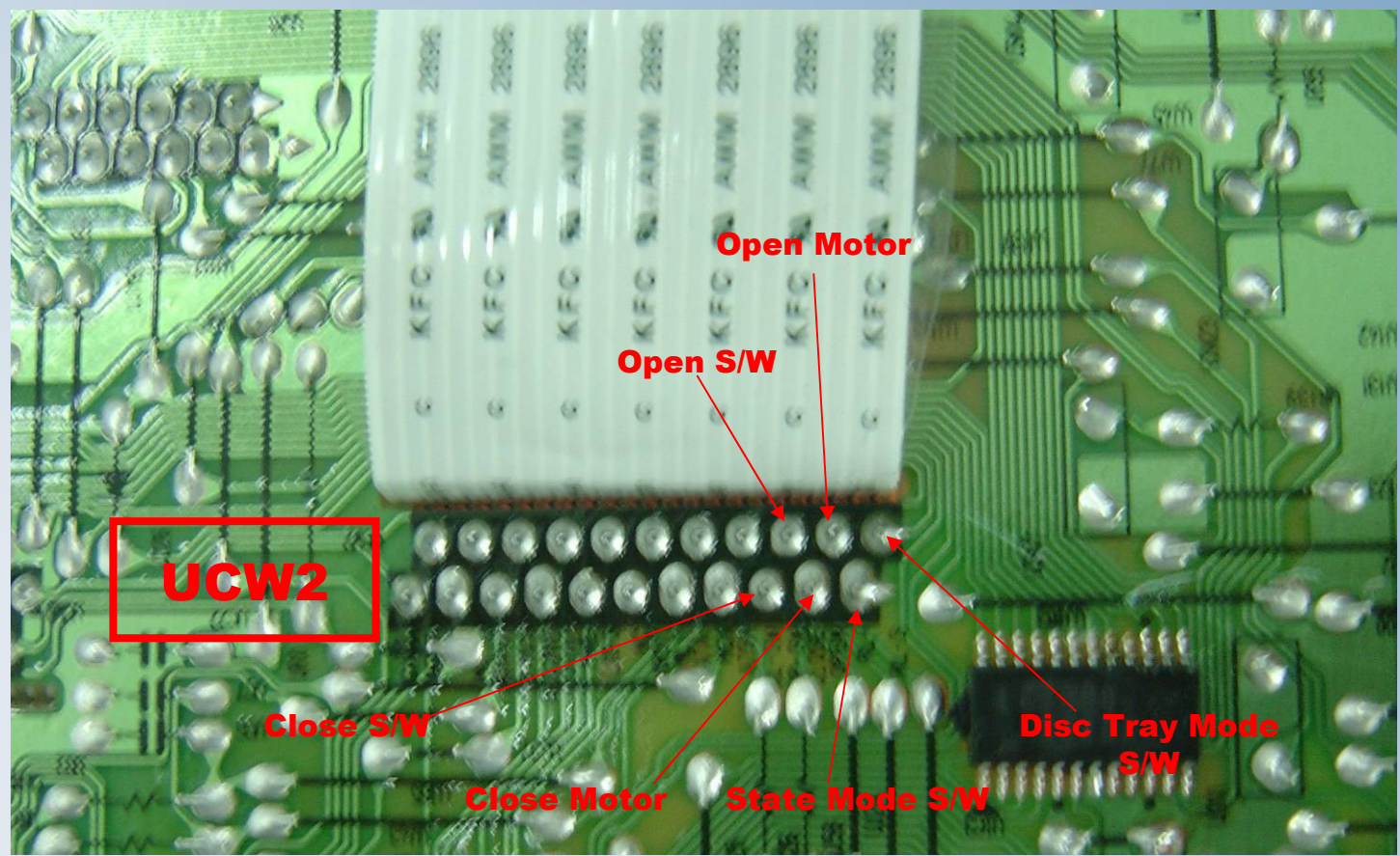
	Symptom	Cause	Check Point
4	Protection	Load Short/ Difference Between HV+ and HV-	Load/ HV+,HV-



**The two Voltage Must be same in Number**

# 7.Communication Failure

	Symptom	Cause	Check Point
5	Mecha Act Error	Front to CD PACK Communicate	Front to CD PACK Flat Cable or connector Short or Open

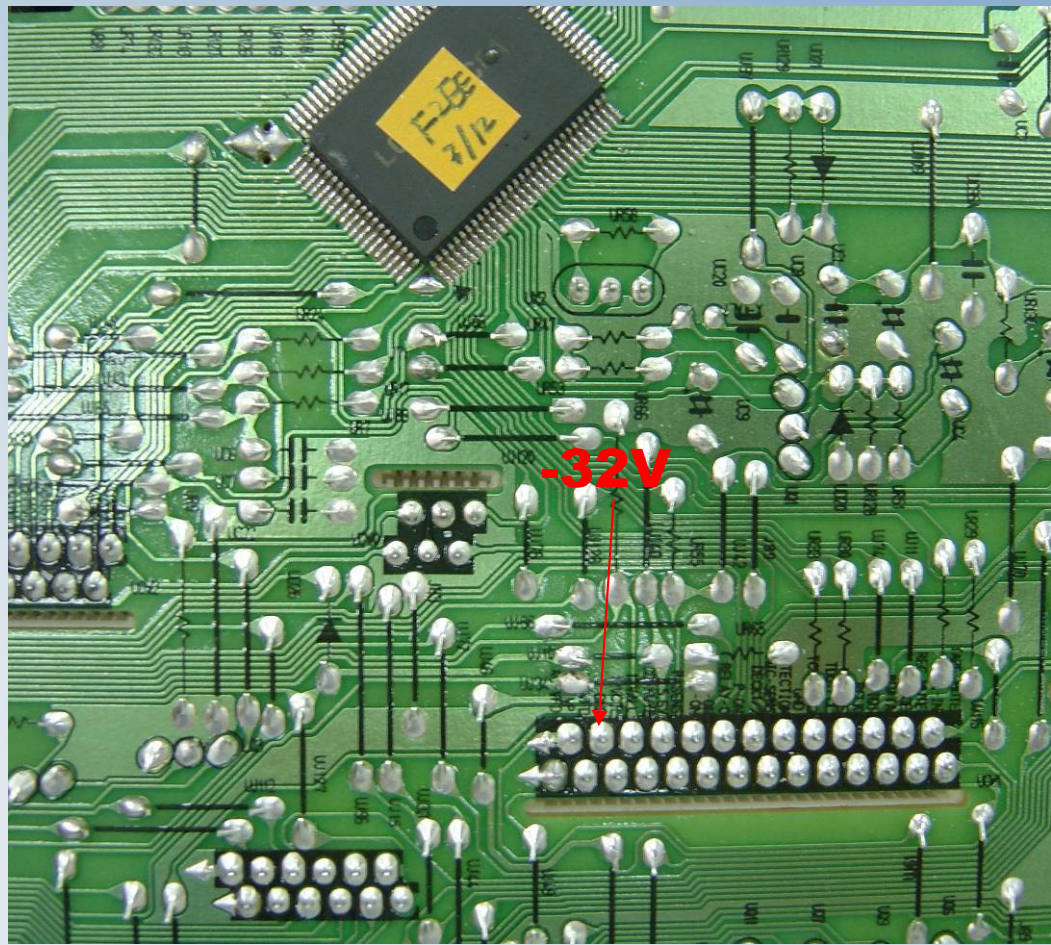


**Check these six Pin for Mecha Act**



# 7.Communication Failure

6	Symptom	Cause	Check Point
	VFD No Display	-VP Voltage Problem	Check UCW1 pin #2 for -32V



**More Information about Solve Problems ,Please refer to Trouble-shooting**

# 8.MICOM Initialization & Update

## . Micom Reset

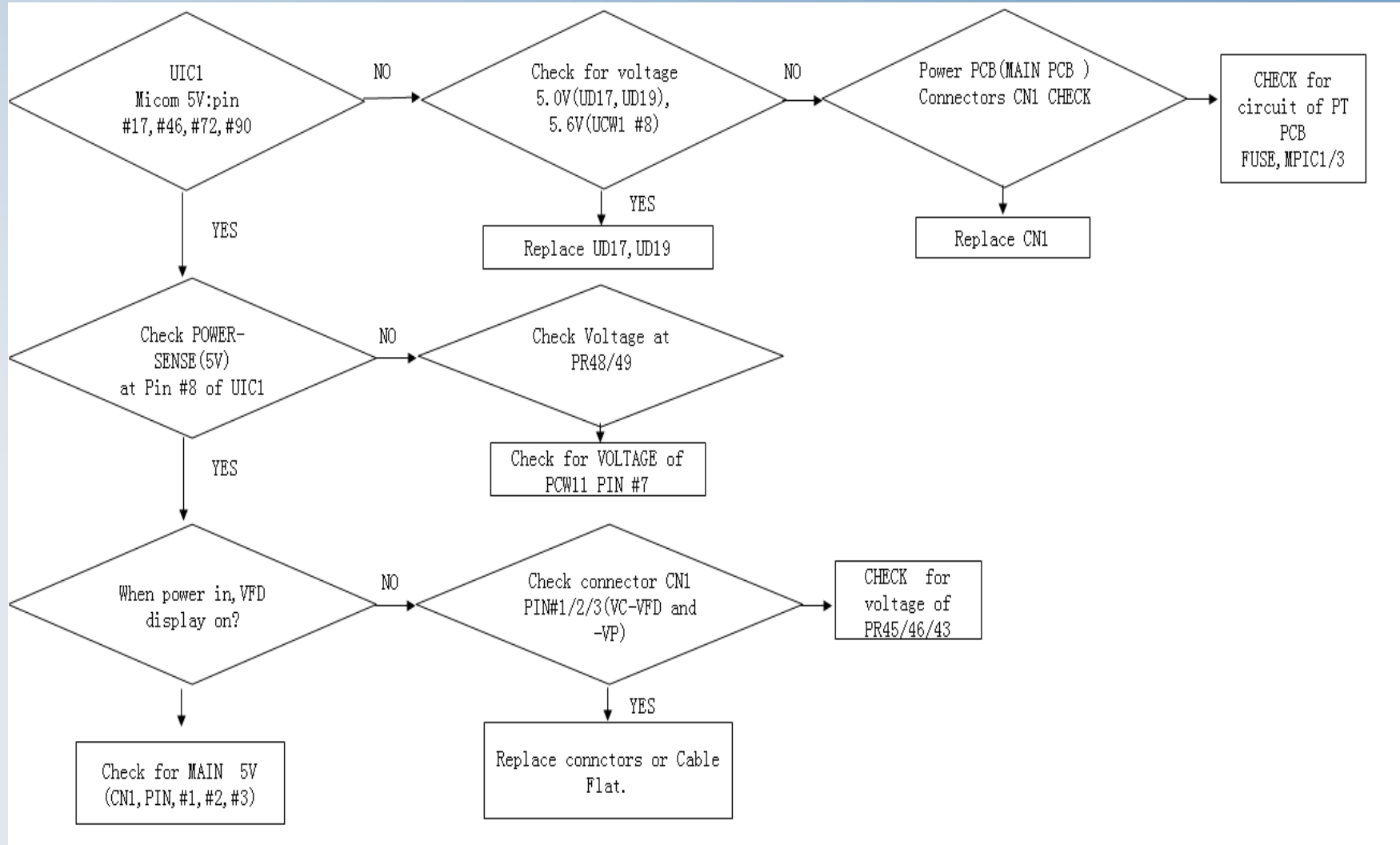
During STANDBY mode , push the 'STOP' button 5 Second. If Red LED blinking, reset is finished.

## . Micom Update (Only for Flash Micom)

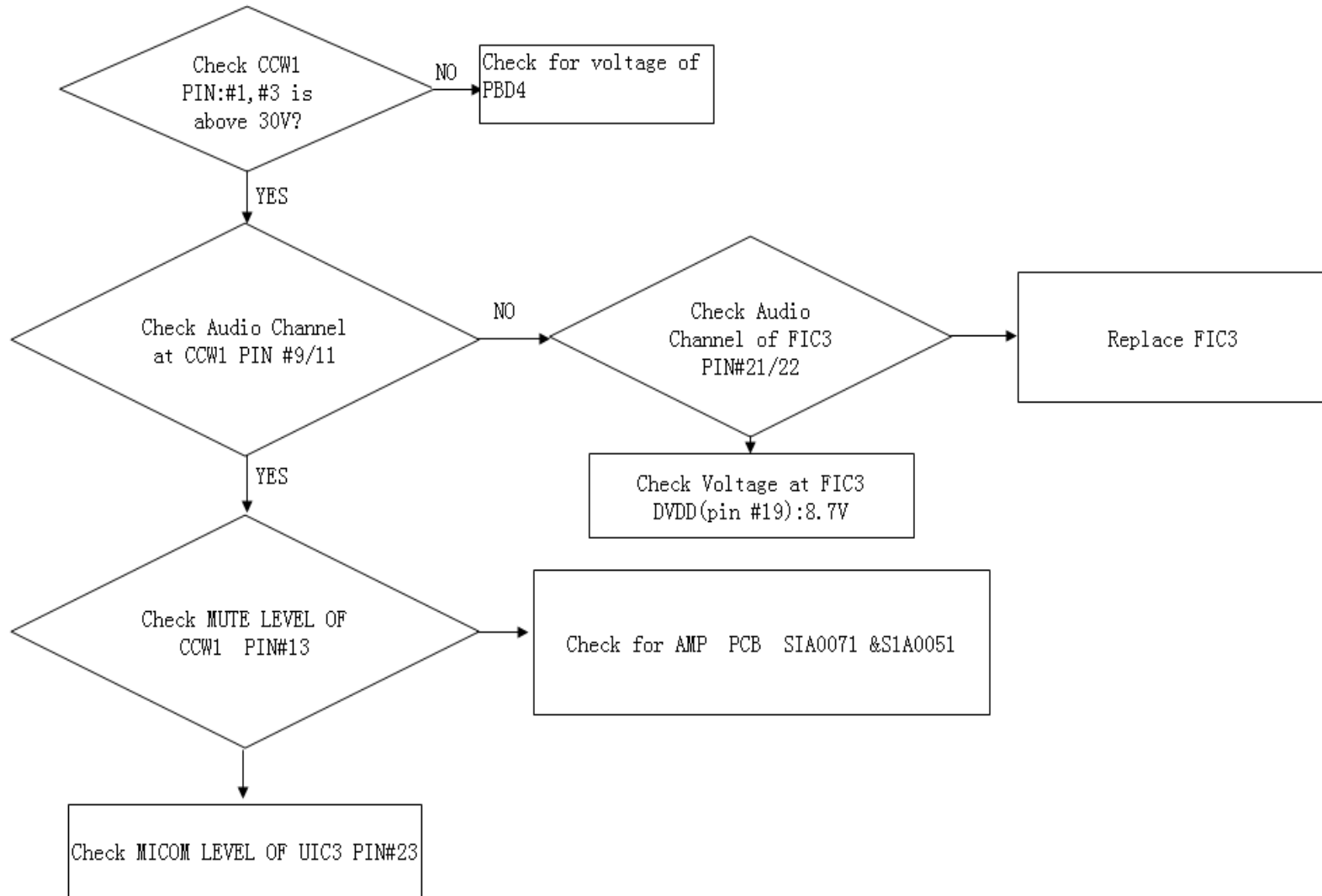
Back of the Set there is a slide hole for update JIG.

To update Micom, it need Computer, Rom Writer, USB Cables

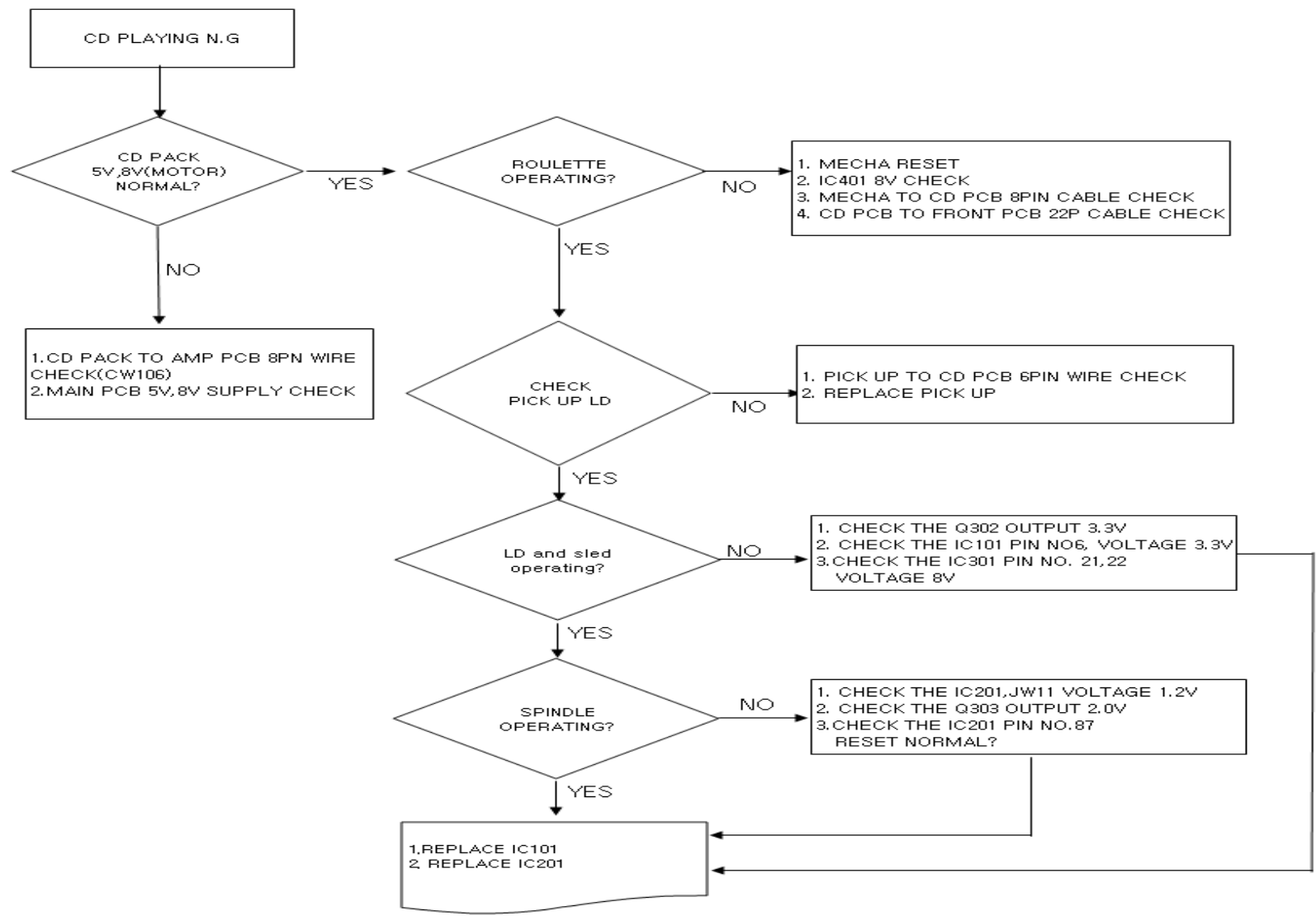
# 8. Troubleshooting – Main(MAX-X56)



# 8. Troubleshooting – Output(MAX-X56)

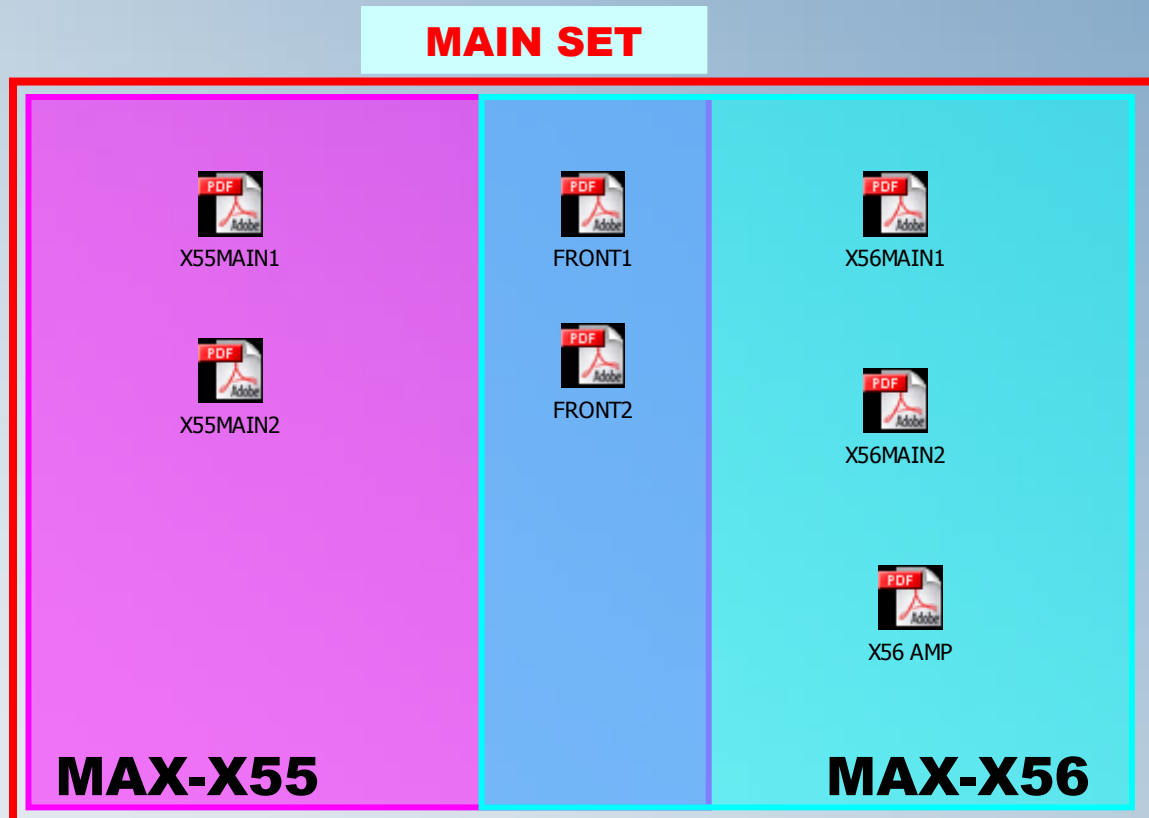


# 8. Troubleshooting – CD Play





# 9.Max-X55/56 Schematic Diagram



**\* CLICK each of the PDF document.**

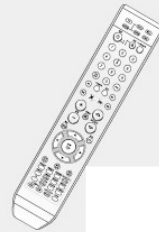
# 10. Accessories

**AH42-00021A**



**FM  
ANTENA**

**AH59-01696E**



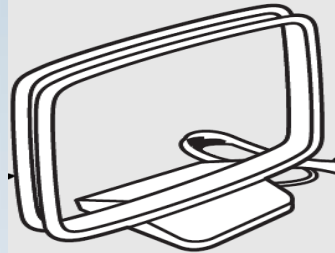
**Remote  
Controller**

**AH68-01932B**



**User Manual**

**AH42-00023A**



**AM ANTENA**

**NOTICE: Code NO. of Accessories  
may be different from countries.**