

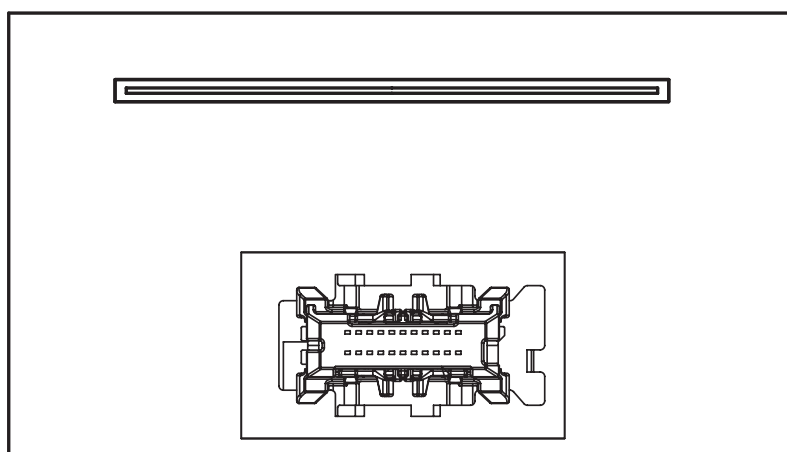


SERVICE MANUAL

AM/FM-ST ELECTRONIC TUNING RADIO with CD CHANGER

Model : **DY-3A66U-AL**

PART No. MN141332



CONTENTS

- | | | | |
|---------------------------------------|-------|-------------------------|-------|
| ● FEATURES AND SPECIFICATIONS | 2 | ● PRINTED CIRCUIT BOARD | |
| ● OPERATION | 3 | PCB-MAIN | 14,15 |
| ● CONNECTORS | 4,5 | PCB-SUB | 16 |
| ● DISASSEMBLING PROCEDURES | 6,7 | ● SCHEMATIC DIAGRAM | |
| ● BLOCK DIAGRAM | 8 | PCB-MAIN,SUB | 17~21 |
| ● EXPLODED VIEW, AND PARTS LIST | 9 | ● VOLTAGE | 22,23 |
| ● IC EXPLANATION | 10,11 | ● WAVEFORM | 24 |
| ● ELECTRICAL PARTS LIST | 12,13 | | |

FEATURES AND SPECIFICATIONS

FEATURES

Radio

- AM can preset the 6 station and FM (FM1/FM2) can preset the 12 station.
- It is able to memory by keep pushing the preset memory button.
- TUNE control by Rotary SW.
- ATC function to control BASS/TREBLE sound quality according to electric field strength when AM is received.
- AM noise killer function.
- SCAN function : Seeking receivable stations and receiving 5 seconds in each station.

CD Player

- In-dash CD auto changer (6disc) function.
- Power Loading / Power Eject function.
- Equipped with the shock proof memory. (16M-DRAM)(CD-DA:10.4sec)
- Skip recovered function. (Recovered the condition before skip.)
- Protected function of laser pickup stopping at high temperature.
- Quick track selection function.
- Any time Eject function. (Eject at the all mode included ACC OFF.)
- Scan function : 10 sec
- Reload function.
- Available for loading 12cm disc only.
- MP3 play function. (MPEG1 AUDIO LAYER3, MPEG2 AUDIO LAYER3)
- Repeat function. (One tune)
- Random play function.
- Fast-forwarding and fast-reversing function.

MP3

- Folder Up/Down function by TUNE knob.

Audio Part

- High power, 4 channel output. (4Ω load)
- Adjustment of BASS,TREBLE,BALANCE,and FADER by Rotary SW.
- ITM (Independent Tone Memory) function to memorize amount of BASS/TREBLE adjustment according to mode.
- Fixed EQ matched to car room sound filed characteristic.
- Auto loudness function varies a frequency characteristic by volume.
- The function that controls the amount of change in the low / high frequency tone (BASS / TREBLE) adjustment with the maximum volume.

Others

- M-BUS is used the method of communication with CD changer.
- The beep sounds, to check an operation, by using a button with hold-pushing operation function.
- Rheostat function. (The intensity of buttons, panel and LCD

can adjust to link with the intensity of vehicle's instrument panel lighting).

- The connection of speaker wiring can check by test mode of the beep in the vehicle's assembly line.
- Steering Remote control.
- Hands free function.
- VES (Video Entertainment System) function.

SPECIFICATIONS

AM Radio

- Frequency Range : 531 ~ 1,710kHz
- Sensitivity : Less than 28dB
- Signal/Noise Ratio : More than 45dB (60dBμV)

FM Stereo Radio

- Frequency Range : 87.5 ~ 108.0MHz
- Limiting Sensitivity : Less than 10dB
- Signal/Noise Ratio : More than 55dB (40dBμV)

CD Player

- Laser : Semiconductor Laser
- DA Convertor : 1bit
- Dynamic Range : More than 65dB
- Signal/Noise Ratio : More than 65dB
- Channel Separation : More than 50dB (1kHz)

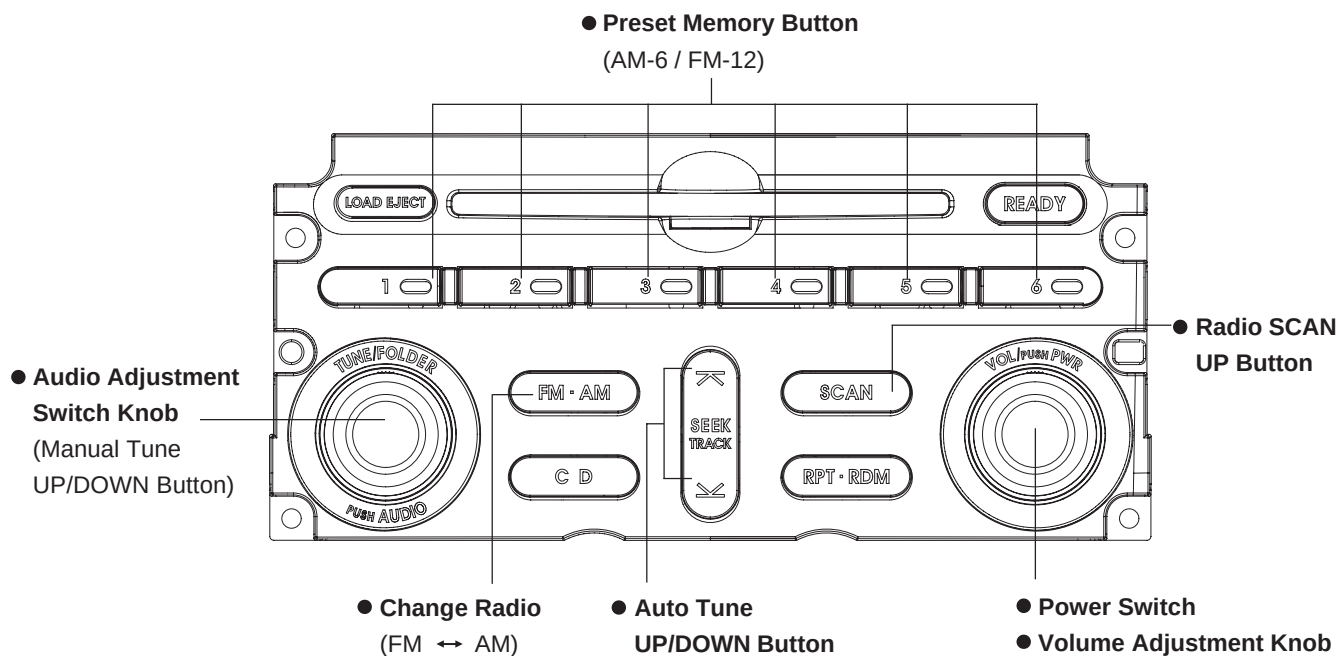
Others

- Power Supply : DC 13.2V (11~16V)
Test Voltage 13.2V
Negative ground
- Battery Back Up Current : Less than 1.0mA
- Current Consumption : ACC 2.1A ± 20% (Output 1W)
- Maximum Power Output : 45W x 4 (SP output)
- Output Impedance : 4 Ω (SP Output)
- Dimensions : 178mm x 151.3mm x 100mm
(W x D x H)
- Weight : 2.0kg

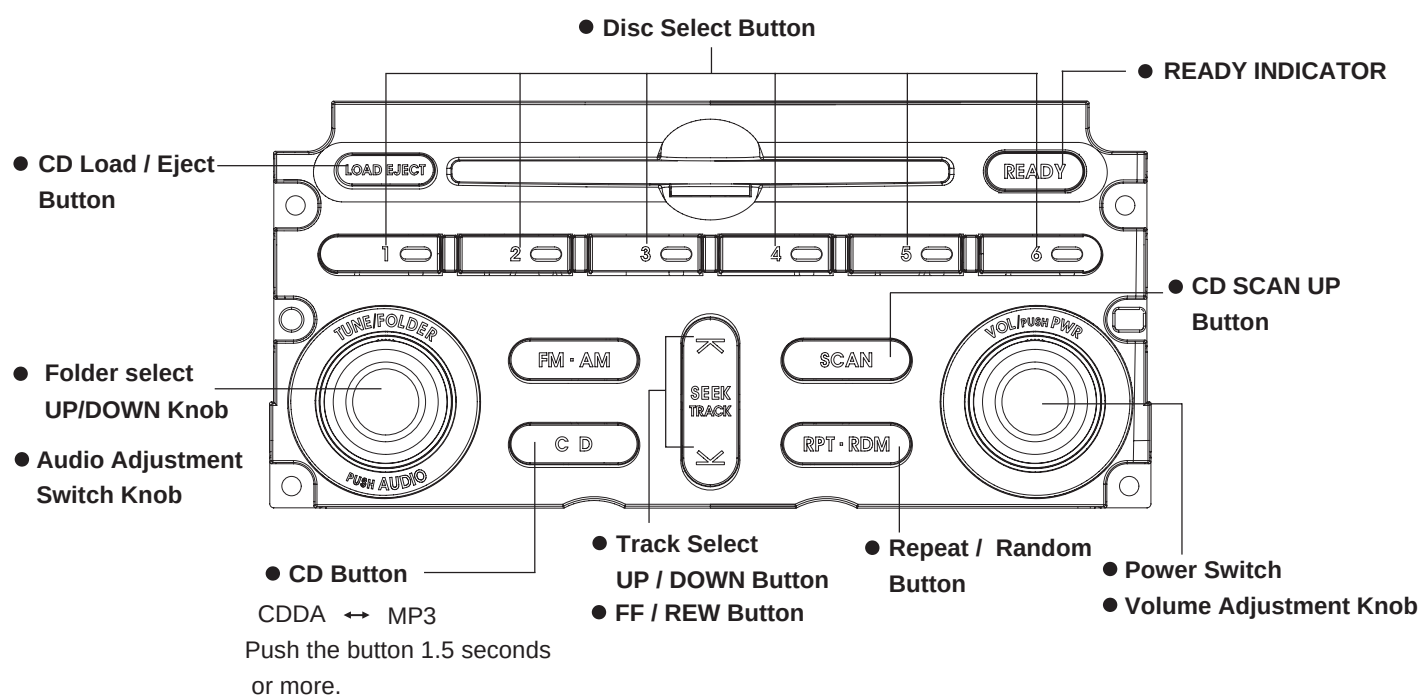
OPERATION

<< UNIQUE PANEL : SW-744, SW-745 >>

RADIO & AUDIO PART

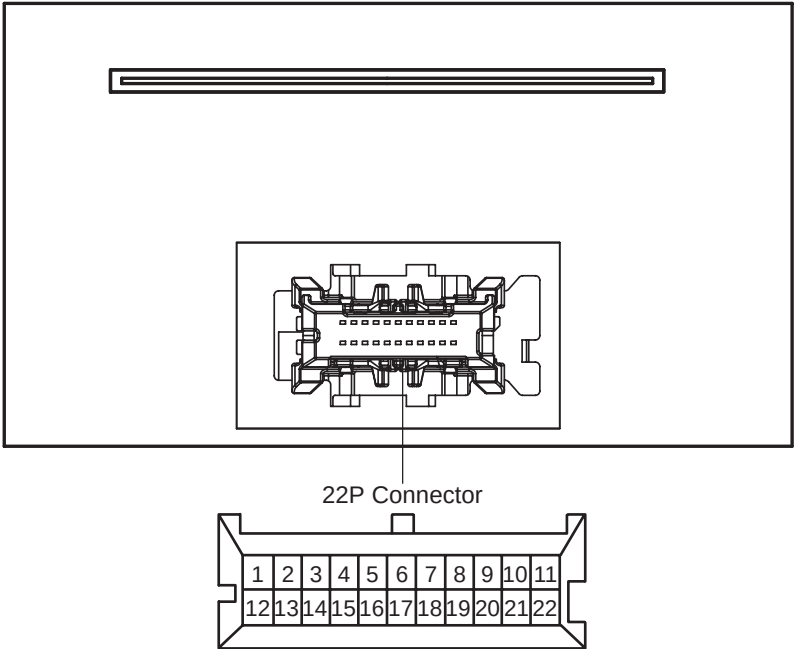


CD CHANGER PART



CONNECTORS

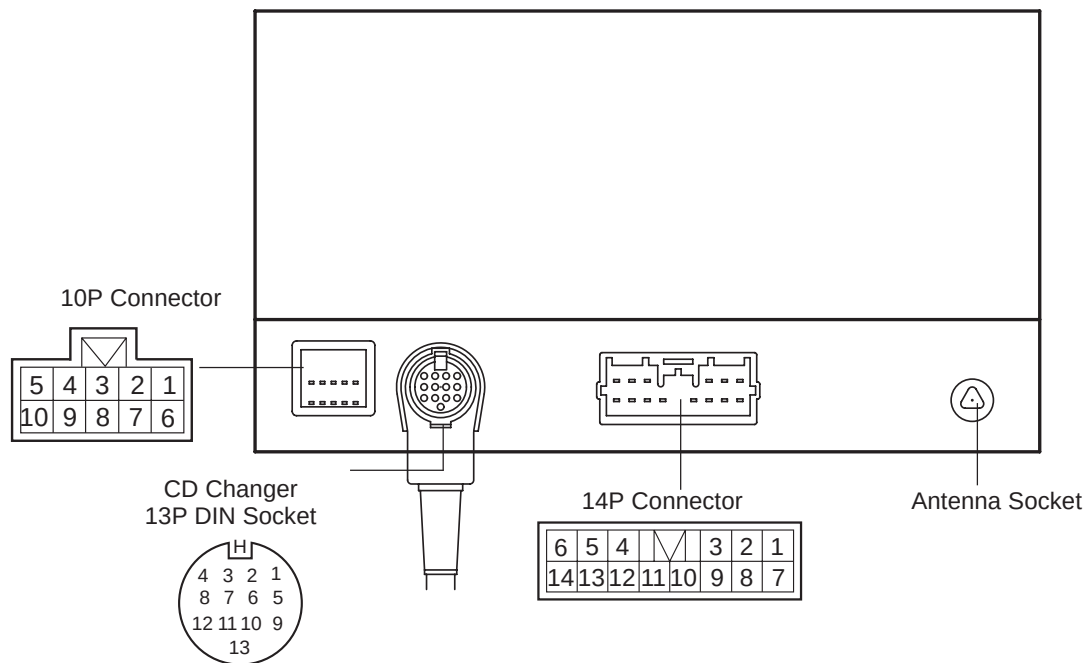
< FRONT SIDE VIEW >



22P Connector

Pin No.	Name	Pin No.	Name	Pin No.	Name
1	LATCH(LED)	9	AD2	17	LAMP
2	CLOCK(LED)	10	AD1	18	LAMP
3	—	11	GND	19	SENCE CAR
4	AUDIO-SW	12	ENABLE(LED)	20	VDD
5	VOL2	13	DATA(LED)	21	TUNE2
6	VOL1	14	LAMP GND	22	TUNE1
7	EJECT-SW	15	LAMP GND		
8	POWER-SW	16	—		

< REAR SIDE VIEW >



Remote control 10P Connector

Pin No.	Name	Pin No.	Name
1	REMO-IN	6	REMO-OUT
2	—	7	Telephone Mute
3	Telephone Signal	8	Telephone GND
4	M-SCK	9	M-BUSY
5	M-DATA	10	Shield Earth(M-BUS)

Power supply 14P Connector

Pin No.	Name	Pin No.	Name
1	Speaker FR (+)	8	Speaker FL (-)
2	Speaker FL (+)	9	Illumination (-)
3	Illumination (+)	10	Battery (+)
4	Antenna + B	11	Accessory (+)
5	Speaker RL (+)	12	—
6	Speaker RR (+)	13	Speaker RL (-)
7	Speaker FR (-)	14	Speaker RR (-)

CD Changer 13P DIN Socket

Pin No.	Name	Pin No.	Name
1	Signal GND	8	—
2	Lch	9	Battery (+)
3	—	10	Illumination Level
4	Rch	11	M-BUSY
5	—	12	M-SCK
6	—	13	M-DATA
7	ACC (+)	H	Shield Earth

DISASSEMBLING PROCEDURES

1. Removal of COVER (See Fig.1)

- 1) Unscrew the four screws (①) .
- 2) Remove the COVER.

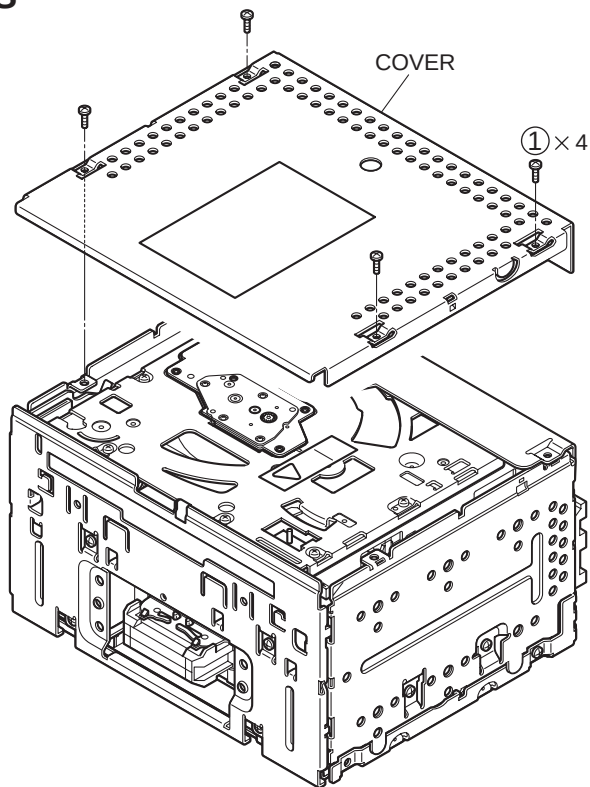


Fig.1

2. Removal of CDX2 (See Fig.2)

- 1) Unscrew the six screws (②) .
- 2) Remove the HEAT-SINK.
- 3) Unscrew the four screws (③) .
- 4) Remove the BRACKET-CDX and FLAT-CABLE.
- 5) Remove the CDX2.

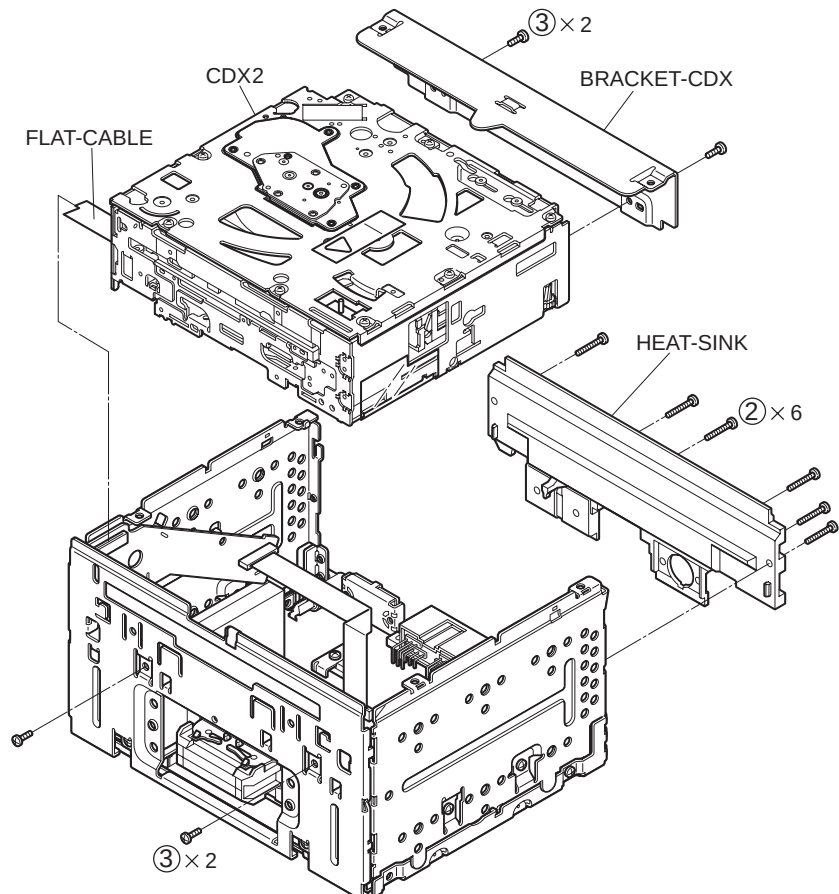


Fig.2

3. Removal of LEAD-CONNECTOR (See Fig.3)

- 1) Unscrew the four screws (④) .
- 2) Remove the CHASSIS-F and HOLDER-CON.
- 5) Remove the LEAD-CONNECTOR.

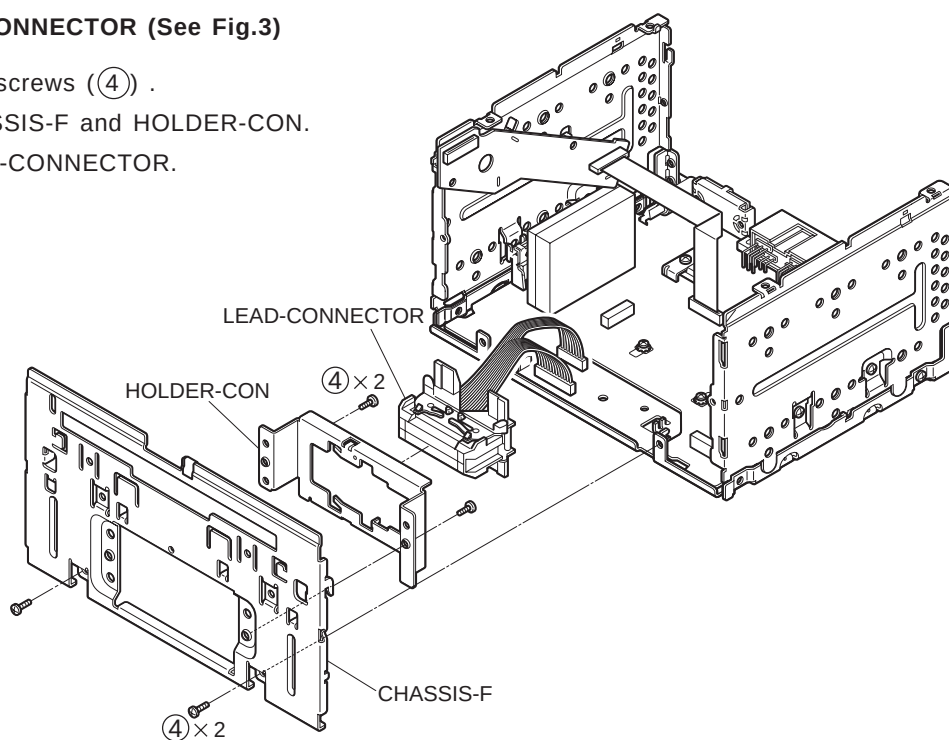


Fig.3

4. Removal of PCB-MAIN and PCB-SUB (See Fig.4)

- 1) Unscrew the two screws (⑤), and three screws (⑥) .
- 2) Remove the FLAT-CABLE.
- 3) Remove the CHASSIS-L and the CHASSIS-R and PCB-SUB.
- 4) Unscrew the one screw (⑦) and two screws (⑧) and three screws (⑨).
- 5) Remove the PCB-MAIN.

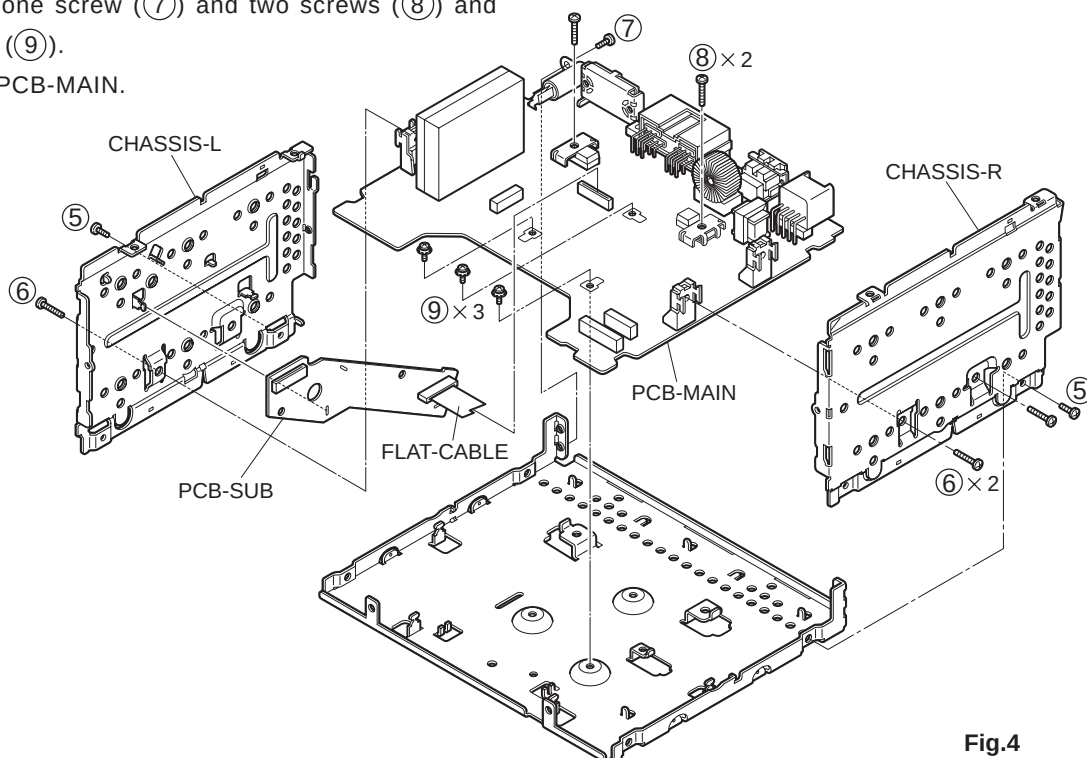
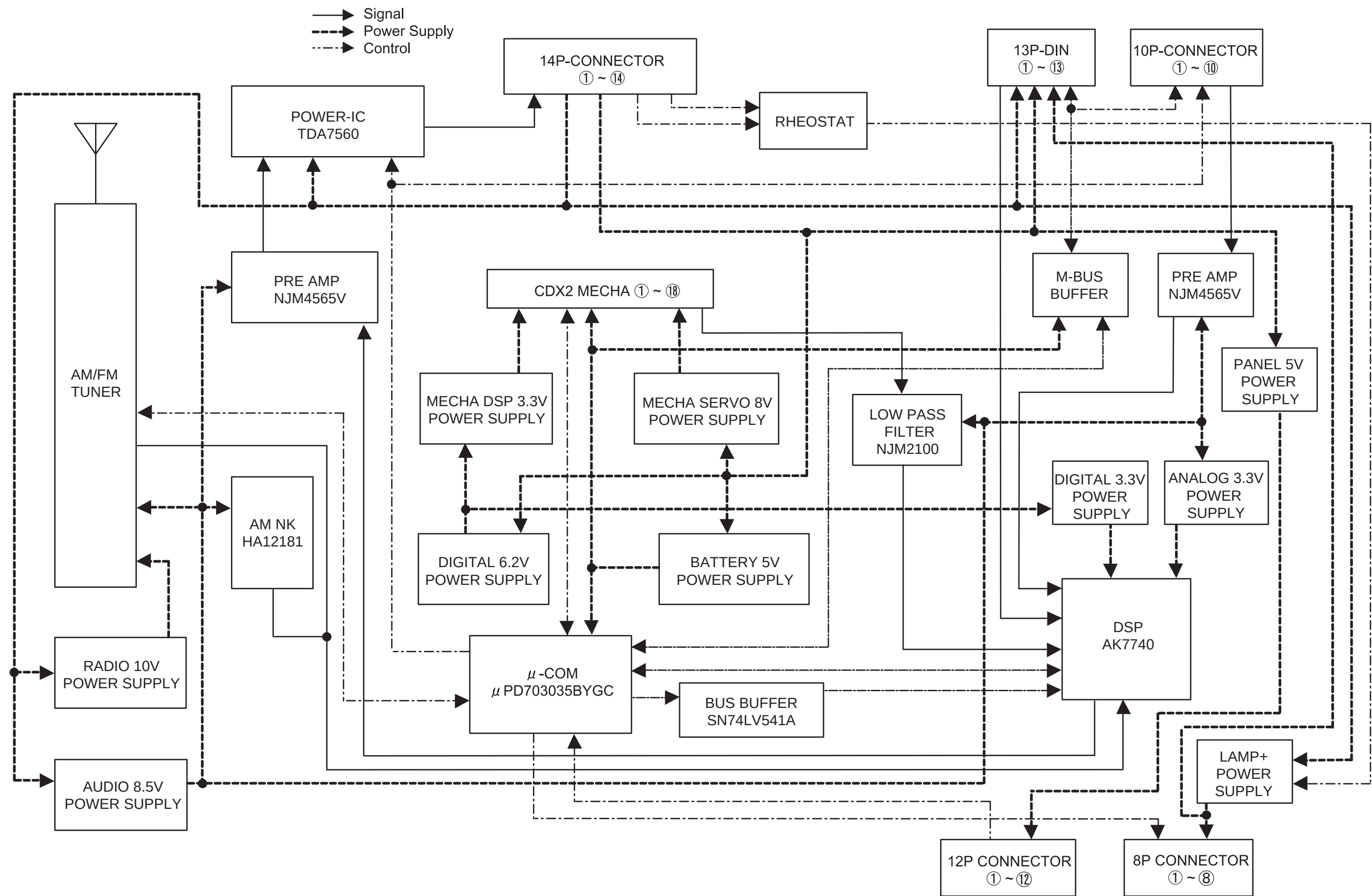
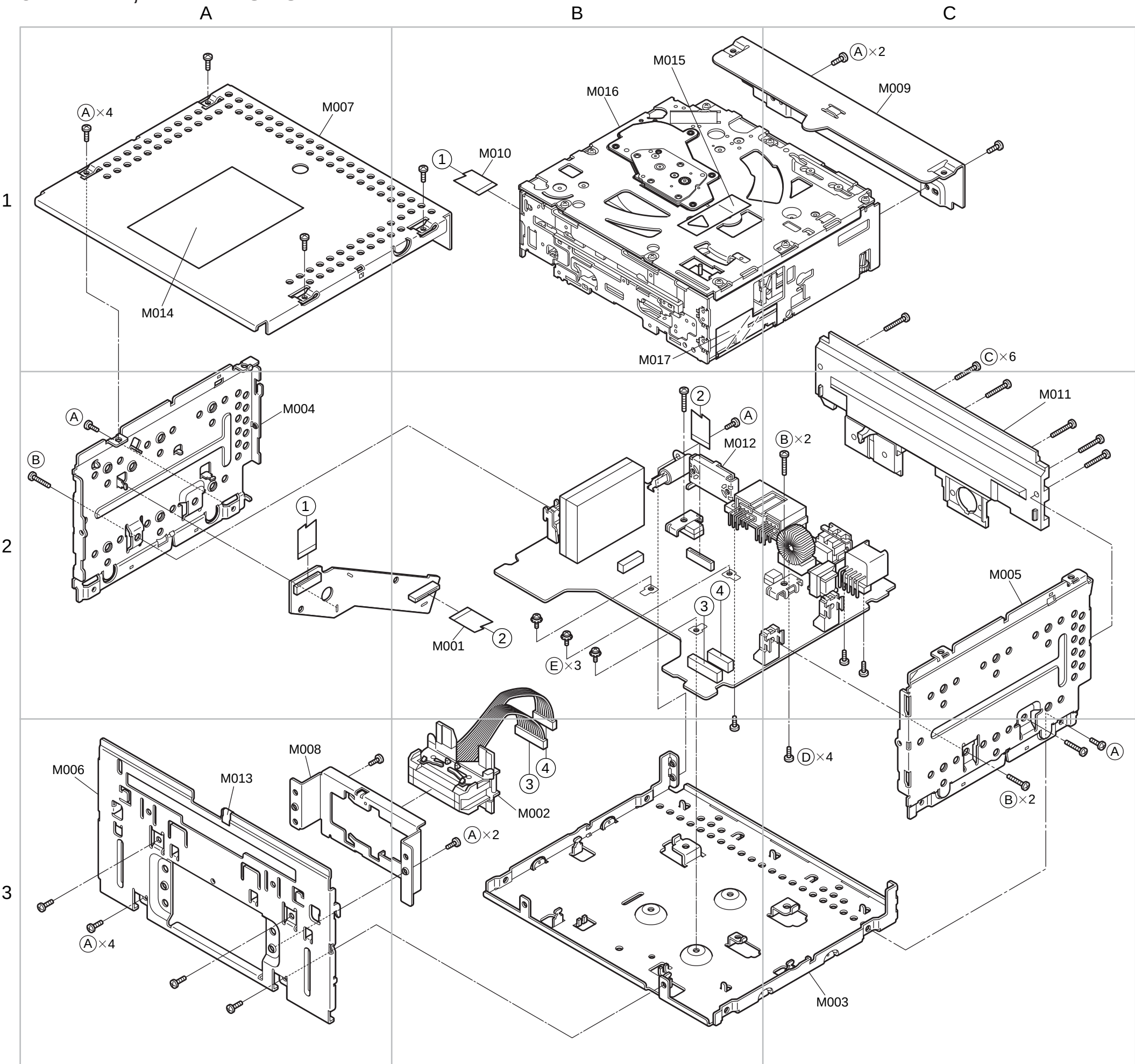


Fig.4

BLOCK DIAGRAM



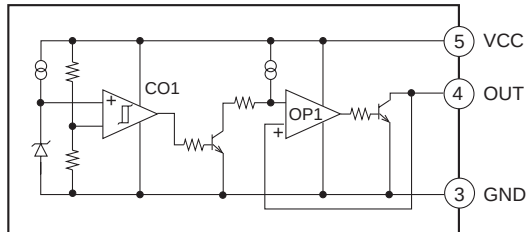
EXPLODED VIEW, AND PARTS LIST



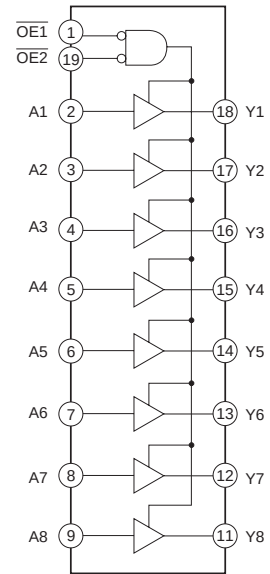
Ref.No.	Part No.	Description	Index
M001	246L341O5	FLAT-CABLE 18P	B-2
M002	246L43311	LEAD-CONNECTOR-22P	B-3
M003	560J30110	CHASSIS-B	C-3
M004	560J30310	CHASSIS-L	A-2
M005	560J30311	CHASSIS-R	C-2
M006	560J30210	CHASSIS-F	A-3
M007	591K38610	COVER	A-1
M008	591K50410	HOLDER-CON	A-3
M009	591K49410	BRACKET-CDX	C-1
M010	246L346O7	FLAT-CABLE 18P	B-1
M011	635J08310	HEAT-SINK	C-2
M012	592L966O2	HOLDER-IC	B-2
M013	643L015O3	SHEET	A-3
M014	943M179O5	NAME-CARD	A-1
M015	851L262O4	LABEL-CAUT	B-1
M016	941L73813	CDX2(533)	B-1
M017	643L13911	SHEET-M-BASE	B-1
A	653P11046	SCREW-S-PAN 3X6	-
B	653P11048	SCREW-S-PAN 3X10	-
C	653P11049	SCREW-S-PAN 3X12	-
D	669L057O1	SCREW-TAP 3X6	-
E	669L077O2	SCREW-TAP 3X6	-

IC EXPLANATION

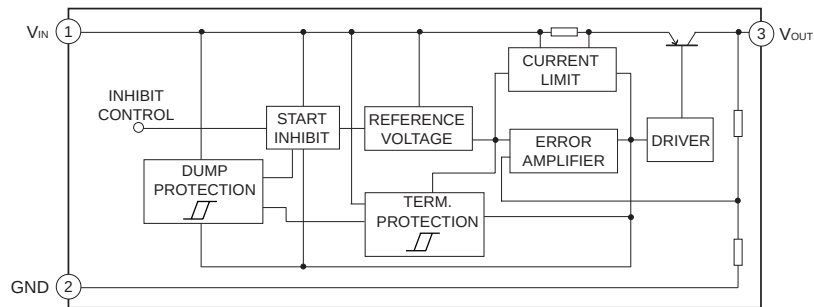
IC802 PST9136



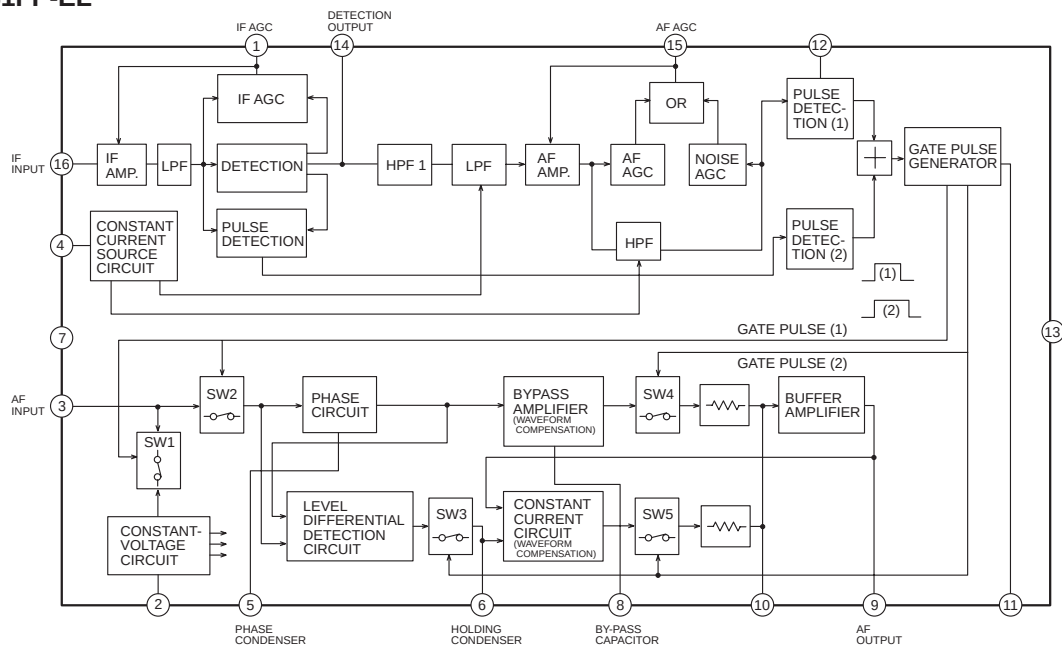
IC302 SN74LV541APW



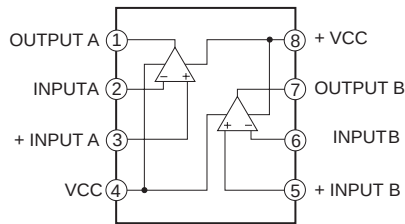
IC201,960,961 LF33ABPT



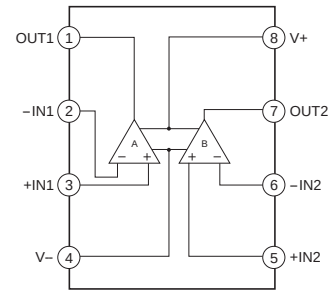
IC1 HA12181FP-EL



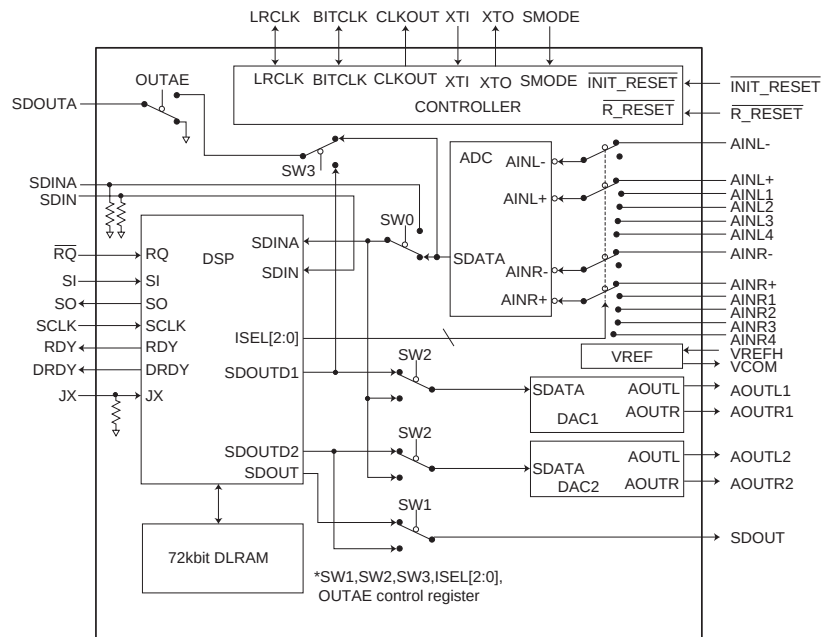
IC380 RC2100M/NJM2100M



IC321,390,421 NJM4565V-TE1

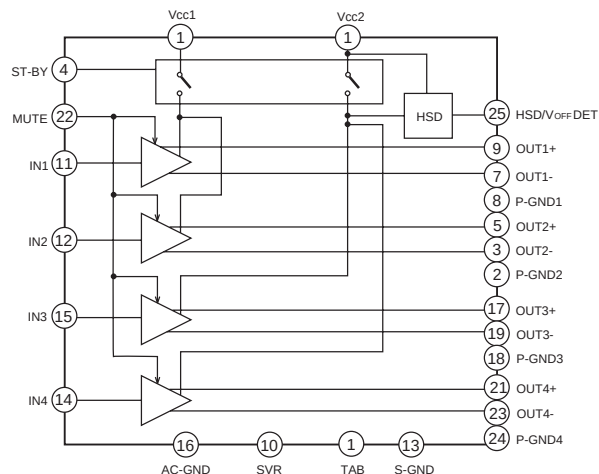


IC301 AK7740

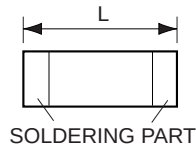


Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	AINL3	11	XTI	21	SDOUT	31	INIT_RESET	41	AVSS
2	AINR2	12	XTO	22	DRDY	32	DVDD	42	AINR-
3	AINL2	13	CLKO	23	DVSS	33	DVSS	43	AINR+
4	AINR1	14	JX	24	DVDD	34	BVSS	44	AINL-
5	AINL1	15	SMODE	25	RDY	35	AOUTR2	45	AINL+
6	VREFH	16	LRCLK	26	SO	36	AOUL2	46	AINR4
7	AVDD	17	BITCLK	27	SI	37	AOUL1	47	AINL4
8	AVSS	18	SDIN	28	SCLK	38	AOUL1	48	AINR3
9	DVSS	19	SDINA	29	RQ	39	AVDD		
10	DVDD	20	SDOUTA	30	S_RESET	40	VCOM		

IC330 TDA7560



ELECTRICAL PARTS LIST



< Chip Parts (Resistors & Capacitors) >

Part No.	L	Part No.	L
103L19xOx	2.0mm	141L06xOx	2.0mm
103L24xOx	3.2mm	141L16xOx	1.6mm
103L29xOx	1.6mm	141L18xOx	1.6mm
103P50xOx	1.6mm		

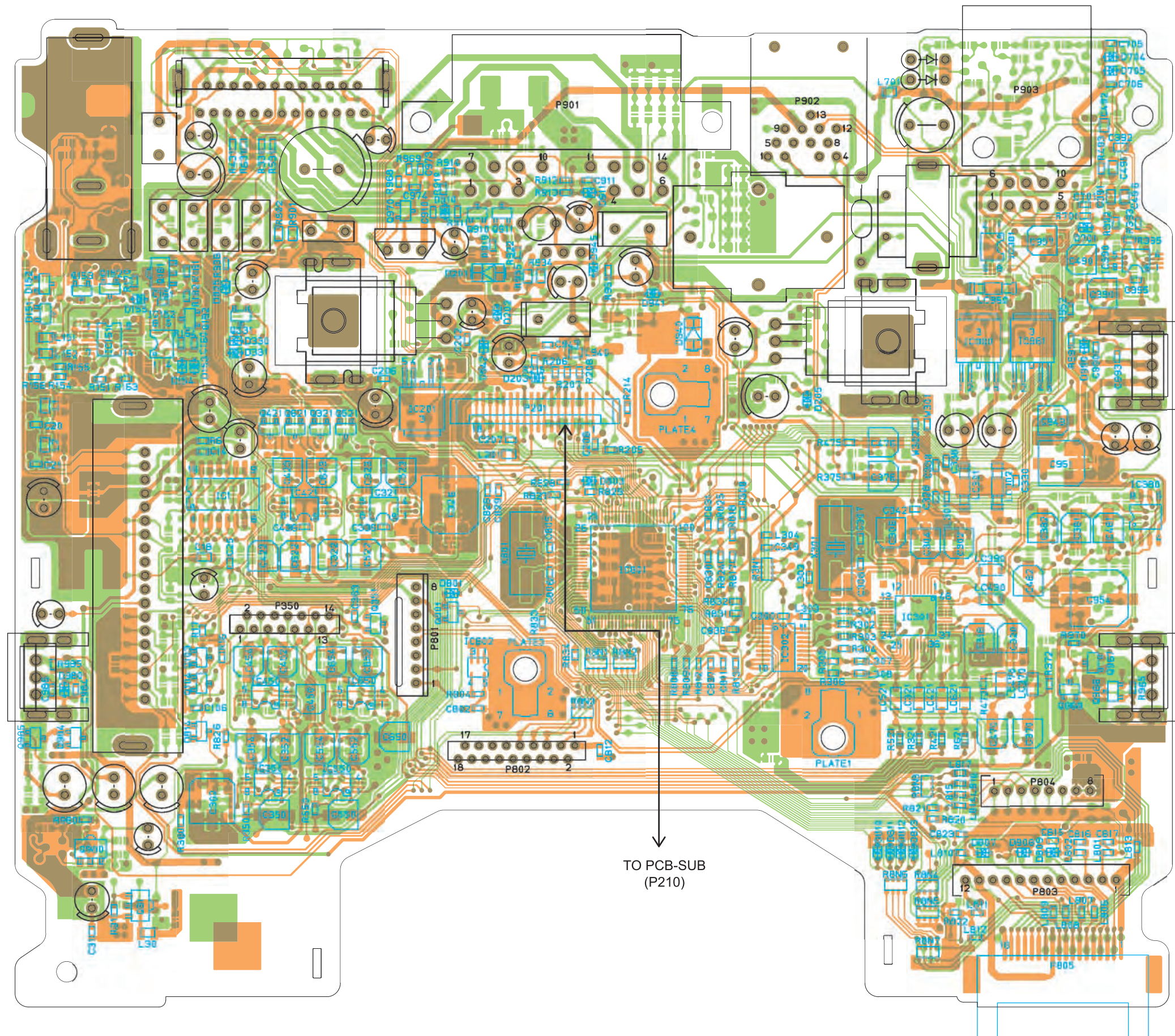
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CHIP PARTS (RESISTORS)					
	103L199O9	R-CHIP 0Ω	R8N1,8N2,8N8 R3N1 R8N4,8N7	103L295O3	R-CHIP 220kΩ
	103L299O9	R-CHIP 0Ω		103L295O6	R-CHIP 390kΩ
	103L249O9	R-CHIP 0Ω		109P01218	R-NETWORK-CHIP 1kΩ
	103L290O5	R-CHIP 22Ω		109P01219	R-NETWORK-CHIP 4.7kΩ
	103L290O9	R-CHIP 47Ω		109P01213	R-NETWORK-CHIP 10kΩ
	103L291O1	R-CHIP 68Ω	R8N5	109P01216	R-NETWORK-CHIP 47kΩ
	103L291O3	R-CHIP 100Ω	R8N6	109P01225	R-NETWORK-CHIP 100kΩ
	103L291O9	R-CHIP 330Ω	CHIP PARTS (CAPACITORS)		
	103L241O9	R-CHIP 330Ω		141L180O6	C-CERAMIC-CHIP 5pF
	103L292O1	R-CHIP 470Ω		141L181O3	C-CERAMIC-CHIP 12pF
	103L292O2	R-CHIP 560Ω		141L181O9	C-CERAMIC-CHIP 22pF
	103L292O5	R-CHIP 1kΩ		141L182O7	C-CERAMIC-CHIP 47pF
	103P502O5	R-CHIP 1kΩ		141L183O5	C-CERAMIC-CHIP 100pF
	103L292O6	R-CHIP 1.2kΩ		141L160O5	C-CERAMIC-CHIP 470pF
	103L292O7	R-CHIP 1.5kΩ		141L160O9	C-CERAMIC-CHIP 1000pF
	103L292O8	R-CHIP 1.8kΩ		141L185O9	C-CERAMIC-CHIP 1000pF
	103L292O9	R-CHIP 2.2kΩ		141L161O1	C-CERAMIC-CHIP 1500pF
	103L192O9	R-CHIP 2.2kΩ		141L161O3	C-CERAMIC-CHIP 2200pF
	103L293O0	R-CHIP 2.7kΩ		141L161O5	C-CERAMIC-CHIP 3300pF
	103L193O0	R-CHIP 2.7kΩ		141L161O7	C-CERAMIC-CHIP 4700pF
	103L293O1	R-CHIP 3.3kΩ		141L162O1	C-CERAMIC-CHIP 0.01μF
	103L193O1	R-CHIP 3.3kΩ		141L162O3	C-CERAMIC-CHIP 0.015μF
	103L193O2	R-CHIP 3.9kΩ		141L164O3	C-CERAMIC-CHIP 0.033μF
	103L293O2	R-CHIP 3.9kΩ		141L164O5	C-CERAMIC-CHIP 0.068μF
	103L293O3	R-CHIP 4.7kΩ		141L164O6	C-CERAMIC-CHIP 0.1μF
	103P503O3	R-CHIP 4.7kΩ		141L063O2	C-CERAMIC-CHIP 0.1μF
	103L293O4	R-CHIP 5.6kΩ		141L164O8	C-CERAMIC-CHIP 0.22μF
	103L293O5	R-CHIP 6.8kΩ		141L069O5	C-CERAMIC-CHIP 1μF
	103L293O6	R-CHIP 8.2kΩ	C951	181P73110	C-ELE-CHIP 100uF/10V
	103L293O7	R-CHIP 10kΩ	C326,954	181P73111	C-ELE-CHIP 220μF/10V
	103L293O8	R-CHIP 12kΩ	C302,304,etc.	181P73123	C-ELE-CHIP 10μF/16V
	103P503O8	R-CHIP 12kΩ	C322,323,etc.	181P73149	C-ELE-CHIP 4.7μF/35V
	103P503O9	R-CHIP 15kΩ	C370,390,etc.	181P73162	C-ELE-CHIP 2.2μF/50V
	103L293O9	R-CHIP 15kΩ	TRANSISTOR		
	103L294O0	R-CHIP 18kΩ			
	103L294O1	R-CHIP 22kΩ	Q927	260L020O9	TR 2SB1240Q
	103L294O3	R-CHIP 33kΩ	Q980	260P11410	TR 2SB1561Q
	103L294O5	R-CHIP 47kΩ	Q201,205,etc.	260P68210	TR 2SD2375OP
	103L294O7	R-CHIP 68kΩ	Q762,772,etc.	260M061O6	TR-CHIP 2SA1037AR
	103L294O9	R-CHIP 100kΩ	Q31	260P11710	TR-CHIP 2SA1364
	103P504O9	R-CHIP 100kΩ	Q1,2,etc.	260M061O5	TR-CHIP 2SC2412S
	103L295O1	R-CHIP 150kΩ	Q940	260P102O1	TR-CHIP 2SD2318
	103L295O2	R-CHIP 180kΩ	Q941	260P12510	TR-CHIP 2SD2537

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q750,760,770	260L01001	TR-CHIP 2SD601AS	IC330	266P62810	IC TDA7560
Q752	260L042O4	TR-CHIP DTA114T	IC801	262P51710	IC μ PD70F3035BYGC-8EU
Q333,942	260M061O1	TR-CHIP DTA124E	RESISTOR		
Q202,207,991	260L030O5	TR-CHIP DTA143E	RF901	103L390O2	R-FUSE
Q967	260L030O3	TR-CHIP DTA144E	COIL		
Q332	260L042O2	TR-CHIP DTA144T	L801~811,etc.	351P091O8	COIL-CHIP
Q944	260L057O1	TR-CHIP DTB123Y	L901	351P11310	COIL-CHOKE
Q928	260M061O9	TR-CHIP DTC114E	L902	351P048O1	COIL-CHOKE
Q801,943	260L042O7	TR-CHIP DTC114T	L1	351P082O6	COIL-CHOKE-CHIP
Q301~303	260L014O8	TR-CHIP DTC123E	L201	351P081O6	COIL-CHOKE-CHIP
Q3,103,etc.	260M061O2	TR-CHIP DTC124E	L3	351P083O6	COIL-CHOKE-CHIP
Q32,203,etc.	260L014O2	TR-CHIP DTC143E	L301,302,etc.	351P095O4	COIL-CHOKE-CHIP
Q802	260L030O2	TR-CHIP DTC144E	L940	351P082O0	COIL-CHOKE-CHIP
Q321,421,etc.	260L033O1	TR-CHIP DTC323T	CONNECTORS		
DIODE			P804	452L083O8	CONNECTOR 8P
D901,903	264L042O1	DIODE ERA15-02	P903	452P23210	CONNECTOR 10P
D201,940	264P607O1	DIODE-CHIP 1SR154-400	P803	452L094O2	CONNECTOR 12P
D203,204,etc.	264L060O1	DIODE-CHIP 1SS355	P901	452L34211	CONNECTOR 14P
D944	264P617O1	DIODE-CHIP MC2836-T50-1	P201,210	452P136O8	CONNECTOR 18P
D943	264P618O1	DIODE-CHIP MC2838-T50-1	P211	452L274O8	CONNECTOR 18P
D902	264P516O1	DIODE-CHIP S3D6600	P801	452L218O8	CONNECTOR
D205	264L067O3	DIODE-Z-CHIP MA8051M	ANT1	449L076O3	SOCKET-ANT
D941,990	264L067O2	DIODE-Z-CHIP MA8056H	P902	449L098O3	SOCKET-DIN
D202,802	264P584O1	DIODE-Z-CHIP MA8068M	OTHERS		
D807~813	264P584O5	DIODE-Z-CHIP MA8075H	X301	285P11422	CRYSTAL
D801,942	264P584O7	DIODE-Z-CHIP MA8082M	X801	285P093O1	CRYSTAL
D980	264P584O9	DIODE-Z-CHIP MA8091L	H-TR-1,4	593L34010	HOLDER TR
D910,911	264P585O6	DIODE-Z-CHIP MA8110M	H-TR-2,3,5	593L29210	HOLDER-TR
D375,475.etc.	264P588O6	DIODE-Z-CHIP MA8270M	LC301,302	409P047O1	LC-MULTIPLE-CHIP
IC			LC321,370,etc.	409P023O1	LC-MULTIPLE-CHIP
IC301	263P22010	IC AK7740	F925	299P128O3	PROTECTOR
IC1	266L067O1	IC HA12181FP-EL	Z2,701	299P136O2	PROTECTOR
IC201,960,961	266P61410	IC LF33ABPT	PLATE1,3,4	443P01012	TERMINAL
IC321,390,421	266L065O9	IC NJM4565V-TE1	FE1	295P21613	TUNER
IC802	266L064O5	IC PST9136			
IC380	266L034O9	IC RC2100M/NJM2100M			
IC302	263P99010	IC SN74LV541APW			

Parts Layout on Printed Circuit Board

MODEL : DY-3A66U-AL (PARTS SIDE)

PCB-MAIN

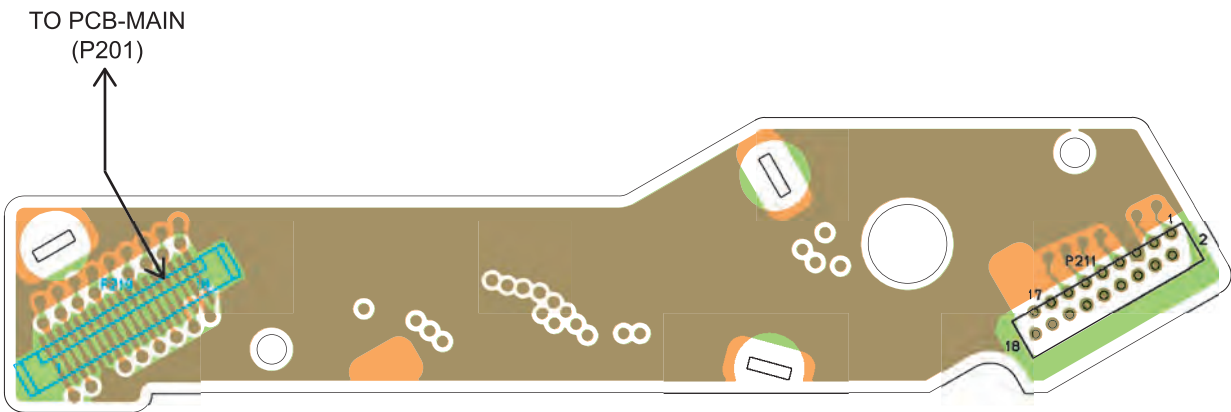


PCB-MAIN

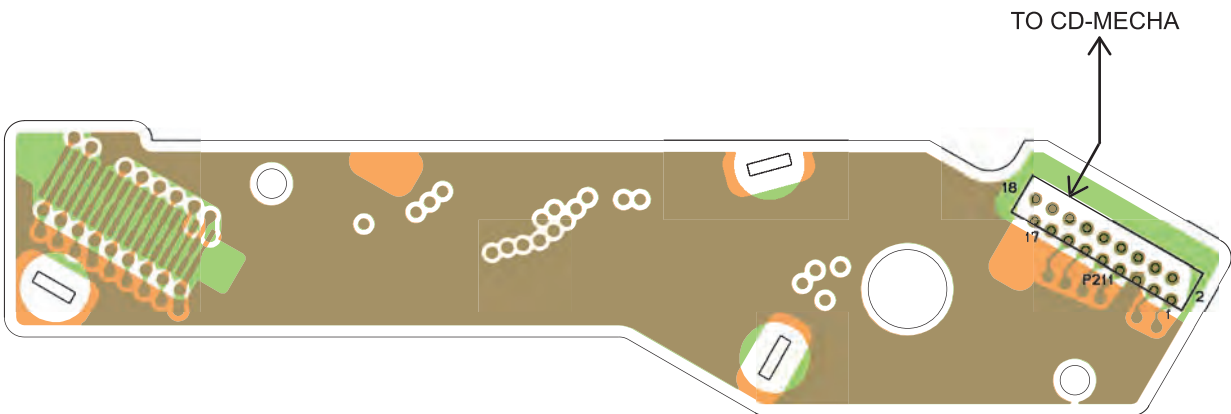
Parts Layout on Printed Circuit Board

Model : DY-3A66U-AL

PCB-SUB



(PARTS SIDE)

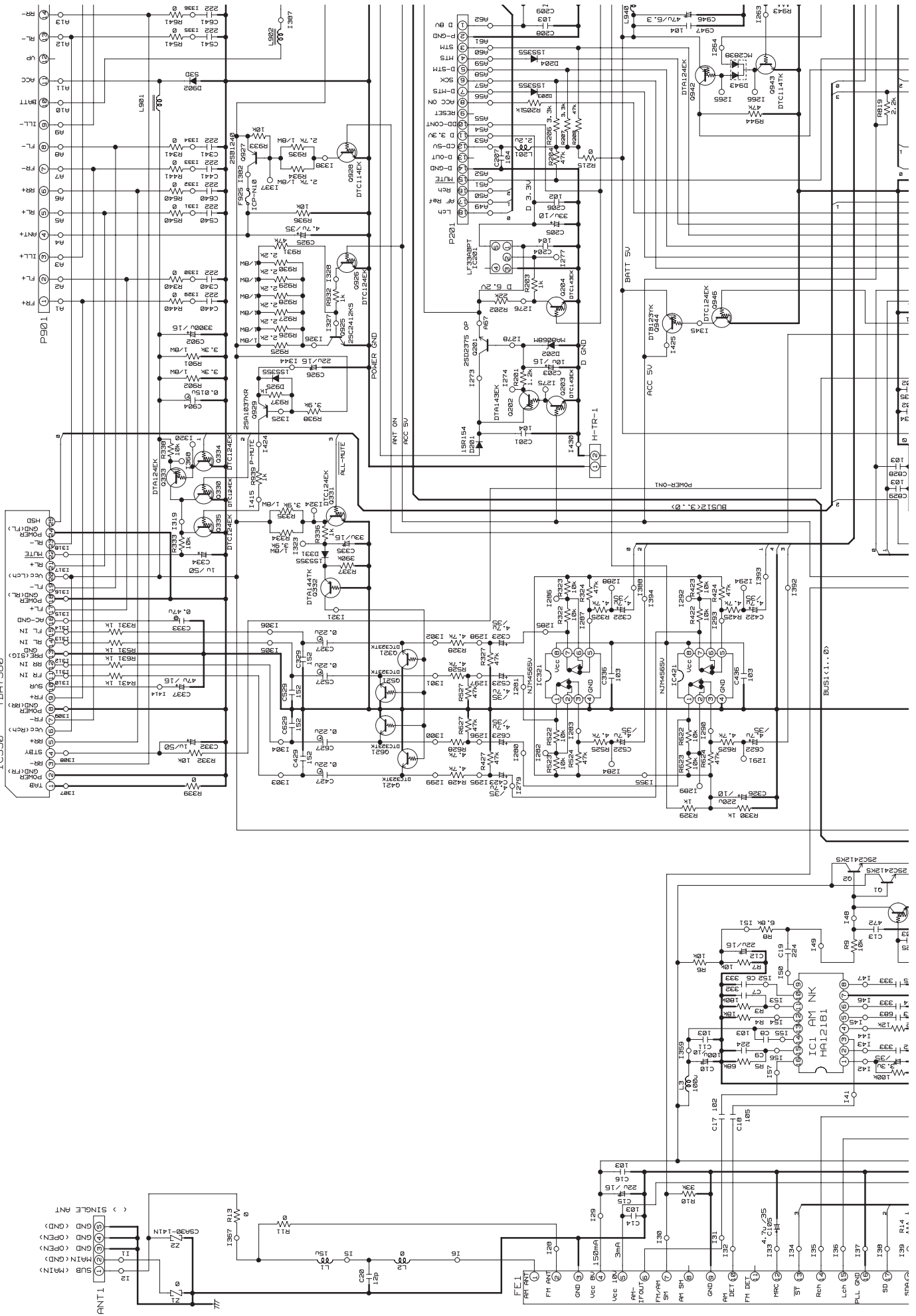


(PATTERN SIDE)

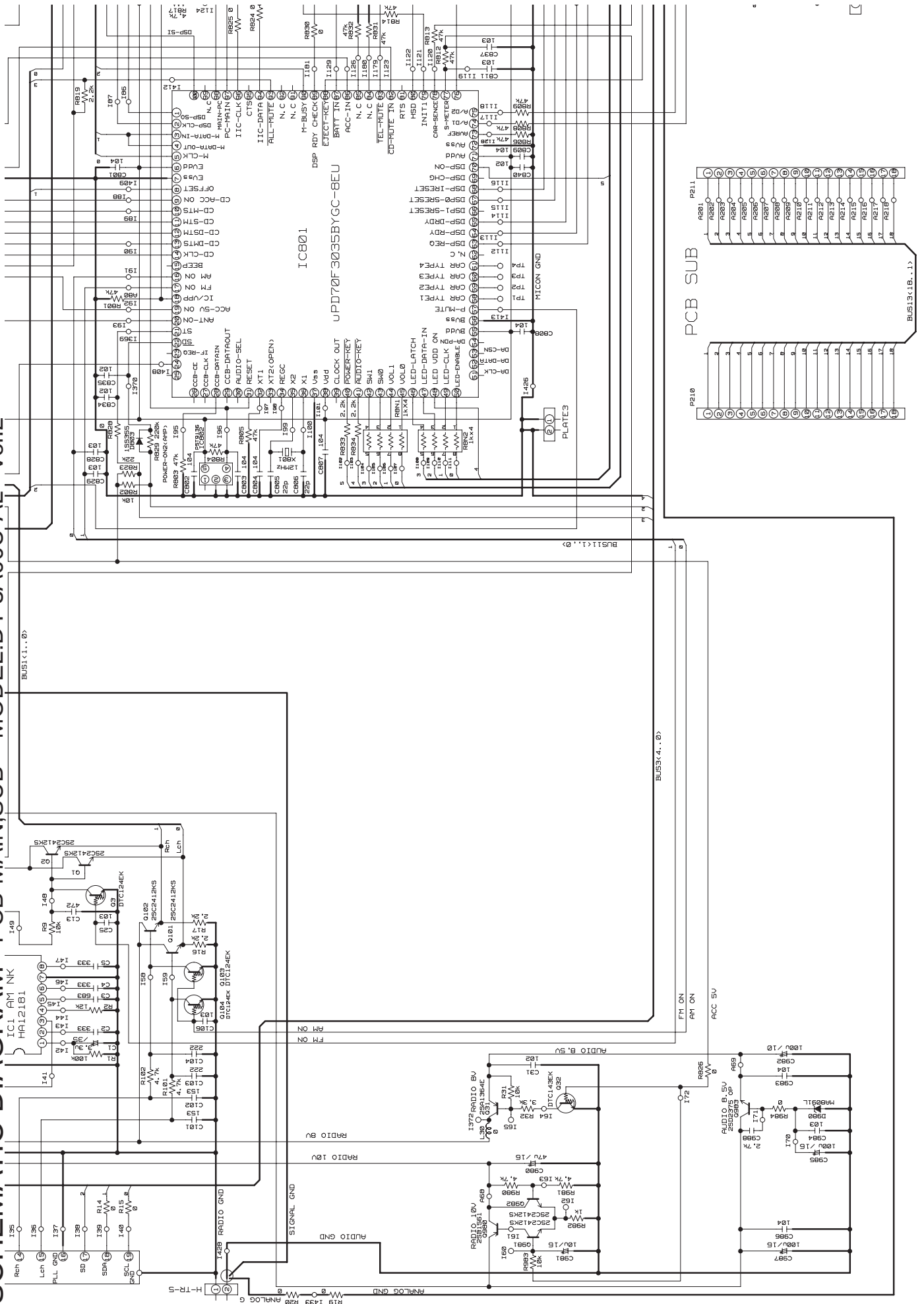
Model: DY-3A66U-AL PCB-MAIN,SUB



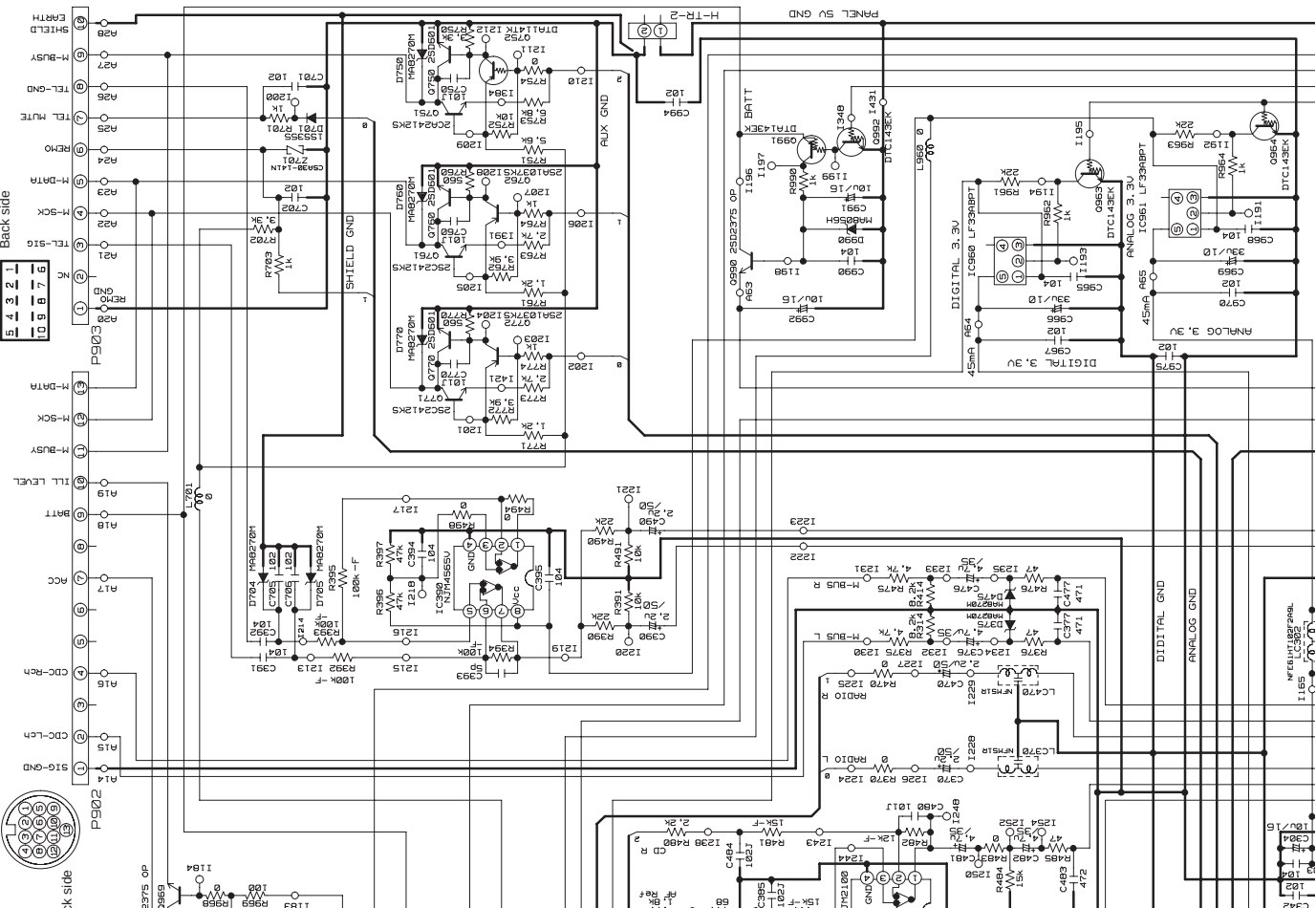
SCHEMATIC DIAGRAM PCB-MAIN,SUB MODEL:DY-3A66U-AL Vol.1



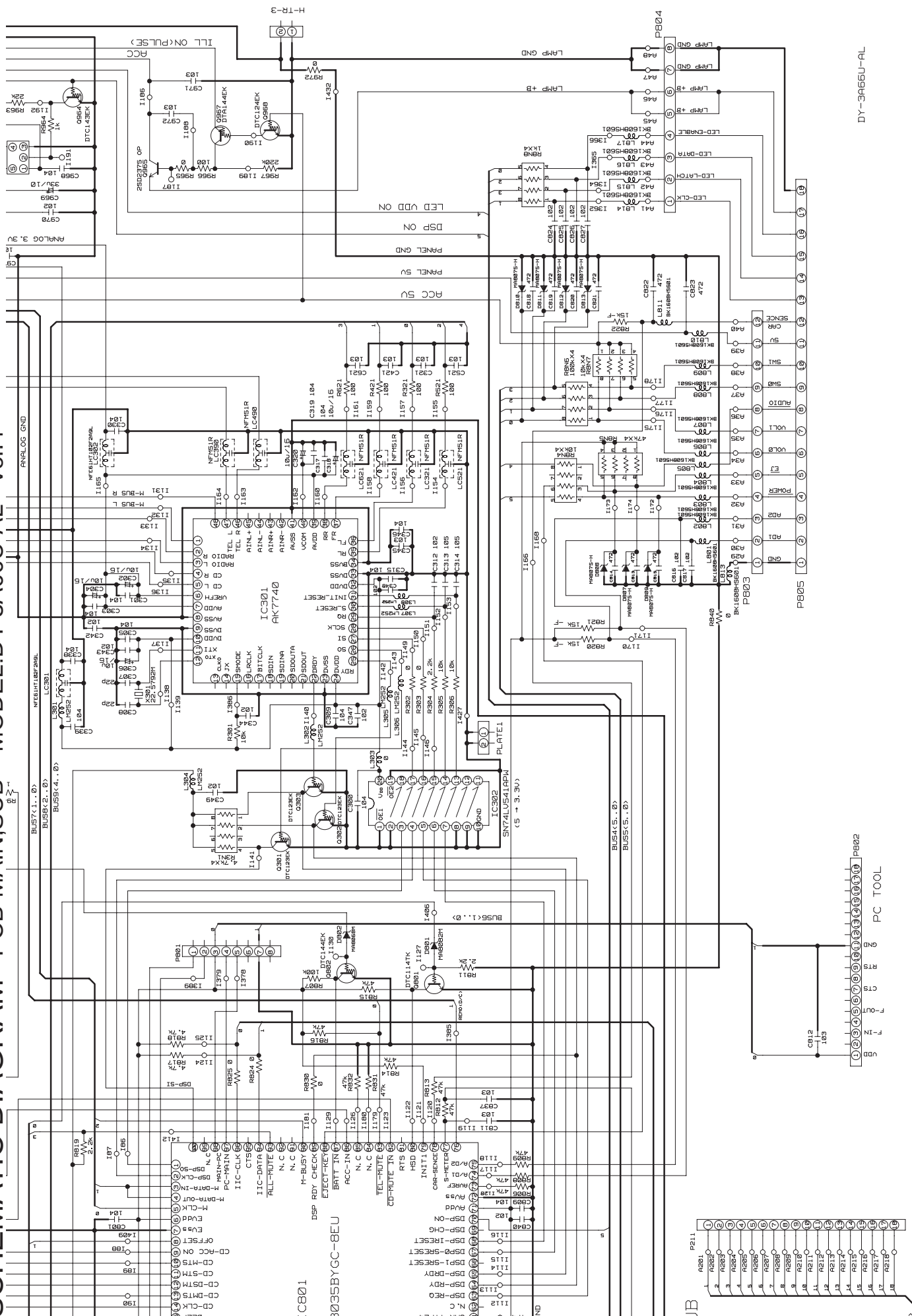
SCHEMATIC DIAGRAM PCB-MAIN,SUB MODEL:DY-3A66U-AL Vol.2



RR+ RL+ ANT+ ILL+ FL+ FR+
 6 5 4 3 2 1
 14 13 12 11 10 9 8 7
 RR- RL- UP ACC BATT ILL- FL- FR-



SCHEMATIC DIAGRAM



VOLTAGE

Model : DY-3A66U-AL

1. μ -COM

IC801 PCB-MAIN

AM 1000kHz 74dB μ V, FM 98.1MHz 68dB μ V

BATT,ACC 13.2V

Pin No.	Pin Name	Function	I/O	ACT	Voltage [V]			Remark
					AM	FM	CD	
1	DISP-SO	Serial data output to DSP	O	L	0	0	0	
2	DSP-CLK	Serial clock output to DSP	O	L	0	0	0	
3	M-DATA-IN	M-BUS serial data input	I	L	5	5	5	
4	M-DATA-OUT	M-BUS serial data output	O	L	5	5	5	
5	M-CLK	M-BUS clock output	I/O	L	5	5	5	
6	Evdd	VDD5V	-	-	5	5	5	
7	Evss	GND	-	-	0	0	0	
8	OFFSET	Offset detection mode change output	O	H	0	0	0	
9	CD-ACC ON	CDX2 ACCON output	O	H	0	0	0	
10	CD-MTS	communication request output to CDX2	O	L	5	5	5	
11	CD-STM	communication request input from CDX2	I	L	5	5	5	
12	CD-DSTM	Serial data input from CDX2	I	L	5	5	5	
13	CD-DMTS	Serial data output to CDX2	O	L	0	0	0	
14	CD-CLK	Serial clock input from CDX2	I	L	5	5	5	
15	N.C.	Not used	O	L	-	-	-	
16	AM-ON	AM power supply output	O	H	5	0	0	
17	FM-ON	FM power supply output	O	H	0	5	0	
18	IC/VPP	GND	-	-	0	0	0	
19	ACC-5V ON	ACC 5V output	O	H	5	5	5	
20	ANT-ON	ANT +B output	O	H	5	5	5	
21	ST	Stereo input	I	L	5	5	5	
22	SD	Stop level input	I	L	5	5	5	
23	IF-REQ	IF output request	O	H	5	5	5	
24	POWER-ON1	Power ON	O	H	5	5	5	
25	POWER-ON2	Power ON	O	H	5	5	5	
26	N.C.	Not used	O	L	-	-	-	
27	N.C.	Not used	O	L	-	-	-	
28	N.C.	Not used	I	L	0	0	0	
29	N.C.	Not used	O	L	-	-	-	
30	N.C.	Not used	O	L	-	-	-	
31	RESET	System reset input	-	-	5	5	5	
32	XT1	Sub clock (Not used)	-	-	0	0	0	
33	XT2	Sub clock (Not used)	-	-	-	-	-	
34	REGC	Regulator output smoothly capacitor	-	-	3	3	3	
35	X2	Main clock - 12MHz	-	-	-	-	-	*1
36	X1	Main clock - 12MHz	-	-	-	-	-	*1
37	Vss	GND	-	-	0	0	0	
38	Vdd	VDD 5V	-	-	5	5	5	
39	CLOCKOUT	Clock output (Not used)	O	-	-	-	-	
40	POWER-KEY	Power-KEY input	I	L	5	5	5	
41	AUDIO-KEY	Audio-KEY input	I	L	5	5	5	
42	SW1	Encoder KEY2 input	I	-	5/0	5/0	5/0	*2
43	SW2	Encoder KEY1 input	I	-	5/0	5/0	5/0	*2
44	VOL1	VOL pulse signal1 input	I	-	5/0	5/0	5/0	*2
45	VOL2	VOL pulse signal2 input	I	-	5/0	5/0	5/0	*2
46	LED-LATCH	LED driver-IC communication latch output	O	H	0	0	0	
47	LED-DATA-IN	LED driver-IC communication serial data output	O	L	0	0	0	
48	LED VDD ON	Panel ON output	O	L	5	5	5	
49	LED-CLK	LED driver-IC communication serial clock output	O	L	0	0	0	
50	LED-ENABLE	LED driver-IC movement request output	O	L	0	0	0	

Note:

*1 : The port is oscillation port. Do not touch it.

*2 : The value is alternated by volume control knob.

*3 : Using PS24 panel

Pin No.	Pin Name	Function	I/O	ACT	Voltage [V]			Remark
					AM	FM	CD	
51	N.C.	Not used	O	L	-	-	-	
52	N.C.	Not used	O	L	-	-	-	
53	N.C.	Not used	O	L	-	-	-	
54	N.C.	Not used	O	L	-	-	-	
55	BVdd	VDD 5V	-	-	5	5	5	
56	BVss	GND	-	-	0	0	0	
57	P-MUTE	Power IC mute control output	O	H	5	5	5	
58	CAR-TYPE1	Switching car type check terminal	I	L	0	0	0	
59	CAR-TYPE2	Switching car type check terminal	I	L	0	0	0	
60	CAR-TYPE3	Switching car type check terminal	I	L	0	0	0	
61	CAR-TYPE4	Switching car type check terminal	I	L	0	0	0	
62	N.C.	Not used	O	L	-	-	-	
63	DSP-REQ	Communication request output to DSP	O	H	5	5	5	
64	DSP-RDY	Communication possibility input from DSP	I	H	0	0	0	
65	DSP-DRDY	Communication possibility input from DSP	I	H	5	5	5	
66	N.C.	Not used	O	L	-	-	-	
67	DSPO-SRESET	DSPO system reset output	O	L	5	5	5	
68	DSP-IRESET	DSPO, DSPI initial reset output	O	L	5	5	5	
69	N.C.	Not used	O	L	-	-	-	
70	DSP-ON	DSP-IC power control output	O	H	5	5	5	
71	Avdd	A/D converter analog power supply	-	-	5	5	5	
72	Avss	A/D converter ground power supply	-	-	0	0	0	
73	AVREF	VDD 5V	-	-	5	5	5	
74	A/D KEY1	A/D key1 input	I	-	5	5	5	
75	A/D KEY2	A/D key2 input	I	-	5	5	5	
76	REMO(D/C)	Remote controller code input	I	-	5	5	5	
77	S-METER	Electric field level input	I	-	3.6	4.3	0	
78	CAR-SENCE	Car type change input	I	-	2.5	2.5	2.5	*3
79	INIT1	Initialization change input	I	-	5	5	5	
80	HSD	Offset detection input	I	L	0	0	0	
81	RTS	PC communication request input	I	L	0	0	0	
82	CD-MUTEIN	CDX2 mute input	I	L	0	0	0	
83	TEL-MUTE	Telephone mute input	I	H	5	5	5	
84	N.C.	Not used	O	L	-	-	-	
85	N.C.	Not used	O	L	-	-	-	
86	ACC-IN	ACC detection input	I	H	5	5	5	
87	BATT-IN	BATT detection input	I	L	0	0	0	
88	EJECT-KEY	Eject key input	I	L	5	5	5	
89	DSP RDY CHECK	DSP rdy terminal check input	I	L	5	5	5	
90	M-BUSY	M-BUS busy output	I/O	L	5	5	5	
91	N.C.	Not used	O	L	-	-	-	
92	N.C.	Not used	O	L	-	-	-	
93	ALL-MUTE	All mute output	O	L	5	5	5	
94	IIC-DATA	IIC-data output (TUNER, EEPROM)	O	L	5	5	5	
95	CTS	PC communication request output	O	L	0	0	0	
96	IIC-CLK	IIC clock output (TUNER, EEPROM)	O	L	5	5	5	
97	PC-MAIN	PC communication serial data input	I	L	0	0	0	
98	MAIN-PC	PC communication serial data output	O	L	0	0	0	
99	N.C.	Not used	O	L	-	-	-	
100	DSP-SI	DSP serial data input	I	L	0	0	0	

2. ELECTRIC VOL IC IC301 PCB-MAIN

FM 98.1MHz, VOL MIN
BATT, ACC 13.2V

Pin No.	Pin Name	Voltage [V]			Remark
		AM	FM	CD	
1	AINL3	1.5	1.5	1.5	
2	AINR2	1.5	1.5	1.5	
3	AINL2	1.5	1.5	1.5	
4	AINR1	1.5	1.5	1.5	
5	AINL1	1.5	1.5	1.5	
6	VREFH	3.3	3.3	3.3	
7	AVDD	3.3	3.3	3.3	
8	AVSS	0	0	0	
9	DVSS	0	0	0	
10	DVDD	3.3	3.3	3.3	
11	XTI	-	-	-	*1
12	XTO	-	-	-	*1
13	CLKO	0	0	0	
14	JX	3.3	3.3	3.3	
15	SMODE	3.3	3.3	3.3	
16	LRCLK	-	-	-	
17	BITCLK	-	-	-	
18	SDIN	-	-	-	
19	SDINA	-	-	-	
20	SDOUTA	-	-	-	
21	SDOUT	-	-	-	
22	DRDY	3.3/0	3.3/0	3.3/0	
23	DVSS	0	0	0	
24	DVDD	3.3	3.3	3.3	
25	RDY	3.3	3.3	3.3	
26	SO	3.3	3.3	3.3	
27	SI	3.3/0	3.3/0	3.3/0	
28	SCLK	3.3	3.3	3.3	
29	RQ	3.3/0	3.3/0	3.3/0	
30	S RESET	3.3	3.3	3.3	
31	INIT RESET	3.3	3.3	3.3	
32	DVDD	3.3	3.3	3.3	
33	DVSS	0	0	0	
34	BVSS	0	0	0	
35	AOUTR2	1.5	1.5	1.5	
36	AOUTL2	1.5	1.5	1.5	
37	AOUTR1	1.5	1.5	1.5	
38	AOUTL1	1.5	1.5	1.5	
39	AVDD	3.3	3.3	3.3	
40	VCOM	1.7	1.7	1.7	
41	AVSS	0	0	0	
42	AINR-	-	-	-	
43	AINR+	-	-	-	
44	AINL-	-	-	-	
45	AINL+	-	-	-	
46	AINR4	1.5	1.5	1.5	
47	AINL4	1.5	1.5	1.5	
48	AINR3	1.5	1.5	1.5	

Note:

*1 : The port is oscillation port. Do not touch it.

3. POWER IC IC330 PCB-AF

FM 98.1MHz, VOL MIN
BATT, ACC 13.2V

Pin No.	Pin Name	Voltage [V]
1	TAB	0
2	POWER-GND(FR)	0
3	RR-	6.3
4	STBY	5.2
5	RR+	6.3
6	VCC(Rch)	13.2
7	FR-	6.3
8	POWER GND(RR)	0
9	FR+	6.3
10	SVR	6.2
11	FR IN	6.2
12	RR IN	6.2
13	PRE(SIG) GND	0
14	RL IN	6.2
15	FL IN	6.2
16	AC-GND	0
17	FL+	6.2
18	POWER GND(RL)	0
19	FL-	6.2
20	VCC(Lch)	13.2
21	RL+	6.2
22	MUTE	4.3
23	RL-	6.2
24	POWER GND(FL)	0.0
25	HSD	13.2

4. POWER SOURCE

BATT, ACC 13.2V

(E): Emitter, (C): Collector

Unit: V

BATT 5V	
Q940 (E)	5.3
Q941(E)	5.3

ACC 5V	
Q944 (C)	5.2

RADIO 10V	
Q980 (C)	10.5

RADIO 8V	
Q31 (C)	8.3

AUDIO 8.5V	
Q983 (E)	8.4

BATT 6.2V	
Q201 (E)	6.4

BATT 3.3V	
IC201 (5)	3.3

MECHA 8V	
Q205 (E)	7.6

PANEL 5V	
Q990 (E)	5.6

DSP 3.3V	
IC960 (5)	3.3
IC961(5)	3.3

ILL ON	
Q965 (E)	10

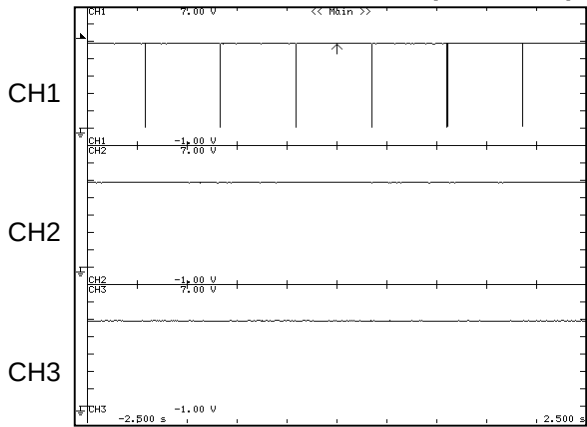
WAVEFORM

Model: DY-3A66U-AL

(1) M-Bus Communication Waveform

P902		
	Pin No.	Pin Name
CH1	11	M-BUSY
CH2	12	M-SCK
CH3	13	M-DATA

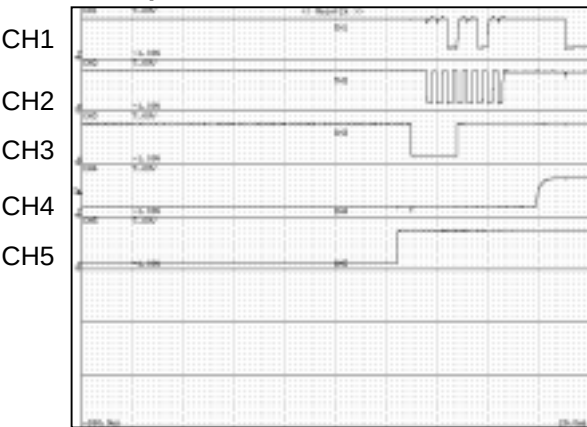
* No connection with M-Bus units (500ms/div)



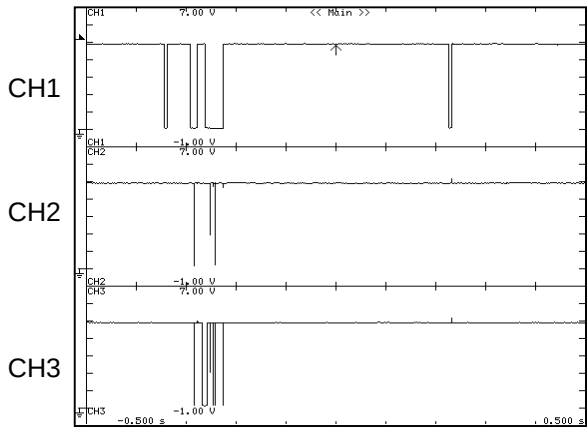
(2) CD Communication Waveform

P201		
	Pin No.	Pin Name
CH1	12	D-MTS
CH2	13	SCK
CH3	14	D-STM
CH4	15	MTS
CH5	16	STM

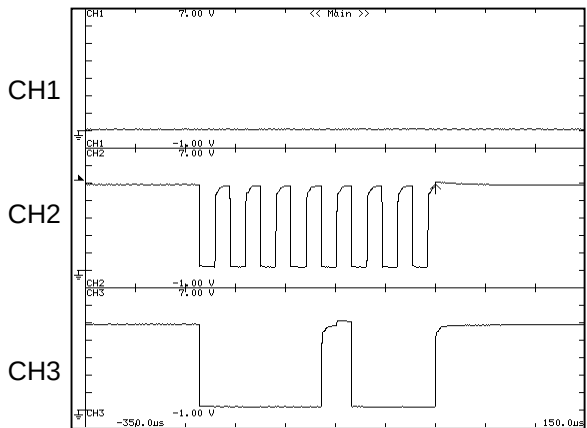
* 20μs/div



* Connection with M-Bus units (100ms/div)



* Connection with M-Bus units (50μs/div)



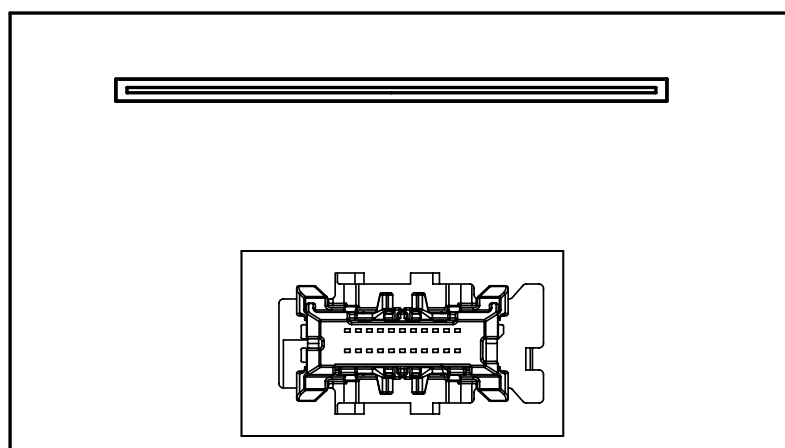
MITSUBISHI MOTORS

SERVICE MANUAL

AM/FM-ST ELECTRONIC TUNING RADIO with CD CHANGER

Model : **DY-3A66U-AL-2-T**

PART No. MN141332



CONTENTS

- | | | | |
|--------------------------------------|-------|---|-------|
| ● FEATURES and SPECIFICATIONS | 2 | ● ELECTRICAL PARTS LIST | 12,13 |
| ● OPERATION | 3 | ● PARTS LAYOUT ON PRINTED CIRCUIT BOARD | |
| ● SYSTEM CONFIGURATION | 4 | PCB-MAIN | 14,15 |
| ● CONNECTORS | 4,5 | ● SCHEMATIC DIAGRAM | |
| ● DISASSEMBLING PROCEDURES | 6,7 | PCB-MAIN | 16~20 |
| ● BLOCK DIAGRAM | 8 | ● VOLTAGE | 21,22 |
| ● EXPLODED VIEW and PARTS LIST | 9 | ● WAVEFORM | 23 |
| ● IC EXPLANATION | 10,11 | | |

MITSUBISHI ELECTRIC CORP. SANDA WORKS

FEATURES and SPECIFICATIONS

FEATURES

Radio

- AM can preset the 6 stations and FM (FM1/FM2) can pre-set the 12 stations.
- It is able to memory by keep pushing the preset memory button.
- TUNE control by Rotary SW.
- ATC function to control BASS/TREBLE sound quality according to electric field strength when AM is received.
- AM noise killer function.
- SCAN function : Seeking receivable stations and receiving 5 seconds in each station.

CD Player

- In-dash CD auto changer (6disc) function.
- Power Loading / Power Eject function.
- Equipped with the shock proof memory. (16M-DRAM)(CD-DA:10.4sec)
- Skip recovered function. (Recovered the condition before skip.)
- Protected function of laser pickup stopping at high temperature.
- Quick track selection function.
- Any time Eject function. (Eject at the all mode included ACC OFF.)
- Scan function : 10sec
- Reload function.
- Available for loading 12cm disc only.
- MP3 play function. (MPEG1 AUDIO LAYER3, MPEG2 AUDIO LAYER3)
- Repeat function. (One tune)
- Random play function.
- Fast-forwarding and fast-reversing function.

MP3

- Folder Up/Down function by TUNE knob.

Audio Part

- High power, 4 channel output. (4Ω load)
- Adjustment of BASS, TREBLE, BALANCE and FADER by Rotary SW.
- ITM (Independent Tone Memory) function to memorize amount of BASS/TREBLE adjustment according to mode.
- Fixed EQ matched to car room sound filed characteristic.
- Auto loudness function varies a frequency characteristic by volume.
- The function that controls the amount of change in the low / high frequency tone (BASS / TREBLE) adjustment with the maximum volume.

Others

- M-BUS is used the method of communication with CD changer.
- The beep sounds, to check an operation, by using a button with hold-pushing operation function.
- Rheostat function. (The intensity of buttons, panel and LCD

can adjust to link with the intensity of vehicle's instrument panel lighting.)

- The connection of speaker wiring can check by test mode of the beep in the vehicle's assembly line.
- Steering Remote control.
- Hands free function.
- VES (Video Entertainment System) function.

SPECIFICATIONS

AM Radio

- Frequency Range : 531 ~ 1710kHz (9kHz step)
- Sensitivity : Less than 28dB
- Signal/Noise Ratio : More than 45dB (60dBμV)

FM Stereo Radio

- Frequency Range : 87.5 ~ 108.0MHz (100kHz step)
- Limiting Sensitivity : Less than 10dB
- Signal/Noise Ratio : More than 55dB (40dBμV)

CD Player

- Laser : Semiconductor Laser
- DA Convertor : 1bit
- Dynamic Range : More than 65dB
- Signal/Noise Ratio : More than 65dB
- Channel Separation : More than 50dB (1kHz)

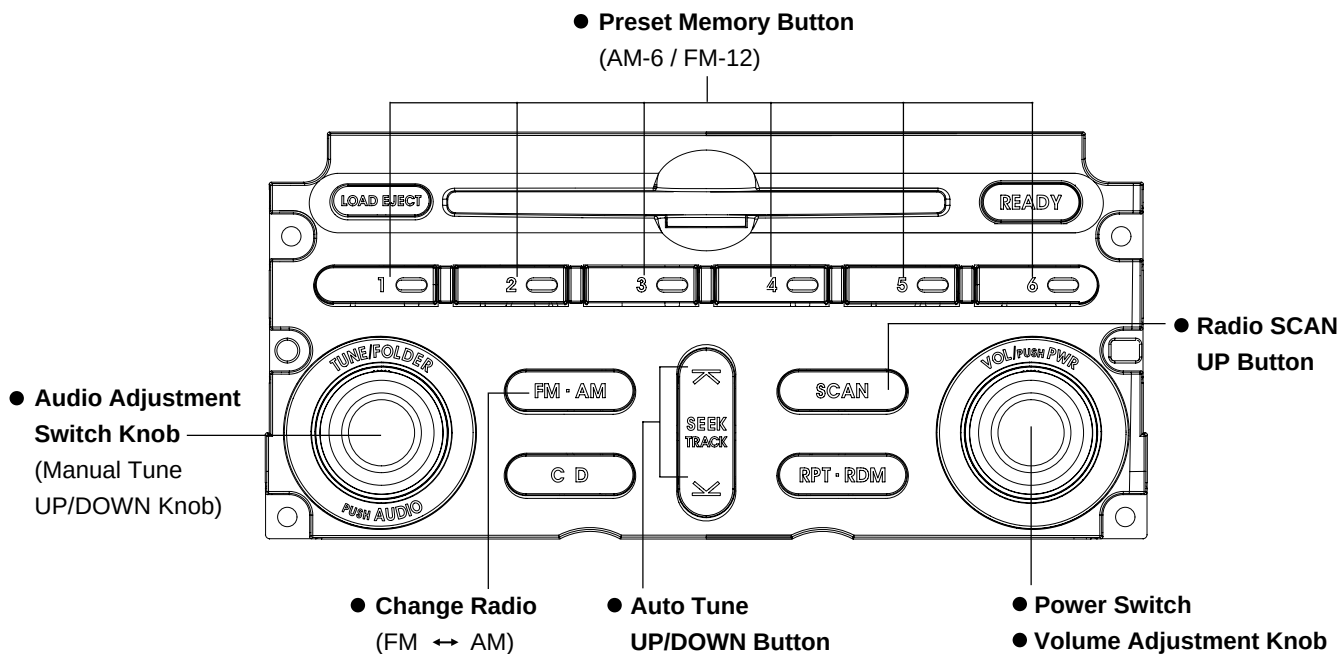
Others

- Power Supply : DC 13.2V (11~16V)
Test Voltage 13.2V
Negative ground
- Battery Back Up Current : Less than 1.0mA
- Current Consumption : ACC 2.1A ± 20% (Output 1W)
- Maximum Power Output : 45W x 4 (SP output)
- Output Impedance : 4Ω (SP Output)
- Dimensions : 178mm x 151.3mm x 100mm
(W x D x H)
- Weight : 2.0kg

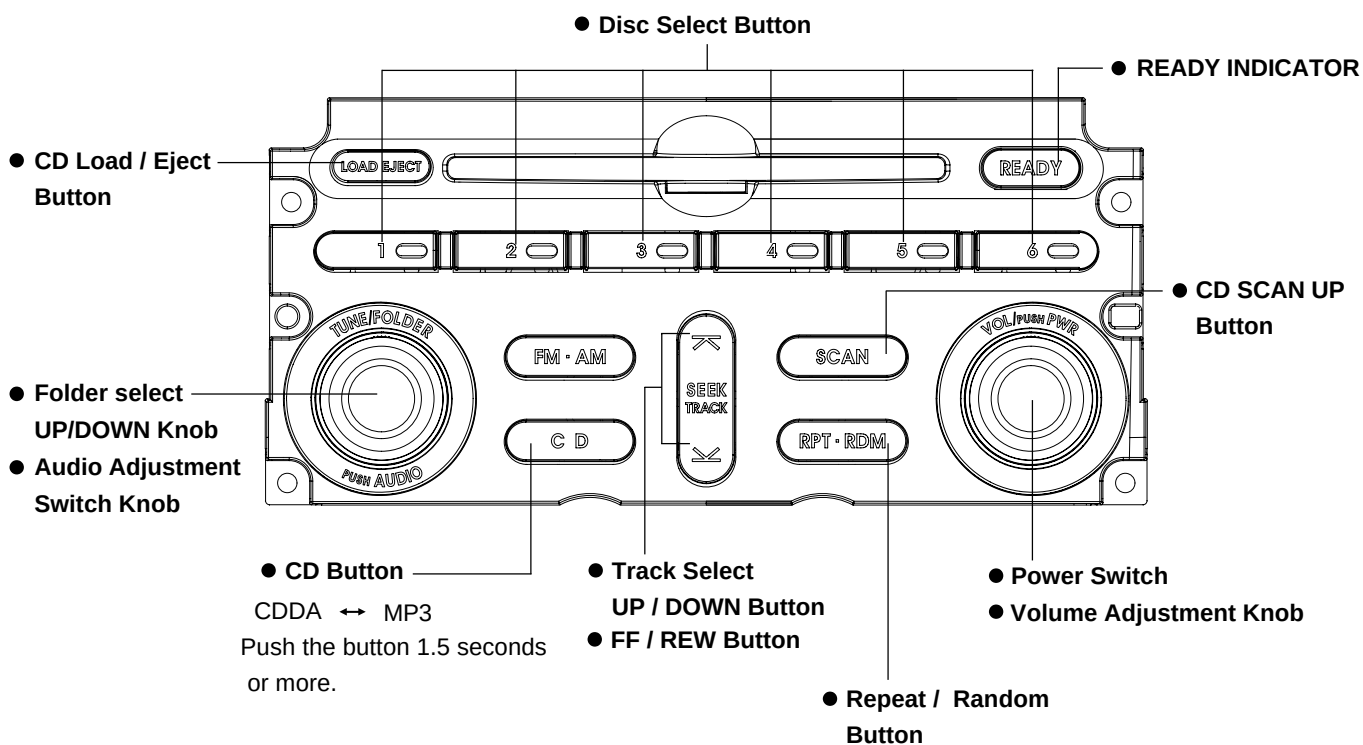
OPERATION

<< UNIQUE PANEL : SW-744, SW-745 >>

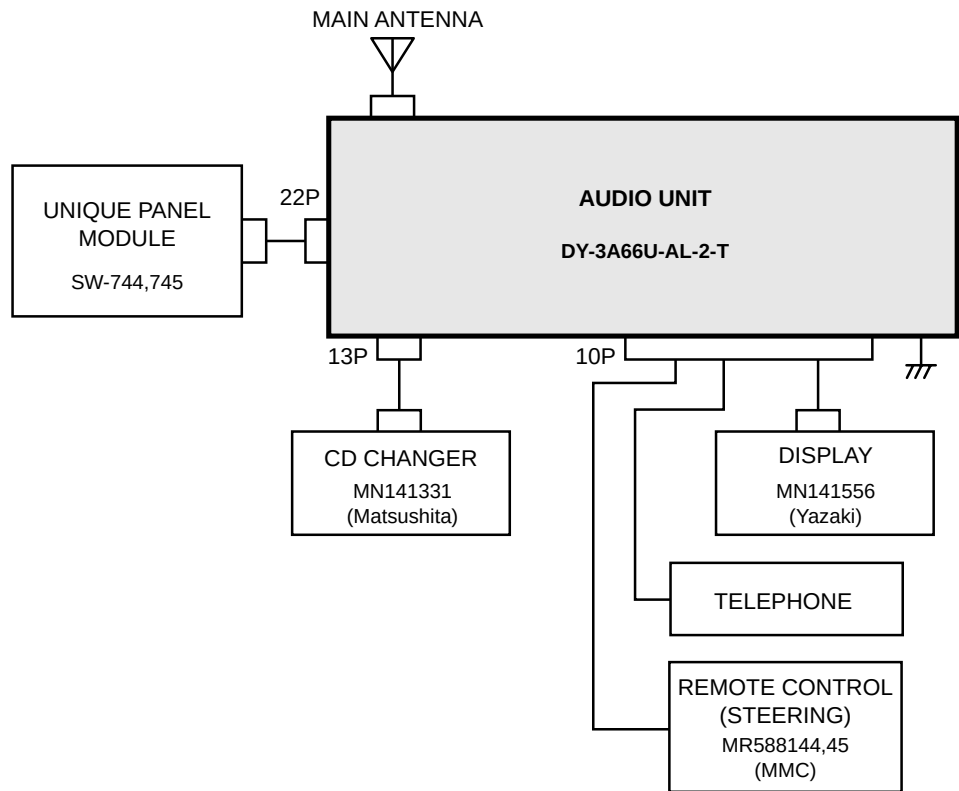
RADIO & AUDIO PART



CD CHANGER PART

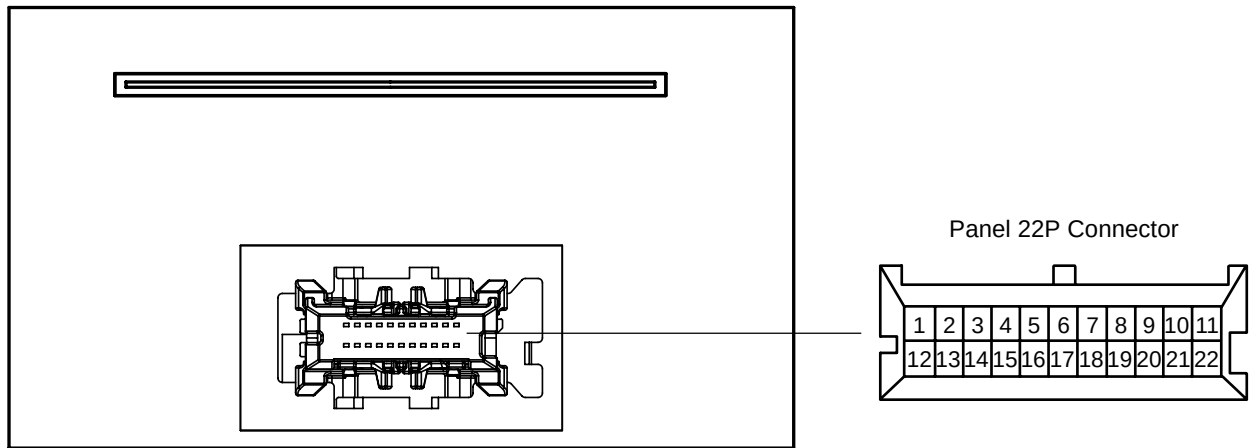


SYSTEM CONFIGURATION



CONNECTORS

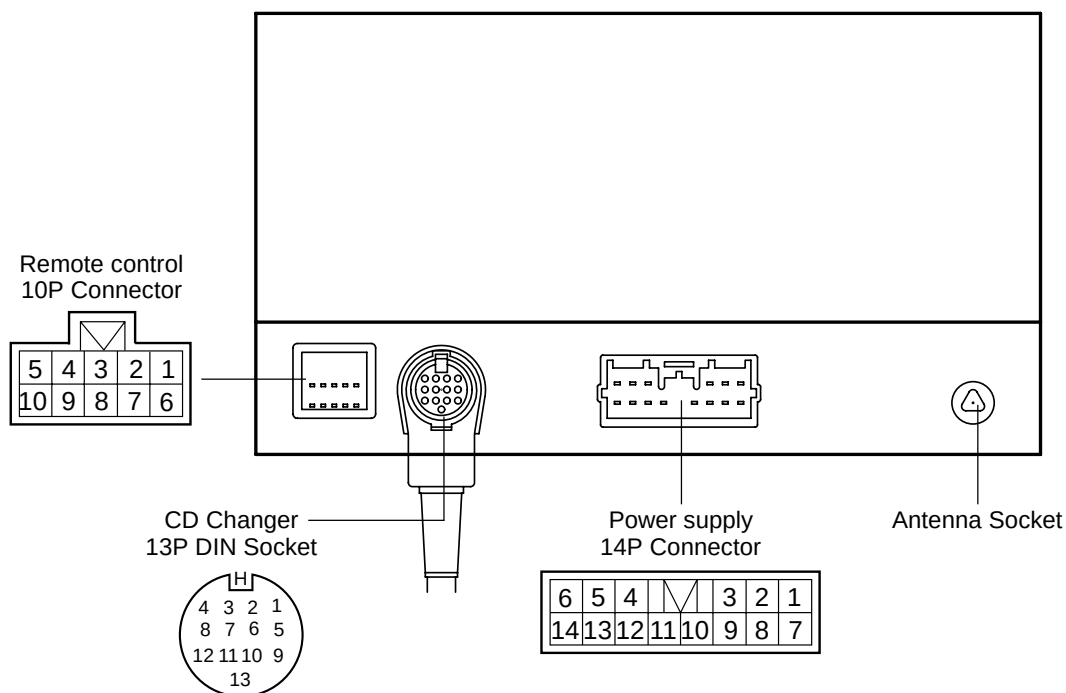
< FRONT SIDE VIEW >



Panel 22P Connector

Pin No.	Name	Pin No.	Name	Pin No.	Name
1	LATCH(LED)	9	AD2	17	LAMP
2	CLOCK(LED)	10	AD1	18	LAMP
3	—	11	GND	19	SENCE CAR
4	AUDIO-SW	12	ENABLE(LED)	20	VDD
5	VOL2	13	DATA(LED)	21	TUNE2
6	VOL1	14	LAMP GND	22	TUNE1
7	EJECT-SW	15	LAMP GND		
8	POWER-SW	16	—		

< REAR SIDE VIEW >



Remote control 10P Connector

Pin No.	Name	Pin No.	Name
1	REMO-IN	6	REMO-OUT
2	—	7	Telephone Mute
3	Telephone Signal	8	Telephone GND
4	M-SCK	9	M-BUSY
5	M-DATA	10	Shield Earth(M-BUS)

Power supply 14P Connector

Pin No.	Name	Pin No.	Name
1	Speaker FR (+)	8	Speaker FL (-)
2	Speaker FL (+)	9	Illumination (-)
3	Illumination (+)	10	Battery (+)
4	Antenna + B	11	Accessory (+)
5	Speaker RL (+)	12	—
6	Speaker RR (+)	13	Speaker RL (-)
7	Speaker FR (-)	14	Speaker RR (-)

CD Changer 13P DIN Socket

Pin No.	Name	Pin No.	Name
1	Signal GND	8	—
2	Lch	9	Battery (+)
3	—	10	Illumination Level
4	Rch	11	M-BUSY
5	—	12	M-SCK
6	—	13	M-DATA
7	ACC (+)	H	Shield Earth

DISASSEMBLING PROCEDURES

1. Removal of COVER (See Fig.1)

- 1) Unscrew the four screws (①).
- 2) Remove the COVER.

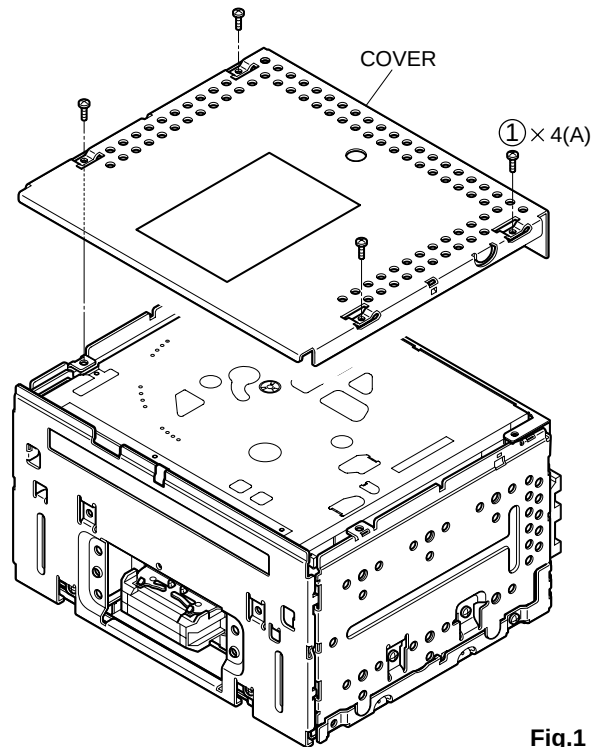


Fig.1

2. Removal of CDX3 (See Fig.2)

- 1) Unscrew the six screws (②).
- 2) Remove the HEAT-SINK.
- 3) Unscrew the four screws (③).
- 4) Remove the BRACKET-CDX3 and FLAT-CABLE 18P.
- 5) Remove the CDX3.

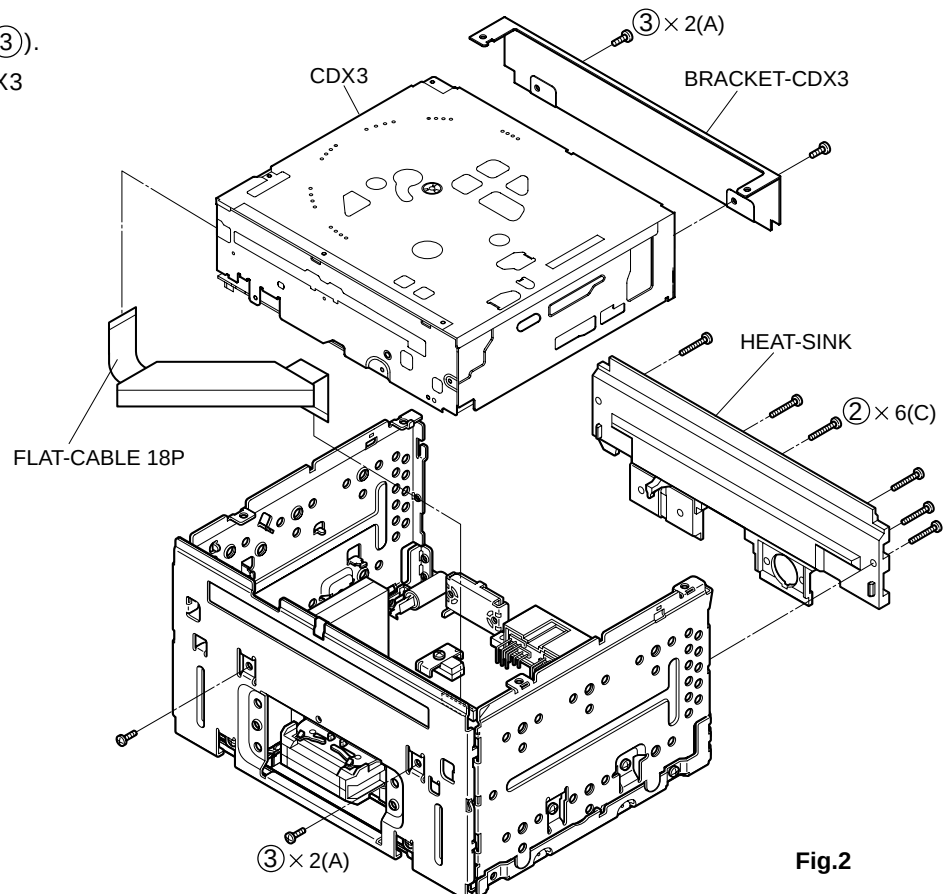


Fig.2

3. Removal of LEAD-CONNECTOR-22P (See Fig.3)

- 1) Unscrew the four screws (④).
- 2) Remove the CHASSIS-F and HOLDER-CON.
- 3) Remove the LEAD-CONNECTOR-22P.

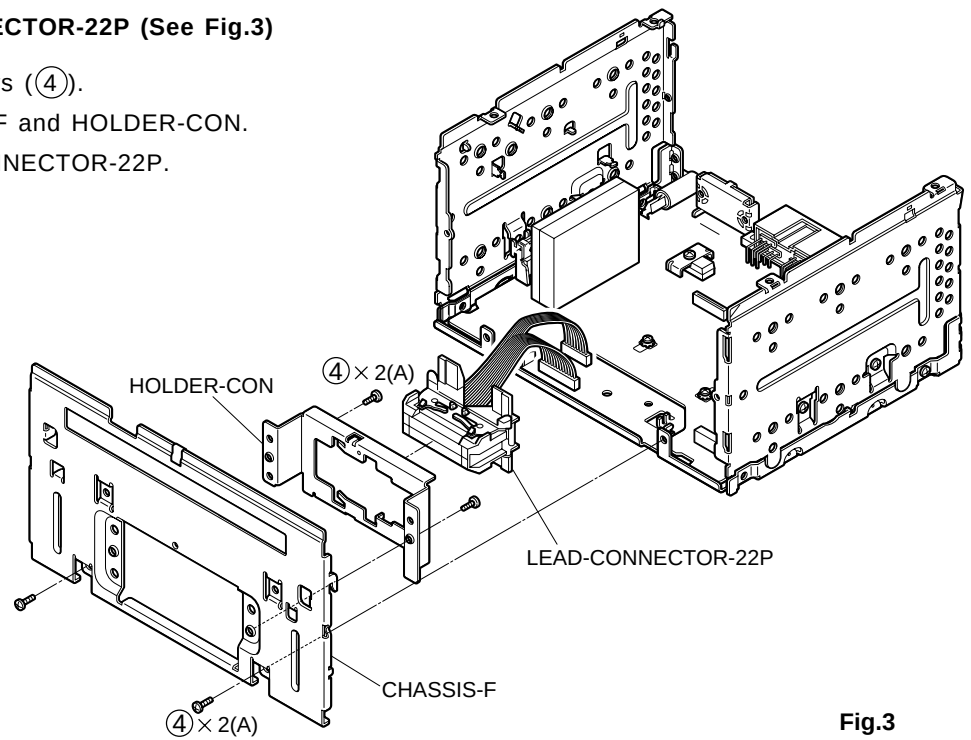


Fig.3

4. Removal of PCB-MAIN (See Fig.4)

- 1) Unscrew the two screws (⑤) and three screws (⑥).
- 2) Remove the CHASSIS-L and the CHASSIS-R.
- 3) Unscrew the one screw (⑦), two screws (⑧) and three screws (⑨).
- 4) Remove the PCB-MAIN.

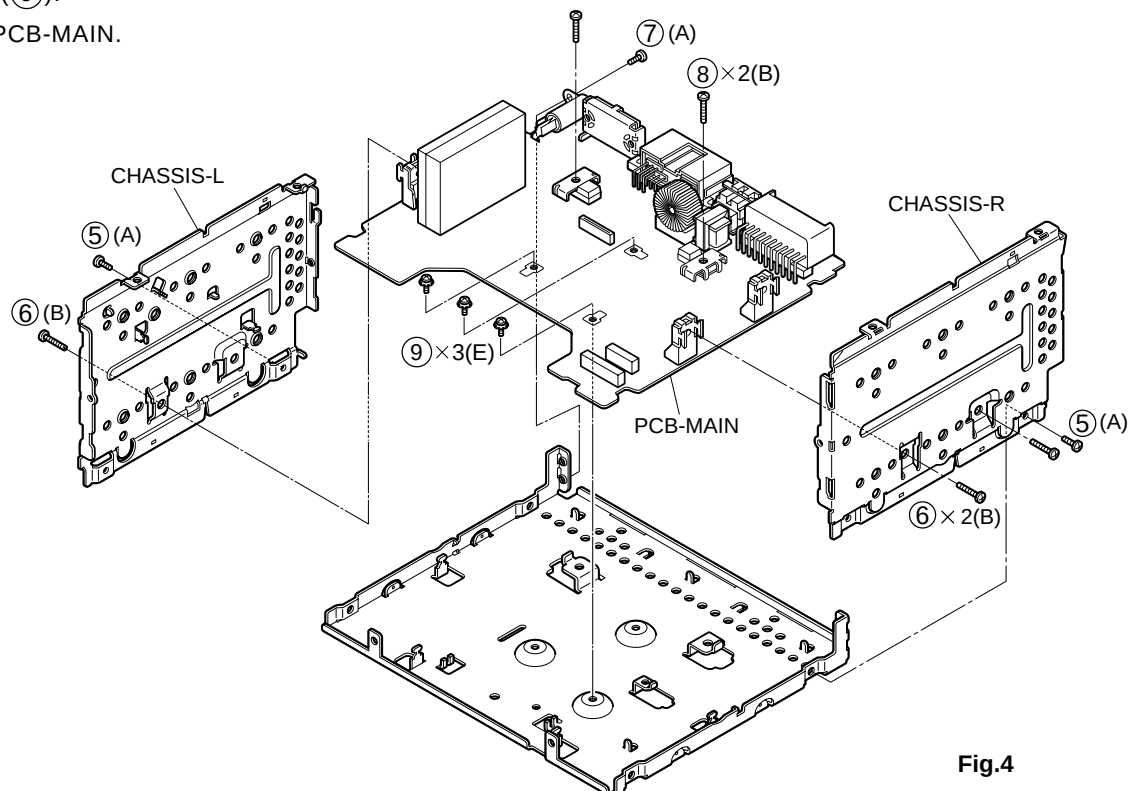
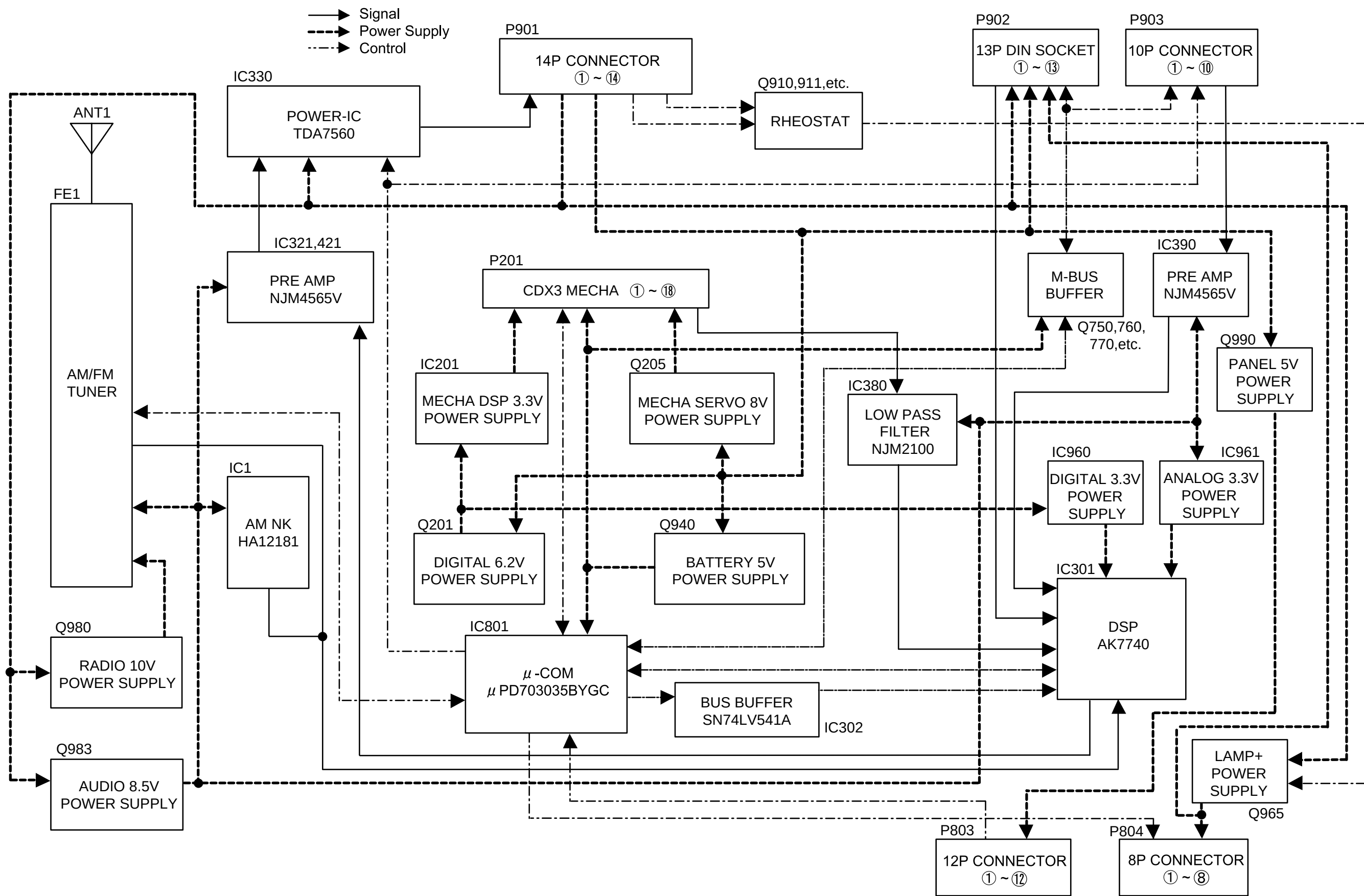
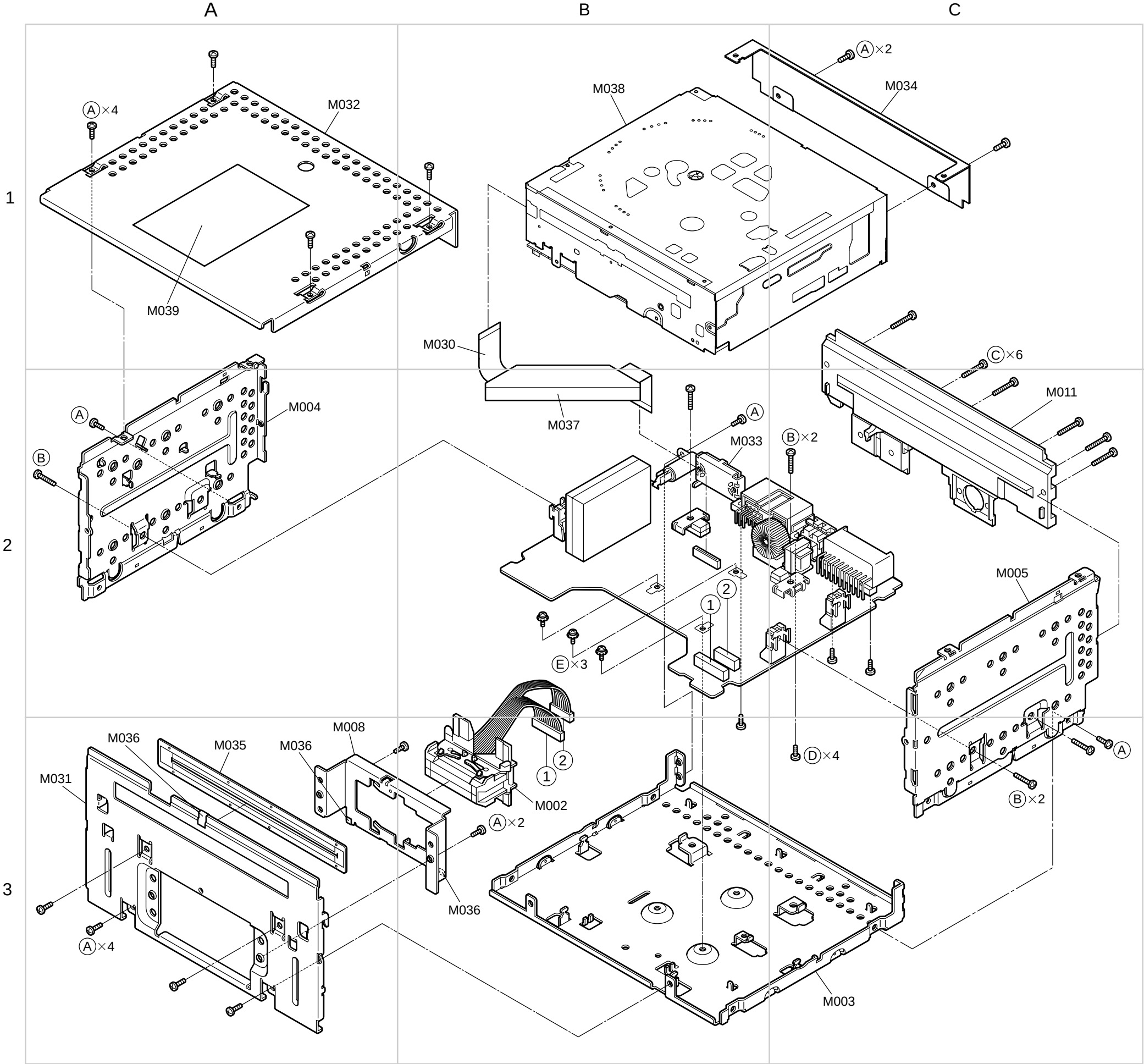


Fig.4

BLOCK DIAGRAM



EXPLODED VIEW and PARTS LIST



* : Marked parts are unregistered.

Ref. No.	Part No.	Description	Index
M002	246L43311	LEAD-CONNECTOR-22P	B-3
M003	*560J30111	CHASSIS-B	C-3
M004	560J30314	CHASSIS-L	A-2
M005	560J30315	CHASSIS-R	C-2
M008	*591K50411	HOLDER-CON	A-3
M011	635J08311	HEAT-SINK	C-2
M030	246L22200	FLAT-CABLE 18P	B-1
M031	*560J35111	CHASSIS-F	A-3
M032	591K55310	COVER	A-1
M033	593L69911	HOLDER-IC	B-2
M034	*593L80911	BRACKET-CDX3	C-1
M035	642K14611	SHEET-CD	A-3
M036	*643L49311	SHEET	A-3,B-3
M037	*643L56610	CUSHION	B-2
M038	940L10114	CDX3(955050)	B-1
M039	943M21502	NAME-CARD(DY-3A66U-AL-2-T)	A-1
A	653P11046	SCREW-S-PAN 3X6	-
B	653P11048	SCREW-S-PAN 3X10	-
C	653P11049	SCREW-S-PAN 3X12	-
D	669L05701	SCREW-TAP 3X6	-
E	669L07702	SCREW-TAP 3X6	-

IC802 PST9136

The diagram shows the internal circuit of the PST9136 IC. It features two operational amplifiers, CO1 and OP1. CO1 is configured as a voltage follower with its non-inverting input connected to the input signal and its output connected to the inverting input. OP1 is configured as a voltage follower with its non-inverting input connected to the output of CO1 and its output connected to the inverting input. The input signal is connected to the non-inverting input of CO1 through a resistor. The output of OP1 is connected to the output terminal. The circuit is powered by VCC (pin 5) and GND (pin 3).

IC321,390,421 NJM4565V-TE1

The diagram shows the internal circuit of the NJM4565V-TE1 IC. It features two operational amplifiers, A and B. Amplifier A is configured as a voltage follower with its non-inverting input connected to the input signal and its output connected to the inverting input. Amplifier B is configured as a voltage follower with its non-inverting input connected to the output of amplifier A and its output connected to the inverting input. The input signal is connected to the non-inverting input of amplifier A through a resistor. The output of amplifier B is connected to the output terminal. The circuit is powered by V+ (pin 8) and V- (pin 4).

IC201,960,961 LF33ABPT

The diagram shows the internal circuit of the LF33ABPT IC. It features a current limit circuit, an error amplifier, a driver, a reference voltage, a start inhibit, a dump protection, and a term. protection. The input signal (VIN) is connected to the input terminal (pin 1). The output signal (VOUT) is connected to the output terminal (pin 3). The circuit is powered by GND (pin 2).

IC1 HA12181FP-EL

The diagram shows the internal circuit of the HA12181FP-EL IC. It features a complex signal processing circuit including IF AGC, AF AGC, IF AMP, LPF, HPF, AF AMP, NOISE AGC, PULSE DETECTION (1), PULSE DETECTION (2), GATE PULSE GENERATOR, GATE PULSE (1), GATE PULSE (2), BUFFER AMPLIFIER, PHASE CIRCUIT, BYPASS AMPLIFIER (WAVEFORM COMPENSATION), CONSTANT CURRENT SOURCE CIRCUIT, LEVEL DIFFERENTIAL DETECTION CIRCUIT, and CONSTANT VOLTAGE CIRCUIT. The input signal (IF INPUT) is connected to the input terminal (pin 16). The output signal (AF OUTPUT) is connected to the output terminal (pin 9). The circuit is powered by GND (pin 2) and VCC (pin 13). The circuit includes several capacitors: PHASE CONDENSER (pin 2), HOLDING CONDENSER (pin 6), BY-PASS CAPACITOR (pin 8), and AF OUTPUT (pin 9).

The block diagram illustrates the control system for the DC-DC converter. It features two main input terminals: V_{IN} (pin 1) and GND (pin 2). The output is taken from pin 3, labeled V_{OUT} . The control system includes several key blocks:

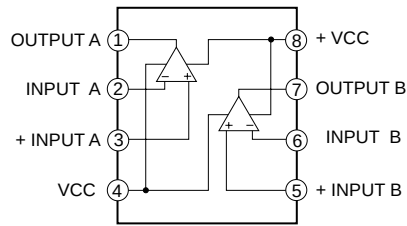
- INHIBIT CONTROL**: A switch that can connect the V_{IN} line to the **DUMP PROTECTION** block or bypass it.
- DUMP PROTECTION**: A block with a diode symbol, which provides a path for inductor current during shutdown.
- START INHIBIT**: A block that prevents the converter from starting until the **REFERENCE VOLTAGE** is established.
- REFERENCE VOLTAGE**: A block that provides a stable reference for the **ERROR AMPLIFIER**.
- ERROR AMPLIFIER**: Compares the **REFERENCE VOLTAGE** with the feedback signal from the output divider to generate an error signal.
- TERM. PROTECTION**: A block with a diode symbol that monitors the output voltage and provides feedback to the **ERROR AMPLIFIER** to prevent overvoltage.
- CURRENT LIMIT**: A block that limits the inductor current to protect the power MOSFET and inductor.
- DRIVER**: A block that drives the power MOSFET based on the error signal and current limit.

 The power MOSFET is connected between V_{IN} and the output filter inductor. The output filter consists of an inductor and a capacitor connected to the output terminal (pin 3). The feedback signal is derived from a voltage divider connected across the output.

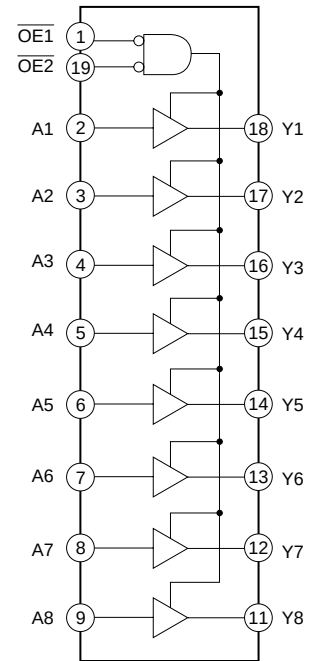
The diagram illustrates a radio receiver system with the following components and signal flow:

- IF Stage (Top):**
 - IF INPUT (16):** Enters the **IF AMP.** and **DETECTION** blocks.
 - IF AGC (1):** Receives feedback from the **DETECTION** block and controls the **IF AMP.**
 - CONSTANT CURRENT SOURCE CIRCUIT (4):** Provides biasing for the IF stage.
 - PULSE DETECTION:** Outputs to **DETECTION** and **HPF 1**.
 - DETECTION OUTPUT (14):** Receives feedback from the **DETECTION** block.
 - HPF 1** and **LPF** filter the IF signal.
- AF Stage (Middle):**
 - AF AMP.** Receives the filtered IF signal and provides **AF AGC (15)** feedback.
 - AF AGC (15):** Controls the **AF AMP.**
 - HPF** and **NOISE AGC** are also part of this stage.
 - OR** gate combines signals for **PULSE DETECTION (1)** and **PULSE DETECTION (2)**.
 - PULSE DETECTION (1) (12):** Receives signals from the **OR** gate and **DETECTION**.
 - PULSE DETECTION (2):** Receives signals from the **OR** gate and **HPF**.
 - Gate Pulse Generator:** Receives signals from **PULSE DETECTION (1)** and **PULSE DETECTION (2)** to produce **GATE PULSE (1)** and **GATE PULSE (2)**.
- Output Section (Bottom):**
 - AF INPUT (3):** Enters **SW1** and **SW2**.
 - CONSTANT-VOLTAGE CIRCUIT (2):** Provides biasing for the output stage.
 - SW1** and **SW2** are controlled by **GATE PULSE (1)** and **GATE PULSE (2)**.
 - PHASE CIRCUIT:** Receives signals from **SW2** and **LEVEL DIFFERENTIAL DETECTION CIRCUIT**.
 - LEVEL DIFFERENTIAL DETECTION CIRCUIT:** Receives signals from **SW1** and **SW2**.
 - SW3** and **SW4** are controlled by **GATE PULSE (1)** and **GATE PULSE (2)**.
 - CONSTANT CURRENT CIRCUIT (WAVEFORM COMPENSATION):** Provides biasing for the output stage.
 - SW5** and **SW6** are controlled by **GATE PULSE (1)** and **GATE PULSE (2)**.
 - BY-PASS CAPACITOR** and **PHASE CONDENSER** are used for tuning and compensation.
 - AF OUTPUT (11):** The final output of the receiver.

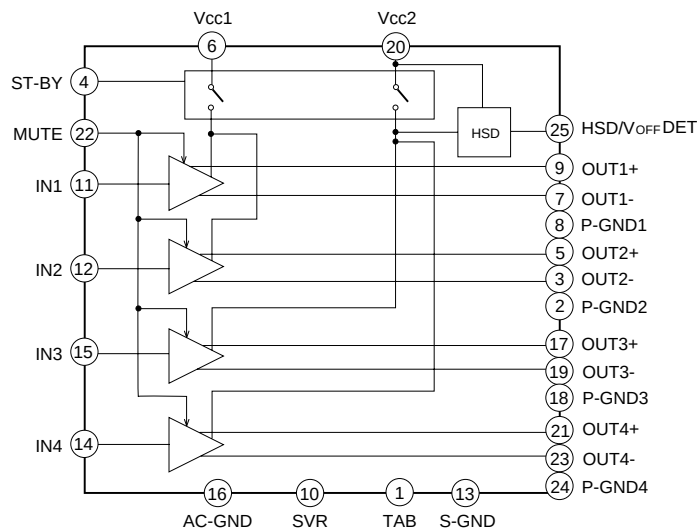
IC380 RC2100M/NJM2100M



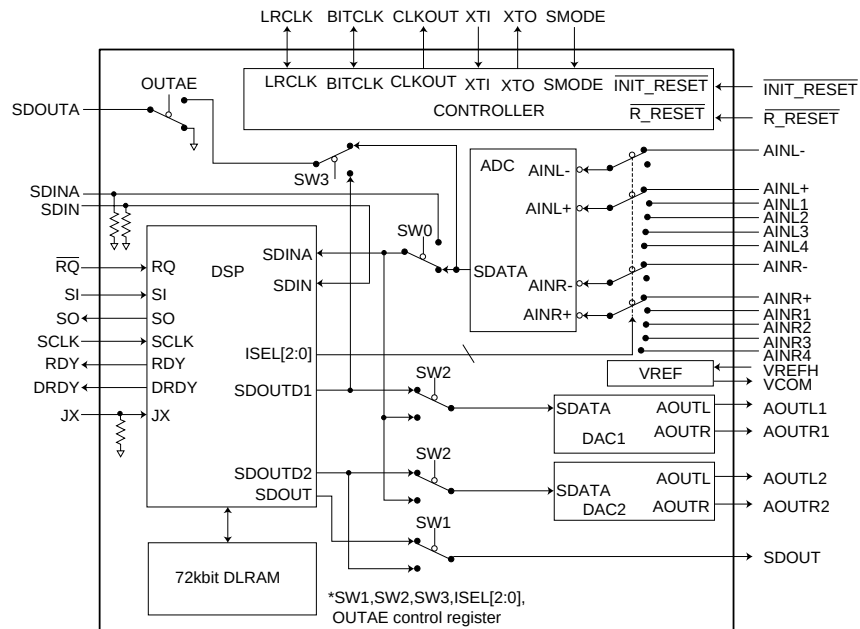
IC302 SN74LV541APW



IC330 TDA7560



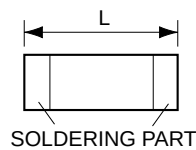
IC301 AK7740



Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	AINL3	11	XTI	21	SDOUT	31	INIT_RESET	41	AVSS
2	AINR2	12	XTO	22	DRDY	32	DVDD	42	AINR-
3	AINL2	13	CLKO	23	DVSS	33	DVSS	43	AINR+
4	AINR1	14	JX	24	DVDD	34	BVSS	44	AINL-
5	AINL1	15	SMODE	25	RDY	35	AOUTR2	45	AINL+
6	VREFH	16	LRCLK	26	SO	36	AOUTL2	46	AINR4
7	AVDD	17	BITCLK	27	SI	37	AOUTR1	47	AINL4
8	AVSS	18	SDIN	28	SCLK	38	AOUTL1	48	AINR3
9	DVSS	19	SDINA	29	RQ	39	AVDD		
10	DVDD	20	SDOUTA	30	S_RESET	40	VCOM		

ELECTRICAL PARTS LIST

< CHIP PARTS (RESISTORS & CAPACITORS) >



Part No.	L	Part No.	L
103L19xOx	2.0mm	141L06xOx	2.0mm
103L24xOx	3.2mm	141L16xOx	1.6mm
103L29xOx	1.6mm	141L18xOx	1.6mm
103P50xOx	1.6mm		

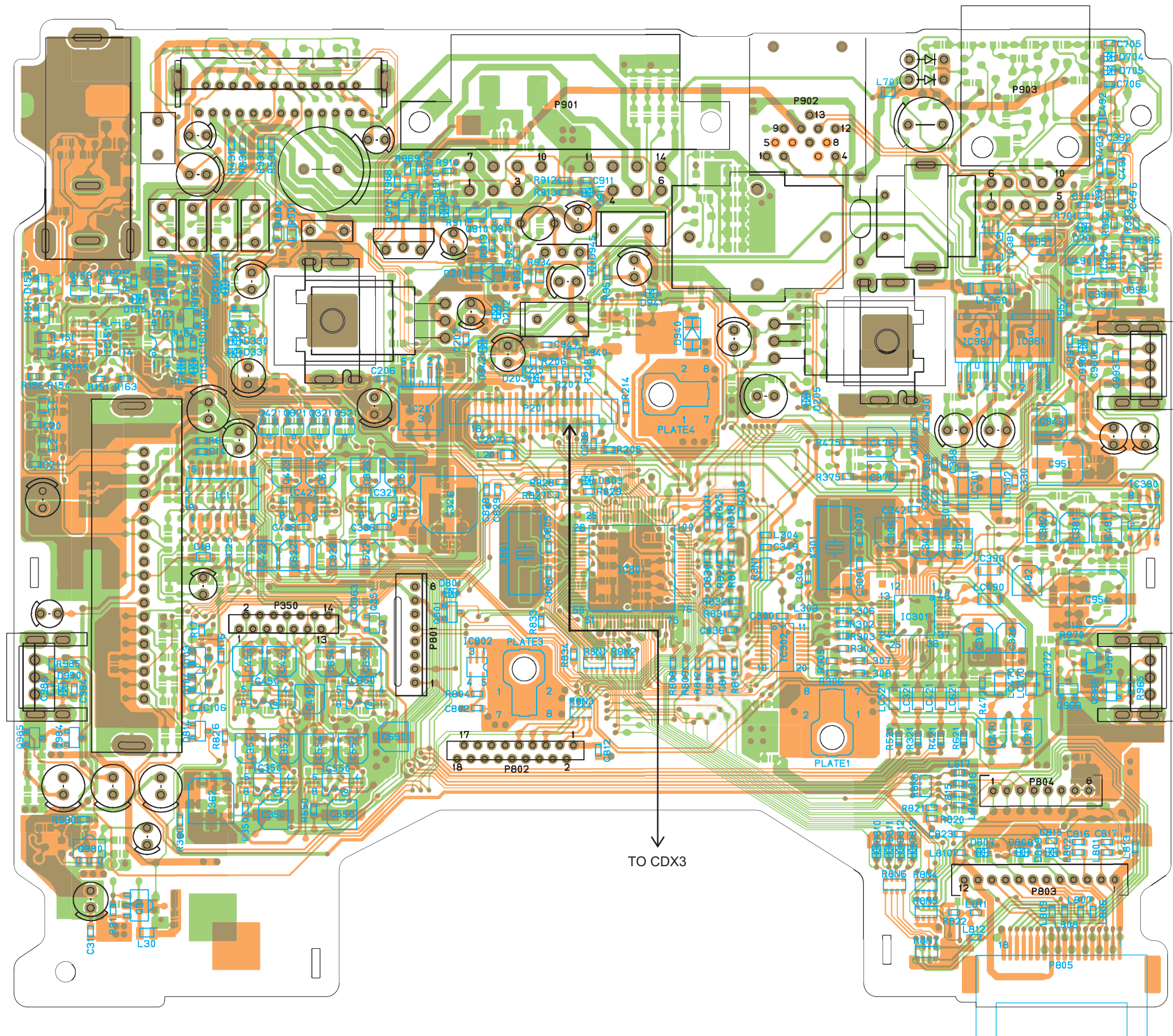
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CHIP PARTS (RESISTORS)			R3	103L295O2	R-CHIP 180kΩ
L2,30,etc.	103L199O9	R-CHIP 0Ω	R829,918,etc.	103L295O3	R-CHIP 220kΩ
L303,R11,etc.	103L299O9	R-CHIP 0Ω	R337	103L295O6	R-CHIP 390kΩ
R948	103L290O5	R-CHIP 22Ω	R8N1,8N2,8N8	109P01218	R-NETWORK-CHIP 1kΩ
R376,385,etc.	103L290O9	R-CHIP 47Ω	R3N1	109P01219	R-NETWORK-CHIP 4.7kΩ
R387	103L291O1	R-CHIP 68Ω	R8N4,8N7	109P01213	R-NETWORK-CHIP 10kΩ
R321,421,etc.	103L291O3	R-CHIP 100Ω	R8N5	109P01216	R-NETWORK-CHIP 47kΩ
R211	103L241O9	R-CHIP 330Ω	R8N6	109P01225	R-NETWORK-CHIP 100kΩ
R209	103L291O9	R-CHIP 330Ω	CHIP PARTS (CAPACITORS)		
R910,912,922	103L292O1	R-CHIP 470Ω	C393	141L180O6	C-CERAMIC-CHIP 5pF
R760,770	103L292O2	R-CHIP 560Ω	C20	141L181O3	C-CERAMIC-CHIP 12pF
R203,205,etc.	103L292O5	R-CHIP 1kΩ	C307,308,etc.	141L181O9	C-CERAMIC-CHIP 22pF
R213	103P502O5	R-CHIP 1kΩ	C913	141L182O7	C-CERAMIC-CHIP 47pF
R201,761,etc.	103L292O6	R-CHIP 1.2kΩ	C380,386,etc.	141L183O5	C-CERAMIC-CHIP 100pF
R913	103L292O7	R-CHIP 1.5kΩ	C377,477	141L160O5	C-CERAMIC-CHIP 470pF
R386,919	103L292O8	R-CHIP 1.8kΩ	C17,31,etc.	141L160O9	C-CERAMIC-CHIP 1000pF
R925~930	103L192O9	R-CHIP 2.2kΩ	C384,385,484	141L185O9	C-CERAMIC-CHIP 1000pF
R16,17,etc.	103L292O9	R-CHIP 2.2kΩ	C329,429,etc.	141L161O1	C-CERAMIC-CHIP 1500pF
R934,935	103L193O0	R-CHIP 2.7kΩ	C103,104,etc.	141L161O3	C-CERAMIC-CHIP 2200pF
C988,R763,etc.	103L293O0	R-CHIP 2.7kΩ	C7	141L161O5	C-CERAMIC-CHIP 3300pF
R901,902	103L193O1	R-CHIP 3.3kΩ	C13,383,etc.	141L161O7	C-CERAMIC-CHIP 4700pF
R32,206,etc.	103L293O1	R-CHIP 3.3kΩ	C8,11,etc.	141L162O1	C-CERAMIC-CHIP 0.01μF
R334,335	103L193O2	R-CHIP 3.9kΩ	C101,102	141L162O3	C-CERAMIC-CHIP 0.015μF
R762,772,938	103L293O2	R-CHIP 3.9kΩ	C2,4~6	141L164O3	C-CERAMIC-CHIP 0.033μF
R101,102,etc.	103L293O3	R-CHIP 4.7kΩ	C3	141L164O5	C-CERAMIC-CHIP 0.068μF
R212	103P503O3	R-CHIP 4.7kΩ	C391,392	141L063O2	C-CERAMIC-CHIP 0.1μF
R751	103L293O4	R-CHIP 5.6kΩ	C201,204,etc.	141L164O6	C-CERAMIC-CHIP 0.1μF
R8,753	103L293O5	R-CHIP 6.8kΩ	C9,19	141L164O8	C-CERAMIC-CHIP 0.22μF
R314,414	103L293O6	R-CHIP 8.2kΩ	C18,313,314	141L069O5	C-CERAMIC-CHIP 1μF
R6,7,etc.	103L293O7	R-CHIP 10kΩ	C370,390,etc.	181P73162	C-ELE-CHIP 2.2μF/50V
R2	103L293O8	R-CHIP 12kΩ	C322,323,etc.	181P73149	C-ELE-CHIP 4.7μF/35V
R382,389,482	103P503O8	R-CHIP 12kΩ	C302,304,etc.	181P73123	C-ELE-CHIP 10μF/16V
R384,484	103L293O9	R-CHIP 15kΩ	C951	181P73110	C-ELE-CHIP 100μF/10V
R381,388,etc.	103P503O9	R-CHIP 15kΩ	C326,954	181P73111	C-ELE-CHIP 220μF/10V
R4	103L294O0	R-CHIP 18kΩ	TRANSISTORS		
R202,210,etc.	103L294O1	R-CHIP 22kΩ	Q927	260L020O9	TR 2SB1240Q
R10	103L294O3	R-CHIP 33kΩ	Q980	260P11410	TR 2SB1561Q
R204,208,etc.	103L294O5	R-CHIP 47kΩ	Q201,205,etc.	260P68210	TR 2SD2375OP
R5	103L294O7	R-CHIP 68kΩ	Q762,772,etc.	260M061O6	TR-CHIP 2SA1037AR
R1,807	103L294O9	R-CHIP 100kΩ	Q31	260P11710	TR-CHIP 2SA1364
R392~395	103P504O9	R-CHIP 100kΩ	Q1,2,etc.	260M061O5	TR-CHIP 2SC2412S
R917,920	103L295O1	R-CHIP 150kΩ	Q940	260P102O1	TR-CHIP 2SD2318

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q941	260P12510	TR-CHIP 2SD2537	IC302	263P99010	IC SN74LV541APW
Q750,760,770	260L01001	TR-CHIP 2SD601AS	IC330	266P62810	IC TDA7560
Q752	260L04204	TR-CHIP DTA114T	IC801	262P54422	IC μ PD703035BYGC-J18-8EU
Q333,942	260M06101	TR-CHIP DTA124E	RESISTORS		
Q202,207,991	260L03005	TR-CHIP DTA143E	RF901	103L39002	R-FUSE
Q967	260L03003	TR-CHIP DTA144E	COILS		
Q332	260L04202	TR-CHIP DTA144T	L801~811,etc.	351P09108	COIL-CHIP
Q944	260L05701	TR-CHIP DTB123Y	L902	351P04801	COIL-CHOKE
Q928	260M06109	TR-CHIP DTC114E	L901	351P11310	COIL-CHOKE
Q801,943	260L04207	TR-CHIP DTC114T	L201	351P08106	COIL-CHOKE-CHIP
Q301~303	260L01408	TR-CHIP DTC123E	L940	351P08200	COIL-CHOKE-CHIP
Q3,103,etc.	260M06102	TR-CHIP DTC124E	L1	351P08206	COIL-CHOKE-CHIP
Q32,203,etc.	260L01402	TR-CHIP DTC143E	L3	351P08306	COIL-CHOKE-CHIP
Q802	260L03002	TR-CHIP DTC144E	L301,302,etc.	351P09504	COIL-CHOKE-CHIP
Q321,421,etc.	260L03301	TR-CHIP DTC323T	CONNECTORS		
DIODES			P804	452L08308	CONNECTOR 8P
D901,903	264L04201	DIODE ERA15-02	P903	452P23210	CONNECTOR 10P
D201,940	264P60702	DIODE-CHIP 1SR154-400	P803	452L09402	CONNECTOR 12P
D203,204,etc.	264L06001	DIODE-CHIP 1SS355	P901	452L34211	CONNECTOR 14P
D944	264P61701	DIODE-CHIP MC2836	P201	452P13608	CONNECTOR 18P
D943	264P61801	DIODE-CHIP MC2838	ANT1	449L07603	SOCKET-ANT
D902	264P51601	DIODE-CHIP S3D6600	P902	449L09803	SOCKET-DIN
D205	264L06703	DIODE-Z-CHIP MA8051M	OTHERS		
D941,990	264L06702	DIODE-Z-CHIP MA8056H	X801	285P09301	CRYSTAL
D202,802	264P58401	DIODE-Z-CHIP MA8068M	X301	285P11422	CRYSTAL
D807~813	264P58405	DIODE-Z-CHIP MA8075H	FE1	295P21620	TUNER
D801,942	264P58407	DIODE-Z-CHIP MA8082M	F925	299P12803	PROTECTOR
D980	264P58409	DIODE-Z-CHIP MA8091L	Z21	299P13502	PROTECTOR-CHIP
D910,911	264P58506	DIODE-Z-CHIP MA8110M	Z701	299P13602	PROTECTOR-CHIP
D375,475,etc.	264P58806	DIODE-Z-CHIP MA8270M	LC321,370,etc.	409P02301	LC-MULTIPLE-CHIP
IC			LC301,302	409P04701	LC-MULTIPLE-CHIP
IC301	263P22010	IC AK7740	PLATE1,3,4	443P01012	TERMINAL
IC1	266L06701	IC HA12181FP-EL	H-TR-2,3,5	593L29212	HOLDER-TR
IC201,960,961	266P61410	IC LF33ABPT	H-TR-1,4	593L70010	HOLDER-TR
IC321,390,421	266L06509	IC NJM4565V-TE1			
IC802	266L06405	IC PST9136			
IC380	266L03409	IC RC2100M/NJM2100M			

PARTS LAYOUT ON PRINTED CIRCUIT BOARD

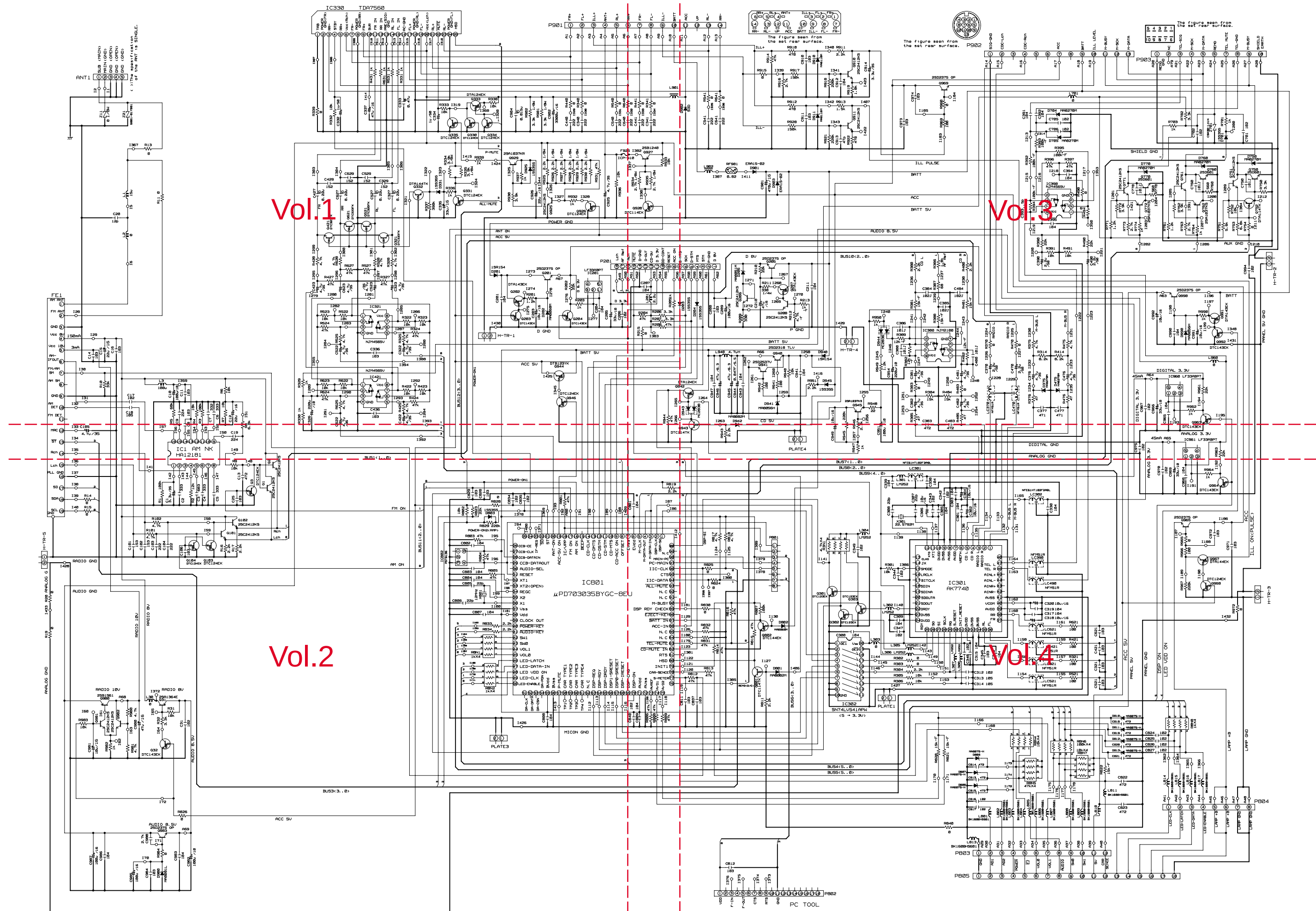
MODEL : DY-3A66U-AL-2-T (PARTS SIDE)

PCB-MAIN

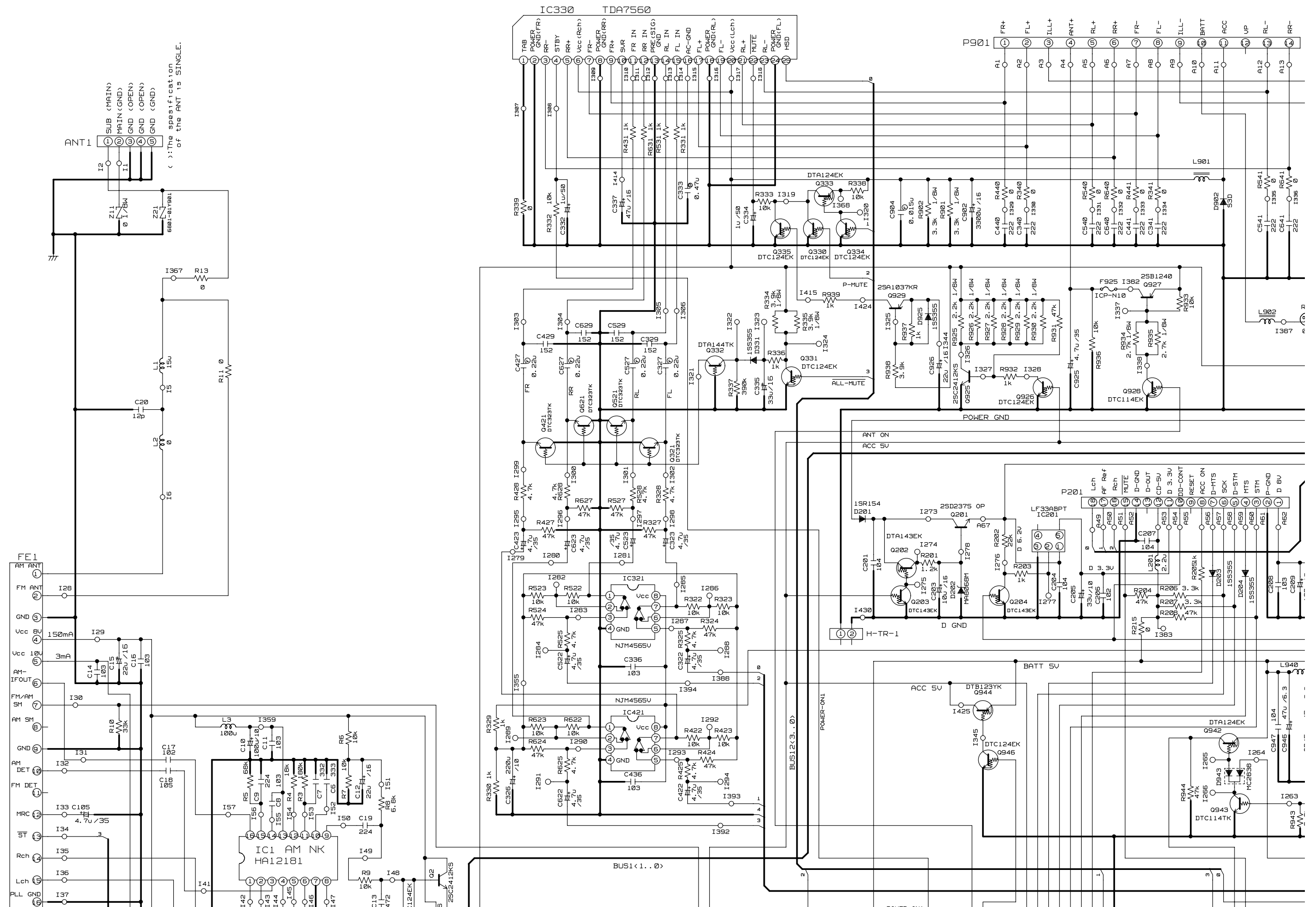


PCB-MAIN

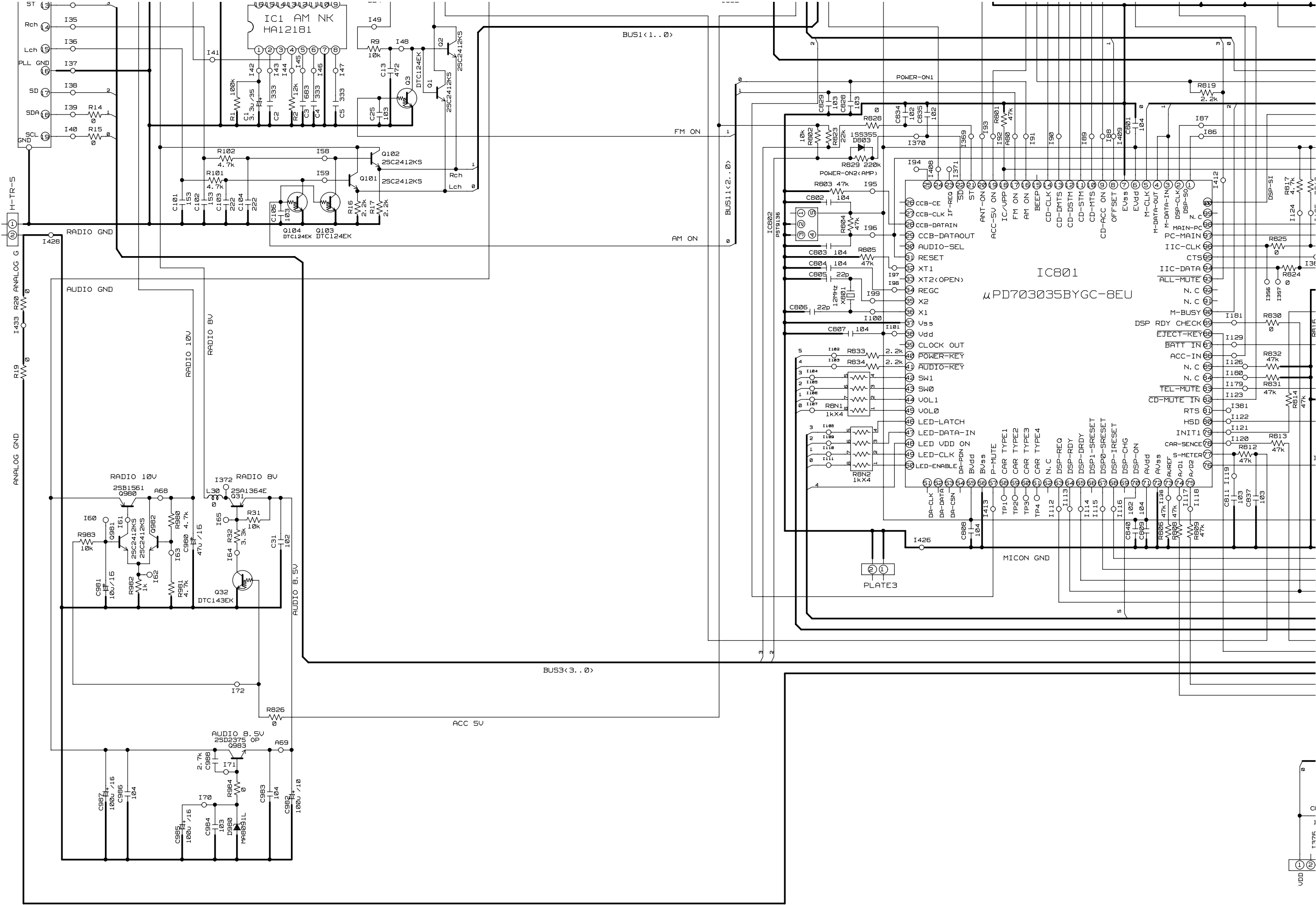
SCHEMATIC DIAGRAM PCB-MAIN MODEL : DY-3A66U-AL-2-T



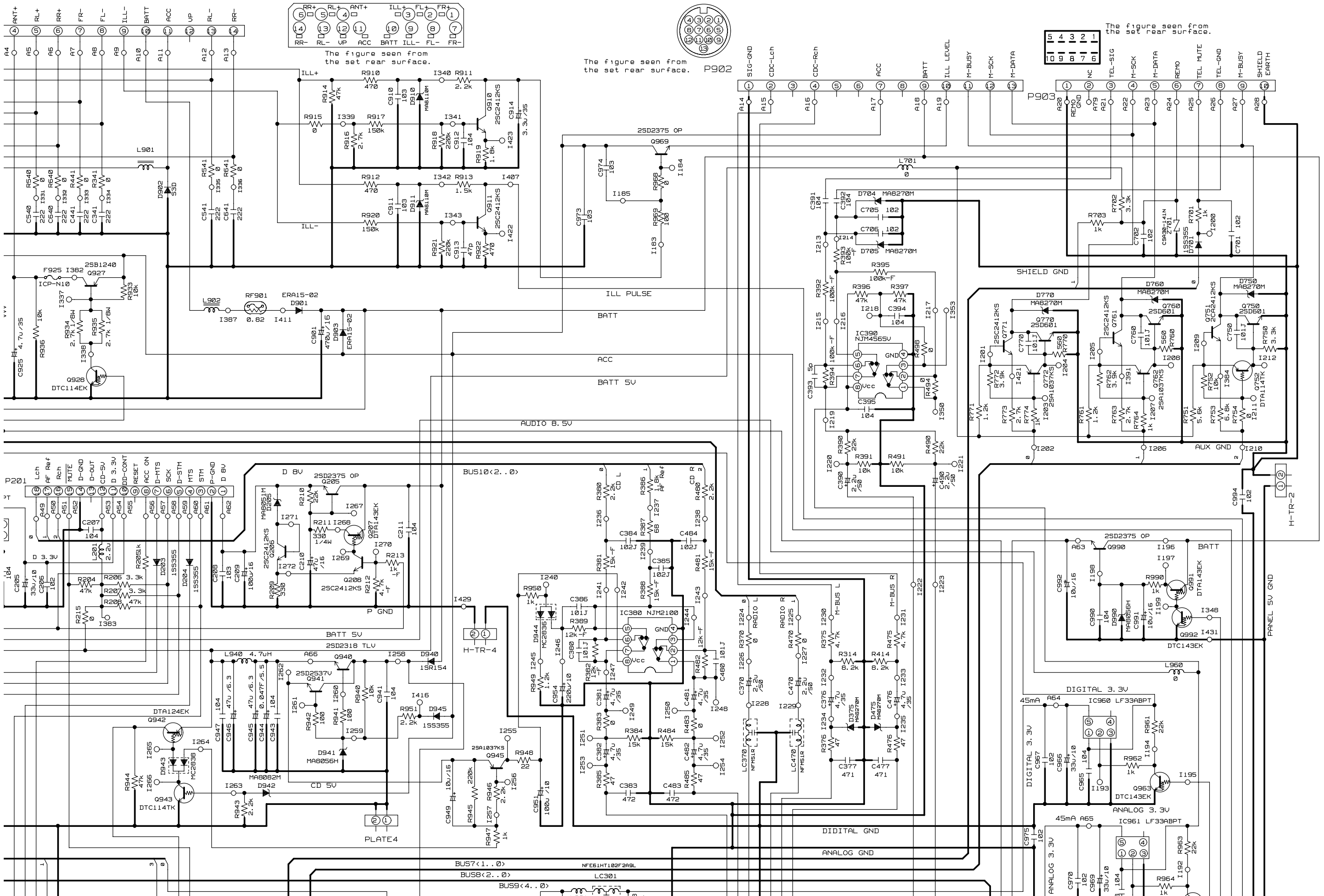
SCHEMATIC DIAGRAM PCB-MAIN MODEL : DY-3A66U-AL-2-T Vol.1



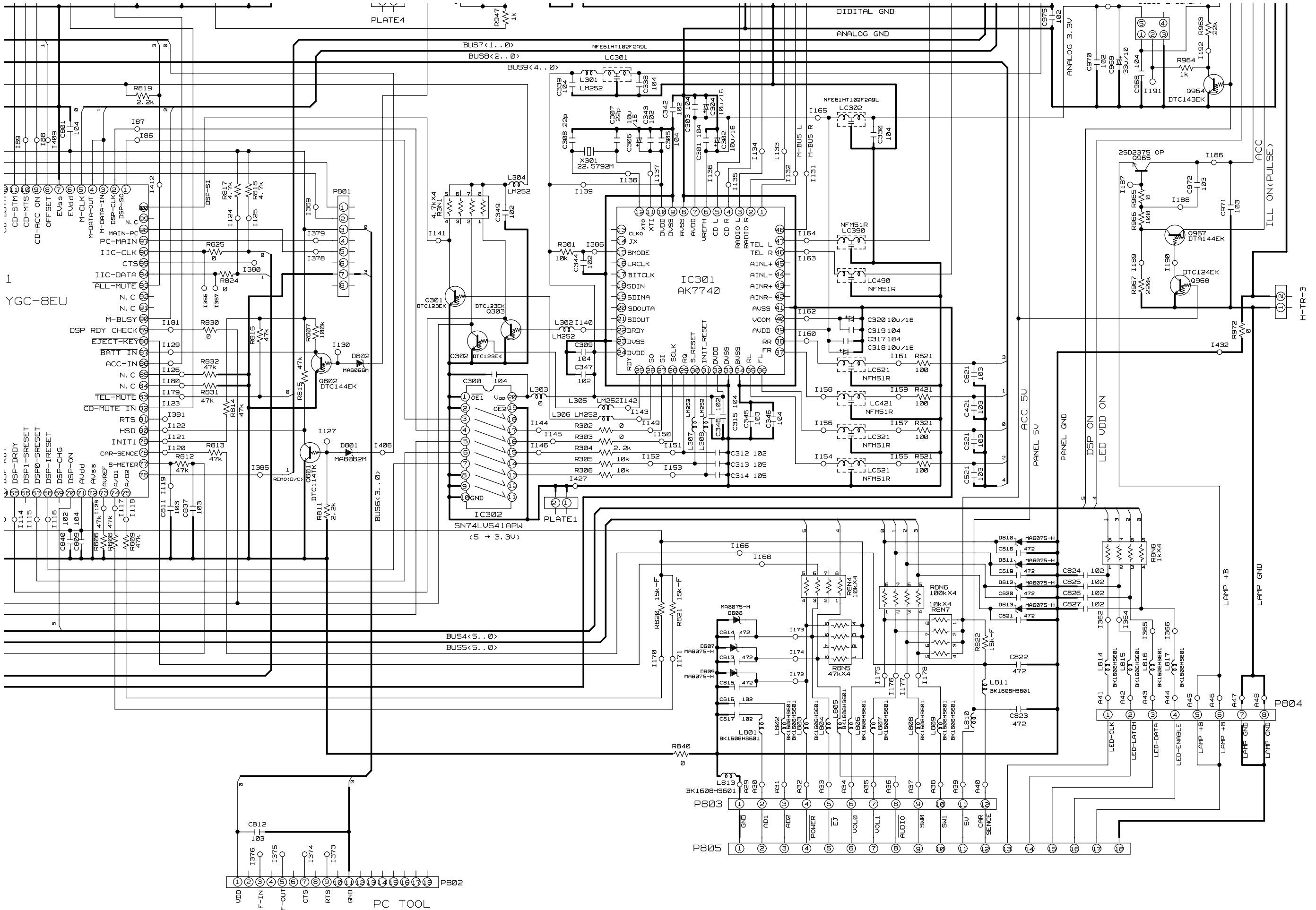
SCHEMATIC DIAGRAM PCB-MAIN MODEL : DY-3A66U-AL-2-T Vol.2



SCHEMATIC DIAGRAM PCB-MAIN MODEL : DY-3A66U-AL-2-T Vol.3



SCHEMATIC DIAGRAM PCB-MAIN MODEL : DY-3A66U-AL-2-T Vol.4



VOLTAGE

MODEL : DY-3A66U-AL-2-T

(Pin numbers are as measurement points.)

1. μ -COM

IC801 PCB-MAIN

AM 999kHz 74dB μ V, FM 98.1MHz 68dB μ V

BATT, ACC 13.2V

Pin No.	Pin Name	Function	I/O	ACT	Voltage [V]			Remark
					AM	FM	CD	
1	DISP-SO	Serial data output to DSP	O	L	0	0	0	
2	DSP-CLK	Serial clock output to DSP	O	L	0	0	0	
3	M-DATA-IN	M-BUS serial data input	I	L	5	5	5	
4	M-DATA-OUT	M-BUS serial data output	O	L	5	5	5	
5	M-CLK	M-BUS clock output	I/O	L	5	5	5	
6	Evdd	VDD5V	-	-	5	5	5	
7	Evss	GND	-	-	0	0	0	
8	OFFSET	Offset detection mode change output	O	H	0	0	0	
9	CD-ACC ON	CDX2 ACCON output	O	H	0	0	0	
10	CD-MTS	communication request output to CDX2	O	L	5	5	5	
11	CD-STM	communication request input from CDX2	I	L	5	5	5	
12	CD-DSTM	Serial data input from CDX2	I	L	5	5	5	
13	CD-DMTS	Serial data output to CDX2	O	L	0	0	0	
14	CD-CLK	Serial clock input from CDX2	I	L	5	5	5	
15	-	Not used	O	L	-	-	-	
16	AM-ON	AM power supply output	O	H	5	0	0	
17	FM-ON	FM power supply output	O	H	0	5	0	
18	IC/VPP	GND	-	-	0	0	0	
19	ACC-5V ON	ACC 5V output	O	H	5	5	5	
20	ANT-ON	ANT +B output	O	H	5	5	5	
21	ST	Stereo input	I	L	5	5	5	
22	SD	Stop level input	I	L	5	5	5	
23	IF-REQ	IF output request	O	H	5	5	5	
24	POWER-ON1	Power ON	O	H	5	5	5	
25	POWER-ON2	Power ON	O	H	5	5	5	
26	-	Not used	O	L	-	-	-	
27	-	Not used	O	L	-	-	-	
28	-	Not used	I	L	0	0	0	
29	-	Not used	O	L	-	-	-	
30	-	Not used	O	L	-	-	-	
31	RESET	System reset input	-	-	5	5	5	
32	XT1	Sub clock (Not used)	-	-	0	0	0	
33	XT2	Sub clock (Not used)	-	-	-	-	-	
34	REGC	Regulator output smoothly capacitor	-	-	3	3	3	
35	X2	Main clock - 12MHz	-	-	-	-	-	*1
36	X1	Main clock - 12MHz	-	-	-	-	-	*1
37	Vss	GND	-	-	0	0	0	
38	Vdd	VDD 5V	-	-	5	5	5	
39	CLOCKOUT	Clock output (Not used)	O	-	-	-	-	
40	POWER-KEY	Power-KEY input	I	L	5	5	5	
41	AUDIO-KEY	Audio-KEY input	I	L	5	5	5	
42	SW1	Encoder KEY2 input	I	-	5/0	5/0	5/0	*2
43	SW2	Encoder KEY1 input	I	-	5/0	5/0	5/0	*2
44	VOL1	VOL pulse signal1 input	I	-	5/0	5/0	5/0	*2
45	VOL2	VOL pulse signal2 input	I	-	5/0	5/0	5/0	*2
46	LED-LATCH	LED driver-IC communication latch output	O	H	0	0	0	
47	LED-DATA-IN	LED driver-IC communication serial data output	O	L	0	0	0	
48	LED VDD ON	Panel ON output	O	L	5	5	5	
49	LED-CLK	LED driver-IC communication serial clock output	O	L	0	0	0	
50	LED-ENABLE	LED driver-IC movement request output	O	L	0	0	0	

Note:

*1 : The port is oscillation port. Do not touch it.

*2 : The value is alternated by volume control knob.

*3 : Using PS24 panel.

Pin No.	Pin Name	Function	I/O	ACT	Voltage [V]			Remark
					AM	FM	CD	
51	-	Not used	O	L	-	-	-	
52	-	Not used	O	L	-	-	-	
53	-	Not used	O	L	-	-	-	
54	-	Not used	O	L	-	-	-	
55	BVdd	VDD 5V	-	-	5	5	5	
56	BVss	GND	-	-	0	0	0	
57	P-MUTE	Power IC mute control output	O	H	5	5	5	
58	CAR-TYPE1	Switching car type check terminal	I	L	0	0	0	
59	CAR-TYPE2	Switching car type check terminal	I	L	0	0	0	
60	CAR-TYPE3	Switching car type check terminal	I	L	0	0	0	
61	CAR-TYPE4	Switching car type check terminal	I	L	0	0	0	
62	-	Not used	O	L	-	-	-	
63	DSP-REQ	Communication request output to DSP	O	H	5	5	5	
64	DSP-RDY	Communication possibility input from DSP	I	H	0	0	0	
65	DSP-DRDY	Communication possibility input from DSP	I	H	5	5	5	
66	-	Not used	O	L	-	-	-	
67	DSPO-SRESET	DSPO system reset output	O	L	5	5	5	
68	DSP-IRESET	DSPO, DSP1 initial reset output	O	L	5	5	5	
69	-	Not used	O	L	-	-	-	
70	DSP-ON	DSP-IC power control output	O	H	5	5	5	
71	Avdd	A/D converter analog power supply	-	-	5	5	5	
72	Avss	A/D converter ground power supply	-	-	0	0	0	
73	AVREF	VDD 5V	-	-	5	5	5	
74	A/D KEY1	A/D key1 input	I	-	5	5	5	
75	A/D KEY2	A/D key2 input	I	-	5	5	5	
76	REMO(D/C)	Remote controller code input	I	-	5	5	5	
77	S-METER	Electric field level input	I	-	3.6	4.3	0	
78	CAR-SENCE	Car type change input	I	-	2.5	2.5	2.5	*3
79	INIT1	Initialization change input	I	-	5	5	5	
80	HSD	Offset detection input	I	L	0	0	0	
81	RTS	PC communication request input	I	L	0	0	0	
82	CD-MUTEIN	CDX2 mute input	I	L	0	0	0	
83	TEL-MUTE	Telephone mute input	I	H	5	5	5	
84	-	Not used	O	L	-	-	-	
85	-	Not used	O	L	-	-	-	
86	ACC-IN	ACC detection input	I	H	5	5	5	
87	BATT-IN	BATT detection input	I	L	0	0	0	
88	EJECT-KEY	Eject key input	I	L	5	5	5	
89	DSP RDY CHECK	DSP rdy terminal check input	I	L	5	5	5	
90	M-BUSY	M-BUS busy output	I/O	L	5	5	5	
91	-	Not used	O	L	-	-	-	
92	-	Not used	O	L	-	-	-	
93	ALL-MUTE	All mute output	O	L	5	5	5	
94	IIC-DATA	IIC-data output (TUNER, EEPROM)	O	L	5	5	5	
95	CTS	PC communication request output	O	L	0	0	0	
96	IIC-CLK	IIC clock output (TUNER, EEPROM)	O	L	5	5	5	
97	PC-MAIN	PC communication serial data input	I	L	0	0	0	
98	MAIN-PC	PC communication serial data output	O	L	0	0	0	
99	-	Not used	O	L	-	-	-	
100	DSP-SI	DSP serial data input	I	L	0	0	0	

2. ELECTRIC VOL IC IC301 PCB-MAIN

FM 98.1MHz, VOL MIN
BATT, ACC 13.2V

Pin No.	Pin Name	Voltage [V]			Remark
		AM	FM	CD	
1	AINL3	1.5	1.5	1.5	
2	AINR2	1.5	1.5	1.5	
3	AINL2	1.5	1.5	1.5	
4	AINR1	1.5	1.5	1.5	
5	AINL1	1.5	1.5	1.5	
6	VREFH	3.3	3.3	3.3	
7	AVDD	3.3	3.3	3.3	
8	AVSS	0	0	0	
9	DVSS	0	0	0	
10	DVDD	3.3	3.3	3.3	
11	XTI	-	-	-	*1
12	XTO	-	-	-	*1
13	CLKO	0	0	0	
14	JX	3.3	3.3	3.3	
15	SMODE	3.3	3.3	3.3	
16	LRCLK	-	-	-	
17	BITCLK	-	-	-	
18	SDIN	-	-	-	
19	SDINA	-	-	-	
20	SDOUTA	-	-	-	
21	SDOUT	-	-	-	
22	DRDY	3.3/0	3.3/0	3.3/0	
23	DVSS	0	0	0	
24	DVDD	3.3	3.3	3.3	
25	RDY	3.3	3.3	3.3	
26	SO	3.3	3.3	3.3	
27	SI	3.3/0	3.3/0	3.3/0	
28	SCLK	3.3	3.3	3.3	
29	RQ	3.3/0	3.3/0	3.3/0	
30	S RESET	3.3	3.3	3.3	
31	INIT RESET	3.3	3.3	3.3	
32	DVDD	3.3	3.3	3.3	
33	DVSS	0	0	0	
34	BVSS	0	0	0	
35	AOUTR2	1.5	1.5	1.5	
36	AOUTL2	1.5	1.5	1.5	
37	AOUTR1	1.5	1.5	1.5	
38	AOUTL1	1.5	1.5	1.5	
39	AVDD	3.3	3.3	3.3	
40	VCOM	1.7	1.7	1.7	
41	AVSS	0	0	0	
42	AINR-	-	-	-	
43	AINR+	-	-	-	
44	AINL-	-	-	-	
45	AINL+	-	-	-	
46	AINR4	1.5	1.5	1.5	
47	AINL4	1.5	1.5	1.5	
48	AINR3	1.5	1.5	1.5	

Note:

*1 : The port is oscillation port. Do not touch it.

3. POWER IC IC330 PCB-AF

FM 98.1MHz, VOL MIN
BATT, ACC 13.2V

Pin No.	Pin Name	Voltage [V]
1	TAB	0
2	POWER-GND(FR)	0
3	RR-	6.3
4	STBY	5.2
5	RR+	6.3
6	VCC(Rch)	13.2
7	FR-	6.3
8	POWER GND(RR)	0
9	FR+	6.3
10	SVR	6.2
11	FR IN	6.2
12	RR IN	6.2
13	PRE(SIG) GND	0
14	RL IN	6.2
15	FL IN	6.2
16	AC-GND	0
17	FL+	6.2
18	POWER GND(RL)	0
19	FL-	6.2
20	VCC(Lch)	13.2
21	RL+	6.2
22	MUTE	4.3
23	RL-	6.2
24	POWER GND(FL)	0.0
25	HSD	13.2

4. POWER SOURCE

BATT, ACC 13.2V

(E): Emitter, (C): Collector

Unit: V

BATT 5V	
Q940 (E)	5.3
Q941(E)	5.3

ACC 5V	
Q944 (C)	5.2

RADIO 10V	
Q980 (C)	10.5

RADIO 8V	
Q31 (C)	8.3

AUDIO 8.5V	
Q983 (E)	8.4

BATT 6.2V	
Q201 (E)	6.4

BATT 3.3V	
IC201 (5)	3.3

MECHA 8V	
Q205 (E)	7.6

PANEL 5V	
Q990 (E)	5.6

DSP 3.3V	
IC960 (5)	3.3
IC961(5)	3.3

ILL ON	
Q965 (E)	10

WAVEFORM

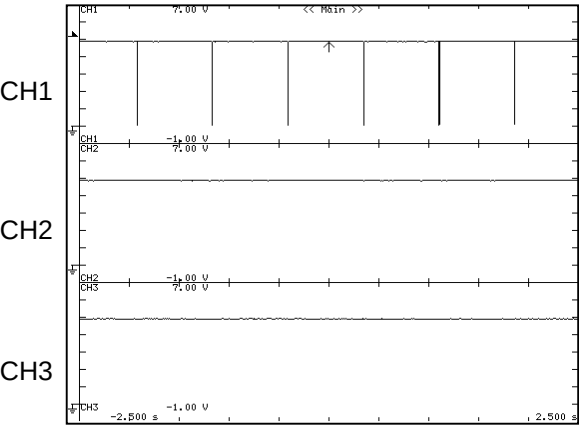
MODEL : DY-3A66U-AL-2-T

(Pin numbers are as measurement points.)

(1) M-Bus Communication Waveform

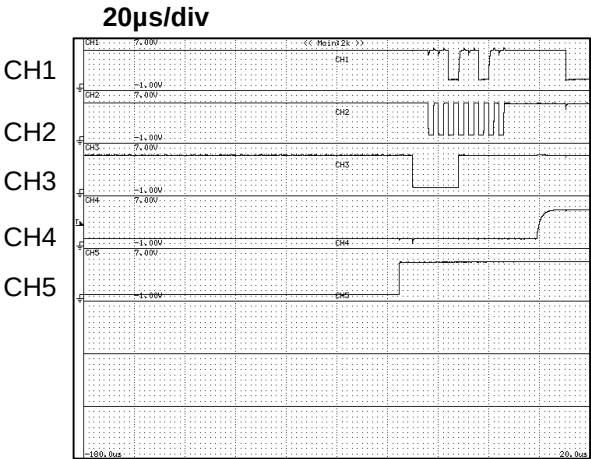
	P902	
	Pin No.	Pin Name
CH1	11	M-BUSY
CH2	12	M-SCK
CH3	13	M-DATA

No connection with M-Bus units (500ms/div)

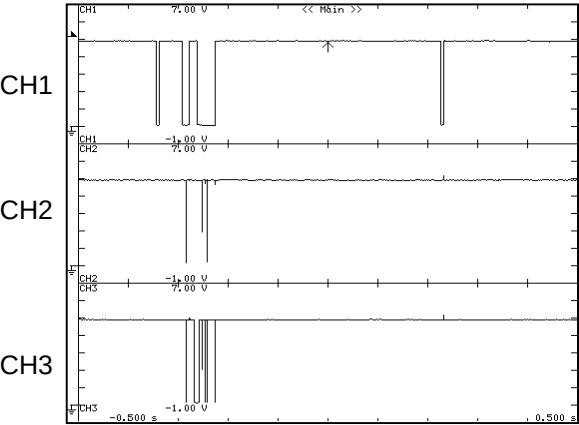


(2) CD Communication Waveform

	P201	
	Pin No.	Pin Name
CH1	12	D-MTS
CH2	13	SCK
CH3	14	D-STM
CH4	15	MTS
CH5	16	STM



Connection with M-Bus units (100ms/div)



Connection with M-Bus units (50µs/div)

