

# MC-505 SERVICE NOTES

First Edition

Issued by RJA

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## SPECIFICATIONS

### MC-505

●Tone Generator	64 voices
Maximum Polyphony	24 Parts (Main:8 + RPS:16)
Parts	Reverb, Delay, EFX (24 types)
Built-in Effects	Preset:512, User:256, Card:512
Patches	Preset: 26, User: 20, Card: 20
Rhythm Set	

●Sequencer	
Tracks	8 + Mute Ctrl
Songs	50
Preset Patterns	248
RPS Patterns	466
User Patterns	200 (Max)
Card Patterns	200 (Max)
Note Storage	approx. 95,000 notes (Internal) approx. 220,000 notes (2M Card) approx. 480,000 notes (4M Card)

RPS Set	60
Pattern Set	30
Tempo	20.0 - 240.0 (Max)
Resolution	96 ticks per quarter note
Recording Method	Realtime, Step1, Step2

### ●Connectors

Mix Output Jack L(MONO), R	
Direct Output Jack 1 L(MONO), R	
Direct Output Jack 2 L(MONO), R	
Headphone Jack (stereo)	
MIDI Connectors (in, out)	
Foot Control Jack	
Memory Card Slot	
AC Inlet	

●DBeam Controller	28 types
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### ●Control Knob

Part Mixer	R, 1, 2, 3, 4, 5, 6, 7
Realtime Modify	Cutoff, Resonance, LFO Depth, Coarse Tune, Envelope(Depth, Attack, Decay, Sustain, Release) Portament Time Reverb, Delay, EFX Timing, Velocity Grid, Groove (71types), Shuffle Accent Rate(53 styles) Low Boost, Master Volume
Effect	
Play Quantize	
Arpeggiator	
Others	

### ●Keyboard Pad

16 keys

### ●Display

LCD 16 characters x 2  
7 Segments, 6 Digits(LED)

### ●Power Supply

AC100V(50/60Hz), AC117V, AC230V, AC240V

### ●Power Consumption

15W

### ●Dimensions

462(W) x 320(D) x 110(H) mm  
18-3/16(W) x 12-5/8(D) x 4-3/8(H) inches

### ●Weight

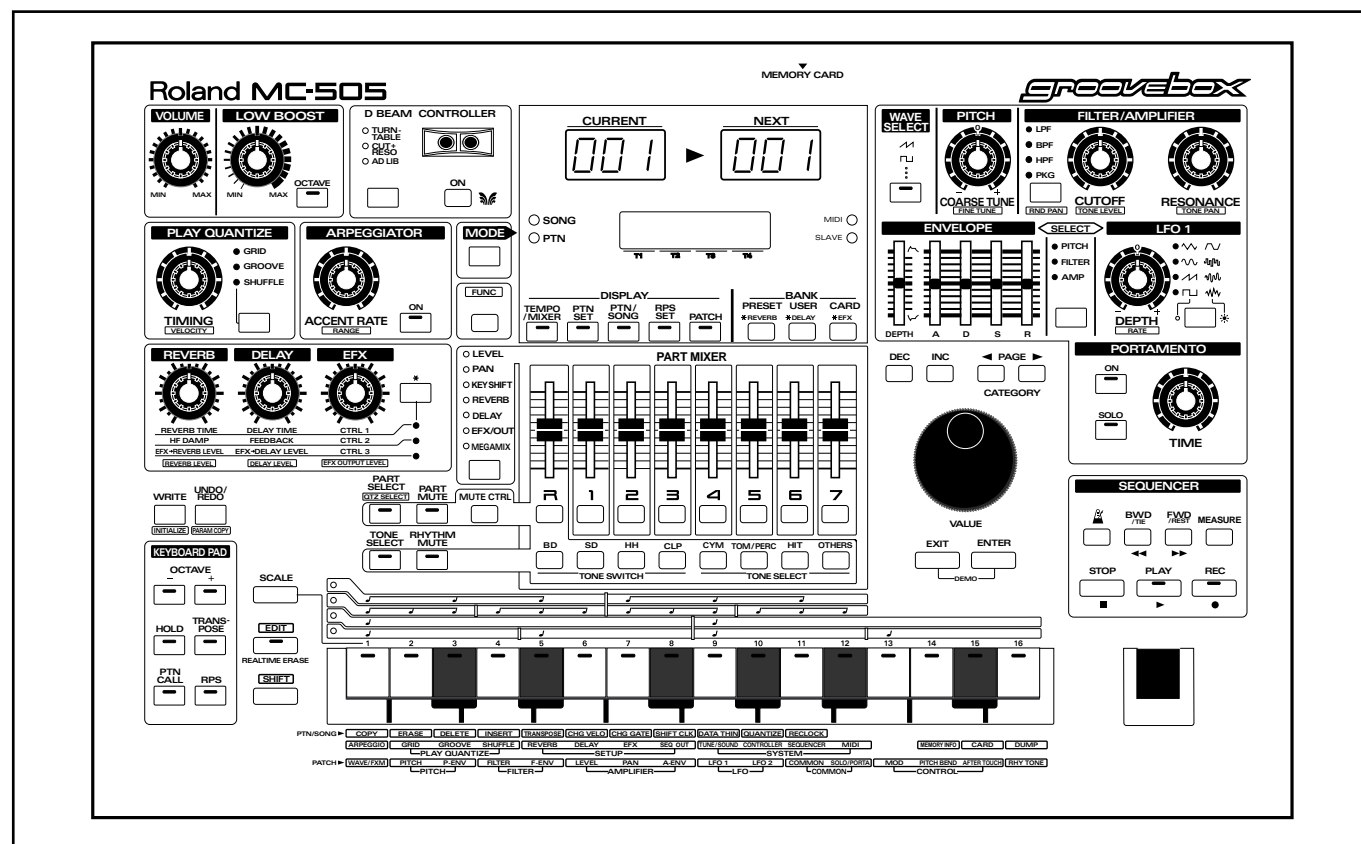
5 Kg / 11 lbs 1 oz

### ●Accessories

Owner's Manual Set(English)	(PNo.71010678)
Owner's Manual Set(Japanese)	(PNo.71010601)
Card Protector	(PNo.01346312)
AC Cord	
100V	(PNo.00894367)
117V	(PNo.00894378)
230V EU	(PNo.00894389)
230V E	(PNo.00907001)
240V A	(PNo.23495124)

### ●Options

Stereo Headphones	RH-20/80/120
Pedal Switch	DP-2/6, BOSS FS-5U
Audio Connection Cable	PJ-1M PCS-075W/150W/250W
MIDI Cable	MSC15/25/50
SmartMedia	S2M-5/S4M-5



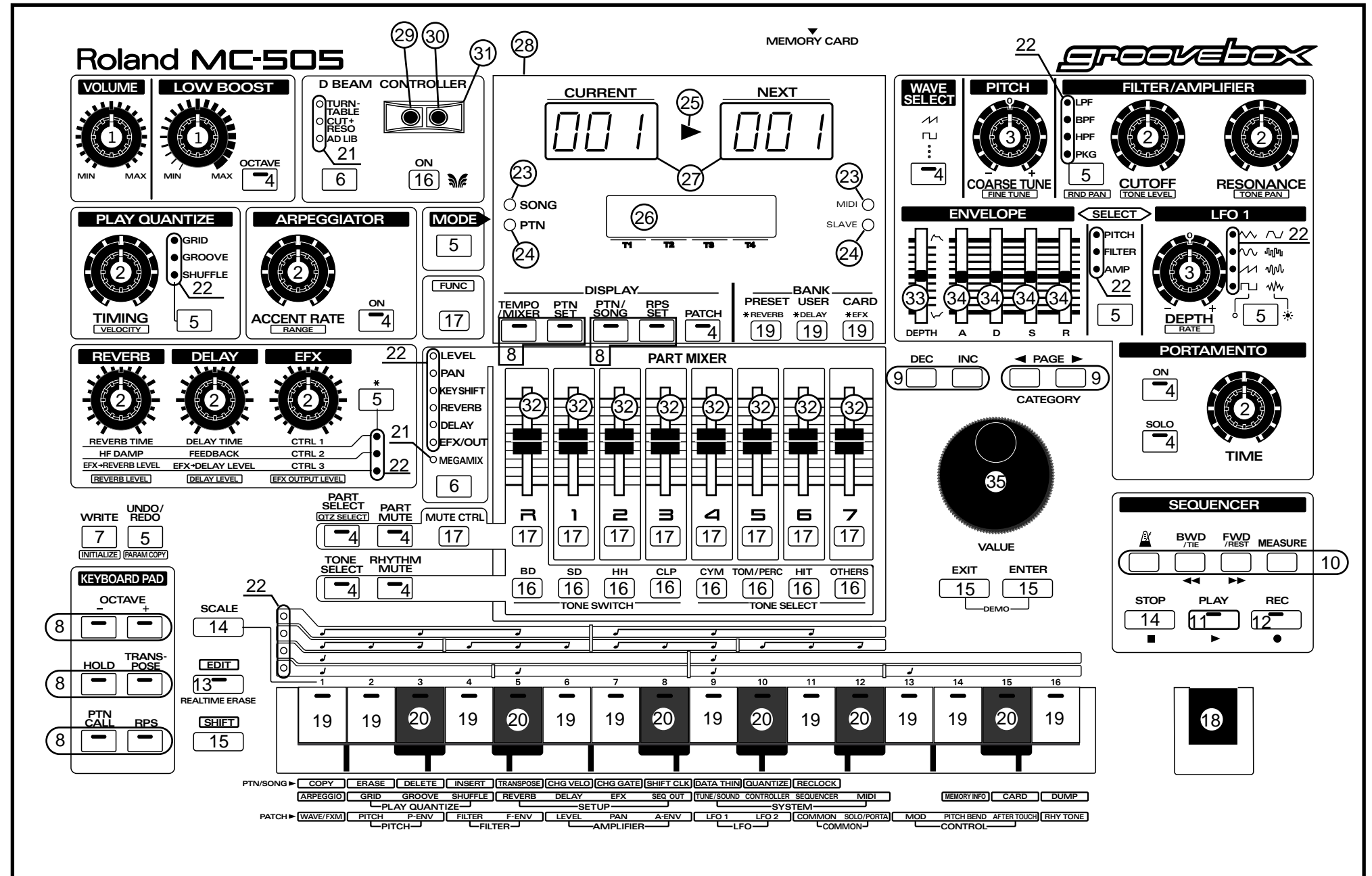
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# LOCATION OF CONTROLS

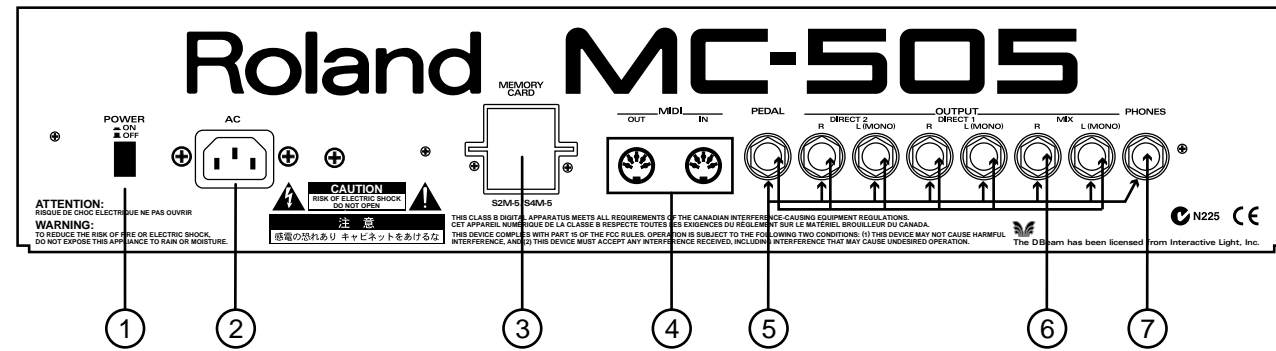
## FRONT VIEW PARTS LIST

No.	Part Number	Part Name
①-③	01343112	J R-KNOB MF BLK/LCG
①	01013545	ROTARY POT. RK09L12D0 10KBX2
②	01013556	ROTARY POT. RK09L1140 10KB
③	01342545	ROTARY POT. RK09L1140 10KB with click
④-⑬	01343478	TACT SWITCH SKQNAE
④-⑬	00560745	LED (Green) SLR-325MCT31
	00348490	LED (Red) SLR-325VCT31
④	00900145	D S-KEYTOP SD1H BLK
⑤	00900189	D S-KEYTOP SX1H BLK
⑥	01012978	D S-KEYTOP SX1H MCG
⑦	01129767	D S-KEYTOP SX1H DRD
⑧	00900156	D S-KEYTOP SD2H BLK
⑨	01343189	D S-KEYTOP SX2H LCG
⑩	00904256	D S-KEYTOP SX4H BLK
⑪	22495277	D S-KEYTOP MD1H BLK
⑫	22495344	D S-KEYTOP MD1H RED
⑬	00125734	D S-KEYTOP MD1H LCG
⑭	22495274	D S-KEYTOP MX1H BLK
⑮	00125723	D S-KEYTOP MX1H LCG
⑯-⑰	01125890	D S-KEYTOP SD1H-A CLR
⑯	01232201	TACT SW. SKHJGS
⑰	01232212	TACT SW. SKHJGR
⑱-⑳	00125590	TACT SW. EVQ QJJ 05Q
⑱-⑳	01348623	LED SLR-56VCT32
⑲	22495371	T S-KEYTOP MX1H BLK
⑲	01013356	T S-KEYTOP MD1H LCG
⑳	22495372	T S-KEYTOP MD1H BLK
㉑	01342490	LED SLZ-290B-17-T1
㉒	01342489	LED SLZ-190B-17-T1
㉓	01348634	LED SLR-56MCT32
㉔	01348623	LED SLR-56VCT32
㉕	00897289	LED SML1216W
㉖	01343223	LCD UNIT DM1628-0AAB
㉗	01342534	7-segment LED SL-9351S
㉘	01343078	DISPLAY COVER
㉙-⑳	01343090	LED SPACER
㉙	01341623	LED TLN201
㉚	01342578	PHOTO DIODE TPS708
㉛	01343089	D-BEAM CONTROLLER ESCT BLK
㉜	01345912	F S-KNOB S BLK LCG
㉝	01342134	SLIDE POT. EWA NKE C10 B14
㉞-㉟	01346112	MOLD KNOB BLK
㉞	01343312	SLIDE POT. RS25111C6 10KB L=15
㉟	01343301	SLIDE POT. RS25111A6 10KB L=15
㊱	22485303	D R-KNOB L BLK 248-303(knob)
㊱	01013223	ROTARY ENCODER EVQ VEM F01 24B



**REAR VIEW PARTS LIST**

No.	Part Number	Part Name
①	12499175	G S-BUTTON S1H BLK
	13129160	PUSH SW. SDDL1B1-B-D-2 TV-5 5A/250V
②	00125023	AC INLET PW11818 (INL-7) 10A/250V 3P
③	01341178	CARD CONNECTER CN015S-3013-0
	01343101	CARD ESCUTCHEON D C-ESCT BX1H BLK
④	13429825	MIDI JACK YKF51-5054
⑤	22150756	JACK NUT 2
⑥	13449283	JACK HLJ7101-01-3010
⑦	13449284	JACK HLJ7001-01-3010

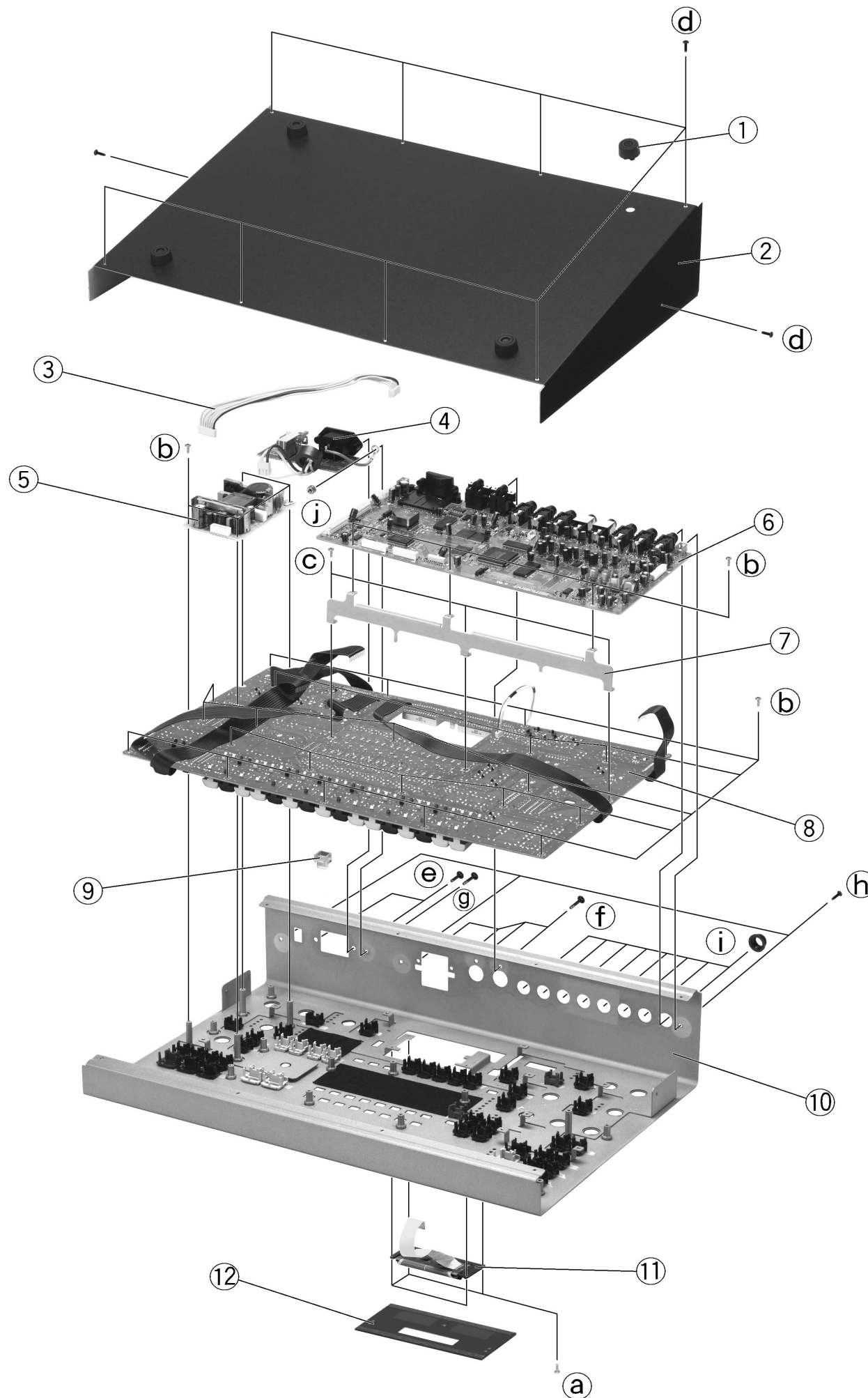


# EXPLODED VIEW

[PARTS]

No.	Part Cord	Part Name
①	12359139	Foot FF-018 BLK
②	01343067	Bottom Cover
③	01450512	Wiring Power
④	71010656	Inlet Board Assy
⑤	01451678	Switching Regulator KW1AA265
⑥	71013567	Main Esct Set (Main Board)
⑦	01343123	PWB Holder
⑧	71010634	Panel Esct Set
⑨	01125890	DS-Keytop SD1H-A CLR
⑩	01343056	Top Panel
⑪	01343223	LCD DM 1628-OAAB
⑫	01343078	MC-505 Display Cover

No.	Part Cord	Part Name
Ⓐ	40011045	Binding Tap tight B 2x6mm ZC (x4)
Ⓑ	40011056	Binding Tap tight B 3x6mm ZC (x29)
Ⓒ	40011067	Binding Tap tight B 3x8mm ZC (x3)
Ⓓ	40011090	Binding Tap tight B 3x6mm BZC (x10)
Ⓔ	40238501	Binding Tap tight P 4x8mm BZC (x2)
Ⓕ	40011201	Pan Tap tight P 3x8mm BZC (x4)
Ⓖ	40230978	Binding Evatight CE 4x12mm BZC (x1)
Ⓗ	40011490	Sems 3x6mm BZC (x3)
Ⓘ	22150756	Jack Nut 2 (x8)
⓷	40011745	M4 Nut with Spring Washer ZC (x1)



# PARTS LIST

<p><b>SAFETY PRECAUTIONS:*2</b></p> <p>The parts marked <math>\Delta</math> have safety-related characteristics. Use only listed parts for replacement.</p>	<p><b>CONSIDERATIONS ON PARTS ORDERING</b></p> <p>When ordering any parts listed in the parts list, please specify the following items in the order sheet.</p> <table border="1"> <thead> <tr> <th>QTY</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> <th>MODEL NUMBER</th> </tr> </thead> <tbody> <tr> <td>Ex. 10</td> <td>22575241</td> <td>Sharp Key</td> <td>C-20/50</td> </tr> <tr> <td>15</td> <td>2247017300</td> <td>Knob (orange)</td> <td>DAC-15D</td> </tr> </tbody> </table> <p>Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.</p>	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER	Ex. 10	22575241	Sharp Key	C-20/50	15	2247017300	Knob (orange)	DAC-15D
QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER										
Ex. 10	22575241	Sharp Key	C-20/50										
15	2247017300	Knob (orange)	DAC-15D										

NOTE1: The parts marked # are new. (initial parts)  
NOTE2: The parts marked ! have safety-related characteristics. Use only listed parts for replacement

**CASING**

#	01343056	MC-505 TOP PANEL	
#	01343067	MC-505 BOTTOM COVER	
#	01343078	MC-505 DISPLAY COVER	
#	01343134	MC-505 POT DUST COVER A	
#	01343145	MC-505 POT DUST COVER B	
	12359139	FOOT FF-018 BLK	

**CHASSIS**

#	01343123	MC-505 PWB HOLDER	
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**KNOB, BUTTON**

	00125723	D S-KEYTOP MX1H LCG	light gray	
	00125734	D S-KEYTOP MD1H LCG	light gray	
	00900145	D S-KEYTOP SD1H BLK	black	
	00900156	D S-KEYTOP SD2H BLK		
#	00900189	D S-KEYTOP SX1H BLK		
	00904256	D S-KEYTOP SX4H BLK		
	01012978	D S-KEYTOP SX1H MCG	gray	
	01129767	D S-KEYTOP SX1H DRD	red	
	01343189	D S-KEYTOP SX2H LCG		
	22495274	D S-KEYTOP MX1H BLK		
	22495277	D S-KEYTOP MD1H BLK		
	22495344	D S-KEYTOP MD1H RED	red	
	01125890	D S-KEYTOP SD1H-A CLR	clear	
	12499175	G S-BUTTON S1H BLK	Power SW	
#	01346112	MOLD KNOB BLK	Envelope	
#	22485303	D R-KNOB L BLK 248-303	Encoder	
#	01343112	J R-KNOB MF BLK/LCG	round knob	
#	01345912	F S-KNOB S BLK LCG	center fader	
	22495371	T S-KEYTOP MX1H BLK	Tap	
	22495372	T S-KEYTOP MD1H BLK	Keypad	
	01013356	T S-KEYTOP MD1H LCG	Keypad	

**SWITCH**

$\Delta$	13129160	SDDL1-B-D-2 TV-5 5A/250V	power push SW with green LED	SW6 on IB
	01232212	SKHJGR	push SW with orange LED	SW3,46-53 on PB
	01232201	SKHJGS	push SW for keypads	SW9-12,29-34 on PB
	00125590	EVQ QJJ 05Q	push SW	SW67-83 on PB
	01343478	SKQNAE	push SW	SW1,2,4,5,7,8,SW13-28, 38-45,54-66,SW84-86 on PB

**JACK, SOCKET**

	13429825	YKF51-5054	MIDI PHONES	JK8 on MB
	13449284	HLJ7001-01-3010	PEDAL,OUTPUTS	JK6 on MB
	13449283	HLJ7101-01-3010		JK1-5,7,9 on MB

**DISPLAY UNIT**

#	01343223	DM1628-0AAB	LCD unit	
#	01342534	SL-9351S	7 segment	D8,9 on PB

**PCB ASSY**

#	71013567	MAIN ESCT SET		
	NOTE1: MAIN ESCT SET includes the following parts			
	*****	MAIN BOARD ASSY		
#	01343101	D C-ESCT BX1H BLK		
#	71010634	PANEL ESCT SET		
	NOTE2: PANEL ESCT SET includes the following parts.			
	22495371	T S-KEYTOP MX1H BLK		
	22495372	T S-KEYTOP MD1H BLK		
	01013356	T S-KEYTOP MD1H LCG		
#	01343089	D-BEAM CONTROLLER ESCT BLK		
#	01343090	LED SPACER		
#	71010656	INLET BOARD ASSY		

**IC**

	15259709T0	TC74HC10FAF	IC18 on MB
	15259720T0	TC74HC74AF	IC35 on MB
	15289714	UPD63200GS	IC11-13 on MB
	00346490	TC3W01F	IC21,28 on MB
	15249104	TC7S04F	IC52 on MB
	15259885	TC7S32F	IC56 on MB
	15249111	TC7WU04F	IC14,26 on MB
	00233756	TC7W02F	IC57 on MB

	15249121	TC7W04F	IC17 on MB
	00127490	TC7W08F	IC25 on MB
	00232634	TC7W74F	IC29 on MB
	15259778T0	TC74HC245AF	IC22 on MB
	15259809T0	TC74HC393AF	IC19 on MB
	15189261	M5218AFP	IC49 on MB
	15289105	UPC4570G2	OpAmp
	15289402	TA78L05F +5V Regulator	OpAmp
	15199937	M51953BFP	Reset IC
	15289125	PC-410X	Photo Coupler
	01126612	TC514260DJS-60	DRAM 4Mbit
	00893312	UPD4218160LE-60	DRAM 16Mbit
	15259758T0	TC74HC175AF	
	15259716T0	TC74HC32AF	
#	01342423	HD6437042AE11F	CPU
	00897078	RA01-005	TG
	00343823	M60205-0601FP	Gate Array
#	01342401	LHMNOPNH	Wave Memory
#	01454634	UPD23C16000WGY-835-MKH	Preset Data
#	00899812	LH28F800SUT-70	User Data
#	00899812	LH28F800SUT-70	Program
	15169596	TC74HC4051AP	
	15169550T0	TC74HC138AP	
	15169552T0	TC74HC245AP	
	15169556T0	TC74HC574AP	
	15189189	UPC4570HA	OpAmp
	00456856	TD62593AP	TR Array

**TRANSISTOR**

	15329104	2SK368-GR	FET	Q33 on MB
	15309101	2SA1037KR		Q13,22,30 on MB
	15319101	2SC2412KR		Q30 on MB
	15319105	2SC3326A		Q3-12,31,32,35,36 on MB
	15329507	DTA114EK		Q26,27,29 on MB
	15329503	DTA124EK		Q16,20 on MB
	15329511	DTC114TK		Q34 on MB
	15329502	DTC124EK		Q17 on MB
	15129151	2SC1815-GR		Q5 on PB
	15129427	2SC2235-Y		Q10 on PB
	00785945	RN1224		Q19-26 on PB
	15119163	RN2227		Q1-4,6-9,11-18,27-29 on PB

**DIODE**

	15339105	DAN202K		D2-5 on MB
	15339109	DAP202K		DA1,1,12 on MB
	01121323	DA204U		DA3-6,8-10,13-16 on MB
#	01342578	TPS708	Photo Diode	D5 on PB
	01014645	MA165		D13,14,17,18,21,33,35,37, D43-53,56,58,61-64,D67,73, 74,77-90,93-106,D113,114, 116-119,D140-149,D 152-163 on PB

**LED**

#	01341623	TLN201 Infrared	D4 on PB
	00897289	SML1216W	Bi-colored
	00560745	SLR-325MCT31	green
	00348490	SLR-325VCT31	red
#	01348634	SLR-56MCT32	green
	01348623	SLR-56VCT32	red
#	01342489	SLZ-190B-17-T1	red
#	01342490	SLZ-290B-17-T1	green

**RESISTOR**

	00126112	EXBV8V101JV	Quad ladder	RA8-12,20-22,24-29 on MB
	15409113	EXBV8V103JV	Quad ladder	RA30-33 on MB
	15399965	RCE9A103JAG7A	Octal array	RA13,17-19,23 on MB
	15399926	MCR50-101J	1/2W	R363,364 on MB*
#	15399952	MCR50JZH470	1/2W	R186,187,204,205 on MB
	13919140	RGLD8X103J	Octal array	RA2 on PB
	13919142	RGLD8X104J	Octal array	RA1,3 on PB

**POTENTIOMETER,TRIMMER**

	13299206	ENV8AA03B24		VR1 on MB
	01013556	RK09L1140 10KB		VR4-7,14-17 on PB
#	01342545	RK09L1140 10KB with click		VE3,13 on PB
	01013545	RK09K12D0 10KBX2		VR1,2 on PB
#	01343301	RS2511A6 10KB L=15	25mm slide	VR9-12 on PB
#	01343312	RS2511C6 10KB L=15	25mm clicked	VR8 on PB
#	01342134	EWA NKE C10 B14	30mm slide	VR18-25 on PB

**CAPACITOR**

	00236545	AMZV0050J224 0200		C120,127 on MB
	00239601	AMZV0050J104 0200		C117,121,124,203,328,C333,335 on MB
#	00239434	AMZV0050J182 0200		C128,144,152,160,170,C330 on MB
	00239490	AMZV0050J103 0200		C7 on PB
	00236301	AMZV0050J222 0200		C123,135,147,156,165,C174 on MB
#	00239534	AMZV0050J223 0200		C122,129 on MB
#	00239578	AMZV0050J473 0200		C118,125,205 on MB
	00236378	AMZV0050J822 0200		C202 on MB

**INDUCTOR,FILTER**

	00903167	N2012Z601T02	SMD	L7-10,13-16,23-27 on MB
	12449355	FBR07HA850TB00	Ferrite bead	L1 on PB

**CRYSTAL OSCILLATOR**

#	00901912	MA-406 24.576MHz	for TG	X2 on MB
	01126267	MA-406 7.056MHz	for CPU	X1 on MB

**ENCODER**

	01013223	EVQ VEM F01 24B		EN1 on PB
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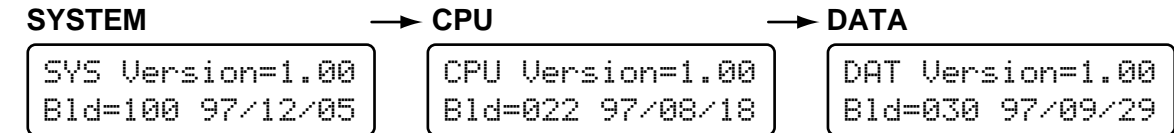
**CONNECTOR**

	00904612	52806-1410	FFC Connector	CN4 on MB
	13369592	B7B-XH-A		CN9 on MB
	13369605	52147-1010		CN1,6 on MB
#	13369606	52147-1110		CN7 on MB
#	13369607	52147-1210		CN8 on MB
#	13369678	52147-1310		CN5 on MB
	13369926	53253-0410		CN2 on MB

01341178	CN015S-3013-0	Card Connector	CN3 on MB
13429299	51048-1000		CN3,5 on PB
13429300	51048-1100		CN6 on PB
13429301	51048-1200		CN7 on PB
13429317	51048-1300		CN1 on PB
<b>WIRING,CABLE</b>			
#	00890390	RIBBON CABL 10X100-P2.0	MB-PB
#	00890423	RIBBON CABL 10X300-P2.0	MB-PB
#	00890601	RIBBON CABL 11X300-P2.0	MB-PB
#	01450756	RIBBON CABL 12X300-P2.0	MB-PB
#	01450767	RIBBON CABL 13X200-P2.0	MB-PB
#	01450501	MC-505 WIRING INLET	IB-PS
#	01450512	MC-505 WIRING POWER	PS-MB
#	01450523	MC-505 WIRING BEAM	PB-MB
#	01232978	TD-10 WIRING GND	Inlet-Chassis
<b>POWER SUPPLY UNIT</b>			
#	01451678	KW1AA265	Switching Regulator
<b>AC INLET</b>			
#	00125023	PW11818 (INL-7) 10A/250V 3P	JK1 on IB
<b>SCREW</b>			
#	40011045	Binding Taptight B 2*6mm ZC	
#	40011056	Binding Taptight B 3*6mm ZC	
#	40011067	Binding Taptight B 3*8mm ZC	
#	40011090	Binding Taptight B 3*6mm BZC	
#	40238501	Binding Taptight P 4*8mm BZC	
#	40011189	Pan Taptight P 3*8mm ZC	
#	40011201	Pan Taptight P 3*8mm BZC	
#	40230978	Binding Evatite CE 4*12mm BZC	
#	40011490	Sems 3*6mm BZC	
#	22150756	JACK NUT 2	
#	40011745	M4 NUT with Spring washer ZC	
<b>PACKING CASE</b>			
#	01343156	MC-505 PACKING CASE	
#	40018512	VINYL BAG 0.03*50*60	
#	40236612	VINYL BAG MIRROR MAT 0.5*600*460	
<b>MISCELLANEOUS</b>			
#	13459171	RCS00000C	Test terminal
#	00453223	LED SPACER LDS-70G	TP1,2 on MB
#	01346312	MC-505 CARD PROTECTOR	D4,5 on PB
#	01343089	D-BEAM CONTROLLER ESCT BLK	DBeam on PB
#	01343090	LED SPACER	on PB
#	01343101	D C-ESCT BX1H BLK	on PB
#	01450734	JACK LEAF	on MB
#	01450745	QFP HEATSINK	JK1,3 on MB
#	12199584	M1698 Grounding terminal	
<b>ACCESSORIES(Standard)</b>			
#	00894367	AC CORD SET 100V	SP18A+IS14 VCTF2X.75
#	00894378	AC CORD SET 120V	SP301+IS14 SJT18/3
#	00894389	AC CORD SET 230V	SP22+IS14 H05VV-F3G1.0
#	00907001	AC CORD SET 240VE	KP-610,GTBS-3,KS-31A
#	23495124	AC CORD SET 240VA	SC-114-J01 ES303-10HMA
#	71010678	Owner's Manual set	English
#	71010601	Owner's Manual set	Japanese

## IDENTIFYING THE VERSION NUMBER

1. Turn the power on.
2. While holding [TEMPO/MIXER], [PTN/SONG] and [PATCH], press keyboard pad [12],[14] and [16] in order.
3. The system program version will be displayed.  
Every time press the keyboard PAD [16] , readout on the display changes as follows.



## SAVING AND LOADING THE USER DATA

\* You can save the user data to a memory card (=SmartMedia).  
Before perform the data saving, you must format a memory card by using the following procedure.

### ◇ Format a Memory Card (SmartMedia)

1. Insert a memory card (2MB or 4MB type) into the memory card slot.
2. Hold down [SHIFT] and press keyboard pad [15].  
This takes you to the screen for formatting cards.

```

CARD:Format
Are You Sure ?
  
```

3. Press [ENTER].  
The following display will appear, and the format operation will be carried out.

```

Processing...
Keep Power ON !
  
```

4. When formatting ends, the following display will appear.

```

CARD:Format
Complete !
  
```

5. Press [EXIT] to exit the setting page.

### ◇ Saving the user data (User Backup)

1. Hold down [SHIFT] and press keyboard pad [15]. You will enter the CARD section's format page.
2. Press PAGE [>] to select the User Backup page.

```

CARD:User BackUp
Are You Sure ?
  
```

3. Press [ENTER].  
The following display will appear, and the User Backup operation will be carried out.

```

Processing...
Keep Power ON !
  
```

4. When User Backup has been completed, the following display will appear.

CARD:User BackUp  
Complete !

5. Press [EXIT] to exit the setting page.

User Backup complete.

◇ Restoring the Saved Settings Back to Internal Memory (Backup Load)

\* This operation loads the contents of a backup file that was saved on a card block into internal memory.

1. Make sure that the memory card is inserted in the memory card slot.

2. Hold down [SHIFT] and press keyboard pad [15].  
You will enter the CARD section's Format page.

3. Press PAGE [>] twice to select the Backup Load page.

CARD:BackUp Load  
Are You Sure ?

4. Press [ENTER]. The following display will appear, and the Backup Load operation will be carried out.

Processing...  
Keep Power ON !

5. When Backup Load is completed, the following display will appear.

CARD:BackUp Load  
Complete !

6. Press [EXIT] to exit the setting page.

Backup Load complete.

## FACTORY PRESET

1. Turn the power on while holding down the [SHIFT].  
Display shows as follows.

FACTORY PRESET  
ALL

2. Press [ENTER] button to load the factory preset data.

NOTICE: It takes a few minutes to complete the data loading.  
Never turn the power off during this procedure.

To abort a command, press [EXIT] button.

# TEST MODE

NOTICE: Before executing test mode, be sure to backup user data as explained in the section "Saving and Loading user data". And when you execute test mode, the various parameters will be given special settings. After executing test mode, be sure to load the Factory preset data, and the User data.

## ◇ Required items

- MIDI Cable
- SmartMedia x2 (Formatted / Protected)
- Foot pedal (DP-2 etc.)
- Monitor Speaker (MA-12 etc.)

## ◇ Entering the TEST MODE

1. Connect the Monitor Speaker to the MIX OUT of the MC-505.
2. Turn the power on while holding down [DBeam TYPE], [DBeam ON] and [FUNC].  
You will enter the TEST MODE and the following basic display will appear.

```
MC-505 Test Mode
Ver1.00
```

3. Press [ENTER]. TEST MODE will be started.

As a rule, tests are in the order of test number, but you can select the each test items directly by pressing the Keyboard pad [1] to [11] while pressing [SHIFT] button.

## ◇ Exiting the TEST MODE

When LCD Test ends, the following display appears.  
( or in the initial display of the test mode, press keyboard Pad [16] while holding down [SHIFT])

```
Factory Data Set
Ready ??
```

Press [ENTER] button to load the factory preset data.

```
NOTICE: It takes a few minutes to complete the data loading.
Never turn the power off during this procedure.
```

To abort a command, press [BWD] button.

## ◇ Test Items

The MC-505 has the following 11 test items.  
Some test items will be started automatically, when the next previous test ends normally.

1. Memory Test
2. MIDI Test (Identifying the program version)
3. Card Test
4. Pedal Test
5. SW/LED Test
6. Encoder Test
7. A/D Test
8. DBeam Test

9. Sound Test
10. DSP Test
11. LCD Test

### • Exiting the each Test item

Press [ENTER] while holding down [EXIT].  
The test will be suspended and MC-505 return to basic test mode display.

## 1. Memory Test

- 1-1. Press [ENTER] in the basic test display. Memory Test will be started.  
The following display will appear.
- 1-2. When the test of the each device end, display --- will change to "ok"

```
Prg Dat Usr Ram
--- --- --- ---
```

or "NG".  
If test result are OK, next test runs automatically.

## 2. MIDI Test

### Troubleshooting for Memory test

Result of Test	Check
Prg NG!	Check IC4 on MAIN BOARD
Dat NG!	Check IC6 or IC7 on MAIN BOARD
Usr NG!	Check IC5 on MAIN BOARD
Ram NG!	Check IC8 on MAIN BOARD

When Memory Test ends normally, MIDI Test runs automatically.  
( or in the initial display of the test mode, press keyboard Pad [2] while holding down [SHIFT])

- 2-1. When MIDI test starts, the following display appears.
- 2-2. Make a loop with MIDI cable that connects MIDI IN and MIDI OUT.

```
MC-505 Test MIDI
Connect ---
```

Does the LCD display "ok"?

- 2-3. Press [ENTER]. The system program version will be displayed.
- 2-4. And press the [ENTER] again. You can check the program version

```
MC-505 Test MIDI
SYS Version 1.00
```

number of the CPU and Preset Data.

- 2-5. Remove the MIDI cable.  
Display shows " Disconnect ok", and then next test runs automatically.

## 3. Card Test

### Troubleshooting for MIDI test

Result of Test	Check
"Connect ok" is not appeared	Check IC52 Is the signal detects from PIN 1 and PIN 4 ?
	Check IC20 Is the signal detects from PIN 2 and PIN 4 ?
	Check Q16/17 Is the Low level signal detects from the base of Q16 ?

When MIDI Test ends normally, Card Test runs automatically.  
 ( or in the initial display of the test mode, press keyboard Pad [3] while holding down [SHIFT])

3-1. When Card test starts, the following display appears.

3-2. Insert a card with write protected.

```

    Card Protect---
    Read/Write  ---
    
```

Remove the card once, and insert the card with not write protected.  
 Does the LCD display "ok"?

4. Pedal Test

Troubleshooting for Card test

Result of Test	Check
No response	Check IC25(Pin 1/2/7), IC57(Pin 3) If the Card is inserted, Voltage of IC25 Pin 1 becomes high level.
Protect NG!	Check R1, IC1 Is the voltage of CWPSNS Low level?
Read/Write NG!	Check IC24(Pin 3/6) Is the level of XCWR/XCRE change during the test?
	Check IC22, RA19 Is there something wrong with card bus ?
	Check IC24(Pin 8)/IC23 Is there something wrong with decoder?
	Check the IC25(PIN 3,Write) Is the voltage of WP high level?

When Card Test ends normally, Pedal Test runs automatically.  
 ( or in the initial display of the test mode, press keyboard Pad [4] while holding down [SHIFT])

4-1. When Pedal test starts, the following display appears.

4-2. Connect the Foot Pedal to the Pedal Jack.

```

    Pedal Test
    off
    
```

4-3. Step on a Pedal. And check that "on" have been displayed.

4-4. Foot off the Pedal. And check that "off" have been displayed.

4-5. Pedal test ends and next test runs automatically.

Troubleshooting for the Pedal Test

Result of Test	Check
No response Display remains "on"	Check Q20 → Is signal level of the PEDAL change? Display remains "on" Check the condition of connection of L27, R224/225

5. SW & LED Test

When Pedal Test ends normally, SW & LED Test runs automatically.  
 ( or in the initial display of the test mode, press keyboard Pad [5] while holding down [SHIFT])

5-1. When SW & LCD test starts, the following display appears.  
 All the LEDs turning on?

```

    SW & LED Test
    off
    
```

5-2. Press all the buttons one by one. Then each names of buttons appear on the display.  
 And buttons that have corresponding LEDs are put out its LEDs.  
 Press all the buttons for turning off the all LEDs.  
 To check the 7 segment LED and Beat LED, use [WAVESELECT] button.  
 Check that the segment light in order, and Beat LED turns RED and Green.

Is button name appeared on the display?  
 Are all the LEDs turning off?

5-3. If test ends normally, press [ENTER] to start next test.

Troubleshooting for the SW & LED Test

Result of Test	Check
One of the LEDs does not lit.	Check the condition of connection of LED
Two or more LEDs do not lit.	Refer to the circuit diagram, check the transistor, buffer(74HC245), or decoder(74HC138) around the LED circuitry.
One of the SWs does not work.	Check the diode and condition of connection of SW
To or more SWs do not work.	Refer to the circuit diagram, check the decoder and transistor array.
LED stays on.	Check the short circuit of signal lines of LED.

6. Encoder Test

When Switch and LED Test ends normally, Encoder Test runs automatically.  
 ( or in the initial display of the test mode, press keyboard Pad [6] while holding down [SHIFT])

6-1. When Encoder test starts, the following display appears.

```

    Encoder Test
    val= 0
    
```

6-2. Rotate the encoder clockwise slowly. Check that the " val" changes from 0 to +24.

6-3. Rotate the encoder counterclockwise slowly. Check that the " val" changes from +24 to -24.

NOTE: To prevent the error, not to rotate the encoder fast.

6-4. When encoder test ends, "OK" appears on the display.

6-5. If test ends normally, press [ENTER] to start next test.

Troubleshooting for the Encoder Test

Result of Test	Check
"val" does not change	MAIN BOARD IC17 ; Is puls generated ? Check the condition of connection of R278-283,C284/285 on the MAIN BOARD
Error result even if rotate the encoder slowly	check the encoder

**7. AD Test**

When Encoder Test ends normally, AD Test runs automatically.  
( or in the initial display of the test mode, press keyboard Pad [7] while holding down [SHIFT])

7-1. When AD test starts, the MC-505 goes into standby mode.  
Move each knob, name and value of the knob are displayed.  
Move all the knobs and sliders fully one by one. (excluding "VOLUME" and LOW BOOST)

NOTE: To prevent the error, not to move the knobs or slider simultaneously.

Check that the value changes 0 from 127.

7-2. When test ends, press [ENTER] to start next test.

Troubleshooting for the AD Test

Result of Test	Check
No response	Inspect the signal path of AMUX0, AMUX1, AMUX2 for breaks or short circuit.
Value does not reach the 0 or 127	Check the power supply of the panel Check the analog switches (74HC4051;IC3,4,7 on PB) Inspect the capacitor that is attached to the potentiometer for short circuit
Error result even if move the knob or slider one by one	Inspect the signal path of the potentiometer for short circuit Check analog switch whether signal of AN0/1/2 are not corrupted.

**8. DBeam Test**

When AD Test ends normally, DBeam Test runs automatically.  
( or in the initial display of the test mode, press keyboard Pad [8] while holding down [SHIFT])

8-1. When passing your hand over the DBeam controller, the value appears on the 7-segment LED.  
Raise or lower your hand. Check that the value changes 0 from 127.

8-2. When test ends, press [ENTER] to start next test.

Troubleshooting for DBeam Test

Result of Test	Check
The value appears on the 7seg-LED, even if not passing your hand over the DBeam controller.	Make an adjustment to DBeam controller with reference to [Adjusting DBeam controller](page **).
The value not appears on the 7seg-LED, even if passing your hand over the DBeam controller. The value does not reach to 127, even if move your hand closer to the DBeam controller.	Check IC18,IC19 on the main board. Is pulse detected from PULSE, DBPLS?  Check IC50,IC59,Q33 on main board. The value does not reach to 127, even if move your hand closer to the DBeam controller. When passing your hand over the DBeam controller, is potential of the pin 1 of IC50 change ? Is signal detected from pin 3 of IC59 ?
	Check the condition of connection of CN2 on main board. And Inspect the CN2 on the main board for breaks.
	Is pulse detected from Input and Output of the IC2 on the panel board.
	Check D4,D5 of the panel board. Is a driving circuit of D4 work? In the case of D4 is drive correctly and no signal detected from IC2, probably D5 is broken.

**9. Sound Test**

9-1. Rotate the VOLUME knob fully clockwise, and rotate the LOW BOOST knob fully counterclockwise.

9-2. Connect the Monitor to the MIXOUT Jack of the MC-505. And also connect the Headphone to the PHONES Jack. In the case of you use one Monitor, be sure to insert the opened plug into the another channel of the Mix output to obtain the correct wave form.  
Verify the waveform being output by the oscilloscope, and check the sound.

9-3. When sound test starts, sound output from L ch of the MIXOUT and Headphone.  
Every time press the [ENTER], output channel is switched.  
At first, MC-505 output sinusoidal wave from each jacks, and next square wave form is output.  
Change the connection of the monitor to corresponding jack.  
Pitch of the sound is deferent depends on each jack.

Verify that no undesired sound is heard.  
Verify that no undesired waveform or voltage detected.

Start	MIXOUT /L	sinusoidal wave
press [ENTER]	MIXOUT /R	sinusoidal wave
	• DIRECT1/L	sinusoidal wave
	• DIRECT1/R	sinusoidal wave
	• DIRECT2/L	sinusoidal wave
	• DIRECT2/R	sinusoidal wave
press [ENTER]	MIXOUT /L	square wave
	• MIXOUT /R	square wave
	• DIRECT1/L	square wave
	• DIRECT1/R	square wave
	• DIRECT2/L	square wave
	• DIRECT2/R	square wave

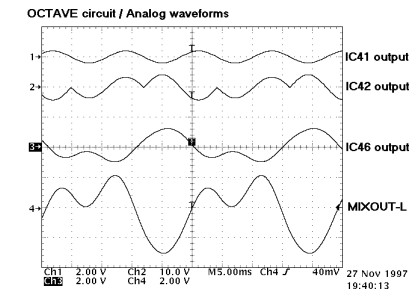
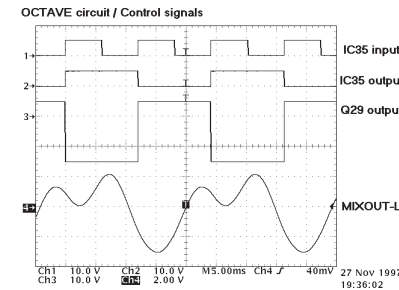
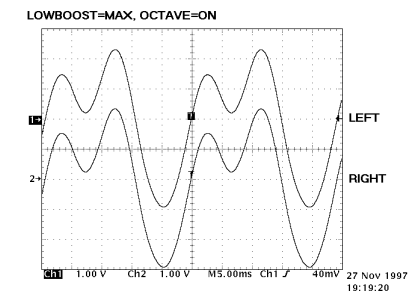
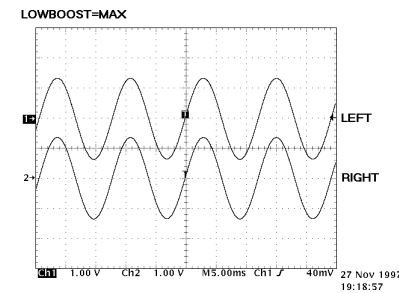
9-4. Connect the monitor to the MIXOUT, and press [ENTER].  
Sinusoidal wave sound output from the center.

- 9-5. Rotate the LOW BOOST knob fully clockwise.  
Next press [OCTAVE] located near the LOW BOOST knob.  
Verify that no undesired sound is heard.  
Verify that no undesired waveform or voltage detected.

- 9-6. When test ends, press [ENTER] to start next test.

Troubleshooting of the Sound Test

Result of Test	Check
No sound	Check D/A converter (uPD63200;IC11-13) Check around the power supply, digital signal, filter circuitry. If OP-Amp is heated, probably it is broken. Check the condition of connection and short circuit of capacitors and resistors. Check around mute circuitry. Control voltage of the 2SC3326(printed CCA)is normally -15V. More than 4V detected from 6pin of IC34? Sound is too loud,soft or distorted Check around filter circuitry. Check the condition of connection and short circuit of the feedback resistor and ground resistor Check around mute circuitry
Sound is too loud,soft or distorted	Check around filter circuitry. Check the condition of connection and short circuit of the feedback resistor and ground resistor Check around mute circuitry
square wave form is corrupted treble is heavy	Check around filter circuitry treble is heavy Check the condition of connection short circuit, and breaks of the capacitors.
OCTAVE sound output even if indicator is not lit. Or no sound output even if indicator is lit.	Check Q31,Q32 Base resistor carries voltage of -15V in active, and +5 in inactive. Check Q3,Q4 Is square wave of +5V/-15V input to base resistor ? Check IC35 Is square wave output from pin 5 by the double frequency of the square wave that input to pin 3. Check IC45,Q1 Is square wave detected from collector of the Q1



10. DSP Test

When AD Test ends normally, DSP Test runs automatically.  
( or in the initial display of the test mode, press keyboard Pad [10] while holding down [SHIFT])

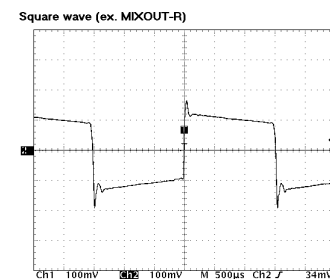
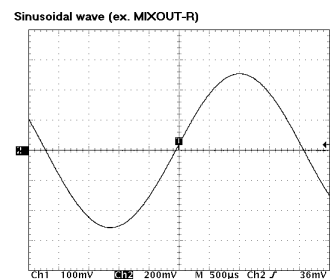
- 10-1. When DSP test starts, test runs automatically and 7 part are checked.  
If test result are OK, O appears on the display and if NG, X appears on the display.

- 10-2. If test result is OK, press [ENTER] to start next test.

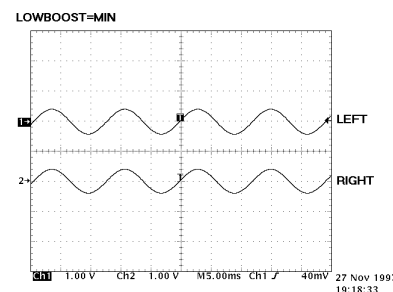
Troubleshooting for the DSP Test

Result of test	Check
"x" displayed	Check IC10 Bleak or etc. Check IC3 Pin 119-143

Sample waveforms of Sound Test



When LOW BOOST and OCTAVE function are used.



11. LCD Test

When DSP Test ends normally, LCD Test runs automatically.  
( or in the initial display of the test mode, press keyboard Pad [11] while holding down [SHIFT])

- 11-1. When LCD Test starts, all the dots of the LCD will light.  
Check that the contrast of the LCD changes by rotating the encoder clockwise and counterclockwise.

11-2. When test ends, press [ENTER].

Troubleshooting for the LCD Test

Result of Test	Check
One of the dot is not lit	Replace the LCD unit.
Contrast of the LCD is not changed Contrast of the LCD is pale, even if adjust its contrast maximum level. Contrast of the LCD is dark, even if adjust its contrast minimum level	Check R262 Is PWM waveform input to the QFP side of the R262?
	Check IC31 Check the condition of connection of resistors and capacitors, and its input / output voltage.
	Make hot and cool TH1, if the bounds of the contrast change is large, there is a possibility that the component is broken
	Check DA8 Is there short in the circuit ? If the above check points are normal, replace the LCD unit. Test Mode complete.

## UPGRADING FLASH ROM SOFTWARE VERSION

MC-505 uses the FLASH MEMORY. So the program can be update the program by transferring the data from the upgrading disk (SMF format), through MIDI.

NOTICE : Before executing this software upgrade(including "Factory Preset"), save user data referring to the section "Saving and Loading user data", if necessary. If not, the user data will be erased.

◇ **Required Items**

- MC-505 Version Up Disk Set (PNo. 17048669)  
(The Version up disk contains the MC-505 program converted into SMF data.  
Obtain the latest version from the service center.)
- Sequencer Anything that will playback SMF will do.
- MIDI cable

◇ **Update procedure**

1. Connect MIDI OUT of the Sequencer with MIDI IN of the MC-505.
2. Turn the power on while holding down [TEMPO/MIXER], [PTN SET] and [PATCH] button.  
Display shows as follows.

```
MC-505 Sys-Verup
Y= ENTER/N= EXIT
```

3. Press the [ENTER] button, then MC-505 checks the ROM-ID number.  
And display shows as follows.

```
MC-505 Sys-Verup
Please Send Data
```

Check to see that the display shows as described above and then playback the SMF data.

When the update procedure is in normal operation, [PATCH] LED will blink.

The file names are as follows.

- \_000001.mid
- \_000002.mid
- |
- \_000016.mid.

(For cases where program data volume is small, the file count is less

than 16.)

While playing, a check sum appears on the display.

One=\*\*\*\* : Check sum of the each file.

AI=\*\*\*\* : Total.

After all the files have been played, compare the original checksum (described on disk label) with the current checksum for discrepancy.

```
MC-505 Sys-Verup
One=9244 AI=360F
```

4. Perform the Factory Preset Data loading.  
(See page 7(FACTORY PRESET) for more details.)

NOTICE : As for MC-505, this procedure must be carried out after executing the update procedure.If not, some strange problem may occur later.

The update procedure is now complete.

## NOTICE

### 1. Adjusting DBeam controller

When you replace MAIN ESCT ASSY, DBeam controller adjustment is necessary.

- 1-1. Remove the bottom cover.
- 1-2. Connect the test probe of the oscilloscope to the Tap Point of the MAIN BOARD.  
TP 1: + TP 2: -(GND)
- 1-3. Adjust the voltage output from TP 1 to 0V by using VR1.

NOTE : When you adjust the voltage, be sure to keep MC-505 in a horizontal position, and keep any object and strong light (fluorescent lamp etc.) away from around the photoreceiver.  
Please don't observe the voltage in a state of the photoreceiver side down.

### 2. Group wires

The wirings that connect MAIN ESCT BOARD ASSY and PANEL BOARD are tied.

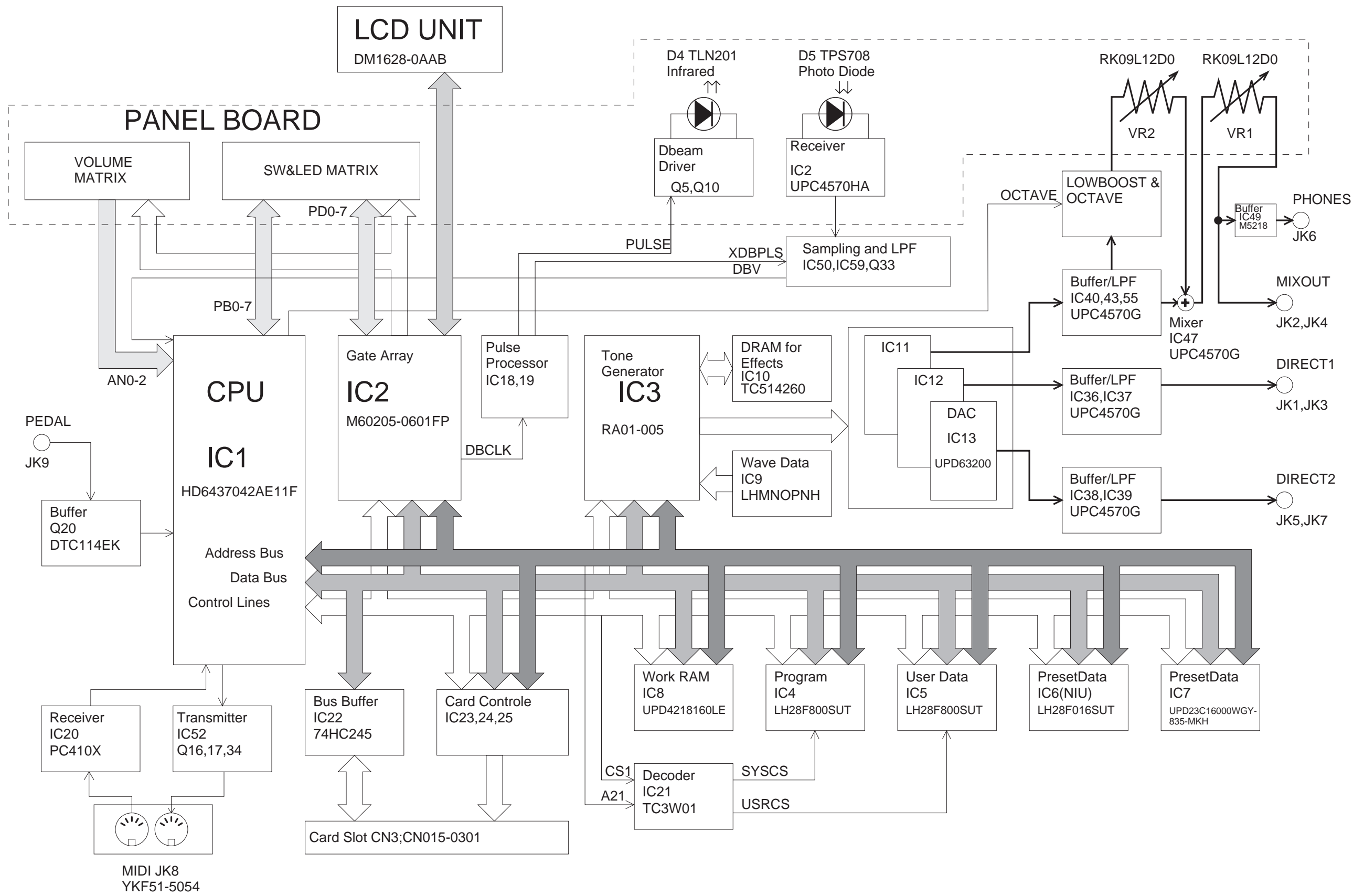
This action is necessary to keep wirings from contacting with Power Supply Unit.

Once you cut the tie, please take this action again for safety.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A BLOCK DIAGRAM

B  
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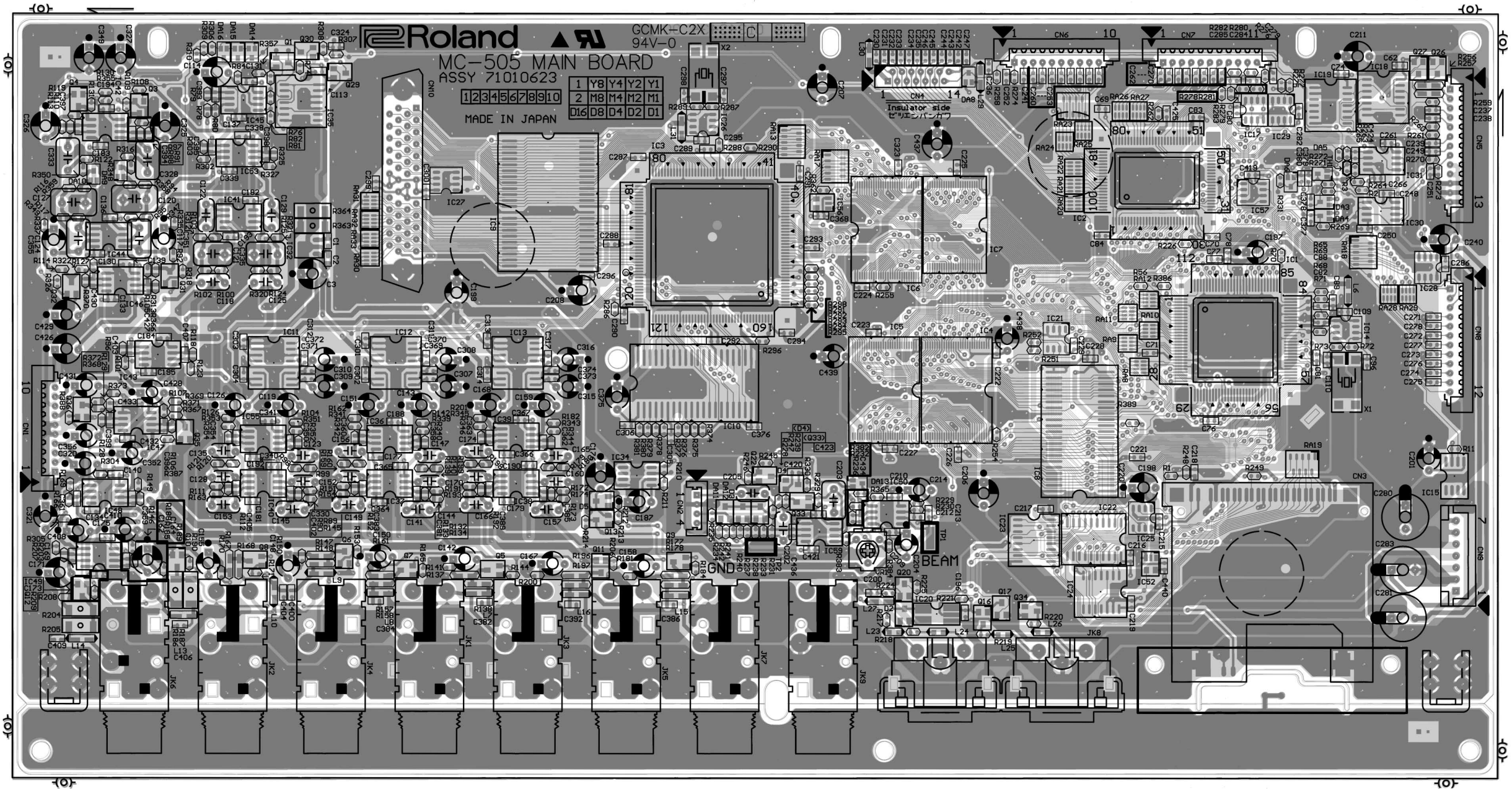


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A CIRCUIT BOARD

E MAIN ESCT SET (71013567)

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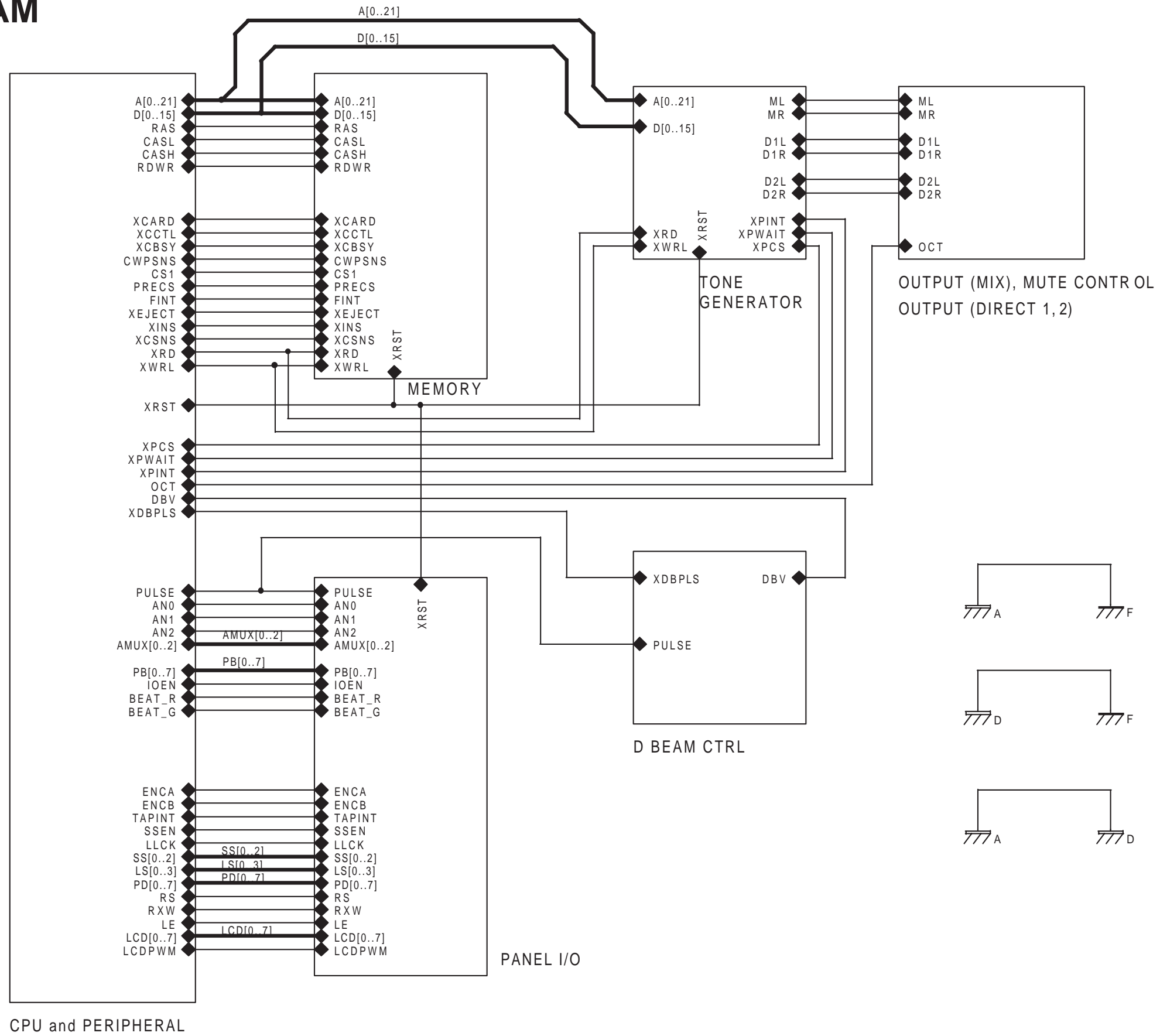


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A CIRCUIT DIAGRAM

B MAIN DIAGRAM

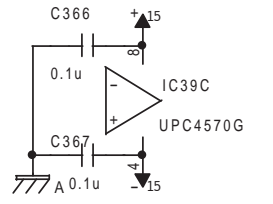
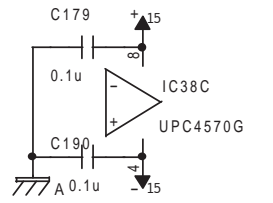
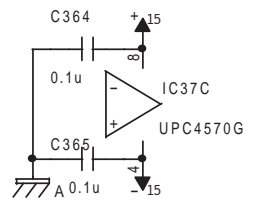
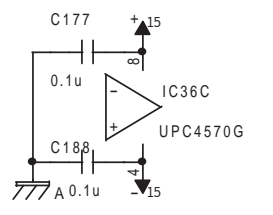
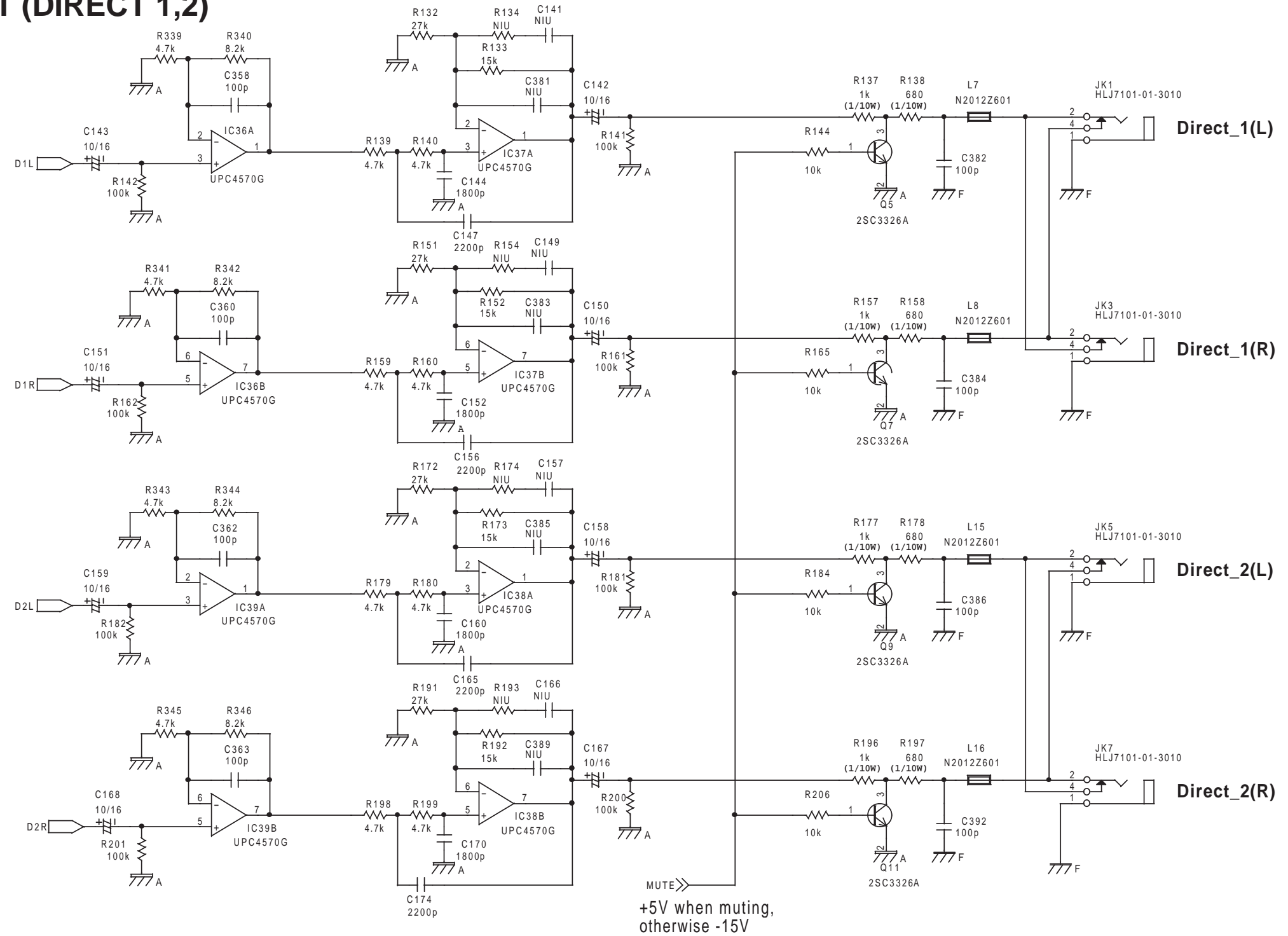
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U



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

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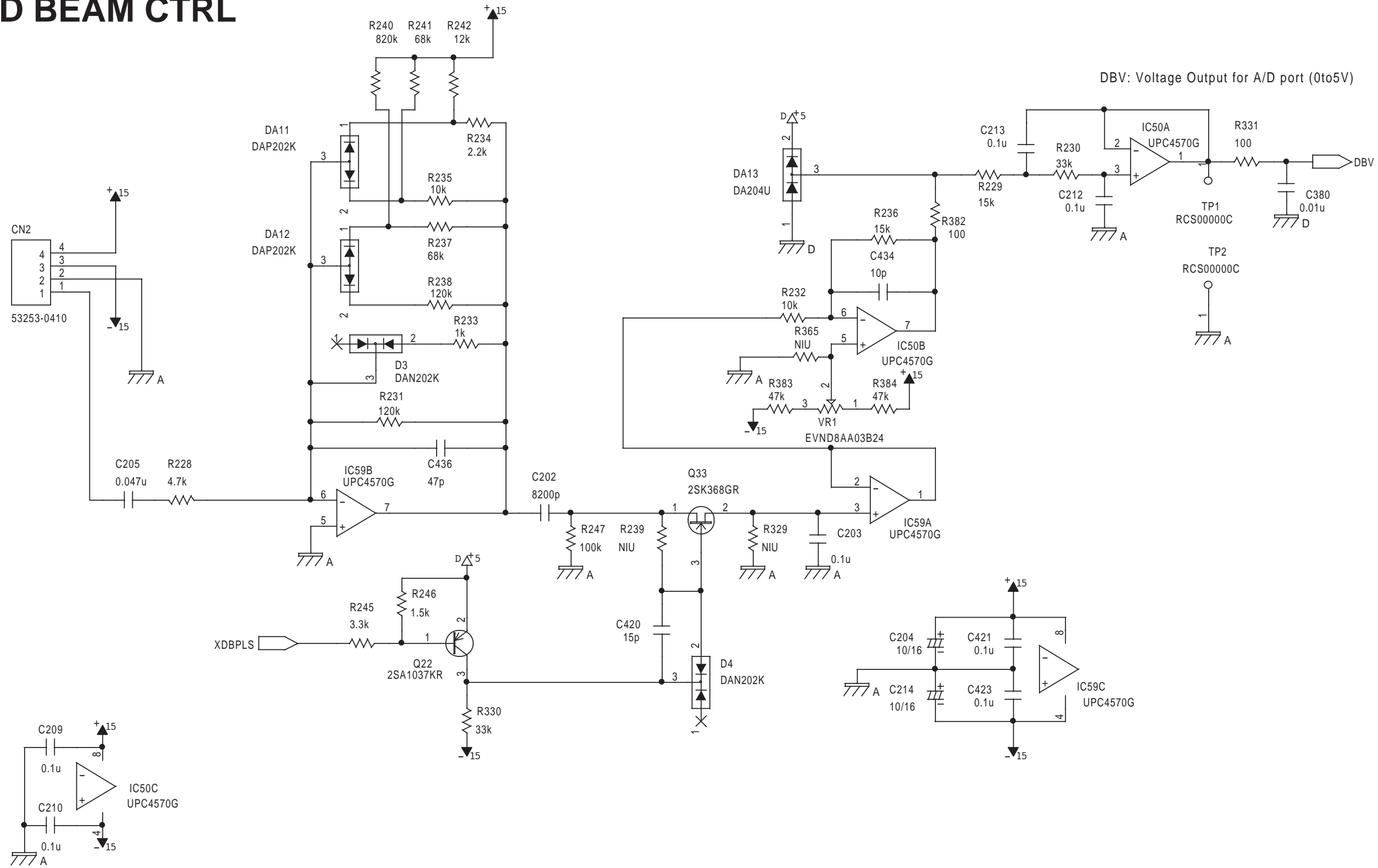
### OUTPUT (DIRECT 1,2)



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

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# D BEAM CTRL

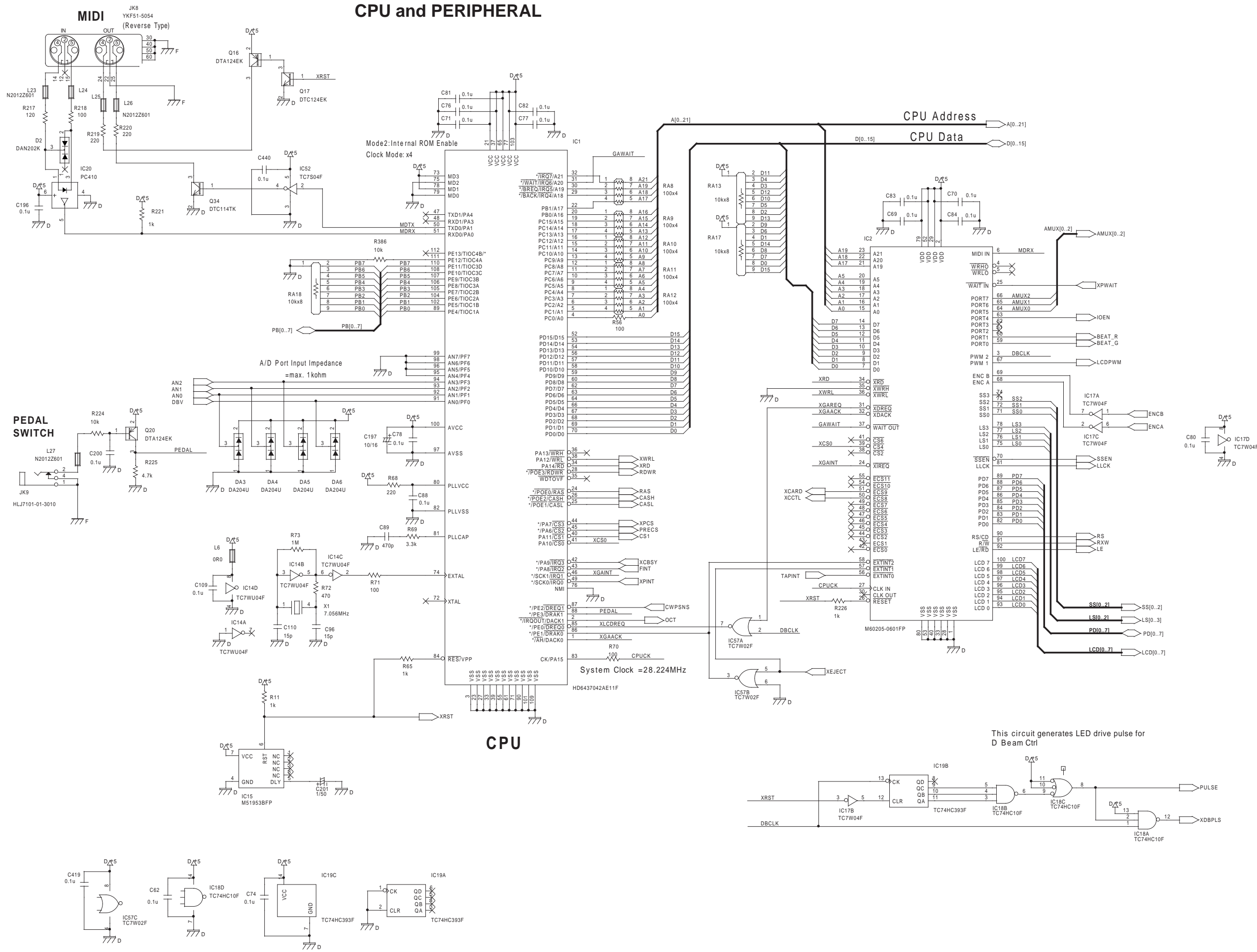




1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

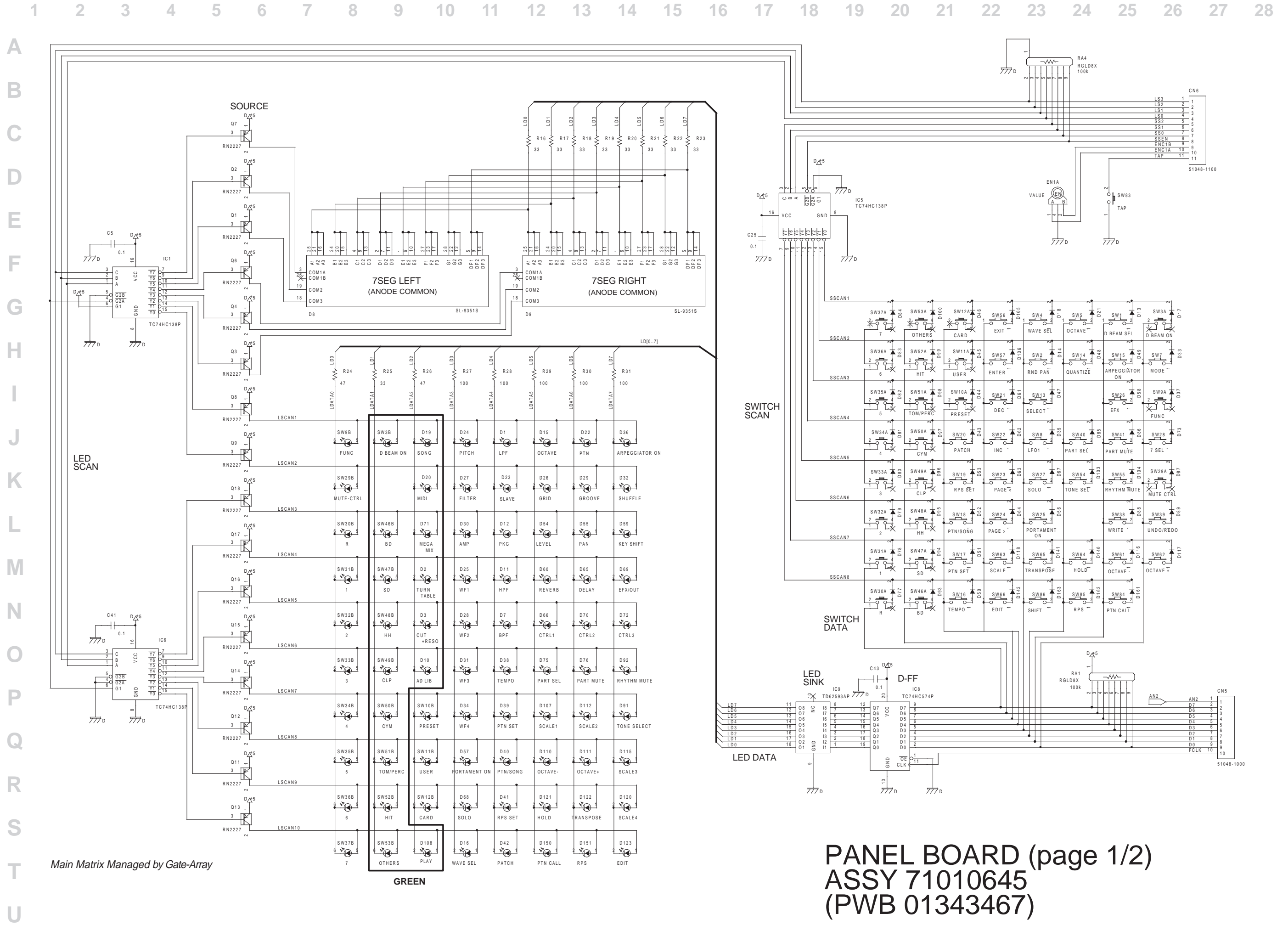
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### CPU and PERIPHERAL







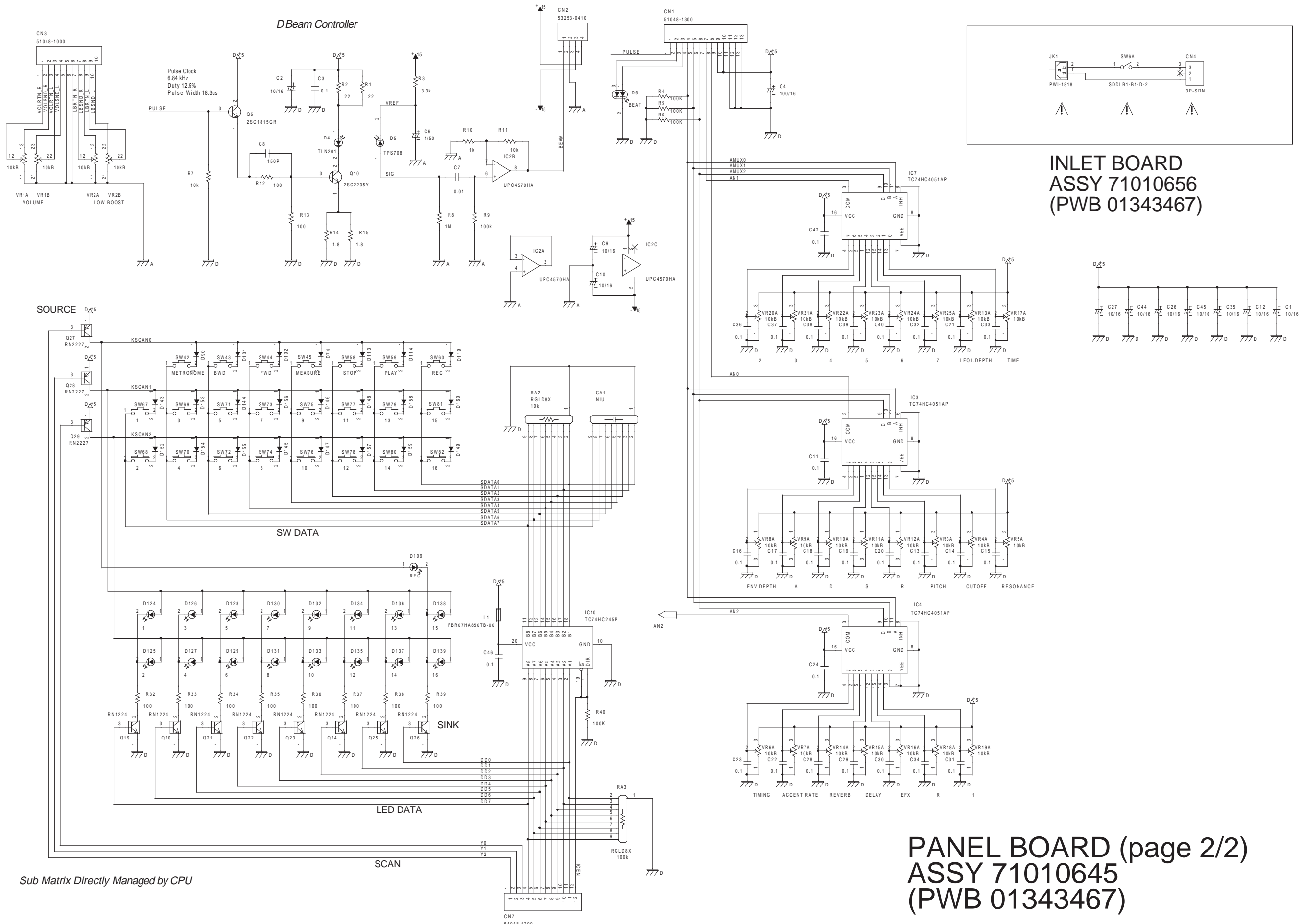


Main Matrix Managed by Gate-Array

**PANEL BOARD (page 1/2)**  
**ASSY 71010645**  
**(PWB 01343467)**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

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Sub Matrix Directly Managed by CPU

**PANEL BOARD (page 2/2)**  
**ASSY 71010645**  
**(PWB 01343467)**