

# XV-2020

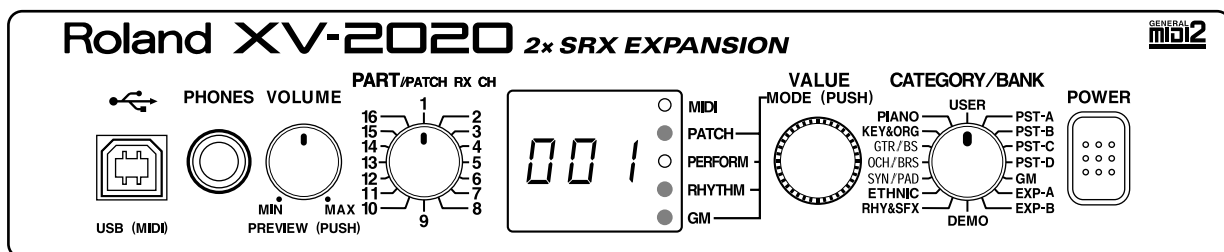
2x SRX EXPANSION

# SERVICE NOTES

Issued by RJA

## TABLE OF CONTENTS

SPECIFICATIONS.....	1	BLOCK DIAGRAM.....	16
LOCATION OF CONTROLS .....	2	CIRCUIT BOARD.....	18
LOCATION OF CONTROLS PARTS LIST .....	3	CIRCUIT DIAGRAM(MAIN 1).....	20
EXPLODED VIEW .....	4	CIRCUIT DIAGRAM(MAIN 2).....	22
EXPLODED VIEW PARTS LIST .....	5	CIRCUIT DIAGRAM(MAIN 3).....	24
PARTS LIST.....	6	CIRCUIT DIAGRAM(MAIN 4).....	26
CHECKING THE VERSION NUMBER.....	10	CIRCUIT DIAGRAM(MAIN 5).....	28
SAVING AND LOADING DATA .....	10	ERROR MESSAGES .....	30
RESTORING THE FACTORY SETTINGS.....	10		
SYSTEM SOFTWARE UPDATE PROCEDURE .....	10		
TEST MODE.....	11		



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# SPECIFICATIONS

XV-2020: 64-Voice Sound Module  
(conforms to General MIDI 2 System)

## Parts

16

## Maximum Polyphony

64 voices

## Wave Memory

64 M Bytes (16-bit linear equivalent)  
Waveforms: 1083

## Expansion Slot

Wave Expansion Board SRX Series: 2 slots

## Preset Memory

Patches: 512 (128 x 4 banks) + 256 (General MIDI 2 Patches)  
Rhythm Sets: 8 (4 x 2 banks) + 9 (General MIDI 2 Rhythm Sets)  
Performances: 64 (32 x 2 banks)

## User Memory

Patches: 128  
Rhythm Sets: 4  
Performances: 64

## Effects

Multi-effects: 40 sets  
Chorus: 1 set  
Reverb: 1 set (8 types)

## Display

7 segments, 3 characters (LED)

## Connectors

Headphones Jack: Stereo 1/4 inch phone type  
USB Connector  
Output Jacks (L (MONO), R) (1/4 inch phone type)  
Output Jacks (L, R) (RCA phono type)  
MIDI Connectors (IN, OUT, THRU)  
DC IN Jack  
Ground Terminal

## Power Supply

DC 9 V (AC Adaptor)

## Current Draw

600 mA

## Dimensions

218 (W) x 237 (D) x 45 (H) mm  
8-5/8 (W) x 9-3/8 (D) x 1-13/16 (H) inches

## Weight

1.4 kg / 3 lbs 2 oz (excluding AC Adaptor)

## Accessories

Owner's Manual ENGLISH(#72125990)  
JAPANESE(#72125967)  
AC Adaptor 120V:(#00905767)  
230V EU:(#01018312)  
230V E:PSB-1U(#01901578)+AC CORD(#01903356)  
240V A:PSB-1U(#01901578)+AC CORD(#01903367)

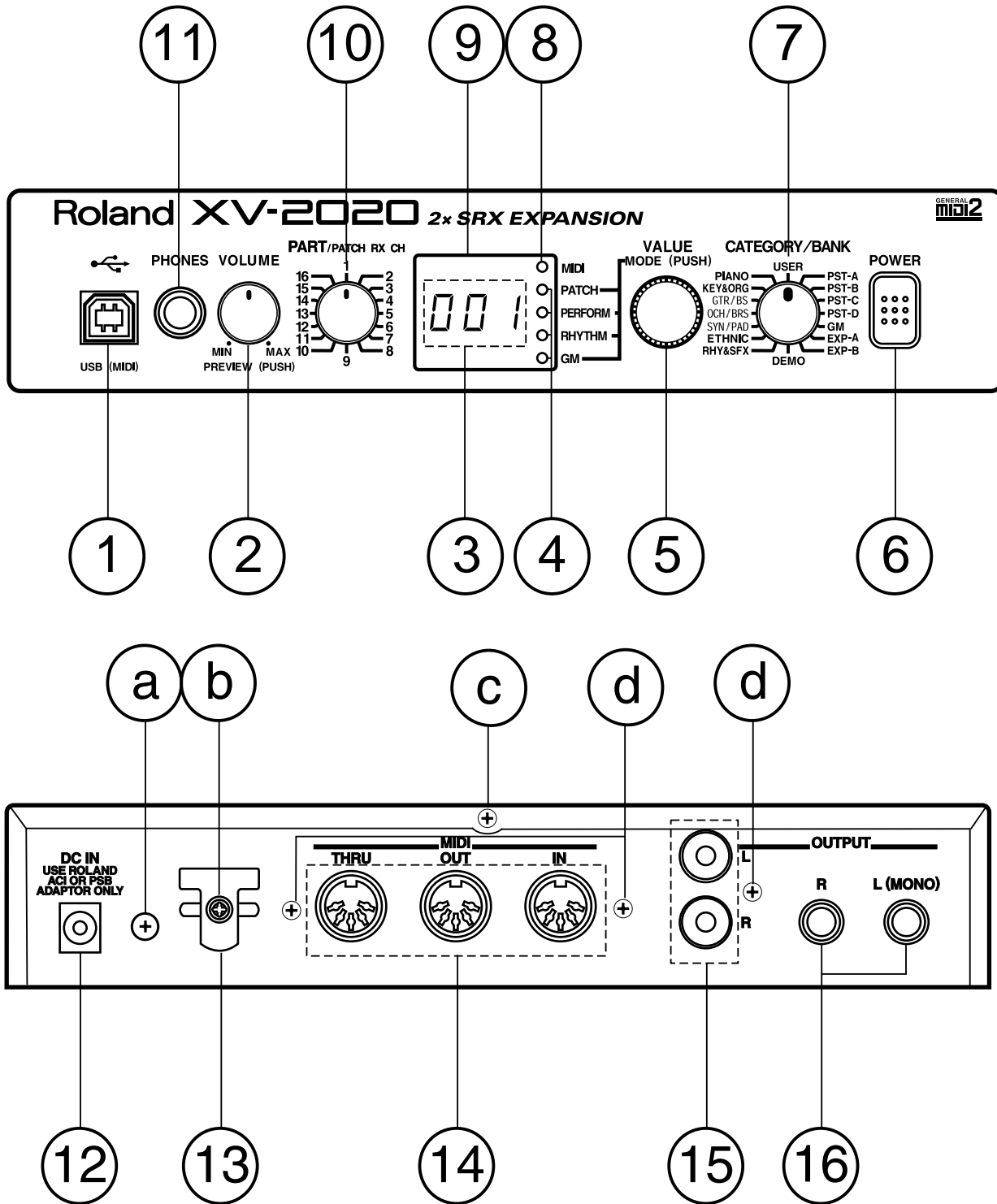
CD-ROM (XV Editor, USB Driver)(#03011534)  
Rubber Feet(#01676412)

## Options

Wave Expansion Board: SRX Series  
Rack Mount Adaptor: RAD-50

\* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without notice.*

# LOCATION OF CONTROLS



# LOCATION OF CONTROLS PARTS LIST

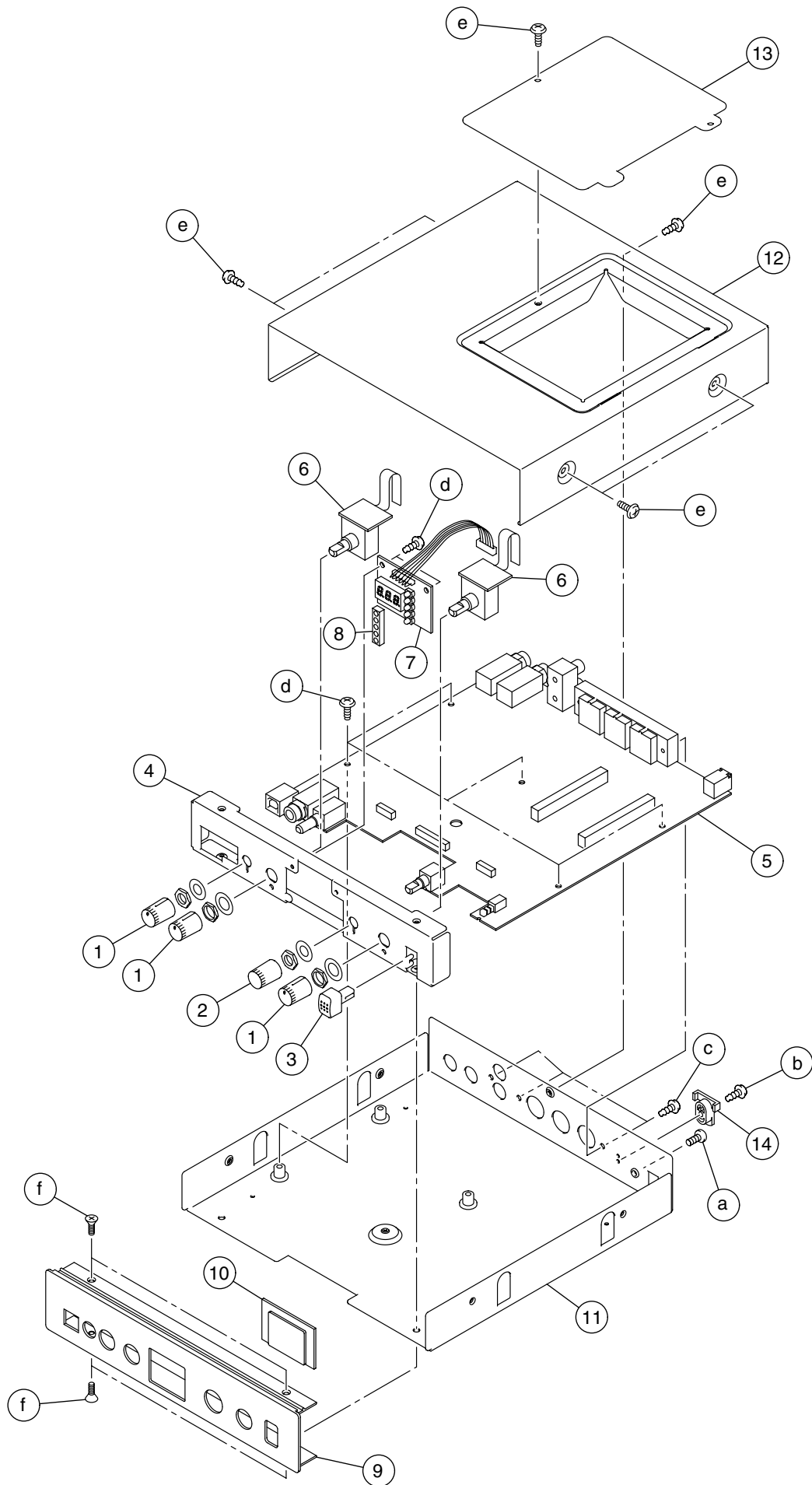
## [Parts]

No	PART CODE	Part name	Description	Q'TY
1	02781189	YKF45-0021	USB CONNECTOR	1
2	01899212	P R-KNOB	MF-A BLK/LCG	1
	01789523	RK0971214 (W/N&W)	9M/M ROTARY POT.	1
3	00451423	LB-303VA	7SEG LED	1
4	00348490	SLR-325VCT31	LED (RED)	4
5	01785790	RK09710EL-5R4611 (W/N&W)	ROTARY ENCODER	1
	22485307	M R-KNOB	L BLK 248-307	1
6	32490595	P S-KEY	MX BLK	1
	01676512	SDKLA1-B	PUSH SWITCH	1
7	01785212	SRRS1G-F0615-1 (W/N&W)	SWITCH (DIGITAL SW)	1
	01899212	P R-KNOB	MF-A BLK/LCG	1
8	00560745	SLR-325MCT31	LED (GREEN)	1
9	01785423	DISPLAY COVER		1
10	01785212	SRRS1G-F0615-1 (W/N&W)	SWITCH (DIGITAL SW)	1
	01899212	P R-KNOB	MF-A BLK/LCG	1
11	13449172	HLJ7000-01-3010	6.5MM JACK	1
12	13449720	HEC2305-01-250	DC JACK	1
13	22360712	CORD HOOK	236-712	1
14	13429273	YKF51-5046 (TRIPRET)	MIDI CONNECTOR	1
15	00677423	YKC 21-3035	RAC SOCKET	1
16	13449283	HLJ7101-01-3010	6.5MM JACK	2

## [Screws]

No	PART CODE	Part name	Description	Q'TY
a	40011378	SCREW M4X8	BINDING TAPTITE S FE BZC	1
b	40011101	SCREW 3X8	BINDING TAPTITE B BZC	1
c	40011090	SCREW 3X6	BINDING TAPTITE B BZC	1
d	40011312	SCREW 3X8	BINDING TAPTITE P BZC	3

# EXPLODED VIEW



# EXPLODED VIEW PARTS LIST

## [Parts]

No	PART CODE	Part name	Description	Q'TY
1	01899212	P R-KNOB	MF-A BLK/LCG	3
2	22485307	M R-KNOB	L BLK 248-307	1
3	32490595	P S-KEY	MX BLK	1
4	03011489	FRONT HOLDER		1
5	72126401	MAIN BOARD ASSY		1
6	72126423	D-SW BOARD ASSY		2
7	72126412	LED BOARD ASSY		1
8	01785467	ISOLATOR LED MASK		1
9	03011490	FRONT PANEL		1
10	01785423	DISPLAY COVER		1
11	03011478	BOTTOM CHASSIS		1
12	03011845	TOP COVER		1
13	03011467	EXP COVER SRX2		1
14	22360712	CORD HOOK	236-712	1

## [Screws]

No	PART CODE	Part name	Description	Q'TY
a	40011378	SCREW M4X8	BINDING TAPTITE S FE BZC	1
b	40011101	SCREW 3X8	BINDING TAPTITE B BZC	1
c	40011312	SCREW 3X8	BINDING TAPTITE P BZC	3
d	40011056	SCREW 3X6	BINDING TAPTITE B ZC	7
e	40011090	SCREW 3X6	BINDING TAPTITE B BZC	6
f	40011145	SCREW 3X6	FLAT TAPTITE B BZC	4

# PARTS LIST

**SAFETY PRECAUTIONS:**

The parts marked  $\Delta$  have safety-related characteristics. Use only listed parts for replacement.

**CONSIDERATION ON PARTS ORDERING**

When ordering any parts listed in the parts list, please specify the following items in the order sheet.

QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex. 10	22575241	Sharp Key	C-20/50
15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

NOTE: The parts marked # are new. (initial parts)

**CASING**

	01785423	DISPLAY COVER		1
#	03011490	FRONT PANEL		1
#	03011467	EXP COVER SRX2		1
#	03011845	TOP COVER		1

**CHASSIS**

#	03011478	BOTTOM CHASSIS		1
#	03011489	FRONT HOLDER		1

**KNOB, BUTTON**

	32490595	P S-KEY	MX BLK	1
	01899212	P R-KNOB	MF-A BLK/LCG	3
	22485307	M R-KNOB	L BLK 248-307	1

**SWITCH**

	01676512	SDKLA1-B	PUSH SWITCH	SW4 on MAB	1
	01785212	SRRS1G-F0615-1 (W/N&W)	SWITCH (DIGITAL SW)	SW3,SW2 on DSB	1

**JACK, EXT TERMINAL**

	13429273	YKF51-5046 (TRIPRET)	MIDI CONNECTOR	JK1 on MAB	1
	00677423	YKC 21-3035	RAC SOCKET	JK7 on MAB	1
	02781189	YKF45-0021	USB CONNECTOR	JK2 on MAB	1
	13449172	HLJ7000-01-3010	6.5MM JACK	JK4 on MAB	1
	13449283	HLJ7101-01-3010	6.5MM JACK	JK5,JK6 on MAB	2
$\Delta$	13449720	HEC2305-01-250	DC JACK	JK3 on MAB	1

**DISPLAY UNIT**

	00451423	LB-303VA	7SEG LED	LED1 on LEB	1
	NOTE: Replacement LB-303VA should be made on a unit base.				

**PCB ASSY**

#	72126401	MAIN BOARD ASSY			1
	NOTE: 'MAIN BOARD ASSY' includes the following parts.				
	01902756	PWB SPACER	RSPS-12L		2
	02019034	PWB SPACER	RSPLS-12L		2
#	72126412	LED BOARD ASSY			1
	NOTE: 'LED BOARD ASSY' includes the following parts.				
	01456101	WIRING	12X120-P2.0-51065-51015-F	CN2 on LEB	1
#	72126423	D-SW BOARD ASSY			2
	NOTE: 'D-SW BOARD ASSY' includes the following parts.				
#	03014701	RIBBON CABLE	JWV5 5 X 50 - P2.0		1

**IC**

	02902867	M37641M8-137FP VER1.00	IC (8BIT CPU)	IC19 on MAB	1
#	03011045	HD6437016E SYTK3	IC (32BIT CPU)	IC5 on MAB	1
	02677490	RA0C-003XP7TC203C180AF003	IC (CUSTOM)	IC24 on MAB	1
	02450401	GM71C18163CJ-6	IC (DRAM)	IC8 on MAB	1
	02453389	LC32V4265T-25	IC (DRAM)	IC30 on MAB	1
	01906689	BR24C08F-E2	IC (EEPROM)	IC17 on MAB	1
#	03011201	UPD23C128040ALGY-527-MJH	IC (MASK ROM)	IC40 on MAB	1
#	03011212	UPD23C128040ALGY-528-MJH	IC (MASK ROM)	IC41 on MAB	1
	02454867	TC58FVB321FT-10	IC (FLASH MEMORY)	IC2 on MAB	1

IC				
01451578	AK4324-VF-E2	IC (DAC)	IC38 on MAB	1
15269219H0	HD74LS05FPEL	IC (TTL)	IC10 on MAB	1
01458401	TC74LVX4245FS(EL)	IC (TTL)	IC13,IC11 on MAB	2
01679412	TC7W139F(TE12L)	IC (CMOS)	IC21 on MAB	1
15249111	TC7WU04F(TE12L)	IC (CMOS)	IC26 on MAB	1
15249121	TC7W04F(TE12L)	IC (CMOS)	IC20 on MAB	1
01348945	TC7SH32FU(TE85L)	IC (CMOS)	IC18 on MAB	1
02451690	HD74LV08ATELL	IC (CMOS)	IC42 on MAB	1
02451712	HD74LV14ATELL	IC (CMOS)	IC22 on MAB	1
02675656	HD74LV11ATELL	IC (CMOS)	IC3 on MAB	1
02675689	HD74LV245ATELL	IC (CMOS)	IC6,IC4,IC1,IC9 on MAB	4
15189261	M5218AFP-600E	IC (BIPOLAR OP AMP)	IC36,IC32 on MAB	2
15289105	UPC4570G2-E2	IC (BIPOLAR OP AMP)	IC37 on MAB	1
00344390	TA7805F(TE16L)	IC (REGULATOR)	IC33 on MAB	1
01678512	UPC2933T-T2	IC REGULATOR	IC14 on MAB	1
02235378	TA78M05F(TE16L)	IC (REGULATOR)	IC35 on MAB	1
00458312	NJM2360M	IC (REGULATOR)	IC34 on MAB	1
15199937	M51953BFP-600C	IC (RESET)	IC15 on MAB	1
02900545	PC410LKNIP	IC (PHOTO COUPLER)	IC7 on MAB	1
TRANSISTOR				
00901523	2SA1681 (SC-62)(POW SW)	TRANSISTOR	Q26 on MAB	1
02671023	2SC3052-T12-1E	TRANSISTOR	Q29 on MAB	1
15319116	2SC4154-T11-F	TRANSISTOR	Q27 on MAB	1
02905501	SSM3J02T	TRANSISTOR	Q30 on MAB	1
01783612	RN2426(TE85L)	TRANSISTOR	Q10,Q13,Q11,Q12 on MAB	4
02671256	RT1P141C-T12-1	TRANSISTOR	Q18,Q17,Q16,Q15,Q14,Q19,Q21,Q20,Q1 on MAB	9
02780056	RT1N144M	TRANSISTOR	Q28 on MAB	1
15329516	DTC114EKT146	TRANSISTOR	Q3,Q6,Q7,Q8,Q4,Q5,Q9,Q2 on MAB	8
15329536	RN1442-A(TE85L)	TRANSISTOR	Q25,Q23,Q31,Q32,Q22,Q24 on MAB	6
DIODE				
01017512	RB411D T146	SCHOTTKY DIODE	D2 on MAB	1
15039142	S5688G(TPB5) 1A/400V	RECTIFIER DIODE	D1 on MAB	1
01897189	MA147-(TX)	ARRAY DIODE	DA7,DA2,DA1 on MAB	3
15339130	MA142WK-(TX)	ARRAY DIODE	DA3,DA4,DA5,DA6 on MAB	4
00348490	SLR-325VCT31	LED (RED)	LED2,LED3,LED4,LED5 on LEB	4
00560745	SLR-325MCT31	LED (GREEN)	LED6 on LEB	1
RESISTOR				
00566867	RPC05T 100 J	MTL.FILM RESISTOR	R110 on MAB	1
00566934	RPC05T 330 J	MTL.FILM RESISTOR	R58,R57 on MAB	2
00567034	RPC05T 121 J	MTL.FILM RESISTOR	R22 on MAB	1
00567045	RPC05T 151 J	MTL.FILM RESISTOR	R55,R53,R52,R51,R49,R56,R50,R54 on MAB	8
00567067	RPC05T 221 J	MTL.FILM RESISTOR	R19,R34,R18,R20,R17 on MAB	5
00567089	RPC05T 331 J	MTL.FILM RESISTOR	R155 on MAB	1
00567112	RPC05T 471 J	MTL.FILM RESISTOR	R76,R41 on MAB	2
00567123	RPC05T 561 J	MTL.FILM RESISTOR	R182,R127,R180,R119,R184,R115,R131,R178 on MAB	8
00567156	RPC05T 102 J	MTL.FILM RESISTOR	R59,R70,R71,R146,R69 on MAB	5
00567167	RPC05T 122 J	MTL.FILM RESISTOR	R114,R118,R126,R130,R179,R183,R177,R181 on MAB	8
00567178	RPC05T 152 J	MTL.FILM RESISTOR	R60 on MAB	1
00567190	RPC05T 222 J	MTL.FILM RESISTOR	R95 on MAB	1
00567289	RPC05T 103 J	MTL.FILM RESISTOR	R38,R43,R25,R27,R28,R157,R133,R137,R141,R144,R145,R121,R150,R172,R167,R168,R169,R170,R171,R176,R29,R149,R47,R78,R75,R74,R68,R67,R66,R64,R63,R62,R83,R48,R46,R108,R103,R61 on MAB	38
00567301	RPC05T 153 J	MTL.FILM RESISTOR	R139 on MAB	1
00567378	RPC05T 473 J	MTL.FILM RESISTOR	R140 on MAB	1
00567390	RPC05T 683 J	MTL.FILM RESISTOR	R87,R93 on MAB	2
00567412	RPC05T 104 J	MTL.FILM RESISTOR	R152,R135,R156,R185 on MAB	4
00567556	RPC05T 105 J	MTL.FILM RESISTOR	R158,R72,R159,R162 on MAB	4
01011256	SR73K2ETD 0.47JOHM 1/2W	MTL.FILM RESISTOR	R160 on MAB	1
15399952	MCR50JZH470 1/2W	CHIP RESISTOR	R98,R102,R107,R97 on MAB	4
00566912	RPC05T 220 J	MTL.FILM RESISTOR	R2,R1,R5,R4,R3,R8,R10,R12,R14,R15,R23,R24,R7,R6 on MAB	14
00567023	RPC05T 101 J	MTL.FILM RESISTOR	R21,R138,R136,R82,R79,R81,R80 on MAB	7
00567245	RPC05T 472 J	MTL.FILM RESISTOR	R113,R26,R117,R120,R123,R125,R129,R132,R111 on MAB	9
01011856	RPC05T 0R0 J	MTL.FILM RESISTOR	R9,R11,R174,R173,R16,R166,R165,R163,R153,R32,R30,R151,R148,R143,R142,R77,R73,R65,R45,R33,R161 on MAB	21
00567212	RPC05T 332 J	MTL.FILM RESISTOR	R37,R112,R116,R124,R128 on MAB	5
00567267	RPC05T 682 J	MTL.FILM RESISTOR	R99,R92,R88,R86,R94 on MAB	5
00567278	RPC05T 822 J	MTL.FILM RESISTOR	R100,R105 on MAB	2
00567323	RPC05T 223 J	MTL.FILM RESISTOR	R13,R101,R106 on MAB	3

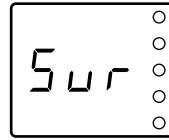


<b>RESISTOR</b>					
	01457145	EXBE10C103J	RESISTOR ARRAY	RA11,RA14,RA44,RA47 on MAB	4
	01906656	MNR14 EOAB J 000	RESISTOR-ARRAY	RA29,RA31 on MAB	2
	01906678	MNR14 EOAB J 103	RESISTOR-ARRY	RA54,RA51,RA37,RA36,RA40,RA52,RA38, RA50,RA42,RA17,RA53 on MAB	11
	02125501	MNR14 EOAB J 220	RESISTOR-ARRAY	RA7,RA6,RA5,RA2,RA1,RA8,RA4,RA24,R A49,RA48,RA46,RA45,RA27,RA25,RA9,RA 23,RA22,RA20,RA19,RA18,RA15,RA13,RA 10,RA26 on MAB	24
#	02675712	MNR14 EOAB J 472	RESISTOR-ARRAY	RA28,RA30 on MAB	2
<b>POTENTIOMETER</b>					
	01789523	RK0971214 (W/N&W)	9M/M ROTARY POT.	VR1 on MAB	1
<b>CAPACITOR</b>					
	01674189	ECUV1H120JCV	CERAMIC CAPACITOR	C50,C51 on MAB	2
	01674190	ECUV1H150JCV	CERAMIC CAPACITOR	C80,C81 on MAB	2
	01674212	ECUV1H220JCV	CERAMIC CAPACITOR	C23,C24 on MAB	2
	01674301	ECJ1VC1H680J	CERAMIC CAPACITOR	C91,C99 on MAB	2
	01674390	ECUV1H271JCV	CERAMIC CAPACITOR	C101 on MAB	1
	01674423	ECUV1H471JCV	CERAMIC CAPACITOR	C22 on MAB	1
	01674445	ECUV1H681JCV	CERAMIC CAPACITOR	C46 on MAB	1
	01674612	ECJ1VB1H103K	CERAMIC CAPACITOR	C62,C165,C63 on MAB	3
	01674712	ECJ1VF1A105Z	CERAMIC CAPACITOR	C35,C17,C86,C87,C88,C16,C18 on MAB	7
	02129534	ECJ1VB1H102K	CERAMIC CAPACITOR	C168 on MAB	1
	02456778	ECJ1VB1C104K	CERAMIC CAPACITOR	C44 on MAB	1
	01674701	ECJ1VF1E104Z 0.1UF/16VK	CERAMIC CAPACITOR	C158,C31,C157,C75,C32,C36,C136,C155,C1 60,C163,C147,C156,C25,C139,C14,C15,C19, C149,C21,C145,C164,C169,C167,C162,C140, C26,C143,C20,C194,C202,C159,C200,C199, C198,C161,C196,C74, C177,C176,C175,C174,C173,C172,C171,C19 7,C52,C37,C38,C39,C40,C42,C201,C47,C73, C57,C64,C66,C67,C69,C70,C72,C43,C8,C102 ,C103,C6,C7,C93,C95,C131,C5,C1,C4,C3,C7 6,C77,C89,C110,C96,C9,C113,C10,C116,C12 0,C92,C12 on MAB	86
	01674167	ECUV1H100DCV	CERAMIC CAPACITOR	C107,C117 on MAB	2
	01674334	ECUV1H101JCV	CERAMIC CAPACITOR	C137,C195,C130,C109,C108,C82,C49,C29,C 11,C193 on MAB	10
	02236712	AMZV0050J221 0200	POLYEST. CAPACITOR	C128,C132,C138,C124 on MAB	4
	00236223	AMZV0050J681 0200	POLYEST. CAPACITOR	C125,C133 on MAB	2
	01900823	RA2-16V100M-T2	CHEMICAL CAPACITOR	C123,C112,C121,C142,C144,C146,C148,C11 5 on MAB	8
	01900834	RA2-16V101M-T2	CHEMICAL CAPACITOR	C104,C127,C97,C179,C178,C90,C134,C98 on MAB	8
	01902590	RA2-6V101MC-T2	CHEMICAL CAPACITOR	C100 on MAB	1
	01902867	RA2-25V101M-T2	CHEMICAL CAPACITOR	C141 on MAB	1
	02239623	RA2-16V102M-T2	CHEMICAL CAPACITOR	C94 on MAB	1
	02891678	RE3-6V331M-T2	CHEMICAL CAPACITOR	C106 on MAB	1
	02891767	RC2-16V100M-T2	CHEMICAL CAPACITOR	C180,C13,C41,C65,C152,C153,C154,C170,C 2,C166 on MAB	10
	02894390	RA2-25V330MC-T2	CHEMICAL CAPACITOR	C151 on MAB	1
	02897889	RC2-16V470M-T2	CHEMICAL CAPACITOR	C30,C33 on MAB	2
	02898101	RA2-50V2R2MC-T2	CHEMICAL CAPACITOR	C48 on MAB	1
	13629624S0	6SC10M+T (OS) 6.3V10	CHEMICAL CAPACITOR	C105 on MAB	1
<b>INDUCTOR, COIL, FILTER</b>					
	00237212	SH-202	CHOKE COIL	FL1 on MAB	1
	01346089	SBC3-331-551	CHOKE COIL	L16,L14 on MAB	2
	01340834	EXCML20A390	FERRITE-BEAD	L12 on MAB	1
	01565578	N1608Z601T01	FERRITE-BEAD	L24,L25,L26,L27,L6,L28,L23,L30,L18,L33,L3 4,L29,L22,L21,L19,L17,L15,L13,L11,L10,L9, L5,L3,L2,L1,L20,L4 on MAB	27
	01909645	EXCML16A270U	FERRITE-BEAD	L7,L8 on MAB	2
<b>CRYSTAL, RESONATOR</b>					
	00891801	MA-406 24.000MHZ TE24	CRYSTAL	X2 on MAB	1
	00901912	MA-406 24.576MHZ TE24	CRYSTAL	X3 on MAB	1
	01126267	MA-406 7.056MHZ	CRYSTAL	X1 on MAB	1
<b>ENCODER</b>					
	01785790	RK09710EL-5R4611 (W/N&W)	ROTARY ENCODER	EN1 on MAB	1
<b>CONNECTOR</b>					
	02010078	TX25-80P-6ST-E1	CONNECTOR	CN10,CN11 on MAB	2
	13369600	52147-0510(5P)	WIRE TRAP	CN5,CN7 on MAB	2

<b>CONNECTOR</b>					
	13369934	53253-1210 (2MM PITCH)	CONNECTOR	CN3 on MAB	1
	13429294	51048-0500(5P)	CABLE HOLDER	CN4,CN6 on DSB	1
<b>SCREW</b>					
	40011056	SCREW 3X6	BINDING TAPTITE B ZC		6
	40011090	SCREW 3X6	BINDING TAPTITE B BZC		6
	40011145	SCREW 3X6	FLAT TAPTITE B BZC		4
	40011312	SCREW 3X8	BINDING TAPTITE P BZC		3
	40011378	SCREW M4X8	BINDING TAPTITE S FE BZC		1
	40011101	SCREW 3X8	BINDING TAPTITE B BZC		1
<b>PACKING</b>					
#	03011556	PAD			1
#	03011578	PAD SIDE			1
#	03011590	PAD CARTON LOWER			1
#	03011545	PACKING CASE			1
#	03011623	OUTER PACKING CASE			1
<b>MISCELLANEOUS</b>					
	22360712	CORD HOOK	236-712		1
	01785467	ISOLATOR	LED MASK		1
<b>ACCESSORIES (STANDARD)</b>					
△	00905756	AC ADAPTOR	ACI-100C		1
△	00905767	AC ADAPTOR	ACI-120C		1
△	01018312	AC ADAPTOR	ACI-230C		1
△	01901578	AC ADAPTOR WITHOUT AC CORD	PSB-1U UNIVERSAL		1
△	01903356	AC CORD SET	230V 1.0M FOR PSB		1
△	01903367	AC CORD SET	240V 1.0M FOR PSB		1
△	00905234	ECP01-5A (PLUG FOR BRC-230T)	EURO CONVERTER PLUG		1
#	03011534	CD-ROM	V1.00		1
#	72125967	OWNER'S MANUAL	JAPANESE		1
#	72125990	OWNER'S MANUAL	ENGLISH		1
	40232334	WARRANTY CARD	MOCHIKOMI JAPAN ONLY		1
	01676412	FOOT SET	RUBBER FOOT * 4 PCS		1

## CHECKING THE VERSION NUMBER

1. While holding down [VOLUME], press [VALUE].
2. Turn [CATEGORY/BANK] to choose "UTILITY (PIANO)."
3. When you rotate [VALUE], the program version (number) is displayed.
4. While holding down [VOLUME], press [VALUE].  
The XV-2020 exits Edit mode.



5. Press [VALUE] once more to execute the factory reset.

### NOTE

To cancel the procedure, while holding down [VOLUME] and pressing [VALUE].

If there is important data you've created that's stored in memory, all such data is discarded, and everything is returned to the factory defaults when a Factory Reset is performed. If important data is stored in the unit, save it on an external device.

You cannot carry out this procedure when "DEMO" is selected with the [CATEGORY/BANK] knob.

## SAVING AND LOADING DATA

Save performance, patch and rhythm set setting in the user area of the main unit of XV-2020 and system setting to the PC as SVD file with the attached XV editor.

### Saving user data

1. Connect the XV-2020 and the PC using a USB cable.

### NOTE

The PC to be connected shall be installed with XV-2020 driver and XV editor.

2. Turn on the main power of XV-2020 and start up the XV Editor.
3. Select [File]->[Save SVD file] in the menu.
4. Specify the saving place and file name and then select [OK].

### Loading user data

1. Connect the XV-2020 and the PC using a USB cable.

### NOTE

The PC to be connected shall be installed with XV-2020 driver and XV editor.

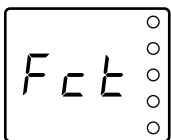
2. Turn on the main power of XV-2020 and start up the XV Editor.
3. Select [File] -> [Load SVD file] in the menu.
4. Specify the saving place and file name and then select [OK].

## RESTORING THE FACTORY SETTINGS

When using the XV-2020 for the first time, start by returning the settings to their factory defaults so that the XV-2020 operates as described in the procedures in the owner's manual.

This returns all settings stored in memory in the XV-2020 to the values they had when the unit was shipped from the factory.

1. While holding down [VOLUME], press [VALUE].  
The indication in the display begins flashing, and the mode changes.
2. Turn [CATEGORY/BANK] to choose PIANO (UTILITY).
3. Rotate [VALUE] until "Fct" appears in the display.



4. Press [VALUE]; "Sur" flashes in the display, and a confirmation screen appears.

## SYSTEM SOFTWARE UPDATE PROCEDURE

The XV-2020 uses a Flash Memory for the program ROM.

The version may be updated by externally sending the MIDI data.

### NOTE

Whenever updating is performed, factory setting must be restored.

### NOTE

If the user memory is written with important data, save data before updating.

### What is needed

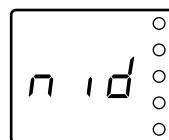
- XV-2020 Update Disk (2HD:3 disks) (No.17041190)
- A sequencer that can play an SMF (a synthesizer with a sequencer such as the FANTOM may be used)
- MIDI cable

### Updating

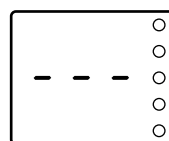
1. Connect MIDI OUT of the external sequencer to MIDI IN of the XV-2020 with the MIDI cable.

Set the sequencer to enable chain play of SMF.

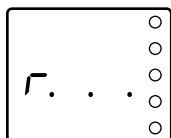
2. Turn on the power while pressing [VOLUME] and [VALUE] and continue pressing until [mid] is displayed.



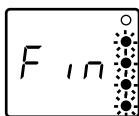
3. Releasing will display [--] and enters data receive waiting status.



4. After confirming the display shown in step 3., play all ".mid" files on the XV-2020 UPDATE DISKS 1 to 3 from the external sequencer. "r..." is displayed during MIDI data receiving.



- When updating is completed without an error, [Fin] is displayed, and 4 LEDs, [PATCH], [PERFORM], [RYTHM] and [GM] blink simultaneously.



- Restart the power and confirm that the system has been properly updated.
- Finally, restore factory setting. This completes the update.
  - \* When you fail in update, start the updating from the beginning.

## TEST MODE

### What is needed

- Headphone
- Monitor speakers (MA-12, etc.) 2pcs
- Audio cables 2pcs
- Audio cables (RCA type) 2pcs
- MIDI cable 1pcs
- USB cable 1pcs
- Wave expansion board SRX series 2pcs
- PC on which operation of XV-2020 is confirmed.

### Precautions for the test

- The user data may be deleted when entering the test mode.
- Always back up your data. (Saving and loading user data reference)
- Some test items produce verification sound.
  - Mount the wave expansion board prior to turning the unit's power on.
- Connect the headphone and the monitor speaker in advance.

### Test items

The XV-2020 provides the following tests:  
For information on each test, refer to each item.

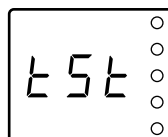
- LED Test
- Program Version
- Memory Test
- Expansion Board Test
- USB Test
- MIDI Test
- Sound Test
- Encoder Test
- Rotary Switch Test
- Factory Reset

## Operating buttons

### Entering the Test mode

- Set [PART] to 15 and [CATEGORY] to KEY&ORGAN.
- Turn on the power while pressing [VOLUME].

- Release and then promptly press [VOLUME] again while the [PATCH] LED is turned on.
- "tSt" will be displayed and automatically proceed to LED Test.



### Exiting the Test mode

Turn off the power. Turning on the power again returns to normal mode.



Do not turn off the power during restoration of factory setting.

### Proceeding to the next test item

If no error occurs during the Memory, Expansion Board, USB and MIDI tests, the system automatically proceeds to the next test item.  
For Program Version, Encoder and Rotary Switch Tests, pressing [VALUE] proceeds to the next test item.  
For Sound Test, pressing [VOLUME] proceeds to the next test item.

### Proceeding through test items

At LED Test, setting [CATEGORY] to PIANO enters individual test mode and enables to proceed to each test item by rotating [CATEGORY].

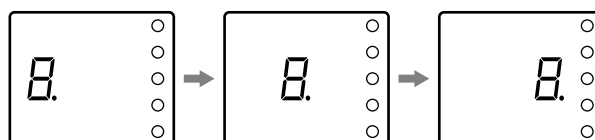
[PIANO]	2 :Program Version
[USER]	3 :Memory Test
[PST-A]	4 :Expansion Board Test
[PST-B]	5 :USB Test
[PST-C]	6 :MIDI Test
[PST-D]	7 :Sound Test
[GM]	8 :Encoder Test
[EXP-A]	9 :Rotary Switch Test
[EXP-B]	10 :Factory Reset



In individual test mode, the system does not automatically proceed to the other items after completion of one test.

## Details of test items

### 1 :LED Test



The LEDs lights up on the display in the following order: [MIDI], [PATCH], [PERFORM], [RHYTHM], [GM].

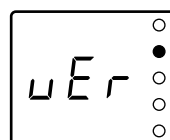
Simultaneously, the letter "8." comes on from the left.

If the LED does not come on or go off, check the following parts.

PANEL BOARD LED1-6, CN2

MAIN BOARD CN3, L19-30, R49-56, R1-8, RA1, Q2-Q13

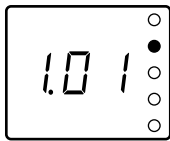
### 2 : Program Version



- Check the version number of the CPU (Internal ROM) and the ROM

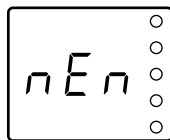
(External ROM).

The version of the CPU (Internal ROM) is displayed as follows:  
 [PATCH] LED comes on if CPU version is 1.00  
 [PERFORM] LED comes on if CPU version is 1.01  
 [RHYTHM] LED comes on if CPU version is 1.02  
 [GM] LED comes on if CPU version is 1.03  
 The version of ROM (External ROM) is displayed on 7 SEG LED.

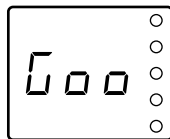


Update if the version number is inappropriate.  
 See "PROCEDURE FOR UPDATING" for the updating procedure.

### 3:Memory Test

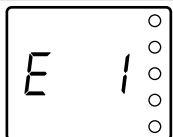


- [Goo] is displayed if no errors occur during the memory test, and automatically proceed to the next test.

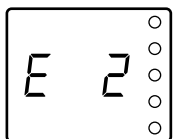


If any error occurs, it will be displayed as follows: Check the parts corresponding to the error displayed.

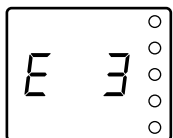
Display



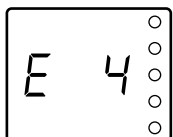
Internal ROM Error  
 check part:MAIN BOARD IC5, X1, R41



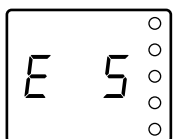
External ROM Error  
 check part:MAIN BOARD IC2



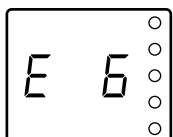
DRAM Error  
 check part:MAIN BOARD IC8



EEPROM Error check part  
 :MAIN BAORD IC17

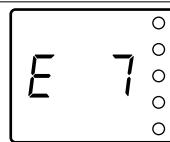


DSP Internal RAM Error  
 check part:MAIN BOARD IC24, 26, X3



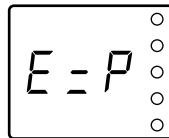
DSP External RAM Error  
 check part:MAIN BOARD IC30

Display



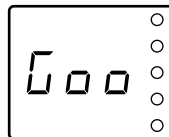
Wave ROM Error  
 check part:MAIN BOARD IC40, 41

### 4 :Expansion Board Test



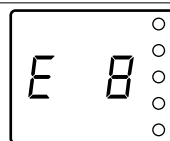
Slot A and B of wave expansion board will be tested.

- [Goo] is displayed if no errors occur, and automatically proceed to the next test.

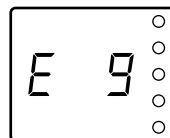


If any error occurs, it will be displayed as follows: Check the parts corresponding to the error displayed.

Display

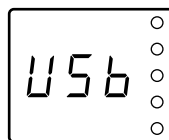


Exp Board A Error  
 check part:MAIN BOARD IC24, CN10



Exp Board B Error  
 check part:MAIN BOARD IC24, CN11

### 5 :USB Test

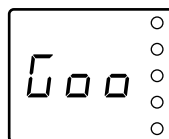


#### NOTE

Turn on the PC's power prior to this test.

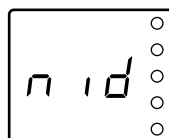
- Connect the PC and the XV-2020 using a USB cable. Confirm that the [MIDI] LED comes on.

[Goo] is displayed if disconnection after pulling out the USB cable can be recognized correctly, and automatically proceeds to the next test.



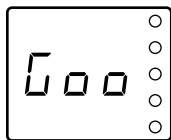
- If [Goo] is not displayed properly, check the following parts MAIN BOARD IC19, R155, X2, JK2

### 6 :MIDI Test



Connect MIDI IN and MIDI OUT with the MIDI cable in loop and confirm that the [MIDI] LED lights up.

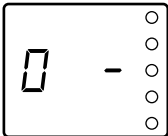
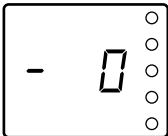
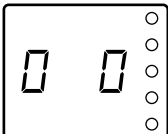
[Goo] is displayed if disconnection after pulling out the cable of either MIDI IN or MIDI OUT can be recognized correctly, and automatically proceeds to the next test.



- If [Goo] is not displayed properly, check the following parts  
MAIN BOARD IC7, 10

### 7 :Sound Test

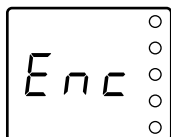
On entering this test, at first, sound is produced from OUTPUT L (MONO), OUTPUT L (RCA Type) and left side of the headphone.  
Output is switched by each pressing of [VALUE].

Display	sound status
	Lch sine wave Sound is produced from OUTPUT L(MONO), OUTPUT L (RCA Type) and left side of headphone.
	Rch square wave Sound is produced from OUTPUT R, OUTPUT R (RCA Type) and right side of headphone.
	Center sine wave Sound is produced from all outputs.

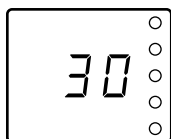
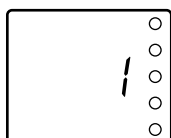
After confirming 3 types of output, pressing [VOLUME] proceeds to the next item.

- If the sound is not output properly, check the following parts:  
MAIN BOARD IC32,36,37,38,Q22-25,31,32,VRI1,JK4,5,6,7

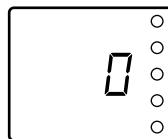
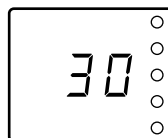
### 8 :Encoder Test



Rotating the encoder to the right to count up the 7 SEG display from [1] to [30] will play a piano tone.



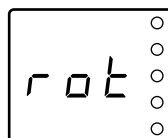
After confirming the piano tone, rotating the encoder to the left to count down from [30] to [0] will play the piano tone again.



After confirming the second piano tone, pressing [VALUE] proceeds to the next item.

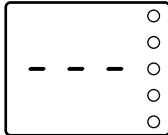
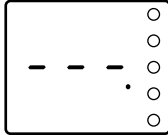
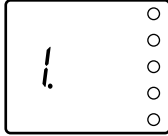
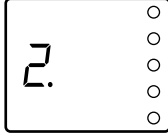
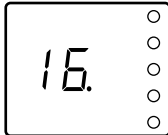
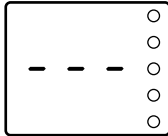
- If the encoder does not count up or down properly, check the following parts:  
MAIN BOARD EN1 and IC22.

### 9 :Rotary Switch Test



Confirm that rotating [PART] to the right changes the display as follows:

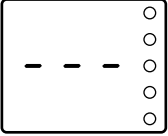
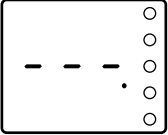

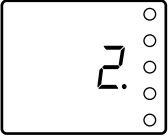
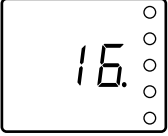
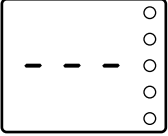
After one revolution, a bell rings.

Display [PART]	
	15
	16
	1
	2
:	:
	16
	1 (bell rings)

- If the display is not properly changed, check the following parts:  
MAIN BAORD CN5 and Q14-17  
D-SW BOARD CN4 and SW2

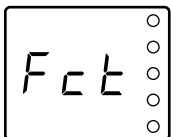
Confirm that rotating [CATEGORY] to the right changes the display as follows:

After one revolution, a bell rings.

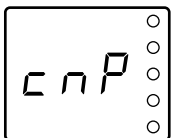
Display	CATEGORY
	KEY&ORG
	PIANO
	USER
	PST-A
:	:
	PIANO
	USER (bell rings)

- If the display is not properly changed, check the following parts:  
 MAIN BAORD CN7 and Q18-21  
 D-SW BOARD CN6 and SW3  
 After confirming the second bell, pressing [VALUE] proceeds to the next item.

### 10 :Factory Reset



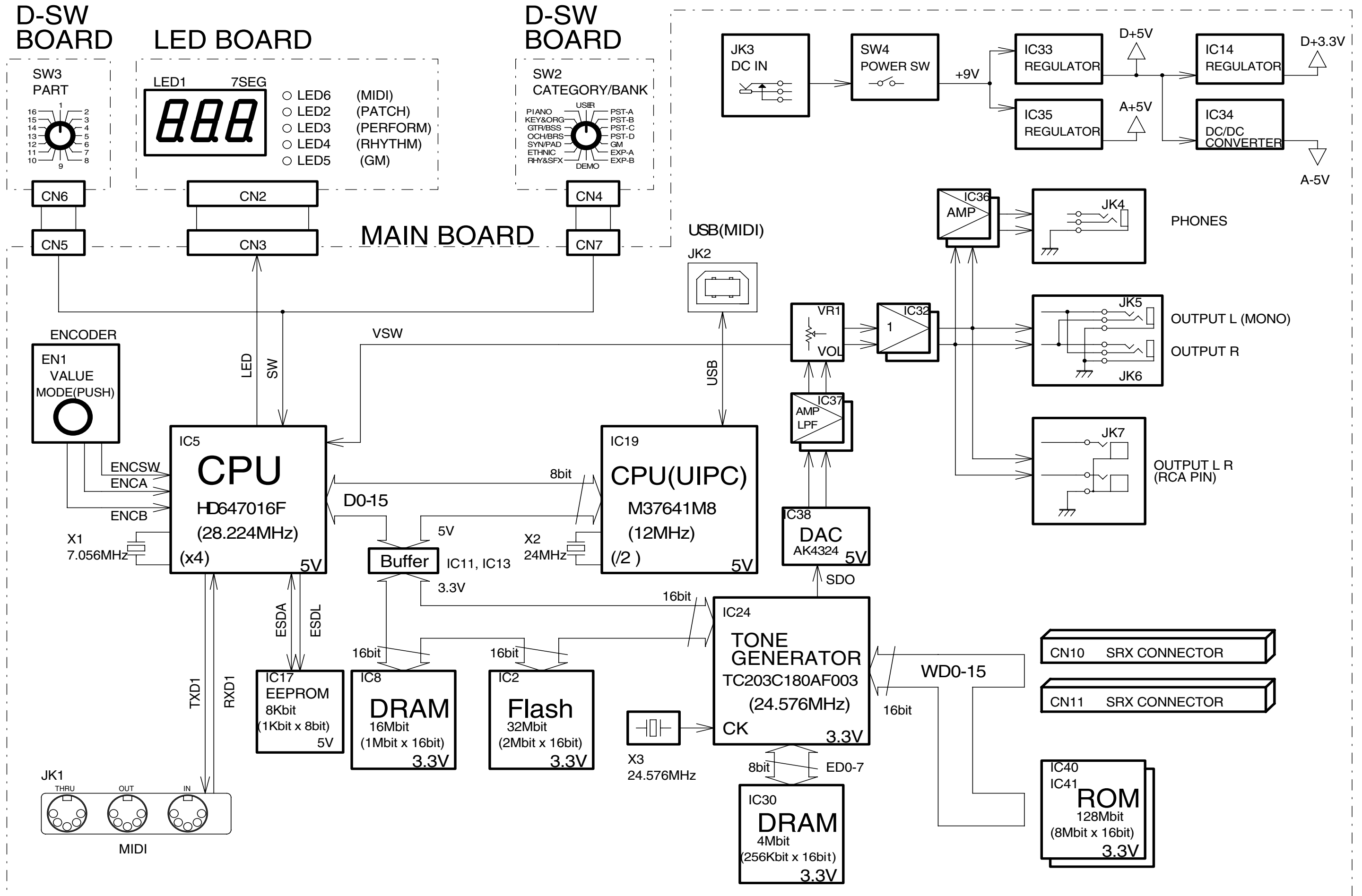
Pressing [VALUE] executes the restoration of factory setting.  
 When restoration of the factory reset is completed properly, a message, "cnP" will be displayed.



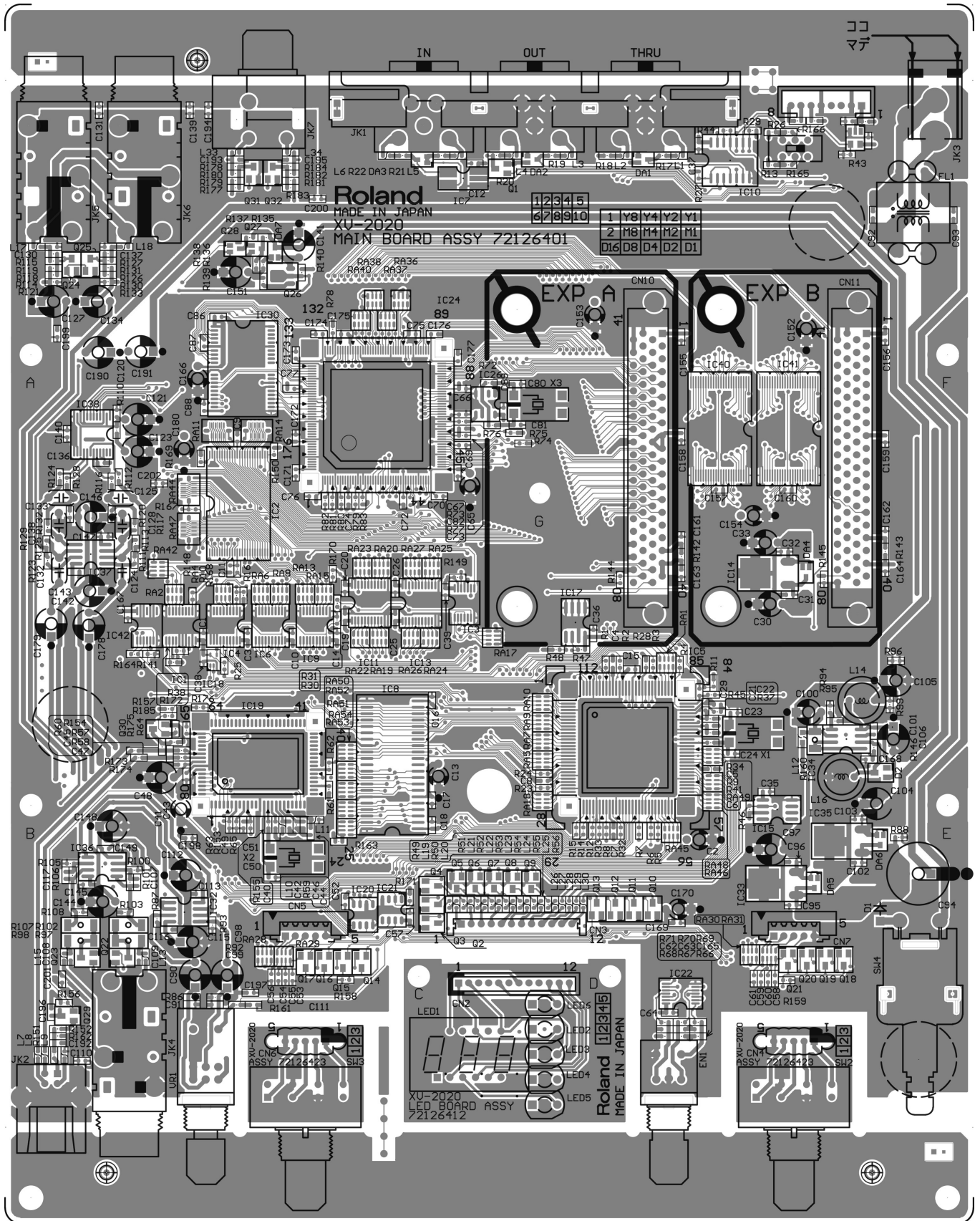




**BLOCK DIAGRAM**

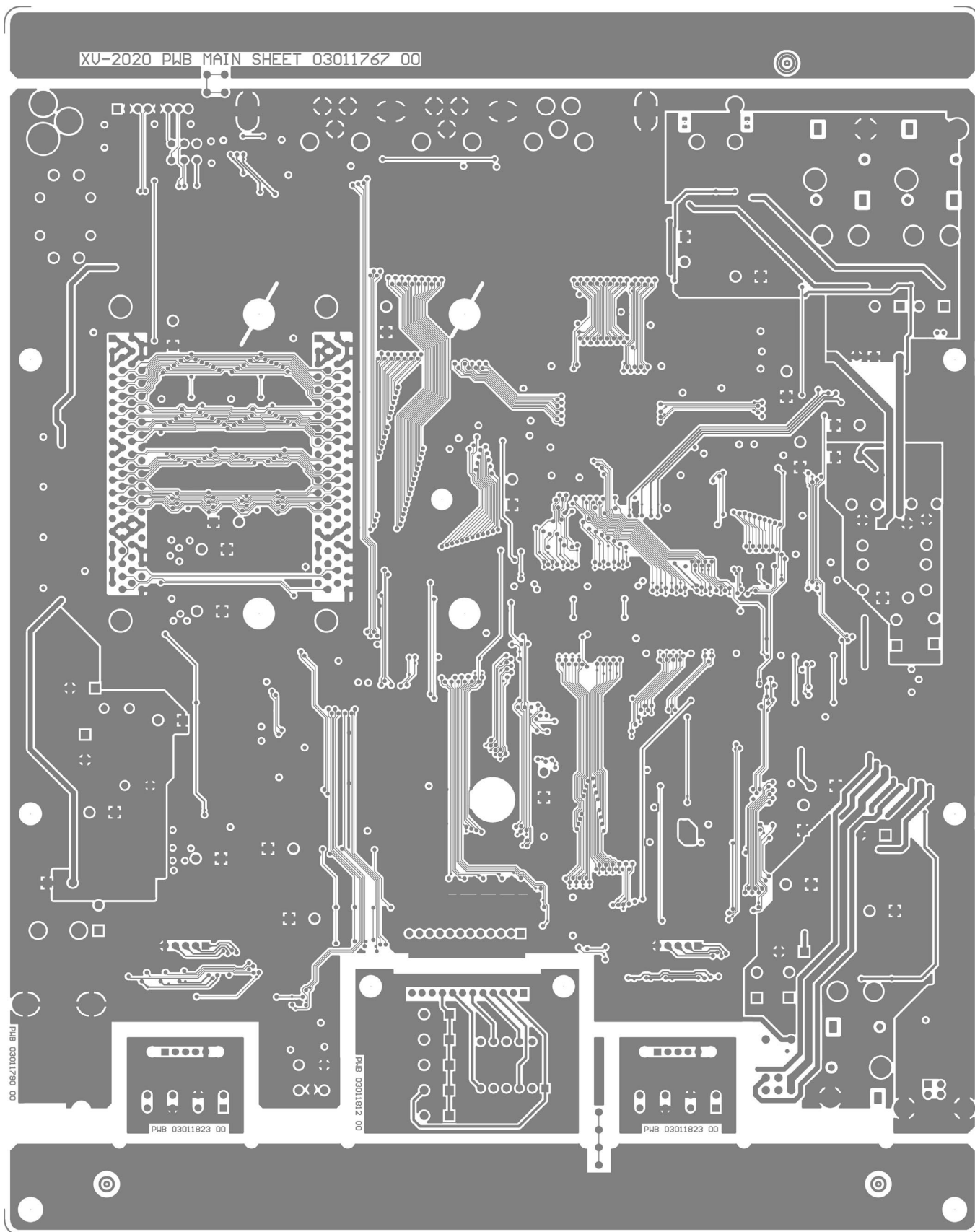


# CIRCUIT BOARD



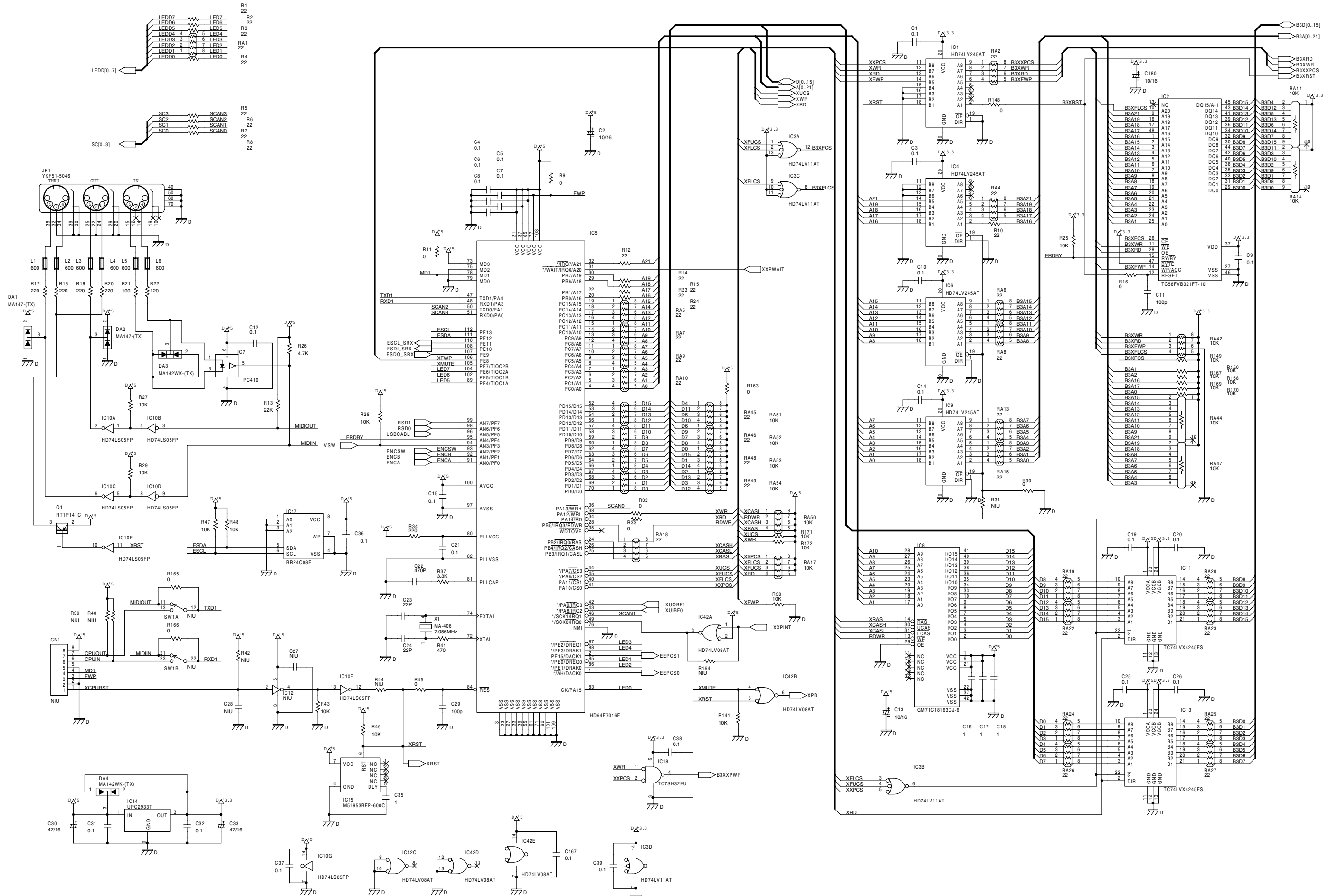
View from components side

XU-2020 PWB MAIN SHEET 03011767 00

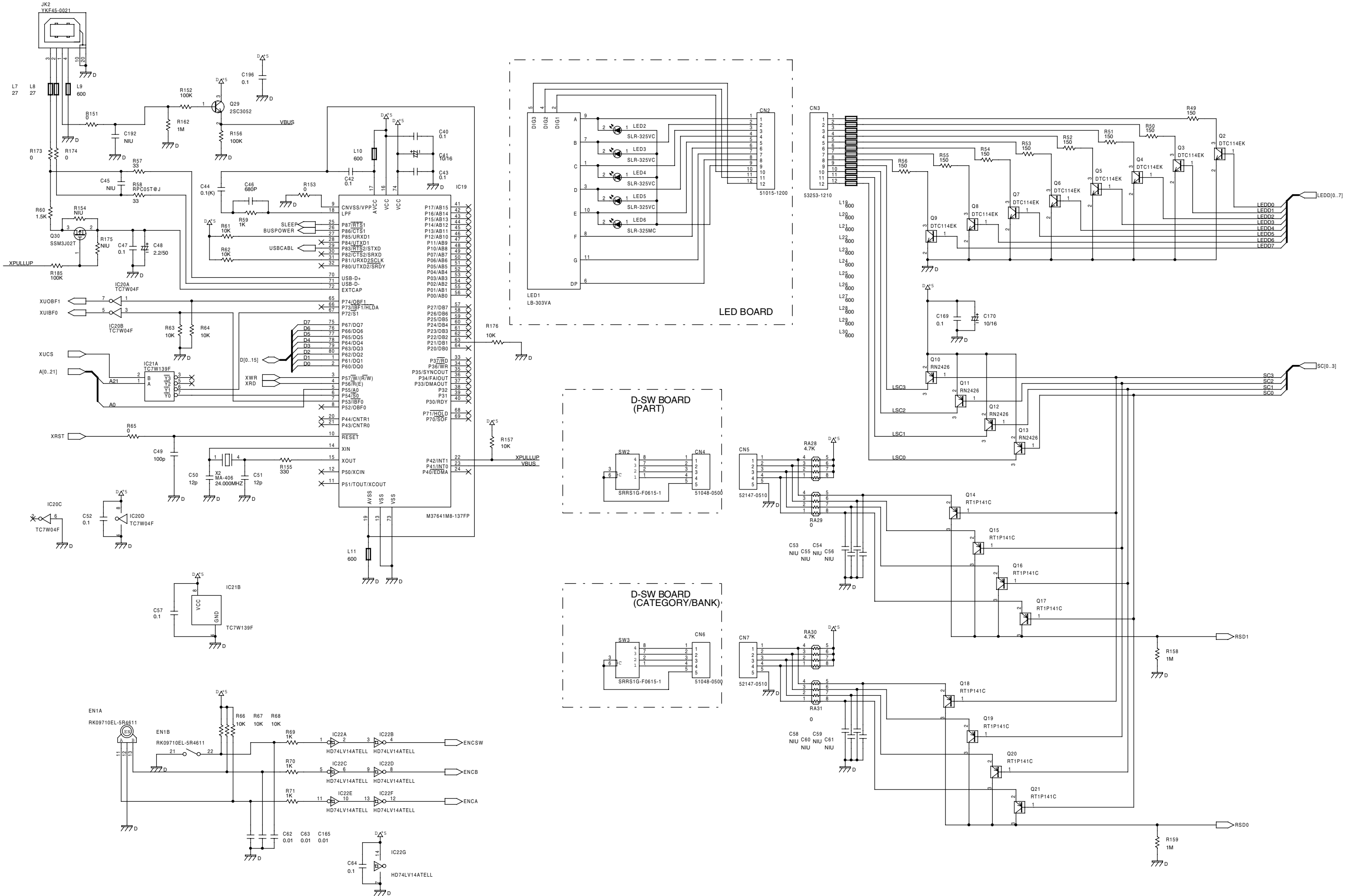


View from foil side

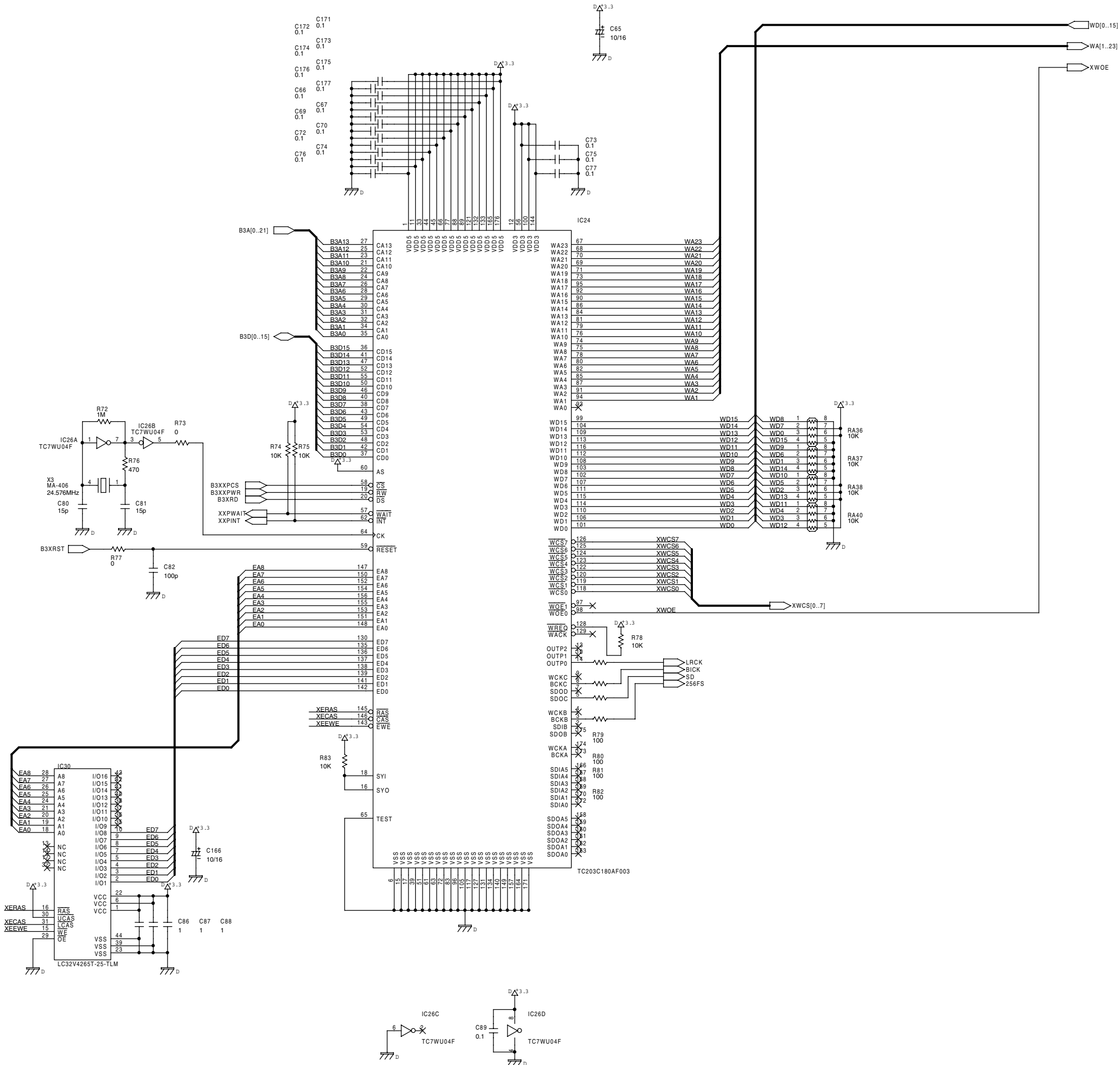
CIRCUIT DIAGRAM(MAIN 1)



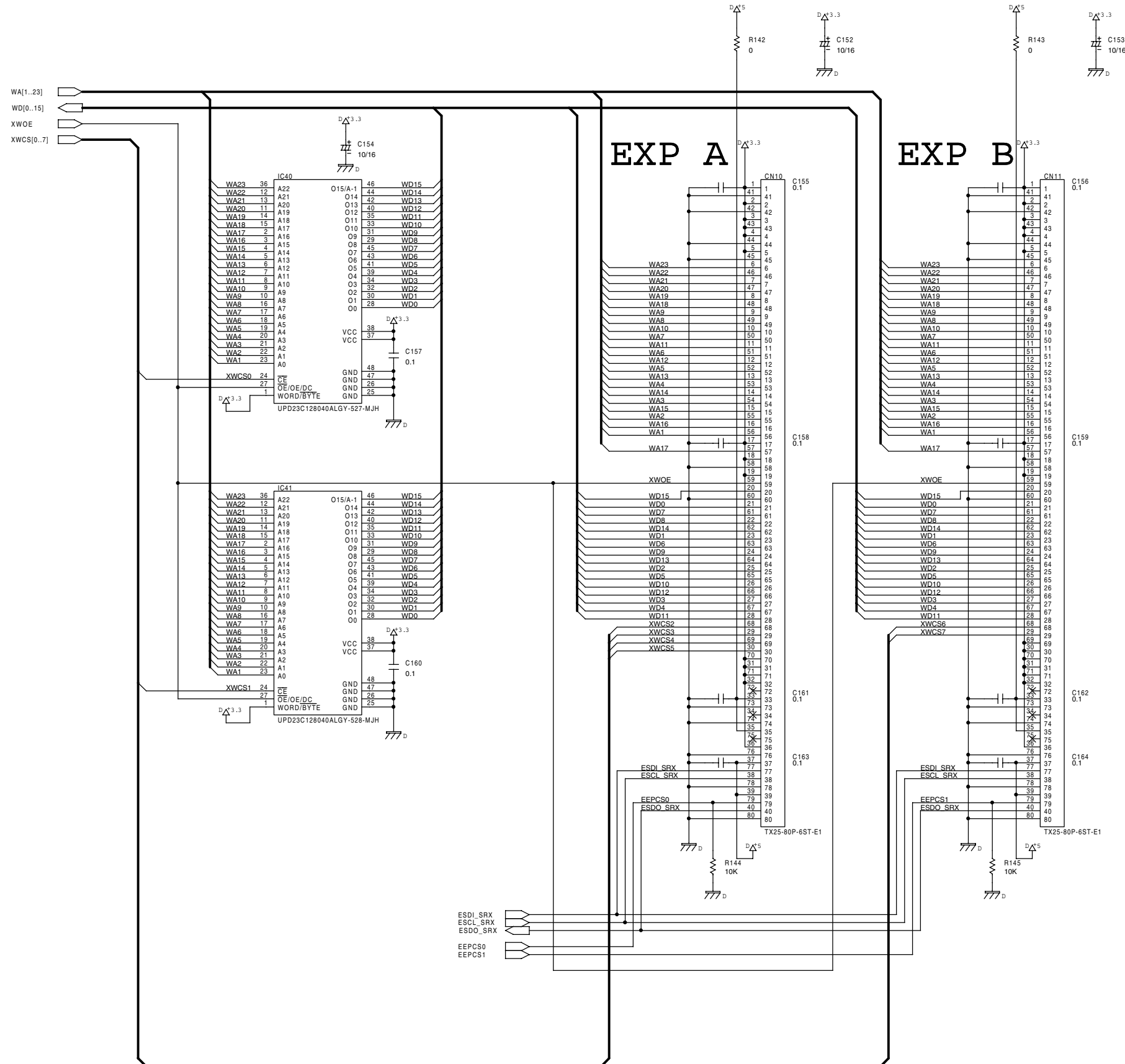
# CIRCUIT DIAGRAM(MAIN 2)



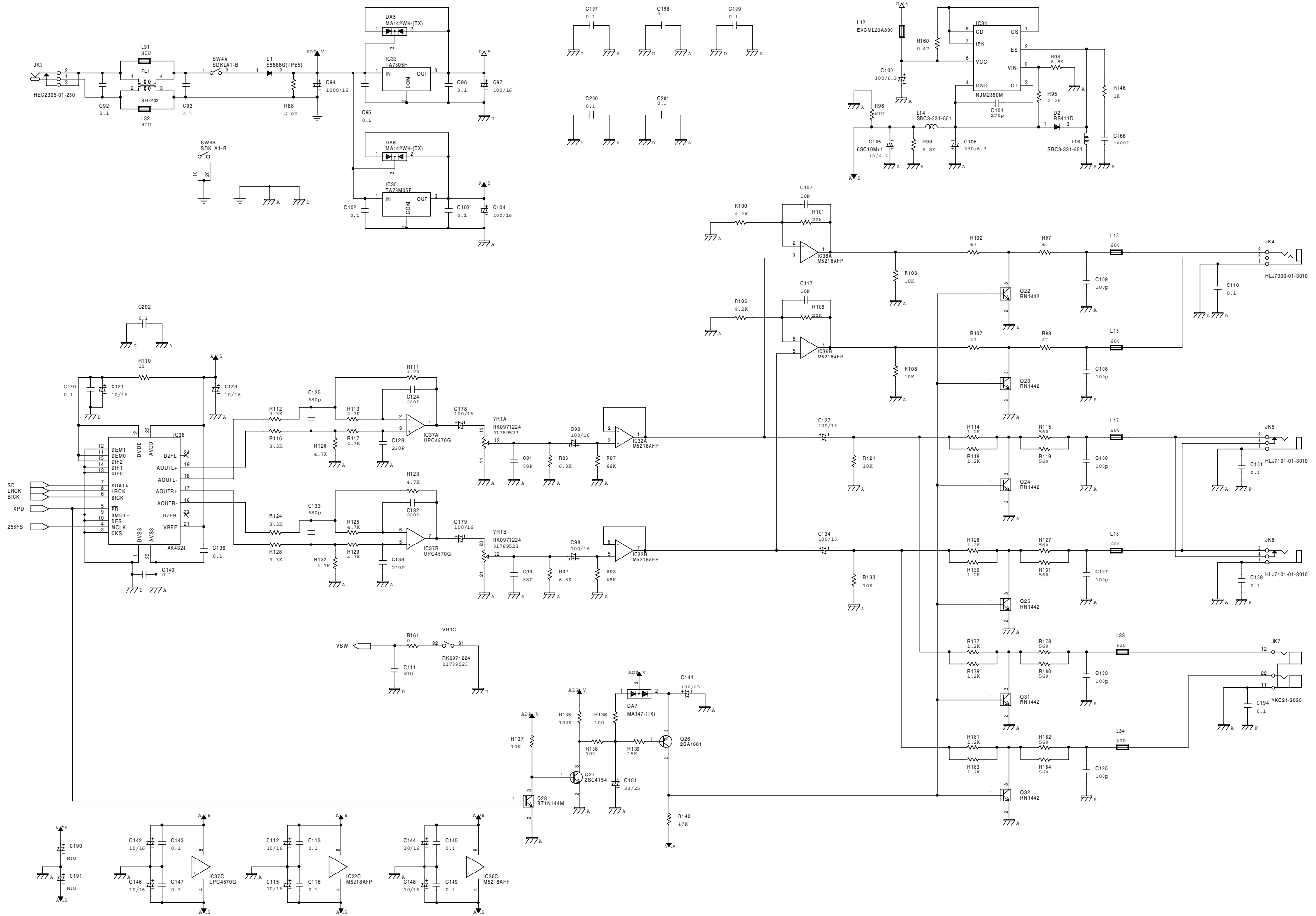
# CIRCUIT DIAGRAM(MAIN 3)



# CIRCUIT DIAGRAM(MAIN 4)



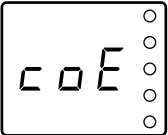
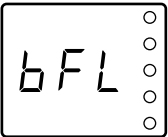
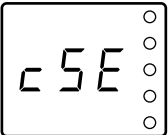
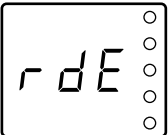
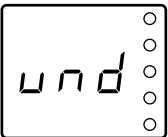
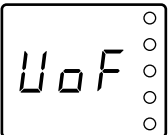
# CIRCUIT DIAGRAM(MAIN 5)





## ERROR MESSAGES

An error message appears in the display when an error in operation occurs, or if an operation cannot be processed correctly. When this occurs, continue by following the instructions indicated in the error message.

Display	Situation	Action
	There is a problem with the MIDI cable connected to the XV-2020's MIDI IN connector or with an external device. However, this message is also displayed when the power for the external device is turned off.	Check to make sure the MIDI cable is firmly and properly connected. Otherwise confirm that there is no short in the MIDI cable (try switching the MIDI cable to check this).
	More MIDI messages were received in a short time than could be processed correctly.	Reduce the amount of MIDI messages that are transmitted.
	A system exclusive message that was received had an incorrect check sum value.	Correct the check sum value.
	A system exclusive message was not properly received. Repeated appearance of this same error message means that there is a problem with the MIDI message.	Check the content of the received system exclusive message.
	USER data has been damaged.	Restore the factory settings with the Factory Reset procedure.
	It is possible that the power has been turned off for the computer connected to the XV-2020's USB connector.	Check the power of the connected computer.
	It is possible that a USB cable has been pulled out or has a short.	Check the USB cable.