

KORG X50

SERVICE MANUAL



TABLE OF CONTENTS

ASSEMBLY SKETCH (HOOKUP): 2

BLOCK DIAGRAM: 3

SCHEMATIC DIAGRAM: 4-11

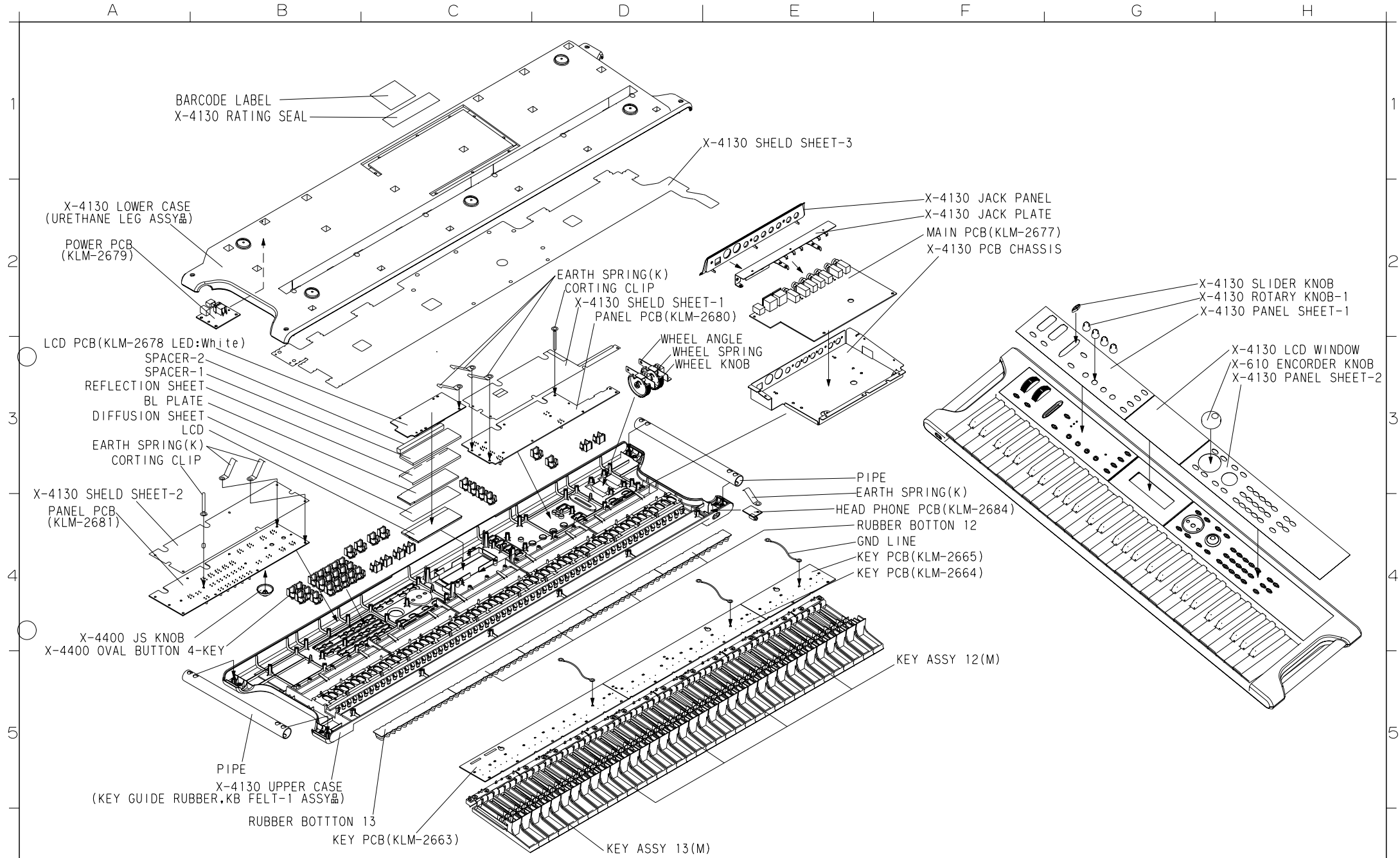
TEST MODE: 12

PARTS LIST: 13-16

KORG

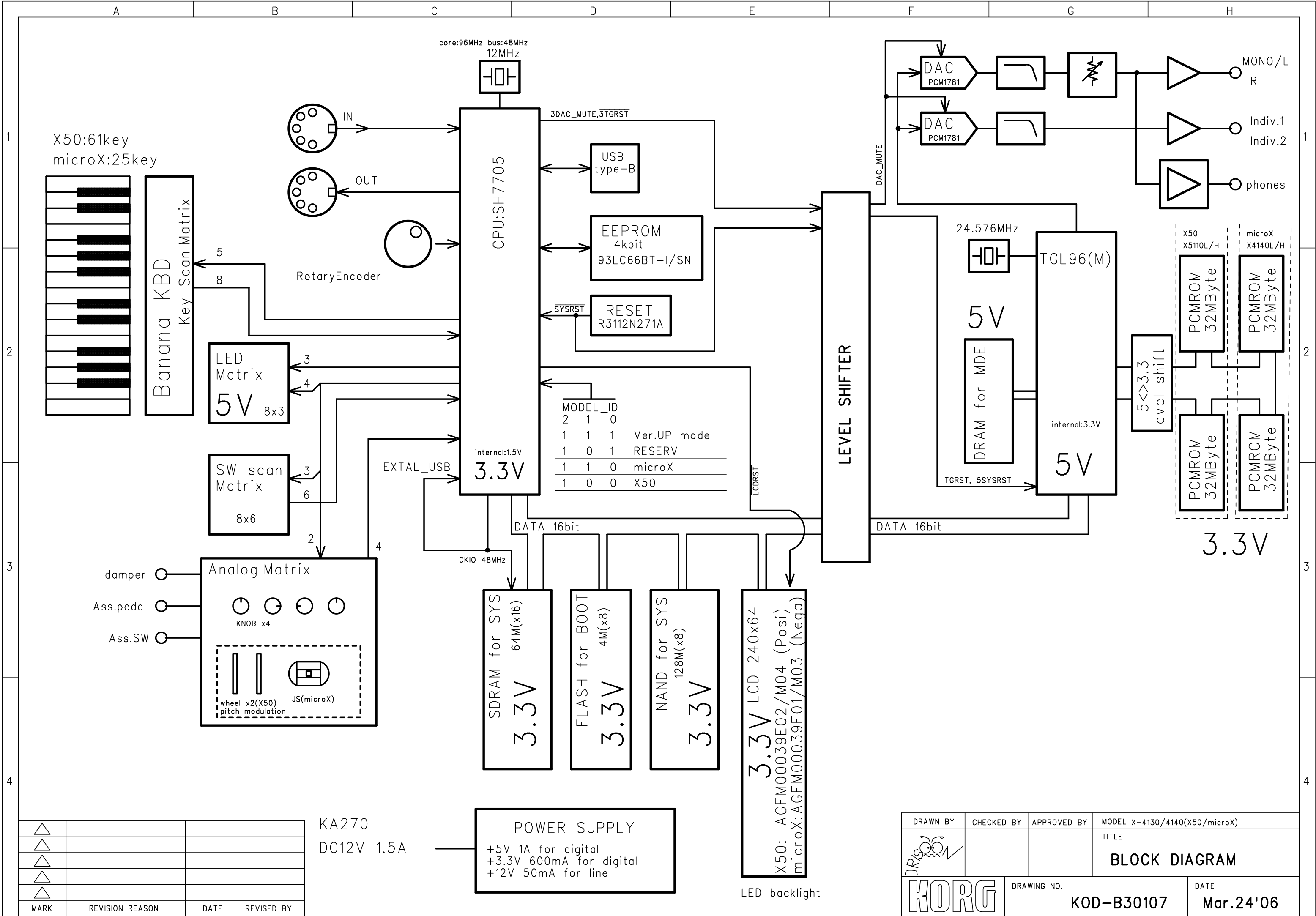
Issued: Jul.3, 2006

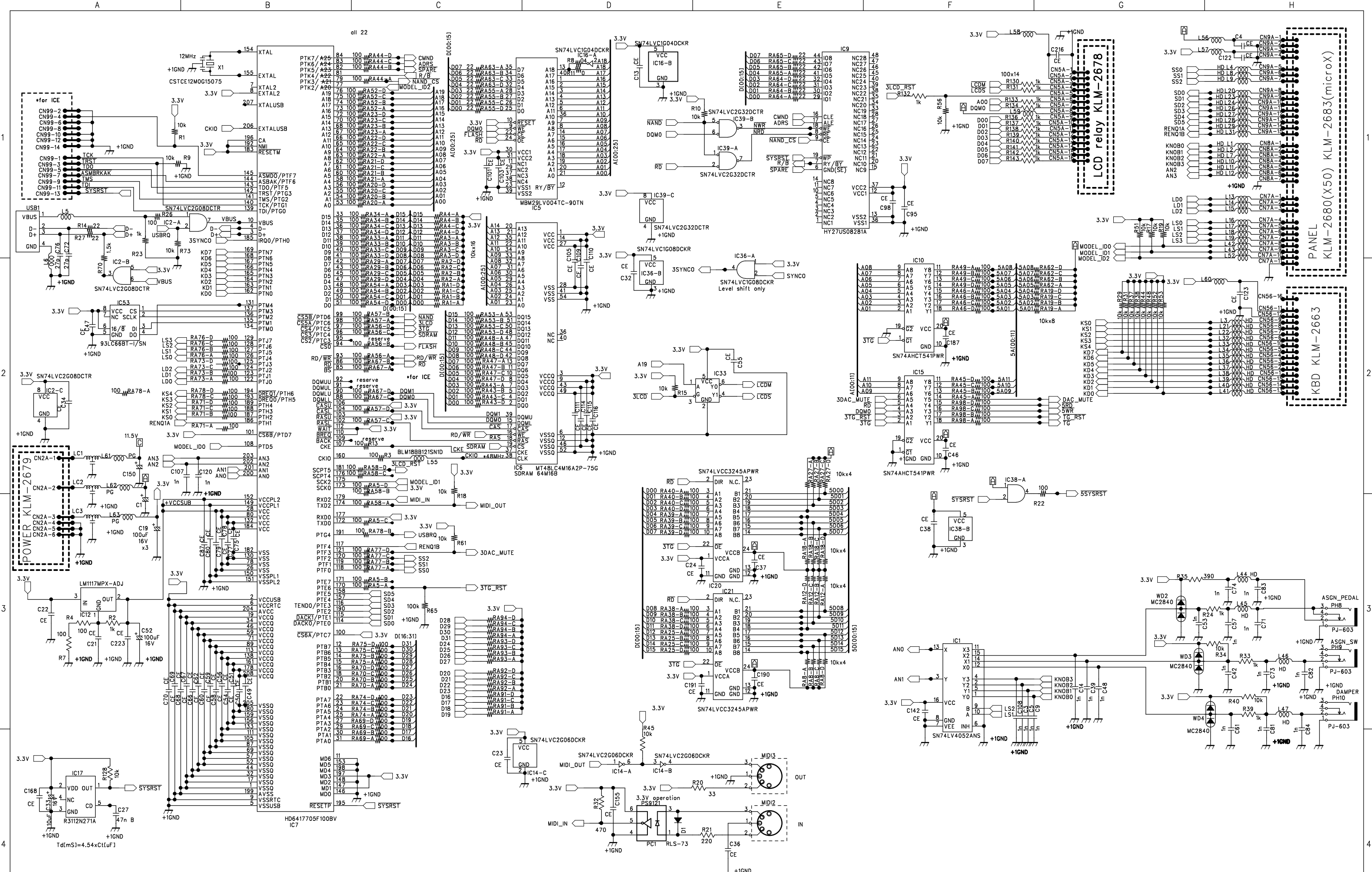
Ver2.0: Changed P13/16



△					
△					
△					
△					
REVISAL MARK	REVISAL REASON	REVISAL DATE	REVISAL BY	APPROVED	

			DRAWN	CHECKED	APPROVED	MODEL	X-4130 (X50)
			T. Shimokawa		Takeda	TITLE	X-4130
			2006.3.31		2006.3.31		ASSEMBLY DRAWING
記号	規 格	使用数	DRAWING No. KOE-F32149				
ねじ指示表			KORG KORG INC.				





△			
△			
△			
△			
△			
MARK	REVISION REASON	DATE	REVISED BY

DRAWN BY	CHECKED BY	APPROVED BY	MODEL
X-4130/4140(X50/microX)			
TITLE			
KLM-2677 MAIN 1/3			
CPU			
DRAWING NO.			DATE
KOD-A30700			Mar.8'06

1

2

3

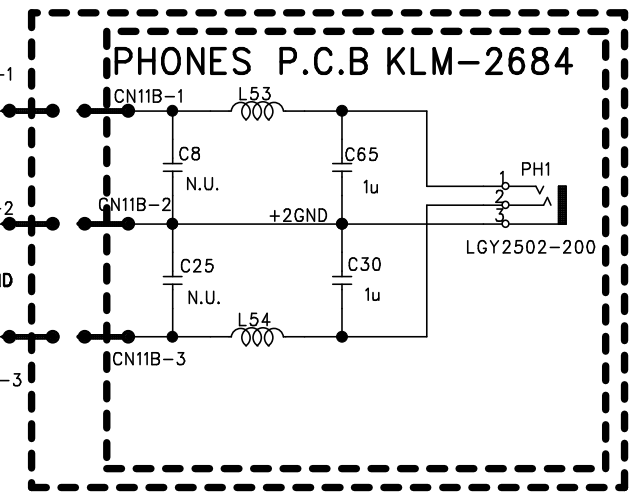
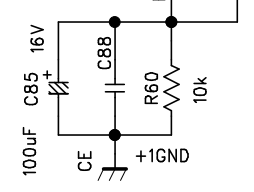
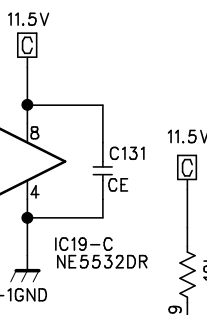
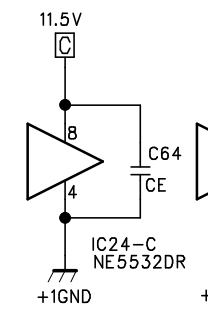
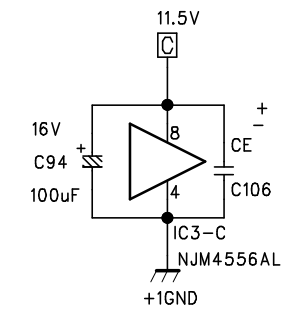
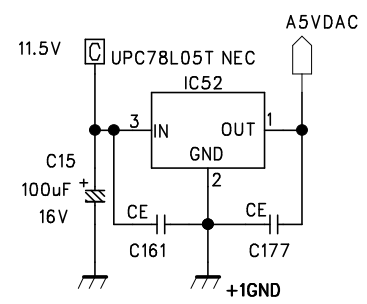
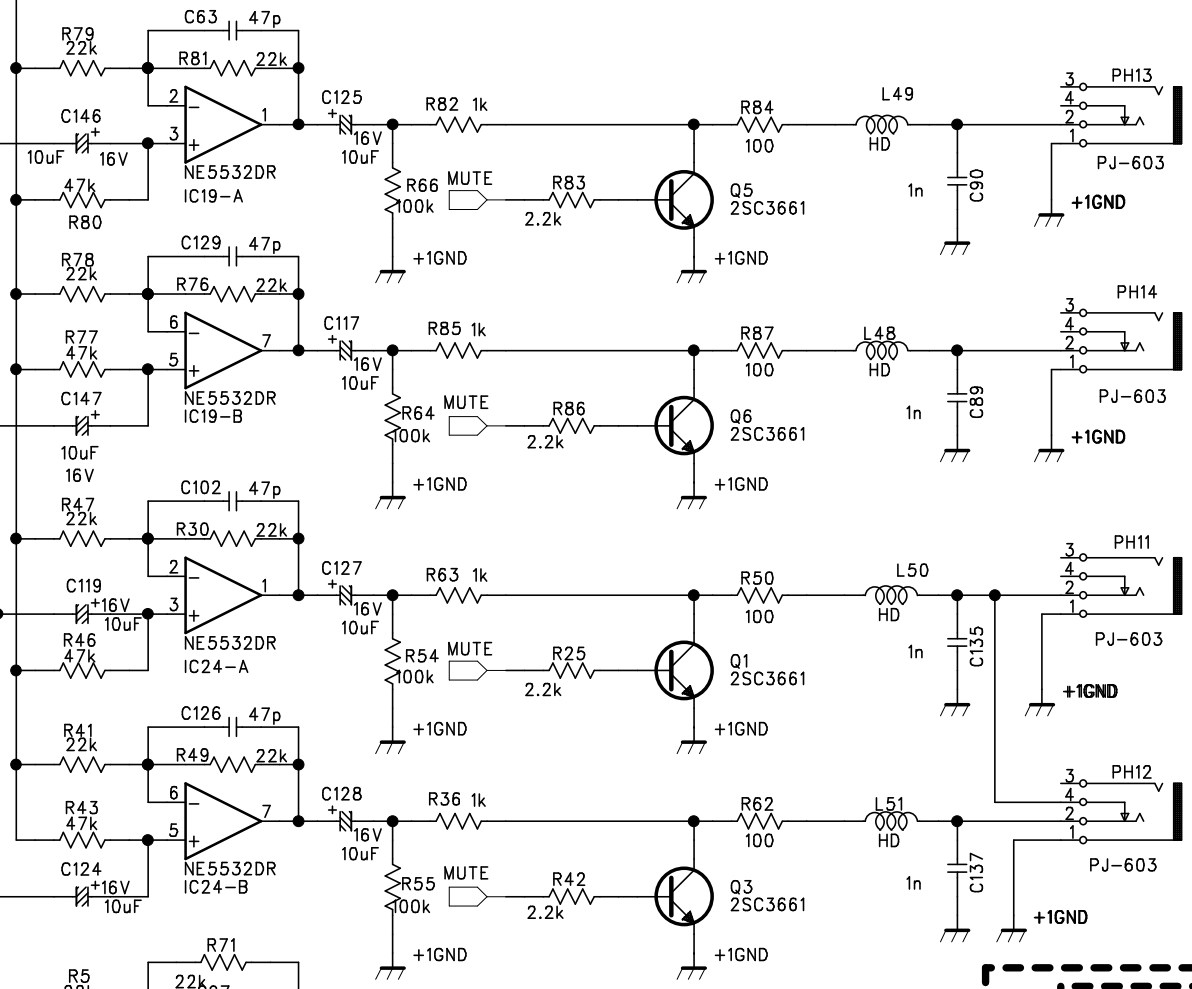
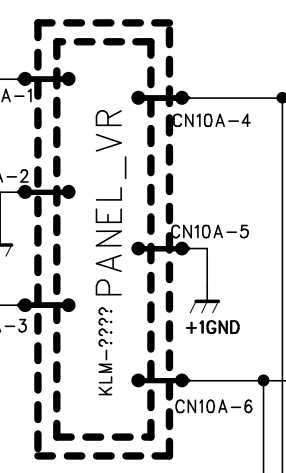
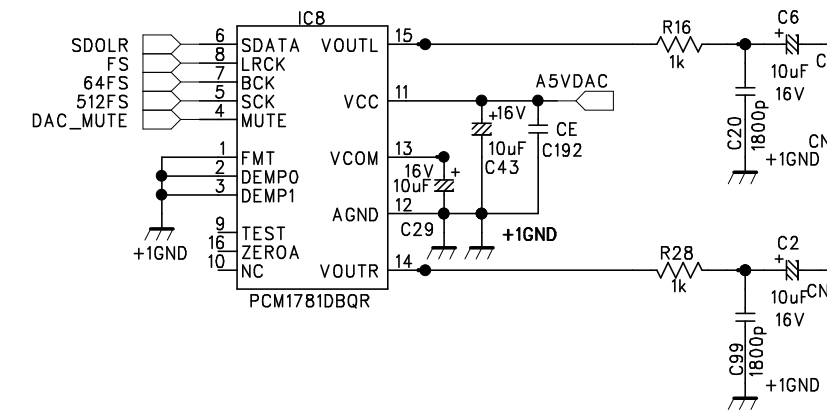
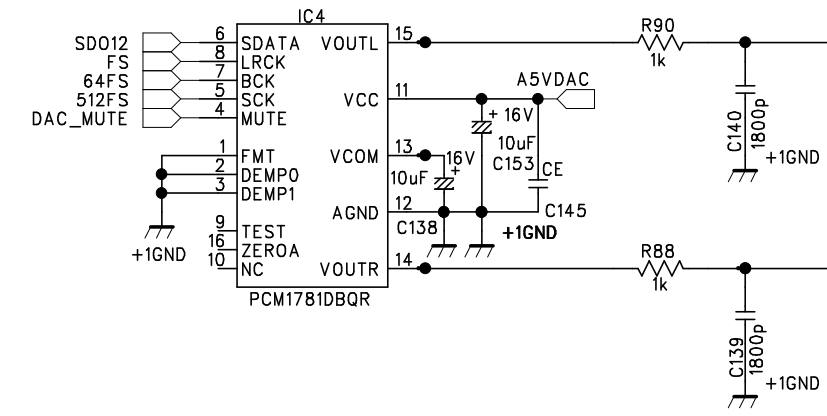
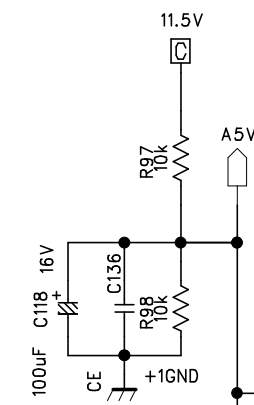
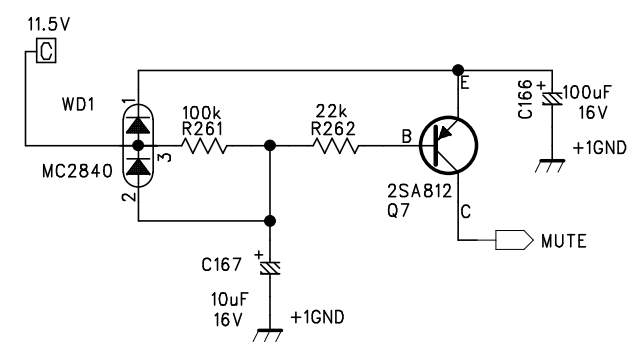
4

1

2

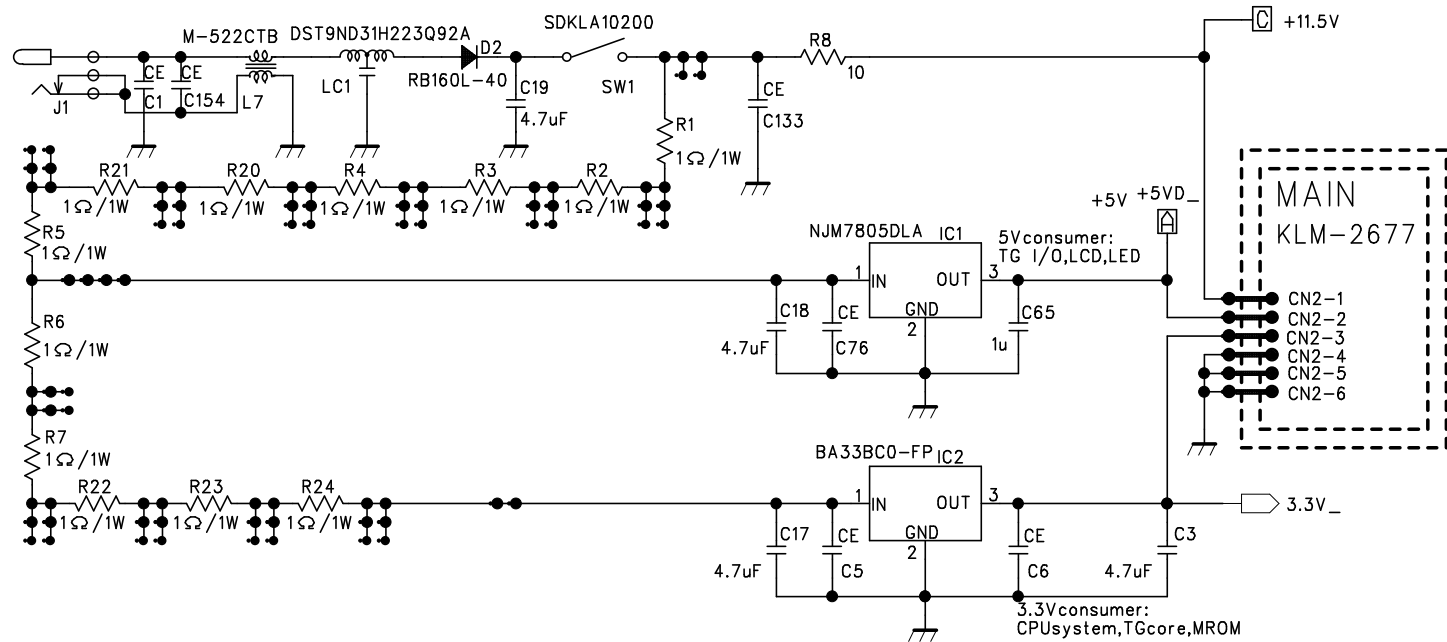
3

4





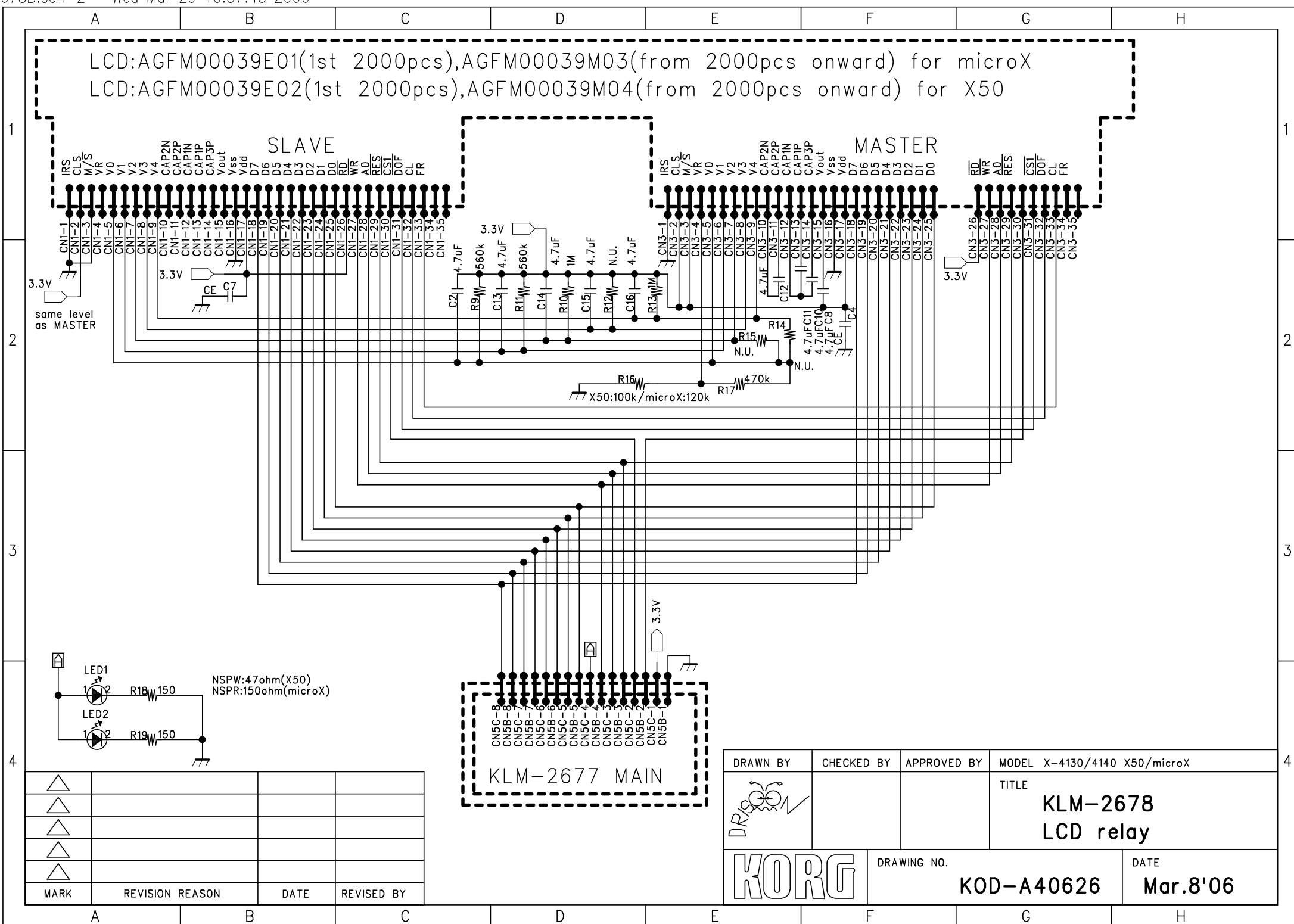
△			
△			
△			
△			
△			
MARK	REVISION REASON	DATE	REVISED BY

DRAWN BY	CHECKED BY	APPROVED BY	MODEL X-4130/4140(X50/microX)
			TITLE
			KLM-2677 MAIN 3/3
			audio
DRAWING NO.		DATE	
KOD-A40625		Mar.9'06	

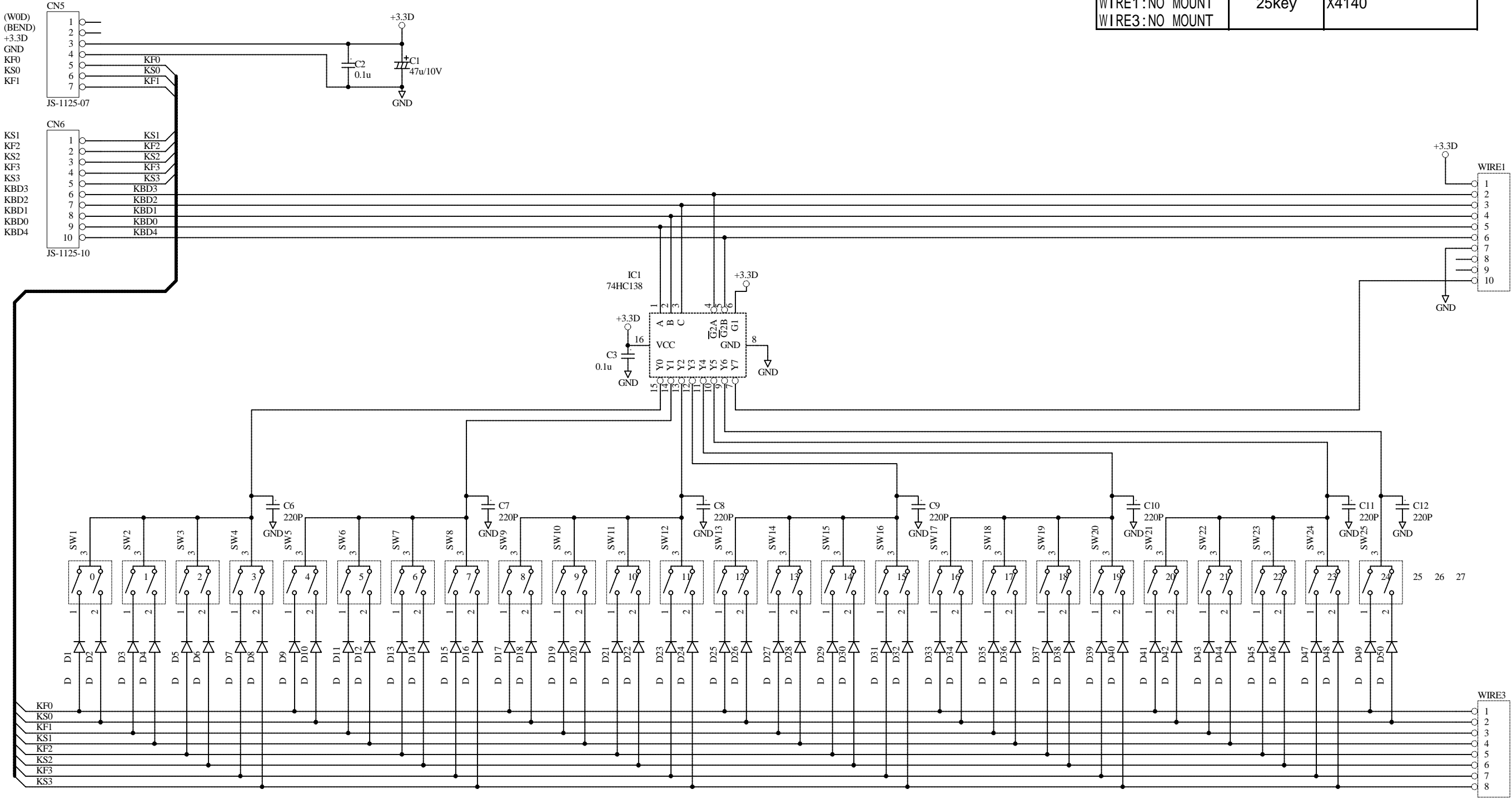


△			
△			
△			
△			
△			
MARK	REVISION REASON	DATE	REVISED BY

DRAWN BY	CHECKED BY	APPROVED BY	MODEL X-4130/4140 X50/microX
			TITLE KLM-2679 POWER
		DRAWING NO. KOD-A40627	DATE Mar.8'06



WIRE1,WIRE3	MODEL TYPE	MODEL NAME
WIRE1:HNS-3631	61key	X4130
WIRE3:HNS-3632	49key	
	37key	
WIRE1:NO MOUNT	25key	X4140
WIRE3:NO MOUNT		

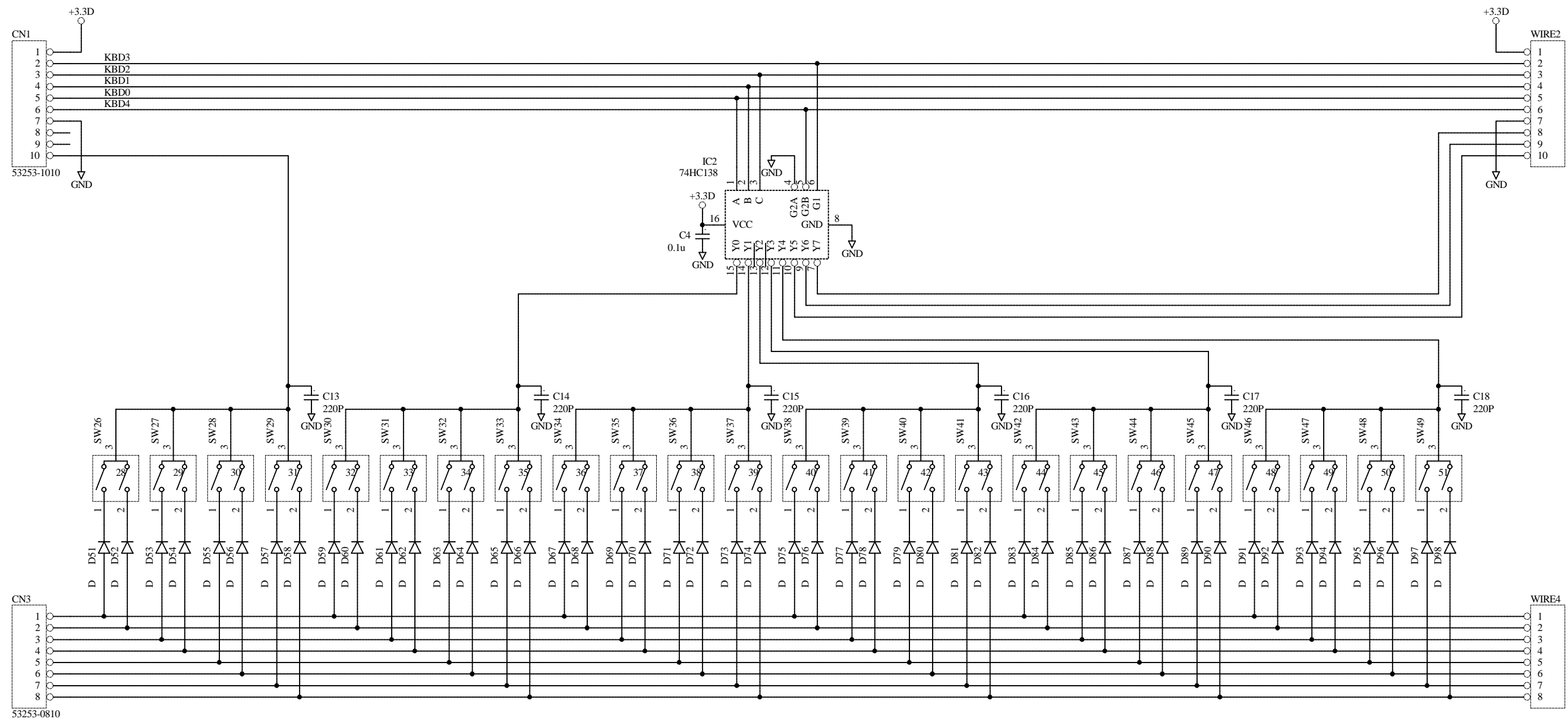


All Diodes : 1SS133



Title KLM-2663 Circuit Diagram		
Size A3	Number KOD-A30702	Revision
Date: 6-Jan-2005	Sheet of Banana Keyboard	
File: E:\USER\DESIGN\BANANA\BananaKB\BananaKB.dtb		

WIRE2,WIRE4	MODEL TYPE	MODEL NAME
WIRE2:HNS-3631	61key	X4130
WIRE4:HNS-3632		
WIRE2:NO MOUNT	49key	
WIRE4:NO MOUNT		



All Diodes : 1SS133



Title KLM-2664 Circuit Diagram		
Size A3	Number KOD-A30703	Revision
Date: 6-Jan-2005	Sheet of 8	
File: E:\USER\DESIGN\BANANA\BananaKB\BananaKB.dcb		

X50 TEST MODE

How to enter the TEST MODE

[MENU/OK] + [PROGRAM A] & POWER ON:	FULL INSPECTION
[MENU/OK] + [PROGRAM B] & POWER ON:	INSPECTION WITHOUT INTERNAL TEST
[MENU/OK] + [PROGRAM D] & POWER ON:	INSPECTION WITHOUT MIDI/USB
[EXIT/CANCEL] + [PAGE+] & POWER ON:	INITIALIZE OF MEMORY
[EXIT/CANCEL] + [MENU/OK] & POWER ON:	Loading the Preload Data
[EXIT/CANCEL] + [PAGE-] & POWER ON:	Display of the Version (Right bottom of the Initial Screen)

How To Operate in the TEST MODE

[ENTER]:	Proceed the test
[PAGE +]:	Proceed the test item
[PAGE -]:	Return to the former test item
CLICKABLE POINTER →:	Proceed the step
CLICKABLE POINTER ←:	Return to the former step
[AUDITION]:	ENCORDER RESET
[SELECT]:	MEMORY REPORT
[MENU/OK]:	YES (OK)
[EXIT/CANCEL]:	NO (CANCEL)

CAUTION

*During the inspection, you can adjust the contrast by rotating the ENCODER.

But rotating the ENCODER too fast causes that you cannot read the display sometime.

Because the software gives the priority to the internal processing than display.

*X50 needs the calibration of WHEEL, so after repairing do the calibration of the JOYSTICK.

When an error happened in the FULL inspection, you can proceed to the next inspection by pushing [MENU/OK].

KORG X50-61 Parts List

Part No.	Part Name	QTY
500600006512	SC-1800-S02LY (SAA) (AC CORD 240AU)	(1)
500600006510	UC-1800-U02LY (UL) (AC CORD120UL/CN/EX)	(1)
500600006509	EC-1800-E02LY (VDE) (AC CORD 230GE/FR/WG)	(1)
500600006513	AC CORD DC-1800-D02LY (PSE) (100JP)	(1)
500600006511	BC-1800-B02LY (BS) (AC CORD 230UK)	(1)
510360520005	VR RK1631110G1T 10K B curve (D)	2
510313501501	LCD AGFM00039E02(Positive Type)	1
500405015300	AC Adaptor KA310 (DSA-0151AD-12A)	1
510470521039	Harness HNS-3620 (Main-Power)	1
510470521040	Harness HNS-3621 (Main-Panel L:LED)	1
510470521041	Harness HNS-3622 (Main-Panel L:Analog)	1
510470521042	Harness HNS-3623 (Main-Panel L:PWR/SW)	1
510470521043	Harness HNS-3624 (Main-KeyBoard)	1
510470521045	Harness HNS-3626 (Panel L-PanelR:LED/ENC)	1
500646084200	BL PLATE PC Clear KOC-E40550	1
510470521046	Harness HNS-3627 (Panel L-Panel R:SW)	1
510470521047	Harness HNS-3628 (Panel L-Wheel)	1
510470521048	Harness HNS-3629 (Main-Panel L:MVolume)	1
510470521049	Harness HNS-3630 (Main-Headphone)	1
510470521064	Harness HNS-3741	3
510649500001	X-4130 UPPER CASE ASSY KOC-H30309	1
510649500002	X-4130 LOWER CASE ASSY KOC-H30310	1
510630500501	X-4130 SHIELD SHEET-1 KOC-F30121	1
510630500502	X-4130 SHIELD SHEET-2 KOC-F30122	1
510630500503	X-4130 SHIELD SHEET-3 KOC-F20115	1
500620018201	PSW KNOB KOC-E40224 EXP	1
500620036001	X-610 ENCODER KNOB KOC-E40466-3	1
510640502501	Earth Spring (K) t=0.2mm KOC-C41167	6
510649500003	X-4130 JACK PANEL ASSY KOC-H40236	1
510646502503	X-4130 LCD WINDOW KOC-E40662	1
510646502504	X-4130 PANEL SHEET-1 KOC-E30421	1
510646502505	X-4130 PANEL SHEET-2 KOC-E30422	1
510646502083	X-4130 SLIDER KNOB KOC-E30417	1
510646502084	X-4130 ROTARY KNOB-1 KOC-E30418	4
510640505544	X-4130 JACK PLATE KOC-C30710	1
510640505545	X-4130 PCB CHASSIS KOC-C20438	1
510640505503	Wheel Angle SECC t=1.0mm KOC-C41269	2
510640504016	Wheel Spring Dia. 1.0 KOC-C41278	1
510646502008	Wheel Knob ABS-HB KOC-E30289	2
510500505503	EPDM E-4088 t0.4 INOAC KOC-F41020	1
510500505504	CR C-4305 t0.8 INOAC KOC-F41021	1
510646502508	DIFFUSION SHEET KOC-F41017	1
510646502509	REFLECTION SHEET KOC-F41015	1
510646504147	JS KNOB KOC-E30383	1
510646504140	OVAL BUTTON (4-KEY) KOC-E20257	9
510640507003	X-4130 PIPE KOC-C41454	2
510646502085	KEY ASSY 12(M)KOC-H30305-1	4
510646502086	KEY ASSY 13(M) KOC-H30306-1	1

Part No.	Part Name	QTY
510500504502	QMWG6015CAK,12keys	4
510500504501	QMWG6014CAK 13keys	1
510C15332663	KLM2663 X50-61 (ASS'Y)	1
510310520501	Diode 1SS133 T-77 (LEAD) (5K/Reel) (D)	50
510320516052	IC SN74HC138N	1
510474520019	Wafer JS-1125-07 (for Volume) (D)	1
510474520021	Pin Header JS-1125-10 (For LCD) (D)	1
510470521050	Harness HNS-3631 (Keyboard-Keyboard)	1
510470521051	Harness HNS-3632 (Keyboard-Keyboard)	1
500641042011	EARTH TERMINAL T10359	1
510C15332664	KLM2664 X50-61 (ASS'Y)	1
510310520501	Diode 1SS133 T-77 (LEAD) (5K/Reel) (D)	48
510320516052	IC SN74HC138N	1
510474523007	Ribbon Cable Connector 52147-0810	1
510474523008	Ribbon Cable Connector 52147-1010	1
510470521050	Harness HNS-3631 (Keyboard-Keyboard)	1
510470521051	Harness HNS-3632 (Keyboard-Keyboard)	1
500641042011	EARTH TERMINAL T10359	1
510C15332665	KLM2665 X50-61 (ASS'Y)	1
510310520501	Diode 1SS133 T-77 (LEAD) (5K/Reel) (D)	24
510474523007	Ribbon Cable Connector 52147-0810	1
510474523008	Ribbon Cable Connector 52147-1010	1
500641042011	EARTH TERMINAL T10359	1
510C15332677	KLM2677/84 X50-61 (ASS'Y)	1
510402511008	CHIP INDUCTOR BLM18BB121SN1D	1
510402511007	CHIP INDUCTOR BLM18HD102SN1D	40
510300511504	Transistor 2SC3661-TB-E (S)	6
510300510503	Transistor 2SA812-T1B M5-7 M6 Rank (S)	1
510310510502	Diode MC2840-T112-1 (S)	4
510310511507	Diode RLS-73 TE-11 (S)	1
510320516060	Logic IC SN74LVC2G32DCTR SM-8	1
500320004715	CPU HD6417705F100BV FP-208	1
500320052002	NAND FLASH HY27US08281A-TPCB	1
500324026008	IC MT48LC4M16A2P-75;G	1
500320012223	TGL96 MB87F1710PFV-G-BND QFP208	1
510320519509	MX23L25611MC-12G(X-5110L)256Mb SSOP70	1
510320519510	MX23L25611MC-12G(X-5110H)256Mb SSOP70	1
500324021160	OPAMP NE5532DR SOP8	2
510320517004	IC INVERTER TC7WU04F (SM8) / (FM8) (S)	1
510320516061	Logic IC SN74LVC2G04DCKR SC-70	1
510320516062	Logic IC SN74LVC2G08DCTR SM-8	1
510320516063	Logic IC SN74LVC1G04DCKR SC-70	1
510320516064	Logic IC SN74LVC2G06DCKR SC-70	1
510320516038	Logic IC SN74LVC1G08DCKR DCK6	2
510320516065	Logic IC SN74LVC1G19DCKR SC-70	1
510320512503	Regulator IC UPC78L05T-E2 SC-62	1
510320511026	OPAMP NJM4556AL-#ZZZB	1
510320513508	Reset IC R3112N271A-TR SOT-23-5	1
510320516066	Logic IC SN74AHCT541NSR SOP20	4

Part No.	Part Name	QTY
510320516048	IC logic SN74AHCT541PWR(TS)SSOP20	2
510320516015	IC logic IC SN74LV4052ANS (TS) (S)	1
510320519507	EEPROM 93LC66BT-1/SN SOP8	1
510320516067	Logic IC SN74LVCC3245APWR TSSOP24	2
510320516068	Logic IC SN74LV541ANSR SOP20	3
510320516069	D/A Converter PCM1781DBQR	2
500324006007	IC MSM5118165F-60JSR1 (S)	1
510320519508	Regulater IC LM1117MPX-ADJ SOT-223	1
510330510501	Photo coupler PS9121 SOP5	1
500335011900	Crystal CA-301 24.576MHZ CL=10PF	1
500335400290	CERAMIC RESONATOR CSTCE12MOG15075-RO	1
510402511003	Chip Solid Inductor BLM18BD102SN1D (S)	14
510450520012	Phone Jack PJ-603 (D)	7
510450520506	DIN JACK 5p DS-05-02(W/OUT SW) (D)	2
510474520006	Wafer JS-1125-06 OR B6B-PH-K-S (D)	1
510474520012	Wafer JS-1132-03 (B3B-EH-A) (D)	2
510474520029	Wafer JS1132-06 (D)	1
510474520019	Wafer JS-1125-07 (for Volume) (D)	1
510474520077	JS-1125-11 (B11B-PH-K-S) (D)	1
510474520022	Pin Header JS-1125-15 (For JACK) (D)	1
510474526002	Connectors B16B-PHDSS	1
510474520045	Connector JS1125-16	1
510474520501	USB Connector B Type GE813A02 (D)	1
510450528002	Mini Phone Jack LGY2502-0200FC SMK	1
500320012353	NOR FLASH MBM29LV004TC-90TN(X4130/4140)	1
500219401920	EMI FILTER NFM21PC104R1E3D	3
510C15332678	KLM2678/79 X50-61 (ASS'Y)	1
510402520502	EMI Filter DST9ND31H223Q92A (TR) (D)	1
510210510501	Common Mode Filter M-522CT (S)	1
510310511518	Schottky Diode RB160L-40TE25 SOD-100	1
510312523001	LED Dip NSPWF50BS	2
510320520510	NJM7805DLA/1A-TE1-#ZZZB(TS)	1
510320514024	Regulator IC BA33BC0-FP 3.3V 1A TO-252	1
510450523010	LED Spacer L=5.0mm LEDH-5 (3hcle) (D)	2
510374520007	Power switch PSW SDKLA10200 (D)	1
510450528001	DC Power Jack LGP6531-0700	1
510474520075	JS1132R-6 (S6B-EH)	1
500474043200	FFC CONNECTOR XF2M-3315-1A	2
510470521044	Harness HNS-3625 (Main-LCD)	1
510C15332680	KLM2680/81 X50-61 (ASS'Y)	1
510310510503	Diode,double Diode MC971-T112(TR)	21
510312512008	LED SLR-325VR-T31-K/L/M/N(TR)	15
510312513011	LED SLR-342VRTE7	4
510300511022	Digital Tr DTB113ES (D)	7
510300511021	Transistor DTC114ESA TP (S)	11
500370005000	Rotary Encoder EC11B15204A5 (D)	1
510320516052	IC SN74HC138N	1
510320523001	Logic IC SN74HCT138N DIP16	1
510320520003	Logic IC HD74HC125P DIP14	1

Part No.	Part Name	QTY
510374520021	Tact Switch SKRGAQD010 9.5mm 1.27N	36
510360520013	RK09K1130CBU10KB(F2366319M)	4
510360520016	Stick Controller RKJXP1224002	1
510360523001	Slide VR EWA NA0C10B14	1
510474520075	JS1132R-6 (S6B-EH)	1
510474520076	JS1132R-10 (S10B-EH)	2
510474520031	Wafer JS-1125R-06 (D)	1
510474520032	Wafer JS-1125R-07 (D)	1
510474520072	Harness JS-1125-11R(for Power)11pin	1
510474522501	Pin Header (Side) JS-1125 R -13 (D)	2
510474522502	Pin Header (Side) JS-1125 R -15 (D)	1