

U

SP-200

Digital Piano

R

Black

O



K

Rose Silver



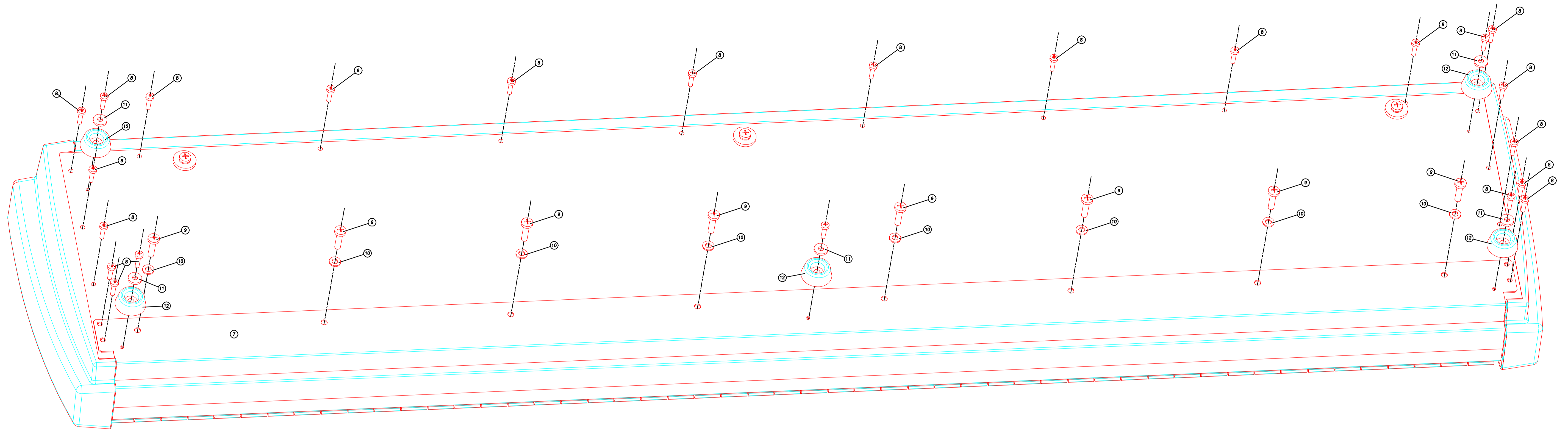
Service Manual

SP-200 Specifications

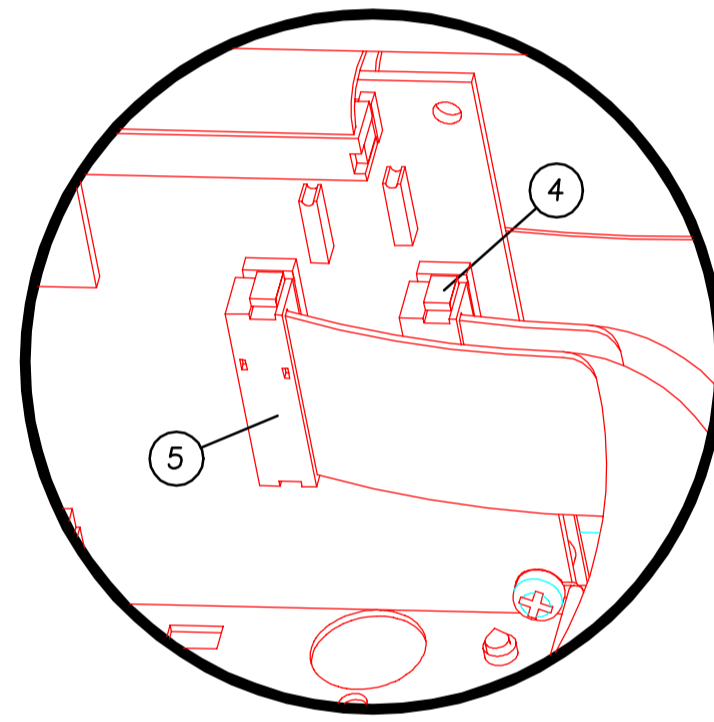
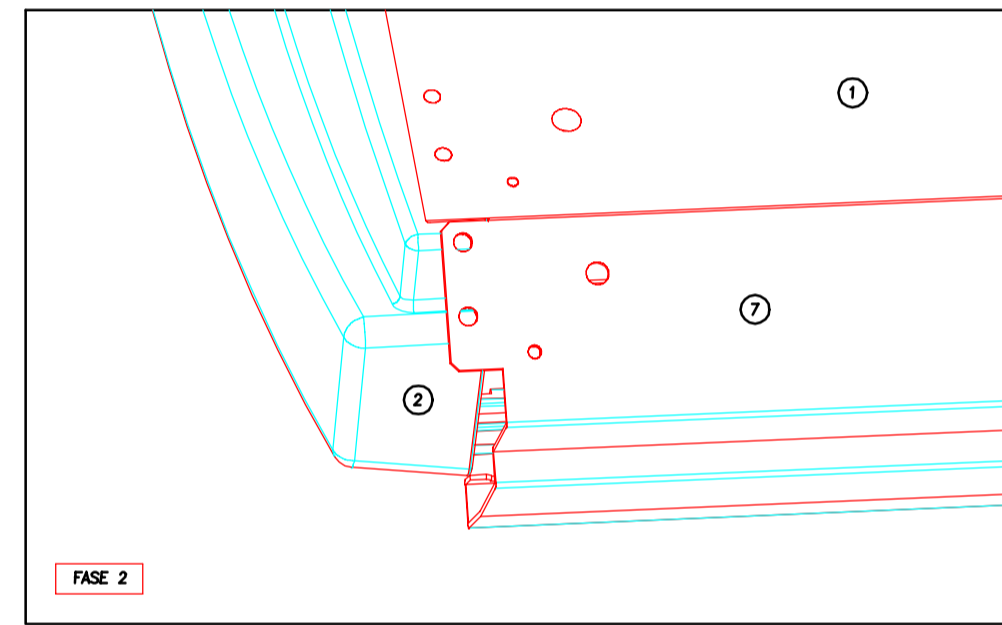
Keyboard	88 notes, velocity sensitive, with hammer-action simulation.
Touch selection	Light, normal, heavy.
Tuning	Transpose, fine tuning, temperament (equal, kirnberger, werckmeister).
Sound generation	Stereo PCM system.
Polyphony	60 notes (max). The use of 2-oscillator sounds, the layer mode and/or the reverb or chorus reduces the maximum number of simultaneous notes.
Sounds	30 sounds in ROM.
Effects	Reverb, chorus (3 levels each).
Demo	30 incorporated demos.
Metronome	Tempo, time signature, accent and volume controls.
Pedal	Damper (included). Half-pedalling supported with korg DS1H (optional).
Connections	Audio output (OUTPUT L/MONO, R), headphones, midi (IN, OUT), damper.
Controls	Power switch, master volume, reverb, chorus, touch, transpose/function, bank, sound selectors, tempo, metronome, demo.
Power supply	DC12V, 500mA, center negative barrel, AC adapter (included).
Power consumption	5 Watt.
Dimensions (W x D x H)	52.3 x 11.2 x 4.8 inch (1328 x 285 x 122 mm).
Weight	40.7 lbs (18,5 kg).
Accessories	DC12V, 500mA, center negative barrel, AC adapter; damper pedal; music stand (all included).
Options	DS 1H - damper pedal with half-pedal control.

Sounds processed with **INFINITY™**.

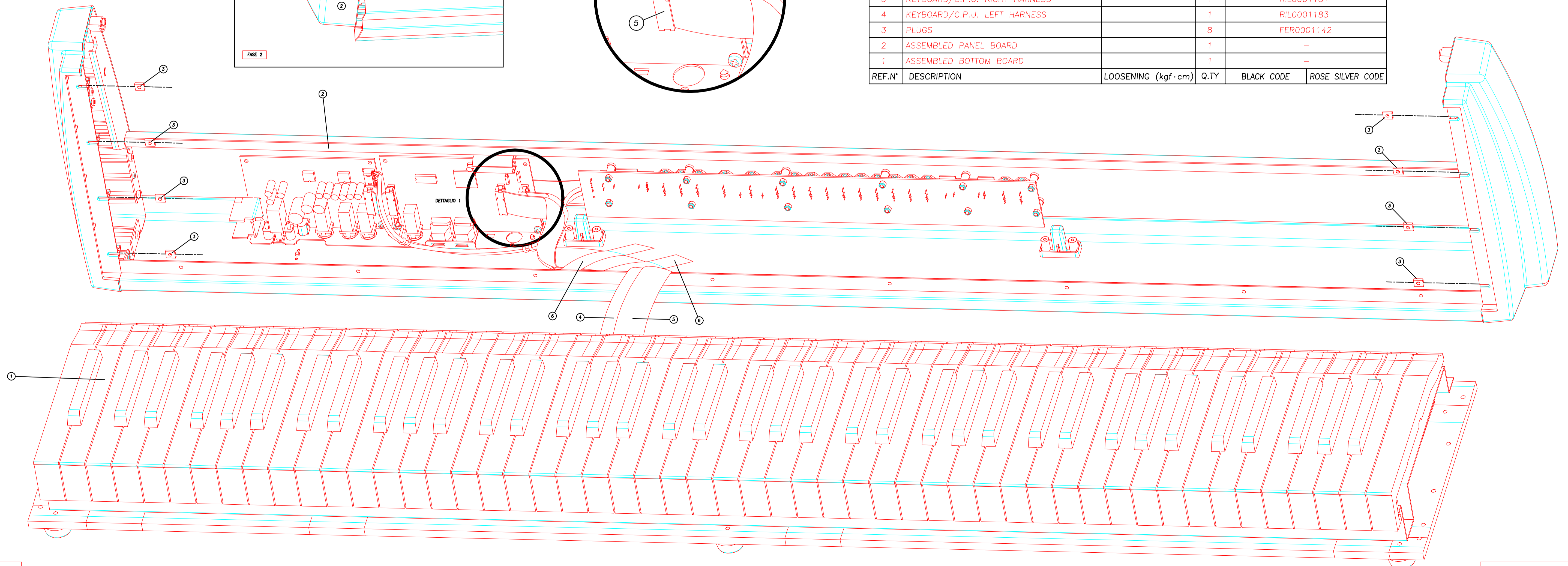
Korg reserves the right to change the specifications without notice.

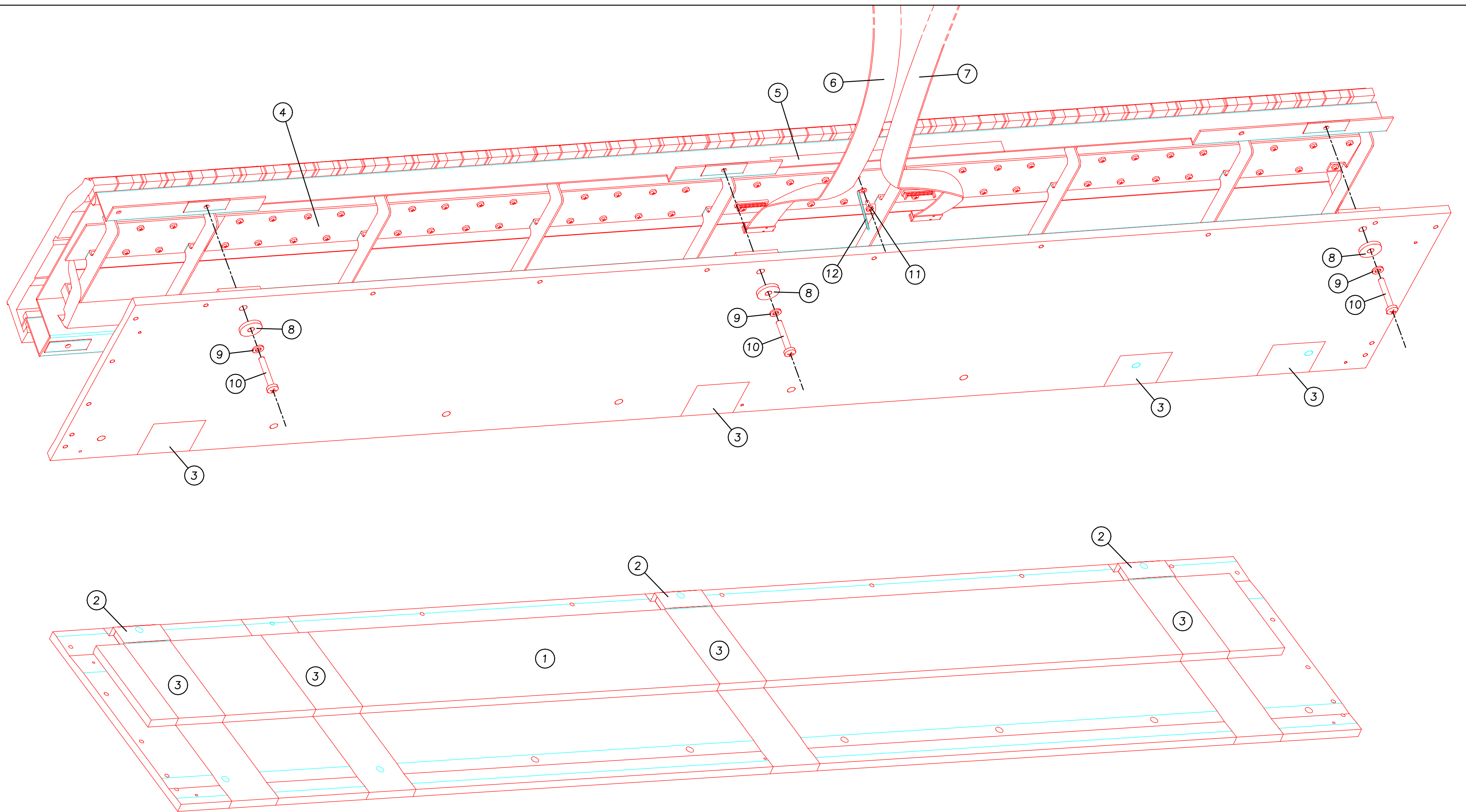


DETAIL 1 SCALED 2:1



12	RUBBER FOOT		5	PLA0001082	
11	WASHER 4x12x1.2		5	VTA0001014	
10	GROVER Ø 5mm		8	VTA0001012	
9	SCREW M5X25 TC	15	8	VTA0001074	
8	SCREW 3.5X16 TC	12	23	VTA0001036	
7	PAINTED FRONT BAR		1	FER0002038	FER0002042
6	ADHESIVE TAPE ART.389 3M 18mm		cm10	FEL0001029	
5	KEYBOARD/C.P.U. RIGHT HARNESS		1	RIL0001181	
4	KEYBOARD/C.P.U. LEFT HARNESS		1	RIL0001183	
3	PLUGS		8	FER0001142	
2	ASSEMBLED PANEL BOARD		1	-	
1	ASSEMBLED BOTTOM BOARD		1	-	
REF.N°	DESCRIPTION	LOOSENING (kgf·cm)	Q.TY	BLACK CODE	ROSE SILVER CODE



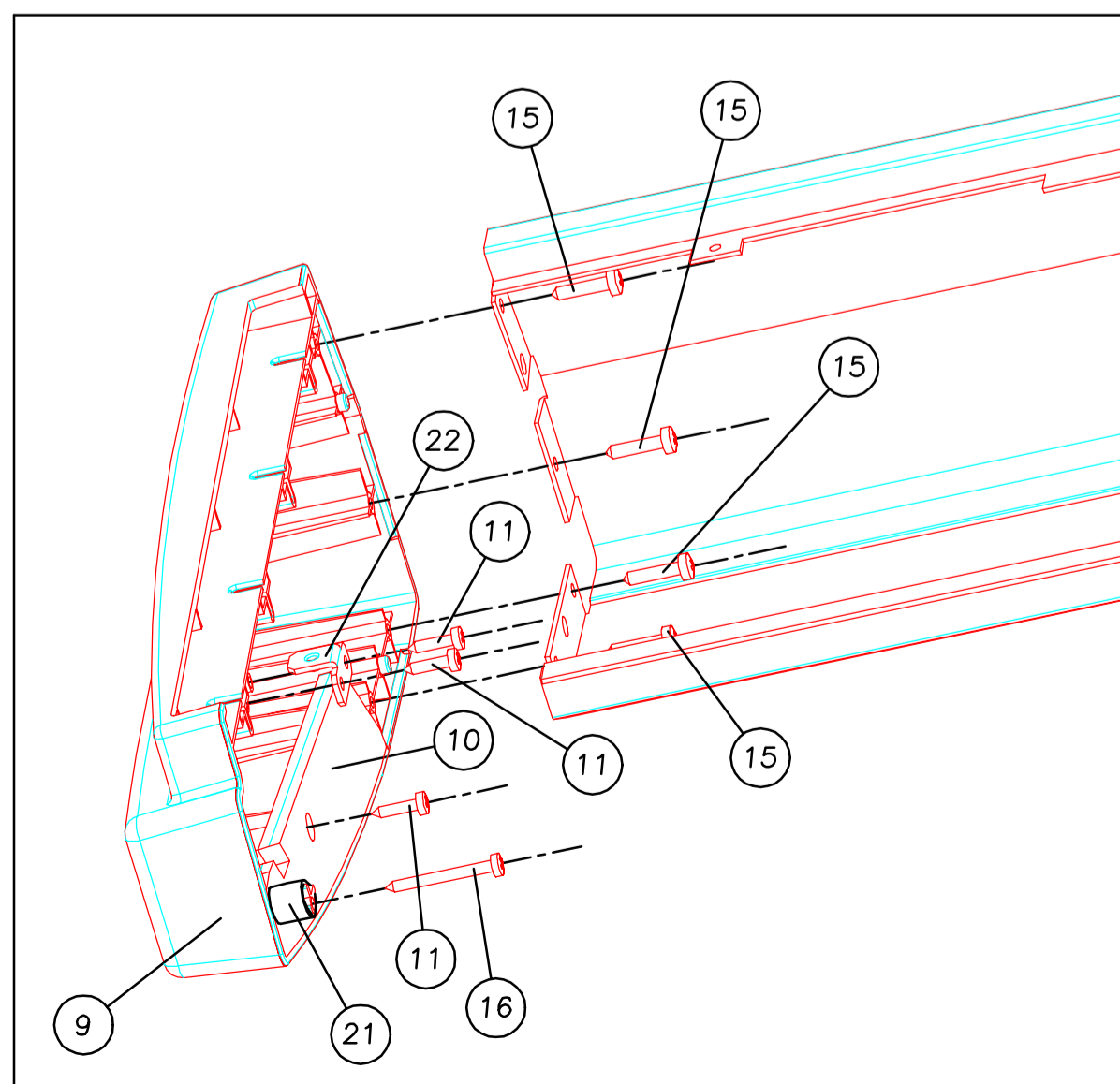
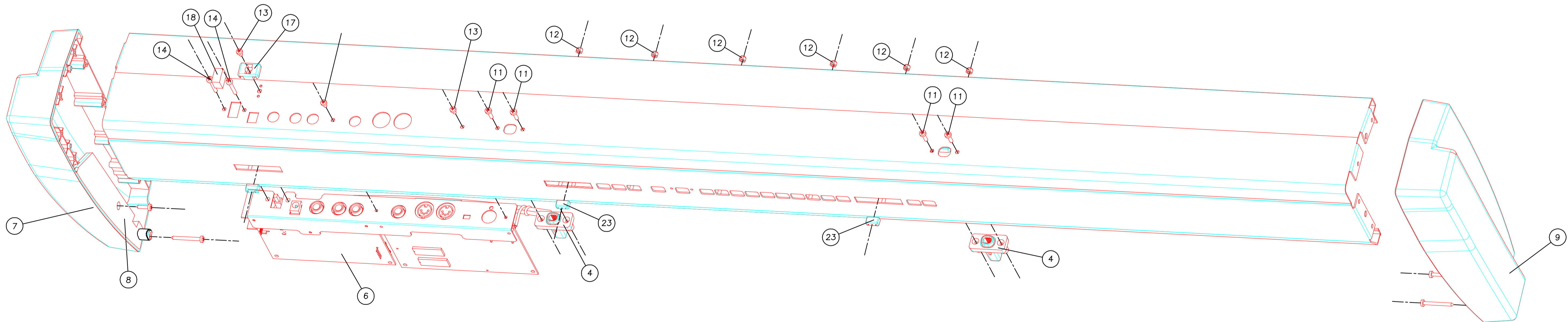
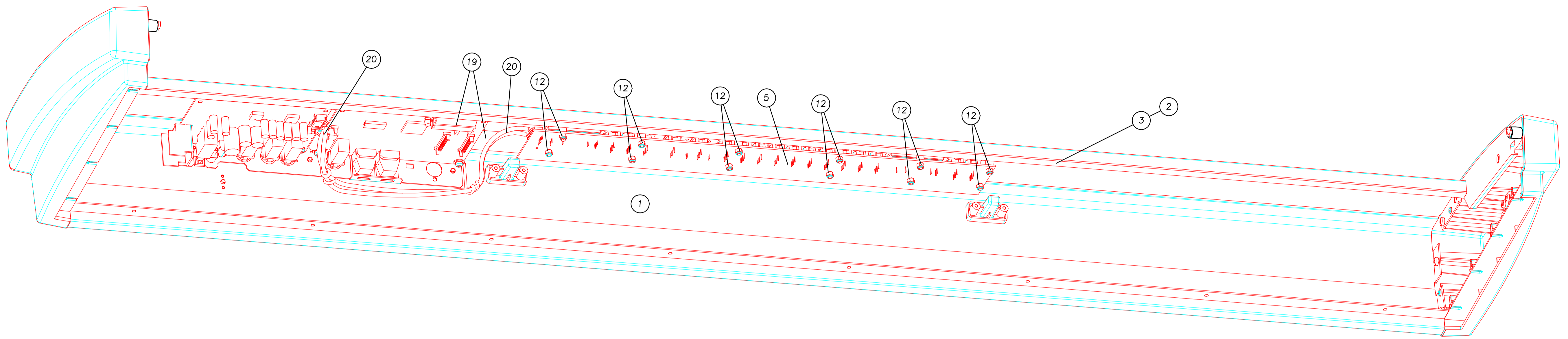


6	KEYBOARD/C.P.U. RIGHT HARNESS		1	RIL0001181
5	ADHESIVE TAPE ART. 389 3M 18mm		cm 20	FEL0001029
4	TP-30 FATAR KEYBOARD		1	TAS0001018
3	ALUMINIUM ADHESIVE TAPE AR. 425 3M 50x55		cm 120	FEL0001048
2	WOODEN THICKNESS		3	LEG0001037
1	PAINTED BOTTOM BOARD		1	LEG0001036
REF.N°	DESCRIPTION	LOOSENING (kgf·cm)	Q.TY	CODE

12	SCREW (TP30 KEYBOARD PCB)		8	1	TAS0001018
11	CABLE TIE			1	PLA0001046
10	SCREW M5x35 TC		15	3	VTA0001071
9	GROVER Ø 5mm			3	VTA0001012
8	WASHER 20x6x3			11	VTA0001013
7	KEYBOARD/C.P.U. LEFT HARNESS			1	RIL0001183
REF.N°	DESCRIPTION	LOOSENING (kgf·cm)	Q.TY	CODE	

SIZE A2

SP-200 DISASSEMBLY 2

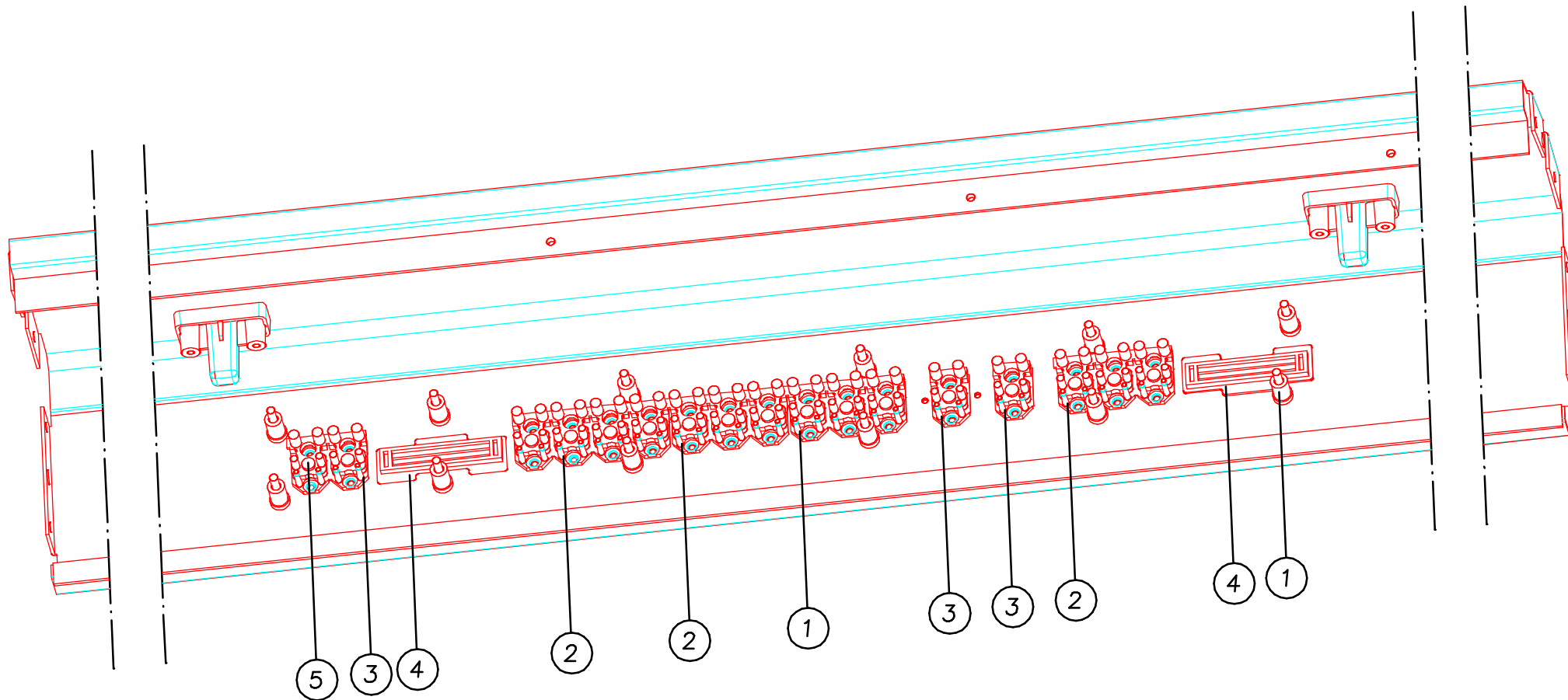


12	M3 SELFLOCKING NUT		6	12	VTA0001023			
11	SCREW 3x13 TC PR		8	10	VTA0001051			
10	PAINTED RIGHT SIDE COVER			1	PLA0002039	PLA0002043		
9	PAINTED RIGHT SIDE			1	PLA0002037	PLA0002041		
8	PAINTED LEFT SIDE COVER			1	PLA0002038	PLA0002042		
7	PAINTED LEFT SIDE			1	PLA0002036	PLA0002040		
6	MAIN BOARD/OUTPUT BOARD GROUP			1	FER0002035			
5	PANEL BOARD KIP-2050			1	GRA0002050			
4	MUSIC REST SUPPORT			2	PLA0001110			
3	PURPLE FELT 1225x8			1	FEL0001004			
2	DOUBLE ADHESIVE SIDE TAPE ART. 950 5mm			cm 122	FEL0001018			
1	PAINTED PANEL PROFILE			1	FER0002037	FER0002041		
REF.N°	DESCRIPTION	LOOSENING (kgf.cm)	Q.TY	BLACK CODE	ROSE SILVER CODE			

23	POTENTIOMETER KNOB		2				PLA0001080	PLA0001107
22	BOTTOM BOARD FIXING L-PROFILE		2				FER0001140	
21	ADHESIVE FELT 30x10x1		2				FEL0001001	
20	MASTER VOLUME HARNESS		1				RIL0001182	
19	PANEL BOARD/MAIN BOARD HARNESS		1				RIL0001179	
18	MAIN SWITCH		1				PLA0001052	
17	CABLE HOLDER		1				PLA0001088	
16	SCREW 3x30 TC PR		8	2			VTA0001080	
15	SCREW 3.5x16 TC		10-12	8			VTA0001036	
14	SCREW M3x20 TC		6	2			VTA0001079	
13	SELF-TAPPING SCREW 2.9x6.5 TC SP		8	3			VTA0001037	
REF.N°	DESCRIPTION	LOOSENING (kgf.cm)	Q.TY	BLACK CODE	ROSE SILVER CODE			

SIZE A1

SP-200 DISASSEMBLY 3

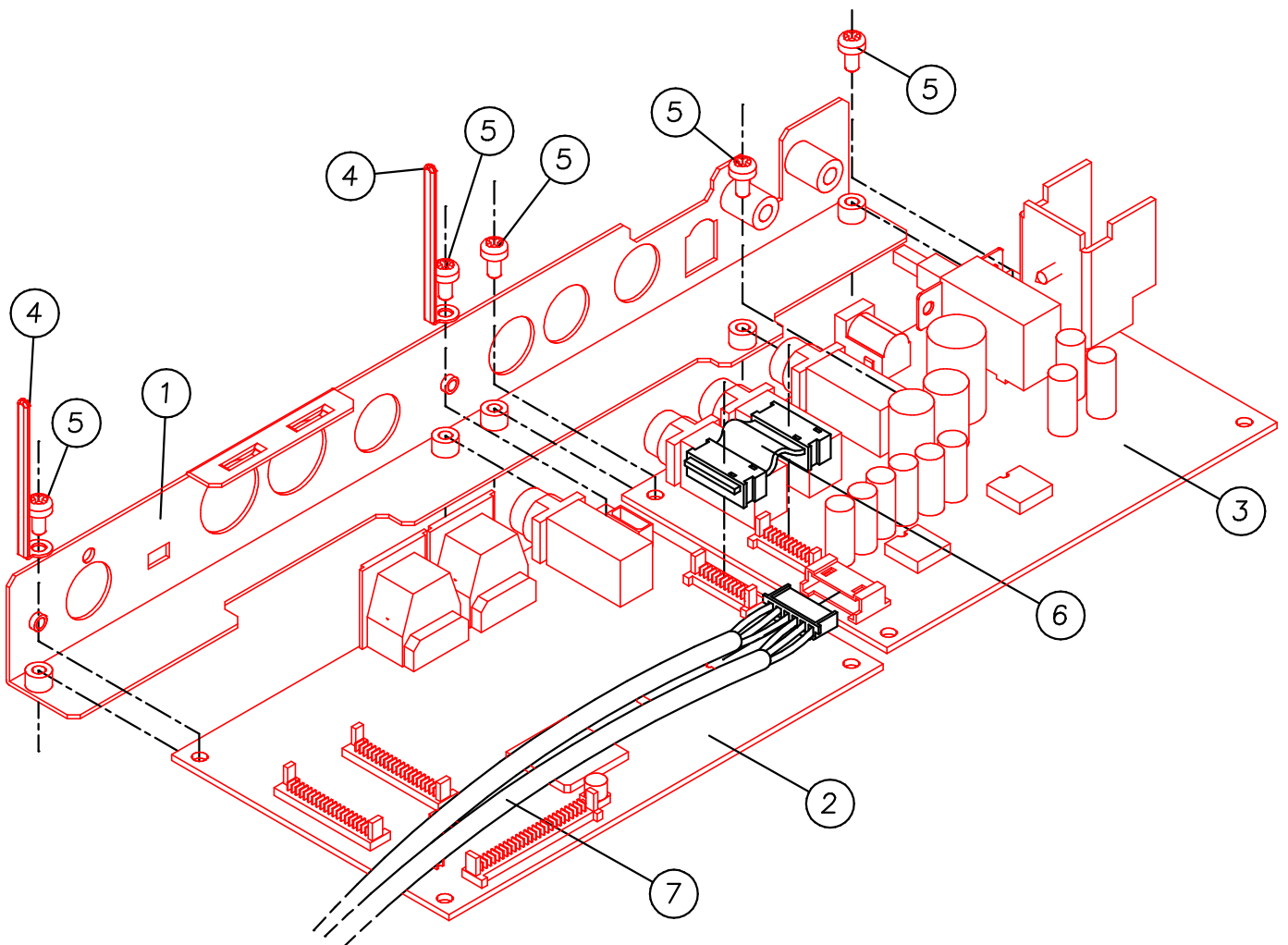


5	STYLE BUTTONS	17	PLA0001113	PLA0001120
4	SLIDER FRAME	2	PLA0001079	PLA0001108
3	4 BUTTONS FRAME	2	PLA0001112	PLA0001119
2	3 BUTTONS FRAME	3	PLA0001111	PLA0001118
1	SPACER SLEEVE H=11.8mm	12	PLA0001076	
REF.N°	DESCRIPTION	Q.TY	BLACK CODE	ROSE SILVER CODE

SIZE A4

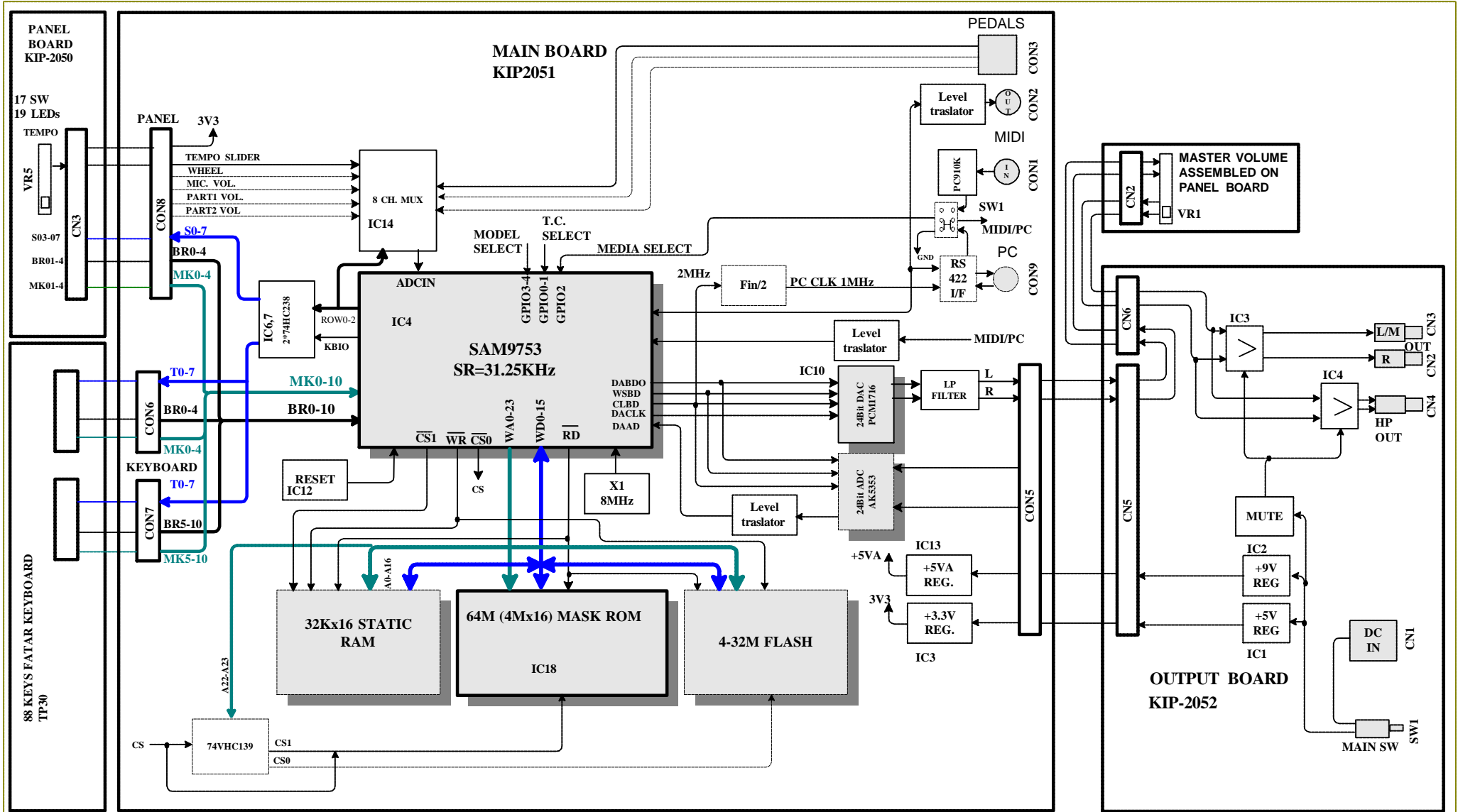
SP-200 SWITCH BUTTONS SETTING

7	MASTER VOLUME HARNESS		1	RIL0001182
6	C.P.U./OUTPUT BOARD HARNESS		1	RIL0001180
5	SCREW M3x8 TC	6	5	VTA0001032
4	CABLE TIE		2	PLA0001046
3	OUTPUT BOARD KIP-2052		1	GRA0002052
2	MAIN BOARD KIP-2051		1	GRA0002051
1	METAL SUPPORT		1	FER0001137
REF.N°	DESCRIPTION	LOOSENING (kgf·cm)	Q.TY	CODE

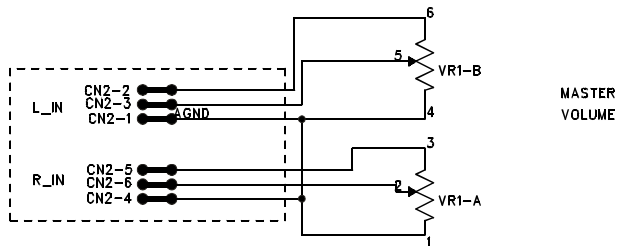
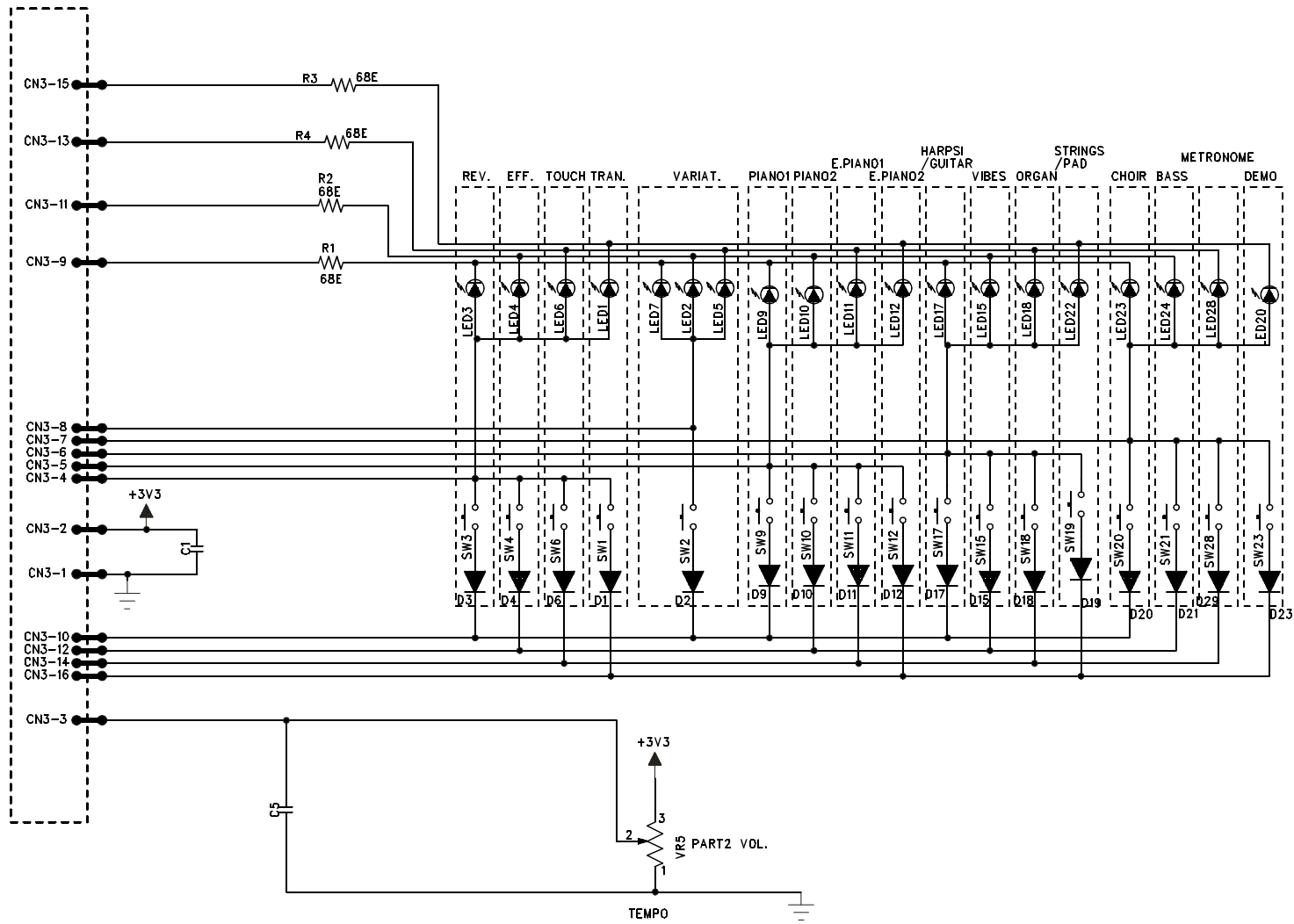


SIZE A4

SP-200 MAIN BOARD/OUTPUT BOARD DISASSEMBLY

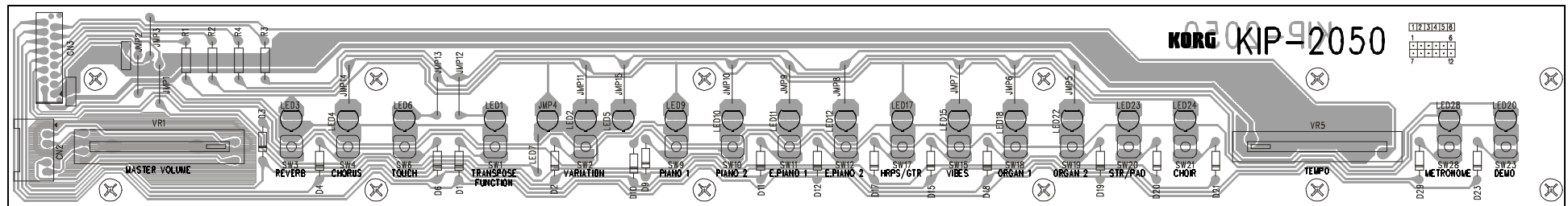


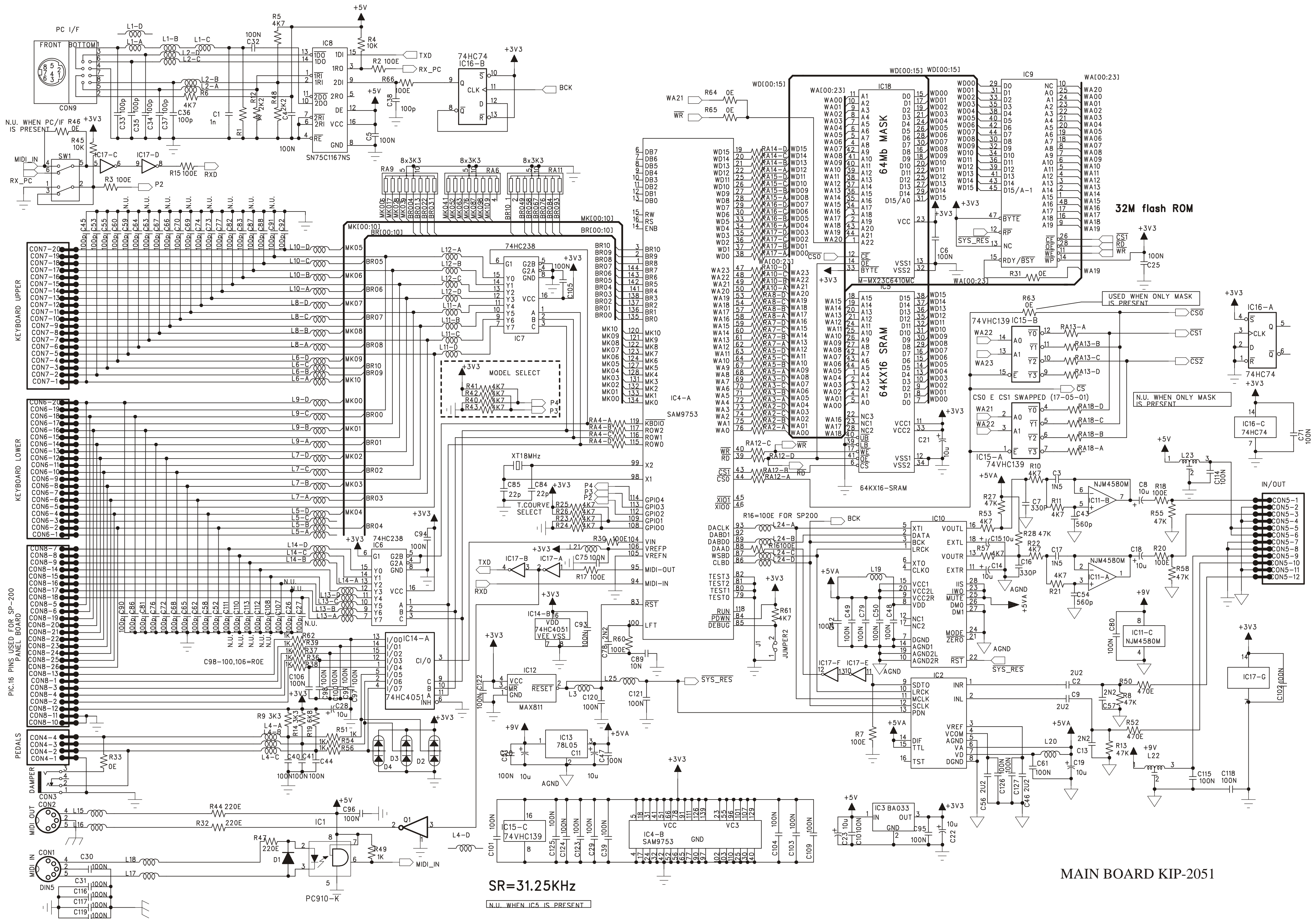
SP200 BLOCK DIAGRAM



PANEL BOARD KIP-2050

PANEL BOARD KIP-2050 COMPONENT SIDE



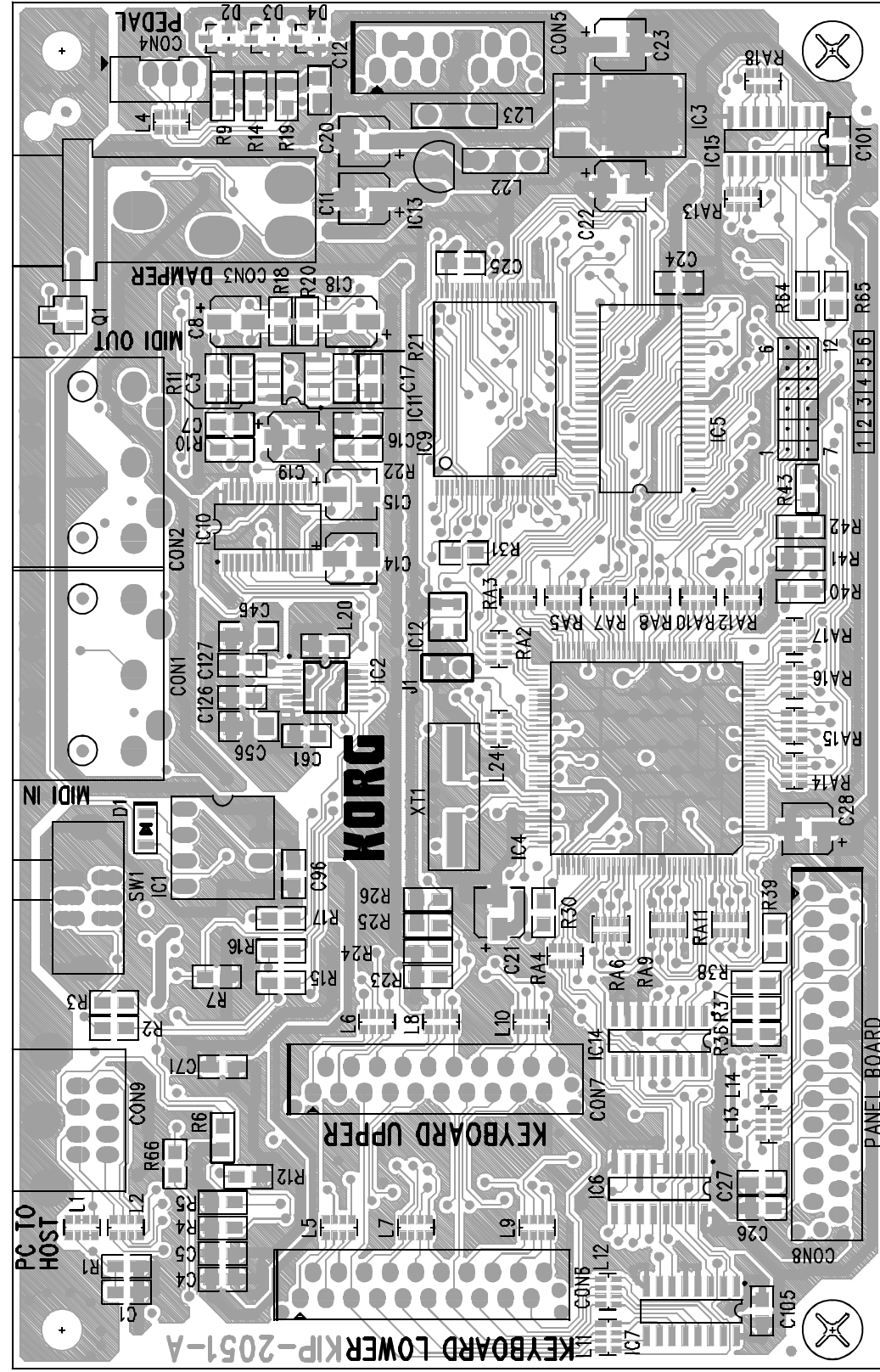


SR=31.25KHZ

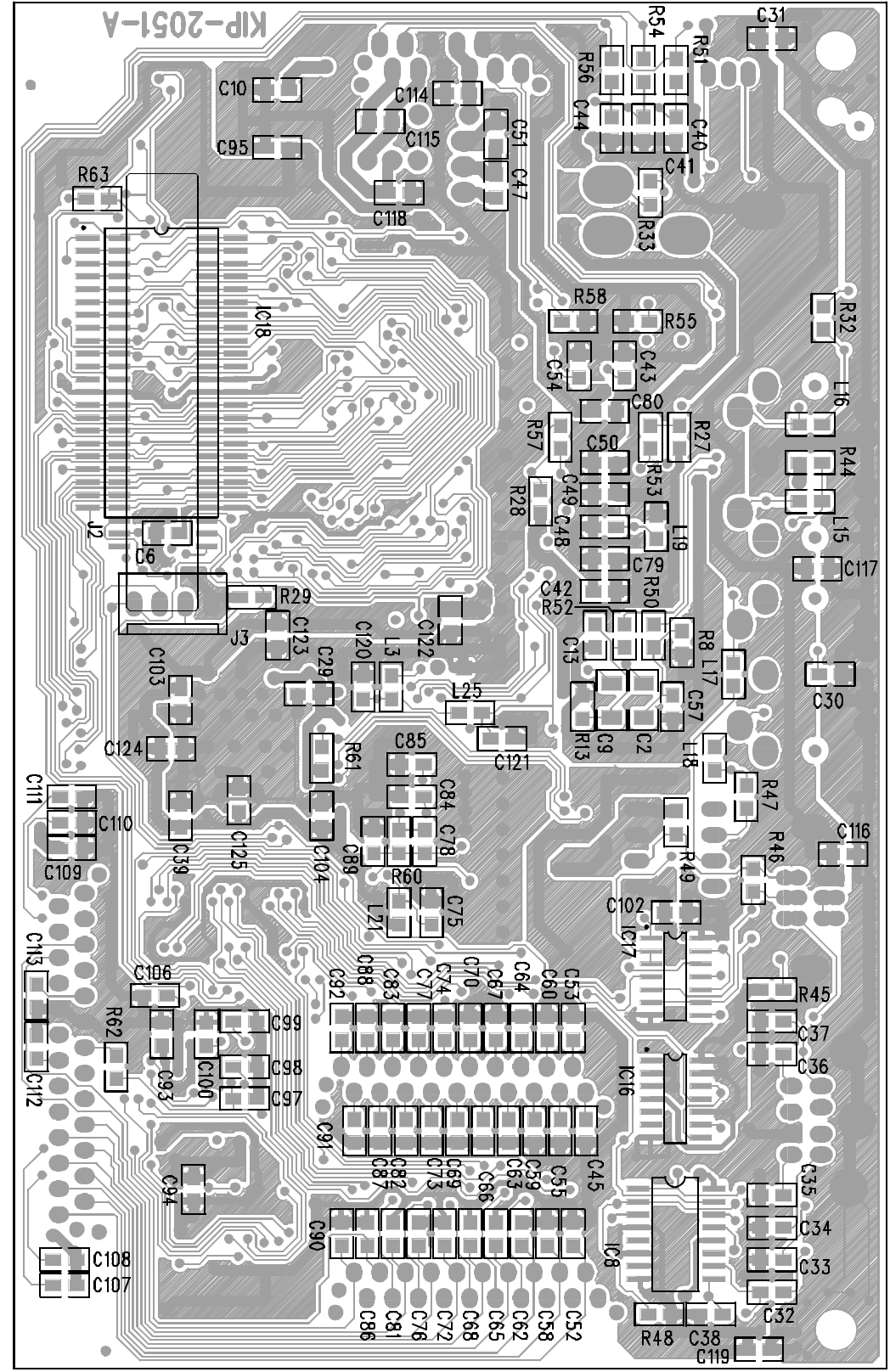
N.U. WHEN IC5 IS PRESENT

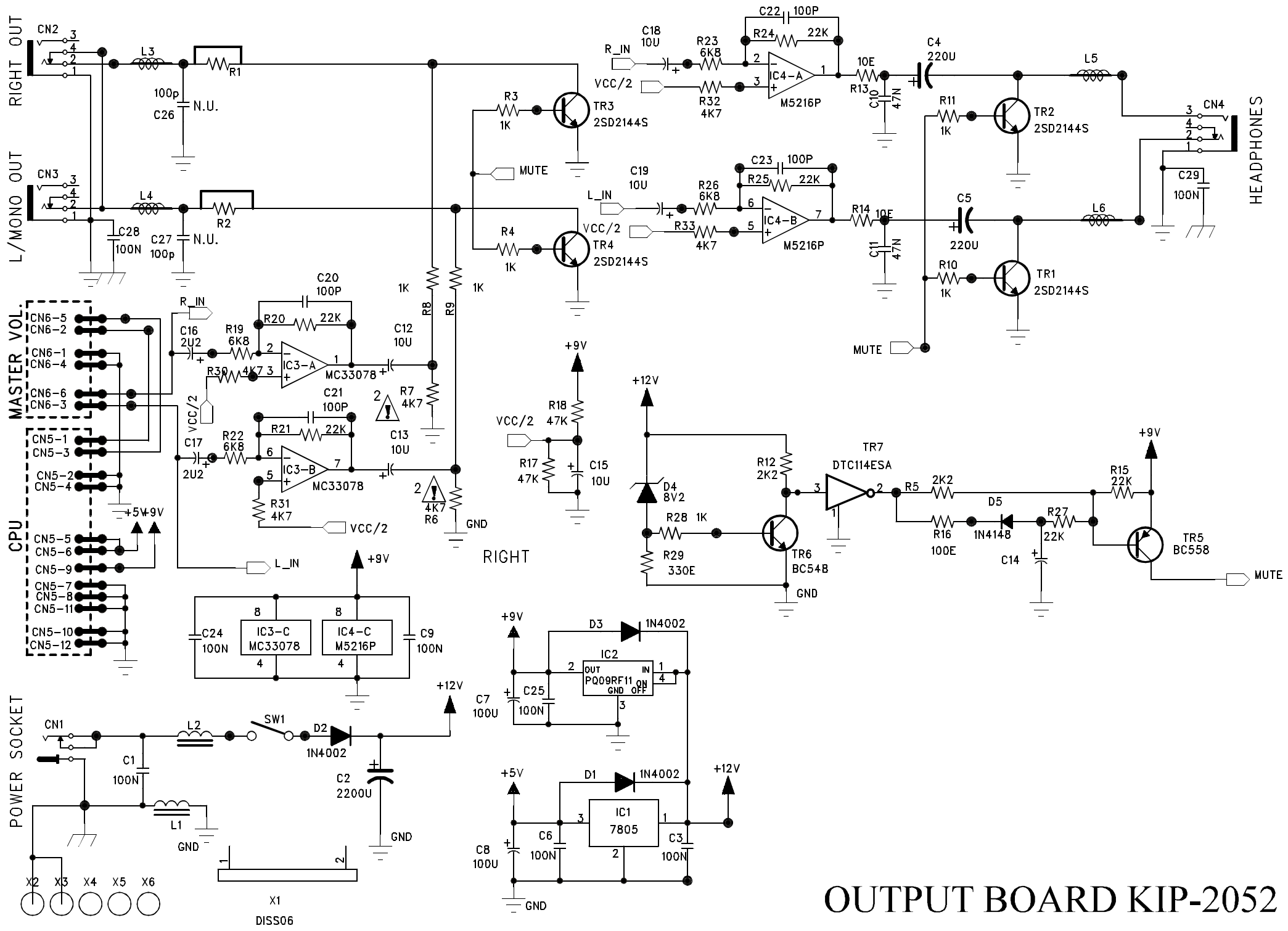
MAIN BOARD KIP-2051

MAIN BOARD KIP-2051 TOP SIDE



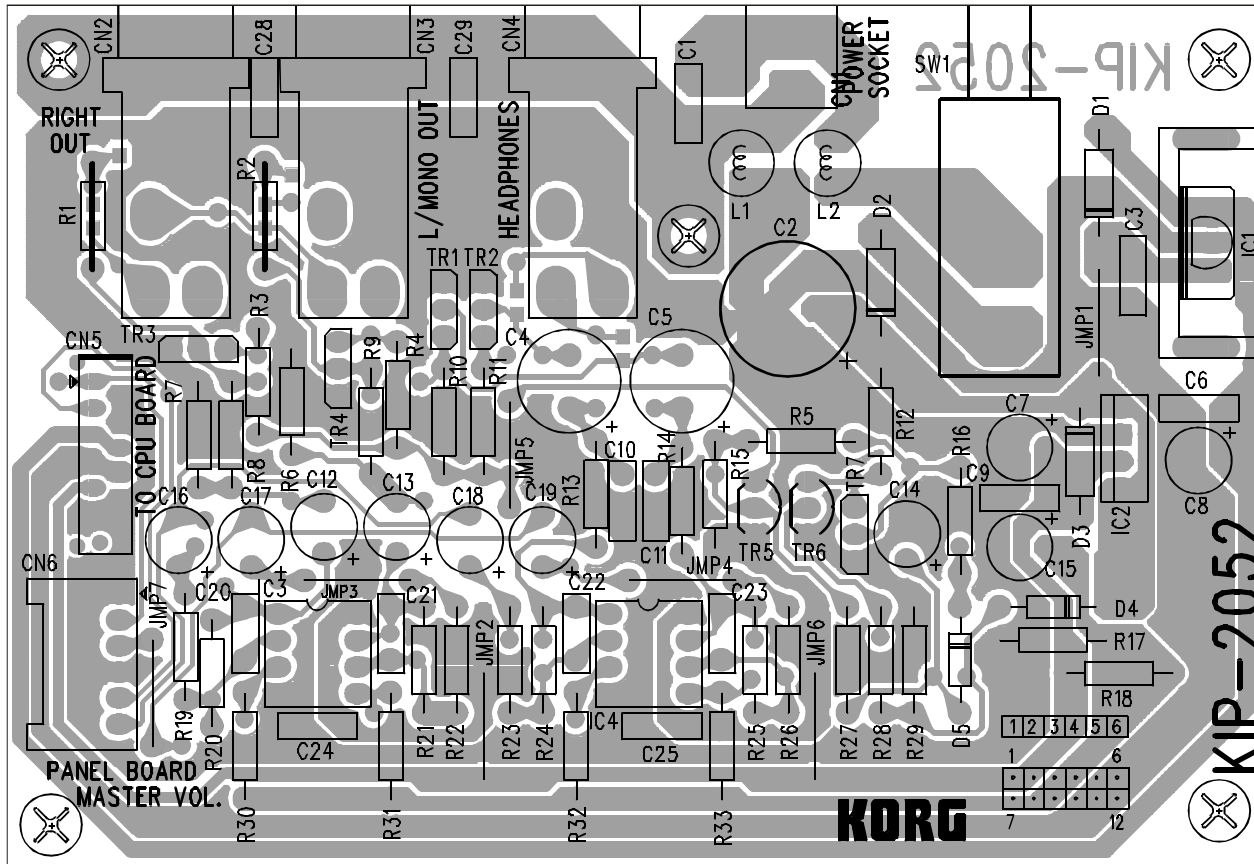
MAIN BOARD KIP-2051 BOTTOM SIDE





OUTPUT BOARD KIP-2052

OUTPUT BOARD KIP-2052 COMPONENT SIDE



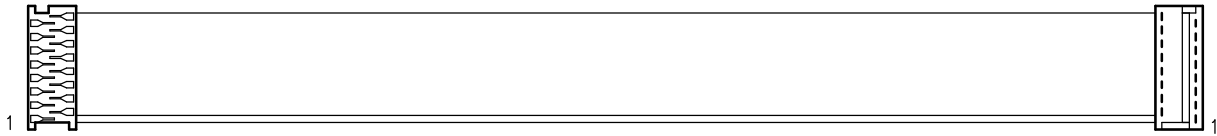
HARNESSES (FOR SP-200 UNLESS OTHERWISE SPECIFIED)

CODE: RIL0001179

MAIN BOARD/PANEL BOARD

FLAT CABLE AWM 2651 16 WIRES

L=150mm



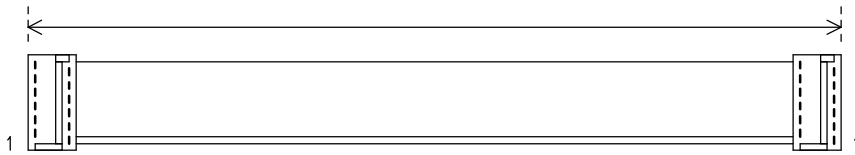
N.2 PICOFLEX 16 PINS 90327-0316

CODE: RIL0001180

MAIN BOARD/OUTPUT BOARD

FLAT CABLE AWM 2651 12 WIRE

L= 50mm



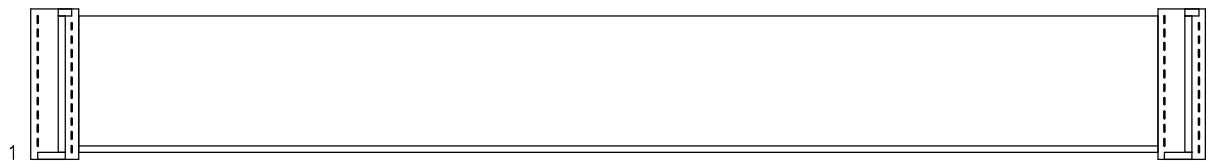
N.2 PICOFLEX 12 PINS 90327-0312

CODE: RIL0001181

KEYBOARD DX/MAIN BOARD

FLAT CABLE AWM 2651 20 WIRES

L= 490mm



N.2 PICOFLEX 20 PINS 90327-0320

CODE: RIL0001182

MASTER VOLUME

PEELING 35mm

SHIRINK TUBE L=15MM D=4.8MM

PEELING 35mm

- 1 SHIELD1
- 2 WHITE1
- 3 RED1
- 4 SHIELD2
- 5 WHITE2
- 6 RED2

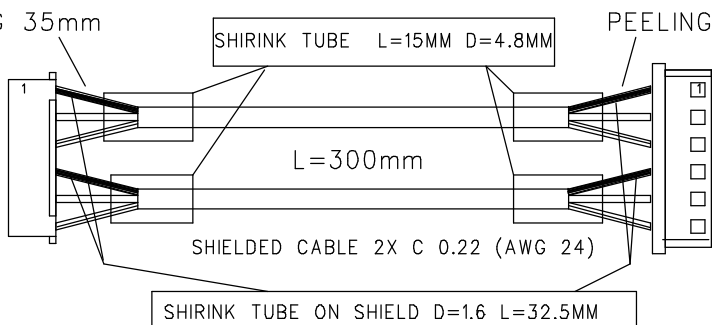
- 1 SHIELD1
- 2 WHITE1
- 3 RED1
- 4 SHIELD2
- 5 WHITE2
- 6 RED2

L=300mm

SHIIEDED CABLE 2X C 0.22 (AWG 24)

SHIRINK TUBE ON SHIELD D=1.6 L=32.5MM

N.2 CON0001001 + N.12 CON0001008

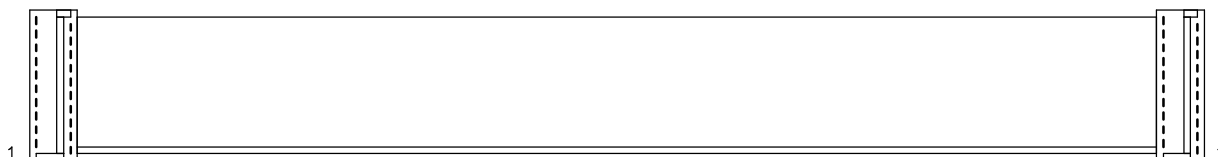


CODE: RIL0001183

KEYBOARD SX/MAIN BOARD

FLAT CABLE AWM 2651 20 WIRES

L= 360mm



N.2 PICOFLEX 20 PINS 90327-0320

Final inspection after repairing

Connect MIDI IN and MIDI OUT by a MIDI cable.
Connect L/MONO OUT to Left channel of an external amplifier.
Connect R OUT to Right channel of the external amplifier.
Connect the Damper pedal to SP-200.
Connect the Headphone OUT to a stereo input

To start the internal self test and check all switches with relative LEDs, press simultaneously REVERB and TRANSPOSE with POWER ON.

The self test starts to check

Mask ROM Test
LED Transpose ON
LED Piano1 ON
At the end of test, if OK it goes to next STEP; if fail LED PIANO1 blinks and the test is stopped.

MIDI In/Out Test
LED Transpose ON
LED E.Piano2 ON
At the end of test, if OK it goes to next STEP; if FAIL LED E.PIANO2 blinks and the test is stopped.

The DEMO LED blinks waiting for the operator to press and go to next step of test

Out Level Test (6 Steps)

a sound can listen through the external amplifier and with an oscilloscope watch the wave and the level:

Out LEFT Signal Level Test (Step 1)
LED Piano2 ON
The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Signal Level Test (Step 2)
LED Piano2 ON
The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out LEFT Phone 1 Signal Level Test (Step 3)
LED Piano2 ON
The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Phone 1 Signal Level Test (Step 4)
LED Piano2 ON
The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out LEFT Phone 2 Signal Level Test (Step 5)
LED Piano2 ON
The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Phone 2 Signal Level Test (Step 6)
LED Piano2 ON
In order to repeat this test press the button PIANO 2.

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Output noise level (6 Steps)

measure to do with a Audio Analyzer, connect the single OUT to the input of the Audio Analyzer.

Out LEFT Noise Level Test (Step 1)

LED E. Piano1 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Noise Level Test (Step 2)

LED E. Piano1 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out LEFT Phone 1 Noise Level Test (Step 3)

LED E. Piano1 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Phone 1 Noise Level Test (Step 4)

LED E. Piano1 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out LEFT Phone 2 Noise Level Test (Step 5)

LED E. Piano1 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Out RIGHT Phone 2 Noise Level Test (Step 6)

LED E. Piano1 ON

In order to repeat this test press the button E.PIANO 1.

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

LED E. Piano2 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

LED E. Piano2 ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

OUT Test (4 Steps)

Left OUT 120Hz wave sound

LED Harpsi ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Right OUT 120Hz wave sound

LED Harpsi ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Left OUT 3000Hz wave sound

LED Harpsi ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Right OUT 3000Hz wave sound

LED Harpsi ON

The DEMO LED BLINKS waiting for the operator to press and go to next step of test

Dynamic Keyboard Test

LED Vibes ON

The operator acts on keyboard, from right to left, with a dynamic range between levels 40/90; in the case the pressing sequence is correct AND the detected value is in the specified dynamic level, the sound related to preceding key is switched off and a note related to present key pressed is activated.

If the sequence is wrong OR the dynamic is not correct WAIT UNTIL CORRECT SEQUENCE AND DYNAMIC.

In order to repeat this test press the button VIBES.

When the first on the left side is reached the DEMO LED starts blinking waiting for the operator to press it and go to next step.

Switch & leds

The first LED on the LEFT (relative to REVERB) BLINKING waiting for REVERB button to be pressed.

When the button related to the current BLINKING LED is pressed, the LED is switched OFF and next LED (from left to right direction) is switched ON

In the case of VARIATION when pressing the button for first time it will switch ON the VARIATION LED on left. Pressing the button for second time will light the VARIATION LED in the center. Pressing the button the 3rd time it will light ON the variation LED on the right.

In order to repeat this test press the button ORGAN 1.

When the DEMO button is reached, pressing it will switch to next step.

Tempo ADC Converter Test

LED Organ2 ON

Acting on TEMPO potentiometer, moving it in the left position will light ON the VARIATION LED in the LEFT, moving it in right position it will light ON the VARIATION LED on the RIGHT, while the center position will light ON the VARIATION LED in the center.

ONLY the VARIATION LED relative to potentiometer position will be light ON

The check on complete sequence (the LED ON in sequence) will make the DEMO LED blinking waiting for the next step to be activated by operator.

In order to repeat this test press the button ORGAN 2

Damper Pedal Test

LED String ON

Operating on Damper Pedal, the position high will light ON the VARIATION LED on the LEFT, the intermediate position will light ON the VARIATION LED in the center, and low position of pedal will activate VARIATION LED on the right

ONLY the VARIATION LED relative to position will be light

After press the Damper some times, if pedal is not recognised, the STRING LED starts blinking

The check on complete sequence for pedal will make the DEMO LED blinking waiting for operator to press it and go to next step.

When the DEMO button is pressed, (with only one pedal) the test is concluded and the system will be reinitialised, in order to repeat this test press the button STRING.

SP-200 PART LIST

PART LIST ELECTRIC COMPONENTS

CODE	PART-TYPE	DESCRIPTION	QTY
GRA0002050	PCB ASSEMBLY KIP-2050	PANEL BOARD	1
GRA0002051	PCB ASSEMBLY KIP-2051	MAIN BOARD	1
GRA0002052	PCB ASSEMBLY KIP-2052	OUTPUT BOARD	1

PART LIST PANEL BOARD KIP-2050

CODE	PART-TYPE	REFERENCE	QTY
DIX0005300	1N4148 DIODE	D1-4 D6 D9-12 D15 D17-21 D23 D29	17
INT0001008	TACT SWITCH SKHVBE	SW1-4 SW6 SW9-12 SW15 SW17-21 SW23 SW28	17
LED0001002	2MM DISTANZIAL RED LED	LED1-7 LED9-12 LED15 LED17-18 LED20 LED22-24 LED28	19
POT0001001	LINEAR POTENTIOMETER 10K	VR5	1
POT0001003	STEREO POTENTIOMETER 10KBX2	VR1	1

PART LIST MAIN BOARD KIP-2051

CODE	PART-TYPE	REFERENCE	QTY
CIN0001012	OPTO COUPLER PC910-K	IC1	1
CIN0002006	24 BIT D/A CONVERTER PCM1716E	IC10	1
CIN0002040	NJM4580M DUAL LOW NOISE OP. AMP. SMD	IC11	1
CIN0002047	HEX INV 74AHC04D SMD	IC17	1
CIN0002048	8-CHANNEL-ANALOG-MUX/DEMUX- SMD 74HC4051	IC14	1
CIN0002049	3 TO 8 DEC.DEMUX 74HC238	IC6-7	2
CIN0003032	MASK ROM 64M (8Mx8/4Mx16)	IC18	1
CIN0003033	64 VOICE INTEGRATED MUSIC INSTR. SAM 9753	IC4	1
CIN0004005	RESET GEN. 3.3V WITH INPUT MAX811SEUS/ETC811SUC	IC12	1
DIX0006000	Two Diode SMD DA204KT146	D4	1
DIX0006003	1N4148 SMD DIODE	D1	1
QUA0006009	QUARTZ 8MHz SMD-M	XT1	1
TRS0001009	+5V REG. 100mA TO92 78L05	IC13	1
TRS0002001	NPN BIASED RES. TRANSISTOR DTC114EKA	Q1	1
TRS0002007	+3.3V REG. 1A BA033FP	IC3	1

PART LIST OUTPUT BOARD KIP-2052

CODE	PART-TYPE	REFERENCE	QTY
CIN0001009	M5216P DUAL HEADPH.OP. AMP.	IC4	1
CIN0001010	MC33078 DUAL LOW NOISE OP. AMP.	IC3	1
DIX0005002	SIGNAL DIODE	D1-3	3
DIX0005300	1N4148 H. SPEED SW. DIODE	D5	1
DIX0005303	ZENER VOLTAGE REGULATOR DIODE. VZ=8V2	D4	1
FER0001138	HEATSINK		1
INT0001012	Main switch SDDL	SW1	1
TRS0001001	TRANSISTOR NPN DIGITALE DTC114ESA	TR7	1
TRS0001005	REG.POS.9V 1A KIA78R09	IC2	1
TRS0001008	NPN BIPOLAR TRANSISTOR 2SD2144S	TR1-4	4
TRS0005001	NPN SILICON TRANSISTOR BC548	TR6	1
TRS0005002	PNP TRANSISTOR BC558	TR5	1
TRS0005008	+5V REG. 1A 7805	IC1	1

PART LIST HARNESSES

CODE	PART-TYPE	REFERENCE	QTY
RIL0001179	MAIN BOARD/PANEL BOARD	D3	1
RIL0001180	MAIN BOARD/OUTPUT BOARD	MOD	1
RIL0001181	KEYBOARD DX/MAIN BOARD	D1 D2	1
RIL0001182	MASTER VOLUME	D3 MOD	1
RIL0001183	KEYBOARD SX/MAIN BOARD	D1 D2	1

PART LIST WOOD COMPONENTS

CODE	PART-TYPE	REFERENCE	QTY
LEG0001036	PAINTED BOTTOM BOARD	D2	1
LEG0001037	TP30 40x20x10 THICKNESS	D2	1

PART LIST METAL COMPONENTS

CODE	PART-TYPE	REFERENCE	QTY	QTY
			BLACK	R.SILVER
FER0002037	CONTROL PANEL BAR	D3	1	
FER0002041	CONTROL PANEL BAR	D3		1
FER0001140	FIXING L-PROFILE	D3	2	2
FER0002038	FRONT BAR	D1	1	
FER0002042	FRONT BAR	D1		1
FER0001038	MUSIC REST		1	
FER0001143	MUSIC REST			1
FER0001142	PLUGS	D1	8	8
FER0001137	METAL SUPPORT	MOD	1	1

PART LIST PLASTIC COMPONENTS

CODE	PART-TYPE	REFERENCE	QTY	QTY
			BLACK	R. SILVER
PLA0001110	MUSIC REST SUPPORT	D3	2	2
PLA0001052	MAIN SWITCH	D3	1	1
PLA0001088	CABLE HOLDER	D3	1	1
PLA0001106	SLIDER FRAME	SW		2
PLA0001079	SLIDER FRAME	SW	2	
PLA0001118	3 BUTTONS FRAME	SW		3
PLA0001111	3 BUTTONS FRAME	SW	3	
PLA0001119	4 BUTTONS FRAME	SW		2
PLA0001112	4 BUTTONS FRAME	SW	2	
PLA0001120	STYLE BUTTONS	SW		17
PLA0001113	STYLE BUTTONS	SW	17	
PLA0001046	CABLE TIE	D2 MOD	1	1
PLA0001076	SPACER SLEEVE	SW	12	12
PLA0001107	POTENTIOMETER KNOB	D3		2
PLA0001080	POTENTIOMETER KNOB	D3	2	
PLA0002040	LEFT SIDE	D3		1
PLA0002036	LEFT SIDE	D3	1	
PLA0002041	RIGHT SIDE	D3		1
PLA0002037	RIGHT SIDE	D3	1	
PLA0002042	LEFT SIDE COVER	D3		1
PLA0002038	LEFT SIDE COVER	D3	1	
PLA0002043	RIGHT SIDE COVER	D3		1
PLA0002039	RIGHT SIDE COVER	D3	1	
PLA0001082	RUBBER FOOT	D1	5	5
PLA0001084	45X160 PLASTIC BAG		1	1

OTHER PARTS

CODE	PART-TYPE	REFERENCE	QTY	QTY
			BLACK	R. SILVER
FEL0001004	PURPLE FELT 1225x8x1	D3	1	1
FEL0001029	ADHESIVE TAPE ART.389 3M 18m.m.	D1 D2	0,40	0,40
FEL0002035	SERIAL NUMBER LABEL SP200		1	
FEL0002036	SERIAL NUMBER LABEL SP200 SV			1
FEL0001018	DOUBLE ADHESIVE SIDE TAPE 3M 5mm	D3	1,30	1,30
FEL0001048	ALUMINIUM ADHESIVE TAPE 3M 50x55	D2	1,20	1,20
FEL0001001	BLACK ADHESIVE FELT 30x10x1	D3	2	2
TAS0001018	TP30 FATAR KEYBOARD	D2	1	1
TAS0001011	PS100 DAMPER PEDAL		1	1
TRA0003004	AC ADAPTER 100V.+12/500mA		1	1

PART LIST SCREWS

CODE	PART-TYPE	REFERENCE	QTY
VTA0001012	GROVER Ø 5mm	D1 D2	11
VTA0001013	WASHER 20x6x3	D2	3
VTA0001014	WASHER 4x12x1,2	D1	5
VTA0001023	M3 SELFLOCKING NUT	D3	12
VTA0001032	SCREW 3Mx8 TC	MOD	5
VTA0001036	SCREW 3.5x16 TC	D1 D3	31
VTA0001037	SELFTAPPING SCREW 2,9x6,5 TC SP	D3	3
VTA0001051	SCREW 3x13 TC PR	D3	10
VTA0001071	SCREW M5x35 TC	D2	3
VTA0001074	SCREW M5x25 TC	D1	8
VTA0001079	SCREW M3x20 TC	D3	2
VTA0001080	SCREW 3x30 TC PR	D3	2

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