

KORG R3

SERVICE MANUAL



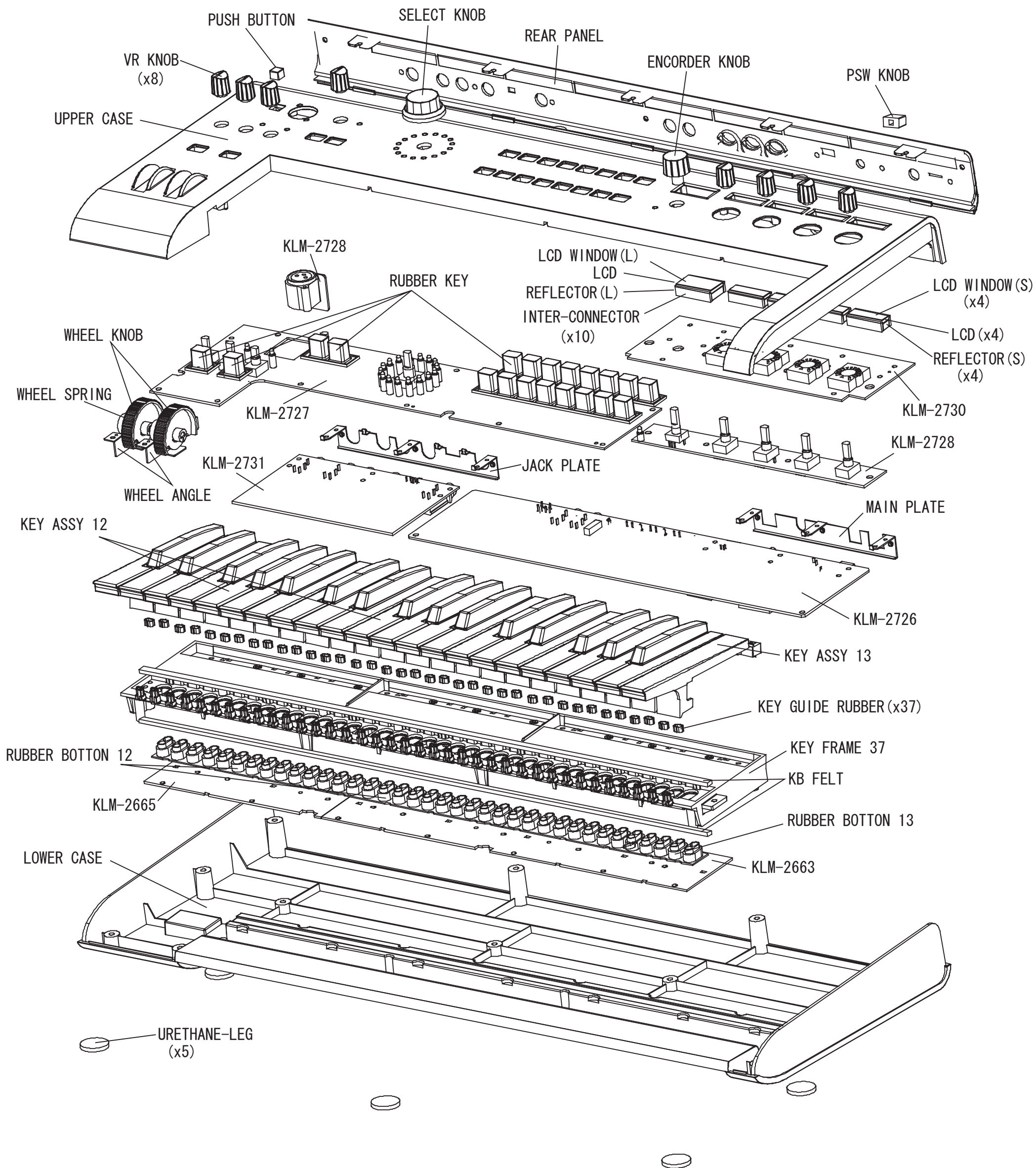
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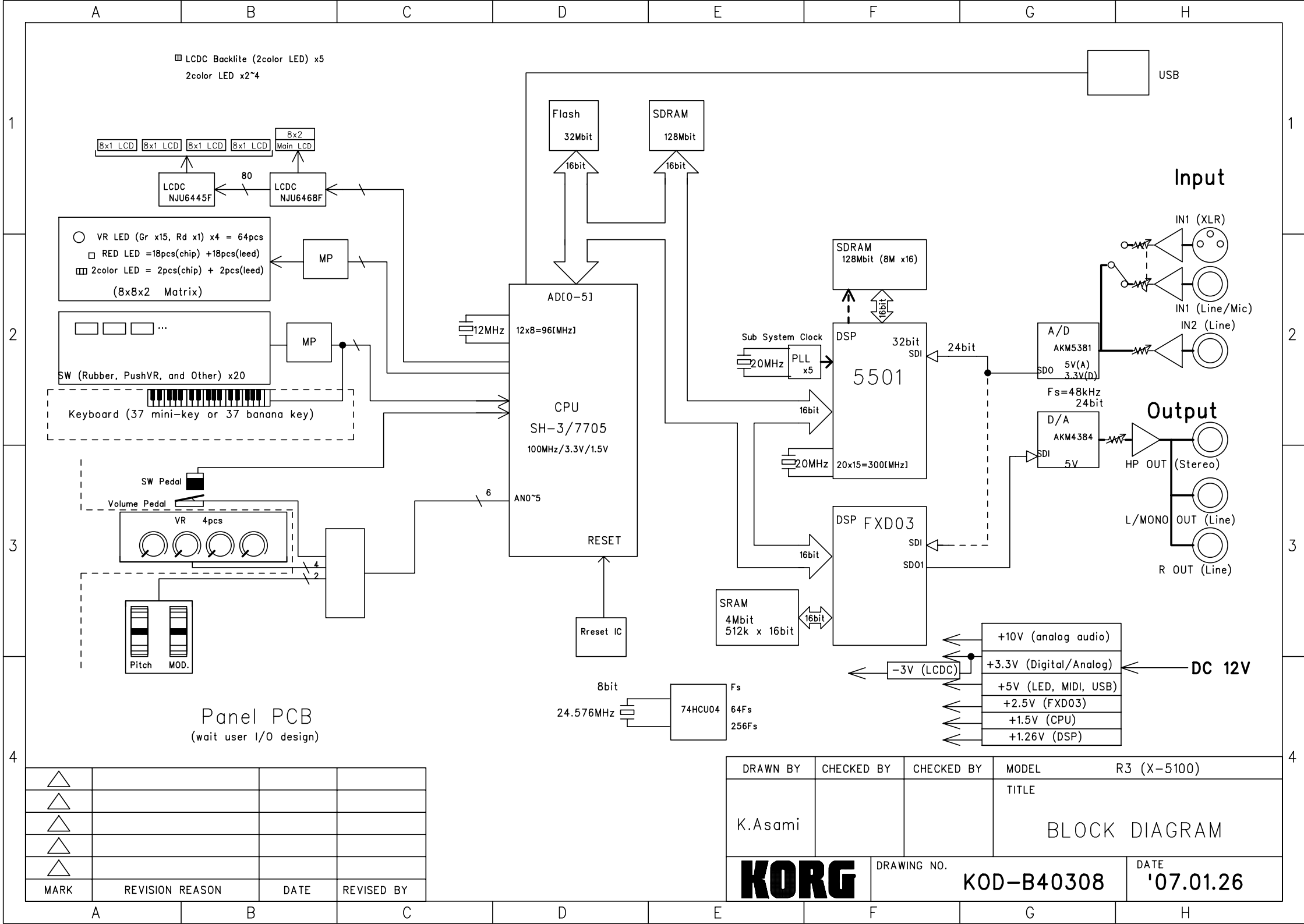
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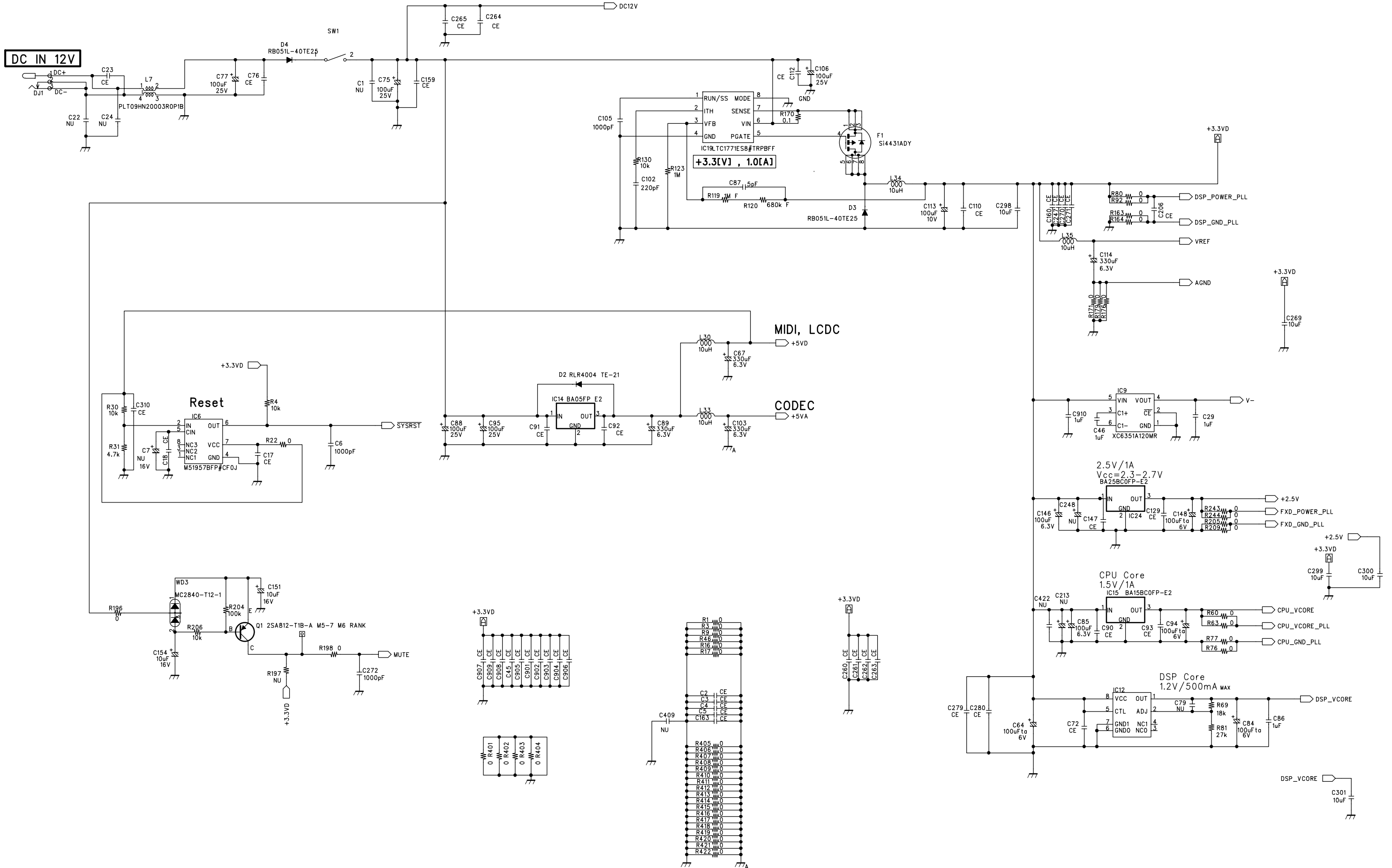
KORG

Issued Apr.20, 2007
Ver.1

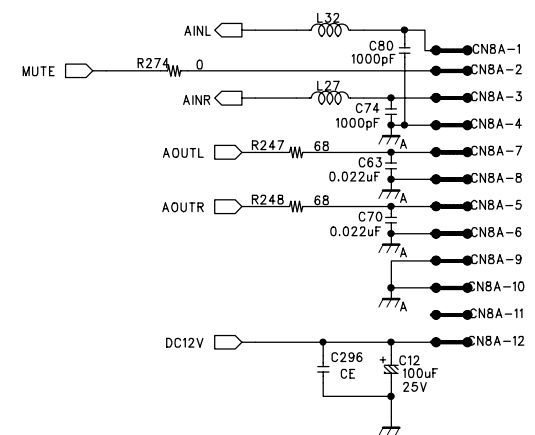
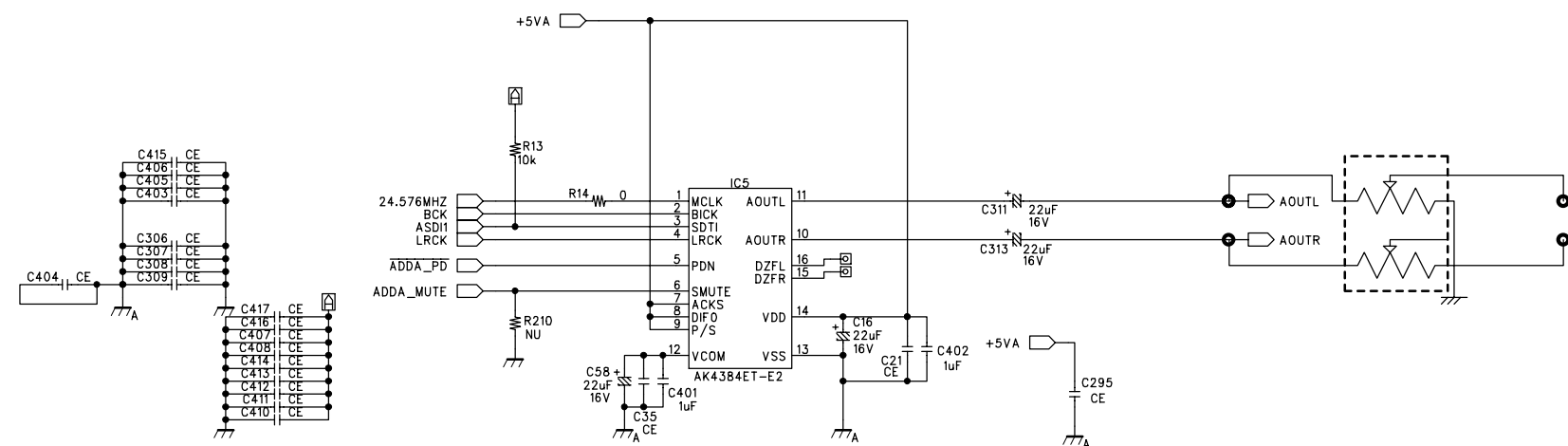
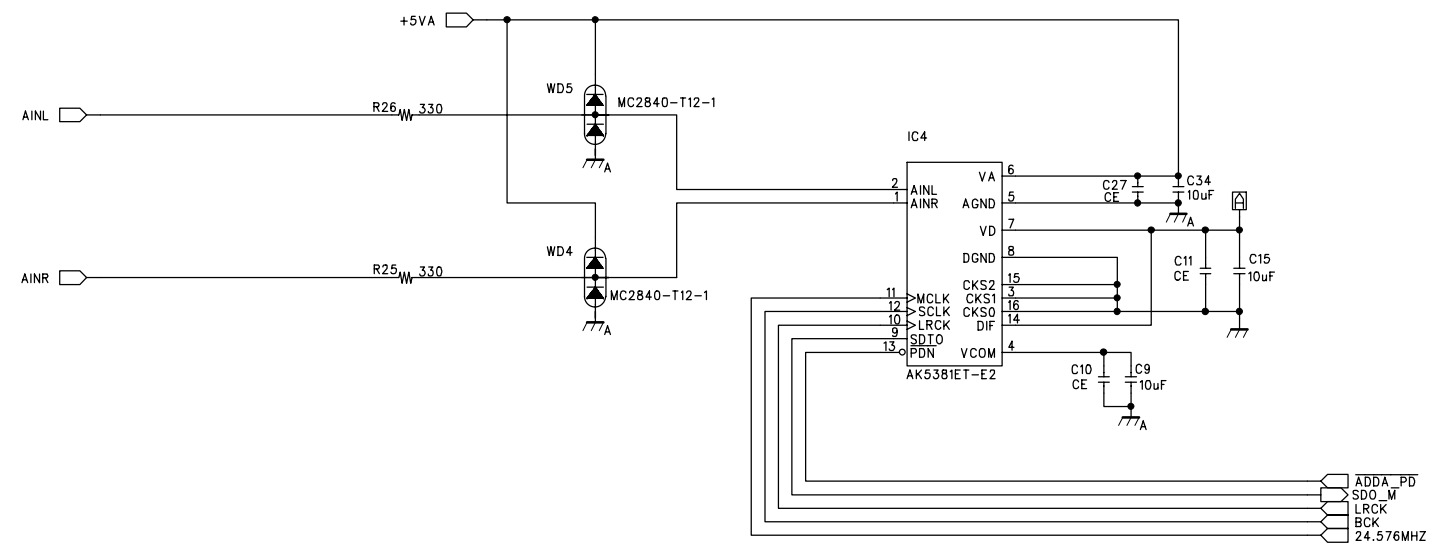
X-5100 (R3)







| | | | | |
|----------|-------------|-------------|------------|-------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL | R3 (X-5100) |
| K.ASAMI | | | TITLE | KLM-2726 |
| | | | | Power |
| KORG | | DRAWING NO. | KOD-A30707 | DATE |
| | | | | '07.01.25 |



| | | | | |
|-------------|-------------|------------|------------|------------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL | R3 (X-5100) |
| K.ASAMI | | | TITLE | KLM-2726 Analog I/O |
| DRAWING NO. | | | KOD-A30710 | DATE '07.01.25 |

1

1

2

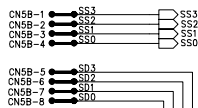
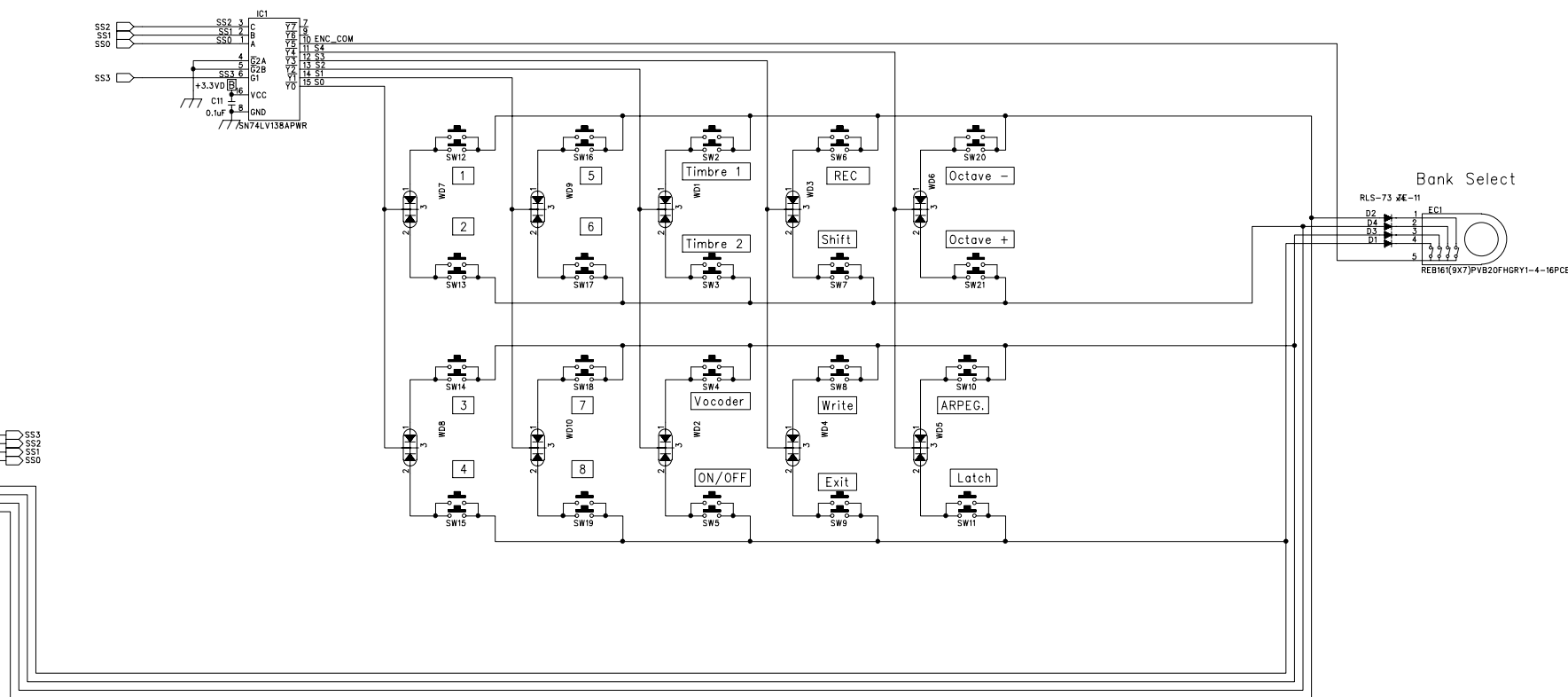
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3

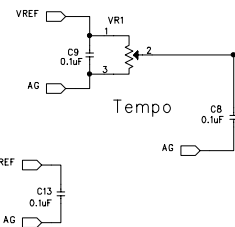
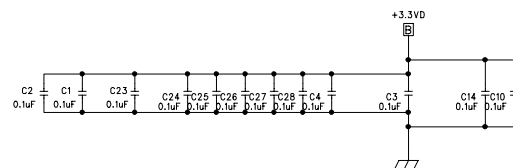
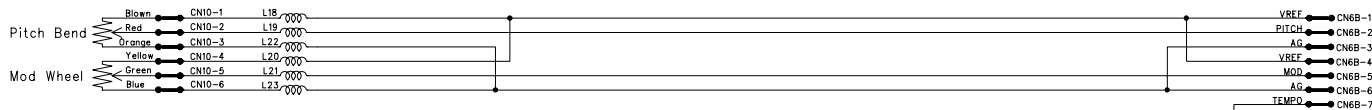
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4

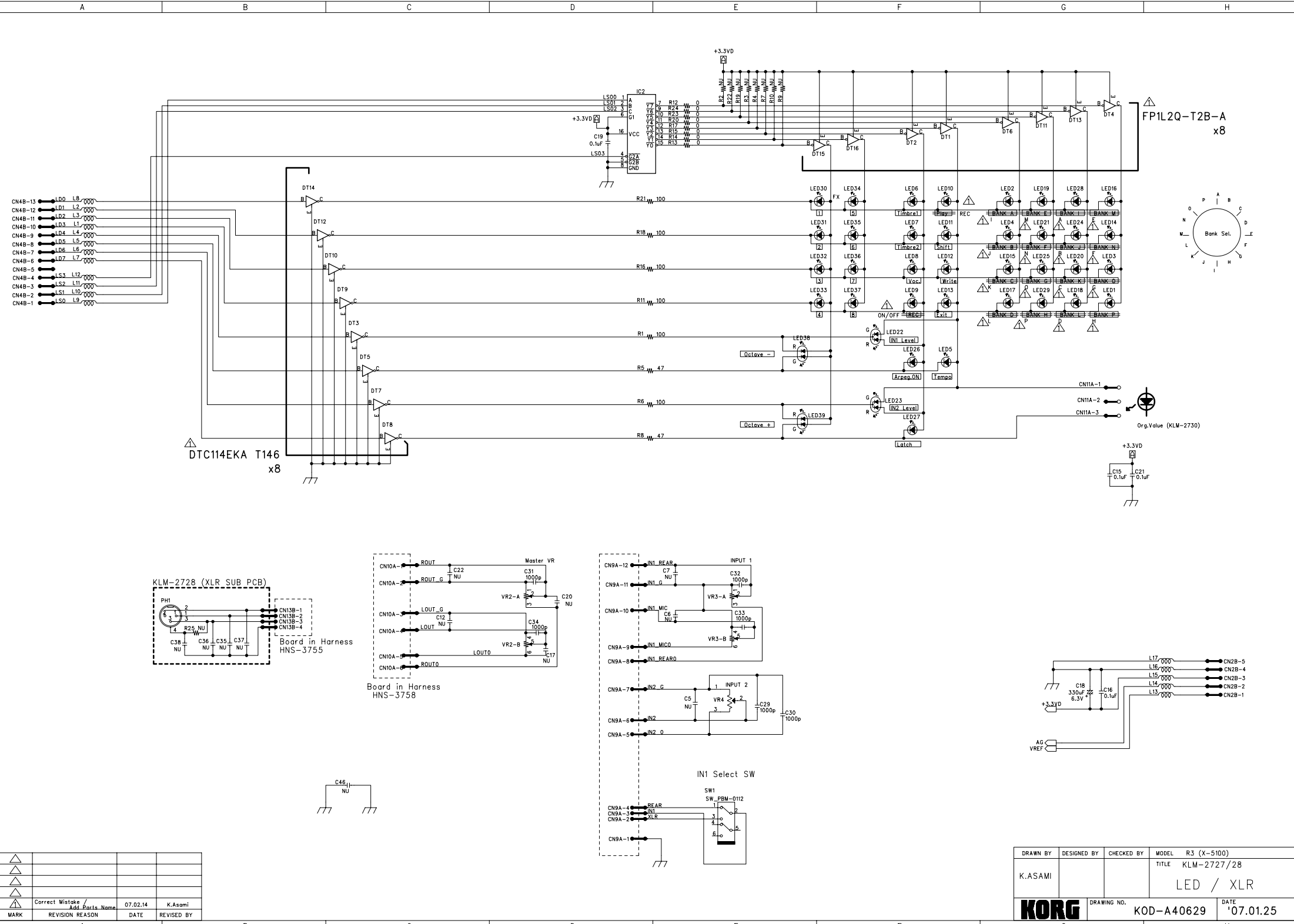
4



Pitch & Mod Wheel

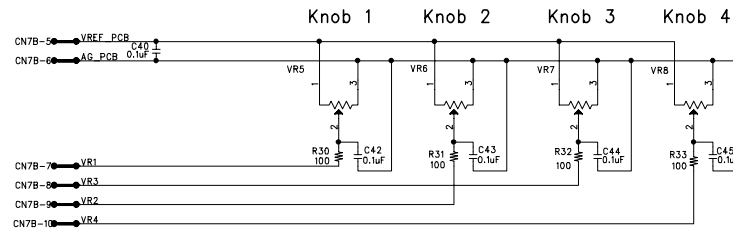
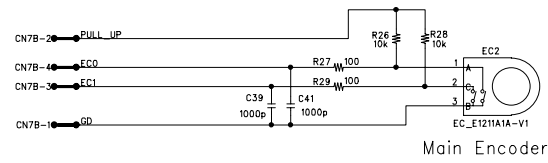


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|----------|-------------|-------------|------------|-------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL | R3 (X-5100) |
| K.ASAMI | | | TITLE | KLM-2727 |
| | | | Panel SW | |
| KORG | | DRAWING NO. | KOD-A40628 | DATE |
| | | | | '07.01.25 |

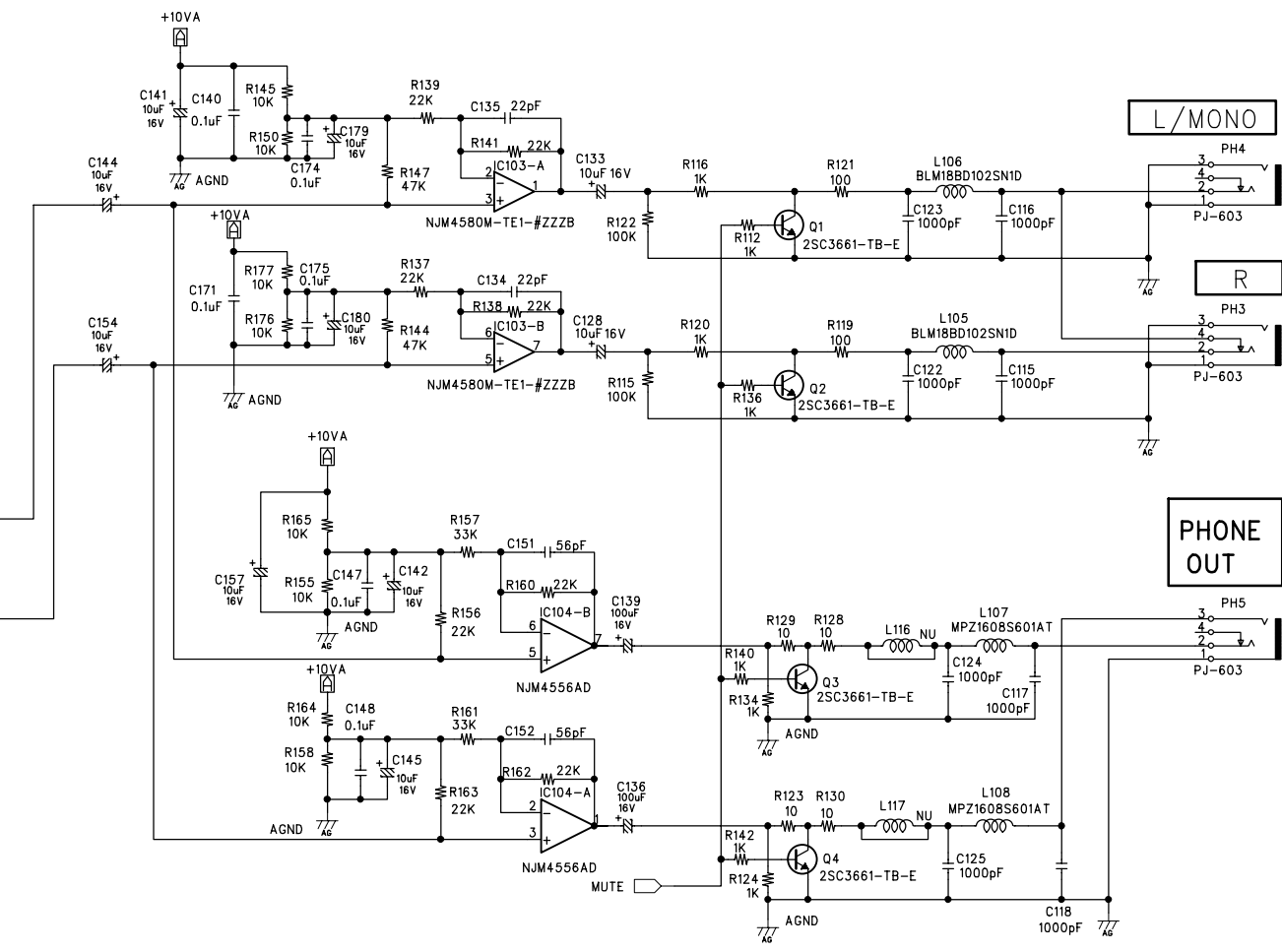
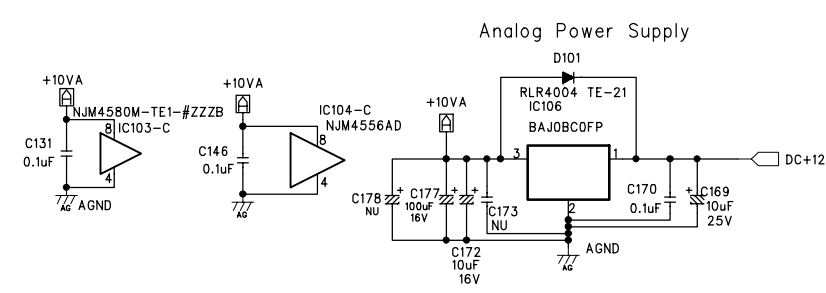
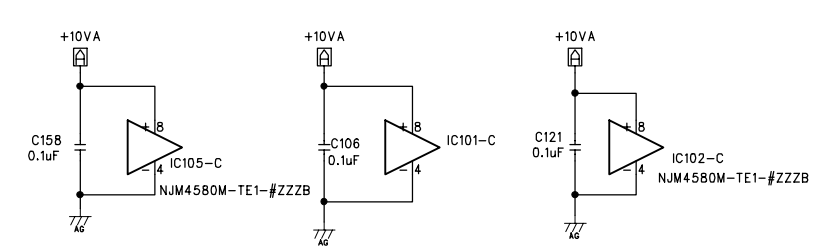
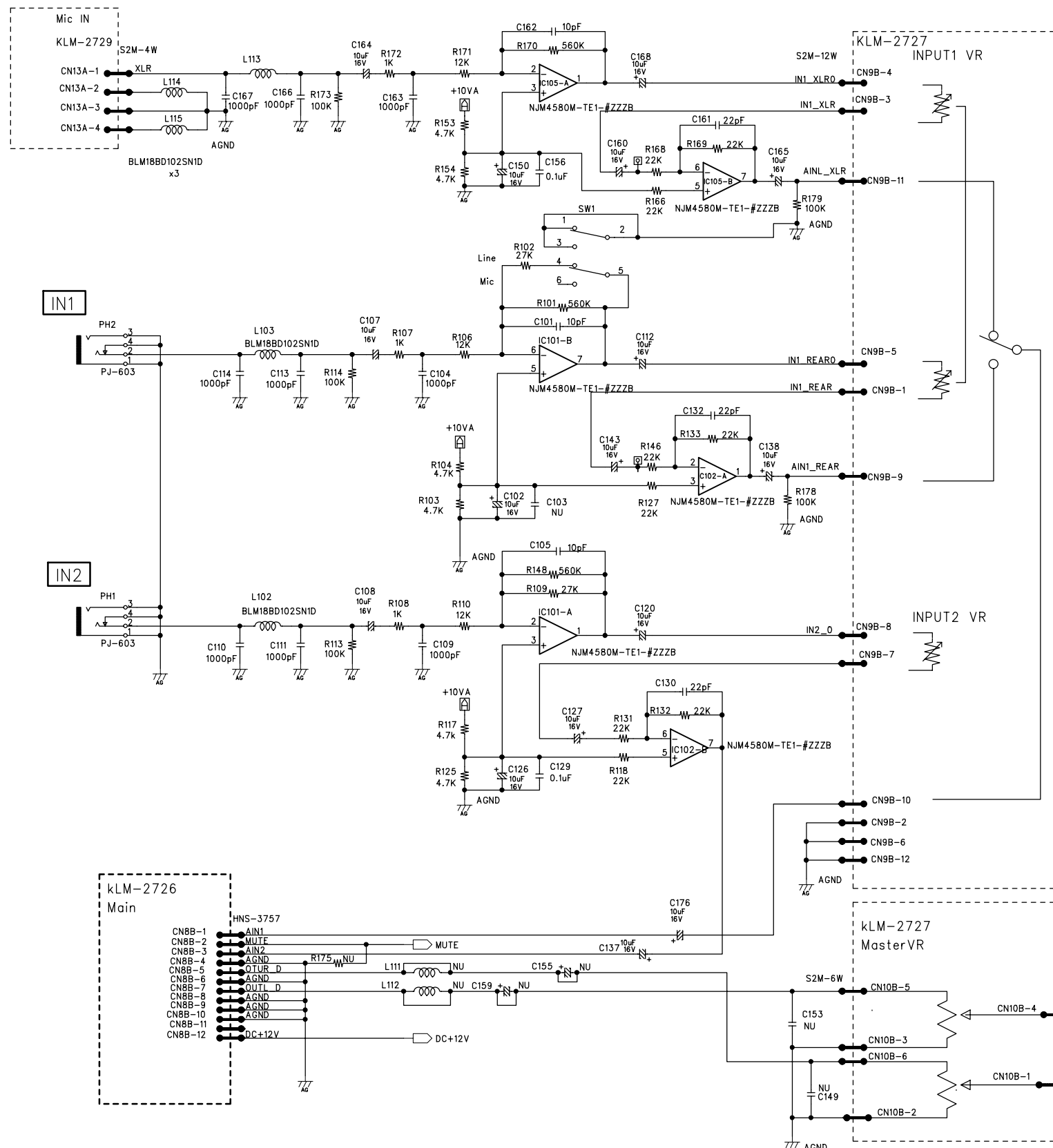


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| △ | | | |
| △ | Correct Mistake / Add Parts Name | 07.02.14 | K.Asami |
| MARK | REVISION REASON | DATE | REVISED BY |

| | | | | |
|-------------|-------------|------------|-------|-------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL | R3 (X-5100) |
| K.ASAMI | | | TITLE | KLM-2727/28 |
| | | | | LED / XLR |
| KORG | DRAWING NO. | KOD-A40629 | DATE | '07.01.25 |



| | | | |
|-------------|-------------|------------|-------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL R3 (X-5100) |
| K.ASAMI | | | TITLE KLM-2729 |
| | | | VR,ENC |
| DRAWING NO. | | DATE | |
| KOD-A40630 | | '07.01.25 | |



KLM-2731

| | | | | |
|----------|-------------|-------------|------------|---------------------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL | X-5100 |
| K.Asami | | | TITLE | Analog Input / Output Schematic |
| KORG | | DRAWING NO. | KOD-A30713 | DATE '07.01.25 |

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| MARK | REVISION REASON | DATE | REVISED BY |

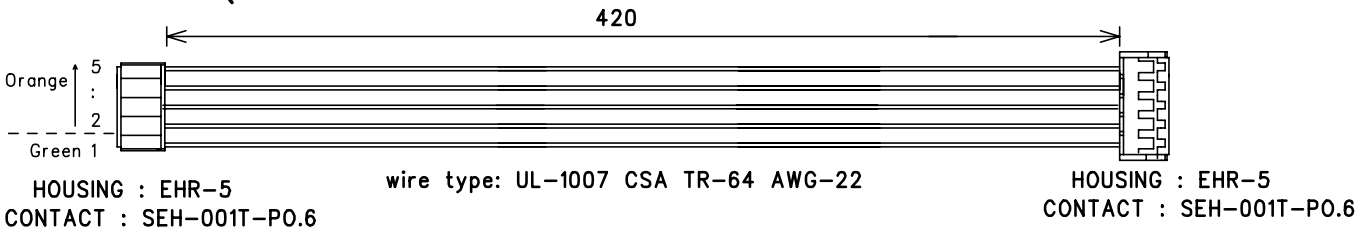
| HARNESS NUMBER | QTY |
|----------------|-----|
| HNS-3764 | 1 |
| HNS-3765 | 1 |
| HNS-3766 | 1 |

UNIT : mm

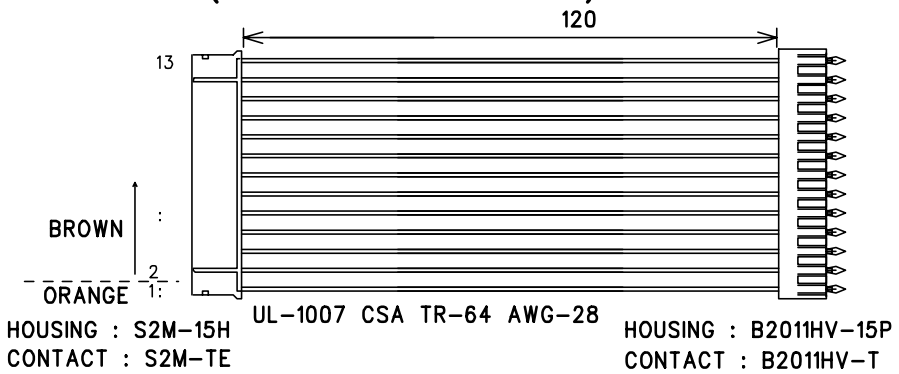
COMMERCIAL TOLERANCE
+ 10mm
- 5mm

* Wire : Stranded Wire Only

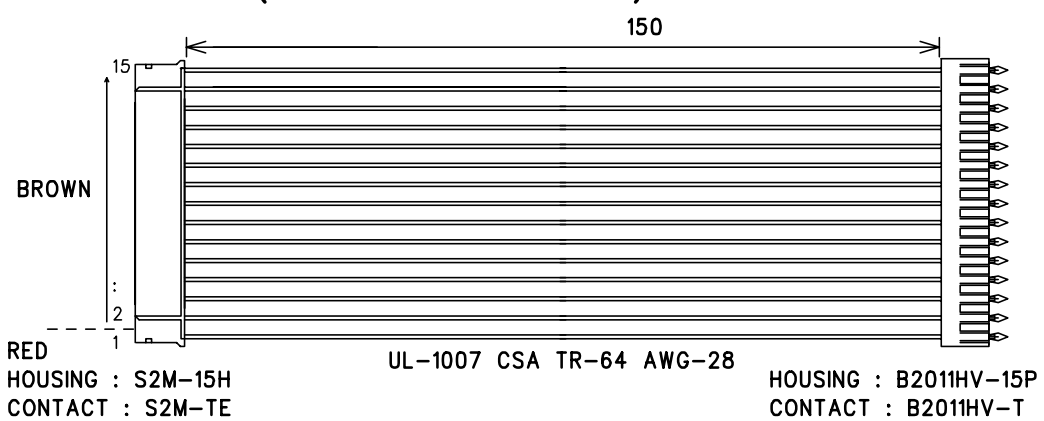
HNS-3766 (KLM-2726 -> KLM-2727)



HNS-3764 (KLM-2726 -> KLM-2730)



HNS-3765 (KLM-2726 -> KLM-2730)



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| MARK | REVISION | REASON | DATE |
| | | | REVISED BY |

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|----------|-------------|---------------------------|------------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL R3 (X-5100) |
| K.ASAMI | K.ASAMI | | TITLE |
| | | | DESIGN FOR HARNESS (1) |
| KORG | | DRAWING NO. KOD-040358 | DATE 07.01.25 |

| HARNESS NUMBER | QTY |
|----------------|-----|
| HNS-3758 | 1 |
| HNS-3759 | 1 |
| HNS-3760 | 1 |
| HNS-3761 | 1 |
| HNS-3762 | 1 |
| HNS-3763 | 1 |

UNIT : mm

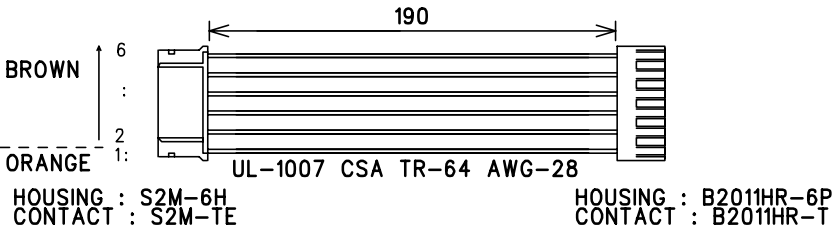
COMMERCIAL TOLERANCE

+ 10mm

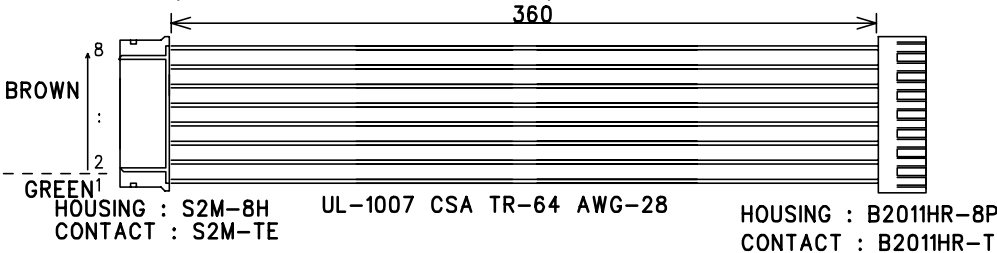
- 5mm

* Wire : Stranded Wire Only

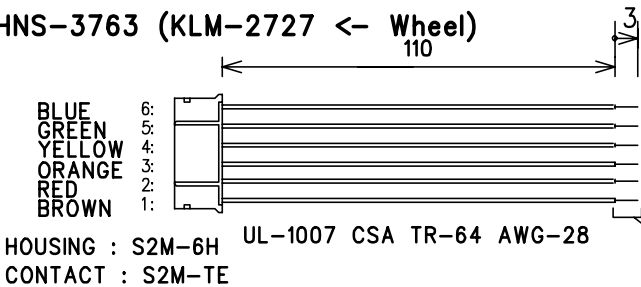
HNS-3758 (KLM-2731 <- KLM-2727)



HNS-3760 (KLM-2726 <- KLM-2727)

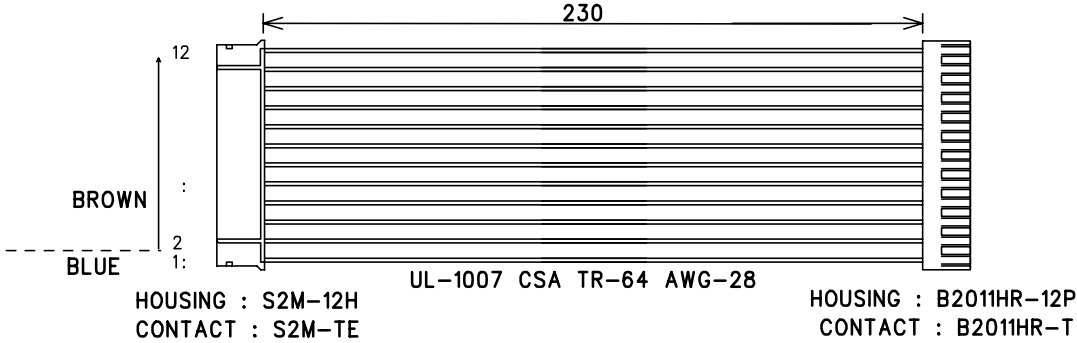


HNS-3763 (KLM-2727 <- Wheel)

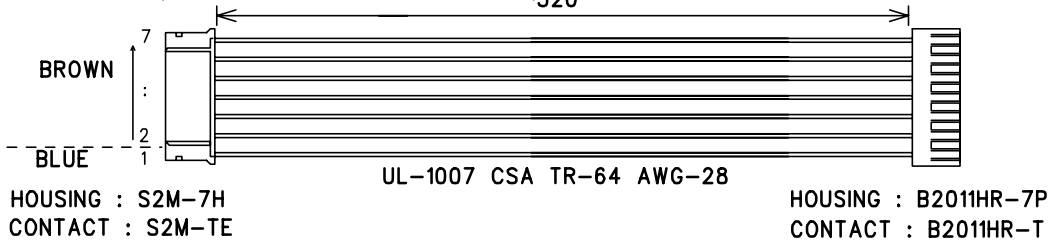


* Pre-soldering for stripped wires.

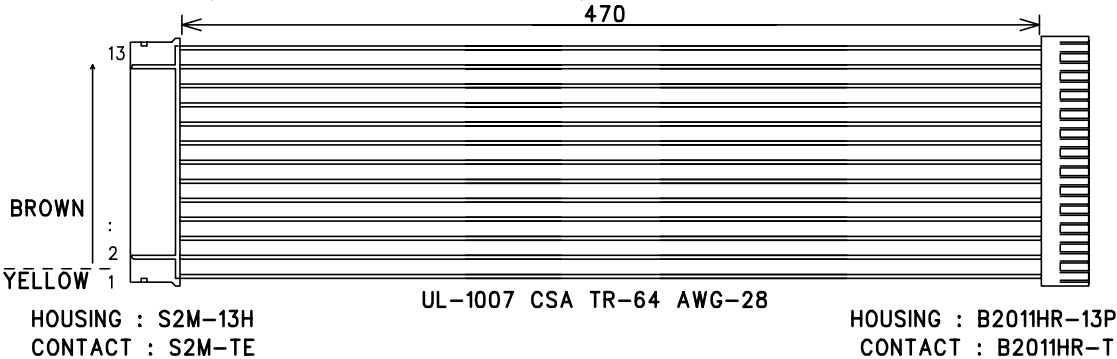
HNS-3759 (KLM-2731 -> KLM-2727)



HNS-3761 (KLM-2726 <- KLM-2727)



HNS-3762 (KLM-2626 -> KLM-2727)



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| MARK | REVISION | REASON | DATE |
| REVISED BY | | | |

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| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL R3 (X-5100) |
| K.ASAMI | K.ASAMI | | TITLE |
| | | | DESIGN FOR HARNESS |
| | | | (2) |
| DRAWING NO. | | | DATE |
| KOD-040359 | | | 07.01.25 |

KORG

| HARNESS NUMBER | QTY |
|----------------|-----|
| HNS-3755 | 1 |
| HNS-3756 | 1 |
| HNS-3757 | 1 |
| HNS-3769 | 1 |

UNIT : mm

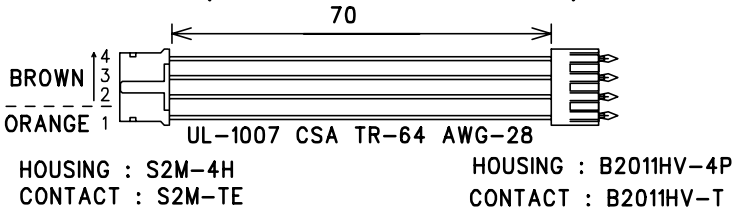
COMMERCIAL TOLERANCE

+ 10mm

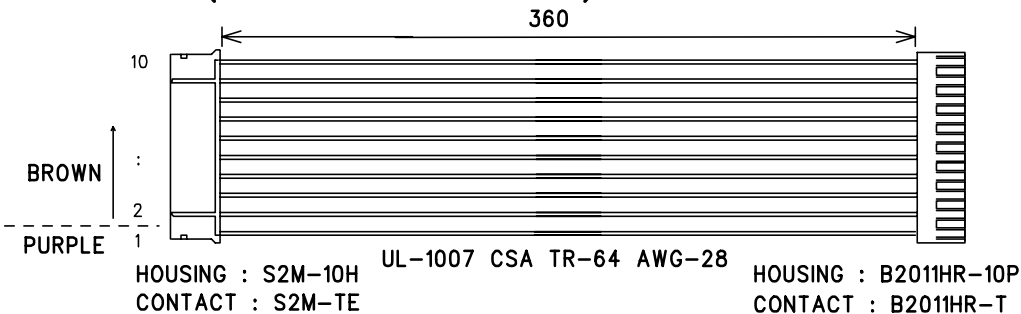
- 5mm

* Wire : Stranded Wire Only

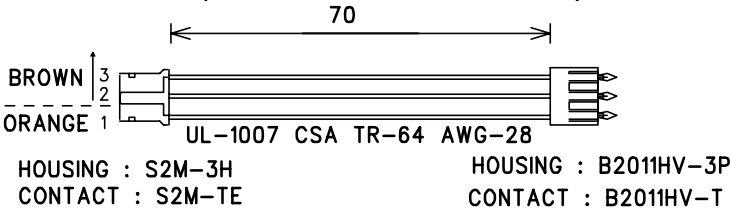
HNS-3755 (KLM-2731 <- KLM-2729)



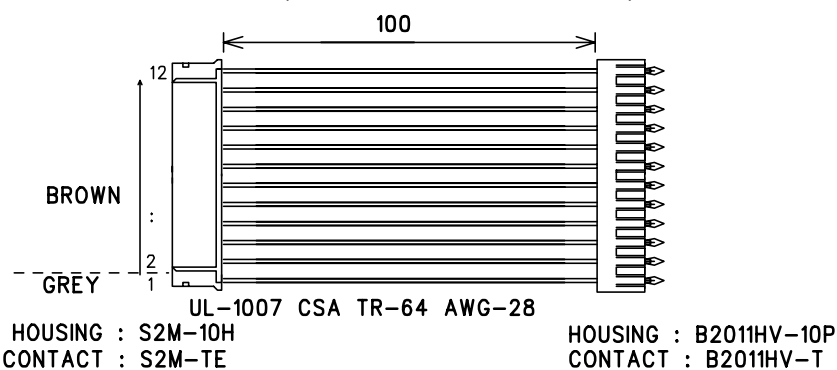
HNS-3756 (KLM-2726 <- KLM-2728)



HNS-3769 (KLM-2727 -> KLM-2730)



HNS-3757 (KLM-2726 -> KLM2731)



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| MARK | REVISION | REASON | DATE | REVISED BY |

| | | | |
|-------------|-------------|------------|--------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL R3 (X-5100) |
| K.ASAMI | K.ASAMI | | TITLE |
| | | | DESIGN FOR HARNESS |
| | | | (3) |
| DRAWING NO. | | DATE | |
| KOD-040360 | | 0701.25 | |

KORG

| HARNESS NUMBER | QTY |
|----------------|-----|
| HNS-3767 | 1 |
| HNS-3768 | 1 |

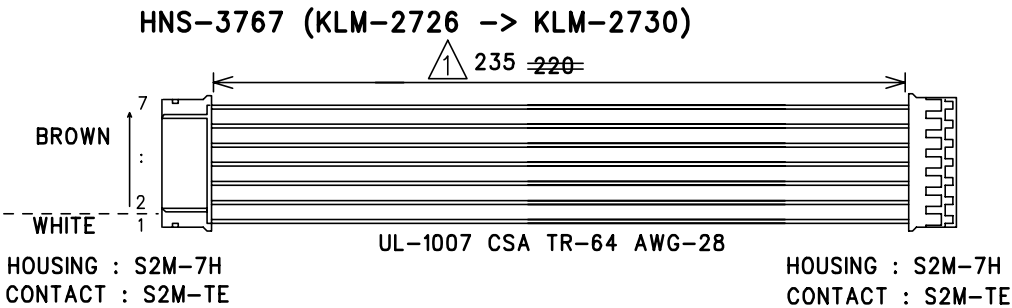
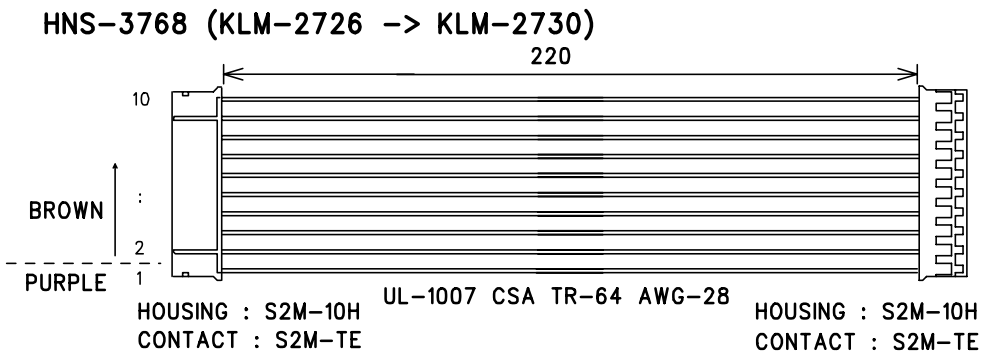
UNIT : mm

COMMERCIAL TOLERANCE

+ 10mm

- 5mm

* Wire : Stranded Wire Only



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| △ | | | |
| △ | | | |
| △ | for Core Addition | 07.03.08 | K.Asami |
| MARK | REVISION REASON | DATE | REVISED BY |

| | | | |
|----------|-------------|-------------|--------------------|
| DRAWN BY | DESIGNED BY | CHECKED BY | MODEL R3 (X-5100) |
| K.ASAMI | K.ASAMI | | TITLE |
| | | | DESIGN FOR HARNESS |
| | | | Key |
| KORG | | DRAWING NO. | DATE |
| | | KOD-040361 | 07.01.25 |

R3 Test Mode

How to start the test mode

[REC] + [3] : Internal Test only (Automatic Test)
[REC] + [5] : External Test with output check
[REC] + [7] : Test Mode for Service Engineer
[REC] + [8] : Keyboard Test
[EXIT] + [7] : Ver. UP Mode
[EXIT] : Ver. Check
[LATCH] + [OCT UP] : Wheel Calibration

How to Use

Step Up : [TIMBRE2]
Step Down : [TIMBRE1]
Item Up : [2]
Item Down : [1]
Retry(error) : [WRITE] + [8]
Skip(error) : [ARPEGGIATOR ON/OFF] + [8]

Test Mode Item List

Test Mode for Service Engineer

*Internal Auto Check

[SDRAM]
[CPU]
[FLASH ROM]
[FXD]
[DSP1]
[LCDC]
[MIDI]
[Audio Loop]

*External Check

[CHECK-THRU]
[MUTE]
[PANEL (LED/SW)]
[RotaryEncoder]
[RotarySW]
[A/D]
[LCD]
[USB]
[Assign Pedal]
[Assign Sw]
[WHEEL]

[KBD]

[User Calibration]

[QUIT]

Internal test only(Automatic Test)

[SDRAM]

[CPU]

[FLASH ROM]

[FXD]

[DSP1]

[LCDC]

[DSP-SERIAL]

[MIDI]

External Test with output check

[SDRAM] (internal check)

[CPU] (internal check)

[CHECK-THRU]

[MUTE]

[PANEL (LED/SW)]

[RotaryEncoder]

[RotarySW]

[A/D]

[LCD]

[USB]

[Assign Pedal]

[Assign Sw]

[WHEEL]

[KBD]

[Audio Output]

[User Calibration]

[QUIT]

Keyboard Test

***Internal Auto Check**

[SDRAM]

[CPU]

***External Check**

[KBD-Contact]

Error Message

*Internal test

[SDRAM]

|SDRAM-NG| = CS Error

|CS Err! |

|DRAM-NG | = Address Bus Error

|AB Err! |

|SDRAM-NG| = Data Bus Error

|DB Err! |

|SDRAM-NG| = Size(cell) Error

|SizeCell|

[CPU]

|CPU Err. | = CPU Pin Short Error (ppp/PPP:pin no.)

|ppp→PPP|

[FLASH ROM]

|<FLASH >|SYS :xxx|USR :xxx|PCM :xxx|----: | = Checksum Error (xxx:"OK "/"Err")

|ROM Err |

**note: "USR :Err" only means "Wait for Initialize"*

1) Push [WRITE]

2) LCD Display "[WR]>Ini"

3) Push [ARPEGGIATOR ON/OFF] + [8] to No-Initialize

3') Push [WRITE] to Data Initialize

|<FLASH >|SYS :xxx|USR :Err|PCM :xxx|----: | = User Data Initialize Failed

|ExtrctEr| EXTRACT error (xxx:"OK "/"Err")

|<FLASH >|SYS :xxx|USR :Err|PCM :xxx|----: | = User Data Initialize Failed

|SumError| CHECKSUM error (xxx:"OK "/"Err")

|<FLASH >|SYS :xxx|USR :Err|PCM :xxx|----: | = User Data Initialize Failed

|Wr Error| Write error (xxx:"OK "/"Err")

[FXD]

|<FXD03 >|GRx:read|dddddddd| = GR x Read Data Error (x:1~4, d~d:Read Data)

|<FXD03 >|GRx:keep|dddddddd| = GR x Keep Error (x:1~4, d~d:Read Data)

|<FXD03 >|GRx:clr |dddddddd| = GR x Clear Error (x:1~4, d~d:Read Data)

|<FXD03 >|A:aaaaaa|Rd =rrrr|Crt=dddd| = SRAM data compare Error
|SRAMdata| (a~a:Address, rrrr:ReadData, dddd:WriteData)

|<FXD03 >|W:aaaaaa| = SRAM Write Error
|SRAMtout| (a~a:Address)

|<FXD03 >|R:aaaaaa| = SRAM Read Error
|SRAMtout| (a~a:Address)

|<FXD03 >|Sts Tout| = SRAM 24bit Low TimeOut
|24 RdLow|

|<FXD03 >|Data: dd| = SRAM 24bit Low Error
|24 RdLow| (dd:data)

|<FXD03 >| = Reset Error
|Rst Tout|

|FXD #048|Rst Tout|bbbbbbbb|cccccccc|verxx.xx| = Reset Error
|Rst Tout|

|<FXD03 >| = Reset Error
|BootTout|

|<FXD03 >|A-Bus:xx| = Address Bus Error
|I-BusErr|

|<FXD03 >|D-Bus:xx| = Data Bus Error
|I-BusErr|

|<FXD03 >| = Bus Error
|I-BusErr|

|<FXD03 >| = Reset open Error
|RstPinEr|

|<FXD03 >| = FXD busy Error
|BootTout|

[DSP1]

|< DSP1 >|HPI WR..| = Waiting for "HPI Write HINT"
|HINTTout|

| | |
|---------------------------------------------|---------------------------------------------|
| < DSP1 > HPI WR.. Wr =xxxx | = HPI Write Error |
| WrVerify | |
| < DSP1 > HPI RD.. | = Waiting for "HPI Read HINT" |
| HINTTout | |
| < DSP1 > HPI RD.. Rd =rrrr Lgl=xxxx | = HPI Read Error |
| RdVerify | (rrrr:ReadData, xxxx:WriteData) |
| < DSP1 > SDRAM... | = Waiting for "SDRAM HINT" |
| HINTTout | |
| < DSP1 > SDRAM... | = Can't Start "SDRAM Check" |
| SD Start | |
| < DSP1 > SDRAM... | = SDRAM Check Failed |
| SD Unfin | |
| < DSP1 > SDRAM... aaaaaaaa Wr =www Rd =rrrr | = SDRAM Data BUS Error |
| SD D-Bus | (a~a:Address, www:WriteData, rrrr:ReadData) |
| < DSP1 > SDRAM... aaaaaaaa Wr =www Rd =rrrr | = SDRAM Address BUS Error |
| SD A-Bus | (a~a:Address, www:WriteData, rrrr:ReadData) |
| < DSP1 > SDRAM... | = SDRAM Size Error |
| SD Size | |
| < DSP1 > SDRAM... | = SDRAM unknown Error |
| SD ????? | |
| < DSP1 > GP107... | = Can't Start "GP107 Check" |
| GP7 Stt | |
| < DSP1 > GP107... 175-176 | = GP107 short Error |
| GP7 Shrt | |
| < DSP1 > GP107... | = GP107 unknown Error |
| GP7 ????? | |
| < DSP1 > | = GP104 not ready |
| Rst GP4 | |

|< DSP1 >| = HINT not ready

|Rst HINT|

|< DSP1 >|CodecRST| = Codec Reset Pin short or open Error

|RST Err!|

|< DSP1 >|DR0....| = DR0 Pin short or open Error

|DR0 Err!|

[LDCG]

|<LCDRAM>| = CGRAM Error

|LCD CG:x|

|<LCDRAM>| = DDRAM Error

|LCD DD:x|

[DSP-SERIAL]

|<DSPSER>|Seri Bus| = DSP no-response

|no respo|

|<DSPSER>|Seri Bus| = FXD>DSP Data Compare N.G

|FXD->DSP|

|<DSPSER>|Seri Bus| = DSP>FXD Data Compare N.G

|DSP->FXD|

|<DSPSER>|Seri Bus| = FXD busy Error

|DSP tout|

[MIDI]

|< MIDI >| = "Can't Receive" Error

|MDloop:x|

|< MIDI >| = Receive Data Error

|MDvrfy:x|

*External Test

[PANEL(LED/SW)]

|xxxxxxx| | | |VerXX.XX| = Other Switches were Pushed

|NG other| (xxxxxxx:Item Name)

|xxxxxxx| | | |VerXX.XX| = Other Switches were Pushed with Target Switch

|NG short| (xxxxxxx:Item Name)

[A/D]

|xxxxxxx|XXXXXXXX| = Other A/D (VR) moved

|ErrShort|

(xxxxxxx, XXXXXXXX: VR Name)

"TEMPO " ,"KONB1 " ,"KNOB2 " ,"KNOB3 " ,"KNOB4 " ,"MOD " ,"BEND " ,"ASSPEDAL"

[Assign Pedal]

|ASSPEDAL|XXXXXXXX| | | |VerXX.XX| = Other A/D (VR) moved

|ErrShort|

(XXXXXXXX: VR Name)

"TEMPO " ."KONB1 " ,"KNOB2 " ,"KNOB3 " ,"KNOB4 " ,"MOD " ,"BEND "

[Assign Sw]

|ASS SW | | | |VerXX.XX| = Short with Rotary Encoder

|short RE|

[KBD]

|# KBD | | | |VerXX.XX| = Keys have already been pushed

|ErrShort|

KORG R3 Part List

| Part No. | Category | Part Name | Reference | QTY |
|--------------|----------------------|--------------------------------|-----------------------------------------------------------------------|-----|
| 510210510001 | EMI/EMC PART | USB USBUF01W6 (S) | KLM-2726[TOP]EMI1 | 1 |
| 510320516010 | Logic IC | SN74LV05APWR (S) | KLM-2726[TOP]IC8 | 1 |
| 510320516038 | Logic IC | SN74LVC1G08DCKR DCK6 | KLM-2726[TOP]IC201 | 1 |
| 510320516034 | Logic IC | SN74LV4052APWR (TS) | KLM-2726[TOP]IC2,IC11 | 2 |
| 510320510510 | Logic IC | HD74LV2GU04AUSE-E-Q | KLM-2726[TOP]IC10,IC20,IC25 | 3 |
| 510320516092 | Logic IC | SN74LVC1G126DCKR | KLM-2726[TOP]IC200 | 1 |
| 500330003700 | PHOTO COUPLER | PS9117-F3-A | KLM-2726[TOP]PC1 | 1 |
| 510320514026 | LDO IC | BD00KA5WF | KLM-2726[TOP]IC12 | 1 |
| 510320514028 | LDO | BA15BC0FP-E2 | KLM-2726[TOP]IC15 | 1 |
| 510320514022 | LDO IC | BA25BC0FP-E2 (TS) | KLM-2726[TOP]IC24 | 1 |
| 510320514007 | LDO IC | BA05FP E2 (S) | KLM-2726[TOP]IC14 | 1 |
| 510320516505 | DC-DC Converter | XC6351A120MR (S) | KLM-2726[TOP]IC9 | 1 |
| 500324035006 | ASSP IC | LTC1771ES8#TRPBFF | KLM-2726[TOP]IC19 | 1 |
| 510324018019 | A/D Converter | AK5381ET-E2 | KLM-2726[TOP]IC4 | 1 |
| 510324038010 | D/A Converter | AK4384ET-E2 | KLM-2726[TOP]IC5 | 1 |
| 500324006013 | SDRAM | V54C3128164VBI7(TP) | KLM-2726[TOP]IC16,IC18 | 2 |
| 500324041005 | SRAM | EM643FV16FU-70LF | KLM-2726[TOP]IC13 | 1 |
| 500320012355 | FLASH(NOR) | S29JL032H70TFI020D(X5100) | KLM-2726[TOP]IC21 | 1 |
| 510320512005 | RESET IC | M51957BFP#CF0J (S) | KLM-2726[TOP]IC6 | 1 |
| 500320004715 | CPU | HD6417705F100BV | KLM-2726[TOP]IC17 | 1 |
| 510320516070 | DSP | TMS320VC5501PGF300 | KLM-2726[TOP]IC22 | 1 |
| 500320012334 | ASIC | MB87R1420PMC-G-BND | KLM-2726[TOP]IC23 | 1 |
| 510335520011 | CRYSTAL | HC-49US 12.00MHZ (D) | KLM-2726[TOP]X1 | 1 |
| 510335520007 | CRYSTAL | HC-49US 20.000MHZ (D) | KLM-2726[TOP]X2 | 1 |
| 510335520008 | CRYSTAL | HC-49US 24.576MHZ SS (D) | KLM-2726[TOP]X3 | 1 |
| 500402007100 | INDUCTOR | PLT09HN2003R0P1B | KLM-2726[TOP]L7 | 1 |
| 510402510501 | INDUCTOR | R12A163EA C6-K3.0L R12W228EA | KLM-2726[TOP]L30,L33,L34,L35 | 4 |
| 510402511003 | EMI/EMC PART | BLM18BD102SN1D (S) | KLM-2726[TOP]L1-6,L8-L17,L20-L29,L31-32,L36-39,L42-48,L50-72,[BOT]L18 | 63 |
| 510402511006 | Chip INDUCTOR | BLM21PG221SN1D (S) | KLM-2726[BOT]L40,L41 | 2 |
| 510310510502 | DOUBLE DIODES | MC2840-T112-1 (S) | [TOP]WD1-3 [BOT]WD4-9 | 9 |
| 510310511506 | SCHOTTKY DIODE | RB051L-40TE25 (S) | KLM-2726[TOP]D3 [BOT]D4 | 2 |
| 510310511508 | DIODE | RLR4004 TE-21 (S) | KLM-2726[TOP]D2 | 1 |
| 510310511507 | DIODE | RLS-73 TE-11 (S) | KLM-2726[TOP]D1 | 1 |
| 510306510502 | POWER MOS FET | SI4431ADY | KLM-2726[TOP]F1 | 1 |
| 510450521501 | DIN JACK | YKF51-5046 (DIN) (D) | KLM-2726[TOP]MIDI1 | 1 |
| 510474520501 | USB CONNECTOR | GE813A02-LC(USB B TYPE) (D) | KLM-2726[TOP]USB1 | 1 |
| 510450520012 | PHONE JACK | PJ-603 (PHONE JACK) (D) | KLM-2726[TOP]PH1,PH2 | 2 |
| 510450522504 | DC JACK | PJCP042100-42-0 (D) | KLM-2726[TOP]DJ1 | 1 |
| 510374520007 | POWER SW | PSW SDKLA10200 (D) | KLM-2726[TOP]SW1 | 1 |
| 510360521001 | VR | R0911NOXH1B103TG0000 (D)10kB | KLM-2726[TOP]VR1 | 1 |
| 510640501502 | | X-1500 TERMINAL KOC-C41254 | KLM-2726[TOP]PT1 | 1 |
| 510474524011 | CONNECTOR | S2M-15W (WAFER FOR PH) | KLM-2726[TOP]CN3A | 1 |
| 510374520079 | PH Connector | A2001WV-13P | KLM-2726[TOP]CN1A,CN4A | 2 |
| 510474524010 | CONNECTOR | S2M-12W (WAFER FOR PH) | KLM-2726[TOP]CN8A | 1 |
| 510374520080 | PH Connector | A2001WV-10P | KLM-2726[TOP]CN7A,CN102A | 2 |
| 510474524008 | CONNECTOR | S2M-7W (WAFER FOR PH) | KLM-2726[TOP]CN6A,CN101A | 2 |
| 510474524009 | CONNECTOR | S2M-8W (WAFER FOR PH) | KLM-2726[TOP]CN5A | 1 |
| 510474520013 | CONNECTOR | JS1132-05 (B5B-EH-A) (WAF) (D) | KLM-2726[TOP]CN2A | 1 |
| 510C90102726 | PCB ASS'Y | KLM-2726-R3 ASS'Y | | (1) |
| 510402511003 | EMI/EMC PART | BLM18BD102SN1D (S) | [KLM-2727 TOP]L-23 | 23 |
| 510310510501 | DOUBLE DIODES | MC2838-T112-1 (S) | [KLM-2727 TOP]WD1-10 | 10 |
| 510300511009 | DIGITAL TR | DTC114EKA T146 (TS) (S) | [KLM-2727 TOP]DT3,5,7-10,12,14 | 8 |
| 510300510505 | DIGITAL TR | FP1L2Q-T2B-A (TS) (S) | [KLM-2727 TOP]DT1,2,4,6,11,13,15,16 | 8 |
| 510310511507 | DIODE | RLS-73 TE-11 (S) | [KLM-2727 TOP]D1,D2,D3,D4 | 4 |
| 510320516008 | Logic IC | SN74LV138APWR | [KLM-2727 TOP]IC1,IC2 | 2 |
| 510450524507 | XLR JACK | LX-1604H-3 | [KLM-2729 TOP]PH1 | 1 |
| 510374522019 | VIRTICAL PUSH SW | PBM-0112 | [KLM-2727 TOP]SW1 | 1 |
| 500370005700 | SW | REB161(9X7)PVB20FHGRY1-4-16PCE | [KLM-2727 TOP]EC1 | 1 |
| 510370520004 | Rotary Encoder | EC12E240204A9 | [KLM-2728 TOP]EC2 | 1 |
| 510374524017 | ROTARY VR | RV09ACF-40-20F-B5K-0057 | [KLM-2727 TOP]VR1 | 1 |
| 510374524031 | ROTARY VR | RV09ACF-40-25F-B5K | [KLM-2728 TOP]VR5,VR6,VR7,VR8 | 4 |
| 510374524021 | ROTARY VR | RV112BCF-40-20A-B10K | [KLM-2727 TOP]VR2,VR3 | 2 |
| 510374524029 | Rotary Potentiometer | RV09ACF-40-20F-B10K | [KLM-2727 TOP]VR4 | 1 |
| 510312513001 | Chip LED | TO-2013BC-MRE (S) | [KLM-2727 TOP]LED6-13,26,27,30,31-37 | 18 |
| 510312511002 | LED | MT-19-22SURVGC/TR8 (B/L) (S) | [KLM-2727 TOP]LED38,LED39 | 2 |
| 510312521502 | LED | MSB31DA-1 (W/PLATING) (D)RED | [KLM-2727 TOP]LED1-5,14,15-21,24,25,28,29 | 17 |
| 510312521511 | LED | MSGB39W (VER.A)(D)RED/GREEN | [KLM-2727 TOP]LED22,LED23 | 2 |
| 510450523017 | LED SPACER | LEDH-9 (3HOLE) | [KLM-2727 TOP]LED1-5,14-25,28,29 | 19 |
| 510C90102727 | PCB ASS'Y | KLM-2727/28/29-R3 ASS'Y | | (1) |
| 510474524006 | CONNECTOR | S2M-6W (WAFER FOR PH) (D) | [KLM-2727 BOT]CN10 | 1 |
| 510470523015 | Board in Harness | HNS-3769(PH size 3pin, 70mm) | [KLM-2727 BOT]CN11A | 1 |
| 510470523004 | Board in Harness | HNS-3758(PH size 6pin, 190mm) | [KLM-2727 TOP]CN10A | 1 |
| 510470523005 | Board in Harness | HNS-3759(PH size 12pin, 230mm) | [KLM-2727 TOP]CN9A | 1 |
| 510470523006 | Board in Harness | HNS-3760(PH size 8pin, 360mm) | [KLM-2727 TOP]CN5B | 1 |
| 510470523007 | Board in Harness | HNS-3761(PH size 7pin, 320mm) | [KLM-2727 TOP]CN6B | 1 |
| 510470523008 | Board in Harness | HNS-3762(PH size 13pin, 470mm) | [KLM-2727 TOP]CN4B | 1 |

| Part No. | Category | Part Name | Reference | QTY |
|--------------|------------------|-----------------------------------|-------------------------------------------------------------|-----|
| 510470523002 | Board in Harness | HNS-3756(PH size10pin, 360mm) | [KLM-2728 TOP]CN7B | 1 |
| 510470523001 | Board in Harness | HNS-3755(PH size 4pin, 70mm) | [KLM-2729 TOP]CN13B | 1 |
| 510474520013 | CONNECTOR | JS1132-05 (B5B-EH-A) (WAF) (D) | [KLM-2727 BOT]CN2B | 1 |
| 510402511003 | EMI/EMC PART | BLM18BD102SN1D (S) | [KLM-2730 TOP]L1-13 [KLM-2731 TOP]L102,103,105,106,L113-115 | 20 |
| 510402523003 | EMI/EMC PART | MPZ1608S601AT | [KLM-2731 TOP]L107,L108 | 2 |
| 510300511009 | DIGITAL TR | DTC114EKA T146 (TS) (S) | [KLM-2730 BOT]DT5-12 | 8 |
| 510300510505 | DIGITAL TR | FP1L2Q-T2B-A (TS) (S) | [KLM-2730 TOP]DT1-4 [BOT]DT13-15,21 | 8 |
| 510310511508 | DIODE | RLR4004 TE-21 (S) | [KLM-2731 TOP]D101 | 1 |
| 510320511002 | DISPLAY IC | NJU6468FG1-00-#ZZZB (S) | [KLM-2730 BOT]IC4 | 1 |
| 510320511001 | DRIVER IC | NJU6445FC1-#ZZZB(S) | [KLM-2730 BOT]IC5 | 1 |
| 510320516006 | Logic IC | SN74AHCT08PWR | [KLM-2730 TOP]IC3 | 1 |
| 510320516031 | Logic IC | SN74LV574APWR (S) | [KLM-2730 TOP]IC2 | 1 |
| 510320516008 | Logic IC | SN74LV138APWR | [KLM-2730 TOP]IC1 | 1 |
| 510300511504 | TRANSISTOR | 2SC3661-TB-E (S) | [KLM-2731 TOP]Q1,Q2,Q3,Q4 | 4 |
| 510312513001 | Chip LED | TO-2013BC-MRE (S)RED | [KLM-2730 TOP]LED1-12 | 12 |
| 510316521503 | LED | TOA-L23ZMRMG-9B 16POINT CIRCLE LE | [KLM-2730 TOP]LED13-15,21 | 4 |
| 510450523010 | LED SPACER | L=5.0MM LEDH-5 (3HCLE) | [KLM-2730 TOP]LED16 | 1 |
| 510312521502 | LED | MSB31DA-1 (W/PLATING) (D)RED | [KLM-2730 TOP]LED16 | 1 |
| 510320514037 | REGULATOR IC | BAJ0BC0FP | [KLM-2731 TOP]IC106 | 1 |
| 510320520502 | OPAMP | NJM4556AD (D) | [KLM-2731 TOP]IC104 | 1 |
| 510320511003 | OPAMP | NJM4580M-TE1-#ZZZB (S) | [KLM-2731 TOP]IC101-103,IC105 | 4 |
| 510C90102730 | PCB ASS'Y | KLM-2730/31-R3 ASS'Y | | (1) |
| 510474524006 | CONNECTOR | S2M-6W (WAFER FOR PH) (D) | [KLM-2731 TOP]CN10B | 1 |
| 510474524010 | CONNECTOR | S2M-12W (WAFER FOR PH) | [KLM-2731 TOP]CN9B | 1 |
| 510474524005 | CONNECTOR | S2M-3W (WAFER FOR PH) (D) | [KLM-2730 BOT]CN11B | 1 |
| 510474524021 | CONNECTOR | S2M-4W (WAFER FOR PH) | [KLM-2731 TOP]CN13A | 1 |
| 510450520012 | PHONE JACK | PJ-603 (PHONE JACK) (D) | [KLM-2731 TOP]PH1-5 | 5 |
| 510374522002 | SLIDE SW | SK-22D06G8 2P2T (D) | [KLM-2731 TOP]SW1 | 1 |
| 510470523010 | HARNESS | HNS-3764 120MM | [KLM-2730 BOT]CN1B | 1 |
| 510470523011 | HARNESS | HNS-3765 150MM | [KLM-2730 BOT]CN3B | 1 |
| 510470523003 | HARNESS | HNS-3757 100MM | [KLM-2731 TOP]CN8B | 1 |
| 510C90102663 | PCB ASS'Y | KLM-2663-R3 ASS'Y | (25KEY) | (1) |
| 510C90102665 | PCB ASS'Y | KLM-2665-R3 ASS'Y | (12KEY) | (1) |
| 510310520501 | DIODE | 1SS133 T-77 (D) | [KLM-2663]D1-50 [KLM-2665]D99-122 | 74 |
| 510320516052 | Logic IC | SN74HC138N | [KLM-2663]IC1 [KLM-2665]IC3 | 2 |
| 510474520019 | CONNECTOR | JS-1125-07 (WAF FOR VOLUME)(D) | [KLM-2663]CN5 | 1 |
| 510474520021 | CONNECTOR | JS-1125-10 (PINHDR FOR LCD)(D) | [KLM-2663]CN6 | 1 |
| 510470521050 | HARNESS | HNS-3631 (X-4130) | [KLM-2663]WIRE1 | 1 |
| 510470521051 | HARNESS | HNS-3632 (X-4130) | [KLM-2663]WIRE3 | 1 |
| 510474523007 | FFC CONNECTOR | RIBBON CABLE CNCTR 52147-0810 | [KLM-2665]CN4 | 1 |
| 510474523008 | FFC CONNECTOR | RIBBON CABLE CNCTR 52147-1010 | [KLM-2665]CN2 | 1 |
| 510313500013 | LCD | DLC-60004NLGF | SUB ASS'Y | 1 |
| 510313500008 | LCD | DLC-60003NLGF X2830 | SUB ASS'Y | 4 |
| 510360520005 | ROTARY VR | RK1631110G1T 10K B CURVE (D) | SUB ASS'Y | 2 |
| 510470523013 | Harness | HNS-3767(PH size 7pin, 220mm) | SUB ASS'Y | 1 |
| 510470523014 | Harness | HNS-3768(PH size 10pin, 220mm) | SUB ASS'Y | 1 |
| 510470523009 | Harness | HNS-3763(PH size 6pin, 110mm) | SUB ASS'Y | 1 |
| 510470523012 | Harness | HNS-3766(EH size 5pin, 420mm) | SUB ASS'Y | 1 |
| 510525520003 | FERRITE CORE | K3 T 16X14X10 | SUB ASS'Y | 2 |
| 510640502527 | | X-5100 MAIN PLATE KOC-C30712 | MECHANICAL | 1 |
| 510640502528 | | X-5100 JACK PLATE KOC-C30713 | MECHANICAL | 1 |
| 510640505503 | | X-1110 WHEEL ANGLE KOC-C41269 | MECHANICAL | 2 |
| 510640504016 | | X-1110 WHEEL SPRING KOC-C41278 | MECHANICAL | 1 |
| 510646502100 | | X-5100 KEY FRAME 37 KOC-E10235 | MECHANICAL | 1 |
| 510646502101 | | X-5100 UPPER CASE KOC-E10237 | MECHANICAL | 1 |
| 510646502102 | | X-5100 LOWER CASE KOC-E10238 | MECHANICAL | 1 |
| 510646502103 | | X-5100 REAR PANEL KOC-E20277 | MECHANICAL | 1 |
| 510646502008 | | X-1110 WHEEL KNOB KOC-E30289 | MECHANICAL | 2 |
| 510500502536 | | X-5100 RUBBER KEY KOC-E30433 | MECHANICAL | 1 |
| 510646502104 | | X-5100 SELECT KNOB KOC-E30434 | MECHANICAL | 1 |
| 510646502105 | | X-5100 ENCORDER KNOB KOC-E40672 | MECHANICAL | 1 |
| 510646502106 | | X-5100 VR KNOB KOC-E40673 | MECHANICAL | 8 |
| 510646502107 | | X-5100 PUSH BUTTON KOC-E40674 | MECHANICAL | 1 |
| 510646502108 | | X-5100 REFLECTOR (L) KOC-E40675 | MECHANICAL | 1 |
| 510646502109 | | X-5100 REFLECTOR (S) KOC-E40676 | MECHANICAL | 4 |
| 510646506507 | | X-5100 LCD WINDOW (L) KOC-E40677 | MECHANICAL | 1 |
| 510646506508 | | X-5100 LCD WINDOW (S) KOC-E40678 | MECHANICAL | 4 |
| 510646506514 | | X-5100 SHEET (L) KOC-F41314 | MECHANICAL | 1 |
| 510646506515 | | X-5100 SHEET (S) KOC-F41315 | MECHANICAL | 4 |
| 500620018201 | | PSW KNOB EXP KOC-E40224 | MECHANICAL | 1 |
| 510646502085 | | KEY ASSY 12(M) KOC-H30305-1 | MECHANICAL | 2 |
| 510646502086 | | KEY ASSY 13(M) KOC-H30306-1 | MECHANICAL | 1 |
| 510500504503 | | RUBBER BOTTON 13 KOC-E30438 | MECHANICAL | 3 |
| 510500505506 | | X-5100 KB FELT KOC-F41281-3 | MECHANICAL | 2 |
| 510500505001 | | KEY GUIDE RUBBER QMGG055AA | MECHANICAL | 37 |
| 510500500008 | | X-332CHINA URETHANE-LEG F40709 | MECHANICAL | 5 |
| 510630500004 | | X-5100 SHIELD SHEET-1 KOC-F41334 | MECHANICAL | 1 |
| 510630500005 | | X-5100 SHIELD SHEET-2 KOC-F41335 | MECHANICAL | 1 |

| Part No. | Category | Part Name | Reference | QTY |
|--------------|-------------------|----------------------------------|-------------|-----|
| 510630500006 | | X-5100 SHIELD SHEET-3 KOC-F41336 | MECHANICAL | 1 |
| 510630500007 | | X-5100 SHIELD SHEET-4 KOC-F30136 | MECHANICAL | 1 |
| 510500501516 | INTER CONNECTOR | INTER-CONNECTOR | MECHANICAL | 10 |
| 510405015300 | SWITCHING ADAPTER | KA310 (DSA-015AD-12A) | | 1 |
| 510415500003 | MIC | GM-23D | | 1 |
| 500600006513 | AC CABLE | DC-1800-D02LY (PSE) | 100JP | (1) |
| 510600006510 | AC CABLE | UC-1800-U02LY(UL) (W/POLYBAG) | 120US,CN,EX | (1) |
| 510600006509 | AC CABLE | EC-1800-E02LY(VDE) (W/POLYBAG) | 230WG,FR,GE | (1) |
| 500600006512 | AC CABLE | SC-1800-S02LY (SAA) | 240AU | (1) |
| 510600006511 | AC CABLE | BC-1800-B02LY(BS) (W/POLYBAG) | 230UK | (1) |