

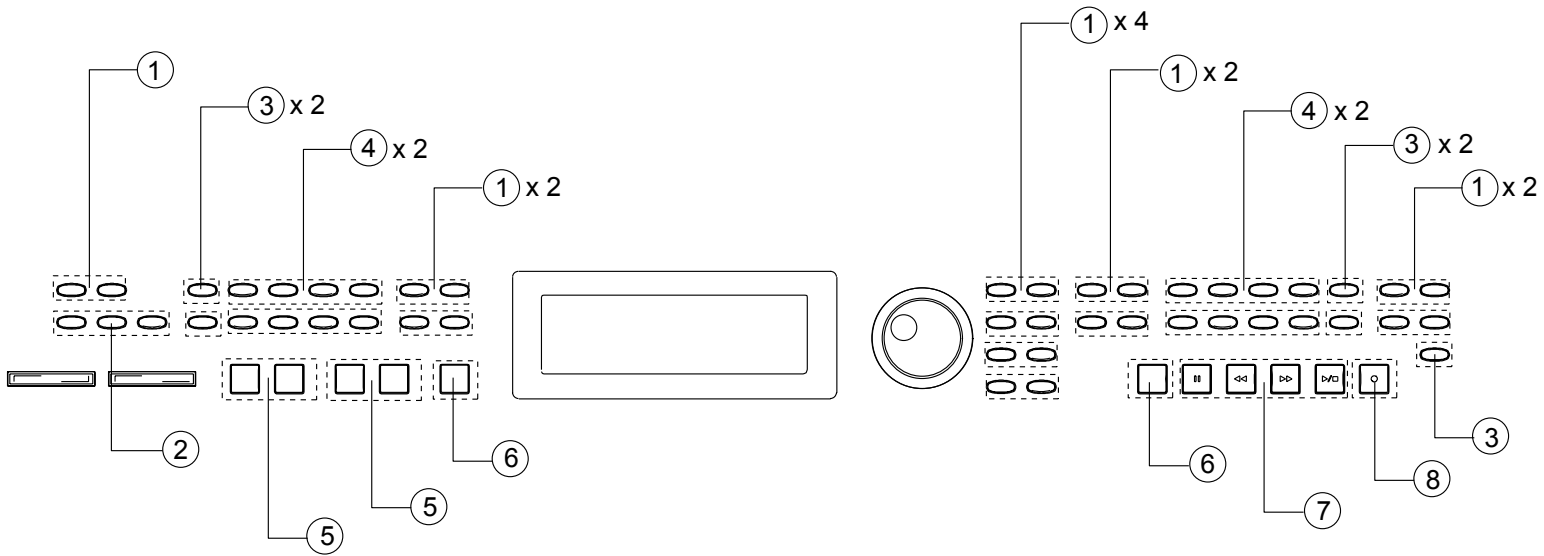
# Service Manual

# SP-500

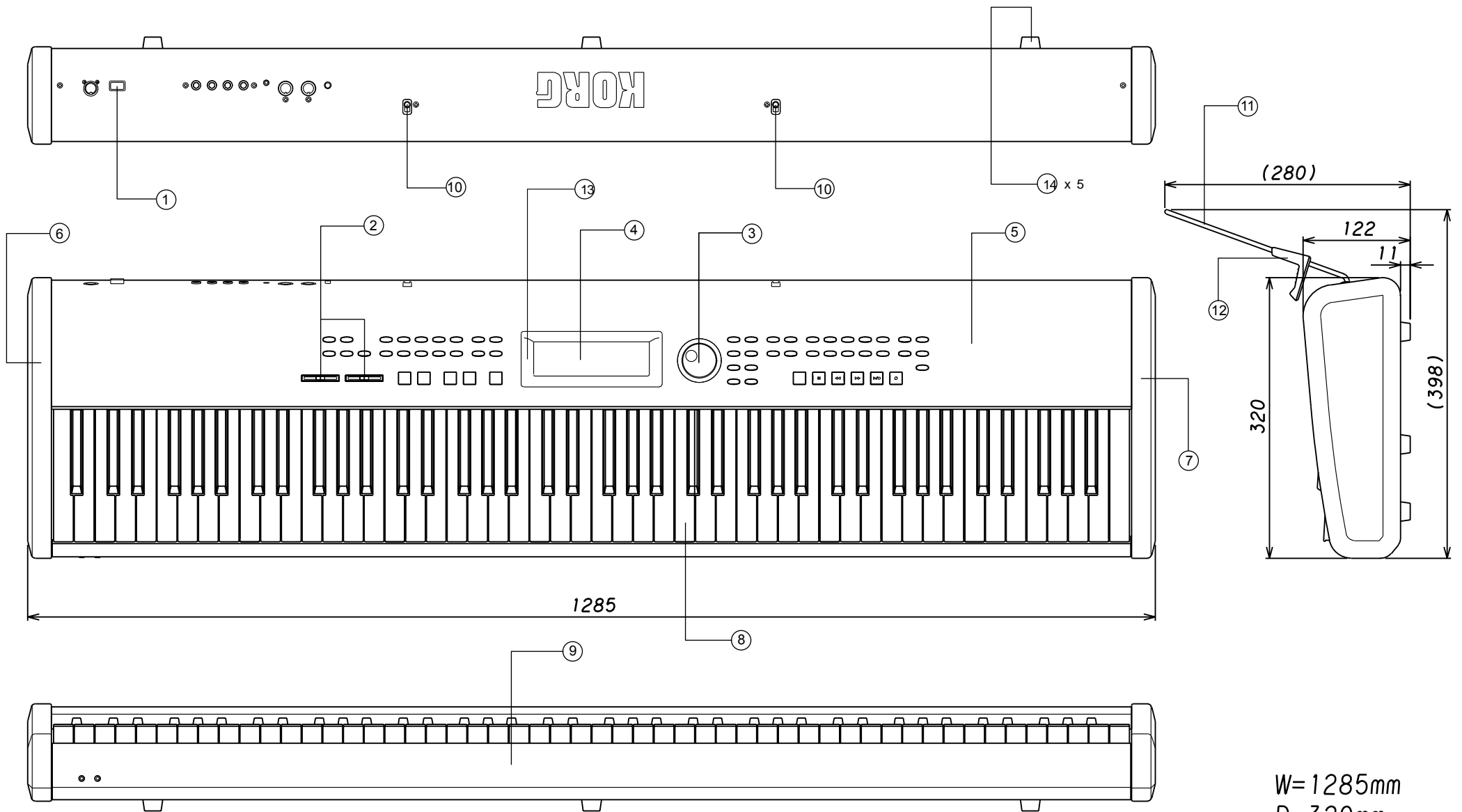
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Revision: 1.00  
Issued date: Feb. 7<sup>th</sup>, 2002  
Issued by: KORG INC.

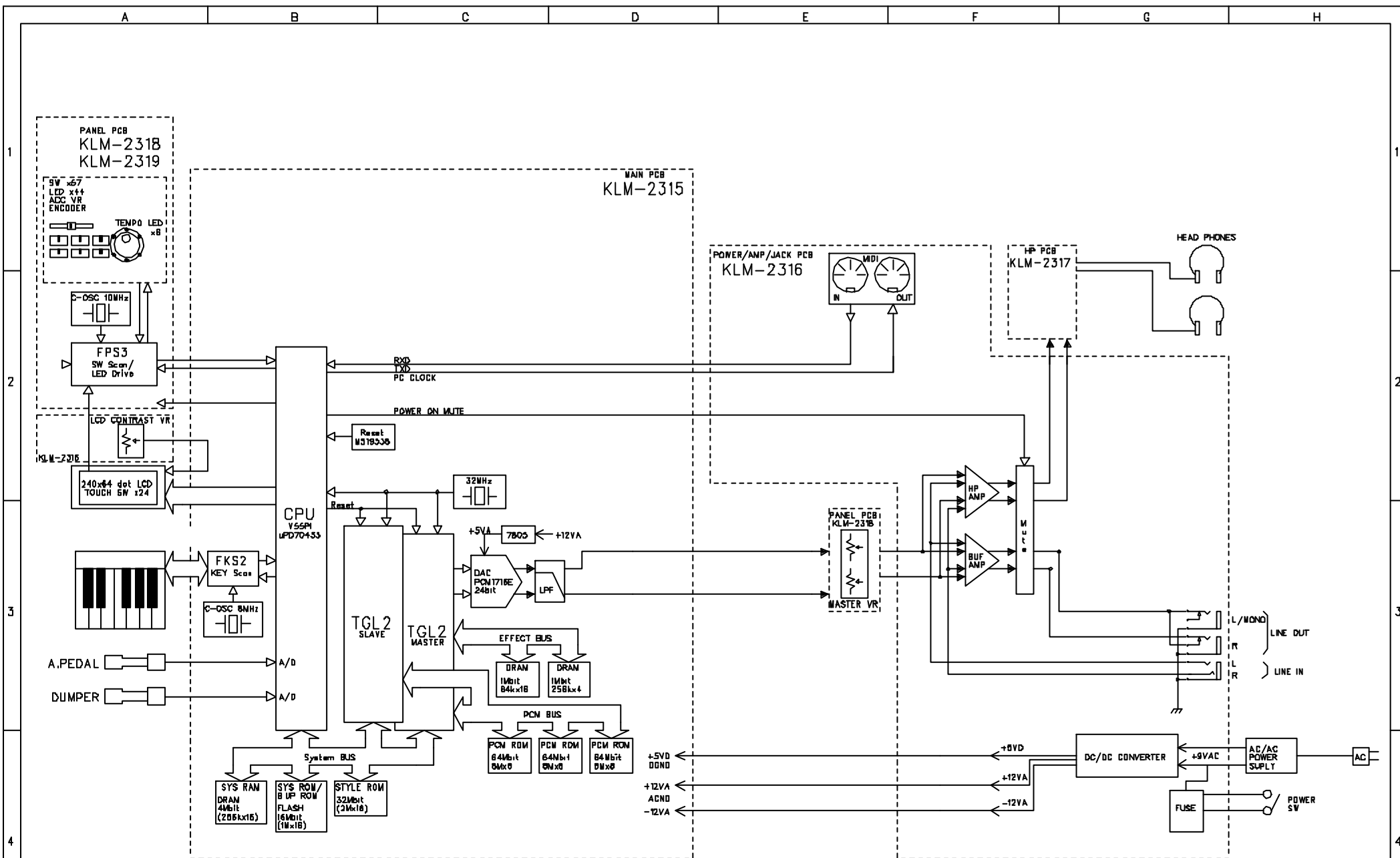


| NO | PART CODE | PART NAME                          | Q'TY |
|----|-----------|------------------------------------|------|
| 1  | 646081500 | X-0370 4 LINKAGE KNOB-2 H40165-2   | 11   |
| 2  | 646081400 | X-0370 4 LINKAGE KNOB-3 H40165-3   | 1    |
| 3  | 646081600 | X-0370 4 LINKAGE KNOB-1 H40165-1   | 5    |
| 4  | 646081300 | X-0370 4 LINKAGE KNOB-4 H40165-4   | 4    |
| 5  | 620038100 | X-8110 KNOB L(2 LINKAGE) H40148-2  | 2    |
| 6  | 620038200 | X-8110 KNOB L H40148-1             | 2    |
| 7  | 646081700 | X-8110 KNOB L (4 LINKAGE) H40148-8 | 1    |
| 8  | 646081800 | X-8110 KNOB L H40148-9             | 1    |

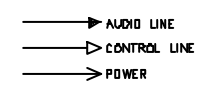


W=1285mm  
 D=320mm  
 H=122mm  
 Weight=19.4kg

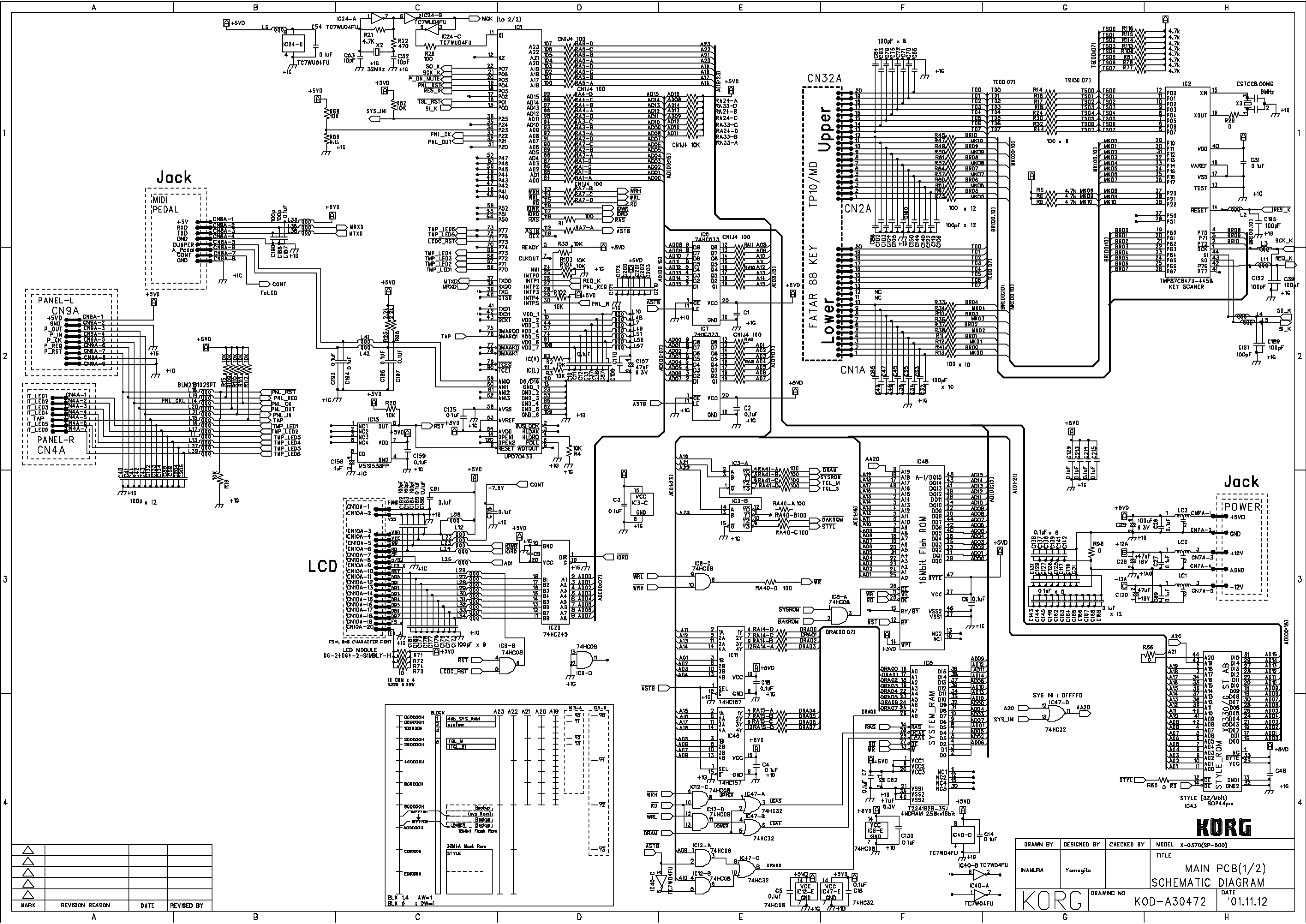
| NO | PART CODE | PART NAME                      | QTY |
|----|-----------|--------------------------------|-----|
| 1  | 620021600 | X-825M POWER SW KNOB BK E40264 | 1   |
| 2  | 646082100 | X-224 SLIDE VR KNOB NO.3 E4028 | 2   |
| 3  | 620034700 | X-610 ENCODER KNOB(GRAY)E40466 | 1   |
| 4  | 313005600 | LCD DG-24064-2-S1MBLA-H(AMBER) | 1   |
| 5  | 641041655 | X-0370 PANEL KOC-C10266        | 1   |
| 6  | 645053263 | X-0370 SIDE BOARD L D30231-1   | 1   |
| 7  | 645053264 | X-0370 SIDE BOARD R D30231-2   | 1   |
| 8  | 420006700 | KEYBOARD 88NOTE TP/31+PCB      | 1   |
| 9  | 641041678 | X-0370 FRONT BAR KOC-C20370    | 1   |
| 10 | 646045300 | X-181 MUSIC STAND HOLDER       | 2   |
| 11 | 641041679 | X-0370 MUSIC STAND 2           | 1   |
| 12 | 646082200 | X-610 SCORE HOLDER NO.2        | 1   |
| 13 | 646081200 | X-8330 LCD HOOD 2 KOC-E30256-2 | 1   |
| 14 | 500033200 | RUBBER FOOT K-23               | 5   |



| MARK | REVISION REASON | DATE | REVISED BY |
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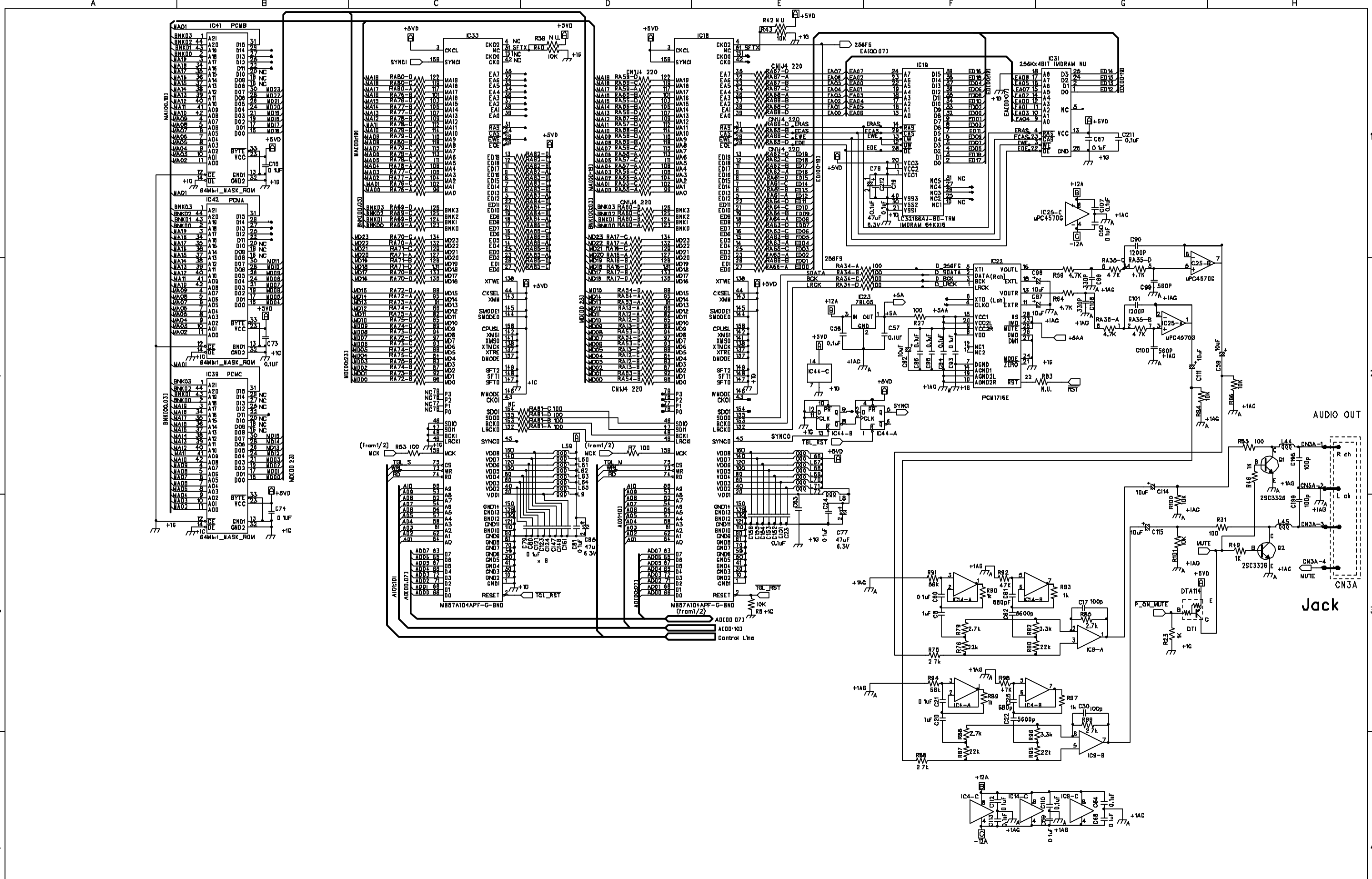


|                   |             |          |               |
|-------------------|-------------|----------|---------------|
| DESIGN & DRAWN BY | CHECKED BY  | MODEL    | X-0370/SP-500 |
| Inamura           |             | TITLE    | BLOCK DIAGRAM |
| <b>KORG</b>       | DRAWING NO. | DATE     |               |
|                   | KOD-B40231  | 01/11/06 |               |



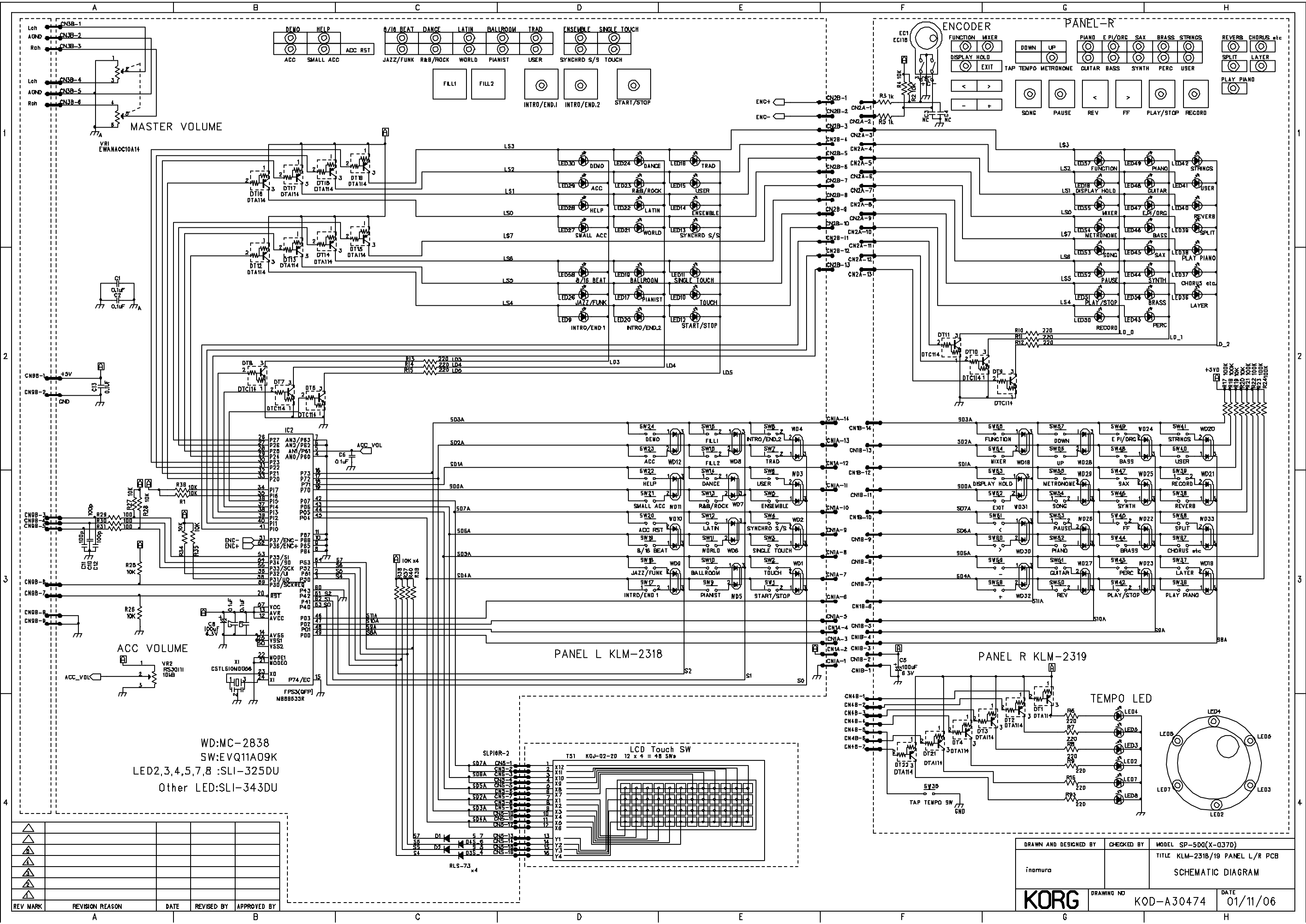
| MARK | REVISION | REASON | DATE | REVISED BY |
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|      |          |        |      |            |
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|            |             |            |                   |
|------------|-------------|------------|-------------------|
| DRAWN BY   | DESIGNED BY | CHECKED BY | MODEL             |
| NAHLRA     | Yamagita    |            | X-0570(SP-500)    |
| TITLE      |             |            |                   |
| KORG       |             |            | MAIN PCB(1/2)     |
| DRAWING NO |             |            | SCHEMATIC DIAGRAM |
| KOD-A30472 |             |            | DATE              |
|            |             |            | '01.11.12         |



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| MARK | REVISION REASON | DATE | REVISED BY |

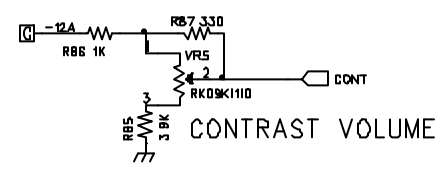
|          |             |                          |  |
|----------|-------------|--------------------------|--|
| DRAWN BY | DESIGNED BY | CHECKED BY               | MODEL X-0370(SF-000)                         |
| INAMURA  | Yamagita    |                          | TITLE<br>MAIN PCB (2/2)<br>SCHEMATIC DIAGRAM |
| KORG     |             | DRAWING NO<br>KOD-A30473 | DATE<br>'01.11.12                            |



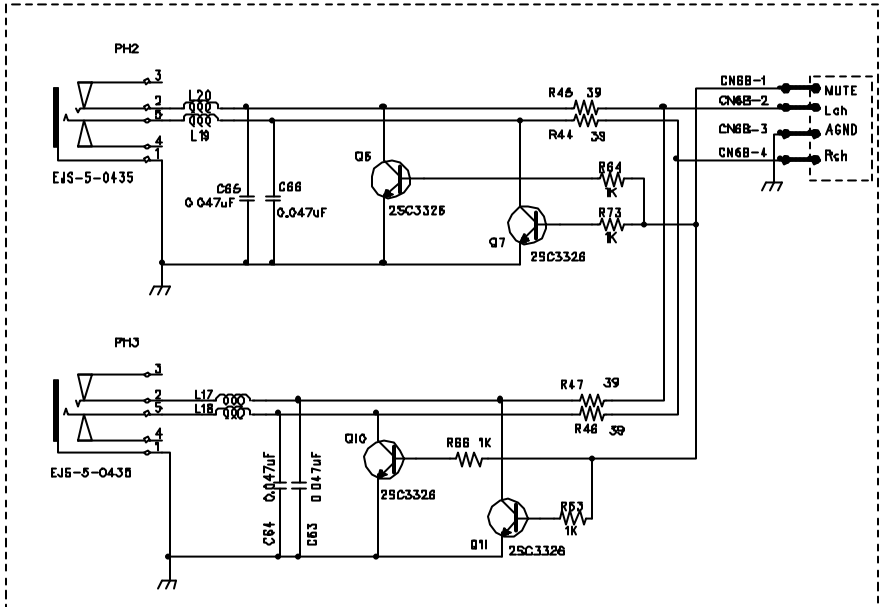
WD:MC-2838  
 SW:EVQ11A09K  
 LED2,3,4,5,7,8 :SLI-325DU  
 Other LED:SLI-343DU

| REV MARK | REVISION REASON | DATE | REVISED BY | APPROVED BY |
|----------|-----------------|------|------------|-------------|
|          |                 |      |            |             |
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|          |                 |      |            |             |

|                                    |                          |                      |
|------------------------------------|--------------------------|----------------------|
| DRAWN AND DESIGNED BY<br>Inamura   | CHECKED BY               | MODEL SP-500(X-Q370) |
| TITLE<br>KLM-2318/19 PANEL L/R PCB |                          | DATE<br>01/11/06     |
| SCHEMATIC DIAGRAM                  |                          |                      |
| <b>KORG</b>                        | DRAWING NO<br>KOD-A30474 |                      |

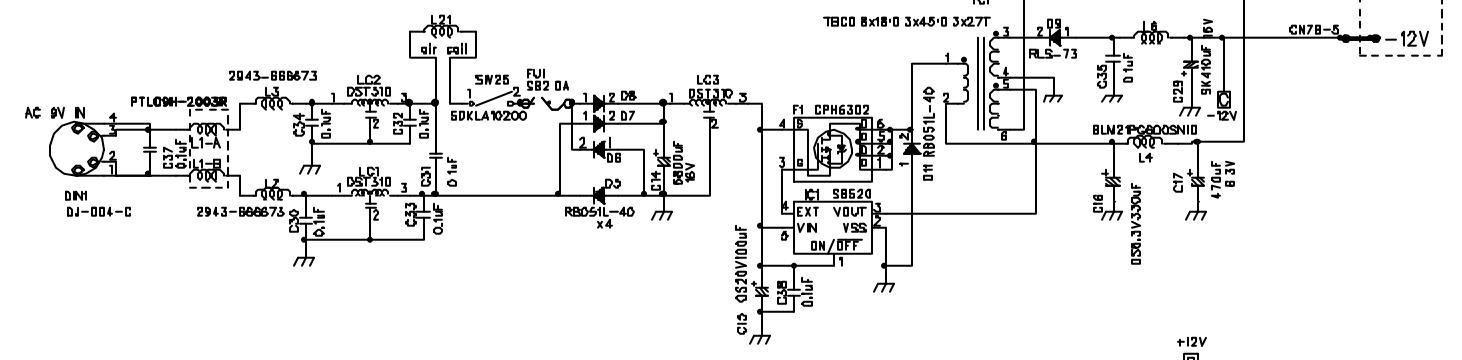


CONTRAST VOLUME

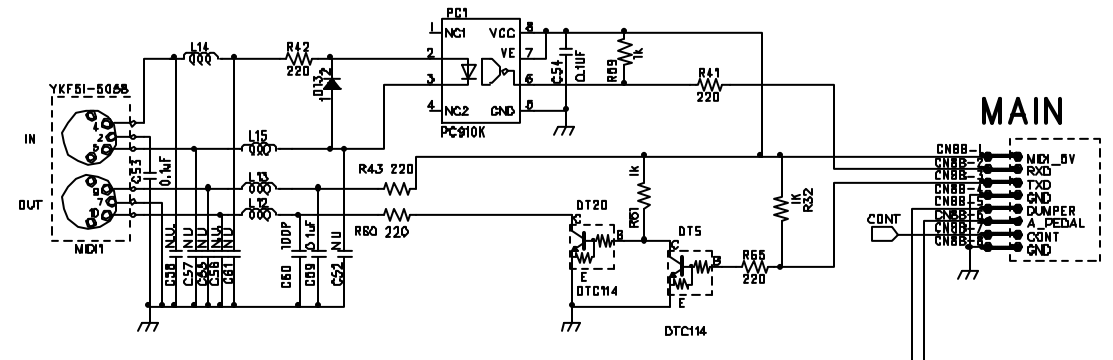


KLM-2317 Head Phones PCB

KLM-2316 POWER JACK PCB

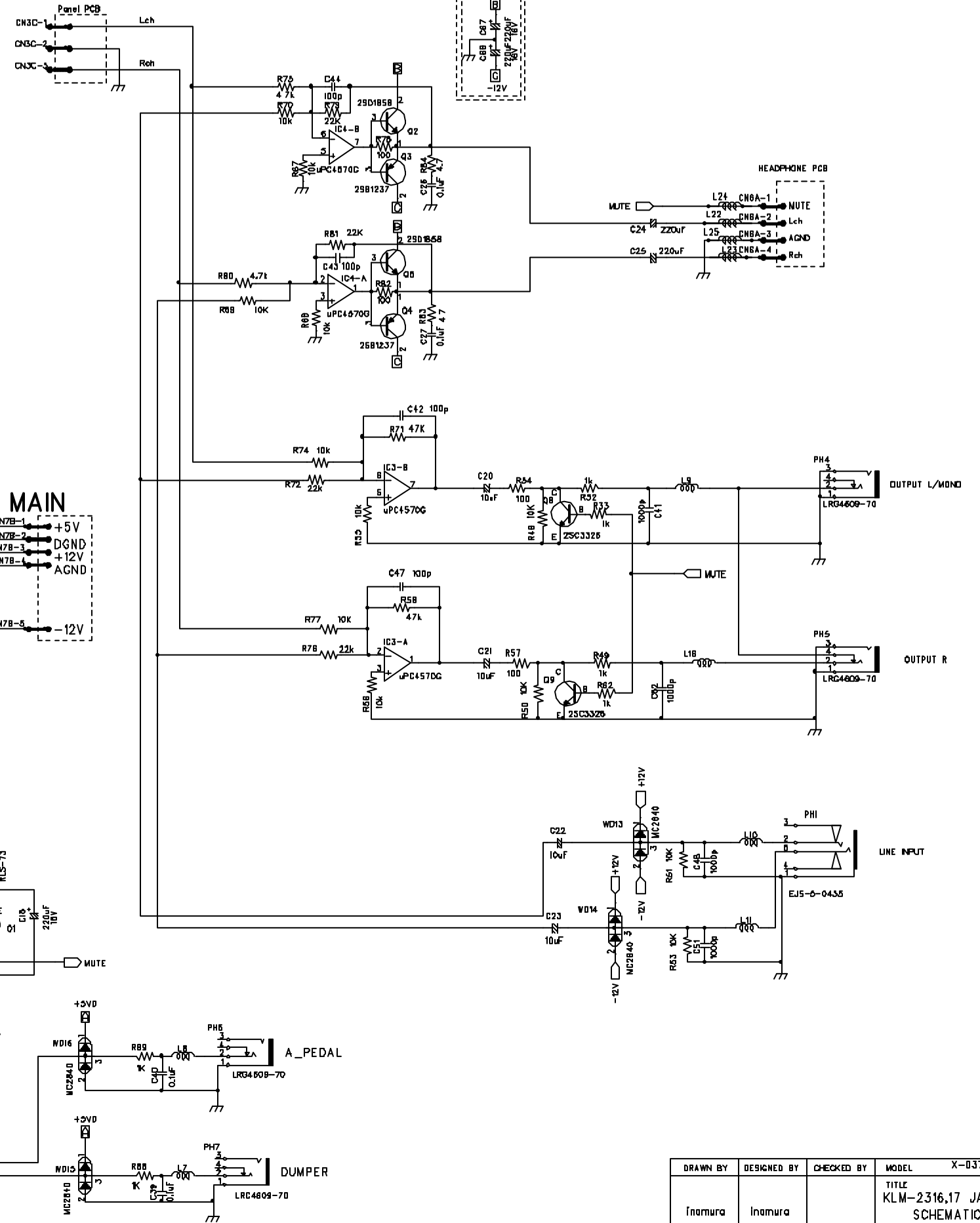


MAIN



MAIN

L4:BLM21PG600SN1D  
Other L:BLM18BD102SN1D



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

|             |             |            |            |  |
|-------------|-------------|------------|------------|--|
| DRAWN BY    | DESIGNED BY | CHECKED BY | MODEL      | X-0370(SP-500)                               |
| Inamura     | Inamura     |            | TITLE      | KLM-2316,17 JACK PHONE.PCB SCHEMATIC DIAGRAM |
| <b>KORG</b> |             | DRAWING NO | KOD-A30475 | DATE '01.11.06                               |



# SP500 Test Mode

## How to start the test mode:

- |  |                      |
|--|----------------------|
| 1) [FUNCTION] + [TEMPO DOWN] & [POWER ON]      | : Full test          |
| 2) [FUNCTION] + [TEMPO UP] & [POWER ON]        | : MIDI test Skip     |
| 3) [FUNCTION] + [METRONOME] & [POWER ON]       | : Internal test Skip |
| 4) [START/STOP] + [INTRO/ENDING1] & [POWER ON] | : Full test          |
| 5) [START/STOP] + [FILL2] & [POWER ON]         | : MIDI test Skip     |
| 6) [START/STOP] + [FILL1] & [POWER ON]         | : Internal test Skip |

- 1) and 2) executes all the tests but all area of Flash ROM.
- 4) and 5) executes all the tests but the user area of Flash ROM.

## How to operate the test mode:

|                             |   |            |
|-----------------------------|---|------------|
| [PLAY PIANO]                | : | STEP UP    |
| [PAGE UP]                   | : | Item UP    |
| [PAGE DOWN]                 | : | Item Down  |
| [VALUE+]                    | : | Step UP    |
| [VALUE-]                    | : | Step Down  |
| [START/STOP] + [PLAY PIANO] | : | Error Skip |

## Notes at the test mode:

When changing all the data to the factory data, select either "JAPAN" or "USA" at the final process of the test mode; JAPAN as the Japanese market, U.S.A. as other countries. After selecting either of them, pressing "PLAY PIANO" starts preloading. Do NOT turn the power OFF until the opening display is indicated in the LCD.

## In case that preloading is executed indivisually:

### 1. Setting of [USER] rhythm style group

Press the USER switch of RHYTHM STYLE GROUP on the panel, then press the "Factory Preset" button in the LCD.

## **2. Setting of [USER] program group**

Press the USER switch of PROGRAM STYPE GROUP on the panel, then press the "Factory Preset" button in the LCD.

## **3. Memory content of All set-up**

When pressing the function button located at the right side of the dial, the FUNCTION page is indicated. Press the PAGE+ switch to change the indication to 7/10 page. Moreover, press the "Factory Preset" button.

## **4. Recorded song data (100 songs)**

When pressing the SONGSELECT switch, the RECORDER mode is indicated. Press the PAGE+ switch to change the indication to 3/3Page. Then, when pressing the "Memory Utility" button, the MEMORY UTILITY" page is indicated. Moreover, press the "Factory Preset" button.

## **5. To executed all 1 - 4,**

power ON while pressing SONGSELECT and RECORD. Here "Initialize, Don't power off." is indicated in the LCD.

In case that the power is turned off while preloading, execute preloading again.

| PART CODE | PART NAME                      | NOTE           | Q'TY |
|-----------|--------------------------------|----------------|------|
| 001231500 | PCB ASSY KLM-2315 SP-500       | SP-500 M.PART  | 1    |
| 001231600 | PCB ASSY KLM-2316/7/8/9 SP-500 | SP-500 M.PART  | 1    |
| 304020200 | TR 2SC3326A-TE85L (TS)         | KLM-2315 SP-50 | 2    |
| 304020200 | TR 2SC3326A-TE85L (TS)         | KLM-2316/17/18 | 6    |
| 304020400 | TR 2SA1576A T106 (TS)          | KLM-2316/17/18 | 1    |
| 304050250 | DIGITAL TR DTC114EUA T106 (TS) | KLM-2316/17/18 | 8    |
| 304050260 | DIGITAL TR DTA114EUA T106 (TS) | KLM-2316/17/18 | 14   |
| 304050260 | DIGITAL TR DTA114EUA T106 (TS) | KLM-2315 SP-50 | 1    |
| 304060220 | TR 2SB1237-T(TR)               | KLM-2316/17/18 | 2    |
| 304060230 | TR 2SD1858-T(TR)               | KLM-2316/17/18 | 2    |
| 304060250 | FET CPH6302-TL(TS)             | KLM-2316/17/18 | 1    |
| 313005600 | LCD DG-24064-2-S1MBLA-H(AMBER) | SP-500 M.PART  | 1    |
| 314001400 | DIODE RLS-73 TE-11 (TS)        | KLM-2316/17/18 | 9    |
| 314030700 | SCHOTTKY DIODE RB051L-40TE25   | KLM-2316/17/18 | 5    |
| 314032300 | LED SLI-343DUTC7 (TR)          | KLM-2316/17/18 | 46   |
| 314032400 | LED SLI-325DUT31(W):TR         | KLM-2316/17/18 | 6    |
| 315000500 | DOUBLE DIODE MC-2840-T12-1(TS) | KLM-2316/17/18 | 4    |
| 315000600 | DOUBLE DIODE MC2838-T12-1 (TS) | KLM-2316/17/18 | 28   |
| 320001529 | IC UPD70433GD-16-5BB (S)       | KLM-2315 SP-50 | 1    |
| 320003217 | IC TMP87C847U-4458 (S)         | KLM-2315 SP-50 | 1    |
| 320012181 | IC MB87A104APF-G-BND (S)       | KLM-2315 SP-50 | 2    |
| 320012267 | IC MB89635RPF-368-BND(S)       | KLM-2316/17/18 | 1    |
| 320012303 | IC MBM29F160BE70PFTN-K(X0370)S | KLM-2315 SP-50 | 1    |
| 320040062 | IC MX23C6410MC-10X8330ROMA:S   | KLM-2315 SP-50 | 1    |
| 320040063 | IC MX23C6410MC-10X8330ROMB:S   | KLM-2315 SP-50 | 1    |
| 320040064 | IC MX23C6410MC-10X8330ROMC:S   | KLM-2315 SP-50 | 1    |
| 320040092 | IC MX23C3210MC-10 X0370STAB(S) | KLM-2315 SP-50 | 1    |
| 324001015 | IC UPC4570G2-E2 (TS)           | KLM-2315 SP-50 | 4    |
| 324001015 | IC UPC4570G2-E2 (TS)           | KLM-2316/17/18 | 2    |
| 324003014 | IC TC7W04FU (TE12L) (TS)       | KLM-2315 SP-50 | 1    |
| 324003025 | IC TC7WU04FU (TE12L) (TS)      | KLM-2315 SP-50 | 1    |
| 324004263 | IC HD74LV157ATELL(TS)          | KLM-2315 SP-50 | 2    |
| 324005004 | IC LC321664BJ-80-TLM (TS)      | KLM-2315 SP-50 | 1    |
| 324009004 | IC NJM78L05UA-TE1 (TS)         | KLM-2315 SP-50 | 1    |
| 324011012 | IC M51953BFP-600C (TS)         | KLM-2315 SP-50 | 1    |
| 324012015 | IC MB81C4256A-60PJ-FW-EF (TS)  | KLM-2315 SP-50 | 1    |
| 324021102 | IC SN74LV08APWR (TS)           | KLM-2315 SP-50 | 2    |
| 324021103 | IC SN74LV32APWR (TS)           | KLM-2315 SP-50 | 1    |
| 324021104 | IC SN74LV74APWR (TS)           | KLM-2315 SP-50 | 1    |
| 324021105 | IC SN74LV245APWR (TS)          | KLM-2315 SP-50 | 1    |
| 324021106 | IC SN74LV139APWR (TS)          | KLM-2315 SP-50 | 1    |
| 324021112 | IC SN74LV573APWR (TS)          | KLM-2315 SP-50 | 2    |
| 324023007 | IC S-8520F50MC-B0J-T2(TS)      | KLM-2316/17/18 | 1    |
| 324036008 | IC PCM1716E/2K(TS)             | KLM-2315 SP-50 | 1    |
| 324046001 | IC T224162B-35J-TR(TS)         | KLM-2315 SP-50 | 1    |
| 330001400 | PHOTO COUPLER PC-910K          | KLM-2316/17/18 | 1    |
| 335011100 | CRYSTAL CA-301 32.00MHZ        | KLM-2315 SP-50 | 1    |
| 335012500 | CERAMIC OSC CSTLS10M0G56-B0    | KLM-2316/17/18 | 1    |
| 335400140 | CERAMIC OSC CSTCC8M00G53-R0(T  | KLM-2315 SP-50 | 1    |
| 362007500 | VR RK09K1110A0J                | KLM-2316/17/18 | 1    |
| 365007800 | SVR RS30111AC00N               | KLM-2316/17/18 | 1    |
| 365010000 | SLIDE VR EWA NA0C10A14 10KA    | KLM-2316/17/18 | 1    |

| <b>PART CODE</b> | <b>PART NAME</b>               | <b>NOTE</b>    | <b>Q'TY</b> |
|------------------|--------------------------------|----------------|-------------|
| 370005200        | REC EC11B20204(X8330/G)        | KLM-2316/17/18 | 1           |
| 374000600        | TSW EVQ11A09K (TR)             | KLM-2316/17/18 | 57          |
| 375014800        | PSW SDKLA10200                 | KLM-2316/17/18 | 1           |
| 402004600        | COIL 2943-666673               | KLM-2316/17/18 | 2           |
| 402006600        | COIL TBC0.8X18:0.3X45:0.3X27T  | KLM-2316/17/18 | 1           |
| 402007100        | COIL PLT09HN2003R0P1B          | KLM-2316/17/18 | 1           |
| 402007400        | COIL SC-0.5X10X16.5TX4R        | KLM-2316/17/18 | 1           |
| 404001050        | CHIP INDUCTOR BLM21PG600SN1D   | KLM-2316/17/18 | 1           |
| 404001070        | CHIP INDUCTOR BLM18BD102SN1D   | KLM-2315 SP-50 | 63          |
| 404001070        | CHIP INDUCTOR BLM18BD102SN1D   | KLM-2316/17/18 | 20          |
| 405011500        | AC-AC ADAPTER KA161(100V/3.0A  | SP-500 JP M.PA | 1           |
| 405011600        | AC-AC ADAPTER KA163(120V/3.0A  | SP-500 US M.PA | 1           |
| 405011700        | AC-AC ADAPTER KA169(230V/3.0A  | SP-500 UK M.PA | 1           |
| 415004000        | TOUCH PANEL KGJ-02-2/3D        | SP-500 M.PART  | 1           |
| 420006700        | KEYBOARD 88NOTE TP/31+PCB      | SP-500 M.PART  | 1           |
| 450003100        | PHONE JACK LGR4609-7000        | KLM-2316/17/18 | 4           |
| 454009100        | DIN JACK YKF51-5058            | KLM-2316/17/18 | 1           |
| 454012707        | DIN SOCKET DJ-004-C            | KLM-2316/17/18 | 1           |
| 454012722        | MINI JACK EJS-5-0435B-01       | KLM-2316/17/18 | 3           |
| 464002300        | FUSE 125V 2A SB2               | SP-500 M.PART  | 1           |
| 471101050        | CONNECTOR TOP SC25-05WS        | KLM-2315 SP-50 | 1           |
| 471101050        | CONNECTOR TOP SC25-05WS        | KLM-2316/17/18 | 1           |
| 471102030        | CONNECTOR TOP SJ20-03WX        | KLM-2316/17/18 | 1           |
| 471102040        | CONNECTOR TOP SJ20-04WX        | KLM-2315 SP-50 | 1           |
| 471102060        | CONNECTOR TOP SJ20-06WX        | KLM-2316/17/18 | 1           |
| 471102070        | CONNECTOR TOP SJ20-07WX        | KLM-2316/17/18 | 1           |
| 471102070        | CONNECTOR TOP SJ20-07WX        | KLM-2315 SP-50 | 1           |
| 471102080        | CONNECTOR TOP SJ20-08WX        | KLM-2316/17/18 | 1           |
| 471102080        | CONNECTOR TOP SJ20-08WX        | KLM-2315 SP-50 | 1           |
| 471102090        | CONNECTOR TOP SJ20-09WX        | KLM-2316/17/18 | 1           |
| 471102090        | CONNECTOR TOP SJ20-09WX        | KLM-2315 SP-50 | 1           |
| 471102130        | CONNECTOR TOP SJ20-13WX        | KLM-2316/17/18 | 2           |
| 471102140        | CONNECTOR TOP SJ20-14WX        | KLM-2316/17/18 | 2           |
| 472092040        | CONNECTOR SIDE SJ20-04WM       | KLM-2316/17/18 | 2           |
| 474019600        | CONNECTOR 2-215079-0 20P (AMP) | KLM-2315 SP-50 | 2           |
| 474034800        | CONNECTOR SMD25-20WS           | KLM-2315 SP-50 | 1           |
| 474034900        | CONNECTOR SMD25-20WL           | SP-500 M.PART  | 1           |
| 474035000        | FFC CONNECTOR SLP16R-2         | KLM-2316/17/18 | 1           |
| 475003070        | HARNESS HNS-3070               | SP-500 M.PART  | 1           |
| 475003071        | HARNESS HNS-3071               | SP-500 M.PART  | 1           |
| 475003072        | HARNESS HNS-3072               | SP-500 M.PART  | 1           |
| 475003073        | HARNESS HNS-3073               | SP-500 M.PART  | 1           |
| 475003074        | HARNESS HNS-3074               | SP-500 M.PART  | 1           |
| 475003075        | HARNESS HNS-3075               | SP-500 M.PART  | 1           |
| 475003076        | HARNESS HNS-3076               | SP-500 M.PART  | 1           |
| 475003077        | HARNESS HNS-3077               | SP-500 M.PART  | 1           |
| 475003078        | HARNESS HNS-3078               | SP-500 M.PART  | 1           |
| 475103079        | HARNESS HNS-3079 (F) (L=450MM) | SP-500 M.PART  | 2           |
| 500033100        | X-0370 SPONGE KOC-F40985       | SP-500 M.PART  | 1           |
| 500033200        | RUBBER FOOT K-23               | SP-500 M.PART  | 5           |
| 515400100        | FUSE HOLDER CNT47-0003A(TR)    | KLM-2316/17/18 | 2           |

| PART CODE | PART NAME                      | NOTE           | Q'TY |
|-----------|--------------------------------|----------------|------|
| 525001400 | FERRITE CORE F5 T 25X12X15     | SP-500 M.PART  | 3    |
| 525001600 | FERRITE CORE F5 T 31X16X19     | SP-500 M.PART  | 1    |
| 540008601 | SPIRAL CLIP CS-6               | SP-500 M.PART  | 2    |
| 540017500 | SPIRAL CLIP CP-1S              | KLM-2316/17/18 | 1    |
| 540023500 | AC PLUG ECP01 05A              | SP-500 UK M.PA | 1    |
| 550019100 | X-0370 KB FELT 4 KOC-F40987    | SP-500 M.PART  | 1    |
| 620021600 | X-825M POWER SW KNOB BK E40264 | SP-500 M.PART  | 1    |
| 620034700 | X-610 ENCODER KNOB(GRAY)E40466 | SP-500 M.PART  | 1    |
| 620038100 | X-8110 KNOB L(2 LINKAGE) H4014 | SP-500 M.PART  | 2    |
| 620038200 | X-8110 KNOB L H40148-1         | SP-500 M.PART  | 2    |
| 630034900 | X-0370 SHIELD SHEET KOC-F30090 | SP-500 M.PART  | 1    |
| 641041479 | X-013 JACK PLATE 5 KOC-C41132  | KLM-2316/17/18 | 1    |
| 641041655 | X-0370 PANEL KOC-C10266        | SP-500 M.PART  | 1    |
| 641041666 | X-0390/1310 KB BASE C41239-1   | SP-500 M.PART  | 3    |
| 641041668 | X-0370 PANEL ANGLE KOC-C41231  | SP-500 M.PART  | 2    |
| 641041669 | X-0370 REAR ANGLE KOC-C41232   | SP-500 M.PART  | 2    |
| 641041670 | X-0370 LCD ANGLE KOC-C41233    | SP-500 M.PART  | 2    |
| 641041671 | X-0370 HP ANGLE KOC-C41230     | SP-500 M.PART  | 3    |
| 641041677 | X-0370 SIDE PLATE KOC-C41249   | SP-500 M.PART  | 2    |
| 641041678 | X-0370 FRONT BAR KOC-C20370    | SP-500 M.PART  | 1    |
| 641041679 | X-0370 MUSIC STAND 2 KOC-C3057 | SP-500 M.PART  | 1    |
| 641041680 | DAMPER PEDAL VFP1/10K          | SP-500 M.PART  | 1    |
| 644009900 | NUT D TYPE M4X20               | SP-500 M.PART  | 6    |
| 645053262 | X-0370 BOTTOM BOARD KOC-D30232 | SP-500 M.PART  | 1    |
| 645053263 | X-0370 SIDE BOARD L D30231-1   | SP-500 M.PART  | 1    |
| 645053264 | X-0370 SIDE BOARD R D30231-2   | SP-500 M.PART  | 1    |
| 646045300 | X-181 MUSIC STAND HOLDER       | SP-500 M.PART  | 2    |
| 646081200 | X-8330 LCD HOOD 2 KOC-E30256-2 | SP-500 M.PART  | 1    |
| 646081300 | X-0370 4 LINKAGE KNOB-4 H40165 | SP-500 M.PART  | 4    |
| 646081400 | X-0370 4 LINKAGE KNOB-3 H40165 | SP-500 M.PART  | 1    |
| 646081500 | X-0370 4 LINKAGE KNOB-2 H40165 | SP-500 M.PART  | 11   |
| 646081600 | X-0370 4 LINKAGE KNOB-1 H40165 | SP-500 M.PART  | 5    |
| 646081700 | X-8110 KNOB L (4 LINKAGE) H401 | SP-500 M.PART  | 1    |
| 646081800 | X-8110 KNOB L H40148-9         | SP-500 M.PART  | 1    |
| 646081900 | X-610 ENCODER FRAME NO.3 E4046 | SP-500 M.PART  | 1    |
| 646082000 | X224 SVR ESCUSHION 30 NO.6     | SP-500 M.PART  | 2    |
| 646082100 | X-224 SLIDE VR KNOB NO.3 E4028 | SP-500 M.PART  | 2    |
| 646082200 | X-610 SCORE HOLDER NO.2 KOC-E1 | SP-500 M.PART  | 1    |