

RD-250_S/300_S

SERVICE NOTES

First Edition

SPECIFICATIONS

- Keyboard 76 key, E to G RD-250S
 88 key, A to C RD-300S
- Note
 16 PIANO 1, PIANO 2, PIANO 3
 VIBRAPHONE, E. PIANO 1
 10 HARPSICHORD, CLAVI, E. PIANO 2
- Tunable Range ± 15 cents
- Output Level H : +10dB, M : 0dB, L : -10dB
- Power Consumption 20W : 100V/117V
 25W : 220V/240V
- Dimensions 1242 (W) x 461 (D) x 133 (H) mm
 48-7/8 x 18-1/8 x 5-1/4 in.
 1405 (W) x 461 (D) x 133 (H) mm
 55-5/16 x 18-1/8 x 5-1/4 in. RD-300S
- Weight 29 kg / 64 lb. RD-250S
 33 kg / 72 lb. 14 oz. RD-300S

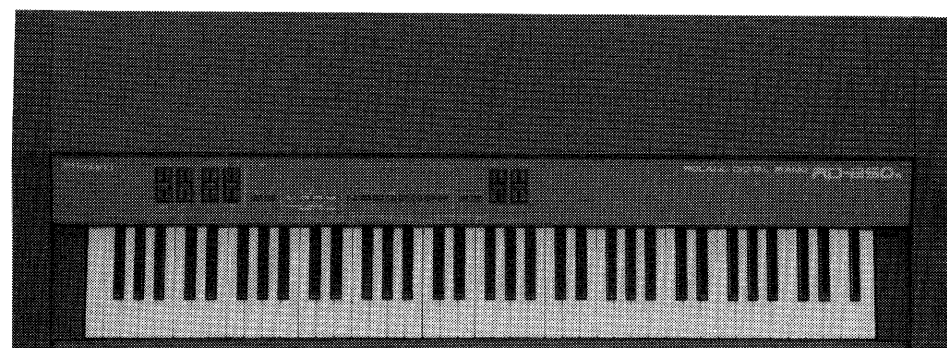


PHOTO RD-250S

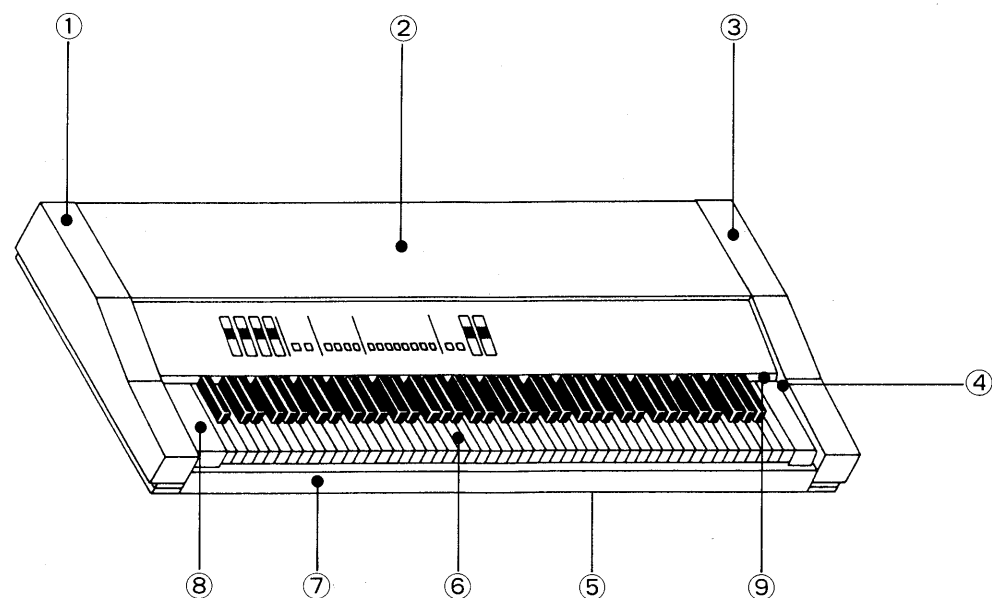
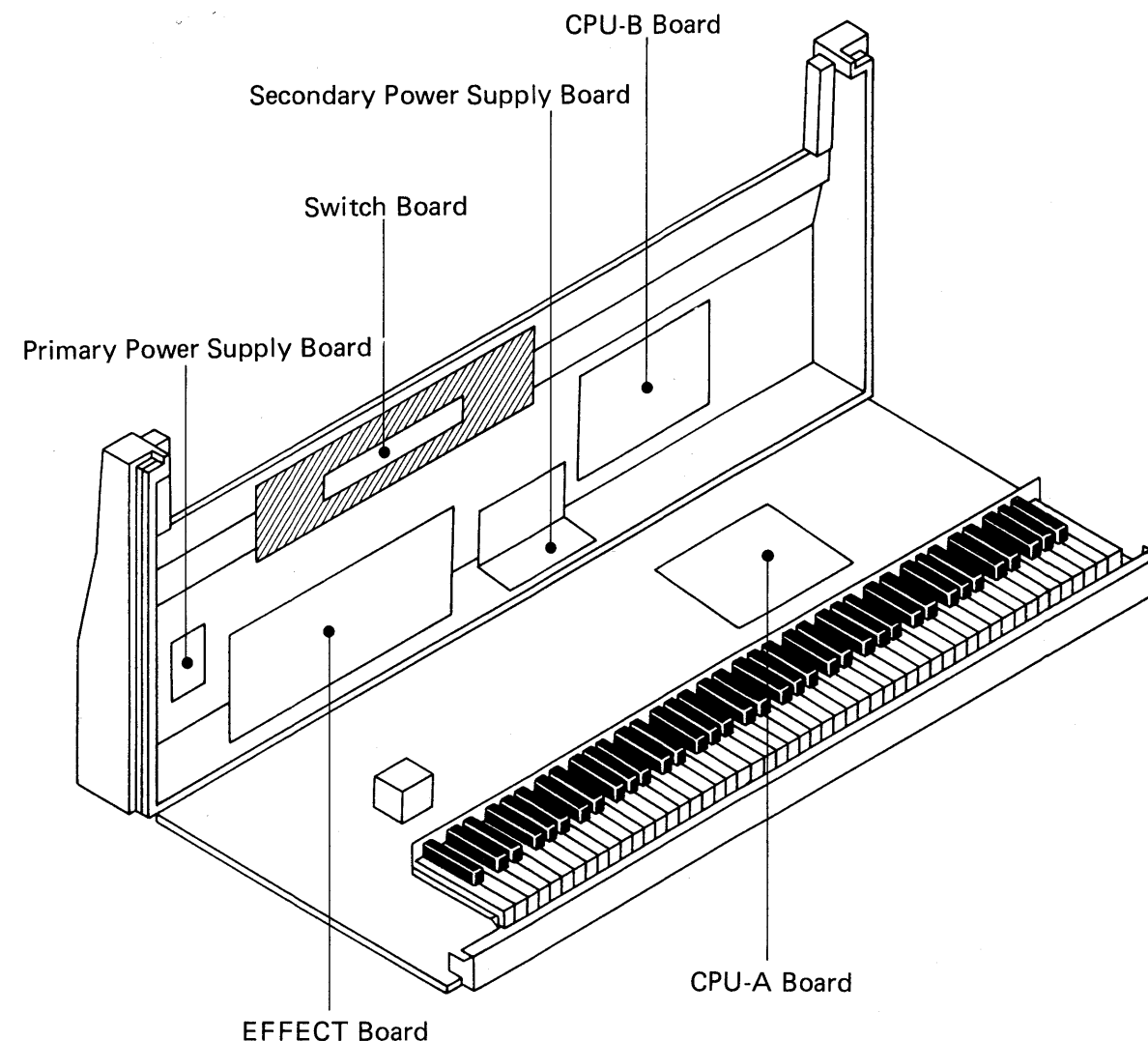
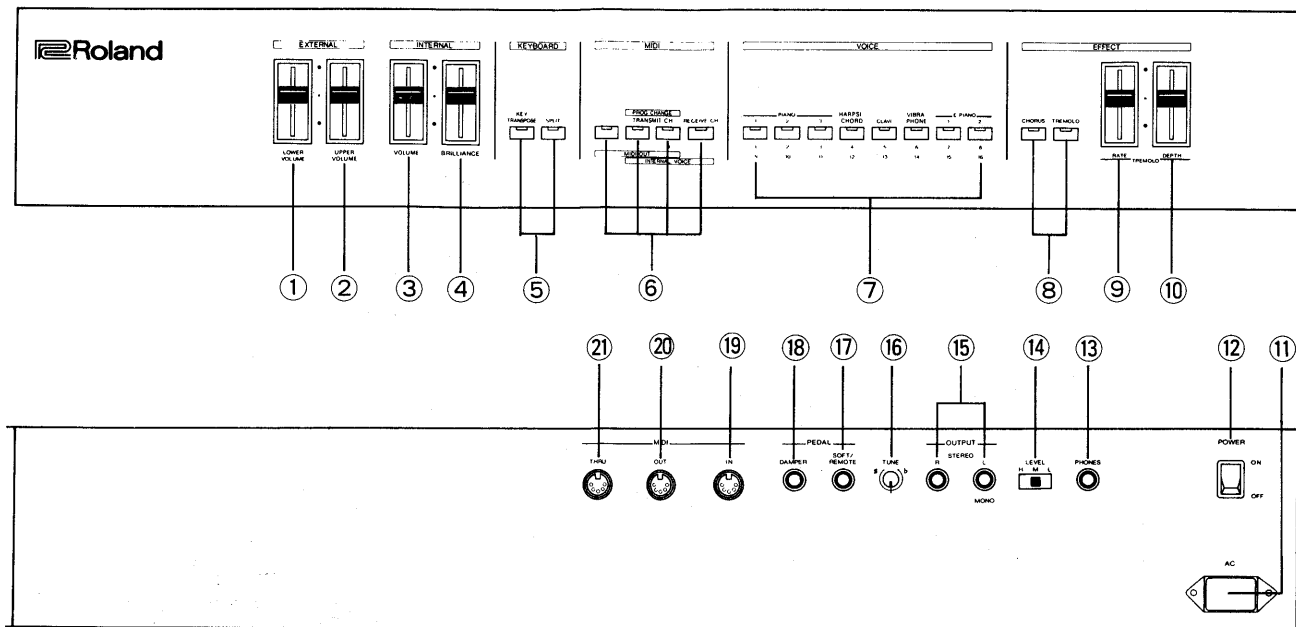


Illustration RD-300S

PCB LOCATION



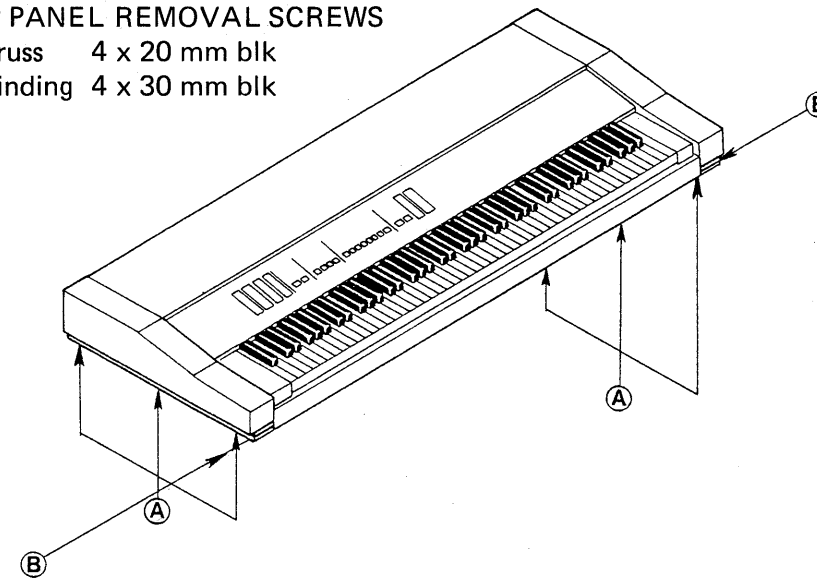
| No. | Part Number | Part Name Description | Model |
|-----|--------------------------|---|--------------------|
| ① | 21125277 | Side Panel, left 側板 左 | common |
| ② | 22215570 22215571 | Top Panel トップパネル | RD-250S RD-300S |
| ③ | 21125278 | Side Panel, right 側板 右 | common |
| ④ | 22125238 22125239 | Plate, left プレート 左 Plate, right プレート 右 | common common |
| ⑤ | 21135165 21135166 | Base 底板 | RD-250S RD-300S |
| ⑥ | 7619020000 7619120000 | Keyboard Assy SK-676EW 鍵盤完 SK-688EW | RD-250S RD-300S |
| ⑦ | 21145241 21145242 | Blind 口板 | RD-250S RD-300S |
| ⑧ | 21165130 | End Block, left/right 拍子木 右/左 | common |
| ⑨ | 22265121 | Key Felt キーフェルト | common |



DISASSEMBLY

TOP PANEL REMOVAL SCREWS

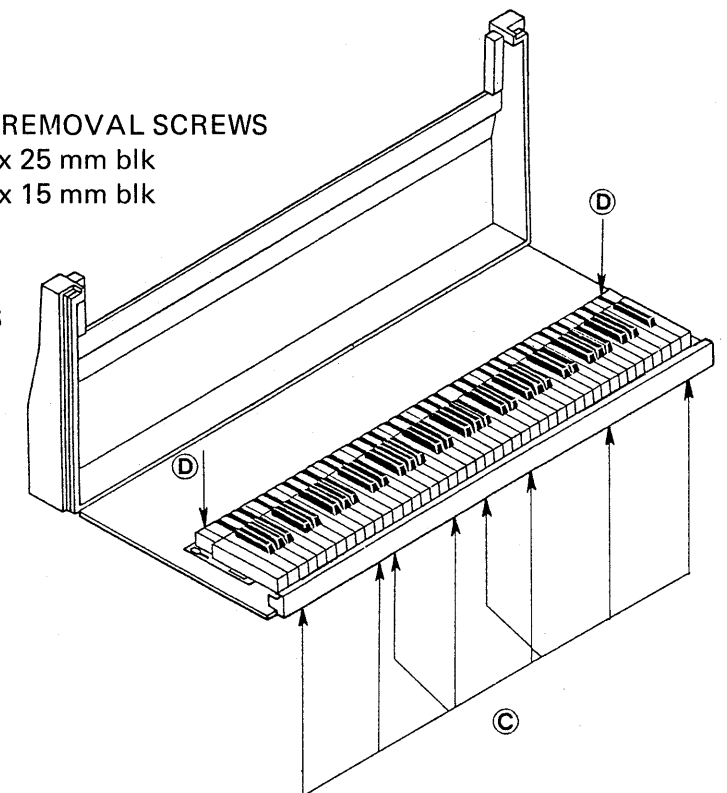
- Ⓐ Truss 4 x 20 mm blk
- Ⓑ Binding 4 x 30 mm blk



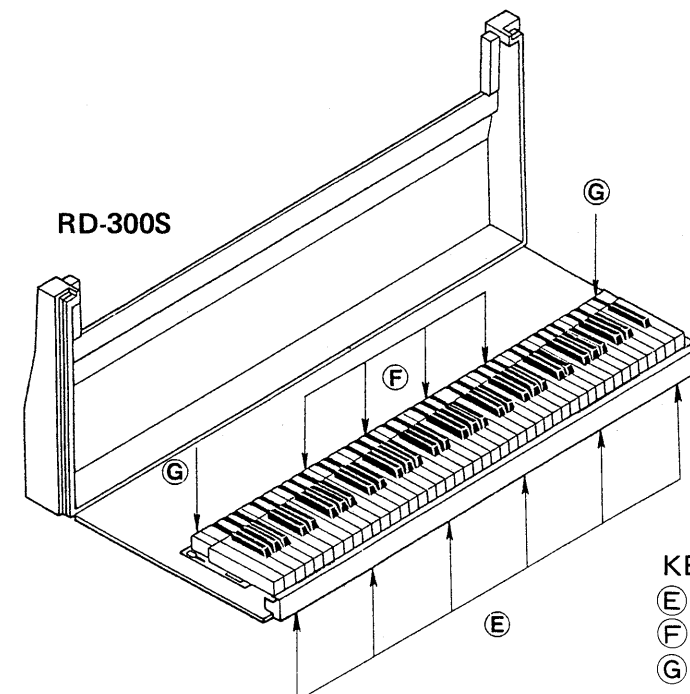
KEYBOARD REMOVAL SCREWS

- Ⓒ Truss 4 x 25 mm blk
- Ⓓ Truss 4 x 15 mm blk

RD-250S



RD-300S



KEYBOARD REMOVAL SCREWS

- Ⓔ Truss 4 x 25 mm blk
- Ⓕ Truss 4 x 15 mm blk
- Ⓖ Truss 4 x 12 mm A1 Tapping blk

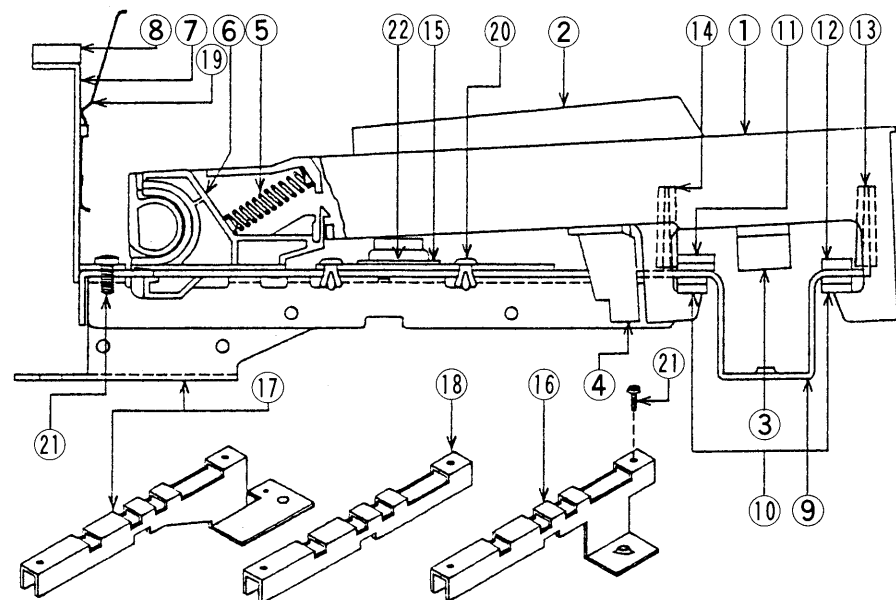
| | | | | |
|-------|----------------------------|--|--------|----------------------------------|
| ① ② | Knob Escutcheon Pot. | EWA-NFE-x15B14 | 10KB | 22485126 22225320 13339453 |
| ③ | Knob Escutcheon Pot. | EWA-NA0-x15A14 | 10KAx2 | 22485126 22225320 13359356 |
| ④ | Knob Escutcheon Pot. | EWA-NA0-x15B14 | 10KBx2 | 22485126 22225320 13359353 |
| ⑤ ⑦ ⑧ | Button Switch | black SKHHPM001 | | 22475651 13169668 |
| ⑥ | Button Switch | gray SKHHPM001 | | 22475652 13169668 |
| ⑨ | Knob Escutcheon Pot. | EWA-NFE-x15A15 | 100KB | 22485126 22225320 13339453 |
| ⑩ | Knob Escutcheon Pot. | EWA-NFE-x15A14 | 10KA | 22485126 22225320 13339454 |
| ⑪ | AC Inlet | PA-126 2P 100/117/220V CM-3 3P 240V | | 13429710 13429708 |
| ⑫ | Switch | WK2A443A | | 13149108 |
| ⑬ | Jack | YKB-21-5010 | | 13449145 |
| ⑭ | Switch | HSW0372-01-520 | | 13159322 |
| ⑮ | Jack | YKB-21-5006 | | 13449252 |
| ⑯ | Knob Encoder | EVQ-VWKF1531G | | 22485109 13279291 |
| ⑰ ⑱ | Jack | YKB21-5012 | | 13449146 |
| ⑲ ⑳ ㉑ | Socket | TCS5350-01-1111 DIN | | 13429615 |

SK-676-BW
761902000
RD-250S

SK-688-EW
7619120000
RD-300S

| NO. | PART NO. | PART NAME | RD-250S | RD-300S |
|-----|----------|-------------------------------------|---------|---------|
| ① | 22575202 | NATURAL KEY A 白鍵 | ○ | ○ |
| | 22575203 | NATURAL KEY B | | |
| | 22575204 | NATURAL KEY C | | |
| | 22575205 | NATURAL KEY D | | |
| | 22575206 | NATURAL KEY E | | |
| | 22575207 | NATURAL KEY F | | |
| | 22575208 | NATURAL KEY G | | |
| | 22575209 | NATURAL KEY A' | | |
| | 22575210 | NATURAL KEY C' | | |
| | 22575231 | NATURAL KEY E' | | |
| | 22575232 | NATURAL KEY G' | | |
| | ② | 22575211 | | |
| ③ | 22565335 | NATURAL KEY WEIGHT 白鍵用オモリ | | |
| ④ | 22565253 | SHARP KEY WEIGHT 黒鍵用オモリ | | |
| ⑤ | 22175178 | KEY SPRING キースプリング | ○ | ○ |
| ⑥ | 22195847 | NATURAL KEY HOLDER 白鍵用ホルダ | | |
| | 22195848 | SHARP KEY HOLDER 黒鍵用ホルダ | | |
| ⑦ | 22125578 | PANEL ANGLE パネルアングル | | |
| ⑧ | 22265478 | PANEL ANGLE CUSHION Aクッション A | | |
| ⑨ | 22815536 | CHASSIS 88P シャーシ 88P | | |
| ⑩ | 22265472 | FELT STRIP 88P フェルト 88P | | |
| ⑪ | 22265476 | FELT STRIP 88P | | |
| ⑫ | | | | |
| ⑬ | 22155747 | GUIDE BUSHING A ガイドブッシュ A | | ○ |
| ⑭ | 22155748 | GUIDE BUSHING B ガイドブッシュ B | | ○ |
| ⑮ | 76183220 | PCB 24P ASSY LOW | | |
| | 76183230 | PCB 32P ASSY MID | | |
| | 76183240 | PCB 32P ASSY HI | | |
| ⑯ | | including: RUBBER SWITCH SHEET (22) | | |
| ⑩ | 22815574 | CHASSIS 76P シャーシ 76P | | |
| ⑪ | 22265475 | FELT STRIP 76P フェルト 76P | | |
| ⑫ | 22265477 | FELT STRIP 76P フェルト 76P | | |
| ⑬ | 22155747 | GUIDE BUSHING A ガイドブッシュ A | ○ | |
| ⑭ | 22155748 | GUIDE BUSHING B ガイドブッシュ B | ○ | |
| ⑮ | 76188220 | PCB 24P ASSY LOW | | |
| | 76188230 | PCB 24P ASSY MID | | |
| | 76188240 | PCB 28P ASSY HI | | |
| ⑯ | | including: RUBBER SWITCH SHEET (22) | | |
| ⑰ | 22035142 | STAND | | |
| ⑱ | 22035133 | STAND スタンド | | |
| ⑲ | 22125571 | ANGLE BRACKET アングル | | |
| ⑳ | 22175502 | PANEL ANGLE SPRING パネルアングルスプリング | ○ | ○ |
| ㉑ | --- | NYLON RIVET 3x5.5mm ナイロンリベット | | |
| ㉒ | --- | TAPPING SCREWS 3x8mm タッピングビス | | |
| ㉓ | 22185224 | RUBBER SWITCH SHEET | | |

* Not all contacts on the switch sheet are same. See description on the right. キースイッチシート②は、白鍵、黒鍵用で異なります。右の説明参照



SK-6 Rubber Switch Sheet
Difference Between Natural and Sharp Contacts – Height –

With rubber switch 12 PW218-224 for SK-6 keyboard, natural-key and sharp-key contacts are made to different dimensions. See the figures below and note the height of contacts.

When replacing contacts, attach the sheet in place, i.e. match characters with keys. Do not cut the sheet at a point other than V-cut with a groove.

NOTE

Replacement SK-6 keyboard and replacement contact PCB are equipped with a complete set of rubber sheets. Sheets are also available as separate replacement.

SK-6用キースイッチシート(ゴム)
白鍵接点と黒鍵接点の相違点……高さ……

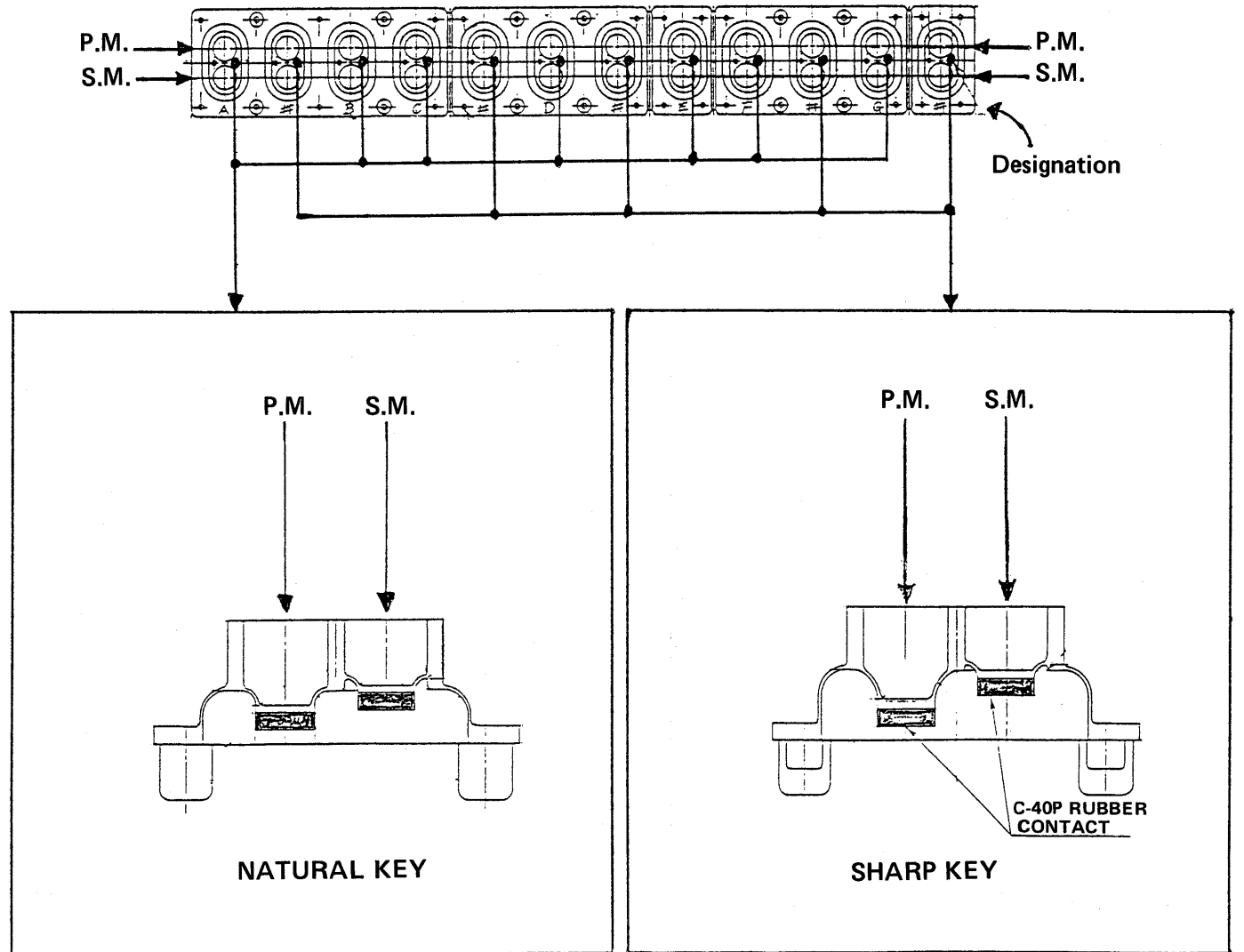
SK-6 鍵盤用のゴムシートスイッチ 12 PW218-224 の白鍵部と黒鍵部は寸法が異なります。下図に示すごとく、接点高さが主要な相違点です。

接点を交換する際はシート上の記号通りに配置し、切離す場合は溝部分で切断して下さい。

注

SK-6 完又はスイッチPCB完にはスイッチシートが取付済です。

ただし、スイッチシート単体でも発注可能です。



PARTS LIST**CABINET** キャビネット

| | | | |
|------------|------------------|----------------|---------|
| 21135165 | Base | 底板 | RD-250S |
| 21135166 | Base | 底板 | RD-300S |
| 21145241 | Blind | 口板 | RD-250S |
| 21145242 | Blind | 口板 | RD-300S |
| 22215570 | Top Panel | パネル | RD-250S |
| 22215571 | Top Panel | パネル | RD-300S |
| 22125238 | Plate | left プレート 左 | |
| 22125239 | Plate | right プレート 右 | |
| 21125277 | Side Panel | left 側板 左 | |
| 21125278 | Side Panel | right 側板 右 | |
| 21165130 | End Block | 拍子木 | |
| 22325130 | Hinge | ヒンジ | |
| 22265121 | Key Felt | キー・フェルト | |
| 22225320 | Escutcheon | エスカッション | |
| 12359105 | Rubber Foot | ゴム足 | |
| 22245447 | Slide Pot. Cover | スライド・ボリューム・カバー | |
| 2224010200 | Switch Mask | スイッチ・マスク | LEVEL |
| 22465492 | Heat Sink | ヒート・シンク | |
| 22195894 | Jack Holder | ジャック・ホルダー | |
| 22195837 | DIN Holder | DIN・ホルダー | |

PCB ASSEMBLY 基板完成品

| | | | |
|------------|-----------------------------------|-------------------------|---------|
| 7619006000 | CPU-A Board Assy | CPU-A基板完 (pcb 22925394) | RD-250S |
| 7619106000 | CPU-A Board Assy | CPU-A基板完 (pcb 22925394) | RD-300S |
| 7617512000 | CPU-B Board Assy | CPU-B基板完 (pcb 22925348) | |
| 7617517000 | Switch Board Assy | スイッチ基板完 (pcb 22925393) | 1/2 |
| 7617514000 | Effect Board Assy | エフェクト基板完 (pcb 22925392) | |
| 7617504100 | Primary Power Supply Board Assy | | |
| | 一次電源基板 | 100/117V (pcb 22925395) | |
| 7617504400 | | 220/240V (pcb 22925395) | |
| 7617533100 | Secondary Power Supply Board Assy | | |
| | 二次電源基板 | 100/117V (pcb 22925353) | 1/2 |
| 7617533400 | | 220/240V (pcb 22925353) | 1/2 |

KNOB, BUTTON ツマミ, ボタン

| | | | |
|----------|--------|-------------|-------------------------------------|
| 22485126 | Knob | ツマミ | VOLUME; BRILLIANCE; TRE. RATE/DEPTH |
| 22485109 | Knob | ツマミ | TUNE |
| 22475651 | Button | ボタン 黒 black | |
| 22475652 | Button | ボタン 灰 gray | |

JACK, SOCKET ジャック, ソケット

| | | | |
|----------|-----------------|-------------------|---------------------|
| 13449146 | YKB21-5012 | mono (モノ) | DAMPER; SOFT/REMOTE |
| 13449145 | YKB21-5010 | stereo (ステレオ) | PHONES |
| 13449252 | YKB21-5006 | stereo (ステレオ・SW付) | OUTPUT L/R |
| 13429615 | TCS5350-01-1111 | DIN socket | MID IN/OUT/THRU |

AC INLET AC インレット

| | | | |
|----------|--------|----|--------------|
| 13429710 | PA-126 | 2P | 100/117/220V |
| 13429708 | CM-3 | 3P | 240V |

SWITCH スイッチ

| | | | |
|----------|----------------|-------------|-------------------------|
| 13149108 | WK2A443A | | POWER |
| 13169668 | SKHHPM001 | light touch | Switch Board |
| 13159322 | HSW0372-01-520 | slide | OUTPUT LEVEL |
| 13159137 | SSSS21067A | slide | TEST/NORM (CPU-A board) |

POWER TRANSFORMER 電源トランス

| | | |
|------------|-----------|------------------|
| 22455460U0 | 245-460U0 | 100/117/220/240V |
|------------|-----------|------------------|

AC CORD (Detachable) ACコード(脱着式)

| | | |
|------------|---------------|--------------------|
| 13439825 | DC-320-J01 | 100V (Japan) |
| 13439812F0 | UC-704-J01 | 117V |
| 13439813F0 | EC-210-J06 | 220V |
| 23495110 | 5722-660-4606 | 240V-E (England) |
| 13439814F0 | SC-415-J06 | 240V-A (Australia) |

FUSE, FUSE HOLDER ヒューズ, ヒューズ・ホルダー

| | | |
|----------|-----------------|-----------------------|
| 12559400 | UL TSC 2A-N1 | sec. 100/117V |
| 12559397 | UL TSC 800mA-N1 | sec. 100/117V |
| 12559514 | CEE T2A | sec. 220/240V |
| 12559509 | CEE T315mA | sec. 220/240V |
| 12559396 | UL TSC 630mA-N1 | pri. 100/117V |
| 12559507 | CEE T200mA | pri. 220/240V |
| 12199550 | H0446 | fuse holder ヒューズ・ホルダー |

POTENTIOMETER ボリューム

| | | | |
|----------|----------------|--------------|------------------------|
| 13359356 | EWA-NAO-x15A14 | 10KAx2 | VOLUME |
| 13359353 | EWA-NAO-x15B14 | 10KBx2 | BRILLIANCE |
| 13339455 | EWA-NFE-x15B14 | 10KB | EXT LOWER/UPPER VOLUME |
| 13339453 | EWA-NFE-x15A15 | 100KB | TREMOLO RATE |
| 13339454 | EWA-NFE-x15A14 | 10KA | TREMOLO DEPTH |
| 13299177 | RHE0A140XA | 10KB Trimmer | |

TRANSISTOR トランジスタ

| | | |
|----------|-----------|-----------------|
| 15119134 | 2SA933S | |
| 15129153 | 2SC1740S | |
| 15139123 | 2SK184 | |
| 15119139 | DTA144E | w/bias resistor |
| 15129168 | DTC124E | w/bias resistor |
| 15139121 | 2SK117 GR | FET |
| 15119184 | 2SB1015-0 | |
| 15129834 | 2SD1408-0 | |
| 15129152 | 2SC2878A | |
| 15139124 | 2SD363 | FET |

DIODE ダイオード

| | | |
|------------|------------|---------|
| 15019152T0 | ISS176 | |
| 15029152 | GL-9HD12 | LED red |
| 15019290 | DBA40C-K15 | |
| 15019272 | 2B4B41-LC2 | |
| 15019208 | 1SR35-200 | |
| 15019412 | MTZ4.7B | |
| 15019103T0 | 1S2473 | |

RESISTOR ARRAY 抵抗アレイ

| | | |
|------------|-------------|-----------------|
| 13919153M0 | RGLD5x103J | 10K x 5 |
| 13919140 | RGLD8x103J | 10K x 8 |
| 13919311M0 | RGLD8x223J | 22K x 8 |
| 13919316 | RGLD4x472J | 4.7K x 4 |
| 13919113 | RGLD4x103J | 10K x 4 |
| 13919308M0 | RGLD6x103J | 10K x 6 |
| 13919181 | RGLD10x153J | 15K x 10 |
| 13919180 | RGLD12x153J | 15K x 12 |
| 13919142 | RGLD8x104J | 100K x 8 |
| 13919118 | RGSD16L104G | ladder resistor |

| IC | | | |
|------------|--------------------|--|-----------------------------|
| 15179203 | HD63803RP | CPU | |
| 15229830 | MB63H149 | gate array | CPU-A board IC 10 |
| 15179343FO | MB8416A-12-SK-G | 2Kx8 bit static RAM | |
| 15179815 | TMM2764D-815 ROM A | 2Kx8 bit EPROM | CPU-A board IC 15 |
| 15179794 | TMM2764D-794 ROM B | 2Kx8 bit EPROM | CPU-B board IC 17 |
| 15179834 | M5M2364-316P ROM C | 2Kx8 bit MASK ROM | CPU-B board IC 11 |
| 15179810 | TC531000P-7465 | 1Kx8 bit MASK ROM | WAVE AO CPU-B board IC 7 |
| | or | | |
| 15179810FO | MB831000-20P-G-471 | | |
| 15179811 | TC531000P-7466 | 1Kx8 bit MASK ROM | WAVE B0 CPU-B board IC 6 |
| | or | | |
| 15179811FO | MB831000-20P-G-472 | | |
| 15179812 | TC531000P-7467 | 1K-8 bit MASK ROM | WAVE C0 CPU-B board IC 5 |
| | or | | |
| 15179812FO | MB831000-20P-G-473 | | |
| 15179838 | MB831000-20P-G-474 | 1Kx8 bit MASK ROM | CPU-B board IC 18 |
| 15159503 | TC40H000P | quad 2 input NAND gate | |
| 15159505 | TC40H004P | hex inverter | |
| 15159514 | TC40H032P | quad 2 input OR gate | |
| 15159506 | TC40H138P | 2 to 8 line decoder/demultiplexer | |
| 15159511 | TC40H174P | hex D type flip-flop | |
| 15159530 | TC40H367P | hex bus buffer | |
| 15159508 | TC40H373P | octal D type latch (3 state output) | |
| 15159531 | TC40H374P | octal D type flip-flop (3 state output) | |
| 15159519 | TC40H157P | quad 2 to 1 line selector/multiplexer | |
| 15169359X0 | SN74LS541N | octal buffers and line drivers (3 state output) | |
| 15189158 | μPC-4082C | operational amplifier | |
| 15189111J1 | NJM-311D | operational amplifier | |
| 15189189 | μPC4570HA | operational amplifier | |
| 15189148 | NJM072S | operational amplifier | |
| 15189190 | M5216L | operational amplifier | |
| 15159115TO | TC4066BP | quadruple bilatch switch | |
| 15199106NH | μPC7805H | +5 voltage regulator | |
| 15199117 | M5230L | voltage regulator | |
| 15169334HO | HD74LS05 | hex inverter with open collector output | |
| 15159303TO | TC4584BP | hex schmitt trigger | |
| 15219163 | NE572 | programmable analog compander | |
| 15219179 | M5206P | dual voltage controlled amplifier | |
| 15219205 | MN3007 | 1024-stage BBD | |
| 15169504 | MN3101 | BBD driver | |
| 15229706S0 | PC-910 | Optoisolator | |
| 15229837 | MB60VH142PF-G-B | gate array | R06-001 |
| 15229838 | MB60V141PF-G-B | gate array | R06-002 |
| 15229839 | MB61V125PF-G | gate array | R06-003 |
| 15179734 | MB7138H | bipolar plain output PROM | |
| 15219162 | PCM54HP | 16 bit D/A converter | |
| 15169301HO | HD74LS00P | quadruple 2-input positive NAND gate | |
| 15219174 | NJU201AD | quad spst analog switch | |

CAPACITOR ARRAY コンデンサ・アレイ

| | | |
|----------|--------------|-------|
| 13529118 | B5RC0139-32N | 22Px4 |
| 13529113 | B7ZC0724-32N | 22Px6 |
| 13529115 | EXFP8101MN | |

CRYSTAL 発振子

| | | |
|----------|---------|---------|
| 12389747 | HC-49/U | 16MHz |
| 12389751 | HC-49/U | 12.8MHz |

COLLAR/BUSHING カラー/ブッシュ

| | | | |
|----------|---------|--------|----|
| 12159715 | TB-300 | male | オス |
| 12159713 | TA-305P | female | メス |
| 12159733 | TA-310 | female | メス |

CAPACITOR コンデンサ

| | | | |
|------------|----------------|------------|---------------------|
| 13659201 | ECET16R682SW | 6800μF/16V | |
| 13659222M0 | ECET35R222SW | 2200μF/35V | |
| 13529104 | DE7150F472MVAI | 0.0047μF | ラインバイパス line bypass |

ROTARY ENCODER ロータリーエンコーダ

| | | |
|----------|---------------|------|
| 13279291 | EVQ-WVKF1531G | TUNE |
|----------|---------------|------|

KEYBOARD ASSY 鍵盤

| | | |
|------------|-----------|---------|
| 7619020000 | SK-676-BW | RD-250S |
| 7619120000 | SK-688-BW | RD-300S |

MISCELLANEOUS その他

| | | | |
|----------|-----------------|-------------|------------|
| 22445240 | Ferrite Bead | BL02RN2-R62 | フェライト・ビーズ |
| 12449269 | Low-pass Filter | 0538-014 | ローパス・フィルター |

SK-6 KEY REMOVAL LEVER

A lever as shown in Fig. 1 is required in SK-6 key removal.

Consult your local Roland service center for availability. If not available, make a lever following the instructions described below.

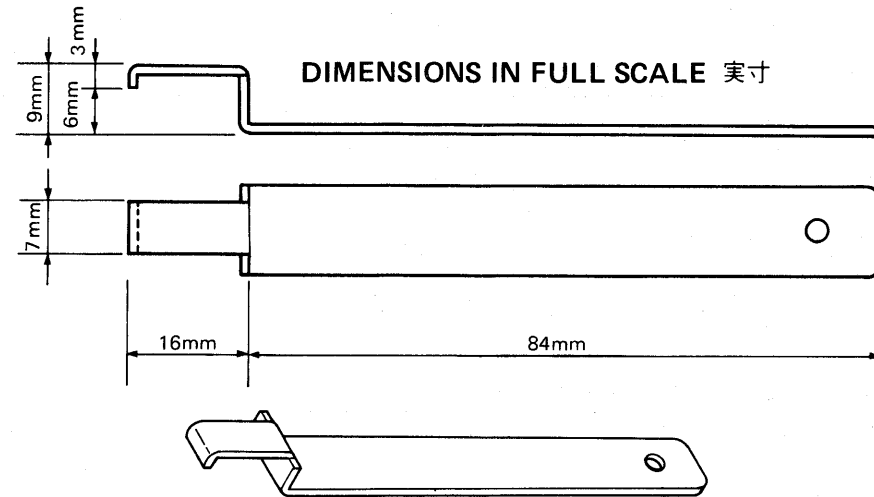


Fig. 1

SUBSTITUTIVE LEVER

1. Prepare a length of wire (more than 95mm or 3.8 in.). A paper clip is a most typical one.
2. (If a coiled wire as example of a paper clip.) Uncoil and straighten the wire.
3. Reshape the wire to Fig. 2, with the dimensions exactly matching the values given in the figure.
4. Prepare a separate key (may be a replacement to be used, natural or black.).
5. Grasp key and key holder at ① in Fig. 3 with thumb and forefinger to allow the holder goes to the bottom. Retain tension on holder at this point. And insert the key removal lever into key to hook the latch lock. ② in Fig. 3.
6. Release key holder. When the holder remains locked, ②, the lever you made now passes the acceptance test, and ready to work on the keyboard.

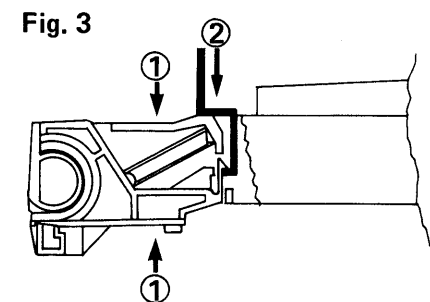
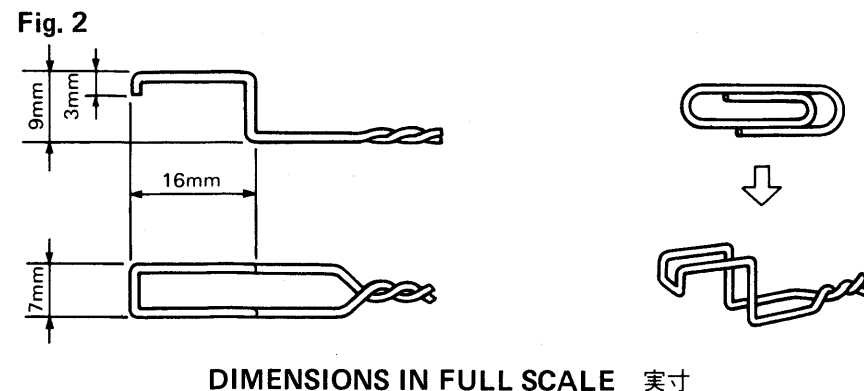


Fig. 3



DIMENSIONS IN FULL SCALE 実寸

SK-6 取外しレバー

SK-6の鍵盤からキーを取外すにはFig.1に示す様なレバーが必要です。入手に関してはローランドのサービスセンターへお問合せ下さい。

レバーの作製手順

- 取外しレバーが無い場合は下記要領で作製して下さい。
1. 針金(ゼムクリップ等、長さは95mm以上)を準備する。
 2. この針金をFig.2のサイズに合わせて折り曲げる。
 3. 補修用のキー(白鍵もしくは黒鍵)1個を用意する。
 4. Fig.3の①の部分をつかみキーホルダを押え込む。この状態で針金の先端がキーホルダのツメに引っかける様にキー上部から挿入する②。キーホルダから手を離す。Fig.3の様にキーホルダがロックされた状態ならOKです。

SK-6 KEY REMOVAL**Natural Key (Fig. 1)**

1. Depress and hold the key at the front end ① and then insert key removal lever ② so that its tip goes below the latch lock. Leave the lever in this state.
2. While lifting up the key front with one hand ③, press the rear end of the key to more the key toward front of the unit. ④.

Black Key

1. Follow step in 1 above.
2. Lift key at front ③ and then move it toward the rear of the unit ⑤.

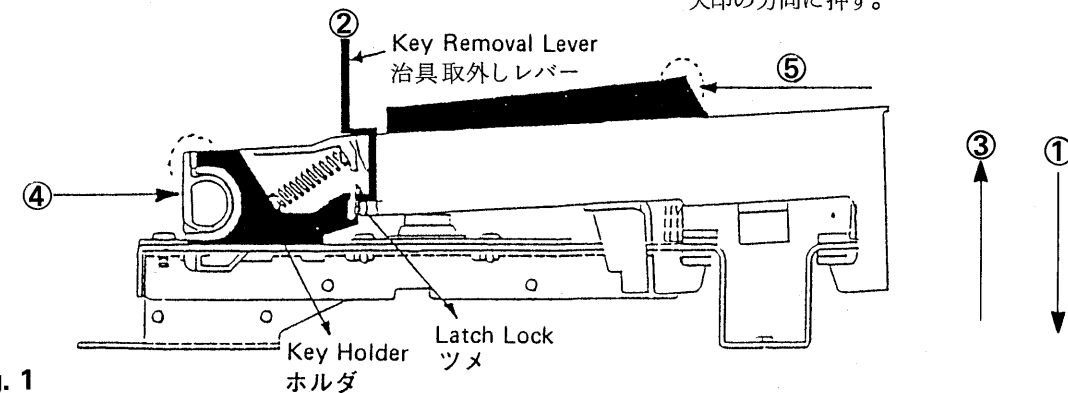


Fig. 1

SK-6 KEY REASSEMBLY

* Mounting a key does not require the key removal lever.

Natural Key/Black Key (Fig. 2)

1. Finger-pinch the key and key holder at ①. Press and release the button on the holder and verify the smooth operation. Pressing the holder to the bottom makes a mechanical noise. This will not occur once installed on the keyboard whose mechanism prevents extensive key swing. Refer to "Hints On Key Mounting", as necessary.
2. Engage the forward hook on the key in the key chassis bracket ②.
- 3a. Natural Key
Depress the key on the rear and move it toward the rear of the unit until key holder tip engages chassis notch.. ③.
- 3b. Black Key
Depress the key on the rear and move it toward the front of the unit until the blade on the key engages chassis notch. ④.
4. Check the key for noise and dragging. For corrective adjustment, if necessary, refer to "Hints On Key Mounting".

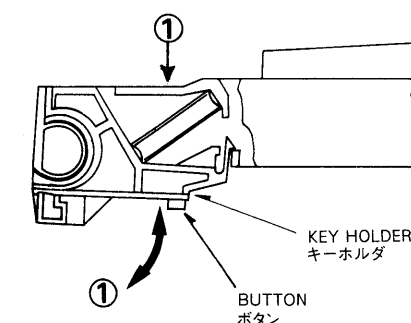


Fig. 2

SK-6 キー取外し方 (Fig.1)**白鍵**

1. (取外す)キーを押しながら“鍵盤取外し治具”をキーホルダのツメに引っかける様に挿入する②。
2. キーの前端を持ち上げながら③、キーの後端を④の矢印方向に押す。

黒鍵

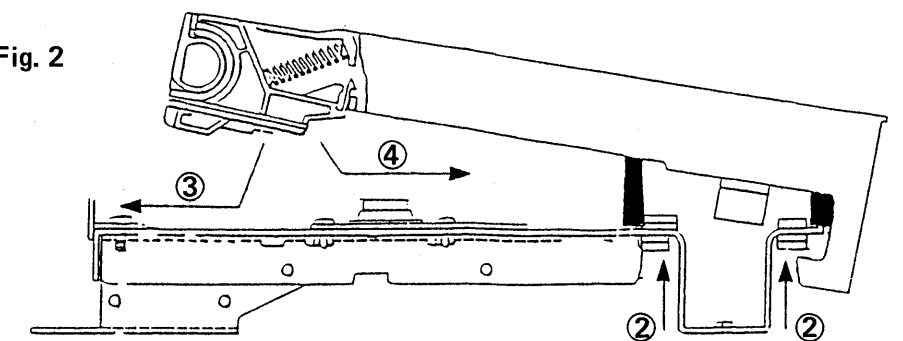
1. 白鍵“1”と同様に治具を挿入し、治具から手を離す。
2. キーの前端を持ち上げ、この状態で⑤の点線部分を矢印の方向に押す。

SK-6 キー取付け方 (Fig.2)

*取付け時には、治具を必要としません。

白鍵,黒鍵

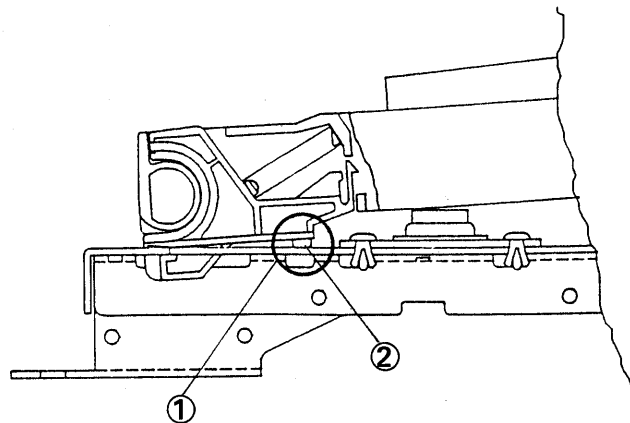
1. キーの①の部分をつかみ、下部のホルダを数回出し入れして異音の有無と動きのスムーズさをチェックする。強く押すとホルダの当たる音があるが、実際に鍵盤に取付けた場合は生じない。異常のある場合は“キー交換上のヒント”参照。
2. キーの前端を②の様にガイドに当てる。
- 3a. 白鍵
キーの後端を下へ押しつけながら③の方向にスライドさせる。
- 3b. 黒鍵
キーの後端を下へ押しつけながら④の方向にスライドさせる。
4. 異音が出たり、タッチが重すぎる場合は“キー交換上のヒント”参照。



**Hints On Key Mounting
Key Noise (Figs. 1 and 2)**

1. There is a possibility that a virgin key makes a noise as it is played. This is because the rough button ② on the key cannot fit into chassis hole, leaving clearance ① between key bottom and chassis smooth away button outer surface.

Fig. 1



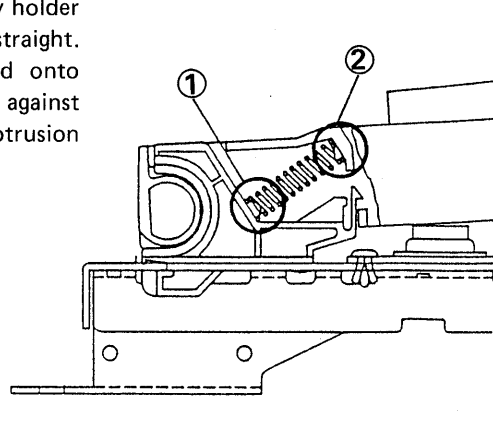
キー交換上のヒント

◎キー異音の場合 (Fig.1,2)

1. この原因となるのは、ホルダとシャーン間に隙間①があるためです。キーが新しい場合はキーホルダの②の部分になじみが無いため、2、3回シャーンの穴に抜き差しするとスムーズに入ります。

2. The spring, having been not properly inserted onto protrusion(s) ①, ② on the key holder, may make a noise or cause disturbed key stroke. To check the spring first remove the key, then open the key holder . . . grasp holder around the button and pull straight. To reinsert the spring, first slip spring end onto protrusion ①. Leave the spring as it rests against holder by its gravity. Align spring end with protrusion ② and close the holder.

Fig. 2

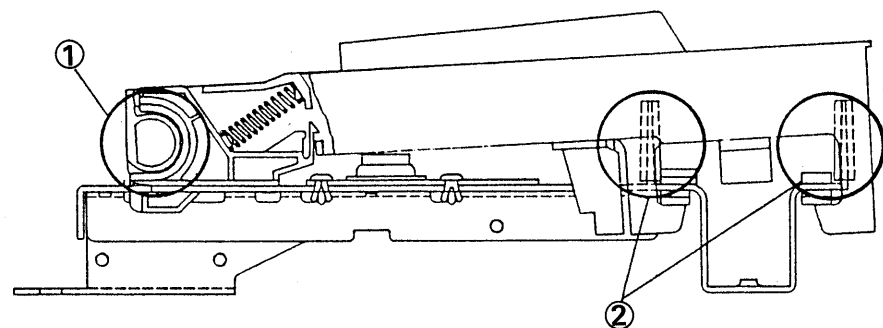


2. 下図の凸部①, ②にスプリングがきちりはまっていないと異音、スプリング重さの原因となります。

Dragging Key (Fig. 3)

A torque grease is applied to portion ①. Wiping off a coat of grease makes key touch lighter. NOTE: A different kind of grease is used on portions ②.

Fig. 3



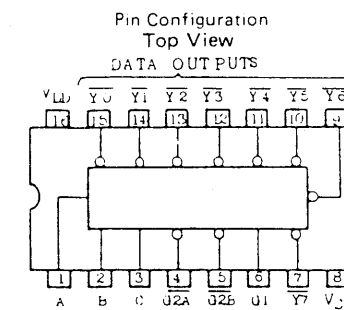
① Torque grease トルクグリス (G-424F type)
② Machine grease 機構グリス (G-336A type)

◎キーが比較的重い場合 (Fig.3)

下図①にはトルクグリスが使用されています。これを少し拭きとるとキータッチが軽くなります。(参考: なお、②にもグリスが使用されていますが、これは種類が異なります。)

IC DATA

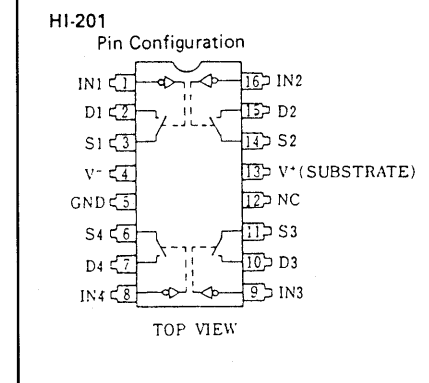
TC40H138P 3-TO-8-LINE DECODER/DEMULTIPLEXER



Truth Table

| INPUTS | | | OUTPUTS | | | | | | | | |
|--------|--------|-----|---------|----|----|----|----|----|----|----|----|
| ENABLE | SELECT | | | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 |
| U1 | U2A | U2B | A | B | C | | | | | | |
| L | * | * | * | * | * | H | H | H | H | H | H |
| * | H | * | * | * | * | H | H | H | H | H | H |
| * | * | H | * | * | * | H | H | H | H | H | H |
| H | L | L | L | L | L | L | H | H | H | H | H |
| H | L | L | L | L | L | L | L | H | H | H | H |
| H | L | L | L | L | L | L | L | L | H | H | H |
| H | L | L | L | L | L | L | L | L | L | H | H |
| H | L | L | L | L | L | L | L | L | L | L | H |
| H | L | L | L | L | L | L | L | L | L | L | L |

*: Don't care



MB63H149 Pin Assignment

| Pin no. | I/O | Pin name | Pin no. | I/O | Pin name | Pin no. | I/O | Pin name | Pin no. | I/O | Pin name |
|---------|-----|----------|---------|-----|----------|---------|-----|----------|---------|-----|----------|
| 1 | O | T7 | 21 | I | BR9 | 41 | I/O | CD7 | 61 | O | RA1 |
| 2 | I | BR0 | 22 | I | HK9 | 42 | I | CA8 | 62 | O | RA10 |
| 3 | I | MR0 | 23 | I | BR10 | 43 | I | CA9 | 63 | O | RA2 |
| 4 | I | BR1 | 24 | I | HK10 | 44 | I | CA10 | 64 | I/O | ROE |
| 5 | I | MR1 | 25 | I | RES | 45 | I | CS | 65 | O | RA3 |
| 6 | I | BR2 | 26 | I/O | EXCK | 46 | I | XT1 | 66 | O | RWE |
| 7 | I | MR2 | 27 | I | E | 47 | O | XT2 | 67 | O | RA4 |
| 8 | I | BR3 | 28 | O | INT | 48 | O | ASEL | 68 | O | RA9 |
| 9 | I | MR3 | 29 | I | AS | 49 | I | MOD1 | 69 | O | RA5 |
| 10 | I | BR4 | 30 | O | CRES | 50 | I | MOD2 | 70 | O | RA8 |
| 11 | I | MR4 | 31 | I | CRNW | 51 | I/O | RD3 | 71 | O | RA6 |
| 12 | - | VSS | 32 | O | SRCK | 52 | - | VSS | 72 | - | VDD |
| 13 | I | BR5 | 33 | - | VDD | 53 | I/O | RD4 | 73 | - | VDD |
| 14 | I | MR5 | 34 | I/O | CD0 | 54 | I/O | RD2 | 74 | - | T0 |
| 15 | I | BR6 | 35 | I/O | CD1 | 55 | I/O | RD5 | 75 | O | T1 |
| 16 | I | MR6 | 36 | I/O | CD2 | 56 | I/O | RD1 | 76 | O | T2 |
| 17 | I | MR6 | 36 | I/O | CD3 | 57 | I/O | RD6 | 77 | O | T3 |
| 18 | I | MR7 | 37 | I/O | CD4 | 58 | I/O | RD0 | 78 | O | T4 |
| 19 | I | BR8 | 38 | I/O | CD5 | 59 | I/O | RD7 | 79 | O | T5 |
| 20 | I | MR8 | 39 | I/O | CD6 | 60 | O | RA0 | 80 | O | T6 |

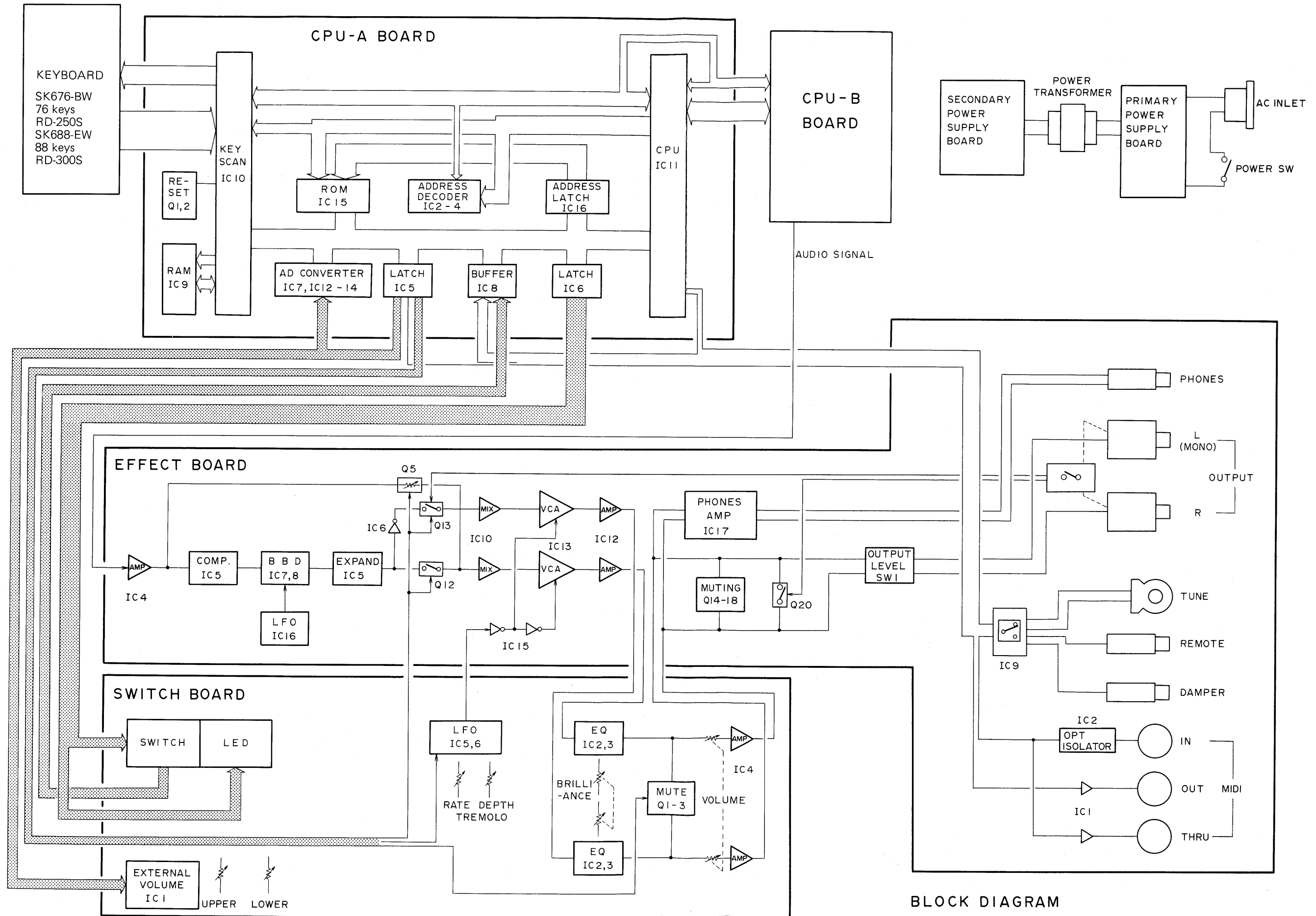
HD63B03RP Pin Configuration (Top View)

Block Diagram

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

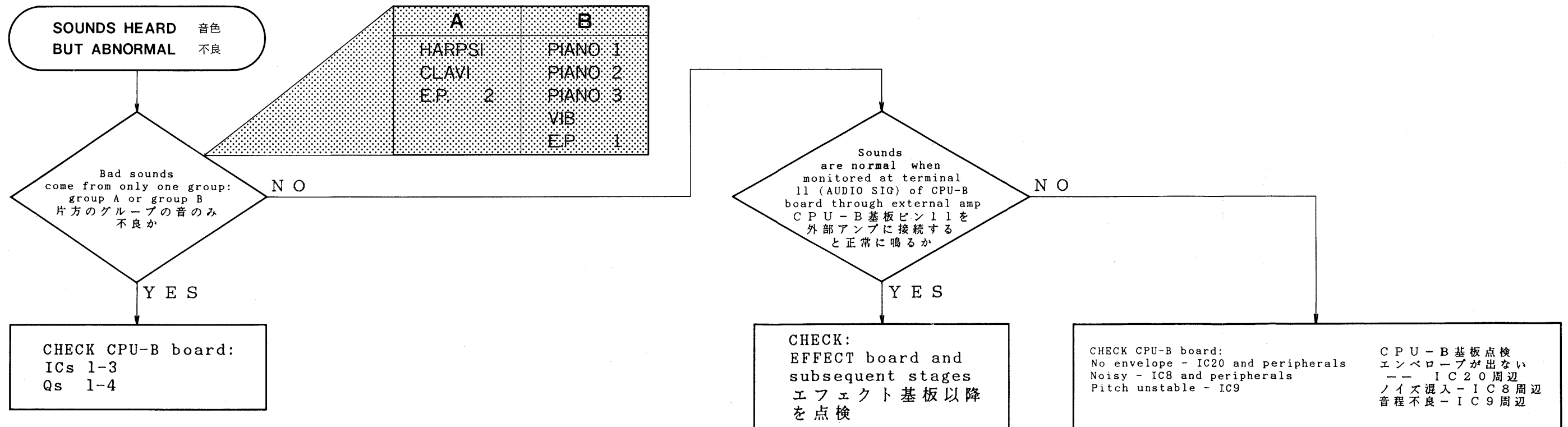
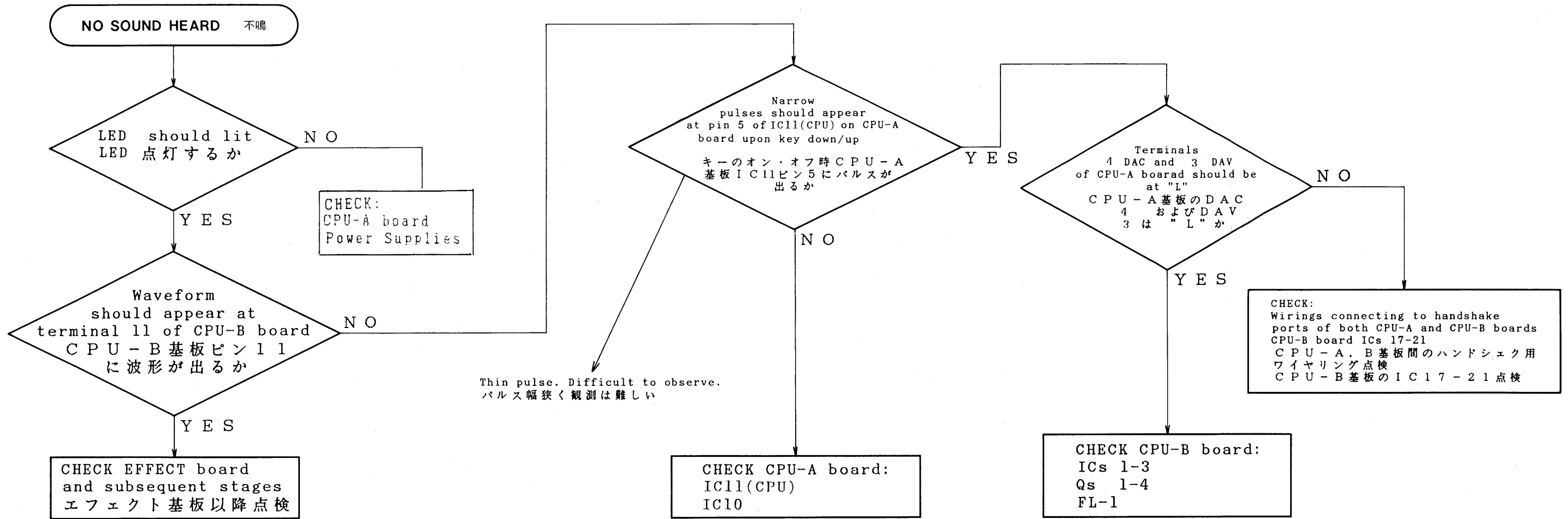
BLOCK DIAGRAM

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BLOCK DIAGRAM

TROUBLESHOOTING Logic Tree トラブルシューティング・ガイド

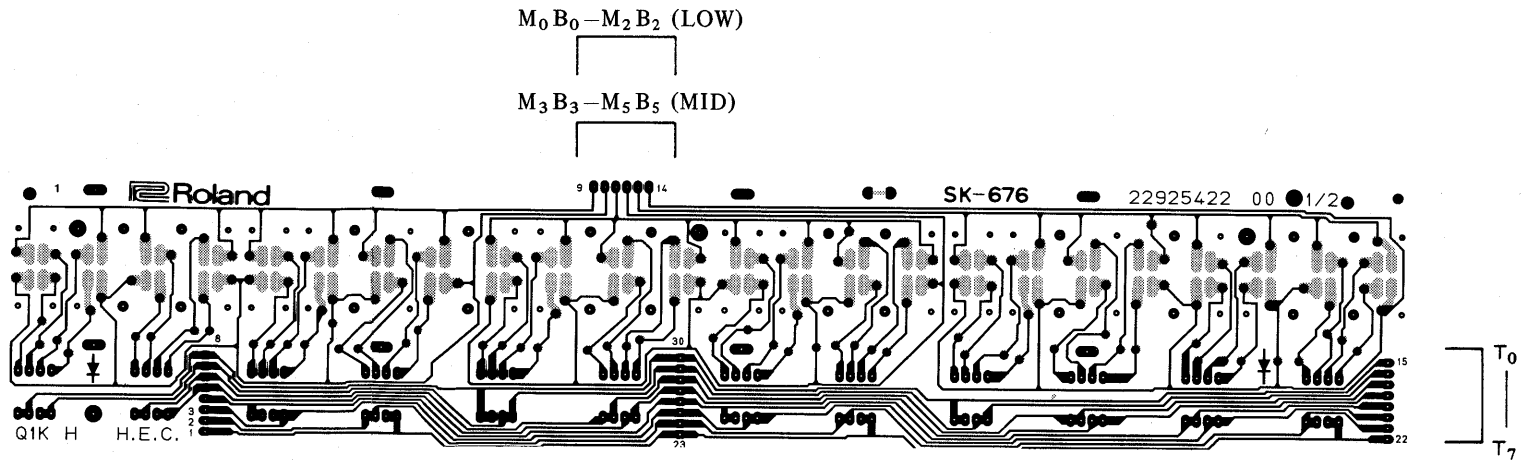


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

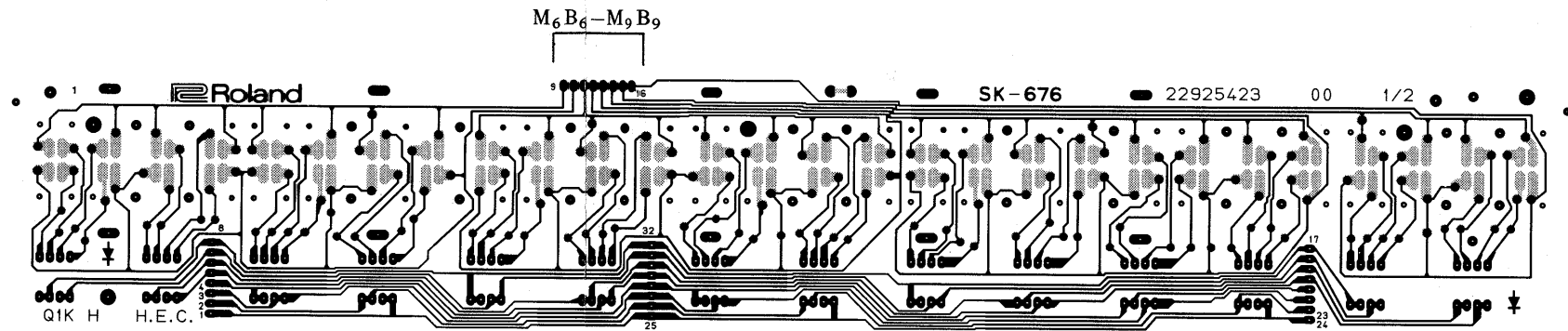
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RD-250S

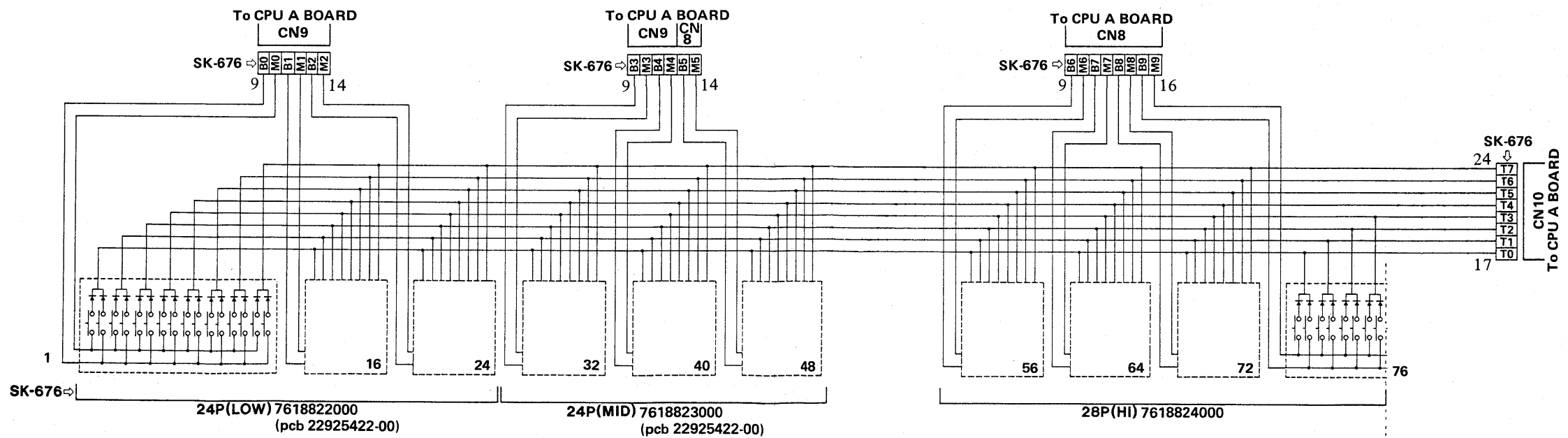
SK-676 PCB 24P (LOW) ASSY 7618822000
SK-676 PCB 24P (MID) ASSY 7618823000



SK-676 PCB 28P (HI)
ASSY 7618824000



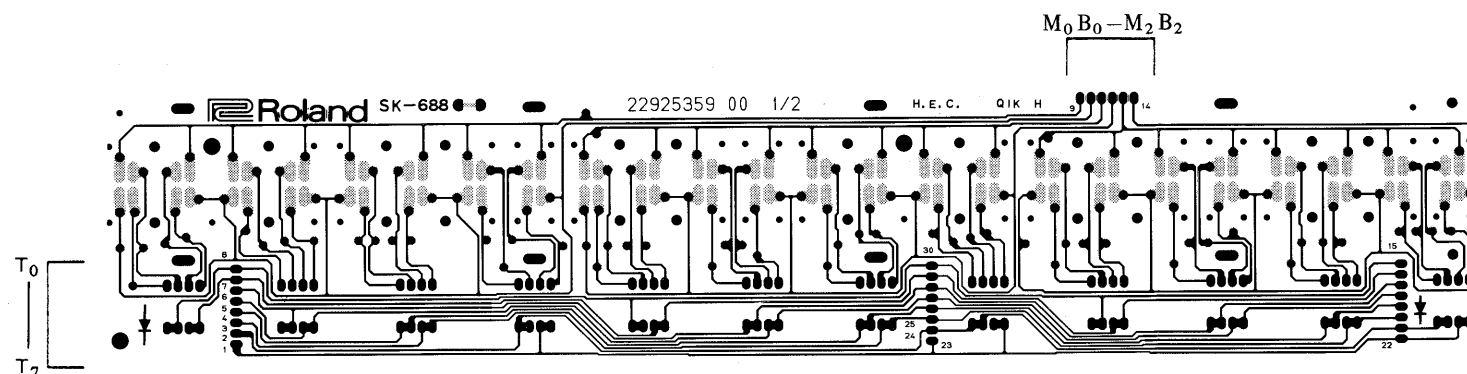
SK-676



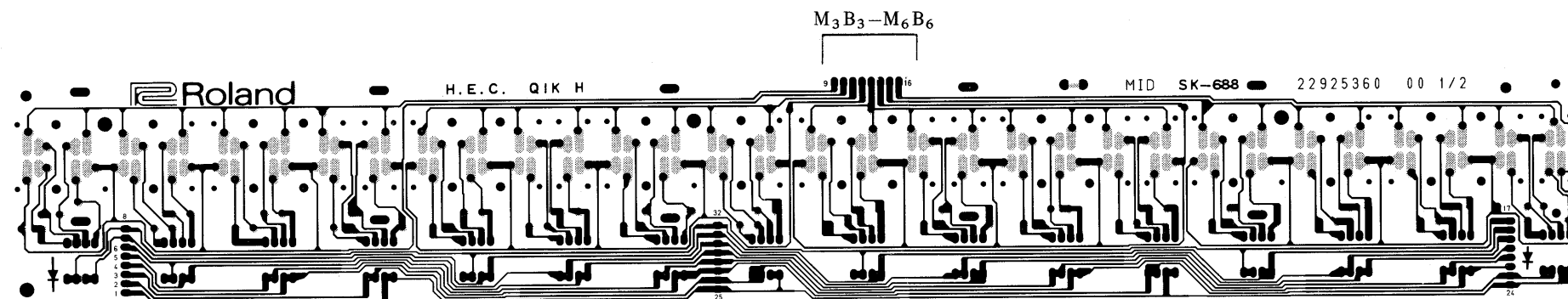
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

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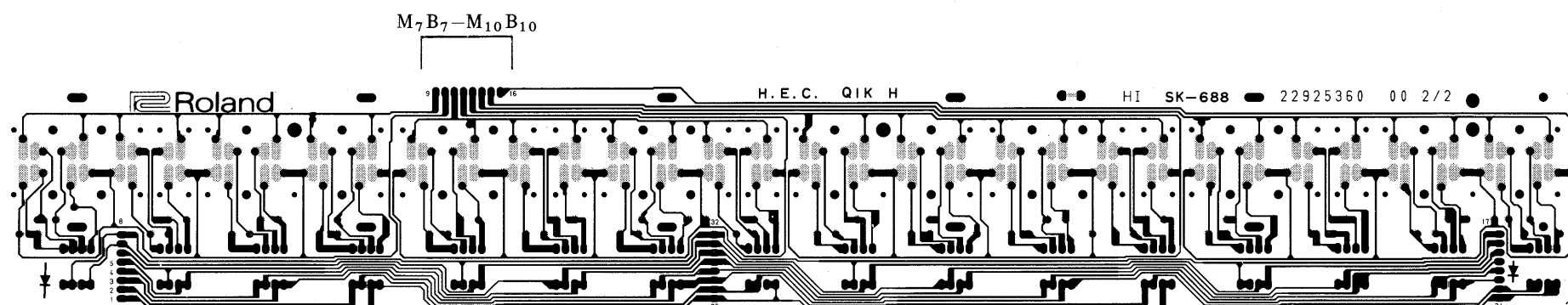
RD-300S



← SK-688 PCB 24P (LOW)
ASSY 7618322000

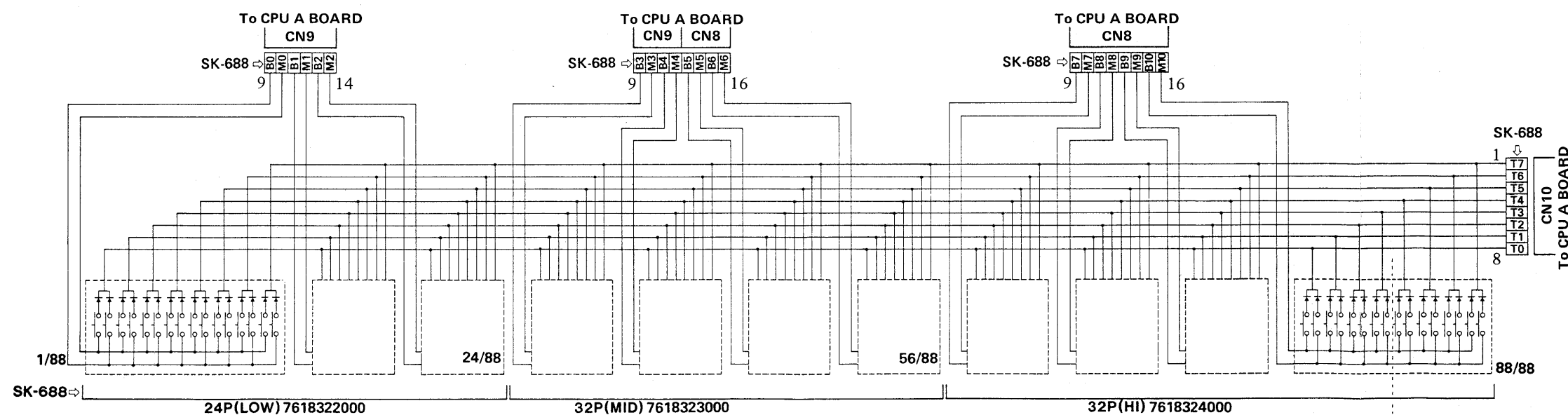


← SK-688 PCB 32P (MID)
ASSY 7618323000



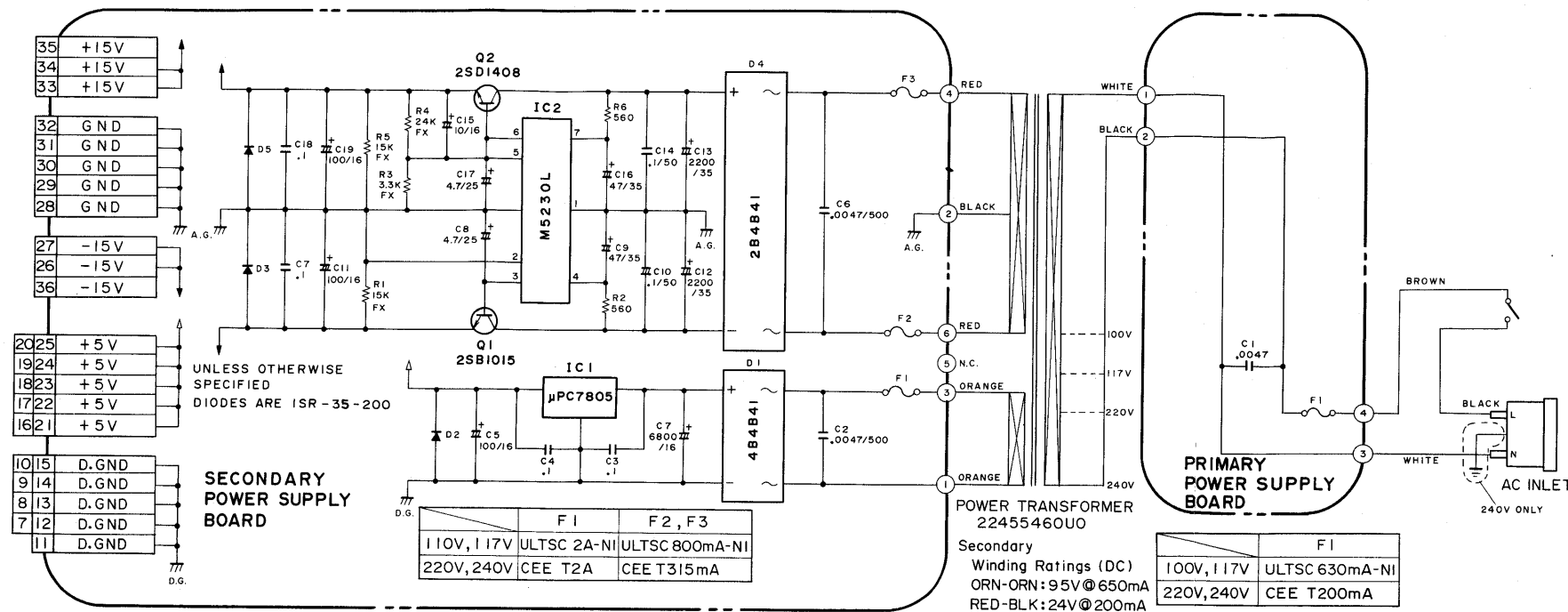
← SK-688 PCB 32P (HI)
ASSY 7618324000

SK-688



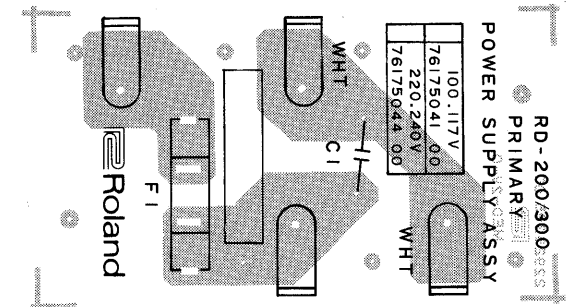
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

CIRCUIT DIAGRAM



PRIMARY POWER SUPPLY BOARD

7617504100 100/117V
7617504400 220/240V



Common PCB

Secondary Power Supply Board finds application on many models. The table below is provided as a guide when need arises to substitute one PCB for another.

共通基板

二次電源基板は下表のごとく多くの機種に共通。流用の際の参考として共通点及び相違点を示してあります。

Secondary Power Supply Board Replacement Consideration

1. Heat Sink

Do not remove the heat sink on the top panel. Instead, remove the one on the replacement PCB. Reinstallation of the heat sink on the panel is difficult to achieve by one person.

2. Substitutive

As can be seen from the table below, secondary power supply boards listed are easily interchangeable with each other with minor modifications. When substituting, use in-system components, as required. When ordering, specify the line voltage to be operated from to get the correct PCB.

2次電源基板 交換上の注意

1. ヒートシンク

トップパネルに取り付けられているヒートシンクは絶対にはずさないこと。再取り付けが非常に困難です。交換用基板のヒートシンクをはずして下さい。

SECONDARY POWER SUPPLY BOARD

7617533100 100/117V
7617533400 220/240V
(pcb 22925353)

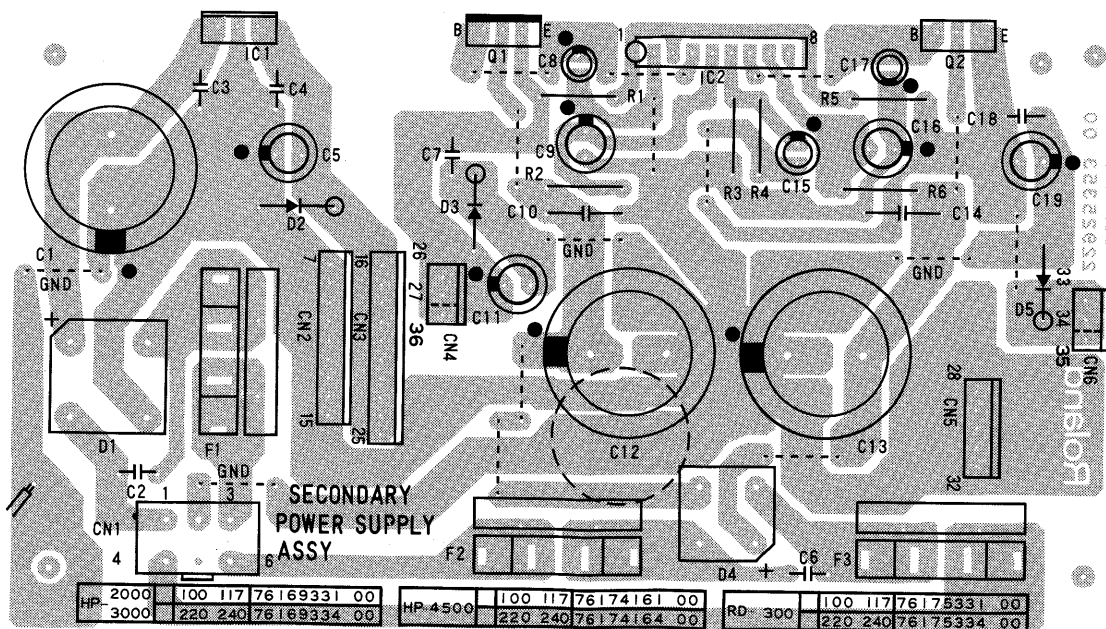


Table 1

| MODEL | VOLTAGE | | F1 | F2, F3 | HEAT SINK | WIRING | ASSY No. |
|--------------------------------|----------|------------|----------------------------------|---------------------------------------|-----------|--------|------------|
| RD-200 | 100/117V | FUSE LABEL | ULTSC 2A-N1 H 224 [2.0A/125V] | ULTSC 800mA-N1 H 220 [T800mA/125V] | | | 7617709100 |
| | 220/240V | FUSE LABEL | CEE T2A # 408 [T2A/250V] | CEE T315mA # 400 [T315mA/250V] | | | 7617709400 |
| RD-250S RD-300 RD-300S | 100/117V | FUSE LABEL | ULTSC 2A-N1 H 224 [2.0A/125V] | ULTSC 800mA-N1 H 200 [T800mA/125V] | | | 7617533100 |
| | 220/240V | FUSE LABEL | CEE T2A # 408 [T2A/250V] | CEE T315mA # 400 [T315mA/250V] | | | 7617533400 |
| HP-2000 HP-3000 HP-3000S | 100/117V | FUSE LABEL | ULTSC 2A-N1 H 224 [2.0A/125V] | ULTSC 1.25A-N1 H 222 [1.25A/125V] | | | 7616933100 |
| | 220/240V | FUSE LABEL | CEE T2A # 408 [T2A/250V] | CEE T500mA # 402 [T500mA/250V] | | | 7616933400 |
| HP-4500 HP-4500S | 100/117V | FUSE LABEL | ULTSC 2A-N1 H 224 [2.0A/125V] | ULTSC 1.25A-N1 H 222 [1.25A/125V] | | | 7617416100 |
| | 220/240V | FUSE LABEL | CEE T2A # 408 [T2A/250V] | CEE T500mA # 402 [T500mA/250V] | | | 7617416400 |

= Common

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

CPU-B BOARD

7617512000

(pcb 22925348)

CPU-B board artwork is commonly used for many models. Consequently, some legends on the PCB differ from those ICs mounted, as shown below.

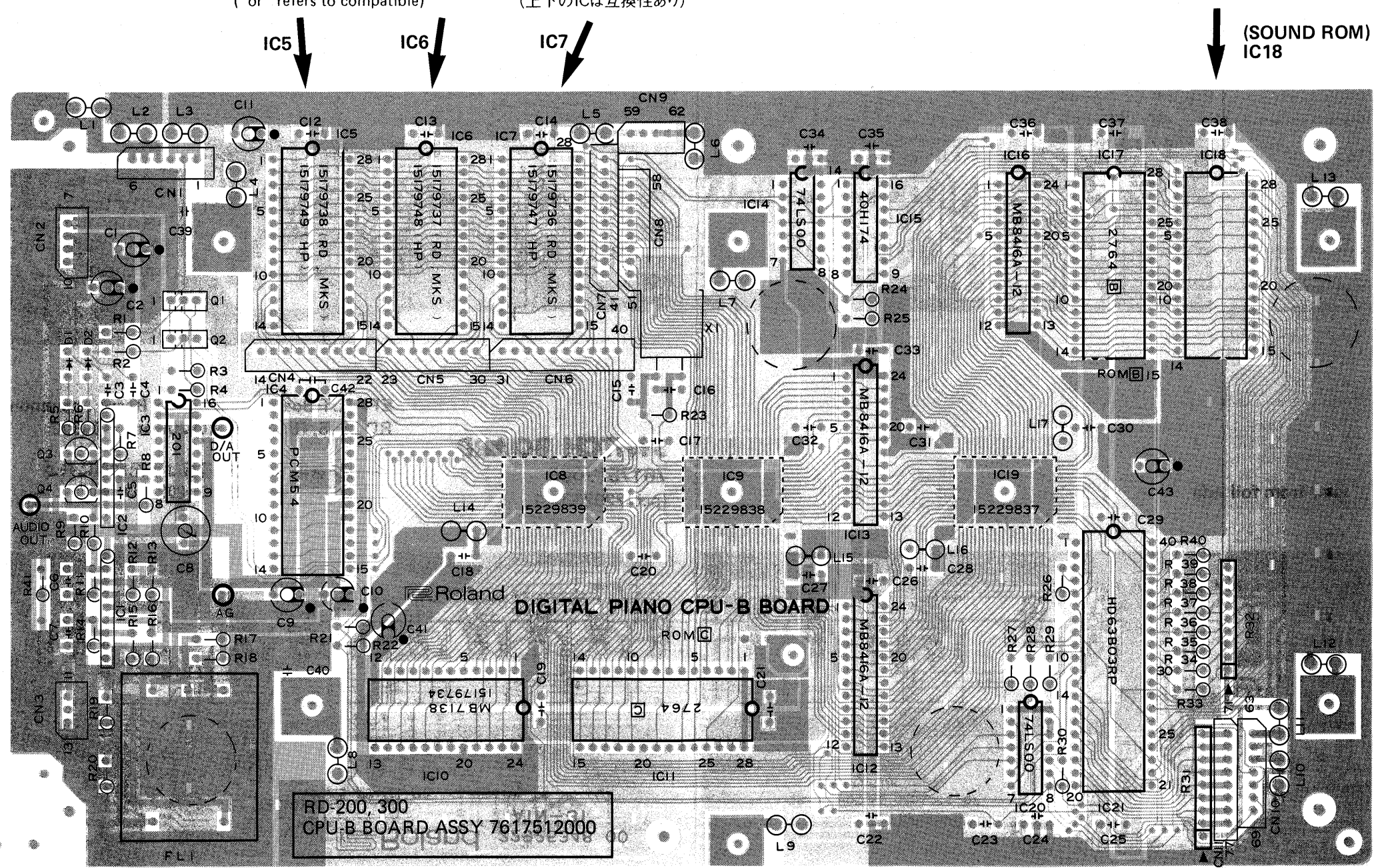
As an assembly, CPU-B board 7617512000 is common to RD-200, 300, 250S and 300S except for IC18 on some RD-200 and RD-300. MB831000-20P-G-474 is compatible with TC531000P-7465 and provides better quality sound.

CPU-B基板は複数の機種に使用されているので、一部ICの表示は実装品と異なる。

RD-200/300/250S/300SのCPU-B基板は基板完成品としても共通。ただし、RD-200/300のIC18 TC531000P-7465は、改良前の音色データ入り(互換性有)。

| | | | |
|--|--|--|--|
| RD-250S RD-300S RD-200 RD-300 | TC531000P-7467 (15179812) or MB831000-20P-G-473 (15179812F0) | TC531000P-7466 (15179811) or MB831000-20P-G-472 (15179811F0) | TC531000P-7465 (15179810) or MB831000-20P-G-471 (15179810F0) |
| ("or" refers to compatible) | | (上下のICは互換性あり) | |

| | |
|--|---|
| RD-250S RD-300S MB831000-20P-G-474 (15179838) | RD-200 RD-300 Same as left or TC531000P-7465 (15179810) |
|--|---|



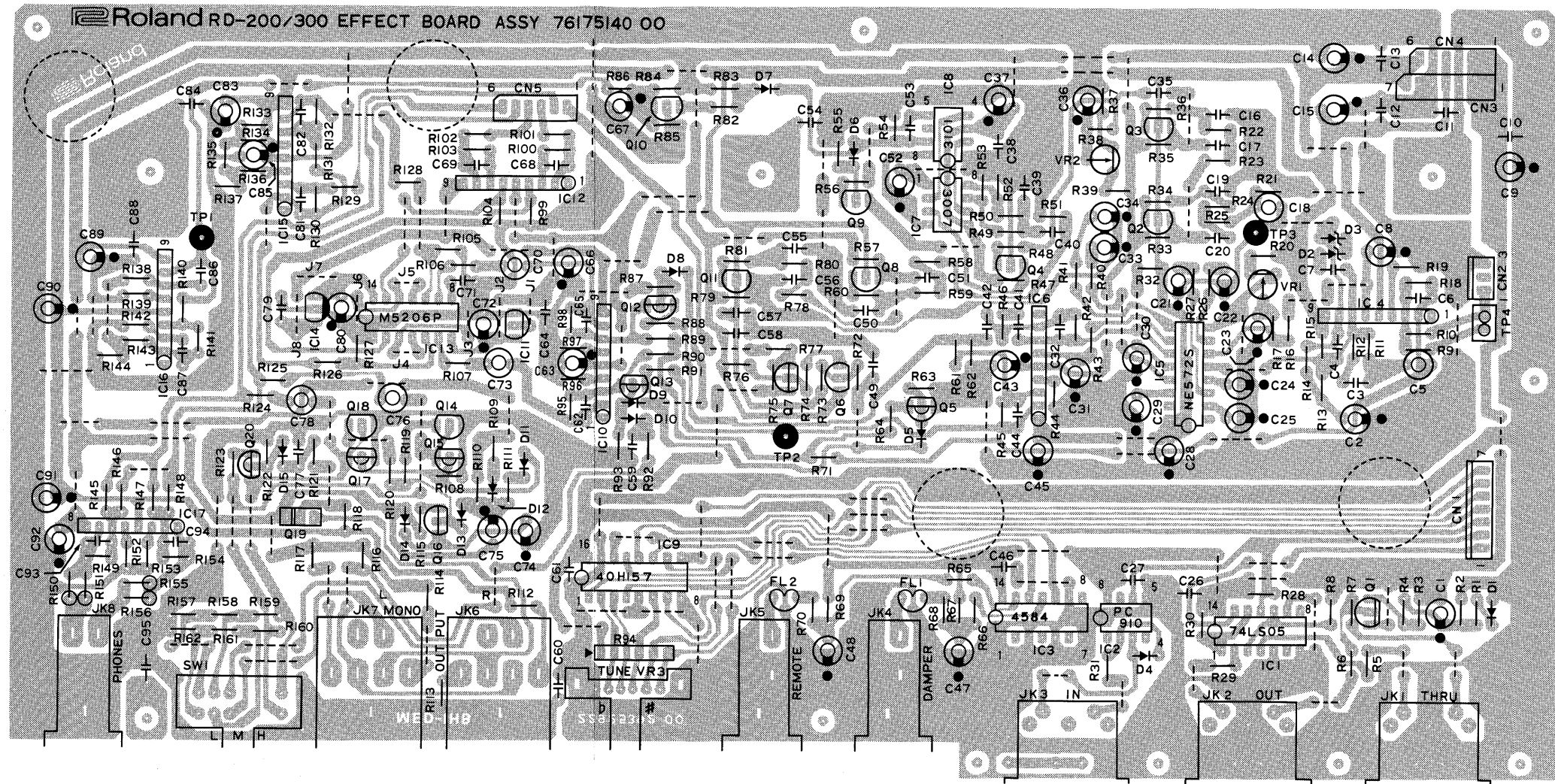
RD-200, 300
CPU-B BOARD ASSY 7617512000

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EFFECT BOARD
7617514000
(pcb 22925392)

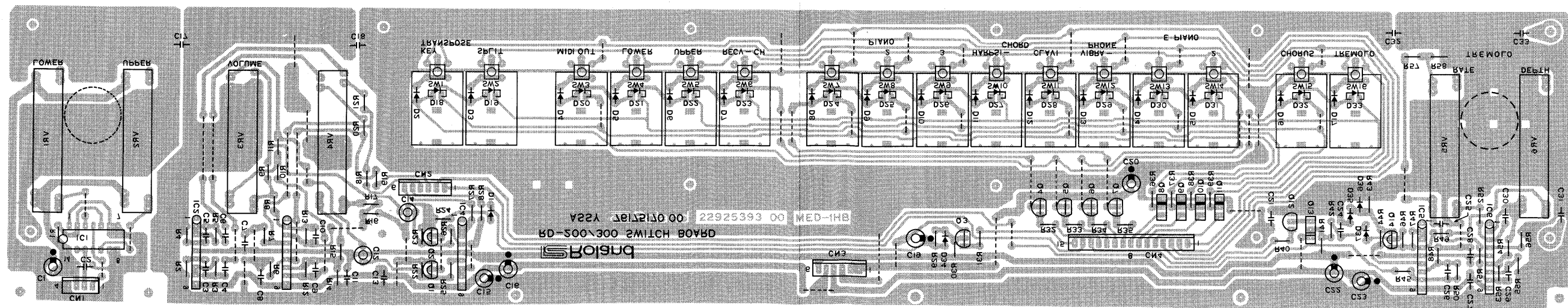


view from foil side

SWITCH BOARD
7617517000
(pcb 22925393)

EFFECT Board and SWITCH Board : common to
RD-250S, RD-300S, RD-200 and RD-300

スイッチ基板、エフェクト基板は下記機種に共通
RD-250S、RD-300S、RD-200、RD-300

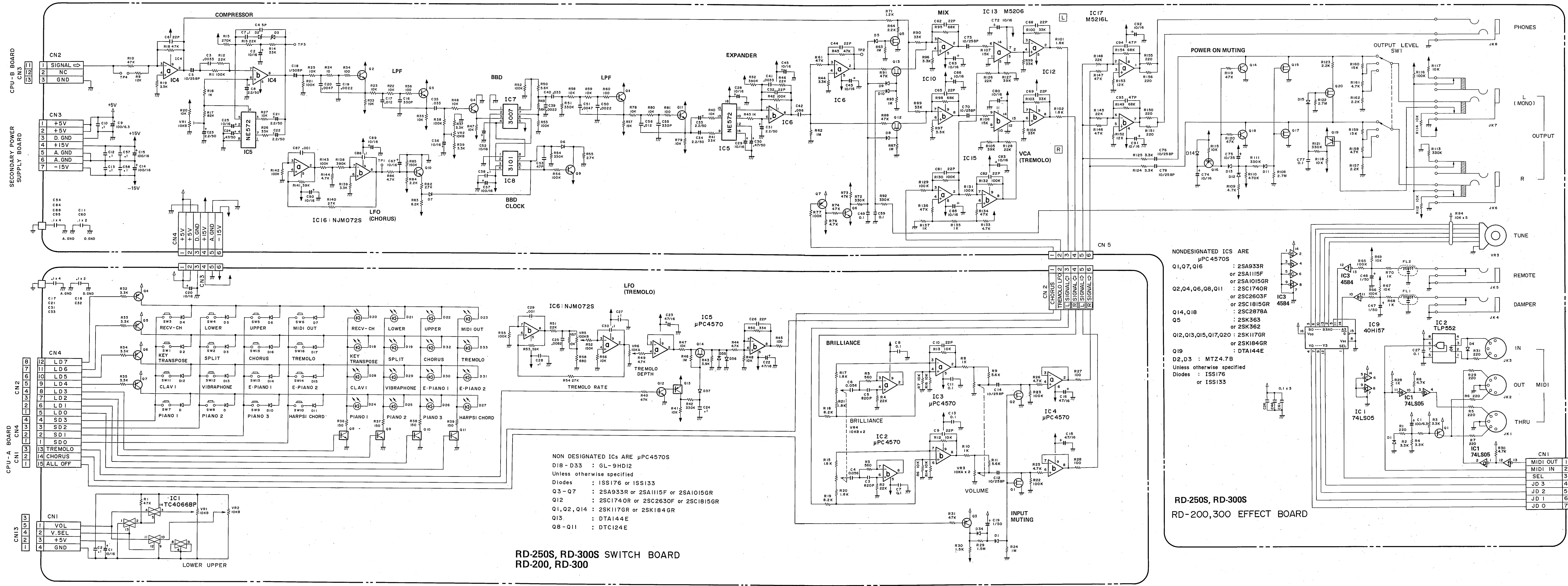


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77

CIRCUIT DIAGRAM

The circuit diagrams below are common to - RD-200, RD-300, RD-250S and RD-300S

下記回路図はRD-200, RD-300, RD-250SおよびRD-300Sに共通



- NONDESIGNATED ICs ARE
- μPC4570S : 2SA933R or 2SA1115F or 2SA1015GR
 - Q2, Q4, Q6, Q8, Q11 : 2SC1740R or 2SC2630F or 2SC1815GR or 2SK1848R
 - Q5 : 2SK655 or 2SK1170R or 2SK1848R
 - Q19 : DTA144E
 - D2, D3 : MTZ4.7B
- Unless otherwise specified
Diodes : 1SS176 or 1SS133

- NON DESIGNATED ICs ARE μPC4570S
- D18 - D33 : GL-9HD12
 - Unless otherwise specified
 - Diodes : 1SS176 or 1SS133
 - Q3 - Q7 : 2SA933R or 2SA1115F or 2SA1015GR
 - Q12 : 2SC1740R or 2SC2630F or 2SC1815GR
 - Q1, Q2, Q14 : 2SK1170R or 2SK1848R
 - Q13 : DTA144E
 - Q8 - Q11 : DTC124E

RD-250S, RD-300S SWITCH BOARD
RD-200, RD-300

RD-250S, RD-300S
RD-200, 300 EFFECT BOARD

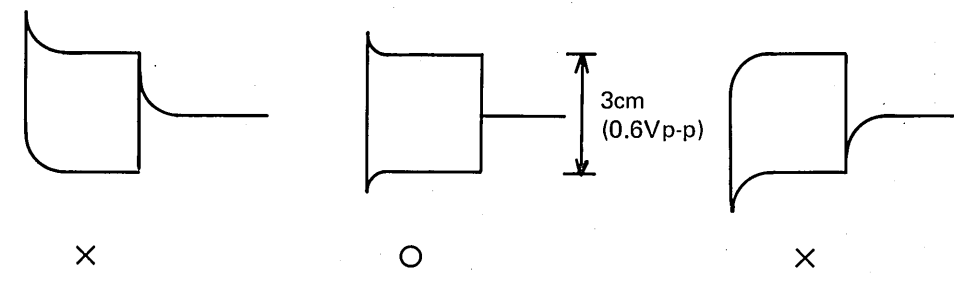
CPU-A BOARD
CPU-B BOARD
SECONDARY POWER SUPPLY BOARD

CPU-A BOARD

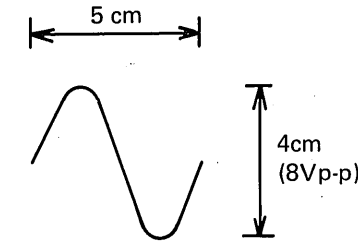
ADJUSTMENT

TEST MODE

- 1. COMPRESSOR -Effect Board-
1-1. Connect an oscilloscope (scope) to TP-3. Set scope to 0.2V/div, 50ms/div with AC coupling input mode.
1-2. Press TREMOLO.
1-3. Adjust VR1 for drift-free waveform as shown in the figure below.



- 2. BBD BIAS -Effect Board-
2-1. Press CHORUS.
2-2. Connect scope to TP-2. Set scope to 0.2V/div, 0.2ms/div with DC coupling.
2-3. Short the two pins on TP-4.
2-4. Adjust VR2 for a maximum amplitude.
2-5. Turn the power off to exit the test mode.
2-6. Open TP-4 pins.



調整

テストモード

- 1. コンプレッサ -エフェクト基板
1-1. TP-3にシグロスコープを接続する。(0.2V/div, 50ms/div, A.C)
1-2. TREMOLOを押す。
1-3. 波形が下図のようになるようにVR-1を調整する。

- 2. BBDバイアス -エフェクト基板
2-1. CHORUSを押す。
2-2. TP-2にシグロスコープを接続する。(0.2V/div, 0.2ms/div, D.C)
2-3. TP-4のピンをショートする。
2-4. 波形の振幅が最大になるようにVR-2を調整する。

Digital piano

MODEL RD-250S, RD-300S MIDI Implementation Chart

Date: Aug. 20, 1986 Version: 1.0

Table with columns: Function, Transmitted, Recognized, Remarks. Rows include Basic Channel, Mode, Note Number, Velocity, After Touch, Pitch Bender, Control Change, Prog Change, System Exclusive, System Common, System Real Time, Aux Messages, Notes.

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO

Digital piano

MODEL RD-250S, RD-300S MIDI Implementation Chart

Date: Aug. 20, 1986 Version: 1.0

Table with columns: Transmitted, Description, Recognized, Remarks. Rows include TRANSMITTED DATA, RECOGNIZED RECEIVE DATA, BASIC CHANNEL IN TRANSMITTING, BASIC CHANNEL IN RECEIVING.

Table with columns: Transmitted, Description, Recognized, Remarks. Rows include TRANSMITTED DATA, RECOGNIZED RECEIVE DATA, PROGRAM CHANGE IN TRANSMITTING, PROGRAM CHANGE IN RECEIVING.