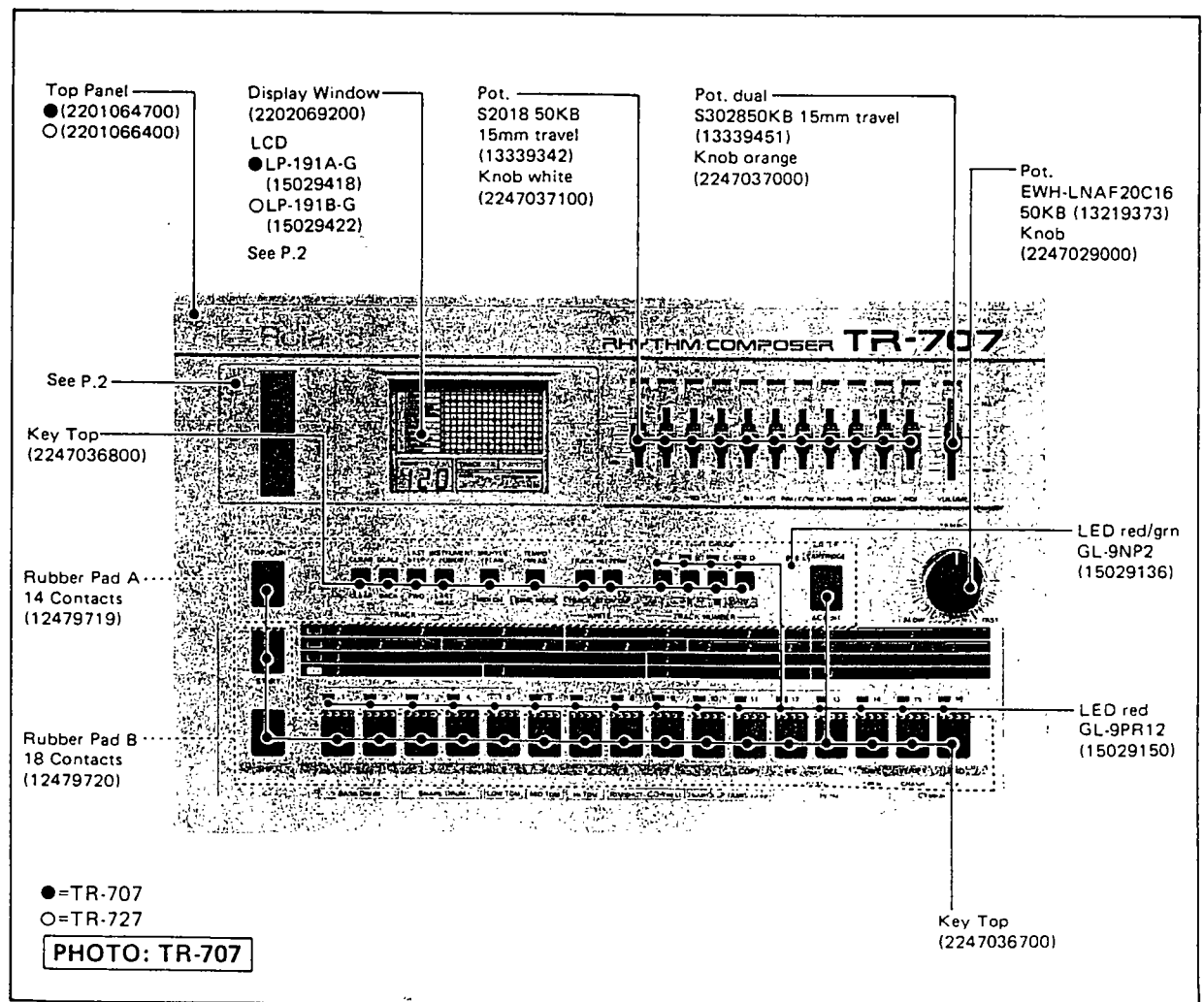
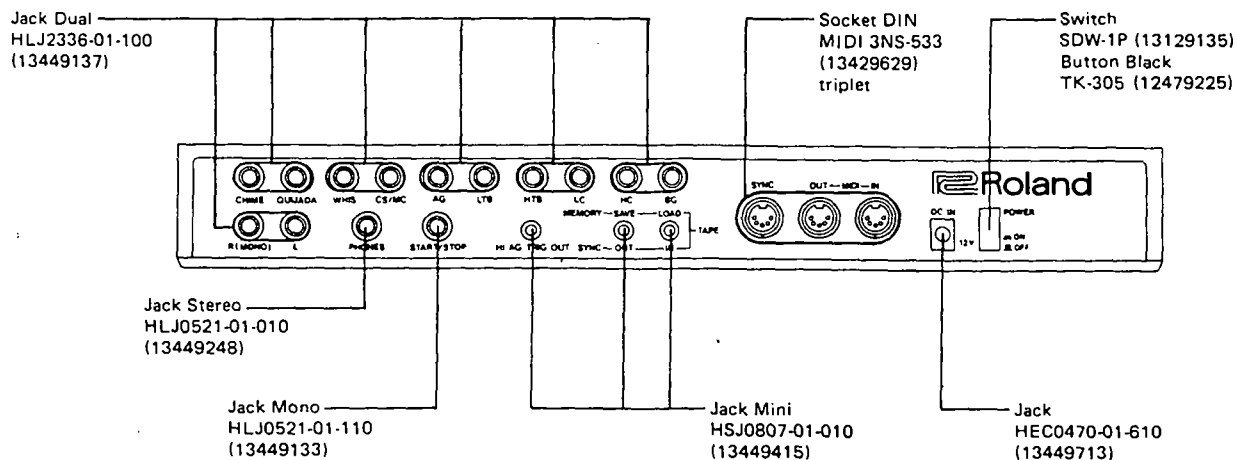


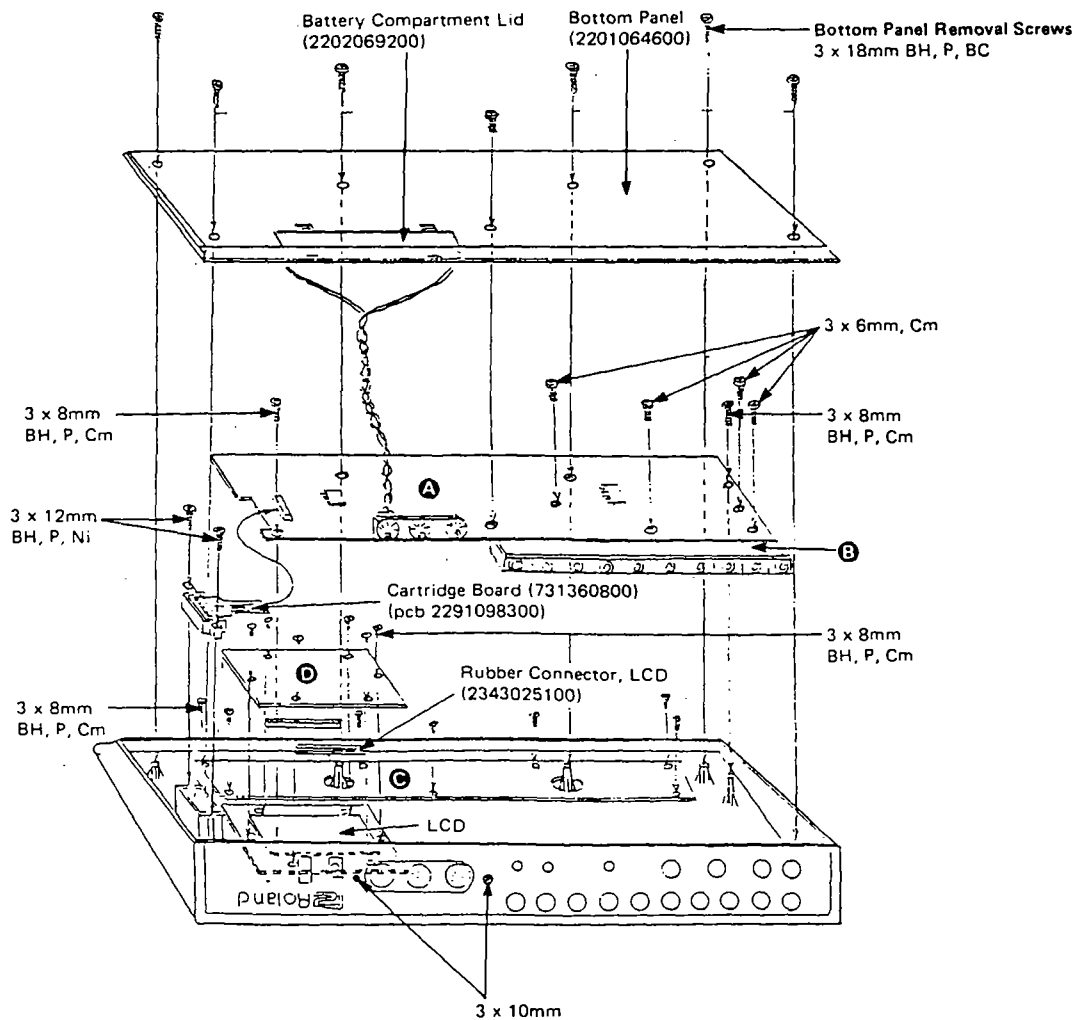
SPECIFICATIONS

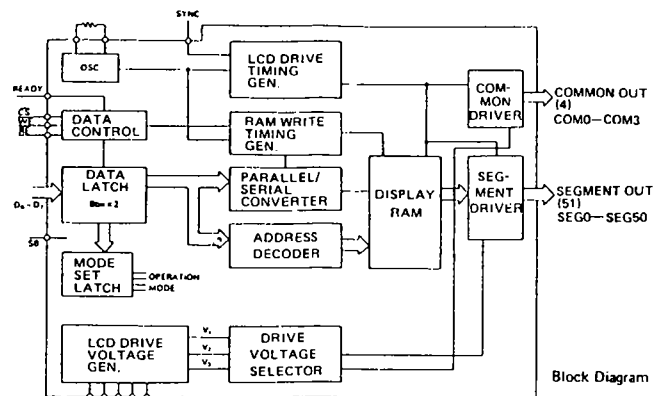
Memory Capacity	: 64 Rhythm Patterns (16 x 4 Group)
Track	: 4 (1 to 4; continuous Maximum measures=998)
Step	: 1 to 16 steps/measure
Tempo	: ♩ = 38 to 250
Rear Panel	: Master Out (L,R/MONO) [8Vp-p, 1K Ω]
Trigger Out	: +5V, 20ms Pulse TR-707 Rim Shot TR-727 Hi Agogo
Sync In/Out (5P DIN)	: (1: Run/Stop, 2: GND, 3: Clock, 4: NC, 5: Continue)
Power Consumption	: 2.4 W
Dimensions	: 380 (W) x 73 (H) x 250 (D) mm 14-15/16" (W) x 2-7/8" (H) x 9-13/16" (D) in
Weight	: 1.5 kg/13 lb. 5 oz.
Accessories	: 12V AC Adaptor Connection Cord PJ-1
Options	: Memory Cartridge M-64C Pedal Switch DP-2



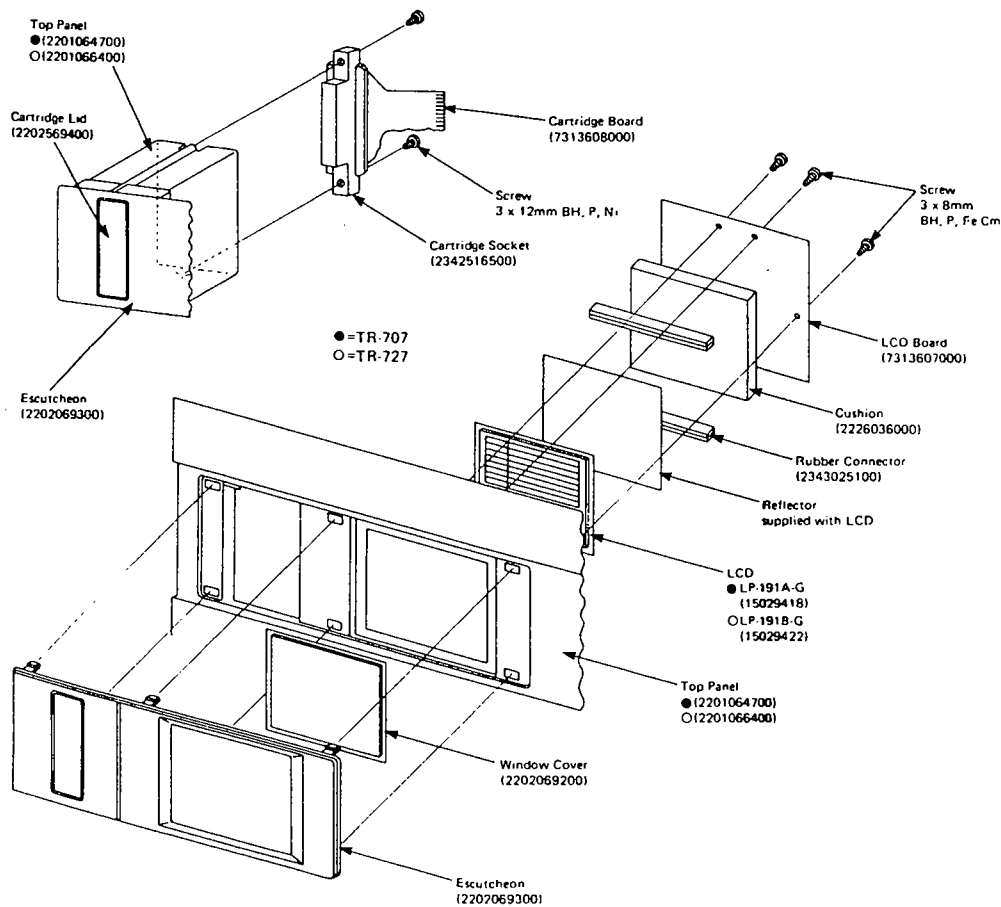


	TR-707	TR-727
A	Voicing Board (7313604000) (pcb 2291098102)	Voicing Board (7313804000) (pcb 2292018900)
B	Volume Board (7313605000) (pcb 2291098002)	Volume Board (7313805000) (pcb 2292019000)
C	Switch Board (7313606000) (pcb 2291097903)	
D	LCD Board (7313607000) (pcb 2291098203)	

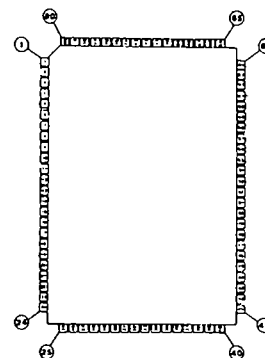




LCD Driver
HD61602



Pin configuration
(Top View)



TERMINAL ASSIGNMENTS

Pin no.	Pin name	Pin no.	Pin name	Pin no.	Pin name
1	Vcc	28	SEG19	55	SEG27
2	READY	29	SEG18	56	SEG21
3	CS	30	SEG17	57	SEG20
4	FE	31	SEG16	58	ST019
5	FE	32	SEG15	59	SEG18
6	SB	33	SEG14	60	SEG17
7	B7	34	SEG13	61	SEG16
8	DS	35	SEG12	62	SEG15
9	DS	36	SEG11	63	SEG14
10	D4	37	SEG10	64	SEG13
11	Vcc	38	SEG9	65	SEG12
12	D3	39	SEG8	66	SEG11
13	D2	40	SEG7	67	SEG10
14	D1	41	SEG6	68	SEG9
15	D0	42	SEG5	69	SEG8
16	Vref1	43	SEG4	70	SEG7
17	Vref2	44	SEG3	71	SEG6
18	VCC	45	SEG2	72	SEG5
19	VCC	46	SEG1	73	SEG4
20	V1	47	SEG0	74	SEG3
21	V2	48	SEG19	75	SEG2
22	V3	49	SEG18	76	SEG1
23	COM0	50	SEG17	77	SEG0
24	COM1	51	SEG16	78	SYNC
25	COM2	52	SEG15	79	OSC1
26	COM3	53	SEG14	80	OSC1
27	SEG50	54	SEG13		

PARTS LIST EXCLUSIVE PARTS

TR-707

CASING

2201064700 Top Panel

PCB

7313604000 Voicing Board (pcb 2291098102)
7313605000 Volume Board (pcb 2291098002)

LCD

15029418 LCD LP-191A-G

IC

Program ROM

15179720 HN4827128G-25 NMOS EPROM
(Ver.0 SN460100-504399)
(Ver.1 SN504400-519599)

or

15179660 HN613128PE95 CMOS MASK ROM
(Ver.1 SN519600-533099)

or

15179692 HN613128PG24 CMOS MASK ROM
(Ver.2 SN533100-up)

UPWARD COMPATIBILITY

Ver.0

In Pattern PLAY mode -- Selecting a pattern from different scale while repeating STOP and START or CONTINUE sometimes leads to Power-ON initialization. ROMs of Ver. 1 always run the new pattern at the beginning of a measure.

Ver.1

When the unit is used as a Master -- Repetitions of STOP and CONTINUE more than 30 times would cause generation of a redundant MIDI clock SF8. When the unit is used as a Slave -- Will miss a MIDI IN clock when STOP signal follows the Clock within 1ms.

MASK ROM of Ver.2 cures this problem.

For a replacement Ver.2 or up is recommendable.

上記コンパチなで補修用としてはバージョン番号の大きいPROMの使用が望ましい。

Sound ROM

15179661 HN61256PC-71 CMOS MASK ROM
BD1/2, SD1/2, LT, MT
15179662 HN61256PC-72 CMOS MASK ROM
HT, Open/Closed H.H, Rim, Cow
HCP, Tambourine
15179663 HN61256PC-73 CMOS MASK ROM
Crash Cymbal
15179664 HN61256PC-74 CMOS MASK ROM
Ride Cymbal

TR-727

CASING

2201066400 Top Panel

PCB

7313804000 Voicing Board (pcb 2292018900)
7313805000 Volume Board (pcb 2292019000)

LCD

15029422 LCD LP-191B-G

IC

Program ROM

15179719 HN4827128G-25 NMOS EPROM

Sound ROM

15179694 HN61256PC-79 CMOS MASK ROM
HI/LOW BONGO, HI CONGA
LOW CONGA, HI TIMBALE

15179695 HN61256PC-80 CMOS mask ROM
LOW TIMBALE, AGOGO, CABASA
MARACAS, WHISTLE
15179696 HN61256PC-81 CMOS mask ROM
QULJADA
15179697 HN61256PC-82 CMOS mask ROM
STAR CHIME

COMMON PARTS

CASING

2201064600 Bottom Case
2202069100 Battery Cover
2202069200 Display Window
2202069300 LCD Escutcheon
2202569400 Cartridge Lid

KNOB, BUTTON, KEY TOP

2247029000 Knob gray TEMPO
2247036700 Key Top (large) gray Main Key 1-16, ENTER,
START, SHIFT, STOP/CONT

2247036800 Key Top (small) gray
2247037100 Knob white BD, SD, LT, MT, HT, OCH,
RS/CB, HCP/TAMB, RIDE,
CRASH
2247037000 Knob orange VOLUME
12479225 TK-305 black POWER

PCB ASSY

7313606000 Switch Board (pcb 2291097903)
7313607000 LCD Board (pcb 2291098203)
7313608000 Cartridge Board (pcb 2291098300)

COIL, TRANSFORMER

2244025000 S097744 Transformer DC/DC convertor
12449229 FK0B160MH15 Coil line filter

SOCKET

13429629 MIDI 3-NS-533 DIN
13449713 HEC0470-01-610 AC adapter
13449415 HSJ0807-01-010 mini
13449248 HLJ0521-01-010 stereo
13449133 HLJ0521-01-110 monoral
13449137 HLJ2336-01-100 dual
2342516500 PBR5-28U-T01-S cartridge

SWITCH

12479719 Rubber switch (Pad) A 14 contact upper row
12479720 Rubber switch (Pad) B 18 contact lower row
13129135 SDW-1P POWER

POTENTIOMETER

13339342 S2018 50KB slide 15mm travel
13339451 S3028 50KB dual slide 15mm travel
13219373 EWH-LNAF20C16 50KB TEMPO
13299136 RVF8P01-503 50KB trimmer
13299141 RVF8P01-204 200KB trimmer

XTAL, CERAMIC RESONATOR

12389736 HC-18/U 4.0MHz Xtal
12389735 CSA 1.6MK 1.6MHz ceramic resonator

IC

15229825 RD63H114PF gate array
15179200 HD6303XF CPU
15179340 HM6116LP-4 CMOS S RAM
15219148 HD61602 LCD driver
15159503 TC40H000P H CMOS
quad 2-input NAND gate
15159504 TC40H002P H CMOS
quad 2-input NOR gate

15159505 TC40H004P H CMOS
hex inverter
15159517 TC40H010P H CMOS
triple 3-input NAND gate
15159506 TC40H138P H CMOS
3-to-8 line decoder/demultiplexer
15159535 TC40H151P H CMOS
1-of-8 data selector/multiplexer
15159511 TC40H174P H CMOS
hex D-type flip flop
15159524 TC40H245P H CMOS
octal bidirectional bus buffer
15159507 TC40H273P H CMOS
octal D-type flip flop
15159530 TC40H367P H CMOS
hex bus buffer
15159104 TC4011BP CMOS
quad 2-input NAND gate
15159105 TC4013BP CMOS
dual D-type flip flop
15159141 HD14040BP CMOS
12-stage binary counter
15159113 HD14051BP CMOS
single 8-channel multiplexer/demultiplexer
15159301 TC4520BP CMOS
dual binary up counter
15159303 HD4584BP CMOS
hex schmitt trigger
15189136 M5218L Op amp
15189154 TL064 FET Op amp
15219147 UPC624C D/A convertor
15199108F0 UA78M05UC voltage regulator +5V
15229712 PC900 photo coupler
15149118 M54517P transistor array

TRANSISTOR

15129612 2SD1469-R NPN
15129137 2SC2603-F NPN
15129412 2SC1384-Q NPN
15119125 2SA1115-F PNP
15139101 2SK30ATM-Y FET

DIODE

15019126 1SS113T-77 diode
15019209T0 S-5500G rectifier
15019667 RD-12EB1-T 12V zener
15029136 GL-9NP2 LED red/grn
15029150 GL-9PR12 LED red

RESISTOR ARRAY

13919133 RKM7LM502 D/A convertor
13919103 RGSDBX103J 10K x 8
13919113 RGSDBX103J 10K x 4
13910107 RSD8X332J 3.3K x 8

CONNECTOR

13439256 5089-11A 11P (Switch pcb)
13439255 5089-13A 13P (Switch pcb)
13439253 5494-9C 9P (Voicing pcb)
13439252 5494-10C 10P (Voicing pcb)
13439254 5597-28APB 28P (Voicing pcb) cartridge
2343025100 rubber connector LCD

WIRING ASS'Y

2341048000 13P (LCD pcb)
2341047900 11P (Voicing pcb)
2347015200 9P flat cable (Volume pcb)
2347015300 10P flat cable (Volume pcb)

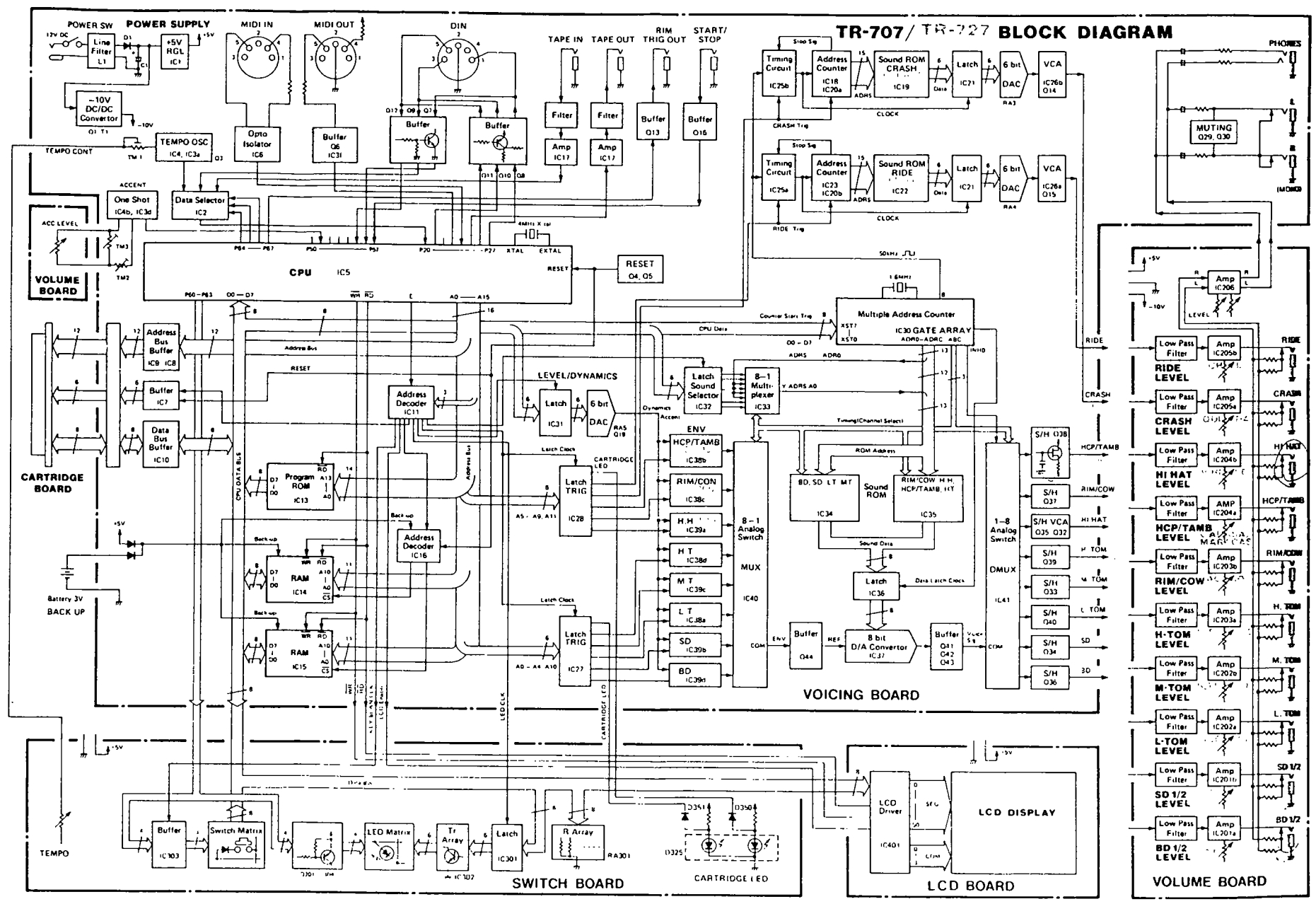
MISCELLANEOUS

2217515300 Spring RAM cartridge
2214531300 Shaft RAM cartridge
2345014600 Plate battery
12469117 Heat Sink MT-25-BS
2219049900 LED Holder (switch pcb)
13529117 Ceramic Capacitor D55Y5V1H334Z21 0.33µF (LCD pcb)
12559708 Fusing Resistor FRN8 1/4W2.7Ω
2225022801 Shield Cover top panel
2225022400 Shield (Voicing pcb-Volume pcb)

COMMERCIALLY AVAILABLE ACCESSORIES

12569105 Dry cell SUM-3S 1.5V
12449538 12V AC adapter (100V)
12449539 12V AC adapter (117V)
12449540 12V AC adapter (220V)
12449541 12V AC adapter (240VA) Australian
2343067500 Connection Cable LP-25

TR-707/TR-727 BLOCK DIAGRAM



CIRCUIT DESCRIPTIONS

TR-707 and TR-727 are designed based on the same circuit configuration, having more in common with each other. The differences between two models are sound data, component values in several audio stages and a couple of pin connections at IC30 of Voice board.

Both models derive all rhythm sounds from PCM-encoded samples of real sounds stored in ROM. Each waveform is stored either independently (e.g. CYMBAL) or together with another waveform as shown in Tables 1 and 2. Accordingly, sound reproducing circuits are classified into two: multiplex and single. The following description focuses on PCM sound reproduction system, taking TR-707 circuits as a representative.

回路解説

TR-707/727はROMにメモリされているPCM波形(サウンドデータ)を音源として利用しています。楽器の種類の異なる為一部に波形や定数の違いがあるものの、全体の回路構成は両機種に共通です。以下TR-707を例にとり説明します。

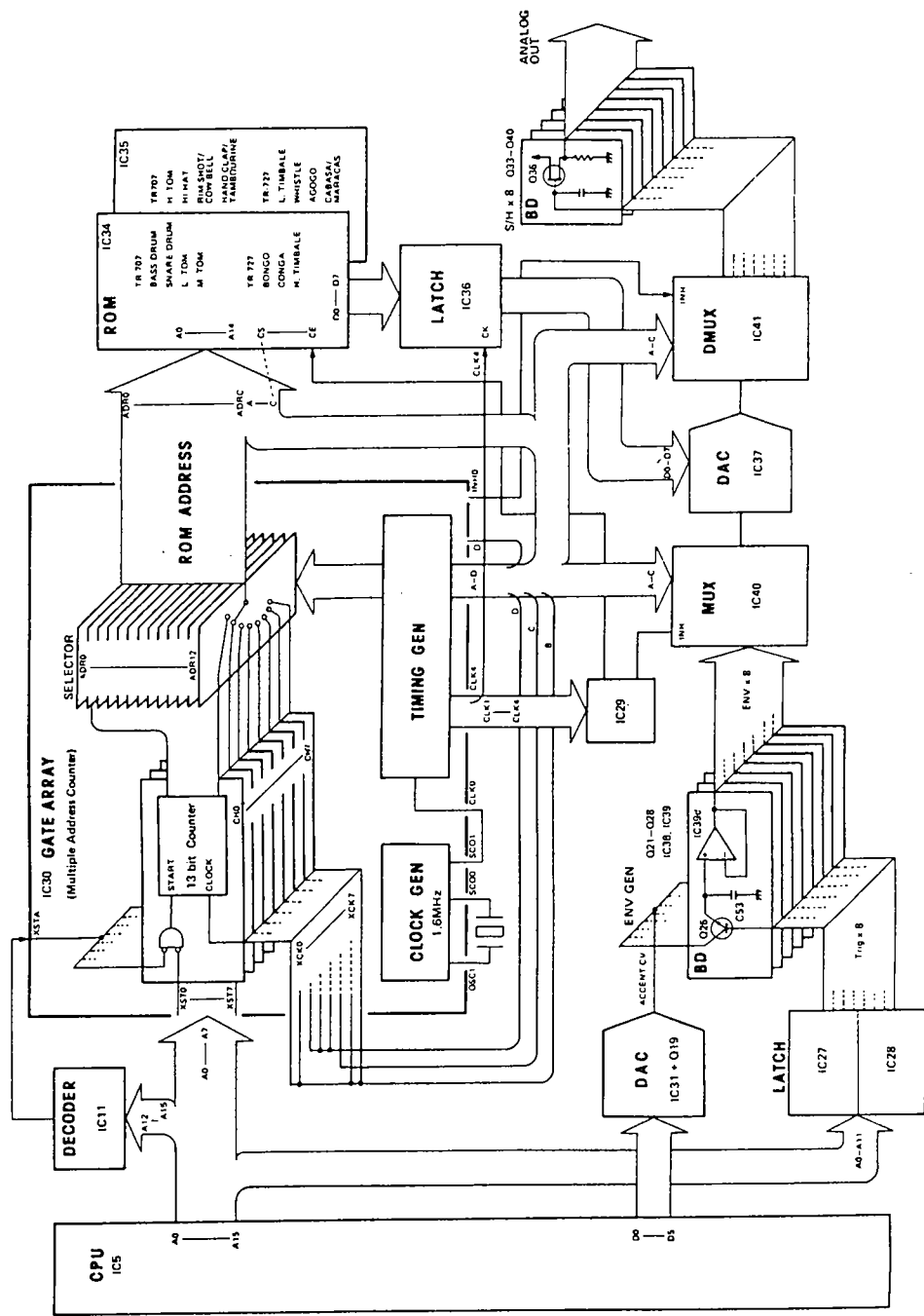
表1及び2から判る様に、IC34、IC35には複数音源のデータが、IC19、IC22には単一音源がメモリされています。従って、これら音源データの読み出しから再生までの過程もシングル方式とマルチの二種類があります。

MULTIPLEX SOUND PROCESSING

MULTIPLE ADDRESS COUNTERS

IC30 RD63H114 on Voicing Board is a custom LSI (called Gate Array) designed for use in PCM-sound multi-rhythm systems. The LSI assumes the key role in the TR-707 sound system. It incorporates a master clock generator, timing generator and 8 13-bit address counters. The timing generator, not only supplies clocks to these counters for generating address bits, but also feeds peripheral circuits with various timing clocks to sync the entire system operation. Of these timing clocks, A, B and C together make a channel-select code for signaling the ROMs (ICs 34, 35), MUX IC40 and DMUX IC41 which voice is being addressed by an address counter in IC30.

MULTIPLEX SOUND SYSTEM BLOCK DIAGRAM



マルチ音源

マルチアドレスカウンタ

多音源データをメモリしている ROM (IC34, 35)からのデータ読み出し、D/A変換、S/Hおよびその他の関連回路は、IC30 RD63H114 をマスターとして動作します。RD63H114 はマルチ音源装置用に開発されたカスタム LSI であって、内蔵のクロックおよびタイミング発生回路によりこれら外付回路を同期させるクロック信号を出力します。同期クロックのうち A、B、C はボイス・チャンネルのセレクトコードを形成しますので特に重要です。IC30 は ROM (IC34, 35) 内の各音源データのアドレスを次々と出力して行きますが、A、B、C は今日の音源アドレス (アドレス・カウンタのチャンネル番号) が出力されているかを、ROM 以外の MUX IC40、DMUX IC41 にも知らせます。(例 SD の場合 A=1, B=0, C=0。次頁のタイミングチャート参照)

Now suppose that TR-707 is to run with BASS DRUM 1(BD-1) being selected, the CPU IC5 puts XST0 (CH0 start) and XSTA (XST0-XST7 enable) low, resetting counter 0, presenting it to the starting address 0000H and allowing it to count the clock pulse XCKO from pin 8 in discrete steps. The counter continues counting until it increments up to 1FFFH and tops there until the next trigger pulse is received. While counting, the contents (a group of 13 clock pulses) of the counter is transferred to address selector where it is read every 40µs and is presented along ports ADRO through ADRC-13 lower address bits.

ROM MEMORY READING

IC34 and IC35, 32,768 word by 8 bit ROM, require 15 address bits to access their memory locations. Clocks A and B from IC30 serve as MSBs while C indicates which one of two ROMs is to be selected—Chip Select.

On the contrary, LSB ADRO is defeated when particular voice is selected: BD-1 and BD-2 share the same memory area with even addresses allocated to BD-1 and odd ones to BD-2 as shown in Table 1. With BD-1, data selector IC33 blocks ADRO and passes "0" data from IC32 onto AD of ROM IC35. With BD-2, IC33 selects "1". With Low Tom, Mid Tom, Hi Tom or Hi Hat, ADRO is allowed to reach A0.

Each 8 bit memory location (PCM waveform data) in ROM is loaded into latch IC36 on the rising edge of CLK4. This 8 bit data is, if converted to analog equivalent by D/A converter IC37 as it is, not restored to its original amplitude. A certain technique is involved during PCM to improve S/N ratio, to have higher resolution, etc. A signal coming from Envelope Generator into (+) REF pin gives right tone contour to a continual PCM waveforms being decoded and converted to an analog sound.

TR-727 Sound Data ROM

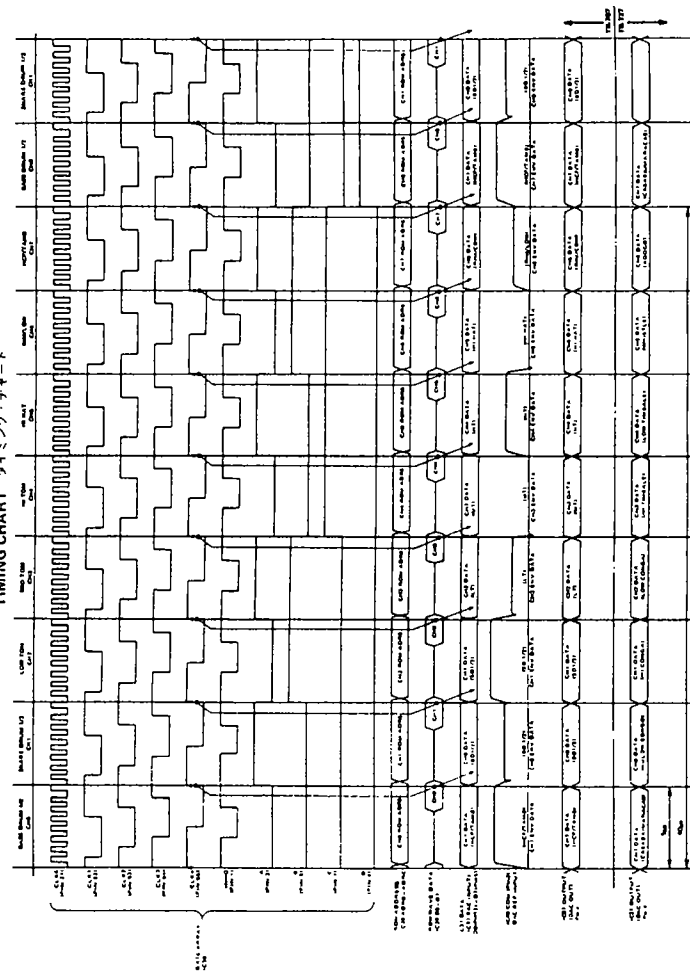
IC NO.	DATA	CE	CS	VOICE	MEMORY
IC34	ROM 134K/71	N	L	HI BASS	2K ADRES
	(151/796A)			LOW BASS	2K ADRES
				MT HI CONCA	2K ADRES
				MT HI CONCA	2K ADRES
				LOW CONCA	2K ADRES
				LOW CONCA	2K ADRES
				HI TITRALE	2K ADRES
				HI TITRALE	2K ADRES
				WHISTLE	2K ADRES
				WHISTLE	2K ADRES
				HI ACCO	2K ADRES
				HI ACCO	2K ADRES
				LOW ACCO	2K ADRES
				LOW ACCO	2K ADRES
				CLASH	2K ADRES
				CLASH	2K ADRES
				MARACAS	2K ADRES
				MARACAS	2K ADRES

Table 1 表1

TR-707 Sound Data ROM

IC NO.	DATA	CE	CS	VOICE	MEMORY
IC34	ROM 134K/71	N	L	BASS DRUM 1	2K ADRES
	(151/796A)			BASS DRUM 2	2K ADRES
				SHAKE DRUM 1	2K ADRES
				SHAKE DRUM 2	2K ADRES
				LOW TOM	2K ADRES
				MID TOM	2K ADRES
				HI TOM	2K ADRES
				HI TOM	2K ADRES
				HI NAT	2K ADRES
				HI NAT	2K ADRES
				LOW BELL	2K ADRES
				LOW BELL	2K ADRES
				LOW CLAP	2K ADRES
				LOW CLAP	2K ADRES
				THUNDER	2K ADRES
				THUNDER	2K ADRES

TIMING CHART タイミング・チャート



ENVELOPE GENERATOR

Data coming to latch IC31 is a combination of LEVEL and DYNAMICS (ACCENT). The value of LEVEL is always constant regardless of voice selected, while DYNAMICS varies with MIDI Velocity or ACCENT amount setting.

Although LEVEL/DYNAMICS is connected to all 8 ENV GENERATORs, it is allowed to enter only the transistor whose base-emitter junction, for example Q26, is being forward biased by a TRIG from latch IC27 or IC28 at XSTA rate. Q26 output is then connected by IC40 to (+) REF pin of IC37 every 40µs with its level decaying according to C53xR59 time constant as the successive BD-1 data are converted to analog voltages, giving a bass drum contour to the voice.

The DAC output is boosted at Q41 and Q42 conjunction and is channeled into the S/H which is designated by A and is placed at IC41 select pins.

As can be seen from the timing chart, the timing of envelope and D/A converting lag one slot behind the memory addressing. That is, BD-1 sound read from ROM with channel No. ABC=000 becomes an audible sound when channel No. is represented by ABC=100. This is because the data accessed on a positive going CLK4 with ABC=000 is latched into IC36 on the next CLK4 with ABC=100. Consequently, TRIG data to ICs 27 and 28, and LEVEL/DYNAMICS data to IC31 are made to delay one CLK4 cycle to keep pace with D/A conversion at IC37.

エンベロープ・ジェネレータ

XSTA (XST0-7+ネーブル)はIC30のアドレスカウンタに加えられると同時に、ラッチIC27・28のCLKにも加えられ、BD-1が選択されている時には、ENV GENのQ26がTRIGパルスによって導通し、LEVELとDYNAMICS (ACCENT)の混合された電圧がC53に充電されます。なお、LEVELの値はどの音源の場合でも常に一定です。また、LEVEL/DYNAMICS CVは8本全てのトランジスタに印刷されますが、TRIGパルスが現在加わっているトランジスタにのみ投入します。Q26の出力はIC39dを通り、IC40により時分割でD/AコンバータのREF端子へ送られて行きますが、斜率はC53xR59の時定数に応じて減衰して行きます。時定数はBDのサウンド・データ全部がROMから読み出される時間より長くなる様に設定されています。

注 IC30のアドレス・カウンタのチャンネル番号とIC40/41のチャンネル番号が異なっています。これはROMのサウンド・データが、アキュムレタの時よりCLK4の1サイクル分遅れてIC36にラッチされ、D/A変換される為です。したがってTRIGおよびLEVEL/DYNAMICSデータもその分遅れて出力されます。

HI HAT

Output from Q35 has no distinction between closed hi hat and open hi hat and is given a particular waveshape (decay) at VCA Q22 and IC42 as OPEN/CLOSED select signal is applied on the base of Q21.

SINGLE SOUND PROCESSING

Each of CYMBAL voices (RIDE and CRASH) has dedicated sound ROM, address counter, D/A converter and envelope generator. The difference from Multiplex processing in circuit configuration is that envelope control is accomplished after the wave data becomes analog form. LEVEL/DYNAMICS (ACCENT CV) routed to Q18 emitter (CRASH) is charged into envelope capacitor C50 on a TRIG, giving a contour to CRASH sound passing through Q14.

TR-707 Sound ROM

IC NO.	ROM	CE	CS	VOICE	MEMORY
IC19	HN61256PC73 (15179663)	H	L	CRASH CYMBAL	32k byte
IC22	HN61256PC74 (15179664)	H	L	RIDE CYMBAL	32k byte

Hi Hat に対しては、もう一度エンベロープ回路(VCA-IC42a, Q32)が追加されており、クローズかオープンかによりディケイタイムを切替えています。

シングル音源

RIDE CYMBAL および CRASH CYMBAL は、それぞれ専用のアドレス・カウンタ、ROM および D/A コンバータを持っていますが動作原理はマルチ音源の場合と変わりません。ただし、エンベロープがD/A変換後VCAに加えられる点の違いです。

TR-727 Sound ROM

IC NO.	ROM	CE	CS	VOICE	MEMORY
IC19	HN61256PC81 (15179696)	H	L	QUIJADA	32k byte
IC22	HN61256PC82 (15179697)	H	L	STAR CHINE	32k byte

Table 2 表2

TESTING AND ADJUSTING

The built-in test program executes the following test and adjusting routines while in Test Mode.

RUNNING TEST PROGRAM

While holding down CLEAR and INSTRUMENT, switch the power ON. The unit is now in the test mode and the test program initiates test routines with TEST 1.

TEST 1. LED SEQUENTIAL LIGHTING

Upon entering test mode the program lights up LEDs, starting with MAIN KEY 1 through SCALE INDICATOR, PATTERN GROUP and CARTRIDGE (red and green alternately) and repeats.

Leave the LEDs lighting and go to TEST 2.

TEST 2. ALL LEDs AND LCD DOTS LIGHTING

Press ENTER and verify lighting of all LEDs and LCD dots.

Leave them lit and go to TEST 3.

TEST 3. SWITCHES AND ACCENT AMOUNT READING

Press ENTER. All LCD display will be cleared OFF. Referring to the illustration below, push numbered buttons 1-32 one by one and check for the lighting of corresponding dot on either Bass Drum (BonGo) or Snare Drum (Hi Conga) row on the display window.

Slide up or down ACCENT and verify that TEMPO MEASURE window reads 1 and 16 at the extremities of travel.

テストおよび調整

TR-707, TR-727 には回路機能チェックおよび調整用のプログラムが内蔵されています。このプログラムを走らせるにはテストモードに入る必要があります。

テストモード

CLEAR と INSTRUMENT ボタンを同時に押しながら電源をオンするとテストモードとなり、テスト 1 が自動的に実行されます。

テスト 1 LED 順次点灯

テストモードに入ると、メインキーの 1 から順次 LED が点灯して行きます。CARTRIDGE の LED は赤と緑が交互に点灯します。

LED の点灯はくり返されますが、そのままの状態でもテスト 2 へ進んで下さい。

テスト 2 LED および LCD 全点灯

ENTER を押します。全ての LED および LCD 上の全ドットが点灯する筈です。

そのままの状態でもテスト 3 へ進んで下さい。

テスト 3 スイッチおよびアクセントレベル読込み

ENTER を押すと LCD のドットが消えます。パネル上のスイッチを押すと、右図に示す様に、対応した番号のドットが LCD の上に表示されます。

If not verified, go to ACCENT AMOUNT ADJUSTMENT below without exiting the test mode.

When all tests are satisfactory, turned the power off and on again to return to the normal operation mode (if necessary).

ACCENT AMOUNT ADJUSTMENT

This test must be carried out in the test mode and follow the tests above.

1. Set ACCENT at MIN and adjust TM2 of VOICING board for a transition point of "1" to/from "2" of TEMPO MEASURE display reading.
2. Set ACCENT at MAX and adjust TM3 for a transition point of "15" to/from "16" of TEMPO MEASURE display reading.

The unit will remain in the test mode until the power is turned OFF.

TEMPO CLOCK RATE ADJUSTMENT

This adjustment must be done in the normal operation mode.

1. Set TEMPO at FAST and adjust TM1 of VOICING board for 250 reading on TEMPO MEASURE window.

次に、アクセント（AC）つまみを上下させるとLCDのTEMPO/MEASURE部に数字が表示されます。MINの位置で"1"、MAXで"16"とならない場合は、次のアクセントレベル調整へ進んで下さい。

調整が不要で、通常モードに戻るには一旦電源をオフして下さい。

アクセントレベル調整

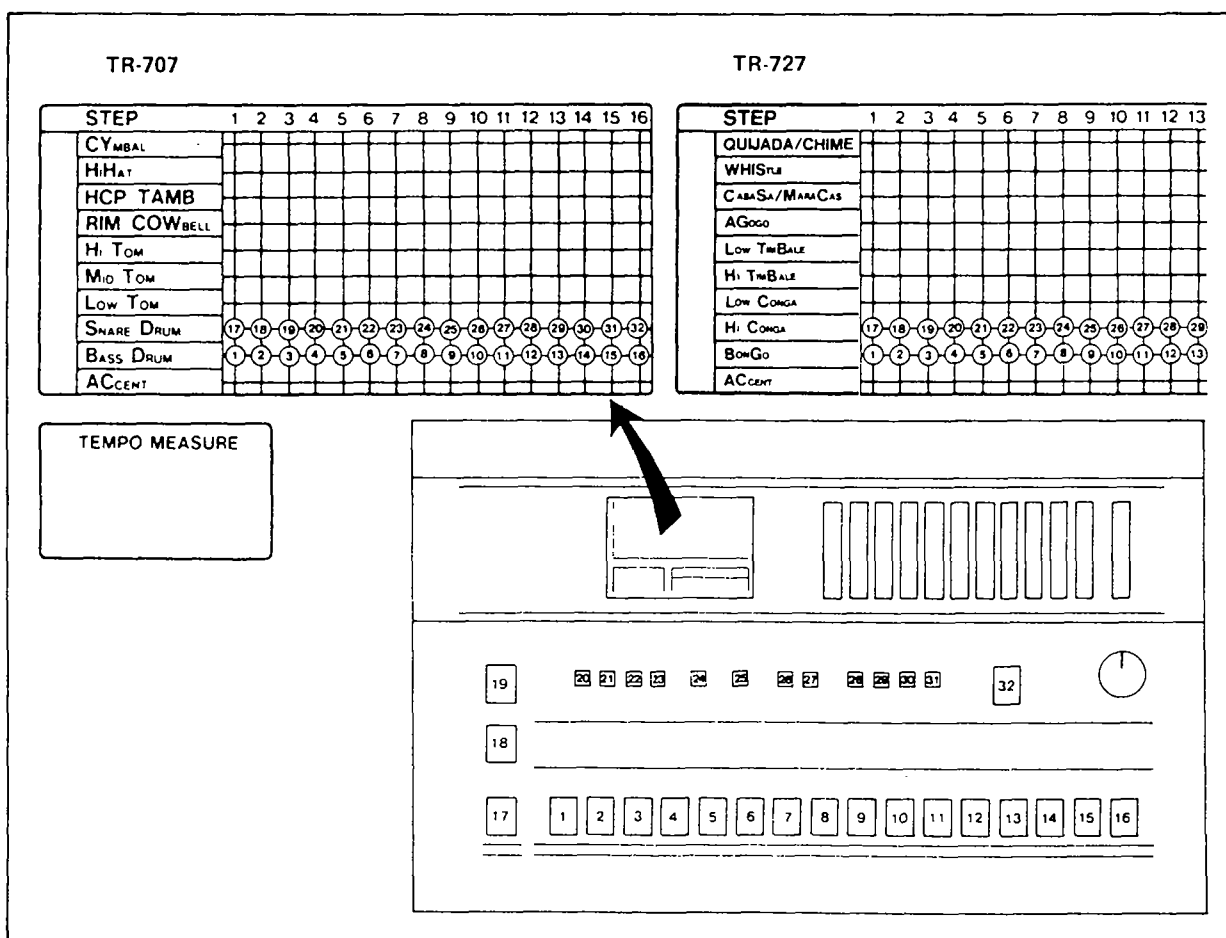
本調整はテストモードで行ないます。上記のテストの後で行なって下さい。

1. アクセント（AC）をMINにセットし、TM2（ボーシング基板）でTEMPO/MEASUREの表示が"1"か"2"になる臨界点に調整します。
2. ACをMAXにセットし、TM3で表示が"15"か"16"になる臨界点に調整します。

テンポ調整

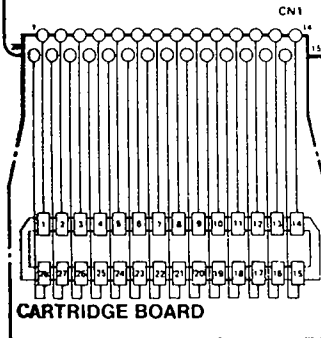
本調整は通常モードで行ないます。テストモードになっている場合は、一度電源をオフして下さい。

TEMPOをFASTにセットし、TM1（ボーシング基板）でTEMPO/MEASUREの表示が250になる様調整します。

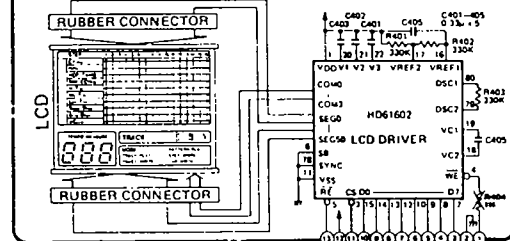


TR-707/TR-727 GENERAL CIRCUIT DIAGRAM

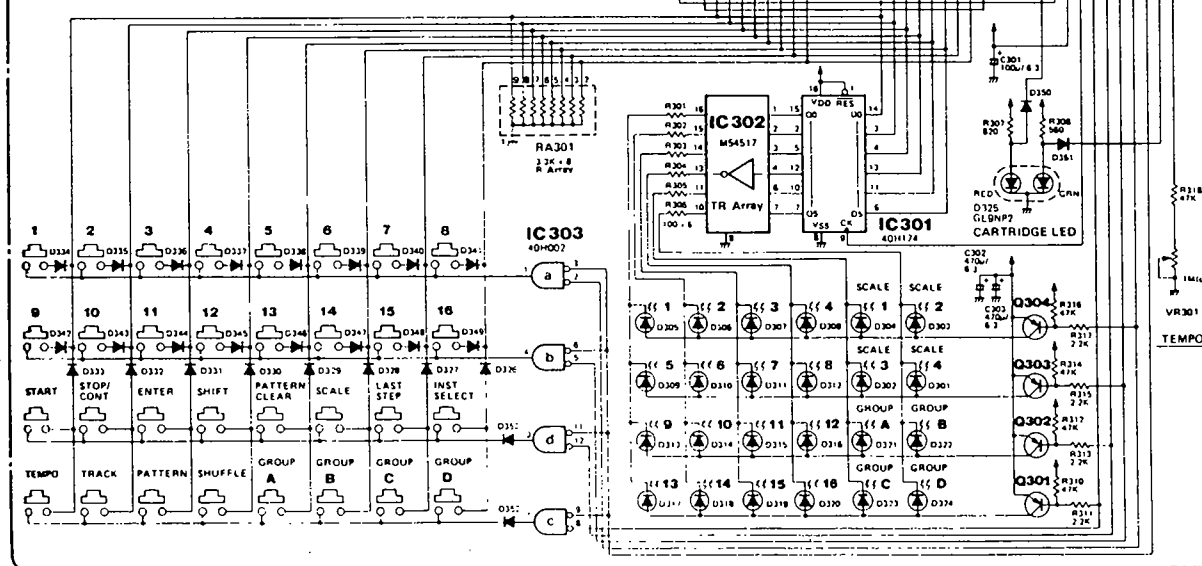
VOICING BOARD (Detail on page 10)



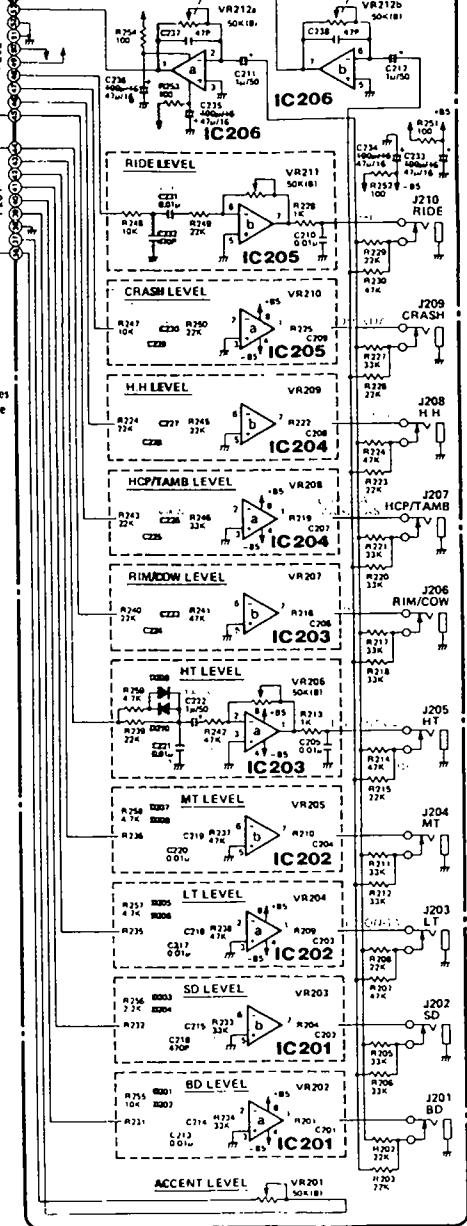
LCD BOARD



SWITCH BOARD



VOLUME BOARD



Component values identical to above are unspecified.

MAIN KEY LED

VOLUME BOARD**TR-707** 7313605000 (pcb 2291098002)**TR-727** 7313805000 (pcb 2292019000)

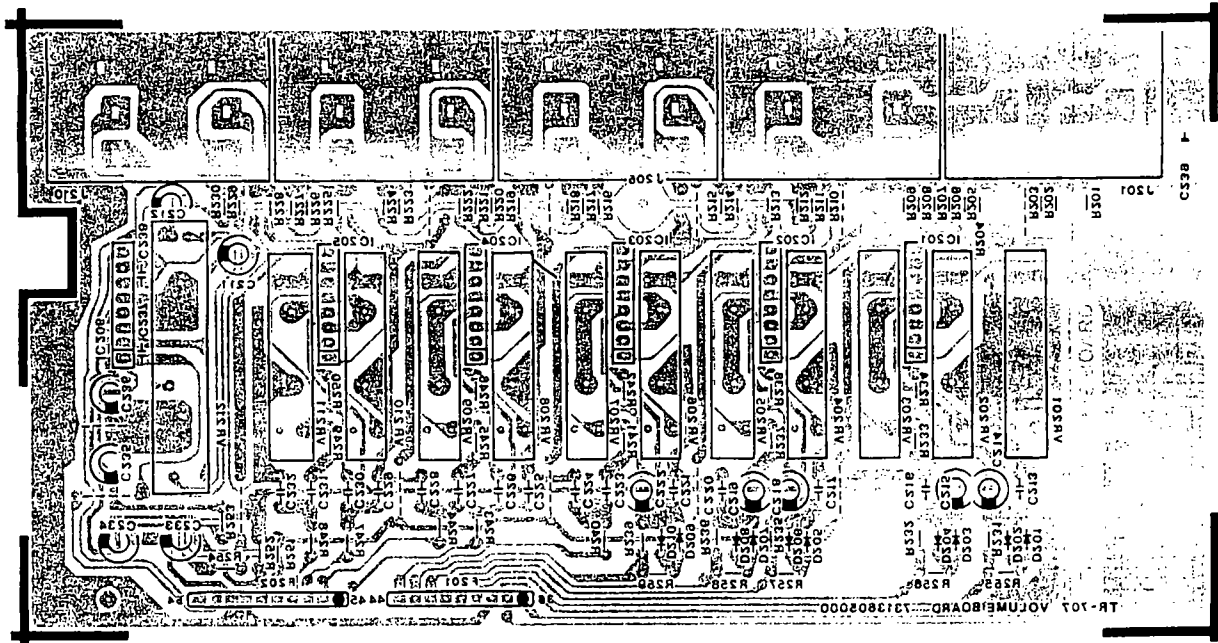
View from foil side

BELOW PCB LAYOUT For TR-707

TR-727's identical to TR-707's except for those represented in red in the circuit diagram left.

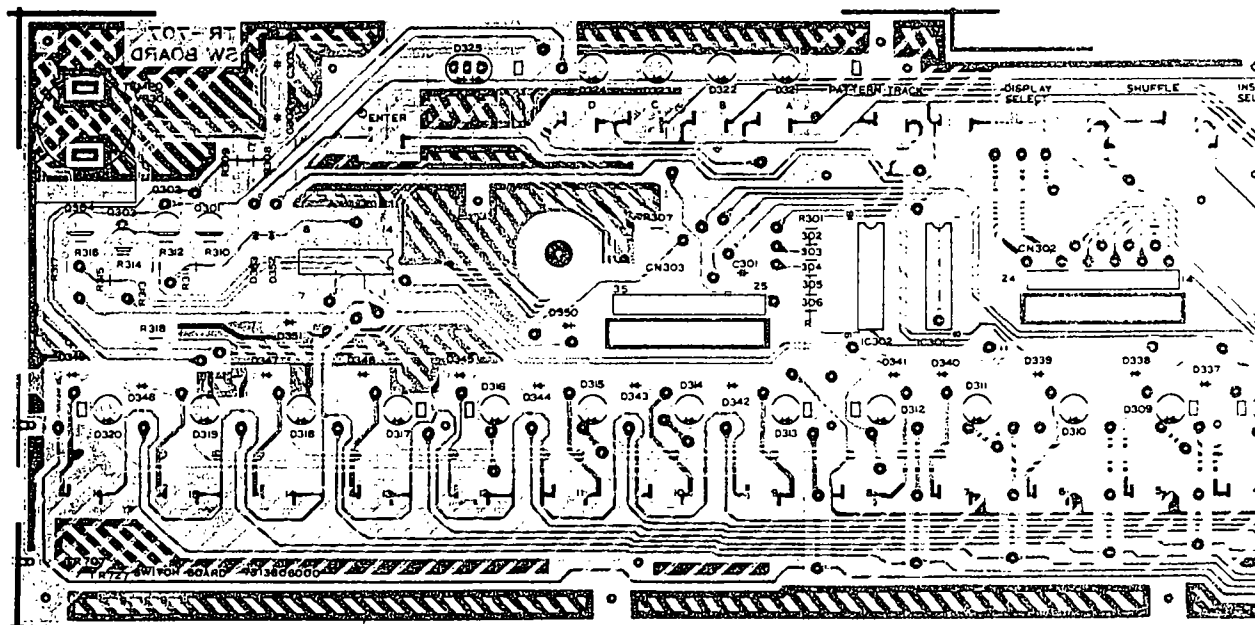
下の基板図はTR-707用です。

TR-727の場合は回路図の赤線表示に従って相違点を確認して下さい。

**SWITCH BOARD**

7313606000 (pcb 2291097903)

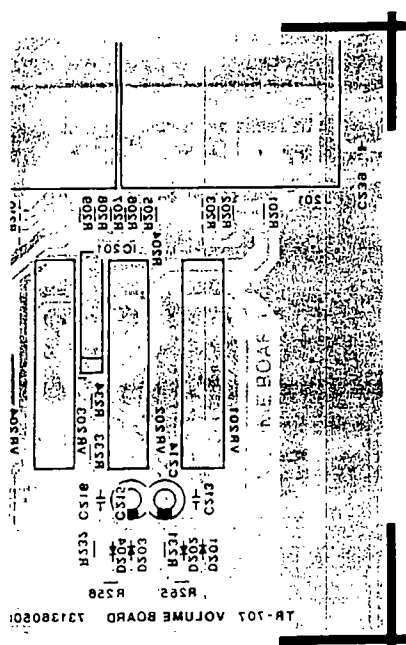
View from foil side



UT For TR-707

R-707's except for those represented in red diagram left

図表示に従って相違点を確認して下さい。

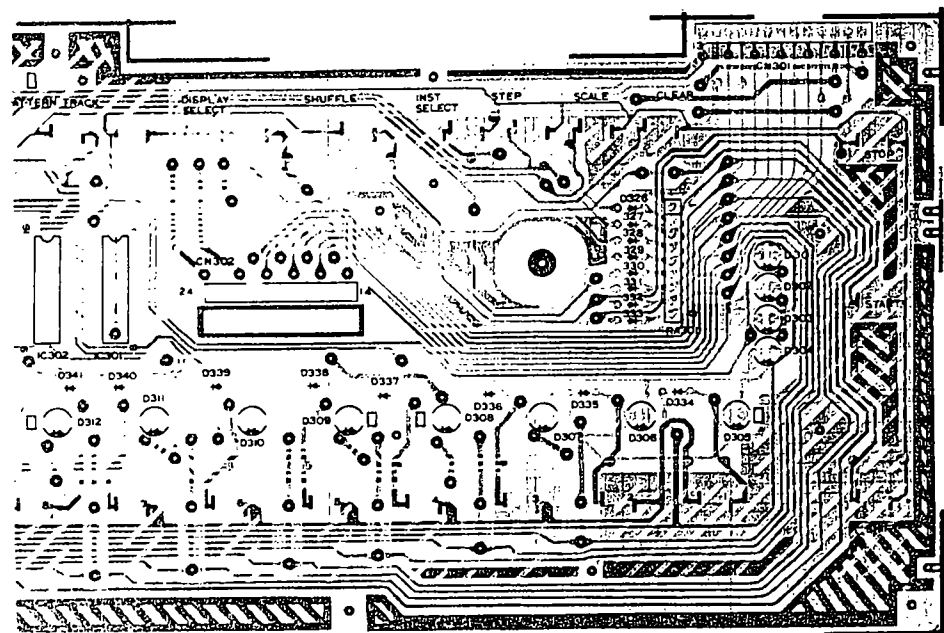
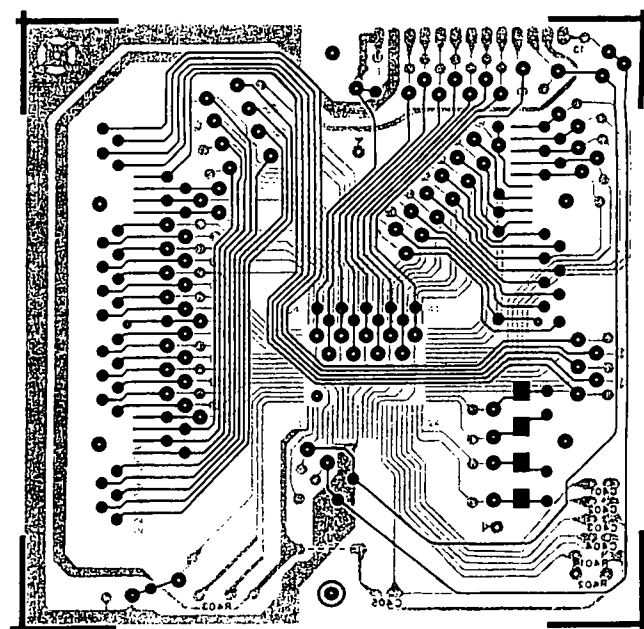


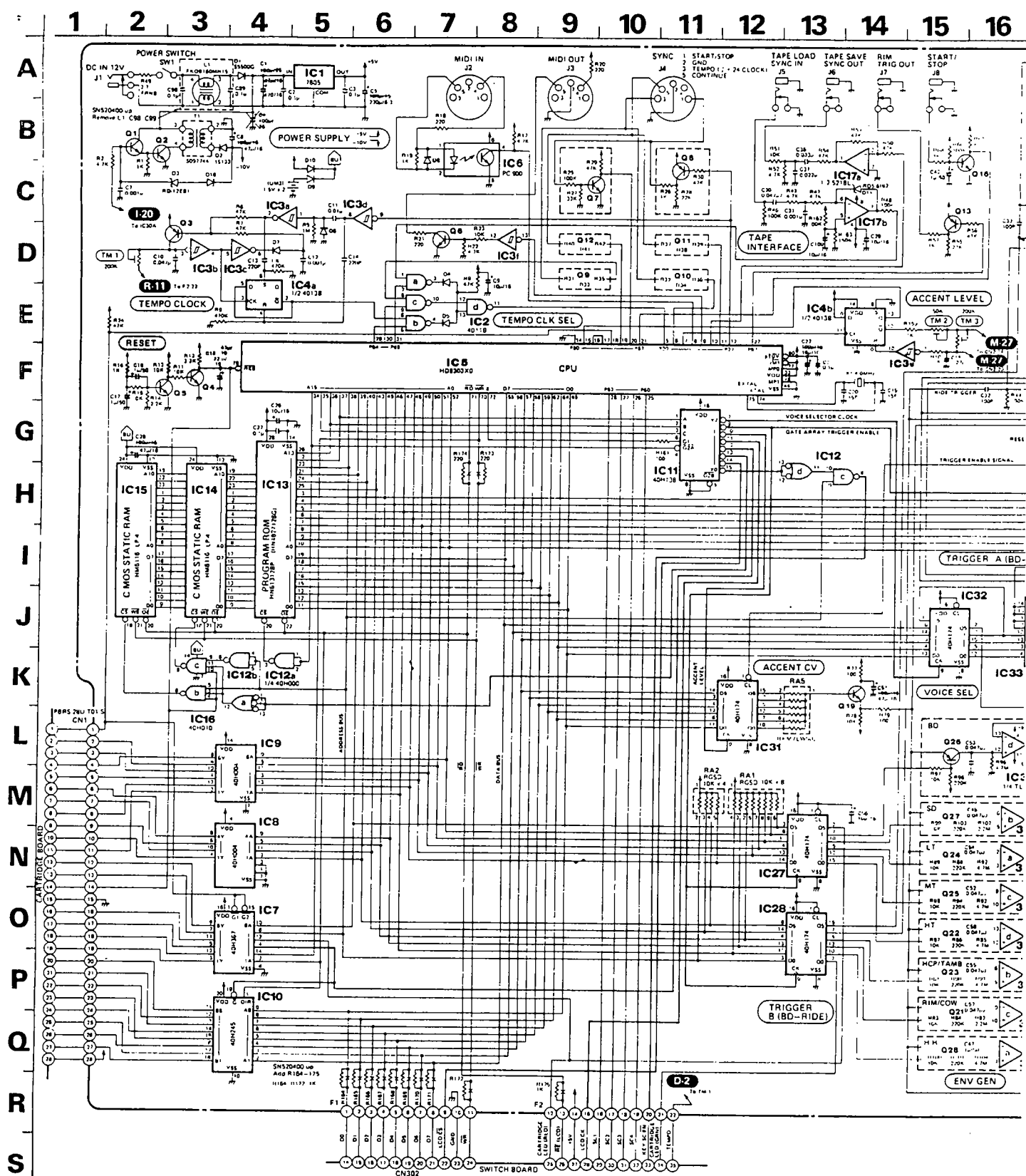
LCD BOARD

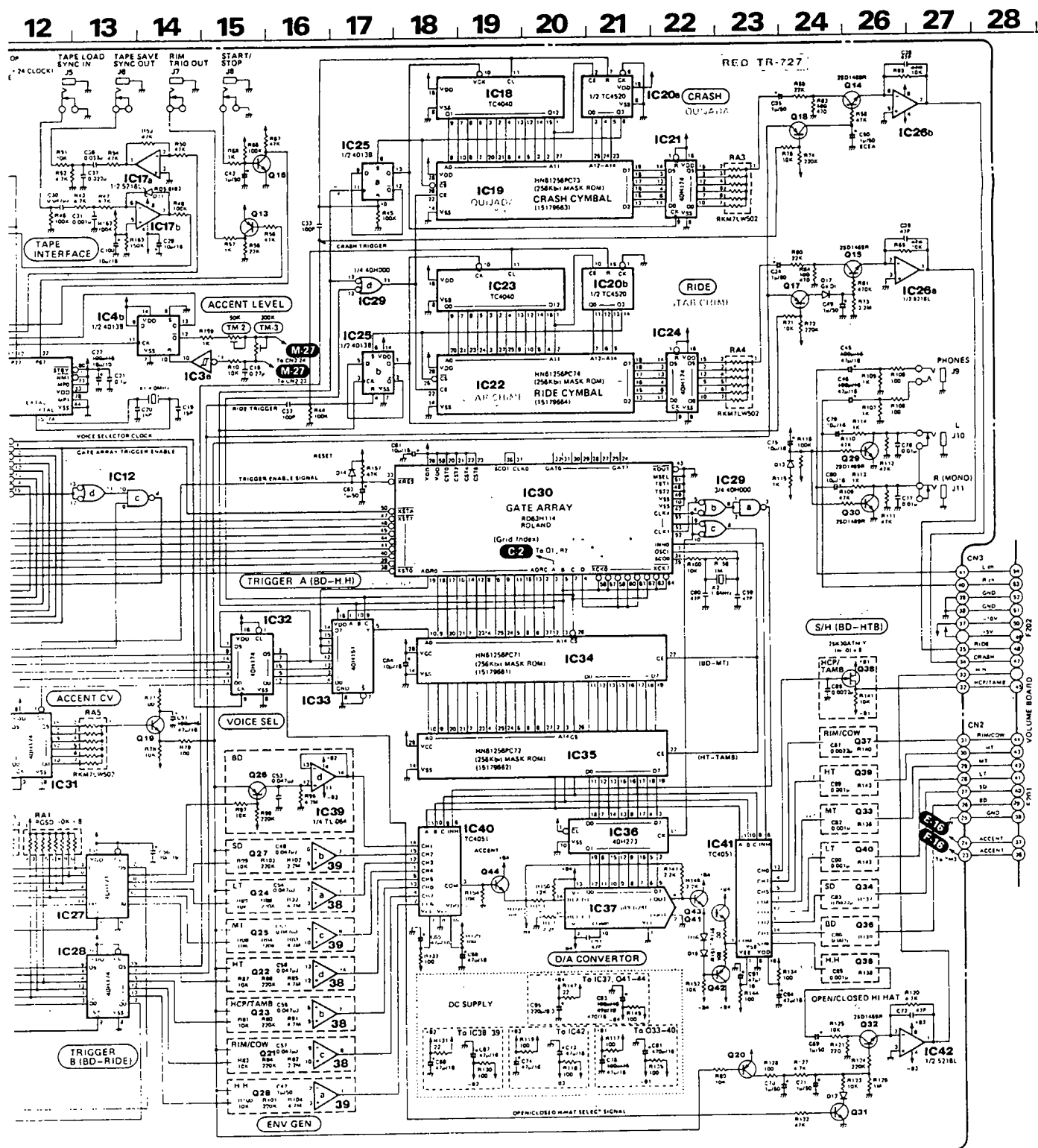
7313607000

(pcb 2291098203)

View from foil side







VOICING BOARD

TR-707 7313604000 (pcb 2291098102)

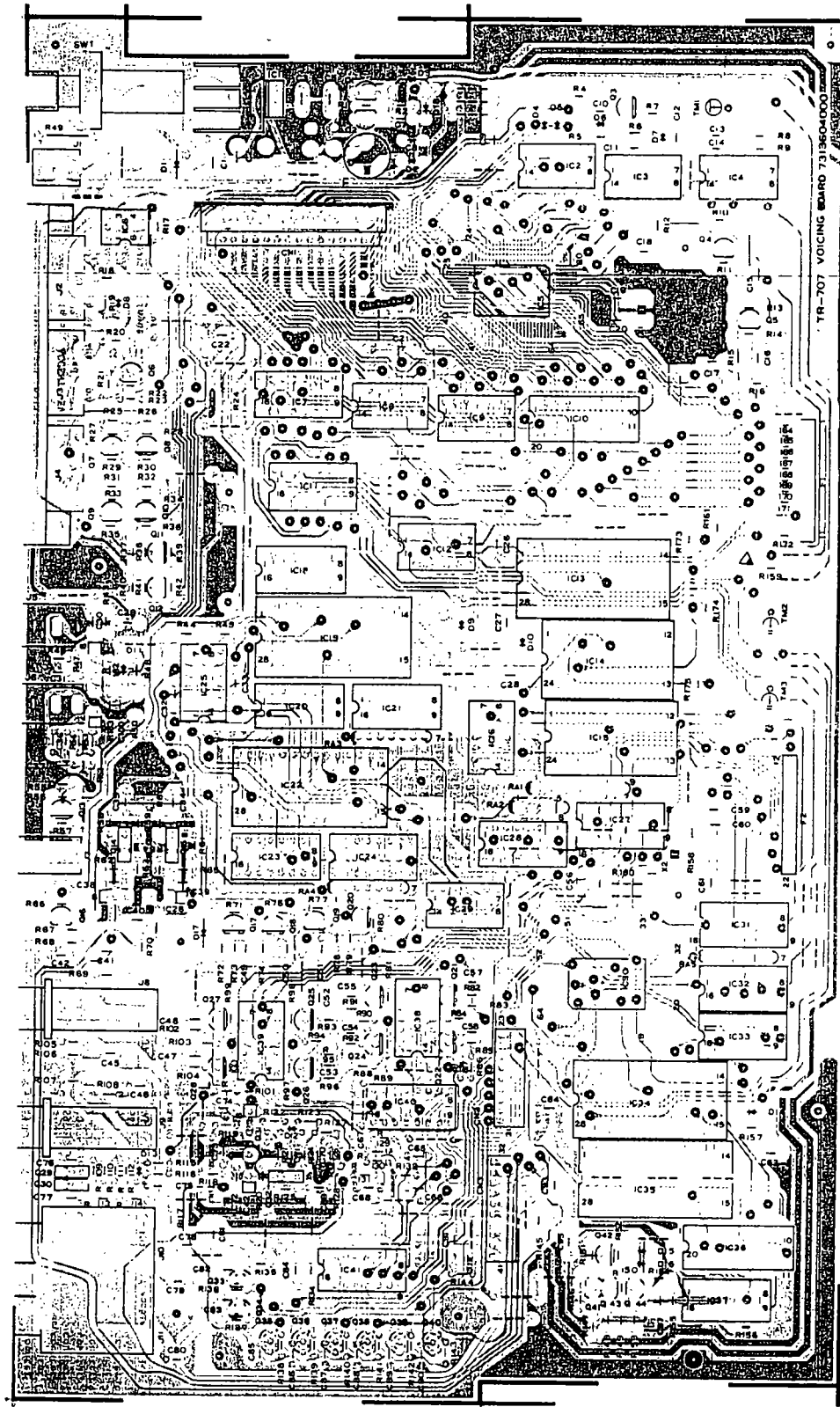
TR-727 7313804000 (pcb 2292018900)

BELOW PCB LAYOUT For TR-707

TR-727's identical to TR-707's except for those represented in red in the circuit diagram left.

下の回路図はTR-707用です。

TR-727の場合は回路図の赤表示に従って組立点を確認して下さい。

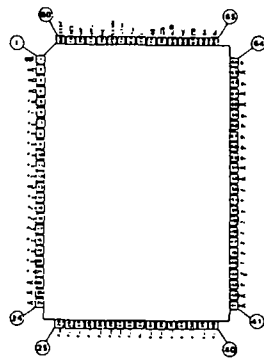


View from foil side

IC DATA

CPU HD6303X

Pin Configuration
(Top View)

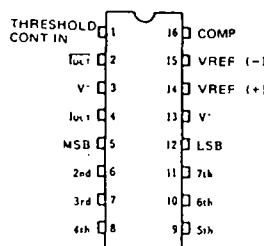


Port Assignment

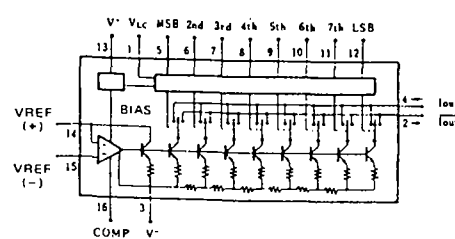
PIN NO.	PORT NAME	DESCRIPTION
1	NMI	Unused, pulled up +5V
2-4	NC	Unused, open
5	P20	input, TEMPO CLOCK
6	P21	output, TEMPO CLOCK (DIN)
7	P22	output, ACCENT LEVEL input trigger for internal ADC
8	P23	input, MIDI IN
9	P24	output, MIDI OUT
10	P25	output, TAPE SYNC
11	P26	output, CONT START (DIN)
12	P27	output, START/STOP (DIN)
13	NC	unused, open
14	P50	IRQ1 unused, pulled down
15	P51	IRQ2
		input, ACCENT LEVEL
16	P52	MR unused, pulled up +5V
17	P53	HALT unused, pulled up +5V
18	P54	RAM cartridge control
19	P55	input, CONT START (DIN IN)
20	P56	input, START/STOP (DIN IN)
21	P57	input, START/STOP (from remote control)
22-24	NC	unused, open
25-28	P60-P63	output, scanning signal to LED and KEY
29	P64	output, internal TEMPO CLOCK
30	P65	output, DIN SYNC TEMPO CLOCK
31	P66	output, TAPE SYNC TEMPO CLOCK
32	P67	output, Trigger (RIM SHOT:TR-707)(H1 AGOCO:TR-727)
33	Vcc	input, +5V power supply
34-40	A15-A9	output, address A15---A9
41-42	NC	unused, open
43	A8	output, address A8
44	Vss	GND
45-52	A7-A0	output, address A7---A0
53-54	NC	unused, open
55-59	D7-D3	data bus D7---D3
60-61	NC	unused, open
62	D2	data bus D2
63	NC	unused, open
64-65	D1-D0	data bus D1---D0
66	BA	output, unused
67	LIR	output, unused
68	NC	unused, open
69	R/W	output
70	WB	output
71	RD	output
72	E	output, system clock 1MHz
73	Vss	GND
74	XTAL	terminal, Xtal
75	EXTAL	terminal, Xtal or external system clock in
76	NC	unused, open
77	MPO	input, MCU mode setting pulled up +5V
78	MPI	input, MCU mode setting pulled down GND
79	RES	input, MCU reset (active low)
80	STBY	unused, pulled up +5V (active low)

μPC624C

Pin Configuration
(Top View)

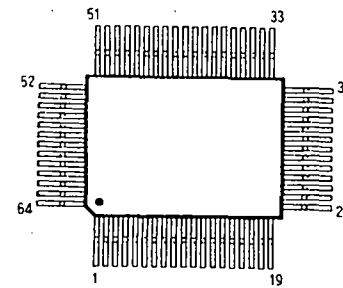


Block Diagram



GATE ARRAY RD63H114

Pin Configuration
(Top View)



PIN	NAME	PIN	NAME	PIN	NAME
1	INH0	23	CST 6	45	XST 5
2	ADRC	24	GATE 7	46	XST 6
3	A	25	GATE 6	47	XST 7
4	D	26	VDD	48	TST 1
5	B	27	GATE 5	49	TST 2
6	ADR 7	28	GATE 4	50	XST A
7	C	29	GATE 3	51	MSEL
8	ADR 6	30	GATE 2	52	CLK 1
9	ADR 8	31	GATE 1	53	CLK 2
10	VSS	32	GATE 0	54	CLK 3
11	ADR 9	33	XRES	55	CLK 4
12	ADR 5	34	OSC 1	56	ICK 0
13	ADR 8	35	SC0 0	57	ICK 1
14	ADR 4	36	SC0 1	58	VDD
15	ADR 3	37	CLK 0	59	ICK 2
16	ADR A	38	XST 0	60	ICK 3
17	ADR 2	39	TSY 1	61	ICK 4
18	ADR 1	40	TSY 2	62	ICK 5
19	ADR 0	41	TSY 3	63	ICK 6
20	CST 0	42	VSS	64	ICK 7
21	CST 2	43	XOUT		
22	CST 4	44	XST 4		

Multiple Address Counters

DESIGNATION	PIN	DESCRIPTION	I/O
CST	0 20	pulled up (+5V) continue start	counter 0
	2 21		counter 1
	4 22		counter 2
	6 23		counter 6
XST	4 50	XST0-XST7 enable, active low	counter 0
	0 38	counter start, active low	counter 1
	1 39		counter 2
	2 40		counter 3
	3 41		counter 4
	4 44		counter 5
	5 45		counter 6
	6 46		counter 7
ICK	0 56	counter clock input	counter 0
	1 57		counter 1
	2 59		counter 2
	3 60		counter 3
	4 61		counter 4
	5 62		counter 5
	6 63		counter 6
XOUT	43	address(ADRO-ADRC) out enable, active low; high-HI z	counter 7
ADR	0 19	ROM ADDRESS	0
	1 18		0
	2 17		0
	3 15		0
	4 14		0
	5 12		0
	6 8		0
	7 6		0
	8 9		0
	9 11		0
A	3	MUX, DMUX channel select	100kHz
B	5		system clock
C	7		50kHz
D	4		25kHz
INH0	1	DMUX inhibit	counters 12.5kHz
OSC1	34	internal clock	0
SC00	35	clock generator	0
SC01	36	master clock out 1.6MHz	0
CLK	0 57	system clock 100kHz	1
	1 52		system clock in 1.6MHz
	2 53		MUX inhibit
	3 54		ROM chip enable
XRES	33	reset pulse, active low	0
MSEL	51	counter 12/13 bit select	0
TST1	48	IC test	pulled down
TST2	49		pulled down
Vss	10		GND
Vdd	42	power supply +5V	1
GAT	0 32	counter gate output low=counter running	0
	1 31		0
	2 30		0
	3 30		0
	4 29		0
	5 28		0
	6 25		0

TR-707/TR-727 MIDI IMPLEMENTATION

1. TRANSMITTED DATA

Status	Second	Third	Description
1001 xxxx	xxxx xxxx	0000 0000	Note ON xxxxxxx = 15-bit to 24, 25 66-7c (TR 727 only)
1002 xxxx	xxxx xxxx	xxxx xxxx	Note ON xxxxxxx = 15-bit to 24, 25 66-7c (TR 727 only)
1111 0010	xxxx xxxx	xxxx xxxx	Note Velocity Parameter xxxxxxx = 15-bit to 24, 25 xxxxxxx = 0 - 127 (TR 727 only)
1111 0011	xxxx xxxx	xxxx xxxx	Note Velocity xxxxxxx = 0 - 127 (TR 727 only)
1111 1000	xxxx xxxx	xxxx xxxx	Program Change xxxxxxx = 0 - 127 (TR 727 only)
1111 1001	xxxx xxxx	xxxx xxxx	Program Change xxxxxxx = 0 - 127 (TR 727 only)
1111 1010	xxxx xxxx	xxxx xxxx	Program Change xxxxxxx = 0 - 127 (TR 727 only)
1111 1011	xxxx xxxx	xxxx xxxx	Program Change xxxxxxx = 0 - 127 (TR 727 only)
1111 0000	0100 0001	xxxx xxxx	Sequence Data xxxxxxx = 0 - 127 (TR 727 only)

Notes: #1 Transmitted channel B can be changed to 1 - 16 from the front panel. When the panel is applied, the channel B set prior to the last power OFF remains unchanged.
#2 When the message number is set.
#3 When the track # is set.

track #	ssssss
1	1
2	2
3	3
4	4

Tempo Mode	Some Synchronized with
Internal	Internal tempo clock
MIDI mode	Received timing clock
Disk mode	Positive edge of the disk clock

#4 Note numbers are assigned as follows:

Setting A: Normal
Setting B: When the "MIDI CH" (LAST STEP) button is pressed while the "SHIFT" button is being pressed

TR-727	Key Name	Setting A kkkkkkkk	Setting B kkkkkkkk
	No Range	60	75
	Low Range	61	36
	Mid Range	62	38
	Over Mid Range	63	40
	Low C-range	64	41
	Mid C-range	65	42
	Low Timbale	66	43
	Mid Timbale	67	44
	Low Agogo	68	45
	Mid Agogo	69	46
	Low Conga	70	47
	Mid Conga	71	48
	Low Maracas	72	49
	Mid Maracas	73	50
	Low Shaver	74	51
	Mid Shaver	75	52
	Low Snare	76	53
	Mid Snare	77	54
	Low Tom	78	55
	Mid Tom	79	56
	Low Tom-Mid	80	57
	Mid Tom-Mid	81	58
	Low Tom	82	59
	Mid Tom	83	60
	Low Tom	84	61
	Mid Tom	85	62
	Low Tom	86	63
	Mid Tom	87	64
	Low Tom	88	65
	Mid Tom	89	66
	Low Tom	90	67
	Mid Tom	91	68
	Low Tom	92	69
	Mid Tom	93	70
	Low Tom	94	71
	Mid Tom	95	72
	Low Tom	96	73
	Mid Tom	97	74
	Low Tom	98	75
	Mid Tom	99	76
	Low Tom	100	77
	Mid Tom	101	78
	Low Tom	102	79
	Mid Tom	103	80
	Low Tom	104	81
	Mid Tom	105	82
	Low Tom	106	83
	Mid Tom	107	84
	Low Tom	108	85
	Mid Tom	109	86
	Low Tom	110	87
	Mid Tom	111	88
	Low Tom	112	89
	Mid Tom	113	90
	Low Tom	114	91
	Mid Tom	115	92
	Low Tom	116	93
	Mid Tom	117	94
	Low Tom	118	95
	Mid Tom	119	96
	Low Tom	120	97
	Mid Tom	121	98
	Low Tom	122	99
	Mid Tom	123	100
	Low Tom	124	101
	Mid Tom	125	102
	Low Tom	126	103
	Mid Tom	127	104
	Low Tom	128	105
	Mid Tom	129	106
	Low Tom	130	107
	Mid Tom	131	108
	Low Tom	132	109
	Mid Tom	133	110
	Low Tom	134	111
	Mid Tom	135	112
	Low Tom	136	113
	Mid Tom	137	114
	Low Tom	138	115
	Mid Tom	139	116
	Low Tom	140	117
	Mid Tom	141	118
	Low Tom	142	119
	Mid Tom	143	120
	Low Tom	144	121
	Mid Tom	145	122
	Low Tom	146	123
	Mid Tom	147	124
	Low Tom	148	125
	Mid Tom	149	126
	Low Tom	150	127
	Mid Tom	151	128
	Low Tom	152	129
	Mid Tom	153	130
	Low Tom	154	131
	Mid Tom	155	132
	Low Tom	156	133
	Mid Tom	157	134
	Low Tom	158	135
	Mid Tom	159	136
	Low Tom	160	137
	Mid Tom	161	138
	Low Tom	162	139
	Mid Tom	163	140
	Low Tom	164	141
	Mid Tom	165	142
	Low Tom	166	143
	Mid Tom	167	144
	Low Tom	168	145
	Mid Tom	169	146
	Low Tom	170	147
	Mid Tom	171	148
	Low Tom	172	149
	Mid Tom	173	150
	Low Tom	174	151
	Mid Tom	175	152
	Low Tom	176	153
	Mid Tom	177	154
	Low Tom	178	155
	Mid Tom	179	156
	Low Tom	180	157
	Mid Tom	181	158
	Low Tom	182	159
	Mid Tom	183	160
	Low Tom	184	161
	Mid Tom	185	162
	Low Tom	186	163
	Mid Tom	187	164
	Low Tom	188	165
	Mid Tom	189	166
	Low Tom	190	167
	Mid Tom	191	168
	Low Tom	192	169
	Mid Tom	193	170
	Low Tom	194	171
	Mid Tom	195	172
	Low Tom	196	173
	Mid Tom	197	174
	Low Tom	198	175
	Mid Tom	199	176
	Low Tom	200	177
	Mid Tom	201	178
	Low Tom	202	179
	Mid Tom	203	180
	Low Tom	204	181
	Mid Tom	205	182
	Low Tom	206	183
	Mid Tom	207	184
	Low Tom	208	185
	Mid Tom	209	186
	Low Tom	210	187
	Mid Tom	211	188
	Low Tom	212	189
	Mid Tom	213	190
	Low Tom	214	191
	Mid Tom	215	192
	Low Tom	216	193
	Mid Tom	217	194
	Low Tom	218	195
	Mid Tom	219	196
	Low Tom	220	197
	Mid Tom	221	198
	Low Tom	222	199
	Mid Tom	223	200
	Low Tom	224	201
	Mid Tom	225	202
	Low Tom	226	203
	Mid Tom	227	204
	Low Tom	228	205
	Mid Tom	229	206
	Low Tom	230	207
	Mid Tom	231	208
	Low Tom	232	209
	Mid Tom	233	210
	Low Tom	234	211
	Mid Tom	235	212
	Low Tom	236	213
	Mid Tom	237	214
	Low Tom	238	215
	Mid Tom	239	216
	Low Tom	240	217
	Mid Tom	241	218
	Low Tom	242	219
	Mid Tom	243	220
	Low Tom	244	221
	Mid Tom	245	222
	Low Tom	246	223
	Mid Tom	247	224
	Low Tom	248	225
	Mid Tom	249	226
	Low Tom	250	227
	Mid Tom	251	228
	Low Tom	252	229
	Mid Tom	253	230
	Low Tom	254	231
	Mid Tom	255	232
	Low Tom	256	233
	Mid Tom	257	234
	Low Tom	258	235
	Mid Tom	259	236
	Low Tom	260	237
	Mid Tom	261	238
	Low Tom	262	239
	Mid Tom	263	240
	Low Tom	264	241
	Mid Tom	265	242
	Low Tom	266	243
	Mid Tom	267	244
	Low Tom	268	245
	Mid Tom	269	246
	Low Tom	270	247
	Mid Tom	271	248
	Low Tom	272	249
	Mid Tom	273	250
	Low Tom	274	251
	Mid Tom	275	252
	Low Tom	276	253
	Mid Tom	277	254
	Low Tom	278	255
	Mid Tom	279	256
	Low Tom	280	257
	Mid Tom	281	258
	Low Tom	282	259
	Mid Tom	283	260
	Low Tom	284	261
	Mid Tom	285	262
	Low Tom	286	263
	Mid Tom	287	264
	Low Tom	288	265
	Mid Tom	289	266
	Low Tom	290	267
	Mid Tom	291	268
	Low Tom	292	269
	Mid Tom	293	270
	Low Tom	294	271
	Mid Tom	295	272
	Low Tom	296	273
	Mid Tom	297	274
	Low Tom	298	275
	Mid Tom	299	276
	Low Tom	300	277
	Mid Tom	301	278
	Low Tom	302	279
	Mid Tom	303	280
	Low Tom	304	281
	Mid Tom	305	282
	Low Tom	306	283
	Mid Tom	307	284
	Low Tom	308	285
	Mid Tom	309	286
	Low Tom	310	287
	Mid Tom	311	288
	Low Tom	312	289
	Mid Tom	313	290
	Low Tom	314	291
	Mid Tom	315	292
	Low Tom	316	293
	Mid Tom	317	294
	Low Tom	318	295
	Mid Tom	319	296
	Low Tom	320	297
	Mid Tom	321	298
	Low Tom	322	299
	Mid Tom	323	300
	Low Tom	324	301
	Mid Tom	325	302
	Low Tom	326	303
	Mid Tom	327	304
	Low Tom	328	305
	Mid Tom	329	306
	Low Tom	330	307
	Mid Tom	331	308
	Low Tom	332	309
	Mid Tom	333	310
	Low Tom	334	311
	Mid Tom	335	312
	Low Tom	336	313
	Mid Tom	337	314
	Low Tom	338	315
	Mid Tom	339	316
	Low Tom	340	317
	Mid Tom	341	318
	Low Tom	342	319
	Mid Tom	343	320
	Low Tom	344	321
	Mid Tom	345	322
	Low Tom	346	323
	Mid Tom	347	324
	Low Tom	348	325
	Mid Tom	349	326
	Low Tom	350	327
	Mid Tom	351	328
	Low Tom	352	329
	Mid Tom	353	330
	Low Tom	354	331
	Mid Tom	355	332
	Low Tom	356	333
	Mid Tom	357	334
	Low Tom	358	335
	Mid Tom	359	336
	Low Tom	360	337
	Mid Tom	361	338
	Low Tom	362	339
	Mid Tom	363	340
	Low Tom	364	341
	Mid Tom	365	342
	Low Tom	366	343
	Mid Tom	367	344
	Low Tom	368	345
	Mid Tom	369	346
	Low Tom	370	347
	Mid Tom	371	348
	Low Tom	372	349
	Mid Tom	373	350
	Low Tom	374	351
	Mid Tom	375	352
	Low Tom	376	353
	Mid Tom	377	354
	Low Tom	378	355
	Mid Tom	379	356
	Low Tom	380	357
	Mid Tom	381	358
	Low Tom	382	359
	Mid Tom	383	360
	Low Tom	384	361
	Mid Tom	385	362
	Low Tom	386	363
	Mid Tom	387	364
	Low Tom	388	365
	Mid Tom	389	366
	Low Tom	390	367
	Mid Tom	391	368
	Low Tom	392	369
	Mid Tom	393	370
	Low Tom	394	371
	Mid Tom	395	372
	Low Tom	396	373
	Mid Tom	397	374
	Low Tom	398	