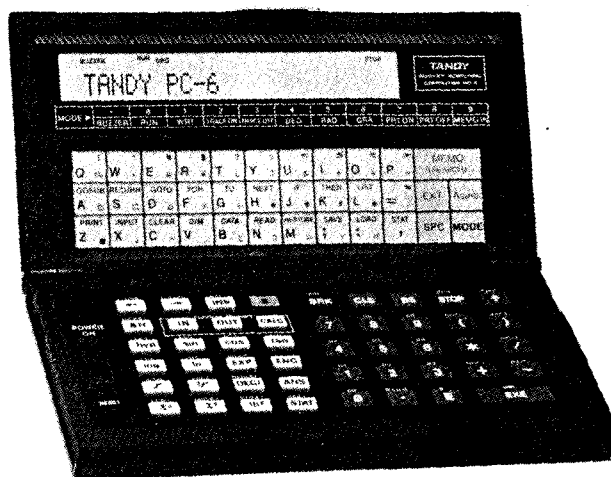


# TANDY® Service Manual

26-3672

## POCKET SCIENTIFIC COMPUTER PC-6

Catalog Number : 26-3672



CUSTOM MANUFACTURED FOR RADIO SHACK, A DIVISION OF TANDY CORPORATION

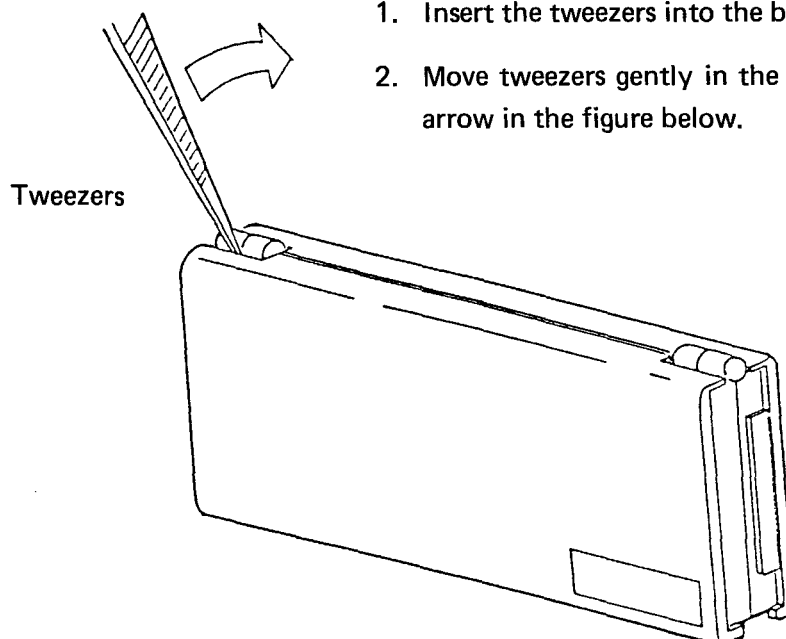
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## SPECIFICATIONS

Display Method	5 x 7 dot-matrix crystal
Display	24-digit, dot-matrix liquid-crystal display
Calculation Range	$\pm 10^{-99} \sim \pm 9.999999999 \times 10^{99}$
Program System	Stored System
Program Language	BASIC
Number of Variables	26 fixed variables, exclusive character variable and array variables
RAM Capacity	7520 bytes (system area: 672 bytes)
Program Areas	Maximum of 10 (P0 through P9)
Number of Stacks	
Subroutine	8 levels
FOR ~ NEXT LOOP	4 levels
Operators	12 levels
Power Supply	2 lithium batteries (CR-2032) for main frame 1 lithium battery (CR-1220) for memory backup
Power Consumption	Maximum 0.07W
Battery Life	1) Continuous program execution: approximately 85 hours 2) Continuous display of 5555555555 at 68°F (20°C): approximately 200 hours or 5.5 months when unit is used 1 hour per day NOTE: 1 hour includes 10 minutes of condition 1) and 50 minutes of condition 2)
Memory protection battery	Approximately 2 years (with main batteries installed)
Auto Power-off	Approximately 6 minutes
Ambient Temperature	32°F to 104°F (0°C to 40°C)
Dimensions	3/4"H x 5-5/8"W x 2-3/4"D (18 mm x 142 mm x 71 mm)
Weight	5.8 oz (165 g), including batteries

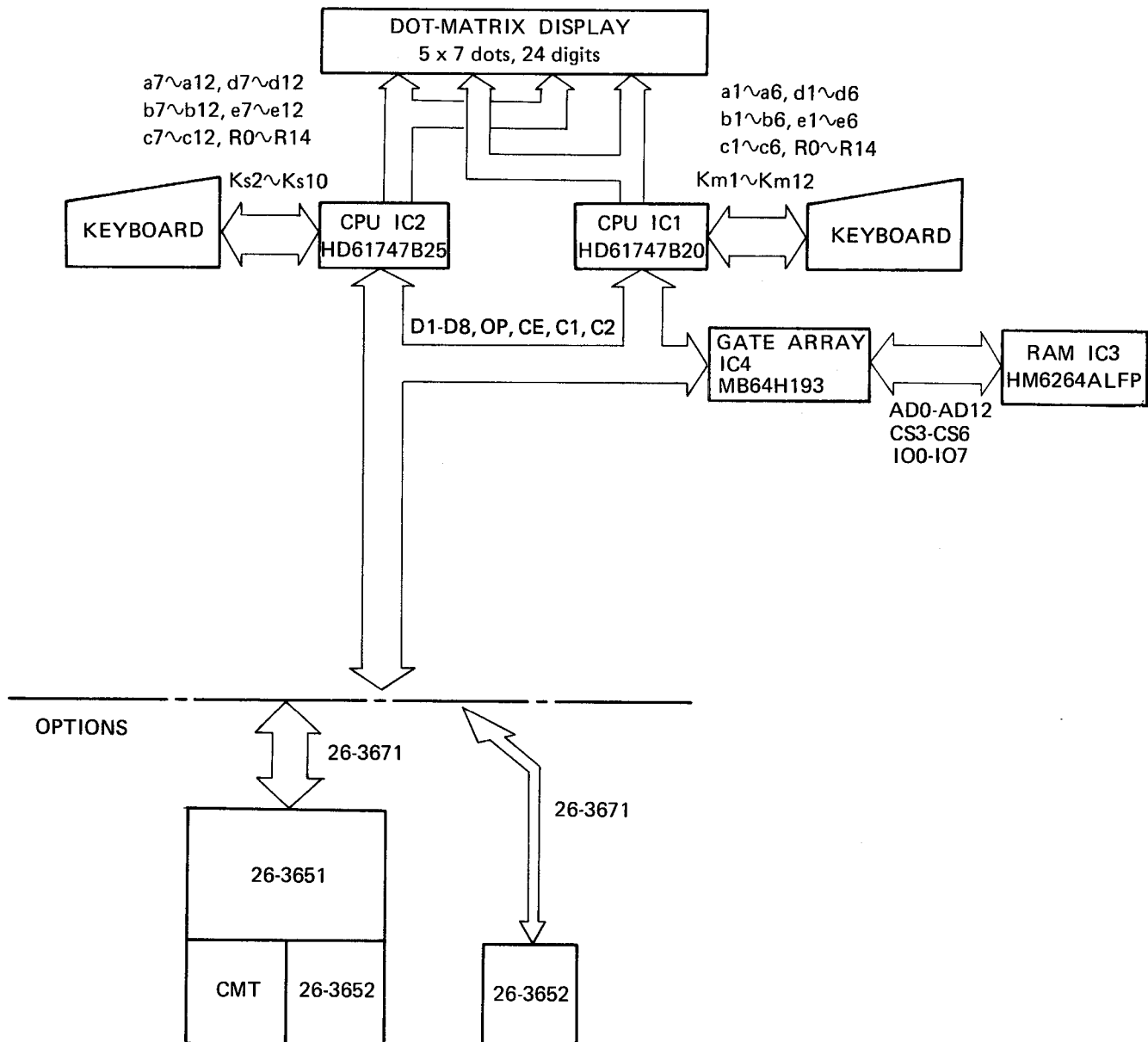
### How To Open Upper Case



1. Insert the tweezers into the back of the upper case.
2. Move tweezers gently in the direction indicated by the arrow in the figure below.

## THEORY OF OPERATION

### Block Diagram



**NOTE:** Only one of 2 options can be connected at a time.

## LSI

### Main CPU

HD61747B20

BASIC control, Key signal input/output (lower keyboard), 1st to 6th digits and 13th to 18th digits display control.

### Sub CPU

HD61747B25

Calculation, I/O control, key signal input/output (upper keyboard), 7th to 12th digits and 19th to 24th digits display control.

### Gate Array

MB64H193

Interface between CPU and RAM, buzzer control.

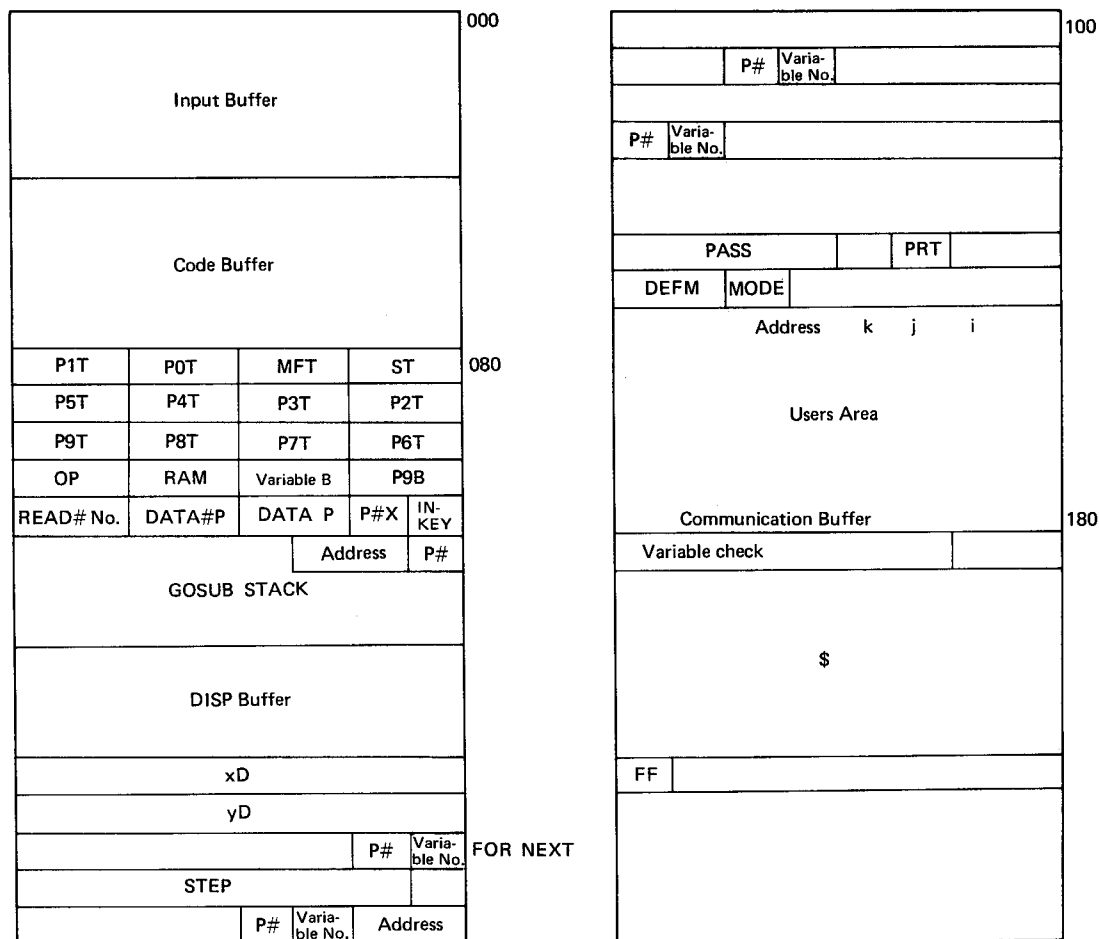
### RAM

HM6264ALFP-50

Stores data and program. RAM has 8K bytes (64K bits) capacity and contains a self-control circuit.

LSI	ROM	RAM
CPU (Main) HD61747B20	113024 bits	1896 bits
CPU (Sub) HD61747B25	113024 bits	1896 bits
RAM HM6264ALFP-50		65536 bits
TOTAL	226056 bits	69328 bits

## Ram Map

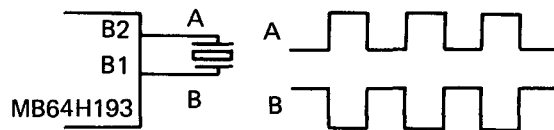


## Buzzer Control Circuit

There are 3 ways to operate the buzzer:

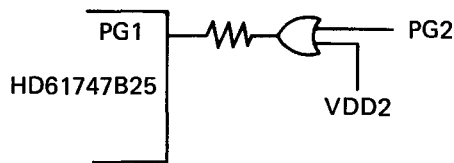
Key input, BEEP 0, and BEEP 1

Mode	BEEP 0	BEEP 1	Key Input
Frequency	0.9 kHz	4.55 kHz	4.55 kHz
Time	110 msec.	110 msec.	11 msec.

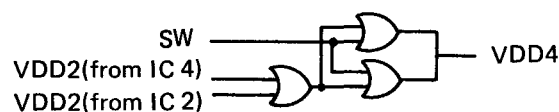


## Interrupt Circuit

- Interrupt circuit for the clock pulse when VDD2 drops.
  - When the power is on, VDD2 is "L" level.
  - PG2 through the IC and 26th pin of the CPU receive PG2.
  - When VDD2 drops, the output of the IC becomes "GND" level and the CPU does not receive PG2.

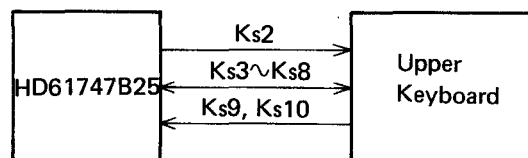


- Interrupt circuit for the voltage of the Gate Array and options when VDD2 and SW drop.
  - When the power is on, VDD2 and SW is "L" level.
  - VDD2 for Gate Array and VDD4 is also "L" level.
  - When VDD2 drops, VDD2 for Gate Array and VDD4 becomes "GND" level and stops the operation of the RAM and options.

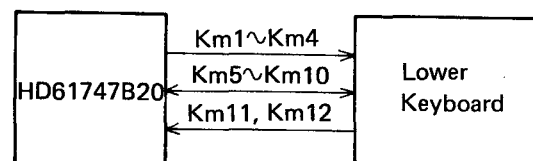


## Keyboard

HD61747B25 controls the upper keyboard.



HD61747B20 controls the lower keyboard.



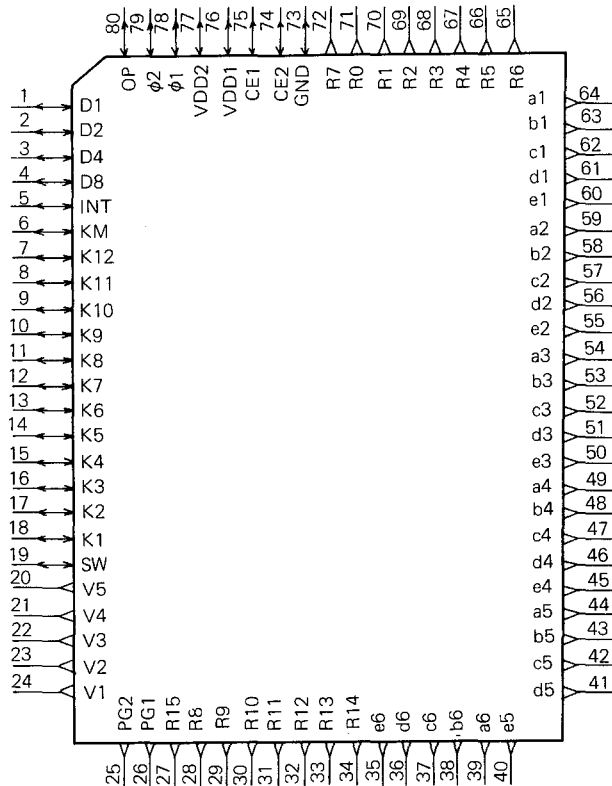
## **Power Supply**

- VSS1     Power supply voltage for TC4071BF.
- VRAM     Memory used to keep the voltage for the RAM.
- V1~V5     LCD drive voltages. Voltage is generated by connecting the external resistor to VDD2.
- VDD1     Power supply for the CPU, RAM and options.
- VDD2     Stays VDD1 at power-on. Goes to GND at power-off or APO (auto power-off).

## LSI (Pin Functions)

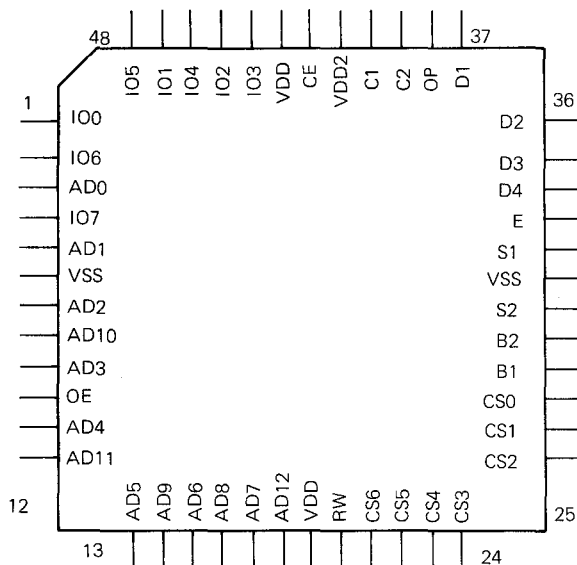
IC1, HD61747B20

IC2, HD61747B25



Pin No.	Signal Name	In/Out	Function
1~4	D1, 2, 4, 8	In/Out	Data in/out (D1, D2, D3, D4)
5	INT	In	Interrupt signal from RAM
6~18	KM~K1	In/Out	Key signal for keyboard
19	SW	In/Out	Switch signal. GND at switch "OFF" and VDD1 at switch "ON".
20~24	V5~V1	Out	Display voltage. Divided voltage from VDD1.
25, 26	PG2, PG1	Out, In	CPU internal clock
27~72	R15~R7	Out	Display signal
73	GND	In	GND
74	CE2	In/Out	Chip designating signal. Select RAM or other devices
75	CE1	In/Out	Select RAM or other devices
76	VDD1	In	Power source
77	VDD2	Out	VDD1 output from the LSI. VDD1 at switch "ON" and GND switch "OFF".
78, 79	φ1, φ2	In/Out	Clock pulse
80	OP	In/Out	Operation signal

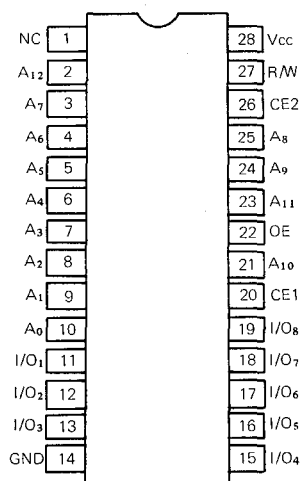
IC4, MB64H193



Pin No.	Signal Name	In/Out	Function
1, 2	IO0, IO6	In/Out	Data in/out
3	AD0	Out	Address signal
4	IO7	In/Out	Data in/out
5	AD1	Out	Address signal
6	VSS	In	Power source
7, 8, 9	AD2, 10, 3	Out	Address signal
10	OE	Out	Output enable
11~18	AD4~AD12	In/Out	Address signal
19	VDD	In	GND
20	RW	Out	Read/write signal
22~24	CS6~CS3	Out	Chip enable signal
25~27	CS2~CS0	-	NC
28, 29	B1, B2	Out	Buzzer signal
30	S2	In	GND
31	VSS	In	VSS
32	S1	In	GND
33	E	-	NC
34~37	D4~D1	In/Out	Data in/out
38	OP	In	Operation signal
39, 40	C2, C1	In	Clock pulse
41	VDD2	In	Power source
42	CE	In	Chip enable
43	VDD	In	GND
44~48	IO3~IO5	In/Out	Data in/out



# IC3, HM6264ALFB-50

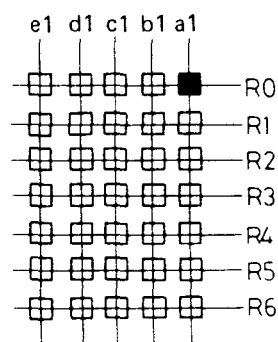
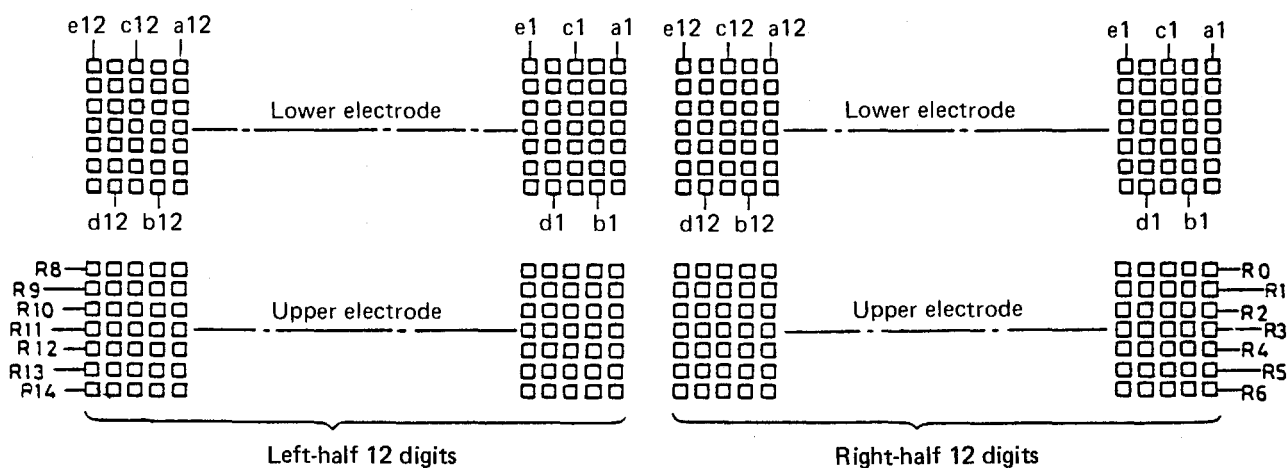


Pin No.	Signal Name	In/Out	Function
1	NC	—	NC
2~10	A12~A0	In	Address signal
11~13	I/O1~I/O3	In/Out	Data signal
14	GND	In	VSS terminal
15~19	I/O4~I/O8	In/Out	Data signal
20	CE1	In	Chip enable
21	A10	In/Out	Address signal
22	OE	Out	Output enable
23~25	A11, 9, 8	In/Out	Address signal
26	CE2	In	GND
27	R/W	In	Read/write signal
28	VDD	In	GND

## DISPLAY

Numbers and characters are displayed in 5 x 7 dots.

Following is an explanation of a dot-matrix LCD.



On the upper electrode of the LCD, common signals R0~R6 and R8~R14 are applied horizontally while other signals a1~e1 to a12~e12 are applied vertically on the lower electrodes as shown in above figures.

In the left figure, the upper-right corner of the dot is displayed when a voltage difference exists between signals R0 and a1. The CPU outputs the display signals to the LCD display.

CPU HD61747B20 controls the 1st to 6th and 13th to 18th digits of display, while HD61747B25 controls the 7th to 12th and 19th to 24th digits.

## TROUBLESHOOTING GUIDE

Symptom	Cause	Solution
No display at all.	Weak batteries	Replace the batteries.
	Poor battery contact	Clean the battery and contact spring. Lift the battery spring.
	Peeled heat seal	Replace the heat seal.
	Broken heat seal	Replace the heat seal.
	LCD (CA51-TS)	Replace the LCD.
	LSI (HD61747B)	Replace the LSI.
A certain segment(s) cannot be displayed.	Peeled heat seal	Replace the heat seal.
	Broken heat seal	Replace the heat seal.
	LCD (CA51-TS)	Replace the LCD.
	LSI (HD61747B)	Replace the LSI.
Calculation impossible.	LSI (HD61747B)	Replace the LSI.
A certain button does not function.	Poor key contact	Clean the contact pad on the PCB and the key contact rubber.
	Broken PC line	Connect the PC line.
	Peeled heat seal	Replace the heat seal.
	LSI (HD61747B)	Replace the LSI.

## Test Program

### Notes:

1. After typing in the programs below, save the programs to a cassette tape for future use.
2. Memory and printer check programs cannot be executed at the same time because of a limited memory capacity.

### Memory check program

```
Ready P0
LIST
10 CLEAR
20 C=904
25 DEFM C
30 FOR B=1 TO C
40 D(B)=B
50 NEXT B
60 $="ABCDEFGHijkl
  MNOPQRSTUVWXYZ"
70 BEEP 1: BEEP 1
80 PRINT "INPUT OK
  *";
90 GOTO #1
```

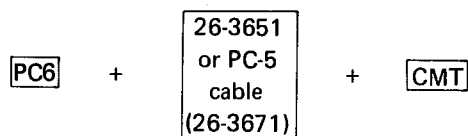
```
Ready P1
LIST
5 A=0
7 A=A+1
10 FOR B=1 TO C
20 IF D(B)≠B THEN
  100
30 NEXT B
40 IF $="ABCDEFGHI
  JKLMNOPQRSTUVW
  XZ" THEN 100
50 IF A=5 THEN 110
60 PRINT A;: GOTO
  7
100 PRINT "CHECK**N
  G**";: BEEP 1:
  BEEP 0: GOTO 111
101 PRINT "A=";A;
110 PRINT "CHECK**O
  K**";: BEEP 1:
  BEEP 1
111 PRINT "A=";A;:
  END
```

### Printer check program

```
Ready P1
LIST
10 MODE 7
20 PRINT "    **PC-
  6 CHECK**    ";
30 PRINT "ABCDEFGH
  IJKLMNOPQRSTUVW
  XYZ";
40 PRINT "abcdefgh
  ijklmnopqrstuvw
  xyz";
50 PRINT "0.123456
  789";
60 PRINT "%'@¥[] &←
  ↓→□△×÷◆♥♦♣■•°
  -ΣΩμγδ";
70 PRINT "!#$%\<>
  >≠†()*/*÷+−επ";
80 FOR A=1 TO 28
90 PRINT "8";
100 NEXT A
110 PRINT "    -
  END-    "
120 MODE 8
```

## Program SAVE, LOAD and MEMORY

### System:



### Operation:

(1) PW SW ON

(2) CMT PLAY MODE

(3) S LOAD  
: EXE LOAD

END

BUZZER RUN DEG  
Ready P0

(4) PW SW OFF

Take out the 26-3651 + CMT

(5) PW SW ON

BUZZER RUN DEG  
Ready P0

(6) S 0

BUZZER RUN DEG DEFM  
INPUT OK\* (Buzzer sound)

BUZZER RUN DEG DEFM  
INPUT OK\* 1

BUZZER RUN DEG DEFM  
INPUT OK\* 1 2

BUZZER RUN DEG DEFM  
INPUT OK\* 1 2 3

BUZZER RUN DEG DEFM  
INPUT OK\* 1 2 3 4

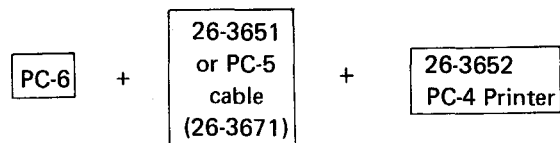
BUZZER RUN DEG DEFM  
INPUT OK\* 1 2 3 4CHECK\*\*OK\*\*A=5 (Buzzer sound) OK

BUZZER RUN DEG DEFM  
INPUT OK\* CHECK\*\*NG\*\*A=1 (Buzzer sound) NG

(7) BRK

# Printer check

## System:



(1) PC-6 PW SW ON.

(2) S 2

READY P0

## Print sample:

\*\*PC-6 CHECK\*\*  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
UVWXYZabcdefghijklmnopqrstuvwxyz0.123456  
opqrstuvwxyz0.123456  
789% '@\$[] &+!+o□▲X÷◆♥  
◆♣:|·° ΣΩμγδ!#\$?\\<>  
>✂†()\*/+-επ88888888  
888888888888888888888888  
-END-

## Operation Check

1. When mis-operation occurs, return to the nearest ★ mark and operate from the ★ mark.
2. When connecting the printer and cassette interface, be sure to turn off the power switch.

Operation	Read Out
<b>RESET</b>	BUZZER RUN DEG Ready P0
★ <b>MODE</b> 1	BUZZER WRT DEG 7520 P0-123456789
★ <b>MODE</b> 0	BUZZER RUN DEG Ready P0
QWERTYUIOP	BUZZER RUN DEG QWERTYUIOP
★ <b>BRK</b> ASDFGHJKL = <b>EXT</b>	BUZZER EXT RUN DEG ASDFGHJKL =
★ <b>BRK</b> ZXCVBNM; : , <b>SPC</b>	BUZZER EXT RUN DEG zxcvbnm; :
<b>S</b> ←	BUZZER EXT RUN DEG -Z- xcvbnm; : ,
<b>S</b> →	BUZZER EXT RUN DEG zxcvbnm; : ,
<b>CLS</b>	BUZZER EXT RUN DEG 

Operation	Read Out
★ <b>BRK</b> $0.123+456-789 \div 3$ <b>EXE</b>	BUZZER EXT <sup>RUN</sup> DEG $-1910.877$
★ <b>BRK</b> $E( ) \uparrow$ <b>BS</b> ← → → →	BUZZER EXT <sup>RUN</sup> DEG (Check that the cursor moves.) $E( ) \uparrow \frac{1}{1}$ $E( ) \uparrow \frac{1}{1}$
★ <b>BRK</b> <b>&amp;H</b> <b>hyp</b> <b>sin</b> <b>cos</b> <b>tan</b> <b>log</b> <b>ln</b> <b>EXP</b> $\sqrt{\quad}$ $\sqrt[3]{\quad}$ <b>DEG</b> <b>ANS</b> $x^2$ $x^3$ $10^x$	BUZZER EXT <sup>RUN</sup> DEG UR DEG ( $-1910.877 \uparrow 2 \uparrow 310 \uparrow$ ■)
★ <b>BRK</b> 1.2 <b>STAT</b>	BUZZER EXT <sup>RUN</sup> DEG STAT 1.2, 0
★ <b>BRK</b> <b>S</b> <b>sin</b> 1 <b>EXE</b>	BUZZER EXT <sup>RUN</sup> DEG 90
<b>ENG</b>	BUZZER EXT <sup>RUN</sup> DEG 90 E 00
★ <b>BRK</b> <b>EXT</b> $A = B \star C$ <b>IN</b>	BUZZER <sup>RUN</sup> DEG $\frac{1}{1}$

Operation	Read Out
<b>CALC</b>	BUZZER      RUN DEG B ?
123 <b>EXE</b>	BUZZER      RUN DEG C ?
456 <b>EXE</b>	BUZZER      RUN DEG      STOP A = 56088
<b>OUT</b>	BUZZER      RUN DEG      STOP A = B * C
★ <b>MODE</b> 0	BUZZER      RUN DEG Ready P0
★ <b>MODE</b> •	RUN DEG Ready P0
★ <b>MODE</b> • <b>MODE</b> 2	BUZZER      RUN DEG      TRACEON Ready P0
★ <b>MODE</b> 3 <b>MODE</b> 5	BUZZER      RUN RAD Ready P0
★ <b>MODE</b> 6	BUZZER      RUN GRA Ready P0

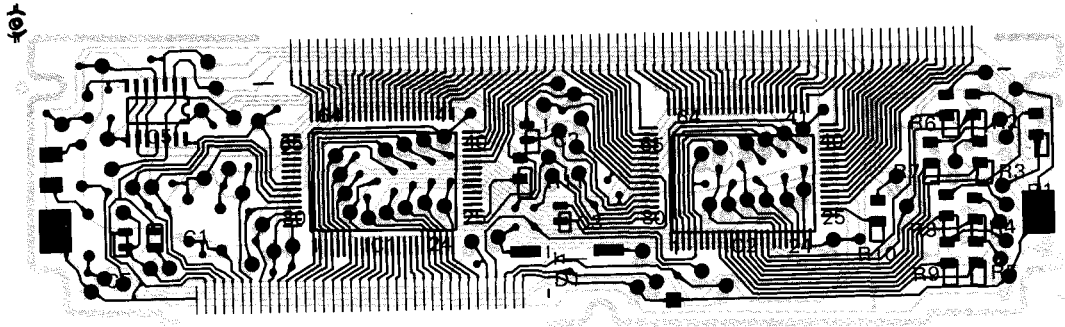


Operation	Read Out
★ <b>MODE</b> 7	BUZZER RUN GRA PRT ON Ready P0
★ <b>MODE</b> 8 <b>MODE</b> 9	BUZZER GRA <b>MEMO</b> <b>IN</b> 1 ⋈
Q W <b>EXE</b> ← ←	BUZZER GRA <b>MEMO</b> <b>IN</b> 1 Q-W- ⋈
<b>INS</b>	BUZZER GRA <b>MEMO</b> <b>IN</b> 1 ⋈ Q-W
E <b>S</b> <b>INS</b>	BUZZER GRA <b>MEMO</b> <b>IN</b> 1 QE ⋈
<b>EXE</b>	BUZZER GRA <b>MEMO</b> <b>IN</b> 1 QE
<b>MEMO</b>	BUZZER GRA <b>MEMO</b> <b>IN</b> 2 ⋈
<b>AsmbI</b>	BUZZER <b>ASMBL</b> AsmbI/Source/ca1
★ <b>BRK</b>	BUZZER RUN GRA Ready P0

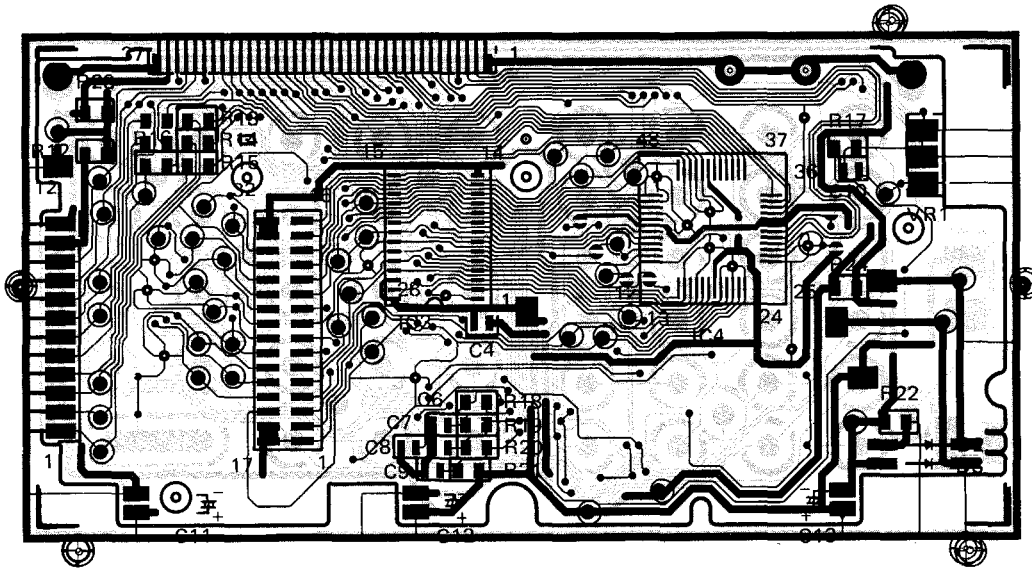
Operation	Read Out
MODE 9 MEMO ← BS BS EXE MODE 0	BUZZER RUN GRA Ready P0
★MODE 1 10 BEEP 1 EXE	BUZZER WRT GRA 7515 10 BEEP 1
20 S D 10 EXE	BUZZER WRT GRA 7509 20 GOTO 10
★MODE 0 S 0	BUZZER RUN GRA (buzzer sound)
STOP	BUZZER RUN GRA STOP
POWER SW OFF/ON Repeat 3 times. Turn the contrast volume.	Display must disappear. Display should be "Ready P0." The display contrast must change.

PCB ASSEMBLY VIEW

TOP VIEW



TOP VIEW



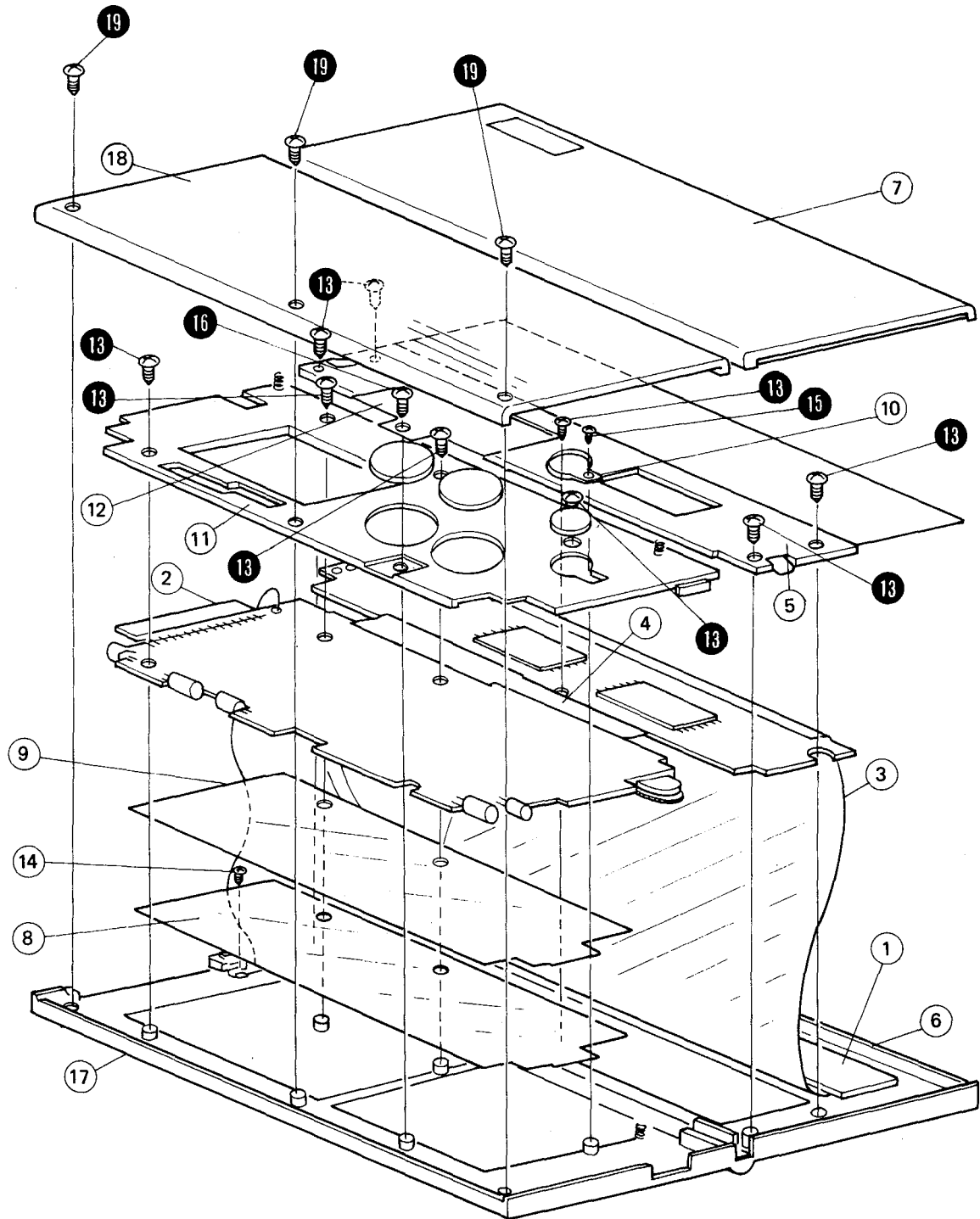
## PARTS LIST

Electrical Parts			
Ref. No.	Description	RS Part No.	Mfr's Part No.
<b>CAPACITORS</b>			
C1~C4	Chip, Ceramic, 100pF, 25V, ±5%, CM21CH101J25V	ACF-1466	28907311
C5~C10	Chip, Ceramic, 0.1μF, 15V, +100%, CM21YV104P15V	ACF-7347	71032167
C11, C12	Electrolytic, 22μF, 10V, ±20%, CE04C-1A220MS7	CE-226MCBA	28047223
C13	Electrolytic, 100μF, 10V, ±20%, CE04C-1A101MS	CE-107MCBA	28041047
<b>ICs</b>			
IC1	LSI, CPU, HD61747B20	MX-7273	20018364
IC2	LSI, CPU, HD61747B25	MX-7274	20018801
IC3	LSI, RAM, HM6264ALFP-50	MX-7275	20011149
IC4	LSI, MB64H193	MX-7276	20030453
IC5	IC, TC4071BF	MX-4245	21004359
<b>PRINTED CIRCUIT BOARD ASSEMBLIES</b>			
PC1	Assembly, PCB-G707-1		82636701
PC2	Assembly, PCB-G707-2		82636702
<b>RESISTORS</b>			
R1~R9	Chip, Ruthenium, 3.3 Kohm, 1/8W, ±5%, CR32-108-332J-T-TP	ND-0230EBN	27930620
R10	Chip, Ruthenium, 12 Kohm, 1/8W, ±5%, CR32-108-123J-T-TP	ND-0288EBN	27930638
R11	Chip, Ruthenium, 68 Kohm, 1/8W, ±2%, CR32-108-683G-T-TP	ND-0354CBN	27904530
R12	Chip, Ruthenium, 220 ohm, 1/8W, ±10%, CR32-108-221K-T-TP	ND-0149FBN	27904734
R13~R16	Chip, Ruthenium, 3.9 Kohm, 1/8W, ±5%, CR32-108-392J-T-TP	ND-0237EBN	27903835
R17~R21	Chip, Ruthenium, 10 Kohm, 1/8W, ±2%, CR32-108-103G-T-TP	ND-0281CBN	27930603
R22	Chip, Ruthenium, 22 Kohm, 1/8W, ±5%, CR32-108-223J-T-TP	ND-0311EBN	27903740
R23	Chip, Ruthenium, 2.2 Mohm, 1/8W, ±5%, CR32-108-225J-T-TP	ND-0454EBN	27904761
R24	Chip, Ruthenium, 100 ohm, 1/8W, ±10%, CR32-108-101K-T-TP	ND-0132FBN	27904629
<b>MISCELLANEOUS</b>			
D1~D3	Diode, 1S1588, silicon	DX-0273	23003031
VR1	Volume, for contrast, 20 Kohm, EVL-AHAA00B24	AP-7004	27709486

Mechanical Parts			
Ref. No.	Description	RS Part No.	Mfr's Part No.
1	LCD, CA51-TS	AL-1020	33310552
2	Connector, 126D-019-12S04	AJ-7306	35113639
	P spring, A33138A-1	ARB-7642	63258131
3	Seal, Heat, T-07-12	AHC-0107	56005846
	Seal, Insulation, for heat seal, A47070-8	AHC-0344	63416110
	Plate, Reinforcement, for LCD, C46480-1		63478850
	Tape, Adhesive, for LCD, A43613-5		63415920
	Tape, Adhesive, for LCD reinforcement plate, A45344-8		63375130
	Connector, Non-direction, A46359-1	AJ-4025	63354990
	Sheet, Keyboard, C3473-5	AHC-0346	82636721
	Tape, Adhesive, for PCB reinforcement plate		63424150
	Plate, Reinforcement, for PCB-G707-1, C3474A-1	AHC-0345	63415991
	Assembly, Film, keyboard, C3769A-1	AK-0518	63471021
	Film, Keyboard, C3768-1	AHC-0347	63471030
	Cushion, for LCD, C41409-1		63505660
4	Seal, Heat, PCB-G707-1 to PCB-G707-2, CAX-12-3	AHC-0348	56006320
	Seal, Insulation, for heat seal of PCB	AHC-0349	63471010
	Seal, Insulation, for upper keyboard film	AHC-0350	63470990
	Seal, Insulation, for lower keyboard film	AHC-0351	63471000
	Plate, Shield, for volume	ART-0278	63458880
	Seal, Blind, for P spring, C41076-1		63471050
	Seal, Insulation, for battery (non-repairable)		
	Seal, Insulation, for RAM pack (non-repairable)		
	Buzzer, EFB-S55C41AV1	AB-7002	32401627
	Tape, Adhesive, for buzzer, A45381-1		63304750
	Tape, Adhesive, for keyboard sheet, A44646-1		63275120
5	Holder, for PCB-G707-1, C2373-1		63470730
	Plate, Shield, C3500-1		63415930
	Window (Tandy)		82637403
	Tape, Adhesive, for window, C4586A-1		63415891
6	Case, Upper, for display unit, C1141-5	AZ-0109	63470460
7	Case, Lower, for display unit (Tandy), C1142-1		82636704
	Plate, Name (Tandy) (non-repairable)		
	Knob, Slide, C3499A-1		63416351
	Spring, Switch contact, A46683-1	RB-6256	63353610
8	Film, Common, C3480-1	AHC-0111	63415950
9	Spacer, C3479-1	AHC-0352	63415960
	Set, Keytop (Tandy)	AHC-0353	82636705

Ref. No.	Description	RS Part No.	Mfr's Part No.
10	Holder, Battery, for CR1220, A35803-1	AB-0623	63349650
	Spring, Battery contact (-), for CR1220, A35801-1	AB-0621	63349890
	Spring, Battery contact (+), CR1220, A35800-1	AB-0622	63349900
	Seal, Insulation, for battery (CR1220), A46472-1	AHC-0354	63349910
11	Holder, for PCB-G707-2, C1251-1		63470550
12	Holder, Battery, for CR2032, A35802-1	B-0058	63349640
	Spring, Battery contact (-), for CR2032	ARB-7639	63297621
	Spring, Battery contact (+, -), for CR2032	ARB-7640	63297630
	Spring, Battery contact (+), for CR2032	ARB-7641	63297640
	Seal, Insulation, for battery (CR-2032), A45154-1	AHC-2114	63297660
	Seal, Insulation, for battery holder, A46473-1	AB-0624	63349720
	Plate, Shield, for connector, C4609-1	ART-0279	63415940
	Cap, Connector, C4615-1	AHC-0112	63416410
	Pin, Spring, 2.5 mm x 12 mm	ART-0280	52100356
	Label, Change for battery, (non-repairable)		
	Tape, Lead, C4957-1		63459150
	Seal, Blind, for PCB holder, C4991-1	AHC-0355	63470840
	Spacer, for lead tape, C41003-1	AHC-0354	63449540
	Tape, Adhesive, for volume shield plate, A45344-14		63393830
	Plate, Reinforcement, for PCB holder, PCB-G707-2		63500830
	Plate, Reinforcement, for PCB holder, PCB-G707-1		63500840
	Tape, Adhesive, for PCB-G707-1 reinforcement		63497930
	Tape, Adhesive, for PCB-G707-2 reinforcement		63500850
	Seal, Insulation, for volume shield plate, C4639-1		63417130
	Spring, Ground, for keyboard case, A47157-7	ARB-5025	63416020
	Spring, Ground, for keyboard film, C4988-1	ARB-5045	63470830
	Spring, Ground, for PCB holder, C4737-1	ARB-5046	63424160
13	Screw, Tapping, flat head (+), 2 mm x 3.5 mm A45491-13, for PCB holder	AHD-2723	63330000
14	Screw, Tapping, flat head, (+), 2 mm x 3 mm A45491-11, for connector shield plate	AHD-3002	63319760
15	Screw, Tapping, flat head (+), 2 mm x 5 mm A44793-13, for battery (CR-1220)	AHD-3003	63292930
16	Screw, Machine, pan head, (+), 1.7 mm x 5 mm A45919-7, for battery (CR-2032)	AHD-2012	63391680
17	Case, Upper, for keyboard unit (Tandy)	AZ-0110	63470445
18	Case, Lower, for keyboard unit (Tandy)		82636723
19	Hardware Kit	AHW-2603672	82636709
	Screw, Machine, pan head, (+), 1.7 mm x 5.4 mm x 3 pieces A45919-8	AHD-2013	63426830
	Battery, Lighium, CR2032	ACS-0031	CR2032
	Battery, Lighium, (for Memory back up) CR1220	ACS-0030	CR1220

# EXPLODED VIEW/DISASSEMBLY INSTRUCTIONS

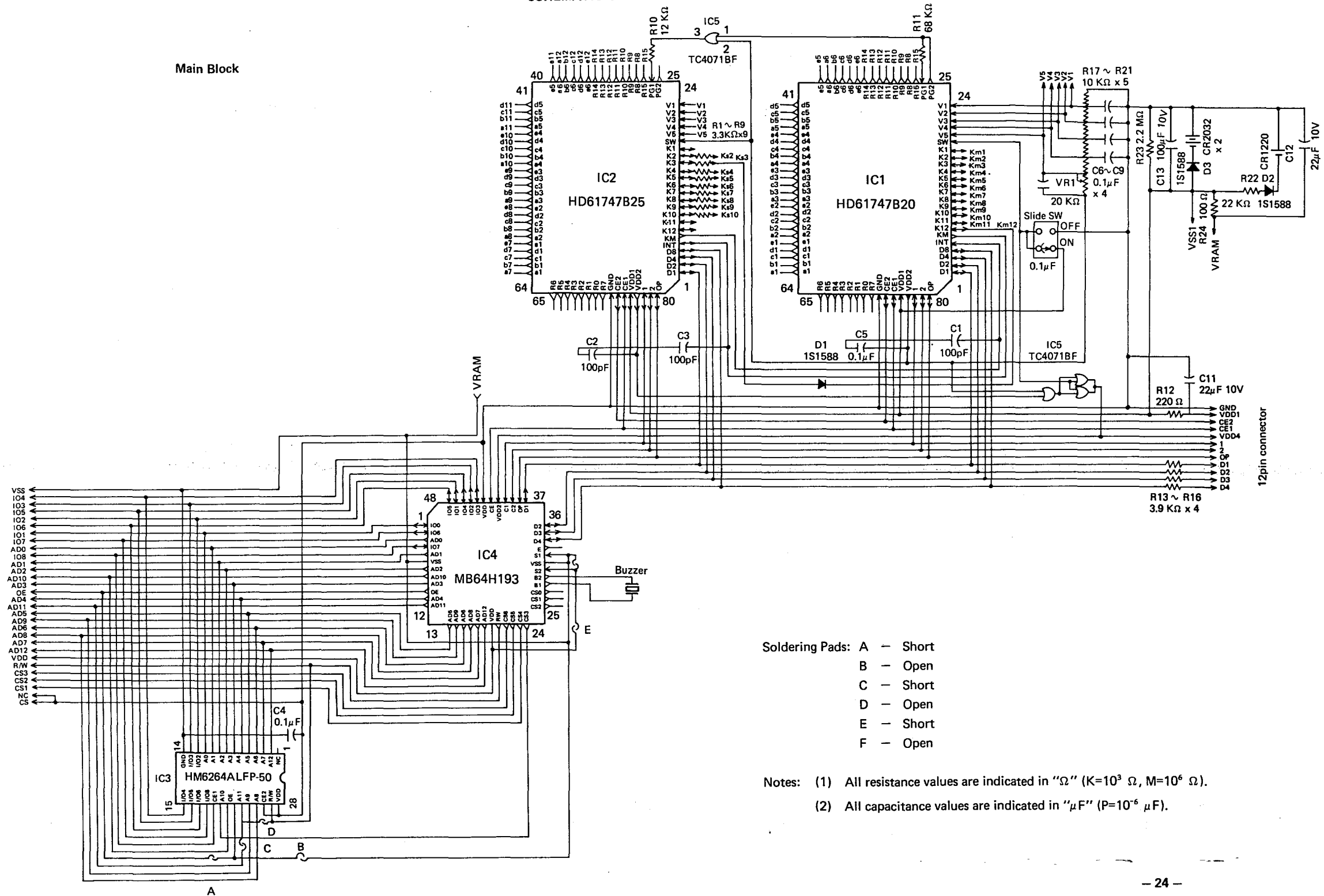


1. Remove 3 screws **19** from the lower case.
2. Lift up the lower case **18** and **7**.

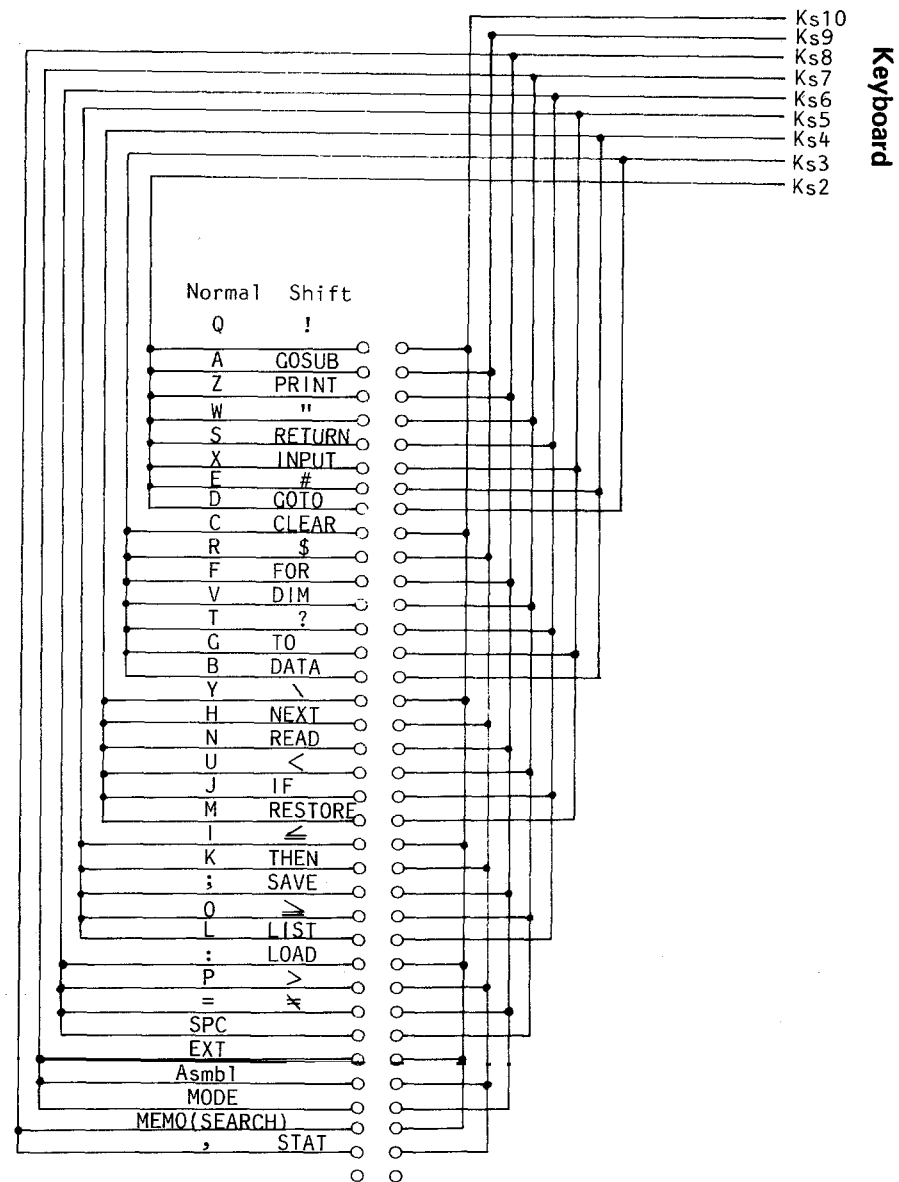
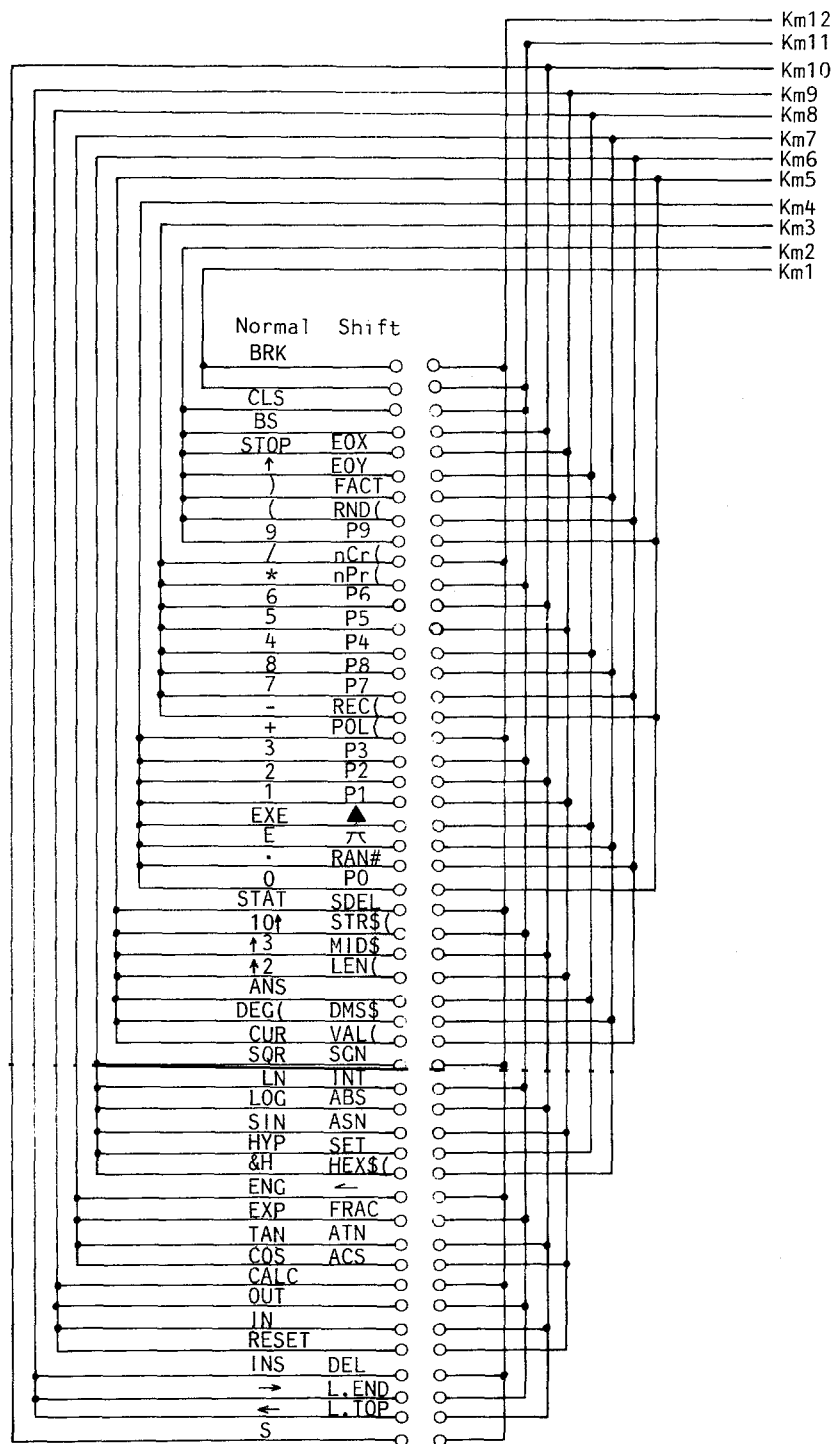
3. Remove 9 screws **13**, 1 screw **15** and 1 screw **16** from the PCB holder **11** and **5**.
4. Remove the PCB holder and 2 batteries.

# SCHEMATIC DIAGRAM

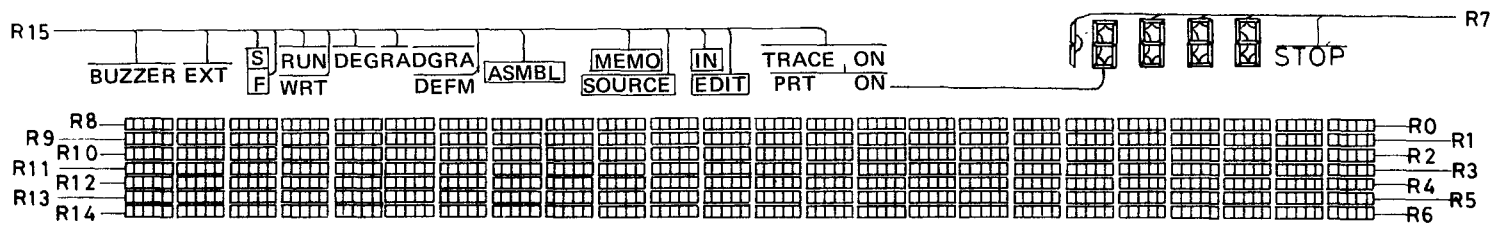
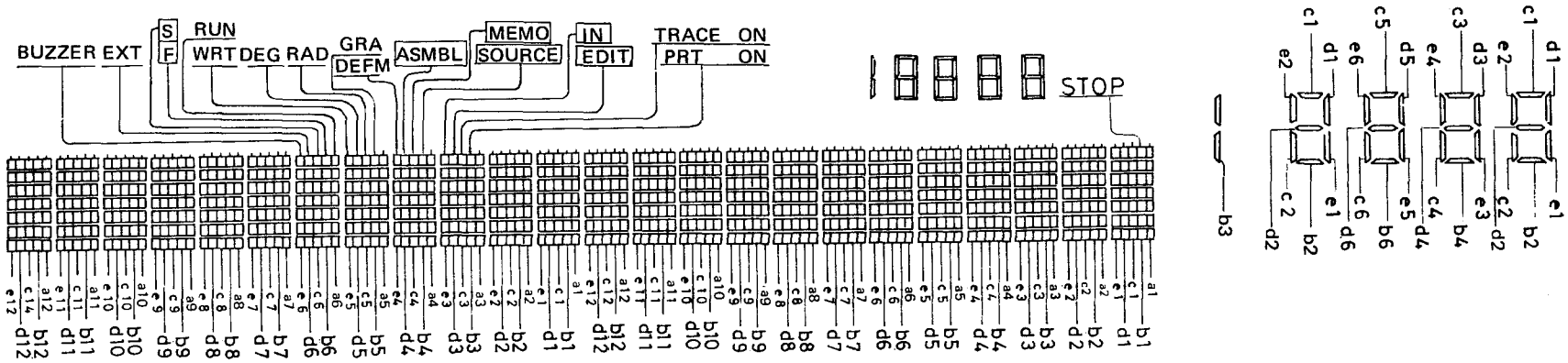
Main Block







# Display



**RADIO SHACK, A DIVISION OF TANDY CORPORATION**

**U.S.A.: FORT WORTH, TEXAS 76102**  
**CANADA: BARRIE, ONTARIO L4M 4W5**

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**TANDY CORPORATION**

<b>AUSTRALIA</b>	<b>BELGIUM</b>	<b>FRANCE</b>	<b>U.K.</b>
<b>91 KURRAJONG AVENUE</b> <b>MOUNT DRUITT, N.S.W. 2770</b>	<b>RUE DES PIEDS D'ALOUETTE, 39</b> <b>5140 NANINNE(NAMUR)</b>	<b>BP 147-95022</b> <b>CERGY PONTOISE CEDEX</b>	<b>BILSTON ROAD WEDNESBURY</b> <b>WEST MIDLANDS WS 107 JN</b>