

HBI-55

DATA CARTRIDGE

Before using the unit, please read this manual and the computer's manual, and retain them for future reference.

Sony HBI-55 data cartridge is used to store data of the software built in the Sony home computer HB-55P or HB-75P/B. The cartridge can store data up to 4K bytes (about 4000 characters).

PRECAUTIONS

Turn off the computer whenever you insert or remove the data cartridge.

Handle the cartridge with care.

- Care should be taken so that no solid object or liquid falls into the cartridge enclosure.
- Do not attempt to disassemble the cartridge.
- Do not drop cartridge or bump it against other objects.

Do not place the cartridge near heat sources as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or moisture.

INSERTION OF THE DATA CARTRIDGE

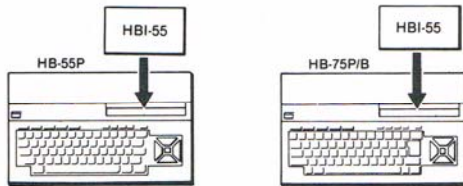


First make sure your MSX computer and a monitor TV are connected correctly. For instructions on the connection, please refer to the instruction manual of the computer.

- 1 Insert the data cartridge into cartridge slot A with the illustration side toward you or into cartridge slot B with the illustration side up. When an MSX-BASIC program is to be saved or to be loaded on an HB-55P, insert the HBM-64 expansion memory cartridge into the other cartridge slot.
 - 2 Turn on the computer.
 - 3 Turn on the monitor TV and select the proper channel for the computer.
- Do not insert any cartridge other than HBM-16 or HBM-64 into the other cartridge slot when a data cartridge is used.

SONY[®]
SERVICE MANUAL

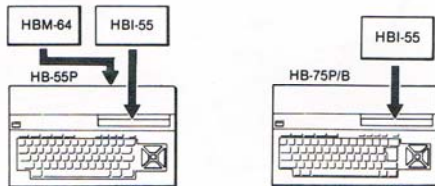
TO SAVE/LOAD DATA OF THE PERSONAL DATA BANK



Operation

Refer to the "How to Use the Personal Data Bank" supplied with the HB-55P or HB-75P/B.

TO SAVE/LOAD AN MSX BASIC PROGRAM



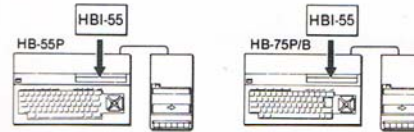
Operation

- 1 Start the MSX-BASIC by selecting "BASIC+DATA CARTRIDGE".
 - 2 In the MSX-BASIC mode, execute
SAVE "CAT:"
to save the program in the computer to the data cartridge. Execute
LOAD "CAT:"
to load the program in the data cartridge to the computer.
- One MSX-BASIC program can be stored in a data cartridge at a time.

MAKING A BACKUP COPY OF THE DATA CARTRIDGE

The data cartridge is powered by a lithium battery. The battery will be exhausted after about 5 years of use, after which the data cartridge cannot be used again. Before the battery is completely discharged, copy the data in the cartridge to another data cartridge.

TO COPY THE DATA OF THE PERSONAL DATA BANK



Operation

- 1 Copy the data of the Personal Data Bank in the data cartridge to a cassette tape by using the Personal Data Bank COPY function.
 - 2 Copy the data on the tape to a new data cartridge by using the Personal Data Bank COPY function.
- For details about the COPY function, refer to the "How to Use the Personal Data Bank" supplied with the HB-55P or HB-75P/B.

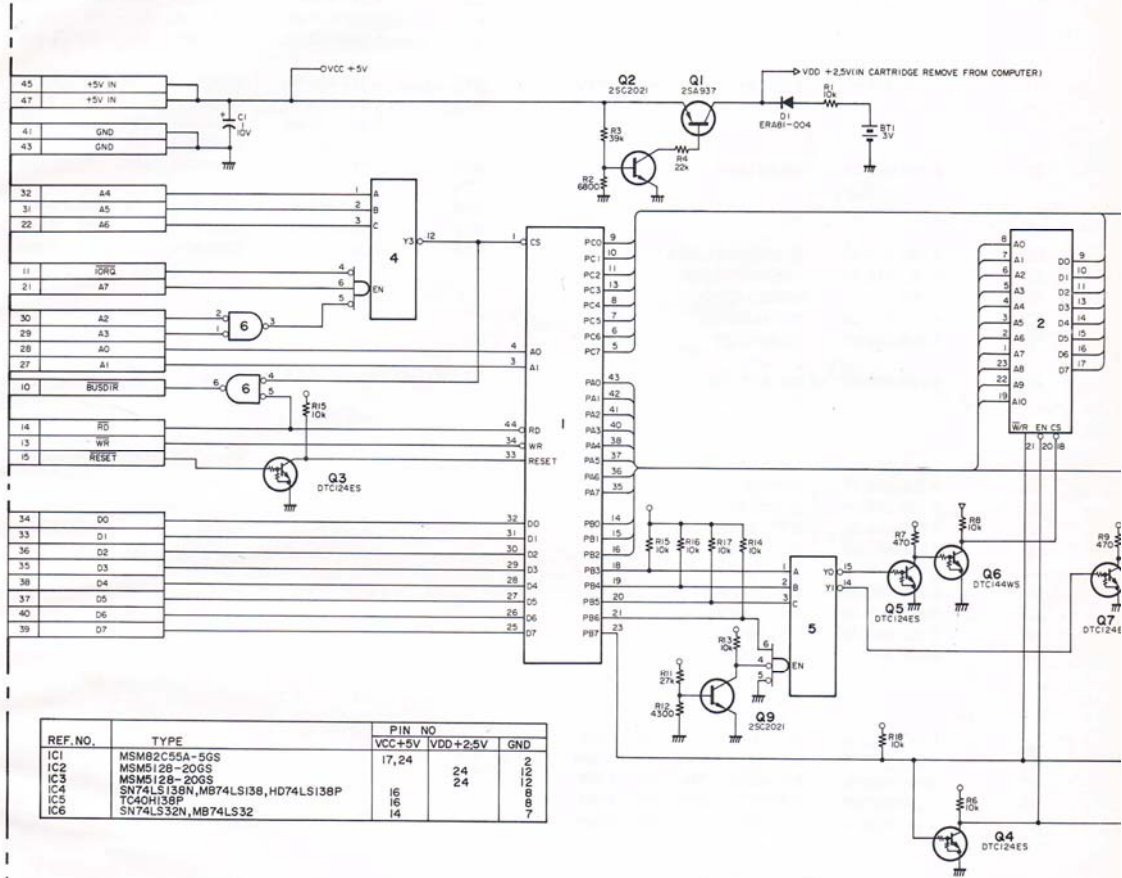
TO COPY THE MSX-BASIC PROGRAM



Operation

- 1 Load the MSX-BASIC program in the data cartridge to the computer by executing
LOAD "CAT:"
- 2 Save the program onto the cassette tape by executing
CSAVE "file name"
- 3 Turn off the power of the computer, remove the data cartridge and insert a new data cartridge. Then turn on the computer and start the MSX-BASIC.
- 4 Load the program which was saved in the step 2 from the cassette tape to the computer by executing
CLOAD "file name"
- 5 Save the program onto the data cartridge by executing
SAVE "CAT:"

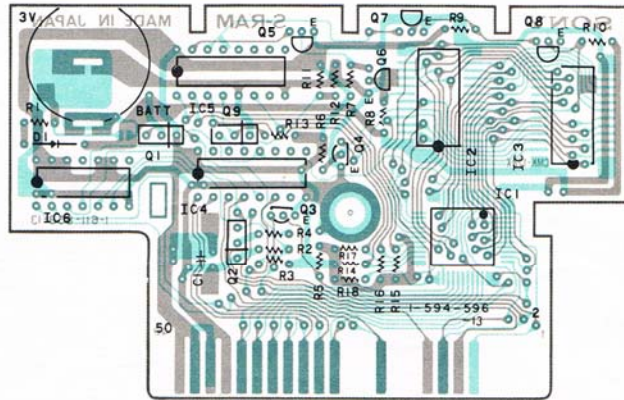
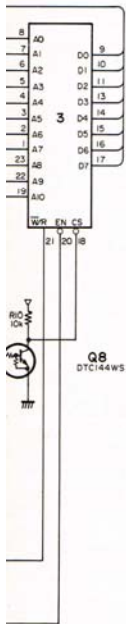
SCHEMATIC DIAGRAM



REF. NO.	TYPE	PIN NO		
		VCC+5V	VDD+2.5V	GND
IC1	MSM82C55A-5GS	17, 24		2
IC2	MSM5128-20GS		24	12
IC3	MSM5128-20GS		24	12
IC4	SN74LS138N, MB74LS138, HD74LS138P	16		8
IC5	TC40H138P	16		8
IC6	SN74LS32N, MB74LS32	14		7

S-RAM

PRINTED CIRCUIT BOARD

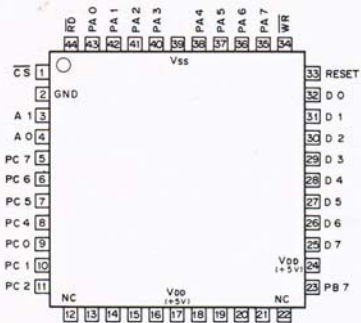


S-RAM
COMPONENT SIDE
1-611-838-13
HBI-55(EK)

S-RAM
1-611-838-13
HBI-55(EK)

SEMICONDUCTOR PIN ASSIGNMENTS

MSM82C55A-5GS (OKI) FLAT PACKAGE
C-MOS PROGRAMMABLE PERIPHERAL INTERFACE
— TOP VIEW —

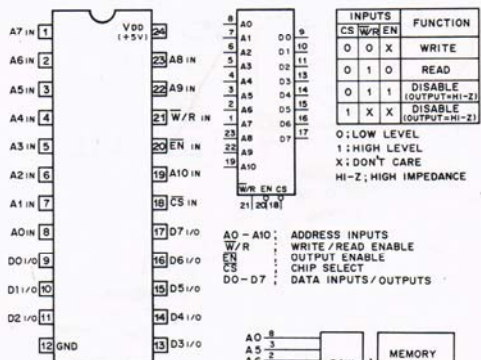


A1	A0	CS	WR	RD	OPERATION
0	0	0	1	0	PORT A → DATA BUS
0	1	0	1	0	PORT B → DATA BUS
1	0	0	1	0	PORT C → DATA BUS
1	1	0	1	0	NO OPERATION
0	0	0	0	1	DATA BUS → PORT A
0	1	0	0	1	DATA BUS → PORT B
1	0	0	0	1	DATA BUS → PORT C
1	1	0	0	1	DATA BUS → CONTROL REGISTER
X	X	1	X	X	HIGH IMPEDANCE

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

AO, A1 : PORT SELECT, ADDRESS
CS : CHIP SELECT
DO~7 : DATA BUS
PA0~7 : PORT A IN/OUT
PB0~7 : PORT B IN/OUT
PC0~7 : PORT C IN/OUT
RD : READ
WP : WRITE

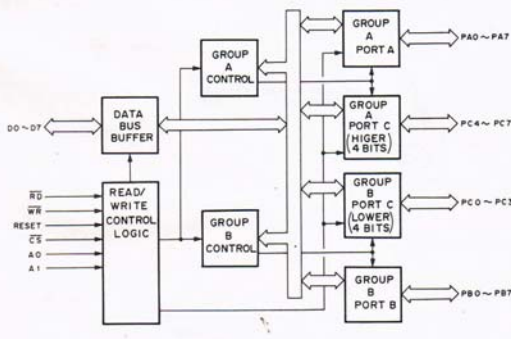
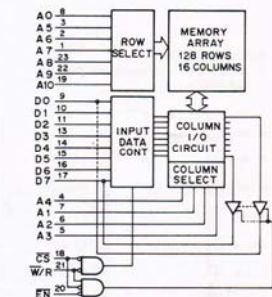
MSM5128-20GS (OKI) (ACCESS TIME = 200 nS) FLAT PACKAGE
C-MOS 16384(2048x8)-BIT HIGH SPEED STATIC RAM
— TOP VIEW —



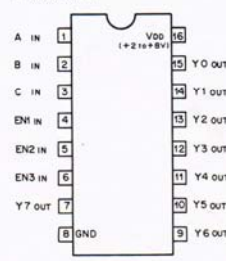
INPUTS	FUNCTION
CS	WRITE
WR	WRITE
EN	READ
0	DISABLE (OUTPUT=HI-Z)
1	DISABLE (OUTPUT=HI-Z)
1	DISABLE (OUTPUT=HI-Z)

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

AO - A10 : ADDRESS INPUTS
W/R : WRITE / READ ENABLE
EN : OUTPUT ENABLE
CS : CHIP SELECT
DO - D7 : DATA INPUTS / OUTPUTS



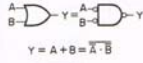
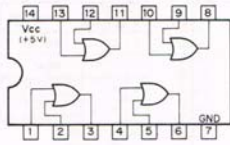
TC40H138P (TOSHIBA)
C-MOS 3-TO-8-LINE DECODER/DEMULTIPLER
— TOP VIEW —



IN PUTS	OUT PUTS
EN	Y7
C	Y6
B	Y5
A	Y4
Y3	Y3
Y2	Y2
Y1	Y1
Y0	Y0

EN = EN1 · EN2 · EN3
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

SN74LS32N (TI)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —



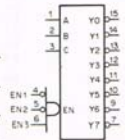
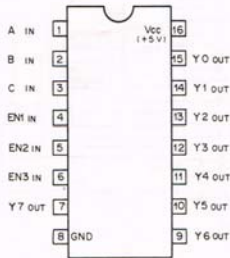
$$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0: LOW LEVEL
1: HIGH LEVEL

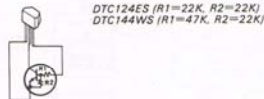
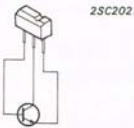
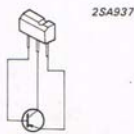


SN74LS138N (TI)
TTL 3-TO-8-LINE DECODER/DEMULPLEXER
— TOP VIEW —



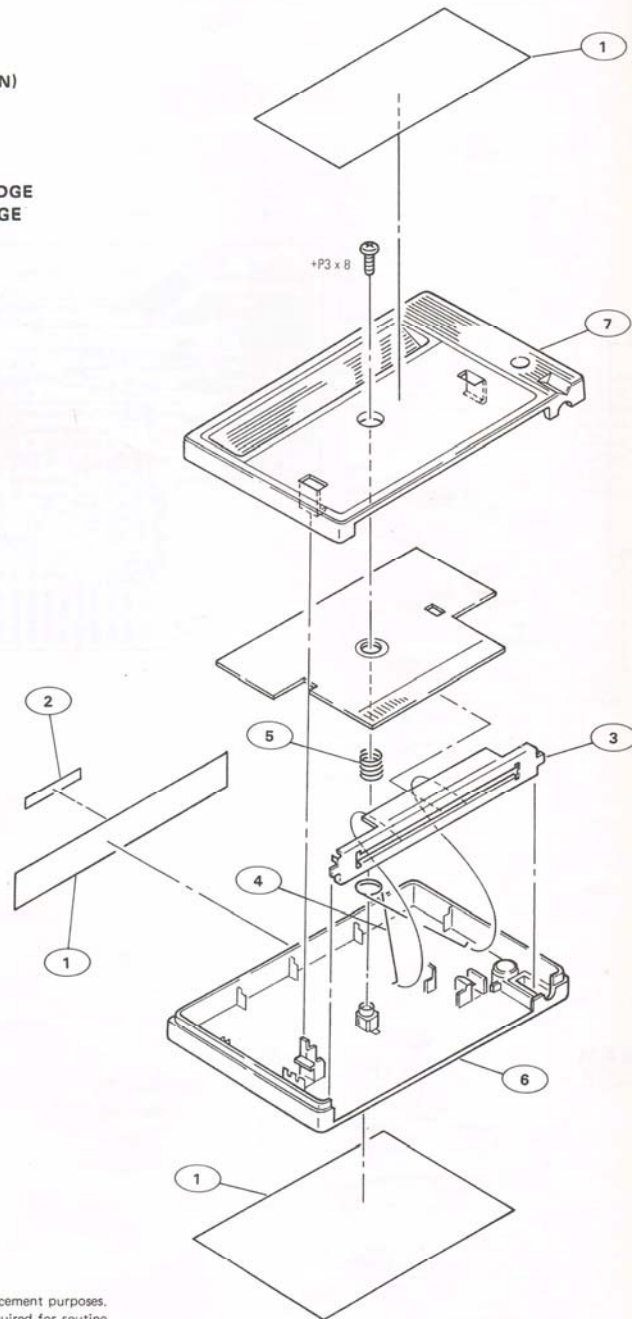
INPUTS			OUTPUTS								
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

EN = EN1 · EN2 · EN3
0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE



EXPLODED VIEW

No.	Parts No.	Description
1	X-4604-426-1	LABEL ASSY
2	3-701-690-01	LABEL (MADE IN JAPAN)
3	4-604-401-02	PROTECTOR
4	4-604-402-01	SPRING, TORSION
5	4-604-403-01	SPRING, COMPRESSION
6	4-604-407-11	CASE (FRONT), CARTRIDGE
7	4-604-408-12	CASE (REAR), CARTRIDGE



NOTE:

1. Parts printed in **Bold-Face** type are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in **Bold-Face** type will be processed, but allow for additional delivery time.
2. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

ELECTRICAL PARTS LIST


Ref. No.	Parts No.	Description
S-RAM BOARD		
BT1	1-528-138-11	BATTERY, LITHIUM
C1	1-131-418-00	TANTALUM 1 20% 10V
D1	8-719-981-01	ERA81-004
IC1	8-759-910-35	MSM82C55A-5GS
IC2	8-759-910-36	MSM5128-20GS
IC3	8-759-910-36	MSM5128-20GS
IC4	8-759-901-38	SN74LS138N
IC5	8-759-200-22	TC40H138P
IC6	8-759-900-32	SN74LS32N
Q1	8-729-993-72	2SA937
Q2	8-729-902-11	2SC2021
Q3	8-729-900-36	DTC124ES
Q4	8-729-900-36	DTC124ES
Q5	8-729-900-36	DTC124ES
Q6	8-729-900-85	DTC144WS
Q7	8-729-900-36	DTC124ES
Q8	8-729-900-85	DTC144WS
Q9	8-729-902-11	2SC2021
R1	1-247-855-00	CARBON 10K 5% 1/6W
R2	1-247-851-00	CARBON 6.8K 5% 1/6W
R3	1-247-869-00	CARBON 39K 5% 1/6W
R4	1-247-863-00	CARBON 22K 5% 1/6W
R5	1-247-855-00	CARBON 10K 5% 1/6W

Ref. No.	Parts No.	Description
R6	1-247-855-00	CARBON 10K 5% 1/6W
R7	1-247-823-00	CARBON 470 5% 1/6W
R8	1-247-855-00	CARBON 10K 5% 1/6W
R9	1-247-823-00	CARBON 470 5% 1/6W
R10	1-247-855-00	CARBON 10K 5% 1/6W
R11	1-247-865-00	CARBON 27K 5% 1/6W
R12	1-247-846-00	CARBON 4.3K 5% 1/6W
R13	1-247-855-00	CARBON 10K 5% 1/6W
R14	1-247-855-00	CARBON 10K 5% 1/6W
R15	1-247-855-00	CARBON 10K 5% 1/6W
R16	1-247-855-00	CARBON 10K 5% 1/6W
R17	1-247-855-00	CARBON 10K 5% 1/6W
R18	1-247-855-00	CARBON 10K 5% 1/6W

PACKING MATERIAL

Ref. No.	Parts No.	Description
	3-773-734-11	MANUAL, INSTRUCTION
	4-604-478-01	INDIVIDUAL CARTON (BOX, INNER)
	4-605-061-01	INDIVIDUAL CARTON (BOX, OUTER)

NOTE:

1. The shaded and -marked components are critical to safety.
Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.