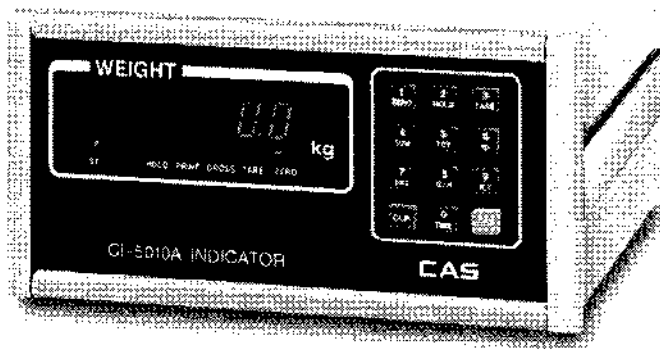


CI-5010

SERVICE MANUAL

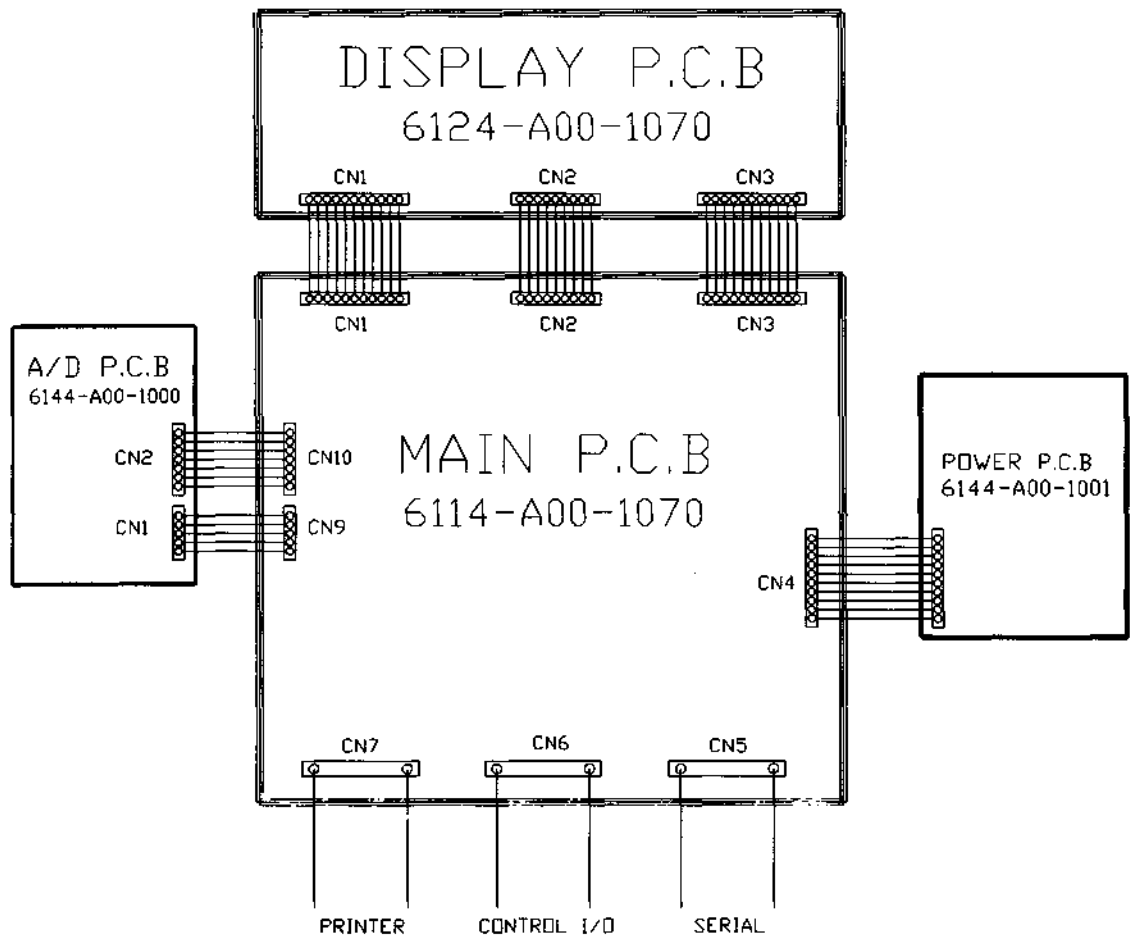


CAS

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1.Connection diagram



2. Description connector

* MAIN P.C.B *

CN1	
1	A8
2	A9
3	A10
4	A11
5	A12
6	A13
7	A14
8	-
9	DIS_WR
10	Y2

CN4	
1	A_-5V
2	A_GND
3	A_+5V
4	VCC
5	GND
6	E_+12V
7	-30V
8	0V
9	1.75V
10	1.75V

CN7	
1	STROBE
2	D0
3	D1
4	D2
5	D3
6	D4
7	D5
8	D6
9	D7
10	ACK

CN6	
1	OUT1
2	OUT2
3	OUT3
4	OUT4
5	OUT COM
6	IN1
7	IN2
8	IN3
9	IN COM

CN9	
1	-
2	-
3	A_-5V
4	A_GND
5	A_+5V

CN10	
1	RES
2	TFS
3	A0
4	SCLK
5	DATA
6	DRDY
7	-

CN1	
1	7.7V
2	0V
3	17V
4	0V
5	7.7V
6	0V
7	7.7V
8	1.57V
9	0V
10	1.57V
11	30V
12	0V

RS-232

CN2	
1	D7
2	D6
3	D5
4	D4
5	D3
6	D2
7	D1
8	D0

CN5	
1	-
2	TXD
3	RXD
4	-
5	-
6	-
7	GND
8	-
9	-

11	BUSY
12	PAPER UP
13	SELECT
14	FAULT
15	FF
16	RESET
17	-
18	GND
19	-
20	-
21	-
22	-
23	-
24	-
25	-

CN8	
1	A0
2	A1
3	GND
4	D0
5	A_+5V
6	D1
7	A_-5V
8	D2
9	VCC
10	D3
11	OP CS
12	D4
13	P1.7
14	D5
15	-
16	D6
17	WR
18	D7
19	-
20	E_+12V

CN3	
1	VCC
2	GND
3	GND
4	-
5	-
6	-30V
7	-
8	0V
9	1.75
10	1.75

RS-422

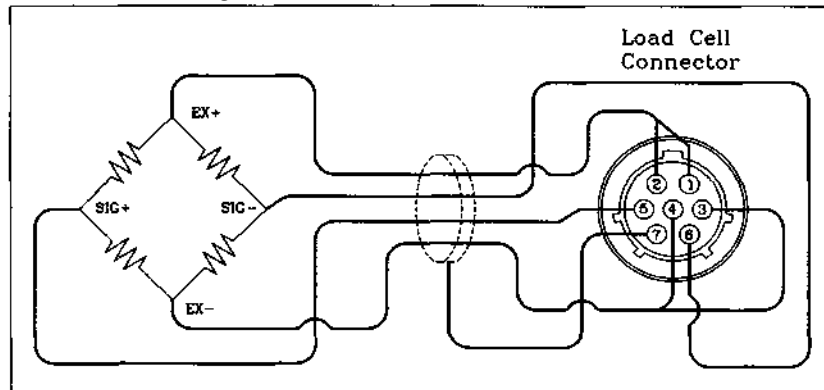
CN5	
1	IN+
2	-
3	-
4	OUT-
5	IN-
6	OUT+
7	GND
8	-
9	-

3. Installation & Connection

* Installation

1. Load cell connection

Pin 1,2:Excitation voltage+, Pin 3,4: Excitation voltage-Pin 5:Sense voltage+, Pin 6:Sense voltage-,
Pin 7'Shield * Connecting method



Ref. Each L/C manufacturer's or model's wire color could be different. In that case, please note the following diagram.

Manufacturer's wire color

Connector Company	Pin 1 (EX+)	Pin 3 (EX-)	Pin 5 (SIG+)	Pin 6 (SIG-)	Pin 7 (SHIELD)
CAS	RED	WHITE	GREEN	BLUE	CASE
KYOWA	RED	BLACK	GREEN	WHITE	CASE
INTERFACE	RED	BLACK	GREEN	WHITE	CASE
P. T	RED	BLACK	GREEN	WHITE	CASE
BLS	GREEN	BLACK	WHITE	RED	YELLOW
SHOWA	RED	BLUE	WHITE	BLACK	CASE
SHINKOH	RED	BLACK	GREEN	WHITE	CASE
TMI	RED	WHITE	GREEN	BLUE	YELLOW
TML	RED	BLACK	WHITE	GREEN	CASE
TFAC	RED	BLUE	WHITE	BLACK	YELLOW
HUNTLEIGH	GREEN	BLACK	RED	WHITE	CASE

* Resolution to loadcell output rate

10V impression to loadcell Max. loadcell output	Recommended resolution
4 mV	1/4,000 (Max)
8 mV	1/8,000 (Max)
10 mV	1/10,000 (Max)

2. Connection to AC power

Connect to the AC power and turn the power switch on. The Input Voltage is adjusted to 220V 50/60 Hz at factory. 110V/220V select switch is in the inner part of CI-5010A.

3. External input port connection

If you are away from CI-5010A and you want to press key, Please connect the CI-5010A with Remote key via rear panel

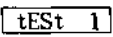
1			
2			
3			
4			
5			
6		IN - 1	ZERO key
7		IN - 2	TARE key
8		IN - 3	PRINT key
9		IN COM	KEY COM

9 PIN (Male) D
SUB

4.TEST MODE

(1) How to enter this mode

Turn on the power while pressing the  key on the front of the indicator.

1.  :Select test menu which you would like to do.
2. Please select test menu using by numeric keys.
3.  :  Test. menu is selected.
Proceed key test.
4. When test is done, Press ENTER key.

(2) Available keys

Numeric key : used for changing preset value

SET key : used for moving to the next test manu.

(3) TEST MENU(TEST 1 - TEST 8)

TEST 1 Key test

TEST 2 VFD screen test

TEST 3 Load cell test and A/D conversion test

TEST 4 Serial interface test (OP-5)

TEST 5 Printer test (OP-7)

TEST 6 RAM test

TEST 7 External input test

TEST 8 BCD out test (OP-3)

TEST 9 Analog out test (OP-4, OP-6)

TEST 1

FUNCTION: Key test		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu	tEst 1	TEST 1 condition.
Other keys : Perform test	1 1	Press the key to be test and the no. and code corresponding to the key is displayed.

< Key list >

KEY NAME	NO	CODE	KEY NAME	NO	CODE	KEY NAME	NO	CODE
ZERO , 1	1	1	TOT , 5	5	4	K.T , 9	9	10
HOLD , 2	2	0	ID , 6	6	6	TIME , 0	0	12
TARE , 3	3	2	PRT , 7	7	9	CLR	11	13
SUM , 4	4	5	G /N , 8	8	8	SET	48	14

TEST 2

FUNCTION : VFD screen test		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu	tEst 2	TEST 2 condition
Other keys : Perform test	8888888	TEST 2 is performed.

TEST 3

FUNCTION : A/D converter test		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu	tEst 3	TEST 3 condition
	5500	Display digital value of current weight. This value means converted digital value.

REF 1. Check whether digital value is changing.

If the digital value is fixed or zero is displayed, please check the connection of load cell.

TEST 4 (OP-5)

FUNCTION : RS-232 test with computer (SERIAL port)		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu	tEst 4	TEST 4 condition
Other keys : Transmit key	-----	Wait for transmission and reception
	-----5	Transmit: 5, Receive: none
	13---05	Transmit: 5, Receive: 13

REF 1. Do this test after the connection of serial port of computer and serial port of indicator is done.
 REF 2. Send no. 1 in computer keyboard and check if indicator receives no.1 Send no. 1 in indicator keyboard and check if computer receives no.1 REF 3. Do this test after baud rate is specified in SET mode (F09).

TEST 5 (OP-7)

FUNCTION : Printer test (PRINTER)		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu	tEst 5	TEST 5 condition
Other keys : Perform test	GOOD	No error in printer
	ERR 06	Check printer connector

REF 1. Perform test only when the printer option are installed.
 REF 2. Previously specify the printer which will be used in the conversion mode (F-08)
 REF 3. "GOOD" message is displayed if the printer connection and specification is done correctly. If not, "ERR 6" message is displayed. REF 4. The test output format of printer is like follows.

Computer And Sensor
 CAS Corporation
 TEL 02-475-4661
 FAX 02-475-4668
 TEST OK

TEST 6

FUNCTION : SRAM TEST		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu Other keys : Perform test	tEst 6 GOOD 1A34	Internal RAM is in normal state. There is an error at RAM address 1A34 --> Replace RAM with new one.

REF 1. If the RAM has no trouble, "GOOD" message will be displayed, but the corresponding will be displayed in case of abnormal state.

TEST 7

FUNCTION : External input test		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu short of external input port : Perform test	tEst 7 IN1-IN3	TEST 7 condition IN1 : short 1 and "1 ZErO" is stored. IN2 : short 2 and "2 tArE" is stored. IN3 : short 3 and "3 Print" is stored.

TEST 8 (OP-3)

FUNCTION: BCD out test		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu CLR key : turn on/off toggle key	tEst 8 oFF on	TEST 8 condition oFF : Turn off BCD output on : Turn on BCD output

REF 1. BCD out (ON/OFF) is repeated when "CUT key is pressed in TEST 8.

TEST 9 (OP-4, OP-6)

FUNCTION : Analog out test (4 - 20 mA), (0 - 10 V)		
KEY	VFD SCREEN	DESCRIPTION
SET : to next menu CLR key: max. capa/zero toggle key	tEst 9 HIGH ZERO	TEST 9 condition HIGH : Output maximum weight (Adjust to Iout-20mA, Vout-10V) ZERO : Output zero value (Adjust to Iout-4mA, Vout-0V)

REF 1. Analog out(MAX. capa/zero value) is repeated when "CLR" key is pressed in TEST 9.

5.CALIBRATION MODE

(1) How to enter

Turn on the power while pressing the

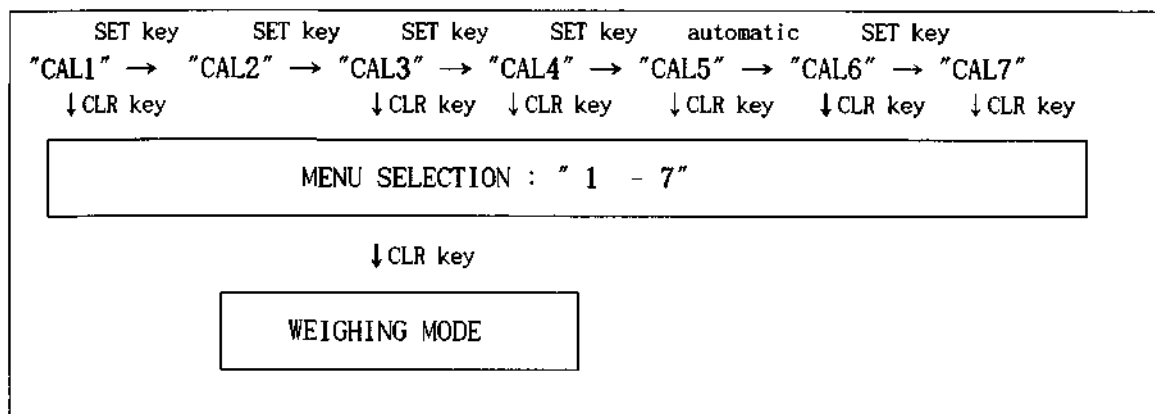
3
TARE

 key on the front of the indicator.

(2) AVAILABLE KEYS

Numeric key : used for changing preset value

SET key : used for moving to the next test menu.



When pressing the "SET" key in "CAL1", it is shifted to the next menu "CAL2".
pressing "SET" key again, it is shifted to the "CAL3".

(3) When the CI-5010A should be calibrated?

- The system is first installed.
- Any part of weighing device is changed.
- If any drift is detected.
- If error message "ERR 13" is occurred on VFD display.

(4) CALIBRATION M(CAL1 - CAL 7)

CAL1Maximum Capacity

CAL2Minimum Division

CAL3Setting Weight

CAL4Zero Calibration

CAL5Span Calibration

CAL6Verify

CAL7Weight factor

CAL 1 (press '1' key to move to CAL 1)

FUNCTION : Maximum Capacity SET		
RANGE ---> 1 ~ 99,999		
KEY	VFD SCREEN	DESCRIPTION
SET key : store and move into next menu	C= 5000	5000 kg
NUMERIC key : set value change	C= 20000	20000 Kg
CLR key : exit		

REF 1. The maximum capa. means the maximum weight that scale can measure. REF 2. Do not input the resolution, there is no need to input the resolution which is automatically calculated.

CAL 2

FUNCTION : Minimum Division SET		
RANGE ---> 0.001 ~ 500		
KEY	VFD SCREEN	DESCRIPTION
SET key : store and move into next menu	d= 1	1 kg
	d= 0.2	0.2 kg
NUMERIC key : set value change	d= 0.05	0.05 kg
CLR key : input the point	d= 0.001	0.001 kg

REF 1. The minimum division means the value of one division.

REF 2. External resolution is obtained by dividing the min. division by the

maximum capacity. Set the resolution to be within 1/10,000. REF 3. When you press other keys except '1', '2', '5' and '0', A retry beep will sound.

CAL 3

FUNCTION : Setting Weight In Span CALIBRATION		
RANGE ---> 1 ~ Maximum capacity of CAL1		
KEY	VFD SCREEN	DESCRIPTION
SET key : store and move into next menu	L= 5000	5000 kg
NUMERIC key : set value change	L= 500	500 kg
CLR key : exit		

REF 1. The setting weight shall be within the range of 10 % — 100 % of maximum weight. REF 2. If the Setting Weight is under the 10% of the Maximum Capacity,

Error message("ERR 22") will occur. REF 3. If the Setting Weight over the Maximum Capacity,

Error message("ERR 23") will occur.

CAL 4

FUNCTION : Zero Calibration		
KEY	VFD SCREEN	DESCRIPTION
SET key : Zero calibration CLR key : exit	UnLOAD	Unload the tray and press SET
	-----	under zero calibration
	SUCCESS	Zero calibration is completed. The program moves into Span calibration automatically.

REF 1. If Zero calibration is done without any error, SUCCESS message is displayed and program moves into CAL 5 automatically.

REF 2. If the zero value is too low, ERROR message (ERR 27) is displayed. REF 3. If the zero value is too high, ERROR message (ERR 26) is displayed. REF 4. Zero calibration can be done independently, Pressing "ZERO" key instead of "SET key" will perform this function.

CAL 5

FUNCTION : Span Calibration		
KEY	VFD SCREEN	DESCRIPTION
SET key : Span calibration CLR key : exit	LOAD	Load the weight which was set in CAL 3 and press SET key.
	-----	Under span calibration...
	SUCCESS	Span calibration is completed. Check whether the displayed weight is same with setting weight.

REF 1. If Span calibration is done without any error, SUCCESS message is displayed. The weight of setting weight is displayed on VFD screen. Check the weight. REF 2. If the span is low, Error message (ERR 24) is displayed.

In that case, Calibrate with lower resolution.

Please check the span value to be resolution x 20 in TEST 3.

CAL 6

FUNCTION : Verify if the calibration is done properly		
KEY	VFD SCREEN	DESCRIPTION
SET key : store and move into next menu CLR key : exit from the CAL mode	5000 kg ▽▽▽▼▽▽▽	5000 kg

REF 1. CI-5010A move to this menu after CAL5 is done successfully.

Confirm if the displayed weight is equal to the setting weight you entered in CAL3, and after you clear out the baggage plate confirm if the displayed weight is "0".

If "o" is displayed, press CLR key 2 times to move to weighing mode. REF 2. The bias is "0" when the central lamp lights up as in the above VFD screen, and each lamp denotes the bias of -3, -2, -1, 0, 1, 2, 3 from the left lamp.

CAL 7

FUNCTION : Weigh constant calibration		
KEY	VFD SCREEN	DESCRIPTION
NUMERIC key : input of password CLR key : exit from the CAL mode SET key : exit from the CAL mode	FAcToR	type the password

REF 1. The ordinary user need not to use this menu, since it is used for calibration test

without balance weight. REF 2. When you press the SET key 2 times, it exit from the CAL mode and moved to weighing

mode after VFD screen displayed "CAL END" .

6.SET MODE

(1)How to enter this mode?

Turn on the power while pressing the  key on the front of the indicator.

In weighing mode, press the  key for 3 seconds to move to this mode.

(2) Available keys

Numeric key : used for changing preset value

SET key : used for saving just inputted value and exiting to menu selection display.

CLR key : used for exiting to menu selection display without saving just inputted value.

* used for toggle on/off in SET F07,F13,F15.

(3) SET MENU

F01	Change of date
F02	Change of time
F03	Automatic Print/Manual Print.
F04	Speed control of weigh display
F05	Stable condition set
F06	Automatic zero condition set
F07	Weight backup function set
F08	Employed printer set
F09	Baud rate set
F10	Hold type set
F11	Zero key operation range set
F12	Print-Form set
F13	Operation condition of zero key , tare key (stable/unstable)
F14	Data set sent to Computer
F15	Initialization of number measured daily
F16	Input user's print message
F24	Device number
F25	Option selection
F26	Output logic designation

F01

Function	Change of year, month, date	
Set value	Example VFD	Meaning
	97.05.01	May 1st, 1997

Note 1. Move the cursor to the desired number by pressing CLR key. Note 2. Modify the year, month and date by pressing the numerical keys.

F02

Function	Time adjustment	
Set value	Example VFD	Meaning
	10.30.01	Ten thirty and one second, A.M.
	22.20.00	Exact time of ten twenty P.M.

Note 1. Move the cursor to the desired number by pressing CLR key. Note 2. Modify the time by pressing the numerical keys.

F03

Function	Automatic print	
Set value (0, 1)	Example VFD	Meaning
	F03 0	Manual print
	F03 1	Automatic print

Note 1. Upon setting the automatic print, the print is carried out without pressing the print key when the weight is in stable state.

F04

Function	Speed control of weigh display	
Set value (from 1 to 9)	Example VFD	Meaning
	F04 1	in high speed
	F04 5	in normal speed
	F04 9	very slowly

Note 1. Adjust the speed variation of the weight on the screen to be suitable for the current usage.

F05

Function	Stable condition set of weight	
Set value	Example VFD	Meaning
(from 1 to 9)	F05 1	Stable lamp is off even with the change of only one division
	F05 5	Stable lamp is on with changing of the weight below five division
	F05 9	Stable lamp is on with changing of the weight below nine division

F06

Function	Automatic zero condition set	
Set value	Example VFD	Meaning
(from 00 to 99)	F06 00	No compensation
	F06 23	Compensation for gradual change below two division for 3 time unit(similar to sec)
	F06 89	Compensation for gradual change below eight division for 9 sec.

Note 1. The first digit indicates count, the second digit indicates time unit. Note 2. A time unit is similar to 1 second but is not exactly same.

F07

Function	Weight backup	
Set value	Example VFD	Meaning
(off, on)	F07 off	weight backup is off
	F07 on	weight backup is on

Note 1. If the AC power is OFF suddenly and weight backup is ON, the scale recovers previous weight after the power is ON. Note 2. On and Off are alternately displayed by pressing the numerical key

F08

Function	Employed printer set	
Set value	Example VFD	Meaning
(from 0 to 4)	F08 0	Printer is not used
	F08 1	EPSON printer
	F08 2	MODEL : FS-7000D, 7040P parallel version
	F08 3	EPSON printer(LQ-550H, LQ-1550H etc)
	F08 4	MODEL : FS-7000D, 7040P serial version

Note 1. The default value is set to 0 at factory.

F09

Function	Baud rate set			
Set value	Example VFD	Meaning	Example MFD	Meaning
(from 0 to 3)	F09 0	1200 bps	F09 2	9600 bps
	F09 1	4800 bps	F09 3	19200 bps

F10

Function	Hold type set	
Set value	Example VFD	Meaning
(0, 1)	F10 0	Average Hold
	F10 1	Peak Hold

Note 1. Average hold : Compute the average weight of oscillating weights.

PEAK hold : Compute the maximum weight among oscillating weights.

F11

Function	Zero key operation range set	
Set value	Example VFD	Meaning
(0, 1)	F11 0	2 % : zero key operation within 4 % of maximum weight
	F11 1	10 % : zero key operation within 10 % of maximum weight

F12

Function	Print Form	
Set value	Example VFD	Meaning
(from 0 to 5)	F12 0	form 0 (date,time,Serial No., ID No., Net weight)
	F12 1	form 1 (date,time,Weigh No., Net weight)
	F12 2	form 2 (date, time, Gross, Tare, Net weight)
	F12 3	form 3 (date,time, Net weight)
	F12 4	form 4 (date,time, ID No., Net weight)
	F12 5	form 5 (date, time, serial No., net weight)

Note 1. Serial No. increment from 1 to 999 and initialized to 1 after "GRAND TOTAL" key pressed or power-off. Note 2. Weigh No. increment from 1 to 999 and is not initialized to 1 after power-off. In F15 of set mode, The weighing can be initialized.

【 Output Form 0 】

Date, Time
Serial No., ID No., Net weight

1997. 10. 1	12:30
001. ID_11,	50.0 kg
002. ID_12,	100.0 kg
003. ID_19,	200.5 kg

【 Output Form 1 】

Date, Time
Weigh No., Net weight

1997. 10. 1	12:30
No.10	50.0 kg
No.11	100.0 kg
No.12	200.5 kg

【 Output Form 2 】

Date, Time
Gross, Tare, Net weight

1997. 10. 1	12:30
Gross :	1000.0 kg
Tare :	0 kg
Net :	1000.0 kg
Gross :	2000.0 kg
Tare :	500.0 kg
Net :	1500.0 kg

【 Output Form 3 】

Date, Time
Time, Net weight

1997. 10. 1	12:30
10:10, Net:	100.0 kg
11:00, Net:	200.0 kg
12:30, Net:	200.0 kg
13:45, Net:	100.0 kg
15:20, Net:	200.0 kg
17:45, Net:	500.0 kg

【 Output Form 4 】

Date, Time
ID No., Net weight

1997. 10. 1	12:30
ID_11, Net:	50.0 kg
ID_12, Net:	100.0 kg
ID_19, Net:	200.5 kg

【 Output Form 5 】

Date, Time
Serial No., Net weight

1997. 10. 1	10:30
001,	1000.0 kg
1997. 10. 1	15:20
002,	2000.0 kg

F13

Function	Operation condition of zero, tare key (stable/unstable)	
Set value	Example VFD	Meaning
(oFF,on)	F13 oFF	Operation only in weigh stable state
	F13 on	Constant Operation

Note 1. On and Off are alternately displayed by pressing the numerical keys.

F14

Function	Data set sent to computer	
Set value	Example VFD	Meaning
(0 - 3)	F14 0	No data output
	F14 1	Transmission in an state of stable & unstable
	F14 2	Transmission only in stable state
	F14 3	Transmission only when requiring data

Note 1. The default value is set to 0 at factory.

Note 2. when F14 is set to 3, the command of transmission is the byte which is specified in F24. Note 3. F08 should not be set to 4 for the good functioning of F14.

F15

Function	Initialization of number measured daily	
Set value	Example VFD	Meaning
(oFF, on)	F15 oFF	Maintain current number
	F15 on	Initialization (starting from No.1)

Note 1. On and Off are alternately displayed by pressing the numerical keys.

F16

Function	Input user's print message	
Used key	Example VFD	Meaning
TOT key : Increase coordinate Numeric key : input code number	P12-065	Designate 'A' (ASCII code 65) in 12th data
	P00-032	Set blank to 0th character to print message. This 32th code is essential to head message.
	P18-255	Set 255 to 18th character. This code indicates the end of message to be printed.

Note 1. It is the function that add contents in printing format. (EX: company name, phone no.)

Note 2. The range of coordinate is from 0 to 71.

the 0th code is used to choose between printing head message and no printing (032 : Do print, others : Do not print)

Note 3. Designate as follows if you want to add company name "CAS" on print format P00-032(ASCII code 32 : Data start), P01-067(ASCII code 67 : character C) P02-065(ASCII code 65 : character A),P03-083(ASCII CODE 83 Character S) P04-255(ASCII code 255: Data end)

Note 4. ASCII code table

CHA.	CODE	CHA.	CODE	CHA.	CODE	CHA.	CODE	CHA.	CODE	CHA.	CODE
SPACE	32	0	48	@	64	P	80	`	96	p	112
!	33	1	49	A	65	Q	81	a	97	q	113
"	34	2	50	B	66	R	82	b	98	r	114
#	35	3	51	C	67	S	83	c	99	s	115
\$	36	4	52	D	68	T	84	d	100	t	116
%	37	5	53	E	69	U	85	e	101	u	117
&	38	6	54	F	70	V	86	f	102	v	118
'	39	7	55	G	71	W	87	g	103	w	119
(	40	8	56	H	72	X	88	h	104	x	120
)	41	9	57	I	73	Y	89	i	105	y	121
*	42	:	58	J	74	Z	90	j	106	z	122
+	43	:	59	K	75	[	91	k	107	{	123
,	44	<	60	L	76	\	92	l	108		124
-	45	=	61	M	77	]	93	m	109	}	125
.	46	>	62	N	78	^	94	n	110	~	126
/	47	?	63	O	79	_	95	o	111	END	255

F24

Function	Device number (Identification number of each indicator)	
Set value	Example VFD	Meaning
(from 00 to 99)	F24 00	Device No. 00
	F24 05	Device No. 05

Note 1. This device number is the data demanding signal in serial communication.

F25

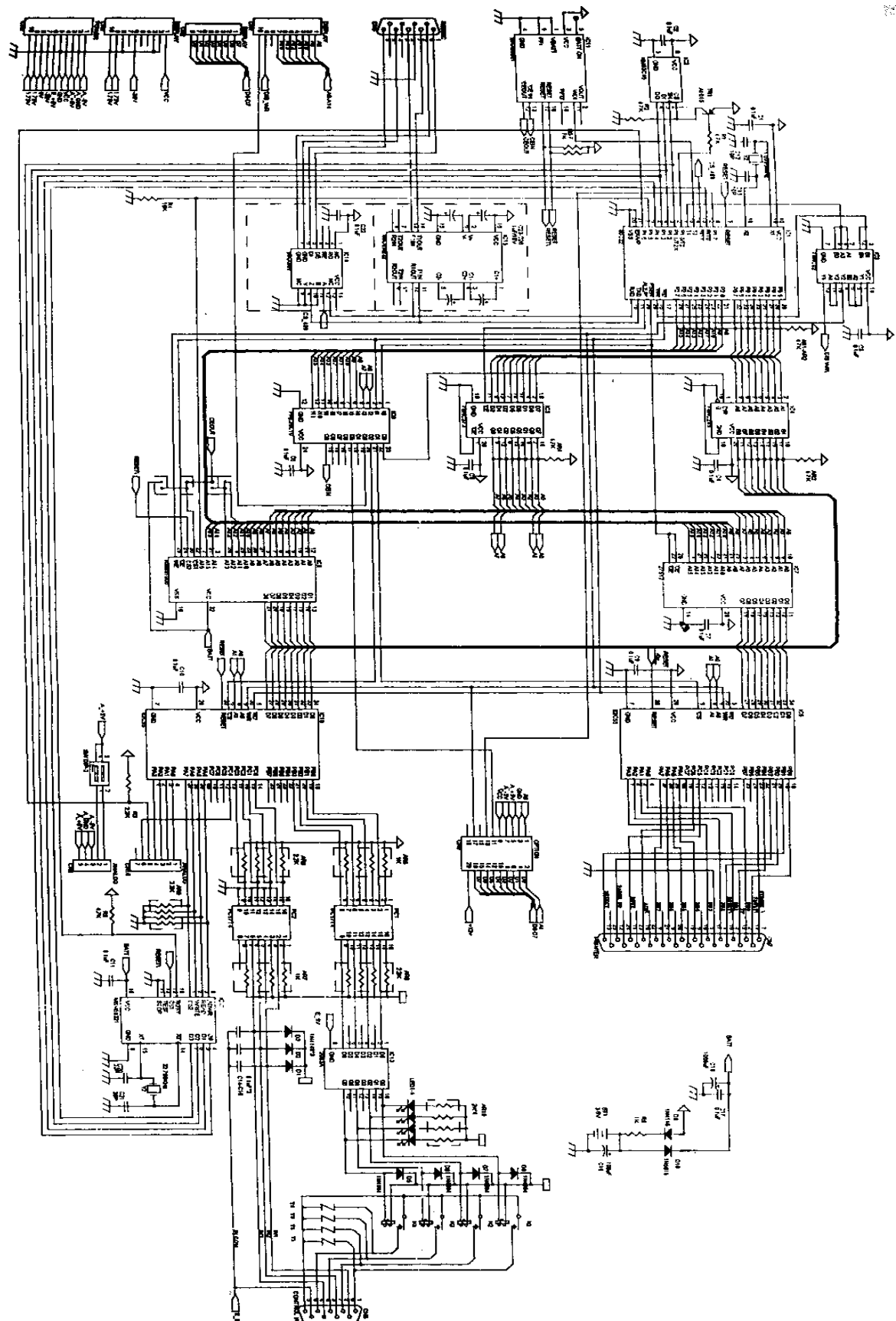
Function	Option Select	
Set value	Example VFD	Meaning
(0 - 4)	F25 0	No option
	F25 1	
	F25 2	
	F25 3	BCD OUT
	F25 4	Analog Out(Vout:0~10V, Iout: 4~20mA)

F26

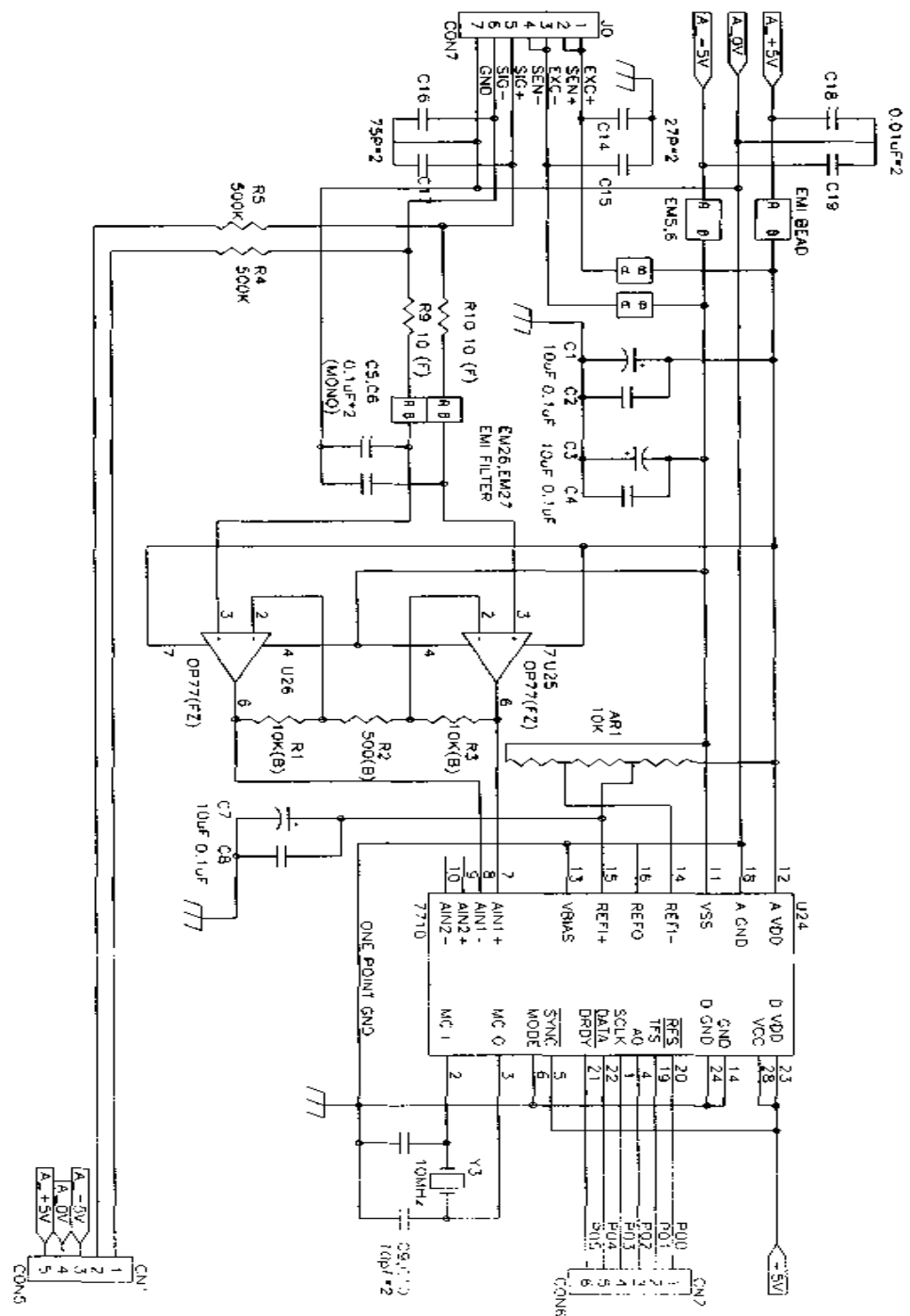
Function	Output Logic - BCD OUT	
Set value	Example VFD	Meaning
(0, 1)	F26 0	Positive Logic
	F26 1	Negative Logic

7. SCHEMATIC DIAGRAM

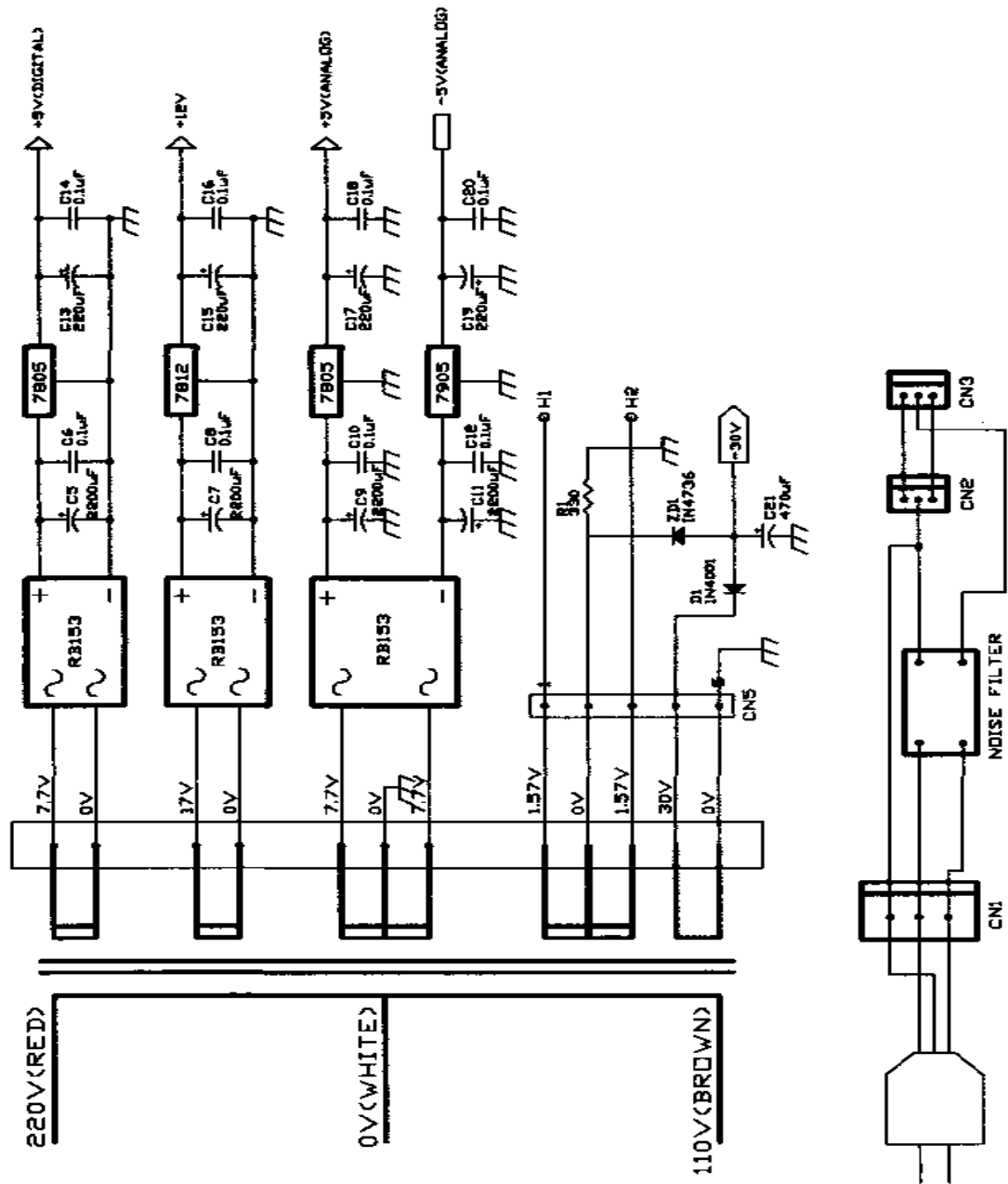
1) Main Schematic



3) Analog Schematic

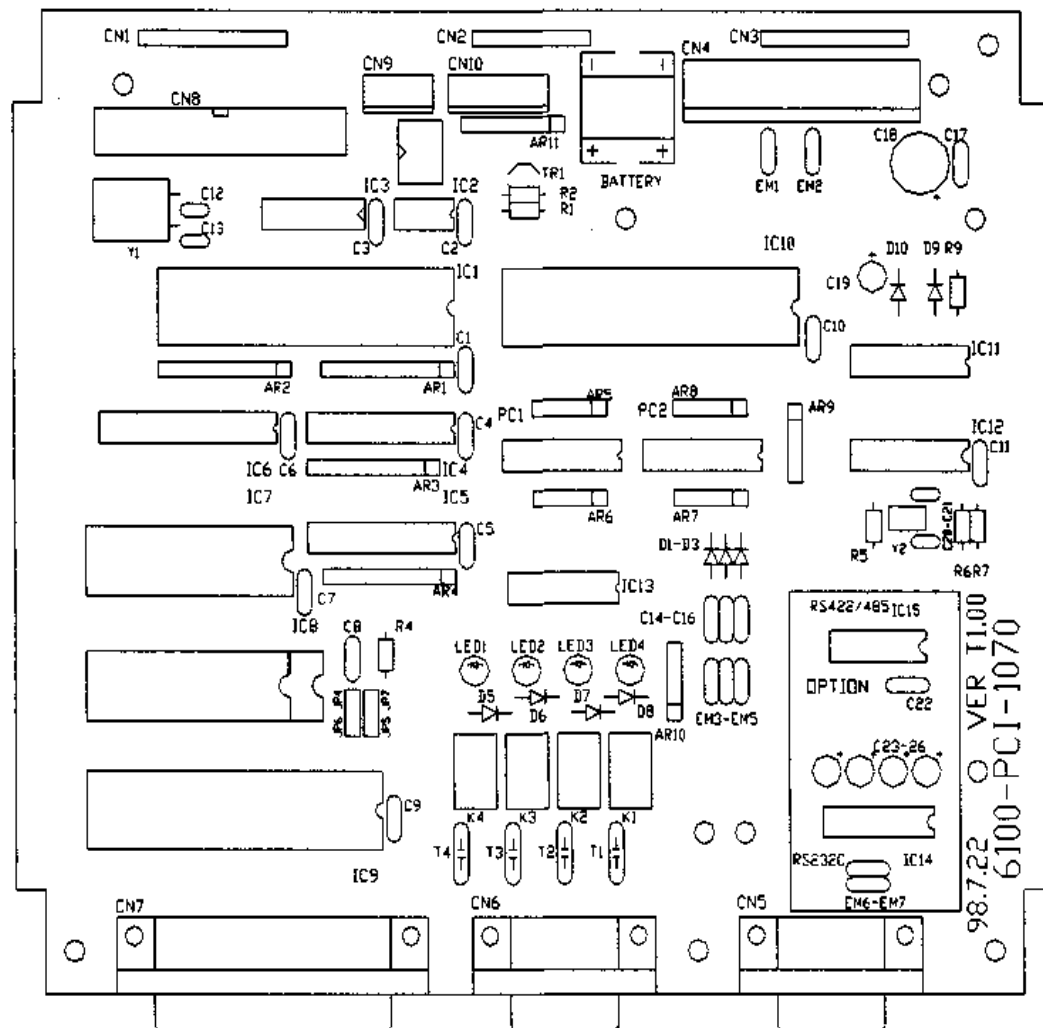


4) Power Schematic

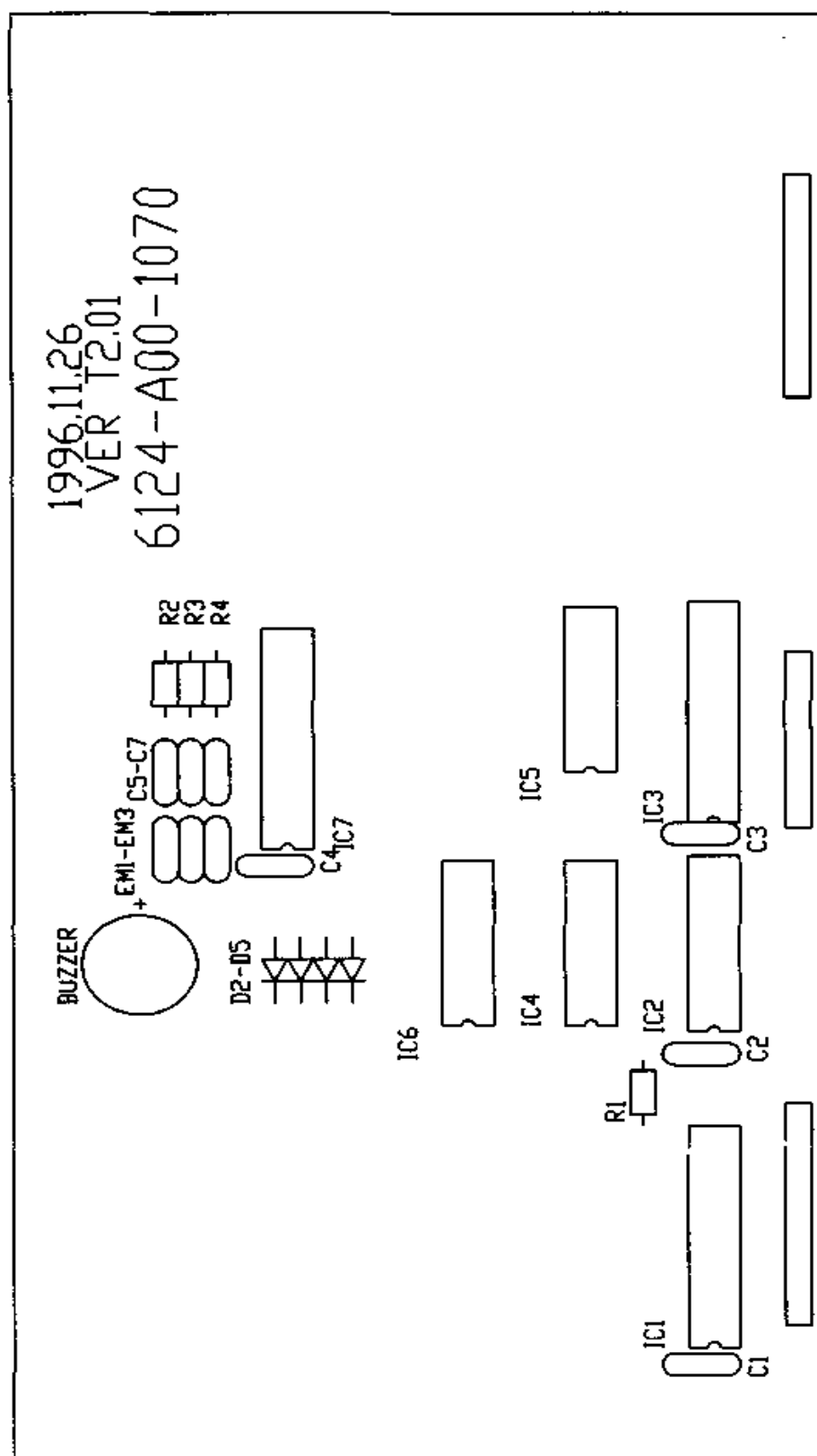


8. PARTS ARRANGEMENT DIAGRAM

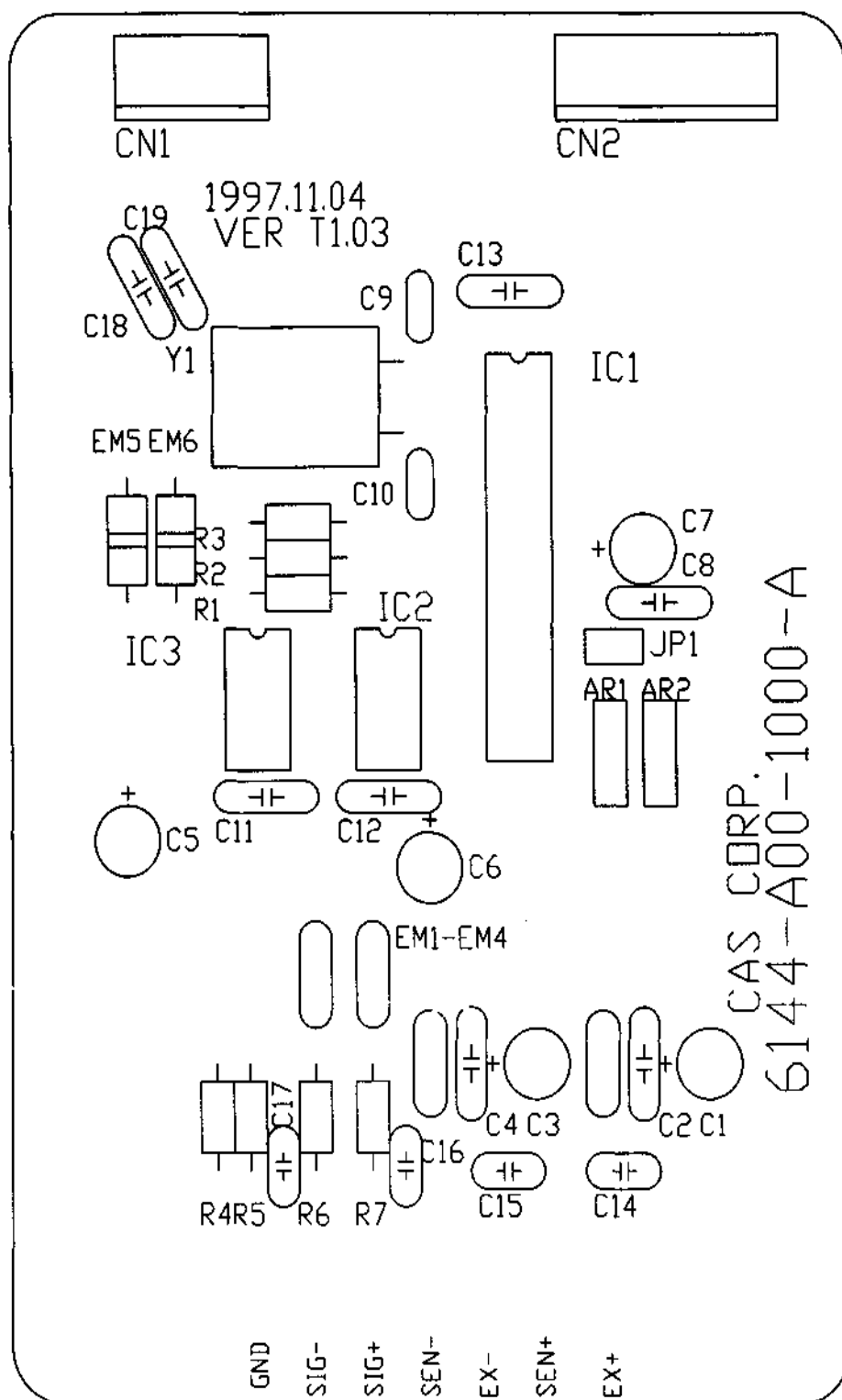
1) Main P.C.B



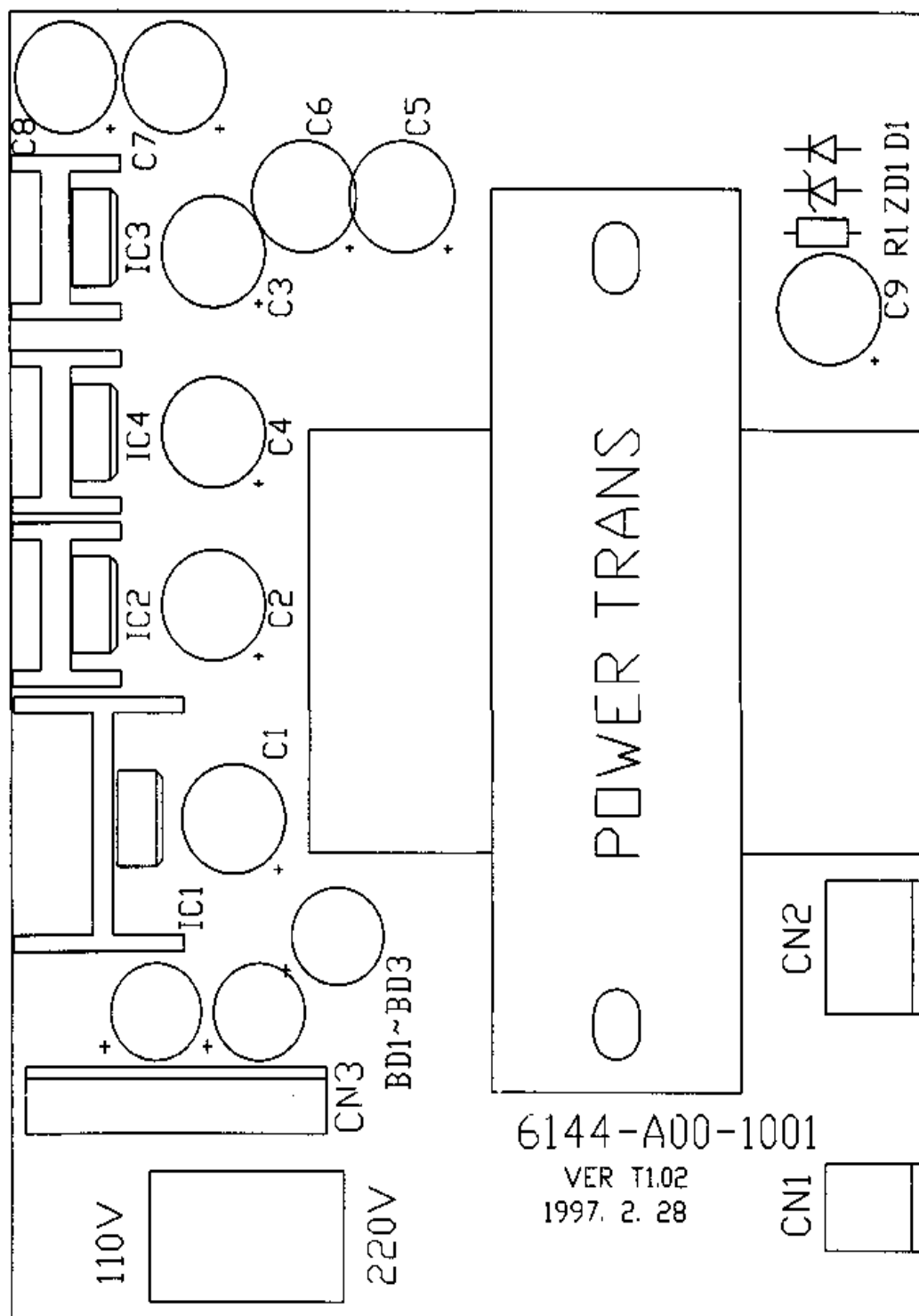
2) Display P.C.B



3) Analog P.C.B



4) Power P.C.B



9. PARTS LIST

1) MAIN CIRCUIT PART LIST

NO	Part Code	Part Name	Specification	QTY	UNIT	REMARK
1	6100-PCI-1070	MAIN P.C.B	6100-PCI-1070	1	EA	VER T1.00
2	6204-C00-8032	IC (CPU)	80C32	1	EA	IC1
3	6222-C00-9346	IC (EEP-ROM)	93C46	1	EA	IC2
4	6202-A00-0002	IC (C-MOS)	74HC02	1	EA	IC3
5	6202-A00-0245	IC (C-MOS)	74HC245	1	EA	IC4
6	6202-E00-0373	IC (C-MOS)	74HC373	1	EA	IC5
7	6228-V00-2210	IC (GAL)	22V10	1	EA	IC6
8	6222-C00-2751	IC (EP-ROM)	NM27C512AQ-20	1	EA	IC7
9	6220-A00-6810	IC	KM681000	1	EA	IC8
10	6208-C00-8255	IC (CPU/MPU)	KS82C55A	1	EA	IC10
11	6218-A00-0691	IC	MAX691CPE	1	EA	IC11
12	6224-A00-8321	IC (TIMER)	MSM58321RS	1	EA	IC12
13	6206-A00-2003	IC (DRIVER)	ULD2003A	1	EA	IC13
14	7216-A00-0174	PHOTO-COUPLER	PC-17T4	1	EA	PC1
15	7843-A00-0040	PIN HEADER	A2-40PA-2, 54DS(28PIN)	1	EA	CN1, 2, 3
16	7807-A00-7310	CONNECTOR	5273-10	1	EA	CN4
17	7841-S01-0009	D_SUB CONNECTOR	RDED-9S	2	EA	CN6
18	7841-S01-0025	D_SUB CONNECTOR	RDBD-25S	1	EA	CN7
19	7841-S00-0020	CONNECTOR	HIF-3BA-20PA	1	EA	CN8
20	7804-A00-0005	CONNECTOR	LW-0640-05	1	EA	CN9
21	7804-A00-0007	CONNECTOR	LW-0640-07	1	EA	CN10
22	7104-A00-1059	CRYSTAL	11.0592MHZ	1	EA	X-TAL
23	7104-A00-2768	CRYSTAL	32.768KHZ	1	EA	X-TAL
24	6545-A01-9472	NETWORK RESISTOR	M9-1-472J	4	EA	AR1, 2, 3, 4
25	6545-A01-7472	NETWORK RESISTOR	M7-1-472J	1	EA	AR11
26	6545-E01-5222	NETWORK RESISTOR	M5-1-222J	1	EA	AR7
27	6545-A01-5102	NETWORK RESISTOR	M5-1-102J	1	EA	AR8
28	6534-K00-0047	RESISTOR $\frac{1}{4}W$	CFR 4.7K (±5%)	5	EA	R1, 2, 5, 6, 7
29	6534-K00-0100	RESISTOR $\frac{1}{4}W$	CFR 10K (±5%)	1	EA	R4
30	6534-K00-0010	RESISTOR $\frac{1}{4}W$	CFR 1K(±5%)	1	EA	R9

NO	Part Code	Part Name	Specification	QT'Y	UNIT	REMARK
31	6794-A00-0010	NI-CD BATTERY	G50H-3X3.6V	1	EA	BATTERY
32	6300-A00-0028	IC SOCKET	28PIN	1	EA	SOCKET OF IC7
33	6300-A00-0040	IC SOCKET	40PIN	1	EA	SOCKET OF IC9
34	6300-A00-0016	IC SOCKET	16A	1	EA	SOCKET OF IC14
35	6300-A00-0014	IC SOCKET	14A	1	EA	SOCKET OF IC15
36	6710-U00-0100	C_CONDENSER	0.1uF/25V	16	EA	C1~9,10,11,14~17,22
37	6710-A00-0010	C_CONDENSER	10pF/50V	2	EA	C12,13
38	6710-A00-0030	C_CONDENSER	30pF/50V	2	EA	C20,21
39	6704-A16-1000	E_CONDENSER	1000uF/16V	1	EA	C18
40	6704-A16-0100	E_CONDENSER	100uF/16V	1	EA	C19
41	6704-A50-0001	E_CONDENSER	1uF/50V	4	EA	C23,24,25,26
42	6287-A00-4148	S/W DIODE	1N4148	4	EA	D1,2,3,10
43	6289-A00-5819	SCHOTTKY DIODE	1N5819	1	EA	D9
44	6716-A00-0102	EMI FILTER	102	7	EA	EM
45	7746-A00-0002	DIP SWITCH	EDG-2	1	EA	
46	6280-AA0-1015	TERNSISTOR	2SA1015	1	EA	TR1
OPTION						
47	6216-A00-1081	IC	LT1081(1CL232CPE)	1	EA	IC14
48	6216-A00-1081	IC	MAX489CPD	1	EA	IC15
49	6208-C00-8255	IC (CPU/MPU)	KS82C55A	1	EA	IC9

2) DISPLAY CIRCUIT PART LIST

NO	Part Code	Part Name	Specification	QT'Y	UNIT	REMARK
1	6124-A00-1070	DISPLAY P.C.B	612-A00-1070	1	EA	VER T1.00
2	6202-A00-0574	IC (C-MOS)	74HC574	2	EA	IC1,3
3	6202-A00-0138	IC (C-MOS)	74HC138	1	EA	IC2
4	6206-E00-0080	IC (DRIVER)	uPA80C	3	EA	IC4,5,6
5	6202-A00-0244	IC (C-MOS)	74HC244	1	EA	IC7
6	6710-U00-0100	C_CONDENSER	0.1uF/25V	7	EA	C1~C7
7	6287-A00-4148	S/W DIODE	1N4148	4	EA	D2,3,4,5
8	7004-A00-0080	MAG'BUZZER	SBT-1205S	1	EA	
9	6534-K00-0047	RESISTOR 1/4W	CFR 4.7K (±5%)	1	EA	R1
10	6534-K00-0022	RESISTOR 1/4W	CFR 2.2K (±5%)	3	EA	R3,4,5
11	2607-A00-0000	VFD CUSTION	30*20*2T	1	EA	
12	7204-A00-0701	VFD	7LS01	1	EA	
13	6716-A00-0102	EMI FILTER	102	3	EA	EMI ~ EM3

3) ANALOG CIRCUIT PART LIST

NO	Part Code	Part Name	Specification	QT'Y	UNIT	REMARK
1	6144-A00-1000	ANALOG P.C.B	6144-A00-1000-A	1	EA	
2	6200-A00-7710	IC (A/D CONVERTOR)	AD-7710AN	1	EA	IC1
3	6216-E00-0177	IC (OP-AMP)	OP-177-FZ	2	EA	IC2,3
4	7104-A00-1000	CRYSTAL	10 MHZ	1	EA	Y1
5	6716-A00-0102	EMI FILTER	102	4	EA	EMI~4
6	6718-A00-3565	EMI BEAD FILTER	BFS3565A0B	2	EA	EM5,6
7	6714-A25-0001	MONOLITHIC CONDENSER	0.1uF/25V	6	EA	C2,4,8,11,12,13
8	6700-A16-0010	TANTAL CONDENSER	10uF/16V	5	EA	C1,3,5,6,7
9	6710-A00-0010	C_CONDENSER	10pF/50V	2	EA	C9,10
10	6710-A00-0027	C_CONDENSER	27pF/25V	2	EA	C16,17
11	6710-A00-0075	C_CONDENSER	75pF/25V	2	EA	C14,15
12	6710-U00-0010	C_CONDENSER	0.01uF/25V	2	EA	C18,19
13	6530-FLA-0205	PRECISION RESISTOR	FLAY 20K500B	2	EA	R1,3
14	6530-FLA-0010	PRECISION RESISTOR	FLAY 1K000B	1	EA	R2
15	6500-K00-0500	RESISTOR 1/4W	MFR 200KΩ (±0.1%)-B	2	EA	R4,5
16	6506-K00-0100	RESISTOR 1/4W	MFR 10Ω (±0.1%)-B	2	EA	R6,7
17	6549-E00-0100	NETWORK RESISTOR	2B-35-ME15(10K/10K)	2	EA	AR1,AR2
18	7804-A00-0005	CONNECTOR	LW-0640-05	1	EA	CN1
19	7804-A00-0007	CONNECTOR	LW-0640-07	1	EA	CN2

4) POWER CIRCUIT PART LIST

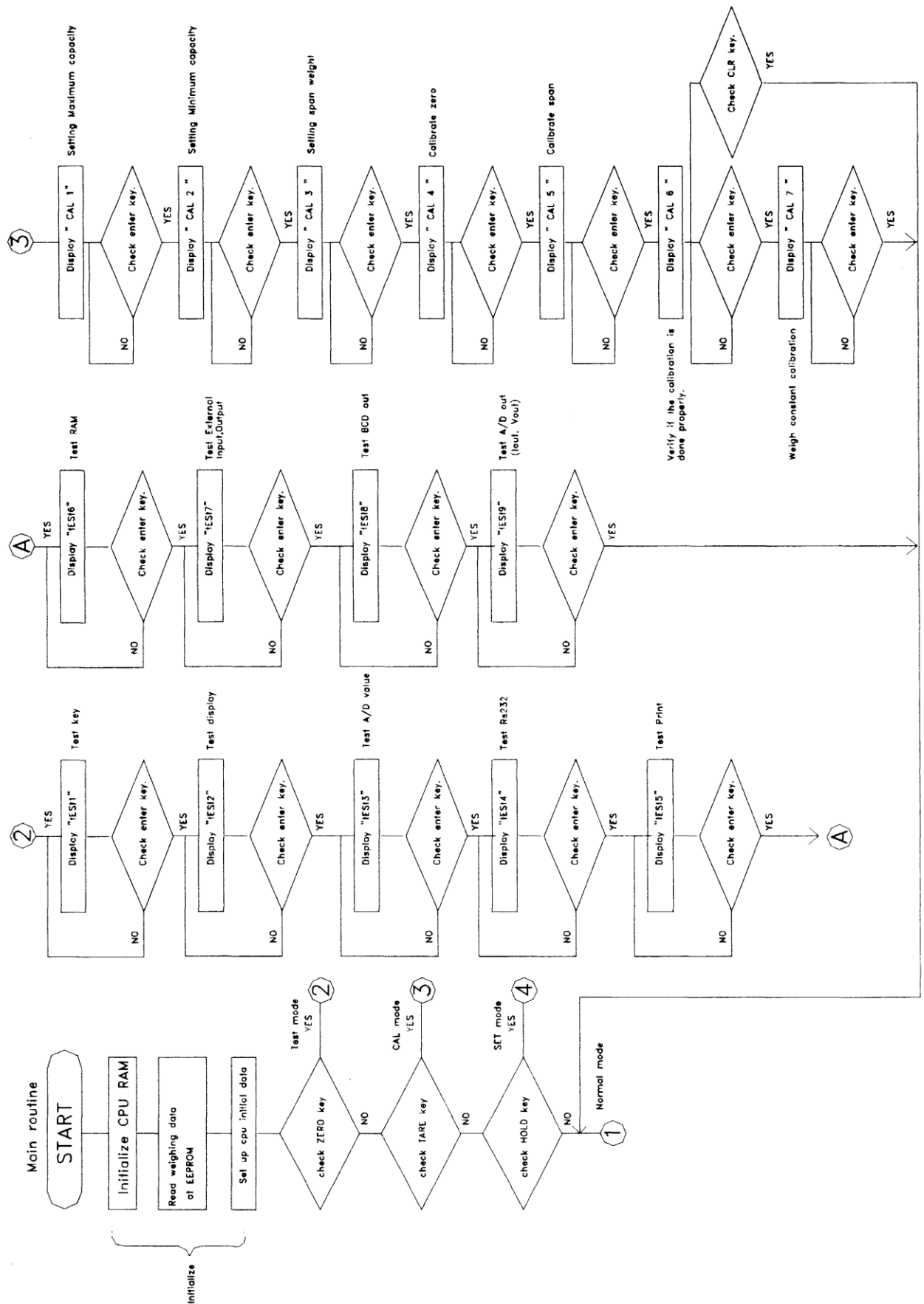
NO	Part Code	Part Name	Specification	QT'Y	UNIT	REMARK
1	6144-A00-1001	POWER P.C.B	6144-A00-1001	1	EA	
2	1050-A00-0403	HEAT SINK	SY-403	1	EA	
3	1050-A00-0320	HEAT SINK	SY-200	1	EA	
4	6218-A00-7805	IC (REGULATOR)	7805	2	EA	IC1, 4
5	6218-A00-7812	IC (REGULATOR)	7812	1	EA	IC2
6	6218-A00-7905	IC (REGULATOR)	7905	1	EA	IC3
7	6704-A16-2200	E_CONDENSER	2200uF/16V	4	EA	C1~ 4
8	6704-A25-0220	E_CONDENSER	220uF/25V	4	EA	C5~ 8
9	6702-A50-0330	E_CONDENSER	330uF/50V	1	EA	C9
10	6534-K00-0300	RESISTOR ¼W	CFR 30K (±5%)	1	EA	R1
11	6285-A00-0153	BRIDGE DIODE	RB-153	3	EA	BD1~ 3
12	6288-A00-4736	ZENER DIODE	6.8V/1W	1	EA	ZD1
13	6286-A00-4004	POWER DIODE	1N4148	1	EA	D1
14	7504-A00-6000	POWER TRANS	110/220V 50~60HZ	1	EA	
15	7745-A00-0108	SELECT S/W	SM-108	1	EA	
16	7807-A00-7302	CONNECTOR	5273-02	1	EA	CN1
17	7807-A00-7303	CONNECTOR	5273-03	1	EA	CN2
18	7804-A00-0012	CONNECTOR	LW-0640-12	1	EA	CN3
19	7863-A00-1050	CONNECTOR WIRE	5273-10*50mm	1	EA	

5) INDICATOR MECHANISM

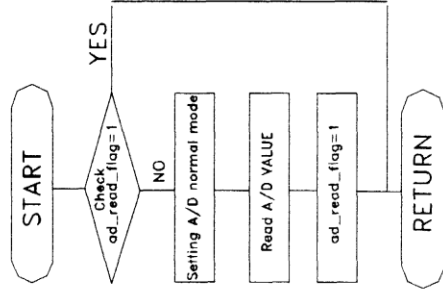
N0	Part cord	Part name	Specification	QT'Y	UNIT	REMARK
1	1110-A00-2100	INDICATOR CASE	185*167*92	1	EA	AL
2	1034-A00-2300	REAR PLATE	185*92*1.2T	1	EA	SPC3
3	1034-A00-2350	FRONT GUIDE	16.4*93.4*1.2T	2	EA	SPC3
4	1034-A00-2340	OPTION COVER	105*20*1T	1	EA	SPC3
5	1034-A00-1110	A/D BRACKET	65*57.5*1.2T	1	EA	SPC3
6	1034-A00-2370	SIDE SLIDE	168*30*1.2T	2	EA	SPC3
7	1082-A00-0730	P.C.B SUPPORT	160*06	2	EA	SM20C
8	1702-A00-0170	FRONT COVER	192*96	1	EA	ABS
9	1050-A00-0220	NOISE BRACKET	101*67*1.0T	1	SET	AL
10	1713-A00-2000	P.C.B FOOT	010*06*6.2	2	EA	P.O.M
11	2125-C11-5200	KEY BOARD PAD	CI-5010A	1	EA	
12	2125-C14-0000	DISPLAY PAD	CI-5010A	1	EA	
13	1708-A00-2030	DISPLAY COVER	82.8*28.8*1T (SMOG)	1	EA	
14	1708-A00-2090	DISPLAY COVER	95.8*17.8*1T (SMOG)	1	EA	
15	3200-A00-5001	RUBBER KEY	CI-5010A	1	EA	
16	7745-A00-0112	ON/OFF S/W	SL-112A	1	EA	
17	7534-A00-0021	FUSE HOLDER	FH-20	1	EA	
18	7514-A00-0030	NOISE FILTER	IB3-S32	1	EA	
19	7564-A00-0001	AC CORD	7A750V-A121-3P	1	EA	
20	7880-N00-0707	CONNECTOR WIRE A'SSY	16N07R x 70mm	1	EA	
21	7880-N00-0720	CONNECTOR WIRE A'SSY	16N07R x 500mm	1	EA	
22	7870-D00-1007	CONNECTOR WIRE A'SSY	5P*5P*70mm	1	EA	
23	7870-D00-1407	CONNECTOR WIRE A'SSY	7P*7P*70mm	1	EA	
24	7863-A00-0212	CONNECTOR WIRE A'SSY	1143-02P*120mm	1	EA	
25	1518-A00-0313	CONNECTOR BOLT	M3*13	4	EA	
26	1034-A00-0370	PCB GUIDE	11.5*11.5	2	EA	
27	7580-A00-0501	EARTH TERMINAL	TE-501	1	EA	
28	1515-N00-0306	TRUSS BOLT	M3*0.5*6(NI)	4	EA	
29	1505-N00-0306	PAN SCREW	M3*0.7*6(NI)	19	EA	
30	1505-N00-0308	PAN SCREW	M3*0.5*8(NI)	7	EA	
31	1505-N00-0406	PAN SCREW	M4*0.5*6(NI)	10	EA	
32	1505-A00-0408	PAN SCREW	M4*0.7*8	2	EA	
33	1550-A00-0300	HEAXON NUT	M3*0.5	2	EA	
34	1550-A00-0400	HEAXON NUT	M4*0.7	2	EA	
35	1563-S00-0307	SPRING WASHER	03.1*5.9*0.7(SUS)	5	EA	
36	1563-S00-0410	SPRING WASHER	04.1*7.6*1(SUS)	6	EA	

NO	Part cord	Part name	Specification	수량	단위	비 고
37		MANUAL	CI-5010A	1	EA	
38	9050-A00-3323	MANUAL POLYBAG	230*330*0.05T	1	EA	
39	9050-A00-1509	FUSE POLYBAG	150*90*0.05T	1	EA	
40	9050-A00-3527	SET POLYBAG	350*270*0.05T	1	EA	
41	9206-A00-0300	POLY-URETHANE BOX	265*140*80	1	EA	
42	9100-A00-0506	C/T BOX	310*275*165	1	EA	
43	1034-A00-2310	BCD BRACKET (option)	105*22.3*1.2T	1	EA	SPC3
44	1034-A00-2320	A/D BRACKET (option)	105*22.3*1.2T	1	EA	SPC3
45	1034-A00-2330	CURRENT BRACKET(option)	105*22.3*1.2T	1	EA	SPC3

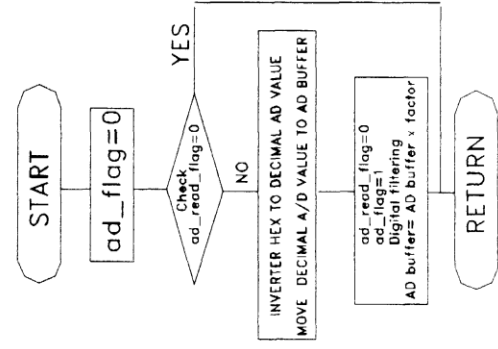
10. SOFTWARE FLOW CHART



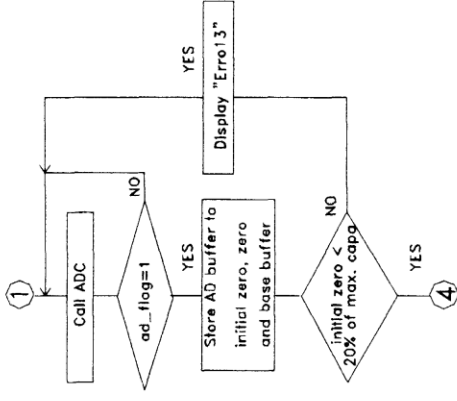
A/D INTERRUPT ROUTINE



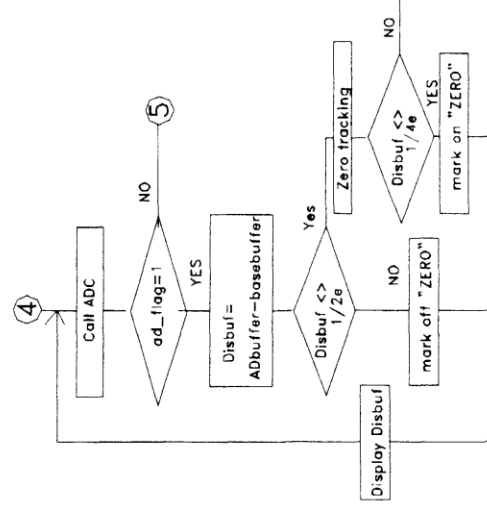
INVERTER HEX TO DECIMAL AD VALUE ADC ROUTINE



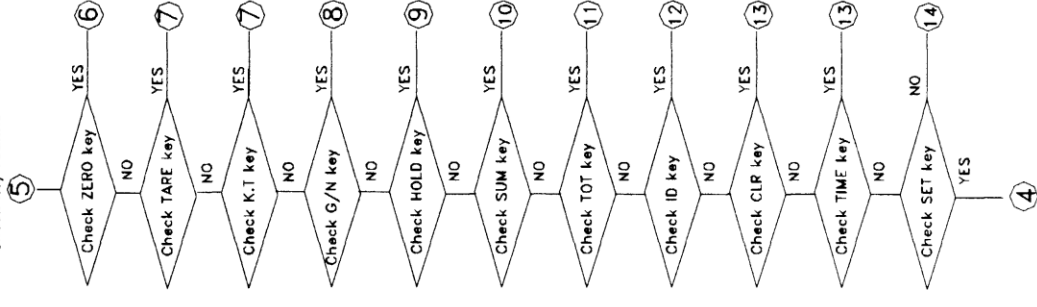
NORMAL MODE



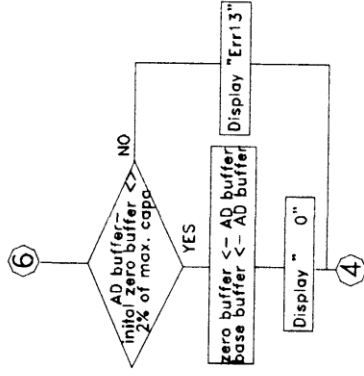
Main routine



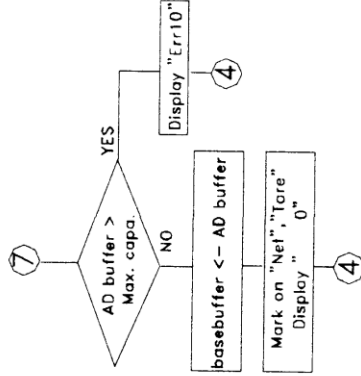
Check key routine



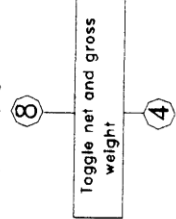
Rezero routine



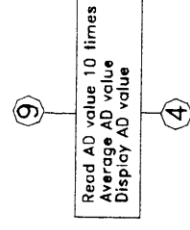
Tare routine



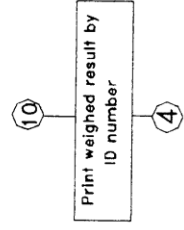
Display net/gross routine



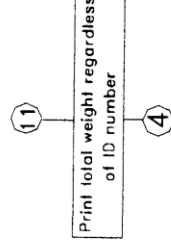
Hold routine



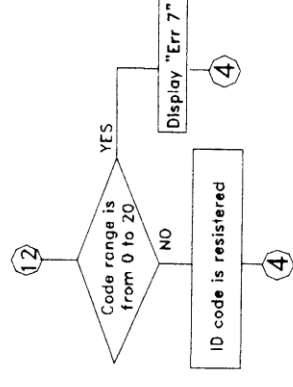
SUM print routine



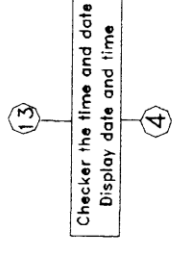
Total print routine



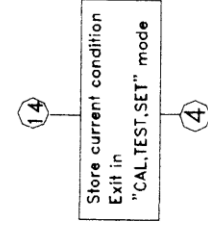
ID routine



Display time routine



SET routine



11. ERROR MESSAGE DESCRIPTION and TREATMENT

(1) In Weighing Mode

Err 01

◆ why ?

The weight is too unstable to initialize the scale.

→Treatment

Lay the scale on a flat place and turn on the power.

Err 02

◆ why ?

Load cell connection failure or error in A/D conversion part

→Treatment

check the Load Cell connector to see if the polarity of signal is reversed.

Err 03

◆ why ?

Internal RAM is erased.

→Treatment

confirm the setting value in SET Menu.

Err 04

◆ why ?

Date or Time is abnormal

→Treatment

Adjust date & time in SET mode.

Err 06

◆ why ?

Poor connection with Printer.

→ Treatment

check the connection between CI-5010A & Printer.

Err 07

◆ why ?

ID(article identifier) is out of range.

→Treatment

The range is 0 - 20. Please enter ID code within this range.

Err 08

◆ why ?

Zero & Tare keys only works when display is stable.

→Treatment

Set Zero & Tare keys availability in SET mode(F13).

Err 09

◆ why ?

The weight display is beyond Zero key Range you've set in SET mode.

→Treatment

Set the ZERO range to within 4x or 10% of maximum capacity.

Err 10

◆ why ?

Tare weight that you've enter is over the Maximum Capacity.

→Treatment

Tare weight must be under or equal to the Maximum Capacity.

Err 11

◆ why ?

Decimal point position of Tare weight that you've enter is out of the scope.

→ Treatment

Enter the tare weight value which is within the scope.

that is, you cannot enter 50.02 kg as tare weight when the minimum division is 0.1 kg.

Err 12

◆ why ?

You didn't select the printer.

→Treatment

Select the printer in SET mode(F08).

Err 13

◆ why ?

Zero range deviate from the set range

→ Treatment

Confirm that there is nothing on the weighing platform.

if nothing exist, do Calibration in CAL mode.

Over

◆ why ?

The display weight is larger than the Maximum Capacity you've set.

→ Treatment

Don't load the article whose weight is larger than the Max. Capacity on the platform scale.

This may damage Load Cell.

no LC

◆ why ?

no or abnormal Loadcell connection

→ Treatment

Connect Load Cell to the indicator or Check the Load Cell connector.

no Prt

◆ why ?

If you press PRT key although you specified no printer in F08 of SET mode, this message displays.

→ Treatment

Choose the printer you want to use in F08 and connect the printer to this indicator.

(2) In CAL Mode Err 21

◆ why ?

Resolution(Maximum Capacity ÷ Minimum Division) is over the limit(1/20, 000).

→ Treatment

Lower the resolution in one of the below ways.

(1) Modify Maximum Capacity in CAL 1 of Calibration Menu.

(2) Modify Minimum Division in CAL 2 of Calibration Menu.

Err 22

◆ why ?

Setting weight is set under 10 % of the Maximum Capacity.

→ Treatment

Set span setting weight equal to or over 10 % of the Maximum Capacity in CAL 3 of CAL Menu.

Err 23

◆ why ?

Setting weight is set over 100 % of the Maximum Capacity.

→ Treatment

Set span setting weight equal to or under 100 % of the Maximum Capacity in CAL 3 of CAL Menu.

Err 24

◆ why ?

Load Cell output voltage is too low at SPAN Calibration.

→ Treatment

This indicator will automatically increase the gain of A/D converter, and move to CAL 3.

Only that You have to is to retry SPAN calibration in CAL 4 after you perform ZERO Calibration again in CAL 3.

Err 25

◆ why ?

Load Cell output voltage is too high at SPAN Calibration.

→ Treatment

This indicator will automatically decrease the gain of A/D converter, and move to CAL 3.

Only that You have to is to retry SPAN calibration in CAL 4 after you perform ZERO Calibration again in CAL 3.

Err 26

- ◆ why ?
Load Cell output voltage is too high at ZERO Calibration.
→ Treatment
Confirm that there is nothing on the weighing platform.

Err 27

- ◆ why ?
Load Cell output voltage is too low at ZERO Calibration.
→ Treatment
Check if weighing platform is in contact with something.

Err 28

- ◆ why ?
The weight is oscillating.
→ Treatment
Check the connection between the this indicator and Load Cell.

(3)In TEST Mode Err 06

- ◆ why ?
Poor connection between this indicator and the printer
→
Check the connectors.

Err 41

- ◆ why ?
The internal SRAM is damaged.
→Treatment
Replace with a new SRAM.

(4)In SET Mode Err 51

- ◆ why ?
Error in date setting Ex) 35 March
→Treatment
Set date correctly in SET Mode.

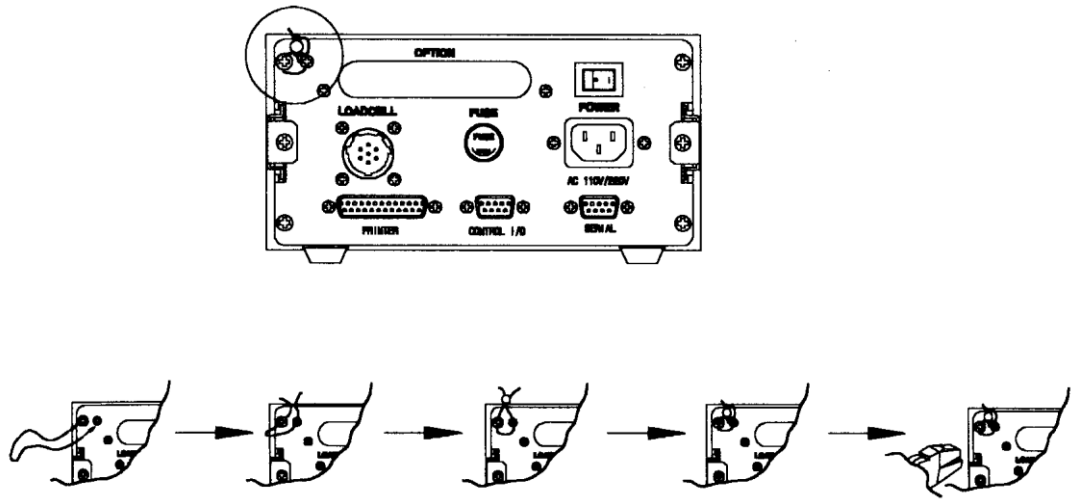
Err 52

- ◆ why ?
Error in Time Setting. Ex) 26:20
→Treatment
Set time correctly in SET Mode.

12. SEALING DIAGRAM

(1) Hardware sealing

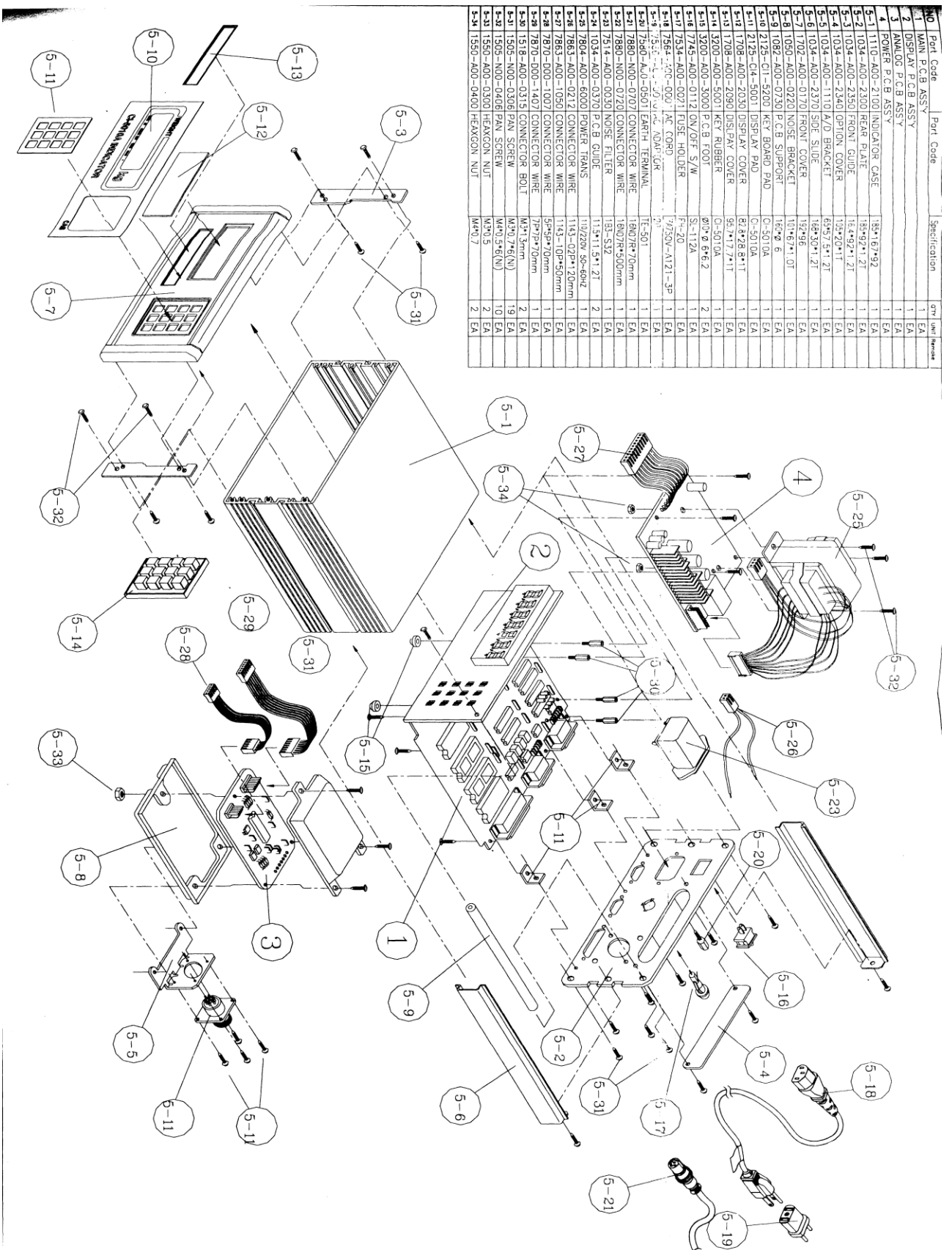
Perform the sealing as shown in the below figure after the calibration is completed. Connect the sealing wire as follows and compress the sealing lead.



(2) Software sealing

Turn on the power while pressing the 'TARE' key on the front of the indicator. It is transferred to calibration mode. And press the access number(1992) and 'SET'key. General user would not do calibration, therefore access number is not specified here.

13. EXPLODED VIEW



NO	Part Code	Part Code	Specification	QTY	Remark
1	MAIN P.C.B. ASSY			1 EA	
2	DISPLAY P.C.B. ASSY			1 EA	
3	POWER P.C.B. ASSY			1 EA	
4	110-400-2100 INDICATOR CASE		18*16*92	1 EA	
5-1	1034-A00-2300 REAR PLATE		18*92*27	1 EA	
5-2	1034-A00-2300 FRONT GUIDE		18*92*27	1 EA	
5-3	1034-A00-2300 FRONT COVER		18*92*27	1 EA	
5-4	1034-A00-1100 A/D BRACKET		65*57*21	1 EA	
5-5	1034-A00-2370 SIDE SLIDE		18*50*21	1 EA	
5-6	1034-A00-0170 FRONT COVER		18*96	1 EA	
5-7	1050-A00-0220 NOISE BRACKET		10*6*1.01	1 EA	
5-8	1082-A00-0730 P.C.B. SUPPORT		18*96	1 EA	
5-9	1082-A00-0730 KEY BOARD PAD		18*96	1 EA	
5-10	1725-C1-5200 KEY BOARD PAD		18*96	1 EA	
5-11	1725-C1-5001 DISPLAY PAD		18*96	1 EA	
5-12	1708-A00-2030 DISPLAY COVER		81*28*8*17	1 EA	
5-13	1708-A00-2090 DISPLAY COVER		95*17*7*17	1 EA	
5-14	3200-A00-5001 KEY RUBBER		18*96	1 EA	
5-15	3200-A00-3000 P.C.B. FOOT		18*96	1 EA	
5-16	7745-A00-0112 ON/OFF S/W		18*96	1 EA	
5-17	7534-A00-0071 FUSE HOLDER		18*96	1 EA	
5-18	7564-A00-0001 AC CORD		18*96	1 EA	
5-19	7564-A00-0001 AC CORD		18*96	1 EA	
5-20	7564-A00-0001 AC CORD		18*96	1 EA	
5-21	7564-A00-0001 AC CORD		18*96	1 EA	
5-22	7564-A00-0001 AC CORD		18*96	1 EA	
5-23	7564-A00-0001 AC CORD		18*96	1 EA	
5-24	7564-A00-0001 AC CORD		18*96	1 EA	
5-25	7564-A00-0001 AC CORD		18*96	1 EA	
5-26	7564-A00-0001 AC CORD		18*96	1 EA	
5-27	7564-A00-0001 AC CORD		18*96	1 EA	
5-28	7564-A00-0001 AC CORD		18*96	1 EA	
5-29	7564-A00-0001 AC CORD		18*96	1 EA	
5-30	7564-A00-0001 AC CORD		18*96	1 EA	
5-31	7564-A00-0001 AC CORD		18*96	1 EA	
5-32	7564-A00-0001 AC CORD		18*96	1 EA	
5-33	7564-A00-0001 AC CORD		18*96	1 EA	
5-34	7564-A00-0001 AC CORD		18*96	1 EA	

14.DATA SHEET

(1) 80C32

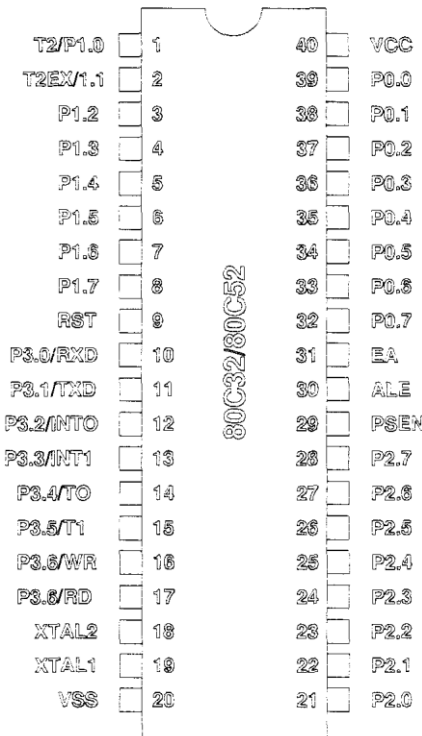
CMOS Single_Chip 8 Bit Microcontroller

- 80C52 - CMOS SINGLE - CHIP 8 BIT MICRO-CONTROLLER with factory mask-programable ROM
MHz
MHz
80C52/C32 : 0 to 12 MHz
80C52-1/C32-1 : 0 to 16 MHz
80C52S/C32S : 0 to 20 MHz
80C52-L/C32-L : Vcc=2.7V to 5.5V(0 to 6MHz)
- 80C32 - CMOS SINGLE - CHIP 8 BIT CONTROL ORIENTED CPU with RAM and I/O

FEATURES

- POWER CONTROL MODES
- 256 * 8 BIT RAM
- 32 PROGRAMMABLE I/O LINES
- THREE 16 BIT TIMER/COUNTER
- 64 K PROGRAM MEMORY SPACE
- FULLY STATIC DESIGN
- BOOLEAN PROCESSOR
- 6 INTERRUPT SOURCES
- PROGRAMMABLE SERIAL PORT
- 64 K DATA MEMORY SPACE
- TEMPERATURE RANGE : Commercial, industrial, Automotive and Military

DESCRIPTION

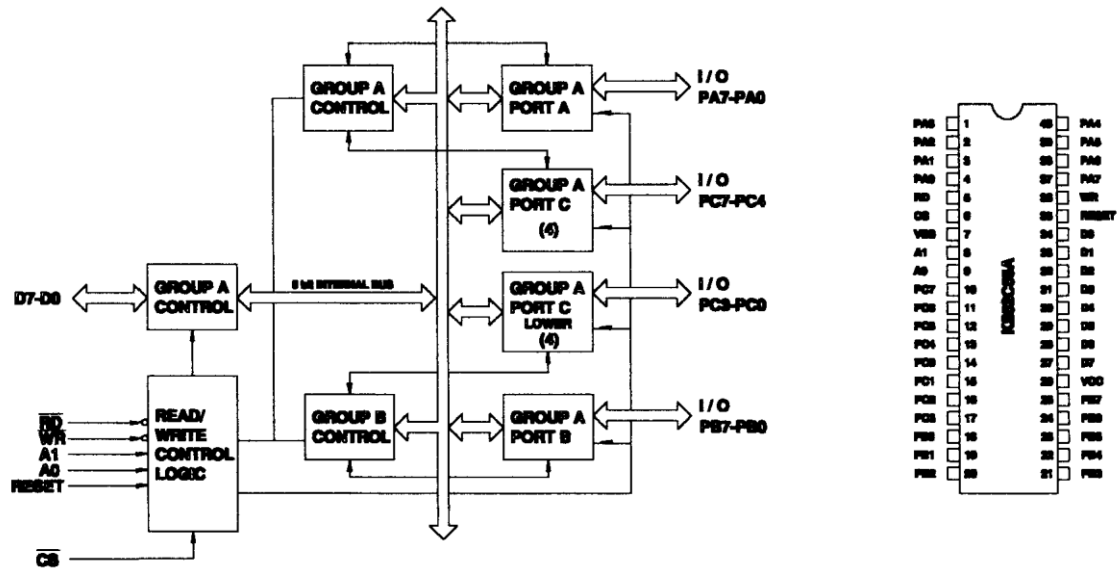


(2) 82C55

Programmable Peripheral Interface

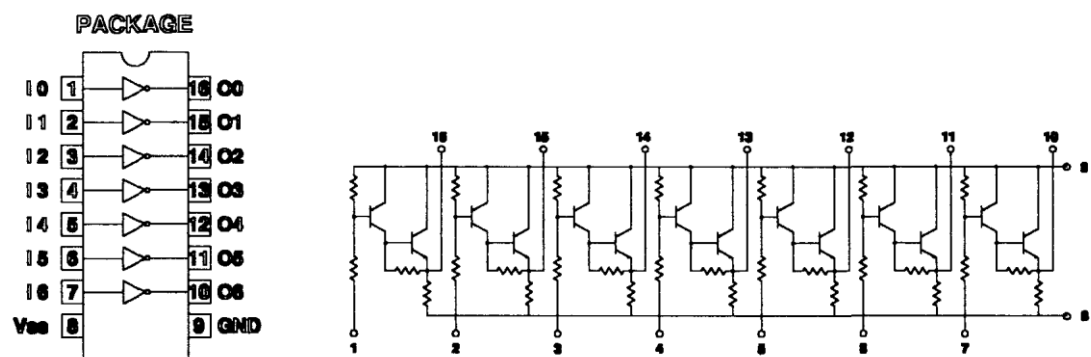
FEATURES/BENEFITS

DESCRIPTION



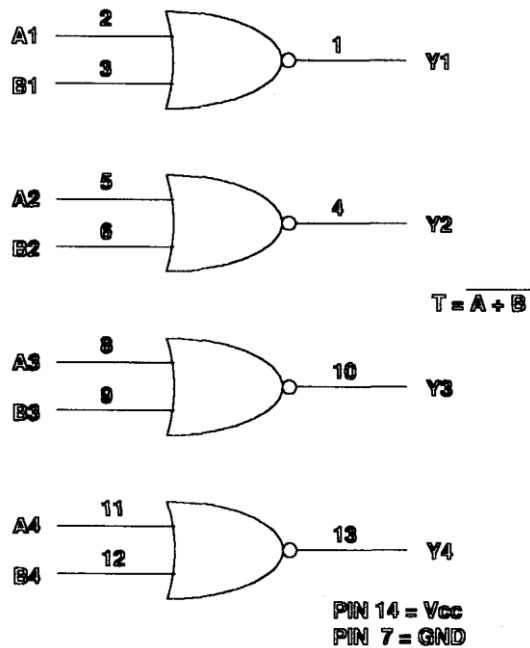
(3) uPA 80C

Octal Line Driver



(4) 74HC02

Quad 2 Input NOR Gate

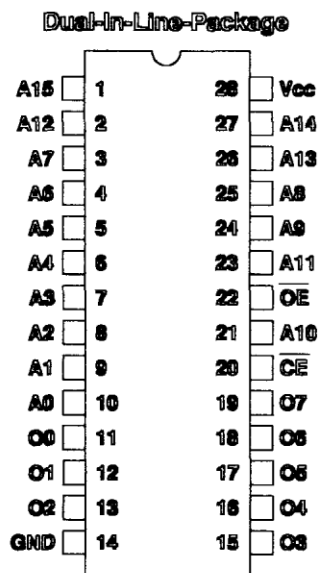


PIN ASSIGNMENT			
Y1	1	14	Vcc
A1	2	13	Y4
B1	3	12	B4
Y2	4	11	A4
A2	5	10	Y3
B2	6	9	B3
GND	7	8	A3

FUNCTION TABLE		
Input		Output
A	B	Y
L	L	H
L	H	L
H	L	L
H	H	L

(5) 27C512

(64 * 8) UV Erasable CMOS PROM



Pin Names	
A0 - A15	Addresses
$\overline{CE}$	Chip Enable
$\overline{OE}$ / Vpp	Output Enable / Programming Voltage
O0 - O7	Outputs
PGM	Program

(6) LTC1081

5V Powered RS232 Driver/Receiver with Shutdown

FEATURES

- Operates on Single 5V Power Supply
- Generates $\pm 9V$ Supplies with Only 1 μF Capacitors
- Fully Protected Against Output Overloads
- RS232 Outputs can be Forced $\pm 30V$ without Damage

I Three-state Outputs are High impedance when off

- Bipolar Circuitry; No Latch Up
- $\pm 30V$ Receiver input Range
- Can Power Additional RS232 Drivers such as LT1039
- No Supply Current in Shutdown
- Meets All RS232 Specifications
- 16Pin Version without Shutdown Available

APPLICATIONS

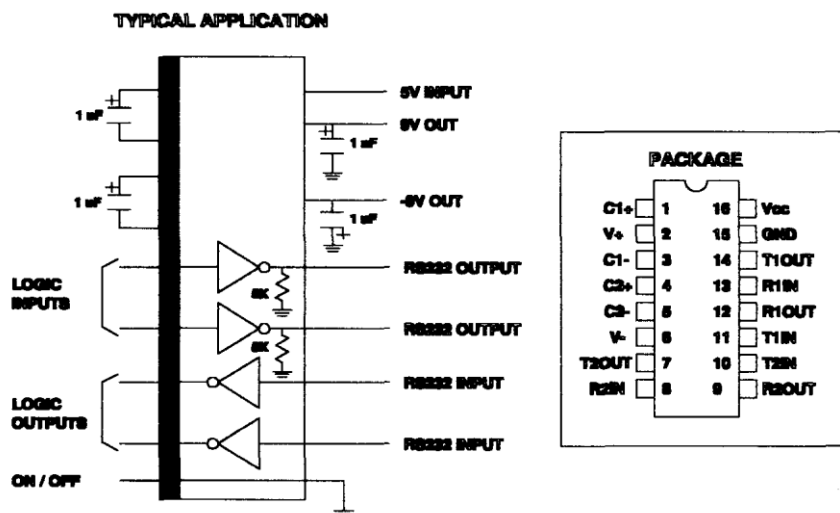
- RS232 interface
- Battery Powered Systems
- Power Supply Generator
- Terminals
- Modems

DESCRIPTION

The LT1080 is a dual RS232 driver/receiver which includes a capacitive voltage generator to supply RS232 voltage levels from a single 5V supply.

Each receiver will accept up to $\pm 30V$ input and can drive either TTL or CMOS logic. The RS232 drivers accept logic inputs and output RS232 voltage levels. The driver outputs are fully protected against overload and can be shorted to ground or up to $\pm 30V$ without damage. Additionally, when the system is in the SHUTDOWN mode the driver and receiver outputs are at a high impedance allowing data line sharing. Bipolar circuitry makes this driver/receiver exceptionally rugged against overloads or ESD damage.

The power supply generator doubles the 5V input supply to obtain 9V, to obtain -8.5V. Up to 15mA of external current is available to power additional RS232 drivers or other external circuitry. The SHUTDOWN mode disables the supply generators and reduces input supply current to zero. A version of the LT1080, the LT1081, is available without shutdown for 16pin applications



(7) MSM58321

Real Time Clock/Calendar

GENERAL DESCRIPTION

The MSM58321RS is a metal gate CMOS real Time clock/Calendar with a battery backup function for use in bus-oriented microprocessor applications.

The 4bit bidirectional bus line method is used for the data I/O circuit; the clock is set, corrected, or read by accessing the memory.

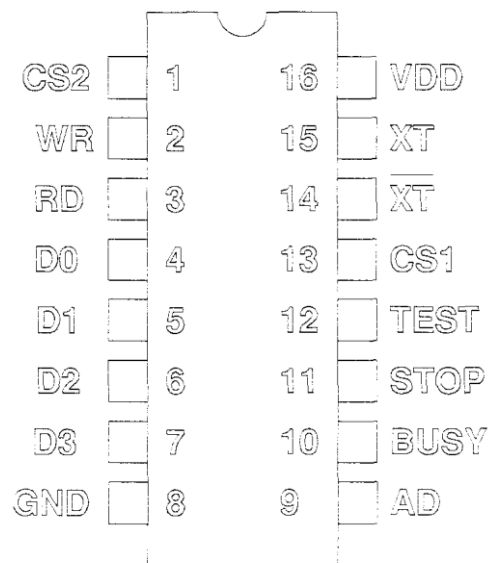
The time is read with 4bit DATA I/O, ADDRESS WRITE, READ, and BUSY; it is written with 4bit DATA I/O, ADDRESS WRITE, WRITE and BUSY.

FEATURES

- TFunction-Second, Minute, Hour, Day, Day-of week. Month, Year.
- Automatic leap year calendar
- 12/24 hour format
- Frequency divider 5-poststage reset
- Reference signal output
- 32.768kHz crystal controlled operation
- Single 5V power supply
- Back-up battery operation to VDD = 2.2V
- Low power dissipation
90/W max.at VDD = 3V
2.5mW max.at VDD = 5v
- 16pin plastic DIP package

PIN CONFIGURATION

PACKAGE



(8) 74HC373

(9) 74HC374

Octal 3-state Noninverting Transparent Latch

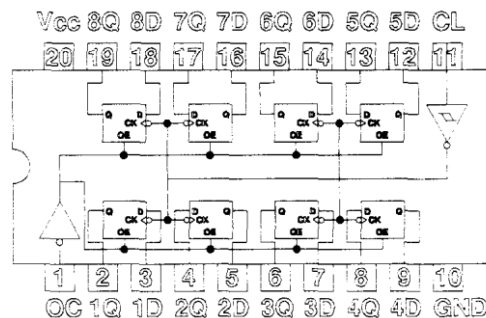
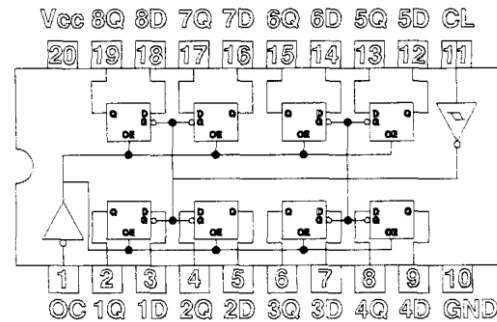
- Choice of 8 Latches or 8 D-Type Flip-Flops in a Single Package
- 3-State Bus-Driving Outputs
- Full Parallel-Access for Loading
- Buffered Control inputs
- Clock/Enable input Has Hysteresis to improve Noise Rejection
- P.N.P inputs Reduce D-C Loading on Data Lines
- SN54LS363 and SH74LS364 Are Similar But Have Higher V_{OH} For MOS interface

**'LS373, 'S373
FUNCTION TABLE**

OUTPUT CONTROL	ENABLE G	D	OUTPUT
L	H	H	H
L	H	L	L
L	L	X	Q ₀
H	X	X	Z

**'LS374, 'S374
FUNCTION TABLE**

OUTPUT CONTROL	ENABLE G	D	OUTPUT
L	↑	H	H
L	↑	L	L
L	L	X	Q ₀
H	X	X	Z



description

These 8-bit registers feature totem-pole three-state outputs designed specifically for driving highly-capacitive or relatively low-impedance loads. The high-impedance third state and increased high-logic-level drive provide these registers with the capability of being connected directly to and driving The bus lines in a bus-organized system without need for interface or pull-up components. They are particularly attractive for implementing buffer registers, I/O ports, bidirectional bus drivers, and working registers.

The eight latches of the 'LS373 and 'S373 are transparent D-type latches meaning that while the enable (G) is high the Q outputs will follow the data (D) inputs. When the enable is taken low the output will be latched at the level of the data that was setup.

(10) KM681000

126K * 8 Bit Static RAM DESCRIPTION

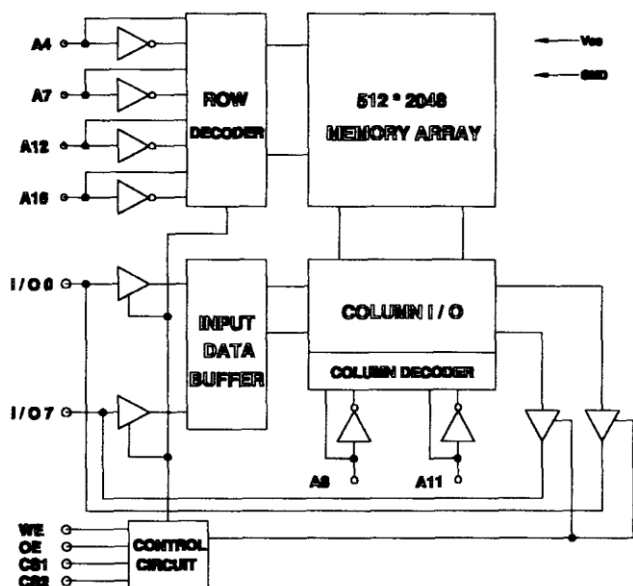
The HY628100 is a high speed low power, 131,072 words by 8-bit CMOS static RAM fabricated using HYUNDAI'S high performance twin tub CMOS process. This high reliability process coupled with innovative circuit design techniques, yields maximum access time of 70ns. The HY628100 has a data retention mode that guarantees data to remain valid at a minimum powersupply voltage of 2.0 volt. Using CMOS technology, supply voltages from 2.0 to 5.5 volt have little effect on supply current in data retention mode. Reducing the supply voltage to minimize current drain is unnecessary with the HY628100 family.

FEATURES

- High speed -70/85/100/120ns(max)
- Low power consumption
 - 250 mW typical operating
 - 10 mW typical standby (L/LL-version)
- Battery back up(L/LL-version)
 - 2 volt data retention
- Fully static operation
 - No clock or refresh required
- All inputs and outputs directly TTL compatible
- Tri-state output
 - High reliability 32 pin 600 mil P-DIP and 525 mil SOP

		HY628100-70	HY628100-85	HY628100-100	HY628100-120
Maximum Access Time (ns)		70	85	100	120
Maximum Average Operating Current (mA)		70	70	70	70
Maximum Standby Current (mA)		2.0	2.0	2.0	2.0
	L	0.1	0.1	0.1	0.1
	LL	0.05	0.05	0.05	0.05

BLOCK DIAGRAM



PIN CONNECTIONS



PIN NAMES

A0 - A18	ADDRESS INPUT
I/O0 - I/O7	DATA INPUT / OUTPUT
CS1	CHIP SELECT ONE
CS2	CHIP SELECT TWO
WE	WRITE ENABLE
OE	OUTPUT ENABLE
Vcc	POWER
GND	GROUND