

LOAD CELL TYPE BABY SCALE

"SUYASUYA" BSL-20A

MAINTENANCE MANUAL

EXCLUSIVE SALES. MISAKI INC.

MANUFACTURER. MISAKI INC.

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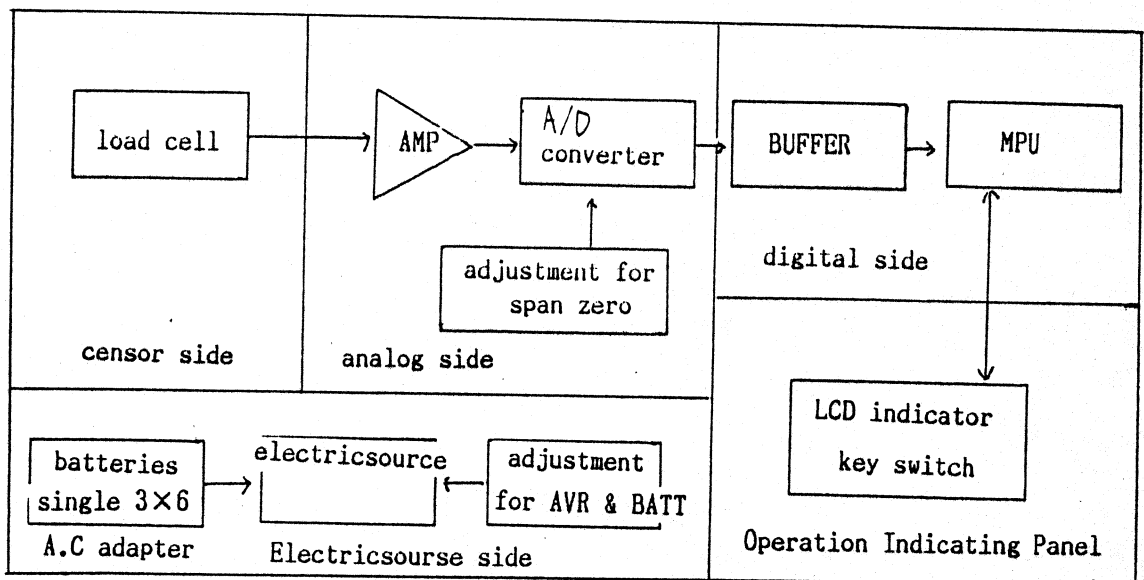
1. Outline of Baby Scale

This baby scale is made from a number of electronic parts and micro computer with an electric load cell.

This scale is consisted of a basket, a step, a base plate and an indicator. And you can use this as a little child scale if you take off a basket.

This has high durability and easy maintenance. This is high precise scale with two way battery system for saving energy.

Action construction drawing



As above drawing, a tiny signal (analog signal) which you got through a load cell proportionating to load, is amplified and is converted to A/D.

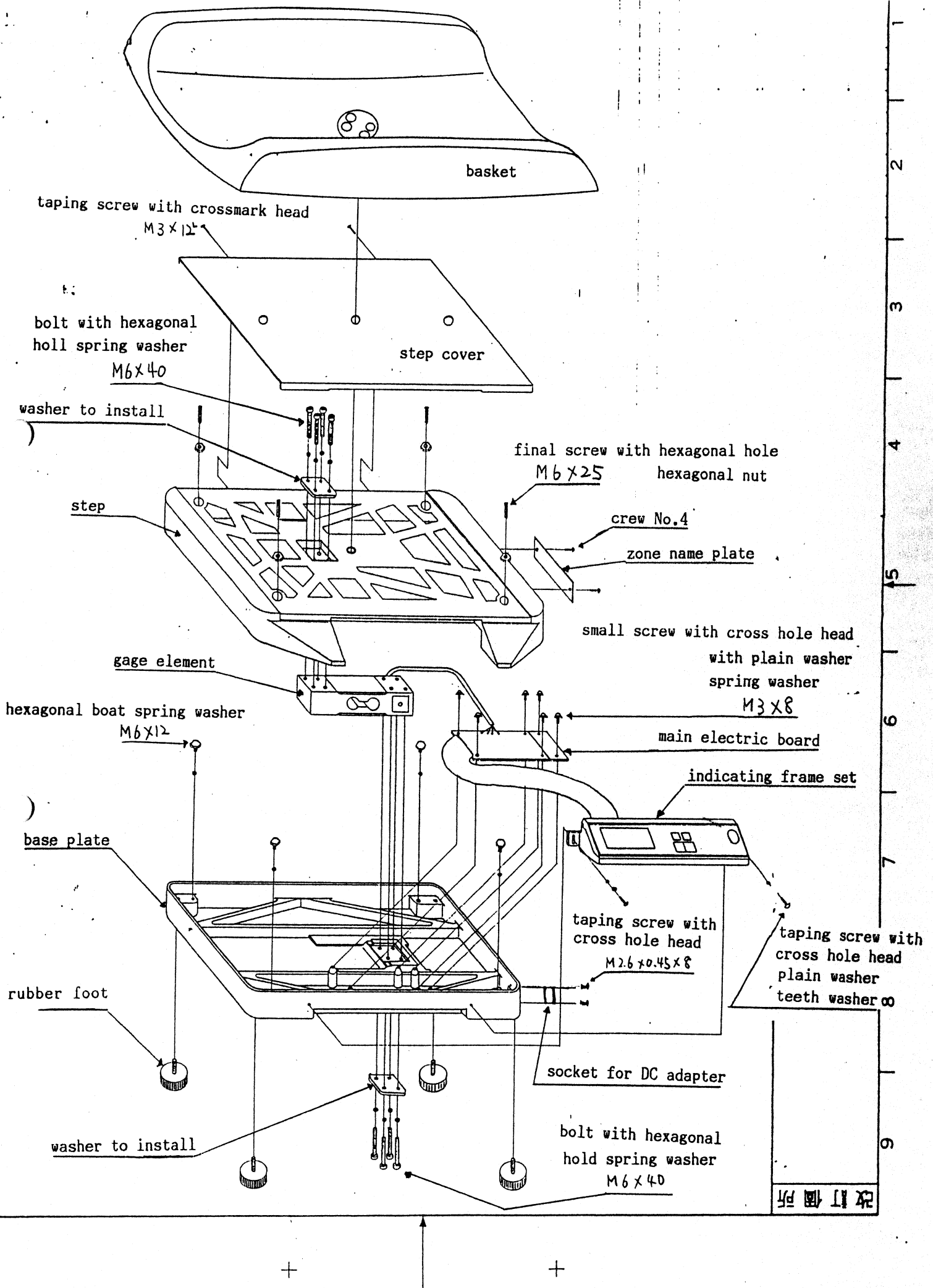
Beside, it is converted to 10,000 bit digital signal for span(capacity).

And it is put in 4 bit micro-processor through buffer circuit.

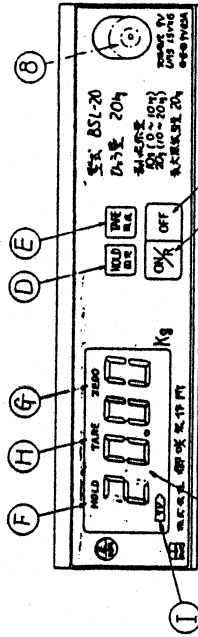
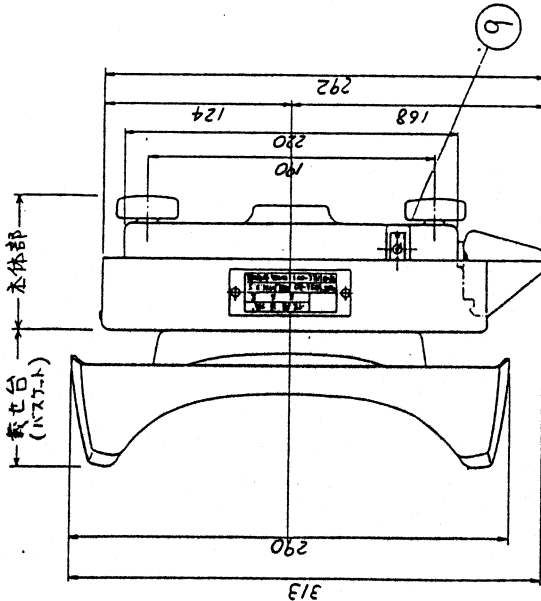
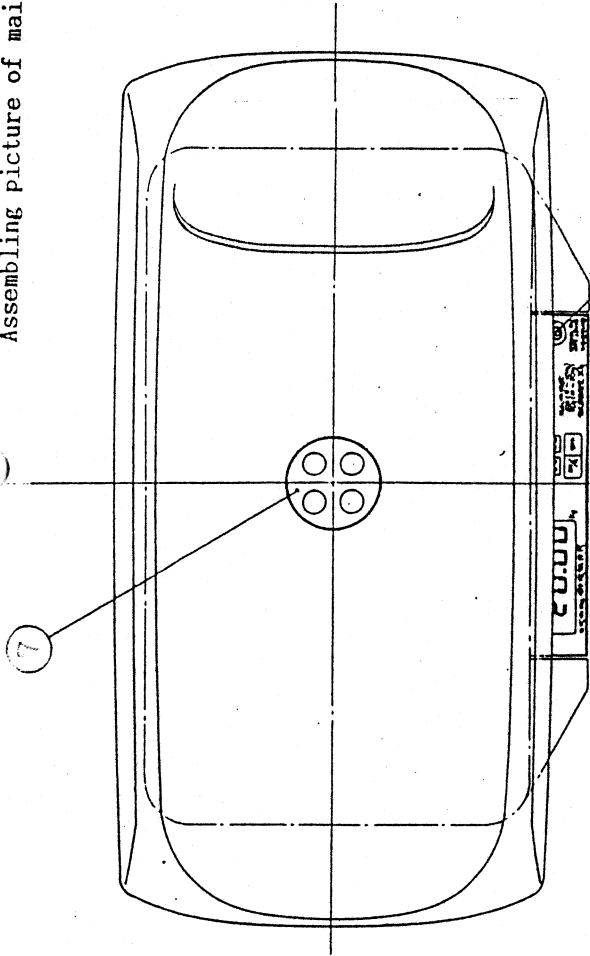
The weight is indicated on a liquid crystal after various instrument management have done in MPU. And various control by switch on a control panel are got in MPU, and they are managed in MPU equally and are out put on liquid crystal indicator.

Beside, you can use both of battery and AC electric source as supply electric source, and you can convert these to direct current and supply to various section requested.

Disjoining picture of main body



Assembling picture of main body



表示部 操作部 詳細 (5-2)

9 DC power jack ... plastic

8 leveler ... "

7 set dial ... "

6 basket ... "

5 setp cover ... steel

4 indicators frame ... plastic

3 adjusting stand ... rubber

2 step ... aluminum

1 base plate ... aluminum

A weight indicate

B ON switch

C OFF switch

D hold switch

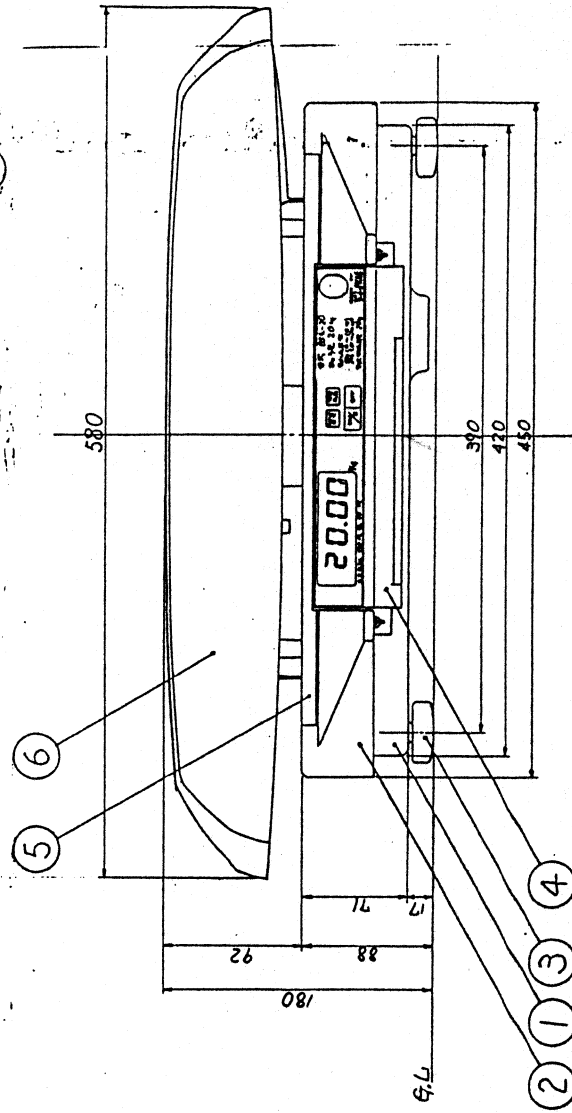
E taring switch

F hold indicating

G zero indicating

H taring indicating

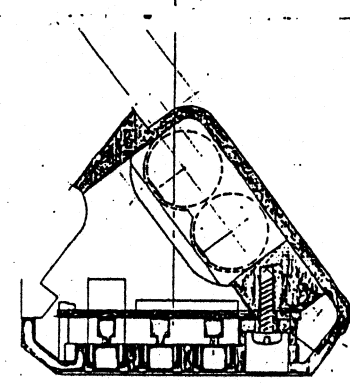
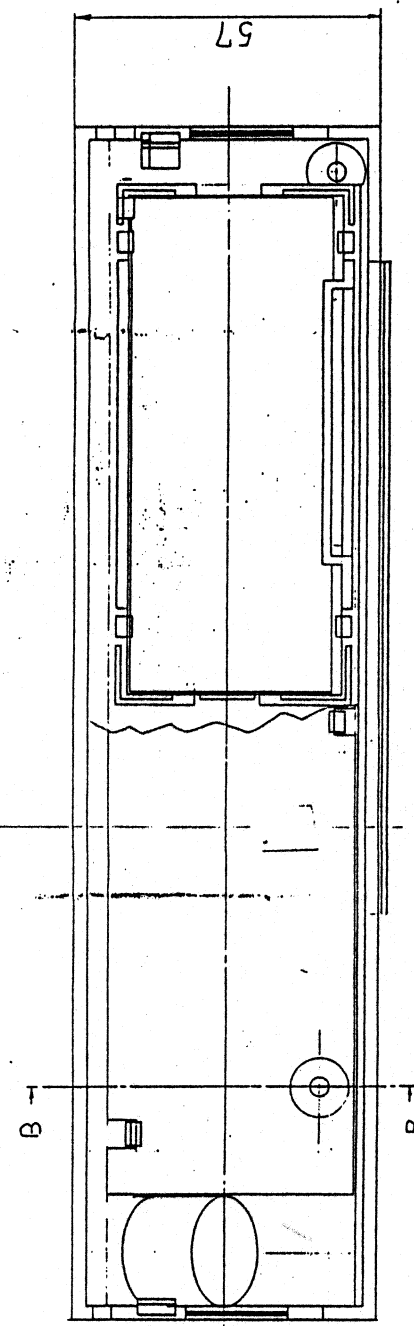
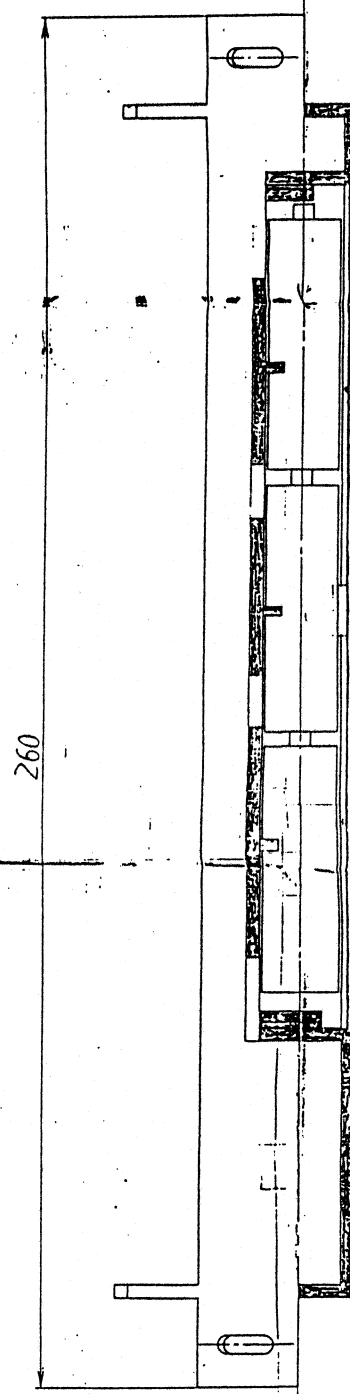
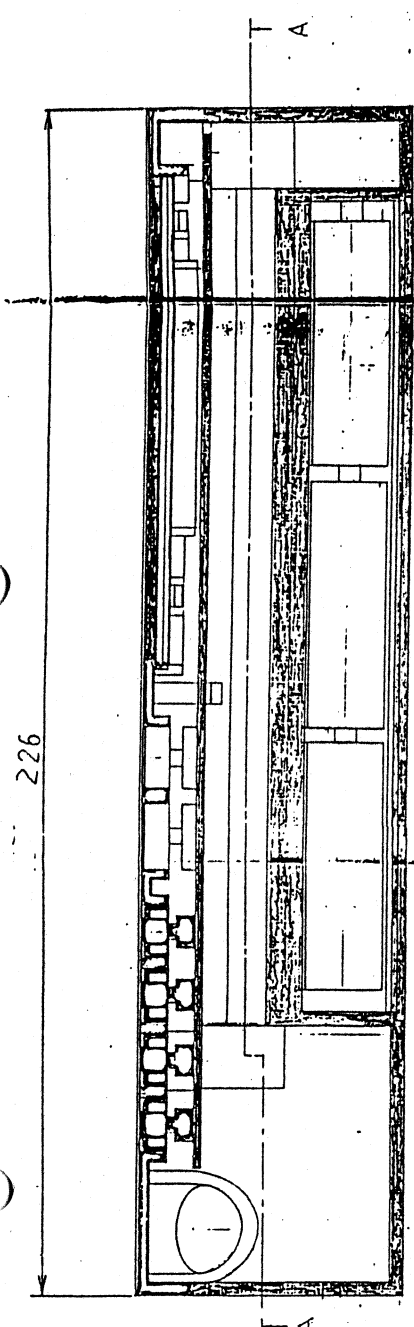
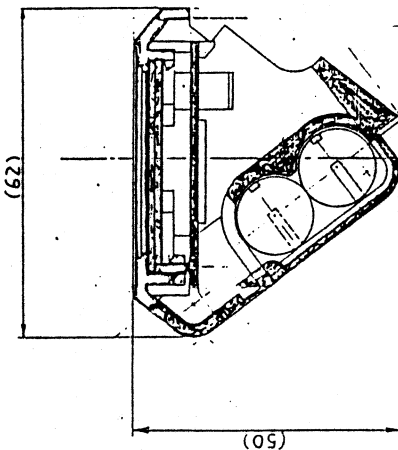
I battery indicating



				A	品番	部 号
					1	
					2	
					3	



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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A-A CROSS SECTION

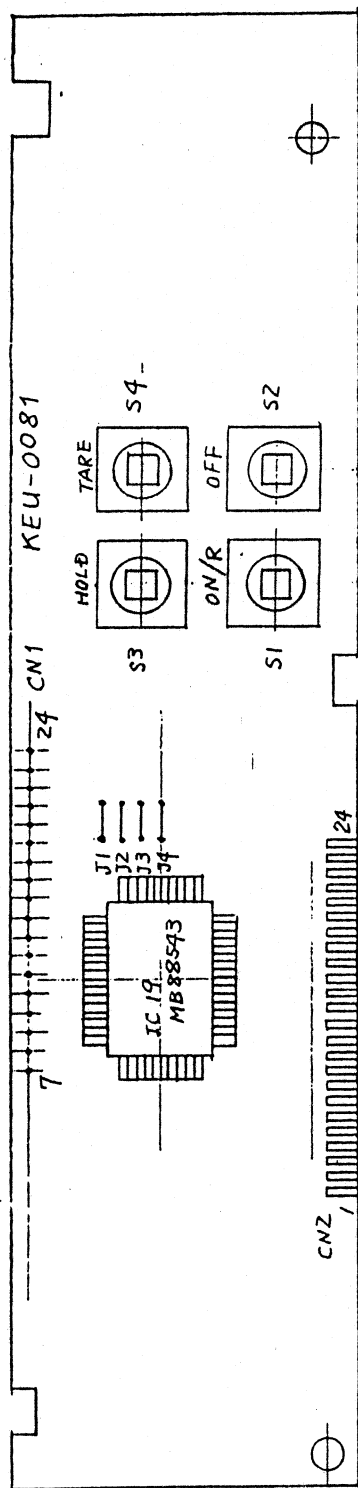
B-B CROSS SECTION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Assembling picture of indicator

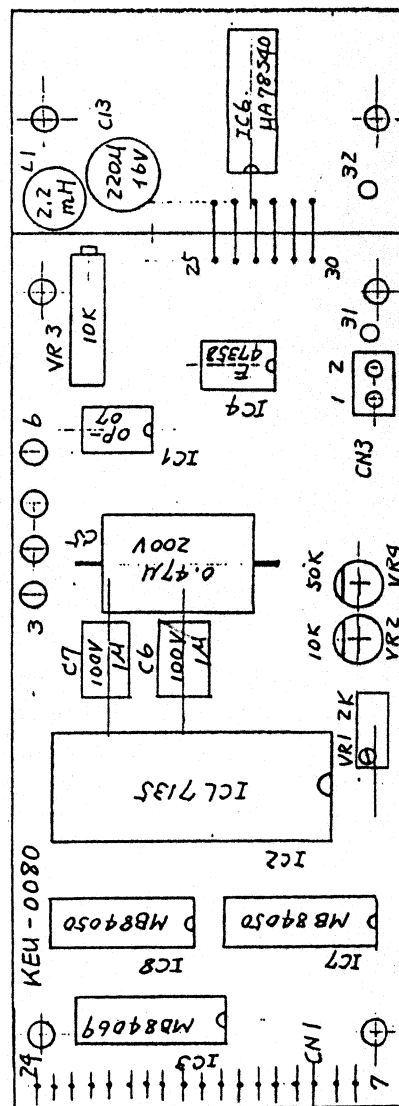
LCD

arrangement picture of parts on main electric board



main electric board

VR3 adjustment of electric source
(shift adjustment)



VR1 Span adjustment VR4 Battery

VR2 zero adjustment VR adjustment

7. Each specification & function and correspondence for JUMPER cable.

Although there are four JUMPER cable J1-J4 on LCD indicating electric board showing on page 7, each of JUMPER cable has the specification and function as follows. When JUMPER cable is connected it is ON, not connected it is OFF, at following table.

Name of JUMPER cable	J1	ON	ON
	J2	ON	ON
	J3	ON	ON
	J4	ON	OFF
Capacity			20.00 kg
Accuracy			1/1000
Name		test mode	baby scale

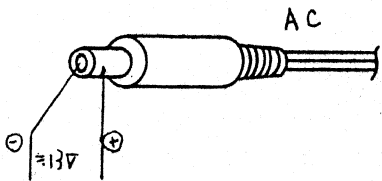
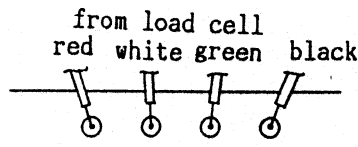
The meaning of TEST MODE is that it is mode when you adjust in plant, which indicates approximately 10,000 for each specification capacity.

8. Easy adjustment

This baby scale has been checked for span(capacity) adjustment and temperature test, but we describe how to make easy adjustment if you will have an error on indicating figure as fellows.

1. First, you take off a basket, step cover and a step.
(Please refer to 2. Disjointing picture of main body.)
2. Please connect AC adapter to main body.
3. You put on 20 Kg check weight on platter after you turned on switch, and confirmed 0.00 indicating on liquid crystal indicator. When it indicates smaller than 20.00 Kg, please revolve a little bit span adjustment volume VR1 (refer to page 6. arrangement picture of parts on main electric board) on main electric board (refer 2. disjointing picture of main board) clockwise, and when it indicates bigger than 20.00 Kg, please rebolve a little bit it counter-clockwise.
4. Please press the switch ON/R after taking off check weight.
(confirm indicating 0.00 please)
5. Please confirm 20.00 Kg indicating on liquid crystal indicator after you put 20Kg test weight again.
Please repeate it three, four or five times until it will indicate 20Kg, if it will not indicate 20Kg.
6. Please thrn off switch and attah a step, a step cover and a basket, after you fonfirmed that liquid crystal indicator shows correct weight comparing with actual test weight.
Then, all of adjustment has finished.

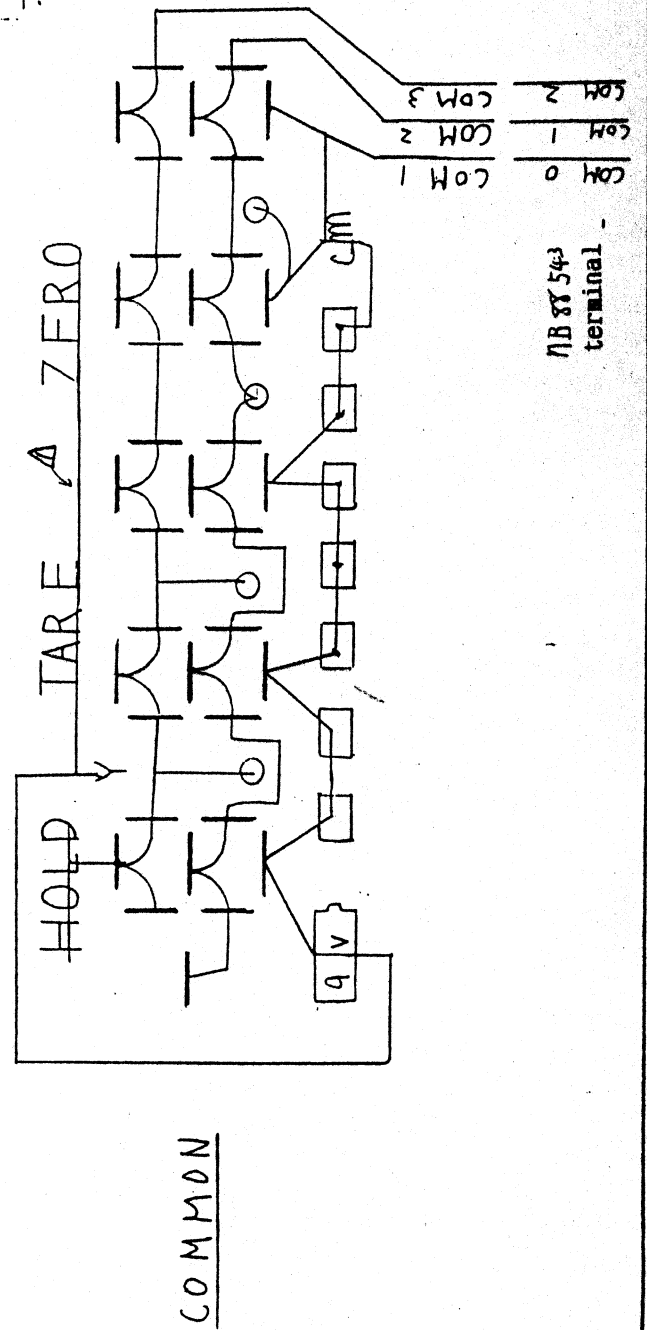
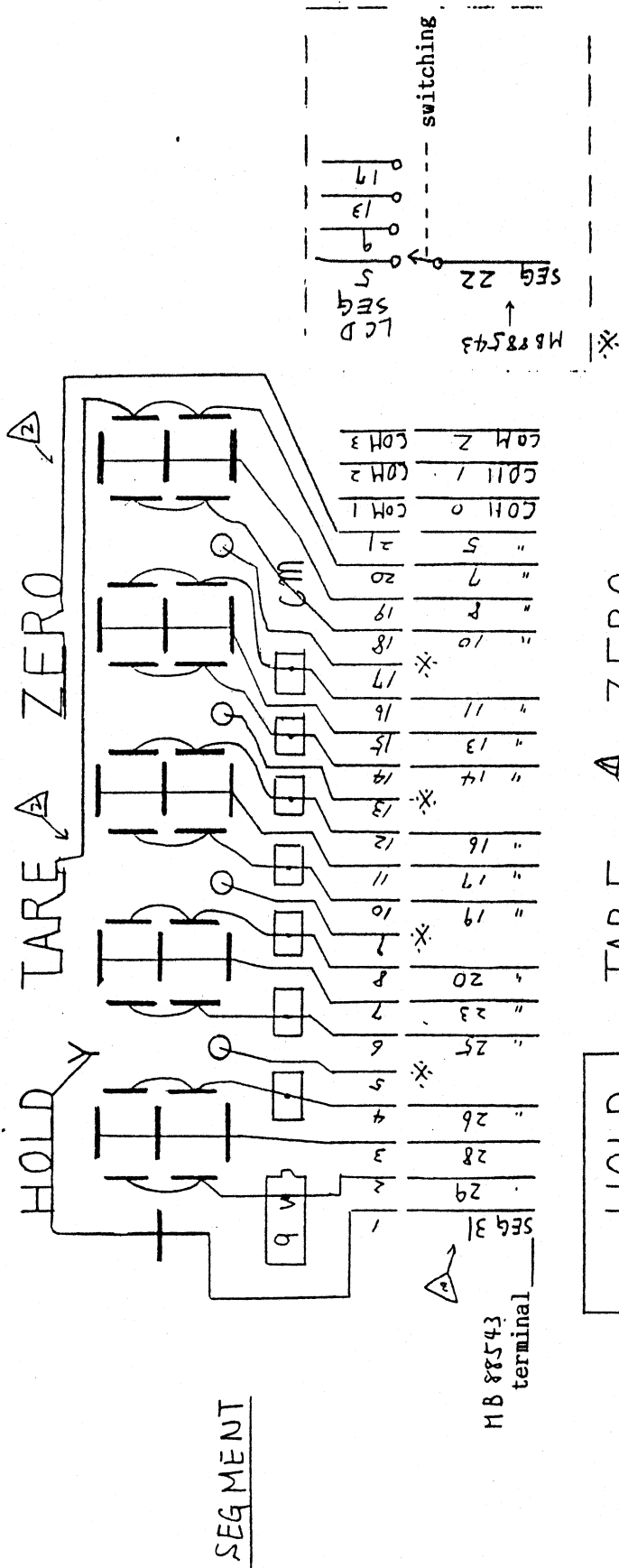
9. Trouble shooting

Trouble's phenomenon	Cause & countermeasure								
<p>A) Liquid crystal indicator on panel does not indicate at all even when you turn on electric source switch ON/R.</p>	<ol style="list-style-type: none"> 1. Inferior of AC adapter system <ol style="list-style-type: none"> 1) Take off a plug from adapter and reconnect it to adapter again. 2) Inferior of AC adapter-self <ul style="list-style-type: none"> - Confirm out put about 13V on AC adapter's plug using tester or DVM as following picture.  <ol style="list-style-type: none"> 2. Inferior of battery system <ol style="list-style-type: none"> 1) Exchange six pieces of new batteries please, since they run out naturally. 3. Inferior of electric system <ol style="list-style-type: none"> 1) Please check the connector connecting from a load cell on main electric board useing DVM as follows. (refer to Page 7)  <table border="1" data-bbox="842 1552 1142 1632"> <tr> <td>③ Red</td><td>④ White</td></tr> <tr> <td>≐ +5V</td><td>GND</td></tr> </table> <p>main electric board</p> <p>It is inferior of printed electric board bord except above mentiond. Dispatch is to our plant fo fix it.</p> <table border="1" data-bbox="842 1783 1142 1863"> <tr> <td>⑤ Green</td><td>⑥ Black</td></tr> <tr> <td>≐ ±10mv</td><td>GND</td></tr> </table> <p>The load cell is inferior when there is no out put of voltage and except above mentiond. Dispatch the load cell to our plant to fix please.</p> 	③ Red	④ White	≐ +5V	GND	⑤ Green	⑥ Black	≐ ±10mv	GND
③ Red	④ White								
≐ +5V	GND								
⑤ Green	⑥ Black								
≐ ±10mv	GND								

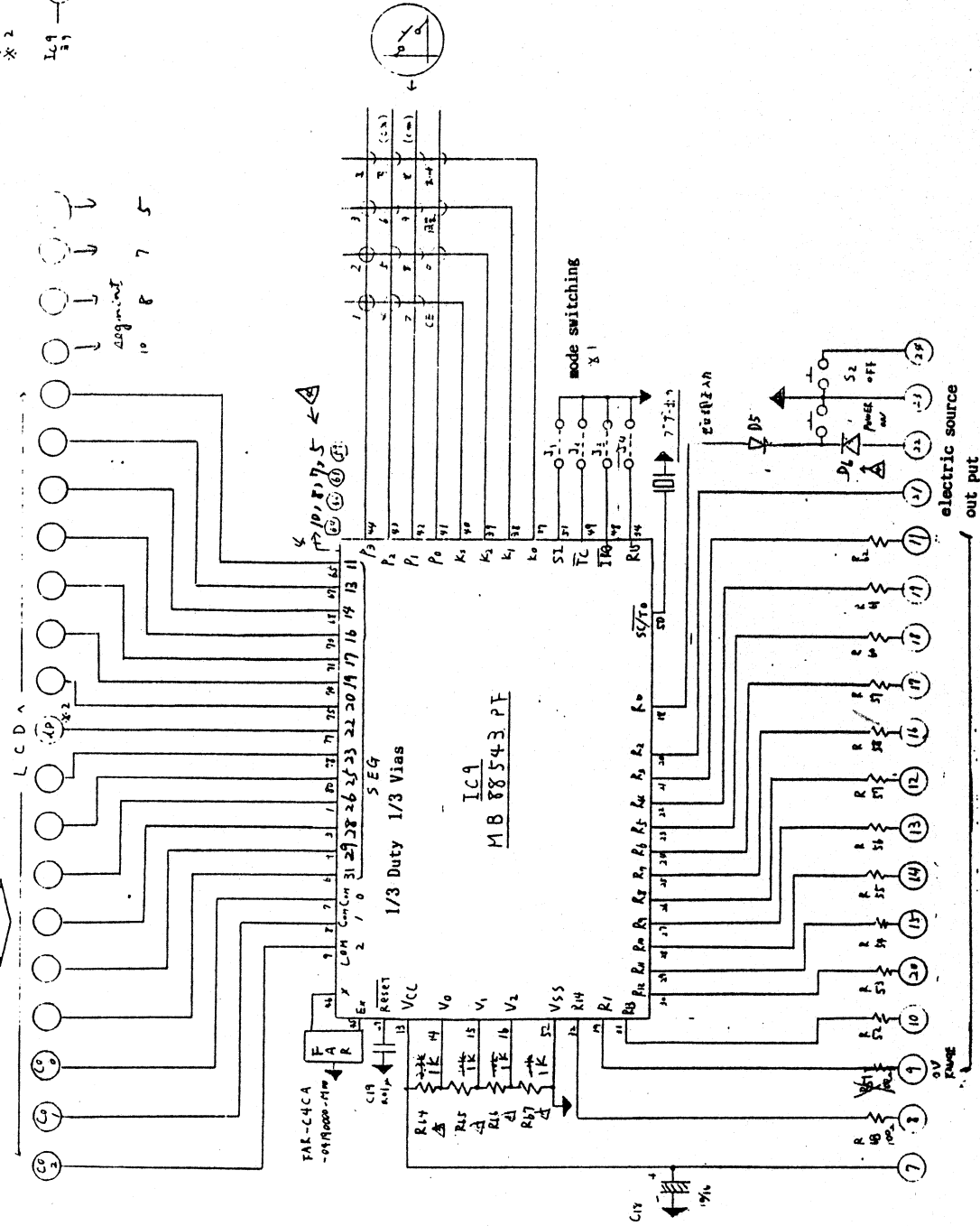
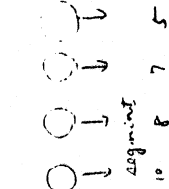
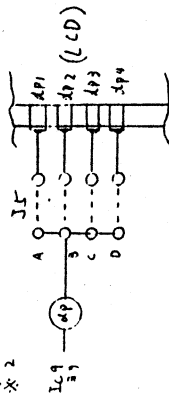
Trouble's phenomenon	Cause & contermeasure
<p>B) Some digits of liquid crystal indicator or some segment does not indicate.</p>	<ol style="list-style-type: none"> <p>Inferior of contact of rubber connection.</p> <p>Take off screws of indicating frame after taking off panel sheet carefully using knife.</p> <p>Next, take off indicating frame useing some tweezers, then clean up both side of contacting face of rubber connector with soft cloth containing thinner.</p> <div data-bbox="722 651 1437 943"> <p>how to take off indicating frame</p> <p>indicating frame</p> <p>panel sheet</p> <p>cutting knife</p> </div> <p>Inferior of LCD indicating.</p> <p>Exchange LCD indicating electric board please (refer to Page 7)</p>
<p>C) Liquid crystal indicator indicates lighter for whole.</p>	<ol style="list-style-type: none"> <p>Running out of battery</p> <p>Please exchange six pieces of new batteries as they run out, if 9V is indicating which located on left and below of liquid crystal indicator.</p> <p>Inferior of contacting of rubber connector.</p> <p>Please clean up contacting face of rubber connector accordding to B).</p> <p>Please exchange LCD as it indicates lighter if the life of liquid crystal is over.</p> <p>Inferior of electric source for liquid crystal on main electric bord.</p> <p>(refer to Page 7)</p> <p>Please measure boltage between ③ red and ④ white from a load cell as above C) by tester. Dispatch it to our plant as electric board is inferior if out put is excepting 5V.</p> <p>We will re-adjust and fix it.</p>

Trouble's phenomenon	Cause & countermeasure
<p>D) Electric source is not turned off even if you press an electric switch OFF.</p>	<ol style="list-style-type: none"> 1. Ribbon cable No.24 which is wiring to CN1 with LCD and main electric board (refer to page 7) is cut off at the road of an electric board. Re-connect with a soldering copper please. 2. Confirm OFF switch does work with your finger pressing OFF switch on indicating control panel. If it seems not to work, according to B) how to take off indicating frame, you take off a panel sheet and confirm OFF switch's action. If it does not work, OFF switch is inferior. If it does work, it seems that a panel sheet with careful attention. <p>In case of action inferior of switch such as same way please.</p>
<p>E) Can not measure accurately</p>	<ol style="list-style-type: none"> 1. Inferior of adjustment four pieces of adjusting stand. (Is not there rattling among four adjusting stand.) 2. Inferior of level adjustment. 3. Is not a table for a baby scale shivering ? 4. Does not some step contact with something ?

LCD terminal wiring diagram



1	2	3	4
2	3	4	5
3	4	5	6
4	5	6	7
5	6	7	8
6	7	8	9
7	8	9	10
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91	92	93	94
92	93	94	95
93	94	95	96
94	95	96	97
95	96	97	98
96	97	98	99
97	98	99	100
98	99	100	101
99	100	101	102
100	101	102	103
101	102	103	104
102	103	104	105
103	104	105	106
104	105	106	107
105	106	107	108

[illegible]

	mode switching	J1	J2	J3	J4
H Bench Scale	60K	H	H	H	H
G "	50K	L	H	H	H
F "	100K	H	L	H	H
E Baby Scale	(2)	L	L	H	H
D Bench Scale	300Lb	H	H	L	H
C "	150Kg	L	H	L	H
B "	150Lb	H	L	L	H
A Baby Scale	(1)	L	L	L	H
I Test	(1)	L	L	L	L
J "	(2)	-	-	H	L
K Clock		H	H	L	L

Voltage input	Data put from A/D converter
0.00	0000
0.05	0001
0.10	0002
0.15	0003
0.20	0004
0.25	0005
0.30	0006
0.35	0007
0.40	0008
0.45	0009
0.50	0010
0.55	0011
0.60	0012
0.65	0013
0.70	0014
0.75	0015
0.80	0016
0.85	0017
0.90	0018
0.95	0019
1.00	0020
1.05	0021
1.10	0022
1.15	0023
1.20	0024
1.25	0025
1.30	0026
1.35	0027
1.40	0028
1.45	0029
1.50	0030
1.55	0031
1.60	0032
1.65	0033
1.70	0034
1.75	0035
1.80	0036
1.85	0037
1.90	0038
1.95	0039
2.00	0040
2.05	0041
2.10	0042
2.15	0043
2.20	0044
2.25	0045
2.30	0046
2.35	0047
2.40	0048
2.45	0049
2.50	0050
2.55	0051
2.60	0052
2.65	0053
2.70	0054
2.75	0055
2.80	0056
2.85	0057
2.90	0058
2.95	0059
3.00	0060
3.05	0061
3.10	0062
3.15	0063
3.20	0064
3.25	0065
3.30	0066
3.35	0067
3.40	0068
3.45	0069
3.50	0070
3.55	0071
3.60	0072
3.65	0073
3.70	0074
3.75	0075
3.80	0076
3.85	0077
3.90	0078
3.95	0079
4.00	0080
4.05	0081
4.10	0082
4.15	0083
4.20	0084
4.25	0085
4.30	0086
4.35	0087
4.40	0088
4.45	0089
4.50	0090
4.55	0091
4.60	0092
4.65	0093
4.70	0094
4.75	0095
4.80	0096
4.85	0097
4.90	0098
4.95	0099
5.00	0100

electric source
out put

製図	設計	審査	承認	
11-1-17	11-1-17	-	-	Electric circuit for Digital baby scale
28	28		-	with load cell

株式會社

KEU-0081



株式會社 御咲製作所

5

改訂箇所

寸法の普通許容差

寸法差の記入のない寸法の普通許容差は
JIS B 0404 1-14 又は 1-16
に示された下表によること

寸法の区分		公差等級	
を 超 え	以 下	14 級	16 級
0.5	3	± 0.1	—
3	6	± 0.1	± 0.2
6	30	± 0.2	± 0.5
30	120	± 0.3	± 0.8
120	315	± 0.5	± 1.2
315	1,000	± 0.8	± 2
1,000	2,000	± 1.2	± 3

KEU-0080
CN1KEU-0081
CN1 CN2LCD
CN2

7	VCC
8	BATT
9	Q.F
10	POL
11	BSY
12	D1
13	D2
14	D3
15	D4
16	B8
17	B4
18	B2
19	B1
20	D5
21	HOLD
22	ON/R
23	GND
24	OFF

ribbon
feeder

7	VCC	1	SEG31
8	R14	2	" 29
9	R1	3	" 28
10	R13	4	" 26
11	R3	5	" 8
12	R8	6	SEG25
13	R9	7	" 23
14	R10	8	" 20
15	R11	9	" C
16	R7	10	SEG19
17	R6	11	" 17
18	R5	12	" 16
19	R4	13	" B
20	R12	14	SEG14
21	R2	15	" 13
22	R0	16	" 11
23	GND	17	" A
24	S2	18	SEG10
		19	" 8
		20	" 7
		21	" 5
		22	CQ1
		23	CQ2
		24	CQ3

J'4
コネクタ

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24	

1	9V
2	GND

RED

BLK

load cell

3	+5V
4	GND
5	IN+
6	IN-
	F.G

RED

WHT

GRN

BLK

four cable shield

AC adapter

31	+
32	GND

RED

BLK

RED	+
BLK	-

battery

備 考

備 考		A 品番 PARTS NO.		部 品 名 称 NAME OF PARTS	材 料 MATERIAL	仕上重量 (kg) WEIGHT	備 考 REMARKS
個 数 NO. REQD		個 数 NO. REQD					
製 番 FILE NO.				製 番 ORDER NO.			
第 三 角 法 THIRD ANGLE PROJECTION	日 付 DATE 1988. 11. 4	尺 度 SCALE	形 式 TYPE	納 入 先 CUSTOMER			
承 認 APPROVED BY	検 図 CHECKED BY	担 当 DESIGNED BY	製 図 DRAWN BY	図 名 TITLE SUUYASUYA Matual wiring Diagram			
株 式 会 社 御 咲 製 作 所				図 番 DWG. NO.			

株 式 会 社
御 咲 製 作 所

4

3

2

1