

REV : 00  
MAY 13, 1997

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**AP SERIES**

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**SERVICE MANUAL**

**C A S CORPORATION**

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# CHAPTER-I

## THE GENERAL INTRODUCTIONS

=====

### A. THE PREFACE

Thank you for purchasing of our CAS scale.  
 This scale has been designed with CAS reliability, under rigid quality control and with outstanding performance.  
 Your departments can enjoy with this high quality reliable CAS product.  
 We believe that your needs will be satisfied and you will have proper reliability with in variable weight.  
 This manual will help you with proper operations and care of the AP series.  
 Please keep it handy for the future references.

### B. THE PRECAUTIONS

1. Check the power voltage.
2. Place the scale on a flat and stable surface.
3. Level the scale with four adjusters.  
Bubble of the level should be centered.
4. Plug into an AC outlet 10 minutes before operations.
5. Keep the scale away from strong E.M.I. noises.
6. This scale must be installed in a dry and liquid free environment.
7. Do not expose the scale to sudden temperature change.
8. Do not expose the scale to sudden impact.

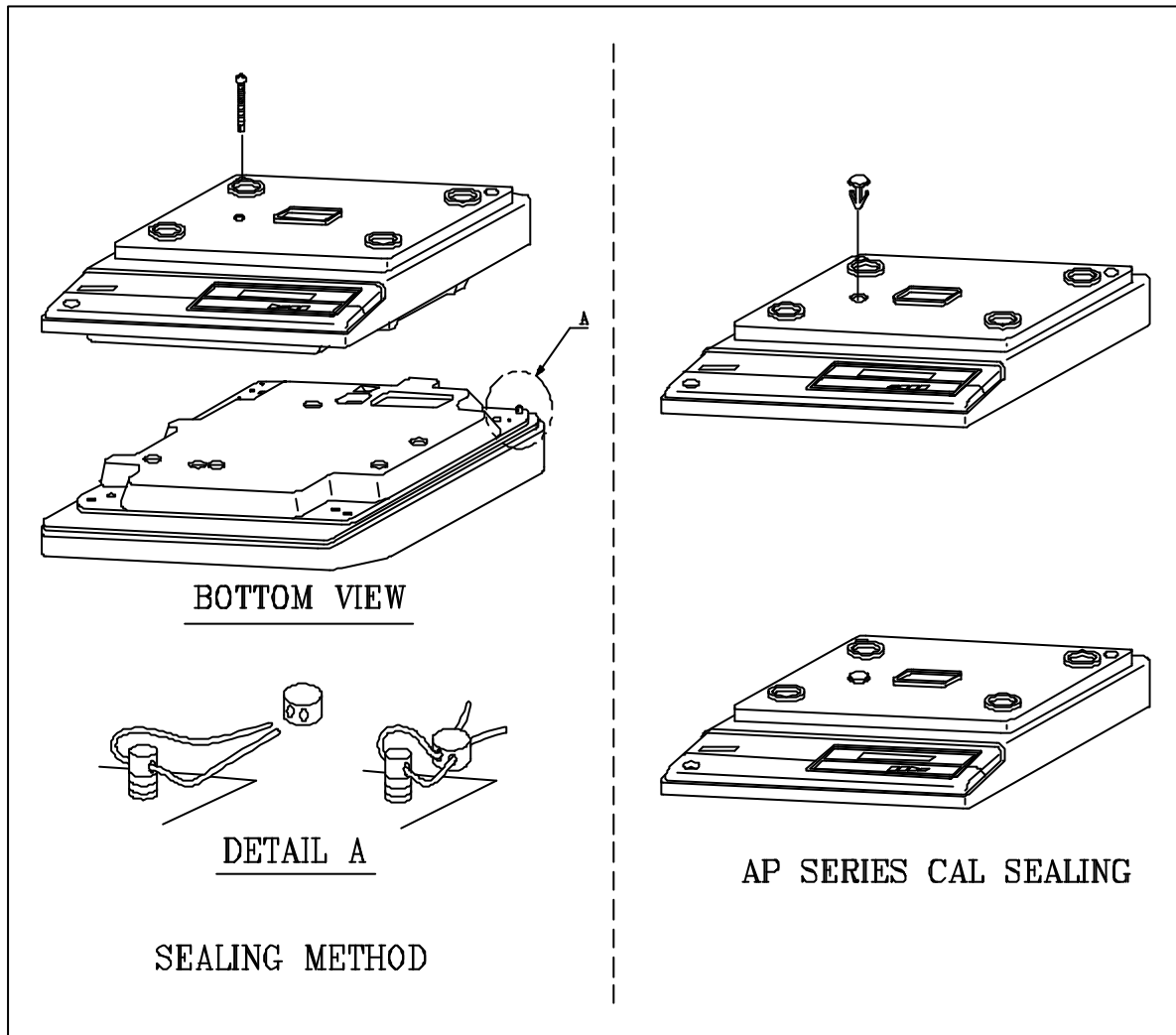
### C. THE SPECIFICATIONS

MODEL	A P - 1		
CAPACITY	5 X 0.002kg	15 X 0.005kg	30 X 0.01kg
DISPLAYS; WEIGHT UNIT PRICE TOTAL PRICE	5 DIGIT 6 DIGIT 6 DIGIT / 7 DIGIT		
DISPLAY DESIGNATORS	ZERO, TARE kg, lb, g/kg, g/lb, g/100g		
MAX. TARE	-5.000 kg	-0.995kg	-0.990kg
POWER SOURCES	110VAC, 120VAC, 220VAC, 240VAC / 50HZ, 60HZ		
POWER CONSUMPTION	APPRDX. 10W		
PLATTER SIZE (mm)	340(W) X 215(D)		
PRDDUCT SIZE (mm)	350(W)X325(D)X485(H)		

Notice : Specifications are subject to change for improvement without notice.

# D. SEALING METHOD

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## CHAPTER-II

### THE CALIBRATIONS

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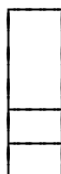
#### A. THE GENERAL SPAN CALIBRATION

##### A. 1 SET THE CALIBRATION MODE

The **CAL** switch is located on the main P.C.B underneath of a hole at the middle left of the upper case.

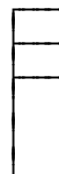
1. Remove the platter.
2. Remove a seal cover.
3. Slide **CAL** switch to the CAL position.

C A L



normal mode

C A L



calibration mode

4. Place the platter.
  5. Plug into the AC outlet.
- > The weight display shows "**CAL**" three times.

## A. 2 THE SPAN CALIBRATION

1. Press the "C" key and "3" key.  
-> The weight display shows "ULoad".
  2. Empty the platter.
  3. Press the "C" key.  
-> The weight display shows a count down and shows "LdAd".
  4. Load a full weight on the platter gently.
  5. Wait a few seconds for a stable.
  6. Press the "C" key,  
-> The weight display shows a countdown again.  
-> The "End" will be shown with a long beep sound.
  7. Empty the platter.
- \*If you want to quit this span calibration, Press the "ZERO" key while either "ULoad" or "LdAd" is on the weight display.

## A. 3 TO CONFIRM THE SPAN AND TO DO FINE TRIMMING

1. Press the "C" key and "1" key.  
-> The weight display shows net count and total price display shows gross count.
2. Press the "ZERO" key if the weight display was not zero.
3. Load a full weight on the platter.
4. If a count is within +- 1 of 30,000 then it is okay.  
If a count is less than 20,000, press the "B" key for an increase, and more than 30,001 press the "7" key for a decrease.  
A count can be changed by pressing the key once.
5. Empty the platter.

## A. 4 RETURN TO THE NORMAL MODE

1. Press the "C" key and "0" key.  
-> The weight display shows "Err 2", but actually this error message is not a real error, it prompts only return CAL switch to the normal position.
2. Return CAL switch to the normal position(initial position).

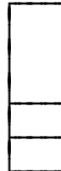
## B. THE SPAN CALIBRATION FROM REPAIR

### B. 1 SET TO THE CALIBRATION MODE

The CAL switch is located on the main P.C.B underneath of a hole at the middle left of the upper case.

1. Remove the platter.
2. Remove a seal cover.
3. Slide CAL switch to the CAL position.

C A L



normal mode

C A L



calibration mode

4. Place the platter.
5. Plug into the AC outlet.  
-> The weight display shows "CAL" three times.

### B. 2 CHECK THE INITIAL ZERO POINT

1. Press the "C" key and "5" key.  
-> The total display shows gross count(initial zero point).
2. The zero point should be smaller than 20,000 count, otherwise it means a defect of either a load cell or an analog module.

### B. 3 CHECK THE SPAN RANGE

1. Press the "ZERO" key to rezero a net count on the weight display.
2. Place the full load on the platter.
3. The span range should be bigger than 30,000, otherwise it means defect of a load cell. Please replace the load cell.

### B. 4 THE SPAN CALIBRATION

1. Press the "C" key and "3" key.  
-> The weight display shows "ULoad".
  2. Make sure that the platter is empty.
  3. Press the "C" key.  
-> The weight display shows a count down and shows "LOAd".
  4. Load a full weight on the platter gently.
  5. Wait a few seconds for a stable.
  6. Press the "C" key.  
-> The weight display shows a countdown again.  
-> The message "End" will be shown with a long beep sound.
  7. Empty the platter.
- \*If you want to quit this span calibration, press the "ZERO" key while either "ULoad" or "LOAd" is on the weight display.



## **B. 5 TO CONFIRM THE SPAN AND TO DO FINE TRIMMING**

1. Press the "C" key and "1" key.  
-> The weight display shows net count and total price display shows gross count.
2. Press the "ZERO" key if the weight display was not zero.
3. Load a full weight on the platter.
4. If a count is within  $\pm 1$  of 30,000 than it is okay.  
If a count is less than 29,999, press the "B" key for an increase, and more than 30,001 press the "7" key for a decrease.  
A count can be changed by pressing a key once.
5. Empty the platter.

## **B. 6 RETURN TO THE NORMAL MODE**

1. Press the "C" and "0" key.  
-> Weight display shows "Err 2", but actually this error message is not a real error, it prompts only return CAL switch to the normal position.
2. Return CAL switch to the normal position(initial position).

## C. THE SPAN CALIBRATION WITH A PARTIAL LOAD

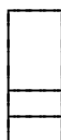
For the convenience, a partial span calibration is available.

### C. 1 SET TO THE CALIBRATION MODE

The CAL switch is located on the main P.C.B underneath of a hole at the middle left of the upper case.

1. Remove the platter.
2. Remove a seal cover.
3. Slide CAL switch to the CAL position.

C A L



normal mode

C A L



calibration mode

3. Place the platter.
4. Plug into the AC outlet.  
-> The weight display shows "CAL" three times.

### C. 2 THE SPAN CALIBRATION

1. Press the "C" key and "7" key,  
-> The weight display shows "Err".
  2. Enter a percentage of desired partial load by numeric keys.
  3. Empty the platter.
  4. Press the "C" key.  
-> The weight display shows a count down and shows "LOAD".
  5. Load a full weight on the platter gently.
  6. Wait a few seconds for a stable.
  7. Press the "C" key.  
-> The weight display shows a countdown again.  
-> The message "End" will be shown with a long beep sound.
  8. Empty the platter.
- \*If you want to quit this span calibration, press the "ZERO" key while either "LOAD" or "LOAD" is on the weight display.

### C. 3 TO CONFIRM THE SPAN AND TO DO FINE TRIMMING

1. Press the "C" key and "1" key.  
-> The weight display shows net count and total price display shows gross count.
2. Press the "ZERO" key if the weight display was not zero.
3. Load a full weight on the platter.
4. If a count is within  $\pm 1$  of 30,000 then it is okay.  
If a count is less than 29,999, press the "0" key for an increase, and more than 30,001 press the "7" key for a decrease.  
A count can be changed by pressing "0" or "7" key once.
5. Empty the platter.

## C. 4 RETURN TO THE NORMAL MODE

1. Press the "C" key and "0" key,  
-> Height display shows "Err 2", but actually this error message is not a real error,  
it prompts only return CAL switch to the normal position.
2. Return CAL switch to the normal position(initial position).

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## CHAPTER-III

### THE PART REPLACEMENTS

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#### A. REPLACEMENT OF THE LOAD CELL

##### A. 1 REPLACEMENT OF THE LOAD CELL

A.1.1 Remove the platter and disassemble the upper case.

A.1.2 Remove the platform on the load cell with a hex wrench.

A.1.3 Disconnect a connector wire of the load cell from the P.C.B.

A.1.4 Remove the load cell from the body.

A.1.5 Replace the load cell by a new one.

A.1.6 Connect a connector wire of the load cell to the P.C.B.

A.1.7 Place the platform on the load cell.

NOTE : After replacement of the load cell, you must do the calibration again.

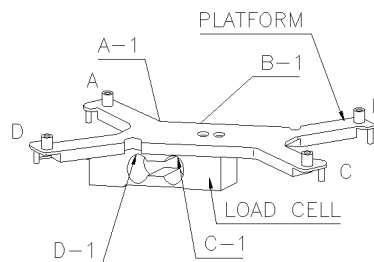
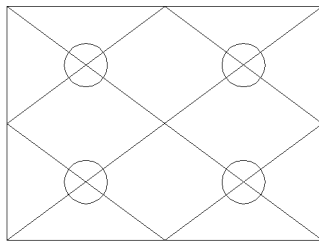
##### A. 2 CORRECTION OF THE ECCENTRICITY

A.2.1 Set a calibration mode.

A.2.2 Press the "C" key and "5" key.

A.2.3 Zero weight display by pressing the "ZERO" key, if it is needed.

A.2.4 Put a quarter of a full weight on the platform by turns as shown in below.



A.2.5 File each corner which has a less output than the others.

And check each point is within  $\pm 1$  count tolerance with  $1/4$  of a full load..

##### A. 3 THE SPAN CALIBRATION

Refer to the SPAN CALIBRATION FROM REPAIR shown in the Chapter 11.

## **B. REPLACEMENT OF THE ANALOG MODULE**

### **B. 1 REPLACEMENT OF THE ANALOG MODULE**

B.1.1 Remove the platter and the upper case.

B.1.2 Take a main circuit board out on the body.

B.1.3 Desolder the analog module pins(11 points) on main board.

B.1.4 Replace the analog module(CAM 01) by a new one.

B.1.5 Install a main board on the body.

B.1.6 Place the upper case and the platter.

NOTE : After replacement of the analog module, you must do the calibration again.

### **B. 2 THE SPAN CALIBRATION FOR THE ANALOG MODULE**

Refer to the SPAN CALIBRATION FROM REPAIR shown in the Chapter-11.

## **C. REPLACEMENT OF THE DIGITAL MODULE**

### **C. 1 REPLACEMENT OF THE DIGITAL MODULE**

C.1.1 Remove the platter and the upper case.

C.1.2 Take a main circuit board out on the body.

C.1.3 Desolder the digital module pins(48 points) on main board

C.1.4 Replace the digital module(CDM 01) by a new one.

C.1.5 Install a main board on the body.

C.1.6 Assemble an upper case and a platter.

NOTE : After replacement of the digital module, you must do the calibration again.

### **C. 2 THE INPUT FOR THE DIGITAL MODULE**

In the digital module, it has nonvolatile memory and contains a factor for a digital span calculations, the weighing conditions, and soft key codes.

Therefore all those input procedures must be performed.

Refer to APPENDIX-1.

## **D. REPLACEMENT OF THE KEYBOARD**

### **D. 1 REPLACEMENT OF THE KEYBOARD**

D.1.1 Remove the upper case.

D.1.2 Disconnect a tail of the key board.

D.1.3 Replace the keyboard by a new one.

D.1.4 Connect a tail of the keyboard into connectors **CM6** and **CM7** on the P.C.B.

NOTE : After replacement of the keyboard, you must do the calibration again.

### **D. 2 TEST THE KEYBOARD**

D.2.1 Set a calibration mode.

D.2.2 Press the "C" key and "Z" key.

D.2.3 Check each key.

D.2.4 The number of the total price display is a matrix key code of each key.

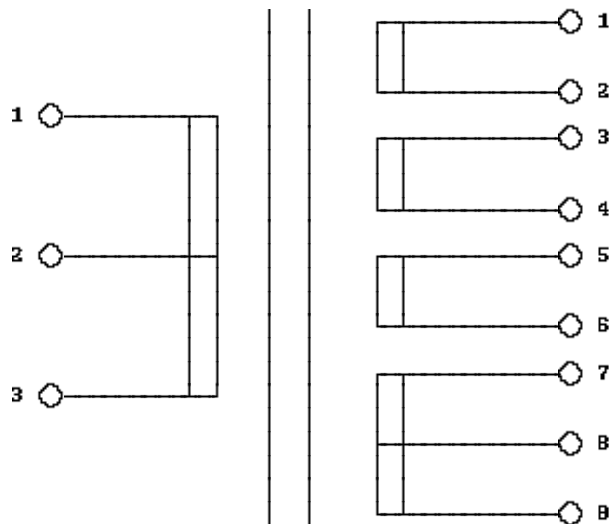
### **D. 3 RETURN TO THE NORMAL MODE**

1) Return the CAL switch to the normal position.

2) Press the "C" key and "0" key.

# CHAPTER-IV THE TRANSFORMER

## A. THE TRANSFORMER



QUALITY OF LEAD WIRE AND LENGTH						
	NO.	COLOR	WIRE LENGTH	TREATMENT (mm)	nA	V
INPUT	1	WHITE	200 mm	$\pm 10$		0
	2	BROWN	"	"		110
	3	RED	"	"		220
OUTPUT	1	GRAY	250 mm	"	100	16.5
	2	PURPLE	"	"		
	3	BLUE	"	"		
	4	GREEN	"	"	100	8.8
	5	YELLOW	"	"		
	6	ORANGE	"	"		
	7	RED	"	"	700	1.65
	8	BROWN	"	"	0	0
	9	BLACK	"	"	700	1.65

- ☛ CORE : 48 X 25 mm
- ☛ 50Hz / 60Hz

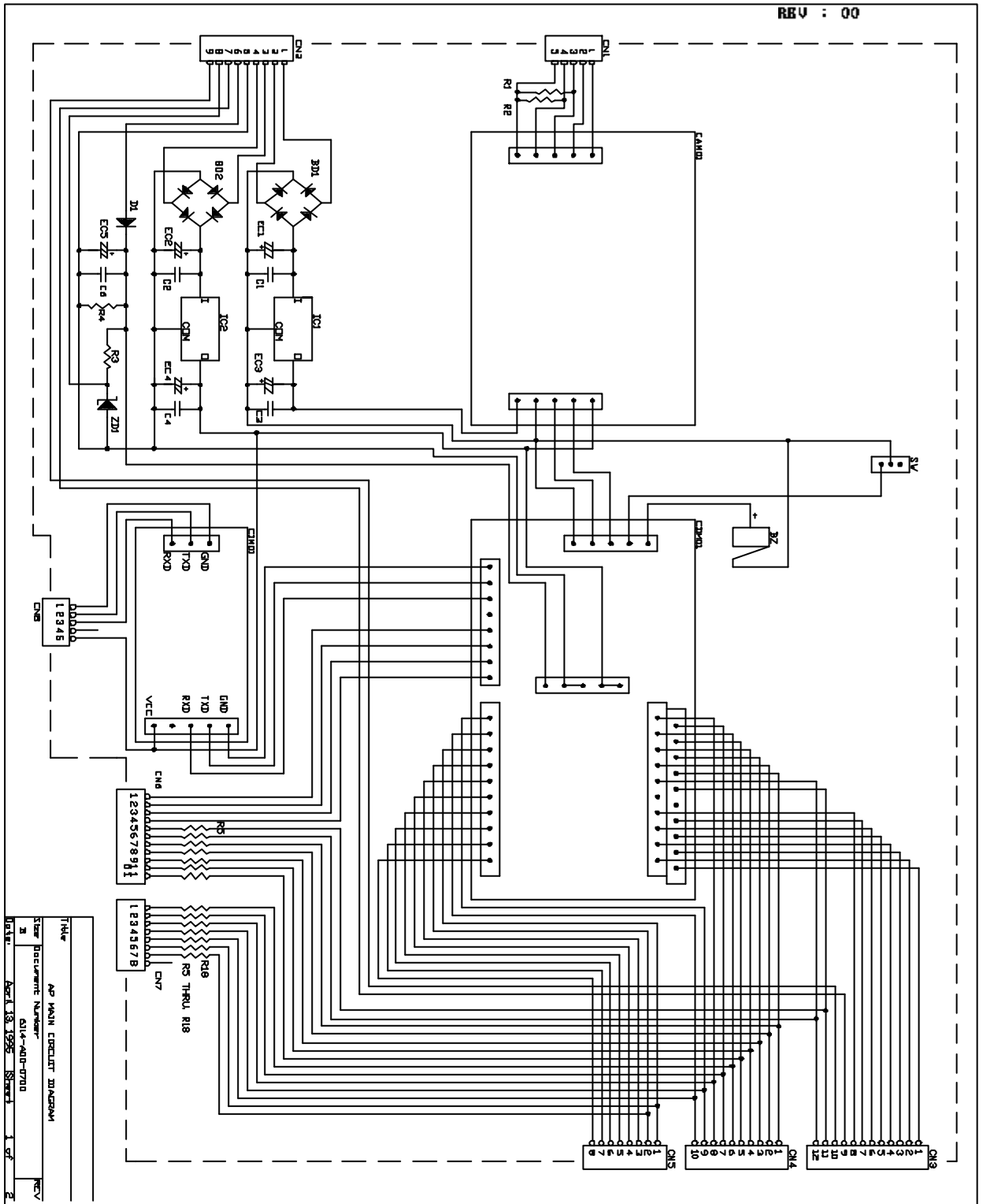
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**CHAPTER-V**  
**THE SCHEMATICS AND THE DIAGRAMS**

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**A. THE SCHEMATICS**

# A. 1 MAIN CIRCUIT DIAGRAM



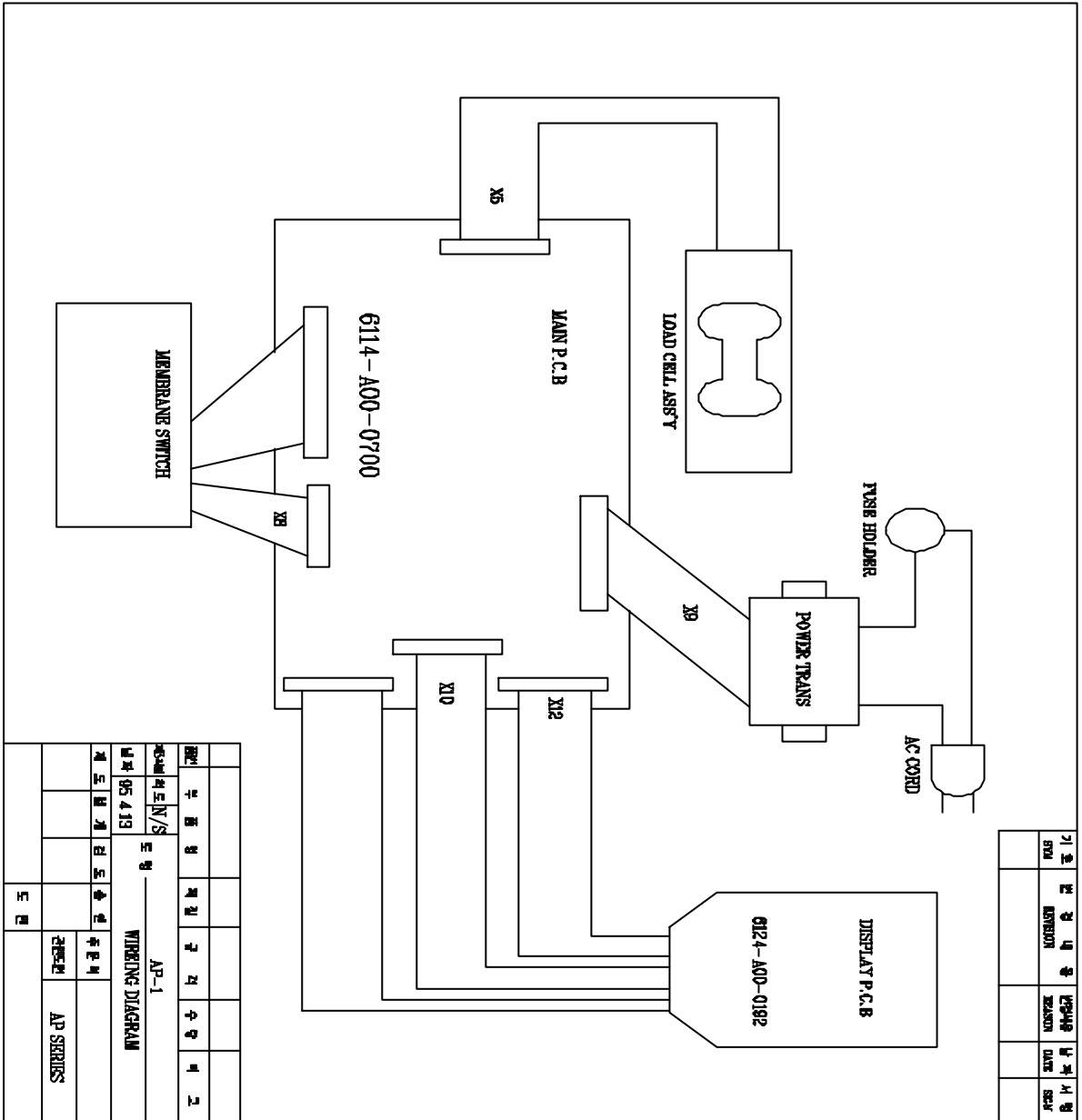






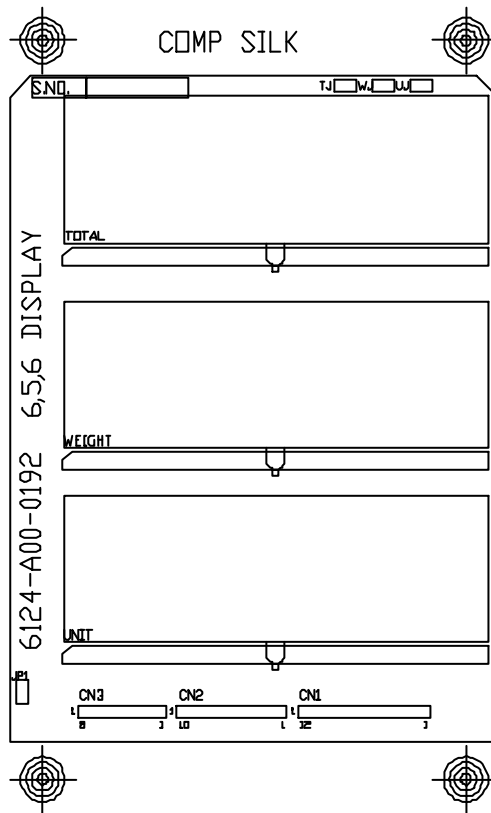
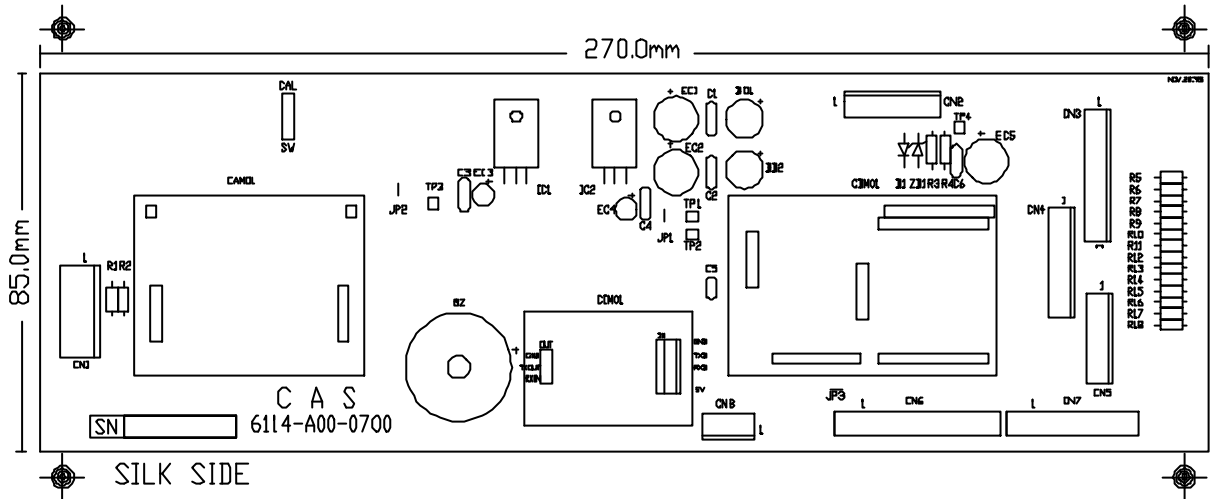
# B. WIRING DIAGRAM

REV : 00



# C. PARTS LOCATION

REV : 00



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## CHAPTER-VI

### THE ERROR MESSAGES

=====

## A. THE ERROR MESSAGES

These error messages will guide you to do a quick troubleshooting.

### A.1 "Err 1"

The "Err 1" can happen when a current zero point has shifted from the last span calibration.

A.1.1 If a dead load of load cell has changed.

To use a different dead load from the last span calibration, the span calibration must be done before use.

However, do not exceed of a dead load bigger than 20,000 counts in calibration mode 5.

A.1.2 If the contact resistance of a load cell connector is poor, clean the load cell connector or replace it.

A.1.3 If the zero point of a load cell has shifted, replace the load cell.

A.1.4 If the analog module has failed, replace the analog module.

For ordering, call for the name CAN 01.

### A.2 "Err 2"

A.2.1 The "Err 2" is not a real error, only it prompts return CAL switch to the normal position.

### A.3 "Err 10"

A.3.1 The "Err 10" means a failure of the analog module.

Replace the analog module by a new one.

For ordering, call for the CAN 01.

### A.4 "Err 11"

A.4.1 The "Err 11" means a writing error of the internal nonvolatile memory.

To recognize this error, be sure to voltages on the circuit and do a calibration procedures.

Nevertheless, the display shows same "Err 11" replace the digital module.

For ordering, call for the CAN 01.

### A.5 "Err 12"

A.5.1 The "Err 12" warns that the scale has lost of the parameters for under

weighing regulations or has lost of the factors for a digital span calculation.

To recover this, enter each condition codes again.

Still the scale has this "Err 12", perform a span calibration again.

Refer to APPENDIX-1.

### A.6 "Err 13"

A.6.1 The "Err 13" means the soft key(s) code has(have) lost.

To recover from this(these) error(s), find the which key(s) has(have)

lost of the soft keycode(s) and then re-enter the soft key code(s) on it(them).

Refer to APPENDIX-1.

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# CHAPTER-VII

## THE OTHERS

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### A. FOR THE SERIAL INTERFACES

#### THE PROTOCOLS FOR THE CAS STANDARD SERIAL INTERFACE

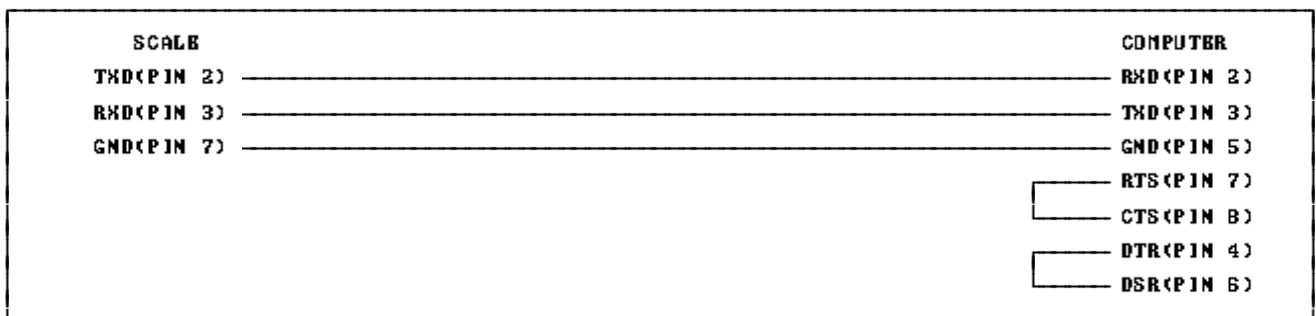
THIS IS HALF-DUPLEX COMMUNICATION RS-232C.

#### A. 1 THE COMMUNICATION AGREEMENTS

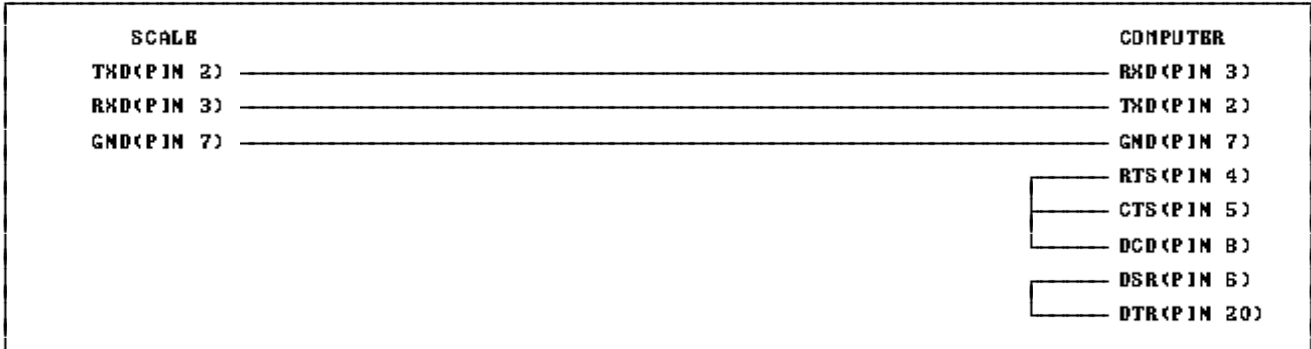
- 1. BAUD RATE -> 8,500 BPS
- 2. DATA BIT -> 8 BIT
- 3. STOP BIT -> 1 BIT
- 4. PARITY BIT -> ND
- 5. COMMUNICATION LEVEL -> RS-232C LEVEL
- 6. DATA FORMAT -> ASCII
- 7. THE COMMAND DEFINITIONS
  - B-1. "ENQ" -> 05H
  - B-2. "ACK" -> 06H
  - B-3. "NAK" -> 15H
  - B-4. "SDH" -> 01H
  - B-5. "STX" -> 02H
  - B-6. "BTH" -> 03H
  - B-7. "BDT" -> 04H
  - B-8. "DC1" -> 11H
  - B-9. "DC2" -> 12H
  - B-10. "DC3" -> 13H
  - B-11. "DC4" -> 14H

#### A. 2 THE WIRE CONNECTIONS

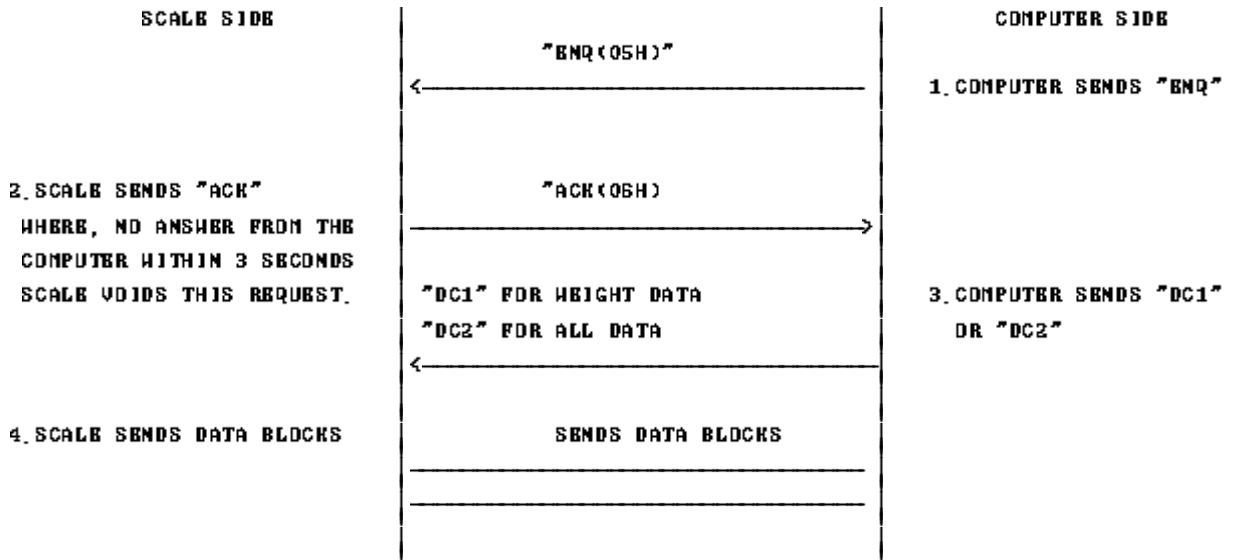
##### A.2.1 THE WIRE CONNECTIONS OF THE D-SUB 9 PIN CONNECTOR OF A COMPUTER SIDE



##### A.2.2 THE WIRE CONNECTIONS OF THE D-SUB 25 PIN CONNECTOR OF A COMPUTER SIDE

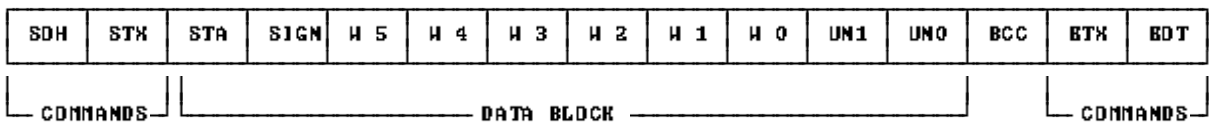


### A. 3 THE PROTOCOL



### A. 4. THE DATA TRAINS

#### 1. THE DATA TRAINS FOR THE "DC1"



#### REMARKS :

- . STA -> A WEIGHING STATUS OF THE SCALE  
SCALE IS STABLE -> "S", NOT STABLED -> "U"
- . SIGN -> SIGN OF THE HEIGHT DATA  
ZERO AND POSITIVE HEIGHT -> " ", NEGATIVE HEIGHT -> "-",  
OVER LOAD -> "F"
- . H5 THROUGH H0 -> HEIGHT DATA  
BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.
- . UM1 THROUGH UM0 -> UNIT OF HEIGHT(kg OR lb)
- . BCC -> BLOCK CHECK CHARACTER  
BCC IS CREATED BY EXCLUSIVE ORED OF A DATA BLOCK.

#### 2. THE DATA TRAINS FOR THE "DC2"

SDH	STX	P 7	P 6	P 5	P 4	P 3	P 2	P 1	P 0	BCC	ETX
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

STX	STA	SIGN	H 5	H 4	H 3	H 2	H 1	H 0	UN1	UN0	BCC	ETX
-----	-----	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

STX	P 7	P 6	P 5	P 4	P 3	P 2	P 1	P 0	BCC	ETX	EDT
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

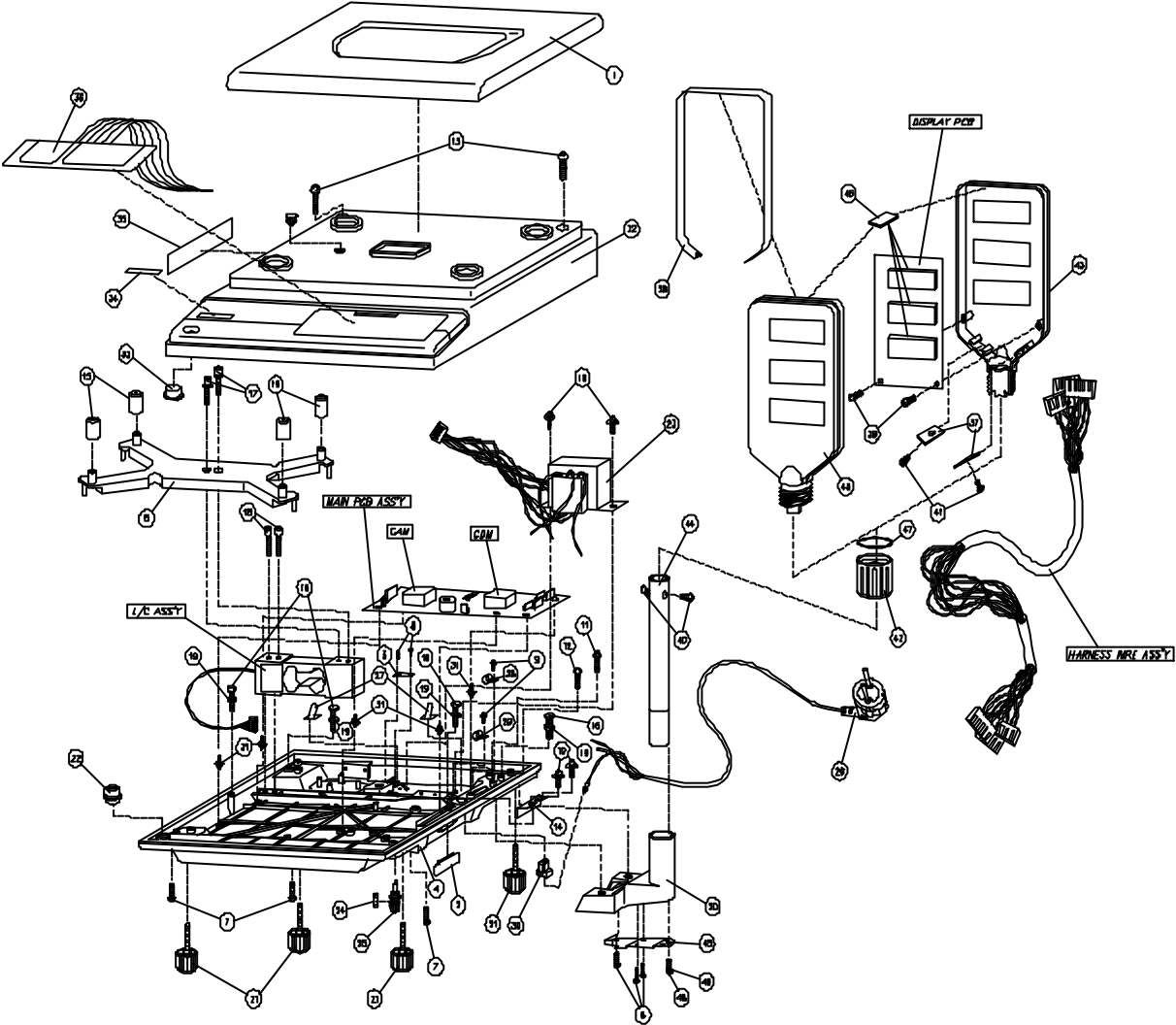
REMARKS :

- . STA -> A WEIGHING STATUS OF THE SCALE  
SCALE IS STABLE -> "S" , NOT STABLED -> "U"
- . SIGN ->SIGNS OF THE HEIGHT DATA  
ZERD AND POSITIVE HEIGHT -> " " , NEGATIVE HEIGHT -> "-" ,  
OVER LOAD -> "F"
- . P7 THROUGH P0 -> PRICE DATA  
IF THE OVER FLDW IS HAPPEN IN PRICE, ALL "F"s WILL FILL TO DATA BLOCK OF THE PRICE.
- . H5 THROUGH H0 -> HEIGHT DATA  
BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.
- . UN1 THROUGH UN0 -> UNIT OF HEIGHT(kg OR lb)
- . BCC -> BLOCK CHECK CHARACTER  
BCC IS CREATED BY EXCLUSIVE DREB OF EACH DATA BLOCKS.



# B. THE EXPLODED VIEW (MECHANICAL PART)

REV : 00



# C. FULL PARTS LIST

REV : 00

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y MAIN PCB						
1	1502-A00-0308-0	MACHINE SCREW (PH)	M3*8	EA	2	IC 1,2
2	1540-A00-0300-0	NUT (HEX)	M3*0.5	EA	2	IC 1,2
3	6100-PAP-0701-0	MAIN PCB	6114-A01-0701	EA	1	
4	6220-100-7805-0	IC (REGULATOR)	LM7805	EA	1	IC 2
5	6220-100-7812-0	IC (REGULATOR)	LM7812CT	EA	1	IC 1
6	6280-1BR-0153-0	BRIDGE-DIODE	RB-153	EA	2	BD 1,2
7	6281-1P0-4004-0	POWER-DIODE	1N4004	EA	1	D 1
8	6282-1ZB-4736-0	ZENER-DIODE	5.1V/1W	EA	1	ZD 1
9	6515-R0J-0203-0	RESISTOR 1/4W	CFR 20K(±5%)	EA	14	R 5-18
10	6515-R0J-0303-0	RESISTOR 1/4W	CFR 30K(±5%)	EA	2	R 3,4
11	6704-C50-0220-0	ELECTRIC CONDENSER	220 μF/50V	EA	1	EC 5
12	6704-C25-0470-0	ELECTRIC CONDENSER	470 μF/25V	EA	1	EC 1
13	6704-C16-1000-0	ELECTRIC CONDENSER	1000 μF/16V(SG)	EA	1	EC 2
14	6704-C16-0100-0	ELECTRIC CONDENSER	100 μF/16V	EA	2	EC 3,4
15	6710-CAP-0104-0	CERAMIC CONDENSER	0.1 μF/25V(50V)	EA	5	C 1,2,3,4,5
16	7002-Z00-0020-0	PIEZO BUZZER	BS-20AF	EA	1	BZ
17	7844-H00-0050-0	JUMP WIRE	0.6*5mm(NAP)	EA	3	JP 1,2,3
18	7600-SLD-0002-0	SLIDE S/W	INCA-2	EA	1	SW
19	7801-CLW-0005-0	CONNECTOR (WAFER)	LH 0640-05	EA	1	CN 8
20	7801-CLW-0008-0	CONNECTOR (WAFER)	LH 0640-08	EA	1	CN 5
21	7801-CLW-0009-0	CONNECTOR (WAFER)	LH 0640-09	EA	1	CN 2
22	7801-CLW-0010-0	CONNECTOR (WAFER)	LH 0640-10	EA	1	CN 4
23	7801-CLW-0012-0	CONNECTOR (WAFER)	LH 0640-12	EA	1	CN 3
24	7804-CCN-7305-0	CONNECTOR	5273-05	EA	1	CN 1
25	7807-CFP-0008-0	FPC CONNECTOR	FC2254-BS	EA	1	CN 7
ASS'Y DISPLAY PCB						
27	2631-A00-0001-0	FIP CUSHION	EVA 30*20*2t	EA	7	
28	6110-PAP-0182-0	DISPLAY PCB	6124-A00-0182	EA	1	
	6110-PAP-0168-0	DISPLAY PCB	6124-A00-0168 (kg/1b Ver.)	EA	1	
29	7803-CLA-0008-0	CONNECTOR (WAFER)	LA 0640-08	EA	1	
30	7803-CLA-0010-0	CONNECTOR (WAFER)	LA 0640-10	EA	1	
31	7803-CLA-0012-0	CONNECTOR (WAFER)	LA 0640-12	EA	1	
32	7202-D00-0078-0	VPD & FIP	CV78B	EA	6	
	7202-D00-0528-0	VPD & FIP	F-52B	EA	6	

NO	NAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y ANALDG MODULE						
1	1050-A00-0008-0	SHIELD CASE (CAN)	50.2*37*18*1t	EA	1	
2	1510-A00-0236-0	TAPPING SCREW-1	2.3*6	EA	1	
3	1810-A00-0013-0	ANALDG PLATE	43*14.5(CAN)	EA	1	
4	6121-PND-0100-0	ANALDG PCB	6144-A01-0100	EA	1	
5	6236-ISO-4011-0	IC(D-NDS-GATE)	UPD4011BG	EA	1	
6	6236-ISO-4066-0	IC(ANALDG SW)	UPD4066BG	EA	1	
7	6240-ISO-0177-0	IC(OP-AMP)	OP-177GS	EA	1	
8	6240-ISO-0040-0	IC(OP-AMP)	UPC4072G2	EA	2	
9	6281-100-1504-0	CHIP TRANSISTDR	KTA1504 SY	EA	3	
10	6284-ICP-0181-0	SWITCHING DIODE	KDS 1B1 (SMD)	EA	1	
11	6527-R00-0101-0	CHIP RESISTDR 1/10W	RR1220P-1010(100Ω)	EA	2	
12	6527-R00-0222-0	CHIP RESISTDR 1/10W	RR1220P-2220(2.2K)	EA	1	
13	6527-R00-0103-0	CHIP RESISTDR 1/10W	RR1220P-103(10K)	EA	6	
14	6527-R00-4992-0	CHIP RESISTDR 1/10W	RR1220P-49920(49.9K)	EA	2	
15	6527-R00-0104-0	CHIP RESISTDR 1/10W	RR1220P-1040(100K)	EA	4	
16	6540-RPR-11K5-0	PRECISION RESISTDR	FLAY 11K500B	EA	2	
17	6550-RN0-0400-0	NETWORK RESISTDR	2B-35-ME16(1K/10K)	EA	1	
18	6702-CAP-0106-0	CHIP TANTAL	10MCS 106 NB TER	EA	1	
19	6702-CAP-0685-0	CHIP TANTAL	16MCS 685 NB TER	EA	2	
20	6800-F00-0220-0	EMI FILTER	220PF(TDK)	EA	2	
21	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 NBNC	EA	10	
22	6720-CAP-0105-A	POLYESTER CONDENSER	1μF/63V J RATE BOX-TYPE	EA	1	
23	6720-CAP-0474-A	POLYESTER CONDENSER	0.47μF/63V J RATE BOX TYPE	EA	3	
24	6722-CAP-0104-0	P.P CONDENSER	DTH-104J/100V J	EA	1	
25	7810-C00-8284-0	CONNECTDR	828400-40(MALE)	EA	0.275	
ASS'Y DIGITAL MODULE						
1	1050-A00-0008-0	SHIELD CASE (CDN)	50.2*37*18*1t	EA	1	
2	1510-A00-0236-0	TAPPING SCREW -1	2.3*6	EA	1	
3	1810-A00-0015-0	DIGITAL PLATE	43*14.5	EA	1	
4	6101-PND-0010-0	DIGITAL PCB	6101-PND-0010-0	EA	1	AP-1
5	6200-IPU-0154-0	IC	MSNB3C154H-D24GS-VIK	EA	1	
6	6205-ISO-2416-0	IC (EEP-RDM)	X24164S-C7000	EA	1	
7	6210-ISO-6052-0	IC (RESET)	H6052 V1 (SDT223)	EA	1	
8	6224-ISO-1631-0	IC (FIP-DRIVER)	UPD16310GF-3LB	EA	1	
9	6527-R00-0101-0	CHIP RESISTDR 1/10W	RR1220P-1010(100Ω)	EA	4	
10	6527-R00-0222-0	CHIP RESISTDR 1/10W	RR1220P-2220(2.2K)	EA	6	
11	6702-CAP-0106-0	CHIP TANTAL	10MCS 106 NB	EA	1	
12	6712-CAP-0180-0	CHIP CAPACITOR	18PF/50V (CL21C180J)	EA	2	
13	6281-100-1504-0	CHIP TRANSISTDR	KTA1504 SY	EA	1	
14	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 NBNC	EA	4	

NO	NAT'L NBR CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
15	7010-ZM0-1105-A	CRYSTAL	11.0582 MHZ(ATS-4B/U)	EA	1	
16	7810-C00-8284-0	CONNECTOR	828400-40 (MALE)	EA	1,2	
ASS'Y BODY						
1	1000-A00-0012-0	TRAY	345*223*15*0.8t	EA	1	
2	2620-A00-0017-0	CONNECTOR HOLE COVER	33.2*12.4*0.8t	EA	1	
3	1050-A00-0002-0	SELECT S/W COVER	AL 30*13*0.5t	EA	1	
4	1100-A00-0001-0	BODY	345*320*31	EA	1	
5	1100-A00-0024-0	PLATFORM	332*181.5*30.5	EA	1	
6	1512-A00-0416-0	TAPPING SCREW (PH)-2	4*16	EA	4	
7	1512-A00-0420-0	TAPPING SCREW (PH)-2	4*20	EA	3	
8	1502-A00-0308-0	MACHINE SCREW (PH)	M3*8	EA	2	
9	1502-A00-0406-0	MACHINE SCREW (PH)	M4*6	EA	2	
10	1503-A00-0408-0	MACHINE SCREW (MPH)	M4*8	EA	4	
11	1502-A00-0420-0	MACHINE SCREW (PH)	M4*20	EA	1	
12	1502-A00-0425-0	MACHINE SCREW (PH)	M4*25	EA	1	
13	1502-A00-0430-0	MACHINE SCREW (PH)	M4*30	EA	2	
14	1030-A00-0047-0	CONNECTOR BRACKET	SPC 1.5t,65*26	EA	1	
15	2600-A00-0004-0	PLATFORM RUBBER	∅11*∅18*23	EA	4	
16	1520-A00-0520-0	HEXAGON BOLT	M5*20	EA	4	
17	1530-NSU-0615-0	WRENCH BOLT(WA)	M6*20 -SUS	EA	2	
18	1530-NSU-0625-0	WRENCH BOLT	M6*25-SUS	EA	2	
19	1540-A00-0500-0	NUT (HEX)	M5*0.8	EA	4	
20	2001-A00-0037-0	DISPLAY BRACKET	27.5*77.5*77.5	EA	1	
21	2001-A00-0053-0	FOOT	88*1.25*30	EA	4	
22	2002-A00-0001-0	W/L GAUGE ASS'Y	18*∅21*14.5 -IVORY	EA	1	
23	7502-PAP-0220-0	POWER TRANS (4B)	220V/50-60Hz	EA	1	
24	7620-S00-0160-0	FUSE	S504-160mA/250V	EA	1	
25	7630-S00-0020-A	FUSE HOLDER	FH-20(∅13)	EA	1	
26	7560-PAC-0003-0	AC CORD (A)	7A750V 2P 2.5M	EA	1	
27	7642-S00-0060-0	METAL CLAMP	6M	EA	2	
28	7642-S00-0007-0	CABLE CLAMP	DA-06M	EA	1	
29	7642-S00-0004-0	CABLE CLAMP	DA-4M	EA	1	
30	7640-S00-0604-0	CORD STOPPER	SR-6M-4	EA	1	
31	7702-G00-0006-0	PCB SUPPORT	6M-(T)	EA	5	
ASS'Y UPPER COVER						
32	2000-A00-0006-0	UPPER COVER	ABS750 , 350*325*45	EA	1	
33	2001-A00-0058-0	LEVEL LENS	ACRYL 24*10	EA	1	
34	1800-A00-0022-0	NAME PLATE	AP-15BX	EA	1	
35	1810-A00-0005-0	SPEC PLATE	ANGEL-AP	EA	1	
36	2100-A00-0002-0	MEMBRANE S/W	AP-15BX(BC)	EA	1	

NO	NAT'L NBR CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
ASS'Y DISPLAY CASE						
37	1030-A00-0073-0	BAND CLAMP NUT	20*10*1.2t	BA	2	
38	1050-A00-0001-0	DISPLAY BAND	AL 125*180*2*0.5t	BA	1	
39	1512-A00-0308-0	TAPPING SCREW (PH)-2	M3*8	BA	2	
40	1502-A00-0406-0	MACHINE SCREW (PH)	M4*6	BA	2	
41	1505-MPM-0310-0	MACHINE SCREW (TH)	M3*10-MJ	BA	2	
42	2001-A00-0042-0	DISPLAY NUT	ABS 42*35	BA	1	
43	2000-A00-0054-0	DISPLAY CASE	123.5*223*18.5	BA	2	
44	1000-A00-0080-0	POST PIPE-B	27.2*270mm	BA	1	
45	1030-A00-0006-0	POST SUPPRT	72*38*11	BA	1	
46	2631-A00-0001-0	FIP CUSHION	30*20*2t	BA	1	
47	1000-A00-0083-0	D/P NUT RING	27.5*33.7*0.8t	BA	1	
48	1512-A00-0410-0	TAPPING SCREW (PH)-2	4*10	BA	1	
49	1550-A00-0408-0	WASHER (FLAT)	4.3*0.8	BA	1	
THE OTHER PART'S						
1	7870-H00-0070-0	LEAD WIRE	0.18*20C*150m/m	BA	1	
2	7870-HGM-0220-0	LEAD WIRE	0.18*20C*110m/m	BA	1	
3	7760-GND-0125-0	EARTH TERMINAL	4 $\phi$ *1.25m/m	BA	1	
4	7650-S00-0010-0	TIE BAND	100mm	BA	5	
5	7720-GND-0030-0	CLOSE CONNECTOR	2 SQ DR DAC21	BA	1	
6	7704-G00-0040-0	TERMINAL CAP	HT-C-2.0*15	BA	7	
7	7830-H00-3065-0	HARNESS WIRE	30P*650mm	BA	1	
ASS'Y C/T BOX						
1	2002-A00-0002-0	SPAN COVER	NYLON #6, $\phi$ 23*10*16.5	BA	1	
2	7620-S00-0160-0	FUSE	S504-160mA/250V	BA	1	
3	B002-A00-0080-0	MANUAL	AP-EC ENGLISH	BA	1	
4	B300-A00-0002-0	FUSE POLY BAG	150*80*0.05t	BA	1	
5	B301-A00-0004-0	DISPLAY POLY BAG	260*180*0.03t	BA	1	
6	B301-A00-0003-0	MANUAL POLY BAG	170*250*0.05t	BA	1	
7	B304-A00-0005-0	SBT POLY BAG	580*450*0.05t	BA	2	
8	B400-A00-0040-0	SILICAGEL	10g	BA	2	
9	B105-AD1-0001-0	C/T BOX	505*385*205	BA	1	
10	B104-AP0-0004-0	PAD	485*375	BA	1	
11	B203-AS0-0004-0	STYRDFOAM BOX-L	380*170*220	BA	1	
12	B203-AS0-0005-0	STYRDFOAM BOX-R	380*170*220	BA	1	
ASS'Y LOAD CELL				BA	1	

# APPENDIX-I

## A. INPUT CODES FOR THE DIGITAL MODULE

### A. 1 INPUT FOR THE SOFT KEY CODES

- A.1.1 Set the scale to a calibration mode.  
 A.1.2 Press the "C" key and "B" key.  
 Weight display will show "E-Set" and will be blanked.  
 A.1.3 Enter each soft key code. (Refer to table 1.)  
 For example, Type a soft key code (16), and then press the ADD key.  
 Type a soft key code (17), and then press the FAD key.

**NOTE :** When you are doing this, you don't need MATRIX KEY CODES.  
 Because MATRIX KEY CODES are fixed in hardware.

\*.Not changeable keys and their soft key codes

KEYS	MATRIX KEY CODES	SOFT KEY CODES
"0" through "9"	0 through 9	0 through 9
"00"	11	11
"ON/OFF"	12	12
"ZBRD"	13	13
"TARE"	14	14

\*.Changeable keys and their soft key codes

KEYS	MATRIX KEY CODES	SOFT KEY CODES
"ADD"		16
"FAD"		17
"TTP CALL"		18
"PAY"		19
"NH"		21
"NR"		20
"CAN"		22
"NDDB"		23
"100g"		25
"kg/lb"		27
"TEST"		28
"*"(NO FUNCTION)		31
PLU KEYS	28 through 55	32 through 58

Table 1

## A. 2 INPUT FOR WEIGHING CONDITION CODES

A.2.1 Put the scale in a calibration mode.

A.2.2 Press the "C" key and "4" key.

Height display will show "C-Set".

Unit price display will show "1".

Price display will show "XX".

A.2.3 In this mode, several PLU keys are converted as below Fig. 1.

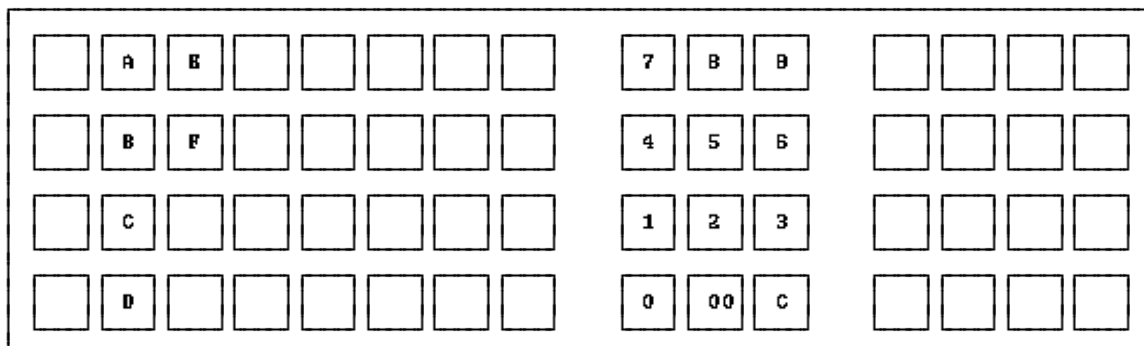


Fig. 1

A.2.4 Enter each weighing condition code.

Depending on the country, weighing condition code is different.

S T E P	C O D E
1	X X
2	X X
3	X X
4	X X
5	X X
6	X X

Table 2

A.2.5 Type a code and press the "C" key for an enter.

## A. 3 THE SPAN CALIBRATION

Refer to SPAN CALIBRATION FROM REPAIR in chapter-11.