REV : 00
MAY 13, 1997

AP SERIES

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	6 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, $/kg, $/lb, $/100g		
MAX. TARE	-6.000 kg	-9.995kg	-9.990kg
POWER SOURCES	110VAC,120VAC,220VAC,240VAC / 50HZ,60HZ		
POWER CONSUMPTION	APPROX. 10W		
PLATTER SIZE (mm)	340(W) X 215(D)		
PRODUCT 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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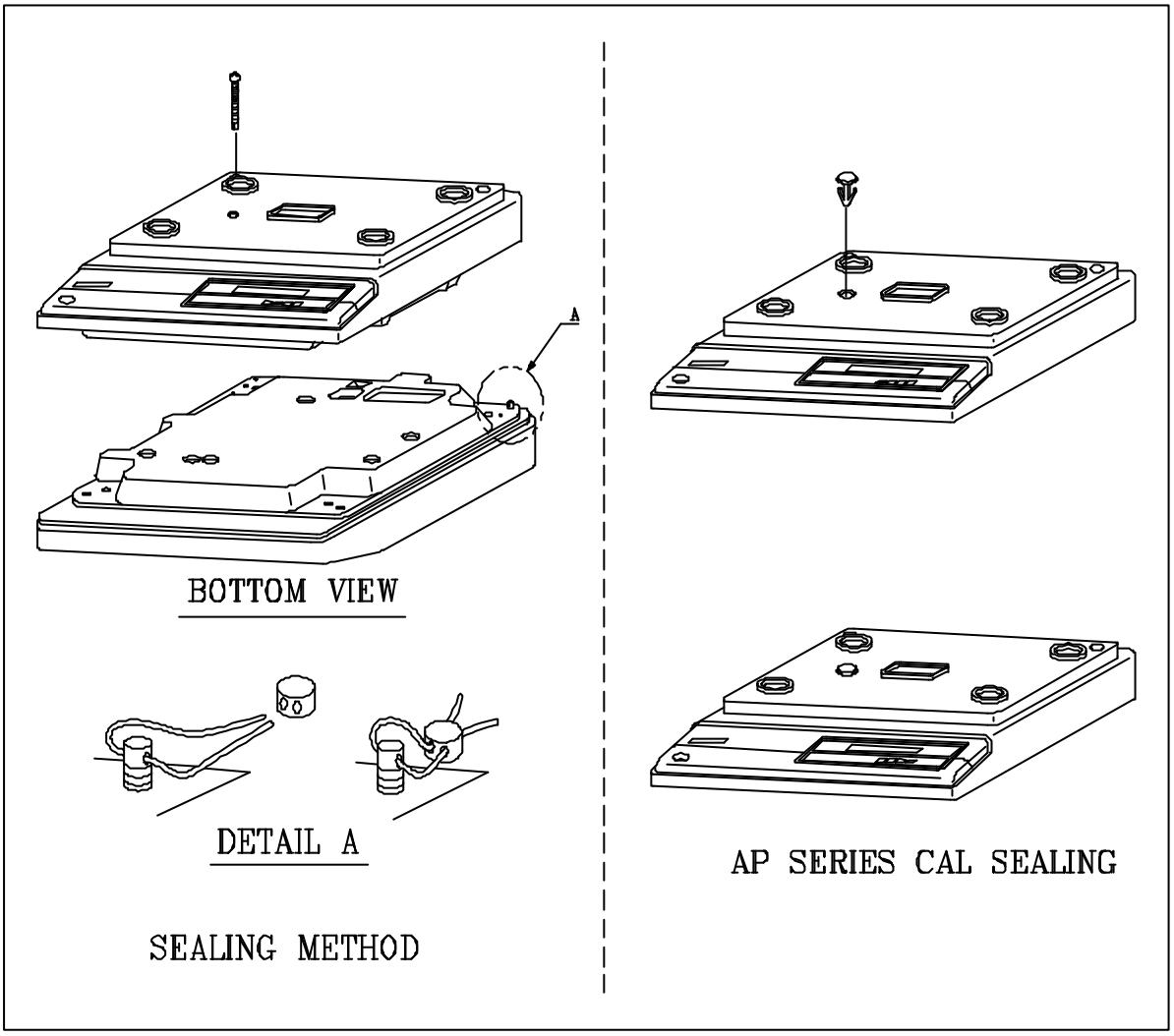


CHAPTER-II
THE CALIBRATIONS

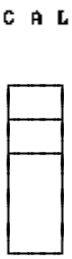
A. THE GENERAL SPAN CALIBRATION

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.

normal mode



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 "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 "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.

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 29,999, press the "8" 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.

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 +- 1 of 30,000 than it is okay.
   If a count is less than 29,999, press the "9" 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).

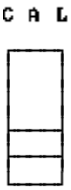
C. THE SPAN CALIBRATION WITH A PARTIAL LOAD

For the convenience, a partial span calibration is available.

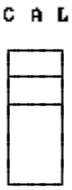
C. 1 SET TO THE CALIBRATION MODE

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.



normal mode



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 "**Par**".
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 "**ULOAd**" 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 +- 1 of 30,000 then it is okay.
   If a count is less than 29,999, press the "**8**" key for an increase, and more than 30,001 press the "**7**" key for a decrease.
   A count can be changed by pressing "**8**" or "**7**" key once.
5. Empty the platter.

C. 4 RETURN TO THE NORMAL MODE

1. Press the "C" key 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).

CHAPTER-III
THE PART REPLACEMENTS

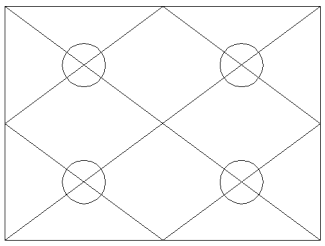
A. REPLACEMENT OF THE LOAD CELL

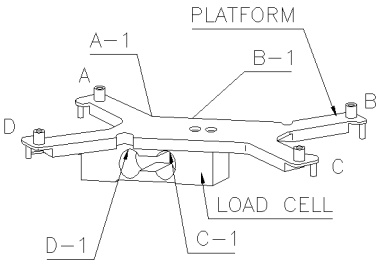
A. 1 REPLACEMENT OF THE LOAD CELL

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 Rezero 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 +- 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 II.

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 **CN6** and **CN7** on the P.C.B.
NOTE : After replacement of the keyboard, you must do the calibration again.

D. 2 TEST THE KEYBOARD

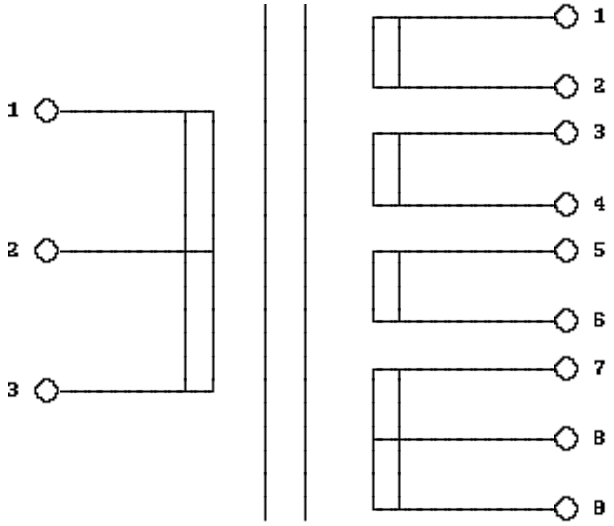
D.2.1 Set a calibration mode.
D.2.2 Press the "C" key and "2" key.
D.2.3 Check each key.
D.2.4 The number of the total price display is a matrix key code of each key.

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



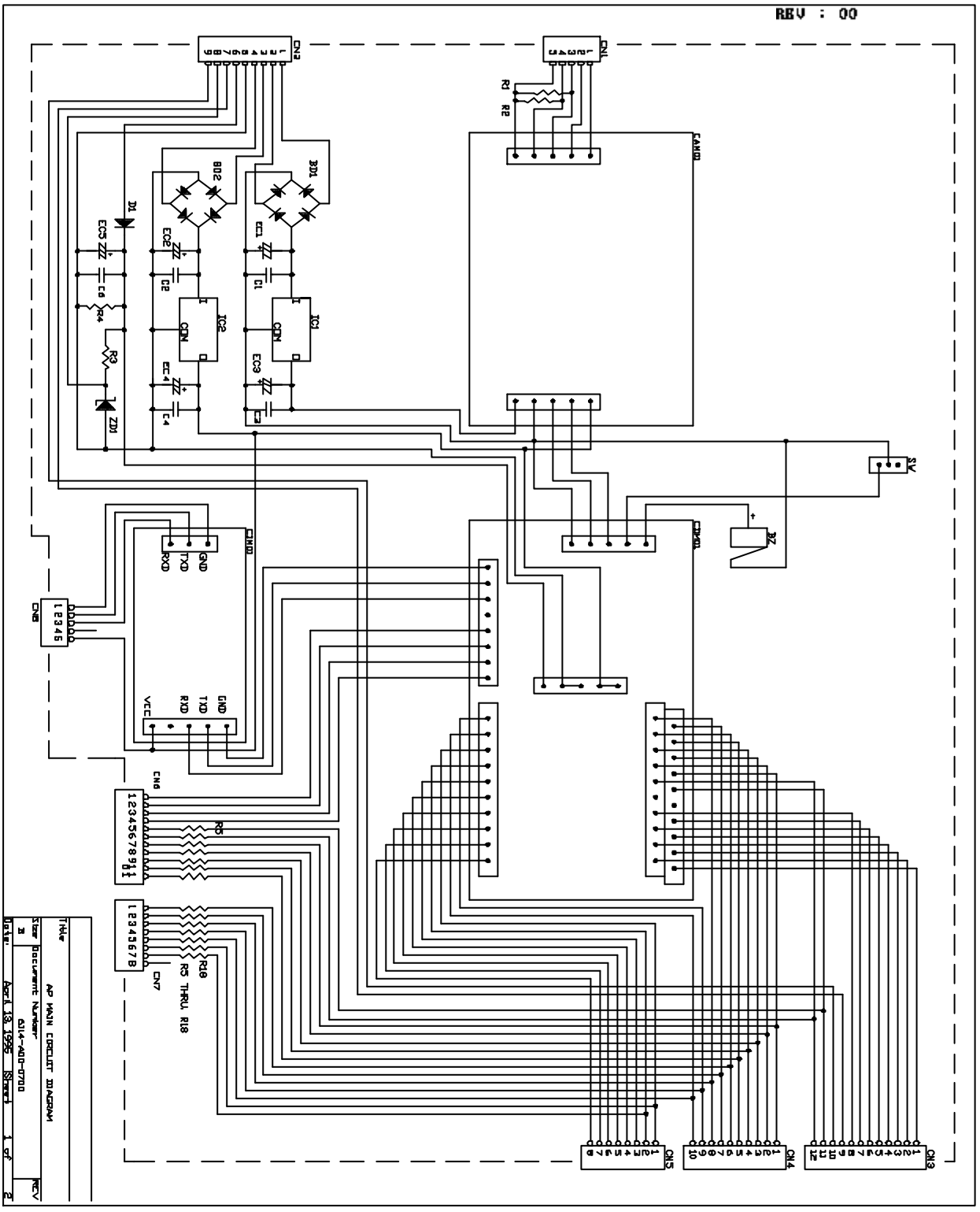
QUALITY OF LEAD WIRE AND LENGTH						
	NO.	COLOR	WIRE LENGTH	TREATMENT (mm)	mA	V
INPUT	1	WHITE	200 mm	± 10		0
	2	BROWN	"	"		110
	3	RED	"	"		220
OUTPUT	1	GRAY	250 mm	"	100	16.5
	2	PURPLE	"	"		
	3	BLUE	"	"	100	8.8
	4	GREEN	"	"		
	5	YELLOW	"	"	50	28
	6	ORANGE	"	"		
	7	RED	"	"	700	1.65
	8	BROWN	"	"	0	0
	9	BLACK	"	"	700	1.65

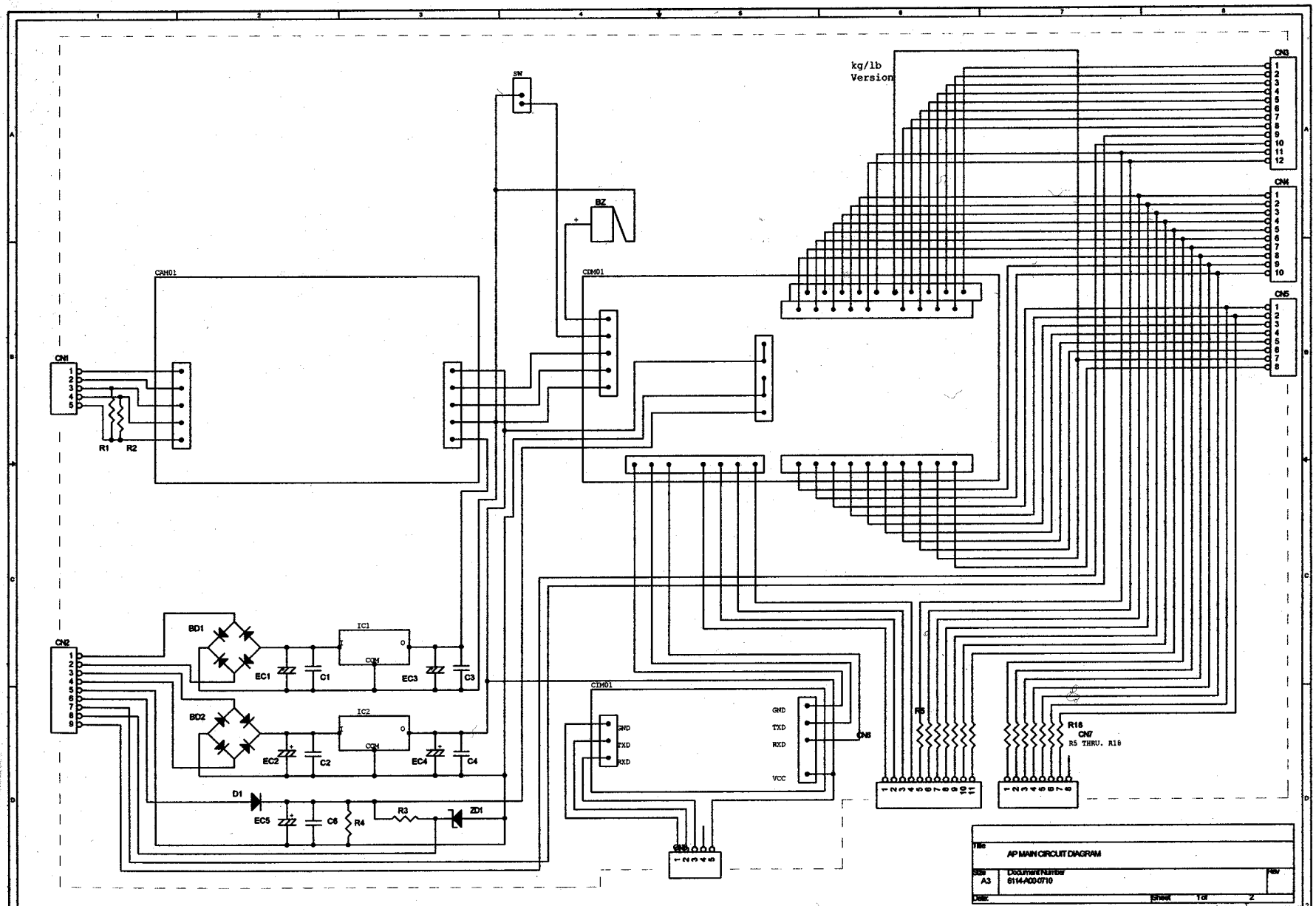
※ CORE : 48×25 mm
※ 50Hz ⁄ 60Hz

CHAPTER-V
THE SCHEMATICS AND THE DIAGRAMS

A. THE SCHEMATICS

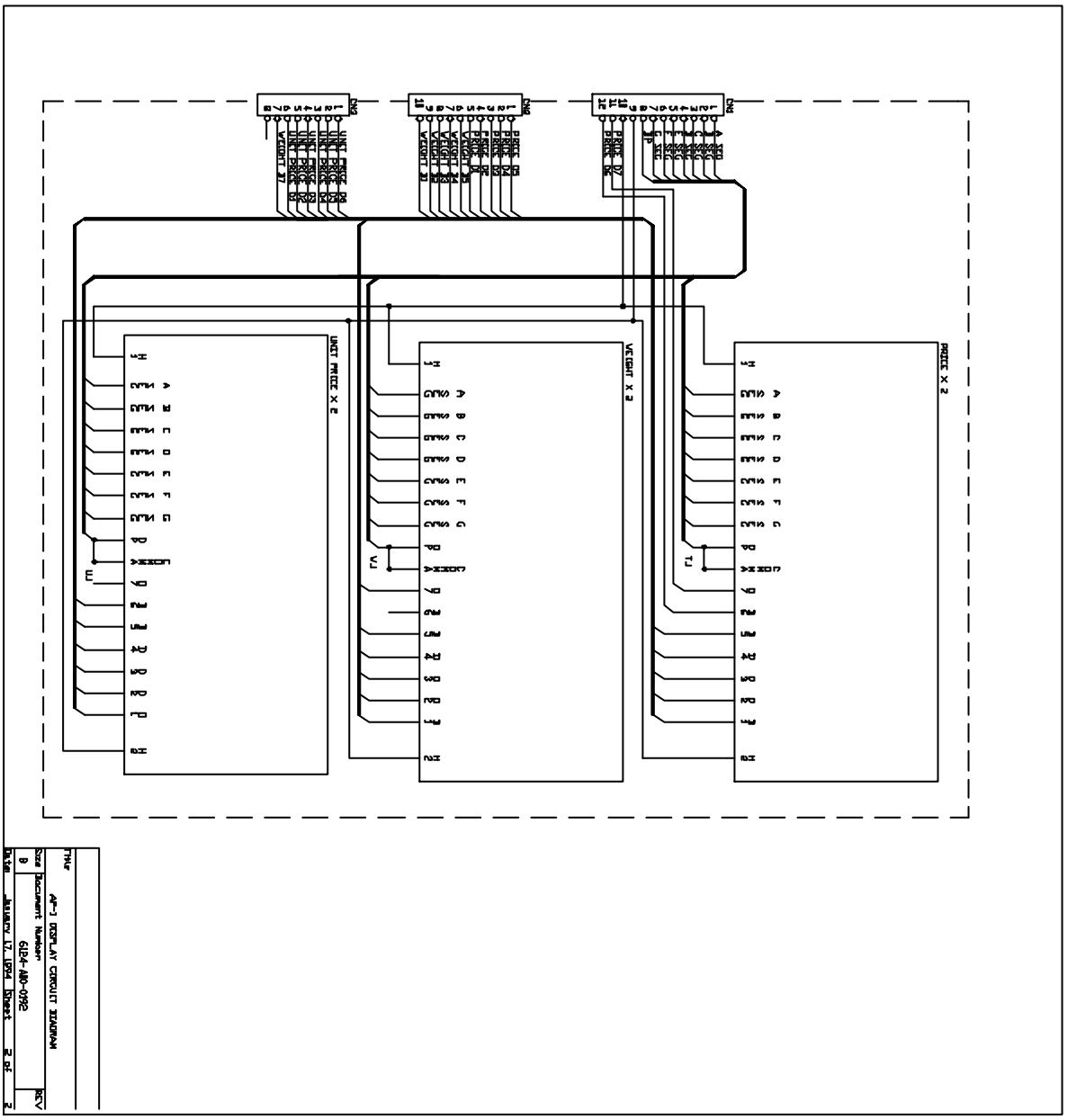
A. 1 MAIN CIRCUIT DIAGRAM




kg/lb
Version
SW
BZ
CAM01
CDM01
CN1
CN2
CN3
CN4
CN5
CN6
CN7
R1
R2
R3
R4
R5
R18
R5 THRU. R18
BD1
BD2
IC1
IC2
EC1
EC2
EC3
EC4
EC5
C1
C2
C3
C4
C6
D1
ZD1
GND
TXD
RXD
VCC
AP MAIN CIRCUIT DIAGRAM
Document Number
6114-A00-0710
A3
Sheet 1 of 2

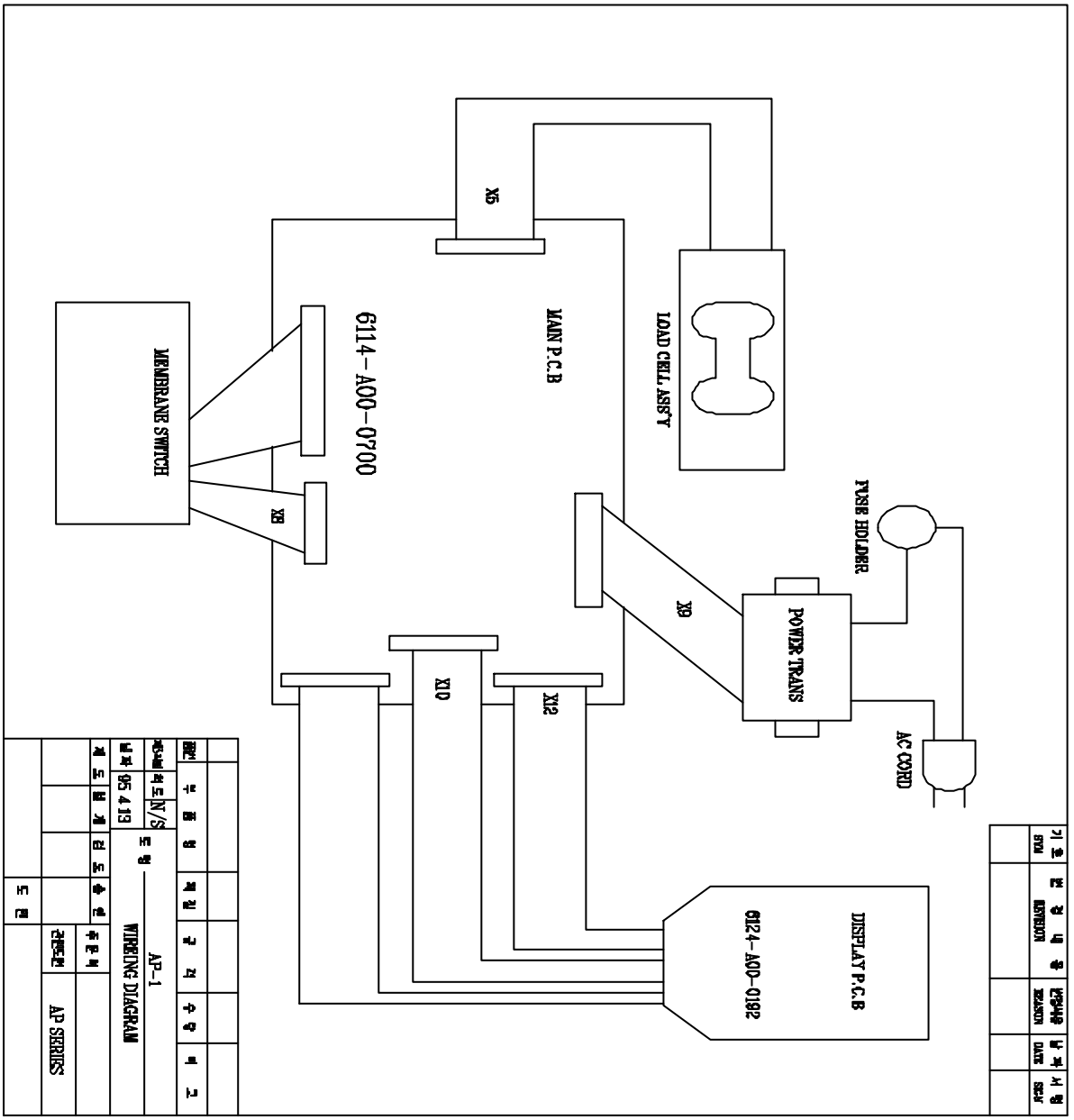
A.2 DISPLAY CIRCUIT DIAGRAM

REV : 00



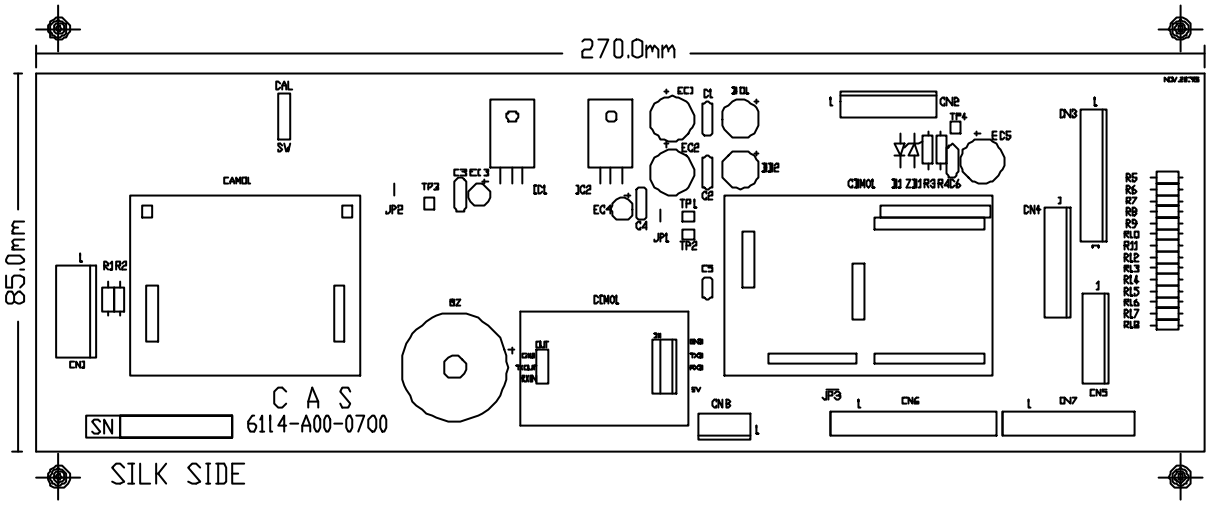
B. WIRING DIAGRAM

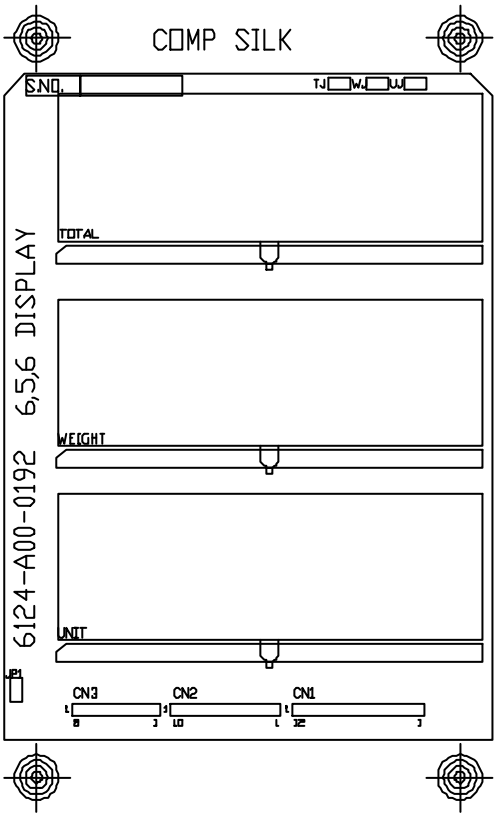
REV : 00



C. PARTS LOCATION

REV : 00





CHAPTER-VI
THE ERROR MESSAGES

A. THE ERROR MESSAGES

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

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 CAM 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 CAM 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 CDM 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.

CHAPTER-VII
THE OTHERS

A. FOR THE SERIAL INTERFACES

THE PROTOCOLS FOR THE CAS STANDARD SERIAL INTERFACE

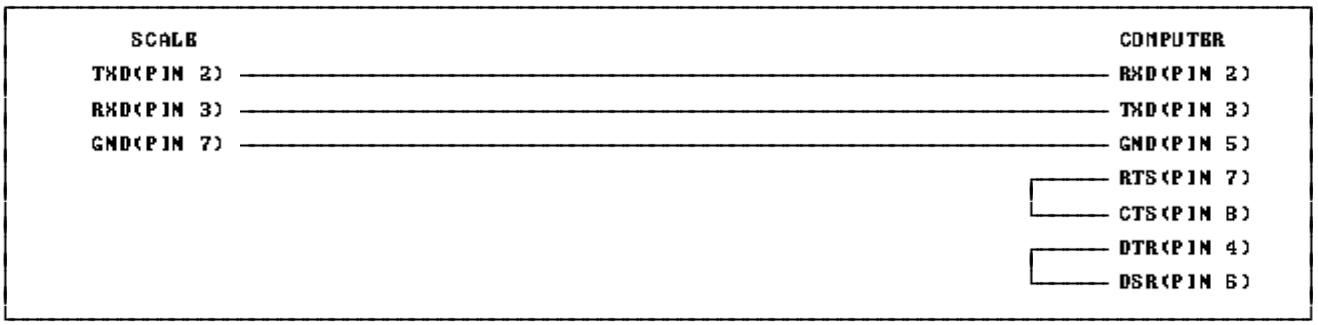
THIS IS HALF-DUPLEX COMMUNICATION RS-232C.

A.1 THE COMMUNICATION AGREEMENTS

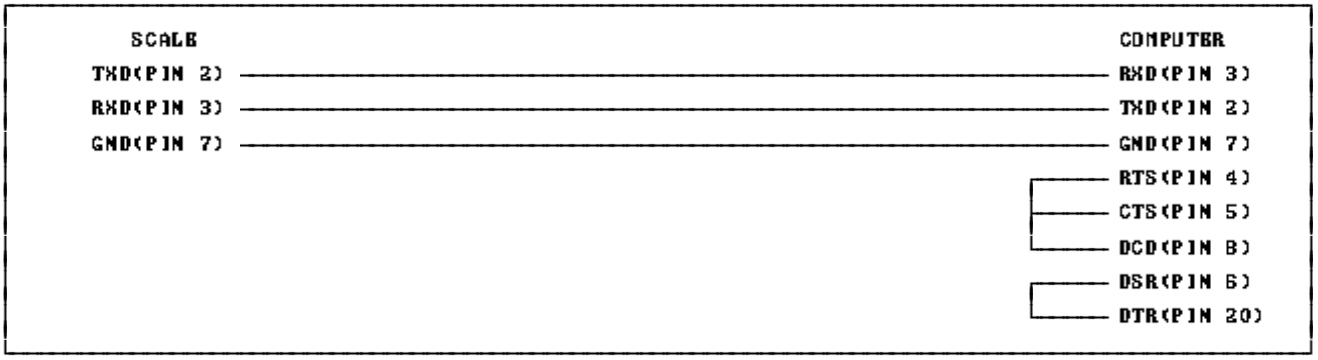
1. BAUD RATE -> 9,600 BPS
2. DATA BIT -> 8 BIT
3. STOP BIT -> 1 BIT
4. PARIRITY BIT -> NO
5. COMMUNICATION LEVEL -> RS-232C LEVEL
6. DATA FORMAT -> ASCII
7. THE COMMAND DEFINITIONS
   - 6-1. "ENQ" -> 05H
   - 6-2. "ACK" -> 06H
   - 6-3. "NAK" -> 15H
   - 6-4. "SOH" -> 01H
   - 6-5. "STX" -> 02H
   - 6-6. "ETX" -> 03H
   - 6-7. "EOT" -> 04H
   - 6-8. "DC1" -> 11H
   - 6-9 "DC2" -> 12H
   - 6-10. "DC3" -> 13H
   - 6-11. "DC4" -> 14H

A.2 THE WIRE CONNECTIONS

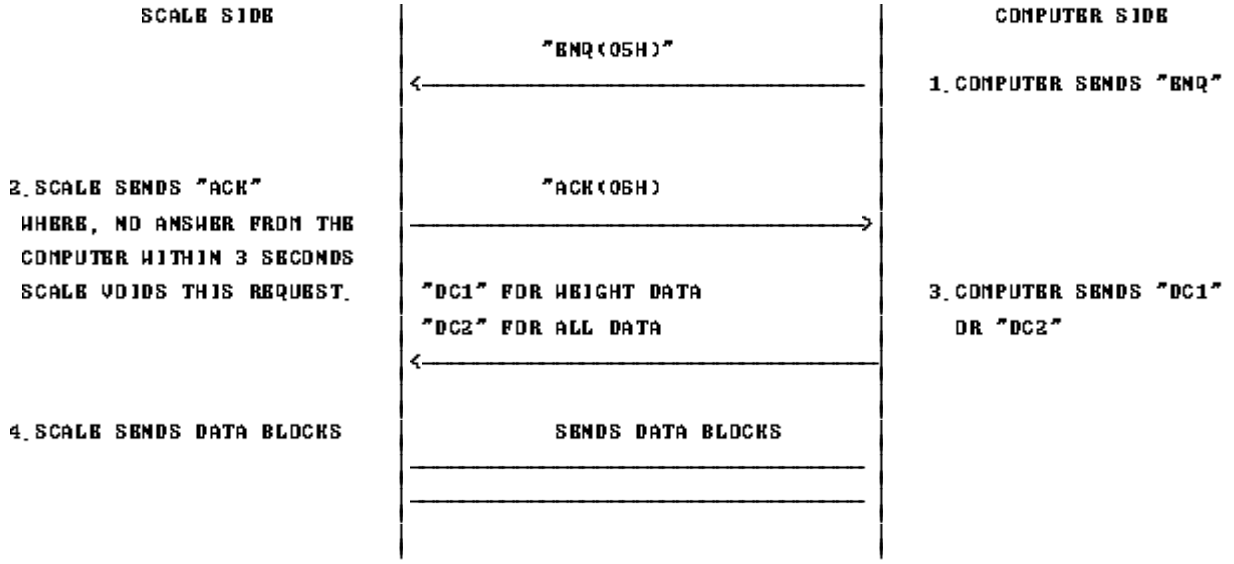
A.2.1 THE WIRE CONNECTIONS OF THE D-SUB 9 PIN CONNECTOR OF A COMPUTER SIDE



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"

SOH	STX	STA	SIGN	W 5	W 4	W 3	W 2	W 1	W 0	UN1	UN0	BCC	ETX	EOT
	COMMANDS		DATA BLOCK										COMMANDS	

REMARKS ;

- STA -> A WEIGHING STATUS OF THE SCALE
  SCALE IS STABLE -> "S" , NOT STABLED -> "U"
- SIGN ->SIGN OF THE WEIGHT DATA
  ZERO AND POSITIVE WEIGHT -> " " , NEGATIVE WEIGHT -> "-" ,
  OVER LOAD -> "F"
- W5 THROUGH W0 -> WEIGHT DATA
  BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.
- UN1 THROUGH UN0 -> UNIT OF WEIGHT(kg OR lb)
- BCC -> BLOCK CHECK CHARACTER
  BCC IS CREATED BY EXCLUSIVE ORED OF A DATA BLOCK.

2. THE DATA TRAINS FOR THE "DC2"

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

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

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

REMARKS ;

.STA -> A WEIGHING STATUS OF THE SCALE
SCALE IS STABLE -> "S" , NOT STABLED -> "U"

.SIGN ->SIGNS OF THE WEIGHT DATA
ZERO AND POSITIVE WEIGHT -> " " , NEGATIVE WEIGHT -> "-" ,
OVER LOAD -> "F"

.P7 THROUGH P0 -> PRICE DATA
IF THE OVER FLOW IS HAPPEN IN PRICE, ALL "F"s WILL FILL TO DATA BLOCK OF THE PRICE.

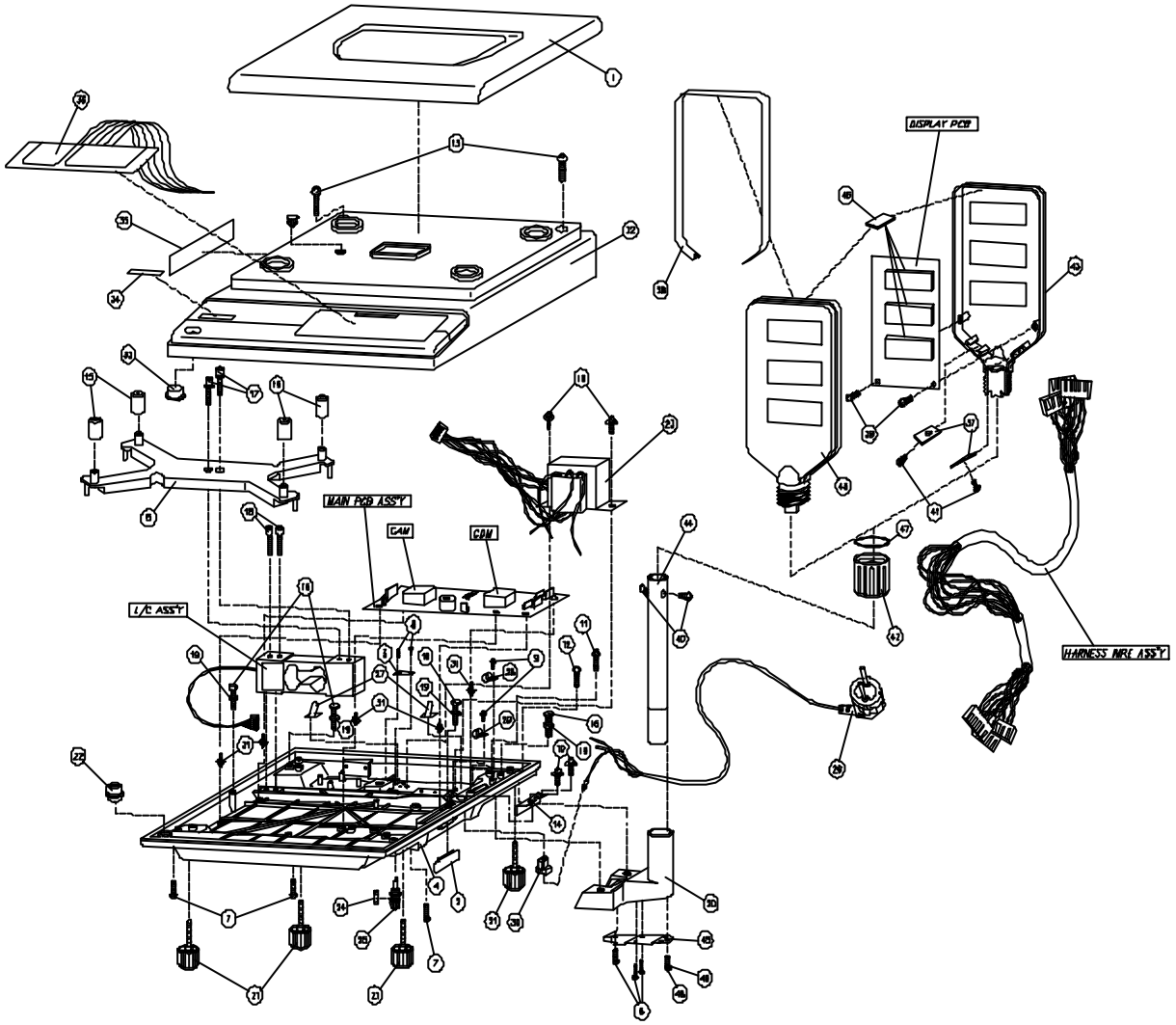
.W5 THROUGH W0 -> WEIGHT DATA
BUT ALL "F"s WHEN THE SCALE IS PUT ON OVER LOAD.

.UN1 THROUGH UN0 -> UNIT OF WEIGHT(kg OR lb)

.BCC -> BLOCK CHECK CHARACTER
BCC IS CREATED BY EXCLUSIVE ORED 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-A00-030B-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	6220-100-7B05-0	IC(REGULATOR)	LM7B05	EA	1	IC 2
5	6220-100-7B12-0	IC(REGULATOR)	LM7B12CT	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	6282-1ZE-4736-0	ZENER-DIODE	6.8V/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	220μF/50V	EA	1	EC 5
12	6704-C25-0470-0	ELECTRIC CONDENSER	470μF/25V	EA	1	EC 1
13	6704-C1E-1000-0	ELECTRIC CONDENSER	1000μF/16V(SG)	EA	1	EC 2
14	6704-C1E-0100-0	ELECTRIC CONDENSER	100μF/16V	EA	2	EC 3,4
15	6710-CAP-0104-0	CERAMIC CONDENSER	0.1μF/25V(50V)	EA	5	C 1,2,3,4,6
16	7002-Z00-0020-0	PIEZO BUZZER	BS-20AF	EA	1	BZ
17	7B44-W00-0050-0	JUMP WIRE	0.6*5m/m(AP)	EA	3	JP 1,2,3
18	7600-SLD-0002-0	SLIDE S/W	1NCA-2	EA	1	SW
19	7B01-CLW-0005-0	CONNECTOR(WAFER)	LW 0640-05	EA	1	CN 8
20	7B01-CLW-000B-0	CONNECTOR (WAFER)	LW 0640-0B	EA	1	CN 5
21	7B01-CLW-000B-0	CONNECTOR (WAFER)	LW 0640-0B	EA	1	CN 2
22	7B01-CLW-0010-0	CONNECTOR (WAFER)	LW 0640-10	EA	1	CN 4
23	7B01-CLW-0012-0	CONNECTOR (WAFER)	LW 0640-12	EA	1	CN 3
24	7B04-CCN-7305-0	CONNECTOR	5273-05	EA	1	CN 1
25	7B07-CFP-000B-0	FPC CONNECTOR	FCZ254-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-01B2-0	DISPLAY PCB	6124-A00-01B2	EA	1	
	6110-PAP-016B-0	DISPLAY PCB	6124-A00-016B (kg/lb Ver.)	EA	1	
29	7B03-CLA-000B-0	CONNECTOR (WAFER)	LA 0640-0B	EA	1	
30	7B03-CLA-0010-0	CONNECTOR (WAFER)	LA 0640-10	EA	1	
31	7B03-CLA-0012-0	CONNECTOR (WAFER)	LA 0640-12	EA	1	
32	7202-D00-007B-0	VFD & FIP	CV7DB	EA	6	
	7202-D00-052B-0	VFD & FIP	F-52B	EA	6	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
	ASS'Y ANALOG MODULE					
1	1050-A00-000B-0	SHIELD CASE (CAN)	60.2*37*1B*1t	EA	1	
2	1510-A00-0236-0	TAPPING SCREW-1	2.3*6	EA	1	
3	1B10-A00-0013-0	ANALOG PLATE	43*14.5(CAN)	EA	1	
4	6121-PMD-0100-0	ANALOG PCB	6144-A01-0100	EA	1	
5	6236-ISO-4011-0	IC(D-MOS-GATE)	UPD4011BG	EA	1	
6	6236-ISO-4066-0	IC(ANALOG 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 TRANSISTOR	KTA1504 SY	EA	3	
10	6284-ICP-0181-0	SWITCHING DIODE	KDS 181 (SMD)	EA	1	
11	6527-ROD-0101-0	CHIP RESISTOR 1/10W	RR1220P-101D(100Ω)	EA	2	
12	6527-ROD-0222-0	CHIP RESISTOR 1/10W	RR1220P-222D(2.2K)	EA	1	
13	6527-ROD-0103-0	CHIP RESISTOR 1/10W	RR1220P-103(10K)	EA	6	
14	6527-ROD-4982-0	CHIP RESISTOR 1/10W	RR1220P-4982D(49.8K)	EA	2	
15	6527-ROD-0104-0	CHIP RESISTOR 1/10W	RR1220P-104D(100K)	EA	4	
16	6540-RPR-11K5-0	PRECISION RESISTOR	FLAY 11K500B	EA	2	
17	6550-RNO-0400-0	NETWORK RESISTOR	2B-35-NB16(1K/10K)	EA	1	
18	6702-CAP-0106-0	CHIP TANTAL	10MCS 106 MB TER	EA	1	
19	6702-CAP-0685-0	CHIP TANTAL	16MCS 685 MB TER	EA	2	
20	6800-F00-0220-0	EMI FILTER	220PF(TDK)	EA	2	
21	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 MBNC	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	DTW-104J/100V J	EA	1	
25	7B10-C00-B2B4-0	CONNECTOR	B2B400-40(MALE)	EA	0.275	
	ASS'Y DIGITAL MODULE					
1	1050-A00-000B-0	SHIELD CASE (CDM)	60.2*37*1B*1t	EA	1	
2	1510-A00-0236-0	TAPPING SCREW -1	2.3*6	EA	1	
3	1B10-A00-0015-0	DIGITAL PLATE	43*14.5	EA	1	
4	6101-PMD-0010-0	DIGITAL PCB	6101-PMD-0010-0	EA	1	AP-1
5	6200-IPU-0154-0	IC	MSMB3C154H-D24GS-V1K	EA	1	
6	6205-ISO-2416-0	IC (EEP-ROM)	X24164S-C7000	EA	1	
7	6210-ISO-6052-0	IC (RESET)	H6052 V1 (SOT223)	EA	1	
8	6224-ISO-1631-0	IC (FIP-DRIVER)	UPD16310GF-3LB	EA	1	
9	6527-ROD-0101-0	CHIP RESISTOR 1/10W	RR1220P-101D (100Ω)	EA	4	
10	6527-ROD-0222-0	CHIP RESISTOR 1/10W	RR1220P-222D(2.2K)	EA	6	
11	6702-CAP-0106-0	CHIP TANTAL	10MCS 106 MB	EA	1	
12	6712-CAP-01B0-0	CHIP CAPACITOR	1BPF/50V (CL21C1B0J)	EA	2	
13	6281-100-1504-0	CHIP TRANSISTOR	KTA1504 SY	EA	1	
14	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 MBNC	EA	4	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
15	7010-ZN0-1105-A	CRYSTAL	11.0592 MHZ(ATS-48/U)	EA	1	
16	7810-C00-B2B4-0	CONNECTOR	B2B400-40 (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 (WPH)	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	Ø11*Ø18*23	EA	4	
16	1520-A00-0520-0	HEXAGON BOLT	M5*20	EA	4	
17	1530-MSU-0615-0	WRENCH BOLT(WA)	M6*20 -SUS	EA	2	
18	1530-MSU-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	SB*1.25*30	EA	4	
22	2002-A00-0001-0	W/L GAUGE ASS'Y	18*Ø21*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(Ø13)	EA	1	
26	7560-PAC-0003-0	AC CORD (A)	7A750V 2P 2.5M	EA	1	
27	7642-S00-0060-0	METAL CLAMP	BN	EA	2	
28	7642-S00-0007-0	CABLE CLAMP	DA-06N	EA	1	
29	7642-S00-0004-0	CABLE CLAMP	DA-4N	EA	1	
30	7640-S00-0604-0	CORD STOPPER	SR-6N-4	EA	1	
31	7702-G00-0006-0	PCB SUPPORT	6N-(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(EC)	EA	1	

NO	MAT'L NEW CODE	PART NAME	SPECIFICATION	UNIT	Q'TY	LOCATION
	ASS'Y DISPLAY CASE					
37	1030-A00-0073-0	BAND CLAMP NUT	20*10*1.2t	EA	2	
38	1050-A00-0001-0	DISPLAY BAND	AL 125*188*2*0.5t	EA	1	
39	1512-A00-0308-0	TAPPING SCREW (PH)-2	M3*8	EA	2	
40	1502-A00-0406-0	MACHINE SCREW (PH)	M4*6	EA	2	
41	1505-MPN-0310-0	MACHINE SCREW (TH)	M3*10-NI	EA	2	
42	2001-A00-0042-0	DISPLAY NUT	ABS 42*35	EA	1	
43	2000-A00-0054-0	DISPLAY CASE	123.5*223*18.5	EA	2	
44	1000-A00-0080-0	POST PIPE-B	27.2*270mm	EA	1	
45	1030-A00-0006-0	POST SUPPORT	72*38*11	EA	1	
46	2631-A00-0001-0	FIP CUSHION	30*20*2t	EA	1	
47	1000-A00-0083-0	D/P NUT RING	27.5*33.7*0.8t	EA	1	
48	1512-A00-0410-0	TAPPING SCREW (PH)-2	4*10	EA	1	
49	1550-A00-0408-0	WASHER (FLAT)	4.3*0.8	EA	1	
	THE OTHER PART'S					
1	7870-W00-0070-0	LEAD WIRE	0.18*20C*150m/m	EA	1	
2	7870-WGN-0220-0	LEAD WIRE	0.18*20C*110m/m	EA	1	
3	7760-GND-0125-0	EARTH TERMINAL	4Ø*1.25m/m	EA	1	
4	7650-S00-0010-0	TIE BAND	100mm	EA	5	
5	7720-GND-0030-0	CLOSE CONNECTOR	2 SQ OR DAC21	EA	1	
6	7704-G00-0040-0	TERMINAL CAP	HT-C-2.0*15	EA	7	
7	7830-W00-3065-0	HARNESS WIRE	30P*650mm	EA	1	
	ASS'Y C/T BOX					
1	2002-A00-0002-0	SPAN COVER	NYLON #6, Ø23*10*15.5	EA	1	
2	7620-S00-0160-0	FUSE	S504-160mA/250V	EA	1	
3	B002-A00-00B0-0	MANUAL	AP-EC ENGLISH	EA	1	
4	B300-A00-0002-0	FUSE POLY BAG	150*80*0.05t	EA	1	
5	B301-A00-0004-0	DISPLAY POLY BAG	260*180*0.03t	EA	1	
6	B301-A00-0003-0	MANUAL POLY BAG	170*250*0.05t	EA	1	
7	B304-A00-0005-0	SET POLY BAG	580*450*0.05t	EA	2	
8	B400-A00-0040-0	SILICAGEL	10g	EA	2	
9	B105-AD1-0001-0	C/T BOX	505*385*205	EA	1	
10	B104-AP0-0004-0	PAD	485*375	EA	1	
11	B203-AS0-0004-0	STYROFOAM BOX-L	380*170*220	EA	1	
12	B203-AS0-0005-0	STYROFOAM BOX-R	380*170*220	EA	1	
	ASS'Y LOAD CELL			EA	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 "6" 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 "8"	0 through 8	0 through 8
"00"	11	11
"ON/OFF"	12	12
"ZERO"	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
"MW"		21
"MR"		20
"CAN"		22
"MODE"		23
"100g"		25
"kg/lb"		27
"TEST"		28
"※"(NO FUNCTION)		31
PLU KEYS	28 through 55	32 through 59

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.
Weight 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.

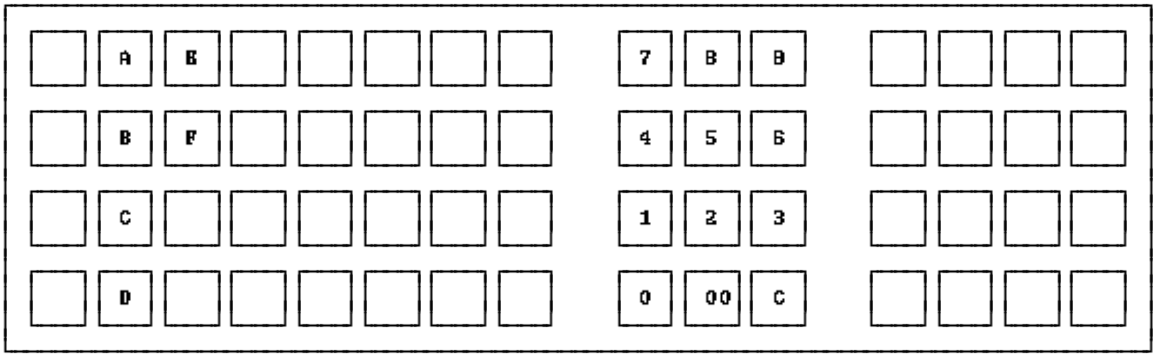


Fig. 1

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.