

ED SERVICE MANUAL

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1. Introduction

1.1. 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.

WE hope that your departments enjoy with high quality of CAS product.

This manual will help you with proper operations and care of the ED series.

Please keep it handy for the future references.

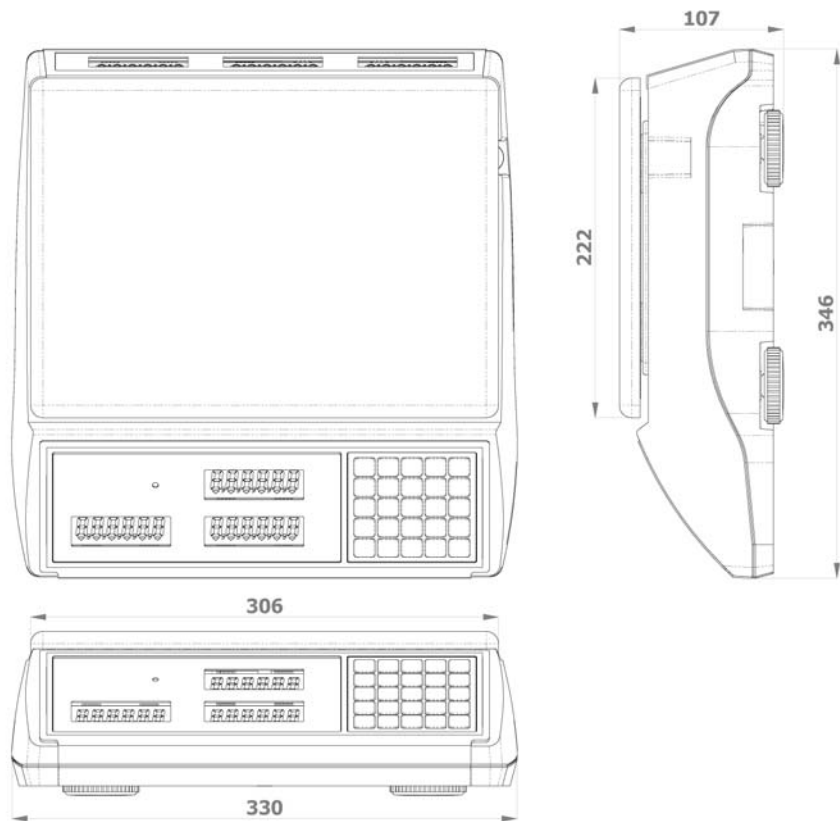
1.2. Precaution

- Make sure that you plug your scale into the proper power outlet.
- Place the scale on a flat and stable surface.
- Plug into a power outlet 30 minutes before operations.
- Keep the scale away from strong EMI noises may cause incorrect weight readings.
- This scale must be installed in a dry and liquid free environment.
- Do not subject the scale to sudden temperature changes.
- Do not subject the platter to sudden shocks.
- If the scale is not properly level, please adjust the 4 legs at the bottom of the scale (turn legs clockwise or counterclockwise) so as to center the bubble of the leveling gauge inside the indicated circle.

1.3. Specification

MODEL	ED 3	ED 6	ED 15	ED 30
CAPACITY	1.5kg/0.0005kg 3kg/0.001kg	3kg/0.001kg 6kg/0.002kg	6kg/0.002kg 15kg/0.005kg	15kg/0.005kg 30kg/0.01kg
	3lb/0.001lb 6lb/0.002lb	6lb/0.002lb 15lb/0.005lb	15lb/0.005lb 30lb/0.01lb	30lb/0.01lb 60lb/0.02lb
	50oz/0.02oz 100oz/0.05oz	100oz/0.05oz 200oz/0.1oz	250oz/0.1oz 500oz/0.2oz	500oz/0.2oz 1000oz/0.5oz
TARE SUBTRACTION	1.4995kg	2.999kg	5.998kg	14.995kg
	2.999lb	5.998lb	14.995lb	29.99lb
	49.98 oz	99.95 oz	249.9 oz	499.8 oz
INTERNAL RESOLUTION	1/60,000	1/60,000	1/60,000	1/60,000
EXTERNAL RESOLUTION	DUAL 1/3,000			
DISPLAY	LCD 6 digits			
DISPLAY LAMP	STABLE, ZERO, HOLD, NET, HI/OK/LO, lb, oz %, PCS, SUM, kg, Low Battery			
INTERFACE	RS-232C(Printer)			
POWER SOURCE	DC 12V 1.25A Adaptor 6V 3.6AH Pb Battery			
TEMPERATURE RANGE	-10°C ~ +40°C			
PLATTER SIZE (W D)mm	306 (W) X 222 (D)			
PRODUCT SIZE (W D H)mm	330 (W) X 346 (D) X 107 (H)			
MINIMUM VOLTAGE LEVEL OF THE BATTERY	About 5.6V			

Display	Three LCDs with 6 digits, POWER LED
Power	12 V Adaptor or PB BATTERY (6V3.6AH/20HR)
Option	Backlight Auto Power Off



1.4. Sealing Method

REVISIONS		2		3					
MODEL NO.	PART NO.	REV	SYM	CONTENTS	DRAWN	CHECKED	APPROVED		
A							A		
B							B		
C							C		
D							D		
NO		PARTS NAME		SPECIFICATION		Q'TY		REMARK	
TOLERANCES .UNLESS OTHERWISE SPECIFIED		NAME OR TITLE				 CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO, KOREA			
ANGULAR ± N/A		SEALING METHOD							
DECIMAL ± N/A		FIRST USED IN ASSEMBLY		SHOPPING SCALE		MATERIAL		N/A	
		Q'TY/SET		FIRST MADE FOR		END FINISH			
		1/1		ED		SEE NOTES			
		CONTRACT OR CUSTOMER NO		WORLD WIDE		DO NOT SCALE DRAWING		DIMENSIONS ARE IN $\frac{MM}{INCH}$	
DRAWN		CHECKED		CHECKED		APPROVED		SCALE	
								DRAWING.PART NO.	
								REV	
						N/A		0	
.20		.20		.20		.20			
1		2		4		CAS FORM A4 (210mmx297mm)			

REVISIONS		2	3				
MODEL NO.	PART NO.	REV	SYM	CONTENTS	DRAWN	CHECKED	APPROVED
A							A
B							B
C							C
D							D
E							E
NO		PARTS NAME		SPECIFICATION		Q'TY	REMARK
TOLERANCES .UNLESS OTHERWISE SPECIFIED		NAME OR TITLE				 CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO, KOREA	
ANGULAR ± N/A		<i>SEALING METHOD</i>					
DECIMAL ± N/A		FIRST USED IN ASSEMBLY		TICKET PRINTING SCALE		MATERIAL N/A	
		Q'TY/SET		FIRST MADE FOR		END FINISH	
		1/1		<i>ED</i>		<i>SEE NOTES</i>	
		CONTRACT OR CUSTOMER NO		<i>WORLD WIDE</i>		DO NOT SCALE DRAWING DIMENSIONS ARE IN MM. INCH	
DRAWN		CHECKED		CHECKED		APPROVED	
						N/A	
						0	
1		2		3			

CAS FORM A4 (210mmx297mm)

2. Calibration

2.1. General Calibration

Pressing and holding calibration switch press [POWER] key to go to calibration mode.

User can move to other mode by using [ZERO] key in the calibration mode.

User also moves to other sub-modes for each mode by using [TARE] key.

Please simply follow below procedure to move to other mode.

(1) Calibration Mode: Pressing and holding "Calibration Switch" press [POWER] key.

(2) It displays "CAL-0" after "CAL", and it blinks the version of scale three times.

(3) Selecting menu: press [TARE].

(4) ENTER(Setting) : [TARE] key

MODE	Function
CAL 1	Display normalized AD
CAL 2	Display Keypad information-
CAL 3	Weight Setting Mode "UnLoad" [TARE] "MIDD" [TARE] after loading for 1/3 weight "FULL" [TARE] after loading for Full weight "MIDD" [TARE] after loading for 1/3 weight "END"
CAL 4	Option Setting (Table 1 참조)
CAL 5	Display filtered Raw AD
CAL 6	Function setting on each Key (Table 2 참조)
CAL 7	% Calibration
CAL 8	Battery calibration
CAL 9	Gravity constant
CAL 10	Set calibration factor "Unit" → [TARE] → select 0, 1 (0:kg, 1: lb) → [TARE] "CAPA" → [TARE] → select capacity → [TARE] "MCAPA" → [TARE] → select mid-capacity → [TARE] "W-dP" → [TARE] → Select Decimal Point → [TARE] " 1 d " → [TARE] → Select division → [TARE] "Dual" → [TARE] → Enable dual interval (0:disable, 1:enable) → TARE
CAL 11	Set nation(00 : OIML , 01 : NTEP , 02: KOREA)

< Modes >

2.1.1.C4 Setting

2.1.1.1. C4-1 Setting

BIT 6~7	Initial Zero range	3	5%
		2	10%
		1	3%
		0	2%
BIT5	Tare Type	0	Proper tare
		1	Full Tare
BIT4			
BIT 2~3	Successive tare	3	(+), (-) Direction successive Tare
		2	(-) Direction successive Tare
		1	(+) Direction successive Tare
		0	One Time tare
BIT1			
BIT0			

2.1.1.2. C4-2 Setting

BIT7			
BIT6	Use PLU Tare	1	Use
BIT5	Use PLU Name	0	Don't use
		1	Use
BIT4	Use Daily Total	0	Don't use
		1	Use
BIT3	Clear Price	0	Don't clear
		1	Clear
BIT2	Clear Tare	0	Don't clear
		1	Clear
BIT1	Use Euro	0	Don't use
		1	Use
BIT0	Power On Euro	0	No
		1	Yes

2.1.1.3. C4-3 Setting

BIT7	Dot Type	0	"," dot
		1	"," comma
BIT6	Use Preset tare	0	Don't use

		1	Use
BIT5	Use Back light	0	Don't use
		1	Use
BIT4	Use Head message	0	Don't use
		1	Use
BIT3	Use gram	0	Don't clear
		1	Clear
BIT2	Use oz	0	Don't clear
		1	Clear
BIT1	Use lb	0	Don't use
		1	Use
BIT0	Use Kg	0	No
		1	Yes

2.1.1.4. C4-4 Setting

BIT7	X		
BIT6	X		
BIT 4~5	Price round off	3	00, 25, 50, 75
		2	00, 10, 20
		1	0, 5
		0	normal
BIT3	X		
BIT2	X		
BIT 0~1	Unit / Price	3	1000/1
		2	100/1
		1	10/1
		0	1/1

2.1.1.5. C4-5 Setting

BIT7	Use Standby time	0	Don't use
		1	Use
BIT6	Price decimal point	7	Special case
		6	0.000000
		5	0.00000
		4	0.0000
		3	0.000
		2	0.00

		1	O.O
		0	O
BIT3	Use Unit message	0	Don't use
		1	Use
BIT2	Use Total price window over	0	Don't use
		1	Use
BIT 0~1	Print type	3	Don't use
		2	DEP-50
		1	
		0	

2.1.2. SPAN Calibration Setting (C-3)

- (1) Pressing and holding "Calibration Switch" press [POWER] key.
After "CAL" message blinks three times and shows the version of scale, it displays "CAL 1" message.
- (2) Press [ZERO] to display "CAL-3".
- (3) Press [TARE] key and then it displays "zero " message.
- (4) Press [TARE] key and then it displays "midup" message
- (5) Load middle weight (ex: 1/3 full capacity) on the platform
- (6) Press [TARE] key and then it displays "span " message
- (7) Load full weight on the platform
- (8) Press [TARE] key and then it displays "middn" message
- (9) Load middle weight (ex: 1/3 full capacity) on the platform
- (10) Press [TARE] key and then it display "CAL 3" message

2.1.3. Gravity Constant Value Setting (C-9)

Current gravitational Acceleration value is set to 9.7994 m/s² .

- (1) Pressing and holding "Calibration Switch" press [POWER] key.
After "CAL" message blinks three times and shows the version of scale, it displays "CAL-1" message.
- (2) Press [ZERO] to display "C-9".
- (3) Press [TARE] key, and then " G-1" message and "9.7994" will be shown. The first digit,"9" will blink.
- (4) Input a gravitational acceleration value by using [ZERO] key.
- (5) Press [TARE] key, and then "G-2" message blinks."9.7994" will be shown. The first digit,"9" will blink.

- (6) Input a gravitational acceleration value by using [ZERO] key.
- (7) Press [TARE] key to save the gravitational acceleration value, and "C-9 " message will be shown.

2.1.4. Calibration factor Setting (C-10)

- (1) Pressing and holding "Calibration Switch" press [POWER] key.
- (2) After "CAL" message blinks three times and shows the version of scale, it displays "CAL-1" message.
- (3) Press [ZERO] to display "C-10".
- (4) Press [TARE] key, and then "UNIT " message and "0" will be shown. The first digit,"0" will blink. It means calibration unit is "kg" (0 : kg, 1 : lb)
- (5) Input a calibration unit by using [ZERO] key.
- (6) Press [TARE] key, and then "CAPA" message blinks."0003" will be shown. The first digit,"0" will blink. It means a full-capability is "3 (calibration unit, kg or lb)"
- (7) Input a capability by using [ZERO] key.
- (8) Press [TARE] key, and then "MCAPA" message blinks."0001" will be shown. The first digit,"0" will blink. It means a mid-capability is "01 (calibration unit, kg or lb)"
- (9) Input a capability by using [ZERO] key.
- (10) Press [TARE] key, and then "W-dP " message blinks."3" will be shown. The first digit,"3" will blink. It means a weight decimal point is "3 (will display 0.000)"
- (11) Input a weight decimal point by using [ZERO] key.
- (12) Press [TARE] key, and then "1d " message blinks."0.001" will be shown. The third digit,"0" will blink. It means a division is "0.001 (calibration unit, kg or lb)"
- (13) Input a division by using [ZERO] key.
- (14) Press [TARE] key, and then "dual " message blinks."1" will be shown. The third digit,"1" will blink. It means a dual interval is disable. (0 : disable, 1 : enable)"
- (15) Input a dual interval enable by using [ZERO] key.
- (16) Press [TARE] key to save the calibration factor, and "C-10 " message will be shown.

2.1.5. Displaying Real A/D Value (C-5)

Display Raw AD

2.1.6. Percent Calibration (C-7)

(1) Pressing and holding "Calibration Switch" press [POWER] key.

After "CAL" message blinks three times and shows the version of scale, it displays "CAL 1" message.

(2) Press [ZERO] to display "CAL-7".

(3) Press [TARE] key and then it displays "per 0 " message. Select the percent value using the

[numeric] key. You can choose 10~90 percent.

(4) Press [TARE] key and then it displays "zero" message

(5) Press [TARE] key and then it displays "pspan " message

(6) Load choice percentage weight of full weight on the platform

(7) Press [TARE] key and then it displays "CAL 7" message

2.1.7. Battery Calibration (C-8)

(1) Pressing and holding "Calibration Switch" press [POWER] key.

After "CAL" message blinks three times and shows the version of scale, it displays "CAL 1" message.

(2) Press [ZERO] to display "CAL-8".

(3) Press [TARE] key and then it displays voltage of battery.

(4) Change the jumper-pin of main PCB, 'BAT' to '+5V'.

(5) Press [ZERO] key two times and then Press [-] key two times.

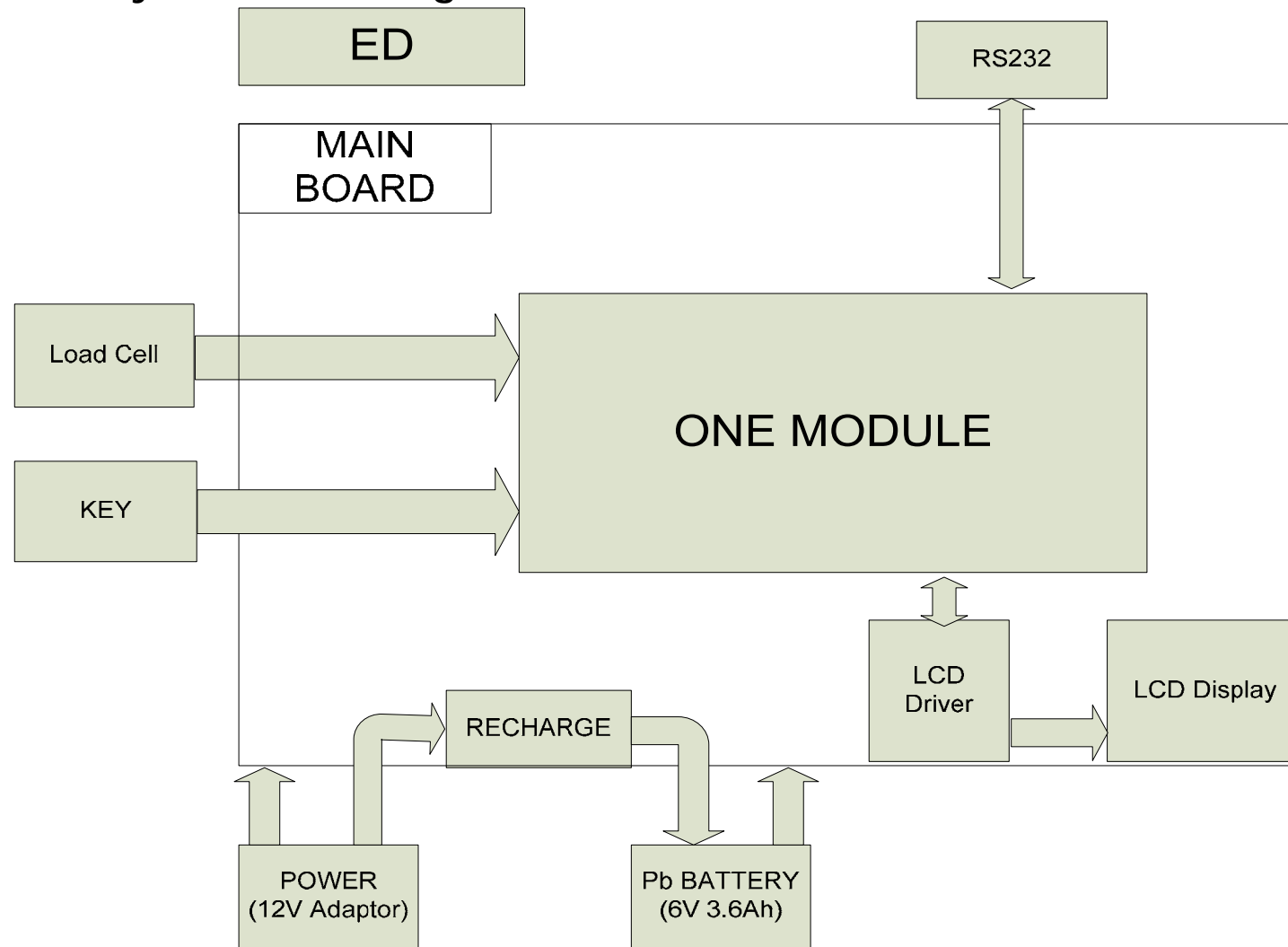
And then it display '500'

(6) Change the jumper-pin of main PCB, '+5V' to 'BAT'.

(7) You can see the calibrated voltage of battery.

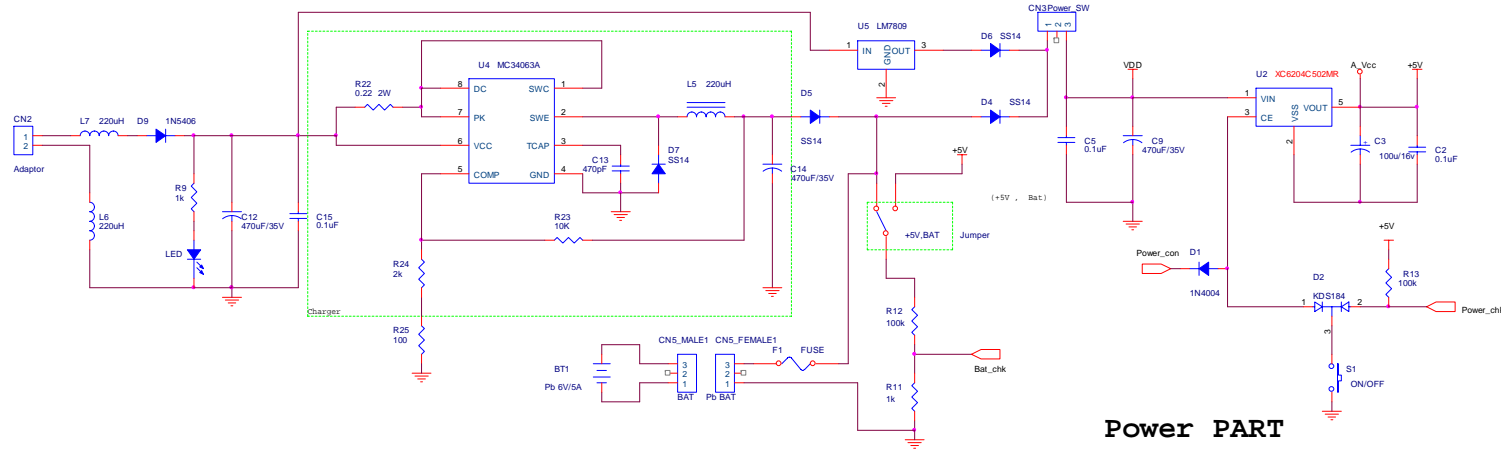
3. The Schematics and Diagram

3.1. System Block Diagram

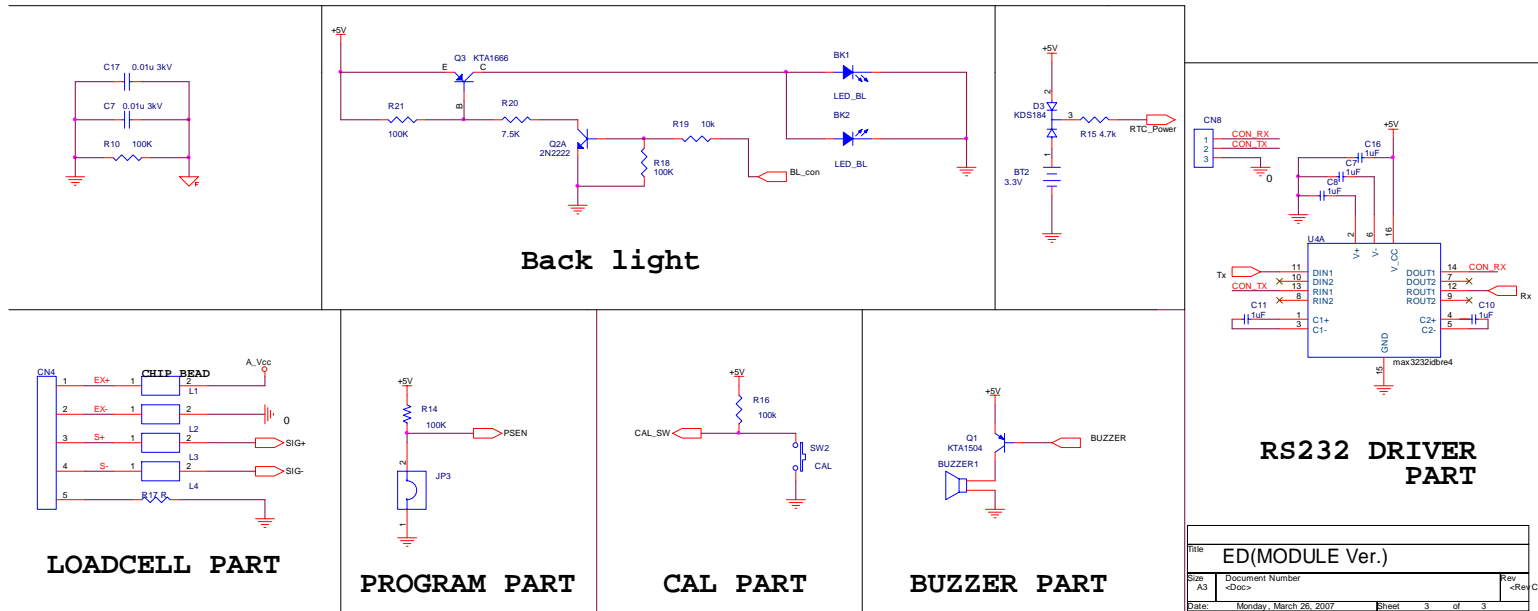


3.2. Circuit Diagram

3.2.1. MAIN



Power PART



Back light

RS232 DRIVER PART

LOADCELL PART

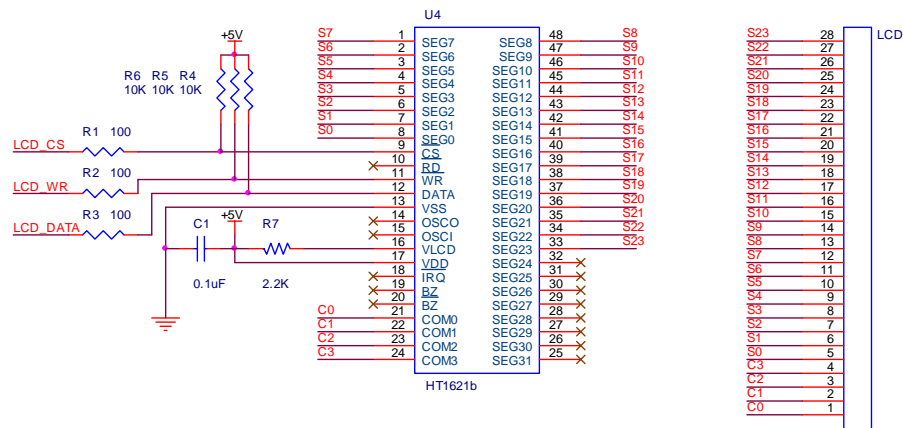
PROGRAM PART

CAL PART

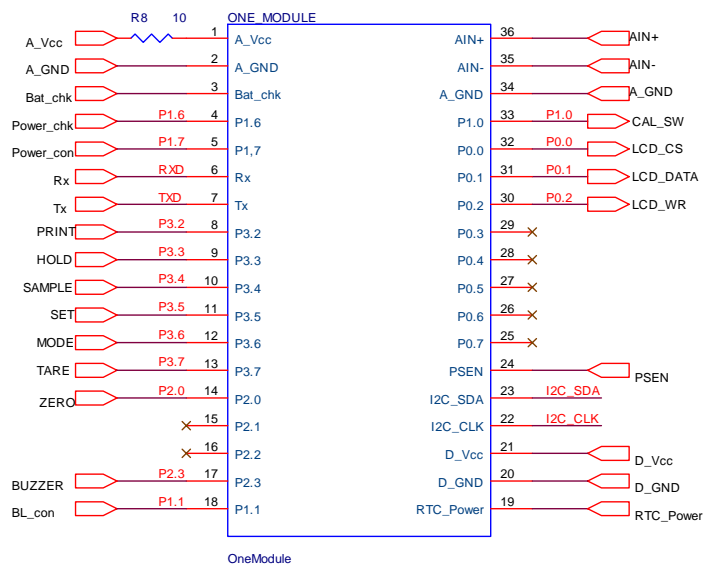
BUZZER PART

Rev	ED(MODULE Ver.)	
Size	Document Number	Rev
A3	<Doc>	<Rev Code>
Date:	Monday, March 26, 2007	Sheet 3 of 3

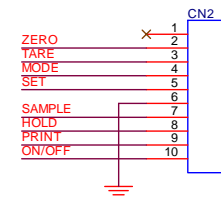
3.2.2. DISPLAY & MODULE



Display PART



One Module



KEY CONNECTION

Title <Title> ED(MODULE Ver.)		
Size A4	Document Number <Doc>	Rev <Rev Code>
Date: Monday, March 26, 2007	Sheet 1 of 3	

4. Exploded View

MODEL NO.	PART NO.	REV	SW	REVISIONS	CONTENTS	DRAWN	CHECKED	APPROVED

TRAY ASS'Y						
#	PART NUMBER	R	PART NAME	MATERIAL	SPEC	Q
1	2004-AG0-0067	0	TRAY(ABS)	ABS(Flame Retardant)	304*220*20	1
2	2010-AG0-0027	0	BUG RING	PC	φ17.5*0.5	4
3	1000-AG0-0136	0	TRAY	SUS 304 0.8t	306*222*13.5*0.8t	1

UPPER CASE ASS'Y						
#	PART NUMBER	R	PART NAME	MATERIAL	SPEC	Q
1	2004-AG0-0056	0	UPPER CASE	ABS(Flame Retardant)	332*542*74(ERS)	1
2	2050-ERC-1533	0	DISPLAY COVER(FRONT LCD)	PC NF-2000 1t	85.2*188*11(ERS)	1
3	2056-ERC-1533	0	DISPLAY COVER(REAR LCD)	PC NF-2000 1t	273.6*41.6*11	1
4	2170-ERS-0033	0	RUBBER S/W	SILICON	92.9*90.3*5.5	1
5	1030-AG0-0166	0	S/W BRACKET	SPC 1t	110*113*9.5*1t	1
6	2010-AG0-0026	0	WATER LEVEL GAGE COVER	PC 0.5t	φ18.5*0.5(POSCALE)	1
7	1510-AG0-0408	0	TAPPING SCREW (PH)-1	SCM	M4*8	6

L/C BRACKET ASSY						
#	PART NUMBER	R	PART NAME	MATERIAL	SPEC	Q
1	1100-AG0-0061	0	PLATFORM(UPPER)	AL DIE CASTING	206*126*39(ERS)	1
2	1100-AG0-0062	0	PLATFORM(BOTTOM)	AL DIE CASTING	231*172*17(ERS)	1
3	1532-MSU-0415	0	WRENCH BOLT (S1)	SUS	M4*16-SUS(NYL0K)	4
4	1530-MSU-0620	0	WRENCH BOLT	SUS	M6*20-SUS	4
5	1261-AG0-0008	0	LIMIT BOLT	SCM	M5*8.0(2t*0.1,1.6kg)	1
6	1540-AG0-0400	0	NUT(HEX)	SCM	M4*3	4

BODY ASSY						
#	PART NUMBER	R	PART NAME	MATERIAL	SPEC	Q
1	2004-AG0-0056	0	BODY	ABS(Flame Retardant)	332*542*66(ERS)	1
2	7520-PO0-0210	0	PB BATTERY	N/A	6V5AH	1
3	2610-AG0-0009	A	FOOT	NBR	NBR M8*1.25*35(TP)	4
4	2022-AG0-0004	1	WATER LEVEL GAGE	N/A	φ14.9*8	1
5	2004-AG0-0058	0	BATTERY COVER	ABS(Flame Retardant)	139.4*95.4*15(ERS)	1
6	1563-AG0-0308	0	RIVET	AL	φ3.2*8	2
7	2631-AG0-0006	0	VFD CUSHION	EVA	30*20*3t	2
8	7612-S00-0004	1	AC SOCKET CONNECTOR	ABS	JR-10(POL/S/W)	1
9	1261-AG0-0004	0	BATTERY COVER BOLT	SUS	M4*0.7*8.5(SUS)TP	1
10	1561-MSU-0300	0	E-RING	SUS	φ3*07*0.6-SUS	1
11	1810-AG0-0005	0	SPEC PLATE	AL 0.5t	86*20*0.5(D8-II)	1

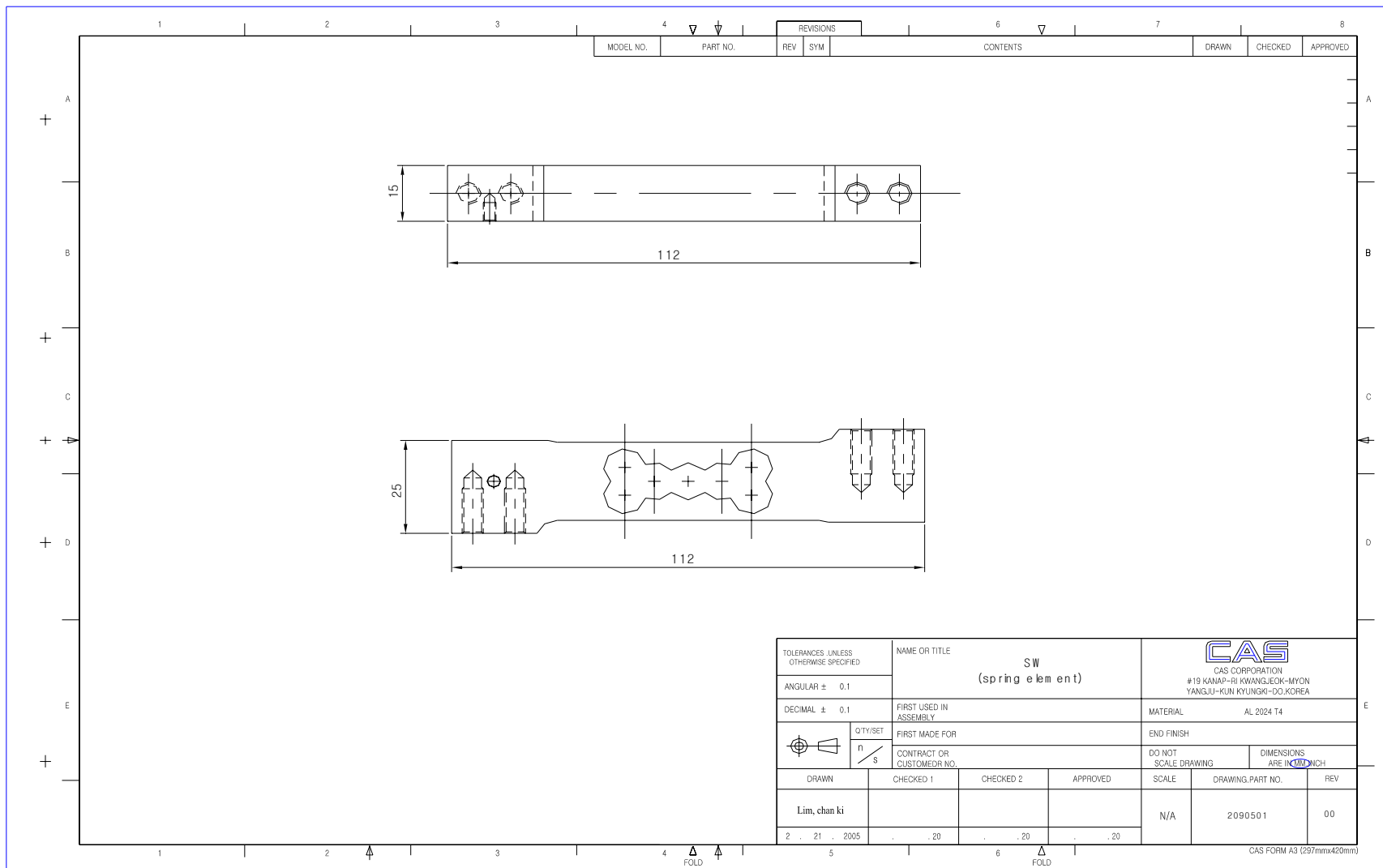
#	PART NUMBER	R	PART NAME	MATERIAL	SPEC	Q
12	1510-AG0-0408	0	TAPPING SCREW (PH)-1	SCM	M4*8	25
13	1510-AG0-0416	0	TAPPING SCREW (PH)-1	SCM	M4*12	6
14	1503-AG0-0416	0	MACHINE SCREW (PH)	SCM	M4*16	4

TOLERANCES UNLESS OTHERWISE SPECIFIED		NAME OR TITLE		MATERIAL	
ANGULAR ± OR D.		ED		N/A	
DECIMAL ± OR D.		FIRST USED IN ASSEMBLY	SHOPPING SCALE	END FINISH N/A	
	0.1/SET	FIRST MADE FOR ED		DO NOT SCALE DRAWING	
	1	CONTRACT OR CUSTOMER NO.	WORLD WIDE	DIMENSIONS ARE IN MILLIMETER	
		DRAWN	CHECKED	APPROVED	PART NO.
					REV.
					1:4
					9006-ED0-0023
					0

CAS CORPORATION
#19 KAMP-RI KWANGJOK-MYON
YANGJU-KUN KYUNGI-DO, KOREA
2003.12.29
CAS CO. LAB.

CAS FORM A2 (420mmx594mm)

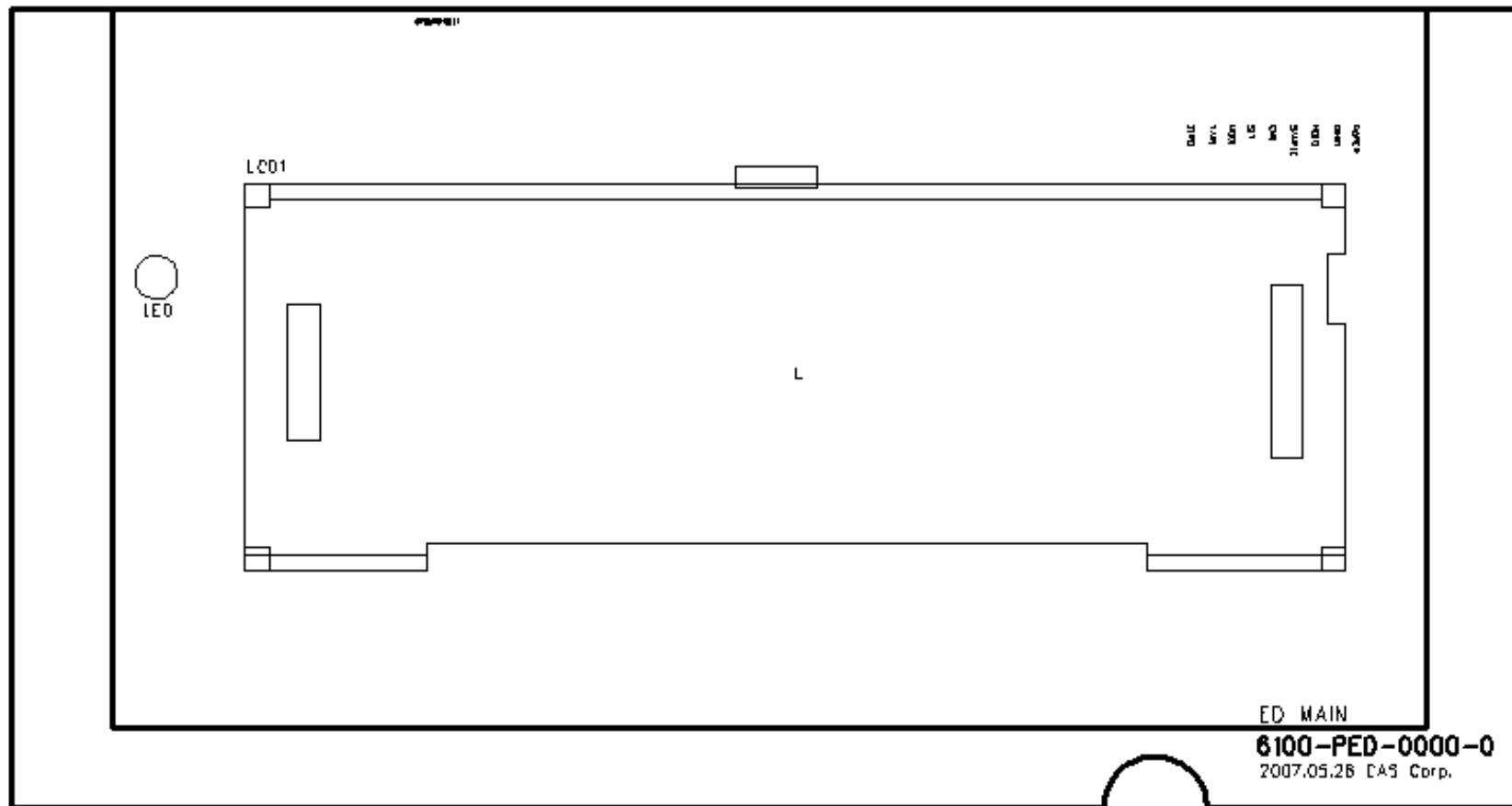
5. Load Cell drawing



6. Part Location

Main PCB Part Location

- DRAWING NUMBER : 6100-PED-0000
- TOP

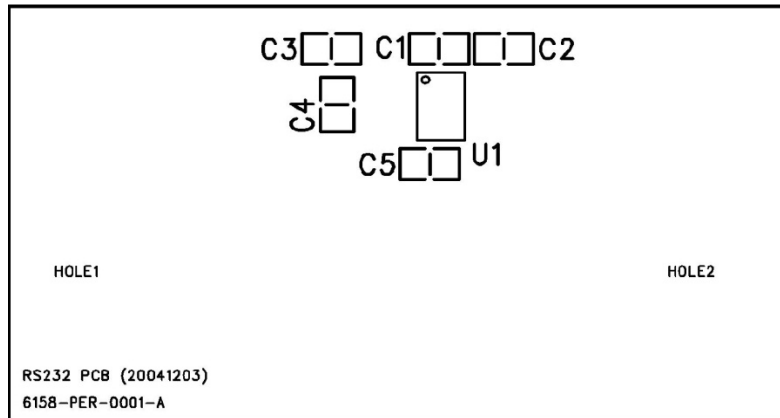


COMMON PCB.

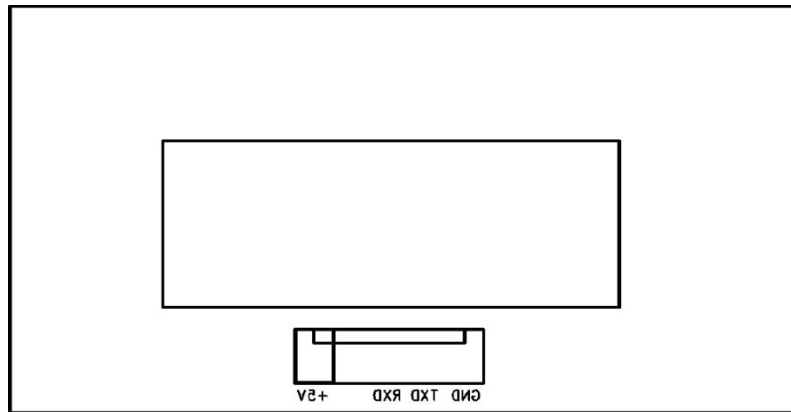
RS-232 MODULE PCB Part Location

- DRAWING NUMBER : 9000-ERS-0005

RS-232 PCB (TOP)



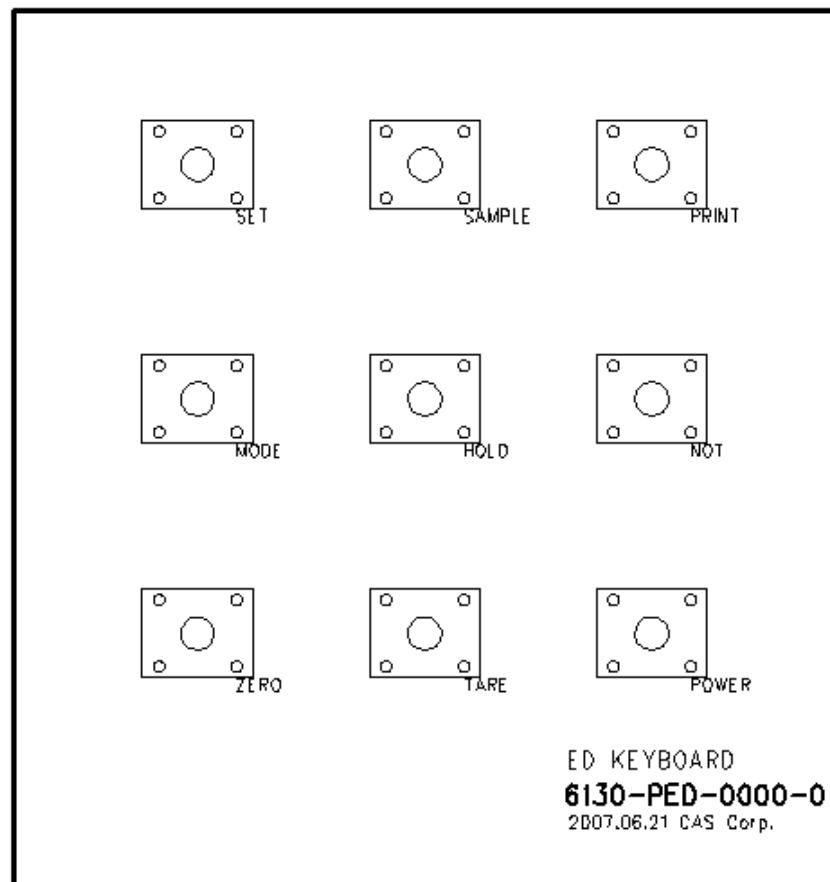
RS-232 PCB (BOTTOM)



KEY PCB Part Location

- **DRAWING NUMBER : 6150-PED-0000-0**

KEY PCB



7. Error Messages & Solution

Error Message on Display	Description	Solution
"Err 0"	The "Err 0" occurs when scale is not stable.	Remove unstable facts.
"Err 1"	The "Err 1" occurs when a current zero point has shifted from the last span calibration.	Please call your CAS dealer.
"Err 2"	The "Err 2" is not a real error. Only it prompts return CAL switch to the normal position.	Please call your CAS dealer.
"Err 3"	The "Err 3" is an overload error.	Please remove the weight.
"Err 5"	The "Err 5" means there is already tare.	Remove the tare.
"Err 11"	The "Err 11" means a writing error of the internal nonvolatile memory. To recognize this error, be sure to check the voltage on the circuit and do calibration procedures.	If it still has "Err 11", replace the digital module.
"Err 12"	The "Err 12" warns that the scale has lost the parameters for weighing regulations or has lost the factors for a digital span calculation.	Enter each condition codes again (?). Please try a span calibration again if still not fixed.
"Err 14"	The "Err 14" means calibration range is not correct.	Please call your CAS dealer.

8. Part List

ED PART LIST

1.1 MAIN PCB ASS'Y

No	Part Name	Specification	Part Number	Q'ty	Remark
1	PCB-MAIN	6100-PED-0000-0	6100PED00000	1	MAIN PCB
2	ONE MODULE	ONE MODULE		1	ONE MODULE1
3	IC(REGULATOR)	KA7809A(D-PACK)	6220IS078090	1	U5
4	IC(REGULATOR)	XC6204C502MR(5.0V)	6220IS0C5020	1	U2
5	IC(LCD DRIVER)	HOLTEX HT1621B	6224I0016210	1	U1
6	IC(DC DC CONVERTER)	MC34063AD	6242I003406A	1	U4
7	TRANSISTOR CHIP	KTA1504 SY	6281I0015040	1	Q1
8	TRANSISTOR CHIP	KTA1666	6281I0016660	1	Q3
9	TRANSISTOR CHIP	2N2222AS	6281I0022220	1	Q2
10	DIODE POWER	1N5819(SMD)	6291IS058190	4	D4,5,6,7
11	DIODE-POWER	1N5406	6291IP054060	1	D9
12	DIODE-SWITCHING	PMLL4148L(LP-CONT')	6294ISW4148A	1	D1
13	DIODE-CHIP	KDS184	6294ICP01840	2	D2,3
14	RESISTOR 2W	CFR 0.33Ω (±5%)	6512CJ000033	1	R22
15	RESISTOR-CHIP 1/10W	RR1220P-100D(10Ω)	6527ID001000	1	R8
16	RESISTOR-CHIP 1/10W	RR1220P-102D(1K)	6527ID300100	2	R11,9
17	RESISTOR-CHIP 1/10W	RR1220P-202D(2K)	6527ID300200	1	R24
18	RESISTOR-CHIP 1/10W	RR1220P-222D(2.2K)	6527ID300220	1	R7

19	RESISTOR-CHIP 1/10W	RR1220P-472D(4.7K)	6527ID300470	1	R15
20	RESISTOR-CHIP 1/10W	RR1220P-103D(10K)	6527ID301000	5	R4,5,6,19,23
22	RESISTOR-CHIP 1/10W	RR1220P-101D(100)	6527ID010000	4	R1,2,3,25
23	RESISTOR-CHIP 1/10W	RR1220P-104D(100K)	6527ID310000	6	R12,13,14,16,18,21
26	INDUCTANCE	HB-1M2012-102JT(TP2,LP2,DBB)	6670T0001020	4	L1,2,3,4
27	INDUCTANCE	220uH(NT SERIES)	6670T0102200	1	L5
28	CONDENSER-CERAMIC	0.01uF/3KV	6710CAP0103B	3	C4,6,17
29	CONDENSER-ELECTRIC	100uF/16V	6704C1601000	2	C3
30	CONDENSER-ELECTRIC	470uF/35V(short type)	6704C3504700	3	9,12,14
32	CONDENSER-CHIP	CL21F 471KBNC	6712CHP04710	1	C13
33	CONDENSER-CHIP	CL21F 104KBNC	6712CHP01040	4	C1,2,5,15
34	PIEZO BUZZER	APR,ADR(CHINA)	7002Z0000000	1	BUZZER1
36	CONNECTOR(WAFER)	LWL0640-03 (LSW250-03)	7802CLL00030	1	CN2
37	CONNECTOR(WAFER)	03-5267	7805CCN67030	1	CN3
38	CONNECTOR(WAFER)	LW0640-05 (LPH01-05)	7801CLW00050	1	CON1
39	CONNECTOR(WAFER)	5273-03 (LPH03-03)	7804CCN73030	1	CN1
40	CONNECTOR(WAFER)	LA1143-05(GOLD)(LPHA03-05A)	7808CLA0005A	1	CN6
41	CONNECTOR(WAFER)	10-5267	7805CCN67100	1	CN2
42	FUSE	1.6A/250V ø5 UL,S,VDE,BSI(⚡)fast blow type	7620S0516000	1	FUSE1
43	FUSE HOLDER	GF-205B(EXP-300L)	7630S0002050	1	FUSE1
44	JUMPER	2PIN	7821CJM00020	3	JP1,BAT,+ 5V
45	LED LAMP	ø5-GREEN	7232DG000050	1	LED

1.2 KEY PCB ASS'Y

No	Part Name	Specification	Part Number	Q'ty	Remark
1	TACT S/W	SKHCAD(LP-Ⅱ)	7600STA1103A	9	SWITCH
2	PCB-KEY	6110-PER-0004-0(ER,P,LCD)(F)	6130PED00000	1	KEY PCB
3	CONNECTOR(WAFER)	10-5267	7805CCN67100	1	CN2
4	CONNECTOR WIRE	2p*110mm (EB cal pcb)	7840W000211A	1	

1.3 CAL PCB ASS'Y

No	Part Name	Specification	Part Number	Q'ty	Remark
1	TACT S/W	11902(DJTA-1102)	7600STA19020	2	
2	PCB-CAL	6151-PED-0000-0	6151PED00000	1	
3	FLAT CABLE CONNECTOR	10P*10P*260(EP-양면)유상	7850W0020260		

1.4 RS232C PCB ASS'Y [110ER3153GPH0101]

Part Name	Specification	Part Number	Q'ty	Remark
RS232C PCB ASS'Y	ER2-15CB(LCD)	110ER3153GPH0101	1	RS232C PCB ASS'Y

BOLT-CONNECTOR	1/8-6 UNC -외주	1507A0018060	2	CONNECTOR BOLT
PCB-RS232C	6158-PER-0001-A(ER)	6158PER0001A	1	RS232C PCB(232)
IC(LINE DRIVER)	ICL232CBE(SMD)	6240IS002320	1	U1
CONDENSER-CHIP	CL21F 104KBNC	6712CHP01040	5	C,1,2,3,4,5
D-SUB CONNECTOR	D9S(RS-PIN) FEMALE	7812C0000090	1	CON2
CONNECTOR WIRE	5P*380mm,CORE(ER-RS232)	7840W0005380	1	CON1
GROUND TERMINAL ASS'Y	70mm(PD,TP,TC)(양단)	7860GND00700	1	GND TERMINAL ASS'Y

1.5 Body & Upper case

No	Part Name	Specification	Part Number	Q'ty	Remark
	BATTERY COVER BOLT	M4*0.7*8.5(SUS 303)TP	1261-A00-0004-0	1	
	MACHINE SCREW(WPH)	M4*12	1503-A00-0412-0	4	
	TAPPING SCREW(PH)-1	M4*8	1510-A00-0408-0	25	
	TAPPING SCREW(PH)-1	M4*12	1510-A00-0412-0	6	
	E-RING	φ3*φ7*0.6-SUS	1561-MSU-0300-0	1	
	RIVET	φ3.2*8	1563-A00-0308-0	2	
	SPEC PLATE	DB-II (TOOL)	1810-A00-0005-0	1	
	BODY	ERS	2004-A00-0056-0	1	
	BATTERY COVER	ERS	2004-A00-0058-0	1	
	WATER LEVEL GAGE	φ14.9*8(S-2000)	2022-A00-0004-1	1	
	FOOT	NBR M8*1.25*35	2610-A00-0009-A	4	
	VFD CUSHION	30*20*2T	2631-A00-0001-0	2	
	PLATFORM(UPPER)	ERS	1100-A00-0061-0	1	
	PLATFORM(BOTTOM)	ERS	1100-A00-0062-0	1	

LIMIT BOLT	M5*0.8*8.5(Zn 황색,15Kg)	1261-A00-0008-0	1
WRENCH BOLT	M6*20-SUS	1530-MSU-0620-0	4
WRENCH BOLT(ST)	M4*15	1532-A00-0415-0	4
NUT(HEX)	M4*0.7	1540-A00-0400-0	4
TRAY	ERS	1000-A00-0136-0	1
TRAY	ERS	2004-A00-0057-0	1
S/W BRACKET		1030-A00-0165-0	1
TAPPING SCREW(PH)-1	M4*8	1510-A00-0408-0	6
UPPER CASE	ERS	2004-A00-0055-0	1
WATER LEVEL GAGE COVER	POSCALE(ϕ 18.5*0.5)	2010-A00-0026-0	1
DISPLAY COVER	ER(15kg)LCD	2050-E0A-1533-0	1
DISPLAY COVER	ER(15kg)LCD	2050-E0B-1533-0	1
RUBBER S/W	ER TYPE	2170-ERS-0033-0	1