

DB-1H SERVICE MANUAL

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	RS-232 PCB (TOP) 오류! 책갈피가 정의되어 있지 않습니다.	
	RS-232 PCB (BOTTOM) 오류! 책갈피가 정의되어 있지 않습니다.	
	KEY PCB Part Location 오류! 책갈피가 정의되어 있지 않습니다.	
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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 DB-1H 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	DB- 30H	DB-60H	DB-150
CAPACITY	15kg/0.005kg 30kg/0.01kg	30kg/0.01kg 60kg/0.02kg	60kg/0.02kg 150kg/0.05kg
TARE SUBTRACTION	14.995kg	29.99kg	59.98kg
INTERNAL RESOLUTION	1/60,000	1/60,000	1/60,000
EXTERNAL ESOLUTION	DUAL 1/3,000		
DISPLAY	Vacuum Fluorescent Display 5 DIGIT		
DISPLAY LAMP	ZERO, NET		
INTERFACE	RS-232C(Print version)		
POWER SOURCE	110/220V, 50/60Hz		
FUNCTION	HOLD FUNCTION(HOLD VERSION) PRINT FUNCTION(PRINT VERSION)		
TEMPERATURE RANGE	-10°C ~ +40°C		
PLATTER SIZE (W D)mm	530(W) x 406(D)		
PRODUCT SIZE (W D H)mm	420(W) x 635(D) x 765(H)		

1.4. Sealing Method

REVISIONS				2		3																																																														
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>PARTS NAME</th> <th>SPECIFICATION</th> <th>Q'TY</th> <th>REMARK</th> </tr> </thead> <tbody> <tr> <td colspan="2">TOLERANCES .UNLESS OTHERWISE SPECIFIED</td> <td colspan="2">NAME OR TITLE</td> <td rowspan="2" style="text-align: center;"> CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO, KOREA </td> </tr> <tr> <td colspan="2">ANGULAR $\pm$ N/A</td> <td colspan="2">SEALING METHOD</td> </tr> <tr> <td colspan="2">DECIMAL $\pm$ N/A</td> <td>FIRST USED IN ASSEMBLY</td> <td>BENCH SCALE</td> <td>MATERIAL N/A</td> </tr> <tr> <td colspan="2" rowspan="2" style="text-align: center;"> </td> <td colspan="2">FIRST MADE FOR DB-1H</td> <td>END FINISH N/A</td> </tr> <tr> <td colspan="2">CONTRACT OR CUSTOMER NO WORLD WIDE</td> <td>DO NOT SCALE DRAWING</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td>DIMENSIONS ARE IN MM.INCH</td> </tr> <tr> <td colspan="2">DRAWN</td> <td>CHECKED</td> <td>CHECKED</td> <td>APPROVED</td> <td>SCALE</td> <td>DRAWING.PART NO.</td> <td colspan="2">REV</td> </tr> <tr> <td colspan="2"></td> <td></td> <td></td> <td></td> <td>F / S</td> <td>3005-DBH-0000</td> <td colspan="2">00</td> </tr> <tr> <td colspan="2">.19</td> <td>.19</td> <td>.19</td> <td>.19</td> <td></td> <td></td> <td colspan="2"></td> </tr> </tbody> </table>										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 $\pm$ N/A		SEALING METHOD		DECIMAL $\pm$ N/A		FIRST USED IN ASSEMBLY	BENCH SCALE	MATERIAL N/A			FIRST MADE FOR DB-1H		END FINISH N/A	CONTRACT OR CUSTOMER NO WORLD WIDE		DO NOT SCALE DRAWING					DIMENSIONS ARE IN MM.INCH	DRAWN		CHECKED	CHECKED	APPROVED	SCALE	DRAWING.PART NO.	REV							F / S	3005-DBH-0000	00		.19		.19	.19	.19				
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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 >

2.1.1.1. C4 Setting

2.1.1.1.1. 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			

2.1.1.1.2. 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

2.1.1.1.3. 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/s^2 .

- (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."0060" will be shown. The first digit,"0" will blink. It means a full-capability is "60 (calibration unit, kg or lb)"
- (7) Input a capability by using [ZERO] key.
- (8) Press [TARE] key, and then "MCAPA" message blinks."0030" will be shown. The first digit,"0" will blink. It means a mid-capability is "30 (calibration unit, kg or lb)"
- (9) Input a capability by using [ZERO] key.
- (10) Press [TARE] key, and then "W-dP " message blinks."2" will be shown. The first digit,"3" will blink. It means a weight decimal point is "2 (will display 0.000)"
- (11) Input a weight decimal point by using [ZERO] key.
- (12) Press [TARE] key, and then "1d " message blinks."0.01" will be shown. The third digit,"0" will blink. It means a division is "0.01 (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".

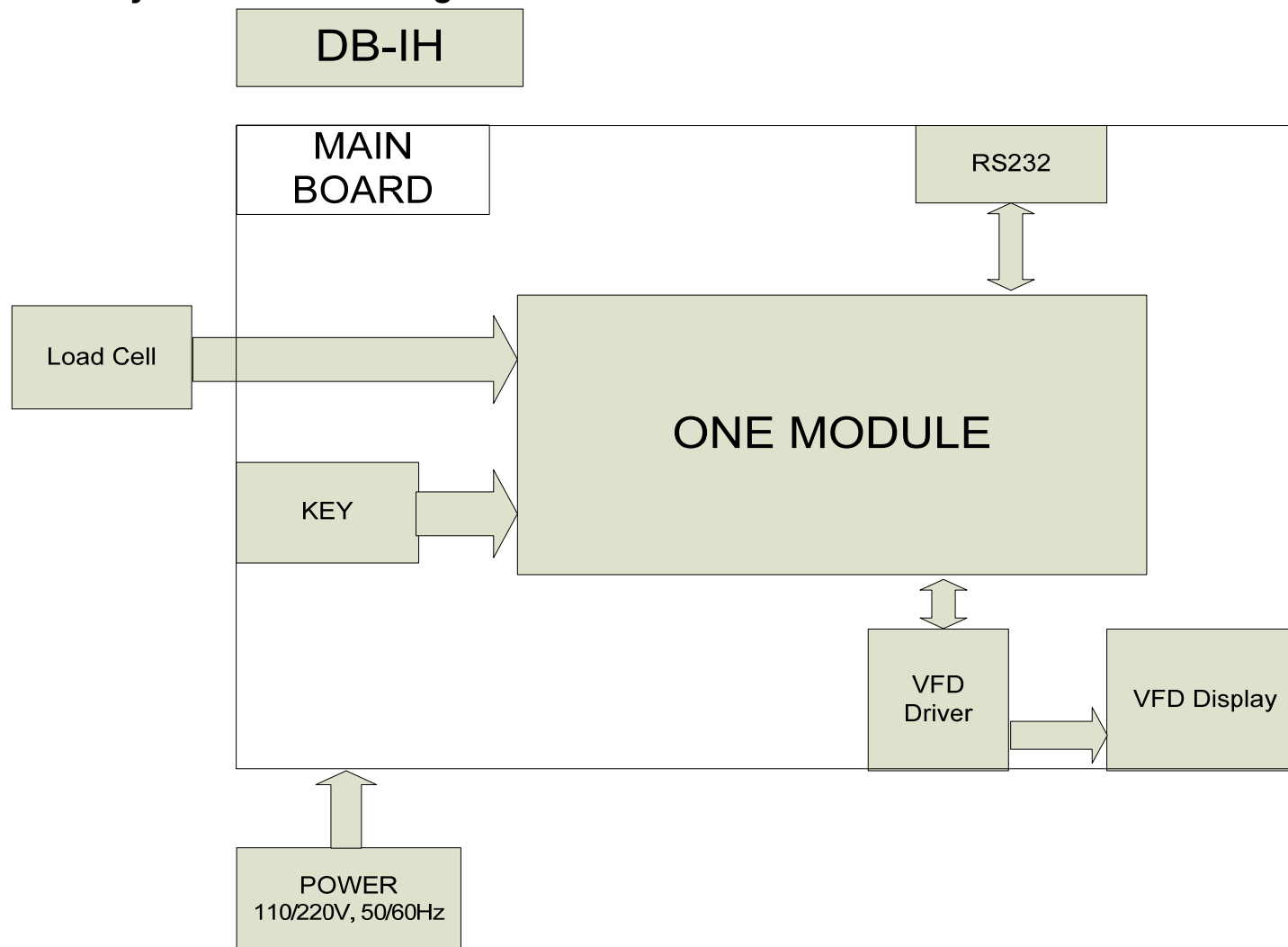
- (3) Press [TARE] key and then it displays "per 0 " message. Select the percent value using the

[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

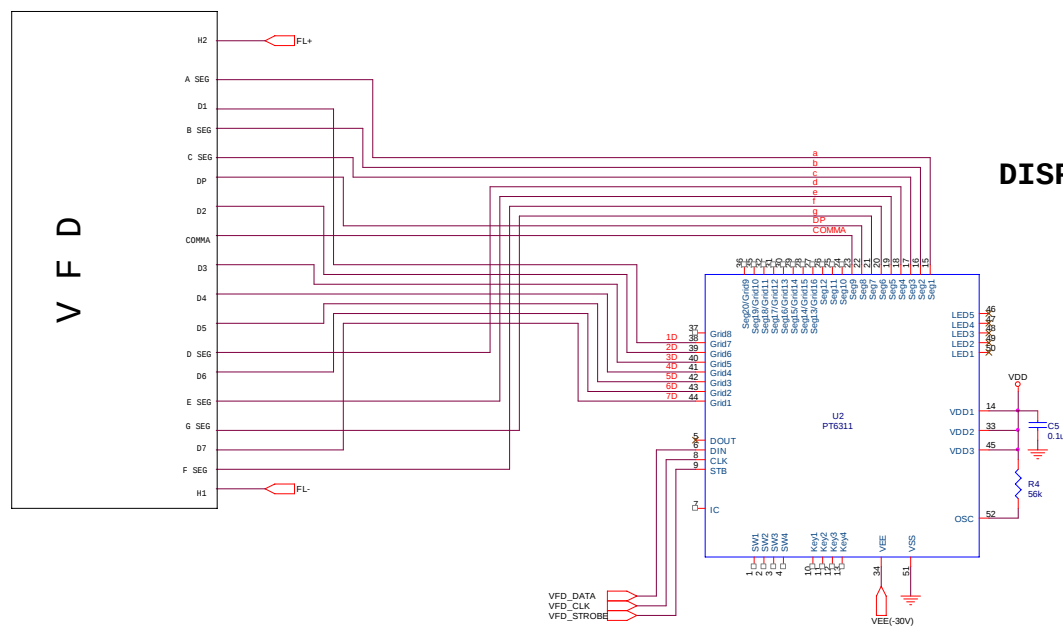
3. The Schematics and Diagram

3.1. System Block Diagram

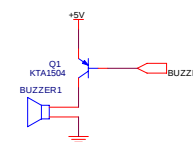


3.2. Circuit Diagram

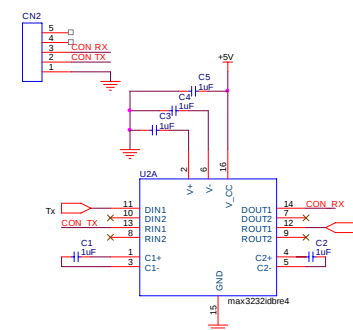
3.2.1. MAIN & DISPLAY



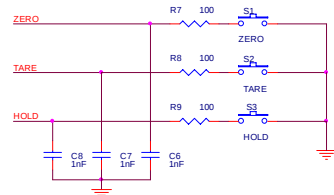
DISPLAY PART



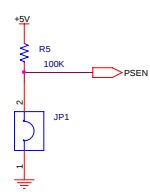
BUZZER PART



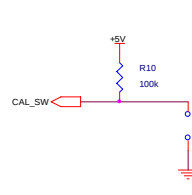
**RS232 DRIVER
PCB PART(OPTION)**



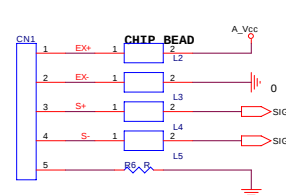
**KEY
CONNECTION**



PROGRAM PART



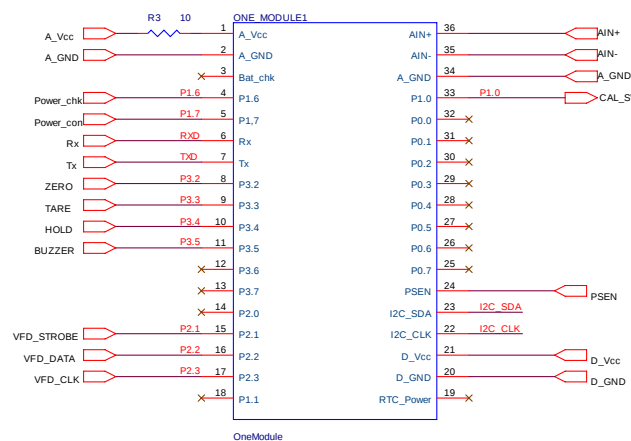
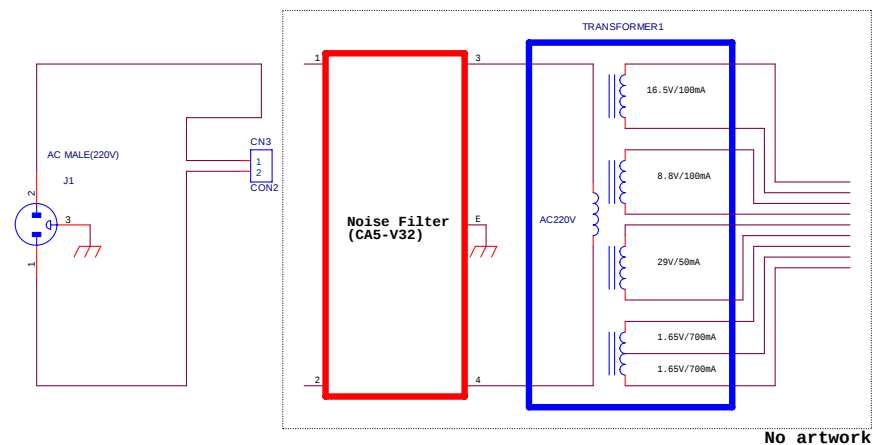
CAL PART



LOADCELL PART

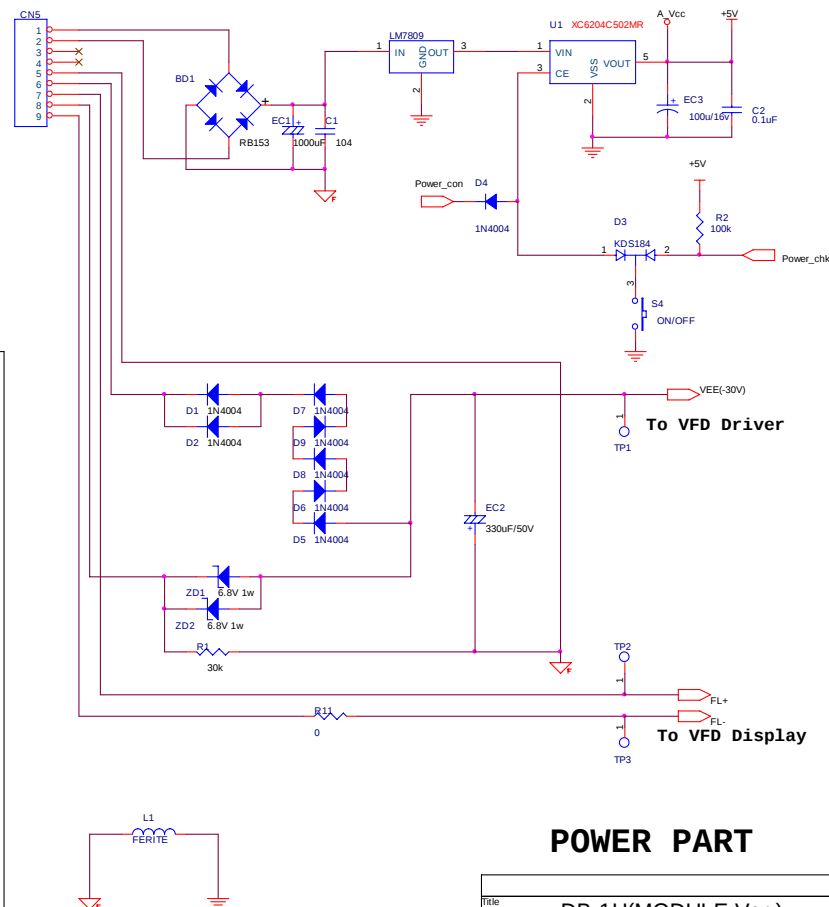
Title DB-1H (MODULE VER.)		
Size A3	Document Number <Doc>	Rev <Rev Code>
Date: Monday, July 16, 2007	Sheet 1	of 2

3.2.2. POWER & MODULE



ONE MODULE

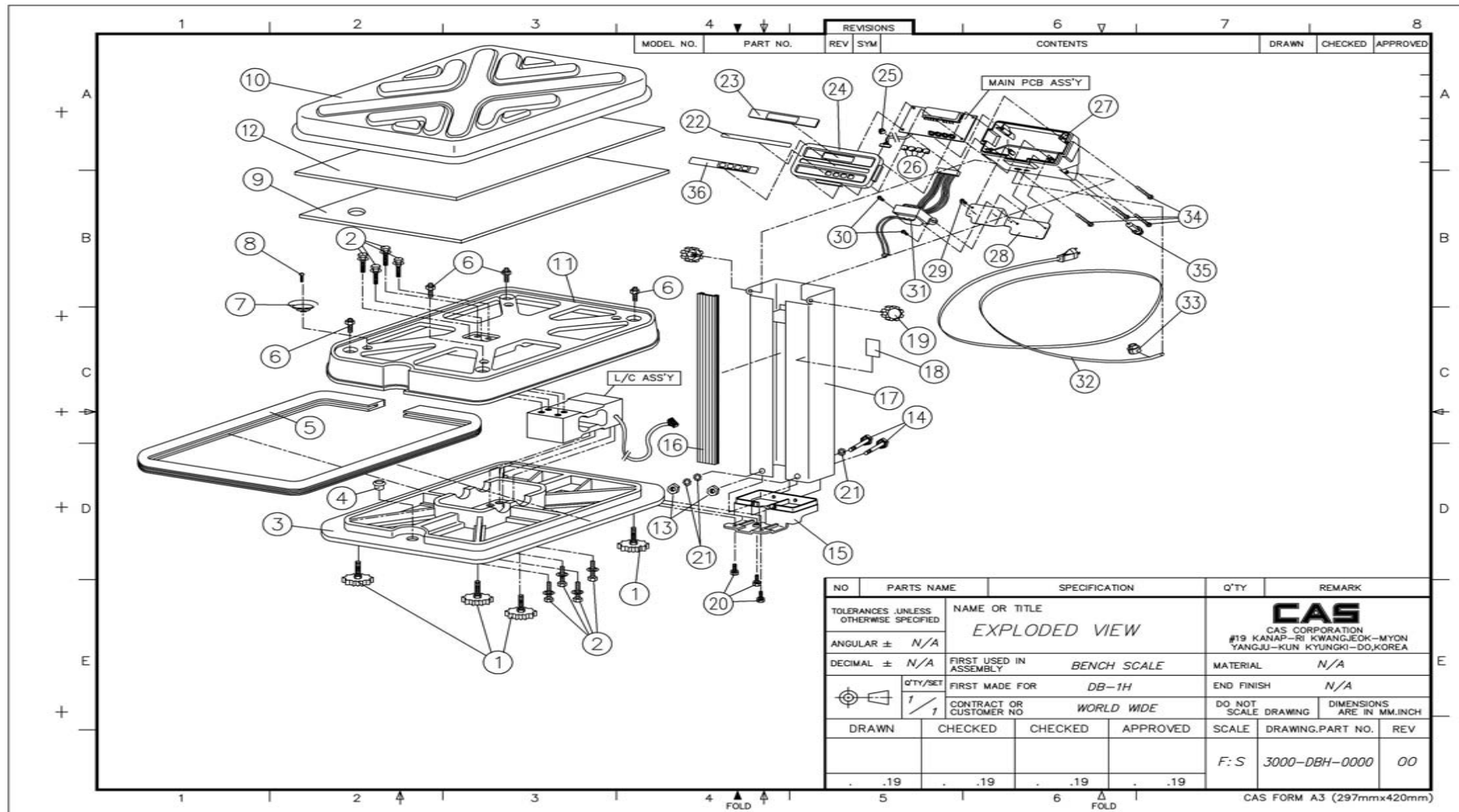
DB-1H Service Manual



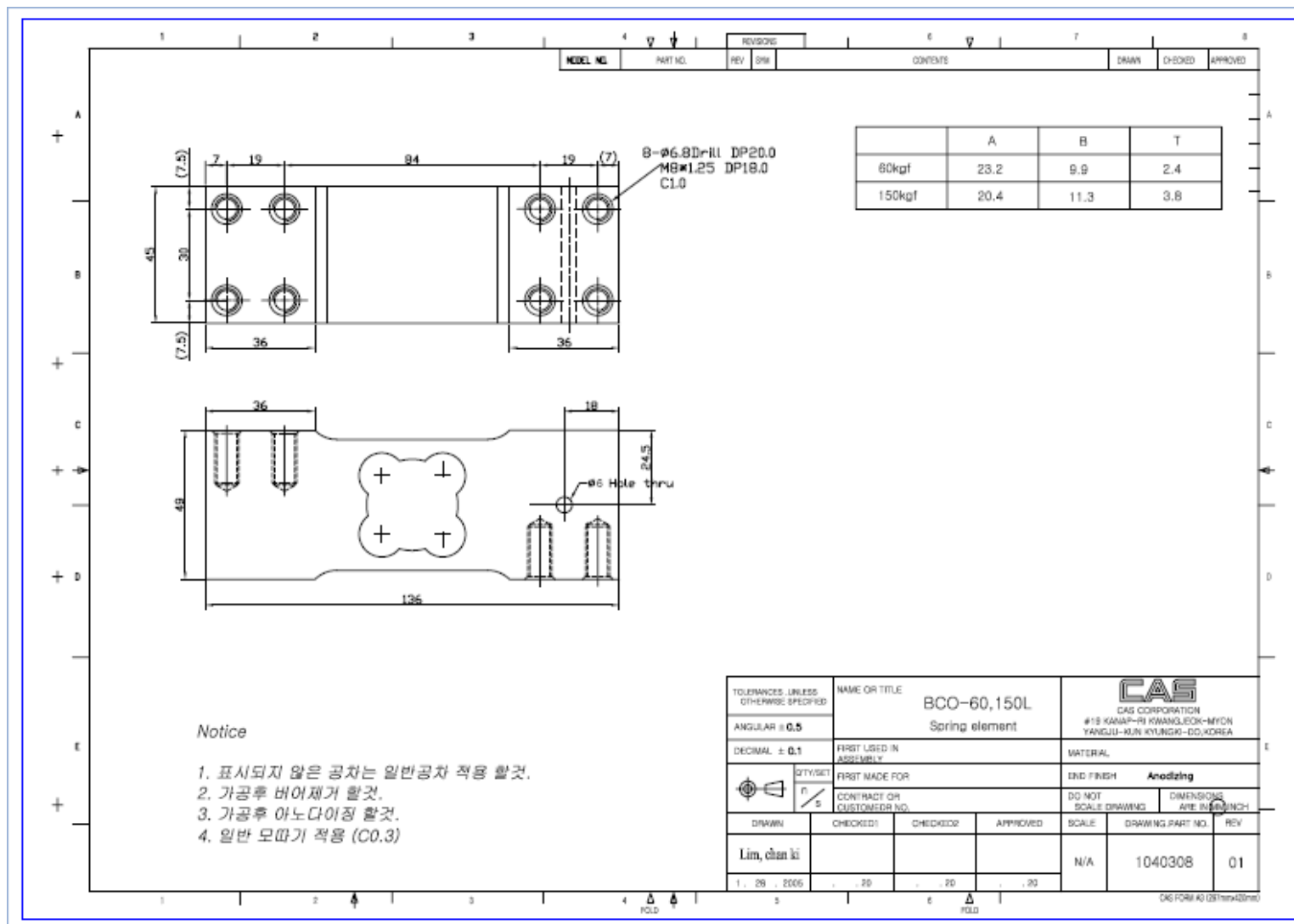
POWER PART

Title	<Title> DB-1H(MODULE Ver.)	
Size	Document Number	Rev
A3	<Doc>	
Date	Monday, July 16, 2007	Sheet 2 of 2

4. Exploded View

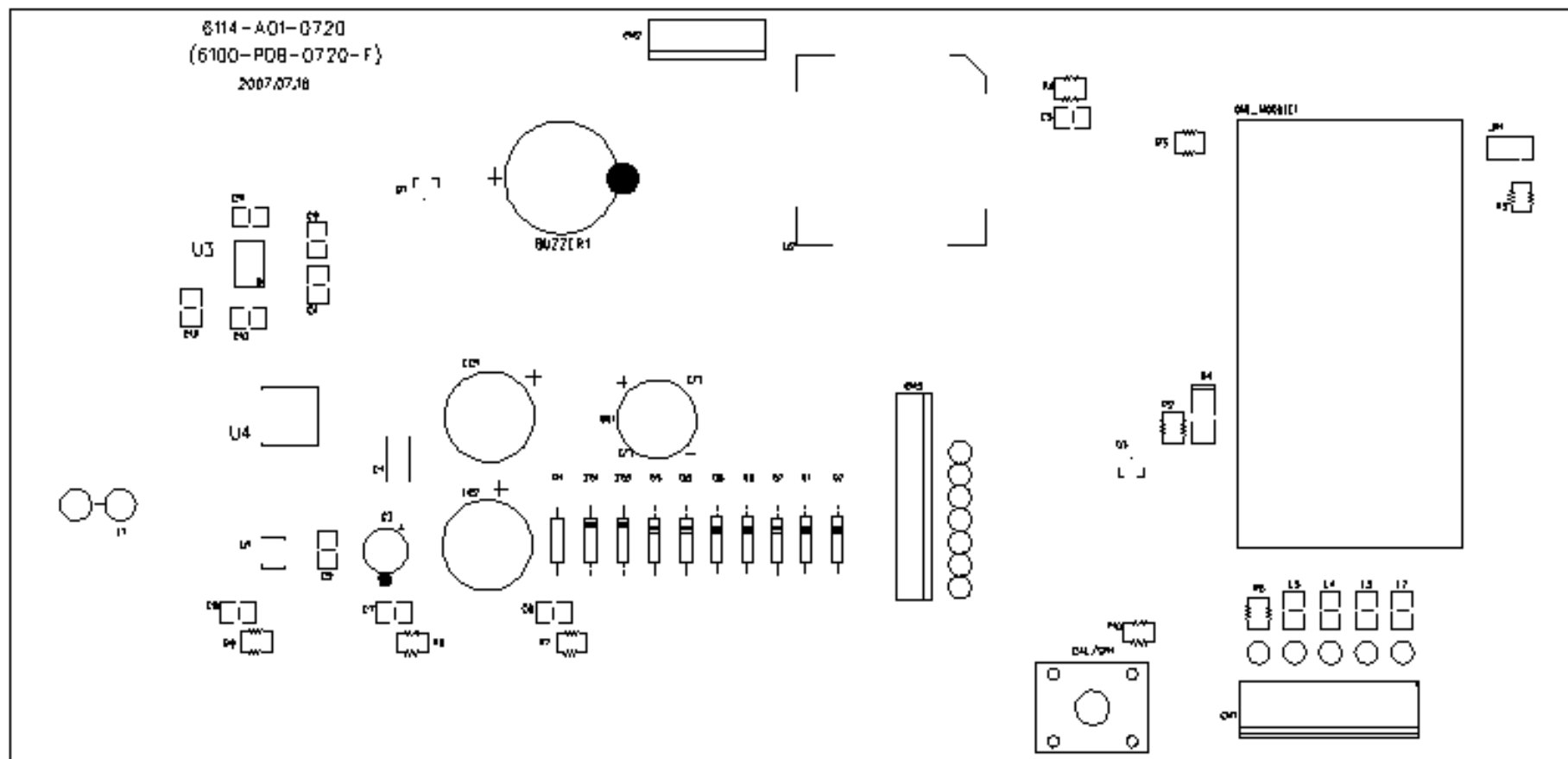


5. Load Cell drawing

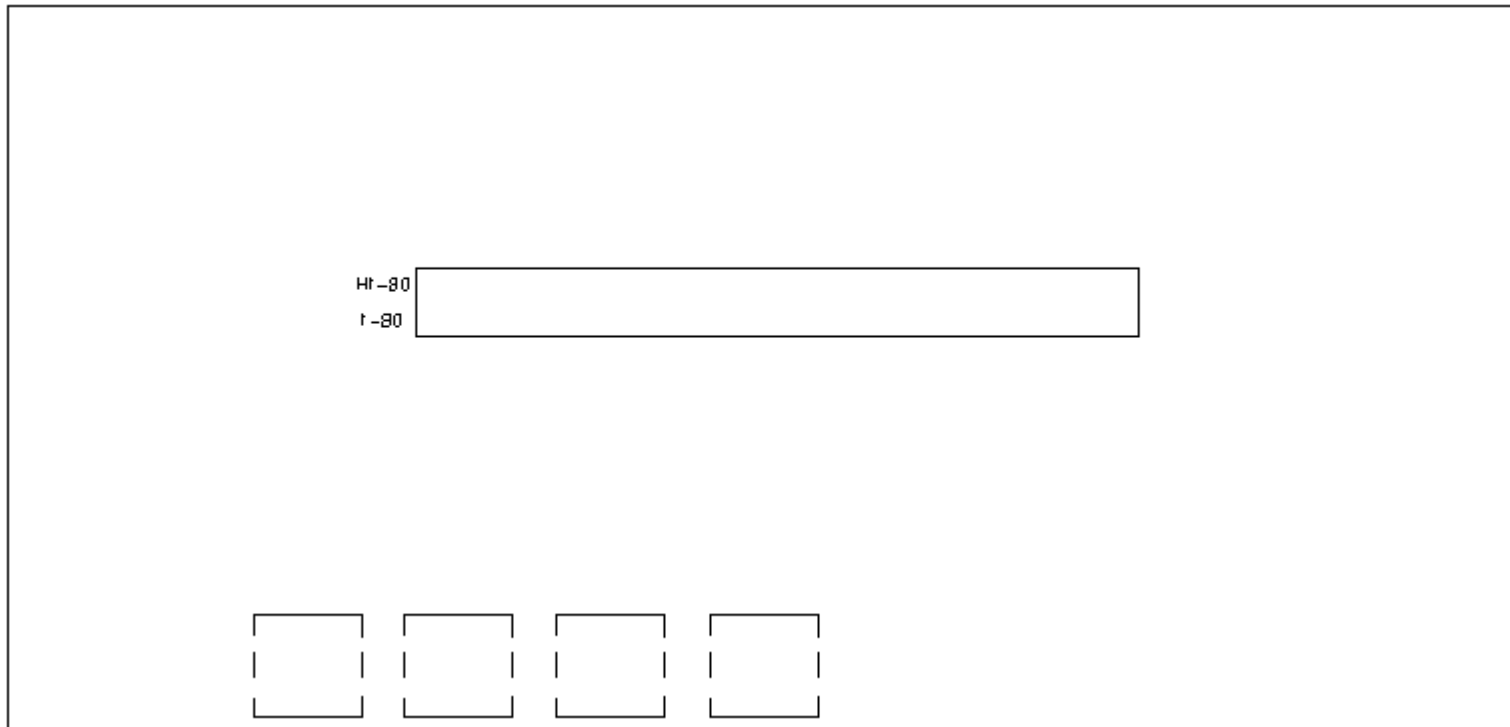


Main PCB Part Location

- **DRAWING NUMBER : 6100-PDB-0720**
- **TOP**



● BOTTOM



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

DB-IH PART LIST

1.1 MAIN PCB ASS'Y

No	Part Name	Specification	Part Number	Q'ty	Remark
1	PCB-MAIN	6100-PDB-0720-F	6100PDB0720F	1	MAIN PCB
2	ONE MODULE	ONE MODULE		1	ONE MODULE1
3	IC(REGULATOR)	KA7809A(D-PACK)	6220IS078090	1	U4
4	IC(REGULATOR)	XC6204C502MR(5.0V)	6220IS0C5020	1	U1
5	IC(FIP DRIVER)	PT6311 QFP	6224IS063110	1	U2
7	TRANSISTOR CHIP	KTA1504 SY	6281I0015040	1	Q1
8	DIODE-SWITCHING	PMLL4148L(LP-CONT')	6294ISW4148A	1	D4

13	DIODE-CHIP	KDS184	6294ICP01840	1	D3
15	RESISTOR-CHIP 1/10W	RR1220P-100D(10Ω)	6527ID001000	1	R3
22	RESISTOR-CHIP 1/10W	RR1220P-101D(100)	6527ID010000	3	R7,8,9
23	RESISTOR-CHIP 1/10W	RR1220P-104D(100K)	6527ID310000	3	R2,5,10
26	INDUCTANCE	HB-1M2012-102JT(TP2,LP2,DBB)	6670T0001020	4	L2,3,4,5
29	CONDENSER-ELECTRIC	100uF/16V	6704C1601000	1	EC3
30	CONDENSER-ELECTRIC	1000uF/25V	6704C2510000	1	EC1
32	CONDENSER-ELECTRIC	330uF/50V	6704C5003300	1	EC2
33	CONDENSER-CHIP	CL21F 104KBNC	6712CHP01040	7	C2,4,5,9,10,11,12
34	PIEZO BUZZER	APR,ADR(CHINA)	7002Z0000000	1	BUZZER1
36	CONNECTOR(WAFER)	LW0640-09 (LPH01-09)	7801CLW00090	1	CN5
38	CONNECTOR(WAFER)	LW0640-05 (LPH01-05)	7801CLW00050	1	CN2

39	EMI BEAD FILTER	BFD-3565 R2	6800F003565A	1	L1
40	CONDENSER-CHIP	CL21B 102KBNC	6712CHP01020	3	C6,7,8
41	DIODE-BRIDGE	RB-153	6290IBR01530	1	BD1
42	RESISTOR 1/4W	CFR 30K (±5%)	6515CJ303000	1	R1
43	DIODE-ZENER	6.8V/1W(1N4736)	6292IZE47360	2	ZD1,ZD2
44	DIODE-POWER	1N4004	6291IPO40040	7	D1,2,5,6,7,8,9
45	IC(LINE DRIVER)	ICL232CBE(SMD)	6240IS002320	1	U3

1.2 Body & Head

1	DUST COVER	BW(HIGH),HOBART	1000A000004A	1	
2	PLATFORM	478*354*43.5(NEW BW-HIGH)	1105A0000090	1	
3	BODY	NEW BW	1105A0000100	1	
4	BRACKET	DOLPHIN	1110A0000050	1	
5	SCREW-MACHINE(PH)	M4*6-SUS	1502MSU04060	3	
6	SCREW-MACHINE(PH)	M4*10-SUS	1502MSU04100	8	
7	BOLT-HEXAGON(WA)	M8*25(8.8T)-Cr	1521MPC08250	8	
8	BOLT-HEXAGON(WA)	M6*27.5-SUS	1521MSU0627A	3	
9	BOLT-WRENCH(ST)	M8*30-SUS	1532MSU08300	4	
10	NUT(HEX)	M8*1.25 -SUS	1540MSU08000	4	
11	GROUND SPRING	ø0.9*ø20*20(DOLPHIN)	1590A0000190	1	

12	WATER LEVEL GAGE ASS'Y	ø18.9*22.8*12(BLACK)상보	2022A0000031	1	
13	FOOT	M10.0*1.5*42(DOLPHIN)	2610A0000071	4	
14	DUST PAD	440*560*3.0t(NEW BW-HIGH)	9205A0000160	1	
15	RING WASHER	ø12*ø4.4*3(DOLPHIN)	1210A0000630	2	
16	SCREW-MACHINE(PH)	M4*6	1502A0004060	1	
17	SCREW-MACHINE(OVH)	M4*12-SUS	1506MSU04120	2	
18	WASHER(FLAT)	ø6*ø18*1.6-SUS	1550MSU06180	4	
19	WASHER(ITO)	ø6-SUS	1553MSU06000	3	
20	SCREW-TAPPING(PH)-1	M3*8	1510A0003080	2	
21	SCREW-TAPPING(PH)-1	M3*20	1510A0003200	4	
22	NAME PLATE	DB-1(공용)	1800DB000330	1	
23	K/B SWITCH KNOB	11.4*11.4*6(DB,AD)	2000A000057A	4	

24	HEAD	DB-1(난연)	2004A0001320	1	
25	HEAD COVER	DB-1(난연)	2004A0001330	1	
26	DISPLAY COVER	DB-150(형식인증)(내수)DUAL	2050DB015003	1	
27	KEY BOARD PAD	DB-1,DB-1H(내수)	2200DB000000	1	
28	POWER TRANS(48)	220V/50~60Hz(AP) (외주)	7502PAP02200	1	
29	POWER CORD	SP-14(30/2.5)(내수)	7560PAC00030	1	
30	CORD STOPPER	DAOC-12N(DOL,AS)	7640S0000120	1	
31	CORD STOPPER	6NR32	7640S0006320	1	