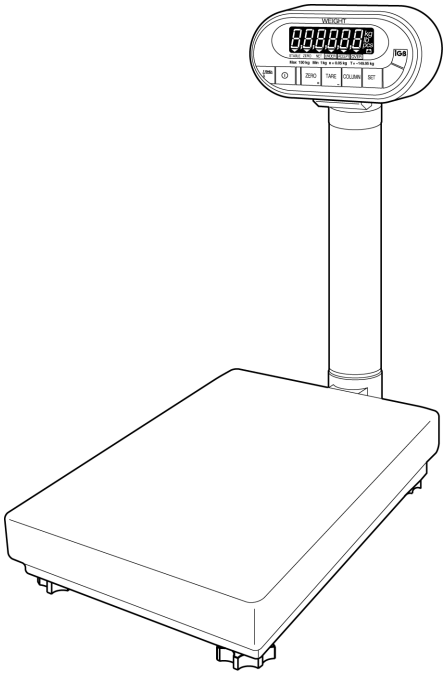
IGB/IGX Series

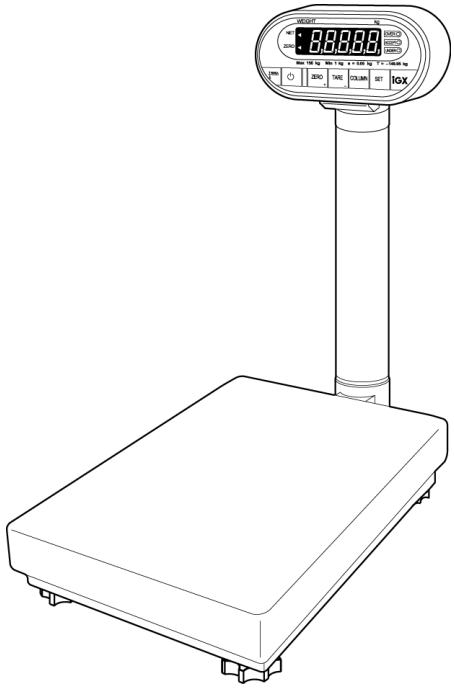
(Overseas Specifications)

Service Manual

The First Edition



IGB Series



IGX Series

Warning

- Read this manual thoroughly and do not perform installation, operation, maintenance, or inspection unless you fully understand all of the contents.
- Keep this manual in a safe place where you can refer to it easily while installing, operating, and carrying out maintenance or inspections.

This manual is for use by service personnel of our company or qualified to perform maintenance services for this machine. Use by anyone except the above personnel is not permitted.

Manual No. 085-3435-07

ISHIDA CO., LTD.

86547

CONTENTS

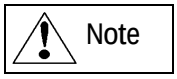
OUTLINE

- Purpose of this manual
- This manual is to be used as a reference for the maintenance servicing of IGB or IGX series.
- Related manual
- For placing the product, mounting the display pole, setup mode and setup values, refer to the operation manual.
- Symbols in the description

1. Warning symbols

Symbol	Meaning
	Indicates information that, if not heeded, is likely to result in loss of life or serious injury.
	Indicates information that, if not heeded, may result in loss of life or serious injury.
	Indicates information that, if not heeded, could result in relatively serious injury, damage to the machine or faulty operation.

2. Explanatory symbols

Symbol	Meaning
	Indicates additional information of particular importance.
	Indicates a page to refer to.
	Indicates information to help you understand the related text.

- Readers of this manual
  This manual is designated for use by servicing personnel. Use by other personnel is not permitted.
- This manual may be revised in accordance with modifications to the machine.
-

Chapter 1. Product Overview

1.1 Machine Outline

- The base of software used is the same as that of the IGB and IGX Series. Therefore, the Setup and Test mode items are same as those of the IGB and IGX Series. The machine functions are available within these standard specifications.
- A check function of the upper and lower weight limits are standardly provided with the IGB and IGX Series.
- The main board is different from that of the IGB and IGX Series. However, basic operations are same for these models.
- For the IGB Series, an LCD is adopted, and either two dry batteries or an AC adapter can be used as a power source.
- For the IGX Series, a VFD is adopted, and a wide selection of power sources ranging from 100 VAC to 240 VAC is available.

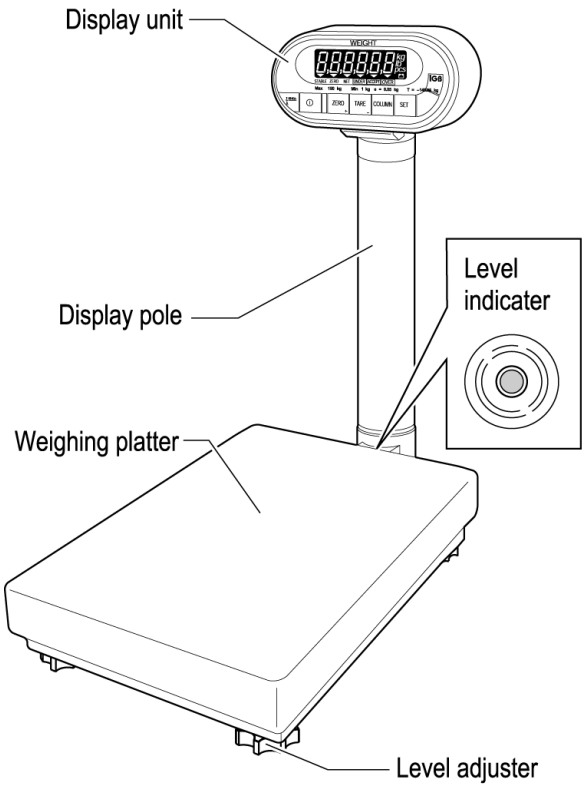
1.2 Standard Specifications

Item	Contents			
Model Name	IGB Series		IGX Series	
	IGB-60	IGB-150	IGX-60	IGX-150
OIML R76 Class III				
Weighing Capacity	60kg	150kg	60kg	150kg
Graduation	0.02kg	0.05kg	0.02kg	0.05kg
Accuracy	1/3000			
Non-OIML (ASIA)				
Weighing Capacity	60kg	150kg	60kg	150kg
Graduation	0.01kg	0.02kg	0.01kg	0.02kg
Accuracy	1/6000	1/7500	1/6000	1/7500
lb/kg Switching Specification (USA)				
Weighing Capacity	150lb/60kg	300lb/150kg	150lb/60kg	300lb/150kg
Graduation	0.05lb/0.02kg	0.1lb/0.05kg	0.05lb/0.02kg	0.1lb/0.05kg
Accuracy	1/3000			
Weighing Platter	550mm (L) x 400mm (W)			
Exterior Material	Display: ABS resins Display pole: Aluminum die-cast Weighing platter: Stainless (SUS304)			
Display Angle Adjust	Angle adjustable from the horizon (0°) to the front, Knob locking method			
Weight	16.0kg (excluding batteries)		16.8kg	
Environmental Condition	Temperature from -5°C to +40°C, Relative humidity 80%RH (max.) without condensation			

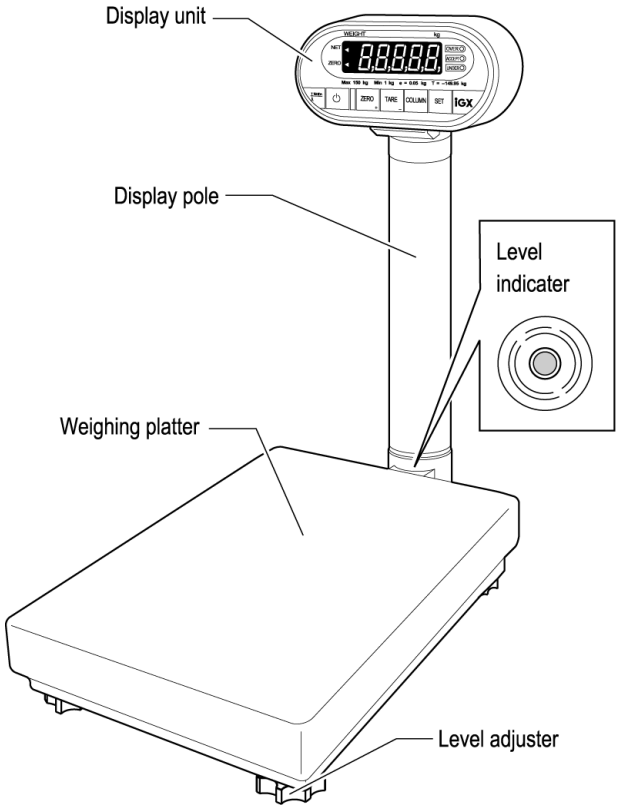
Item	Contents			
Model Name	IGB Series		IGX Series	
	IGB-60	IGB-150	IGX-60	IGX-150
Power Source	Two dry batteries (not included with the machine), or optional AC adapter [Battery Life] Conditions: No option, Temperature 20°C, Relative humidity 60%RH Two “D” size alkaline batteries (Approx. 500H continuous use)		The required transformer is provided for each 100VAC, 120VAC, 220VAC, or 240VAC.	
Power Consumption	25mA		100VAC: 57mA 120VAC: 46mA 220VAC: 28mA 240VAC: 23mA	
Display	・LCD Numerics: 6 digits, Height 25mm Mark: Battery. Zero point, Now subtracting tare, Stable, Weight unit (kg・lb), Over, Under, Accept		・VFD Numerics: 5 + 1/2 digits, Height 29mm Mark: Zero point, Now subtracting tare ・LED Over, Under, Accept	
Tare Subtraction	・Key-in tare ・Preset tare			
Preset Function	[Program Mode] 10 PLUs from PLU 1 to PLU 10 (Tare weight, Upper limit, Lower limit)			
Upper Limit Range	More than the lower limit, within 5 digits (99999)			
Lower Limit Range	Less than the upper limit, (5 digits in case of the upper limit = 0)			
Auto Power Off	[Setup Mode] None/10min./ 20min./ 30min./ 40min./ 50min./ 60min.		No	
Auto Preset Call-up	[Setup Mode] Function “Yes”/”No” selection (PLU 1 is called up when the power is ON.)			
Battery Check Mode	Yes		No	
Buzzer	No		[Setup Mode]	
ON/OFF Switch	No		[Setup Mode]	
Option	・AC adapter (Dealer option)			

1.3 Appearance

■IGB Series (Asia/Oceania Specification)

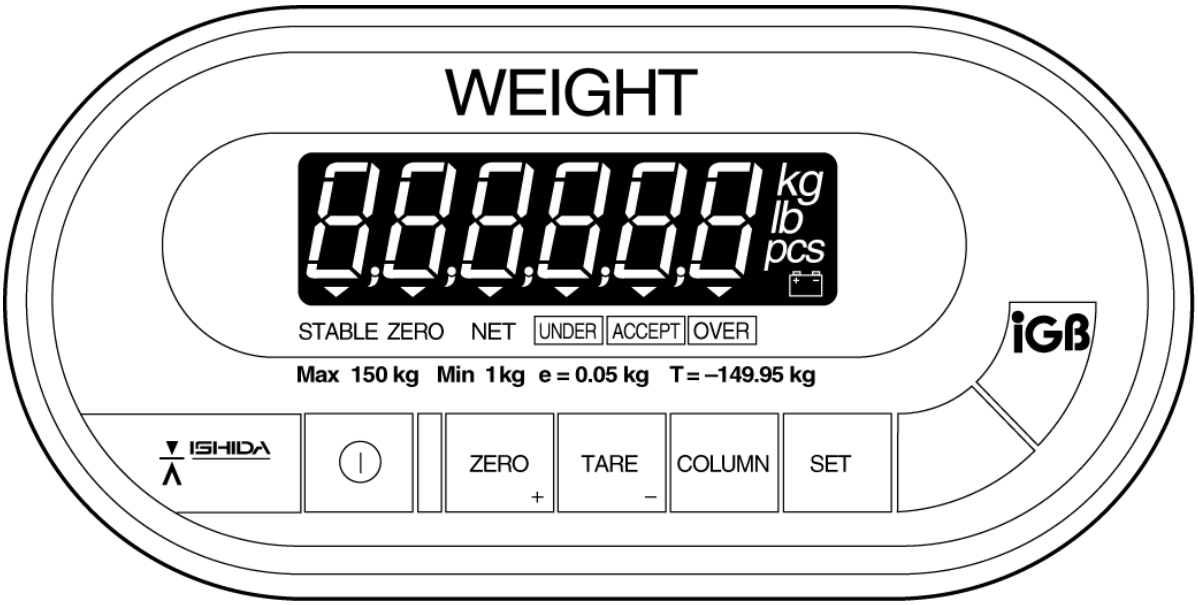


■IGX Series (Asia/Oceania Specification)

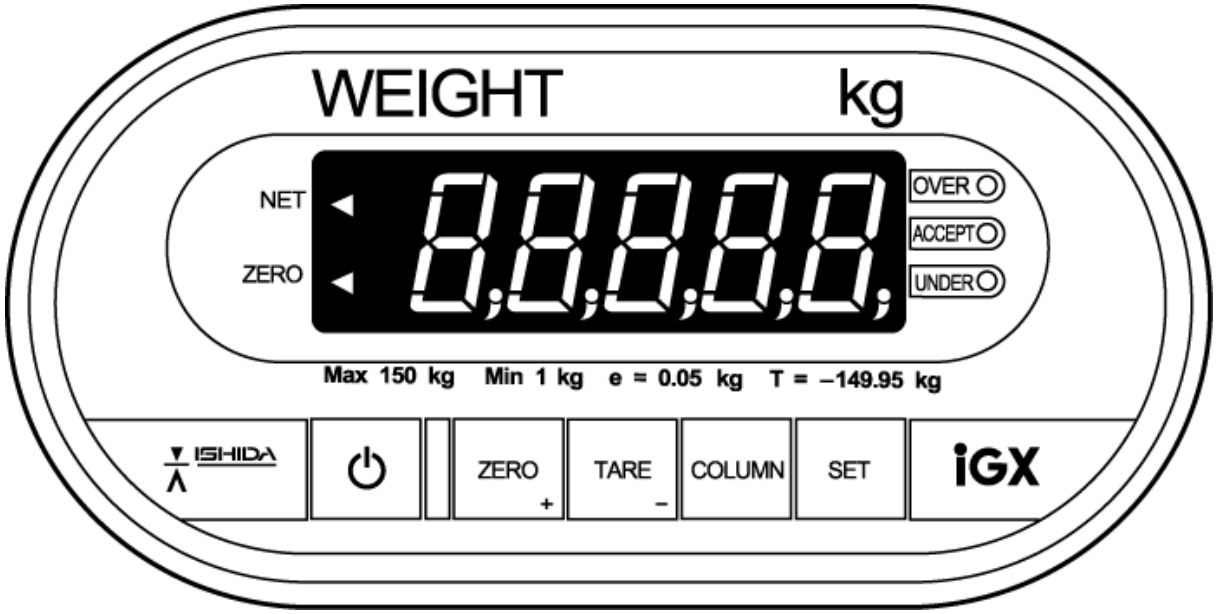


1.4 Display Unit

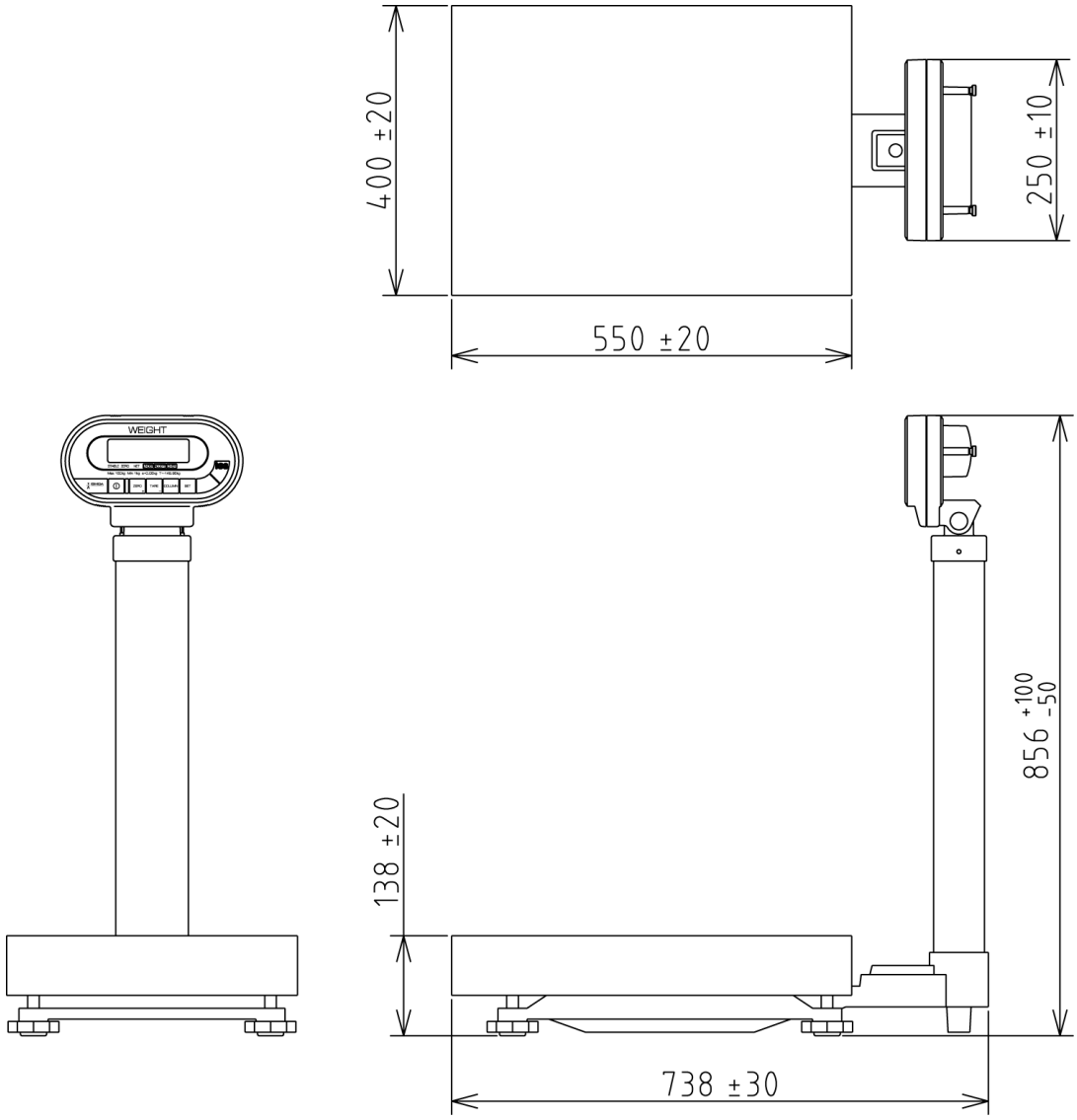
■IGB Series (Asia/Oceania Specification)



■IGX Series (Asia/Oceania Specification)



1.5 Outer Dimensions



(Unit: mm)

memo

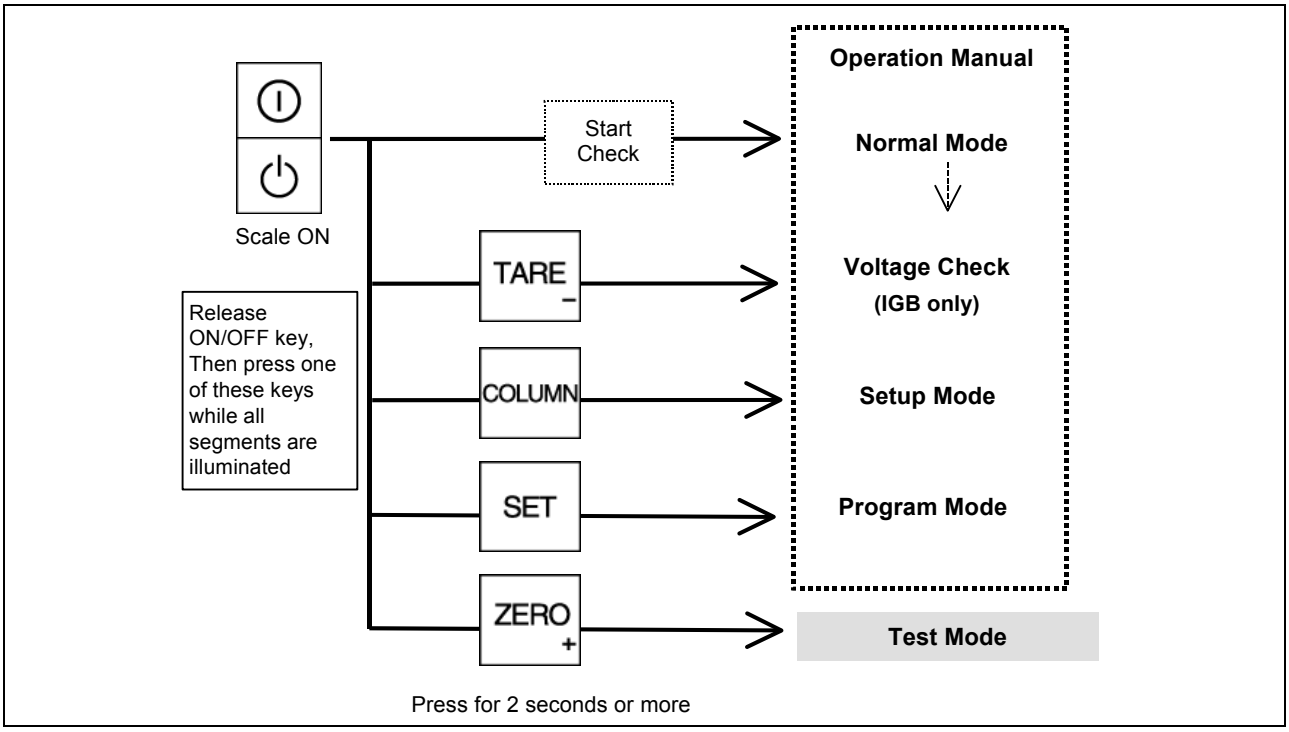
Chapter 2 Test Mode

The Test Mode is used to check the machine when maintenance is performed or to perform settings.

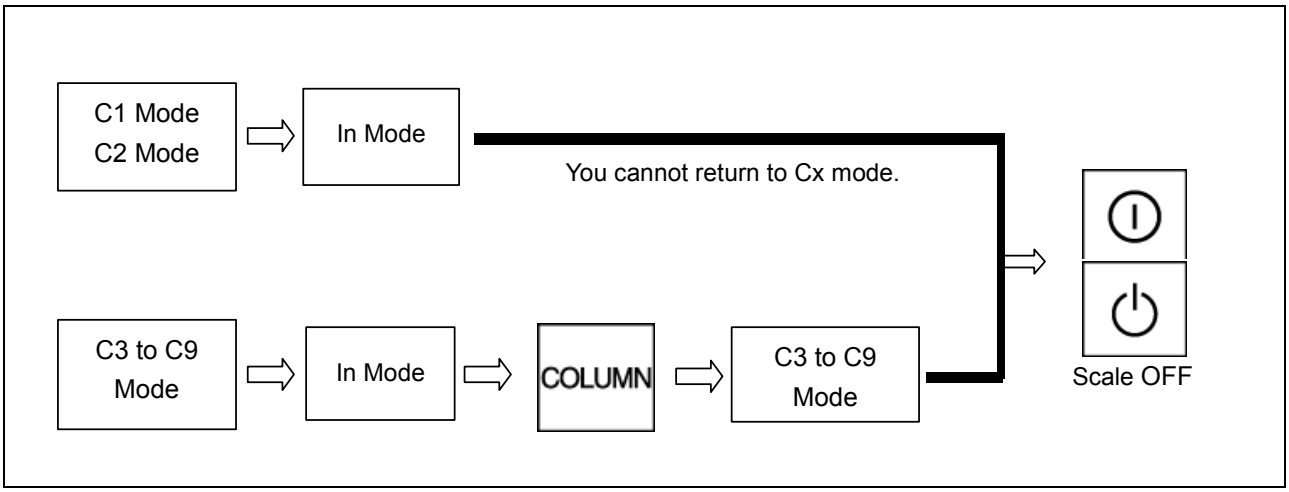
2.1 Operation

The keys used in the following diagram are for Asia/Oceania specifications. For specifications for other countries, use the corresponding keys.

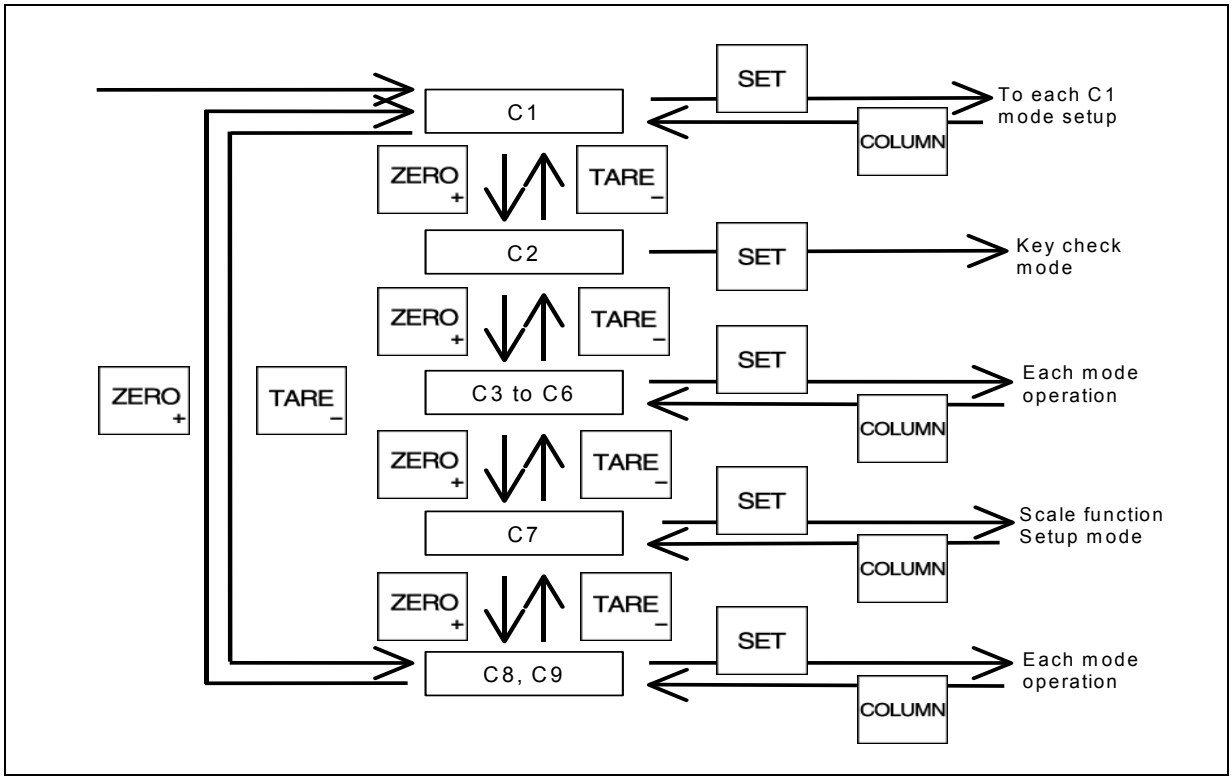
2.1.1 Starting Each Mode



2.1.2 Ending Test Mode



2.1.3 Test Mode Flow



2.1.4 Key Functions

Key	Function
	Turns the power ON or OFF for the IGB Series.
	Turns the power ON or OFF for the IGX Series. +5V is always supplied to the circuit voltage.
	Increases the numeric value (when the numeric value is set). Advances the mode (when conditions are set). Adjusts the zero point.
	Decreases the numeric value (when the numeric value is set). Reverses the mode (when conditions are set). Adjusts the span point.
	Determines the data in the Details Mode.
	Changes between “+ Adjust” (ZERO ← key [u display]) and “- Adjust” (TARE key [d display]) when the span is adjusted. Returns to each mode.
 **Memory switch**	(Tact switch on the main board) Saves the E2ROM data of each item setting of C1 mode.

2.1.5 Mode List

Mode	Contents
*C1	Country No., Scale No., Zero point, Span adjustment
C2	Key check
C3	Display check 1 (simplified check), All LEDs light up
C4	Display check 2 (detailed check), Each segment lights in sequence for each display digit.
C5	Program No. display
*C6	RAM clear (Program mode data) E2ROM clear (Program mode data and Test mode C1 data) (Span adjustment is required)
*C7	Settings for weighing conditions
C8	Reading E2ROM data
C9	Board check (A/D check, Interface check) for factory inspection

2.2 C1 Mode (Country No., Scale No., Zero point, Span adjustment)

2.2.1 Country No. Table

Country Name				USA 1	EU	AUS	ASIA	USA 2						JPN	IDV SET
Country Code				0	1	2	3	4	5	6	7	8	9	10	99
ADRS	POS	WGT	Function	Default Data (Change not allowed)											
112	A	H	Start width	2	2	2	2	2	2	2	2	2	2	4	-
	B	H	Stable/Re-stable count	3	3	3	3	3	3	3	3	3	3	3	-
113	A	H	Stable/Re-stable width	4	4	4	4	4	4	4	4	4	4	4	-
	B	H	Re-stable operation start width	4	4	4	4	4	4	4	4	4	4	4	-
114	A	1	Zero point mark	2	8	0	8	2	8	0	8	4	0	5	-
		2	Over-scale display												
		4	Display less than true zero												
		8	Decimal point display												
	B	1	Over-scale range	0	6	6	0	0	6	6	0	0	6	0	-
		2	Tare subtraction												
		4	Tare clear with ZERO key												
		8	Zero suppress												
115	A	1	Key-in tare subtraction	0	0	0	0	0	0	0	0	0	0	4	-
		2	Zero tracking												
		4	Micro weight follow-up												
		8	Unstable width												
	B	1	PLU display (IGB only)	0	6	6	6	4	6	6	6	5	5	5	-
		2	Stable display (IWB only)												
		4	Reserved												
		8	Reserved												

Note

1. By setting the country code, weighing conditions will function based on the default data from address 112 to 115.
2. The data is set to meet certified conditions for each country, so there is no need to change the data.
3. Position “A” indicates the upper position of one-byte data, and “B” indicates the lower position.
4. As for Weight, a function is selected with “1”, “2”, “4”, and “8” in bit unit, and “H” indicates Hexadecimal data.
5. Individual setting value “99” cannot be entered. (Displayed only when settings are changed in C7 mode)
6. “USA 2” code is settings to allow changing between “lb” and “kg” at anytime even in cases other than a stable condition at zero point. (“USA 1” can change between “lb” and “kg” only when the condition is stabilized at zero point)
   When using this function, a maximum of 0.2e error may occur in weighing immediately after the change. This error is calibrated by zero point adjustment (or zero tracking), and an accurate weighing is guaranteed.
   When selecting the weighing capacity exclusively for either “lb” or “kg”, use “USA 1”.

Reference

Refer to “Weighing Condition Data Table” for detailed function selection.

2.2.2 Scale No. Table

Scale No.	Specifications	Address			
		110A	110B	111A	111B
		Default Data			
0	150kg (0.05kg/0.02kg) Multi Interval	6	C	3	8
1	60kg (0.02kg/0.01kg) Multi Interval	2	B	3	8
2	30kg (0.01kg/0.005kg) Multi Interval	B	B	3	8
3	15kg (0.005kg/0.002kg) Multi Interval	7	C	3	8
4	6kg (0.002kg/0.001kg) Multi Interval	3	B	3	8
5	6000g (2g/1g) Multi Interval	0	B	B	8
6	3000g (1g/0.5g) Multi Interval	9	B	B	8
7	120kg (0.02kg) 1/6000 Single Range	6	B	2	8
8	60kg (0.01kg) 1/6000 Single Range	2	B	2	8
9	30kg (0.005kg) 1/6000 Single Range	B	B	2	8
10	15kg (0.002kg) 1/7500 Single Range	7	B	2	8
11	6kg (0.001kg) 1/6000 Single Range	3	B	2	8
12	300kg (0.1kg) 1/3000 Single Range	1	B	2	8
13	150kg (0.05kg) 1/3000 Single Range	A	8	2	8
14	60kg (0.02kg) 1/3000 Single Range	6	8	2	8
15	30kg (0.01kg) 1/3000 Single Range	2	8	2	8
16	15kg (0.005kg) 1/3000 Single Range	B	8	2	8
17	6kg (0.002kg) 1/3000 Single Range	7	8	2	8
18	6000g (2g) 1/3000 Single Range	4	8	A	8
19	3000g (1g) 1/3000 Single Range	0	8	A	8
20	150kg/60kg (0.05kg/0.02kg) Dual Range	6	C	5	8
21	60kg/30kg (0.02kg/0.01kg) Dual Range	2	B	5	8
22	30kg/15kg (0.01kg/0.005kg) Dual Range	B	B	5	8
23	15kg/6kg (0.005kg/0.002kg) Dual Range	7	C	5	8
24	6kg/3kg (0.002kg/0.001kg) Dual Range	3	B	5	8
25	6000g/3000 (2g/1g) Dual Range	0	B	D	8
26	3000g/1500 (1g/0.5g) Dual Range	9	B	D	8
27	150kg/150k (0.1kg/0.05kg Dual Range Fishery specification	A	8	5	8
28	150kg (0.05kg) 1/3000 Single Range Body weight specification	A	8	4	2
29	30kg (0.01kg) 1/3000 Single Range Baby scale specification	2	8	4	2
30	300lb/150kg (1/3000) Multi Interval	6	C	7	8
31	150lb/60kg (1/3000) Multi Interval	2	B	7	8
32	60lb/30kg (1/3000) Multi Interval	B	B	7	8
33	30lb/15kg (1/3000) Multi Interval	7	C	7	8
34	15lb/6kg (1/3000) Multi Interval	3	B	7	8
99	Individual scale settings	-	-	-	-

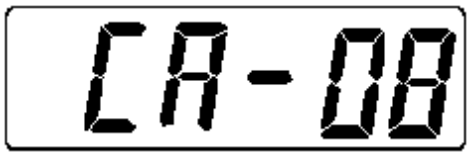
Note

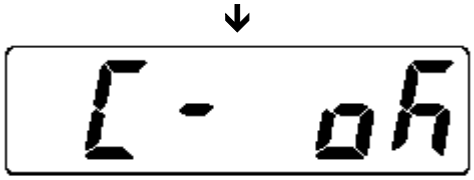
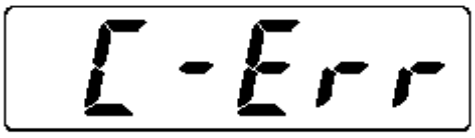
1. By setting the Scale No., the scale will function according to default data of addresses 110 and 111.
2 The above data determines each specification, so changing the data is prohibited.
3 Data A indicates the upper position of the one-byte data, and B indicates the lower position.

Reference

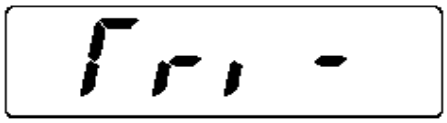
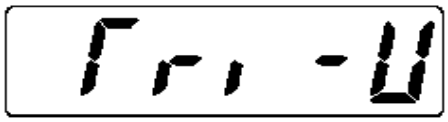
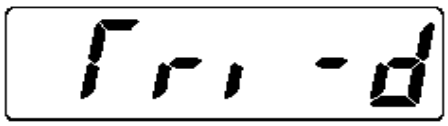
Refer to “Weighing Condition Data Table” for data details.

2.2.3 Operation Procedure

Operation	Display
1. Starting Test Mode (C1) ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit. ・ Press **SET**.	
2. Setting Country Number ・ To increase the number, press **ZERO(+)**. ・ To decrease the number, press **TARE(-)**. ・ Press **SET**. **[Example] Asia = 3**	
3. Setting Scale Number ・ When setting “60kg”, select “08”. ・ Press **SET**.	
4. Selecting Weight at Span Adjustment The following weight can be selected: **kg:** 1/1.0→1/2.0→1/2.5→1/5.0 of weighing capacity **lb:** 1/1.0→1/2.0→1/2.5→1/5.0 of weighing capacity ・ Pressing **ZERO(+)** selects the next item in the above sequence, and pressing **TARE(-)** selects the previous item. **[Example]** Selecting “kg” unit and “1/2.0” for weighing capacity “150kg” will require the total 75kg weight. To change between “lb” and “kg”, press **ZERO(+)** and **TARE(-)** at the same time.	 **kg** unit: Same weight is used as weighing capacity.  **kg** unit: Half weight is used of weighing capacity.  **lb** unit: Same weight is used as weighing capacity.
5. Zero Point Adjustment After selecting the weight amount, ensure that nothing is placed on the weighing platter, then press **SET**. The previously set zero point A/D data will be displayed. Zero point indicator ◀ will light up.	
Press **ZERO(+)** to set “20000” counts forcibly. Zero point indicator ◀ will go off.	

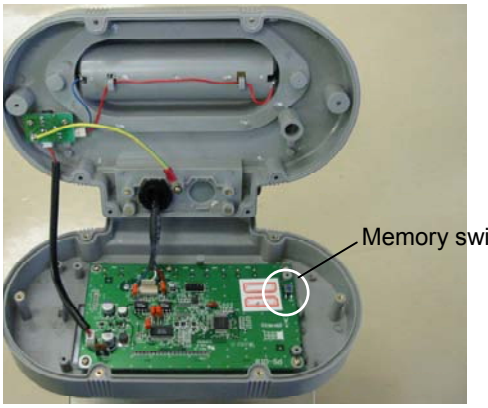
Operation	Display
6. Span Adjustment Place the selected weight on the weighing platter, then press **TARE(-)**. **[Example]** 60kg Scale: Weight selection: “kg” unit and “1/1” Place a 60kg weight, 30000 + Zero point 20000 = 50000 counts In case of “kg” unit “1/2” for a weight selection, place a 30kg weight, then 15000 + Zero point 20000 = 35000 counts ・ One graduation equals 5 counts. Processing is automatically executed in the following order: **[Calib]** (Calibration) Computing process executing **[C- OK]** (Calibration OK) Computing result succeeded [No. of adjusted counts] Computing result **[C-Err]** will be displayed, indicating a computing result error when span adjustment is performed without placing a weight. Place a weight and press **TARE(-)**.	     (Calibration error)
7. Saving Data To save Country No., Scale No., Zero point, and Span data in E2ROM. ・ Remove the weight from the weighing platter. ・ Remove the seal covering the opening on the rear case of display unit. ・ Insert a thin rod such as the inner shaft of a ball-point pen into the hole, and push the Memory Switch located on the main board. When writing has finished normally, **[S-OK]** will be displayed. ・ To release the above status, press **COLUMN**. Then, the display will return to A/D data.	  
8. Finishing Procedure ・ Press **ON/OFF** to finish this procedure.	OFF status

■When Performing Fine Span Adjustment

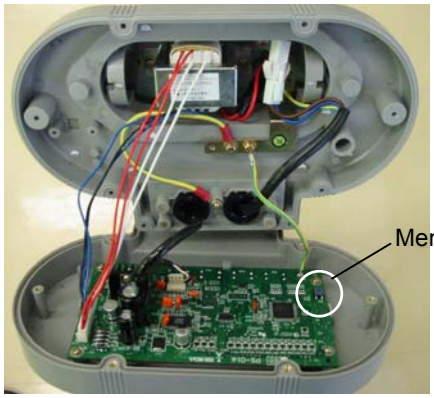
1. Trimming ・ After span adjustment, press **COLUMN** while the A/D data is displayed. [Tri-] (Trimming) display will appear. (This is possible even with the weight placed)	
2. Trimming Up ・ Press **ZERO(+)**, then [**Tri-U**] will be displayed. Press **ZERO(+)** for the desired number of times to increase the span. **3. Trimming Down** ・ Press **TARE(-)**, then [Tri-d] will be displayed. Press **TARE(-)** for the desired number of times to decrease the span. Note: The change amount for one time may differ depending on each machine; however, approximately one count for one time is average.	 
4. Repeating Steps ・ Press **COLUMN**, then A/D data will be displayed. Place a weight on the weighing platter, and perform adjustment by repeating steps 1, 2, and 3 above.	
5. Saving Data ・ After completing the adjustment, press **COLUMN** to save the data.	

■Memory Switch

The memory switch is located on the main board.



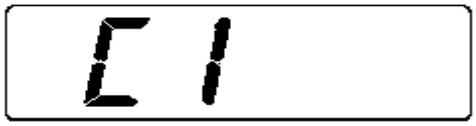
IGB Series



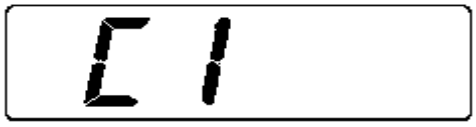
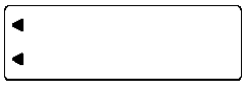
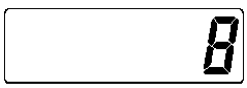
IGX Series

Pushing memory switch

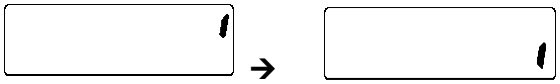
2.3 C2 Mode: Key Check

Operation	Display
1. Starting Test Mode (C1) ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C2 Mode ・ Press **ZERO(+)**.	
3. Checking Keys ・ Press **SET**. [KEY-0] indicates that there is no key entry.	
4. Checking Keys **ZERO(+)** → 1 **TARE(-)** → 2 **＊** → 3 **SET** → 4 **EXT. INPUT** → 5 **MEMORY SW** → 6	
5. Finishing Procedure ・ Press ON/OFF to finish this procedure.	OFF status

2.4 C3 Mode: Display Check 1 (Simplified Check)

Operation	Display
1. Starting Test Mode (C1) ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C3 Mode ・ Press **ZERO(+)** twice.	
3. Checking Displays ・ Press **SET**. The display shows self-diagnostic check.	 →   → 
4. Returning to Test Mode ・ Press **COLUMN** to return to Test Mode.	

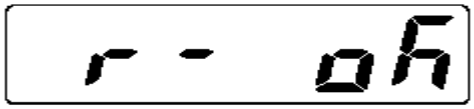
2.5 C4 Mode: Display Check 2 (Detailed Check)

Operation	Display
1. Starting Test Mode (C1) • Press **ON/OFF**. • Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C4 Mode Press **ZERO(+)** three times.	
3. Checking Displays • Press **SET**. The display shows self-diagnostic check.	
4. Returning to Test Mode • Press **COLUMN** to return to Test Mode.	

2.6 C5 Mode: Program No Display

Operation	Display
1. Starting Test Mode • Press **ON/OFF**. • Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C5 Mode • Press **ZERO(+)** four times.	
3. Displaying Program Number • Press **SET**. The installed program number (D005) will be displayed.	
4. Returning to Test Mode • Press **COLUMN** to return to Test Mode.	

2.7 C6 Mode: RAM Clear and E2ROM Clear

Operation	Display
1. Starting Test Mode ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C6 Mode ・ Press **ZERO(+)** five times.	
3. Press SET.	
4. RAM Clear (Preset data of Program Mode is cleared) ・ Press **ZERO(+)**. ・ Press **ZERO(+)**.	 
5. Press COLUMN to return to Test Mode.	

E2ROM Clear (Initializing E2ROM data)

6. Press SET.	
7. Push the Memory Switch (SW1) located on the main board. (This does not work when there has been no data change) Note: C1 data and setting data (F01toF17) have been initialized. Settings are required.	 
8. Press ON/OFF. After initialization, nothing except “C1” will be displayed. C1 data settings (Country No., Scale No., Zero point, Span adjustment) are required.	

2.8 C7 Mode: Weighing Condition Setting

Note

Setting Country No. and Scale No. determine the weighing conditions for securing certified specifications of the country.
Individual contents can be changed in this mode.
Specifications must be selected when used overseas.

Operation	Display
1. Starting Test Mode ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C7 Mode ・ Press **ZERO(+)** six times. Or, press **TARE(-)** three times.	
3. Press SET. To change data: Select the desired data by pressing **ZERO(+)** to increase, or **TARE(-)** to decrease the address. To fix the data or advance the address: Press **SET**.	 3-digit address + A (Upper data) - Data  3-digit address + B (Lower data) - Data
4. After changing data Push the Memory Switch (SW1) located on the main board. (This does not work when there was no data change)	
5. Press COLUMN twice to return to Test Mode.	

Reference

Addresses for weighing condition settings are from 110 to 115.
Refer to the next page.

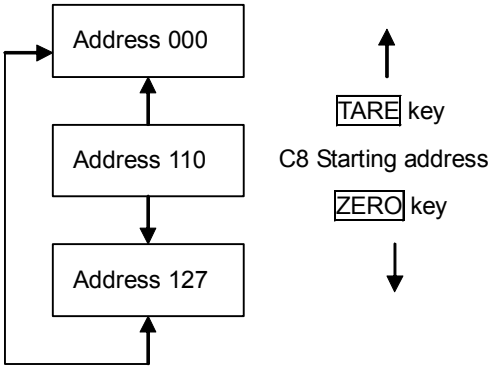
■Weighing Condition Setting Table

Address	Weight	Item	Data
110A	1	Decimal point position	0: 0 1: 0.0
	2		2: 0.00 3: 0.000
	4	Minimum graduation	0: 1 (1-2 change in Dual range/ Multi Interval) 4: 2 (2-5-10 change in Dual range/ Multi Interval)
	8		8: 5 (5-10-20 change in Dual range/ Multi Interval) C: Invalid
110B	-	Accuracy (Resolution)	0: 1/500 1: 1/600 2: 1/750 3: 1/1000 4: 1/1200 5: 1/1500 6: 1/2000 7: 1/2500 8: 1/3000 9: 1/4000 A: 1/5000 B: 1/6000 C: 1/7500 D: 1/10000 E: 1/12000 F: 1/15000
111A	1	Changing method	0: Single range LED stable display only (IGX) 1: 1/3000 Multi interval Stabe/Upper/Lower display (IGB) 2: Single range Upper/Lower display (IGX) 3: 1/3000 Multi interval Stabe/Upper/Lower display (IGB) 4: Single range (Body weight specification) 5: 1/3000 Dual range (A/B range change) 6: Single range (lb/kg change) 7: 1/3000 Multi interval (lb/kg change)
	2		
	4		
	8	Weight unit (Valid only for communications)	<111A> <111B> 0 + 0: kg (kg - lb) 8 + 0: g 0 + 1: lb 8 + 1: oz
111B	1		
	2	Filter setting Do not change the data.	(Cut off) (Notch) (Output rate) 0: 0.66Hz 2.50Hz 400ms 2: 0.84Hz 3.20Hz 312ms 4: 1.05Hz 4.00Hz 250ms 6: 1.31Hz 5.00Hz 200ms 8: 1.68Hz 6.40Hz 156ms A: 2.10Hz 8.00Hz 125ms C: 2.62Hz 10.00Hz 100ms E: 3.35Hz 12.80Hz 78ms
	4		
	8		

Address	Weight	Item	Data
112A	-	Start width	0: ±1/50 (±2%) of weighing capacity 1: ±1/25 (±4%) of weighing capacity 2: ±1/10 (±10%) of weighing capacity 3: ±1/7.5 (±13.3%) of weighing capacity 4: ±1/6 (±16.6%) of weighing capacity 5: ±1/5 (±20%) of weighing capacity 6: ±1/4 (±25%) of weighing capacity 7: ±1/3 (±33.3%) of weighing capacity 8: ±1/2 (±50%) of weighing capacity 9 and more: Invalid
112B	-	Stable/Re-stable count	0 through 15 times
113A	-	Stable/Re-stable width	n=0 through 15 (±n/10 e)
113B	-	Re-stable operation start width	n=0 through 15 (±n/10 e)
114A	1	Zero point mark	0: Light at true zero 1: Light at dummy zero
	2	Over-scale display	0: Blank 1:”OL”
	4	Display below true zero	0: “----------“ 1: Minus numeric value
	8	Decimal point form	0: ”.” 1: ”,”
114B	1	Over-scale range	0: Display upto +9e 1: Display upto +3e
	2	Tare subtraction	0: Yes 1: No
	4	Tare clear with ZERO key	0: No 1: Yes
	8	Zero supress display (Multi Interval specification only)	0: Yes 1: No
115A	1	Key-in preset tare subtraction and preset single weight function Preset unit weight function	0: Yes 1: No
	2	Zero tracking	0: Yes 1: No
	4	Micro weight follow-up	0: Yes 1: No
	8	Unstable width	0: ±0.5e 1: ±20e
115B	1	No. of PLUs and PLU display (IGB only)	0: 10 PLUs 1: 5 PLUs Display No display
	2	Stable display (IGB only)	0: “∗” display 1: “▼” cursor display
	4	Weight unit cursor display	0: Always light 1: Light only when “No change”is set
	8	Reserved	

2.9 C8 Mode: E2ROM Data Reading

Data from address 000 to address 127 can be read.

Operation	Display
1. Starting Test Mode ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C8 Mode ・ Press **ZERO(+)** seven times. Or, press **TARE(-)** twice.	
3. Press SET. **To change an address** Press **ZERO(+)** to increase an address. Press **TARE(-)** to decrease an address. 	 Address 3 digits —Data 1 byte
4. Press COLUMN to return to Test Mode.	

E2ROM Data

Address	Item	Data Range	Remarks
0 to 99	・Preset data (10 PLUs) ・Upper limit 17bit ・Lower limit 17bit ・Tare amount (A range) 18bit ・Tare amount (B range)/Single weight 20bit ・Check sum 8bit	0 to 60000	Data set in Program Mode of Operation Manual. 10 byte × 10 data Reference Refer to IGB/IGX Operation Manual.
100A	Scale mode data Capacity (bit1) lb mode (bit2) Counting (bit3)	0 to F	
100B	Reserved	-	

Address	Item	Data Range	Remarks
101	100A and 100B check data (Writing twice)	-	
102A	Selection of ON/OFF key function (bit 0) Selection of Preset auto call-up function (bit 1) Selection of 16/24 digit printer (bit 2) Selection of Date print function (bit 3)	0 to 1 (F1) 0 to 1 (F2) 0 to 1 (F3) 0 to 1 (F4)	Data set in Setup Mode of Operation Manual.
102B	Selection of Preset No. print function (bit4) Selection of single/consecutive chit print (bit5) Selection of Tare amount print function (bit6) Selection of Upper/Lower limits print function (bit7)	0 to 1 (F5) 0 to 1 (F6) 0 to 1 (F7) 0 to 1 (F8)	Reference Refer to IGB/IGX Operation Manual.
103A	Baud rate setting (bit 0 to 3)	0 to F (F9)	
103B	Output message specification (bit 4 to 7)	0 to F (F10)	
104A	Data output method (bit 0 to 3)	0 to F (F11)	
104B	Data output condition (bit 4 to 7)	0 to F (F12)	
105A	Contact output signal setting (bit 0 to 3)	0 to F (F13)	
105B	Contact input signal setting (bit 4 to 7)	0 to F (F14)	
106A	High-level buzzer output setting (bit 0 to 3)	0 to F (F15)	
106B	Built-in buzzer selection function (bit 4 to 7)	0 to F (F16)	
107A	Automatic power off setting (bit 0 to 3)	0 to 6 (F17)	
107B	Reserved		
108 to 109	Check sum from 102 to 107	-	
110 to 115	Weighing condition setting data		Refer to Weighing condition setting table.
116A	Country code (Refer to Country code table)	0 to F	(Default 10: Japan)
116B	Reserved	0	
117A	Reserved	0	
117B	Reserved	0	
118 to 120	A/D zero point data (adref)	24 bit	
121 to 123	A/D calibration data (adwidth)	24 bit	
124	Weighing capacity setting (Refer to Capacity setting table)	00 to 99	(Default 1: 60kg)
125A	JAPAN only	0 to F	
125B	Span adjusted flag	5H or others	5H=OK Others=Error
126, 127	Check sum from 100 to 113.	-	

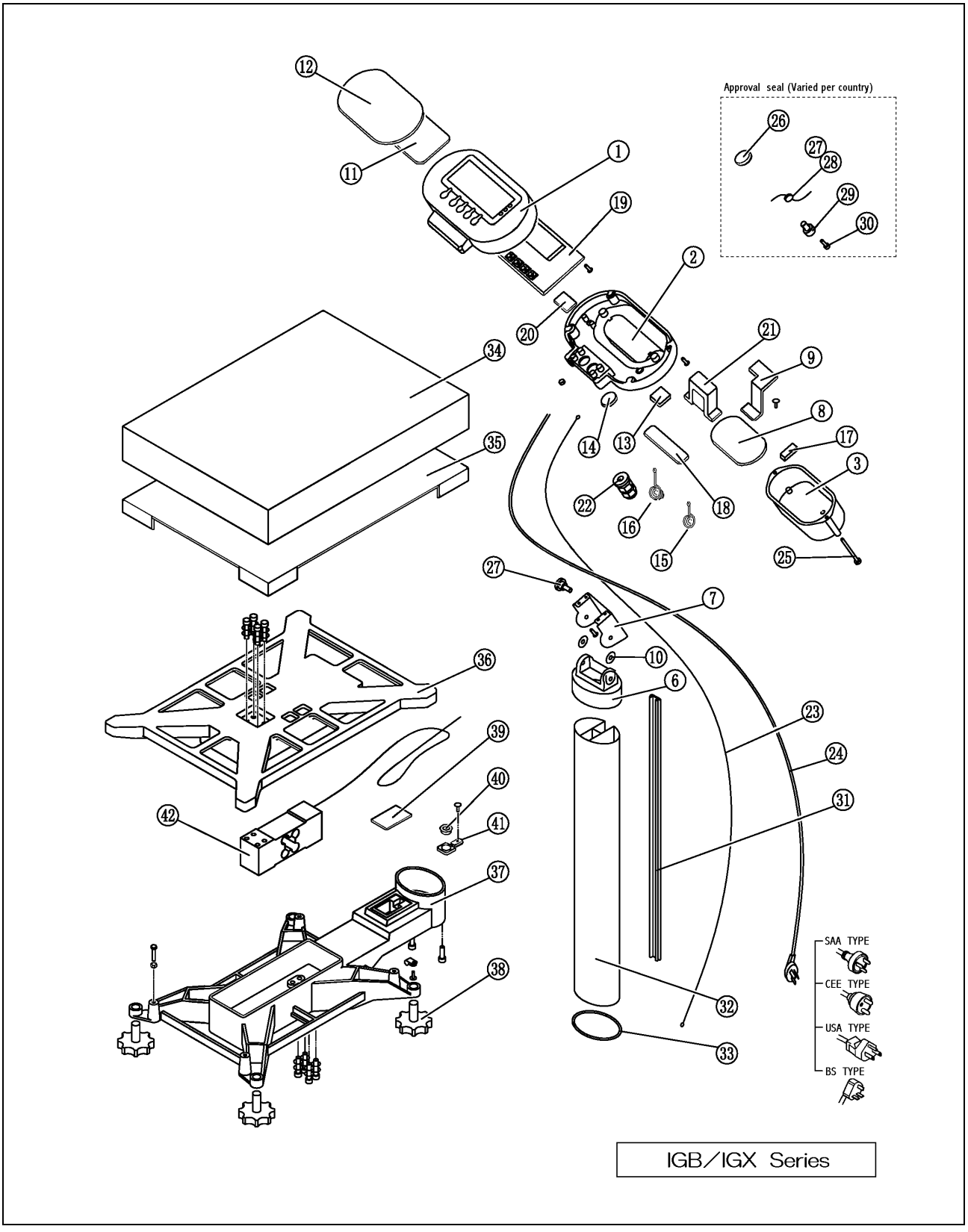
2.10 C9 Mode: Board Inspection (A/D Check, I/F Check)

This mode is for factory inspection, and shall not be used for maintenance.

Operation	Display
1. Starting Test Mode ・ Press **ON/OFF**. ・ Press and hold **ZERO(+)** while all segments are lit.	
2. Entering C9 Mode ・ Press **ZERO(+)** eight times. Or, press **TARE(-)**.	
3. Press SET. Span adjusted A/D data is displayed.	
4. Press SET. A/D converter output value is displayed. However, the lower 3 bits of 24-bit output change rapidly and are outside of visual inspection range, so they are excluded.	
5. Press ZERO(+). Used for A/D board drift inspection. The inspection result is displayed: OK or Err	  
6. Press TARE(-). Connect the inspection jig and all I/O ports are checked. The inspection result is displayed: OK or Err	 
7. Press COLUMN to return to Key Test Mode.	

Chapter 3 Hardware Configuration

3.1 Mechanical Parts



■IGB Series Service Parts List

No.	Part Name	Remark	Part No.	Q'ty
1	CASE FRONT		900-0756-05	1
2	CASE REAR 'BATTERY'		900-0753-04	1
3	COVER 'BATTERY'		900-0754-08	1
6	BRACKET		900-0725-00	1
7	BRACKET 'DISPLAY'		900-0726-03	1
10	WASHER 'RUBBER'		900-0748-05	2
11	FILTER 'DISPLAY'		900-0755-01	1
12	SHEET 'DISPLAY'	60kg	Varied per country	1
12	SHEET 'DISPLAY'	150kg	Varied per country	1
14	SHEET 'COVER'		900-0793-03	1
15	SPRING 1		900-1013-05	1
16	SPRING 2		900-1014-18	1
17	CUSHION BATTERY		900-0319-01	4
18	NAME PLATE 'SPEC.'	60kg	Varied per country	1
18	NAME PLATE 'SPEC.'	150kg	Varied per country	1
19	PWB PS-018		900-0677-04	1
20	PWB PS-019		900-0767-06	1
22	CABLE LOCKING (PG-11)		900-0758-02	1
23	HARNESS 'S2' GND		900-0772-05	1
25	SCREW M 4×45		900-0842-02	2
26	SHEET		900-1064-05	2
31	SIDE COVER		900-0037-11	1
32	POLE STAND		900-0032-49	1
33	RUBBER RING		900-0207-07	1
34	PLATTER		072-8847-05	1
35	SHEET 'PLATTER '		900-0100-02	1
36	PLATE SUPPORT		900-0021-11	1
37	BASE		900-0020-35	1
38	FOOT 'LEVEL'		900-0022-05	4
39	PLATE A 'LEVEL'		900-0222-03	1
40	LEVEL UNIT ASS.		900-0315-15	1
41	BRACKET 'LEVEL'		900-0010-01	1
42	LOAD CELL (LOC-ISS10-100kg)	60kg	900-0815-01	1
42	LOAD CELL (LOC-ISS10-300kg)	150kg	900-0816-05	1

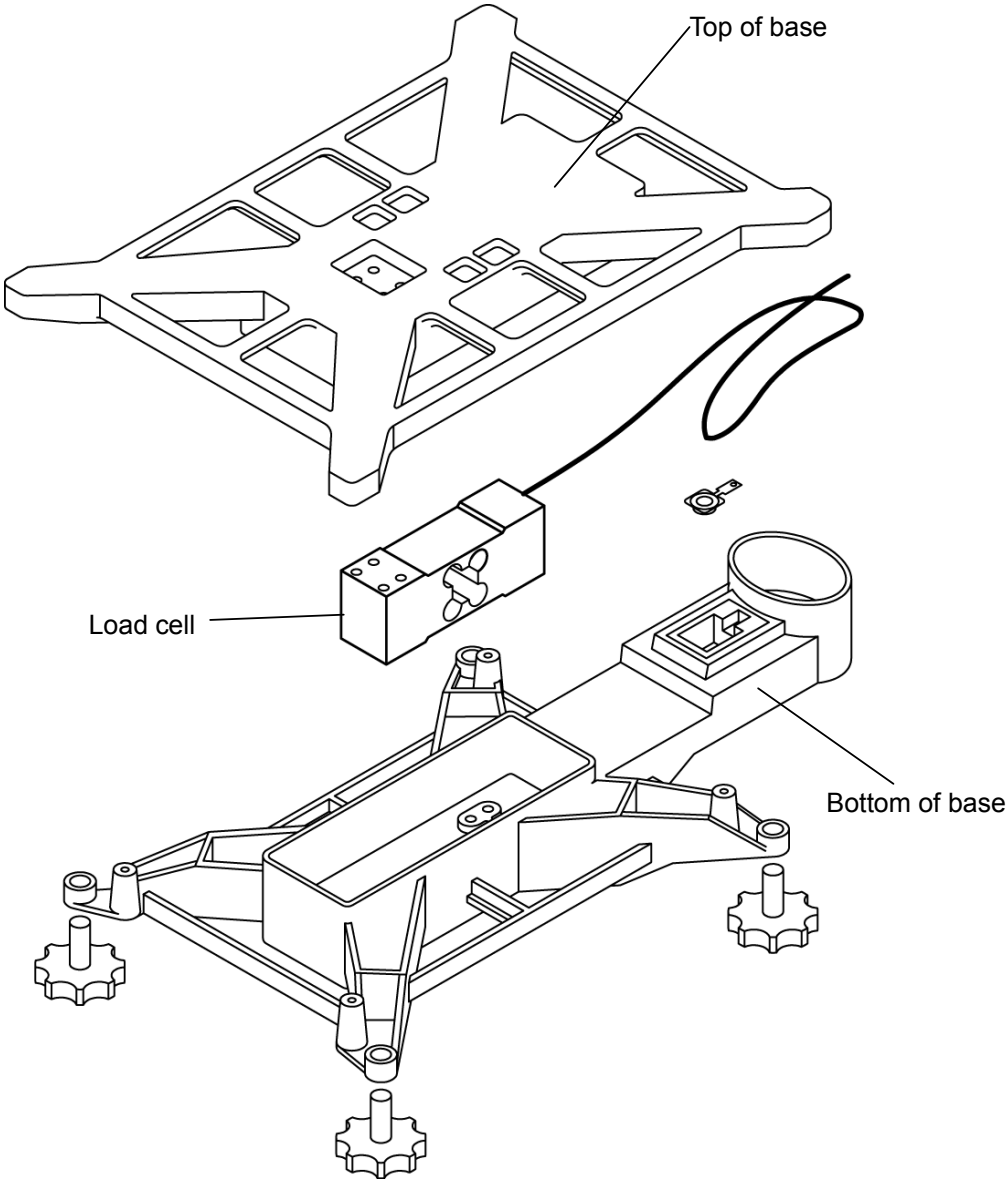
Note: Part numbers may change without notice due to product improvements.

■IGX Series Service Parts List

No.	Part Name	Remark	Part No.	Q'ty
1	CASE FRONT		900-0756-05	1
2	CASE REAR ’TRANSFORMER’		900-0757-09	1
3	COVER ’BATTERY’		900-0754-08	1
6	BRACKET		900-0725-00	1
7	BRACKET ’DISPLAY’		900-0726-03	1
8	PLATE EARTH		900-0727-07	1
9	BRACKET 'CASE'		900-0829-03	1
10	WASHER ’RUBBER ’		900-0748-05	2
11	FILTER ’DISPLAY’		900-0755-01	1
12	SHEET ’DISPLAY’	60kg	Varied per country	1
12	SHEET ’DISPLAY’	150kg	Varied per country	1
13	SHEET ’AC ADAPTER’		900-0770-08	1
18	NAME PLATE ’SPEC ’	60kg	Varied per country	1
18	NAME PLATE ’SPEC.’	150kg	Varied per country	1
19	PWB PS-016		900-0676-01	1
21	TRANSFORMER ASSY		900-1697-02	1
22	CABLE LOCKING (PG-11)		900-0758-02	2
23	HARNESS 'S2' GND		900-0772-05	1
24	HARNESS 'C3' POWER CORD		Varied per country	1
26	SHEET		900-1064-05	2
31	SIDE COVER		900-0037-11	1
32	POLE STAND		900-0032-49	1
33	RUBBER RING		900-0207-07	1
34	PLATTER		072-8847-05	1
35	SHEET ’PLATTER ’		900-0100-02	1
36	PLATE SUPPORT		900-0021-11	1
37	BASE		900-0020-35	1
38	FOOT ’LEVEL ’		900-0022-05	4
39	PLATE A ’LEVEL ’		900-0222-03	1
40	LEVEL UNIT ASS.		900-0315-15	1
41	BRACKET ’LEVEL ’		900-0010-01	1
42	LOAD CELL (LOC-ISS10-100kg)	60kg	900-0815-01	1
42	LOAD CELL (LOC-ISS10-300kg)	150kg	900-0816-05	1

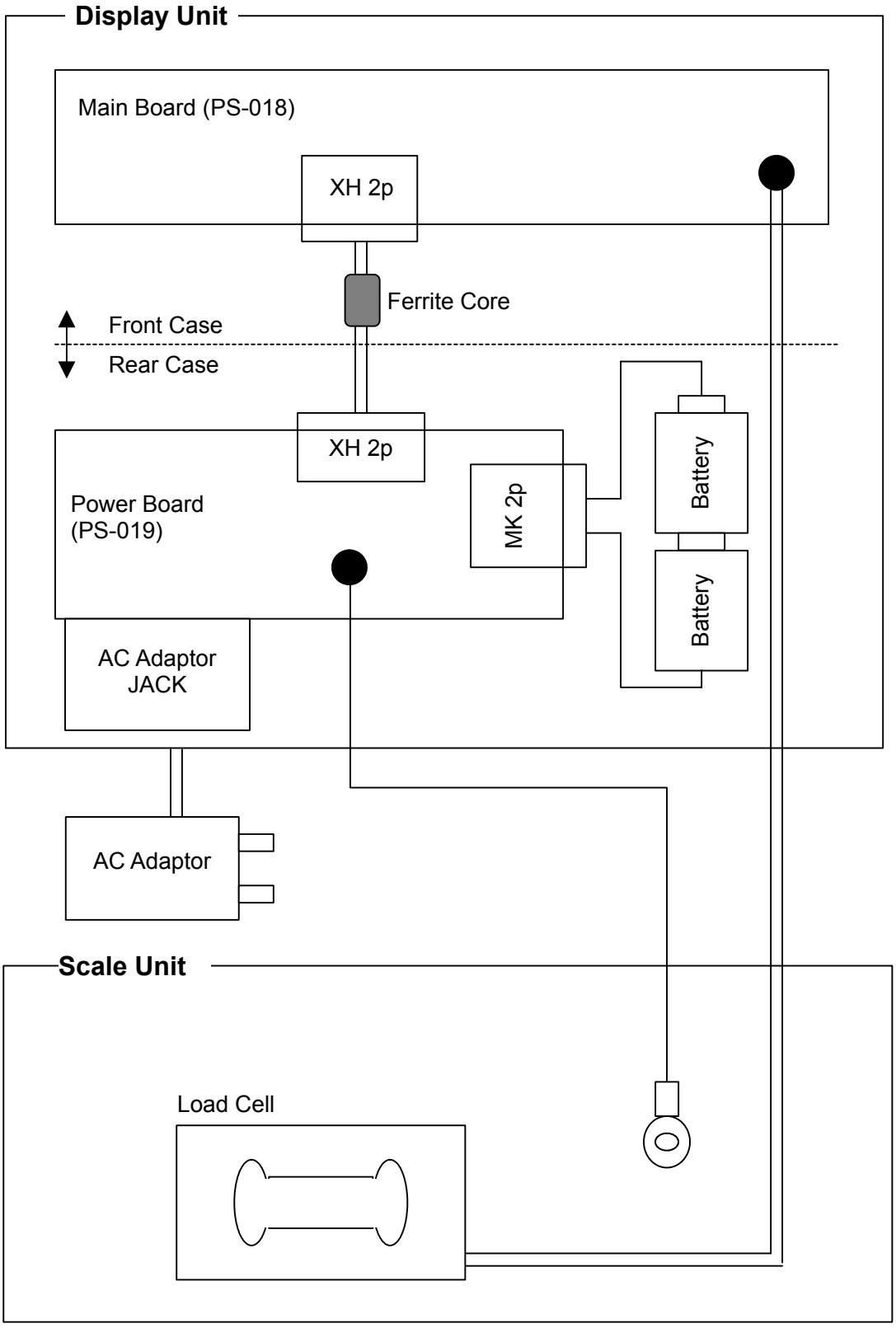
Note: Part numbers may change without notice due to product improvements.

3.1.1 Load Cell



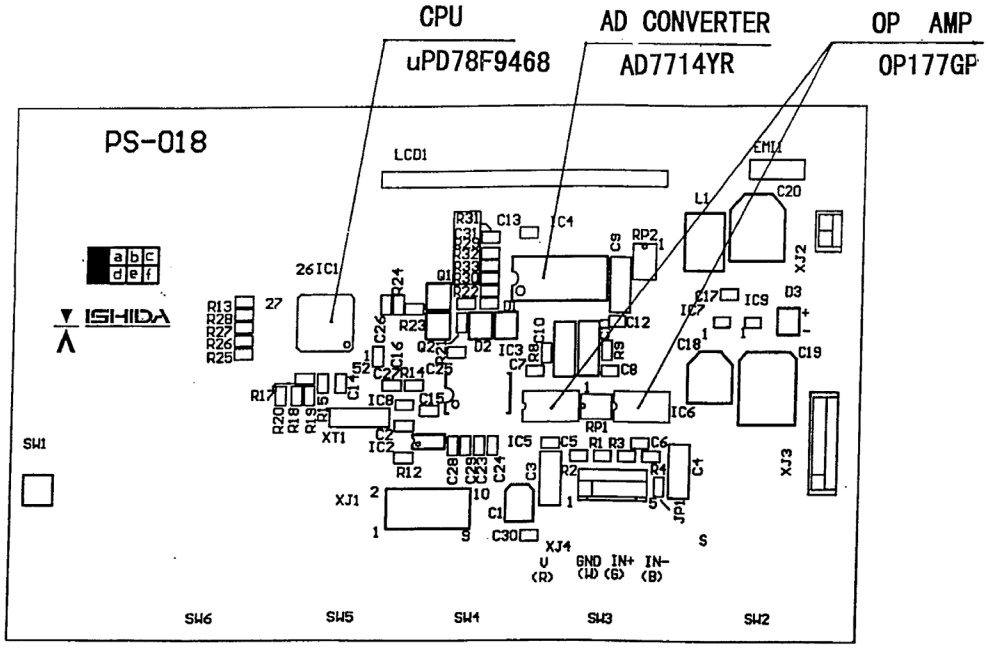
3.2 Electric Parts (IGB Series)

3.2.1 IGB Block Diagram



3.2.2 Main Board (PS-018)

Parts Surface of Main Board (The LCD and tact keys are installed on the soldering surface)



(1) SW1: Memory Switch

Used to write the data when performing initialization in Test Mode.
Used to save (write) the data in E2ROM after changing Country No. and Scale No., and performing Span Adjustment.

(2) Connector XJ1

This connector is not used.

Pin No.	Signal Name
1	IN1
2	OUT4
3	OUT3
4	OUT2
5	OUT1

Pin No.	Signal Name
6	NC
7	RESET
8	VPP
9	GND
10	VCC

(3) Connector XJ2

This connector is used for DC input.

Pin No.	Signal Name
1	+DC
2	-DC

(4) Connector XJ3

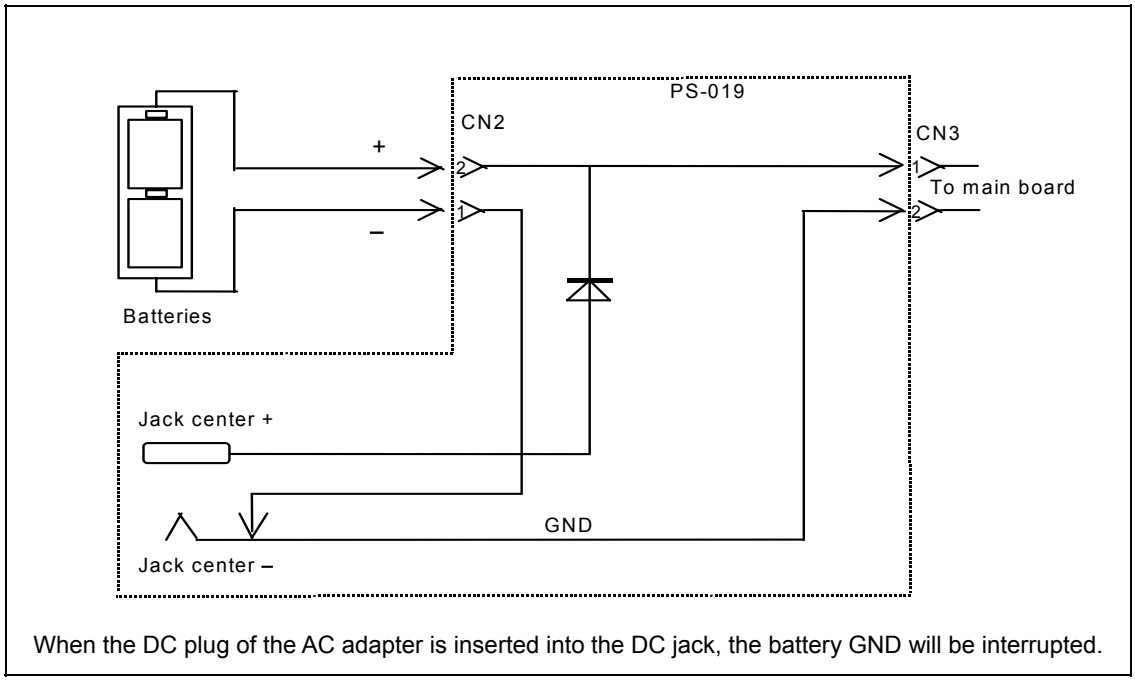
This connector is not used.

Pin No.	Signal Name
1	Buzzer
2	DTR
3	RxD
4	TxD
5	GND
6	FG

(5) Program Memory Media

- Mask ROM 256KB (Writing or replacement is not possible)
- There is no compatibility between the IGB Series main board (PS-018) and the IGX Series main board (PS-016); However, basic operations are same for these models.

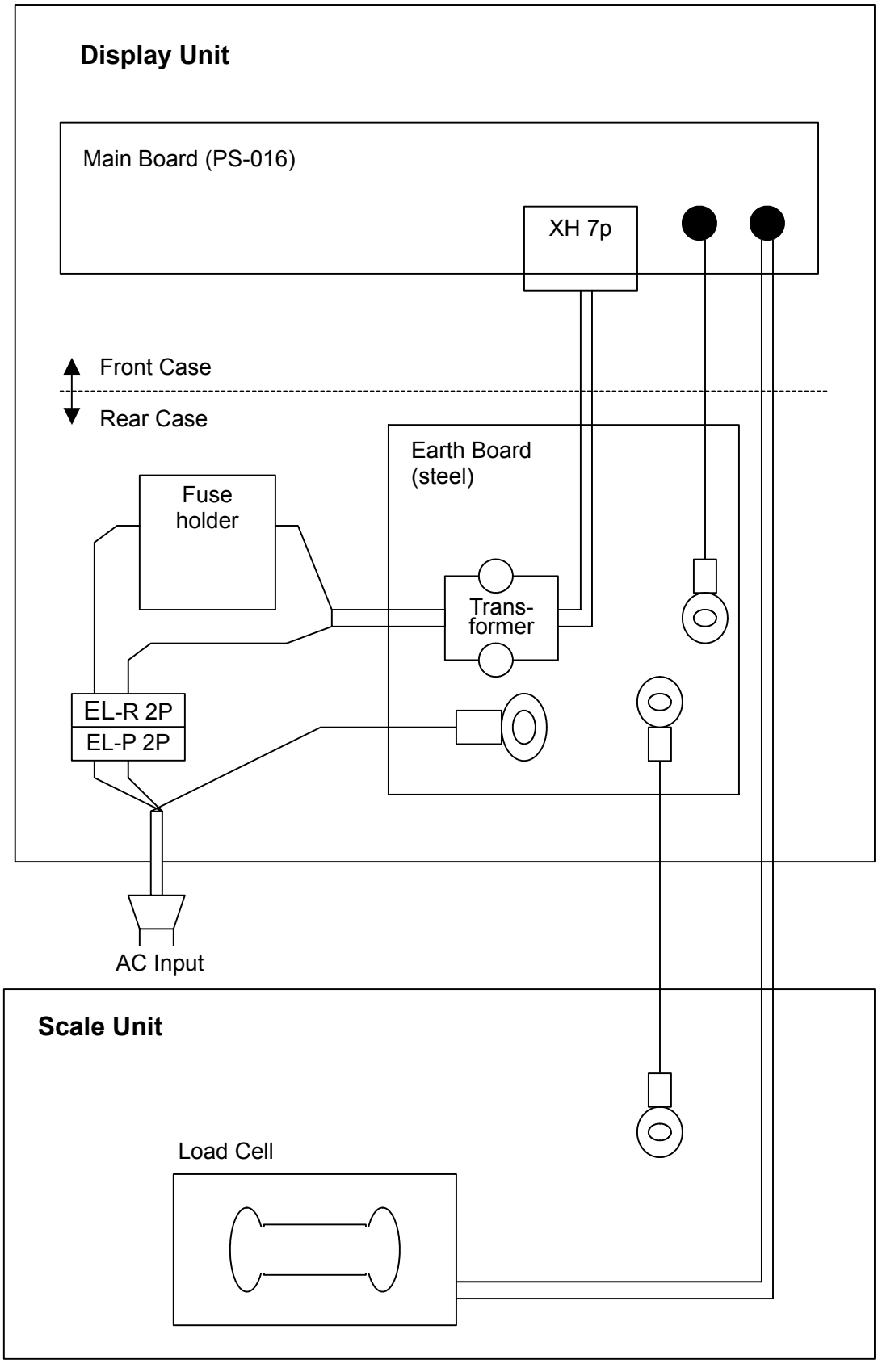
3.2.3 Power Board (PS-019)



When the DC plug of the AC adapter is inserted into the DC jack, the battery GND will be interrupted.

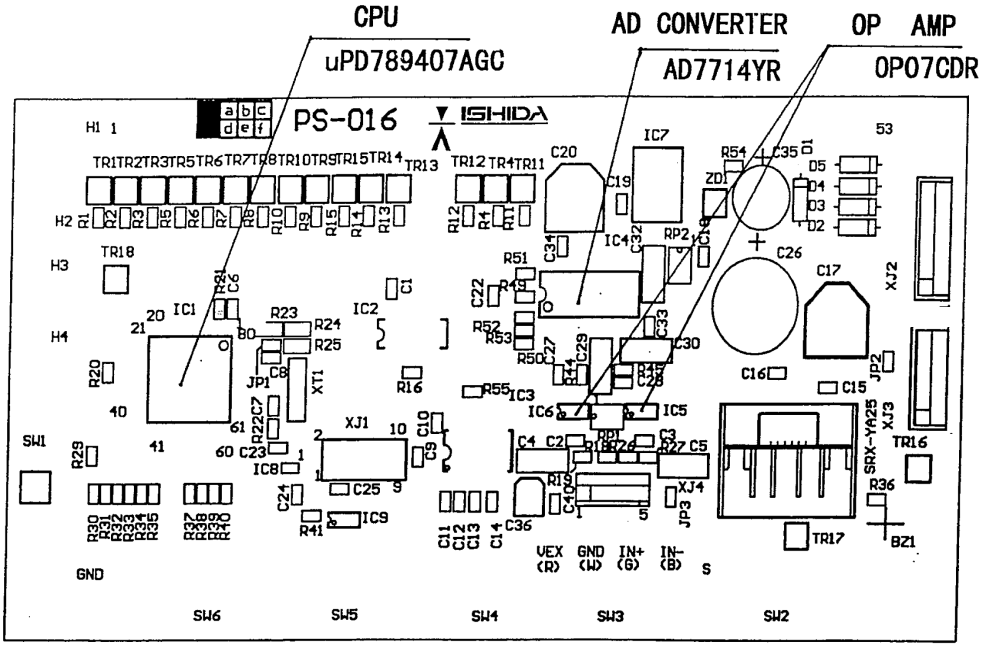
3.3 Electric Parts (IGX Series)

3.3.1 IGX Block Diagram



3.3.2 Main Board (PS-016)

Parts Surface of Main Board (The LCD and tact keys are installed on the soldering surface).



TOP SILKSCREEN LAYER

(1) SW1: Memory Switch

Used to write the data when performing initialization in Test Mode.
Used to save (write) the data in E2ROM after changing Country No. and Scale No., and performing Span Adjustment.

(2) Connector XJ1

This connector is not used.

Pin No.	Signal Name
1	IN1
2	OUT4
3	OUT3
4	OUT2
5	OUT1

Pin No.	Signal Name
6	NC
7	RESET
8	VPP
9	GND
10	VCC

(NC: Non connection)

(3) Connector XJ2

Power Input

Pin No.	Signal Name
1	12VAC
2	0V
3	29VAC
4	0V
5	AC2
6	0V
7	AC1

(4) Connector XJ3

This connector is not used.

Pin No.	Signal Name
1	FG
2	GND
3	TxD
4	RxD
5	DTR
6	Buzzer

(5) Program Memory Media

- Mask ROM 256KB (Writing or replacement is not possible)
- There is no compatibility between the IGB Series main board (PS-018) and the IGX Series main board (PS-016). However, basic operations are same for these models.

Chapter 4 Maintenance

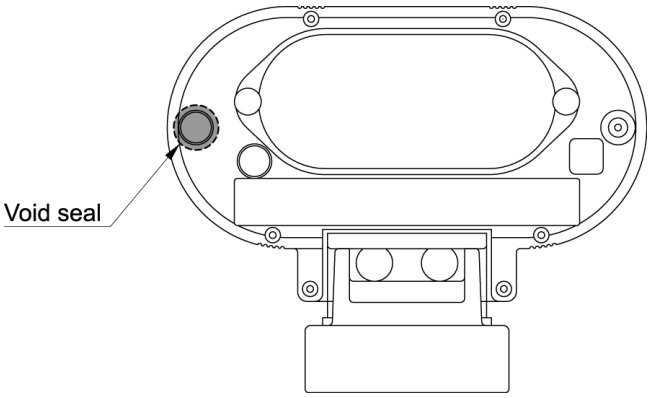
4.1 Disassembly Procedure for Display Unit

Disassembly procedure

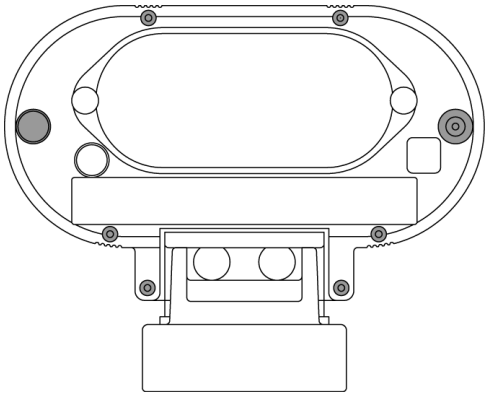
1 If batteries are being used, make sure to remove them, or when using an AC adapter, extract the cable from the power outlet. (IGB Series only) When using AC power, make sure to extract the cable from the power outlet. (IGX Series only)

2 Remove the two angle-adjusting knobs.

3 Remove the Void Seal covering the sealing screw hole.

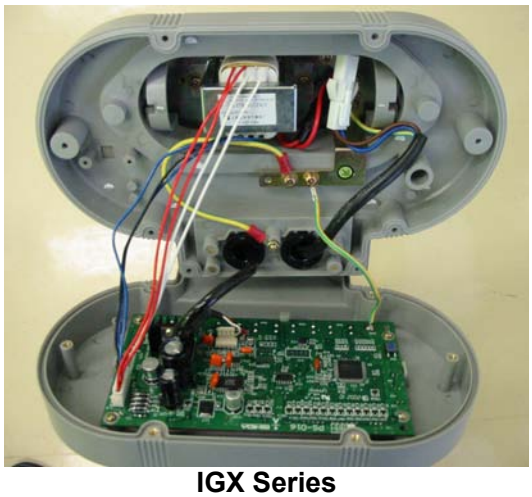


4 Remove the 8 screws (including the sealing screw mentioned above) that hold the front and rear cases together.



5 Open the front and rear cases.

IGB Series



IGX Series

Note: Reverse the procedure to re-assemble the display unit, then affix a new Void Seal (Part No.: 040-9585-01 Size: ϕ21)

4.2 Replacement of Main Board

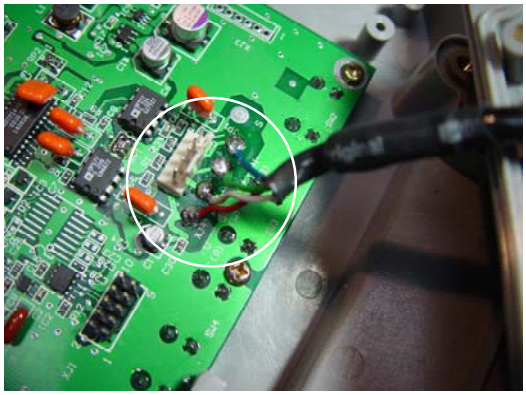
4.2.1 IGB Series

(1) The procedure for opening the Front and Rear Cases is described in the previous section.

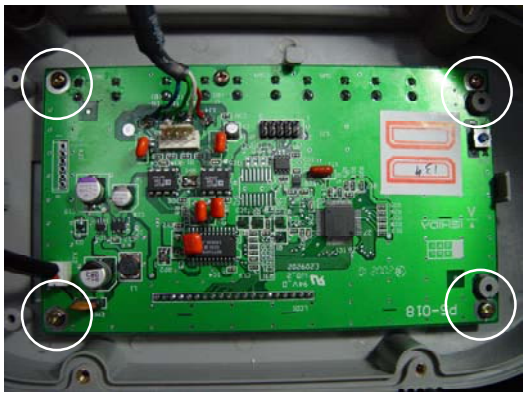
(2) Main Board (PS-018)

Extract the cable from the XJ2 connector.

Desolder the four lead wires of the Load Cell cable.



Remove the four screws holding the main board.



Reverse this procedure to install a new main board.

Note

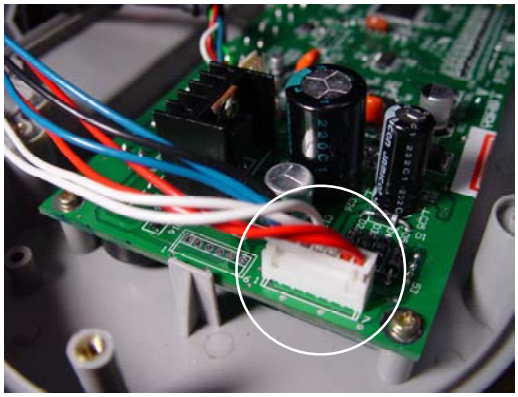
After installing a new main board, carry out RAM Clear in C3 mode, adjust the scale and set the user operation setup and program modes.

4.2.2 IGX Series

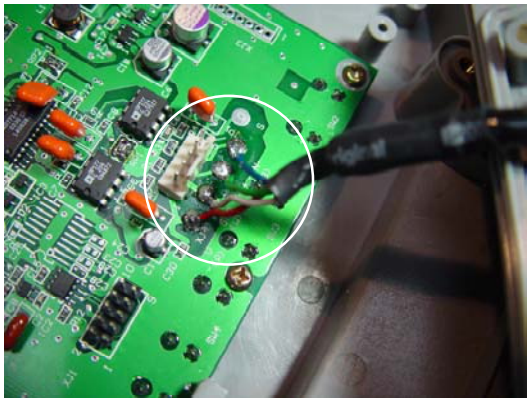
(1) The procedure for opening the Front and Rear Cases is described in the previous section.

(2) Main Board (PS-016)

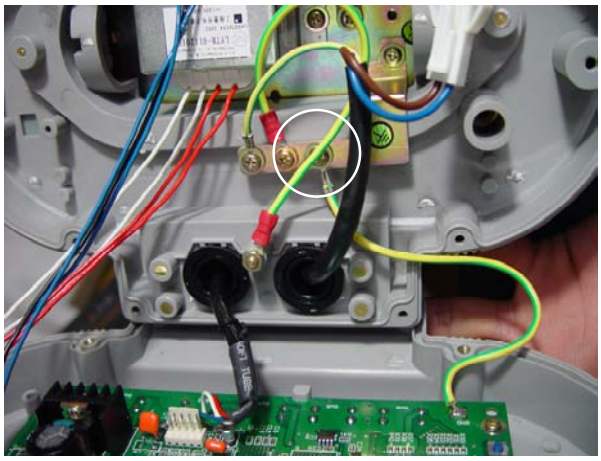
Extract the cable from the XJ2 connector



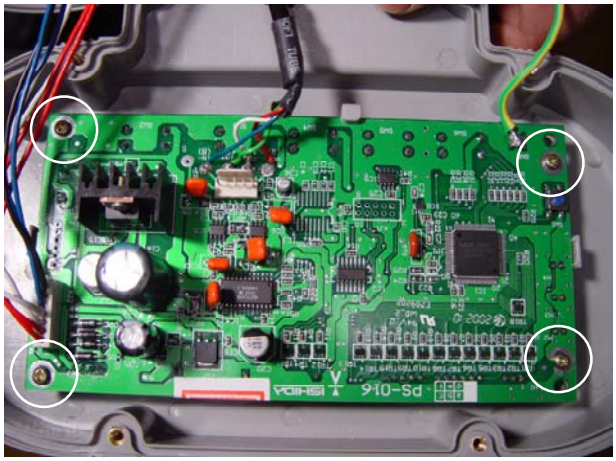
Desolder the four lead wires of the Load Cell cable



Remove the screw holding the grounding cable to the rear case



Remove the four screws holding the main board



Reverse this procedure to install a new main board.

Note

After installing a new main board, carry out RAM Clear in C3 mode, adjust the scale and set the user operation setup and program modes.

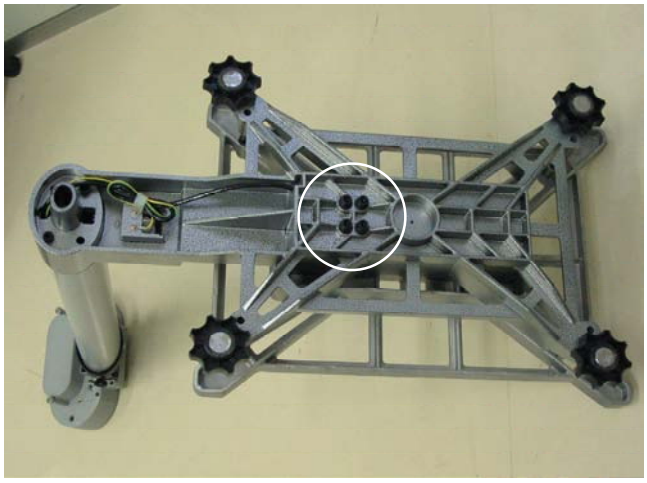
4.3 Replacing and Adjusting Load Cell

Load Cell Specifications

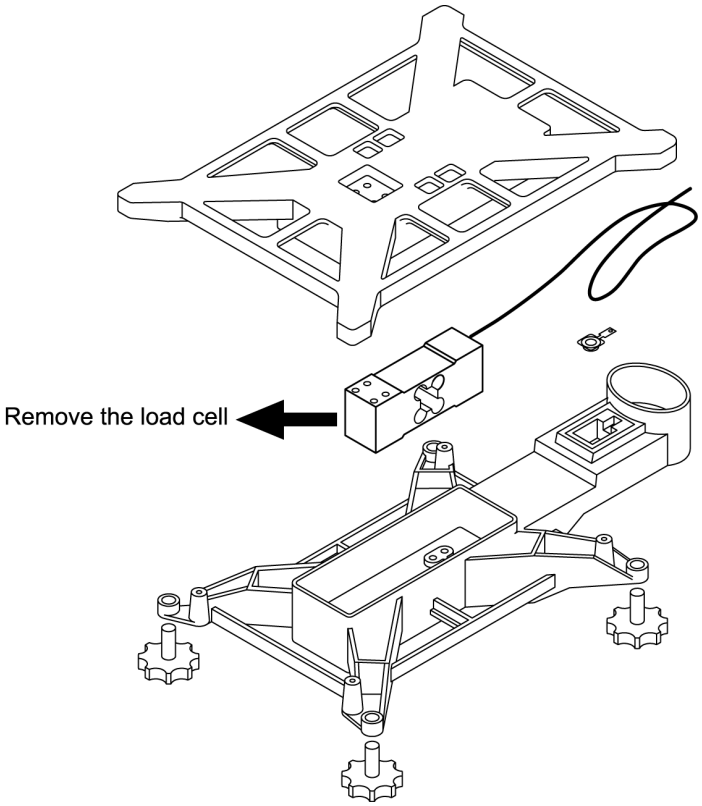
Model	Type	Rated Capacity	Rated Output	Input Resistance	Output Resistance	insulation Resistance
IGB/X -60	LOC-ISS10-100kg	100kg	2.0mV/V±5%	1500Ω±10Ω	1000Ω±3Ω	5GΩ
IGB/X -150	LOC-ISS10-300kg	300kg	2.0mV/V±5%	1500Ω±10Ω	1000Ω±3Ω	5GΩ

1 Using an allen wrench, remove the four hexagon-headed bolts and spacers fixing the load cell unit from the top of the base.

2 Remove the four hexagon-headed bolts and spacers from the bottom of the base.

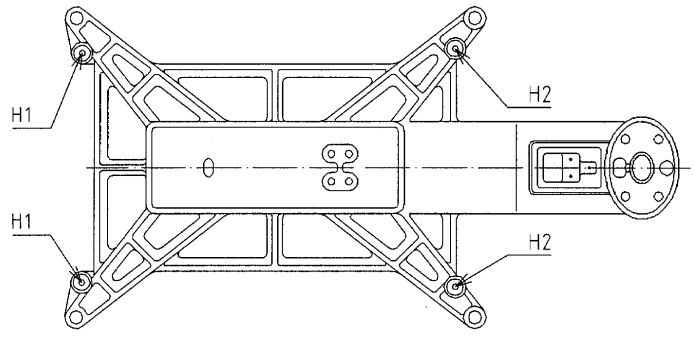


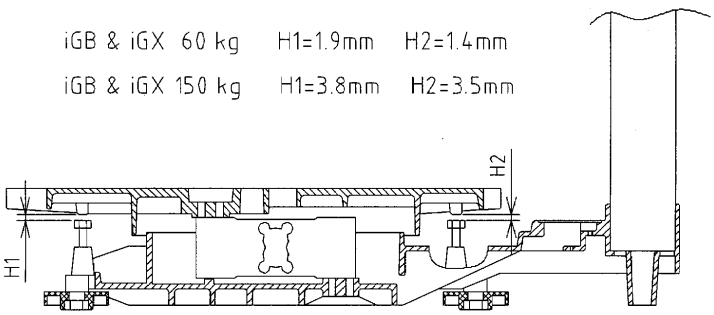
3 Remove the load cell unit. Then, install a new load cell unit and reverse the above procedure.



4.3.1 Checking and Adjusting Gap of Four-corner Limit

In the two spots of the four-corner limit front and of the four-corner limit rear (display pole side), adjust the gaps to the following values.

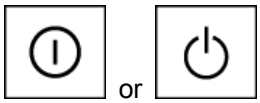




4.3.2 Performing Zero Point and Span Adjustments

Refer to 2.2 “C1 Mode” of Chapter 2 “Test Mode”.

4.4 Troubleshooting

Symptoms	Causes	Remedies
The display does not appear when ON/OFF is pressed. Each ON/OFF key is shown below for the IGB or IGX Series. 	1. AC power is not supplied. (IGX Series only)	• Check the voltage of the main power outlet. • Check the power cable, and replace if necessary. • Check the FUSE (1A 250V) • Check the TRANS ASSY • Check the main board PS-016 connector XJ2.
	2. Battery voltage is low. (IGB Series only)	• Check batteries, and replace if necessary. • When using the AC adapter, confirm that the adapter voltage is within the range of 3.2 to 6VDC.
	3. The ON/OFF key is defective.	• Using the tester, check that the key is conducting, and replace if necessary.
	4. The main board is defective.	• Replace the main board PS-016 (IGX) or PS-018 (IGB) with a normal one, then check.
"Err" is displayed when the ON/OFF key is pressed.	1. E2ROM data is garbled.	• Initialize E2ROM (all) in Test Mode C6. • (Span adjustment is required after initialization) • If recovery is not possible, the main board may be defective. Replace if necessary.
Test mode "C1" is displayed when the ON/OFF key is pressed.	Scale data is in initialized state.	• Perform span adjustment.
"-----" is displayed after the ON/OFF key is pressed and the display is checked.	1. A/D value at Zero point is outside of start range, or unstable. ・Out of AD initial value ・Load cell is defective.	• Remove items from the weighing platter. • Check A/D value and adjust. Perform Test Mode C1, and if the value is unstable, first replace the main board, then replace the load cell. If outside of the start range, perform Zero and Span adjustments. When performing Zero and Span adjustments, if the weight that is less than the weighing capacity reaches the lower limit, replace the load cell.
	2. Main board is defective.	• Replace the main board PS-016 (IGX) or PS-018 (IGB) with a normal one, then check.

Symptoms	Causes	Remedies
Zero point or weight is unstable.	1. Vibration due to wind or conditions at place of installation.	• If Weighing platter is subject to wind, move the scale to the place where there is no wind, or provide something to block the wind. If there is any vibration at the place of installation, move the scale to the place where there is no vibration.
	2. Interference to Weighing platter, Platter support, or Load cell.	Perform visual inspection to check whether something is touching the Weighing platter, Platter support, or Load cell, and remove if any.
	3. Main board or Load cell is defective.	• Perform Test mode C1 and check A/D value, and replace A/D board and Load cell in this order, if necessary.
	4. Extraordinary electromagnetic wave	• Determine the source and remove it, or move the scale to a place where the scale will not be subject to the electromagnetic waves.
No response or input difficulty in key operation.	1. Defective key	• Replace the tact key soldered to the Main board.
	2. Bad clearance between Keysheet and Keys (Main board)	• Install Main board along Keysheet face.
	3. Defective Main board	• Replace Main board.
Non-displaying part, double display digit, or double segment.	1. Defective Main board	• Replace Main board.

ISHIDA CO.,LTD

44 SANNO-CHO,SHOGOIN,SAKYO-KU
KYOTO,606-8392 JAPAN
PHONE:81-75-771-4141
FACSIMILE:81-75-751-1634
ULR:http://www.ishida.co.jp