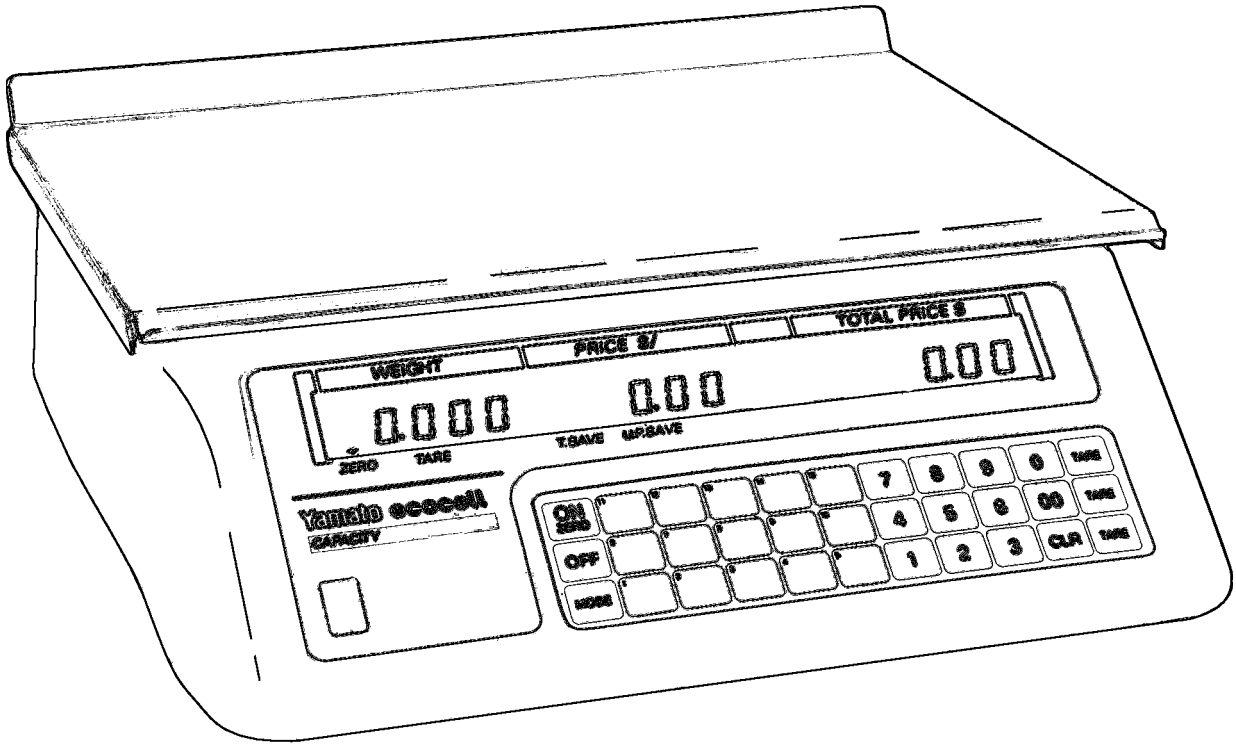
R-220 Technical Manual

Price Computing Scale



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YCO-1038-12-99

R-220 Technical Manual

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SAFETY INSTRUCTIONS

Before using the scale, carefully read, understand and follow the “Safety Instructions” described in this manual. Observe the advice given in the “Operations” section to ensure proper operation. Keep this operation manual handy for reference.

1) This scale is **not** an explosion-proof model. Do not use the scale in an atmosphere containing flammable gases or explosive fumes. A fire or an explosion can result.
2) Do not operate the scale if there is smoke or a burned smell coming from the scale. Unplug the scale immediately. After making sure that there is no danger, consult your dealer. Never try to repair the scale by yourself.
3) Never step on or sit on the scale. Not only will the scale be damaged, but you may also be injured.
4) Place the item to be weighed in the center of the platform. Items placed on the edge of the platform may fall off and cause injury.
5) When weighing a heavy, large or unbalanced item, make sure the item is stable on the platform, otherwise, an accident may occur.
6) When carrying or moving the scale, be sure to hold it by the bottom of the base with both hands. If you hold it by the platform, the platform or the platform support may become detached causing the scale to fall. This will damage the scale. The platform is designed for easy removal and cleanup.
7) Do not insert your finger into the gaps or holes in the scale. You may be injured.

I.A Test Mode

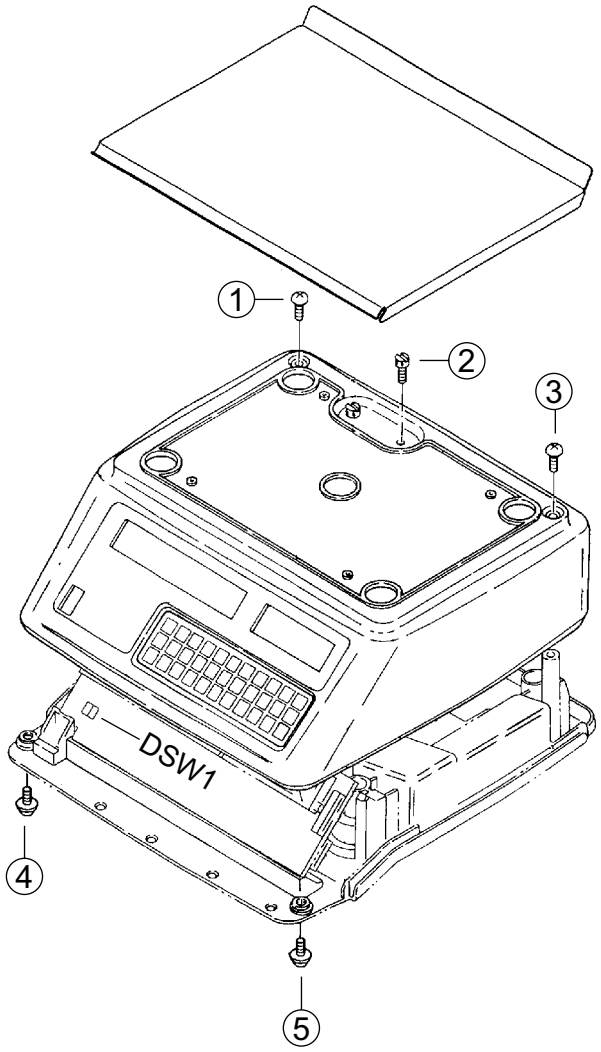
I.A.1 Entering Test Mode

1. Turn scale off, remove platform and insect rings.
2. Remove screws ① , ② and ③ on top housing.

   Important: In order to remove screw ② the sealing wire must be cut. Once cut, the scale must be resealed by a certified scale technician.
3. Remove screws ④ and ⑤ on bottom housing.
4. To access the inside of the scale, grasp both sides of upper housing and push down on black bumpers with thumbs. **Do not** completely remove upper housing.

   Important: Right side of upper housing is attached to lower housing by a wiring harness.
5. Facing the front of the scale, gently tilt the upper housing on its right side to expose the left side of the CPU board and Dip Switch 1 (DSW1).
6. Move switch 1 on DSW1 to the ON (down) position, replace upper housing and platform.

   Display will show "TYPE 2".



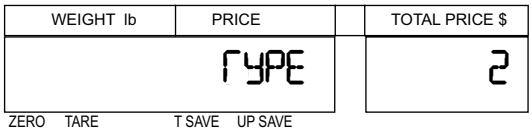
I.A.2 Exiting Test Mode

1. To exit Test Mode, move switch 1 on DSW1 to the OFF (up) position.
2. Replace upper housing, all screws, insect rings and platform.

   Important: Becareful to insure upper housing snaps into lower housing correctly.

I.BKeyboard Function

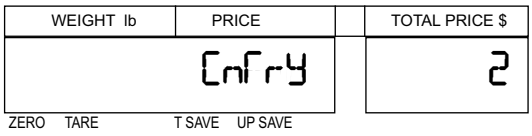
1. Enter Test Mode (See Section I.A.1 for details).
2. Press U.P.SAVE until the desired parameter is indicated. See the Basic Parameters List in Section III.A.



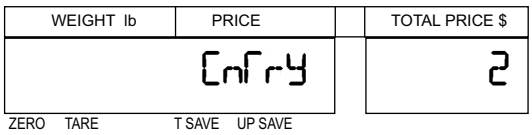
3. To return to Test Mode press MODE.

I.CCountry

1. Enter Test Mode (See Section I.A.1 for details).
2. Press T.SAVE once. "CnTrY" should be displayed under Unit Price.



3. Enter the desired parameter using the numeric keypad. See the Basic Parameters List in Section III.A.



4. To return to Test Mode press MODE.

I.DE2PROM Clear

1. Enter Test Mode (See Section I.A.1 for details).
2. Press T.SAVE twice. "ALLCr" should be displayed under Unit Price.

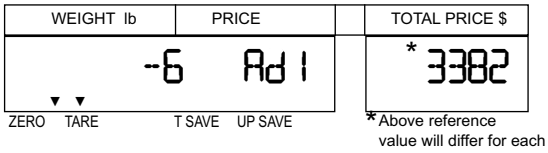
3. Press CLR and wait for the count to complete.
4. To return to Test Mode press MODE.

I.E Calibration

I.E.1 Span Adjustment

1. Enter Test Mode (See Section I.A.1 for details).

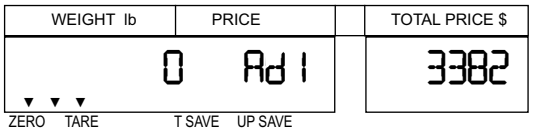
2. Press T.SAVE three (3) times until “Ad1” is displayed under Unit Price.



*Above reference value will differ for each

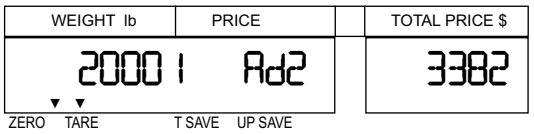
3. Ensure the platform is on the scale and nothing is on the platform then press ON ZERO.

   The value under Weight should display “0 +/-2”.



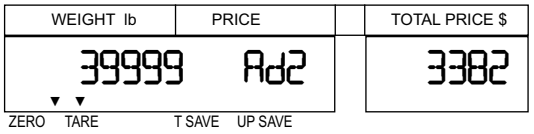
4. Place 20 lbs on the platform and wait for the Tare indicator to light, then press U.P.SAVE.

   The value under Weight should display “20000 +/-2”.



5. Place 40 lbs (add 20 lbs) on the platform and wait for the Tare indicator to light, then press U.P.SAVE.

   The value under Weight should display “40000 +/-2”.



6. If satisified with calibration advance to Step 7, if not return to Step 3.

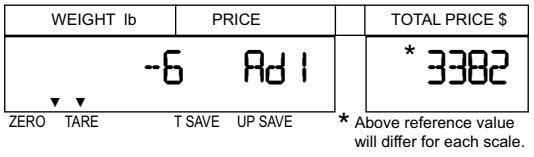
7. To return to Test Mode press MODE.

I.E Calibration

I.E.2 Four Corner Check

1. Enter Test Mode (See Section I.A.1 for details).

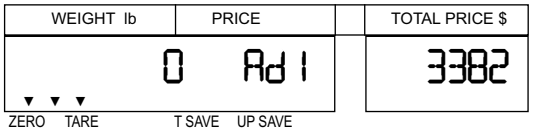
2. Press [T.SAVE] three (3) times until “Ad1” is displayed under Unit Price.



* Above reference value will differ for each scale.

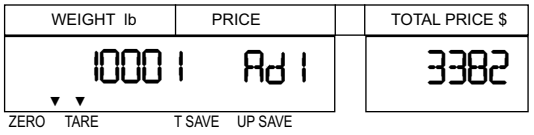
3. Ensure the platform is on the scale and nothing is on the platform then press [ON ZERO].

   The value under Weight should display “0”.



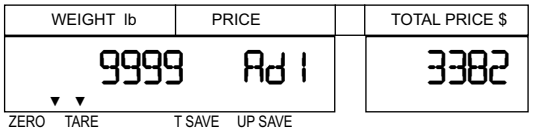
4. Place 10 lbs on the center of the platform and wait for the Tare indicator to light.

   Note the value displayed under Weight.



5. Place the 10 lbs on each corner of the platform in turn and wait for the Tare indicator to light.

   The value under Weight should be within +/-5 counts of the value obtained in step 4.



6. If any corner value is not within +/- 5 counts of the center value, the scale must be serviced by a certified technician.

7. To return to Test Mode press [MODE].

I.E.3 Gravitational Acceleration Compensation

This scale compensates for different gravity accerations in different locations. Use the below equation to calulate the value for System Keyword 58 (KW 58).

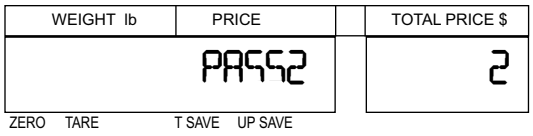
KW 58 = Local Gravity Constant (m/s^2) x 1000 - 9700

Example: KW 58 = 9.78 m/s^2 x 1000 - 9700
KW 58 = 80

Change System Keyword 58 to calculated value using Section I.G.

I.F Password 2

1. Enter Test Mode (See Section I.A.1 for details).
2. Press [T.SAVE] four (4) times. "PASS2" should be displayed under Unit Price, and the current Password 2 should be displayed under Total Price.

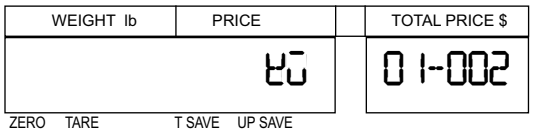


3. Enter the desired password using the numeric keypad and press [U.P.SAVE].
4. To return to Test Mode press [MODE].

NOTE: Password 2 permits access to User Parameter Mode, Password 1 Setup and Memory Reset.

I.G System Parameters

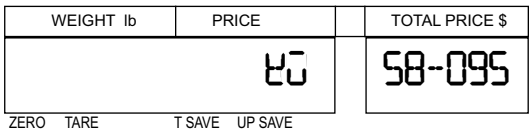
1. Enter Test Mode (See Section I.A.1 for details).
2. Press [T.SAVE] five (5) times. "KW" should be displayed under Unit Price.



3. Use [TARE] or [U.P.SAVE] to advance to desired keyword.
   [U.P.SAVE] increase keyword by one.
   [TARE] decrease keyword by one.

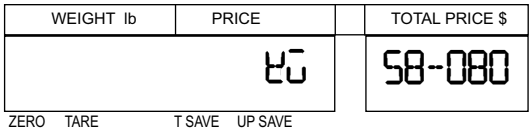
   Note: Use the System Keyword Parameter List in Section III.C to locate the function or setting to be changed.

   Example: To select the gravity compensation keyword (KW 58), press [TARE] 13 times.



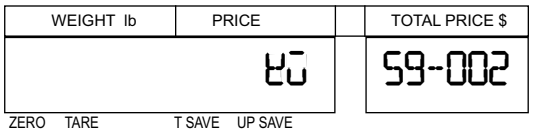
4. Use the numeric keypad to edit parameter value.

   Example: To change KW 58 to parameter value 80, press [8] and [0].



I.G System Parameters (continued)

5. Press U.P.SAVE to save and advance to next keyword.

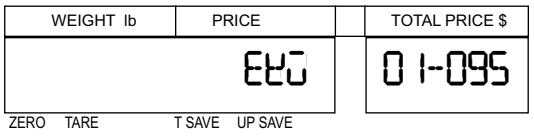


6. To return to Test Mode press MODE.

I.H Factory Parameters

1. The steps are the same as for System Parameters with the exception of Step 2. Press T.SAVE six (6) times until “EKW” is displayed under Unit Price.

   Note: Use the Factory Keyword Parameter List in Section III.D to locate the function or setting to be changed.



II Troubleshooting

Problem	Possible Cause	Solution
The display continues to flash all 8s after the scale is turned on.	Vibration or an unstable position or platform.	Remove source of vibration or place scale on stable platform.
The scale will not power on.	Transformer malfunction. Power board malfunction. CPU board malfunction.	Replace transformer. Replace power board. Replace CPU board.
The keyboard does not function.	Keyboard connector loose. Keyboard connector damaged. Keyboard damaged. CPU board malfunction.	Firmly insert connector. Replace connector. *Replace keyboard. Replace CPU board.
The displayed weight fluctuates	Weighing assembly in contact with wires or case. Load cell connector loose or damaged. Power board malfunction. CPU board malfunction.	Reposition wires or case. Reconnect or replace the load cell connector. Replace power board. Replace CPU board.

* The keyboard seals must be replaced when the keyboard is replaced.

III Parameter Lists

III.A Basic Parameters

Keyword	Standard Value	Function	Description
TYPE	2	Keyboard function	0 Two rows of keys (China) 1 Three rows of keys 2 U.S. keyboard layout 3 R-220E keyboard layout (Japan) 4 European keyboard layout
COUNTRY	2	Country and capacity	0 China, 6 kg 1 China, 15 kg 2 U.S. 40 lb./ 20 kg 3 Japan, 6 kg 4 Japan, 15 kg 5 Europe 6 Other export

III.B User Parameters

Keyword #	Standard Value	Function	Description
01	000	Use of RS232C	000 No function 001 Output to a printer (iDP3110) 002 Output to a computer
02	000	Baud rate	000 4800 bps (Recommended) 001 1200 bps 002 2400 bps 003 4800 bps 004 9600 bps
03	000	Character length	000 8 bits (Recommended) 001 7 bits
04	000	Parity	000 NON (Recommended) 001 ODD 002 EVEN
07	000	Automatic shutoff time	000 Not automatic shutoff 001~060 Automatic shutoff after required time (minutes)
08	000	Not used	Not used
11	002	Date format	000 YY/MM/DD 001 DD/MM/YY 002 MM/DD/YY
12	000	Total price indication time	000 Continuous indication 000~030 Return to the weighing mode after required time
13	001	Automatic unit price clear	000 Disabled 001 Enabled
14	001	Automatic tare clear	000 Disabled 001 Enabled
15	000	Type of a printer	000 iDP3110 001 Other than the iDP3110

III Parameter Lists

III.B User Parameters (continued)

Keyword	Standard Value	Function	Description
16	000	24 digits printer	000 24 digits (0 for the iDP3110) 001 24 or more digits
17	004	Printer paper feed	000~015 Line numbers
18	000	Number of times to send data to a computer	000 3 times 001 1 time 002 2 times 003 3 times
19	000	Select "00" or "," key function	000 Work as a "00" key 001 Work as a "." key
20~22	000	Not used	Not used

III.C System Parameters

Keyword	Standard Value	Function	Description
01	002	Unit price decimal position	000 0. 001 0.0 002 0.00 003 0.000
02	002	Price decimal position	000 0. 001 0.0 002 0.00 003 0.000
03	005	Price round off	000 In unit price per 1 kg, discard fractions 001 In unit price per 1 kg, round off 002 In unit price per 1 kg, raise fractions 003 In unit price per 1 kg, round off at 0 or 5 004 In unit price per 100 g, discard fractions 005 In unit price per 100 g, round off 006 In unit price per 100 g, raise fractions 007 In unit price per 100 g, round off at 0 or 5
04	000	Price display when being added	000 Individual price 001 Accumulated total price
05	000	Continuous addition	000 Invalid 001 Valid
06	000	Price display time delay	000 Price always displayed 001~255 Time delay before the price is displayed (in 0.125 ms increments)
07	002	Unit price decimal position (for EURO)	000 0. 001 0.0 002 0.00 003 0.000
08	002	Price decimal position (for EURO)	000 0. 001 0.0 002 0.00 003 0.000

III Parameter Lists

III.C System Parameters (continued)

Keyword	Standard Value	Function	Description
09	001	Price round off (for EURO)	000 In unit price per 1 kg, discard fractions 001 In unit price per 1 kg, round off 002 In unit price per 1 kg, raise fractions 003 In unit price per 1 kg, round off at 0 or 5 004 In unit price per 100 g, discard fractions 005 In unit price per 100 g, round off 006 In unit price per 100 g, raise fractions 007 In unit price per 100 g, round off at 0 or 5
10	032	Currency symbol 1	000~255 Enter ASCII code in decimal
11	032	Currency symbol 2	
12	036	Currency symbol 3	Example: k = 107
13	108	Weight symbol 1	g = 103
14	098	Weight symbol 2	
15	000	Tax calculation	000 Invalid 001 Valid
31	004	Scale mode	004 Decimal
32	000	Multi-interval	000 Single increment 001 Triple range 002 Dual range (shop scale)
33	020	Capacity constant	000~099 Capacity constant in kg
34	003	Capacity index	000~099
35	002	Minimum increment	000 1 001 2 002 5 003 10 004 20 005 50 006 100
36	003	Weight decimal position	000 0. 001 0.0 002 0.00 003 0.000
38	010	Internal resolution	001~200
39	019	Zero range (%)	000~100
40	012	Zero range / plus side (%)	000~100
41	005	Scale over	000~010
42	005	Stable detect sampling count	000~060
43	003	Stable detect average count	000~060
44	005	Counts to go to stable	000~255
45	010	Counts to collapse stable	000~255
46	004	Counts to go to super stable	000~255
47	005	Zero tracking interval	000~255 Once per the designated samplings
48	000	Zero tracking range	000 Standard range
49	001	Zero reset under tare operation	000 Valid 001 Invalid
50	000	Tool operated zero	000 No 001 Yes (for European)

III Parameter Lists

III.C System Parameters (continued)

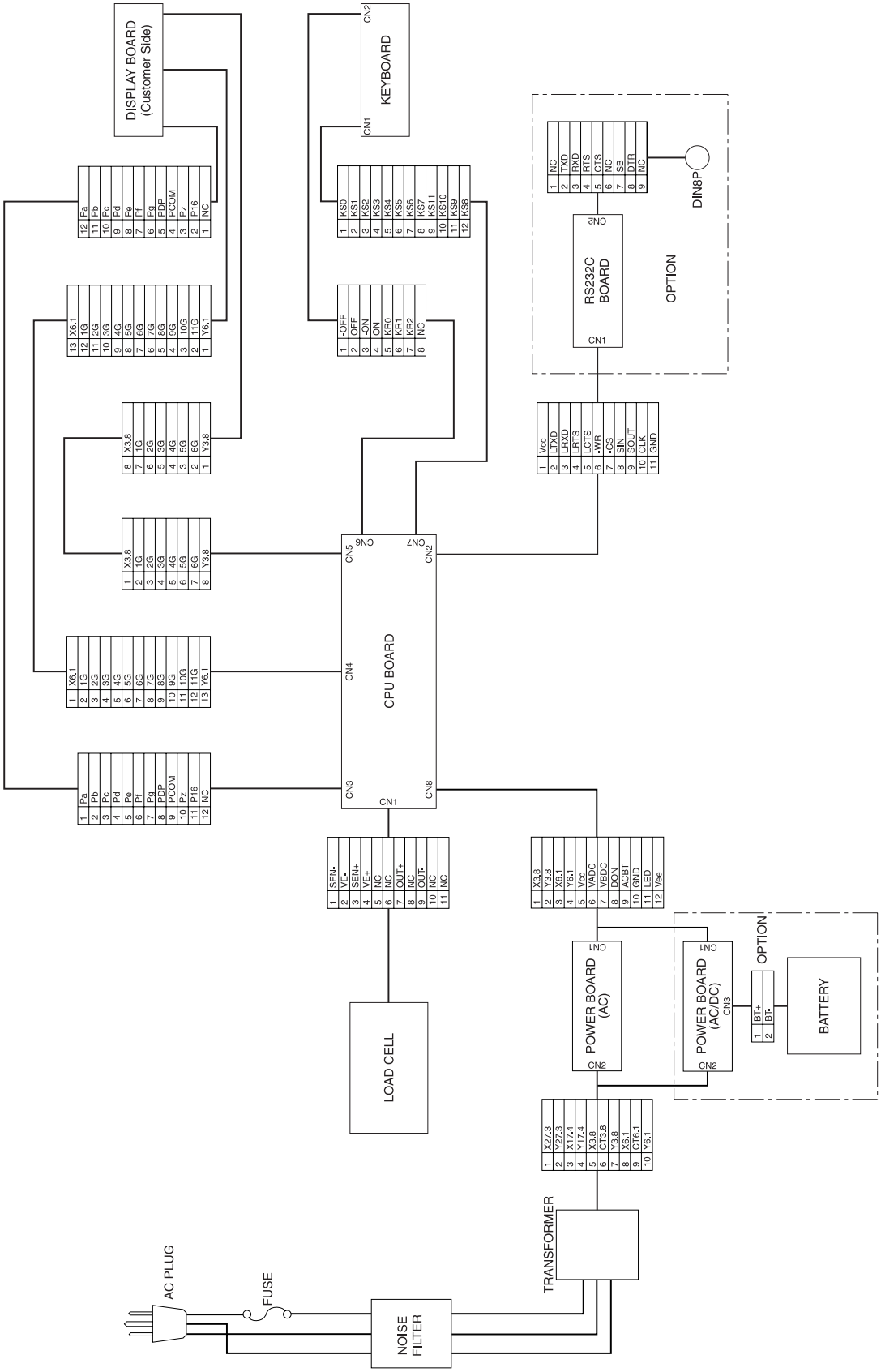
Keyword	Standard Value	Function	Description
51	000	Keyboard tare	000 Valid 001 Invalid
52	004	Capacity constant (lb)	000~099
53	003	Capacity Index (lb)	000~099
54	000	Minimum increment (lb)	000 1 001 2 002 5 003 10 004 20 005 50 006 100
55	002	Weight decimal position (lb)	000 0. 001 0.0 002 0.00 003 0.000
56	020	Minimum weighing range (adding function)	000~255 Divisions
57	001	Tare reduction	000 Consecutive tares 001 Single tare
58	095	Gravity compensation	000 Prohibited 001~016 For Japanese market only 017~150 Enter the appropriate compensation value
59	002	Span adjustment	000 1 point adjustment (FS only) 001 1 point adjustment (FS only) 002 2 point adjustment (1/2 FS & FS) 003 3 point adjustment (1/3 FS, 2/3 FS & FS)
60	090	Tare max. upper two digits	000~099 Example: Tare Max. = 9000 g
61	000	Tare max. lower two digits	000~999 Enter 90 for #60 and 00 for #61
62	001	Easy test mode	000 Invalid 001 Valid
63	000	Shape of decimal point	000 Period 000 Comma
64	000	Condition for addition	000 Motion detection 001 Motion detection and zero return
65	000	Return to weighing mode from addition mode when weight is zero	000 Invalid 001 Valid
66	001	kg/lb calibration	000 kg 001 lb
67	001	kg/lb operation	000 kg 001 lb
68	000	Display hold	000 No function 001 German hold 002 Migros hold
69	040	Tare max. upper two digits (lb. mode)	000~099 Example: Tare Max. = 4000 g
70	000	Tare max. lower two digits (lb.mode)	000~099 Enter 40 for #69 and 00 for #70

III Parameter Lists

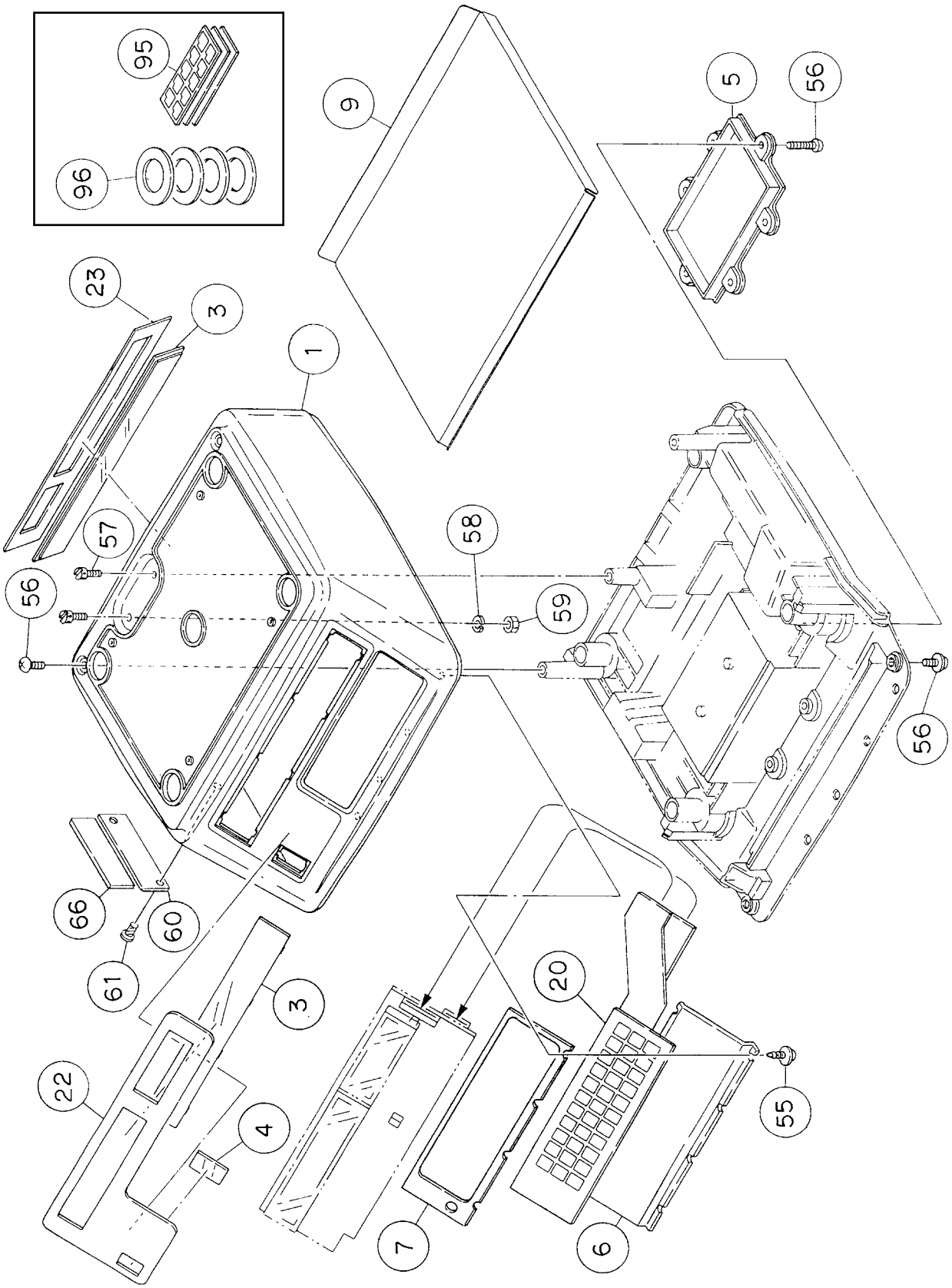
III.D Factory Parameters

Keyword	Standard Value	Function	Description
01	095	Gravity/area compensation	000~255
02	015	Time for A/D conversion 1	000~255 in ms
03	035	Time for A/D conversion 2	000~255 in ms
04	200	Digital filter width	000~255 200 (C8H)
05	020	Temperature zone compensation width	000~255 10 (0AH)
06	000	Type of digital filter	000 FIR 001 Simplified moving average
07	001	Temperature zero compensation	000 Enable 001 Disable
08	000	A/D conversion	000 Fixed A/D conversion 001 Floating A/D conversion
09	013	Max. digital filter taps	000~ 021
10	000	Digital filter	000 Equipped 001 Not equipped
11	125	Battery low message	000~255 Volts to activate
12	120	Blank display	000~255 Volts to activate
13	157	Password 1, test mode	000~255
14	014	Password 2, test mode	000~255
15	010	Average count for zero compensation	000~255
16	000	CPU auto-off (battery)	000 Turn off display only 001 Completely shut down CPU
17	000	All 8 flashing start after auto-off	000 Invalid 001 Valid
18	000	Preset tare memory	000 Enable (15 PLUs & 8 Tares) 001 Disable (30 PLUs)
20	***	Count of span 1 (1)	Automatically set at span adjustment
21	***	Count of span 1 (2)	Automatically set at span adjustment
22	***	Count of span 1 (3)	Automatically set at span adjustment
23	***	Count of span 2 (1)	Automatically set at span adjustment
24	***	Count of span 2 (2)	Automatically set at span adjustment
25	***	Count of span 2 (3)	Automatically set at span adjustment
26	***	Count of span 3 (1)	Automatically set at span adjustment
27	***	Count of span 3 (2)	Automatically set at span adjustment
28	***	Count of span 3 (3)	Automatically set at span adjustment
30	***	Count of mechanical zero (1)	Automatically set at span adjustment
31	***	Count of mechanical zero (2)	Automatically set at span adjustment
32	***	Count of mechanical zero (3)	Automatically set at span adjustment

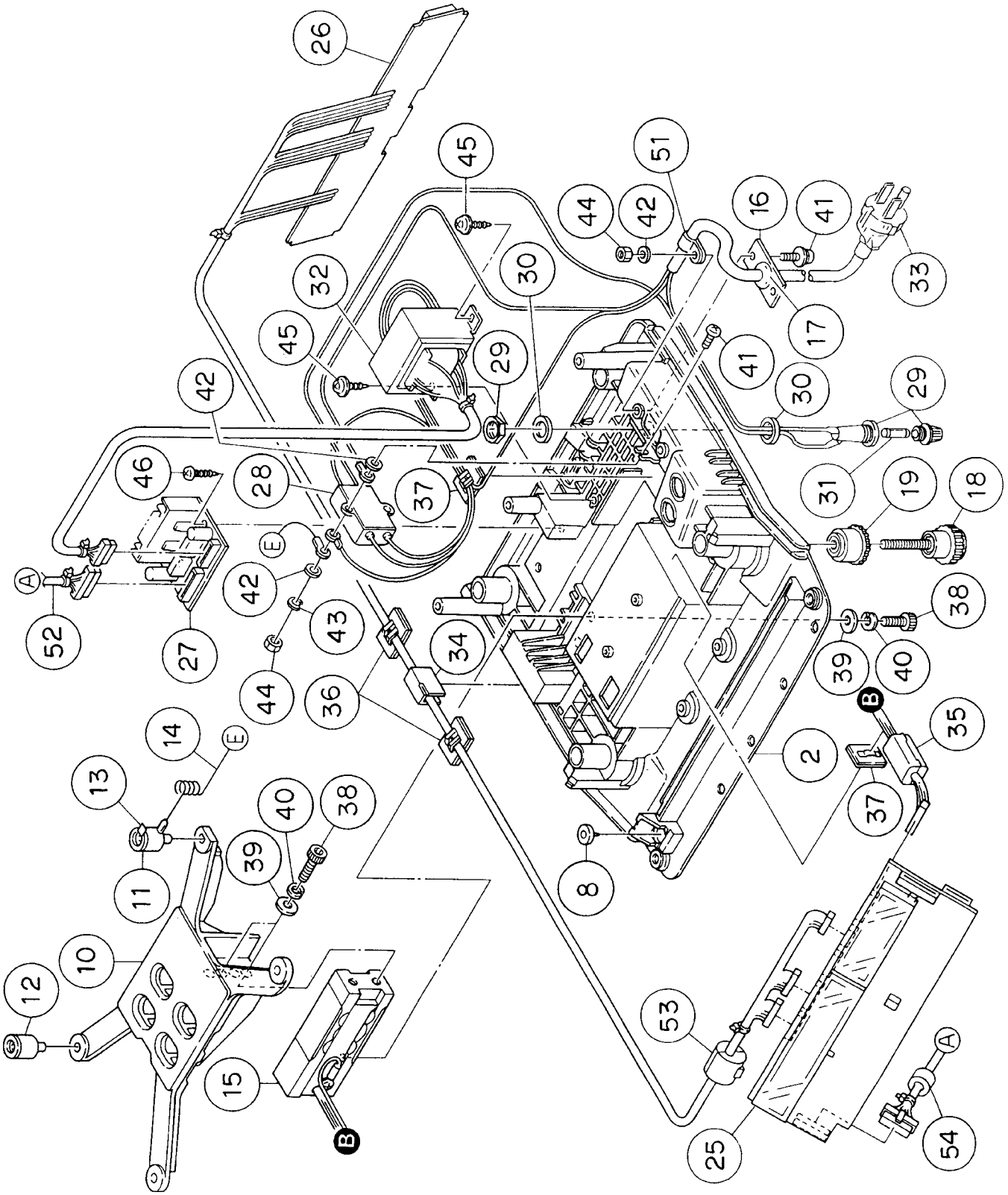
IV Wiring Diagram



V Parts List



V Parts List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V Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY.	PRICE/UNIT
1	YAM-1505-002201	Upper Housing	1	
2	YAM-1505-002202	Lower Housing	1	
3	YAM-1505-002203	Front Glass: vender side, customer side	2	
4	YAM-1505-002204	Level Glass	1	
5	YAM-1505-002205	Cover, Battery Box	1	
6	YAM-1505-002206	Membrene Switch Holding Plate	1	
7	YAM-1505-002207	Membrene Switch Packing, sticker	1	
8	YAM-1505-002208	Leveling Indicator	1	
9	YAM-1505-002209	Platform	1	
10	YAM-1505-002210	Spider	1	
11	YAM-1505-002211	Shock-Absorbing Rubber A	1	
12	YAM-1505-002212	Shock-Absorbing Rubber B	3	
13	YAM-1505-002213	Grounding Plate	1	
14	YAM-1505-002214	Grounding Wire	1	
15	YAM-1505-002215	Load Cell Assembly	1	
16	YAM-1505-002216	Cable Holding Plate	1	
17	YAM-1505-002217	Grommet	1	
18	YAM-1505-002218	Leveling Leg Assembly	4	
19	YAM-1505-002219	Locking Cap	4	
20	YAM-1505-002220	Membrene Switch	1	
22	YAM-1505-002222	Front Film: vendor side, stickable	1	
23	YAM-1505-002223	Front Film: customer side, stickable	1	
25	YAM-1505-002225	CPU Board Assembly	1	
26	YAM-1505-002226	Display Board Assembly	1	
27	YAM-1505-002227	AC Power Board Assembly	1	
28	YAM-1505-002228	Noise Filter	1	
29	YAM-1505-002229	Fuse Holder	1	
30	YAM-1505-002230	Flat Washer	2	
31	YAM-1505-002231	Tubular Cartridge Fuse	1	
32	YAM-1505-002232	Power Transformer	1	
33	YAM-1505-002233	Power Cable Assembly	1	
34	YAM-1505-002234	Wire Holding Plate, stickable	1	
35	YAM-1505-002235	Ferrite Core	1	
36	YAM-1505-002236	Wire Binder, stickable	2	
37	YAM-1505-002237	Wire Binder, stickable	2	
38	YAM-1505-002238	Hex Socket Head Cap Screw, M8x25	4	
39	YAM-1505-002239	Flat Washer, M8	4	
40	YAM-1505-002240	Lock Washer, M8	4	
41	YAM-1505-002241	Cross-Recessed Pan Head Screw Set, M3x12	3	
42	YAM-1505-002242	Flat Washer, M3	3	
43	YAM-1505-002243	Lock Washer, M3	1	
44	YAM-1505-002244	Hex Nut, M3	4	
45	YAM-1505-002245	Cross-Recessed Flanged Head Tapping Screw, M4x8	2	
46	YAM-1505-002246	Cross-Recessed Flanged Head Tapping Screw, M3x8	2	

V Parts List

ITEM	PART NUMBER	DESCRIPTION	QTY.	PRICE/UNIT
51	YAM-1505-002251	Nylon Clip	1	
52	YAM-1505-002252	Wiring Harness, CPU Board to AC Power Board	1	
53	YAM-1505-002253	Ferrite Core	1	
54	YAM-1505-002254	Ferrite Core	1	
55	YAM-1505-002255	Cross-Recessed Pan Head Tapping Screw, M3x6	8	
56	YAM-1505-002256	Cross-Recessed Truss Head Screw, M4x10	10	
57	YAM-1505-002257	Sealing Screw	2	
58	YAM-1505-002258	Lock Washer, M4	1	
59	YAM-1505-002259	Hex Nut, M4	1	
60	YAM-1505-002260	Serial Plate	1	
61	YAM-1505-002261	Rivet	2	
66	YAM-1505-002266	FCC Sticker	1	
95	YAM-1505-002295	Key Function Sheet, stickable	3	
96	YAM-1505-002296	Dust Seal Ring	4	