8217

Point-of-Sale Scale

Technical Manual and Parts Catalog

C14543700A
(3/99)

INTRODUCTION

This publication is provided solely as a guide for individuals who have purchased the METTLER TOLEDO 8217 scale product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
Scales & Systems
1900 Polaris Parkway
Columbus, Ohio 43240-2020
(614) 438-4511

WARNING!

This equipment generates, uses, an can radiate radio frequency energy and if not installed and used properly, i.e., in accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

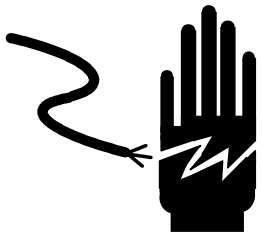
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

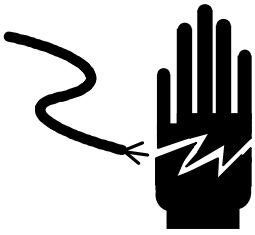
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



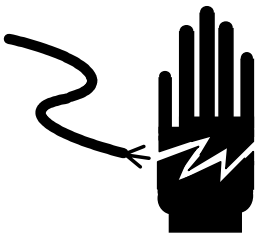
WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

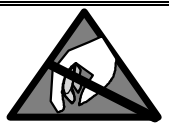


WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING. FAILURE TO DO SO MAY RESULT IN BODILY INJURY OR PROPERTY DAMAGE.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.



CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CONTENTS

1 General Description

The Mettler Toledo model 8217 is a platform scale designed to provide weight data for various weighing applications and electronic cash registers such as Casio®, IBM®, Symbol®, Sharp®, Micros®, or NCR®. The 8217 will support an optional remote display. The 8217 does not have an integral display. As an option the 8217 is offered as an adaptive scale that can be integrated with a point-of-sale scanner.

(See Chapter 13 for information on the Adaptive Scale)

Features

- Optional LCD Display, (Base Mount)
- Optional LCD Display, (Tower Mount)

Accessories

- Model 0264 Remote Display (See Parts Section for part numbers.)
- Stainless Steel Flat Platter (See Parts Section for part numbers.)
- Stainless Steel Flat Platter w/Rails (See Parts Section for part numbers.)
- Scanner Adapter Kit for Spectra-Physics® HS1250 Scanner.

(See Chapter 13 for information on the Adaptive Scale)

Configurations

Factory Number	Description
8217 - 1XXX - XXX	15 kg/30 lb Scale Capacity (ICL)
8217 - 2XXX - XXX	15 kg/30 lb Scale Capacity (S-P)
8217 - 3XXX - XXX	15 kg/30 lb Scale Capacity (M-T)
8217 - 4XXX - XXX	15 kg/30 lb Scale Capacity (PSC Adaptive)
8217 – 5XXX - XXX	15 kg/30 lb Scale Capacity (Symbol Adaptive)
8217 - 7XXX - XXX	15 kg/30 lb Scale Capacity (ICL-UK)
8217 - X0XX - XXX	No Interface Module
8217 - X1XX - XXX	ICL RS-232 Interface Module
8217 - X2XX - XXX	ICL Multidrop Interface Module
8217 - X3XX - XXX	OCIA Interface Module
8217 - X4XX - XXX	Character Serial Interface Module
8217 - X5XX - XXX	IBM Port 9B Multidrop Interface Module
8217 - X6XX - XXX	M-T RS-232 Interface Module
8217 - X7XX - XXX	Mod2 RS-232 Interface Module
8217 - X8XX - XXX	Remote Tare Interface
8217 - XX0X - XXX	No Platter
8217 - XX1X - XXX	Stainless Steel Platter
8217 - XX2X - XXX	Window Platter, Scanner Adaptor
8217 - XX4X - XXX	Platter with Rails
8217 - XX5X - XXX	Bottom Scan Kit
8217 - XXX0 - XXX	No Power
8217 - XXX1 - XXX	North American Power (120 VAC)
8217 - XXX2 - XXX	Europlug Power (220 VAC)
8217 - XXX3 - XXX	U.K. Power (240 VAC)
8217 - XXX4 - XXX	Australia Power (240 VAC)
8217 - XXXX - 1XX	ICL
8217 - XXXX - 2XX	Spectra Physics
8217 - XXXX - 3XX	Mettler Toledo
8217 - XXXX - 4XX	Mettler Toledo Adaptive
8217 - XXXX - X0X	Non EC lb Capacity (i.e., 30 x .01 lb)
8217 - XXXX - X1X	Non EC kg Capacity (i.e., 15 x .005 kg)
8217 - XXXX - X2X	EC lb Capacity (i.e., Max 30 lb Min .20 lb e =.01 lb)
8217 - XXXX - X3X	EC kg Capacity (i.e., Max 15 kg Min 100 g e =5 g)
8217 - XXXX - X4X	Non EC lb Capacidad (Spanish)
8217 - XXXX - X5X	Non EC kg Capacidad (Spanish)
8217 - XXXX - X6X	lb-oz Capacity (30 lb x 0.2 oz)
8217 - XXXX - X7X	lb-oz Capacity (15 lb x 0.1 oz)
8217 - XXXX - XXR	Re-manufactured

Factory Number	Description
0264 - XXX1 - XXX	Tower Mount Assy with Ferrite
0264 - XXX2 - XXX	Base Mount Assy
0264 - XXX3 - XXX	Tower Mount Assy without Ferrite
0264 – XXX4 - XXX	Base Mount Assy without Harness
0264 – XXX5 - XXX	Tower Mount Assy without Harness
0264 – XXX6 - XXX	Wall Mount Assy without Harness
0264 – XXX7 - XXX	30” Tower Mount Assy without Ferrite
0264 - 1XXX - XXX	15 kg/30 lb Scale Capacity (ICL)
0264 - 3XXX - XXX	15 kg/30 lb Scale Capacity (M-T)
0264 - XXXX - 1XX	ICL
0264 - XXXX - 3XX	Mettler Toledo
0264 - XXXX - X0X	Non EC lb Capacity (i.e., 30 x .01 lb)
0264 - XXXX - X1X	Non EC kg Capacity (i.e.,. 15 x .005 kg)
0264 - XXXX - X2X	EC lb Capacity (i.e., Max 30 lb Min .20 lb e =.01 lb)
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0264 - XXXX - X4X	Non EC lb Capacidad (Spanish)
0264 - XXXX - X5X	Non EC kg Capacidad (Spanish)
0264 - XXXX - X6X	lb-oz Capacity (30 lb x 0.2 oz)
0264 - XXXX - X7X	lb-oz Capacity (15 lb x 0.1 oz)
0264 - XXXX - XXR	Re-manufactured

Options and Accessories

Factory Number	Description
0901-0341-000	Bottom Scan Kit
0901-0342-000	Interface, ICL RS232
0901-0343-000	Interface, ICL RS422/MDL
0901-0344-000	Interface, OCIA
0901-0345-000	Interface, Character Serial
0901-0346-000	Interface, IBM Port 9B
0901-0378-000	Wall XFMR 240V, U.K.
0901-0379-000	Wall XFMR 230V, Europe
0901-0380-000	Wall XFMR 240V, Australia
0901-0381-000	Interface, MTI RS232
0901-0382-000	Interface, MOD1 RS232
0901-0383-000	Interface, Adapter 8217 to 8213 RS232
0901-0384-000	Interface, Adapter 8217 to 8213 Character Serial
0906-0151-000	Flat Platter, Stainless Steel
0906-0160-000	Platter with Rail
0906-0162-000	Platter, Scanner Adapter, 8217,EAS
0906-0166-000	Platter,8217,Welded Corner

0901-0387-000	Scanner Template
0901-0397-000	“F” Hole Fill Bracket
0900-0278-000	PC 25 pin to 8217 RS232 Cable
0900-0279-000	PC 9 pin to 8217 RS232 Cable

2 Specifications

Construction

The 8217 is comprised of the following major components.

Die Cast Base Assembly

13.615” x 10.88” x 1.87”, die cast aluminum, non-painted specified. Four threaded, top adjustable mounting feet are included.

Die Cast Platter Support (Spider)

Provided with conductive rubber tips and rubber center support. Mounts directly to analog load cell with two Torx head cap screws. The level bubble is located in the platter support casting, except in the adaptive scale, where it has been removed.

Mettler Toledo Analog Load Cell

The weight sensor is a Mettler Toledo load cell, which connects to the main scale electronics to provide in combination a moment insensitive scale to provide weight data. The 8217 products will have a capacity of 15 kg / 30 lb.

Electronic PCB (Mother PCB) and I/O Connectors (Personality Boards)

The 8217 retail versions are distinguished by capacity and by the type of interface provided in the scale, the interfaces are plug on additions to the scales main electronic PCB. The main PCB provides display capability, receives raw weight from the load cell, and performs all scale functions.

Interface I/O connectors are mounted so that they can be disconnected without removing the scale cover. Access to the connections is from the bottom/side of the scale.

Stainless Steel Platters

A variety of stainless steel platters and scanner adapters are available with the scale or as commodity options that may be ordered separately from the scale.

- SS Flat Platter
- SS Platter with rails

Dimensions

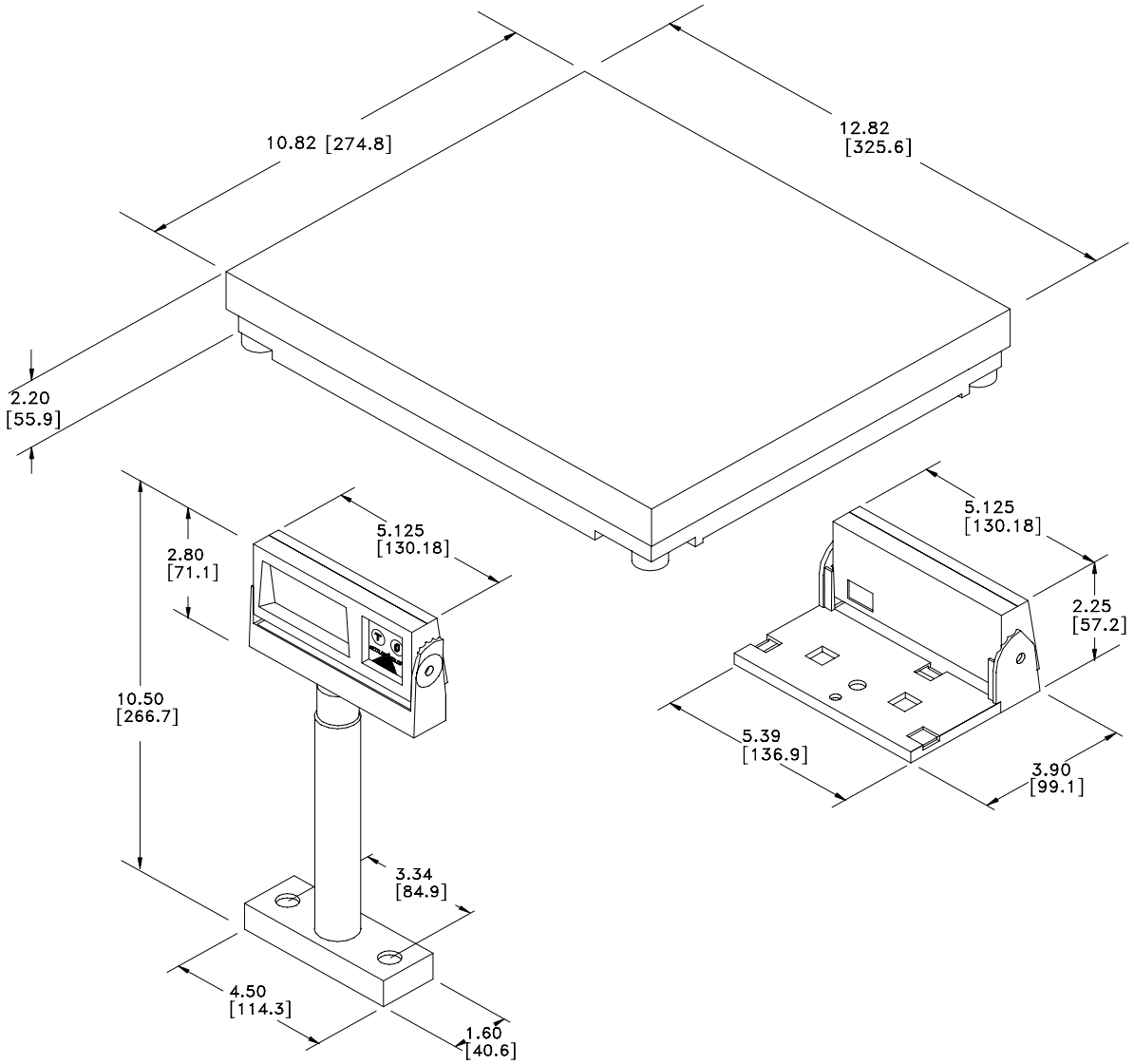


Figure 2-a: 8217 Dimensions (Shown with Optional Displays)

Weighing Capacity

The following are standard 8217 performance specifications.

Scale Capacity	Increment	Load Cell Capacity	Resolution
30 lb	0.01 lb	25 kg	3000 D
15 kg	0.005 kg	25 kg	3000 D
30 lb	0.2 oz	25 kg	2400 D
15 lb	0.1 oz	25 kg	2400 D

Over Capacity Indication

The scale will transmit an overweight indication for weights greater than specified in the Weighing Capacity Table. Weight data for over capacity loads will not be transmitted. The display will indicate "---" for weights greater than capacity.

General Operating Times

The 8217 Scale will perform to the specified accuracies within 15 minutes after application of power.

Settling Time

The time between application of weight and the ability of stable weight data will not exceed the following limits:

Weight Range	Settling Time
0 to 10 lb	0.5 Seconds
10 to Full Capacity	0.6 Seconds

Tare

Tare can be activated from the push-button switch on the optional remote display. Pressing this key while the scale is in gross mode (tare had not previously been taken) and showing a non zero positive weight, causes the displayed weight to be subtracted. The scale display shows a zero weight and the net indicator is illuminated. Tare can be taken up to scale capacity.

Tare is cleared in one of two ways. If auto tare clear is disabled, tare is cleared by clearing the platter. The net indicator is extinguished when tare is cleared.

Tare can be selected as “OFF”, “ON” with or without auto tare clear, or “ON with chain” (multiple tare) via dip switches. See the Calibration/Setup section for switch details.

Environment

The scale is designed to meet specifications over a temperature range of -10° to 40° C. Humidity may range from 0 to 90%, non-condensing, provided the wet bulb temperature does not exceed 30° C.

The scale is designed to withstand without damage a temperature range of -20° to 60° C, with a humidity range from 0 to 90% non-condensing during shipment and storage.

Electrical Power

The 8217 requires 11.4-16.5 VDC at 75 mA. This power is provided from a 100-132 VAC, 57-63 Hz to 12 VDC wall transformer or a 187-242 VAC, 47-53 Hz to 12 VDC wall transformer through a barrel jack.

Agency Approvals

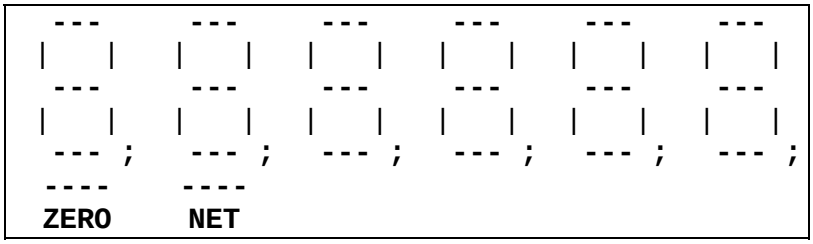
The 8217 meets the EC Guideline 92 performance for an OIML Class III, 3000b scale. (Reference OIML R76). The 8217 meets NIST Handbook 44 and is NTEP certified. The 8217 meets Canadian (CSA) Weights and Measures requirements, as well as Australian Weights and Measures requirements.

Displays

The 8217 uses the optional 0264 LCD display. The 0264 is either mounted at the scale base or it can be mounted away from the scale as a remote tower display.

The 0264 is a six digit Liquid Crystal Display (12mm digit height).

Each window contains a cursor for “Zero” and for “Net”. The 0264 remote display also provides two keys for scale zero and tare functions.



Zero Indicator - Illuminated when the scale is within the center of zero.

Net Indicator - Illuminated after a tare has been taken. Extinguished when the tare is cleared.

Zero Key - The zero button provides a scale zeroing function. See the zero capture description for more details.

Tare Key - the tare button provides the ability to tare a weight less than capacity from the weight display. This button is also used to clear the tare. See the tare description for further details.

3 System Components

Wall Transformer

The wall transformer converts the AC line voltage to 12 VDC. Center Conductor is positive and the outer conductor is negative.

Motherboard

The mother PCB performs the following functions.

- Processes weight information from the load cell.
- Receives and processes data from the remote display keyboard.
- Drives the remote displays.
- Drives the personality (interface) modules.

Load Cell

The load cell converts the applied weight to an analog signal that is sent to the motherboard PCB.

4 Installation Instructions

Setup Procedures

1. Carefully remove scale, platter and wall transformer from shipping carton. The optional display may be packed separately.
2. Carefully connect the display/tower harness to the display/tower connector on the mother PCB.
3. Connect the power cord from the wall transformer to the scale base. Do not connect the wall transformer to the outlet at this time.
4. Place scale on its feet in the location the scale will be utilized.
5. Level the scale by adjusting the feet until the leveling bubble is centered in the level indicator.

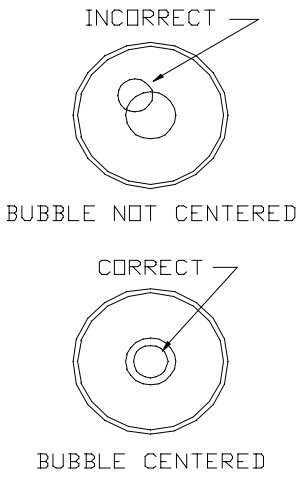


Figure 4-a: Leveling Bubble

6. Install the platter by placing the platter over the sub-platter assembly.
7. Connect the wall transformer to an electrical outlet of the appropriate voltage and frequency for your wall transformer. The voltage rating and frequency are clearly marked on the wall transformer.
8. The scale will power up and zero. If the scale does not zero the display will show "------". This is the over capacity and under capacity display. If this occurs, the scale may need to be recalibarated. Refer to the Calibration Section for instructions.

PCB Switch Setup

The Mettler Toledo 8217 includes two banks of dip switches to setup. Switch Bank 1 relates to communications. Switch Bank 2 relates to weighing operations. These switches should be set properly at the Mettler Toledo Manufacturing Plant prior to shipment. If settings need to be changed at the point of installation to reflect customer preferences, modifications can be made to switches 1-5, 1-6, 2-6, and 2-7.

Switch Settings

Switch Bank 1 and 2 are accessed by removing the interface kit (if factory installed in the 8217) under the scale base. The interface kit enclosure (smaller metal box) is removed by removing one of the three screws/bolts next to the scale sub-platter. Scale Setting options are shown in Table 4-a. For U.S., SW1-3 and 1-4 are ON. For Canada 1-1 and 1-3 are Off, 1-2 and 1-4 are On.

1	2	3	4	5	6	7	8
Protocol Select				**Baud Rate**		**Variable Non-Zero Time-Out**	
0000 = personality PCB (OCIA, IBM Port 9B, Character Serial)				N/A		00 = Off 10 = 30 sec 01 = 90 sec 11= 300 sec	
0001 = Mettler-Toledo RS-232 8,N,1				00=1200 10=2400 01=9600 11=19200			
0010 = Remote Tare Button				N/A			
0100 = Customer Protocol				00=1200 10=2400 01=9600 11=19200			
0110 = MOD1 RS-232				(Fixed at 9600,E,7,1)			
1000 = Mettler Toledo RS-232 7, E, 1				00=1200 10=2400 01=9600 11=19200			
1110 = Customer Protocol,Colruyt				00=1200 10=2400 01=4800 11=19200			
1111 = LC echo mode				N/A		N/A	

Table 4-a: Switch Bank 1

(0 = Off and Switch is in "Up" position; 1 = On and Switch is in "Down" position)
Changing a setting in Switch Bank 1 causes a soft scale reset.

Switch Bank 2

1	2	3	4	5	6	7	8
Zero Cursor	**Capacity**	**Wt Units**		**Expand Mode**	**Tare**		**Filtering**
0 = disable 1 = enable	0 = 15 x .005 kg 30 x .01 lb 30 x .2 oz 1 = 6 x .002 kg 15 x .005 lb 18 x .1 oz	00 = lb 01 = lb-oz 10 = kg 11 = lb-oz		0 = off 1 = on weight in 10X resolution	00 = no tare 10 = tare-no autoclear 01 = tare-autoclear 11 = chain tare		0=6.3 Hz 0.5s 1=4.2 Hz 0.6s

Table 4-b: Switch Bank 2

Switch Bank 2 settings are only read in the calibration mode.

Calibration

The Mettler Toledo 8217 scale is calibrated at the point of manufacture prior to packing. If the 8217 needs to be recalibrated at the point of installation, there are a series of steps that should be followed.

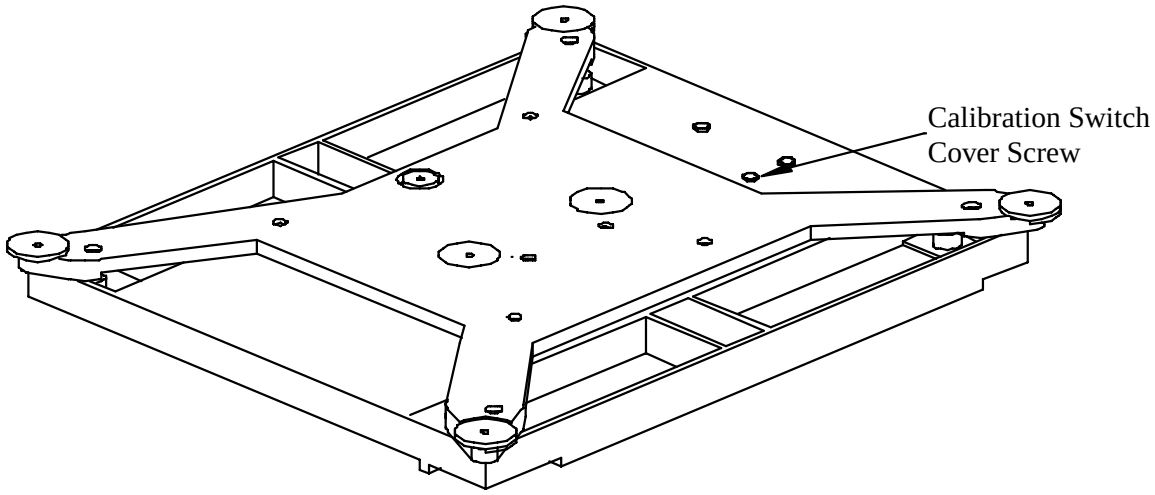
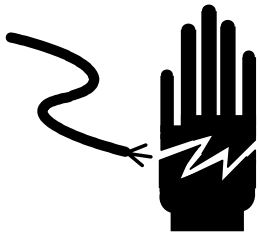


Figure 4-b: Calibration



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Step 1: With power supplied to the scale and the scale in a level position, remove the platter and position it is sitting upright on the subplatter. Allow access to to the three screws located next to the sub-platter.Empty the scale . . . .where . = short beep, when scale is empty, operator presses cal pushbutton or the ZERO key on the 0264 display keypad.

Step 2: Place test weight .. ..where .. = double short beep, when weight is placed, the operator presses the cal pushbutton or the ZERO key on the 0264 display keypad.

Scale Capacity	Test Weight
30 lb	20 lb
15 lb	10 lb
15 kg	10 kg

Step 3: Remove test weight and press Cal button - - - - - where - = is a longer beep, calibration is complete, operator presses the cal pushbutton or the ZERO key on the 0264 keypad.

Shift Test

NIST H-44 Shift Test

The NIST H-44 shift test must be performed after calibration when required by law. Before starting the shift test, make sure the scale is level and does not move. Place 1/2 capacity of test weight on the scale platter sequentially at positions 1 thru 4, as shown below. Points 1 through 4 are midway between the center of the platter and the edge of the platter. The NIST H-44 acceptance tolerance is ± 1 displayed increment between all four points.

OIML R76

The OIML R76 shift test must be performed after calibration when required by law. Before starting the OIML shift test, make sure the scale is level and does not move. Place 1/3 capacity of test weight on the scale platter sequentially at positions 1 thru 4, as shown below. Points 1 through 4 are the center of the 4 quadrants. The OIML acceptance tolerance is ± 1 displayed increment between all 4 points.

Failure to Meet Specifications

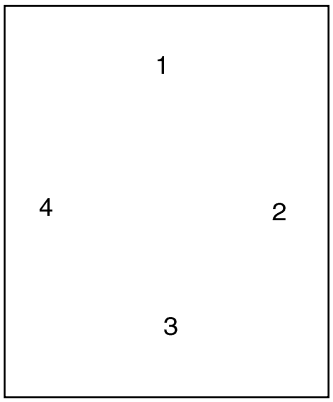


Figure 4-c: NIST H-44 Shift Test Position

If the scale fails to meet the specified tolerance at one or more test points, check the following:

- Check load cell overload stop screws for proper adjustment. (See below, Overload Stop Adjustment).
- Check top scale cover for proper seating and for possible interference with the sides of the scale.

If none of the above conditions exist, replace the load cell and mother PCB (mother PCB and load cell are a matched set and must be replaced together). Recalibrate the scale, and recheck the shift.

Overload Stop Adjustment

Adjustment to the overload stop is required if the load cell is replaced.

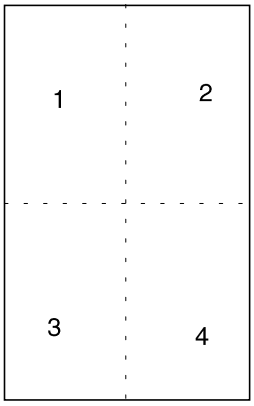


Figure 4-d: OIML R7C Shift Test Points

Adjust the inside overload screws to .013 in. ± .002 in. Adjust the outbound overload stop screws to 0.036 .± .002 in.

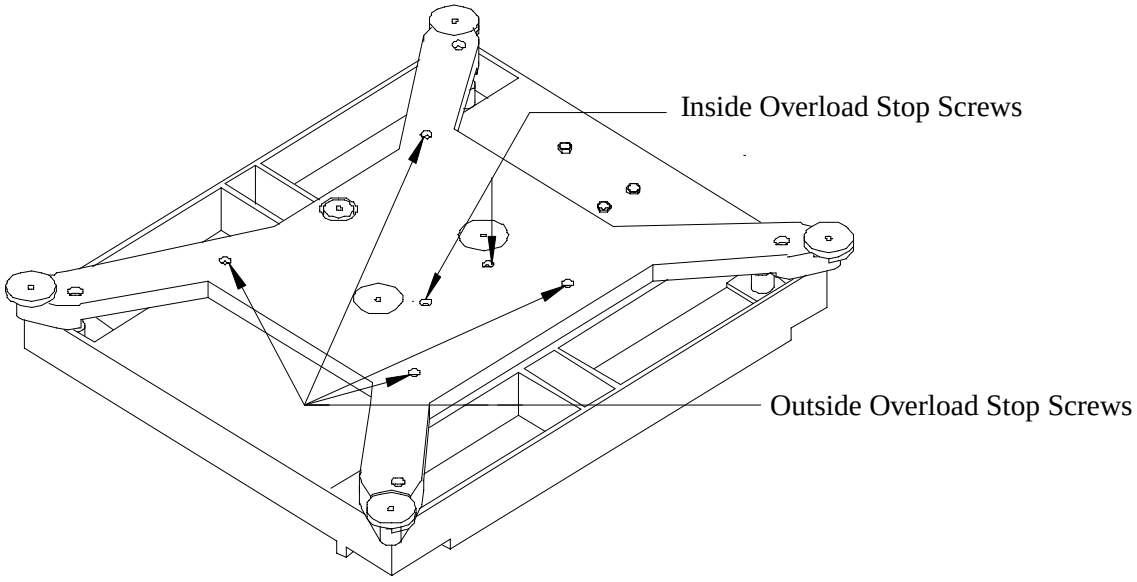
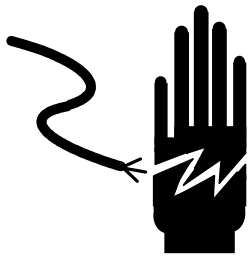


Figure 4-e: Overload Stop Adjustment

5 Parts Replacement and Adjustments



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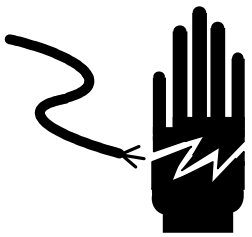

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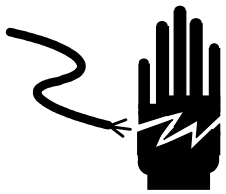
Mother PCB and Load Cell Replacement

1. The mother PCB and load cell are a matched set and must be replaced as a pair. Remove and set aside the platter.
2. If a personality PCB is installed remove it by removing the personality PCB retaining screw.
3. Remove the mother PCB retaining screw.
4. Remove the load cell harness from the mother PCB J2 connector by lifting the outer retaining ring of the connector.
5. Remove the subplatter by removing the two retaining screws.
6. Remove the load cell by removing the two load cell retaining screws.
7. Install the replacement load cell. The two retaining screws should be torqued to 90 in-lb.
8. Re-install the subplatter. The two retaining screws should be torqued to 90 in-lb.

9. Connect the load cell harness to the J2 port on the mother PCB and install the replacement PCB.
10. Re-install the personality card harness to J1 connector on the mother PCB.
11. Re-install the personality card to the bottom of the 8217.
12. Re-install the platter.
13. Calibrate the scale. (Refer to the Calibration Section.)

Personality PCB Replacement



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CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

1. Remove the personality card retaining screw.
2. Remove the personality card harness from the mother PCB at J1.
3. Install the replacement personality card harness into the mother PCB connector J1.
4. Reinstall the personality card retaining screw removed in step 1.

6 Scale Error Codes

Display Error Codes

The following Error Codes will be displayed on the 0264 display.

Error Code	Error Condition	Corrective Action
1	EPROM Checksum Error	Cycle Power. Replace Main PCB and Load Cell.
2	Processor Error	Cycle Power. Replace Main PCB and Load Cell.
3	NOVRAM Fatal Error	Cycle Power. Replace Main PCB and Load Cell.
4	NOVRAM Checksum Error	Cycle Power. Replace Main PCB and Load Cell.
5	Communication Error	Cycle Power. Replace Main PCB and Load Cell.
6	Not Used.	
7	Load Cell Communication Error	Cycle Power. Replace Main PCB and Load Cell.
8	Load Cell NOVRAM Checksum Error	Cycle Power. Replace Main PCB and Load Cell.
9	Load Cell Negative Out of Range	Cycle Power. Replace Main PCB and Load Cell.

7 Troubleshooting

Wall Transformer Check

The wall transformer when connected to the proper AC input and disconnected from the scale may read as low as 10.7 VDC or as high as 18.3 VDC. The wall transformer while connected to the scale should read from 11 VDC, up to 17 VDC. If the voltages measured are not within this range replace the wall transformer. The center conductor of the wall transformer is positive.

Mother PCB

1. If the wall transformer tests correctly remove the personality PCB.
2. Troubleshooting the mother PCB and load cell is accomplished by connecting the harness part number 14462800A to J1 on the mother PCB (Personality PCB connector). Connect the other end of this harness to a PC RS-232 port. Cabling should be as follows

8217 Harness Connection	Signal Description	PC 9 Pin Connector	PC 25 Pin Connector
PIN 2	8217 Received Data	PIN 3	PIN 2
PIN 3	8217 Transmitted Data	PIN 2	PIN 3
PIN 5	Signal Ground	PIN 5	PIN 7
PIN 6	Data Terminal Ready (+12 VDC)	PIN 4	PIN 20

3. Note the position of the hardware switches.
4. Set hardware switches for Mettler Toledo RS-232 mode.
5. Start some communications software (Such as ComTool, Part Number: KN000000K64).
6. Setup your software for 7 databits, Even parity and 1 stop bit. Baud rate should match the switch settings.
7. Send an uppercase “W” from your PC to the 8217. The 8217 should respond with the current weight.
8. If the scale does not respond, verify communication setups and replace mother PCB and load cell.

Load Cell

If the 8217 weight readings are out of tolerance and the wall transformer checks correctly, replace the load cell and mother PCB.

8 Maintenance

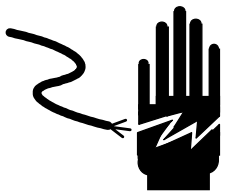
Internal Cleaning

Turn scale off by removing the wall transformer from the electrical outlet. Remove all dust/dirt build-up on scale.

External Cleaning

Turn scale off by removing the wall transformer from the electrical outlet. Use a soft clean cloth dampened with a mild detergent and water, or a mild cleaner to wipe the exterior surfaces. Do not spray directly on the unit. A mild spray cleaner can be used by spraying the cleaning cloth. Do not use solvents or commercial cleaners on the unit.

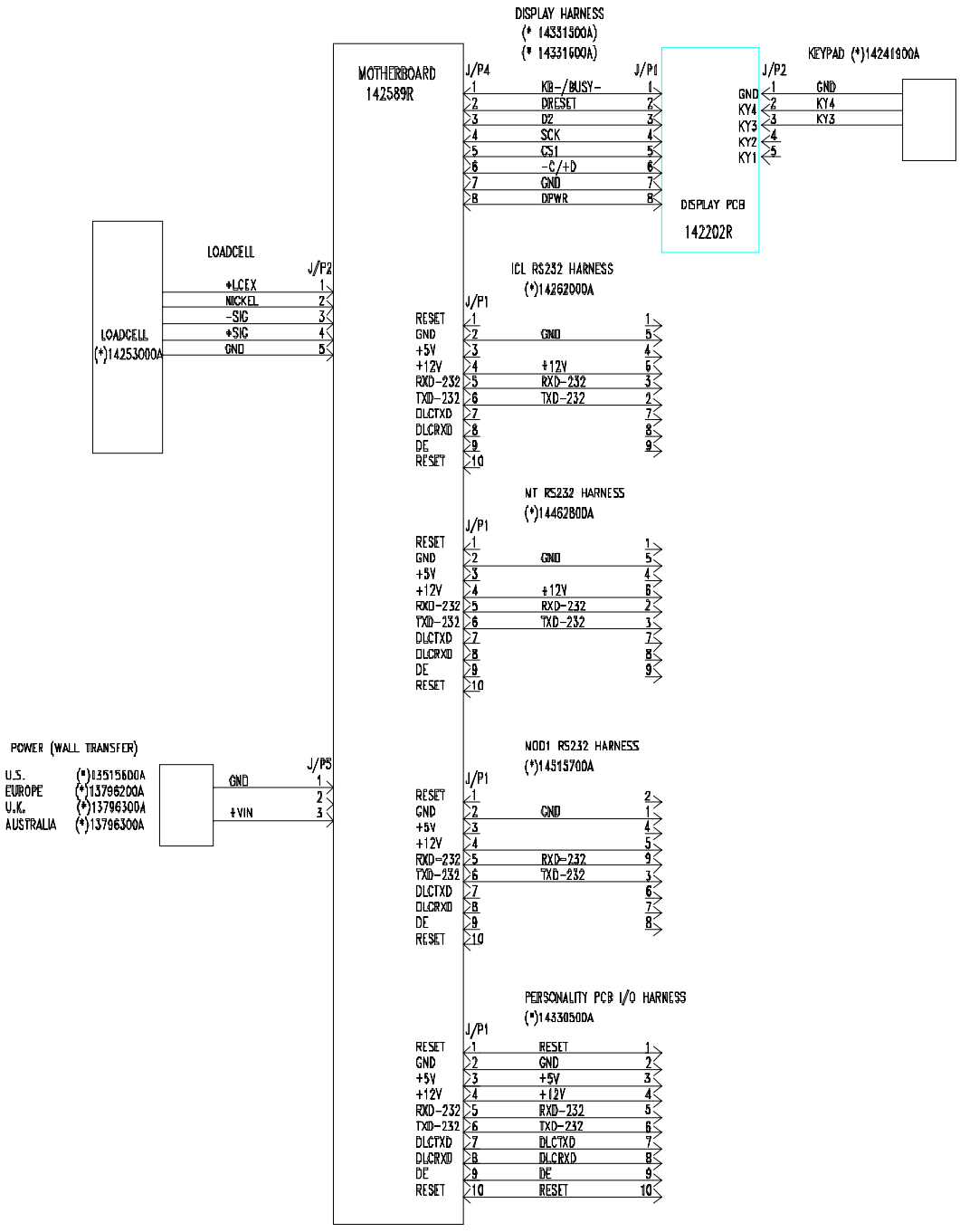
A regular maintenance and cleaning schedule for the 8217 scale should be part of normal operations.



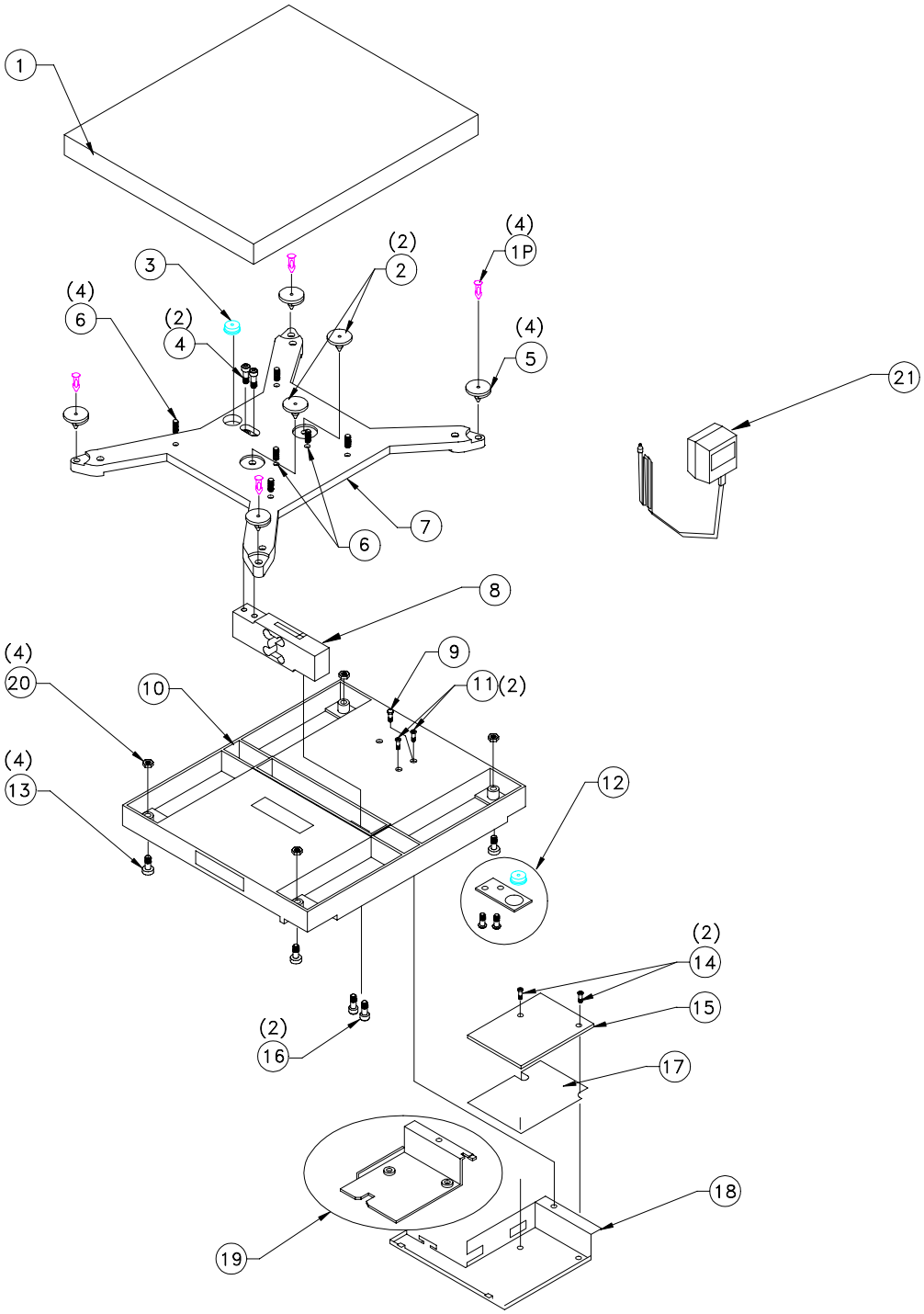
WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE CLEANING. FAILURE TO DO SO MAY RESULT IN BODILY INJURY OR PROPERTY DAMAGE.

9 Interconnecting Diagram

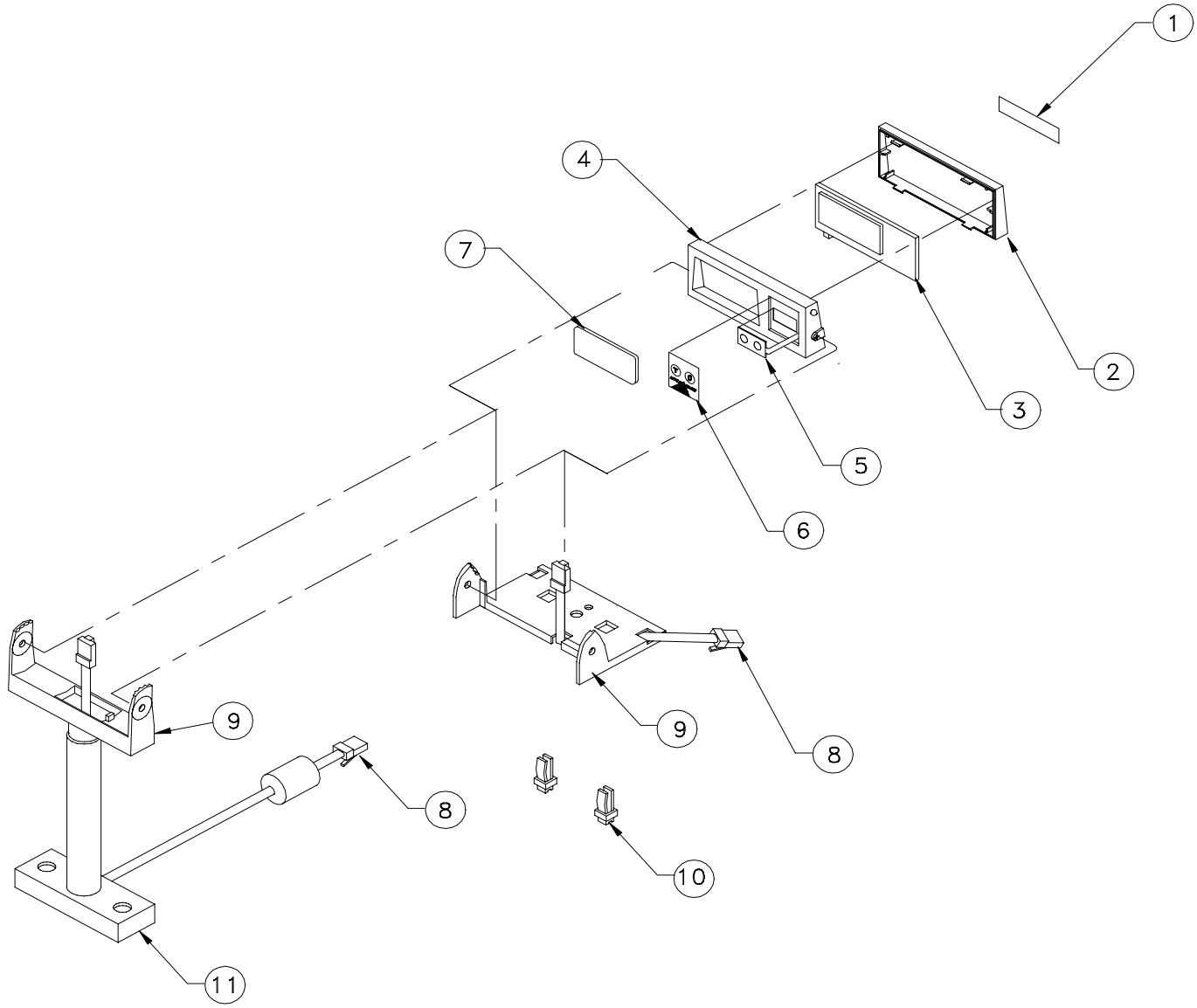


10 Replacement Parts



Ref #	Part Number	Description	QTY
1	14044300A	Platter	1
2	14044000A	Platter Supports	2
3	10268900A	Leveling Bubble	1
4	R0503700A	Screw, M6x20 Cap Torx	2
5	14330300A	Flanged Platter Supports	4
6	R0515300A	Screw, Set M6X12	6
7	14044000A	Spider	1
8	14291400A	Load Cell 25 kg Generic with Main PCB	1
9	R0514500A	Screw M4-0,7X8 Hex MS	1
10	14043900B	Base Casting	1
11	R0514600A	Screw M4-0,7X8 Hex Drilled	2
12	10268900A	Leveling Bubble	1
	13738200A	Bracket	1
	R0513100A	Screw	2
13	14583300A	Foot, Adjustable	4
14	R0514700A	Screw, M4-0,7X6 PH Torx/Slot	2
15	14291400A	PCB, Ass. Motherboard with Load Cell	1
16	R0503700A	Screw, M6X20, Cap Torx	4
17	14254900A	Insulator	1
18	14044200A	Cover, PCB	1
19		Personality Module	1
	14462700A	RS232	
	14330600A	OCIA	
	14330800A	Character Serial	
	14515800A	Mod 1 RS232	
	14330900A	IBM 4680	
	14291300A	Bottom Scanner	
20	R0365600A	NUT, HEX 5/16-18	4
21		Power Transformer (Wall)	1
	13515600A	United States	
	13796200A	Europe	
	13796300A	United Kingdom	
	13796300A	Australia	

11 0264 Replacement Parts



Ref #	Part Number	Description	QTY
1	*14370500A	Label, Data Serial Tag (Must Supply Serial Number, Model Number, and Factory Number)	1
2	*14248700A *14248700B	Cover, Rear, Display, Tower Mount Cover, Rear, Display, Base Mount	1
3	*14220300A *14477200A	PCB Assembly Display, 0264, Tower Mount PCB Assembly Display, 0264, Base Mount	1
4	*14248600A *14248600B	Cover, Front, Display, Tower Mount Cover, Front, Display, Base Mount	1
5	*14249100A	Keypad, 2 Button	1
6	*14249200A	Overlay, Keypad	1
7	 *14289400A *14289500A *14427000A *14427100A *14427200A *14427500A *14427600A *14427700A *14473200A *14473300A	Lens, Display Lens, Disp., 8217, 30X.01LB Lens, Disp., 8217, MAX 15 kg MIN 100G Lens, Disp., 8217, 15X.005 kg Lens. Disp., 8217, 15X.005 lb Lens, Disp., 8217, 6X.002 kg Lens, Disp., 8217, MAX 30 lb MIN .10 lb Lens, Disp., 8217, MAX 15 lb MIN .05 lb Lens, Disp., 8217, MAX 6 kg MIN 40 g Lens, Disp., 8217, Spanish kg Lens, Disp., 8217, Spanish lb	1
8	*14331600A *14331500A *14331500B	Harness, Display (Base mounted) Harness, Display (Tower Mount w/Ferrite) Harness, Display (Tower Mount w/o Ferrite)	1
9	*14248800A *14248900A	Mount, Display, Base Mount, Display, Tower	1
10	*12051300A	Fastener, 1/4 Turn	2
11	*14249000A	Base, Tower, Display	1

12 Interface's

8217 METTLER TOLEDO® RS232 Interface

Host Communications Protocol

The 8217 scale acts as a peripheral device when connected to a host computer. When the host requests weight data by sending an uppercase **W**, the scale will respond with the weight data or a status byte if the scale is in motion or an invalid state. The host can also request a scale zero operation, in which case the scale will respond with the scale status, so the host can determine if the scale is in zeroing range and/or if the scale is at zero. A scale confidence test can also be initiated by the host to cause the scale to perform RAM, ROM, and NOVRAM tests and put the results in a status byte for later interrogation by the host.

Data is transmitted and received by the scale using an RS232 voltage level interface in the following ASCII format: 7 bit even parity and one stop bit. Data transmission rates are 1200, 2400, 9600, or 19200 baud asynchronous, selectable via program switch SW1-5 and SW1-6.

The host computer must send requests to the scale as specified single uppercase ASCII characters to have it perform various functions. The scale will send a response back to the host computer as a string of ASCII numeric digits or as an ASCII ***?*** followed by a status byte. There must be at least a 200-ms delay between commands to allow for processing data response time at the scale. Table 12-a shows the standard commands and responses between the scale and host.

Notes:
An ASCII? is sent by the scale to indicate the following byte is a non-ASCII status byte.
$^{S}T_{X}$ indicates the ASCII Start-Of-Text character (decimal 2).
$^{C}{}_{R}$ indicates the ASCII carriage return character (decimal 13).

If a confidence test results in an error, the scale will not respond to the **W** or **Z** commands until the error condition is corrected. An error will also cause the scale to halt any weighing operation until cleared.

*ASCII Command From Host	Scale Response	Description
W		Instructs scale to send weight data. (W=Weight Digit 0-9). SW1-1 in setup mode determines whether the decimal point is transmitted or not. The scale will respond as follows according to setup and status:
	$^{S}T_{X}$ WW.WW $^{C}{}_{R}$	Gross Weight Pounds.
	$^{S}T_{X}$ WW.WWW $^{C}{}_{R}$	Gross Weight KG.
	$^{S}T_{X}$ WW.WWN $^{C}{}_{R}$	Net Weight Pounds. ASCII N added after weight.
	$^{S}T_{X}$ WW.WWWN $^{C}{}_{R}$	Net Weight KG. ASCII N added after weight.
	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Status byte is sent if scale is in motion, or is net/gross weight is negative or over capacity. Use Table 12-b to determine status byte results.
Z	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Zero scale command. On the next A/D reading, zero will be captured if the weight is stable, within capture range, and no tare is taken (gross weight mode.)
T $^{C}{}_{R}$	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Tare item on platter command. The scale must be at gross zero before placing the item on the platter. Tare will be taken if weight is stable and non-zero. After 150 millisecond delay, the scale will respond with a status byte. (NOTE: Tare must be enabled in calibration mode or scale will not respond.).
TWWWWW $^{C}{}_{R}$	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Digital Tare Command. Known tare value can be sent to scale and must be transmitted as five digits. The scale assumes a decimal point of WWW.WW LB, or WW.WWW KG. (Note: Tare must be enabled in calibration mode or scale will not respond.)
C	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Clear Tare Command (ignored if weight is not stable.) Scale status byte is sent after 150 ms delay.
A	$^{S}T_{X}{}^{C}{}_{R}$	Initiate Confidence Test Command. $^{S}T_{X}{}^{C}{}_{R}$ are sent indicating command was received.
B	$^{S}T_{X}$?*status byte* $^{C}{}_{R}$	Send Confidence Test Results Command. **A** must be sent prior to the Send Result command **B**. Results of the test are contained in a status byte. Use Table 12-c to determine test results. If all tests passed, the ASCII @ character will be returned.
E	$^{S}T_{X}E^{C}{}_{R}$	Start Echo Mode Serial Port Test Command. Scale will respond with an E indicating command received. Characters except F will be echoed back to the host.
F	$^{S}T_{X}F$	End Echo Mode Command. The scale will respond with an ASCII **F** indicating the command was received.

Table 12-a: ASCII Commands

(* MUST BE UPPERCASE CHARACTERS ONLY.)

Status Byte Format

When the scale responds with $^{S}T_{X}?status\ byte^{C}_{R}$, this indicates a status byte. The status byte contains scale status information, which can include net/gross mode, zero status, etc. The actual status byte sent will be an ASCII character which must be converted to binary to decode the bits. The scale status bit definitions are shown in Table 12-b.

Bit Number	Bit Description
7	Parity Bit (even).
6	1 = Bad Command from host. 0 = Normally.
5	1 = Net Weight, 0 = Gross Weight
4	1 = Center of zero. 0 = Not at center of zero.
3	1 = Outside zero capture range. 0 = Within range.
2	1 = Under zero. 0 = Within weighing range.
1	1 = Over capacity. 0 = Within weighing range.
0	1 = Scale in motion. 0 = Stable weight data.

Table 12-b: Scale Status Byte Bit Definitions

Confidence Test Status Byte Format

Note: The ASCII @ (decimal 64) indicates all tests were passed. Repeated reads of the confidence byte for all test passed without initiating a new confidence test will result in an ASCII ***NULL*** (hex 00).

When the scale responds with $^{S}T_{X}?status\ byte^{C}_{R}$, after requesting a confidence test (B), a confidence test status byte will be sent. The status byte contains scale status information, which can include net/gross mode, zero status, etc. The actual status byte sent will be an ASCII character which must be converted to binary to decode the bits. The confidence test status bits are shown in Table 12-c. Bit 6 is set to 1 after a confidence test is performed and reset to 0 after the host reads the confidence test status byte. The Confidence Test Byte bit definitions are shown in Table 1-3.

Bit Number	Bit Description
7	Parity Bit (even).
6	1 = New status data available. 0 = Host has read data.
5	Bit is always a 0.
4	1 = ROM test failed. 0 = ROM test passed.
3	1 = Processor RAM test failed. 0 = Processor RAM test passed.
2	1 = Ram Test Passed. 0 = Ram Test Failed.
1	1 = NOVROM test failed. 0 = NOVROM test passed.
0	Always 0.

Table 12-c: Scale Confidence Test Byte Bit Definitions

Tare

Tare can be taken on an item two ways: Automatic or digital.

AUTOMATIC TARE

The unknown weight of an object can be tared-off automatically by placing the object on the scale platter; then with the display in a stable non-motion and positive weight condition, sending an uppercase ASCII *T* character followed by $^{C}_{R}$ from the host will automatically subtract the weight. Switch SW2 6-7 must be set correctly to enable the tare function. Chain tare is not permitted. A display triangle, located under the least significant weight digit on the scale display will illuminate to indicate net weight is displayed. Negative weight will cause dashes to be displayed and status byte will be sent to the host instead of weight data.

DIGITAL TARE

Keyboard tare is set in the scale when an uppercase ASCII *T* character, followed by five ASCII digits and a $^{C}_{R}$ is sent by the host. The scale weight display must be positive and stable. The tare value input is limited to the scale capacity. In metric mode, the tare value must always end in 0 or 5.

CLEARING TARE

Tare is automatically cleared whenever the scale returns to gross zero after having indicated a stable net weight at least one increment above net zero. Tare can also be cleared by sending an uppercase ASCII C from the host.

I/O Connector Wiring

Note: Do not connect the DTR line unless the software specifically controls the line. The DTR line on the scale does not require connection to use the interface. Certain programs such as dBASE® and FOXPRO® may require the PC'S handshaking lines to be jumpered as follows:

The 8217 provides a female, DB-9 connector for connecting to a host computer. The serial port wiring is shown in Table 1-d. Verify the pin configuration on the host serial connector, since certain computers may not use the standard pin locations. Shielded 20 gauge, stranded cable is recommended. The maximum recommended RS-232 cable length is 100 feet. If cable lengths greater than 100 feet are required, consult your local METTLER TOLEDO representative.

Handshaking

FOR PC DB25 SERIAL PORT CONNECTOR: JUMPER 4 TO 5, AND 6, 8, & 20 TOGETHER.

FOR PC DB9 SERIAL PORT CONNECTOR: JUMPER 4 TO 6 AND 7 TO 8.

Pin#	Function	Description
2	RxD	Receive Data
3	TxD	Transmit Data
5	SGnd	Signal Ground
6	DTR	DTR (+12 VDC Out)

Table 1-d: 8217 Serial Interface Connector DB9-F

Standard IBM-PC® compatible computers use either a female DB-25 or a female DB-9 connector for RS-232 serial ports. Cables to IBM-PC compatible computers are available from your local authorized Toledo Scale representative. The wiring for the cables is shown in Tables 1-e and 1-f.

From PC **DB25-F** RS232 SERIAL PORT	**To 8217 DB9-M**
2 TRANSMIT	2 RECEIVE
3 RECEIVE	3 TRANSMIT
7 SIG GROUND	5 SIG GROUND
4 RTS 5 CTS	

Table 1-e: Standard IBM-PC Compatible DB-25 To 8217

From PC **DB9-F** RS232 SERIAL PORT	**To 8213 DB-9M**
2 RECEIVE	3 TRANSMIT
3 TRANSMIT	2 RECEIVE
5 SIG GROUND	5 SIG GROUND
7 RTS 8 CTS	

Table 1-f: Standard IBM-PC Compatible DB-9 To 8217

IBM-PC® TRADEMARK International Business Machine Corporation.

8217 MOD 1 RS232 Interface

MOD 1 Communications Protocol

The 8217 scale acts as a peripheral device when connected to a cash register such as the NCR, Panasonic or Micros. When the host requests weight data by sending an uppercase **W** followed by a $^{C}_{R}$, the scale will respond with the weight data and a status byte. The host can also request a scale zero operation, in which case the scale will respond with the scale status, so the host can determine if the scale is in zeroing range and/or if the scale is at zero.

Data is transmitted and received by the scale using an RS232 voltage level interface in the following ASCII format: 7 data bits Even parity and one stop bit. Data transmission rate is 9600 baud asynchronous.

The host register must send requests to the scale as uppercase ASCII characters to have it perform various functions. The scale will send a response back to the host register as a string of ASCII numeric digits or as an ASCII ***?*** to signify an unrecognized command. There must be at least a 200-ms delay between commands to allow for processing data response time at the scale. Table 12-g shows the standard commands and responses between the scale and host.

Notes:
An ASCII ? is sent by the scale to indicate an unrecognized command.
$^{S}T_{X}$ indicates the ASCII Start-Of-Text character (decimal 2).
$^{C}_{R}$ indicates the ASCII carriage return character (decimal 13).
^{L}F indicates the ASCII line feed character (decimal 10).
$^{E}T_{X}$ indicates the ASCII end of text character (decimal 3).
$^{S}_{P}$ indicates the ASCII space character (decimal 32).

*ASCII Command From Register	Scale Response	Description
W$^{C}_{R}$	If in LBs: ^{L}F WWW.WW$^{C}_{R}$ ^{L}FSHH$^{C}_{R}{}^{E}T_{X}$ If in KGs: ^{L}F WW.WWW$^{C}_{R}$ ^{L}FSHH$^{C}_{R}{}^{E}T_{X}$	Instructs scale to send weight data. (W=Weight Digit 0-9). The scale will respond as follows according to setup and status: Gross Weight Pounds. Status byte is sent. Use Table 2-2 to determine status byte results.
Z$^{C}_{R}$	^{L}FSHH$^{C}_{R}{}^{E}T_{X}$	Zero scale command. On the next A/D reading, zero will be captured if the weight is stable, within capture range.
S$^{C}_{R}$	^{L}FSHH$^{C}_{R}{}^{E}T_{X}$	Clear Tare Command (ignored if weight is not stable.) Scale status byte is sent after 150 ms delay.
All else	^{L}F?$^{C}_{R}{}^{E}T_{X}$	Unrecognized command.

Table 12-g: ASCII Commands

(* MUST BE UPPERCASE CHARACTERS ONLY.)

Status Byte Format

When the scale responds with $^{L}_{F}SHH^{C}_{R}{}^{E}_{T_X}$, this indicates a status byte. The status byte contains scale status information, which can include scale motion, under capacity, etc. The actual status byte sent will be an ASCII character which must be converted to binary to decode the bits. The scale status bit definitions are shown in Table 2-h.

Status Byte 1

BIT	Meaning
0	1 = Motion
1	1 = Scale at zero
2	Always = 0
3	Always = 0
4	Always = 1
5	Always = 1
6	Always = 0
7	Always = 0

Status Byte 2

BIT	Meaning
0	1 = Under Capacity
1	1 = Over Capacity
2	Always = 0
3	Always = 0
4	Always = 1
5	Always = 1
6	Always = 0
7	Always = 0

Table 2-h: Scale Status Byte Bit Definitions

I/O Connector Wiring

The 8217 provides a female, DB-9 connector for connecting to a cash register. The serial port wiring is shown in Table 12-i. Verify the pin configuration on the host serial connector, as certain registers may not use the standard pin locations. Shielded 20 gauge, stranded cable is recommended. The maximum recommended RS-232 cable length is 100 feet. If cable lengths greater than 100 feet are required, consult your local METTLER TOLEDO representative.

Pin#	Function	Description
9	RxD	Receive Data
3	TxD	Transmit Data
1	SGnd	Signal Ground

Table 12-i: 8217 Serial Interface Connector DB9-F

8217 IBM Port 9B Interface

Communications Protocol

The IBM 468X and 469X terminals can communicate to various peripherals through the Port 9B interface. An interface module is available for the scale to allow it to connect and communicate with these IBM terminals via their Port 9B ports. A detailed description of the IBM Multidrop interface can be found in IBM Documentation.

I/O Connector Wiring

The interface connection is made through a half duplex RS485 port. The baud rate is 187.5 K Bits/Second. The signals are available on a 4 position

"A" keyed MDL connector.

Pin #	Function	Description
1	GND	Ground
2	A	A
3	B	B
4	+12 VDC	Optional +12 VDC

Table 2-j: 8217 IBM Port 9B Interface Connector DB9-F

8217 Character Serial Interface

Character Serial Protocol

The character serial communications protocol utilizes BCD information to communicate the weight data to the host device such as a cash register. The weight digits are sent via the data 1, data 2, data 4, and data 8 lines. The weight digits are sent sequentially.

Switch Setup

Refer to Chapter 4 (Installation Instructions) for information on the Personality PCB - Switch Setup.

I/O Connector Wiring

The interface connection is made through a 15-pin D subminiture female connector.

Pin	Signal	Comments
1, 6, 15	LOGIC GROUND	Logic Ground (Isolated from chassis ground)
7	CLOCK	Input, 100 kHz maximum, requires 7 ma, logic zero
2	DATA 1	The data output is BCD. Can sink 16 ma, high output state when not enabled
3	DATA 2	The data output is BCD. Can sink 16 ma, high output state when not enabled
4	DATA 4	The data output is BCD. Can sink 16 ma, high output state when not enabled
5	DATA 8	The data output is BCD. Can sink 16 ma, high output state when not enabled
9	OVER CAPACITY	Low level for weights less than 30.00 lb or 10 kg
10	BEHIND ZERO	High level for weights between zero and capacity
11	MOTION	High level when weight is stable. Low when scale is in motion. Must be capable of sinking 16 ma
12	ENABLE	The ENABLE command causes the scale output buffer to be reset and ready to capture the next set of weight data
13	SCALE READY	Scale ready to send weight.
8, 14		not connected

Table 12-k: 8217 Character Serial Interface Connector DB9-F

Notes:
Signals compatible with 7400 series TTL Logic.
Zero (0) Low = (OV to .4V DC)
One (1) High = (2.4V to 5V DC)
OVER CAPACITY, BEHIND ZERO, and MOTION are independent of CLOCK and ENABLE.
A "1111" is output on the data lines if any are true.

8217 OCIA Interface

OCIA Communications Protocol

The 8217 scale acts as a peripheral device when connected to a cash register via the OCIA interface. Timing constraints are as follows:

CLKO to CLKO
When several messages are sent to the peripheral device over SDATA, the minimum time between the last CLKO of one message and the first CLKO pulse of the next message is 25 µsec. No maximum time is specified.

RDATA "Data Ready" to CLKI
The time between the data ready bit being sent by the scale and the first CLKI pulse sent by the controller is a minimum of 10 µsec. No maximum time is specified.

CLKI to RDATA Data Ready
When several messages or characters are to be sent by the scale over the RDATA line, the maximum time between the last CLKI pulse of one message and the Data Ready bit being set for the next message is 150 µsec. No minimum time is specified.

I/O Connector Wiring

The interface connection is made through a 15-pin D subminature female connector.

A 4-pair shielded cable (NCR part no. 006-1000340) is used to connect the Device Controller to the scale. Max cable length is 100 ft. A 9 pin receptacle, AMP 206485-1 or equal, is used at both ends of the cable. To interface, AMP 206486-1 is provided on the scale. Pin assignments are as follows:

Pin	Signal	Pairs
1	RDATA	•
2	+5 volts from scale	•
3	CLKI	•
4	+5 volts from controller	•
5	CLKO	•
6	+5 volts from controller	•
7	No Connection	
8	No Connection	
9	Circuit and chassis ground from scale	

Table 12-I: OCIA Connector Wiring

ASCII Table

ASCII Character	Decimal	HEX	76543210	ASCII Character	Decimal	HEX	76543210
NULL	0	00	00000000	@	64	40	01000000
SOH	1	01	00000001	A	65	41	01000001
STX	2	02	00000010	B	66	42	01000010
ETX	3	03	00000011	C	67	43	01000011
EOT	4	04	00000100	D	68	44	01000100
ENQ	5	05	00000101	E	69	45	01000101
ACK	6	06	00000110	F	70	46	01000110
BELL	7	07	00000111	G	71	47	01000111
BACKSPACE	8	08	00001000	H	72	48	01001000
TAB	9	09	00001001	I	73	49	01001001
LineFeed	10	0A	00001010	J	74	4A	01001010
Vert. Tab	11	0B	00001011	K	75	4B	01001011
Form Feed	12	0C	00001100	L	76	4C	01001100
Carr.Return	13	0D	00001101	M	77	4D	01001101
Shift Out	14	0E	00001110	N	78	4E	01001110
Shift In	15	0F	00001111	O	79	4F	01001111
Data Link Esc	16	10	00010000	P	80	50	01010000
DC1	17	11	000010001	Q	81	51	01010001
DC2	18	12	00010010	R	82	52	01010010
DC3	19	13	00010011	S	83	53	01010011
DC4	20	14	00010100	T	84	54	01010100
NAK	21	15	00010101	U	85	55	01010101
SYNCH IDLE	22	16	00010110	V	86	56	01010110
End Trans. Block	23	17	00010111	W	87	57	01010111
CANCEL	24	18	00011000	X	88	58	01011000
End Of Medium	25	19	00011001	Y	89	59	01011001
SUBSTITUTE	26	1A	00011010	Z	90	5A	01011010
ESCAPE	27	1B	00011011	[	91	5B	01011011
FS (Cursor Right)	28	1C	00011100	\	92	5C	01011100
GS (Cursor Left)	29	1D	00011101	]	93	5D	01011101
RS (Cursor Up)	30	1E	00011110	^	94	5E	01011110
US (Cursor Down)	31	1F	00011111	_	95	5F	01011111
SPACE	32	20	00100000	`	96	60	01100000
!	33	21	00100001	a	97	61	01100001
"	34	22	00100010	b	98	62	01100010
#	35	23	00100011	c	99	63	01100011
$	36	24	00100100	d	100	64	01100100
%	37	25	00100101	e	101	65	01100101
&	38	26	00100110	f	102	66	01100110
'	39	27	00100111	g	103	67	01100111
(	40	28	00101000	h	104	68	01101000
)	41	29	00101001	i	105	69	01101001
*	42	2A	00101010	j	106	6A	01101010
+	43	2B	00101011	k	107	6B	01101011
,	44	2C	00101100	l	108	6C	01101100
-	45	2D	00101101	m	109	6D	01101101
.	46	2E	00101110	n	110	6E	01101110
/	47	2F	00101111	o	111	6F	01101111
0	48	30	00110000	p	112	70	01110000
1	49	31	00110001	q	113	71	01110001
2	50	32	00110010	r	114	72	01110010
3	51	33	00110011	s	115	73	01110011
4	52	34	00110100	t	116	74	01110100
5	53	35	00110101	u	117	75	01110101
6	54	36	00110110	v	118	76	01110110
7	55	37	00110111	w	119	77	01110111
8	56	38	00111000	x	120	78	01111000
9	57	39	00111001	y	121	79	01111001
:	58	3A	00111010	z	122	7A	01111010
;	59	3B	00111011	{	123	7B	01111011
<	60	3C	00111100	|	124	7C	01111100
=	61	3D	00111101	}	125	7D	01111101
>	62	3E	00111110	~	126	7E	01111110
?	63	3F	00111111		127	7F	01111111

13 8217 Adaptive Scale Installation

The following section describes the installation procedure for the 8217-Adaptive Scale. Refer to this section for specific Adaptive Scale information.

Counter Modification

Since there are many variations of counter design, it would be impossible to cover each manufacturer's unique design. The focus will be on the two most common styles: the Left-Hand Take Away and the OTE (Over-the-End)/ Right-Hand Take Away.

This section describes the criteria for modifying or designing a checkstand to accommodate he Adaptive Scale. These topics include:

- Adaptive scale placement
- Mounting hardware and counter cutout recommendations
- Cable routing
- Installing the remote display

Scanning Scale Placement

The following instructions are provided as guidelines. All information related to cutout sizes, bracket placement and service access are accurate for most installations. However, due to variations in counter design, some assumptions (e.g., counter height, width, or even basic counter design) may not be optimal for your installation.

- Select an installation position that will minimize the distance between the POS terminal and the Adaptive Scale.
- Make a 11.2" x 13.9" cutout.
- Install the power and interface cables keeping two things in mind.
  - The interface display cables should be routed away from all highly inductive electrical devices (e.g., motors, conveyor belts) and, away from the Adaptive Scale's power cable.
  - The cables should be able to be easily removed in the event that replacement is required.

- Install a support shelf below the counter surface. Mettler Toledo offers an Adaptive Fill kit which may be ordered along with the 8217AS scale. This kit accommodates the 8217AS scale and scanner in the majority of checkstand cutouts. Refer to ordering and pricing details in the 8217AS Bulletin or contact your Authorized Mettler Toledo representative.

If the fill kit is not ordered, the brackets should be made of solid wood or metal angle to support a minimum load of 200 pounds (90.7 kilograms) and should be mounted to support the long sides of the Adaptive Scale.

Support shelves should not be less than 3/4" (1.9 cm) thick and should include a 4" x 4" cutout to allow proper ventilation and service access. The cutout should be centered directly below the Adaptive Scale.

It is recommended that you do not attach mounting brackets or support shelves to particle board or to unsupported plywood that is less than 3/4" (1.9 cm) thick.

Dimensions

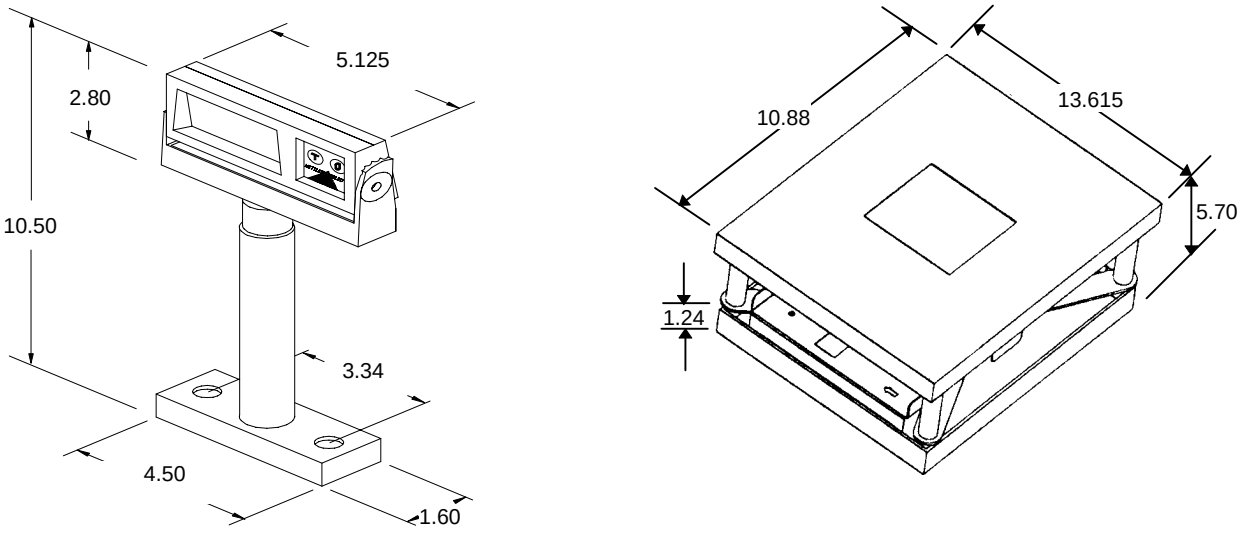


Figure 13-a: Dimensions (Shown with Remote Display)

Left Hand Take Away

The Left Hand Take Away counter allows the checker to operate the POS terminal keyboard with his/her right hand while scanning or weighing items with his/her left hand. A major consideration in this design is the reaching distance from the Adaptive Scale to the POS terminal. The Adaptive Scale should be mounted as close as possible to the checker for maximum the throughput.

Over the End/Right Hand Take Away

The OTE/Right Hand Take Away counter allows the checker to operate the POS terminal keyboard with his/her right hand while scanning or weighing items with his/her left hand and bagging immediately. The major considerations in this design are the reaching distances from: the end of the counter to the leading edge of the Adaptive Scale and from the Adaptive Scale to the POS terminal. The Adaptive Scale should be mounted as close to the checker as possible to maximize throughput.

Cable Routing

When routing the power and interface cables for the Adaptive Scale, be sure that:

- the cables are not pinched, kinked or pierced.
- the power and interface cables are not routed side-by-side. (Separate routing will decrease the chance of line disturbance on the interface cables.)
- the cables are not routed through the perimeter housing and do not interfere in any way with movement of the scale.
- the interface cables are not routed in close proximity to electrical motors or other sources of electromagnetic interference.

Remote Display Placement/ Installation

When installing the 0264 Remote Display, consider both the customers viewing angle and the amount of ambient light throughout the day.

LIGHT
The display will be easily readable unless placed in direct sunlight or other very strong light sources. Light interference will not be a factor in most installations.

VIEWING ANGLE
The optimum viewing angle is 90 degrees from the floor facing the customer. To make the display easily readable for the majority of your customers, the display should be approximately 60" from the floor.

- Determine where you want to install the remote display based on your counter design, the viewing angle and lighting considerations discussed previously.
- Use the Remote display base as a template to mark the locations of the mounting screws and cable routing holes. The cable routing hole should be 3/4" in diameter.
- Drill the mounting screw holes using a drill bit of the appropriate diameter for your mounting screws or bolts.
- Drill the cable routing hole using a 3/4" (19 mm) drill bit.
- Assemble the 0264 remote display tower.
- Feed the entire remaining length of the 0264 remote display interface cable through the cable routing hole so the assembled 0264 remote display can be positioned over the mounting screw holes.
- Install the mounting screws or bolts to complete the installation of the 0264 Remote Display. Take care not to pinch or pierce the interface cable while securing the remote display to the Checkstand.

Leveling Adaptive Scale

Leveling the Adaptive Scale is accomplished by manually turning the mounting feet.

Adjusting the SST (Sapphire Platter)

The platter should be approx. 1/8” taller on the trailing edge of the scanner scale than on the leading edge.

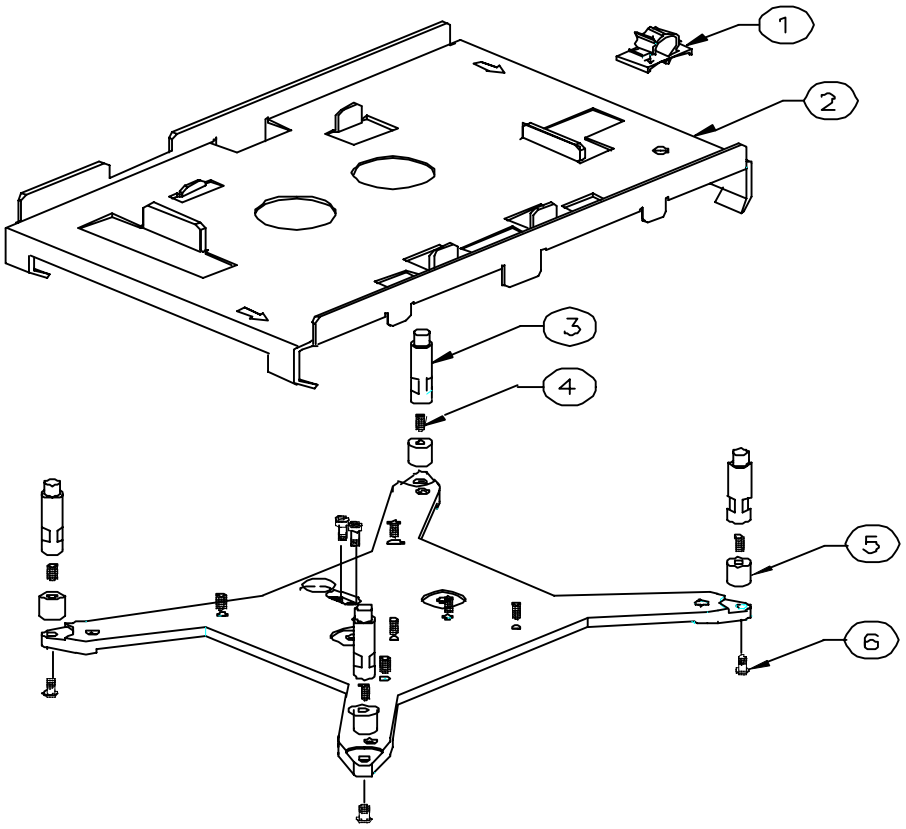
Replacing Existing Scanner-Scales (“F” Fill Kit)

The Adaptive Scale has a mounting/Fill kit option that directly fills in a “F” size hole, in a counter.

Installation of the “F” Fill Kit

The “F” fill kit will fit directly in the place of an “F” size hole.

Adaptive Scale Parts



Ref #	Part Number	Description	QTY
1	14580400A	CABLE CLAMP, PUSH MOUNT	1
2	14711800A	BRIDGE, SCANNER	1
3	A14264400A	POST	4
4	R0300100A	SCREW, SET 1/4-20 OVAL	4
5	14711900A	SPACER, 8217 ADAPTIVE	4
6	R0271900A	SCREW, CAP HEX SOCKET	4

Troubleshooting

Refer to the 8217 Troubleshooting section.

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(3/99)