0958

FLEXMOUNT®, FLEXMOUNT® HD, and CENTERLIGN™ Weigh Modules

Installation and Service Manual

G15175600A
(11/05).00

METTLER TOLEDO

Publication Revision History

An overview of this manual's revision history is compiled below.

Publication Name: 0958 FLEXMOUNT, FLEXMOUNT HD, CENTERLIGN Weigh Modules Service Manual

Part Number: A15175600A **Publication Date: 6/97**

Part Number	Date	Revisions
B15175600A	3/98	Added bolt-hole dimensions to drawings and tables on pages 1-5 to 1-9.
C15175600A	8/98	Added new Model 0958 FLEXMOUNT and CENTERLIGN weigh modules for 20K, 30K, and 45K lb sizes.
D15175600A	12/98	Removed references to Model 0957 weigh modules for 20K and 45K lb sizes. Replaced Certificate of Conformance 88-008A3 with 88-008A4.
E15175600A	8/99	Added new Model 0958 FLEXMOUNT HD weigh modules for 50K, 75K, 100K, 150K, and 200K lb sizes. Removed information about Model 0957 weigh modules (75K, 100K, and 200K lb sizes).
F15175600A	6/00	Revised description of how to level weigh modules in FLEXMOUNT, CENTERLIGN, and FLEXMOUNT HD installation procedures (Chapter 3). Revised procedure for checking load cell voltages (Chapter 6).
F15175600A (.01)	8/02	Corrected part numbers in Chapters 7 and 8. Updated certificates of conformance.
F15175600A (.02)	11/04	Changed part numbers for load cells. Replaced DigiTOL junction box with RAAD box.
G15175600A	11/05	Added hazardous area information (Chapter 1). Updated torque specifications (Chapter 6) and drawing numbers (Chapter 10).

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information about METTLER TOLEDO Technical Training may be obtained by writing, calling, or faxing:

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio 43240 USA
Phone: (614) 438-4511
Fax: (614) 438-4958
www.mt.com

WARNING!

This equipment generates, uses, and 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 to radio communications in 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.

Declaration of conformity

Konformitätserklärung
Déclaration de conformité
Declaración de Conformidad
Conformiteitsverklaring
Dichiarazione di conformitá

We/Wir/Nous/Wij/Noi: **Mettler-Toledo, Inc.**
1150 Dearborn Drive
Worthington, Ohio 43085 USA

declare under our sole responsibility that the product,
erklären, in alleiniger Verantwortung, daß dieses Produkt,
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verklaren onder onze verantwoordelijkheid, dat het product,
dichiariamo sotto nostra unica responsabilitá, che il prodotto,

Type: Analog Load Cells
Models: 744, 745 and 745A

(when used within the technical requirements listed in Mettler Toledo documentation and installed as a Load receptor as listed in Type approval certificate T2206, Table 4.)

to which this declaration relates is in conformity with the following standard(s) or other normative document(s).
auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.
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CE Conformity / CE-Konformität / Conformité CE

90/384/EU Nonautomatic Balances and Scales / Nichteselbsttätige Waagen / Balances à Functionnement non automatique
Article 1.2.a.
89/336/EU EMC Directive / EMU-Richtlinie / Directive concernant la CEM
EN55 022, B: 1987 Emissions / Funkstörungen
EN50 082-2: 1995 Immunity
73/23/EU Low Voltage / Niederspannung / basse tension
EN61010-1 el. Safety / el. Sicherheit / sécurité el.
94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres
EN 50 014 : 1977 + A1…A5, General requirements
EN 50 020 : 1977 + A1…A5, Intrinsic safety "i"

Other Directives and Standards / Andere Richtlinien und Normen / Autres documents
corresponding to local requirements / entsprechend lokalen Anforderungen / correspondant aux exigences locales

R60	OIML International Recommendation, Metrological regulation for load cells
EEx ib IIC T4	el. Safety / el. Sicherheit / sécurité el. (PTB Nr. Ex-95.D.2051, for models 744 and 745)
EEx ib IIC T4	el. Safety / el. Sicherheit / sécurité el. (KEMA No. Ex-98.D.0965, for model 745A)

Darrell Flocken, Manager - Weights & Measures
Office of Weights and Measures
Worthington, Ohio USA
~~**September, 1996**~~
Revised January 1999 **(Added: model 745A, conformity to 89/336/EU – 73/23/EU – 94/9/EC)**

according to EN45014

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Type: Analog Load Cells
Models: 743 **(when used within the technical requirements listed in Test certificate TC2977.)**

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R60 OIML International Recommendation, Metrological regulation for load cells

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Worthington, Ohio USA
May, 1997

according to EN45014

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Type: Analog Load Cell
Models: 790

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Office of Weights and Measures
Worthington, Ohio USA
July, 1999

according to EN45014

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STANDARD WARRANTY

METTLER TOLEDO warrants that the equipment covered by this warranty will be free from defects in workmanship and material for one year from date of installation or eighteen (18) months from date of shipment to the buyer, whichever comes first.

Should any such defects be found and reported during the first thirty (30) days after installation (if installation occurs during the warranty period), METTLER TOLEDO (herein referred to as the "Company") will, at its option, refund the purchase price or correct such defects, furnishing replacement parts and service free of charge to the buyer. For the remainder of the first 12 months of the warranty term, the Company will furnish necessary replacement parts and on-site technician's service free of charge, provided the Buyer agrees to pay reasonable technician's travel time, vehicle mileage, and associated travel expenses to and from the nearest authorized Company service location. If the equipment is covered by a two-year warranty, for the last 12 months or remaining balance of the warranty period, whichever comes first, the Company will furnish the necessary replacement parts to the Buyer free of charge, provided that the Buyer agrees to pay reasonable technician's on-site labor services, travel time, mileage, and expenses to and from the nearest authorized Company service location. The following are NOT covered under any of these warranties:

1. Initial installation and ongoing scale calibration.
2. Damage to scale components by gross abuse, fire, flooding, explosion, water, voltage surges, or civil disturbance.
3. Normal maintenance or consumable items.

This warranty covers only the 0958 FLEXMOUNT / CENTERLIGN weigh modules. Refer to METTLER TOLEDO Standard Product Warranty for coverage of other scale system components, including scale instrument, printer, and/or other accessories.

THE COMPANY EXPRESSLY WARRANTS THE EQUIPMENT MANUFACTURED BY IT AS SET FORTH HEREIN. THE COMPANY MAKES NO OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED (INCLUDING WITHOUT LIMITATION WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). IN ADDITION, THIS DOCUMENT SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDIES OF THE BUYER FOR ANY BREACH BY THE COMPANY OF ITS WARRANTIES HEREIN.

COMPANY LIABILITY UNDER THIS WARRANTY OR ANOTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED IN LAW OR FACT, SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE MATERIAL AND WORKMANSHIP, AND IN NO EVENT SHALL IT BE LIABLE FOR CONSEQUENTIAL OR INDIRECT DAMAGES.

This warranty coverage is applicable only to the United States of America.

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APPLICATION GUIDES

The only warranty of METTLER TOLEDO is for the product it supplies under the Product Warranty Statement listed above. Weighing application guidelines pertain to METTLER TOLEDO products.

Precautions

READ this manual BEFORE operating or servicing this equipment.

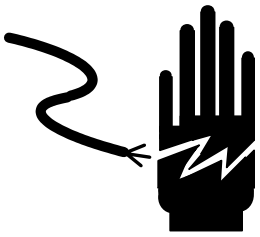
FOLLOW these instructions carefully.

SAVE this manual for future reference.

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

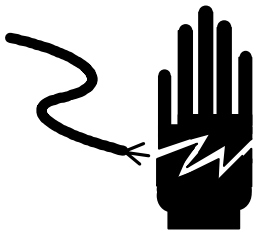
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



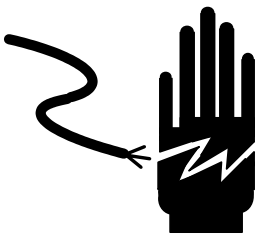
WARNING

PERMIT ONLY 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 INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/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. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN BODILY HARM OR DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

⚠ WARNING

IF USED IN A HAZARDOUS AREA, THE HAZARDOUS AREA MUST BE MADE SAFE PRIOR TO INSTALLATION, REPLACEMENT, OR TROUBLESHOOTING. FAILURE TO COMPLY COULD RESULT IN PERSONAL INJURY, DEATH, AND/OR PROPERTY DAMAGE.

CONTENTS

1 Specifications

Introduction

FLEXMOUNT, FLEXMOUNT HD, and CENTERLIGN weigh modules are used to convert tanks, hoppers, and other structures into scales. Each weigh module consists of a load cell and the mounting plates needed to attach it to a structure.

A METTLER TOLEDO digital indicator powers the analog load cells used in these weigh modules. Which digital indicator is used determines the type of junction box required: Analog, RAAD, or IDNet junction box.

Refer to the digital indicator's service manual for indicator power requirements.

Accuracy

A scale's accuracy depends on:

- The design of the support steel for the module, and of the receiving structure (tank, hopper, conveyor, etc.) mounted to the modules
- The design and number of dead-to-live connections attached to the scale
- The total load cell capacity
- Environmental factors: wind, vibration, temperature variations, etc.

Refer to the METTLER TOLEDO Weigh Module Systems Handbook (*15598500A) for more information.

* May have alpha prefix.

Model Number

Model 0958 FLEXMOUNT and CENTERLIGN weigh modules are available in 250-lb to 45,000-lb capacities. Model 0958 FLEXMOUNT HD weigh modules are available in 50,000-lb to 200,000-lb capacities. Use the following table to find the proper load cell configuration.

Standard Model Number Configuration Table					
XXXX	**X**	**X**	**X**	**XX**	**-X**
Model	**Weigh Module Type**	**Material/Cell Type**	**# Load Cells**	**Load Cell Capacity**	**Junction Box**
0958	0 = FLEXMOUNT/ FLEXMOUNT HD 1= CENTERLIGN	1 = C.S. H44 Hermetic 2 = S.S. H44 Hermetic 3 = C.S. H44 Potted 4 = S.S. H44 Potted 5 = C.S. OIML Potted 6 = S.S. OIML Potted 7 = C.S. OIML Hermetic 8 = S.S. OIML Hermetic	3 to 8	X2 = 250 lb X5 = 500 lb/220 kg 01 = 1,250 lb/550 kg 02 = 2,500 lb/1,100 kg 05 = 5,000 lb/2,200 kg 10 = 10,000 lb/4,400 kg 20 = 20,000 lb/9,072 kg 30 = 30,000 lb/13,608 kg 45 = 45,000 lb/20,412 kg 50 = 50,000 lb 75 = 75,000 lb 1X = 100,000 lb 15 = 150,000 lb 2X = 200,000 lb	1 = Standard Analog 2 = No Junction-Box*

* For optional junction boxes, order a base model having a (-2) suffix. Order optional junction boxes as a separate line item: RAAD junction box, IDNet junction box, and enlarged Analog junction box with conduit fittings.

The following table shows the level detection model number scheme for FLEXMOUNT and FLEXMOUNT HD weigh module systems:

Level Detection Model Number Scheme					
Model	**Material**	**Load Cell**	**# Live Cells**	**Load Cell Capacity**	**Junction Box**
0958D	C = Carbon Steel S = Stainless Steel	1 = H44/US 2 = R60/SI	1 or 2	X2 = 250 lb X5 = 500 lb or 220 kg 01 = 1,250 lb or 550 kg 02 = 2,500 lb or 1,100 kg 05 = 5,000 lb or 2,200 kg 10 = 10,000 lb or 4,400 kg 20 = 20,000 lb or 9,072 kg 30 = 30,000 lb or 13,608 kg 45 = 45,000 lb or 20,412 kg 50 = 50,000 lb (22,680 kg)* 75 = 75,000 lb (34,019 kg)* 1X = 100,000 lb (45,359 kg)* 15 = 150,000 lb (68,039 kg)* 2X = 200,000 lb (90,718 kg)*	1 = Analog 3-hole 2 = No Junction Box

*Metric capacities are for reference only.

Level Detection Scheme Notes

1. All systems include two "dead" weigh modules, which contain dummy load cells:
   - For three-support systems, the "live" load cell is in the full-floating module.
   - For four-support systems, the "live" load cells are in the full-floating modules.
2. A dead weigh module has the same mounting dimensions as a standard weigh module of the same capacity. The dummy load cell in a dead weigh module can be replaced with a live load cell if greater accuracy is desired.
3. For best performance, place any piping that runs to and from the vessel as close to the fixed-pin module as possible.

Load Cells and Suspension

Stainless-steel, single cantilever beam load cells are included in all Model 0958 FLEXMOUNT and CENTERLIGN weigh modules.

Painted alloy steel torsion ring load cells are included in all Model 0958 FLEXMOUNT HD weigh modules.

Model number: 743 Load Cells, 20K/30K/45K lb, 9,072/13,608/20,412 kg

- Maximum excitation voltage: 20 VDC or VAC rms
- Full-scale output: 2 mV/V
- Input terminal resistance: 20K & 30K cells 380 $\pm$ 20 ohms, 45K cells 2,200 $\pm$ 100 ohms
- Output terminal resistance: 20K & 30K cells 350 $\pm$ 2 ohms, 45K cells 2,000 $\pm$ 20 ohms
- Temperature range compensation: -10°C to +40°C (+14°F to +104°F)
- Safe side load: 100% of full load cell rating
- Safe overload: 150% of full load cell rating

Model number: 744 Load Cells, 250 lb

- Maximum excitation voltage: 15 VDC or VAC rms
- Full scale output: 2 mV/V
- Input terminal resistance: 385 ohms min.
- Output terminal resistance: 350 $\pm$ 2 ohms
- Temperature range compensation: -10°C to +40°C (+14°F to +104°F)
- Safe side load: 100% of full load cell rating
- Safe overload: 150% of full load cell rating

Model number: 745 Load Cells, 500 to 10K lb, 220 to 4,400 kg

- Maximum excitation voltage: 15 VDC or VAC rms
- Full scale output: 2 mV/V
- Input terminal resistance: 385 ohms min.
- Output terminal resistance: 350 $\pm$ 2 ohms
- Temperature range compensation: -10°C to +40°C (+14°F to +104°F)
- Safe side load: 100% of full load cell rating
- Safe overload: 150% of full load cell rating

Model number: 790 Load Cells, 50K/75K/100K/150K/200K lb

- Maximum excitation voltage: 18 VDC or VAC rms
- Full scale output: 2 mV/V
- Input terminal resistance: 750 ohms minimum
- Output terminal resistance: 700 $\pm$ 5 ohms
- Temperature range compensation: -10°C to +45°C (+15°F to +115°F)
- Safe side load: 100% of full load cell rating
- Safe overload: 150% of full load cell rating

FLEXMOUNT module suspension is achieved by a load pin between the cell and receiver in the upper assembly (Figure 1-6).

CENTERLIGN module suspension is achieved by a rocker pin between the cell and the receiver in the upper assembly (Figure 1-7).

FLEXMOUNT HD module suspension is achieved by a load pin between the cell and the receiver in the upper assembly (Figure 1-8).

Approvals

NTEP Certification

Model 745 load cells meet or exceed NIST Handbook-44 requirements for Class III 5000 divisions/multiple cell. Model 743 load cells meet or exceed NIST Handbook-44 requirements for Class III 5000 divisions/multiple cell. Model 790 load cells meet or exceed NIST Handbook-44 requirements for Class IIIL 10,000 divisions/multiple cell.

Certificates of Conformance (CC # 92-108A3, 88-008A4, and 99-093) were issued under the National Type Evaluation Program (NTEP) of the National Conference of Weights and Measures for these load cells.

OIML Certification

Model 745 metric capacity load cells meet or exceed OIML requirements for R60 C3 3000 divisions (TC2154). Model 743 metric capacity load cells meet or exceed OIML requirements for R60 C3 3000 divisions (TC2977).

Entity Approval

Entity approval permits the application of individually approved components (even from various manufacturers) to be used together to build a solution that is approved. When installing equipment in hazardous areas, it is necessary to compare the entity values of the load cells, junction boxes, connecting cables, and other components. Those entity values include voltage, current, power, capacitance, and inductance.

The components must compare as follows in order for the wiring to be considered intrinsically safe:

V_{max} or U_i (Maximum voltage permitted) ≥ V_t or U_o (Total voltage output)

I_{max} or I_i (Maximum current permitted) ≥ I_t or I_o (Total current output)

P_{max} or P_i (Maximum power permitted) ≥ P_t or P_o (Total power output)

C_i (Unprotected capacitance) + C_{cable} (Cable capacitance) ≤ C_a or C_o (Allowable capacitance)

L_i (Unprotected inductance) + L_{cable} (Cable inductance) ≤ L_a or L_o (Allowable inductance)

If the above conditions are not true, then the circuit will not be intrinsically safe and must not be installed in a hazardous area. If the parameters compare favorably as shown above, then the circuit is intrinsically safe and can be installed in a hazardous area. Always refer to the electrical regulations for the country of installation for specific wiring requirements.

United States Approval

The United States safety approvals are based on entity values. Reports on the 743/744/745/790 load cells were submitted to Factory Mutual for compliance with FM Approval Standards Class No. 3600, 3610, and 3810. They were approved as intrinsically safe devices and issued the following certificate:

743: FM Original Approval Job Identification #3005885
IS/I,II,III/1/ABCDEFG/T4 Ta=40°C – 158574R/5; ENTITY; NI/I/2/ABCD/T6 Ta=40°C; S/II,III/2/FG/T6 Ta=40°C

744/745/790: FM Original Approval Job Identification #3013019
IS/I,II,III/1/ABCDEFG – TA800821; ENTITY; NI/I/2/ABCD; S/II,III/2/FG

The following chart lists the Factory Mutual entity values for the load cells.

Electrical Data	743	744/745/790
V_t (Total voltage output)	25 V	25 V
I_t (Total current output)	600 mA	600 mA
P_t (Total power output)	1.25 W	1.25 W
C_a (Allowable capacitance)	0	0
L_a (Allowable inductance)	29 µH	0

743: When used in hazardous areas, the load cells must be installed according to control drawing 158574R (see Figure 1-1).

744/745/790: When used in hazardous areas, the load cells must be installed according to control drawing TA800821 (see Figure 1-2).

European Approval

743 Load Cells

The European safety approvals are based on entity values. The 743 load cells were submitted to KEMA for compliance with EN50014, EN50020, EN50021, and EN50281-1-1. They were approved as intrinsically safe devices and issued the following certificates:

KEMA 03ATEX1069
II 2 GD EEx ia IIC T4 T 175°C Ta = -40°C to +50°C

KEMA 03ATEX1070
II 3 GD EEx nL IIC T4 T 135°C or
II 3 GD EEx nA T4 T 135°C Ta = -40°C to +50°C

The following chart lists the entity values for the load cells.

U_o (Total voltage output)	25 V
I_o (Total current output)	600 mA
P_o (Total power output)	1.25 W
C_o (Allowable capacitance)	5 nF
L_o (Allowable inductance)	30 µH

When used in hazardous areas, the load cells must be installed according to installation instructions document 16792100A (see Figure 1-3).

745 Load Cells

The European safety approvals are based on entity values. The 745 load cells were submitted to KEMA for compliance with EN50014, EN50020, EN50021, and EN50281-1-1. They were approved as intrinsically safe devices and issued the following certificates:

KEMA 03ATEX1235 X
II 2 G EEx ia IIC T4 or T6 Ta = -40°C to +70°C
II 2 D T 80°C

KEMA 03ATEX1238 X
II 3 G EEx nL IIC T4 Ta = -40°C to +70°C
II 3 D T 80°C

The 745 load cells have been certified to IP68 ingress protection.

The following chart lists the entity values for the load cells.

Electrical Data	T6 (Ta = 40°C)	T4 (Ta = 70°C)	T4 (Ta = 40°C)
U_o (Total voltage output)	22 V	22 V	13 V
I_o (Total current output)	469 mA	469 mA	483 mA
P_o (Total power output)	1.25 W	1.25 W	2 W
C_o (Allowable capacitance)	162 pF*	162 pF*	162 pF*
L_o (Allowable inductance)	0.6 µH*	0.6 µH*	0.6 µH*

*C_o and L_o: Per meter of cable length.

When used in hazardous areas, the load cells must be installed according to installation instructions document A16927100A (see Figure 1-4).

Junction Boxes

TB100771 and TB100772 junction boxes were submitted to KEMA for compliance with EN50014, EN50020, EN50021, and EN50281-1-1. They were approved as intrinsically safe devices and issued the following certificates:

KEMA 03ATEX1396 X
II 2 GD EEx ia IIC T4 T 90 °C Ta = -20°C to +60°C

KEMA 03ATEX1397 X
II 3 GD EEx nL IIC T4 T 90°C or
II 3 GD EEx nA II T4 T 90 °C Ta = -20°C to +60°C

TB100771 and TB100772 junction boxes have been certified to IP64 (IP6x) ingress protection.

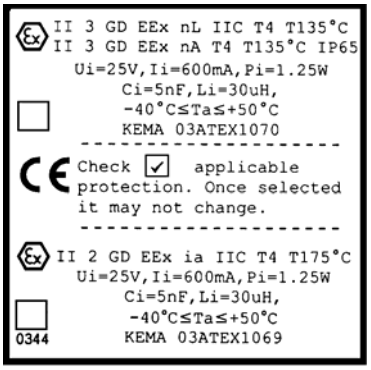
The following chart lists the entity values for the junction boxes.

U_o (Total voltage output)	30 V
I_o (Total current output)	1 A

When used in hazardous areas, the junction boxes must be installed according to installation instructions document A16953600A (see Figure 1-5).

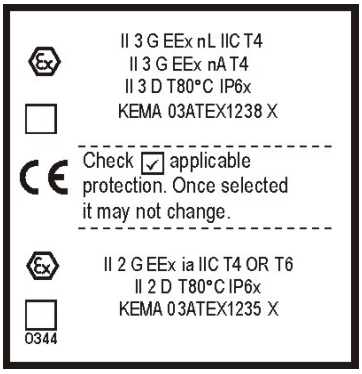
Product Markings

METTLER TOLEDO is not responsible for classifying hazardous areas. Each 743 load cell should have the following label attached to it:



If you install a load cell in a hazardous area, use a permanent marker to place a mark in the check box on the label that indicates the applicable protection (KEMA 03ATEX1069 or KEMA 03ATEX1070). Once the label has been marked, it may not be changed.

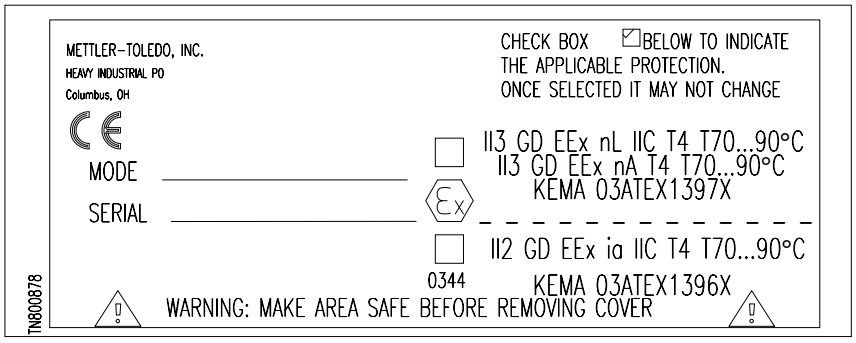
METTLER TOLEDO is not responsible for classifying hazardous areas. Each 745 load cell should have the following label attached to it:



If you install a load cell in a hazardous area, use a permanent marker to place a mark in the check box on the label that indicates the applicable protection (KEMA 03ATEX1235 X or KEMA 03ATEX1238 X). Once the label has been marked, it may not be changed.

Junction Boxes

TB100771 and TB100772 junction boxes should have the following label attached:



If you install a junction box in a hazardous area, use a permanent marker to place a mark in the check box on the label that indicates the applicable protection (KEMA 03ATEX1396 X or KEMA 03ATEX1397 X). Once the label has been marked, it may not be changed.

Grounding

Make sure that all hazardous area installations are properly grounded. All grounding and equal potential bonding connections must be made according to local regulations based upon the country of installation. Refer to local codes and the control drawing provided in this manual for information about grounding.

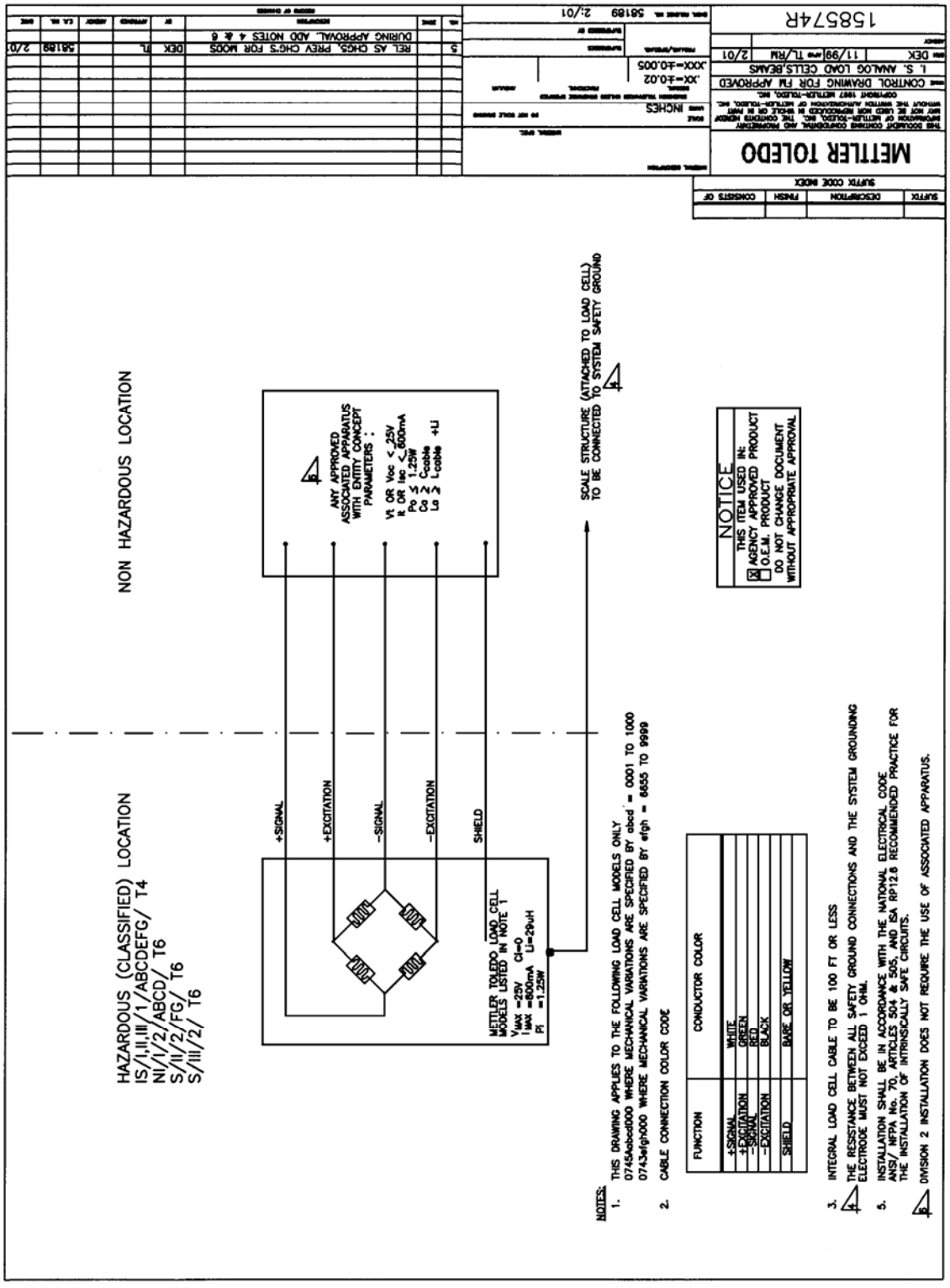


Figure 1-1: Control Drawing for 743 Load Cell

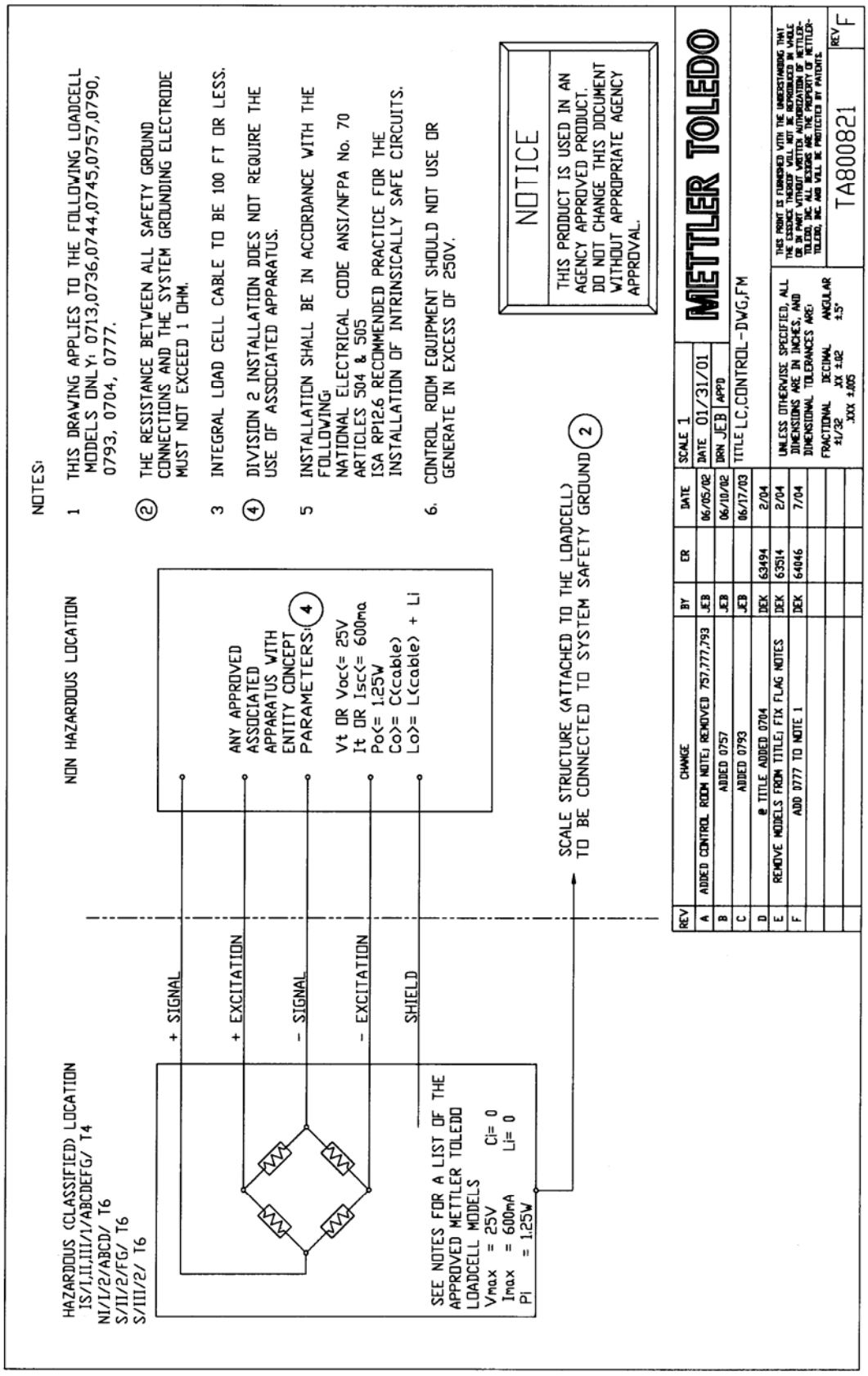


Figure 1-2: Control Drawing for 744/745/790 Load Cell

Mettler-Toledo, Inc.
150 Accurate Way,
Inman, SC 29349
USA

Installationsanleitung
Installation Instruction

Lastzellen Typen: **0743, 0745A**
Load cell model numbers: **0743, 0745A**

Anschlußplan bzw. Farbcodetabelle:
Wire according to the following color code:

Deutsch		English	
Farbe	Zustand	Colour	Function
Grün	+ Spannung	Green	+ Excitation
Schwarz	- Spannung	Black	- Excitation
Weiss	+ Signal	White	+ Signal
Rot	- Signal	Red	- Signal
Gelb	Schirm	Yellow	Shield

Installation
Installation
Installation wie in den Konformitätsbescheinigungen KEMA 03ATEX1069 oder KEMA 03ATEX1070 beschrieben.
Install according to Certificate Number KEMA 03ATEX1069 or KEMA 03ATEX1070.

Markieren Sie mit einem wasserfesten Stift den Einsatzbereich (KEMA 03ATEX1069 or KEMA 03ATEX1070) der Messzelle auf dem dafür vorgesehenen Feldern des Hinweisschildes. Wurde bereits eine Zuordnung vorgenommen, darf diese nicht mehr verändert werden.
With a permanent marker place a mark (✓) in the box on the load cell label to indicate the applicable protection(KEMA 03ATEX1069 or KEMA 03ATEX1070). Once selected it may not be changed.

Jahr der Herstellung
Year of Manufacture:
Das Herstellungsjahr wird mit der letzten Stelle der Seriennummer (S/N) wie folgt gekennzeichnet:
The year of manufacture is indicated by the last character of the load cell Serial Number (S/N) as follows:

Letzter Buchstabe Last Character	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
Jahr Year	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16

Page 1 of 1

16792100A

Figure 1-3: Installation Instructions for 743 Load Cell

Mettler-Toledo, Inc.
150 Accurate Way,
Inman, SC 29349
USA

Installationsanleitung
Installation Instruction

Lastzellen Typen: **0736, 0745, 0777**
Load cell model numbers: **0736, 0745, 0777**

Anschlußplan bzw. Farbcodetabelle:

Wire according to the following color codes:

Lastzellen Typen: **0736, 0745**
Load cell model numbers: 0736, 0745

Deutsch		English	
Farbe	Zustand	Color	Function
Grün	+ Spannung	Green	+ Excitation
Schwarz	- Spannung	Black	- Excitation
Weiss	+ Signal	White	+ Signal
Rot	- Signal	Red	- Signal
Gelb	Schirm	Yellow	Shield

Lastzellen Typen: **0777**
Load cell model number: 0777

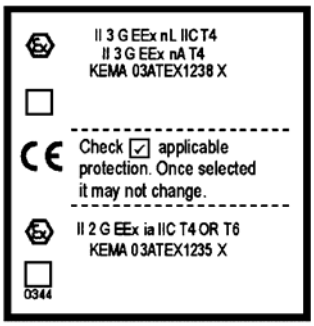
Deutsch		English	
Farbe	Zustand	Color	Function
Blau	+ Spannung	Blue	+ Excitation
Schwarz	- Spannung	Black	- Excitation
Weiss	+ Signal	White	+ Signal
Rot	- Signal	Red	- Signal
Grün	+Sense	Green	+Sense
Grau	-Sense	Gray	-Sense
Blank/Gelb	Schirm	Bare/Yellow	Shield

Installation
Installation
Installation wie in den Konformitätsbescheinigungen KEMA 03ATEX1235 X oder KEMA 03ATEX1238 X beschrieben.
Install according to Certificate Number KEMA 03ATEX1235 X or KEMA 03ATEX1238 X.

Markieren Sie mit einem wasserfesten Stift den Einsatzbereich (KEMA 03ATEX1235 X or KEMA 03ATEX1238 X) der Messzelle auf dem dafür vorgesehenen Feldern des Hinweisschildes. Wurde bereits eine Zuordnung vorgenommen, darf diese nicht mehr verändert werden.
With a permanent marker place a mark (✓) in the box on the load cell label to indicate the applicable protection (KEMA 03ATEX1235 X or KEMA 03ATEX1238 X). Once selected it may not be changed.

Lastzellen Typen: **0745, 0777**
Load cell model numbers: **0745, 0777**

Lastzellen Typen: **0736**
Load cell model numbers: **0736**



Mettler-Toledo PN A16927100A

Figure 1-4: Installation Instructions for 745 Load Cell

Mettler-Toledo, Inc.
Columbus, Ohio
USA

Installationsanleitung
Installation Instructions

Typennummer des Anschlusskastens: TB100771-X, TB100772-X, TB100777-X, TB100778-X
X ist die Nummer der Abschlusskastenlöcher
Junction Box Model Numbers: TB100771-X, TB100772-X, TB100777-X, TB100778-X
where: -X designates the number of holes in the junction box

Schließen Sie die Kabel laut Farbcodetabelle bzw Anschlussplan an:
Wire according to the following color codes:

	Farbcode der Wägezelle Load Cell Color Code		Farbcode des Kabels zum Terminal Home Run Cable Color Code
ANALOG ANALOG			
Beschreibung/Description	Farbe/Color	Farbe/Color	Farbe/Color
+ Excitation	rosa/Pink	grün/Green	weiss/White
- Excitation	grau/Grey	schwarz/Black	blau/Blue
+ Signal	braun/Brown	weiss/White	grün/Green
- Signal	weiss/White	rot/Red	schwarz/Black
Shield	durchsichtig/Clear	gelb/Yellow	orange/weiss/Orange/White
+ Sense	nicht verwendet/Not Used		gelb/Yellow
- Sense	nicht verwendet/Not Used		Not/Red

POWERCELL und MTX POWERCELL and MTX		
Beschreibung/Description	Farbe/Color	Farbe/Color
A	gelb/Yellow	
B	blau/Blue	
N.C.	weiss/White	
+V	rot/Red	
GND	grün/Green	
CGND	orange/Orange	
A		gelb/Yellow
B		blau/Blue
GND		schwarz/Black
GND		braun/Brown
GND		grün/Green
+VC		orange/Orange
+VB		rot/Red
+VA		weiss/White

Installation/Installation

Installation wie im EG-Baumusterprüfbescheinigung KEMA03ATEX1396X oder Baumusterprüfbescheinigung KEMA 03ATEX1397X.

Install according to EC-Type Examination Certificate KEMA03ATEX1396X or Type Examination Certificate KEMA 03ATEX1397X.

Markieren Sie mit einem wasserfesten Stift den Einsatzbereich (KEMA03ATEX1396X oder KEMA 03ATEX1397X) des Anschlusskastens auf dem dafür vorgesehenen Feldern des Hinweisschildes. Wurde bereits eine Zuordnung vorgenommen, darf diese nicht mehr verändert werden.

With a permanent marker, a mark (√) must be placed in the location on the junction box label which indicates the applicable protection (KEMA03ATEX1396X or KEMA 03ATEX1397X). Once selected it may not be changed.

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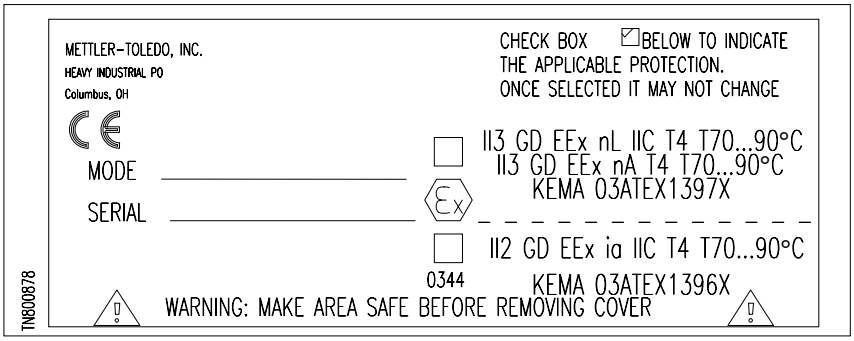
Figure 1-5: Installation Instructions for TB100771/TB100772 Junction Box



Jahr der Herstellung:
Year of manufacture:
Das Herstellungsjahr wird mit der letzten Stelle der Seriennummer (S/N) des Anschlusskastens wie folgt gekennzeichnet:
The year of manufacture is indicated by the last character on the junction box serial number (S/N) as follows:

Jahr/Year	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Buchstabe/Character	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T

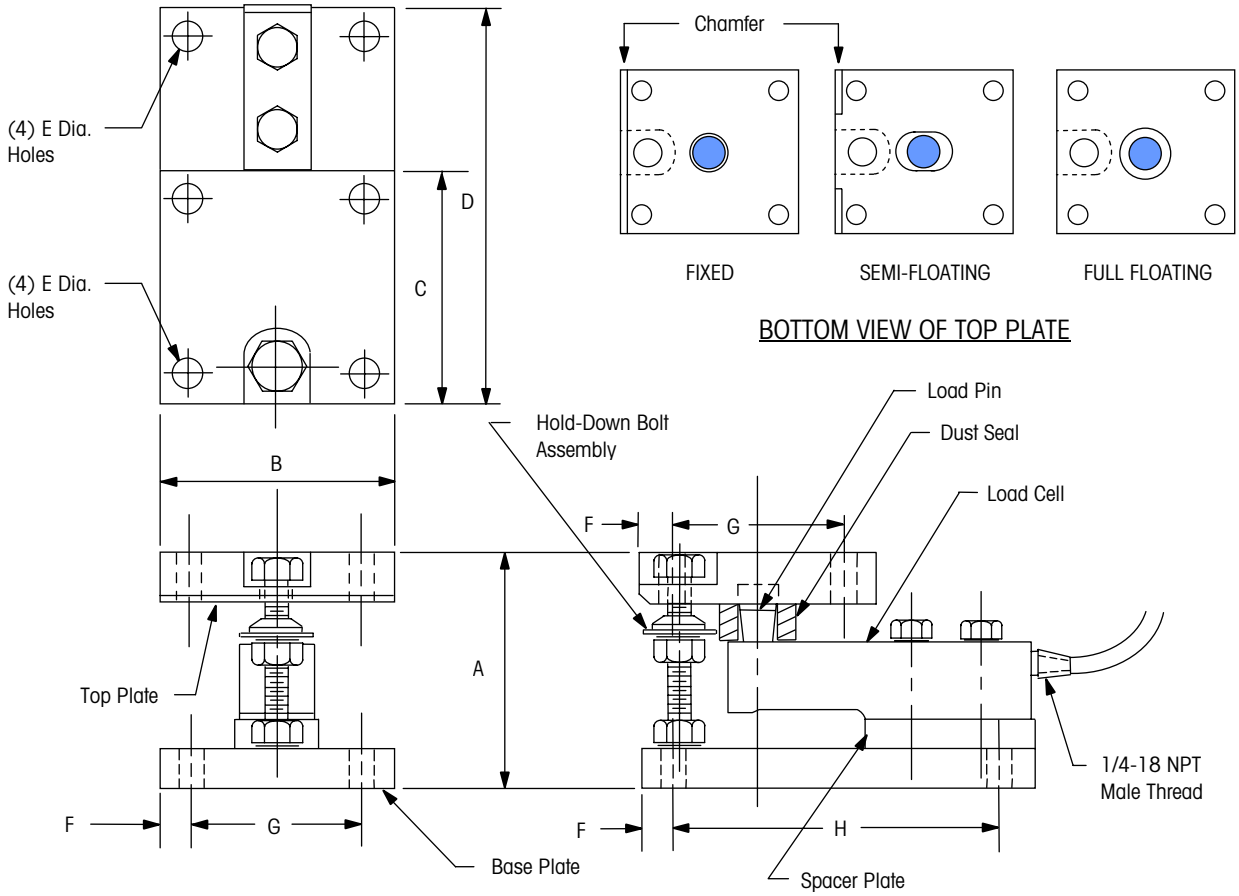
A16953600A

Figure 1-5: Installation Instructions for TB100771/TB100772 Junction Box

FLEXMOUNT

FLEXMOUNT load cells provide horizontal checking and an anti-tip feature while allowing for thermal expansion. The FLEXMOUNT design consists of three weigh modules:

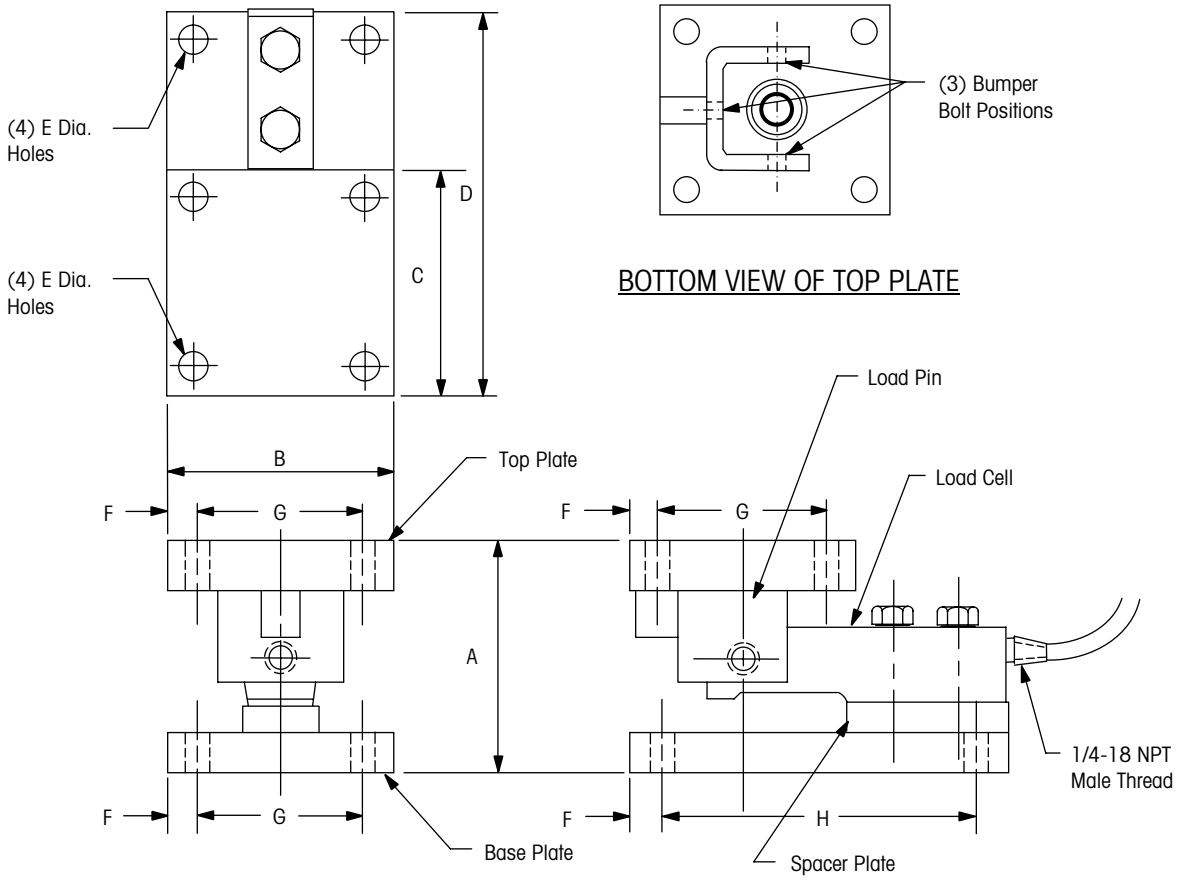
- One fixed-pin module
- One semi-floating pin module
- One or more full-floating pin modules



Cell Capacity	A	B	C	D	E Diameter	F	G	H
250 - 2,500 lb	4.11 in.	4.50 in.	4.50 in.	7.00 in.	0.44 in.	0.50 in.	3.50 in.	6.00 in.
5K lb	4.14 in.	4.50 in.	4.50 in.	7.00 in.	0.44 in.	0.50 in.	3.50 in.	6.00 in.
10K lb	5.38 in.	6.00 in.	6.00 in.	9.25 in.	0.69 in.	1.00 in.	4.00 in.	7.25 in.
20K - 30K lb	7.50 in.	8.00 in.	8.00 in.	14.00 in.	0.81 in.	1.00 in.	6.00 in.	12.00 in.
45K lb	9.00 in.	9.00 in.	9.00 in.	16.00 in.	1.12 in.	1.25 in.	6.50 in.	13.50 in.
220 - 1,100 kg	104.4 mm	114.3 mm	114.3 mm	177.8 mm	11.2 mm	12.7 mm	88.9 mm	152.4 mm
2,200 kg	105.2 mm	114.3 mm	114.3 mm	177.8 mm	11.2 mm	12.7 mm	88.9 mm	152.4 mm
4,400 kg	136.6 mm	152.4 mm	152.4 mm	235.4 mm	17.5 mm	25.4 mm	101.6 mm	184.1 mm
9,072 - 13,608 kg	190.5 mm	203.2 mm	203.2 mm	355.6 mm	20.5 mm	25.4 mm	152.4 mm	304.8 mm
20,412 kg	228.6 mm	228.6 mm	228.6 mm	406.4 mm	28.5 mm	31.8 mm	165.1 mm	342.9 mm

Figure 1-6: Model 0958 FLEXMOUNT Weigh Module Dimensions

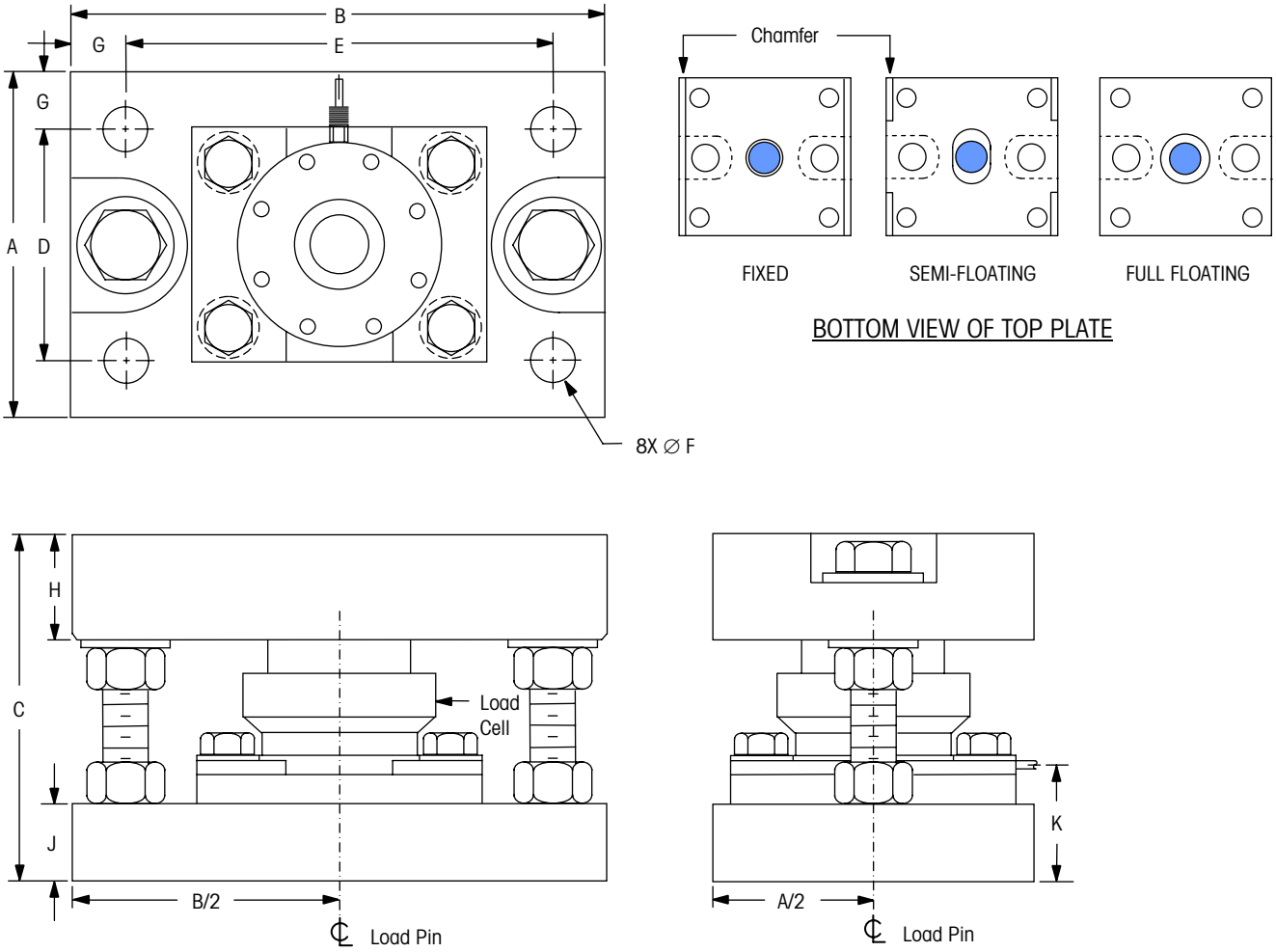
CENTERLIGN



Cell Capacity	A	B	C	D	E Diameter	F	G	H
250 - 2,500 lb	4.11 in.	4.50 in.	4.50 in.	7.00 in.	0.44 in.	0.50 in.	3.50 in.	6.00 in.
5K lb	4.14 in.	4.50 in.	4.50 in.	7.00 in.	0.44 in.	0.50 in.	3.50 in.	6.00 in.
10K lb	5.38 in.	6.00 in.	6.00 in.	9.25 in.	0.69 in.	1.00 in.	4.00 in.	7.25 in.
20K - 30K lb	7.50 in.	8.00 in.	8.00 in.	14.00 in.	0.81 in.	1.00 in.	6.00 in.	12.00 in.
45K lb	9.00 in.	9.00 in.	9.00 in.	16.00 in.	1.12 in.	1.25 in.	6.50 in.	13.50 in.
220 - 1,100 kg	104.4 mm	114.3 mm	114.3 mm	177.8 mm	11.2 mm	12.7 mm	88.9 mm	152.4 mm
2,200 kg	105.2 mm	114.3 mm	114.3 mm	177.8 mm	11.2 mm	12.7 mm	88.9 mm	152.4 mm
4,400 kg	136.6 mm	152.4 mm	152.4 mm	235.4 mm	17.5 mm	25.4 mm	101.6 mm	184.1 mm
9,072 - 13,608 kg	190.5 mm	203.2 mm	203.2 mm	355.6 mm	20.5 mm	25.4 mm	152.4 mm	304.8 mm
20,412 kg	228.6 mm	228.6 mm	228.6 mm	406.4 mm	28.5 mm	31.8 mm	165.1 mm	342.9 mm

Figure 1-7: Model 0958 CENTERLIGN Weigh Module Dimensions

FLEXMOUNT HD



Cell Capacity	A	B	C*	D	E	F Diameter
50K, 75K, 100K lb	9 inches 228.6 mm	15 inches 381.0 mm	9 inches 228.6 mm	6 inches 152.4 mm	12 inches 304.8 mm	1.25 inches 31.8 mm
150K, 200K lb	12 inches 304.8 mm	18 inches 457.2 mm	10 inches 254.0 mm	8 inches 203.2 mm	14 inches 355.6 mm	1.62 inches 41.3 mm

Cell Capacity	G	H	J	K
50K, 75K, 100K lb	1.5 inches 38.1 mm	2.75 inches 69.9 mm	2 inches 50.8 mm	3 inches 76.2 mm
150K, 200K lb	2 inches 50.8 mm	2.75 inches 69.9 mm	2 inches 50.8 mm	3.25 inches 82.6 mm

*Dimension shown is for weighing position. Add 0.12 inch (3.0 mm) for shipping/installation height.

Figure 1-8: Model 0958 FLEXMOUNT HD Weigh Module Dimensions

2 Inspection and Site Selection

Inspection

When you receive your weigh modules, visually inspect the packing containers and modules for freight damage. Inspect:

1. Load cell and suspension assemblies
2. Load cell cables and summing junction box
3. Overall assembly

If you find damage, contact your freight carrier immediately.

Fill out the enclosed warranty card and return it to the address noted.

Site Selection

Weigh module installation problems are often caused by inappropriate site conditions. Before installing the weigh modules, check the installation site for:

- Level all support surfaces
- Adequate floor/support at each module throughout the scale's weighing capacity
- Uniform deflection of the weigh module supports (top and bottom), maintaining less than one-half degree out of level at gross capacity
- Shared foundation: does the vessel to be weighed have an exclusive, isolated support foundation? Does it share supports with other vessels? Interaction may occur if the vessel is on a shared foundation.
- Proper drainage away from each of the weigh modules
- Heavy vibrations or wind currents at or near the scale
- Access around each weigh module for installation and service
- Locations on the scale to add test weights for calibration
- Access to the scale for moving test weights to the scale's loading locations
- A position near the proposed scale location to mount the junction box (Do not mount the junction box on the live portion of the scale)
- Excessive or unusual loading caused by the site or type of equipment mounted to the weigh modules

If the site is appropriate based on the criteria provided, proceed with the installation. Otherwise, make the necessary changes before installing the modules.

3 Installation

FLEXMOUNT Installation

FLEXMOUNT weigh modules are used to convert tanks, hoppers, vessels, blenders, bins, and mixers into scales. FLEXMOUNT load cells provide horizontal checking and an anti-tip feature while still allowing for thermal expansion. The FLEXMOUNT load cell design consists of three weigh modules:

- One fixed-pin module
- One semi-floating pin module
- One or more full-floating pin modules

This system provides a fully checked, self-contained weighing system free to expand and contract thermally.

Model 0958 FLEXMOUNT assemblies (250-lb to 45K-lb load cells) have top plates that can be turned 90 degrees to handle tangential or radial mounting arrangements. See Figure 3-1 for recommended mounting arrangements.

NOTE: Model 0958 top plates are marked for easy post-installation identification. The "fixed" top plate has a chamfer along the entire front-bottom edge. The semi-floating top plate has a 1-inch chamfer on each side of the front-bottom edge. The full-floating unit has no chamfer.

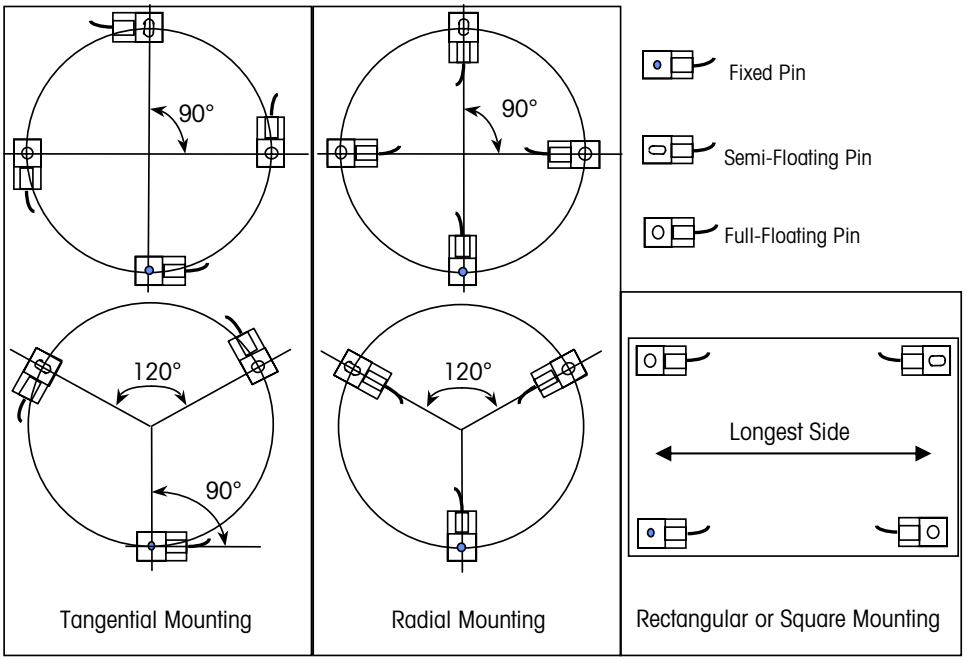


Figure 3-1: Plan View of Mounting Arrangements for Model 0958 FLEXMOUNT Modules

ATTENTION!

Installation Guidelines:

1. **Always use one (1) fixed and one (1) semi-floating weigh module. All others in the system will be full-floating modules.**
2. **To allow limited horizontal movement and prevent binding, always mount the semi-floating module directly across from, or farthest from, the fixed module.**
3. **Tank legs or structural support lugs must be rigid enough to prevent the support points from spreading out under load.**

Table 3-1 shows the base plate bearing requirements for FLEXMOUNT weigh modules. If the weigh modules are to be mounted to a concrete floor, locate and anchor the base plates to the concrete before setting the weigh structure (tank, hopper, etc.) on the modules. Make sure that you will be able to adjust the weigh structure to align it correctly with the weigh modules.

1. Position the weigh modules so that each supports an equal portion of the total load and so the load on any module does not exceed the load cell capacity.
2. Level each weigh module so that each mounting plate (top and base plate) is within 1/2° of level in both longitudinal and lateral directions (see Figure 3-2).

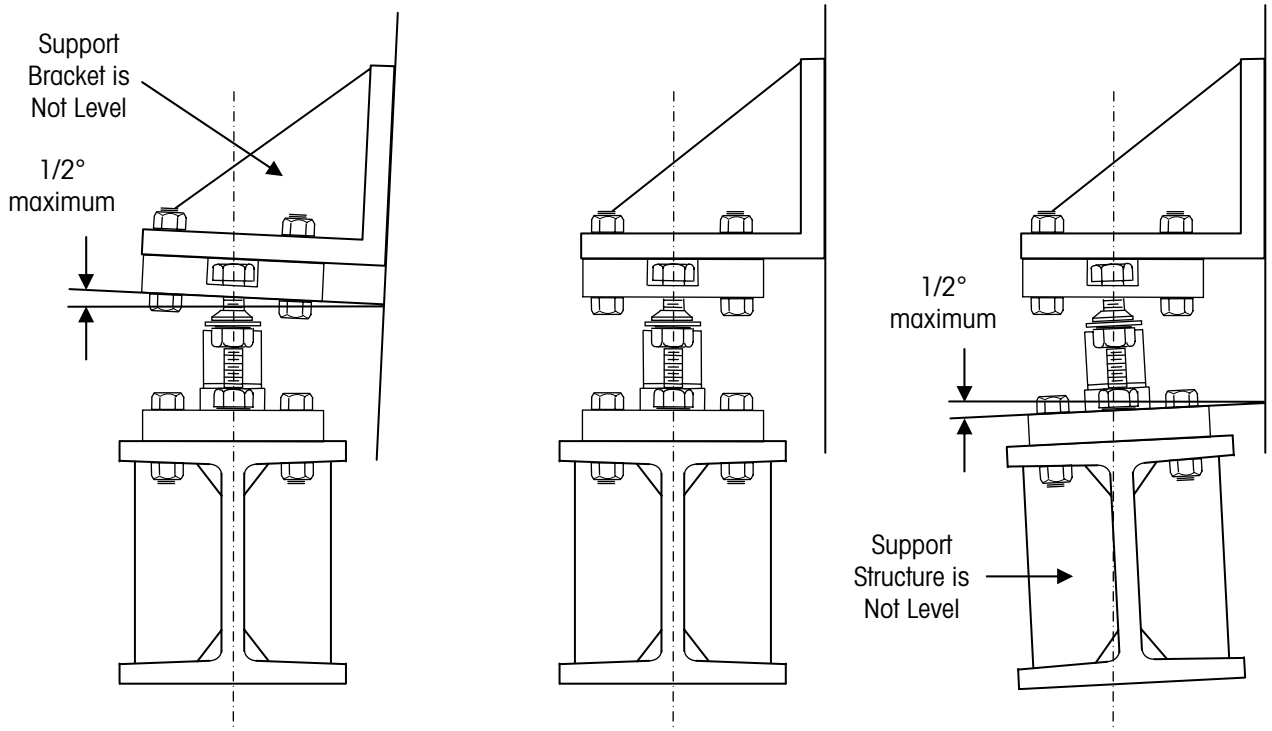


Figure 3-2: Maximum Amount that a Mounting Plate can be out of Level

3. Slowly lower the weigh structure onto the weigh modules.
4. Add stainless steel shims between the structure and top plates if needed, so that each top plate is within 1/2° of level in both longitudinal and lateral directions.

NOTE: Mounting plate bolts are not supplied by METTLER TOLEDO.

5. Bolt or weld the FLEXMOUNT module top plates to the weigh structure supports, and the base plates to the foundation or support steel. See Table 3-1 for bolt sizes.

0958 FLEXMOUNT Weigh Module lb (kg)	Base Plate Bearing psi (K Pascal)	Top Plate Bolts (Metric)	Base Plate Bolts (Metric)
250, 500, 1.25K, 2.5K & 5K (220, 550, 1100 & 2200)	159 (1,094)	3/8-16 UNC (M10 x 1.5)	3/8-16 UNC (M10 x 1.5)
10K (4400)	180 (1,242)	5/8-11 UNC (M16 x 2)	5/8-11 UNC (M16 x 2)
20K	179 (1,231)	3/4-10 UNC (M20 x 2.5)	3/4-10 UNC (M20 x 2.5)
30K	268 (1,846)	3/4-10 UNC (M20 x 2.5)	3/4-10 UNC (M20 x 2.5)
45K	312 (2,154)	1-8 UNC (M24 x 3)	1-8 UNC (M24 x 3)

Table 3-1: FLEXMOUNT Bearing Support and Mounting Bolt Sizes

6. If the top plates are to be welded to the weigh structure or the base plates welded to a structural steel support, the weld should be 3/8 inch fillet, 1 inch long, and 3 inches pitch (2 inches between welds).

⚠ CAUTION

DO NOT PASS WELDING CURRENT THROUGH THE LOAD CELLS! WHEN WELDING ON A SCALE, ALWAYS GROUND THE WELDING DEVICE AS CLOSE TO THE WORK AS POSSIBLE. NEVER WELD CLOSER THAN 4 FEET (1.2 METERS) TO ANY LOAD CELL WITHOUT REMOVING THE LOAD CELL.

7. After securing all the top and base plates, slowly back out the nut and centering washer on the hold-down bolt, carefully lowering the top plate and weigh structure onto the load cells.
8. After all the top plates are down and applying load to the load cells, make sure there is adequate clearance between the hold-down bolt and top plate. See Figure 3-3, Hold-Down Bolt Assembly.

NOTE: Consider calibrating the scale before connecting any piping to the scale. The scale can then be used as a meter to determine if a proper live-to-dead connection was made.

9. Mount the junction box in a location where the load cell cables can be properly terminated in the junction box. Do not mount the junction box on the scale.

   Note: Each load cell is supplied with a standard length of cable. Do not lengthen or shorten load cell cables in the field. Changing the length of a load cell cable will affect the output signal from the load cell. If a cable is too long, simply coil the excess cable and place it in or near the junction box. Nonstandard lengths of cable can be ordered for applications that require them.
10. Connect the load cell cables to the junction box and terminate wires according to the wiring and color code decal on the underside of the junction box lid.
11. Connect the junction box to the scale indicator with an appropriate cable.
12. Confirm that all live-to-dead connections are flexible and securely anchored at both the scale and dead connection point.

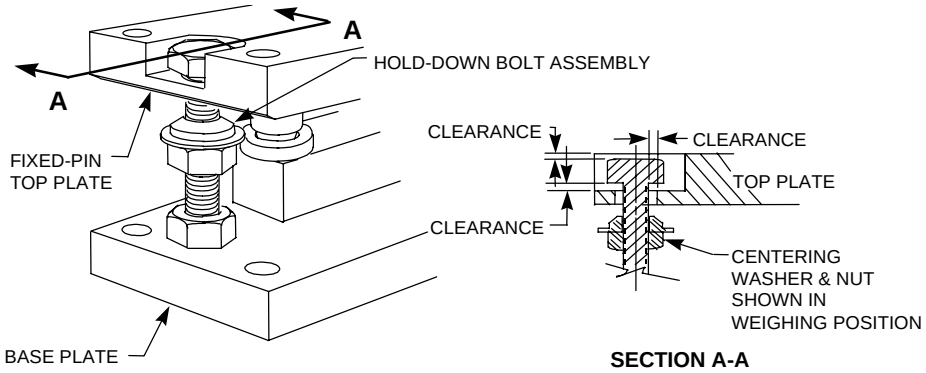


Figure 3-3: FLEXMOUNT Hold-Down Bolt Assembly

CENTERLIGN Installation

CENTERLIGN weigh modules are arranged to handle major horizontal forces by bumping on the end of the load cells, as shown in Figures 3-4 and 3-5.

⚠ WARNING

CENTERLIGN WEIGH MODULES DO NOT PROVIDE OVERTURN PROTECTION. IF ANY UPLIFTING FORCES ARE GENERATED, ANTI-UPLIFT/OVERTURN PROTECTION MUST BE ADDED SEPARATELY.

⚠ WARNING

STRUCTURES SUCH AS TANKS OR CONVEYORS MUST BE PROPERLY DESIGNED TO MAINTAIN THE RELATIONSHIP OF THE LOAD SUPPORT POINTS THROUGH THE ENTIRE WEIGHING RANGE. CENTERLIGN WEIGH MODULES DO NOT PROVIDE THIS TYPE OF RESTRAINT.

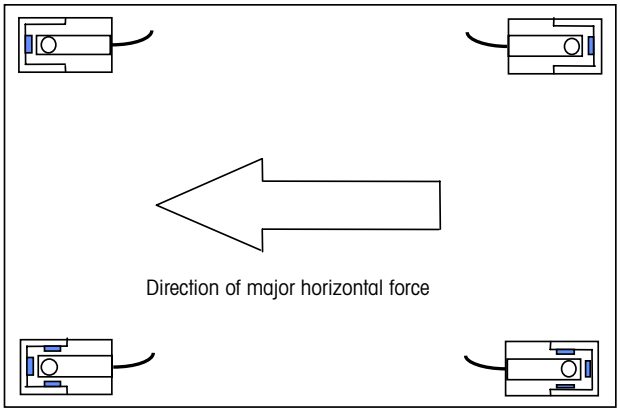


Figure 3-4: Plan View of Square/Rectangular Mounting Arrangement for Model 0958 CENTERLIGN Modules

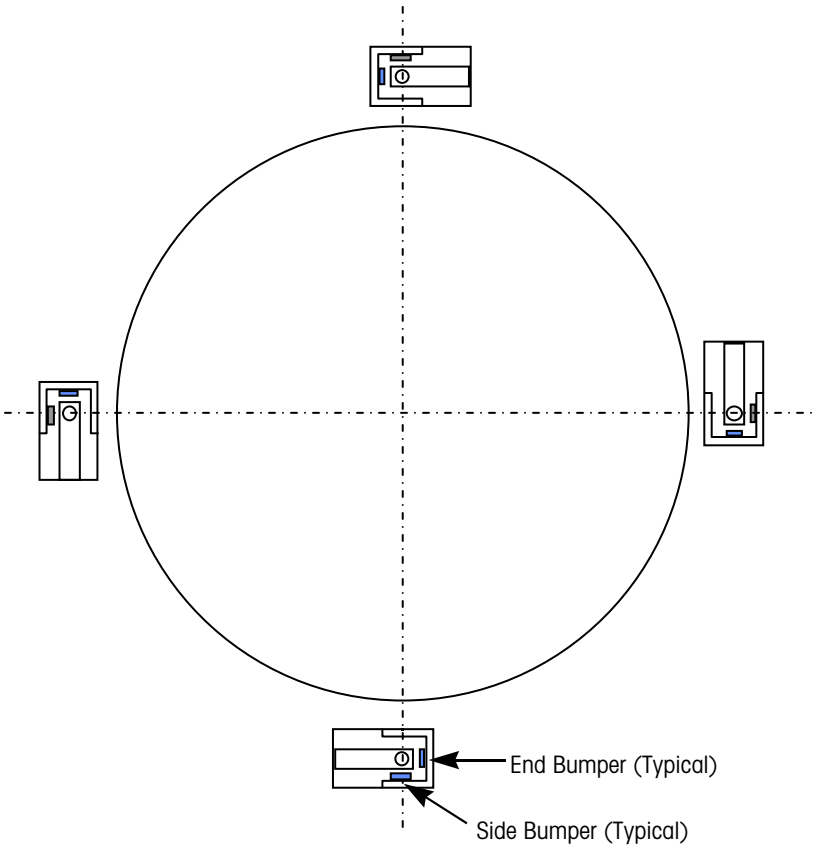


Figure 3-5: Plan View of Circular Mounting Arrangement for Model 0958 CENTERLIGN Modules

⚠ WARNING

CENTERLIGN WEIGH MODULES DO NOT PROVIDE OVERTURN PROTECTION. IF ANY UPLIFTING FORCES ARE GENERATED, ANTI-UPLIFT/OVERTURN PROTECTION MUST BE ADDED SEPARATELY.

⚠ WARNING

STRUCTURES SUCH AS TANKS OR CONVEYORS MUST BE PROPERLY DESIGNED TO MAINTAIN THE RELATIONSHIP OF THE LOAD SUPPORT POINTS THROUGH THE ENTIRE WEIGHING RANGE. CENTERLIGN WEIGH MODULES DO NOT PROVIDE THIS TYPE OF RESTRAINT.

ATTENTION!

Installation Guidelines:

1. **Always handle major horizontal forces by bumping on the end of the load cells.**
2. **When only two weigh modules are used for bumpering, both weigh modules should be on the same side of the scale.**

Table 3-2 shows the base plate bearing requirements for CENTERLIGN weigh modules. If the modules are to be mounted to a concrete floor, anchor the base plates to the concrete before setting the weigh structure (tank, conveyor, etc.) on the modules. Make sure that you will be able to adjust the weigh structure to align it correctly with the weigh modules.

1. Position the weigh modules so that each supports an equal portion of the total load and so the load on any module does not exceed the load cell capacity.
2. Level each weigh module so that each mounting plate (top and base plate) is within 1/2° of level in both longitudinal and lateral directions (see Figure 3-6).

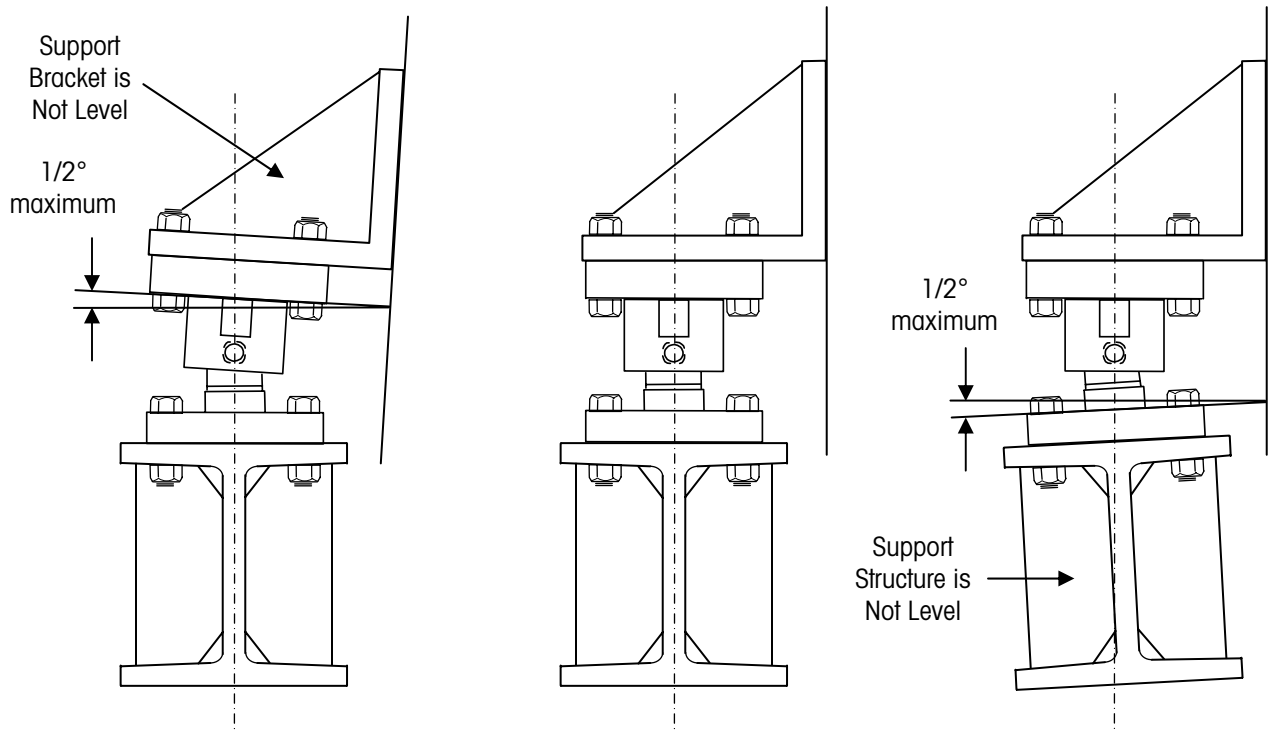


Figure 3-6: Maximum Amount that a Mounting Plate can be out of Level

3. Install an alignment tool in each of the CENTERLIGN weigh modules. See Figure 3-7.

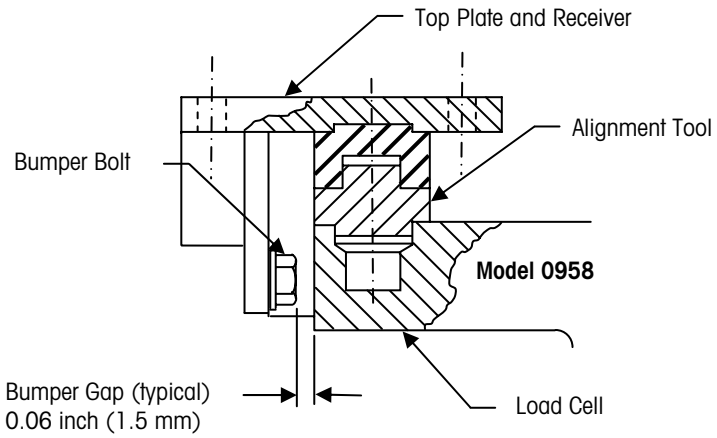


Figure 3-7: CENTERLIGN Module Top Plate Alignment

4. Slowly lower the weigh structure onto the weigh modules.
5. Add stainless steel shims between the structure and top plates if needed, so that each top plate is within 1/2° of level in both longitudinal and lateral directions.
6. Bolt or weld the CENTERLIGN module's top plates to the weigh structure supports and the base plates to the foundation or support steel. See Table 3-2 for bolt sizes. METTLER TOLEDO does not supply mounting bolts.

0958 CENTERLIGN Weigh Module lb (kg)	Base Plate Bearing psi (K Pascal)	Top Plate Bolts (Metric)	Base Plate Bolts (Metric)
250, 500, 1.25K, 2.5K & 5K (220, 550, 1100 & 2200)	159 (1,094)	3/8-16 UNC (M10 x 1.5)	3/8-16 UNC (M10 x 1.5)
10K (4400)	180 (1,242)	5/8-11 UNC (M16 x 2)	5/8-11 UNC (M16 x 2)
20K	179 (1,231)	3/4-10 UNC (M20 x 2.5)	3/4-10 UNC (M20 x 2.5)
30K	268 (1,846)	3/4-10 UNC (M20 x 2.5)	3/4-10 UNC (M20 x 2.5)
45K	312 (2,154)	1-8 UNC (M24 x 3)	1-8 UNC (M24 x 3)

Table 3-2: CENTERLIGN Bearing Support and Mounting Bolt Sizes

7. If the top plates are to be welded to the weigh structure or the base plates welded to a structural steel support, the weld should be 3/8 inch fillet, 1 inch long, and 3 inches pitch (2 inches between welds).

⚠ CAUTION

DO NOT PASS WELDING CURRENT THROUGH THE LOAD CELLS! WHEN WELDING ON A SCALE, ALWAYS GROUND THE WELDING DEVICE AS CLOSE TO THE WORK AS POSSIBLE. NEVER WELD CLOSER THAN 4 FEET (1.2 METERS) TO ANY LOAD CELL WITHOUT REMOVING THE LOAD CELL.

8. After securing all the top and base plates, slowly raise the weigh structure off the module and replace the alignment tools with the rocker pin suspension parts (Figure 3-8). Place a rubber O-ring on each end of the rocker pin. Lubricate the O-rings and both ends of the rocker pin with a high-quality grease, such as FEL-PRO Food Grade AA Anti-Seize lubricant.

⚠ WARNING

ALWAYS BLOCK THE SCALE WHEN IT IS IN THE RAISED POSITION. OBSERVE ALL APPROPRIATE SAFETY PROCEDURES WHEN INSTALLING AND SERVICING THE SCALE.

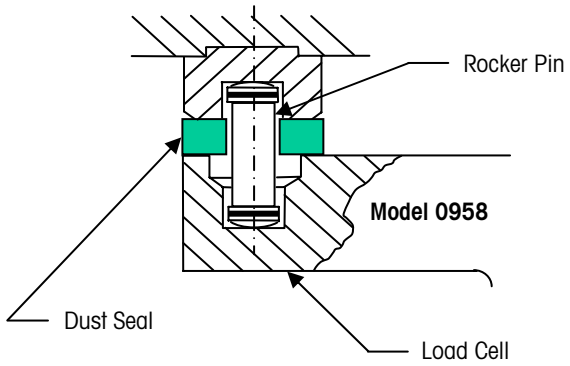


Figure 3-8: CENTERLIGN Rocker Pin Arrangement

9. Slowly lower the weigh structure and top plates onto the lower part of the CENTERLIGN weigh modules. Then apply load to the load cells, and move the weigh structure back and forth several times to align and seat all components. Make sure there is adequate clearance between all bumper bolts and load cells. If bumper bolts are not torqued properly, they can back out and bind the scale, causing weighing inaccuracies.

10. Mount the junction box at a location where the load cell cables can be properly terminated in the junction box. Do not mount the junction box on the scale.

    Note: Each load cell is supplied with a standard length of cable. Do not lengthen or shorten load cell cables in the field. Changing the length of a load cell cable will affect the output signal from the load cell. If a cable is too long, simply coil the excess cable and place it in or near the junction box. Nonstandard lengths of cable can be ordered for applications that require them.

11. Connect the load cell cables to the junction box and terminate the wires according to the wiring and color code decal on the under side the junction box lid.

12. Connect the junction box to the scale indicator with the appropriate instrument cable.

13. Ensure that all live-to-dead connections are flexible and securely anchored at both the scale and dead connection point.

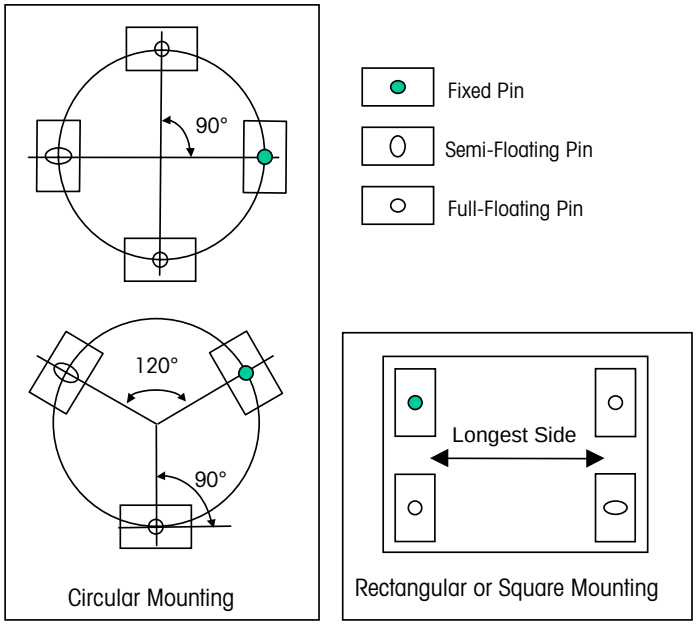
FLEXMOUNT HD Installation

Model 0958 FLEXMOUNT HD weigh modules provide horizontal checking and an anti-tip feature while still allowing for thermal expansion. The FLEXMOUNT HD load cell design consists of three weigh modules:

- One fixed-pin module
- One semi-floating pin module
- One or more full-floating pin modules

This system provides a fully checked, self-contained weighing system free to expand and contract thermally.

See Figure 3-9 for recommended mounting arrangements.



NOTE: In each of the mounting examples above, the semi-floating module is located and oriented to make full use of its expansion/contraction limits while providing resistance to the rotational moment about the fixed pin. The semi-floating module must be installed in this manner to provide optimum performance and system self-checking.

Figure 3-9: Plan View of Mounting Arrangements for FLEXMOUNT HD Weigh Modules

ATTENTION!

Installation Guidelines:

1. **Installation must allow for load cell replacement, either by raising the weigh structure 2 inches or by removing each entire weigh module.**
2. **Always use one (1) fixed and one (1) semi-floating weigh module. All others in the system will be full-floating modules.**
3. **To allow limited horizontal movement and prevent binding, always mount the semi-floating module directly across from, or farthest from, the fixed module.**
4. **Tank legs or structural support lugs must be rigid enough to prevent the support points from spreading out under load.**

Table 3-3 shows the base plate bearing requirements for FLEXMOUNT HD weigh modules. If the weigh modules are to be mounted to a concrete floor, locate and anchor the base plates to the concrete before setting the weigh structure (tank, hopper, etc.) on the modules. Make sure that you will be able to adjust the weigh structure to align it correctly with the weigh modules.

1. Position the weigh modules so that each supports an equal portion of the total load and so the load on any module does not exceed the load cell capacity.
2. Level each weigh module so that each mounting plate (top and base plate) is within 1/2° of level in both longitudinal and lateral directions (see Figure 3-10).

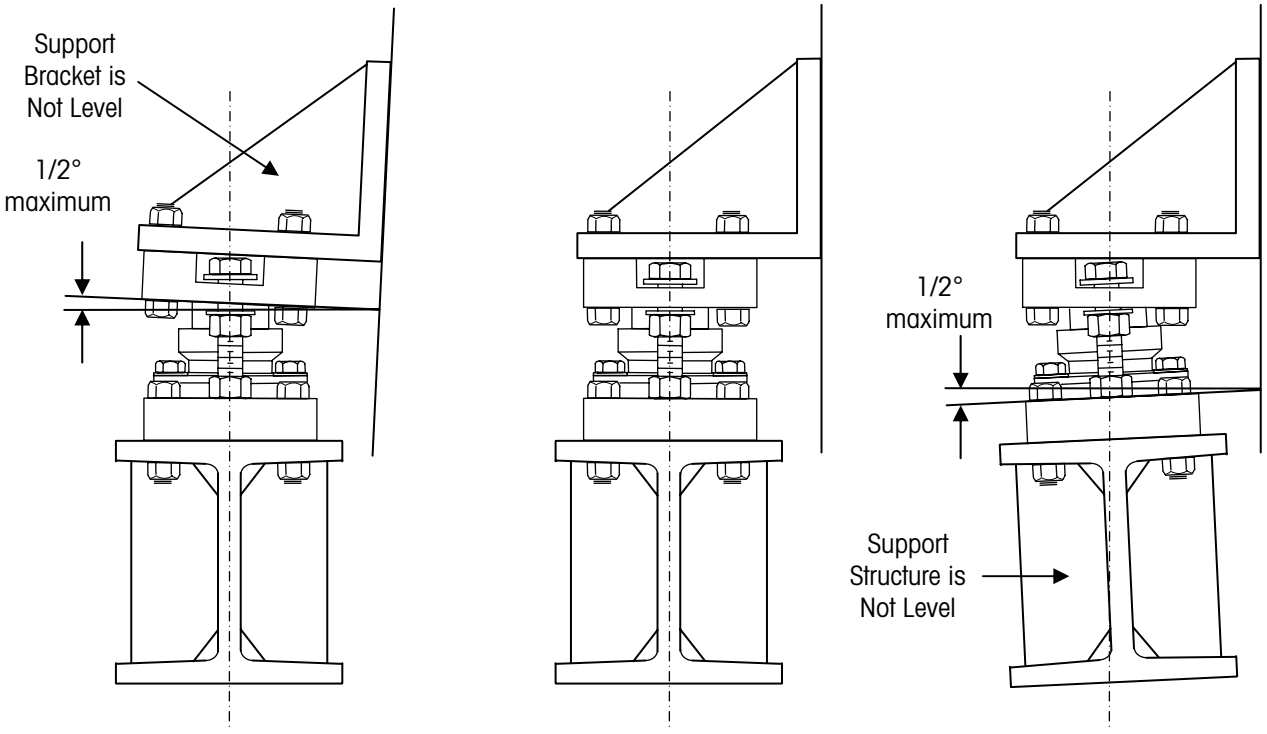


Figure 3-10: Maximum Amount that a Mounting Plate can be out of Level

3. Slowly lower the weigh structure onto the weigh modules.

4. Add stainless steel shims between the structure and top plates if needed, so that each top plate is within 1/2° of level in both longitudinal and lateral directions.

5. Bolt or weld the FLEXMOUNT HD module top plates to the weigh structure supports, and the base plates to the foundation or support steel. See Table 3-3 for bolt sizes.

0958 FLEXMOUNT HD Weigh Module lb (kg)	Base Plate Bearing psi (K Pascal)	Top Plate Bolts (Metric)	Base Plate Bolts (Metric)
50K	370 (2,551)	1.125-8 UNC (M30 x 3.5)	1.125-8 UNC (M30 x 3.5)
75K	556 (3,834)	1.125-8 UNC (M30 x 3.5)	1.125-8 UNC (M30 x 3.5)
100K	740 (5,102)	1.125-8 UNC (M30 x 3.5)	1.125-8 UNC (M30 x 3.5)
150K	694 (4,785)	1.5-8 UNC (M40)	1.5-8 UNC (M40)
200K	926 (6,385)	1.5-8 UNC (M40)	1.5-8 UNC (M40)

Table 3-3: FLEXMOUNT HD Bearing Support and Mounting Bolt Sizes

6. If the top plates have to be welded to the weigh structure or the base plates have to be welded to a structural steel support, the weld must be 3/8 inch continuous fillet.

⚠ CAUTION

DO NOT PASS WELDING CURRENT THROUGH THE LOAD CELLS! WHEN WELDING ON A SCALE, ALWAYS GROUND THE WELDING DEVICE AS CLOSE TO THE WORK AS POSSIBLE. NEVER WELD CLOSER THAN 4 FEET (1.2 METERS) TO ANY LOAD CELL WITHOUT REMOVING THE LOAD CELL.

7. After securing all the top and base plates, slowly back out the nut and centering washer on the hold-down bolts, carefully lowering the top plate and weigh structure onto the load cells.

8. After all the top plates are down and applying load to the load cells, make sure there is adequate clearance between the hold-down bolt and top plate. See Figure 3-11, Hold-Down Bolt Assemblies.

9. Mount the junction box in a location where the load cell cables can be properly terminated in the junction box. Do not mount the junction box on the scale.

   Note: Each load cell is supplied with a standard length of cable. Do not lengthen or shorten load cell cables in the field. Changing the length of a load cell cable will affect the output signal from the load cell. If a cable is too long, simply coil the excess cable and place it in or near the junction box. Nonstandard lengths of cable can be ordered for applications that require them.

10. Connect the load cell cables to the junction box and terminate wires according to the wiring and color code decal on the underside of the junction box lid.

11. Connect the junction box to the scale indicator with an appropriate cable.

12. Confirm that all live-to-dead connections are flexible and securely anchored at both the scale and dead connection point.

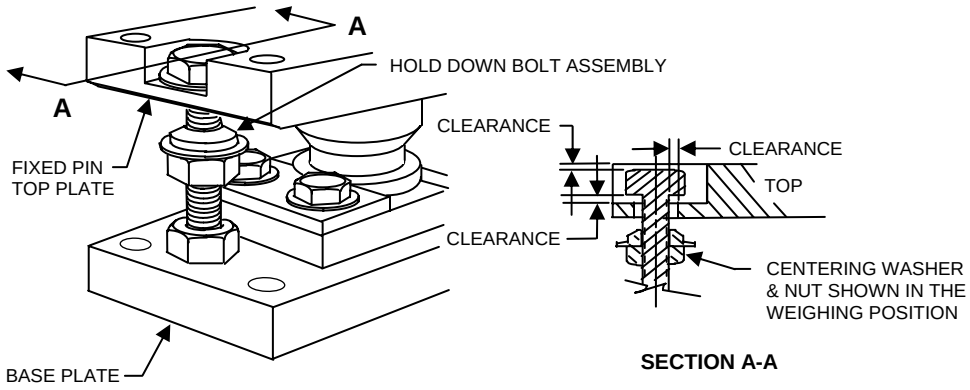


Figure 3-11: FLEXMOUNT HD Hold-Down Bolt Assembly

Modes of Operation

Analog Mode

FLEXMOUNT, FLEXMOUNT HD, and CENTERLIGN modules can be used with an analog junction box for summing the load cell outputs. Only analog-compatible indicators work with the Analog junction box. See Figure 3-12 and Table 3-4 for the correct cable connection.

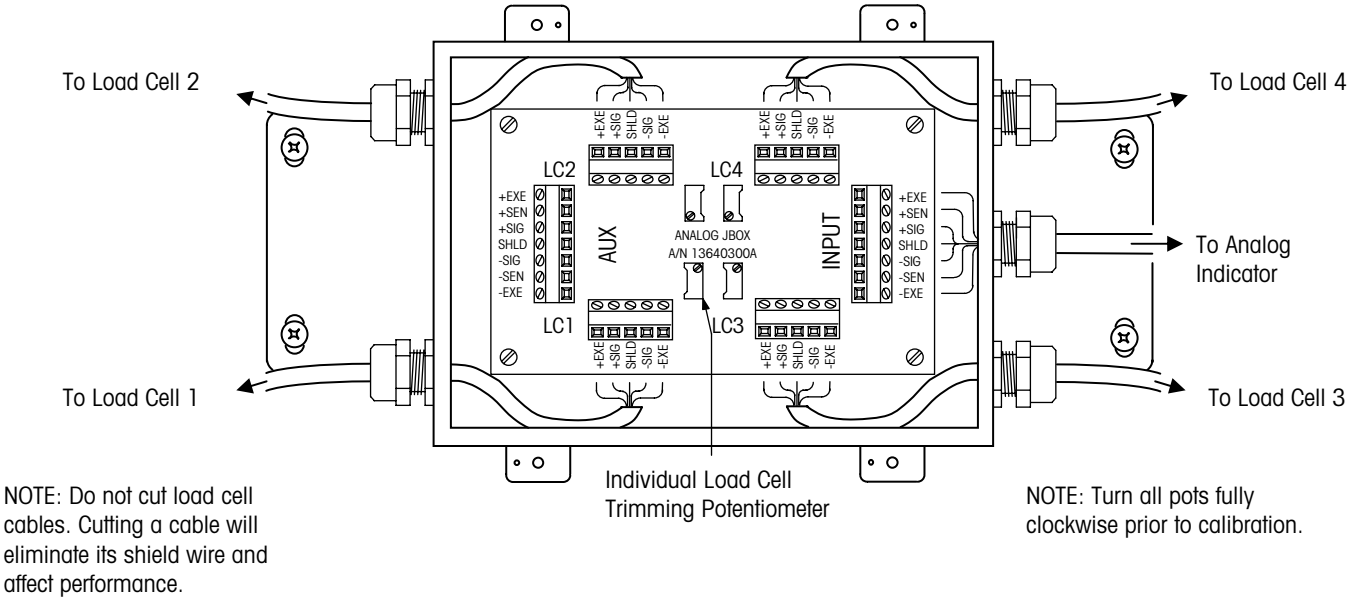


Figure 3-12: Analog Junction Box Detail

Load Cell Wiring			Instrument Cable Wiring**	
Function	**Color for 45K PN *13929400A PN *14841200A**	**Color for All Other Load Cells**	**Function**	**Color**
+Excitation	White	Green	+Excitation	White
			+Sense	Yellow
+Signal	Green	White	+Signal	Green
Shield	Yellow	Yellow	Shield	Orange
-Signal	Black	Red	-Signal	Black
			-Sense	Red
-Excitation	Blue	Black	-Excitation	Blue
**Instrument cable color code based on METTLER TOLEDO cable number 510624370				

Table 3-4: Analog Junction Box Wiring Codes

RAAD Mode

Model 0958 weigh modules can be used with a RAAD junction box for summing load cell outputs. A JAGUAR® or JAGXTREME™ indicator must be used with the RAAD junction box. The indicator serves as the host for the RAAD junction box, allowing you to use the indicator's keypad to adjust scale parameters. See Figure 3-13 and Table 3-5 for cable connections. Load cell wiring for RAAD mode is the same as for analog mode.

NOTE: The RAAD box is a Remote Addressable Analog-to-Digital junction box. It converts a standard analog signal to a DigiTOL signal and allows monitoring of individual load cell channels.

NOTE: A DigiTOL POWERCELL card must be installed in the JAGUAR or JAGXTREME indicator.

NOTE: For 2 mV/V load cells, jumpers W1, W2, W3, and W4 must be ON (shorting the pins). The jumpers must also be ON for 250-lb load cells.

NOTE: If more than one junction box is used, connect the junction boxes in a daisy chain. Connect Terminal TB5 on the first junction box to Terminal TB2 on the next junction box in the series.

The addresses of the DigiTOL cards in the second RAAD box must be reset to the factory settings and then re-addressed to the correct load cell number.

Switch Positions (SW)
SW1: On if Load Cell 1 is used
SW2: On if Load Cell 2 is used
SW3: On if Load Cell 3 is used
SW4: On if Load Cell 4 is used
SW5: On if last J-box in series

⚠ WARNING!

DO NOT USE THE RAAD JUNCTION BOX IN LOCATIONS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRICAL CODE (NEC) ARTICLE 500.

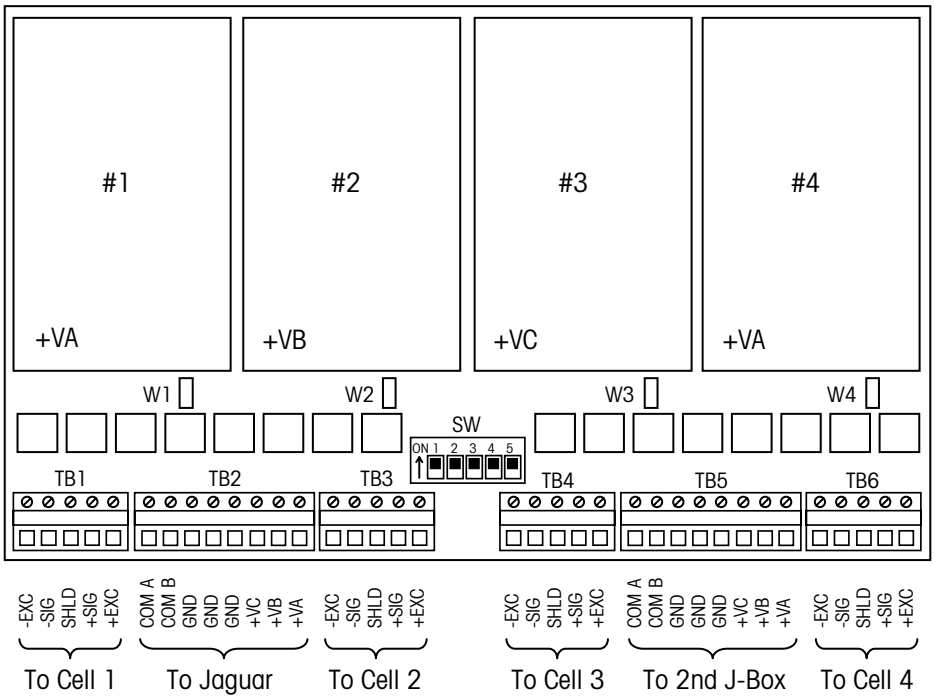


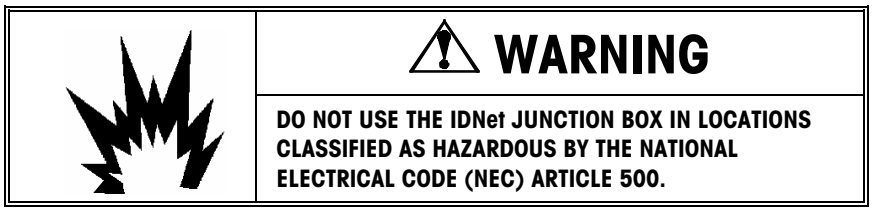
Figure 3-13: RAAD Junction Box Detail

RAAD TB2 Terminal	Function	Jaguar Terminal
1	+20 VDC (+VA)	8
2	+20 VDC (+VB)	7
3	+20 VDC (+VC)	6
4	Ground	5
5	Ground	4
6	Ground	3
7	COM B	2
8	COM A	1

Table 3-5: RAAD Junction Box Wiring

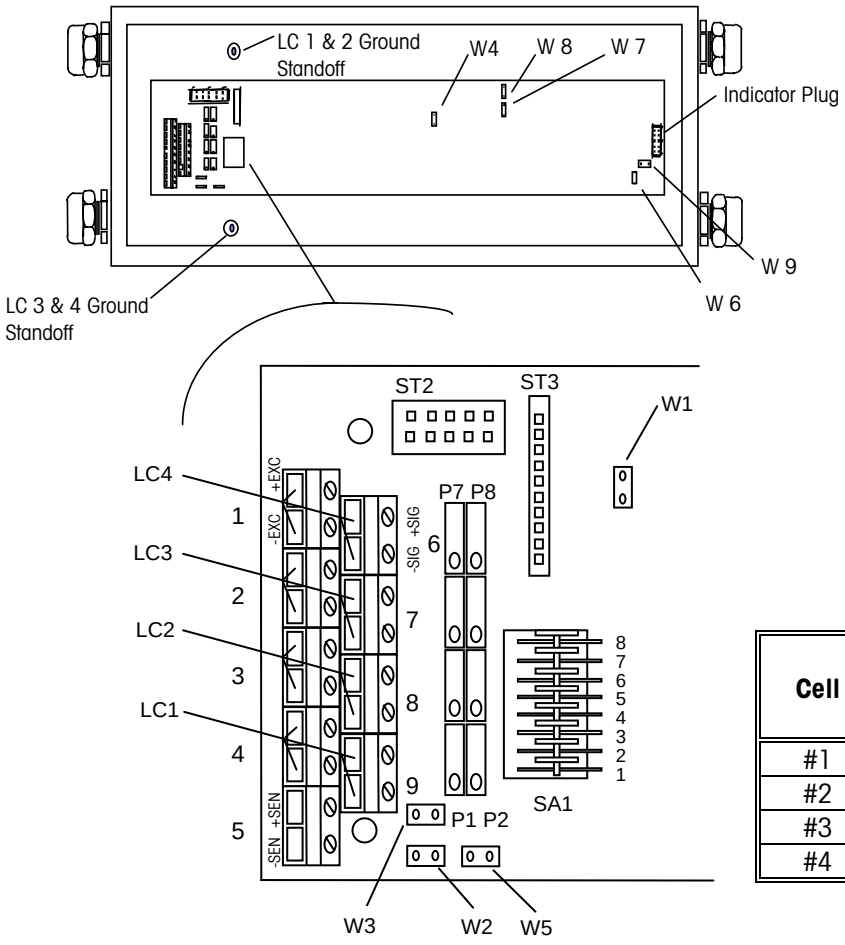
IDNet Mode

The IDNet junction box can output an IDNet data format compatible with the METTLER TOLEDO IDNet weight displays. See Figure 3-14 and Table 3-6 for cable connections. For detailed information regarding the indicator capabilities and operating instructions, refer to the appropriate service manual.



⚠ WARNING

DO NOT USE THE IDNet JUNCTION BOX IN LOCATIONS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRICAL CODE (NEC) ARTICLE 500.



Cell	Terminal			
	+ Exc. Green	- Exc. Black	+ Sig. White	- Sig. Red
#1	4	4	9	9
#2	3	3	8	8
#3	2	2	7	7
#4	1	1	6	6

Figure 3-14: IDNet Junction Box Detail and Wiring

NOTE: For 2 mV/V load cells, jumpers W1, W2, W3, and W4 must be ON (shorting the pins).

Jumper	Status	Description
W1	Closed (ON)	Matching the gain at 2 mV/V load cells
W2	Closed (ON)	No external sensing (-SEN)
W3	Closed (ON)	No external sensing (+SEN)
W4	Closed (ON)	Internal reference voltage = 3.5 Volts
W5	Open (OFF)	Excitation voltage for load cells = 4.0 Volts
W6	Closed (ON)	Internal supply voltage = 7.1 Volts
W7	2-3	Protocol IDNet
W8	1-2	Interface 20 mA
W9	Open (OFF)	Supply voltage IDNet
SA1	Closed (ON)	Trim Potentiometers Circuit Disabled

Table 3-6: IDNet Default Factory Setting

Home Run Cable Connection

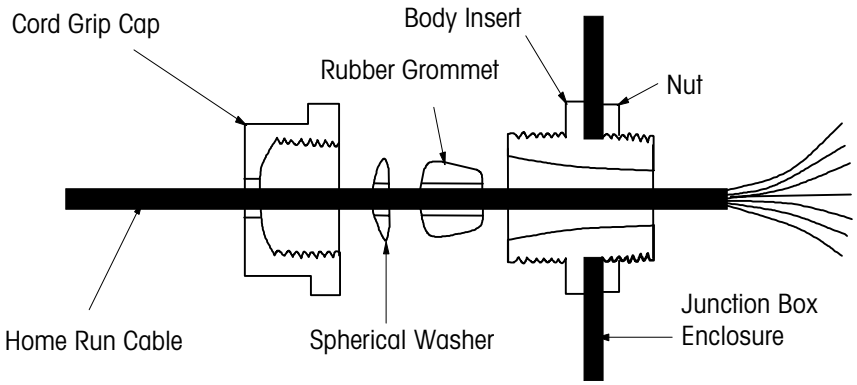


Figure 3-15: Cord Connector Details

Connect the home run cable from the scale indicator to the junction box (see Figure 3-15).

1. Wire the home run cable to the PCB according to Figure 3-12 for Analog, Figure 3-13 for RAAD, or Figure 3-14 for IDNet.
2. Place the desiccant bag inside the junction box.
3. Reinstall the junction box lid. Make sure that the rubber gasket is clean and correctly positioned. Tighten all screws and make sure all cord grip caps are secure.

4 Calibration

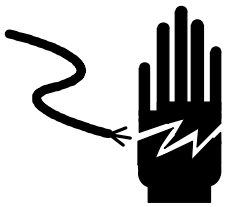
Shift Adjust

Before making calibration adjustments, check all mechanical parts and make sure that the scale provides repeatable weight readings. To check repeatability, repeatedly place a test weight in the same position of the scale and confirm that you get the same weight reading each time.

Then perform a shift adjust so that the weight reading at or near each weigh module is the same for the same test weight.

The test weight used for the shift test should equal 10 percent of the rated scale capacity. Test weights should be concentrated directly (or as close as possible) over the weigh modules.

Analog Junction Box Shift Adjustment



⚠ WARNING

PERMIT ONLY 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.

Perform a shift adjust using the load cell trim potentiometers mounted on the PCB inside the analog junction box.

1. Successively place the test weight at each of the designated locations (at or near the weigh modules). Note and record the displayed weight readings.
2. Determine the location with the lowest weight reading.
3. Proceeding clockwise, place the test weight at each designated location. If necessary, adjust the trim potentiometer corresponding to that location to obtain the weight reading recorded in Step 2.
4. Repeat this procedure until all weight readings at the designated locations are the same or within the tolerances specified by local weights and measures authority.
5. Check that all cable connectors and cord grip caps are tight, place the desiccant bag in the box, and reinstall the junction box lid.

RAAD Junction Box Shift Adjustment

Perform the shift adjust procedure at the indicator, with the indicator in Setup mode. For shift adjustment instructions, refer to the manual for the weight indicator you are using.

IDNet Junction Box Shift Adjustment

Perform the shift adjust procedure using the load cell trim potentiometers mounted on the PCB inside the IDNet junction box.

1. Successively place the test weight(s) at the designated locations and record each weight reading. If the readings are within desired tolerance, shift adjust is not required. If the readings are not within desired tolerance, perform Steps 2 through 6.
2. Activate the trim potentiometers by opening the eight hook switches (if not already open) located on the PCB (Figure 4-1). Once activated, the switches remain open. Do not close the latches, even after completing the shift adjustment.
3. Start the adjustment at the load cell having the highest positive reading. This process trims the load cells to match the value of the lowest recorded value.
4. To make minor adjustments, turn the trim potentiometers (each load cell has two) clockwise for a positive increase, or counterclockwise for a negative result.
5. Should the scale need further adjustment, turn all potentiometers counterclockwise. Stop turning the potentiometers when the indication on the instrument or meter stabilizes.
6. Reapply the test weight(s) to the location having the highest recorded weight reading. Then, adjust that load cell's potentiometers to match the reading of the location having the lowest recorded value. Repeat this step until all location readings are the same, or within the specified scale tolerances. Repeat Step 1 to verify shift tolerances.
7. Confirm that all cable connectors and cord grip caps are tight. Then place the desiccant bag in the box, leave all hook latches open, and reinstall the junction box lid.

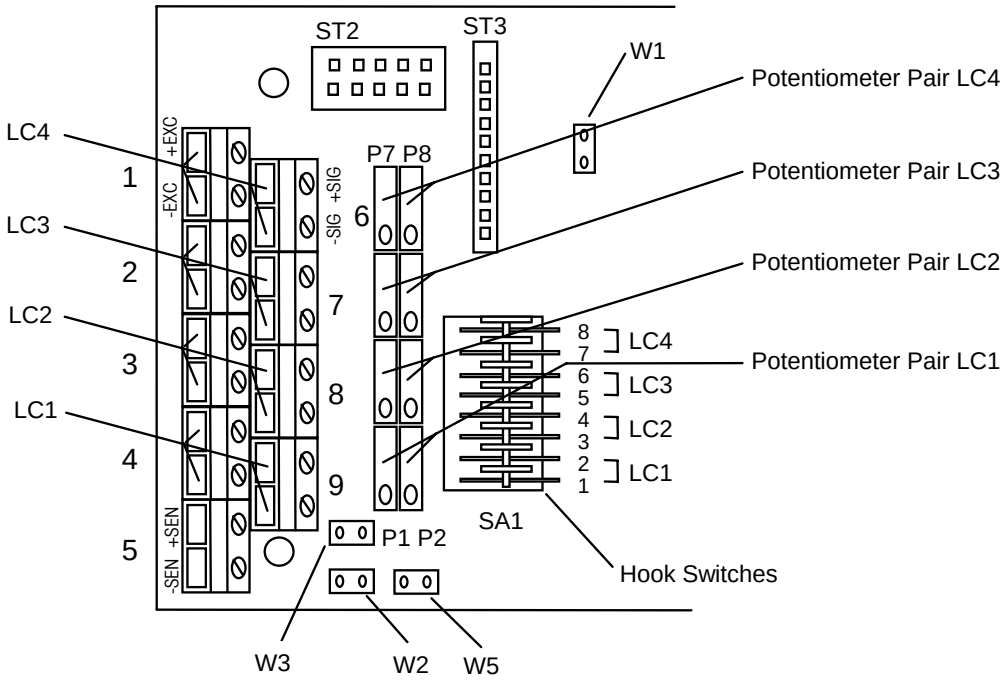


Figure 4-1: IDNet Potentiometer Adjustment

Scale Calibration

METTLER TOLEDO recommends calibrating the scale using test weights equal to the scale's capacity. With the proper test weight, continue calibrating the weighing system according to the instructions provided in your digital indicator manual.

Options for Calibration

Calibration with Test Weights

The most accurate, reliable way to calibrate a scale is to hang test weights from the tank. This method is useful when accuracy is extremely important and in tanks holding less than 10,000 kg.

Take readings as you add and remove weights. This yields a graph of the scale's performance from zero to maximum, and back to zero.

Calibration with Test Weights and Material Substitution

The substitution method is recommended for larger installations where it is physically impossible to hang test weights equivalent to the tank's maximum capacity. When performed correctly, this method yields a reliable performance graph.

For example, you might hang 1,500 kg of test weights, take a weight reading, and then remove the test weights. Then add enough water to the tank to equal the indicator reading obtained with the test weights. With the water still in the tank, hang the same

test weights for a second reading. Continue substituting water for the test weights and taking weight readings until you reach the tank's full capacity.

Calibration with Material Transfer

When calibrating with material transfer, you weigh a material (usually water) on an existing scale and transfer it to the tank scale being calibrated. You can do this in a single transfer or in stages until you reach the tank's maximum capacity. This method yields only a rough indication of scale performance. It depends on the accuracy of the existing scale and the integrity of the transfer process. Even in the best conditions, you will not know if allowable errors are cumulative or compensating.

Electronic Calibration

When using the electronic calibration method, you replace the load cell cables with leads from a load cell simulator. The simulator sends out a signal equal to the signal the load cells should produce. Electronic calibration is noted for its speed and simplicity; however, it calibrates only the electronics. It does not verify the scale performance, assuming instead that the tank and all mechanical connections are in perfect working order.

1. With the simulator adjusted to zero output, set the indicator to zero.
2. Adjust the simulator to full output; a signal equal to that which all the load cells should produce at their rated capacity.
3. Adjust the indicator to show the total capacity of all loads cells in the system.

5 Routine Care and Maintenance

General

Once you have installed your equipment, you should have an authorized METTLER TOLEDO representative periodically inspect and calibrate it. If the scale is used for legal-for-trade purposes, consult the local weights and measures authorities for minimum inspection requirements. Contact your local authorized METTLER TOLEDO service representative for information on periodic inspection and calibration services.

Site Inspection

Make sure that the scale site remains in good condition. Check for alterations in the dead-to-live connections, alterations in support for the weigh modules, overloading and excessive vibration conditions, and debris or material build-up under or around the scale which could prevent the scale from moving freely.

Weigh Module and Junction Box Inspection

During periodic inspections of the weigh modules, note:

1. Load cells, rocker pins/load pins, and bumpers for signs of unusual wear
2. Clearance between the hold-down bolt and the top plate (scales using FLEXMOUNT and FLEXMOUNT HD weigh modules)
3. Number of bumper bolts used, where they are installed, and the bumper gaps (scales using CENTERLIGN weigh modules)
4. Floor drain for adequate drainage away from the weigh modules
5. Junction box lid: Is it properly sealed? Are all cord grips tight?
6. Moisture or foreign material present around or inside the junction box assembly
7. Is the instrument cable damaged? Does it bind the scale?
8. Repeatability and shift of the scale

6 Troubleshooting

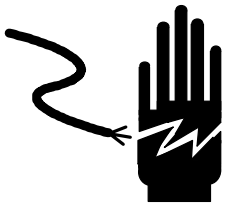
General

If the scale does not operate properly, find out as much about the problem as possible. Try to determine whether the problem is constant or intermittent. Mechanical and electrical influences can cause malfunctions, so be patient and use sound logic when troubleshooting.

When troubleshooting a FLEXMOUNT, FLEXMOUNT HD, or CENTERLIGN scale system, examine the scale's physical location and all dead-to-live connections. Check for the presence of water, corrosive materials, unlevel or inadequate support, high vibrations, air currents, or physical damage to the scale structure. Also check the instrument cable for damage, and all connections for loose or improper wiring.

⚠ CAUTION

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



⚠ WARNING

PERMIT ONLY 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.

Isolate the Problem

Determine whether the problem is in the scale or the digital indicator.

1. Remove power from the system, and then disconnect the digital indicator from the scale.
2. Connect the digital indicator to a load cell simulator (analog simulator available from METTLER TOLEDO).
3. Reapply power and test the indicator. If the problem persists, consult the digital indicator manual for further troubleshooting assistance.
4. If the problem is NOT present with the load cell simulator attached to the indicator, remove power, disconnect the simulator, and reconnect the scale. If the problem persists, continue troubleshooting the scale.

Check Wiring

1. Remove power from the system.
2. Remove the lid from the junction box and check the interior for moisture and foreign material.
3. Make sure that all wiring connections are tight and that no insulation material is touching the terminal contacts.
4. Check all cable connections for correct wiring. The wiring color codes are given in Table 6-1:

Load Cell Wiring			Analog Instrument Cable**	
Function	**Color for 45K PN *13929400A PN *14841200A**	**Color for All Other Load Cells**	**Function**	**Color**
+Excitation	White	Green	+Excitation	White
			+Sense	Yellow
+Signal	Green	White	+Signal	Green
Shield	Yellow	Yellow	Shield	Orange
-Signal	Black	Red	-Signal	Black
			-Sense	Red
-Excitation	Blue	Black	-Excitation	Blue
**Instrument cable color code based on METTLER TOLEDO cable number 510624370				

** See Figure 3-13 for RAAD instrument cable wiring.

Table 6-1: Load Cell Wiring Color Codes

5. Check all cable connectors and cord grip caps on the junction box.
6. Tighten any loose connectors.

Check Load Cells

1. Remove power from the system. Fully disconnect each load cell and check for proper input/output resistances (see Table 6-2).

	Resistance			
Measuring Points*	**250 – 10K**	**20K/30K**	**45K**	**50K – 200K**
+Exc (Green) to -Exc (Black)	385 ohms min.	360-400 ohms	2,100-2,300 ohms	750 ohms min.
+Sig (White) to –Sig (Red)	348-352 ohms	348-352 ohms	1,980-2,020 ohms	695-705 ohms

*See Table 6-1 for 45K wiring.

Table 6-2: Load Cell Measuring Points

2. If resistance is within specification, perform a shorted-signal symmetry test.
   - Short the signal leads together and place one multimeter lead on the shorted signals and one lead on the +Excitation wire. Note the resistance value.
   - Remove the lead from the +Excitation wire and place it on the –Excitation wire. The two resistance values should be approximately equal.
3. If the load cells pass the shorted-signal test, reconnect them and reapply power to the scale. Confirm that the proper excitation voltage is reaching the load cells by placing multimeter leads on the excitation positions of each load cell terminal.
4. If proper excitation voltage is reaching the load cells, check the output signal from each cell by disconnecting the signal leads and measuring voltage output. If one cell has a particularly high or low dead-load output, it is suspect. The maximum output possible from any cell is 30 mV at 15 VDC excitation and loaded to gross capacity.
5. If any load cell has an unusual signal, remove all load from that cell.
   - With the power on, measure the output from the suspect load cell. The no-load zero output should be ± 1.5% of the full scale output. For example, if the excitation voltage is 15 VDC, then the full scale output would be 30 mV and the no-load zero output should be within ± 0.45 mV.
6. If a load cell fails any of the above tests, replace it.

Check Mechanical Components

Because the FLEXMOUNT, FLEXMOUNT HD, and CENTERLIGN designs are so simple, only a few mechanical components require troubleshooting. Make sure that the scale can move freely and that the bumpers do not rest against the load cells. Then note:

1. Is the scale level or rocking? If so, reshimming may be required.
2. Check the rocker pins for unusual wear. Replace unevenly worn pins or pins having flattened bearing surfaces.
3. Check new or modified dead-to-live connections on the scale.
4. Does rigid piping or poor structural support result in mechanical binds?

FLEXMOUNT/CENTERLIGN Load Cell Replacement

1. Remove power to the digital indicator and disconnect the instrument cable.
2. Remove the junction box cover and locate the defective load cell terminal.
3. Disconnect the defective load cell cable from its terminal on the summing PCB.
4. Loosen the water-tight cable connector on the junction box and remove the cable from the enclosure.
5. Carefully raise the top plate of the weigh module to remove the load from the cell. If you are servicing a FLEXMOUNT weigh module, you can use the jacking bolt to raise the empty vessel off the cell.
6. If the load cell cable runs through a conduit, attach a string to the end of the defective load cell cable. The string should be both strong enough and long enough to pull the new load cell cable through the conduit.
7. Remove the load cell mounting screws, and keep them for reinstallation. Lift the load cell from the mounting surface. See Table 6-3 for bolt sizes and torques.

⚠ WARNING

BE SURE TO BLOCK THE SCALE WHEN IN THE RAISED POSITION. OBSERVE ALL APPROPRIATE SAFETY PROCEDURES WHEN INSTALLING AND SERVICING THE WEIGH MODULES.

8. Carefully pull the defective load cell cable through the conduit while feeding the string through the junction box opening. Once the string is at the load cell location, detach it from the load cell cable.
9. Remove the rocker pin with the O-rings or load pin with the O-ring from the defective load cell. Reinstall it in the new load cell.
10. Attach the new load cell's cable to the pulling string and carefully thread it through the conduit into the junction box opening.

11. Secure the new load cell to the base plate. Apply an anti-seize compound such as Never-Seez to the mounting screw threads and tighten to the torque specifications outlined in Table 6-3.

FLEXMOUNT Weigh Module lb (kg)	C.S. Load Cell Bolt & Torque ft-lb (Nm)	S.S. Load Cell Bolt & Torque ft-lb (Nm)
250, 500, 1.25K, 2.5K & 5K (220, 550, 1100 & 2200)	1/2-13 UNC Bolt 100 (136)	1/2-13 UNC Bolt 75 (102)
10K (4,400)	3/4-10 UNC Bolt 250 (339)	3/4-10 UNC Bolt 200 (271)
20K & 30K (9,012 & 13,608)	1-8 UNC Bolt 475 (644)	1-8 UNC Bolt 475 (644)
45K (20,412)	1.25-7 UNC Bolt 1,000 (1,356)	1.25-7 UNC Bolt 1,000 (1,356)

Table 6-3: Torque Specifications

12. Verify adequate clearance under the load end of the load cell.

13. Thread the load cell cable through the connector on the junction box. When the cable length inside the box is sufficient, tighten the box connector.

14. Wire the new load cell cable to the proper terminal on the PCB, per the wiring code shown.

15. Ensure that the rocker/load pin is properly aligned with the receiver in the top plate. Then slowly lower the top plate until the rocker/load pin is properly seated.

16. Reattach the instrument cable and power-up the indicator. Perform a shift adjust if required and recalibrate the scale.

FLEXMOUNT HD Load Cell Replacement

The FLEXMOUNT HD load cell is secured to its mounting plate by eight socket head cap screws. The mounting plate is secured to the weigh module's base plate by four hex head cap screws and two retaining plates. Both the load cell and the mounting plate must be removed to gain access to the eight load cell retaining screws.

You can remove a load cell by removing the entire FLEXMOUNT HD weigh module or by removing the load cell while the weigh module is still in place. To remove a load cell with the weigh module in place, you must raise the top plate approximately 2 inches.

1. Remove power to the digital indicator and disconnect the instrument cable.

2. Remove the junction box cover and locate the defective load cell terminal.

3. Disconnect the defective load cell cable from its terminal on the summing PCB.

4. Loosen the water-tight cable connector on the junction box and remove the cable from the enclosure.

5. Remove weight from the load cell by lifting the tank with hydraulic jacks.

⚠ WARNING

BE SURE TO BLOCK THE SCALE WHEN IN THE RAISED POSITION. OBSERVE ALL APPROPRIATE SAFETY PROCEDURES WHEN INSTALLING AND SERVICING THE WEIGH MODULES.

NOTE: To lift the tank, you will have to loosen the weigh module's hold-down bolts enough to allow the top plate to move upward approximately 2 inches.

6. Remove the four screws that secure the mounting plate to the base plate, and slide the load cell assembly off the base plate. Be sure to catch the load pin as it disengages from the top plate. Set aside the four screws, load pin, and two retaining plates so that you can use them later.
7. Remove the eight screws that secure the load cell to the mounting plate. Then use the screws to fasten the new load cell to the mounting plate. See Table 6-4 for torque specifications.
8. Position the load cell / mounting plate assembly on the base plate. Make sure that the load pin is properly engaged to the top plate. Then fasten the mounting plate to the base plate with the four mounting screws. See Table 6-4 for torque specifications.
9. Lower the top plate onto the load pin.
10. Check the weigh module's hold-down bolts for proper clearance, and tighten the lower jam nut on each bolt against the base plate.
11. Reattach the instrument cable and power up the indicator.

FLEXMOUNT HD Weigh Module lb	Load Cell Bolt & Torque ft-lb (Nm)	Mounting Plate Bolt & Torque ft-lb (Nm)
50K, 75K & 100K	7/16-20 UNC Bolt 60 (81)	7/8-9 UNC Bolt 320 (430)
150K & 200K	1/2-20 UNC Bolt 90 (122)	1.25-7 UNC Bolt 840 (1130)

Table 6-4: FLEXMOUNT HD Torque Specifications

7 FLEXMOUNT Parts

Refer to the following drawing and tables when ordering parts for Model 0958 FLEXMOUNT weigh modules.

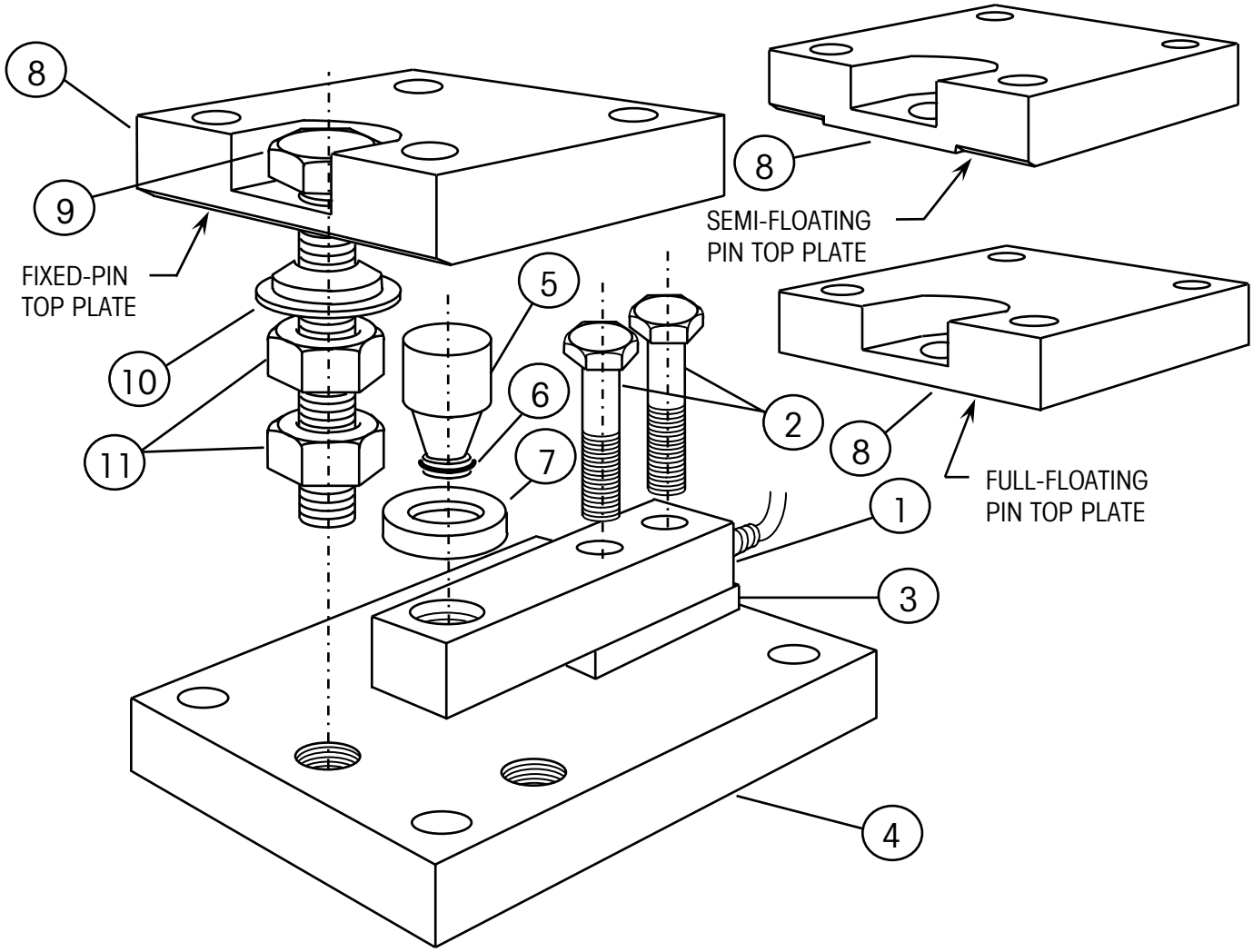


Figure 7-1: 250-lb to 45,000-lb FLEXMOUNT Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600488-1	250-lb load cell, S.S., potted, Model 744 (15-ft cable)	1
	TB600529-3	500-lb (NTEP) / 220-kg (OIML) load cell, S.S. (15-ft cable)	
	TB600363	1,250-lb (NTEP) / 550-kg (OIML) load cell, S.S. (15-ft cable)	
	TB600342	2,500-lb (NTEP) / 1,100-kg (OIML) load cell, S.S. (15-ft cable)	
2	TN800652	1/2-13 hex head bolt x 2.25" long (carbon steel)	2
	TN800651	1/2-13 hex head bolt x 2.25" long (stainless steel)	
3	TN600366	Spacer plate	1
4	TA600316-11	Base plate (carbon steel)	1
	TA600316-2	Base plate (stainless steel)	
5	TN600321	Load pin	1
6	MZ0909000005	O-ring, load pin	1
7	TN600322-1	Gasket, load pin	1
8	TA600320-11	Top plate, full-floating pin (carbon steel)	1
	TA600320-2	Top plate, full-floating pin (stainless steel)	
	TA600319-11	Top plate, semi-floating pin (carbon steel)	
	TA600319-2	Top plate, semi-floating pin (stainless steel)	
	TA600318-11	Top plate, fixed pin (carbon steel)	
	TA600318-2	Top plate, fixed pin (stainless steel)	
9	MZ0901010462	5/8-11 hold-down bolt x 3.5" long (carbon steel)	1
	MZ0901010423	5/8-11 hold-down bolt x 3.5" long (stainless steel)	
10	TN600507	Sleeve washer (stainless steel)	1
11	MZ0901020025	5/8-11 hex nut (stainless steel)	2
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 7-1: 250-lb to 2,500-lb FLEXMOUNT Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600343	5,000-lb (NTEP) / 2,200-kg (OIML) load cell, S.S. (15-ft cable)	1
2	TN800653	1/2-13 hex head bolt x 2.5" long (carbon steel)	2
	TN800671	1/2-13 hex head bolt x 2.5" long (stainless steel)	
3	TN600366	Spacer plate	1
4	TA600316-11	Base plate (carbon steel)	1
	TA600316-2	Base plate (stainless steel)	
5	TN600321	Load pin	1
6	MZ0909000005	O-ring, load pin	1
7	TN600322-2	Gasket, load pin	1
8	TA600320-11	Top plate, full-floating pin (carbon steel)	1
	TA600320-2	Top plate, full-floating pin (stainless steel)	
	TA600319-11	Top plate, semi-floating pin (carbon steel)	
	TA600319-2	Top plate, semi-floating pin (stainless steel)	
	TA600318-11	Top plate, fixed pin (carbon steel)	
	TA600318-2	Top plate, fixed pin (stainless steel)	
9	MZ0901010462	5/8-11 hold-down bolt x 3.5" long (carbon steel)	1
	MZ0901010423	5/8-11 hold-down bolt x 3.5" long (stainless steel)	
10	TN600507	Sleeve washer (stainless steel)	1
11	MZ0901020025	5/8-11 hex nut (stainless steel)	2
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 7-2: 5,000-lb FLEXMOUNT Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600364	10,000-lb (NTEP) / 4,400-kg (OIML) load cell, S.S. (30-ft cable)	1
2	TN800657	3/4-10 hex head bolt x 3.25" long (carbon steel)	2
	TN800656	3/4-10 hex head bolt x 3.25" long (stainless steel)	
3	TN600367	Spacer plate	1
4	TA600333-11	Base plate (carbon steel)	1
	TA600333-2	Base plate (stainless steel)	
5	TN600337	Load pin	1
6	MZ0909000012	O-ring, load pin	1
7	TN600322-3	Gasket, load pin	1
8	TA600336-11	Top plate, full-floating pin (carbon steel)	1
	TA600336-2	Top plate, full-floating pin (stainless steel)	
	TA600335-11	Top plate, semi-floating pin (carbon steel)	
	TA600335-2	Top plate, semi-floating pin (stainless steel)	
	TA600334-11	Top plate, fixed pin (carbon steel)	
	TA600334-2	Top plate, fixed pin (stainless steel)	
9	MZ0901010461	3/4-10 hold-down bolt x 4.5" long (carbon steel)	1
	MZ0901010425	3/4-10 hold-down bolt x 4.5" long (stainless steel)	
10	TN600511	Sleeve washer (stainless steel)	1
11	MZ0901020046	3/4-10 hex nut (stainless steel)	2
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 7-3: 10,000-lb FLEXMOUNT Assembly

Ref. No.	Part Number	Description	Qty.
1	*15297300B	20,000-lb (NTEP) / 9,072-kg (OIML) load cell, S.S. (30-ft cable)	1
	*15297800B	30,000-lb (NTEP) / 13,608-kg (OIML) load cell, S.S. (30-ft cable)	
2	TN800675	1-8 hex head cap screw x 4.5" long (carbon steel)	2
	TN800674	1-8 hex head cap screw x 4.5" long (stainless steel)	
3	TA600687-SS	Spacer plate	1
4	TA600683-CS	Base plate (carbon steel, painted)	1
	TA600683-SS	Base plate (stainless steel, type 304)	
	TA600683-S6	Base plate (stainless steel, type 316)	
5	TA600708	Load pin	1
6	MZ0909000013	O-ring, load pin	1
7	TN600691-1	Gasket, load pin	1
8	TA600712-CS	Top plate, full-floating pin (carbon steel, painted)	1
	TA600712-SS	Top plate, full-floating pin (stainless steel, type 304)	
	TA600712-S6	Top plate, full-floating pin (stainless steel, type 316)	
	TA600711-CS	Top plate, semi-floating pin (carbon steel, painted)	
	TA600711-SS	Top plate, semi-floating pin (stainless steel, type 304)	
	TA600711-S6	Top plate, semi-floating pin (stainless steel, type 316)	
	TA600710-CS	Top plate, fixed pin (carbon steel, painted)	
	TA600710-SS	Top plate, fixed pin (stainless steel, type 304)	
	TA600710-S6	Top plate, fixed pin (stainless steel, type 316)	
9	TA600693	1-8 hold-down bolt x 6.5" long (carbon steel)	1
	TA600695	1-8 hold-down bolt x 6.5" long (stainless steel)	
10	TN600689	Sleeve washer (stainless steel)	1
11	MZ0901020073	1-8 hex nut (carbon steel)	2
	MZ0901020022	1-8 hex nut (stainless steel)	
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 7-4: 20,000-lb and 30,000-lb FLEXMOUNT Assembly

Ref. No.	Part Number	Description	Qty.
1	*15297700B	45,000-lb (NTEP) / 20,412-kg (OIML) load cell, S.S. (30-ft cable)	1
2	TN800662	1.25-7 hex head cap screw x 5.5" long (carbon steel)	2
	TN800673	1.25-7 hex head cap screw x 5.5" long (stainless steel)	
3	TA600688-SS	Spacer plate	1
4	TA600685-CS	Base plate (carbon steel, painted)	1
	TA600685-SS	Base plate (stainless steel, type 304)	
	TA600685-S6	Base plate (stainless steel, type 316)	
5	TA600709	Load pin	1
6	MZ0909000004	O-ring, load pin	1
7	TN600691-3	Gasket, load pin	1
8	TA600715-CS	Top plate, full-floating pin (carbon steel, painted)	1
	TA600715-SS	Top plate, full-floating pin (stainless steel, type 304)	
	TA600715-S6	Top plate, full-floating pin (stainless steel, type 316)	
	TA600714-CS	Top plate, semi-floating pin (carbon steel, painted)	
	TA600714-SS	Top plate, semi-floating pin (stainless steel, type 304)	
	TA600714-S6	Top plate, semi-floating pin (stainless steel, type 316)	
	TA600713-CS	Top plate, fixed pin (carbon steel, painted)	
	TA600713-SS	Top plate, fixed pin (stainless steel, type 304)	
	TA600713-S6	Top plate, fixed pin (stainless steel, type 316)	
9	TA600694	1.25-7 hold-down bolt x 8" long (carbon steel)	1
	TA600696	1.25-7 hold-down bolt x 8" long (stainless steel)	
10	TN600690	Sleeve washer (stainless steel)	1
11	MZ0901020048	1.25-7 hex nut (carbon steel)	2
	MZ0901020107	1.25-7 hex nut (stainless steel)	
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 7-5: 45,000-lb FLEXMOUNT Assembly

8 CENTERLIGN Parts

Refer to the following drawing and tables when ordering parts for Model 0958 CENTERLIGN weigh modules.

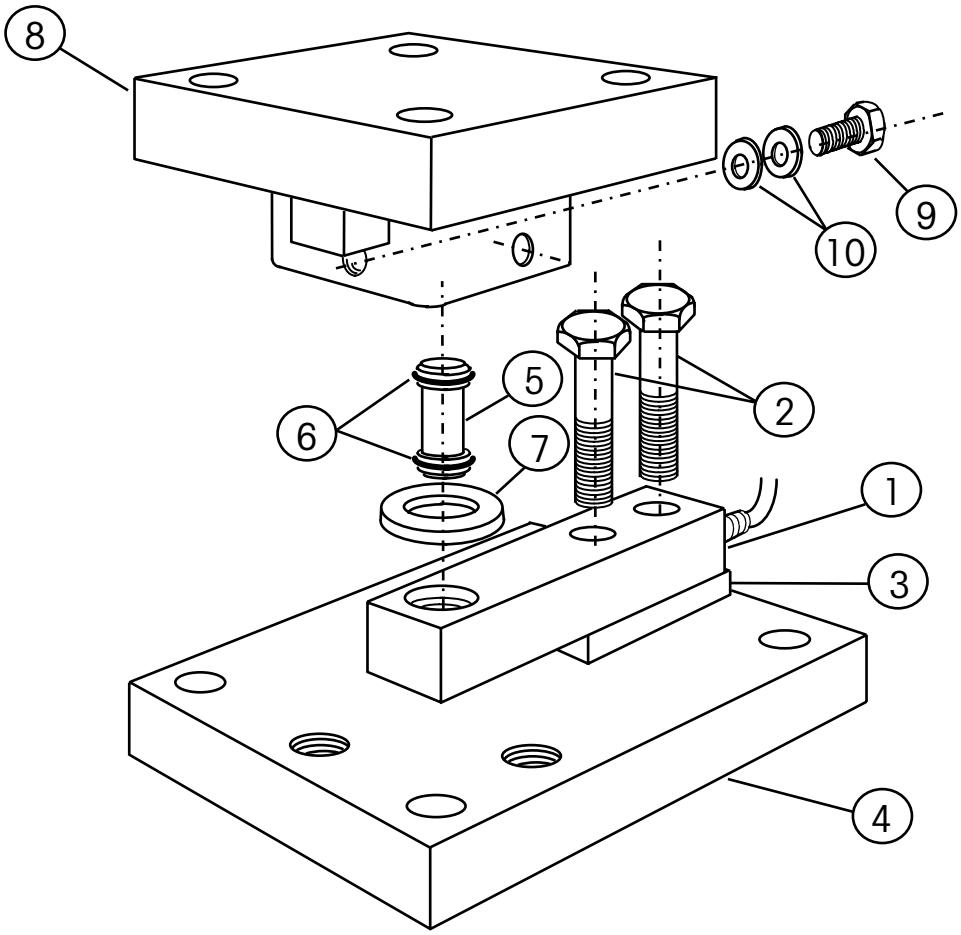


Figure 8-1: 250-lb to 45,000-lb CENTERLIGN Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600488-1	250-lb load cell, S.S., potted, Model 744 (15-ft cable)	1
	TB600529-3	500-lb (NTEP) / 220-kg (OIML) load cell, S.S. (15-ft cable)	
	TB600363	1,250-lb (NTEP) / 550-kg (OIML) load cell, S.S. (15-ft cable)	
	TB600342	2,500-lb (NTEP) / 1,100-kg (OIML) load cell, S.S. (15-ft cable)	
2	TN800652	1/2-13 hex head bolt x 2.25" long (carbon steel)	2
	TN800651	1/2-13 hex head bolt x 2.25" long (stainless steel)	
3	TN600366	Spacer plate	1
4	TA600316-11	Base plate (carbon steel)	1
	TA600316-2	Base plate (stainless steel)	
5	MN21018	Rocker pin	1
6	MZ0909000005	O-ring, load pin	2
7	TN600322-4	Gasket, load pin	1
8	TA600362-11	Top plate (carbon steel)	1
	TA600348	Top plate (stainless steel)	
9	MZ0901010064	3/8-16 hex head screw x 0.50" long (stainless steel)	3
10	MZ0901030019	3/8 plain washer (stainless steel)	Varies
	TN201034	3/8 plain washer x 0.03" long (stainless steel)	
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	
Ref.	TN600387	Locating tool	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 8-1: 250-lb to 2,500-lb CENTERLIGN Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600343	5,000-lb (NTEP) / 2,200-kg (OIML) load cell, S.S. (15-ft cable)	1
2	TN800653 TN800671	1/2-13 hex head bolt x 2.5" long (carbon steel) 1/2-13 hex head bolt x 2.5" long (stainless steel)	2
3	TN600366	Spacer plate	1
4	TA600316-11 TA600316-2	Base plate (carbon steel) Base plate (stainless steel)	1
5	MN21018	Rocker pin	1
6	MZ0909000005	O-ring, load pin	2
7	TN600322-4	Gasket, load pin	1
8	TA600362-11 TA600348	Top plate (carbon steel) Top plate (stainless steel)	1
9	MZ0901010064	3/8-16 hex head screw x 0.50" long (stainless steel)	3
10	MZ0901030019 TN201034	3/8 plain washer (stainless steel) 3/8 plain washer x 0.03" long (stainless steel)	Varies
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	
Ref.	TN600360	Locating tool	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 8-2: 5,000-lb CENTERLIGN Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600364	10,000-lb (NTEP) / 4,400-kg (OIML) load cell, S.S. (30-ft cable)	1
2	TN800657	3/4-10 hex head bolt x 3.25" long (carbon steel)	2
	TN800656	3/4-10 hex head bolt x 3.25" long (stainless steel)	
3	TN600367	Spacer plate	1
4	TA600333-11	Base plate (carbon steel)	1
	TA600333-2	Base plate (stainless steel)	
5	TN201975	Rocker pin	1
6	MZ0909000012	O-ring, load pin	2
7	TN600322-5	Gasket, load pin	1
8	TA600368-11	Top plate (carbon steel)	1
	TA600359	Top plate (stainless steel)	
9	MZ0901010064	3/8-16 hex head screw x 0.50" long (stainless steel)	3
10	MZ0901030019	3/8 plain washer (stainless steel)	Varies
	TN201034	3/8 plain washer x 0.03" long (stainless steel)	
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	
Ref.	TN600361	Locating tool	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 8-3: 10,000-lb CENTERLIGN Assembly

Ref. No.	Part Number	Description	Qty.
1	*15297300B	20,000-lb (NTEP) / 9,072-kg (OIML) load cell, S.S. (30-ft cable)	1
	*15297800B	30,000-lb (NTEP) / 13,608-kg (OIML) load cell, S.S. (30-ft cable)	
2	TN800675	1-8 hex head cap screw x 4.5" long (carbon steel)	2
	TN800674	1-8 hex head cap screw x 4.5" long (stainless steel)	
3	TA600687-SS	Spacer plate	1
4	TA600683-CS	Base plate (carbon steel, painted)	1
	TA600683-SS	Base plate (stainless steel, type 304)	
	TA600683-S6	Base plate (stainless steel, type 316)	
5	TA800664	Rocker pin	1
6	MZ0909000013	O-ring, load pin	2
7	TN600691-2	Gasket, load pin	1
8	TA600716-CS	Top plate (carbon steel, painted)	1
	TA600716-SS	Top plate (stainless steel, type 304)	
	TA600716-S6	Top plate (stainless steel, type 316)	
9	MZ0901010499	5/8-11 hex head cap screw x 0.75" long (stainless steel)	3
10	MZ0901030023	5/8 plain washer (stainless steel)	6
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	
Ref.	TA600676	Locating tool	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 8-4: 20,000-lb and 30,000-lb CENTERLIGN Assembly

Ref. No.	Part Number	Description	Qty.
1	*15297700B	45,000-lb (NTEP) / 20,412-kg (OIML) load cell, S.S. (30-ft cable)	1
2	TN800662	1.25-7 hex head cap screw x 5.5" long (carbon steel)	2
	TN800673	1.25-7 hex head cap screw x 5.5" long (stainless steel)	
3	TA600688-SS	Spacer plate	1
4	TA600685-CS	Base plate (carbon steel, painted)	1
	TA600685-SS	Base plate (stainless steel, type 304)	
	TA600685-S6	Base plate (stainless steel, type 316)	
5	TA800665	Rocker pin	1
6	MZ0909000004	O-ring, load pin	2
7	TN600691-4	Gasket, load pin	1
8	TA600717-CS	Top plate (carbon steel, painted)	1
	TA600717-SS	Top plate (stainless steel, type 304)	
	TA600717-S6	Top plate (stainless steel, type 316)	
9	MZ0901010499	5/8-11 hex head cap screw x 0.75" long (stainless steel)	3
10	MZ0901030023	5/8 plain washer (stainless steel)	6
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	
Ref.	TA600677	Locating tool	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 8-5: 45,000-lb CENTERLIGN Assembly

9 FLEXMOUNT HD Parts

Refer to the following drawing and tables when ordering parts for Model 0958 FLEXMOUNT HD weigh modules.

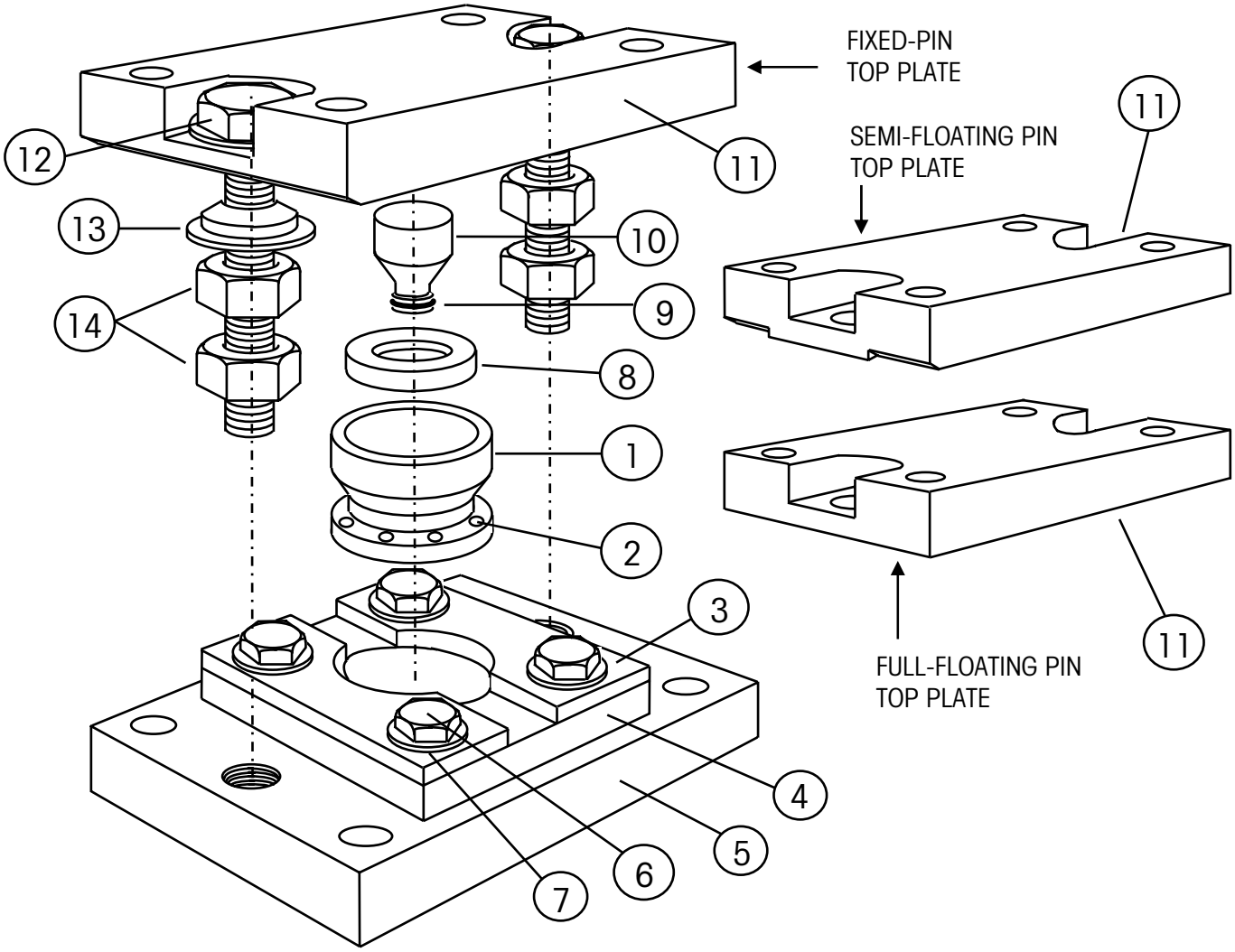


Figure 9-1: 50,000-lb to 200,000-lb FLEXMOUNT HD Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600862-035	50,000-lb load cell, Model 790 (35-ft cable)	1
	TB600863-035	75,000-lb load cell, Model 790 (35-ft cable)	
	TB600864-035	100,000-lb load cell, Model 790 (35-ft cable)	
2	MZ0901010524	7/16-20 socket head cap screw x 0.75" long (GR8)	8
3	TA600848-CS	Retaining plate	2
4	TA600847-CS	Mounting plate	1
5	TA600846-CS	Base plate (carbon steel)	1
6	MZ0901010525	7/8-9 hex head cap screw x 2.5" long (GR5 ZN)	4
7	MZ0901030058	Plain washer, 7/8"	4
8	TN600849-1	Gasket, load pin	1
9	MZ0909000004	O-ring, load pin	1
10	TA600856	Load pin	1
11	TA600855-CS	Top plate, full-floating pin, 50-100K (carbon steel)	1
	TA600854-CS	Top plate, semi-floating pin, 50-100K (carbon steel)	
	TA600853-CS	Top plate, fixed pin, 50-100K (carbon steel)	
12	TA600859	1.25-7 hold-down bolt x 8" long (GR5 ZN)	2
13	TN600857	Sleeve washer	2
14	MZ0901020048	1.25-7 hex nut	4
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 9-1: 50,000-lb to 100,000-lb FLEXMOUNT HD Assembly

Ref. No.	Part Number	Description	Qty.
1	TB600865-035	150,000-lb load cell, Model 790 (35-ft cable)	1
	TB600866-035	200,000-lb load cell, Model 790 (35-ft cable)	
2	MZ0901010527	1/2-20 socket head cap screw x 1" long (GR8)	8
3	TA600869-CS	Retaining plate	2
4	TA600868-CS	Mounting plate	1
5	TA600867-CS	Base plate (carbon steel)	1
6	MZ0901010528	1.25-7 hex head cap screw x 2.75" long (GR5 ZN)	4
7	MZ0901030015	Plain washer, 1.25"	4
8	TN600849-2	Gasket, load pin	1
9	MZ0909000063	O-ring, load pin	1
10	TA600870	Load pin	1
11	TA600879-CS	Top plate, full-floating pin, 150-200K (carbon steel)	1
	TA600878-CS	Top plate, semi-floating pin, 150-200K (carbon steel)	
	TA600877-CS	Top plate, fixed pin, 150-200K (carbon steel)	
12	TA600871	1.5-6 hold-down bolt x 8" long (GR5 ZN)	2
13	TN600872	Sleeve washer	2
14	MZ0901020064	1.5-6 hex nut	4
Ref.	TB100393	Analog junction box, 4 hole (*13640300A PCB)	
Ref.	TB100395	Analog junction box, 5 hole (*13640300A PCB)	
Ref.	TB100569-X**	IDNet junction box	

* May have a letter prefix.
** X = Number of connectors on junction box (-4 or -5 connector boxes available).

Table 9-2: 150,000-lb and 200,000-lb FLEXMOUNT HD Assembly

10 Reference Material

Reference Diagrams

Weigh Module Systems Handbook, Part Number *15598500A

Do It Yourself Guide To Building Tank Scales, Part Number TH3100.1E

Weigh Module	General Dimensions	Analog Wiring Diagram	RAAD Box Wiring Diagram	IDNet Wiring Diagram
FLEXMOUNT	TB601165	TB100809	15962700A	TB100600
FLEXMOUNT HD	TB601180			
CENTERLIGN	TB601166			

Recommended Spare Parts

For part numbers refer to service parts (Chapters 7, 8, and 9).

Quantity	Description
1	Load cell
1	Junction box circuit board (type of board is per model of scale)
1	Junction box desiccant bag
1	Load or rocker pin (by capacity of load cell)
2	Load or rocker pin O-ring (by capacity of load cell)

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