

Avery Weigh-Tronix



Industrial Weight Sensor Specification Book

**(Includes Weigh Bars[®], Load Cells, Quartzells[®]
and Assemblies)**

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Quartzell™ Transducer

Theory of Operation

The patented Quartzell™ transducer from Weigh-Tronix is the key to a new dimension in weighing. It opens the door to new opportunities in the same way the introduction of electronic scales did in the 70s.

It uses a new weighing system we call Quartz Digital Technology, which we refer to as QDT. Yet it is only a new application of a very common principle. QDT is based on the use of quartz crystals similar to those used in your wristwatch.

Category	Strain Gauge	Weigh-Tronix Quartzell™ Sensor
OIML accuracy	6,000d	10,000d
Internal resolution (ppm)	5	<1
Readable resolution	200	20
Response time (sec)	1	1
Repeatability (ppm)	100	10
Operating Temperature (C°)	-10 to 40	-10 to 40
Capacity (LB)	50	55
Overload capacity (%)	150	150

Quartzell™ technology has no analog component to slow down, corrupt or interfere with the sensing of weight. It is digital from the very beginning.

It brings the right blend of accuracy, resolution and cost which positions Quartzell™ technology out in front of other weighing technologies.

The Weigh Bar®

The Weigh Bar® is designed to overcome the shortcomings of the load cell and to provide the user with a rugged, highly reliable, and linear load sensing device at reasonable cost. Nearly thirty years of extensive use in industrial, farm and transportation applications has demonstrated that the Weigh Bar has met these requirements. The unique patented principle of the Weigh Bar is the primary reason for this success. The costly problems of temperature compensation and sensitivity to extraneous loads associated with the load cell have been eliminated. Also the unreliable so-called hermetic seal in the load cell has been virtually eliminated in the Weigh Bar. The fully potted Weigh-Tronix Weigh Bar has Factory Mutual approval for installation in hazardous environments.

Electrical Test

These tests will also work for most of today's loadcells.

You can test a Weigh Bar for proper operation by measuring the output voltage. To accomplish this, you need to know the rated Mv/v output of the Weigh Bar (1.0 Mv/v or 2.0 Mv/v) and the excitation voltage supplied by the indicator. The excitation voltage most often used is 10.0 VDC. This should be verified by measuring it at the Weigh Bar between the green wire (+) and the black wire (-). Find the Weigh Bar Mv/v rating in this manual and the Weigh Bar capacity is easily determined. Simply measure the length and the diameter of the Weigh Bar. Locate it in the proper Weigh Bar category

(prodeck, deck scale, etc.). Remember that scales can have multiple Weigh Bars. This means that to determine the capacity of one Weigh Bar, you must take the scale capacity and divide it by the total number of Weigh Bars used. The output from a Weigh Bar is measured between the (+) white wire and the (-) red wire. A good 1.0 Mv/v Weigh Bar will output 10.0 Mv DC with 100 % of capacity applied. A good 2.0 Mv/w Weigh Bar will output 20.0 Mv DC with 100 % of capacity applied. Using the following formula calculate the percentage of load applied:

$$\frac{\text{Test Weight}}{\text{Weigh Bar Capacity}} \times 100 = \underline{\hspace{2cm}} \%$$

example: $\frac{2000 \text{ lb}}{10000 \text{ lb}} \times 100 = \underline{20} \%$

**Insulation Resistance
Criteria for Weigh Bars**

A new Weigh Bar is normally in the giga-ohm range with respect to insulation resistance between the bridge circuit (strain gauges) and the spring element (metal of the bar). A normal reading would be 10-100 giga-ohms, however it can be higher and sometimes lower, minimum allowable resistance is 1 giga-ohm in a new weight sensor.

For a Weigh Bar that has been in service in the field, 500 megohms is the lowest allowable limit for insulation resistance. Below 500 megohms, the Weigh Bar may become unstable due to current leakage. It is important to note however, that Weigh Bar failure rate due to all causes is documented to be less than 0.5%. This data was collected by our Quality Control Department.

Thus 2000 lb is equal to 20% of the rated capacity of a 10000 lb Weigh Bar. Using this percentage, calculate the Mv output with the test weight applied. By using this book we determined that a 10000 lb batching Weigh Bar is rated for 2.0 Mv/v output. Next, measure the excitation voltage. With a reading of 10.0 VDC you can calculate the maximum output at the rated Weigh Bar capacity (2.0 Mv/v multiplied by 10.0 VDC equals 20.0 Mv) to be 20.0 Mv. To calculate the output of the Weigh Bar with the test weight applied take the maximum Mv output and multiply it by the percentage of test weight applied (20.0 Mv times 0.2 equals 4.0 Mv DC). Using our example, a 10,000 lb Weigh Bar with a test weight of 2000 lb would give us an output of 4.0 Mv DC. Using this book and the equipment provided, perform the following exercise.

- Rated capacity of the Weigh Bar. _____ lb
- Rated Mv/v output of the Weigh Bar. _____ Mv
- Measured excitation voltage. _____ VDC
- Amount of test weight. _____ lb
- Percentage of load applied(TEST WEIGHT) _____ %
- Calculated output no load _____ Mv
- Measured output no load _____ Mv
- Calculated output with load _____ Mv
- Measured output with load _____ Mv

Weigh-Tronix color code is shown in Figure 1. Weigh-Tronix has manufactured loadcells under the NCI and Electroscale brand names. Those color codes are different:
 KG cells use Electroscale
 LB cells use NCI for the MK series of cells.

	(+)Exct.	(-)Exct.	(+)Out	(-)Out
NCI	Red	Black	White	Green
Elec.	Red	Black	Green	White
W-T	Green	Black	White	Red

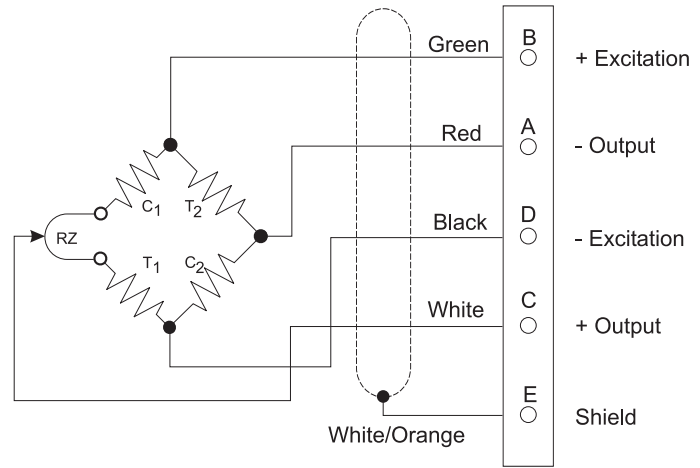
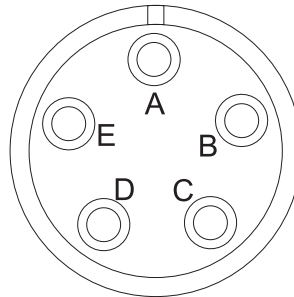


Figure 1
 Strain gage bridge schematic
 W-T color code shown

Testing the Weigh Bar

Loadcells will commonly have resistors in line and they will affect the values measured.

1. Perform these resistance checks to test the weigh bar. With the meter on the appropriate ohms scale, check for the following values between the color-coded wires on the section of cord connected to the weigh bar. See Figure 2.



Pin A to Red Wire
 Pin B to Green Wire
 Pin C to White Wire
 Pin D to Black Wire
 Pin E to Shield

Figure 2
 Five Pin Connector

The electrical connections of the Weigh Bar with a five pin connector, shown above, can be verified by measuring the resistances listed below:

Pins	Wires	Reading	Tolerance
A to C	Red to White	_____	350 ohms $\pm 5\%$
B to D	Green to Black	_____	350 ohms $\pm 5\%$
E to all	Shield (Wht/Orn) to all	_____	OPEN
A to B	Red to Green	_____	262.5 ohms $\pm 5\%$
B to C	Green to White	_____	262.5 ohms $\pm 5\%$
C to D	White to Black	_____	262.5 ohms $\pm 5\%$
A to D	Red to Black	_____	262.5 ohms $\pm 5\%$

All pins or wires to the metal of the Weigh Bar >20.0 megaohms

Repair Procedure for Splicing Weigh Bar Cables

Preparing Wires

1. Cut away damaged section of weigh bar cord to leave cut ends clean.
2. Strip away approximately 3" of rubber jacket from one cable end and 1½" from the other to expose the braided wire shield.
3. Cut away shield to leave 1" exposed beyond rubber jacket.
4. Using a scribe or pick, unbraid the exposed wire shield and twist it together to form a wire on each cable.
5. Strip away approximately 5/8" of insulation from the ends of the 3 wires on each cable.

Splicing the Wires

The sample shown is a three conductor, shielded cable but the same splicing principles apply to cables with more than three conductors.

1. Slide the 6" length of 3/4" shrink tubing down one section of cord.
2. Cut the length of 1/8" shrink tubing into 1½" lengths. Slide one piece onto each of the wires on one cord section.
3. Align the two sections of cable together and twist the same color-coded wires together as shown in Figure 3.

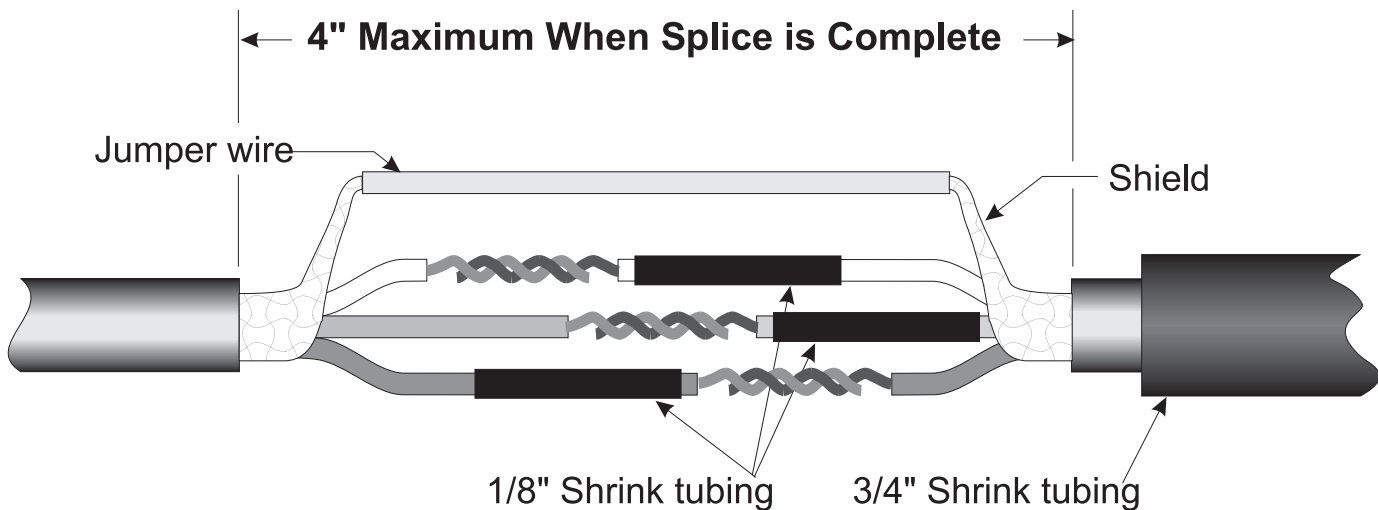


Figure 3
Splicing diagram

4. Solder each coupling using the solder supplied. **Be sure junctions are smooth with no bumps or sharp edges.** A good solder junction will look shiny and not have a dull or cracked surface.
5. After the junctions are soldered and cooled, slide the pieces of 1/8" shrink tubing over each junction. Be sure that only the wire insulation is visible out of each end of the tubing. Use an electric hair dryer to apply heat to the tubing and seal it over the wire junctions.
6. Couple the wire shields together using the length of copper wire provided. This is necessary so both sections of cable will be guarded against radio frequency interference which can affect weigh bar operation.

Finishing the Repair

Do not apply too much heat or the heat shrink tubing will scorch or burn.

Insulation Resistance Criteria for Weigh Bars

A new Weigh Bar is normally in the giga-ohm range with respect to insulation resistance between the bridge circuit (strain gauges) and the spring element (metal of the bar). A normal reading would be 10-100 giga-ohms, however it can be higher and sometimes lower, minimum allowable resistance is 1 giga-ohm in a new weight sensor.

For a Weigh Bar that has been in service in the field, 500 megohms is the lowest allowable limit for insulation resistance. Below 500 megohms, the Weigh Bar may become unstable due to current leakage. It is important to note however, that Weigh Bar failure rate due to all causes is documented to be less than 0.5%. This data was collected by our Quality Control Department.

1. Slide the piece of 3/4" shrink tubing across the junction and be sure that only the rubber cord jacket is visible at both ends of the shrink tubing.
2. Use a torch or heat gun to shrink the 3/4" tubing so it forms a water resistant seal across the repaired area. The 3/4" tubing is very thick so heat must be applied long enough to ensure adequate shrinkage. Apply the heat evenly to avoid scorching or burning the tubing.

PARTS LIST		
Part No.	Part Name	Required
19741-0012	Cord Repair Kit (includes:)	
14486-0046	1/8" shrink tubing	6"
17764-0117	6" piece of 3/4" shrink tubing	6"
16171-0033	Solder	12"
15299-0016	24 ga. wire	6"
16776-0016	Instructions	1

Junction Boxes

Signal Trim Junction Box

This style junction box has been produced from 1997 to the present. This test is to verify the travel of the ports in the junction box. The resistances are only an approximation so a small variance is allowable.

Zero Pot

Some styles of this J-box do not have a deadload (zero) pot and some do.

If your J-box has a zero pot, use these steps to test it:

1. On the indicator connector of the junction box, connect probe #1 (red) to +SIGNAL OUT (C) and connect probe #2 (black) to +EXCITATION (B). The resistance should change about 1000 ohms over the travel of the pot from clockwise to counterclockwise. (1111 k ohms)
2. On the indicator connector of the junction box, connect probe #1 (red) to +SIGNAL OUT (C) and connect probe #2 (black) to -EXCITATION (D). The resistance should change about 1000 ohms over the travel of the pot from clockwise to counterclockwise. (1111 k ohms)

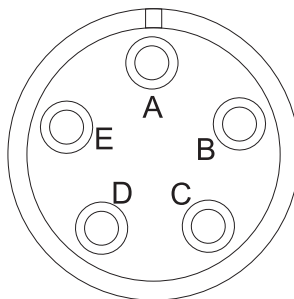
Corner Balance Pots

To test the corner balance pots:

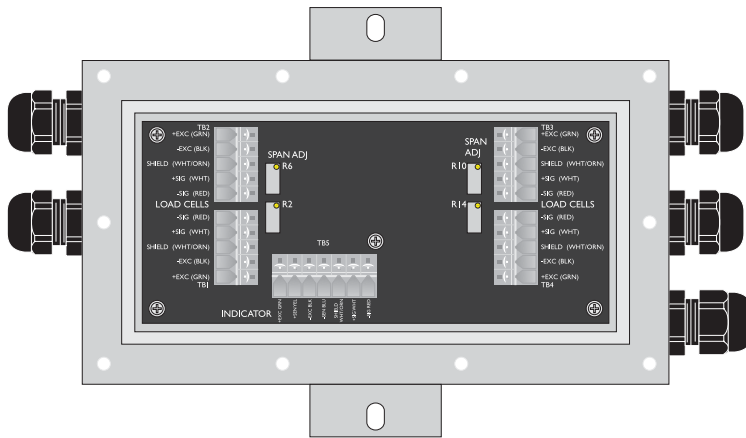
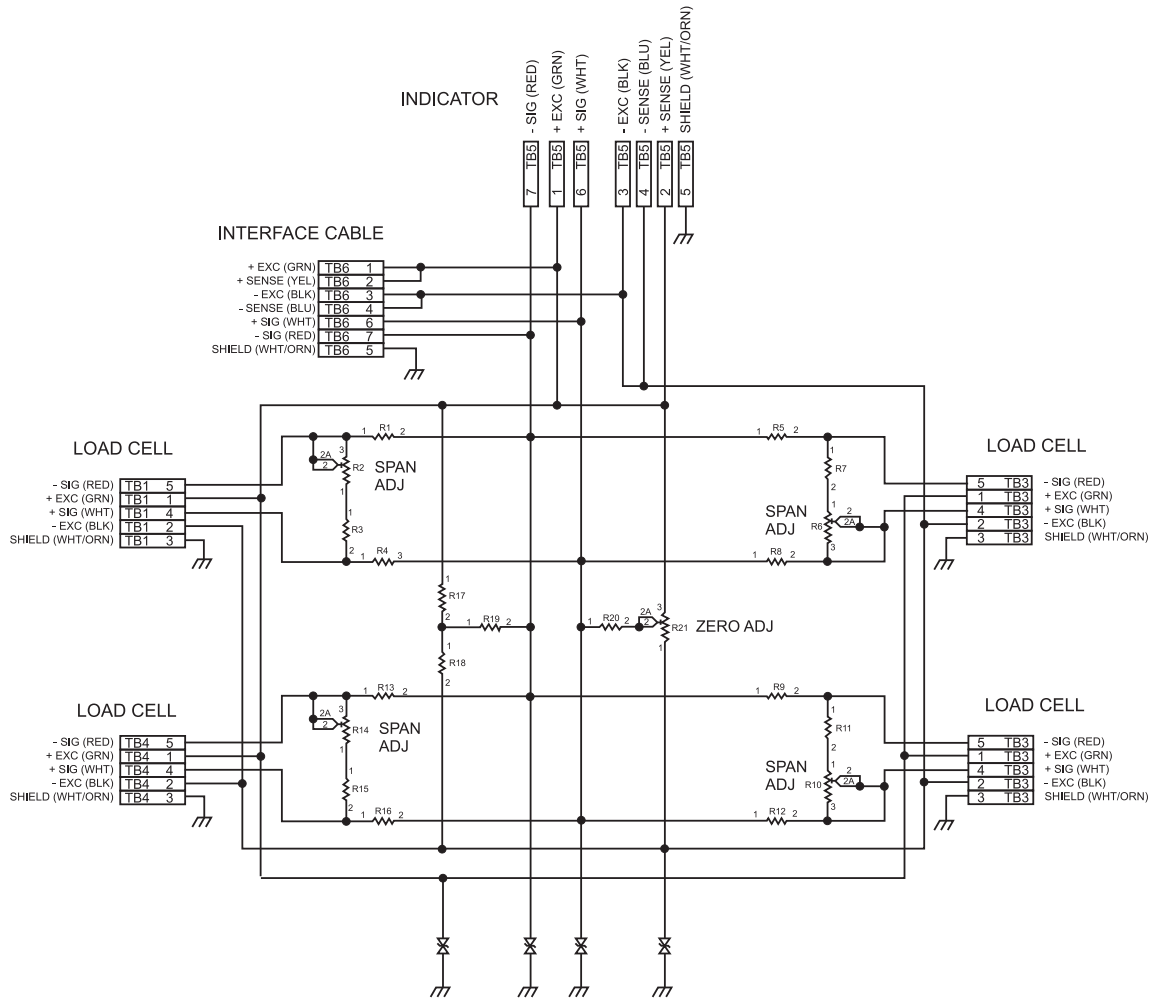
1. On the indicator connector of the junction box, connect probe #1 (red) to +SIGNAL OUT (C).
2. On the connector for the corner balance pot you wish to test, connect probe #2 (black) to +SIGNAL OUT (C). The resistance should be about 680 ohms \pm 20 ohms over the travel from clockwise to counterclockwise. If the pot tests good, reset it to a value of 680 ohms.
3. Repeat step 2 for all corner balance pots.
4. Verify ground isolation by measuring the resistance from shield to any signal/sense/excitation connector. (Greater than 20 mega-ohms)

Use this formula to figure the number of turns of the pot:

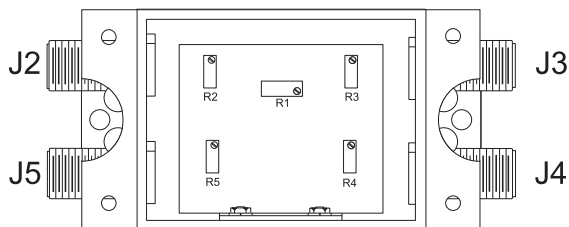
$$\frac{\text{Certified Test Weight Value} - \text{Displayed Weight Value}}{\text{Certified Test Weight Value} \times .0028} = \text{Number of Turns}$$



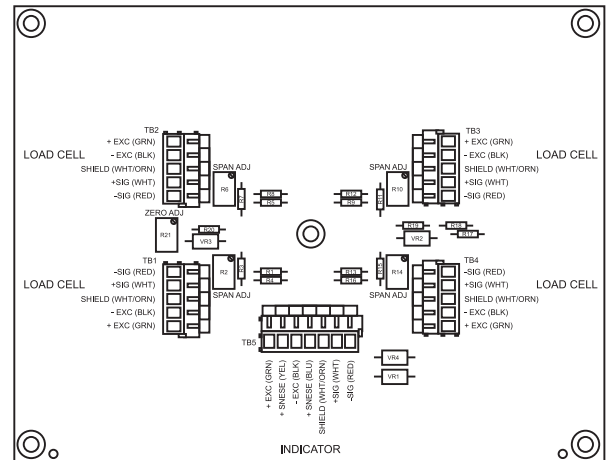
Pin A to Red Wire
Pin B to Green Wire
Pin C to White Wire
Pin D to Black Wire
Pin E to Shield



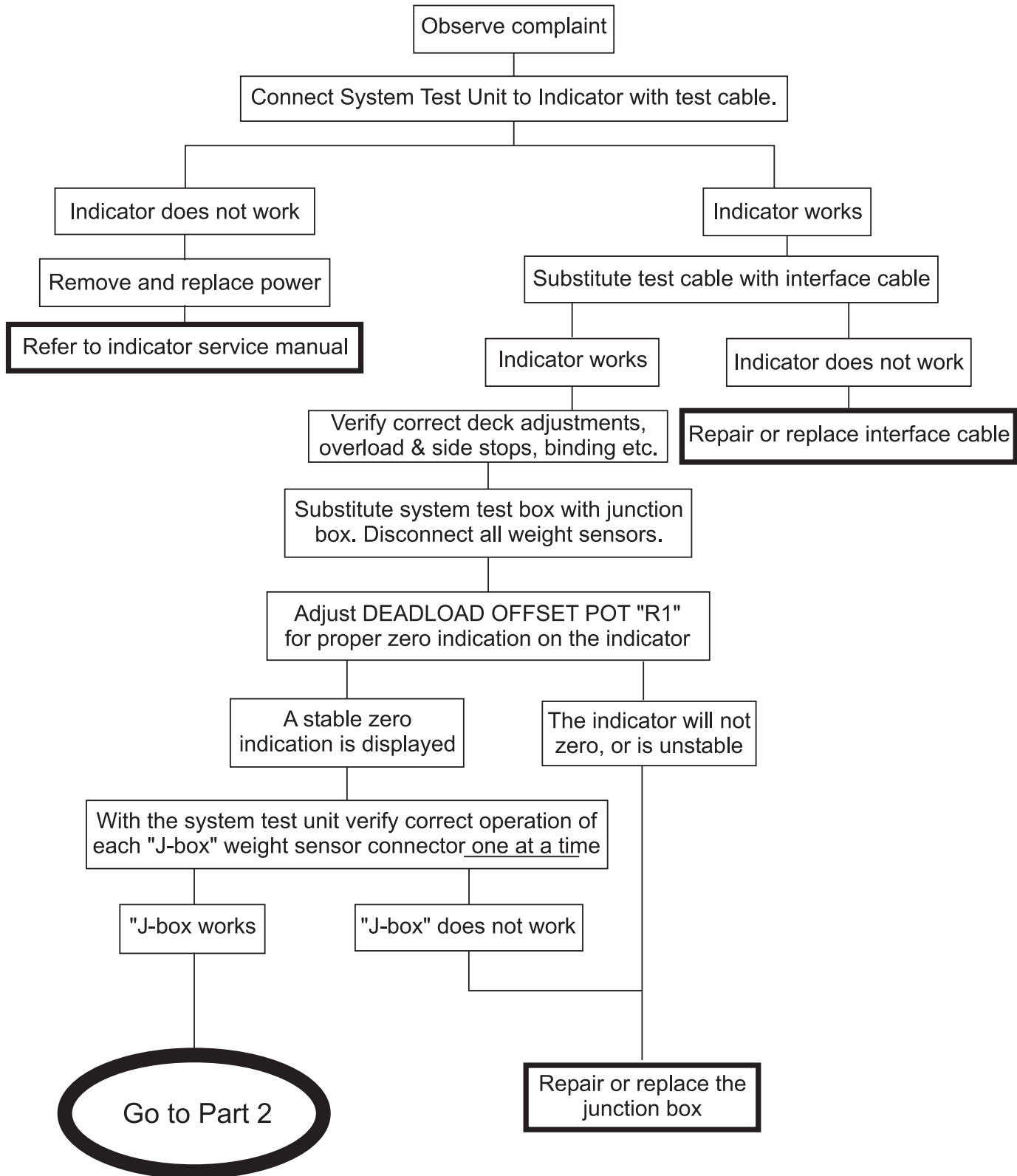
Connectorless style junction box



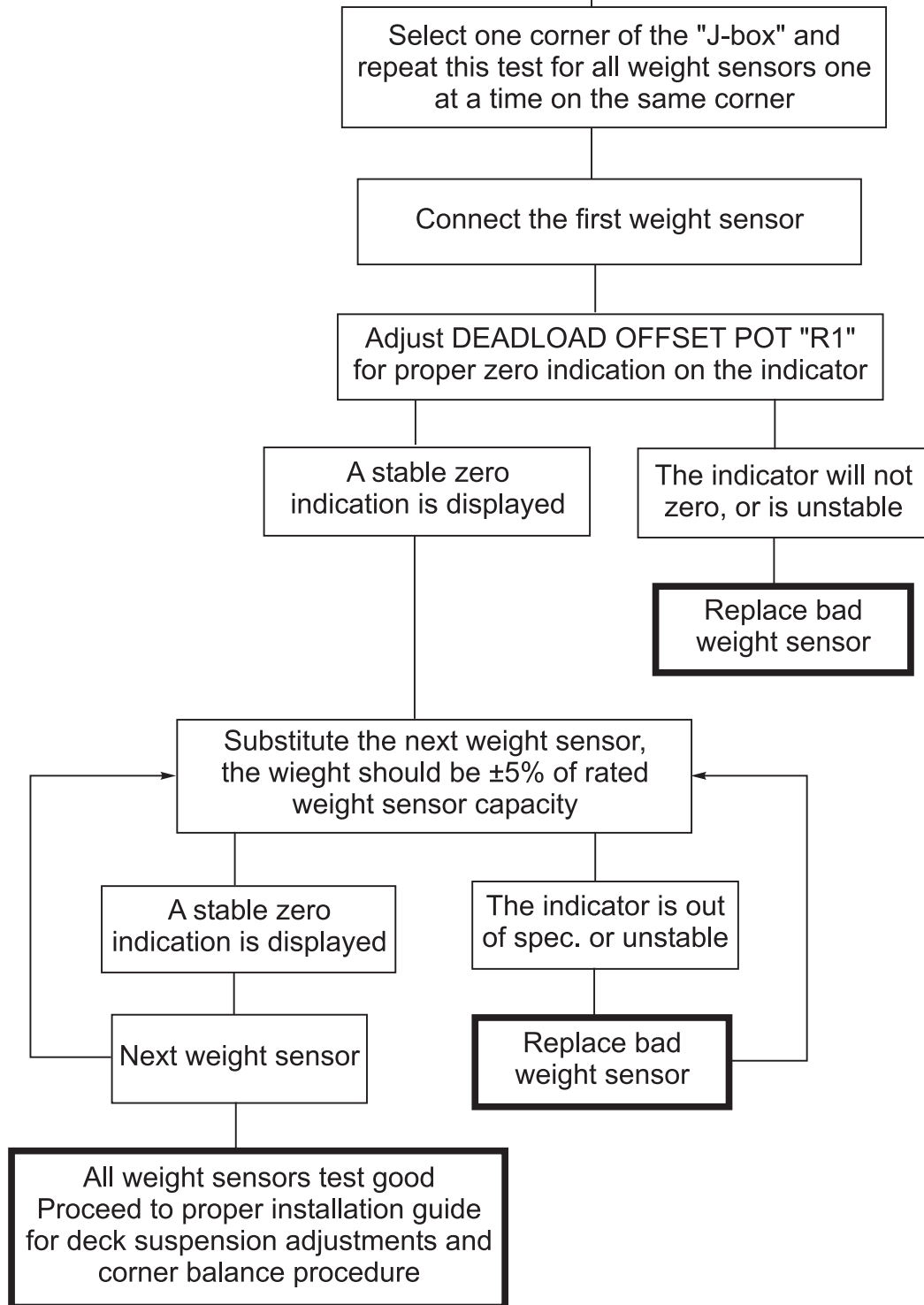
Connector style junction box



System Troubleshooting Sequence



Part 2



Cable

CABLE PART NUMBER	DESCRIPTION (Wire ends unprepared)	LENGTH
17960-1000	4 cond., 20 awg w/shield Weigh Bar cable	250'
17960-1018	4 cond., 20 awg w/shield Weigh Bar cable	500'
17960-1026	4 cond., 20 awg w/shield Weigh Bar cable	1,000'
13761-1000	6 cond., 18 awg w/shield interface cable	250'
13761-1018	6 cond., 18 awg w/shield interface cable	500'
13761-1026	6 cond., 18 awg w/shield interface cable	1,000'
48548-1006	4 cond., 20 awg, w/shield and ext. SST jacket W/B cable	250'
48548-1014	4 cond., 20 awg, w/shield and ext. SST jacket W/B cable	500'
48548-1022	4 cond., 20 awg, w/shield and ext. SST jacket W/B cable	1,000'
48548-1030	6 cond., 18 awg w/shield and ext. SST jacket interface cable	250'
48548-1048	6 cond., 18 awg w/shield and ext. SST jacket interface cable	500'
48548-1055	6 cond., 18 awg w/shield and ext. SST jacket interface cable	1,000'

All other lengths sold per foot pricing

CABLE PART NUMBER	BULK CABLE DESCRIPTION (Wire ends unprepared)
17960-0010	4 cond., 20 awg w/shield Weigh Bar cable
13761-0028	6 cond., 18 awg w/shield interface cable
48548-0016	4 cond., 20 awg, w/shield and ext. SST jacket W/B cable
48548-0024	6 cond., 18 awg w/shield and ext. SST jacket interface cable

Specific Length Interface Cables (Prepared wire ends)			
7pin-7pin	6 cond., 18 awg w/shield interface cable	25'	28138-0014
7pin-7pin	6 cond., 18 awg w/shield interface cable	50'	28138-0022
7pin-7pin	6 cond., 18 awg w/shield interface cable	100'	28138-0030
7pin-spades	6 cond., 18 awg w/shield interface cable	25'	28139-0013
7pin-spades	6 cond., 18 awg w/shield interface cable	50'	28139-0021
7pin-spades	6 cond., 18 awg w/shield interface cable	100'	28139-0029
7pin-tin leads	6 cond., 18 awg w/shield interface cable	25'	46450-0016
7pin-tin leads	6 cond., 18 awg w/shield interface cable	50'	46450-0024
7pin-tin leads	6 cond., 18 awg w/shield interface cable	100'	46450-0032

Counting Scales/Bench Scales

Quartzell Software, Product & Capacity Matrix

Model # (S/N)	PC-802 (K1)	PC-802B (L9)	PC-805 (L7)	TT-830 (M5)	G227
Driver Board	Smart IV	Smart IV	Smart IV	Smart IV	Smart IV
Blank Prom #	1222-14675	1222-14675	1222-14675	1222-14675	
Eprom P/N	50705-0011F Standard Display	50705-0078 (W-T) Blue Display 1150-16039 (S-R)	51757-0016	52036-0017 (W-T) 1150-16263 (S-R)	1150-16263
5 kg	7153-15694-05	7153-15694-05	7153-15694-05	7153-15694-05	7153-15694-05
25/32 kg	7153-15694-25 replaced by 7153-16863-25	7153-15694-25 replaced by 7153-16863-25	7153-15694-25 replaced by 7153-16863-25	7153-15694-25	7153-15694-25
50 kg	7153-15694-50 replaced by 7153-16863-50	7153-15694-50 replaced by 7153-16863-50	7153-15694-50 replaced by 7153-16863-50	7153-15694-50	7153-15694-50
160 kg		7153-15694-165	7153-15694-165		
Notes:	1	1	1	1	

* When entering an order for QDT Cells, please provide Model # & complete S/N of unit, (ie. SRM1980126), would be a PC-820.

* Eprom line items are "No Charge".

Notes:

1. The Quartzell part number does not include the EPROM on these products.

^E These must match the driver board, eprom, software, & cell.

^A This blank eprom and program is only good for old type cells

^B This blank eprom and program is only good for new type cells

PC-810 Quartzells are no longer available. These part numbers are now obsolete:

7153-13670, 7153-10957, 7153-12044

Quartzell Software, Product & Capacity Matrix (continued)

		<i>Bench Old</i>	<i>Bench Blue</i>	<i>Remote QDT Base</i>	<i>Bench Old 18 X 18</i>	<i>Bench Blue 18 X 18</i>
Model # (S/N)	PC-820 (M1) PC-821(M2)	3632T (J6)	3632B (L8)	3633 & 3635 3637 (G5)	3634 (K5)	3634B 3636 (24x24) (K5)
Driver Board	Smart IV	Smart III	Smart IV	Smart II ^A Smart III ^B Smart IV-85 ^E	Smart III	Smart IV
Blank Prom #	1222-14675	1222-14675	1222-14675	1222-12348 ^A 1222-14675 ^B 1222-14675 ^E	1222-14675	1222-14675
Eprom P/N	52036-0017 (W-T) 1150-16263 (S-R)	1150-15516 Standard Display	51565-0018 Blue Display	1150-12657 ^A 1150-15211 ^B 1150-16263 ^E	1150-15411 Standard Display	51565-0018 Blue Display
5 kg	7153-15694-05	7153-14750	7153-15694-05	7153-14750 ^B 7153-16523-05 ^E		
25/32 kg	7153-15694-25 replaced by 7153-16863-25	7153-14749	7153-15694-25	7153-14749 ^B 7153-16523-25 ^E		
50 kg	7153-15694-50 replaced by 7153-16863-50	7153-14753	7153-15694-50	7153-15343 ^A 7153-14753 ^B 7153-16523-50 ^E		
80 kg				7153-14616 ^B 7153-16523-80 ^E		7153-15694-100
110 kg				7153-14617 ^B 7153-16523-110 ^E	7153-14617	7153-15694-110
160 kg				7153-14618 ^B 7153-16523-165 ^E	7153-14618	7153-15694-165
275 kg				7153-16523-275 ^E		7153-15694-275
Notes:	2	2	2	2, 3	2	2

* When entering an order for QDT Cells, please provide Model # & complete S/N of unit, (ie. SRM1980126), would be a PC-820.

* Eprom line items are "No Charge".

Notes:

2.The Quartzell part number does not include the EPROM on these products.

3.These are Remote QDT Bases. If using Smart IV-85 they will work with PC-820/821, TT-830, & WI-130 with **REV C. or higher FIRMWARE.**

^E These must match the driver board, eprom, software, & cell.

^A This blank eprom and program is only good for old type cells

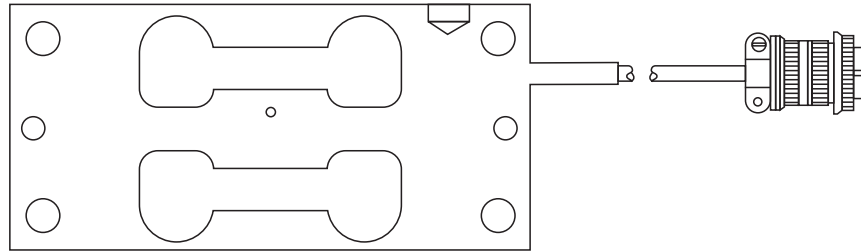
^B This blank eprom and program is only good for new type cells

Weigh Bar and Load Cell Lists

Diamond Series Bench Scales

**Bench Scale Weight Sensors 1.0 mV/V
Single Flex Bar Design
Series "A" (Spade Terminal) and Series "N" (7-pin Male Connector)**

**NTEP Certificate #88-104, 88-230
Class III n Max = 5000**



Stainless Steel

Capacity	Cable	mV/V	Tinned Leads Part Number	Dimensions
30 lb FLS45	10'	1.5	49098-0067	6.5" x .73" x 2.9"
50 lb FLS70	10'	1.5	49098-0067	6.5" x .73" x 2.9"
100 lb FLS125	10'	1.25	49098-0075	6.5" x 1.48" x 2.9"
200 lb FLS250	10'	1.25	49098-0083	6.5" x 1.48" x 2.9"
500 lb FLS625	25'	1.25	49100-0022	8" x 1.96" x 3.75"
1,000 lb FLS1250	25'	1.25	49100-0048	8" x 1.96" x 3.75"

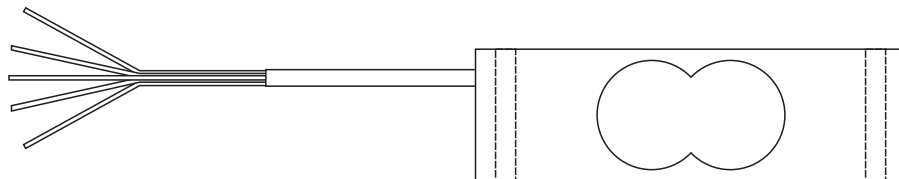
Mild Steel

Capacity	Cable	mV/V	Spade Terminals Part Number	7-pin Male Conn. Part Number	Dimensions
30 lb	10'	1.5	N/A	21383-0029	6.5" x .73" x 2.9"
50 lb	10'	1.5	N/A	21383-0029	6.5" x .73" x 2.9"
100 lb	10'	1.25	N/A	21383-0037	6.5" x 1.48" x 2.9"
200 lb	10'	1.25	N/A	21383-0045	6.5" x 1.48" x 2.9"
500 lb	25'	1.25	21944-0039	21944-0013	8" x 1.96" x 3.75"
1,000 lb	25'	1.25	21944-0047	21944-0054	8" x 1.96" x 3.75"

Bench Scales

Capacity	mV/V	MK-17 P/N	MK-27 P/N
10 LB	1.0	7153-09436	7154-16321-07
25 LB	1.0	7153-09437	7154-16321-15
50 LB	1.0	7153-09438	7154-16321-30

**MK-17 (Non-certified) and replacement MK-27 Loadcell (Certified)
for the tables listed below**



MK-17 Loadcell (Non-certified)

Model	Capacity	mV/V	P/N
SC-310	10 LB	1.0	7153-09436
SC-310	25 LB	1.0	7153-09437
SC-310	50 LB	1.0	7153-09438
SC-320	100 LB	1.0	7153-09439
SC-320	250 LB	1.0	7153-09887

Class III Cert. #91-124A2 n-max 2500 MK-17 Loadcell

Model	Capacity	mV/V	P/N
SC-311T	10 LB	1.0	7153-10018
SC-311T	25 LB	1.0	7153-11048
SC-311T	50 LB	1.0	7153-10021
SC-321T	100 LB	1.0	7153-10022
SC-321T	250 LB	1.0	7153-13573

MK-17 Loadcell

Model	Capacity	mV/V	P/N
3733 Bench	10 LB	1.0	7153-15777
3733 Bench	25 LB	1.0	7153-15777-12
3733 Bench	50 LB	1.0	7153-15777-25
3733 Bench	100 LB	1.0	7153-15777-50
3735 Bench	300 LB	1.0	49998-0019*

* Mark-18

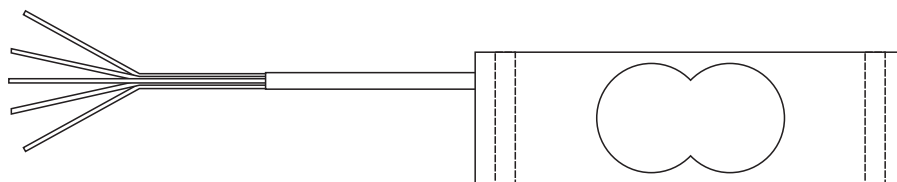
Baggage Scale

MK-22 n-max 3000

Class III Cert. #90-107A Loadcell

Capacity	mV/V	P/N
300 LB	1.0	7153-10284
500 LB	1.0	7153-10286

Checkweigher & Stand Alone Torsion Bases



MK-21 and Replacement MK-29 Loadcells

(Replacement MK-29 Loadcells not available for the 3250 series)

Capacity	mV/V	Non-Certified MK-21 P/N	Class III n-max 3000 NTEP Cert. #92-173A1 MK-21 P/N	Certified NTEP 3,000 div. MK-29 P/N
6 LB	1.0	7153-12639	7153-10434	53240-0017
12 LB	2.0	7153-12639	7153-10434	53240-0017
30 LB	2.0	7153-12638	7153-10435	53240-0025
60 LB	2.0	7153-12637	7153-10435	53240-0033
100 LB	2.0	7153-13233	N/A	53240-0041

All MK-29 cells come with 10' cables.

Note new wiring color code:

	EXIT (+)	EXIT (-)	SIG (+)	SIG (-)	SEN (+)	SEN (-)
W-T (MK-29)	Green	Black	White	Red		
NCI kg (MK-21)	Red	Black	Green	White	Red/Whit	Blk/Wht

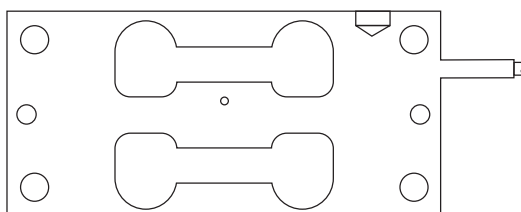
With the MK-29 you must remember to jumper the sense lines in your indicator if using only four wires.

Checkweighers Using the Diamond Series Bench Scale

Class III n-max 5000

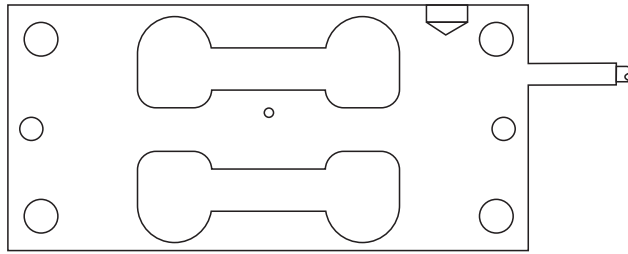
Cert. #88-104, 88-230

Stainless Steel Flex Bars



Capacity	Cable	mV/V	Tinned Leads Part Number	Dimensions
100 lb FLS125	10'	1.25	49098-0075	6.5" x 1.48" x 2.9"
200 lb FLS250	10'	1.25	49098-0083	6.5" x 1.48" x 2.9"

Conveyor Scale Weigh Bar 1.0mV/V (Non-certified)



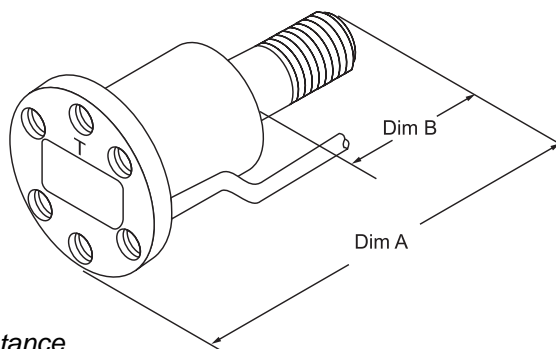
Mild Steel

Scale Capacity	Sensor Capacity	Cable	mV/V	Connector Part Number	Dimensions
100 lb	50 lb	10'	1	23133-0010	6.5" x 0.73" x 2.9"
200 lb	100 lb	10'	1	23133-0028	6.5" x 1.48" x 2.9"

Stainless Steel

Scale Capacity	Sensor Capacity	Cable	mV/V	Connector Part Number	Dimensions
100 lb	50 lb	10'	1	23133-0044	6.5" x 0.73" x 2.9"
200 lb	100 lb	10'	1	23133-0051	6.5" x 1.48" x 2.9"

Lift Truck Scale Weigh Bar



Use standard weight sensor resistance test found earlier in this manual.

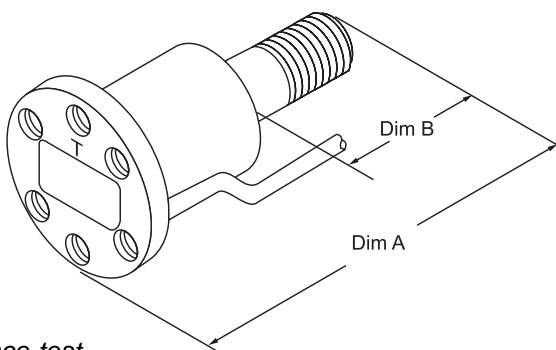
Non-certified LIFT TRUCK WEIGH BARS with 5 pin male connector

Part #	Dim. A	Dim. B	Cable	Capacity	MV/V	Description
19221-0011	4 5/8"	2 3/16"	3'	5K	0.26	Standard*
19221-0029	4 7/8"	2 7/16"	3'	5K	0.26	Extra thick*
19221-0037	3 7/8"	1 7/16"	3'	5K	0.26	Quik-Tach
19221-0060	6 5/8"	2 7/8"	4'	10K	0.16	Standard*
19221-0078	6 7/8"	3 1/8"	4'	10K	0.16	Extra thick*
19221-0086	5 7/16"	1 3/4"	4'	10K	0.16	Quik-Tach

5000 lb 3 1/2" Dia. (Nut) 17955-0025 Torque to 150-200 ft. - lbs

10000 lb 5" Dia. (Nut) 17955-0017 Torque to 382-520 ft. - lbs

* For permanent mount only. (Not Quik-Tach)



Use special weight sensor resistance test found in the next section.

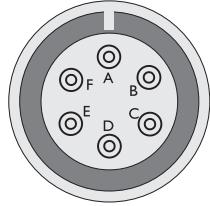
Certified Legal for Trade QUIK-TACH LIFT TRUCK WEIGH BARS

Part #	Dim. A	Dim. B	Cable	Capacity	MV/V	Cable end
55846-0010	3 7/8"	1 7/16"	30"	5000 lb	0.27	6-pin connector
55846-1018	5 1/2"	1 3/4"	42"	10,000 lb	0.47	6-pin connector
55846-2016	5 13/16"	1 15/16"	54"	16,000 lb	0.48	6-pin connector

Resistance Test of QLTSC Weigh Bars

Testing procedures for nonlegal Weigh Bars is covered earlier in this book in the section Testing the Weigh Bar.

Perform these resistance checks to test the legal for trade lift truck scale Weigh Bars. With the meter set on the appropriate ohms scale, check the following values between the color coded wires on the section of the cord connected to the Weigh Bar or the corresponding pin out for the connector. See Figure ?.



A= -Output
 B= +Excitation Shear Bridge
 C= +Output
 D= -Excitation
 E= +Excitation Trim Bridge
 F= Shield

Pin A--Red wire, Pin B--Green wire, Pin C--White wire,
 Pin D--Black wire, Pin E--Blue wire, Pin F--Shield wire.

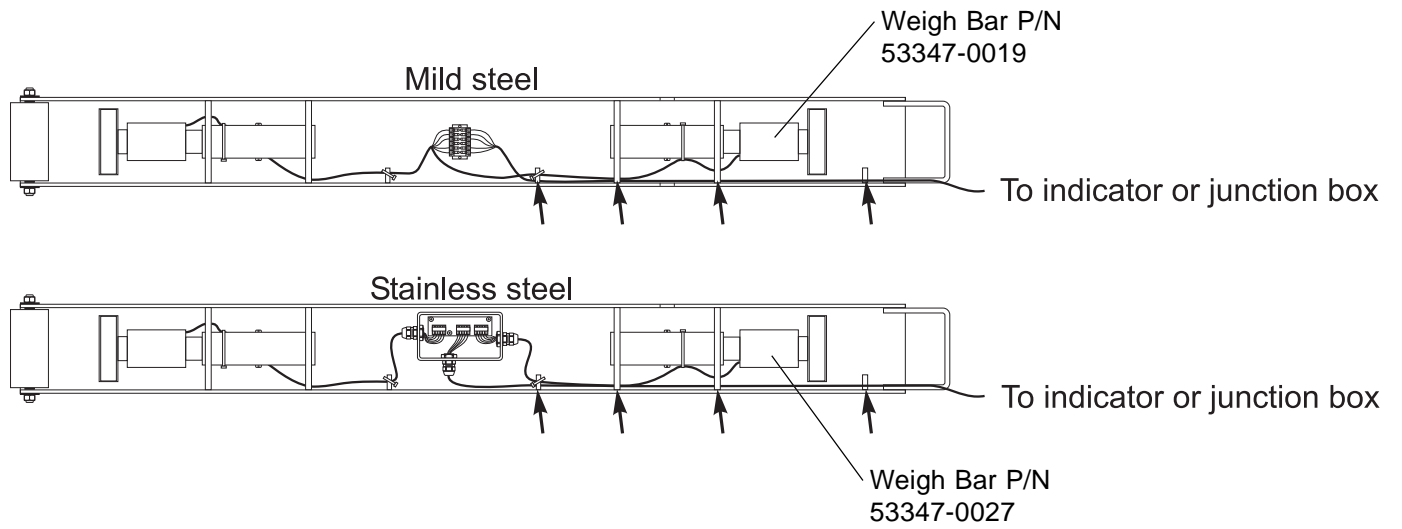
Front view of six-pin, male connector

The electrical connections of the QLTSC Weigh Bar with a six-pin, male connector, shown above, can be verified by measuring the resistances listed below:

<u>Pins</u>	<u>Wires</u>	<u>Reading</u>	<u>Tolerance in Ohms</u>
B to D	Green to Black	_____	1021 to 1062 (1032)
B to C	Green to White	_____	764-796 (780)
B to A	Green to Red	_____	764-796 (780)
B to E	Green to Blue	_____	1335 to 1391 (1363)
E to C	Blue to White	_____	1038 to 1082 (1060)
E to A	Blue to Red	_____	1038 to 1082 (1060)
E to D	Blue to Black	_____	356-372 (364)
C to A	White to Red	_____	935-973 (954)
D to A	Black to Red	_____	714 to 744 (729)
D to C	Black to White	_____	714 to 744 (729)

All pins or wires to the metal of the Weigh Bar are to measure >500 megaohms. Pin F (shield, bare wire, orange wire) to all other pins or wires are to measure >500 megaohms.

Beam Scale



Pallet Truck Scale

Weight sensor P/N 52604-0019



Pallet Scale



Weight sensor P/N 41035-0045
J-Box P/N 50063-0017

Monorail

**WBR MONORAIL WEIGH BARS 2.0m V/V
CLASS III n MAX 5000
NTEP Certificate #87-090**

CAPACITY	WEIGH BAR PART NUMBER	LENGTH x DIAMETER
1000 lb.	17142-0011	9 1/2" x 1 1/8"
2000 lb.	17142-0029	10 9/32" x 1 1/2"

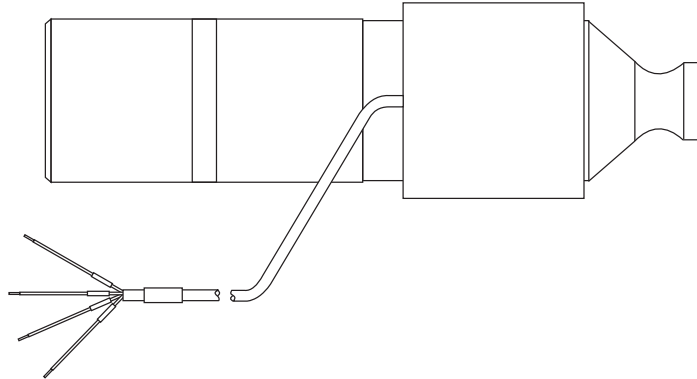
Note: 17142 is stepped to pass through rail.

70" Weighline Rails (left and right are interchangeable)

Style	Part Number	Output	Input
115#	47008-0011	700 ohms	800 ohms
132#	48265-0017	700 ohms	800 ohms
136#	50466-0010	700 ohms	800 ohms
4 WB J-Box Assy.	13949-0122		
J-Box board only	21253-0059		

Truck Scale

**SINGLE-ENDED
WBT PITLESS MOTOR TRUCK WEIGH BARS
FLAT TOP PITLESS MOTOR TRUCK WEIGH BARS
CLASS III L nMAX 10,000**



Mild Steel Truck Scale Bar

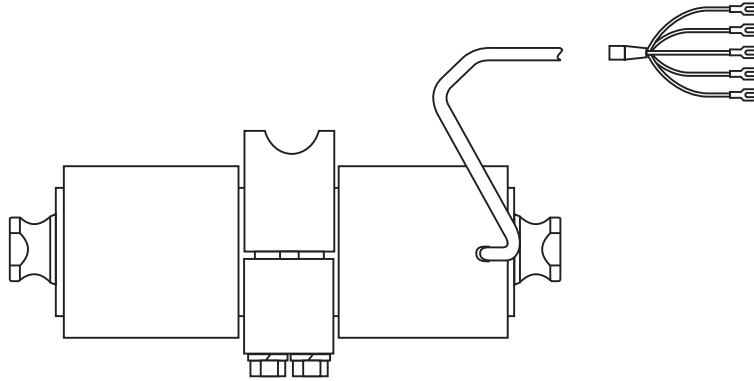
Part #	Length	Dia.	Cable	Conn	Capacity	MV/V	Used on
50104-0059	15.0"	3.75"	36' SST jacket	tin leads	50K	3	Bridgemont
50935-0054	15.0"	3.75"	36' SST jacket	tin leads	60K	3	XT Series
27173-0061	15.0"	3.5"	15' SST jacket	5 pin	50K	3	BridgePort
27173-0079	15.0"	3.5"	50' SST jacket	5 pin	50K	3	BridgePort
18824-0022	15.0"	3.5"	3.25'	5 pin	37.5K	3	PMTS/FMTS/IMTS
27173-0020	15.0"	3.5"	3.25'	5 pin	50K	3	FCTS
20799-0011	18.88"	5.0"	3.25'	5 pin	75K	3	HD MTS
18824-0014	15.0"	3.5"	25'	5 pin	37.5K	3	Batching/MTS

29486-0028 anchor bolts kits

Excitation Resistance Changes:

Old:		New:
352-372 ohms	Green to Black	383-403 ohms
350 ohms	White to Red	350 ohms
262-382 ohms	Blk-Red, Blk-Wht, Grn-Red, Grn-Wht.	278.5-298.5 ohms

**DOUBLE ENDED
WBM PIT TYPE MOTOR TRUCK WEIGH BARS
WITH 36" CABLE AND SPADE LUGS 3.0mV/V
CLASS III L nMAX 6000
NTEP Certificate #88-046**



Weigh Bar Capacity	Former Weigh Bar Capacity at 2mV/V	Part Number	Weigh Bar Length x Diameter
37500 lb	25000 lb	18561-0029	13 5/8" x 2 3/4"
50000 lb	33330 lb	18561-0011	13 1/8" x 3"
75000 lb	50000 lb	18561-0045	14 x 3 1/2"

-0029 is standard. -0011 is used on 70' x 12' and larger scales. These Weigh Bars are with clamps and top plate. Install top plate with replacement Weigh Bars.

FOOD AND CHEMICAL QUALITY DECK SCALES

F&C Decks Part Number	Description	Poly & Hinge Top Decks		Shear Beam Decks	
		2/5K	10K	2/5K	10K
53627-0010	2.5K Weight Sensor	4	-	4	-
53627-0044	5.0K Weight Sensor	-	4	-	4
50063-0066	Junction Box	1	1	1	1
41244-0018	Foot Assy.	4	-	-	-
41244-0026	Foot Assy.	-	4	-	-
53455-0017	Foot Assy.	-	-	4	-
53455-0033	Foot Assy.	-	-	-	4
52655-1064	Bolts, Hex Cap-20 1/2" x 2"	8	8	-	-
22408-1034	Bolts, 20 1/2" x 1.75"	-	-	8	-
22408-1042	Bolts, 20 1/2" x 2"	-	-	-	8
14474-0230	Washer, Lock 1/2"	8	8	8	8

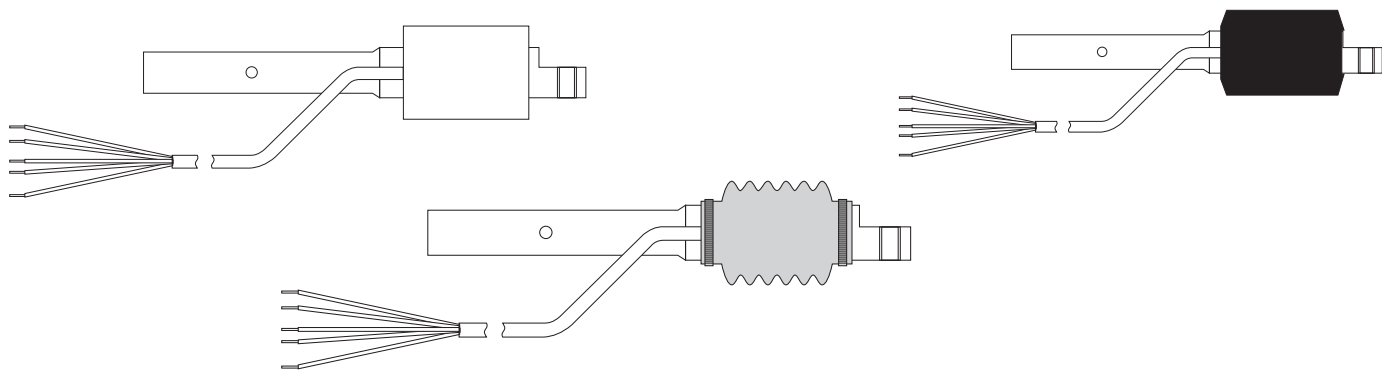
Floor Scales

BOLT-IN WEIGH BARS ON PRODECS

2K and 5K capacities		
Part Number	Cable Length	Capacity
41035-1043	7.17'	1.25K
41035-1050	9.5'	1.25K
41035-1035	6.0'	1.25K
41035-1076	25'	1.25K

10K capacity		
Part Number	Cable Length	Capacity
41036-1026	4.75'	2.25K
41036-1059	9.5'	2.25K
41036-1042	7.17'	2.25K
41036-1075	25'	2.25K

**WBL ProDec SERIES WEIGH BARS 2.0 mV/V
CLASS III MAX 5000
NTEP CERTIFICATE #90-132**



Deck Cap.	Cord Length	DSFS (SST) w/connector	DSL w/connector	Tin Leads (mild steel)	Tin Leads (SST)	WB Dim.	Foot Assy.
2K	7.17'	46774-0072	27795-0085	41035-0045	46776-0054	11½ x 1¼	45991-0022
5K	7.17'	46774-0072	27795-0085	41035-0045	46776-0054	11½ x 1¼	45991-0022
5K	9.5'	46774-0098	27795-0101	41035-0052	46776-0013	11½ x 1¼	45991-0022
10K	9.5'	46777-0103	27977-0101	41036-0051	46779-0077	11¾ x 1⅝	45991-0063
10K	25'	46777-0111	N/A	41036-0077	46779-0028	11¾ x 1⅝	45991-0063
20K	9.5'	46780-0058	28074-0051	41037-0050	46782-0064	11⅝ x 2	45991-0071
20K	25'	46780-0124	N/A	41037-0076	N/A	11⅝ x 2	45991-0071

Description	Mild steel	SST
J-box (w/connectors)	29360-0011	29360-0029
J-box (int. term.)	N/A	50063-0017

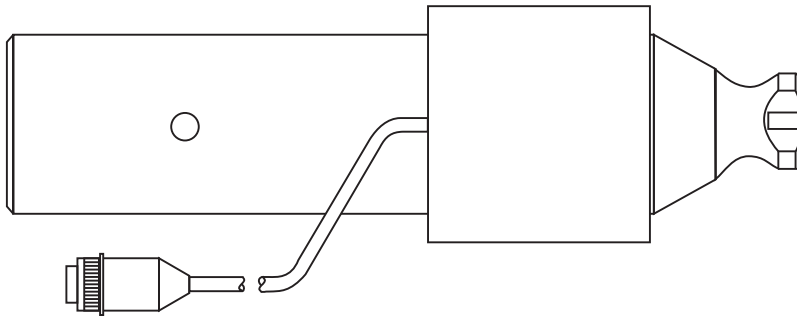
DRUM WEIGHER
Class III n-max 5000 Cert. #93-130 1.0 mV/V



Deck Capacity	WB Cap.	Part Number	Description	Cable Length	Foot Assy.
1000 lb	500 lb	46773-0024	Weigh Bar, Stainless	2'	45991-0048
1000 lb	500 lb	46773-0073	Weigh Bar, Stainless	6'	45991-0048
1000 lb	500 lb	45364-0021	Weigh Bar, Carbon	2'	45991-0048
1000 lb	500 lb	45364-0070	Weigh Bar, Carbon	6'	45991-0048

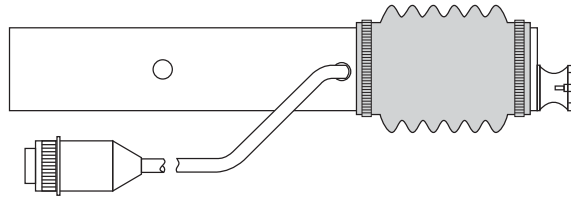
J-Box PC board PN 29920-0014

MAXDEC NOT CERTIFIED



Part #	Length	Dia.	Cable	Conn	Capacity	MV/V	Used on
16456-0013	14 1/2"	3 1/4"	1.5'	conn	20K	2	Max deck
16456-0021	14 1/2"	3 1/4"	25'	conn	20K	2	Max deck

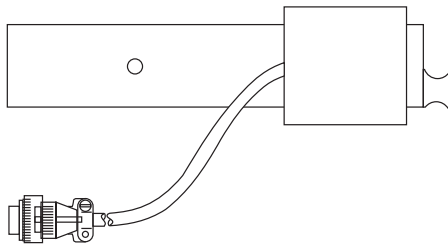
WBP LOW PROFILE SERIES 2.0 mV/V WEIGH BARS
CLASS III nMAX 5,000
NTEP Certificate #87-090



Deck Cap.	Deck Dim.	Cord Length	SST W/B w/connector	Standard W/B w/connector	WB Dim.	mV/V
2K	36 x 36	3.5'	46783-0055	14701-0037	9½ x 1 ³ / ₁₆	1.0
2K	48 x 48	7.17'	46783-0089	14201-0052	9½ x 1 ³ / ₁₆	1.0
5K	48 x 48	7.17'	46786-0078	14702-0044	11½ x 1¼	2.0
5K	72 x 48	9.5'	46789-0109	14703-0050	11½ x 1 ⁵ / ₈	2.0
10K	72 x 48	9.5'	46789-0109	14703-0050	11½ x 1 ⁵ / ₈	2.0
10K	60 x 60	9.5'	46792-0054	13498-0051	10 ⁷ / ₈ x 2	2.0
20K	72 x 60	9.5'	46792-0054	13498-0051	10 ⁷ / ₈ x 2	2.0
20K	96 x 72	7.17'	46134-0085	13851-0086	12 ⁵ / ₈ x 2½	2.0
20K	108 x 144	25'	46134-0077	13851-0078	12 ⁵ / ₈ x 2½	2.0
40K	108 x 144	25'	46134-0051	13851-0078	12 ⁵ / ₈ x 2½	2.0

Note: Low Profile series uses Deck Scale series hardware.

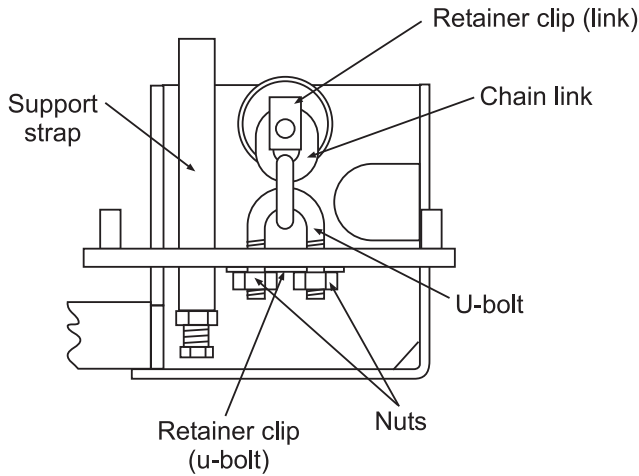
WBP DECK SCALE SERIES (Chain Link Style)
CLASS III nMAX 5,000
NTEP Certificate #87-090



For single cell 500 and 1,000 lb deck scales, see Diamond Series Bench Scale information earlier in this manual.

Bar Cap.	Deck Cap.	Cord Length	SST W/B w/connector	Standard W/B w/connector	Washdown	WB Dim.	mV/V
0.5K	DSO2	25'	46783-0139	14701-0094	27960-0019	9½ x 1 ³ / ₁₆	1
1.25K	DS05	25'	46786-0110	14702-0085	27962-0017	11½ x 1¼	2
2.5K	DS10	25'	46789-0125	14703-0092	27963-0016	11½ x 1 ⁵ / ₈	2
5K	DS20	25'	46792-0120	13498-0127	27961-0018	10 ⁷ / ₈ x 2	2
10K	DS40	25'	46134-0077	13851-0078	46135-0019	12 ⁵ / ₈ x 2½	2
20K	DS50	25'	N/A	16456-0021	N/A	14½ x 3¼	2

Mild Steel DS SERIES DECKS (Chain Link Style) WEIGH BARS 2.0 mV/V



*** Overload bolt comes with support strap. Right and left support straps determined by standing and looking at J-Box.**

**** Excessive deck length or width, may use next capacity hardware and Weigh Bars.**

Older multi-cell decks under 2000 lb capacity, see *Obsolete Products* later in this manual.

DS-02	
DS-02	14729-XXXX
W/B (500 lb)	14701-XXXX
Chain Link	14730-0024
Retainer clip, (link)	14731-0015
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (both)	14727-0011
U-bolt	14770-0025
Retainer clip (u-bolt)	15044-0014
Nuts (2)	14480-0026
Roll Pin	14450-0634

DS-20**	
DS-20	15065-XXXX
W/B (5,000 lb)	13498-XXXX
Chain Link	13518-0024
Retainer clip, (link)	13519-0015
Screw (W/B)	14489-0357
Washer	14474-0040
*Support Strap (left of J-box looking at deck)	13214-0054
*Support Strap (right side)	13214-0062
U-bolt	15066-0025
Retainer clip (u-bolt)	14247-0020
Nuts (2)	14480-0059
Roll Pin	14450-1244

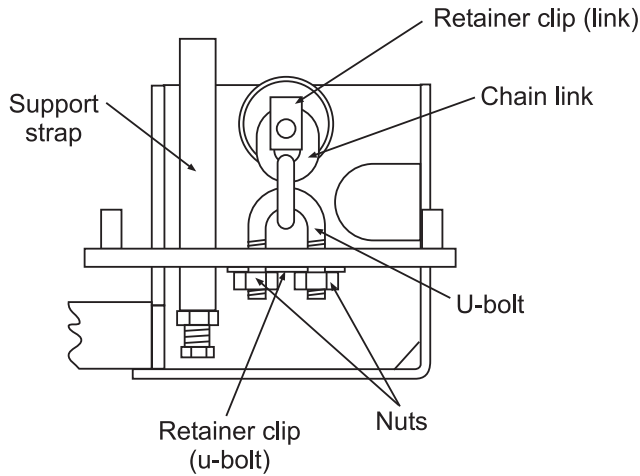
DS-05	
DS-05	14763-XXXX
W/B (1,250 lb)	14702-XXXX
Chain Link	14764-0023
Retainer clip, (link)	14769-0028
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (left of J-box looking at deck)	14762-0025
*Support Strap (right side)	14762-0017
U-bolt	13703-0029
Retainer clip (u-bolt)	15043-0023
Nuts (2)	14480-0042
Roll Pin	14450-1061

DS-30 & 40**	
DS-30 & 40	18490-XXXX
W/B (10,000 lb)	13851-XXXX
Chain Link	14201-0032
Retainer clip, (link)	14200-0017
Screw (W/B)	14494-0012
Washer	14474-0065
*Support Strap (both)	18488-0011
U-bolt	14199-0036
Retainer clip (u-bolt)	14828-0011
Nuts (2)	14480-0083
Roll Pin	14450-1269

DS-10**	
DS-10	14862-XXXX
W/B (2,500 lb)	14703-XXXX
Chain Link	14834-0029
Retainer clip, (link)	14769-0010
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (left of J-box looking at deck)	14867-0029
*Support Strap (right side)	14867-0011
U-bolt	13703-0029
Retainer clip (u-bolt)	15043-0015
Nuts (2)	14480-0042
Roll Pin	14450-1228

DS-50	
DS-50	16557-XXXX
W/B (20,000 lb)	16456-XXXX
Chain Link	16513-0022
Retainer clip, (link)	16511-0011
Screw (W/B)	14494-0137
Washer	14474-0073
U-bolt	18689-0018
Retainer clip (u-bolt)	16518-0019
Nuts (2)	14480-0117
Roll Pin	14450-1426
*Base support weldment (right side)	16514-0013
*Base support weldment (left of j-box)	16541-0021

Stainless Steel DS SERIES DECKS (Chain Link Style) WEIGH BARS 2.0 mV/V



*** Overload bolt comes with support strap. Right and left support straps determined by standing and looking at J-Box.**

**** Excessive deck length or width, may use next capacity hardware and Weigh Bars.**

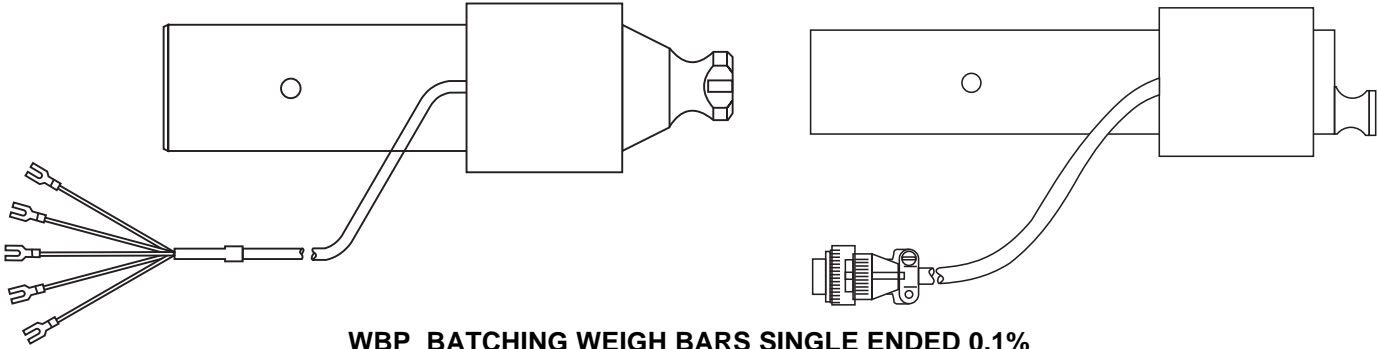
DS-02	
DS-02	14729-XXXX
W/B (500 lb)	46783-XXXX
Chain Link	14730-0024
Retainer clip, (link)	14731-0015
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (both)	14727-0037
U-bolt	14770-0025
Retainer clip (u-bolt)	15044-0014
Nuts (2)	14464-0083
Roll Pin	16179-1074

DS-10**	
DS-10	14862-XXXX
W/B (2,500 lb)	46789-XXXX
Chain Link	14834-0029
Retainer clip, (link)	14769-0010
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (left of J-box looking at deck)	14867-0045
*Support Strap (right side)	14867-0037
U-bolt	13703-0029
Retainer clip (u-bolt)	15043-0015
Nuts (2)	14464-0109
Roll Pin	16179-1546

DS-05	
DS-05	14763-XXXX
W/B (1,250 lb)	46786-XXXX
Chain Link	14764-0023
Retainer clip, (link)	14769-0028
Screw (W/B)	14489-0233
Washer	14474-0032
*Support Strap (left of J-box looking at deck)	14762-0041
*Support Strap (right side)	14762-0033
U-bolt	13703-0029
Retainer clip (u-bolt)	15043-0023
Nuts (2)	14464-0109
Roll Pin	16179-1322

DS-20**	
DS-20	15065-XXXX
W/B (5,000 lb)	46792-XXXX
Chain Link	13518-0024
Retainer clip, (link)	13519-0015
Screw (W/B)	14489-0357
Washer	14474-0040
*Support Strap (left of J-box looking at deck)	18197-0021
*Support Strap (right side)	18197-0013
U-bolt	15066-0025
Retainer clip (u-bolt)	14247-0020
Nuts (2)	14464-0133
Roll Pin	16179-1561

Batching Weigh Bars and Assemblies



WBP BATCHING WEIGH BARS SINGLE ENDED 0.1%

(Used in both BWB & HSWB systems)

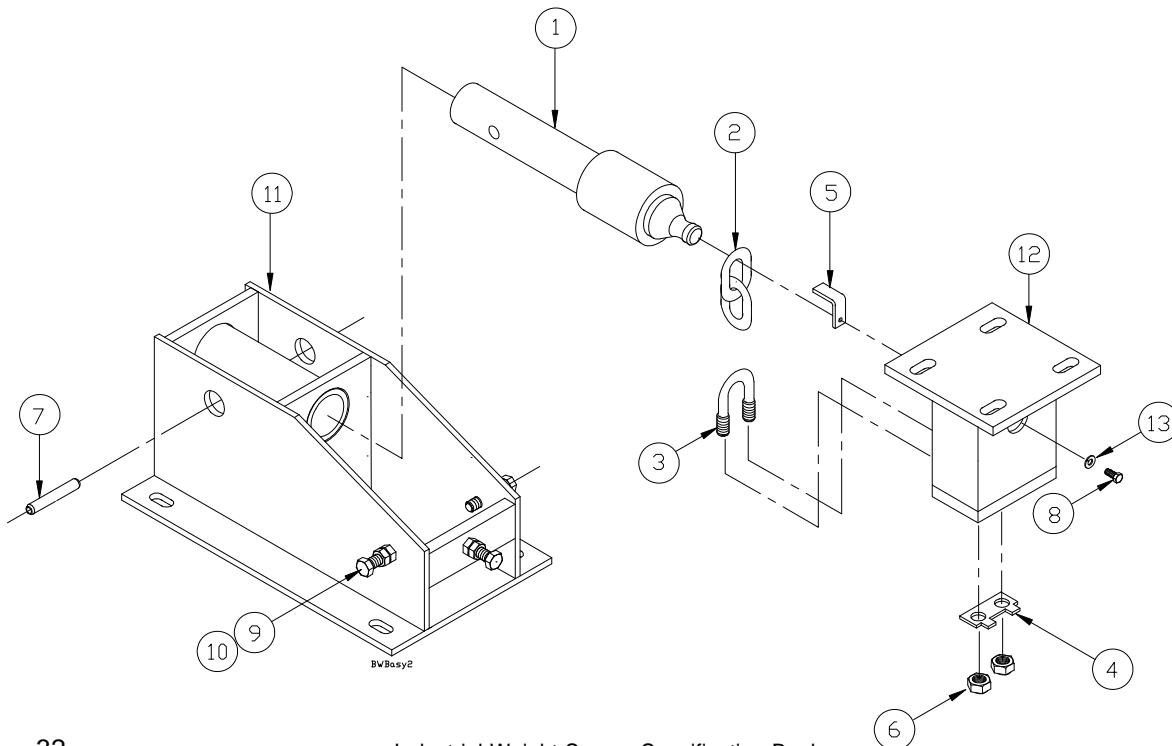
(1.0mV/V IF CAPACITY < 500 LB) (2.0mV/V IF CAPACITY > 1250 LB)

CLASS III n MAX 5000

NTEP Certificate #87-095 & 87-090

Weigh Bar Capacity	Cord Length	Part Number			Weigh Bar Length	Weigh Bar Diameter
		5 pin Conn.	Terminals	*Washdown		
125 lb	25'	16441-0037	19176-0016	N/A	9 1/4"	1/2"
250 lb	25'	14700-0061	19177-0015	N/A	9 1/4"	5/8"
500 lb	25'	14701-0094	19178-0014	27960-0019	9 1/2"	13/16"
1250 lb	25'	14702-0085	19179-0013	27962-0017	11 1/2"	1 1/4"
2500 lb	25'	14703-0092	19180-0010	27963-0016	11 1/2"	1 5/8"
5000 lb	25'	13498-0127	17257-0129	27961-0018	10 7/8"	2"
10,000 lb	25'	13851-0078	17255-0071	46135-0019	12 5/8"	2 1/2"
20,000 lb	25'	16456-0021	17256-0021	N/A	14 1/2"	3 1/4"
25,000 lb	25'	18824-0014	17604-0020	N/A	15"	3 1/2"
50,000 lb	25'	20799-0029	24203-0021	N/A	18 7/8"	5"

*Washdown versions include extra epoxy sealant and protective thermofit covering.



**BWB and HSWB Single-ended Batching W/B (Mild Steel)
125 to 2,500 lb**

Item	Part	125 lb	250 lb	500 lb	1,250 lb	2,500 lb
1	Weigh Bar	19176-0016	19177-0015	19178-0014	19179-0013	19180-0010
2	Chain Link	14730-0024	14730-0024	14730-0024	14764-0023	14834-0029
3	U-Bolt	14770-0025	14770-0025	14770-0025	13703-0029	13703-0029
4	U-bolt Retainer	15044-0022	15044-0022	15044-0022	15043-0023	15043-0023
5	Chain link Clip Retainer	14731-0023	14731-0023	14731-0023	14769-0028	14769-0028
6	U-bolt Nuts (Qty. 2)	14480-0026	14480-0026	14480-0026	14480-0042	14480-0042
7	Roll Pin	14450-0634	14450-0634	14450-0332	14450-1061	14450-1228
8	Retaining Clip Screw (Qty. 4)	14489-0233	14489-0233	14489-0233	14489-0233	14489-0233
9	Overload Stop Nuts (Qty. 4)	14471-0076	14471-0076	14471-0076	14471-0084	14471-0092
10	Overload Stop Bolts (Qty. 4)	14494-0178	14494-0178	14494-0178	14494-0319 (1) 14494-0301 (3)	14495-0474
11	Base Weldment	16435-0076	16435-0019	16435-0027	16435-0035	16435-0043
12	Top Bracket Weldment	16431-0021	16431-0021	16431-0021	16431-0039	16431-0047
13	Lock Washer	14474-0032	14474-0032	14474-0032	14474-0032	14474-0032

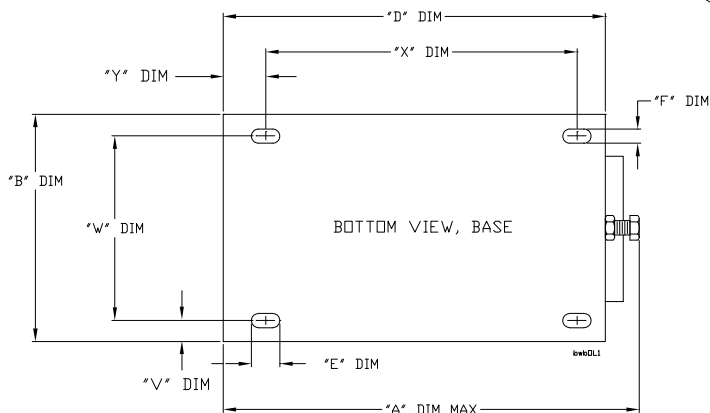
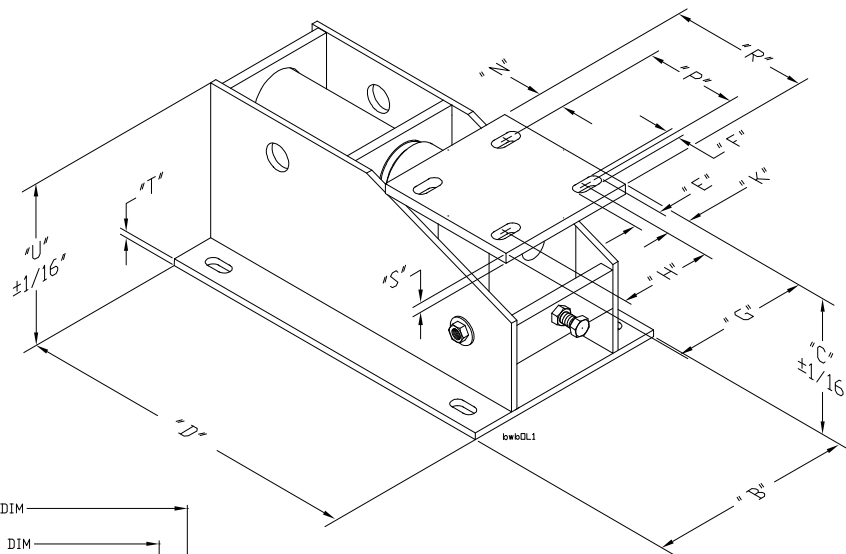
**BWB and HSWB Single-ended Batching W/B (Mild Steel)
5,000 to 50,000 lb**

Item	Part	5,000 lb	10,000 lb	20,000 lb	25,000 lb	50,000 lb
1	Weigh Bar	17257-0129	17255-0071	17256-0021	17604-0020	24203-0021
2	Chain Link	13518-0024	14201-0032	16513-0022	16513-0022	20780-0012
3	U-Bolt	15066-0025	14199-0036	18689-0034	18689-0034	20781-0011
4	U-bolt Retainer	14247-0020	14248-0029	16518-0027	16518-0027	20836-0016
5	Chain link Clip Retainer	13519-0023	14200-0025	16511-0024	16511-0024	16511-0024
6	U-bolt Nuts (Qty. 2)	14480-0059	14480-0083	14480-0177	14480-0117	14480-0133
7	Roll Pin	14450-1244	14450-1269	14450-1426	14450-1426	14450-1392
8	Retaining Clip Screw (Qty. 4)	14489-0357	14494-0012	14494-0137	14494-0137	14494-0152
9	Overload Stop Nuts (Qty. 4)	14471-0100	14471-0126	14471-0134	14471-0134	14471-0159
10	Overload Stop Bolts (Qty. 4)	14494-0640	14494-0830	14494-1028	14494-1028	14494-1366
11	Base Weldment	16435-0050	16435-0068	16435-0084	16435-0092	16435-0100
12	Top Bracket Weldment	16431-0054	16431-0062	16431-0070	16431-0070	16431-0088
13	Lock Washer	14474-0040	14474-0065	14474-0073	14474-0073	14474-0073

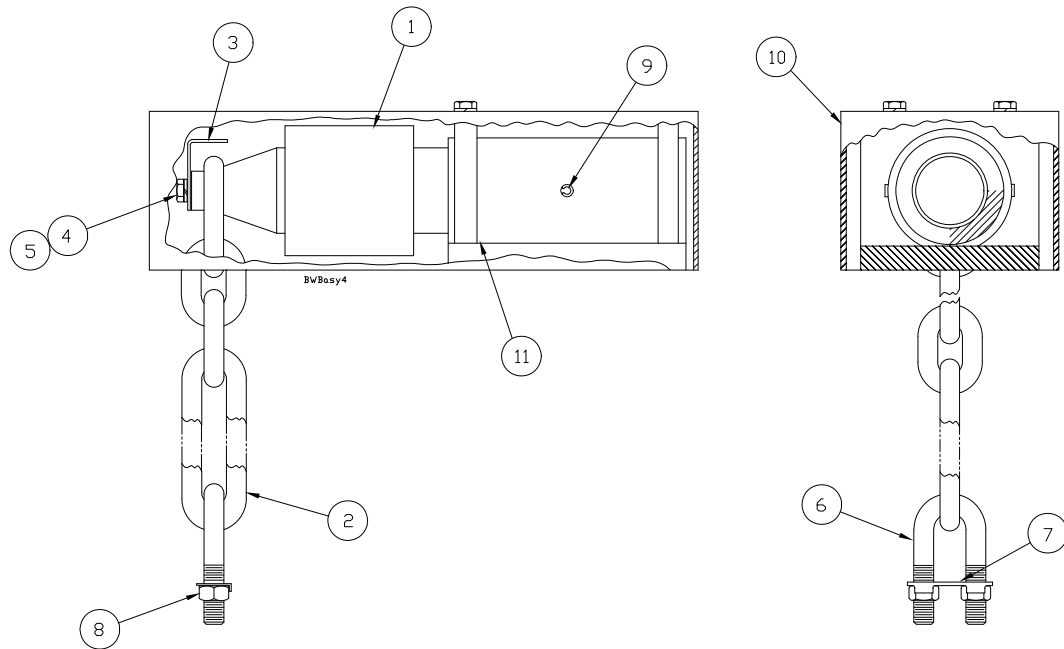
BWB 0.1% SERIES-BATCHING WEIGH BAR *DIMENSIONAL OUTLINE DRAWING*

BWB WEIGH BAR DIMENSION CHART												
PART NO.	CAP-LBS.	OUTPUT	A	B	C	D	E	F	G	H	K	N
19175-0017	125	1 Mv/V	12.00	6.00	5.00	11.00	.75	.34	4.00	3.00	.50	.50
19175-0025	250	1 Mv/V	12.00	6.00	5.00	11.00	.75	.34	4.00	3.00	.50	.50
19175-0033	500	1 Mv/V	12.00	6.00	5.00	11.00	.75	.34	4.00	3.00	.50	.50
19175-0041	1,250	2 Mv/V	14.50	7.00	6.75	13.50	.88	.41	5.00	3.50	.75	.75
19175-0058	2,500	2 Mv/V	14.88	8.00	7.19	13.50	1.00	.50	5.50	4.00	.75	.75
19175-0066	5000	2 Mv/V	14.75	9.00	8.50	13.50	1.00	.56	6.00	4.00	1.00	1.00
19175-0074	10,000	2 Mv/V	17.75	10.50	11.25	16.00	1.25	.69	8.00	6.00	1.00	1.00
19175-0082	20,000	2 Mv/V	20.38	14.50	15.00	18.50	1.38	.81	10.00	7.50	1.25	1.25
19175-0090	25,000	2 Mv/V	20.50	14.50	15.00	18.50	1.38	.81	10.00	7.50	1.25	1.25
19175-0108	50,000	2 Mv/V	25.50	19.00	20.00	24.00	1.75	1.06	12.00	8.50	1.75	1.75

(BWB CONTINUED)												
PART NO.	CAP-LBS.	OUTPUT	P	R	S	T	U	V	W	X	Y	
19175-0017	125	1 Mv/V	3.00	4.00	.25	.19	4.44	.38	5.25	9.00	1.00	
19175-0025	250	1 Mv/V	3.00	4.00	.25	.19	4.44	.38	5.25	9.00	1.00	
19175-0033	500	1 Mv/V	3.00	4.00	.25	.19	4.44	.38	5.25	9.00	1.00	
19175-0041	1,250	2 Mv/V	3.50	5.00	.38	.25	5.94	.50	6.00	11.00	1.25	
19175-0058	2,500	2 Mv/V	4.00	5.50	.38	.25	6.25	.62	6.75	11.00	1.25	
19175-0066	5000	2 Mv/V	4.00	6.00	.50	.38	7.50	.62	7.75	11.00	1.25	
19175-0074	10,000	2 Mv/V	6.00	8.00	.50	.50	10.25	.75	9.00	13.50	1.25	
19175-0082	20,000	2 Mv/V	7.50	10.00	.62	.50	14.00	1.25	12.00	16.00	1.25	
19175-0090	25,000	2 Mv/V	7.50	10.00	.62	.50	14.00	1.25	12.00	16.00	1.25	
19175-0108	50,000	2 Mv/V	8.50	12.00	.75	.75	18.75	1.50	16.00	20.00	2.00	



Hopper Suspension Weigh Bar (HSWB)



Item	Description	5,000 LB (4 Link)	5,000 LB (10 Link)	10,000 LB	20,000 LB
1	Weigh Bar	17257-0129	17257-0129	17255-0071	17256-0021
2	Chain Link Assy.	17250-0035	17250-0043	15166-0024	17251-0026
3	Chain Link Clip Retainer	13519-0023	13519-0023	14200-0025	16511-0024
4	Retaining Clip Screw	14473-0348	14473-0348	14527-0013	14494-0137
5	Lock Washer	14474-0040	14474-0040	14474-0065	14474-0073
6	U-bolt	13898-0024	13898-0024	14199-0036	17715-0190
7	U-bolt Retainer	14247-0020	14247-0020	14248-0029	16518-0027

8 Lock Nut 14480-0059 14480-0059 14480-0083 14480-0117

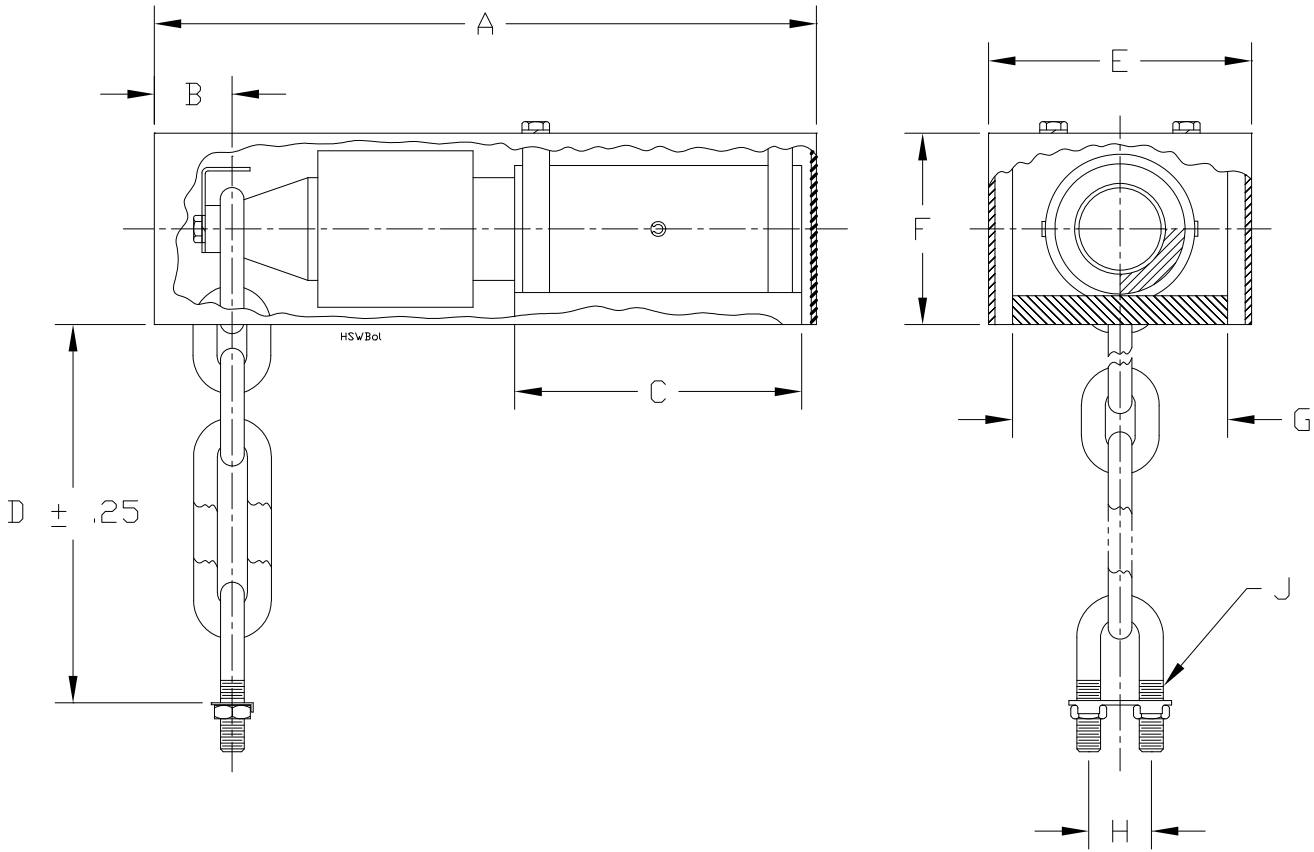
9 Roll Pin 14450-1244 14450-1244 14450-1260 14450-1426

10 Weigh Bar Cover 17099-0022 17099-0022 17099-0014 17099-0030
Industrial Weight Sensor Specification Book 35

11 WB Mounting Ass'y 17253-0016 17253-0016 17191-0011 17254-0015

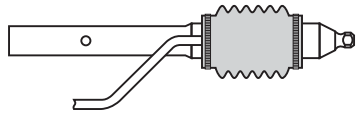
HSWB 0.1% SERIES-HOPPER SCALE WEIGH BAR *DIMENSIONAL OUTLINE DRAWING*

HSWB DATA CHART										
DESCRIPTION	P/N	A	B	C	D	E	F	G	H	J
5,000 LBS W/B-4 LINK	D17243-0019	12.00	1.62	6.00	5.62	5.50	4.00	4.50	1.31	.562-12UNC
5,000 LBS W/B-10 LINK	D17243-0027	12.00	1.62	6.00	14.20	5.50	4.00	4.50	1.31	.562-12UNC
10,000 LBS W/B-10 LINK	D17196-0024	14.50	2.12	6.75	20.50	6.00	4.50	5.00	2.31	.875-9UNC
20,000 LBS W/B-4 LINK	D17244-0018	16.50	2.50	7.00	16.00	8.00	6.00	6.00	3.38	1.250-7UNC

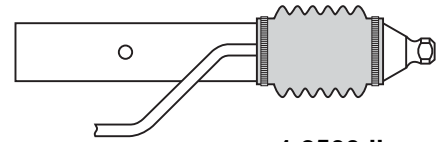


For dimentional HSWB information, see drawing #19071.

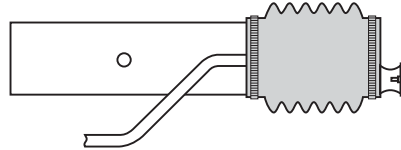
Stainless Steel BWPS



500 lb capacity



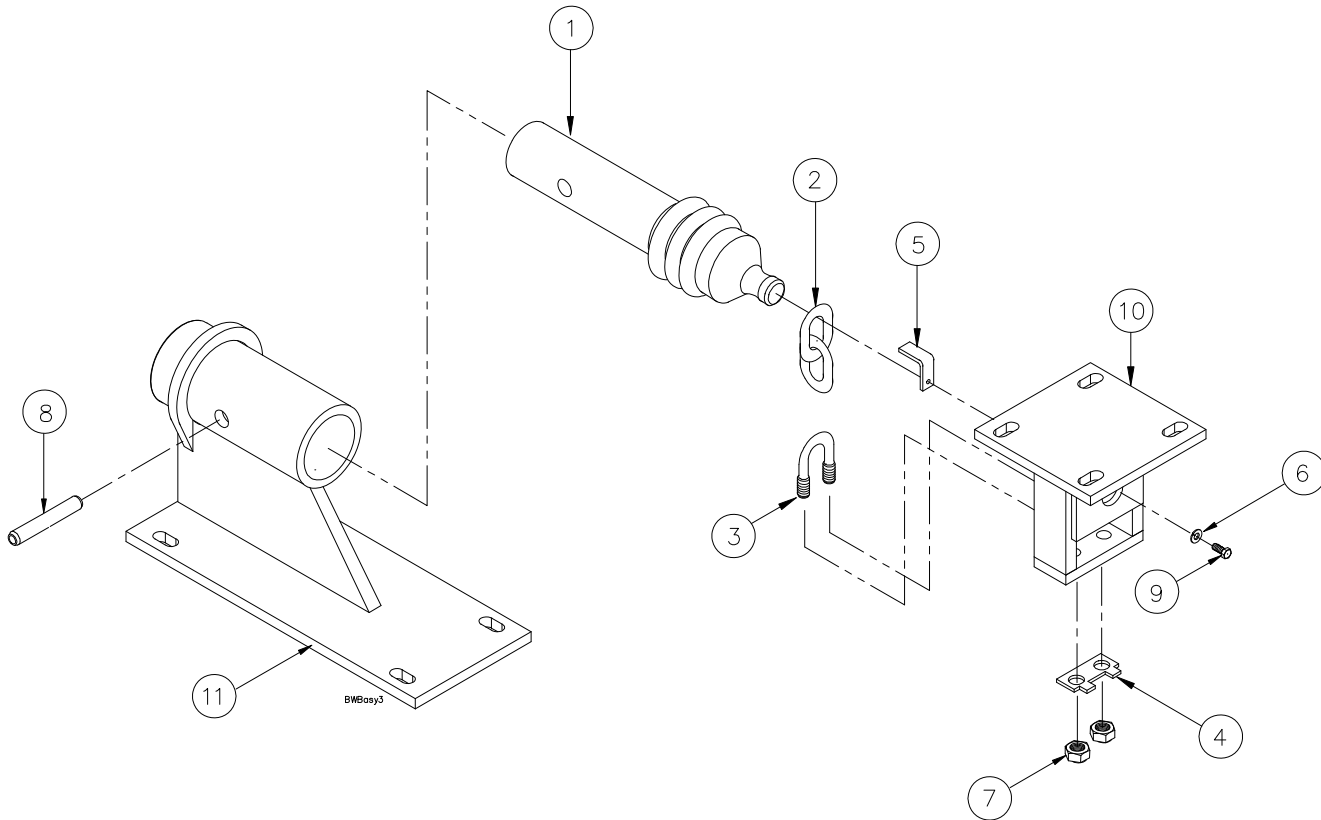
1,250 lb capacity



5,000 lb capacity

W/B Cap.	Term.	Tin Leads	Conn	MV/V	Length	Dia.
500	46784-0013	46785-xxxx	46783-xxxx	1	9 1/2"	13/16"
1,250	46787-0010	46788-xxxx	46786-xxxx	2	11 1/2"	1 1/4"
2,500	46790-0015	46791-xxxx	46789-xxxx	2	11 1/2"	1 5/8"
5,000	46793-0012	46794-xxxx	46792-xxxx	2	10 7/8"	2"
10,000	48103-0070	48104-xxxx	48103-xxxx	2	12 5/8"	2 1/2"
20,000	48120-0020	48121-xxxx	48126-xxxx	2	14 1/2"	3 1/4"

Single-ended Batching Weigh Bars (BWPS Stainless Steel)



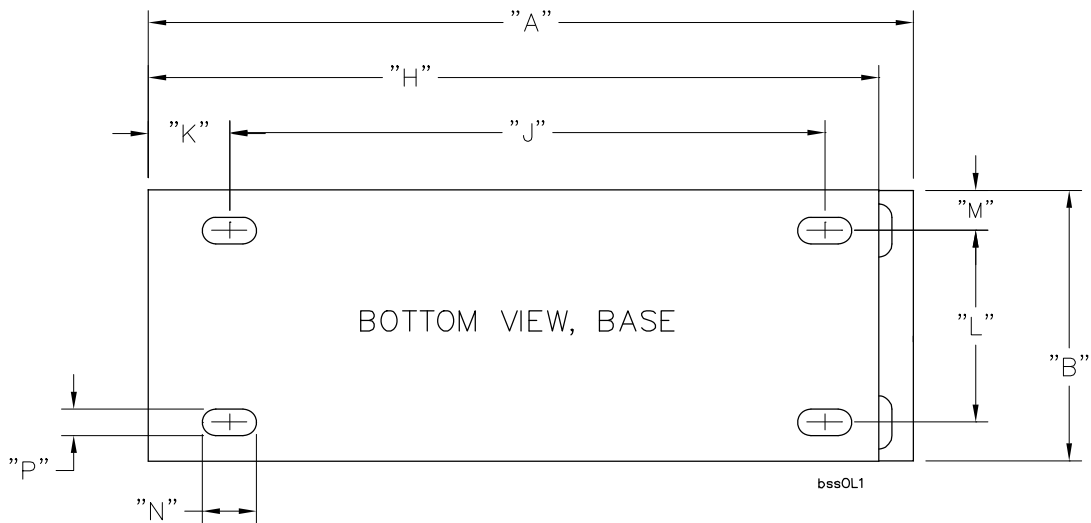
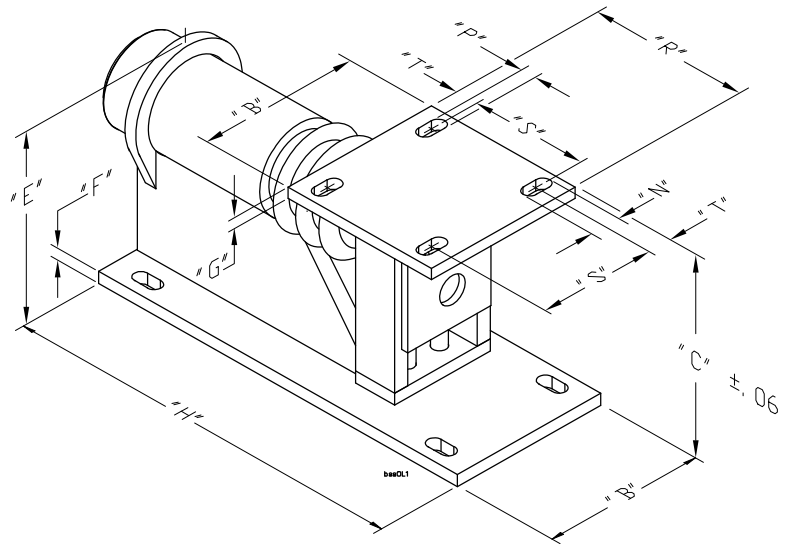
BWPS Single-ended Batching W/B (Stainless Steel)

Item	Description	500 lb	1,250 lb	2,500 lb	5,000 lb	10,000 lb	20,000 lb
1	Weigh-Bar	46784-0013	46787-0010	46790-0015	46793-0012	48103-0070	48120-0020
2	Chain Link	14730-0024	14764-0023	14834-0029	13518-0024	14201-0032	16513-0022
3	U-bolt	14770-0025	13703-0029	13703-0029	15066-0025	14199-0036	18689-0034
4	U-bolt Retainer	15044-0022	15043-0023	15043-0023	14247-0020	14248-0029	16518-0027
5	Chain Link Clip	14731-0023	14769-0028	14769-0028	13519-0023	14200-0025	16511-0024
6	Lock Washer	14474-0032	14474-0032	14474-0032	14474-0040	14474-0198	14474-0206
7	Nylon Lock Nut	14464-0083	14464-0109	14464-0109	14464-0133	14480-0083	14480-0117
8	Roll Pin	16179-1074	16179-1322	16179-1546	16179-1561	16179-1587	16179-1959 (2 required)
9	Retaining Clip Screw	14489-0233	14489-0233	14489-0233	14489-0357	14527-0013	14527-0146
10	Top Bracket Weldment	27954-0017	27954-0025	27954-0033	27954-0041	27954-0058	27954-0066
11	Base Weldment	27958-0039	27958-0047	27958-0054	27958-0062	46137-0017	48121-0011

BWPS 0.1% SERIES-STAINLESS STEEL WEIGH BAR *DIMENSIONAL OUTLINE DRAWING*

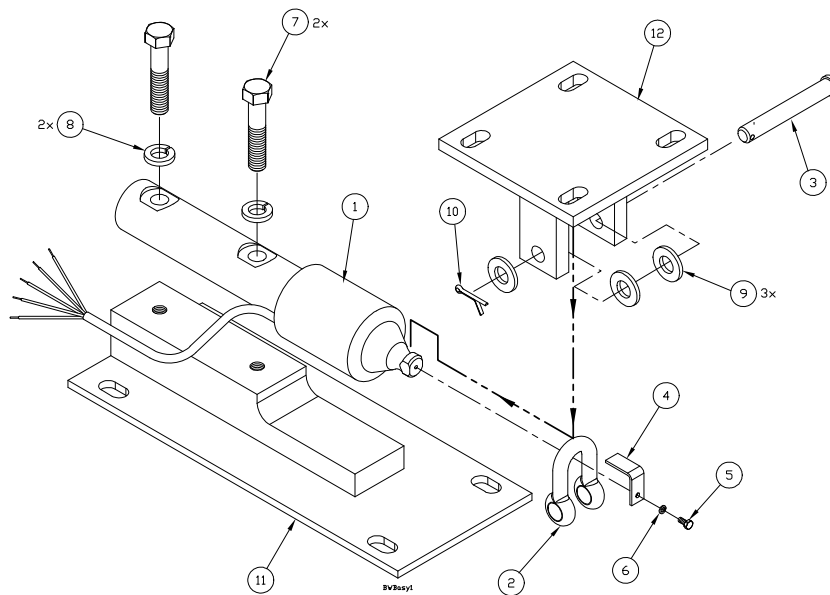
PART NO. WITH CONNECTORS	PART NO. W/ SPADE LUG TERMINALS	DATA CHART										
		W/B CAP.	OUTPUT	A	B	C	E	F	G	H	J	K
27959-0038	27964-0031	500 LB.	1 mV/V	11.50	4.00	5.38	N/A	.38	.25	11.00	9.00	1.00
27959-0046	27964-0049	1,250 LB.	2 mV/V	13.88	5.00	7.06	N/A	.50	.38	13.50	11.00	1.25
27959-0053	27964-0056	2,500 LB.	2 mV/V	14.12	5.50	7.44	6.75	.62	.38	13.50	11.00	1.25
27959-0061	27964-0064	5,000 LB.	2 mV/V	13.81	6.00	9.00	8.19	.75	.50	13.50	11.00	1.25
27959-0079	27964-0072	10,000 LB.	2 mV/V	16.88	8.00	12.50	11.50	1.00	.50	16.00	13.50	1.25
27959-0087	27964-0080	20,000 LB.	2 mV/V	19.62	10.00	16.00	15.38	1.00	.62	18.50	16.00	1.25

PART NO. WITH CONNECTORS	PART NO. W/ SPADE LUG TERMINALS	(CONTINUED)									
		W/B CAP.	OUTPUT	L	M	N	P	R	S	T	
27959-0038	27964-0031	500 LB.	1 mV/V	3.25	.38	.75	.38	4.00	3.00	.50	
27959-0046	27964-0049	1,250 LB.	2 mV/V	4.00	.50	.88	.44	5.00	3.50	.75	
27959-0053	27964-0056	2,500 LB.	2 mV/V	4.25	.62	1.00	.50	5.50	4.00	.75	
27959-0061	27964-0064	5,000 LB.	2 mV/V	4.75	.62	1.00	.56	6.00	4.00	1.00	
27959-0079	27964-0072	10,000 LB.	2 mV/V	6.00	1.00	1.25	.69	8.00	6.00	1.00	
27959-0087	27964-0080	20,000 LB.	2 mV/V	7.50	1.25	1.38	.81	10.00	7.50	1.25	



Low Profile Batching Weigh Bars (LPBWB)

W/B Capacity	Part Number	mV/V	Length	Mounting Diameter	Clevis End Diameter
125	50661-0062	1	9 1/4"	1"	1/2"
250	50662-0061	1	9 1/4"	1"	9/16"
500	50663-0060	1	9 1/4"	1"	1"
1,250	50664-0069	2	11 1/2"	1 1/4"	N/A
2,500	50665-0068	2	11 1/2"	1 5/8"	N/A
5,000	50666-0067	2	12"	2"	N/A
10,000	50667-0066	2	12 3/4"	2 1/2"	N/A



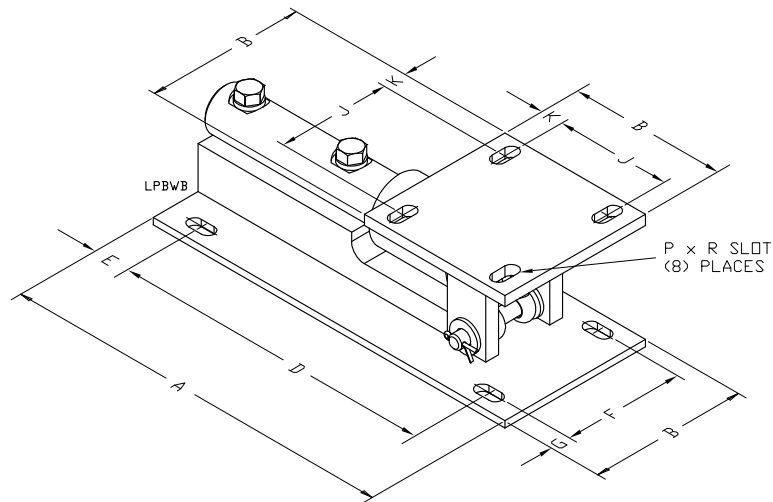
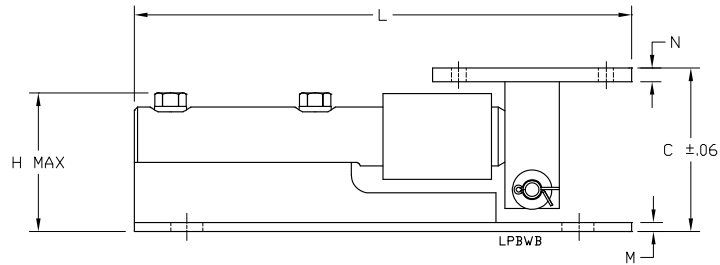
LPBWB Low Profile Batching W/B (all tinned leads)

Item	Part	125 LB	250 LB	500 LB	1,250 LB	2,500 LB	5,000 LB	10,000 LB
1	Weigh Bar	50661-0062	50662-0061	50663-0060	50664-0069	50665-0068	50666-0067	50667-0066
2	Clevis	48615-0014	48615-0014	48615-0014	48615-0022	48615-0048	48615-0063	48615-0089
3	Clevis Pin	14447-0481	14447-0481	14447-0481	14447-0754	14447-1067	14447-1356	14447-1539
4	Chain Link Clip Retainer	14731-0023	14731-0023	14731-0023	14769-0028	14769-0028	51995-0018	51996-0017
5	Retaining Clip Screw	14489-0233	14489-0233	14489-0233	14489-0233	14489-0233	14489-0357	14527-0013
6	Lock Washer	14474-0032	14474-0032	14474-0032	14474-0032	14474-0032	14474-0040	14474-0198
7	Bolt, (W/B)	14476-0253	14476-0253	14476-0253	14476-0410	14476-0576	14476-0923	14476-1228
8	Lock Washer	14474-0081	14474-0081	14474-0081	14474-0099	14474-0107	14474-0123	14474-0149
9	Flat Washer	14475-0072	14475-0072	14475-0072	14475-0080	14475-0106	14475-0122	14475-0148
10	Cotter Pin	15773-0227	15773-0227	15773-0227	15773-0227	15773-0227	15773-0334	15773-0441
11	Base Ass'y	50658-0018	50658-0018	50658-0018	50658-0026	50658-0034	50658-0042	50658-0059
12	Top Bracket	50657-0019	50657-0019	50657-0019	50657-0027	50657-0035	50657-0043	50657-0050

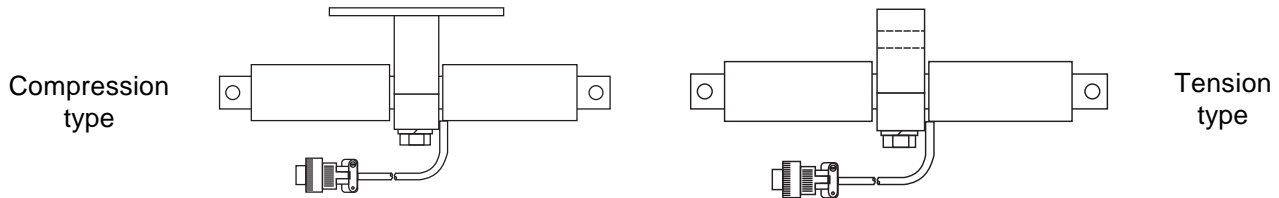
LPBWB SERIES WEIGH BAR DIMENSIONAL OUTLINE DRAWING

LPBWB DIMENSION CHART									
W/T PART NO.	CAPACITY (lbs.)	DIM "A" (inches)	DIM "B" (inches)	DIM "C" (inches)	DIM "D" (inches)	DIM "E" (inches)	DIM "F" (inches)	DIM "G" (inches)	DIM "H" (inches)
50756-0019	125	11.00	4.00	3.25	9.00	1.00	3.00	.50	2.60
50756-0027	250	11.00	4.00	3.25	9.00	1.00	3.00	.50	2.60
50756-0035	500	11.00	4.00	3.25	9.00	1.00	3.00	.50	2.60
50756-0043	1,250	13.50	5.00	3.72	11.00	1.25	4.00	.50	3.00
50756-0050	2,500	13.75	5.50	4.50	11.25	1.25	4.25	.62	3.90
50756-0068	5,000	14.50	6.00	5.92	12.00	1.25	4.50	.75	5.20
50756-0076	10,000	16.00	8.00	7.60	13.50	1.25	6.00	1.00	6.90

< CONTINUED >								
W/T PART NO.	CAPACITY (lbs.)	DIM "J" (inches)	DIM "K" (inches)	DIM "L" (inches)	DIM "M" (inches)	DIM "N" (inches)	DIM "P" (inches)	DIM "R" (inches)
50756-0019	125	3.00	.50	10.88	.50	.50	.34	.75
50756-0027	250	3.00	.50	10.88	.50	.50	.34	.75
50756-0035	500	3.00	.50	10.88	.50	.50	.34	.75
50756-0043	1,250	3.50	.75	13.50	.75	.75	.41	.88
50756-0050	2,500	4.00	.75	13.75	.75	.75	.50	1.00
50756-0068	5,000	4.00	1.00	14.50	1.00	1.00	.56	1.00
50756-0076	10,000	6.00	1.00	16.00	1.00	1.00	.69	1.25



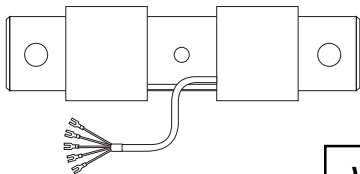
Double-ended Batching Weigh Bar (DEBWB)



DEBWB BATCHING WEIGH BARS 0.25% DOUBLE ENDED 1.0mV/V WITH 25' CABLE

Weigh Bar Capacity	Comp. WB P/N	Tension WB Part Number	Weigh Bar Length	Weigh Bar Diameter
250 lb *1	18285-0016	18285-0024	9 3/4"	1/2"
250 lb *2	18305-0012	18305-0020	9 3/4"	1/2"
500 lb *1	18285-0032	18285-0040	9 5/8"	5/8"
500 lb *2	18305-0038	18305-0046	9 5/8"	5/8"
1000 lb *1	18301-0016	18301-0024	10 7/8"	13/16"
1000 lb *2	18396-0012	18396-0020	10 7/8"	13/16"
1250 lb *1	18301-0032	18301-0040	10 7/8"	7/8"
1250 lb *2	18396-0038	18396-0046	10 7/8"	7/8"
2000 lb *1	18326-0017	18326-0025	13 1/2"	1 1/8"
2000 lb *2	18544-0013	18544-0021	13 1/2"	1 1/8"
2500 lb *1	18326-0033	18326-0041	13 1/2"	1 3/16"
2500 lb *2	18544-0039	18544-0047	13 1/2"	1 3/16"

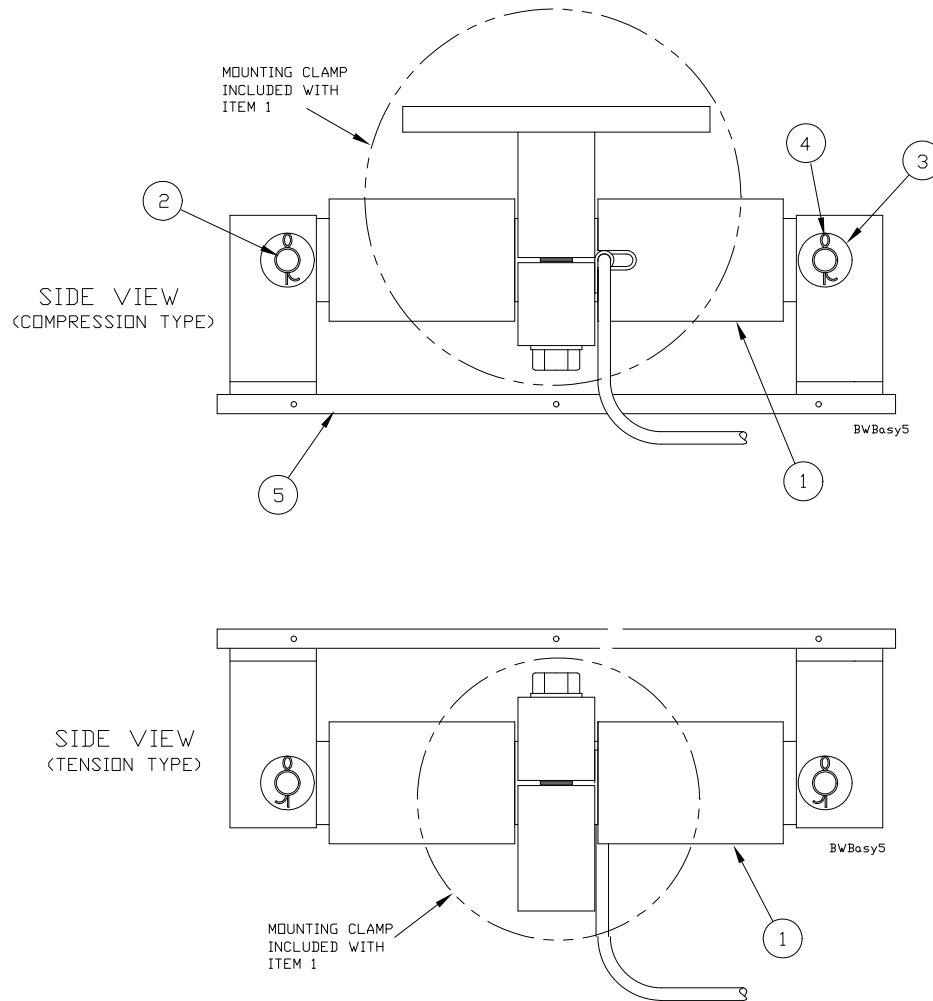
T=Tension C=Compression
 *1: Cable with 5-pin connector.
 *2: Cable with spade lugs.



BATCHING WEIGH BARS 0.25% DOUBLED ENDED 2.0mV/V WITH 25' CABLE

Weigh Bar Capacity	Comp. WB P/N	Tension WB P/N	Length	Diameter
5,000 lb *1	17174-0012	17174-0061	11 3/4"	1 5/8"
5,000 lb *2	17202-0018	17202-0067	11 3/4"	1 5/8"
10,000 lb *1	17174-0020	17174-0079	12 1/8"	2"
10,000 lb *2	17202-0026	17202-0075	12 1/8"	2"
12,500 lb *1	17174-0038	17174-0087	12 1/8"	2 1/8"
12,500 lb *2	17202-0034	17202-0083	12 1/8"	2 1/8"
20,000 lb *1	17174-0046	17174-0095	15 3/8"	2 1/2"
20,000 lb *2	17202-0042	17202-0091	15 3/8"	2 1/2"
25,000 lb *1	17174-0053	17174-0103	16 5/8"	2 3/4"
25,000 lb *2	17202-0059	17202-0109	16 5/8"	2 3/4"
50,000 lb *2	18602-0012	N/A	16 1/2"	3 1/2"
75,000 lb *2	18602-0020	N/A	18 7/8"	4 1/4"
100,000 lb *2	18602-0038	N/A	21 1/4"	5"
150,000 lb *2	18602-0046	N/A	24 1/2"	6"
200,000 lb *2	18602-0053	N/A	27 1/2"	7"
250,000 lb *2	18602-0061	N/A	30 1/4"	7 3/4"

DEBWB Parts 250 lb to 25,000 lb



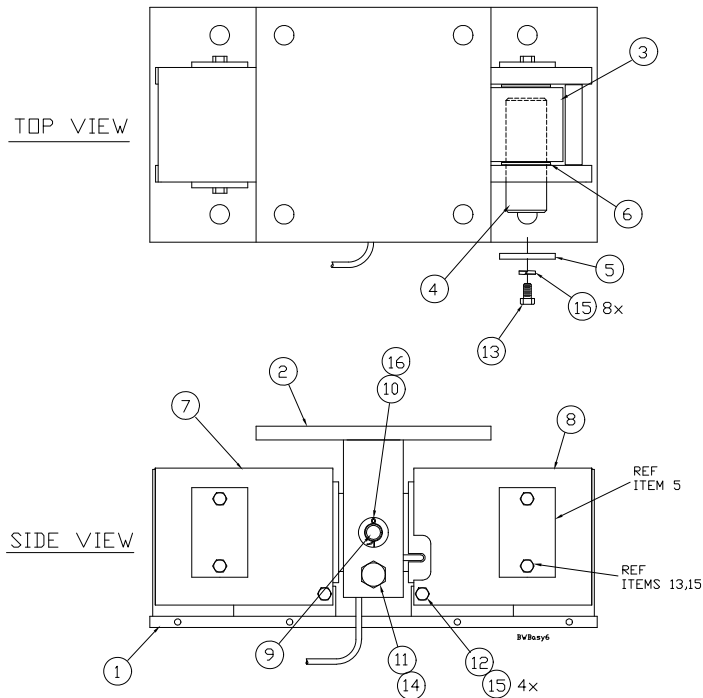
1.0 mV/V

Item	Description	250 LB	500 LB	1,000 LB	1,250 LB	2,000 LB	2,500 LB	
1	Weigh Bar & MTG Ass'y	C	18305-0012	18305-0038	18396-0012	18396-0038	18544-0013	18544-0039
		T	18305-0020	18305-0046	18396-0020	18396-0046	18544-0021	18544-0047
2	Clevis Pin (Qty. 2)	14447-0069	14447-0200	14447-0465	14447-0465	14447-0721	14447-0721	
3	Washer (Qty. 6)	14475-0056	14475-0064	14475-0072	14475-0072	14475-0080	14475-0080	
4	Cotter Pin (Qty. 2)	14448-0043	14448-0043	14448-0126	14448-0126	14448-0183	14448-0183	
5	Base Plate	18283-0018	18283-0026	18302-0015	18302-0015	18325-0018	18325-0018	

2.0 mV/V

Item	Description	5000 LB	10,000 LB	12,500 LB	20,000 LB	25,000 LB	
1	Weigh Bar & MTG Ass'y	C	17202-0018	17202-0026	17202-0034	17202-0042	17202-0059
		T	17202-0067	17202-0075	17202-0083	17202-0091	17202-0109
2	Clevis Pin (Qty. 2)	14447-1059	14447-1232	14447-1232	14447-2016	14447-1539	
3	Washer (Qty. 6)	14475-0106	14475-0114	14475-0114	14475-0130	14475-0148	
4	Cotter Pin (Qty. 2)	14448-0209	14448-0209	14448-0209	14448-0274	14448-0274	
5	Base Plate	13938-0026	13938-0034	13938-0042	13938-0059	13938-0067	

DEBWB Parts 50,000 lb to 250,000 lb



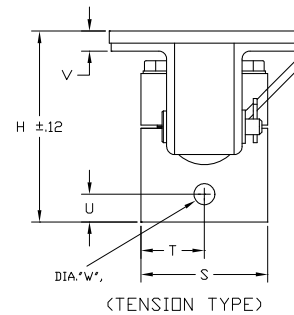
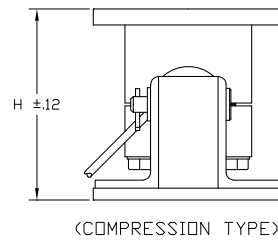
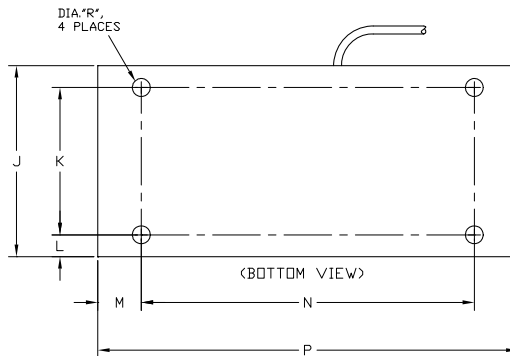
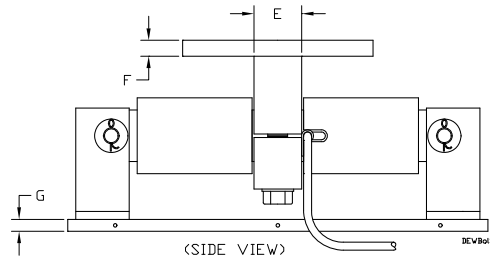
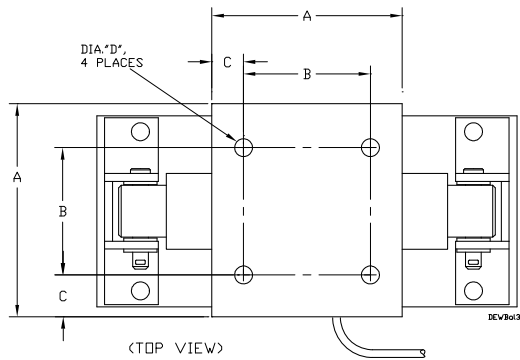
Item	Description	50,000 LB	75,000 lb	100,000 lb	150,000 lb	200,000 lb	250,000 lb
1	Base Plate Assy.	13585-0014	19436-0012	19436-0020	19436-0038	19436-0046	19436-0053
2	Bearing Block Assy.	13579-0012	18612-0010	18612-0028	18612-0036	18612-0044	18612-0051
3	Weigh Bar Assy.	18602-0012	18602-0020	18602-0038	18602-0046	18602-0053	18602-0061
4	Weigh Bar Pin (Qty. 2)	24245-0013	24245-0021	24245-0039	24245-0047	24245-0054	24245-0062
5	Cap Plate (Qty. 4)	13587-0012	13587-0020	13587-0038	13587-0046	13587-0046	13587-0053
6	Spacer (Qty. 4)	13590-0017	13590-0025	13590-0033	13590-0041	13590-0058	13590-0066
7	Cover w/o slot	13593-0022	13593-0048	13593-0063	13593-0069	13593-0105	13593-0113 (Qty.2)
8	Cover w/slot	13593-0014	13593-0030	13593-0055	13593-0071	13593-0097	N/A
9	Clevis Pin	14447-1257	18615-0017	18615-0025	18615-0033	18615-0041	18615-0058
10	Cotter Pin	14448-0209	14448-0217	14448-0225	14448-0225	14448-0233	14448-0290
11	Lock Nut	14480-0075	14480-0083	14480-0091	14480-0117	14480-0133	14480-0141
12	Cap Plate Assy. (Qty. 4)	14494-0269	14494-0269	14494-0269	14494-0269	14494-0269	14494-0269
13	Cap Plate Bolt (Qty. 8)	14494-0285	14494-0285	14494-0285	14494-0285	14494-0285	14494-0285
14	Bearing Block Bolt	14476-0980	14476-1152	16149-0537	16149-0727	16149-5023	16149-5031
15	Lock Washer (Qty. 12)	14474-0081	14474-0081	14474-0081	14474-0081	14474-0081	14474-0081
16	Flat Washer (Qty. 2)	14475-0114	14475-0122	14475-0130	14475-0148	14475-0163	14475-0189

DEBWB 0.25% SERIES-BATCHING WEIGH BAR DIMENSIONAL OUTLINE DRAWING

1.0 mV/V

DEBWB WEIGH BAR DIMENSION CHART (<250 lb THRU 5K lb)											
COMPRESSION	TENSION	CAP-LBS.	A	B	C	DIA. D	DIA. E	F	G	H	J
18306-0011	18306-0029	250	3.00	2.25	.38	.34	.75	.25	.18	3.00	2.50
18306-0037	18306-0045	500	3.00	2.25	.38	.34	.75	.25	.18	3.50	3.00
18395-0013	18395-0021	1,000	4.00	2.75	.62	.41	1.00	.25	.25	4.00	4.00
18395-0039	18395-0047	1,250	4.00	2.75	.62	.41	1.00	.25	.25	4.00	4.00
18545-0012	18545-0020	2,000	5.00	3.25	.87	.50	1.50	.38	.38	5.00	5.00
18545-0038	18545-0046	2,500	5.00	3.25	.87	.50	1.50	.38	.38	5.00	5.00
18548-0019	18548-0027	5,000	6.00	4.00	1.0	.56	1.50	.50	.38	6.00	6.00

CONTINUED											
		K	L	M	N	P	S	T	U	V	DIA. W
18306-0011	18306-0029	1.75	.38	.75	9.00	10.50	2.00	1.00	.44	.31	.33
18306-0037	18306-0045	2.00	.50	.75	9.00	10.50	2.50	1.25	.56	.38	.39
18395-0013	18395-0021	2.87	.56	1.00	10.00	12.00	3.00	1.50	.62	.50	.47
18395-0039	18395-0047	2.87	.56	1.00	10.00	12.00	3.00	1.50	.62	.50	.47
18545-0012	18545-0020	3.75	.62	1.25	12.50	15.00	3.50	1.75	.75	.62	.53
18545-0038	18545-0046	3.75	.62	1.25	12.50	15.00	3.50	1.75	.75	.62	.53
18548-0019	18548-0027	4.62	.68	1.38	14.50	17.00	4.00	2.00	.87	.75	.66

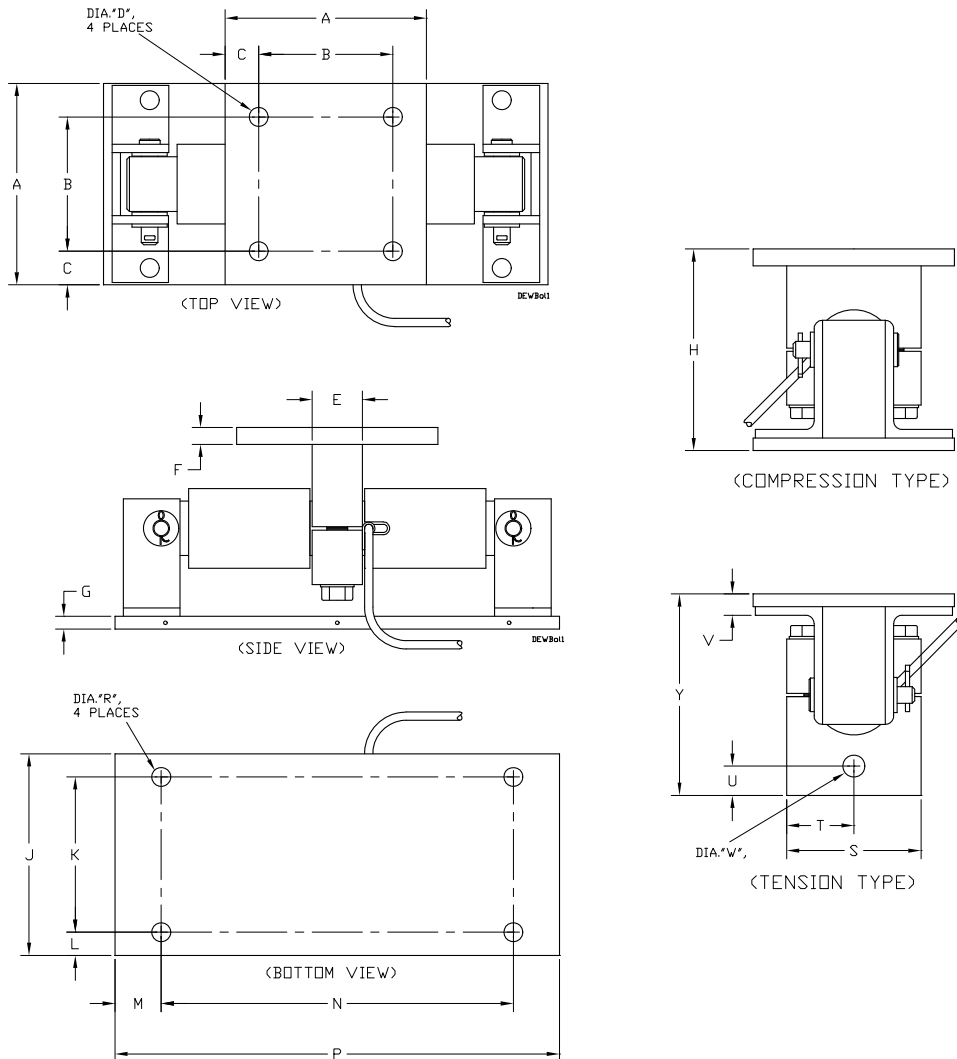


DEBWB 0.25% SERIES-BATCHING WEIGH BAR DIMENSIONAL OUTLINE DRAWING

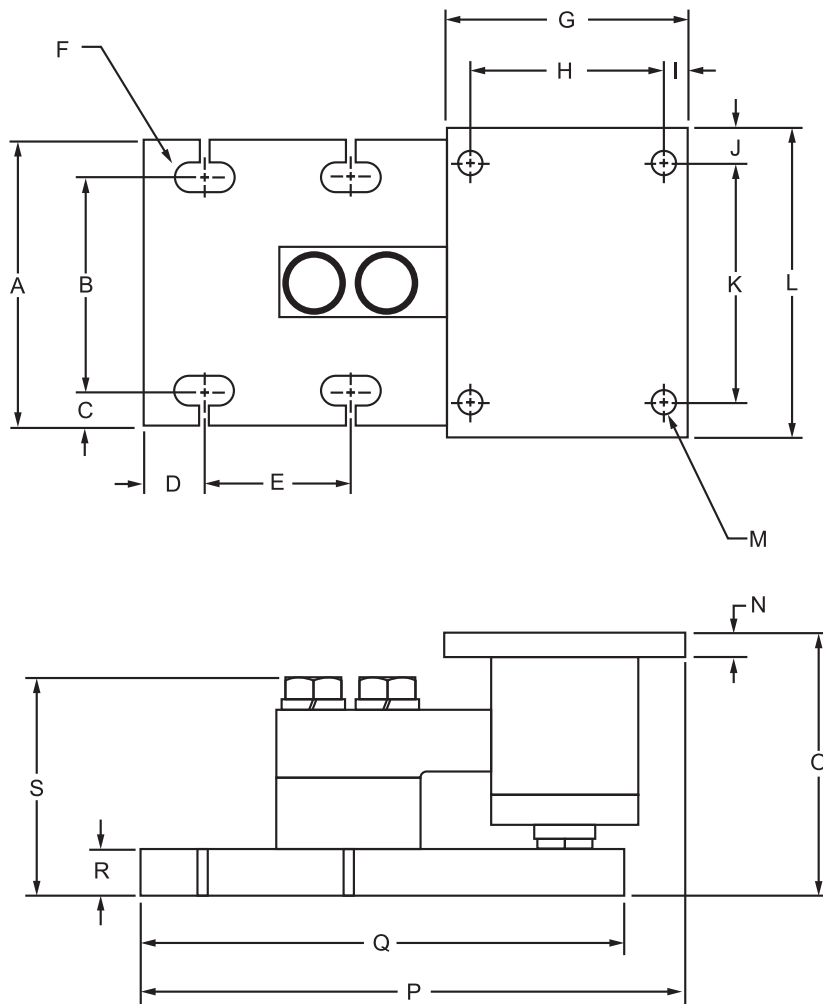
2.0 mV/V

DEBWB WEIGH BAR DIMENSION CHART (5K THRU 25K lb)															
CPRSN.	TENSION	CAP-LBS.	A	B	C	D	E	F	G	H	J	K	L	M	
17203-0033	17203-0041	5000	6.00	4.00	1.00	.56	1.50	.50	.38	6.00	6.0	4.63	.69	1.38	
17203-0058	17203-0066	10,000	7.00	5.00	1.00	.69	1.75	.50	.50	7.00	7.5	5.50	1.00	1.63	
17203-0074	17203-0082	12,500	7.00	5.00	1.00	.69	1.75	.50	.50	7.00	7.5	5.50	1.00	1.63	
17203-0090	17203-0108	20,000	8.00	6.00	1.00	.81	3.00	.62	.50	8.75	9.0	7.00	1.00	2.50	
17203-0116	17203-0124	25,000	8.50	6.50	1.00	.81	3.50	.62	.50	9.38	10.5	8.00	1.25	2.63	

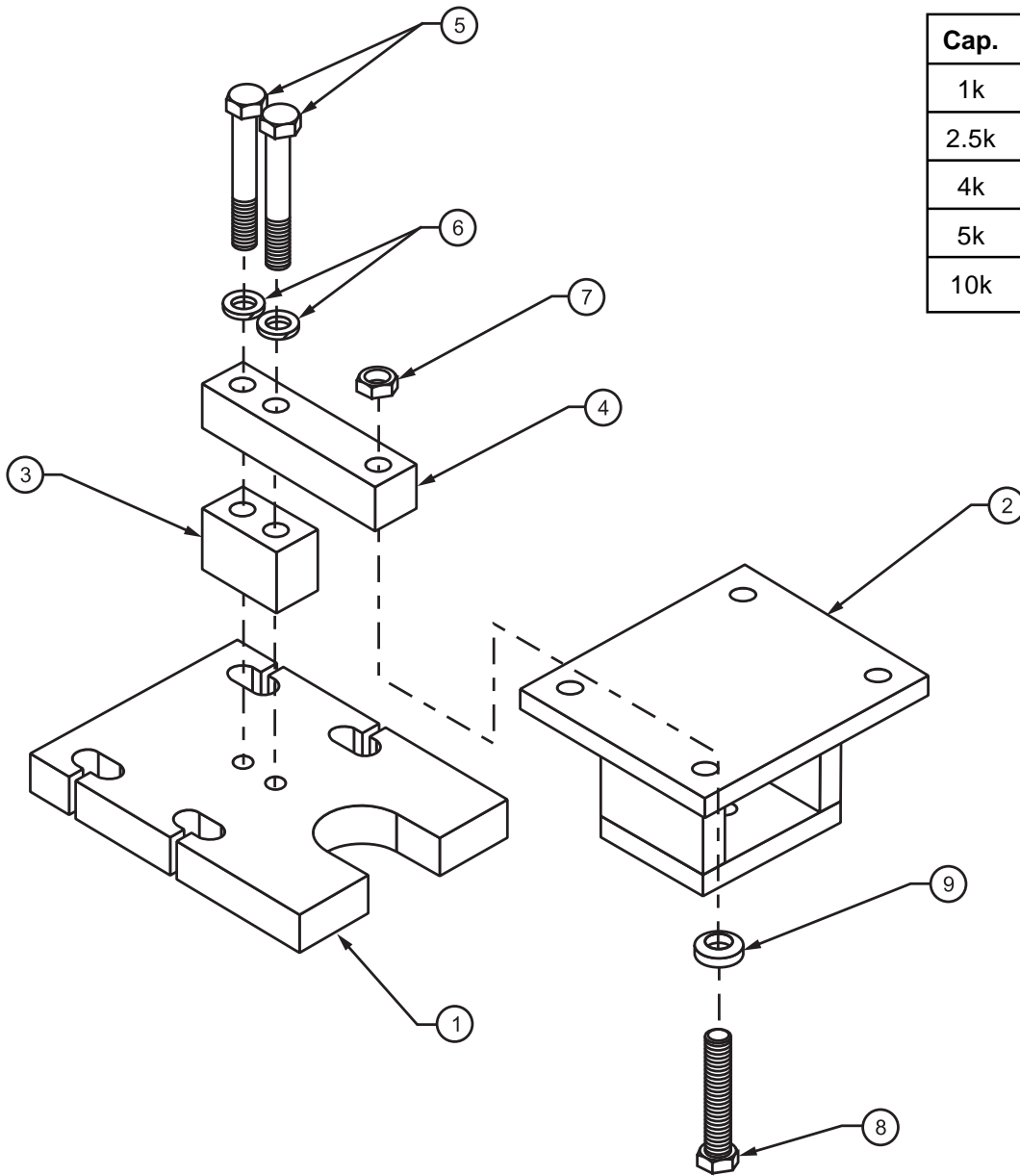
CONTINUED											
		N	P	R	S	T	U	V	W	Y	Z
17203-0033	17203-0041	10.50	13.25	.56	4.00	2.00	.88	.75	.66	6.00	.88
17203-0058	17203-0066	10.75	14.00	.69	5.00	2.50	1.13	1.00	1.06	7.63	1.31
17203-0074	17203-0082	10.75	14.00	.69	5.50	2.75	1.13	1.00	1.06	7.69	1.38
17203-0090	17203-0108	13.50	18.50	.81	5.50	2.75	1.50	1.13	1.44	8.75	1.69
17203-0116	17203-0124	14.63	19.88	1.06	6.00	3.00	1.63	1.25	1.56	9.38	1.88



SBS (Shear Beam-Stainless steel)



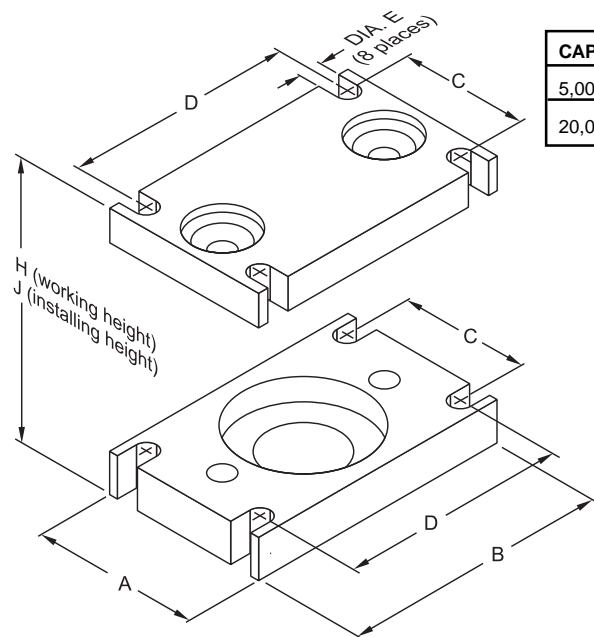
	Dimensions (inches)	
	1-5k	10k
A	6	6
B	4.5	4.5
C	0.75	0.75
D	1.25	1.25
E	3.0	3.0
F	1.25 x .62 slot	1.25 x .62 slot
G	5.0	5.0
H	4.0	4.0
I	0.5	0.5
J	0.75	0.75
K	5.0	5.0
L	6.5	6.5
M	0.53	0.53
N	0.5	0.5
O	5.25	5.5
P	10.25	11.25
Q	8.75	10.0
R	1.0	1.0
S	4.15	4.56



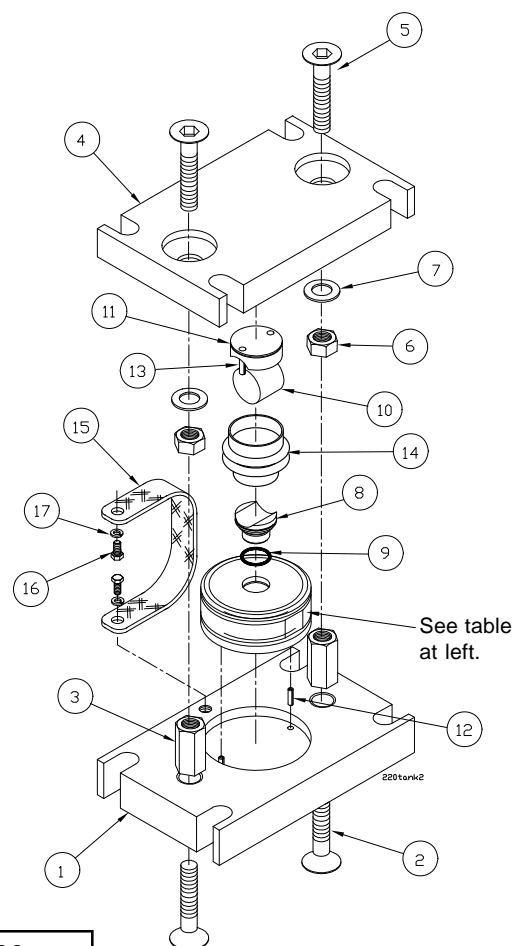
Cap.	Assembly P/N
1k	55023-1039
2.5k	55023-1047
4k	55023-1054
5k	55023-1062
10k	55023-1070

Part	Parts List				
	1k	2.5k	4k	5k	10k
1 - Base Plate	55024-1020	55024-1020	55024-1020	55024-1020	55024-1038
2 - Top Plate	55026-1020	55026-1020	55026-1020	55026-1020	55026-1044
3 - Spacer Block	55025-1037	55025-1037	55025-1037	55025-1037	55025-1045
4 - Shear Beam	53627-0028	53627-0010	53627-0036	53627-0044	53627-0051
5 - Bolt	17889-0604	17889-0604	17889-0604	17889-0604	17889-0943
6 - Lock Washer	14474-0230	14474-0230	14474-0230	14474-0230	14474-0255
7 - Nut	14507-1114	14507-1114	14507-1114	14507-1114	14507-1122
8 - Bolt	26486-0065	26486-0065	26486-0065	26486-0065	26486-0107
9 - Washer	55030-0016	55030-0016	55030-0016	55030-0016	55030-0024

Model 220 Tank Mount



CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "H"	DIM "J"
5,000 & 10,000 kg	5"	8"	3 1/2"	6 3/4"	11/16"	4 1/4"	4 5/8"
20,000 & 30,000 kg	6"	9 5/8"	4 1/2"	8 1/4"	15/16"	5 3/4"	6"

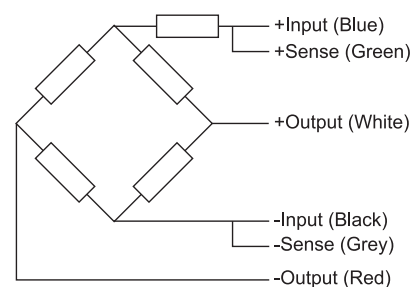


Model 220 Parts (2.0 mV/V systems)

Cap.	Loadcell P/N	Ass'y minus Loadcell	Complete Assembly
5 ton	53625-0012	53626-0011	55521-0012
10 ton	53625-0020	53626-0029	55521-0020
20 ton	53625-0038	53626-0037	55521-0038
30 ton	53625-0046	53626-0045	55521-0046

Item	Description	Qty.	5 ton	10 ton	20 & 30 ton
1	Baseplate	1	52643-0012	52643-0020	52643-0038
2	Socket screw (sst)	2	52643-0293	52643-0293	52643-0301
3	Coupling nut	2	52643-0269	52643-0269	52643-0277
4	Cap plate	1	52643-0046	52643-0046	52643-0053
5	Socket screw (sst)	2	52643-0319	52643-0319	52643-0327
6	Nut (sst)	2	52643-0335	52643-0335	52643-0343
7	Flat washer (sst)	2	52643-0376	52643-0376	52643-0368
8	Load adapter	1	52643-0087	52643-0095	52643-0103
9	O-ring	1	52643-0210	52643-0228	P/N NA
10	Roller	1	52643-0111	52643-0111	52643-0129
11	Saddle	1	52643-0137	52643-0137	52643-0145
12	Roll pin	2	52643-0236	52643-0236	52643-0236
13	Roll pin	2	52643-0251	52643-0251	52643-0244
14	Boot	1	52643-0061	52643-0061	52643-0079
15	Ground strap	1	52643-0152	52643-0152	52643-0160
16	Hex bolt (sst)	2	52643-0384	52643-0384	52643-0392
17	Lock washer (sst)	2	52643-0350	52643-0350	52643-0285

Wiring Schematic Diagram



Note: 1065 ±50 ohms across excitation lines.

1000 nominal ohms across signal lines.

Earlier Versions

Excitation Trim Junction Boxes	49
Standard Style Junction Box Single (20 Ohm POT)	49
Standard Style Junction Box (10 Ohm POT)	51
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Counting Scales	57
Four Bar Hanging Bench Scale	58
WBP Deck Scale (early versions under 2,000 lb capacity)	58
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Weigh Bars with Swaged Cable Assemblies	60

Excitation Trim Junction Boxes

This section covers junction boxes produced between 1990 and 1997 (except for Drum Weighers where it is still the current) that use excitation trim pots. It also covers their schematics and testing.

Standard Style Junction Box Single (20 Ohm POT)

The term used for the junction box with amphenol connectors is STANDARD. All weigh bars and interface cables must be disconnected from the junction box.

Test equipment needed: Ohmmeter

Refer to Figures 4 and 5.

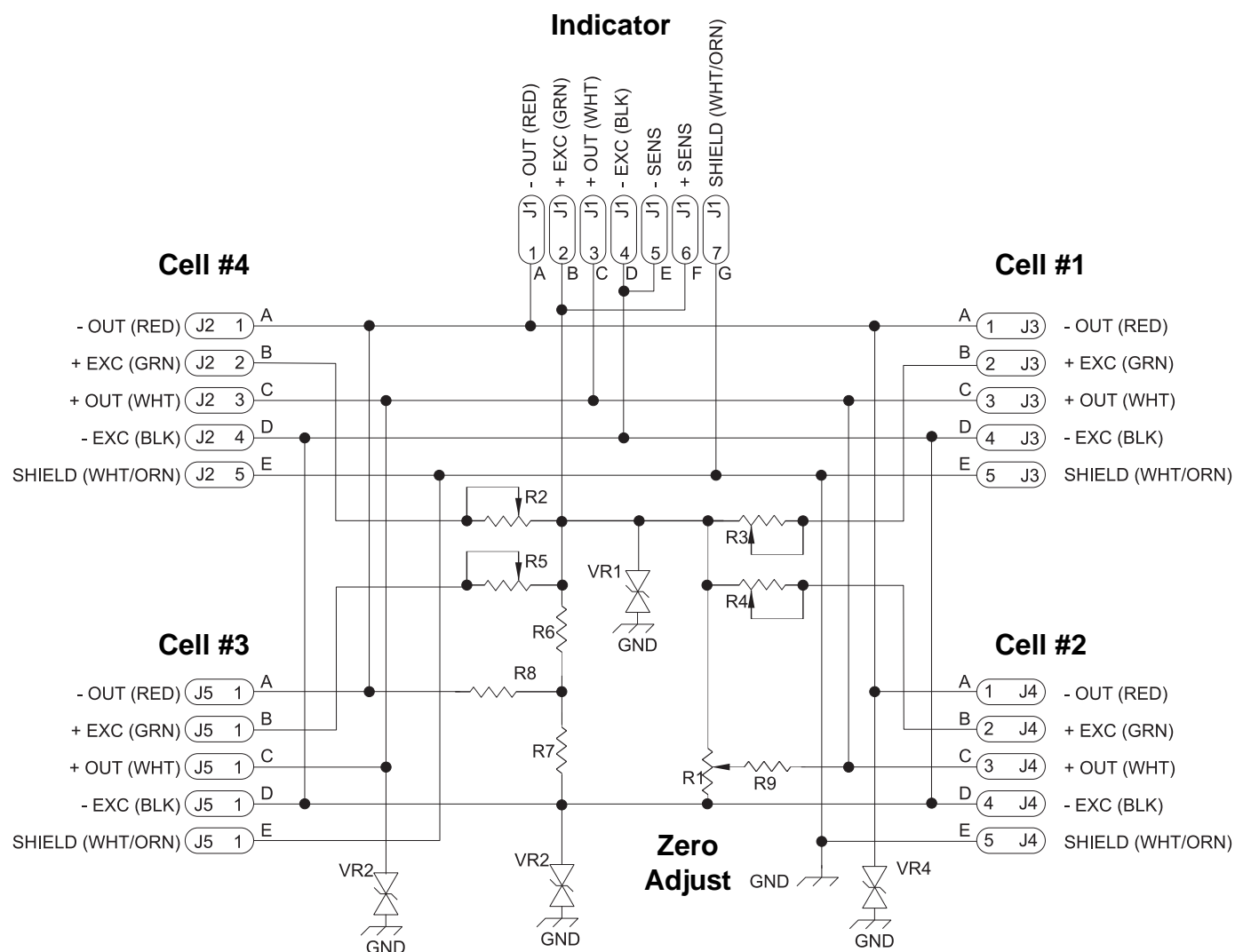


Figure 4
Standard Style: Single 20 ohm pot schematic

Zero Pot
Operational Test of R1

R1 is a 5,000 ohm resistor(pot). Slowly rotate the ohmmeter to verify the readings steadily decrease or increase (from 40,200 to 42,700 ohms) depending on the direction of rotation.

1. Standard style: Place one probe from the ohmmeter on "J1" pin C and the other on "J1" pin B.
2. Standard style: Place one probe from the ohmmeter on "J1" pin C and the other on "J1" pin D.

A bad R1 would display a drastic change in the resistance reading on the ohmmeter. If good, reset R1 to midrange by adjusting it for a reading of 41,450 ohms.

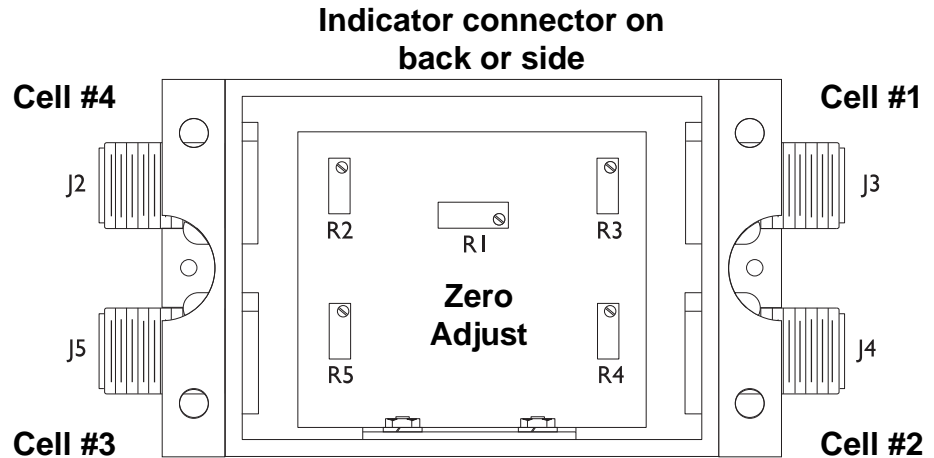


Figure 5
Junction box

Corner Balance Pots
Operational Test of R2
Through R5

Place the ohmmeter in a range to allow ohm readings by one tenth.

Standard style:

Place the probes at each of these locations (see tables below). Slowly rotate the adjustment for the pot on the connector that you are measuring to verify that each pot is good.

<u>PROBE #1</u>	<u>PROBE #2</u>	<u>RESISTOR(pot)</u>
"J1" pin B	J2 pin B	R2
"J1" pin B	J3 pin B	R3
"J1" pin B	J4 pin B	R4
"J1" pin B	J5 pin B	R5

If the readings are consistent, reset R2 thru R5 to 13.0 ohms.

Verify that the resistance from the enclosure to all pins on "J1" is greater than 20.0 megaohms. (Except Pin G which is ground and should be shorted to the enclosure.)

Standard Style Junction Box (10 Ohm POT)

Zero Pot Operational Test of R1

R1 may be either a 100,000 ohm or a 50,000 ohm resistor(pot). Slowly rotate the adjustment and watch the ohmmeter to verify the readings steadily decrease or increase (from 21,500 to 121,500 ohms) or (21,500 to 71,500 ohms) depending on the direction of rotation.

These junction boxes were produced from 1970-1990. The term used for the junction box with amphenol connectors is STANDARD. All weigh bars and interface cables must be disconnected from the junction box.

Test equipment needed: Ohmmeter

Refer to Figures 6 and 7.

1. Standard style: Place one probe from the ohmmeter on "J1" pin A and the other on "J1" pin B.
2. Standard style: Place one probe from the ohmmeter on "J1" pin A and the other on "J1" pin D. Slowly rotate the adjustment and watch the ohmmeter to verify the readings steadily decrease or increase (from 21,500 to 121,500 ohms) or (21,500 to 71,500 ohms) depending on the direction of rotation.

A bad R1 would display a drastic change in the resistance reading on the ohmmeter. If good, reset R1 to midrange by adjusting it for a reading of 60,750 ohms or 46,500 ohms.

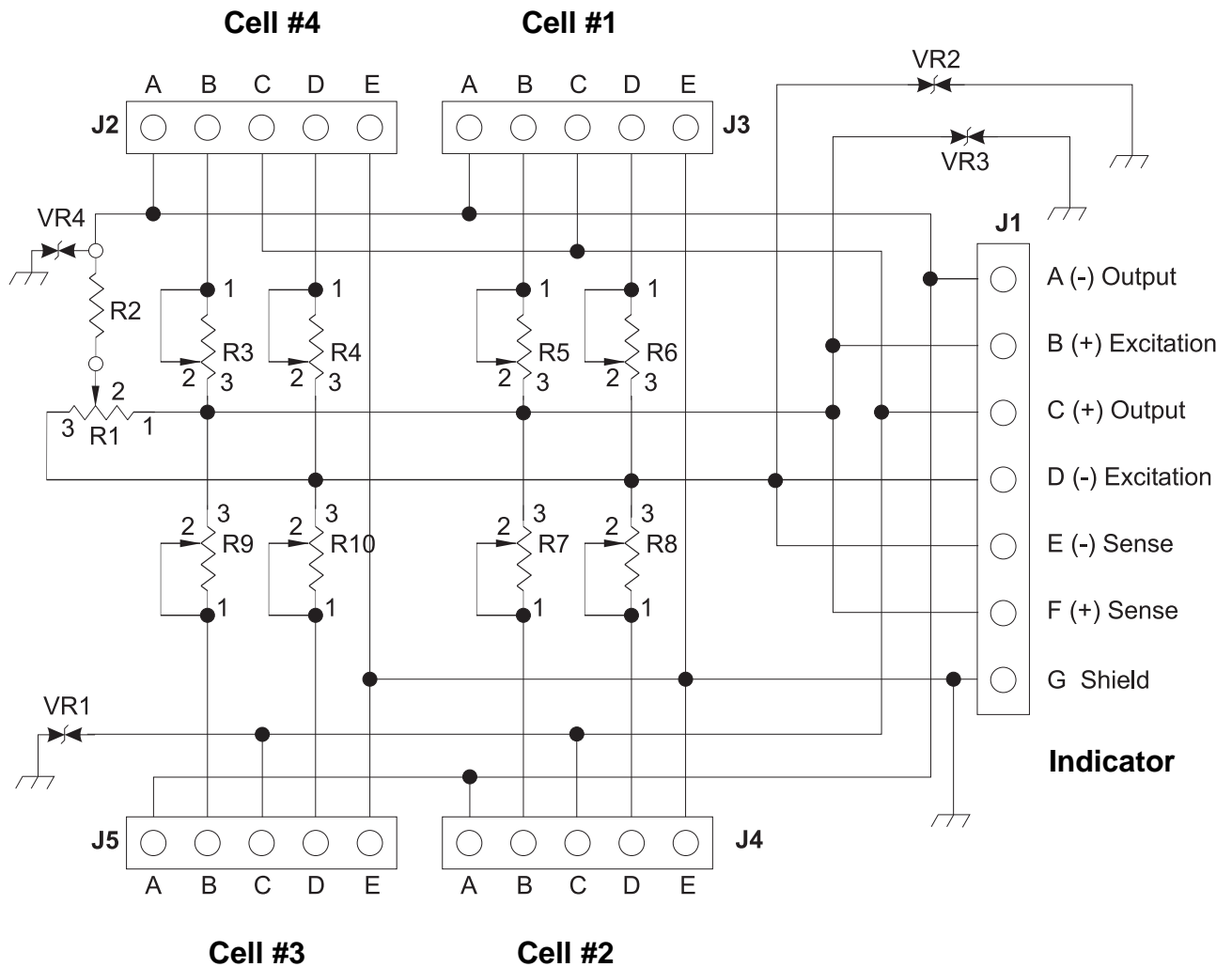


Figure 6
Standard Style: 10 ohm POT junction box schematic

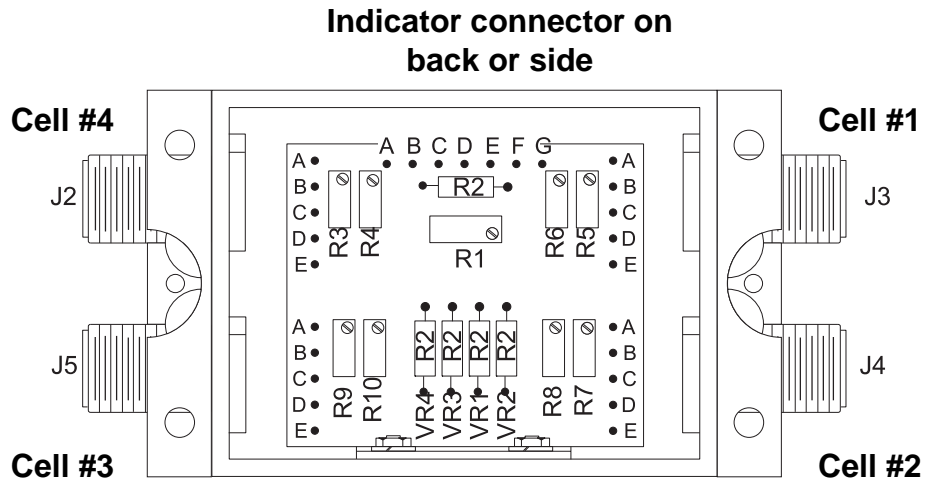


Figure 7
10 ohm POT junction box

Corner Balance Pots
*Operational Test of R3
Through R10*

Place the ohmmeter in a range to allow ohm readings by one tenth.

Standard style:

Place the probes at each of these locations (see tables below). Slowly rotate the adjustment for the pot on the connector that you are measuring to verify that each pot is good.

<u>PROBE #1</u>	<u>PROBE #2</u>	<u>RESISTOR(pot)</u>
"J1" pin B	J2 pin B	R3
"J1" pin B	J3 pin B	R5
"J1" pin B	J4 pin B	R7
"J1" pin B	J5 pin B	R9

<u>PROBE #1</u>	<u>PROBE #2</u>	<u>RESISTOR(pot)</u>
"J1" pin D	J2 pin D	R4
"J1" pin D	J3 pin D	R6
"J1" pin D	J4 pin D	R8
"J1" pin D	J5 pin D	R10

If the readings are consistent, reset R3 thru R10 to 6.5 ohms.

Verify that the resistance from the enclosure to all pins on "J1" is greater than 20.0 megaohms. . (Except Pin G which is ground and should be shorted to the enclosure.)

Batching Style Junction Box Dual (10 Ohm POT)

Zero Pot Operational Test of R1

R1 may be either a 100,000 ohm or a 50,000 ohm resistor(pot). Slowly rotate the adjustment and watch the ohmmeter to verify the readings steadily decrease or increase (from 21,500 to 121,500 ohms) or (21,500 to 71,500 ohms) depending on the direction of rotation.

This style of junction box was produced from 1970-1990. The term used for the junction box with TERMINAL BLOCKS is BATCHING. All weigh bars and interface cables must be disconnected from the junction box.

Test equipment needed: Ohmmeter

Refer to Figures 8 and 9.

1. Batching style: Place one probe from the ohmmeter on TB-5 pin 4 and the other on TB-5 pin 1.
2. Batching style: Place one probe from the ohmmeter on TB-5 pin 4 and the other on TB-5 pin 5.

A bad R1 would display a drastic change in the resistance reading on the ohmmeter. If good, reset R1 to midrange by adjusting it for a reading of 60,750 ohms or 46,500 ohms.

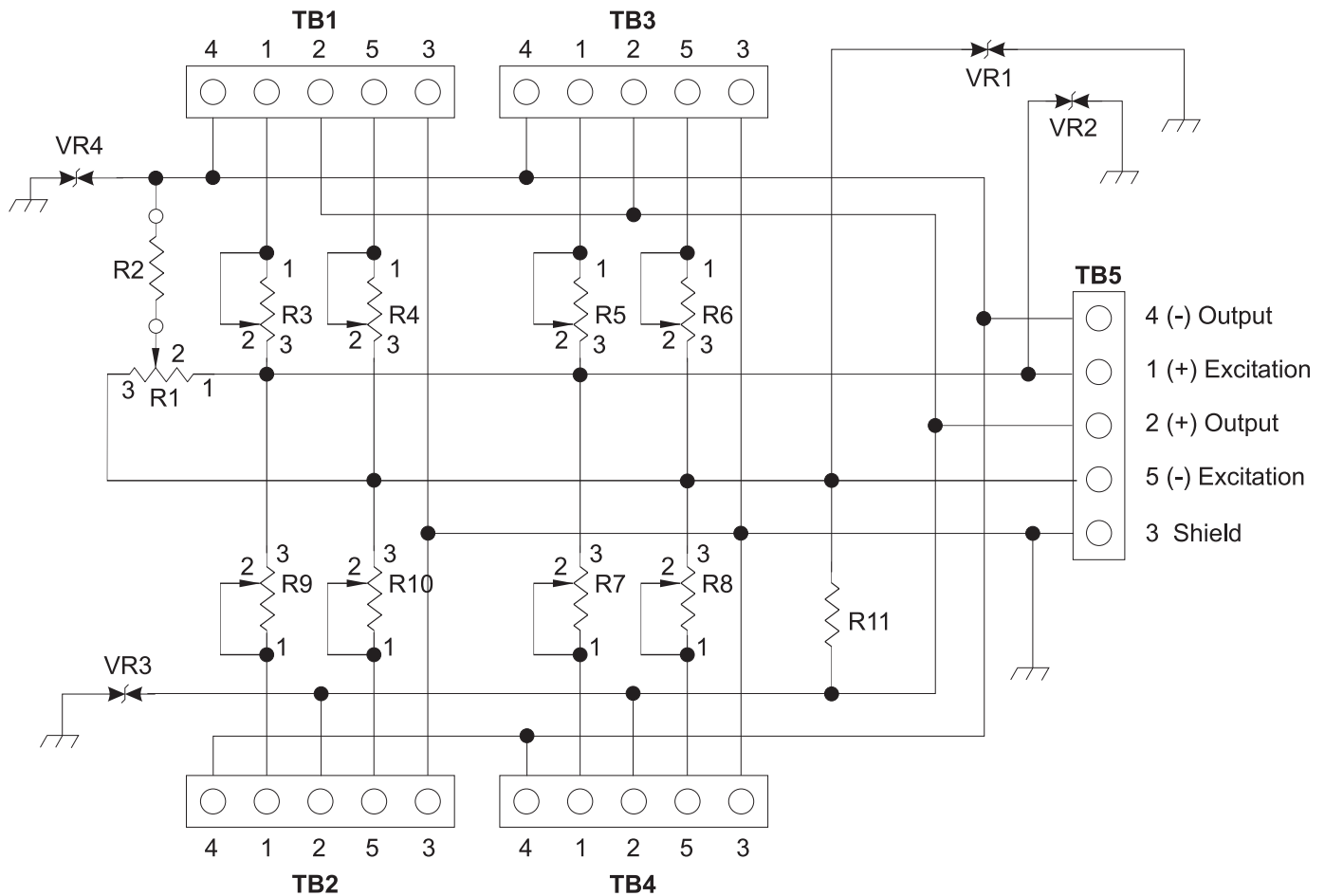


Figure 8
Batching Style: Dual 10 ohm POT junction box schematic

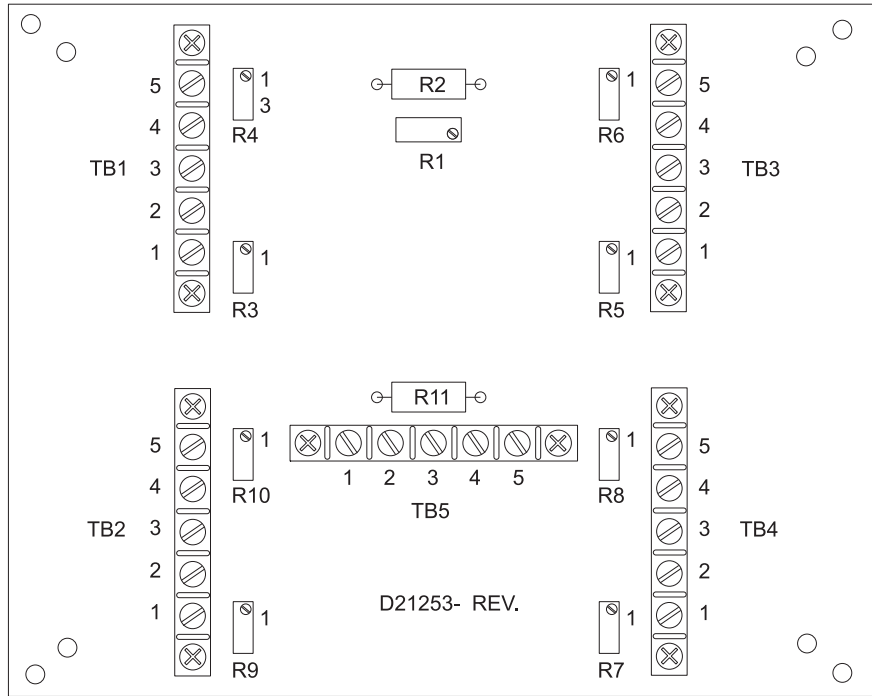


Figure 9
Batching style terminal bar junction box

Corner Balance Pots
*Operational Test of R3
Through R10*

Place the ohmmeter in a range to allow ohm readings by one tenth.

Batching style:

Place the probes at each of these locations (see tables below). Slowly rotate the adjustment for the pot on the terminal block that you are measuring to verify that each pot is good.

<u>PROBE #1</u>	<u>PROBE #2</u>	<u>RESISTOR(pot)</u>
TB-5 pin 1	TB-1 pin 1	R3
TB-5 pin 1	TB-3 pin 1	R5
TB-5 pin 1	TB-4 pin 1	R7
TB-5 pin 1	TB-2 pin 1	R9

<u>PROBE #1</u>	<u>PROBE #2</u>	<u>RESISTOR(pot)</u>
TB-5 pin 5	TB-1 pin 5	R4
TB-5 pin 5	TB-3 pin 5	R6
TB-5 pin 5	TB-4 pin 5	R8
TB-5 pin 5	TB-2 pin 5	R10

If the readings are consistent, reset R3 thru R10 to 13.5 ohms.

Verify that the resistance from the enclosure to all terminals on TB-5 is greater than 20.0 megaohms. (Except pin 3 which is ground and should be shorted to the enclosure.)

Batching Style Junction Box Single (20 Ohm POT)

Zero Pot Operational Test of R1

R1 is a 50,000 ohm resistor (POT). Slowly rotate the adjustment and watch the ohmmeter to verify the readings steadily increase or decrease (21,500 to 71,500 ohms) depending on the direction of rotation.

The term used for the junction box with TERMINAL BLOCKS is BATCHING. All weigh bars and interface cables must be disconnected from the junction box.

Test equipment needed: Ohmmeter

Refer to Figures 10 and 11.

1. Batching style: Place one probe from the ohmmeter on TB-5 pin 4 and the other on TB-5 pin 1.
2. Batching style: Place one probe from the ohmmeter on TB-5 pin 4 and the other on TB-5 pin 5.

A bad R1 would display a drastic change in the resistance reading on the ohmmeter. If good, reset R1 to midrange by adjusting it for a reading of 46,500 ohms.

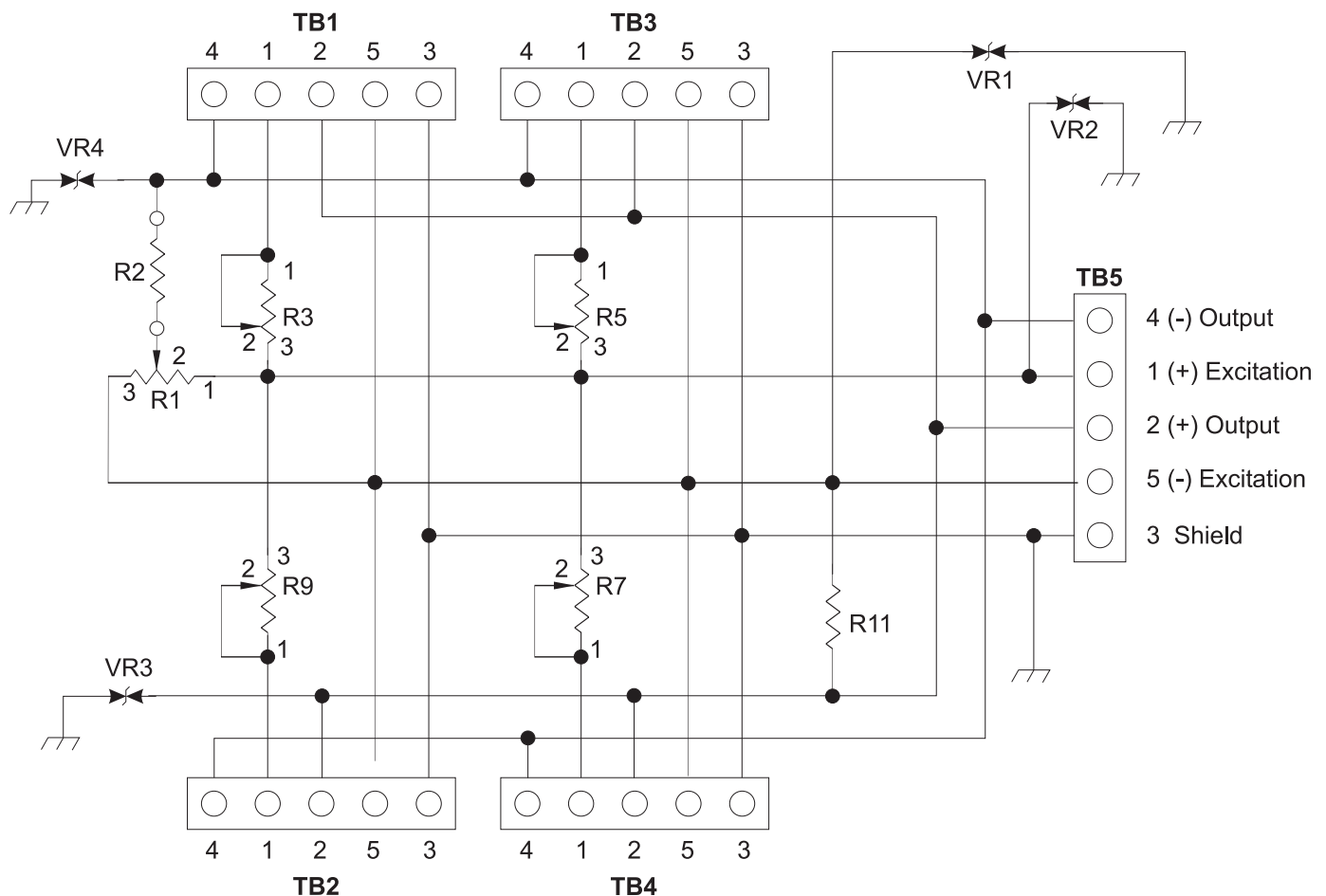


Figure 10
Batching style: single 20 ohm POT junction box schematic

R4,6,8 & 10 were replaced with jumpers

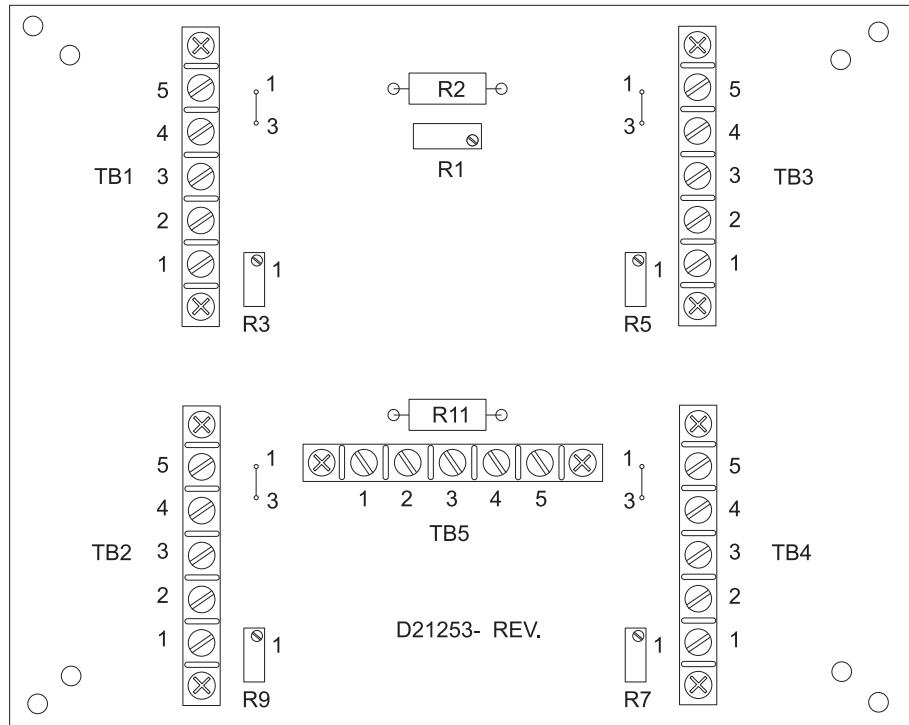


Figure 11
20 Ohm Pots Batching style terminal bar junction box

Place the ohmmeter in a range to allow ohm readings by one tenth.

Batching style:

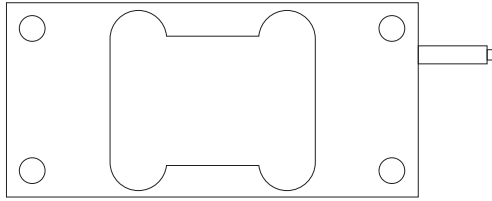
Place the probes at each of these locations (see table below). Slowly rotate the adjustment for the pot on the terminal block that you are measuring to verify that each pot is good.

PROBE #1	PROBE #2	PROBE #3
TB-5 pin 1	TB-1 pin 1	R3
TB-5 pin 1	TB-3 pin 1	R5
TB-5 pin 1	TB-4 pin 1	R7
TB-5 pin 1	TB-2 pin 1	R9

If the readings are consistent, reset R3, R5, R7, & R9 to 13.5 ohms.

Verify that the resistance from the enclosure to all terminals on TB-5 is greater than 20.0 megaohms. (Except pin 3 which is ground and should be shorted to the enclosure.)

Counting Scales



Model PC-800 MK-17 Loadcell (Non-certified)

Capacity		mV/V	P/N
5 KG	10 LB	1.0	7153-10018
10 KG	25 LB	1.0	7153-10020
25 KG	50 LB	1.0	7153-10021
50 KG	100 LB	1.0	7153-10022

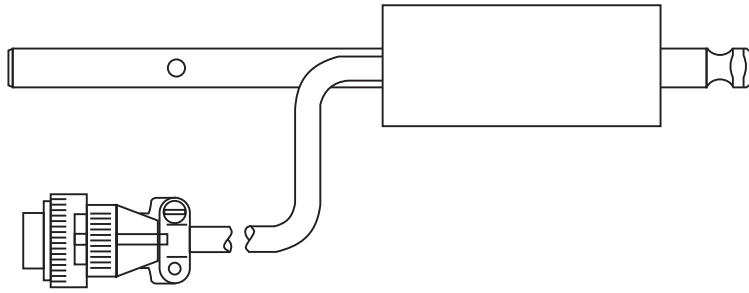
Model 8230 MK-3E Loadcell (Non-certified)

Capacity		mV/V	P/N
1 KG	2LB	2.0	7153-08212
3 KG	5 LB	2.0	7153-08213
5 KG	10 LB	2.0	7153-08663
12 KG	25 LB	2.0	7153-08665
25 KG	50 LB	2.0	7153-04833
50 KG	100 LB	2.0	7153-04952

Model 8250 MK-3 Loadcell (Non-certified)

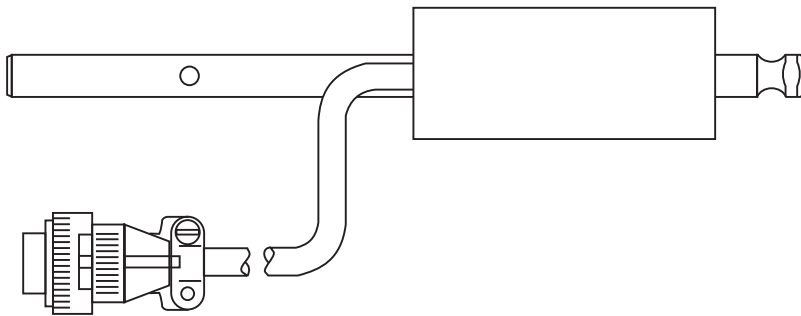
Capacity		mV/V	P/N
1 KG	2LB	2.0	7153-01605
3 KG	5 LB	2.0	7153-01606
5 KG	10 LB	2.0	7153-01607
12 KG	25 LB	2.0	7153-01608
25 KG	50 LB	2.0	7153-01609
50 KG	100 LB	2.0	7153-01610

Four Bar Hanging Bench Scale



Part #	Length	Dia.	Conn	Capacity	MV/V	Used on
14389-0010	9 7/16"	1/2"	conn	50#	1	BS2424

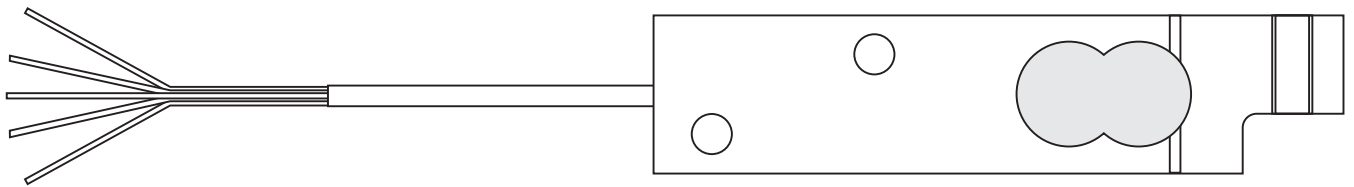
WBP Deck Scale (early versions under 2,000 lb capacity)



Part #	Length	Dia.	Cable	Conn	Capacity	MV/V	Used on
16441-0037	9 1/4"	1/2"	25'	conn	125#	1	500# DS
16441-0045	9 1/4"	1/2"	4.75'	conn	125#	1	500# DS

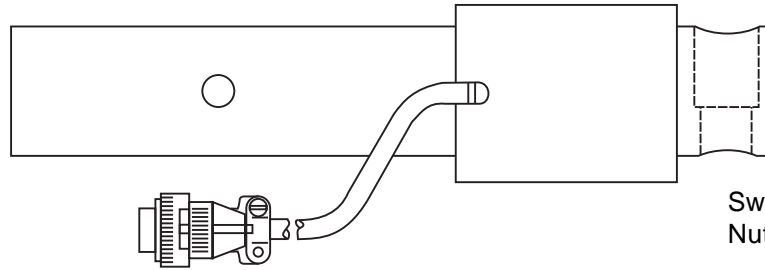
DSB TufDec
Class III n-max 5000 Cert. #95-147 2.0 mV/V
(all are 8.63" long x 3/4" wide)

Part Number	Description	Capacity	Cable Length
46001-0010	Load Cell Assy	1250 lb	3'
46001-0028	Load Cell Assy	1250 lb	9'
46001-0036	Load Cell Assy	1250 lb	4.5'
46001-0044	Load Cell Assy	1250 lb	11.5'
45814-0019	Load Cell Assy	2500 lb	3'
45814-0027	Load Cell Assy	2500 lb	9'
45814-0035	Load Cell Assy	2500 lb	4.5'
45814-0043	Load Cell Assy	2500 lb	11.5'



Weigh Bars with Swaged Cable Assemblies

Old Style WBP (LP and Deck Scale Series) Weigh Bars w/swage cable

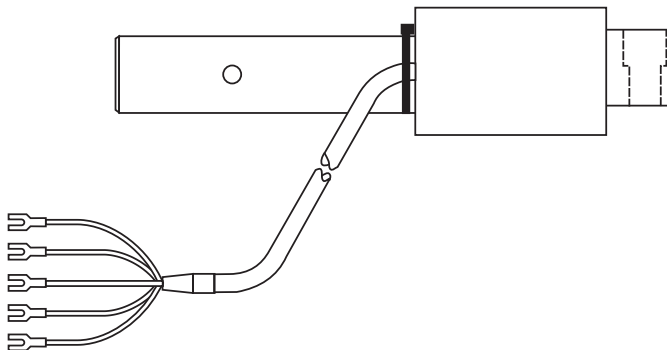


Swage cable 13172-0047
Nut 14480-0059

Part #	Length	Dia.	Cable	Conn	Capacity	MV/V	Used on
13210-0025	9 7/16"	0.812"	7.17'	conn	500#	1	old style 2K
13210-0033	12"	1.187"	9.5'	conn	1.25K	1	old style 5K
13495-0054	11"	1 5/8"	8.17'	conn	2.5K	2	LP5/10
13495-0062	11"	1 5/8"	25'	conn	2.5K	2	Batching

Old Style Conversion Kits w/swage cable

Non-certified 2.0 mV/V



Weigh Bar Capacity	Part Number	Length	Diameter	Swagged Cable Assemblies
250 lb	13434-0025	8 5/16"	1/2"	13172-0013
375 lb	13434-0041	8 5/16"	9/16"	13172-0013
500 lb	13434-0017	8 5/16"	5/8"	13172-0013
667 lb	13434-0033	8 5/16"	11/16"	13172-0013
1000 lb	13434-0058	8 7/8"	13/16"	13172-0021
1587 lb	13863-0017	9 3/4"	1 3/8"	13172-0039
2000 lb	13863-0033	9 1/2"	1 1/2"	13172-0039
2500 lb	13863-0025	11"	1 5/8"	13172-0039

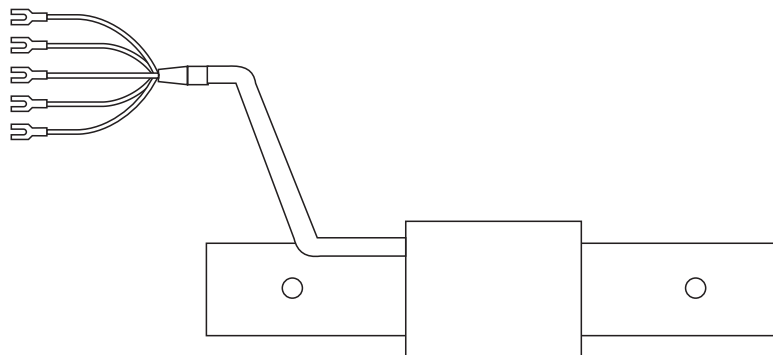
Conversion Kits

WBC S-TYPE CONVERSION WEIGH BARS 2.0mV/V
CLASS III nMAX 6,000 NTEP Certificate #87-120
CLASS III nMAX 3,000 NTEP Certificate #88-039

Part Number Capacity	Part Number Spades	Weigh Bar Connector	Length x Diameter
250 lb	18583-0015	18583-0049	8" x 1/2"
500 lb	18583-0023	18583-0056	8" x 5/8"
1000 lb	18583-0031	18583-0064	8 1/2" x 13/16"
2500 lb	22256-0013	N/A	10" x 1 5/8"

BRACKET FOR S-TYPE WEIGH BARS

Capacity	Bracket Part Number	Steelyard Rod Diameter
250 lb	18584-0014	1/2"
250 lb	18584-0022	5/8"
500 lb	18584-0030	1/2"
500 lb	18584-0048	5/8"
500 lb	18584-0054	3/4"
1000 lb	18584-0063	1/2"
1000 lb	18584-0071	5/8"
1000 lb	18584-0089	3/4"



Mild Steel Conversion Kit Bar
w/15' cables

Avery Weigh-Tronix



Avery Weigh-Tronix USA

1000 Armstrong Dr.
Fairmont, MN 56031 USA
Telephone: 507-238-4461
Facsimile: 507-238-4195
e-mail: industrial@weigh-tronix.com
www.wtxweb.com

Avery Weigh-Tronix UK

Foundry Lane
Smethwick, West Midlands
England B66 2LP
Tel: +44 870 90 34343
Fax: +44 121 224 8183
Email: info@awtxglobal.com
Web site: www.averyweigh-tronix.com

Avery Weigh-Tronix Canada, ULC

217 Brunswick Boulevard
Pointe Claire, QC H9R 4R7 Canada
Telephone: 514-695-0380
Toll free: 800-561-9461
Facsimile: 514-695-6820
www.weigh-tronix.ca