WEIGH-TRONIX

Steelbridge XT Series Truck Scale Installation Guide

Recommended Equipment List
Measuring tape
Rotary hammer drill
24" x 1"masonary bit (for anchor bolts)
Low profile hydraulic jack (3" ht.)
24" long driver pipe for anchor bolts
Wrench setA
Socket set
Chalkline
Hammer
Clevis pins
Eye bolts
Electricians snake

1. Refer to the foundation drawing supplied for construction details of the concrete and rebar foundation. Installation procedures will be similar for all types of foundations.

2. To speed installation of your scale, use the dimensions given on your foundation drawings and, as precisely as you can, layout out the positions of all the pin stands with chalk lines or marker strings.

   To help keep the decks exactly in alignment, mark the centerline of the scale position with a chalkline. At 90° from this line, measure out ½ the width of the scale as shown below. Place a string at this distance. This marks the outer edge of the deck sections. Use this for aligning all the sections.

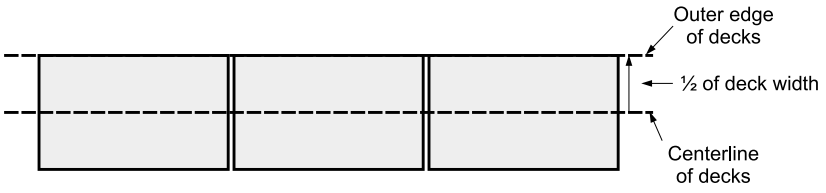


Figure 1
Deck alignment

3. Place the pin stands in the positions you have marked. (Leave the pins out of the pin stands until the decks are lowered into place. This will make it easier to lower the decks into position without bumping the pin stands.) See Figure 2.

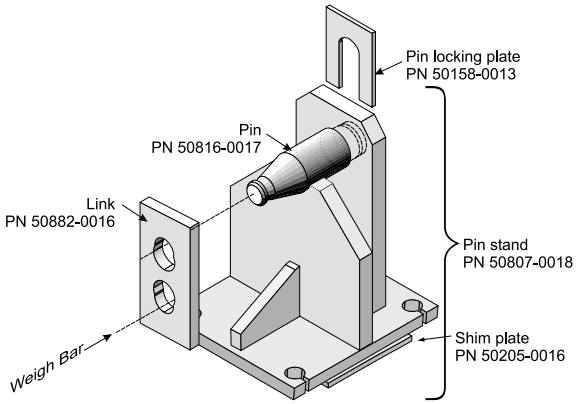


Figure 2
Pin stand

4. The XT Series truck scale platforms come in two configurations: the base unit and the adder unit. If you have a simple, 4-Weigh Bar scale, you will receive just a base unit. For each platform you add you will receive an adder deck. See Figure 3.

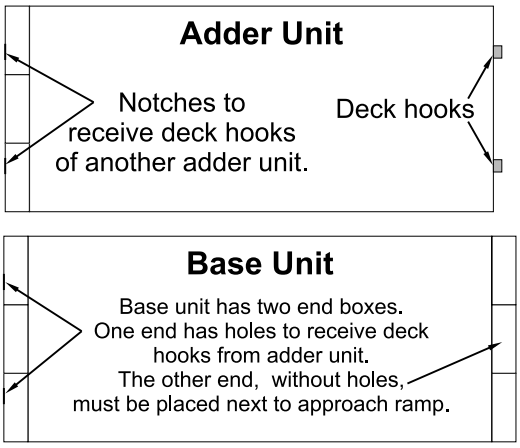


Figure 3
Top view of XT Series deck types

The base unit has two end boxes. One end has notches to receive the deck hooks from an adder unit. The other end of the base unit must be placed next to an approach ramp.

The adder units have deck hooks on one end and an end box on the other.

The base unit has lifting holes in the end box for installing shackle pins. The adder unit also has these lifting holes in the end box and holes in the deck hooks for installing lifting eyes. See Figure 4 and note at left.

Warning

Each of the four lifting slings should be no less than 3/4 of the deck length. The shackle pins and eyebolts must have a working capacity greater than ½ the deck weight being lifted. This is 4,000 lb for ½ a 23' deck.

Lifting hardware must be of industrial grade (drop forged or equivalent).

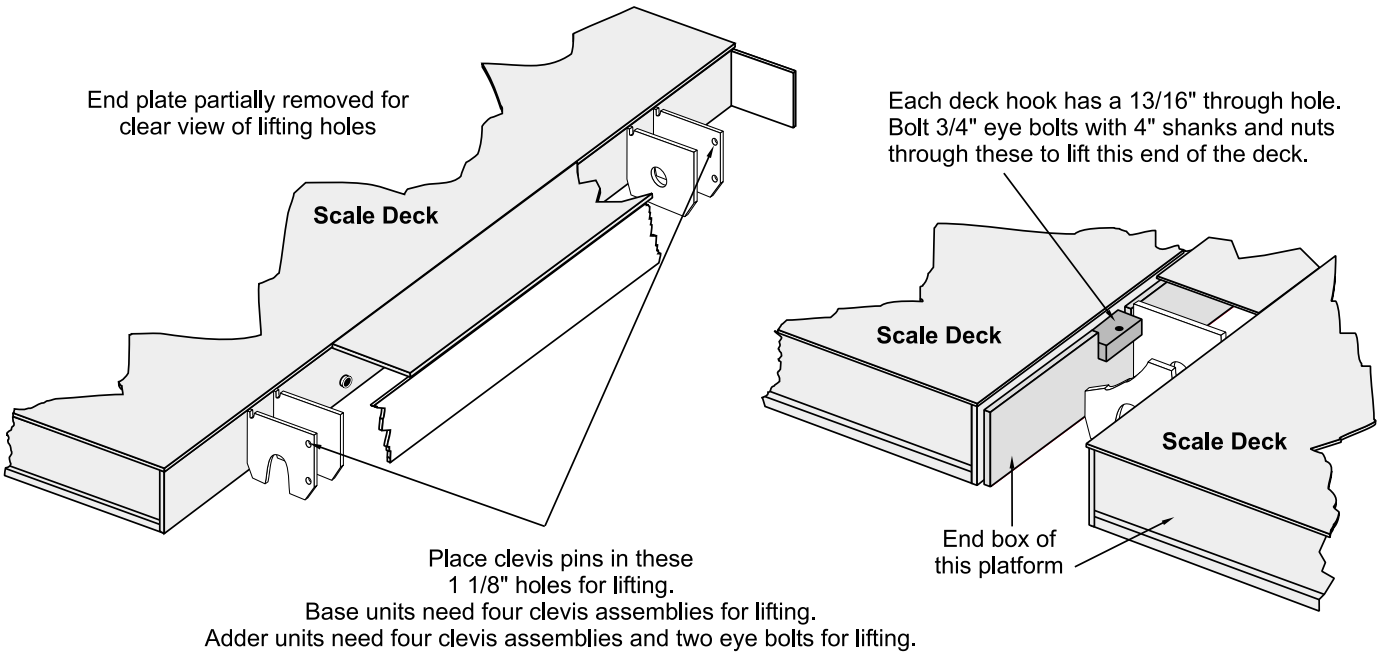


Figure 4
Lifting locations on the decks.

5. Install a 3/4” lifting eye in the through hole located on each deck hook. Use 4½” shank lifting eyes. Use shackles and pins in the holes of the Weigh Bar support plates in the end boxes.

   Lower the base unit over the pin stands, being sure the end without hook notches is placed next to an approach ramp. Set the pins into the stands and use the keeper plates to lock them into the stands. Connect the pins to the Weigh Bars with the supplied links. See Figure 5. Links must be seated in the grooves of the pins and Weigh Bars.

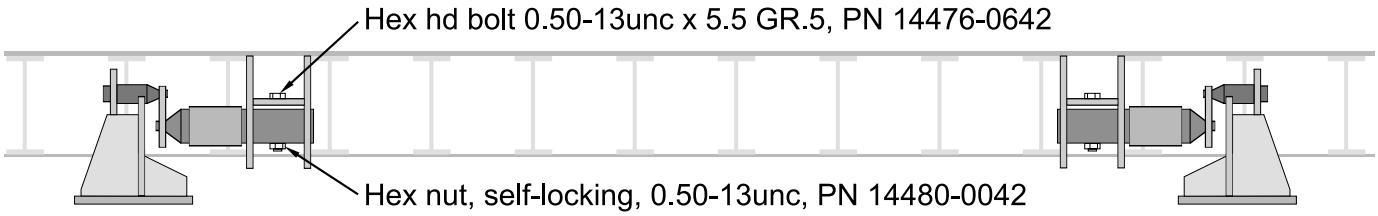


Figure 5
End view showing relationship between pin stands, Weigh Bars and links.

6. Adjust the locations of the four pin stands until the end clearance from the scale to the end wall of the foundation is approximately ¾”. Also adjust the stands until the links are hanging plumb and the checking clearances are equal. The checking clearance is the space between the uprights of the pin stands and the inner and outer sides of the end boxes. This distance should be between 5/16” and 3/8”.

   Try to keep the pin stands as close as possible to the positions you marked in step 2. This will help keep the decks aligned.

   To prevent the scale deck from rocking and to align the scale deck with the approach, add supplied shims under the pin stands as necessary. See Figure 6.

Anchor bolt assembly includes the anchor bolt, nut and washer.

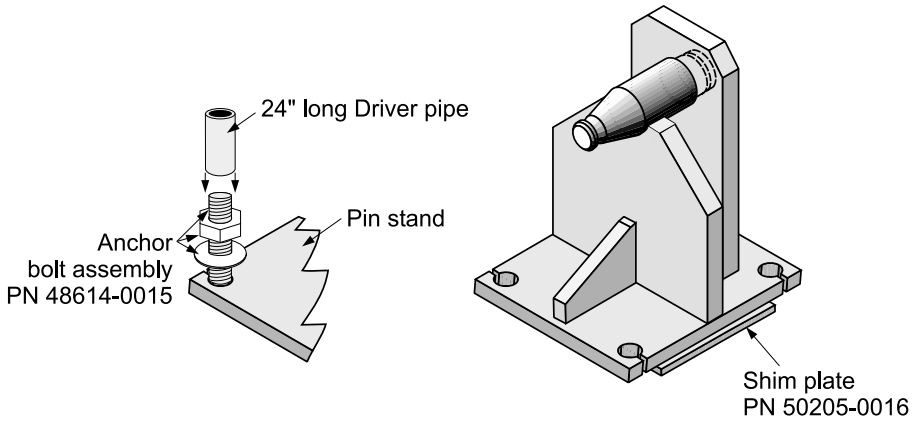


Figure 6
Anchor bolt driver and shim plate with pin stand

7. The next adder unit can now be installed. The hooks on the adder unit engage the slots on the base unit. The other end of the adder unit is supported on the pin stands. As on the previous deck installation, the links must be seated in the groove of the Weigh Bars.

8. Adjust the locations of the additional two pin stands until the links are hanging plumb and the checking clearances are equal. Add shims as necessary under the pin stands to prevent the scale deck from rocking.

9. Repeat steps 5 through 8 until all the decks are installed.

10. After all the scale decks are installed, recheck all clearances and make any adjustments necessary to the location and shimming of the pin stands. This must be done to make sure the installation is correct and to prevent operational problems.

11. Each pin stand requires four 1" diameter expansion type anchor bolts. Recommended length of the anchor bolts is 9". RED HEAD and WEJ-IT are two brand names of expansion anchor bolts but neither are endorsed by Weigh-Tronix, Inc. Optionally, you can drill oversize holes and use epoxy adhesive embedded 1" bolts. Be sure to follow manufacturer's specifications.

Protect the Weigh Bars as you drive the anchor bolts into position. Cover the area with a steel plate or use a guide to direct the blow directly to the anchor bolts.

Weigh Bars damaged during installation are not covered under warranty.

12. When all adjustments have been made and the scale decks and pin stands are in their final position, anchor the pin stands to the foundation. See the note at left.

    Using the holes in the base of the pin stands as guides, drill anchor holes in the concrete foundation and install the anchor bolts by using the driver pipe as shown in Figure 6. Tighten the nuts on the anchor bolts to the manufacture's recommendations.

13. If you are installing an IMXT scale with a steel deck, skip steps 14 through 16.

14. If you are installing a FCXT scale with a concrete deck, the decks will have to be shored up until the concrete has cured. Without proper shoring, the scale could fail prematurely. Each 20' & 23' deck must be supported (shored up) at two locations, 2' either side of the center of each deck. Each 10' and 12' deck must be supported (shored up) at the center of each deck. Timbers (4 X 4's) have been shipped with the scales for this purpose. With the timbers under the scale deck, wedge shims or blocks under the timbers until the timbers are tight.

15. The decks are now ready for the concrete. Install the covers over the Weigh Bars to prevent the concrete from spilling over the Weigh Bars and cables.

    You must use Fibermesh brand concrete or one that performs according to the specifications below for proper plastic shrinkage crack control. Fibermesh is a brand name that performs up to the standards needed to replace welded wire mesh reinforcing.

    There are a number of companies making a fiber additive for controlling cracking in concrete. All fibers are not equivalent in controlling plastic shrinkage crack formation.

    - Fibers must be made of polypropylene. Polypropylene does not corrode or react chemically with concrete.
    - Virgin polypropylene fibers are better than fibers made from recycled polypropylene.
    - Fibers must be fibrillated not monofilament. Fibrillation of the fibers provides a mechanical bond to the concrete. Monofilament fibers do

not have a mechanical bond to the concrete. Without a mechanical bond, the fibers will not effectively control the cracking.
- The fibers should be graded in length and width for uniform dispersion in the concrete matrix. A uniform dispersion assures maximum crack prevention.
- The normal recommended quantity of fibers is 1.5 pounds per cubic yard of concrete. For maximum protection from drying shrinkage, impact, shattering, and abrasion, increase the amount of fibers to 3.0 pounds of fibers per cubic yard of concrete.
- As with all concrete, the strength is highly dependent on the water-cement ratio. Addition of water to make the concrete easier to pour can reduce the final concrete strength. Too much water also increases the amount of drying shrinkage and the number and size of plastic shrinkage cracks.

Following is a list of other added benefits from using Fibermesh:
- Reinforces against impact forces
- Reinforces against shattering
- Reinforces against abrasion
- Reinforces against water migration

The 28 day strength of the concrete must be at least 4000 psi. If Fibermesh, or equivalent, is not available or the customer does not want to use Fibermesh concrete, welded wire mesh must be installed in the deck before the concrete is poured. The minimum size of the wire mesh is 6” X 6” mesh using 10 gage wire. The wire mesh must be positioned and held in the center of the concrete slab.

16. Give the surface a broom finish. To assure proper curing, you may use a curing compound after the concrete work is finished or cover the concrete with wet burlap and plastic.

17. When the concrete has reached 80% of it’s 28 day strength, the shoring can be removed. One end of each deck will have to be jacked up to remove the shoring. Be sure not to raise the decks too high and check that the links are properly seated after the decks are lowered down to engage the Weigh Bars. The scale system is now ready for final assembly and calibration.

18. Install the ground straps using the hardware provided. Refer to Figure 7. One ground strap must be installed and connected to each section of the scale system. If the scale is installed in a pit, the ground strap must be installed towards the inside rather than towards the outside of the scale. This is required because the ground rod is installed inside the pit rather than beside the foundation. The ground rod should be an eight foot long, 5/8" dia. copper or zinc clad, steel rod.

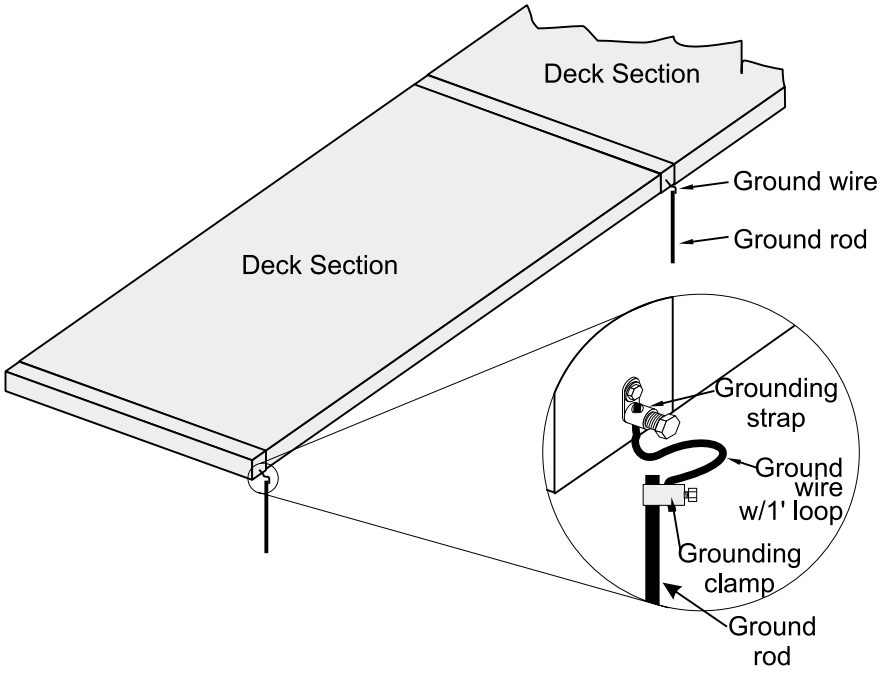


Figure 7
Grounding strap installation

19. The Weigh Bar and stainless steel sheathed interface cables can now be installed. See the drawings in the back of this guide. Pick the drawing for your number of Weigh Bars and use it to route the cables.

It is very important that you do not cut any of the interface or Weigh Bar cables to shorten them. Leave them at the supplied length and coil all excess in the end boxes.

You will need an electrician's snake to pull cables through the conduit in the deck sections. Be sure to pull all the cables needed in each conduit at one time. Also it is important not to twist the cables as they are being pulled through the conduit. If the cables become twisted, it will be harder to replace cables and Weigh Bars.

Corner Balancing

For proper weight reading, the signals reaching the indicator must be identical no matter where a weight is placed on the scale. Getting these signals to match is called corner balancing the scale.

Your goal is to get the readings from the weight sensors to match. You do not have to get the correct weight reading at this point. That is taken care of when you calibrate your indicator. (See the *Service Manual* for your indicator.) One potentiometer affects one weight sensor. You balance the weight sensors by adjusting the corresponding potentiometer in the junction box.

This scale was corner balanced at the factory, but in a new installation it is required that corner balancing and calibration be checked to ensure installation accuracy. Below are two methods of corner balancing. Method 2 is useful when the weigh bars have attached resistance ID tags. Use Method 1 if these tags are not attached.

Method 1

1a. Test load the deck in both directions by driving a loaded truck on and off the scale 3 or 4 times.

1b. Check all mechanical hardware.

1c. Remove the junction box cover to access the potentiometers.

2. To capture the value of internal zero for your particular indicator, refer to your indicator's *Service Manual*.

The appropriate cables are stripped, ready for you to attach them to the junction boxes. Wire colors are printed on the boards inside each junction box. Connect the wires to the appropriate terminal.

3. Use test weights equal to 20-25% of full capacity and obtain a displayed weight value for the test weight applied to each of the four weight sensors, like this:

   3a. Disable AZT on indicator.

   3b. Place certified test weight directly above first weight sensor.

   3c. Record displayed weight value.

   3d. Repeat steps 3b and 3c for each weight sensor.

4. If displayed weight values for all weight sensors equal each other, within +/- 1 division, proceed to the calibration instructions for your indicator found in

5. If displayed weight value for any weight sensor varies from the others by more than +/- 1 division, adjust the appropriate junction box potentiometer by turning it the number of 360 degree turns indicated by this formula:

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

   If the **Number Of Turns** is a positive value, turn the potentiometer clockwise. If **Number Of Turns** is a negative value, turn the potentiometer counterclockwise.

6. Repeat steps 3b and 3c followed by step 4 or step 5 until

Method 2

Use this method when the weigh bar cables have a tag attached with the resistance listed. You will need a digital voltmeter with a minimum 2000 counts and an insulated jumper wire.

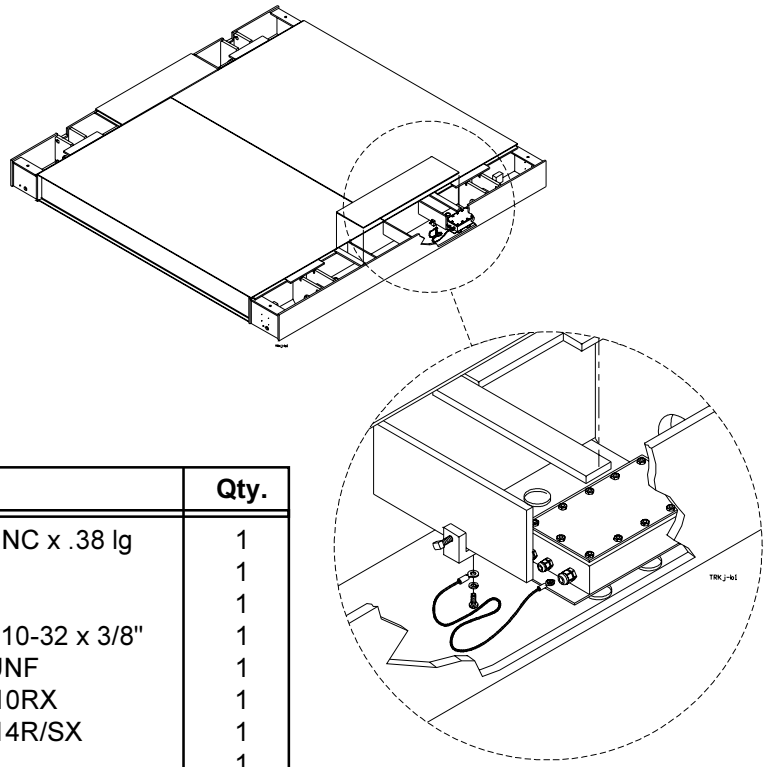
1. Place the junction boxes in their relative positions on the scale decks. Refer to the drawings in the back of this guide. Understand where each Weigh Bar will be connected to each J-box but do not connect them yet.
2. Without the indicator connected, jumper the (+) signal line to the (-) signal line on the terminal block which goes to the indicator.
3. Connect the ohm meter to the + and - signal lines for the potentiometer to be set.
4. Find the output number on the tag of the Weigh Bar for which you are setting the potentiometer. Find the corresponding resistance number in Table 1 below.
5. Turn the potentiometer until the correct resistance is displayed.
6. Repeat this for each Weigh Bar and corresponding potentiometer.
7. Remove the jumper wire in step 2 and connect the Weigh Bars and interface cable to the junction boxes.
8. Check the corner balance with certified test weights. Use Method 1 if the corners are not balanced to ±1 division.

After Corner Balancing

Calibrate the scale using certified test weights and the instructions from your indicator's *Service Manual*. After you calibrate the scale, be sure the junction boxes are adequately grounded by attachment to the deck. See instructions and illustration below. Install the deck box covers with the hardware provided. Note that the base unit covers on the end box nearest the approach are wider than the other covers. They cannot be interchanged.

Grounding the junction box:

1. Crimp the lugs on each end of the grounding wire.
2. Connect the smaller lug to the j-box using the #10 screw, lock washer, and nut.
3. Connect the other end of the grounding wire to the beam clamp using the remaining ¼" hardware.
4. Place the beam clamp on the metal plate indicated in Figure 1. Tighten the clamp bolt securely to the beam to ensure proper grounding.



Item	P/N	Description	Qty.
1	14473-0603	Screw, Pan Hd .25-20UNC x .38 lg	1
2	14474-0057	Washer, Lock SS #10	1
3	14474-0198	Washer, Lock SS ¼"	1
4	14503-0037	Screw, Phil Pan Hd SS 10-32 x 3/8"	1
5	14506-0059	Nut, Hex Hd SS 10-32UNF	1
6	16062-0019	Lug, Crimp-3M#MV10-10RX	1
7	16062-0035	Lug, Crimp-3M#MV10-14R/SX	1
8	17855-0018	Beam clamp	1
9	17915-1022	Wire, stranded-10AWG, Grn	4'

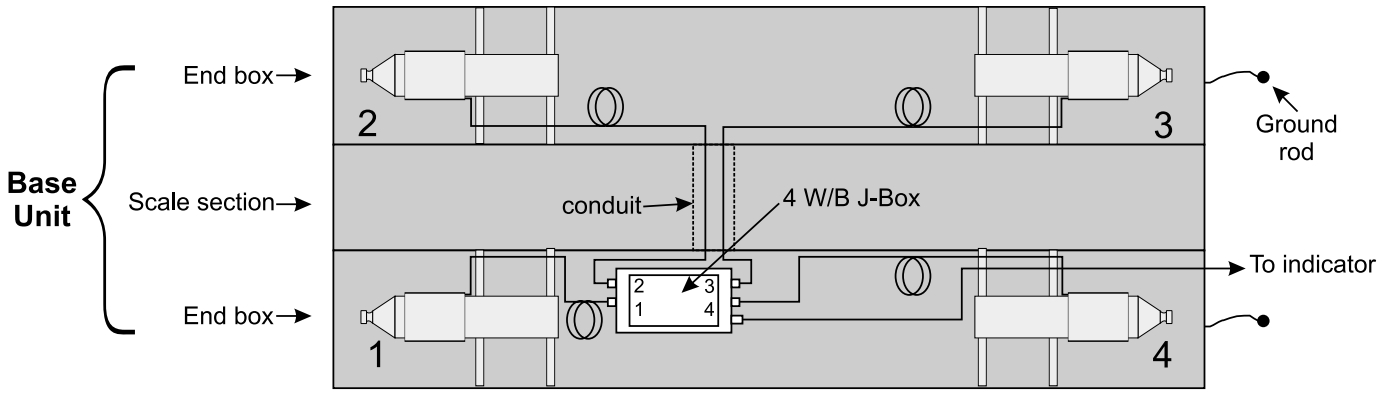
Table 1
Weigh Bar Output and Corresponding Resistance in Ohms

Weigh Bar Output	Resistance Ohms	Weigh Bar Output	Resistance Ohms
.9899 - .9901	1143	.9999 - 1.0001	1104
.9902 - .9903	1142	1.0002 - 1.0004	1103
.9904 - .9906	1141	1.0005 - 1.0006	1102
.9907 - .9908	1140	1.0007 - 1.0009	1101
.9909 - .9911	1139	1.0010 - 1.0012	1100
.9912 - .9913	1138	1.0013 - 1.0014	1099
.9914 - .9916	1137	1.0015 - 1.0017	1098
.9917 - .9918	1136	1.0018 - 1.0020	1097
.9919 - .9921	1135	1.0021 - 1.0022	1096
.9922 - .9923	1134	1.0023 - 1.0025	1095
.9924 - .9926	1133	1.0026 - 1.0028	1094
.9927 - .9928	1132	1.0029 - 1.0030	1093
.9929 - .9931	1131	1.0031 - 1.0033	1092
.9932 - .9933	1130	1.0034 - 1.0036	1091
.9934 - .9936	1129	1.0037 - 1.0038	1090
.9937 - .9939	1128	1.0039 - 1.0041	1089
.9940 - .9941	1127	1.0042 - 1.0044	1088
.9942 - .9944	1126	1.0045 - 1.0047	1087
.9945 - .9946	1125	1.0048 - 1.0049	1086
.9947 - .9949	1124	1.0050 - 1.0052	1085
.9950 - .9951	1123	1.0053 - 1.0055	1084
.9952 - .9954	1122	1.0056 - 1.0058	1083
.9955 - .9956	1121	1.0059 - 1.0060	1082
.9957 - .9959	1120	1.0061 - 1.0063	1081
.9960 - .9962	1119	1.0064 - 1.0066	1080
.9963 - .9964	1118	1.0067 - 1.0069	1079
.9965 - .9967	1117	1.0070 - 1.0071	1078
.9968 - .9969	1116	1.0072 - 1.0074	1077
.9970 - .9972	1115	1.0075 - 1.0077	1076
.9973 - .9975	1114	1.0078 - 1.0080	1075
.9976 - .9977	1113	1.0081 - 1.0083	1074
.9978 - .9980	1112	1.0084 - 1.0085	1073
.9981 - .9982	1111	1.0086 - 1.0088	1072
.9983 - .9985	1110	1.0089 - 1.0091	1071
.9986 - .9988	1109	1.0092 - 1.0094	1070
.9989 - .9990	1108	1.0095 - 1.0097	1069
.9991 - .9993	1107	1.0098 - 1.0100	1068
.9994 - .9996	1106	1.0101 - 1.0102	1067
.9997 - .9998	1105	1.0103 - 1.0105	1066

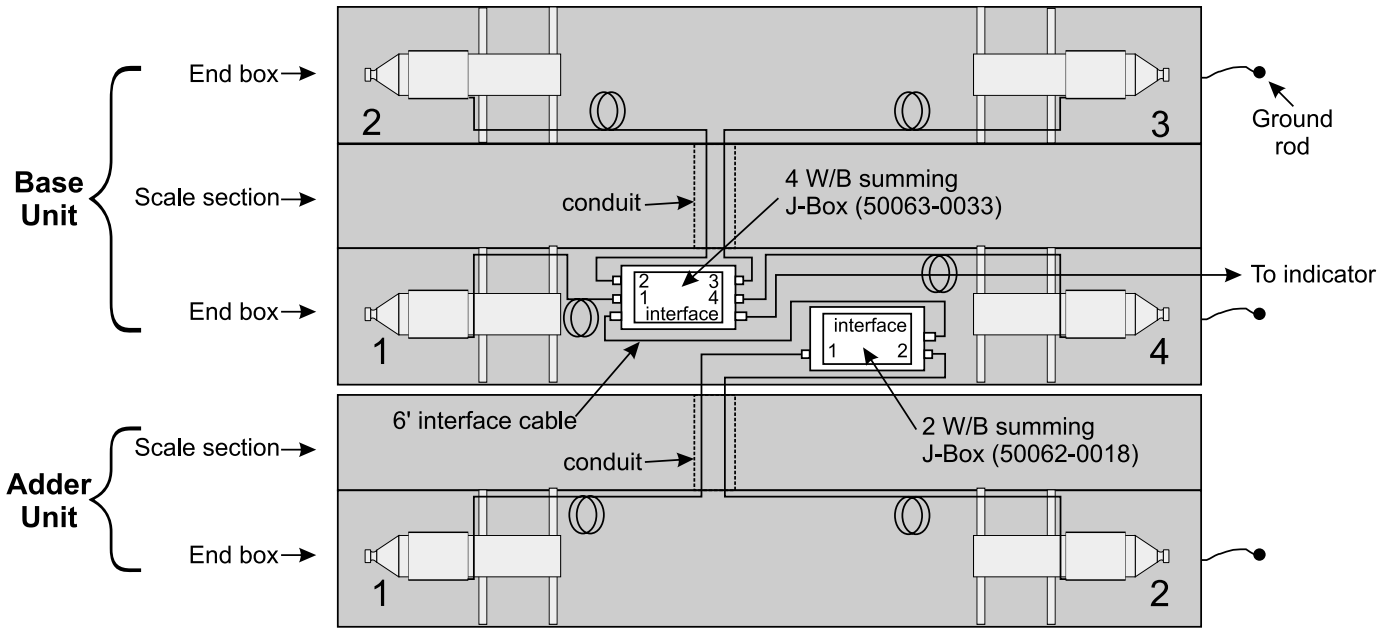
FCXT Truck Scales Deck Concrete Requirements 4,000 PSI Fibermesh Concrete		
Scale Size	**Number Modules**	**Concrete Quantity**
FCXT 1010-40T	1	1.2
FCXT 1210-40T	1	1.5
FCXT 2010-40T	1	2.8
FCXT 2410-40T	1	3.3
FCXT 3010-80T	2	4.0
FCXT 3510-80T	2	4.8
FCXT 4010-80T	2	5.6
FCXT 4710-80T	2	6.6
FCXT 6010-100T	3	8.4
FCXT 7010-100T	3	10.0
FCXT 8010-100T	4	11.3
FCXT 9310-100T	4	13.3
FCXT 10010-100T	5	14.1
FCXT 11610-100T	5	16.6

FCXT Truck Scales Deck Concrete Requirements 4,000 PSI Fibermesh Concrete		
Scale Size	**Number Modules**	**Concrete Quantity**
FCXT 1011-40T	1	1.3
FCXT 1211-40T	1	1.6
FCXT 2011-40T	1	3.0
FCXT 2411-40T	1	3.6
FCXT 3011-80T	2	4.3
FCXT 3511-80T	2	5.2
FCXT 4011-80T	2	6.1
FCXT 4711-80T	2	7.2
FCXT 6011-100T	3	9.1
FCXT 7011-100T	3	10.8
FCXT 8011-100T	4	12.2
FCXT 9311-100T	4	14.4
FCXT 10011-100T	5	15.2
FCXT 11611-100T	5	17.9

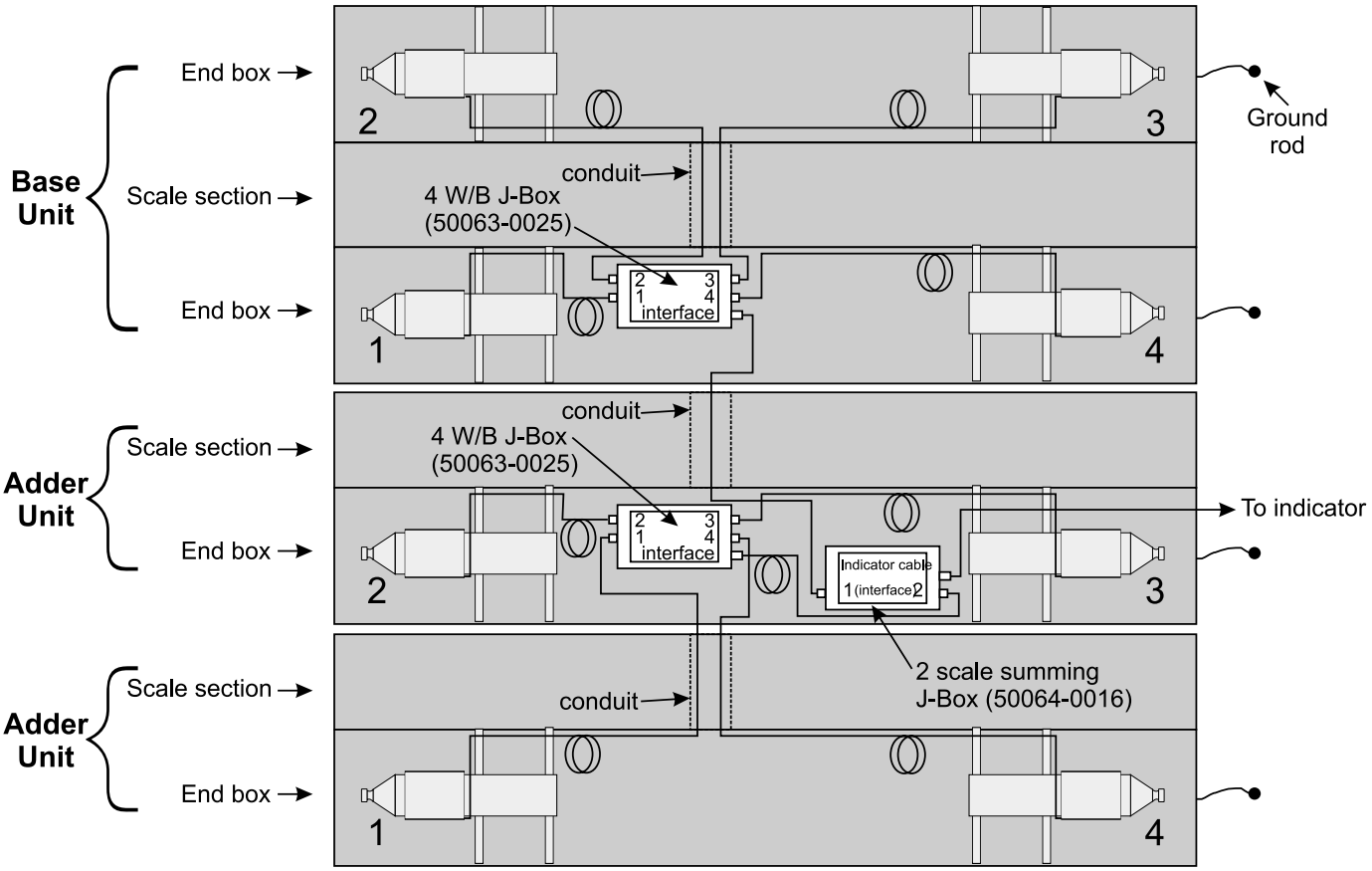
FCXT Truck Scales Deck Concrete Requirements 4,000 PSI Fibermesh Concrete		
Scale Size	**Number Modules**	**Concrete Quantity**
FCXT 1012-40T	1	1.4
FCXT 1212-40T	1	1.8
FCXT 2012-40T	1	3.4
FCXT 2412-40T	1	4.0
FCXT 3012-80T	2	4.9
FCXT 3512-80T	2	5.9
FCXT 4012-80T	2	6.8
FCXT 4712-80T	2	8.1
FCXT 6012-100T	3	10.3
FCXT 7012-100T	3	12.1
FCXT 8012-100T	4	13.7
FCXT 9312-100T	4	16.1
FCXT 10012-100T	5	17.1
FCXT 11612-100T	5	20.2



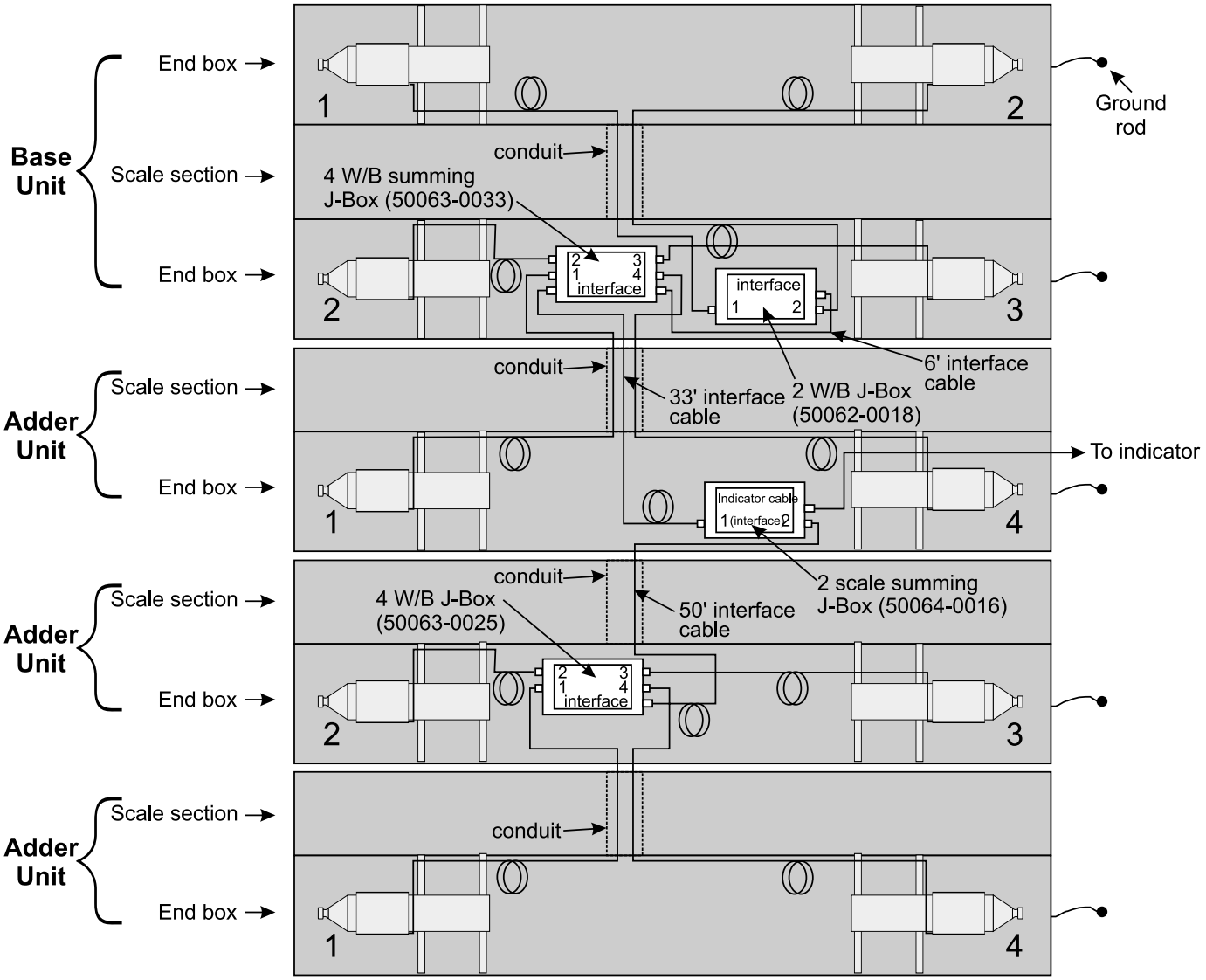
4 Weigh Bar scale wiring diagram



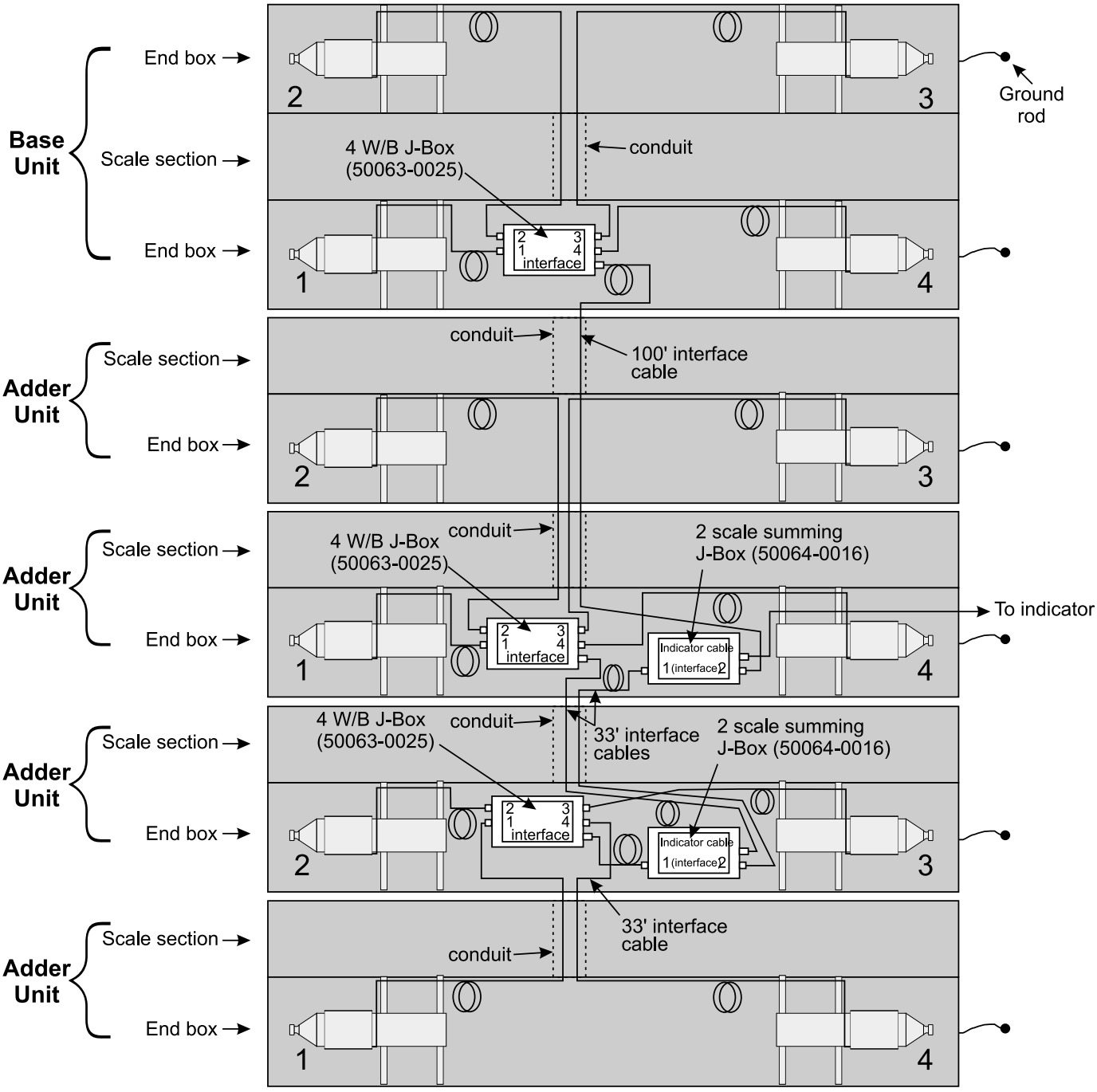
6 Weigh Bar scale wiring diagram



8 Weigh Bar scale wiring diagram



10 Weigh Bar scale wiring diagram



12 Weigh Bar scale wiring diagram

Parts List

Part Number	Description
50807-0018	Pin stand
50816-0017	Pin
50882-0016	Link
50158-0013	Pin locking plate
50205-0016	Shim Plate
14476-0642	Hex hd. bolt, 0.50-13UNC x 5.50 GR5
14480-0042	Hex nut, self-locking, 0.50-13UNC
50063-0025	4 Weigh bar J-box w/summing
50063-0033	4 Weigh bar J-box
50062-0018	2 Weigh bar J-box
26357-0020	Washer, small NPRN-Seastrom
26357-0053	Washer, large NPRN-Seastrom
15257-0032	Strain relief, small
15257-0065	Strain relief, large
50072-0016	Gasket, junction box
14506-0059	Nut, Hex hd sst, 10-32UNF
50064-0016	2 Scale summing box
50935-0013	60K W Bar w/36' cable
50935-0054	60K W Bar w/SST jacket w/36' cable
50061-0027	7-pin interface cable 6'
50061-0092	7-pin interface cable 33'
50061-0118	7-pin interface cable 50'
50061-0134	7-pin interface cable 100'
50061-0059	7-pin interface cable 150'
50061-0175	7-pin interface cable 250'
50061-0191	7-pin interface cable 350'
50473-0029	7-pin interface cable w/sst jacket 6'
50473-0029	7-pin interface cable w/sst jacket 33'
50473-0029	7-pin interface cable w/sst jacket 50'
50473-0029	7-pin interface cable w/sst jacket 75'
50473-0029	7-pin interface cable w/sst jacket 100'
50473-0029	7-pin interface cable w/sst jacket 150'
48614-0015	Anchor Bolt Assembly

Part Number	Description
J-Box Grounding Kit:	
14473-0603	Screw, Pan Hd .25-20UNC x .38 lg
14474-0057	Washer, Lock SS #10
14474-0198	Washer, Lock SS ¼"
14503-0037	Screw, Phil Pan Hd SS 10-32 x 3/8"
14506-0059	Nut, Hex Hd SS 10-32UNF
16062-0019	Lug, Crimp-3M#MV10-10RX
16062-0035	Lug, Crimp-3M#MV10-14R/SX
17855-0018	Beam clamp
17915-1022	Wire, stranded-10AWG, Grn

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