7500

Installation and
Service Instructions

For: ON- HIGHWAY VEHICLES
Platform Sizes: 12’ x 10’
30’ x 10’
40’ x 10’
60’ x 10’
70’ x 10’
80’ x 10’

INTRODUCTION

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

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

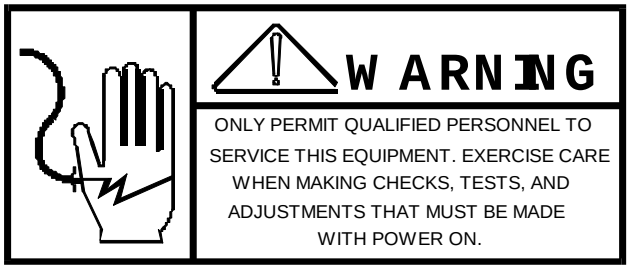
METTLER TOLEDO
Training Center
P.O. Box 1705
Columbus, Ohio 43216
(614) 438-4400

PRECAUTIONS

- **READ** this manual before operating or servicing this equipment.

- **ALWAYS REMOVE POWER** and wait at least 30 seconds **BEFORE** connecting or disconnecting any internal harnesses. Failure to observe these precautions may result in damage to, or destruction of the equipment.

- **ALWAYS** take proper precautions when handling static sensitive devices.



- **DO NOT** connect or disconnect a load cell scale base to the equipment with power connected or damage will result.

- **SAVE** this manual for future reference.

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

- **ALWAYS DISCONNECT** this equipment from the power source before servicing.

- **CALL** METTLER TOLEDO for parts, information, and service.

CONTENTS

1.0 INTRODUCTION

Modular technology is used in the construction of the Toledo 7500 Bridgemaster Full Load Cell Motor Truck Digital Scale. Basic modules installed in the pit are the Weighing Cross Beam Assemblies and the prestressed concrete Platform Elements.

See Figure 1 for typical modular arrangement.

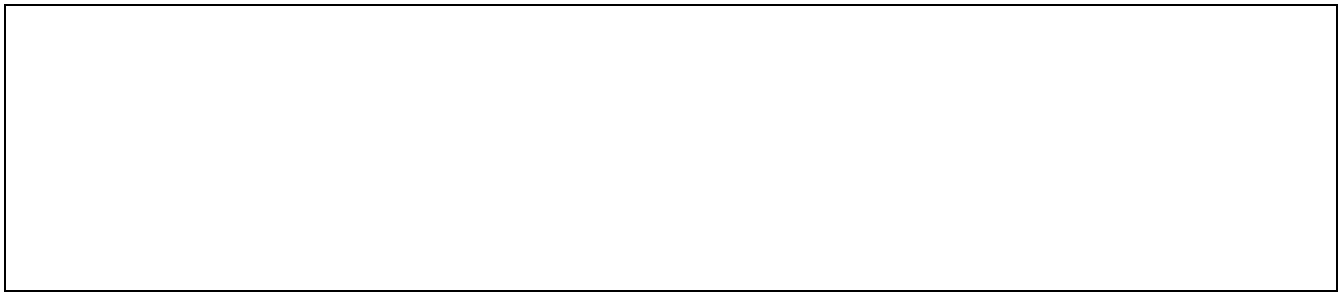


Figure 1

The Weighing Cross Beam Assemblies are factory assembled and shipped with the integrally mounted CELLINK suspensions and load cells (Fig. 2). The CELLINK suspension allows the platform to oscillate and transfers the applies load to the load cell.

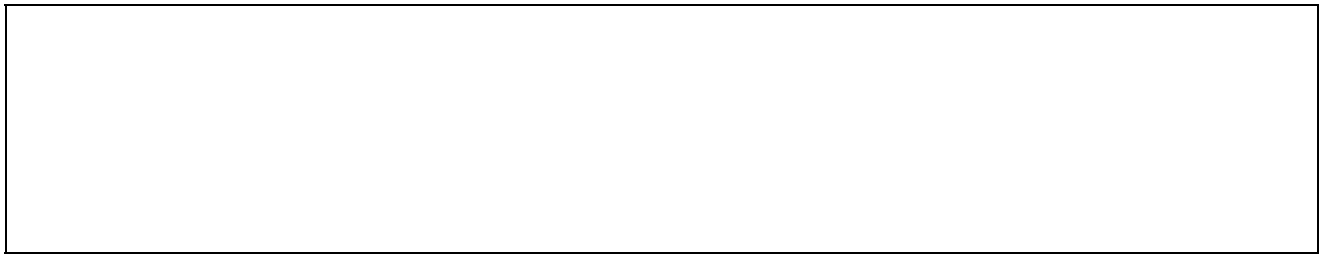


Figure 2 - Installation Flow Chart

1.1 SITE INSPECTION

Visit the job site and form a visual mental picture on the facilities for unloading and installation of the weighing cross beam assemblies and platform elements.

Crane capacity and boom length may vary depending upon:

1. Crane availability.
2. Crane and truck accessibility to the pit -end(s), both sides, one (1) side only, etc.
3. Crane movability - obstructions or limitations (overhead and other maneuverable restrictions).
4. Length of the platform element lifting cables - Longitudinal distance between the installation strand lifting eyes.
5. Platform element unloading-opposite or same side as the crane location.

Normally only one (1) mobile crane is used for the Bridgemaster Installation. In some instances, two (2) mobile cranes may be required, depending upon the maneuverable restrictions at the installation site.

Obtain RECOMMENDATIONS from your local reliable mobile crane supplier.

When making mobile crane arrangements show the supplier Toledo's prestressed concrete double tee type platform element layout for platform element lifting and configuration characteristics and installation sire crance maneuverable limitations and access sketch. The mobile crane supplier may want to even visit the installation sire. See Platform Element Data and Suggestive Mobile Crane Service Minimal Requirement Table for other pertinent information.

Platform Size	Platform Element Weight (Approx.)	Dimensions				
		A	B	C	D	E
30’ X 10’	9 Tons	30’-0 (±1/2)	28’-0	23’-0	3’-6”	1’-0
40’ X 10’	12.5 Tons	40’-0 (±1/2)	38’-0	30’-0	5’-0	1’-0
60’ X 10’	19.5 Tons	60’-0 (±1/2)	58’-0	47’-0	6-6 (±1)	1’-0
70’ X 10’	30’ - 9 Tons 40’-12.5 Tons	Use 30’ and 40’ Platform Size Data.				
80’ X 10’	12.5 Tons	Use 40’ Platform Size Data.				

All Data is Subject to Change Without Notification

Suggestive Mobile Crane Service
Minimal Requirements

Platform Size	Crane	
	Capacity	Boom Length
12’ x 10’	15-20 Ton	35’
30’ x 10’	40-50 Ton	55’
40’ x 10’	40-50 Ton	55’
60’ x 10’	40-50 Ton	55’
70’ x 10’	Use 40’ Platform Size Data	
80’ x 10’	Use 40’ Platform Size Data	

Before beginning the installation, check that the prints for the pit, platform, and general layout are the proper prints for the model and platform size being installed.

Unpack and check all parts against the packing slip so that any lost or damaged parts may be obtained before starting the installation.

NOTE Appropriate kit of parts are also packed in each Cross Beam Assembly (beneath load cell suspension tolerances specified on the print.

1.2 MEASURING THE PIT

A properly constructed pit is essential for a good installation. Pit dimensions must be within the allowable tolerance specified on the print.

1.3 PIT OPENING

Using the print-dimensional specifications, check the following:
NOTE DIMENSIONAL TOLERANCE - All inside dimensions of the pit must be held to ±1/2 inch.

1. Dimensions A, B, C and D.

All corners are square to form a rectangular opening.

A). Measure both diagonals E. They should be the same length within 1/2 inch.

Top of all curb angles must be level unless otherwise specified on the pit print.

A) Tightly stretch a stout chalk line across the length of the put near the center of the pit opening (anchor each end of the line with a 50lb. Test weight placed near the edge of the curb angle). Place a line level midpoint on the line.
B) Repeat the above instructions near both walls.
C) Check level at several points across with width of the pit.

Figure 3.

1.4 PIER GROUTED SUPPORT PLATES (FIG. 4)

The top of all base plates must be clean, smooth and level. Using the pit drawing, check:
NOTE: Locating dimensions and base plate levelness must be within the allowable tolerances specified on the drawing.

1. The location of the pier mounted base plates within the pit: - four (4) or six (6) places, depending upon the size of the platform.
2. The distance from the top of the curb angle to the top of the grouted in-place base plate.
3. To see that each base plate is level.

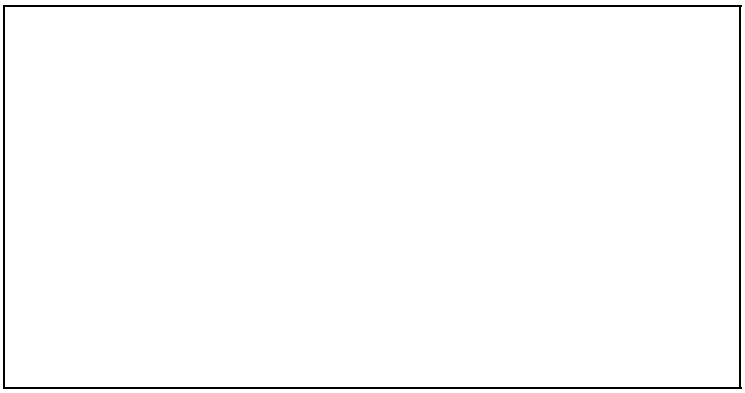


Figure 4.

The installer must determine if a pit with out-of-tolerance dimensions can be utilized and/or if modifications must be made during the installation. The out-of-tolerance pit conditions must be brought to the attention of the purchaser or contractor and acceptance obtained accordingly. The purchaser or contractor should be notified of any needed modifications so that adjustments can be made for any additional cost to the installer for material and/or labor.

NOTE:
The Joint (Center) Cross Beam Assembly is only used on the 70' x 10' and 80' x 10' platform sizes.

When the Joint Cross Beam is in position:
1. Determine the CENTERLINE of the Cross Beam Assembly
2. Mark the top of the curb line with a chisel to permanently identify this point.
3. Stretch a chalk line across the pit. Anchor each end with a fifty (50) lb. Test weight or equivalent and stretch the line as tight as possible to eliminate sag. This determines the Joint Cross Beam Centerline requirement for the platform element replacements. Ends of the platform elements must be located one-half (1/2) inch from the cross beam centerline. See General Layout/Figure 4A.

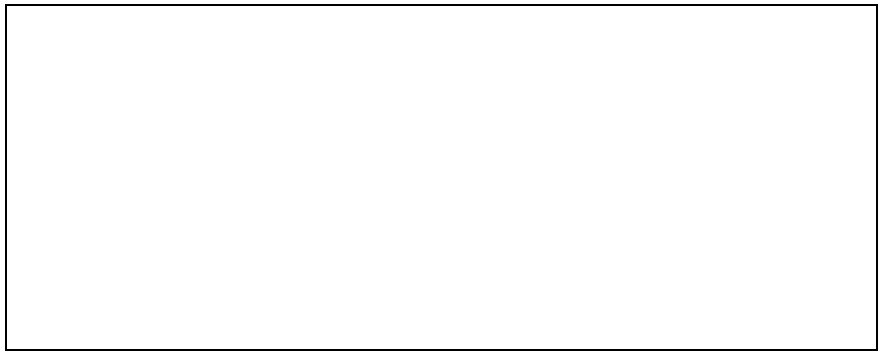


Figure 4a.

CAUTIONARY ***NOTE:***
CELLINK LOCATING PLATE AND LOWER PLATE ASSEMBLY JOINERS

1.5 WEIGHING CROSS BEAM ASSEMBLY

The Cellink is factory assembled with a built-in 3/8 inch internal clearance between the lower plate(s) and load cell support base plate(s). See Cellink Configuration.

During shipment and installation, this clearance is automatically maintained by the lower plate and locating plate joiners.

THE JOINERS ARE TO BE REMOVED ONLY AT THE SEQUENTIAL RAIDING THE WEIGHING CROSS BEAM ASSEMBLIES STEP SPECIFIED IN THE MANUAL.

Without the joiners being in place, a drastic clearance change could occurring during installation and alignment of the weighing cross beam assemblies and platform elements, i.e. causing mechanical interference between Cellink components, restricting platform oscillation, inaccurate weighments.

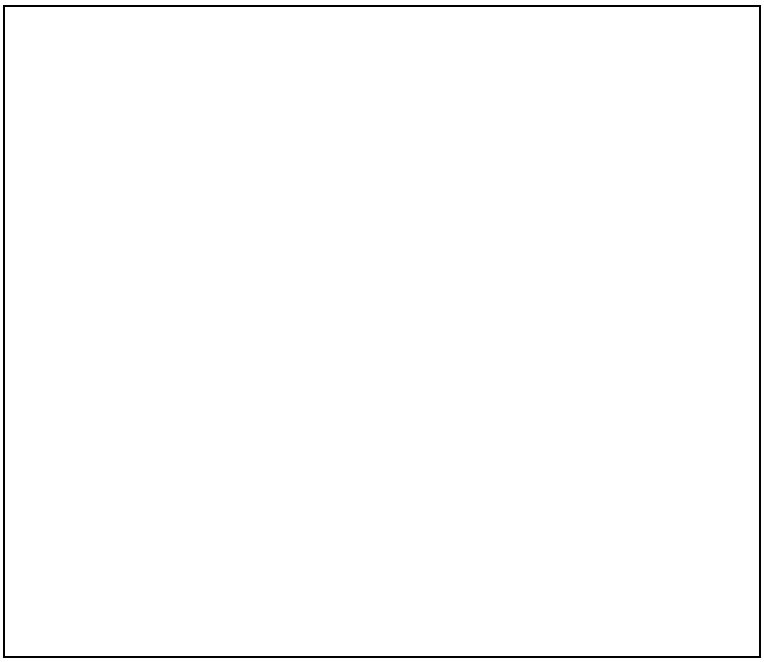
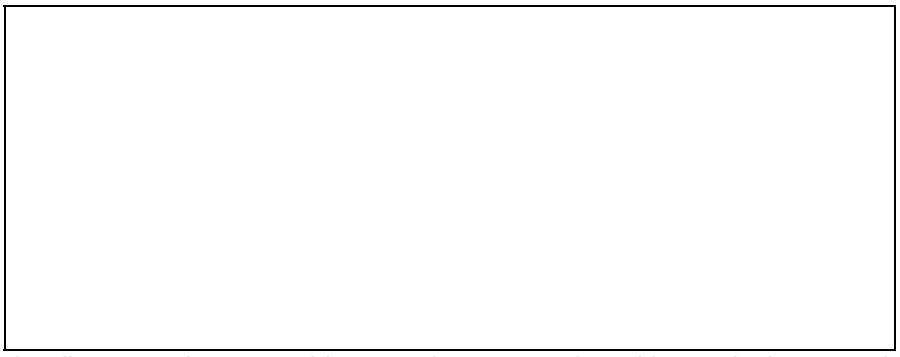


Figure - CELLINK CONFIGURATION

A smooth installation will depends largely upon the SITE INSPECTION (prior to equipment installation) and the SEQUENTIAL SCHEDULING of OUTSIDE CONTRACTORS and TOLEDO SCALE PERSONNEL each with required associated equipment. See BRIDGEMASTER INSTALLATION FLOW CHART.

Weighing Cross Beam Assemblies

1. Lower the Cross Beam Assemblies onto the pit pier support plates. (Fig 5).
2. Locate the end and/or Joint (Center) Cross Beam Assemblies within the pit according to the longitudinal dimensional data shown on the general layout for the appropriate platform size. Position the cross beams parallel and equal distance from the pit side walls (measure from the pit side wall to the nearest load transfer bar).



3. Remove the Load Cell-Suspension Assembly protective covers, dust skirts and other associates components packed in the cross beam.
4. Turn center screw counterclockwise until the load is removed from the links (links are loose on the link pins). (Fig. 6)
5. Temporarily place Load Cell Suspension Assembly protective covers back in place.
6. Loosen the load and/r moment transfer by retaining bolts approximately 1/4 inch. (Fig. 5)

Platform Size	Number of Platform Elements		
	Total	With Manhole	Without Manhole
12’ x 10’	2	1	1
30’ x 10’	2	1	1
40’ x 10’	2	1	1
60’ x 10’	2	2	-
70’ x 10’	4	2 (1-30 Ft.) (1-40 Ft.)	2 (1-30 Ft.) (1-40 Ft.)
80’ x 10’	4	2 (2-40 Ft.)	2 (2-40 Ft.)

1.6 PRE-INSTALLATION

Before the Platform Element is lowered into the put:

Remove concrete from the bottom and inner edge. (Thickness) the full length of the embedded stern load bearing plates.(Fig. 7).

Platform Sizes	No. Of Platform Elements		No. Of Cross Beam Assemblies	
	30 FT.	40 FT.	End	Joint
30' x 10'	2	-	2	-
40' x 10'	-	2	2	-
70' x 10'	2	2	2	1
80' x 10'	-	4	2	1

The embedded load bearing plates in these platform elements extend from the end of the stem inboard approximately seventy-eight (78) inches. This arrangement allows the load bearing plates, depending upon the platform size, to be welded either to the end cross beam load transfer bars or to the end and joint (center) cross beam load and moment arm transfer bars. See General Layout.

Temporarily place shim(s) (accumulated thickness of approximately one (1) inch) in the center and on the top of the appropriate load transfer bars on each Weighing Cross Beam Assembly. Two (2) cross beam load transfer bars are required to support each Platform Element. These spacers or shim(s) will prevent cross beams from tipping (due to the built-in chamber in each Platform Element) and moving when the first Platform Element is lowered into the pit. These shim(s) are removed later.

NOTE: Temporary shim replacement is not required on the other cross beam load transfer bars located on the other side of the pit.

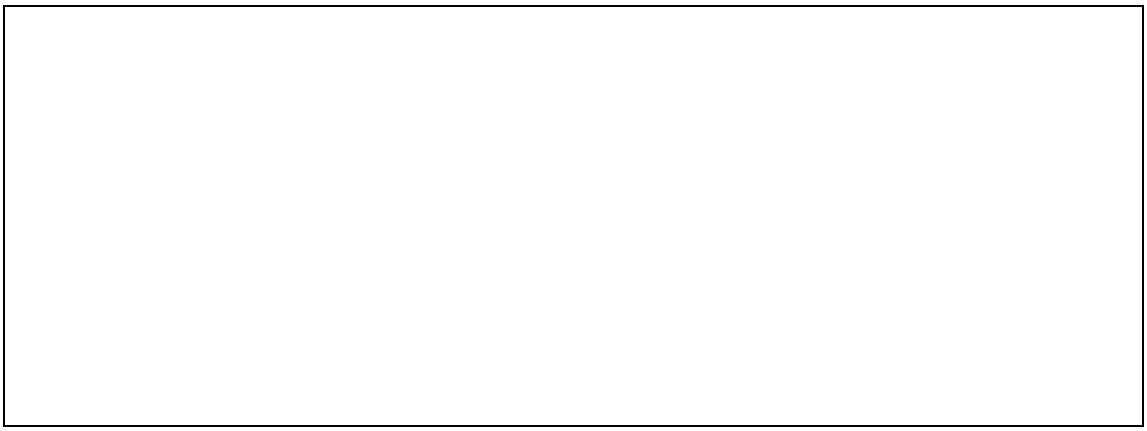


Figure 7

Sequentially lower the Platform Elements onto the cross beam load transfer bars and in alignment with the put walls. Dimensional clearance data is shown on the general layout for the appropriate size of platform. See PLATFORM ELEMENT REPLACEMENT DATA TABLE FOR LOCATION OF MANHOLE(S).

PLATFORM SIZES: 70' x 10' and 80' x 10'

End of Platform Elements MUST be places on half (1/2) inch from the Joint (center) Cross Bar CENTERLINE. This alignment takes procedure over the element clearance with the end pit walls. See Figure/General Layout

70' x 10' PLATFORM ELEMENTS ONLY

Place elements so that the Joint (Center) Cross Beam MOMENT ARMS are connected to the 4ft. Length platform elements. Original equipment Platform Elements are provided with four (4) stranded cable type lifting eyes. Once the Platform Elements are in place, the lifting eyes are burned off and the platform element recess pockets are patched (Figure 8).

SEE AIDS SECTION FOR PLATFORM BLOCKING PROCEDURE

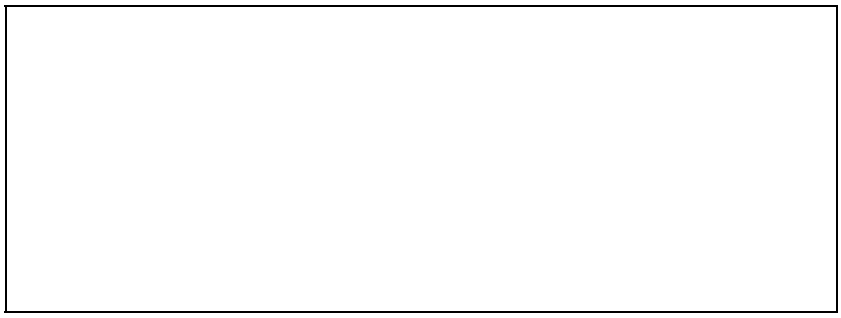


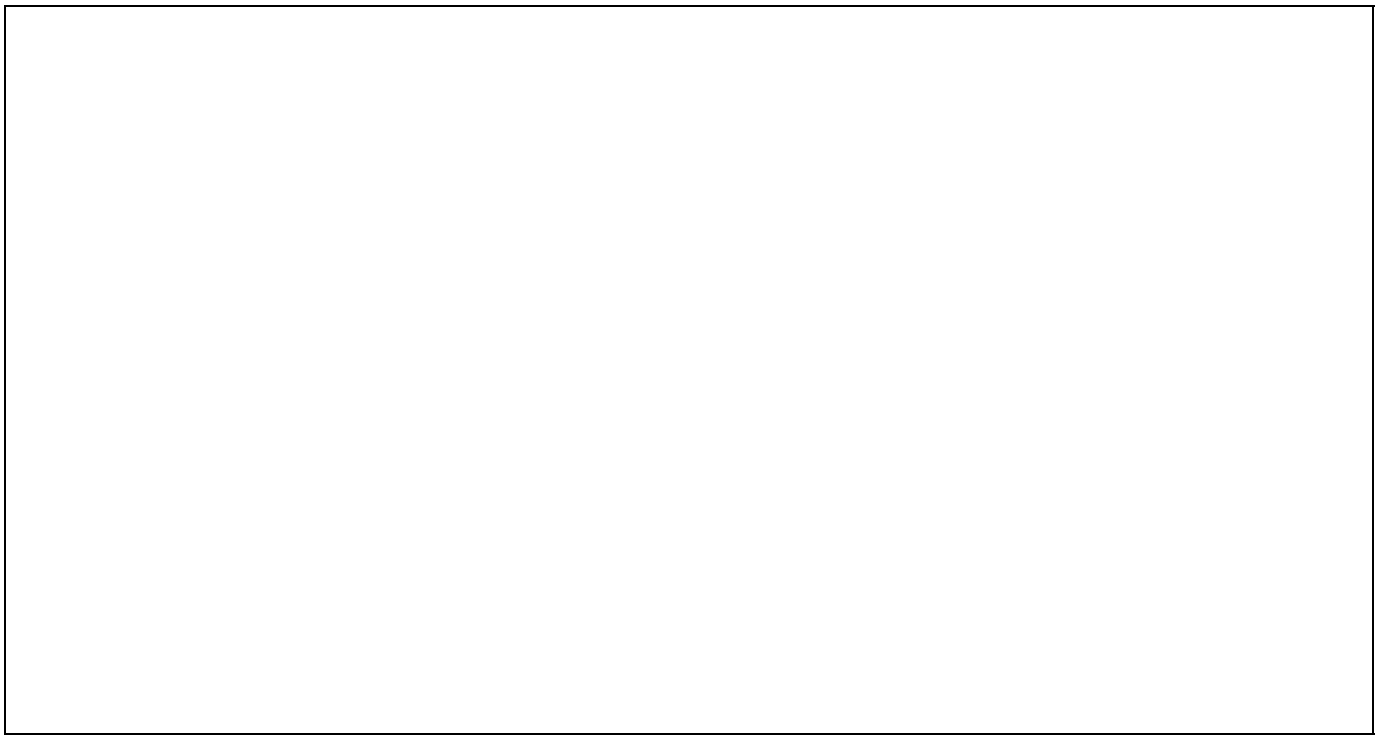
Figure 8

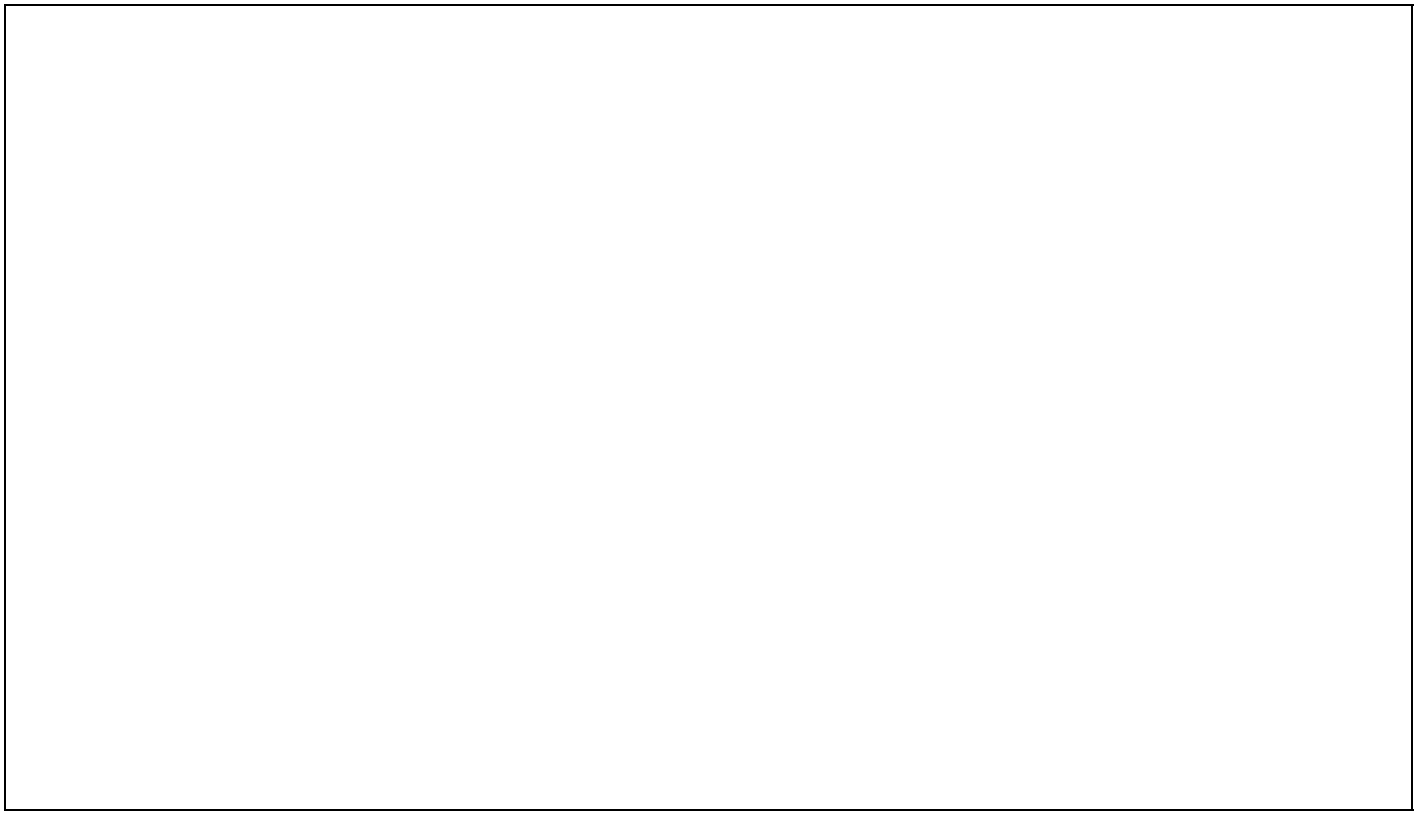
1.7 HEIGHT ADJUSTMENT

The ends of the Platform Elements must be located 1/4 inch below curb angles by adding or removing flat spacers and/or spacer rings between the transfer bars and the cross beam. This will permit the Platform Elements to be flush with designated curb angles when the Cross Beam Assemblies all raised.

Where two (2) Platform Elements or End Weighing Cross Beam Assemblies are used, the ends of the Platform Elements must be located 1/4 inch below the end wall (approach) curb angles.

Where four (4) Platform Elements or three (3) Weighing Cross Beam Assemblies, tow (2) End and one (1) Joint Weighing Cross Beam Assemblies are used, the ends of the Platform Elements must be located 1/4 inch below the end wall (approach) angle and side wall angles at the location of the Joint (Center) Cross Beam Assembly, i.e., 70’ x 10’ and 80’ x 10’ platform installations.





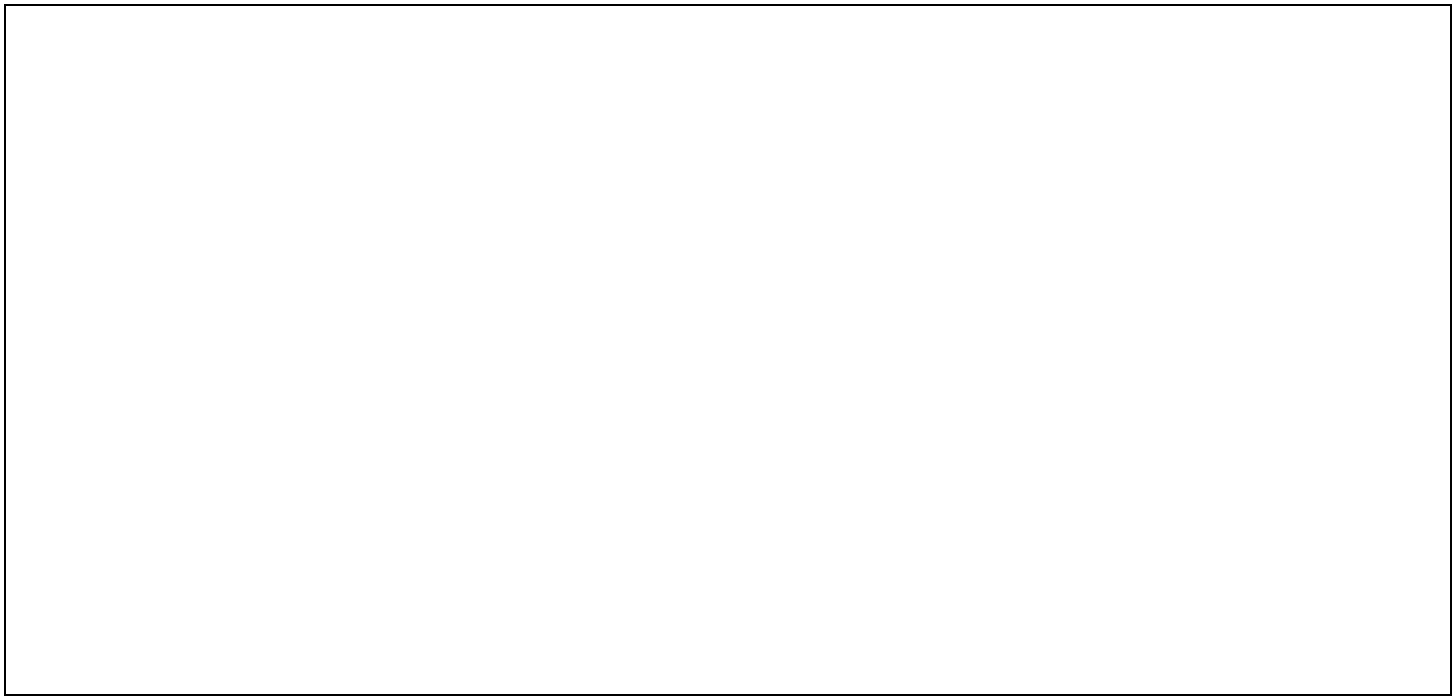


Figure 10

The Weighing Cross Beam Assemblies are pre-assembled and shipped with appropriate spacers and/or spacer rings in position between the load and moment transfer bars and the cross beam. Additional spacers and/or spacer rings are furnished in the kit of parts.

See Figures 9 & 10 for End and Join Cross Beam Spacer arrangement and method of assembly.

1. Place hacks (2) (one (1) jack directly beneath each platform stern) adjacent to the cross beam (Figure 11).

   CAUTIONARY NOTES: Be sure to use stable blocking (raise jack in suitable position) between the jack base and pit floor.

   Place a steel shim between the concrete Platform Element stern and the head of the jack.

   BE SURE TO REMOVE THE TEMPORARY PLACED SHIMS AT THE INSTALLATION OF THE FIRST PLATFORM ELENET(S).

   JOINT WEIGHING CROSS BEAM NOTES FIG. 10
   It is necessary to sufficiently raise the end of the Platform Elements to:

   Remove the shipping pipe spacer 1 on each load transfer bar.
   Raise the load transfer bar for adding or removing the appropriate spacer rings.

   Be sure to leave load transfer bar retaining Bolts 2 loose.

2. Raise and/or lower the end of the Platform Element until the 1/4 inch dimension is obtained.
3. Place the required spacers (A tight fir is a requisite) on both ends of each transfer bar (directly above the bar retaining bolts) between the top of the transfer bar and the Platform element stem bearing plate.
4. Sequentially remove spacers (Step 2); loosen the load and/or moment transfer bar retaining bolts; place the spacers in position between the transfer bar and the cross beam. The transfer bar retaining bolt holds the spacers in place.
5. Securely tighten all End Weighing Cross Beam Load Transfer Bar and Joint (Center) Weighing Cross Beam Moment Arm Load transfer Bar Retaining Bolts.
6. Lower the platform onto the transfer bars.
7. Repeat the above steps until the 1/4 in dimension is obtained.

   JOINT WEIGHING CROSS BEAM NOTES: In order to obtain a smooth transfer of the load from one Platform Element to the other element (same side of the pit), the ends of the Platform Elements must be level with one another.

   Be sure to leave the Joint (Center) Weighing Cross Beam Load Transfer Bar Retaining Bolts 2 (Figure 10) loose.
8. Repeat the above procedure until the ends of ALL Platform Elements are 1/4 inch below the appropriate pit curb angles.

1.8 PLATFORM ELEMENT ALIGNMENT

After ALL Platform Elements are located in their respective and proper position, the element stem embedded bearing plates are welded in place to the weighing cross beam load transfer and/or moment transfer bars. Consequently, it is very important that the space allocated for welding as specified on the general layout be maintained. THE LOAD BEARING PLATE TRANSFER BAR ALIGNMENT TAKES PRECENDENT OVER THE PLATFORM ALIGNMENT WITH THE PIT WALLS.. ALWAYS MAKE THE TRANSVERSE ALIGNMENT ADJUSTMENT LAST.

1. LONGITUDINAL ALIGNMENT - Figure 12.
   A) Place jacks and associated wedging and blocking components in each cross beam supporting the Platform Element as shown on in Figure 12 Jacking Arrangement, and in the direction the Platform Element is to be moved.

B) Using both jacks, slide the Platform Element into position.

2. TRANSVERSE ALIGNMENT - Figure 13.
   A.) Place jack and associated wedging and blocking components (block against the transfer bar) on top of the cross beam as shown in Fig.13 Jacking Arrangement, and in the direction the Platform Element is to be moved.
   B) Use the jack to move the Platform Element sideways into position.

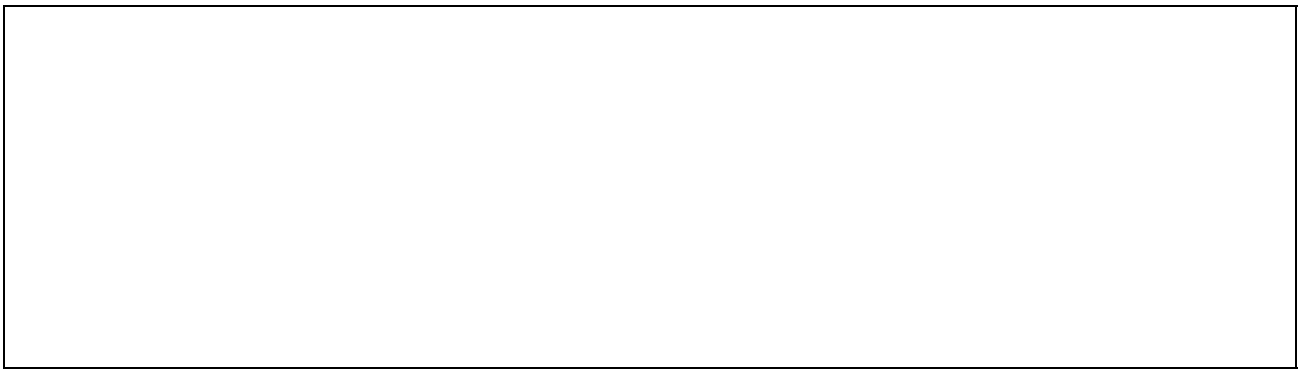


Figure 12

3. REPEAT THE LONGITUDINAL AND TRANSVERSE ALIGNMENT PROCEDURES until ALL Platform Elements are Properly located.

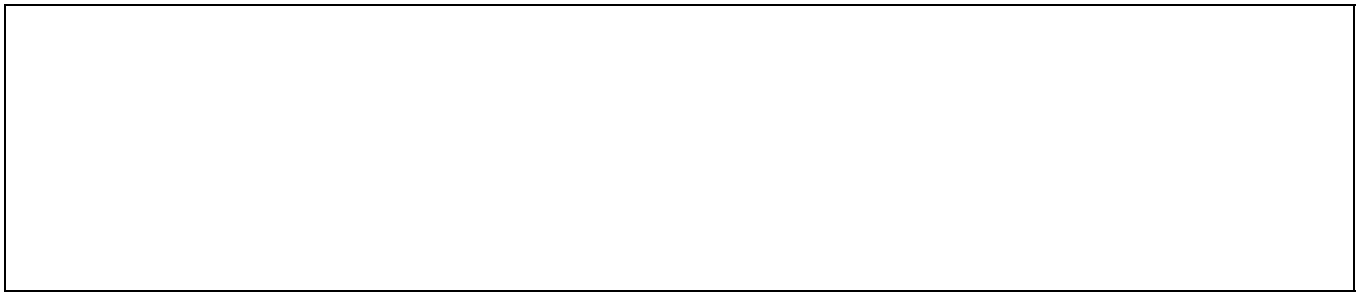


Figure 13 Suggested Transverse Alignment Jacking Arrangement

1.9 WELDING PLATFORM ELEMENTS AND WEIGHING CROSS BEAMS IN PLACE

All welding must be done in accordance with the symbolic instructions shown on the GENERAL LAYOUT - See general Layout/Fillet Welding Symbol Interpretation Table in AIDS section.

Welding must be done in the following sequence.

1. PLATFORM ELEMENTS: Weld in place the stem embedded bearing plates to the cross beam load transfer and/or moment bars.
2. CROSS BEAMS: Weld the locating plates to the pier mounted support plates.

MAKE SURE THE WELDER BURNS OFF ALL PLATFORM ELEMENT STRANDED CABLE LIFTING EYES BEFORE LEACING THE INSTALLATION SITE.

Raising the Weighing Cross Beam Assemblies

Cross Beam Assemblies are now raised (a CELLINK) center screw adjustment is necessary) to bring the Platform Element flush with designated pit curb angles and allows the platform to move freely.

RAISE ONE END OF THE CROSS BEAM INTO POSITION AT A TIME.

Knock off the lower plate locating plate assembly joiners (Figure 14.) There are 8 joiners, 2 joiners on each side.

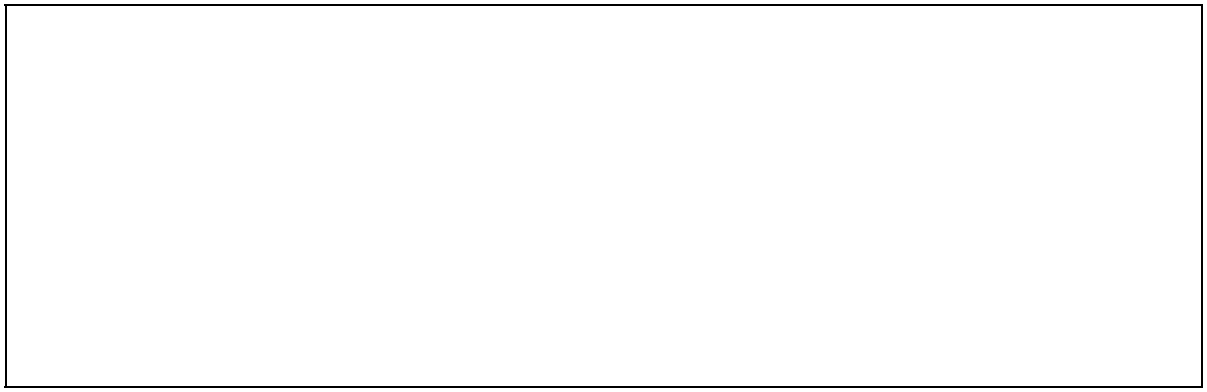


Figure 14.

Place jacks (2): one jack directly beneath each cross beam support angle (|____|) and adjacent to the pier (Fig. 14A). If required, be sure to use stable blocking (raise jack in suitable lifting position) Between jacks and pit floor.

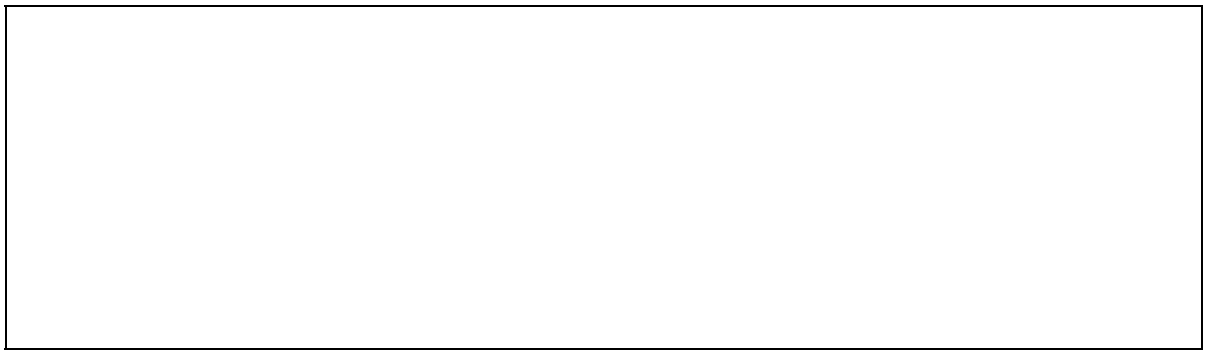


Figure 14A

Raise the cross beam assembly until the end of the Platform Element is slightly above the pit curb angle. This assembly in the raised position removes the load from the adjustable center screw.

NOTE: LOAD CELL SUPPORT BASE PLATE ANTIROTATION PIN VISUAL INSPECTION - Make sure the antirotation is NOT sheared, and pin is positioned in the locating plates slot. Try to manually rotate the load cell - base plate assembly.

Turn Center Screw clockwise until there is 1/4 inch clearance between the lower plate and locating plate (Figure 15). Check clearance on all four (4) sides with a 1/4 inch thick shim.

Lower Cross Beam Assembly into position (load removed from jacks).
Repeat the above procedure until there is 1/4 inch clearance between the lower plate and locating plate at ALL CORNERS of the cross beams.

Upon completion, the ends of the Platform Elements should be flush with designated pit curb- angles and allows the platform to oscillate (CELLINK suspension transfers the load to the load cells).

Position and secure in place ALL Load Cell Suspension Assembly protective covers.

NOTE: MAKE SURE LOAD CELL CABLE IS NOT CONTACTING LINK.

Remove jacks and associated blocking components.
Dust skirts prevent dirt and other foreign materials entering the cavity between the lower plate and locating plate. (Fig.2).

Attach dust skirts to ALL lower Plates, Four (4) skirts/plates, one on each side.

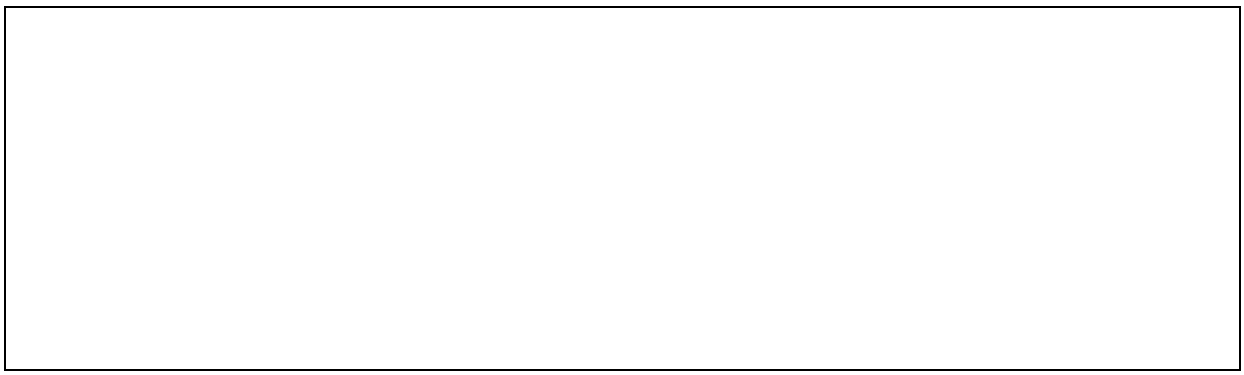


Figure 15

Load Cell Cable Wire Rope Support Carrier
String wire rope between weighing cross beam using the eyebolts and rope clamps provided. Remove slack in the rope by adjusting the eyebolt (Fig. 5).

NOTE:MAKE SURE THE WIRE ROPE CARRIER IS LOCATED ON THE SAME SIDE OF THE PIT AS THE SIX (6) CONDUCTOR LOAD CELL INTERCONNECTING CABLE CONDUIT.

Mounting Junction Box(es)
Using the General Layout Dimensional Data, locate and mount the junction box(es) on the Platform Element stem nearest the load cell cable support carrier.

IMPORTANT NOTES: Use the junction box as a template for mounting hole location and mount box with the expansion anchors, spacers and bolts provided.

70' x 10 and 80' x 10' platform required the installation of two (2) junction boxes.

Load Cell Cables

Tie load cell cables to the wire rope support carrier and make connections (load cell cables and five (5) conductor plus shield interconnecting cable between Digital Indicator and junction box) according to junction box external wiring diagram.

CAUTIONARY NOTES: **DO NOT CUT LOAD CELL CABLE**. The thirty five (35) feet of cable is included in the load cell calibration.

Check and make sure:
a. All connections at terminal blocks are tight. Cable leads are secured against the base wire and NOT the insulation.
b. All junction box/interconnecting cable connectors are tight .
c. All Junction box pipe plugs are in place and tight.

Coil excess cable, tie, and secure the coil of cable to either the junction box, rope support carrier or cross beam. Do not allow the load cell cable(s) to lie on the pit floor.
Six (6) conductor plus shield interconnecting cable, secure cable to underside of Platform Element. Allow sufficient cable slack between pit wall and first cable retaining clamp to permit platform oscillation.
POWER CABLES ARE NOT ALLOWED IN THE SAME CONDUIT WITH load cell cable.

Digital Indicator
Proceed according to instructions described in the Digital Indicator instruction manual (obtain desired size of graduation, span and instrument zero (0) display indication).

2.0 CALIBRATION

ALWAYS CALIBRATE THE SCALE USING THE MAXIMUM AVAILABLE TEST WEIGHT LOAD ON THE SCALE PLATFORM.

2.1 ADJUSTING THE SHIFT

1. Place the available test weights or as required to meet Weights and Measures requirements on one Platform Element directly over (as close as possible) EACH LOAD CELL. Take and tabulate the readings.
2. The shift is correct when ALL readings are the same or within the specified National Bureau of Standards H-44 Handbook Digital Scale performance requirements.
3. If the readings are NOT the same or within the specified tolerance, TRIM appropriate load cell(s) at the junction box to correct the error.
4. Repeat the above procedure until the applied load over EACH load cell is the same or within the specified tolerance.

2.2 SCALE CALIBRATION

1. Place the maximum available TEST WEIGHT LOAD on scale platform and note display indication.
2. Remove test weights from scale platform.
3. Place a commodity load on the scale platform EQUAL to the TEST WEIGHT LOAD display indication (Step a.) Trim the commodity load until the display indication reads the same as the test weight load.
4. Again, place the TEST WEIGHT LOAD on the scale platform and note display indication.
5. The digital indication should read the SUM of the commodity and test weight loads.
6. Repeat the above steps (combination of commodity and test weight loads) until the requirements specified by Weights and Measures are met.
7. Calibrate and Digital indicator according to prevailing instructions.
8. Repeat the above procedure until the calibration meets Weights and Measures Digital Scale Performance requirements.

Replacement Components

When ordering replacement components, be sure to give the following scale nameplate information:

Model Number Serial Number Factory Number

3.0 AIDS

3.1 LOAD CELL REPLACEMENT PROCEDURE

REMOVAL

1. Remove sequentially:
   a) dust skirts from the lower plate.
   b) Load Cell-Suspension Assembly protective cover
   c) Cross Beam load cell cable retaining clamps.
   d) Load cell cable from the wire rope carrier and junction box.

2. Place jacks (2) - one jack directly beneath each cross beam support angle (|___|) and adjacent to the pier (Fig. 14A). If required, be sure to use stable blocking (raise jack in suitable lifting position) between jacks and pit floor.

3. Raise platform slightly to remove the Platform Element (Cross beam kiad from the adjustable center screw.
4. Turn the center screw counterclockwise until the links are loose.
5. Remove the link retaining clips.
6. Sequentially spread (removal from link pins) the links, and remove upper plate and adaptor ring. (Fig. 16).
7. Lift out the load-cell base plate assembly.

ASSEMBLY
a. Antirotation pin fits into the locating plate recess and prevents the base plate from rotating.
b. The recess in the link (which are still assembled to the lower plate link pins) provides space for the load cell cable termination junction box.

SEE PROTECTIVE COATING LUBRICANT IN AIDS SECTION.

1. Remove the base plate from the defective load cell.
2. Assemble the base plate to the replacement load cell. See Cautionary Notes listed above.
3. Lower, and place base plate (load cell assembly into the locating plate).
   NOTE: Make sure that the antirotation pin is not broken and is properly located in the locating plate slot and there is no link interference with the load cell cable termination junction box.
4. Place adaptor ring on the load cell load receiver; upper plate onto adaptor ring.
5. Sequentially assemble links and link retaining clips to the upper plate link pins.
6. Adjust center screw (clockwise rotation) until the links are tight.
7. Lower Platform Element (Cross Beam Assembly into position). Load removed from jacks.
8. Check clearance between the lower plate and locating plate (all four(4) sides) with a 1/4 inch thick shim.
9. Repeat procedure: raise Platform Element (Cross Beam Assembly); adjust center screw clockwise and lower assembly into position, until the 1/4 inch clearance (Step 8) is obtained.
10. Remove jacks and associated blocking components.
11. Secure Load cell cable with retaining clamps to the cross beam.
    NOTE: Allow sufficient cable slack between load cell and first cable retaining clamp to permit platform oscillation. DO NOT ALLOW LOAD CELL CABLE TO CONTACT LINK.
12. Position and secure the protective cover in place.
13. Assemble dust skirts to the lower plate.
14. Attach load cell cable to the wire rope carrier and make the required connections at the junction box.

NOTE: Coil Excess cable and secure to junction box, mounted on Platform Element rope carrier or cross beam. DO NOT CUT LOAD CELL CABLE. The thirty-five (35) foot of cable is included in the calibration of the load cell.

Check the scale calibration and make calibration adjustments accordingly.

3.2 PLATFORM ELEMENT BLOCKING PROCEDURE

The concept of blocking each Platform Element is their respective position at the time of installation was developed to minimize the longitudinal and transverse alignment adjustments.

NOTE: A SKETCH IS VERY USEFUL IN DETERMINING THE BLOCKING (THICKNESS) REQUIREMENTS.

1. MEASURING THE PIT - FIG. 17
   a. Measure and record dimensions A,B,C,D, E, F, G, and H.

2. MEASURING THE PLATFORM ELEMENTS - FIG. 17
   a. Measure and record dimensions K and L on both sides and ends of each Platform Element.

   NOTE: DO NOT MEASURE OVER THE TOP OR THE CAMBER IN THE PLATFORM ELEMENT.

3. BLOCKING THICKNESS DETERMINATION
   A. LONGITUDINAL BLOCKING
      1. PLATFORM SIZES 12’ x 10’, 30’ x 10’, 40’ x 10’ and 60’ x 10’ - Fig. 17 and 18
         a. Subtract dimension K (respective side each Platform Element 5 and 6) from A or C; divide the difference by 2; the quotient is the block thickness requirements.

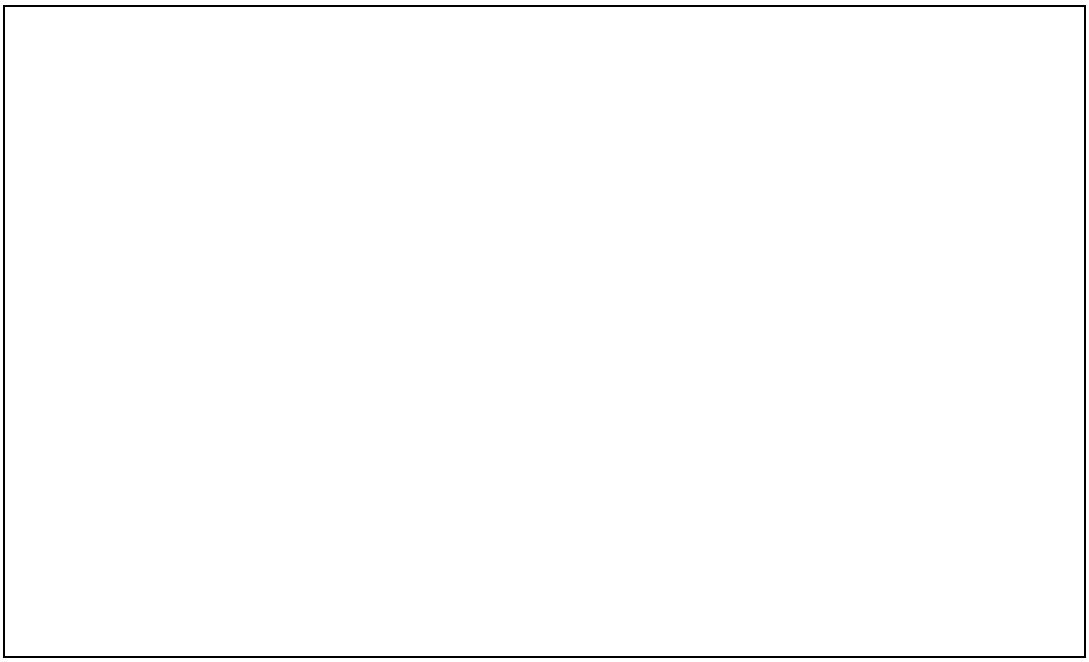


Figure 17

Example:

Dimensions A, B, C	60’ 2-1/2”
Dimension K	- 60’ 1/2”
Difference	2”
	2” ÷ 2 = 1” (quotient)

1” thick blocking is required.

2. PLATFORM SIZES 70’ x 10’ and 80’ x 10’ - Fig 17 and 19.
Four (4) Platform Elements, two (2) elements with manholes and two (2) elements without manholes are used in the modular construction of the 70’ x 10’ and 80’ x 10’ platforms

Space is allocated between each Platform Element (same side of the pit) and the end of the pit walls.

a) Add together K, and K2 dimensions (respective side of each element) of platform element 1 and 2; 3 and 4.

b) Subtract Dimension K (K= K1 + K2) and 1” spacing between elements at Joint (Center) Cross Beam from A, B, or C, divide the difference by 2 and the quotient is the block thickness requirement.

80’ x 10’ Platform Example:

Dimensions A, B or C	80’ -3”
Dimensions K	-79” -11-1/4”
Element spacing at Joint Cross Beam	-0’ -1” .
	2 3/4”
	2 3/4 ÷ 2 = 1 - 3/8” (quotient)

1-3/8” thick blocking is required.

4. TRANSVERSE BLOCKING

a. Add together the L Dimension (Fig. 17) of Platform Elements 5 and 6 or 1 and 3, or 2 and 4. (Fig. 18 and 19).

B. Subtract the total L Dimension from respective dimensions D, E, F, G or H (Fig 17); divide the difference by 3 and the quotient is the block thickness requirements.

Example:

Dimension L:

Platform 5	4’ - 11-1/2”
Platform 6	4’ - 11-1/2”
Total L Dimension	8’ - 23” or 9’ 11”

Dimension D, E,F, G, or H	10’ -2”
Total L Dimension	9’-11”
Difference	3”

3” ÷ 3 = 1” (quotient)

1” thick blocking is required.

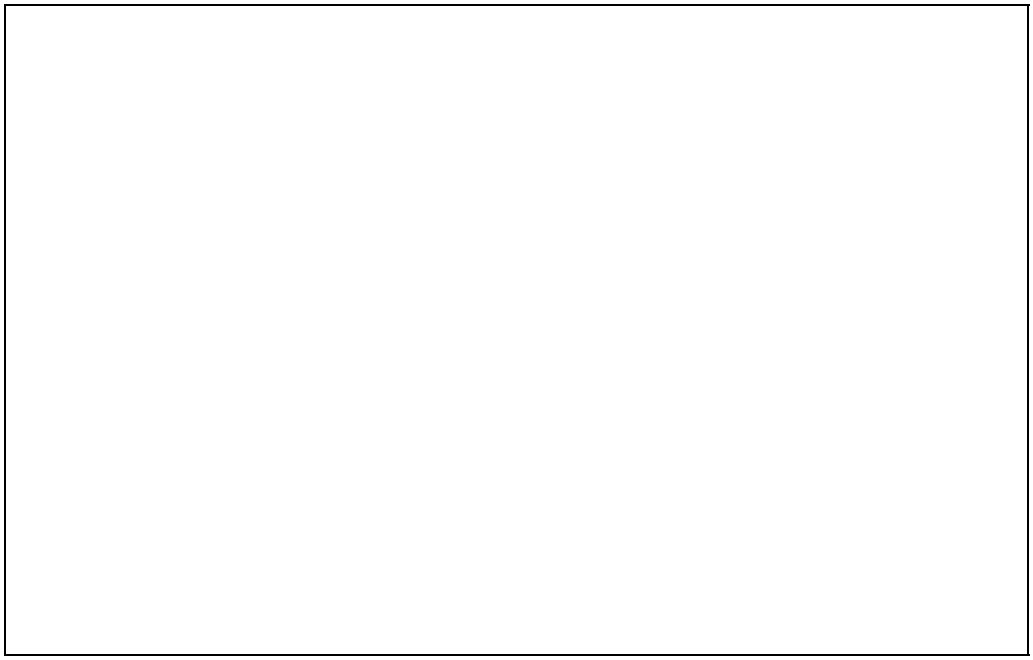


Figure 18

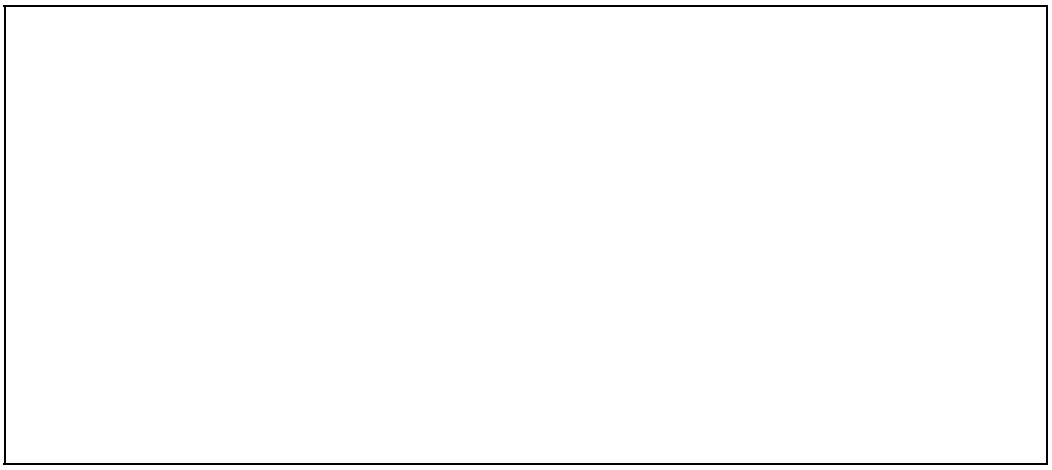


Figure 19

5. Repeat the above thickness determination formula for each block placement.
6. Place blocks in position just prior to each Platform Element installation (Fig 18 and 19)
7. Install Platform Element(s) against alignment blocks.
8. REMOVE blocking after the platform Elements are raised to 1/4 inch from the top of the pit coping angles.
9. Check and align, as required, the Platform Elements according to the Longitudinal and Transverse alignment instructions.

4.0 RECOMMENDED SPARE COMPONENTS

Quantity	Part Number	Description
As Required	10011900A	Load Cell Assembly 100K
	049680020	Load Cell Assembly 50K
As Required	P005840020	Dehumidifier, Junction Box
	10017000A	Spacer, Kit of Parts. Usage - See Weighing Cross Beam Procedure/Camber Change in Aids Section

RECOMMENDED SPARE COMPONENTS for the Toledo Digital Indicator and Associates Satellite Accessories are listed in their respective Service Instruction Manuals.

5.0 PREVENTATIVE MAINTENANCE

1. Keep are between pit wall and top of pier/dust skirt clean of dirt and all other foreign materials. DO NOT ALLOW MATERIAL TO ACCUMULATE IN THIS AREA.

2. Remove all dirt/all foresight materials between lower plate and locating plate - opening protected by dust skirts.

3. Load Cell Cables
   a. Keep load cell cable away from link. Movement of link-platform oscillation will cut cable at point of contact. See Figure 20.
   b. Provide cable slack at load cell to permit platform oscillation. See Figure 14. DO NOT ALLOW LOAD CELL CABLE TO TOUCH LINK.
   c. Do not allow load cell cable(s) to lie on the pit floor. Coil excess cable, tie and secure the coil of cable to either the junction box of cross beam.

4. Check the condition of the dehumidifier in junction box(es) and replace accordingly.

5. Maintain a clean/dry pit at all times. Sump pump operating properly, sufficient drainage, etc.

6. SEE PROTECTIVE COATING LUBRICANT IN AIDS SECTION.

7. PLATFORM OSCILLATION -

The Weighing Cross Beam Assemblies are assembled and shipped with 3/8 of an inch factory built-in internal Cellink clearance between the lower plate and load cell support base plate.

Camber change or growth in the prestressed concrete platform elements over a period of time will change this internal clearance - one (1) side will have greater clearance than the other side. This clearance deviation will restrict platform oscillation and, in time, will cause mechanical interference between Cellink components. This phenomenon can be anticipated and will occur more frequently to the 60 ft. Length platform elements.

The occurrence of the restricted platform oscillation and mechanical interference between Cellink Components under the above described operating conditions require re-alignment of the Weighing Cross Beam Assemblies. See Weighing Cross Beam Re-Alignment Procedure/Camber Change Characteristics in Aids Section.

Take preventative action when platform oscillation is down to 3/16 of an inch, minimum.

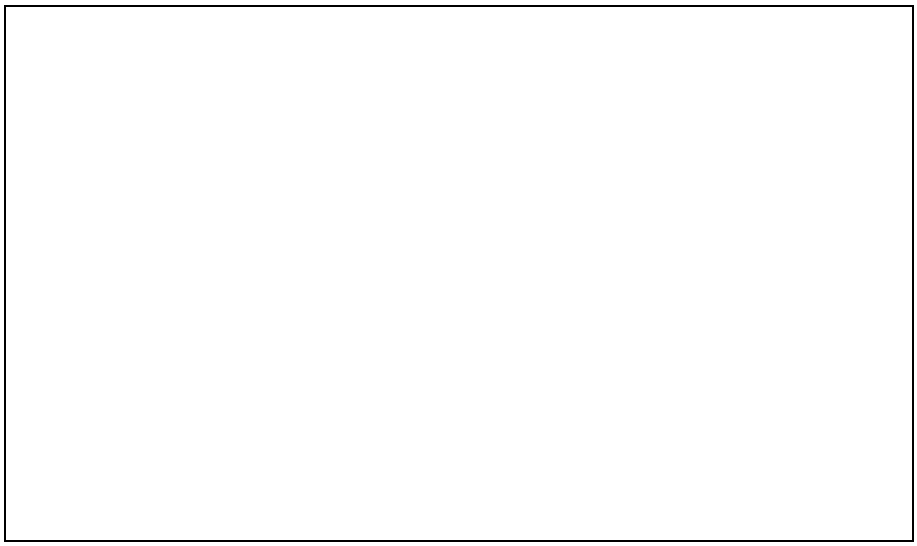


Figure 20.

6.0 AIDS

6.1 PROTECTIVE COATING LUBRICANT

The Weighing Cross Beam Assemblies are factory assembled - protective coating lubricant applied at time of assembly, shipped and installed as a unit with integrally mounted Cellink suspensions and load cells.

6.2 LUBRICANT RECOMMENDATION

Standard anti-seize and lubricating compound manufactured by Never-Seez Compound Corporation, 2910 S.18th Avenue, Broadview, Illinois, 60155.

Never-Seez compound is sold locally thru being supply and power transmission specialists and through automotive, industrial, farm supply and marine distributors.

6.3 PREVENTATIVE MAINTENANCE/COMPONENT REPLACEMENTS

When components are replaced or preventative maintenance is performed, depending upon the environmental operational conditions, be sure to apply anti-seize lubricating compound to:

1. Threads on the center screw, retaining screws (4) which retain bade plate to load cell and ALL other bolts, buts and screws.
2. Base Plate/Load Cell Assembly - fill screw holes in base plate full of lubricant - prevent corrosion, moisture penetration, etc.
3. Contact surface links, link pins and retaining clips.
4. Locating Plate/Base Plate contact surfaces - prevent component seizure.

Protective coating should be applied to all other surfaces that will make component removal/assembly an easier job.

6.4 WEIGHING CROSS BEAM ASSEMBLIES RE-ALIGNMENT PROCEDURE/CAMBER CHANGE.

The Weighing Cross Beam Assemblies are assembled and shipped with 3/8 of an inch factory built-in internal Cellink clearance between the lower plate and load cell support base plate. See Weighing Position A, Figure 22 for Installation Cellink Loading Action/Arrangement.

Camber change or growth in the precast concrete platform elements will cause mechanical interference between Cellink components, inaccurate weighments and no/restricted platform oscillation. This phenomenon will occur more frequently on the 60 ft. Length platform elements. I.e. The RE--ALIGNMENT PROCEDURE is written for two 92) platform element - two (2) End Cross Beam Assembly Combination. 12 ft., 30 ft., 40 ft., and 60 ft x 10 ft.

Platform sizes fall into this combination category. See 60 ft. Platform Element Camber Change Configuration B - Figure 23.

6.5 MECHANICAL INTERFERENCE

The 3/8 inch built-in internal clearance between the lower plate and load cell support base plate is no longer maintained. Consequently, there is no/restricted platform oscillation. This clearance deviation can usually be detected by noting the external alignment relationship of the lower plate to the locating plate. See Weighing Position C, Figure 24 for Cellink Loading Action/Arrangement.

The occurrence of the described mechanical interference - Weighing Position C, Figure 24 require re-alignment of the Weighing Cross Beam Assemblies.

6.6 RE-ALIGNMENT PROCEDURE

THIS PROCEDURE IS BASED ON THE ASSUMPTIONS THE TOP OF THE PLATFORM ELEMENT WERE FLUSH WITH THE PIT CURB ABGLES AND 1/4 OF AN INCH CLEARANCE BETWEEN THE LOCATING AND LOWER PLATES AT TIME OF INSTALLATION.

1) SPACER THICKNESS DETERMINATION - FIGURE 21.
A SKETCH IS VERY USEFUL IN DETERMINING THE SHIMMING (SPACER THICKNESS) REQUIREMENTS AT THE VARIOUS LOCATIONS.
a. MEASURE and RECORD the distance the ends of the platform elements are below the top of the pit locations A, B, C, D, E F, G and H - Figure 21. A thru D locational identification is for one (1) END Cross Beam Assembly and associated LOD TRANSFER BAR designation; E thru H locational identification is the other END Cross Beam Assembly and associated LOAD TRANSFER BAR designation. The recorded dimension at these locations will assist in the spacer thickness insert requirement at the designates load transfer bar.

2) Remove Sequentially from all Weighing Cross Beams
a. Dust skirts from lower plates.
b. Load Cell - Suspension Assembly Protective Covers.

3) WEIGHING CROSS BEAM RE-ALIGNMENT.
RE-ALIGN ONE (1) END CROSS BEAM ASSEMBLY INTO POSITION AT A TIME.
a. Loosen all transfer bar retaining bolts sufficiently to allow the ends of the platform element - load transfer bar assemblies to be raised slightly above the put curb angle.

DO NOT REMOVE THE RETAINING BOLTS.

b. RAISING THE PLATFORM ELEMENTS

1. Place jacks (one (1) jack directly beneath EACH platform element stem) adjacent to the CROSS BEAM.

NOTES: END CROSS BEAM ASSEMBLY supports two (2) platform elements; four (4) jacks are required, one (1) jack beneath EACH element stem.

BE SURE to use stable blocking (raise jack in suitable lifting position) between jack base and pit floor.

Place a steel shim between the concrete platform element stem and the head of the jack.

2. Raise the END of EACH platform element slightly above the pit curb angle.
MAKE SIRE THE TRANSFER BAR RETAINING BOLTS ARE LOOSE AND THE CROSS BEAM IS NOT BEING LIFTED (TRANSFER BAR FIXING KEY - CROSS BEAM FLANGE CONTACT) SURING THE PLATFORM ELEMEBT RAISING OPERATION.

c. SHIMMING - FIGURE 25
TOLEDO SPACER KIT 10017000A IS AVILABLE FOR THE END CROSS BEAM SHIMMING OPERATION. KIT CONTAINS (SUFFICIENT SPACERS FOR TWO (2) END WEIGHING CROSS BEAM ASSEMBLIES):

QUANTITY	PLATE SPACER THICKNESS	PART NUMBER
32	1/8"	A10013400B
32	1/16"	A10013400C

DUE TO THE PLATFORM ELEMENT STEM CAMBER/CROSS BEAM RE-ALIGNMENT MOVEMENT, SPACER THICKNESS REQUIREMENT IS GREATER AT "K" LOCATION THAN AT "L" LOCATION.

1). SPACER THICKNESS DETERMINATION

a) Take the previous recorded dimensional data - Step 1, Figure 21 - at EACH location (A thru D; E thru H) and ADD 1/16 of an inch. The sum is the spacer thickness insert requirement at EACH load transfer bar "K" location. INBOARD SIDE (CENTER OF PIT SIDE) Example:

LOCATION A - Top of the Platform Element is 1/4 of an inch below the top of the pit coping. 1/4" + 1/16" = 5/16" Thick spacer insert is required.

2.) CROSS BEAM LOAD TRANSFER BARS

a). SHIM THE END OF ONE (1) PLATFORM ELEMENT/LOAD TRANSFER BAR (TWO (2) TRANSFER BARS) ASSEMBLIES INTO POSITION AT A TIME.

1) Place the specified spacer thickness - Spacer Thickness Determination Step at "K" locations - INBOARD/CENTER OF PIT SIDE.

2) Lower the platform element - load transfer bar assemblies onto the spacers at "K" locations.

3) Place the required spacers (a tight fit is a requisite) at "L" locations.

4) Sequentially, raise platform element place spacers, lower platform element until the required spacers are placed at an "L" location.

b.) Repeat the above steps at the end of the other platform element.

d.) RE-ALIGN THE OTHER END CROSS BEAM ASSEMBLY INTO POSITION - REPEAT THE ABOVE STEPS.

THIS SHIMMING PROCEDURE, UPON COMPLETION OF SHIMMING ALL LOAD TRANSFER BARS, WILL FORCE THE CROSS BEAM LOWER PLATES BACK INTO ALIGNMENT WITH THE PERMANENT MOUNTED PAIR LOCATING PLATES; RESTORE PLATFORM OSCILLATION AND INTERNAL CLEARANCE BETWEEN LOWER AND LOAD CELL SUPPORT BASE PLATES.

IT IS ACCEPTABLE, FURUTE PLATFORM ELEMENT CHAMBER CHANGE OR GROWTH ALLOWANCE, TO HAVE THE FOLLOWING CLEARANCES BETWEEN THE LOWER PLATE AND LOCATING PLATE AT ALL CORNERS OF THE CROSS BEAMS:

END OF PIT SIDE - 5/16 INCH **MAXIMUM**
INBOARD/CENTER OF PIT SIDE - 3/16 INCH **MINIMUM**

4) Remove jacks and associated blocking.
5) Tighten ALL load transfer bar retaining bolts.

NOTES: BE SURE to allow sufficient cable slack between load cell and first cable retaining clamp to permit platform oscillation. DO NOT ALLOW LOAD CELL CABLE TO CONTACT LINK. Link movement - platform oscillation - will CUT cable at point of contact.

Protective lubricant coating should be applied to the threads of all bolts, nuts, and screws, and other surfaces that will make component removal/assembly an easier job.

Perform applicable Preventative Maintenance duties. See Preventative Maintenance in Aids Section.

6) Position and secure ALL protective covers in place.
7) Assemble dust skirts to ALL lower plates.
8) LOAD TRANSFER BAR FIXING KEY EXSTENSIONS - FIGURE 26.

The Fixing Key arrangement, when the element stem embedded load bearing plates are welded to the load transfer bars, holds these assemblies in place on the Weighing Cross Beams.

THE FIXING KEY MUST ALWAYS EXTEND BELOW AND FIT TIGHT AGAINST - NO CLEARANCE - THE CROSS BEAM FLANGE.

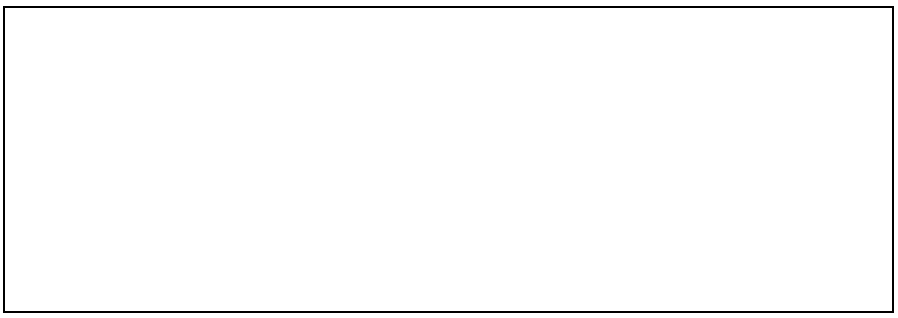
KEY EXTENSIONS ARE TO BE FURNISHED LOCALLY.

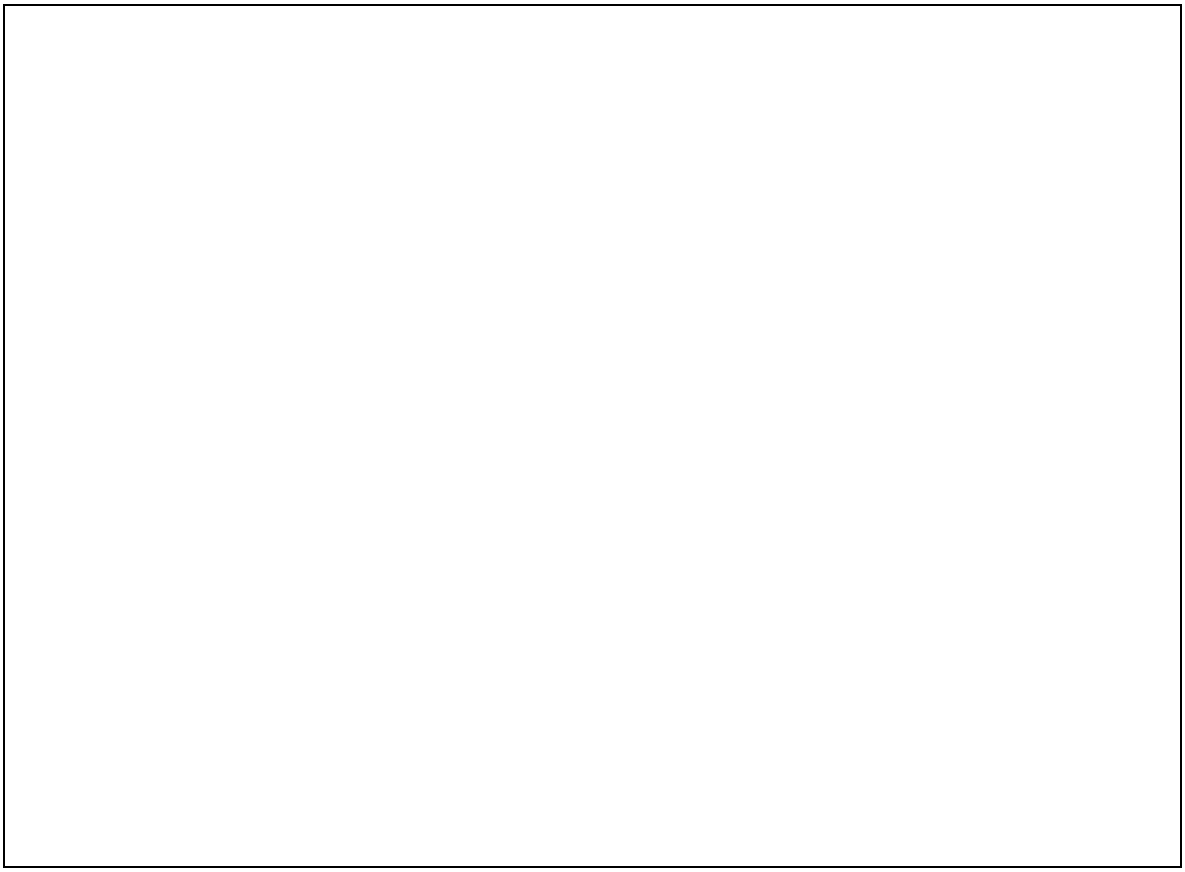
a.) Weld in place extension, if required, to the bottom if the existing load transfer bar FIXING KEYS.

CAUTIONARY NOTES:
WELD EXTENSION TO FIXING KEY WITH NO CLEARANCE BETWEEN EXTENSION AND FLANGE.

DO NOT WELD EXTENSION TO FLANGE.

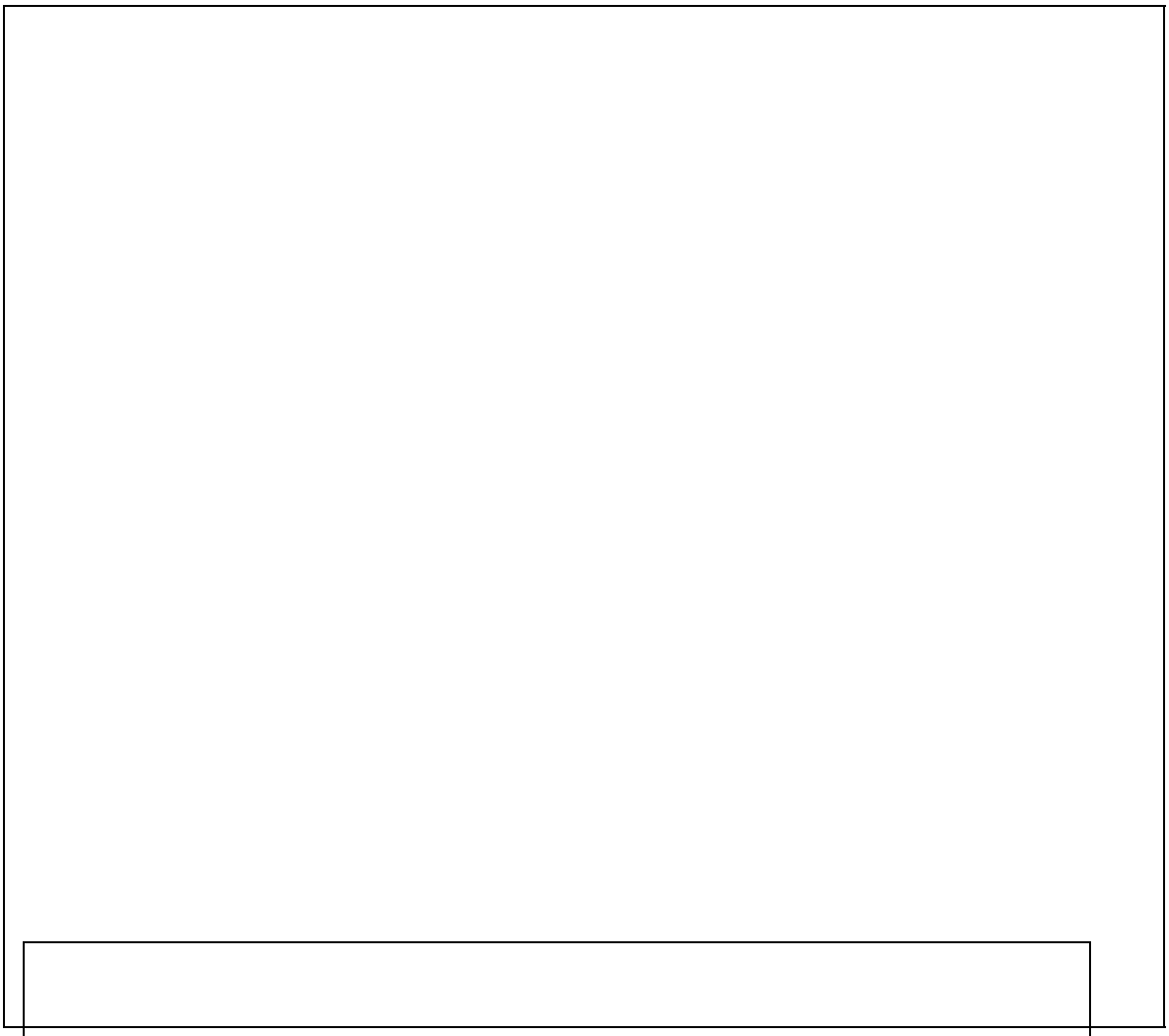
SEE WELDING SYMBOL INTERPRETATION TABLE FIGURE 26.





WEIGHING POSITION A - FIGURE 22

FIGURE 23



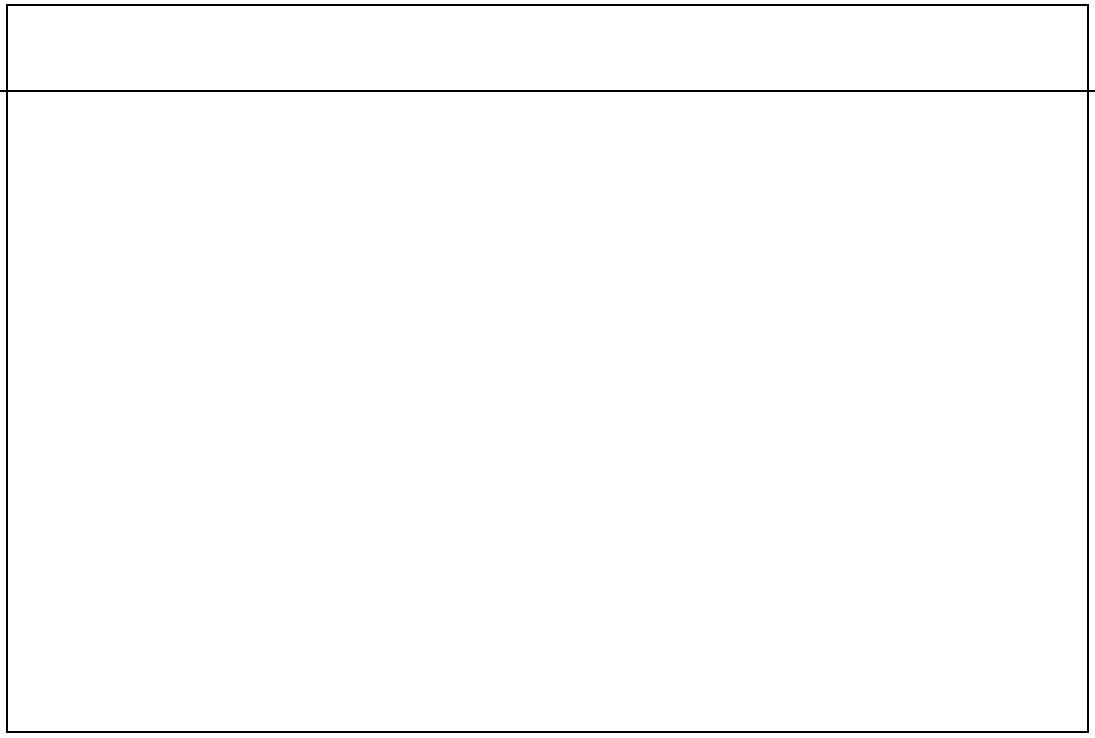


FIGURE 24
FIGURE 25

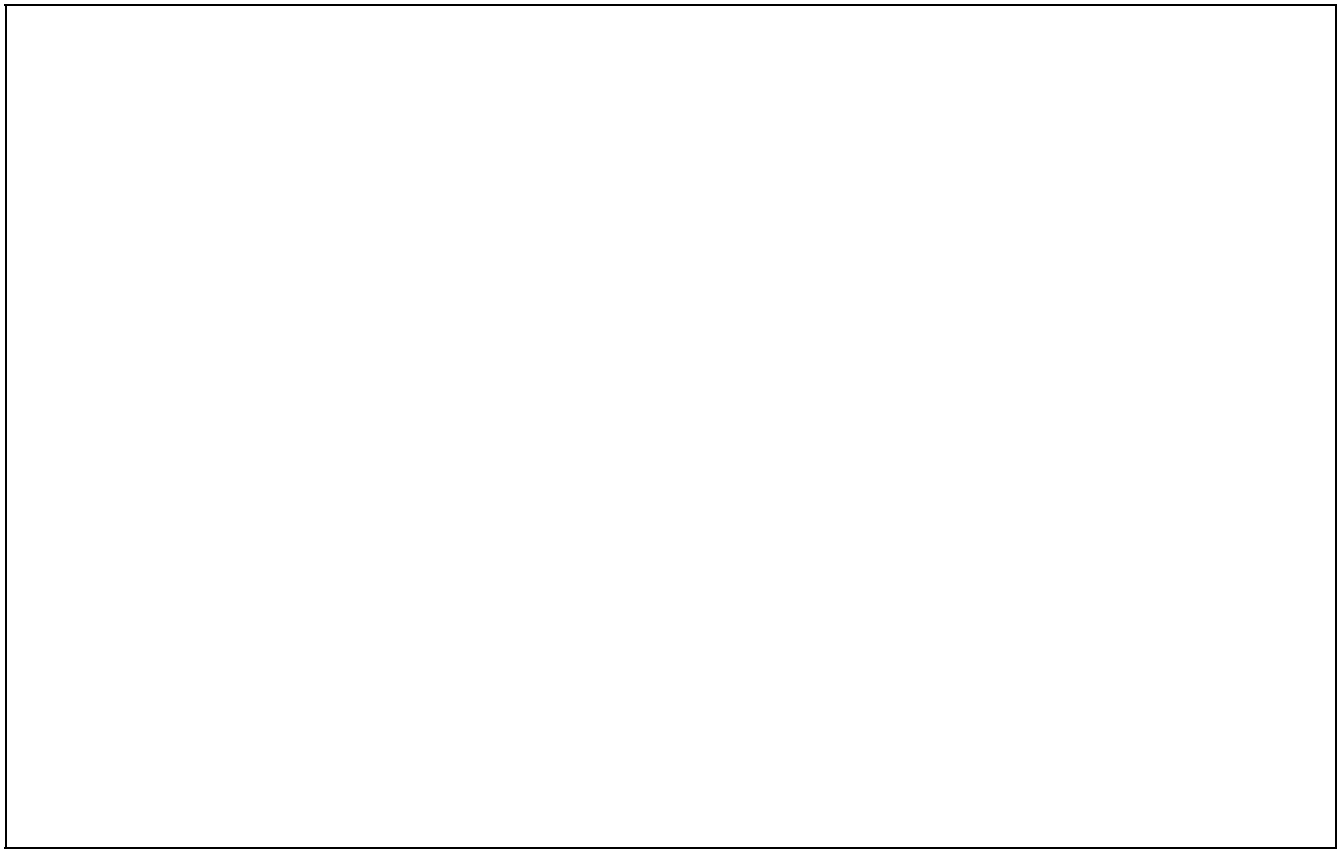


FIGURE 26

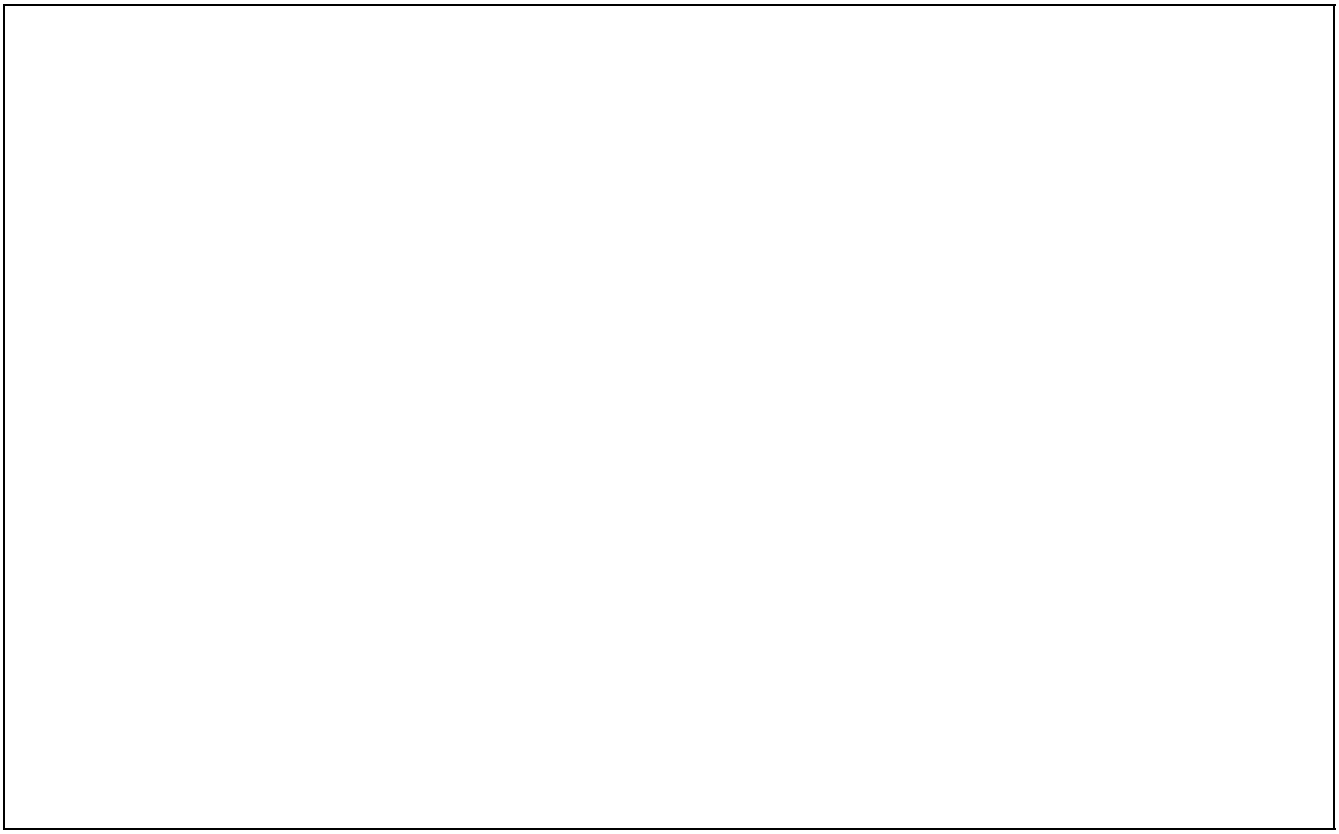


FIGURE 27

6.7 RECOMMENDED SPARE COMPONENTS

QUANTITY	PART NUMBER	DESCRIPTION
As required	10392300A	Surge Voltage Suppressor

Twelve (12) Surge Voltage Suppressors are used in EACH junction box assembly 10391000A; six (6) Suporessors are used in the Input Surge Protector.

As Required	P00684020	Dehumidifier, junction Box
1	10393700A	PCB/ Harness Assembly, Input Surge Protector (10391500A)\
1	10392500A	Line Surge Protector
As Required	10011900A	Load Cell Assembly, 100K
As Required	049680020	Load Cell Assembly, 50K

Recommended Spare Components for the Toledo Digital Indicator and associated Satellite Accessories are listed in their respective Service Instruction Manual.