7360

DigiTOL®
Combination
Rail/Truck Scale
Weighbridge

Installation and Service
Manual

IS 007360 I00
(4/93)

INTRODUCTION

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

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

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

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

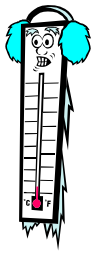
FOLLOW these instructions carefully.

SAVE this manual for future reference.

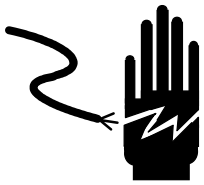
DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

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

CALL METTLER TOLEDO for parts, information, and service.



Note: If the unit has been stored or transported in below freezing temperatures, allow the unit to warm up to room temperature before turning on AC power.

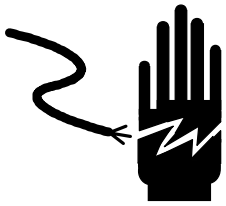


⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

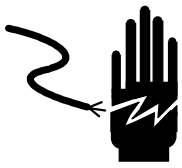
⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



⚠ WARNING

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



⚠ WARNING

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

⚠ CAUTION

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

CONTENTS

1 Introduction

The information provided in this manual is a guide to installing and servicing the METTLER TOLEDO 7360 DigiTOL combination Railroad/Truck Scale. Combination Rail/Truck Scales are used where the flow of rail and truck traffic, or space limitations, requires one scale to handle both weighing applications.

Design

7360 combination Railroad/Truck Scale design meets A.A.R. (Association of American Railroads) / A.R.E.A. (American Railroad Engineering Association) requirements. The nominal capacity for the structure is 170 tons and scale rated sectional capacity is 85 tons per section/55K tandem axle trucks.

DigiTOL Load Cells

METTLER TOLEDO's DigiTOL POWERCELL load cells are the heart of the scale. The 100K stainless hermetically sealed cells are not only rugged and reliable, but the cells are shift adjusted and calibrated from the scale indicator. In addition, the digital diagnostics eliminate time consuming troubleshooting.

Factory Assembled

The understructure, which includes the main girders, cross beams, and outriggers, is factory assembled to ensure alignment and quality of construction. Deck coping is shipped to the field loose for field installation, which allows for better match-up of the deck and pit copings (such as, maintaining the 1" gap between deck and pit copings around the entire perimeter of the scale).

Pit

Pit construction is of reinforced concrete of 4000 psi strength at 28 days and is placed in accordance with American Concrete Institute Guidelines. Reinforcing bars used in pit conform with ASTM A615 Grade 60 specifications. Standard pits are for use with soil having a minimum bearing capacity of 4000 lb per square ft.

Foundation Drawings

The foundation is designed around A.R.E.A. guidelines and is based on superimposed scale loads, normal truck surcharge that generates bearing pressure of 3000 psf. Be sure to use the latest foundation revision.

Model Number	Size	Foundation Drawing
7360RT7510	75 x 10 ft	TC201373

Accuracy

Scale meets A.R.E.A. Scale Handbook and NBS H-44 requirements for combination rail/truck scales.

Environmental Considerations

This scale will perform to the stated accuracy under normal outdoor conditions provided that installation requirements are met. This includes adequate drainage and clearance of snow and debris from in and around the scale.

2 Site Selection and Preparation

Site Requirements

The site should have good drainage. Surrounding areas should not drain through the scale site. The ideal scale site is on ground elevated above the surrounding area.

Check for buried pipes, sewer lines, wires, or foundations that would interfere with footing construction.

The scale should be located away from high power electrical transmission lines or substations.

The scale should not be located in high traffic areas that would expose it to unnecessary traffic. Railcars or trucks should remain on the scale for a period of time no longer than is necessary for obtaining the vehicle weight, or for completing the filling or unloading of the vehicle.

Check with the state and railroad weights and measures officials to make sure the location will meet with all their requirements. Some groups require the scale platform to be clearly visible from the location of the scale instrument. Sometimes a closed circuit TV will serve the purpose.

Scale drawings and site locations must always be approved by the serving railroad prior to the start of construction.

At least 75 ft of straight track shall be provided at each approach to the weighrails. A minimum of 25 ft of approach adjacent to the scale must be concrete and in the same plane as the scale.

Foundation

If the soil does not have a bearing pressure of at least 4000 P.S.F. and its capacity cannot be increased by drainage, stabilization, or other means, a pile foundation shall be provided (by others) per A.A.R. (2.27.19).

3 Foundation and Construction Guidelines

The following sequence of construction should be followed:

1. Obtain drawings and make certain they are the latest released by METTLER TOLEDO Engineering. The latest drawings will be sent upon receipt of the scale order and also with the load cells and scale electronics.
2. Grade the site including approaches.
3. Excavate for footings and foundation.
4. Lay gravel underfill. (Optional)
5. Place floor reinforcing bars and vertical tie reinforcing bars for piers and walls. Reinforced steel is to be placed per METTLER TOLEDO drawings and in accordance with the American Concrete Institute code.
6. Form and pour foundation (pit floor). Use concrete conforming with specifications shown on drawings. If subject to freezing weather, use air entraining agent.
7. Place reinforcing bars for walls, piers, and approaches.
8. Form pit walls, piers, and approaches.
9. When setting the anchor rods and coping, it is very important that the load cell mounting plates are accurately positioned in relation to each other, to the pit center lines, and to the top of the pit coping.
10. It is important that the concrete be tested for "slump" and percentage of air entrainment prior to pouring. Test cylinders must also be poured to establish when the concrete has reached the required strength.
11. Pour walls, piers, and approaches using concrete conforming with specifications.
12. Allow concrete to cure for at least 24 hours (depending on concrete strength and ambient temperatures) before removing forms and proceeding with work on the scale. Let the concrete cure 7 – 10 days before installing the scale. The concrete will not reach full strength for 28 days.
13. Position the load cell mounting plates. They should be level to within 0.06 inch in 12 inches. Do not grout the load cell mounting plates until after the weighbridge and the rails are set in place. This is done so that the rail height can be adjusted if necessary. Do not apply any load to the scale prior to grouting plates.

4 Receiving and Inspection

Note: In the shipping packet is a warranty card. In order for your warranty to be in effect, this card must be completed and returned to METTLER TOLEDO. If the optional Lightning Protection System is included, a lightning warranty card must be returned additionally, along with required verification photos.

Inspection

Check off all items received against the shipping document. If any items are missing, notify the carrier immediately in order to collect damages.

The model 7360 Rail/Truck scale will consist of eight major items:

- Foundation kit of parts (base plates and anchors)
- Three (3) prewelded weighbridge modules
- Deck coping channels
- Two (2) manhole rings with cover
- Fourteen (14) DigiTOL 100K POWERCELL load cells
- Installation Kit (J-boxes, cables, upper and lower receivers, and tie rods)
- Indicator
- Printer

Optional items:

- Deck rebar
- Anti-creep brackets
- Lightning Protection kit of parts

Inspect all items received for physical damage. If damage is noted, please notify your carrier immediately in order to collect damages.

⚠ CAUTION

WHENEVER MOVING THE MODULE, AVOID MECHANICAL SHOCK. THESE MODULES SHOULD ALWAYS BE MOVED SLOWLY AND CAREFULLY. ENSURE THAT THE LIFTING DEVICE BEING USED TO MOVE THE MODULE IS OF SUFFICIENT CAPACITY TO SAFELY AND SECURELY HANDLE THE PLATFORMS.

WHEN THE MODULE IS BEING MOVED, NEVER PLACE YOUR HANDS OR OTHER ITEMS BETWEEN THE PLATFORM AND ANY OTHER SURFACE. IF IT IS NECESSARY TO PLACE YOUR HANDS UNDER THE MODULE DURING THE INSTALLATION PHASE, THEN ENSURE THAT THE SECTION IS PROPERLY BLOCKED SUCH THAT IT IS IMPOSSIBLE FOR IT TO MOVE. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PHYSICAL HARM AND/OR PROPERTY DAMAGE.

Unloading Procedure

If the 7360 DigiTOL Combination Rail/Truck scale is being delivered by a METTLER TOLEDO truck, the unloading will be handled and supervised by the METTLER TOLEDO driver. If the scale is being delivered by a common carrier or customer truck, the modules must be lifted per the procedure shown in Figure 4-1. To avoid damage to the scale, hook to the module as shown.

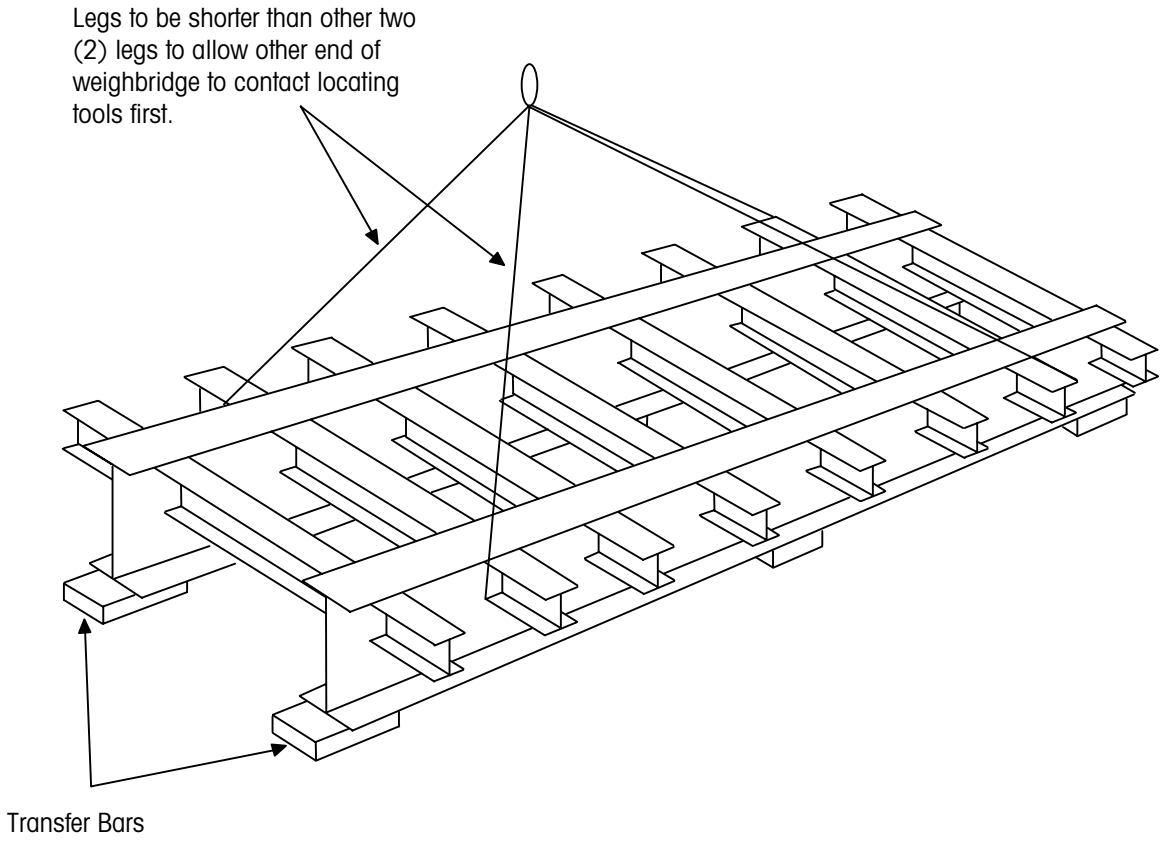


Figure 4-1: Weighbridge Lifting Procedure

	Weighbridge Only	Assembled Weighbridge with Concrete and Rail
End Weighbridge	10,368 lb	48,803 lb
Center Weighbridge	9,857 lb	48,292 lb

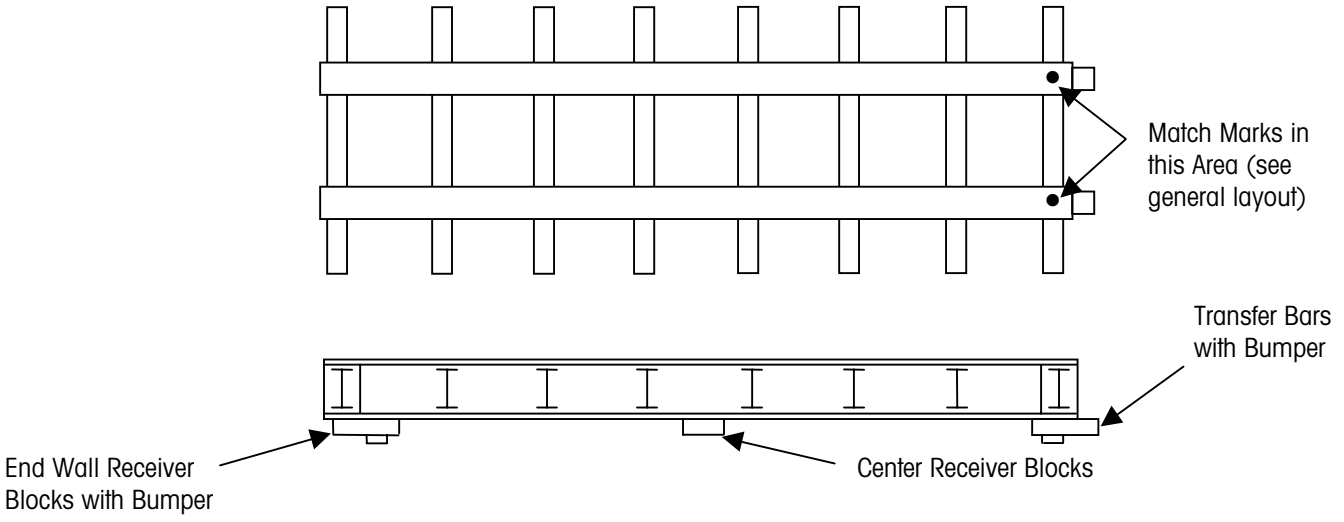
Table 4-1: Approximate Module Weights

If the platforms are to be placed immediately on the foundation, then proceed to Section 5. If the platforms are to be stored, then unload the platform and stack one on top of the other in the following order: (Refer to Figure 4-2 for module illustrations).

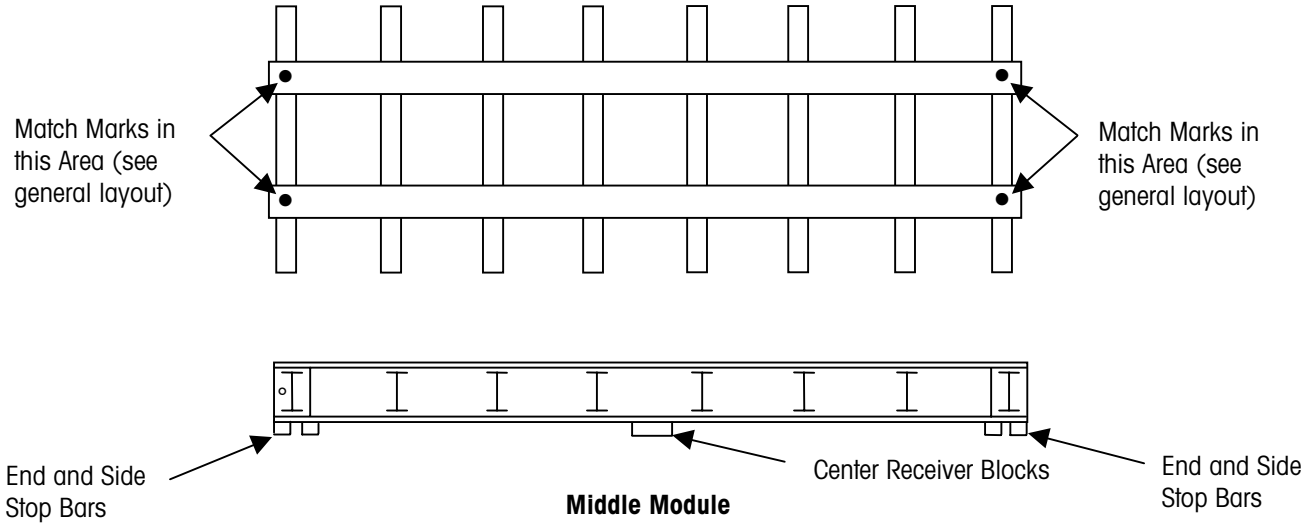
Bottom – Middle Module

Top – First or Terminal Modules

Ensure that the bottom module is stored off the ground by using 4 x 4's. Place electrical instrumentation, DigiTOL POWERCELL Load cells, and all mechanical accessories in a clean dry area.



First and Terminal Modules



Middle Module

Figure 4-2: Module Types

5 Installation Supplies Checklist

The following equipment or other items are required to properly install a 7360 combination Rail/Truck scale. These items are not supplied by METTLER TOLEDO.

Material

- Corrugated sheeting or plywood for deck.
- Non-shrink, high-quality grout and mixing tools.
- A small supply of Never-Seez bearing compound or good quality grease.

Tools

- Transit, tripod, rod
- 6-inch spirit level
- 100-foot measuring tape
- 100-foot chalk line
- 100-foot extension cords, 3/#14 wire
- Hammer drill, 1-inch or greater capacity
- 3/4-inch carbide drill bit at least 18 inches long for anchor bolts
- 6-foot crowbar to align modules
- Beckman or Fluke digital multimeter, 100+ meg ohm for insulation, wiring, and ground check
- Socket set (3/8 inch to 1 1/2 inch), with sockets for the following bolt sizes:
  - 1-1/16 inch – bumper bracket bolts
  - 1-1/8 inch - anchor bolt nuts
  - 1-1/2 inch – 6 point socket with 3/4 inch drive extension connection bolt (900 ft lb)
  - 1-1/2 inch – required for anchor bolt nuts
  - 1-3/16 inch – required for receiver plate bolts
  - 4 ft breaker bar or torque wrench
- Open / box end wrench set, 3/8 inch to 1-1/2 inch, plus 2-1/4 inch for center connection rods
- Air compressor or air pressure tank (cleaning nozzle to blow out anchor bolt holes)
- Impact wrench
- Normal installation tools including wood blocks and (2) short hydraulic jacks
- Locating tools, 14 (supplied only if scale is delivered by METTLER TOLEDO delivery system; otherwise, they must be purchased—Part No. TA200831)
- Welding and cutting apparatus

Electric arc welder: 150 amp capacity (minimum) for welding with 1/8 inch rod

- Vibrator (for vibrating concrete during placement)
- 200 ft duct tape
- Concrete finishing tools
- 2 ft x 4 ft x 12 ft lumber 1/4 inch positive crown at center
- Curing compound manufactured by W.R. Grace Co., or equal

Equipment

Crane or hoist capable for lifting and positioning 11,000 lb (minimum) weighbridge module 10 ft x 25 ft long into the scale pit.

Weighbridge Installation Checklist

This list summarizes the basic steps required for installing a 7360 Rail/Truck scale.

	Check (✓) When Completed
1. Install load cell base plates	
2. Set modules on locating tools	
3. Lock modules together	
4. Align scale modules with dead rail	
5. Set check brackets to 1/8 inch nominal clearance	
6. Install deck channels and deck rebar	
7. Insert load cells	
8. Pour deck	
9. Check/adjust scale elevation	
10. Install approach rail plates	
11. Install approach and weigh rail (Do not tighten down weigh rail bolts at this time)	
12. Install anti-creep brackets	
13. Verify check brackets 1/8 inch end – 1/16 inch side	
14. Verify rail alignment	
15. Wire scale	
16. Power scale up	
17. Check output of each cell Corners within ± 20% Center cells (approx. twice the corners) side to side within ± 20% Compensate with shims if required	
18. Tighten all bolts/nuts (including weigh rail bolts)	
19. Grout under base plates	
20. Continuous weld all bumper brackets	
21. Calibrate	

6 Installation

The content of this section is limited to installation and intended only as a guide in the method of assembly of the 7360 combination Rail/Truck scale. The latest engineering drawings must be used as the definitive document for scale assembly. Actual installation should be performed by qualified personnel only.

Pit Inspection

Before the weighbridge is installed, the pit must be checked to make certain it is correct and that it was built to the specifications on the prints. The scale cannot perform correctly and for a long period of time if the pit is not correct. The load cell anchor bolts must be located to within 1/8 inch horizontally and the load cell mounting plates must be leveled to within 1/16 inch to 12 inches. The reference for horizontal dimensions is the pit center line and for vertical measurements the reference is the top of the pit coping. The coping should be at the same plane unless noted on the pit prints. The tolerance on other pit dimensions is ± 1/4 inch, unless otherwise noted.

The pit center reference line can be a steel wire stretched from one end of the pit to the other. After the center line is found by measuring, its location should be marked with a cold chisel on the surface of the curb angle at each end. At this time, the distance between approach copings and diagonal measurements should be checked. Do not continue with scale assembly until all pit construction errors are corrected.

Stub off conduit and complete conduit installation, if necessary.

Mechanical Installation

1. Grease the shanks of the lower load cell hex receivers with a good quality grease e. g. Never-Seez, and set into receiver plates. Place locating tools into lower receivers.

2. Grease the shanks of the upper load cell receivers and install in the weighbridge.

3. Place the scale modules in location using the following sequence:

   IMPORTANT! Be sure to have blocking under the modules until the scale is completely coupled and bumpered (at least roughly adjusted) anytime the modules are not engaged.

   First Module/Terminal Module

   The two end modules that require six DigiTOL load cells (see Figure 4-2) need to be installed first.

⚠ CAUTION

DO NOT PLACE ANYTHING UNDERNEATH THE SCALE MODULE WHICH COULD BE DAMAGED OR INJURED IF THE CRANE OR CARRYING VEHICLE WERE TO LOSE ITS HOLD ON THE MODULE.

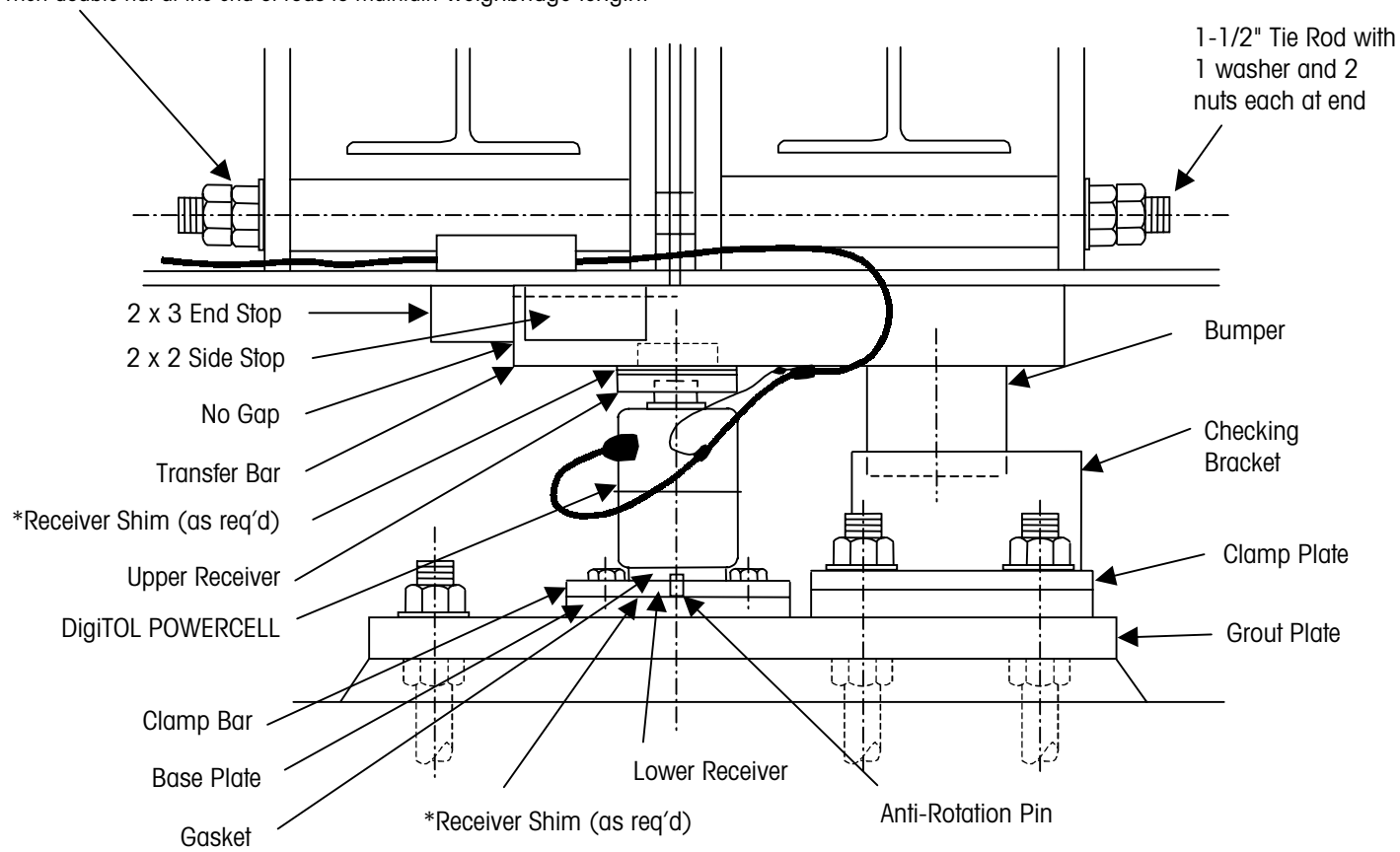
Slowly lower the first module onto the locating tools (approach end first) then continue lowering onto the opposite end locating tools, while monitoring the center receivers alignment with the locating tools.

After the first end module is in position, move to the opposite end of the pit and install the last end module repeating the same procedure.

Middle Module

To place the middle module (Figure 4-2) in location, use the match marks on each end of the module to determine which direction it is to go before slowly lowering the module into position on the end module transfer bars. While lowering, monitor the center receivers alignment with locating tools. Ensure that the modules are aligned and the couplers are completely seated on both sides.

Note: Tie rods are used to pull the transfer bars tight to the end stops (no gap).
Then double nut at the end of rods to maintain weighbridge length.



*IMPORTANT: Max. 3/8" of shims under the upper or lower receiver
(total of 3/4" shimming max.)

Figure 6-1: Tie Rod and Bumper

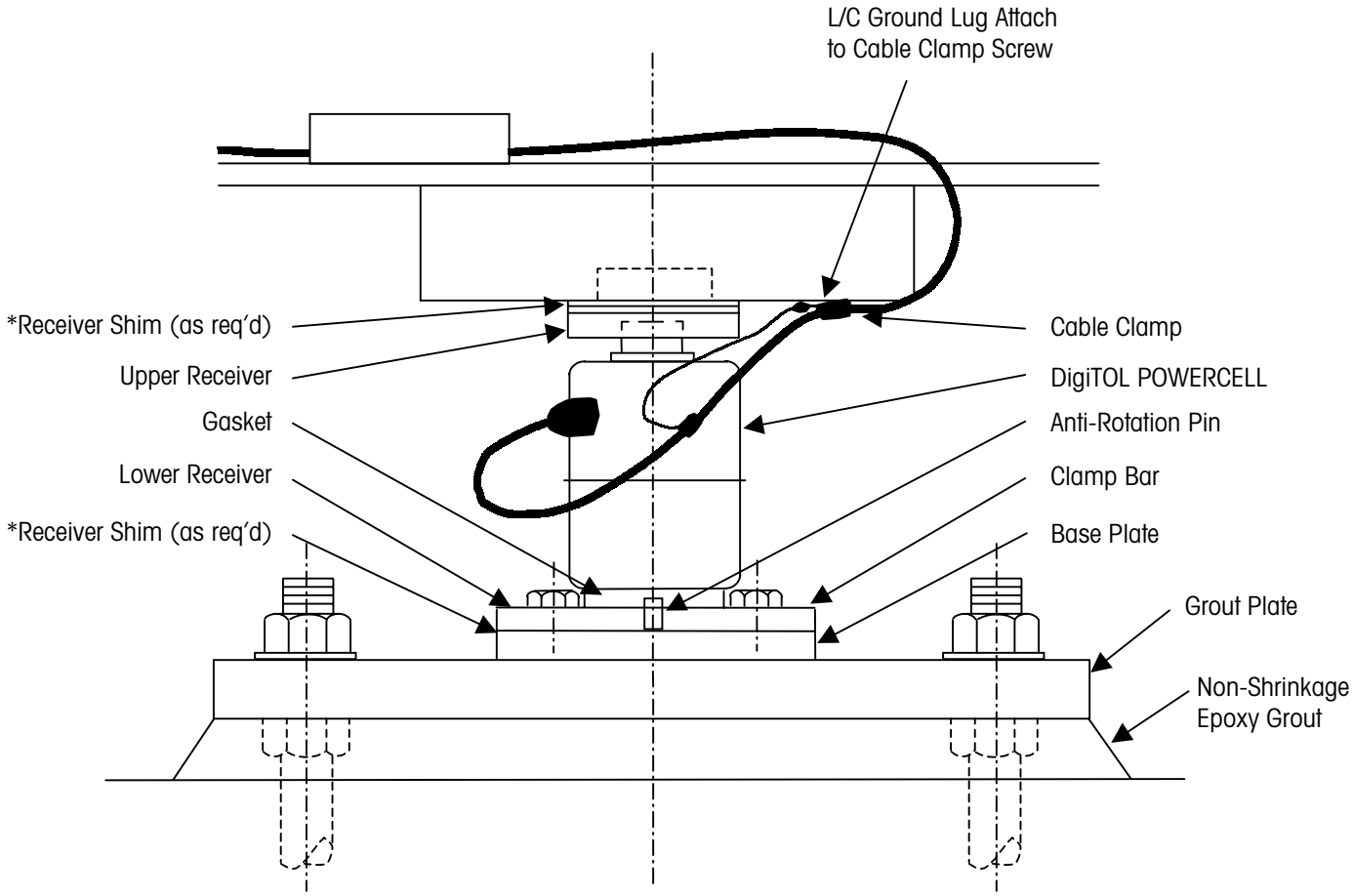


Figure 6-2: DigiTOL POWERCELL Load Cell Installation

4. Install the 1-1/2 inch tie rods at the center connections of the weighbridges. Use two (2) nuts and one (1) washer on each end of the rods. Tighten only the nuts closest to the washers until the coupler bars are tight against their respective stop blocks and then back off nuts until loose again. Retighten the nuts until snug tight only, approximately 20 to 30 ft lb. Use the second nut as a locknut tightened against the first nut, holding the first nut so as to not over-tighten it.

5. Using the adjustable receiver plates and base plates, align the scale and the rail stands laterally, such that the centerlines of the rail bolt hole patterns in each are in line with the approach rail centerlines on each end of the foundation. Ensure that the locating tools are fully seated, both top and bottom so that the load cell receivers are properly aligned. There should be no clearance between the shoulders on the locating tools and the top or base plate receivers.

   Note: In order to move the base plates, it may be necessary to pry with a crowbar while another person taps the base plate with a hammer.

6. Set bumper clearances to 1/8 inch nominal. Tighten the anchor bolts/nuts clamp bars.

7. Using a pair of hydraulic jacks, raise the weighbridge modules at one end at a time and replace the locating tools with the load cells. Before installing load cell apply Magnalube-G to the surface of the cell buttons and fill lower hex receiver with a multi-purpose grease. The modules only need to be raised approximately 1 inch to make the exchange (Figure 6-2).

> **⚠ CAUTION**
>
> BE SURE TO BLOCK THE MODULES IN THE RAISED POSITION. OBSERVE ALL APPROPRIATE SAFETY PROCEDURES WHEN INSTALLING OR SERVICING THE LOAD CELLS.

8. After replacing all locating tools with cells, recheck the alignment of the weighbridge, rail stand(s), and approach centerlines and make sure all cells are seated properly. Also, recheck the check bracket clearances to ensure that the scale is not hanging up at any bumper location.

   Note: Final checking clearances will be set just prior to grouting.

9. Adjust the elevation of the scale using the nuts directly below the base plates to raise and lower the entire base plates. Be sure to maintain each base plate level to within 1/16 inch in 12 inches. The elevation of the scale at the four (4) points where the rail comes on to the live weighbridge must be adjusted until they are as close to identical as possible and are equal to the elevation established for the bottom of the rail to within 1/32 inch. This will also be the elevation of the top of the approach rail plates. Use a transit for this purpose.

10. Install and set the elevation of the approach rail plates using the anchor bolt nuts and the required shim plates directly on top of the end wall.

    Note: If the scale is to be installed on a slight grade, the center base plates should be adjusted to bring them into the same plane as the end base plates.

11. The approach rail and live rail should then be installed in accordance with the respective foundation and general layout drawings. Take special care to ensure there is sufficient clearance between the live rails and the dead rails.

12. Install the approach rail and live rail anti-creep brackets. The anti-creep angles are secured by the anchor bolts and rail clip bolts. Using the anti-creep angles as a template, 1-1/16 inch holes are then drilled or punched in the rail and the 1-inch bolts, nuts, and lockwashers are installed and tightened.

Important Notes

1. The use of anti-creep angles is essential for continued performance of the scale. Without these angles, the rail(s) may move and ground out the live portion of the scale, causing scale weighing errors.

2. A.A.R. and A.R.E.A. 2.14.11 rails shall be one piece over full length of scale. If cutting is approved by railroad, it should be done as shown on layout drawing.

13. Carefully check all alignments and elevations. Reset the checking bracket clearances to provide 1/8 inch on the ends and 1/16 inch on the sides. Finally tighten all foundation nuts and bolts, working from the center of the scale towards each end in accordance with the appropriate general layout drawings.

14. Check that there is no visible or audible rocking in the scale.

DO NOT GROUT AT THIS TIME. Grouting should be done after the scale is wired and individual cell loading is checked by displaying each load cell's individual output (setup parameter 99). Also at this point the live rail should be in place but not bolted down tight. This ensures that the weighbridge is stable and that each cell is receiving an appropriate initial load.

If initial load adjustment is required, the lower anchor bolt/base plate nuts should be raised or lowered in increments of 1/8 turn. All nuts of an individual base plate must be adjusted the same. Turning the nuts clockwise decreases the initial load on the cell. In addition or as an alternative, up to 3/16 inch shims can be placed under the lower load receiver if required.

15. Recheck alignments, elevations, and checking bracket clearances. Retighten all nuts and bolts that were adjusted.

16. After checking each load cell's initial load and adjusting if necessary, grout under all base plates using an expanding type grout such as Embeco #885. Grout to develop 1000 psi compressive strength in available curing time. If not already done, rail plates should be grouted at this time. Approximately 625 lb of grout is required for a (14) load cell scale.

17. Continuously weld all check brackets to the base plate(s). Weld should be 1/4 inch fillet x 1 inch long on 3 inch centers.

18. Tighten down all the live rail mounting bolts at this time.

Grout

Grout load mounting plates and allow to cure before applying any load to weighbridge. Follow the grout manufacturer's instructions carefully. Some basic rules apply to all types:

1. The area must be clean and free from loose materials, oil, and dirt.
2. Soak the concrete pier with clean water for a period of several hours prior to pouring grout.
3. Build forms for the grout.
4. Mix grout completely, use grout in a flowable consistency and pour into form.
5. Make sure grout fully supports entire plate filling all voids. It is important that grout reaches design strength before any load is applied to the scale.

Load Cell Cabling

At this point, mount the j-boxes and route load cell cables through short pieces of tubing placed along the main girders. At this time do not connect the load cell cables to the load cells. This will be done as the load cells are being addressed.

It is important that all the electrical parts are kept absolutely dry on the inside and as dry as possible on the outside. The load cells, the connectors, and the junction boxes are made watertight, however, continuous exposure will cause corrosion which will eventually break down the seal and ultimately allow moisture to reach sensitive parts. Penetration of moisture can cause drifting, zerochange, and in general degrade the accuracy of the scale.

Some of the things that can be done to ensure satisfactory operation are:

1. Dress the load cell cables to form a drip loop to a point before the cable connects to the load cell or to the junction box. Water will drip onto the cable and follow the cable to its lowest point before dripping off; if a drip loop is provided, the water will run off before reaching a moisture sensitive component such as connectors or seals.
2. The load cells do not have cable integrally attached; therefore, when connecting the cable connector to the load cells, the connector must be correctly and completely seated so the gasket will seal out all moisture and so the pins are not bent. Do not use wrenches or pliers on this fitting. If the fit is correct and free of foreign material, it can be assembled by hand. IMPORTANT: Do not use tools to tighten. Also, be sure the connection is free of any foreign material before applying grease. (Use grease supplied with scale.)
3. See 7360 wiring diagram for maximum home run cable length.

Junction Box

After calibration is complete, the junction box should be carefully sealed against moisture. Place the desiccant pack in the box. Make sure the desiccant is in an active (dry) condition. Tighten cover securely. Be careful that the bolts are not over-tightened as this could warp the cover or force the gasket out of place. The optimum screw torque is 20 in-lb.

Scale Finishing

Inevitably the scale modules will be scratched and bumped in transit and installation. Paint is provided in the installation kit to touch up all of these areas to prevent rust. If a scratched area has started to rust, it should be cleaned with mineral spirits or lacquer thinner prior to applying the paint. Do not paint the scale platform when the temperature is below 60°F (15°C).

7

Concrete Deck Construction

The deck coping is 8-inch channel steel and is used as a permanent form when the concrete is poured.

Set the end deck channel members in place and tack weld to the main girders.

> **⚠ CAUTION**
>
> ALL ELECTRIC WELDING ON OR AROUND THE SCALE SHOULD BE COMPLETED BEFORE THE ELECTRONIC PARTS ARE INSTALLED. THE WELDING CIRCUIT GROUND CLAMP MUST BE CONNECTED AS CLOSE AS POSSIBLE TO THE STEEL MEMBER BEING WELDED. THE HIGH AMPERAGE WELDED CURRENT MUST NOT PASS THROUGH ANY ELECTRONIC PARTS.

Place the side channels into position and tack weld them to the end channels. The distance between end channel modules should be no more than 1/4 inch – 3/8 inch.

The deck channel needs to be wedged or tied to wall coping and main beam before concrete is poured to prevent it from pushing out into the side and end walls. Insert wedges on the top and bottom of the deck channel at about 5 ft spacings. Refer to section 10 for concrete requirement guidelines.

8 Scale Indicator Setup for 7360

Instructions for programming and calibrating the scale indicator can be found in the indicator's manual. The following 7360 setup information will be needed.

*Check serial plate on scale for total capacity.

Total Capacity*	No. of Load Cells	Programmed Capacity	Increment Size
170 tons	6 or more	340,000 lb	50 lb

Table 8-1: Scale Capacity and Increment Size

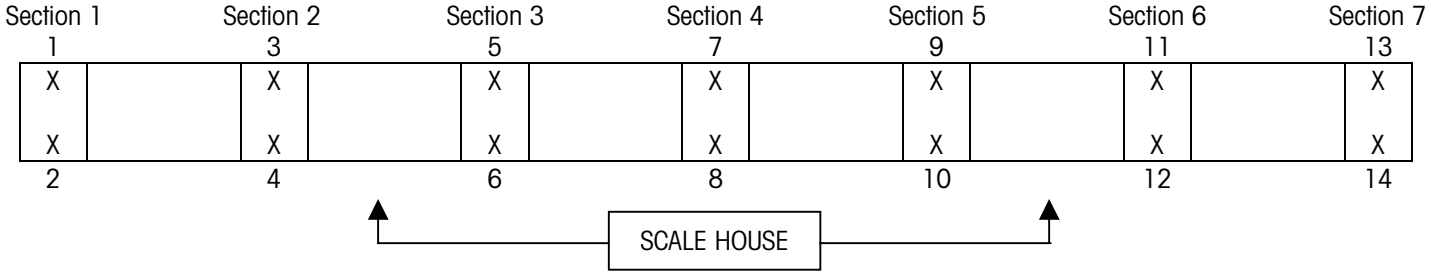


Figure 6-1: Recommended Load Cell Addressing

End Cell Raw Count Range		
Module Size	Scale Deck	
	Without Concrete	With Concrete
25 feet	1,117 - 1,675	5,256 - 7,884

Middle Cell Raw Count Range		
Module Size	Scale Deck	
	Without Concrete	With Concrete
25 feet	1,992 – 2,990	9,522 - 14,283

Table 8-2: Expected "Raw Count" Readings for Model 7360

IMPORTANT!
If raw counts do not fall into the ranges listed in Table 8-2, re-shim the scale to bring the raw counts into range.

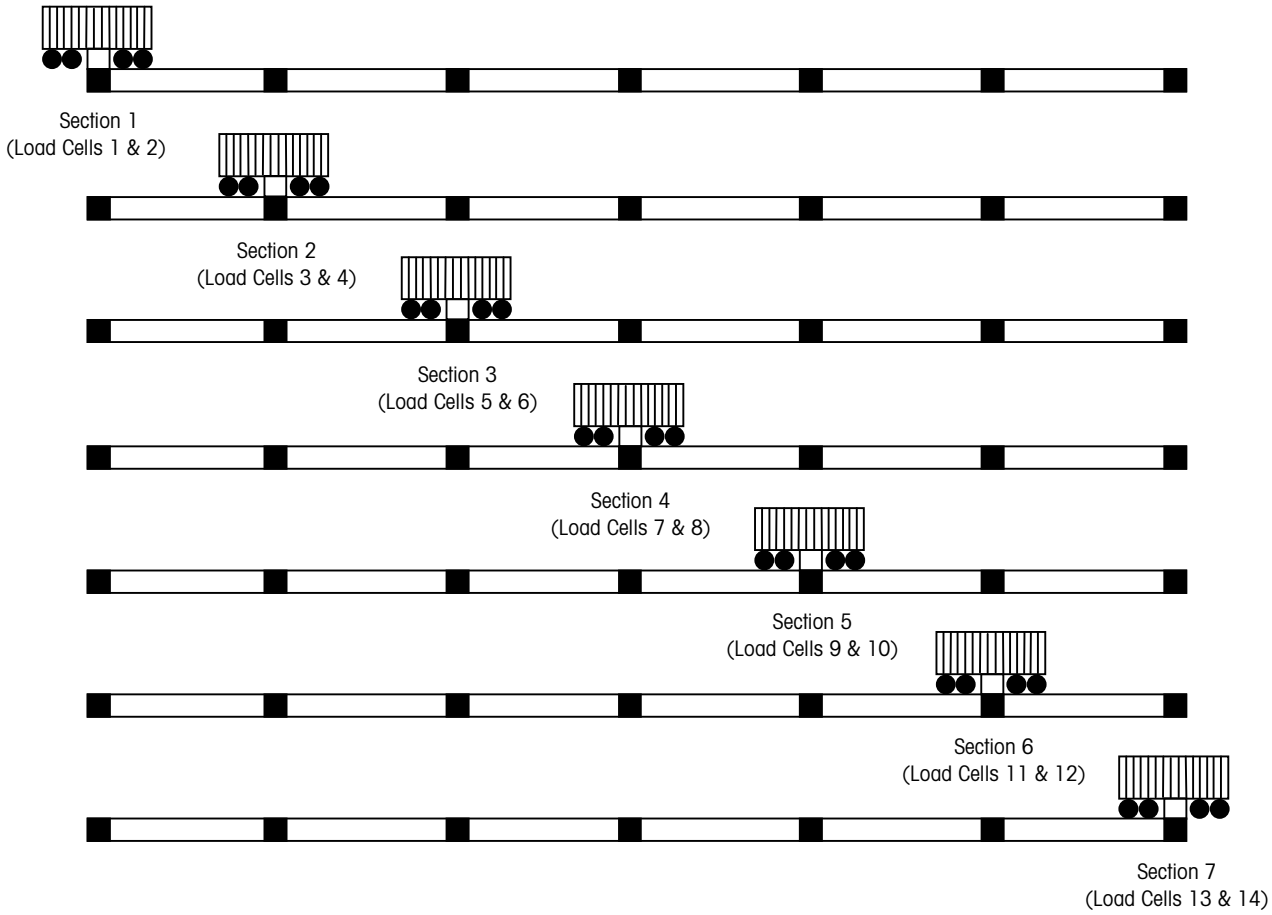


Figure 8-2: Test Car Positions for Shift Compensation

9 Maintenance

Frequency

Since the scale has no moving parts, it requires only minimum maintenance. It is important to keep debris from collecting underneath the scale. Each module is blasted to SSPCSP6 Profile and epoxy painted. The scale will need to be repainted periodically depending on usage, location, and general paint wear. When repainting, ensure that the deck is clean and any rust is removed. Apply an epoxy paint for best results.

Scale bumpers need to be checked every 3 months (may vary with scale and usage).

The calibration of the scale should be checked every six months.

The desiccant in the junction boxes should be replaced every year. This may vary in some applications.

Load Cell Replacement

If a load cell needs to be replaced, proceed as follows:

The corner of the weighbridge over the cell needs to be raised approximately 1 – 2 inches to remove the load from the cell. No vehicles or weights should be on the scale at this time.

Be sure that the platform is properly blocked after it has been raised before attempting to remove the load cell.

Place the jacking mechanism in position and remove the blocks. Slowly lower the section back onto the new load cell. Inspect the other load cells to make sure that they are still fully seated in their receivers.

Enter the setup mode on the indicator and access cell replacement parameter. Refer to indicator manual for explanation of parameter for load cell removal and replacement and the parameter for shift compensation of the new cell or section.

Replace the manhole cover.

Check the calibration of the scale and recalibrate if required, using the calibration procedures in the indicator manual.

⚠ CAUTION

WHEN THE MODULE IS BEING LIFTED TO REPLACE A CELL, NEVER PLACE YOUR HANDS OR OTHER ITEMS BETWEEN THE PLATFORM AND ANY OTHER SURFACE. IF IT IS NECESSARY TO PLACE YOUR HANDS UNDER THE MODULE DURING CELL REPLACEMENT, THEN ENSURE THAT THE SECTION IS PROPERLY BLOCKED SUCH THAT IT IS IMPOSSIBLE FOR IT TO MOVE. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PHYSICAL HARM AND/OR PROPERTY DAMAGE.

Spare Parts List

Part Number	Description
14002900A	45,000 kg DigiTOL Cell (CMOS)
TA200835	Upper Receiver with O-Ring
MN61016-13	Gasket
TA200830	Lower Hex Receiver
MZ0904000063	1/2-inch Roll Pin (7/8 inch projection above base plate)
TA200833-1	Receiver Shim (11 gauge)
TA200833-2	Receiver Shim (16 gauge)
13635300A	J-Box CMOS PCB
TA200831	Loacting Tool (Use for installation only) (Ref. Only)

Load Cell Specifications

Model: 0760 POWERCELL Load Cell

NTEP (National Type Evaluation Program): Certificate of Conformance Number 88-091A1 for Class IIIL, n = 10,000 divisions

Capacity: 45,300 kg / 99,202 lb

Material: Stainless steel

Environmental Protection: Hermetically sealed

Output: METTLER TOLEDO DigiTOL protocol

10 Cast-in-Place Concrete Recommendations

General

Work including: Providing all cast-in-place concrete work, including reinforcing, placing, curing, and cleanup.

Submit, on request only, product literature for admixtures and curing compounds proposed for use.

Materials

Cement: Portland Cement, ASTM C150, Type 1
Water: Potable
Aggregates: ASTM C33, size number 67
Admixtures:

- Water-reducing: ASTM C494, Type A or D
- Air-entraining: ASTM C260
- High-range, water-reducing admixture (superplasticizer): ASTM C494, Type F or G
- Nonchloride, noncorrosive accelerator: ASTM C494, Type C or E
- Calcium Chloride is **NOT** permitted.
- Use of mixtures other than those listed will not be permitted.

Reinforcing

Deformed bars: ASTM A615, A616, or A617. Yield strength to be 60 ksi. Welded wire fabric (if required): ASTM A185. Provide in sheet form.

Mixes

Use the following for fill in scale pan and for exterior slabs on grade:

- Compressive strength to be 4,000 psi (or as specified on foundation drawing), 28-day strength.
- Air content shall be 5 to 7 percent.
- Maximum water to cement ratio shall be 0.45.
- Maximum slump as placed shall be 4 inches.

Finish

Finish on flatwork shall be medium broom finish.

Curing and Protection

Curing Compound and Sealer: Federal Specification ASTM C309. The compound shall be a styrene butadiene type, 30% solids content minimum. The following are acceptable:

- Super Floor Coat, by Euclid
- Super Pliocure, by Euclid
- Masterseal 66, by Master Builders

When air temperature during placement is less than 40°F, or will be within 24 hours, temperature of concrete as placed is to be between 50°F and 90°F (55°F and 90°F for sections less than 12 inches thick). Maintain concrete temperature within these limits for the full curing period of 7 days.

Slab areas may be either moist-cured or receive an application of curing compound, except that when concrete above grade is placed in the open, and the air temperature exceeds 75°F, the concrete is to be moist-cured for the first 24 hours.

Whichever curing method is used, it shall begin immediately after the water sheen disappears and continue for at least 7 days. Do not allow curing to be delayed overnight.

11 Reference Drawings

7360 Rail/Truck Scale

Part Number	General Layout	Foundation	Wiring Diagram		Wiring Diagram NMOS for Scales Shipped Before April 1, 1993
			CMOS Standard	CMOS Hazardous	
736RT7510	TC202369	TC201373	TC100460 Ref. TC100491 Wiring	TC100442 Ref. Wiring	TC100340 Ref. TC100372 Wiring

Table 11-1: Model 7360 DigiTOL Combination Rail / Truck Scale Reference Drawings

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio 43240 USA

P/N: IS 007360 I00

(4/93).00