WEIGH-TRONIX

QTLTS and LTS-05 & -10 Lift Truck Scales

Installation Manual

This page left intentionally blank.

Introduction

This manual covers the installation of two models of Weigh-Tronix lift truck scales:

- QTLTS (Quik-Tach Lift Truck Scales)
- LTS (Lift Truck Scale)

The QTLTS attaches quickly to an existing lift truck carriage with bolt on clamps. The LTS requires precisely placed holes be drilled in the existing carriage so the scale can be attached. Both models come in 5,000 and 10,000 lb capacities.

Because of the variety of lift trucks on the market and the personal preferences of various customers, this manual does not contain specific step-by-step instructions for mounting a Weigh-Tronix LTS-05 or LTS-10 Lift Truck Scale on your particular lift truck. Instead, the manual contains an overview of the various facets of the installation process so that you can design a mounting procedure that is compatible with your particular preferences and lift truck equipment. However, we do recommend that you read over this sheet carefully and note those instructions which pertain to your application before attempting to mount the system on your lift truck.

Unpacking and Inspecting the System

Remove the system from its shipping container and check it for shipping damage. Scan the exterior of the system for any obvious signs of mishandling or abuse. Check for broken or bent scale components, punctures in the indicator's front panel or casing, and other signs of damage to the system.

Using the information from this installation sheet, mount the system on your lift truck and operate it to make sure that no concealed shipping damage escaped notice during your visual checks of the system.

In the event that shipping damage is discovered, you must file a written notice with the carrier within 10 to 15 days of delivery. Also, be sure to retain the shipping container and packing materials for inspection even though no evidence of rough handling is evident on them.

Installing the QTLTS

The Quik-Tach scale carriage can be installed on a lift truck without any modifications being made to the lift truck's existing carriage. It should be noted, however, that this type of carriage moves the load center slightly away from the lift truck (4" on the 5,000 lb. model and 5½" on a 10,000 lb. scale) and reduces its lifting capacity 12% to 14%. This change must be calculated by the lift truck manufacturer and noted on the lift truck's capacity plate.

Mounting the QTLTS Carriage

Refer to Figures 1 and 2 as you read this section.

1. Remove the forks before you mount the scale carriage. Check them for wear or damage and make any necessary repairs.

Caution

Always keep safety first in your mind as you install your Weigh-Tronix scale and operate any lift truck. Take all necessary safety precautions as you install the scale. This includes wearing safety shoes, protective eyewear, and using proper tools.

2. Clean and inspect the lift truck carriage. It is especially important the upper carriage notches are not excessively worn. It is also important the carriage is not twisted or bent out of shape.
3. Remove the two heavy duty carriage clamps bolted to the bottom of the scale carriage. They secure the Quik-Tach scale to the lift truck and will be bolted in place after the scale is properly positioned.
4. Raise the scale carriage to a vertical position on the pallet and drive the lift truck into position.
5. Align the scale carriage centering pin with the center notch in the lift truck carriage. The rear face of the scale carriage must be flat against the lift truck carriage and the top mounting blocks of the scale carriage must be over the top of the lift carriage lip and seated firmly in place.
6. Raise the carriage and back the lift truck away with the Quik-Tach scale in place.
7. Raise the carriage to a convenient height for mounting the two heavy duty carriage clamps. Make certain the carriage is clean where the clamps will be positioned. Each clamp has a right angle machined edge and a tapered machine edge. Note the tapered edge of the clamp fits tightly against the tapered bottom lip of the lift truck carriage. Attach the heavy duty carriage clamps and tighten the bolts. The torque specification for these bolts is 70 foot pounds.

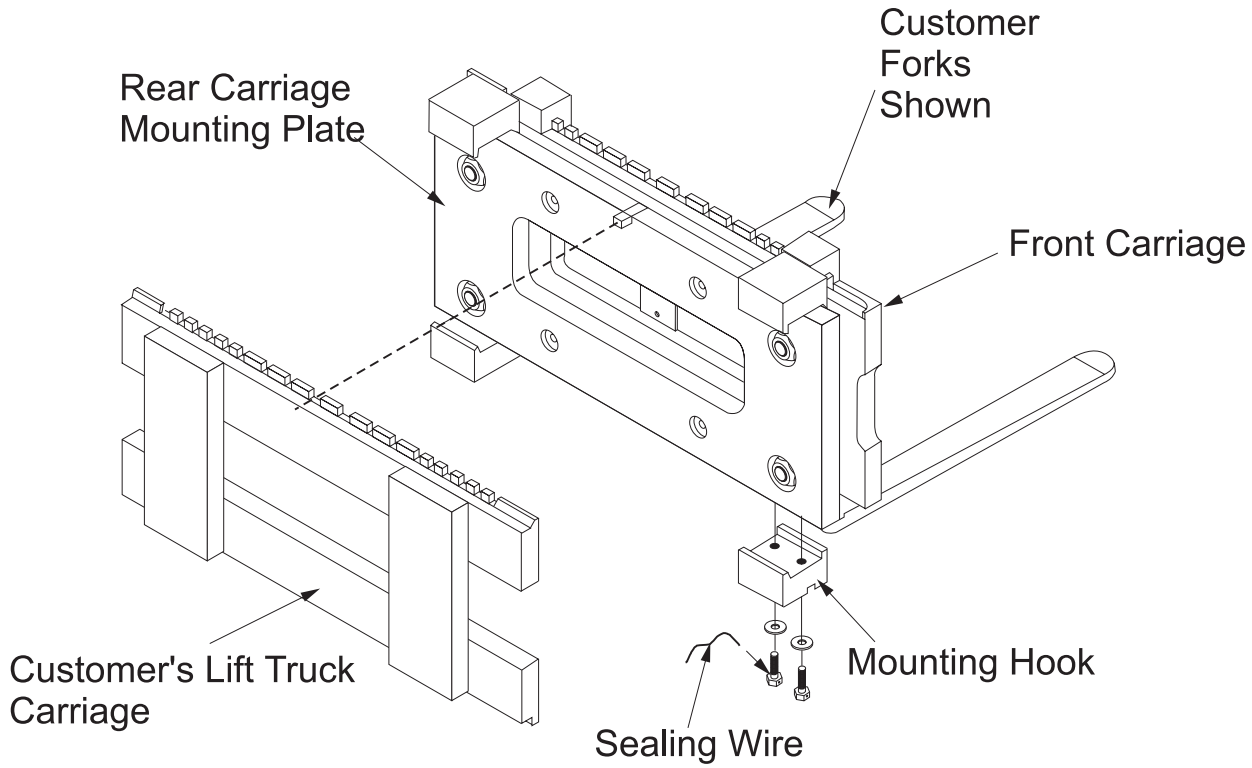

Figure 1
Mounting the QTLTS

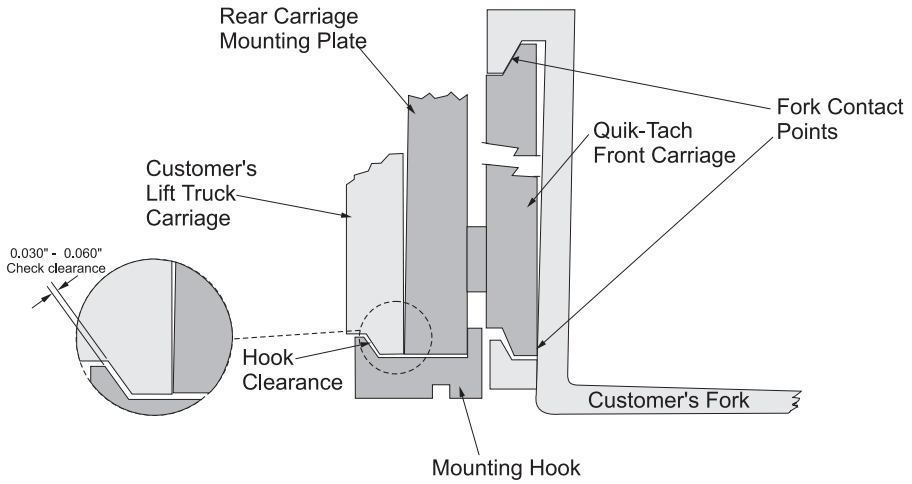

Figure 2
Mounting detail

8. Thread the safety wire through the bolt heads, twist the ends together and tuck the wire up into the groove machined in the bottom of the hook.
9. Mount the forks on the scale carriage in the same way they attach to the regular lift truck carriage and move the forks into the positions they will be used during normal operation. Make sure all carriage components are firmly and safely in place.

Routing the Signal Cable

Refer to Figure 3 while reading this section. Routing the signal cable will depend on your particular lift truck model. The following directions are only a general guideline for one style of lift truck. If these instructions don't apply to your situation, Weigh-Tronix recommends that the signal cable be routed through the center of the mast and to the center of the driver's front window area, routed to the leg of the overhead guard and up to the indicator position.

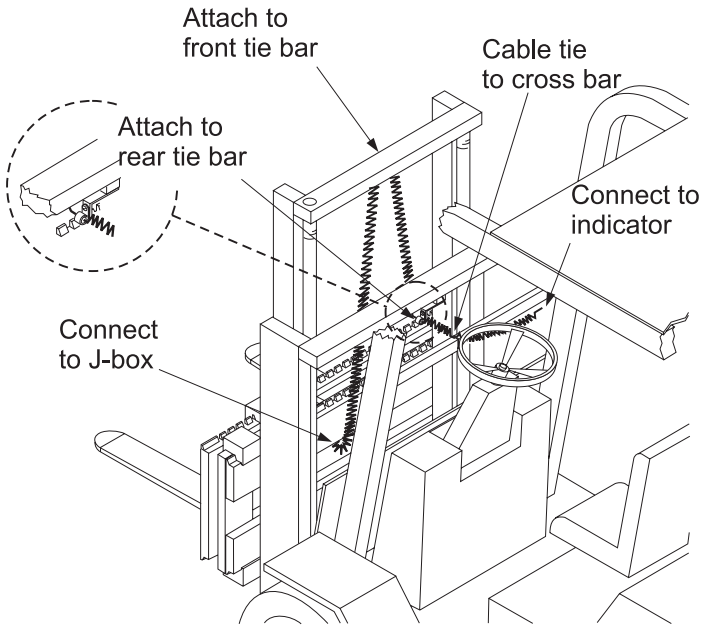

Figure 3
Routing the signal cable

1. The signal cable has two connectors. One 5 pin and one 7 pin. Position the end with the 5 pin connector between the uprights and over any side-shifter cylinder hoses. Cable tie the signal cable to the hose fitting.
2. Plug the 5 pin connector into the junction box fitting and tighten the collar. Check for proper signal cable clearance as the side shifter is moved back and forth.
3. With the forks in the fully lowered position, pull the signal cable towards the center of the front tie bar. Adjust the length until the slack is out of the cable. Secure the cable to this spot on the tie bar.
4. Raise the forks to full height and back down again. Watch the cable as the carriage moves and adjust the cable length if necessary.
5. To find the proper cable length for the second attachment, again raise the forks to full height. Pull the cable towards the rear tie bar until the slack is gone. Secure the cable to the rear tie bar.
6. Check the cable as the carriage is moved fully up and down. Adjust the cable length if necessary.
7. Tilt the uprights forward and back. Allow enough cable for this movement and secure the cable to **center** of the crosspiece in front of the steering wheel with a cable tie. Route the cable out of the way towards the leg of the overhead guard nearest the indicator position and cable tie it to the leg of the overhead guard.

Mounting the WI-125 Indicator

Inside the shipping box you will find a two-conductor power cable with connector, a user's manual, weight capacity stickers, a plastic bag containing isomounts and their hardware.

1. Determine the best location for the indicator. The indicator tilt position is adjustable. You may pick the best viewing angle for your operators now or after mounting the indicator.
2. Hold the indicator bracket in position and mark through the mounting holes onto the mounting surface. Centerpunch these locations.
3. Drill and tap holes for 1/4" - 20 threads. Install the isomounts in these holes.
4. Place the indicator bracket on these three isomounts and install the supplied lockwashers and nuts.
5. Attach the 7-pin connector end of the signal cable to the connector on the indicator. Note the alignment pin and slot in the connectors. Plug them together and tighten the collar.

Tuck and cable tie the excess signal cable out of the way.

Making the Power Connections

1. Disconnect the ground wire from the battery terminal of the lift truck before performing any electrical work.
2. Plug the 2-conductor power cable into the other connector on the indicator. Tighten the collar and route the cable up to secure it to the leg of the overhead guard—then down and cable tie the power cable to the leg of the overhead guard. Pinouts and connectors are shown in Figure 4.

Figure 4
Pinouts and Connectors

1. Plug the 2-conductor power cable into the two pin connector on the indicator. Tighten the collar and first route the cable up to secure it to the leg of the overhead guard—then down the leg of the overhead guard. Cable tie the power cable to leg of the overhead guard.
2. Route the power cable from the weight indicator to the desired power source connection point. If possible, run the power cable through existing holes and channels so that it will be out of the way and cannot be damaged by any of the lift truck's moving parts.
3. Disconnect the ground wire from the battery terminal of the lift truck before performing any electrical work.

4. Also, make sure to fuse the power lead with a 10 amp in-line or spare accessory fuse (if available) near the connection point.
5. Connect the white power cable as close as possible to the battery's positive voltage terminal without attaching it directly to the battery terminal. In other words, the first place the positive terminal is connected to is where you should tap in with the white power cable for the indicator.
6. Connect the black ground cable as close as possible to the battery's negative terminal without attaching it directly to the battery. In other words, the first place the negative terminal is connected to is where you should tap in with the black ground cable for the indicator. The chassis may not provide the proper ground potential.
7. Reconnect battery power and check to see that the indicator powers up.
8. Raise the forks a few inches off the floor and zero the indicator by pressing the **ZERO** key. Place a known test weight on the forks and make sure the indicator displays the correct weight.

Your scale is now installed and ready for use. Contact your lift truck representative for the new capacity of your lift truck and particular option setup. If you have any problems during installation of your Quik-Tach lift truck scale, please contact your local Weigh-Tronix representative.

Mounting The Fixed Scale Carriage

If your scale is not a Quik-Tach scale, four holes must be drilled in the lift truck's existing fork carriage in such a manner that the assembled scale can slide in and out of the holes without binding.

The lifting capacity with a permanent mount scale will be reduced 6% to 8%. The scale carriage moves the load center away from the lift truck (2% " on a 5,000 lb and 8% " on the 10,000 lb). This lifting reduction must be calculated by the lift truck manufacturer and a new capacity label must be placed on the lift truck.

Method A

Method A involves removing the transducers from the scale carriage and using the carriage and a drill bushing as a template. (A bushing is routinely supplied with 5,000 lb. scale systems and is available on request with 10,000 lb. systems.) Refer to Figure 5.

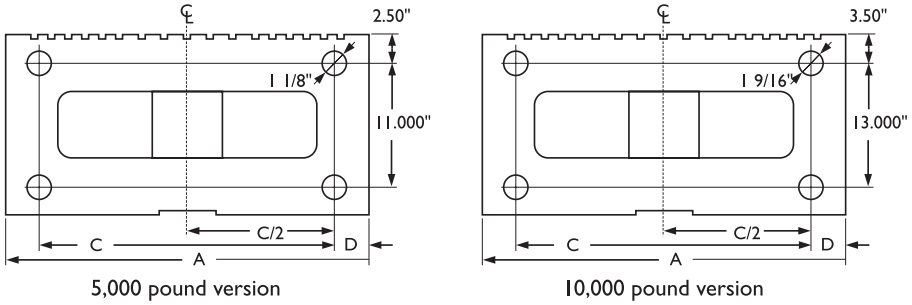

Figure 5
Mounting hole dimensions

1. Disconnect the transducer cable plugs from the junction box on the scale carriage and unfasten the cable ties which fasten the transducer cables to the scale carriage.
2. Mark each transducer and its corresponding location on the scale carriage so that you can replace it in its original location.
3. Unbolt and carefully remove each of the four transducers from the scale carriage.
4. Place the scale carriage against the lift truck carriage in such a manner that the counterbored portion of the transducer mounting holes are away from the lift truck carriage.
5. Make sure that the tops of the two carriages are even and that their center-point markings are aligned.
6. Securely clamp the two carriages together.
7. Insert the drill bushing into the counterbored transducer mounting hole with its guide pins in the top and bottom bolt holes. (Tolerances on these two holes have been precisely monitored to make sure that the drill bushing can be aligned properly.)
8. Using a magnetic-based or radial drill press in conjunction with the drill bushing, drill a 1/2" locating hole through the lift truck carriage.
9. Repeat the above two steps for the other three counterbored transducer mounting holes on the scale carriage.

For The 5,000 Lb Version

Remove the scale carriage from the lift truck carriage and step drill the four holes to a diameter of 11/8". (We recommend that a 7/8" bit be used to drill the intermediate size hole during the step drilling process.) Deburr the finished mounting holes.

For The 10,000 Lb Version

Remove the scale carriage from the lift truck carriage and step drill the four holes to a diameter of 1 9/16,". (For this type of carriage we recommend 7/8" and 1 1/4" bits be used to drill the intermediate holes during the step drilling process.) Deburr the finished mounting holes.

10. Reassemble the scale carriage, making sure that the transducers are reinstalled in their original holes and oriented with the "T" marking on the top of each pointing directly towards the top of the scale carriage. Also, be sure to plug the cables back into the scale carriage's junction box and to refasten any cable ties or clamps that were removed when the scale was being disassembled.

Method B

Method B requires the removal of the lift truck carriage and use of a large bed mill to locate the hole dimensions within the required + 0.005" tolerance.

1. Remove the forks from the lift truck carriage.
2. Remove the lift truck carriage from the lift truck.
3. Refer to Figure 6 and the "Lift Truck Scale Specifications Sheet" (part number 08418-0009) to determine the dimensions between the mounting holes. Also, measure the distance between these holes to make sure that the correct sheet is being referenced.

For The 5,000 Lb Version

Machine four 1 1/8" mounting holes in the Lift truck carriage using a large bed mill so that the holes are within the ± 0.005 inch tolerance of the referenced dimensions. Spot face a 2 1/4" diameter area around each mounting hole so that all mounting surfaces will be on the same plane.

For The 10,000 Lb Version

Machine four 1 9/16" mounting holes in the lift truck carriage using a large bed mill so that the holes are within ±0.005 inch tolerance of the referenced dimensions Spot face a 3" diameter area around each mounting hole so that all mounting surfaces will be on the same plane.

1. Replace the lift truck carriage on the lift truck.
2. Refer to Figure 6 and fit the scale carriage onto the lift truck carriage. Route the signal cable from the cable support mast to the scale carriage's junction box. (This must be done before the scale carriage is fastened to the lift truck carriage because the signal cable's connector cannot fit between the two carriages when they are fastened in place.)

If you use the coiled, retractile cable, refer to Figure 3 for suggested routing.

3. Refer to Figure 6 and install the cable support mast when the nuts which fasten the scale carriage to the lift truck carriage are tightened.
4. Once the scale carriage is fastened to the lift truck carriage, replace the forks. (Be sure the excess cable is coiled and secured where it will not be cut or snagged if the carriage assembly must be moved to replace the forks.)

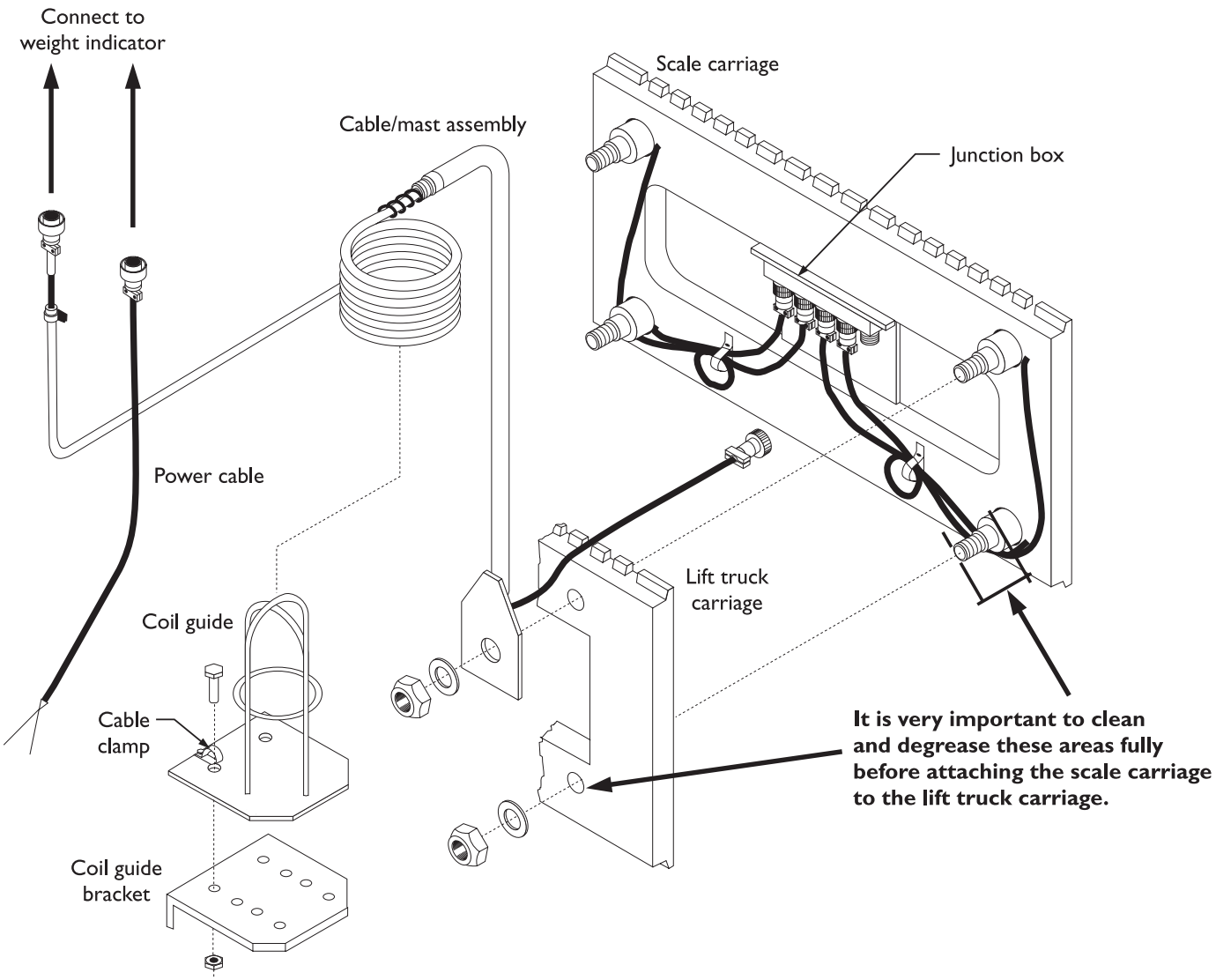

Figure 6
Installation details

Torque Specs For Weigh Bar Mounting Nuts

Model	Minimum	Maximum
LTS-05	150 ft lb*	200 ft lb*
LTS-10	382 ft lb*	520 ft lb*
*For non-lubricated threads		

Mounting the Coil Guide

To mount the coil guide on either a Quik-Tach or a fixed scale carriage refer to the following instructions:

1. Place the forks in their lowest position and tilt them forward as much as possible.
2. Hold the coil guide so that the coil rests around it properly.
3. Determine the best location for the coil guide mounting bracket and mark it. (Make sure that you orient the coil guide in such a manner that the cable cannot become en- tangled in the moving portions of the lift truck or interfere with lift truck operations in any way.
4. Attach the coil guide mounting bracket to the lift truck mast.
5. Bolt the coil guide to the coil guide mounting bracket.
6. Secure the signal cable to the guide assembly by placing it in the cable clamp.
7. Raise and lower the carriage to make sure that the cable stretches and retracts properly.

Cable Connections

Routing the Signal Cable

1. Route the signal cable from the coil guide to the weight indicator. (When doing this, be sure that you allow enough slack to permit tilting the carriage assembly.)
2. When the cable has been successfully routed, secure the signal cable to the lift truck with cable ties in such a manner that the cable cannot be cut, pinched, or pulled during lift truck operations.
3. Connect the signal cable to the weight indicator.

If you use the coiled, retractile cable, refer to Figure 3 for suggested routing.

Connecting the Power Cable to a Power source

The internal power supply in the weight indicator will automatically adjust to any power source that supplies + 10 to 90 volts DC. To connect the power cable to a power source, refer to the following set of instructions. (Wiring codes apply to Weigh-Tronix equipment only.)

1. Disconnect the ground wire from the battery terminal of the lift truck before performing any electrical work.
2. Plug the 2-conductor power cable into the appropriate connector on the indicator. Tighten the collar and route the cable up to secure it to the leg of the overhead guard—then down and cable tie the power cable to the leg of the overhead guard. Pinouts and connectors are shown in Figure 7.

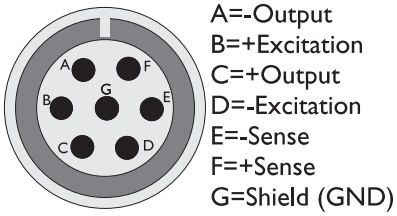

Figure 7
Pinouts and Connectors

4. Route the power cable from the weight indicator to the desired power source connection point. If possible, run the power cable through existing holes and channels so that it will be out of the way and cannot be damaged by any of the lift truck's moving parts.
5. Fuse the power lead with a 10 amp in-line or spare accessory fuse (if available) near the connection point.
6. Connect the white power cable as close as possible to the battery's positive voltage terminal without attaching it directly to the battery terminal. In other words, the first place the positive terminal is connected to is where you should tap in with the white power cable for the indicator.
7. Connect the black ground cable as close as possible to the battery's negative terminal without attaching it directly to the battery. In other words, the first place the negative terminal is connected to is where you should tap in with the black ground cable for the indicator. The chassis may not provide the proper ground potential.
8. Reconnect battery power and check to see that the indicator powers up.
9. Raise the forks a few inches off the floor and zero the indicator by pressing the **ZERO** key. Place a known test weight on the forks and make sure the indicator displays the correct weight.

Your scale is now installed and ready for use. Contact your lift truck representative for the new capacity of your lift truck and particular option setup. If you have any problems during installation of your lift truck scale, please contact your local Weigh-Tronix representative.

Daily Inspection Checklist For Lift Truck Scale Users

- ❑ Check scale carriage for loose, worn, bent, or broken components.
- ❑ Inspect forks for damage.
- ❑ Check locking pins on forks for proper function.
- ❑ Inspect cables from the junction box to Weigh Bars for wear.
- ❑ Inspect retractable cable for pinched, rubbed, stretched, or damaged areas.
- ❑ Inspect power cable for nicks or cuts.
- ❑ Make sure power cable is routed out of harms way. Fasten periodically to eliminate potential problems.
- ❑ Tighten cable connections at indicator and summing box if necessary.
- ❑ Inspect cable clamps and cable ties to be sure all cable attachments are secure.
- ❑ Inspect digital indicator mounting bracket, isolation mounts and hardware for loose or cracked parts.
- ❑ Check to make sure the junction box cover/shielf is fastened.
- ❑ Tighten bottom clamps on scale carriage if necessary. Raise carriage and visually inspect.
- ❑ Check and adjust the lift chain so the heel of the forks have ½" to 1" of clearance from the floor when the carriage is down and the mast is vertical.

This page left intentionally blank.

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

Weigh-Tronix Canada, ULC
217 Brunswick Blvd.
Pointe Claire, QC H9R 4R7 Canada
Telephone: 514-695-0380
Facsimile: 514-695-6820

WEIGH-TRONIX
Weighing Products & Systems

09/28/00 LIFTRUCK.P65 PN 29732-0012e2 Printed in USA