

## Chassis-body mounted onboard weighing loadcells

### Rigid & waste refuse trucks



VWS270 truck cell



VWS273 truck cell

These guidelines provide guidance for the safe installation and operation of VWS loadcell type weighing systems. Installations should be carried out by suitable qualified engineers. VWS takes no responsibility for any part of the installation unless carried out by VWS engineers,  
**Please read this manual carefully.**

#### AFTER SALES SUPPORT

VWS offers an installation and set up service, should you require any help or advice call 0161 643 0202

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# Introduction

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## Disclaimer

We reserve the right to make changes to the products contained in this manual in order to improve design, performance and reliability.

The information in this manual is believed to be accurate in all respects at the time of publication, but is subject to change without notice. VWS or its distributors assumes no responsibility for any consequences resulting from the use of the information provided herein.

The VWS onboard mounted vehicle weighing system is a highly advanced electronic measuring device. Weight is measured by loadcells installed between the body and the chassis. These rugged loadcells are strong enough to provide years of reliable service, yet are sensitive enough to detect a change in weight of just a few kilos. VWS weighers are available for all types of trucks and trailers. Due to differences from model to model there may be some significant assembly variations. The installation process is virtually the same whether it is being performed as a retrofit, or to a new vehicle. It is extremely important to follow these installation guidelines and use the specified materials to ensure that the completed assembly will maintain its high strength for maximum safety. It will also result in minimum installation costs, high accuracy and long life for your weighing system.

## WARNING:

Failure to follow these instructions could cause a hazardous operating condition. Upon completion of the loadcell installation, you or our service engineers will need to install the VWS weighing indicator and calibrate the system (calibration is simply an electronic adjustment of the scale to compensate for minute installation variations). Complete instructions for these procedures can be found in the operator's manual included with your VWS M350S operation manual.

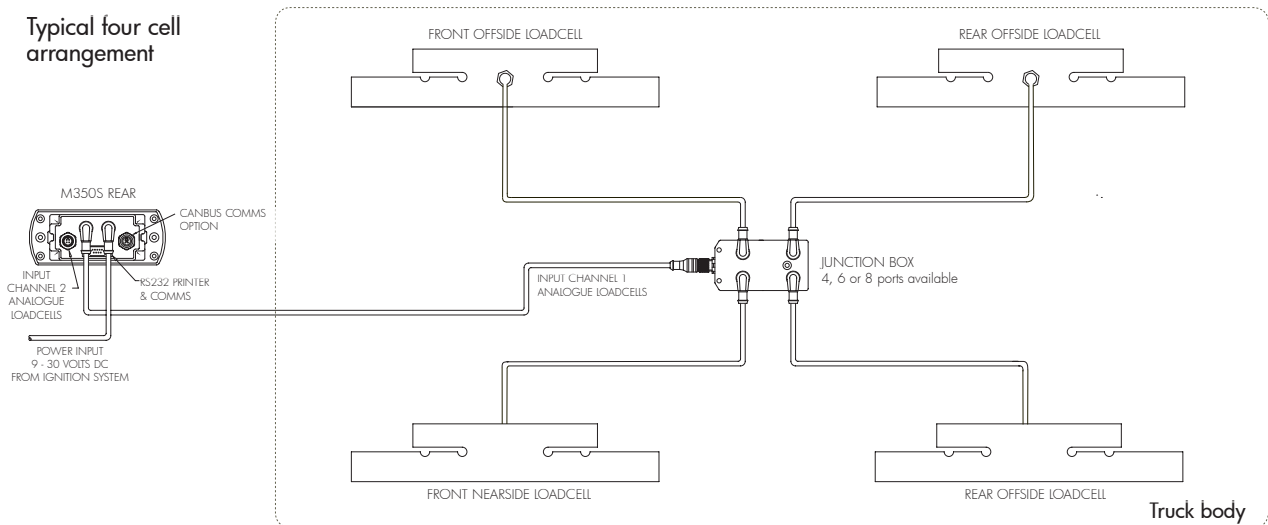
Installation must be in accordance with national laws and regulations. An installation checklist has been provided in the back of this manual. Please refer to it during installation and check off the important steps as they are completed.

Manufactured with pride in Great Britain, heavy duty loadcells made from high quality hardened steel, are easily installed as new or retrofit. VWS cells are made and tested to 15 tonnes each to quality standard ISO9001:2000.

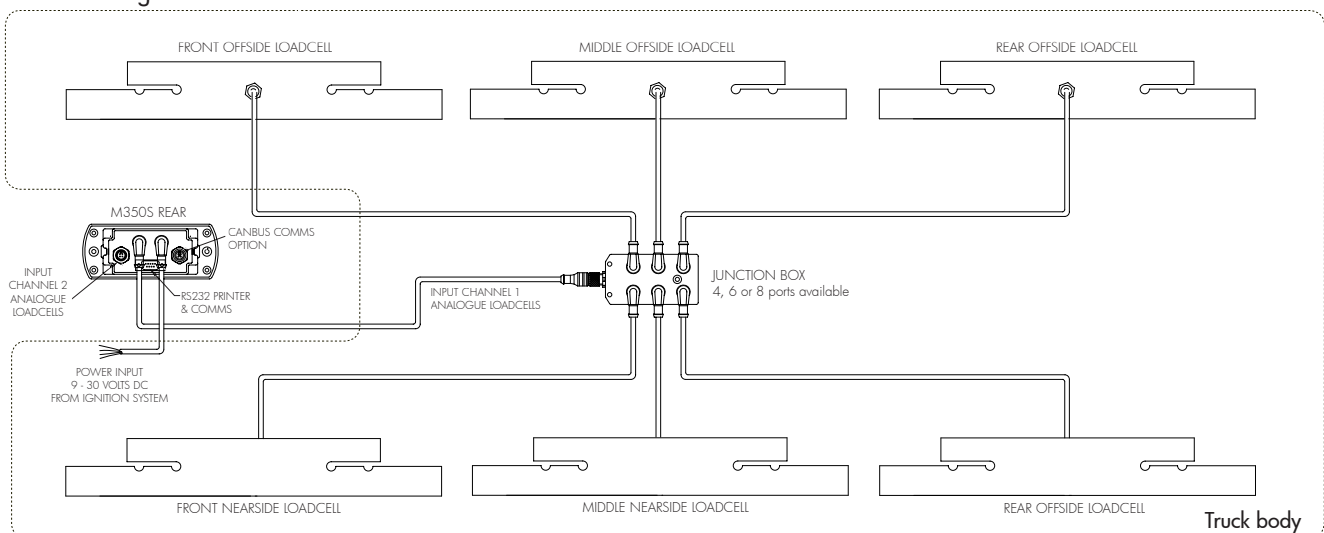
# Weighing system overview

VWS onboard weighing systems are ideal for industrial weighing applications and suitable for measuring either gross vehicle weight or the net weight of cargo being loaded or delivered. The basic system consists of load-supporting transducers (loadcells), an electronic meter (indicator) capable of being calibrated to display the weight in convenient units (lb or kg) and electrical cabling connecting the loadcells and indicator: see diagram below.

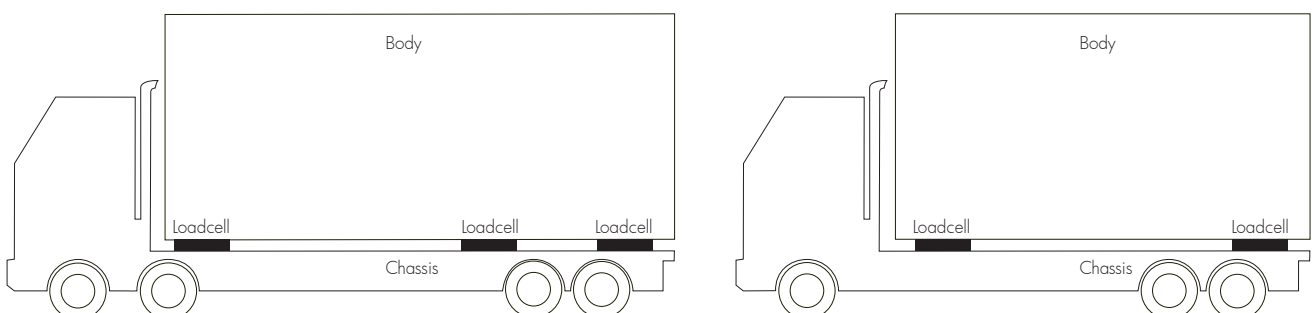
**Typical four cell arrangement**



**Typical six cell arrangement**



This manual is primarily concerned with the mechanical installation of loadcells and cables. Please refer to the appropriate operator's manual for the installation and use of the indicator. Optimum onboard weighing performance is obtained when the loadcells are installed between the load-carrying body (compactor body, box, tank, flatbed, etc.) and the vehicle chassis and carrying the entire weight of the superstructure and payload. No weight-supporting structure other than the loadcells, such as braces or gussets should attach the superstructure to the chassis; this will result in an alternate load-path that will degrade the accuracy of the weighing system. Typical applications include: tippers, tankers, flatbeds and van type structures mounted on either truck chassis or trailers. Truck bodies and payloads are supported above the chassis with loadcells mounted directly to the truck frame; see illustrations. are usually accomplished by separating the rear suspension subframe from the trailer frame and installing loadcells between these structures.



# Installation styles

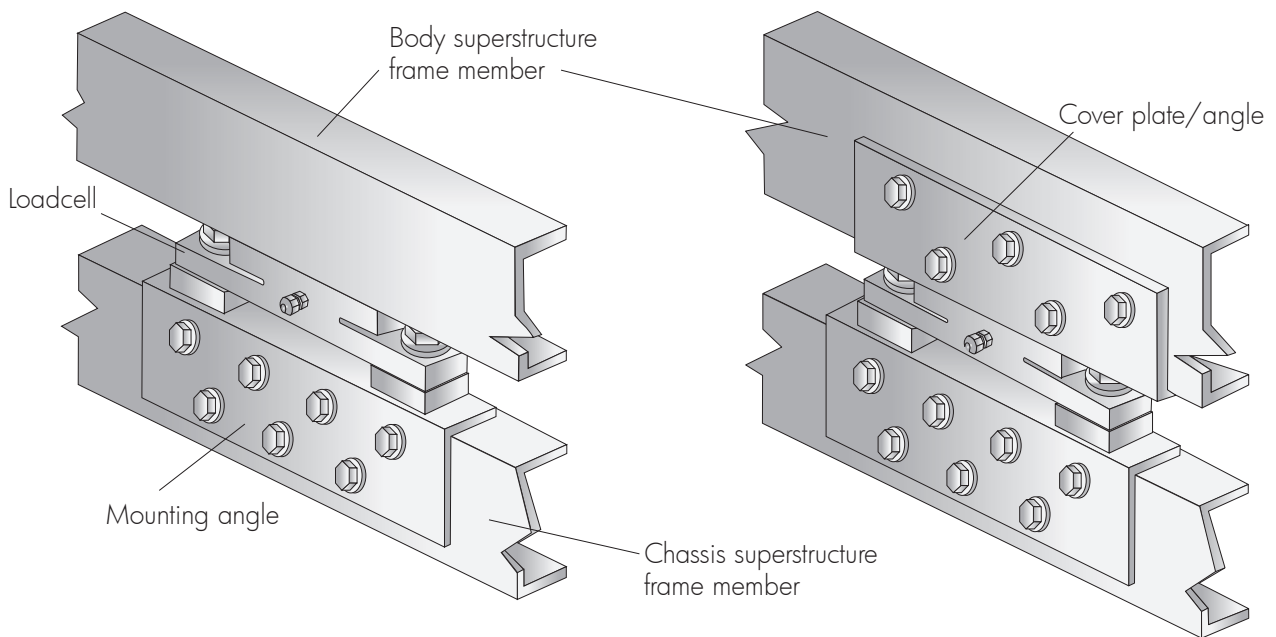
Other related applications not covered in this manual include tractor-trailer mounted 5th wheel weighers, trailer mounted kingpin plate scales, light duty VOPS installations, Enviroweigh binweighing and Tradeweigh trade approved chassis weighing system.

## Mounting Styles:

Two basic mounting styles are used for installing chassis mounted onboard weighing systems: the in-line mount and the out-board mount.

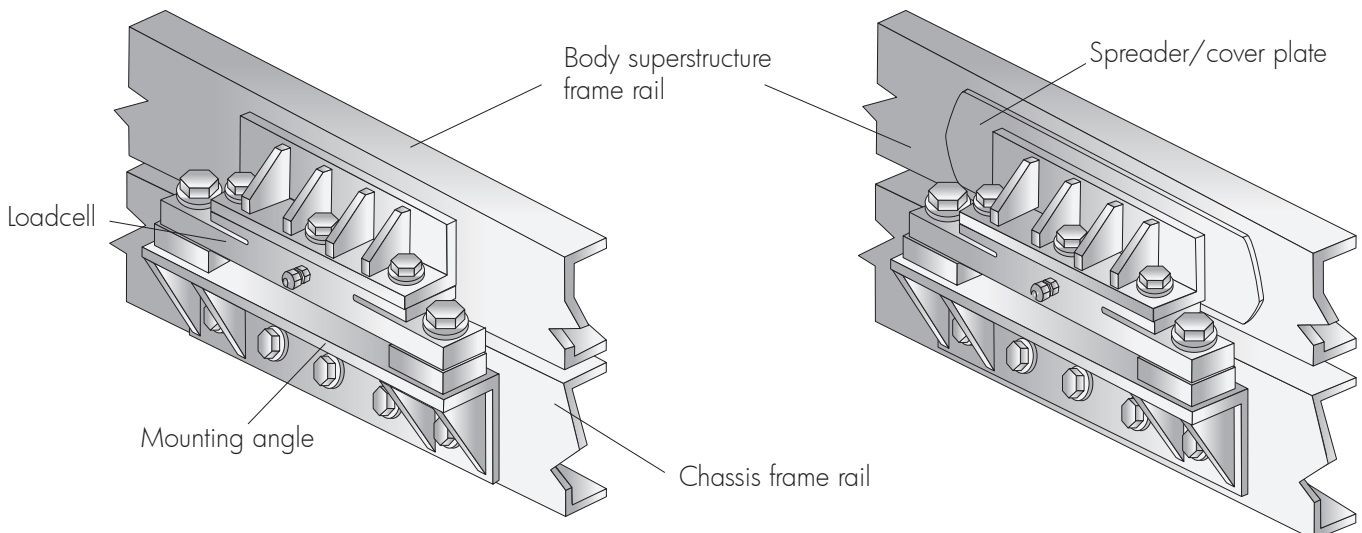
### In-line mounted loadcell

An in-line mounted loadcell is installed between the flanges of the upper body-rail and lower chassis frame and aligned with those frame members. Load spreading plates, sometimes called cover plates, fish-plates or angle sections are frequently used to spread the load over a greater area. A chassis or body subframe may be required where the body is prone to flexing.



### Out-board mounted loadcell

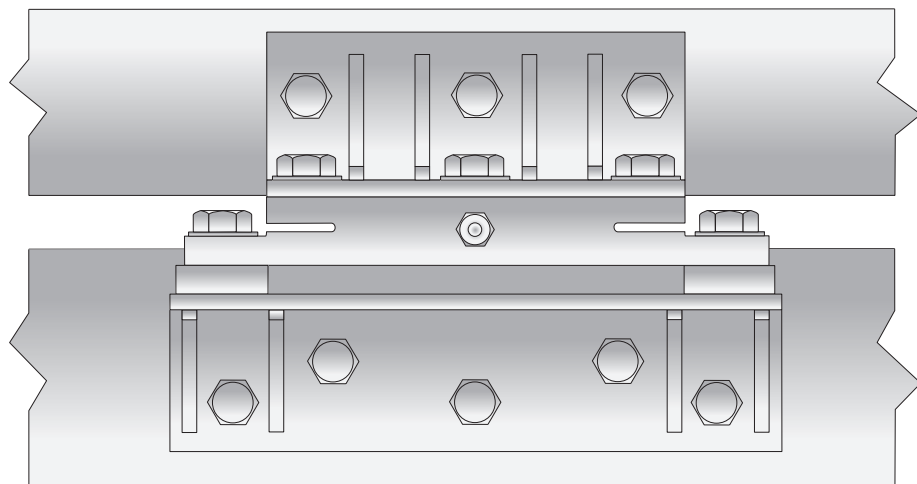
An out-board mounted loadcell is installed alongside the frame members using brackets located out-board of the frame members.



Considerations such as available space, tyre clearance and restrictions for overall vehicle height will generally determine which mounting style will be used. The following chart illustrates the features of each mounting style:

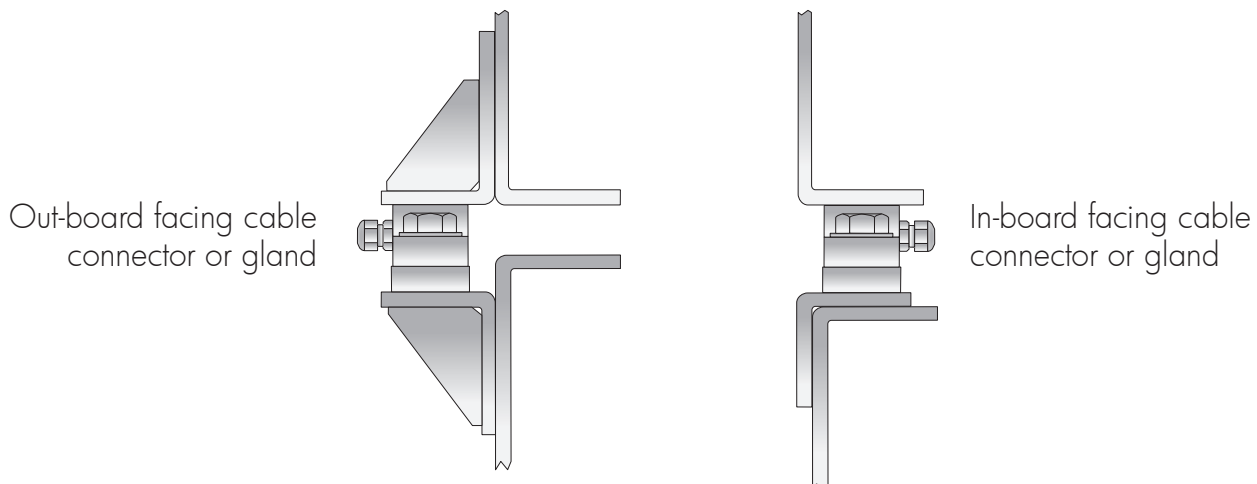
In-line mounting	Outboard mounting
Used when outboard clearances or suspension systems means space is limited	Requires space for loadcell installation outboard of chassis
Requires only one mounting bracket per loadcell	Requires an upper and lower mounting bracket per loadcell
Will raise the overall vehicle height by approx. 90 mm unless frame is recessed	Will raise the overall vehicle height by approx. 25 mm
Mounting holes for the loadcell must be added to the frame structure	Loadcell mounting holes are located in the mounting brackets
Allows for either inboard or outboard facing cable connectors	Outboard facing cable connector is usually required

The most common position for loadcell mounting is to position the loadcell so that the bearing plates are underneath the loadcell. However, installation can sometimes be simplified by inverting the loadcell and installing with the bearing plates above the loadcell, especially when combined with the outboard mounting style.



### Connector Orientation

The loadcell can be orientated so that the cable connector is located on either the outboard or inboard side of the loadcell. Outboard located connectors generally are more accessible for installation and service, but need a cover plate for protection from road damage. Inboard facing connectors provide improved protection for the connectors, but servicing may be difficult if access is not provided for. A minimum clearance of 76 mm(3" ) diameter around the connector must be provided for tightening the cable connector onto the loadcells. Outboard mounted loadcells generally have limited access for inboard facing connectors. For this reason, inboard facing connectors are usually used only with in-line mounted loadcells.



## Accuracy and Performance

### 1. Maximum weight supported by the loadcells

The loadcell dynamic rating indicates the maximum load for each cell while the vehicle is moving at speeds greater than 5 mph (8kmp). Loads up to the static capacity are only possible in stationary installations and are not applicable to on-board truck scale applications. Refer to VWS specification sheet for each loadcell model to verify dynamic capacities.

### 2. Maximum distances between loadcells

Optimum weighing performance occurs when the maximum centre-to-centre distance between loadcells does not exceed the maximum dimensions shown in the chart below.

### 3. Cantilevered loading of loadcells

locate loadcells within 1 metre (3') of the ends of the superstructure, were possible, to avoid overhanging loads. This not only provides for a stronger structure, but can avoid potential accuracy problems. The following chart details the weight capacities and maximum spacing for common onboard loadcell models.

Loadcell model no.	Dynamic capacity	Static capacity	Maximum Spacing
270	5,700 kg	5,700	2.5 metres
270	5,700 kg	6,600	5.5 metres
273	5,700 kg	13,600	5.5 metres

## Preparation

Loadcell mounting brackets are generally attached to the superstructure by means of welding. In order to provide for the mounting of loadcells and mounting brackets (illustrated in a later section), some modification to the superstructure may be required. The modifications may be as simple as providing a flat surface for bracket welding or may be as extensive as providing a recess in the underframe for the mounting of the loadcells.

Modification to the superstructure will vary according to the specific type of installation to be performed; whether it is for a trailer suspension subframe assembly or for truck frame mounted systems supporting entire payload carrying superstructures. Outboard mounted loadcells may only need space to weld or bolt loadcell mounting brackets, while an in-line mounted loadcell system will need holes drilled in the underframe of the superstructure for the loadcell mounting bolts.

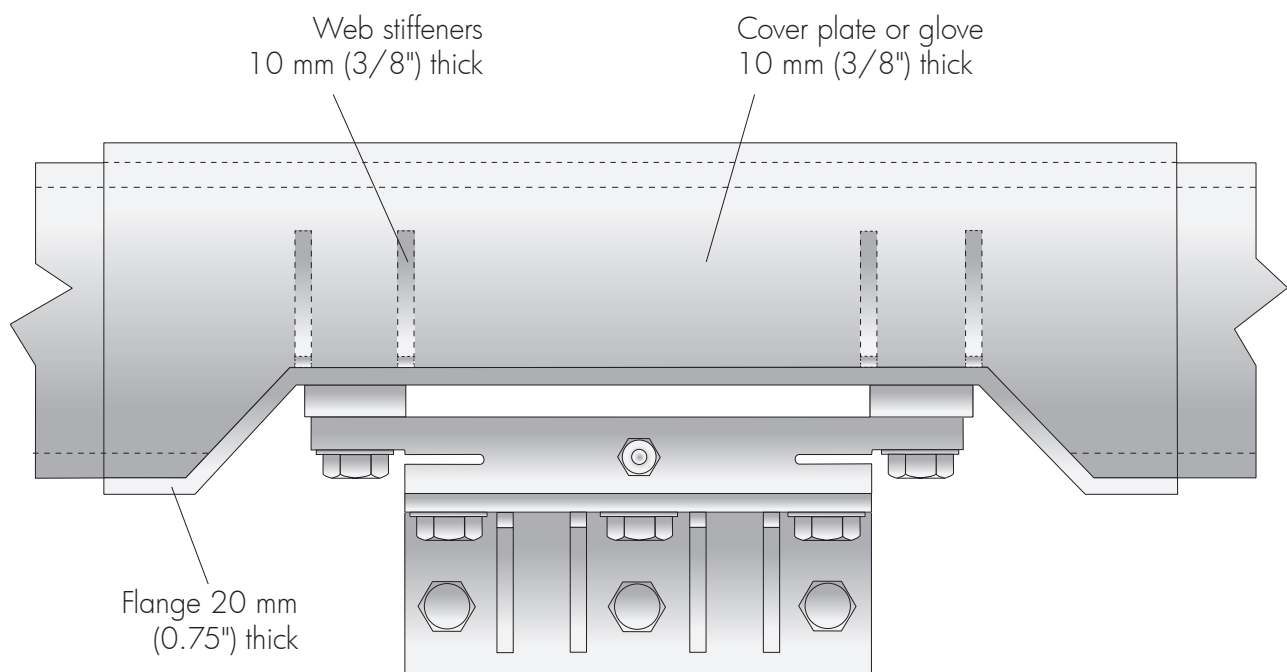
Whenever making modifications to a structure, care must be taken to provide for bolt strength and rigidity (stiffness) for the finished installation. Every structure will deform (bend, twist or sag) to a certain degree when carrying a load. The installer must ensure that the modified structure is strong enough to prevent not only permanent (elastic) bending so that upper structural elements will not contact lower elements and create an alternative load path around the loadcells. Excessive frame bending can be prevented by either adding a 'glove' (a structural supporting sleeve) to the frame, or by adding additional loadcells in that area for more support.

### Frame Stiffeners:

If the frame section above the loadcell is an open section, such as a channel or 'I' beam, web stiffeners are required to avoid frame twist (see illustration below). The stiffeners are located near the ends of each bearing plate for inverted loadcell mounting, or between the mounting holes for loadcells installed with the bearing plates beneath the loadcells.

### Recess Mounting:

Often the most practical method for installing on-board frame mounted scales (particularly with an in-line mounted system) without an undesirable height increase of the trailer or body, is to provide a recess in the superstructure underframe. A general recommendation for this approach is shown in the following illustration. The installer should assure that any modified structure will retain the strength and stiffness properties of the original structure.





# Body-chassis alignment

VWS LOADWEIGH™ loadcells are designed to be installed between the body and chassis of industrial trucks. It is imperative the loadcells are installed in-line with the chassis and body rails with no misalignment or twisting forces projected on to the bolts or fixings.

## Alignment:

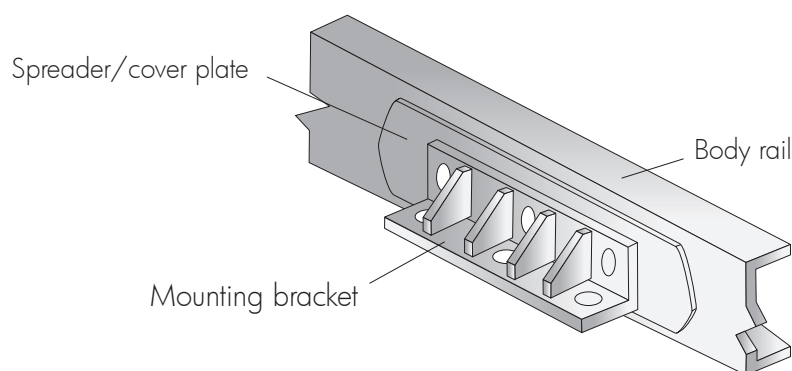
Because the installation of loadcells involves the separation of the body superstructure from the supporting chassis frame, care must be taken to ensure the separated elements are installed and in alignment; new build or retrofits. The body must sit flat and loadcell mounting bolt -holes align without the use of additional tools. e.g. jemmy bars or jacks. Bolts should be inserted by hand and screwed by hand prior to final tightening with a torque wrench.

Marking the relative positions on the frame elements before assembly is an effective means of assuring proper alignment. Also ensure the straightness of frame elements when cutting or welding to prevent undesirable bending or warping during assembly. The use of a simple stiffener (stiff-back), welded into place prior to modification, is effective for this purpose.

## Mounting Structure:

Optimum performance of LOADWEIGH™ is dependent upon a solid mounting base for the loadcells. Brackets of heavy construction 16 mm thick steel are required. Since this is a thicker section than usually found on trucks, a cover plate may be necessary to evenly distribute forces to avoid stress concentrations and possible cracking in the thinner sections of the superstructure. Locating loadcells in the immediate vicinity of cross members or other frame strengthening/stiffening elements to provide maximum support is also important for providing a structurally sound installation, as well as a reliable on-board weighing system. When separating and/or aligning the body to the supporting chassis frame, be careful when re-routing hoses, airlines, fuel lines etc. Some of these items may need to be replaced by longer ones to prevent secondary load paths which cause poor weighing performance.

These items are also susceptible to damage if they are not of sufficient length to allow for frame separation or are not properly protected at installation. Upon completion of the installation, look closely at all the elements of the mechanical installation to avoid problems with pinched wires, ruptured hoses, etc., especially during the first operation of any moving structure such as a dump body.



When separating the superstructure from the supporting frame, be careful when re-routing hoses, airlines, fuel lines etc. Some of these items may need to be replaced by longer ones to prevent secondary load paths which cause poor scale performance. These items are also susceptible to damage if they are not of sufficient length to allow for frame separation or are not properly protected at installation.

Upon completion of the scale installation, look closely at all the elements of the technical installation to avoid problems with pinched wires, ruptured hoses, etc., especially during the first operation of any moving structure such as a tipper body.

Loadcell mounting bracket installation methods differ depending upon whether the supporting structure is a truck chassis or a trailer suspension subframe. Truck frames are manufactured from heat treated high strength steel, requiring loadcell mounting angles or brackets to be bolted to these frames. Trailer subframes however, are not heat treated and mounting brackets can be welded to these frames.

**CAUTION:** Review truck or trailer manufacturer's recommendations before welding to frame.

**Bolting Requirements:**

The structural requirements for the loadcell mounting brackets are affected by the actual weight being supported by the loadcells and by dynamic service factors caused by road conditions. Bolted load-carrying brackets are susceptible to slippage if the proper number of bolts are not used or if the bolts are not tightened to the recommended torque. Use the following chart to determine the proper number of bolts for bolted installations. Refer to the chart on page 14 for the recommended torque values when tightening

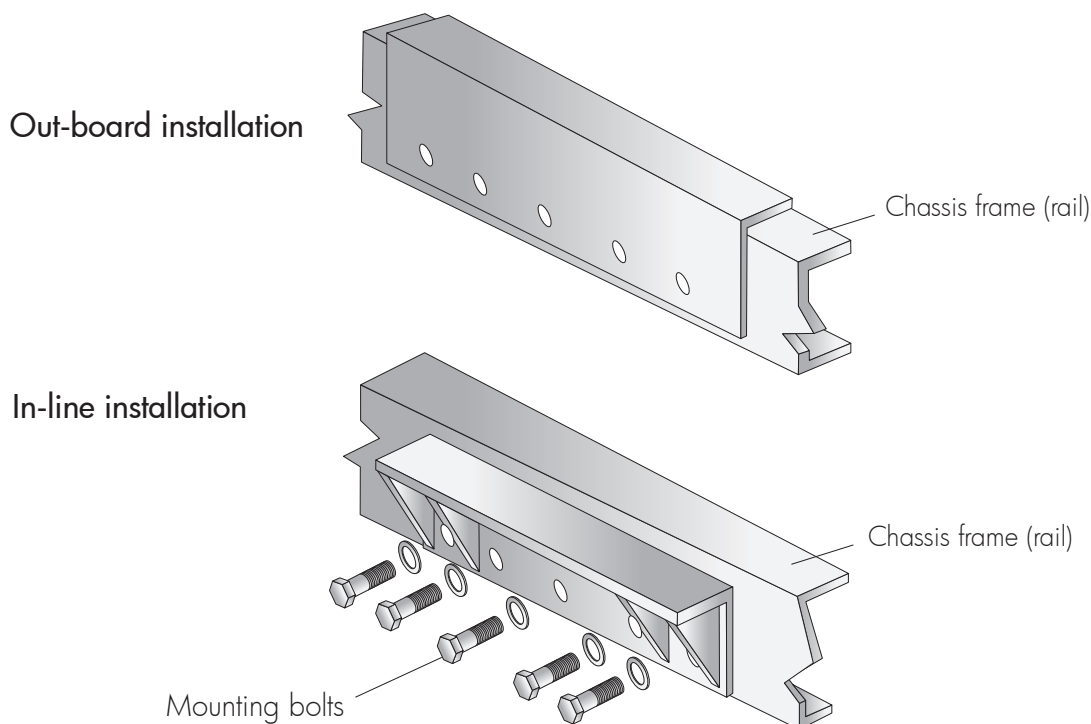
Number of bolts used	Maximum Load on Loadcells	
	Highway Use only	Rough Road Use
5	5670 kg	3200 kg
6	More bolts not necessary	4100 kg
7	More bolts not necessary	4500 kg
8	More bolts not necessary	5500 kg
9	More bolts not necessary	5700 kg

For inline installations, use the bolting recommendations for highway use regardless of road condition.

**Frame Rail Inspection:** Inspect the frame rails to ensure they are clean, straight and free of cracks, corrosion, pitting, burrs or any other imperfections that may affect the installation and fit of the mounting angles/brackets, or the strength of the frame.

**Mounting Bracket/Angle Installation:** Set the mounting angles (for in-line installations) or mounting brackets (for outboard installations) in place on the frame rails. Determine if and where they must be cut or contoured to allow clearance for existing bolts, rivets, spring hangers, etc., on the frame. Mark these locations on the mounting angles/brackets, allowing for a minimum 25 mm radius -no sharp corners. Remove angles/brackets, trim as required, and grind edges smooth.

**NOTE:** It is not necessary to cut out loadcell mounting angles and brackets for easily removed items such as fuel tanks, battery boxes, etc. These items are simply repositioned or spaced out to conform to the added thickness of the loadcell mounting angles/brackets.



Clamp the mounting angles/brackets tightly to the frame. Be sure that the clearances and cut outs are correct. Locate and drill holes per the recommendations in the chart on the previous page and bracket drawings in the Appendix on page 16 of this manual.

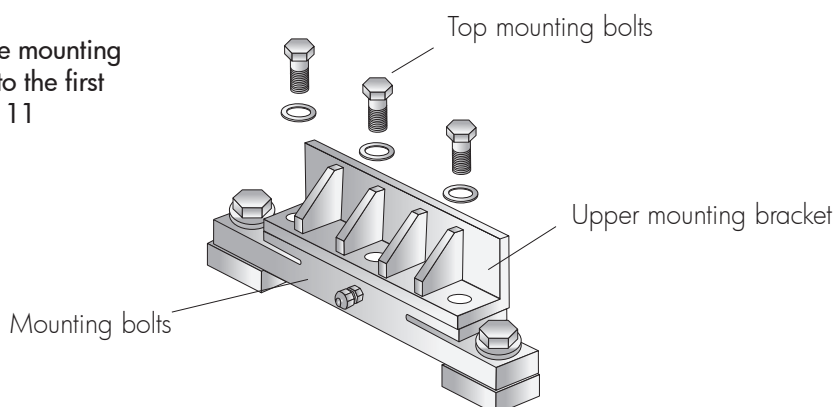
#### NOTE:

Bolt holes in mounting structures must be drilled, not burned. Holes should not be oversized more than 1 mm to ensure a snug fit for bolts. Use a minimum of 5 bolts per mounting angle or bracket. Also locate bolts within 25 mm to 38 mm of each end of the mounting angle/bracket. Do the same for the edge of each cut out deeper than 25 mm.

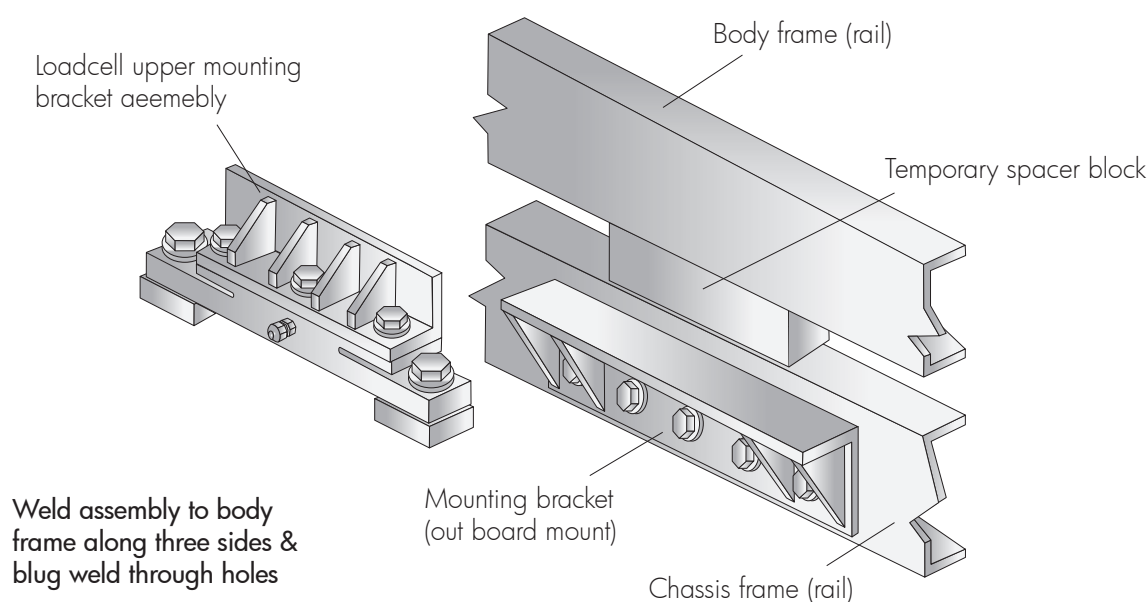
Attach the mounting angle/bracket using BS/ ISO/DIN Grade 10.9 (SAE Grade 8) quality bolts, Grade C lock nuts and a hardened washer under each lock nut. The bolts must have a diameter of 5/8" (16mm) minimum, and sufficient length to provide a minimum of 3 threads past the end of the lock nut. Tighten all bolts to the proper torque value listed in the table on page 14. When welding brackets to non-heat treated frames, use a low hydrogen process and AWS E7018 rod or equivalent. Check the lengths of all connections for items that have been moved during the installation of the mounting angles/brackets. These connections may include battery cables, fuel lines, air lines, and electrical cables.

Assemble upper mounting brackets to the loadcells using the bolt kits provided (for in-line mounted systems where the loadcells bolt directly to the upper frame structure, simply mount the loadcell assemblies to the upper frame). Make sure the bolts are the proper length and do not bottom out in the tapped holes. If the mounting bolts are too long, damage to the loadcells is possible. A dangerous operating condition could exist if the bolts are not secure. A minimum thread engagement of 25 mm in the loadcell or weld block is required on all bolted connections. Refer to the bolt tightening chart on page 14 for the recommended bolt tightening torque.

**If using the in-line mounting techniques, skip to the first paragraph page 11**



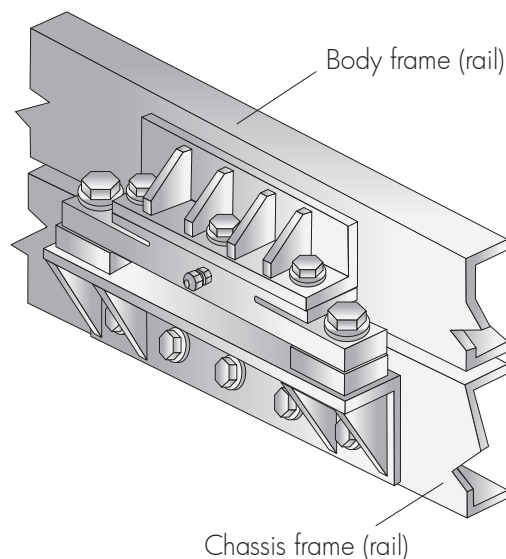
The loadcell/upper mounting bracket assemblies are now ready to be installed on the superstructure. To do this, place temporary spacers usually 20 mm to 25 mm on the vehicle frame to provide the proper spacing between the superstructure and the vehicle frame. Lower the superstructure onto these spacers. Be sure to check the superstructure for proper alignment with the vehicle frame.



1

Place the loadcell assemblies on the vehicle frame mounting brackets which were installed in 'Frame Preparation'. Adjust the loadcell assemblies into their final position, verifying fit and clearances with the superstructure. Bolt or weld upper mounting bracket securely to the superstructure using a low hydrogen process and AWS E7018 rod or equivalent (DO NOT WELD BEARING PLATES YET). See 'CAUTION' on page 11 before proceeding with welding. Lift the superstructure and remove the temporary spacers.

The superstructure with the loadcell assemblies attached is now ready to be secured to the vehicle frame mounting and angles/brackets. Lower the superstructure so that the loadcell bearing plates set in the proper position on the vehicle frame mounting angles/brackets. Check the proper alignment between the superstructure and the vehicle frame, and check all bearing plates for contact with the frame mounting angles/brackets shim any gaps greater than 1.5mm (1/16")



Weld loadcell bearing plates in place (see caution below, and welding procedure on page 12 before proceeding with welding)

**Connector protection;** VWS recommends that a protective cover be provided to protect outboard facing connectors from road damage such as flying stones.

**CAUTION:**

**Bearing Plate Welding:** Please read the welding procedures on the following two pages completely before proceeding. The welding of the bearing plates is the most crucial step in the installation process.

Take precautions to ensure that the vehicle electrical system is not damaged by the welding. TO PREVENT ELECTRICAL CURRENT FLOW THROUGH THE LOADCELL, ATTACH GROUND STRAP DIRECTLY TO THE STRUCTURE ON THE SAME SIDE OF THE LOADCELL ON WHICH WELDING IS BEING DONE.

Complete the attachment of the superstructure/loadcell assembly in the following order (in accordance with the welding procedures on pages 12 and 13):

1. Tack weld the bearing plates to the mounting angles or brackets.
2. Remove the slag from tacks and 'feather' end of tack with a grinder to provide a smooth transition for the root to pass as it passes through the tack. Welding can be completed without disassembly of loadcells from bearing plates. Direct electrode away from unprotected underside of loadcell.
3. Alternate welds from side-to-side and end-to-end to avoid weld distortion.

# Welding procedure

This procedure has been prepared to guide the welder on the proper method for welding bearing plates to frame mounting members.

## WARNING:

All welding, metal working, and assembly must be performed by a qualified person using proper tools and safe work habits. When welding, use a procedure that assures a sound, good quality weld. Over welding may cause distortion and damage; under welding may not develop sufficient strength.

## CAUTION:

Take precautions to ensure that the vehicle electrical system is not damaged by the welding. ATTACH GROUND STRAP DIRECTLY TO VEHICLE FRAME MEMBER (NOT LOADCELL BODY) TO WHICH THE BEARING PLATES ARE BEING WELDED TO PREVENT ELECTRICAL FLOW THROUGH LOADCELL.

## Welding Process:

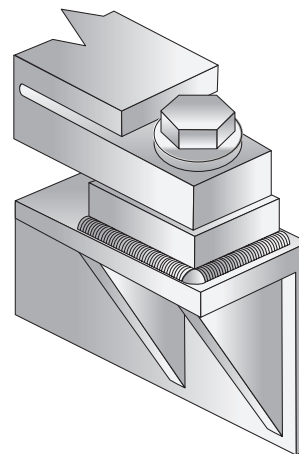
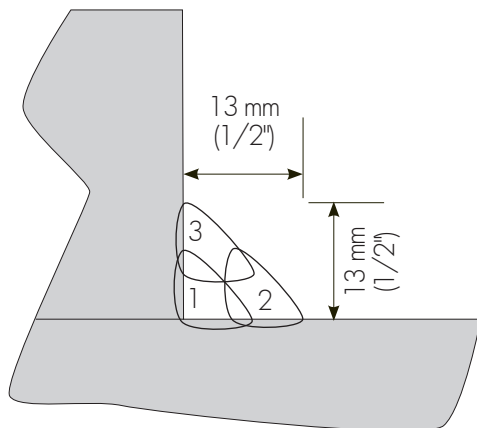
Use a low hydrogen process and AWS E7018 rod or equivalent. The bearing plate may be welded using SMAW stick, GMAW spray transfer, or FCAW. The user should not use GMAW short circuit transfer.

## Weld Configuration:

The bearing plate shall be attached using a multipass fillet weld sequence as shown in the illustration below.

## Deposited Weld Metal Fillet Sizes:

The finish multipass fillet assembly shall be a minimum of 13 mm (1/2") as shown in the illustration below.



## Fillet weld sequence:

1. Root pass
2. Base pass
3. Final pass

Filler Metal: The electrode shall be as detailed in the following table.

**Electrode Specifications:**

Process	Size	Type	Comment
SMAW	5,700 kg	5,700	Must be dry
FCAW	5,700 kg	6,600	Gas shield
GMAW	5,700 kg	13,600	Spray transfer

**Preheat:** The bearing plate and the base metal mounting surface shall be warmed in preparation for welding to reduce shrinkage stress. Any suitable torch arrangement is satisfactory. Spot heating shall be avoided. The preheat temperature shall be a MINIMUM of 20°C and a MAXIMUM of 65° C.

**Cleaning Before Welding:**

Weld blocks are supplied to the customer ready for welding, except the base and edges of the bearing plate shall be visually inspected to verify that there is no oil, grease, dirt, paint or other foreign substance that will reduce the weld quality. The mounting angles shall be surface ground or power wire brushed so as to remove all paint, primer, or other surface coating. An area the size of the bearing plate plus one inch shall be cleaned and ground to bare base metal.

**Inprocess Cleaning:**

Each fillet shall be visually inspected with all slag cover removed, before proceeding with the next bead. A stiff wire brush or needle scaler may be used for slag removal.

**Final Inspection:**

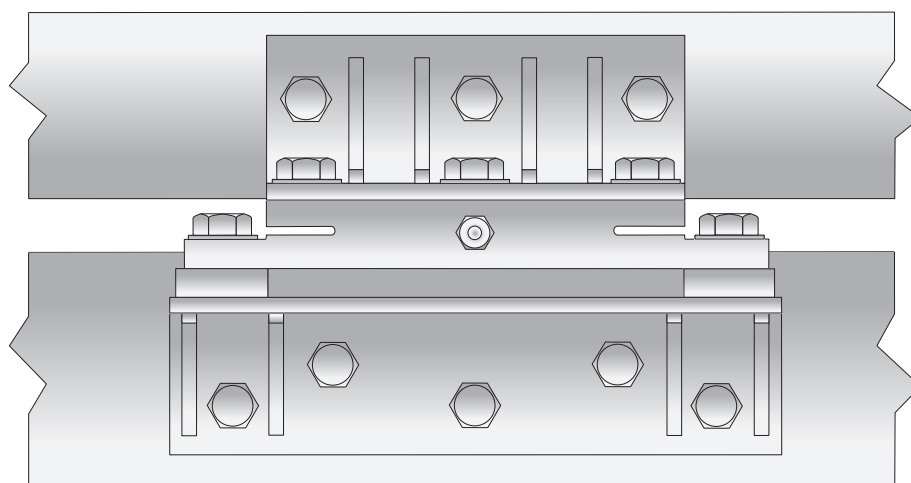
Long service life depends on quality application of the fillet welds and THE FINAL SIZE OF THE FILLET. There shall be no undercut on either the upper leg (on the bearing plate) or the lower leg (frame base metal). Any undercut shall be repaired with an additional fillet or contoured by grinding to remove the mechanical notch. Visually inspect all weld stops and starts. Weld craters should be filled. All weld stops shall be staggered. A light coat of primer and paint may be applied after final inspection. Periodic Inspection: These primary load carrying fillet welds should be inspected during routine maintenance.

**WARNING:** Heat from welding may loosen bolts. Therefore, all torque values should be rechecked after installation when all welds have cooled.

## Torque values

Torque values can vary significantly depending upon the lubrication of threads. The following values are based on new, clean threads in 'as received condition' without additional lubrication. VWS recommends the use of a thread lubricant, such as Loctite 767 or equivalent to prevent the seizing of threads over a long period of time. These torque values can be used for bolts with this lubricant without over-stressing bolts. All bolts are to be or ISO/DIN 10.9 (SAE Grade 8), all lock nuts Grade C. Use only new bolts and lock nuts.

Application	Fastener size (US Imperial)	Application
Frame Mount	5/8" - 18 UNF	300-340 Nm (225-250 FT/LB)
	M16	300-340 Nm (225-250 FT/LB)
Loadcell Mount	1 - 1/4" 12 UNF	1360 Nm (1000 FT/LB) Minimum
	1" - 14 UNS	1030-1140 Nm (760-840 FT/LB)
Top Loadcell Mount	7/8" UNF	775-850 Nm (570-630 FT/LB)
	1" - 14 UNS	1030-1140 Nm (760-840 FT/LB)

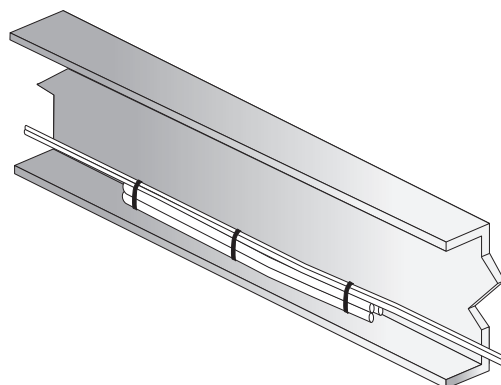


**Flexible Mounts** - Where solid rubber and/or polyurethane blocks are fitted ensure 25 mm min. of thread engagement into loadcells and weld blocks.

## Cable Installation

VWS cables are specially designed to provide maximum signal strength and high reliability. Substitution of cabling other than VWS supplied cabling may cause inconsistent and erratic readings. Care should be taken when routing cable to provide protection from sharp edges, driveline rotation, exhaust pipe, or any other potential damage. Secure in place with cable ties to a snug fit.

Prior to the assembly of the cable connector to the loadcell, apply Teflon tape or a thin coat of non-conductive lubricant to the loadcell connector threads. Connect the cable connectors to the loadcells. Assembly of the cable connector to the loadcell should not be forced. Align the 'keyways' and insert the cable connector into the loadcell. As the cable connector is being inserted, rotate the threaded sleeve clockwise until hand tight. Ensure the connector has been fully inserted for maximum moisture protection by wiggling the connector and re tightening the sleeve. Connector penetration is 13 mm (1/2").





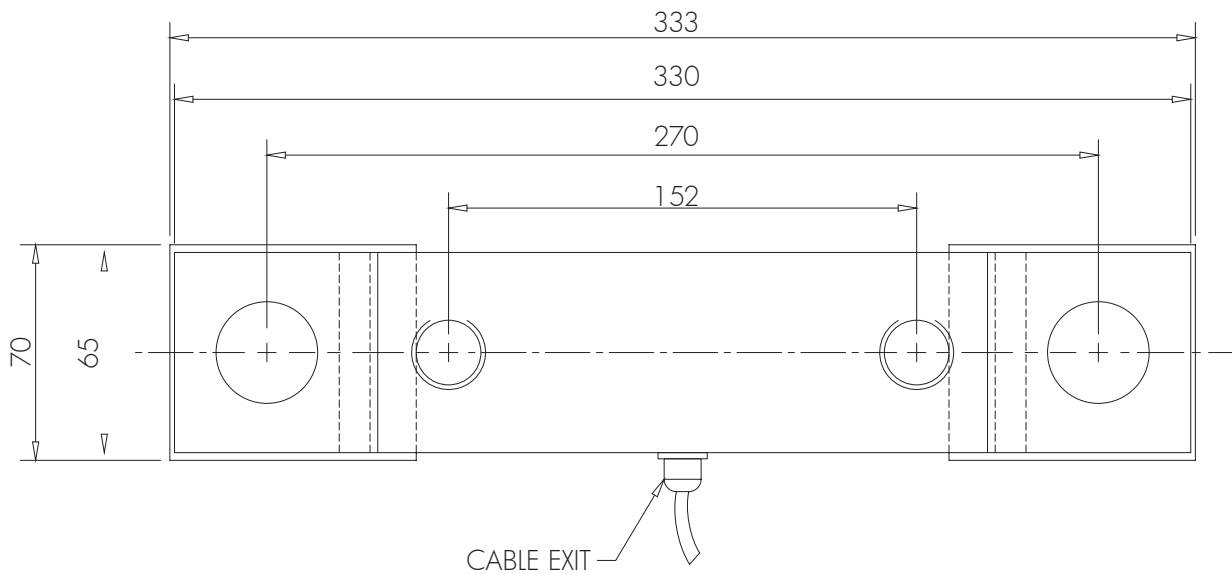
## Installation checklist

- Mounting angles or places have been inspected for burrs, inconsistencies and trueness ☐
- Frames have been inspected and are in good condition ☐
- Surfaces for loadcell bearing plates are rigid and have been reinforced ☐
- All bearing plate welds 'triple pass' (see welding procedure page 12) ☐
- All bolts are torqued to specifications (see page 14) ☐
- All connectors are properly inserted and tightened ☐
- All cables are routed and secured in protected areas of the frame ☐
- Indicator installation: see 'M350S Operators Manual' ☐
- System calibration: see 'M350S Operators Manual' ☐

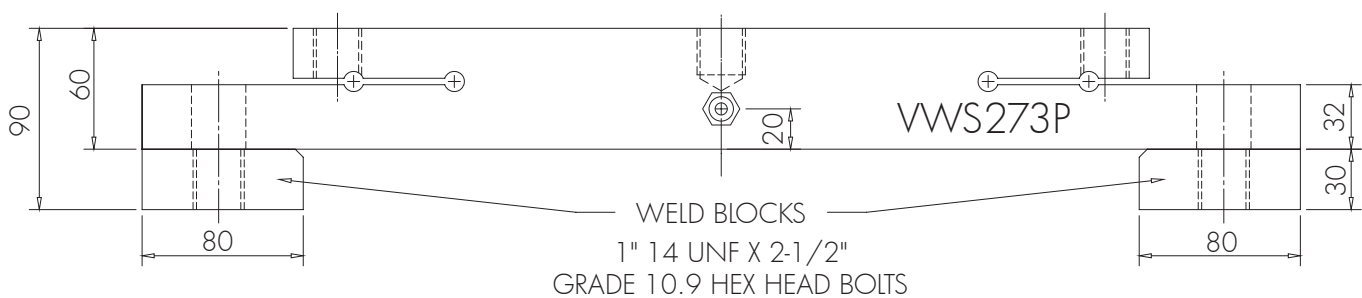
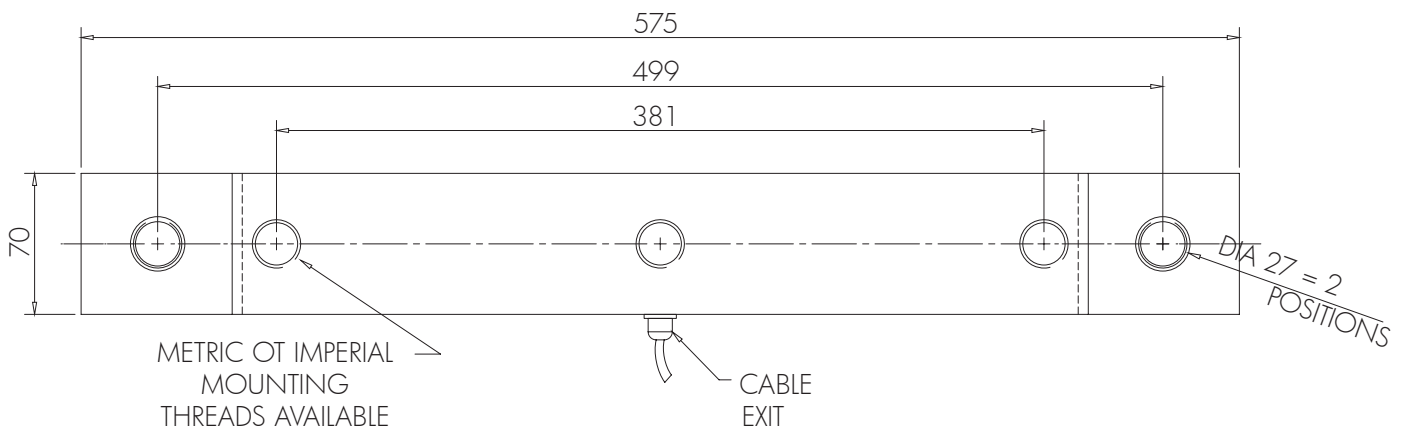
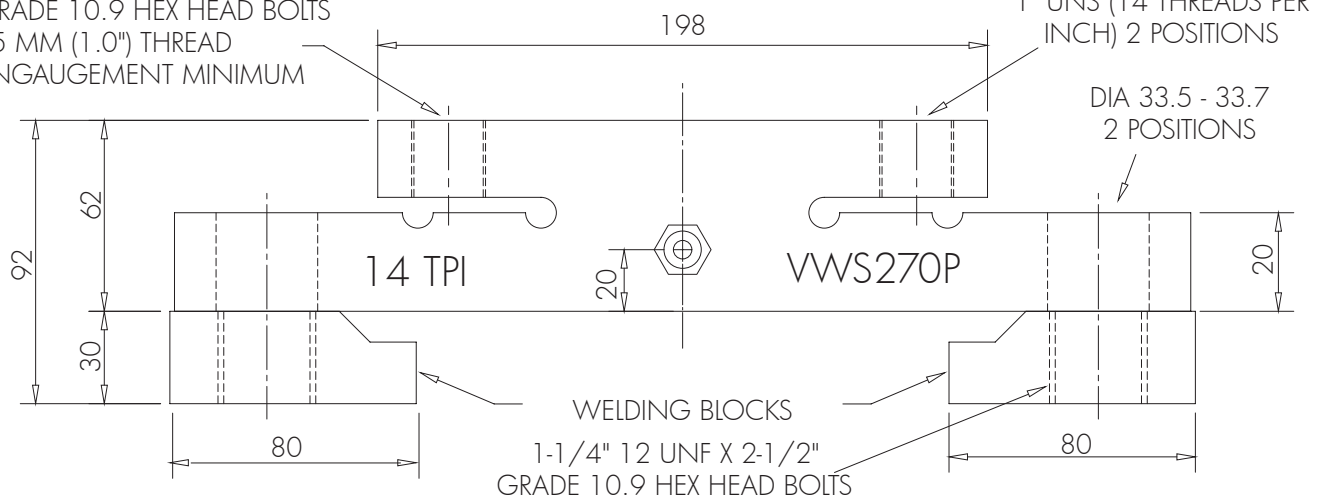
## Routine Maintenance

To ensure your onboard weigher operates safely and accurately follow these four periodic steps:-

1. Inspect all weld for signs of cracking or corrosion
2. Retighten all fasteners to specified torque values
3. Inspect cable and connectors for damage, tightness and cleanliness
4. Clean truck/trailer suzi connectors



1" UNS x 1-1/2"  
GRADE 10.9 HEX HEAD BOLTS  
25 MM (1.0") THREAD  
ENGAGEMENT MINIMUM



# Vehicle Weighing Solutions

## Our Service - Our Promise



### On-site service, aftercare, calibrations & training

What gives us the edge is our flexibility. We aim to operate efficiently and productively to meet every type of customer need. Once you've taken delivery of your system we provide full on-site technical back-up so if you need assistance or training we're always available to help.

Professional on-site service keeps your onboard weigher working, our team of experienced onboard weighing engineers - the largest of any onboard weighing company in the UK - are trained and skilled to repair all makes quickly and efficiently including; PM, Napper, Mx, and Red Forge.

Help is only a phone call away, for service please call 0161 643 0202.



#### Well connected

For added protection in harsh conditions, installation friendly automotive connectors are moulded onto the wiring cables to provide a quick connect alternative to hard wiring.



#### IP67

For increased moisture protection, quality environmental sealing to marine standards keeps electricals dry.



#### High tensile steel or stainless steel

The combination of high purity, machined to close tolerances and made from fully traceable back to the mill steel, VWS onboard loadcells are tough, they have to be, we believe the best you can fit.



#### Disk-Lock Washer - option

For added safety, vibration resistant disk-lock washers prevent loosening caused by shock and vibration in high stress truck applications.



If you need advice on how to use your VWS onboard weigher or help with calibration, give us a call and our engineers can give help, there and then. No problem.



on site service

#### SALES

**Vehicle Weighing Solutions**  
Unit 5, Southview Park, Marsack Street  
Caversham, READING RG4 5AF  
T: 0118 946 1900  
F: 0118 946 1862

#### SERVICE

**Vehicle Weighing Solutions**  
Hyde Road, off Foxdenton Lane  
Chadderton, OLDHAM M24 1QG  
T: 0161 643 0202  
F: 0161 643 2239

#### INSTALLATIONS

**Vehicle Weighing Solutions**  
Unit 4a Sheepbridge Business Centre  
Sheepbridge Lane, CHESTERFIELD S41 9RX  
Tel: 01246 455 946  
Fax: 01246 769 665

need help? call service  
**0161 643 0202**

info@vwsLtd.co.uk  
www.vwsLtd.co.uk