

Instruction Manual

Montage- und Betriebsanleitung

Notice d'utilisation

150SP

2" pressed steel fifth wheel

2" Presstahl-Sattelkupplung

Sellete acier embouti 2"




FONTAINE®

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1 50SP Fifth Wheel Instruction Manual

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S A F E T Y I N F O R M A T I O N

It is important to remember that a fifth wheel is a safety critical item and should be treated as such.

Proper preventative maintenance, inspection and lubrication are essential for a long, safe and trouble-free service life.

Please observe the relevant safety regulations that apply for working with fifth wheel couplings, tractor units and semi-trailers. These regulations will vary in different countries.

1.1 Operation

- Only authorised users are permitted to use the fifth wheel coupling.
- Do not use the fifth wheel coupling and rubbing plates if they show any sign of technical problems.
- The rubbing plate must be larger than the support area of the fifth wheel coupling.
- Any sharp edges must be removed from rubbing plate to prevent damage to the fifth wheel coupling or the top plate liner, if fitted.
- When connecting a semi-trailer ensure all safety regulations are adhered to. e.g. Health and Safety at Work Regulations. A semi-trailer should only be connected on firm, flat ground.
- The rubbing plate should ideally be slightly lower than the top plate but not by more than 50mm.
- Ensure the locking mechanism is properly locked before starting every journey. The vehicle must only be driven when the mechanism is locked and secured, even when driving without a semi-trailer.

1.2 Installation

- Prior to installation of a fifth wheel on a vehicle the following should be considered:-
 - * Current Legislation
 - * OEM Vehicle Installation Instructions
 - * Fontaine Vehicle Specific Mounting Instructions
- Installation work must only be completed by authorised specialists.
- Installation areas are defined by the tractor unit manufacturer and must not be changed.
- In all cases fifth wheel equipment should be mounted using the mounting holes positioned as supplied.

The fifth wheel coupling must be mounted on the vehicle in compliance with the requirements of Appendix VII of Directive 94/20/EC. It may also be necessary to comply with the licensing regulations of the appropriate country.

1.3 Servicing

- Only use specified lubricants for the servicing work
- The servicing work should only be completed by trained personnel.
- Only use Original Equipment parts.



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C O R R E C T U S A G E

2.1 Application

Fifth wheel couplings connect the tractor unit and the semi-trailer. They are designed to be mounted on the tractor unit and should be done so in a way that complies with Fontaine International's mounting instructions.

The fifth wheel coupling and mounting plates are connecting parts that must meet very high safety standards and design approval tests.

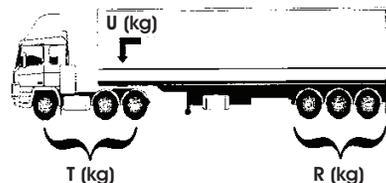
Any kind of modification to either the fifth wheel or auxiliary mounting equipment will void the warranty and design approval.

2.2 Design

All Fontaine International fifth wheel couplings are designed to comply with Directive 94/20/EC Class G50 and are to be used together with king pins of Class H50 and Class J mounting plates or with comparable licensed equipment. This standard rates fifth wheel coupling equipment based on the Maximum Imposed (vertical) load and the Drawbar value, more commonly known as the 'D' value. If any doubts exist as to which is the correct Fifth wheel Equipment to use then the correct rating can be checked by calculation using the formula in Figure 1.

$$D = 9,81 \times \frac{0,6 \times T \times R}{T + R - U}$$

Figure 1



Calculating D value where:-

- g = 9.81 m/s²
- R = Maximum gross weight of the semi-trailer [kg]
- T = Maximum gross weight [kg]
- U = Maximum imposed load [kg]

The maximum load data can be found on the fifth wheel type label (see figure 2) and on the Fontaine technical documents. Also the Fontaine website has a D-value calculator under the "selecting the right product" section.

The Fifth wheel Coupling chosen should be rated with loads equal to or higher than the calculated values. Under no circumstances should a coupling be fitted where the calculated rating is higher than the values indicated on the equipment type plate.

Allowances to the D-value and Maximum imposed load should be made if the coupling is subject to additional dynamic forces, for example if they are used on uneven road surfaces or on construction sites such as quarry or forestry work. For this type of application a higher rated fifth wheel may be required. If in any doubt contact Fontaine technical department.



Figure 2 - Fifth wheel Type Label



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C O R R E C T U S A G E

2.3 Warranty

Fontaine International Europe Ltd warrants that all fifth wheels produced by the company to be free from defects in material and workmanship - excluding mounting components not supplied as an original part of the fifth wheel assembly.

The Warranty Period for Fontaine Products is:-

- 2 Years Parts and Labour

All Installations must be carried out to within the company's Fifth wheel Mounting Instructions.

These Warranty Terms cover failures in material and workmanship but does not cover failures due to the following:-

- a. Vehicles which are not used on normal Highway conditions
- b. Accident
- c. Improper Installation (refer to Fontaine official mounting instructions)
- d. General wear and tear
- e. Misuse alteration or neglect
- f. Failure to properly maintain (refer to Fontaine Official maintenance instructions) using company's genuine parts.

The company must be notified prior to the commencement of any repair. Failure to do this will cause automatic rejection of the claim.



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3.1 Connecting a semi-trailer

1. Check that the trailer hand brake is set and check that the fifth wheel is open and ready for coupling (see Figure 3). If there is any doubt, carry out the uncoupling procedure (section 3.3) until the fifth wheel is fully open.

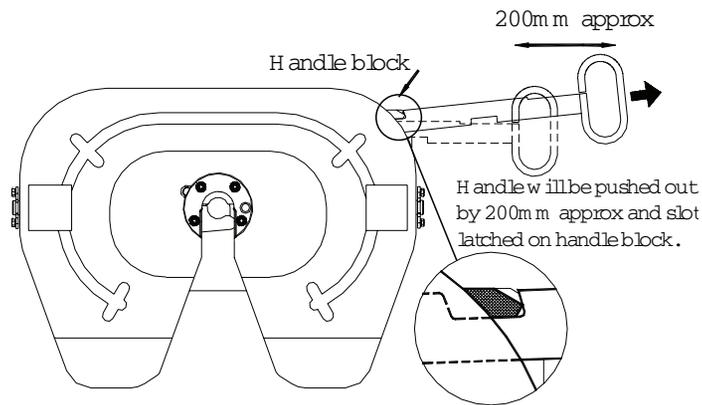
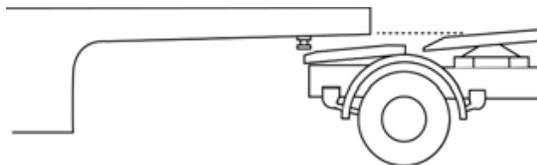


Figure 3 - Fifth wheel in Open position

2. Ensure that the trailer rubbing plate is slightly below the level of the fifth wheel (see Figure 4), but not by more than 50mm.



Trailer below level of fifthwheel

Figure 4 - Fifth wheel and trailer heights

3. Reverse the tractor at a steady speed (around 2-3kph is sensible) keeping the kingpin in the centre of the fifth wheel at all times, until the fifth wheel locks.

3.2 Checking the fifth wheel is properly connected

To ensure that the fifth wheel is closed with the kingpin correctly locked inside the mechanism carry out the following safety checks.

Check that the handle is correctly closed. The method for this varies depending on the type of fifth wheel handle.

Standard Handle

The fifth wheel is only correctly locked when the inside notch in the handle is hidden under the fifth wheel and the safety clip can be fitted in the hole (see Figure 5).

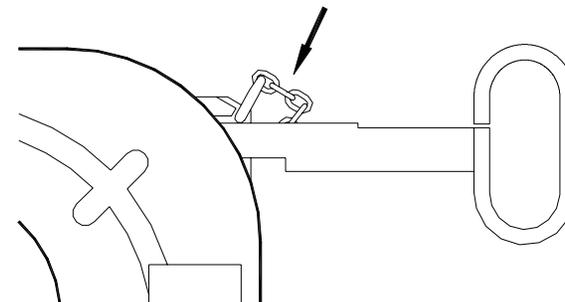


Figure 5 - Locking of a fifth wheel with a Standard handle

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O P E R A T I O N

Interlock Handle

The fifth wheel is only correctly locked when the inside notch in the handle is hidden under the fifth wheel and the handle plunger is correctly positioned in the locking slot under the fifth wheel (see Figure 6).

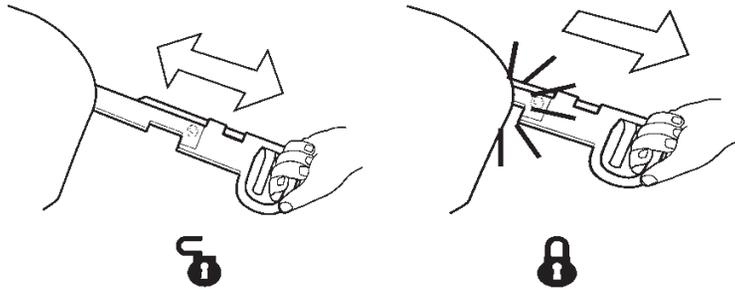


Figure 6 - Locking of a fifth wheel with an Interlock handle

CAUTION

If the handle does not close fully by itself (see Figure 5 and Figure 6) the complete coupling procedure must be repeated.

Only when you have confirmed that the handle is correctly closed either:-

1. Carry out a "pull test" - try to pull the tractor forward against the trailer brakes firstly making sure that the trailer brakes are on.
- or
2. Visually check that the lockbar is fully across and that the kingpin is locked inside the mechanism (See Figure 7).

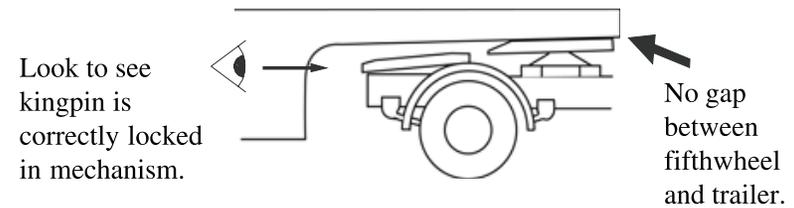


Figure 7- Visually inspect kingpin is locked

CAUTION

Failure to check that the handle is closed correctly before carrying out the "pull test" may result in damage to the fifth wheel.

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OPERATION

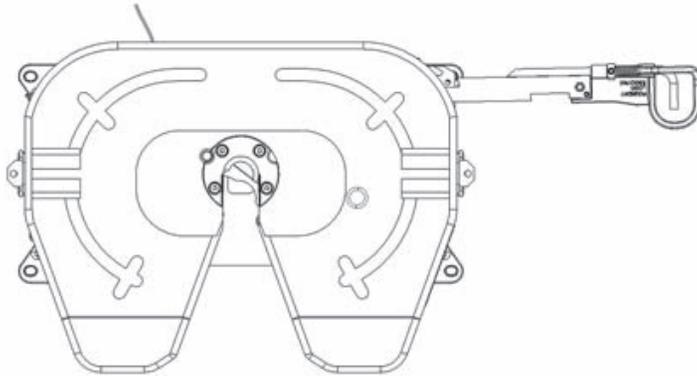


Figure 8 - Fifth wheel in Open position

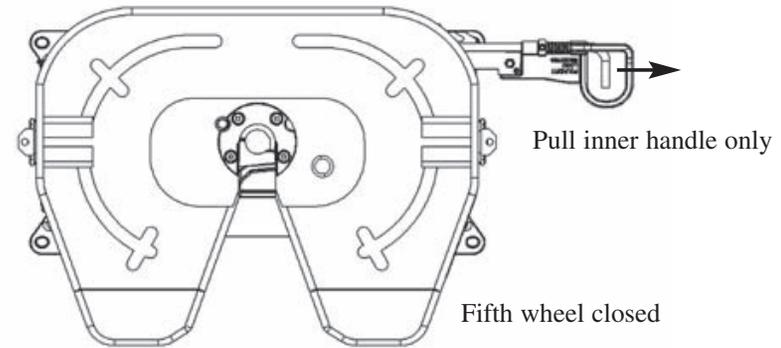


Figure 9 - Opening an interlock handle fifth wheel

3.3 Disconnecting the semi-trailer

1. Set the trailer handbrake (if fitted), disconnect the air, electrical connections and lower the trailer legs.
2. Remove safety catch.

Standard Handle

Unclip the safety clip.

Interlock Handle

Grip the handle and pull the inner handle out as far as it will go. As shown in Figure 9.

3. Push the fifth wheel handle towards the front of the vehicle by approx 25mm (see Figure 10).

4. Pull the handle fully out to approximately 500mm (20") from the edge of the fifth wheel and latch slot in the handle onto handle block on the skirt of the fifth wheel (see Figure 3). The handle should remain fully out when released.
5. Drive the tractor away from the trailer slowly. This will unlatch the handle from the block and reset the fifth wheel ready for the next coupling (see figure 8).

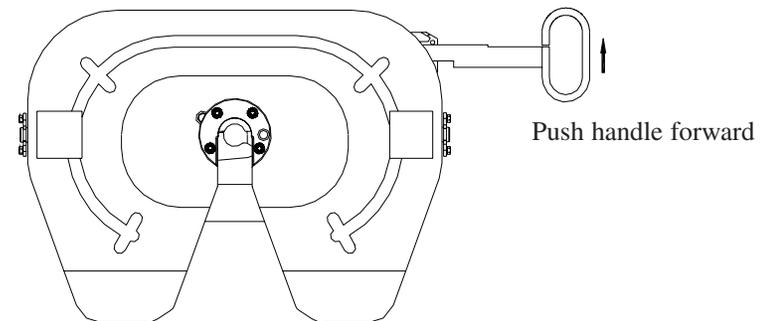


Figure 10 - Opening the fifth wheel

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SERVICING AND TESTING

4.1 Servicing

Routine Fifth Wheel Maintenance

Every 10,000km (or 1 month)

1. Uncouple tractor, clean the fifth wheel mechanism, rubbing plate and kingpin. Inspect the fifth wheel for damage and defects.
2. Regrease, with clean grease, all points a to h as shown in Figure 11.

Every 50,000km (or 6 months)

1. Degrease the fifth wheel rubbing plate and kingpin.
2. Check the kingpin for wear (use gauge 59006421).
3. Check the fifth wheel for wear. If dimension "A" (see Figure 12) is less than 20.25mm a replacement jaw kit is required.
4. If the parts are correct, carry out 10,000km maintenance procedure.

Kingpin test unit	59004124
Kingpin gauge	59006421
Pivot Bolt Puller	59002231

Table 1 - Part numbers for tools required in servicing

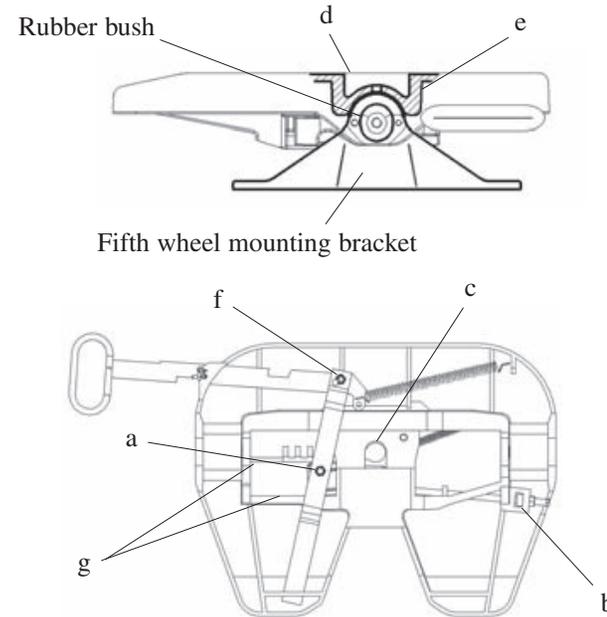


Figure 11 - Labelled diagram of fifth wheel parts

- a - Lockbar pivot
- b - Adjuster screw
- c - Kingpin contact area
- d - Fifth wheel top plate
- e - Mounting bracket contact area
- f - Handle pivot
- g - Lockbar "track"

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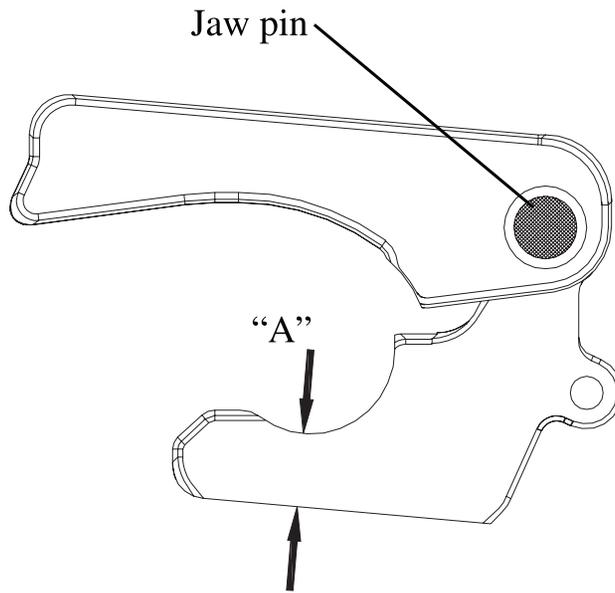


Figure 12 - Location of the Jaw pin

NOTE

The jaw pin (see Figure 12) is only a pivot pin and is designed to be smaller than the hole in the jaw. This clearance enables the jaw to fully contact the kingpin and lockbar at all times.

Adjustment Procedure

1. Undo the adjuster locknut and wind out the adjuster (anti-clockwise) until it is completely free from the end of the lockbar.
2. Insert the new kingpin (or kingpin test unit part no 59004124) and ensure the mechanism fully closes.

3. Screw the adjuster clockwise until it touches the end of the lockbar.
4. Screw inwards a further 3 complete turns (to give 0.525mm running clearance).
5. Tighten the adjuster locknut.
6. Remove the kingpin/test unit

Replacement of Worn Parts

If the jaw is undersized (dimension A in Figure 12) is less than 20.25mm) a new jaw kit is required.

For precise fitting instructions, please contact Fontaine International.

IMPORTANT

After fitting the new jaw kit, the mechanism must be re-adjusted to allow correct running clearance around the kingpin.

A complete jaw kit MUST ALWAYS be fitted to ensure the jaw and lockbar are correctly matched.



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S E R V I C I N G A N D T E S T I N G

4.2 Lubrication

Grease Specification

Heavy duty grease with a lithium or calcium base should be used for all lubrication.

Initial Lubrication

Prior to going into operation, the top plate, locking mechanism and mounting bracket lube points should be well lubricated using a heavy duty grease (see above).

This should be done even if the fifth wheel is connected to a central greasing system.

IMPORTANT

- 1. If a lubeliner or similar system is fitted, an adequate supply of grease must be applied to the throat area as normal.*
- 2. A longer kingpin on the trailer is required if a third party lubeliner is used.*
- 3. If a throat lube system is fitted, grease must be applied to the top plate as normal.*

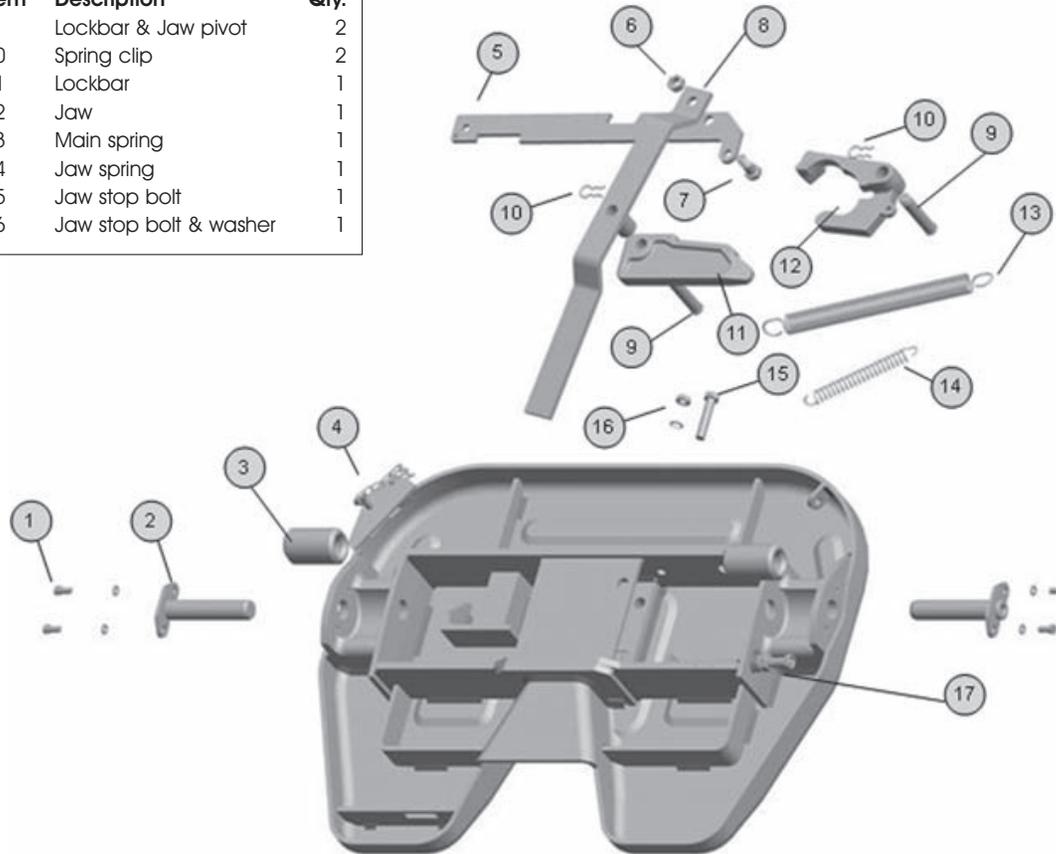
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Repair Kit Pressed Steel 59013687

Locking Mech. Kit 59013687

Item	Description	Qty.
9	Lockbar & Jaw pivot	2
10	Spring clip	2
11	Lockbar	1
12	Jaw	1
13	Main spring	1
14	Jaw spring	1
15	Jaw stop bolt	1
16	Jaw stop bolt & washer	1

4.3 Spare Parts



Spare Part Kits:-

Pivot & Bush Kit 59013196

Item	Description	Qty.
1	M10 Bolt & Washer	4 x 4
2	Pivot Pin	2
3	Rubber Bush	2

Safety Clip Kit 59004114

Item	Description	Qty.
4	Safety Link & Clip	1

Release Handle Kit 59015258

Item	Description	Qty.
5	Release Handle	1
6	M16 BINX Nut	1
7	M16HEX HD Bolt	1

Lever Assembly Kit 59015257

Item	Description	Qty.
6	M16 BINX Nut	1
7	M16HEX HD Bolt	1
8	Lever Assy	1
9	Lockbar & Jaw Pivot	1
10	Spring Clip	1

Spring Kit 59015067

Item	Description	Qty.
13	Main Spring	1
14	Jaw Spring	1

Adjuster Kit 59013390

Item	Description	Qty.
17	Adjuster Stud Assy	1

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5.1 Choice of fifth wheel

Standard Fifth wheels (as defined in 94/20/EC) have a rating of 20 Tonnes Imposed Load and a 'D' value of 150 kN. These ratings can be found on the "Type label" of the Fifth wheel Equipment. Whilst the Imposed Load is easy to determine the vertical load at the kingpin) the 'D' value is more complicated and is determined using the formula shown in Figure 1.

The Fifth wheel Coupling chosen should be rated with loads equal to or higher than the calculated values, and under NO CIRCUMSTANCES should a coupling be fitted where the calculated rating is higher than the values indicated on the equipment.

5.2 Mounting bolts

Coupling Equipment is normally supplied with the correct mounting bolts for installation purposes (unless specifically requested otherwise).

The bolts supplied will be rated at the correct grade for the installation. However a good general guide for normal use is to use 12 bolts size M16 grade 10.9.

These bolts should be tightened to the torque values displayed in Table 2.

Metric Bolts	Bolt Grade	
	8.8	10.9
14mm	/	227
16mm	252	280
18mm	347	
20mm	367	/

Table 2

Table 2 - Most common Bolt sizes and grades as supplied with Fontaine Fifth wheel Equipment and their relevant torque values which should be used for tightening these bolts.

All of the torque values shown are in Nm. To convert these values to lbs ft divide the figure shown by 1.356

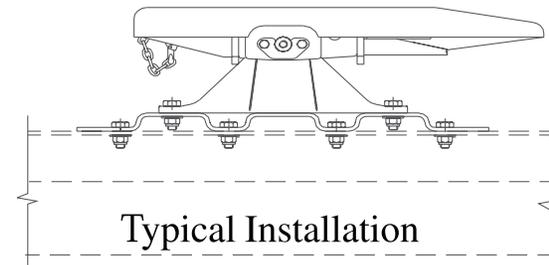


Figure 13 - Typical fifth wheel installation

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5.3 Mounting of fifth wheel coupling to mounting frame

A Standard Fifth wheel Coupling should be mounted using 12 bolts size M16 and grade 10.9 unless it is a special application where 8 bolts may be used.

5.4 Mounting of plates, dolly mounting plates, frames & sliding fifth wheels

Mounting plates, Dolly mounting plates Mounting Frames & Sliding Fifth wheels should always be fitted using the correct fixing arrangement to suit the Plated Weight of the Vehicle (UK Only). For this reason it is recommended that this equipment always be fitted using Fontaine Bolt Kits.

These kits will always be supplied with bolts which match the correct rating of the equipment and the relevant fitting instructions.

In the case of Dolly and 12mm flat mounting plates the fifth wheel must be attached to the plate with countersunk bolts and attached to the chassis or ball turntable using the standard Fontaine 16mm bolt kit.

IMPORTANT

When fitting mounting plates or sliding fifth wheels to chassis' fitted with mounting angles higher than the vehicle chassis, special crossmembers may be required. Before fitting any fifth wheel to this type of chassis please consult the Fontaine Technical Department.

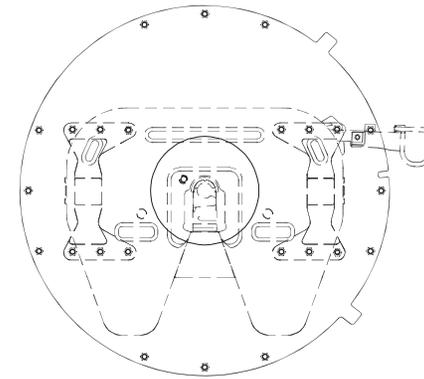


Figure 14 - Dolly Mounting Plate

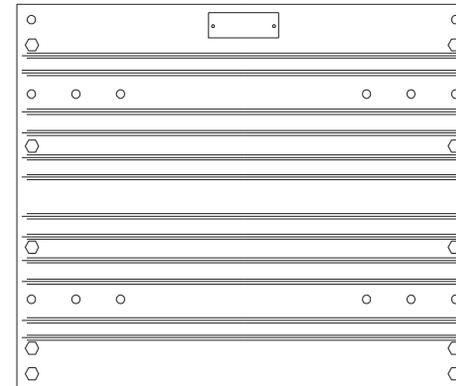


Figure 15 - Mounting Plate

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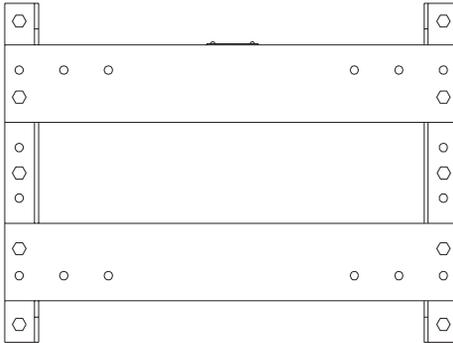


Figure 16 - Mounting Frame

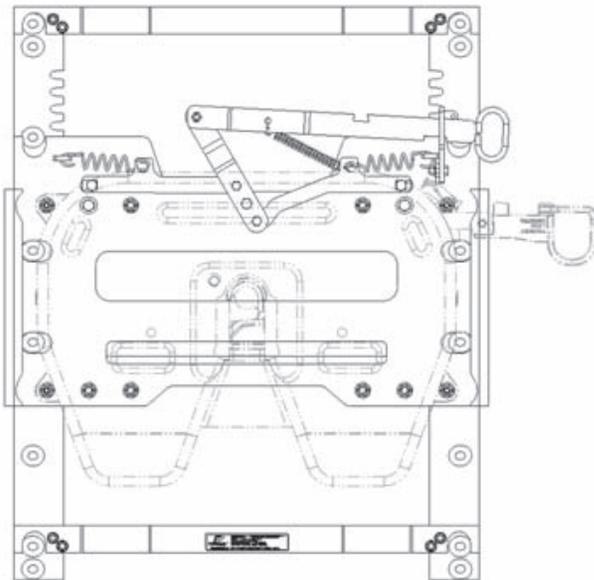


Figure 17 - Sliding Fifth wheel

5.5 Bolt positions

In all cases the Fifth wheel equipment should be mounted using the mounting holes positioned as supplied. Where Pre-Drilled holes are supplied in the vehicle chassis or fifth wheel equipment these should always be used. If equipment appears to require further modification then the Fontaine Technical Department should be consulted prior to any alteration of the equipment.

5.6 Positioning of equipment on vehicle

Fifth wheel Equipment should always be fitted to the vehicle using the vehicle manufacturer's fifth wheel position as this determines the correct axle loading and compliance with national legislation. In the case of sliding fifth wheels, when a ramp is supplied, the slider should be positioned so that in its rearmost position it is clear of the ramp.

If any doubt exists relating to the correct position of the equipment on the vehicle then the Fontaine Technical Department should be consulted.

IMPORTANT

Fontaine cannot accept responsibility for any loss or damage caused by equipment which has been modified or that has not been fitted in an authorised manner.

