Fifth wheel Rp10

Installation,operating and maintenance instructions

GB

V.ORLANDI

SISTEMI DI TRAINO

Registration of the installation and the maintenance operations

Vehicle data: Type ..... Registration number: .....

Date of the installation of the fifth whee ..... Km/Miles: .....

Date: ..... Stamp Signature: .....

Maintenance operations carried .....

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..... Km/Miles: .....

Date: ..... Stamp: Signature .....

Maintenance operations carried .....

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0 INTRODUCTORY NOTES

0.1 WARRANTY

V.Orlandi Spa shall not be liable for any damage whatsoever and howsoever caused, including improper or incorrect use, modifications, alterations or

Use of not original spare parts of V.Orlandi Spa cancels any warranty rights and invalidates any homologation.

V.Orlandi Spa reserves the right to make modifications any time.

0.2 CARE OF THE MANUAL

This manual is an integral part of the fifth wheel and must be kept together with it at all times and under any circumstance, in resale or restitution under warranty. It has to be available for quick consultation by all operators whenever necessary.

The end-user is responsible for keeping it in good condition.

The manual has to be replaced with an identical one if wear or other damage makes it impossible to consult.

NOTE: THIS MANUAL HAS 36/36 PAGES.

First edition: July 2004
Reprint: .....

0.3 HOW TO READ AND USE THE MANUAL

As well as the descriptive title of each chapter, the following signs have been used to indicate which measures are required during the different

Attention and caution

Warning! Limb injury hazards!

Strict prohibition

Wear safety shoes!

Wear safety gloves!

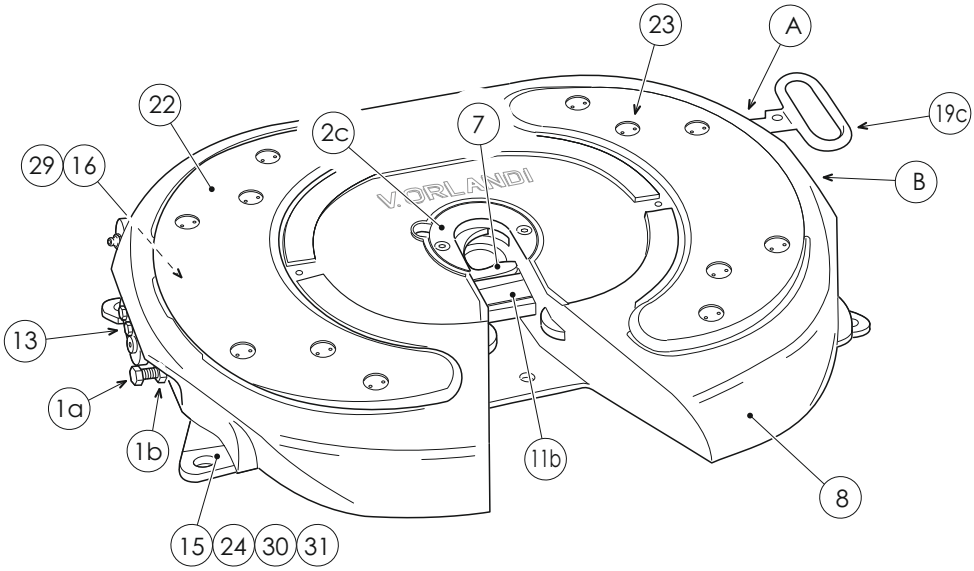
Carefully read the following paragraph/sentence/chapter

Denotes attention and caution, precedes useful technical directions for the different procedures.

1 GENERAL INFORMATION

1.1 FIFTH WHEEL DESCRIPTION

The principal parts of the fifth wheel that are generally referred to herein are listed below, for correct interpretation of directions given in this manual:



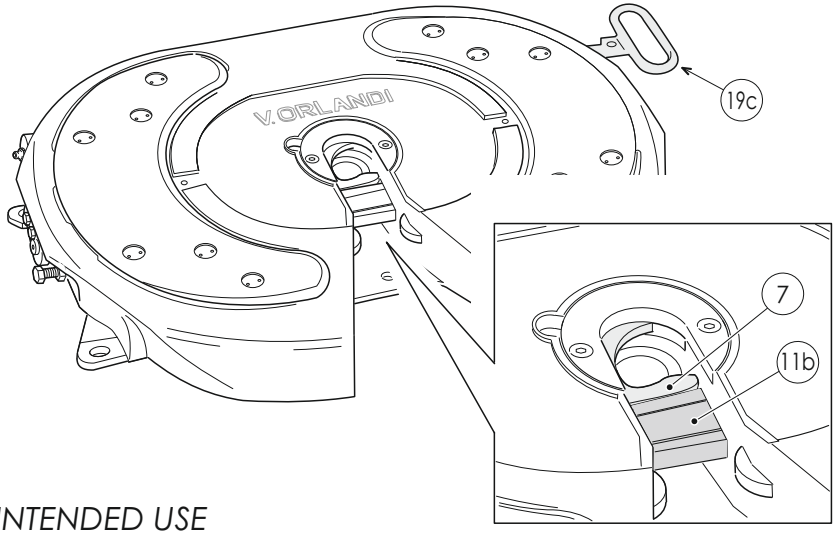
1a	Adjustment screw	23	Screw for plate insert
2c	Contrast ring	15-24 30-31	Pedestal
7	Jaw		
8	Fifth wheel plate	19c	Operating handle
11b	Wedge	A	Warning plate
22	Self lubricating plate insert	B	Homologation plate

1.2 UNPACKING

Read the following instructions carefully before any operation:

Please make sure that the jaw (7) and the wedge (11b) are clearly visible and check to see that the operating handle (19c) is well lodged into its slot.

Warning! Limb injury hazards!



1.3 INTENDED USE

Our Fifth Wheel Rp10 is designed for use with semi-trailers fitted with 2" pins, in compliance with class H50 requirements, as per EC Directive no. 94/20/EC and with the ISO 337 standard.

1.3.1 INSTALLATION PROVISIONS

The Rp10 Series Fifth Wheels can be assembled onto tractor units pursuant to the requirements of EC Directive no. 94/20/EC - Class J, or in compliance with the
ISO 3842 and AS 1773 standard regulations.

2 INSTALLATION

This chapter refers to the figures on pages 09-13/36.
Read the following instructions carefully before any operation:

NOTE Installation has to be carried out by skilled personnel.

Wear safety shoes!

Wear safety gloves!

NOTE The fifth wheel sizing and dimensions must conform to the prescriptions given by the truck manufacturer.

NOTE Before proceeding with the fifth wheel installation please inspect to see that the carrier mount-plate is correctly fixed onto the vehicle in compliance with instructions provided by the truck manufacturer directly.

NOTE Using appropriate lifting equipment (max weight is 150 kg), proceed with fifth wheel assembly as required:
A) INSTALLATION WITH CARRIER PLATE - section 2.1 page 10/36;
B) DIRECT INSTALLATION - section 2.2 page 11/36;
C) INSTALLATION WITH WELD-ON PEDESTALS - section 2.3 page 12/36.

2.1 INSTALLATION WITH CARRIER PLATE

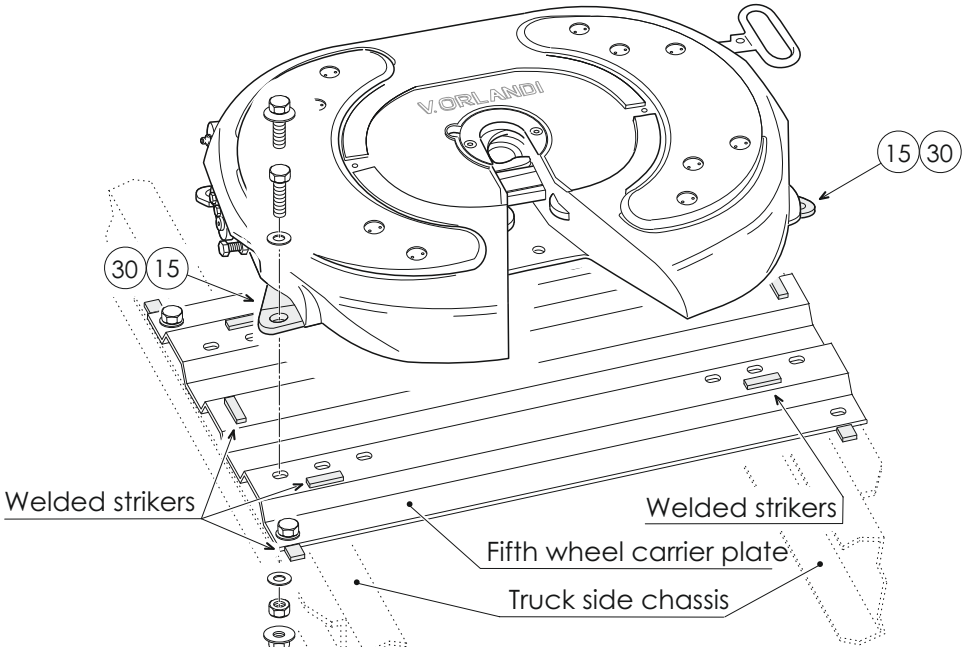
1) Fix the fifth wheel pedestal (15) to the trailer carrier plate using twelve M16x1.5 screws (property class 8.8) with relative self-locking washers and nuts unified to 8g class of fit;

   ➢ Torque wrench setting 200 Nm.

2) To avoid sheer stress on bolts, support the fifth wheel pedestal (15) by means of longitudinal and transversal strikers welded onto the fifth wheel carrier mount plate at an angle bond not less than 5 mm.

NOTE If unit is installed with flanged screws (property class 10.9) and self-locking nuts (property class 10), striker welding can be avoided.

   ➢ Torque wrench setting 270-300 Nm.

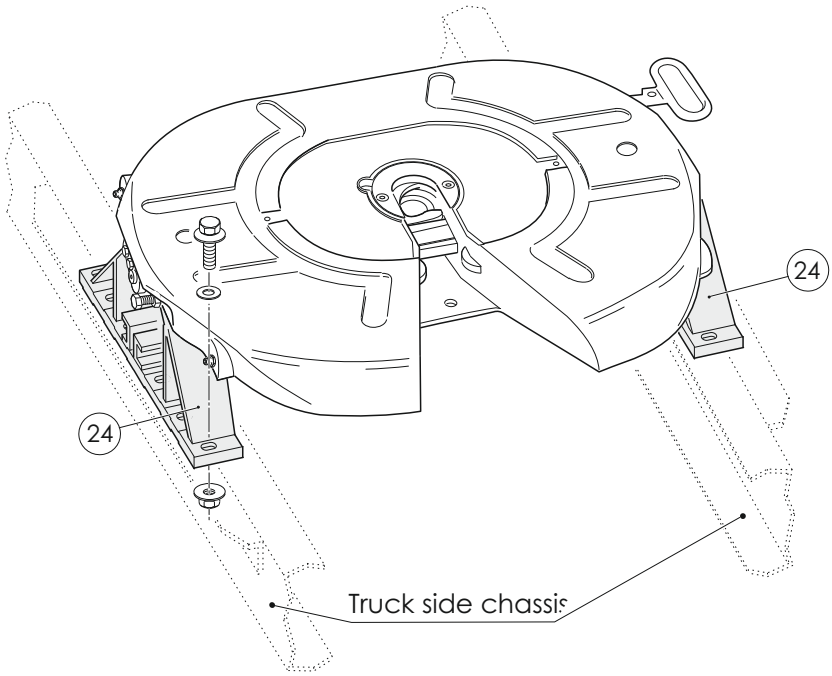


NOTE Once installation is complete, proceed as instructed in section 2.4 - SETTING UP FOR OPERATION - page 13/36.

2.2 DIRECT INSTALLATION

Set the fifth wheel into its lead position as established by the truck manufacturer.
Fix the fifth wheel pedestals (24) to the "L" profiles on the truck side chassis using twelve flanged M16x1.5-6g fit DIN 692 (property class 10.9) screws, special
6 mm thickness washers and self-braking flanged M16x1.5-6H DIN 6923

➢ Torque wrench setting 270-300 Nm.



NOTE

Once installation is complete, proceed as instructed in section 2.4 - SETTING UP FOR OPERATION - page 13/36.

2.3 *INSTALLATION WITH WELD-ON PEDESTALS*

NOTE

All welding operations must strictly be performed only by qualified personnel.

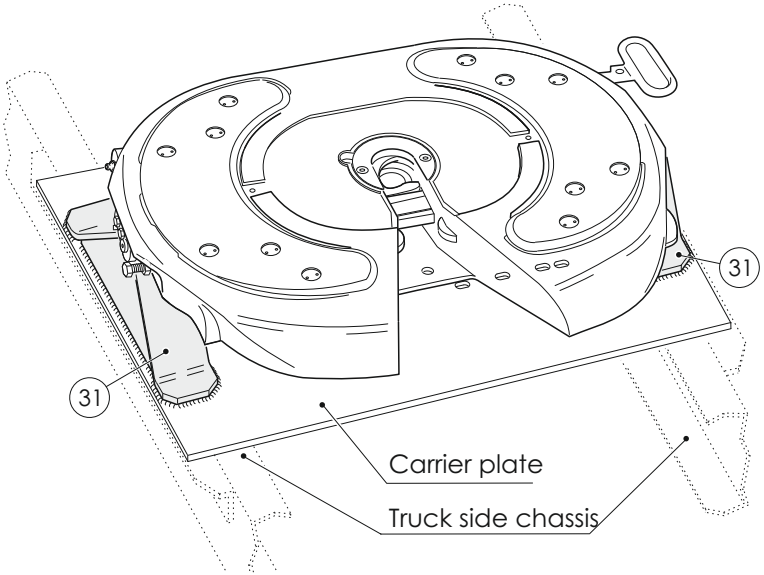
1) Position the fifth wheel onto the tractor unit's carrier plate;

2) Fix the weld-on pedestals (31) onto the carrier plate with a few welding

3) Unscrew the fifth wheel from the weld-on pedestals (31) as per points 1 and 2 in section 7.1.2 - FIFTH WHEEL WITH PIVOT BEARINGS - page 29/36;

4) Proceed with welding the weld-on pedestals (31) completely by welding them around the whole pedestal rim as per directions supplied with the fifth wheel homologation documents;

5) Re-assemble the fifth wheel plate as specified in points 4 and 5 in section 7.1.2 FIFTH WHEEL WITH PIVOT BEARINGS - page 29/36.



NOTE

Once installation is complete, proceed as instructed in section 2.4 - SETTING UP FOR OPERATION - page 13/36.

2.4 SETTING UP FOR OPERATION

1) Once installation is complete, lubrication of the fifth wheel plate (8), (fifth wheel plates featuring self lubricating plate inserts do not require lubrication) the jaw lock mechanism (7, 11b, 2c) and the semi-trailer king pin, is strictly necessary;

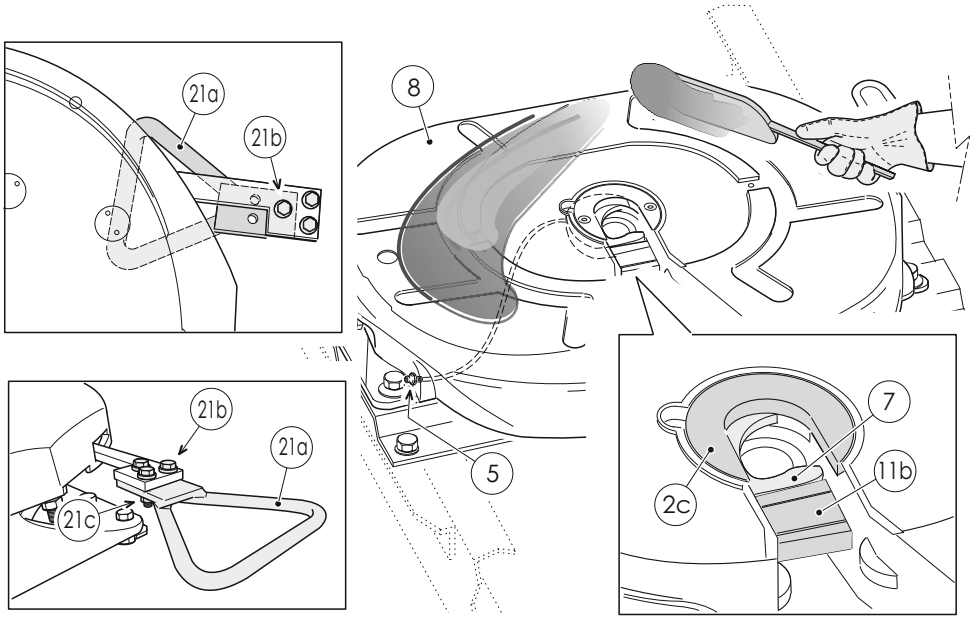
2) Greases resistant to extreme pressure (having high EP properties), water and high temperatures are recommended;

3) Lubricate the jaw (7) through the grease nipple (5);

4) Inspect the semi-trailer's counter plate for sufficient lubrication (only for the standard type fifth wheels);

NOTE Said operations are strictly necessary for optimised fifth wheel functioning and to increase fifth wheel life.

5) Position the operating handle (21a) as illustrated in the frame, then using the three screws (21b, 21c), screw it in tightly at a 30 Nm torque wrench



3 OPERATING INSTRUCTIONS

This chapter refers to the figures on pages 14-19/36.

Read the following instructions carefully before any operation:

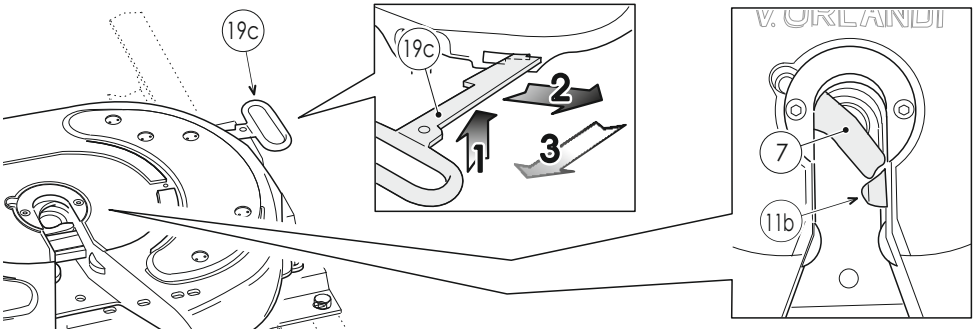
Wear safety gloves!

The following coupling and uncoupling instructions are most important;
the operator must check that directions are observed at all times and under any circumstance.

Warning! Limb injury hazards!

3.1 COUPLING UP

1) Ensure that the jaw (7) is visible and positioned as illustrated. If not, draw the operating handle (19c) upwards whilst pushing it towards the front end of the vehicle, then draw it outward, towards the vehicle's outside right end, until the handle itself snaps into lock position.

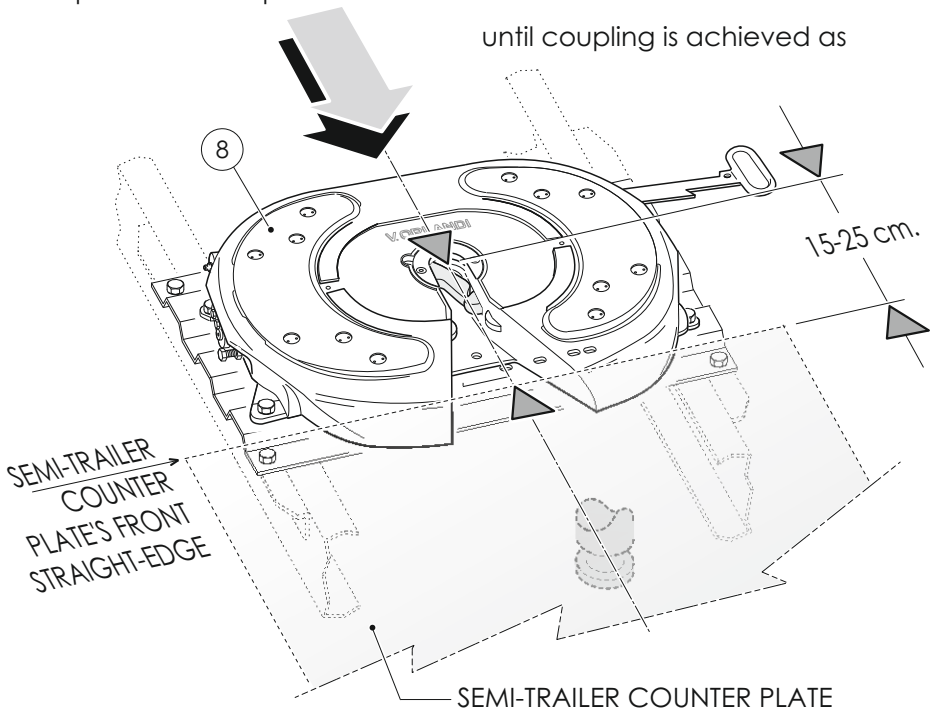


Caution! The fifth wheel mechanisms are spring-loaded.
Warning! Limb injury hazards!

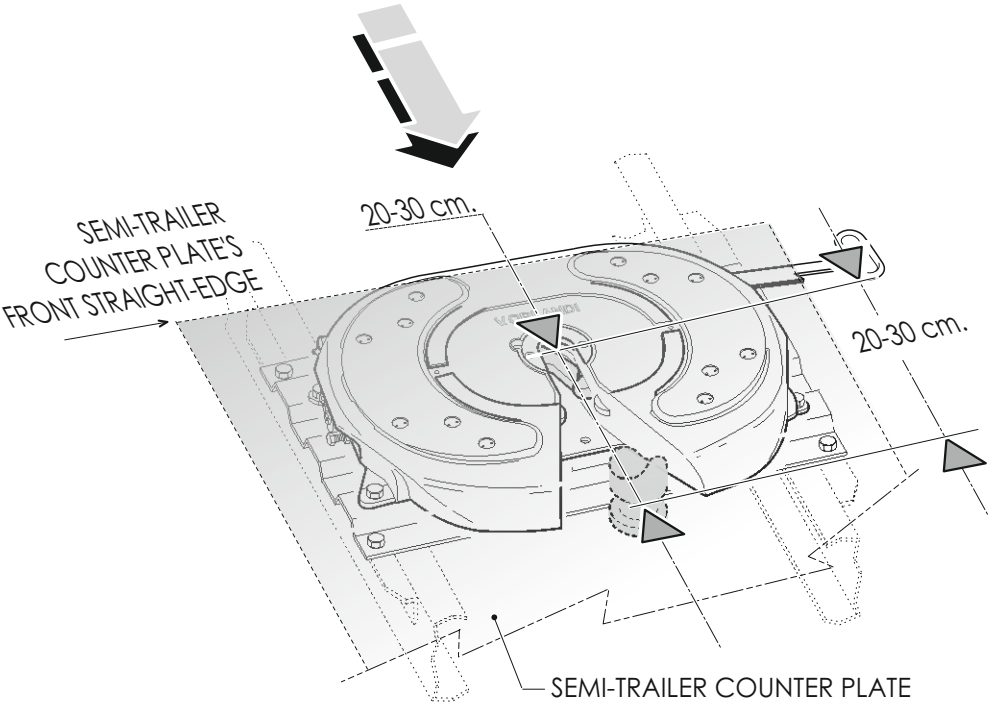
2) Check to see that the semi-trailer wheels are locked;

3) Line the tractor unit up in front of the trailer so that the fifth wheel longitudinal axle
coincides with the semi-trailer axle.
The semi-trailer counter plate's front straight-edge must touch the fifth wheel plate (8) about 15-25 cm before the coupling-up point.
If there is no coupling, check the semi-trailer's height and then act on:

- A) the pneumatic suspensions, if the tractor-unit is provided with pneumatic suspensions.
- B) on the tractor-unit landing gear if the tractor-unit is provided with pneumatic suspensions.



4) Reverse until the fifth wheel plate (8) is positioned under the semi-trailer's
front end at a distance of about 20-30 cm from the semi-trailer's king
5) Couple up by reversing towards the king pin in a firm but non-violent manner:
as the king pin rams against the jaw, the wedge closes and the operating handle safety lock kicks in.



CAUTION: always check personally to see that the semi-trailer counter plate is completely resting on the fifth wheel surface.

CAUTION: inspect to see that the coupling-up procedure has been conducted correctly; check that the operating handle (19c) has regularly returned back
into position.

CAUTION: in the event that the operating handle (19c) is not back in position, try moving the tractor unit forwards for about 50 cm and then back again so that the semi-trailer king pin is repositioned correctly to
enable regular coupling.

If the operating handle (19c) will still not turn back into position regularly,
or if the semi-trailer counter plate does not completely rest on the fifth
wheel surface, vehicle travel is strictly prohibited, no matter

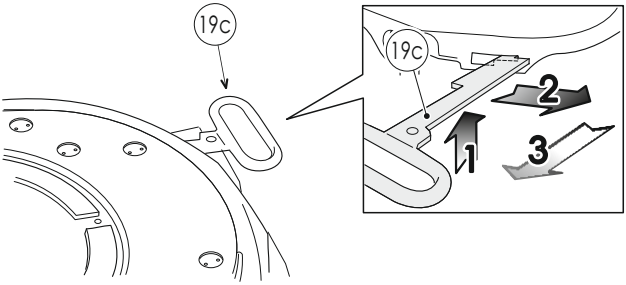
6) Wind the semi-trailer landing legs fully up to stroke end.

3.2 UNCOUPLING

1) Lock the semi-trailer wheels;

2) Wind down the semi-trailer landing legs until they touch the ground;

3) Release the fifth wheel lock mechanism as follows:
Draw the operating handle (19c) upwards whilst pushing it towards the
front end of the vehicle then draw it outward, towards the vehicle's outside

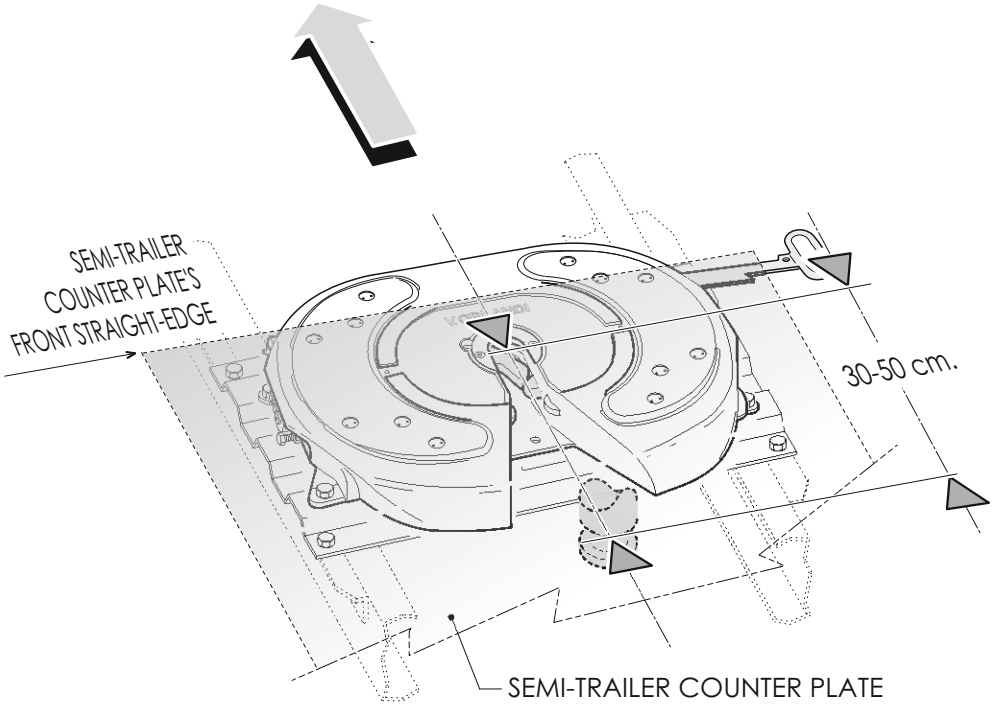


CAUTION: do not use gears or any external mechanism to open up the fifth wheel.
If the operating handle will not unlock, check that all the

CAUTION: If the operating handle (19c) is hard to operate on, reverse the tractor unit to relieve the pressure put on the fifth wheel jaw by the semi-trailer king pin.

4) Uncouple the tractor unit by moving slowly forwards until the semi-trailer king pin has moved out of the fifth wheel coupling point by about 30-50 cm.;

CAUTION: contact between the fifth wheel and the semi-trailer counter plate must never be broken.



NOTE

For tractor units having pneumatic suspensions, go on to points 5 and 6.

5) Deflate the air from the tractor unit suspensions completely;

6) Ride the tractor unit out and immediately restore the suspension air back up to

CAUTION: Never deflate the tractor unit suspensions before uncoupling.

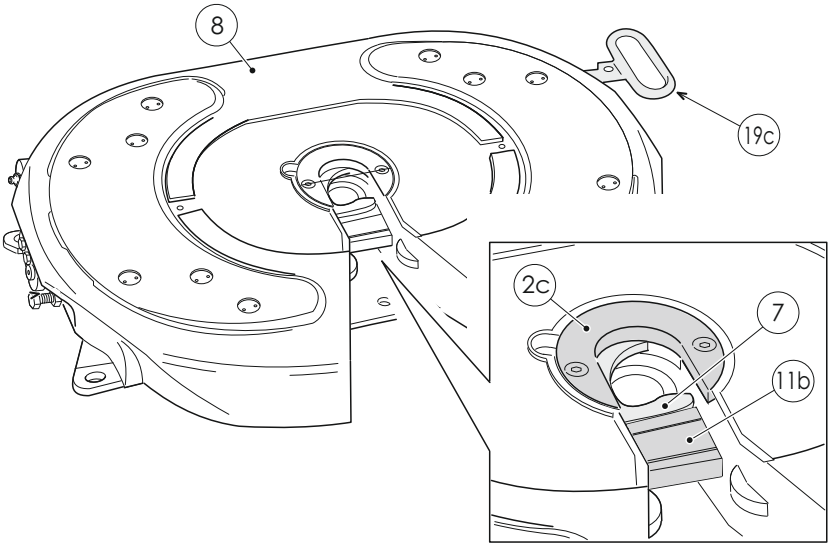
4 MAINTENANCE

This chapter refers to the figures on pages 20-22/36.

Read the following instructions carefully before any operation:

Wear safety gloves!

CAUTION: during maintenance operations the fifth wheel must be closed, i.e. the wedge (11b) must be clearly visible and the operating handle (19c) must be regularly back in position.



NOTE

The mobile parts of the fifth wheel's jaw lock mechanism (7, 11b) as well as the contrast ring (2c), are subject to standard wear and tear. Extent of wear depends on working conditions and maintenance operations conducted.

After the first 500 km of use:

Check that the torque wrench setting of the fifth wheel pedestal bolts (15-24-30)
screwed onto the tractor unit carrier plate is comprised within the settings provided at page 10/36 - section 2.1 INSTALLATION WITH CARRIER PLATE

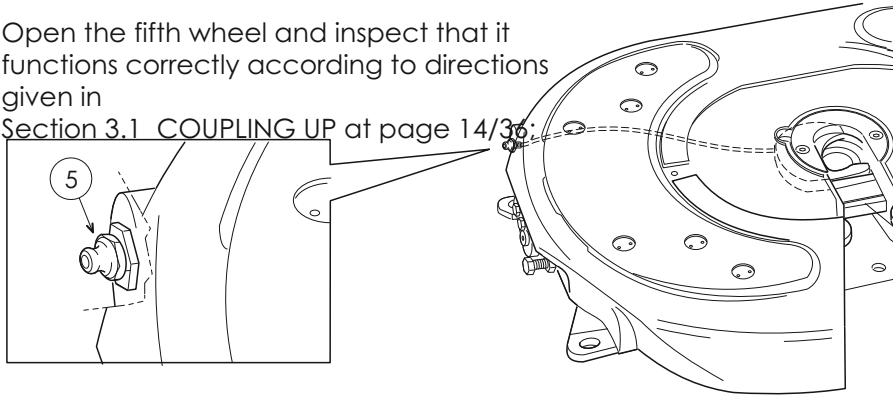
Inspect the welding on the weld-on pedestals (31) - consult section 2.3 INSTALLATION WITH WELD-ON PEDESTALS at page 12/36 and check to see there is no weld breakage and cracks that might lead to operation hazards.

At regular 5000 km intervals:

1) Check that the torque wrench setting of the fifth wheel pedestal bolts (15-24-30) screwed onto the tractor unit carrier plate is comprised within the settings
provided at page 10/36 - section 2.1 INSTALLATION WITH CARRIER PLATE or at page 11/36 - section 2.2 DIRECT INSTALLATION. Inspect the welding on the weld-on pedestals (31) - consult section 2.3 INSTALLATION WITH WELD-ON

2) For fifth wheels provided with rubber bearings, check that the torque wrench setting of the support-plate fixing screws (page 24 and 28/36) is comprised between 270 and 300 Nm. For fifth wheels provided with pivo bearings, check that the torque ;

3) Open the fifth wheel and inspect that it functions correctly according to directions given in
Section 3.1 COUPLING UP at page 14/36;



4) Lubricate the fifth wheel plate (only for the standard type fifth wheels), the jaw-lock mechanism (7, 11b, 2c) and the semi-trailer king pin. (Consult page 13/36). For self-lubricating fifth wheels, inspect the nylon

NOTE

In the event that during inspections, wear and tear of deformed or worn components is found to be in excess of the wear levels as specified further on herein.

4.1 PERIODICAL MAINTENANCE

NOTE

Depending on its use and at least annually, the fifth wheel must be checked for wear. The following checks and inspections are recommended.

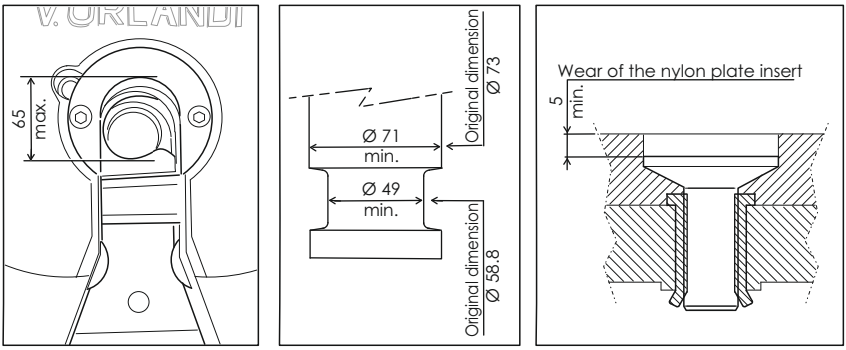
Checking the rubber buffersBrake empty semi-trailer and move the tractor unit slowly. If there is any movement of the fifth wheel plate against any of the fifth wheel supports in excess of 3 mm, proceed with buffer replacements consult section 7.1 FIFTH WHEEL BEARINGS at page 27/36.

General fifth wheel inspection

A) Check that the fifth wheel plate (8) and the semi-trailer counter plate do not show any signs of wear or deformation compromising
B) operation;
Check that the semi-trailer king pin lies perfectly perpendicular to the
C) counter plate;
Make sure that the fifth wheel plate (8) and pedestals (15-24-30-31) do

Wear inspections

A) Inspect the fifth wheel jaw lock mechanism (2c, 7, 11c) and the semi-trailer king pin for wear. Check that wear is limited to the levels illustrated in the figures below;
B) Check the self-lubricating insert for wear (as per figure below).



If wear is found to be within limits given but inspection shows that there is some clearance in the fifth wheel mechanisms and semi-trailer king pin, proceed with clearance adjustments as specified in subsequent section 5 CLEARANCE ADJUSTMENTS at page 23/36.

NOTE

The wear data is specified according to the ISO TS 20825 standard requirements.

Screwed onto the tractor unit carrier plate is comprised within the settings provided at page 10/36 - section 2.1 INSTALLATION WITH CARRIER PLATE or at page 11/36 - section 2.2 DIRECT INSTALLATION. For fifth wheels provided with rubber bearings, check that the torque wrench setting of the support-plate fixing screws (page 24 and page 28/36) is comprised between 270 and 300 Nm. For fifth wheels provided with pivot bearings, check that the torque wrench setting of the pivot fixing screws is at least 25 Nm.

Lubrication checksLubricate the fifth wheel plate (only for standard type fifth wheels), the jaw lock mechanism and the king pin.

5 CLEARANCE ADJUSTMENTS

This chapter refers to the figures on pages 23-25/36.
Read the following instructions carefully before any operation:

Wear safety shoes!
Wear safety gloves!

NOTE

The fifth wheel and the semi-trailer king pin are subject to wear, that may vary subject to use and maintenance frequency.

Wear will lead to clearance forming between the jaw lock mechanism (2c, 7, 11b) and the semi-trailer king pin.

The fifth wheel allows for clearance adjustments, by manually adjusting the jaw lock mechanism (2c, 7, 11b).

It is important however, to carefully check the wear levels on the semi-trailer king pin before performing any clearance adjustments.

In the event that the king pin wear does exceed specified limits, do not proceed with any clearance adjustment whatsoever. In these cases, the king pin has to be replaced (consult the use and maintenance manual supplied with the semi-trailer accordingly).

5.1 CLEARANCE ADJUSTMENT PROCEDURE

1) Couple up the semi-trailer to the tractor unit as per directions in section 3.1 COUPLING UP at page 14/36;

2) Position trailer on an even surface;

3) Lock the semi-trailer wheels then slightly reverse with the tractor unit;

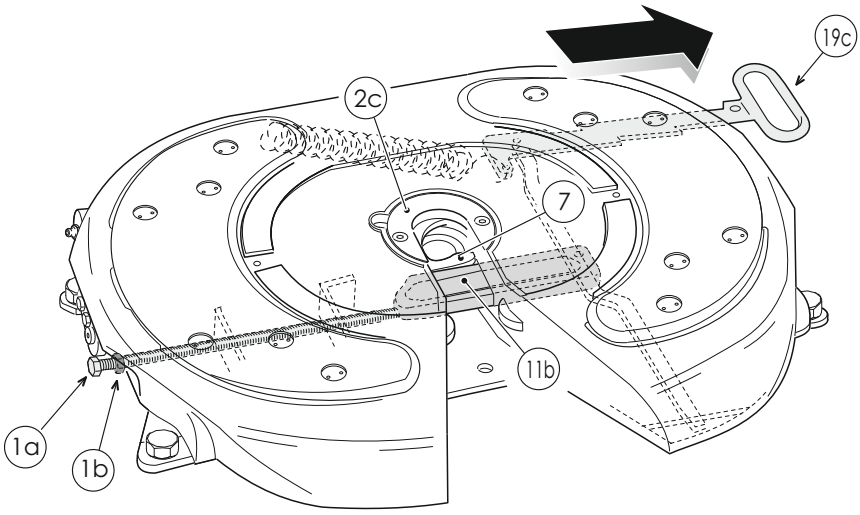
4) Loosen the adjustment screw counter nut (1b);

5) Unscrew the adjustment screw (1a) for ten turn-outs or anyway until it is no longer contacting the wedge (11b);

6) Pull on the operating handle (19c) then release it so that it lodges back into its correct position;

7) Screw the adjustment screw (1a) back up until you feel it contacting the wedge (11b);

8) To guarantee a default clearance ranging between 0.2 - 0.4 mm, turn the adjustment screw (1a) in for another 1.5 to 2 turns;



9) Tighten the adjustment screw counter nut (1b) back up, taking care not to rotate the adjustment screw (1a) whilst doing so;

➢ Torque wrench setting 100-120 Nm.

The adjustment procedure is finished and the unit is ready for a final check

NOTE

Try pulling off with the tractor with the semi-trailer brake on, to see whether you can still detect some clearance. If the clearance detected is considerable, this means that the fifth wheel no longer has any clearance adjustment options.
In these cases, replacement of the jaw lock mechanism is required, as per directions in section 7.2 - REPLACEMENT OF THE JAW LOCK MECHANISM, at page 30/36.

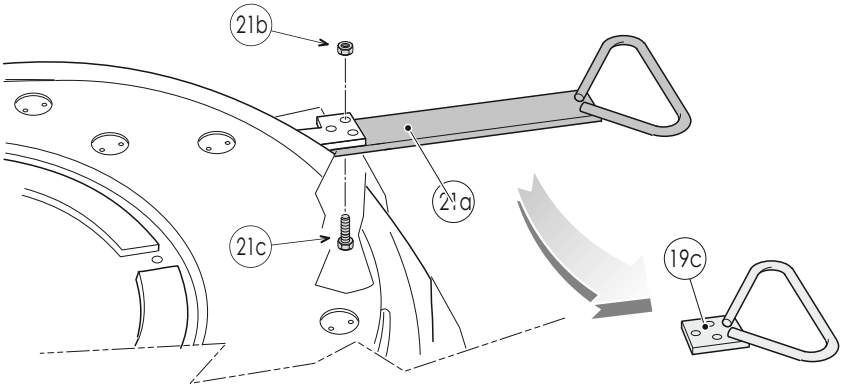
6 *ASSEMBLY OF THE OPERATING HANDLE EXTENSION*

This chapter refers to the figure on page 26/36.

Read the following instructions carefully before starting any operation:

Wear safety gloves!

1) Disassemble the operating handle by removing the three M8 bolts (21b 21c);
2) Position the operating handle extension (21a) in so that it fits under the operating handle and tighten it back up with the three M8 bolts, at a 25



7 REPAIRS

This chapter refers to the figures on pages 27-32/36.

Read the following instructions carefully before any operation:

Wear safety shoes and safety gloves!

7.1 FIFTH WHEEL BEARINGS REPLACEMENT

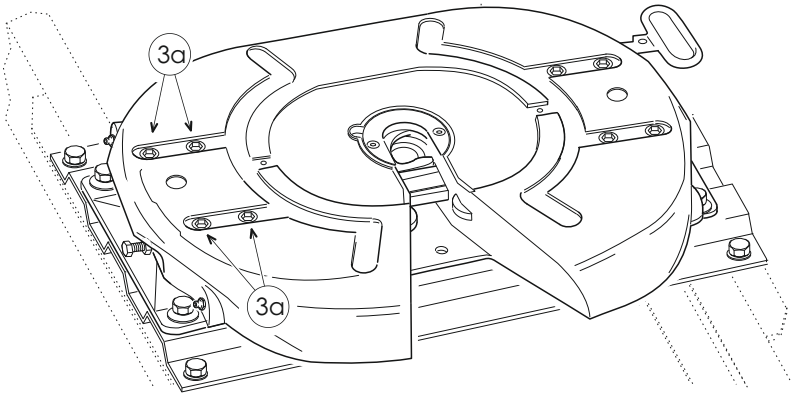
CAUTION: make sure that the wedge (11b) and the jaw (7) are clearly
visible and the operating handle (19c) is regularly back in

7.1.1 FIFTH WHEEL WITH RUBBER BEARINGS

➢ The following steps 1, 2, 4, 5, 7 and 8 must also be repeated on the

1) Unscrew the four screws (3a) and retrieve the washers (25) and nuts (26). Dispose

2) Remove the fixing plate (27) and the lower rubber bearing (28). Dispose as specified in section 9 - DISPOSAL - page 34/36;



3) Lift the fifth wheel plate (8) using appropriate lifting devices for 150 kg weights;

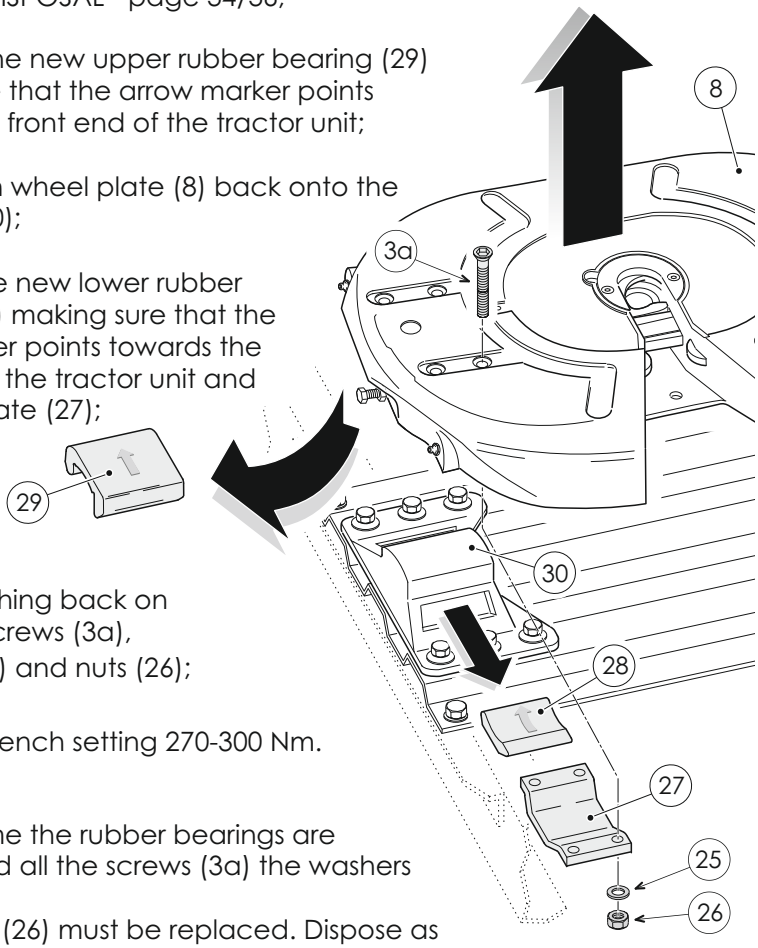
Warning! Limb injury hazards!

4) Make sure that the fifth wheel plate (8) is safely anchored and secure for extraction of the upper rubber bearing (29) . Dispose as specified in section 9 - DISPOSAL - page 34/36;

5) Position in the new upper rubber bearing (29) making sure that the arrow marker points towards the front end of the tractor unit;

6) Rest the fifth wheel plate (8) back onto the Pedestal (30);

7) Lodge in the new lower rubber bearing (28) making sure that the arrow marker points towards the front end of the tractor unit and the fixing plate (27);

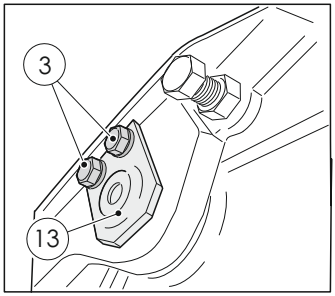


8) Lock everything back on using four screws (3a), washers (25) and nuts (26);

➢ Torque wrench setting 270-300 Nm.

NOTE Each time the rubber bearings are replaced all the screws (3a) the washers (25) and the nuts (26) must be replaced. Dispose as

7.1.2 FIFTH WHEEL WITH PIVOT BEARINGS



NOTE

The following steps 1, 3 and 5 must also be repeated on the fifth wheel's opposite side.

1) Unscrew the two screws (3) and remove the pin (13);

Warning! Limb injury hazards!

2) Lift the fifth wheel plate (8) using appropriate lifting devices for 150 kg weights;

Make sure that the fifth wheel plate (8) is safely anchored and secure for extraction of the meniscus (14). Dispose as specified in section 9 DISPOSAL page 34/36;

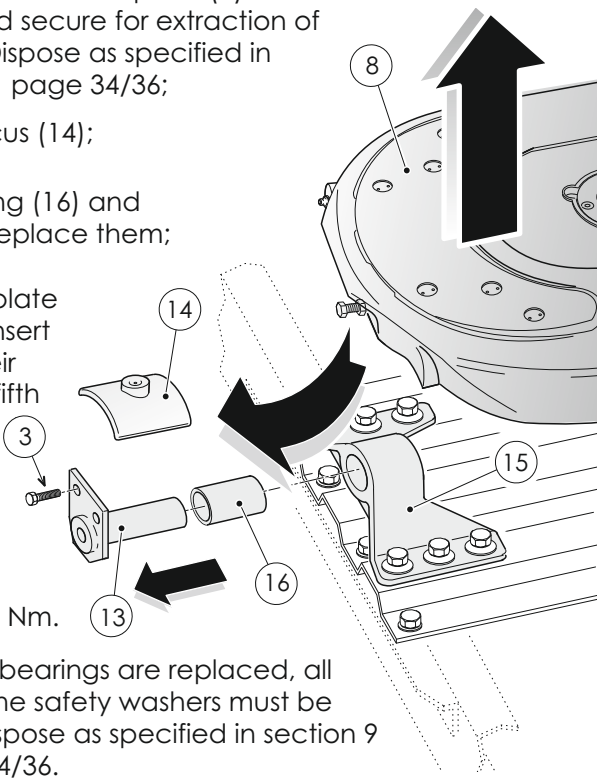
3) Position in the new meniscus (14);

4) Remove the rubber bearing (16) and the support bushing and replace them;

5) Position in the fifth wheel plate (8) being very careful to insert the pedestals (15) into their lodgings underneath the fifth wheel plate (8);

6) Insert the pin (13) and block it with two screws (3) and the relative safety washers.

➢ Torque wrench setting 25 Nm.



NOTE

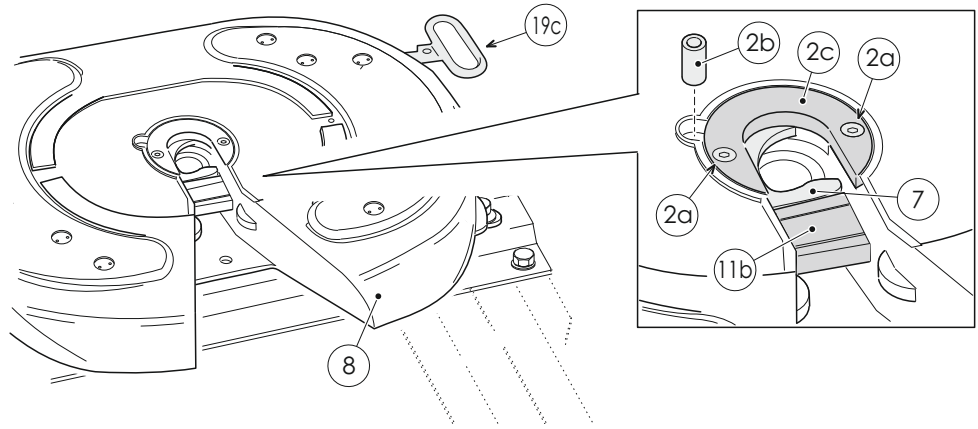
Each time the pivot bearings are replaced, all the screws (3) and the safety washers must be replaced as well. Dispose as specified in section 9 - DISPOSAL - page 34/36.

7.2 REPLACEMENT OF THE JAW LOCK MECHANISM

This chapter refers to the figures on pages 30-32/36.

Read the following instructions carefully before any operation:

Please make sure that the jaw (7) and the wedge (11b) are clearly visible and check to see that the operating handle (19c) is well lodged into its slot.



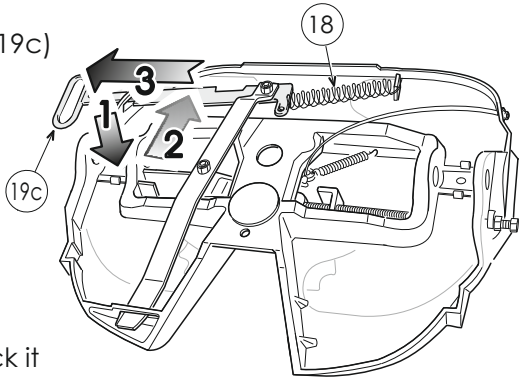
1) Remove the two contrast ring screws (2a) to release the contrast ring (2c);
2) Remove the worn contrast ring (2c). Dispose as specified in section 9 -
3) Turn out the screw (2a) to remove the pin (2b);
4) Position the fifth wheel plate (8) as shown in the illustration on page 31/36 then proceed with the operations necessary for fifth wheel plate (8) release from its supports, as per directions given at section 7.1 - FIFTH WHEEL BEARINGS REPLACEMENT - page 27/36;

Care with turning the fifth wheel upside down is recommended! Make sure
that the new position will provide ready access to the coupling point for subsequent removal of the jaw (7).

5) Remove the traction spring (18);

6) Pull out the operating handle (19c) fully;

7) Remove the spring (6) and slip the jaw out (7). Dispose as specified
in section 9 DISPOSAL



8) Release the jaw (7) from the lubrication pipe (4);

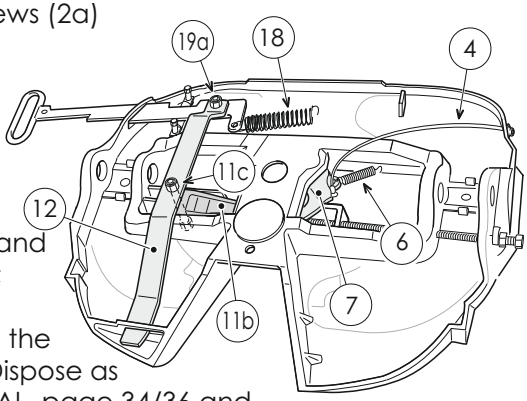
9) Insert the new jaw (7) and block it with the contrast ring pin (2b);

10) Position in the contrast ring (2c) and lock it on with the two screws (2a) using some loctite 243 thread-locking compound;

➢ Torque wrench setting for screws (2a) And (2b): 100-120 Nm.

11) Anchor the spring (6) onto the jaw (7) and also insert lubrication pipe (4);

12) Unscrew nuts (11c) and (19a) and slide out the release lever (12);



13) Remove the wedge (11b) and the Relative wedge screw (11a). Dispose as Specified in section 9 - DISPOSAL page 34/36 and replace accordingly.

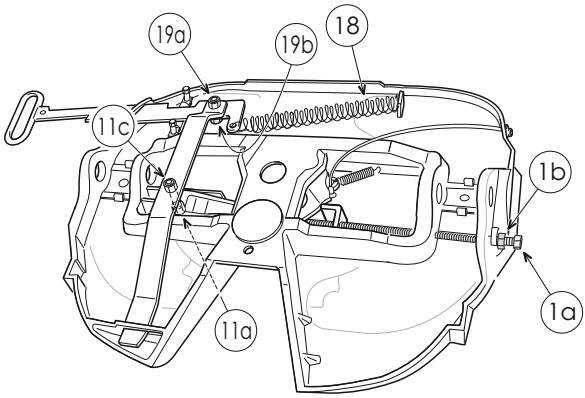
14) Reposition the wedge (11b) and the release lever (12) into the fifth wheel plate (8);

15) Screw in nuts (11c) and (19a) pack-tight with relative screws (11a) and (19b),

16) Unscrew the adjustment screw counter nut (1b) and the adjustment screw (1a) for at least 10 turns;

17) Close the fifth wheel and assemble on the traction spring (18);

18) Reassemble the fifth wheel back onto its pedestals, as per directions at steps 6 and 8 in section 7.1.1 FIFTH WHEEL WITH RUBBER BEARINGS on



19) Proceed with steps 7, 8, 9, and 10 in section 5.1 CLEARANCE

20) Load mechanism lock and couple up the semi-trailer as per directions in section 3.1 - COUPLING UP at page 14/36.

8 CLEANING

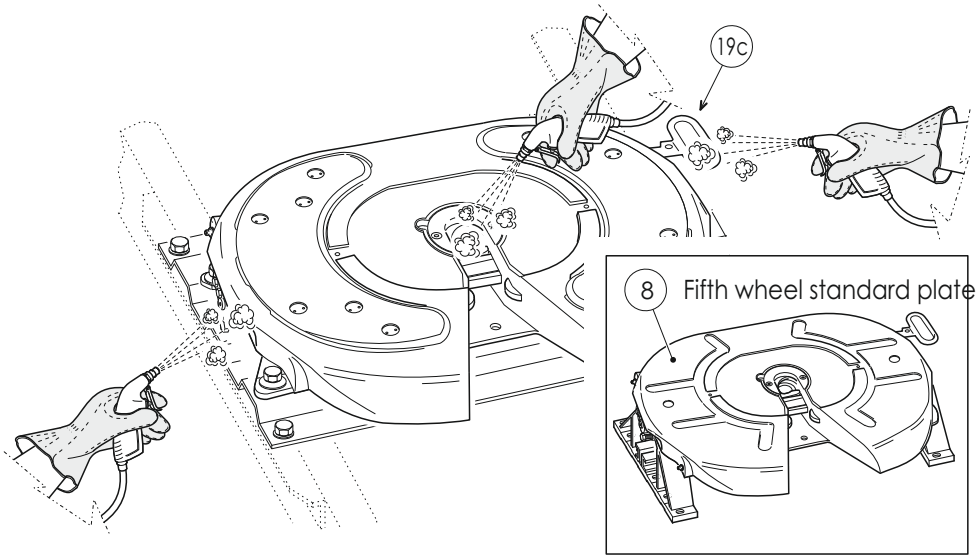
Fifth wheels featuring standard plates must be kept clean, oiled and a layer of grease spread on the semi-trailer counter plate. Consult section 2.4 SETTING UP FOR OPERATION at page 13/36.

Avoid the accumulation of foreign matter onto the fifth wheel surface, the same goes for the jaw lock mechanism.

Clean after each journey or trip, possibly by carrying out an accurate cleaning session.

The fifth wheel must also be cleaned prior to use after a long period of disuse;

Clean the operating handle, the coupling up area after having opened and closed the operating handle (19c) as well as the adjustment screw, using an air jet .



NOTE

Use of high pressure water jet machines is allowed only on the coupling up area.

9 DISPOSAL

Read the following instructions carefully:

No part of the drawbar eye shall be disposed of in the enviroment

Every part,

The appropriate actions and measures adopted must regularly comply with the local regulations and laws in force at the time of disposal.

10 STRIPPING

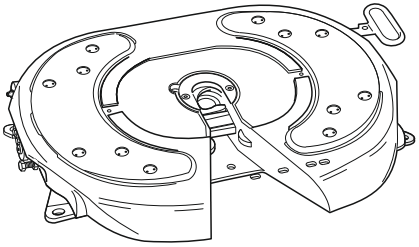
This chapter refers to the figure on page 24/36.

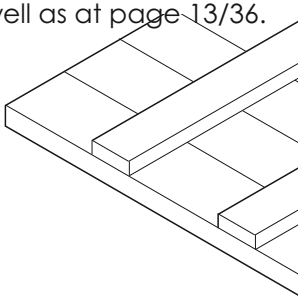
CAUTION: before proceeding with any operation, check that the wedge (11b) and the jaw (7) are clearly visible and the operating handle (19c) is regularly back into position.

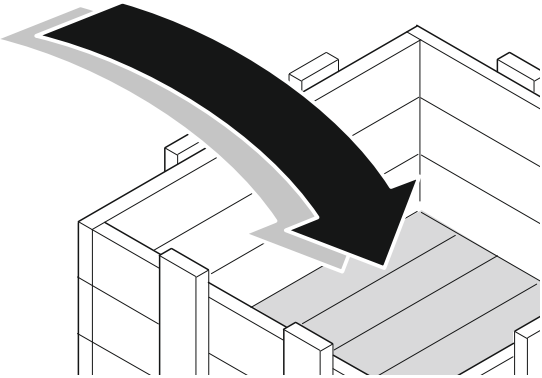
Disassemble the fifth wheel from the tractor unit frame. Consult section 2.1 INSTALLATION WITH CARRIER PLATE at page 10/36, section 2.2 - DIRECT INSTALLATION at page 11/36 or section 2.3 - INSTALLATION WITH WELD-ON PEDESTALS at page12/36.

Warning! Limb injury hazards!

Lift the fifth wheel off with appropriate lifting devices for 150 kg weights and store it into a solid and sturdy container after having cleaned and well lubricated it as per directions in section 8 CLEANING at page 33/36 as well as at page 13/36.







NOTES