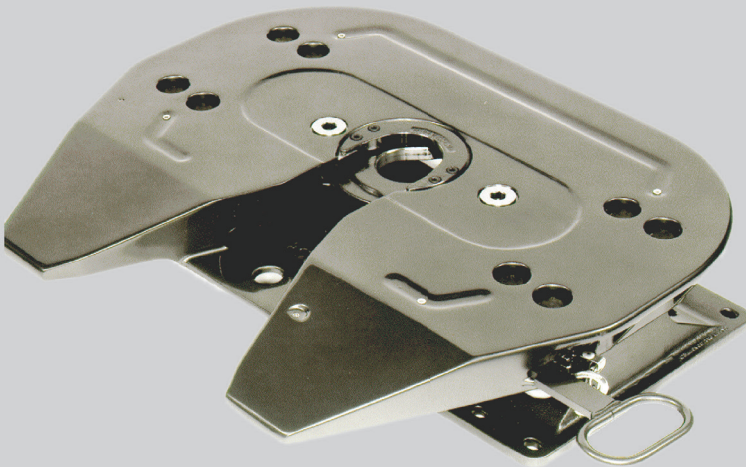


## Maintenance - Repair

### Fifthwheel SK-HD 38.36 T



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# Fifth Wheel SK-HD 38.36 T

## Mounting and Operating Instructions

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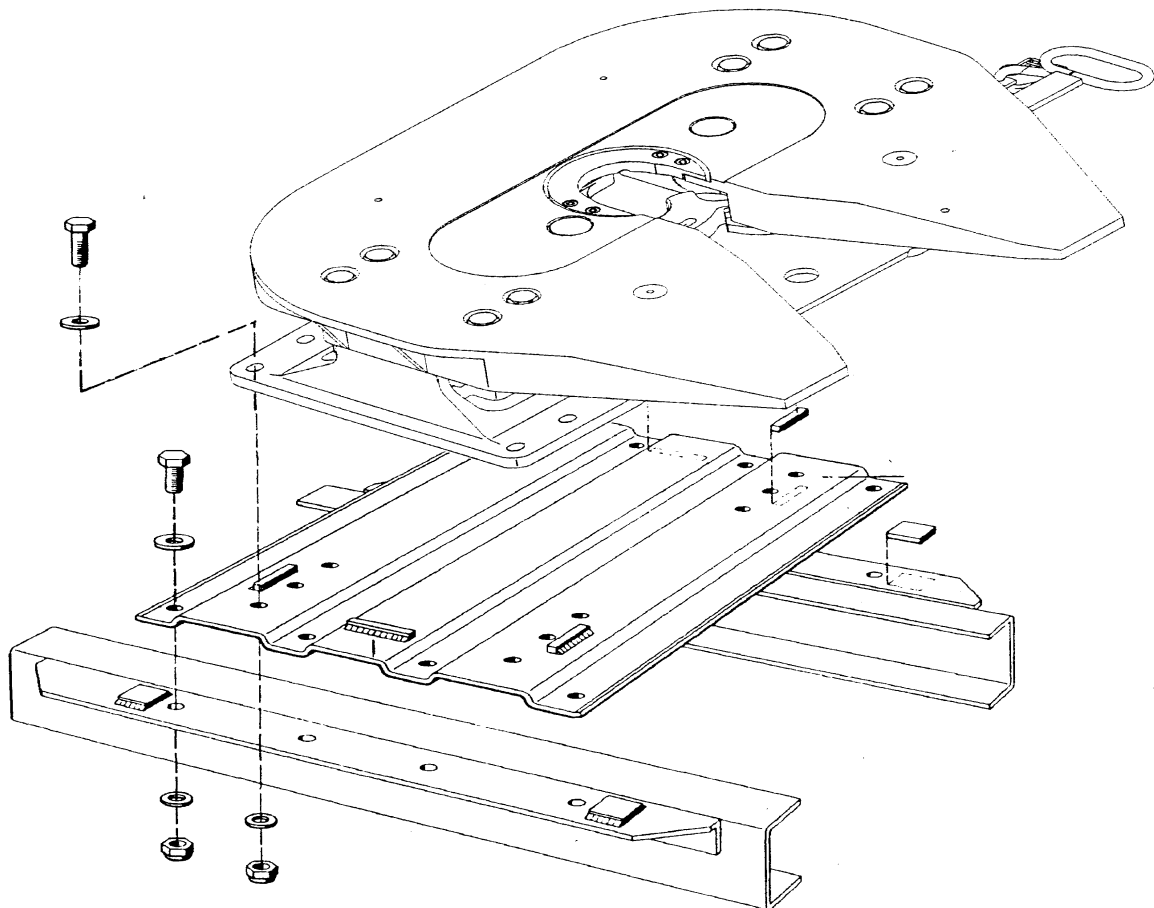
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## General Information

Failure to observe these instructions can lead to dangerous operating conditions. Please read through and carefully follow these instructions before mounting the fifth wheel and using it for the first time.

- Modifications of any kind will invalidate warranty claims and result in the cancellation of the design approval.
- The mounting of fifth wheels, mounting plates, sliders and kingpins, as well as repair work, may only be carried out by trained personnel or in suitable workshops.

## 1. Mounting Instructions



- 
- When mounting fifth wheels, please follow the relevant mounting instructions as provided by SAF-HOLLAND and the vehicle manufacturer.
  - The fifth wheel will usually be fitted on a mounting plate. We recommend the use of SAF-HOLLAND mounting plates and the respective mounting kit.
  - The mounting plate and the fifth wheel must be positioned to the articulation point recommended by the vehicle manufacturer.
  - The mounting plate must be selected depending on the width of the vehicle frame and the desired overall height.

- The fifth wheel must be attached to the mounting plate with twelve screws M16, grade 8.8.

- We recommend the following torques for tightening:

190 Nm for M16x1,5 fifth wheel on mounting plate  
350 Nm for M20x1,5 mounting plate on subframe

Observe the instruction of the truck-manufacturer, referring to the tightening torques.

- The thickness of the paint layer in the locking region of the bolts must comply with standards prescribed by law so as not to impair the clamping pressure. Compliance with Governmental inspection regulations on bolts and the locking of these in vehicle construction is required.
- It is a requirement that the technical data be entered into the appropriate Vehicle Registration Documents in accordance with the local Vehicle Registration Regulations (e.g. §27 of the Regulations Governing the Registration of Road Vehicles in Germany).
- The fifth wheel must be able to move freely, and may not touch either the mounting plate or parts of the frame or auxiliary frame when used for its foreseen application.
- When mounting fifth wheels, all actual and national registration regulations must be considered.
- If the fifth wheel is mounted on a slider, the relevant mounting instructions must be followed.

- 
- Beside the superimposed load, the criterion for determining the max. permissible load for a fifth wheel and mounting plate is the D-value, which can be calculated according to DIN 74081, with the following formula:

Example of a calculation:

$$D = g \cdot \frac{0,6 \cdot m_K \cdot m_A}{m_K + m_A - A} \text{ in kN}$$

$$D = 9,81 \cdot \frac{0,6 \cdot 17 \cdot 120}{17 + 120 - 28} = 110,2 \text{ kN}$$

Key:

$m_K$	= permissible gross weight of the tractor in t	<b>Example:</b>	$m_K = 17 \text{ t}$
$m_A$	= permissible gross weight of the semitrailer in t		$m_A = 120 \text{ t}$
$A$	= permissible vertical load on the tractor in t		$A = 28 \text{ t}$
$g$	= Earthgravitation 9,81 m/sec.		

The data for permissible loads for SAF-HOLLAND fifth wheels and mounting plates can be found on the respective pages in the brochure. These data apply for use on paved roads and transport conditions as customary in Central Europe. Please enquire for conditions of use other than these.

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## 2. Lubrication

Before putting the fifth wheel into operation, and then regular every 5'000 km, apply ample coatings of long-life, high-pressure grease\* to the surface of the SAF-HOLLAND fifth wheel plate, the locking parts and the wearing ring.

- The locking mechanism is equipped with two grease nipples on the plate, which must be greased from the outside, even with coupled semi-trailer (see A).



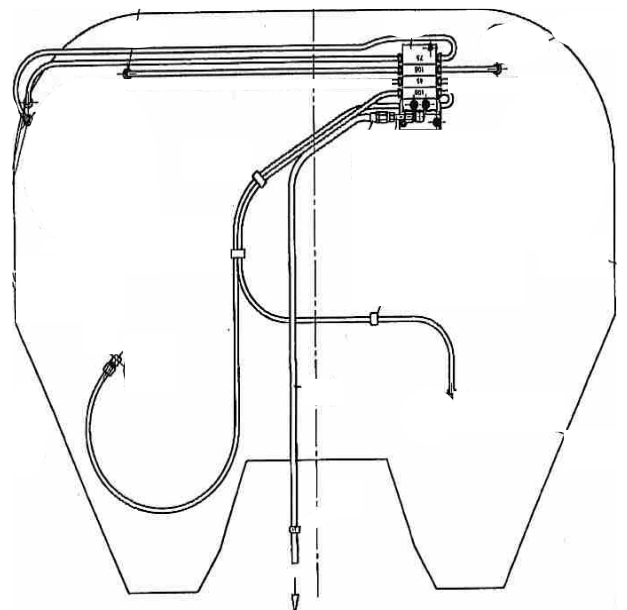
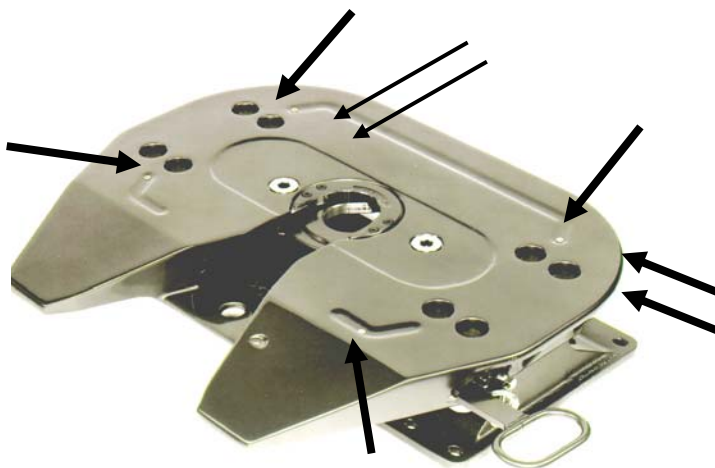
\* We recommend using a long-time high pressure lubricant (NLGI class 2) with MoS<sub>2</sub> or graphite additives, e.g. MOTOREX MOLY 218, SHELL RETINAX HDX2, Renolit LZR 2 (suitable for central lubrication systems), Renolit FG 150. If other lubricants are used, the lubrication intervals are to be adapted accordingly. When used with a central lubrication system obey the instructions of the manufacturer.

Connection to central greasing installation is possible.

### Central lubrication

Ensure that the operation and freedom of movement of the fifth wheel are not affected by the connection of a central lubrication system.

- 6 no. M8 x 1 lubricating point connections
- 2 no distributor attachments



### 3. Operating Instructions

#### 3.1 Coupling

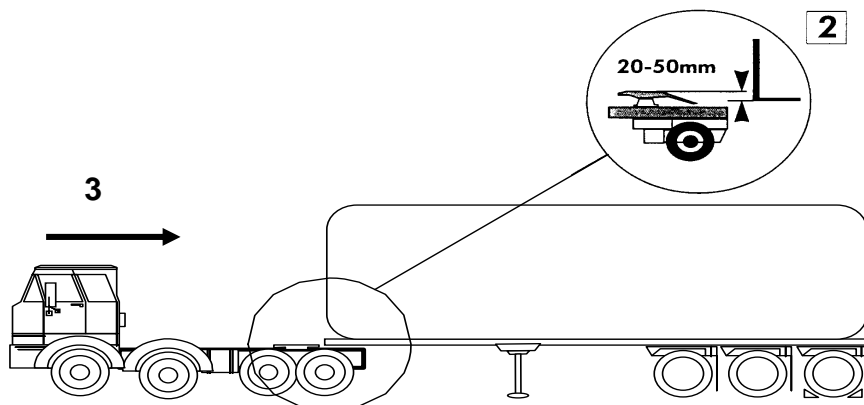
The semitrailer must be secured and supported .

1. The locking mechanism is in the open position

The Fifth wheel must be ready for coupling, i.e. the unlocking handle must be fully extended.



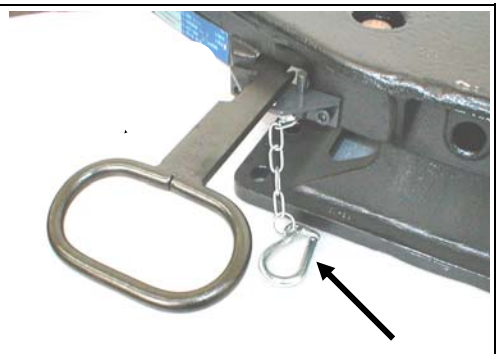
2. The semitrailer plate must be approx. 5 cm lower than the Fifth wheel coupler plate. Reverse with the tractor slowly under the semitrailer. The locking mechanism engages automatically



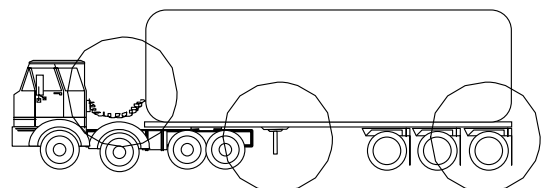
3. Start-up jerk to be made in low gear.

#### Securing:

4. In Terminal operation, **do not** engage safety hook



**ATTENTION:** *In any case, it must be made sure that the Fifth wheel is properly locked and secured.*



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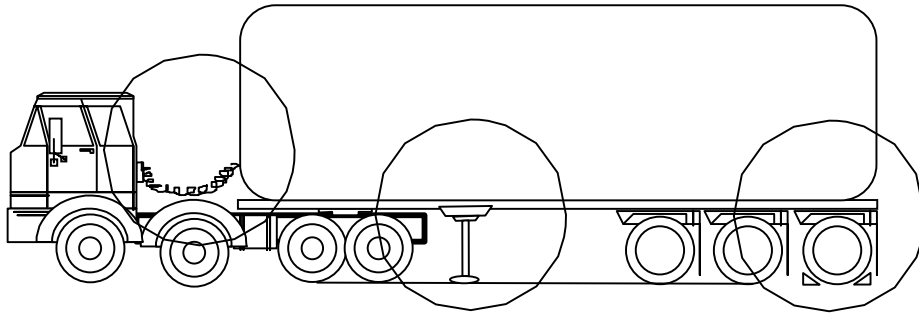
## 3.2 Uncoupling

Secure the wheels of the semi-trailer with chocks

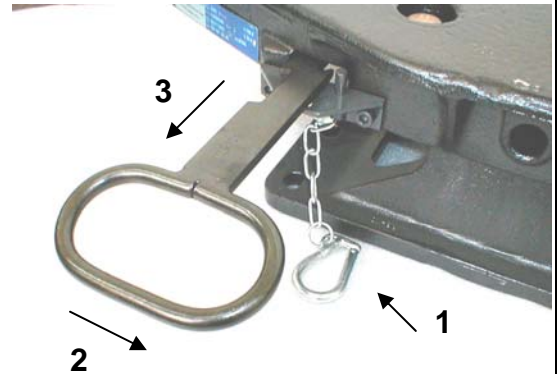
Raise the semi-trailer using the landing gear until sufficient relief is given to the suspension of the towing vehicle.

Disconnect the supply cables

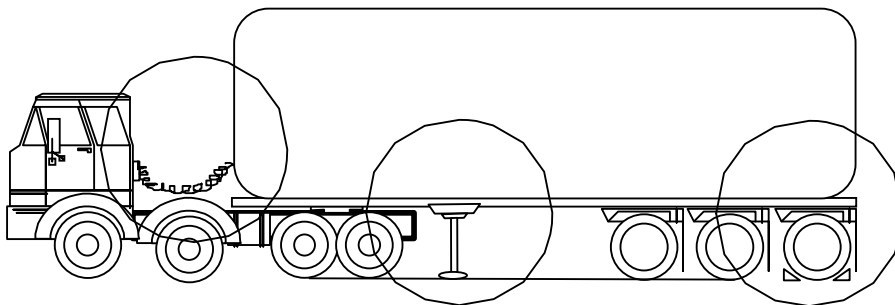
Open the locking mechanism



- Snap hook is disengage 1 (see 10.2)
- The unlocking handle swivel automatically to the rear 2 and it pulls it automatically out 3



Drive the tractor out.



The Fifth wheel is automatically ready for coupling again.

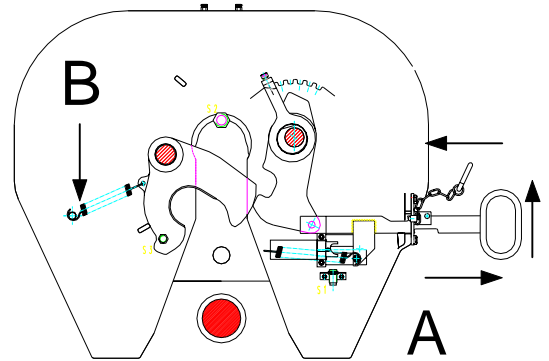


### 3.3 Conversion 3 1/2" to 2" and vice-versa

Even in mounted condition, the Fifth wheel can be converted within a few minutes.

#### Dis- and Reassembly of Coupler jaw

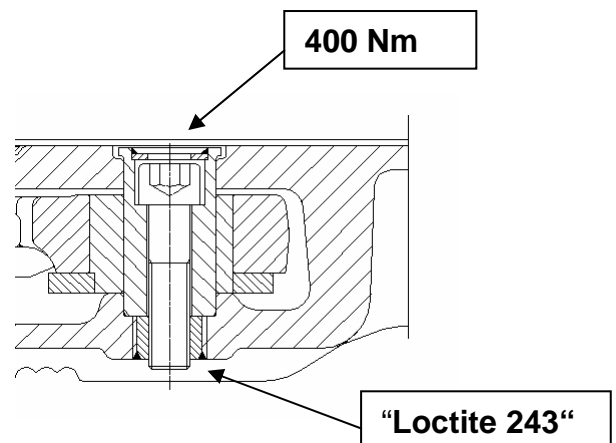
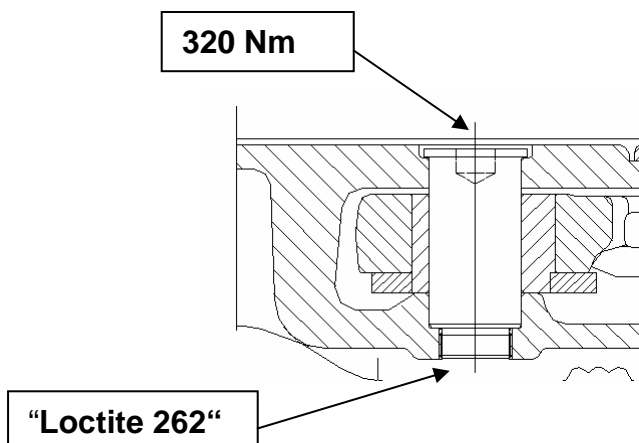
- Pull the Unlocking handle fully towards the outside (locking mechanism open) (A). Hook its lug onto the edge of the plate.
- Unhook the spring of the Coupler jaw on the coupler plate (B).



- Unscrew the pin ( C ) 17mm across flats or 19 mm across flats upwards with a hollow screw wrench.
- Take off coupler jaw with spring.
- Degrease and clean pin threads as well as respective threads of the tapped holes in the coupler plate.



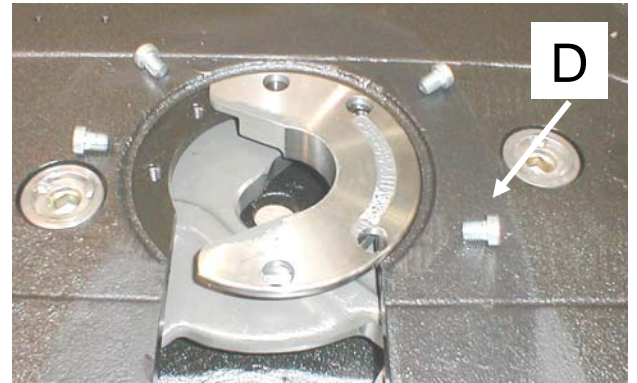
- Apply " Loctite" to the threads of the tapped holes.
- Install in reverse order; tightening torque for the pin ( C ).



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## Dis- and Reassembly of Wearing ring

- Unscrew all 4 fillister socket head screws SW 8 mm (D).
- Remove the Wearing ring (turning it about 90°)
- Clean and coat the machined surfaces of the new wearing ring with multi-purpose grease, and insert, turning it about 90°, into the final position.

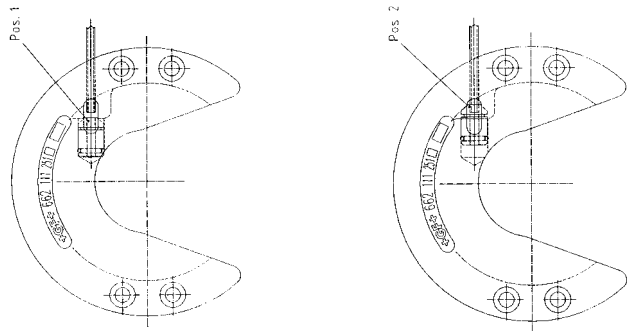


### Attention:

Use new self securing fillister head screws ("Loctite 243") and tighten them with a torque of:  
46 Nm for the wearing ring 662 111 319 + 662 111 250  
70 Nm for the wearing ring 662 111 342 + 662 111 343

## Wearing ring 2" 662 111 319

- Prior to disassembling , push slider to pos.1
- After reassembling , push slider to pos.2 and make sure , that the grease pipe slides into the plastic slider .



Before starting operation: Coat again with multi-purpose grease and replace the manufacturer's plate!

## 4. Maintenance

Various parts are normally subject to wear during operation; this can, however, be reduced to a minimum by proper maintenance. The following points must therefore be observed before putting the Fifth wheel into operation and each time it is serviced:

- We recommend that the bearing surfaces of the Fifth wheel and the semi-trailer plate as well as the King pin be checked for damage each time they are serviced and repaired where necessary (see "Wear Limits").
- The functionality of the fifth wheel must be checked depending on the working conditions, however at the latest every 50,000 km.
- Replace worn or damaged parts by original SAF-HOLLAND spare parts.
- Important: Each Fifth wheel is provided with a Serial Number, which is stated on both the type plate and in addition the coupler plate's edge. It is important for clear identification of spare parts.

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## 5. Wear Limits

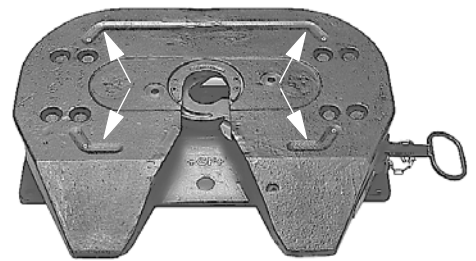
The following must be checked:

1. Wear on Fifth wheel plate
2. Locking mechanism
3. King pin

### Fifth wheel plate

#### Visual check

The coupler plate must be replaced when it is worn down to the bottom of the lubrication groove.

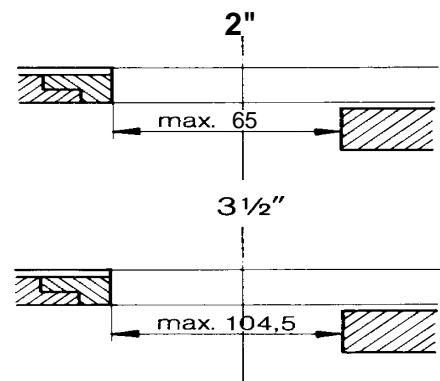


### Fifth wheel locking mechanism

Use the limit gauge to check wear on the locking mechanism.

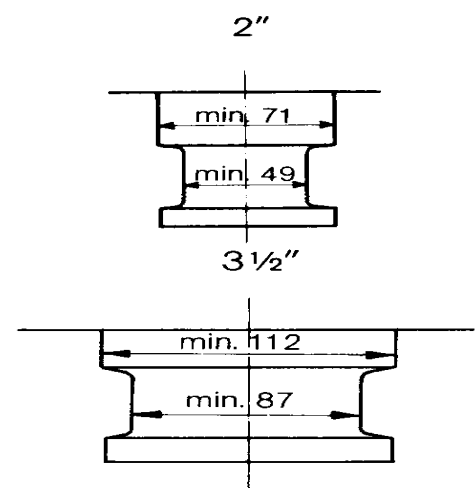
If the locking mechanism is fully adjusted, and the wearing marks are reached, then both, the Wearing ring and the Coupler jaw must be replaced.

See "Play adjustment"



#### 2" King pin

If the dimensions 71 resp. 49 are reached, the King pin must imperatively be exchanged.  
New = 73 resp. 50,8



#### 3 " King pin

If the dimensions 112 resp. 87 are reached, the King pin must imperatively be exchanged.  
New = 114 resp. 88,9

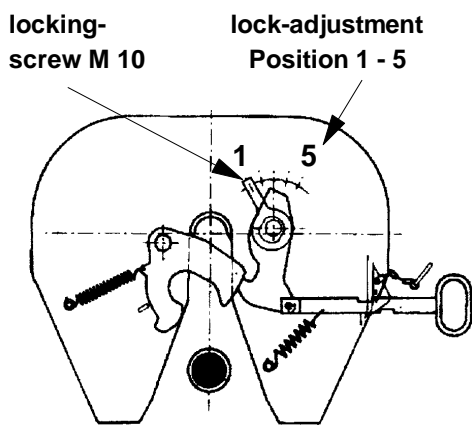
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## 6. Adjusting play

The locking mechanism of a Fifth wheel is subject to a certain degree of wear, depending upon mileage and maintenance. The SAF-HOLLAND Fifth wheel type SK-HD 38.36 is equipped with an adjusting mechanism to compensate for play. This mechanism is intended to compensate for wear on the coupling parts, but not on the King pin!

### Adjusting the Fifth wheel's locking mechanism

The adjustment must be carried out with a NEW KING PIN.



Loosen the Fillister screw M10 SW 8 on the Fork so that the Fork can be moved. The regulation by one notch is equal to an adjustment of 0,5 mm. Re-tighten the screw with a torque of 46 Nm.

Repeat this procedure as required when making further adjustments.

#### WARNING

When adjusting the locking mechanism, ensure that the King pin has a play of at least 0,5 mm in the locking mechanism of the Fifth wheel. If necessary, adjust the above play by one or more steps until this play is reached.

Inserting the hook into the slot beside the operating handle provides a check if the mechanism is properly locked.

If this is not possible, return Fork by one or more notches. If no further adjustment is possible, both Coupler jaw and Wearing ring must be replaced (see "Wear limits").

If the King pin reaches the minimum permitted limits (see page 10), it must be replaced.

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## 7. Repair Instructions

### 7.1 Replacing the bearings

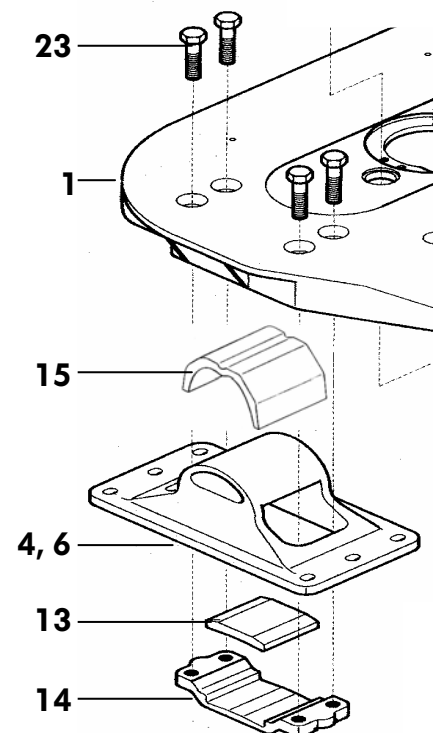
1. Unscrew all 8 hex.head screws (23) of the bracket assembly.
2. Lift the coupler plate off the brackets and place it on two wooden blocks of approx. 10 cm height on the workbench. The brackets remain on the vehicle, i.e. on the mounting plate.
3. Pull the two bearings (15) out of the bearing pockets by means of a screw driver.

### 7.2 Assembling the new bearing

Press the new bearings (15) into the the bearing pockets of the coupler plate until they are flush with the pocket webs.

### 7.3 Mounting the fifth wheel on the brackets

1. Place the coupler plate on the brackets (4,6).
2. Place the rubber cushions (13) in the correct position on the tension bows (14).
3. Insert the screws (23)
4. **New self-locking bolts must be used for each mounting**  
Tighten all four ( 30 mm across flats ) hex.head screws (23) with a torque of 400 Nm.



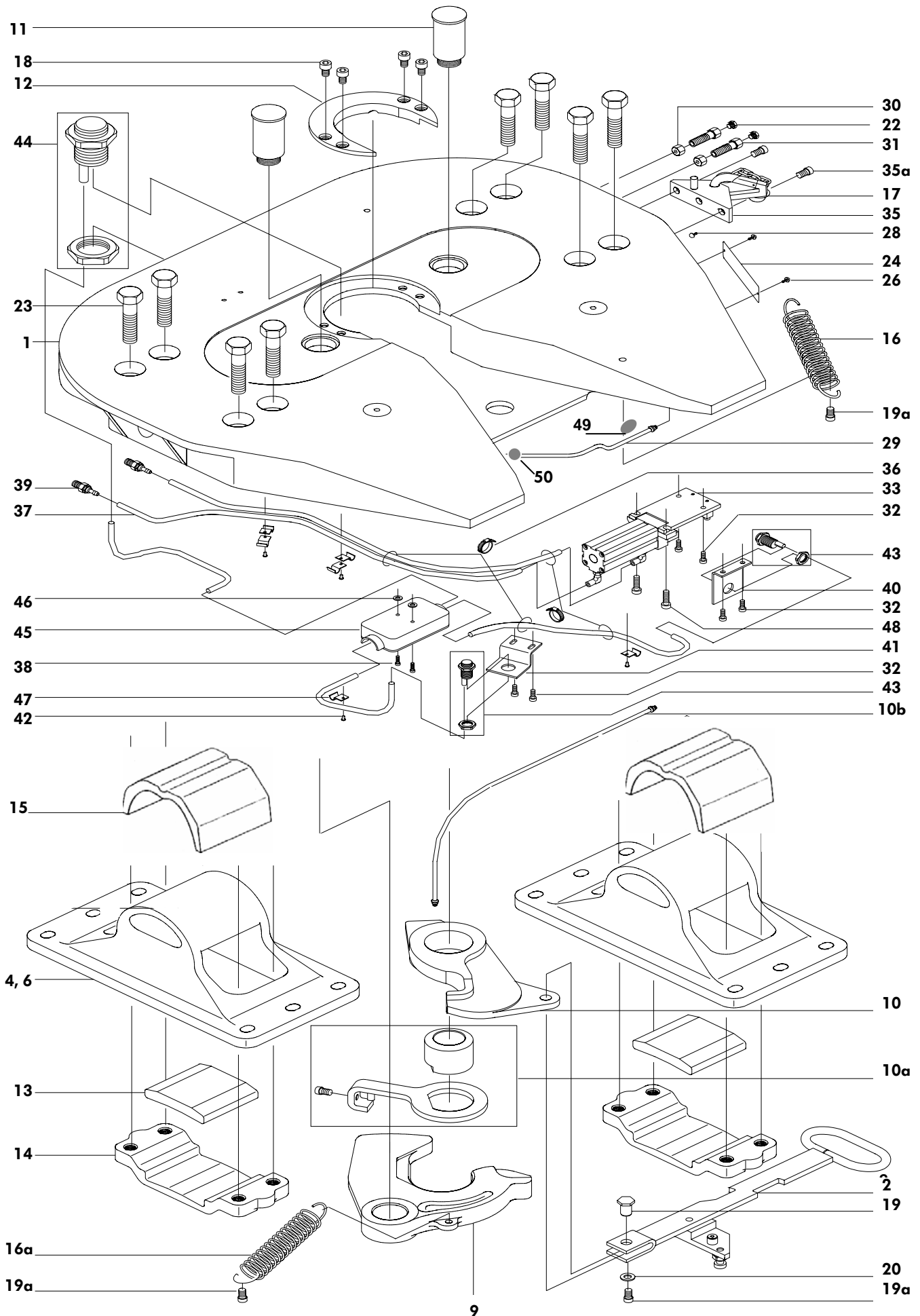
## 8. Spare parts for the SK-HD 38.36 T fifth wheel

### Type:

662 111 069	3 1/2"	150 mm	662 111 072	2"	150 mm
662 111 070	3 1/2"	190 mm	662 111 071	2"	190 mm
662 111 083	3	without bearing	662 111 084	2"	without bearing
			662 111 090	2"	inkl. Bearing

Pos	Description	Quant.	Order - Nr.	
				Up Serial number: 42000021
1	Coupler plate	1	662 111 280	662 111 280
2	Unlocking handle	1	662 111 318	662 111 318
4	Bracket 150 mm	2	662 111 293	662 111 293
6	Bracket 190 mm	2	662 111 256	662 111 256
9	Coupler jaw.assy. 2"	1	662 111 249	662 111 249
9	Coupler jaw.assy. 3 1/2"	1	662 111 247	662 111 247
10	Locking hook	1	662 111 239	662 111 239
10a	Eccenter.	1	662 111 322	662 111 322
10b	Lubrication pipe	1	662 130 118	659 144 106
11	Pin	2	662 111 316	662 111 344
12	Wearing ring 2"	1	662 111 319	662 111 342
12	Wearing ring 3 1/2"	1	662 111 250	662 111 343
13	Rubber cushion	2	662 111 259	662 111 259
14	Tension bow	2	662 111 258	662 111 258
15	Bearing	2	662 111 264	662 111 264
16	Tension spring	1	662 126 410	662 126 410
16a	Tension spring	1	662 111 130	662 111 130
17	Snap hook with chain	1	662 100 574	662 100 574
18	Fillister screw with hex. socket	4	659 112 363	659 112 624
19	Pivot	1	662 126 449	662 126 449
19a	Screw	3	662 126 172	659 112 359
20	Washer	1	662 126 175	662 126 175
22	Grease nipple	2	662 126 224	662 126 224
23	Screw	8	659 112 510	659 112 510
24	Manufacturer's plate	1	659 120 380	659 120 380
26	Hemispherical ribbed nail	2	662 126 173	662 126 173
28	Hammer rivet	1	662 126 151	662 126 151
29	Lubrication pipe	1	662 111 289	659 144 106
30	Lock nut	2	662 126 176	
31	Eyebolt	2	662 126 465	
32	Fillister screw	6	659 112 354	659 112 354
33	Pneumatic Cylinder	1	662 111 327	662 111 327
35	Safety flange	1	662 111 281	662 111 281
35a	Fillister screw with hex. socket	2	659 112 358	659 112 358
36	Electric clamp	2	659 100 045	659 100 045
37	Pipe	2	662 111 285	662 111 285
38	Fillister screw	2	662 111 237	662 111 237
39	Pneumatic coupling	2	662 111 286	662 111 286
40	Support for switch S1	1	662 111 279	662 111 279
41	Support for switch S3	1	662 111 278	662 111 278
42	Hemispherical ribbed nail	4	662 126 179	662 126 179
43	Sensor	2	662 111 215	662 111 215
44	Sensor	1	662 111 235	662 111 235
45	Distributor	1	662 111 218	662 111 218
46	Copper ring	2	662 111 219	662 111 219
47	Mounting clamp	6	659 100 029	659 100 029
48	Fillister screw	2	659 112 369	659 112 369
49	Pipe clamp	1		662 111 345
50	Plug	1		662 111 346

# 9. Exploded - view drawing SK-HD 38.36 T



## 10. Operating Instructions SK-HD 38.36 T

The fifth wheel can be operated either from the cab or also manually. It offers efficient, economical and safe solution wherever frequent coupling is required.

### Technical Data:

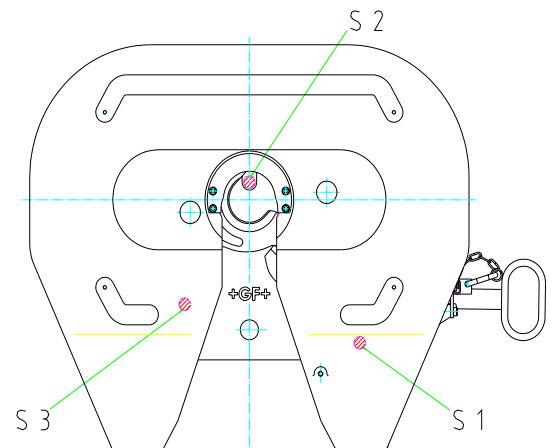
Type	SAF-No.	King pin	D-value	Overall height
	662 111 069	3 1/2"	260 kN	150 mm
	662 111 070	3 1/2"	260 kN	190 mm
	662 111 072	2"	162 kN	150 mm
	662 111 071	2"	162 kN	190 mm
	662 111 083	3 1/2"	260 kN	without bearing
	662 111 084	2"	162 kN	without bearing
	662 111 090	2"	162 kN	incl. bearing
King pin		DIN 74083		
Fifth wheel		DIN 74084		
Handling		pneumatic or manual		
max. Imposed load:		36 000 kg		

### 10.1 Manual control

The fifth wheel corresponds with the SAF-HOLLAND SK-HD 38.36 in function, operation and dimensions.

### 10.2 Remote control

With the remote control fifth wheel the locking mechanism is pneumatically operated. The sequence of movements of the locking parts corresponds with those of the manual operation. Make sure that the safety hook is not engaged, otherwise the fifth wheel can not be operated from the cab. Additional to the basic model SK-HD 38.36, pneumatic cylinder and three sensors S1, S3 and S2 are mounted. The driver is informed of the actual state of the fifth wheel lock by two control lights L1 and L3. The pneumatic cylinder is controlled by the switch T1 in the cab. The main switch may be only operated, when the cylinder must be activated. While driving the main switch must be switched out.



Control-light	confirm through a switch	Control
L1 (green)	S1 and S2	Fifth wheel closed and secured, ready to drive.
L3 (yellow)	S3	Fifth wheel ready for coupling.



---

## 10.3 Drive position

The fifth wheel is ready, when the fifth wheel is closed and secured. This situation is shown to the driver by green light (L1). The control light L1 is connected by the sensor S1 and S2.

- S1 is only activated, when the unlocking handle and the locking mechanism are in closed and secured position.
- S2 is only activated, when the king pin is correctly positioned in the fifth wheel.
- The green control light (L1) only lights up, if S1 and S2 connected.

## 10.4 Uncoupling

Put the gear in reverse and press the button T1, to unlock the fifth wheel. The simultaneous shifting into reverse gear prevents accidental uncoupling during driving. While uncoupling, T1 must be pressed continuously. When L1 (green) is off, the fifth wheel is ready for uncoupling. After uncoupling, L3 (yellow) must light up, T1 can now be released.

When the main switch is on, T1 is pressed and the reverse gear is in, the cylinder will supply with air pressure.

The piston rod operates the unlocking handle and unhooks the locking mechanism.

- ◆ Put main switch in on position, buzzer sounds.
- ◆ Shift into reverse gear, press T1 and hold it.
- ◆ Green light (L1) lights up.
- ◆ The cylinder moves the unlocking handle into unlocking position.
- ◆ For uncoupling it is not required to remain in reverse gear.
- ◆ Drive the tractor slowly out. The locking mechanism is turned automatically into coupling position.
- ◆ Yellow light (L3) lights up.
- ◆ Release T1.
- ◆ Switch off main switch, buzzer becomes silent.
- ◆ Fifth wheel is ready for coupling.

## 10.5 Coupling

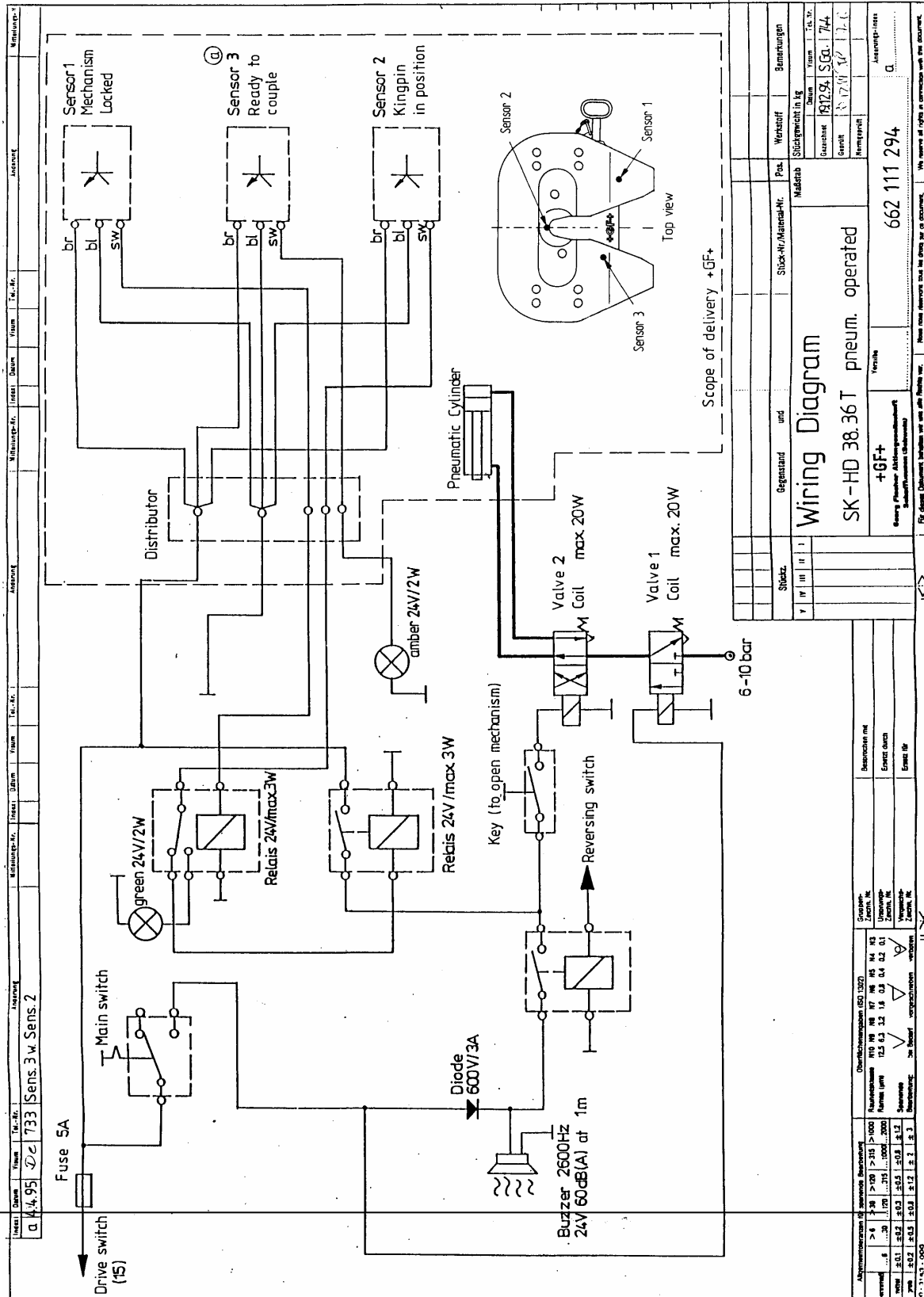
The main switch is on and the buzzer gives sign.

The fifth wheel is ready for coupling when L3 (yellow) is lightening.

Drive slowly with the tractor underneath the semi-trailer. The king pin closed the locking mechanism automatically. L3 (yellow) goes out and L1 (green) lights up. (The fifth wheel is secured automatically by the unlocking handle).

The coupling manoeuvre is finished, when the drive position is reached. (see 10.3 Drive position).(see S. 17 Wiring diagram).

# 11. Wiring Diagram SK-HD 38.36 T





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