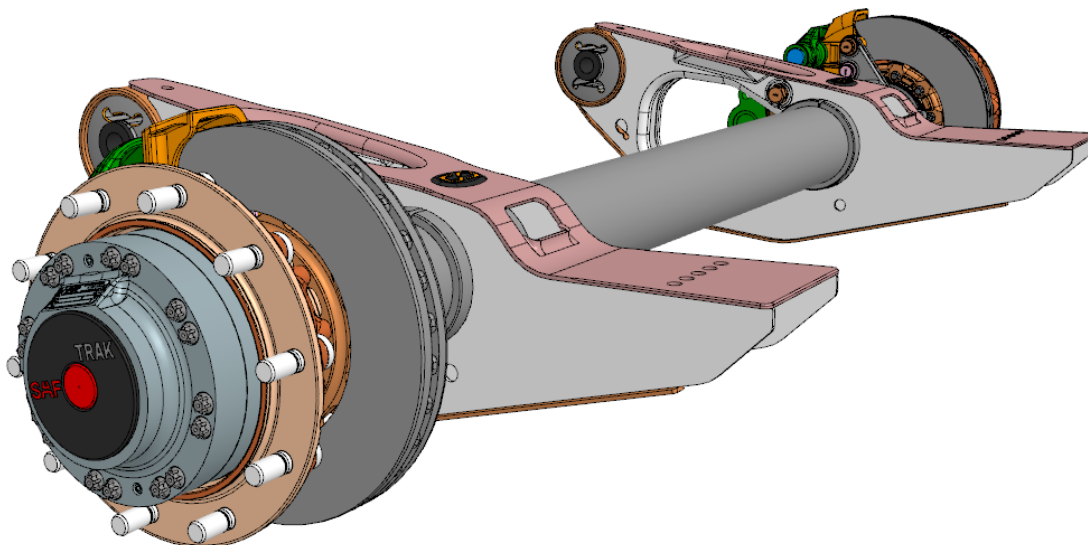


Installation Manual

SAF INTRA CD TRAK

Hydraulically driven axle



Please note

This installation manual is intended for the exclusive use by trained persons within the commercial vehicle industry and related workshops.

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No liability is assumed as a result of incorrect or inappropriate parts being fitted to the product or the omission of appropriate tests after the servicing of the product. Use appropriate spare parts' documentation when obtaining spare parts. Use only genuine SAF-HOLLAND GmbH spare parts in repairs. This manual is subject to a copyright of SAF-HOLLAND GmbH. All rights reserved. No part of this manual may be reproduced, copied or translated in any form or by any means without the prior written permission of SAF-HOLLAND GmbH. Brand names mentioned in this manual are not identified as such in all cases, but they are nevertheless subject to the provisions of trademark legislation.

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1. General information

1.1 Ordering spare parts

When ordering original spare parts from SAF-HOLLAND, make sure you accurately identify the respective product.

Non-genuine parts have a negative effect on the function of the product, have a shorter lifetime and cause risks and hazards that SAF-HOLLAND cannot estimate. It also increases the maintenance requirement.

SAF-HOLLAND operates a tight service network of partner companies for technical support of SAF-HOLLAND products and supply of parts (see www.safholland.com).

For further instructions on identifying spare parts, refer to the Aftermarket section of our home page www.safholland.com.

Updates are published as necessary on the Internet at www.safholland.com.

1.2 Liability

SAF-HOLLAND's „General Terms and Conditions“ apply. SAF-HOLLAND accepts no liability claims for personal injury or material damage with one or more of the following causes:

- Failure to observe the proper use.
- Failure to observe the installation manual and the safety instructions contained in it.
- Arbitrary changes or modifications to the product.
- Insufficient maintenance of parts that are subject to wear.
- The use of any spare parts other than original SAF-HOLLAND parts.
- Use of damaged parts.
- Disasters due to external influences or force majeure.

1.3 Warranty and general terms and conditions of business

Refer to the “Sales” section of our home page www.safholland.com for information on current warranties and general terms and conditions.

1.4 Environmental protection

All components and consumables used for maintenance and care must be disposed of in an environmentally friendly manner.

Recyclable components must be cleaned of oil and lubricants and recycled.

When doing so, you must adhere to the disposal instructions for the respective consumables and the

valid national and regional regulations.

1.5 Target group

The installation manual of the product is restricted exclusively to use by trained personnel from authorised specialist workshops.

1.6 Proper use

The product has been constructed using state-of-the-art technology and in accordance with recognized rules of technical safety. However, its use may result in hazards for the operator or third parties or damage to the device or other objects of material value.

Proper use also includes:

- Observance of the operating manual and the installation manual, as well as implementation of the working steps stipulated in the installation manual.
- Adherence to the performance limits of the product.
- Adherence to all repair and care instructions, as well as additional inspections.
- Use of the auxiliary and operating materials listed, as well as their environmentally-friendly disposal.

Operationally safe functioning can only be guaranteed if all the instructions, setting and performance limits for the product are adhered to.

1.7 Safety instructions and symbols used

The following symbols are used to denote particularly important information and sections of the text.

It must be ensured that they are always read and observed before working with the product.



Danger!

This safety instruction with the exclamation mark warns of a possible safety risk or serious and fatal injuries.



Attention!

This safety instruction with the exclamation mark warns of possible damage to the product.

**Note:**

Marking for special user tips and other particularly useful and important information for efficient work and economical use.

1.8 Marking used for sections of text

- Marking for instructions for actions and information in safety instructions
- 1., 2., 3., ... Marking used for working steps.

2. Safety instructions**Danger!**

- The hydraulic system of the trailer with SAF TRAK axle must never be put into operation if the return line is not connected to the hydraulic tank.
- If the return line is not connected to the tank, the sealing system of the SAF TRAK axle will be damaged.

**Danger!**

- The seals in the drive must not be operated dry. Make sure that enough hydraulic oil is filled in the axle stub before moving the axle.
- This is especially important if the system was not completely put into operation.

**Danger!**

- The SAF TRAK must only be operated in conjunction with a non-latching pneumatic valve.
- For repairs, only install new screws!
- For repairs, only install new sealing rings!
- The electrical, electronic and pneumatic components of the SAF control must not be painted over!
- If it is determined that hydraulic oil escapes from lines and hydraulic components, switch off the power take-off immediately and consult a specialist workshop.

**Attention!**

- The TRAK axle (hydraulic motors and axle stub) is initially filled with hydraulic oil.
- When removing the protective plugs before connecting the hydraulic lines, make sure that no hydraulic oil can leak. See „Fig. 1: Hydraulic connection - protective plug“ on page 5

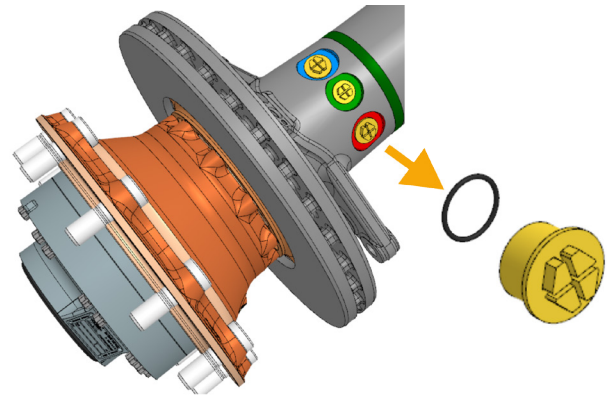


Fig. 1: Hydraulic connection - protective plug

**Note:**

The vehicle manufacturer is obliged to assign the physical and serial numbers of the individual components of the SAF TRAK to the vehicle identification number (VIN):

- Selector valve
- Block assist
- Control unit
- Axle

**Danger!**

- The current operating instructions must be observed.
- When operating the SAF TRAK, the manufacturer's instructions regarding the use of the auxiliary drive and the hydraulic pump must be observed.
- Adjustments and changes to the scope of delivery of the SAF TRAK are not permitted.

**Note:**

For the integration of the SAF TRAK in their vehicle approval we recommend in advance a consultation with your technical service!

**Danger!**

For the attachment of cables, pipes and hoses to the vehicle, the relevant standards must be applied.

**Note:**

Valves and control unit are to be fastened to the vehicle frame.

**Danger!**

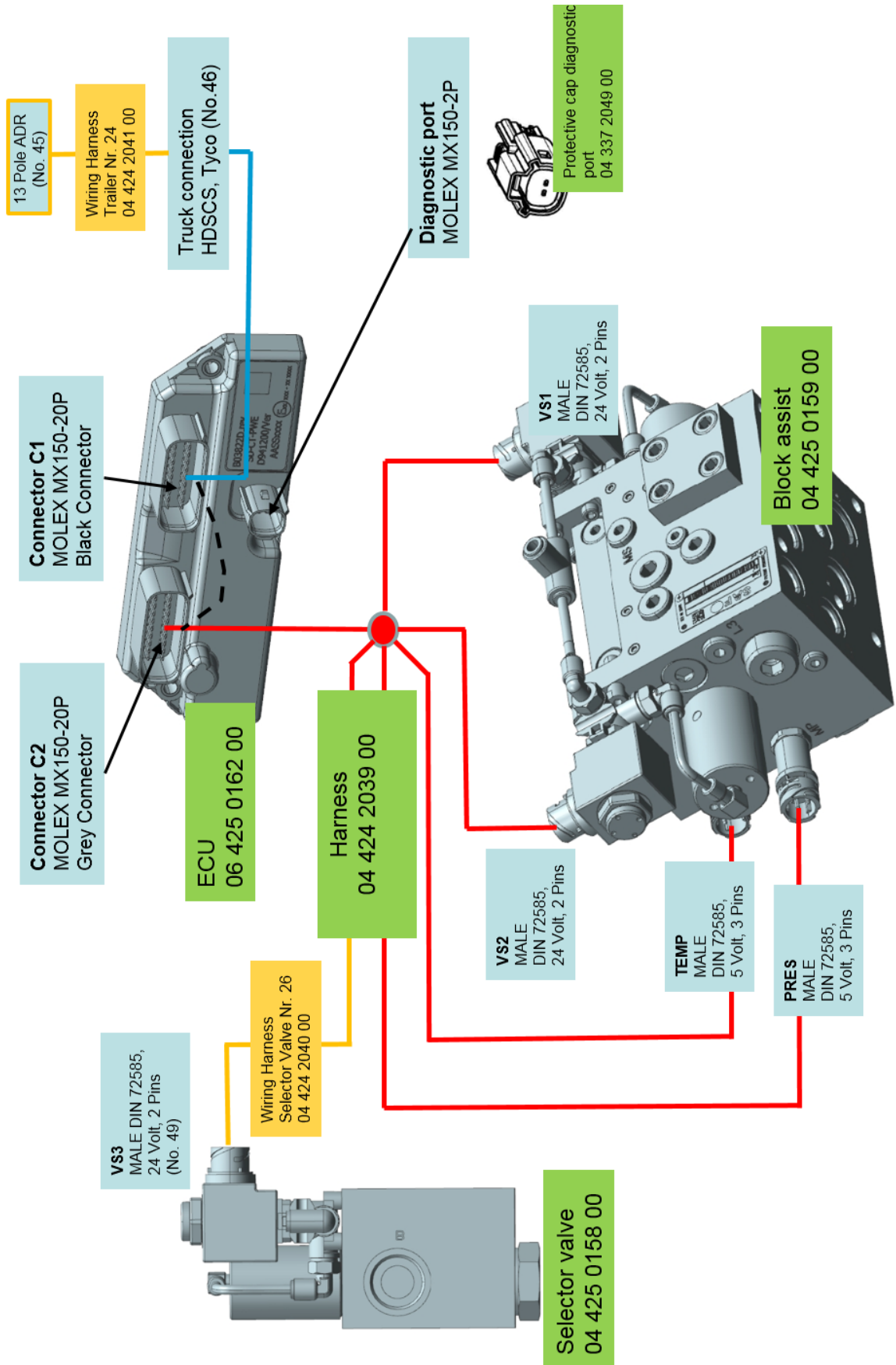
- The following hydraulic oils are permitted:
 - HLP according to DIN 51524-2 or HV according to DIN 51524-3 or
 - HLPD according to DIN 51524-2 or HVLP according to DIN 51524-3 or
 - HEES to ISO 15380

All hydraulic oils e.g. Class 32 or 46.

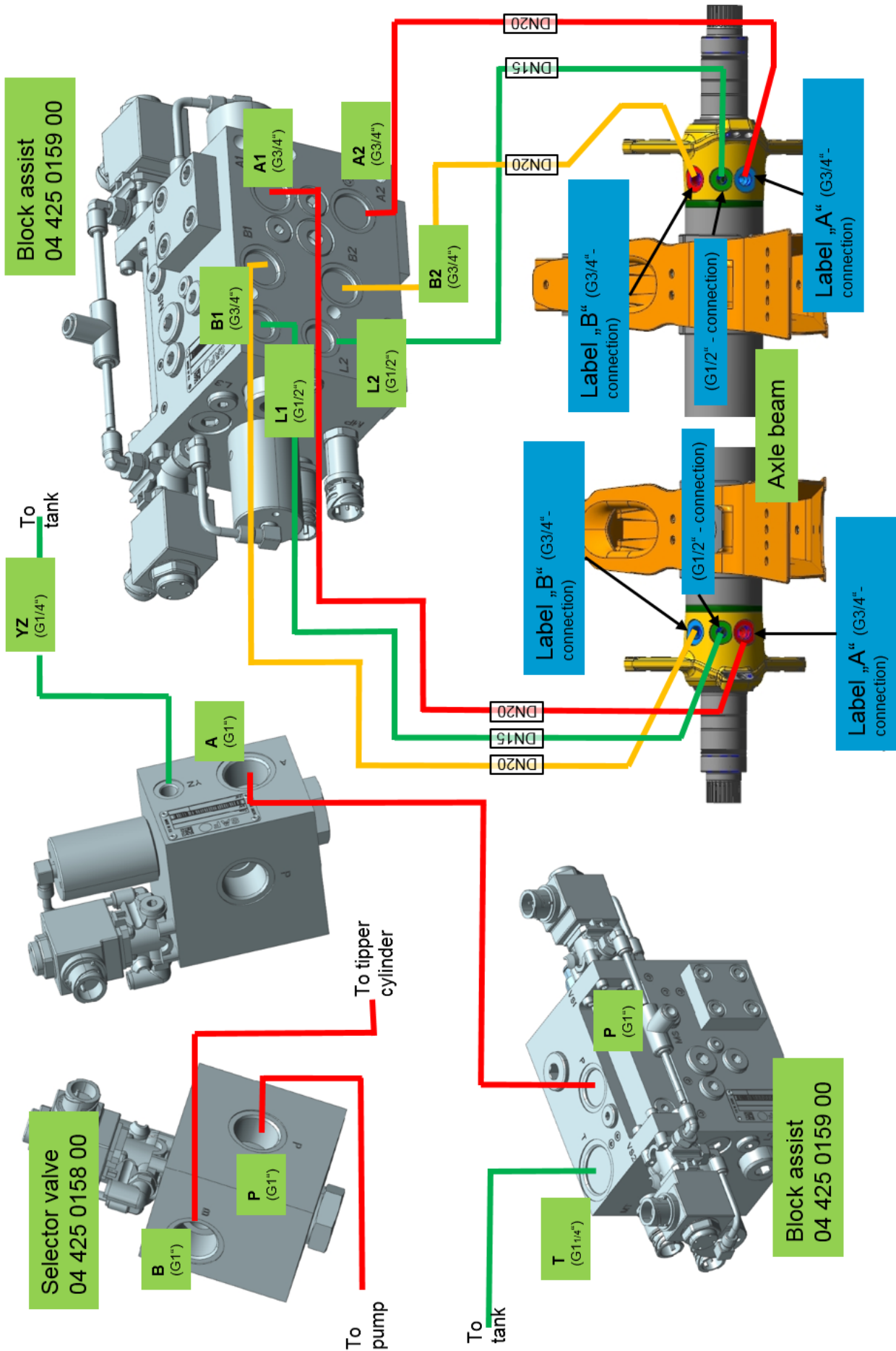
- New hydraulic oil may be contaminated. For this reason, the hydraulic system must always be fitted with a suitable filter unit as specified on the respective data sheet of the valve block.

3. Function and wiring diagrams

3.1 Elektrical diagram

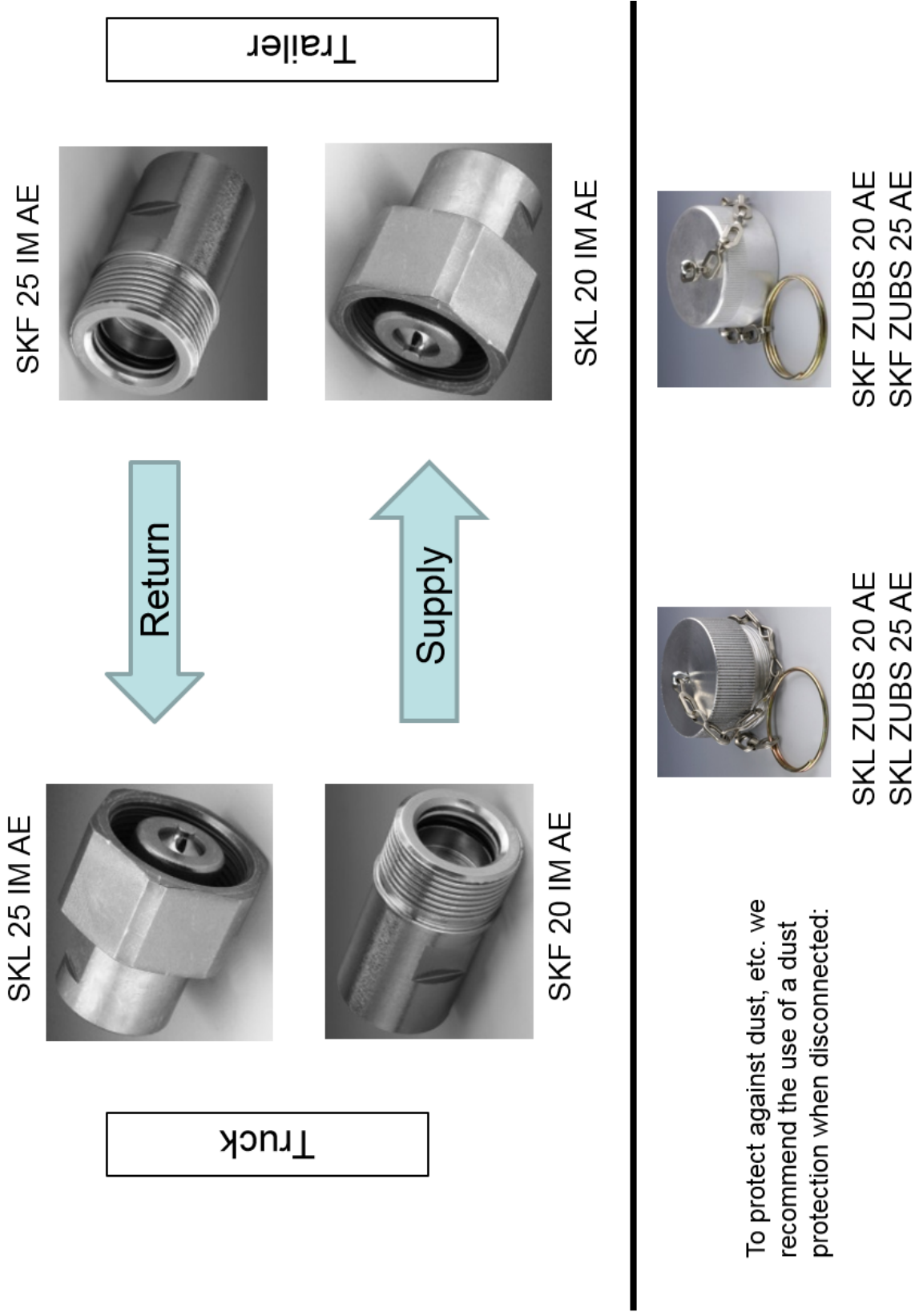


3.2 Hydraulical diagram



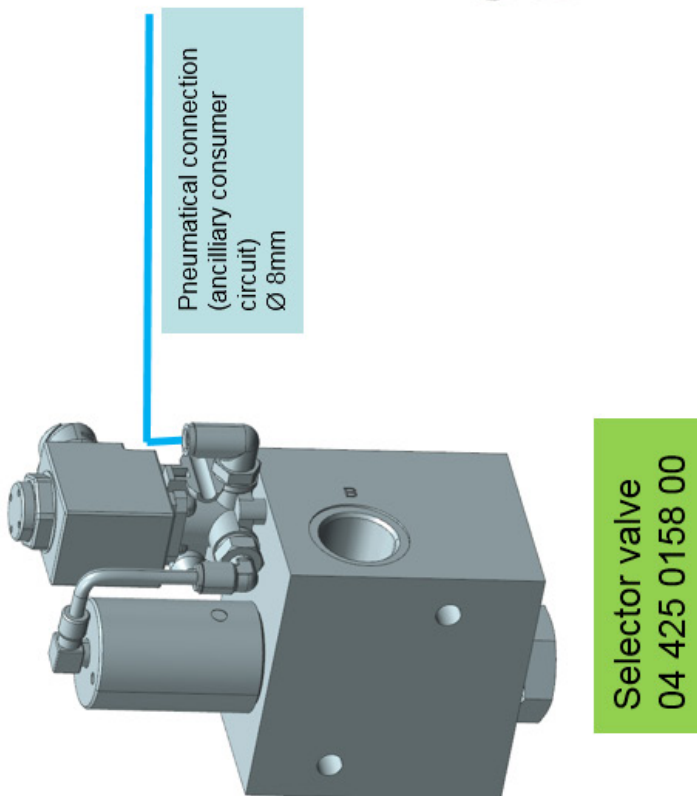
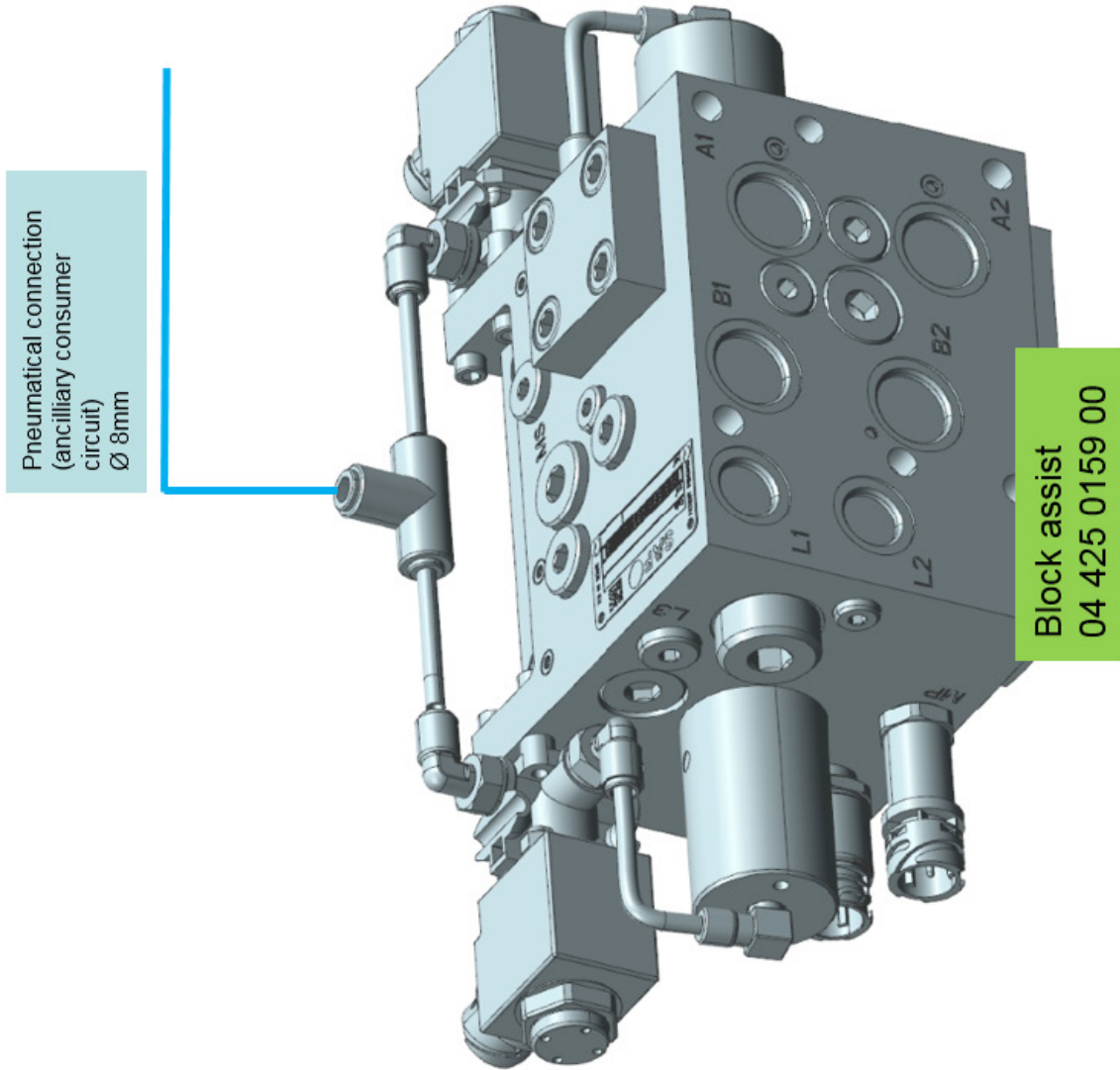
3.3 Hydraulical connection

Securing against interchanging hydraulic connections between tractor and trailer, example

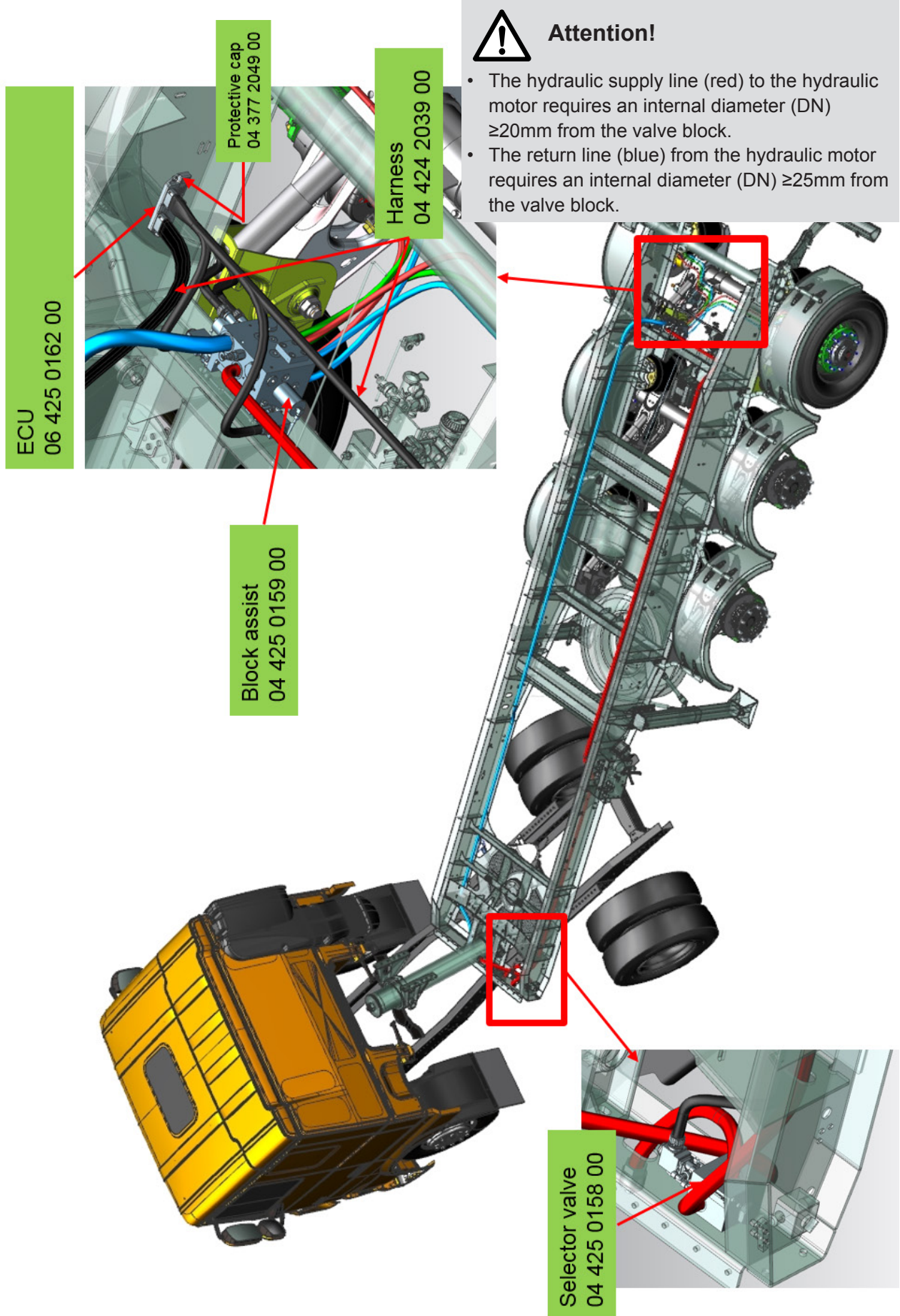


To protect against dust, etc. we recommend the use of a dust protection when disconnected:

3.4 Pneumtical diagram

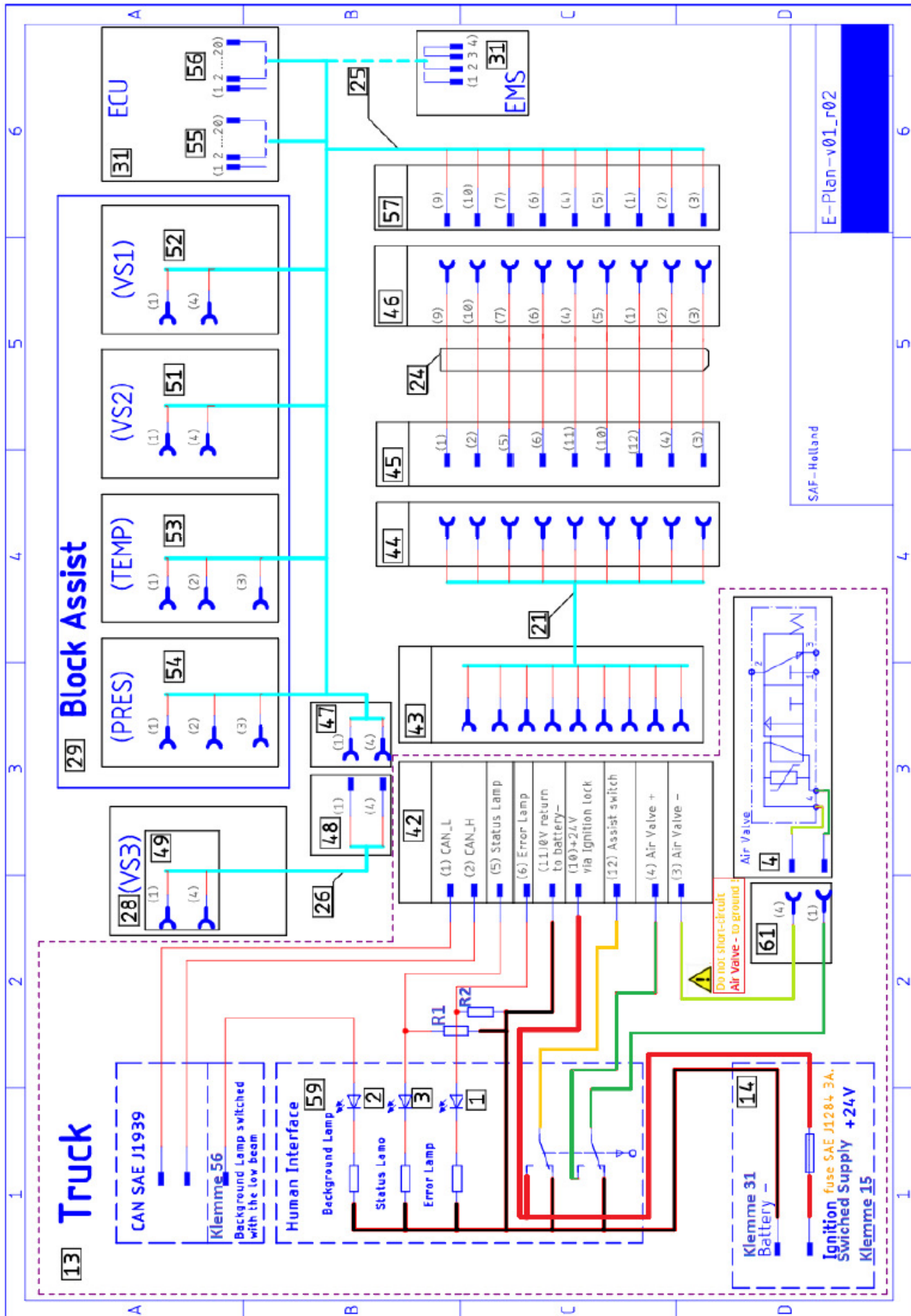


3.5 Vehicle setup


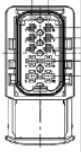


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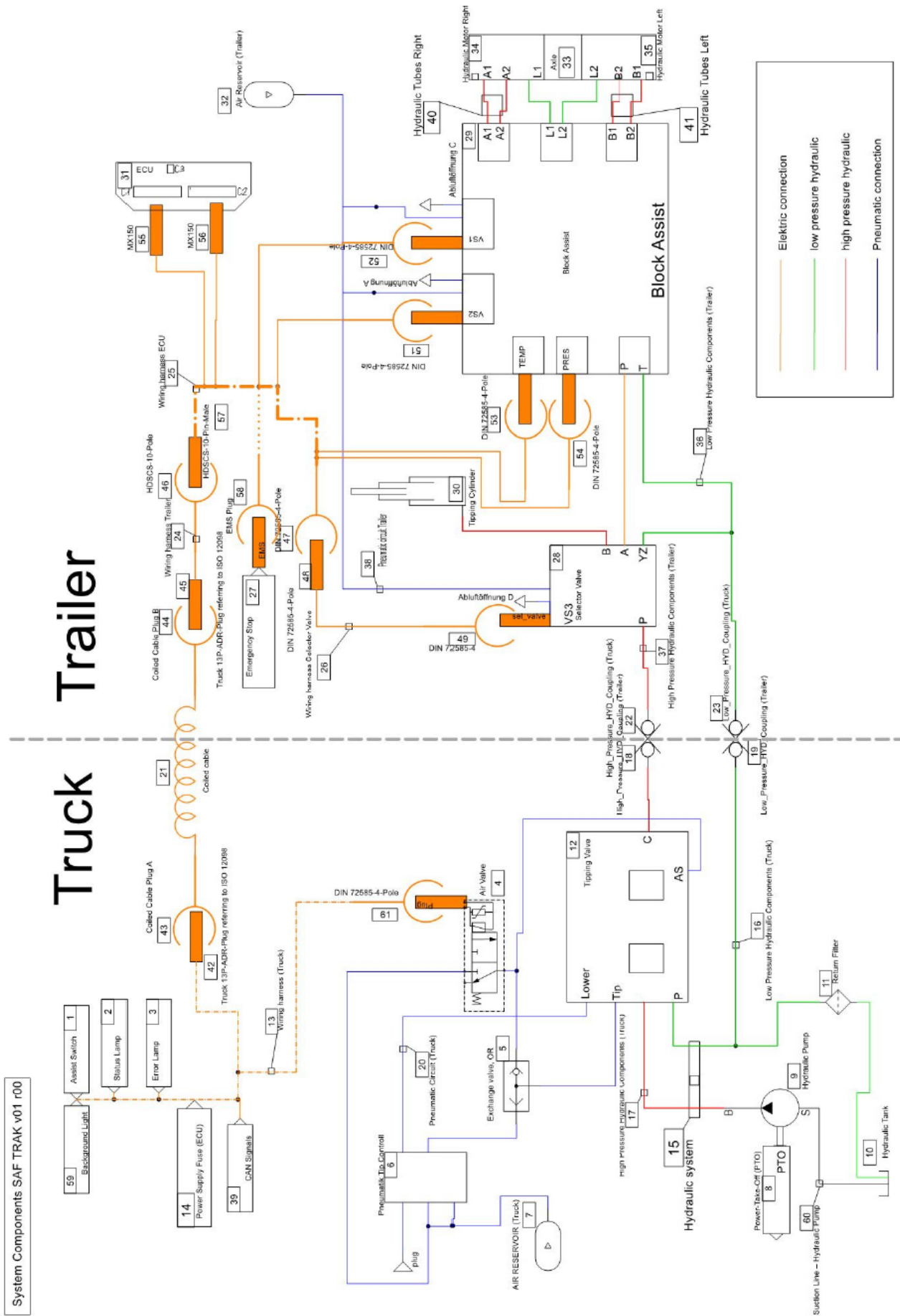
3.6 Elektrical connection



3.7 Pin out 13 pin ADR / HDSCS (No. 24)

Connectors on Wiring harness Trailer Cable length 8.0m +/- 100mm		Component No.45 13 Pole ADR Connector referring to ISO 12098 	Component No.46 HDSCS TYCO Connector 10 Positions 	
Signal Name	Wire size [mm ²]	Contact pin #	Contact pin #	Notes
CAN-L	1.0	1	9	
CAN-H	1.0	2	10	The CAN bus must be wired using shielded or unshielded twisted pair. CAN bus must be wired according to SAE J1939-11 or SAE J1939-15.
Air Valve -	1.0	3	3	
Air Valve +	1.0	4	2	
Status Lamp	1.0	5	7	
Error Lamp	1.0	6	6	
Reserved for future allocation	-	7	-	
Reserved for future allocation	-	8	-	
Reserved for future allocation	-	9	-	
+24V via ignition lock	1.5	10	5	Must be connected through an automotive fuse SAE J1284 20A
0V return to battery-	1.5	11	4	
Assist Switch	1.0	12	1	
Reserved for future allocation	1.0	13	-	

3.8 Wiring diagram tipper valve with pressure switchover



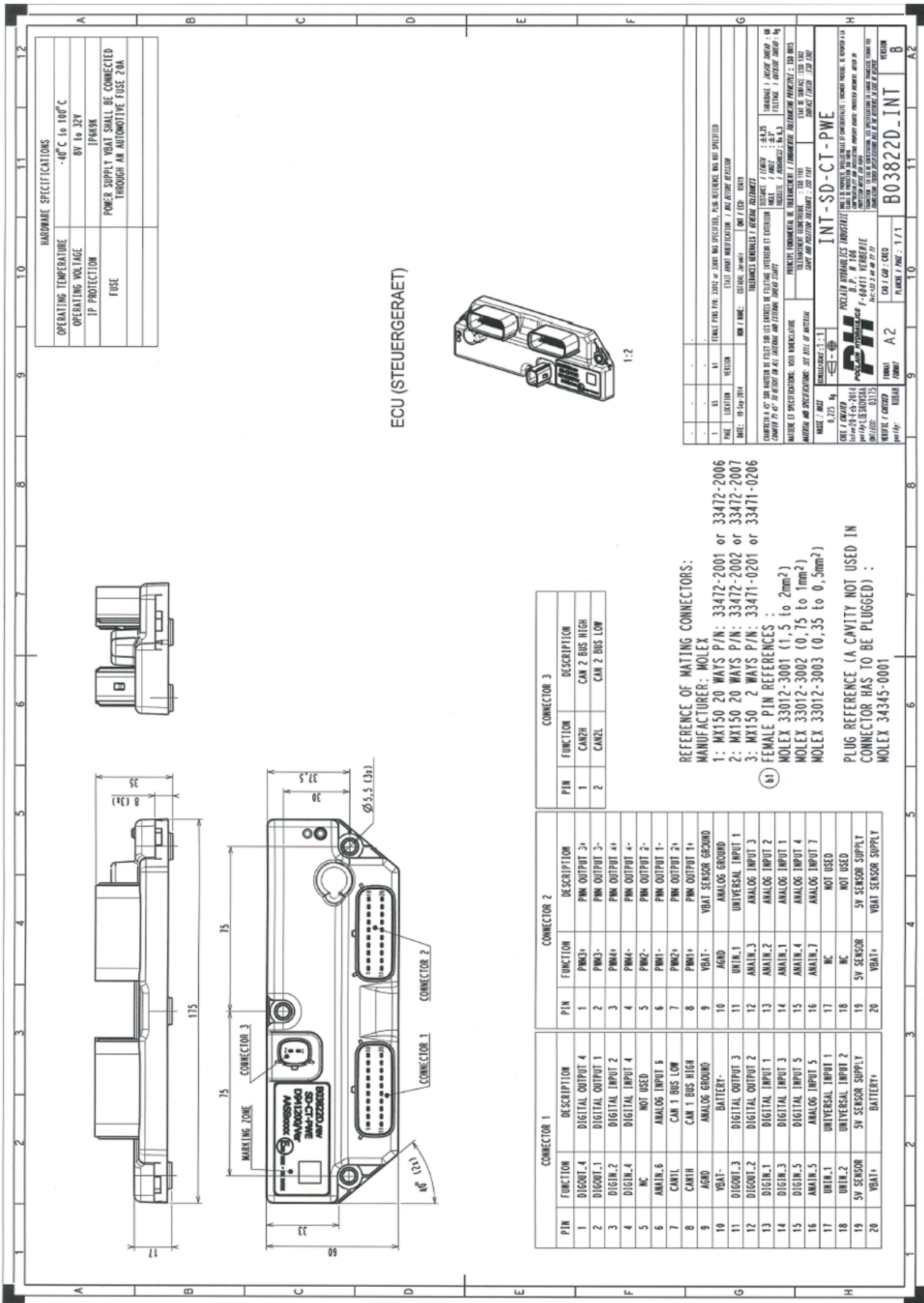
No.	Component	page	No.	Component	pag
1	Assist Switch	23/34	31	ECU	23/2
2	Status Lamp	23/33	32	Air Reservoir (Trailer)	9
3	Error Lamp	23/33	33	Axle	8
4	Air Valve	23/22	34	Hydraulic Motor Right	15
5	Exchange Valve, OR	9	35	Hydraulic Motor Left	15
6	Pneumatic Tip Control	9	36	Low Pressure Hydraulic Components (Trailer)	9
7	Air Reservoir (Truck)	9	37	High Pressure Hydraulic Components (Trailer)	9
8	Power-Take-Off (PTO)	9	38	Pneumatic Circuit (Trailer)	9
9	Hydraulic Pump	9	39	CAN Signals	27
10	Hydraulic Tank	9	40	Hydraulic Tubes Right	9
11	Return Filter	9	41	Hydraulic Tubes Left	9
12	Tipping Valve	9	42	Truck 13P-ADR-Plug referring to ISO 12098	23
13	Wiring Harness (Truck)	17	43	Coiled Cable Plug A	20
14	Power Supply Fuse (ECU)	23	44	Coiled Cable Plug B	20
15	Hydraulic System	9	45	Trailer 13P-ADR-Plug referring to ISO 12098	8
16	Low Pressure Hydraulic Components (Truck)	9	46	HDSCS-10-Pole	23
17	High Pressure Hydraulic Components (Truck)	9	47	DIN 72585-4-Pole	23
18	High_Pressure_HYD_Coupling (Truck)	9	48	DIN 72585-4-Pole	20
19	Low_Pressure_HYD_Coupling (Truck)	9	49	DIN 72585-4-Pole	20
20	Pneumatic Circuit (Truck)	9	50	DIN 72585-4-Pole	23
21	Coiled Cable	19/23	51	DIN 72585-4-Pole	23
22	High_Pressure_HYD_Coupling (Trailer)	9	52	DIN 72585-4-Pole	23
23	Low_Pressure_HYD_Coupling (Trailer)	9	53	DIN 72585-4-Pole	23
24	Wiring Harness Trailer	8/19	54	DIN 72585-4-Pole	23
25	Wiring Harness ECU	23/23	55	MX150	23
26	Wiring Harness Selector Valve	20	56	MX150	23
27	Emergency Stop	23	57	HDSCS-10-Pin	23
28	Selector Valve	13	59	Background Light	23
29	Block Assist	14	60	Suction Line – Hydraulic Pump	9
30	Tipping Cylinder	9	61	DIN 72585-4-Pole	23

Remark to 21, 42, 43, 44, 45:

- The male 13P-ADR connector (42) AT THE TRUCK has to be marked permanently and irremovably with "SAF TRAK".
- The male 13P-ADR connector (45) AT THE TRAILER has to be marked permanently and irremovably with "SAF TRAK".
- Both female 13P-ADR connectors (43; 44) of the coiled cable (21) have to be marked permanently and irremovably with "SAF TRAK".

No	Component	Type	Definition
33	Axle	Axle version	BIM9 B: Offset 120mm I: Integral brake disc M: Motor 9: permitted axle load 9t
		Axle tube	Outer-Ø x thickness: 146mm x 14mm
		Axle stubs	Drawing number: 06 002 1693 00 – Z011, 06 002 1693 00 – Z012
		Available SAF axle versions	<u>Axle version / Axle base type / brake / test report</u> BIM9-19S / SBS1937 / SAF, SBS1918 / TDB 0870 BIM9-19K / SBK1937 / KNORR, SBK1937 / TDB 0605 BIM9-22S / SBS2243 / SAF, SBS2220 / TDB 0843 BIM9-22K01 / SBK2243 / KNORR, SBK2243K01 / 36110303 BIM9-22S01 / SBS2243 / SAF, SBS2220 K0 / 36102214

3.12 Electronic Control Unit drawing





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