

Operator Manual

Screw Compressor

M100

No.: 9_6999 23 USE

Manufacturer:

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1 Regarding this Document

1.1 Using this document

The operating manual is a component of the product. It describes the machine as it was at the time of first delivery after manufacture.

- Keep the operating manual in a safe place throughout the life of the machine.
- Supply any successive owner or user with this operating manual.
- Please insert any amendment or revision of the operating manual sent to you.
- Enter details from the machine nameplate and individual items of equipment in the table in chapter 2.

1.2 Further Documents

Further documents included with this operating manual are:

- Certificate of acceptance / operating instructions for the pressure vessel
- Manufacturer's declaration / declaration of conformity in accordance with applicable directives
- Engine documentation (compressors driven by internal combustion engine)

Missing documents can be requested from KAESER.

- Make sure all documents are complete and observe the instructions contained in them.
- Make sure you provide the data from the nameplate when ordering documents.

1.3 Copyright

This operator manual is copyright protected. Queries regarding use or duplication of the documentation should be referred to KAESER. Correct use of information will be fully supported.

1.4 Symbols and labels

- Please note the symbols and labels used in this document.

1.4.1 Warnings

Warning notices indicate dangers that may result in injury when disregarded.

Warning notices indicate three levels of danger identified by the corresponding signal word:

Signal term	Meaning	Consequences of ignoring the warning
DANGER	Warns of an imminent danger	Will result in death or severe injury
WARNING	Warns of a potentially imminent danger	May result in death or severe injury
CAUTION	Warns of a potentially dangerous situation	May result in a moderate physical injury

Tab. 1 Danger levels and their definitions (personal injury)

Warning notices preceding a chapter apply to the entire chapter, including all sub-sections.
For example,

1 Regarding this Document

1.4 Symbols and labels

⚠ DANGER

These show the kind of danger and its source.

The possible consequences of ignoring a warning are shown here.

If you ignore the warning notice, the "DANGER" signal word indicates a lethal or severe injury will occur.

➤ *The measures required to protect yourself from danger are shown here.*

Warning notes referring to a sub-section or the subsequent action are integrated into the procedure and numbered as an action.

For example,

1. **⚠ WARNING** *These show the kind of danger and its source.*
The possible consequences of ignoring a warning are shown here.
If you ignore the warning notice, the "WARNING" signal word indicates that death or severe injury may occur.
 ➤ *The measures required to protect yourself from danger are shown here.*
2. Always read and comply with warning instructions.

1.4.2 Potential damage warnings

Unlike the warnings shown above, damage warnings do not indicate a potential personal injury.

Warning notices for damages are identified by their signal term.

Signal term	Meaning	Consequences of ignoring the warning
NOTE	Warns of a potentially dangerous situation	Damage to property is possible

Tab. 2 Danger levels and their definition (damage to property)

For example,

NOTICE

These show the kind of danger and its source.

Potential effects when ignoring the warning are indicated here.

➤ *The protective measures against the damages are shown here.*

➤ Carefully read and fully comply with warnings against damages.

1.4.3 Other alerts and their symbols



This symbol indicates particular important information.

Material Here you will find details on special tools, operating materials or spare parts.

Precondition Here you will find conditional requirements necessary to carry out the task.
 The conditions relevant to safety shown here will help you to avoid dangerous situations.

➤ This symbol is placed by lists of actions comprising one stage of a task.

1. For instructions with several steps ...
2. ... the sequence of actions is numbered.

Result Shows the expected conclusion of the previous action.

Option da ➤ Information relating to one option only is marked with an option code (e.g., "option da" means that this section is only valid for machines with the air treatment components "aftercooler and cyclone moisture separator"). Option codes used in this service manual are explained in chapter 2.2.



Information referring to potential problems are identified by a question mark.
The cause is named in the help text ...
➤ ... and a remedy given.



This symbol refers to important information or measures concerning environmental protection.

Further information Further topics are introduced here.

2 Technical Data

2.1 Nameplate

The machine's nameplate provides the model designation and important technical information. The nameplate is located on the outside of the machine (see illustration in chapter 13.1).

➤ Enter the nameplate data here as a reference:

Feature	Value
Vehicle Identification No.	
Permissible total weight	
Permissible coupling load	
Permissible axle load	
Portable compressor	
Part no.	
Serial no.	
Year of manufacture	
Total weight	
Lifting point load capacity	
Rated engine power	
Engine speed	
Maximum working pressure	

Tab. 3 Nameplate

2.2 Options

A list of the options fitted to your machine helps to relate the information in this service manual. Options fitted to the machine are listed on the options label (as code letters).

The nameplate can be found:

- On the outside of the machine
- On the front of the machine (see chapter 13.1)



The following table lists all possible options. Only the codes for those options fitted on the machine appear on the nameplate.

M100

Part Number

Serial no.

Options fitted

da	db	dc	dd	__
ea	__	ec	__	__
fa	__	fc	__	__
__	__	hc	hd	__
ca	cb	__	__	__
ba	bb	bc	bd	__
la	lb	__	__	__
ga	gb	__	__	__
oa	__	__	oe	__
__	__	__	__	__
__	__	__	__	__
__	__	__	__	__
r1	__	r3	r4	r5
ta	tb	tc	__	te
sf	sg	__	pa	pb

02-M0277

*{r1= rb; rc; rd
r3= rm; ro
r4= rr; rs; rt
r5= rw; rx

*r1 - r5 = place holders for chassis options

Tab. 4 Options label

➤ Take note of fitted options from the options label and enter them here for reference.

2.2.1 Option da, db, dc, dd Compressed air treatment devices

Option	Option code	Available?
Aftercooler and cyclone separator	da	
Heat exchanger	db	
Fresh air filter	dc	
Filter combination	dd	

Tab. 5 Compressed air treatment options

2.2.2 Option ea, ec Tool lubricator

Option	Option code	Available?
Tool lubricator (with option fa)	ea	
Tool lubricator (with option fc)	ec	

Tab. 6 Tool lubricator option

2.2.3 Option fa, fc Compressed air distributor

Option	Option code	Available?
Non-separated compressed air distribution line	fa	

Option	Option code	Available?
Separated compressed air distribution lines, downstream of the option	fc	

Tab. 7 Compressed air distributor option

2.2.4 Option hc, hd Check valve function

Option	Option code	Available?
Pressure/check valve (without option dd)	hc	
Pressure/check valve (with option dd)	hd	

Tab. 8 Check valve option

2.2.5 Option ca, cb Proportional controller

Option	Option code	Available?
Without manual adjustment (100 psi)	ca	
With manual adjustment (≥ 145 psi)	cb	

Tab. 9 Proportional controller option

2.2.6 Option ba Low temperature equipment

Option	Option code	Available?
Low temperature equipment	ba	
Engine coolant pre-heating	bb	
Frost protector	bc	
Stronger battery	bd	

Tab. 10 Low temperature equipment options

2.2.7 Option la, lb Equipment for fire hazard areas

Option	Option code	Available?
Spark arrestor	la	
Spark arrestor and engine air intake shut-off valve (automatic)	lb	

Tab. 11 Optional equipment for fire hazard areas

2.2.8 Option oa Battery isolating switch

Option	Option code	Available?
Battery isolating switch	oa	

Tab. 12 Battery isolating switch option

2.2.9 Option rb/rk/rm/rs, rc/ro/rs, rd/ro/rs, rb/rl/rm/rs, rw, rx Chassis



Chassis are defined by the combination of several option designations as follows:
Version/axle load/height adjustment/service brake
 Example: *rb/rk/rm/rs* means
 EU chassis with low axle load, with height-adjustable tow bar and overrun brake

Chassis

Chassis	Option code	Available?
Model (rb, rc, rd):		
EU chassis	rb	
GB chassis	rc	
US chassis	rd	
Axle load (rk, rl):		
low axle load	rk	
higher axle load	rl	
Height adjustment (rm, ro):		
With height adjustment	rm	
Without height adjustment	ro	
Service brake (rs):		
With overrun brake	rs	

Tab. 13 Chassis options

Stationary frame

Chassis	Option code	Available?
Stationary (rw, rx):		
on skids	rw	
on frame	rx	

Tab. 14 Options, stationary frame

2.2.10 Option ta, tb, tc, te Lighting

Option	Option code	Available?
None (stationary)	ta	
Reflective warning triangle	tb	
EG - 12 V	tc	
USA - 12 V (DOT conformity)	te	

Tab. 15 Lighting options

2.2.11 Option ga, gb Generator

Option	Option code	Available?
Generator without FAD limitation	ga	
Generator with FAD limitation	gb	

Tab. 16 Generator options

2.2.12 Option oe Sealed floor pan

Option	Option code	Available?
Sealed floor pan	oe	

Tab. 17 Sealed floor pan option

2.2.13 Option sf Anti-theft device

Option	Option code	Available?
Anti-theft device	sf	

Tab. 18 Anti-theft device option

2.2.14 Option sg Pedestrian protection

Option	Option code	Available?
Pedestrian protection	sg	

Tab. 19 Pedestrian protection option

2.2.15 Option pa, pb Instrument panel cover

Option	Option code	Available?
Instrument panel cover	pa	
Generator control box cover	pb	

Tab. 20 Instrument panel cover options

2.3 Machine (without options)

2.3.1 Sound pressure level

Sound pressure levels comply with the American EPA Standard.
Measurement distance: 23 ft

	M100
Guaranteed sound pressure level [dB(A)]	76

Tab. 21 Sound pressure level

2.3.2 Tightening torques for screws

Recommended values for screws of property class 8.8

Thread	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
Torque [lbf-in]	26.6	52.2	88.5	216.8	424.8	743.5	1177	1823	2611	3673

Tab. 22 Tightening torques for screws (property class 8.8, coefficient of friction $\mu = 0.12$)

2.3.3 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [ft]	3280
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	122

* Higher altitudes are permissible only after consultation with the manufacturer.

Tab. 23 Ambient conditions

2.3.4 Additional specifications

For specifications, according to the machine's operating license, such as:

- dimensions,
- track width,
- footprint,

can be found in the dimensioned drawings in Chapter 13.3.



The dimensional drawings also show the position of the following inlets and outlets:

- Cooling air inlet
- Cooling air outlet
- Compressed air outlet
- Exhaust

2.4 Chassis

2.4.1 Weight

The values given are the maximum in each case. Actual weight of individual machines is dependent on equipment fitted (see machine nameplate).

Feature	Chassis			Stationary
Height adjustment	with		without	–
Axle load	low	high	low	–
Actual total weight [lb]*				
Permissible axle load [lb]	3527	3968	3527	–

* Enter here for reference, the actual total weight taken from the machine nameplate.

Tab. 24 Weight of the machine

2.4.2 Tires

The tire's dimensions are shown on the side wall, see also Fig. 1.

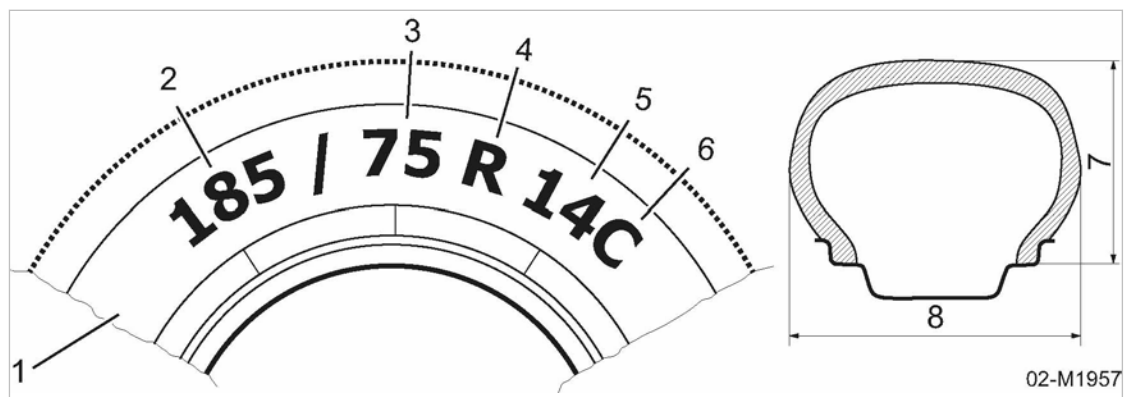


Fig. 1 Example for Tire information on the side wall

- | | |
|---|----------------------------------|
| ① Section, Tire side wall | ⑤ Rim diameter [in] |
| ② Tire width [in] | ⑥ Light truck Tires (commercial) |
| ③ Ratio cross-section height to cross-section width [%] | ⑦ Cross-section height |
| ④ Radial design | ⑧ Cross-section width |

Use the following table for detailed information regarding the tires of your machine:

Characteristic/markings	Value	
Axle load	low	high
Tire size	185 R 14C	195 R 14C

Characteristic/markings	Value	
Minimum and recommended tire pressure [psi]	65	65
Wheel nuts/bolts	M 12 x 1.5	M 12 x 1.5

Tab. 25 Tires

Further information See tire side wall for maximum pressure.

2.4.3 Wheel nut/bolt tightening torque

Fixing medium	Thread	Wrench size	Torque [lbf in]
Wheel bolt	M 12 x 1.5	19	797

Tab. 26 Wheel nut/bolt tightening torque

2.4.4 Towbar tightening torque

Components	Thread	Strength category	Torque [lbf in]
Ball coupling	M16	8.8	1858
Towing eye	M16	8.8	1858
Towbar	M16	8.8	1858
	M20	10.9	4778–4957
	M24	8.8	5930–6107

Tab. 27 Towbar tightening torque

2.5 Compressor

2.5.1 Working pressure and FAD

Maximum working gauge pressure [psig]	100	145	175	205
SIGMA airend	27 G			
Free air delivery [cfm]	360	300	254	226
FAD as per ISO 1217:2009. Annex D				

Tab. 28 Working pressure and FAD

2.5.2 Compressed air outlet

Outlet valve ["]	Number
G 3/4	3
G 1 1/2	1

Tab. 29 Compressed air distributor

2.5.3 Safety relief valves

Maximum working pressure: see machine nameplate

Maximum working pressure [psig]	Activating pressure [psig]	
	Safety relief valve *	Safety relief valve **
100	138	–
145	205	175
175	232	205
205	232	225

* On the oil separator tank

** Upstream of the compressed air outlet (Option cb only)

Tab. 30 Safety relief valve activating pressure

2.5.4 Temperature

Machine temperatures	Values
Recommended airend discharge temperature for switching to load [°F]	86
Typical airend discharge temperature during operation [°F]	167 212
Maximum airend discharge temperature (automatic safety shut-down) [°F]	239

Tab. 31 Machine temperatures

Temperature at the airend discharge port		
Ambient temperature [°F]	Combination valve (thermostatic valve)	
	with ambient temperature acquisition [°F]	without ambient temperature acquisition [°F] (Option db)
50	194	–
68	–	194
77	140	–

Tab. 32 Airend discharge temperature

2.5.5 Cooling oil recommendation

A sticker showing the type of oil used is located near the oil separator tank filler.

Information on ordering cooling oil is found in chapter 11.

Cooling oils for general applications

	SIGMA FLUID		
	MOL	S-460	S-570
Description	Mineral oil	Silicone-free, synthetic oil	Synthetic oil
Application	Standard oil for all applications except in connection with food products. Particularly suitable for machines with a low duty cycle.	Standard oil for all applications except in connection with food products Particularly suitable for machines with a high duty cycle.	Special oil for ambient conditions with high temperatures and humidity. Standard oil for all applications except in connection with food products. Particularly suitable for machines with a high duty cycle.
Approval	—	—	—
Viscosity at 104°F	44 mm ² /s (DIN 51562-1)	45 mm ² /s (D 445; ASTM test)	52.8 mm ² /s (D 445; ASTM test)
Viscosity at 212°F	6.8 mm ² /s (DIN 51562-1)	7.2 mm ² /s (D 445; ASTM test)	8.0 mm ² /s (D 445; ASTM test)
Flash point	428°F (ISO 2592)	460°F (D 92; ASTM test)	496°F (D 92; ASTM test)
Density at 59°F	—	864 kg/m ³ (ISO 12185)	0.869 kg/l (D 1298; ASTM test)
Pour point	-27°F (ISO 3016)	-51°F (D 97; ASTM test)	-65°F (D 97; ASTM test)
Demulsibility at 129°F	—	40/40/0/10 min (D 1401; ASTM test)	15 min (D 1401; ASTM test)

Tab. 33 Cooling oil recommendations

Cooling oils for applications in food processing

	SIGMA FLUID	
	FG-460	FG-680
Description	Synthetic oil	Synthetic oil
Application	Specifically for machines in applications where the compressed air may come into contact with foodstuff.	Special oil for ambient conditions with high temperatures and humidity. Specifically for machines in applications where the compressed air may come into contact with foodstuff.
Approval	USDA H-1, NSF Approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.	USDA H-1, NSF Approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.
Viscosity at 104 °F	50.7 mm ² /s (D 445; ASTM test)	70.0 mm ² /s (D 445; ASTM test)

	SIGMA FLUID	
	FG-460	FG-680
Viscosity at 212 °F	8.2 mm ² /s (D 445; ASTM test)	10.4 mm ² /s (D 445; ASTM test)
Flash point	473 °F (D 92; ASTM test)	473 °F (D 92; ASTM test)
Density at 59 °F	—	—
Pour point	—	—
Demulsibility at 130 °F	—	—

Tab. 34 Cooling oil recommendation (food processing)

2.5.6 Cooling oil charge

Cooling oil	Fluid volume [gal]
Machine	5.8
Compressor unit + heat exchanger (Option db)	6.6

Tab. 35 Cooling oil charge

2.6 Engine

2.6.1 Engine specification

Feature	Specification
Make/Model	Kubota / V 3800 DI-T
Engine control	Mechanical
Fuel injection	Mechanical
Rated engine power [hp]	97.6
Speed at LOAD mode [rpm]	2600
Speed at IDLE mode [rpm]	1800
Type of fuel	Diesel
Fuel consumption under LOAD mode [gal/h]	4.89
Oil consumption relative to fuel consumption [%]	approx. 0.5

Tab. 36 Engine specification

2.6.2 Oil recommendation

The engine oil must meet the following classification:

- ACEA, class E4, E7
- API, class CF, CI-4



The engine is filled initially with engine oil of viscosity class SAE 10W–40 .

Ambient temperature [°F]	Viscosity class
68 122	SAE 40
32 68	SAE 20W
5 32	SAE 10W
14 104	SAE 15W–40
–22 86	SAE 5W–30
–4 104	SAE 10W–40

Tab. 37 Engine oil recommendation

2.6.3 Fuel recommendation

The diesel fuel must meet the requirements of EN 590 and ASTM D975 respectively.

According to these standards a specific portion of bio-diesel is permitted in the fuel.

Depending on the country of origin, bio-diesel can be produced from different plant materials and thus have different properties.

Affected by temperature, atmospheric oxygen, and time, these bio-diesel components in the fuel may decompose in the fuel and thus cause damages within the fuel system.



The use of other fuels as well as the mixing with additives is only permitted after consultation with the engine manufacturer.

The engine service manual gives further information on fuel use.

2.6.4 Recommended Cooling Fluid

The engine coolant must meet the requirements of specification ASTM D4985.



Do not use a common coolant / antifreeze that only meets the requirements of ASTM D3306. Such coolants are intended only for light use in vehicles and could shorten the useful life of the engine.

The engine service manual gives further information on coolant application.

2.6.5 Fluid volumes

Description	Fluid volume [gal]
Engine oil	2.9
Fuel	39.63
Coolant	4.23

Tab. 38 Fluid volumes

2.6.6 Battery

Feature	Value
Voltage [V]	12
Capacity [Ah]	80

Feature	Value
PTC testing current [A] (according to EN 50342)	640

Tab. 39 Battery

Further information Depending on machine equipment, a higher capacity battery may be required. See chapter 2.7.2.

2.7 Options

2.7.1 Air treatment options

2.7.1.1 Option ea, ec Tool lubricator

Name	Temperature range [°F]	Fluid volume [gal]
Special road breaker lubricant	–13 122	2.64

Tab. 40 Road breaker lubricant recommendation

2.7.1.2 Option dc Fresh air filter

Feature	Value
Maximum working pressure [psig]	232
Minimum ambient temperature [°F]	34.7
Maximum ambient temperature [°F]	86

Tab. 41 Fresh air filter conditions

2.7.1.3 Air quality at the compressed air outlets

Interrelation between compressed air treatment and compressed air quality:

Air Treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	- After-cooler - Cyclone separator	cool and condensate-free	A
da + db	- After-cooler - Cyclone separator - Heat exchanger	dry and warmed	B
da + dd	- After-cooler - Cyclone separator - Filter combination	dry and technically oil-free	F
da + dd + db	- After-cooler - Cyclone separator - Filter combination - Heat exchanger	technically oil-free and warmed	G

Air Treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
ea / ec	Tool lubricator	Lubricated	E

Tab. 42 Interrelation between compressed air treatment and compressed air quality



The compressed air outlets at the air distributor are labelled with the identifiers of compressed air quality.

2.7.2 Option ba Low temperature equipment

2.7.2.1 Ambient conditions

Installation	Limit value
Maximum altitude amsl* [ft]	3280
Minimum ambient temperature [°F]	–13
Maximum ambient temperature [°F]	122

* Higher altitudes are permissible only after consultation with the manufacturer.

Tab. 43 Environmental conditions, low temperature equipment

2.7.2.2 Option bb Engine coolant pre-heating

Coolant pre-heater	Value
Voltage [V]	230
Power [W]	550

Tab. 44 Coolant pre-heater

2.7.2.3 Option bc Compressed air line frost protection

Antifreeze	Fluid volume [qt]
Antifreeze protection for air brake systems (e.g., Wabcothyl)	0.32

Tab. 45 Recommended antifreeze

2.7.2.4 Option bd Battery

Feature	Value
Voltage [V]	12
Capacity [Ah]	100
PTC testing current [A] (according to EN 50342)	850

Tab. 46 Battery, low-temperature equipment

2.7.3 Option ga, gb Generator (50 Hz version)

Generator specification:

Features	Generator 400V, 3-ph		Generator 230V, 3-ph		Generator 115V, 2- phase
Rated power [kVA] 3-phase/2-phase	13.0	8.5	13.0	8.5	7.0
Rated power [kVA] single-phase	7.0	5.0	7.5	5.0	5.0
Voltage constant [%] balanced load	±5				
Voltage constant [%] single-phase, unbalanced load	+6/-10				
Rated power [kVA] 3-phase/2-phase	18.8	12.3	32.6	21.0	31.0
Rated current [A] 1-phase	30.0	21.7	32.6	21.0	45.0
Rated current [A] short circuit (0.3 s/170 V)	300.0	260.0	330.0	330.0	420.0
Power factor (cos j)	0.8 – 1				
Frequency [Hz]	50				
Speed [rpm]	3000				
Distortion factor [%]	<5				
Type	Synchronous internal pole (electronically controlled)				
Protection rating	IP 54				

Tab. 47 Generator data

Option ga Reduced compressed air delivery (generator without FAD limitation)

Features	Generator 13.0 [kVA]		Generator 8.5 [kVA]		
Maximum working pres- sure [psi]	100	145	100	145	175
FAD [cfm] – generator OFF	215	194	300	254	226
FAD cfm] – generator ON	215	194	300	254	226

Tab. 48 Compressed air delivery with generator in operation (generator without FAD limitation)

Option gb Reduced compressed air delivery (generator with FAD limitation)

Features	Generator 13.0 [kVA]		Generator 8.5 [kVA]		Generator 7.0 [kVA]
Maximum working pressure [psi]	100	145	100	145	100
FAD [cfm] – generator OFF	360	300	360	300	360
FAD [cfm] – generator ON	159	120	187	162	187

Tab. 49 Compressed air delivery with generator in operation (generator with FAD limitation)

Connections:

Type	Generator 400V, 3-ph	Generator 230V, 3-ph	Generator 115V, 2-phase
Power sockets	Quantity:		
16 A; 230 V/1~/N/PE	3	–	–
16 A; 400 V/3~/N/PE	1	–	–
16 A; 230 V/2~/PE	–	2	–
32 A; 230 V/3~/PE	–	1	–
16 A; 230 V/3~/PE	–	1	–
32 A; 115 V/2~/PE	–	–	1
16 A; 115 V/2~/PE	–	–	2

Tab. 50 Connection sockets

Overload protection switch

Type	Generator 400V, 3-ph	Generator 230V, 3-ph	Generator 115V, 2-phase
Miniature circuit breaker [A]	Quantity:		
16	1	1	2
32	–	1	1

Tab. 51 Circuit breaker

Operating limits:

(to EN 60034-22, page 10, table)

Features	Value
Design category	G3
Voltage adjustment range [%]	±5
Static voltage deviation [%]	1
Maximum dynamic voltage drop [%]	–15

Features	Value
Maximum dynamic voltage rise [%]	20
Maximum voltage settling time [ms]	1500
Maximum voltage asymmetry [%]	1

Tab. 52 Generator operating limits

Maximum power loading by consumers

Resistive consumers include lamps and heaters, for example.

Electric motors and transformers are inductive consumers.

Nominal rating conditions:

- Ambient temperature: 77 °F
- Max. height above sea level at the place of use: 328 ft

Three-phase power supply

Generator		400V, 3-ph		230V, 3-ph	
Rated power [kVA]		13.0	8.5	13.0	8.5
Resistive consumers [kVA]	–	13.0	8.5	12.7	8.5
Inductive consumers [kW]	Rated power	7.5	5.0	12.7	8.5

Tab. 53 Maximum three-phase mains loading

AC power:

Generator		400V, 3-ph		230V, 3-ph		115V, 2-ph
Rated power [kVA]		13.0	8.5	13.0	8.5	7.0
Resistive consumers [kVA]	per phase	3.5	–	3.5	–	–
	total	10.5	5.0	10.5	5.0	5.0
Inductive consumers [kW]	Rated power per phase	3.5	–	3.5	–	–
	Rated power total	10.5	5.0	10.5	5.0	5.0

Tab. 54 Maximum single-phase mains loading

Power reduction at elevated ambient temperatures:

Ambient temperature [°F]	Generator power
≤86	Full power available
>86	Reduction of 10 % for each temperature rise of 50 °F.

Tab. 55 Power reduction at elevated ambient temperatures

**2.7.4 Option ga, gb
Generator (60 Hz version)**

Generator specification:

Features	Generator 250V, 2-phase	
Rated power [kVA] 2-phase	13.0	8.0
Rated power [kVA] single-phase	7.0	5.0
Voltage [V]	250/125	
Voltage constant [%] balanced load	±5	
Voltage constant [%] single-phase, unbalanced load	+6/–10	
Rated current [A] 2-phase (230V)	56.0	35.0
Rated current [A] 2-phase (115V)	56.0	44.0
Rated current [A] short circuit (0.3 s/170 V)	330.0	330.0
Power factor (cos ϕ)	0.8 – 1	
Frequency [Hz]	50	
Speed [rpm]	3600	
Distortion factor [%]	<5	
Type	Synchronous internal pole (electronically controlled)	
Protection rating	IP 54	

Tab. 56 Generator data

Option ga Reduced compressed air delivery (generator without FAD limitation)

Features	Generator 8.0 [kVA]			
Maximum working pres- sure [psig]	100	145	175	205
Free air delivery [cfm]	300	254	226	194
FAD with simultaneous generator operation [cfm]	300	254	226	194

Tab. 57 Compressed air delivery with generator in operation (generator without FAD limitation)

Option gb Reduced compressed air delivery (generator with FAD limitation)

Features	Generator 13.0 [kVA]		Generator 8.0 [kVA]	
Maximum working pressure [psig]	100	145	100	145
Free air delivery [cfm]	360	300	360	300
FAD with simultaneous generator operation [cfm]	159	120	187	162

Tab. 58 Compressed air delivery with generator in operation (generator with FAD limitation)

Connections:

Power sockets	Quantity:
30 A; 250 V/2~/PE	2
20 A; 125 V/2~/PE	2

Tab. 59 Connection sockets

Overload protection switch

Type	Generator 250V, 2-phase	Generator 125V, 1-phase
Miniature circuit breaker [A]	Quantity:	
16	1	1

Tab. 60 Circuit breaker

Operating limits:

(to EN 60034-22, page 10, table)

Features	Value
Design category	G3
Voltage adjustment range [%]	±5
Static voltage deviation [%]	1
Maximum dynamic voltage drop [%]	–15
Maximum dynamic voltage rise [%]	20
Maximum voltage settling time [ms]	1500
Maximum voltage asymmetry [%]	1

Tab. 61 Generator operating limits

Maximum power loading by consumers

Resistive consumers include lamps and heaters, for example.

Electric motors and transformers are inductive consumers.

Nominal rating conditions:

- Ambient temperature: 77 °F
- Max. height above sea level at the place of use: 328 ft

Generator [kVA]		13.0	8.0
Resistive consumers [kVA]	per phase	6.5	4.0
	total	13.0	8.0
Inductive consumers [kW]	Rated power	5.0	5.0

Tab. 62 Maximum power supply load

Power reduction at elevated ambient temperatures:

Ambient temperature [°F]	Generator power
≤86	Full power available
>86	Reduction of 10 % for each temperature rise of 50 °F.

Tab. 63 Power reduction at elevated ambient temperatures

3 Safety and Responsibility

3.1 Basic instructions

The machine is manufactured to the latest engineering standards and acknowledged safety regulations. Nevertheless, dangers can arise through its operation:

- danger to life and limb of the operator or third parties,
- Impairments to the machine and other material assets.



Disregard of warning or safety instructions can cause serious injuries!

- Use this machine only if it is in a technically perfect condition and only for the purpose for which it is intended; observe all safety measures and the instructions in the service manual!
- Immediately rectify (have rectified) any faults that could be detrimental to safety!

3.2 Specified use

The machine is intended solely for generating compressed air for industrial use. Any other use is considered incorrect. The manufacturer is not liable for any damages that may result from incorrect use. The user alone is liable for any risks incurred.

- Keep to the specifications listed in this service manual.
- Operate the machine only within its performance limits and under the permitted ambient conditions.
- Do not use compressed air for breathing purposes unless it is specifically treated.
- Do not use compressed air for any application that will bring it into direct contact with food products unless it is specifically treated.

3.3 Incorrect Use

Improper usage can cause damage to property and/or (severe) injuries.

- Only use the machine as intended.
- Never direct compressed air at persons or animals.
- Do not use untreated compressed air for breathing purposes.
- Do not allow the machine to take in toxic, acidic, flammable, or explosive gases or vapors.
- Do not operate the machine in areas in which specific requirements with regard to explosion protection are in effect.

3.4 User's Responsibilities

3.4.1 Observe statutory and universally accepted regulations

- Observe relevant statutory and accepted regulations during operation, transporting and maintenance of the machine.

3.4.2 Determining personnel

Suitable personnel are experts who, by virtue of their training, knowledge, and experience as well as their knowledge of relevant regulations can assess the work to be done and recognize the possible dangers involved.

Authorized operators possess the following qualifications:

- are of legal age,
- are familiar with and adhere to the safety instructions and sections of the service manual relevant to operation,
- have received adequate training and authorization to operate vehicles and electrical and compressed air devices.

Authorized maintenance personnel possess the following qualifications:

- are of legal age,
- have read, are familiar with and adhere to the safety instructions and sections of the service manual applicable to maintenance,
- are completely familiar with the safety concepts and regulations of motor vehicle, electrical and compressed air engineering,
- are able to recognize the possible dangers of motor vehicle, electrical and compressed air devices and take appropriate measures to safeguard persons and property,
- have received adequate training in and authorization for the safe installation and maintenance of this machine.

Authorized transport personnel possess the following qualifications:

- are of legal age,
 - are familiar with and adhere to the safety instructions and sections of the service manual relevant to transporting,
 - are trained and authorized in safe vehicle transporting,
 - are familiar with the safety regulations relating to handling motor vehicles and transport goods,
 - are able to recognize the possible dangers of motor vehicles and take appropriate measures to safeguard persons and property.
- Ensure that personnel entrusted with operation, maintenance and transporting are qualified and authorized to carry out their tasks.

3.4.3 Adherence to inspection schedules and accident prevention regulations

The machine may be subject to local inspection schedules.

- Ensure that local inspection schedules are adhered to.

3.4.4 Attachment of a "Hazardous goods" label

The special regulation 363 "Transport of machines and equipment with liquid fluids" of the European regulations for the hazardous goods transport (ADR) has taken effect.

This regulation requires that machines filled with more than 0.26 gallons petrol or 1.32 gallons diesel (in the fuel tank) during transport must be identified with hazardous goods labels on the machine's exterior.

Number of labels per machine:

- *Fuel tank content 16 - 119 gallons*
 - Attach one label to the exterior.
- *Fuel tank content 120 gallons - 396 gallons*
 - Attach one label on every exterior side.



The operator of the machine but also the authorised users and transport personnel are responsible for compliance with this requirement. Please instruct your employees accordingly. A violation of this regulation will be punished with a fine and the further machine transport will be forbidden.

- Have a "Hazardous goods" label attached.

Further information Chapter **CROSS_REFERENCE_FAILED** "Safety signs" indicates the suggested position(s) for the hazardous goods label(s).

3.5 Dangers

Basic instructions

The following describes the various forms of danger that can occur during machine operation.

Basic safety instructions are found in this service manual at the beginning of each chapter in the section entitled 'Safety'.

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

The following describes the various forms of danger that can occur during machine operation.

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a color- and odor-less but highly toxic gas. The inhalation of minute quantities can be lethal.

Furthermore, diesel exhaust contains soot particles, some of which are noxious.

- Do not inhale exhaust fumes.
- Park the machine in such a manner that the exhaust cannot blow towards the operators.
- Never use the machine in enclosed spaces, only in the open.

Fire and explosion

Spontaneous ignition and combustion of fuel can result in serious injury or death.

- Allow no open flames or sparks at the place of use.
- Do not smoke while refueling.
- Never refuel the machine when it is running.
- Do not allow fuel to overflow.
- Wipe up spilled fuel immediately.
- Provide a fire extinguisher in the immediate vicinity.
- For operation in combustible environment, fit the machine with an exhaust silencer (Option 1a).

Hot coolant

The cooling system of a liquid-cooled engine at running temperature is under high pressure. If the filler cap is unscrewed, hot coolant can spray out under pressure and cause severe scalding.

- Let the machine cool down before opening the cooling system.
- Unscrew the filler cap carefully by a quarter to half a turn at first. Remove the filler cap only when pressure has escaped completely.

Electricity

Touching voltage-carrying components can result in electric shocks, burns, or death.

- Allow only qualified and authorized electricians or trained personnel under the supervision of a qualified and authorized electrician to carry out work on electrical equipment according to electrical engineering regulations.
- Only qualified and authorized electricians may carry out work on the generator or generator control box.
- Check regularly that all electrical connections are tight and in proper condition.
- Switch off any external power sources.
For example, the connections to the electrical engine cooling water pre-heater.

Forces of compression

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following information concerns work on components that could be under pressure.

- Wait until the compressor has automatically vented (check the pressure gauge: it must read 0 psig).
- Then open an outlet valve carefully to ensure that the line between the minimum pressure / check valve and the compressed air outlet is vented.
- Do not carry out welding, heat treatment or mechanical modifications to pressurized components (e.g. pipes and vessels) as this influences the component's resistance to pressure. The safety of the machine is then no longer ensured.

Compressed air quality

The composition of the compressed air must be suitable for the actual application in order to preclude health and life-threatening dangers.

- Use appropriate systems for air treatment before using the compressed air from this machine as breathing air (fresh air reinforcement) and/or for the processing of foodstuffs.
- Use foodstuff-compatible cooling oil whenever compressed air is to come into contact with foodstuffs.

Spring forces

Springs under tension or compression store energy. Uncontrolled release of this energy can cause serious injury or death.

Minimum pressure / check valves, safety relief valves, and inlet valves are powerfully spring-loaded.

- Do not open or dismantle any valves.

Rotating components

Touching the fan wheel, the coupling, or the drive while the machine is switched on can result in serious injury.

- Do not open the service doors or panels while the machine is running.
- Prior to opening the service doors or the canopy, switch off the engine, disconnect from power source and secure against unintended reactivation.
- Wear close-fitting clothes and a hair net if necessary.
- Ensure that all covers and safety guards are in place and secured before restarting.

Temperature

The operation of the combustion engine and the compression generate high temperatures. Touching hot components may cause injuries.

- Avoid contact with hot components.
These include, for example, engine, compressor airend, oil and compressed air lines, coolers and oil separator tank. Any objects in or near the flow of exhaust gas or discharged cooling air will become very hot.
- Wear protective clothing.
- Wear protective gloves when connecting or disconnecting compressed air hoses.
- Allow the machine to cool down before commencing any maintenance work.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting oil vapors or parts of the machine.

Noise

The enclosure absorbs the machine noise to a tolerable level. This function will be effective only if the body is closed.

- Operate the machine only with closed body and intact sound insulation.
- Wear hearing protection if necessary.
The blowing-off of the safety relief valve can be particularly loud.
- Never generate compressed air without consumers being connected.

Operating fluids/materials

The used operating fluids and materials can cause adverse health effects. Suitable safety measures must be taken in order to prevent injuries.

- Strictly forbid fire, open flame and smoking.
- Follow safety regulations when dealing with fuel, lubricants, antifreeze and chemical substances.
- Avoid contact with skin and eyes.
- Do not inhale fumes or aerosols from fuel or oil.
- Do not eat or drink while handling fuel, cooling and lubricating fluids or antifreeze.
- Keep suitable fire extinguishing agents ready for use.
- Use only KAESER approved operating materials.

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

- Use only spare parts approved by the manufacturer for use in this machine.
- Use only genuine KAESER pressure components.

Conversion or modification of the machine

Modifications, additions or conversions to or of the machine can result in unpredictable hazards.

- Do not convert or modify the machine!
- Do not install any non-approved additional components.
- Do not make any changes to the machine that will increase its weight beyond the permissible limit and/or endanger its safe use or transportation. Any such changes invalidate the approval to use the machine or tow it on the road.
- Prior to any technical modification and expansions of the machine, obtain the written approval of the manufacturer.

3.5.2 Safe machine operation

The following is information supporting you in the safe handling of the machine during individual product life phases.

Personal protective equipment

When working on the machine you may be exposed to dangers that can result in accidents with severe adverse health effects.

- Wear protective clothing as necessary.

Suitable protective clothing (examples):

- Safety work wear
- Protective gloves
- Safety boots
- Eye protection
- Ear protection

3.5.2.1 Transport

The weight and size of the machine require safety measures during its transport to prevent accidents.

- Allow transport only by personnel trained in safely dealing with motor vehicles and the transport of goods.
- Ensure that no persons are on the machine when transporting.

Transport as trailer

Non-compliance with the basic rules for a safe trailer operation may cause severe accidents during machine transport.

- The maximum permissible load for the towing vehicle coupling and the maximum coupling load given for the machine must not be exceeded.
- Avoid causing a shift in the centre of gravity by an excessive or incorrectly distributed load.
- Do not tow in such a way as to impose excessive stress on the machine or chassis.
- Adjust towing speed to accommodate ground and weather conditions. This applies particularly to unpaved roads and when taking curves.

- The towbar must be parallel with the ground otherwise towing instability can develop, resulting in damage to the machine and/or towing vehicle.
- Before moving the machine, make sure any security devices (e.g. anti-theft chain) are released.

Transport as trailer on public roads

- Do not tow machines without service brake on public roads.
- Do not tow machines without illumination and signaling equipment on public roads.
- Ensure all running gear, including chassis, wheels, brakes, signalling and lighting, is in safe condition.
- The local laws and regulations regarding the use of public roads must be observed.

Transporting with a crane

Non-compliance with the safety regulations for load suspension and hoisting equipment may cause severe accidents during lifting and moving the machine with cranes.

- Do not enter the danger zone while the machine is being lifted.
- Never lift and move the machine over people or occupied buildings.
- Avoid extreme weight shifting caused by additional loads or additions (tilting).
- Do not exceed the lifting capacity on the machine's lifting point (lifting eye).
- Only the designated lifting point should be used to attach lifting gear and under no circumstances are handles, tow-bar or other components to be used.
- Use only hooks and shackles that comply with local safety regulations
- Do not attach cables, chains or ropes directly to the machine's lifting eye.
- Do not manipulate the crane suspension system, in particular the holding points of the crane lifting eye.
- If screwed crane fixings had to be removed, please use only new self-locking nuts when installing.
- Avoid jerking when lifting, as this may damage components.
- Loads must be slowly lifted and carefully set down.
- Never allow the load to hang from the crane longer than necessary.



The following are forbidden:

- Air transport of the machine by slinging beneath a helicopter.
- Dropping the machine by parachute.

3.5.2.2 Installation

The operator must ensure that only authorised personnel has access to the machine.

General instructions

A suitable installation location for the machine prevents accidents and faults.

- Do not position the machine directly against a wall. A build up of heat from the exhaust can damage the machine.
- Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.

- Do not operate in areas in which specific requirements with regard to explosion protection are in force.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure adequate ventilation.
- Place the machine in such a manner that the working conditions in its environment are not impaired.
- Comply with limit values for ambient temperature and humidity.
- The intake air must not contain any damaging contaminants,

Damaging contaminants are for instance:

- Exhaust gases from combustion engines,
 - Combustible, explosive or chemically unstable gases or vapours,
 - Acid- or base-forming chemicals such as ammonia, chlorine, or hydrogen sulphide.
- Do not position the machine in the warm exhaust air flow from other machines.
 - Keep suitable fire extinguishing agents ready for use.

Parking the machine:

Improper parking and use of the parked machine endangers personnel and material.

- To park the machine, select an even and solid surface which is capable of bearing the machine's weight.
- Move the machine only with a towing vehicle.
- Secure the parked machine:
 - Lower the prop stand / wind down the jockey wheel.
 - Chock the wheels to prevent unwanted movement.
 - Place chocks under the wheels.
 - Pull on the parking brake.
- Unauthorised persons must not be present in the parking area of the machine. The parking area must be properly secured.
- The machine – the chassis and the towing mechanism in particular – must not be stepped on or used for sitting.
- Do not place additional loads on the machine (e.g. excavator bucket as anti-theft measure).

3.5.2.3 Commissioning, operation and maintenance

During commissioning, operation and maintenance you may be exposed to dangers resulting from, e.g., electricity, pressure and temperature. Careless actions can cause accidents with severe adverse effects for your health.

- Allow maintenance work to be carried out only by authorised personnel.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Switch off the machine and lock out the supply disconnecting device.
- De-pressurise all pressurised components and enclosures.
- Wait until the machine has automatically vented.
- Carefully open the compressed air outlet valve.
- Check: The pressure gauge must read 0 psig!

- Allow the machine to cool down.
- Do not open the body while the machine is switched on.
- Do not open or dismantle any valves.
- Use only spare parts approved by KAESER for use in this machine.
- Operate the machine only in technically sound condition.
- Carry out regular inspections:
 - for visible damage and leakage,
 - of safety devices,
 - of the EMERGENCY STOP devices (if present),
 - of parts needing monitoring.
- Pay particular attention to cleanliness during all maintenance and repair work. Cover components and openings with clean cloths, paper or tape to keep them clean.
- Do not leave any loose components, tools or cleaning rags on or in the machine.
- Components removed from the machine can still be dangerous.
Do not attempt to open or destroy any components taken from the machine.
- Self-locking nuts removed for the installation must not be reused but replaced by new nuts, because the non-positive safety is no longer ensured.
- Use only suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- they are of the right type and size for the highest permissible machine working pressure,
- they are not damaged, worn or of reduced quality,
- they have couplings and connections of the right type and size.
- Wear protective gloves when connecting or disconnecting compressed air hoses.
- Make sure compressed air hoses are de-pressurised before disconnecting from the machine.
- Secure the open end of an air hose before applying air pressure. An unsecured hose may whip and cause injury.
- At working pressures > 100 psi, compressed air hoses should be secured by a cable to their respective outlet valves.
- Connect and operate only suitable air tools.
 - The air tools must meet the set output pressure of the machine.
 - Use a pressure reducer for air tools requiring a lower pressure.
 - Use compressed air tools only with the pressure appropriate for its purpose (tool working pressure).

3.5.2.4 De-commissioning, storage and disposal

Improper handling of old operating fluids and components represent a danger for the environment.

- Drain off fluids and dispose of them according to environmental regulations.
These include, for example, fuel, engine oil and compressor cooling oil and engine coolant.
- Dispose of the machine in accordance with local environmental regulations.

3.5.3 Organizational Measures

- Designate personnel and their responsibilities.

- Give clear instructions on reporting faults and damage to the machine.
- Give instructions on fire reporting and fire-fighting measures.

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.

Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 10 ft radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine. Within a 3 ft radius of the machine.	Maintenance personnel
Operation	Within a 3 ft radius of the machine.	Operating personnel
Maintenance	Within the machine. Within a 3 ft radius of the machine.	Maintenance personnel

Tab. 64 Danger areas

3.6 Safety devices

Safety devices ensure safe working with the machine.

- Do not change, bypass or disable safety devices.
- Regularly check safety devices for their correct function.
- Do not remove or obliterate labels and notices.
- Ensure that labels and notices are clearly legible.

Further information More information on safety devices is contained in chapter 4.5.

3.7 Safety signs

The diagram shows the positions of safety signs on the machine. The table lists the various safety signs used and their meanings.

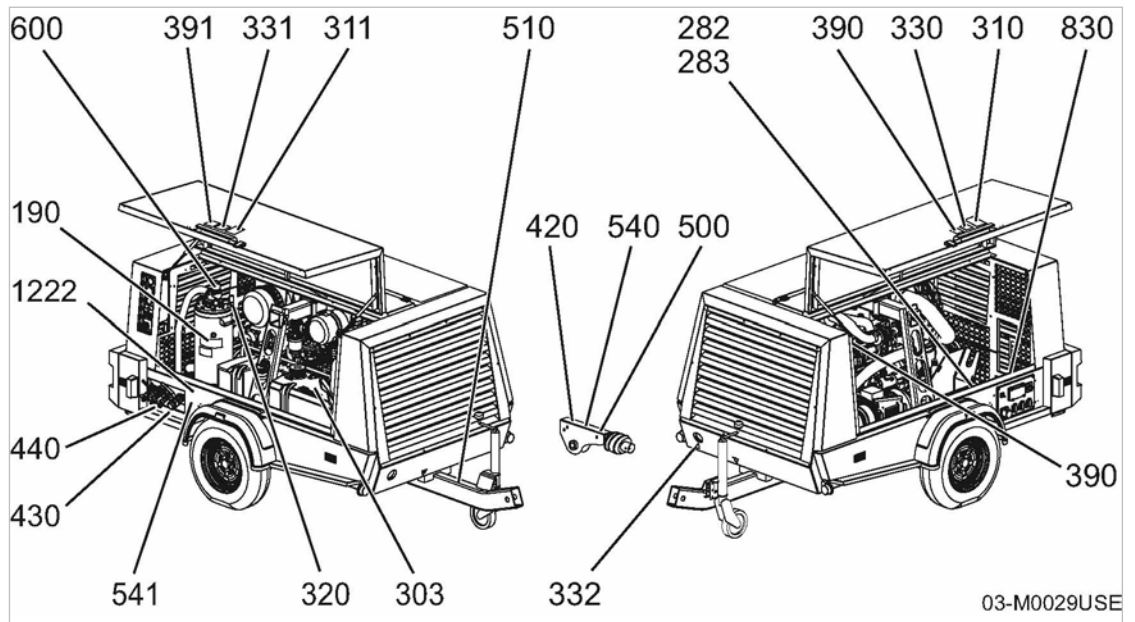


Fig. 2 Location of safety signs

Item	Sign	Meaning
190*		Wrong cooling oil level! Risk of machine defects or rising oil consumption (oil content for pure air). ➤ Check cooling-oil level. ➤ Run the machine only with proper cooling-oil level.
282*		Explosive hydrogen gas! Severe injury or death could result from exploding gas. ➤ Keep flames, sparks and other sources of ignition away.
283*		Battery contains acid! Severe injury result from contact with battery acid. ➤ Do not allow battery acid to contact eyes, skin, clothing or painted surfaces. ➤ Do not attempt to jump-start if battery fluid is frozen. ➤ Bring temperature of battery up to at least 60°F before attempting to jump-start or it may explode.
303*		Fire or explosion caused by refueling! Severe injury or death result from inflaming fuel. ➤ Use diesel fuel only. ➤ NEVER attempt to refuel the compressor while it is operating. ➤ Always replace fuel filter cap after refueling. ➤ Always wipe up fuel spills which may occur inside the compressor enclosure and allow the machine to ventilate.

* Location within the machine

** Only towable machines

*** Only machines with option dc

**** only machines with option ga, gb

3 Safety and Responsibility

3.7 Safety signs

Item	Sign	Meaning
310 311		Injury or damage from open machine. ➤ Operate the machine only when closed. ➤ Transport the machine only when closed.
320*		Loud noise and oil mist when the safety relief valve opens. Ear damage and burns can result. ➤ Wear ear protection and protective clothing. ➤ Close all maintenance doors and cover panels. ➤ Work carefully.
330 331 332		Hot surface can cause burns. ➤ Let the machine cool down. ➤ Work carefully. ➤ Wear protective clothing and gloves.
390* 391*		Rotating fan blades and V-belt drive! Injury and machine damage possible. Severe injury could result from touching the fan blades and v-belt drive while it is rotating. ➤ Never switch the machine on without guard in place over the fan blade. ➤ Switch off and lock out the power supply disconnecting device and check that no voltage is present.
420**		Injury or damage can result because tongue weight on this equipment may be heavy. ➤ Do not lift towbar by hand if weight is more than you can safely handle. ➤ See safety section of service manual.
430		Connect air hoses only in full compliance with OSHA standard 29 CFR 1926.302 (bX7). The required safety devices should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use.
440		Compressed air quality. Injury and/or contamination can result from breathing compressed air. Contamination of food can result from using untreated compressed air for food processing. ➤ Never breathe untreated compressed air! ➤ Air from this compressor must meet OSHA 29 CFR 1910.134 and FDA 21 CFR 178.3570 standards, if used for breathing or food processing. Use proper compressed air treatment. ➤ Food grade coolant must be used for food processing.

* Location within the machine

** Only towable machines

*** Only machines with option dc

**** only machines with option ga, gb

3 Safety and Responsibility

3.7 Safety signs

Item	Sign	Meaning
500**		Towbar load and ground clearance. Danger of fishtailing, incorrect towing vehicle load, damage to the machine caused by rollover or contact with the ground. ➤ Always line up the towbar so that the machine is level with the ground.
510**		Malfunction due to lack of maintenance. Accidents and machine damage possible. ➤ Maintain the chassis regularly. ➤ Follow instructions in the service manual.
540**		Machine without breaks. Serious injury or death may result from uncontrolled movement when the unit is not safeguarded by chocks. ➤ Always use chocks before uncoupling and generally when the unit is not in motion. ➤ Do not move unit manually.
541**		Missing chock. Serious injury or death may result from uncontrolled movement when the unit is not safeguarded by chocks. ➤ Always fix chock for proper storage. ➤ Always replace missing chock immediately.
600*		Pressure and spring force! Serious injury or death can result from loosening or opening component that is under pressure and heavily spring loaded. ➤ Never open (dismantle) valve. ➤ Contact an authorized KAESER service representative.
830****		There is danger of fatal injury touching electrically live components! ➤ Take protective measures. ➤ Switch off and lock out the power supply disconnecting device and check that no voltage is present.
1222***		Danger! Mortal danger from CO, CO ₂ or toxic gas. ➤ Draw in only surrounding air of breathing quality.
		Danger! Danger to health from discharge of oily compressed air. ➤ Maintain surrounding air temperature between 34°F and 86°F. ➤ Check the oil indicator at least once a day.

* Location within the machine

** Only towable machines

*** Only machines with option dc

**** only machines with option ga, gb

Tab. 65 Safety signs

3.8 Noise control requirements



Tampering with the noise control system is prohibited!

Federal law prohibits the following acts or causing thereof:

- The removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any devices or element of design incorporated into any new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or
- the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Among those acts included in the prohibition against tampering are the acts listed below:

- Removing any facing (doors, hood, service panels).
- Modifying the air inlet and outlet louvers.
- Modifying the air intake channels or hoses (if applicable).
- Modifying the air filter enclosure.
- Modifying the exhaust air silencer.
- Manipulating the machine's control and regulation system.

3.9 Option ga, gb Generator operation

3.9.1 Comply with the protective measures against dangerous electric current

Protection against dangerous electric current is regulated by the "Low-voltage current generating installations" directive IEC 60364–5–551 (DIN VDE 0100–551).

The protective measure concerning "isolation, insulation monitoring and shut-down" is applied. The generator is equipped with an automatic mains cut-out with overcurrent release and insulation monitoring in accordance with this protective measure.

- Observe and follow the regulations concerning protection against dangerous electric current when using the generator.

3.9.2 Safe generator operation

Take note of the following to ensure the safe operation of the machine with a generator:

- Check correct function of the insulation monitoring device daily.
- Do not earth the neutral line (N) or connect it to the common protective earth/equipotential bonding (PE).
- Make sure the equipotential bonding to earth is properly carried through (mains and machine through cable to consumer).
- If the generator feeds a network (TN network), let the network's protective measures remain effective or create another protective measure that is effective.
- Adjust the protective measures accordingly if the generator feeds a different network.
- Only a qualified electrician is allowed to carry out work on the generator or generator control box. The electrician is responsible for the effectiveness of the protective measures provided.
- Do not use the generator for feeding the construction current distribution.

- A generator with insulation monitoring must not be connected to another insulation monitoring device as these monitoring devices can then have counter effects.
- Ground fault current (F1) protection switches do not function in unearthed networks (IT network such as provided by the generator). The isolation provided by the generator, however, makes a further ground fault current protection switch unnecessary.
- Follow the regulations of the local electricity supply utility and obtain any necessary permits.
- When cleaning the inside of the machine do not direct water or steam jets directly at the generator or terminal box.
- Check regularly that all electrical connections are tight and in proper condition.

3.9.3 Connecting extension cables

- When operating the generator, observe the regulations regarding the connection of extension cables.

Bear in mind:

- In IT networks, the total length of power cables may not exceed 0.16 miles (DIN VDE 0100, Part 728 / IEC 60364-5-551).
- Use at least H07RN-F cables to DIN VDE 0282 Part 4 (IEC 60245-4 / HD 22.4) as non-fixed extension cables.

3.9.4 Do not exceed the maximum supply system load

- When operating the generator, do not exceed the maximum supply system load due to connected consumers.

Bear in mind:

- The power consumption values of simultaneous consumers are added.
- The maximum continuous power loading on the generator by the connected consumers is limited by the safety cut-out.

3.9.5 Perform regular generator inspections

To ensure a safe operation, the machine must be subjected to regular inspections.

Daily inspection prior to activating the device by authorised operating personnel:

- Insulation monitor function check.

Annual inspection by trained and authorised electrician:

- Inspect the generator and generator control cubicle for mechanical damages.
- Inspect the protective conductor.
- Measure the dielectric resistance.
- Measure the substitute leakage current.
- Test the generator functionality.
- Test the proper functioning of the generator fan and clean, if required.
- Clean the cooling air openings.
- Check and tighten the screw connections at the generator and the generator control cubicle.
- Check covers and power socket caps for damage and good sealing.
- Check the completeness of labeling and warning labels.

3.10 Emergencies

3.10.1 Correct fire fighting

Suitable measures

Calm and prudent action can save lives in the event of a fire.

- Keep calm.
- Give the alarm.
- Shut down the machine from the instrument panel if possible.
- Warn and move endangered personnel to safety.
- Help incapacitated persons.
- Close the doors.
- When trained accordingly: Attempt to extinguish the fire.

Extinguishing substances

- Suitable extinguishing media:
 - Foam
 - Carbon dioxide
 - Sand or soil
- Unsuitable extinguishing media:
 - Strong jet of water

3.10.2 Injury from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- Fuel
- Lubricating oil
- Compressor cooling oil
- Engine coolant
- Battery electrolyte
- Tool lubricant (option e)
- Antifreeze (option ba)

Eye contact

Fuel, oil and other fluids/materials can cause irritation.

- Rinse open eyes thoroughly for a few minutes.
- Seek medical advice for persistent irritation.

Skin contact

Fuel, oil and other fluids/materials may irritate after prolonged contact.

- Wash thoroughly with skin cleaner, then with soap and water.
- Contaminated clothing should be intensively cleaned before reuse.

Inhalation

Fuel and oil vapors impair breathing.

- Clear the respiratory tract from fuel or oil vapor.
- Seek medical help if difficulty with respiration continues.

Ingestion

- Wash out the mouth immediately.
- Do not induce vomiting.
- Seek medical aid.

3.11 Warranty

This operator manual contains no independent warranty commitment. Our general terms and conditions of business apply with regard to warranty.

A condition of our warranty is that the machine is used for the purpose for which it is intended under the conditions specified.

Due to the multitude applications for which the machine is suitable the obligation lies with the user to determine its suitability for his specific application.

In addition, we accept no warranty obligation for:

- the use of unsuitable parts or operating materials,
- unauthorized modifications,
- incorrect maintenance,
- incorrect repair.

Correct maintenance and repair includes the use of original spare parts and operating materials.

- Obtain confirmation from KAESER that your specific operating conditions are suitable.

3.11.1 Noise emissions warranty

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built, and equipped to conform, at the time of sale to the first retail purchaser, with all applicable American EPA noise control regulations.

This warranty is not limited to any particular part, component, or system of the air compressor.

Defects in the design, assembly, or in any part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed Federal standards are covered by this warranty for the life of the air compressor.

3.12 Identifying the effects of improper modifications

The machine and various modules are designed according to applicable regulations and are submitted for approval procedures by the relevant authorities (where applicable).

Concerned modules include:

- Compressor drive motor
- Fuel supply
- Exhaust system

- Chassis (if available)
- Compressor unit
- Pressure-bearing components (e.g., valves, vessels, pipelines)

Remodeling or modifications can have the result that the interaction of the individual modules according to regulations is no longer ensured. Thus, the prerequisites required for approval by the authorities may no longer be given.

The concerned directives and regulations can be:

- Machinery directive
- Pressure vessel directive
- EMC directive
- Directive for environmental noise

In machines requiring a national road traffic permit, remodeling or modifications may adversely affect their approval for road traffic.

- Exhaust emission limits may not be met.
- The prerequisites for approval are no longer given.

Remodeling or modifications restrict the service work that can be performed for you. For example:

- Warranty (if directly and originally affected by the remodeling or modification)
- Reduced replacement part supply (scope, delivery times)

3.13 Environmental protection

The operation of this machine may cause dangers for the environment.

- Do not allow operating materials to escape into the environment or into the sewage system.
- Store and dispose of operating materials and replaced parts in accordance with local environmental protection regulations.
- Observe relevant regulations.
This applies particularly to parts contaminated with fuel, oil, coolants and acids.

4 Design and Function

4.1 Bodywork

Bodywork is understood to be the exterior of the machine mounted on the chassis.

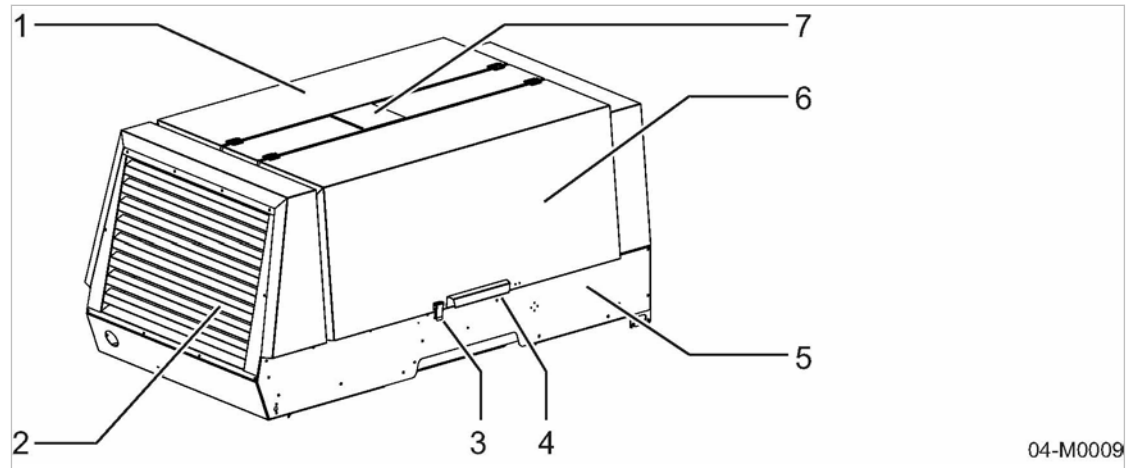


Fig. 3 Overview Bodywork

- | | |
|-----------------------------------|-------------------------|
| ① Right-hand wing door | ⑤ Lower body |
| ② Sound damping louver for cooler | ⑥ Left-hand wing door |
| ③ Snap fastener | ⑦ Cover for lifting eye |
| ④ Handle | |

The bodywork has several functions when it is closed:

- Weather protection
- Sound insulation
- Guarding against touching
- Cooling air flow

The bodywork is not suitable for the following uses:

- Walking on, standing or sitting on.
- Use as resting place or storage of any kind of load.

⚠ CAUTION

Danger of pinching!

Severe injuries of the fingers if they are caught when closing doors and covers.

- *Work carefully.*
- *If necessary, wear protective gloves.*

Safe and reliable operation is only ensured when the bodywork is closed.

The wing doors are provided with handles for opening. Release the doors by the snap fasteners.

The doors are held open by gas springs.

4.2 Component identification

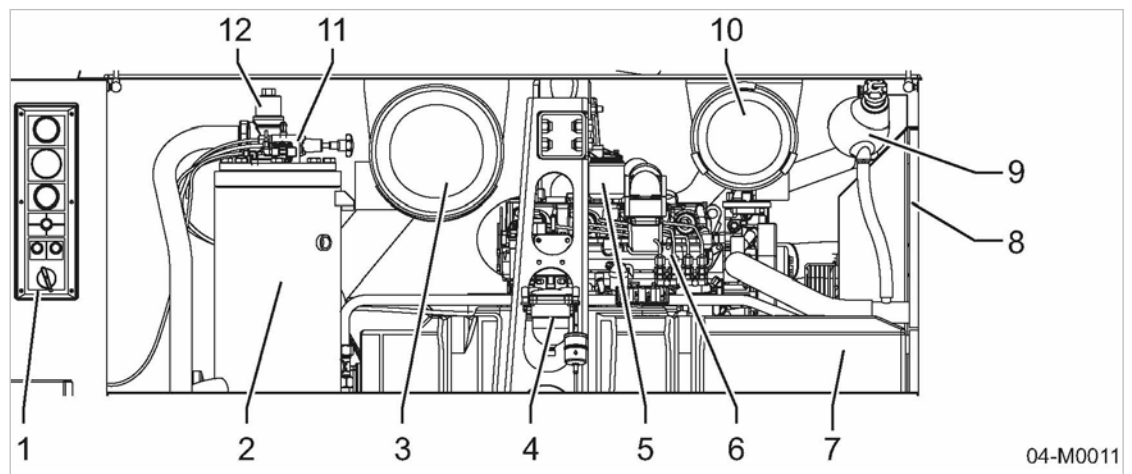


Fig. 4 Right-hand door opened

- | | |
|-------------------------------|--------------------------------|
| ① Instrument panel | ⑦ Fuel tank |
| ② Oil separator tank | ⑧ Water cooler |
| ③ Compressor air filter | ⑨ Coolant expansion tank |
| ④ Fuel filter with water trap | ⑩ Engine air filter |
| ⑤ Fuel filter | ⑪ Proportional controller |
| ⑥ Drive engine | ⑫ Minimum pressure/check valve |

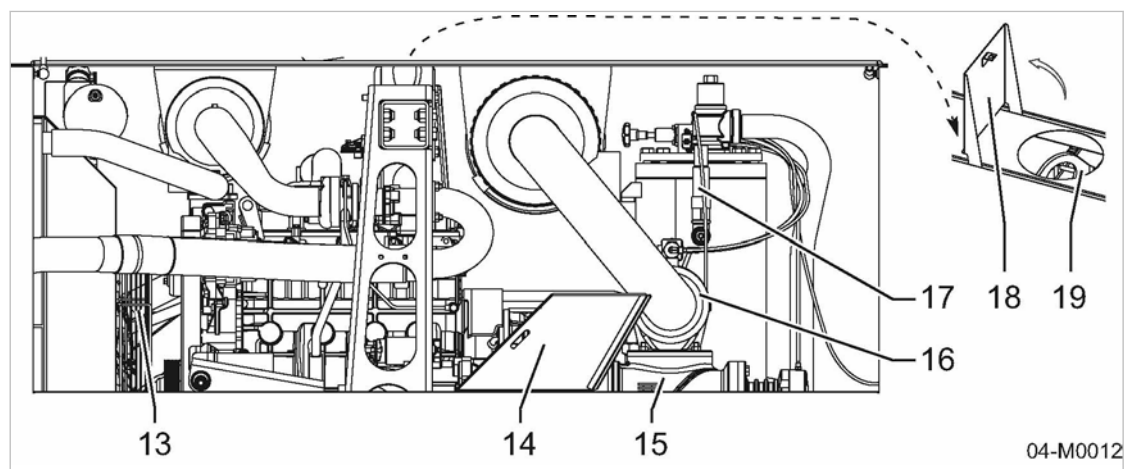


Fig. 5 Left-hand door opened

- | | |
|---------------|-------------------------|
| ⑬ Fan | ⑰ Pressure relief valve |
| ⑭ Tool box | ⑱ Lifting eye cover |
| ⑮ Airend | ⑲ Lifting eye |
| ⑯ Inlet valve | |

4.3 Machine function

Machine function (without options)

Item numbers correspond to the pipe and instrument flow diagram (P&ID) in chapter 13.2.

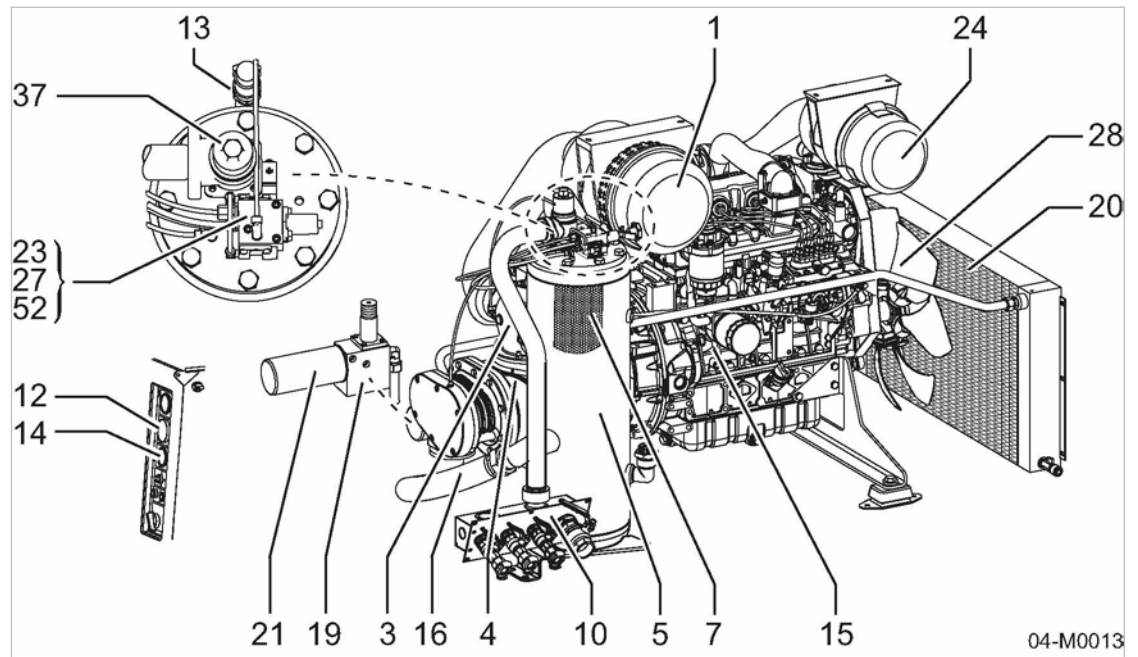


Fig. 6 Machine layout

- | | | | | | |
|---|-------------------------|---|----------------------------|----|--|
| ① | Compressor air filter | ⑩ | Compressed air distributor | 16 | Oil return line |
| ③ | Inlet valve | ⑫ | Temperature gauge switch | 19 | Combination valve (thermostatic valve) |
| ④ | Airend | ⑬ | Pressure relief valve | 20 | Oil cooler |
| ⑤ | Oil separator tank | ⑭ | Pressure gauge | 21 | Oil filter |
| ⑦ | Oil separator cartridge | ⑮ | Drive engine | 23 | Proportional controller |
| | | | | 24 | Engine air filter |
| | | | | 27 | Venting valve |
| | | | | 28 | Fan |
| | | | | 37 | Minimum pressure/check valve |
| | | | | 52 | Control valve |

Ambient air is cleaned as it is drawn in through the filter (1).

The air is then compressed in the aircend (4).

The airend is driven by an internal combustion engine [15].

Cooling oil is injected into the airend. It lubricates moving parts and forms a seal between the rotors themselves and between them and the airend casing. This direct cooling in the compression chamber ensures a very low airend discharge temperature.

Cooling oil recovered from the compressed air in the oil separator tank (5) gives up its heat in the oil cooler (20). The oil then flows through the oil filter (21) and back to the point of injection. Pressure within the machine keeps the oil circulating. A separate pump is not necessary. A thermostatic valve (19) automatically maintains optimum cooling oil temperature.

Compressed air, freed of cooling oil in the oil separator tank (5), flows through the minimum pressure / check valve (37) into the air distributor (10). The minimum pressure / check valve ensures that there is always a minimum internal pressure sufficient to maintain cooling oil circulation in the machine.

The cooling fan [28] ensures optimum cooling of all components within the enclosure.

4.4 Operating modes and control mode

4.4.1 Operating modes

The machine operates in the following modes:

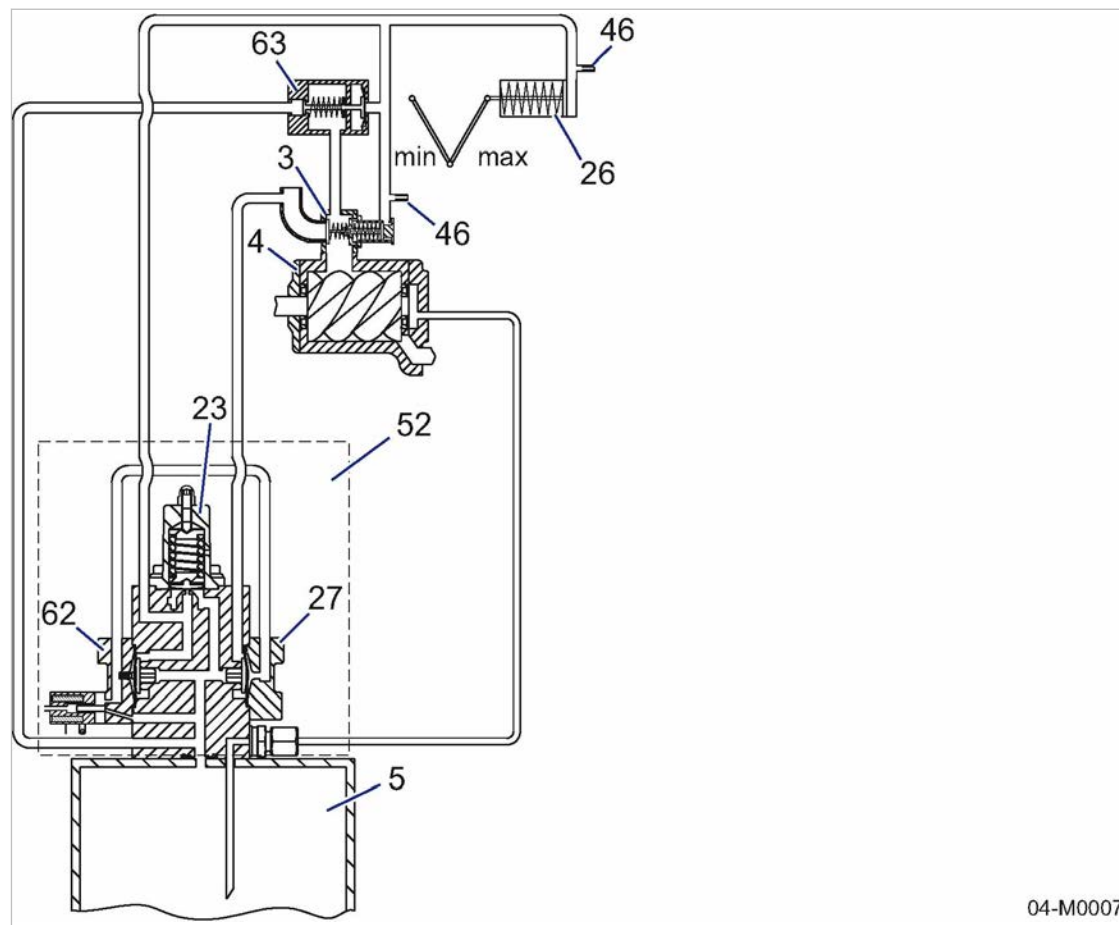
- **WARM UP**
 - The inlet valve is nearly fully closed.
 - The minimum intake air volume escapes via the venting valve.
 - The engine runs at minimum speed.
- **LOAD**
 - The inlet valve is open.
 - The engine runs at maximum speed.
 - The airend delivers compressed air.
- **MODULATING**
 - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is steplessly varied in response to the air demand.
 - The load and fuel consumption of the engine rises and falls with the air demand.
 - The airend delivers compressed air.
- **IDLE**
 - The inlet valve is closed.
 - The control valve opens, allowing pressure in the oil separator tank to be applied to the inlet valve.
 - Compressed air then flows in a closed circuit through the airend, the oil separator tank and the control valve.
 - The pressure in the oil separator tank remains constant.
 - The engine runs at minimum speed.
- **RUN-ON PERIOD/STOPPED**
 - The inlet valve closes.
 - The venting valve opens to de-pressurise the machine.
 - Machine cools down.
 - The engine stops.

4.4.2 MODULATING control

The control system regulates the volume of air generated to match the actual demand. The machine keeps the working pressure constant by varying the volume of compressed air delivered, thereby matching the air demand.

With the help of a mechanical control valve (the proportional controller), the opening and closing of the inlet valve is continuously varied in relation to the actual air demand. The airend provides compressed air for connected consumers.

This stepless delivery regulation minimises fuel consumption of the engine. The load and fuel consumption of the engine rises and falls with the air demand.



04-M0007

Fig. 7 Stepless regulation of FAD (standstill)

- | | |
|----------------------------------|---|
| ③ Inlet valve | ⑥③ Control valve (proportional valve) |
| ④ Airend | ⑤② Control valve comprising the following components: |
| ⑤ Oil separator tank | ②③ Proportional controller (optionally adjustable) |
| ②⑥ Engine speed control cylinder | ②⑦ Venting valve |
| ④⑥ Nozzle | ⑥② Combined auxiliary valve (directional control valve) |

4.5 Safety devices

4.5.1 Monitoring functions with shutdown

The following functions are monitored automatically.

- Engine oil pressure
- Coolant temperature
- Airend discharge temperature
- Fuel level
- Engine alternator



The fuel stop device is activated when an alarm occurs. The engine comes to a stop and the venting valve vents pressure from the machine.

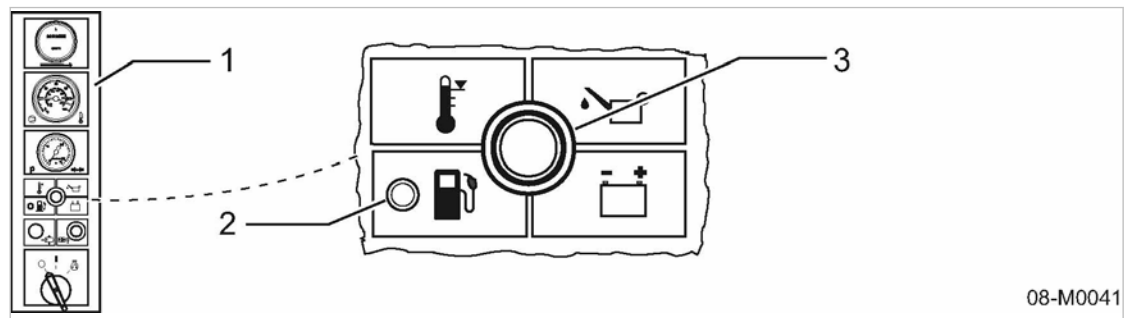
4.5.2 Further safety devices

The following safety devices are provided and may not be modified in any way.

- Safety relief valves
Safety relief valves protect the system against unacceptable pressure rise. They are factory set.
- Enclosures and guards for moving parts and electrical connections
protect against accidental contact.

4.6 Fuel level monitoring

The *fuel level monitoring* indicator lamp on the instrument panel is used for monitoring the fuel level within the tank. This indicator lamp signals, when the fuel level in the fuel tank falls below the recommended level.



08-M0041

Fig. 8 Fuel level monitoring

- ① Instrument panel
- ②  Indicator lamp (LED yellow):
Fuel level monitoring
- ③ *Group alarm lamp* (red)

When the fuel level drops to a certain point, the *fuel level* indicator lamp (yellow) on the instrument panel lights.

After about 20 minutes running on reserve, the fuel reaches the minimum level. So that no air is drawn into the fuel line, the engine is automatically shut down when this point is reached.

The *group alarm lamp* lights (red) to indicate an alarm. The alarm is saved and the engine cannot be restarted.



You can restart the machine only after deactivating and refilling the machine.

4.7 Options

The options available for your machine are described below.

4.7.1 Option da, db, dc, dd, ea, ec Compressed air treatment options

For some applications, the compressed air generated by this machine must be treated before use. The following describes the possible air treatment options that may be fitted to the machine.

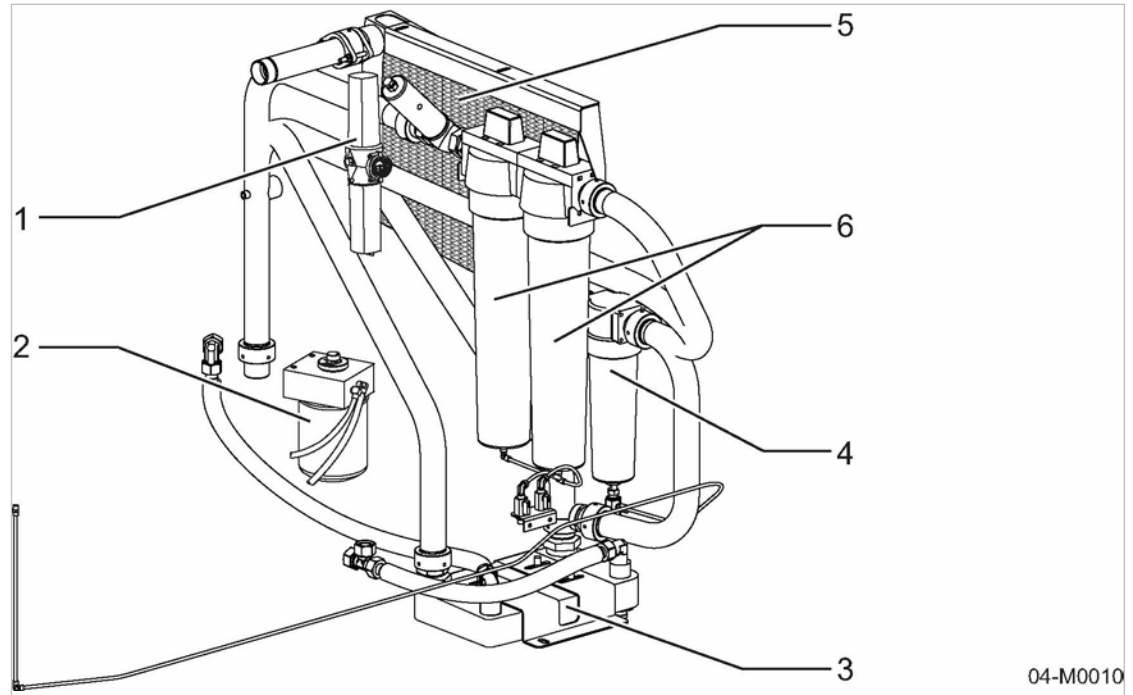


Fig. 9 Compressed air options

- | | |
|-----------------------------------|--|
| ① Fresh air filter (Option dc) | ④ Cyclone separator (Option da) |
| ② Tool lubricator (option ea, ec) | ⑤ Filter combination (Option dd) |
| ③ Heat exchanger (Option db) | ⑥ Compressed air aftercooler (Option da) |

4.7.1.1 Option da Compressed air aftercooler

The aftercooler lowers the compressed air temperature to only 9°F to 18°F above ambient. Most of the moisture carried in the air is removed this way in the aftercooler.

4.7.1.2 Option da Cyclone separator

Condensate accumulated during the air cooling process is separated, fed to the exhaust gas silencer and evaporated there.

4.7.1.3 Option db Heat exchanger

The oil/air heat exchanger is fed with hot compressor cooling oil that warms the outgoing moisture-reduced compressed air.

This warm, dry compressed air is ideal for sand blasting, for example.

4.7.1.4 Option dd
Filter combination

The dried compressed air passes through a pre-filter and micro-filter combination and emerges oil-free.

4.7.1.5 Option dc
Fresh air filter

Compressed air from oil-injected compressors may not be used directly as breathing air.

The concentration of contaminants will increase during the compression of the intake ambient air and cooling oil and abraded particles can enter the compressed air. This requires a subsequent treatment of the pre-filtered compressed air.

Air must be filtered to remove all contaminants, such as fine dust and oil as well as odors, before it can be used for breathing purposes.

To achieve this, part of the compressed air output from the compressor is passed through a combination of micro-filter and activated carbon filter.

The connection to air treated in this way is specially marked. It is designed as a quick-release coupling next to the outlet valves on the compressed air distributor.

 DANGER

Danger from toxic air!

Danger of respiratory arrest because the filter does not remove CO/CO₂, methane or other toxic gasses or vapors.

- *Never use the machine in enclosed spaces, only in the open.*
- *Clean inlet air without hazardous contaminants. Engine exhaust must not be drawn into the compressor.*



The treated air does not meet the local standards for "Compressed air for breathing apparatus". Therefore, it must not be used as pure breathing air but may be used to reinforce the flow of fresh air when working in dusty or dirty conditions such as sand blasting.

Further information See chapter 2.7.1.2 for ambient conditions under which the fresh air filter can be used.

Further information See DIN EN 12021 for more information regarding permissible limit values for hazardous contaminants in breathing air.

4.7.1.6 Option ea, ec
Tool lubricator

Compressed air containing lubricating oil is needed for the lubrication of certain air tools. The tool lubricator introduces a fine oil mist into the compressed air for this purpose.

A metering valve on the lubricator regulates the amount of oil in the compressed air:

- minimum oil to lubricate the tools and prevent corrosion,
- more oil for cleaning and to prevent wear in the tools.

The oil flow can be stopped by a shut-off valve.

The oil flow adjusts automatically to changes in air demand (one or more tools/consumers on line).

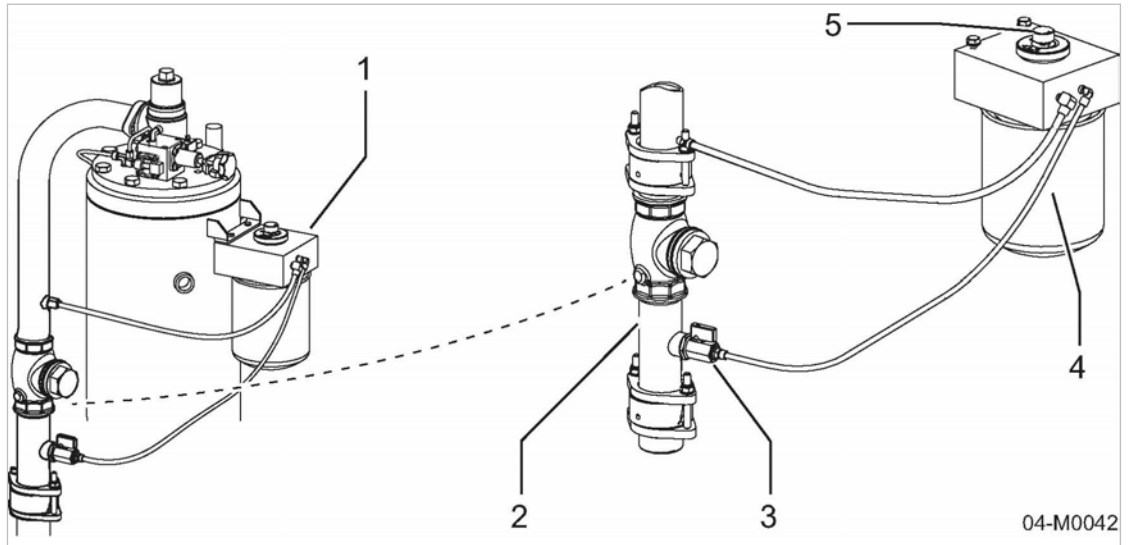


Fig. 10 Tool lubricator

- | | |
|-----------------------|-----------------|
| ① Tool lubricator | ④ Oil tank |
| ② Air line | ⑤ Metering knob |
| ③ Shut-off ball valve | |

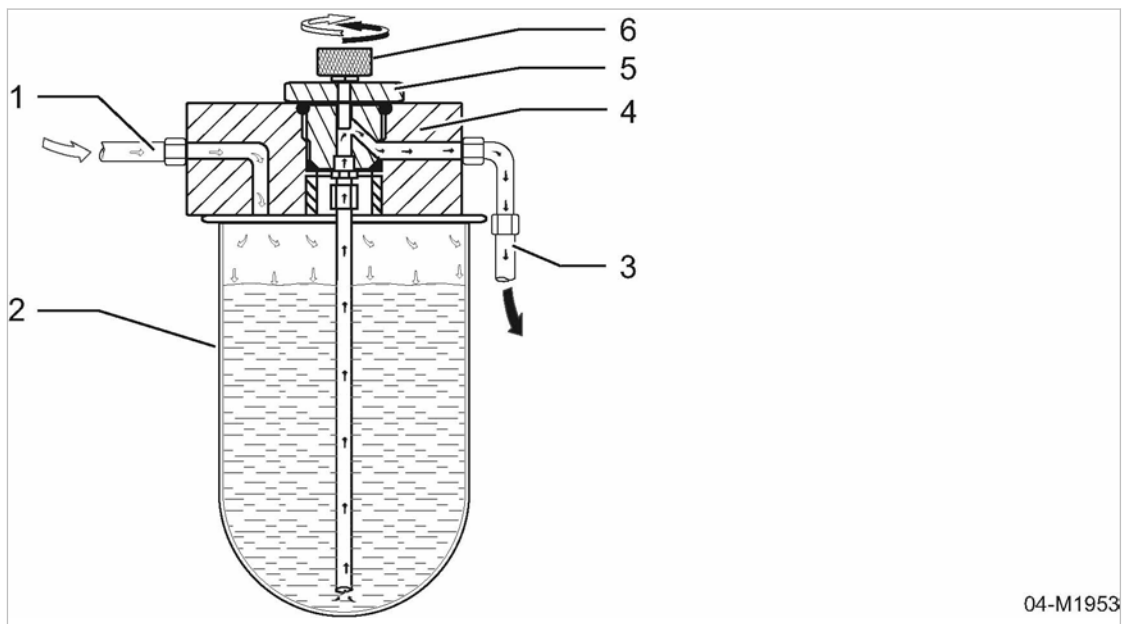


Fig. 11 Principle tool lubricator

- | | |
|------------------------|---|
| ① Compressed air inlet | ④ Tool lubricator upper part with oil filling port |
| ② Oil tank | ⑤ Filler plug with dipstick and integrated riser tube |
| ③ Tool oil outlet | ⑥ Metering knob |

Option fc Points to be observed with separate compressed air lines:

NOTICE

Lubrication with tool oil.

Air tools that must not be lubricated can be damaged.

- *Blow any residual oil out of the line before connecting such an air tool.*

4.7.2 Option ba Low temperature equipment options

Special equipment is provided for operation in extremely low temperatures.

This equipment guarantees machine operation at temperatures from -13°F to 122°F .

The electrical system enables trouble-free engine starting at ambient temperatures down to -4°F.

4.7.2.1 Option bb Coolant pre-heating

The engine coolant can be pre-heated to improve starting under cold conditions.

The power supply to the coolant pre-heater takes place via a separate network connector. A flexible power cable (supplied) connects the machine's power plug to the user's power socket.

The coolant pre-heater works according to the principle of self-circulation.

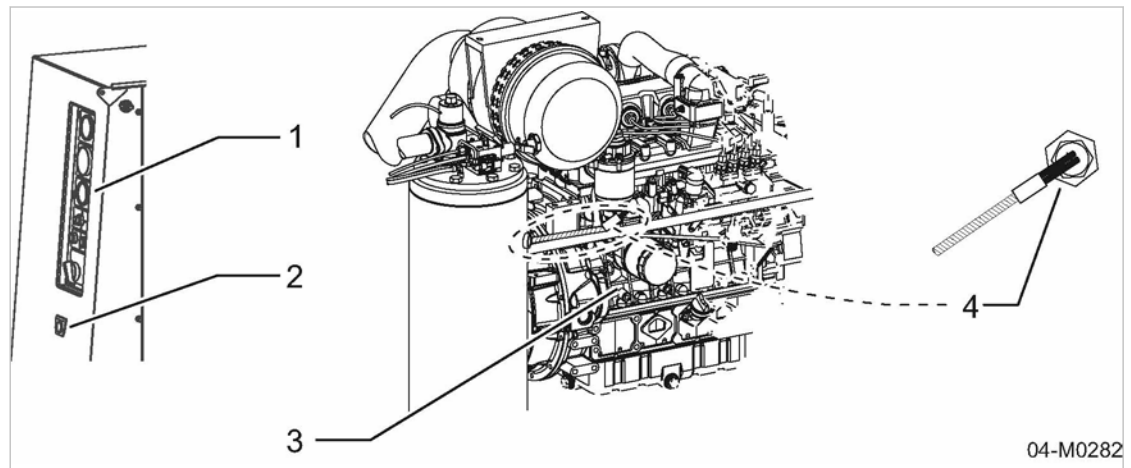


Fig. 12 Coolant pre-heating

- | | |
|---|-----------------------|
| ① Operating panel | ③ Engine block |
| ② Connection for the coolant pre-heater | ④ Coolant pre-heating |

The ideal coolant pre-heating period is 2-3 hours before the machine is started. A pre-heating period of more than 3 hours is not necessary, as the maximum effect has already been achieved within this period (thermal balance).

Continuous operation of maximum 6 hours must be followed by a rest of approximately 3 hours.

4.7.2.2 Option bc Frost protection

Control air is mixed with an alcohol-based antifreeze to prevent control and regulating devices freezing. This considerably lowers the freezing point of any moisture in the air.

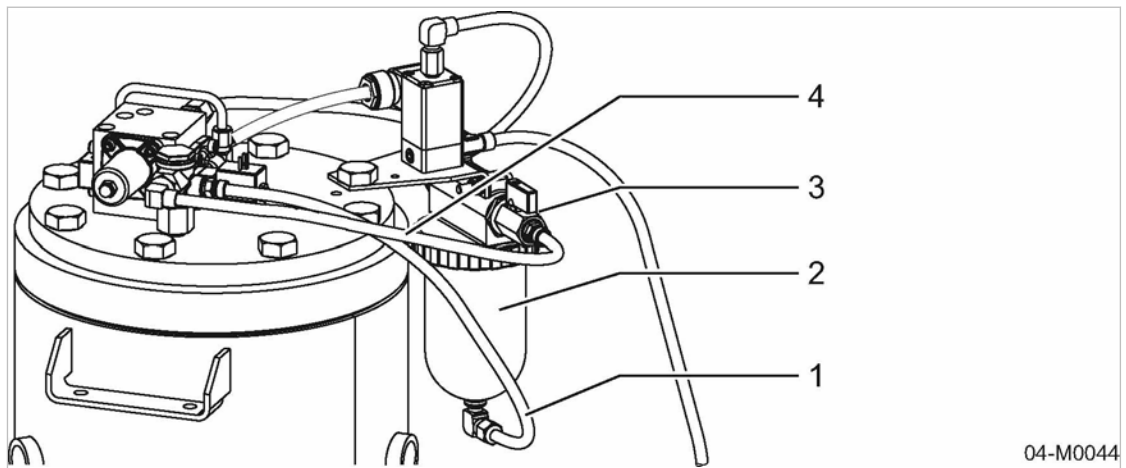


Fig. 13 Frost protector

- | | |
|-----------------------------------|------------------------------|
| ① Control line (frost protection) | ③ Shut-off ball valve |
| ② Frost protector | ④ Control line (bypass line) |

Operating the machine in cold temperatures

The frost protector is activated when the machine is started or stopped in ambient temperatures below freezing. Due to the antifreeze in the air flow, valves and control lines in the interior are moistened preventing a freezing of the control and regulating system.

During machine operation, the generated innate heat counteracts a potential freezing of individual components.

Machine operation in summer

Antifreeze is not required for the regulating air at ambient temperatures of more than 32°F.

4.7.3 Option oa Optional battery isolating switch

The «battery isolating switch» disconnects the battery completely from the machine's electrical system (fire protection, battery discharge protection).

NOTICE

Danger of short circuit!

Damage to the machine's electrical components is possible.

- Use the «battery isolating switch» only when the machine is shut down.
- Do not use the «battery isolating switch» as a main or emergency switch.

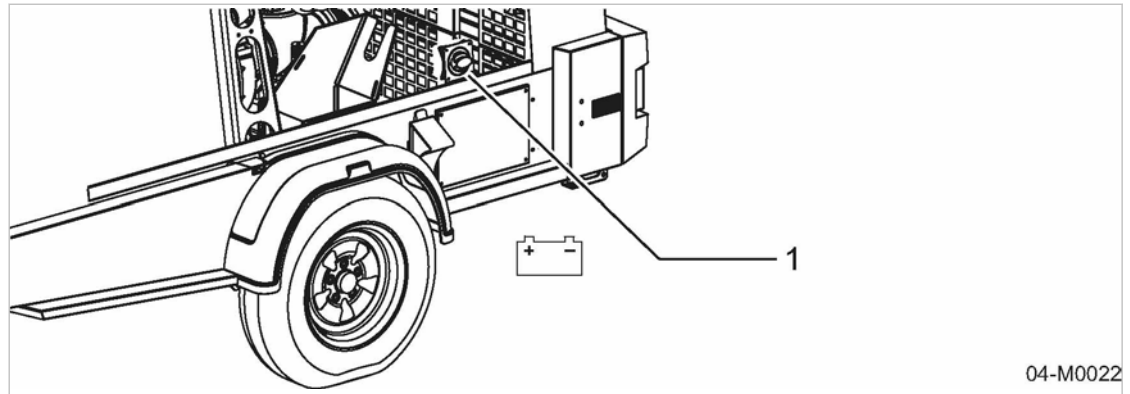


Fig. 14 Battery isolating switch

① «Battery isolating switch»

4.7.4 Option Ia, Ib

Options for operating in fire hazard areas

Diesel engines represent a potential source of ignition in environments with concentrations of gas, vapour or dust, and may cause major fires with disastrous consequences for people, the environment and the production.

For the operation in fire hazard areas, the machine is equipped with the following accessories:

- Engine air intake shut-off valve
- Spark arrestor

4.7.4.1 Option Ib

Engine air intake shut-off valve

If flammable gases and vapours are drawn by the Diesel engine from the environment into the air intake, they will act like catalytic converters. This causes a sudden and uncontrolled increase in engine speed that can result in serious mechanical damage. Without appropriate preventive measures, the engine and compressor can be destroyed. Explosion or fire are also possible.

When flammable gas is drawn into the engine, shutting off the fuel supply will not stop the engine right away. In order to shut down the engine quickly and reliably in these events, the intake of the combustion air must be interrupted.

If a certain engine speed is exceeded, the engine controller closes the engine air shut-off valve for intake air. This brings the engine to an immediate stop.

4.7.4.2 Option Ia

Spark arrestor

Sparks in exhaust fumes represent a considerable risk in environments with flammable materials. Flying sparks combined with flammable materials may cause fires and explosions.

A spark arrestor on the exhaust silencer is required when operating a diesel engine in a fire hazard area and in forestry and agricultural applications. In such applications, a spark may ignite flammable materials.

The spark arrestor prevents the exhaust silencer emitting any glowing fuel residue.

4.7.5 Option ga, gb Generator option

A generator is installed to provide a power supply to electrical consumers. The generator is driven from the engine by a drive belt. A tensioning device automatically ensures optimum belt tension.

Option ga Version without FAD limitation

Activating the generator does not influence the volume of compressed air delivered. The compressor delivers its full capacity regardless of current being drawn from the generator. The maximum FAD of versions without limitation is less, however, than versions where the FAD is linked inversely to current draw. See chapter 2.7.3 for reduced FAD by generator (50 Hz) and chapter 2.7.4 by generator (60 Hz) operation.

Option gb Version with FAD limitation

When the generator is activated, the air inlet at the inlet valve is limited. The compressor delivers less compressed air. The engine is protected from overloading. The volume of compressed air available is dependent on the generator operating mode and the power taken.

4.7.5.1 Operating modes

The compressor works with the normal air delivery regulation and generates electrical power at the same time.

The generator can work in two modes. These are selected by the mode switch:

- Automatic cut-in
- Continuous load

Generator main switch	Mode selector switch	What is provided?
OFF	-	Compressed air
ON	Position 1 (automatic start mode)	Compressed air and electrical power
	Position 2 (continuous load)	Electrical power and compressed air

Tab. 66 Generator / Compressor operation

Operating mode	Automatic cut-in	Continuous load
Switch position	Position 1	Position 2
Engine speed	Electrical power input > 100 VA: automatic maximum speed	Permanent maximum speed (engine under full load)
	Power consumption below minimum value: Engine run-on time of approximately 2 minutes at maximum speed	
Advantages	Fuel saving Constant oscillation between maximum and minimum speed avoided	Continuous generator power available without delay

Tab. 67 Generator operating modes

4.7.5.2 Operating controls

The switches, fuses and outlet sockets for electrical consumers are located on the generator control box. Individual consumers are connected only by these outlet sockets.

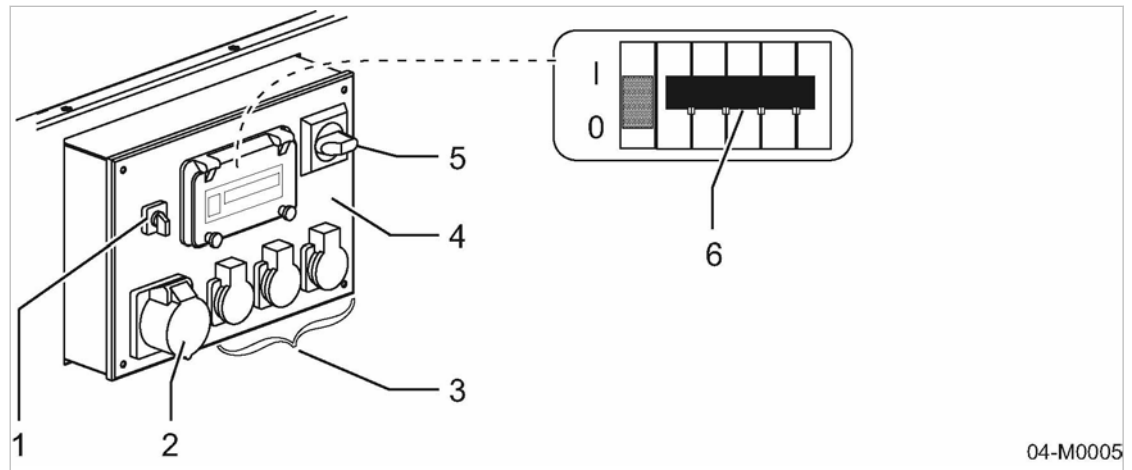


Fig. 15 Instrument panel – generator control box, 400 V AC

- | | |
|------------------------------|---|
| ① «Mode selector switch» | ④ Generator control box |
| ② Three-phase power sockets | ⑤ «Generator main switch» |
| ③ Single-phase power sockets | ⑥ «Safety cut-out» (with overcurrent release) |

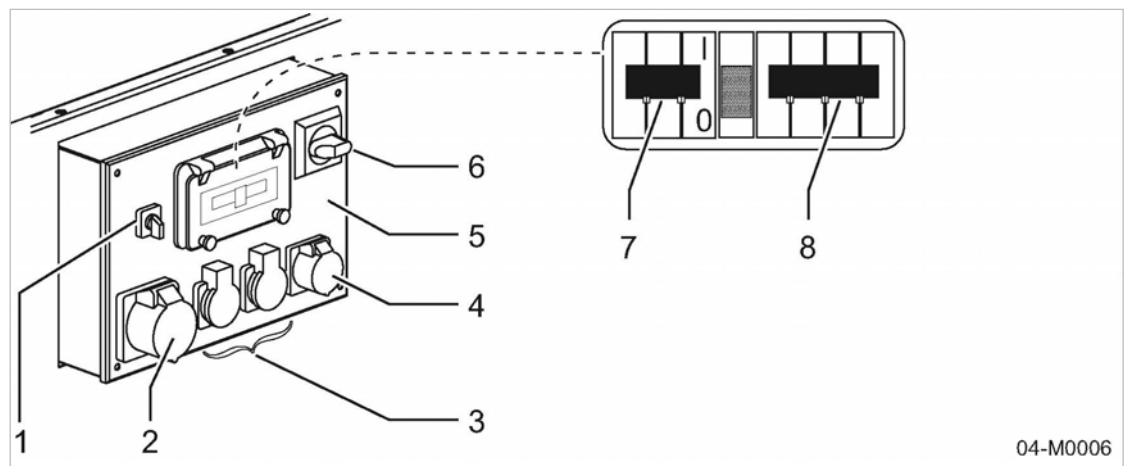


Fig. 16 Instrument panel – generator control box, 230 V AC

- | | |
|---------------------------------|---|
| ① «Mode selector switch» | ⑤ Generator control box |
| ② 32 A three-phase power socket | ⑥ «Generator main switch» |
| ③ Single-phase power sockets | ⑦ «Safety cut-out» |
| ④ 16 A three-phase power socket | ⑧ «Safety cut-out» (with overcurrent release) |

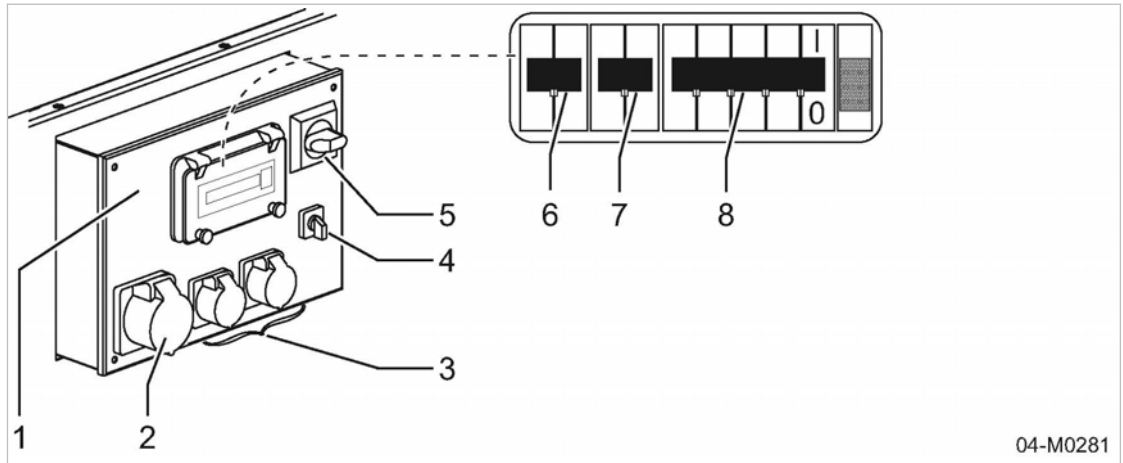


Fig. 17 Generator instrument panel - control box, 115 V, single-phase (50 Hz)

- | | |
|--------------------------|---|
| ① Generator control box | ⑤ «Generator main switch» |
| ② Power socket, 32 A | ⑥ «Safety cut-out» |
| ③ Power socket, 16 A | ⑦ «Safety cut-out» |
| ④ «Mode selector switch» | ⑧ «Safety cut-out» (with overcurrent release) |

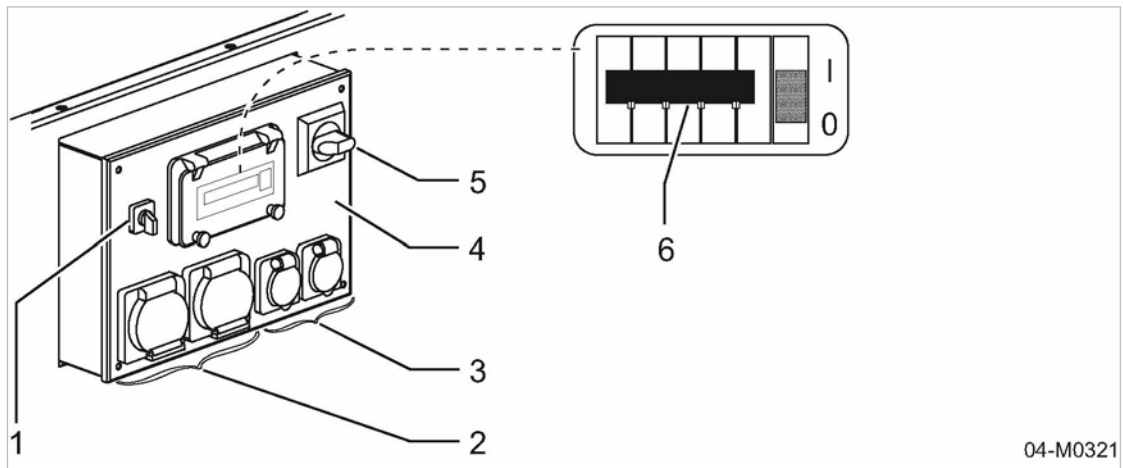


Fig. 18 Generator instrument panel - control box, 230 V, single-phase (60 Hz)

- | | |
|--------------------------|---|
| ① «Mode selector switch» | ④ Generator control box |
| ② Power socket, 250 V | ⑤ «Generator main switch» |
| ③ Power socket, 125 V | ⑥ «Safety cut-out» (with overcurrent release) |

4.7.6 Option rb/rk/rm/rs, rc/ro/rs, rd/ro/rs, rb/rl/rm/rs, rw, rx Transport options

4.7.6.1 Option rb/rk/rm/rs Chassis

Option rb - chassis EU version

Option rk - Chassis with low axle load

Option rm - chassis with height-adjustable tow bar

Option rs - chassis with overrun brake

The chassis has the following features:

- permissible axle load: 3527 lb
- Single-axle chassis
- Towbar, height adjustable
- Rubber-spring axle
- with service brake
- May be operated on public roads

4.7.6.2 Option rc/ro/rs Chassis

Option rc - chassis GB version

Option ro - chassis with fixed height tow bar

Option rs - chassis with overrun brake

The chassis has the following features:

- permissible axle load: 3527 lb
- Single-axle chassis
- Fixed height towbar
- Rubber-spring axle
- with service brake
- May be operated on public roads

4.7.6.3 Option rd/ro/rs Chassis

Option rd - chassis USA version

Option ro - chassis with fixed height tow bar

Option rs - chassis with overrun brake

The chassis has the following features:

- permissible axle load: 3527 lb
- Single-axle chassis
- Fixed height towbar
- Rubber-spring axle
- with service brake
- without parking brake
- May be operated on public roads

4.7.6.4 Option rb/rl/rm/rs Chassis

Option rb - chassis EU version

Option rl - Chassis with higher axle load

Option rm - chassis with height-adjustable tow bar

Option rs - chassis with overrun brake

The chassis has the following features:

- permissible axle load: 3968 lb
- Single-axle chassis
- Towbar, height adjustable
- Rubber-spring axle
- with service brake
- May be operated on public roads

4.7.6.5 Option rw Stationary frame

Option rw - Skid frame on runners

The frame has the following features:

- Body as skid
- Use as stationary machine
- Mounted on truck/trailer platform

4.7.6.6 Option rx Stationary frame

Option rx - Frame

The frame has the following features:

- Frame
- Use as stationary machine
- Mounted on truck/trailer platform

4.7.7 Option oe Sealed floor pan option

The machine is fitted with a sealed floor pan catching liquids in the event of leaks. Thus, direct contamination of the floor is prevented.



The sealed floor pan:

- Cannot catch all liquids contained in the machine, but is intended only to capture small leaks in the vicinity of endangered components.
- Is equipped with service openings which are closed with plugs. These openings must be tightly re-closed after performing any cleaning work.

When other components are removed from the sealed floor pan, (for example the sheet metal cover) they must be properly re-sealed prior to installation.

Position of service openings in the sealed floor pan

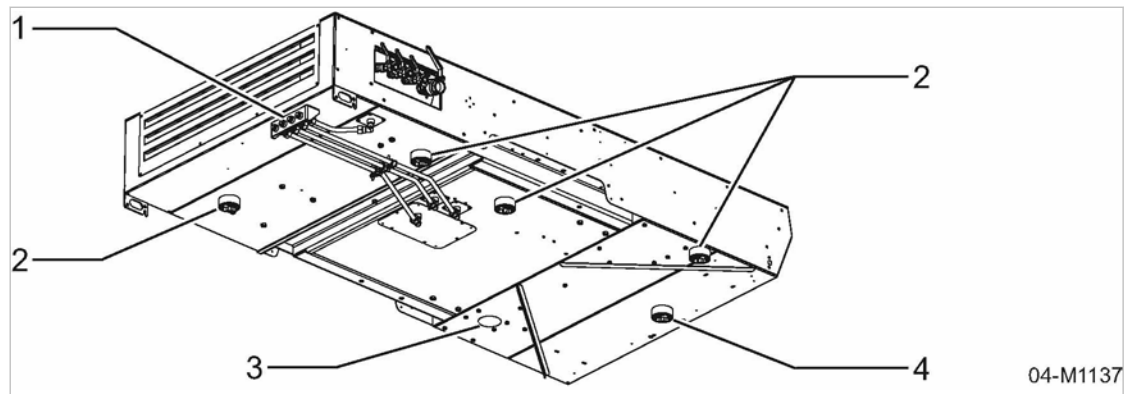


Fig. 19 Position of service openings in the sealed floor pan

- | | |
|---------------------------------------|---|
| ① Central drain point for oil/coolant | ③ Access to the storage box of the anti-theft chain |
| ② Cleaning opening closed with plug | ④ Spark arrester in the service opening, closed with plug |

The drain points for compressor cooling oil and engine coolant are led to a central point outside.

Drain points for oil and coolant from engine and compressor

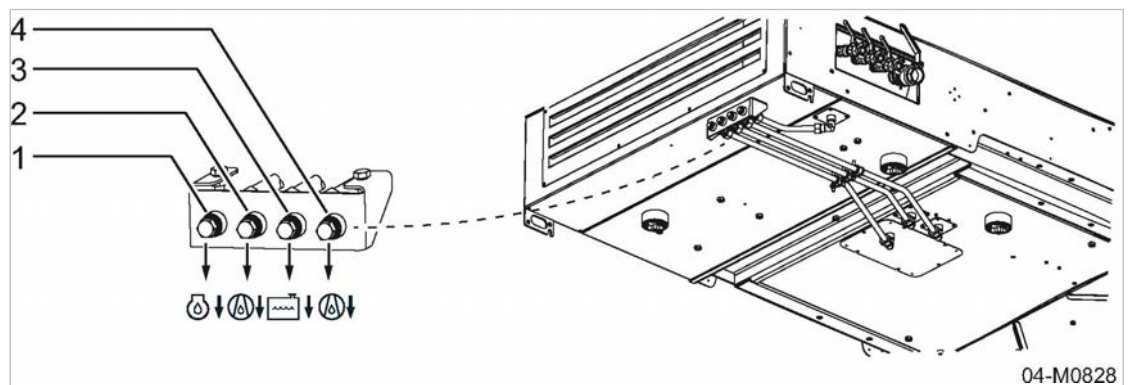


Fig. 20 Drain points for oil and coolant from engine and compressor

- | | |
|--|--|
| ① Engine oil drain | ③ Coolant drain - water cooler, engine |
| ② Coolant drain - oil cooler, compressor | ④ Coolant oil drain - oil separator tank, compressor |

4.7.8 Option sf Optional anti-theft device

The machine is fitted with a security chain as theft protection.

4.7.9 Option sg Pedestrian protection option

The machine is fitted with a special protective guard that prevents pedestrians from being run over.

4.7.10 Option pa, pb
Instrument panel cover option

To prevent unauthorized use and as protection during transport the machine is fitted with instrument panel cover(s).

- Instrument panel cover (option pa)
- Generator control box cover (option ga)

5 Installation and Operating Conditions

5.1 Ensuring safety

The conditions in which the machine is installed and operated effect the safety of personnel and surroundings.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Strictly forbid fire, open flame and smoking.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapors or parts of the machine.
- Do not store any flammable materials in the vicinity of the machine.
- The machine is not explosion-proof!
Do not operate in areas in which specific requirements with regard to explosion protection are applied.
- Keep suitable fire extinguishing agents on hand and ready for use.
- Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

- A specific ambient temperature range
- Air composition at the installation site:
 - clean with no damaging contaminants (e.g., dust, fibers, fine sand)
 - free of explosive or chemically-unstable gases or vapors
 - free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulfide.

5.2 Installation conditions

Precondition The floor must be level, firm and capable of bearing the weight of the machine.

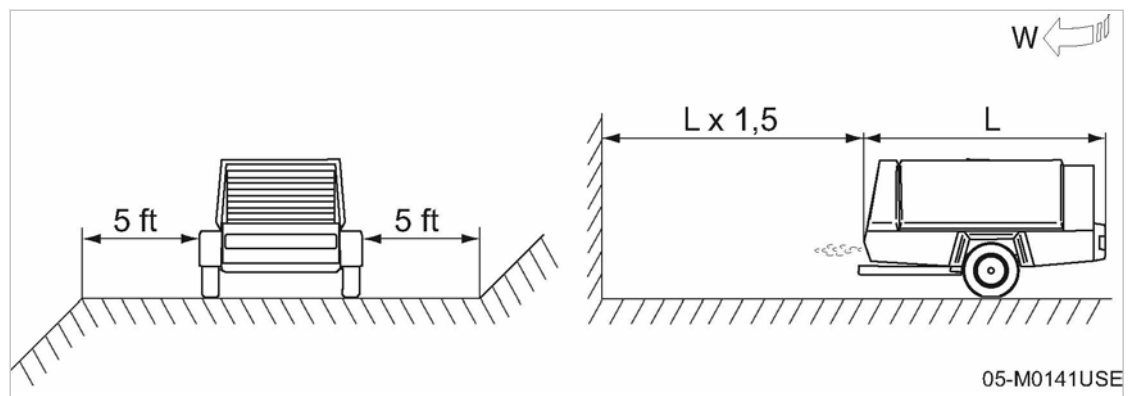


Fig. 21 Minimum distance from excavations/slopes and walls

(W) Wind direction

1. Keep sufficient distance (at least 5 ft) from the edges of excavations and slopes.
2. Ensure that the machine is as level as possible.



The machine can be temporarily operated on a slope of not more than 15°.

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance. The operator panel must be accessible and within reach at any time.
4. **NOTICE** *Fire hazard from build-up of heat and hot exhaust system!*
Insufficient distance from a wall may well cause heat build-up that could damage the machine.
 - *Do not position the machine directly against a wall.*
 - *Ensure always sufficient ventilation space around the machine.*
5. Position the machine as far as possible from any wall.
6. Ensure there is enough free space all round and above the machine.
7. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
8. Install the machine ensuring that
 - exhaust gases and heated exhaust air can escape freely.
 - Do not allow exhaust gases and heated cooling air to be drawn into the compressor.
Note the wind direction! (see figure 21)
 - Ensure the unimpeded intake of fresh air (air intake, cooling air).
9. **NOTICE** *Ambient temperature too low!*
Frozen condensate and highly viscous engine or compressor cooling oil can cause damage when starting the machine.
 - *Use winter grade engine oil.*
 - *Use winter diesel fuel.*
 - *Use low viscosity compressor cooling oil.*
10. At ambient temperatures below 32 °F, follow the instructions in chapter 7.4.

6 Installation

6.1 Ensuring safety

Follow the instructions below for safe installation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Installation work may only be carried out by authorized personnel.
- Replace self-locking nuts that have been removed, do not reuse old ones. The nut is no longer self-locking once it has been unscrewed.

Further information Details of authorized personnel are found in chapter 3.4.2.
Details of dangers and their avoidance are found in chapter 3.5.

6.2 Reporting Transport Damage

1. Check the machine for visible and hidden transport damage.
2. Inform the carrier and the manufacturer in writing of any damage found.

6.3 Fitting the towbar

If the machine is shipped on a transport frame, it is necessary to dismantle the towbar to save space. The towbar must be re-assembled before removing the transport frame.

Material Protective gloves
Wrench
Hard rubber hammer

Precondition The machine is standing firm and level.
The machine is switched off.

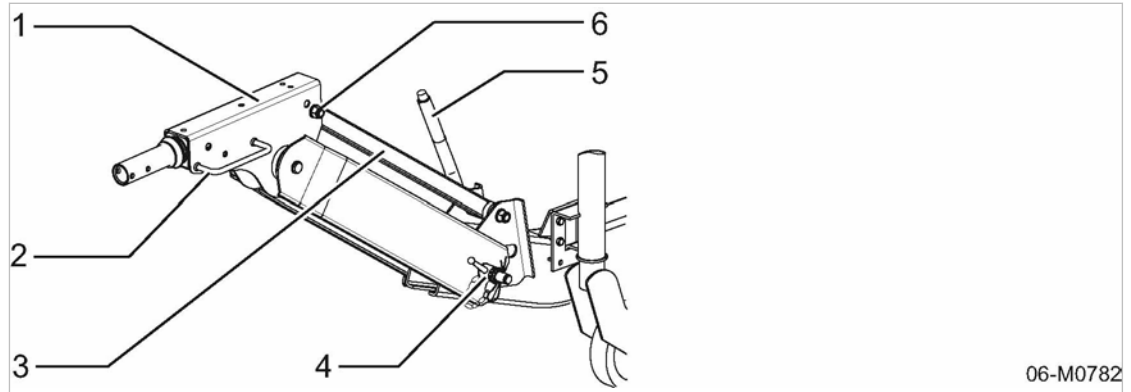
CAUTION

Danger of pinching!
Severe pinching injury to fingers is possible.

- *Always wear protective gloves.*
- *Work carefully.*

6.3.1 Option rb/rk/rm/rs, rb/rl/rm/rs Fitting the height adjustable towbar

Option rb/rk/rm/rs,
rb/rl/rm/rs

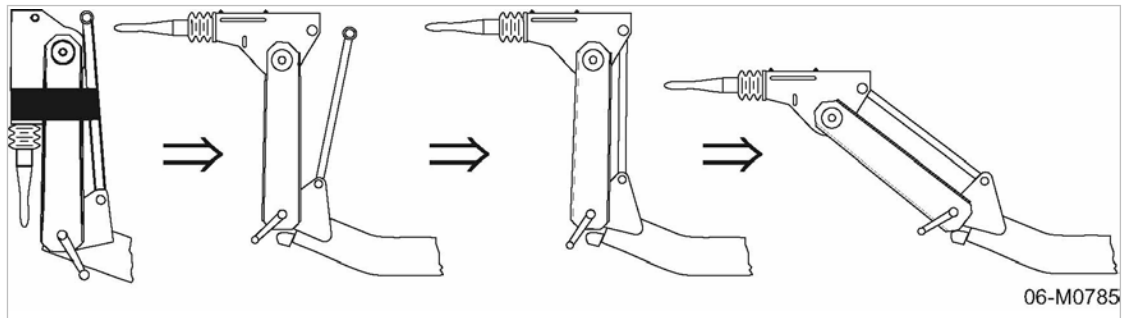


06-M0782

Fig. 22 Height adjustable towbar, fitted

- | | | | |
|---|---------------------------|---|---------------------------------|
| ① | Overrun braking mechanism | ④ | Locking lever with split pin |
| ② | Handle | ⑤ | Hand brake lever, parking brake |
| ③ | Tie bar | ⑥ | Fixing with bolt and nut |

Option rb/rk/rm/rs,
rb/rl/rm/rs



06-M0785

Fig. 23 Fitting the height adjustable towbar

1. Remove all transport securing items (duct tape, foam pads) from the towbar components.
2. Undo the self-locking nut and remove the tie bar fixing bolt.
3. Bring the overrun braking mechanism into the horizontal position.
4. Push the tie bar end between the cheeks of the overrun braking mechanism and align the fixing holes.
5. Push in the securing bolt, using light hammer blows if necessary.
6. Secure the bolt with the self-locking nut (see chapter 2.4.4 for tightening torque).
7. Release the parking brake by pushing the hand brake down.
8. Pull out the split pin and unscrew the locking lever to the stop.
9. Use the positioning handle to push the towbar to the required height.
10. Tighten the locking lever:
 - Make sure the teeth in the adjustment joint mesh together.
 - Manually tighten the locking lever.
 - Use a hammer to hit the locking lever to further tighten the lower serrated joint until the bore and the groove for the splint pin are aligned

11. Insert the splint pin.
12. Pull up the parking brake (pull the hand brake lever up).

6.3.2 Option rc/ro/rs, rd/ro/rs Fitting a non-adjustable tow bar

Option rc/ro/rs, rd/ro/rs

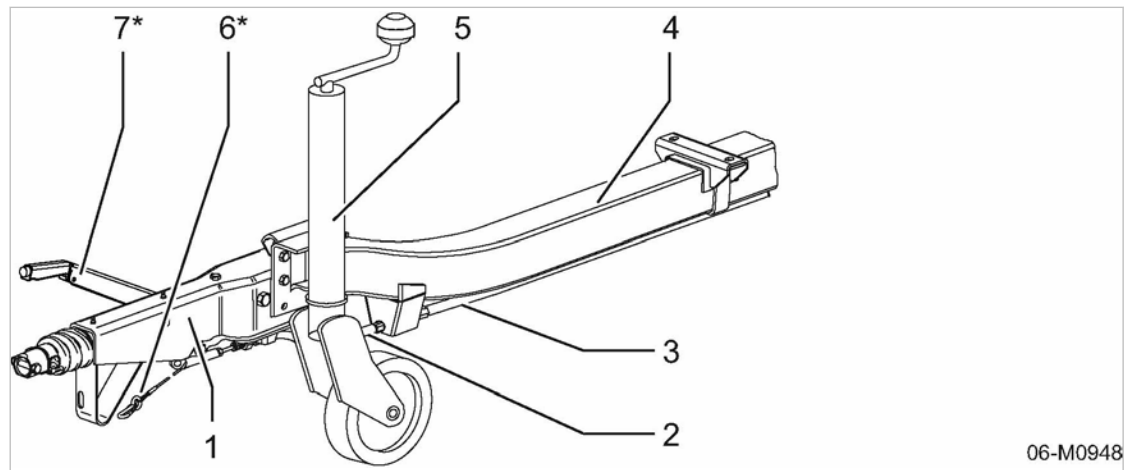


Fig. 24 Non-adjustable tow bar fitted

- | | | | |
|---|---------------------------|---|--------------------------|
| ① | Overrun braking mechanism | ⑤ | Jockey wheel |
| ② | Brake transfer cable | ⑥ | Breakaway cable |
| ③ | Brake rod | ⑦ | Parking brake |
| ④ | Tow bar | ⑧ | not for USA type chassis |

1. Open the doors.
2. Remove the bag with the brake transfer cable and fastenings, unpack and lay out ready.
3. Close the doors.
4. Remove all transport securing items (screw fastenings, duct tape, foam pads) from the tow bar components.

Fitting the overrun braking mechanism of the non-adjustable tow bar:

Option rc/ro/rs, rd/ro/rs

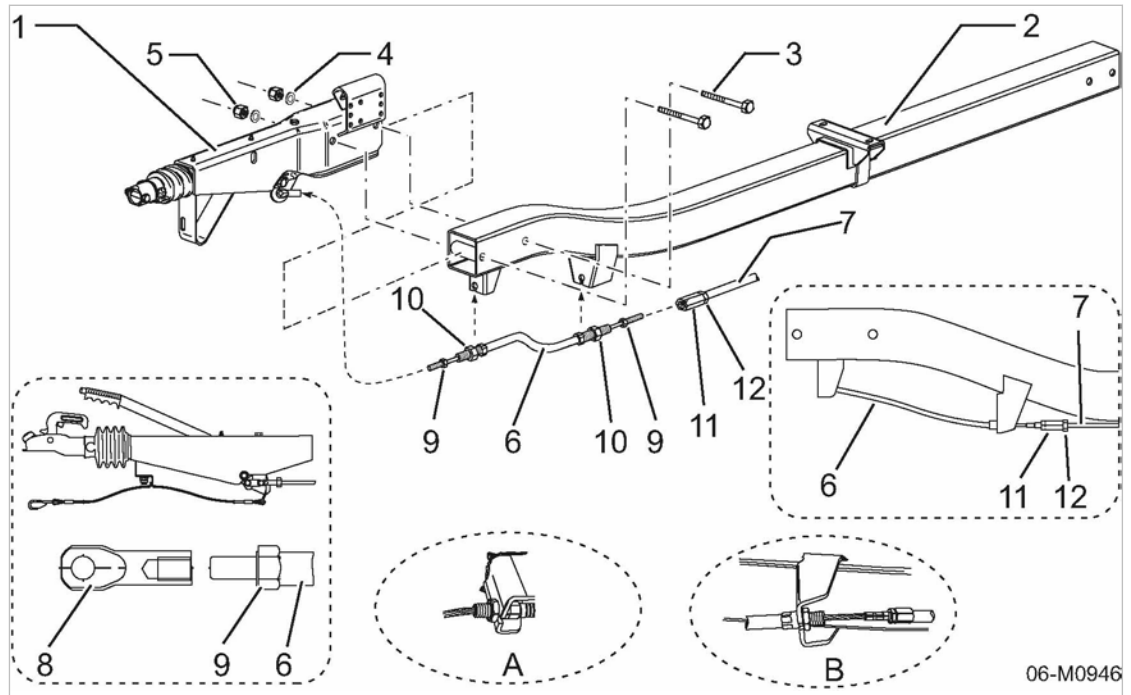


Fig. 25 Fitting the overrun braking mechanism of the non-adjustable tow bar

- | | | | |
|---|-------------------------------|---|--|
| ① | Overrun braking mechanism | ⑧ | Pivot mount |
| ② | Tow bar | ⑨ | Hexagonal locking nut |
| ③ | Fixing bolt | ⑩ | Hexagon nut (locknut) |
| ④ | Washer | ⑪ | Turnbuckle |
| ⑤ | Hexagon nut (self locking) | ⑫ | Hexagonal locking nut |
| ⑥ | Brake transfer cable (Bowden) | A | Front screw fastening brake transfer cable |
| ⑦ | Brake rod | B | Rear screw fastening brake transfer cable |

1. Push the overrun braking mechanism onto the tow bar and position so that the securing bolts can be pushed on.
2. Push in the securing bolts (using light hammer blows if necessary) and push on U-washers.
3. Secure the bolts with the self-locking nuts (see chapter 2.4.4 for tightening torque).
4. Screw in the front screw fastening of the brake transfer into the pivot mount of the overrun braking mechanism and secure with a lock nut.
5. Suspend the brake transfer cable in each of the two fastening lugs on the tow bar and tighten the clamping nuts.
6. Screw the the brake-rod linkage onto the rear screw fastening of the brake transfer cable and secure with a lock nut.

Further information Further information on setting the brake actuating rod is to be found in chapter 10.7.3.3.

Fitting the jockey wheel of the non-adjustable tow bar:

Option rc/ro/rs, rd/ro/rs

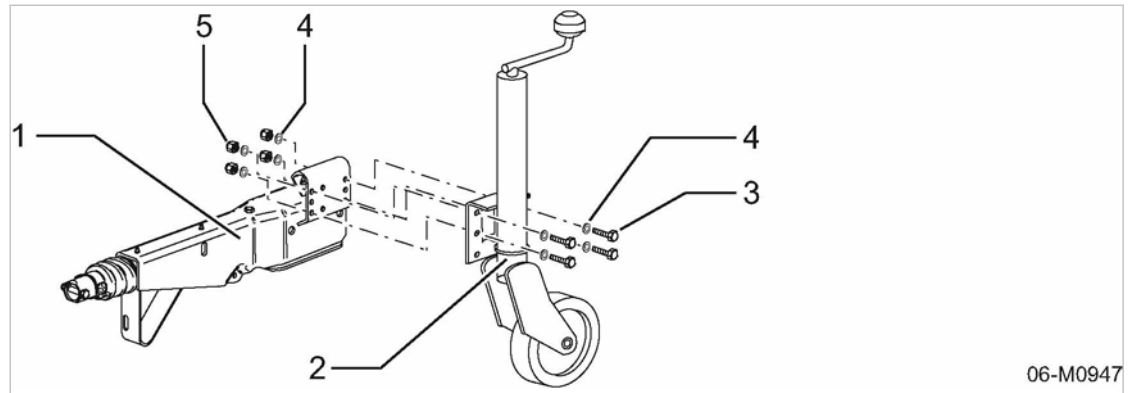


Fig. 26 Fitting the jockey wheel of the non-adjustable tow bar

- | | | | |
|---|---------------------------|---|----------------------------|
| ① | Overrun braking mechanism | ④ | Washer |
| ② | Jockey wheel | ⑤ | Hexagon nut (self locking) |
| ③ | Fastening screw | | |

1. Place a U-washer on each securing screw and insert each of these into the top four securing holes on the jockey wheel mounting plate.
2. Raise the overrun braking mechanism and position such that the securing holes of the jockey wheel mounting plate and the overrun braking mechanism coincide.
3. Push through the securing screws and push on the U-washers.
4. Secure the bolts with self-locking nuts.

6.4 Adjusting the chassis

Material Pliers
Hard rubber hammer

Precondition The machine is shut down.
The machine is disconnected from the towing vehicle and safely parked.

⚠ CAUTION

Danger of pinching!

Severe injury to fingers is possible if they become trapped in the adjusting mechanism.

- *Always wear protective gloves.*
- *Work carefully.*

6.4.1 Option rb/rk/rm/rs, rb/rl/rm/rs Adjusting the towbar height

Option rb/rk/rm/rs,
rb/rl/rm/rs

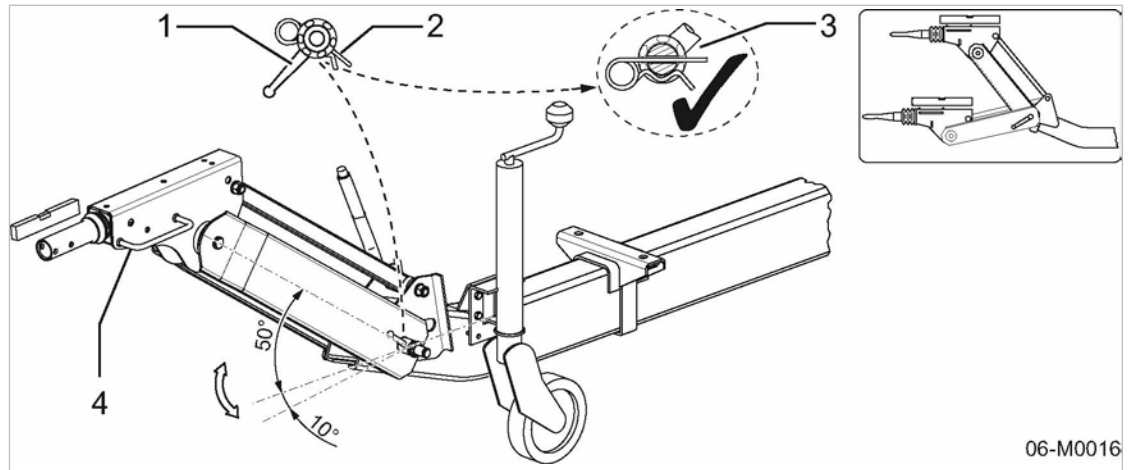


Fig. 27 Towbar height adjustment

- | | |
|-----------------|-------------------------------|
| ① Locking lever | ③ Split pin properly inserted |
| ② Split pin | ④ Handle |

1. Pull out the split pin and unscrew the locking lever to the stop.
2. Adjust the towbar with the handle until it is horizontal with the coupling on the towing vehicle and parallel to the ground.



The parallel tie bar ensures that the overrun braking mechanism stays horizontal (Fig. 27).

The centre-piece can be moved up to 50° upwards and 10° downwards for height adjustment.

3. Tighten the locking lever:
 - Make sure the teeth in the adjustment joint mesh together.
 - Manually tighten the locking lever.
 - Use a hammer to hit the locking lever to further tighten the lower serrated joint until the bore and the groove for the splint pin are aligned
4. Insert the splint pin.
5. Check if:
 - the teeth in the adjustment joint are fully engaged.
 - The locking lever is tight.
 - The split pin is correctly inserted to secure the locking lever (see 3 in Fig. 27).
6. Tighten the locking lever again after 30 miles.



The serrated joint will not disengage. The serrations are corroded together.

- Free the serrations by jerking the towbar horizontally and vertically.

6.4.2 Changing the towing eye/ball hitch

The towbar can be fitted with various towing eyes or couplings.

Material Protective gloves
Wrench
Hammer

Precondition The machine is shut down.
The machine is disconnected from the towing vehicle and safely parked.
➤ Ascertain which towbar is fitted to the machine.

6.4.2.1 Option rb/rk/rm/rs, rb/rl/rm/rs

Changing the towing eye/ball hitch on a height-adjustable towbar

The following alternative tasks must be carried out to change the towing eye or coupling.

Option rb/rk/rm/rs,
rb/rl/rm/rs

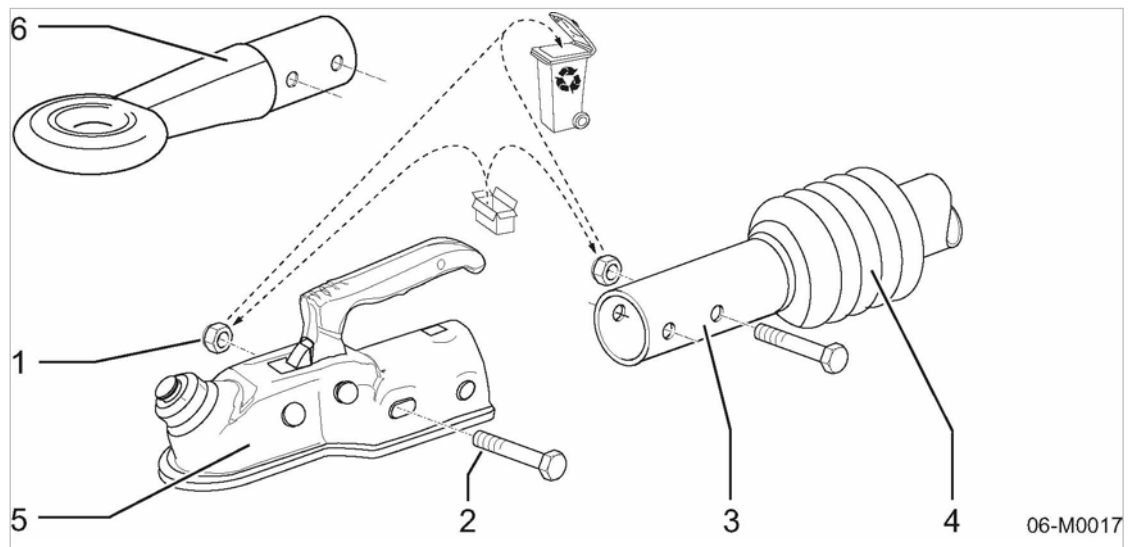


Fig. 28 Changing the towing eye (height-adjustable drawbar)

- | | |
|----------------------------|---------------------|
| ① Self-locking hexagon nut | ④ Protective sleeve |
| ② Hex-head screw | ⑤ Ball coupling |
| ③ Towbar | ⑥ Towing eye |

Remove the ball coupling	Removing the towing eye
1. Unscrew the nuts ① of both screw connections and withdraw the bolts ②.	1. Push back the protective sleeve ④.
2. Remove the coupling ⑤ from the towbar ③.	2. Unscrew the nuts ① of both screw connections and withdraw the bolts ②.
	3. Remove the towing eye ⑥ from the towbar ③.

Fitting the ball coupling	Fitting the towing eye
1. Fit the new ball coupling (5) to the towbar. 2. Position the various parts so that the bolts can be freely inserted. 3. Insert the bolts (2) through the corresponding fixing holes of both screw connections and secure with self-locking nuts (1).	1. Slide the towing eye (6) into or onto the towbar (3). 2. Position the various parts so that the bolts can be freely inserted. 3. Insert the bolts (2) through the corresponding fixing holes of both screw connections and secure with self-locking nuts (1). 4. Draw the protective sleeve (4) over the fixings.

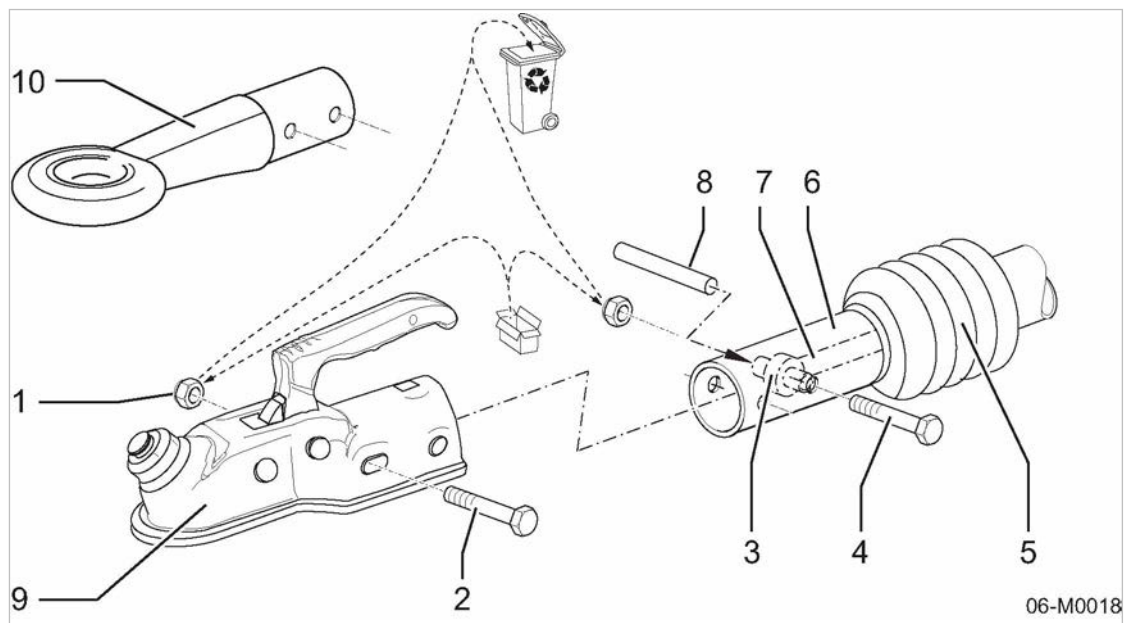
6.4.2.2 Option rc/ro/rs, rd/ro/rs

Changing the towing eye/ball hitch on a fixed-height towbar

The shock absorber is secured in the rear fixing screw. The shock absorber extends automatically. Use a mounting pin (thin metal rod with $\varnothing$ 0.3 – 0.4 inches) to facilitate the installation.

Material Mounting pin (thin metal rod $\varnothing$ 0.3 – 0.4 inches)

Option rc/ro/rs



06-M0018

Fig. 29 Changing the towing eye/ball hitch (fixed height towbar)

- | | |
|-------------------------------|--------------------|
| (1) Self-locking hexagon nut | (6) Towbar |
| (2) Hex-head screw | (7) Shock absorber |
| (3) Shock absorber fixing eye | (8) Mounting pin |
| (4) Hex-head screw | (9) Ball coupling |
| (5) Protective sleeve | (10) Towing eye |

Option rd/ro/rs

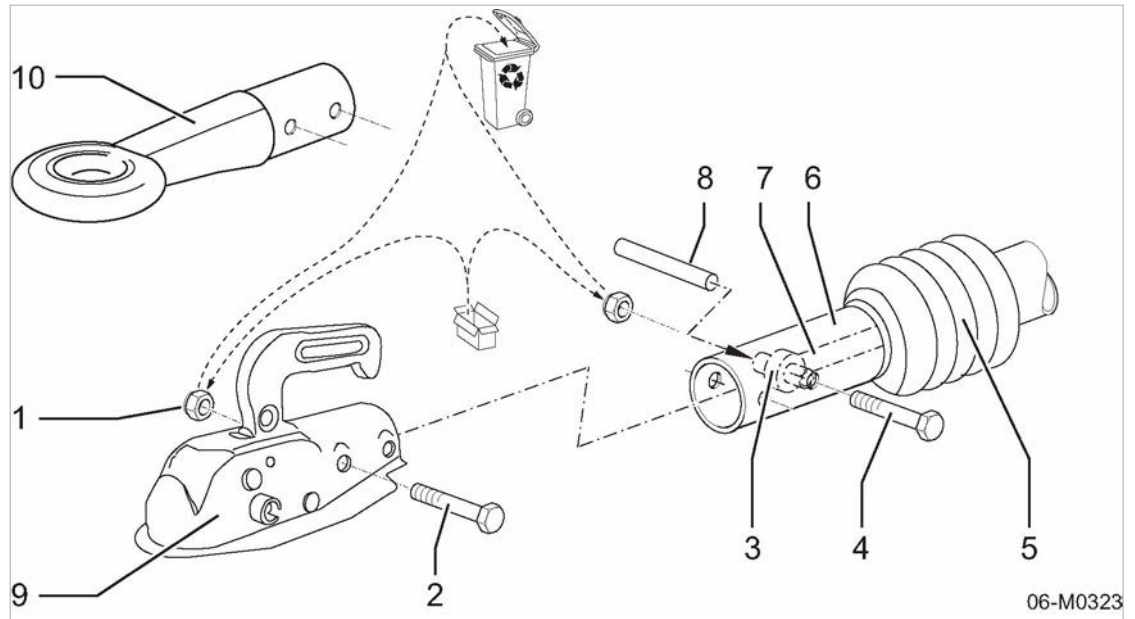


Fig. 30 Changing the towing eye (fixed height towbar, USA chassis version)

- | | |
|-----------------------------|------------------|
| ① Self-locking hexagon nut | ⑥ Towbar |
| ② Hex-head screw | ⑦ Shock absorber |
| ③ Shock absorber fixing eye | ⑧ Mounting pin |
| ④ Hex-head screw | ⑨ Ball coupling |
| ⑤ Protective sleeve | ⑩ Towing eye |

1. Push back the protective sleeve ⑤.
2. Unscrew and remove the nuts ① of both screw connections.
3. Use the mounting pin ⑧ to beat out the rear screw ④. Do not remove the pin in order to retain the centring of the shock absorber in the towbar tube.
4. Remove the front screw ②.
5. Remove the ball coupling ⑨ or towing eye ⑩ from the towbar tube ⑥.
6. Push the new ball coupling ⑨ or towing eye ⑩ onto the towbar ⑥ until the fixating holes match.
7. Use the screw ④ at the rear fixating hole of the towing eye/ball coupling to beat out the mounting and pin and to thread the shock absorber.
8. Insert the screw ② through the front fixating hole.
9. Thread self-locking nuts ① on both screws and tighten with torque wrench (see chapter 2.4.4).
10. Draw the protective sleeve over the fixings.

Checking the overrun braking mechanism

- Push the towbar tube in and out by hand.
If resistance is felt, the shock absorber is properly connected.

7 Initial Start-up

7.1 Ensuring safety

Follow the instructions below for safe commissioning of the machine.
Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Commissioning work may only be carried out by authorized personnel!
- Make sure that no one is working on the machine.
- Ensure that all service doors and panels are locked.

Further information Details of authorized personnel are found in chapter 3.4.2.
Details of dangers and their avoidance are found in chapter 3.5.

7.2 Before initial start-up (or recommissioning)

Incorrect or improper commissioning can cause injury to persons and damage to the machine.

7.2.1 Instructions to be observed before commissioning or recommissioning



The initial start-up of every machine takes place at the factory. Every machine is also given a trial run and passes a careful check.

- Commissioning may only be carried out by authorized installation and service personnel who have been trained on this machine.
- Remove all packing materials on and in the machine.
- Observe the machine during the first few hours of operation to ensure that it is operating correctly.

7.2.2 Special measures for re-commissioning after storage

- Carry out the following before every start-up after long period of storage:

Storage period longer than:	Remedy
5 months	➤ Remove the desiccant from the openings in the air intake filters of the engine and compressor. ➤ Check the air and oil filters. ➤ Drain the preserving oil from the separator tank. ➤ Fill with cooling oil. ➤ Drain the preserving oil from the engine. ➤ Fill with engine oil. ➤ Check the engine coolant ➤ Check the battery charge state. ➤ Reconnect the battery. ➤ Check all fuel lines, engine oil lines and compressor cooling oil lines for leaks, loose connections, wear and damage. ➤ Clean the bodywork with a grease and dirt dissolving agent. ➤ Check the tire pressures.
36 months	➤ Have the overall technical condition checked by an authorised KAESER Service Technician.

Tab. 68 Measures for re-commissioning the compressor after a long period of storage

7.3 Checking installation and operating conditions

- Check and confirm all the items in the checklist before starting the machine.

Check	See chapter	Confirmed?
➤ Are the operators fully conversant with safety regulations?	–	
➤ Have all the positioning conditions been fulfilled?	5	
➤ Is there sufficient cooling oil in the separator tank?	10.4.1	
➤ Is there sufficient oil in the engine?	10.3.4	
➤ Is the maintenance indicator on the air intake filters (engine and compressor) OK?	10.3.2, 10.4.7	
➤ Is there sufficient coolant in the coolant expansion tank?	10.3.1	
➤ Is there sufficient fuel in the fuel tank?	–	
➤ Is there sufficient tool oil in the tool lubricator? (option ea, ec)	10.8.1	
➤ Is there enough antifreeze in the frost protector? (Option ba)	10.8.5	
➤ Are the access doors closed and all body panels in place?	–	
➤ Are the tire pressures OK?	–	

Tab. 69 Positioning and operating conditions checklist

7.4 Low-temperature operation (winter)

The machine's electrical equipment is designed for starting at ambient temperatures as low as 14°F.

- In temperatures below 32°F, use the following operating materials/components:
 - Winter-grade engine oil,
 - Low viscosity cooling oil for the compressor
 - Winter-grade diesel fuel
 - Stronger battery



Use air hoses that are as short as possible under extremely cold conditions.

Allow the engine to warm up:

1. **NOTICE** *Problems with pneumatic control at low temperatures. Damage to the machine may be caused by ice particles in the pneumatic control and feedback systems.*
 - *Let the machine warm up in IDLE to ensure trouble-free regulation.*
2. Allow the machine to warm up in idle with open air outlet valves until an airend discharge temperature of 86°F is reached. The airend discharge temperature is shown at the remote thermometer contact on the instrument panel.

7.4.1 Starting assistance

If the machine's starter battery is discharged, it can be started with the battery of another vehicle or engine-driven machine.

Material Jumper cables

Precondition The machine is disconnected from the towing vehicle and safely parked.

⚠ WARNING

Fire and explosion hazard.

High currents can flow if the battery is short-circuited. A shorted battery can catch fire or explode.

Battery casing may crack and allow acidic fluid to spray out.

- *Observe the instructions provided with the battery jumper cables.*
- *Do not connect the battery jumper cables to the negative pole of the discharged battery or to the bodywork of the machine.*
- *Work with caution.*

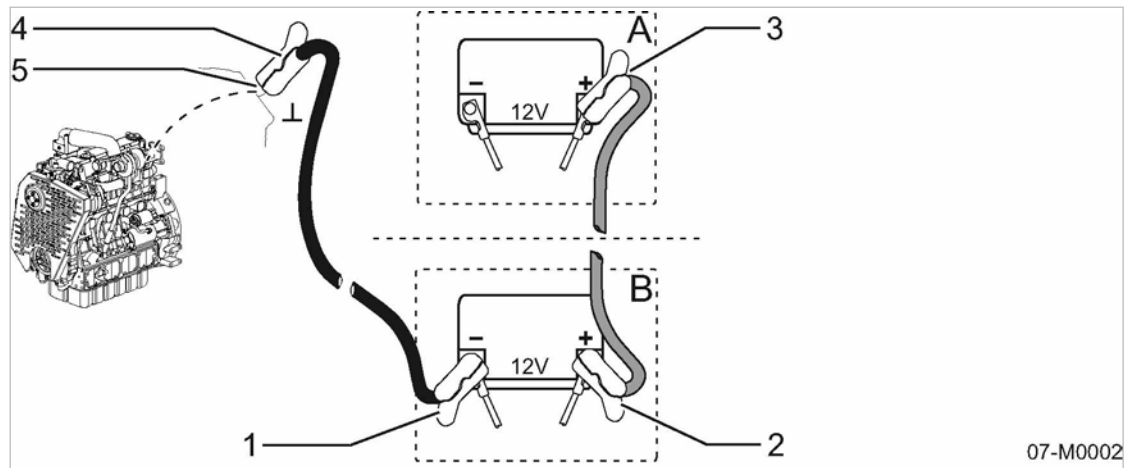


Fig. 31 Jumper cable connection diagram

- | | |
|--|--|
| (A) Engine battery (receiving battery) | (3) Positive pole clamp (red) on engine battery |
| (B) Assisting vehicle battery (external donor battery) | (4) Negative pole clamp (black/blue) on engine battery |
| (1) Negative pole clamp (black/blue) on battery of assisting vehicle | (5) Bare metal point on the engine block (ground) |
| (2) Positive pole clamp (red) on battery of assisting vehicle | |

Complying with safety warnings

- ⚠ WARNING** *Fault in starting aid process!*
 - Connect batteries of the same voltage only.
 - Ensure that machine and assisting vehicle do not touch.
 - Switch off all consumers prior to connecting and disconnecting the batteries.
 - Only use battery jumper cables of sufficient diameter and with insulated terminal clamps.
 - Observe the instructions provided with the battery jumper cables.
 - Keep jumper cables away from rotating parts.
 - Avoid short-circuits due to incorrect poling and/or bridging with tools.
 - Do not bend over the batteries when attaching jumper cables.
 - Do not attempt to start the machine if its battery is frozen. Allow the battery to thaw first.
 - Do not try to start the machine with a boost charger.
- Comply with the safety instruction shown when using starting aids and starter batteries.

Preparations:

- Park the assisting vehicle in close distance to the engine, without their bodywork touching each other.
- Stop the engine of the assisting vehicle.
- Open the accesses to the batteries (remove maintenance panels/bonnet and pole caps).
- Switch off all power consumers.

7 Initial Start-up

7.4 Low-temperature operation (winter)

Connecting the battery jumper cables

1. Clamp the first terminal clamp ③ of the red jumper cable to the positive pole of the engine's battery.
2. Clamp the second terminal clamp ② of the red jumper cable to the positive pole of the assisting vehicle's battery.
3. **⚠ DANGER** *Explosion hazard!*
A spark may ignite an explosive gas mixture.
 - *Do not, under any circumstances, connect the negative pole of the assisting machine to the negative pole of the battery in the machine to be started.*
This can cause sparks when connecting and disconnecting.
 - *Work with caution.*
4. Connect the first pole clamp ④ of the black jumper cable to the engine block or a connected, solid and unpainted metal component of the engine ⑤ (as distant as possible to the batteries).
5. Clamp the second terminal clamp ① of the black jumper cable to the negative pole of the assisting vehicle's battery.

Starting the engine

1. Start the engine of the assisting vehicle and run at high speed.
2. Start the compressor engine.



Upon a successful start, run both engines for approximately 10 - 15 minutes. This is important, in particular for fully discharged battery. The battery will pick up only little current in the beginning and has a high internal resistance. Any voltage peaks occurring in the engine generator in this state can be attenuated only by the battery of the assisting vehicle. The engine electronics in particular, of the machine is sensitive to high voltages and could be damaged easily.

Disconnecting the battery jumper cables

1. Stop the engine of the assisting vehicle.
2. Disconnect the jumper cables in the reverse order, first negative (-) then positive (+).
3. Place the pole caps.
4. Close the maintenance panels and/or bonnet.



A stop of the compressor engine as soon as the cables are disconnected could indicate major damage to the alternator or battery to be repaired by a specialized workshop.

7.4.2 Option ba Starting up low-temperature equipment

- Ascertain which low temperature equipment is fitted to the machine.

Option bb Operating the engine cooling water pre-heater

The engine coolant can be pre-heated to improve starting under cold conditions.
The connection for the power supply is located on the machine's instrument panel.

Option bb

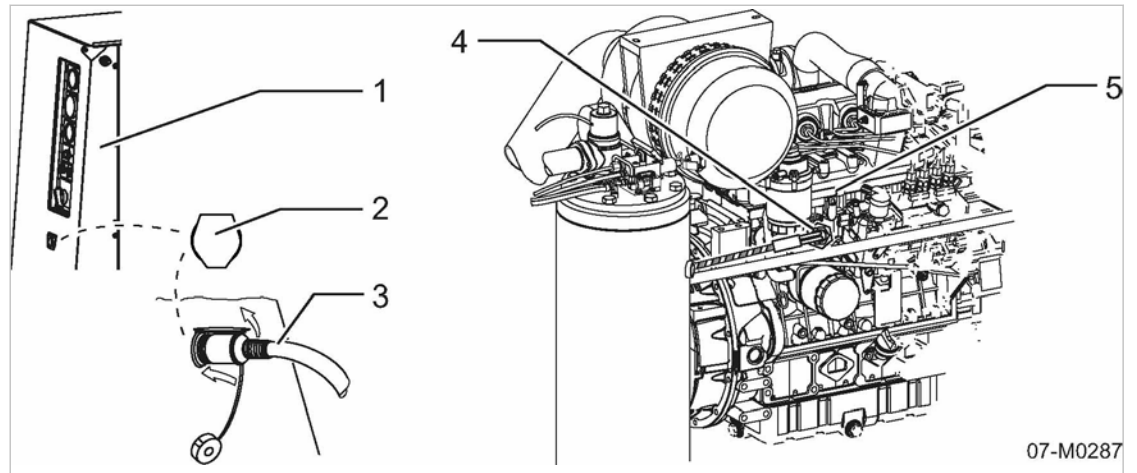


Fig. 32 Engine coolant pre-heating

- | | |
|---|-----------------------|
| ① Operating panel | ④ Coolant pre-heating |
| ② Connection for the coolant pre-heater | ⑤ Engine block |
| ③ Power cable | |

- ⚠ DANGER** *Danger of fatal injury from electric shock!*
Serious injury or death can result from a short-circuit in the electric coolant pre-heater.

 - *The power cable for the coolant pre-heater may only be plugged into an electrical socket fitted with a protective ground.*
 - *Have the coolant pre-heating and associated wiring checked according to the maintenance schedule.*
- Connect the coolant pre-heater to the user's power socket with the power cable supplied.

Option bc **Operating the frost protector**

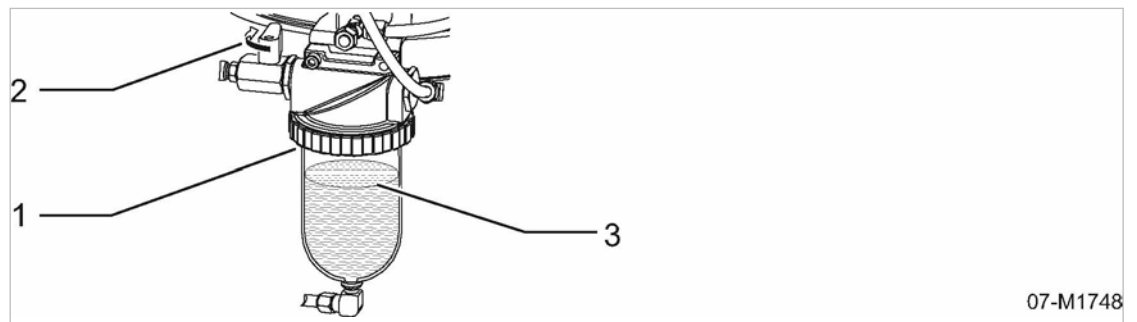


Fig. 33 Operating the frost protector

- | |
|-----------------------|
| ① Frost protector |
| ② Ball valve (closed) |
| ③ Level of antifreeze |

- Use the checklist when initially starting the frost protector.

To be checked	see chapter	Confirmed?
Level of antifreeze in the frost protector.	10.8.5	

To be checked	see chapter	Confirmed?
Close the tap on the frost protector.	8.5	

Tab. 70 Low-temperature equipment checklist

7.5 Option ga, gb Activating the generator

The generator can be operated without grounding.

Test the insulation monitor daily with the engine running before activating the generator.

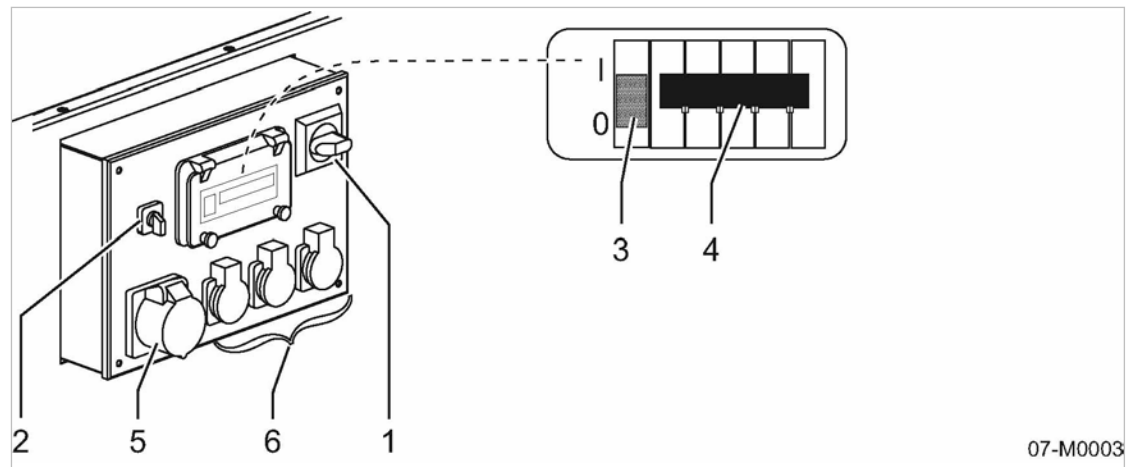


Fig. 34 Insulation monitoring - 400 V AC, 3-phase generator

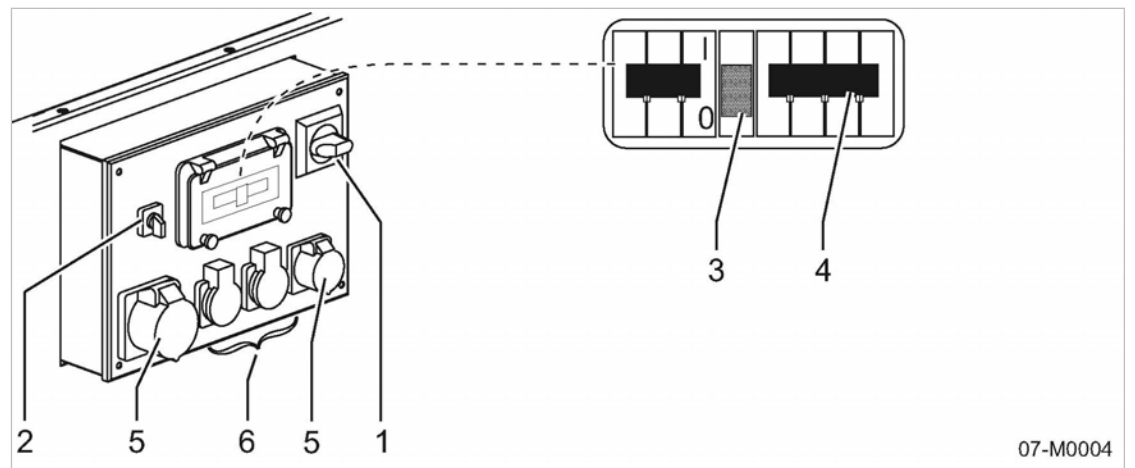


Fig. 35 Insulation monitoring - 230 V AC, 3-phase generator

- | | |
|---|---|
| ① «Main switch» | ④ «Main circuit breaker» |
| ② «Mode selection switch» | («Circuit breaker» designed as automatic circuit-breaker with shunt trip) |
| ③ Test button «Insulation monitor» with indicator light for <i>ground short</i> | ⑤ Three-phase AC power sockets |
| | ⑥ Single-phase AC power sockets |

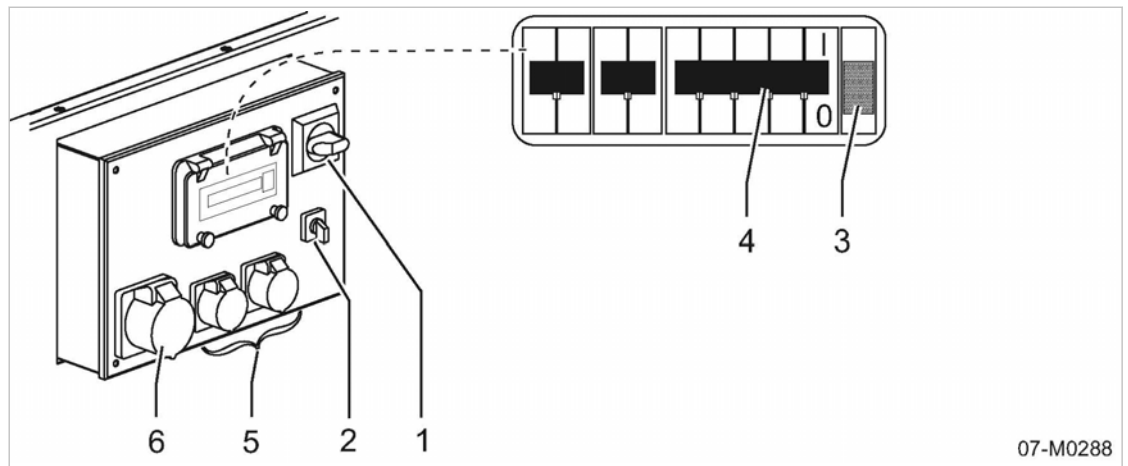


Fig. 36 insulation monitoring - 115 V, single-phase generator

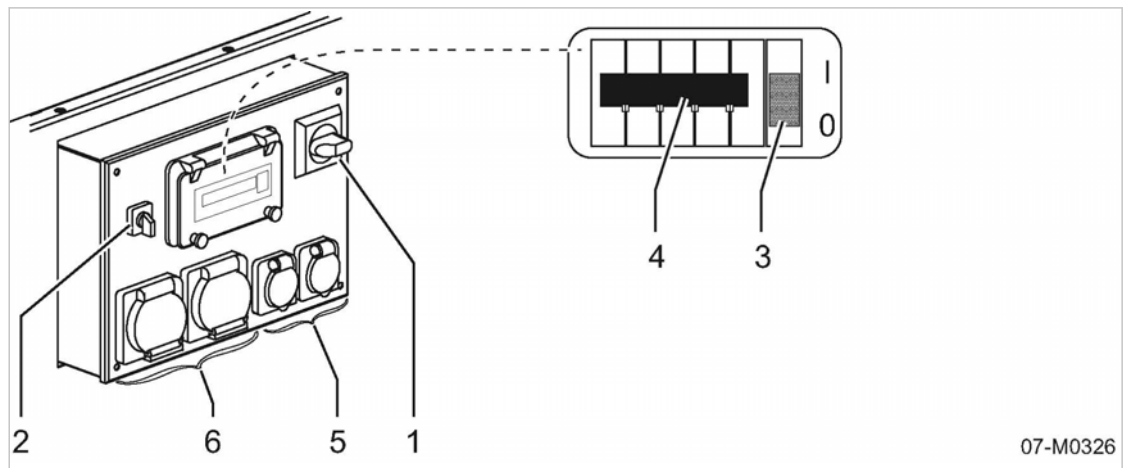


Fig. 37 insulation monitoring - 230 V, single-phase generator

- | | |
|---|---|
| ① «Main switch» | ④ «Main circuit breaker» |
| ② «Mode selection switch» | («Circuit breaker» designed as automatic circuit-breaker with shunt trip) |
| ③ Test button «Insulation monitor» with indicator light for <i>ground short</i> | ⑤/⑥ AC power sockets |

1. Activate the machine.
2. **⚠ DANGER** *Danger of fatal injury caused by contact with live components!*
 - *The generator may only be used if the «circuit breaker» («main circuit breaker») has tripped during the test!*

3. Check the insulation monitor according to instructions:



Test instructions are provided on the label attached to the generator control box.

DANGER!**Electrical power.**

Danger of fatal injury caused by contact with live components!

- ▶ Test the «main circuit breaker» each day while the machine is running.
- ▶ The generator may only be operated if the main circuit breaker is functioning correctly.

Checking the *safety cut-out*.

- Turn on «main circuit breaker» ④ for the generator.
- Press and hold the «test button» ③ for 3 seconds.

The «main circuit breaker» ④ trips.

Problem: The «main circuit breaker» does not trip out?

- Shut down the generator and call your authorized KAESER service representative.

Tab. 71 Test instructions for a generator with an ground short detection device.

8 Operation

8.1 Ensuring safety

Follow the instructions below for safe operation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Make sure that no one is working on the machine.
- Ensure that all service doors and panels are closed and secured.

Preventing accidental contact

Intensely heated, rotating, or electrically-live components can cause severe injuries.

- Ensure that all doors, canopy and panels are closed.
- Do not carry out any checks or settings while the machine is running.
- Shut down the machine before opening any doors/canopy.

When working on live components

Touching voltage-carrying components can result in electric shocks, burns or death.

- Work on electrical equipment may only be carried out by authorized electricians.

Safe working with compressed air tools and hoses

Open pressurized compressed air hoses move erratically and can cause serious injury to people.

- Pressurize compressed air hoses only after the tool has been connected.
- Do not pressurize open compressed air hoses.
- Detach compressed air hoses only after the hose has been purged of compressed air.
- At working pressures >100 psig, compressed air hoses should be secured by a cable to their respective outlet valves.

Condensate formation in compressed air hoses

Use the shortest possible compressed air hoses to minimize the temperature difference between the machine's compressed air outlet and the air tool. The hose length represents a cooling section. With increasing cooling, the compressed air gives off moisture capable of damaging the air tool.

- Use short compressed air hoses.

Condensate formation in compressed air receivers

Compressed air stored in a containers will cool down. The compressed air precipitates moisture that collects at the container's bottom. Corrosion may damage the container.

- Regularly drain the condensate.

Further information Details of authorized personnel are found in chapter 3.4.2.
 Details of dangers and their avoidance are found in chapter 3.5.

8.2 Starting and stopping

Precondition No personnel are working on the machine.
 All doors and siding panels are closed.

NOTICE

Serious damage to engine from cold starting sprays.

Cold-start assists, such as ether or other sprays, can cause severe engine damage.

- *Do not use cold start sprays.*

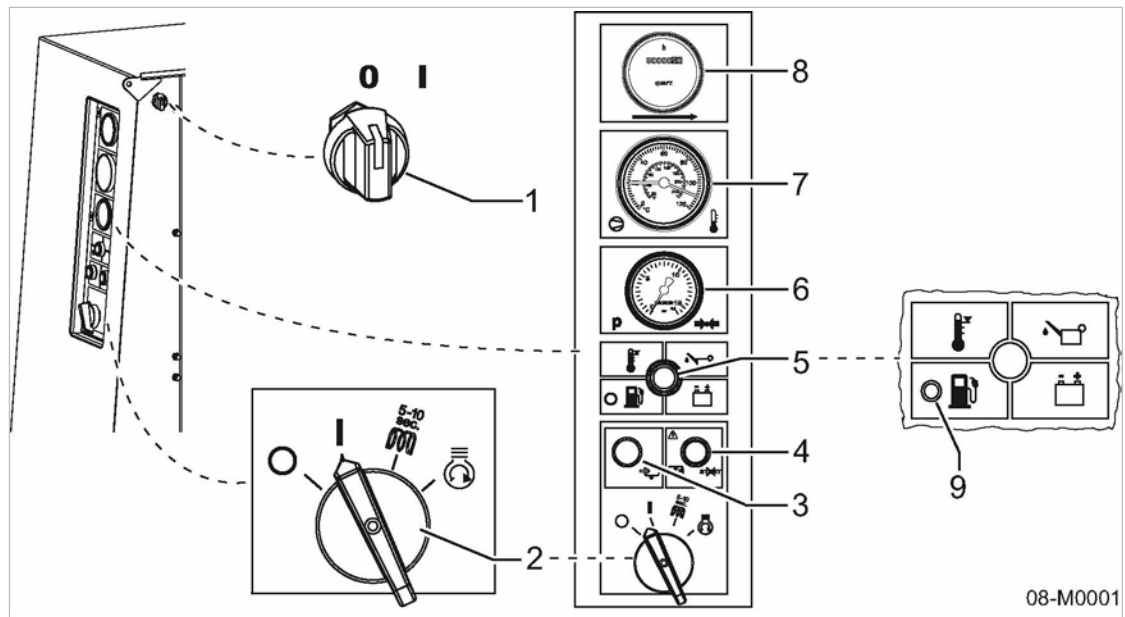


Fig. 38 Starting instruments

- | | |
|--|--|
| ① «Controller on» switch | ⑥ Compressed air outlet pressure gauge |
| ② «Starter switch» | ⑦ Temperature gauge switch |
| ○ – STOP/Off | ⑧ Operating hours counter |
| I – On | ⑨ – Fuel level monitoring light |
| 🔥 – Preheat | |
| 🔧 – START | |
| ③ – «Load On» key with integrated LOAD mode indicating light | |
| ④ – Back-pressure indicating light | |
| ⑤ – Charging indicating light, group alarm lamp | |

Notes concerning snow and ice

Considerable snow or ice may build up on the machine under low temperature conditions.

- Remove any snow and ice from the machine before operating.

8.2.1 Starting the machine

1. Open the right-hand access door.
2. Switch «On» the Controller.
3. Close the door.
4. Turn the « starter switch » to "ON".
The *generator indicator lamp* must light.

8.2.2 Engine pre-heating

The preheating period should be between 5 and a maximum of 10 seconds depending on ambient temperature. Low ambient temperatures require a longer preheating period.



The electric fuel pump starts automatically during pre-heating. This vents the fuel line before each start.

1. **NOTICE** *Destruction of the glow plug*
Excessive pre-heating can cause severe damage to the glow plug.
 - *Never allow the glow plugs to operate for longer than 10 seconds.*
2. Turn the «starter switch» to the "Pre-heat" position and hold for 8 to 10 seconds.
The engine's glow plugs are energised and the engine pre-heated.

8.2.3 Starting the machine

1. **NOTICE** *Destruction of the starter!*
Improper operation could destroy the starter.
 - *As long as the engine is running, do not actuate the starter switch.*
 - *Do not turn and hold the starter switch for longer than 30 seconds.*
 - *Wait for a few minutes after each attempt to start the engine.*
 - *The starter switch must be returned to the neutral position before each start attempt (re-start protection).*
2. Turn the «starter switch » to "START" and release it as soon as the engine starts.
The *charging indicator lamp* extinguishes as soon as the engine is running.

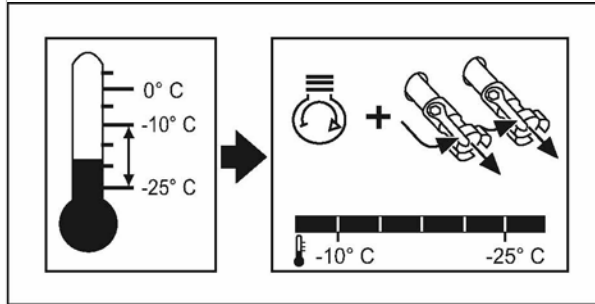


If the *Back pressure lamp* lights, there is back pressure in the system and the start is prevented. Only when the back-pressure lamp extinguishes has the pressure in the system fallen sufficiently to allow the machine to be restarted.

8.2.4 Allow the machine to run up to operating temperature

To avoid unnecessary wear, the engine should be run in IDLE until the airend discharge temperature reaches +86 °F. The airend discharge temperature is shown at the remote thermometer contact on the instrument panel.

Option ba



08-M0008

Fig. 39 Label referring to the warm-up period when ambient temperatures are below -50 °F

- Allow the machine to warm up in IDLE (low speed).

8.2.5 Switching to LOAD

Precondition The airend discharge temperature must be at least +86 °F.

1. **⚠ WARNING** *Compressed air can cause serious injuries.*
 - *Never direct compressed air at persons or animals.*
 - *Make sure that no one is working on the machine.*
 - *Ensure that all panels are in place.*
 - *Ensure that all machine doors are closed.*
2. Press the «Load On » button.

Result The integrated *LOAD* indicator lights and the engine accelerates to maximum speed.

8.2.6 Manually setting the discharge pressure

⚠ CAUTION

Danger from incorrectly set pressure!

Danger from malfunctioning or not functioning compressed air tools when the machine's discharge pressure is set incorrectly.

- *Use connected compressed air tools only with the pressure appropriate for its purpose (tool working pressure).*
- *Comply with the information and notes provided in the compressed air tool's operating instruction.*

Discharge pressure is adjusted manually on the proportional controller. The proportional controller is located on the machine's oil separator tank cover. The required pressure can be seen on the gauge on the instrument panel.



The pressure setting on the proportional controller can only be lower than the maximum working pressure of the machine.

Precondition The machine is switched off.

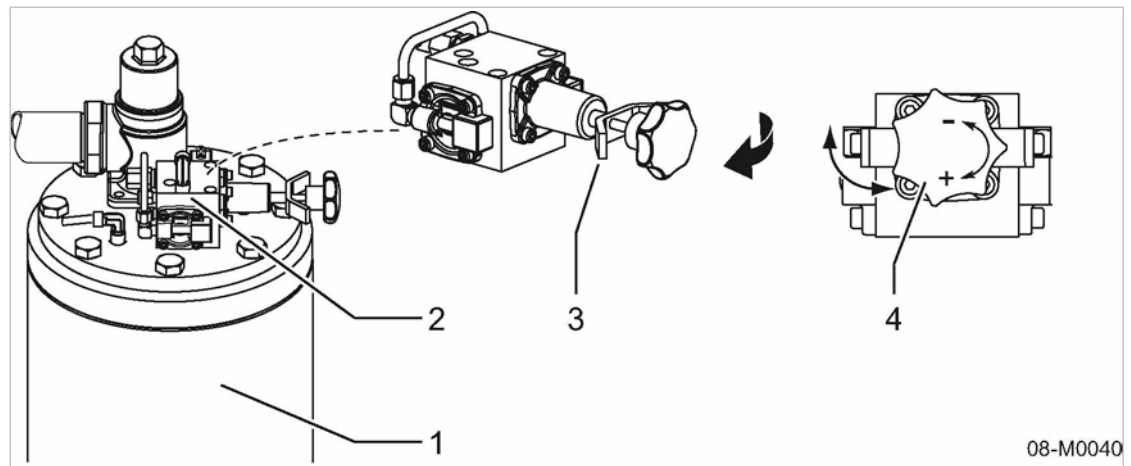


Fig. 40 Proportional controller

- | | |
|---------------------------|---------------------------|
| ① Oil separator tank | ③ Adjusting knob lock |
| ② Proportional controller | ④ «Pressure setting» knob |

1. Open the right-hand access door.
2. Unlock the «pressure setting» knob by turning counter-clockwise.
3. Set the required pressure with the «pressure adjusting» knob.
 - Turn the knob to the right side in order to increase the discharge pressure.
 - Turn the knob to the left side in order to decrease the discharge pressure.
4. Tighten the adjustment knob lock.
5. Close the door.
6. Start the machine and switch to LOAD mode.
7. Open the «compressed air outlet valve» on the air distributor slightly.
8. Check the pressure set on the instrument panel gauge.



If the indicated pressure is not the discharge pressure required, the machine should be shut down and the setting procedure repeated.

8.2.7 Shutting down the machine

Operating the machine in the cool-down phase

1. **NOTICE** *Thermal overload of the turbocharger!*
Abrupt stopping of the engine under load can cause a fault or damage to the turbo charger.
 - *Run the engine a few minutes in idle before shutting down to allow the turbocharger to cool.*
2. Close all «compressed air outlet valves» on the air distributor.
 The engine runs in IDLE and the turbo charger can cool down.
3. After approx. 2 to 3 minutes, switch the «starter switch» to the "STOP/Off" position.
 The engine turns off.

Shutting down the machine:

1. Open the right-hand access door.

2. Switch off the «» controller.
3. Close the door.



Secure both doors with locks as necessary.

8.3 Monitoring fuel level in the fuel tank

The fuel tank is fitted with a fuel level monitor.

When the fuel level drops to a certain point, the *fuel level* warning lamp (yellow) on the instrument panel lights.

- Check the indicator lamp *fuel level*.



Indicator lights.

- Fill the fuel tank immediately.

Further information Further information on the fuel tank monitoring can be found in chapter 4.6.

8.4 Option ea, ec Operating the tool lubricator

Precondition The machine is switched off.
Tool lubricator is filled with oil

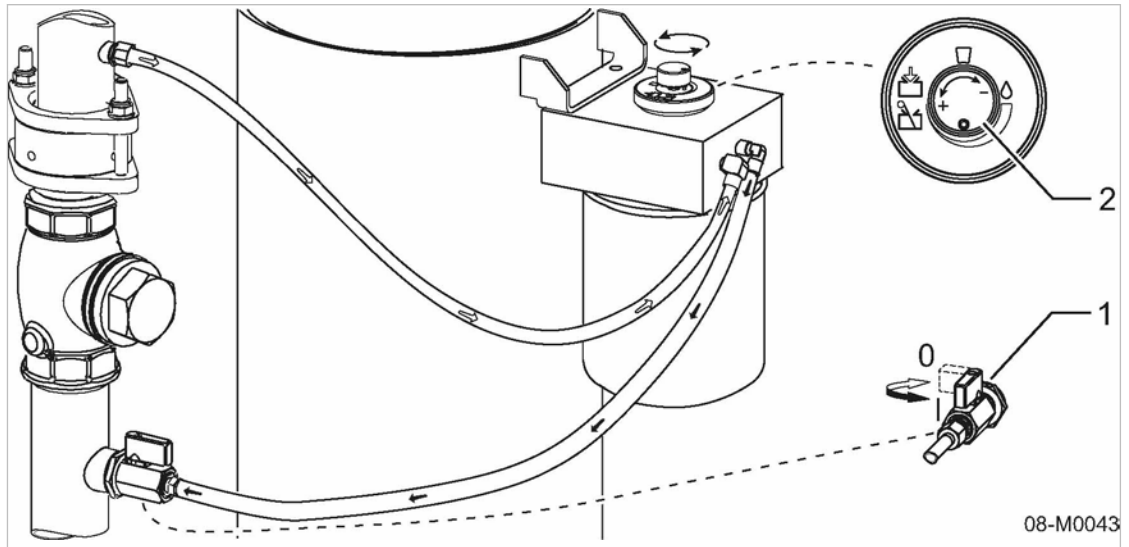


Fig. 41 Setting the tool lubricator

- ① Shut-off valve
I – open
0 – closed
- ② Metering knob

- Open the right-hand access door.

Adding lubricating oil

1. Open the shut-off valve.
2. Close the access door.

Setting the oil flow

The amount of oil the compressed air should contain depends on the application and must be determined by the user. It depends on the nature of the air consumers and the supply hoses.

The metering valve controls the flow of oil into the air.

- Clockwise adjustment reduces the oil flow.
- Counter-clockwise adjustment: increases the oil flow.

1. Set the required oil flow.
2. Close the access door.

Further information Fill the tool lubricator with suitable oil (see chapter 10.8.1)

Shutting off lubricating oil

1. Close the shut-off valve.
2. Close the access door.

8.5 Option ba

Using the low-temperature equipment

- Ascertain which low temperature equipment is fitted to the machine.

8.5.1 Option bb

Pre-warms the engine cooling water

- Start the engine coolant pre-heating as described in chapter 7.4.2.

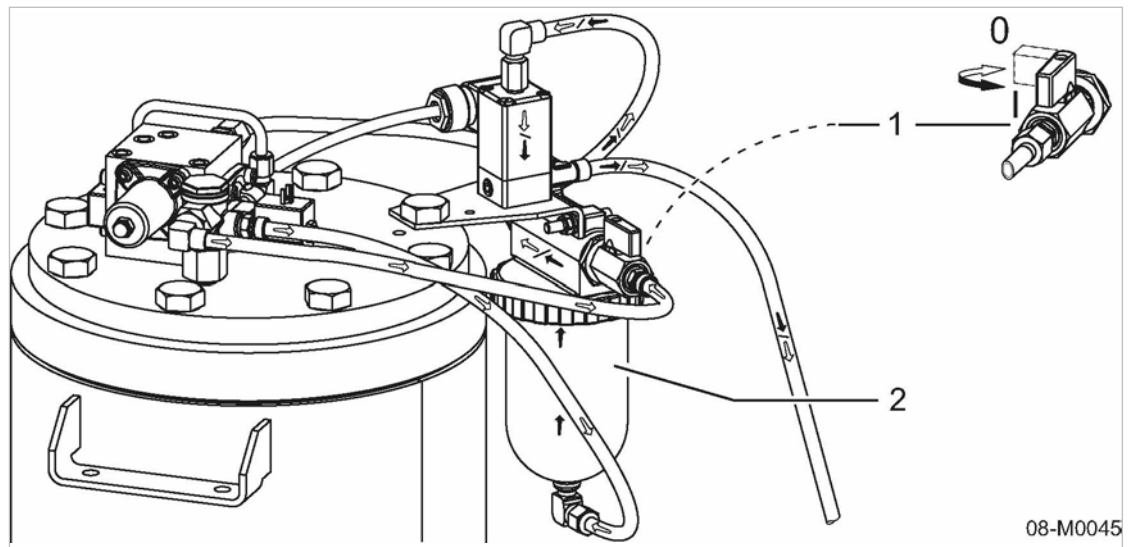
8.5.2 Option bc
Operating the machine with frost protector


Fig. 42 Frost protector on and off

- ① Shut-off valve
I – open
0 – closed
- ② Frost protector tank

Precondition The machine is switched off.

- Open the right-hand access door.

Using with the frost protector switched on

Operation at temperatures below 32 °F (winter operation).

Precondition Frost protector filled with antifreeze

1. Keep the frost protector shut-off valve permanently closed (position 0).
2. Close the door.

Result The machine is ready for winter operation.

Further information See chapter 10.8.5 for filling the frost protector with antifreeze.

Using with the frost protector switched off

Operating at temperatures above 32 °F (summer operation).

1. Leave the frost protector shut-off valve open permanently (position I).
2. Close the door.

8.6 Option oa Operating the battery isolating switch

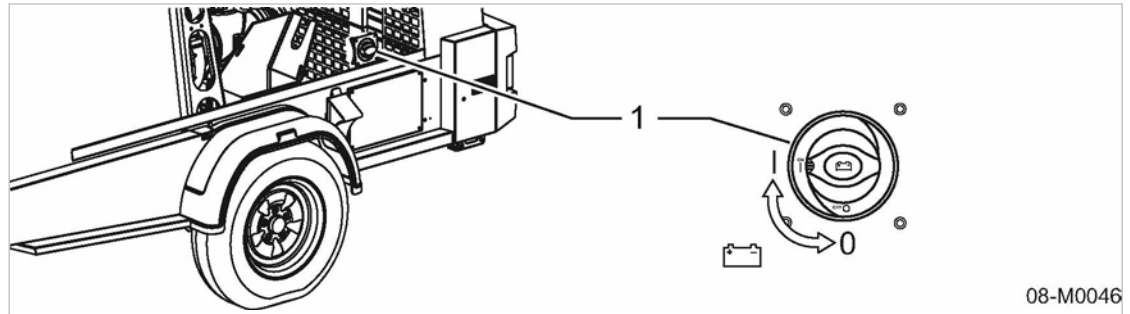


Fig. 43 Battery isolating switch

- ① «Battery isolating switch»
I – on
0 – off

➤ Open the left-hand door.

Start the machine

1. Switch the «battery isolating switch» on.
The battery is now connected to the machine's electrical system. The machine can now be started.
2. Close the access door.

Shutting down the machine:

1. Switch the «battery isolating switch» to the “off” position
The battery is disconnected from the machine's electrical system.
2. Close the access door.

8.7 Option ga, gb Generator operation

The generator may be operated immediately after the activation of the machine, during the warm-up phase.

⚠ DANGER

Risk of fatal injury caused by contact with live components!

- Check correct function of the insulation monitoring device daily (see chapter 7.5).
 - Have the generator and control box checked annually by a qualified electrician (see chapter 13.9).
- Follow instructions in chapter 3.9.

8.7.1 Note when operating the generator

Do not exceed the maximum supply system load:

- When operating the generator, do not exceed the maximum supply system load due to connected consumers.

Bear in mind:

- The power consumption values of simultaneous consumers are added.
- The maximum continuous power loading on the generator by the connected consumers is limited by the safety cut-out.

8.7.2 Switching in the generator

1. Turn the «generator main switch »to the "I" position.
2. Set the «automatic circuit-breaker(s)» to the "I" position.
3. Turn the mode selector switch to the required mode of operation.

Result The engine runs at maximum speed and the generator generates power.

Further information See chapter 4.7.5.2 for generator controls.
See chapter 4.7.5.1 for generator operating modes.

Connect electrical consumers

1. **⚠ DANGER** *Devices start automatically without warning.
Serious injury and damage to property is possible.*
 - *Make sure that electric consumers are switched off.*
2. Before connecting electrical consumers, carry out the following:
 - Determine the consumption values of the electric consumers.
 - Do not exceed the maximum system load caused by electric consumers. If necessary, reduce the number of connected consumers.
 - Read the technical specification for the generator before connecting voltage-sensitive equipment.
 - Check that electrical consumers and their connecting cables are in perfect condition.
 - Plug in and switch on consumers one-by-one.
 - Consumers with unfavourable on/off characteristics (e.g. high starting current) should be started first.
Do not allow the rated current for each electrical socket and for the generator to be exceeded.

8.7.3 Switching off the generator

Before deactivating the generator, carry out the following:

- Switch off electrical consumers and unplug them one-by-one.
- Switch off consumers drawing the highest current last.
- Check that the protective covers on the power sockets are correctly closed.

NOTICE

Thermal overload of the turbo generator.

Stopping the machine abruptly after the generator has been in operation for some time can cause heat damage to the generator.

- *Allow the engine to run for about 2 minutes in idle before shutting down to allow the generator to cool down.*

1. Set the «automatic circuit breaker(s)» to the "0" position.
2. Turn the «generator main switch» to the "0" position.
3. Close all «compressed air outlet valves» on the air distributor.

The engine runs in IDLE and the generator can cool down.

After running about 2 minutes in IDLE, the generator has cooled down sufficiently for the engine to be stopped.

8.8 Cleaning the machine after operation

Material High-pressure cleaner

Precondition The machine is switched off.

The machine has cooled down.

The machine is fully vented, the pressure gauge reads 0 psig.

All compressed air consumers are disconnected and the air outlet valves are open.

Maintain the following minimum distances to the object to be cleaned in order to prevent damages to the machine when cleaning with the high-pressure cleaner.

- Circular section jets: approximately 2.3 ft
- Fan jets: approximately 1 ft
- Dirt blasters: approximately 1 ft



Keep the water jet in permanent motion during the cleaning process. You prevent thus damage.



Cleaning with dry-ice jets is strictly forbidden as it could cause unforeseeable damages.

1. **NOTICE** *Machine damage caused by strong water jet!*
Direct water jets can damage or even destroy sensitive components.
 - *Do **not** directly focus a strong water jet towards sensitive components.*
 - *Work carefully.*

2. Carefully clean the machine with the high-pressure cleaner.



Water has accumulated in the sealed floor pan.

- Drain the water.



Catch the liquid and dispose in accordance with applicable environmental regulations.

Further information See chapter 10.8.9 for information to the draining of liquids within the machine.

9 Fault Recognition and Rectification

9.1 Basic instructions

The following tables are intended to assist in fault finding and rectification.

1. Do not attempt fault rectification measures other than those given in this manual!
2. In all other cases:
Have the fault rectified by an authorized KAESER service representative.

Further information Observe the instructions in chapter 3 "Safety and Responsibility" and prevailing local safety regulations when rectifying faults and malfunctions.
Comply with local applicable safety provisions!

9.2 Engine faults and alarms

Further information The engine service manual provides further information.

9.2.1 Engine refuses to start or comes to a stop

Possible cause	Remedy	Where can I get help?		
		Specialized work-shop	KAESER Service	Engine service manual
Defective starter.	Have replaced.	X	–	–
The fuel cut-off device has not opened.	Check the coil and electrics and have replaced if necessary.	X	–	–
Fuel tank empty.	Fill up the fuel tank	–	–	–
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.3.3).	–	–	X
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	–	–	X
Fuel line broken.	Have replaced.	X	X	–
Defective control fuse or relay.	Have repaired or replaced if necessary.	X	X	–
Airend discharge temperature too high.	Have checked.	–	X	–
Defective temperature gauge switch giving no enable signal	Have repaired or replaced if necessary.	–	X	–
Ignition switch defective.	Have repaired or replaced if necessary.	–	X	–
Electrical connections and/or cables loose or broken	Tighten the connection or have the cable replaced.	X	X	–
Defective battery or low charge.	Maintain battery, see chapter 10.3.9.	–	–	–

Possible cause	Remedy	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Defective alternator.	Have repaired or replaced if necessary.	X	X	–
Defective alternator regulator.	Have repaired or replaced if necessary.	X	X	–
Oil pressure switch indicating insufficient oil pressure.	Check engine oil level, see chapter 10.3.4.	–	–	X
	Have the engine repaired or replaced.	X	X	–

Tab. 72 Alarm: Engine refuses to start or comes to a stop.

9.2.2 Engine does not reach full speed

Possible cause	Remedy	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.3.3).	–	–	X
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	–	–	X
Fuel line broken.	Have replaced.	X	X	–
Speed adjustment cylinder maladjusted or defective.	Have repaired or replaced if necessary.	X	X	–

Tab. 73 Alarm: Engine does not reach full speed

9.2.3 Indicator lamp remains on

Possible cause	Remedy	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Electrical connections and/or cables loose or broken	Tighten the connection or have the cable replaced.	X	X	–
Defective alternator.	Have repaired or replaced if necessary.	X	X	–
Defective alternator regulator.	Have repaired or replaced if necessary.	X	X	–

Possible cause	Remedy	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Engine oil pressure too low.	Check engine oil level, see chapter 10.3.4.	–	–	X
	Check the engine and have re-paired if necessary.	X	X	–

Tab. 74 Indicator lamp remains on

9.3 Compressor faults and alarms

9.3.1 Working pressure too high

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Proportional controller maladjusted or defective.	Have repaired or replaced if necessary.	–	X
Inlet valve does not close.	Check the controller, the control air line and the inlet valve and replace if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
Venting valve does not blow off.	Check the connections and function and have repaired or replaced as necessary.	–	X

Tab. 75 Fault: Working pressure too high

9.3.2 Working pressure too low.

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Proportional controller maladjusted or defective.	Have repaired or replaced if necessary.	–	X
Inlet valve not opening or only opening partially.	Repair or have replaced if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
Pressure relief valve maladjusted and/or leaking.	Have repaired or replaced if necessary.	–	X
Venting valve does not close.	Check the connections and function and have repaired or replaced as necessary.	–	X

9 Fault Recognition and Rectification

9.3 Compressor faults and alarms

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
The engine runs at maximum speed (LOAD).	See chapter 9.2.	X	X
Engine air filter and/or compressor air filter clogged.	Clean or change, see chapters 10.3.2 and 10.4.7.	–	–
Oil separator cartridge heavily clogged.	Change, see chapter 10.4.6.	–	–

Tab. 76 Fault: Working pressure too low

9.3.3 Pressure relief valve blowing off

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Oil separator cartridge heavily clogged.	Change, see chapter 10.4.6.	–	–
Inlet valve does not close.	Check the controller, the control air line and the inlet valve and replace if necessary.	–	X
Pressure relief valve maladjusted and/or leaking.	Adjust or have replaced if necessary.	–	X

Tab. 77 Fault: Pressure relief valve blowing off

9.3.4 Machine overheating

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Defective cooling fan.	Have the blades or the complete fan wheel replaced.	–	X
Oil cooler clogged.	Clean surface, see chapter 10.5.	–	–
Defective working element in the combination valve.	Have repaired or replaced if necessary.	–	X
Gauge working pressure too high (proportional controller maladjusted).	Reset to the permissible value or have replaced.	–	X
Oil separator cartridge heavily clogged.	Measure the pressure differential and change the cartridge if greater than 1 psi. See chapter 10.4.6 for changing.	–	X
Compressor oil filter clogged.	Change, see chapter 10.4.4.	–	–
Compressor cooling oil level too low.	Topping up, see chapter 10.4.2.	–	–

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Oil pipes leaking.	Seal leaks or have pipes changed.	X	X
Engine cooling system or cooling fan defective.	Have repaired.	X	X
Ambient temperature too high.	See installation conditions in chapter 5.2.	–	–

Tab. 78 Fault: Machine overheating

9.3.5 Too much oil residue in the compressed air

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Oil separator cartridge scavenge line clogged.	Clean the oil separator cartridge dirt trap or replace the strainer and nozzle if necessary. See chapter 10.4.5.	–	X
Fractured oil separator cartridge.	See chapter 10.4.6 for changing.	–	–
Oil level in the oil separator tank too high.	Reduce to maximum level, see chapters 10.4.1 and 10.4.3.	–	–

Tab. 79 Fault: Too much oil residue in the compressed air

9.3.6 Oil flows from the compressor air filter after shutdown

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Defective non-return function of the inlet valve.	Repair or have replaced if necessary.	–	X

Tab. 80 Fault: Oil flows from the compressor air filter after shutdown

9.3.7 Option da, db, dc, dd High moisture content in the compressed air

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Blocked condensate drain on the cyclone separator.	Clean the cyclone separator dirt trap or replace the strainer and nozzle if necessary. See chapter 10.8.2.	–	X

Tab. 81 Fault: High moisture content in the compressed air

9.4 Option ga, gb Generator faults and alarms

9.4.1 There is no voltage or too low a voltage from the generator

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER-Service
Defective drive belt.	Have replaced.	X	X
Generator / regulator defective	Have repaired.	X	X
Overload protection switch triggered because of overload or defect.	Check the power requirement of the connected consumers and reduce if necessary; check the consumers for short circuits.	X	–
	Check the overload protection switch and have replaced if necessary.	X	X
Engine speed too low.	Have reset to rated speed.	X	X
Generator not switched on.	Switch on the generator.	–	–
The compressor's working pressure is set too high, engine overloaded, speed drops off	Have the working pressure adjusted.	X	X
The engine power is reduced because of climatic conditions or other effects.	Keep the generator and compressor load below the rated power	–	–

Tab. 82 There is no voltage or too low a voltage from the generator

9.4.2 Generator voltage too high

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER-Service
Generator / regulator defective	Have repaired.	X	X

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER-Service
Engine speed too high.	Have reset to rated speed.	X	X

Tab. 83 Generator voltage too high

10 Maintenance

10.1 Ensuring safety

Follow the instructions below to ensure safe machine maintenance.
 Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Maintenance work may only be carried out by authorized personnel.
- Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.
- Use one of the safety signs below to advise others that the machine is currently being serviced:

Sign	Meaning
	Do not activate the machine.
	Warning: The machine is being serviced.

Tab. 84 Advise others that the machine is being serviced

- Before switching on, make sure that:
 - no personnel is working on the machine,
 - all protective guards and cover panels are attached,
 - all doors, canopy, and panels are closed,
 - all tools have been removed from the machine.
- Do not perform any checks or maintenance while the machine is running.



The access doors are held up by gas struts.

- Check that the doors remain open.

If door does not remain opened: Have the gas-filled spring changed.

When working on the compressed air system

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following safety concerns relate to any work on components that could be under pressure.

- Disconnect the air consumers.
- Depressurize all pressurized components and enclosures.
- Wait until the machine has automatically vented.

- Carefully open the compressed air outlet valve.
- Check: The pressure gauge must read 0 psig!
- Do not open or dismantle any valves.

When working on the drive system

Touching rotating, very hot, or electrically-live components can result in serious injury.

- Shut down the machine before opening any doors/canopy.
- Disconnect the negative terminals on the batteries.
- Ensure that the machine has cooled down.

Further information Details of authorized personnel are found in chapter 3.4.2.
 Details of dangers and their avoidance are found in chapter 3.5.

10.2 Maintenance schedules

10.2.1 Logging maintenance work



The maintenance intervals given are those recommended for KAESER original components with average operating conditions.

- In adverse conditions, perform maintenance work (e.g. oil and filter changes) at shorter intervals.

Adverse conditions are, e.g.:

- poor fuel quality
- high/low temperatures
- much dust
- frequent use

- Adjust the maintenance intervals with regard to local installation and operating conditions.

- Logging all maintenance work.

This enables the frequency of individual maintenance tasks and deviations from our recommendations to be determined.

Further information A list is given in chapter 10.9.

10.2.2 Maintenance tasks after commissioning

The table below lists maintenance tasks required after commissioning (initial start-up).

- Carry out maintenance tasks according to the following schedule.

Component: Task	After the first 10 h	After the first 50 h	See chapter	Note
--------------------	-------------------------	-------------------------	-------------	------

Engine

h = operating hours; Engine-SM = manufacturer's engine service manual

Component: Task	After the first 10 h	After the first 50 h	See chapter	Note
Change oil.		X	10.3.6	Engine SM
Change the oil filter.		X	10.3.7	Engine SM
Check the fuel lines and clamps.		X		Engine SM
Wheels/chassis:				
Re-tighten the wheel nuts/bolts.		X		
Option ga, gb – generator:				
Check the generator-drive belt tension and re-tension if necessary.	X		10.8.8	

h = operating hours; Engine-SM = manufacturer's engine service manual

Tab. 85 Maintenance tasks after commissioning

10.2.3 Regular maintenance tasks

The following table lists the various maintenance intervals.

Maintenance interval	Short description
Daily	–
Every 250 h, at least annually.	A250
Every 500 h, at least annually.	A500
Every 1000 h, at least annually.	A1000
Every 1500 h, at least annually.	A1500
Every 2000 h, at least every two years.	A2000
Every 3000 operating hours	A3000
Every 20000 operating hours	A20000
Every 36000 h, at least every six years.	A36000

Tab. 86 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

1. Carry out maintenance tasks punctually taking ambient and operating conditions into consideration.
2. Change consumables and operating fluids according to each site.

10.2.3.1 Machine maintenance schedule

- Carry out maintenance tasks according to the following schedule.

Component Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Engine										
Check inlet air filter maintenance indicator	X								10.3.2	
Check engine oil level.	X								10.3.4	Engine SM
Clean the engine air filter		X							10.3.2	
Change the engine oil			X						10.3.6	
Replace the engine oil filter.			X						10.3.7	Engine SM
Check/adjust the drive belt tension.		X							10.3.8	Engine SM
Replace the drive belt.			X						10.3.8	SW Engine SM
Change engine air filter.				X					10.3.2	
Have the valve clearance adjusted.				X						SW Engine SM
Have the turbocharger checked.							X			SW
Check the engine coolant level.	X								10.3.1	Engine SM
Clean the cooler.		X							10.5	
Check antifreeze concentration.		X							10.3.1	Engine SM
Check radiator hose and hose clips, have replaced if necessary.		X								SW Engine SM
Change the coolant.				X					10.3.1	Engine SM
Fill up the fuel tank	X									
Check/empty the water trap.	X								10.3.3	
Check fuel lines and hose clamping bands, have replaced if necessary.		X								SW
Have fuel lines and clamps replaced.						X				SW

Engine SM = engine manufacturer's service manual; SW = specialized workshop.

Component Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Clean the fuel microfilter.		X							10.3.3	Engine SM
Change the fuel prefilter.			X						10.3.3	
Replace the fuel microfilter.			X						10.3.3	Engine SM
Cleaning the fuel tank.			X							
Clean the tank fuel strainer.			X							
Have the fuel injectors checked.					X					SW
Have the fuel injector pump checked.							X			SW
Check the battery electrolyte level and connections.			X						10.3.9	
Check fuel tanks for secure fixing.		X							10.3.10	
Compressor:										
Check inlet air filter maintenance indicator.	X								10.4.7	
Check the cooling oil level.	X								10.4.1	
Clean the compressor air filter.		X							10.4.7	
Clean the oil cooler.		X							10.5	
Have the pressure relief valve(s) checked.			X						10.4.8	
Check/clean the oil separator tank dirt trap.			X						10.4.5	
Change compressor air filter.				X					10.4.7	
Change the cooling oil.				X					10.4.3	
Change the compressor oil filter.				X					10.4.4	
Change the separator cartridge in the oil separator tank.						X			10.4.6	
Chassis/bodywork										
Check the tire pressures.		X								
Check wheel bolts and nut for tightness.		X								
Carry out chassis maintenance.			X						10.7	
Grease the ball coupling, joints and towbar.			X						10.7.2	
Brake maintenance			X						10.7.3	

Engine SM = engine manufacturer's service manual; SW = specialized workshop.

Component Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Check wear on the brake linings.			X						10.7.3.2	
Have the wheel brakes adjusted.			X							SW
Check all screw connections, hinges, locks, handles and snap fasteners of the doors for wear and secure fixing.		X								
Grease the door hinges.			X							
Carry out rubber sealing strip maintenance.			X						10.6	
Have the lifting point checked.			X							SW
Other maintenance tasks										
Check all accessible fittings, pipes and clamps for wear and tightness.			X							
Check hoses for leaks and wear.			X							
Have hose lines replaced.								X		SW
Check that all electrical connections are tight.			X							
Engine SM = engine manufacturer's service manual; SW = specialized workshop.										

Tab. 87 Regular machine maintenance tasks

10.2.3.2 Maintenance schedule for options

- Carry out maintenance tasks according to the following schedule.

Option: Function	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option ea, ec – tool lubricator								
Check the oil level in the tool lubricator.	X						10.8.1	
Option da, db, dc, dd – cyclone separator								
Clean and check the dirt trap.			X				10.8.2	
Options da, db, dc, dd – compressed air aftercooler								
Clean the cooler.		X					10.5.2	
EL = qualified electrician; SW = specialist workshop								

Option: Function	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option dd – filter combination								
Drain condensate.	X						10.8.3	
Change the filter elements.			X				10.8.3	
Option dc – fresh air filter								
Drain condensate.	X						10.8.4	
Check the oil indicator.	X						10.8.4	
Change the filter elements.			X				10.8.4	
Option ba – frost protector								
Winter operation Check the level of antifreeze in the frost protector.	X						10.8.5	
Engine coolant pre-heater (Option bb)								
Have the coolant pre-heating and associated wiring checked.			X					SW
Option la – spark arrester								
Clean the spark arrester.		X					10.8.6	
Blow out the spark arrester with compressed air.			X					
Option lb - engine air intake shut-off valve								
Clean/check the engine air in- take shut-off valve.		X					10.8.7	
Option ga, gb – generator								
Check/adjust belt tension.		X					10.8.8	
Carry out visual check of drive belt.		X					10.8.8	
Have the generator and control box checked.			X				13.9	EL
Replace the drive belt.					X		10.8.8	
Have the generator bearings checked.				X				SW
Have the generator bearings changed.						X		SW
Option oe – sealed floor pan								
Check the machine interior for liquid accumulations and drain, if required.	X						10.8.9	

EL = qualified electrician; SW = specialist workshop

Tab. 88 Regular maintenance task options

10.3 Engine maintenance

- Perform maintenance tasks according to the schedule in chapter 10.2.3.1.

10.3.1 Water cooler maintenance

Material Coolant
Coolant tester
Oil receptacle
Drain hose with hose coupling is disconnectedly laying at the machine
Funnel
Cleaning cloths

Precondition The machine is switched off.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

⚠ WARNING

Danger of scalding by hot coolant!

Serious injuries can be caused by hot coolant.

- *Let the machine cool down before opening the cooling system.*

⚠ CAUTION

Risk of chemical burns from coolant containing antifreeze!

- *Avoid eye and skin contact with coolant. If the eyes are affected, rinse immediately with running water.*
- *Wear protective glasses and gloves.*

NOTICE

Insufficient coolant can damage the engine.

Insufficient coolant will cause the engine to overheat. Overheating can cause serious damage to the engine.

- *Check the coolant level daily.*
- *Top up the coolant as necessary.*

- Open the right-hand access door.

10.3.1.1 Checking coolant level

The coolant level in the engine cooling circuit must be checked daily prior to startup.

The level is checked on the coolant expansion tank.

- The tank is semi-transparent so the coolant level can be seen from outside.
- The level should be between the *minimum and maximum markings* when the engine has cooled down.

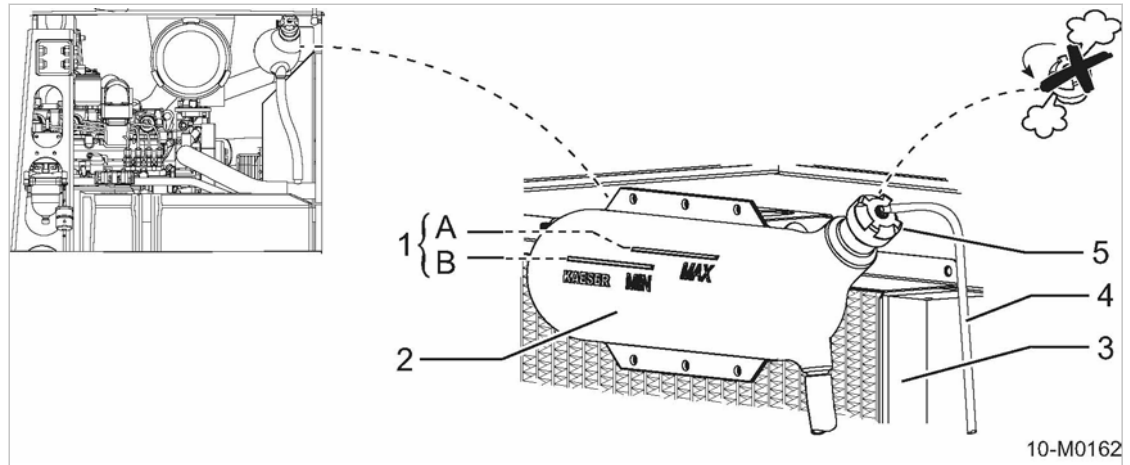


Fig. 44 Checking coolant level

- | | | | |
|---|-------------------------|---|----------------------|
| ① | Coolant level | ③ | Water cooler |
| A | Maximum mark (FULL) | ④ | Overflow |
| B | Minimum mark (LOW) | ⑤ | Filler neck with cap |
| ② | Coolant equalising tank | | |

1. Check the level of coolant in the expansion tank.
Top up when the coolant level falls below the *minimum level*/B. Replenish the coolant.
2. Close the door.



Have the cause for the coolant loss determined and rectified.

10.3.1.2 Checking the coolant

The coolant should be checked according to the maintenance schedule to ensure quality and operational life.

Coolant quality can be determined by the following parameters:

- Visual check
 - Antifreeze concentration measurement
- Unscrew and remove the expansion tank filler cap.

Visual check

The coolant should be checked for its colour and any particles or sediments floating in it.

- Take a coolant sample and analyze.

The coolant is discoloured and/or has contains floating particles. Change the coolant.

Antifreeze concentration measurement

An instrument (e.g. refractometer) is used to check antifreeze concentration.

Maximum frost protection is ensured with an antifreeze concentration of 55% by volume, as frost protection and heat transfer properties deteriorate beyond this point. Higher concentration also leads to higher operating temperature.

1. **NOTICE** *The engine can be damaged if the antifreeze concentration is insufficient.*

Corrosion

Damage to the cooling system.

Engine casing fracture

- *Check coolant.*
- *Protect the coolant against frost.*
- *Top up as necessary.*

2. Use the coolant tester as instructed by the manufacturer to test the coolant.

Concentration of antifreeze is too low: Change the coolant.

Performing final work steps:

1. Screw on the filler cap.
2. Close the door.

10.3.1.3 Mixing coolant

Do not use water without coolant additive. Water alone is corrosive at engine operating temperature. Water alone does not offer sufficient protection from boiling or freezing.

The coolant is a mixture of clean, fresh water and antifreeze with corrosion inhibitor.

For reasons of corrosion protection and the need to raise the boiling point, the coolant must remain in the cooling system throughout the year.

The maximum permissible coolant life is 2 years.

- Follow coolant recommendations in chapter 2.6.4.

Preparing coolant

Precondition Coolant must meet the specification of ASTM D4985.

- The coolant should be mixed in the proportions given by the manufacturer.

KAESER coolant mixture table

Antifreeze	Water	Frost protection to [°F]
1 part	2 parts	–0.4
1 part	1.5 parts	–13
1 part	1 part	–34.6

Tab. 89 KAESER coolant mixture table



The concentration of antifreeze should not be less than 33% for ensured corrosion protection.

10.3.1.4 Filling and topping up the coolant

The proportion of antifreeze in the coolant should not fall below 33% to ensure frost and corrosion protection and prevent the build up of deposits in the cooling circuit. Topping up with water alone dilutes the antifreeze concentration and is forbidden.



Make sure that there is sufficient room for hot coolant to expand without overflowing.

Precondition The negative cable to the battery is disconnected.

1. Twist and remove the expansion tank filler cap.
2. Mix a quantity of coolant according to the table and replenish to the mark.
Replenish the coolant just below the *maximum mark* (A).
3. Screw on the filler cap.
4. Reconnect the negative battery terminal.
5. Close the door.
6. Start the engine and allow to IDLE for about 1 minute.
7. Stop the motor.
8. Open the right-hand access door.
9. Check the coolant level.
If the coolant level in the expansion tank has decreased: Replenish the coolant.
10. Visually inspect for leaks.
11. Close the door.



If the coolant has been changed, check the level of the new coolant frequently at first as it can decrease due to the escape of air locks in the cooling circuit.

10.3.1.5 Draining the coolant

Precondition The machine has cooled down.

The negative cable to the battery is disconnected.

Draining the cooling oil (machine with chassis)

In machines with chassis (no closed floor pan, no stationary machine), the entire cooling oil of the cooling circuit is drained directly at the engine's water cooler. This is done from a drain valve with the aid of a separate drain hose.

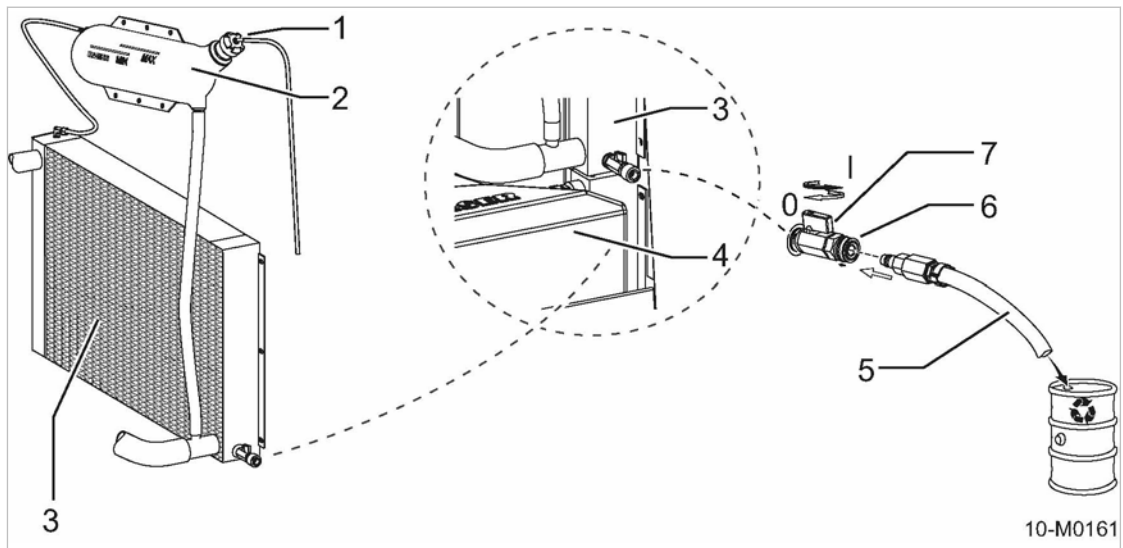


Fig. 45 Draining the coolant from the radiator

- | | |
|---------------------------|--------------------------------|
| ① Filler cap | ⑤ Drain hose with male fitting |
| ② Coolant equalising tank | ⑥ Quick-release coupling |
| ③ Water cooler | ⑦ Shut-off valve (ball valve) |
| ④ Fuel tank | I - open |
| | 0 - closed |

1. Unscrew and remove the expansion tank filler cap ①.
2. Position a receptacle beneath the water cooler drain point (accessible through a hole in the floor panel).
3. Connect a suitable drain hose ⑤ to the radiator quick-release coupling ⑥.
4. Suspend the free end of the hose in the receptacle and secure.
5. Open the shut-off valve ⑦ and catch the draining coolant.
6. Close the shut-off valve and remove the drain hose.
7. Screw on the filler cap.
8. Close the door.

Option oe, rw, rx Draining the coolant (closed floor pan - stationary machine):

Compressor cooling oil and engine coolant drain lines are led to a central point outside the machine on stationary machines and machines with closed floor pan. The cooling oil is drained via a pipe which is screwed into the drain opening of the cooler and closed with a shut-off valve. The pipe is sealed with a screwed sealing plug at the drain end.

Option oe, rw, rx

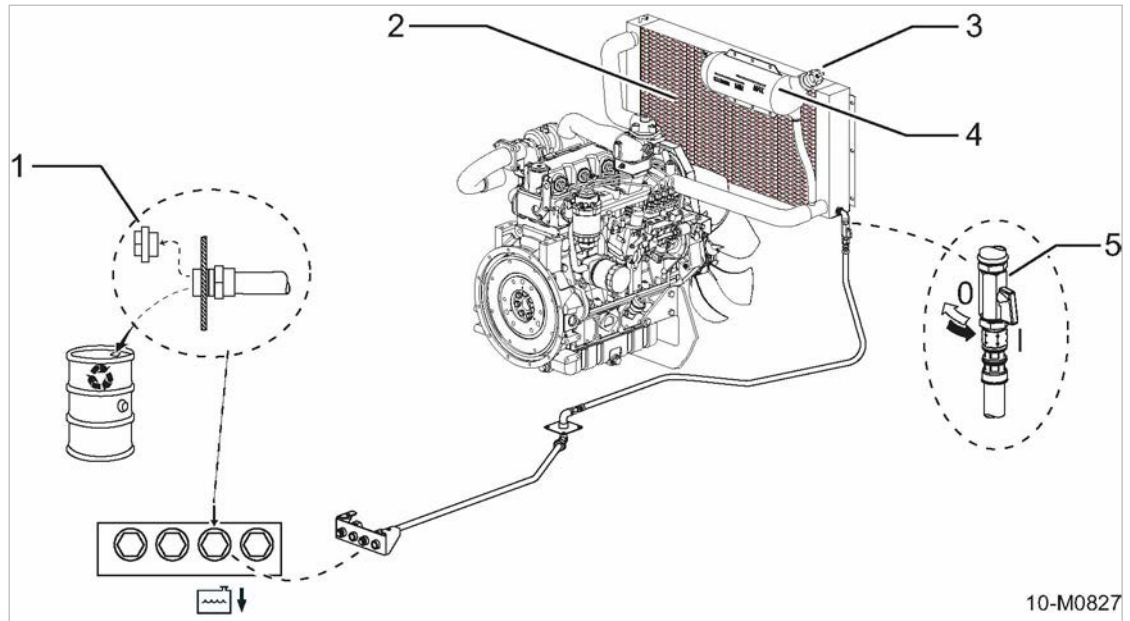


Fig. 46 Draining the coolant from the radiator (closed floor pan - stationary machine)

- | | |
|---------------------------------------|-------------------------------|
| ① Screwed sealing cap - coolant drain | ④ Coolant equalising tank |
| ② Water cooler | ⑤ Shut-off valve (ball valve) |
| ③ Filler cap | I - open |
| | 0 - closed |

1. Unscrew and remove the expansion tank filler cap.
2. Position a receptacle beneath the drainage location of the water cooler.
3. Unscrew the filler plug ① at the coolant drain.
4. Open the shut-off valve ⑤ at the water cooler and catch any draining coolant.
5. Close the shut-off valve and replace the screwed sealing cap.
6. Screw in the filler cap.
7. Close the door.



- Dispose of used coolant in accordance with environmental protection regulations.

Further information

The operating manual supplied by the motor manufacturer provides further information on coolant change and cleaning the cooling system.

10.3.2 Engine air filter maintenance

Clean the filter according to the maintenance schedule or if the maintenance indicator shows this to be necessary.

Renew the air filter element after 2 years at the latest or after it has been cleaned 5 times.



- Using the engine without an air filter element is not permitted!
- Do not use an air filter element with damaged folds or gasket.
- The use of an unsuitable air filter can permit dirt to ingress the engine and cause premature wear and damage.

Material Compressed air for blowing out
 Spare parts (as required)
 Cleaning cloth

Precondition The machine is shut down.
 The machine is fully vented, the pressure gauge reads 0 psig.
 Machine is cooled down.
 All compressed air consumers are disconnected and the air outlet valves are open.

NOTICE

*Damaged air filter element.
 Wear in the engine from intake of contaminated air.*

- Do not try to clean the filter element by striking or knocking it.
- Do not wash the filter element.

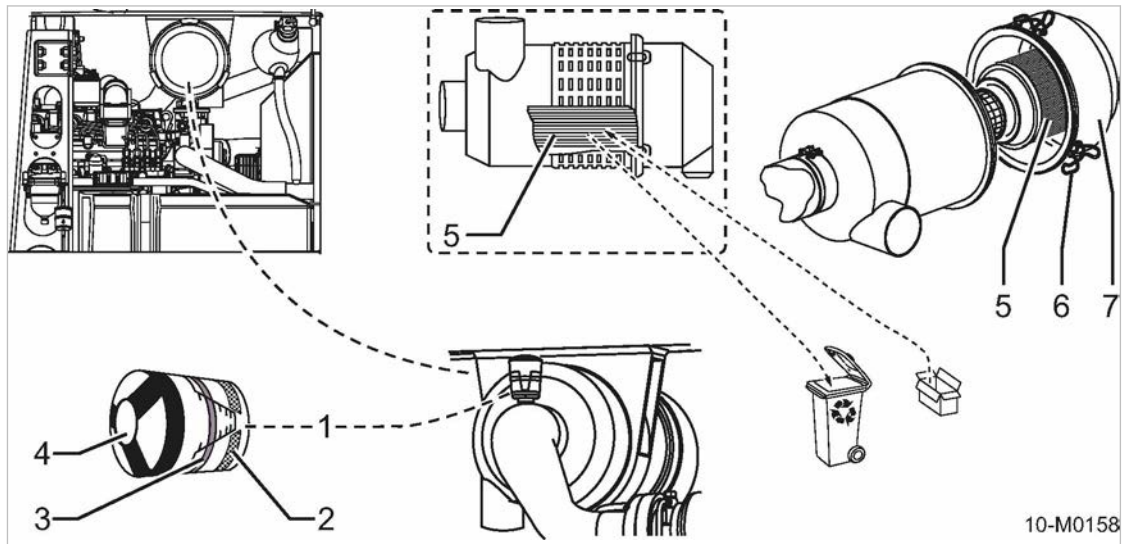


Fig. 47 Engine air filter maintenance

- | | |
|--|------------------|
| ① Maintenance indicator | ⑤ Filter element |
| ② Red zone indicator scale | ⑥ Retaining clip |
| ③ Indicating piston of the maintenance indicator | ⑦ Filter cap |
| ④ Reset knob for the maintenance indicator | |

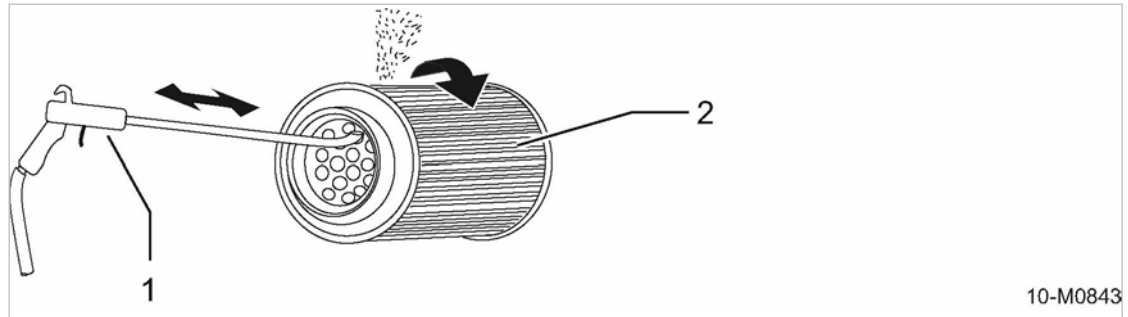


Fig. 48 Cleaning the filter element

- ① Compressed air gun with blast pipe bent to 90° at the end
- ② Filter element

➤ Open both doors.

Checking contamination of the air filter:

Air filter maintenance is necessary when the yellow piston inside the maintenance indicator reaches the red zone.

- Check the air filter maintenance indicator.
If the yellow piston reaches the red zone, clean or renew the filter element.

Cleaning the air filter:

1. Release the retaining clamps, lift off the cap and extract the air filter.
2. Carefully clean the inside of the housing, the cover and sealing faces with a damp cloth.
3. Cleaning the filter element:
 - Use dry compressed air (≤ 73 psi!) at an angle to blow dust from the element from inside to outside until no further dust develops.
 - The blast pipe must be long enough to reach the bottom of the element.
 - The tip of the blast pipe must not touch the element.
 - Cleaning sealing faces.
4. Inspect the element carefully for any damage.
Replace any damaged filter element.
5. Insert the cleaned or new filter element into the filter housing. Make sure it is properly in place and sealed by its gaskets.
6. Replace the cap and secure with the clip.

Resetting the maintenance indicator:

- Repeatedly press the reset knob on the maintenance indicator.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
- Close the doors.



Dispose of old parts and contaminated materials according to environmental regulations.

10.3.3 Fuel system maintenance

Make sure no dirt enters the fuel system during maintenance. Clean components and their surroundings before dismounting.

Material Spare parts
 Oil receptacle
 Cleaning cloths

Precondition The machine is switched off.
 The machine is standing level.
 The machine is fully vented, the pressure gauge reads 0 psig.
 The machine has cooled down.
 All compressed air consumers are disconnected and the air outlet valves are open.
 The negative cable to the battery is disconnected.

⚠ DANGER

*Danger of fire from spontaneous ignition of fuel!
 Serious injury or death could result from the ignition and combustion of fuel.*

- Allow no open flames or sparks at the place of use.
- Ensure that the maximum ambient temperature is not exceeded at the place of use.
- Stop the motor.
- Wipe up escaped fuel.
- Keep fuel away from hot machine parts.

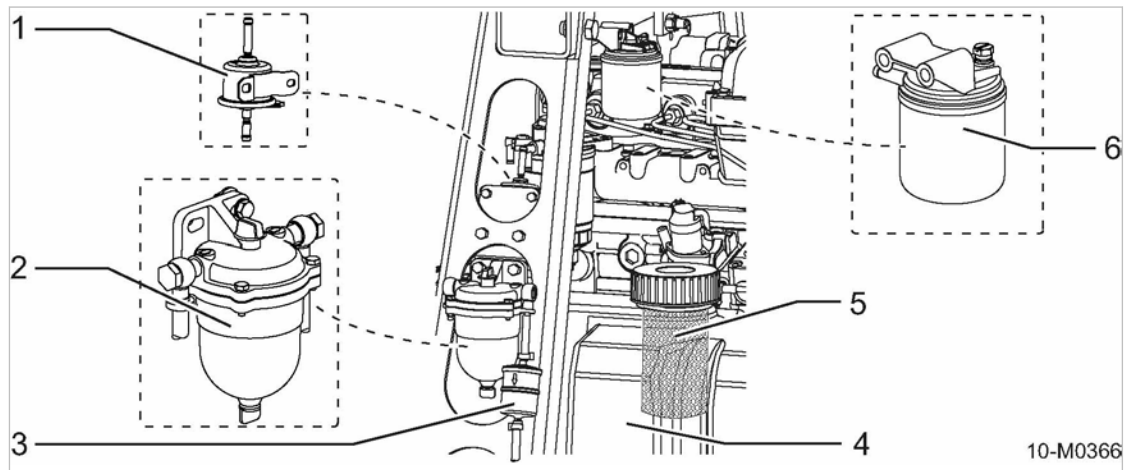


Fig. 49 Fuel system maintenance

- | | |
|---------------------------|--------------------|
| ① Fuel pump | ④ Fuel tank |
| ② Fuel de-watering filter | ⑤ Fuel strainer |
| ③ Fuel pre-filter | ⑥ Fuel fine filter |

- Open the right-hand access door.

10.3.3.1 Bleeding the fuel system

Air can enter the fuel system if the fuel tank is empty after a fuel filter change or when carrying out work on the fuel lines.

If the motor refuses to start despite a full tank, bleed the fuel system.

Precondition Battery connected.

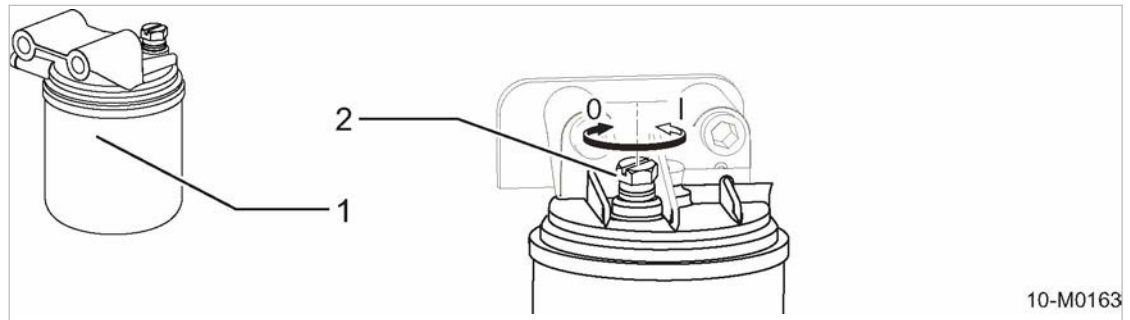


Fig. 50 Bleeding the fuel system

- ① Fuel fine filter
- ② Bleed screw

1. Place a receptacle beneath the fuel fine filter housing.
2. Loosen the micro-filter bleed screw.
3. Close the door.
4. Turn the «starter switch» (operator panel) to the "On" position.
The fuel pump runs and air is bled out of the fuel system.
5. After approx. 10 to 15 minutes, switch the «starter switch» to the "STOP/Off" position.
6. Open the right-hand access door.
7. Tighten the bleed screw again.
8. Remove the receptacle.
9. Close the door.



Start the motor as soon as the fuel system has been bled and allow to run for at least 5 minutes in IDLE.

10. Open the right-hand access door.
11. Visually check the fuel system for leaks. If required, re-tighten all fittings.
12. Close the door.

10.3.3.2 Fuel filter with water trap maintenance

A water trap is installed between the tank and the fuel pump. The separator tank is semi-transparent so the fuel level can be seen from outside.

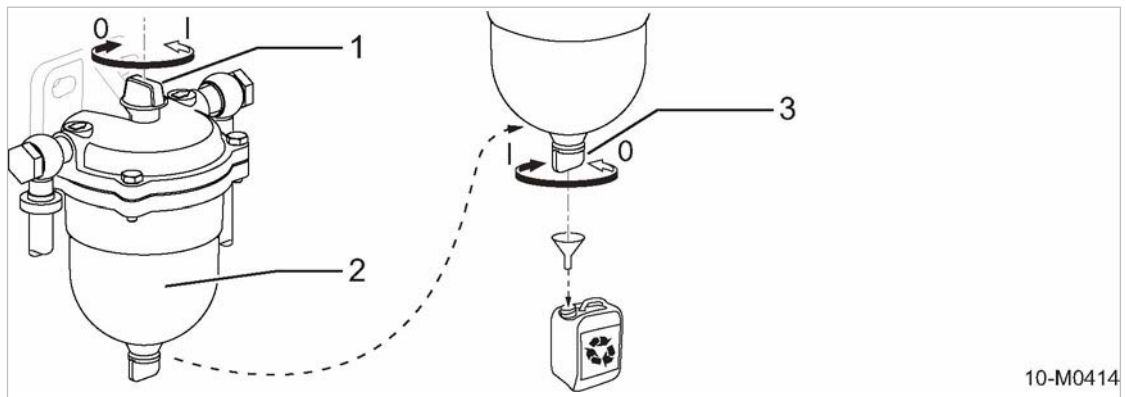


Fig. 51 Fuel filter with water trap maintenance

- ① Bleed screw
I - open
0 - close
- ② Separator tank
- ③ Drain plug
I - open
0 - close

Checking the fuel water trap

Water, being denser than diesel fuel, sinks to the bottom of the separator tank. The water impurity also differs in colour from the fuel. A check should be made daily as to whether water and dirt has accumulated.

- Check the fuel in the transparent water trap.
- Fuel contaminated: Emptying the water trap immediately.

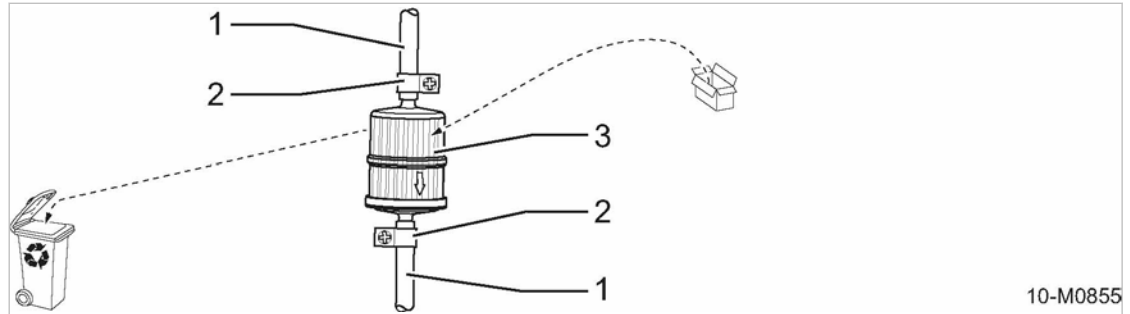
Emptying the fuel water trap

Precondition Water and/or contamination are visible in the water trap.

1. Place a receptacle beneath the fuel micro-filter housing.
2. Loosen the bleed screw ① in the filter head.
3. Loose the drain screw ③ and allow water and dirt to drain out into the receptacle.
4. Remove the receptacle.
5. Reconnect the battery.
6. Close the door.

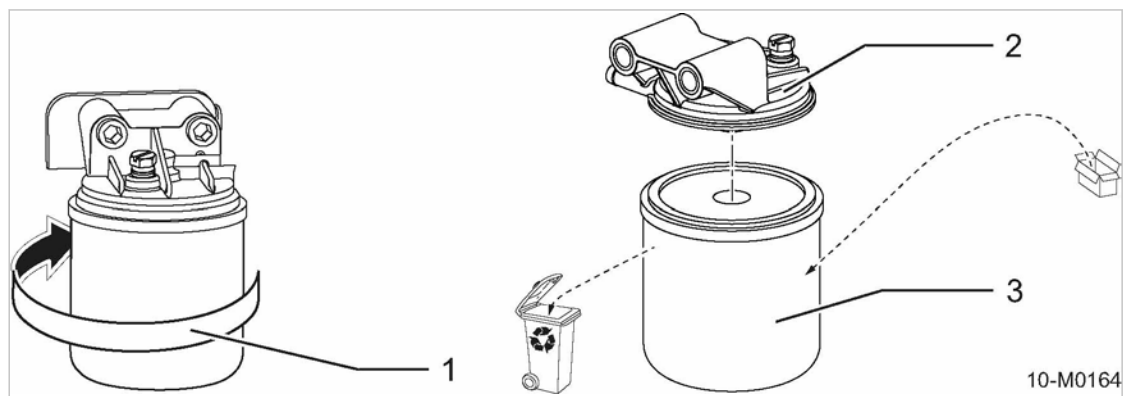


The mixture of fuel and water and any materials contaminated with fuel must be disposed of in accordance with environment protection regulations.

10.3.3.3 Fuel filter maintenance**Changing the fuel prefilter:****Fig. 52** Changing the fuel pre-filter.

- ① Fuel hose
- ② Hose clamp
- ③ Fuel pre-filter

1. Place a receptacle beneath the fuel pre-filter housing.
2. Loosen the hose clamps, carefully pull the fuel hoses from the connection at the fuel pre-filter. Capture and wipe off any escaping fuel.
3. Install a new fuel pre-filter between the plastic hoses and secure using hose clamps, taking care the flow is in the right direction.
4. Remove the receptacle.

Replacing the fuel microfilter:**Fig. 53** Fuel micro-filter maintenance

- ① Turn in this direction to unscrew the filter cartridge.
- ② Filter holder
- ③ Filter cartridge

1. Place a receptacle beneath the fuel fine filter housing.
2. Use a filter wrench to loosen then unscrew the filter cartridge. Catch fuel in the receptacle.
3. Clean the sealing faces of the micro-filter cartridges and the opposite site of the filter mount with lint-free cloth.

4. Mount the micro-filter cartridges on the filter mount:
 - Moisten the rubber seals of the filter mount and the sealing faces of the new filter cartridge with some fuel.
 - Manually screw the filter cartridge to the filter head (clockwise), until seal is tight.
5. Reconnect the battery.
6. Close the door.



The fuel system must be bled after the filter cartridges have been changed.



Dispose of fuel and any materials and components contaminated with it in accordance with environmental protection regulations.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 1 minute.
2. Shut down the machine.
3. Open the right-hand access door.
4. Visually check the fuel system for leaks.
5. Tighten all fittings.
6. Close the door.

Further information The engine service manual provides further information on fuel system maintenance.

10.3.4 Checking the engine oil level

The engine oil is indicated by a dipstick in the oil sump. The oil level should ideally be between the two marks on the dipstick. The oil level should not be allowed to fall below the *minimum level*.

Material Cleaning cloth

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
Engine cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

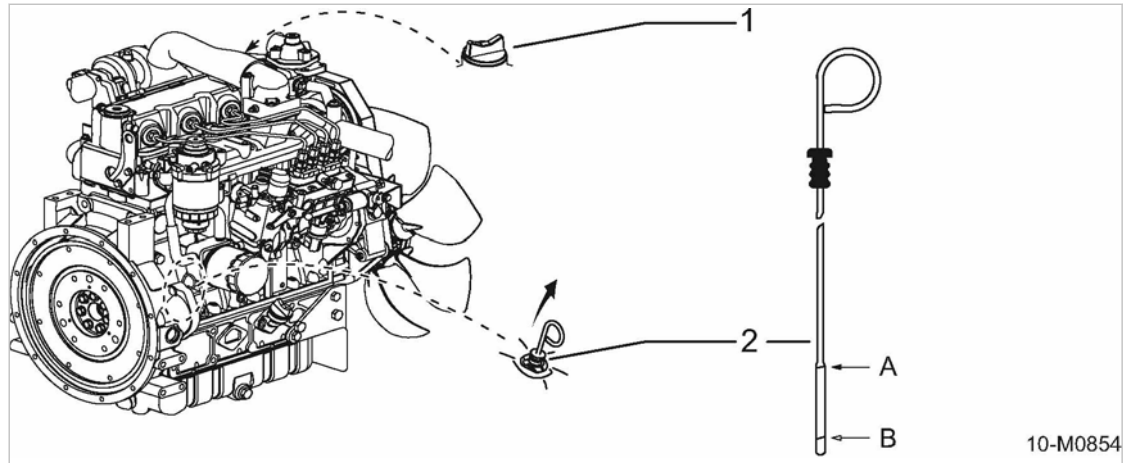


Fig. 54 Checking the engine oil level

- | | |
|-------------------------|-------------------------------------|
| ① Engine oil filler cap | Ⓐ Mark for <i>maximum oil level</i> |
| ② Oil dipstick | Ⓑ Mark for <i>minimum oil level</i> |

1. Open the right-hand access door.
2. Withdraw the dipstick, wipe with a lint-free cloth and replace fully.
3. Withdraw the dipstick once more and read off the oil level.
The level should be between the maximum and minimum markings.
Top up if the level has reached or fallen below the *minimum level* mark.
4. Close the access door.



The marked *maximum oil level* should not be exceeded in order for the level of oil in the crankcase not to reach the crankshaft. If this occurs, it could create oil bubbles that would reduce the oil's lubricating capability and impair engine performance.

10.3.5 Engine oil filling and topping up

Material Engine oil
Cleaning cloth
Funnel

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

Filling with engine oil



See chapter 2.6.5 for engine oil filling volume.
The oil dipstick is marked with the «maximum oil level».

1. Open the right-hand access door.
2. Remove the filler cap and fill with fresh oil.

3. Wait 5 minutes then check the oil level.



It takes a few minutes for oil to reach the sump.

Top up if the level is too low.

4. Replace the plug in the filler port.
5. Reconnect the negative battery terminal.
6. Close the access door.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
4. Open the right-hand access door.
5. Check the oil level after about 5 minutes.
Top up if the level is too low.
6. Visually inspect for leaks.
7. Close the access door.

10.3.6 Changing the engine oil

The engine oil should be changed:

- according to the maintenance schedule,
- according to the degree of contamination of the intake air,
- at least once a year.



Check the operating manual of the motor manufacturer for information on oil change in very dusty environments.

Material

- Engine oil
- Oil receptacle
- Wrench
- Cleaning cloths

Precondition

- The machine is switched off.
- The machine is standing level.
- The machine is fully vented, the pressure gauge reads 0 psig.
- Engine at operating temperature.
- All compressed air consumers are disconnected and the air outlet valves are open.
- The negative cable to the battery is disconnected.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

- *Wear long-sleeved clothing and protective gloves.*

Draining the engine oil (machines with chassis)

In machines with chassis (no sealed floor pan, not stationary machine), the engine oil is drained directly at the machine's oil pan. For this purpose, a drainage outlet is provided in the floor pan.

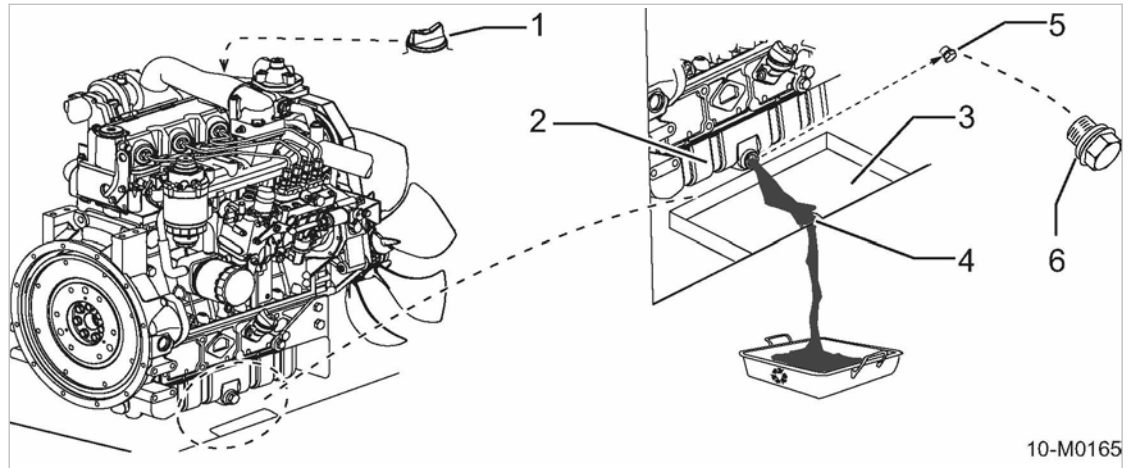


Fig. 55 Draining the engine oil

- | | |
|-------------------------------------|-------------------------------|
| ① Oil filler neck cover, engine oil | ④ Drain hole in the floor pan |
| ② Engine oil sump | ⑤ Engine oil drain plug |
| ③ Oil collection box (in floor pan) | ⑥ Sealing ring |

1. Open the right-hand access door.
2. Remove the oil filler cover.
3. Place the oil receptacle below the drain hole in the floor pan.
4. Unscrew the drain plug and allow the engine oil to drain into the receptacle.
5. Clean the drain plug and screw in with a new gasket.
6. Replace the plug in the filler port.
7. Close the door.

Option oe, rw, rx Draining the engine oil (sealed floor pan, stationary machine)

Compressor cooling oil and engine coolant drain lines are led to a central point outside the machine on stationary machines and machines with sealed floor pan. The engine oil is drained via a pipe which is screwed into the drain opening of the engine block and closed with a shut-off valve. The pipe is sealed with a screwed sealing plug at the drain end.

Option oe, rw, rx

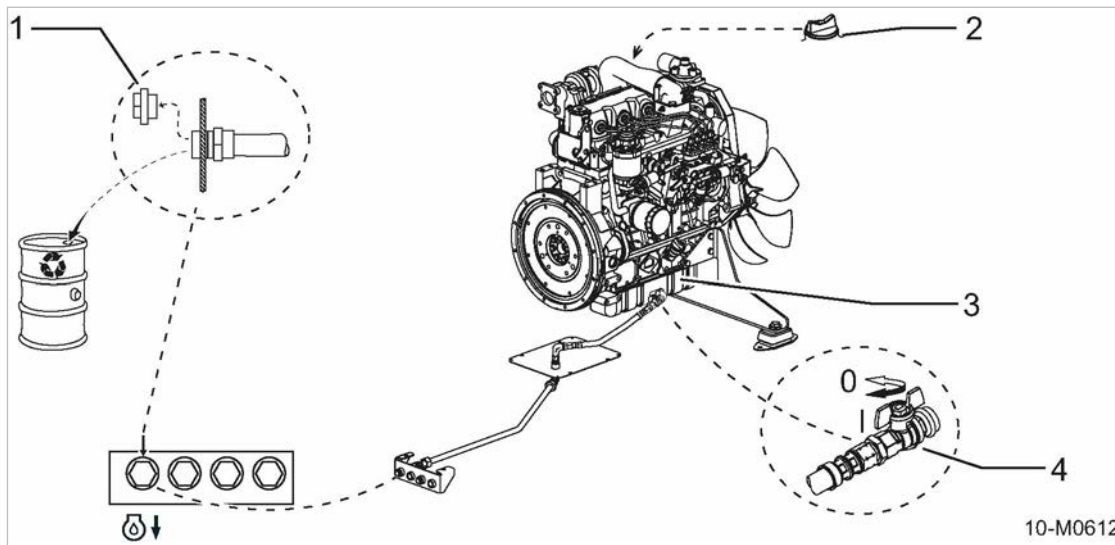


Fig. 56 Draining the engine oil (closed floor pan - stationary machine)

- | | |
|---|-------------------------------|
| ① Screwed sealing cap, engine oil drain | ③ Engine oil sump |
| ② Oil filler neck cover, engine oil | ④ Shut-off valve (ball valve) |
| | I - open |
| | 0 - closed |

1. Open the right-hand access door.
2. Remove the oil filler cover.
3. Place the oil receptacle below the drain point.
4. Unscrew the filler plug ① at the oil drain.
5. Open the shut-off valve ④ at the engine's oil pan and catch the engine oil.
6. Close the shut-off valve and replace the screwed sealing cap.
7. Replace the plug in the filler port.
8. Close the door.



Dispose of old oil and oil-soaked working materials according to environmental protection regulations.

Further information See chapter 10.3.5 for engine oil filling.

Further information regarding changing the engine oil is provided in the engine manufacturer's operating manual.

10.3.7 Replace the engine oil filter

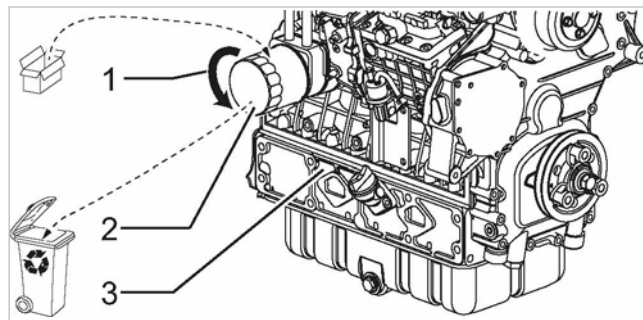
Material Spares
Filter wrench
Cleaning cloth
Receptacle

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Engine cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

➤ *Wear long-sleeved clothing and gloves.*



10-M0166

Fig. 57 Changing the oil filter

- ① Direction of rotation to unscrew the filter
- ② Oil filter
- ③ Engine block

1. Open the right-hand access door.
2. Prepare a receptacle.
3. Use a filter wrench to loosen and unscrew the filter. Catch any escaping oil.
4. Carefully clean sealing surfaces using lint-free cloth.
5. Lightly oil the new filter's gasket.
6. Turn the oil filter clockwise by hand to tighten.
7. Check the engine oil level.
Top up if the level is too low.
8. Reconnect the negative battery terminal.
9. Close the door.

Further information The engine service manual gives further information on oil filter changing.



Dispose of old oil filters, old oil and materials contaminated with oil according to environmental protection regulations.

10.3.8 Drive belt maintenance

The lifespan of the drive belts is affected by belt tension.

- Slack belts can slip and become damaged and may result in engine overheating.
- Over-tight belts stretch and fatigue quicker. Over-tight belts also place unnecessary stress on bearings and shorten their life.

Material Wrench
Suitable clamping lever (short, thin rod)
Spare part

Precondition The machine is switched off.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

⚠ WARNING

*Beware of rotating pulleys and moving belts.
There is danger of serious injury from pinching.*

- *Never check the drive belt unless the engine is at standstill.*
- *Never run the machine without a belt guard.*

- Open both doors.

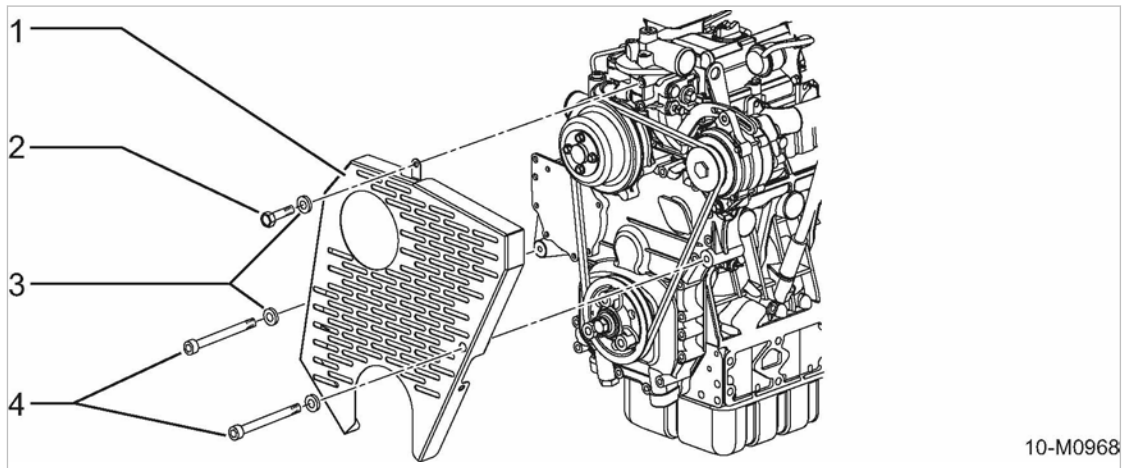
Removing the belt guard:

Fig. 58 Belt guard attachment

- | | |
|----------------|------------------------|
| ① Belt guard | ③ Washer |
| ② Hexagon bolt | ④ Hexagon socket screw |

1. Unscrew the securing screws of the belt guard and remove the belt guard.

10.3.8.1 Carry out visual check
Visual inspection for damages:

- Check the belt thoroughly for cracks, fraying or stretching.
When damaged or worn: Replace the drive belt immediately.

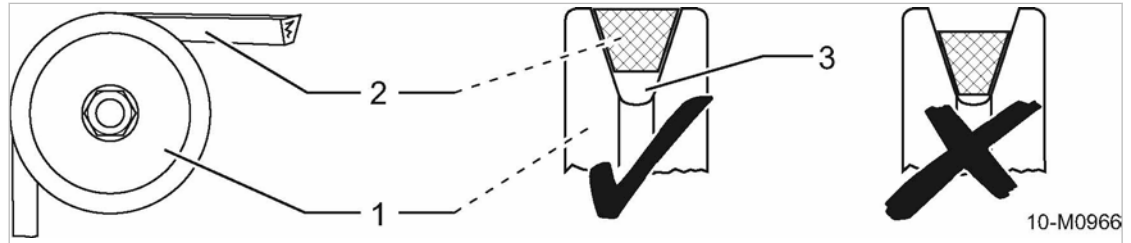
Check the belt seating


Fig. 59 Checking the drive belt seating

- ① Belt pulley
- ② Drive belt
- ③ Pulley guidance groove

- Check the drive belt seating.
Belt is positioned too deeply in the guidance groove: Replace the drive belt immediately.

 1. Replace the belt guard.
 2. Reconnect the negative battery terminal.
 3. Close the doors.

10.3.8.2 Checking belt tension

Check belt tension when they are warm, not hot, to avoid length variations through temperature.
The belt tension can be checked by hand: To check the tension, press the belt inwards with the thumb at the mid-point between pulleys.

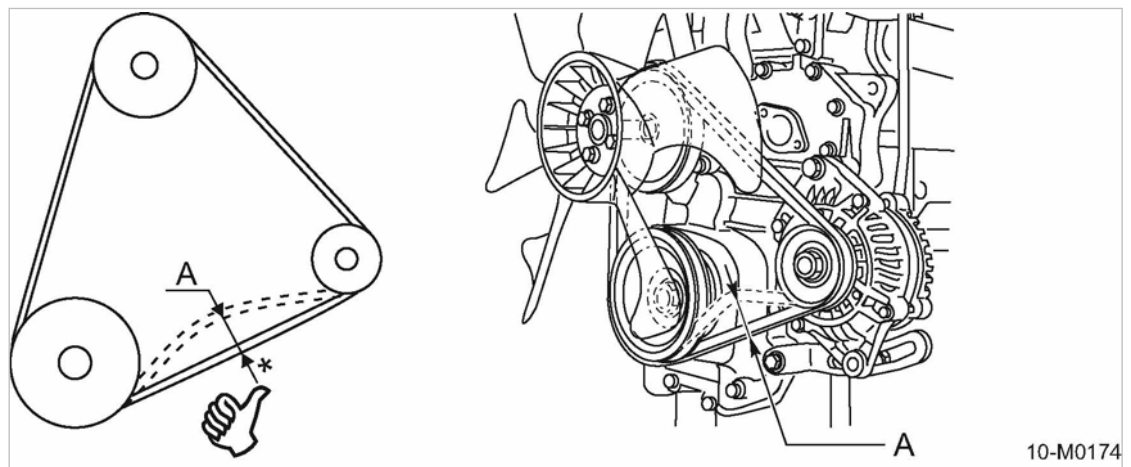


Fig. 60 Manually checking the belt tension

- Ⓐ Drive belt testing position
- Ⓢ - Compressive load approximately: 22 Kg
Play approximately: 0.28 – 0.35 in

1. Check belt tension by hand (see Fig. 60).
2. Increase the tension on a loose belt.
3. Replace the belt guard.
4. Reconnect the negative battery terminal.
5. Close the doors.

10.3.8.3 Changing/tensioning the drive belt

The drive belt is tensioned via the screw fastening of the alternator.

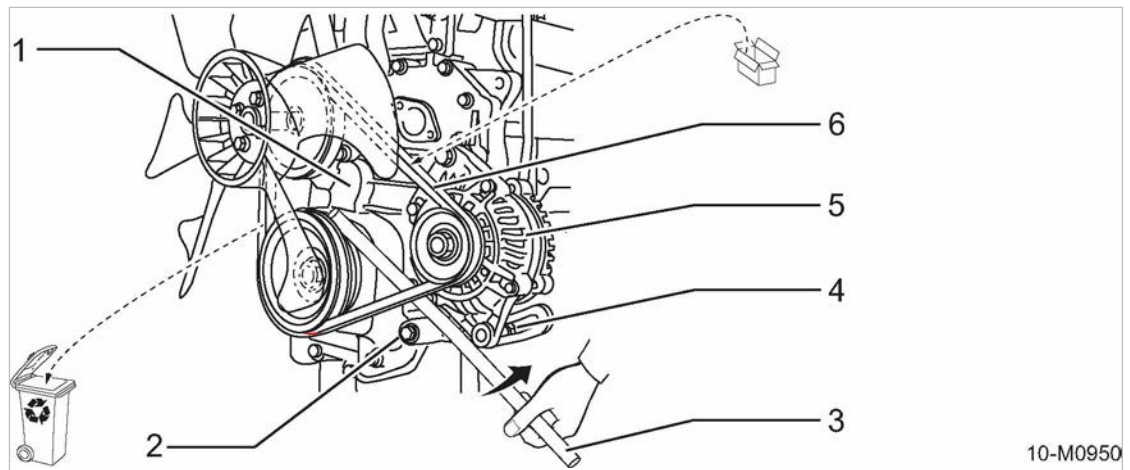


Fig. 61 Changing/tensioning the drive belt

- | | |
|----------------------------------|-------------------------|
| ① Engine block | ④ Hexagon nut (locknut) |
| ② Hexagon screw (securing screw) | ⑤ Alternator |
| ③ Lever | ⑥ Drive belt |

Tensioning the drive belt:

1. Loosen the alternator securing screw and clamping nut.
2. Place a suitable lever between the alternator and engine block.
3. Gently push the alternator in the direction of the arrow (outwards) using the lever until the drive belt is tensioned.
4. Re-tighten the securing screw and clamping screw.
5. Remove the lever.
6. Check the belt tension (see Fig. 60).

Belt tension too low: Press the alternator further into arrow direction.

Belt tension too high: Slightly swivel the alternator against the arrow direction.

Changing the belts

1. Loosen the alternator securing screw and clamping nut until the drive belt can be taken off the pulleys.
2. Take off the belt.
3. Check the pulleys for dirt and wear.
 Dirty pulley: Clean pulley.
 Worn pulley: Have the pulley changed.

4. Manually route the new drive belt over the pulleys without using force.
5. Tension the drive belt. Ensure that the drive belt is correctly positioned in its guide.



A belt that has been replaced may not be used again.

After running for two to three hours, check the belt tension again.



Old belts should be disposed of in accordance with the latest environmental regulations.

Putting in operation:

1. Replace the belt guard.
2. Reconnect the negative battery terminal.
3. Close the doors.

Further information The operating manual of the engine manufacturer provides further information on removing, changing and tensioning drive belts.

10.3.9 Battery maintenance

- Check the charging system if the battery discharges without reason.

10.3.9.1 Safety

! WARNING

Danger of acid burns from escaping electrolyte!

- Wear appropriate protective clothing including acid-proof rubber gloves.
- Always wear eye and face protection.
- Do not tip the battery. Electrolyte may run out of the vent holes.
- Work with caution.

When working on the battery comply with the following safety signs:

A warning label with safety signs is attached to the battery.



10-M0167

Fig. 62 Safety signs - warning stickers on the battery.

- Take heed of any safety signs on the battery warning labels.

The individual safety signs have the following meaning:

- ① – Fire, sparks, open flame and smoking are forbidden!
- ② – Eye and face protection must be worn because of the danger of acid burns.
- ③ – Keep children well away from batteries and electrolyte.
- ④ – Wear protective gloves, batteries are filled with caustic electrolyte!
- ⑤ – Observe the battery manufacturer's instructions!
- ⑥ – Follow the safety rules, explosion hazard!

Further instructions on working with batteries:

- Do not remove battery terminal covers unnecessarily.
- Do not place tools on the battery. This can lead to short-circuiting, overheating and bursting of the battery!
- Take particular care when the battery has been in service for a long time or has just been charged as highly explosive gas is emitted!
Ensure adequate ventilation!

10.3.9.2 Battery checking and care

Even so-called 'maintenance-free' batteries need a degree of care to obtain their maximum operational life.



The outside of the battery and the terminals should be cleaned regularly with a soft cloth. This avoids current leaks and minimises the discharge rate.

Material

- Terminal grease
- Distilled water
- Cleaning cloth
- Protective gloves
- Eye protection

Precondition

- The machine is shut down.
- The machine is standing level.
- The machine is fully vented, the pressure gauge reads 0 psig.
- Machine is cooled down.

- Open the left-hand door.
- 1. Clean the casing and terminals. Do not use a wire brush!
- 2. Lightly grease the terminals to prevent corrosion.
- 3. Check that the batteries and cable connections are properly seated and tighten if necessary.

Check the battery electrolyte level

The acid quantity is generally sufficient for the life of the battery. Nevertheless, the fluid level should be checked annually. The level should be up to the mark, 0.4 inches above the plates.



Replace the battery immediately if the casing leaks.

1. **NOTICE** *Battery destruction!*
Topping up with pure acid will increase the electrolyte concentration and can destroy the battery.

- *Top up only with distilled water.*

2. Check the electrolyte level.



If the level does not reach the mark:

- Top up with distilled water.

- Close the access door.

Winter operation:

The battery is especially stressed during the winter. Only a fraction of the normal starting energy is available at low temperatures.

1. **NOTICE** *Danger of batteries freezing!*
A discharged battery is endangered by freezing temperatures and could freeze at a temperature of 14 °F.

- *Check battery charge with a acid density tester.*

- *Recharge the battery.*

- *Clean the cable connections and apply terminal grease.*

2. Check the battery charge weekly.

Recharge as necessary.

3. If the machine is to be unused for a number of weeks, remove the battery and store in a frost-proof room.



In extreme cases, the use of a heavy-duty cold-start battery and/or an additional booster battery is recommended.

10.3.9.3 Battery removal and installation

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0psig.
Machine is cooled down.

1. **⚠ WARNING** *There is danger of batteries bursting!*
A short circuited batty heats up quickly and can burst.
 - *Never short-circuit a battery (e.g. with a hand tool).*
 - *Wear gloves and eye protection.*
2. **NOTICE** *Excessive voltage produced by the alternator.*
Voltage peaks can destroy the alternator regulator and diodes.
 - *The battery serves as a buffer and must not be disconnected while the engine is running.*
 - *Carry out work on batteries only with the machine shut down.*
3. Open the left-hand door.
4. Disconnect the negative cable first, then the positive cable.
5. Unscrew the battery fixing clamp.
6. Replace in the reverse order.

7. Make sure the battery is properly secured.
8. Close the access door.

Battery replacement:

If the battery is to be replaced, the new battery should have the same capacity, current rating and shape as the original battery.

- Always replace a battery with one of the same type.



The old battery is hazardous waste and must be disposed of in accordance with local environment protection regulations.

10.3.10 Checking the fastening of the fuel tank

The machine is equipped with a fuel tank or tanks. These are fastened with lashing strips and ratchets.

Precondition The machine is shut down.

The machine is standing level.

The machine is fully vented, the pressure gauge reads 0 psig.

The machine is cooled down.

All compressed air consumers are disconnected and the air outlet valves are open.

NOTICE

The lashing strip of the fuel tank is overly tightened.

The plastic tank can be damaged by excessive tightening of the lashing strips.

The fuel tank may burst and spill.

- *Do not overtighten the lashing strips.*
- *Slightly hand-tighten the lashing strips.*

Carry out visual check

1. Check the lashing strips for tears and fraying in the fabric, and for damages to the ratchet.
Change any damaged lashing strip immediately.
2. Check whether the lashing strips are tight with the tank and that the ratchet is closed.
If the lashing strips sits loose, or the ratchet is not closed properly, tighten the fastening.

Tightening the fastening of the fuel tank

The lashing strips are tensioned via the integrated ratchet.

The lashing strips must fit closely around the fuel tank. The tensioning force of the strips must not exceed 10 daN (approx. 25 lbf), slightly hand-tighten only.

- Hand-tighten the lashing strip with the integrated ratchet and push the ratchet to the strip.

10.4 Compressor Maintenance

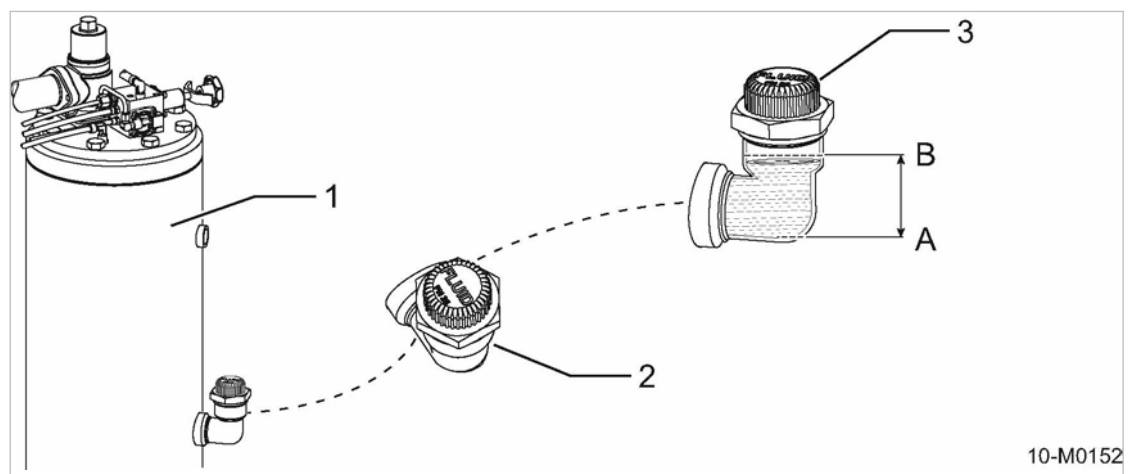
- Perform maintenance tasks according to the schedule in chapter 10.2.3.1.

10.4.1 Checking cooling oil level

The oil level is checked at the oil separator tank filling port. Oil must be visible in the port when the filler plug is removed.

Material Wrench
Cleaning cloth

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valves are open.



10-M0152

Fig. 63 Checking cooling oil level

- ① Oil separator tank
- ② Oil filler port
- ③ Filler plug

- Ⓐ Minimum level
- Ⓑ Maximum level

1. Open the right-hand access door.
2. Slowly unscrew and withdraw the plug from the oil filler port.
3. Check the cooling oil level.
Top up if no oil is visible.
4. Replace the plug in the filler port.
5. Close the access door.

10.4.2 Cooling oil filling and topping up

Material Cooling oil
 Funnel
 Cleaning cloth
 Wrench

Precondition The machine is shut down.
 The machine is standing level.
 The machine is fully vented, the pressure gauge reads 0 psig.
 Machine is cooled down.
 All compressed air consumers are disconnected and the air outlet valves are open.
 The negative cable to the battery is disconnected.

Filling with cooling oil

A sticker on the oil separator tank specifies the type of oil used.

1. **NOTICE** *The machine could be damaged by unsuitable oil.*
 - *Never mix different types of oil.*
 - *Never top up with a different type of oil than that already used in the machine.*
2. Open the right-hand access door.
3. Slowly unscrew and withdraw the plug from the oil filler port.
4. Top up the cooling oil to the maximum level  with the help of a funnel.
5. Check the oil level.
6. Check the filler plug gasket for damage.
 Change a damaged gasket.
7. Replace the plug in the filler port.
8. Reconnect the negative battery terminal.
9. Close the access door.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
 Pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the right-hand access door.
7. Check the oil level after about 5 minutes.
 Top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.3 Changing the cooling oil

Drain the oil completely from the following components:

- Oil separator tank
 - Oil cooler
 - Oil pipes
 - Heat exchanger (Option db)
- Always change the oil filter when changing the oil.

Material

Cooling oil

Receptacle

Drain hose with hose coupling is disconnectedly laying at the machine

New gasket for the drain plug

Funnel

Cleaning cloth

Wrench

Precondition

The machine is shut down.

The machine is standing level.

The machine is fully vented, the pressure gauge reads 0 psig.

The machine is at operating temperature.

All compressed air consumers are disconnected and the air outlet valves are open.

The negative cable to the battery is disconnected.

⚠ CAUTION

There is risk of burns from hot components and escaping oil.

➤ *Wear long-sleeved clothing and gloves.*

➤ Open the right-hand access door.

10.4.3.1 Draining the cooling oil (machine with chassis)

In machines with chassis (no closed floor pan, no stationary machine), the cooling oil is drained directly at the oil separator tank and the oil cooler.

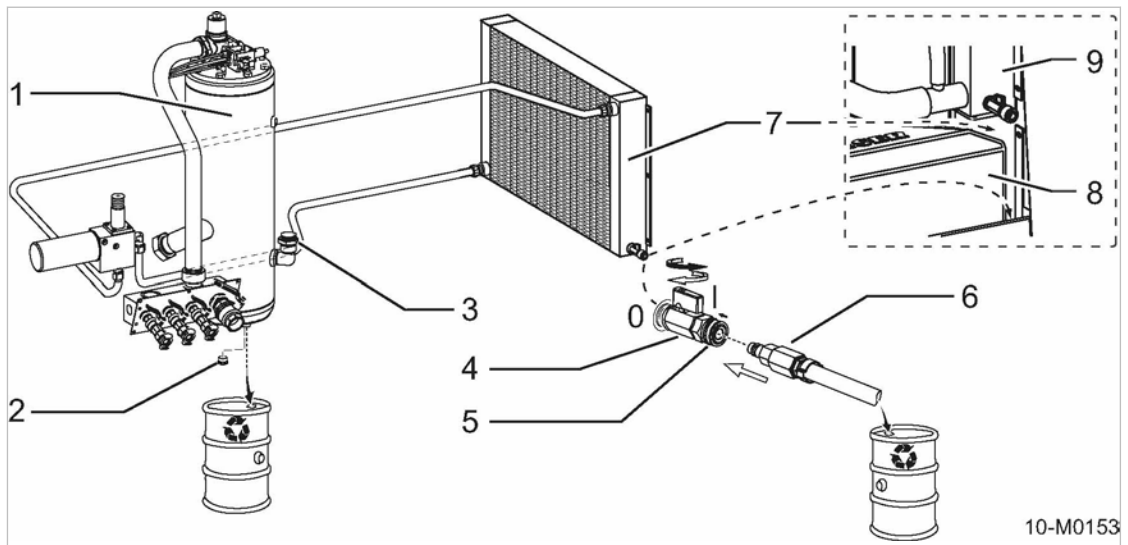


Fig. 64 Draining the compressor cooling oil

- | | |
|---------------------------------|---------------------------------|
| ① Oil separator tank | ⑥ Drain hose with male coupling |
| ② Oil separator tank drain plug | ⑦ Oil cooler |
| ③ Oil filler plug | ⑧ Fuel tank |
| ④ Shut-off ball valve | ⑨ Water-cooler, motor |
| ⑤ Quick-release coupling | |

- Remove the plug ③ from the oil separator tank filling port.

Draining the cooling oil from the oil separator tank:

The oil separator tank can be drained from a point accessible through a hole in the floor panel.

1. Place the oil receptacle below the corresponding drain hole in the floor pan.
2. Unscrew the drain plug ② and allow the cooling oil to drain into the receptacle.
3. Fit a new gasket on the drain plug and screw it back in again.

Draining the oil from the oil cooler

This is done from a drain valve with the aid of a separate drain hose.

1. Position a receptacle beneath the oil cooler drain point (accessible through a hole in the floor panel).
2. Connect the drain hose ⑥ to the oil cooler quick-release coupling ⑤.
3. Lead the hose through the hole in the floor panel and into the receptacle, securing it in place.
4. Slowly open the shut-off valve ④ and catch the draining cooling oil.
5. Close the shut-off valve and remove the drain hose.

Performing final work steps:

1. Replace the plug in the oil separator tank filling port.
2. Close the door.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

Further information See chapter 10.4.2 for cooling oil filling.

Option db Draining the oil from the heat exchanger:

The heat exchanger can be drained by a separate oil drain plug at the heat exchanger (accessible from underneath through the access hole in the floor pan).

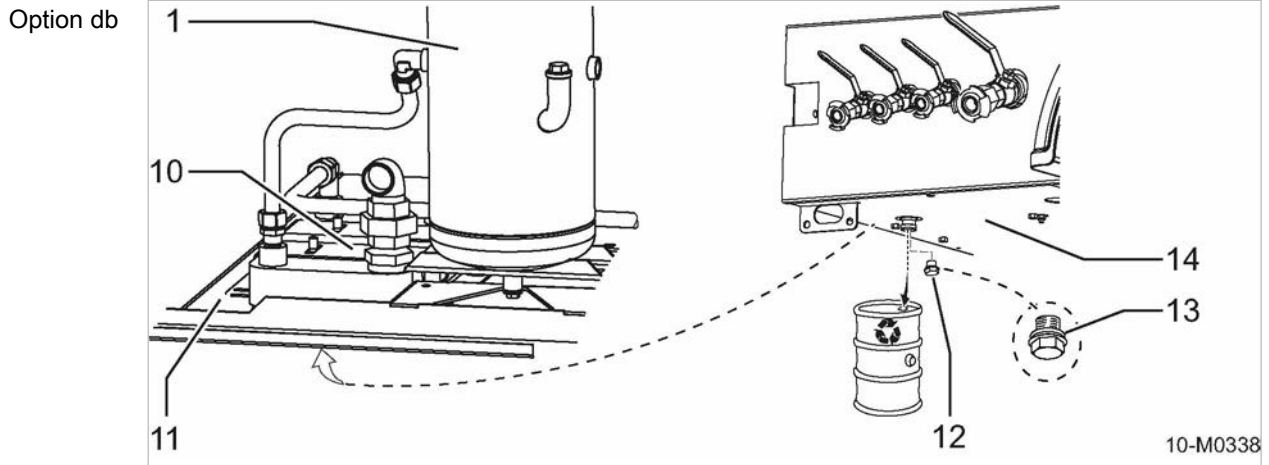


Fig. 65 Draining the oil from the heat exchanger

- | | |
|----------------------|-----------------------------|
| ① Oil separator tank | ⑫ Heat exchanger drain plug |
| ⑩ Heat exchanger | ⑬ Gasket |
| ⑪ Floor pan | ⑭ Underside of floor pan |

1. Position the receptacle below the heat exchanger drain plug ⑫.
2. Unscrew the drain plug and allow the cooling oil to drain into the receptacle.
3. Fit a new gasket on the drain plug and screw it back in again.
4. Replace the plug in the oil separator tank filling port.
5. Close the door.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

10.4.3.2 Option oe, rw, rx

Draining the cooling oil (closed floor pan - stationary machine):

Compressor cooling oil and engine coolant drain lines are led to a central point outside the machine on stationary machines and machines with closed floor pan. The cooling oil is drained via pipes which are screwed into the drain openings of the oil separator tank and the airend and are closed with a shut-off valve. The pipes are sealed with a screwed sealing plug at the drain end.

Option oe, rw, rx

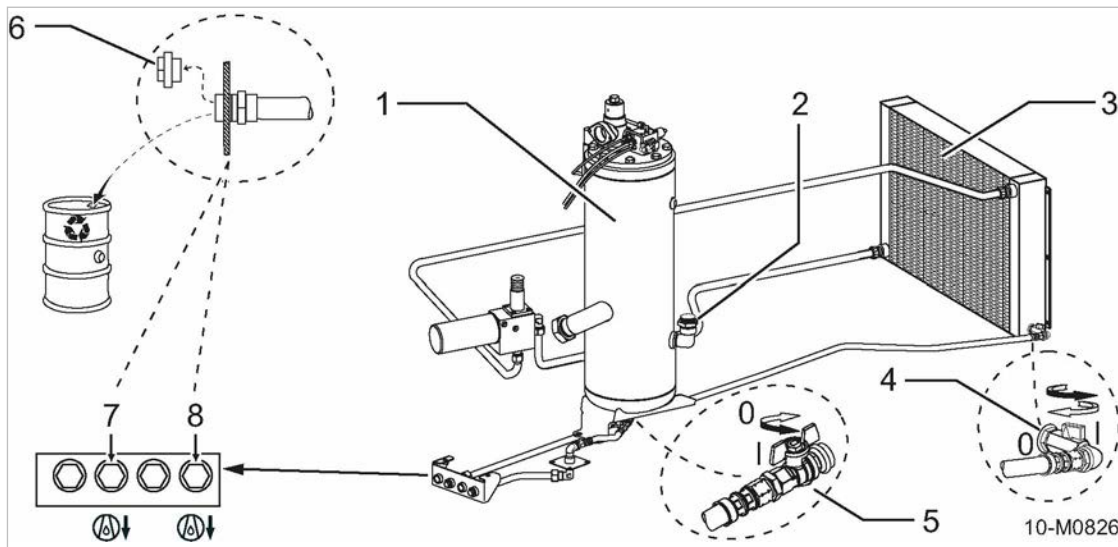


Fig. 66 Draining the cooling oil (closed floor pan - stationary machine)

- | | |
|-------------------------|---|
| ① Oil separator tank | ⑥ Screwed sealing cap - cooling oil drain |
| ② Oil filler plug | ⑦ Oil cooler drain |
| ③ Oil cooler | ⑧ Oil separator tank drain |
| ④/⑤ Shut-off ball valve | |
| I – open | |
| 0 – closed | |

- Remove the plug ② from the oil separator tank filling port.

Draining the oil from the separator tank

1. Position a receptacle beneath the oil drainage point for the oil separator tank's cooling oil ⑧.
2. Unscrew the corresponding screwed sealing cap at the cooling oil drain.
3. Open the shut-off valve ⑤ at the oil separator tank and catch any draining cooling oil.
4. Close the shut-off valve and replace the screwed sealing cap.

Draining the oil from the oil cooler

1. Position a receptacle beneath the oil drainage point for the oil cooler's cooling oil ⑦.
2. Unscrew the corresponding screwed sealing cap at the cooling oil drain.
3. Open the shut-off valve ④ at the oil cooler and catch any draining cooling oil.
4. Close the shut-off valve and replace the screwed sealing cap.

Perform final work steps:

1. Replace the plug ② in the oil separator tank filling port.
2. Close the door.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

Further information See chapter 10.4.2 for oil filling.

10.4.4 Replace the compressor oil filter

Material Spares
Receptacle
Cleaning cloth

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

⚠ CAUTION

There is risk of burns from hot components and escaping oil.

➤ *Wear long-sleeved clothing and gloves.*

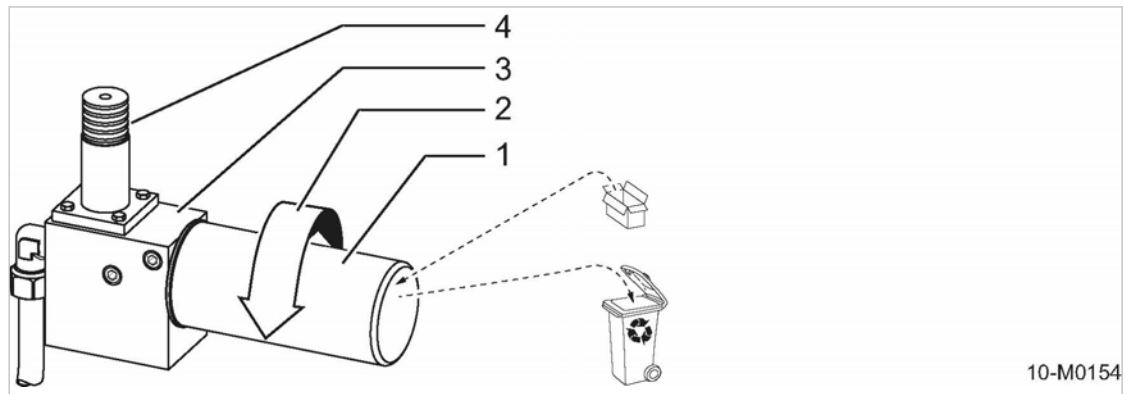


Fig. 67 Changing the oil filter

- | | |
|--|---|
| ① Oil filter | ③ Combination valve |
| ② Direction of rotation to unscrew the oil filter. | ④ Ambient temperature sensor (not with Option db) |

Changing the oil filter:

1. Open the left-hand door.
2. Prepare a receptacle.
3. Loosen the filter by turning counter-clockwise and catch any escaping oil.
4. Carefully clean sealing surfaces using lint-free cloth.
5. Lightly oil the new filter's gasket.
6. Turn the oil filter clockwise by hand to tighten.
7. Check the oil level in the oil separator tank.
Top up if necessary.
8. Reconnect the negative battery terminal.
9. Close the access door.



Dispose of old cooling oil and any materials or parts contaminated with oil according to environment protection regulations.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the left-hand door.
7. Check the oil level after about 5 minutes.
Oil level too low: top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.5 Oil separator tank dirt trap maintenance

Material Cleaning cloth
Wrench
Small screwdriver
Maintenance kit, control valve
Petroleum ether or spirit

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

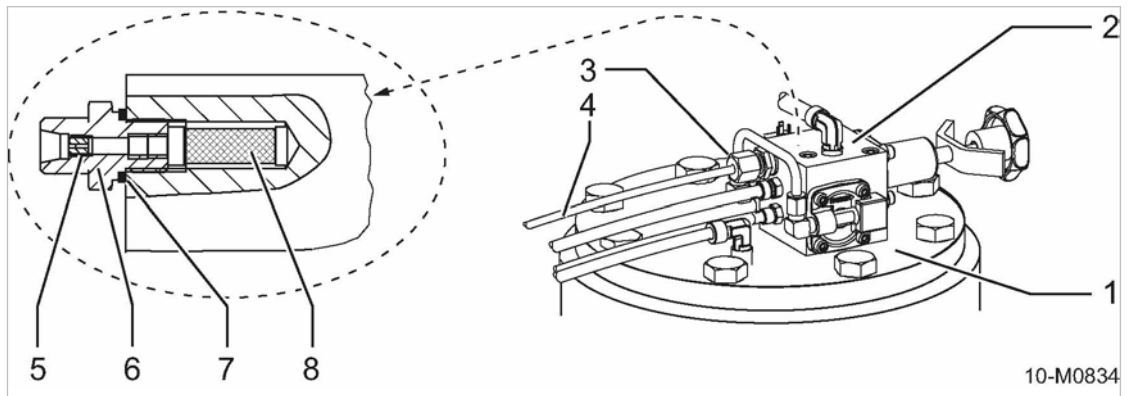


Fig. 68 Oil separator tank dirt trap maintenance

- | | |
|----------------------------|----------------------|
| ① Oil separator tank cover | ⑤ Nozzle |
| ② Control valve | ⑥ Screw-in connector |
| ③ Union nut | ⑦ Gasket |
| ④ Oil return line | ⑧ Strainer |

➤ Open the right-hand access door.

Dirt trap maintenance:

1. Undo the union nut and bend the oil return line to one side.
2. Unscrew the screw-in connector.
3. Unscrew the strainer from the screw-in connector.
4. Use a screwdriver to unscrew the nozzle from the screw-in connector.
5. Clean the housing, strainer and sealing ring with cleaning solvent or spirit.
6. Check the nozzle, strainer and sealing ring for wear.
Replace components if they are heavily worn.
7. Fit the nozzle and strainer to the screw-in connector.
8. Screw in the connector making sure the sealing ring seats properly.
9. Refit the oil scavenge line.

Making operational:

1. Reconnect the negative battery terminal.
2. Close the access door.



Dispose of old parts and contaminated materials according to environmental regulations.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
4. Open the outlet valves.
5. Open the right-hand access door.
6. Visually inspect for leaks.
7. Shut down the machine.
8. Close the access door.

10.4.6 Changing the oil separator cartridge

The oil separator element cannot be cleaned.

The life of the oil separator cartridge is influenced by:

- contamination in the air drawn into the compressor,
- and adherence to the changing intervals for:
 - Cooling oil
 - Oil filter
 - Air filter

Material Spares

Cleaning cloth

Wrench

Precondition The machine is shut down.

The machine is fully vented, the pressure gauge reads 0 psig

Machine is cooled down.

All compressed air consumers are disconnected and the air outlet valves are open.

The negative cable to the battery is disconnected.

➤ Open the right-hand access door.

10.4.6.1 Changing the oil separator cartridge

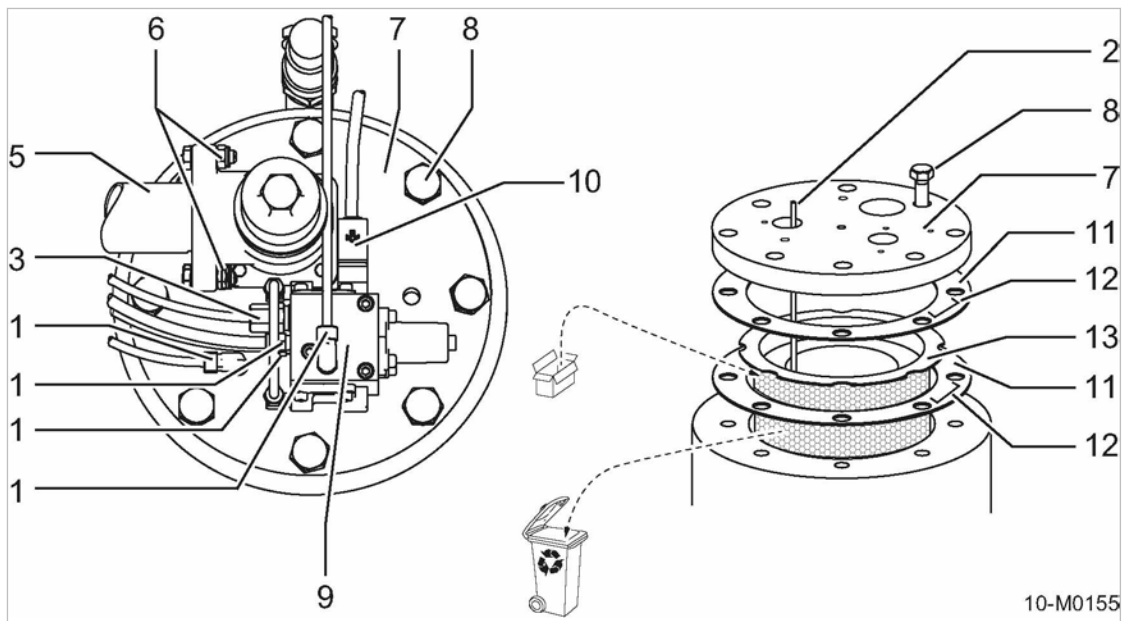


Fig. 69 Changing the oil separator cartridge

- | | |
|--|---------------------------|
| ① Control air line union nut | ⑧ Fixing screw |
| ② Oil scavenge pipe (screwed to the cover) | ⑨ Control valve |
| ③ Oil scavenge pipe union nut (screwed to the dirt trap) | ⑩ Solenoid valve plug |
| ⑤ Air pipe | ⑪ Gasket |
| ⑥ Pipe fitting | ⑫ Metal clip |
| ⑦ Cover | ⑬ Oil separator cartridge |

Changing the oil separator cartridge

1. Unscrew the union nuts ① and ③ and place the components with connections carefully to one side.
2. Pull out the plug to the solenoid valve ⑩ and withdraw the cable.
3. Unscrew the fitting ⑥ and turn the air pipe ⑤ to one side.
4. Remove the screws ⑧ securing the cover ⑦ to the tank.

5. Carefully lift the cover and put to one side.



Take care that the oil scavenge pipe (2) screwed to the underside of the cover is not bent in the process.

6. Take out the old cartridge (13) and gaskets (11).

7. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.



Do not remove the metal clips!

The metal parts of the oil separator cartridge are electrically interconnected. The gaskets (11) are fitted with metal clips (12) that fulfil this requirement and provide an electrical path to the oil separator tank and to the frame of the machine.

8. Insert the new oil separator cartridge with gaskets and screw down the cover.

9. Re-position the air pipe (5).

10. Replace and tighten all loosened fittings.

11. Reconnect cables.

12. Check the oil level in the oil separator tank.

Top up if necessary.



Maintenance of the control valve dirt trap must be carried out whenever the oil separator cartridge is changed.

Further information Information on control valve dirt trap maintenance is given in chapter 10.4.5.

Making operational:

1. Reconnect the negative battery terminal.

2. Close the access door.



Dispose of old parts and contaminated materials according to environmental regulations.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.

2. Close the outlet valves.

3. Shut down the machine.

4. Wait until the machine has automatically vented.

Pressure gauge reads 0 psig!

5. Open the outlet valves.

6. Open the right-hand access door.

7. Check the oil level after about 5 minutes.

Top up if necessary.

8. Visually inspect for leaks.

9. Close the access door.

10.4.6.2 Option ba

Changing the oil separator (machine with low-temperature equipment)

Option ba

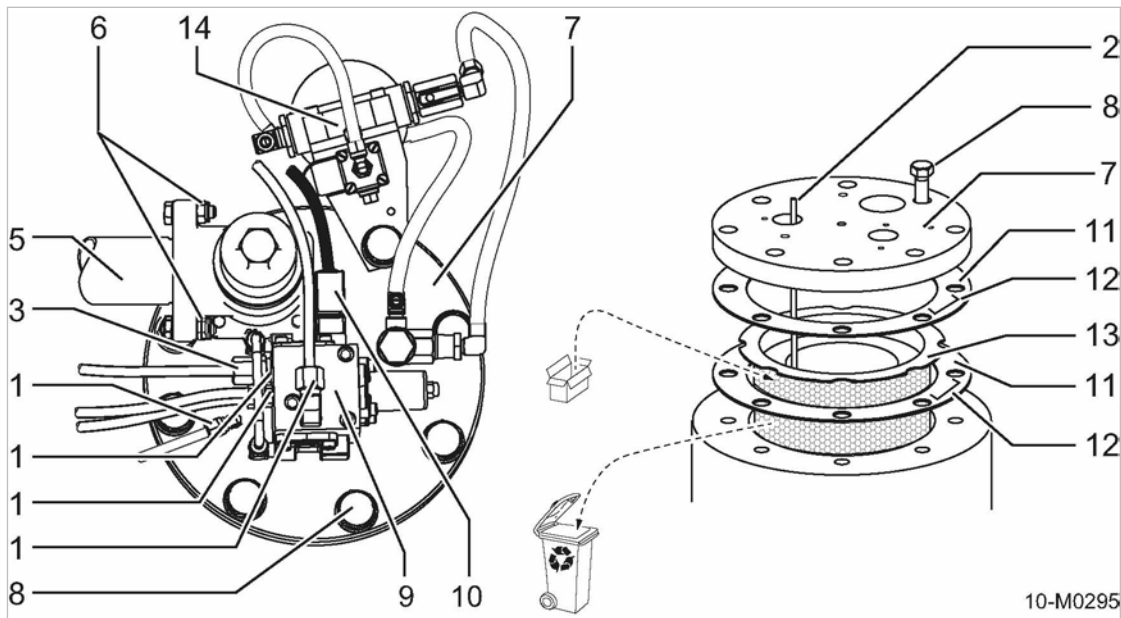


Fig. 70 Changing the oil separator cartridge (Option ba)

- | | |
|--|---------------------------|
| ① Control air line union nut | ⑨ Control valve |
| ② Oil scavenge pipe (screwed to the cover) | ⑩ Solenoid valve plug |
| ③ Oil scavenge pipe union nut (screwed to the dirt trap) | ⑪ Gasket |
| ⑤ Air pipe | ⑫ Metal clip |
| ⑥ Pipe fitting | ⑬ Oil separator cartridge |
| ⑦ Cover | ⑭ Frost protector |
| ⑧ Fixing screw | |

1. Unscrew the union nuts ① and ③ and place the components with connections carefully to one side.
2. Pull out the plug to the solenoid valve ⑩ and withdraw the cable.
3. Unscrew the fitting ⑥ and turn the air pipe ⑤ to one side.
4. Loosen the frost protector clamp ring ⑭ and empty the bowl. See chapter 10.8.5 on frost protector maintenance.
5. Remove the screws ⑧ securing the cover ⑦ to the tank.
6. Carefully lift the cover and put to one side.



Take particular care with the following components:

- The frost protector ⑭ connected to the control line,
- The oil scavenge line ② screwed to the underside of the cover.

7. Take out the old cartridge ⑬ and gaskets ⑪.

8. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.



Do not remove the metal clips!

The metal parts of the oil separator cartridge are electrically interconnected. The gaskets (11) are fitted with metal clips (12) that fulfil this requirement and provide an electrical path to the oil separator tank and to the frame of the machine.

9. Insert the new cartridge and gaskets.
10. Carefully replace the cover on the tank and the frost protector with holder on the cover.
11. Screw down the cover.
12. Re-position the air pipe (5).
13. Replace and tighten all loosened fittings.
14. Check the oil level in the oil separator tank.

Top up if necessary.



Maintenance of the control valve dirt trap must be carried out whenever the oil separator cartridge is changed.

Further information

Information on control valve dirt trap maintenance is given in chapter 10.4.5.

Making operational:

1. Reconnect the negative battery terminal.
2. Close the access door.



Dispose of old parts and contaminated materials according to environmental regulations.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the right-hand access door.
7. Check the oil level after about 5 minutes.
Top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.7 Compressor air filter maintenance

Clean the filter according to the maintenance schedule or if the maintenance indicator shows this to be necessary.

Renew the air filter element after 2 years at the latest or after it has been cleaned 5 times.



- Using the machine without an air filter element is not permitted!
- Do not use an air filter element with damaged folds or gasket.
- The use of an unsuitable air filter can permit dirt to ingress the pressure system and cause premature wear and damage to the machine.

Material Compressed air for blowing out
 Spare parts (as required)
 Cleaning cloth

Precondition The machine is shut down.
 The machine is fully vented, the pressure gauge reads 0 psig.
 Machine is cooled down.
 All compressed air consumers are disconnected and the air outlet valves are open.

NOTICE

Damaged air filter element.

Machine damage due to contaminated intake air.

- Do not try to clean the filter element by striking or knocking it.
- Do not wash the filter element.

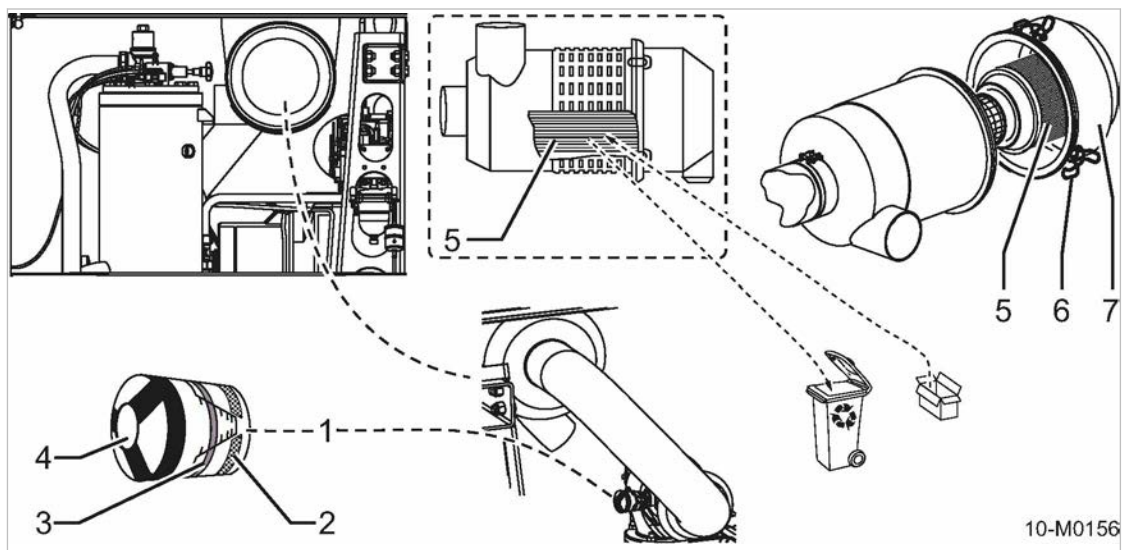


Fig. 71 Compressor air filter maintenance

- | | |
|--|------------------|
| ① Maintenance indicator | ⑤ Filter element |
| ② Red zone indicator scale | ⑥ Retaining clip |
| ③ Indicating piston of the maintenance indicator | ⑦ Filter cap |
| ④ Reset knob for the maintenance indicator | |

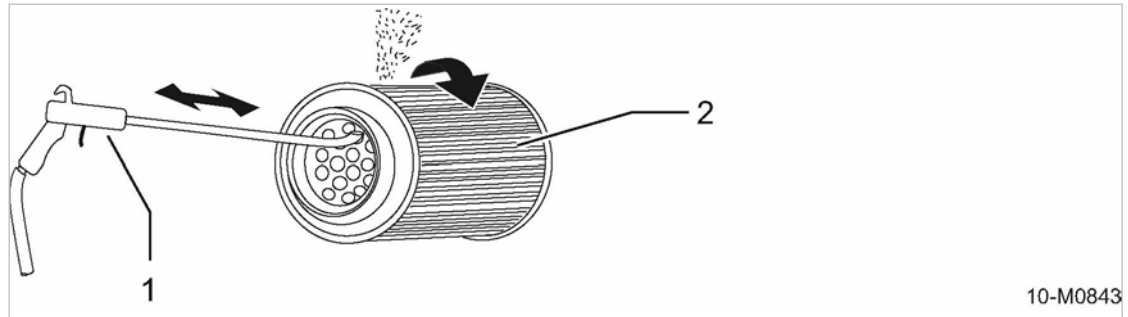


Fig. 72 Cleaning the filter element

- ① Compressed air gun with blast pipe bent to 90° at the end
- ② Filter element

➤ Open both doors.

Checking contamination of the air filter:

Air filter maintenance is necessary when the yellow piston inside the maintenance indicator reaches the red zone.

- Check the air filter maintenance indicator.
If the yellow piston reaches the red zone, clean or renew the filter element.

Cleaning the air filter:

1. Release the retaining clamps, lift off the cap and extract the air filter.
2. Carefully clean the inside of the housing, the cover and sealing faces with a damp cloth.
3. Cleaning the filter element:
 - Use dry compressed air (≤ 73 psi!) at an angle to blow dust from the element from inside to outside until no further dust develops.
 - The blast pipe must be long enough to reach the bottom of the element.
 - The tip of the blast pipe must not touch the element.
 - Cleaning sealing faces.
4. Inspect the element carefully for any damage.
Replace any damaged filter element.
5. Insert the cleaned or new filter element into the filter housing. Make sure it is properly in place and sealed by its gaskets.
6. Replace the cap and secure with the clip.

Resetting the maintenance indicator:

- Repeatedly press the reset knob on the maintenance indicator.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
- Close the doors.



Dispose of old parts and contaminated materials according to environmental regulations.

10.4.8 Checking safety relief valves

- Have safety relief valves checked by KAESER Service in accordance with the maintenance schedule.

10.5 Cleaning the cooler

The frequency of cleaning is mainly dependent on local operating conditions.

Severe clogging of the coolers causes overheating and machine damage.

Check coolers regularly for clogging.

Avoid creating dust eddies. Wear breathing protection if necessary.

Do not clean the coolers/radiators with a sharp instrument as they may be damaged.

A severely contaminated cooler should be cleaned by KAESER Service.

Material Compressed air
 Breathing mask (if necessary)
 Water or steam jet blaster

Precondition The machine is placed over a washing station equipped with an oil separator.
 The machine is switched off.
 The machine has cooled down.
 The machine is fully vented, the pressure gauge reads 0 psig.
 All compressed air consumers are disconnected and the air outlet valves are open.
 The negative cable to the battery is disconnected.

NOTICE

Damage to the machine can be caused by water or steam jets.

Direct water or steam jets can damage or destroy electrical components and indicating instruments.

- *Cover up electrical components such as the control cabinet, alternator, starter and instruments.*
- *Do **not** direct water or steam jets at sensitive components such as alternator, starter or indicating instruments.*
- *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and an approximately 90° angle to the cooler/radiator surface.*

- Open both doors.

10.5.1 Cleaning the compressor cooler and engine radiator

The compressor oil cooler and engine coolant radiator are combined in a single cooler block.

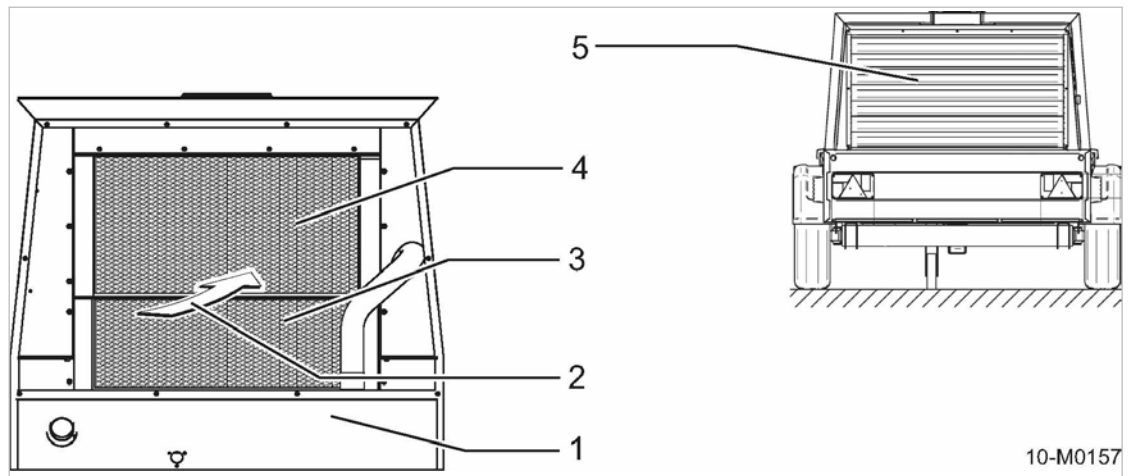


Fig. 73 Cleaning the compressor cooler and engine radiator

- | | |
|---|-------------------------|
| ① Front end of machine, sound insulation (radiator grill) removed | ④ Radiator (engine) |
| ② Direction of impacting water or steam jet (from outside to inside). | ⑤ Sound damping louvers |
| ③ Compressor oil cooler | |

Cooler cleaning

1. Seal off the air intakes of the engine and compressor air filters before starting cleaning.
2. Remove the sound damping louver in front of the cooler/radiator.
3. Clean the cooling fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).
4. Replace the sound damping louver.
5. Remove the protective coverings from the air filters.
6. Reconnect the battery.
7. Close the doors.
8. Start the machine and run up to operating temperature so that excess water is evaporated.

Check the cooler for leaks

1. Open both doors.
2. Visually inspect for leaks. Does oil or cooling water escape?



Is a cooler leaking?

➤ Have the defective cooler repaired or replaced immediately by KAESER Service.

➤ Close the doors.



Clean the cooler blades only in a washing area equipped with an oil separator.

10.5.2 Option da, db, dc, dd Cleaning the compressed air aftercooler

The compressed air aftercooler is located near the air treatment devices.

Option da, db, dc, dd

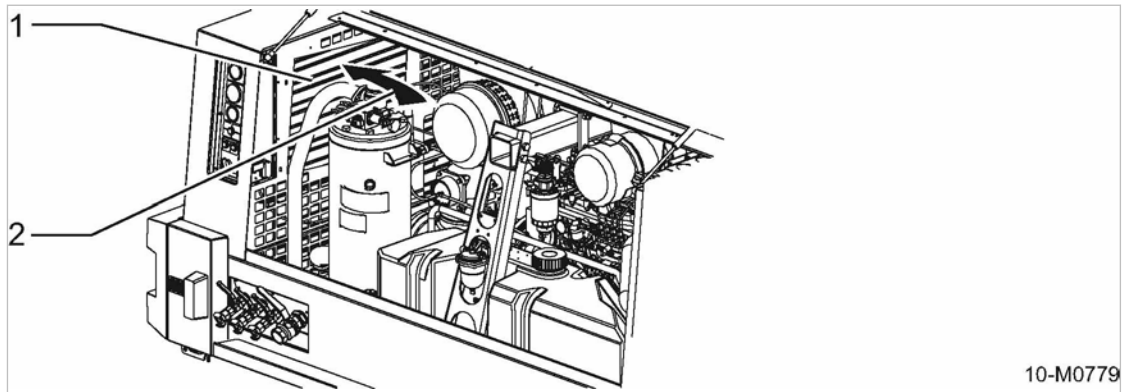


Fig. 74 Cleaning the compressed air aftercooler

- ① After-cooler
- ② Direction of impacting water or steam jet (from inside to outside).

1. Seal off the air intakes of the engine and compressor air filters before starting cleaning.
2. Clean the aftercooler with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).
3. Remove the protective coverings from the air filters.
4. Reconnect the battery.
5. Close the doors.
6. Start the machine and run up to operating temperature so that excess water is evaporated.



Clean the cooler blades only in a washing area equipped with an oil separator.

10.6 Maintenance of rubber sealing strips

The rubber sealing strips between the body panels and the access doors serve both as a sound-proofing measure and to prevent ingress of rain water.

Care of the rubber sealing strips is especially necessary in winter to prevent the strips from sticking and tearing when the access panels are opened.

Material Cleaning cloth
Silicone or Vaseline

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

1. Open all the doors.
2. Clean the rubber sealing strips with a lint-free cloth and check for cracks, holes and other damage.
Have any damaged gasket replaced.
3. Properly grease the rubber strips.
4. Close the doors.

10.7 Chassis maintenance

- Perform maintenance tasks according to the schedule in chapter 10.2.3.1.

10.7.1 Wheel checks

Check the wheels for tightness, visible damage and tire pressures:

- after the first 30 miles
- after every wheel change
- at least every six months

Material Torque wrench
tire pressure gauge

Precondition Machine shut down and secured against restarting.

1. Check/adjust for wheel fixing torques.
2. Check the tires and wheels for any defect.
Replace any damaged or worn tires.
3. Check the tire treads for sufficient depth.



According to local roadworthy regulations, at least 63 mil in most countries.

Profile depth too low: change tires.

4. Check the tire pressures.

Result tire pressure too low: pump tires.

Further information See chapter 2.4.3 for wheel fixing torques.
See chapter 2.4.2 for tire pressures.
A sticker is found on each wheel arch giving the recommended tire pressure.

10.7.2 Towbar maintenance

Clean and lubricate all sliding and rotating bearings as necessary but at least every 6 months.

Material Lithium-enriched multi-purpose grease
Acid-free oil
Cleaning cloth

Precondition The machine is shut down.
The machine is disconnected from the towing vehicle and safely parked.

Option rb/rk/rm/rs,
rb/rl/rm/rs

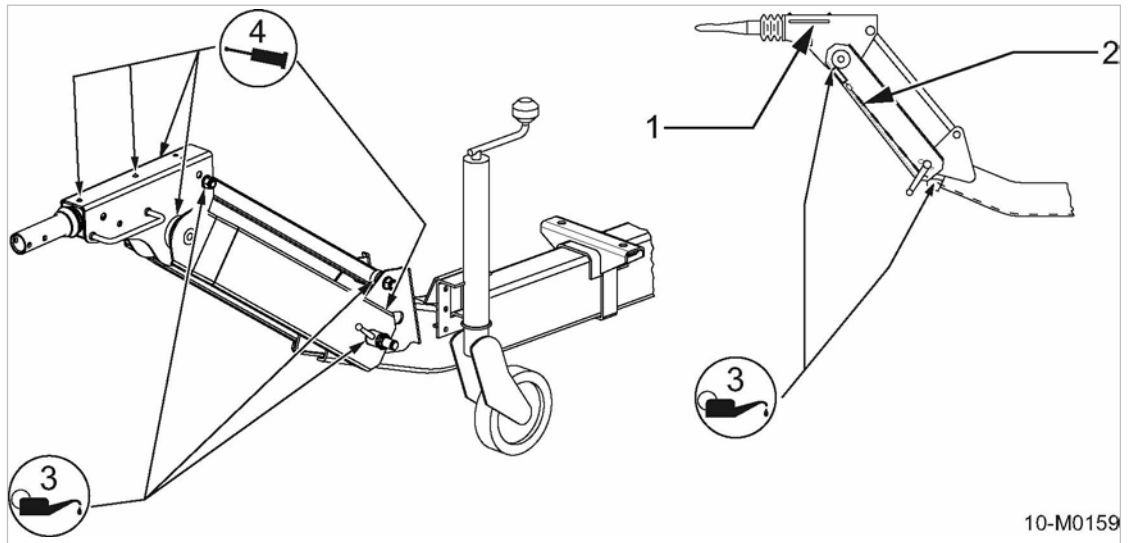


Fig. 75 Towbar maintenance

- ① Handle
- ② Transfer cable

- ③ Lubricating points
- ④ Greasing points

Option rc/ro/rs, rd/ro/rs

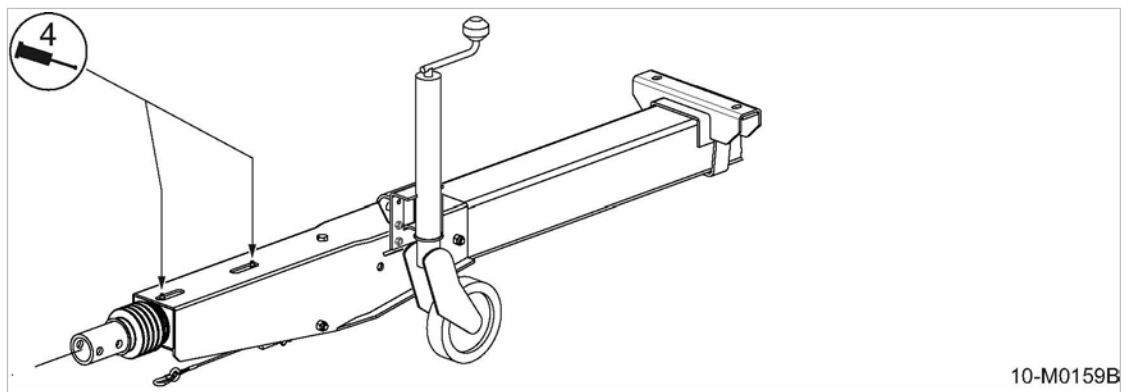


Fig. 76 Maintaining the fixed height towbar

- ④ Greasing points

10.7.2.1 Checking the tow bar

1. Check the towbar for correct function and movement.
2. Clean and oil all sliding and rotating bearings.

Option rb/rk/rm/rs,
rb/rl/rm/rs

Check the height setting of the towbar

- Check the towbar height adjustment function.



The locking teeth on the towbar height adjustment joint are corroded and jammed and the towbar height cannot be adjusted.

- If necessary, free the teeth by jerking the towbar horizontally and vertically.
- Clean the toothed coupling and smear with water-repellent grease.

Further information See chapter 6.4.1 for towbar height adjustment.

Option rb/rk/rm/rs,
rb/rl/rm/rs, rc/ro/rs

Maintaining the parking brake

- Lightly lubricate the pins and adjustment joints.

10.7.2.2 Option rb/rk/rm/rs, rb/rl/rm/rs, rc/ro/rs, rd/ro/rs Overrun braking mechanism maintenance

Greasing the overrun mechanism:

- Pump fresh grease into the nipple until old grease is squeezed out.

Further information

For the lubricating points of the height-adjustable tow mechanism (Option rb/rm/rs) see illustration 75.

Lubricating points of a tow mechanism non-adjustable in height (Option rc/ro/rs) see illustration 76.

Checking the shock absorber:

1. Loosen the transfer cable one side.
 2. Press in the shock absorber against its damping force.
- Have the shock absorber replaced by a specialist workshop if:
- There is little resistance to pushing in,
 - Air has entered the device,
 - there is little resistance to pulling out the shock absorber.
 - Oil leaks out.

10.7.2.3 Ball coupling maintenance

Option rb/rk/rm/rs,
rb/rl/rm/rs, rc/ro/rs

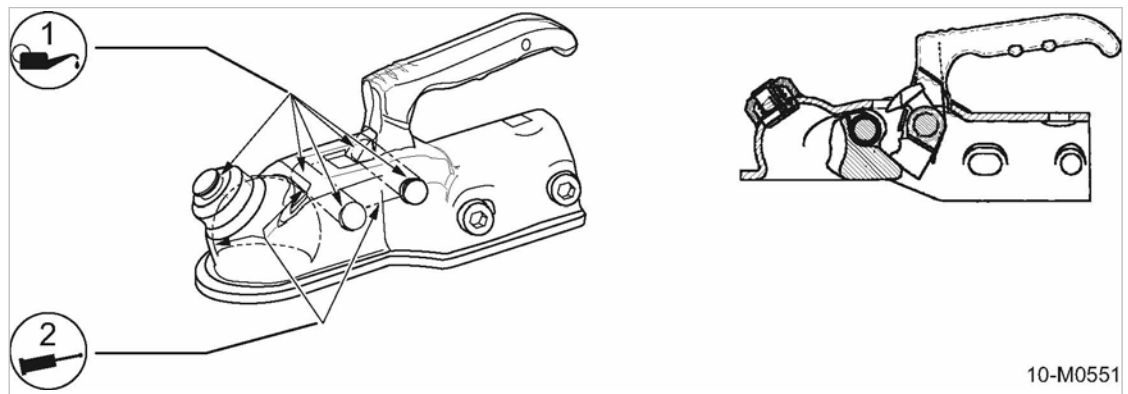


Fig. 77 Ball coupling (EC version)

- ① Lubricating points
- ② Greasing points

Option rd/ro/rs

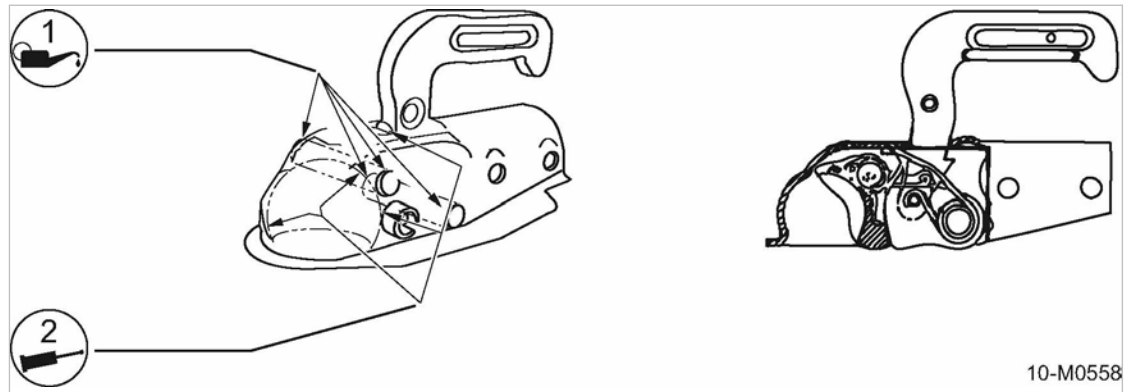


Fig. 78 Ball coupling (USA version)

- ① Lubricating points
- ② Greasing points

1. Check the ball coupling for correct function and movement.
2. Clean the ball coupling. Grease or oil the ball cup, joints, and bearings.

10.7.3 Brake maintenance

The brake adjusting procedure ensures even wear on the brake linings by adjusting the brake shoes.

The following points must be observed:

- Carry out the adjustment procedure on all wheel brakes, one after the other.
- During adjustment, turn the wheel in the 'forward' direction only.

Material Screwdriver
 Wrench
 Inspection lamp or torch
 Cleaning cloths
 Lithium-enriched multi-purpose grease

Precondition The machine is switched off.

1. Jack up the machine and lower it onto supports.
2. Release the parking brake and completely pull out the overrun braking mechanism.
 The brake cables are not tensioned.

10.7.3.1 Checking brake system settings

1. Pull up the parking brake to first notch.
2. Turn the wheels in the forward direction.
3. Check that there is the same braking resistance on both wheels.
 Brake resistance not even: adjust brake system.
4. Release the parking brake.

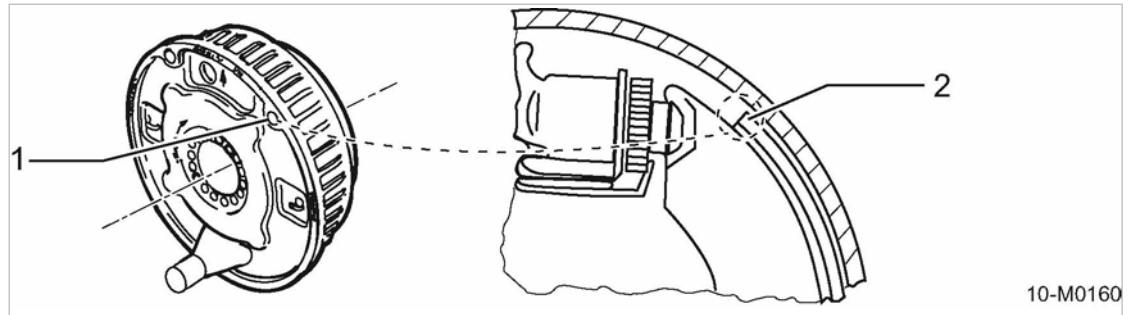
10.7.3.2 Checking wheel brake lining wear


Fig. 79 Checking the brake lining thickness

- ① Inspection hole
- ② Brake linings

1. Remove the plug from the inspection hole.
2. With the aid of a torch, check the brake lining thickness.
 Brake lining thickness less than 0.1 inch: Have the brake shoes replaced in a specialist workshop.
3. Replace the plug in the inspection hole.

10.7.3.3 Brake system adjustment

There is an arrow pressed into the brake back plate near the adjustment hole.

- Turn in the direction of the arrow: Adjust the brake.
- Turn against the direction of the arrow: Loosen the brake.

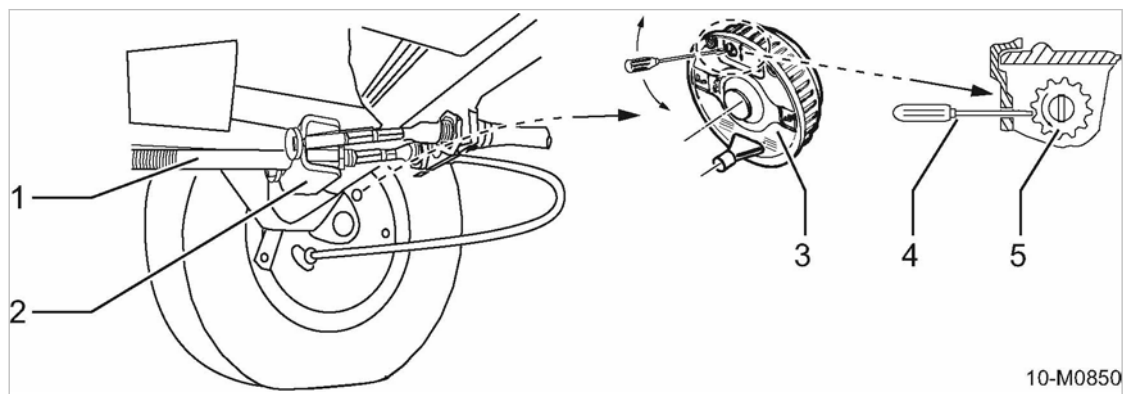


Fig. 80 Brake system adjustment

- ① Brake rod
- ② Equaliser
- ③ Brake support
- ④ Screwdriver as adjusting tool
- ⑤ Adjusting wheel

1. Remove the plug from the inspection hole.
2. Use a screwdriver to turn the adjusting wheel ⑤ until the wheels no longer turn in the forward direction.
3. Apply the parking brake a number of times to centre the brake linings.
4. Use the screwdriver to turn the adjusting wheel back (3 to 5 notches) until there is no more braking resistance to the wheels turning forward.

5. Pull on the parking brake.
6. Check the position of the equaliser **2** on the brake rod **1**.
If the equaliser is perpendicular to the brake rod, the brake clearance is the same on each wheel.
If the equaliser is oblique to the brake rod, adjust the brake rod.
7. Pull the parking brake lightly on and compare the braking force on the wheels.
If the braking force on the wheels is not equal, re-adjust brake system.
8. Replace the plug in the inspection hole.



A light rubbing sound when the wheels turn is permissible if it does not affect free turning.

Brake rod adjustment

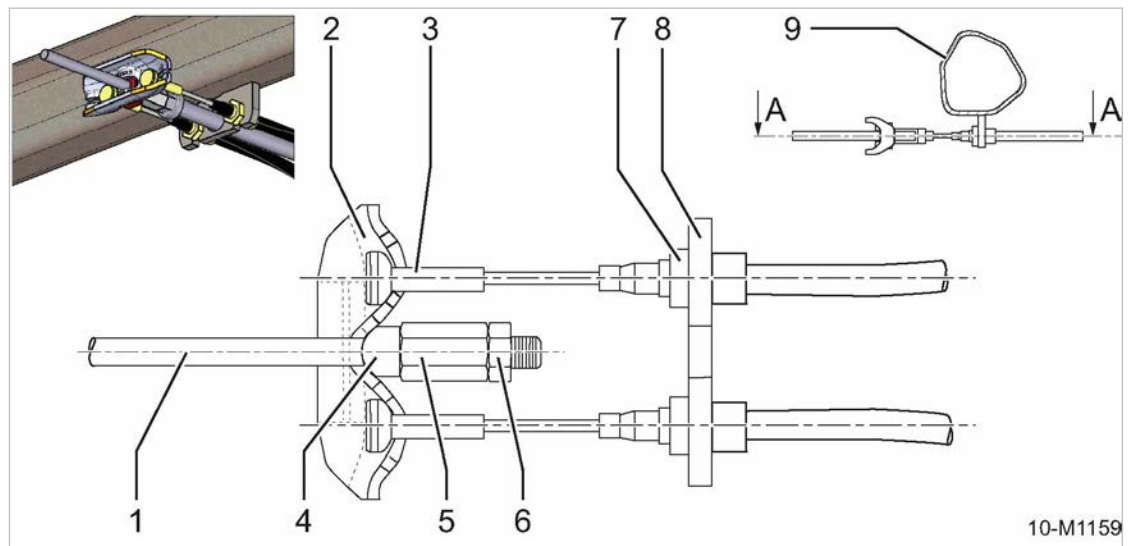


Fig. 81 Brake rod adjustment

- | | |
|-------------------------------|-------------------------------|
| 1 Brake rod | 6 Hexagonal nut |
| 2 Equaliser | 7 Hexagonal nut |
| 3 Brake cable (Bowden) | 8 Axle abutment |
| 4 Spacer | 9 Axle (cross-section) |
| 5 Connecting sleeve | |

1. To free the brake rod, remove the hexagon nut **2** at the equaliser **6** and loosen the sleeve **5**.
2. Clean and grease the brake rod threads.
3. Manually tighten the connecting sleeve.
4. Pull and release the parking brake three times.

5. Turn the wheel in forward direction and simultaneously tighten the connecting sleeve up to a clearly experienced braking resistance.



You must still be able to manually turn the wheel in forward driving direction.

6. Screw the hexagon nut [6] onto the brake rod and lock the connecting sleeve.

Further information For more information, see the assembly illustration in chapter 13.6.3.

- Test by applying the brake a number of times.

10.7.3.4 Greasing the brake rods

Grease the brake rods when necessary (stiff movement) but at least annually.

Material Lithium-enriched multi-purpose grease
Cleaning cloths

Precondition The machine is shut down.
The machine is disconnected from the towing vehicle and safely parked.
➤ Clean and grease the brake rod's sliding and adjustment joints.

10.8 Maintenance for Optional Items

- Perform maintenance tasks according to the schedule in chapter 10.2.3.2.

10.8.1 Option ea, ec Tool lubricator maintenance

Material Tool oil (special lubricant for road breakers),
Funnel
Cleaning cloths

Precondition The machine is switched off.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

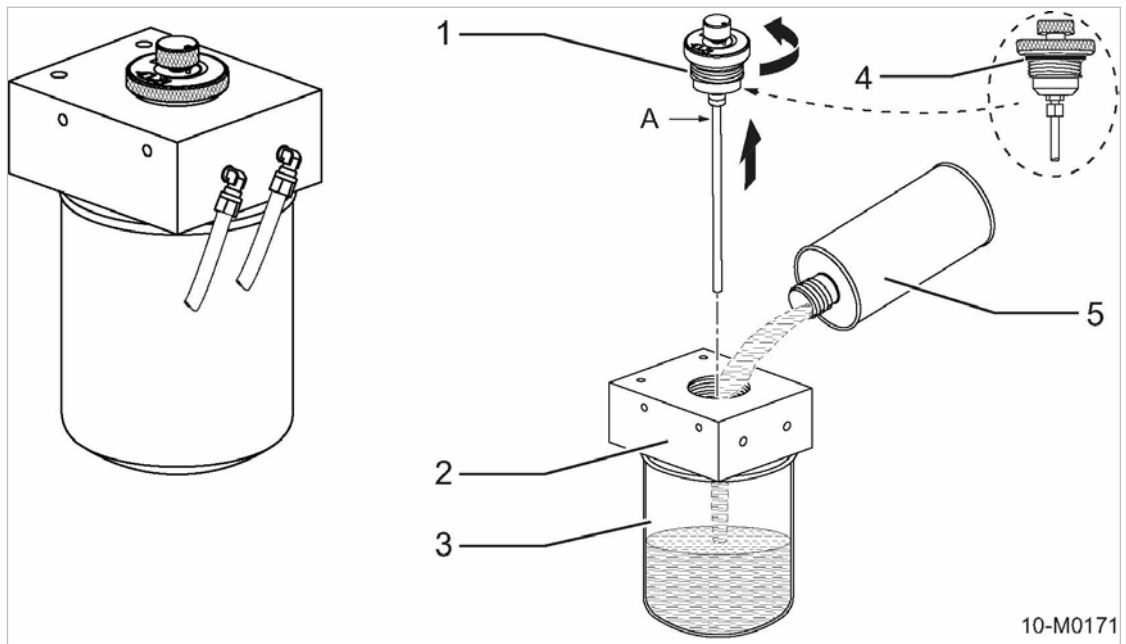


Fig. 82 Tool lubricator maintenance

- | | |
|---|------------|
| ① Filler plug with dipstick and integrated riser tube | ③ Oil tank |
| Ⓐ Minimum and recommended oil level | ④ O-ring |
| ② Tool lubricator upper part with oil filling port | ⑤ Tool oil |

➤ Open the right-hand access door.

Checking the tool lubricator oil level

Check the oil level daily.

A dip stick is attached to the underside of the oil filler plug with which to measure the oil level.

The oil level should be in the upper third of the dipstick.

1. Slowly unscrew and withdraw the oil filler plug.
2. Wipe off the dipstick with a lint-free cloth or rag and screw the plug fully in again.
3. Unscrew and withdraw the plug once more and read off the oil level on the dipstick.
Oil level at the upper third of the dip stick: Oil level is correct.
If oil does not reach this level: Immediately replenish tool oil.
4. Close the door.

Filling and topping up with tool lubricator oil

1. Slowly unscrew and withdraw the oil filler plug.
2. Use a funnel to pour in the oil to the maximum level (0.4 – 0.6 inches below the top of the tank).
3. Check the oil level.
4. Check the filler plug O-ring for external damage.
Skadet O-ring: replace the O-ring.

5. Insert the plug in the filler port.
6. Close the door.

Further information See chapter 2.7.1.1 for suitable oil grade and volume.

10.8.2 Option da, db, dc, dd Cyclone separator maintenance

Clean the cyclone separator dirt trap if the moisture content in the compressed air is too high.

Material Cleaning cloth
Wrench
Small screwdriver
Dirt trap maintenance kit
Petroleum ether or spirit

Precondition The machine is shut down.
Machine is cooled down.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

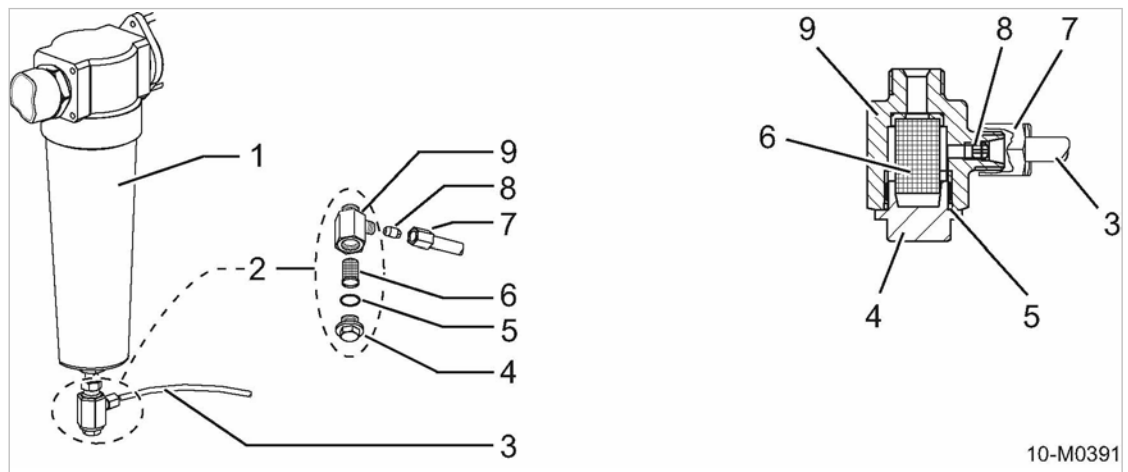


Fig. 83 Cleaning the dirt trap

- | | |
|-------------------------|-----------------------------------|
| ① Cyclone separator | ⑥ Strainer |
| ② Dirt trap | ⑦ Condensate drain hose union nut |
| ③ Condensate drain hose | ⑧ Nozzle |
| ④ Filler plug | ⑨ Dirt trap housing |
| ⑤ O-ring | |

➤ Open the left-hand door.

Cleaning the dirt trap:

1. Unscrew the plug ④ and remove the strainer.
2. Loosen the union nut ⑦ and detach the condensate drain hose ③ from the dirt trap.
3. Use the small screwdriver to unscrew the nozzle ⑧ from the dirt trap housing.

4. Clean the nozzle, strainer, screw plug, O-ring (5) and dirt trap housing (9) with cleaning solvent or spirit.
5. Check the nozzle, strainer and O-ring for wear.
Replace components if they are heavily worn.
6. Place the strainer on the screw plug.
7. Screw in the plug making sure the O-ring seats properly.
8. Screw in the nozzle and re-attach the condensate drain hose.

Making operational:

1. Reconnect the negative battery terminal.
2. Close the access door.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
4. Open the outlet valves.
5. Open the left-hand door.
6. Check the cyclone separator housing and hose line for leaks.
7. Close the access door.

10.8.3 Option dd Combination filter maintenance

Precondition The machine is switched off.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valves are open.

⚠ WARNING

Danger of injury from compressed air!

Filter combination is pressurised during operation. Serious injury can result from loosening or opening components under pressure.

- *Wait until the machine has automatically vented (check: pressure gauge reads 0 psig!)*
- *De-pressurise the combination filter.*

Option dd

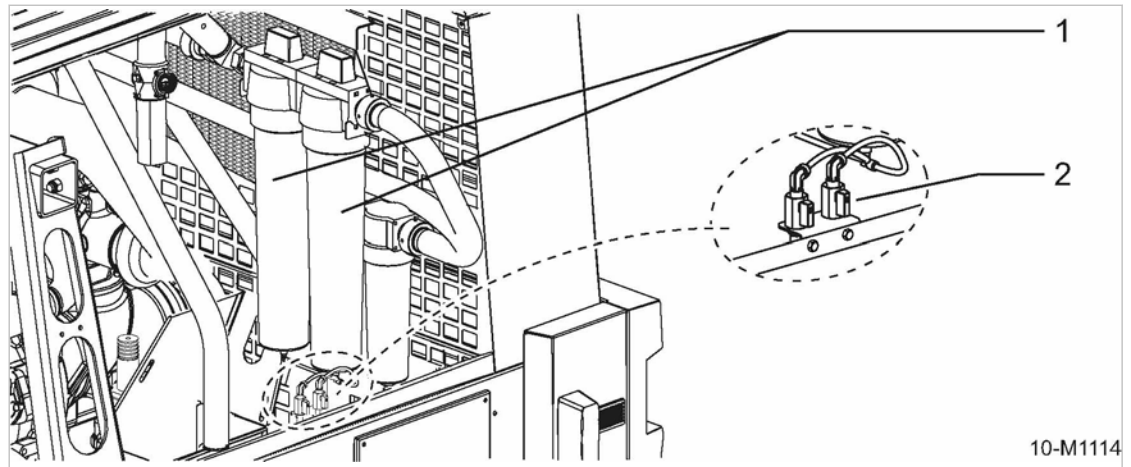


Fig. 84 Filter combination

- ① Filter combination
- ② Shut-off valve condensate drain

Option dd

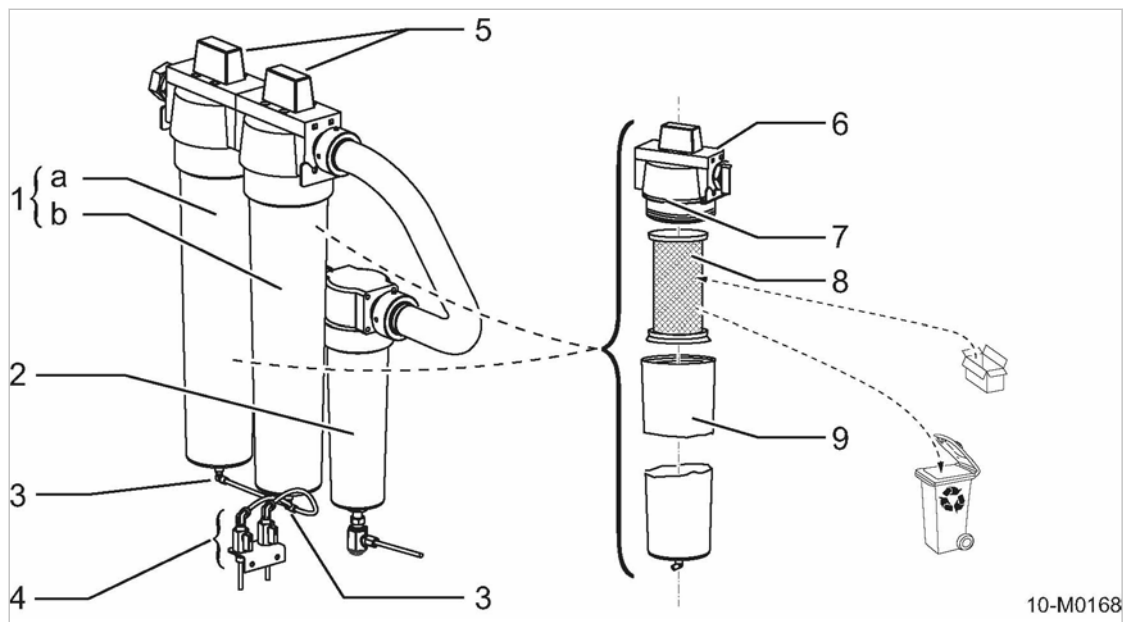


Fig. 85 Combination filter maintenance

- ① Filter combination
- a Microfilter
- b Pre-filter
- ② Cyclone separator
- ③ Condensate drain hose fittings
- ④ Shut-off ball valve for condensate drainage
- ⑤ Pressure differential gauge (check fittings for Service personnel)
- ⑥ Filter head
- ⑦ Casing gasket
- ⑧ Filter element
- ⑨ Filter housing

➤ Open the left-hand door.

10.8.3.1 Drain condensate

Material Oil receptacle
Cleaning cloths

1. Place the receptacle under the combination filter hose lines.
2. Open the pre-filter and micro-filter condensate drain shut off valves.
3. Close the door.
4. Start up the machine and run in IDLE.
The condensate collecting in the filter housings is blown out.
5. Stop the compressor as soon as air escapes.
6. Open the left-hand door.
7. Close the shut-off valve.
8. Close the door.



Condensate must be stored in suitable containers and disposed of in accordance with local environmental regulations.

10.8.3.2 Changing the filter elements

The pre-filter and microfilter contain different elements and these must be changed as a pair. Note location!



Using the combination filter without an element installed is not permitted.
Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – Contamination risk!

Material Spare parts
Filter wrench
Wrench
Cleaning cloths
Clean fabric gloves

Precondition The machine has cooled down.
The negative cable to the battery is disconnected.

Ensure that the combination filter is not under pressure.

- Slowly open the pre-filter and micro-filter condensate drain shut off valves.
Remaining pressure escapes.

Gaining access to the filter housing

- Loosen the screw fitting of the condensate drain hoses from the filter housings of pre-filter and micro-filter and remove the drain hoses.

Changing the prefilter element

1. Unscrew the filter housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the filter head, housing and sealing surface with a lint-free cloth.

4. Check the housing gasket.
Housing gasket is damaged: replace gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the filter housing clockwise.

Changing the pre-filter element

1. Unscrew the filter housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the filter head, housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
Housing gasket is damaged: replace gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the filter housing clockwise.

Putting in operation:

1. Screw the condensate drain hoses to the housings of the pre-filter and the micro-filter.
2. Close the condensate drain shut-off valves.
3. Tighten the filter combination fittings.
4. Reconnect the negative cable to the batteries.
5. Close the door.



Dispose of old parts and contaminated materials according to environmental regulations.

Further information

Further information on changing elements can be found in the filter instructions in chapter 13.7.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
4. Open the outlet valves.
5. Open the left-hand door.
6. Check the combination filter housing and hose lines for leaks.
7. Close the door.

10.8.4 Option dc Fresh air filter maintenance

Before commencing work on the fresh air filter, read and understand the operating instructions given in chapter 13.8.

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valves are open.

Option dc

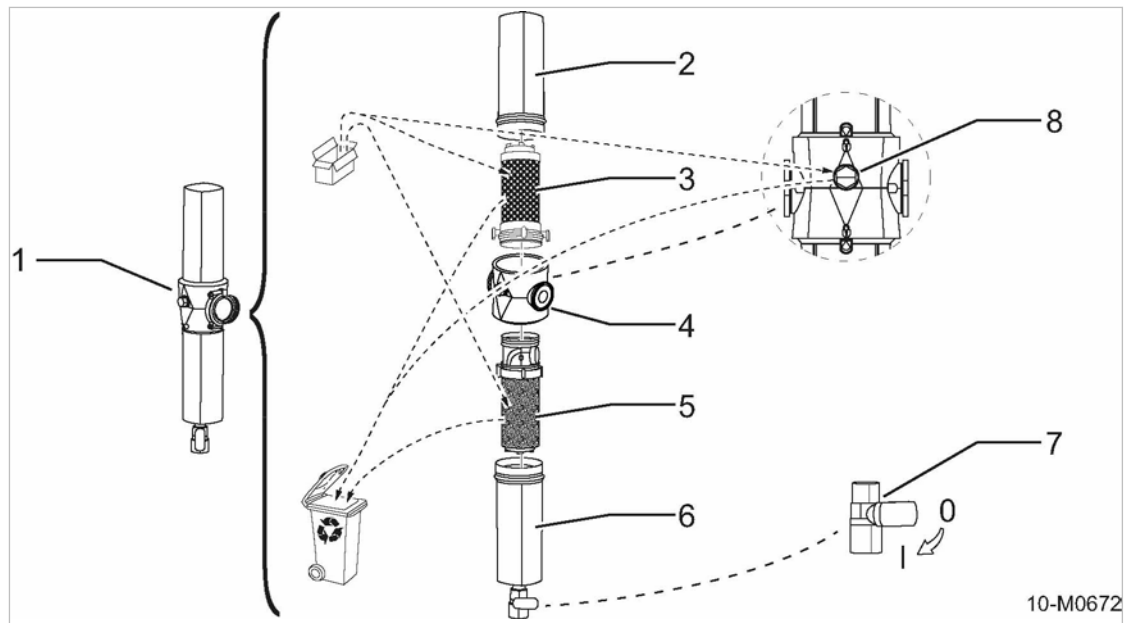


Fig. 86 Fresh air filter maintenance

- | | |
|--------------------------------------|--|
| ① Fresh air filter | ⑤ Lower filter element (high capacity element) |
| ② Upper housing | ⑥ Lower housing |
| ③ Upper element (adsorption element) | ⑦ Condensate drain (tap for manual draining) |
| ④ Body | 0 - closed |
| | I - open |
| | ⑧ Oil indicator |

➤ Open both doors.

10.8.4.1 Draining condensate

Material Receptacle
Cleaning cloth

- Place the receptacle below the fresh air filter condensate drain point.
- Open the condensate drain valve.
- Close the doors.
- Switch the machine on and run it in IDLE mode for approx. 2 minutes.
The condensate collecting in the filter housings is blown out.

5. Shut down the machine.
6. Open both doors.
7. Close the drain valve.
8. Carefully remove the receptacle.
9. Close the doors.



Condensate must be stored in suitable containers and disposed of in accordance with local environmental regulations.

10.8.4.2 Check the oil indicator

The fresh air filter is fitted with an oil indicator. When the indicator is blue, the filtration function can no longer be ensured and the filter must not be used. Both filter elements and the oil indicator must be changed (regardless of the maintenance schedule).

The oil indicator must be checked at least once daily.



The oil indicator does not give information on the filter element changing interval.

- Check the oil indicator.
Indicator blue - change both filter elements and the indicator.

10.8.4.3 Changing consumable parts

The fresh air filter contains two different element and both must be changed as a pair. Note location!



Using the fresh air filter without an element installed is not permitted!
Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – Contamination risk!

Material

- Spare parts
- Filter wrench
- Wrench
- Cleaning cloth
- Clean fabric gloves

Precondition

- Machine is cooled down.
- The negative cable to the battery is disconnected.

Ensuring the fresh air filter is depressurized:

- Open the fresh air filter drain tap to release any remaining pressure.

Change the lower filter element (high performance element):

1. Unscrew the lower housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the lower housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
When damaged, replace the housing gasket.

5. Insert a new lower filter element.



Wear gloves!

6. Screw on the lower housing clockwise.

Change the upper filter element (adsorption insert).

1. Unscrew the upper housing counter-clockwise.
2. Draw the filter element up and out.
3. Clean the lower housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
When damaged, replace the housing gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the upper housing clockwise.

Change the oil indicator:

1. Unscrew the oil indicator.
2. Clean the housing and sealing surface with a lint-free cloth.
3. Screw in the new oil indicator.

Making operational:

1. Close the drain valve.
2. Reconnect the negative battery terminal.
3. Close the doors.



Dispose of old parts and contaminated materials according to environmental regulations.

Further information

Further information on changing elements can be found in the operating instructions for pressurised air filters (fresh air filters) in chapter 13.8.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
4. Open the outlet valves.
5. Open both doors.
6. Check the fresh air filter housing and hose line for leaks.
7. Close the doors.

10.8.5 Option ba Frost protector maintenance

At temperatures under 41 °F, the level of antifreeze in the protector must be checked daily before starting the compressor.

Material Antifreeze: Antifreeze protection for air brake systems
z. B. Wabcothyl (part no. 9.5400.0)
Cleaning cloths

Precondition The machine is switched off.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

⚠ DANGER

Spontaneous ignition of anti-freeze!

Risk of fire and explosion caused by spontaneous ignition can cause severe injury.

- *Never top up antifreeze unless the machine is stopped and cooled down.*

⚠ WARNING

Danger of injury from compressed air!

The frost protector is pressurised during operation. Serious injury can result from loosening or opening components under pressure.

- *Wait until the machine has automatically vented (check: pressure gauge reads 0 psig!)*

Option ba

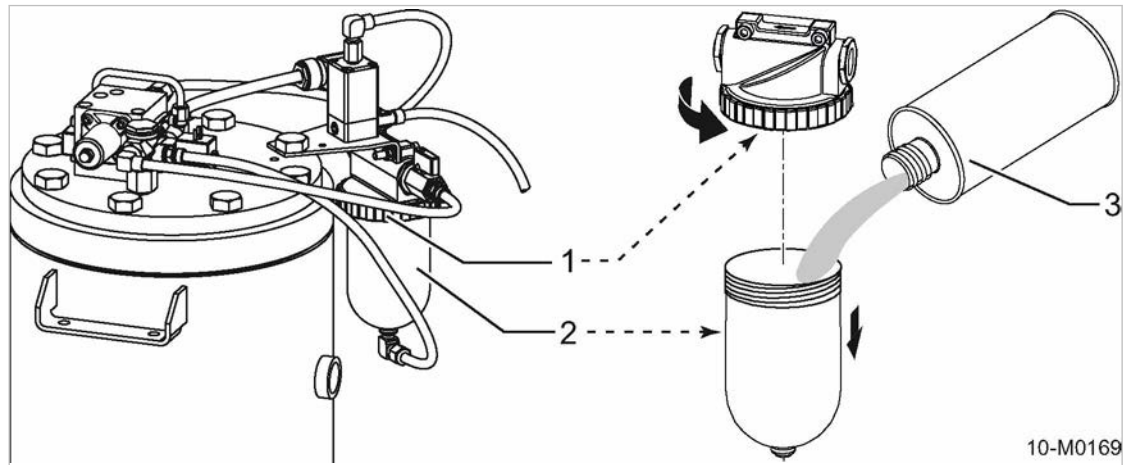


Fig. 87 Filling the frost protector

- ① Frost protector clamp ring
- ② Frost protector bowl
- ③ Antifreeze container

1. Open both doors.
2. Unscrew the clamp ring and remove the bowl.
3. Fill the bowl $\frac{3}{4}$ full with antifreeze.

4. Screw the bowl carefully back into place.
5. Close the doors.

10.8.6 Option 1a Spark arrestor maintenance

The spark arrestor must be cleaned of any soot residue every two months to prevent the emission of glowing particles from the exhaust silencer.

Material

- Suitable rubber hose
- Soot receptacle
- Cleaning cloth
- Protective gloves
- Eye protection

Precondition

- The machine is shut down.
- The machine is standing level.
- The machine is fully vented, the pressure gauge reads 0 psig.
- Machine is cooled down.
- All compressed air consumers are disconnected and the air outlet valves are open.

⚠ DANGER

Danger of suffocation from toxic exhaust fumes.

Exhaust fumes from internal combustion engines contain carbon monoxide, which is odorless and deadly.

- *Never use the machine in enclosed spaces, only in the open!*
- *Do not inhale exhaust fumes.*

⚠ CAUTION

Danger of burns from hot components and sparks.

- *Wear long-sleeved clothing and gloves.*
- *Wear eye protection.*

Cleaning the spark arrestor (floor pan with service openings)

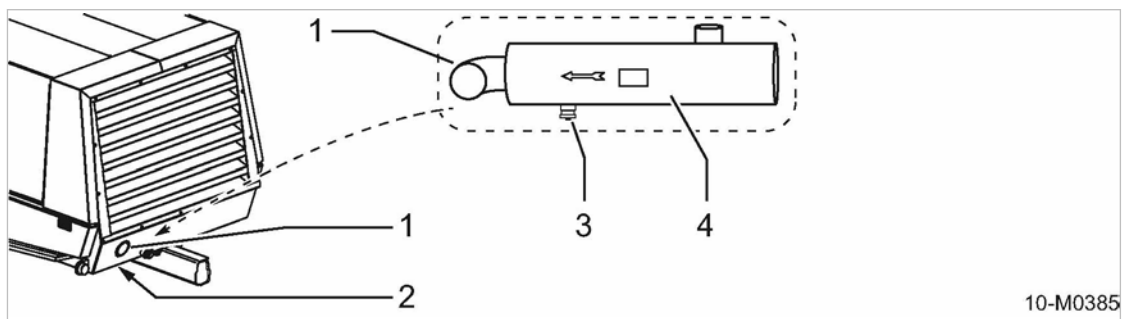


Fig. 88 Cleaning the spark arrestor (floor pan with service openings)

- | | |
|---|---|
| ① Exhaust silencer end pipe | ③ Soot drain port with plug |
| ② Opening in floor panel to access drain port | ④ Exhaust silencer with integrated spark arrestor |

1. Unscrew the soot drain plug.
2. Push one end of the hose over the drain port and place the other end in the receptacle.
3. Start the compressor engine.
4. In order to increase the pressure in the exhaust system, partially cover the exhaust discharge pipe with a fire-proof object.
Soot will drain through the hose into the receptacle.
5. Shut down the engine.
6. Remove the hose and replace the plug.



It is recommended to blow out the spark arrestor with compressed air once a year.



Dispose of soot according to environmental protection regulations.

Option oe Cleaning the spark arrestor (sealed floor pan)

In machines with a sealed floor pan, the service openings are closed with plugs. In order to access the port of the soot drain, you must remove the appropriate plug.

Option oe

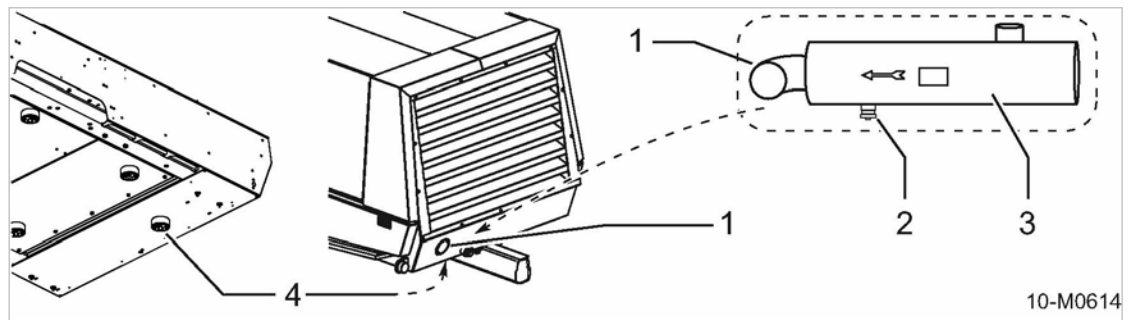


Fig. 89 Cleaning the spark arrestor (sealed floor pan)

- | | |
|-----------------------------|--|
| ① Exhaust silencer end pipe | ③ Exhaust silencer with integrated spark arrestor |
| ② Soot drain port with plug | ④ Service opening, closed with plug (access to drain port) |

1. Unscrew the service opening plug.
2. Unscrew the soot drain plug.
3. Push one end of the hose over the drain port and place the other end in the receptacle.
4. Start the compressor engine.
5. In order to increase the pressure in the exhaust system, partially cover the exhaust discharge pipe with a fireproof covering.
Soot will drain through the hose into the receptacle.
6. Shut down the engine.
7. Remove the hose and replace the plug.
8. Screw the service plug back into the floor pan.



It is recommended to blow out the spark arrestor with compressed air once a year.



Dispose of soot according to environmental protection regulations.

10.8.7 Option 1b Engine air intake shut-off valve maintenance

Material Compressed air for blowing out
Petroleum ether or spirit
Cleaning cloth

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

NOTICE

Engine air intake shut-off valve

The engine air intake shut-off valve does not close when flammable gas is drawn into the engine:

The machine does not shut down? Destruction of the engine and explosion and/or fire are possible!

- *Do not move the valve adjusting screw.*
- *Have the valve set by a specialist workshop or KAESER Service.*

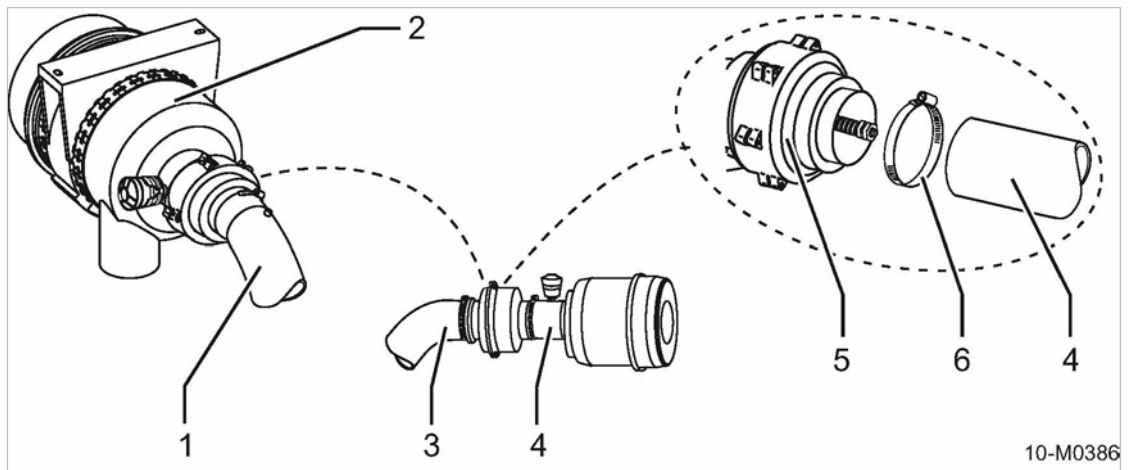


Fig. 90 Engine air intake shut-off valve maintenance

- | | |
|---------------------------------|------------------------------------|
| ① Engine air intake | ④ Air intake hose (filter side) |
| ② Engine air filter | ⑤ Engine air intake shut-off valve |
| ③ Air intake hose (engine side) | ⑥ Hose clamp |

- Open both doors.

Cleaning the engine air intake shut-off valve:

1. **NOTICE** *The engine air intake shut-off valve does not close fully. The machine does not shut down? Destruction of the engine and explosion and/or fire are possible!*
 - *Do not grease the valve, as this may cause a build up of dust and valve sticking.*
2. Loosen the hose clamp on the filter side of the valve and turn the air intake hose to one side.
3. Check if the interior of the shut-off valve is clean.
Blow out any dirt with compressed air.



If necessary, clean the valve with petroleum ether or spirit and allow to dry.
Refer to a specialised workshop or KAESER Service if dirt cannot be removed.

Checking the engine air intake shut-off valve for correct function and movement:

1. Check the valve for signs of excessive wear.
2. Check that the valve plate closes fully and easily.

Result Have the valve changed if it is heavily worn or malfunctions in any way.

1. Reposition the air intake hose and tighten the clamp.
2. Close the doors.
3. Start the machine and switch to LOAD.

If the engine stops on switching to LOAD, have the valve adjusted by a specialist workshop or KAESER Service.

10.8.8 Option ga, gb Generator drive belt maintenance

Correct belt tension is extremely important for the function of the generator and the operational life of the belts themselves. The lifespan of the drive belts is affected by belt tension.

- Slack V-belts can cause belt slip and damage to the belts.
- Over-tight belts stretch and wear quicker. Over-tight belts also place unnecessary stress on bearings and shorten their life.

Material Wrench
Spare parts (if required)

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.
The negative cable to the battery is disconnected.

⚠ WARNING

Beware of rotating pulleys and moving belts.

Touching the moving drive belt may result in severe bruising or even loss of limb or extremities.

- *Check the belt only when the compressor is shut down.*
- *Never run the machine without a belt guard.*

- Open both doors.

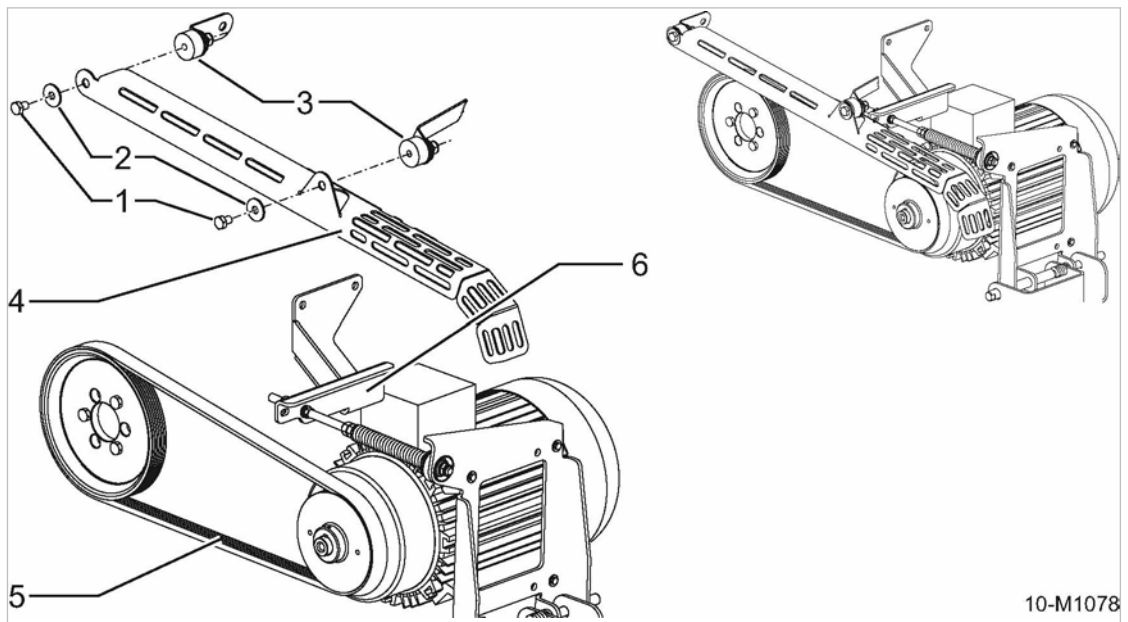
Removing the belt guard:


Fig. 91 Securing the belt guard at the generator

- | | |
|------------------|------------------------------|
| ① Hex-head screw | ④ Belt guard |
| ② Washer | ⑤ Generator belt |
| ③ Rubber pad | ⑥ Support for belt tensioner |

- Unscrew the securing screws of the belt guard and remove the belt guard.

10.8.8.1 Visual check

1. Check the drive belt for cracks, frays or stretching.
Change the belt immediately if any damage or wear is found.
2. Replace the belt guard.
3. Reconnect the negative battery terminal.
4. Close the doors.

10.8.8.2 Checking belt tension


Check belt tension when they are warm, not hot, to avoid length variations through temperature.

The tensioning device uses spring force to apply correct tension to the belts over a certain range. The tensioning dimension (A) is controlled by adjusting the belt (see fig. 92).

Tensioning dimension:

- **Adjusting distance:** 0.39 in
- **Minimum distance:** 0.2 in

1. Check the tensioning distance (A) on the belt adjustment (9).
Re-tension the belts if the tensioning dimension is below the minimum.
2. Reconnect the negative battery terminal.
3. Close the door.

10.8.8.3 Changing/tensioning the drive belt

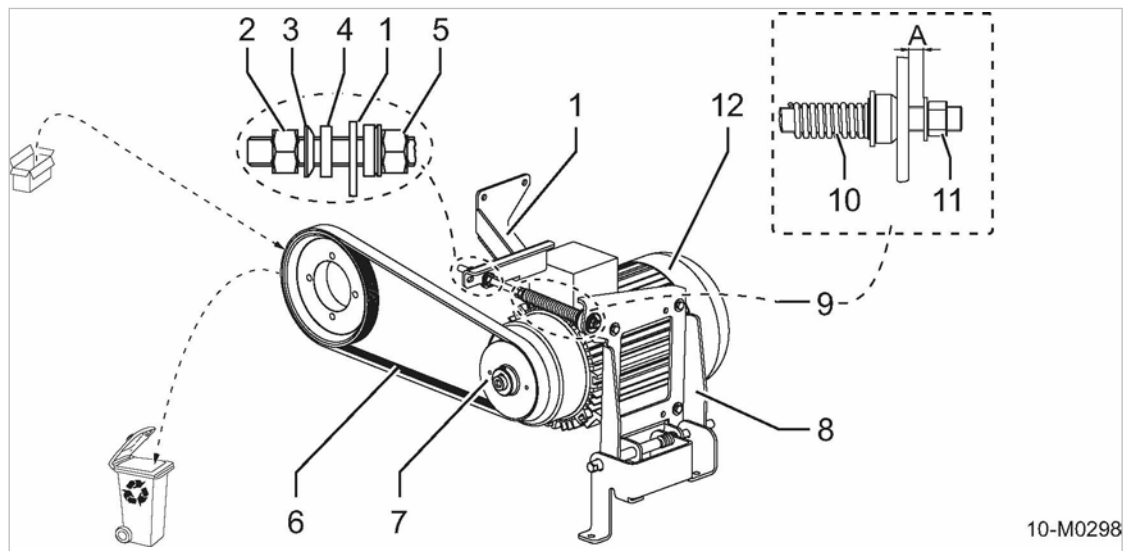


Fig. 92 Generator belt tensioning

- | | |
|------------------------------|------------------------------|
| ① Support for belt tensioner | ⑧ Generator swing frame |
| ② Hexagon nut | ⑨ Belt adjustment |
| ③ Spherical seat washer | ⑩ Compression spring |
| ④ Conical seat washer | ⑪ Hexagon nut (self-locking) |
| ⑤ Hexagon nut (locknut) | ⑫ Generator |
| ⑥ Drive belt | (A) Tensioning dimension |
| ⑦ Generator drive pulley | |

Tensioning the drive belt:

1. Loosen the locking nut (2).
2. Turn the tensioning nut (5) to tighten the belt (6) until the tensioning dimension (A) corresponding to the set distance is reached.
3. Tighten the locknuts (2) and (5).
4. Replace the belt guard.
5. Reconnect the negative battery terminal.
6. Close the doors.

Changing the belts

1. Undo the nut **[5]** until the belt **[6]** can be slipped off the pulleys.
2. Take off the belt.
3. Check the pulleys for dirt and wear.
Clean the pulleys.
Worn pulley: Have the pulley replaced.
4. Without using force, place the new belt over the engine and generator pulleys.
5. Turn the tensioning nut **[5]** to tighten the belt **[6]** until the tensioning dimension **[A]** corresponding to the set distance is reached.
6. Tighten the locknuts **[2]** and **[5]**.
7. Replace the belt guard.
8. Reconnect the negative battery terminal.
9. Close the doors.
10. Run the compressor under LOAD operation for 15–20 minutes.
11. Check the belt again and re-tension if necessary.



- Check the belt again after a further 2 operating hours.
- A belt that has been replaced may not be used again.



Old belts should be disposed of in accordance with the latest environmental regulations.

10.8.9 Option oe

Draining liquid accumulation within the machine

The so-called "closed floor pan" contributes to the protection of the environment by preventing a contamination of the soil in the event of leaking operating fluids.
Liquid accumulations within the machine's body can also cause corrosion or electrical faults.
Liquid accumulations must be removed as quickly as possible in order to avoid potential machine faults.

For draining the liquid, maintenance openings have been added to the floor panel of the machine which are closed with bungs.

Material	Receptacle Cleaning cloth
Precondition	The machine is shut down. The machine is standing level. The machine is secured against moving. The machine is fully vented, the pressure gauge reads 0 psig. The machine is cooled down. All compressed air consumers are disconnected and the air outlet valves are open. 1. Place a receptacle underneath the maintenance opening(s). 2. Unscrew and remove the bung(s) from the maintenance openings. The liquid will drain. 3. Clean the bungs and maintenance openings.

4. Close all maintenance openings with bungs.
The machine body is sealed.
5. Using the cleaning cloth, remove any dirt within the machine.



Dispose of collected liquid and contaminated working materials according to environmental protection regulations.

10.9 Documenting maintenance and service work

Machine model/part number:

- Enter maintenance and service work carried out in this list.

Tab. 90 Maintenance log

11 Spares, Operating Materials, Service

11.1 Note the nameplate

The nameplate contains all information to identify your machine. This information is essential to us in order to provide you with optimal service.

- Please give the information from the nameplate with every inquiry and order for spares.

11.2 Ordering consumable parts and operating fluids/materials

KAESER consumable parts and operating materials are original Kaeser products. They are matched to application in our machines and ensure trouble-free operation.

Unsuitable or poor quality consumable parts and operating fluids/materials may damage the machine or impair its proper function.

Personal injury may result from machine damage.

⚠ WARNING

There is risk of personal injury or damage to the machine resulting from the use of unsuitable spares or operating fluids/materials.

- *Use only original KAESER parts and operating fluids/materials.*
- *Do not use alternative consumable parts and operating fluids and materials.*

Compressor

Name	Quantity	Number
Air filter element	1	1260
Compressor oil filter	1	1210
Oil separator cartridge (complete set)	1	1450
Cooling oil	1	1600

Tab. 91 Compressor consumables

Kubota engine parts

Name	Quantity	Number
Air filter element	1	1280
Fuel prefilter	1	1910
Fuel fine filter (cartridge)	1	1920
Fuel de-watering filter	1	1980
Motor oil filter (cartridge)	1	1905
Oil drain seal	1	4496
Injector nozzle	1	4475
Injector nozzle seal	1	4476
Motor belt	1	4470

Name	Quantity	Number
Glow plug	1	4466
Engine oil	1	1925

Tab. 92 Consumable engine parts

Option dd Filter combination

Name	Quantity	Number
Filter element for pre-filter	1	1550
Filter element for micro-filter	1	1551
Casing gasket	2	1548

Tab. 93 Replacement parts, combination filter

Option dc Fresh air filter

Name	Quantity	Number
Filter elements, fresh-air filter (filter kit)	1	1549
Indicator insert	1	3930

Tab. 94 Replacement parts, fresh-air filter

11.3 KAESER AIR SERVICE

KAESER AIR SERVICE offers:

- Authorized service technicians with KAESER factory training.
- Increased operational reliability ensured by preventive maintenance.
- Energy savings achieved by avoidance of pressure losses.
- The security of genuine KAESER spare parts.
- Increased legal certainty as all regulations are kept to.

➤ Why not sign a KAESER AIR SERVICE maintenance agreement.

The advantages:

Lower costs and higher compressed air availability.

11.4 Service Addresses

Addresses of KAESER representatives are given at the end of this manual.

11.5 Replacement parts for service and repair

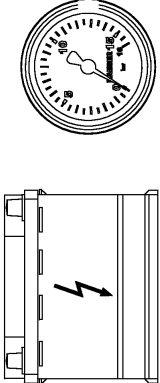
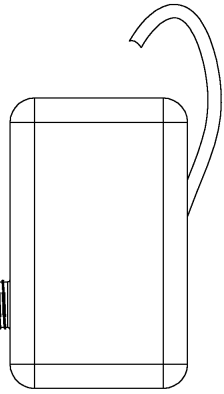
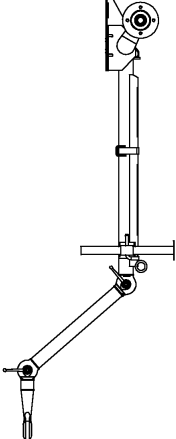
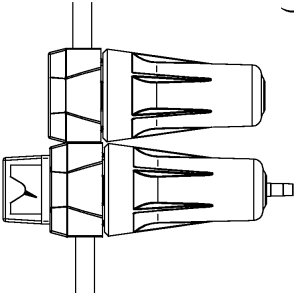
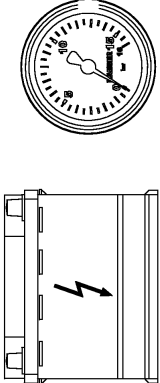
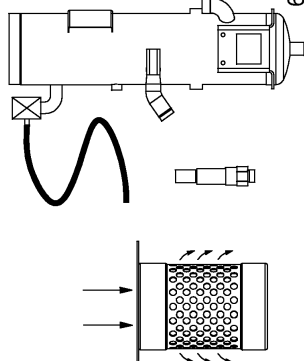
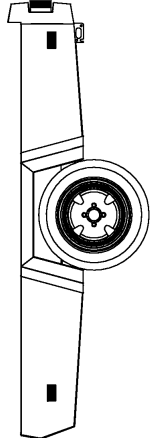
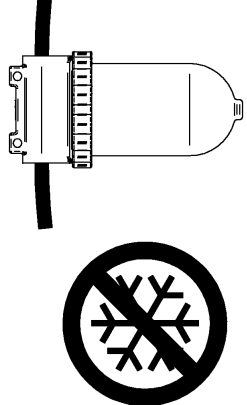
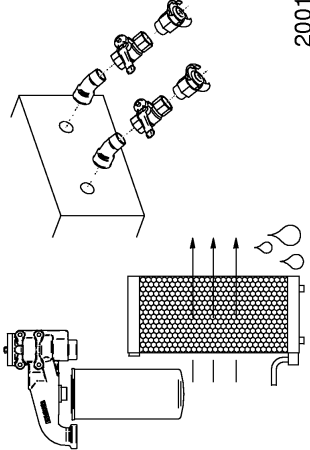
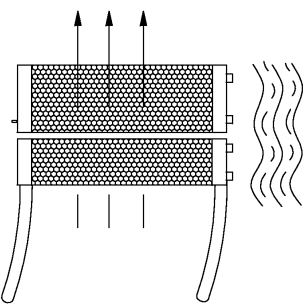
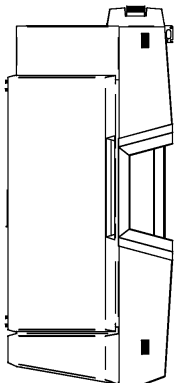
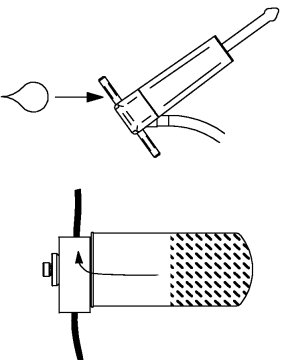
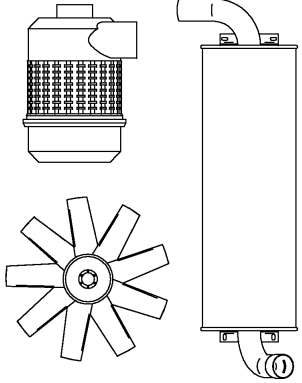
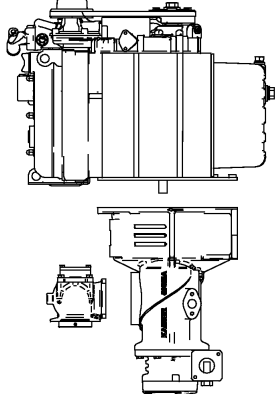
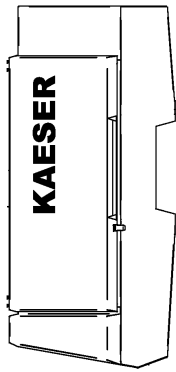
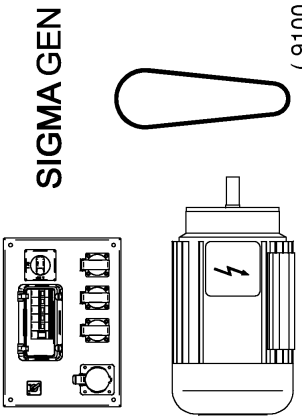
With the help of the parts list you can plan your material requirement according to operating conditions, and order the spare parts you need.

⚠ WARNING

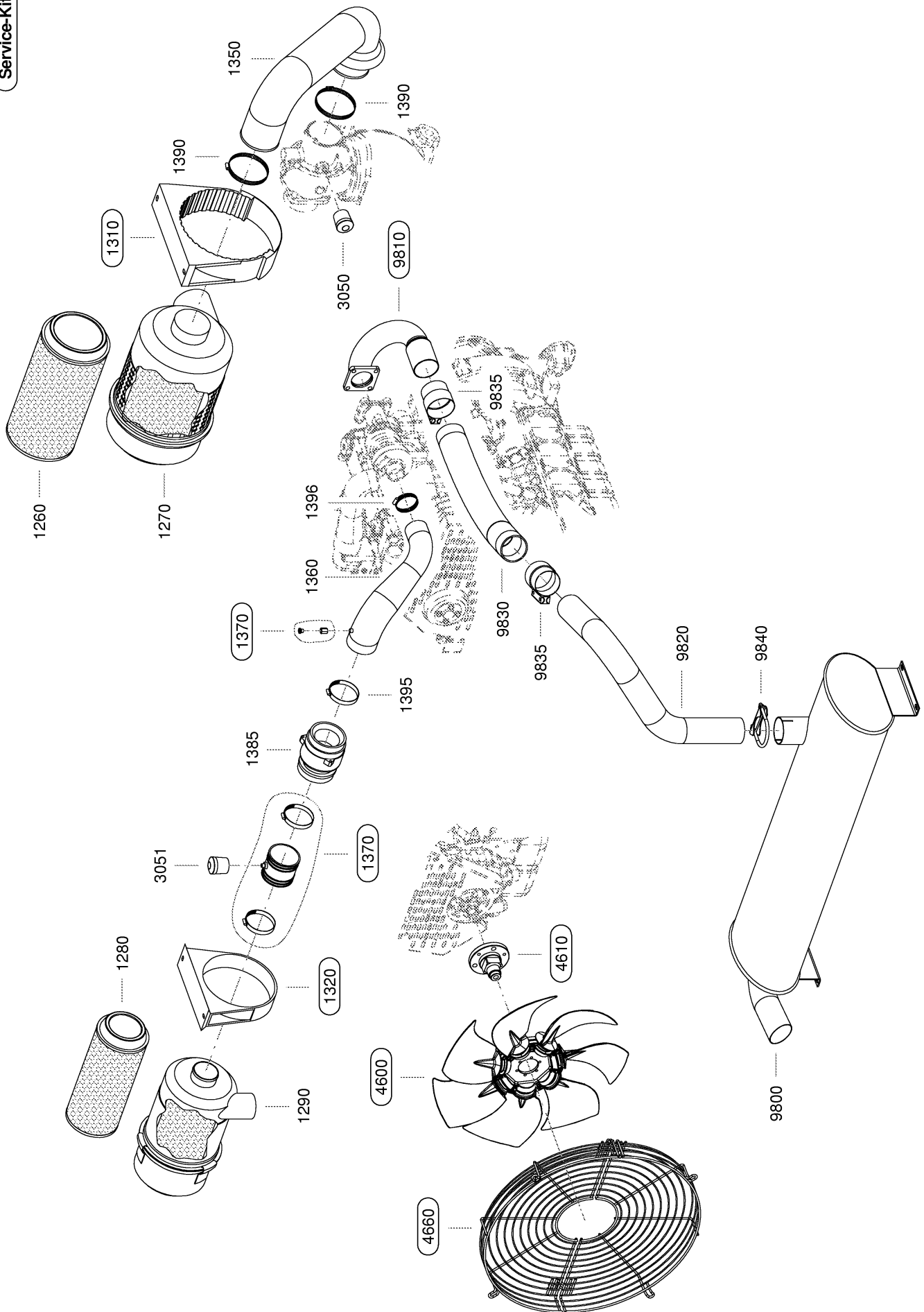
*Personal injury or machine damage due to incorrect working on the machine!
Incorrect inspection, service or repair can damage the machine or severely impair its function. Personal injury may result from damage.*

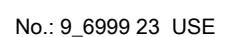
- *Inspections, preventive maintenance or repair tasks not described in this manual must not be carried out by unqualified personnel.*
- *Have further tasks, not described in this service manual, carried out by motor vehicle workshops or KAESER Service.*

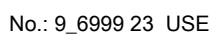
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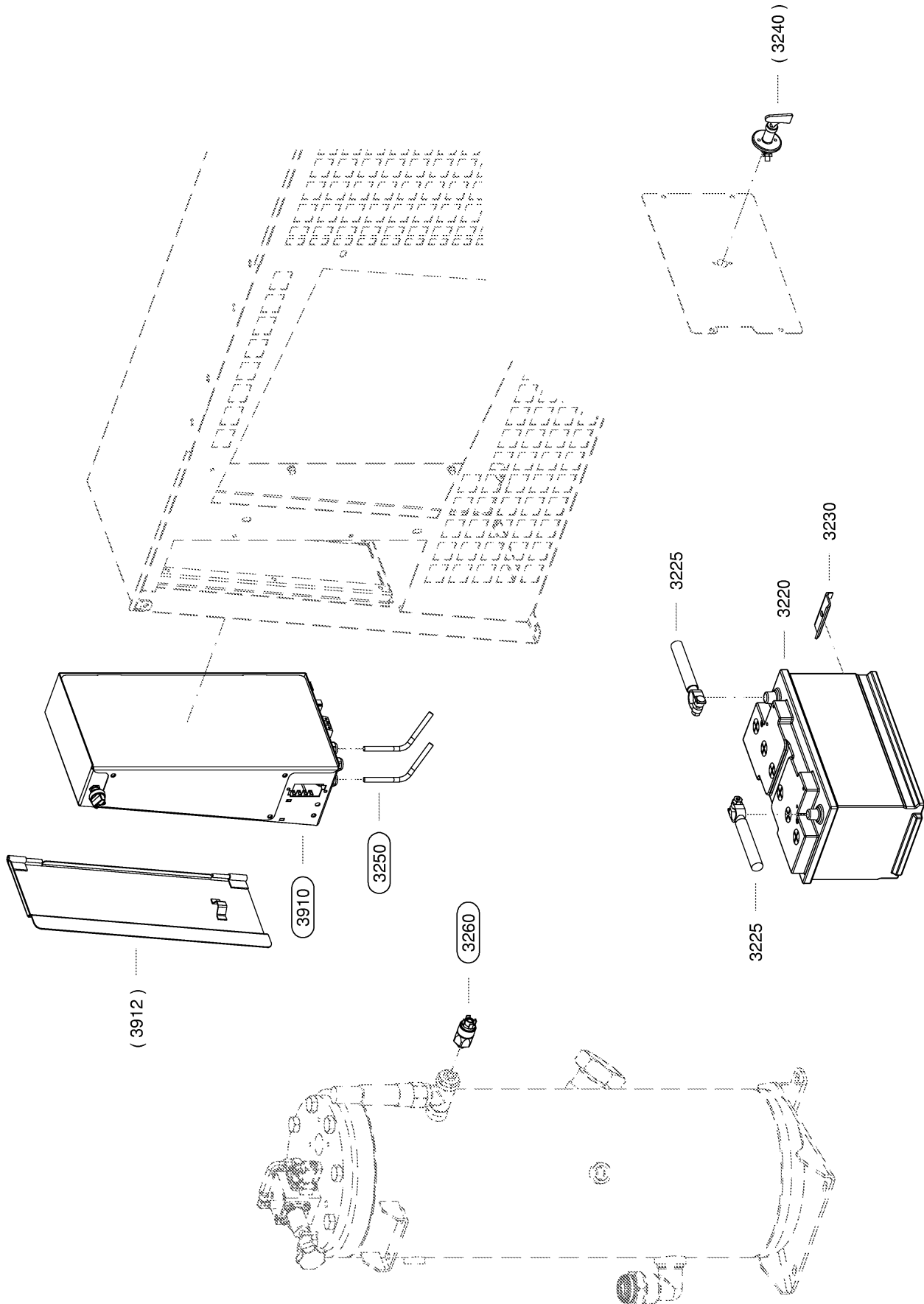






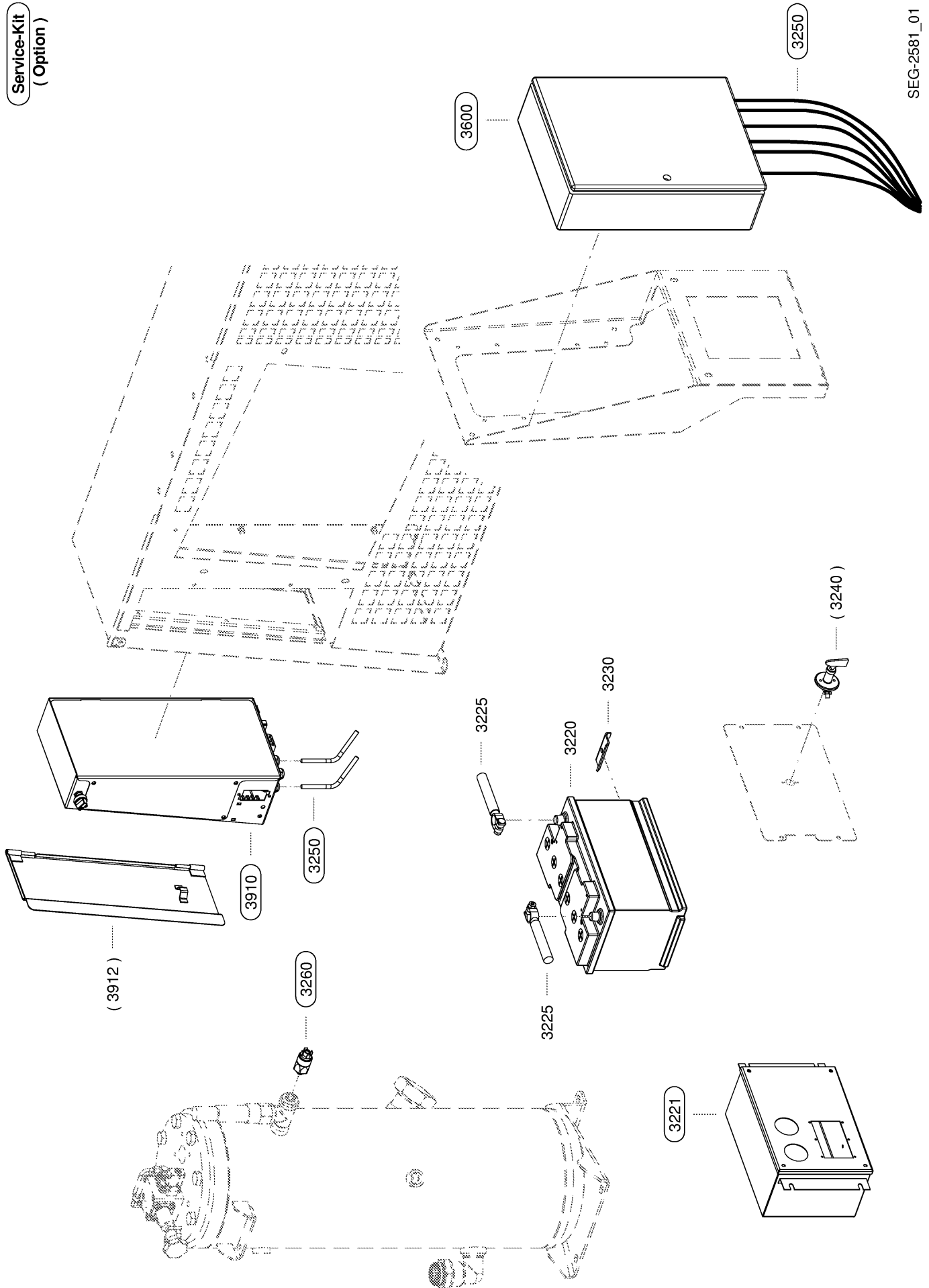
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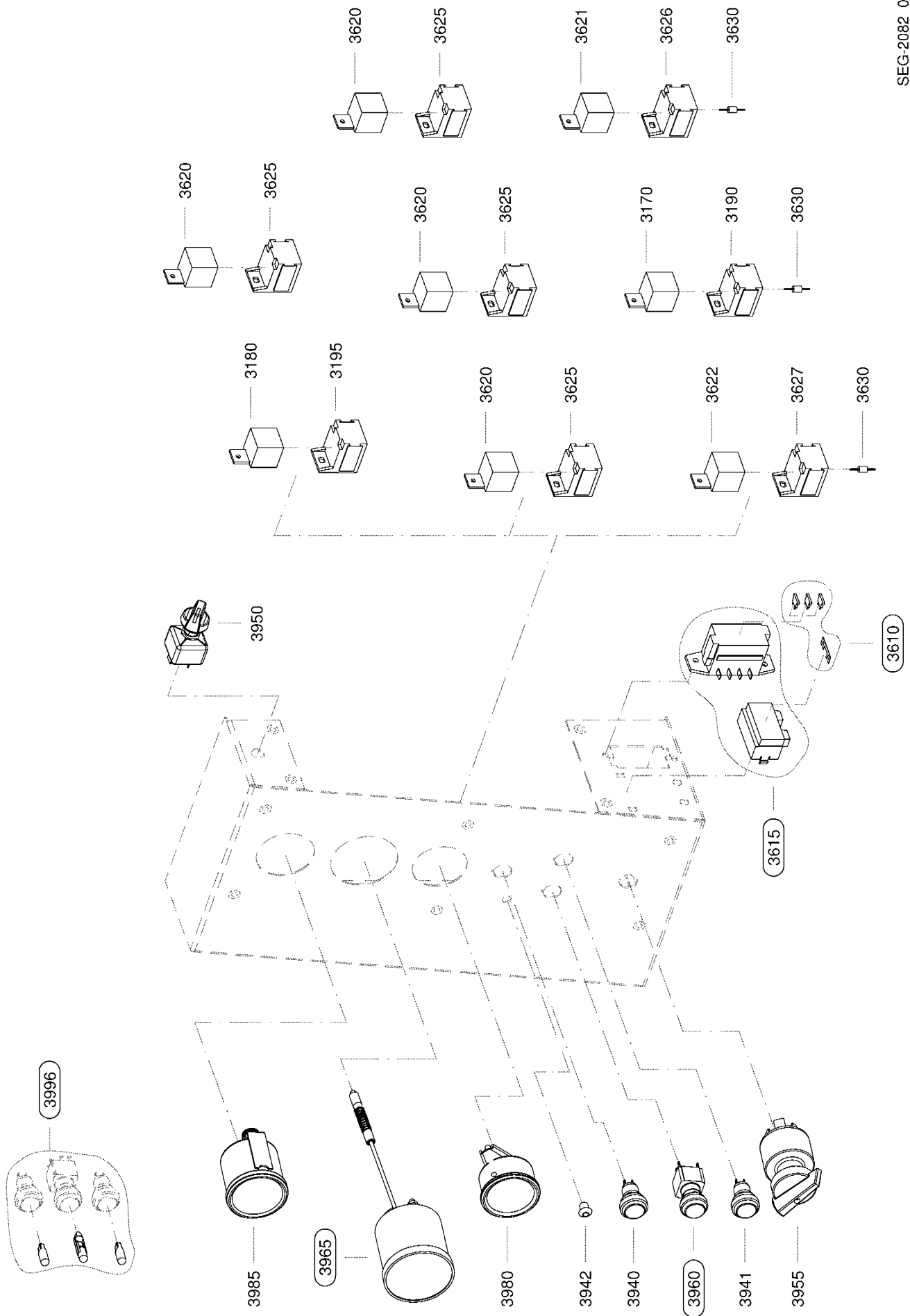
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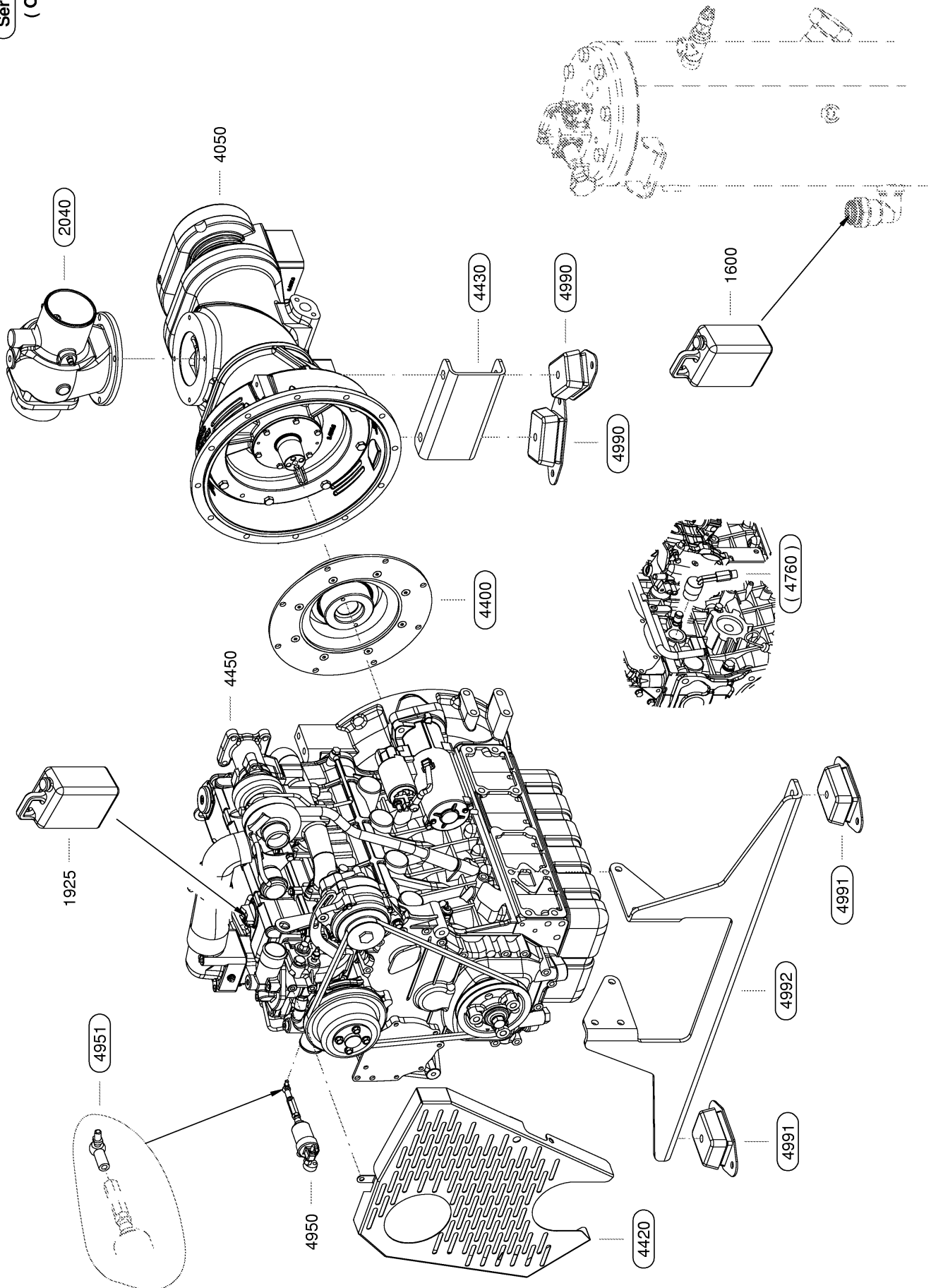
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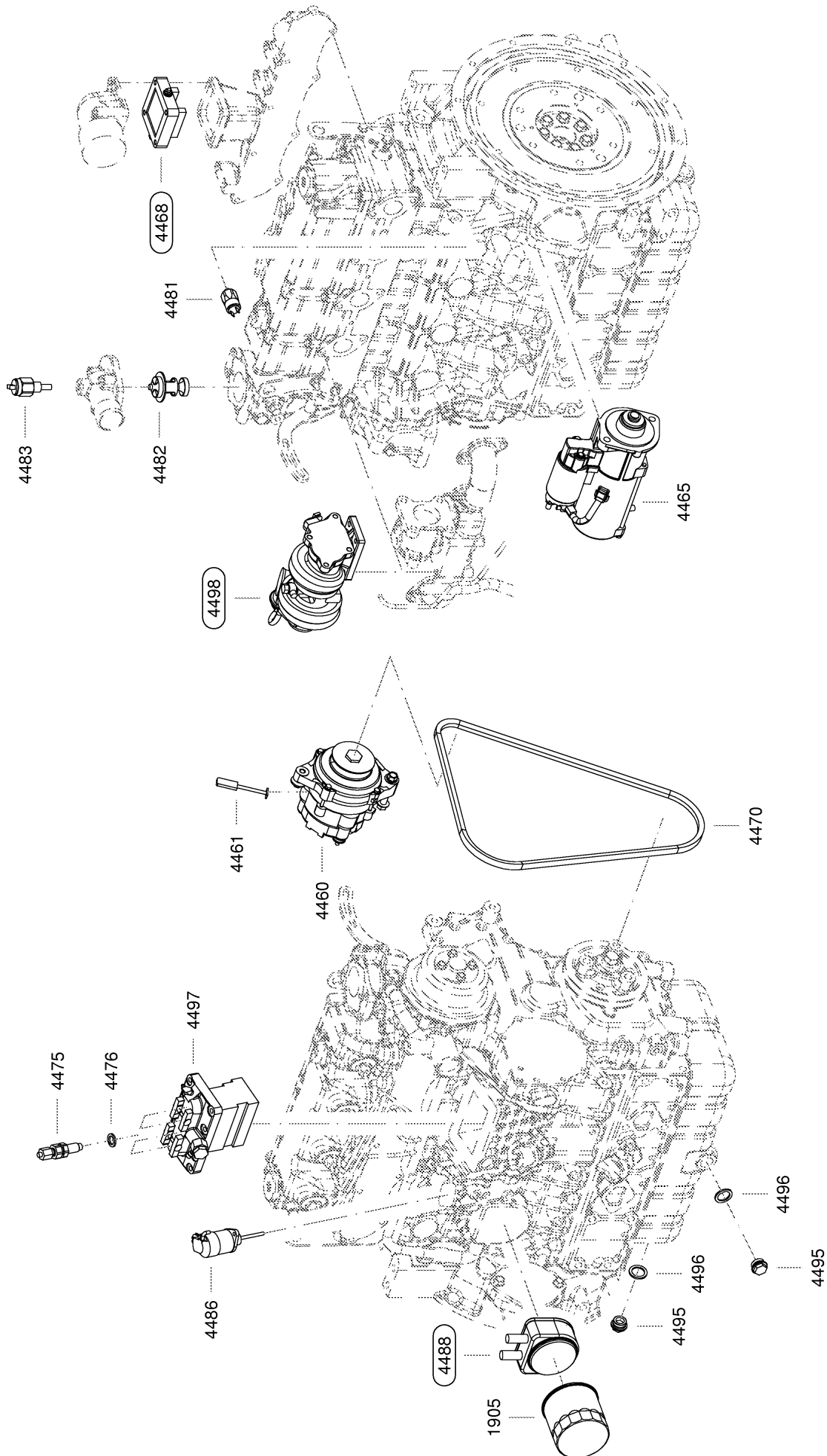


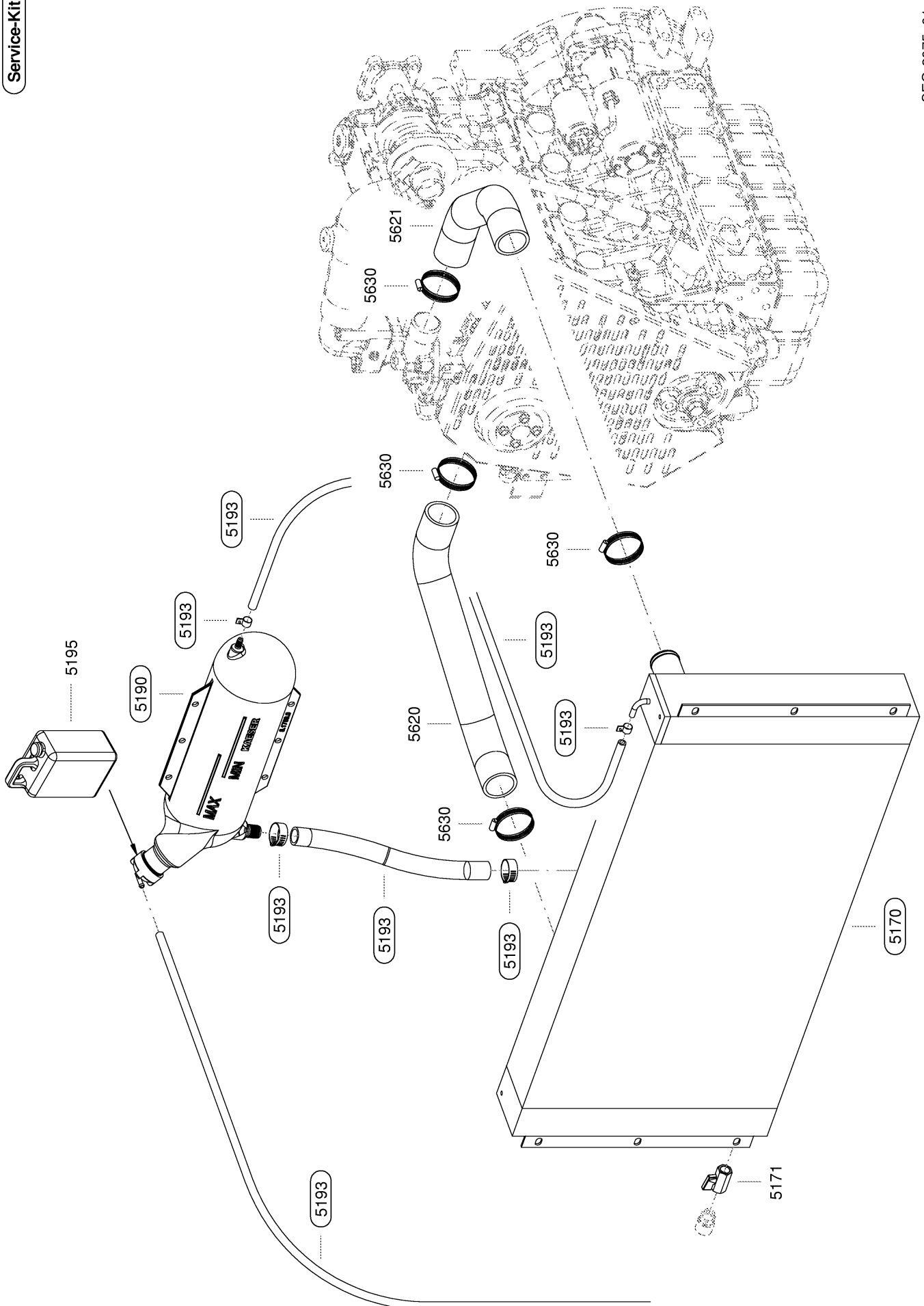


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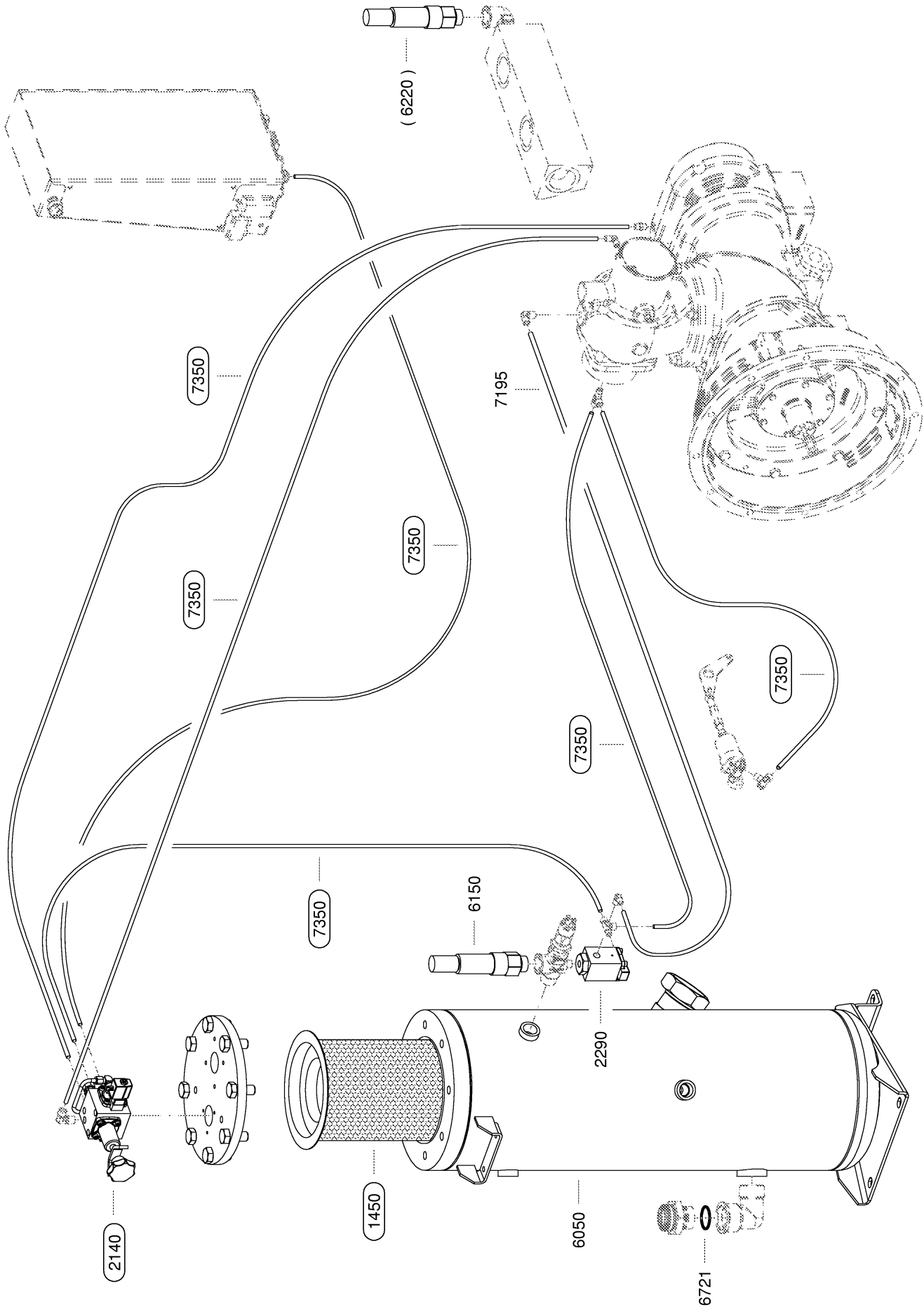
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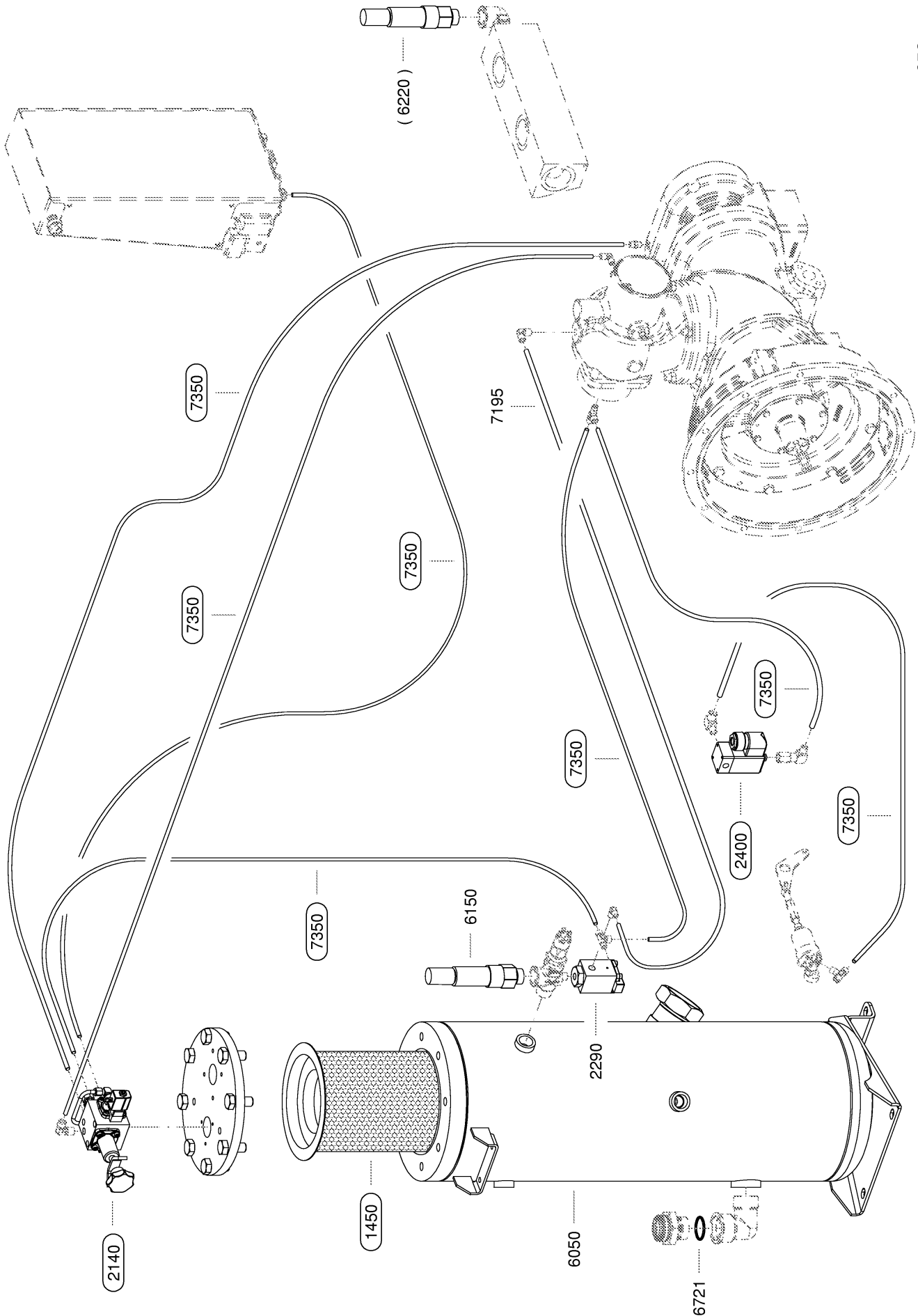


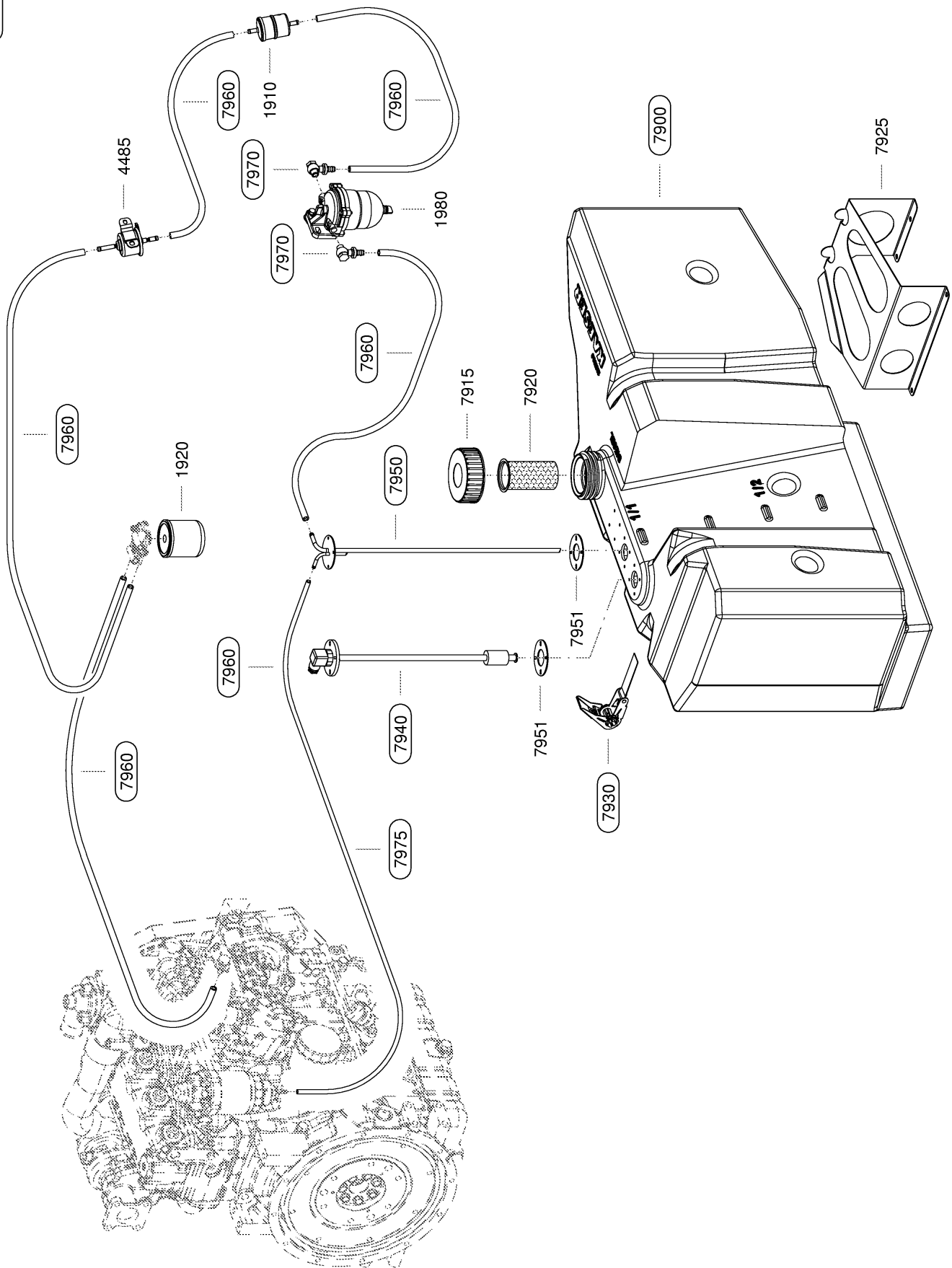
Service-Kit



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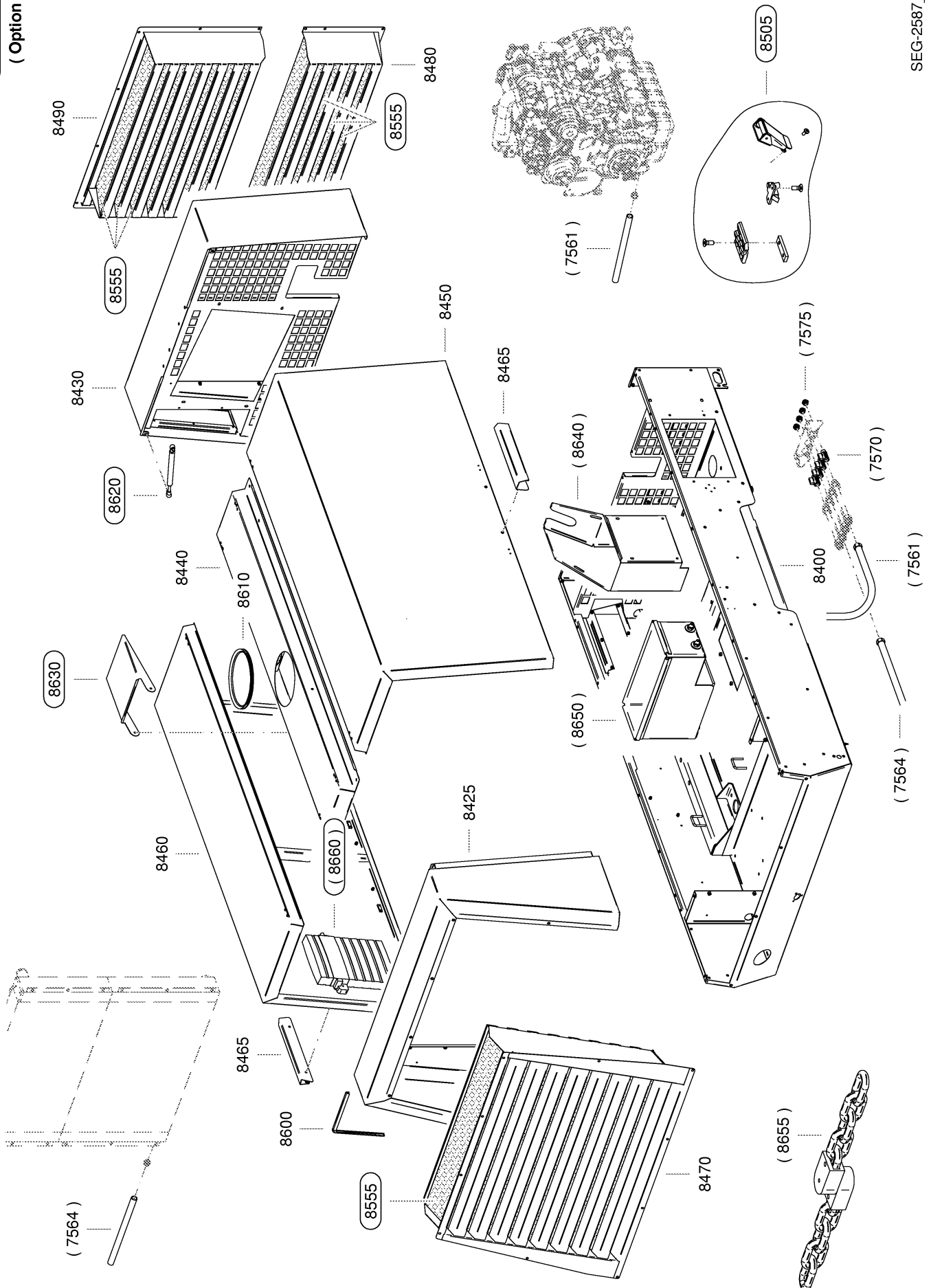
Service-Kit



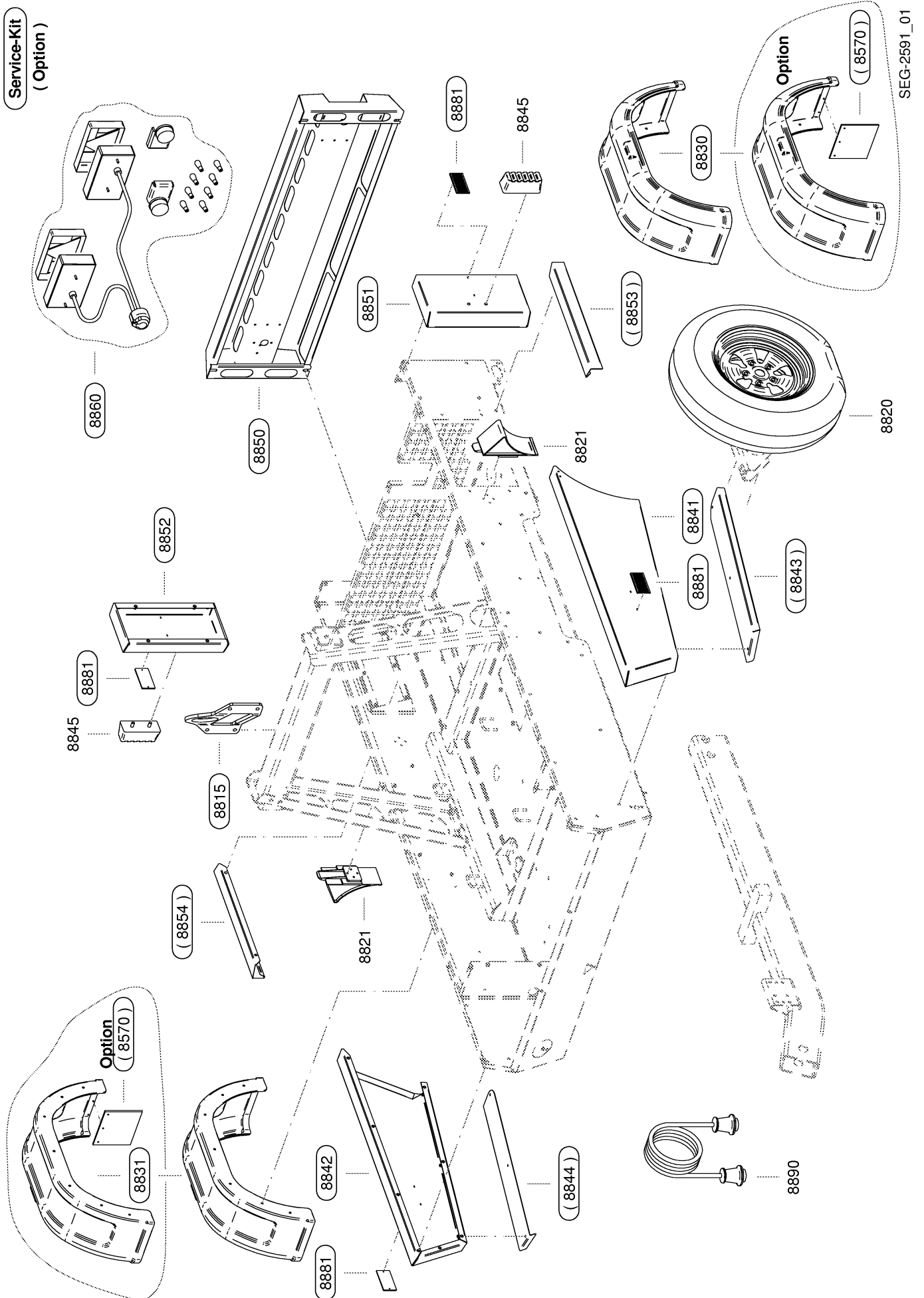


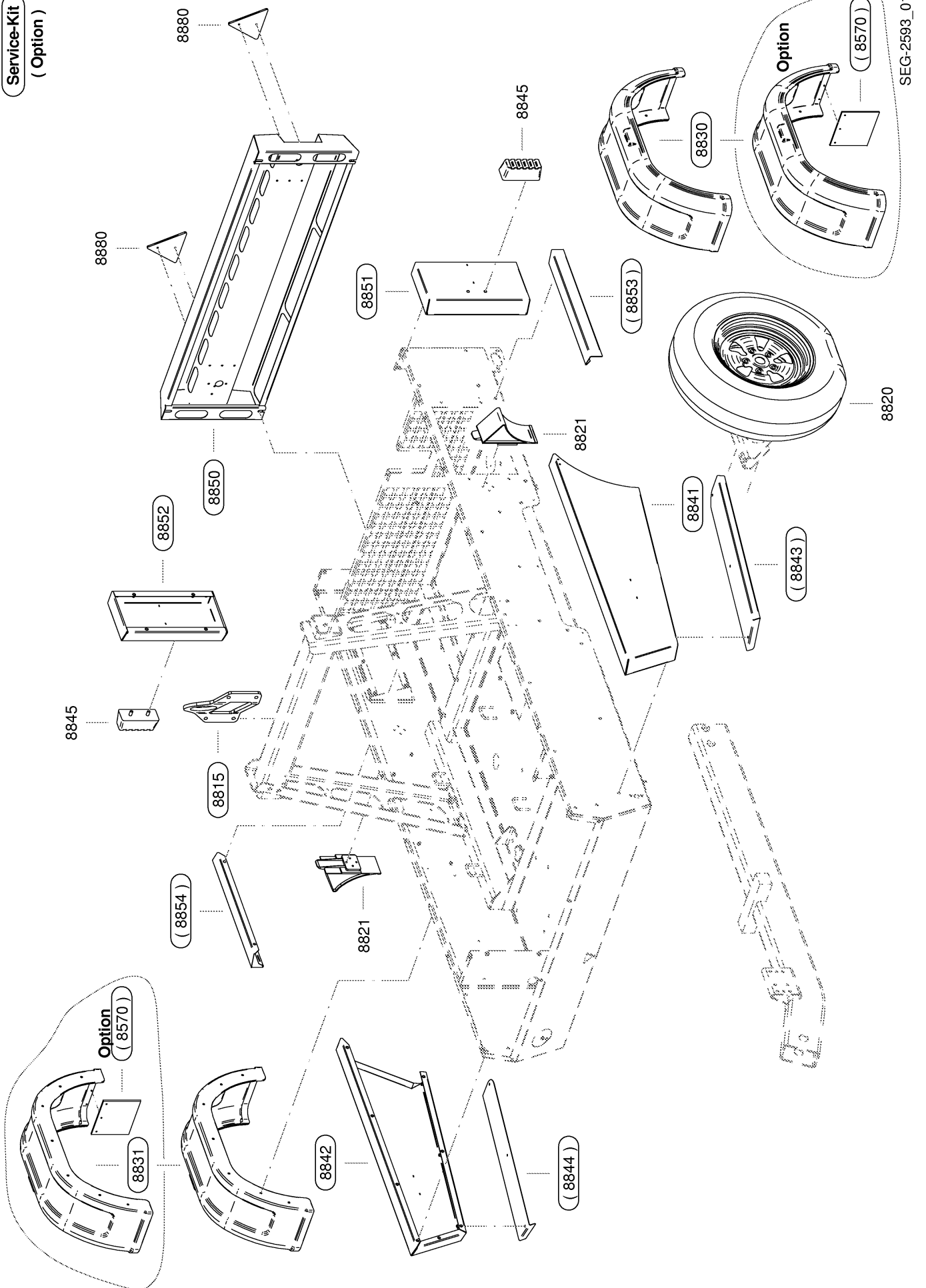
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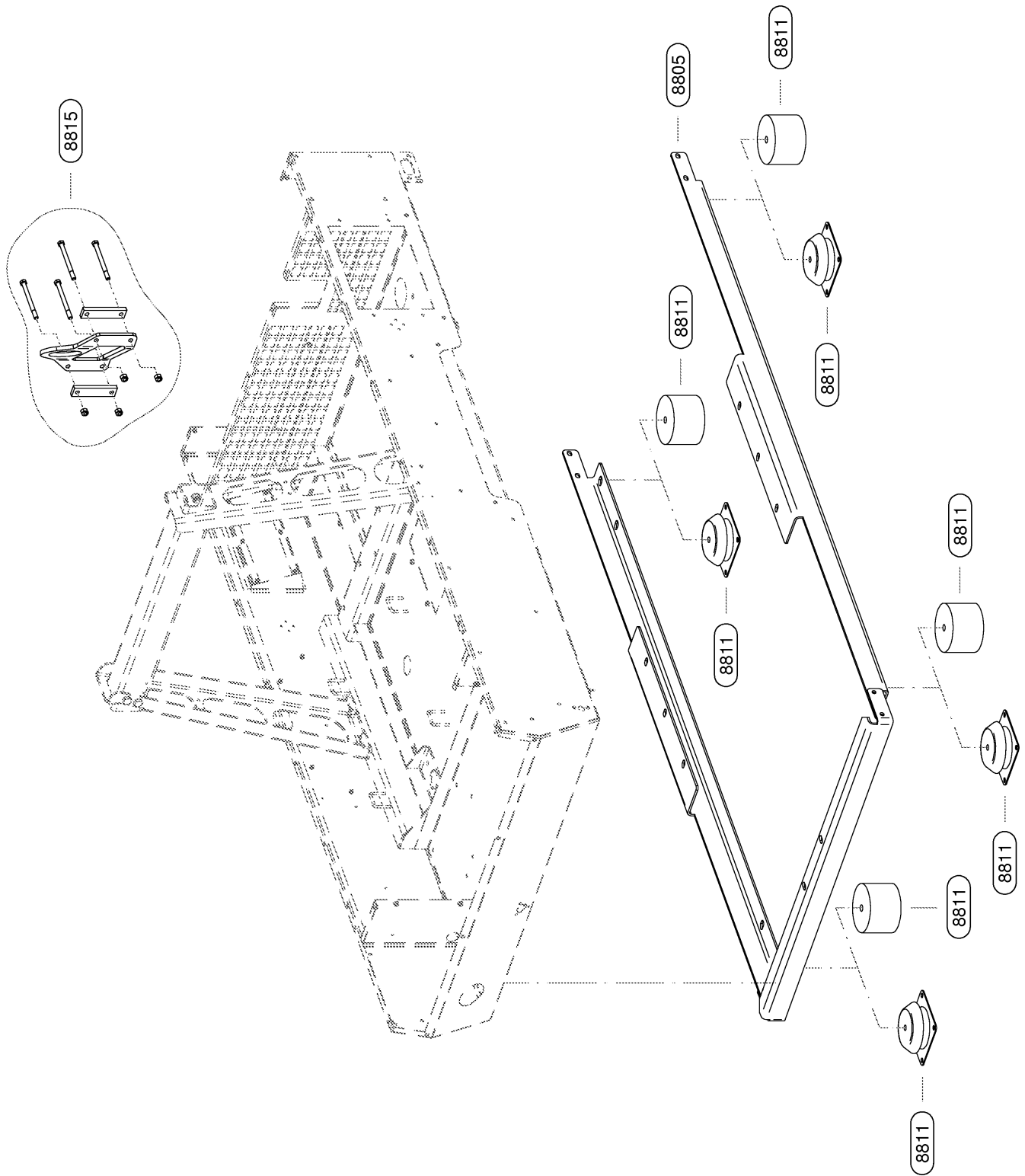
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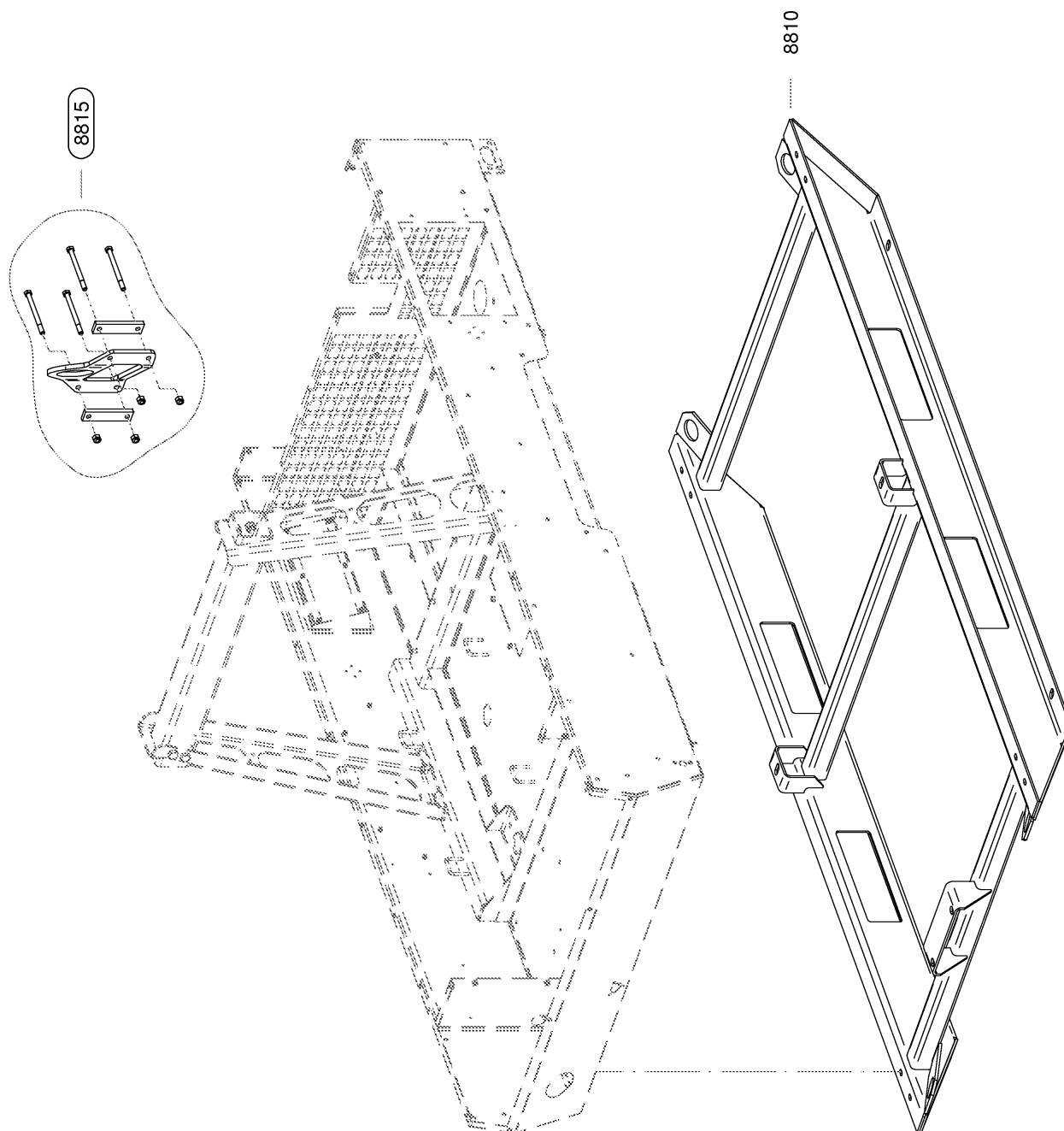






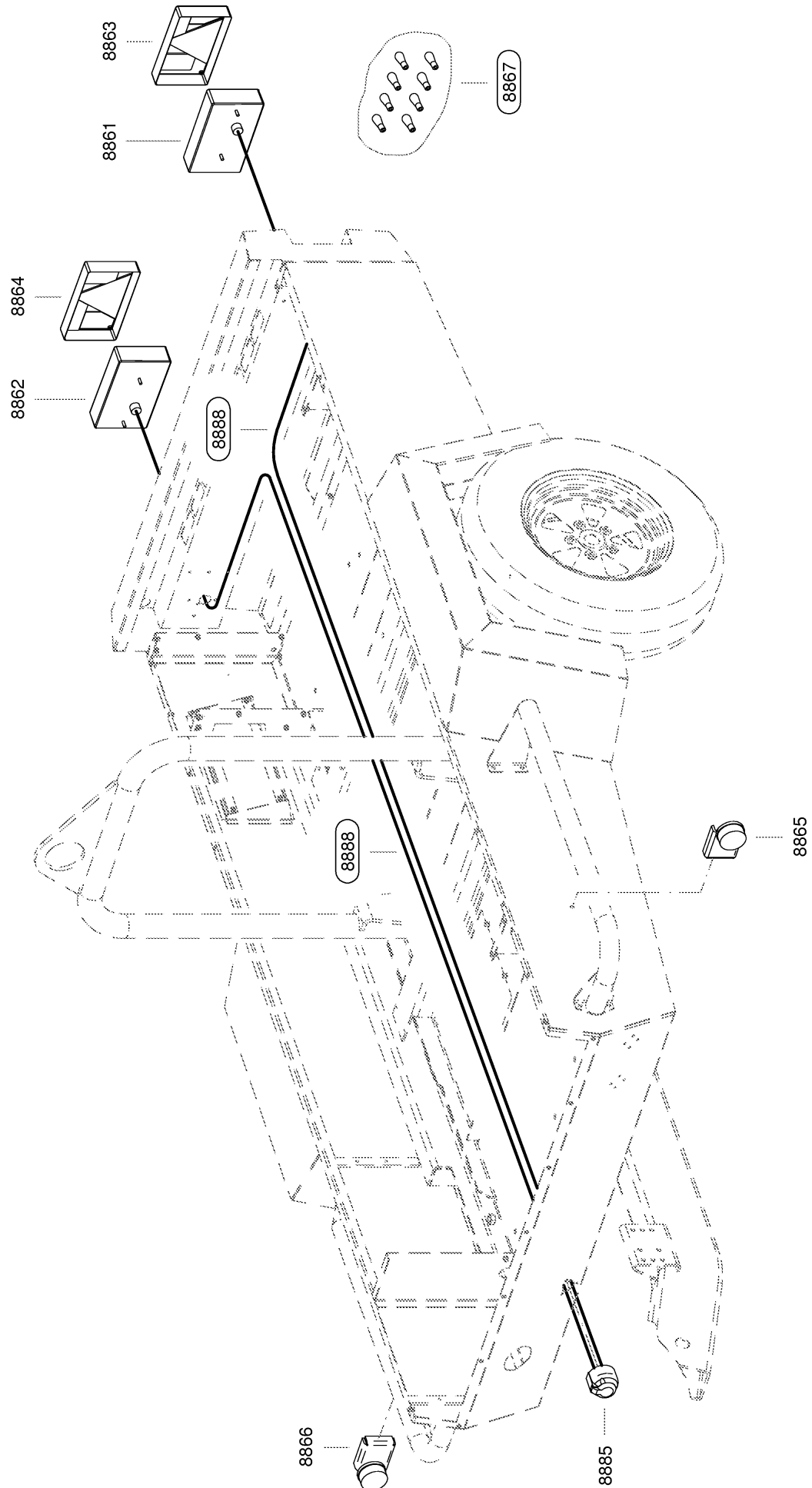


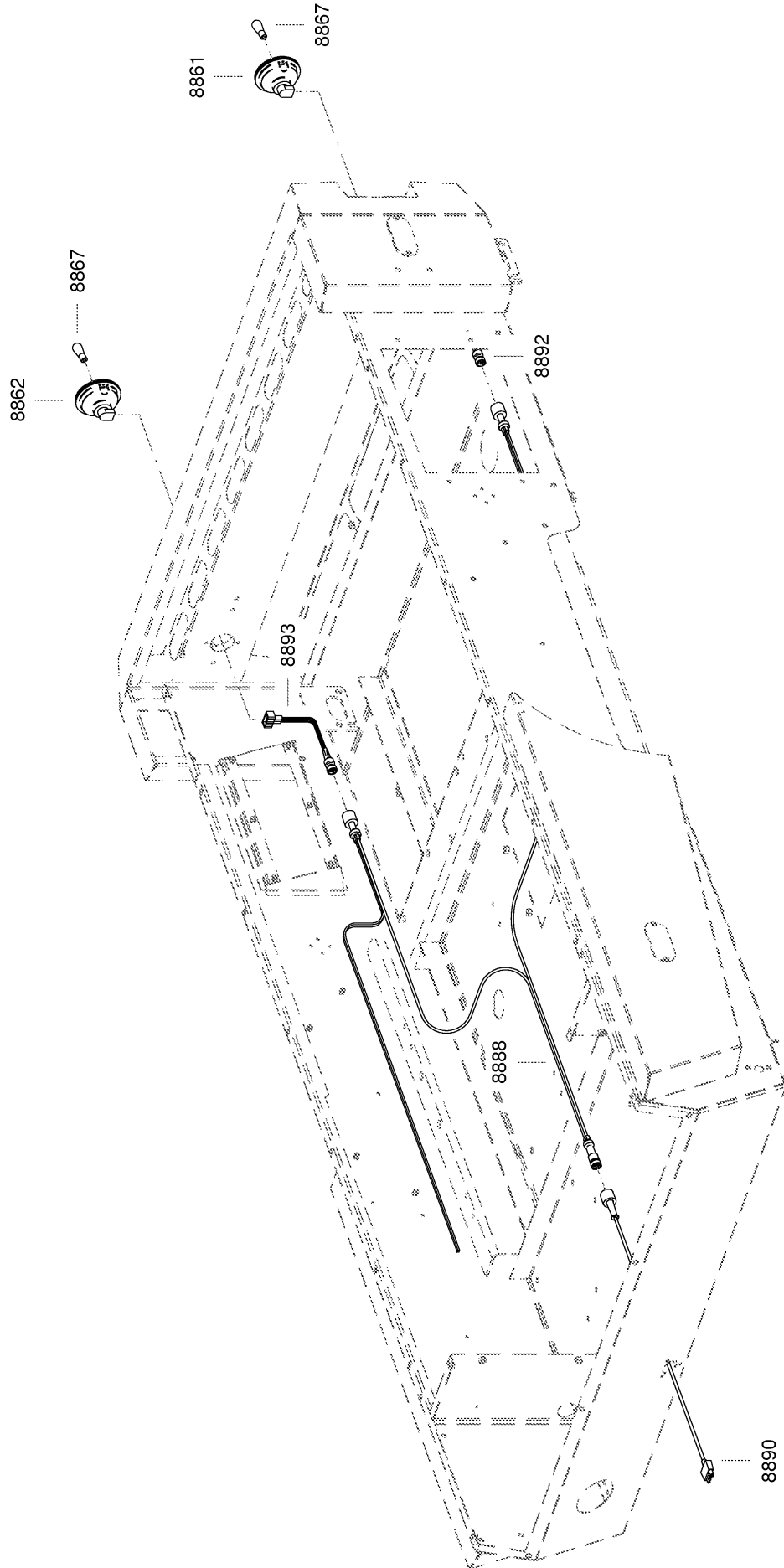




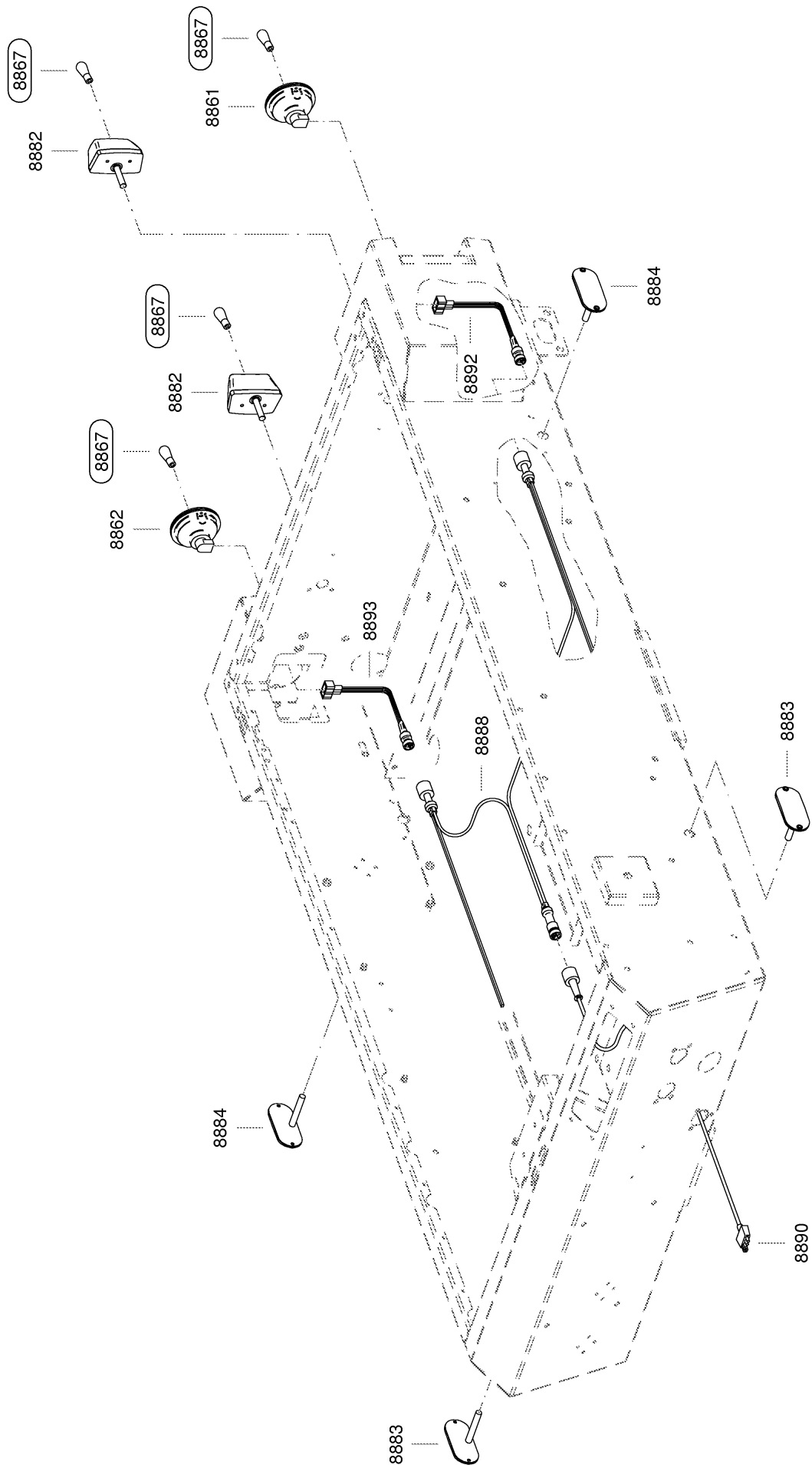
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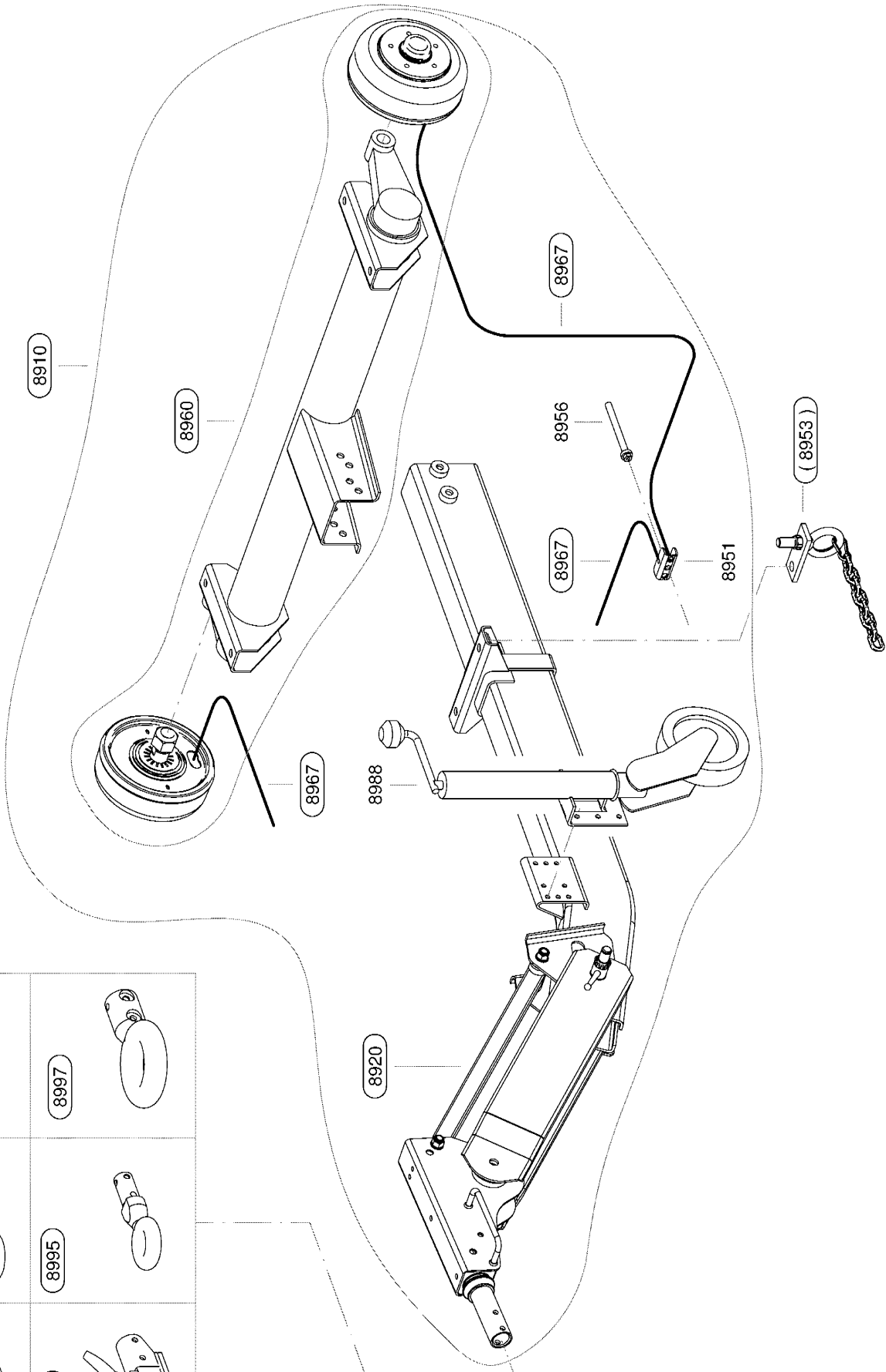
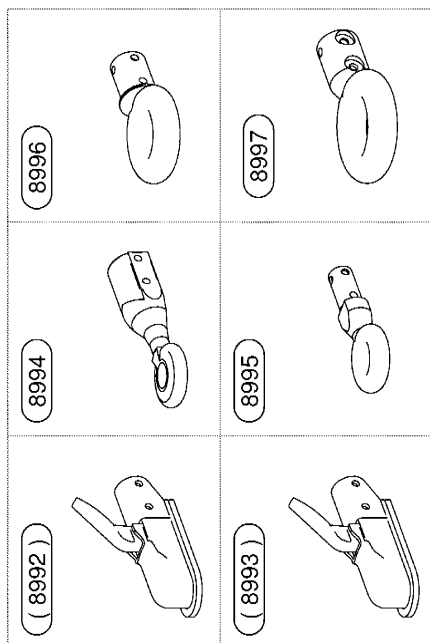
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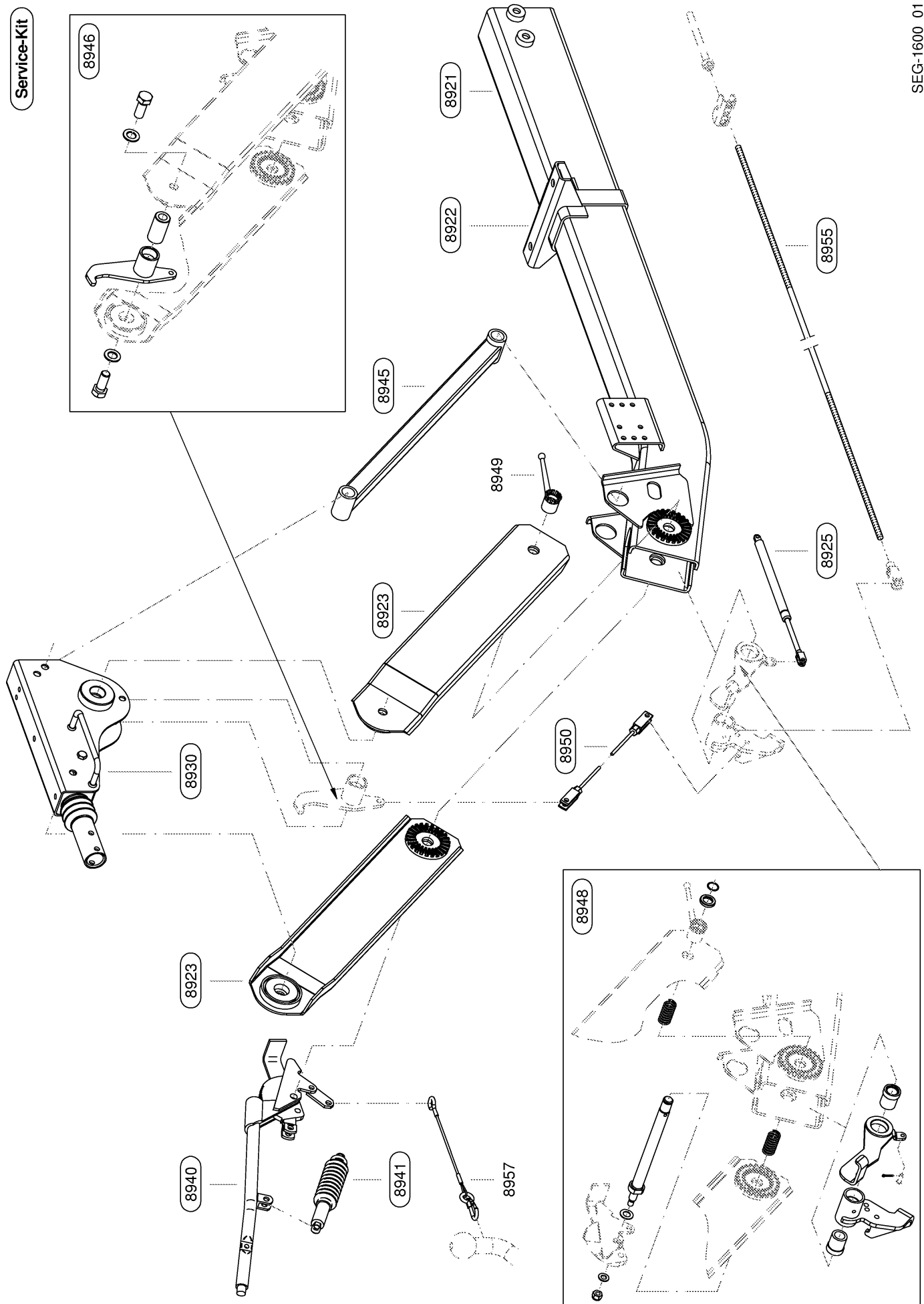


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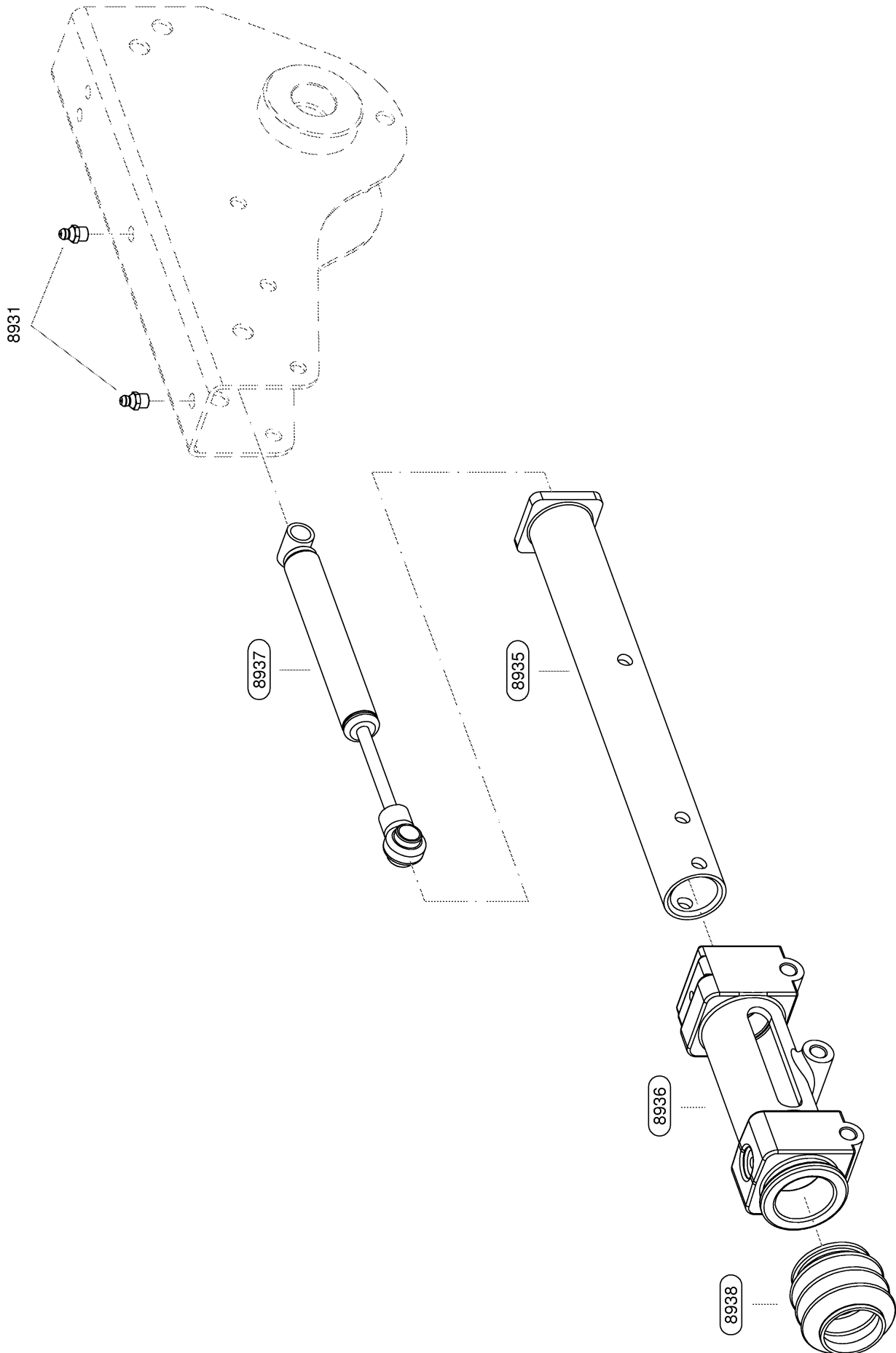
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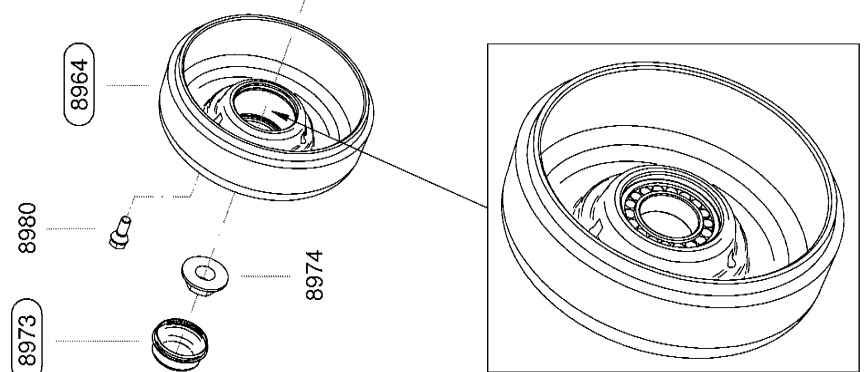
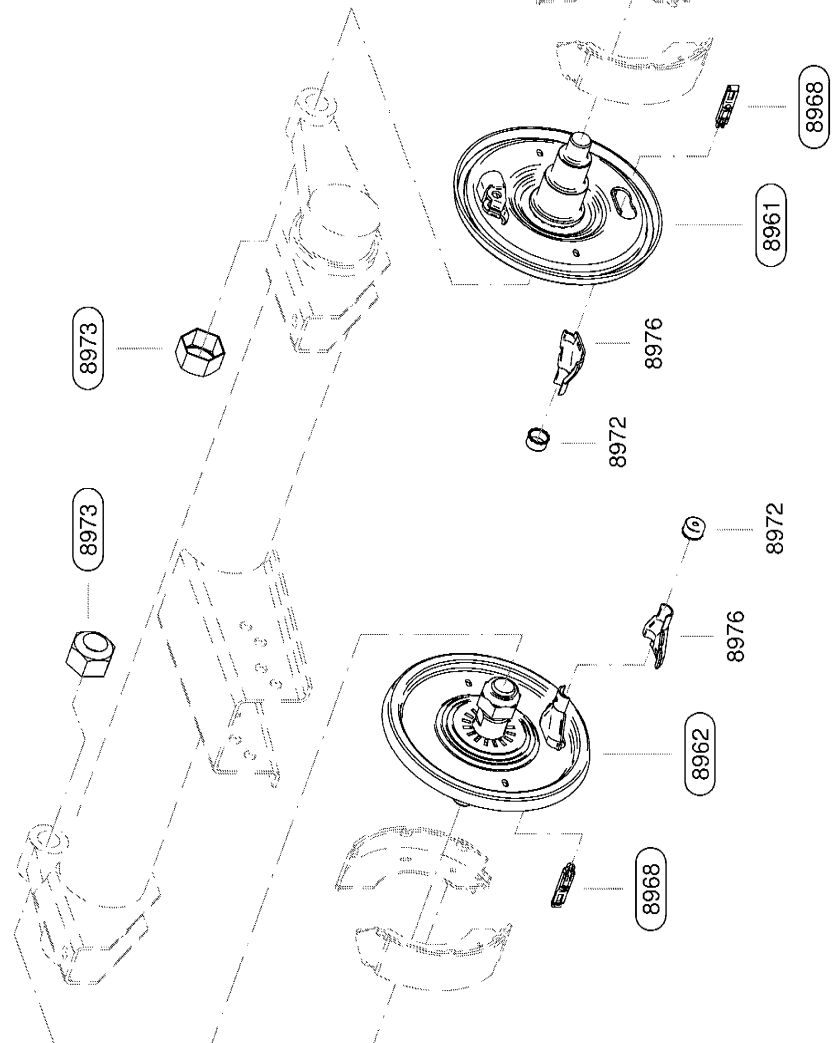
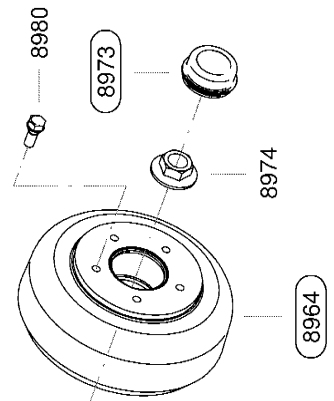
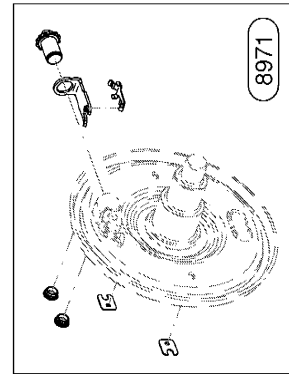




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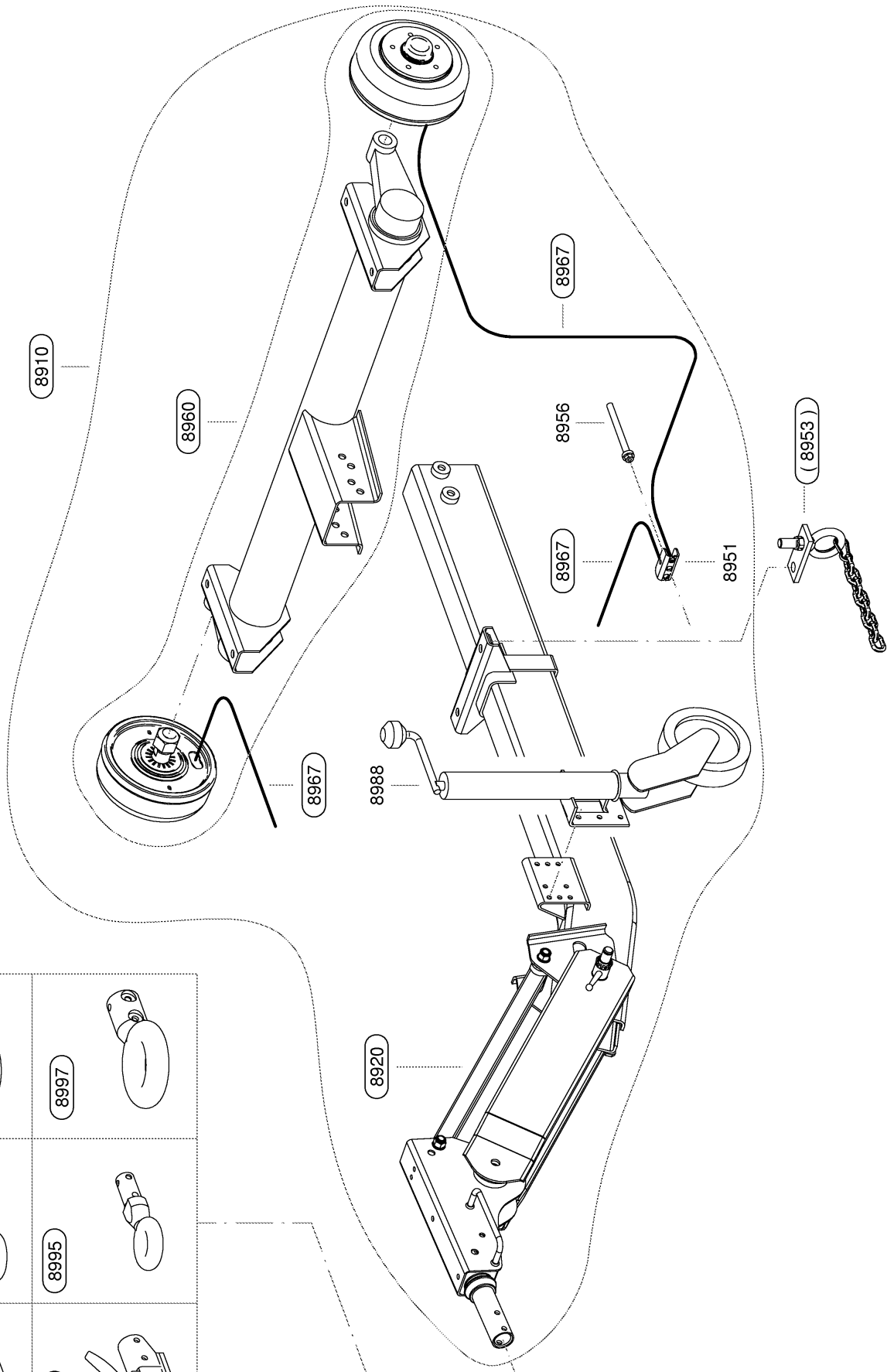
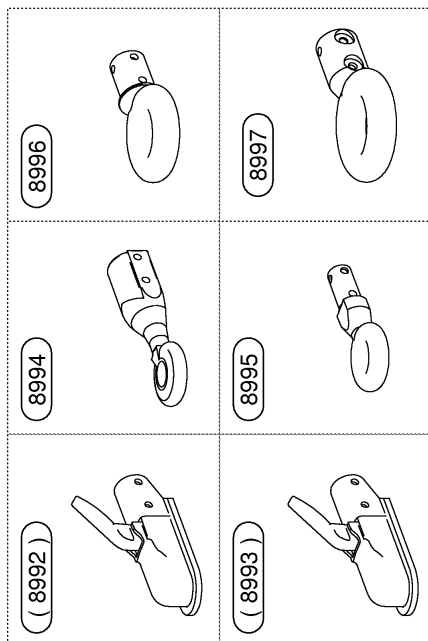
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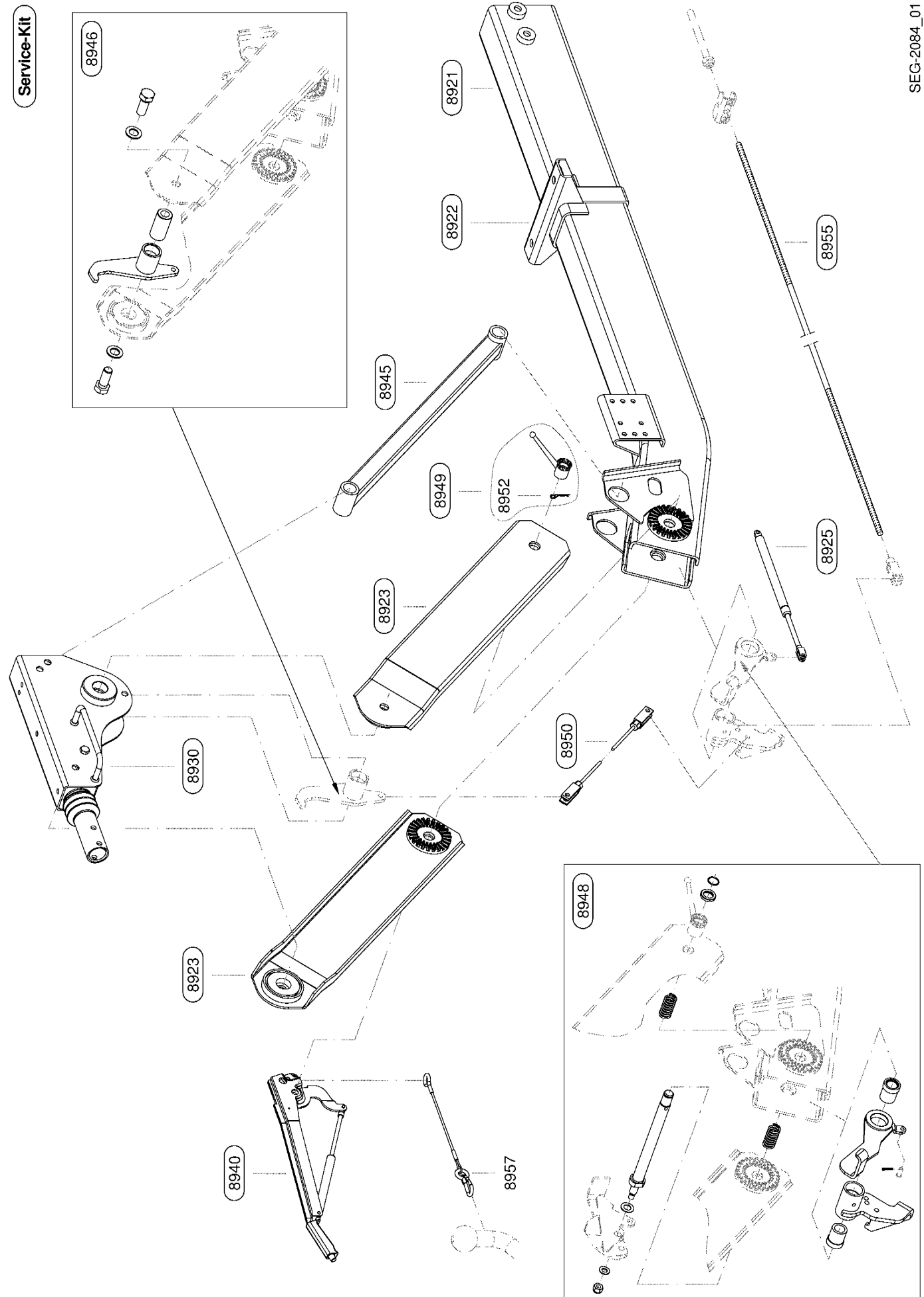




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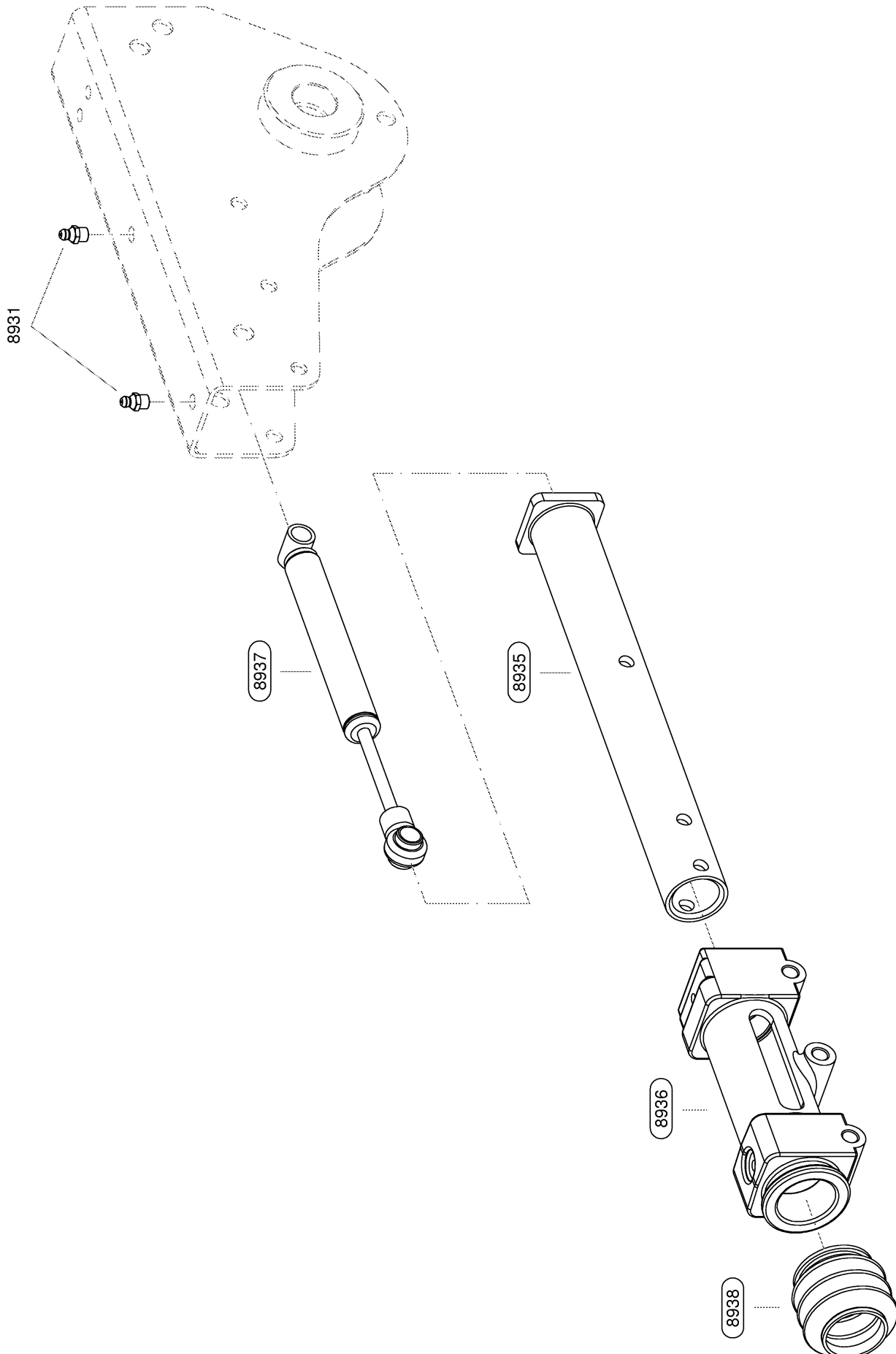
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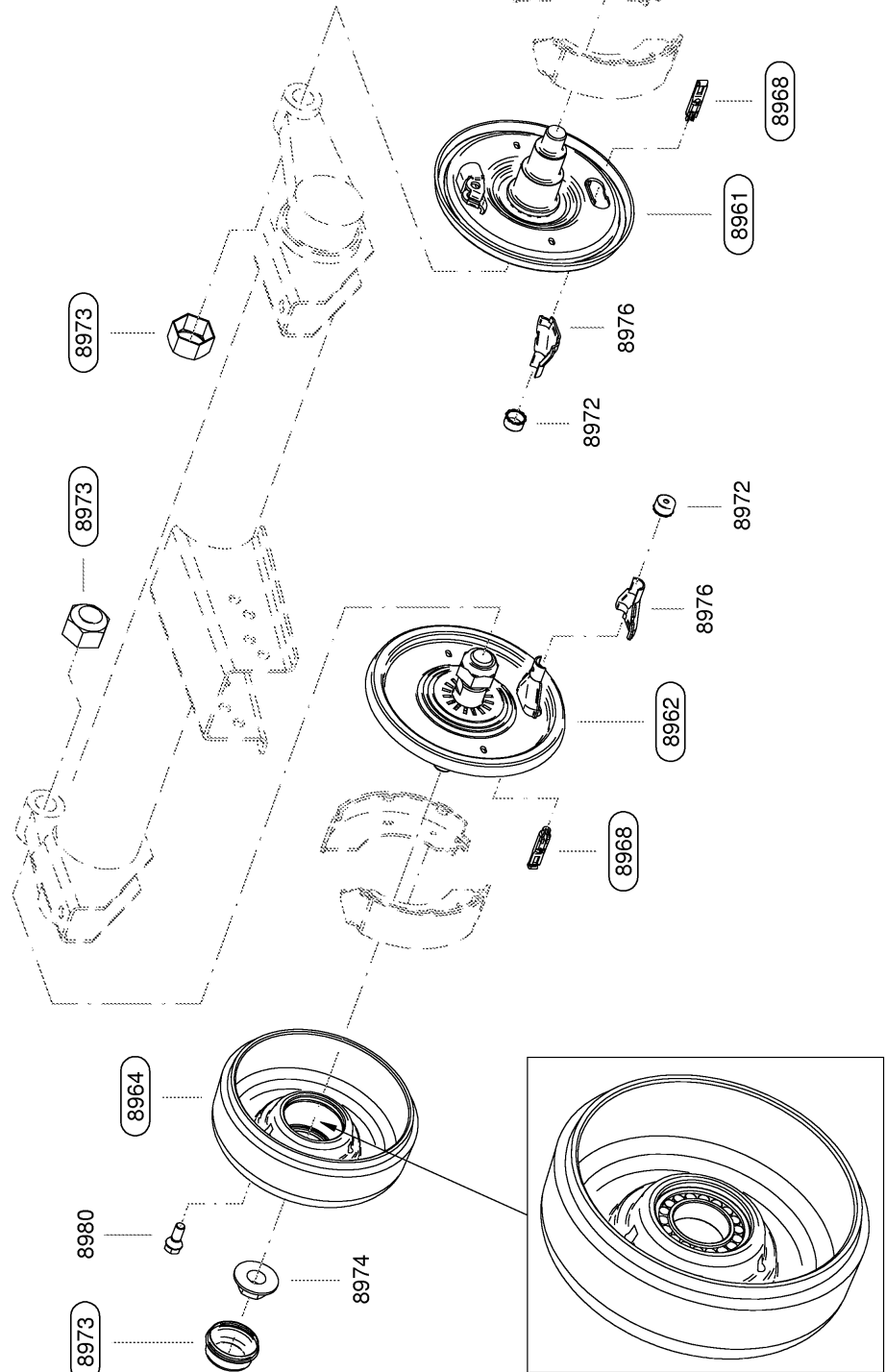
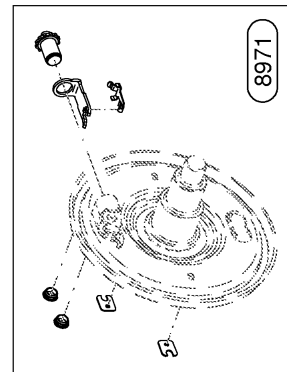




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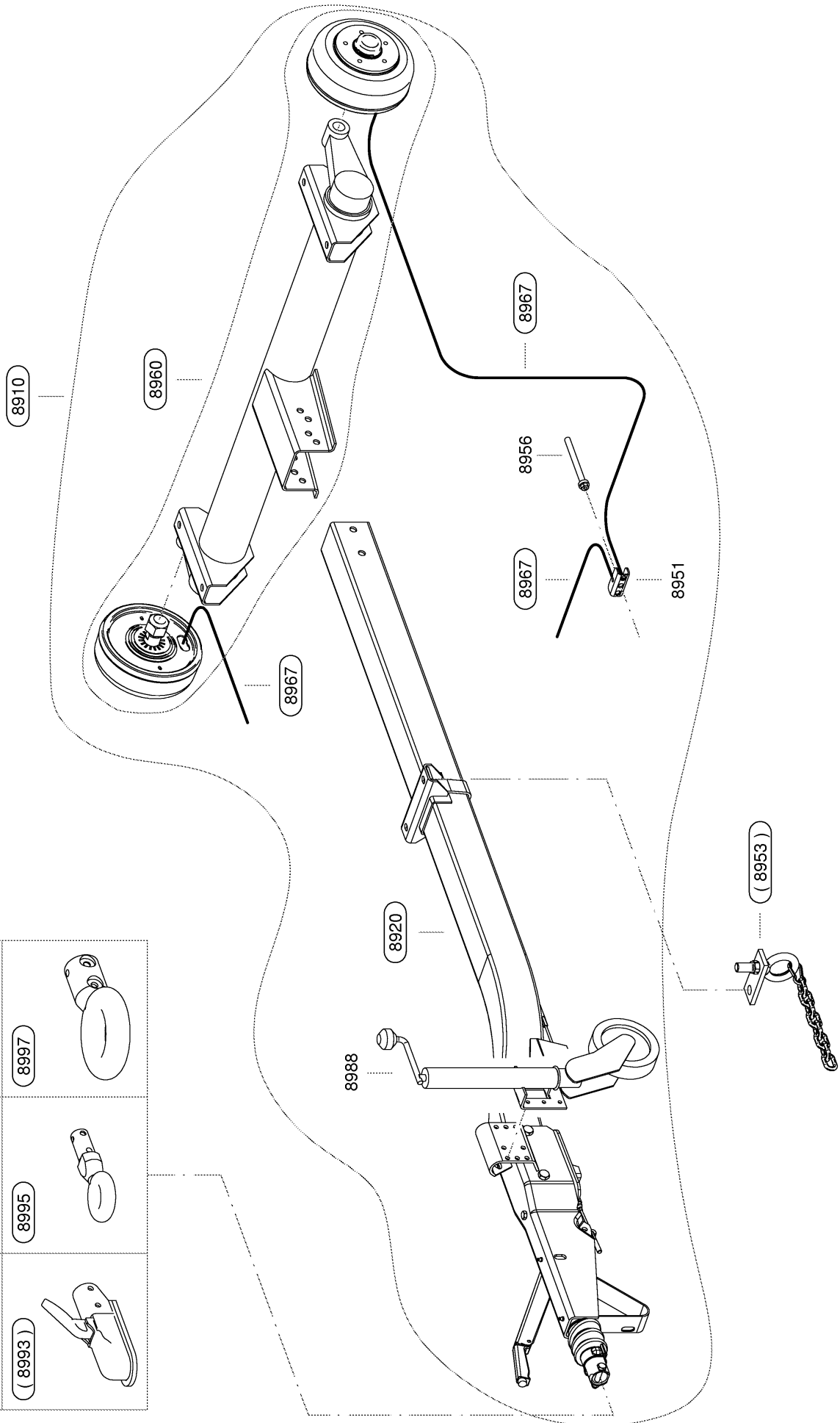
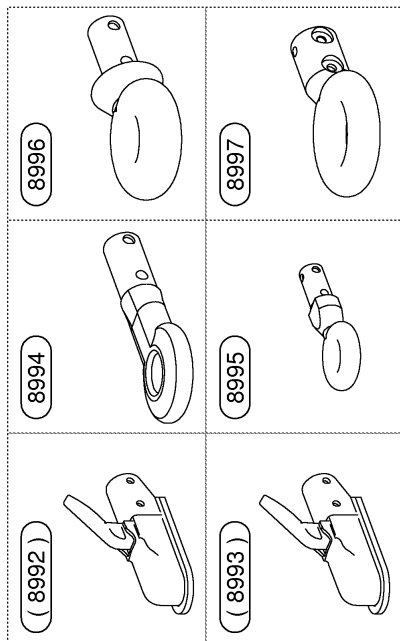
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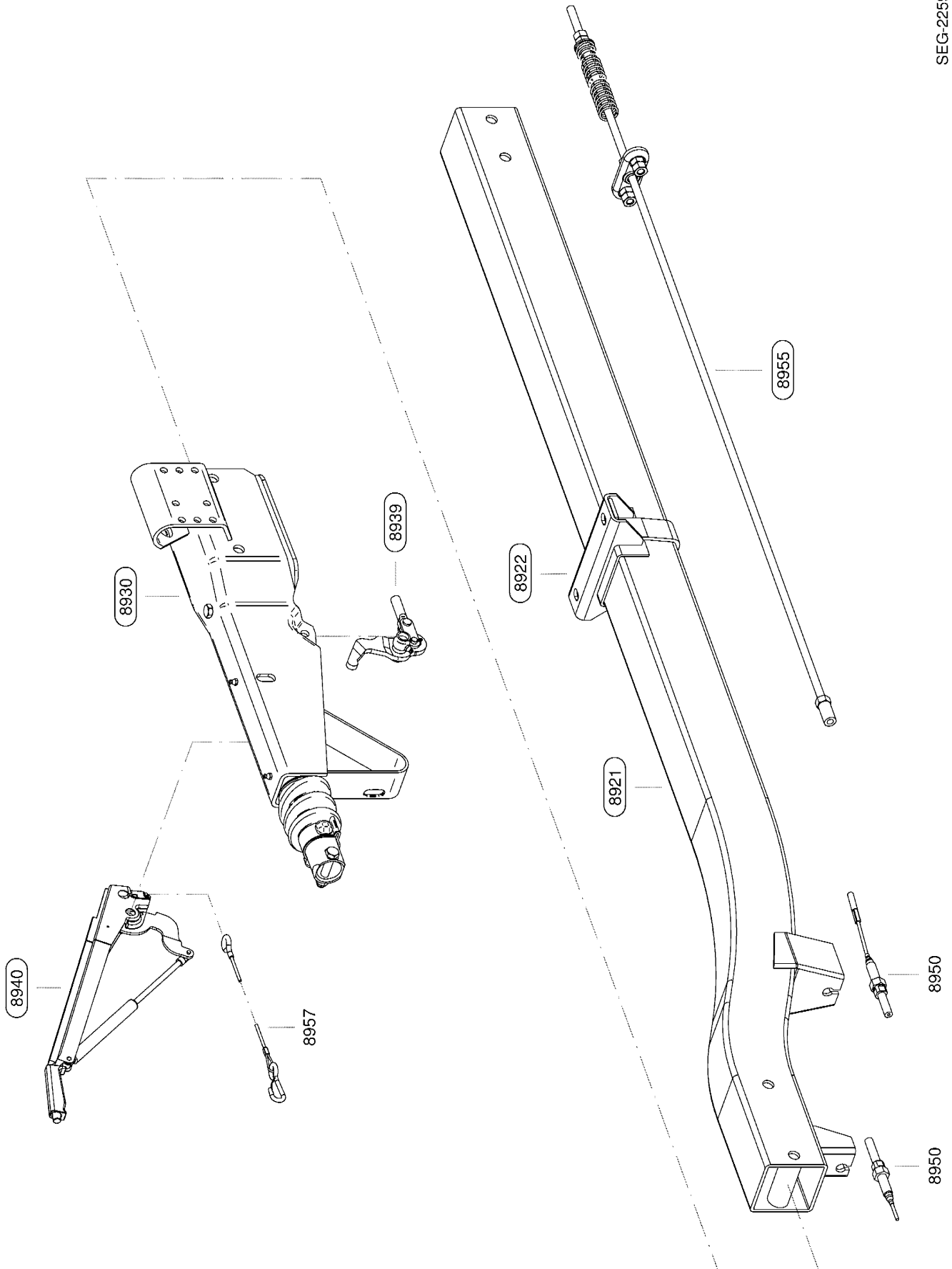


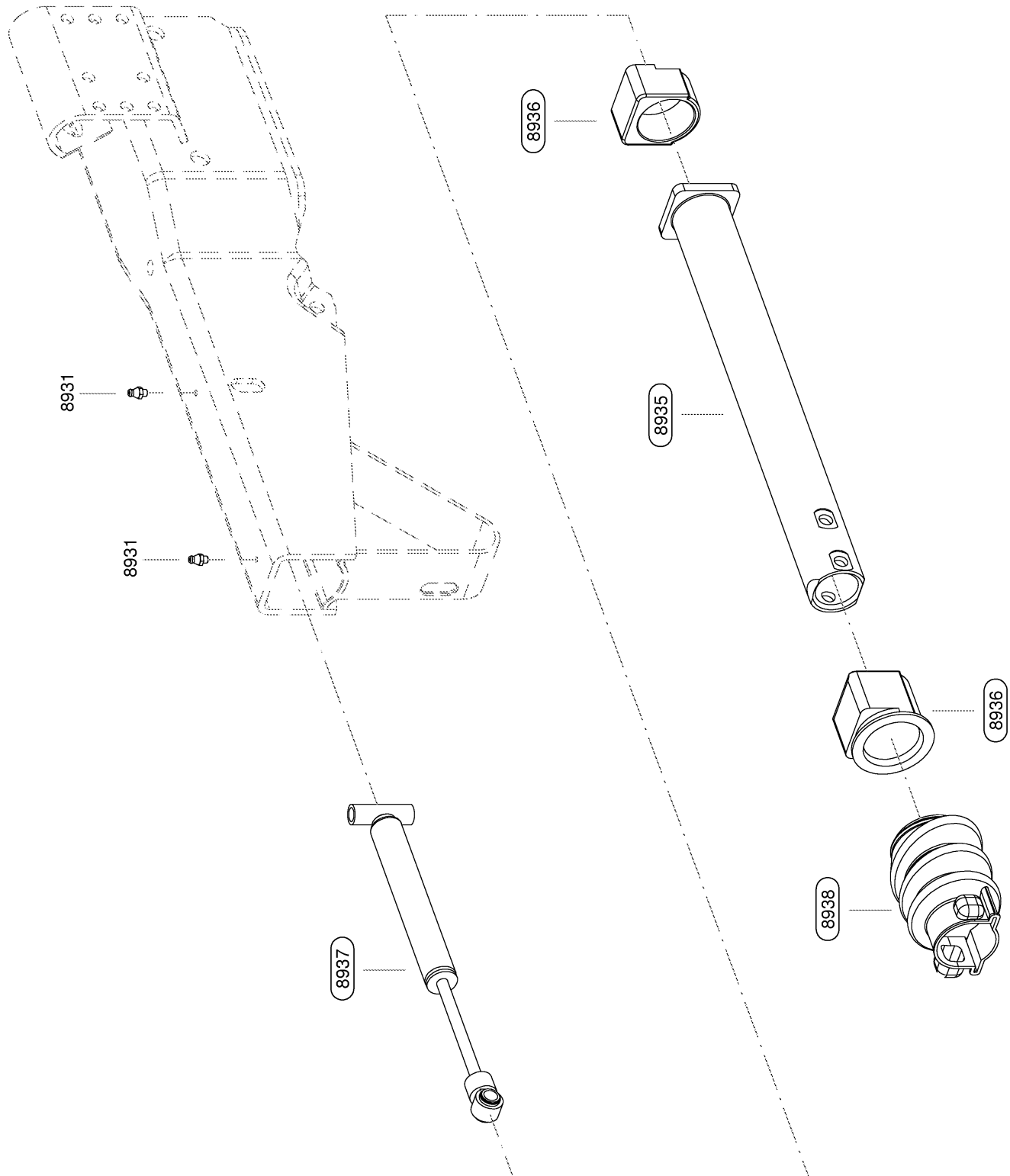


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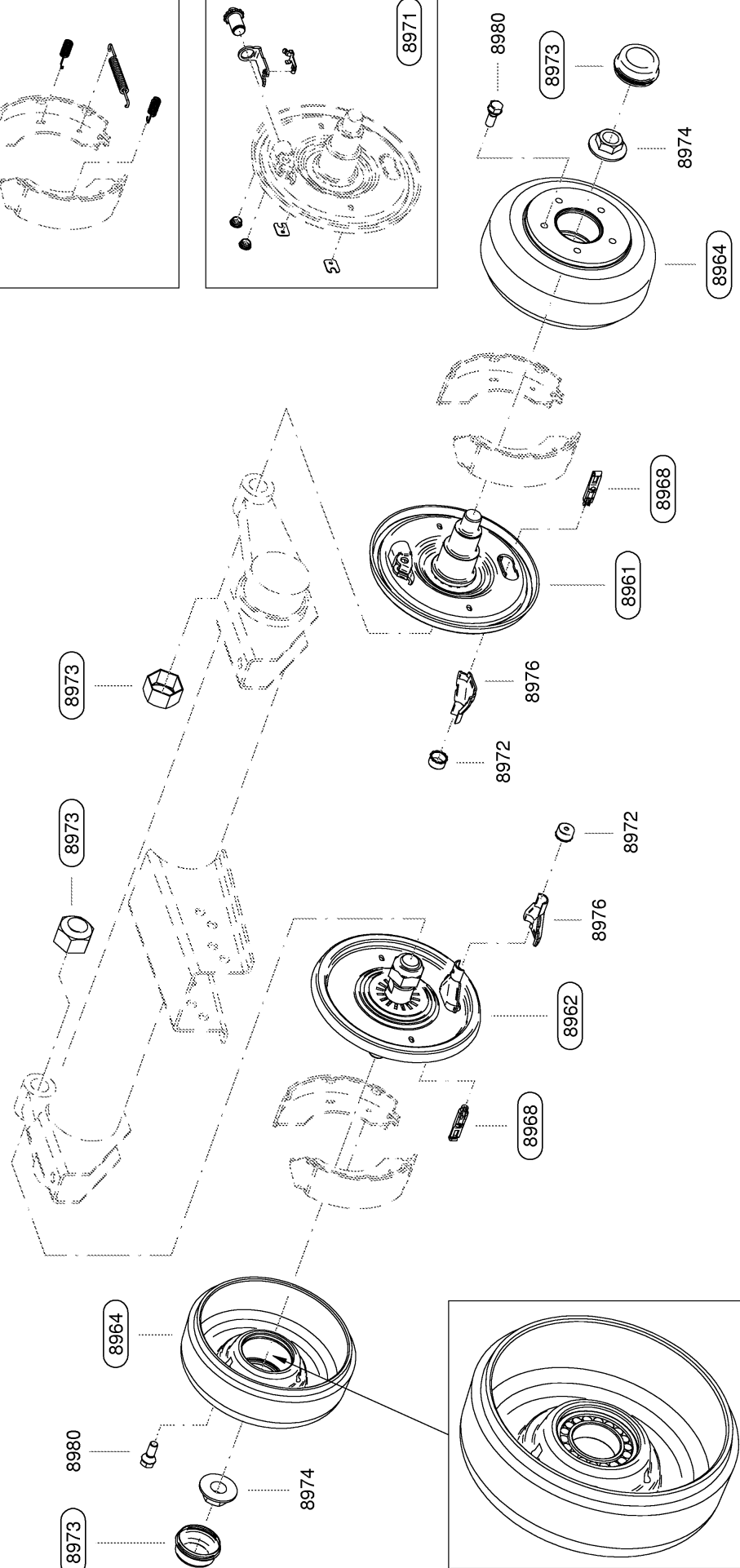
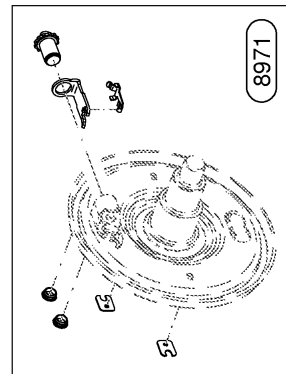
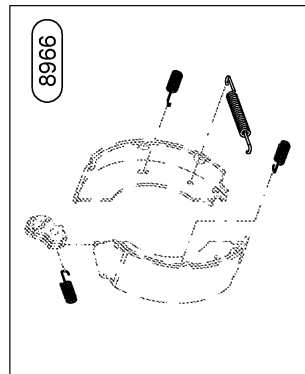
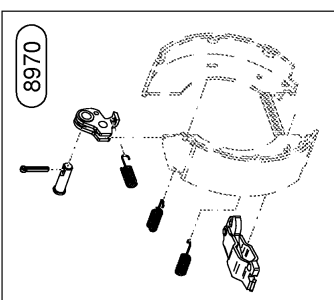
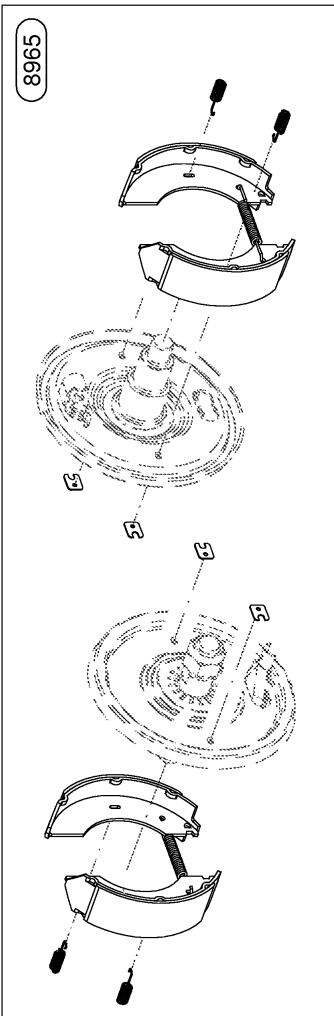
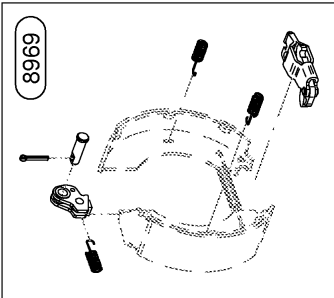
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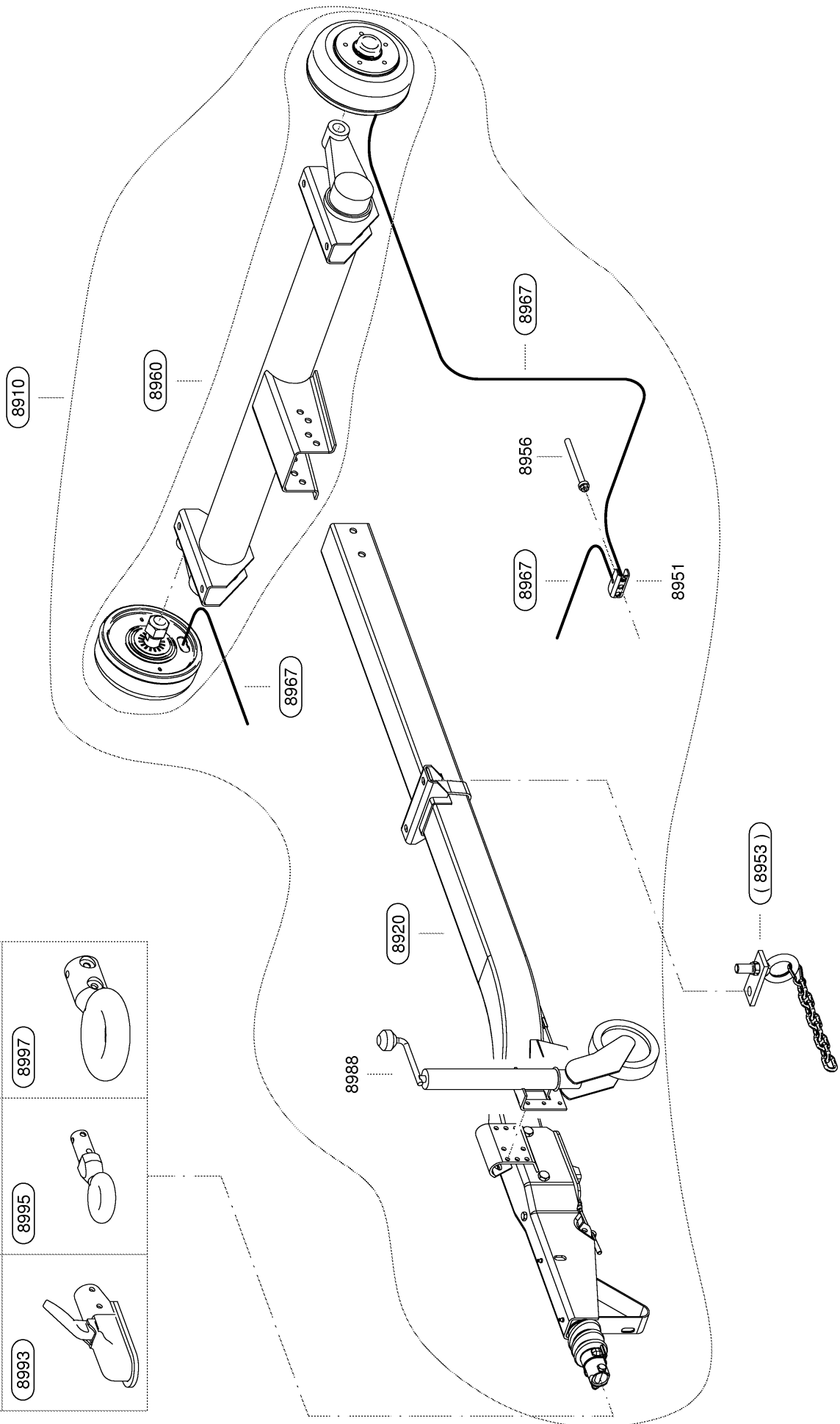
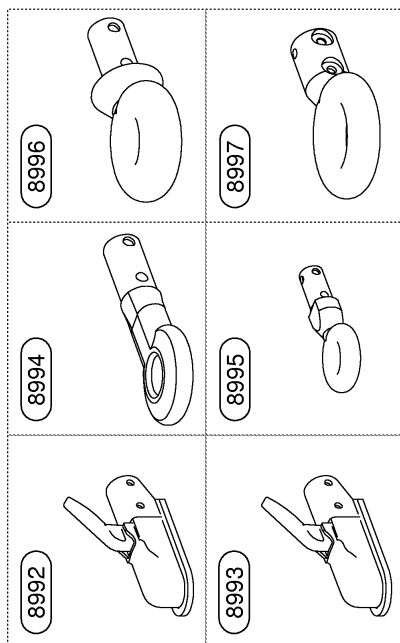


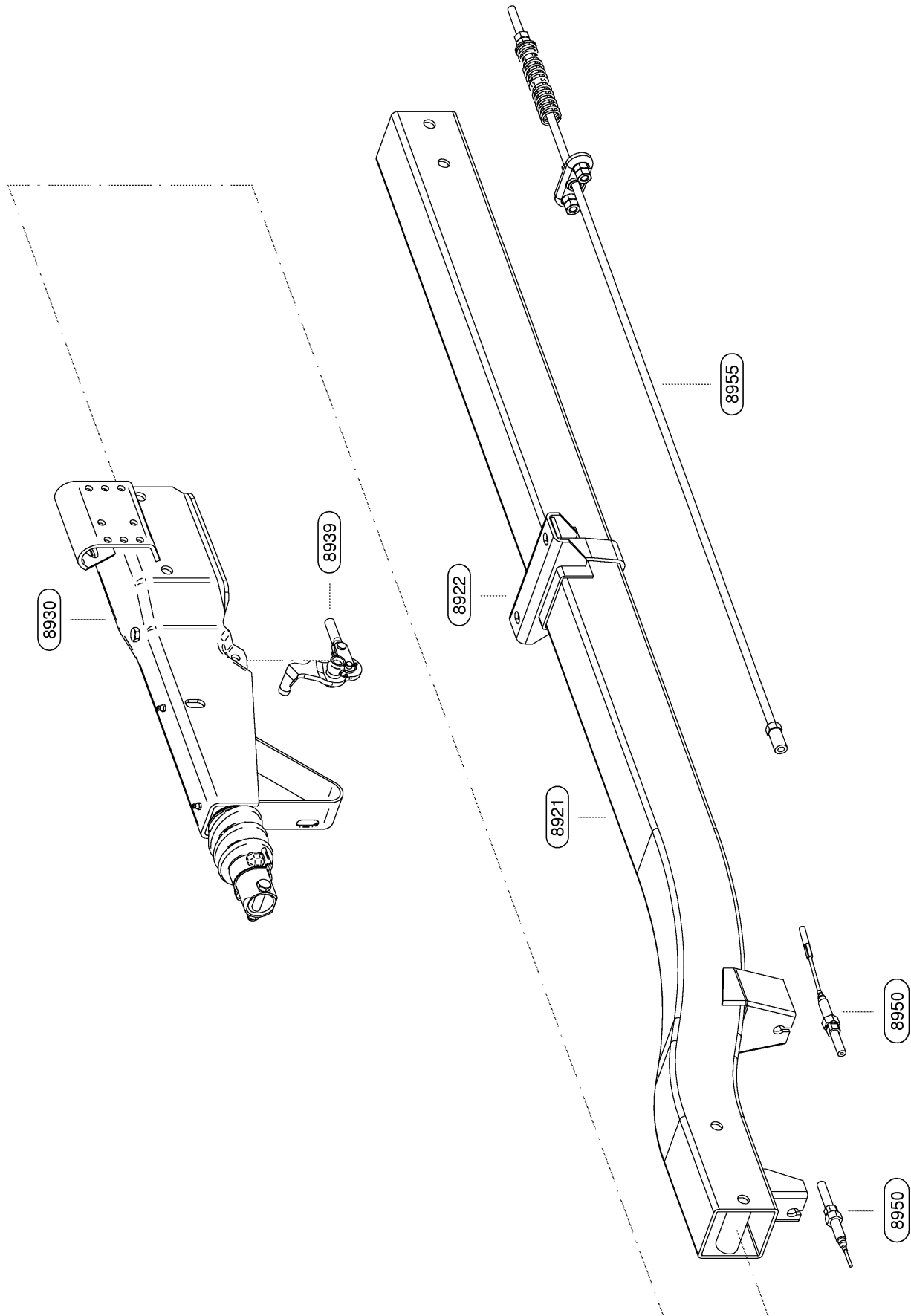
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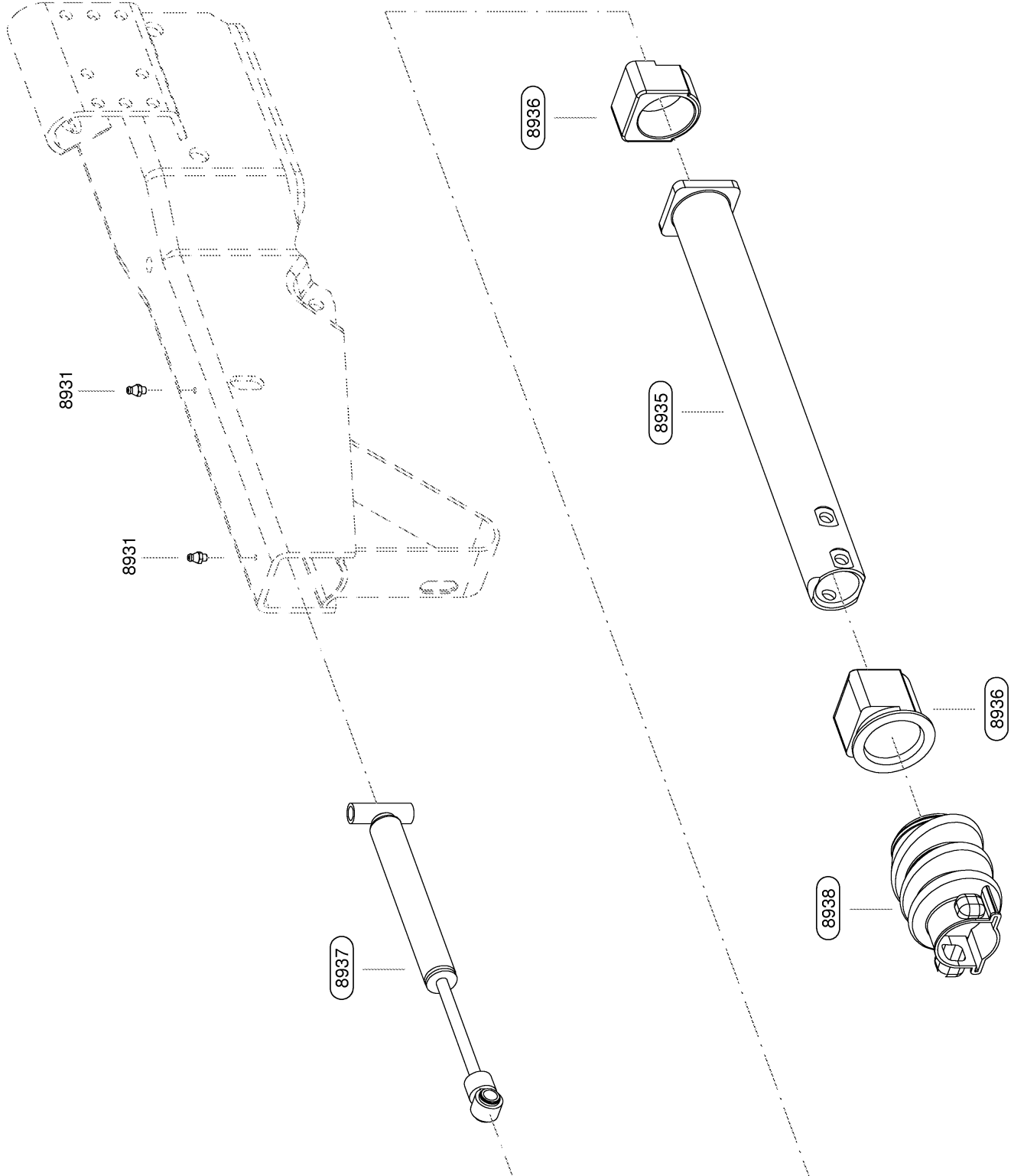


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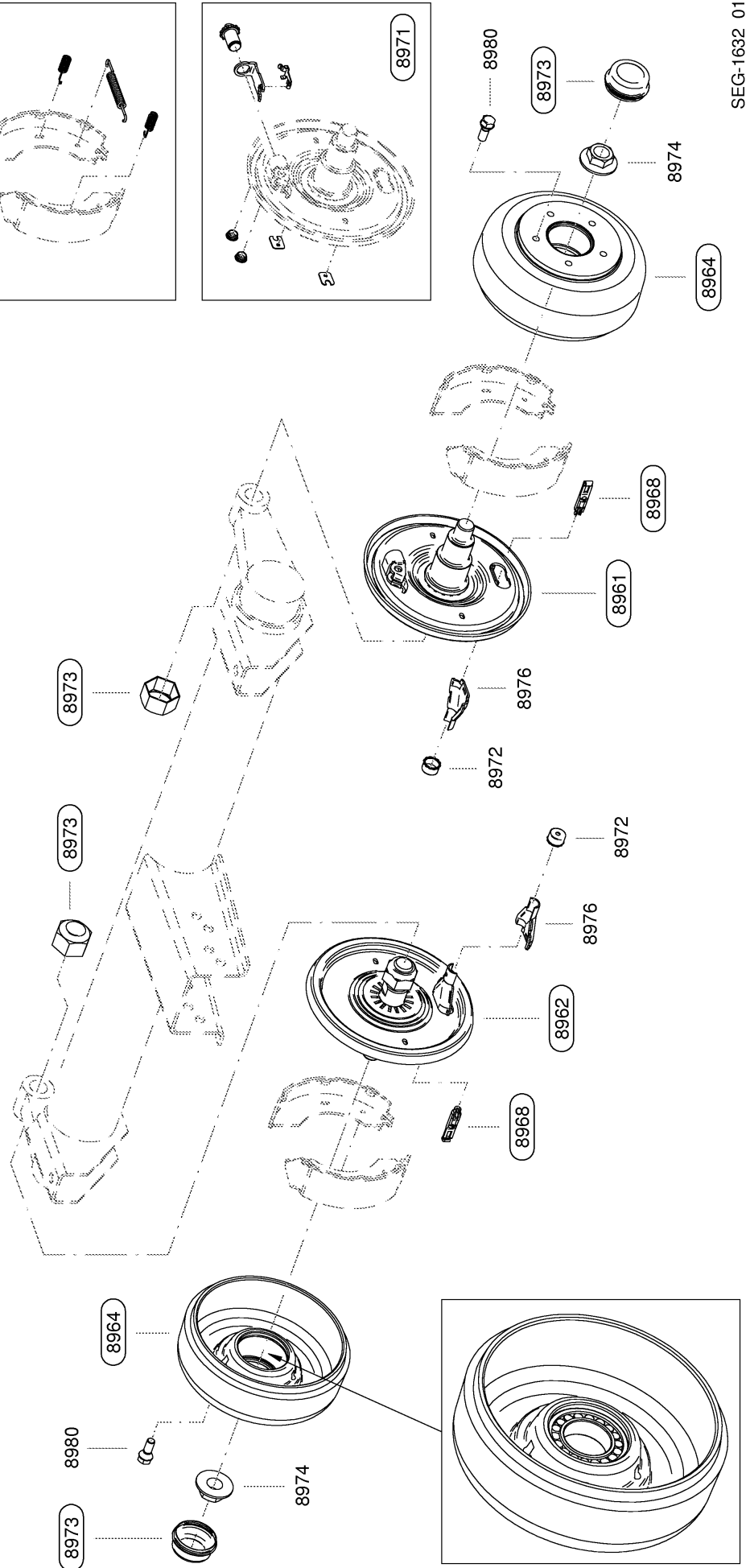
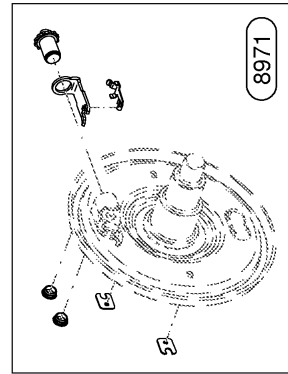
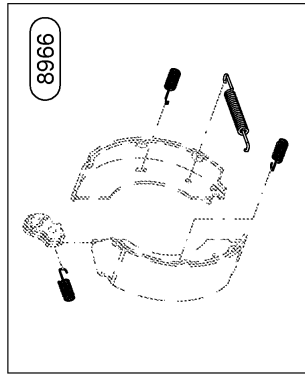
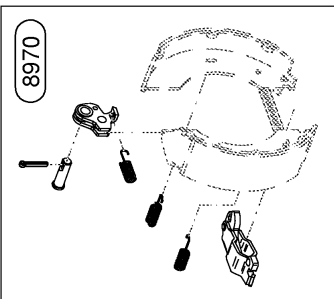
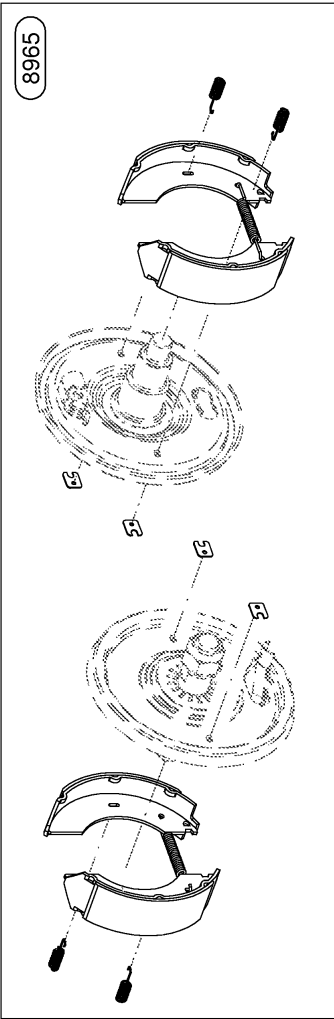
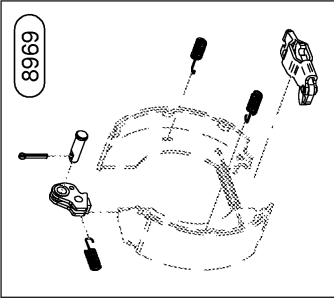
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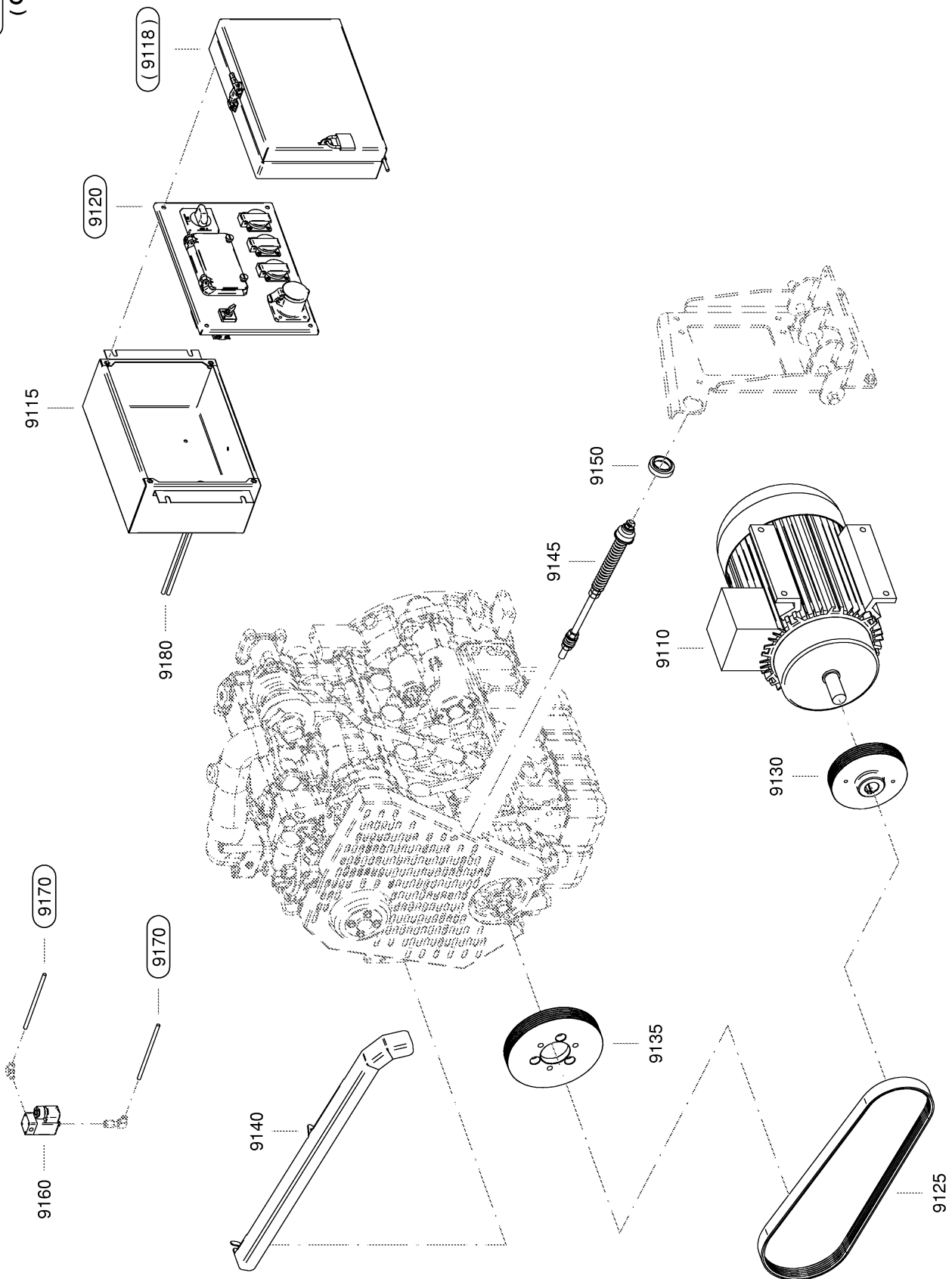
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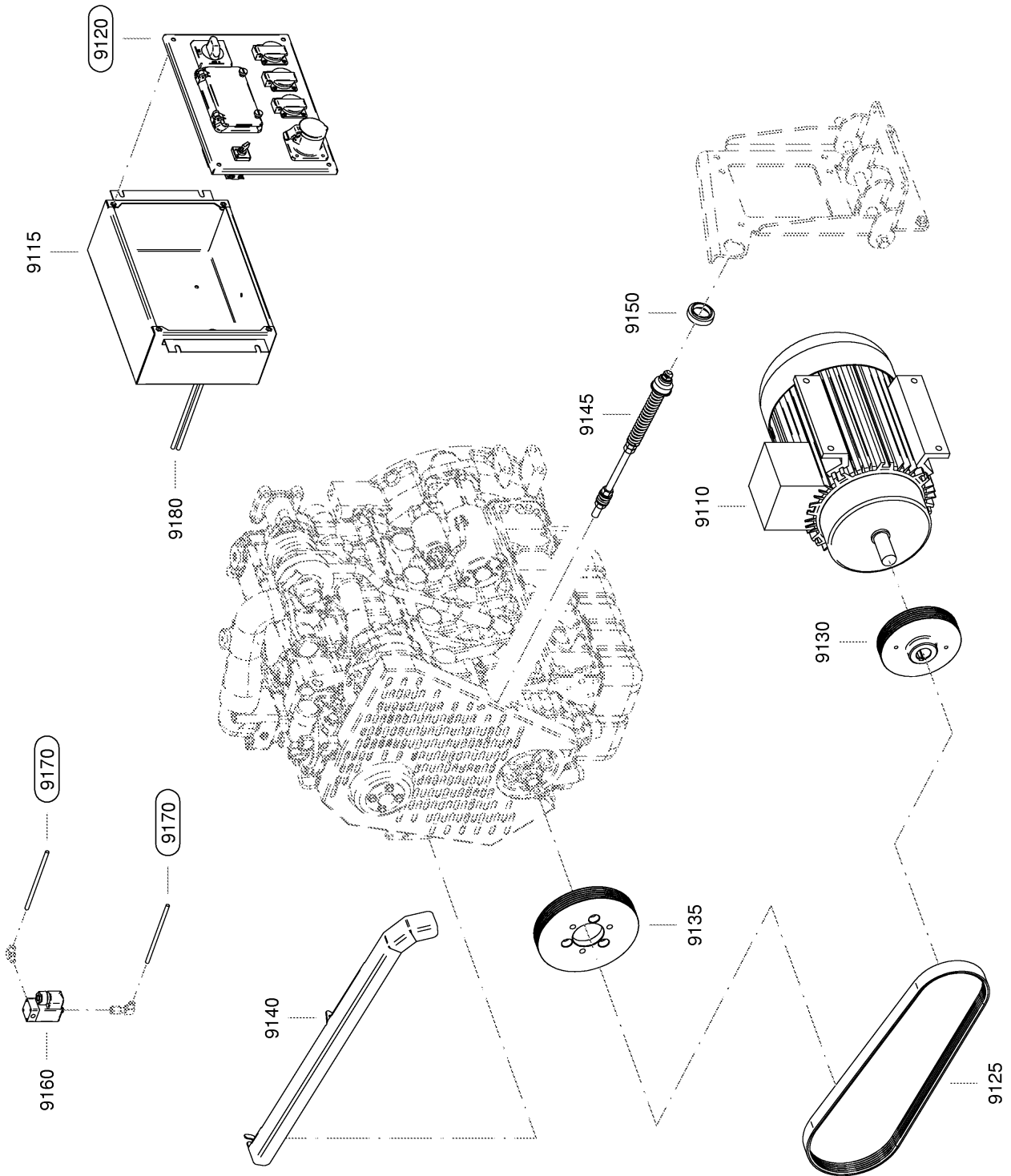


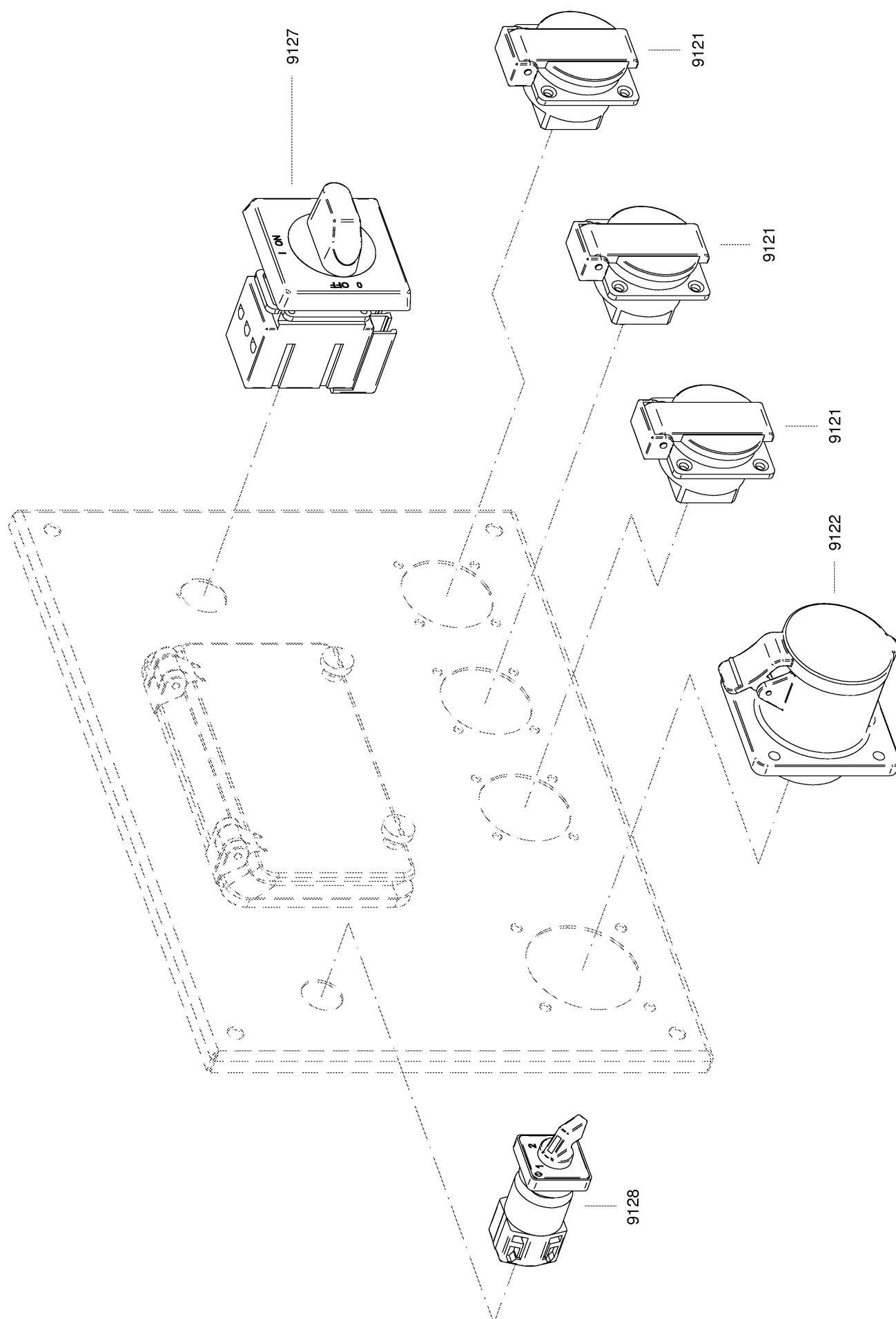
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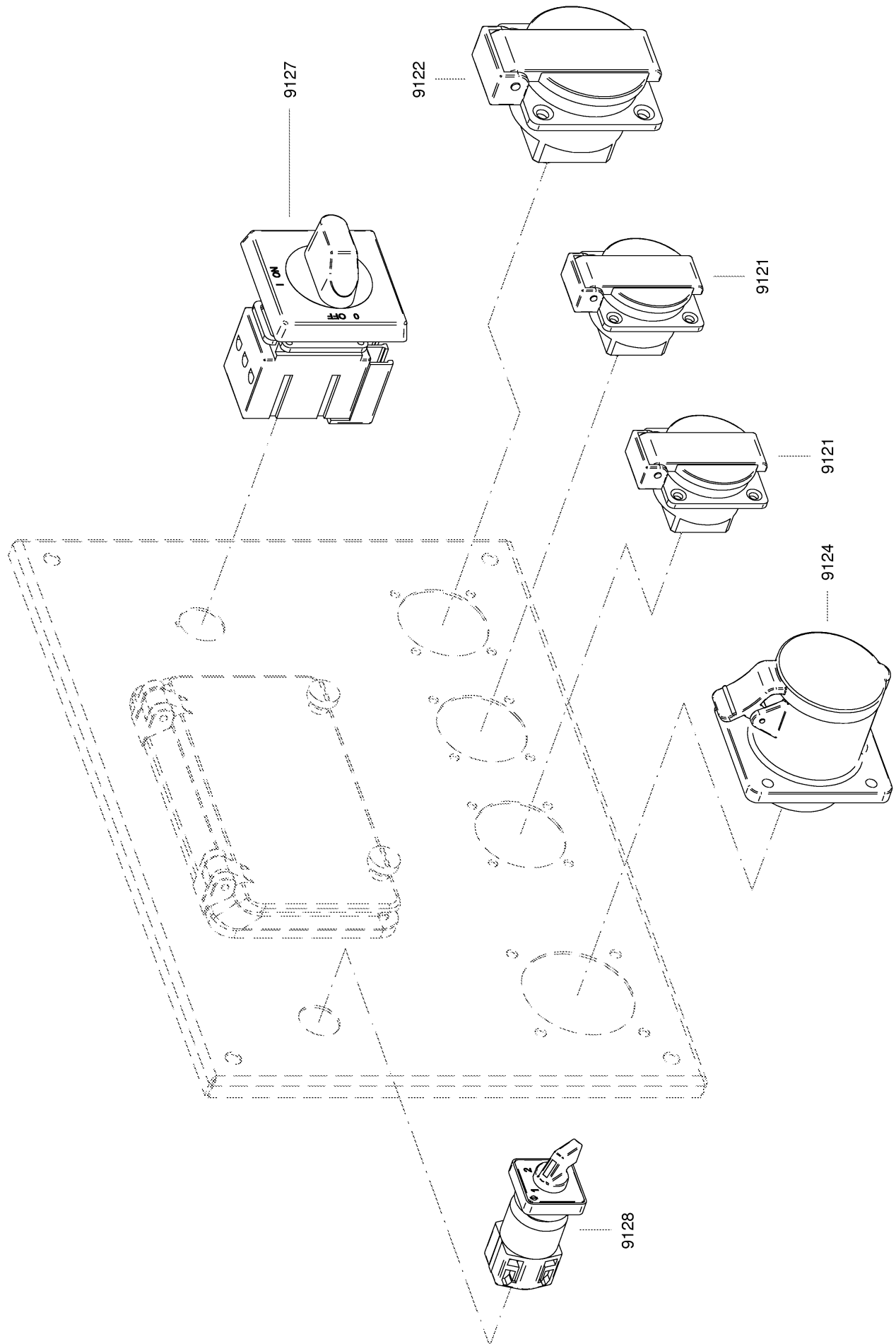
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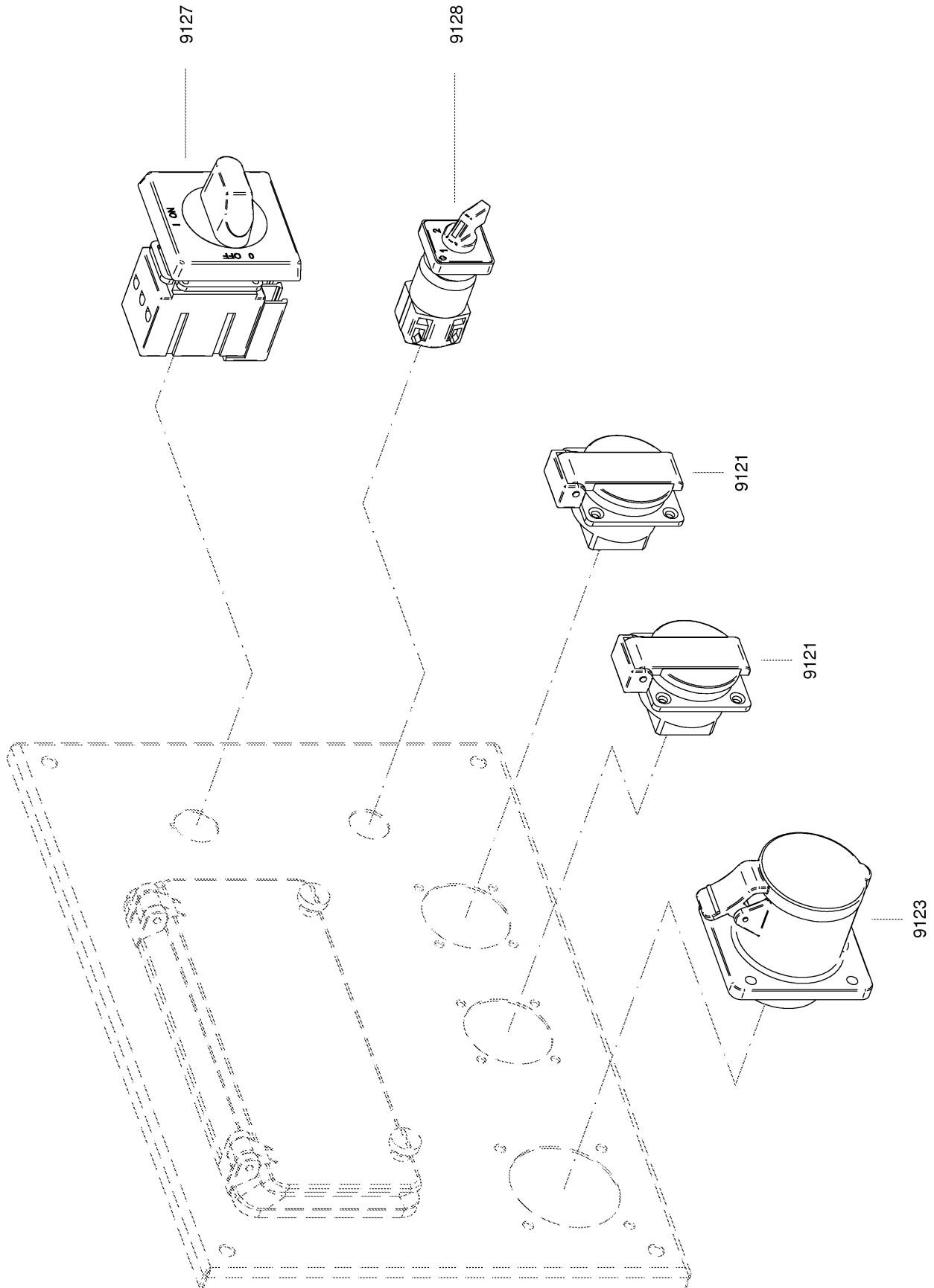
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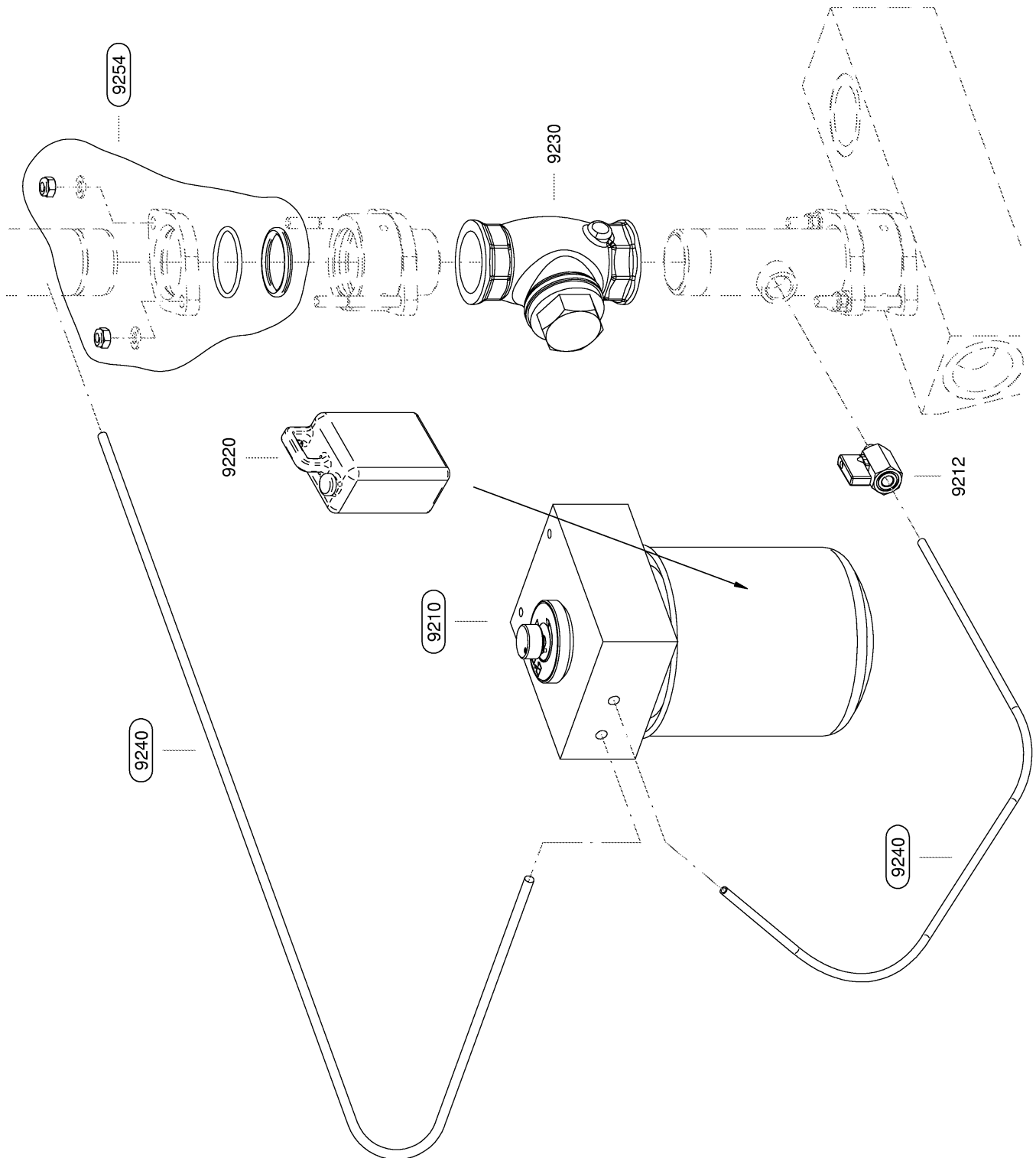






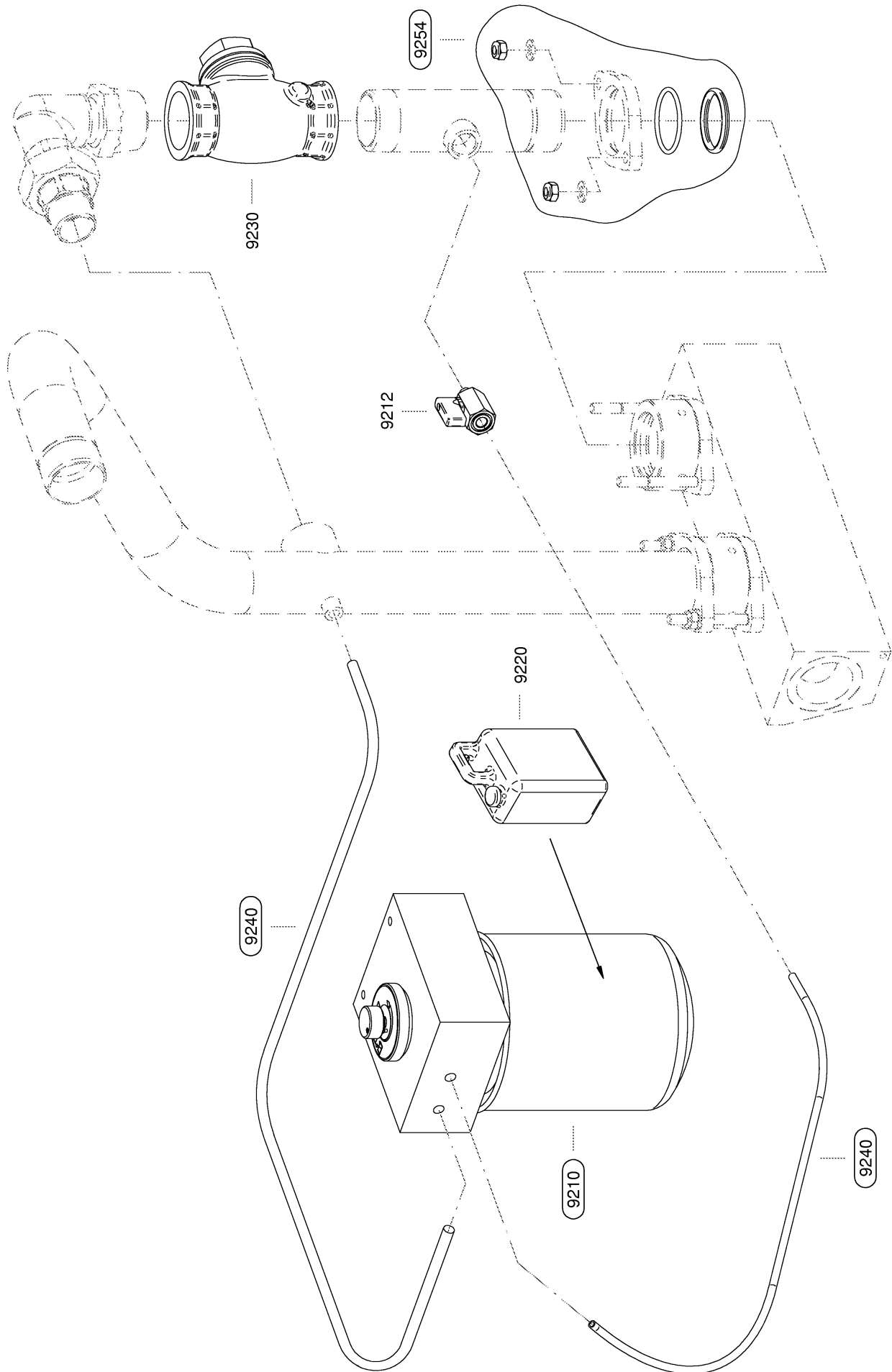






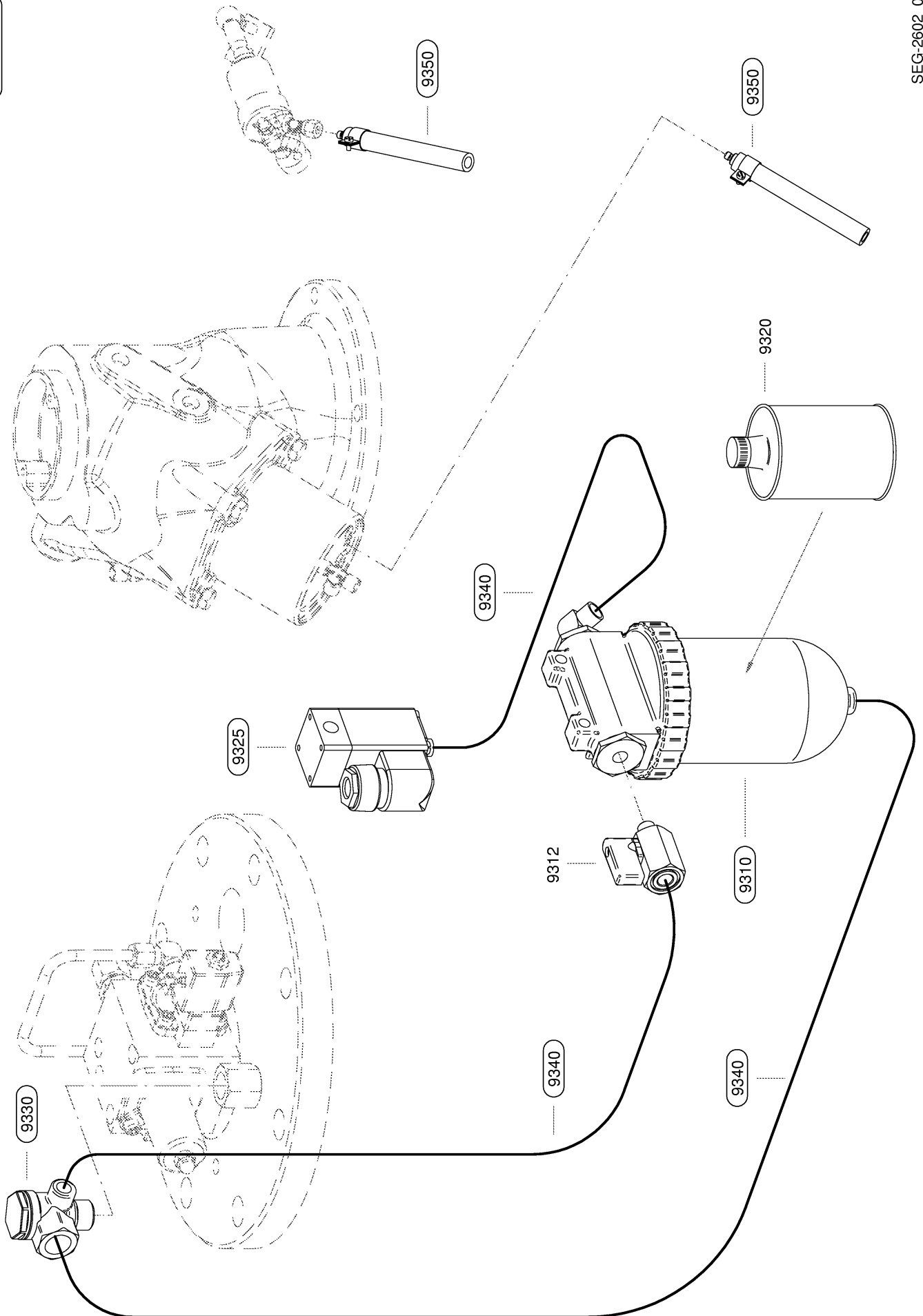
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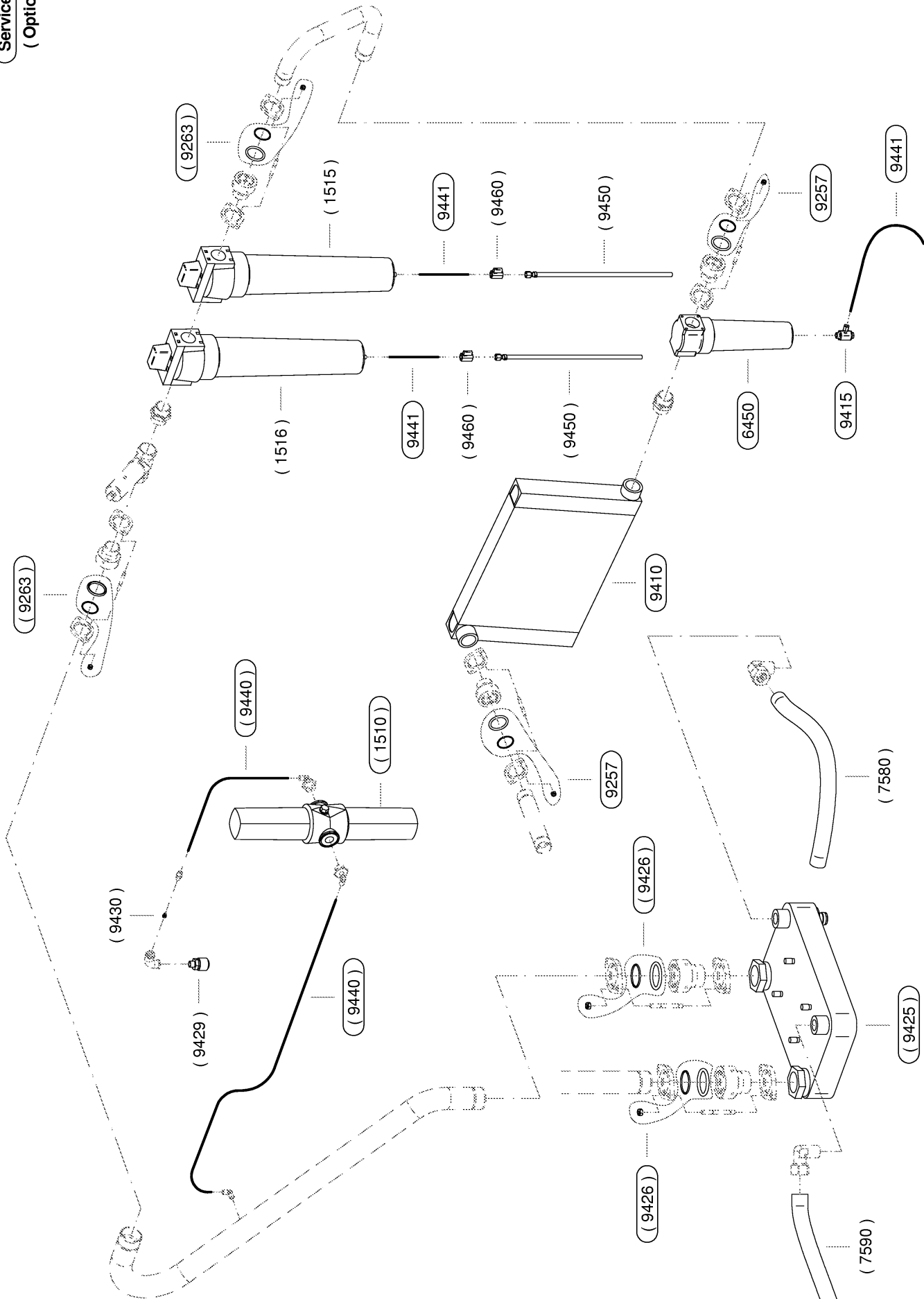
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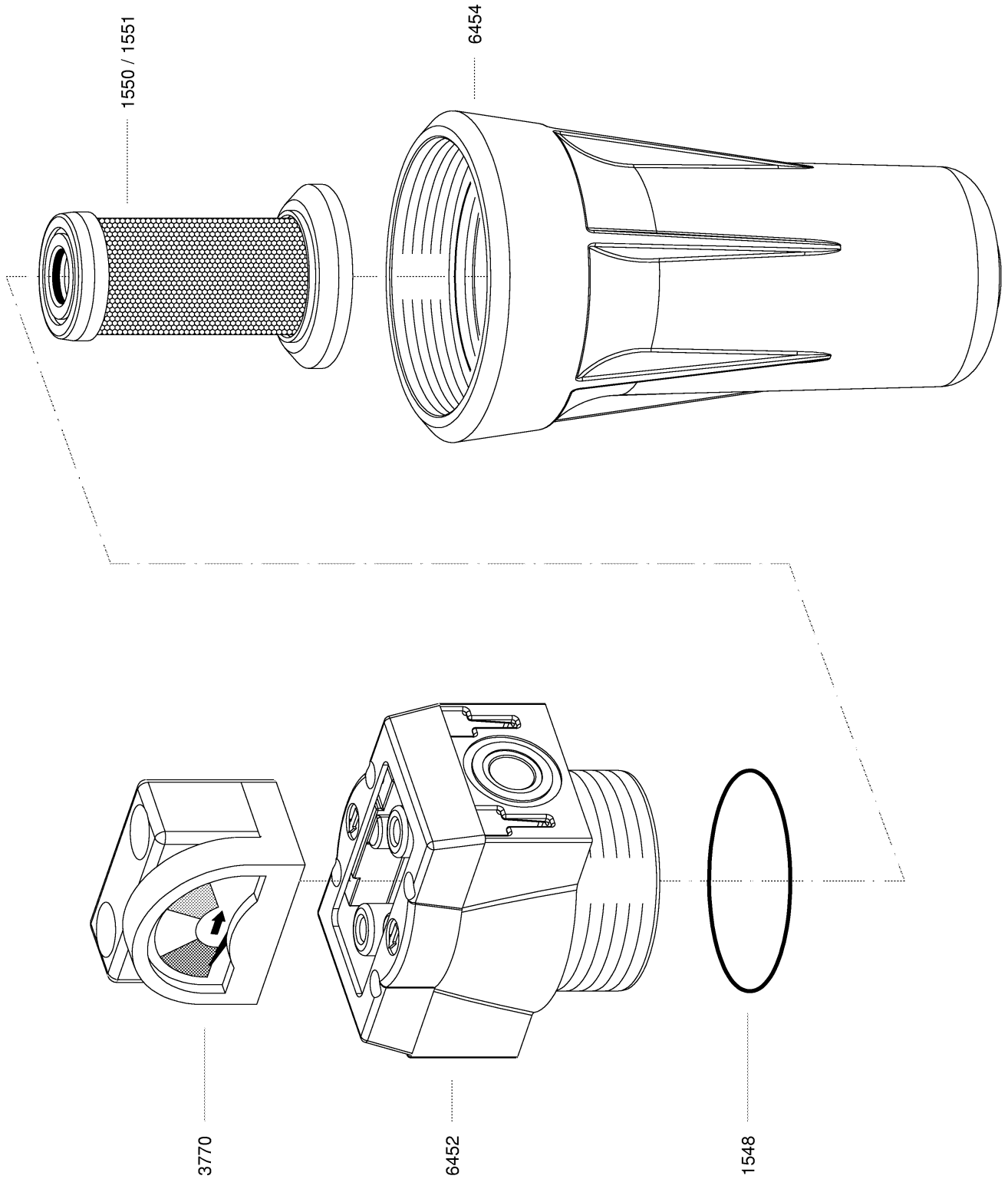
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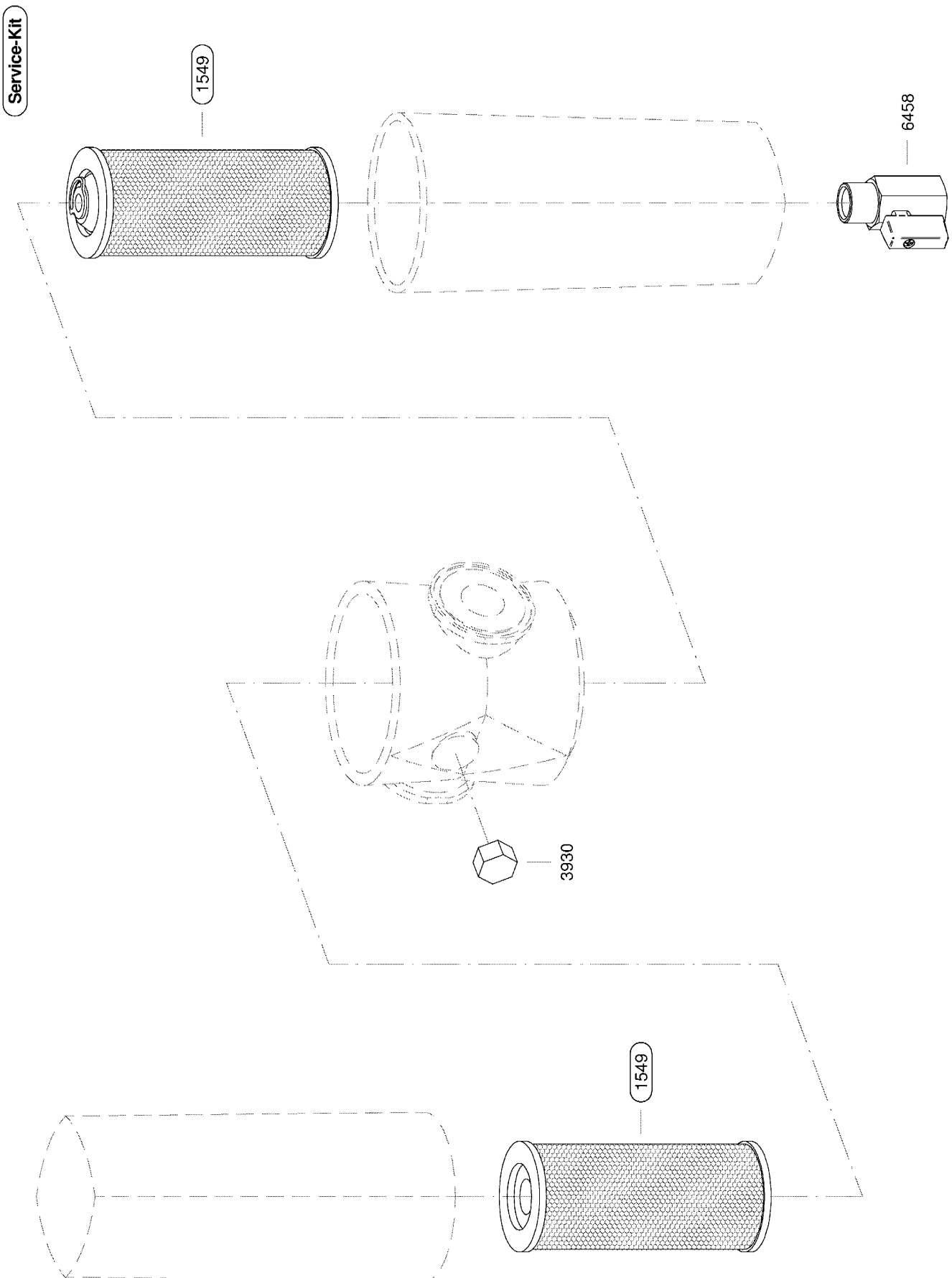


Service-Kit
(Option)

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SEG-2482_02

12 Decommissioning, Storage and Transport

12.1 De-commissioning

De-commissioning is necessary, for example, under the following circumstances:

- The machine is temporarily not needed
- The machine will not be needed for a considerable time.
- The machine is to be scrapped.

Precondition The machine is shut down.

Machine dry and cool.

1. Carry out the following de-commissioning procedures.
2. Place a notice on the instrument panel describing the de-commissioning procedures carried out.

12.1.1 Temporary de-commissioning

Decommissioning for about 4 months.

Material Plastic sheeting

Moisture-resistant adhesive tape

1. Disconnect the battery (the minus terminal first and then the plus terminal).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape.
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer
3. Attach the following notice on the instrument panel showing the decommissioning measures taken.

Attention!

1. The machine is temporarily decommissioned.
2. The following machine openings have been covered:

- Engine air inlet
- Compressor air inlet
- Exhaust silencer

3. Recommission according to service manual.

Date / signature

Tab. 95 "Temporarily decommissioned" information notice

Decommissioning of the compressor for several weeks during severe frost

1. **NOTICE** *Danger of batteries freezing!*
Discharged batteries are subject to frost damage and can freeze at 14 °F.
 - *Store batteries in a frost-free place.*
 - *Store batteries preferably fully charged.*

2. Remove the battery (batteries) and store in a frost-free room.
3. Make sure batteries are fully charged.

12.1.2 Long-term decommissioning and storage

Decommissioning the machine for 5 months or longer.

Material Receptacle
 Preserving oil
 Preservative
 Desiccant
 Plastic sheeting
 Moisture-resistant adhesive tape

- The following measures must be taken for long-term decommissioning and storage:

Long-term decommissioning and storage tasks	See chapter	Confirmed?
➤ Check engine coolant.	10.3.1	
➤ Drain the engine oil.	10.3.6	
➤ Drain the oil from the oil separator tank and the oil cooler.	10.4.3	
➤ Fill the separator tank and engine with preserving oil.	10.4.2 10.3.5	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery, the minus terminal first and then the plus terminal, and store in a frost-free room.	–	
➤ Check the battery fluid level.	10.6	
➤ Check the battery charge monthly and recharge if necessary to prevent the battery fluid freezing.	–	
➤ Clean the battery terminals and coat with acid-resistant grease.	–	
➤ Close the compressed air outlet valves.	–	
➤ Use plastic sheeting and moisture-resistant adhesive tape to seal off the following openings: ■ Engine air inlet ■ Compressor air inlet ■ Exhaust silencer	–	
➤ Clean the bodywork and treat with preservative.	–	
➤ Hang a notice on the instrument panel to inform of the decommissioning measures taken.	–	

Tab. 96 Long-term decommissioning and storage checklist

- Attach the following notice on the instrument panel to inform of the decommissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For recommissioning:
 - Take measures for recommissioning the compressor after a long period of storage.
 - Recommission according to service manual.

Date / signature

Tab. 97 Text for the long-term decommissioned and storage information notice

- Store in a dry place with even temperatures.

12.2 Transport

Precondition Machine switched off and locked off.
The machine is fully vented, the pressure gauge reads 0 psig.
Machine is cooled down.
All compressed air consumers are disconnected.
All connecting lines and hoses disconnected and removed.
Any loose or movable parts that may fall when transporting are removed or secured.

12.2.1 Safety



Allow transportation only by personnel trained in safely dealing with motor vehicles and the transporting of goods.

1. **⚠ WARNING** *There is danger of being run over or crushed by an overturning vehicle. Death or serious injury can result from being crushed or run-over by a machine under tow.*
 - *Riding on the machine while it is under tow is strictly forbidden.*
2. Make sure the danger area is clear of personnel.

12.2.2 Towing the compressor on the road

The portable machine can be transported as trailer by a towing vehicle.
Machines without lighting system and service brake must not be towed on public roads.

Prerequisites for the towing on public roads:

- Chassis with overrun brake
- Lighting and signaling system.

All other machines may be transported only on non-public roads!



National and local regulations must be observed when towing the machine on public highways.

1. **⚠ WARNING** *Risk of accident when towing non-roadworthy machines on public roads. Death or severe injury possible due to accidents with unbraked and/or unilluminated trailer.*
 - *Do not tow machines without service brake and/or illumination equipment on public roads.*
 - *Transport only an illuminated machine equipped with a service brake on public roads.*
2. Observe the safety instructions in chapter 3.5.2 "Safe machine operation".

12.2.2.1 Preparing for transport

Stowing payload:

Do not exceed the permissible loading (overall mass, coupling load, axle load).
Observe national traffic laws. If additional loading is not permitted, the load must be transported in the towing vehicle.

1. Check that loading the machine with tools or accessories during transport is permissible.
2. Place additional loads only in the spaces provided (if available) and secure carefully.

Additional precautions for a very dirty machine:

The machine can become very dirty after prolonged use on a construction site. A machine in such condition is not suitable for towing on public roads.

1. Clean the machine, in particular around the chassis and the lighting and signaling equipment.
2. Check the function of wheels, brakes, lights and signaling equipment.
Correct any defects before towing.

Additional precautions for conditions of snow and ice:

Considerable snow or ice may build up on the machine under low temperature conditions.

1. **⚠ CAUTION** *Accident hazard due to snow or ice falling off the machine. Snow or ice falling from the towed machine can endanger following vehicles. Problems with driving dynamics and damage to the machine could occur. The maximum permissible axle load could be exceeded.*
 - *Do not transport the machine if it is covered by snow or ice.*
2. Remove any snow or ice before towing.

Perform the following tasks prior to transporting the machine:

1. Make sure the towing hitch is compatible with the ball or eye coupling on the towed machine.
2. Check that the machine is shut down and secured against accidental restarting.
3. Detach all connecting lines and hoses.
4. Make sure there are no unsecured tools lying on or in the machine.
5. Close and lock the access doors.

Option rb/rk/rm/rs, Adjust the towing bar to suit the height of the towing vehicle hitch.
rb/rl/rm/rs

When the machine is coupled up, the towing bar must be parallel with the ground.

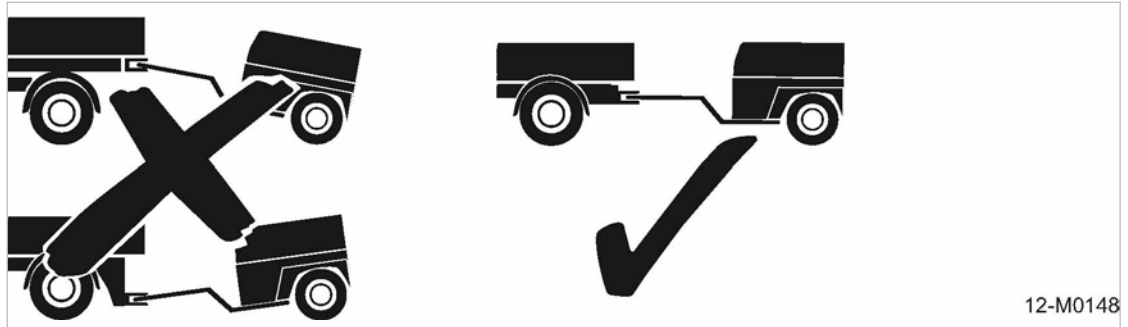


Fig. 93 Towing position

1. **⚠ WARNING** *Danger from problematic driving dynamics!
The permissible loading range may be exceeded or undercut.
Personal injury may result from towing.
Damage to the machine and/or towing vehicle is possible.*
 - *Do not couple up the machine at an angle to the towing vehicle.*
 - *Ensure that the towing bar is horizontal when coupled to the towing vehicle.*
2. Adjust the towing bar height to suit the height of the hitch on the towing vehicle.

Further information See chapter 6.4.1 for towing bar height adjustment.

12.2.2.2 Coupling-up

1. Slowly and carefully approach the machine with the towing vehicle.
2. Position and park the towing vehicle with coupling in front of the machine's towing eye.

Coupling a machine with towing eye:

1. Open the towing coupling of the towing vehicle.
2. Slowly and carefully approach the machine with the towing vehicle until the trailer coupling audibly latches.
3. **⚠ WARNING** *Danger of accident from an incorrectly attached coupling.
If the coupling is not fully closed, the trailer can become uncoupled from the towing vehicle and cause an accident.*
 - *Check correct coupling.*
4. Check the locking mechanism of the trailer coupling and re-couple if required.

Option rb/rk/rm/rs,
rc/ro/rs, rb/rl/rm/rs

Coupling machine with ball coupling (EC version):

To hitch up the machine, lower the open coupling onto the ball of the towing vehicle so that it clicks into place.

The coupling is fully locked when the green locking indicator protrudes and is visible from the side.

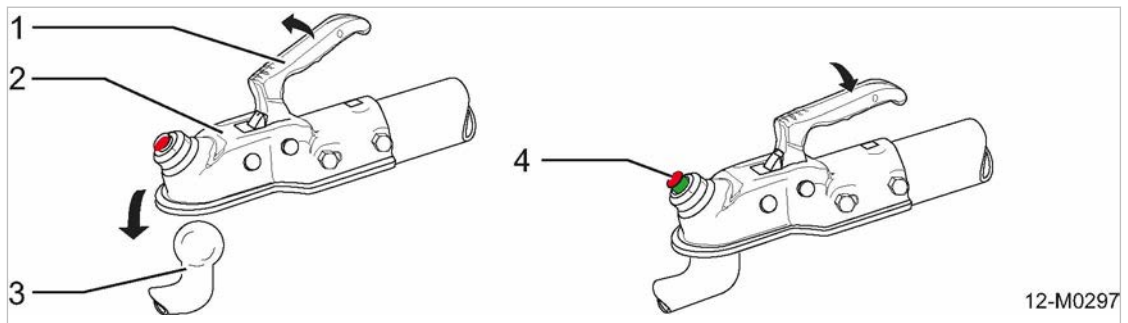


Fig. 94 Ball coupling (ALKO-EU)

- | | |
|-------------------|----------------------------------|
| ① Coupling handle | ③ Towing vehicle ball hitch |
| ② Ball coupling | ④ Locking indicator (protruding) |

1. **NOTICE** There is considerable danger of injury caused by trapped fingers. They can be trapped in the spring-loaded closing mechanism.
 - Never place your fingers inside an open ball coupling.
 - Always wear protective gloves.
 2. Pull up the coupling handle.
The coupling opens.
 3. **WARNING** Risk of accident due to unhitching of the ball coupling during transport. If the coupling is not fully closed the compressor can become uncoupled from the towing vehicle and cause an accident.
 - Check correct coupling.
 4. Place the open coupling over the towing vehicle ball hitch.
The weight on the coupling will cause it to audibly close. The coupling locks automatically. Closing and locking is automatic.
 5. Push the handle down to be certain of locking.
The coupling is fully locked when the handle is fully down and can be pushed no further.
 6. Check correct coupling.
 - Check that the coupling handle cannot be pushed further down.
 - Check that the locking indicator is protruding and visible.
- ?
- The locking indicator is not visible.
 - Lift the handle and uncouple.
 - Set the coupling back on the towing vehicle ball hitch and push down.

Checking the ball coupling wear indicator (EU version):

The ball coupling is equipped with a wear indicator.

The wear indicator shows:

- Wear on the ball hitch.
- Wear on the coupling.

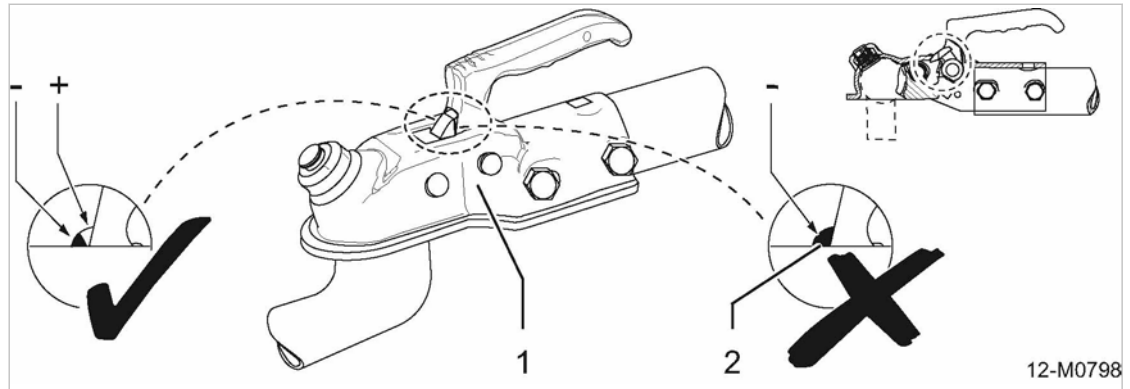


Fig. 95 Wear alert, ball coupling (ALKO-EU)

- | | |
|--|--|
| <p>① Ball coupling</p> <p>② Wear indicator</p> | <p>⊕ Green zone (OK)</p> <p>⊖ Red zone (wear tolerance exceeded)</p> |
|--|--|

1. **⚠ WARNING** *Danger of accident from worn coupling!*
The machine may detach from the towing vehicle.
 - Do not tow the machine.
 - Have the ball coupling and ball hitch checked.
 - Replace worn parts.
2. Couple-up the machine and tow slowly and carefully for about 0.5 miles.
 The action of towing sets the coupling mechanism to maximum closure and gives a true reading on the wear indicator.
3. Interpret the wear indicator as follows:

Wear indicator	Meaning
Green zone showing	■ Coupling in new condition. ■ Towing vehicle ball hitch wear within acceptable limits. ➤ No action necessary.
Red zone showing	■ Ball hitch wear at acceptable limit, ball coupling unworn. ■ Ball hitch in new condition; ball coupling showing increased wear. ■ Both ball and coupling showing increased wear. ■ Ball coupling damaged. ➤ Have the ball coupling and ball hitch checked by a specialist workshop. ➤ Replace worn parts.

Tab. 98 Ball coupling wear indicator

Option rd/ro/rs Coupling machine with ball coupling (US version):

To couple up the compressor, lower the open coupling onto the ball hitch of the towing vehicle so that it clicks into place.

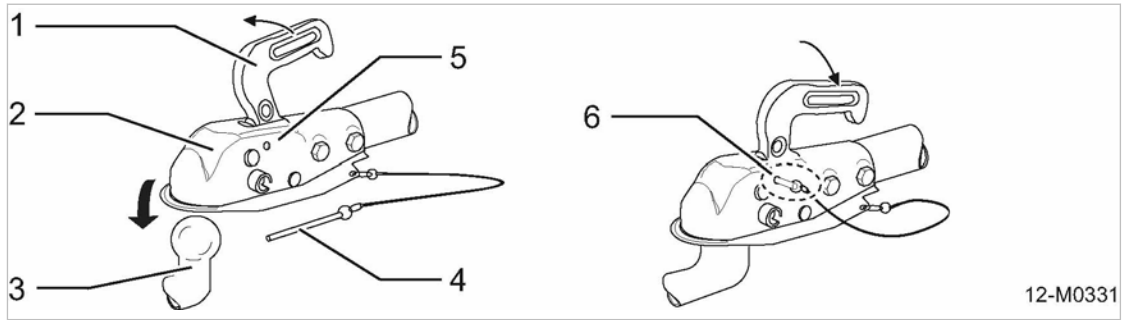


Fig. 96 Ball coupling (ALKO-USA)

- | | |
|-----------------------------|------------------------------------|
| ① Coupling handle | ④ Safety pin |
| ② Ball coupling | ⑤ Fixing hole for the security pin |
| ③ Towing vehicle ball hitch | ⑥ Ball coupling properly secured |

1. **NOTICE** *There is considerable danger of injury caused by trapped fingers. They can be trapped in the spring-loaded closing mechanism.*
 - Never place your fingers inside an open ball coupling.
 - Always wear protective gloves.
2. Check if the security pin is removed from the coupling and draw it out if not.
3. Pull up the coupling handle.
The coupling opens.
4. **⚠ WARNING** *Risk of accident due to unhitching of the ball coupling during transport. If the coupling is not fully closed the compressor can become uncoupled from the towing vehicle and cause an accident.*
 - Check correct coupling.
 - Check correct location of the security pin.
5. Place the open coupling over the towing vehicle ball hitch.
The weight on the coupling will cause it to audibly close. The coupling locks automatically. Closing and locking is automatic.
6. Push the handle down to be certain of locking.
The coupling is fully locked when the handle is fully down and can be pushed no further.
7. Insert the security pin in the ball coupling fixing opening.

12.2.2.3 Ensure transport readiness of the coupled machine.

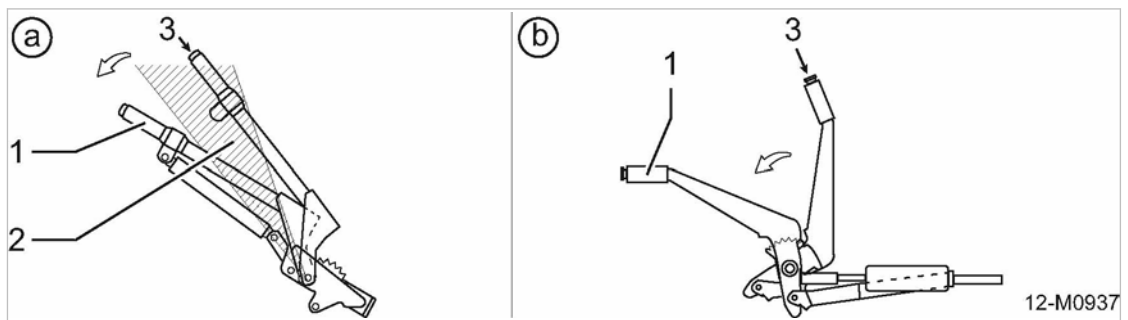
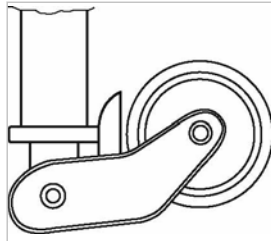


Fig. 97 Release the parking brake.

- | | |
|-----------------------|------------------------------|
| ① Parking brake lever | ③ Brake lever release button |
| ② Dead point zone | |



12-M1465

Fig. 98 Automatic jockey wheel in transport position

**Option rb/rk/rm/rs,
rb/rl/rm/rs****Preparing the machine for transport (height-adjustable chassis):**

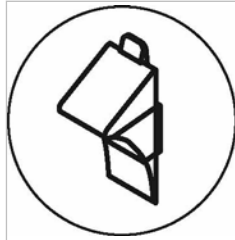
1. Check that the tow bar is adjusted to the correct height. See also chapter 6.4.1.
Check if:
 - The teeth in the tow bar height adjusting joints are fully engaged.
 - The locking levers are tightened
 - The security pin is fully inserted.
2. Wind the jockey wheel to its uppermost position.
The free jockey wheel automatically moves in transport position (see Ill. 98).
3. Check that the wheels are securely fitted and the tires are in good condition.
4. Check the tire pressures.
5. Connect the cable for the lighting and indicator systems and carry out a function check.
6. Release the parking brake:
(see Ill. 97, figure a).
 - Pull the brake lever a little further on and press the release button.
 - Hold the release button in and push the lever down past the dead point zone.
7. Remove the chocks.

Option rc/ro/rs**Preparing the machine for transport (fixed-height chassis):**

1. Wind the jockey wheel to its uppermost position.
The free jockey wheel automatically moves in transport position (see Ill. 98).
2. Check that the wheels are securely fitted and the tires are in good condition.
3. Check the tire pressures.
4. Connect the cable for the lighting and indicator systems and carry out a function check.
5. Release the parking brake:
(see Ill. 97, figure b).
 - Pull the brake lever a little further on and press the release button.
 - Hold in the release button and push the lever fully down.
6. Remove the chocks.

Option rd/ro/rs **Preparing the machine for transport (fixed-height chassis, without parking brake):**

Option rd/ro/rs



12-M0393

Fig. 99 Safety sign - secure the chocks

1. **⚠ WARNING** *Missing chocks*
Serious injury or death can result from an unsecured machine rolling away.
 - *Secure the chocks in the transport securing device before transporting the machine.*
 - *Replace missing chocks immediately.*
2. Wind the jockey wheel to its uppermost position.
The free jockey wheel automatically moves in transport position (see Ill. 98).
3. Check that the wheels are securely fitted and the tires are in good condition.
4. Check the tire pressures.
5. Attach the lighting and indicator systems and carry out a function check.
6. Remove the chocks and secure them in the transport securing device.



Replacement chocks can be purchased from KAESER representatives. A list is given at the end of this manual. The part number of the chock is 5.1325.0.

Option rb/rk/rm/rs,
rc/ro/rs, rb/rl/rm/rs

Ensuring emergency braking in the case of breakaway from the towing vehicle:

If the compressor breaks away from the towing vehicle, the cable tightens and pulls on the emergency brake (parking brake).

It is essential that the breakaway cable is threaded through its guides for correct emergency braking.

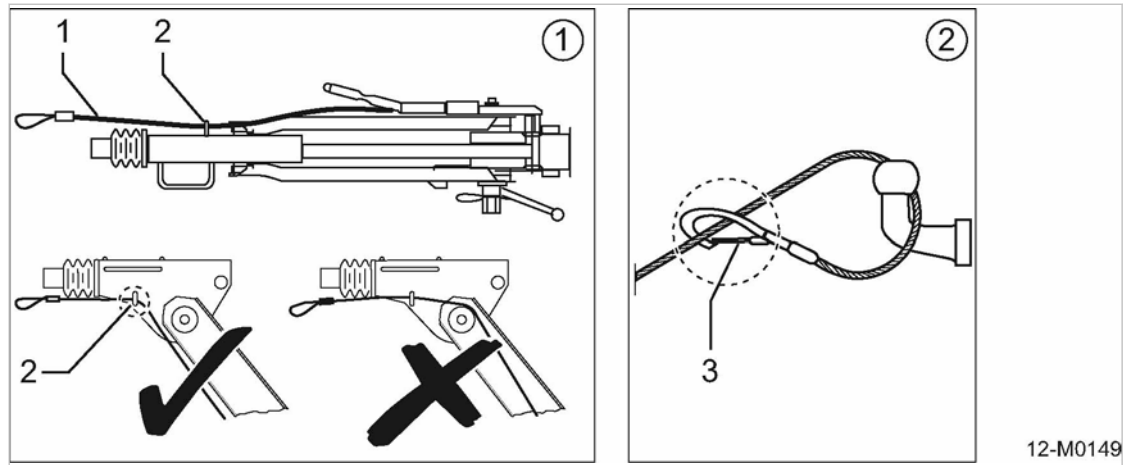


Fig. 100 Breakaway cable attachment

- ① Breakaway cable
- ② Breakaway cable guide (eye)
- ③ Connection (spring clip)

1. **NOTICE** *Unintentional brake application.*
If the breakaway cable is too short it can apply the brakes when rounding a curve. This imposes high wear on the braking system.
 - *Make sure the breakaway cable is long enough.*
2. Thread the breakaway cable through the guide welded on the side of the towing bar.
3. Loop the end of the cable round the towing vehicle hitch and secure with the spring clip.

Option rd/ro/rs Attach safety chains



Always use safety chains.
 Chains hold the towed machine if connections fails.

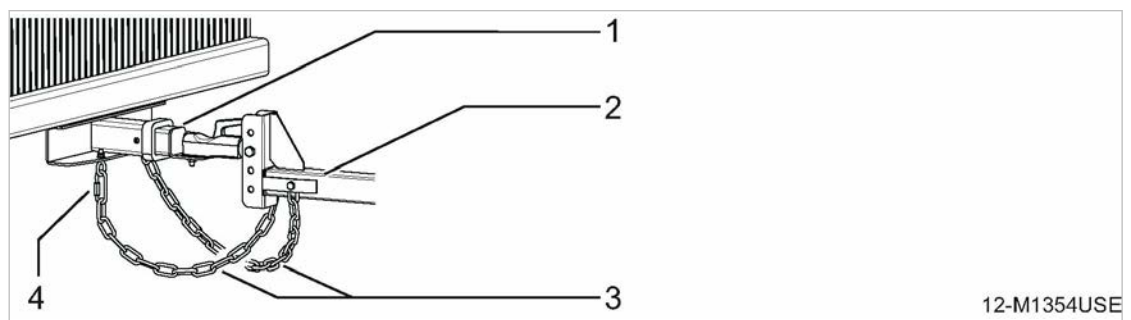


Fig. 101

- ① Coupling vehicle
- ② Towbar
- ③ Safety chains, crossed
- ④ Fixing hook

- Attach safety chains to the towing vehicle.
 - Both chains must be crossed under the ball coupling/towing eye.
 - Allow slack for towed machine to turn.
 - Attach chain hooks securely to tow vehicle frame.

12.2.3 Parking the machine

The machine is generally only moved by being coupled to a towing vehicle.

The parking brake is not a running brake and is used only to lock the wheels when the machine is positioned.



The towing mechanism of the machine is fitted with an "automatic jockey wheel".

In a parked machine which is separated from the towing vehicle, the machine's bearing load affects the jockey wheel.

For this reason, the jockey wheel of a separated machine must be wound down until the cam ② no longer touches the bead ①. The automatic folding of the wheel suspension is thus blocked (see Ill. 103, figure a).

When the jockey wheel of a separated machine is wound up further, the bead pushes against the cam of the retaining pin (see Ill. 103, figure b). The retaining pin ③ unlocks the wheel suspension ④ which will abruptly fold (see Ill. 103, figure c), and drop the towing mechanism to the ground.

⚠ CAUTION

A folding wheel suspension during winding up causes the towing device to suddenly crash onto the ground, potentially causing severe injuries to legs and/or feet.

- *The operator must ensure that only authorised personnel has access to the machine.*
- *Wind the automatic jockey wheel only up when the machine is coupled to a towing vehicle.*
- *Wind the automatic jockey wheel up only as far as the bead does not touch the cam.*
- *Do not place your feet beneath the towing device.*

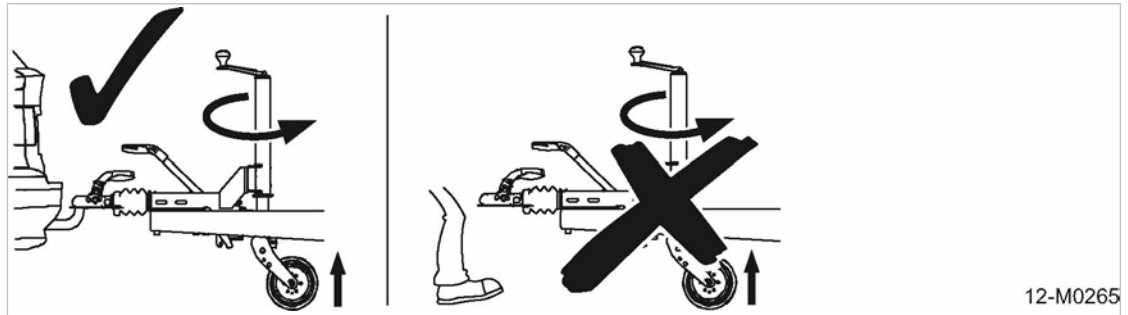


Fig. 102 Warning "Injury can occur if the towbar is allowed to fall."

12-M0265

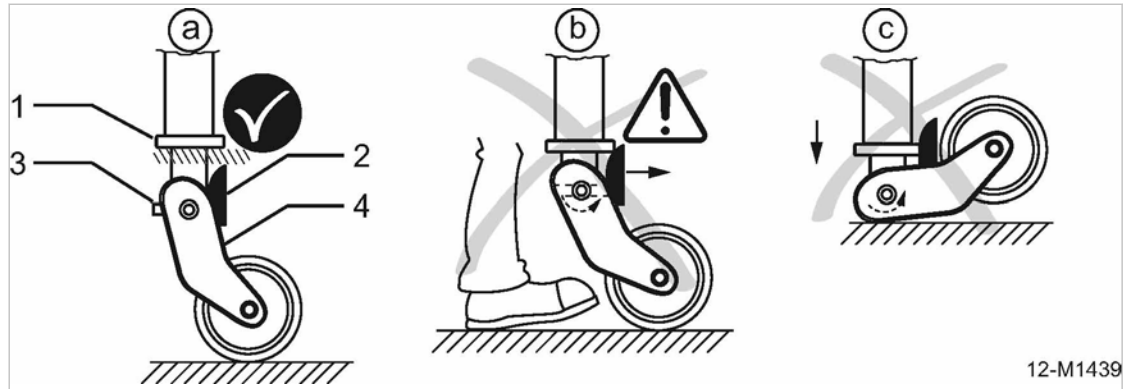


Fig. 103 Towbar with automatic jockey wheel

- | | |
|--------|--------------------|
| ① Bead | ③ Retaining pin |
| ② Cam | ④ Wheel suspension |

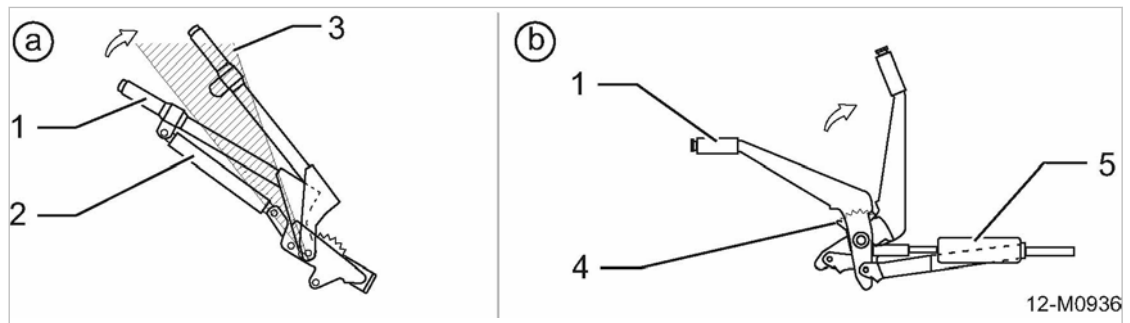


Fig. 104 Actuating the parking brake

- | | |
|--|---|
| Ⓐ Parking brake with gas spring assistance | Ⓑ Parking brake with ratchet and spring loading |
| ① Parking brake lever | ④ Ratchet |
| ② Gas spring | ⑤ Spring loading device |
| ③ Dead point zone | |

Parking the machine (towing eye coupling):

1. Use a coupled towing vehicle to move the machine into position.
2. Disconnect the lighting and signaling cable (if provided).
3. Strongly pull the parking brake (if provided) upward past the dead point zone (see III.104, figure a).
The gas spring holds the brake under tension.
4. Remove the cap nut (if fitted).
5. Lower the jockey wheel until the towing mechanism is stress-free.
6. Place chocks under the wheels.
7. Uncouple the compressor from the towing vehicle:
 - Open the towing coupling of the towing vehicle.
 - Slowly forward the towing vehicle to separate from the parked machine.

Option rb/rk/rm/rs, rb/rl/rm/rs

Parking the machine (height-adjustable chassis):

1. Use a coupled towing vehicle to move the machine into position.
2. Disconnect the lighting and signaling cable.

3. Strongly pull the parking brake upward past the dead point zone (see Ill.104, figure a).
The gas spring holds the brake under tension.
4. Detach the breakaway cable.
5. Lower the jockey wheel until the towing mechanism is stress-free.
6. Place chocks under the wheels.
7. Uncouple the compressor from the towing vehicle:
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.
8. Slowly remove the towing vehicle from the parked machine.

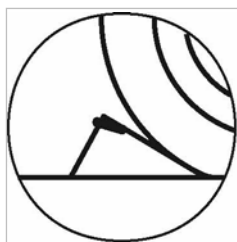


The gas spring automatically increases parking brake force if the machine rolls backwards or when parked on a slope.

Option rc/ro/rs Parking the machine (fixed-height chassis):

1. Use a coupled towing vehicle to move the machine into position.
2. Disconnect the lighting and signaling cable.
3. Strongly pull the lever of the parking brake upward to the last ratchet tooth (see Ill. 104, figure b).
When the hand brake lever is horizontal, the brake is under spring loading.
If the lever is not horizontal, the brake is not fully applied and the machine may roll away.
4. Detach the breakaway cable.
5. Lower the jockey wheel until the towing mechanism is stress-free.
6. Place chocks under the wheels.
7. Uncouple the compressor from the towing vehicle:
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.
8. Slowly remove the towing vehicle from the parked machine.

Option rd/ro/rs Parking the machine (fixed-height chassis, without parking brake):



12-M0392

Fig. 105 Safety sign - secure the chocks

1. **⚠ WARNING** *Machine without parking brake.*
Serious injury or death can result from an unsecured machine rolling away.
 - *Securely chock the machine before uncoupling.*
 - *As a general rule, the machine should always be blocked with chocks when it is not being moved.*
 - *The machine should not be manoeuvred by hand.*
2. Use a coupled towing vehicle to move the machine into position.

3. Lower the jockey wheel until the towing mechanism is stress-free.
4. Place chocks under the wheels.
5. Remove the lighting and signaling system.
6. Uncouple the compressor from the towing vehicle:
 - Withdraw the security pin from the ball coupling.
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.
 - Insert the security pin in the ball coupling fixing opening.
7. Slowly remove the towing vehicle from the parked machine.

12.2.4 Transport with a crane

Additional precautions for conditions of snow and ice:

Considerable snow or ice may build up on the machine under low temperature conditions. This may adversely effect the machine's centre of gravity. It is possible that the permissible loading on the crane or lifting eye is exceeded.

- Perform the following tasks in snow and ice conditions:
 - Remove any snow and ice from the machine before lifting by a crane.
 - Make sure the lifting eye cover plate is freely accessible and can be opened.

Perform the following tasks prior to moving the machine by crane:

A lifting eye is provided for transporting with a crane. The lifting eye is located beneath a lift-up cover in the centre of the canopy.

1. Unlock the cover from inside and lift up.
2. Position the crane hook vertically over the lifting eye.
3. Engage the hook in the eye.
4. Close and lock the access doors.
5. Lift and transport carefully.

Take care when setting down the machine

1. **NOTICE** *Incorrect setting down can damage the machine. Machine components, particularly the chassis, can be damaged by incorrectly setting down.*
 - *Set the machine down carefully.*
 - *Do not set down unevenly.*
2. Set the machine down slowly and carefully.

12.2.5 Option rw Transport with a forklift truck

Precondition The machine is shut down.
All connecting lines and hoses disconnected and removed.

⚠ CAUTION

*Damage to the machine by incorrect lifting with a fork truck.
The machine may fall or be damaged by the forks.*

- Do not use a fork truck to lift towable machines.
- Only stationary machines with skids may be transported with a fork truck.
- Pick up the machine only from the side with the forks through the lifting lugs.

Option rw

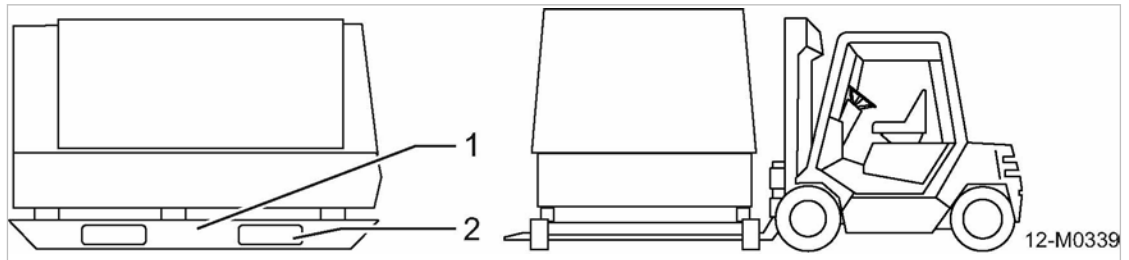


Fig. 106 Transporting using a forklift truck

- ① Skids
- ② Lifting lugs

1. Close and lock the access doors or canopy.
2. Position the fork truck to the side of the machine with the forks lined up with the lifting lugs.
3. Drive the forks fully through the lifting lugs as far as possible.
The forks are fully under the machine.
4. Lift the machine carefully.

12.2.6 Transporting the machine as load

The medium of transport determines the type of packing and securing.

Packing and securing methods must be such that, assuming proper handling, the goods arrive in perfect condition at the destination.

Additional measures must be taken for the transport of machines by sea or air. Please contact KAESER SERVICE for more information.

Material Chocks

Drag shoes or squared timber

Straps

Carry out a freight securing:



- National directives and regulations for securing loads should be followed.
- Load securing is taken to mean that by full braking or sudden turning the load will not slide, fall, roll or cause unnecessary noise. Accepted technical regulations should be observed (e.g. VDI directive 2700 ff in Germany).
- Responsibility for properly secured loads falls on the driver, the vehicle keeper and the carrier.

Use chocks, restrainers or timber bunks for securing the load.

If necessary, use straps across the chassis and the towbar.

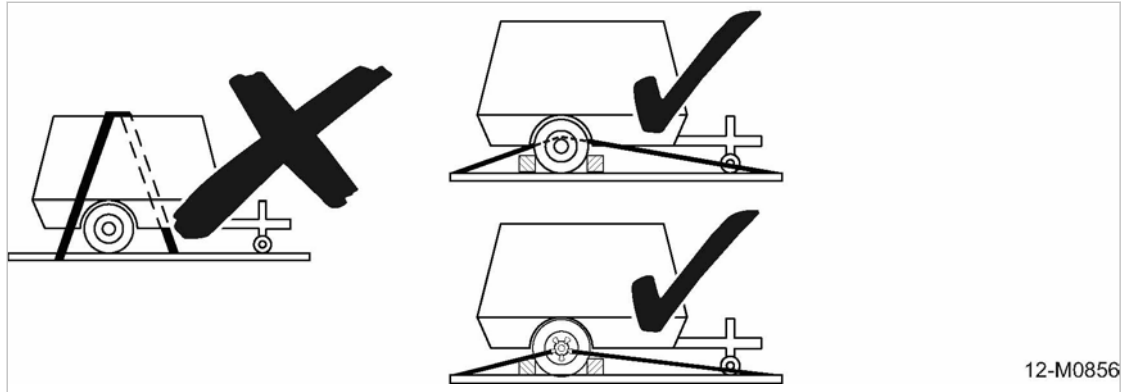


Fig. 107 Guys to secure the freight

1. **NOTICE** Straps can damage the bodywork.
 Movement during transportation can damage the bodywork.
 - Do not use straps over the bodywork.
 - Use straps only over the chassis.
2. Always observe valid accident and safety regulations when transporting.
3. The loads must be secured against rolling, tipping, slipping and falling.



Contact KAESER Service with any questions regarding transporting or load securing.
 KAESER accepts no liability and provides no guarantee for damage arising from incorrect transport or insufficient or incorrect load securing provisions.
 For hire, rental and trade fair plant, any transport safety devices used for the delivery must also be used for the return transport.

Before shipment as air freight

The machine is designated as dangerous goods for air freight purposes; any disregard can result in a heavy fine.

1. **⚠ WARNING** Danger of fire or explosion from operating fluids/materials.
 The machine incorporates an internal combustion engine.
 - Any dangerous fluids/materials contained within the machine must be removed before transport.
2. Remove all dangerous fluids/materials.
 These include:
 - Residues of fuel or fuel vapours
 - Lubricants in engine and compressor.
 - Battery electrolyte
 - Residual quantities of tool lubricating oil in the tool lubricator (option ea, ec)
 - Residual quantities of antifreeze in the frost protector (Option ba)

12.3 Storage

Moisture can lead to corrosion, particularly in the engine, airend and oil separator tank.

Frozen moisture can damage components, valve diaphragms and gaskets.

The following measures also apply to machines not yet commissioned.



Please consult with KAESER if you have questions to the appropriate storage and commissioning.

NOTICE

Moisture and frost can damage the machine!

- *Prevent ingress of moisture and formation of condensation.*
 - *Maintain a storage temperature of >32 °F.*
- Store the machine in a dry place, free from frost if possible.

12.4 Disposal

When disposing of a machine, drain out all liquids and remove old filters.

Precondition The machine is decommissioned.

1. Completely drain the fuel from the machine.
2. Completely drain the cooling oil and engine oil from the machine.
3. Remove used filters and the oil separator cartridge.
4. Drain the coolant from water-cooled engines and systems.
5. Remove the battery.
6. Hand the machine over to an authorized disposal expert.



- Operating materials and components contaminated with fuel, cooling oil or engine oil must be disposed of in accordance with local environmental protection regulations.
- The old battery is hazardous waste and must be disposed of correctly in accordance with local environmental protection regulations.

13 Annex

13.1 Identification

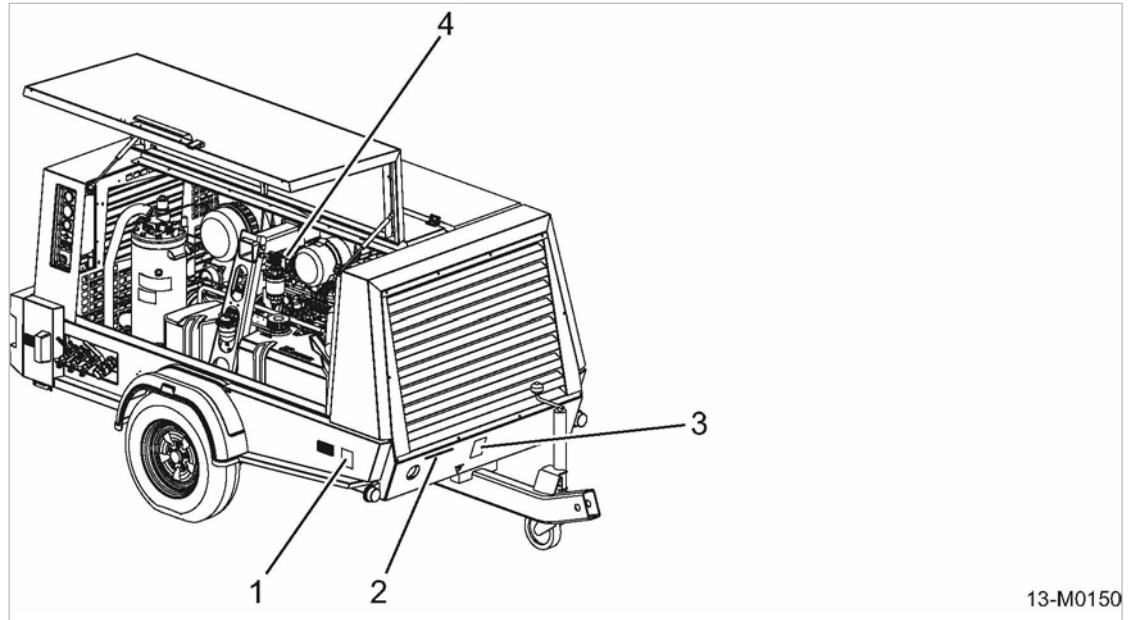
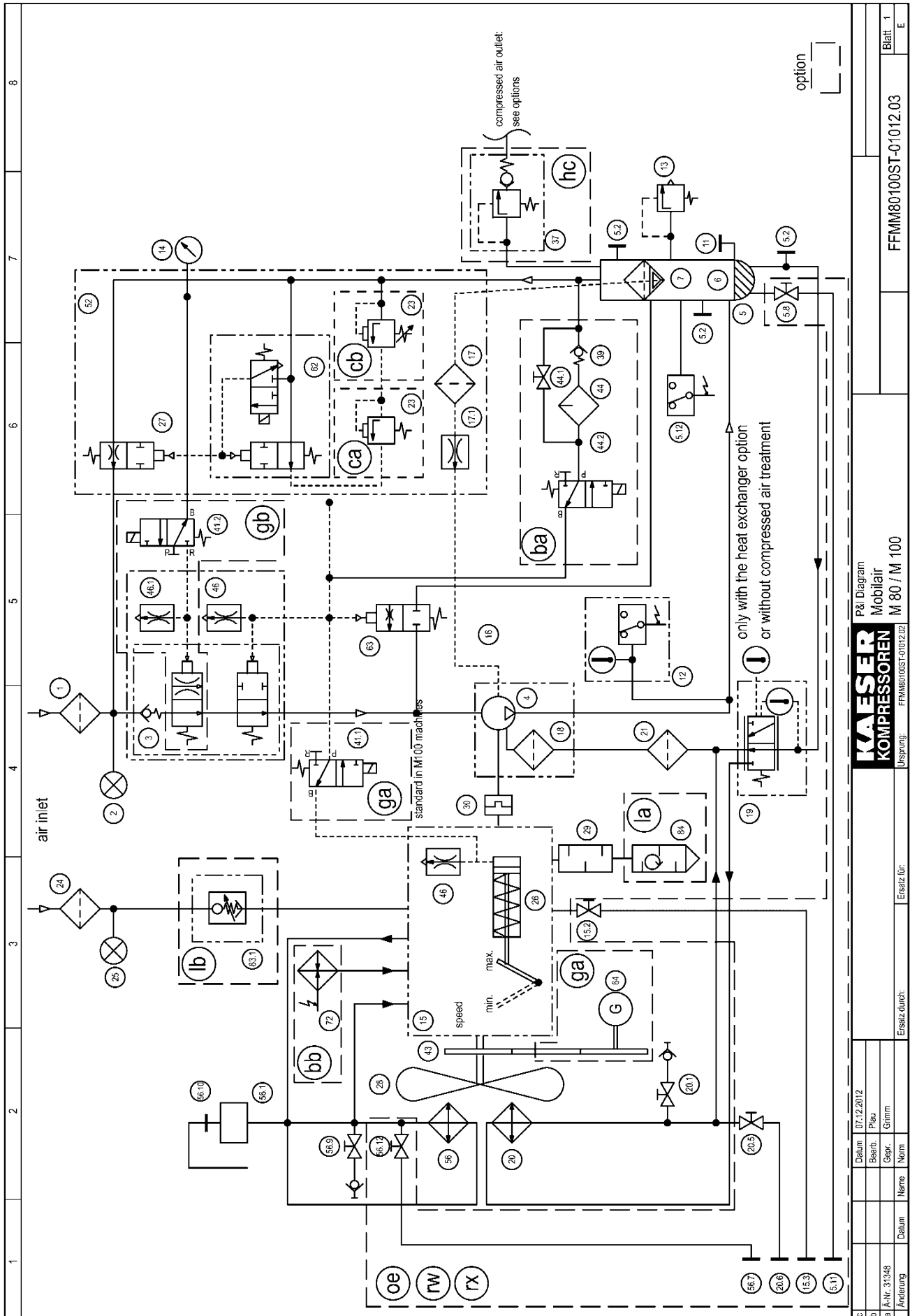
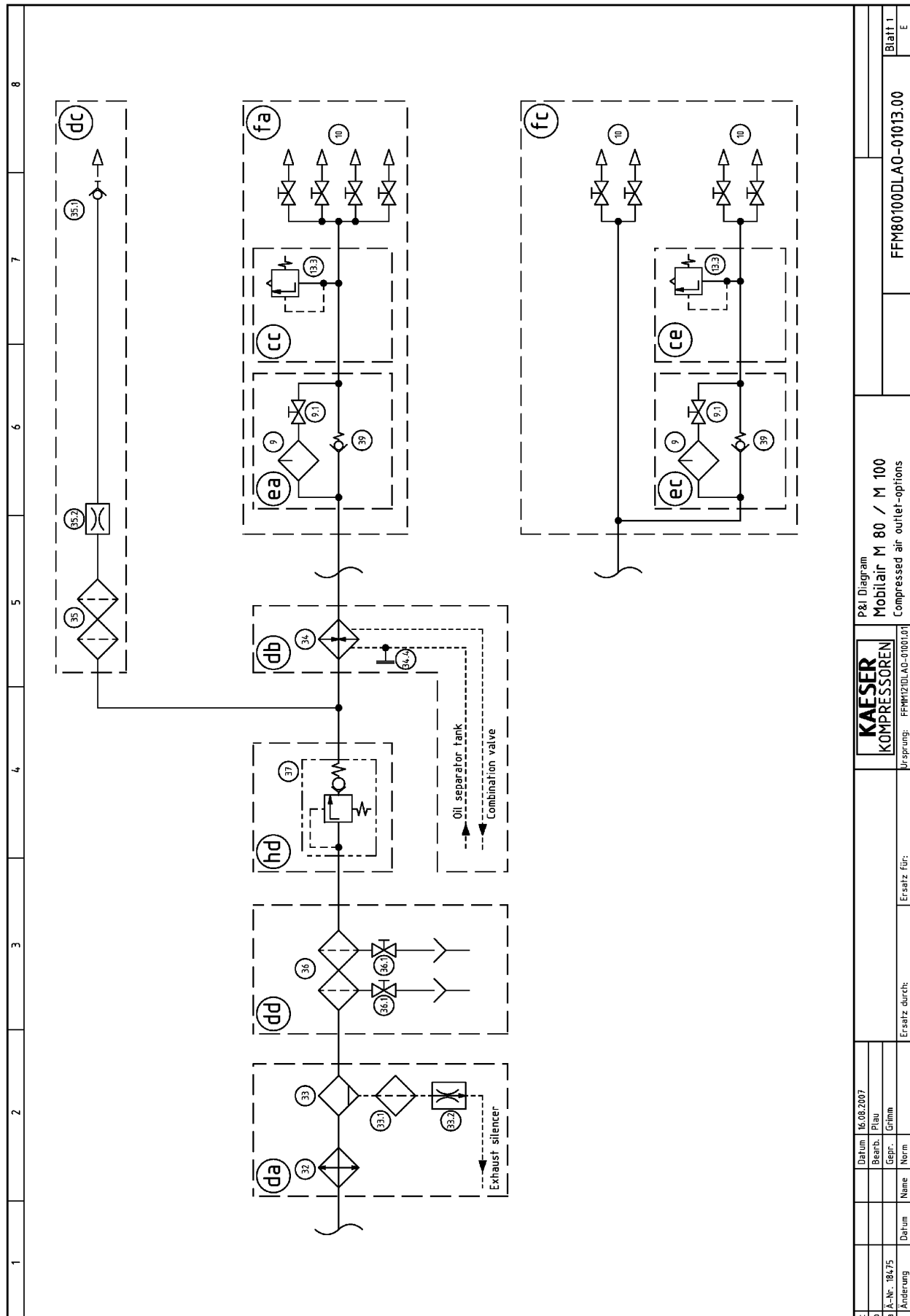


Fig. 108 Identification

- | | |
|--|---------------------------------------|
| ① Machine nameplate with serial number | ③ Options label |
| ② VIN* (stamped in the bodywork) | ④ Engine nameplate with serial number |
| *Vehicle Identification Number | |

13.2 Pipeline and instrument flow diagram (P+I diagram)





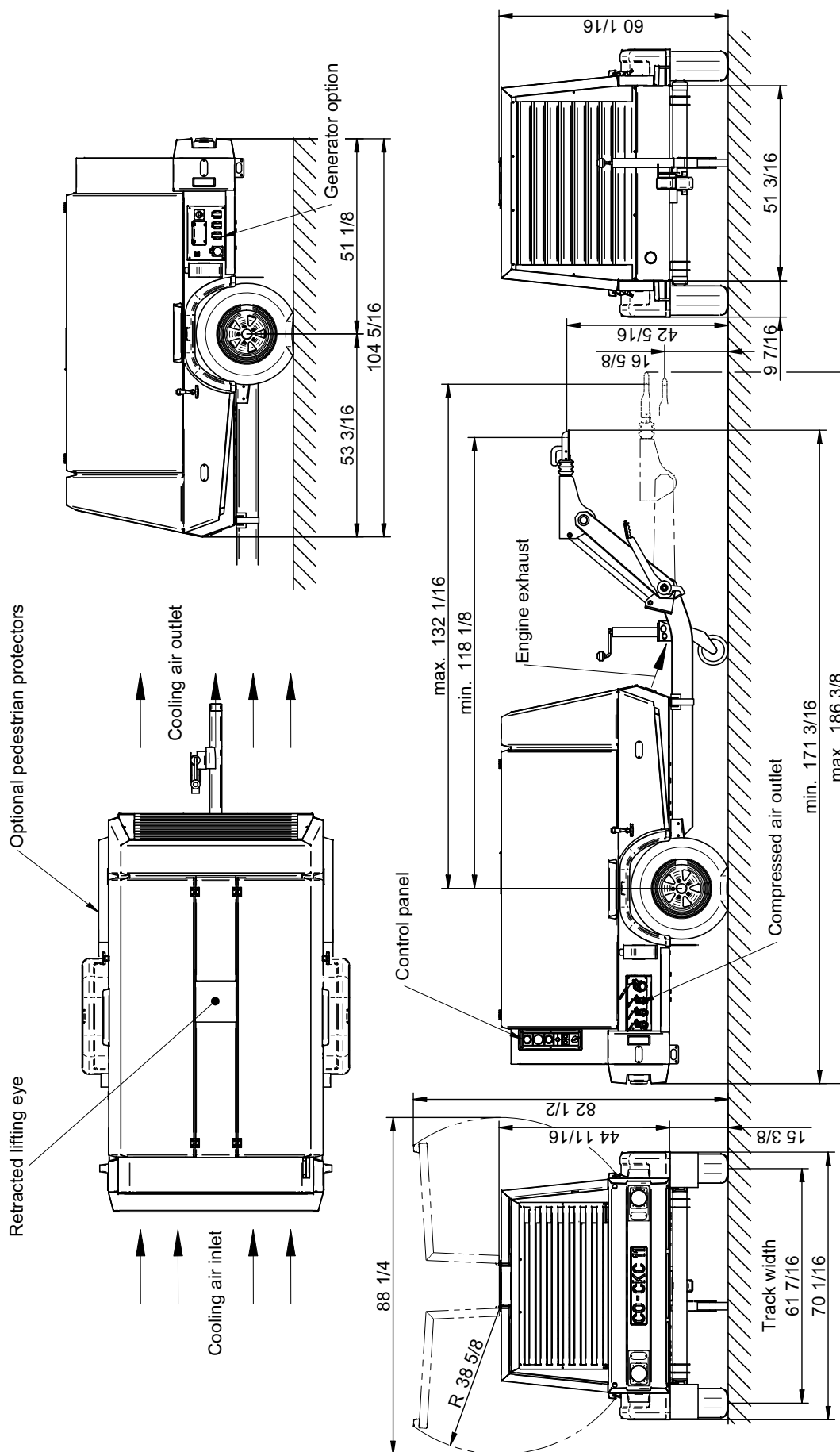
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9	Tool lubricator						
9.1	Shut-off valve						
10	Compressed air distributor						
13.3	Pressure relief valve						
32	Air cooler						
33	Centrifugal separator						
33.1	Dirt trap						
33.2	Nozzle						
34	Heat exchanger						
34.4	Screw plug – Oil drain						
35	Breathing air filter						
35.1	Hose coupling						
35.2	Nozzle						
36	Filter combination						
36.1	Shut-off valve for condensate drain						
37	Minimum pressure check valve						
39	Check valve						
Option							
cc	second pressure relief valve, with option fa						
ce	second pressure relief valve, with option fc						
da	Aftercooler + Centrifugal separator						
db	Heat exchanger						
dc	Breathing air filter						
dd	Filter combination						
ea	tool lubricator, with option fa						
ec	tool lubricator, with option fc						
fa	Direct air flow						
fc	Air flow split downstream of options						
hd	Minimum pressure check valve (with combination filter)						

13.3 Dimensional drawings

13.3.1 Option rb/rm/rs

Dimensional drawing, chassis options

- Option rb - Chassis EU version
- Option rm - Chassis with height-adjustable towbar
- Option rs - Chassis with overrun brake



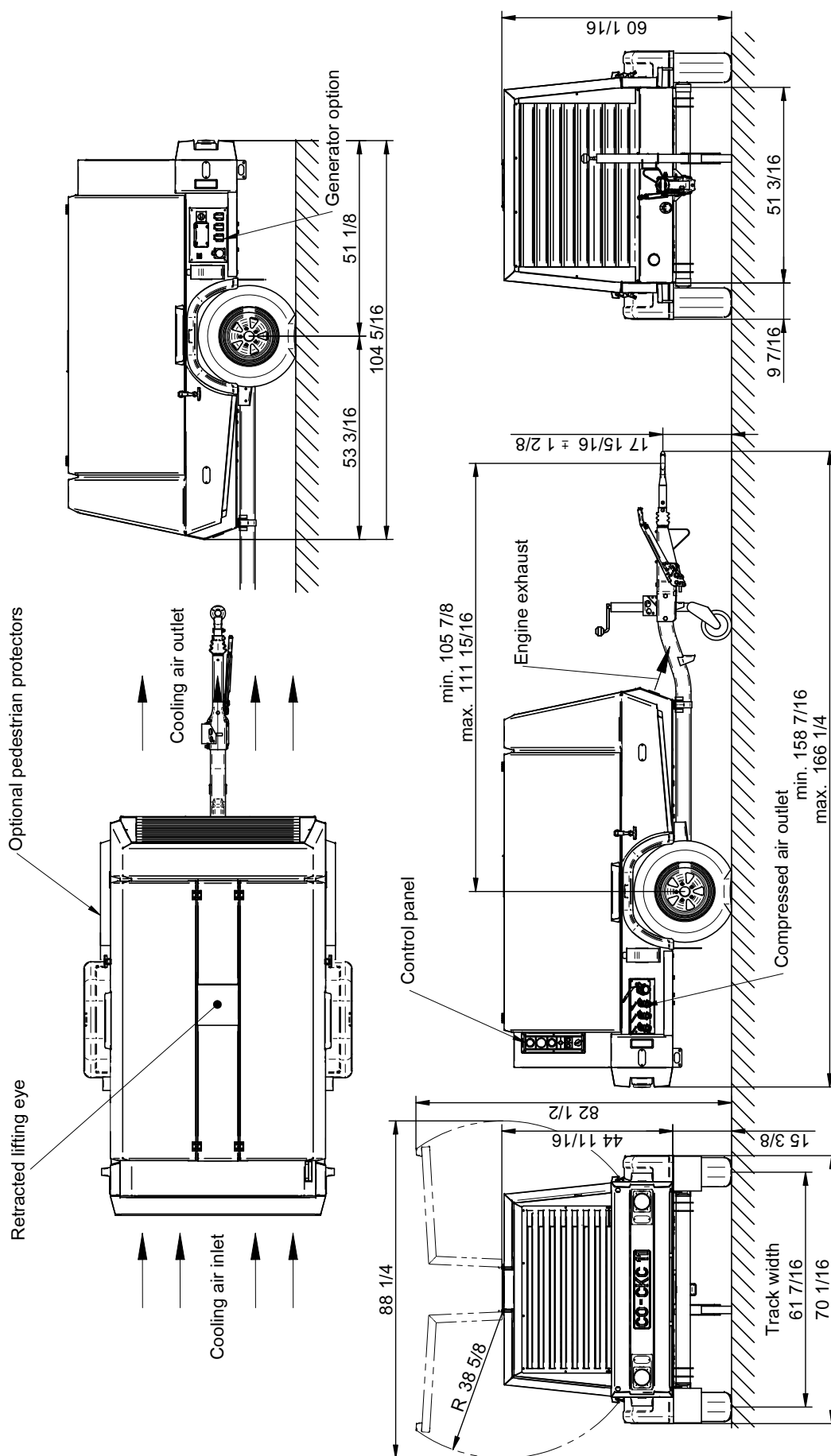
Area covered by the vehicle,
without towbar 40.80 feet²

Antriebs-Nr. 30451	Projektion 	Mod.stab 125	Name BOSS3K2	Datum 19.07.2012	KAISER KOMPRESSOREN
Document 1724 102275568	USE 00	original A3	Bezt. 20.07.2012	freiz. 20.07.2012	Sprache USE
Document 1720 102275568	USE 00	freigegeben 102275568	Blatt 1 von 1	Blatt 1 von 1	KAISER KOMPRESSOREN

The following disclaimer applies to all versions of the software:

13.3.2 Option rc/ro/rs**Dimensional drawing, chassis options**

- Option rc - Chassis GB version
- Option ro - Chassis with fixed height towbar
- Option rs - Chassis with overrun brake



Area covered by the vehicle,
without towbar 40.80 feet²

KAESE		KOMPRESSIONEN		Bauart	
Werkzeug-Nr.	Projektion	Mod.stab	Gez.	Datum	Name
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Dokument 124		Original		20.07.2002	BOSSECK2
10227570 USE 00		A3		Freigeig	SCMUT8
Dokument 120					USE
10227570 □ 00					1 von 1
Status		Bezeichnung			
RUF 116 FÜR EREN		M 80/100.1 1600 r2 r0 r5			
Dimension and connection dim.					

13.3.3 Option rd/ro/rs**Dimensional drawing, chassis options**

- Option rd - Chassis USA version
- Option ro - Chassis with fixed height towbar
- Option rs - Chassis with overrun brake

Optional pedestrian protectors

Cooling air outlet

Retracted lifting eye

Cooling air inlet

Generator option

Control panel

Engine exhaust

Compressed air outlet

Area covered by the vehicle,
without towbar 40.80 feet²

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304-51			125	19.07.2012	BOSSERK2		
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10227571		USE 00	Bezeichnung				
10227571		00	M 80/100.1 1600 rd ro rs				
Status		Dimension and connection dim.					
FREI GEBEN		02.02.2012					

13.3.4 Option rb/rl/rm/rs**Dimensional drawing, chassis options**

- Option rb - Chassis EU version
- Option rl - Chassis with higher axle load
- Option rm - Chassis with height-adjustable towbar
- Option rs - Chassis with overrun brake

Optional pedestrian protectors

Retracted lifting eye

Cooling air outlet

Cooling air inlet

Generator option

Control panel

Engine exhaust

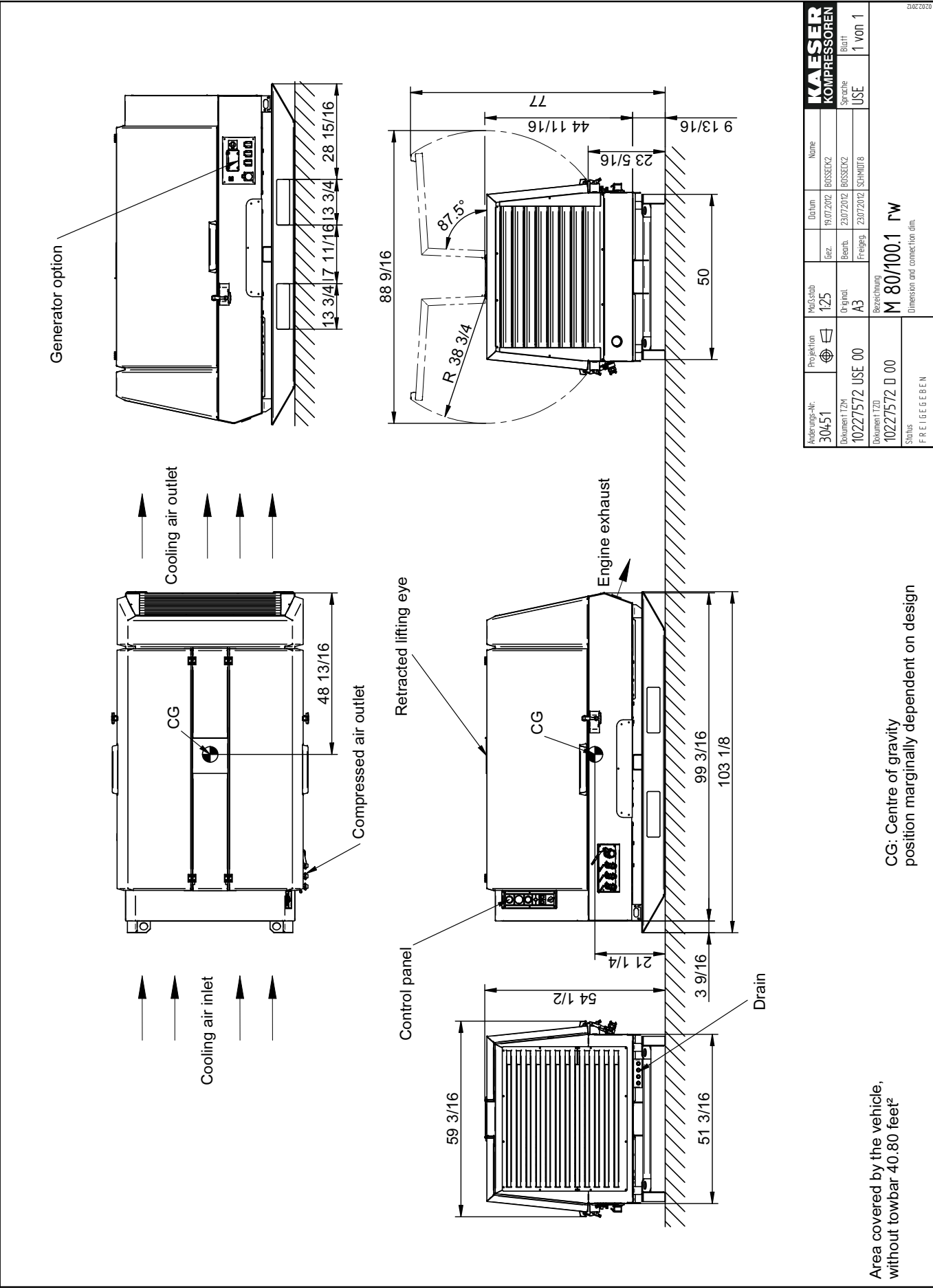
Compressed air outlet

Area covered by the vehicle,
without towbar 40.80 feet²

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			Gez.	19.07.2012	
			Beinh.	20.07.2012	
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Dokument T2D 1022/569 D 00			USE		
Status FREIGEBEN			Bauteil		
			1 von 1		
Bezeichnung M 80/100.1 1800 rb rl rm rs					
Dimension und connection dim.					

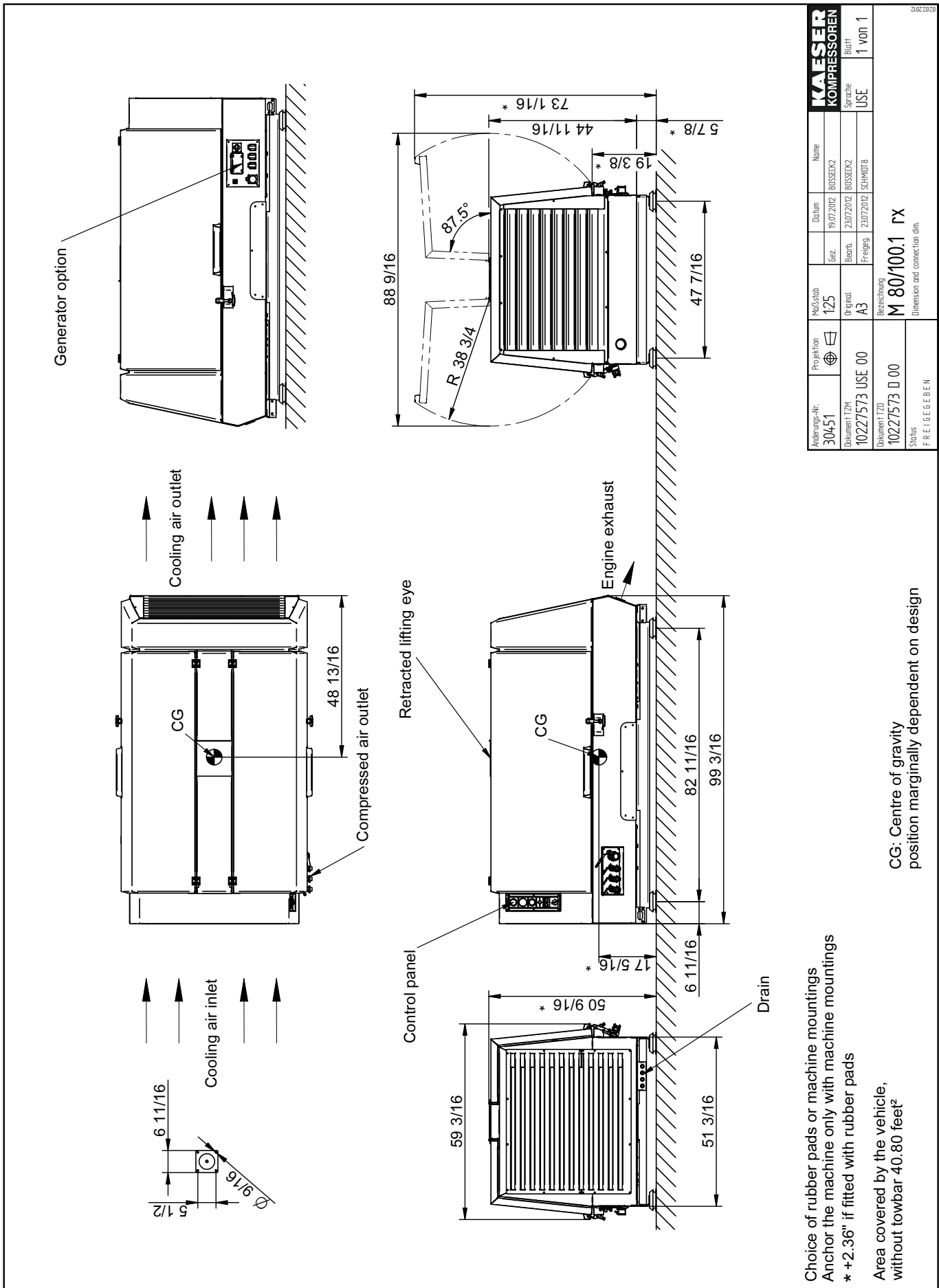
13.3.5 Option rw
Dimensional drawing, stationary version

- Option rw - Skid frame on runners



13.3.6 Option rx
Dimensional drawing, stationary version

- Option rx - On frame



13.4 Wiring diagrams**13.4.1 Electrical Diagram**

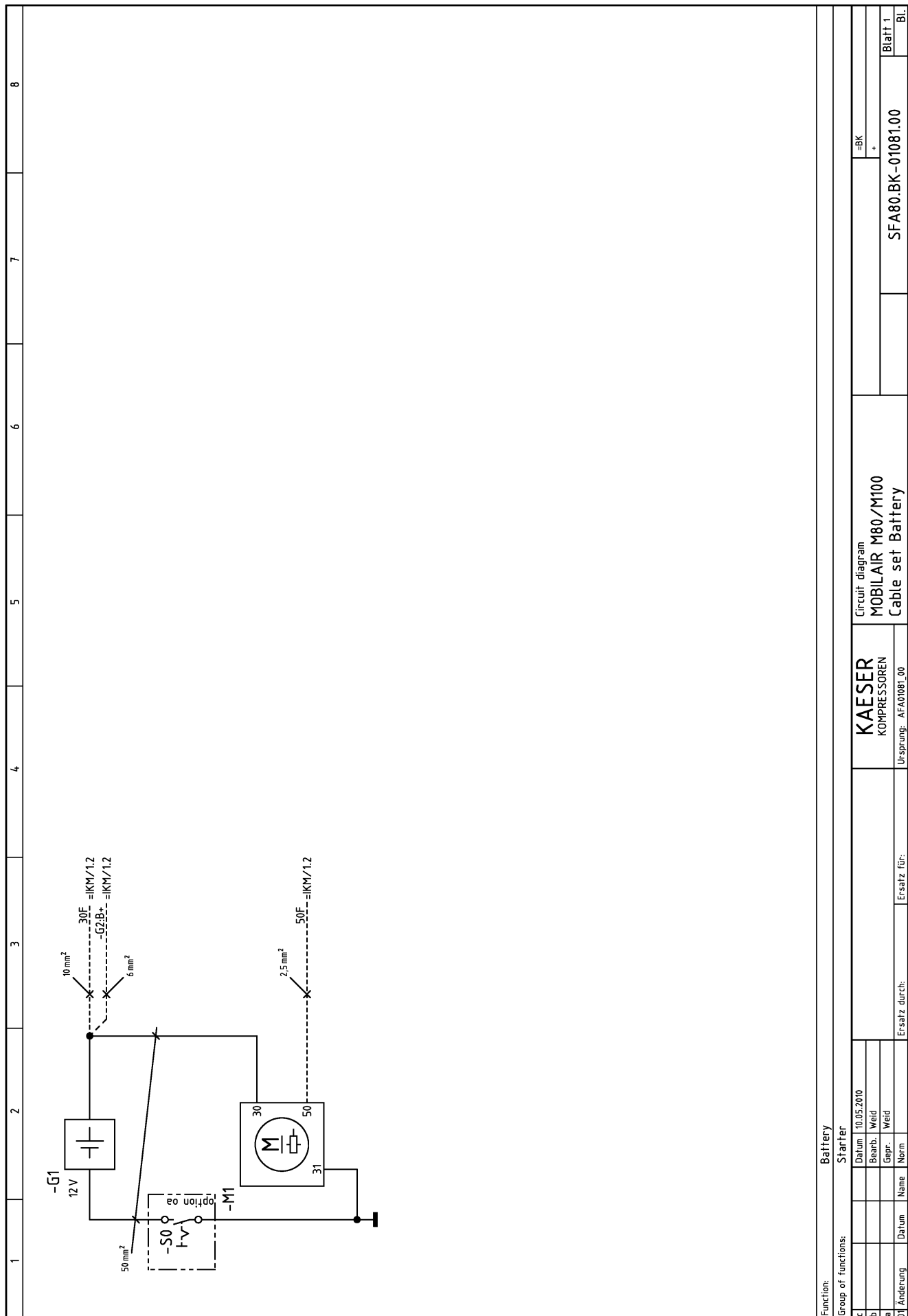
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Electrical diagrams MOBILAIR M80 / M100 KUBOTA-Motor							
Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.							
c				Datum	10.05.2010	E	
b				Bearb.	Weld		
a	X27	25.03.2011	WELD	Gepr.	Weld		
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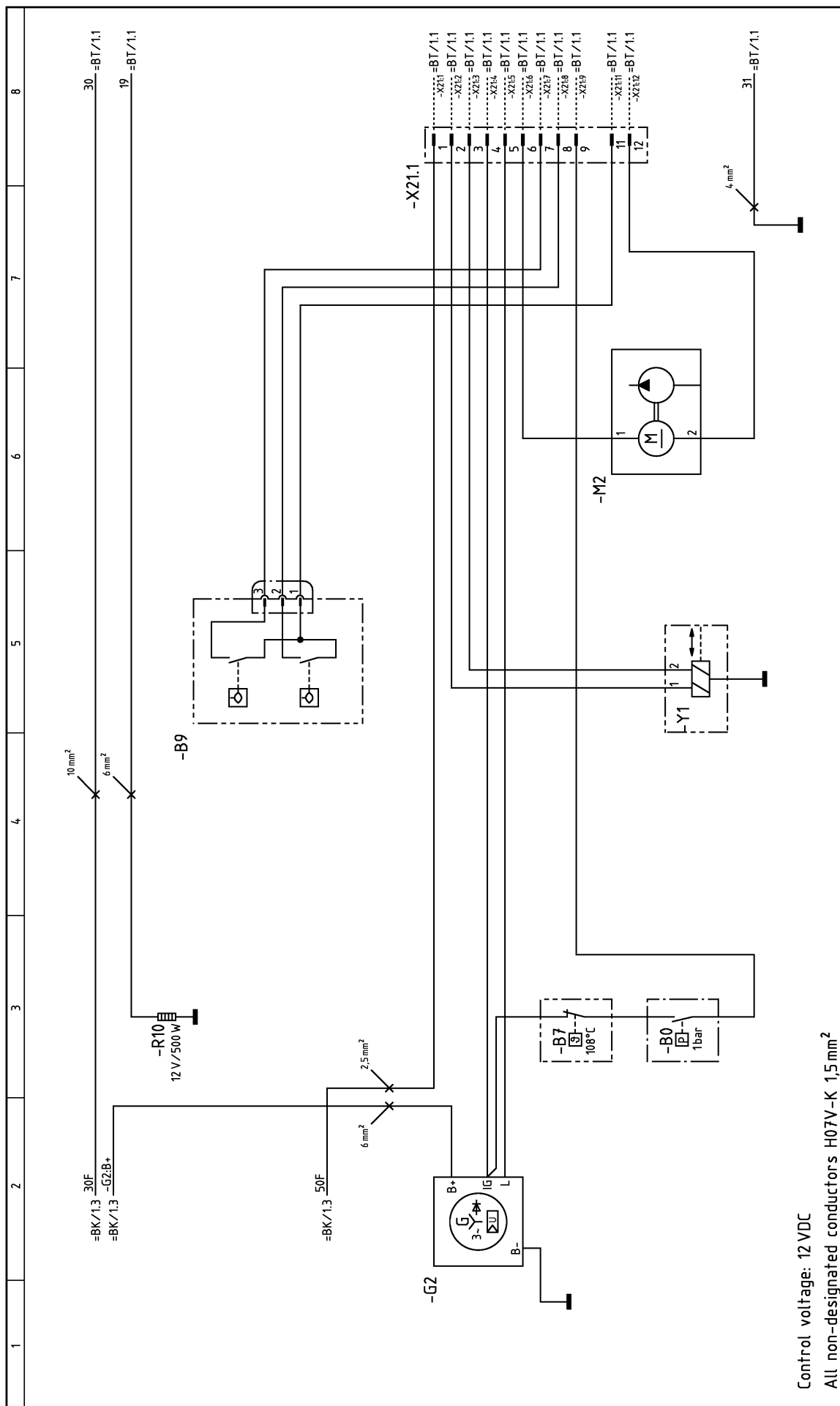
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1	Cover page		DFA80-01081.01	1	
2	List of contents		ZFA80-01081.01	1	
3	Block diagram		UFA80-01081.01	1	
4	Block diagram	Cross-reference	UFA80-01081.01	2	
5	Circuit diagram	Cable set Battery	SFA80.BK-01081.00	1	=BK
6	Circuit diagram	Compressor - unit	SFA80.IKM-01081.01	1	=IKM
7	Circuit diagram	switching on	SFA80.BT-01081.01	1	=BT
8	Circuit diagram	Control	SFA80.BT-01081.01	2	=BT
9	Circuit diagram	Cable set Control	SFA80.IK1-01081.01	1	=IK1
10	Circuit diagram	connection generator	SFA80.IK2-01081.01	1	=IK2
11	Circuit diagram	FAD limitation	SFA80.IK3-01081.01	1	=IK3
12	Circuit diagram	low temperature equipment	SFA80.IK4-01081.01	1	=IK4
13	Equipment parts list		GFA80-01081.01	1	

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Gepr. Weid		Gepr. Weid	
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Norm		Norm	
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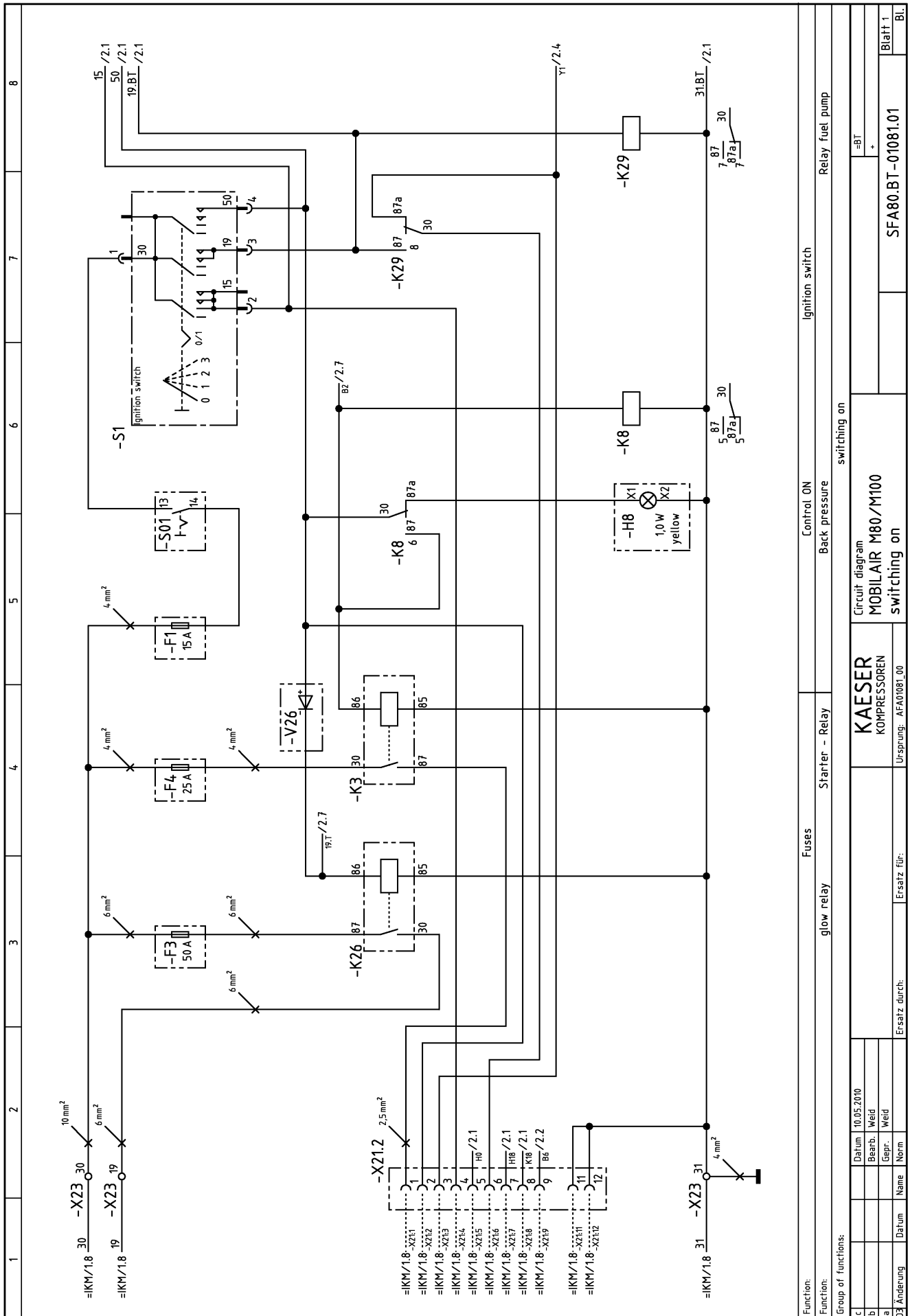
1	2	3	4	5	6	7	8
general instructions Control voltage 12VDC All non-designated conductors H07V-K 1,5 mm² black potentials: 15 switched plus + (unit ON) 19 Preheat with glowplug 30 + terminal (Battery) 31 - terminal (Battery), earth 50 Starter-Control							
components unit -G1 Battery -M1 Starter-Motor -B0 Oil pressure switch Motor -B7 Cooling water-Thermostat -B2 Back pressure -B9 fuel level switch -G2 Alternator -M2 fuel pump -R10 heating flange -Y1 Fuel shut-off valve -Y3 Valve Full load operation, Venting							
components Control panel -B6 Distance temperature gauge Compressor aircend -F1 Control fuse -F3 Fuse Glowplug -F4 Fuse Starter -H0 Charging control lamp -H8 Indicator light Back pressure -H18 Indicator light Low fuel -K3 Starter - Relay -K4 Relay Safety chain -K8 Relay Back pressure -K9 Relay Full load operation -K18 Relay Low fuel -K26 glow relay -K26T Time relay, Preheat with glowplug -K29 Relay fuel pump -P8 Hour meter -S01 switch "Control ON" -S1 Ignition switch 0 = STOP 1 = ON 2 = Preheat with glowplug 3 = START -S7/-H7 Illuminated pushbutton Preselection Full load operation -V23,-V24,-V26 Diode -X21,-X24,-X25, Plug connection, Control panel -X26,-X27 Terminal strip, Control panel -X23							
model-dependent components -S0 Battery isolating switch (option oa) -Y5 M80-G/M100-G: Valve FAD limitation -Y6 M80-G/M100: Valve for the motor speed -Y10 plug connection, Generator control box -X42 plug connection, Generator control box							
Block diagram general instructions KAESER KOMPRESSOREN Ursprung: AFA01081_00 Block diagram general instructions UFA80-01081.01 Blatt 1							

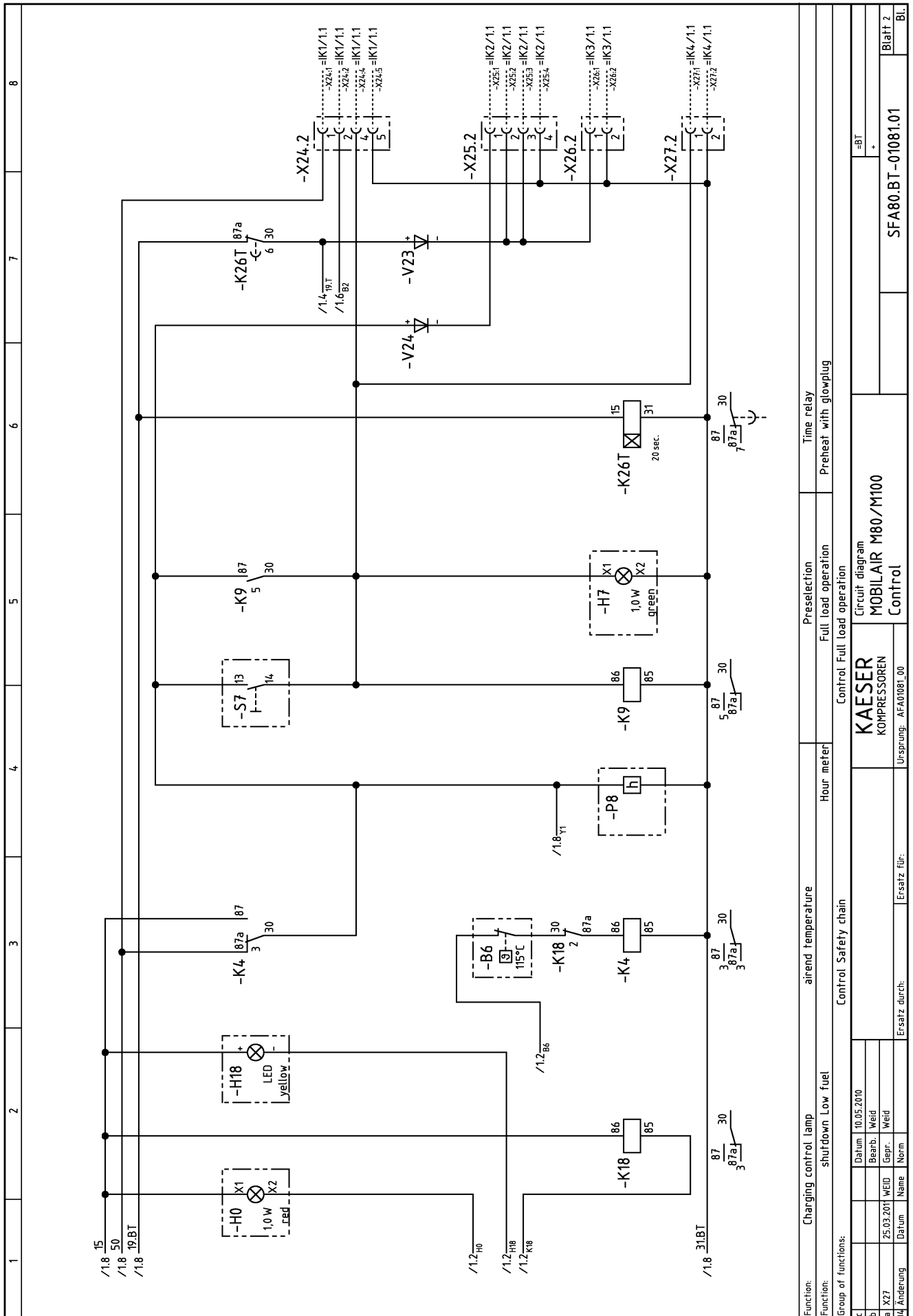
1	2	3	4	5	6	7	8	
general instructions								
This document includes a common electrical diagram, consisting of documents:								
module		Electrical diagrams		Cross-reference				
Cable set: connection Battery		SFA80.BK-01081.00		BK				
Cable set: connection Motor		SFA80.IKM-01081.01		IKM				
cabling Control panel		SFA80.BT-01081.01		BT				
cabling unit components 1		SFA80.IK1-01081.01		IK1				
cabling unit components 2		SFA80.IK2-01081.01		IK2				
cabling unit components 3		SFA80.IK3-01081.01		IK3				
cabling unit components 4		SFA80.IK4-01081.01		IK4				
c			Datum	10.05.2010	Block diagram			
b			Bearb.	Weld	general instructions			
a			Gepr.	Weld	Cross-reference			
Änderung	Datum	Name	Ersatz durch:		Ersatz für:		UFA80-01081.01	
				Ursprung: AFA01081_00		Blatt 2		
						Bl.		
						+		

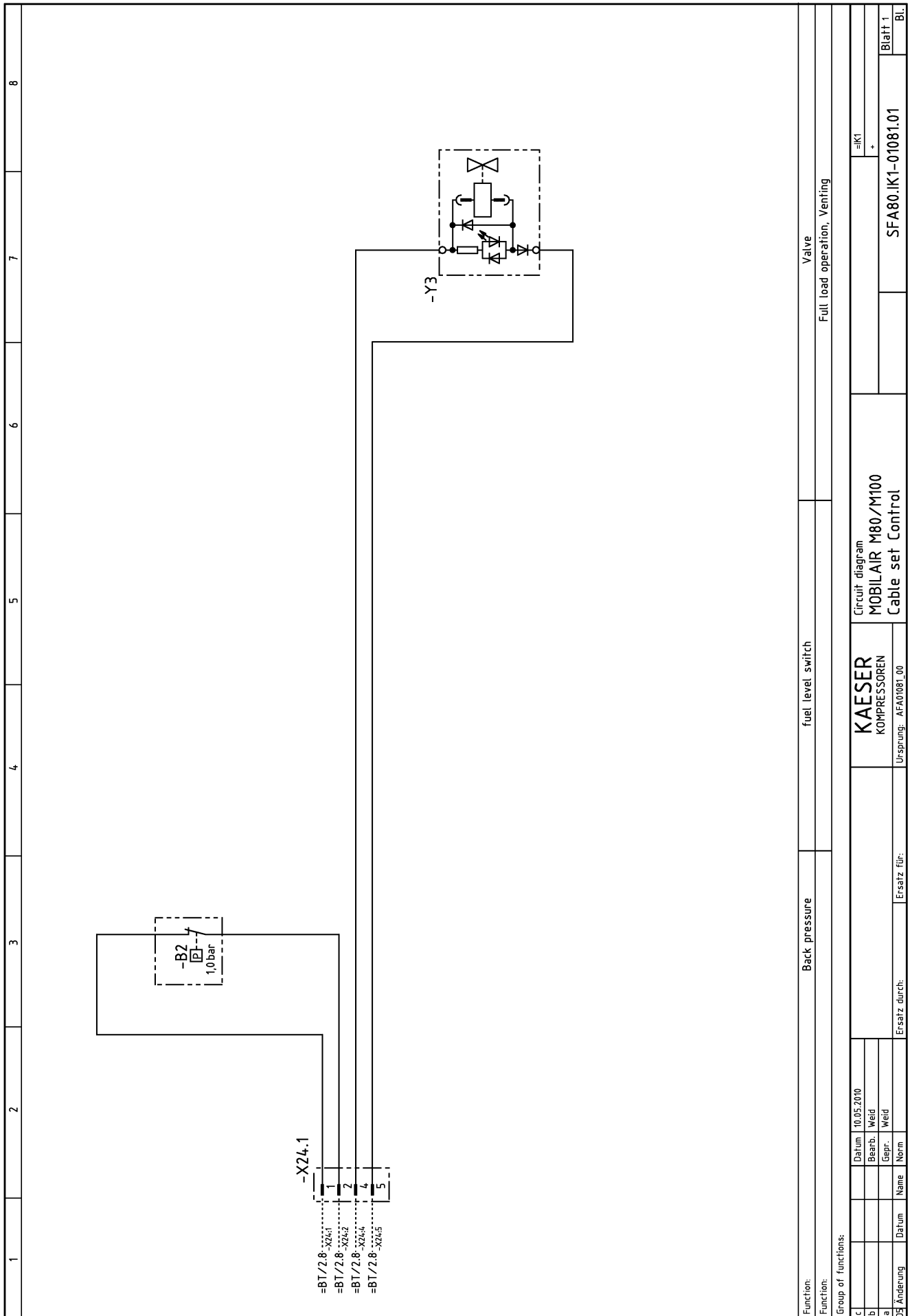


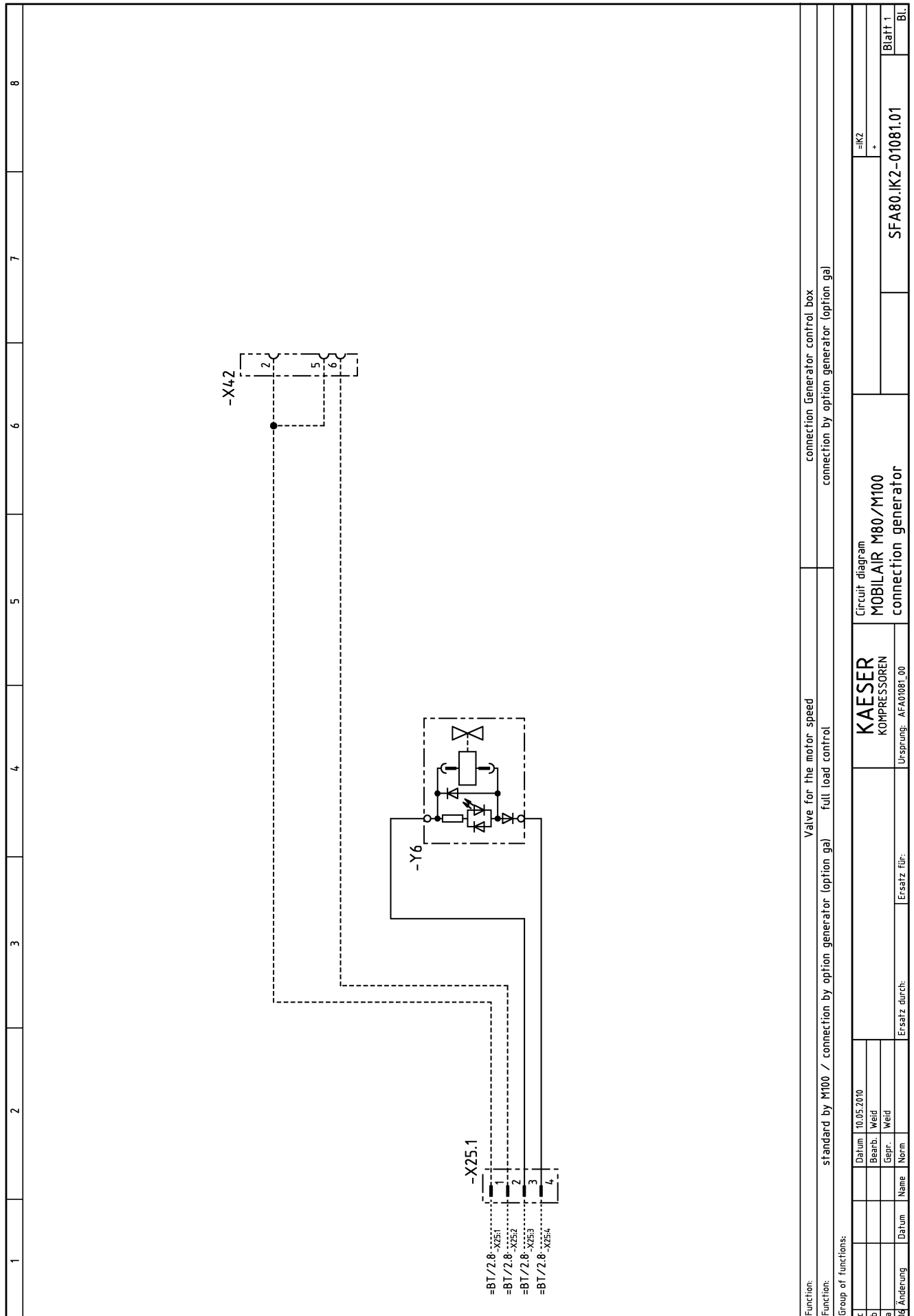


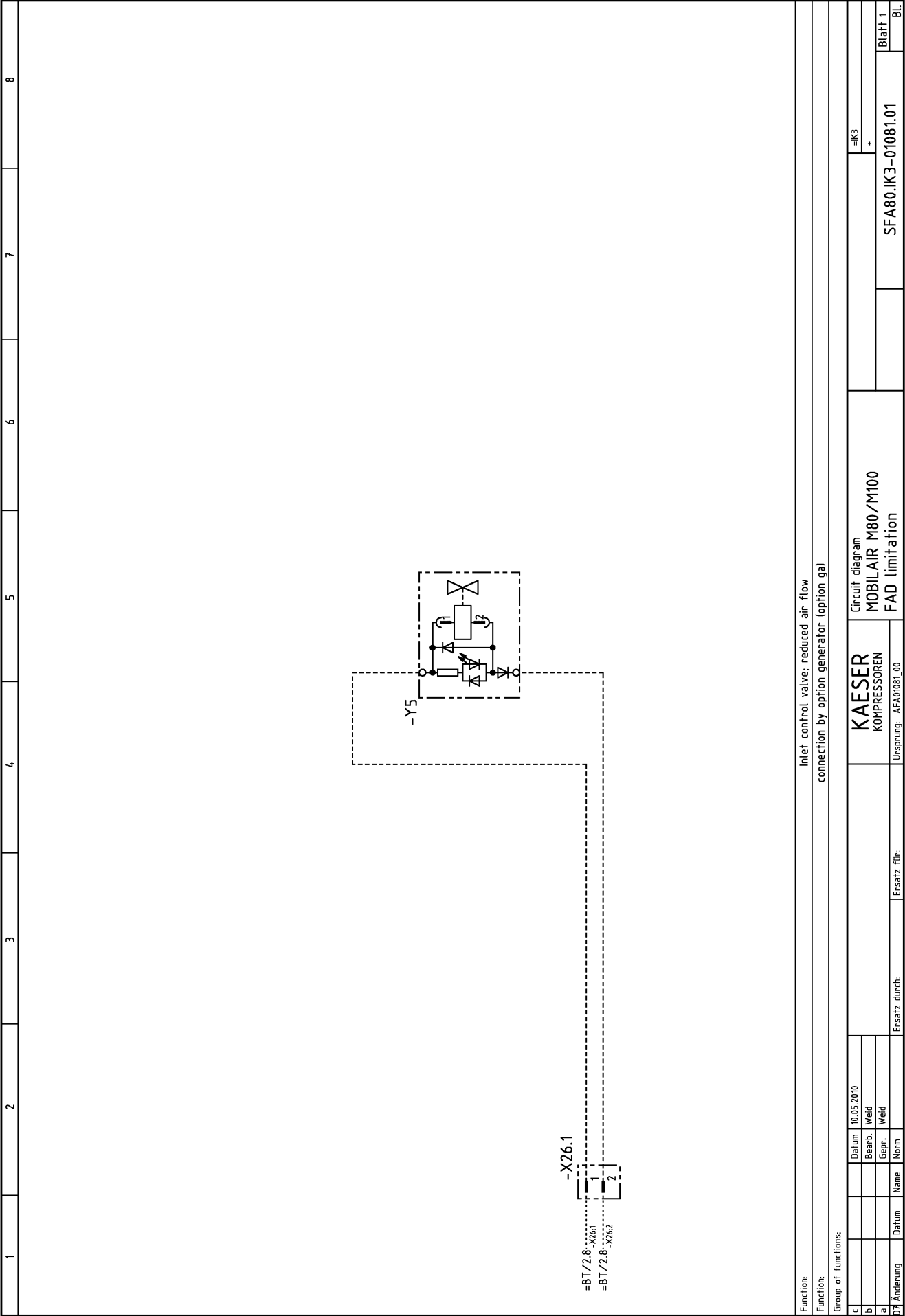
Function:		Cooling water-Temperature		Fuel shut-off valve		fuel pump	
Function:		heating flange		Oil pressure			
Group of functions:		generator		unit components			
c		Datum	10.05.2010	Circuit diagram		=IKM +	
b		Bearb.	Weld	MOBILAIR M80/M100		SFA80.IKM-01081.01	
a		Gepr.	Weld	Compressor - unit		Blatt 1	
12	Änderung	Datum	Name	Ersatz durch:		Bl.	
				Ursprung: AFA01081_00			

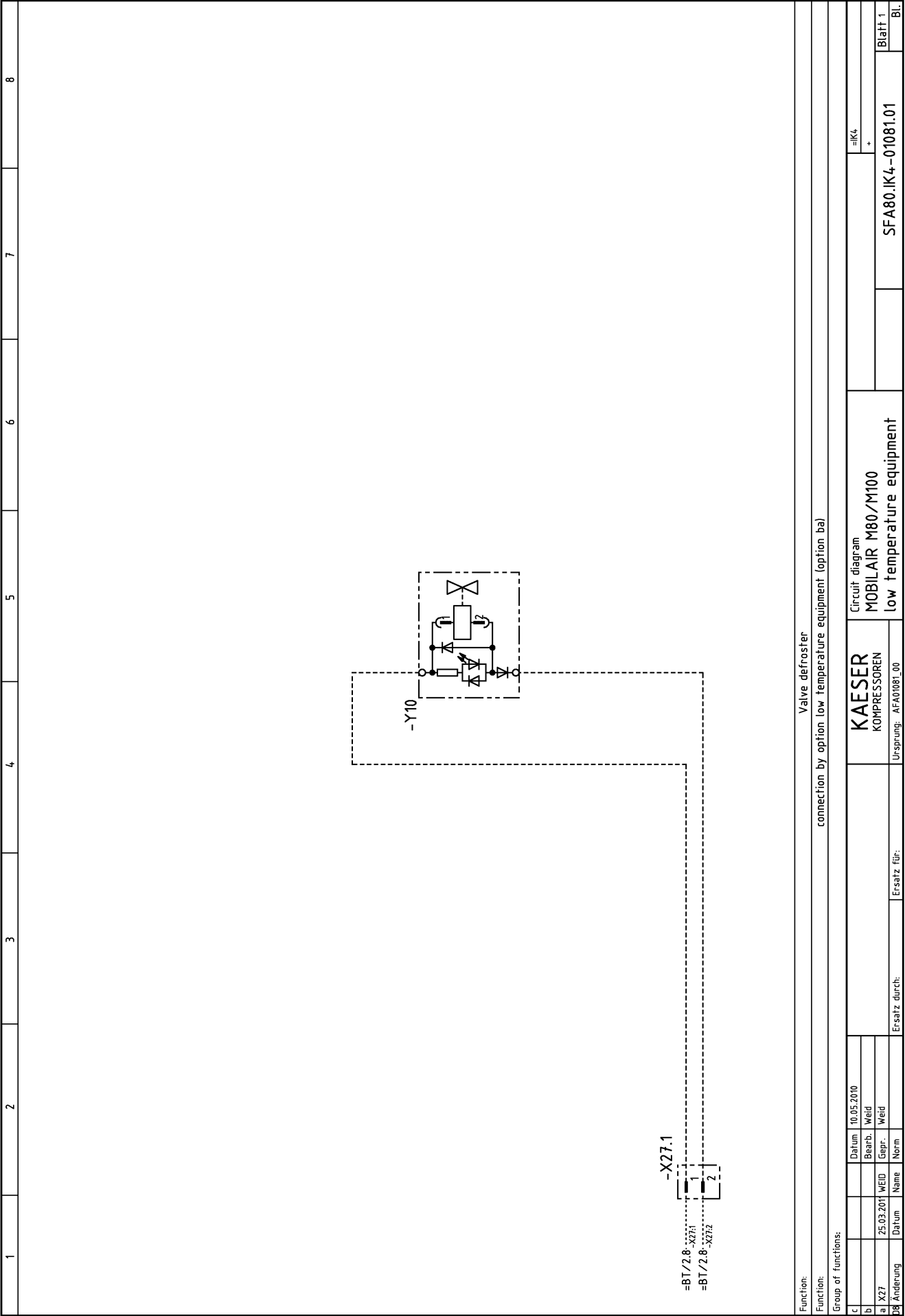








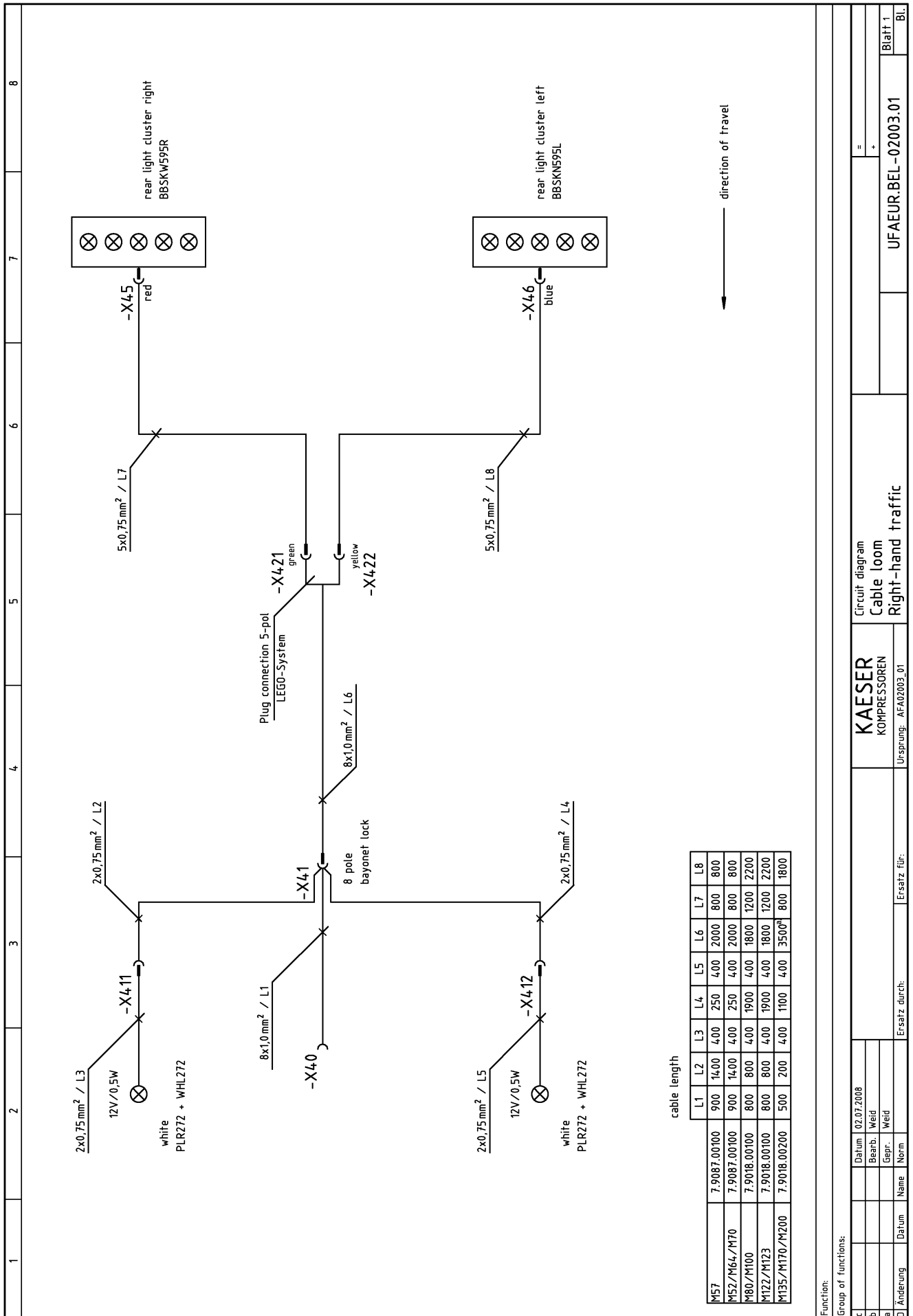


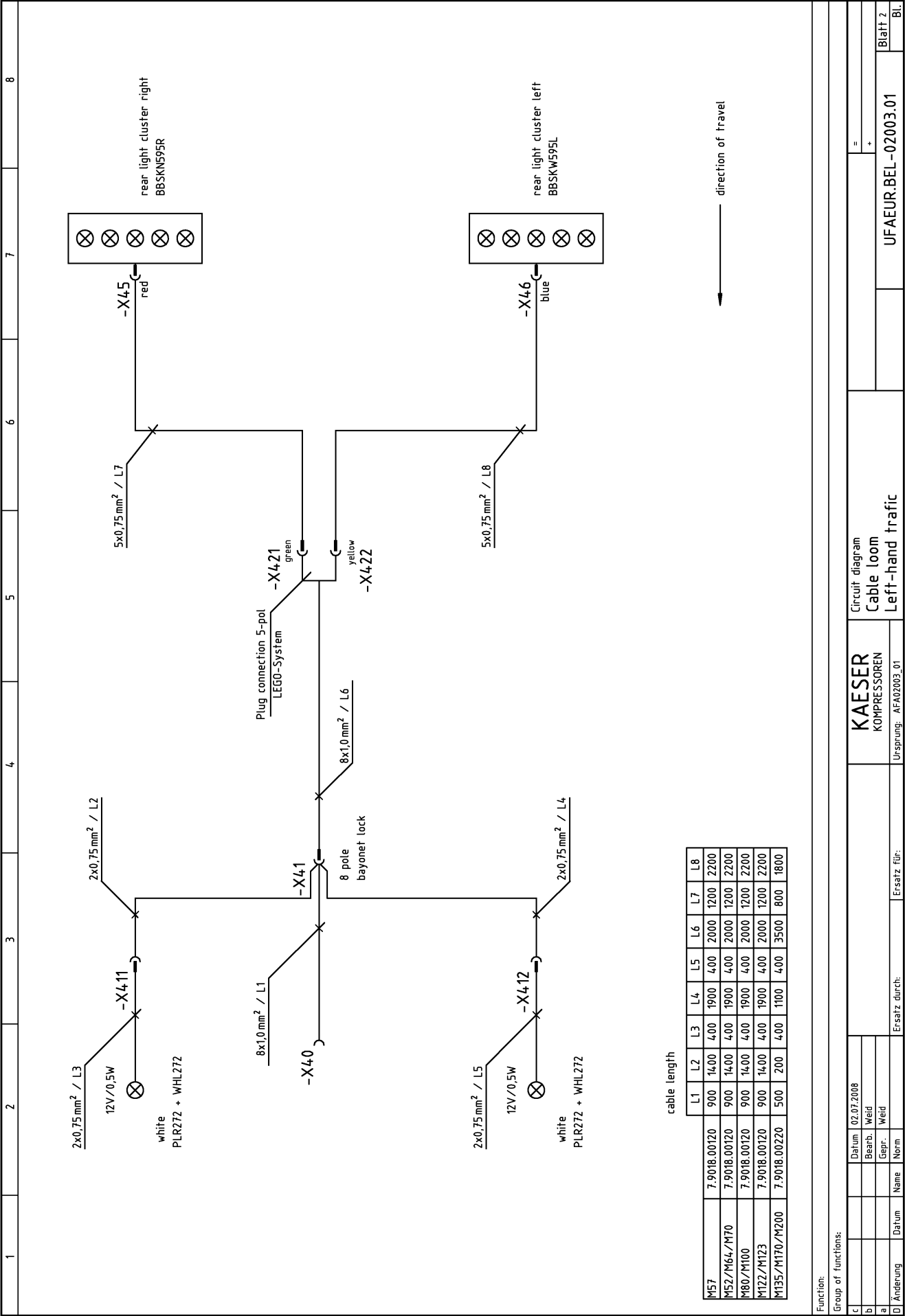


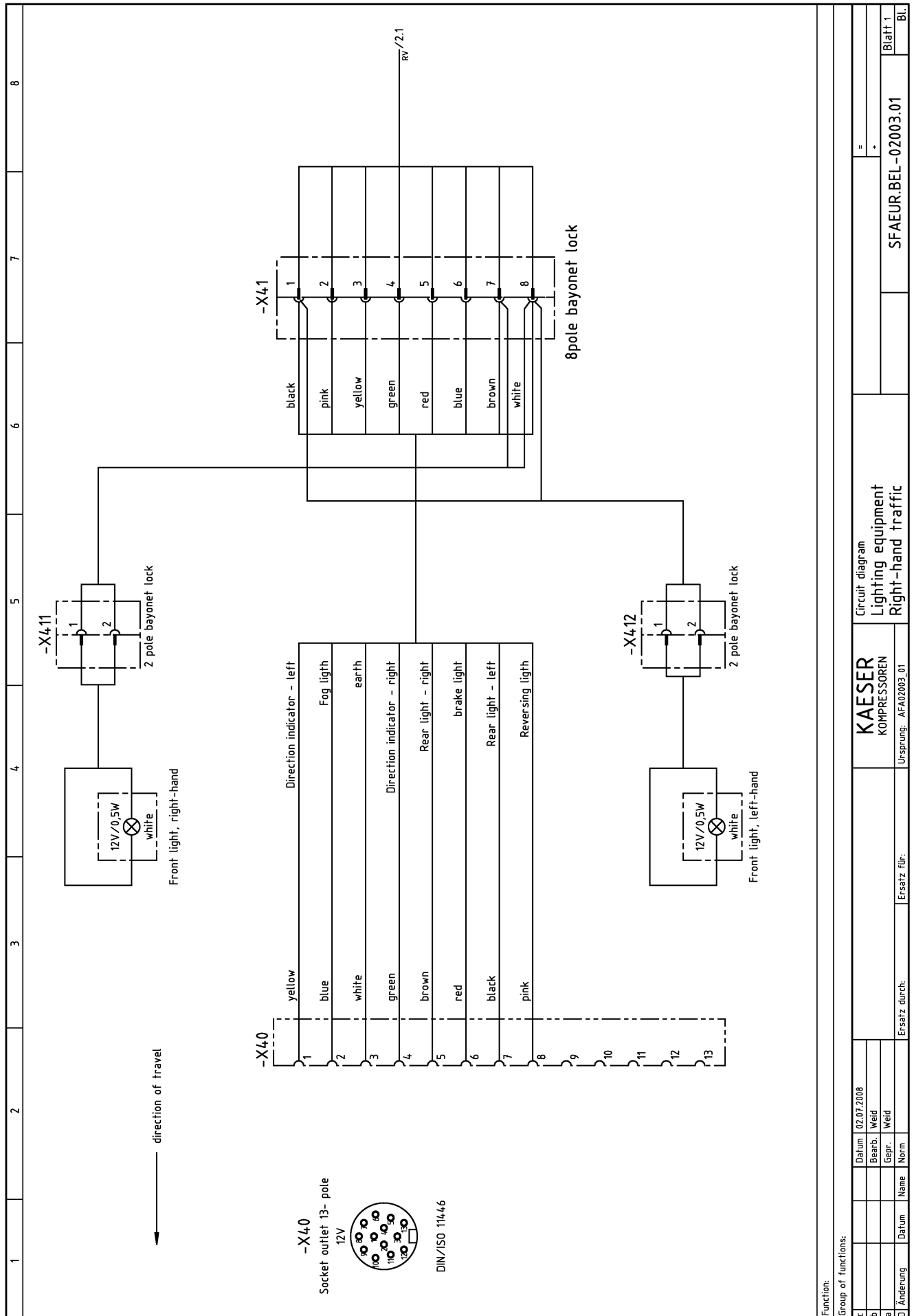
[illegible]

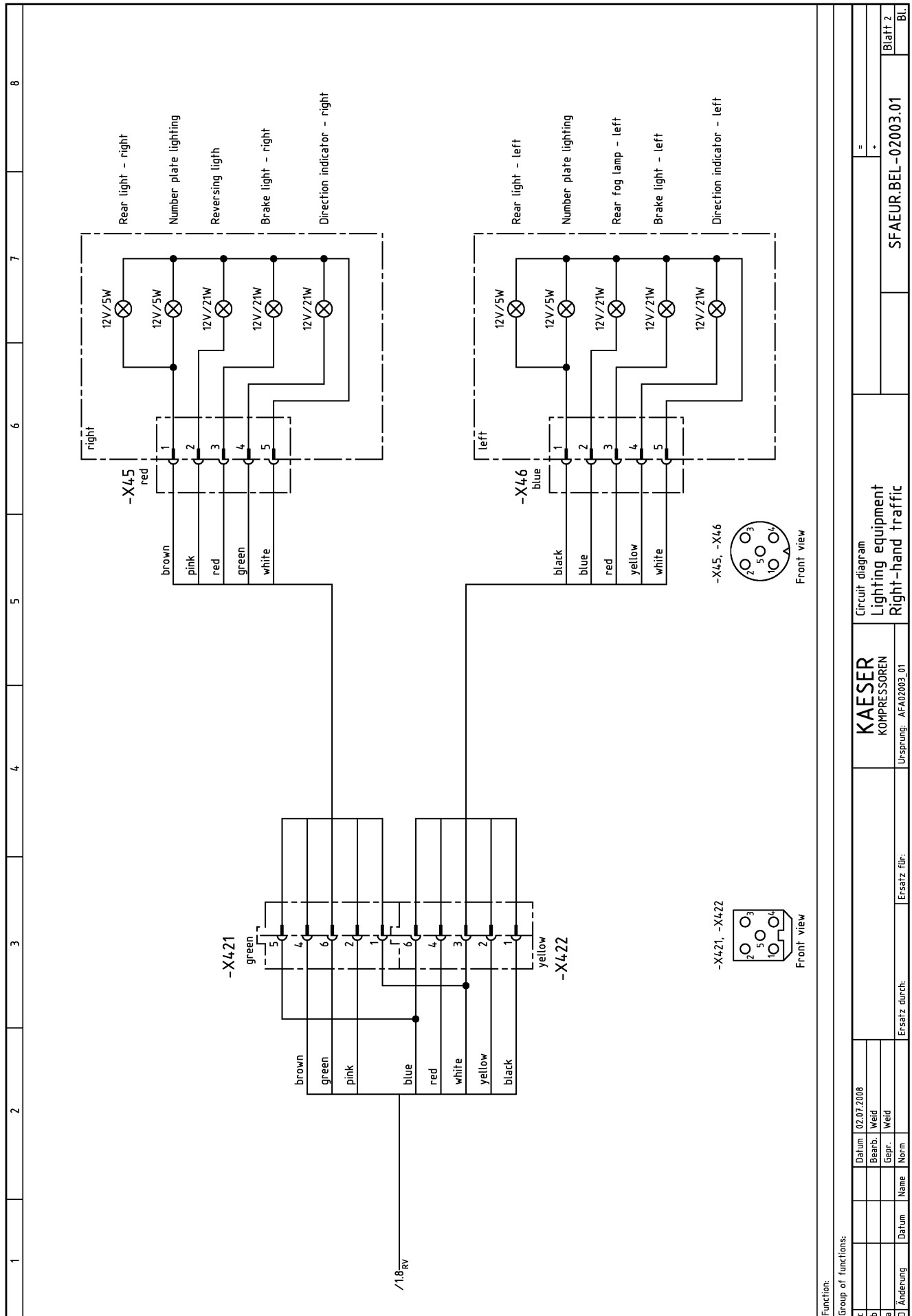
13.4.2 Option tc
Lighting and signaling system connection

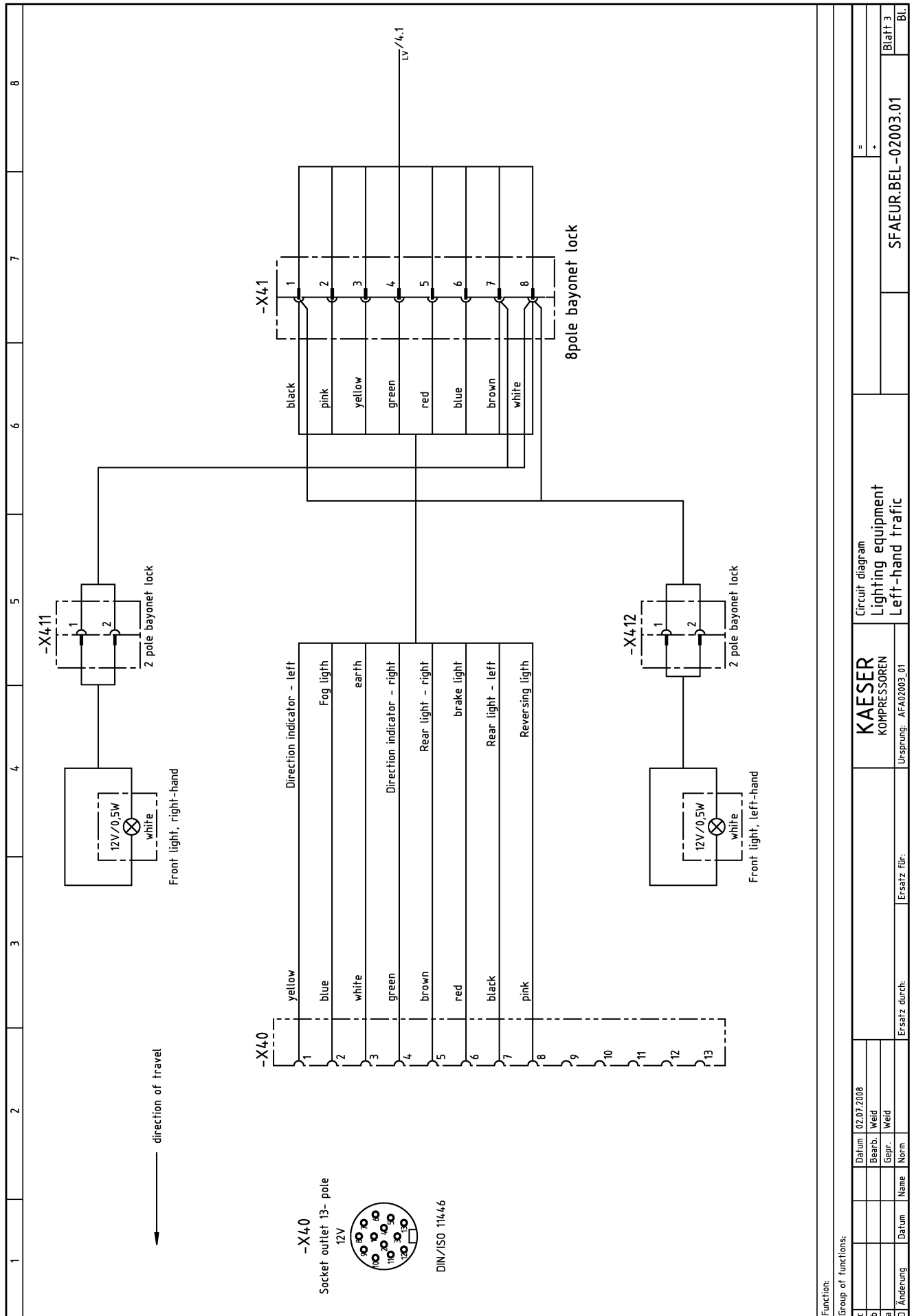
1	2	3	4	5	6	7	8
Electrical diagrams MOBILAIR Lighting equipment connection 12V/13-pole Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.							
c				Datum	02.07.2008	E	
b				Bearb.	Weld		
a				Gepr.	Weld		
D	Änderung	Datum	Name	Norm	Ersatz durch:	Ersatz für:	
				KAESER KOMPRESSOREN		Cover page MOBILAIR Lighting equipment	
				Ursprung: AFA02003_01		= + DFAEUR.BEL-02003.01	
						Blatt 1 Bl.	

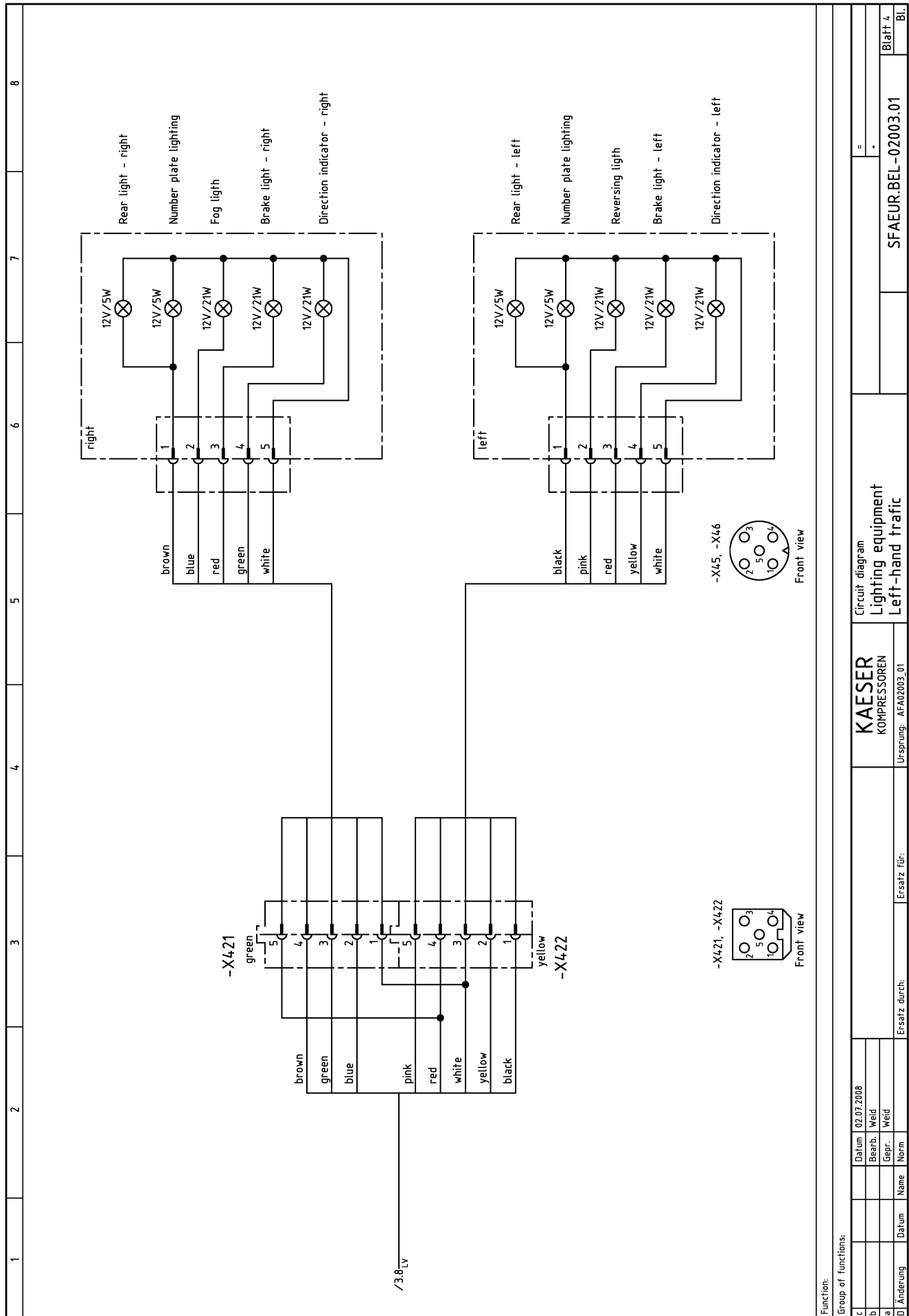






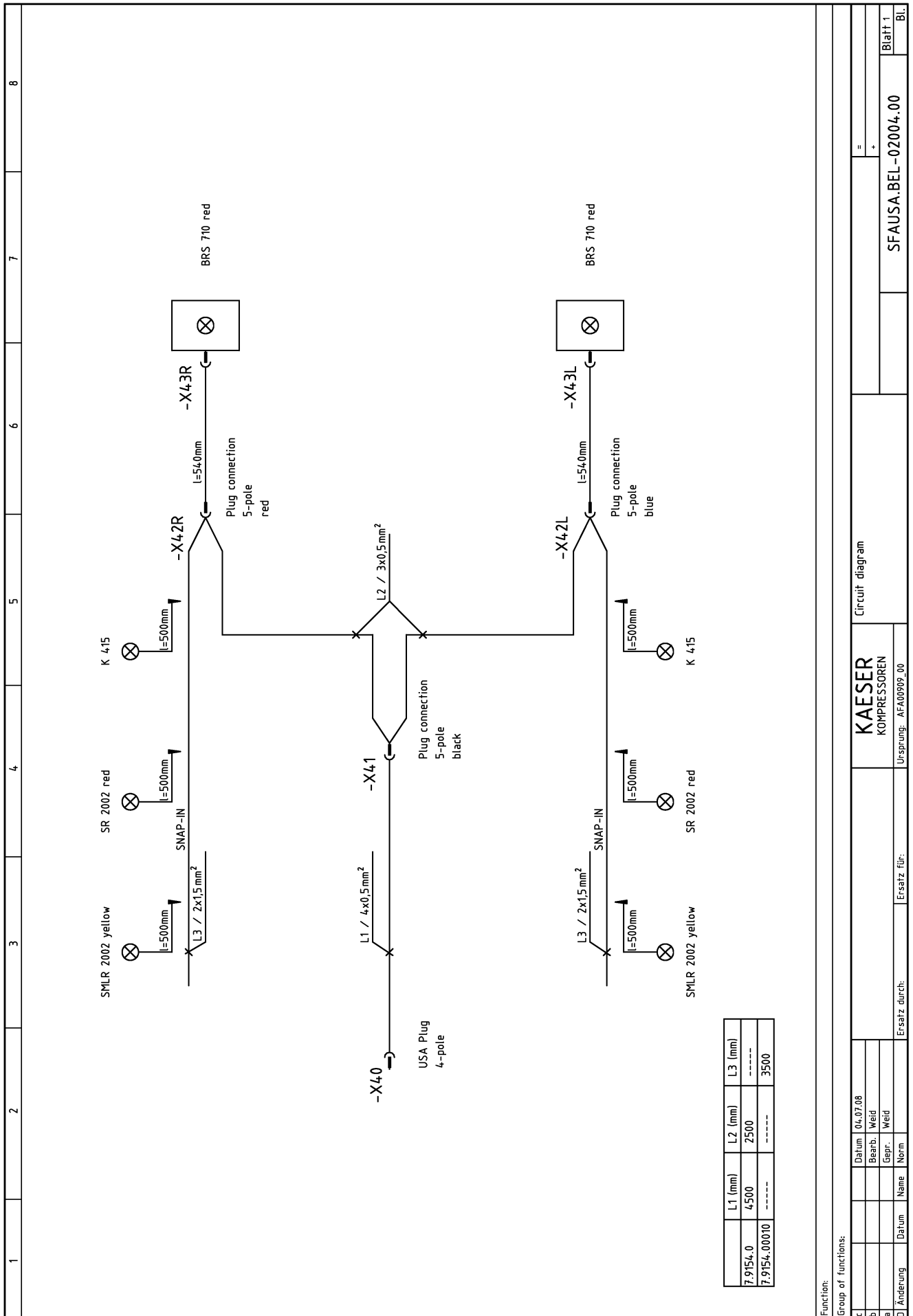


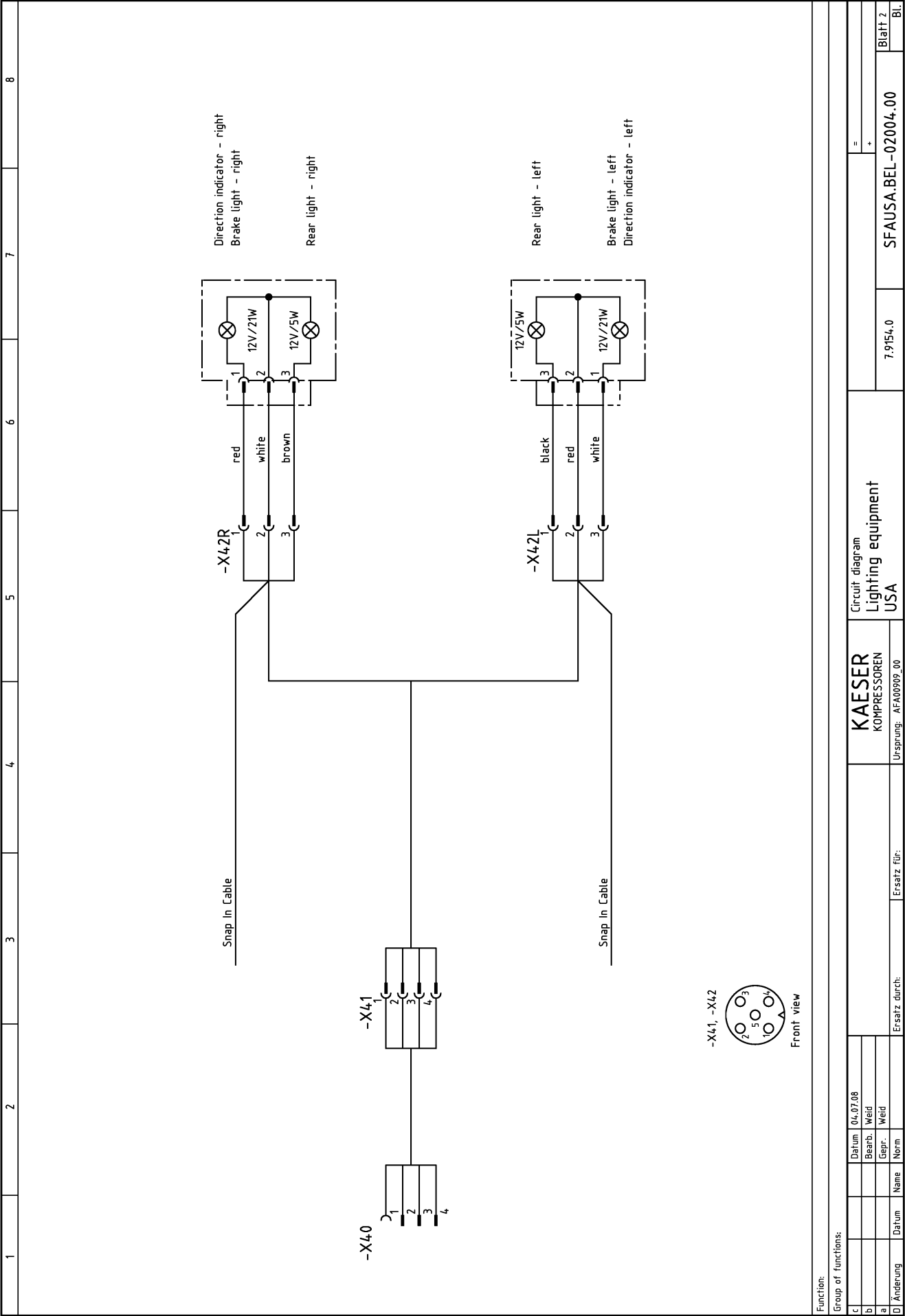




**13.4.3 Option te
Lighting and signaling system connection**

1	2	3	4	5	6	7	8
Electrical diagrams MOBILAIR Lighting equipment for USA / CAN Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
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c		Datum		04.07.08		E	
b		Bearb.		Weid			
a		Gepr.		Weid			
D Änderung		Datum		Name		Norm	
		Ersatz durch:		Ersatz für:			
				KAESER KOMPRESSOREN		Cover page MOBILAIR Lighting equipment	
				Ursprung: AFA00909_00			
						=	
						+	
						DFAUSA.BEL-02004.00	
						Blatt 1	
						Bl.	





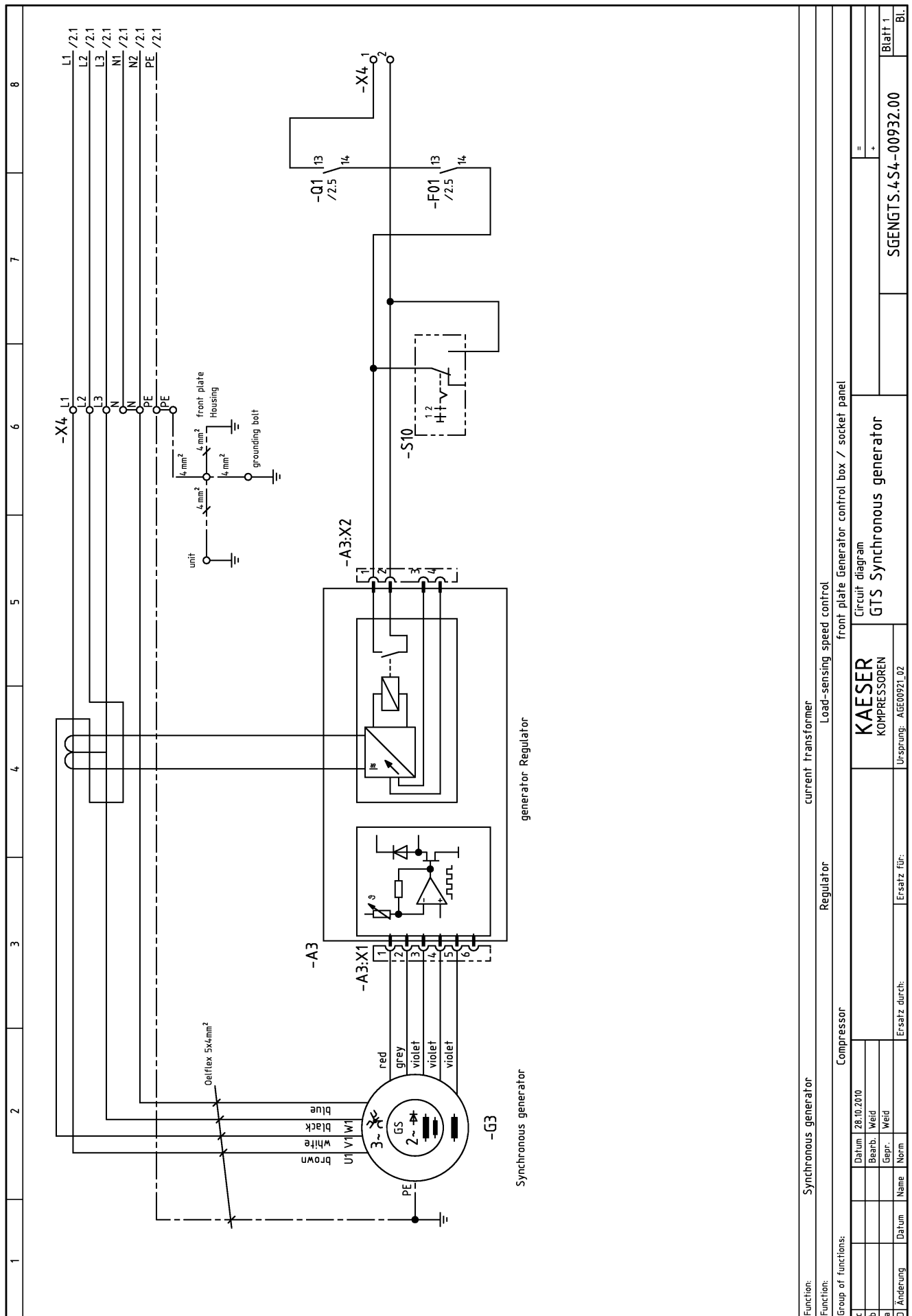
[illegible]

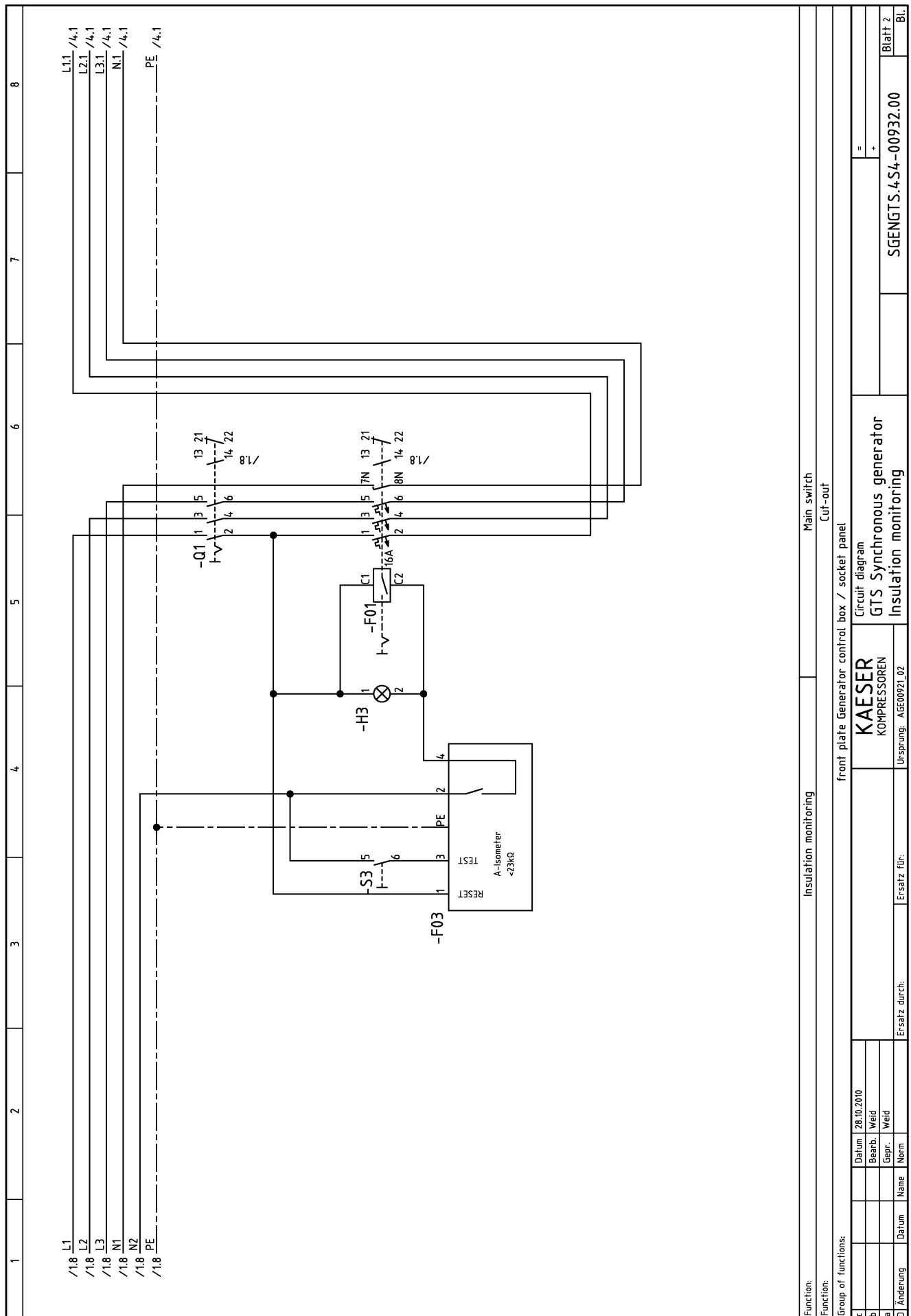
13.4.4 Option ga
Generator electrical diagram, 400V, 3-ph

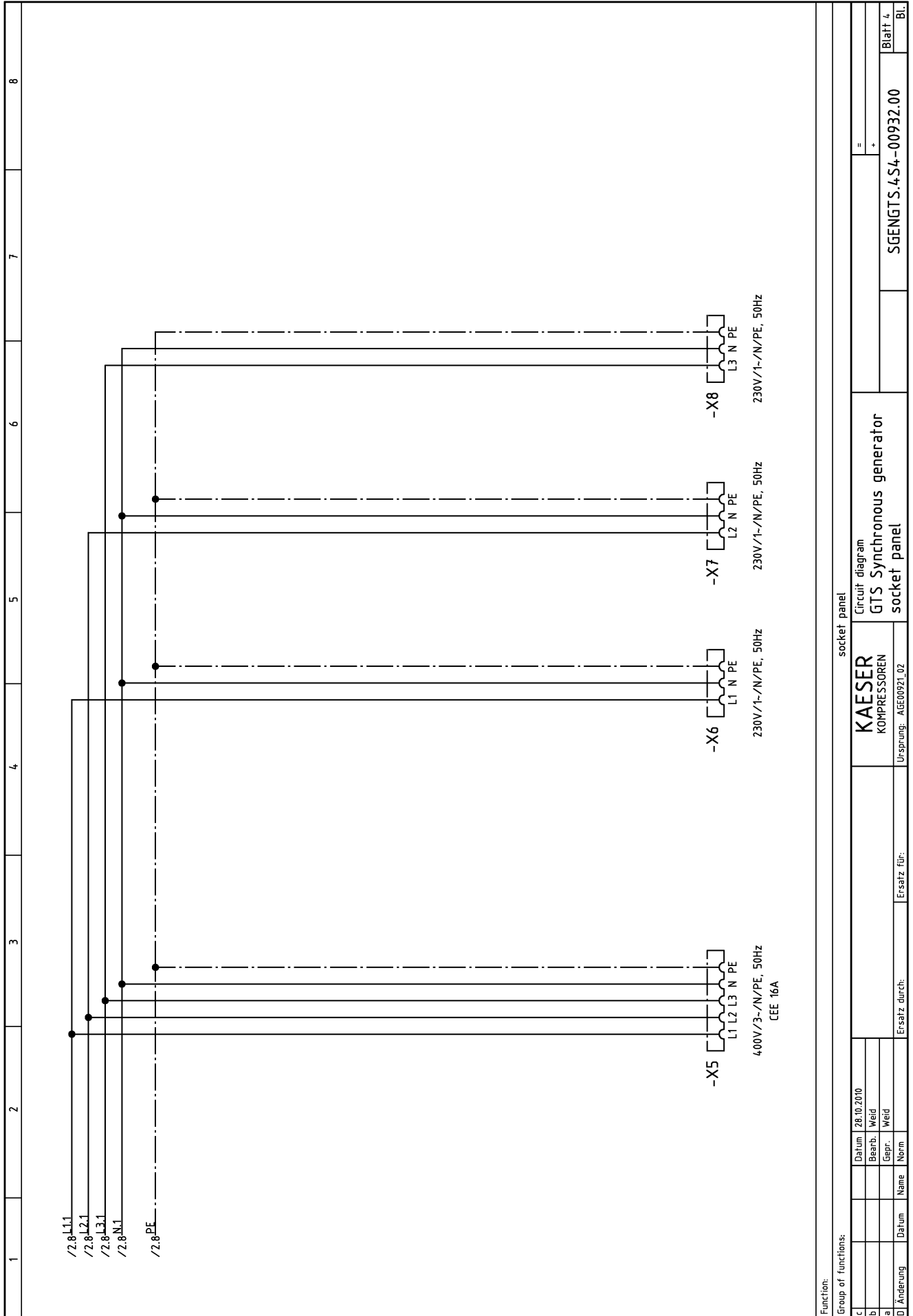
1	2	3	4	5	6	7	8
Electrical diagrams Synchronous generator 400V/3~/50Hz, 8,5/13 kVA with Insulation monitoring Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
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c		Datum		28.10.2010		E	
b		Bearb.		Weid			
a		Gepr.		Weid			
A. Änderung		Datum		Name		Norm	
		Ersatz durch:		Ersatz für:			
KAESER KOMPRESSOREN				Cover page GTS Synchronous generator			
Ursprung: AGE00921_02							
				=		+	
				DGENGTS.4.S4-00932.00		Blatt 1	
						Bl.	

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGNGTS.4S4-00932.00	1	
2	List of contents		ZGNGTS.4S4-00932.00	1	
3	Circuit diagram		SGNGTS.4S4-00932.00	1	
4	Circuit diagram	Insulation monitoring	SGNGTS.4S4-00932.00	2	
5	Circuit diagram	socket panel	SGNGTS.4S4-00932.00	4	
6	Electrical equipment identification		SGNGTS.4S4-00932.00	01	
7	Circuit diagram		GGNGTS.4S4-00932.00	1	
8	Component layout	front plate	AGNGTS.4S4-00932.00	1	

c			Datum	28.10.2010	List of contents		=	
d			Bearb.	Weid			+	
a			Gepr.	Weid				
Änderung	Datum	Name	Norm	Ersatz durch:	Ersatz für:	ZGNGTS.4S4-00932.00		Blatt 1 Bl.







1	2	3	4	5	6	7	8
-A3	generator-Regulator						
-F01	Cut-out with overcurrent release						
-F03	Insulation monitoring						
-G3	generator						
-H03	Earth leak lamp						
-Q1	Main switch						
-S3	Test button, Insulation monitoring						
-S10	Selector switch						
-X4	connection generator						
-X5	Socket outlet 400V/3~/N/PE, 50Hz						
-X6,-X7,-X8	Socket outlet 230V/1~/N/PE,50Hz						
-X42	Terminal strip, Valve interference suppression						
				Electrical equipment identification			
				GTS Synchronous generator			
						SGENGTS.4S4-00932.00	
						Blatt 01	
						Bl	

[illegible]

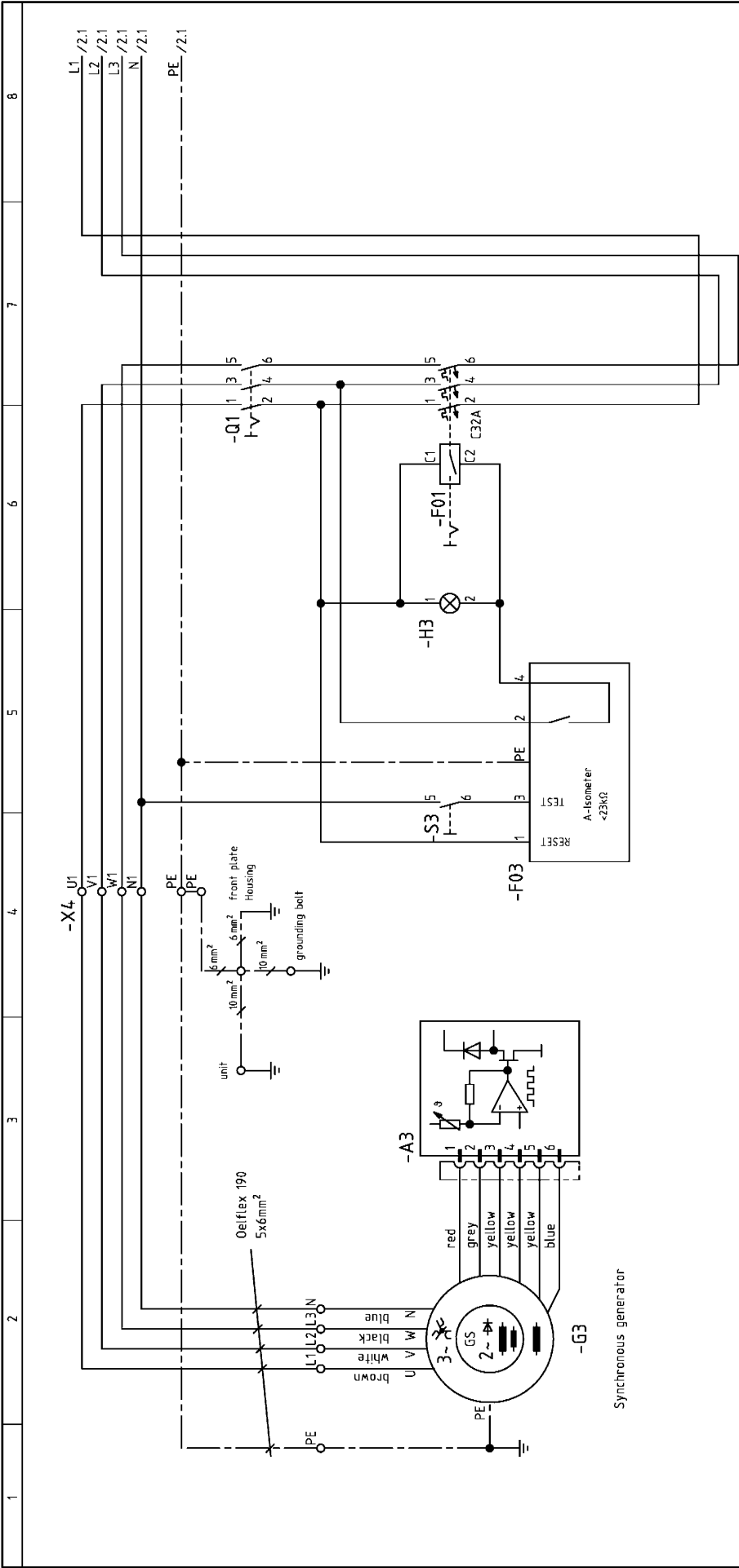
[illegible]

13.4.5 Option ga
Generator electrical diagram, 230V, 3-ph

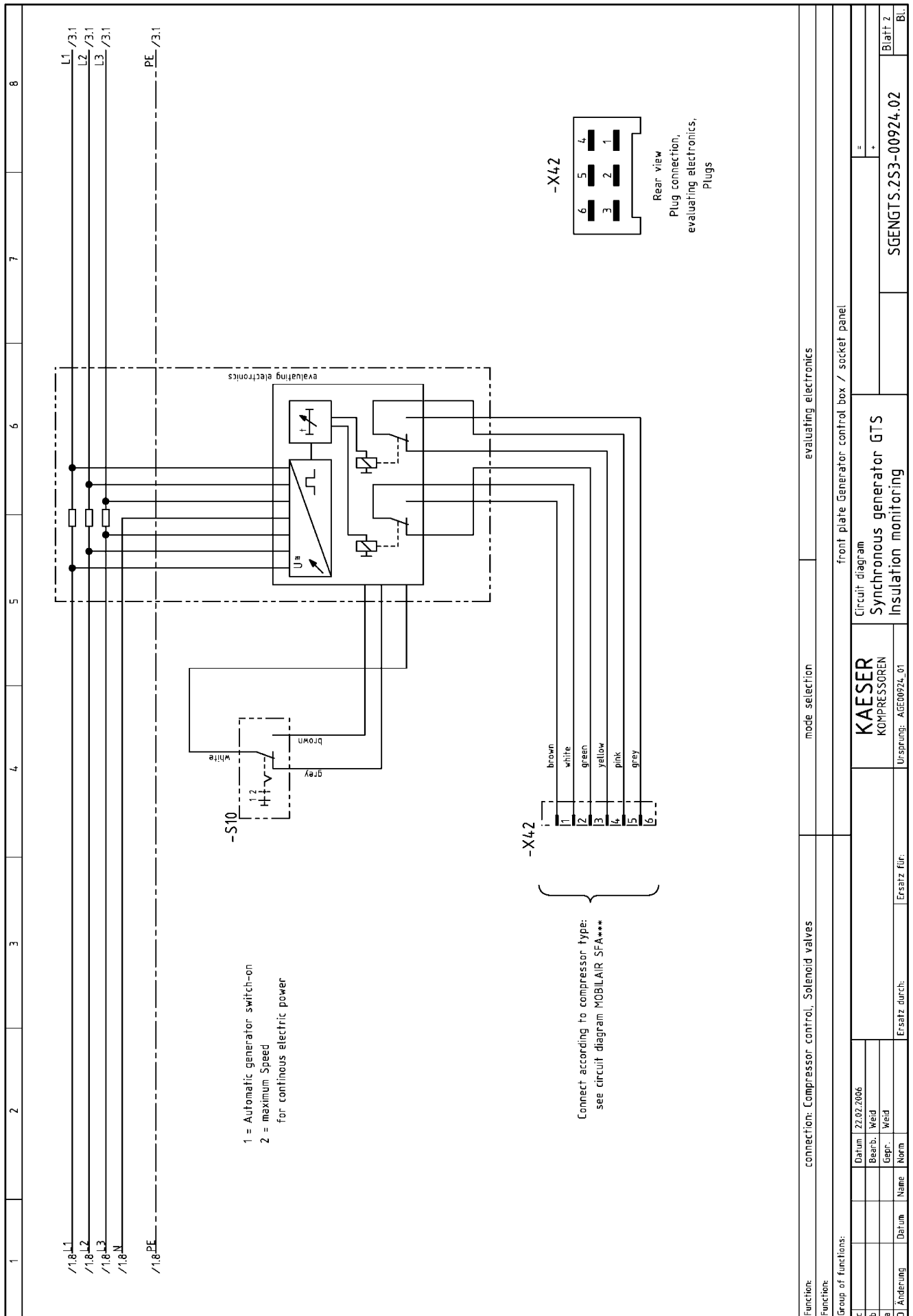
1	2	3	4	5	6	7	8
Electrical diagrams Synchronous generator 230V/3~/50Hz, 8,5/13kVA with Insulation monitoring							
Manufacturer: KAESER KOMPRESSOREN SE							
Postfach 2143							
96410 Coburg							
The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.							
c		Datum		22.02.2006		E	
b		Bearb.		Weid			
a		Gepr.		Weid			
A. Änderung		Datum		Name		Norm	
		Ersatz durch:		Ersatz für:			
KAESER KOMPRESSOREN				Cover page			
Ursprung: AGE00924_01				Synchronous generator GTS			
				z		+	
				DGENGT.S.2S3-00924.02		Blatt 1	
						BL	

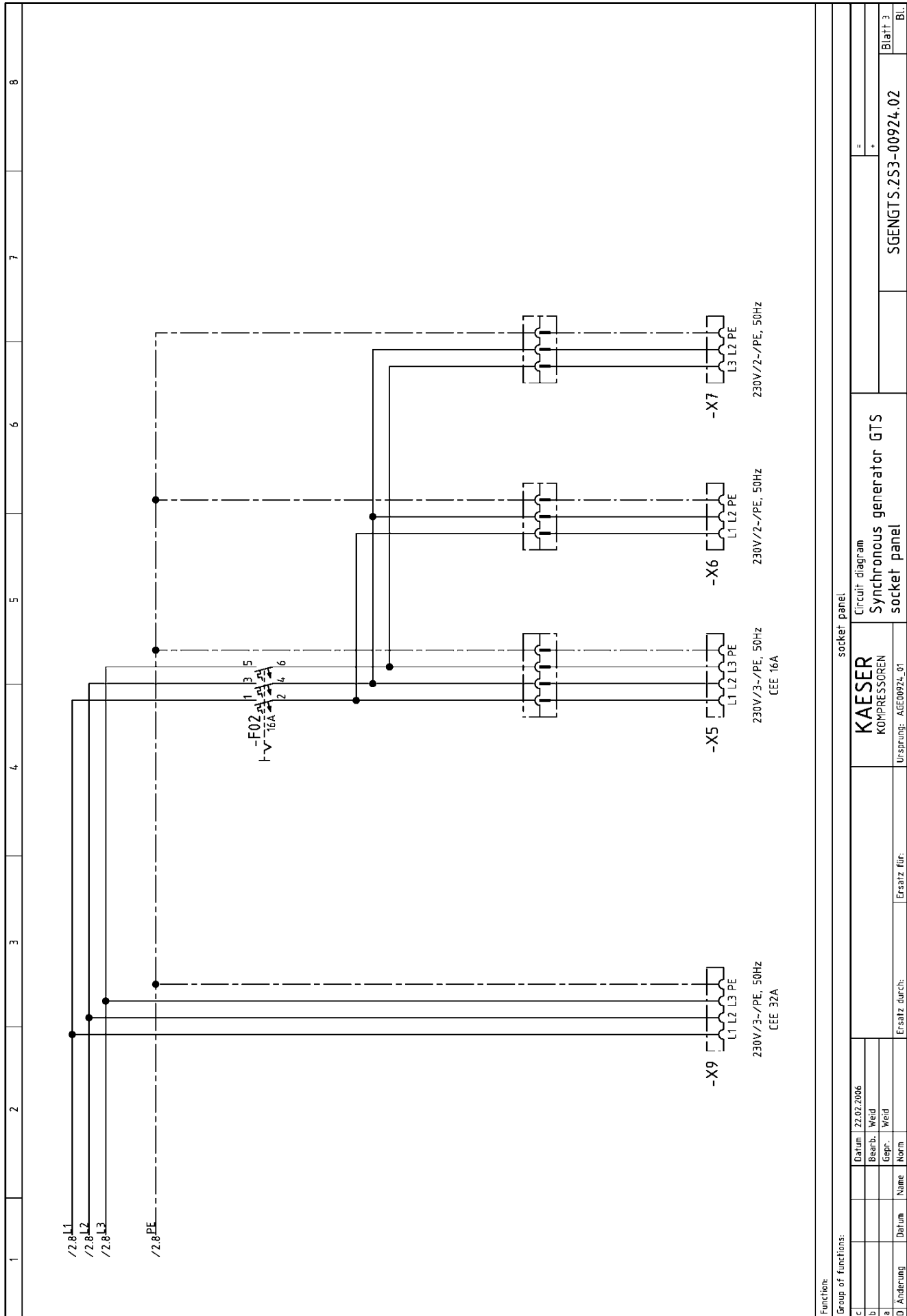
Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGNGTS.ZS3-00924.02	1	
2	List of contents		ZGNGTS.ZS3-00924.02	1	
3	Circuit diagram		SGNGTS.ZS3-00924.02	1	
4	Circuit diagram	Insulation monitoring	SGNGTS.ZS3-00924.02	2	
5	Circuit diagram	socket panel	SGNGTS.ZS3-00924.02	3	
6	Electrical equipment identification		SGNGTS.ZS3-00924.02	01	
7	Equipment parts list		GGNGTS.ZS3-00924.02	1	
8	Component layout	front plate	AGNGTS.ZS3-00924.02	1	

c			Datum	22.02.2006	List of contents GTS Synchronous generator	=	+
b			Bearb.	Weld			
a			Gepr.	Weld			
3. Änderung	Datum	Name	Norm	Ersatz durch:	Ersatz für:	ZGNGTS.ZS3-00924.02	Blatt 1
							Bl.



Function: Synchronous generator		Regulator		Insulation monitoring		Main switch	
Function: Compressor		front plate Generator control box / socket panel		Cut-out			
Group of functions:		Circuit diagram		Synchronous generator GTS			
C		Datum		KAESER			
b		Bearb. Weid		KOMPRESSOREN			
a		Gepr. Weid					
Änderung		Datum		Name		Norm	
		Ersatz durch:		Ersatz für:		Ursprung: AGE00924_01	
						SGENGT S.2S3-00924.02	
						Blatt 1	
						Bl.	





	1	2	3	4	5	6	7	8
-A3	generator-Regulator							
-F01	Cut-out with overcurrent release							
-F02	Cut-out							
-F03	Insulation monitoring							
-G3	generator							
-H03	Earth leak lamp							
-Q1	Main switch							
-S3	Test button, Insulation monitoring							
-S10	Selecter switch							
-X4	Generator terminals							
-X5	Socket outlet 230V/3~/PE, 50Hz 16A							
-X6,-X7	Socket outlet 230V/2~/PE, 50Hz 16A							
-X9	Socket outlet 230V/3~/PE, 50Hz 32A							
-X4;2	Plug connection, Valve interference suppression							

[illegible]

GTS 8,5 kVA 230 V, 50 Hz 3~/PE I=21,7 A

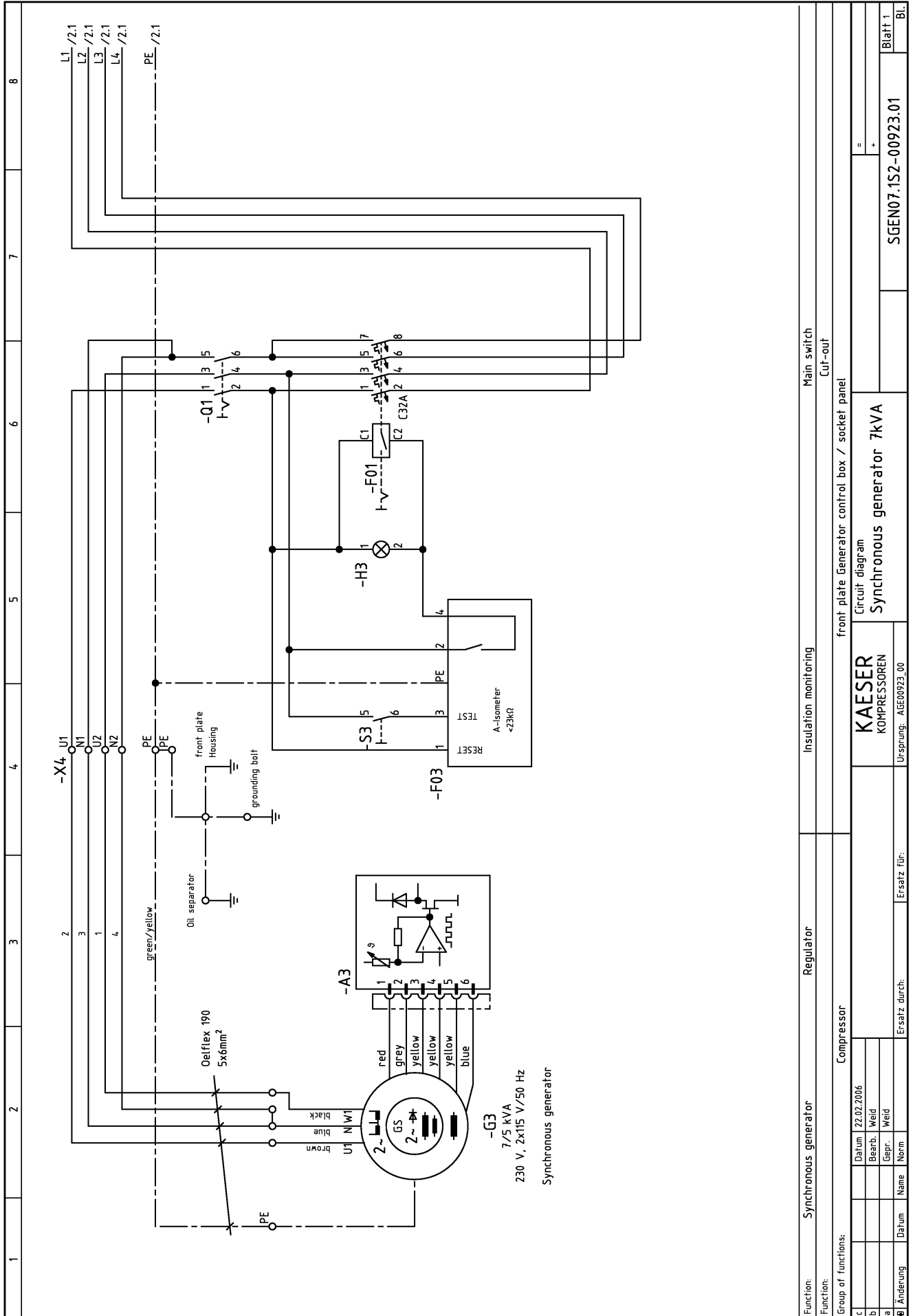
GTS 13 kVA 230 V, 50 Hz 3~/PE I=32,6 A

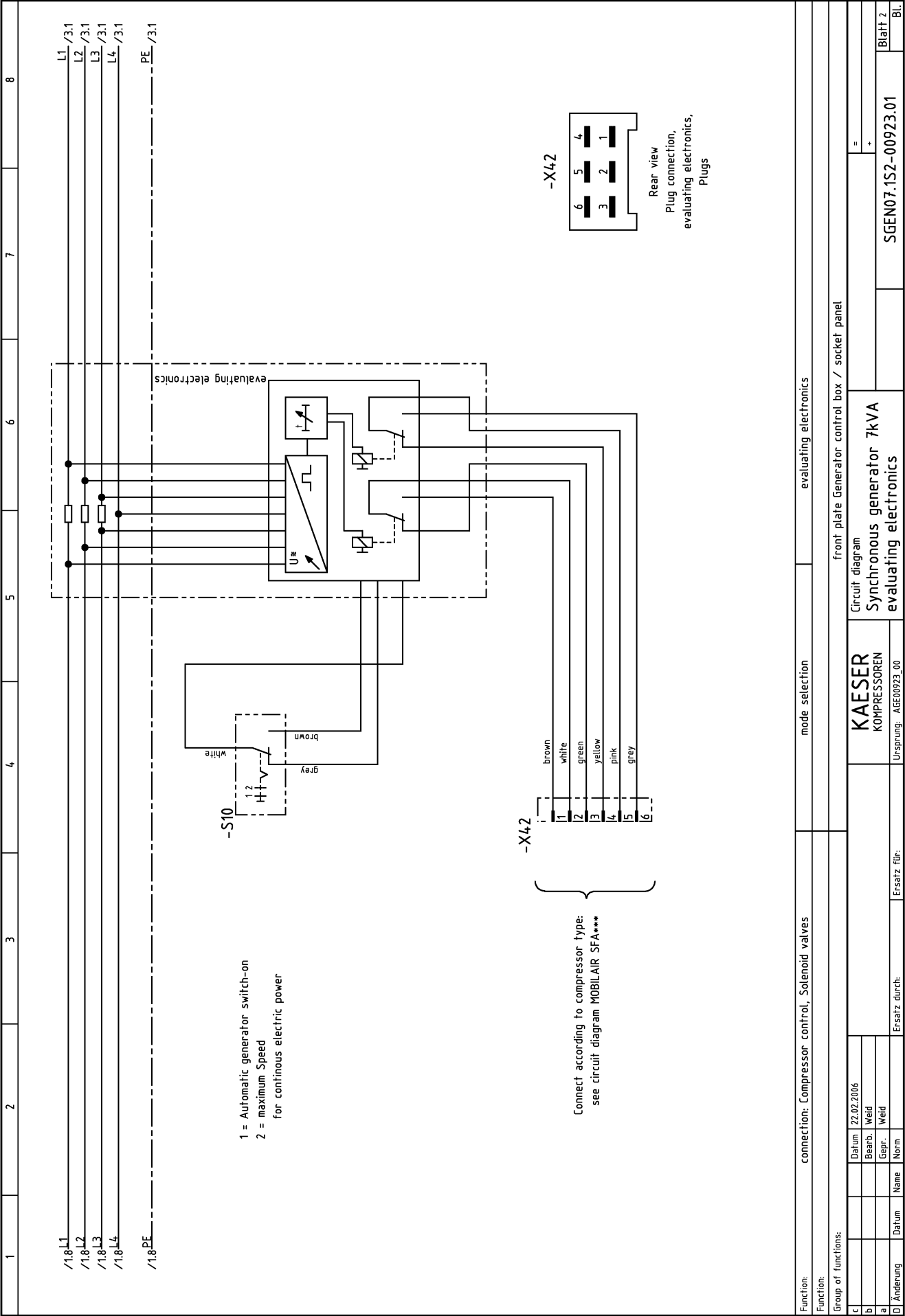
13.4.6 Option ga
Generator electrical diagram, 115 V, 2-ph

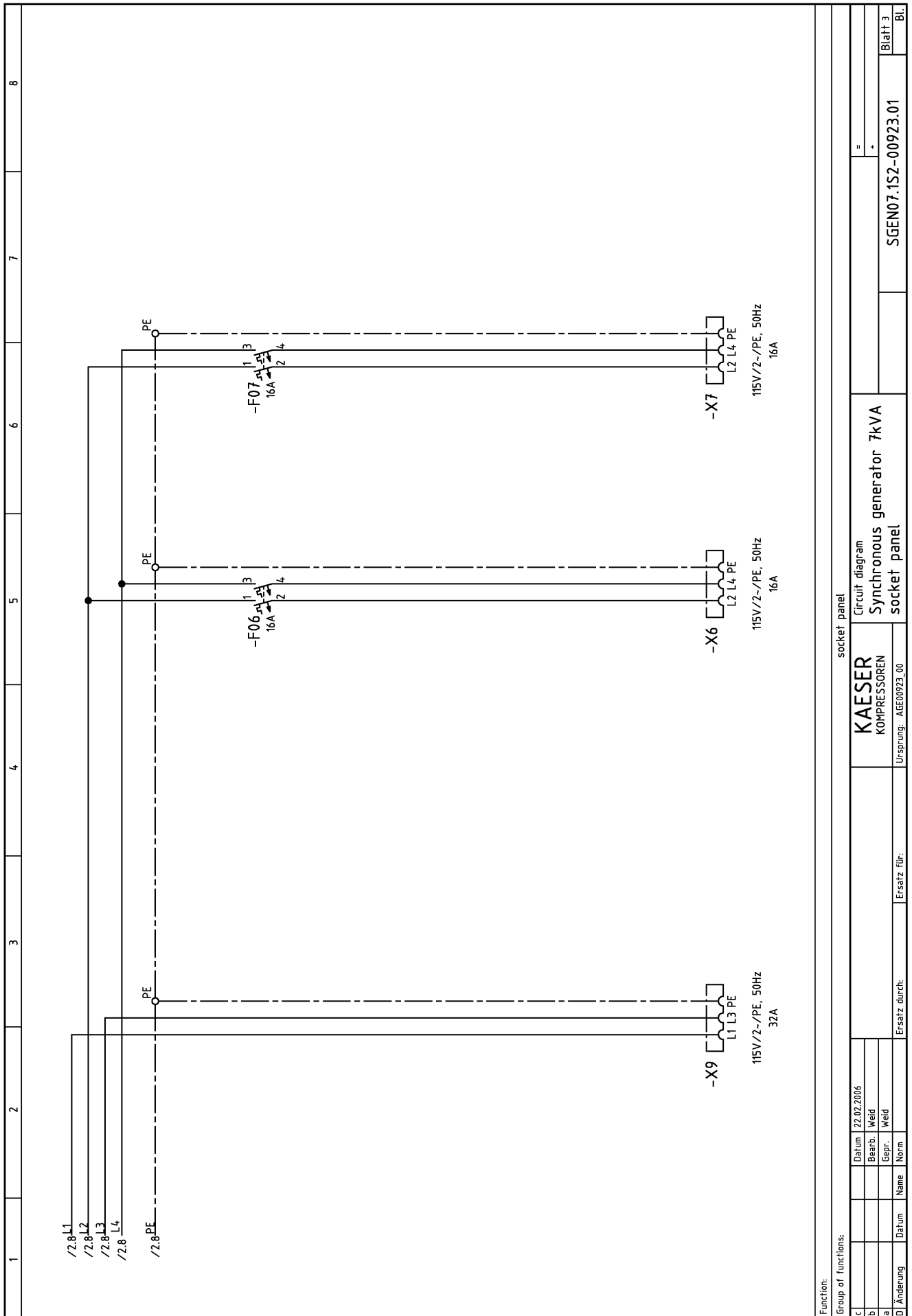
1	2	3	4	5	6	7	8
Electrical diagrams Synchronous generator GTS 7/5 kVA, 115 V 50Hz with Insulation monitoring							
Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
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c			Datum	22.02.2006	E		
b			Bearb.	Weld			
a			Gepr.	Weld			
A. Änderung	Datum	Name	Norm	Ersatz durch:		Ersatz für:	
				KAESER KOMPRESSOREN		Cover page Portable Compressor Synchronous generator	
				Ursprung: AGE00923_00		=	
						+	
						DGEN07.1S2-00923.01	
						Blatt 1	
						Bl.	

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGEN07.1S2-00923.01	1	
2	List of contents		ZGEN07.1S2-00923.01	1	
3	Circuit diagram		SGEN07.1S2-00923.01	1	
4	Circuit diagram		SGEN07.1S2-00923.01	2	
5	Circuit diagram		SGEN07.1S2-00923.01	3	
6	Electrical equipment identification		SGEN07.1S2-00923.01	01	
7	Circuit diagram		GGEN07.1S2-00923.01	1	
8	Component layout		AGEN07.1S2-00923.01	1	

List of contents		=	
GTS Synchronous generator		+	
ZGEN07.1S2-00923.01		Blatt 1	
Bl.		Bl.	







1	2	3	4	5	6	7	8
-A3	generator-Regulator						
-F01	Cut-out with overcurrent release						
-F06,-F07	Cut-out						
-F03	Insulation monitoring						
-G3	generator						
-H3	Earth leak lamp						
-Q1	Main switch						
-S3	Test button, Insulation monitoring						
-S10	Selector switch						
-X4	Generator terminals						
-X6,-X7	Socket outlet 115V/2~/PE, 50Hz 16A						
-X9	Socket outlet 115V/2~/PE, 50Hz 32A						
-X42	Plug connection, Valve interference suppression						

c			Datum	22.02.2006	Electrical equipment identification		=	
b			Bearb.	Weid	Synchronous generator GTS		+	
a			Gepr.	Weid	Electrical equipment identification			
Änderung	Datum	Name	Ersatz durch:		Ersatz für:	SGEN07.1S2-00923.01	Blatt 01	Bl.

[illegible]

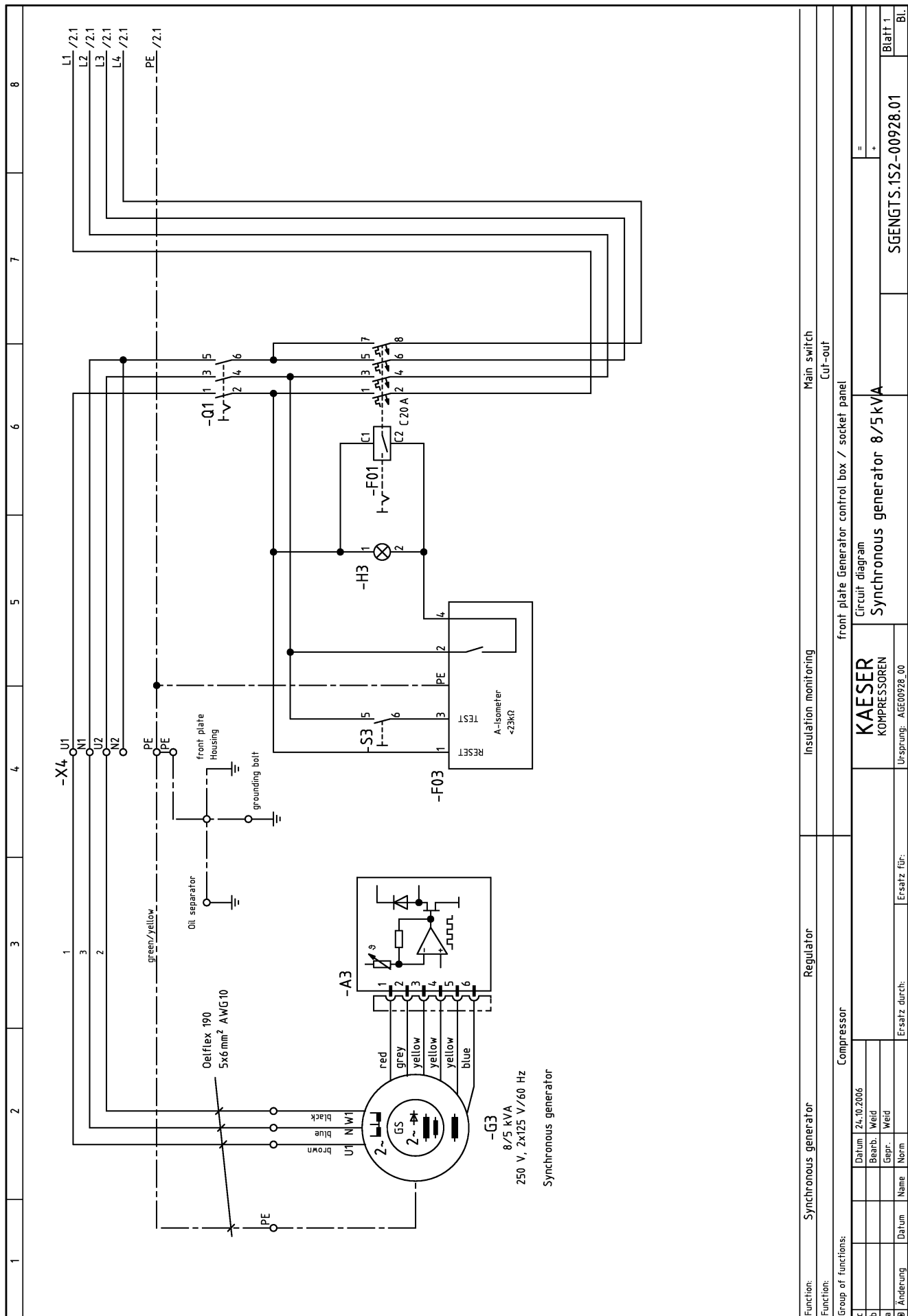
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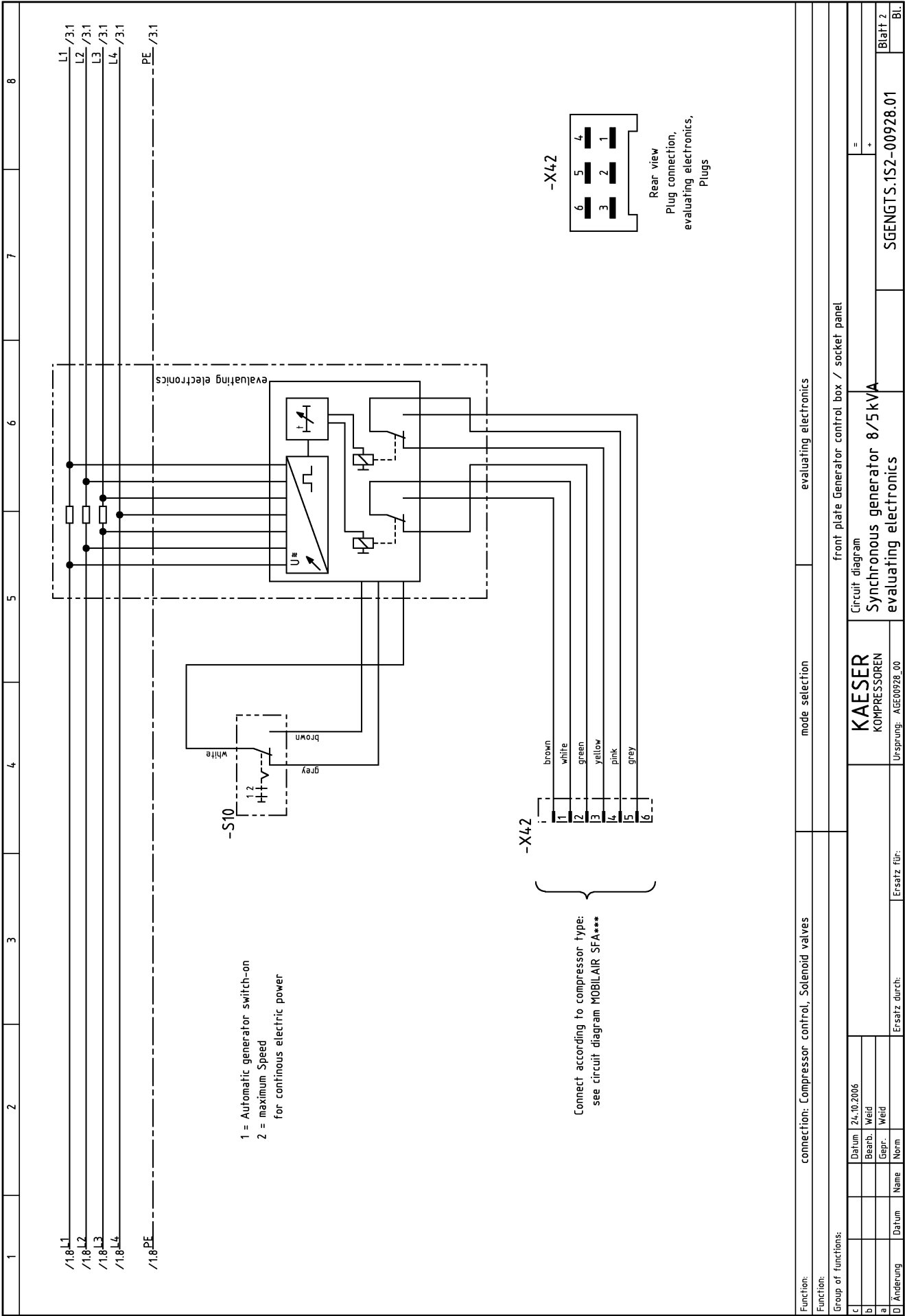
13.4.7 Option ga
Generator electrical diagram, 230 V, 2-ph

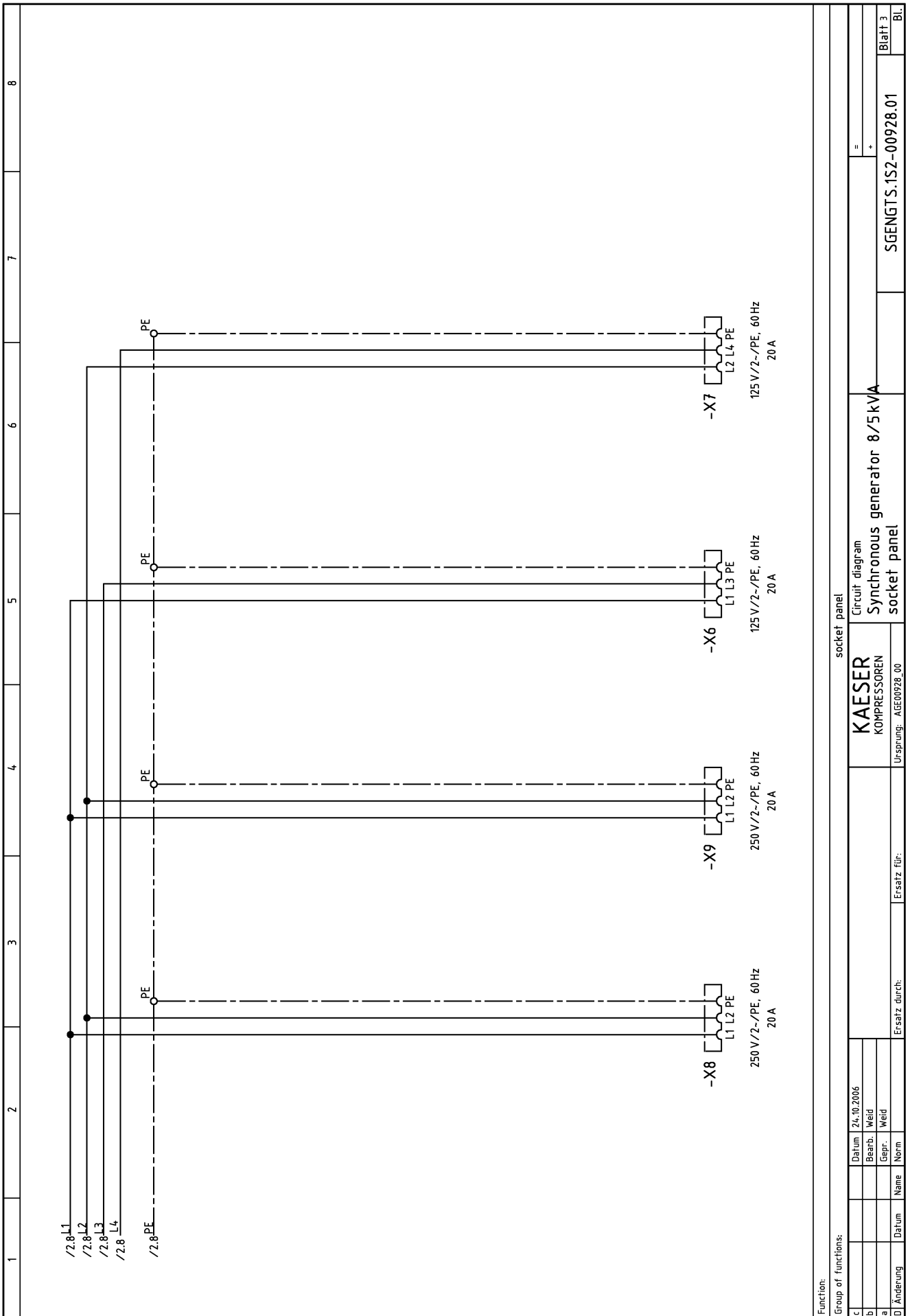
1	2	3	4	5	6	7	8
Electrical diagrams Synchronous generator GTS 8/5 kVA, 125/250 V 60Hz with Insulation monitoring							
Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg							
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c				Datum	24.10.2006	E	
b				Bearb.	Weld		
a				Gepr.	Weld		
A. Änderung	Datum	Name		Ersatz durch:		Ersatz für:	
KAESER KOMPRESSOREN				Cover page MOBILAIR Synchronous generator		= +	
Ursprung: AGE00928_00				DGENGTS.1S2-00928.01		Blatt 1 Bl.	

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page	Synchronous generator	DGNGTS.1S2-00928.01	1	
2	List of contents		ZGNGTS.1S2-00928.01	1	
3	Circuit diagram		SGNGTS.1S2-00928.01	1	
4	Circuit diagram	evaluating electronics	SGNGTS.1S2-00928.01	2	
5	Circuit diagram	socket panel	SGNGTS.1S2-00928.01	3	
6	Electrical equipment identification	Electrical equipment identification	SGNGTS.1S2-00928.01	01	
7	Circuit diagram		GGNGTS.1S2-00928.01	1	
8	Component layout	front plate	AGNGTS.1S2-00928.01	1	

List of contents		=	
List of contents		+	
List of contents		Blatt 1	
List of contents		ZGNGTS.1S2-00928.01	
List of contents		Bl.	







	1	2	3	4	5	6	7	8
-A3	generator-Regulator							
-F01	Cut-out with overcurrent release							
-F06,-F07	Cut-out							
-F03	Insulation monitoring							
-G3	generator							
-H3	Earth leak lamp							
-Q1	Main switch							
-S3	Test button, Insulation monitoring							
-S10	Selecter switch							
-X4	Generator terminals							
-X6,-X7	Socket outlet 125 V / 2 ~ / PE, 60 Hz 20 A							
-X8,-X9	Socket outlet 250 V / 2 ~ / PE, 60 Hz 20 A							
-X42	Plug connection, Valve interference suppression							

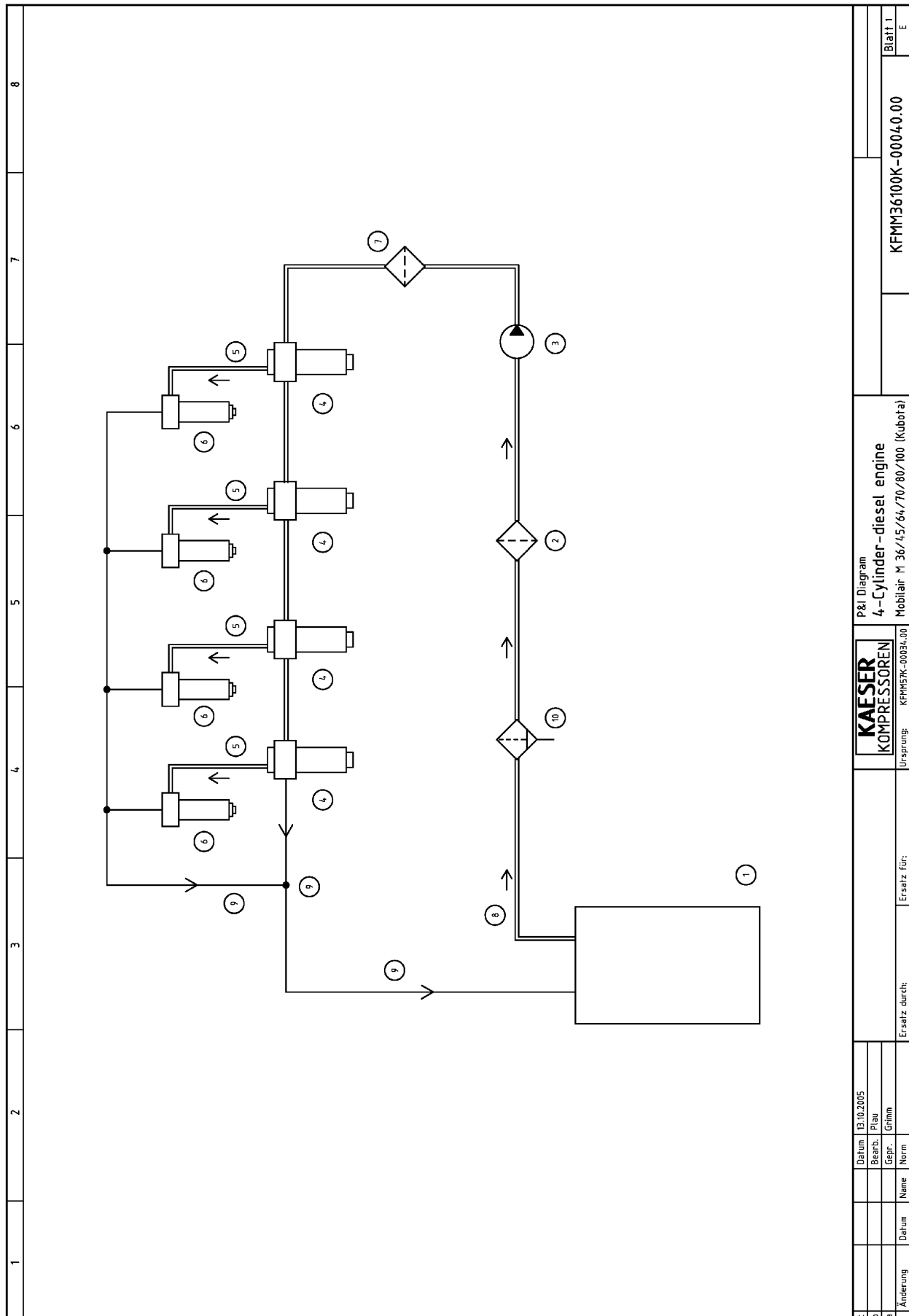
		Datum	24.10.2006
a	E Änderung	Name	
b		Datum	
c		Bearb.	Weid
d		Gepr.	Weid
e		Norm	

		KAESER KOMPRESSOREN	Electrical equipment identification
		Ursprung: AGE00928_00	Synchronous generator GTS
		Ersatz durch:	Electrical equipment identification
		Ersatz für:	
		=	
		+	
		SGENGTS.1S2-00928.01	
		Blatt 01	
		Bl.	

[illegible]

GTS 8,0 kVA 125/250 V, 60 Hz 1~/PE I=31/44 A

13.5 Fuel circulation diagram



	1	2	3	4	5	6	7	8
			Fuel tank		Injection nozzle			
			Fuel prefilter		Fuel filter			
			Fuel feed pump		Fuel supply line			
			Injection pump		Fuel return line			
			Injection pipe		Water separator			

Z.	Änderung	Datum	Name	Datum	Bearb.	Plauf.	Gepf.	Gültigk.	Datum	13.10.2005
a)										

P&I Diagram legend
4-Cylinder - diesel engine
 Mobilair M 36/45 / 64 / 70 / 80 / 100 (Kubota)

		KAESER		KOMPRESSOREN	
		Ursprung:		KFMM57K-00034.00	
Ersatz durch:		Ersatz für:			
				Blatt 2	
				E	
				KFMM36/100K-00040.00	

13.6 Assembly diagrams - chassis**13.6.1 Assembly diagrams - chassis EU version**

VEHICLE TECHNOLOGY
QUALITY FOR LIFE

AL-KO

AL-KO BN V
Type A
kg f kg
mm mm

1

2

3 Einprägung Zugdeichsel

	A	M16 x * x 8.8	6x
	B	M16 x 170 x 8.8 (DIN 981)	2x
	C	A17	8x
	D	16-10.9 (DIN 985)	8x
		M16: 210 Nm	

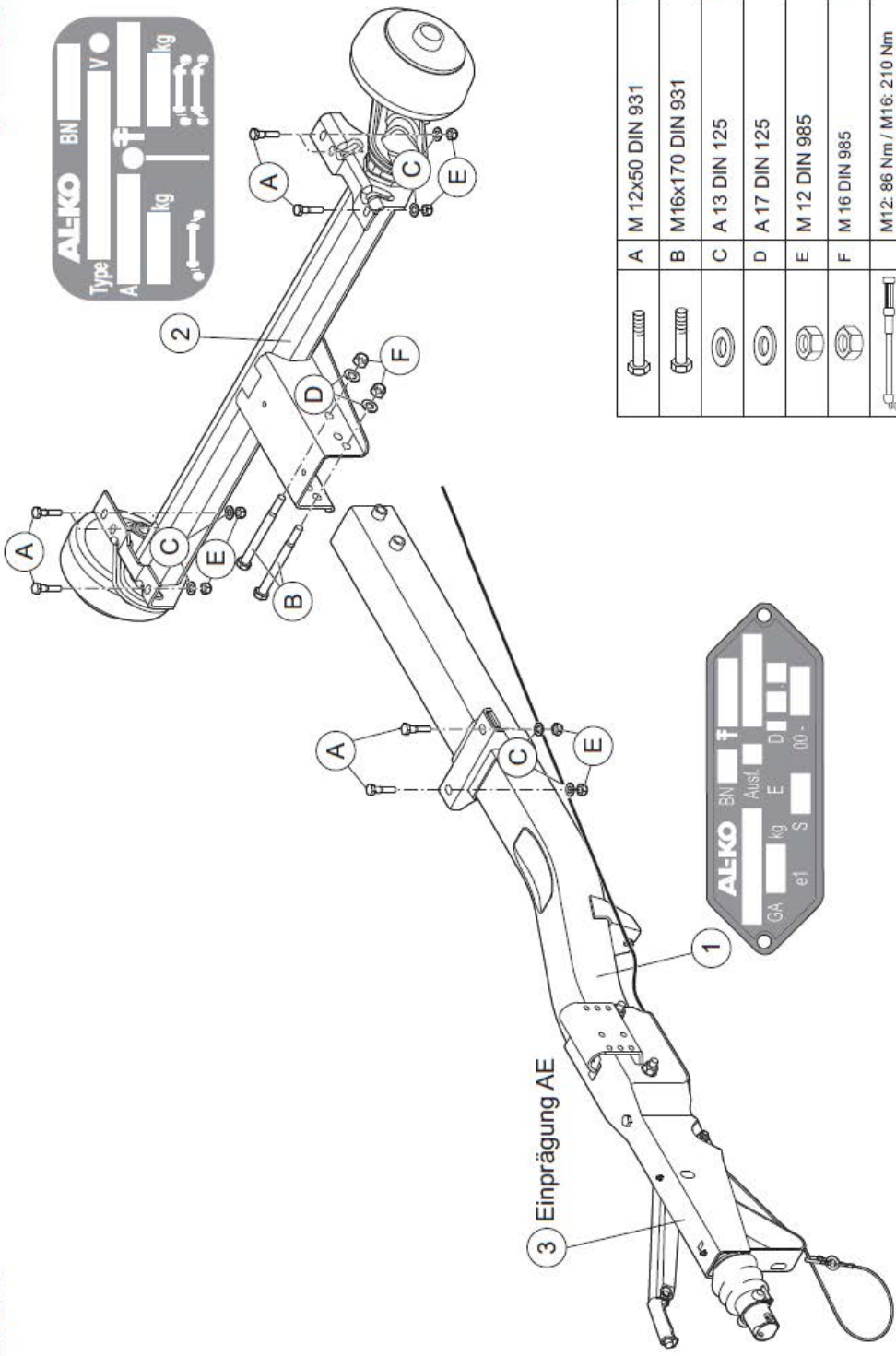
AL-KO FAHRGESTELLE

TYP VB

13.6.2 Assembly diagrams - chassis GB/US version

VEHICLE TECHNOLOGY
QUALITY FOR LIFE

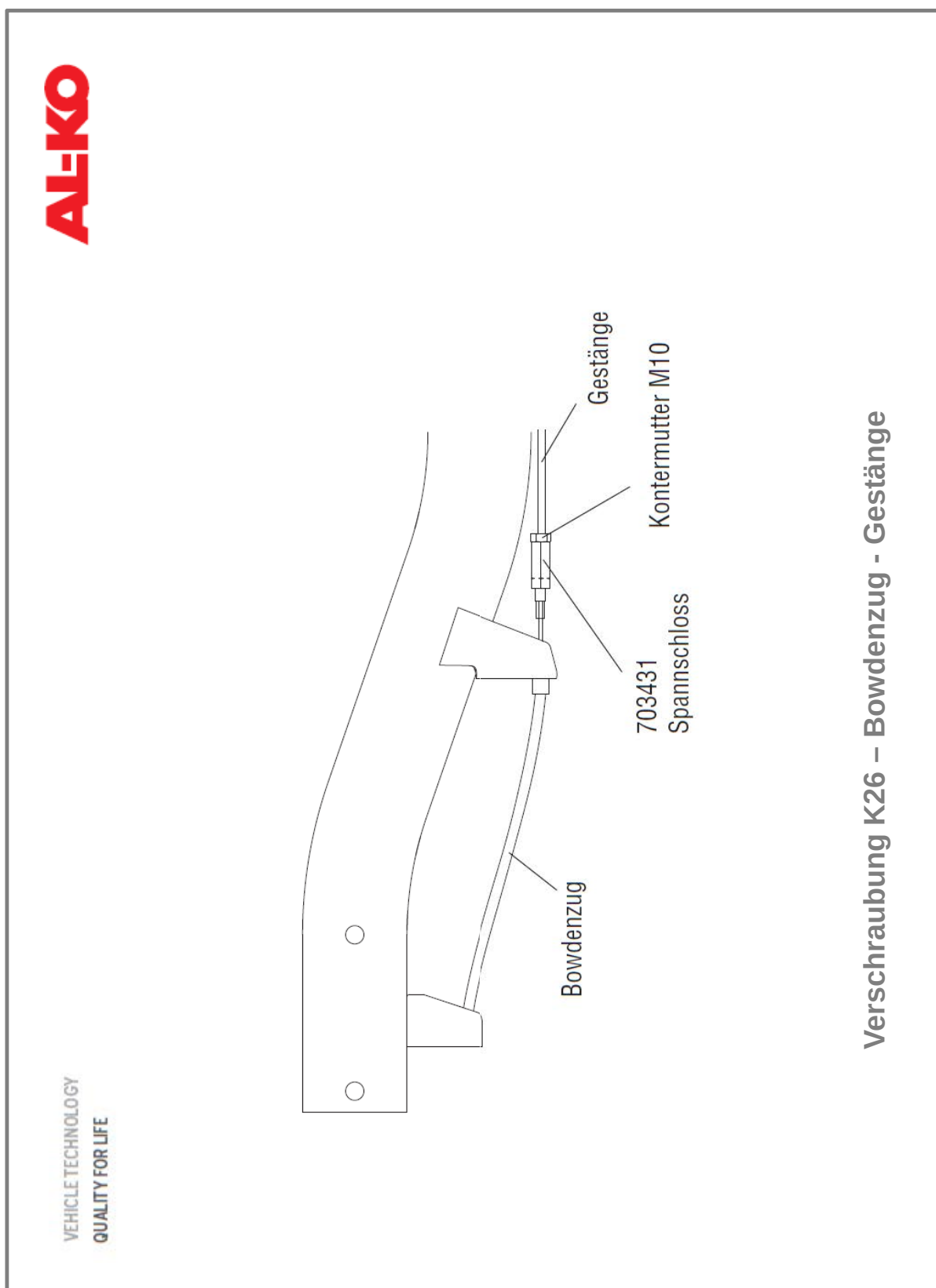




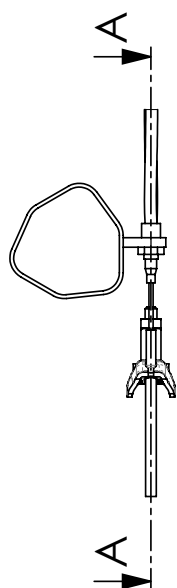
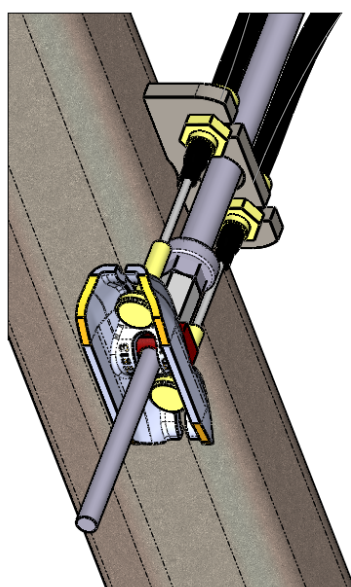
	A	M 12x50 DIN 931	6x
	B	M16x170 DIN 931	2x
	C	A 13 DIN 125	6x
	D	A 17 DIN 125	2x
	E	M 12 DIN 985	6x
	F	M 16 DIN 985	2x
	M12: 86 Nm / M16: 210 Nm		

TYP K 26

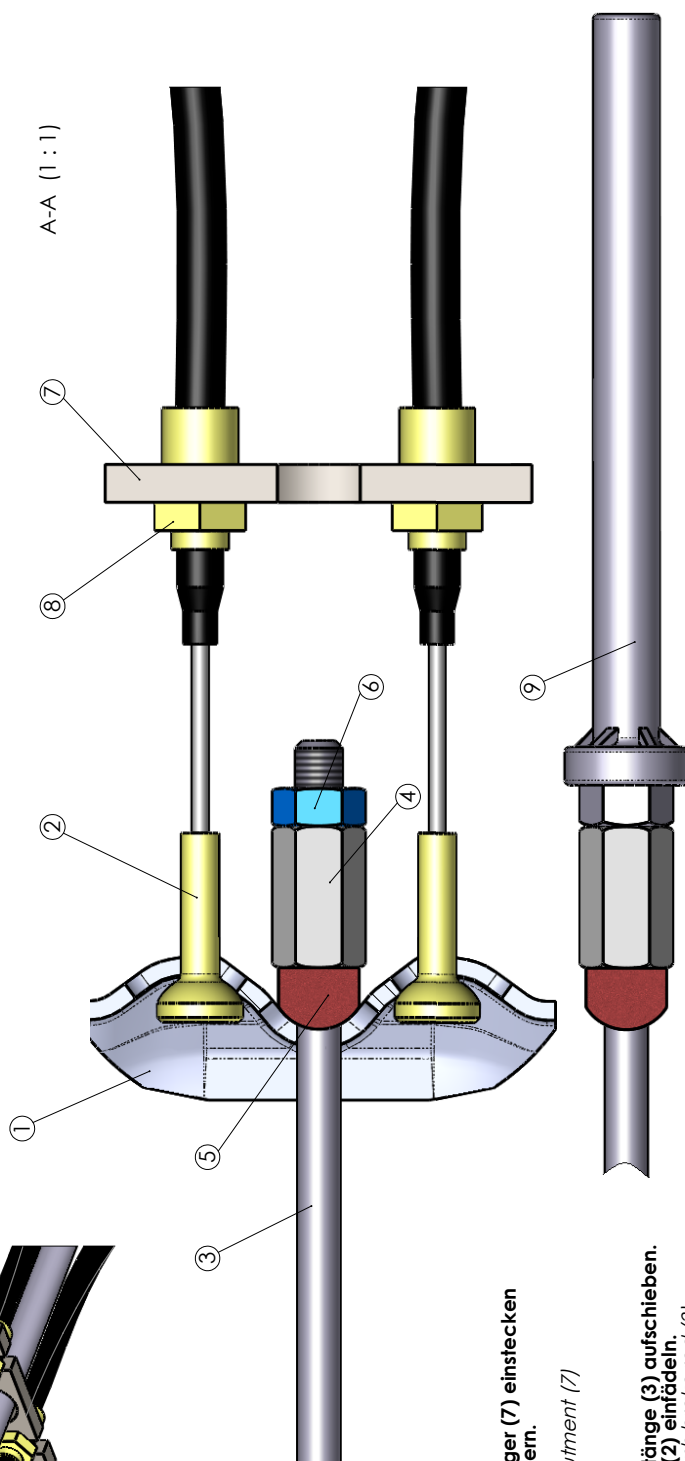
AL-KO FAHRGESTELLE



13.6.3 Assembly diagram brake rod



A-A (1:1)



1. Bowdenzüge (2) am Achswiderlager (7) einstecken und mit Skt.-Mutter M12x1,5 (8) kontern.
Anziehdrehmoment 40-45 Nm.
1. Insert bowden cables (2) into abutment (7) and counter with hex. nut M12x1,5.
torque to 40-45 Nm.
2. Auslegschsprofil (1) auf Bremsgestänge (3) aufschieben.
Auslegschsprofil (1) in Bowdenzüge (2) einfädeln.
2. Put the balance bar (1) on the push brake rod (3).
Arrange the balance bar (1) into the bowden cables (2).
3. Distanzstück (5) auf Bremsgestänge (3) schieben.
(Rundung zum Auslegschsprofil)
3. Fit the distance plate on to the push brake rod.
(with the curve to the balance bar)
4. Langmutter M10 (4) aufschrauben und anziehen
bis kein Spiel mehr vorhanden ist.
Mit Skt.-Mutter M10 (6) kontern.
Anziehdrehmoment 20-25Nm
4. Srew the long nut M10 (4) and fix it
until no tolerance is available.
Counter with hex. nut M10 (6)
torque to 20-25Nm.
5. Gestängehalter (9) wahlweise
3. Brake rod rear (9) optional

[illegible]

13.7 Option dd**Operating instructions for compressed air filter (combination filter)**

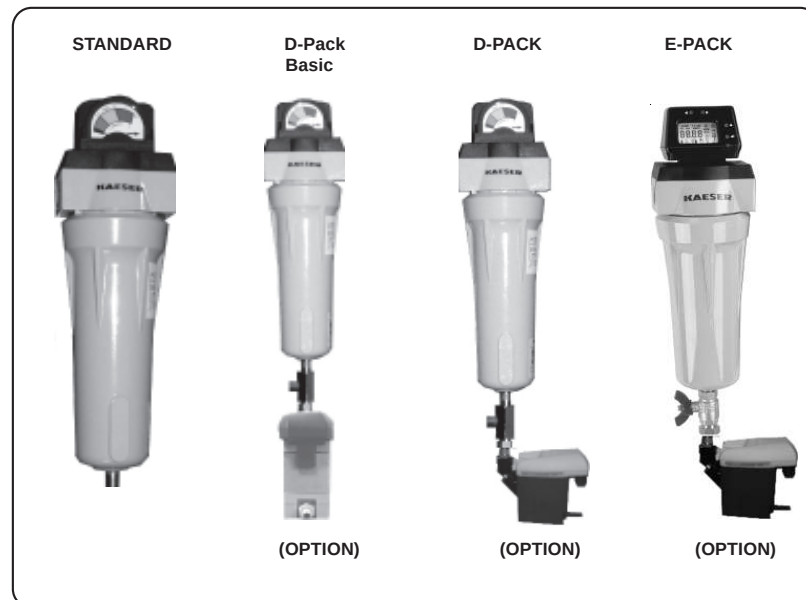
Bedienungsanleitung Instruction Manual

Hochleistungs - Druckluftfilter

Compressed-air filters

Serie / Series

FA (D), FB (D&E), FC (D&E), FD (E), FE (D&E), FF (D&E), FG



Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg
Tel.: 09561/640-0
Fax: 09561/640130
<http://www.kaeser.com>

KAESER

gültig ab 01.04.2007

A Kap. 9.2, 9.3 Wartungsintervalle	04.12.08	SK
Änd. Mittlg.	Datum	Bearb.

D GB

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung
Sign of material

Filter: Standard		Filter: D-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.
FA-6	9.4600.0	FA-6 D	9.4600.00110	E-A-6	9.4800.0
FA-10	9.4601.0	FA-10 D	9.4601.00110	E-A-10	9.4801.0
FA-18	9.4602.0	FA-18 D	9.4602.00110	E-A-18	9.4802.0
FA-28	9.4603.0	FA-28 D	9.4603.00110	E-A-28	9.4803.0
FA-48	9.4604.0	FA-48 D	9.4604.00010	E-A-48	9.4804.0
FA-71	9.4605.0	FA-71 D	9.4605.00010	E-A-71	9.4805.0
FA-107	9.4606.0	FA-107 D	9.4606.00010	E-A-107	9.4806.0
FA-138	9.4607.0	FA-138 D	9.4607.00010	E-A-138	9.4807.0
FA-177	9.4608.0	FA-177 D	9.4608.00010	E-A-177	9.4808.0
FA-221	9.4609.0	FA-221 D	9.4609.00010	E-A-221	9.4809.0
FA-185	9.4610.0	FA-185 D	9.4610.00010	E-A-185	9.4810.0
FA-283	9.4611.0	FA-283 D	9.4611.00010	E-A-283	9.4811.0
FA-354	9.4612.0	FA-354 D	9.4612.00010	E-A-185	9.4810.0
FA-526	9.4613.0	FA-526 D	9.4613.00010	E-A-185	9.4810.0
FA-708	9.4614.0	FA-708 D	9.4614.00010	E-A-185	9.4810.0
FA-885	9.4615.0	FA-885 D	9.4615.00010	E-A-185	9.4810.0
FA-1420	9.4616.0	FA-1420 D	9.4616.00010	E-A-185	9.4810.0
FA-1950	9.4617.0	FA-1950 D	9.4617.00010	E-A-185	9.4810.0
FA-2480	9.4618.0	FA-2480 D	9.4618.00010	E-A-185	9.4810.0

D-Pack: Filter mit ECO-DRAIN /

D-Pack: Filter with ECO-DRAIN

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack	Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.
FB-6	9.4620.0	FB-6 B	9.4620.00110	FB-6 D	9.4620.00120	FB-6 E	E-B-6	9.4812.0
FB-10	9.4621.0	FB-10 B	9.4621.00110	FB-10 D	9.4621.00120	FB-10 E	E-B-10	9.4813.0
FB-18	9.4622.0	FB-18 B	9.4622.00110	FB-18 D	9.4622.00120	FB-18 E	E-B-18	9.4814.0
FB-28	9.4623.0	FB-28 B	9.4623.00110	FB-28 D	9.4623.00120	FB-28 E	E-B-28	9.4815.0
FB-48	9.4624.0	FB-48 B	9.4624.00110	FB-48 D	9.4624.00120	FB-48 E	E-B-48	9.4816.0
FB-71	9.4625.0	FB-71 B	9.4625.00110	FB-71 D	9.4625.00120	FB-71 E	E-B-71	9.4817.0
FB-107	9.4626.0	FB-107 B	9.4626.00110	FB-107 D	9.4626.00120	FB-107 E	E-B-107	9.4818.0
FB-138	9.4627.0	FB-138 B	9.4627.00110	FB-138 D	9.4627.00120	FB-138 E	E-B-138	9.4819.0
FB-177	9.4628.0	FB-177 B	9.4628.00110	FB-177 D	9.4628.00120	FB-177 E	E-B-177	9.4820.0
FB-221	9.4629.0	FB-221 B	9.4629.00110	FB-221 D	9.4629.00120	FB-221 E	E-B-221	9.4821.0
FB-185	9.4630.0	-	-	FB-185 D	9.4630.00120	FB-185 E	E-B-185	9.4822.0
FB-283	9.4631.0	-	-	FB-283 D	9.4631.00120	FB-283 E	E-B-283	9.4823.0
FB-354	9.4632.0	-	-	FB-354 D	9.4632.00120	FB-354 E	E-B-185	9.4822.0
FB-526	9.4633.0	-	-	FB-526 D	9.4633.00120	FB-526 E	E-B-185	9.4822.0
FB-708	9.4634.0	-	-	FB-708 D	9.4634.00120	FB-708 E	E-B-185	9.4822.0
FB-885	9.4635.0	-	-	FB-885 D	9.4635.00120	FB-885 E	E-B-185	9.4822.0
FB-1420	9.4636.0	-	-	FB-1420 D	9.4636.00020	FB-1420 E	E-B-185	9.4822.0
FB-1950	9.4637.0	-	-	FB-1950 D	9.4637.00020	FB-1950 E	E-B-185	9.4822.0
FB-2480	9.4638.0	-	-	FB-2480 D	9.4638.00020	FB-2480 E	E-B-185	9.4822.0

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

- 2 -

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung
Sign of material

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	
FC-6	9.4640.0	FC-6 B	9.4640.00110	FC-6 D	9.4640.00120	FC-6 E	E-C-6	9.4824.0	
FC-10	9.4641.0	FC-10 B	9.4641.00110	FC-10 D	9.4641.00120	FC-10 E	E-C-10	9.4825.0	
FC-18	9.4642.0	FC-18 B	9.4642.00110	FC-18 D	9.4642.00120	FC-18 E	E-C-18	9.4826.0	
FC-28	9.4643.0	FC-28 B	9.4643.00110	FC-28 D	9.4643.00120	FC-28 E	E-C-28	9.4827.0	
FC-48	9.4644.0	FC-48 B	9.4644.00110	FC-48 D	9.4644.00120	FC-48 E	E-C-48	9.4828.0	
FC-71	9.4645.0	FC-71 B	9.4645.00110	FC-71 D	9.4645.00120	FC-71 E	E-C-71	9.4829.0	
FC-107	9.4646.0	FC-107 B	9.4646.00110	FC-107 D	9.4646.00120	FC-107 E	E-C-107	9.4830.0	
FC-138	9.4647.0	FC-138 B	9.4647.00110	FC-138 D	9.4647.00120	FC-138 E	E-C-138	9.4831.0	
FC-177	9.4648.0	FC-177 B	9.4648.00110	FC-177 D	9.4648.00120	FC-177 E	E-C-177	9.4832.0	
FC-221	9.4649.0	FC-221 B	9.4649.00110	FC-221 D	9.4649.00120	FC-221 E	E-C-221	9.4833.0	
FC-185	9.4650.0	-	-	FC-185 D	9.4650.00120	FC-185 E	E-C-185	9.4834.0	
FC-283	9.4651.0	-	-	FC-283 D	9.4651.00120	FC-283 E	E-C-283	9.4835.0	
FC-354	9.4652.0	-	-	FC-354 D	9.4652.00120	FC-354 E	E-C-185	9.4834.0	
FC-526	9.4653.0	-	-	FC-526 D	9.4653.00120	FC-526 E	E-C-185	9.4834.0	
FC-708	9.4654.0	-	-	FC-708 D	9.4654.00120	FC-708 E	E-C-185	9.4834.0	
FC-885	9.4655.0	-	-	FC-885 D	9.4655.00120	FC-885 E	E-C-185	9.4834.0	
FC-1420	9.4656.0	-	-	FC-1420 D	9.4656.00020	FC-1420 E	E-C-185	9.4834.0	
FC-1950	9.4657.0	-	-	FC-1950 D	9.4657.00020	FC-1950 E	E-C-185	9.4834.0	
FC-2480	9.4658.0	-	-	FC-2480 D	9.4658.00020	FC-2480 E	E-C-185	9.4834.0	

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Filter: Standard		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	
FD-6	9.4660.0	FD-6 E	E-D-6	9.4836.0	
FD-10	9.4661.0	FD-10 E	E-D-10	9.4837.0	
FD-18	9.4662.0	FD-18 E	E-D-18	9.4838.0	
FD-28	9.4663.0	FD-28 E	E-D-28	9.4839.0	
FD-48	9.4664.0	FD-48 E	E-D-48	9.4840.0	
FD-71	9.4665.0	FD-71 E	E-D-71	9.4841.0	
FD-107	9.4666.0	FD-107 E	E-D-107	9.4842.0	
FD-138	9.4667.0	FD-138 E	E-D-138	9.4843.0	
FD-177	9.4668.0	FD-177 E	E-D-177	9.4844.0	
FD-221	9.4669.0	FD-221 E	E-D-221	9.4845.0	
FD-185	9.4670.0	FD-185 E	E-D-185	9.4846.0	
FD-283	9.4671.0	FD-283 E	E-D-283	9.4847.0	
FD-354	9.4672.0	FD-354 E	E-D-185	9.4846.0	
FD-526	9.4673.0	FD-526 E	E-D-185	9.4846.0	
FD-708	9.4674.0	FD-708 E	E-D-185	9.4846.0	
FD-885	9.4675.0	FD-885 E	E-D-185	9.4846.0	
FD-1420	9.4676.0	FD-1420 E	E-D-185	9.4846.0	
FD-1950	9.4677.0	FD-1950 E	E-D-185	9.4846.0	
FD-2480	9.4678.0	FD-2480 E	E-D-185	9.4846.0	

E-Pack: Filter mit Filtermonitor

E-Pack: Filter with filtermonitor

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

- 3 -

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung
Sign of material

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	
FE-6	9.4700.0	FE-6 B	9.4700.00110	FE-6 D	9.4700.00120	FE-6 E	E-E-6	9.4860.0	
FE-10	9.4701.0	FE-10 B	9.4701.00110	FE-10 D	9.4701.00120	FE-10 E	E-E-10	9.4861.0	
FE-18	9.4702.0	FE-18 B	9.4702.00110	FE-18 D	9.4702.00120	FE-18 E	E-E-18	9.4862.0	
FE-28	9.4703.0	FE-28 B	9.4703.00110	FE-28 D	9.4703.00120	FE-28 E	E-E-28	9.4863.0	
FE-48	9.4704.0	FE-48 B	9.4704.00110	FE-48 D	9.4704.00120	FE-48 E	E-E-48	9.4864.0	
FE-71	9.4705.0	FE-71 B	9.4705.00110	FE-71 D	9.4705.00120	FE-71 E	E-E-71	9.4865.0	
FE-107	9.4706.0	FE-107 B	9.4706.00110	FE-107 D	9.4706.00120	FE-107 E	E-E-107	9.4866.0	
FE-138	9.4707.0	FE-138 B	9.4707.00110	FE-138 D	9.4707.00120	FE-138 E	E-E-138	9.4867.0	
FE-177	9.4708.0	FE-177 B	9.4708.00110	FE-177 D	9.4708.00120	FE-177 E	E-E-177	9.4868.0	
FE-221	9.4709.0	FE-221 B	9.4709.00110	FE-221 D	9.4709.00120	FE-221 E	E-E-221	9.4869.0	
FE-185	9.4710.0	-	-	FE-185 D	9.4710.00120	FE-185 E	E-E-185	9.4870.0	
FE-283	9.4711.0	-	-	FE-283 D	9.4711.00120	FE-283 E	E-E-283	9.4871.0	
FE-354	9.4712.0	-	-	FE-354 D	9.4712.00120	FE-354 E	E-E-185	9.4870.0	
FE-526	9.4713.0	-	-	FE-526 D	9.4713.00120	FE-526 E	E-E-185	9.4870.0	
FE-708	9.4714.0	-	-	FE-708 D	9.4714.00120	FE-708 E	E-E-185	9.4870.0	
FE-885	9.4715.0	-	-	FE-885 D	9.4715.00120	FE-885 E	E-E-185	9.4870.0	
FE-1420	9.4716.0	-	-	FE-1420 D	9.4716.00020	FE-1420 E	E-E-185	9.4870.0	
FE-1950	9.4717.0	-	-	FE-1950 D	9.4717.00020	FE-1950 E	E-E-185	9.4870.0	
FE-2480	9.4718.0	-	-	FE-2480 D	9.4718.00020	FE-2480 E	E-E-185	9.4870.0	

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	
FF-6	9.4720.0	FF-6 B	9.4720.00110	FF-6 D	9.4720.00120	FF-6 E	E-F-6	9.4872.0	
FF-10	9.4721.0	FF-10 B	9.4721.00110	FF-10 D	9.4721.00120	FF-10 E	E-F-10	9.4873.0	
FF-18	9.4722.0	FF-18 B	9.4722.00110	FF-18 D	9.4722.00120	FF-18 E	E-F-18	9.4874.0	
FF-28	9.4723.0	FF-28 B	9.4723.00110	FF-28 D	9.4723.00120	FF-28 E	E-F-28	9.4875.0	
FF-48	9.4724.0	FF-48 B	9.4724.00110	FF-48 D	9.4724.00120	FF-48 E	E-F-48	9.4876.0	
FF-71	9.4725.0	FF-71 B	9.4725.00110	FF-71 D	9.4725.00120	FF-71 E	E-F-71	9.4877.0	
FF-107	9.4726.0	FF-107 B	9.4726.00110	FF-107 D	9.4726.00120	FF-107 E	E-F-107	9.4878.0	
FF-138	9.4727.0	FF-138 B	9.4727.00110	FF-138 D	9.4727.00120	FF-138 E	E-F-138	9.4879.0	
FF-177	9.4728.0	FF-177 B	9.4728.00110	FF-177 D	9.4728.00120	FF-177 E	E-F-177	9.4880.0	
FF-221	9.4729.0	FF-221 B	9.4729.00110	FF-221 D	9.4729.00120	FF-221 E	E-F-221	9.4881.0	
FF-185	9.4730.0	-	-	FF-185 D	9.4730.00120	FF-185 E	E-F-185	9.4882.0	
FF-283	9.4731.0	-	-	FF-283 D	9.4731.00120	FF-283 E	E-F-283	9.4883.0	
FF-354	9.4732.0	-	-	FF-354 D	9.4732.00120	FF-354 E	E-F-185	9.4882.0	
FF-526	9.4733.0	-	-	FF-526 D	9.4733.00120	FF-526 E	E-F-185	9.4882.0	
FF-708	9.4734.0	-	-	FF-708 D	9.4734.00120	FF-708 E	E-F-185	9.4882.0	
FF-885	9.4735.0	-	-	FF-885 D	9.4735.00120	FF-885 E	E-F-185	9.4882.0	
FF-1420	9.4736.0	-	-	FF-1420 D	9.4736.00020	FF-1420 E	E-F-185	9.4882.0	
FF-1950	9.4737.0	-	-	FF-1950 D	9.4737.00020	FF-1950 E	E-F-185	9.4882.0	
FF-2480	9.4738.0	-	-	FF-2480 D	9.4738.00020	FF-2480 E	E-F-185	9.4882.0	

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

- 4 -

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung
Sign of material

Filter: Standard		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.
FG-6	9.4740.0	E-G-6	9.4884.0
FG-10	9.4741.0	E-G-10	9.4885.0
FG-18	9.4742.0	E-G-18	9.4886.0
FG-28	9.4743.0	E-G-28	9.4887.0
FG-48	9.4744.0	E-G-48	9.4888.0
FG-71	9.4745.0	E-G-71	9.4889.0
FG-107	9.4746.0	E-G-107	9.4890.0
FG-138	9.4747.0	E-G-138	9.4891.0
FG-177	9.4748.0	E-G-177	9.4892.0
FG-221	9.4749.0	E-G-221	9.4893.0
FG-185	9.4750.0	E-G-185	9.4894.0
FG-283	9.4751.0	E-G-283	9.4895.0
FG-354	9.4752.0	E-G-185	9.4894.0
FG-526	9.4753.0	E-G-185	9.4894.0
FG-708	9.4754.0	E-G-185	9.4894.0
FG-885	9.4755.0	E-G-185	9.4894.0
FG-1420	9.4756.0	E-G-185	9.4894.0
FG-1950	9.4757.0	E-G-185	9.4894.0
FG-2480	9.4758.0	E-G-185	9.4894.0

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type
FFG-6	9.4760.0	FFG-6 B	9.4760.00110	FFG-6 D	9.4760.00120	FFG-6 E
FFG-10	9.4761.0	FFG-10 B	9.4761.00110	FFG-10 D	9.4761.00120	FFG-10 E
FFG-18	9.4762.0	FFG-18 B	9.4762.00110	FFG-18 D	9.4762.00120	FFG-18 E
FFG-28	9.4763.0	FFG-28 B	9.4763.00110	FFG-28 D	9.4763.00120	FFG-28 E
FFG-48	9.4764.0	FFG-48 B	9.4764.00110	FFG-48 D	9.4764.00120	FFG-48 E
FFG-71	9.4765.0	FFG-71 B	9.4765.00110	FFG-71 D	9.4765.00120	FFG-71 E
FFG-107	9.4766.0	FFG-107 B	9.4766.00110	FFG-107 D	9.4766.00120	FFG-107 E
FFG-138	9.4767.0	FFG-138 B	9.4767.00110	FFG-138 D	9.4767.00120	FFG-138 E
FFG-177	9.4768.0	FFG-177 B	9.4768.00110	FFG-177 D	9.4768.00120	FFG-177 E
FFG-221	9.4769.0	FFG-221 B	9.4769.00110	FFG-221 D	9.4769.00120	FFG-221 E
FFG-185	9.4770.0	-	-	FFG-185 D	9.4770.00120	FFG-185 E
FFG-283	9.4771.0	-	-	FFG-283 D	9.4771.00120	FFG-283 E
FFG-354	9.4772.0	-	-	FFG-354 D	9.4772.00120	FFG-354 E
FFG-526	9.4773.0	-	-	FFG-526 D	9.4773.00120	FFG-526 E
FFG-708	9.4774.0	-	-	FFG-708 D	9.4774.00120	FFG-708 E
FFG-885	9.4775.0	-	-	FFG-885 D	9.4775.00120	FFG-885 E
FFG-1420	9.4776.0	-	-	FFG-1420 D	9.4776.00020	FFG-1420 E
FFG-1950	9.4777.0	-	-	FFG-1950 D	9.4777.00020	FFG-1950 E
FFG-2480	9.4778.0	-	-	FFG-2480 D	9.4778.00020	FFG-2480 E

Filterkombination bestehend aus Serie FF & FG

Filter combination consist of series FF & FG

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter Serie FF mit Filtermonitor und ECO-DRAIN

E-pack: Filter series FF with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

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6. Transport, Wareneingangskontrolle	6. Transportation, checking of goods received
7. Montage	7. Assembly
8. Inbetriebnahme, Betrieb	8. Start up, operation
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12. Anhang (ECO-DRAIN)	12. Annex (ECO-DRAIN)
13. Einteilung nach Druckgeräterichtlinie	13. Grading of filters according to pressure equipment directive (PED)

Wir haben den Inhalt der Bedienungsanleitung auf Übereinstimmung mit dem beschriebenen Gerät geprüft. Dennoch können Abweichungen nicht ausgeschlossen werden, so daß wir für die vollständige Übereinstimmung keine Gewähr übernehmen.

Technische Änderungen vorbehalten.

We have examined the content of the operating instructions for conformity with the appliance described. Inconsistencies cannot be ruled out, however, with the result that we do not guarantee complete conformity

We reserve the right to alter the specifications without prior notice

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1. Einleitung

1.1 Allgemeines

Die in dieser Betriebsanleitung dokumentierten Druckluftfilter erfüllen alle Anforderungen, die an moderne Filtersysteme gestellt werden.

Um Sie optimal nutzen zu können, benötigt der Anwender ausführliche Informationen.

In der vorliegenden Betriebsanleitung haben wir diese Informationen möglichst vollständig und in entsprechende Kapitel gegliedert zusammengestellt.

Lesen und beachten Sie diese Informationen.
Sie helfen Ihnen auch Unfälle zu vermeiden.

1.2 Erklärung der Symbole in der Bedienungsanleitung

- Aufzählungen werden mit diesem Punkt oder Sternchen
* gekennzeichnet.



Mit diesem Symbol werden Textstellen gekennzeichnet, die unbedingt zu beachten sind.

- Wichtige Sicherheitshinweise
- Wichtige Bedienungs-/Wartungshinweise
- Warnung vor möglichen Fehlbedienungen
- Warnung vor Gefahren



Elektrisches Gefahrensymbol



Ausführende Tätigkeit.
Vom Bediener auszuführende Bedienschritte.

1.3 Erklärung der Symbole am Gerät



Automatischer Kondensatablaß / Automatic Condensate Drain



Elektroanschluß / Electrical Supply

1. Introduction

1.1 General remarks

The compressed air filters documented in these instruction manual has all requirements that can be expected from a modern filter/ -system.

In order to obtain maximum benefit from using the filters/ -system the user should have sufficient information.

These instruction manual gave the user this information which has been divided into separate sections for easy reference.

Please read carefully before installing and operating the filter/ -system.

1.2 Explanation to the symbols in the instruction manual

- Technical data or instructions.
*



Parts that require absolute attention

- Vital safety instructions
- Essential operation and maintenance instructions
- Warnings on handling or moving the dryer
- Danger areas



Electrical danger symbol



Changes sequence of operation

1.3 Symbols used in the filter



Drucklufteintritt / Compressed Air Inlet



Druckluftaustritt / Compressed Air Outlet

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2. Sicherheitsregeln, Warnhinweise

2.1 Bestimmungsgemäßer Gebrauch

Achtung!

- Die Filter dürfen nur für die in dieser Bedienungsanleitung vorgesehenen Einsatzfälle zur Aufbereitung von Druckluft verwendet werden.
- Der einwandfreie und sichere Betrieb der Produkte erfordert sachgerechten Transport, Lagerung, Aufstellung und Montage, sowie sorgfältige Bedienung und Instandhaltung.

2.2 Sicherheitsregeln

Warnung!

- Die Filter dürfen nur von qualifiziertem Personal genutzt, bedient, gewartet oder instandgesetzt werden.
- Qualifiziertes Personal im Sinne der sicherheitsbezogenen Hinweise in dieser Dokumentation oder auf dem Produkt selbst, ist Personal das:
 - * im Umgang mit Einrichtungen der Druckluft vertraut und unterwiesen sowie über die damit verbundenen Gefahren unterrichtet ist.
 - * Den auf die Bedienung bezogenen Inhalt dieser Dokumentation kennt.
 - * Es besitzt als solches eine zur Inbetriebnahme und Wartung derartiger Einrichtungen befähigende Ausbildung bzw. Berechtigung.

2. Safety rules, warnings

2.1 Use of filter/ -system

Achtung!

- The filter must only be used for the purpose as designated in the instruction manual to upgrading the compressed air.
- To obtain maximum efficiency and operation of the filter/ -system ensure all sections of the manual are read carefully.

2.2 Safety rules

Warning!

- The filter/ -system must only be used, operated, inspected and repaired by trained personnel.
- Trained personnel are defined as follows:
 - * Operating staff who are skilled in the field of compressed air engineering and who are familiar with the filter/ -system and possible dangers in unauthorised operation or service.
 - * Who can interpret and action the contents of this operation instruction manual.
 - * Who have had the appropriate training and qualified as being competent in these fields.

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2. Sicherheitsregeln, Warnhinweise

2. Safety rules, warnings

2.3 Warnhinweise



Warnung!

Das (die) Filter beinhalten unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.



Warnung!

Filtersysteme mit elektrisch gesteuerten Kondensatableitern enthalten unter elektrischer Spannung stehende Bauteile. Vor Servicearbeiten sind diese allpolig vom elektrischen Spannungsversorgungsnetz zu trennen. (Netzstecker ziehen, Hauptschalter ausschalten)

ACHTUNG!

Alle Arbeiten am elektrischen System dürfen nur von elektrotechnisch geschultem Fachpersonal, oder unter Aufsicht von diesem, durch Unterwiesene ausgeführt werden.



Hinweis!

Die Filter sind ausschließlich zur Aufbereitung von Druckluft einzusetzen.

ACHTUNG!

Die Verwendung in Verbindung mit brennbaren Gasen ist verboten!



ACHTUNG!

Filter/-systeme zur Aufbereitung von Atemluft dürfen nur nach Genehmigung des Herstellers der Filter/-systeme eingesetzt und betrieben werden.



Warning!

The filter/-system contains components under high pressure. Before starting any service work turn off compressed air supply to the dryer and depressurise the system.



Warning!

The filter/-systems with electrical condensate discharger contains components that are electrically live and which can cause danger to life. Before starting any service work ensure all power is isolated from the filter/-system, mains isolator to be off, mains plug if fitted to be removed.

ATTENTION!

Any electrical work on the dryer must only be carried out by skilled staff - qualified electricians, or persons under supervision of qualified staff.



Remark!

Use filter for compressed air applications only.

Attention!

The use of combustible gases is prohibited.



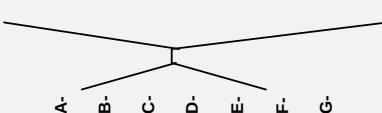
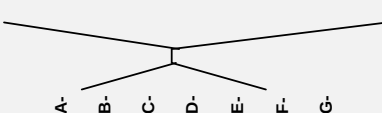
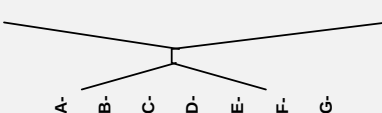
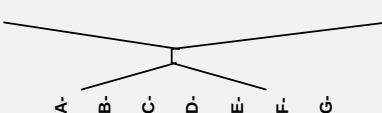
ATTENTION!

Filter/-systems for breathing air applications must be approved from manufacturer.

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3. Technische Daten

3. Technical data

MODELL BEZEICHNUNG / MODEL DESIGNATION		Volumenstrom Capacity	Anschluß Connection	Betriebsdruck Working Pressure	Abmessungen Dimensions		Gewicht Weight	AUSTAUSCH-FILTERELEMENTE FILTER REPLACEMENT CARTRIDGE			
FILTER- GRAD / GRADE	FILTER- GEHÄUSE / HOUSING	[m³/min]	[]	[max]	Höhe / Height [mm]	Breite / Width [mm]	[kg]	FILTER- GRAD / GRADE	FILTER- GEHÄUSE / HOUSING	Anzahl Quantity	
MODUL-BAUWEISE / MODULAR SYSTEM											
FA	-6	0,58	3/8"	16	siehe Kapitel „Maßzeich- nung“ see chapter „dimensional drawing“	105	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“		-6	1	
	-10	1,00	1/2"	16		105			-10	1	
	-18	1,75	1/2"	16		105			-18	1	
	-28	2,83	3/4"	16		133			-28	1	
FB	-48	4,83	1"	16	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“	133	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“			-48	1
	-71	7,10	1-1/2"	16		164				-71	1
FC	-107	10,7	1-1/2"	16		164				-107	1
	-138	13,8	2	16		194		-138		1	
FD	-177	17,7	2-1/2"	16	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“	194	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“			-177	1
	-221	22,1	2-1/2"	13		194				-221	1
BEHÄLTER-BAUWEISE / PRESSURE VESSEL											
FE	-185	18,5	DN80	16	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“	350	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“		-185	1	
	-283	28,3	DN80	16		400			-283	2	
FG	-354	35,4	DN80	16		400			-185	2	
	-526	52,6	DN100	16		440			-185	3	
	-708	70,8	DN100	16		535			-185	4	
	-885	88,5	DN100	16		535			-185	5	
	-1420	142	DN150	16	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“	600	siehe Kapitel „Maßzeichnung“ see chapter „dimensional drawing“			-185	8
	-1950	195	DN150	16		720		-185		11	
	-2480	248	DN150	16		750		-185		14	

- Volumenstrom m³/h bezogen auf +20°C und 1 bar absolut, bei Betriebsüberdruck 7 bar / Air flow m³/h based on +20°C and 1 bar absolute, at working pressure 7 bar
- Größere Betriebsdrücke auf Anfrage / Contact factory for dryers with a higher working pressure
- Filtergehäuse F-185 – F-2480: Konstruktion der Behälter entspricht der EG-Richtlinie 87/404/EEC für einfache Druckbehälter und ist mit CE-Zeichen versehen / Filter bowls F-185 – F-2480: Vessel construction complies with directive 87/404/EEC, simple pressure vessels, and is marked with the EC symbol

Volumenstrom - Korrekturtabelle / Sizing

Minimaler Betriebsdruck / Minimum working pressure bar	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Korrekturfaktor / Correction factor	0,38														

Auslegung

Bei Drücken abweichend von 7 bar berechnet sich der max. Volumenstrom wie folgt:

den Korrekturfaktor des entsprechenden minimalen Betriebsdruckes mit dem gewählten Volumenstrom aus o.g. Tabelle multiplizieren.

Based on

To find the maximum flow at pressures other than 7 bar:

multiply the flow (from table above) by the correction factor corresponding to the minimum working pressure of the filter.

Betriebsbedingungen:

Min. Betriebstemperatur: +1°C

Max. Betriebstemperatur: 66°C.

Min. Betriebsdruck mit automatischem Kondensatableiter: 2,0 bar

Working conditions:

Min. Working temperature: +1°C

Max. Working temperature: 66°C

Min. working pressure with automatic condensate drain: 2.0 bar

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4. Funktionsbeschreibung

4.3 Serie FC

1-MIKRON-COALESCEING-FILTER

- Zweistufige Tiefenfiltration bewirkt hervorragende Leistung und höhere Standzeiten des Filterelementes
- Entfernt 100% des Kondensats
- Entfernt Feststoffpartikel bis herunter zu 1 Mikron
- Restölgehalt < 1 ppm w/w
- Automatischer Kondensatableiter
- Differenzdruckanzeige am Filtergehäuse
- max. Flüssigkeitsbelastung: 2g/m³

Anwendungen:

- Allgemeine Filter für Werkstattluft
- Vorfilter für Hochleistungsfilter
- Nachfilter für Adsorptionstrockner
- Endstellenfiltration bei Einsatz von Nachkühlern oder Trocknern

Funktion:

Die Luft tritt von oben in das Filterelement FC ein und strömt radial durch den perforierten inneren Stützmantel zur 1. Filtrationsstufe. Diese Stufe besteht aus mehreren Lagen Glasfaser und einer stützenden Glasfasermatte. Größere Feststoffteilchen werden hier zurückgehalten. Die Luft gelangt nun in die 2. Filtrationsstufe, bestehend aus einer mehrlagigen Mischung von imprägnierten Glasfasern und Mikrofibern. In beiden Stufen werden Feststoffpartikel und Flüssigkeiten nach dem Prinzip der Tiefenfiltration sowie des Coalescings ausgefiltert. Die Luft tritt durch den perforierten äußeren Stützmantel aus.

4. Description of operation

4.3 Series FC

1-MICRON-COALESCEING-FILTER

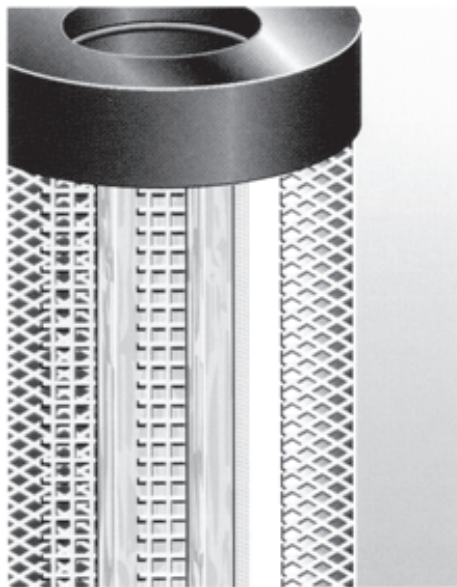
- Two in-depth filter beds offer superior performance and extended cartridge life
- Removes 100% of liquid water
- Removes solid particles down to 1 micron
- Oil content < 1 ppm w/w
- Automatic condensate drain
- Differential pressure indicator at the filter housing
- max. liquid load: 2g/m³

Application:

- General filter for shop air
- Prefilter for high efficiency filters
- Afterfilter for pressure-swing desiccant dryers
- Point-of-use filter on systems utilising aftercoolers or dryers

Operation:

Air enters the inside of the cartridge FC and flows outwardly through two in-depth beds of glass fibres. Larger particles are collected in the first bed while all remaining particles one micron and larger are collected in the second bed. A combination of large void areas and stabilized media allows heavy particulate loading and low pressure drop resulting in a long service life for the cartridge. Throughout both stages, liquid aerosols are captured and coalesced. The coalesced liquids then drain to the bottom of the cartridge for removal.



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4. Funktionsbeschreibung

4.5 Serie FE

0,01-MIKRON-COALESING-FILTER (bei 0,01 ppm w/w max. Ölgehalt)

DUO-System Abscheidung

1. Stufe: flüssige Bestandteile
2. Stufe: Ölbestandteile

- Entfernt mehr als 99,99% der Öl-Aerosole
- Entfernt Feststoffpartikel bis herunter zu 0,01 Mikron
- Restölgehalt < 0,01 ppm w/w
- Automatischer Kondensatableiter
- Differenzdruckanzeige am Filtergehäuse
- max. Flüssigkeitsbeladung: 1g/m³

Anwendungen:

- Vorfilter für Membrantrockner
- Vorfilter für Adsorptionstrockner
- Endstellenfiltration (falls **geringfügige** Feuchtigkeit vorhanden ist)

Funktion:

Die Luft tritt von oben in das Filterelement FE ein und strömt durch den inneren Stützmantel, radial durch verschiedenartige Lagen Fiberglas. Dann strömt die Luft durch ein weiteres Sieb. In dieser 1. Filtrationsstufe werden größere Partikel entfernt. In der zweiten Filtrationsstufe werden Aerosole und feste Bestandteile durch eine Mehrschicht-Membranwand aus epoxidharz verstärktem Fiberglas gefiltert, daß speziell für feinste Aerosole geeignet ist. Das Filtermedium ist ein Bett aus submikrofeinen Glasfasern und wirkt nach dem Prinzip des Coalescing sowie der Tiefenfiltration. Der innere Schaumstoffmantel gleicht Luftschwankungen und Aerosolkonzentrationen aus und gewährleistet eine gleichmäßige Verteilung. Im äußeren Schaumstoffmantel werden die Öltröpfchen gesammelt, fließen durch Schwerkraft in den unteren Teil des Filters und tropfen dann in den Filterbehälter ab.

4. Description of operation

4.5 Series FE

0,01-MICRON-COALESING-FILTER (at 0,01 ppm w/w max. oil content)

DUO-system separation

1. Stage: liquid particles
2. Stage: oil particles

- Removes more than 99,99% of oil aerosols
- Removes solid particles down to 0,01 microns
- Oil content < 0,01 ppm w/w
- Automatic condensate drain
- Differential pressure indicator at the filter housing
- max. liquid load: 1g/m³

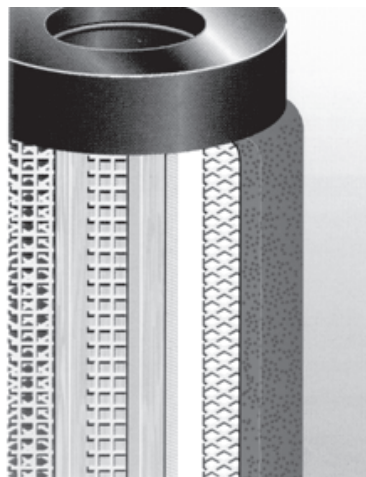
Application:

- Prefilter for membrane dryers
- Prefilter for pressure-swing desiccant dryers
- Point-of-use filter (may be used if light liquid load is present)

Operation:

Air enters the inside of the cartridge FE and flows through an inner foam sleeve, radially outward through various layers of glass fibers. Then the air flows through another screen. In the first stage filter section the larger solid particles are trapped. In the second stage filter section aerosols and solid particles are trapped using a multi-layered membrane wall made of epoxy resin-reinforced glass fibres which was especially designed for the finest aerosols.

The filter media is a bed of submicronic glass fibers and works to the principle of coalescing and in-depth filtration. The inner foam sleeve compensates air cycling and aerosol concentrations and maintains uniform distribution. The outer foam sleeve collects the coalesced oil droplets which then, due to gravity, travel downstream to the bottom of the sleeve and drain to the bottom of the filter bowl.



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7. Montage

7.1 Montageort

Das Filter/-system sollte in einem trockenen, frostfreien Innenraum installiert werden.
Zur Wartung ist genügend Freiraum vorzusehen.

7.2 Montage

Das Filter/-system ist senkrecht so zu montieren, daß der Druckluft-ein- und austritt waagrecht erfolgt.

Im Filtergehäuse eingebaute Filterelemente können sich während des Transportes lösen.
Prüfen Sie den richtigen Sitz der Filterelemente vor der Inbetriebnahme.



ACHTUNG!

Achten Sie bei der Montage darauf, daß keine Zug- und Druckkräfte auf die Geräteanschlüsse übertragen werden.



Hinweis!

Bei den Standard-Filtern FB, FC, FE und FF der Größe -185 & -283 ... -2480, den D-Pack-Basic-Filtern FB, FC, FE und FF, sowie den E-Pack-Filtern FA, FB, FC, FE und FF sind die Kondensatableiter beige- und müssen wie in Kapitel 11. „Maßzeichnung“ eingebaut werden.

7.3 Anschluß an das Druckluftnetz

Die Druckluft-ein- und -austrittsleitung sollte für Servicezwecke mit einem Bypass versehen werden.
Die Dimensionierung der Anschlüsse entnehmen Sie bitte dem Kapitel 3. „Technische Daten“.



ACHTUNG!

Durchflußrichtung beachten.
Druckluft-ein- und austritt dürfen nicht vertauscht werden.

7.4 Kondensatableitung

Für die automatische Kondensatableitung ist bei den Filtern (FA, FB, FC, FE, FF) ein Anschluß vorhanden.
Die Dimensionierung des Anschlusses entnehmen Sie bitte Kapitel 5. „Kondensatableiter“.



Achten Sie bei der Montage der Kondensatableitung darauf, daß das abgeschiedene Kondensat ungehindert abfließen kann.



HINWEIS!

Bei der Entsorgung des Kondensats ist der Schmutzanteil zu berücksichtigen.
Beachten Sie die jeweils geltenden gesetzlichen Vorschriften.

Bei den Filtern FD, FG entfällt der Kondensatableitungsanschluß.

7. Mounting

7.1 Location of mounting

The filter/-system should be installed in a dry and frost-proof room indoors.
Ample free, space should be allowed for the maintenance.

7.2 Mounting

Mount the filter/-system so that inlet and outlet connections are horizontal (filter bowl vertical).

Cartridges installed in the filter housing may become dislodged during transport.
Make sure that the cartridge is correctly installed before use.



ATTENTION!

When installing the filter/-system ensure all connections are even and no pressure is placed on inlet and outlet connections.



Remark!

By the standard-filter FB,FC,FE and FF with the size -185 & -283 ... -2480, by the D-pack-basic-filter FB, FC, FE, FF and by the E-pack-filter FA, FB, FC, FE and FF the condensate drains are attached and must mount as shown in chapter 11. „Dimensional drawing“.

7.3 Connection to the compressed air system

The compressed air inlet and outlet line should be equipped with a by-pass system for the maintenance.
For the sizing of the connections please see chapter 3. „Technical data“.



ATTENTION!

Pay attention to the flow direction.
Do not exchange the compressed air inlet and outlet.

7.4 Condensate drain

The filters (FA, FB, FC, FE, FF) are equipped with one connection for the automatically condensate drain.
For the sizing of the connection please see chapter 5. „Condensate discharger“.



When fitting the drains please see to it, that the condensate separated is drained off into a system that does not create a back pressure.



Instruction!

When disposing of the condensate the amount of pollution has to be taken into consideration. Please act according to the prevailing regulations of law.

Condensate drain does not exist in filters FD, FG.

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8. Inbetriebnahme, Betrieb

8.1 Bereitschaft zur Inbetriebnahme



Druckluftfilter/-systeme sind bereit zur Inbetriebnahme, wenn:

- Der auf dem Typenschild angegebene Druck dem maximalen Betriebsdruck entspricht.
- Sie entsprechend Kapitel 7. „Montage“ installiert wurden.
- Alle Zu- und Ableitungen sachgerecht angeschlossen sind.
- Die erforderlichen Energien (Druckluft) verfügbar sind.
- Absperrorgane (z.B. Ventil, Kugelhahn) in der Druckluftein- und austrittsleitung geschlossen sind.
- Kondensat durch die Kondensatableitung ungehindert abfließen kann.
- Der elektrisch gesteuerte Kondensatableiter an das elektrische Spannungsversorgungsnetz mit der richtigen Betriebsspannung angeschlossen ist. (Nur bei elektrisch gesteuerten Kondensatableitern)
- Das Filter/-system mit den richtigen Filterelementen ausgerüstet ist.

8.2 Inbetriebnahme, Betrieb



Vor der Inbetriebnahme ist sicherzustellen, daß alle Bedingungen des Abschnittes 8.1 „Bereitschaft zur Inbetriebnahme“ erfüllt sind.



Setzen Sie das Filter/-system durch langsames Öffnen der Drucklufteintritts- und austrittsleitung unter Druck.



Schließen Sie das Absperrorgan im Bypass (falls vorhanden).



Das Filter/-system ist nun in BETRIEB.

8. Start-up, operation

8.1 Preconditions for starting the dryer



The filter/-system is ready for starting when:

- Check unit serial number tag to verify working pressure.
- They has been installed in accordance with section 7. „Mounting“.
- All inlet and outlet lines have been correctly connected.
- The required forms of energy (compressed-air) are available.
- The shut-off devices (e.g. ball valve) in the compressed-air inlet and outlet lines are closed.
- The condensate is able to flow through the condensate discharger without obstruction.
- The electrical condensate drain has been connected to the electric power supply system with the correct operating voltage (only electrical condensate drains).
- The filter/-system is equipped with the right cartridges.

8.2 Start up, operation



Before starting the dryer, ensure that all the requirements specified in section 8.1 „Preconditions for starting the dryer“ have been fulfilled.



Place filter/-system under pressure gradually by slowly opening the compressed air inlet/outlet.



Close the shut-off device in the bypass (if installed).



The filter/-system is now OPERATIVE.

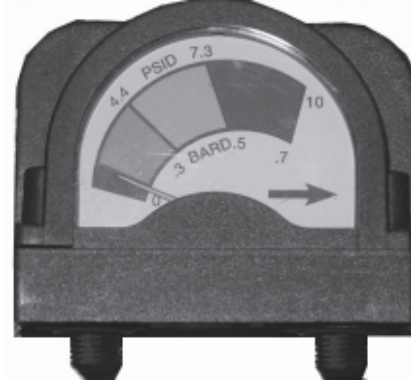
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8. Inbetriebnahme, Betrieb

8.3 Differenzdruckanzeige-Standard und D-Pack (OPTION)

8. Start-up, operation

8.3 Differential pressure indicator-standard and D-Pack (OPTION)



Die Differenzdruckanzeige informiert als Störanzeige über eine atypische Verschmutzung.

The differential pressure indicator indicates atypical contamination.



Unabhängig von der Differenzdruckanzeige müssen die Filterelemente gemäß der Wartungsintervalle gewechselt werden. (Siehe Kapitel 9)



We recommend installing a new filter cartridge according to the maintenance periods. (See chapter 9)



Das Filter FG benötigt keine Differenzdruckanzeige.



The FG filter does not require a differential pressure gauge.

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9. Wartung Austausch der Filterelemente

9.1 Standzeit der Filterelemente

Die Standzeit der Filterelemente ist abhängig von der Beladung. Mit steigender Beladung der Elemente erhöht sich der Differenzdruck über den Filter.
Die Filterelemente müssen gemäß unten stehender Tabelle gewechselt werden.

9.2 Austausch der Filterelemente

Filtergehäuse -6 bis -221

Anzahl der Filterelemente siehe Kapitel 4. „Technische Daten“.

⚠ WARNING!

- Verwenden Sie keine Werkzeuge! (Filtergehäuse -6 bis -48)
- Öffnen und Schließen Sie das Filter nicht mit Gewalt.
- Das (die) Filter beinhaltet(n) unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.

➡ Absperrvorrichtung im Druckluftein- und -austritt schließen.

➡ Kondensatableitungsschlauch an (1) lösen.
(Nur bei FB, FC, FE, FF).

➡ Rändelschraube (1) langsam im Uhrzeigersinn lösen.
Das Filtergehäuse wird entlüftet.

9. Servicing, filter cartridge replacement

9.1 Serviceable life of cartridge

The cartridge's serviceable life depends upon the degree of contamination. As the cartridge becomes more contaminated, the differential pressure above the filter increases.
The filterelements must be changed according to the table below.

9.2 Replacing the cartridge

Filter housing -6 to -221

Number of cartridges see chapter 4. „Technical data“.

⚠ CAUTION!

- Do not use any tools (filter housings -6 to -48)
- Do not force the filter open or closed.
- The filter(s) contain(s) systems under high pressure.
All pressure must be let off before servicing.

➡ Close the shut-off device in the compressed air inlet/outlet.

➡ Loosen condensate drain hose at (1) (only on FB, FC, FE, FF models).

➡ Slowly turn the knurled screw (1) clockwise. This will release the air from the housing.

Wartungsintervalle / Maintenance-intervals

Wartungsteil Part of maintenance	Type	Anwendung Application	Wartungs-Intervall Maintenance-interval
Filter-Elemente / filter cartridges	FB, FC	Vorfilter Pre-filter	6.000 Bh, max. 1 Jahr / 6.000 Bh, max. 1 year
	FE, FF	Microfilter	3.000 Bh, max. 1 Jahr/ 3.000 Bh, max. 1 year
	FEG	Filterkombination Filter combination	3.000 Bh, max. 1 Jahr (Type FE) 3.000 Bh, max. 1 year Type (FE)
			1.000 Bh, max. 1 Jahr (Type FG) 1.000 Bh, max. 1 year Type (FG)
	FEG	Filterkombination Filter combination	1.000 Bh, max. 1 Jahr/ 1.000 Bh, max. 1 year
	FD	Nachfilter After-filter	6.000 Bh, max. 1 Jahr/ 6.000 Bh, max. 1 year
Kondensatableiter / condensate drain	FG	Aktivkohlefilter Act.carbon filter	1.000 Bh
	Service-unit	Vorfilter Pre-filter	6.000 Bh
	Service-unit	Microfilter	6.000 Bh
	Service-unit	Filterkombination Filter combination	6.000 Bh

Bh = Kompressor-Betriebsstunden / Working hours



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9. Wartung Austausch der Filterelemente

 Filtergehäuse entfernen.

- **Filtergehäuse -6 bis -48 (Bajonett-Verschluss)**
 - * Das Filtergehäuse nach oben, gegen den Filterkopf drücken.
 - * Dann das Filtergehäuse im Uhrzeigersinn langsam gegen den Anschlag drehen (etwa 1/8 Drehung) und nach unten abziehen.
- **Filtergehäuse -71 bis -221 (Gewinde-Verschluss)**
 - * Schrauben Sie das Filtergehäuse gegen den Uhrzeigersinn (per Hand oder mit Hilfe eines Filterschlüssels) auf.

 Filterelement gemäß unten stehender Skizze abziehen, bzw. wechseln.

Hinweis: Die Schaumstoffummantelung der Filterelemente Serie FE, FF und FG dürfen nicht mit den Fingern angefaßt werden.

 Filtergehäuse in umgekehrter Reihenfolge zusammenbauen.

 Filter durch langsame Öffnen der Absperrvorrichtung wieder mit Druck beaufschlagen.



9. Servicing, filter cartridge replacement

 Remove housing.

- **Housing -6 to -48 (bayonet-style head)**
 - * Push housing upwards against the filter head.
 - * Then slowly turn the housing clockwise to the stop (about 1/8 of a turn) and remove by pulling downwards.
- **Housing -71 to -221 (threaded head)**
 - * Screw off the housing counter-clockwise (by hand or using a filter wrench).

 Remove and replace cartridge as shown below.

Please note: Do not touch the foam sleeves of the cartridges from the FE, FF and FG series with your fingers.

 Re-assemble the housing in the reverse order.

 Place filter under pressure again by slowly opening the shut-off device.



Filtergehäuse -185 bis -2480

Anzahl der Filterelemente siehe Kapitel 3. „Technische Daten“.

WARNUNG!

- Das (die) Filter beinhaltet(n) unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.

Housing -185 to -2480

Number of cartridges see chapter 3. „Technical data“.

CAUTION!

- The filter(s) contain(s) systems under high pressure.
Alle pressure must be let off before servicing

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9. Wartung Austausch der Filterelemente

-  Absperrvorrichtung im Druckluftein- und -austritt schließen.
 -  Kondensatableitungsschlauch an **(1)** lösen.
(Nur bei FB, FC, FE, FF).
 -  Um das Filtergehäuse zu entlüften müssen Sie beim:
- Kondensatableiter Nr. 30505 und Nr. 30506 die Entlüftungsschraube **(3)** entgegen dem Uhrzeigersinn lösen.
- FG den Kugelhahn **(5)** öffnen.
 -  Schrauben der Flanschverbindung am Boden des Filtergehäuses vorsichtig lösen, da evtl. noch ein geringer Restdruck im System vorhanden ist.
 -  Schrauben bis auf eine entfernen und Flansch zur Seite schwenken.
 -  Filterelemente entgegen dem Uhrzeigersinn herauserschrauben.
 -  Neue Filterelemente ohne Werkzeug „fingerfest“ einschrauben.
- Hinweis:** Die Schaumstoffummantelung der Filterelemente Serie FE, FF, FG dürfen nicht mit den Fingern angefaßt werden.
-  Filtergehäuse in umgekehrter Reihenfolge schließen.
 -  Filter durch langsames Öffnen der Absperrvorrichtungen wieder mit Druck beaufschlagen.

9. Servicing, filter cartridge replacement

-  Close shut-off device in compressed air inlet/outlet.
 -  Loosen condensate drain hose at **(1)** (only on FB, FC, FE, FF models).
 -  Follow these steps to release the air from the housing:
- for condensate drain no. 30505 and no. 30506, loosen the bleed screw **(3)** in counter-clockwise direction.
- on FG models, open the ball valve **(5)**.
 -  Gently loosen the screws at the bottom flange of the housing. Caution is necessary as the system may still be under slight residual pressure.
 -  Remove all screws except one and swing flange to the side.
 -  Screw out cartridge counter-clockwise.
 -  Screw in new cartridge by hand until „handtight“. Do not use a wrench.
- Please note:** Do not touch the foam sleeves of the cartridges from the FE, FF, FG series with your fingers.
-  Close housing in reverse order.
 -  Place filter under pressure again by slowly opening the shut-off device.



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D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

**9. Wartung
Austausch der Filterelemente**
9.3 Austausch der

**Schwimmerableiter /
ECO-DRAIN Service-unit /
ECO-DRAIN Membransätze**

Die Kondensatableiter / Wartungspakete sind gemäß unten aufgeführter Tabelle regelmäßig zu wechseln.

**9. Servicing, filter cartridge
replacement**
9.3 Changing of

**Float drain /
ECO-DRAIN Service-unit /
ECO-DRAIN membrane set**

The condensate drains / service packages must be changed according to the table below.

Wartungsteil Part of maintenance	Wartungs-Intervall Maintenance-interval
Schwimmer-Kondensatableiter/ Float drain	3.000 Bh
Service-Unit (ECO DRAIN 30/31)	6.000 Bh
ECO DRAIN Verschleißteilsatz (ECO DRAIN 13/14) ECO DRAIN wearing part set (ECO DRAIN 13/14)	6.000 Bh

Nähere Informationen finden Sie auch im Anhang ECO DRAIN.

For more details please see annexe ECO DRAIN.

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10. Garantiebedingungen

10.1 Allgemeines

Die Garantie erstreckt sich, im Rahmen unserer allgemeinen Lieferbedingungen, auf das gelieferte Filter/-system.

10.2 Garantiausschluß

Garantieansprüche bestehen nicht,

- wenn das Filter/ -system durch Einfluß höherer Gewalt oder durch Umwelteinflüsse beschädigt oder zerstört wird.
- bei Schäden, die durch unsachgemäße Behandlung, insbesondere Nichtbeachtung der Betriebs- und Wartungsanleitung aufgetreten sind (regelmäßige Kontrolle des Kondensatableiters / regelmäßiger Wechsel der Filterelemente).
- falls das Filter/ -system nicht seinen Bestimmungen entsprechend eingesetzt war (siehe Kapitel 3. „Technische Daten“).
- falls das Filter/ -system durch nicht hierfür autorisierte Werkstätten oder andere Personen unsachgemäß geöffnet oder repariert wurde und/oder mechanische Beschädigungen irgendwelcher Art aufweist.

10. Guarantee conditions

10.1 General

The guarantee covers the delivered device with regard to our general terms of delivery.

10.2 Exclusion from guarantee coverage

No guarantee claims shall be assertible,

- if the filter/ -system is damaged or destroyed due to force majeure or environmental effects.
- for damage resulting from incorrect handling, in particular failure to comply with the operating and maintenance instructions (regular inspection of the condensate discharger, regular change of the filter cartridges).
- if the filter/ -system has not been used in accordance with its specifications (see section 3. „Technical data“).
- if the filter/ -system has been opened or repaired by workshops or other persons unauthorised for this purpose and/or reveals any type of mechanical damage.

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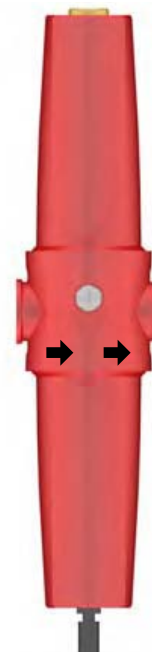
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13.8 Option dc

Operating instructions for compressed air filter (fresh air filter)



domnick hunter



AC010 - AC030

OIL-X
EVOLUTION

Original Language (EN)

OIL VAPOUR & ODOUR REMOVAL FILTERS

(NL) OLIEDAMP & GEUR VERWIJDERINGSFILTERS	(DE) FILTER ZUM ENTFERNEN VON ÖLNEBEL UND GERÜCHEN
(FR) FILTRES D'ÉLIMINATION DES ODEURS ET DES VAPEURS D'HUILE	(FI) ÖLJYHÖYRYN JA HAJUN POISTOSUODATTIMET
(SV) FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	(NO) OLJEDAMP- OG OLJELUKTFJERNINGSFILTRE
(DA) FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	(EL) ΦΙΛΤΡΑ ΑΦΑΙΡΕΣΗΣ ΑΤΜΩΝ & ΟΣΜΩΝ ΛΑΔΙΟΥ
(ES) FILTROS DE ELIMINACIÓN DE OLORES Y VAPORES DE ACEITE	(PT) VAPOR DO ÓLEO E FILTROS DE REMOÇÃO DOS CHEIROS
(IT) FILTRI PER L'ELIMINAZIONE DEGLI ODORI E DEI VAPORI D'OLIO	(PL) FILTRY DO USUWANIA OPARÓW I ZAPACHU OLEJU
(SK) FILTRE NA ODSTRÁNŔOVANIE OLEJOVÝCH VÝPAROV A ZÁPACHU	(CS) OLEJOVÉ A PROTIPACHOVÉ FILTRY
(ET) ÕLISUDU JA -HAISU EEMALDUSFILTRID	(HU) OLAJGŐZ- ÉS SZAGELTÁVOLÍTÓ SZŰRŐK
(LV) EĻĻAS TVAIKU UN AROMĀTA NOVĒRŠANAS FILTRI	(LT) ALYVOS GARŲ IR KVAPO ŠALINIMO FILTRAİ
(RU) ФИЛЬТРЫ ДЛЯ УСТРАНЕНИЯ ЗАПАХА И ПАРОВ МАСЛА	(SL) FILTRI ZA ODSTRANJEVANJE OLJNIH HLAPOV IN VONJAV
(TR) YAĞ BUHARI VE KOKUSU GİDERİCİ FİLTRELER	(MT) FILTRI LI JNEHHU L-FWAR TAŻ-ŻJUT U L-IRWEJJAH

AC010 - AC030



Warning



Caution



- Highlights actions or procedures, which if not performed correctly, may lead to personal injury or death.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, lichamelijk letsel of de dood kunnen veroorzaken.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Verletzungen und tödlichen Unfällen führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent entraîner des dommages corporels ou la mort.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat aiheuttaa henkilövahingon tai kuoleman.
- Anger åtgärder och metoder som kan orsaka personskador eller dödsfall om de inte utförs korrekt.
- Fremhever handlinger eller prosedyrer som kan føre til personskade eller dødsfall hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre personskade eller dødsfald, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να οδηγήσουν σε τραυματισμό προσωπικού ή σε θάνατο.
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar daños personales o la muerte.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão provocar danos pessoais ou morte.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di infortuni o morte.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą prowadzić do obrażeń ciała lub śmierci.
- Zvýrazňuje činnosti alebo postupy, ktoré môžu v prípade nesprávneho vykonania viesť zraneniu alebo usmrteniu.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést ke zranění nebo usmrcení osob.
- Töstab esile toimingud või protseduurid, mis võivad teostamise korral võivad põhjustada kehavigastusi või surma.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása súlyos vagy végzetes személyi sérülést okozhat.
- Ūzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var izraisīt ievainojumus vai nāvi.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima susižeisti ar mirti.
- Указывает на действия, ненадлежащее выполнение которых может привести к нанесению вреда здоровью или смерти
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo človeka ali povzročijo smrt.
- Doğru bir şekilde yerine getirilmediği takdirde bu ürüne hasar verebilecek işlem ve süreçleri vurgular.
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, jista' jkun hemm korrimient jew mewt
- Highlights actions or procedures, which if not performed correctly, may lead to damage to this product.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, schade kunnen berokkenen aan dit product.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Schäden am Gerät führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent endommager ce produit.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat vaurioittaa tätä laitetta.
- Anger åtgärder och metoder som kan orsaka skador på den här produkten om de inte utförs korrekt.
- Fremhever handlinger eller prosedyrer som kan føre til skade på produktet hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre beskadigelse af dette produkt, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να προκαλέσουν ζημιά στο προϊόν αυτό
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar el deterioro del producto.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão danificar este produto.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di danneggiare il prodotto.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą powodować uszkodzenie produktu.
- Zvýrazňuje činnosti alebo postupy, ktoré v prípade nesprávneho vykonania môžu viesť k poškodeniu tohto výrobku.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést k poškození tohoto výrobku.
- Töstab esile toimingud või protseduurid, mis võivad teostamise korral võivad kaesolevat toodet kahjustada.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása a termék károsodásához vezethet.
- Ūzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var sabojāt šo izstrādājumu.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima sugadinti šį gaminį.
- Указывает на действия, ненадлежащее выполнение которых может привести к повреждениям данного изделия
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo izdelek.
- Doğru bir şekilde yerine getirilmediği takdirde yaralanma ya da ölüme yol açabilecek işlem ve süreçleri vurgular
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, tista' ssir hsara lil dan il prodott
- Suitable gloves must be worn.
- Geeignete Schutzhandschuhe tragen.
- Käytettävä asianmukaisia käsineitä.
- Bruk egnede hansker.
- Απαιτείται να φοράτε κατάλληλα γάντια
- Devem ser utilizadas luvas adequadas.
- Należy zakładać odpowiednie rękawice
- Kohustuslik kanda sobivaid kaitsekindaid
- Jävalkā piemēroti cimdi.
- Работы должны проводиться в соответствующих перчатках
- Uygun eldiven giyimelidir
- Altijd geschikte handschoenen dragen.
- Le port de gants adaptés est obligatoire.
- Använd lämpliga handskar.
- Der skal anvendes egnede handsker.
- Se deben llevar puestos guantes apropiados.
- Indossare guanti di protezione.
- Je nutné použít vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvēti tinkamas pirštines.
- Uporabiti je treba ustrezne rokavice.
- Ghandhom jintlibsu ingwanti adatti
- Highlights the requirements for disposing of used parts and waste.
- Benadrukt de vereisten voor het weggooien van gebruikte onderdelen en afval.
- Weist auf die Anforderungen zur Entsorgung gebrauchter Teile und Abfall hin.
- Met en relief les consignes de mise au rebut des pièces usagées et des déchets.
- Osoittaa käytettyjen osien ja jätteen hävittämistä koskevia vaatimuksia.
- Anger de krav som ställs på bortskaffande av gamla delar och avfall.
- Fremhever kravene for avhending av brukte deler og avfall.
- Fremhæver kravene til bortskaffelse af udtjente dele og affald.
- Επισημαίνει τις απαιτήσεις απόρριψης των χρησιμοποιημένων εξαρτημάτων και των απορριμμάτων
- Destaca los requisitos para desechar las piezas usadas y los residuos.
- Realça os requisitos para eliminar as peças utilizadas e os desperdícios.
- Segnala i criteri per lo smaltimento di componenti usati e rifiuti.
- Wskazuje wymagania dotyczące usuwania zużytych części i odpadów.
- Zvýrazňuje požiadavky pre zneškodňovanie použitých dielov a odpadu.
- Upozornění na požadavky týkající se likvidace použitých dílů a odpadu.
- Töstab esile kasutatud osade ja jääkide utiliseerimisele esitatavad nõuded
- A használt alkatrészek és a hulladék megfelelő módon történő elhelyezésére hívja fel a figyelmet.
- Ūzsver prasības tam, kā atbrīvoties no lietotajām detaļām un atkritumiem.
- Žymi panaudotų dalių ir atliekų išmetimo reikalavimus.
- Указывает на требования по уничтожению использованных деталей и отходов
- Označuje zahteve za odlaganje rabljenih delov in odpadkov.
- Kullanılmış parçaların ve atıkların atılmasına ilişkin gereklilikleri vurgular
- Tissottolinea l-kundizzjonijiet biex wiehed jarmi l-partijiet uzati u l-iskart

AC010 - AC030

	• Pressure. • Paine. • Πίεση • Ciśnienie • Nyomás alatt. • Tlak	• Druk • Tryck • Presión. • Tlak. • Spiediensi. • Basiņç	• Druck. • Trykk • Pressão. • Tlak. • Slēgis. • Pressjoni	• Pression. • Tryk • Pressione. • Surve. • Давление
	• Release Pressure. • Evacuation de pression. • Avlast trykk • Despresurizar. • Ciśnienie spustowe • Surve väljalase • Išleiskite slėgį. • Basıncı Kaldırın	• Druk aflaten. • Vapauta paine. • Aflast tryk • Liberta Pressão. • Uvolnite tlak. • Engedje ki a nyomást. • Стравить давление • Nehhi l-pressjoni	• Druck ablassen. • Tryckutsläpp. • Εκτόνωση πίεσης • Scaricare la pressione. • Uvolnění tlaku. • Pazeminiēt spiedienu. • Sprostitēv tlaka.	
	• Replace every year • Remplacer tous les ans. • Skift ut hvert år • Sustituir anualmente • Należy wymieniać raz w roku • Asendage igal aastal • Keiskite karta per metus • Her yıl değiştirin	• Elk jaar vervangen • Vaihda vuosittain. • Udskift en gang om året • Substituir todos os anos • Každý rok vymieňajte • Evente cserélje • Заменять каждый год. • Ibdel kull sena	• Jährlich austauschen • Byt varje år • Αντικατάσταση κάθε χρόνο • Sostituire ogni anno • Nutná výměna každý rok. • Nomainiet reizi gadā • Zamenjajte vsako leto.	
	• Filter housing / Model • Logement du filtre/modèle. • Filterhus/-modell • Caja de filtro/modelo. • Obudowa filtra / model. • Filtri korpus/mudel • Filtrų korpusas / modelis • Filtre muhafazası / Model	• Filterhuis / Model • Suodatinkotelo/-malli • Filterhus/modell • Caixa / Modelo do filtro • Kryt filtra / Model • Szűrőház / típus • Корпус фильтра / модель • Kontenitur tal-filtru - Mudell	• Filtergehäuse / Modell • Filterhus/modell • Υποδοχή/μοντέλο φίλτρου • Corpo del filtro / Modello • Kryt filtru / Model • Filtra korpus / modelis • Ohişje filtra / Model	
	• High efficiency filter element • Hochleistungsfilterelement • Tehokas suodattinelementti • Høyeffektivt filterelement • Φίλτρο υψηλής απόδοσης • Elemento do filtro de elevado rendimento • Wysokowydajny wkład filtra • Vysoce účinný filtrační prvek • Nagy hatékonyságú szűrőelem • Labai efektyvus filtravimo elementas • Visoko učinkovit filtrirni element • Element tal-filtru b'effiċjenza kbira	• Zeer efficiënt filterelement • Cartouche filtrante haute efficacité. • Høgeffektivt filterelement • Høgeffektivt filterelement • Elemento filtrante de gran eficiencia. • Elemento filtrante ad alta efficienza • Vysoko účinný filtračný článok • Kõrgtootlik filterelement • Augstas produktivitātes filtra elements • Высокоэффективный фильтрующий элемент • Yüksek etkinikli filtre öğesi		
	• Adsorption filter cartridge - Granular carbon • Adsorptionsfiltereinsatz - Granulatkohle • Adsorptionsuodattinelementti - rakeinen hiili • Adsorpsjonsfilterpatron - Karbon i kornform • Φυσιγγίο φίλτρου προσρόφησης - Κοκκώδης άνθρακας • Cartucho do filtro de absorção - Carvão granular • Adsorpcyjny wkład filtrujący z węgla ziamistego • Adsorpcni filtrační prvek - granulovaný uhlík • Adsorpciós szűrőbetét - granulált szén • Adsorbcinio filtro kaseté - anglies granulės	• Adsorptiefilter cartridge - korrelvormige actieve kool • Cartouche filtrante d'adsorption - Charbon en granulés. • Adsorptionsfilterkassett - Kornigt kol • Adsorptionsfilterkassett - Kornigt kol • Cartucho filtrante de adsorción, granulos de carbón. • Filtro a cartuccia ad adsorbimento - granuli di carbone • Adsorpcná filtračná kazeta - Granulovaný uhlík • Adsorptionsfilter kassett - teraline süsi • Adsorbējoša filtra kasette - graudains ogleklis • Адсорбционный фильтрующий элемент - гранулированный уголь • Adsorpsiyon filtersi kartsu - Taneli karbon		
	• Adsorption filter element - Wrapped carbon cloth • Adsorptie filterelement - gewikkelde koolstofdoek • Adsorptionsfilterelement - eingewickeltes Filtertuch aus Kohlenstoff • Cartouche filtrante d'adsorption - Charbon entouré de tissu. • Adsorptionsuodattinelementti - kääritty hiilikangas • Adsorptionsfilterelement - Veckad kolfiberduk • Adsorpsjonsfilterelement - Innpakket karbonstoff • Adsorptionsfilterelement - Veckad kolfiberduk • Φίλτρο προσρόφησης - Τυλιγμένο ύφασμα άνθρακα • Elemento filtrante de adsorción, capas de tejido de carbón. • Elemento do filtro de absorção - Pano revestido de carvão • Elemento filtrante ad adsorbimento - tessuto al carbone con struttura ad avvolgimento • Wkład adsorpcyjny filtra ze zwijanej tkaniny z włókna węglowego • Adsorpcný filtračný článok - Zabalená uhlíková tkanina • Adsorpcni filtrační prvek - zabalená uhlíková tkanina • Adsorptionsfilteri element - isoleeritud süsinikriie • Adsorpciós szűrőelem - göngyölt szénszövet • Adsorbējošs filtra elements - salīta oglekļa drāniņa • Adsorbējošs filtravimo elementas - susuktas anglies audinys • Адсорбционный фильтрующий элемент - ткань из углеродистого волокна • Adsorpcijski filtrirni element - navita ogljikova krpa • Adsorpsiyon filtersi - Sarılı karbon kumaş • Element tal-filtru li jassorbixxi - Xoqqa tal-karbonju mgeżwra	• Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käyttävä oikeaa työkalua • Pass på at korrekt verktøy brukes • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο • Certifique-se de que é utilizada a ferramenta correcta • Należy używać odpowiedniego narzędzia. • Zkontrolujte použití správného nástroje • Mindig a célnak megfelelő szerszámot használja • Isitikinkite, kad naudojamais reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun žgur li tintuza l-ghodda t-tajba		
	• Ensure correct tool is used • Zorg dat het juiste gereedschap wordt gebruik • Vérifier que les outils adéquats sont utilisés. • Se till att rätt verktyg används. • Sørg for at benytte korrekt værktøj • Asegúrese de que se utiliza la herramienta adecuada • Assicurarsi di utilizzare l'utensile corretto • Uistite sa, že používate správny nástroj • Tagage õige tööriista kasutamine • Izmantojiet tikai atbilstošus darbarīkus • Убедитесь, что используется правильный инструмент • Doğru alet kullanilmasini sağlayın	• Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käyttävä oikeaa työkalua • Pass på at korrekt verktøy brukes • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο • Certifique-se de que é utilizada a ferramenta correcta • Należy używać odpowiedniego narzędzia. • Zkontrolujte použití správného nástroje • Mindig a célnak megfelelő szerszámot használja • Isitikinkite, kad naudojamais reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun žgur li tintuza l-ghodda t-tajba		

AC010 - AC030

**Warning!**

This product must be installed and maintained by competent and authorised personnel only, under strict observance of these operating instructions, any relevant standards and legal requirements where appropriate.

Retain this user guide for future reference

Waarschuwing!

Dit product mag alleen geïnstalleerd en onderhouden worden door deskundig en bevoegd personeel met strikte inachtneming van deze bedieningsinstructies en de betreffende normen en wettelijke vereisten indien van toepassing.

Bewaar deze handleiding als naslag.

Warnung!

Das Produkt darf ausschließlich von autorisiertem Fachpersonal unter strikter Befolgung dieser Betriebsanleitung, ggf. relevanter Normen sowie gesetzlicher Vorschriften installiert und gewartet werden.

Bewahren Sie die Bedienungsanleitung zu Referenzzwecken auf.

Attention !

Ce produit doit être installé et entretenu exclusivement par un personnel compétent et autorisé, dans le respect le plus strict de ce mode d'emploi et des normes applicables et exigences légales éventuelles.

Conserver ce guide de l'utilisateur à titre de référence future

Varoitus!

Tämän tuotteen saa asentaa ja huoltaa vain pätevä ja valtuutettu henkilöstö, noudattaen tarkasti näitä käyttöohjeita, kaikkia asiaankuuluvia normeja ja tarpeen vaatiessa lain asettamia vaatimuksia.

Säilytä tämä käyttöohje tulevaa tarvetta varten.

Varning!

Produkten får endast installeras och underhållas av utbildad och behörig personal, som följer denna bruksanvisning och eventuella tillämpliga normer och lagföreskrifter noga i förekommande fall.

Behåll denna användarhandbok som referens

Advarsel!

Dette produktet må bare installeres og vedlikeholdes av kompetent og autorisert personale, i streng overholdelse av disse betjeningsanvisningene, alle relevante standarder og rettslige krav der det passer.

Ta vare på denne brukerveiledningen for senere bruk

Advarsel!

Dette produkt må kun installeres og vedligeholdes af autoriseret personale, under nøje overholdelse af disse driftsinstruktioner, relevante standarder og lovgivningsmæssige krav, hvor dette er aktuelt.

Gem denne vejledning til senere reference.

Προειδοποίηση!

Η εγκατάσταση και συντήρηση αυτού του προϊόντος πρέπει να γίνεται μόνο από κατάλληλα εκπαιδευμένο και εξουσιοδοτημένο προσωπικό, με αυστηρή τήρηση των οδηγιών χειρισμού, των εφαρμοζόμενων προτύπων και των νομικών απαιτήσεων όπου απαιτείται.

Φυλάξτε αυτό το εγχειρίδιο χρήσης για μελλοντική αναφορά

Advertencia

La instalación y mantenimiento de este producto debe ser efectuada únicamente por personal competente y autorizado, respetándose de forma estricta estas instrucciones de funcionamiento, así como cualquier norma y requerimiento legal que sean aplicables.

Conserve esta guía del usuario para poder consultarla en el futuro.

Advertência!

A instalação e a manutenção deste produto só deve ser realizada por pessoal autorizado e competente, sob estrita observância destas instruções de utilização e de quaisquer normas e requisitos legais relevantes, quando adequado.

Conserve este guia do utilizador para referência futura

AC010 - AC030

(MT)

Rakkomandazzjonijiet għall-Installazzjoni

Nirakkomandaw li l-arja kumpressata tiġi trattata qabel ma tidhol fis-sistema ta' distribuzzjoni kif ukoll fil-punti ċ l-applikazzjonijiet kritiċi ta' l-użu.

L-installazzjoni ta' taghmir li jnixxef l-arja kumpressata fuq sistema li kienet imxarbra jista' jirriżulta f'aktar taghbija ta' hmieg għall-filtri li jintużaw f'punt wiehed, għall-perjodu sakemm is-sistema ta' distribuzzjoni tinxef. L-elementi tal-filtri jista' jkollhom bżonn li jinbidlu aktar spiss matul dan il-perjodu.

Għal installazzjonijiet fejn jintużaw kumpressuri minghajr żejt, xorta jkun hemm prezenti ajrusols u partijiet ta' l-ilma, għalhekk xorta għandhom jintużaw gradi bi skop ġenerali u b'effiċjenza kbira.

Filtru għal skopijiet ġenerali għandu dejjem jiġi installat biex jiproteġi l-filtru ta' effiċjenza kbira mill-volum kbir ta' ajrusols likwidi u partijiet solidi.

Installa taghmir ta' purifikazzjoni fl-aktar temperatura baxxa possibbli imma b'mod li ma jkunx hemm iffrizar, preferibbilment aktar 'l isfel mill-aftercoolers u mir-riċevitori ta' l-arja.

Taghmir tal-purifikazzjoni fil-punt ta' l-użu għandu jiġi installat kemm jista' jkun qrib tal-post fejn għandu japplika.

It-taghmir ta' purifikazzjoni m'għandux jiġi installat aktar 'l isfel mill-valvs li jifthi malajr u għandu jkun protett minn possibbiltà ta' fluss b'lura jew kundizzjonijiet oħra stressanti.

Naddaf il-pajps kollha li jwasslu għat-taghmir ta' purifikazzjoni qabel tinstalla u l-pajps kollha wara li tinstalla t-taghmir ta' purifikazzjoni u qabel ma tqabbad ma' l-applikazzjoni finali.

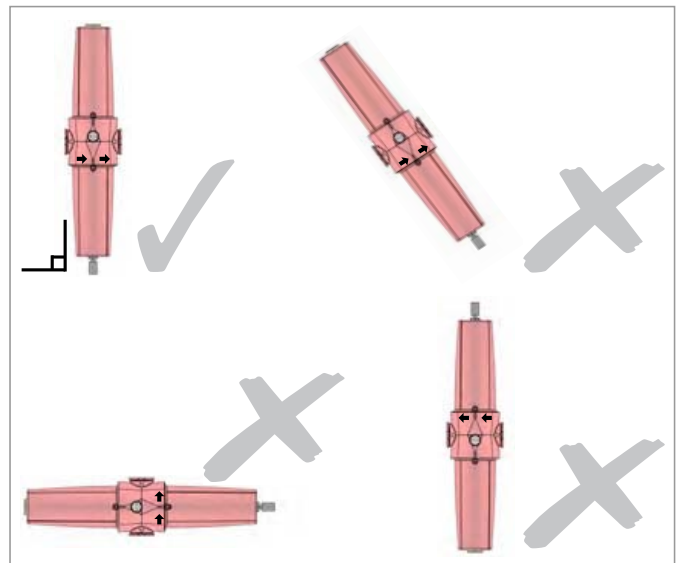
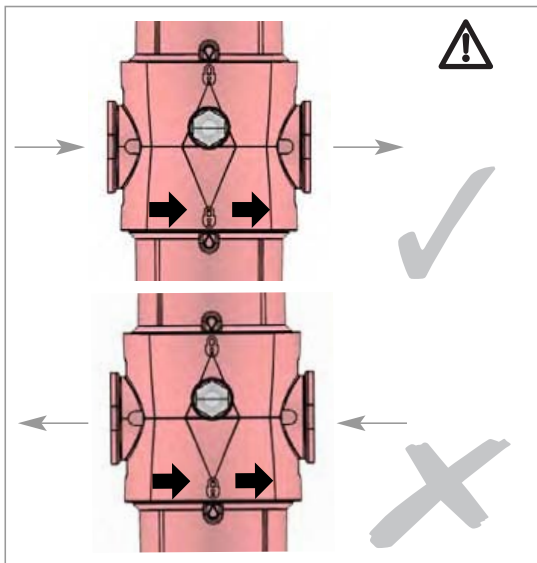
Jekk tiffittja linji ta' by-pass madwar it-taghmir ta' purifikazzjoni, kun żgur li hemm biżżejjed filtrazzjoni ffitjtata mal-linja tal-by-pass biex ma thallix li jkun hemm kontaminazzjoni tas-sistema aktar 'l isfel.

Ipprova facilità biex tiddrejnja l-likwidi li jingabru mit-taghmir tal-purifikazzjoni. Il-likwidi li jingabru għandhom jiġu trattati u mormija b'mod responsabbli.

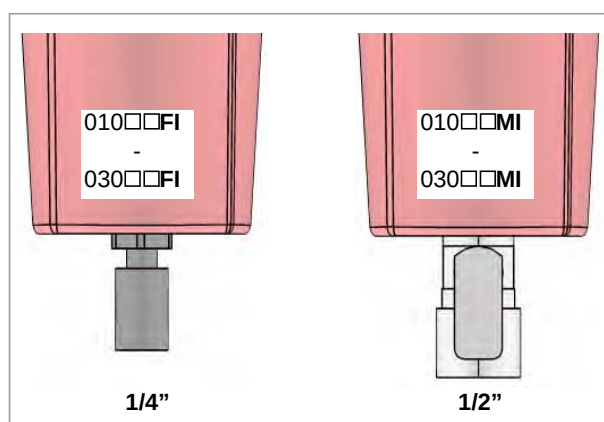
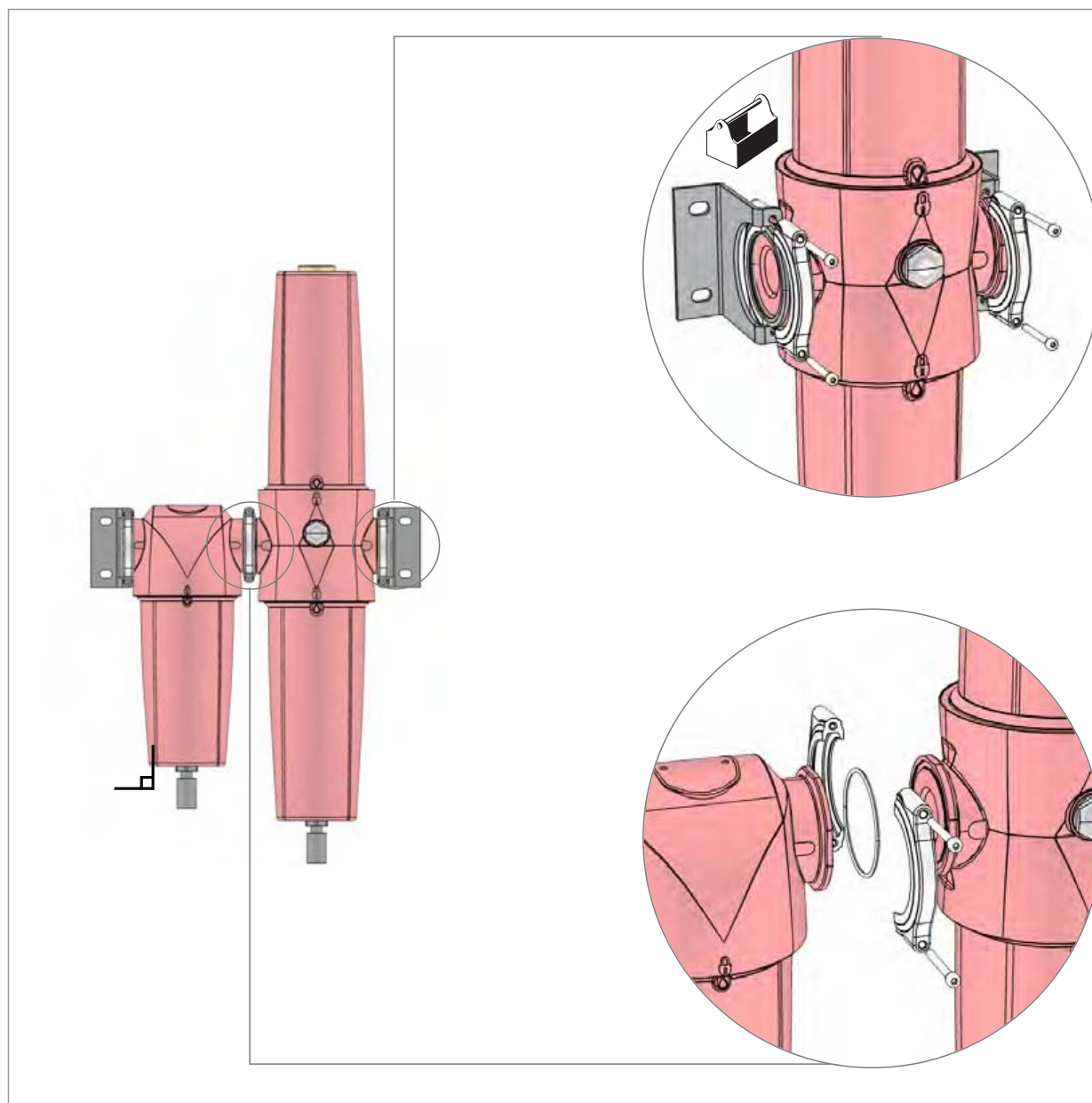
Iż-żmien kemm idumu jservi l-elementi tal-filtru li jneħhi l-fwar taż-żjut huwa affettwat mill-koncentrazzjoni taż-żejt tad-dhul, l-umdità relattiva u t-temperatura tas-sistema ta' l-arja kumpressata. L-elementi li jneħhu l-fwar taż-żjut ikollhom bżonn jinbidlu aktar ta' sikwit mill-element shih ekwivalenti.

Mudelli AC010□□□□ - AC030□□□□ huma ffitjtati b'indikatur tal-volum taż-żejt. Kemm l-elementi tal-filtru kif ukoll l-indikatur għandhom jinbidlu jekk l-indikatur isir ta' kulur blu.

Jekk Joghġbok Innata - Dan hu indikatur tal-volum taż-żejt u ma jindikax iż-żmien li jdum iservi l-element tal-filtru.



AC010 - AC030



6

FILTER-DH-OIL-XEVOLUTION 01

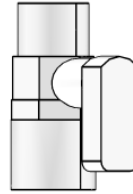
21

AC010 - AC030
5. Spare Parts (Service Kits)

Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) • Pièces de rechange (nécessaires d'entretien) • Varaosat (Huoltopakkaukset) • Reservdelar (servicesatser) • Reservedeler (service-sett) • Reservedele (Servicekit) • Ανταλλακτικά (Πακέτα τεχνικής υποστήριξης) • Piezas de repuesto (kits de mantenimiento) • Peças Sobressalentes (Kit de Reparação) • Ricambi (kit per l'assistenza) • Części zamienne (zestawy serwisowe) • Náhradné diely (Servisná súprava) • Náhradní díly (Sady pro údržbu) • Varuosad (hooldekomplektid) • Pótalkatrészek (szervizkészletek) • Rezerwes części (apkopes komplekti) • Atsarginės dalys (priežiūros detalių komplektai) • Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) • Yedek parça (Servis kitleri) • Partijiet Ghat-Tibdil (Kitts tas-Servizz)


EF1

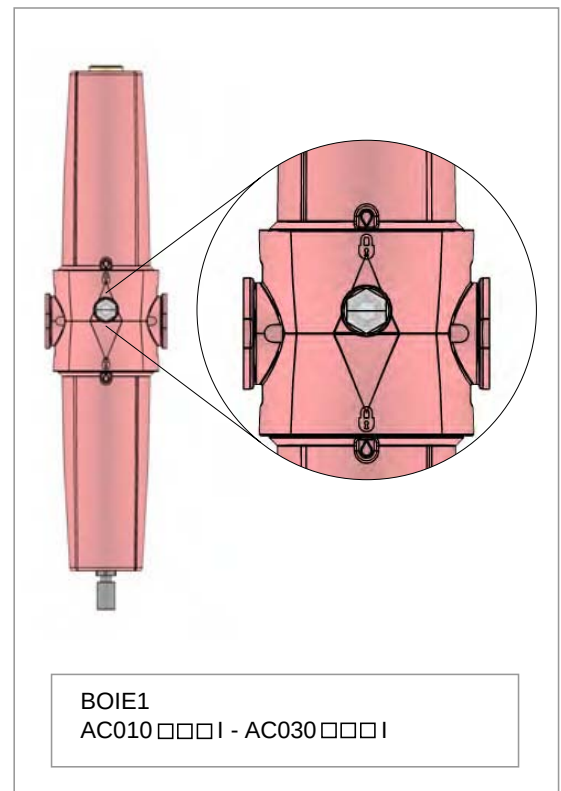
- AUTOMATIC DRAIN
- AUTOMATISCHER ABLAUF
- VIDANGE AUTOMATIQUE
- AUTOMISCHTAFFEN
- DRENAJE AUTOMATICO
- SCARIO AUTOMATICO
- AUTOMATISK AFLØB
- DRENO AUTOMÁTICO
- ΑΥΤΟΜΑΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ
- AUTOMATDRÄNERING
- AUTOMAATTINEN
- TYHJENNYSKAPPALE
- DREN AUTOMATYCZNY
- AUTOMATICKÉ VYSUŠENIE
- AUTOMATICKÉ VYPOUŠTĚNÍ
- AUTOMAATNE VÄLJALASE
- AUTOMATIKUS LEERESZTÉS
- AUTOMÁTISKA IZTECINĀŠANA
- AUTOMATINIS IŠLEIDIMAS
- АВТОМАТИЧЕСКИЙ ДРЕНАЖ
- SAMODEJNI ODTOK
- OTOMATİK SÜZDÜRÜCÜ
- DREJN AWTOMATIKU


EM1

- MANUAL DRAIN
- MANUELLER ABLAUF
- VIDANGE MANUELLE
- MANUEEL AFTAPPEN
- DRENAJE MANUAL
- SCARIO MANUALE
- MANUELT AFLØB
- DRENO MANUAL
- ΧΕΙΡΟΚΙΝΗΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ
- MANUELL DRÄNERING
- KÄSIKÄYTTÖINEN
- TYHJENNYSKAPPALE
- DREN RECZNY
- RUČNÉ VYSUŠENIE
- RUČNÍ VYPOUŠTĚNÍ
- KÄSITSI VÄLJALASE
- KÉZI LEERESZTÉS
- MANUĀLA IZTECINĀŠANA
- RANKINIS IŠLEIDIMAS
- ДРЕНАЖ ВРУЧНУЮ
- ROČNI ODTOK
- ELLE KULLANILACAK SÜZDÜRÜCÜ
- DREJN MANWALI

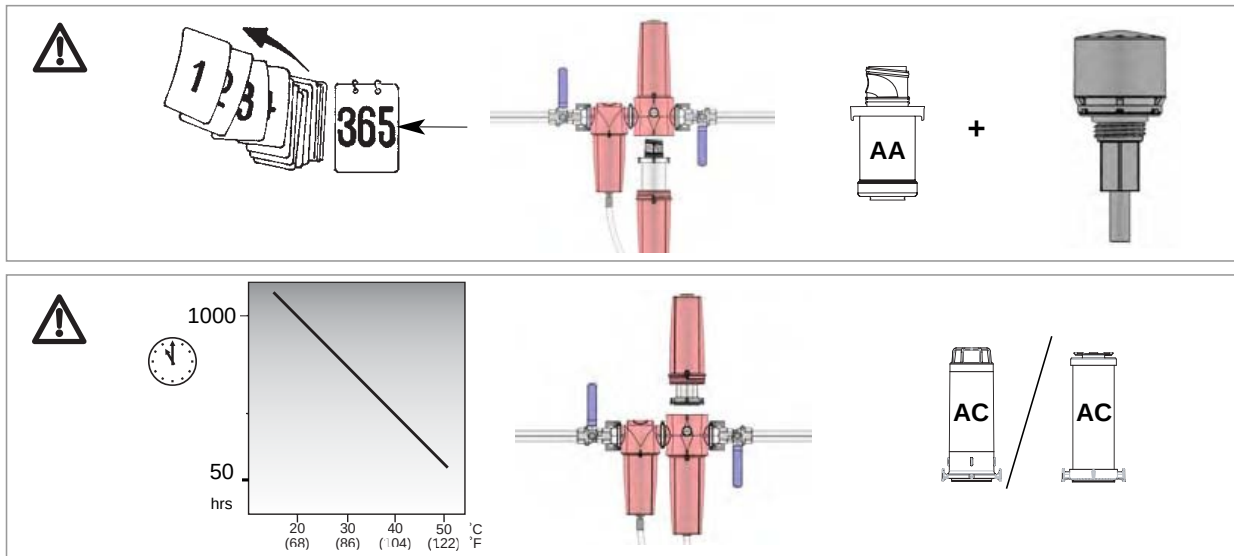
010 A
010 B
010 C
015 B
015 C
020 C
020 D
020 E
025 D
025 E
030 E
030 F
030 G

010AA	010AC	
015AA	015AC	
020AA	020AC	
025AA	025DAC	
025AA	025EAC	
030AA	030AC	



AC010 - AC030
6. Maintenance

Onderhoud • Wartung • Entretien • Kunnossapito • Underhåll • Vedlikehold • Vedligeholdelse • Συντήρηση • Mantenimiento • Manutenção • Manutenzione • Konserwacja • Údržba • Údržba • Hooldus • Karbantartás • Tehniskā apkope • Techninė priežiūra • Обслуживание • Vzdrževanja • Bakım • Manutenzjoni



Models AC010□□□I - AC030□□□I are fitted with a bulk oil indicator. Both filter elements and indicator should be changed if indicator is blue in colour.

Please Note - This is a bulk oil indicator, it does not indicate filter element life.

Modellen AC010□□□I - AC030□□□I zijn uitgerust met een bulk olie indicator. Zowel de filterelementen als de indicator moeten vervangen worden als de indicator blauw van kleur is.

N.B. - Dit is een bulk olie indicator, het is geen indicator voor de levensduur van het filterelement.

Die Modelle AC010□□□I - AC030□□□I sind mit einer Ölanzeige ausgestattet. Sowohl die Filterelemente also auch die Anzeige sollte ausgetauscht werden, wenn sich die Anzeige blau färbt.

Bitte beachten - Es handelt sich hier um eine Ölanzeige. Diese gibt keinen Hinweis auf die Lebensdauer des Filterelements.

Les modèles AC010□□□I - AC030□□□I sont fournis avec un indicateur de présence massive d'huile. Lorsque l'indicateur est bleu, il est nécessaire de remplacer les cartouches et l'indicateur.

Remarque : Il s'agit d'un indicateur de présence massive d'huile, et non pas de la durée de vie des cartouches.

Malleissa AC010□□□I - AC030□□□I on öljynilmais. Sekä suodatinelementit että ilmaisin on vaihdettava, jos ilmaisin on sininen.

Huomautus - Tämä on öljynilmais. Se ei ilmaise suodatinelementin ikää.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera -- indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Modell AC010□□□I - AC030□□□I er monteret med bulkvolum oljeindikator. Både filterelementer og indikator skal skiftes når indikatoren er blå.

Merk - Dette er en bulkvolum oljeindikator, den indikerer ikke filterelementets levetid.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera -- indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Τα μοντέλα AC010□□□I - AC030□□□I διαθέτουν ένα δείκτη παρουσίας λαδιού. Όταν ο δείκτης είναι μπλε πρέπει να αλλάζονται τόσο τα φίλτρα όσο και οι δείκτες.

Παρακαλούμε σημειώστε ότι - Αυτός είναι ένας δείκτης παρουσίας λαδιού, δεν υποδεικνύει τη διάρκεια ζωής του φίλτρου.

Los modelos AC010□□□I - AC030□□□I disponen de un indicador de presencia de aceite. Si el indicador se vuelve azul deben cambiarse tanto los elementos filtrantes como el indicador.

Nota importante: se trata de un indicador de presencia de aceite. No indica la vida del elemento filtrante.

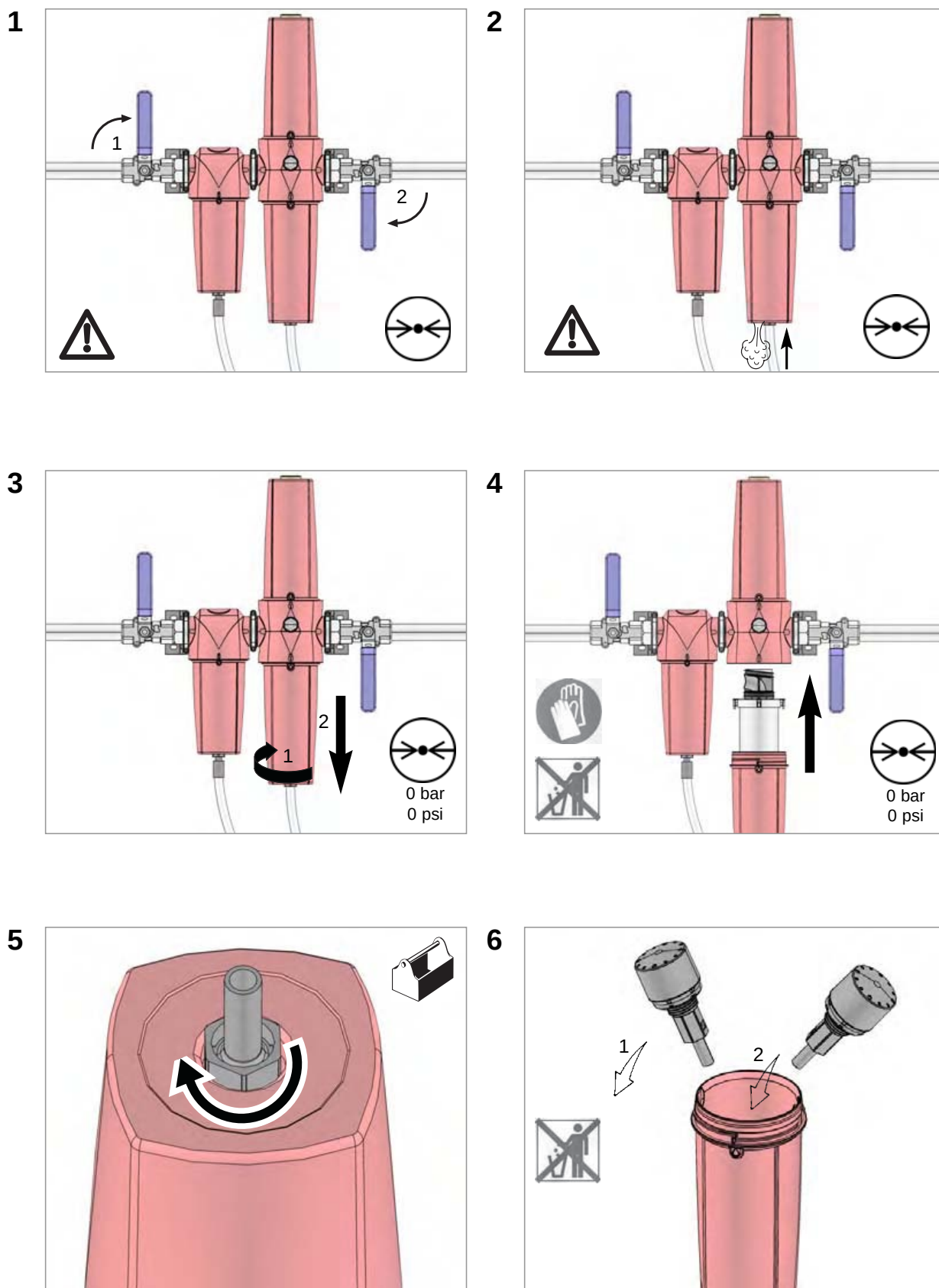
Modelos AC010□□□I - AC030□□□I são instalados com um indicador do óleo em bruto. Ambos os elementos do filtro e o indicador deverão ser mudados se o indicador estiver azul.

Nota - Este é um indicador do óleo em bruto, não indica a vida útil do elemento do filtro.

I modelli AC010□□□I - AC030□□□I sono provvisti di un indicatore degli oli misti. Sostituire gli elementi filtranti e l'indicatore quando il secondo assume una colorazione blu.

Nota - L'indicatore segnala la presenza di oli misti, ma non la durata dell'elemento filtrante.

AC010 - AC030

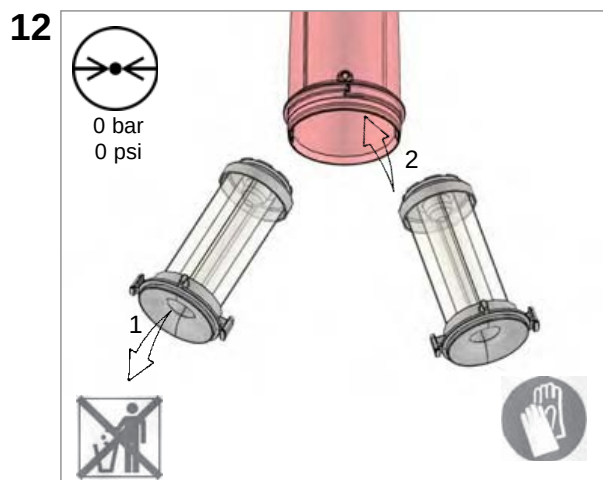
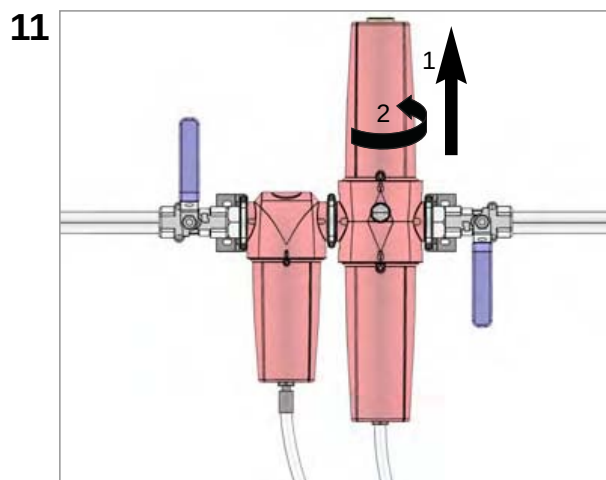
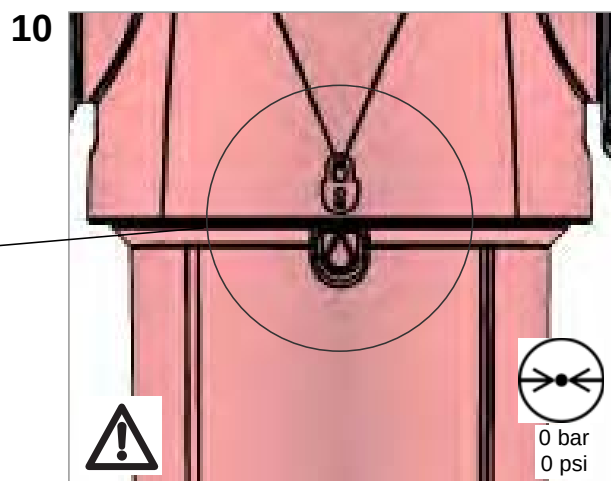
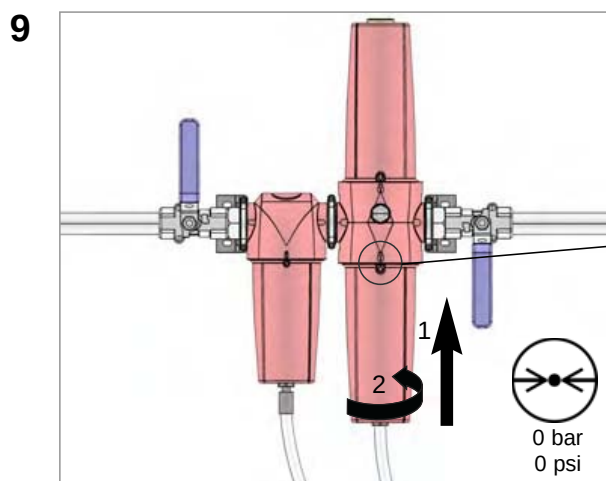
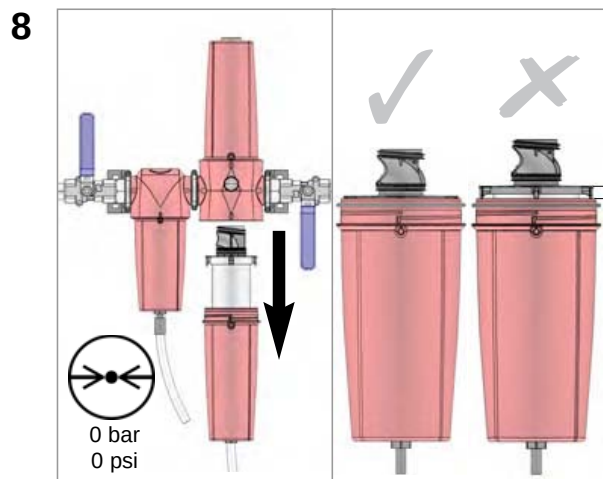
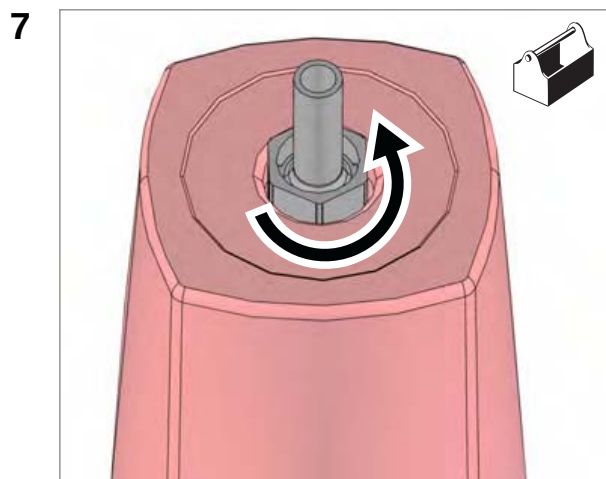


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FILTER-DH-OIL-XEVOLUTION 01

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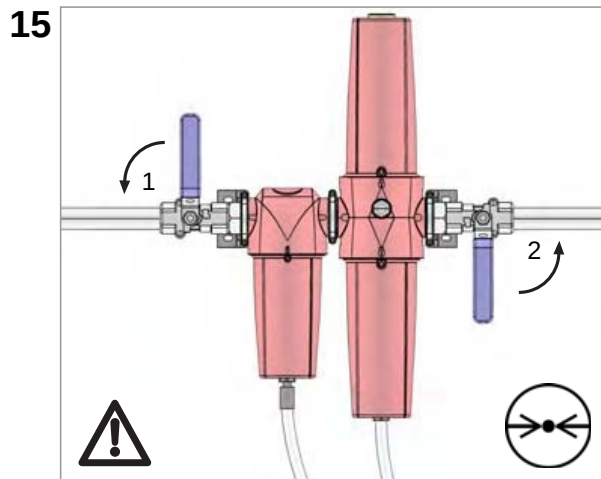
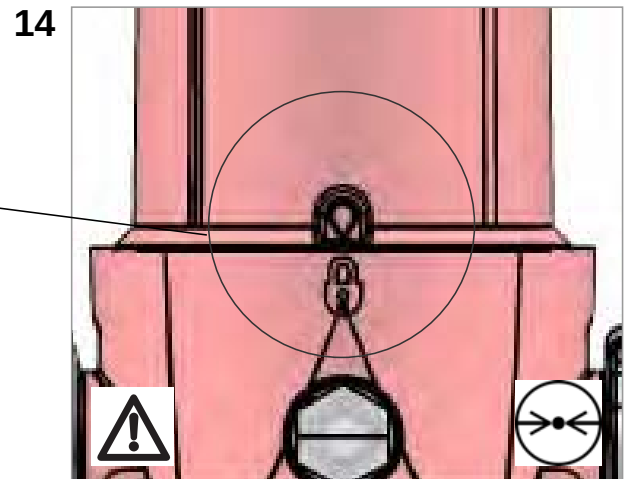
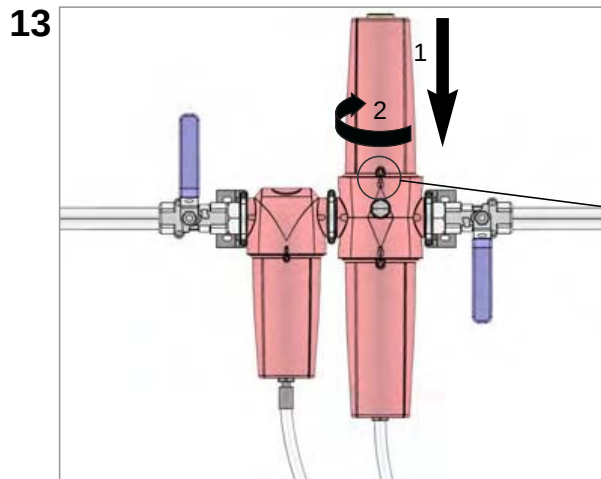
AC010 - AC030



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FILTER-DH-OIL-XEVOLUTION 01

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AC010 - AC030

Konformitätserklärung		DE
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GROSSBRITANNIEN AC010, 015, 020 025, 030 97/23/EC.		
Richtlinien	Allgemein in Übereinstimmung mit ASMEVIII Div 1 : 2004.	
Angewandte Normen	Artikel 3.3 (AC 010, 015, 020, 025) Modul A (AC030)	
Beurteilungsrouten der Druckgerätrichtlinien:	N/A	
Benannte Stelle für die Druckgerätrichtlinie:	N/A	
EG-Baumusterprüfbescheinigung:	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Bevollmächtigter Vertreter	Erklärung Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien.	
Unterschrift:		Datum: 28 / 09 / 05
Numer der Erklärung: 0001/280905		

Försäkran om överensstämmelse		SV
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, Storbritannien AC010, 015, 020 025, 030 97/23/EC.		
Direktiv	Generellt i enlighet med ASMEVIII Div 1: 2004.	
Använda standarder	Artikel 3.3 (AC010, 015, 020, 025, 030) Modul A (AC030)	
Fastställningsväg för PED:	N/A	
Ansatt organ för PED:	N/A	
EG-intyg om typprovning:	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Auktoriserad representant	Försäkran Jag försäkrar, i egenskap av auktoriserad representant, att ovan nämnda information avseende produktens tillverkning av denna produkt överensstämmer med standard och övriga relevanta dokument enligt Villkoren i ovanstående direktiv.	
Underskrift:		Datum: 28 / 09 / 05
Försäkrans nummer: 0001/280905		

Verklaring van Conformiteit		NL
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.		
Richtlijnen	Gewoonlijk volgens ASMEVIII Div 1 : 2004.	
Gehanteerde normen	Artikel 3.3 (AC 010, 015, 020, 025) Modul A (AC 030)	
PED-beoordelingsroute:	N/A	
Aangemelde instantie voor PED:	N/A	
EC Type onderzoekscertificaat:	Barry Wade Manager Bedrijfsstelselverbetering domnick hunter ltd	
Bevoegde vertegenwoordiger	Verklaring Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.	
Handtekening:		Datum: 28 / 09 / 05
Verklaringnummer: 0001/280905		

Vaatumstenmukaisuusvakuutus		FI
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, ISO-BRITANNIA AC010, 015, 020 025, 030 97/23/EC.		
Direktiivit	Yleensä seuraavan standardin mukaisesti: ASMEVIII Div 1: 2004.	
Käytetyt standardit	Artikla 3.3 (AC010, 015, 020, 025, 030) Moduul A (AC030)	
PED-arviointimenetely:	N/A	
PED-säännösten ilmoitettu laitos:	N/A	
EY-tyyppihyväksynnän sertifikaatti:	Barry Wade Yritysjärjestelmien kehityspäällikkö domnick hunter ltd	
Vakuutettu edustaja	Vakuutus Vakuutettuna edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän luotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden asiaan liittyvien asiakirjojen mukaisia ja noudattavat yllä mainittuja direktiivejä.	
Allekirjoitus:		Päiväys: 28 / 09 / 05
Vakuutuksen numero: 0001 / 280905		

Declaration of Conformity		EN
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK AC010, 015, 020 025, 030 97/23/EC.		
Directives	Generally in accordance with ASMEVII Div 1 : 2004.	
Standards used	Article 3.3 (AC 010, 015, 020, 025) Module A (AC 030)	
PED Assessment Route :	N/A	
Notified body for PED:	N/A	
EC Type-examination Certificate:	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Authorised Representative	Declaration I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the standards and other related documents following the provisions of the above Directives.	
Signature:		Date: 28 / 09 / 05
Declaration Number: 0001/280905		

Déclaration de conformité		FR
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.		
Directives	Générallement conforme à ASMEVII div. 1 : 2004.	
Normes utilisées	Article 3.3 (AC010, 015, 020, 025, 030) Module A (AC030)	
Méthode d'évaluation de la directive d'équipements de pression :	N/A	
Organisme de notification pour la directive d'équipement sous pression :	N/A	
Certificat d'examen de type CE :	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Représentant agréé	Déclaration Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents liés déclarés selon les dispositions des directives susmentionnées.	
Signature :		Date : 28 / 09 / 05
N° de déclaration : 0001/280905		

13.9 Option ga, gb

Service tasks - Generator

In order to ensure a safe operation of the machine, the generator must be inspected once every year by a trained and authorized electrician.

Have the following tasks performed by a specialist electrician or an authorized KAESER service representative:

- Inspection of the generator and generator control cubicle for mechanical damages.
- Inspection of the protective conductor.
- Measurement of the dielectric resistance.
- Measurement of the substitute leakage current.
- Inspection of generator functionality.
- Inspection of the proper functioning of the generator fan and cleaning, if required.
- Cleaning the cooling air apertures.
- Check all screwed connections on the generator and control box and tighten if necessary.
- Check covers and power socket caps for damage and good sealing.
- Check that all warning and other labels are complete and undamaged.

