

Operator Manual

Screw Compressor

MOBILAIR M27

No.: 9_9547 13 USE

WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- > Always start and operate the engine in a well-ventilated area.
- > If in an enclosed area, vent the exhaust to the outside.
- > Do not modify or tamper with the exhaust system.
- > Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

Manufacturer:

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Original instructions
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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
- Declaration of Conformity in accordance with the applicable directive
- Chassis documentation (where applicable)

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 risks potentially resulting in personal injury, if the measures specified are not taken.

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

Signal word	Meaning	Consequences of ignoring the warning
DANGER	Warns of an imminent danger	Will very likely 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 definition (personal injury)

1 Regarding this Document

1.4 Symbols and labels

Some warning notes may precede a chapter. They apply to the entire chapter including all sub-sections.

Example:

⚠ DANGER

The type and source of the imminent danger is shown here!

The possible consequences of ignoring a warning are shown here.

The word "DANGER" indicates that death or severe injury can very likely result from ignoring the warning.

➤ *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.

Example:

1. **⚠ WARNING** *The type and source of the imminent danger is shown here!*
The possible consequences of ignoring a warning are shown here.
The word "WARNING" indicates that death or severe injury may result from ignoring the warning.
 ➤ *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

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

Damage warnings have only one danger level, identified with this signal word:

Signal word	Meaning	Consequences of non-compliance
NOTE	Warns of a potentially dangerous situation	Damage to property is possible

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

Example:

NOTICE

The type and source of the imminent danger is shown here!

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 alert notes 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 step of a task.

1. In process instructions with several steps ...
2. ... the sequence of steps 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 centrifugal separator"). Option codes used in this operating manual are explained in chapter 2.2.



Information referring to potential problems is 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.

MOBILAIR M27	Part Number	Serial no.
Options fitted		
da db	__	__
ea	__	__
fa	__	__
ha	__	__
__	__	__
ba bb bc	__	__
la lb	__	__
__ gb	__	__
oa oe	__	__
__	__	ne
__	__	__
r1 r3 r4 r5	__	__
ta tb tc te	__	__
sf	ua	__

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*r1 - r5 = place holders for chassis options

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

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, dd Air Treatment

Option	Option code	Available?
Aftercooler and water separator	da	
Heat exchanger	db	
Filter combination	dd	

Tab. 5 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 ha Non-return function

Option	Option code	Available?
Check valve	ha	

Tab. 8 Non-return option

2.2.5 Option ba Low temperature equipment

Option	Option code	Available?
Low temperature equipment	ba	
Engine coolant pre-heating	bb	
Defroster	bc	

Tab. 9 Low temperature equipment options

2.2.6 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. 10 Optional equipment for fire hazard areas

2.2.7 Option ne Fuel de-watering filter

Option	Option code	Equipped?
Fuel de-watering filter	ne	

Tab. 11 Option ne: Fuel de-watering filter

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 ga, gb Generator

Option	Option code	Available?
Machine without FAD limitation with generator in operation	ga	
Machine with FAD limitation with generator in operation	gb	

Tab. 13 Generator option

2.2.10 Option rb/rm/rr, rb/rm/rs, rc/ro/rr, rg/rp/rr, rc/ro/rs, rd/ro/rr, rd/rn/rr Chassis



Chassis are defined by the combination of several option designations as follows:
Model/Height adjustment/Anti-twist protection/Service brake

Example: *rb/rm/rs* means:

Chassis in European design, with height adjustment and overrun brake.

Chassis

Chassis	Option code	Available?
Model (rb, rc, rd):		
EG chassis	rb	
GB chassis	rc	
GB chassis	rg	
USA chassis	rd	
Height adjustment (rm, rn, ro):		
With height adjustment	rm	
Adjustable coupling height	rn	
Without height adjustment	ro	
Anti-twist protection, tow bar tube (rp)		
Adapter, mounted rotatable	rp	
Service brake (rr, rs):		
Without service brake	rr	
With overrun brake	rs	
EC = Europe, GB = Great Britain, US = United States of America		

Tab. 14 Chassis options

2.2.11 Option ta, tb, tc, te Lighting

Option	Option code	Available?
None (stationary)	ta	
Reflective warning triangle	tb	

Option	Option code	Available?
EG - 12 V	tc	
USA - 12 V (DOT conformity)	te	

Tab. 15 Lighting options

2.2.12 Option rw,rx Frame design for stationary machines



The frame design for stationary machines is defined by the option designations as follows:

Frame designs

Frame	Option code	Equipped?
Stationary (rw, rx):		
On skids	rw	
On frame	rx	

Tab. 16 Options for stationary frame design

2.2.13 Option oe Sealed floor pan

Option	Option code	Available?
Sealed floor pan	oe	

Tab. 17 Sealed floor pan option

2.2.14 Option ua Hose reels

Option	Option code	Available?
Hose reels	ua	

Tab. 18 Hose reel option

2.2.15 Option sf Anti-theft device

Option	Option code	Available?
Anti-theft device	sf	

Tab. 19 Anti-theft device option

2.3 Machine (without options)

2.3.1 Sound pressure level

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

	M27
Guaranteed sound pressure level ⁽¹⁾ [dB(A)]	76

⁽¹⁾ Applies exclusively to machines lined with sound proofing material.

Tab. 20 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. 21 Tightening torques for screws (property class 8.8, coefficient of friction $\mu = 0.12$)

2.3.2.1 Torque cover fixing screws oil separator tank

Recommended values for screws corresponding to the strength category:

Screws	Strength category	Thread	Torque [lbf in]
Hex-head screw	5.6	M12	332

Tab. 22 Torque cover fixing screws oil separator tank

2.3.2.2 Torques for lifting eye

Recommended values for screws corresponding to the strength category:

Screws	Strength category	Thread	Torque [lbf in]
Hex-head screw	8.8	M12	708
Stud	8.8	M12	708

Tab. 23 Torques for lifting eye screws

2.3.3 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [ft]	3000
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	113

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

Tab. 24 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 Chassis options

- Chassis instructions are found in the separate chassis documentation.

2.5 Machines with stationary frame design

2.5.1 Option rw, rx

Weight of machines with stationary frame design

Actual weight of individual machines is dependent on equipment fitted (see machine nameplate).

- Enter the actual overall weight* from the nameplate into the table below for reference.

Option	rw	rx
Type of stationary frame design	Skids	Frame
Actual total weight [lb]*		

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

Tab. 25 Weight of the machine

2.6 Compressor

2.6.1 Working pressure and FAD

Definition of FAD: Constant delivery volume relative to intake conditions

Max. working pressure [psig]	100	–	–	–
SIGMA airend	11-G	–	–	–

FAD as per ISO 1217:2009. Annex D

Max. working pressure [psig]	100	–	–	–
Flow rate [cfm]	92	–	–	–
FAD as per ISO 1217:2009. Annex D				

Tab. 26 Working gauge pressure and FAD

2.6.2 Compressed air outlet

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

Tab. 27 Compressed air distributor

2.6.3 Air quality at the compressed air outlets



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

Interrelation between compressed air treatment and compressed air quality:

Air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	<ul style="list-style-type: none"> Compressed air aftercooler Compressed air water separator 	cool and condensate-free	A
da + db	<ul style="list-style-type: none"> Compressed air aftercooler Compressed air water separator Heat exchanger 	dry and warmed	B
da + dd	<ul style="list-style-type: none"> Compressed air aftercooler Compressed air water separator Filter combination 	dry and technically oil-free	F
da + dd + db	<ul style="list-style-type: none"> Compressed air aftercooler Compressed air water separator Filter combination Heat exchanger 	technically oil-free and warmed	G
ea / ec	Tool lubricator	lubricated	E

Tab. 28 Interrelation between compressed air treatment and compressed air quality

2.6.4 Safety relief valve

Maximum working pressure: See machine nameplate

Maximum working pressure [psig]	100	–	–	–
Relief valve activating pressure* [psig]	130	–	–	–

*The safety relief valve is fitted onto the oil separator tank.

Tab. 29 Relief valve activating pressure

2.6.5 Select temperature

2.6.5.1 Thermostatic valve

A thermostatic valve regulates the compressor temperature accordingly.

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. 30 Machine temperatures

2.6.5.2 Thermostatic valve with Anti-Frost Control

A thermostatic valve with Anti-Frost Control regulates the temperature level of the machine depending on the ambient temperature.

Temperatures	Values	
Ambient temperature [°F]	< 50	68
Airend discharge temperature [°F]	194	149–185

Tab. 31 Airend package discharge temperature

2.6.6 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	Synthetic oil	Synthetic oil

	SIGMA FLUID		
	MOL	S-460	S-570
Application	Standard oil for all applications except in connection with processing of food products. Particularly suitable for machines with a low duty cycle.	Standard oil for all applications except in connection with processing of food products. Particularly suitable for machines with a high duty cycle. Not suitable for East and Southeast Asia.	Special oil for ambient conditions with high temperatures and humidity. Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle.
Viscosity at 104 °F	46 mm ² /s (ASTM D445)	46 mm ² /s (ASTM D445)	53 mm ² /s (ASTM D445)
Viscosity at 212 °F	6.9 mm ² /s (ASTM D445)	7.2 mm ² /s (ASTM D445)	8.0 mm ² /s (ASTM D445)
Flash point	446 °F (ASTM D92)	484 °F (ASTM D92)	496 °F (ASTM D92)
Density at 59 °F	0.868 g/cm ³ (ASTM D1298)	0.860 g/cm ³ (ASTM D1298)	0.869 g/cm ³ (ASTM D1298)
Pour point:	−22 °F (ASTM D97)	−16.6 °F (ASTM D97)	−65 °F (ASTM D97)

Tab. 32 Cooling oil recommendation

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 H1, NSF approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.	USDA H1, NSF approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.
Viscosity at 104 °F	46 mm ² /s (ASTM D445)	68 mm ² /s (ASTM D445)
Viscosity at 212 °F	8.0 mm ² /s (ASTM D445)	10.5 mm ² /s (ASTM D445)
Flash point	475 °F (ASTM D92)	460 °F (ASTM D92)
Density at 59 °F	0.842 g/cm ³ (ASTM D1298)	0.854 g/cm ³ (ASTM D1298)
Pour point:	−38.2 °F (ASTM D97)	−38.2 °F (ASTM D97)

Tab. 33 Cooling oil recommendation (food processing)

2.6.7 Cooling oil charge

Cooling oil	Fluid volume [qt]
Machine	5.3
Compressor unit + heat exchanger (Option db)	5.3

Tab. 34 Cooling oil charge

2.7 Engine

2.7.1 Engine data

Feature	Specification
Make/Model	Kubota D-1105
Engine control	Mechanical
Fuel injection	Mechanical
Rated engine power [hp]	24.8
Speed at LOAD mode [rpm]	2850
speed at IDLE mode [rpm]	2150
Type of fuel	Diesel *
Fuel consumption under LOAD mode [gal/h]	1.4
Oil consumption related to fuel consumption [%]	approx. 0.2

* Use only diesel fuel to EN 590 or ASTM D975. Consult the engine manufacturer on the use of other fuels if necessary.

Tab. 35 Engine data

2.7.2 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
-22 – 86	SAE 0W-30 SAE 5W-30
-22 – 104	SAE 0W-40 SAE 5W-40
-4 – 86	SAE 1 W-30
-4 – 104	SAE 10W-40
-5 – 104	SAE 15W-40

Ambient temperature [°F]	Viscosity class
23 – 104	SAE 20W–50

Tab. 36 Engine oil recommendation

2.7.3 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.

2.7.4 Engine coolant recommendation

In fluid-cooled engines, the cooling fluid must be treated and monitored to prevent engine damage.

Water quality

An important factor for treating the cooling fluid is the correct water quality.

As a rule, clear and clean fresh water, as soft as possible, complying with the following analysis values must be used:

Feature		Value
pH value		6.5-8.0
Chloride	[mg/l]	max. 80
Chloride +Sulfate	[mg/l]	max. 160
Alkaline ground ions	mmol/l	2.7
Hardness	°dH	15

1°dH = 0.1783 mmol/l; alkaline earth ions = 7.147 mg/l Ca²⁺ or 4.336 mg/l Mg²⁺

Tab. 37 Water quality parameters for cooling water

Contact the local water utilities for information regarding water quality. If the water does not meet the parameters above, it must be treated.

If no suitable water is available, distilled or demineralized water shall be used for preparing the coolant. Seawater, brackish water, brines and industrial wastewater are not suitable. Salts may promote corrosion or disruptive deposits.

Coolant quality

Within the scope of technical further development, new corrosion inhibitors/antifreeze have been approved by the engine manufacturer.

Compared to the previously approved corrosion inhibitors/antifreeze, they feature the following advantages:

- Fewer deposits in the engine cooling system
- Improved heat flow
- Higher environmental sustainability

The coolant (cooling fluid) is treated by adding anti-freeze with corrosion protection additives on the basis of ethylene glycol to the water.

Coolant must meet the operating instructions of the engine manufacturer KUBOTA.

- Do not use a corrosion inhibitor/antifreeze that has not been approved by the engine manufacturer.
- Do not use any impermissible mixing ratios of corrosion inhibitor/antifreeze and water.

Further information See chapter 10.3.1.3 for information on preparing/mixing the coolant to be used.

Initial filling of corrosion inhibitor/antifreeze

For the initial filling, the engine water cooler is filled with a mixture of the following liquid components:

Components	Description	Percentages [% vol.]
Corrosion inhibitor/anti-freeze	Glysantin® G40®	50
Water		50

Tab. 38 Initial filling of engine water cooler

Miscibility with other corrosion inhibitors/antifreeze agents

We do not recommend mixing with different corrosion inhibitors/anti-freeze agents even if from the same manufacturer. This can result in significantly reduced corrosion protection/anti-freeze and may damage the engine cooling system and consequently the engine. Mixtures of different corrosion inhibitors/anti-freeze agents generally provide a lower performance than the specially balanced active components of one coolant type.



Therefore, the use of different corrosion inhibitors/anti-freeze agent is only allowed after consulting with and approval from the engine manufacturer!

2.7.5 Fluid volumes

Description	Fluid volume [gal]
Engine oil	1.1
Fuel	10.6
Coolant	1.3

Tab. 39 Fluid volumes

2.7.6 Batteries

Feature	Value
Voltage [V]	12
Capacity [Ah]	60

Feature	Value
PTC testing current [A] (according to EN 50342)	480

Tab. 40 Batteries

Further information Depending on machine equipment, a higher capacity battery may be required. See chapter 2.8.2.

2.8 Options

2.8.1 Option ea, ec Tool lubricator

Name	Temperature range [°F]	Fluid volume [gal]
Special road breaker lubricant	–13 – 122	0.7

Tab. 41 Road breaker lubricant recommendation

2.8.2 Option ba Low temperature equipment

2.8.2.1 Ambient conditions

Positioning	Limit value
Maximum elevation amsl* [ft]	3000
Minimum ambient temperature [°F]	–13
Maximum ambient temperature [°F]	113

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

Tab. 42 Ambient conditions, low temperature equipment

2.8.2.2 Option bb Coolant pre-heater

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

Tab. 43 Coolant pre-heater

2.8.2.3 Option bc Compressed air line frost protection

Anti-freeze	Fluid volume [qt]
Wabcothyl	0.32

Tab. 44 Recommended anti-freeze

2.8.3 Generator

Your machine may be equipped with one of the following synchronous generators:

2.8.3.1 400V AC generator

The following connections are provided on the generator control cabinet:

- 1 x 400V 3-phase AC
- 2 x 230V AC

Generator specification

Voltage [V]	400V, 3-phase	230V, 1-phase
Rated power [kVA] 3-phase	6.5	–
Rated power [kW] Single-phase	–	4.0
Voltage constant [%] Balanced load	±5	
Voltage constant [%] Single-phase, unbalanced load	+6/–10	
Rated current [A] 3-phase	8.7	–
Rated current [A] Single-phase	–	17.4
Rated current [A] Short-circuit (0.3s/170V)	260	260
Power factor (cos ϕ)	0.8 – 1	
Frequency [Hz]	50	
Speed [rpm]	3000	
Distortion factor [%]	<5	
Type	Brushless synchronous internal pole generator	
Control	Electronically regulated with control electronics	
Enclosure protection	IP 54	

Tab. 45 Generator data, 400V

Option gb Reduced compressed air delivery in generator mode

Voltage [V]	400V, 3-phase	230V, 1-phase
Maximum working pressure [psig]	100	100
SIGMA airend	11-G	11-G
Reduced delivery [cfm] Without decrease in power output	67	67

Voltage [V]	400V, 3-phase	230V, 1-phase
Zero delivery [cfm] With decrease in power output	0	0

Tab. 46 Compressed air delivery in generator mode

Connections

Voltage [V]	400V, 3-phase	230V, 1-phase
Power sockets	Number	Number
16 A; 400 V/3~/N/PE	1	–
16 A; 230 V/1~/N/PE	–	2

Tab. 47 Connection sockets

Circuit breaker

Voltage [V]	400V, 3-phase	230V, 1-phase
Safety cut-out [A]	Number	Number
16	1	1

Tab. 48 Circuit breaker

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: 3000 ft

3-phase power supply

Generator	400V, 3-phase
Rated power [kVA]	6.5
Resistive consumers [kVA]	6.0
Inductive consumers [kW]	4.0

Tab. 49 Maximum 3-phase power supply

Single phase power supply

Generator	230V, 1-phase
Rated power [kVA]	4.0
Resistive consumers [kVA]	4.0

Generator	230V, 1-phase
Inductive consumers [kW]	4.0

Tab. 50 Maximum single phase power supply

2.8.3.2 115V AC generator

The following connections are provided at the generator control box:

- 1 x 115V AC (32 A)
- 2 x 115V AC (16 A)

Generator specification

Voltage [V]	115V, 2-phase
Rated power [kW] 2-phase	6.0
Voltage constant [%] Balanced load	±5
Voltage constant [%] Single-phase, unbalanced load	+6/-10
Rated current [A] 2-phase	34.8
Rated current [A] Short circuit (0.3s/170V)	420.0
Power factor (cos ϕ)	0.8 – 1
Frequency [Hz]	50
Speed [rpm]	3000
Distortion factor [%]	<5
Type	Brushless synchronous internal pole generator
Control	Electronically regulated with control electronics
Enclosure protection	IP 54

Tab. 51 Generator data 115V

Option gb Reduced compressed air delivery in generator mode

Voltage [V]	115V, 2-phase
Maximum working gauge pressure [psig]	100
SIGMA airend	11-G
Reduced delivery [cfm] Without decrease in power output	67
Zero delivery [cfm] With decrease in power output	0

Tab. 52 Compressed air delivery in generator mode

Connections

Voltage [V]	115V, 2-phase
Power sockets	Number
32 A; 115 V/1~/PE	1
16 A; 115 V/1~/PE	2

Tab. 53 Connection sockets

Circuit breaker

Voltage [V]	115V, 2-phase
Safety cut-out [A]	Number
32	1
16	2

Tab. 54 Circuit breaker

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: 3000 ft

Single phase power supply

Generator	115V, 2-phase
Rated power [kVA]	6.0
Resistive consumers [kVA]	6.0
Inductive consumers [kW]	4.0

Tab. 55 Maximum single-phase power supply loading

2.8.3.3 Operating limits

(According to EN 60034-22, table on page 10.)

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

Features	Value
Maximum voltage asymmetry [%]	1

Tab. 56 Generator operating limits

2.8.3.4 Factor of output power reduction

The output power is dependent on installation altitude and ambient temperature.

Output power reduction		
Ambient temperature [°F]	104	113
Altitude AMSL [ft]	3000	3000
Factor of output power reduction	1.0	0.95

Tab. 57 Output power reduction

2.8.4 Option ua Air hose with hose reel

The machine is equipped with an additional discharge valve for this option.

Name	Discharge valve	Compressed air hose
Size ["]	G 3/4	–
Number	1	–
Length [ft]	–	66

Tab. 58 Additional discharge valve for the air hose

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 is subject to local inspection schedules.

- Ensure that local inspection schedules are adhered to.

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.

- Do not allow 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 the operation in combustible environment, fit the machine with an exhaust silencer (Option Ia).

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 burns.

- 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 even 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.
- Regularly check 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 food grade 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 belt drive while the machine is switched on can result in serious injury.

- Do not open the access doors or panels while the machine is running.
- Prior to opening the service doors or the enclosure, switch off the engine, disconnect from power source, verify that no voltage is present, 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.

- Check machines that are lined with sound proofing material for perfect condition of the sound proofing material.
- Wear hearing protection if necessary.
The safety relief valve blowing off 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, anti-freeze 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 anti-freeze.
- 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 replacement parts on pressure bearing parts.

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 workwear
- Protective gloves

- Safety boots
- Eye protection
- Ear protection

3.5.2.1 Transporting

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

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

Transporting as trailer

Non-compliance with the basic rules for 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 center of gravity by an excessive or incorrectly distributed load.
- Do not tow in a manner that will impose excessive stress on the machine or chassis.
- Adjust towing speed to accommodate ground 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.

Transporting as trailer on public roads

- Do not tow machines without illumination and signalling 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, towbar 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 by parachute.

3.5.2.2 Positioning

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 regarding explosion protection are in force.
- 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 internal combustion engines,
 - Flammable, explosive, or chemically unstable gases or vapors.
 - Acid or base forming substances such as ammonia, chlorine, or hydrogen sulfide.
- Do not position the machine in the warm exhaust air flow from other machines.
 - Keep suitable fire extinguishing agents ready for use.
 - Chock the wheels to prevent unwanted movement.
 - 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 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 authorized personnel.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Switch off the machine and lock out the supply disconnecting device.
- Wait until the compressor has automatically vented (check: the pressure gauge must read 0 psig!)
- Then open the outlet valve carefully to ensure that the line between the minimum pressure / check valve and the compressed air outlet is vented.
- 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.
- Carry out regular inspections:
 - for visible damage and leakage,
 - of safety devices,
 - of the EMERGENCY STOP push button,
 - 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.
- Use only suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- that are of the right type and size for the highest permissible machine working pressure,
- that are not damaged, worn or of reduced quality,
- that have hose couplings and connections of the right type and size.
- Make sure compressed air hoses are depressurized 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.

3.5.2.4 Parking the compressor

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

- Select an even surface for parking.
- Use a coupled towing vehicle to move the machine into position.
- Place chocks under the wheels.
- Pull on the parking brake.
- Loosen the lighting and signaling system.
- Detach the breakaway cable / safety chain.
- Lower the prop stand / wind down the jockey wheel.
- Uncouple the compressor.
- Ensure that the machine is properly separated from the towing vehicle.
- Remove the towing vehicle from the machine.
- Nobody must enter the parked machine or, in particular, its chassis.
- Nobody must sit on the parked machine or, in particular, its towing mechanism.

3.5.2.5 De-commissioning, storage, disposal

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

3 Safety and Responsibility

3.6 Safety devices

- Drain out fluids and dispose of according to environmental regulations. These include, for example, fuel, engine oil, 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.	Maintenance personnel
	Within a 3 ft radius of the machine.	
Operation	Within a 3 ft radius of the machine.	Operating personnel
Maintenance	Within the machine.	Maintenance personnel
	Within a 3 ft radius of the machine.	

Tab. 59 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 locations of safety signs on the machine. The table lists the various safety signs used and their meanings.

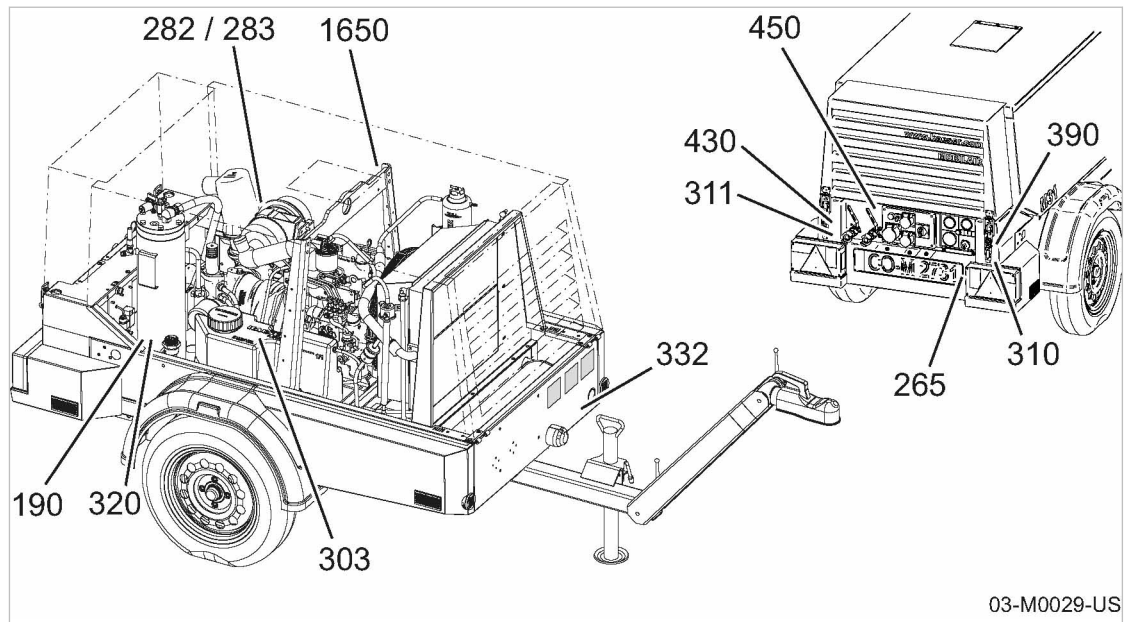


Fig. 1 Location of safety signs

Location	Symbol	Meaning
190 ⁽¹⁾		<p>Wrong cooling oil level! Risk of machine defects or rising oil consumption (oil content for pure air).</p> <ul style="list-style-type: none"> ➤ Check cooling-oil level. ➤ Run the machine only with proper cooling-oil level.
265		<p>Personal injury or damage to the machine due to incorrect operation!</p> <ul style="list-style-type: none"> ➤ Read and understand the operating manual and all safety signs before switching on this machine.
282		<p>Explosive hydrogen gas! Severe injury or death could result from exploding gas.</p> <ul style="list-style-type: none"> ➤ Keep flames, sparks, and other sources of ignition away.
283		<p>Battery contains acid! Severe injury results from contact with battery acid.</p> <ul style="list-style-type: none"> ➤ 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 - it may explode!

⁽¹⁾ Location of safety signs within the machine,

⁽²⁾ Only machines equipped with Option ga, gb,

⁽³⁾ Only machines with Option dc

3 Safety and Responsibility

3.7 Safety signs

Location	Symbol	Meaning
303		<p>Fire or explosion caused by refueling! Severe injury or death result from inflaming fuel.</p> <ul style="list-style-type: none"> ➤ 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.
310 311		<p>Injury or damage from open machine!</p> <ul style="list-style-type: none"> ➤ Operate the machine only when closed. ➤ Transport the machine only when closed.
320 ⁽¹⁾		<p>Loud noise and oil mist when the safety relief valve opens! Ear damage and burns can result.</p> <ul style="list-style-type: none"> ➤ Wear ear protection and protective clothing. ➤ Close all maintenance doors and cover panels. ➤ Work carefully.
330 331		<p>Hot surface can cause burns!</p> <ul style="list-style-type: none"> ➤ Let the machine cool down. ➤ Work carefully. ➤ Wear protective clothing and gloves.
332 333		<p>Hot surface can cause burns!</p> <ul style="list-style-type: none"> ➤ Let the machine cool down. ➤ Work carefully. ➤ Wear protective clothing and gloves. ➤ Do not inhale dangerous gases.
430		<p>Connect air hoses only in full compliance with OSHA standard 29 CFR 1926,302 (bX7)!</p> <p>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.</p>
440		<p>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.</p> <ul style="list-style-type: none"> ➤ Never breathe untreated compressed air! ➤ Air from this compressor must meet OSHA 29 CFR1910.134 and FDA 21 CFR178.3570 standards, if used for breathing or food processing. Use proper compressed air treatment. ➤ Food grade coolant must be used for food processing.

⁽¹⁾ Location of safety signs within the machine,

⁽²⁾ Only machines equipped with Option ga, gb,

⁽³⁾ Only machines with Option dc

3 Safety and Responsibility

3.7 Safety signs

Location	Symbol	Meaning
450		<p>Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected.</p> <ul style="list-style-type: none"> ➤ Connect a suitable compressed air hose. ➤ Open the ball valve.
600 ⁽¹⁾		<p>Pressure and spring force! Risk of fatal injury caused by loosening, opening, or dismantling valves or other components that are under pressure or heavy spring loading.</p> <ul style="list-style-type: none"> ➤ Do not open or dismantle valves. ➤ Contact an authorized KAESER service representative in the event of a fault.
620 621		<p>Pinch point hazard!</p> <ul style="list-style-type: none"> ➤ Keep hands clear when opening the canopy.
850 ⁽²⁾		<p>There is danger of fatal injury caused by contact with live components!</p> <ul style="list-style-type: none"> ➤ Take protective measures.
1222 ⁽³⁾		<p>Danger! Mortal danger from CO, CO₂, or toxic gas.</p> <ul style="list-style-type: none"> ➤ Draw in only surrounding air of breathing quality.
		<p>Danger! Danger to health from discharge of oily compressed air.</p> <ul style="list-style-type: none"> ➤ Maintain surrounding air temperature between 34°F and 86°F. ➤ Check the oil indicator at least once a day.
1650 ⁽¹⁾		<p>Machine damage if switched while the engine is running!</p> <ul style="list-style-type: none"> ➤ Use the «Battery isolating switch» only with the engine stopped. ➤ Do not use the «Battery isolating switch» as a main or emergency switch.

⁽¹⁾ Location of safety signs within the machine,

⁽²⁾ Only machines equipped with Option ga, gb,

⁽³⁾ Only machines with Option dc

Tab. 60 Safety signs

3.8 Option ga Generator operation

3.8.1 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 measures concerning "isolation, insulation monitoring and shut-down" are applied. The generator is equipped with an automatic power supply 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.

3.8.2 Instructions for 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 ground the neutral line (N) or connect it to the common protective ground/equipotential bonding (PE).
- Make sure the equipotential bonding to the ground is properly carried through (main power supply 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 to feed the worksite distribution board.
- A generator with insulation monitoring must not be connected to another insulation monitoring device as these monitoring devices will then have counter effects.
- Ground fault current (F1) protection switches do not function in ungrounded networks (IT network such as provided by the generator). The isolation provided by the generator, however, renders an additional 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.

3.8.3 Connecting extension cables

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

Keep in mind:

- In IT networks, the total length of power cables may not exceed 820 ft (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.

3.8.4 Do not exceed the maximum supply system load

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

3.8.5 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 authorized operating personnel:

- Insulation monitor function check.

Annual inspection by trained and authorized 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.

3.9 Emergency situations**3.9.1 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

3.9.2 Injury from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- Fuel
- Lubricating oils
- Compressor cooling oil
- Engine coolant
- Battery electrolyte
- Tool lubricant (Option ea)
- Antifreeze (Option ba)

Eye contact:

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

- Rinse open eyes thoroughly for a few minutes under running water.
- 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 respirator 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.

3.10 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 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.

The bodywork has several functions when it is closed:

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

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

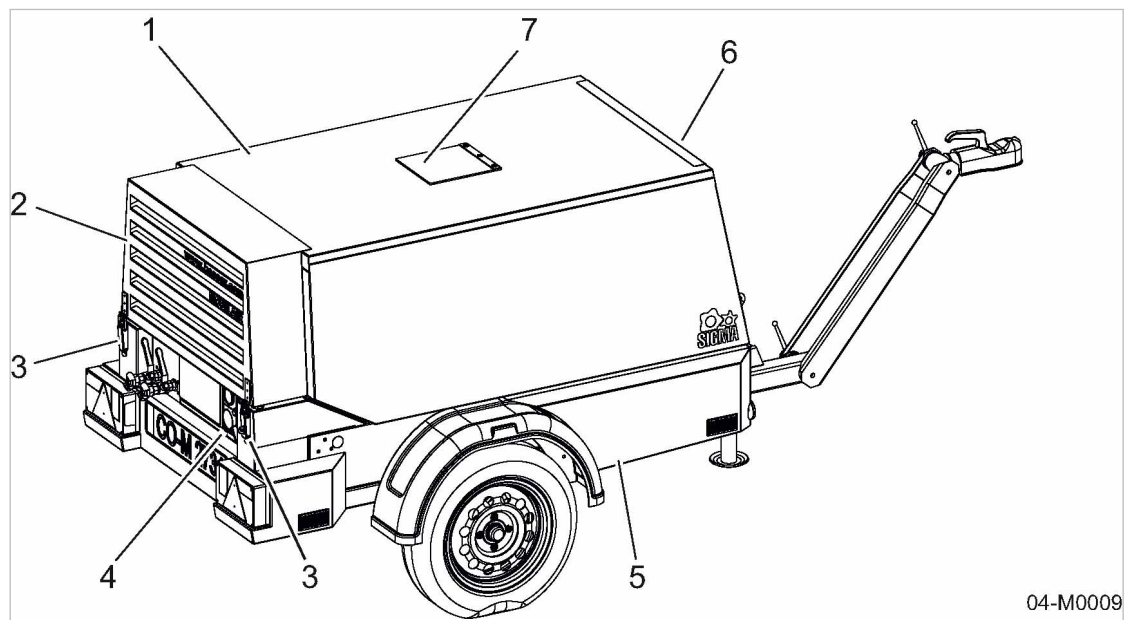


Fig. 2 Bodywork

- | | |
|---------------------|-------------------------|
| ① Canopy | ⑤ Lower body |
| ② Cooling air inlet | ⑥ Cooling air outlet |
| ③ Snap fastener | ⑦ Cover for lifting eye |
| ④ Instrument panel | |

The canopy ① can be opened when all the snap fasteners ③ are released.

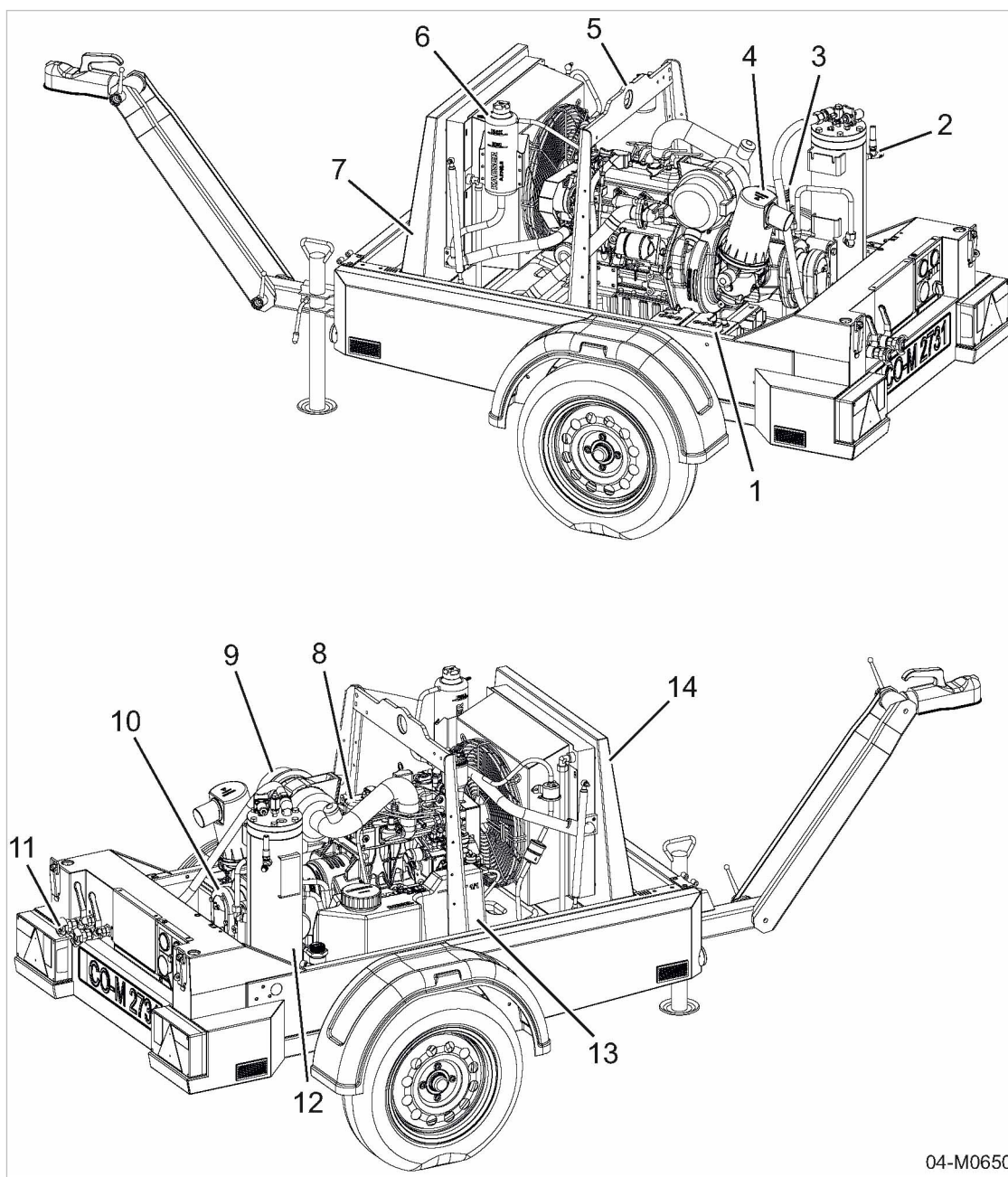
The canopy opens independently.

Two gas-filled springs maintain the opened position of the canopy.

The bodywork is not suitable for the following uses:

- Walking on, standing, or sitting on.
- As resting place or storage for any kind of load.

4.2 Component identification



04-M0650

Fig. 3 Side view (canopy removed)

- | | |
|----------------------------------|-------------------------------|
| ① Battery | ⑧ Engine |
| ② Safety (pressure) relief valve | ⑨ Engine air filter |
| ③ Thermostatic valve | ⑩ Airend |
| ④ Compressor air filter | ⑪ Compressed air outlet valve |
| ⑤ Lifting eye | ⑫ Oil separator tank |
| ⑥ Coolant expansion tank | ⑬ Fuel tank |
| ⑦ Water cooler | ⑭ Oil cooler |

4.3 Machine function

Machine function (without options)

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

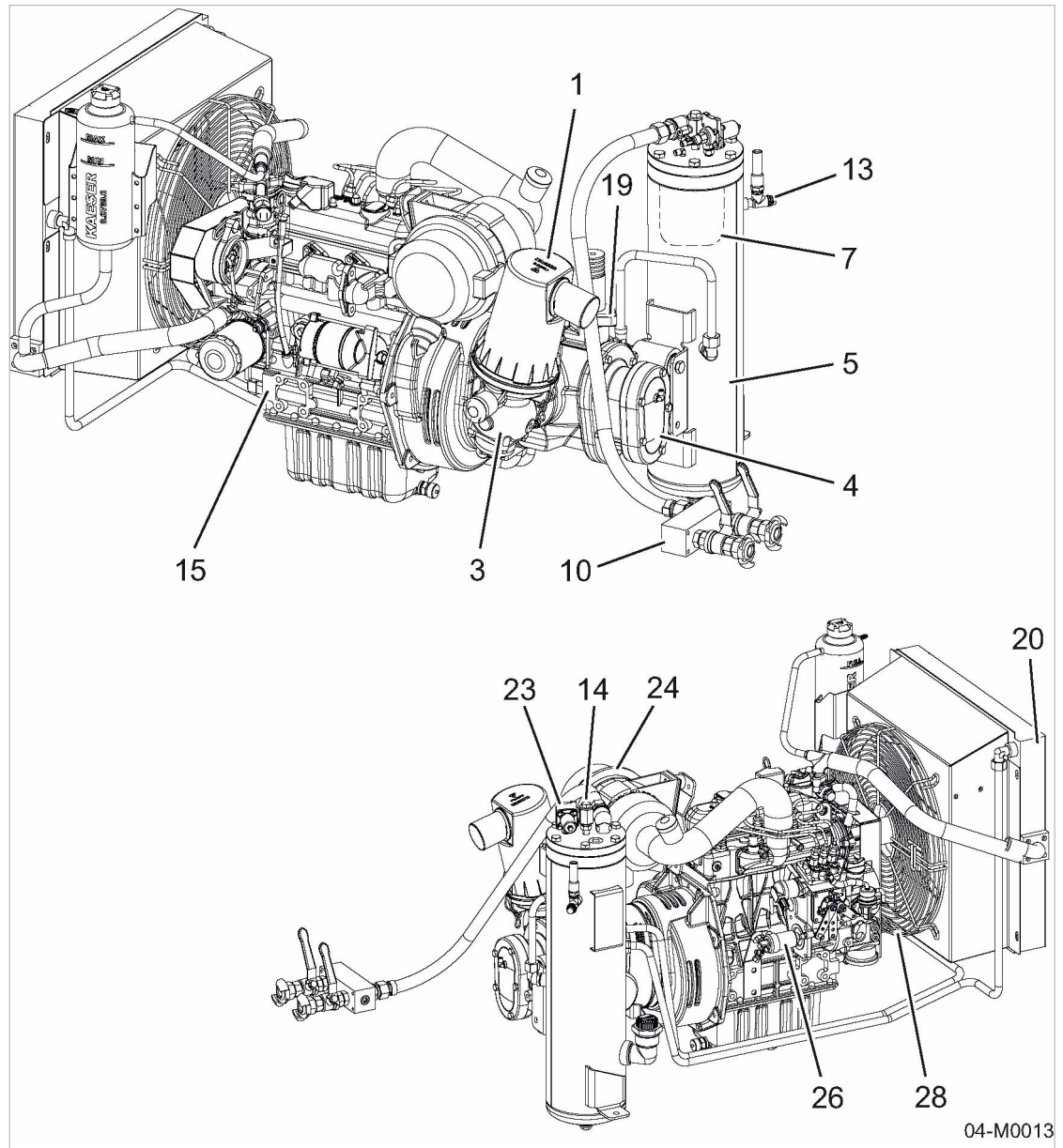


Fig. 4 Machine overview

- | | |
|---------------------------|----------------------------------|
| 1 Compressor air filter | 15 Drive motor |
| 3 Inlet valve | 19 Thermostatic valve |
| 4 Airend | 20 Oil cooler |
| 5 Oil separator tank | 23 Proportional controller |
| 7 Oil separator cartridge | 24 Engine air filter |
| 10 Air distributor | 26 Engine speed adjusting piston |
| 13 Safety relief valve | 28 Fan |

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

The air is then compressed in the airend (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. Air pressure within the machine keeps the oil circulating. A separate pump is not necessary.

A thermostatic valve (19) regulates and optimizes the cooling oil temperature. For machines with Anti-Frost Control, the ambient temperature is considered.

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

The cooling fan (28) ensures optimum cooling of all components within the enclosure.

4.4 Operating modes and control mode

4.4.1 Machine operating modes

The machine operates in the following modes:

- **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.
- **STANDSTILL (shut down)**
 - The inlet valve closes.
 - The venting valve opens to depressurize the machine.
 - 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 continuous delivery regulation minimizes fuel consumption of the engine. The load and fuel consumption of the engine rises and falls with the air demand.

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
- Engine alternator



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

4.5.2 Further safety devices

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

- Pressure relief valve:
This valve protects the system from excessive pressure. It is factory set.
- Enclosures and covers over moving parts and electrical connections:
These protect against accidental contact.

4.6 Options

The options available for your machine are described below.

4.6.1 Option da, dd, db 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.

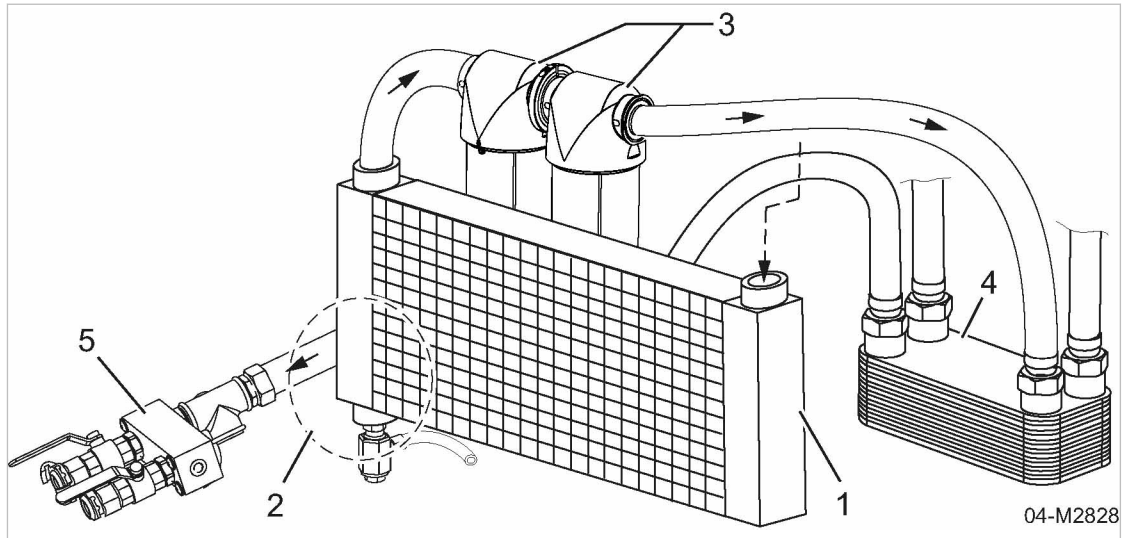


Fig. 5 Compressed air options

- | | |
|--|------------------------------|
| ① Compressed air aftercooler (Option da) | ④ Heat exchanger (option db) |
| ② Compressed air water trap (option da) | ⑤ Air distributor |
| ③ Filter combination (option dd) | |

4.6.1.1 Option da Compressed air aftercooler

The aftercooler lowers the compressed air temperature to only 5 K to 10 K above ambient. Most of the moisture carried in the air is removed in the aftercooler.

4.6.1.2 Option da Compressed air water separator

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

4.6.1.3 Option dd Filter combination

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

4.6.1.4 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.

4.6.1.5 Option ea 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.

The amount of oil in the compressed air is controlled by a metering valve on the lubricator:

- 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 cut off completely by a shut-off valve.

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

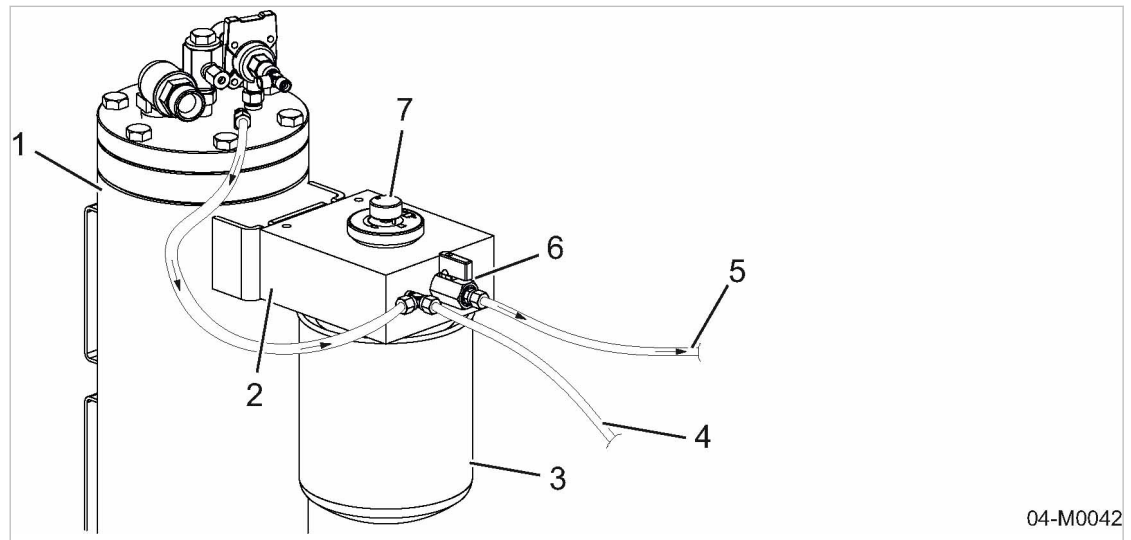


Fig. 6 Tool lubricator

- | | |
|----------------------|--------------------------------------|
| ① Oil separator tank | ⑤ Air line with additional lubricant |
| ② Tool lubricator | ⑥ Shut-off ball valve |
| ③ Oil tank | ⑦ Metering knob |
| ④ Venting line | |

Please note for air tools that should not be lubricated:

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.*

4.6.2 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.

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. See chapter 2.8.3 for reduced compressed air delivery. The volume of compressed air available is dependent on the generator operating mode and the power taken.

4.6.2.1 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. 61 Generator mode selector switch

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. 62 Generator operating modes

4.6.2.2 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.

Generator control box 400V

Sockets and switches 400 V/3~/N/PE, 50 Hz generator, see illustration 7.

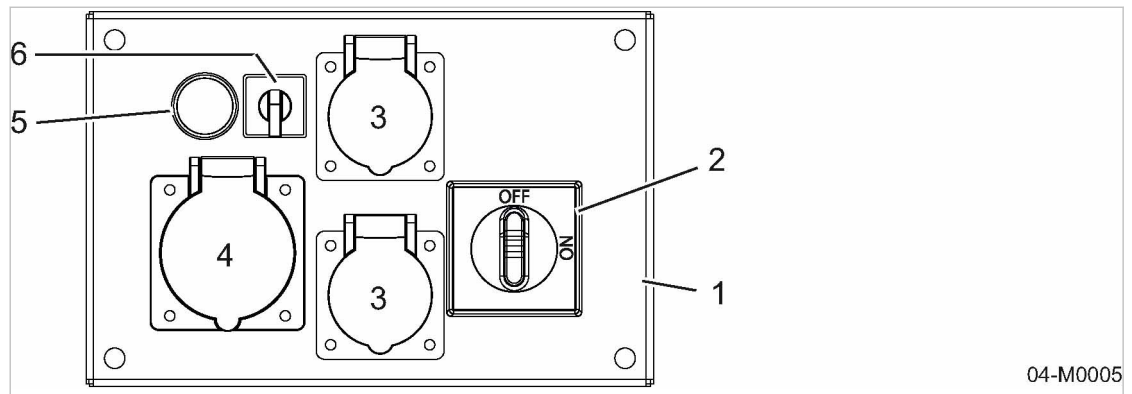


Fig. 7 Instrument panel, generator control box 400 V/3~N/PE, 50 Hz

- | | |
|------------------------------------|--|
| ① Generator control box | ④ Power socket 400 V/3~N/PE, 50 Hz |
| ② «Generator main switch» | ⑤ Test button «insulation monitor» with indicator light for ground short |
| ③ Power socket 230 V/1~N/PE, 50 Hz | ⑥ «Mode selector switch» |

Generator control box 115V

Sockets and switches 115 V/1~N/PE, 50 Hz, 32 A generator, see illustration 8.

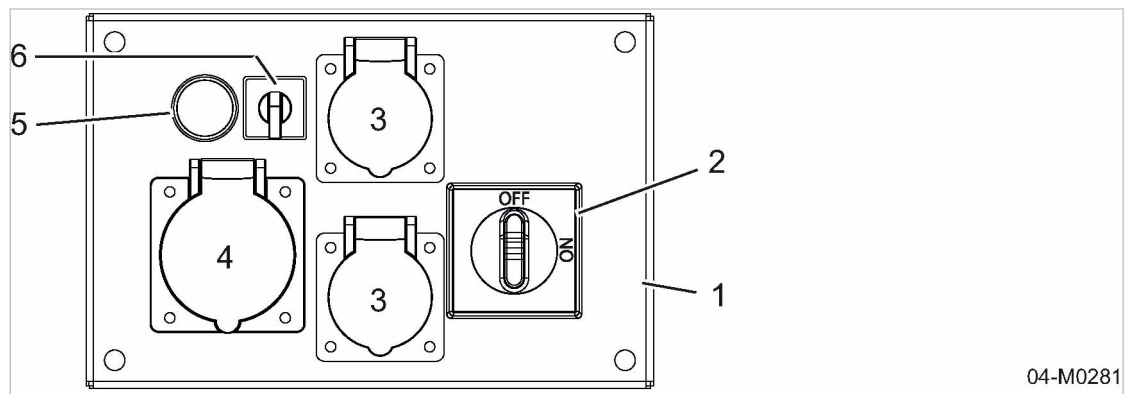


Fig. 8 Instrument panel, generator control box 115 V/1~N/PE, 50 Hz, 32 A

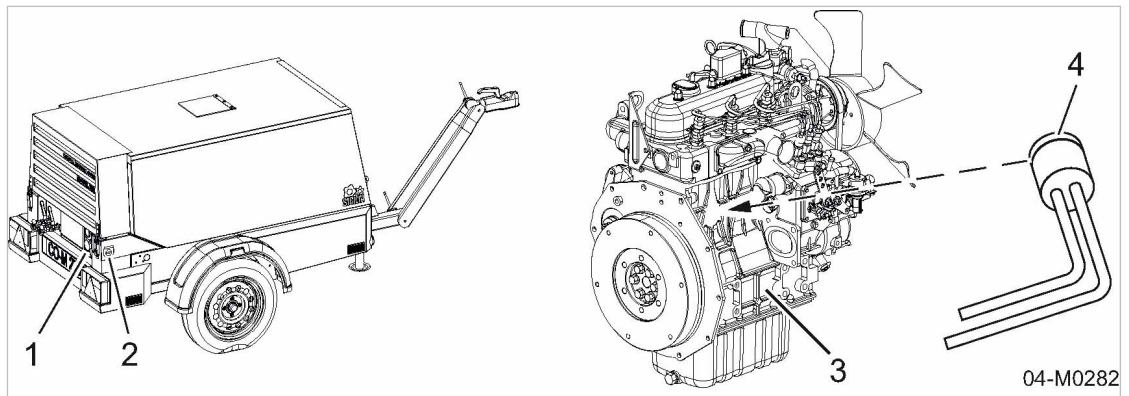
- | | |
|--|--|
| ① Generator control box | ④ Power socket 115 V/1~N/PE, 50 Hz, 32 A |
| ② «Generator main switch» | ⑤ Test button «insulation monitor» with indicator light for ground short |
| ③ Power socket 115 V/1~N/PE, 50 Hz, 16 A | ⑥ «Mode selector switch» |

4.6.3 Option ba Low temperature equipment options

The machine is fitted with low-temperature equipment for operation in extremely low temperatures. This equipment assures trouble-free operation in ambient temperatures from -13°F to 113°F. The electrical system enables trouble-free engine starting at ambient temperatures down to -4°F.

**4.6.3.1 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. 9 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.

**4.6.3.2 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.

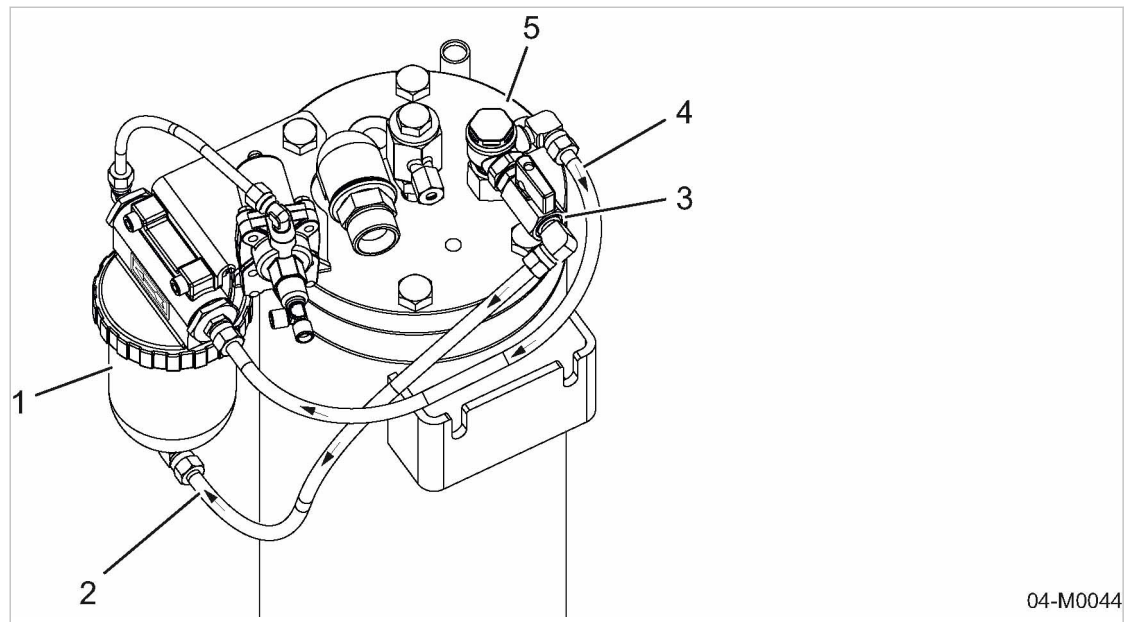


Fig. 10 Frost protector

- | | |
|-----------------------------------|------------------------------|
| ① Frost protector | ④ Control line (bypass line) |
| ② Control line (frost protection) | ⑤ Oil separator tank cover |
| ③ Shut-off ball valve | |

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 anti-freeze in the air flow, valves and control lines in the interior are moistened preventing 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:

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

4.6.4 Option 1a, 1b Options for operating in fire hazard areas

4.6.4.1 Option 1a Spark arrestor

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 from emitting any glowing fuel residue.

4.6.4.2 Option lb
Engine air intake shut-off valve

Any flammable gas drawn into the diesel engine's air intake alters and enriches the controlled fuel/air mixture fed to the engine. This causes a sudden and uncontrolled increase in engine speed that can lead to 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. Only by shutting off the air intake can the engine be brought to an immediate stop.

The self-closing valve shuts off the engine air intake as soon as flammable gas is drawn in. This brings the engine to an immediate stop.

4.6.5 Option ne
Fuel de-watering filter option

A fuel de-watering filter is installed to remove water from the fuel to prevent lower quality fuel reaching the pump.

4.6.6 Option oe
Sealed floor pan option

The machine is fitted with a sealed floor pan.

In the event of a leak, all liquids required for the machine's operation are caught in the floor pan. Service openings in the floor pan are closed with plugs. These openings must be tightly re-closed after performing any cleaning work.

4.6.7 Option oa
Battery isolating switch option

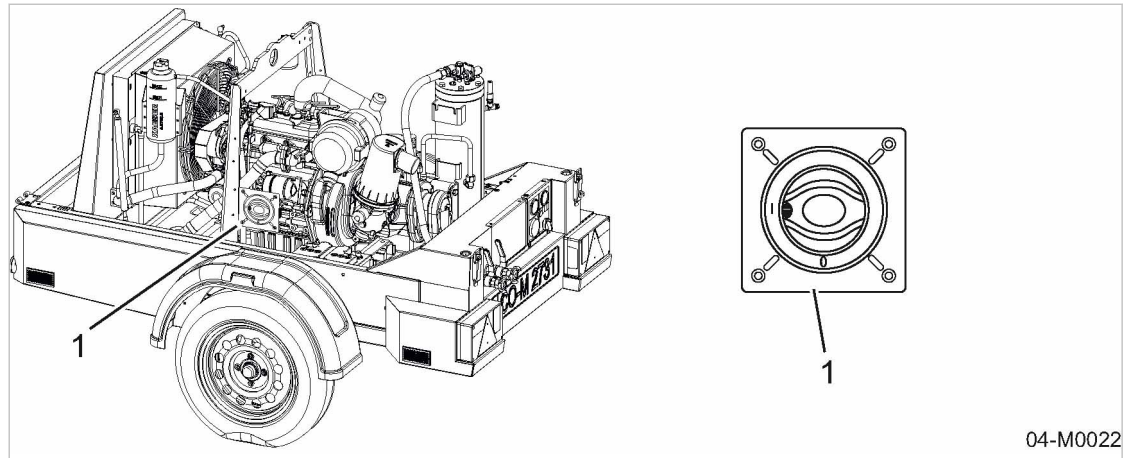
The «battery isolating switch» disconnects the battery completely from the machine's electrical system (fire protection, battery discharge protection).

NOTICE

Danger of short circuit!

Damage to the machine 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.*



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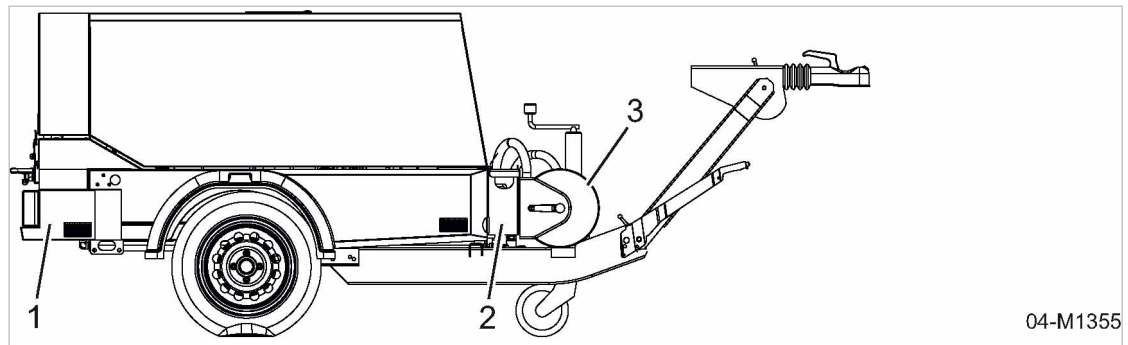
Fig. 11 Battery isolating switch**① «Battery isolating switch»**

4.6.8 Option ua Hose reel option

The machine is provided with an extension hose to allow connection and operation of remote air tools. A hose reel is provided for safe storage of this hose.

4.6.9 Option sf Anti-theft device option

The machine is fitted with a security chain as theft protection.
The supplied safety chain is stored in a container at the front of the machine.



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Fig. 12 Container for safety chain

- ① Machine**
- ② Container for safety chain**
- ③ Hose reel (option ua)**

4.7 Frame design options for stationary machines**4.7.1 Option rw, rx**
Chassis types of stationary machines

Option	Designation	Characteristics
rw	Skids	<ul style="list-style-type: none">■ Frame designed as skid.■ Use as stationary machine.■ Mounted on truck/trailer platform.
rx	Frame	<ul style="list-style-type: none">■ The mounting assembly is designed as a frame.■ Use as stationary machine.■ Mounted on truck/trailer platform.

Tab. 63 Stationary machines

Further information See chapter 13.3 for the dimensional drawings of machines with stationary frame designs.

5 Installation and Operating Conditions

5.1 Ensuring safety

The conditions in which the machine is installed and operated have a decisive effect on safety. Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes 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 vapours or parts of the machine.
- Do not store inflammable material 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 in force.
For instance, the requirements of ATEX directive 2014/34/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Keep suitable fire extinguishing agents ready for use.
- Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

- Ambient temperature
- Air composition at the installation site:
 - clean with no damaging contaminants (e.g., dust, fibres, fine sand)
 - free of explosive or chemically unstable gases or vapours
 - free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulphide.

5.2 Installation conditions

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

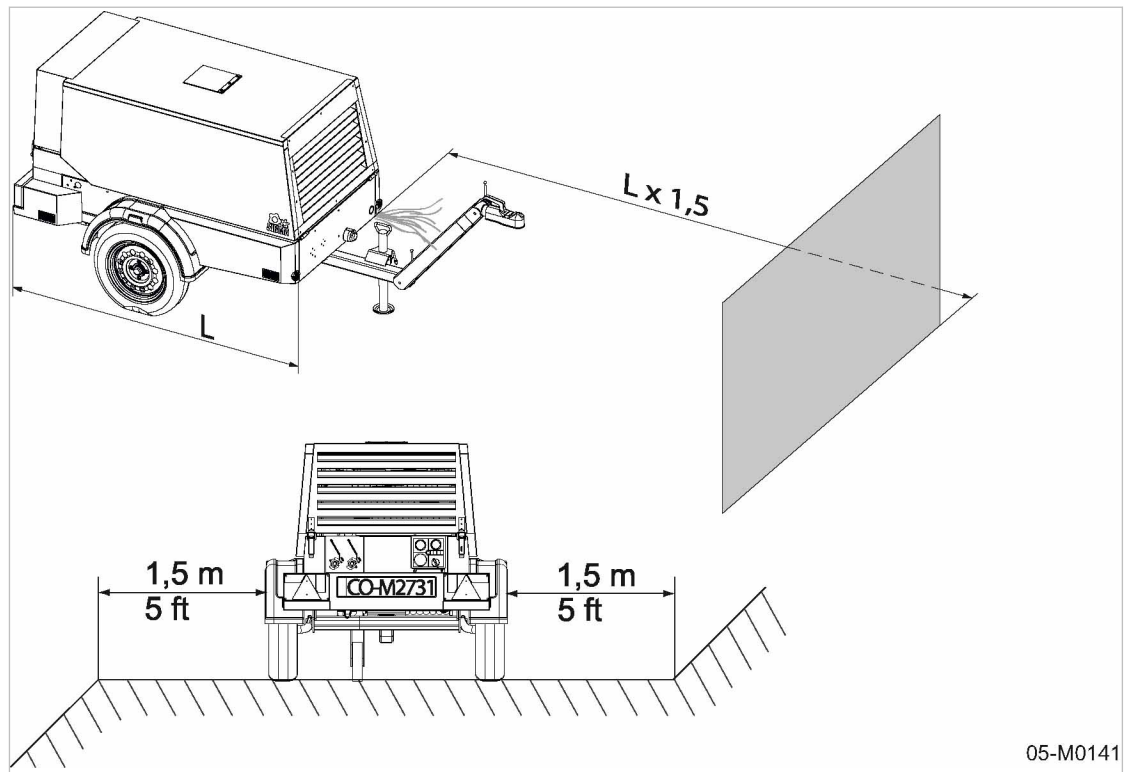


Fig. 13 Minimum distance from excavations, slopes, or walls

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



The machine can be temporarily operated on a slope of not more than 5°.

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
4. **NOTICE** *Danger of burning from build up of heat and hot exhaust!*
Insufficient distance from a wall may cause heat build up that could damage the machine.
 - Do not position the machine directly against a wall.
 - Always ensure 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. Position the machine in such a manner that:
 - wind does not blow into the cooling air outlet.
 - exhaust gases and heated cooling air can not be drawn into the compressor.

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 low viscosity compressor cooling oil.*
 - *Allow the machine to warm up in IDLE (low speed), see chapter 8.2.3.*
10. At ambient temperatures below 32°F, follow the instructions in chapter 7.4.

5.3 Requirements for positioning on a lorry platform

For special applications, a stationary machine may be installed on the platform of a lorry. In this case, fasten the machine with bolt-down machine mounts on the load platform.



Special prerequisites for the installation on lorry platforms:

1. Follow the vehicle manufacturer's loading guidelines for safe operation and transportation.
2. Ensure sufficient clearance for access to the machine while fastened to the platform.
 - Ensure that operating activities are possible.
 - Ensure that monitoring activities are possible.
 - Ensure that maintenance activities are possible.
 - Ensure that an emergency shut-down is possible.
3. Ensure sufficient clearance for air supply to and exhaust lines from the machine while fastened to the platform.
 - Keep the intake air openings unobstructed.
 - Keep the exhaust air openings unobstructed.
4. Ensure sufficient clearance for the exhaust gas conduit from the machine while fastened to the platform.
 - Keep the exhaust gas opening unobstructed.
 - Ensure sufficient distance and discharge option for escaping exhaust gas.
5. If required, attach a hazardous goods label at the machine.

Further information For the installation of the bolt-down machine mounts, see chapter 6.3.1.

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.

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 Installing the options

- Comply with all instructions!

6.3.1 Option rx, rw Fastening a stationary machine

When stationary machines are ordered with bolt-down machine mounts (anti-vibration mounts), a complete set of these bolt-down machine mounts are provided in a separate cardboard box. If the machine mounts have not been purchased with the machine, you may separately order them from KAESER.

Use bolt-down machine mounts to correctly fasten the stationary machine on the installation surface. These machine mounts, designed for the overall machine weight, also ensure a vibration-reducing positioning of the machine.

You may use machine mounts with or without rubber pads. When using machine mounts with rubber pads, take the changed height of the machine into consideration.

Bores for the fastening bolts of the machine mounts are provided in the frame or skid. See the corresponding dimensional drawing in chapter 13.3 to see the precise distances of the bores for your machine.

Select the fastening bolts according to the properties of the installation surface.

Material Bolt-down machine mounts (anti-vibration mounts)
 Fixing screws
 Wrench

Precondition The machine is switched off.

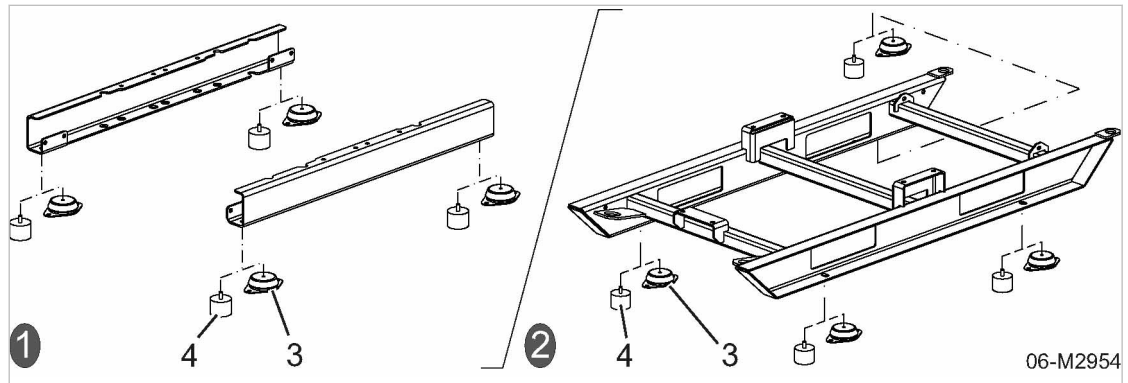


Fig. 14 Fitting the Mounting Pads

- | | | | |
|---|-------------------|---|---------------|
| ① | Frame (Option rx) | ③ | Machine mount |
| ② | Skid (Option rw) | ④ | Rubber pad |

1. Lift the machine with appropriate hoisting gear.
2. Place square timbers under the frame or skid.
3. Set the machine down carefully.
4. Bolt all machine mounts to the frame or skid.
5. Lift the machine and position it on a suitable surface as specified in chapter 5.2, Installation conditions.
6. Use appropriate fastening bolts for attaching the machine mounts.

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 recommissioning after storage

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

Storage period longer than:	Action
5 months	Drive engine: <ul style="list-style-type: none"> ➤ Remove the desiccant from the opening in the air intake filter. ➤ Check the engine air and oil filters. ➤ Drain the preserving oil from the engine. ➤ Fill with engine oil. ➤ Check the engine coolant. ➤ Check the battery charge. ➤ Re-connect the battery (batteries). ➤ Check all fuel hoses for leaks, loose connections, wear, and damage. ➤ Check all pressure hoses of the drive engine (engine oil, coolant, charging air) for leaks, loose connections, wear, and damage. Compressor: <ul style="list-style-type: none"> ➤ Remove the desiccant from the opening in the compressor air intake filter. ➤ Check the compressor air and oil filters. ➤ Drain the preserving oil from the separator tank. ➤ Fill with cooling oil. ➤ Check all pressure hoses/lines of the compressor (cooling oil, compressed air, control air, condensate) for leaks, loose connections, wear, and damage. Body: <ul style="list-style-type: none"> ➤ Clean the body with a grease and dirt dissolving agent.
36 months	Technical condition: <ul style="list-style-type: none"> ➤ Have the overall technical condition checked by an authorized KAESER service representative.

Tab. 64 Special measures for recommissioning after storage

7.3 Checking installation and operating conditions

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

Task	See chapter	Confirmed?
➤ Are the operators completely familiar with safety regulations?	—	
➤ Have all the positioning conditions been fulfilled?	5	
➤ Is there sufficient cooling oil in the separator tank?	10.4.1	
➤ Is the maintenance indicator on the compressor air filter OK?	10.4.7	
➤ Is there sufficient oil in the engine?	10.3.4	
➤ Is the maintenance indicator on the drive engine air filter OK?	10.3.2	
➤ Is there sufficient coolant in the coolant expansion tank?	10.3.1	

7 Initial Start-up

7.4 Low-temperature operation (winter)

Task	See chapter	Confirmed?
➤ 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	
➤ Canopy closed?	—	
➤ Are the access doors closed?	—	
➤ Are all body panels in place?	—	

Tab. 65 Checking installation and operating conditions

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 the 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

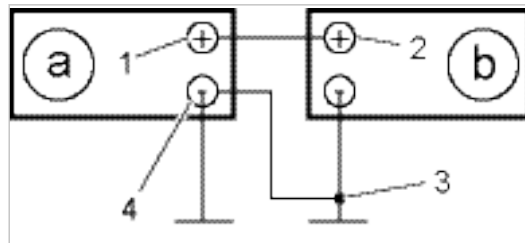
Precondition The machine is disconnected from the towing vehicle and safely parked.

⚠ WARNING

Fire and explosion hazard.

High currents caused by short-circuited battery. 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.*



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Fig. 15 Jumper cable connection diagram

- | | | | |
|---|--|---|--|
| Ⓐ | Assisting vehicle battery (external donor battery) | ② | Positive (+) terminal of the machine battery |
| Ⓑ | Engine battery (receiving battery) | ③ | Bare metal point on the engine block (ground) |
| ① | Positive (+) terminal starting assistance | ④ | Negative (-) terminal of assisting vehicle battery |

Complying with safety warnings

1. **⚠ 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 battery 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.*
2. Comply with the safety instruction shown when using starting aids and starter batteries.

Preparations

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

Connecting the battery jumper cables

1. Connect the positive terminals ② and ①.
2. **⚠ 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.*
3. Connect the minus pole of the assisting battery ④ to a bare metal point on the compressor engine ③ to be started as far away from the battery as possible.

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 batteries. They will pick up little current only in the beginning and have 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 coolant pre-heater:

The engine coolant can be pre-heated to improve starting under cold conditions.
The connection for the mains supply is located on the right side of the machine (see illustration).

Option bb

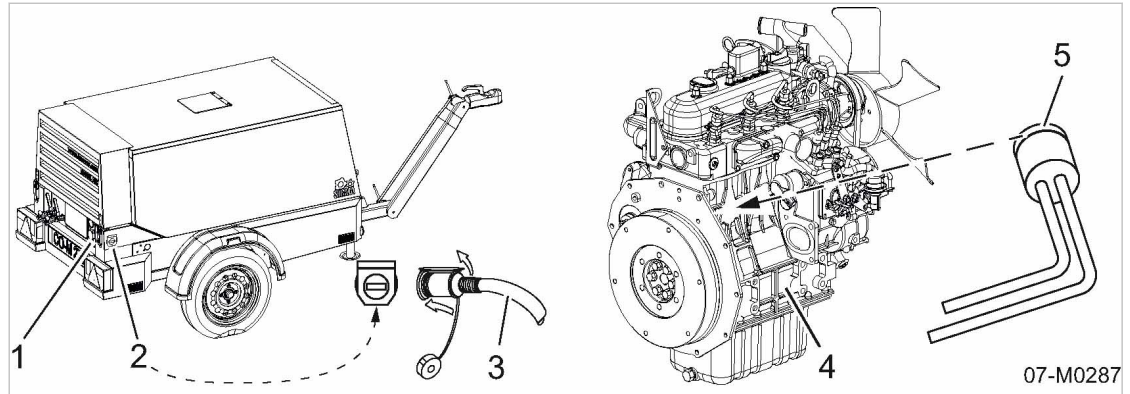


Fig. 16 Coolant pre-heating

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

1. **⚠ 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.
2. Connect the coolant pre-heater to the user's power socket with the power cable supplied.

Option bc Operating the frost protector

- Use the checklist when initially starting the frost protector.

To be checked	See chapter	Confirmed?
Check the level of antifreeze in the frost protector.	10.8.5	
Close the tap on the frost protector.	8.5.3	

Tab. 66 Low-temperature equipment checklist

7.5 Activating the generator

The generator can be operated without electrical grounding.
 Test the insulation monitor daily with the engine running before activating the generator.

- Test daily.

7.5.1 Generator control box 400V with insulation monitoring

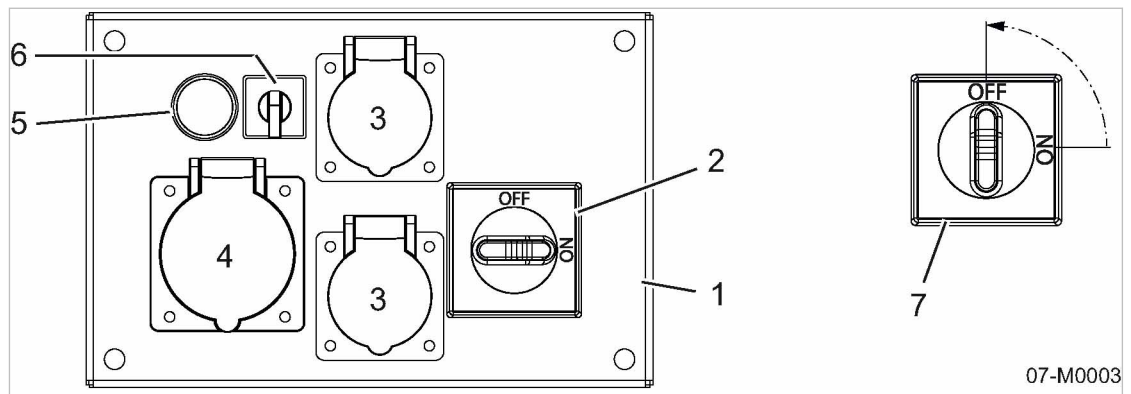


Fig. 17 Insulation monitoring – 400V, 3-phase generator

- | | |
|---------------------------------|--|
| ① Generator control box | ⑤ Test button «insulation monitor» with indicator light for ground short |
| ② «Main switch» | ⑥ «Mode selection switch» |
| ③ Single-phase AC power sockets | ⑦ Position «main switch» after the main circuit breaker has been activated |
| ④ 3-phase AC power sockets | |

➤ Please note the positions of «insulation monitor» and «main switch» test buttons.

7.5.2 Generator control box 115V with insulation monitoring

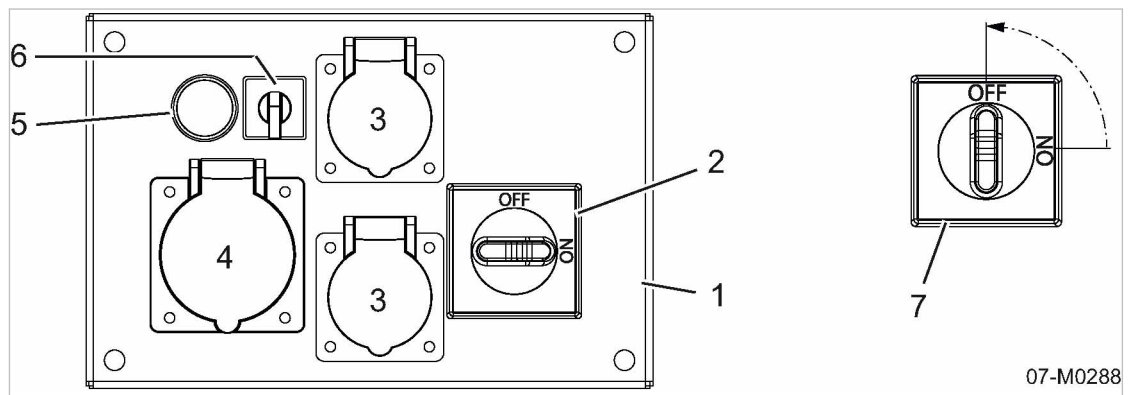


Fig. 18 Insulation monitoring - 115V, single-phase generator

- | | |
|--------------------------------------|--|
| ① Generator control box | ⑤ Test button «insulation monitor» with indicator light for ground short |
| ② «Main switch» | ⑥ «Mode selector switch» |
| ③ Single phase AC power socket, 16 A | ⑦ Position «main switch» after the main circuit breaker has been activated |
| ④ Single phase AC power socket, 32 A | |

➤ Please note the positions of «insulation monitor» and «main switch» test buttons.

7.5.3 Testing the insulation monitor

- Starting the machine
- ⚠ DANGER** Risk of fatal injury caused by contact with live components!
 - The generator may only be used if the «circuit breaker» («mains circuit breaker») has tripped during the test!

3. Check the insulation monitor according to instructions:



Checking instructions are given on the label stuck on the generator control box.

DANGER!**Electrical power**

Risk of fatal injury caused by contact with live components!

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

Checking the «safety cut-out»:

- ▶ Switch on the «mains circuit breaker» for the generator.
- ▶ Press and hold the «test button»  for 3 seconds.

The «mains circuit breaker» trips out.

Problem: The «mains circuit breaker » does not trip.

- ▶ Shut down the generator and call KAESER SERVICE.

Tab. 67 Test instructions for a generator with a ground leak detection device.

4. Turn the «starter switch» of the machine to the "0" position

Warning lamp extinguishes.

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

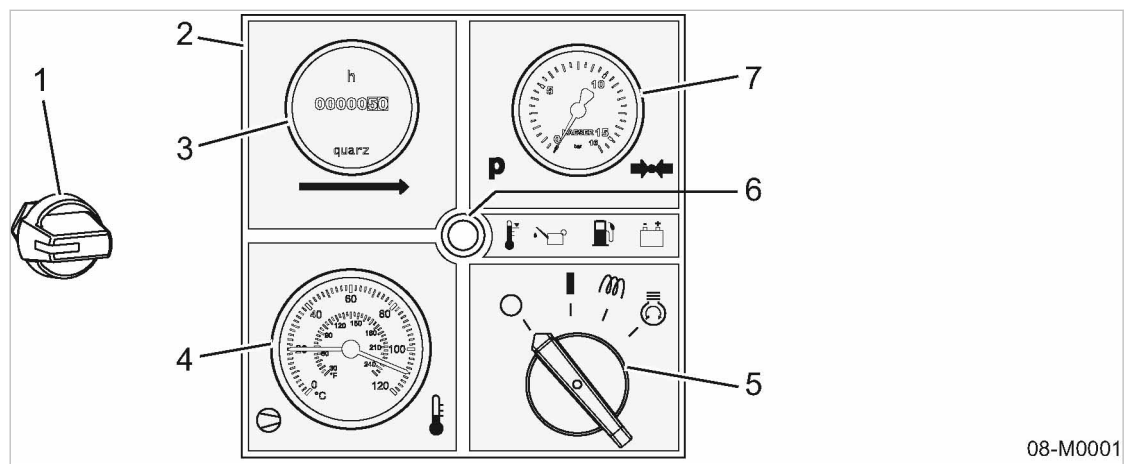
Precondition No personnel are working on the machine

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.*



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Fig. 19 Starting instruments

- | | |
|----------------------------|--|
| ① «Controller On» switch | ⓘ ON |
| ② Instrument panel | Ⓜ Preheating |
| ③ Operating hours counter | Ⓜ START |
| ④ Temperature gauge switch | ⑥ <i>Charging indicating light, Group alarm lamp</i> |
| ⑤ «Starter switch »: | ⑦ Compressed air outlet pressure gauge |
| ⑥ STOP / OFF | |

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 Commissioning the machine

1. Open the canopy.
2. Turn the «Controller ON» ② switch to the I position.

3. Close and lock the canopy.
4. Open all compressed air outlet valves.

8.2.2 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 «ignition switch» ⑤ to the "I" position.
The *charging indicator light* must be lit.
3. Turn the «starter switch» to "II" and hold (max. 5-10 seconds).
The engine's glow plugs are energized and the engine preheated.
4. Turn the «starter switch» to "III" and release it as soon as the engine starts.
The *charging indicator light* extinguishes as soon as the engine is running.
A fault has occurred if the *charging indicator light* does not extinguish, see chapter 9.2.

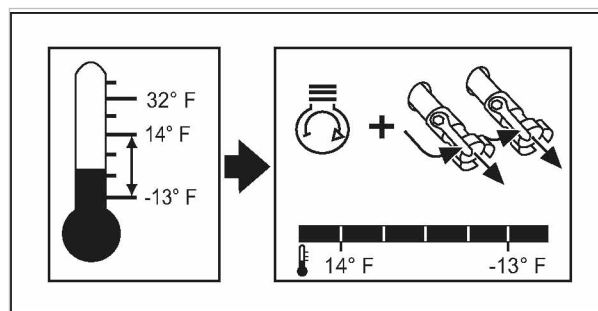


The electric fuel pump starts automatically during preheating. This vents the fuel line before each start.
Maximum preheating time should be 5-10 seconds.

8.2.3 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 by the temperature gauge switch on the instrument panel.

Option ba



08-M0008-US

Fig. 20 Warm-up period when ambient temperatures are below 14 °F

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

8.2.4 Running the machine under load

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

1. Connect the consumer to the compressed air outlet valves.
2. Open the compressed air outlet valves.

8.2.5 Shutting down the machine

1. Close the «compressed air outlet valves» on the air distributor.
The engine runs in IDLE.
2. Turn the «starter switch» to “0” position.
The engine turns off.

Shutting down the machine

1. Open the canopy.
2. Turn the «Controller ON» switch to “0” position.
3. Close the canopy.



Lock the canopy if necessary.

8.3 Ending the reverse engine run

Engine backfiring causes a short turning of the engine in the opposite direction. This backfiring can trigger the expulsion of exhaust gas into the intake end which may cause a fire.

If the engine runs in reverse, it must be shut down immediately because the oil circuit is interrupted potentially causing mechanical damage.



Characteristics of a reverse engine run:

- Oil pressure drops significantly.
- Oil pressure switch indicates insufficient oil pressure.
- Exhaust gases escape from the air filter.
- The knocking sound of the engine becomes audibly louder.

⚠ CAUTION

Reverse engine run!

Mechanical damage from interrupted oil circuit.

➤ *Shut down the machine immediately.*

1. Shut down the machine immediately.
2. Check the air filter.
3. Check the suction pipe.
4. If necessary, replace the components.

8.4 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 10.8.7 for information to the draining of liquids within the machine.

8.5 Operating the options

- Comply with all instructions.

8.5.1 Option oa Operating the battery isolating switch

NOTICE

Danger of short circuit!

Damage to the machine electrical system is possible.

- Use the «Battery isolating switch» only when the machine is switched off.
- Do not use the «Battery isolating switch» as a main or emergency switch!

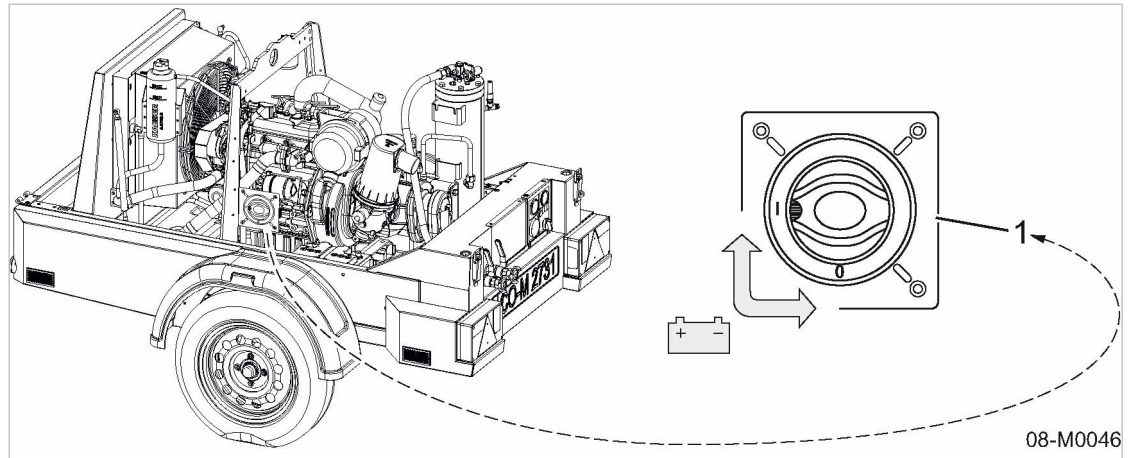


Fig. 21 Battery isolating switch

- ① «Battery isolating switch»
I – On
0 – Off

➤ Raise the cover.

Start the machine

1. Activate the «Battery isolating switch».
The battery is now connected to the machine's electrical system. The machine can now be started.
2. Close the canopy.

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 canopy.

8.5.2 Option ea Operating the tool lubricator

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

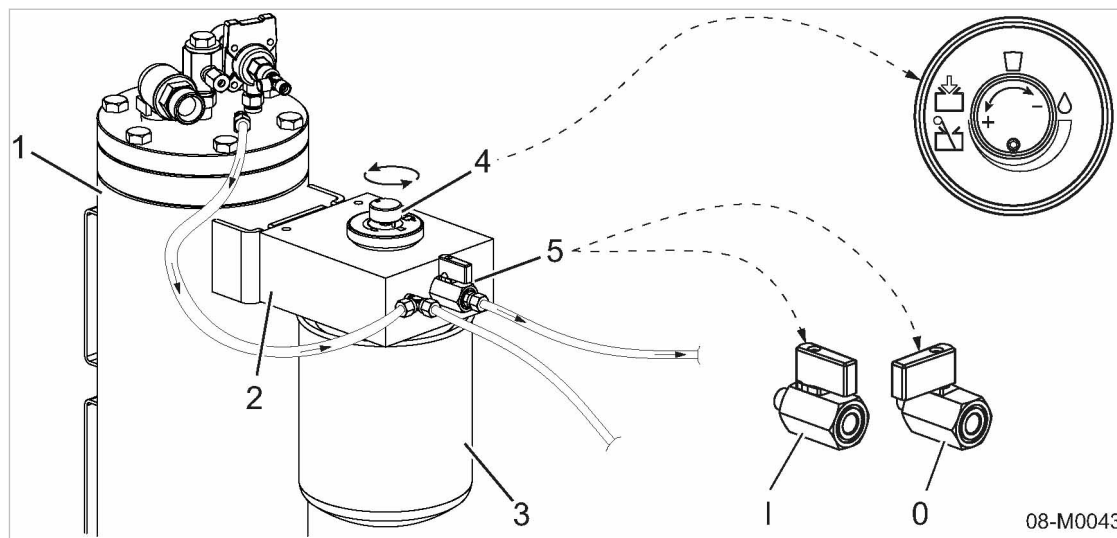


Fig. 22 Adjusting the tool lubricator

- | | |
|-----------------------|------------------|
| ① Oil separator tank | ④ Metering knob |
| ② Tool lubricator | ⑤ Shut-off valve |
| ③ Lubricant container | I – open |
| | 0 – closed |

➤ Open the enclosure.

Releasing lubricating oil

1. Open the shut-off valve ⑤.
2. Close the 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 mist into the air.

- Turning clockwise: reduces the oil flow.
- Turning counter-clockwise: increases the oil flow.

1. Set the required oil flow.
2. Close the 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 ⑤.
2. Close the door.

8.5.3 Option ba Using the low-temperature equipment

➤ Determine which low temperature equipment is fitted to the machine.

**8.5.3.1 Option bb
Coolant pre-heating**

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

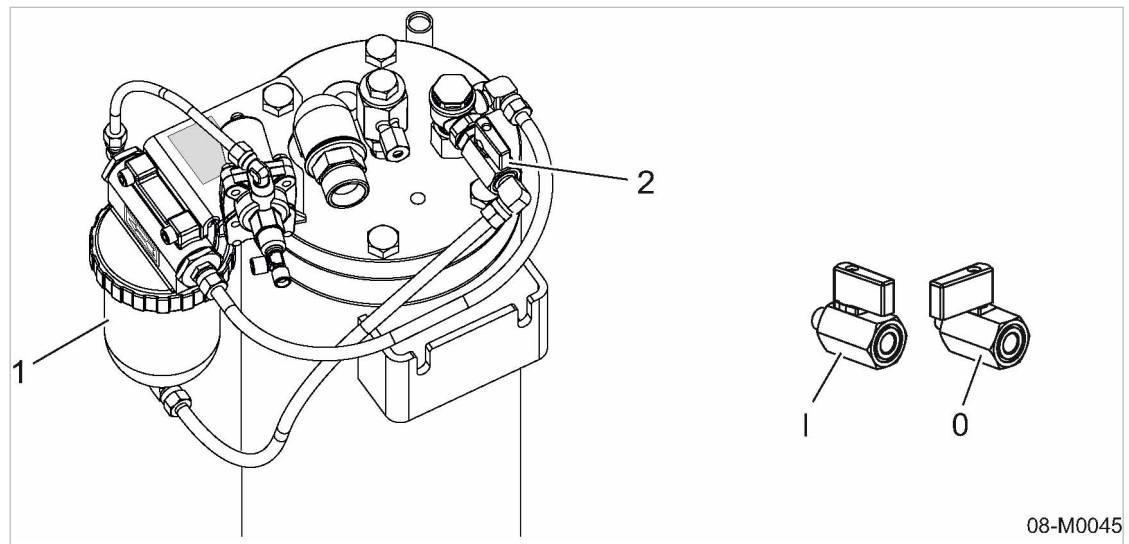
**8.5.3.2 Option bc
Operating the machine with frost protector**

Fig. 23 Frost protector on and off

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

Switching on the frost protector:

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

Subsequently to the daily operation of the machine, the compressed air conduits and valves must be moistened with antifreeze.

For this purpose, the defroster must be activated for a short time.

Antifreeze is added to the compressed air.

Precondition Frost protector filled with antifreeze

The machine is switched off.

1. Raise the cover.
2. Open the shut-off valve ② on the machine's frost protector (position I).
3. Close the canopy.
4. Start the machine.
5. Let the machine run for a short time.
6. Switches the machine off.
7. Raise the cover.
8. Close the shut off valve ② on the frost protector (position 0).

Result Conduits and valves are sufficiently moistened.

The machine is ready for winter operation.



The container for the antifreeze agent is empty.

- Activate the defroster only for a short time, after daily use.



Activate the defroster only for a short time as described above. The antifreeze agent will be used up quickly and unnecessarily if the defroster runs continuously.

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

Operating with the frost protector switched off

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

Precondition The machine is switched off.

1. Raise the cover.
2. Keep the frost protector shut-off valve permanently closed (position 0).
3. Close the canopy.

8.5.4 Option ga, gb Generator operation

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 13.6).

Overview:

- Note before operating the generator
 - Switching on the generator
 - Disconnect electrical consumers
 - Switching off the generator
- Follow instructions

8.5.4.1 Note before operating the generator



- 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.

1. Determine the consumption values of the electric consumers.
2. Do not exceed the maximum system load caused by electric consumers.
3. If necessary, reduce the number of connected consumers.
4. Read the technical specification for the generator before connecting voltage sensitive equipment.
5. Check that electrical consumers and their connecting cables are in perfect condition.

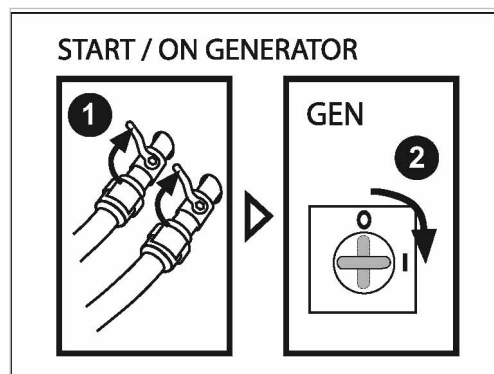
6. Note the labelling of the individual sockets on the generator control cabinet regarding voltages and amperages.
7. Plug in electric consumers to the sockets one by one.
8. Switch on electric consumers one by one.
9. Consumers with unfavorable on/off characteristics (e.g. high starting current) should be started first.

8.5.4.2 Switching on the generator

Precondition Read and follow the instructions "Before generator operation".

LOAD mode

A pictogram beneath the «generator main switch» indicates the correct "cutting-in" of the generator.



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Fig. 24 Generator cut-in pictogram

- ① Compressed air outlet valve closed.
- ② Turn the «generator main switch» to the "I" position.

1. Close the compressed air outlet valves.
2. Turn the «generator main switch »to the "I" position.
3. Turn the «mode selector switch» to the required mode of operation
4. Connect electrical consumers.

Further information See chapter 4.6.2.2 for generator controls.
See chapter 4.6.2.1 for generator operating modes.

8.5.4.3 Disconnect electrical consumers

1. Switch off the electric consumers one after another.
2. Switch off electrical consumers drawing the highest current last.
3. Remove the plugs from the sockets on the generator control cabinet.
4. Check that the protective covers on the power sockets are correctly closed.

8.5.4.4 Switching off the generator

Precondition The electric consumers are switched off.
The plugs are removed.

1. **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.*
2. Turn the «generator main switch» to the "0" position.
 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.

8.5.5 Option ua Using the hose reel

The hose reel is fitted at the front of the machine, to the right side of the towbar. An additional shut-off valve for the compressed air extension hose facilitates activating the compressed air at the front of the machine.

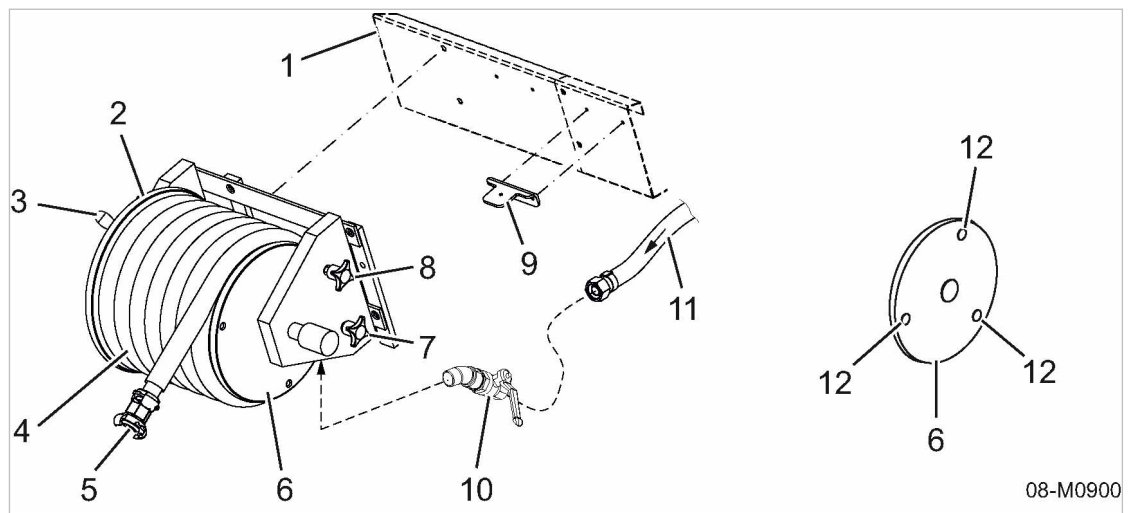


Fig. 25 Hose reel

- | | | | |
|---|-----------------------------|---|---|
| ① | Front side, machine | ⑦ | Clamping screw |
| ② | Hose reel | ⑧ | Transport securing screw |
| ③ | Winding handle (fold out) | ⑨ | Bracket |
| ④ | Hose | ⑩ | Shut-off valve, compressed air extension hose |
| ⑤ | Hose coupling | ⑪ | Hose from compressed air distribution |
| ⑥ | Side wall with safety bores | ⑫ | Securing pin hole |

8.5.5.1 Operating the machine with an extension air hose

1. Pull the hose coupling ⑤ of the bracket ⑨.
 2. Loosen the transport securing bolt ⑧.
 3. Loosen the clamping screw ⑦.
 4. Unfold the crank ③.
 5. Reel out the required length of hose ④.
 6. Tighten the clamping screw ⑦.
- The reel is locked against unwanted reeling in or out.

7. Fold the crank (3).
8. Connect the air tool.
9. Put the machine into operation.
10. Open the shut-off valve for the compressed air extension hose (10).

8.5.5.2 Operating the machine without an extension air hose

1. Close the shut-off valve for the compressed air extension hose.
2. Disconnect the air consumer.
3. Unfold the crank.
4. Coil the hose evenly and tightly.
5. Tighten the clamping knob.
The reel is locked against unwanted reeling in or out.
6. Fold the crank handle in again.

8.5.5.3 Securing the hose reel for transport

1. Check that the hose is firmly and evenly reeled in.
2. Coil up the hose again, if necessary.
3. Align the transport securing bolt with one of the securing bores (12) at the side wall of the hose reel (6).
4. Engage the securing screw fully.
5. Tighten the clamping knob.
6. Plug the hose coupling onto the bracket (9).

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 Evaluating engine faults and alarms

9.2.1 Engine refuses to start or does not turn over

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective starter	Have changed	X	–
The fuel cut-off device has not opened	Check the coil and electrics and have changed 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)	–	–
Fuel filter clogged	Clean or replace, see chapter 10.3.3	X	X
Fuel line broken	Have changed	X	X
Defective control fuse or relay	Have repaired or replaced if necessary	X	X
Airend discharge temperature too high	Have adjusted	–	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
The battery is electrically isolated from the on-board power supply	Set the battery isolating switch (option) to the "I" position, see chapter 8.	–	–
Defective battery or low charge	Maintain battery, see chapter 10.3.8	–	–
Motor alternator defective	Have repaired or replaced if necessary	X	X

SW = Specialised workshop; KS = KAESER SERVICE

Possible cause	Remedy	Where can I get help?	
		SW	KS
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	–	–
	Have the engine repaired or exchanged	X	X

SW = Specialised workshop; KS = KAESER SERVICE

Tab. 68 Fault: 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?	
		SW	KS
SW = specialised workshop; KS = KAESER SERVICE			
Airlock in the fuel line between fuel tank and injector pump	Bleed the fuel line (see chapter 10.3.3)	X	X
Fuel filter clogged	Clean or replace, see chapter 10.3.3	X	X
Fuel line broken	Have changed	X	X
Speed adjustment cylinder mal-adjusted or defective	Repair or have replaced if necessary	X	X

Tab. 69 Alarm: "engine does not reach full speed".

9.2.3 Indicator lamp remains on

Possible cause	Remedy	Where can I get help?	
		SW	KS
SW = specialised workshop; KS = KAESER SERVICE			
Electrical connections and/or cables loose or broken	Tighten the connection or have the cable replaced	X	X
Motor alternator defective	Have repaired or replaced if necessary	X	X
Defective alternator regulator	Have repaired or replaced if necessary	X	X
Engine oil pressure too low	Check engine oil level, see chapter 10.3.4	X	X
	Check the engine and have repaired, if necessary	X	X

Tab. 70 Alarm: "Control lamp remains on"

9.2.4 Engine running backwards

Possible cause	Remedy	Where can I get help?	
		SW	KS
Engine backfiring	Immediately shut down the engine, check air filter and rubber intake pipe (see chapter 8.3). If necessary, have damaged components replaced	X	X
–	–		

SW = specialised workshop; KS = KAESER SERVICE

Tab. 71 Fault "Motor running backwards"

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 not closing.	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. 72 Alarm: 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.	Have repaired or replaced if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
Safety relief valve maladjusted and/or leaking.	Have repaired or replaced if necessary.	–	X

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Venting valve does not close.	Check the connections and function and have repaired or replaced as necessary.	–	X
Engine does not run at maximum speed (in LOAD mode).	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. 73 Alarm: Working pressure too low

9.3.3 Safety 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 not closing.	Check the controller, the control air line and the inlet valve and replace if necessary.	–	X
Safety relief valve maladjusted and/or leaking.	Adjust or have replaced if necessary.	–	X

Tab. 74 Alarm: Safety 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
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 14.5 psig. Change, see chapter 10.4.6.	–	X

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Compressor oil filter clogged.	Change, see chapter 10.4.4.	–	–
Compressor cooling oil level too low.	Topping off, see chapter 10.4.2.	–	–
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. 75 Alarm: 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.	Change, see chapter 10.4.6.	–	–
Oil level in the oil separator tank too high.	Reduce to maximum level, see chapters 10.4.1 and 10.4.3.	–	–

Tab. 76 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.	Have repaired or replaced if necessary.	–	X

Tab. 77 Fault: Oil flows from the compressor air filter after shutdown

9.3.7 Option da High moisture content in the compressed air

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Blocked condensate drain on the compressed air water trap.	Clean the compressed air water trap or replace the strainer and nozzle if necessary. See chapter 10.8.3.	–	X

Tab. 78 Fault: High moisture content in the compressed air

9.4 Option ga Generator faults and alarms

9.4.1 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 changed if necessary.	X	X
Engine speed too low.	Have reset to rated speed.	X	X
Generator not switched in.	Switch in 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. 79 Fault: 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. 80 Fault: Generator voltage too high

10 Maintenance

10.1 Ensuring safety

Follow the instructions below for 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.
- Use one of the safety signs below to advise others that the machine is currently being serviced:

Sign	Meaning
	Don't activate the machine.
	Warning: The machine is being serviced.

Tab. 81 Advise others that the machine is being serviced.

- Before switching on, make sure that:
 - nobody 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 carry out any checks or maintenance while the machine is running!

When working on the pressure 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 any air consumers or tools.
- Depressurize all pressurized components and enclosures.
 - Wait until the compressor has automatically vented.
 - Open the compressed air outlet valve carefully.
 - Check: the pressure gauge reads 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 is 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 Following the maintenance plans

10.2.1 Logging maintenance work



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

- In adverse conditions (e.g. oil and filter changes), perform maintenance work 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 you to determine the frequency of individual maintenance tasks and deviations from our recommendations.

Further information A list is available 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 50 h	After the first half year (250 hours)	See chapter	Note
Engine:				
Check the fuel lines and clamps.	X			KS, FW
–				

h = operating hours

KS ≙ Contact KAESER SERVICE,

FW ≙ Contact specialized workshop.

Tab. 82 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

Maintenance interval	Short description
Every 1000 h, at least annually.	A1000
Every 1500 h, at least annually.	A1500
Every 2000 h, at least every 2 years.	A2000
Every 3000 h	A3000
Every 36000 h, at least every 6 years.	A36000

Tab. 83 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

- Carry out maintenance tasks punctually taking ambient and operating conditions into consideration.

10.2.3.1 Machine maintenance schedule

- Carry out maintenance tasks according to the following schedule:



The maintenance work marked with (*) must additionally be carried out every 6 months if the annual runtime of your machine exceeds more than 500 hours.

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Engine:										
Check engine air filter maintenance indicator.	X								10.3.2	
Check the engine oil level.	X								10.3.4	
Replace the engine oil (*).		X							10.3.4	
Replace the engine oil filter (*).		X							10.3.5	KS, FW
Clean the engine air filter.		X							10.3.2	
Replace the engine air filter.				X					10.3.2	KS, FW
Check/adjust the drive belt tension.			X						10.3.6	KS, FW
Replace the drive belt.							X		10.3.6	KS, FW
Check the engine coolant level.	X								10.3.1	
Clean the water cooler.		X							10.5	
Check coolant antifreeze concentration.			X						10.3.1	KS, FW
Change the coolant.				X					10.3.1	KS, FW
Remove residue within the water cooler.				X					10.3.1	KS, FW
Fill up the fuel tank.	X									

KS ≙ Contact an authorized KAESER service representative,
 FW ≙ Contact a specialized workshop.

10 Maintenance

10.2 Following the maintenance plans

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Replace the fuel pre-filter (*).				X					10.3.3	KS, FW
Change the main fuel filter (*).				X					10.3.3	KS, FW
Check the fuel tank for dirt and clean, if necessary.			X							
Clean the tank strainer.				X						
Check fuel tanks for secure fixing.		X							10.3.9	
Check the fuel return line for leakage and firm seating.			X							KS, FW
Have the injector nozzles checked.							X			KS, FW
Have the fuel injection pump checked.							X			KS, FW
Have the U mount checked.				X					10.3.7	KS, FW
Have the valves adjusted.				X						KS, FW
Check the battery electrolyte level and cable connections.			X						10.3.8	
Compressor:										
Check the compressor air filter maintenance indicator.	X								10.4.7	
Check the cooling oil level.	X								10.4.1	
Change the cooling oil.				X					10.4.3	
Change the compressor oil filter.				X					10.4.4	
Clean the compressor oil cooler.		X							10.5	
Clean the compressor air filter.		X							10.4.7	
Change the compressor air filter.				X					10.4.7	
Clean/inspect the dirt trap for the oil separator cartridge extraction line.			X						10.4.5	
Change the oil separator cartridge in the oil separator tank.						X			10.4.6	
Have the safety relief valve(s) checked.			X						10.4.8	KS, FW
Enclosure:										
Check sound proofing material.			X						10.6.1	
KS ≙ Contact an authorized KAESER service representative, FW ≙ Contact a specialized workshop.										

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Carry out rubber sealing strip maintenance.			X						10.6.2	
Checking function of closed enclosure.			X						10.6.3	
Check connection elements.		X							10.6.4	
Body:										
Have lifting eye and fixings checked.			X							KS, FW
Hose lines (pressure hoses, fuel hoses):										
Check all hose lines of the machine for proper seating, leaks and wear; have them replaced if necessary.			X						10.7	KS, FW
Have the fuel lines of the drive engine replaced.								X	10.7.1	KS, FW
Have the pressure hoses of the drive engine replaced.								X	10.7.2	KS, FW
Have the pressure hoses of the compressor replaced.								X	10.7.3	KS, FW
Other maintenance tasks:										
Check all accessible screw fittings, lines and clamps for wear and tightness.			X							KS, FW
Check that all electrical connections are tight.			X							
Check the lighting system's function.	X									
KS ≙ Contact an authorized KAESER service representative, FW ≙ Contact a specialized workshop.										

Tab. 84 Regular machine maintenance tasks

10.2.3.2 Maintenance schedule for options

- Carry out maintenance tasks according to the following schedule:



The maintenance work marked with (*) must also be carried out every 6 months if the annual runtime of your machine exceeds 500 operating hours.

Option: Task	Daily	A100	A250	A500	A1000	A1500	A2000	A20000	See chapter	Note
Option ea – Tool lubricator:										
Check the level in the lubricant container.	X								10.8.1	
Option da – Compressed air aftercooler:										
Clean the compressed air aftercooler.			X						10.8.2	
Option da – Compressed air/water separator:										
Clean/check the dirt trap (*).				X					10.8.3	
Option dd – Filter combination:										
Drain condensate.	X								10.8.4	
Change the filter elements (*).				X					10.8.4	
Replace filter element seal (*).				X					10.8.4	
Option bb – Cooling water pre-heating:										
Have the cooling water pre-heating and connection line checked.				X						KS, FW
Option bc – Defroster:										
Winter operation: Check the level of antifreeze in the defroster.	X								10.8.5	
Option ne – Fuel/water separator with transparent separator tank:										
Empty the fuel/water separator.	X								10.3.3.3	
Option ne – Fuel/water separator with fuel filter cartridge:										
Empty the fuel/water separator.		X							10.3.3.4	
Replace fuel filter cartridge.					X				10.3.3.4	
Option lb – Engine air intake shut-off valve										
Clean/check the engine air intake shut-off valve.			X						10.8.6	
Option oe – Sealed floor pan										
Check the machine interior for liquid accumulations	X								10.8.7	

KS ≙ Contact an authorized KAESER service representative,

FW ≙ Contact a specialized workshop,

EF ≙ Contact a qualified electrician

Option: Task	Daily	A100	A250	A500	A1000	A1500	A2000	A20000	See chapter	Note
Option ga, gb – Generator										
Carry out visual check of drive belt.			X						10.8.8	
Have the generator and generator control box checked.				X					13.6	EF
Replace the drive belt.							X		10.8.8	
Have the generator bearings checked.						X				KS, FW
Have the generator bearings changed.								X		KS, FW
KS $\triangleq$ Contact an authorized KAESER service representative, FW $\triangleq$ Contact a specialized workshop, EF $\triangleq$ Contact a qualified electrician										

Tab. 85 Regular maintenance tasks for options

10.3 Drive engine maintenance

- Carry out maintenance according to the schedules in chapter 10.2.

10.3.1 Water cooler maintenance

Material For suitable coolant, please see the information regarding the initial filling, Chapter 2.7.4

Coolant

Coolant tester

Cooler cleaning agent

Receptacle

Funnel

Cleaning cloths

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

⚠ WARNING

Danger of scalding from 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 protective gloves.

NOTICE

Insufficient coolant levels can lead to machine damage!

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

- Check the coolant level daily.
- Top off the coolant as necessary.

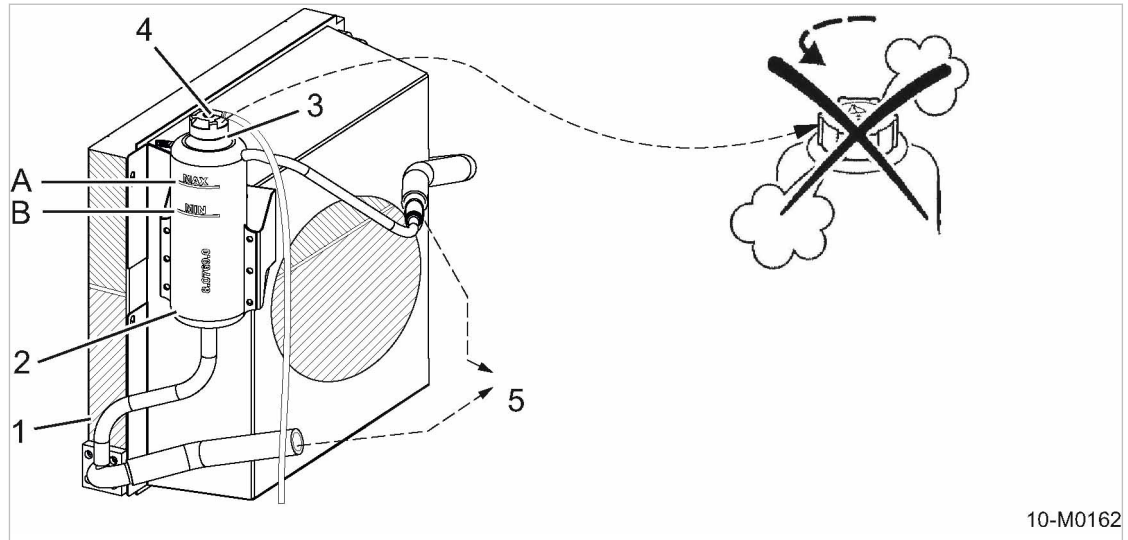
- Open the canopy.

10.3.1.1 Checking the coolant level

The coolant level in the engine cooling circuit must be checked daily prior to start-up.

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.



10-M0162

Fig. 26 Checking the coolant level

- | | | | |
|---|---------------------------|---|-----------------------|
| ① | Water cooler | ③ | Filler port with cap |
| ② | Coolant expansion tank | ④ | Overflow |
| A | Maximum check mark (FULL) | ⑤ | Motor connection hose |
| B | Minimum check mark (LOW) | | |

1. Check the level of coolant in the coolant expansion tank.
Top off when the coolant level falls below the *minimum check mark* (B).
2. Close the canopy.



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 (3).

Perform visual check

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

- Take a coolant sample for analysis.

The coolant should be changed if it is discolored and/or contains floating particles.

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 temperatures of the drive engine.

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.
 - Immediately top off 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 canopy.

10.3.1.3 Mixing coolant

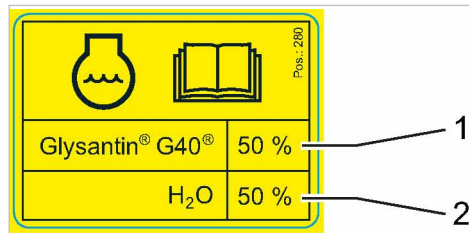
The coolant is a mixture of clean, fresh water and antifreeze with corrosion inhibitor.

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 3 years.

Never use water without coolant additive. Water alone is corrosive at drive engine operating temperature. Water alone does not offer sufficient protection from boiling or freezing.

You will find an adhesive label with the recommended mixture ratio for the coolant close by to the coolant expansion tank, see Figure 27.



10-M3215

Fig. 27 Recommended mixture ratio for coolant

- ① Water
- ② Corrosion inhibitor/antifreeze

- For recommended coolant, please adhere to the information regarding the initial filling, Chapter 2.7.4!

Preparing coolant

Precondition Coolant meets the prescribed operating instructions of the engine manufacturer KUBOTA.

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

Coolant mixture table:

Percentages [% vol.]		Frost protection up to approx. [°F]
Corrosion inhibitor/anti-freeze	Water	
50	50	–35

Tab. 86 Coolant mixture table



Do not use a higher concentration than 55% vol. of corrosion inhibitor/antifreeze even in extremely low ambient temperatures. The maximum frost protection is reached with 55% of corrosion inhibitor/antifreeze. This corresponds to frost protection to approx. –49°F.
The concentration of antifreeze should not be less than 33% since corrosion protection can no longer be guaranteed and heat transfer properties deteriorate beyond this point!

10.3.1.4 Filling and topping off the coolant

The proportion of antifreeze in the coolant should not fall below 33% to ensure optimal frost and corrosion protection and prevent the build-up of deposits (sludge) in the cooling circuit. Topping off with water alone dilutes the antifreeze concentration and is therefore 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. Loosen and remove the coolant expansion tank filler cap.
2. Mix a quantity of coolant according to the table and replenish to the mark.
Replenish the coolant to just below the *maximum mark* (A).
3. Screw on the filler cap.
4. Reconnect the negative cable to the battery.
5. Close the canopy.
6. Start the drive engine and allow to IDLE for about 1 minute.
7. Stop the drive engine.
8. Open the canopy.
9. Check the coolant level.
If the coolant level in the expansion tank has decreased: Top off the coolant.
10. Visually inspect for leaks.
11. Close the canopy.

10.3.1.5 Draining the coolant

Precondition The machine has cooled down.
The negative cable to the battery is disconnected.

Draining the coolant

The complete volume of coolant contained in the circuit can be drained at the drive engine's water cooler. The water cooler is drained by a separate screw plug (accessible from underneath through the access hole in the floor pan).

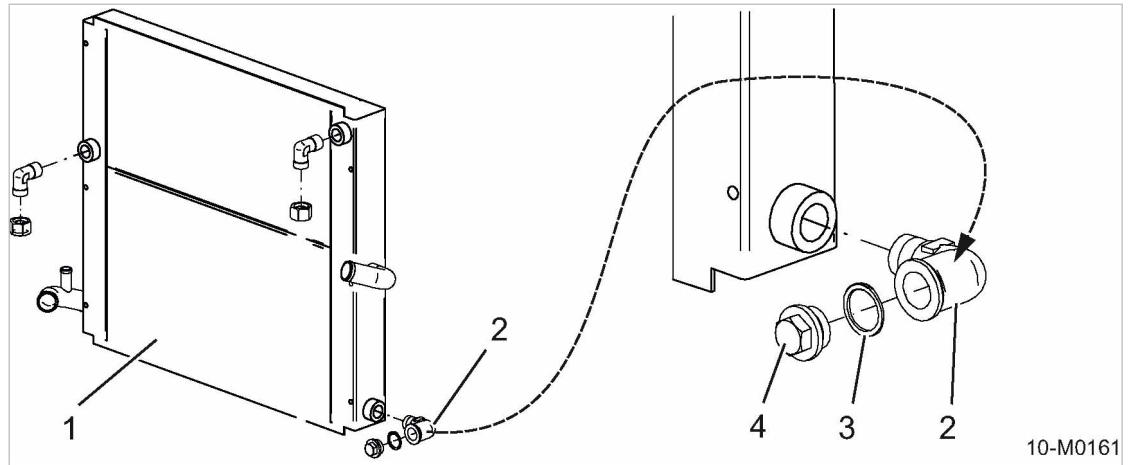


Fig. 28 Draining the coolant

- | | |
|----------------|--------------|
| ① Water cooler | ③ Gasket |
| ② Drain outlet | ④ Screw plug |

1. Loosen and remove the coolant expansion tank filler cap.
2. Position a receptacle beneath the drain outlet ②.
3. Loosen and remove the screw plug ④.
4. Allow the coolant to drain out completely.
5. Insert the screw plug with a new gasket and tighten.
6. Replace and tighten the expansion tank filler cap.
7. Close the canopy.



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

10.3.1.6 Removing scale within the water cooler

After extended periods of use, scale may form in the cooling circuit and within the water cooler in particular. Due to the resulting poorer heat transfer, the drive engine may overheat.

NOTICE

Scaling in the cooling circuit

Damage caused by drive engine overheating.

- Use cooler cleaning agent to remove scaling in the water cooler.

1. Read and follow the manufacturer's instructions regarding the use of cooler cleaning agent.
2. Use cooler cleaning agent to remove scaling from the water cooler.

Further information If the system reports "Change coolant", use cooler cleaning agent to remove scaling in the water cooler, see Chapter 10.2.3.1.

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.

Replace 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.
The machine is cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

NOTICE

Damaged filter element.

Wear can occur in the engine from the intake of any contaminated air.

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

- Raise the cover.

Checking contamination of the air filter

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

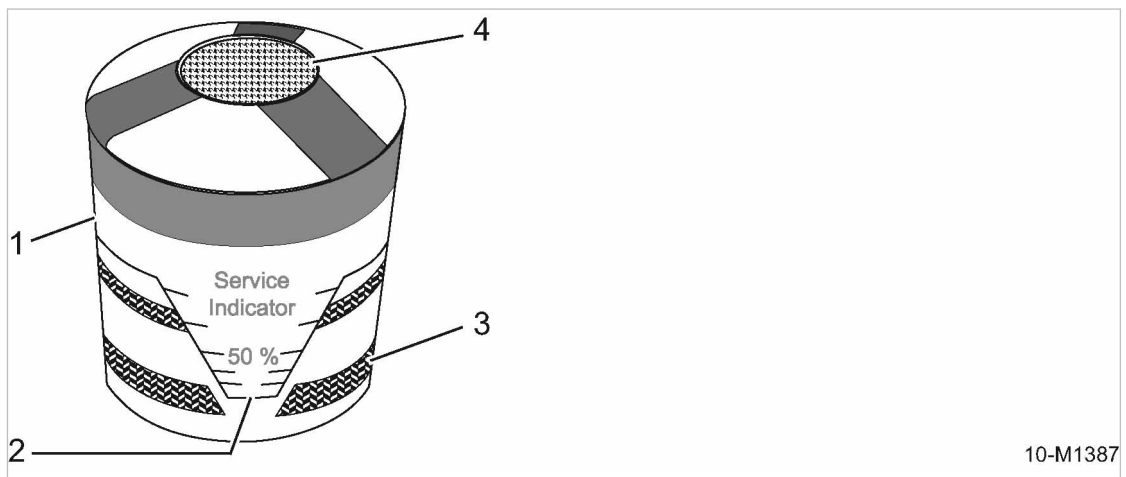


Fig. 29 Maintenance indicator

- | | |
|-------------------------|----------------------------|
| ① Maintenance indicator | ③ Red zone indicator scale |
| ② Indicator piston | ④ Reset knob |

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

Cleaning the air filter:

The dust evacuator valve must be at the bottom. The dust evacuation valve ② is on the filter cap.

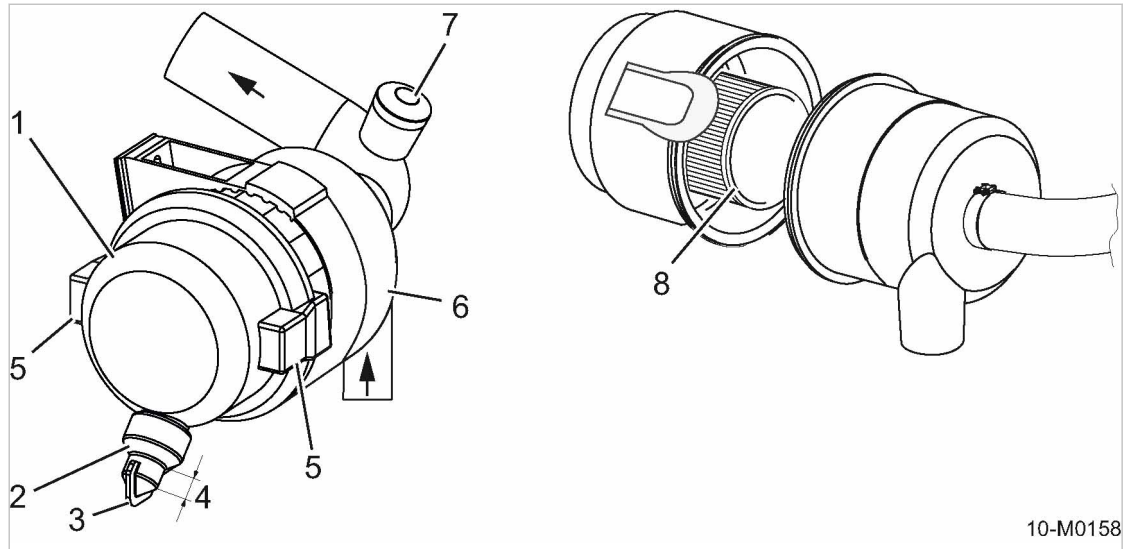


Fig. 30 Engine air filter maintenance

- | | |
|-------------------------|-------------------------|
| ① Filter cap | ⑤ Spring retaining flap |
| ② Dust evacuating valve | ⑥ Filter housing |
| ③ Drain slit | ⑦ Maintenance indicator |
| ④ Valve part | ⑧ Filter element |

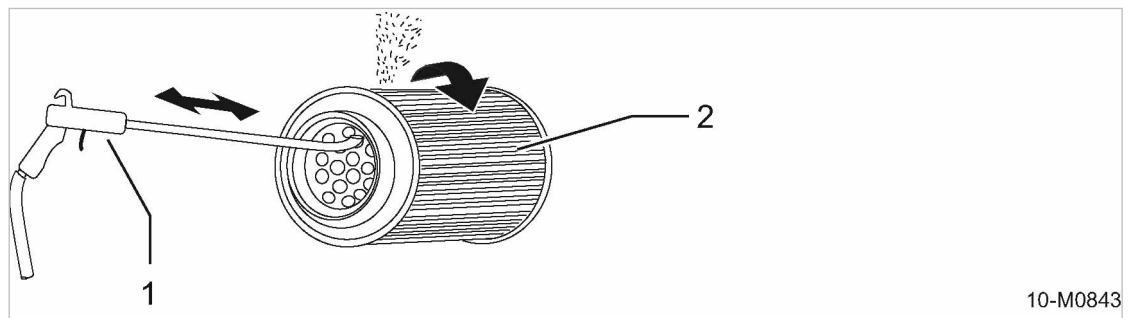


Fig. 31 Cleaning the filter element

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

1. Press both spring flaps together, lift the cap and remove the filter element.
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 (≤ 72 psig!) at an angle to blow dust from the filter 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 should not be allowed to touch the element.
 - Clean sealing faces.
4. Inspect the element carefully for any damage.
Replace any damaged filter element.

5. To empty the dust evacuator valve ②:
 - Pinch the valve part ④ above the drain slit ③ (drain slit opens).
 - Remove any dust clumps.
 - Clean the slit.
6. Insert the cleaned or new filter element into the filter housing. Make sure it is properly in place and sealed by its gasket.
7. With the dust evacuator valve pointing to the bottom, place the filter cover in front of the filter casing.
8. Place the filter cap on the housing and press home.
9. Press on the cap until the spring retaining flaps snap home.

Resetting the maintenance indicator:

- Press the reset knob on the maintenance indicator a number of times.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
- Close the cover.



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

10.3.3 Fuel system maintenance**Overview:**

- Bleeding the fuel system
- Fuel system maintenance
 - Changing the fuel prefilter element
 - Replacing the filter cartridge of the main fuel filter
 - Starting the machine and performing a test run
- Maintenance of the fuel system with fuel water separator



If your machine is equipped with the fuel water separator option, check which option type has been installed in your machine.

- Water separator with transparent separator tank option
- Water separator with filter cartridge option

Venting of the standard fuel system is the same as for venting of the fuel system with the fuel water separator option.

Material Spare parts
Receptacle
Cleaning cloth

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

** DANGER**

Fire hazard 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.*
- *Stop the drive engine.*
- *Wipe up escaped fuel.*
- *Keep fuel away from hot machine parts.*
- *Ensure that the maximum ambient temperature is not exceeded at the place of use.*



To ensure proper function of the fuel system no dirt particles may enter the fuel system. Before dismantling components for maintenance thoroughly clean these components, as well as their immediate vicinity.

- Follow all instructions.

10.3.3.1 Bleeding the fuel system

The electric fuel pump is used to bleed the system. The negative battery cable must be connected for the pump to operate and bleeding to be carried out.
When the «starter switch» is turned to the "II" position, the pump starts and bleeds the fuel system. The drive engine is not started!

Air can find its way into the fuel system under certain conditions or during maintenance tasks:

- Fuel tank empty.
- Replacing the filter element/fuel filter cartridge of:
 - Fuel pre-filter
 - Main fuel filter
- Replacing the fuel pump
- Work on the fuel lines

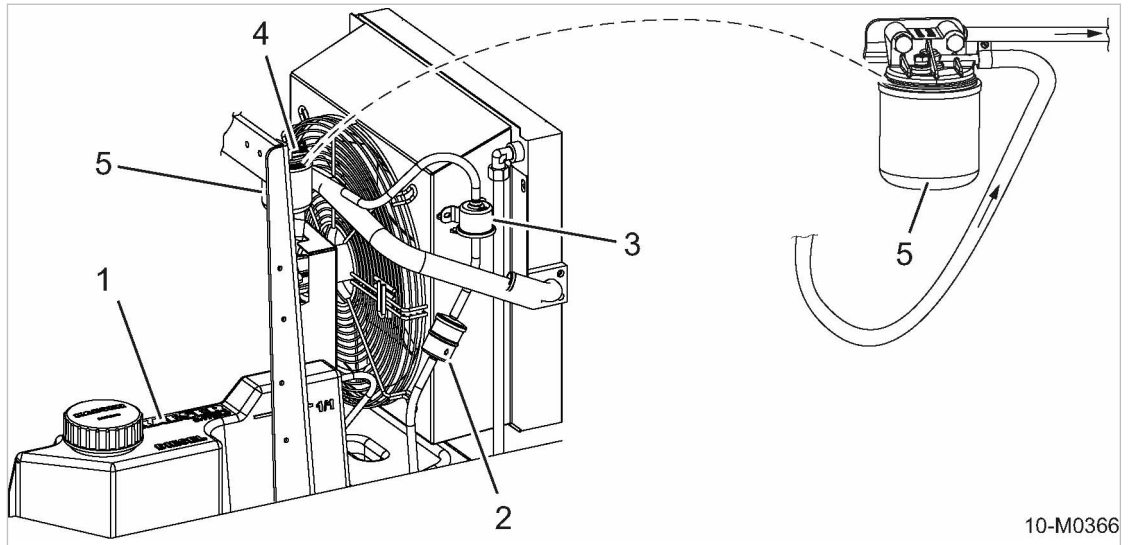


Fig. 32 Bleeding the fuel system

- | | |
|----------------------|-------------------------|
| ① Fuel tank | ④ Fuel filter head |
| ② Fuel pre-filter | ⑤ Fuel filter cartridge |
| ③ Electric fuel pump | |

1. Reconnect the negative cable to the battery.
2. Turn the «starter switch» to the "II" position and hold it there.
The fuel system is bled.
3. Turn the «starter switch» to the "0" position.
The venting process is completed.
4. Disconnect the negative cable on the battery.

10.3.3.2 Filter maintenance

Changing the fuel prefilter element:

The fuel filter element is a wear part and must be replaced at regular intervals, see maintenance schedule, chapter 10.2.

Precondition The negative cable to the battery is disconnected!

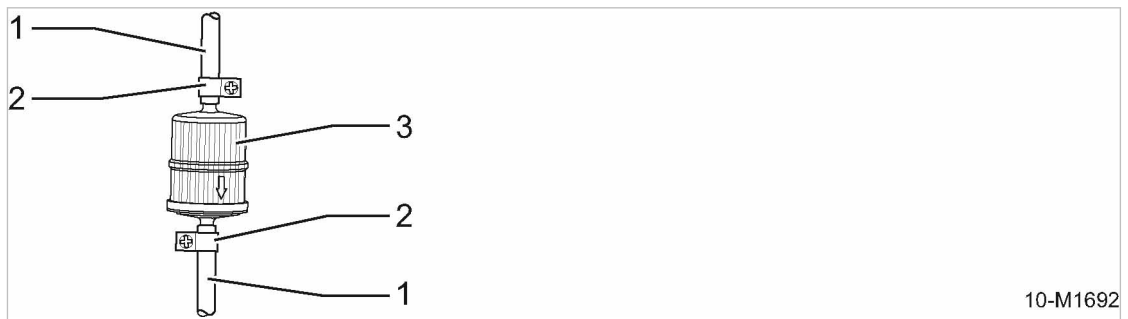


Fig. 33 Fuel pre-filter maintenance

- | |
|------------------|
| ① Fuel line |
| ② Hose clamp |
| ③ Fuel prefilter |

1. Place the collecting vessel under the fuel prefilter.
2. Loosen the hose clamp of the fuel line on the filter cap.
3. Pull off the fuel line.
4. Catch fuel in the receptacle.
5. Loosen and remove the fuel prefilter cap.
6. Remove the filter element.
7. Insert the new filter element.
8. Replace and fasten the fuel prefilter cap on the lower part.
9. Connect the fuel line to the cap.
10. Tighten the hose clamp of the fuel line.
11. Bleed the system as described previously.



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

Replacing the fuel filter cartridge of the main fuel filter:

The fuel filter cartridge is a wear part and must be replaced at regular intervals, see maintenance schedule, chapter 10.2.



Tools customary in the trade, such as filter wrench or belts may be used in order to loosen the old fuel filter cartridge for removal. The new fuel filter cartridge, however, may only be installed and tightened by hand force.

Precondition The negative cable to the battery is disconnected!

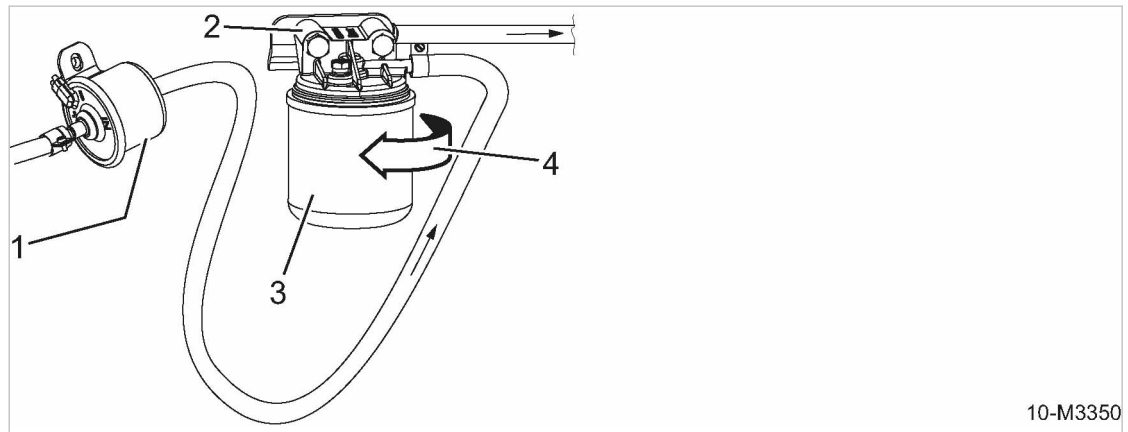


Fig. 34 Changing the filter cartridge

- | | |
|----------------------|-------------------------|
| ① Electric fuel pump | ③ Fuel filter cartridge |
| ② Fuel filter head | ④ Direction of arrow |

1. Place the collecting receptacle under the fuel cartridge ③.
2. Turn the old fuel filter cartridge in the direction of the arrow ④ in order to loosen it.
3. Allow fuel to drain.
4. Remove the old fuel filter cartridge.
5. Clean the fuel filter head and sealing face.
6. Smear diesel fuel on the gasket of the new fuel filter cartridge.
7. Set new fuel filter cartridge into installation position.

8. Turn the new fuel filter cartridge clockwise using only hand force until the gasket fits tightly on the sealing surface.
9. Tighten new fuel filter cartridge by hand force.
10. Bleed the system as described previously.



Dispose of old fuel filter cartridge, fuel and any materials 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. Visually check the fuel system for leaks.
3. Shut down the machine.
4. Re-tighten screw connections.

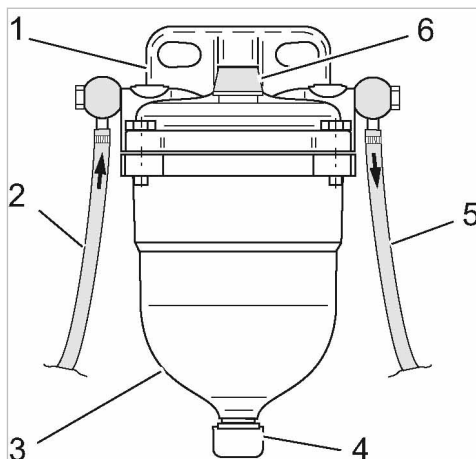
10.3.3.3 Option ne

Maintenance of fuel water separator with transparent separator tank

The fuel water separator is positioned between the fuel tank and the fuel prefilter. It protects the fuel pump against water deposits and against premature wear.

Material Wrench
 Receptacle
 Cleaning cloth

Precondition The machine is switched off.
 The machine is installed on level ground,
 the machine has cooled down.
 Air consumers are disconnected,
 the outlet valves are open,
 the machine is fully vented, the pressure gauge reads 0 psig.
 The negative cable to the battery is disconnected.



10-M0903

Fig. 35 Fuel water separator

- | | |
|--------------------|--------------------|
| ① Fuel filter head | ④ Screw plug |
| ② Fuel supply line | ⑤ Fuel outlet line |
| ③ Separator tank | ⑥ Venting screw |

Checking the fuel water separator

The separator tank ③ is transparent so the fuel level can be seen from the outside.

- Water, being denser than diesel fuel, sinks to the bottom of the separator tank.
- The water impurity also differs in color from the fuel.

Check daily as to whether water and dirt has accumulated in the separator tank.

1. Open the enclosure.
2. Carry out visual check of the transparent separator tank.



- The content of the separator tank is contaminated.
 - Empty the separator tank.

Emptying the water separator tank

1. Place receptacle under the screw plug ④ of the separator tank.
2. Loosen the venting screw ⑥ on the fuel filter head.
3. Loosen and remove the screw plug.
4. Drain separated water and dirt particles into the receptacle.
5. Insert the screw plug ④ and tighten.
6. Tighten the venting screw.



- If the venting screw is open air will continuously flow into the fuel system during the subsequent ventilation process.

7. Reconnect the negative cable to the battery.
8. Close the enclosure.



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

Bleeding the fuel system

Precondition Negative cable to the battery connected.

- Bleed the fuel system, see bleeding process, chapter 10.3.3.

Starting the machine and performing a test run

1. Switch the machine on and run it in IDLE mode for approx. 1 minute.
2. Visually check the fuel system for leaks.
3. Switch off the machine.
4. Re-tighten screw connections.

10.3.3.4 Option ne**Maintenance of fuel water separator with fuel filter cartridge**

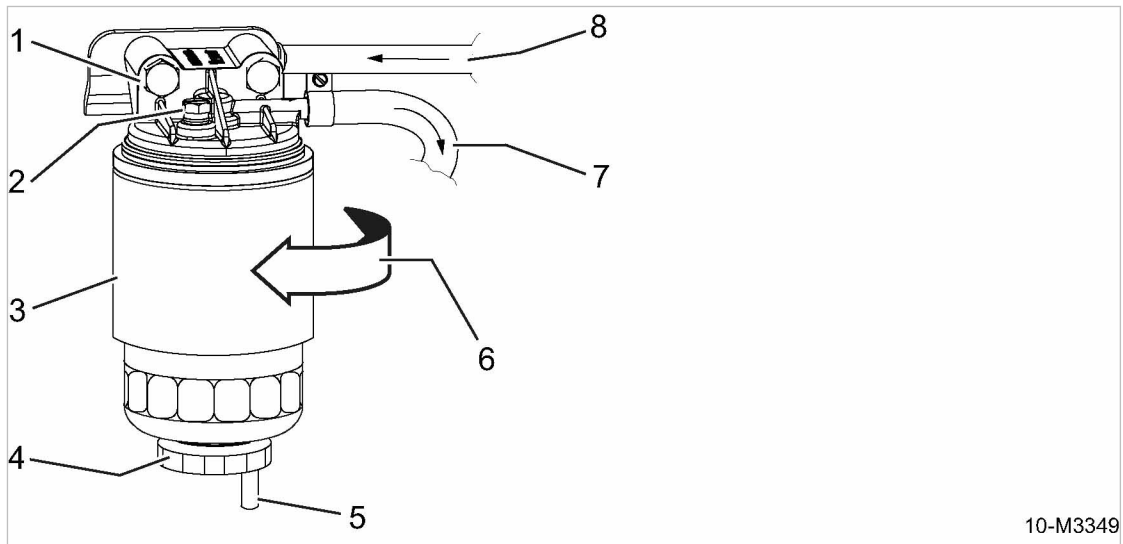
The fuel water separator is positioned between the fuel tank and the fuel prefilter. It protects the fuel pump against water deposits and against premature wear.



Tools customary in the trade, such as filter wrench or belts may be used in order to loosen the old fuel filter cartridge for removal. The new fuel filter cartridge, however, may only be installed and tightened by hand force.

Material Wrench
 Receptacle
 Cleaning cloth

Precondition The machine is switched off.
 The machine is installed on level ground,
 the machine has cooled down.
 Air consumers are disconnected,
 the outlet valves are open,
 the machine is fully vented, the pressure gauge reads 0 psig.
 The negative cable to the battery is disconnected.



10-M3349

Fig. 36 Fuel water separator

- | | |
|-------------------------|----------------------|
| ① Fuel filter head | ⑤ Drain pipe |
| ② Venting screw | ⑥ Direction of arrow |
| ③ Fuel filter cartridge | ⑦ Fuel outlet |
| ④ Hand wheel | ⑧ Fuel inlet |

Emptying the fuel water separator

The fuel water separator must be emptied at regular intervals, see maintenance schedule options, chapter 10.2.

1. Place a receptacle under the water separator fuel filter cartridge.
2. Loosen the venting screw ② on the fuel filter head.
3. Loosen the hand wheel ④ to open the drain pipe.
4. Drain separated water and dirt particles into the receptacle.
5. Tighten the hand wheel to close the drain pipe.
6. Tighten the venting screw.



If the venting screw is open air will continuously flow into the fuel system during the subsequent ventilation process.

7. Connect the negative cable to the battery.
8. Close the enclosure.



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

Replace fuel filter cartridge



The fuel filter cartridge is a wear part and must be replaced at regular intervals, see maintenance schedule, chapter 10.2.

Precondition Spare part is available.
Old fuel filter cartridge has been emptied.

1. Turn the old fuel filter cartridge in the direction of the arrow  in order to loosen it.
2. Remove the old fuel filter cartridge.
3. Clean the fuel filter head and sealing face.
4. Smear diesel fuel on the gasket of the new fuel filter cartridge.
5. Set new fuel filter cartridge into installation position.
6. Turn the new fuel filter cartridge clockwise using only hand force until the gasket fits tightly on the sealing surface.
7. Tighten new fuel filter cartridge by hand force.
8. Check if the venting screw on the fuel filter head is tightened.
9. If necessary, tighten the venting screw.
10. Connect the negative cable to the battery.
11. Close the enclosure.



Dispose of old fuel filter cartridge, fuel and any materials contaminated with it in accordance with environmental protection regulations.

Bleeding the fuel system

Precondition Negative cable to the battery connected.

- Bleed the fuel system, see bleeding process, chapter 10.3.3.

Starting the machine and performing a test run

1. Switch the machine on and run it in IDLE mode for approx. 1 minute.
2. Visually check the fuel system for leaks.
3. Switch off the machine.
4. Re-tighten screw connections.

10.3.4 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.

Material New engine oil, see chapter 2.7.5 for engine oil filling quantity.

Receptacle

Hose coupling

Cleaning cloths

Funnel

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

Danger of burns from hot components and escaping engine oil!

➤ Wear long-sleeved clothing and protective gloves.

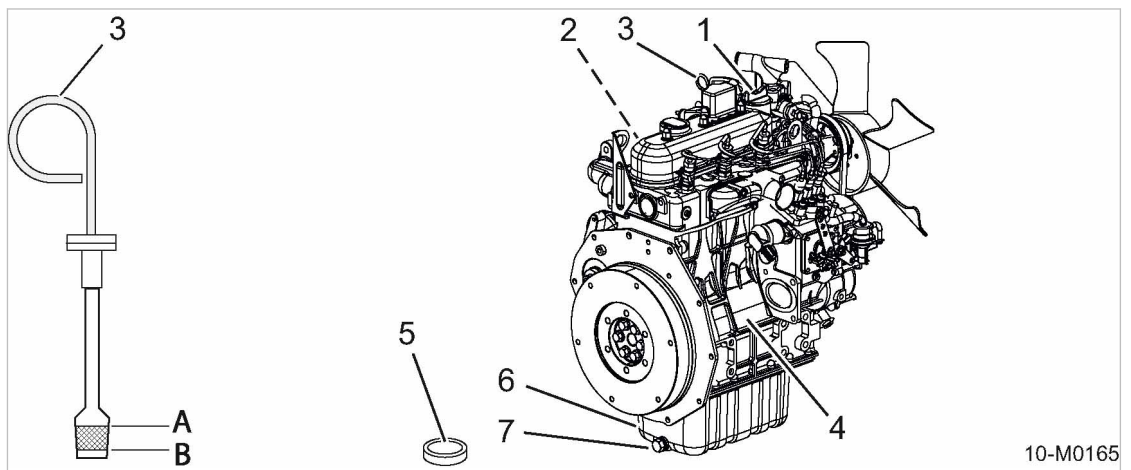


Fig. 37 Changing the engine oil

- ① Oil filler cap
- ② Oil filter
- ③ Oil dipstick
- ④ Engine block

- ⑤ Oil-tight plug
- ⑥ Engine oil sump
- ⑦ Oil drain valve

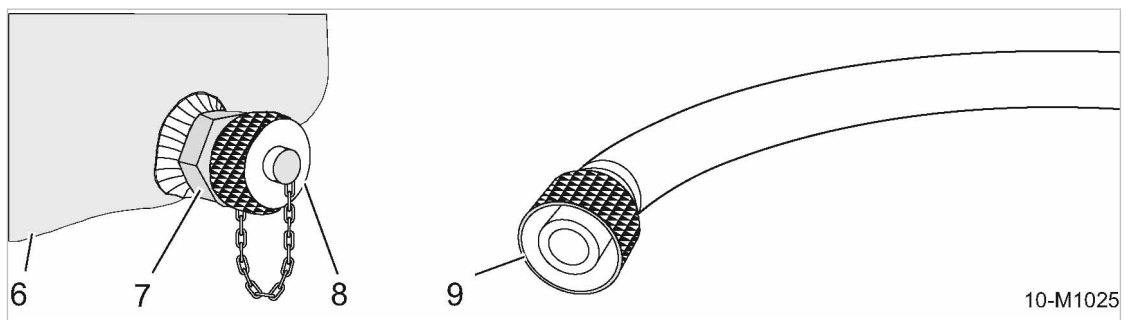


Fig. 38 Oil drain valve

- ⑥ Engine oil sump
- ⑦ Oil drain valve

- ⑧ Protective cap
- ⑨ Hose coupling

Draining the engine oil

The engine oil sump is equipped with an oil drain valve.
The oil drain valve is positioned next to the engine oil sump and the cooler.
Drain the oil by screwing the hose coupling on the oil drain valve.

	Machine status	Oil drain valve status	Protective cap	Hose coupling
1	Mode (machine runs)	closed	connected	removed
2	Oil drain (machine does not run)	open	removed	connected

Tab. 87 Oil drain valve

1. Unscrew and remove the oil-tight plug .
2. Place the oil receptacle below the corresponding drain hole in the floor pan.
3. Pass the loose end of the drain hose through the opening in the floor pan.
4. Place the end of the hose in a suitable container.
5. Unscrew and remove the oil filler cap .
6. Loosen and remove the protective cap .
7. Screw the hose coupling  onto the oil drain valve.
Engine oil drains.
8. Unscrew and remove the hose coupling.
The oil drain valve is again closed.
9. Replace the protective cap.
10. Re-insert the oil-tight plug and tighten.



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

Filling with engine oil

Precondition The oil drain valve is closed.
Unscrew the protective cap from the drain valve.

1. Pour in the specified volume of fresh oil into the oil filler.
2. Screw on the filler cap .

Checking the engine oil level



It takes a few minutes for oil to reach the sump.
Wait 5 minutes then use the oil dipstick  to check the oil level.
The level must be between marks A and B.

1. Pull out the oil dipstick , wipe it clean and reinsert it.
2. Pull out the oil dipstick once more and read off the oil level.
3. Top off if the level is too low.
4. Reconnect the negative cable to the battery.

Starting the machine and performing a test run

1. Start the machine and allow it to IDLE for at least 5 minutes.
2. Check the engine oil level.
Top off as necessary.
3. Visually inspect for leaks.
4. Shut down the machine.

10.3.5 Changing the engine oil filter

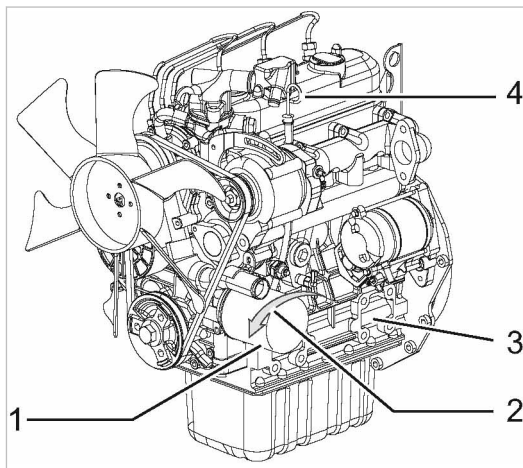
Material Spare parts
Common tools
Cleaning cloths
Oil receptacle

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

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

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



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Fig. 39 Changing the engine oil filter

- | | |
|---|----------------|
| ① Engine oil filter | ③ Engine |
| ② Direction of rotation to unscrew the filter | ④ Oil dipstick |

1. Open the canopy.
2. Prepare a receptacle.
3. Note the direction of rotation ② to unscrew the oil filter.
4. Unscrew the engine oil filter ①. Catch any escaping oil.
5. Carefully clean sealing surfaces using lint-free cloth.
6. Lightly oil the new filter's gasket.
7. Turn the oil filter clockwise by hand to tighten.

8. Check the engine oil level.
Low oil level: Replenish engine oil.
9. Close the canopy.



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

10.3.6 Drive belt maintenance

The life of the drive belts is influenced by belt tension.

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

Material V-belt tension measuring device
Spare parts

Precondition The machine is shut down,
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,
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 belts unless the engine is at standstill.*
- *Never run the machine without a belt guard.*
- Open the canopy.

10.3.6.1 Visual inspection

Precondition Belt guard is removed.

1. Check the belt thoroughly for cracks, fraying or stretching.
When damaged or worn: Replace the drive belt immediately.
2. Replace the belt guard.
3. Reconnect the negative battery terminal.
4. Close the canopy.

10.3.6.2 Checking belt tension

Check belt tension when the belts are warm, not hot, to avoid length variations through temperature.

The engine manufacturer recommends a tension measuring device for belts. See the engine service manual.

The belt tension may also be checked by hand if no tension measuring device is available.

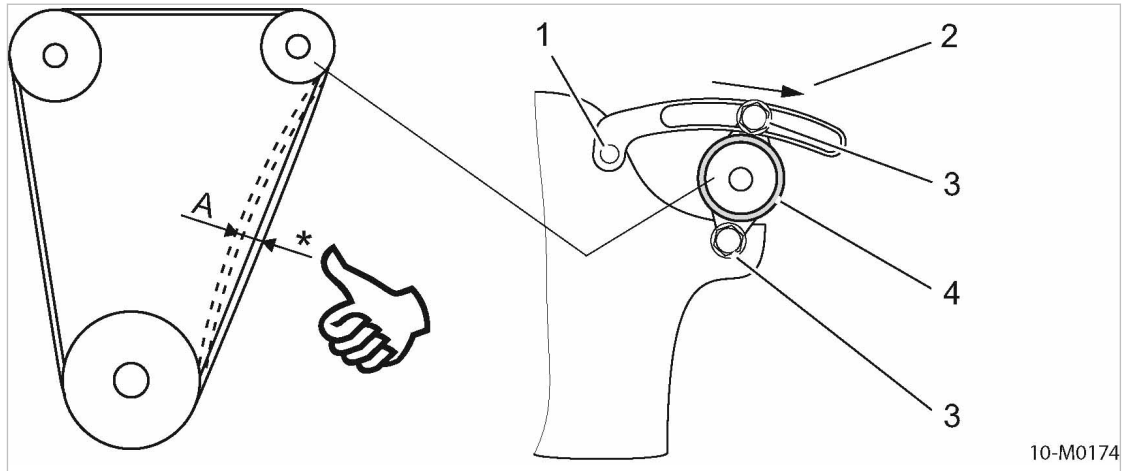


Fig. 40 Checking belt tension by hand

- | | |
|---|---------------------------|
| Ⓐ Permissible deflection of the belt | ② Direction of arrow |
| * Approximate pressure exerted: 22 lb
Permissible movement: 0.4 – 0.6 inches | ③ Engine alternator screw |
| ① Engine block mounting | ④ Engine alternator |

Checking and resetting belt tension with tension measuring device:	Checking and resetting belt tension manually:
<ol style="list-style-type: none"> 1. Remove the belt guard. 2. Check belt tension with the tension measuring device. 3. Tensioning a loose belt: <ul style="list-style-type: none"> ■ Loosen both securing screws ③ on the engine alternator ④. ■ Using a suitable lever, pull the engine alternator in the direction of the arrow ② until the correct belt tension is achieved. ■ Retighten both securing screws ③. 4. Replace the belt guard. 5. Reconnect the negative battery terminal. 	<ol style="list-style-type: none"> 1. Remove the belt guard. 2. Using your thumbs, push the belt between the belt pulleys (see illustration 40). 3. Tensioning a loose belt: <ul style="list-style-type: none"> ■ Loosen both securing screws ③ on the engine alternator ④. ■ Using a suitable lever, pull the engine alternator in the direction of the arrow ② until the correct belt tension is achieved. ■ Retighten both securing screws ③. 4. Replace the belt guard. 5. Reconnect the negative battery terminal.

Changing the drive belt

1. Loosen both screws ③ at the engine alternator ④.
2. Press the engine alternator in opposite direction of the arrow.
The drive belt is free of tension.
3. Pull the drive belt.
4. Check the pulleys for dirt and wear.
 - Dirty pulley: Clean pulley.
 - Worn pulley: Change the pulley.
5. Manually route the new drive belt over the pulleys without using force.
6. Using a suitable lever, pull the engine alternator in the direction of the arrow ② until the correct belt tension is achieved.
7. Retighten both securing screws ③.



A belt that has been replaced may not be used again.
 Check the belt tension after running for approximately 15 minutes.



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

Putting in operation

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

10.3.7 Having the anti-vibration mount checked

Anti-vibration mounts are elastomer metal elements, that are used, for example, for vibration-dampened bearing of the drive of construction machines. They consist of two U-profiles that are fastened to each other through an elastomer.

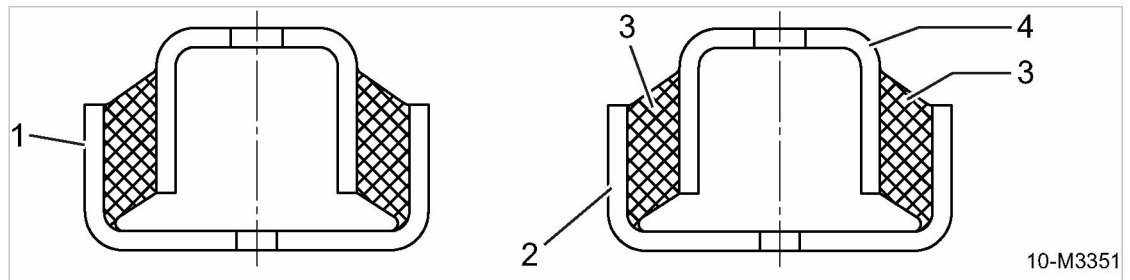


Fig. 41 Example for anti-vibration mount of drive engine

- | | |
|------------------------|-----------------|
| ① Anti-vibration mount | ③ Elastomer |
| ② Bottom U-profile | ④ Top U-profile |

- Have the anti-vibration mount of the drive engine checked by an authorized KAESER service representative.



Elastomer of anti-vibration mount is destroyed or porous.

- Have the anti-vibration mount replaced by an authorized KAESER service representative.

10.3.8 Battery maintenance

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

10.3.8.1 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.



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Fig. 42 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. 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 safety rules, explosion hazard!

Further instructions on working with batteries:

- Do not remove battery terminal covers unnecessarily.
- Do not lay tools on the battery. This can lead to short circuits, overheating, and battery bursting.
- 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!

10.3.8.2 Ensure the batteries are charged

The battery may be subject to self-discharge if the machine has been out of operation for an extended period. The starting voltage is insufficient to start the engine when needed. Moreover, exhaustive discharge of the battery can result in battery damage.



Always consider the following for starter batteries:
Recharge if stored for 30 days or longer!

1. Check the battery charge.
2. If required, recharge the battery with corresponding charging device.

10.3.8.3 Battery checking and care

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



The housing and the battery connections must not be cleaned with hard objects, e.g. a wire brush!

The outside of the battery and the terminals should be cleaned regularly with a soft cloth.

This avoids current leaks and minimizes 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.
The machine has cooled down.
1. Open the canopy.
 2. Clean the casing and terminals. Do not use a wire brush!
 3. Lightly grease the terminals to prevent corrosion.
 4. Check that the batteries and cable connections are properly seated and tighten if necessary.

Check the battery electrolyte level:

The fluid 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 off with pure acid will increase the electrolyte concentration and can destroy the battery.
 - Top off only with distilled water.
2. Check the electrolyte level.



If the level does not reach the mark -
➤ Top off with distilled water.

- Close the canopy.

Winter operation:

Batteries are particularly stressed in winter. Only a fraction of the normal starting energy is available at low temperatures.

1. **NOTICE** *Danger of batteries freezing!*
Discharged batteries are subject to frost damage and can freeze at 14 °F.
 - Check battery charge with a specific gravity tester.
 - Recharge the battery.
 - Clean the battery terminals and wipe with 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 heavy-duty cold-start batteries and/or additional batteries is recommended.

10.3.8.4 Battery removal and installation

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.

1. **⚠ WARNING** *There is danger of batteries bursting!
If a battery short circuits it will overheat and can burst.*
 - *Never short-circuit a battery (e.g. with a hand tool).*
 - *Wear protective 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 canopy.
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 canopy.

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.



Old batteries are hazardous waste and must be disposed of correctly in accordance with local environmental protection regulations.

10.3.9 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.*

Carrying 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 should 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.

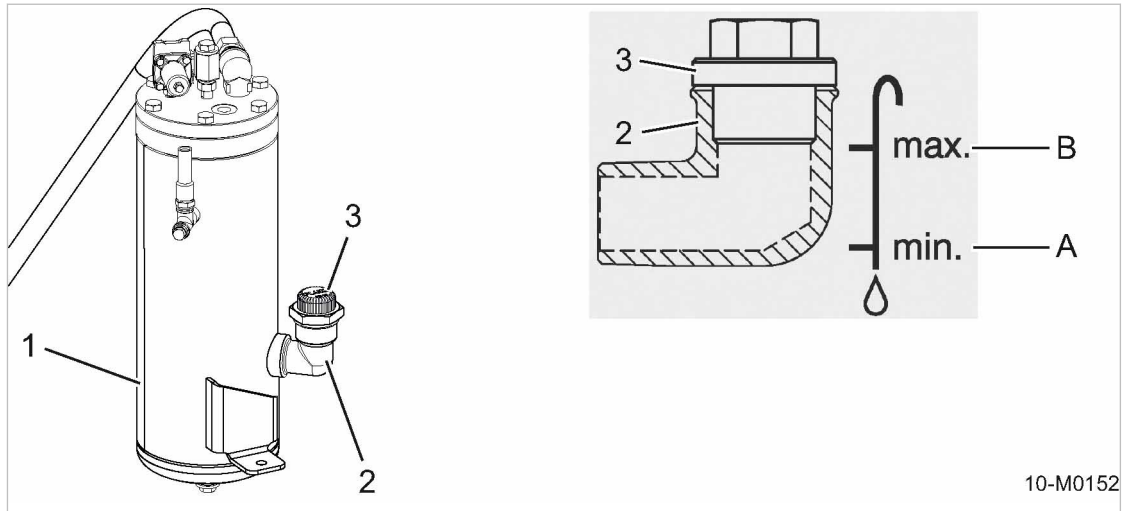


Fig. 43 Checking cooling oil level

- ① Oil separator tank
- ② Oil filler port
- ③ Filler plug

- Ⓐ Mark for minimum oil level
- Ⓑ Mark for maximum oil level

1. Open the canopy.
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 canopy.

10.4.2 Filling or topping off the cooling oil

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 off with a different type of oil than that already used in the machine.*
2. Open the canopy.

3. Slowly unscrew and withdraw the plug from the oil filler port.
4. Top off 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 canopy.

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 canopy.
7. Check the oil level after about 5 minutes.
Top up if necessary.
8. Carry out a visual check for leaks.
9. Close the canopy.

10.4.3 Changing the cooling oil

Drain the oil completely from the following components:

- Airend
 - Oil separator tank
 - Oil cooler
 - Oil pipes
- Always change the oil filter when changing the oil.

Material See chapter 10.4.3 for oil filling volume.

Receptacle

Hose coupling is disconnectedly laying at the machine.

Funnel

Cleaning cloth

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

Risk of burns from hot components and escaping oil!

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

➤ Open the cover.

10.4.3.1 Draining the cooling oil

To drain the entire cooling oil from the machine, you must remove the screw plugs of the oil separator tank and open the oil drain valve of the airend. If the machine is fitted with a closed floor pan, you must remove the bungs from the floor panel.

- If necessary, remove the bungs from the floor panel.
- Remove the screw plug from the oil filler of the oil separator tank.
- Remove the screw plug from the tank floor of the oil separator tank.
- Open the oil drain valve at the airend.
- Remove the oil filter.

➤ Comply with all instructions.

Draining the oil from the separator tank

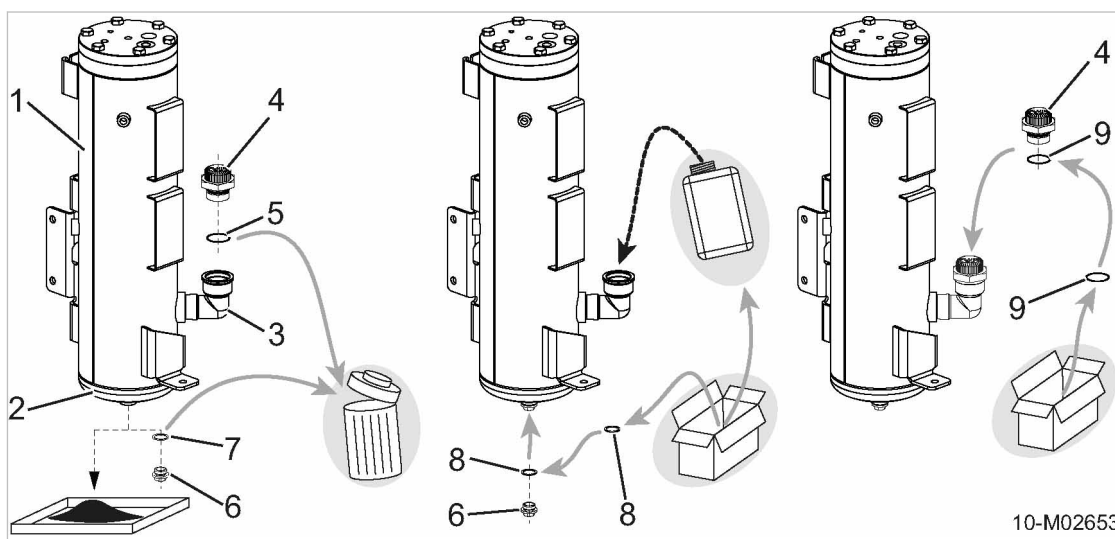


Fig. 44 Plugs, oil separator tank

- | | |
|----------------------------------|--------------|
| ① Oil separator tank | ⑥ Screw plug |
| ② Tank floor, oil separator tank | ⑦ Gasket |
| ③ Oil filler port | ⑧ New gasket |
| ④ Screw plug | ⑨ New gasket |
| ⑤ Gasket | |

1. Position a receptacle beneath the oil separator tank (accessible through a hole in the floor panel).
2. Remove the screw plug from the oil filler port of the oil separator tank.
3. Remove the gasket at the oil filler port.
4. Dispose of the old gasket.
5. Loosen and remove the screw plug from the tank floor of the oil separator tank.

6. Remove the gasket at the tank floor of the oil separator tank.
7. Dispose of the old gasket.

Result Cooling oil drains.

Draining the cooling oil from the airend

For more convenience, an oil drain valve has been installed for draining cooling oil from the airend. Remove the protective cap prior to draining oil. The cap protects the oil drain valve from contamination. Drain the oil by screwing the hose coupling on the oil drain valve.

	Machine status	Protective cap	Hose coupling	Oil drain valve status
1	Mode (machine runs)	Connected	Is supplied with the machine as accessory.	Closed
2	Oil drain (Machine de- commissioned)	Removed	Connected	Open

Tab. 88 Oil drain valve

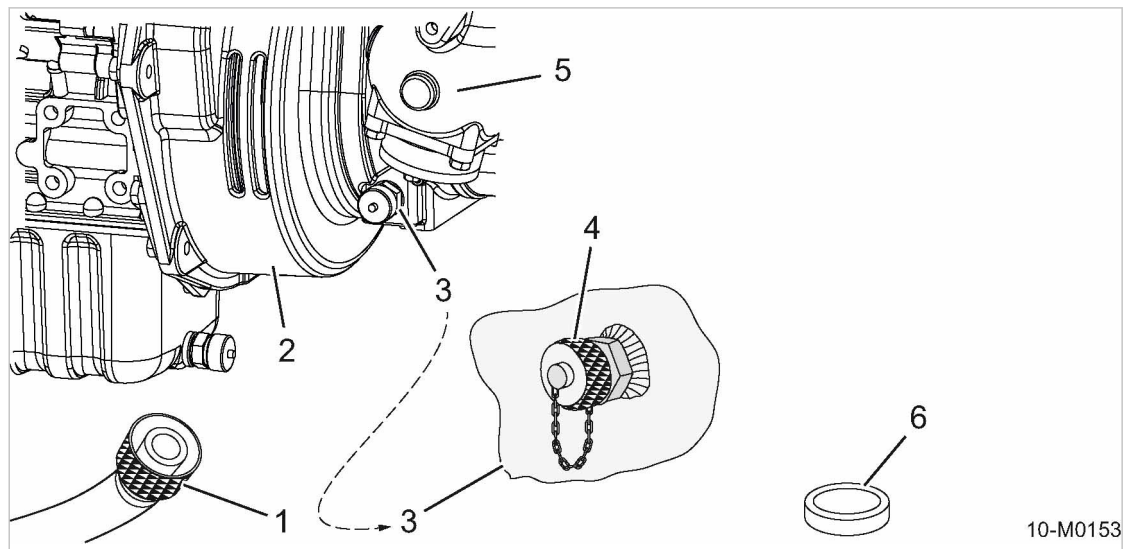


Fig. 45 Draining the compressor cooling oil

- | | |
|--------------------|------------------|
| ① Hose coupling | ④ Protective cap |
| ② Compressor block | ⑤ Inlet valve |
| ③ Oil drain valve | ⑥ Bung |

1. Position a receptacle beneath the airend (accessible through a hole in the floor panel).
2. Feed the free end of the hose through the opening in the floor panel.
3. Suspend and fasten the free end of the hose in the receptacle.
4. Turn and detach the protective cap ④ of the oil drain valve.
5. Screw the hose coupling ① onto the oil drain valve ③.

Result Cooling oil drains.

Removing the oil filter component

- Remove the oil filter (see chapter 10.4.4).

Draining the machine's cooling oil

- Drain the entire cooling oil from the machine at operating temperature.
If the machine is at operating temperature, the oil cooler is automatically emptied.

Closing the drain opening of the oil separator tank

1. Turn the screw plug with a new gasket into the floor panel of the oil separator tank.
2. Tighten the plug.

Result The drain opening of the oil separator tank is closed.

Closing the oil drain valve of the airend

1. Unscrew and remove the hose coupling.
The oil drain valve is closed.
2. Close the oil drain valve with the protective cap.

Installing the oil filter component

- For installing the new oil filter, see chapter 10.4.4.

Filling with cooling oil

1. Fill new cooling oil into the oil filler port of the oil separator tank.
2. Turn the screw plug with a new gasket into the oil filler port of the oil separator tank.
3. Tighten the plug.

Further information See chapter 10.4.2 for cooling oil filling.

Performing final work steps

- Close the canopy.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

10.4.4 Replacing the compressor oil filter

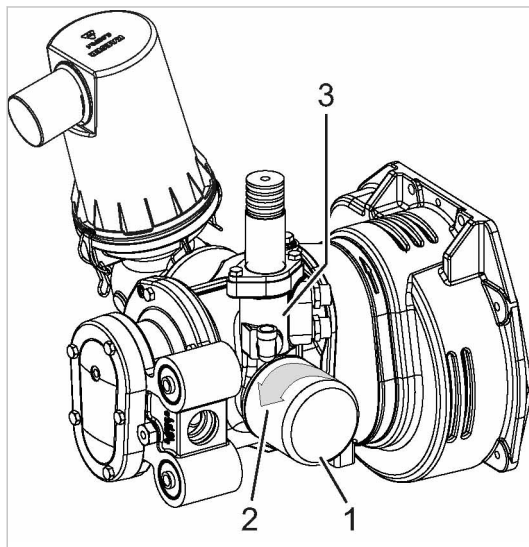
Material Spare parts
Tool
Receptacle
Cleaning cloths

Precondition The machine is shut down,
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,
the negative cable to the battery is disconnected.

⚠ CAUTION

Danger of burning from hot components and oil.

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



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Fig. 46 Changing the oil filter

- ① Oil filter
- ② Direction of rotation to unscrew oil filter
- ③ Combination valve (integrated in airend)

Changing the oil filter

1. Open the canopy.
2. Prepare a receptacle.
3. Loosen oil filter (turn in direction of arrow ②).
4. Remove the oil filter.
5. Catch any escaping oil.
6. Carefully clean sealing surfaces (flange) using lint-free cloth.
7. Lightly oil the new filter's gasket.
8. Set oil filter into installation position.

9. Turn the new oil filter clockwise by hand until the oil filter fits tightly on the sealing surface (flange).
10. Check the oil level in the oil separator tank.



- Cooling oil level too low.
 - Top off the cooling oil.

11. Reconnect the negative battery terminal.
12. Close the canopy.



- 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 canopy.
7. Check the oil level after about 5 minutes.



- Cooling oil level too low.
 - Top off the cooling oil again.

8. Visually inspect for leaks.
9. Close the canopy.

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.
 The machine is cooled down.
 All compressed air consumers are disconnected and the air outlet valves are open.
 Negative cable to the batteries disconnected.

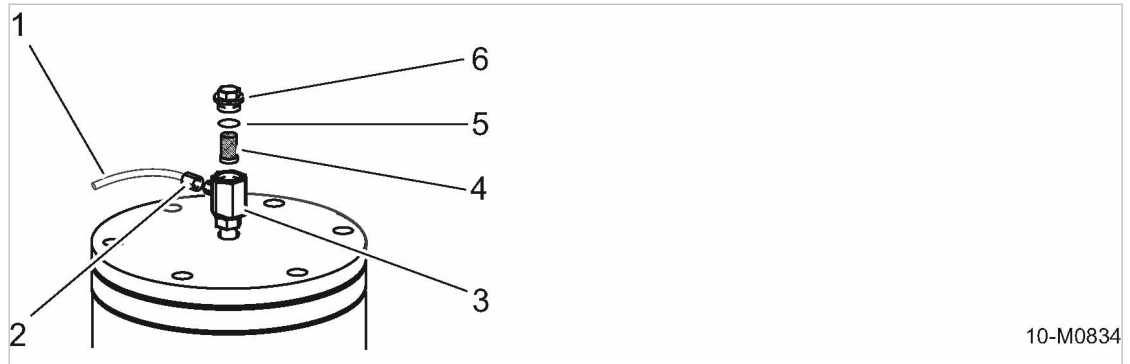


Fig. 47 Oil separator tank dirt trap maintenance

- | | |
|---------------------|-----------------|
| ① Oil return line | ④ Strainer |
| ② Union nut | ⑤ O-ring |
| ③ Dirt trap housing | ⑥ Screw fitting |

➤ Open the canopy.

Dirt trap maintenance:

1. Undo the union nut ② and bend the oil return line ① to one side.
2. Unscrew the dirt trap ③.
3. Remove and clean the strainer ④ and O-ring ⑤.
4. Check the strainer and O-ring for function and wear.
Replace components if they are heavily worn.
5. Clean the housing and fitting ⑥ of the dirt trap.
6. Re-insert the strainer and O-ring in the housing and close with the fitting.
7. Refit the oil return line and tighten the union nut.

Making operational:

1. Reconnect the negative battery terminal.
2. Close the canopy.



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 approximately 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 canopy.
6. Carry out a visual check for leaks.
7. Shut down the machine.
8. Close the canopy.

10.4.6 Changing the oil separator cartridge



The oil separator cartridge cannot be cleaned.

The life of the oil separator cartridge is influenced by:

- contamination in the air drawn into the compressor,
- and adhering 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 canopy.

10.4.6.1 Changing the oil separator cartridge

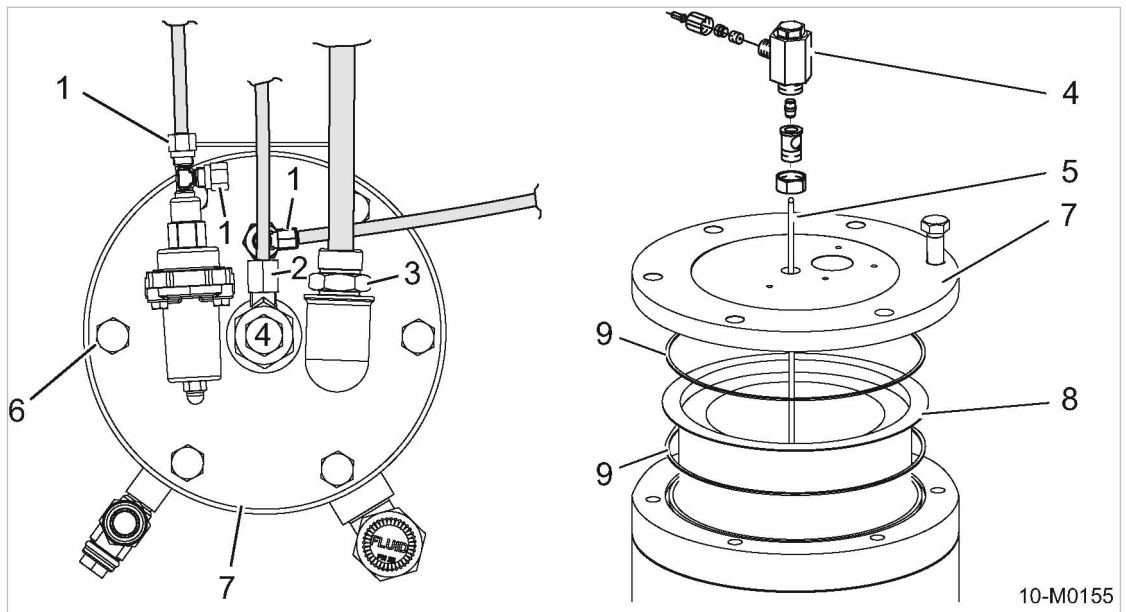


Fig. 48 Changing the oil separator cartridge

- | | |
|--|---------------------------|
| ① Control air line union nut | ⑥ Fixing screw |
| ② Oil scavenge pipe union nut | ⑦ Cover |
| ③ Compressed air hose union nut | ⑧ Oil separator cartridge |
| ④ Dirt trap | ⑨ Gasket or O-ring |
| ⑤ Oil scavenge pipe (screwed to the cover) | |

Changing the oil separator cartridge

1. Undo the union nuts **1**, **2** and **3**.
2. Remove the control line, oil scavenge line and compressed air hose.
3. Unscrew the dirt trap **4**.
4. Carefully draw out the dirt trap with the oil scavenge pipe **5** and lay them to one side.
5. Remove the fixing screws **6** and carefully lift the cover **7** and lay it to one side.
6. Take out the old cartridge **8** and gaskets **9**.
7. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.
8. Insert the new oil separator cartridge with gaskets and screw down the cover.
9. Replace and tighten all fittings.
10. Check the oil level in the oil separator tank.

Cooling oil level too low: Replenish the cooling oil.



Maintenance of the dirt trap must be carried out whenever the oil separator cartridge is changed.

Further information

Information on dirt trap maintenance is given in chapter 10.4.5.

Making operational

1. Reconnect the negative battery terminal.
2. Close the canopy.



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 canopy.
7. Check the oil level after about 5 minutes.
Top off if necessary.
8. Carry out a visual check for leaks.
9. Close the canopy.

10.4.6.2 Option ba**Changing the oil separator (machine with low-temperature equipment)**

Changing the oil separator cartridge with the frost protector option is carried out as described above.

In addition, the frost protector must be emptied and its fittings undone.

Be careful of the frost protector control lines when removing the separator tank cover.

1. Empty the lower part of the frost protector. See chapter 10.8.5 on frost protector maintenance.

2. Remove the screws fixing the frost protector to the cover.
3. Lift the cover carefully and remove the frost protector control lines if necessary.

Making operational

1. Reconnect the negative cable to the batteries.
2. Close the canopy.



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 canopy.
7. Check the oil level after about 5 minutes.
Top off if necessary.
8. Carry out a visual check for leaks.
9. Close the canopy.

10.4.7 Compressor air filter maintenance

Compressor air filter maintenance

- The filter element must be replaced at the latest when the corresponding maintenance indicator responds.
- As stipulated in the maintenance table, replace the filter element after two years.



- Using the machine without an air filter element is not permitted!
- Do not use filter elements with damaged surface or seals.
- The use of an unsuitable air filter can permit dirt to ingress into the pressure system and cause premature wear and damage to the machine.

Material

Spares
Cleaning cloth

Precondition

The machine is shut down.
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

Dirty air filter element
Loss of machine performance
➤ *Replace the filter element.*

- Open the cover.

Checking contamination of the air filter

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

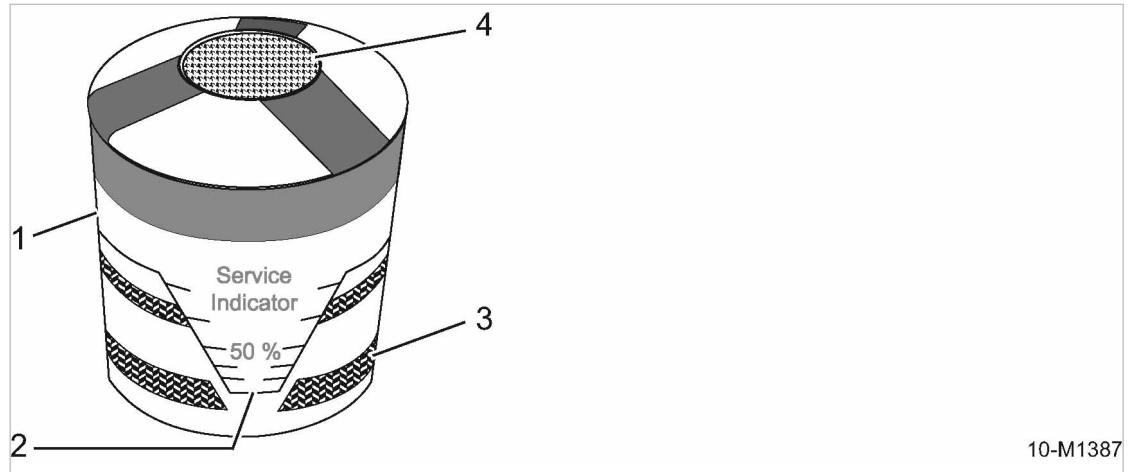


Fig. 49 Maintenance indicator

- ① Maintenance indicator
- ② Indicator piston

- ③ Red zone indicator scale
- ④ Reset knob for the maintenance indicator

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

Replacing the filter element

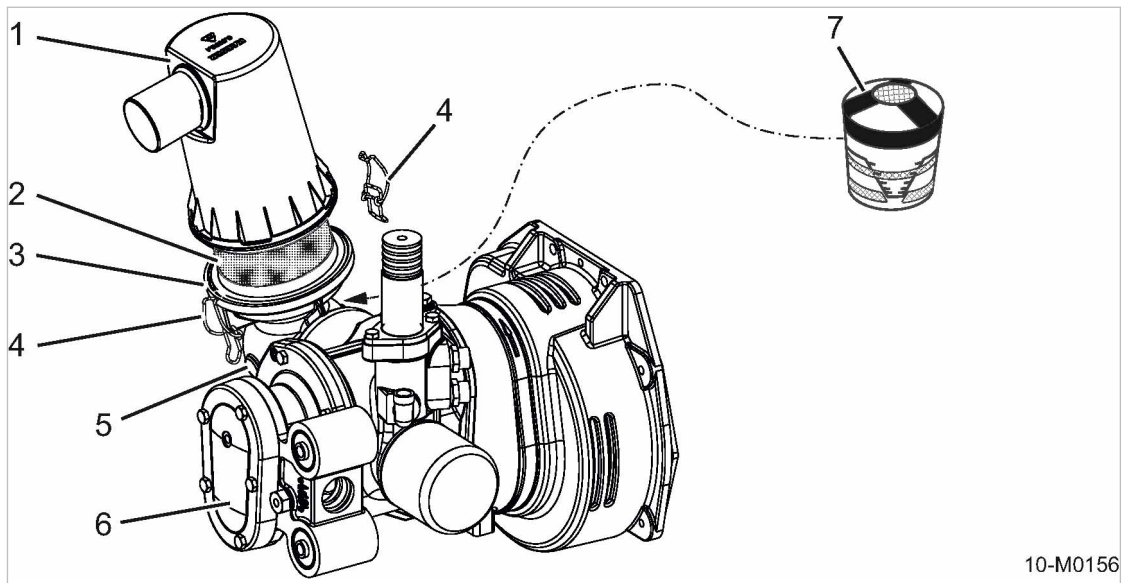


Fig. 50 Compressor air filter maintenance

- | | |
|------------------|-------------------------|
| ① Filter cap | ⑤ Inlet valve |
| ② Filter element | ⑥ Airend |
| ③ Filter housing | ⑦ Maintenance indicator |
| ④ Retaining clip | |

1. Release the retaining clip.
2. Remove the cover.
3. Draw out the filter element.
4. Carefully clean the inside of the housing, the cover and sealing faces with a damp cloth.
5. Insert a new filter element in the housing. Make sure it is properly in place and sealed by its gaskets.
6. Replace the cap with the two retaining clips.
7. Check the correct attachment of the filter cover.

Resetting the maintenance indicator:

- Press the reset knob on the maintenance indicator a number of times.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
- Close the cover.



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

10.4.8 Checking safety relief valves

- Have safety relief valves checked by an authorized KAESER service representative in accordance with the maintenance schedule.

10.5 Cooler maintenance

The respective engine and compressor coolers are arranged together in a radiator block.

Heavy contamination of both coolers will result in cooler overheating, and therefore overheating of the machine. The frequency of cleaning is mainly dependent on local operating conditions.

Check both coolers regularly for clogging. A severely contaminated cooler/radiator should be cleaned by KAESER SERVICE.

Material	Compressed air Breathing mask (if necessary) Water or steam jet blaster
Precondition	The machine is switched off. Enclosure is open. The machine has been set down in cleaning area with oil separator, The machine has been set down on level ground, the machine has cooled down. Air consumers are disconnected, the outlet valves are open, the machine is fully vented, the pressure gauge reads 0 psig. The negative cable to the battery is disconnected.

⚠ CAUTION

*Swirling dust due to cleaning with compressed air!
Illness of the respiratory tract.*

- *Wear breathing mask.*

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 display instruments.*
- *Do **not** direct water or steam jets at sensitive components such as the display instruments.*
- *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and at an approximate 90° angle to the cooler/radiator surface.*

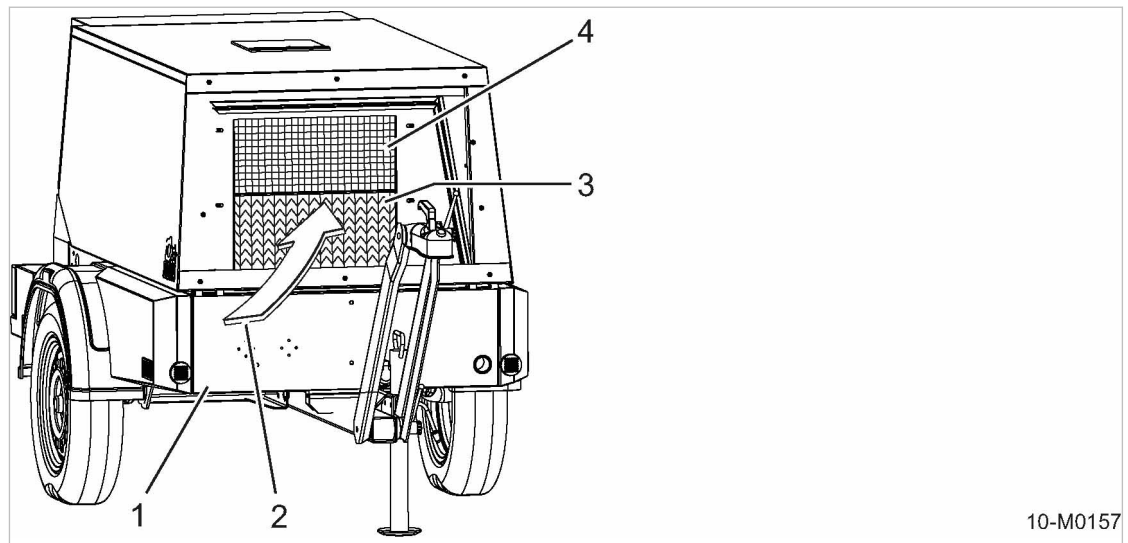
NOTICE

*Improper cleaning with hard objects!
Damage to oil cooler/water cooler.*

- *Do not use hard objects to clean the oil cooler/water cooler.*
- Comply with all instructions.

10.5.1 Cleaning the compressor cooler and engine radiator

The cleaning direction by means of compressed air, water or steam jet must always be in the opposite direction of the cooling air flow.



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Fig. 51 Cleaning the cooler

- | | | | |
|---|---|---|-----------------------|
| ① | Front end of machine, radiator grill removed | ③ | Radiator (engine) |
| ② | Direction of impacting water or steam jet (from outside to inside). | ④ | Compressor oil cooler |

Cover the intake openings of both air filters:

1. Cover the intake openings of both the engine and compressor air filters.
2. Close the enclosure.

Removing the exhaust air grille:

1. Loosen all screws of the exhaust air grille.
2. Remove all screws.
3. Remove the exhaust air grille with integrated noise damping inserts.

Cleaning the oil cooler and water cooler

- Clean the cooling fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).

Installing the exhaust air grille:

1. Position the exhaust air grille with integrated noise damping inserts.
2. Position all screws.
3. Tighten screws.

Remove the protective coverings from the two air filters:

1. Open the enclosure.
2. Remove the covers from the intake openings of both the engine and compressor air filters.

Putting in operation:

1. Reconnect the negative battery terminal.
2. Turn the «Controller On» switch to the "I" position.
3. Close the enclosure.

Putting the machine into operation:

1. Start the machine.
2. Let the machine warm up in IDLE mode to allow residual water to evaporate.
Warm-up has been successful when required airend discharge temperature (ADT) has been reached.
3. Turn the «starter switch» to the "0" position.
The machine is shut down.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the discharge valves.

Inspect cooler for leaks:

1. Open the enclosure.
2. Turn the «Controller On» switch to the "0" position.
3. Visually inspect for leaks: Is cooling oil/coolant leaking out?



Is the oil cooler/water cooler leaking?

- Have the defective oil cooler/water cooler repaired or replaced immediately by KAESER SERVICE.

- Close the enclosure.



Clean the two coolers of the engine and compressor only at designated cleaning locations equipped with an oil separator.

10.6 Checking the enclosure

The machine's closed enclosure fulfils the following functions during the machine's operation: Protection against contact, cooling air flow, sound proofing and weather protection.

In order to ensure these functions at any time, the enclosure and its connecting elements must always be in a perfect condition.

Overview:

- Check sound proofing material
- Maintain rubber sealing strips
- Check closed enclosure
- Check connecting elements

- Precondition The machine is switched off.
The machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!
- Follow all instructions.

10.6.1 Check sound proofing material



In order to limit the machine's noise emissions to a minimum the sound proofing material that has been built into the enclosure must be checked regularly. Damaged sound proofing material must be replaced immediately.

- Check sound proofing material inside the enclosure for condition, fastening and dirt.



The sound proofing material is porous, cracked, no longer exists or severely contaminated with oil, fuel or cleaning agent.

- Have an authorized KAESER service technician replace the sound proofing material that can no longer be used.

10.6.2 Maintain rubber sealing strips.

Material Cleaning cloth
Silicone or Vaseline

The rubber sealing strips inside the enclosure seal against rain water and additionally reduce noise emissions. Care of the rubber sealing strips is especially necessary in winter to prevent the strips from sticking and tearing when the enclosure is opened.

1. Open the enclosure.
2. Carefully clean all rubber sealing strips using a lint-free cloth.
3. Check the rubber sealing strips for cracks, holes and other damage.
4. Grease all rubber sealing strips.



Rubber sealing strips are damaged.

- Have an authorized KAESER service technician replace the damaged rubber sealing strips.

10.6.3 Checking function of closed enclosure

1. Close the enclosure.
2. Lock all snap fasteners.



The enclosure does not properly rest on the body or cannot be locked.

- Contact an authorized KAESER service representative.

10.6.4 Checking connecting elements of enclosure

Material Acid-free oil

The connecting elements of the enclosure may include:

- Screw connections

- Hinges
- Grip
- Snap fasteners
- Gas struts

1. Check all connecting elements of the enclosure for damages, wear and firm seating.
2. If necessary, grease the hinges.

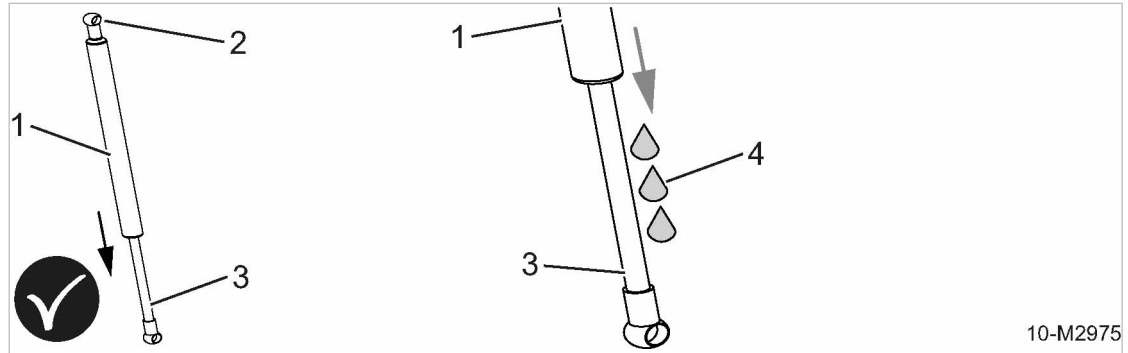


Fig. 52 Connecting rod alignment

- | | |
|------------------------|------------------|
| ① Gas strut - cylinder | ③ Connecting rod |
| ② Ball cup | ④ Lubrication |

3. Check both gas struts.



In order to ensure lubrication of the connecting rod, the connecting rod must be always aligned towards the ground.

4. Check if both gas struts open the unlocked enclosure independently.
Enclosure opens independently until the technically possible opening angle.
5. Check if the already opened enclosure stays open.



Enclosure does not open properly or does not stay open.
➤ Replace both gas struts.

10.7 Check/replace hose lines

Overview of hose lines of machine:

- Fuel lines of the drive engine
- Pressure hoses of the drive engine
- Pressure hoses of the compressor



The hose line are subject to natural aging regardless of proper storage or permitted utilization during machine operation. This aging changes the material and compound properties and reduces the performance capability of the hose lines. As a result the period of use for hose lines is limited.

The operator must ensure that all hose lines are checked at reasonable intervals and are replaced if required, see maintenance schedule 10.2.3.1

- Comply with all instructions!

10.7.1 Replace the fuel lines of the drive engine

- Have an authorized KAESER service representative replace the fuel lines of the drive engine.

10.7.2 Replace the pressure hoses of the drive engine



Overview of all pressure hoses at drive engine:

- Engine oil
- Coolant for the water cooler
- Charge air (if available)

- Have an authorized KAESER service representative replace the pressure hoses of the drive engine.

10.7.3 Replace the pressure hoses of the compressor



Overview of all pressure hoses on the compressor:

- Cooling oil
- Compressed air
- Control air
- Condensate

- Have an authorized KAESER service representative replace the pressure hoses of the compressor.

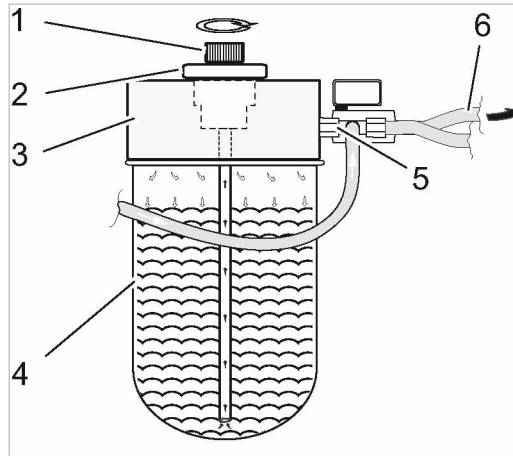
10.8 Maintenance for Optional Items

- Perform maintenance tasks according to the schedule in chapter 10.2.3.2.

10.8.1 Option ea Tool lubricator maintenance

Material Tool oil (special lubricant for road breakers)
 Funnel
 Cleaning cloth

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.



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Fig. 53 Tool lubricator maintenance

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

➤ Open the canopy.

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.



Below required filling level.

➤ Top off the lubricant.

4. Close the canopy.

Filling and topping off 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.



O-ring is damaged.

➤ Replace the O-ring.

5. Insert the plug to close the oil filler port.
6. Close the canopy.

Further information See chapter 2.8.1 for suitable oil grade and volume.

10.8.2 Option da Compressed air aftercooler maintenance

The compressed air aftercooler is located near the air treatment devices. The frequency of cleaning is mainly dependent on local operating conditions.

Check the compressed air aftercooler regularly for clogging.

Severe contaminations should be cleaned by an authorized KAESER service representative.

Material Compressed air
Breathing mask (if necessary)
Water or steam jet blaster

Precondition The machine is shut down.
Canopy is open.
The machine has been set down in cleaning area with oil separator,
the machine standing level,
the machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
The negative cable to the battery is disconnected.

⚠ CAUTION

*Swirling dust due to cleaning with compressed air!
Illness of the respiratory tract.*

- *Wear breathing mask.*

NOTICE

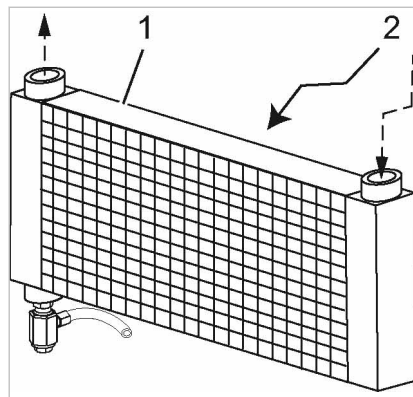
*Damage to the machine can be caused by water or steam jets!
Direct water or steam jets can damage or destroy electrical components and indicating instruments.*

- *Cover up electrical components such as the control cabinet, alternator, starter and display instruments.*
- *Do **not** direct water or steam jets at sensitive components such as the display instruments.*
- *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and at an approximate 90° angle to the cooler/radiator surface.*

NOTICE

*Improper cleaning with hard objects!
Damages to compressed air aftercooler.*

- *Do not use hard objects to clean the compressed air aftercooler.*
- Comply with all instructions!

10.8.2.1 Cleaning the compressed air after-cooler

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Fig. 54 Cleaning the compressed air after-cooler

- ① Compressed air aftercooler
- ② Cleaning direction for water or steam jet blaster

Cover the intake openings of both air filters:

1. Cover the intake openings of both the engine and compressor air filters.
2. Close the canopy.

Cleaning the compressed air after-cooler:

- Clean the cooler blades, with compressed air, water or steam jet in the opposite direction of the cooling air.

Remove the protective coverings from the two air filters:

1. Open the canopy.
2. Remove the covers from the intake openings of both the engine and compressor air filters.

Putting in operation:

1. Reconnect the negative battery terminal.
2. Turn the «Controller On» switch to the "I" position.
3. Close the enclosure.

Putting the machine into operation:

1. Start the machine.
2. Let the machine warm up in IDLE mode to allow residual water to evaporate.
Warm-up has been successful when required airend discharge temperature (ADT) has been reached.
3. Turn the «starter switch» to the "0" position.
The machine is shut down.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the discharge valves.

Checking compressed air aftercooler for leaks:

1. Open the canopy.
2. Turn «Control On» switch to position "0".
3. Visually inspect for leaks: Does condensate escape?



Is the compressed air aftercooler leaking?

➤ Have the defective compressed air aftercooler repaired or replaced immediately by KAESER.

➤ Close the enclosure.



Clean the compressed air aftercooler only at designated cleaning locations equipped with an oil separator.

10.8.3 Option da Compressed air water separator maintenance

If the amount of water in the compressed air is too high, the dirt trap of the compressed air water separator requires cleaning. The compressed air water separator (2) is integrated in the compressed air aftercooler (1).

Material Cleaning cloth
 Wrench
 Small screwdriver
 Dirt trap maintenance kit
 Petroleum ether or spirit

Precondition The machine is shut down.
 The 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.

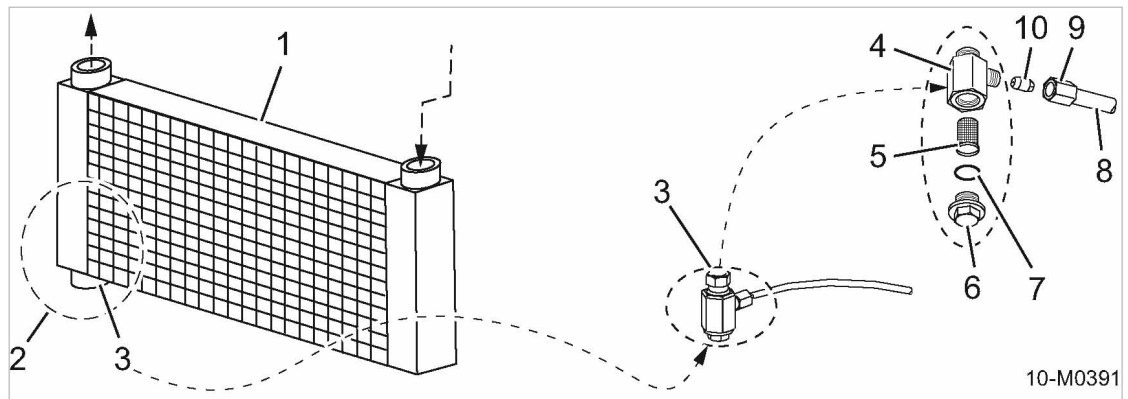


Fig. 55 Cleaning the dirt trap

- | | |
|----------------------------------|-----------------------------------|
| ① Compressed air aftercooler | ⑥ O-ring |
| ② Compressed air water separator | ⑦ Screw plug |
| ③ Dirt trap | ⑧ Condensate drain hose |
| ④ Dirt trap housing | ⑨ Condensate drain hose union nut |
| ⑤ Strainer | ⑩ Nozzle |

➤ Open the cover.

Cleaning the dirt trap

1. Unscrew the plug ⑦ and remove the strainer ⑤.
2. Loosen the union nut ⑨ and detach the condensate drain hose ⑧ from the dirt trap
3. Use the small screwdriver to unscrew the nozzle ⑩ from the dirt trap housing.
4. Clean the nozzle, strainer, screw plug, O-ring ⑥ and dirt trap housing ④ 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 reattach the condensate drain hose.

Putting in operation:

1. Reconnect the negative battery terminal.
2. Close the cover.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approximately 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 cover.
6. Check the housing of the water separator and the hose line for leaks.
7. Close the cover.

**10.8.4 Option dd
Combination filter maintenance**

To ensure proper functioning of the filter combination, you must complete the "Drain condensate" maintenance task on a daily basis, see Fig. 56.

Overview:

- Drain condensate
- Changing the filter element

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.

 WARNING

Danger of injury from compressed air!

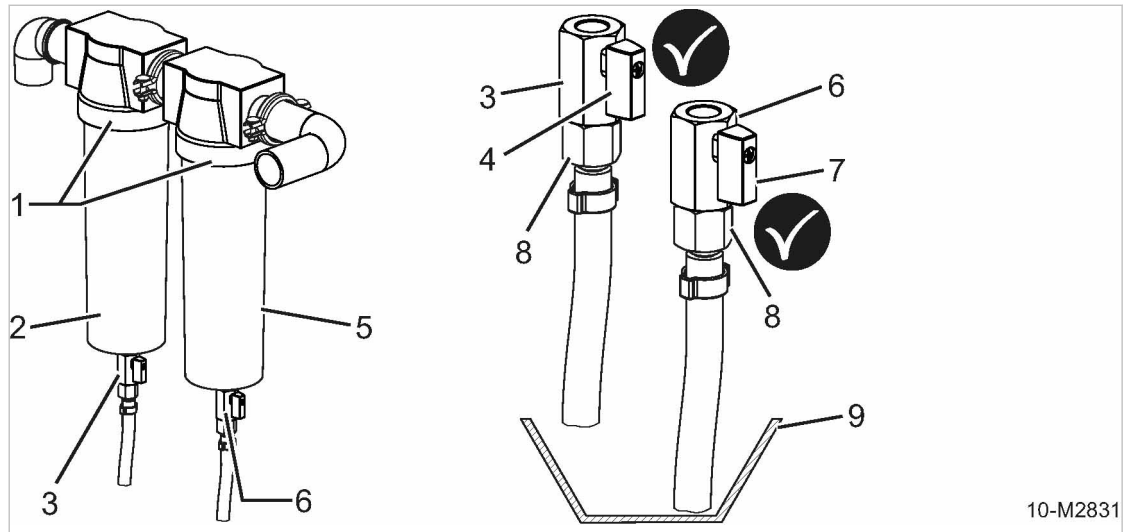
Filter combination is pressurized during operation. Serious injury can result from loosening or opening components under pressure.

- *Wait until the machine has automatically vented (check: pressure gauge reads 0 psig!)*
 - *Depressurize the combination filter.*
- Open the canopy.

10.8.4.1 Drain condensate

Material Receptacle
Cleaning cloths

Option dd


Fig. 56 Combination filter maintenance

- | | | | |
|---|--------------------------------------|---|---------------------------------------|
| ① | Filter combination | ⑥ | Shut-off valve, fine filter |
| ② | Pre-filter | ⑦ | Lever for shut-off valve, fine filter |
| ③ | Shut-off valve, pre-filter | ⑧ | Condensate drain hose fitting |
| ④ | Lever for shut-off valve, pre-filter | ⑨ | Receptacle |
| ⑤ | Fine filter (micro-filter) | | |

1. Place the receptacle under the combination filter hose lines.
2. Open the shut-off valve of the pre-filter.
The lever of the shut-off valve is positioned in flow direction.
3. Open the shut-off valve of the fine filter.
The lever of the shut-off valve is positioned in flow direction.
4. Close the canopy.
5. Start up the machine and run in IDLE.
The condensate collecting in the filter housings is blown out.
6. Stop the compressor as soon as air escapes.
7. Open the canopy.
8. Close the shut-off valve.
9. Close the canopy.



Condensate must be stored in suitable containers and disposed of in accordance with local environmental regulations.

10.8.4.2 Changing the filter elements

The pre-filter and micro-filter 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 is 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 pre-filter element

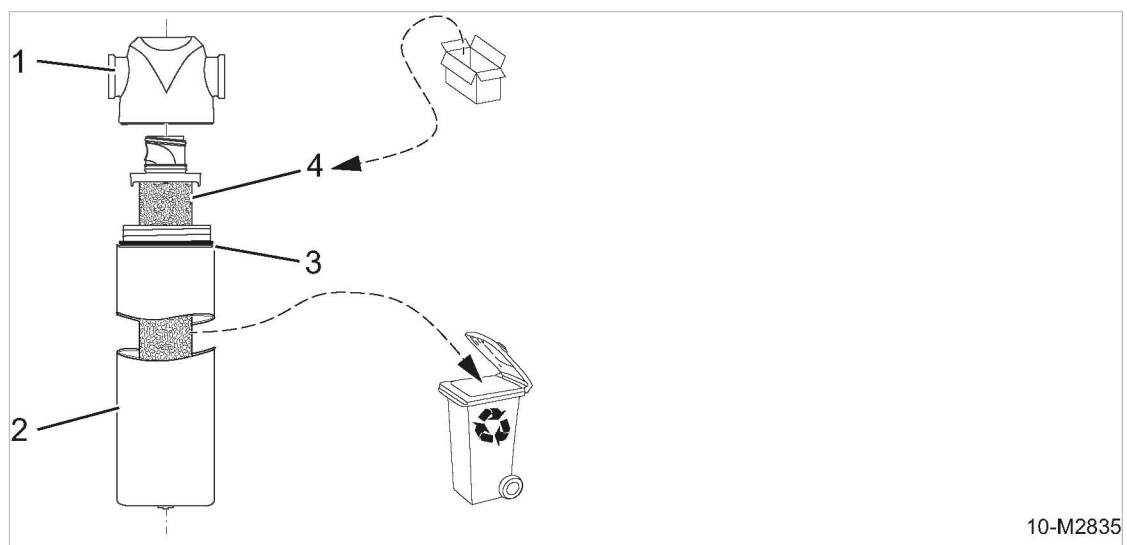


Fig. 57 Changing the prefilter element

- | | |
|------------------|------------------|
| ① Filter head | ③ Gasket |
| ② Filter housing | ④ Filter element |

1. Unscrew the filter housing counterclockwise.
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 gasket.
 Gasket 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 counterclockwise.
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 gasket.
Gasket damaged: replace gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the filter housing clockwise.

Putting into operation

Option dd

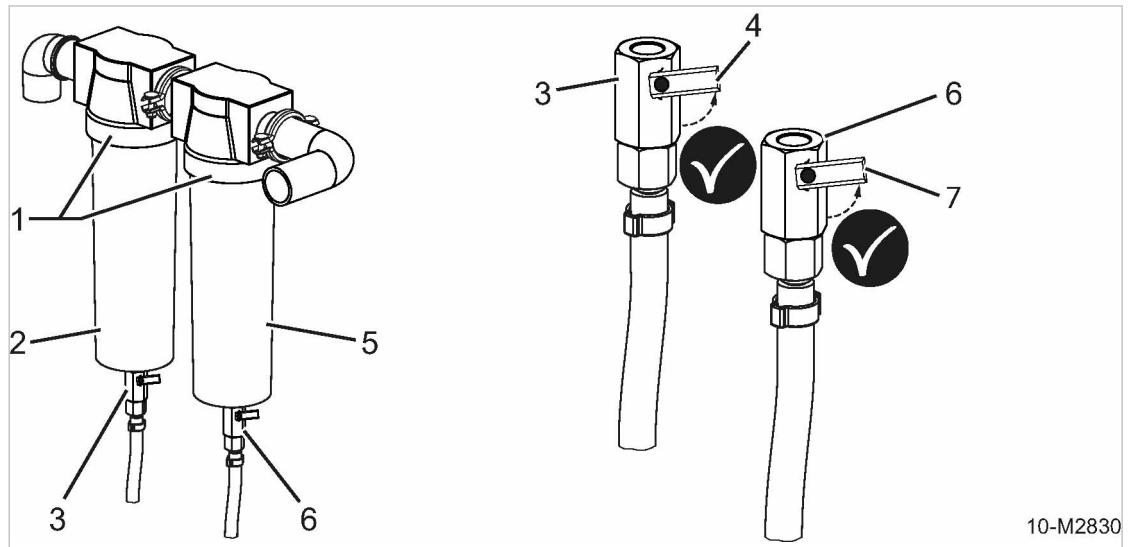


Fig. 58 Filter combination

- | | | | |
|---|--------------------------------------|---|---------------------------------------|
| ① | Filter combination | ⑤ | Micro-filter |
| ② | Pre-filter | ⑥ | Shut-off valve, fine filter |
| ③ | Shut-off valve, pre-filter | ⑦ | Lever for shut-off valve, fine filter |
| ④ | Lever for shut-off valve, pre-filter | | |

1. Screw the condensate drain hoses to the housings of the pre-filter and the micro-filter.
2. Close the shut-off valve of the pre-filter.
The lever of the shut-off valve is positioned transversal to the flow direction.
3. Close the shut-off valve of the fine filter.
The lever of the shut-off valve is positioned transversal to the flow direction.

4. Tighten the filter combination fittings.
5. Turn on the «Battery isolating switch».
6. Close the canopy.



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 at least 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 canopy.
6. Check the combination filter housing and hose lines for leaks.
7. Close the canopy.

10.8.5 Option bc Frost protector maintenance

At temperatures below 40°F, the level of antifreeze in the protector must be checked daily before starting the compressor.

Material Antifreeze (Wabcothyl)
Cleaning cloth

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 antifreeze!

Risk of fire and explosion caused by spontaneous ignition can cause severe injury.

- *Never top off antifreeze unless the machine is stopped and cooled down.*

⚠ WARNING

Compressed air!

The frost protector is pressurized during operation. Serious injury can result from loosening or opening components under pressure.

- *Depressurize the frost protector*

Option bc

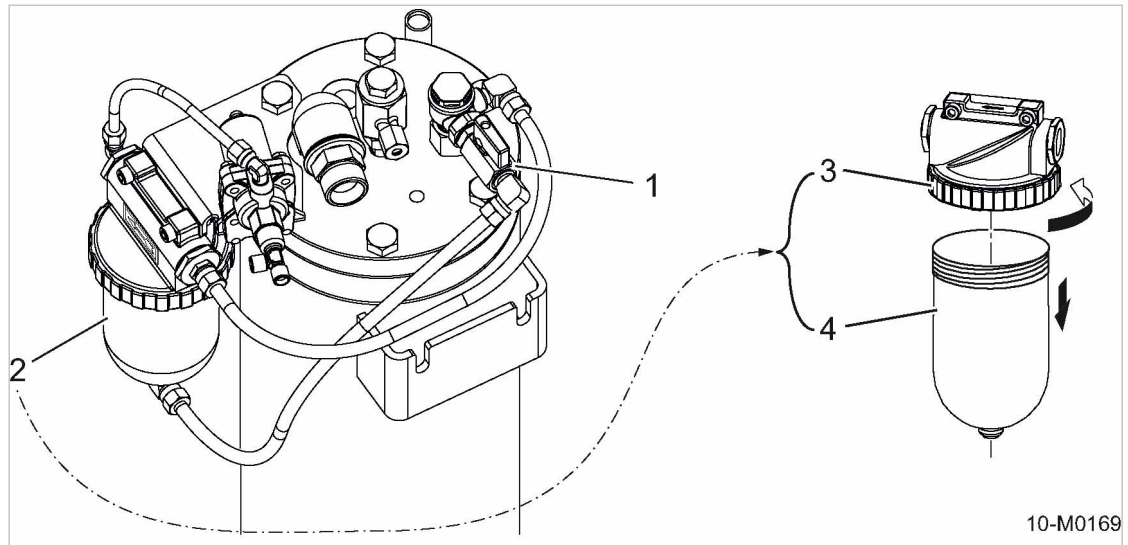


Fig. 59 Filling the frost protector

- | | |
|-------------------|------------------------------|
| ① Shut-off valve | ③ Frost protector clamp ring |
| ② Frost protector | ④ Frost protector bowl |

1. Raise the cover.
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 canopy.

10.8.6 Option lb Engine air intake shut-off valve maintenance

Material Compressed air for blowing out
Petroleum ether or spirit
Cleaning cloths

Precondition The machine is shut down,
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

Adjusted 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 specialized workshop or an authorized KAESER service representative.*

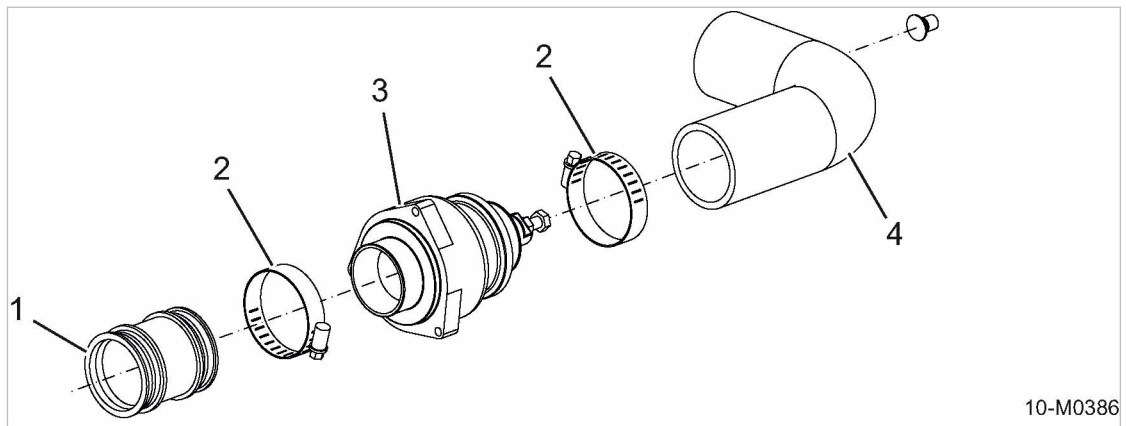


Fig. 60 Engine air intake shut-off valve maintenance

- | | |
|------------------------------|------------------------------------|
| ① Flexible hose (motor side) | ③ Engine air intake shut-off valve |
| ② Hose clamp | ④ Air intake hose (filter side) |

➤ Open the canopy.

Engine air intake shut-off valve cleaning

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.
3. Turn the air intake hose to one side.
4. Loosen the hose clamp on the engine side of the valve.
5. Remove the valve from the flexible hose.
6. 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 specialized workshop or an authorized KAESER service representative 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 engine air intake shut-off valve changed if it is heavily worn or malfunctions in any way.

1. Slide the valve onto the flexible hose.
2. Tighten the hose clamp on the motor side.
3. Reposition the air intake hose on the filter side and tighten the hose clamp.
4. Close the canopy.
5. Start the machine and switch to LOAD.

If the engine stops while switching to LOAD, have the valve adjusted by a specialized workshop or an authorized KAESER service representative.

10.8.7 Option oe Draining liquid accumulation within the machine

The "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 & 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 plug.



Option rw; rx:

For machines with a stationary frame structure, we recommend using a vehicle hoist or installation above a vehicle pit due to the restricted ground clearance.

It is forbidden to lift the machine with a crane and leave it hanging on the hoisting gear for inspection or maintenance purposes!

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 plug(s) from the maintenance openings.
The liquid will drain.
3. Clean the plug(s) and maintenance openings.
4. Close all maintenance openings with plug(s).
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.

10.8.8 Option ga Generator drive belt maintenance

Correct belt tension is extremely important for the function of the generator and the operational life of the belt itself.

Use a tensioning mechanism with a spring strut, swing frame and tension pulley to ensure correct belt tensioning. The spring force pushes downward the swing frame with tensioned pulley between the pulley of the crankshaft and the pulley of the generator of the belt drive and thus generates the required belt tension.

Material Ratchet 1/2 inch
Spare parts (if required)

Precondition The machine is shut down.
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.

⚠ 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.

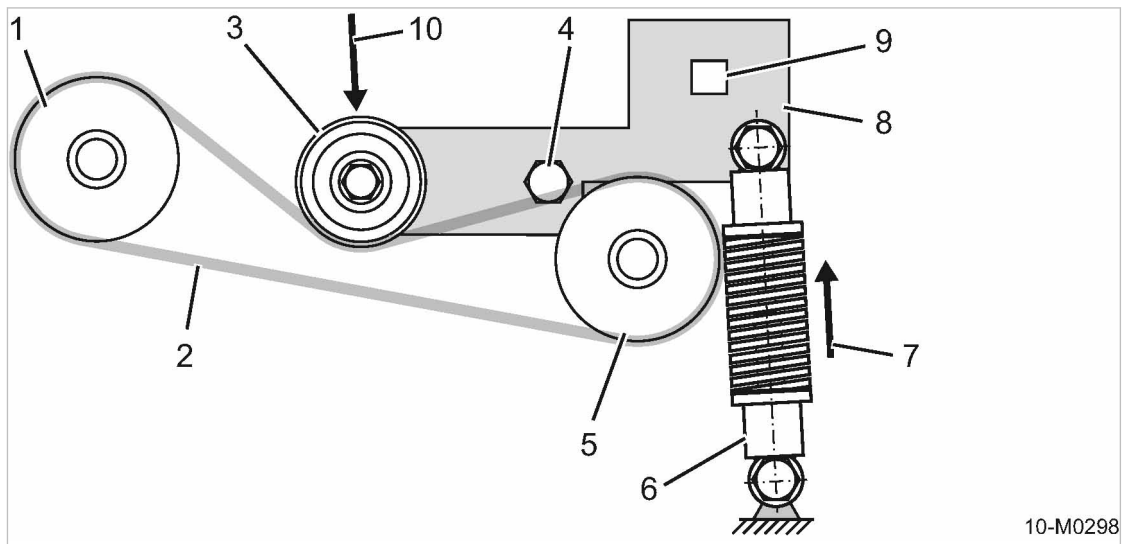


Fig. 61 Replacing the generator belt

- | | |
|--------------------------------|---------------------------|
| ① Pulley, crankshaft | ⑥ Spring strut |
| ② Drive belt | ⑦ Spring force F1 |
| ③ Tension pulley | ⑧ Tensioning frame |
| ④ Deviation point, swing frame | ⑨ Square socket: 1/2 inch |
| ⑤ Generator drive pulley | ⑩ Leverage F2 |

➤ Comply with the safety instructions in chapter 3.5.

Visually check for damage

Precondition The negative cable to the battery is disconnected.

1. Manually turn the drive belt ② at the pulley and inspect the full length of the belt for splits, frays or any sign of stretching.
In case of damage: Replace the drive belt immediately.
2. Reconnect the negative battery terminal.

Removing the old drive belt

Precondition The negative cable to the battery is disconnected.

1. Insert the ratchet with a 1/2 inch square in the square socket (9) of the swing frame (8).
2. Right hand: Press the ratchet lever downward and hold.
3. Left hand: Push the drive belt downward and pull it off to side from the tension pulley (3).
4. Permit the swing frame to slowly spring back.
5. Remove the old drive belt.

Checking the pulleys

1. Dirty pulley: Clean pulley.
2. Worn pulley: Change the pulley.

Installing a new drive belt

1. Lightly place the new drive belt over the crankshaft pulley (1) and the generator pulley (5).
2. Insert the ratchet with a 1/2 inch square in the square socket of the swing frame.
3. Right hand: Press the ratchet lever downward and hold.
4. Left hand: Push the drive belt downward and guide it sideways beneath the tension pulley.
5. Permit the swing frame to slowly spring back.
Belt tension is generated by leverage F2 (10) and tension pulley.
6. Reconnect the negative battery terminal.

10.9 Documenting maintenance and service work

Machine model/part number:

- Enter maintenance and service work carried out in this list.

Tab. 89 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 specifically selected for use 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
Oil filter	1	1210
Oil separator cartridge set	1	1450
Cooling oil	1	1600

Tab. 90 Compressor spare parts

KUBOTA engine parts

Name	Quantity	Number
Air filter element	1	1280
Fuel prefilter insert	1	1915
Main fuel filter cartridge	1	1920
Oil filter cartridge	1	1905
Oil drain plug sealing ring	1	4496
Injector nozzle	1	4475
Injector sealing ring	1	4476
V-belt	1	4470
Engine oil	1	1925

Tab. 91 Engine spare parts

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 Replacement parts for service and repair

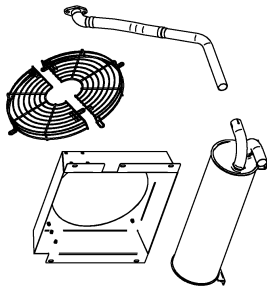
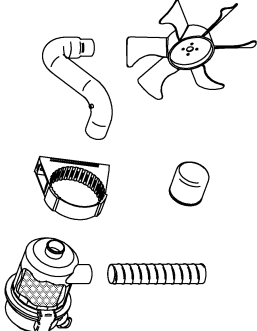
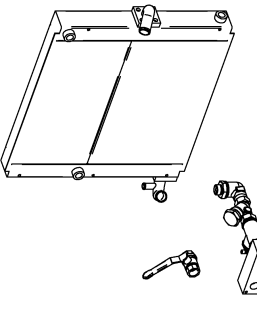
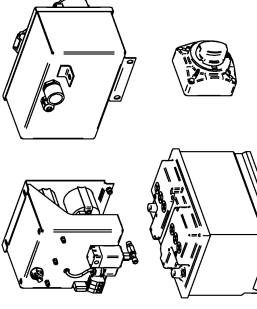
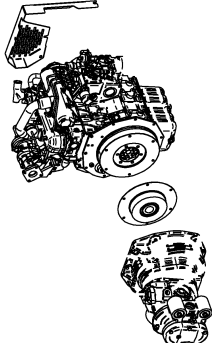
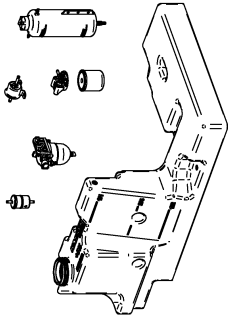
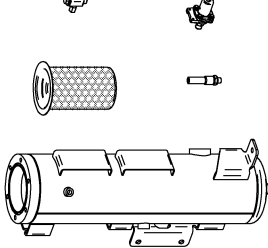
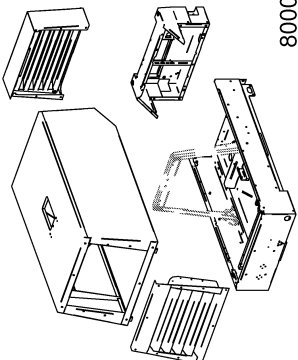
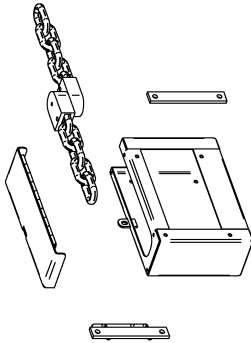
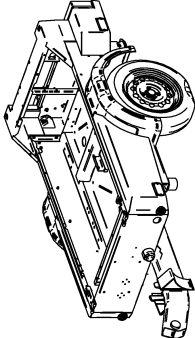
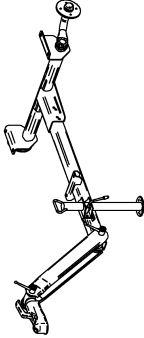
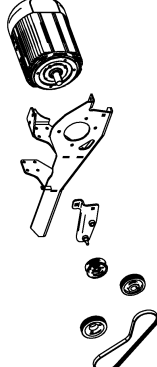
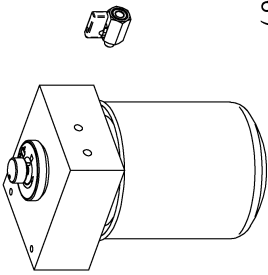
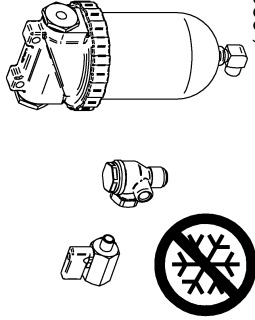
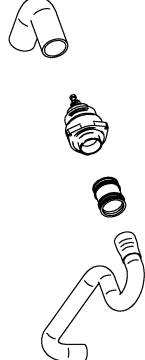
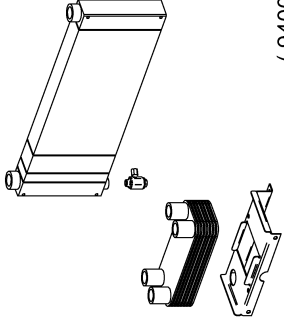
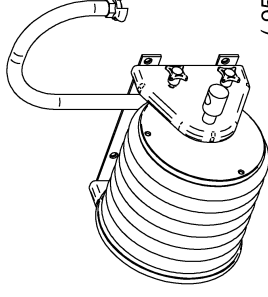
Use these parts lists to plan your material requirement according to operating conditions and to order the required spare parts.

WARNING

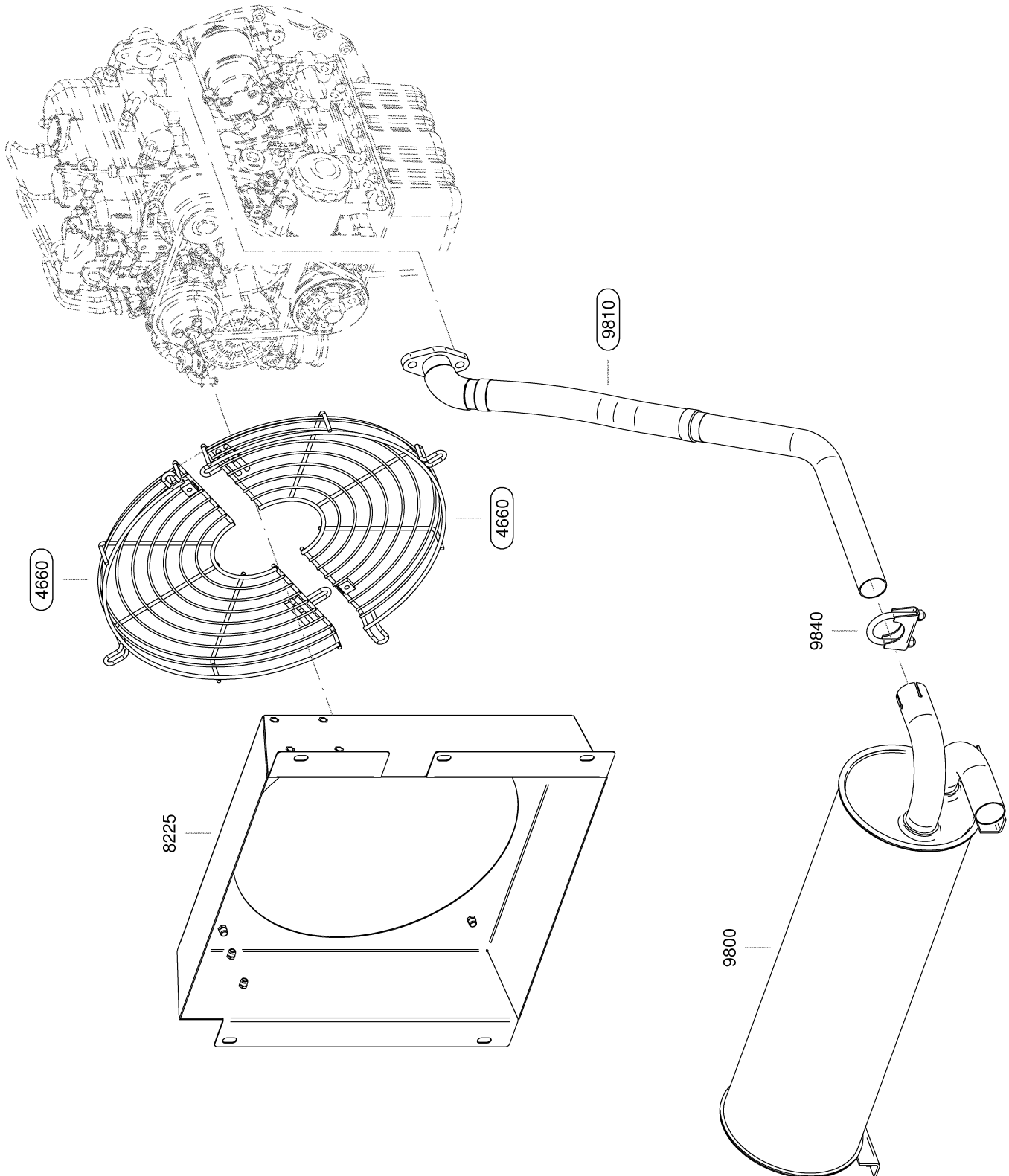
*Personal injury or machine damage due to incorrect working on the machine!
Incorrect inspection, service, or repair can damage the machine or severely impair its function. Personal injury may result from damage.*

- *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 operating manual, carried out by specialist workshops or an authorized KAESER service representative.*

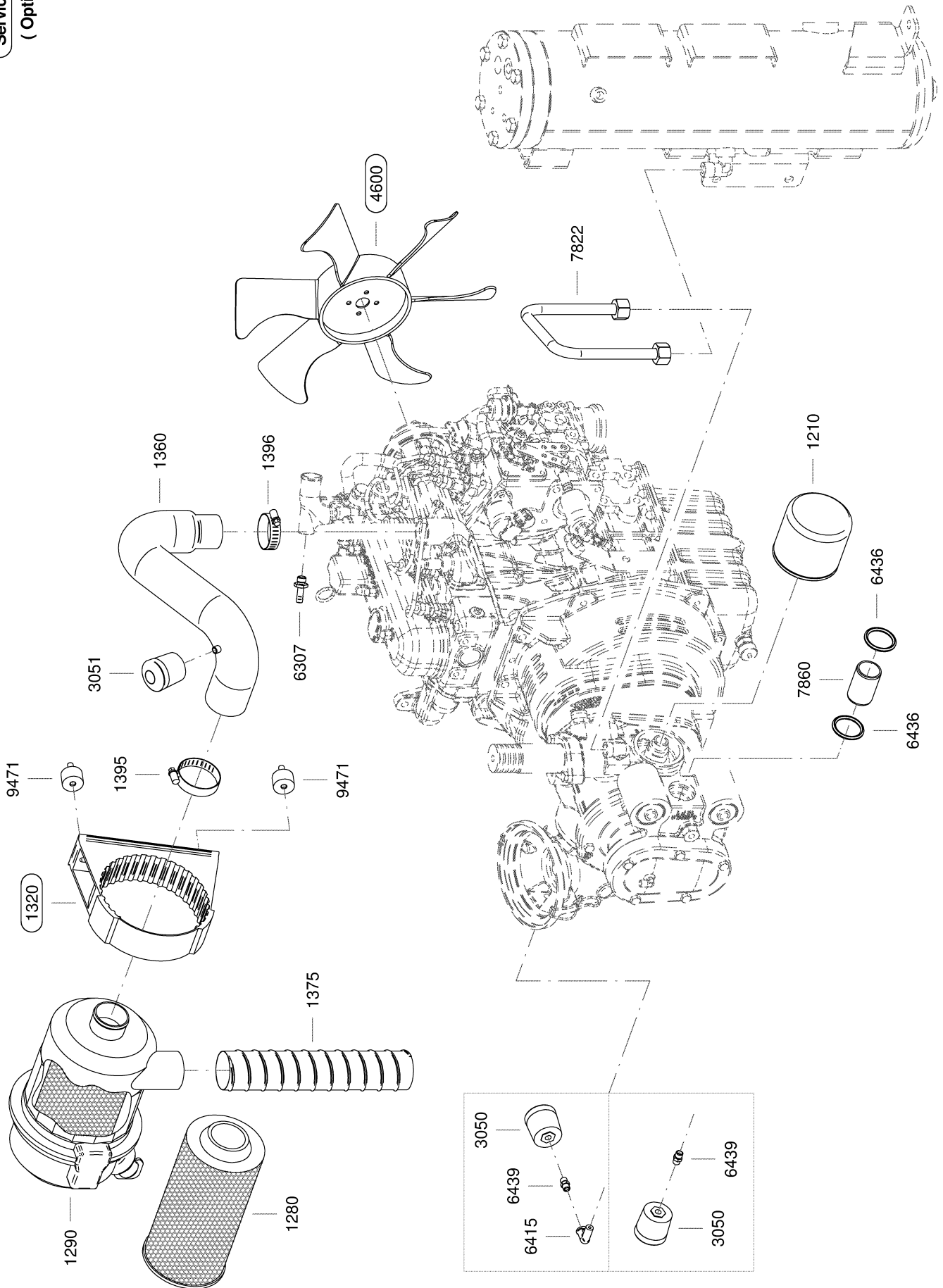
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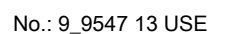
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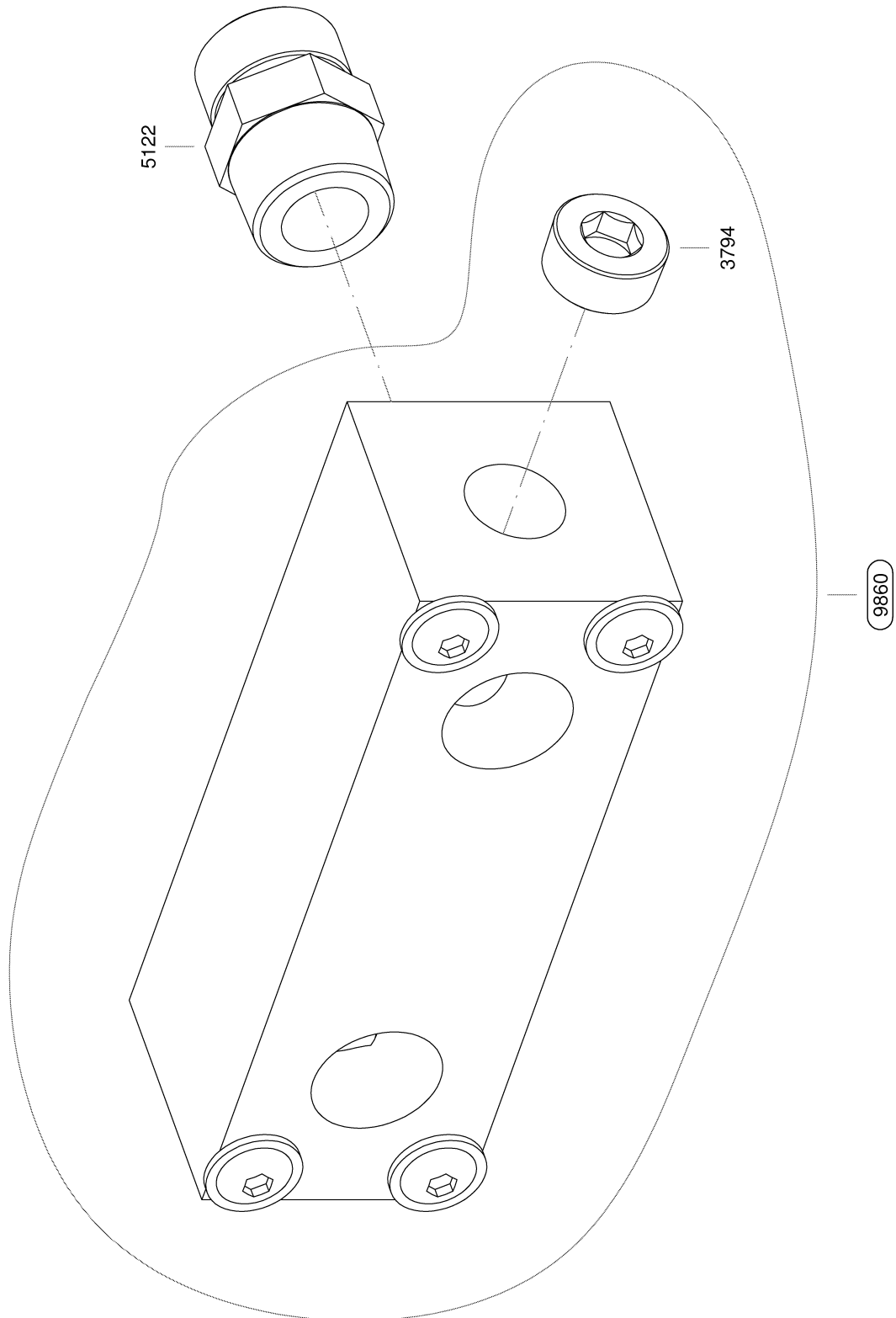


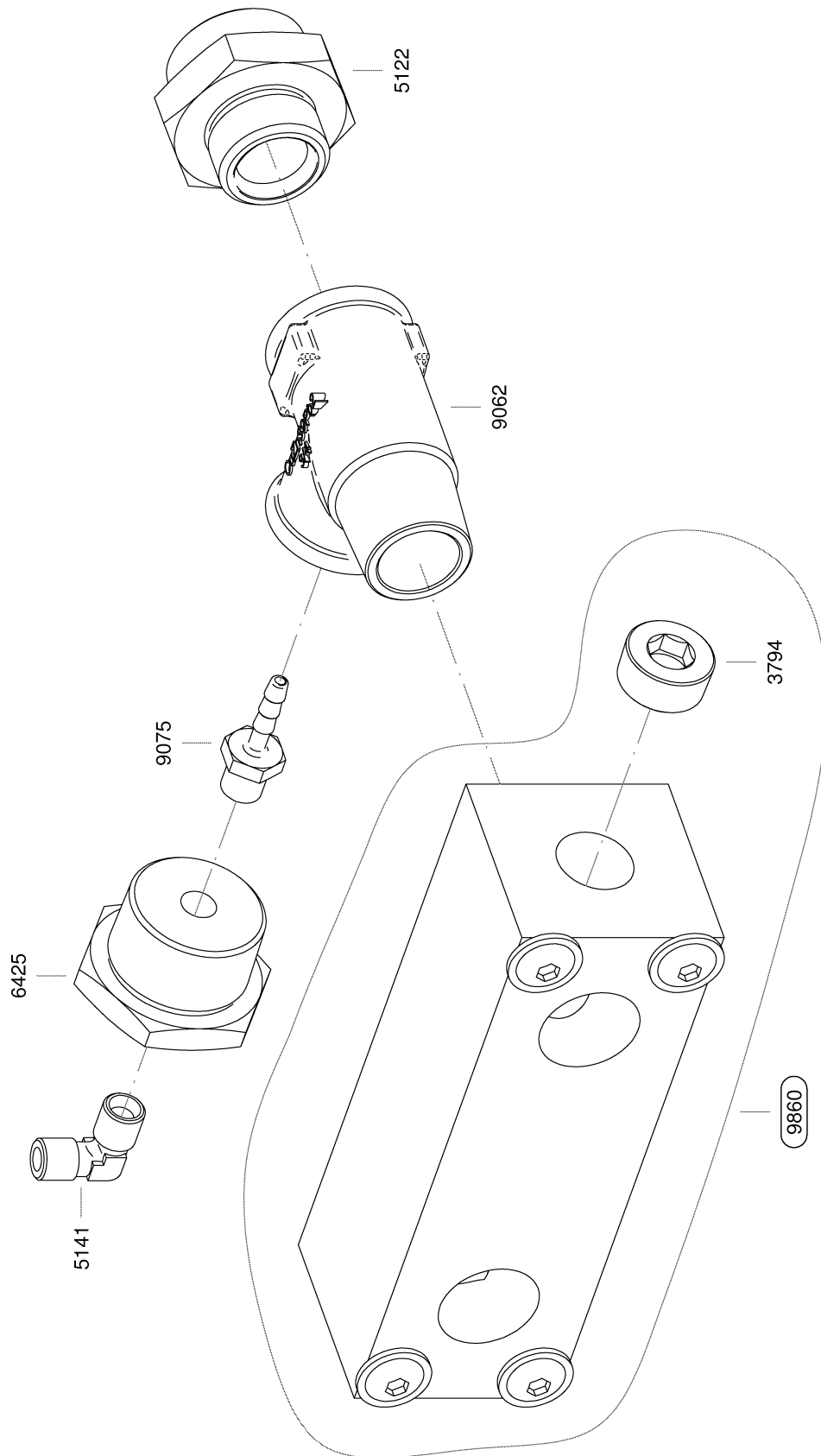
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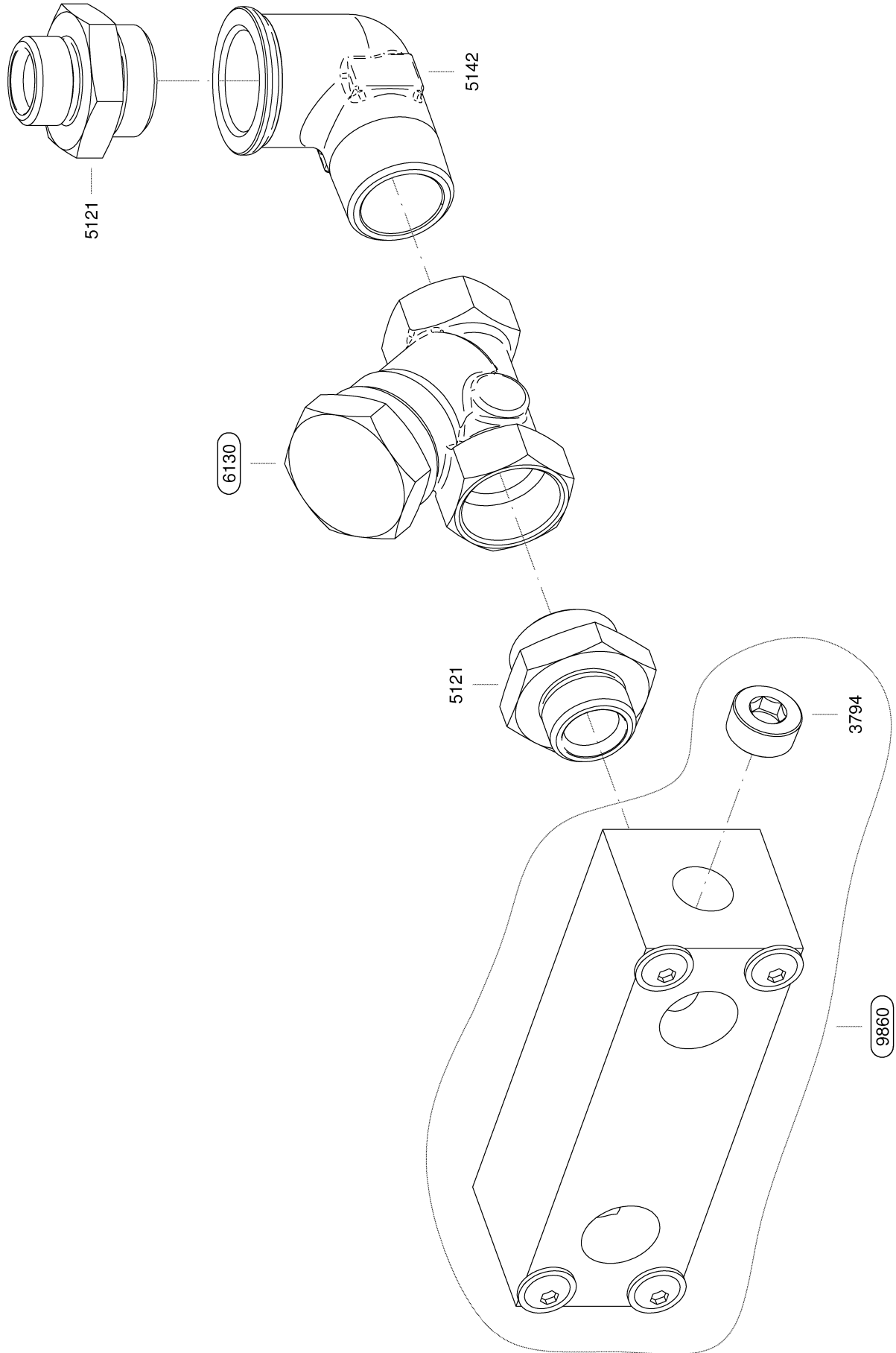
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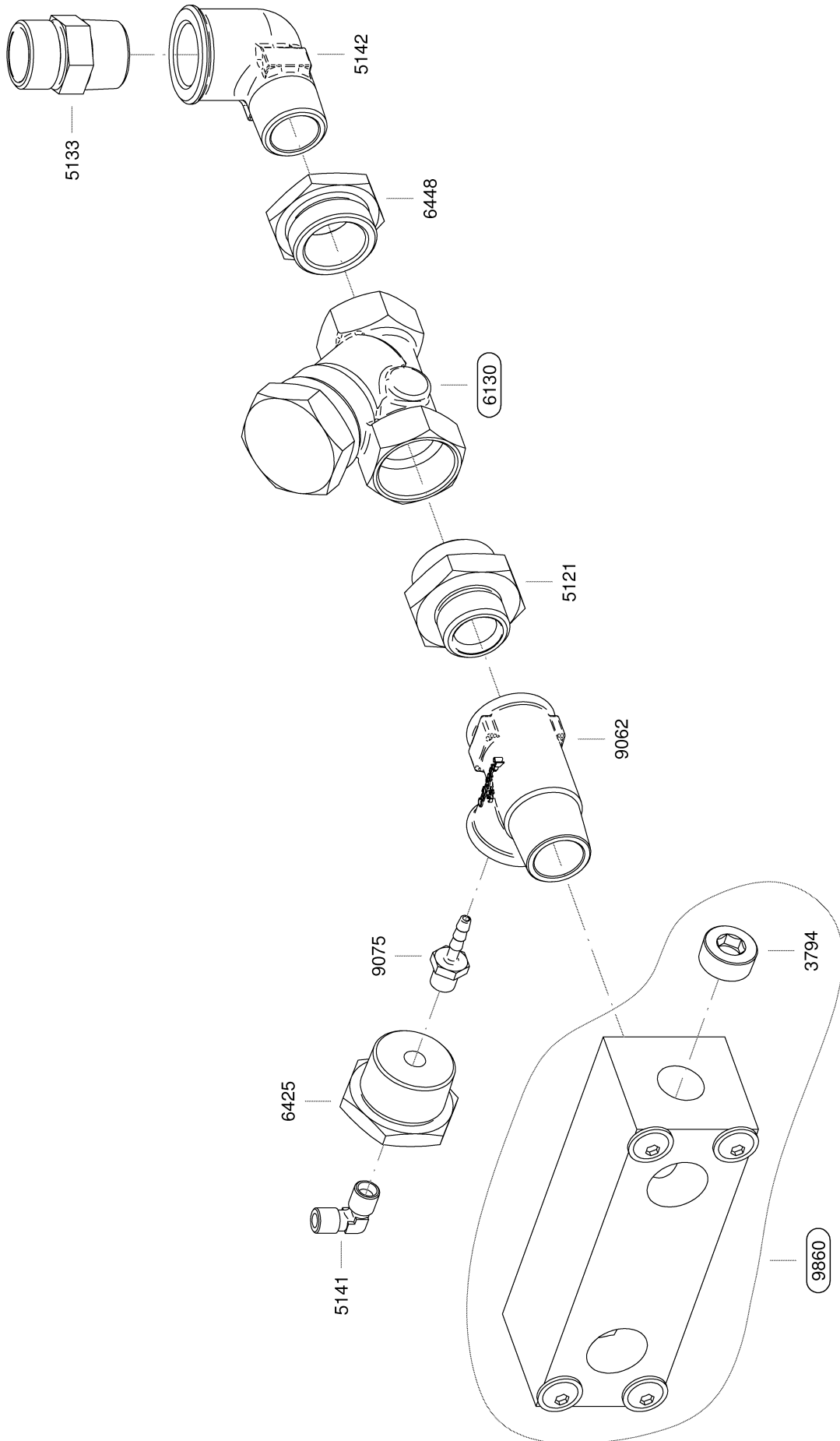




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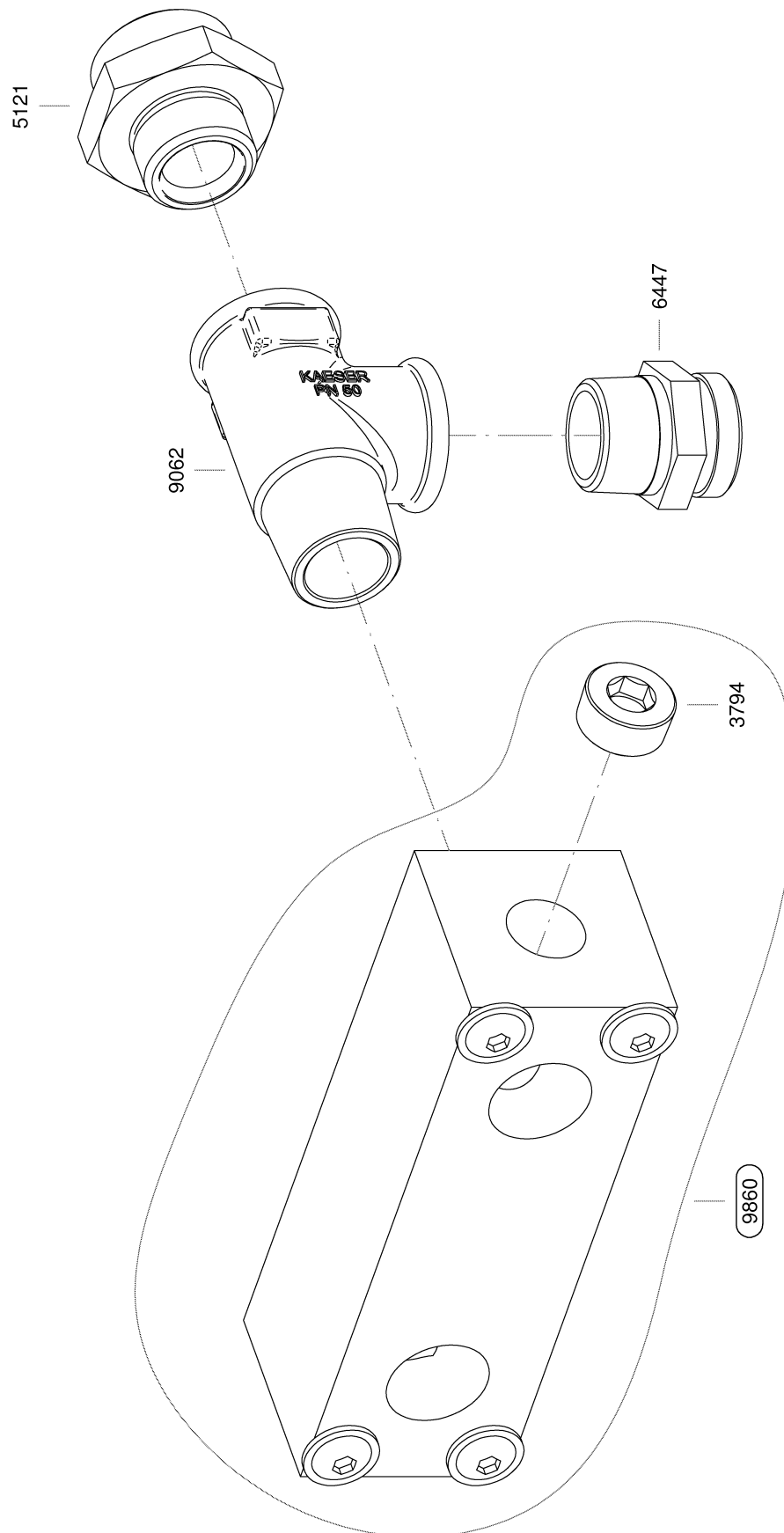


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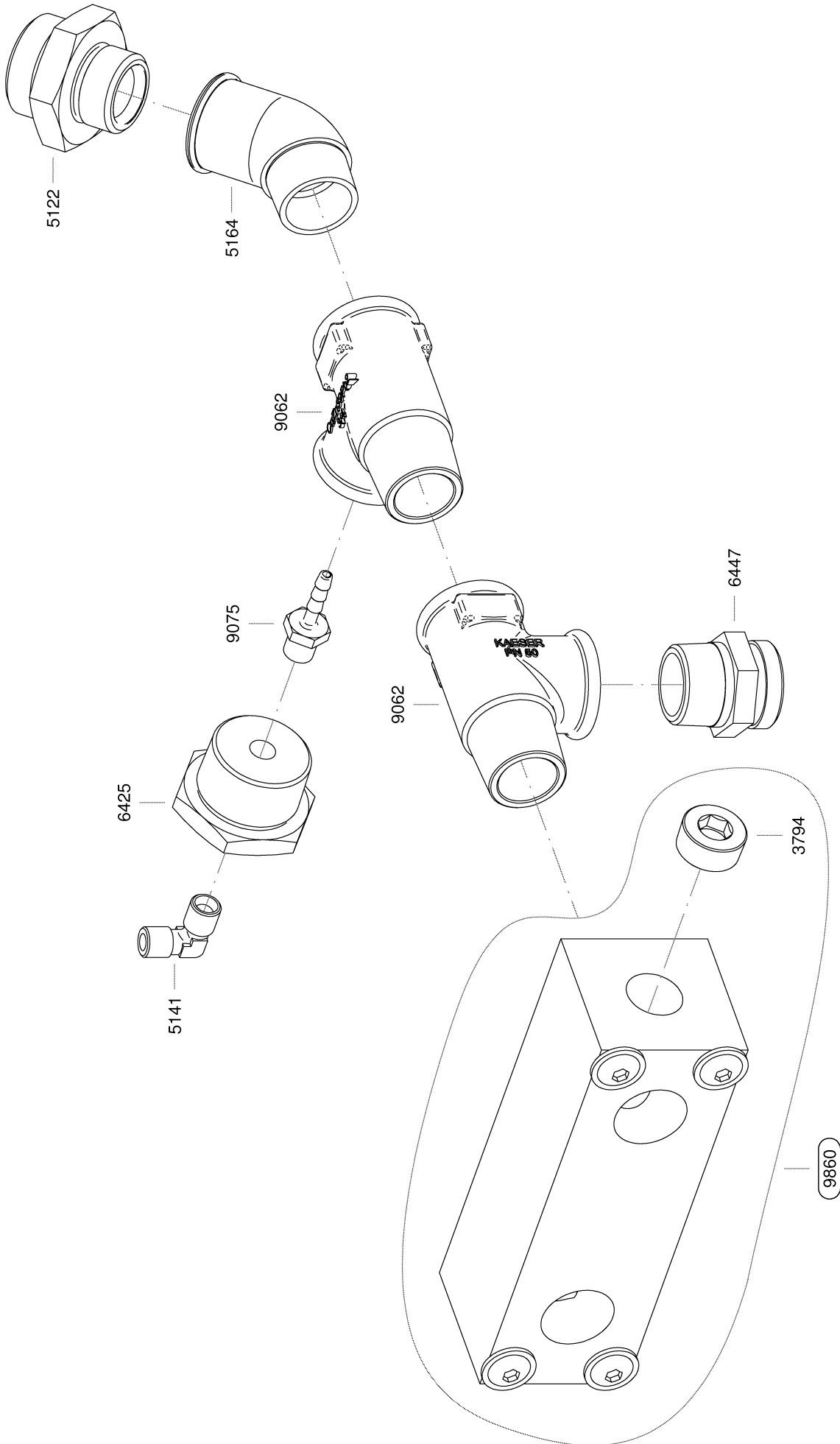
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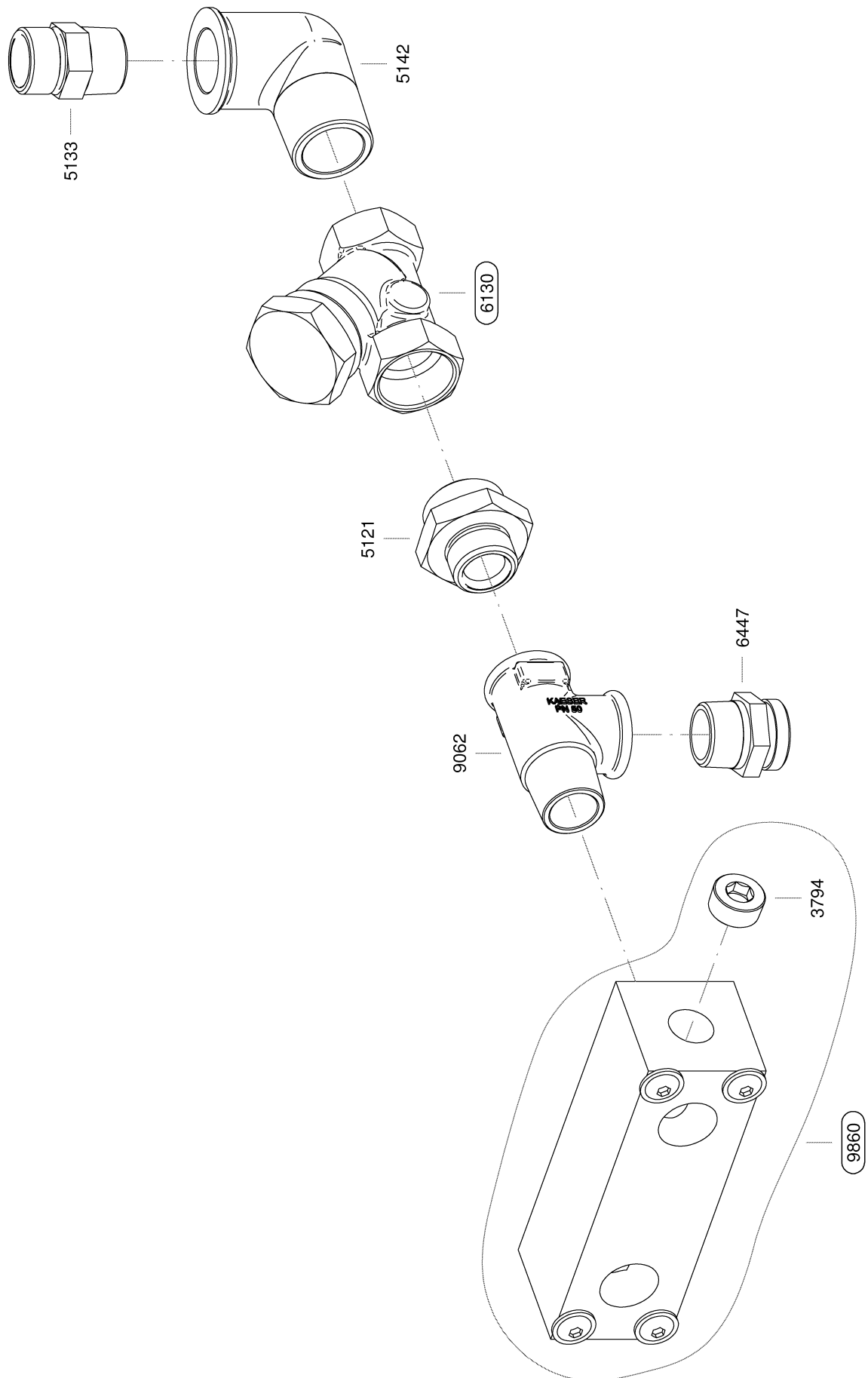


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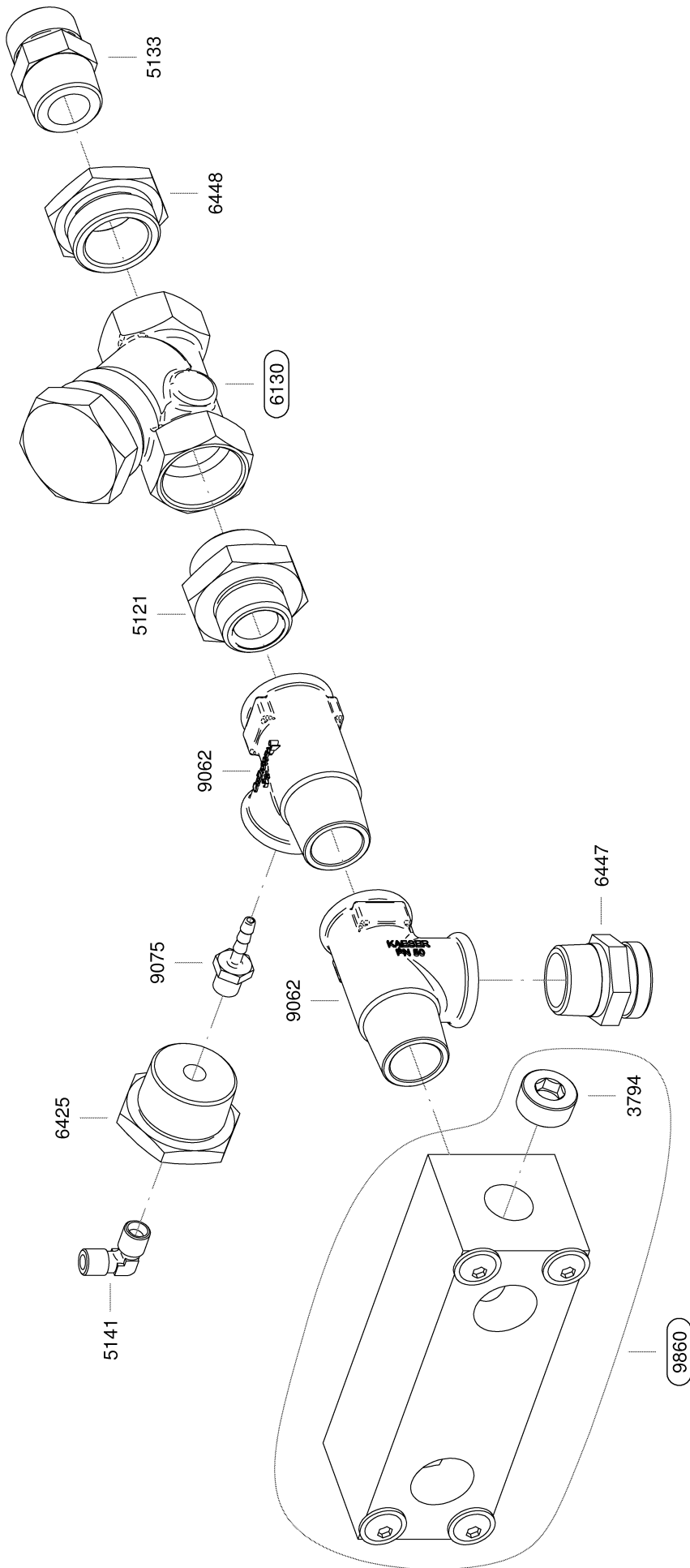


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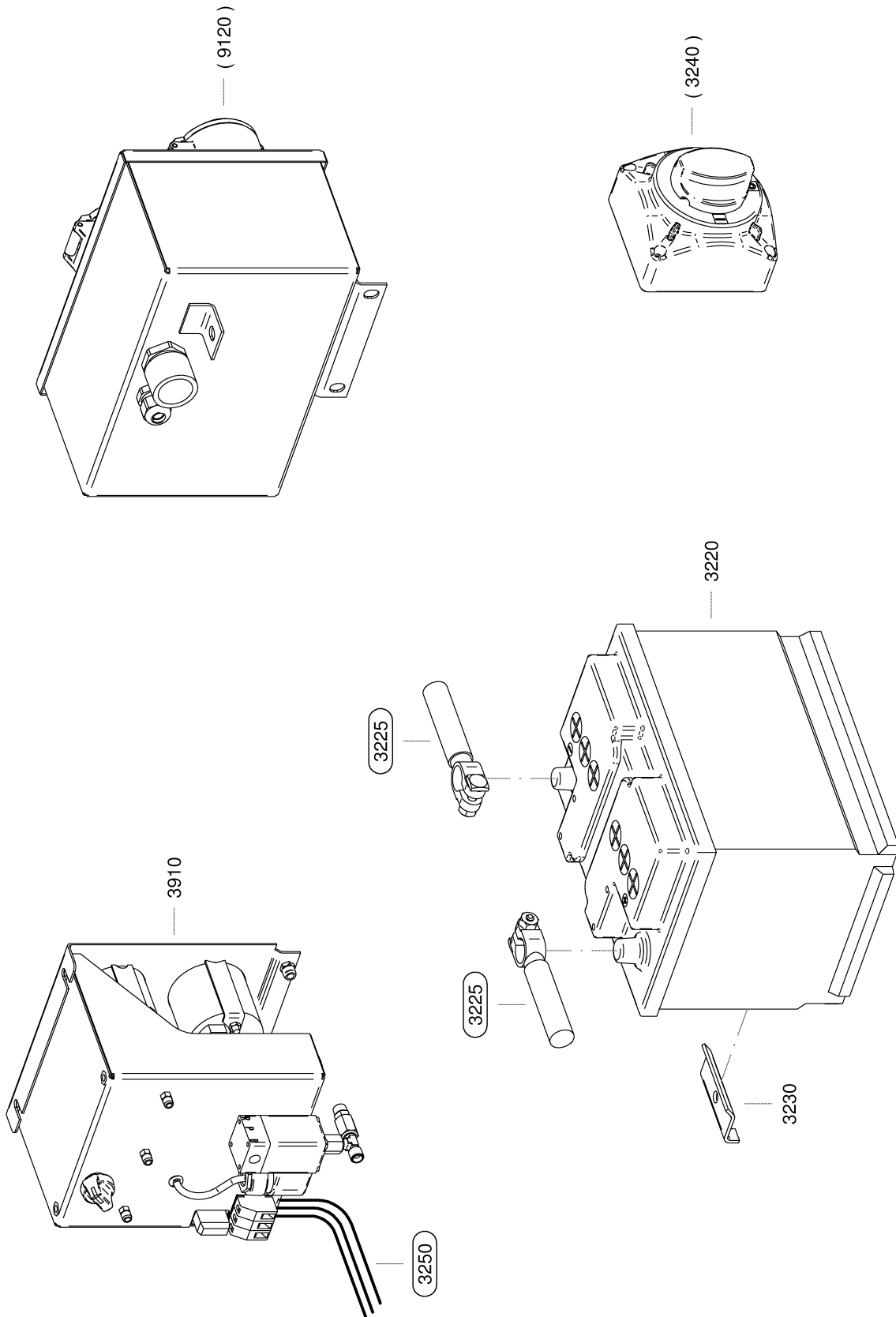
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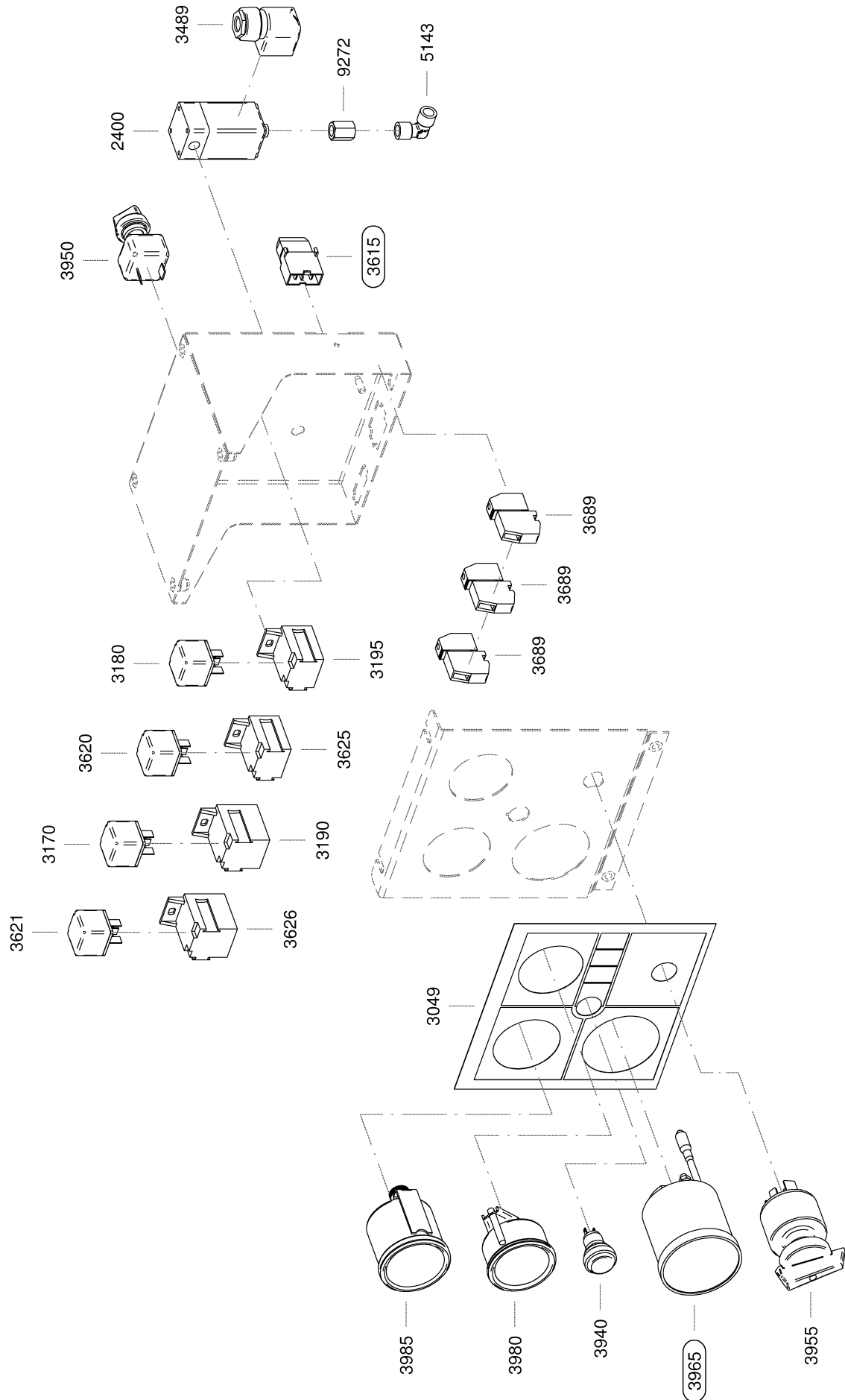
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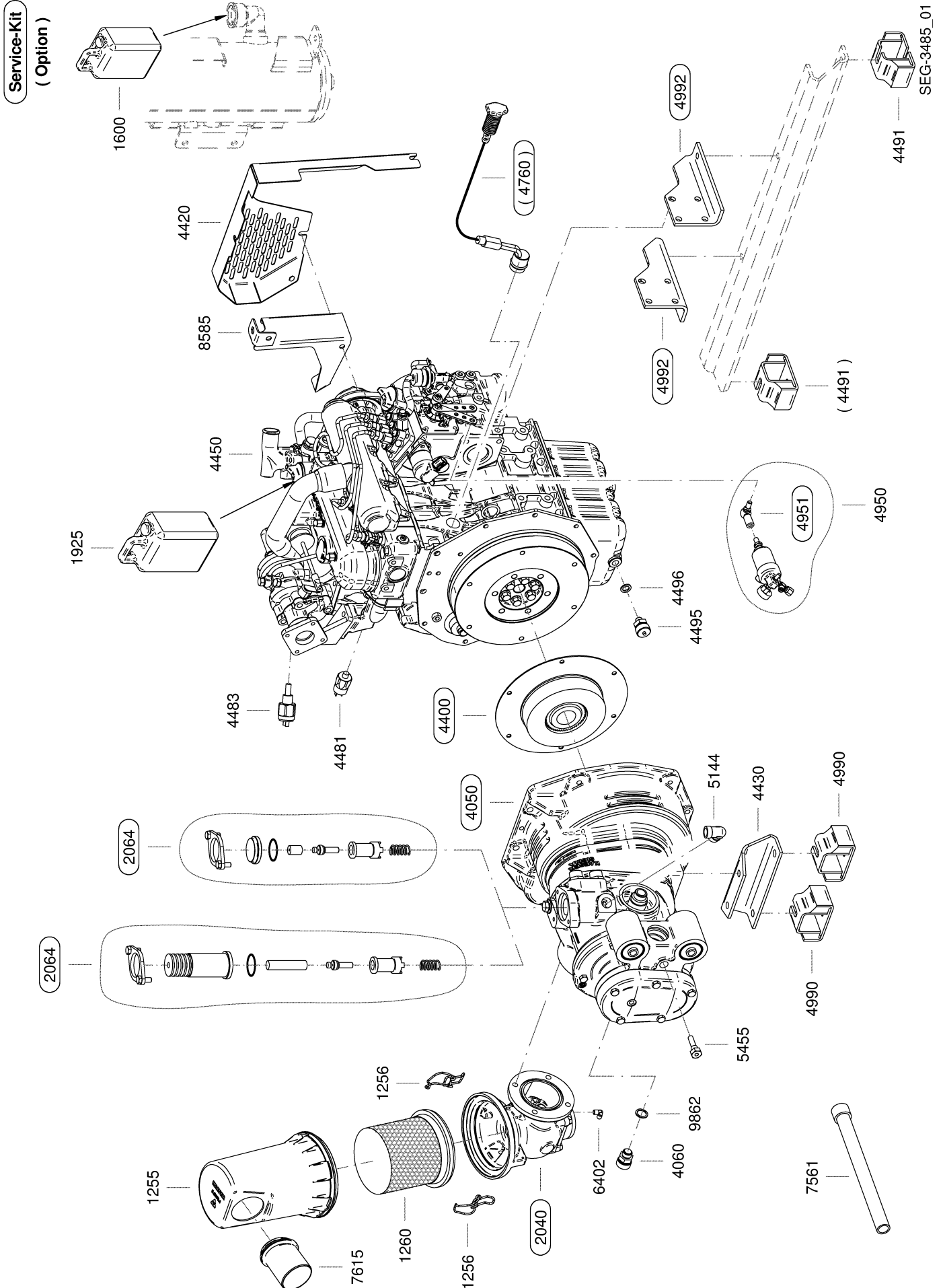
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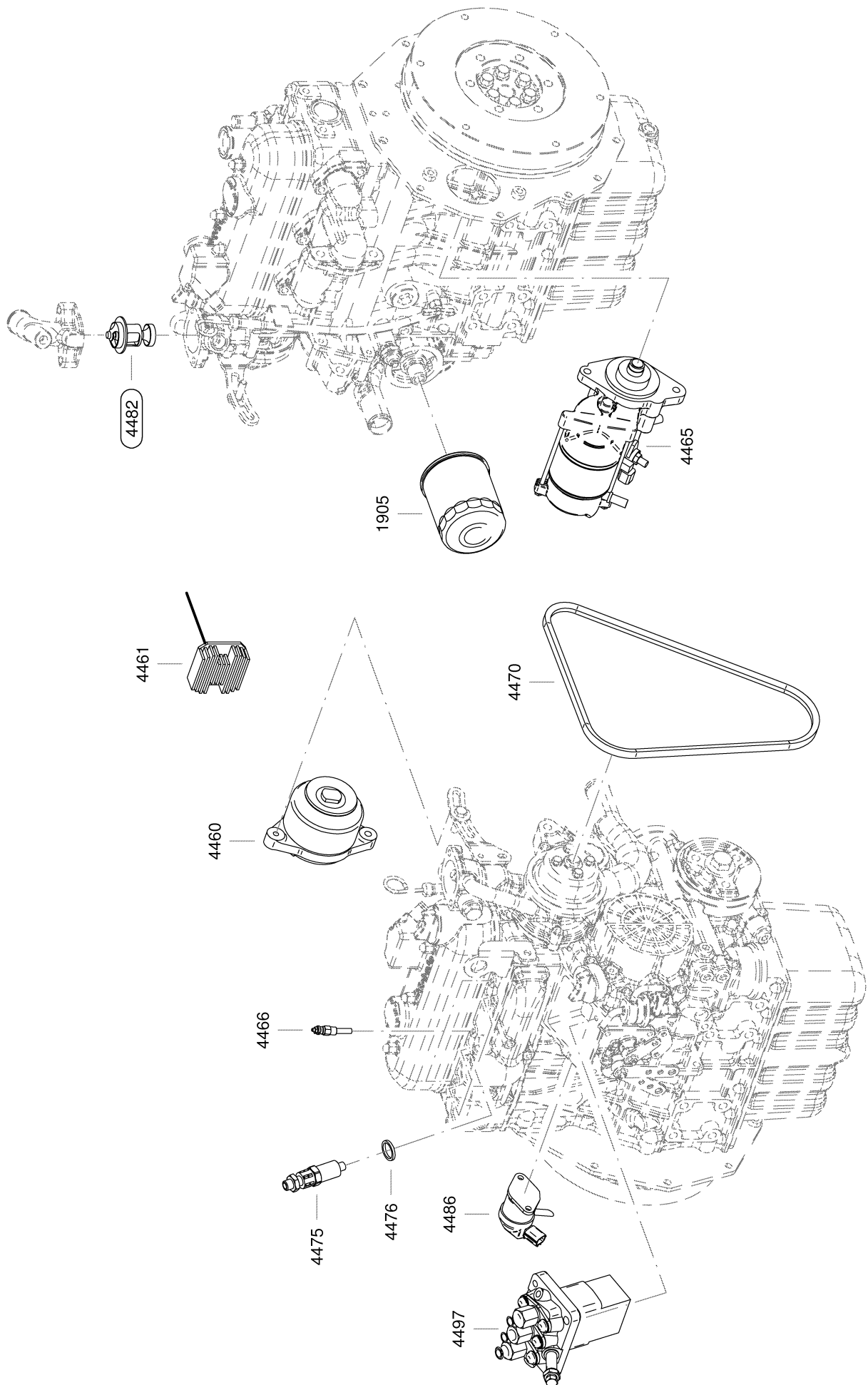
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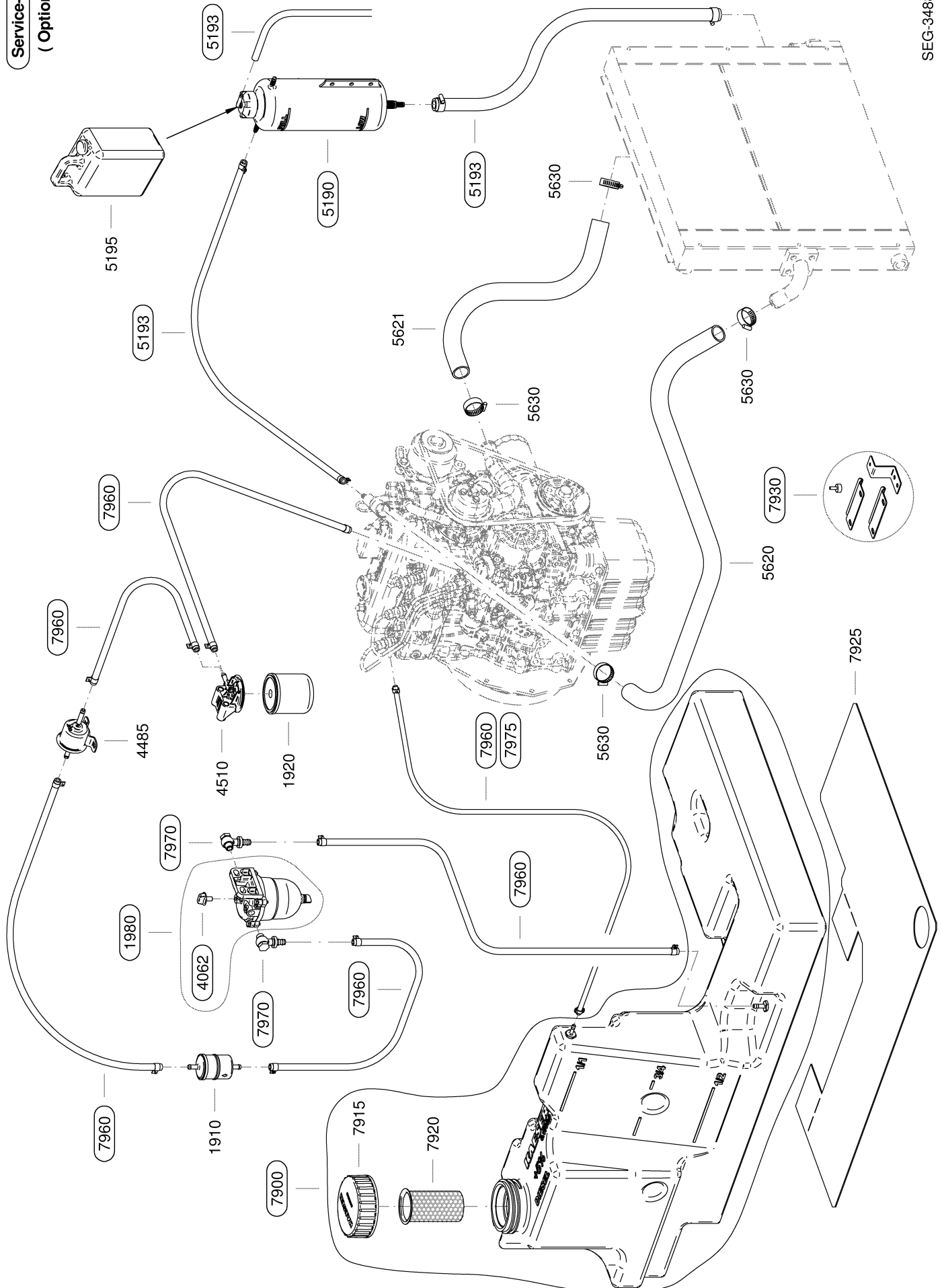
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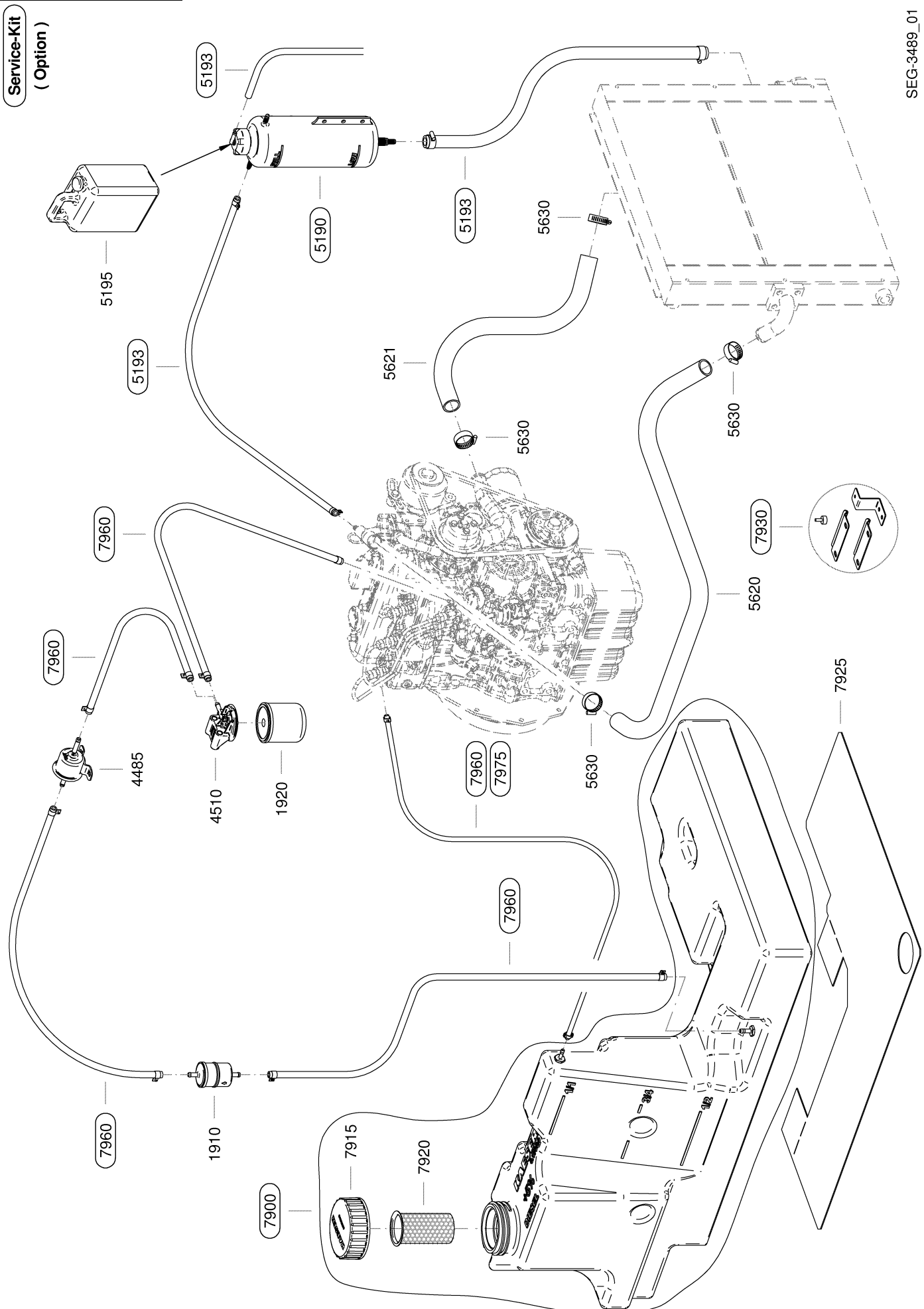
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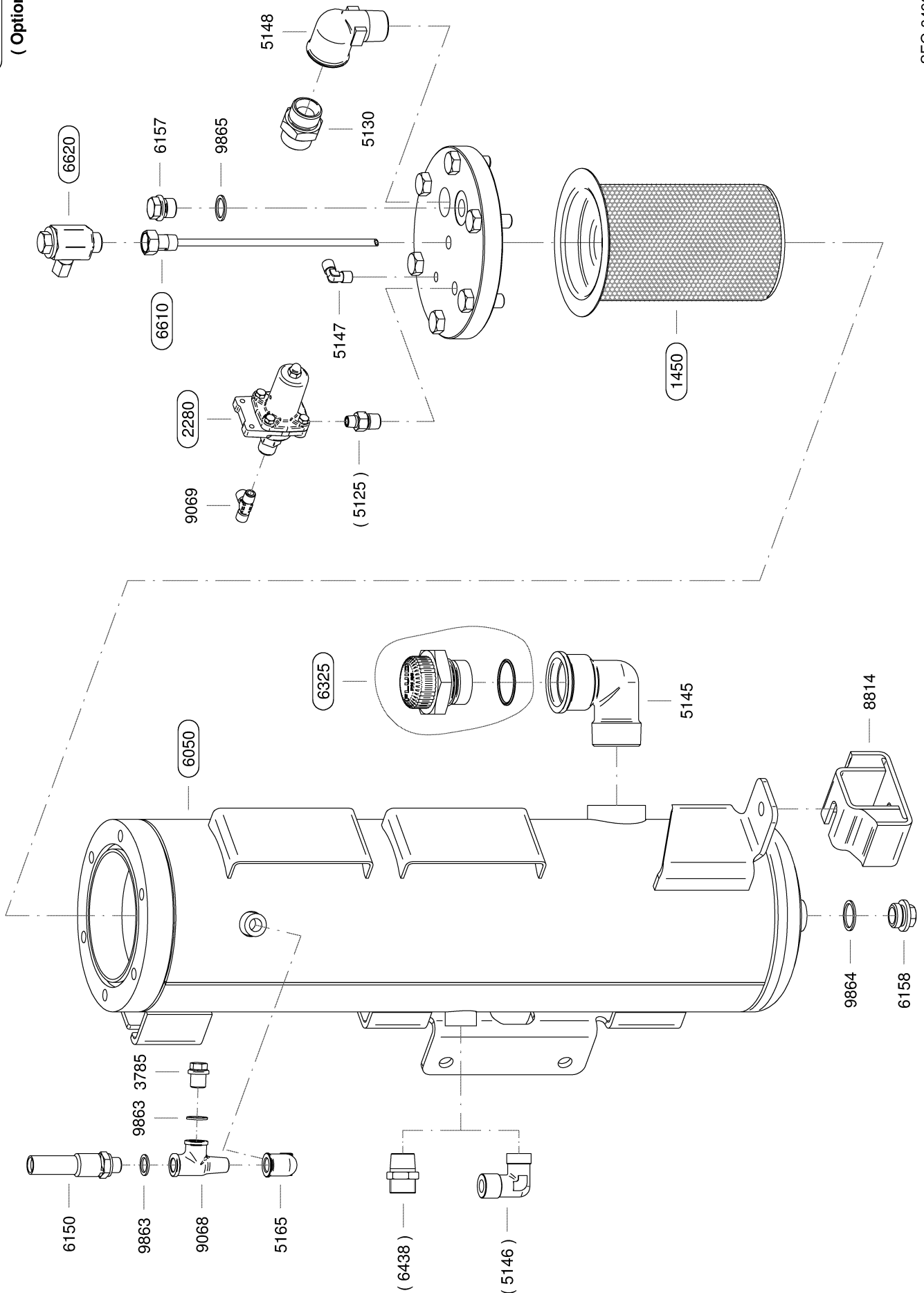
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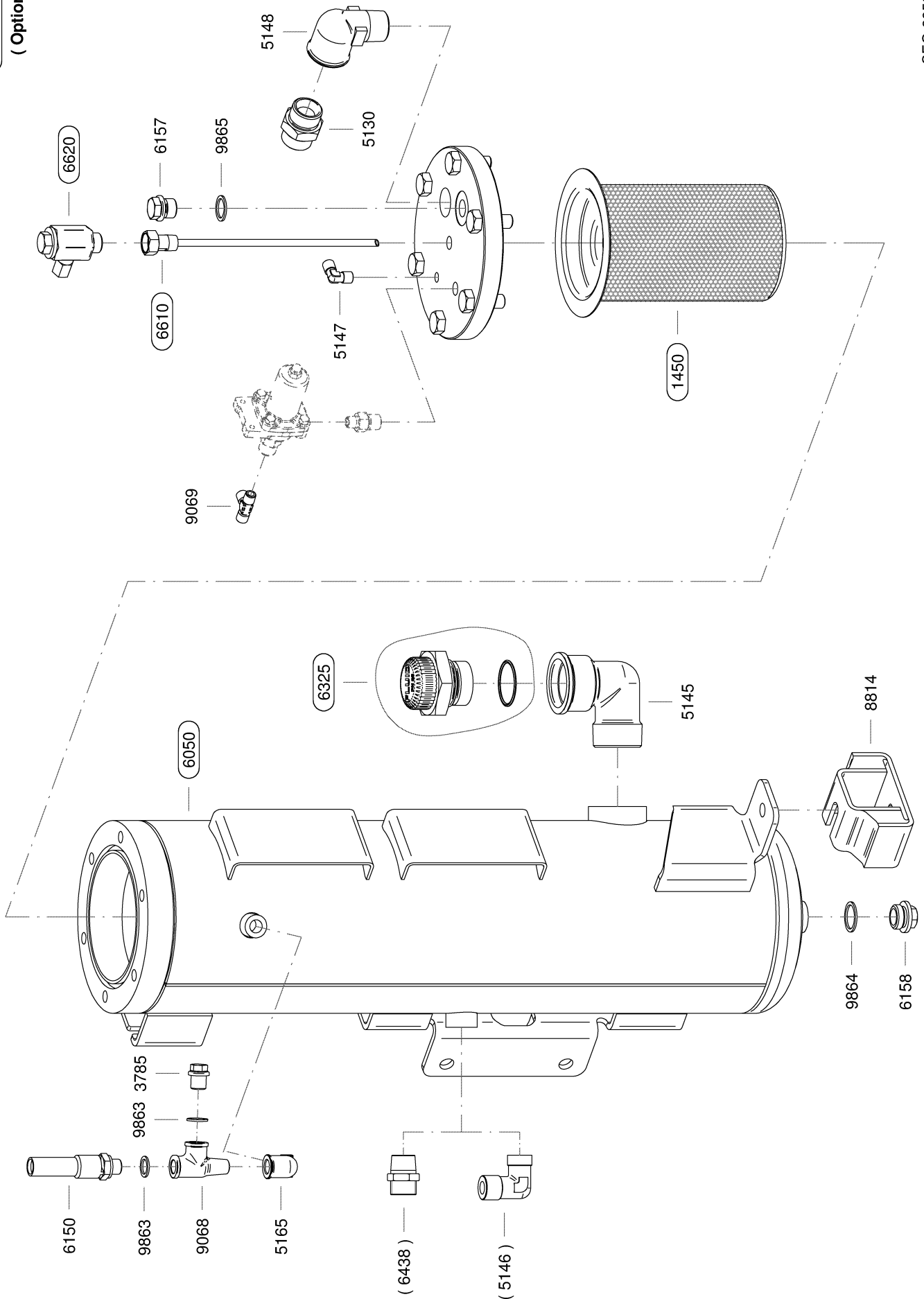
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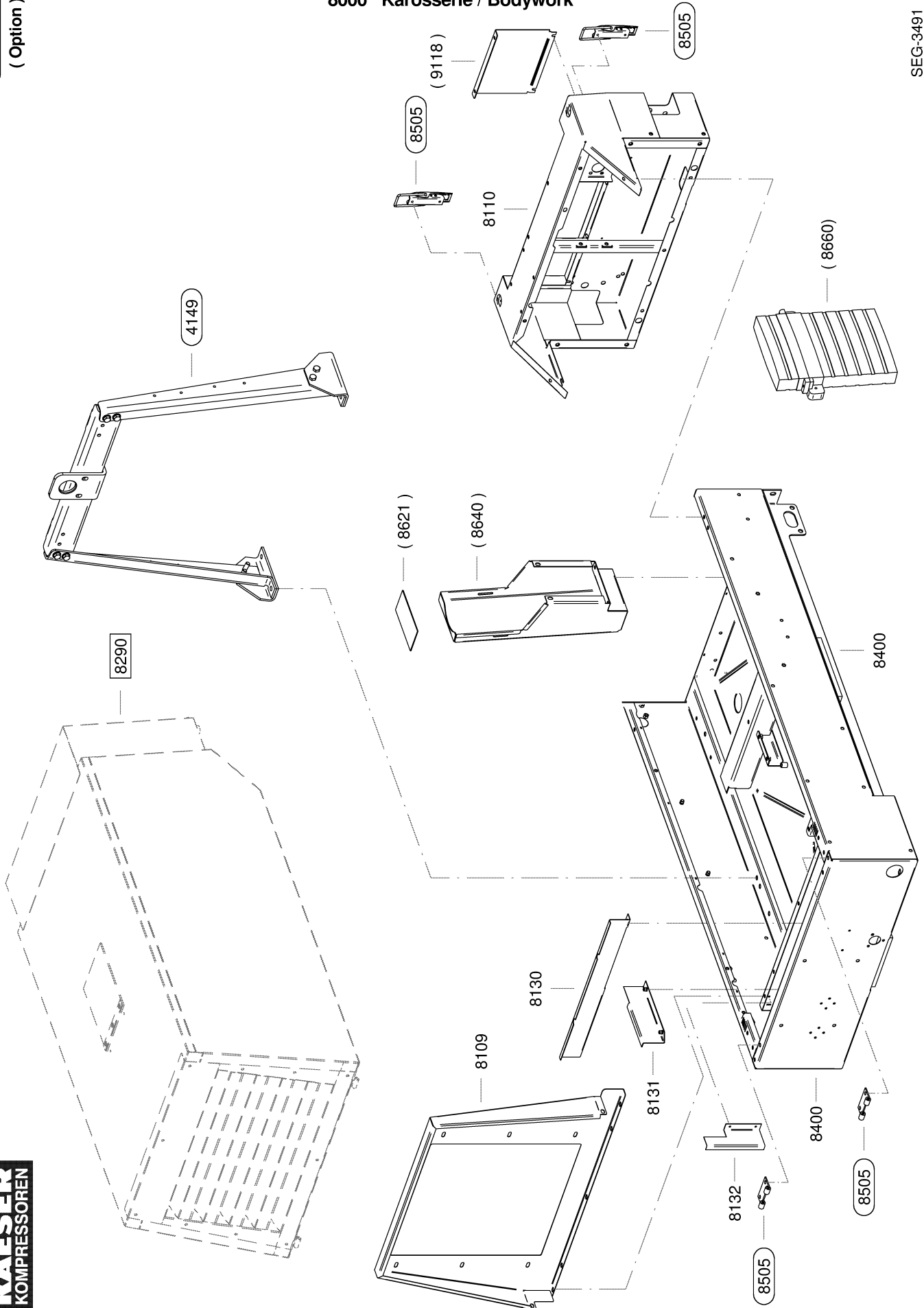
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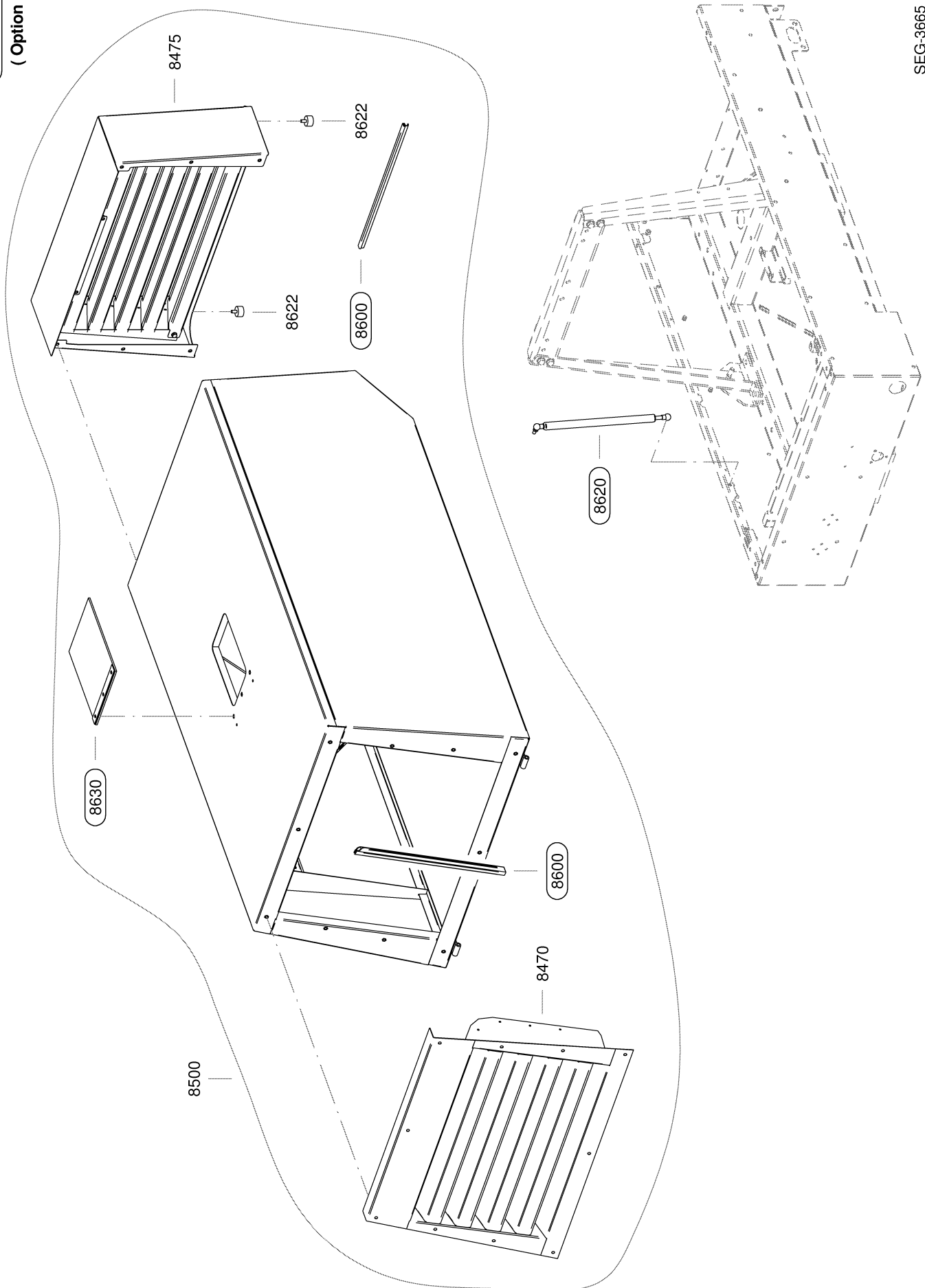
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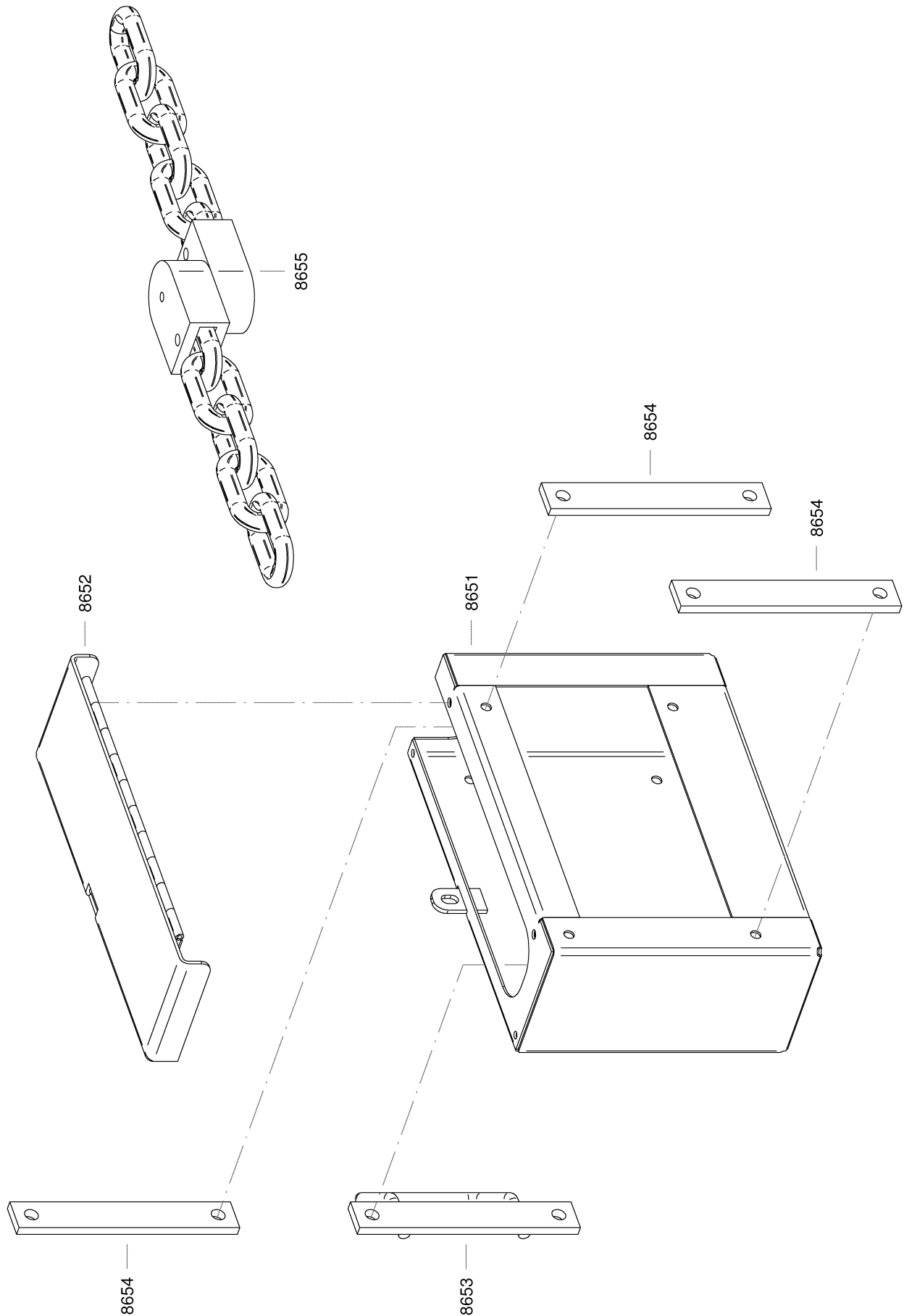
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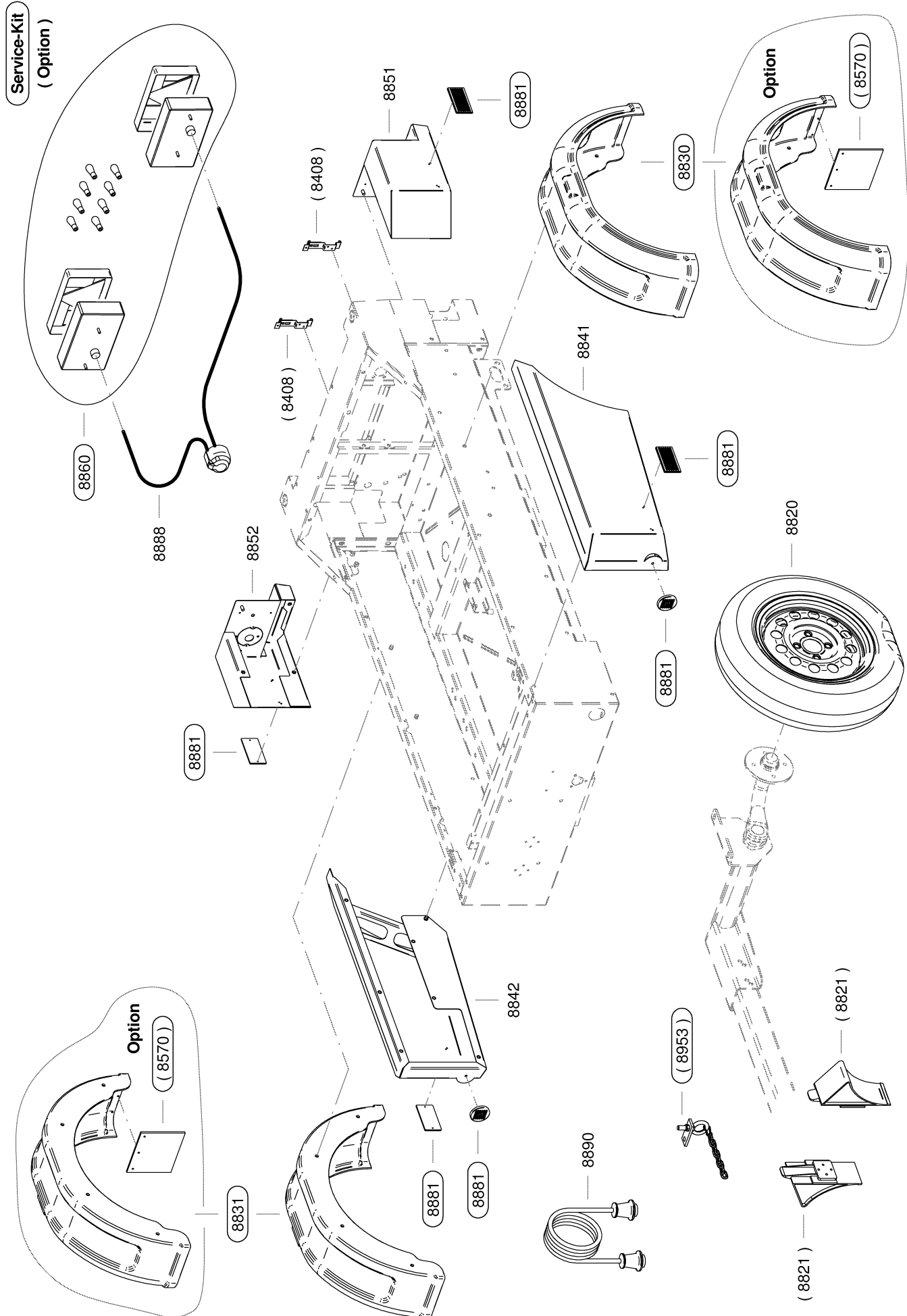
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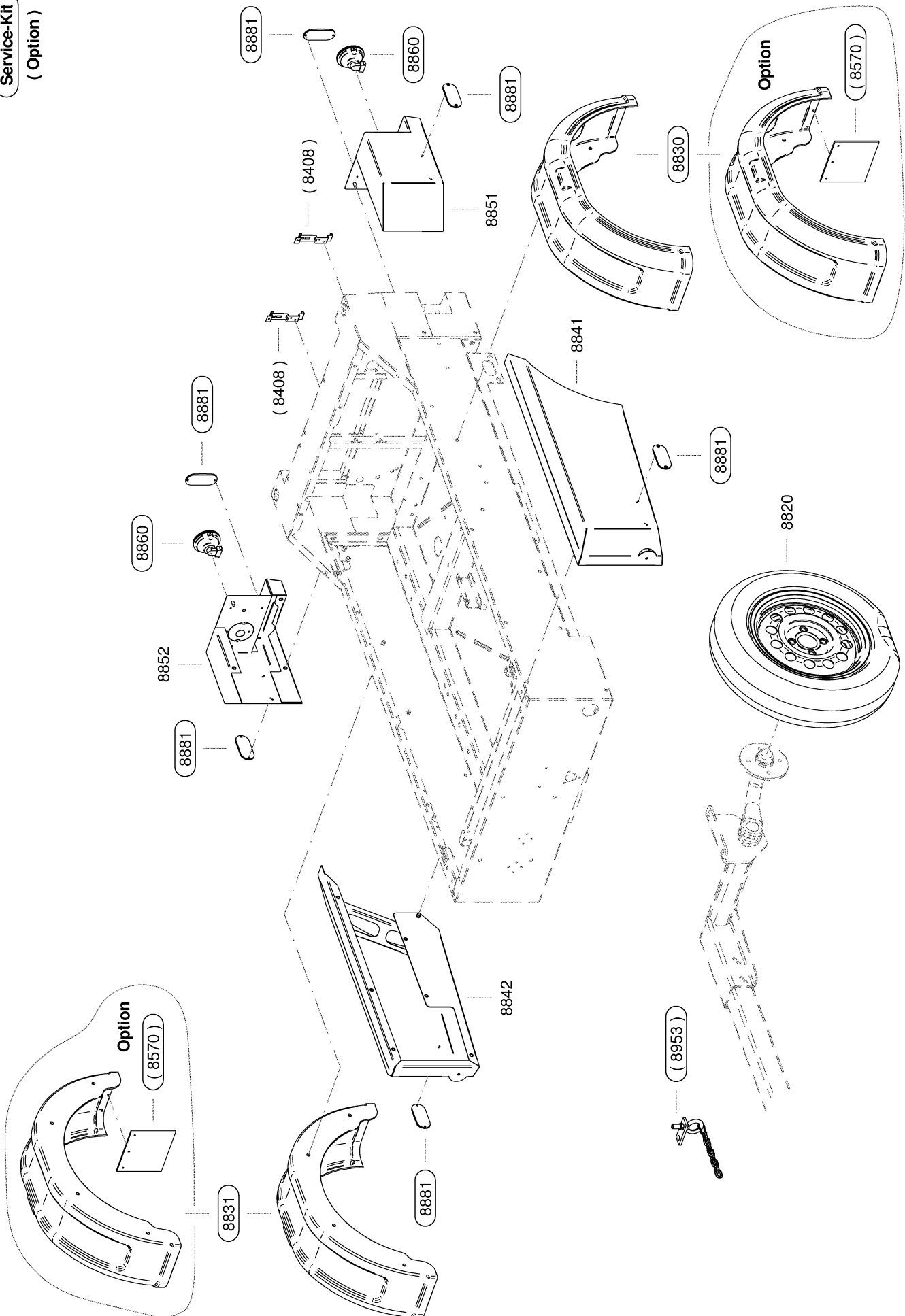
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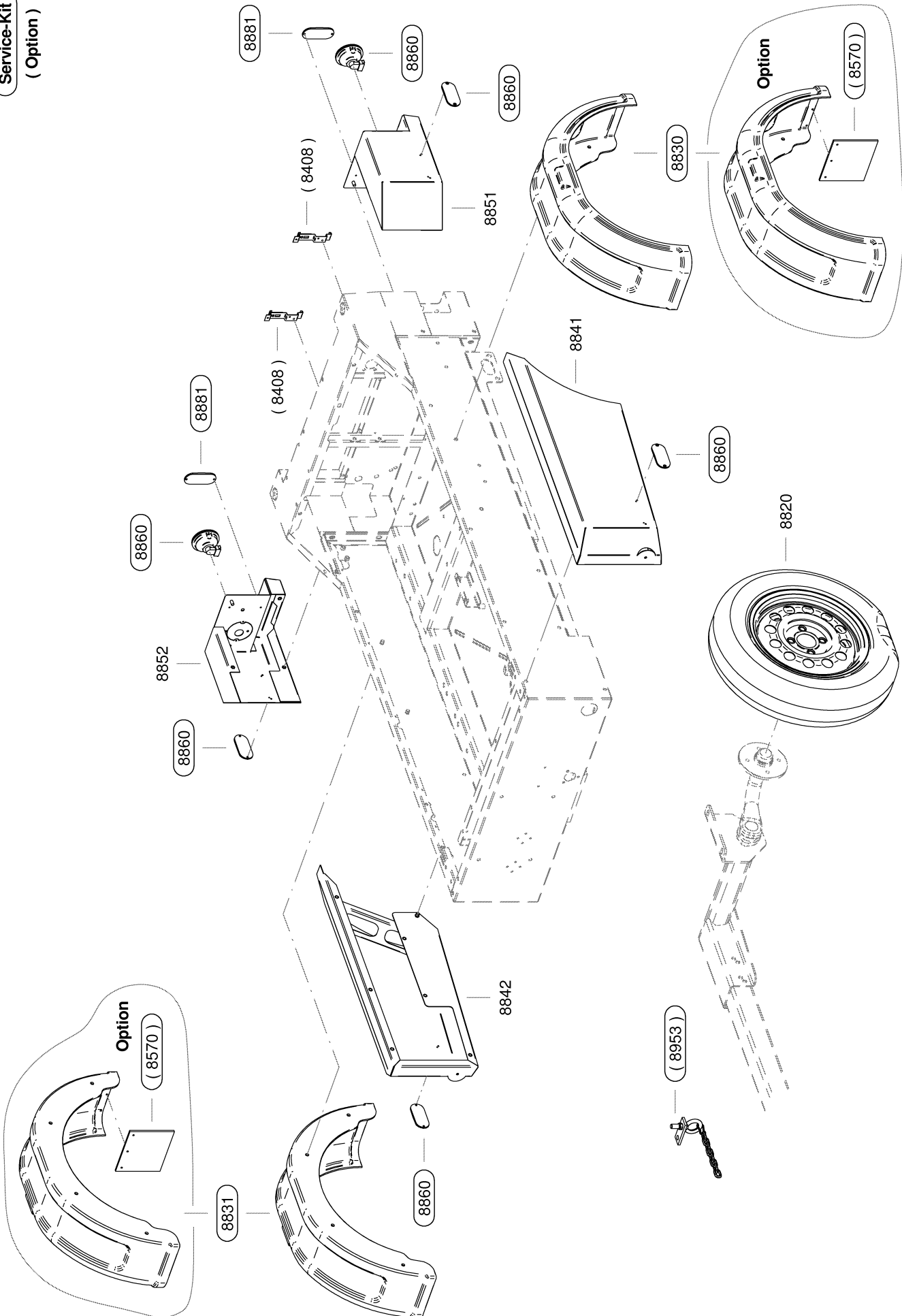
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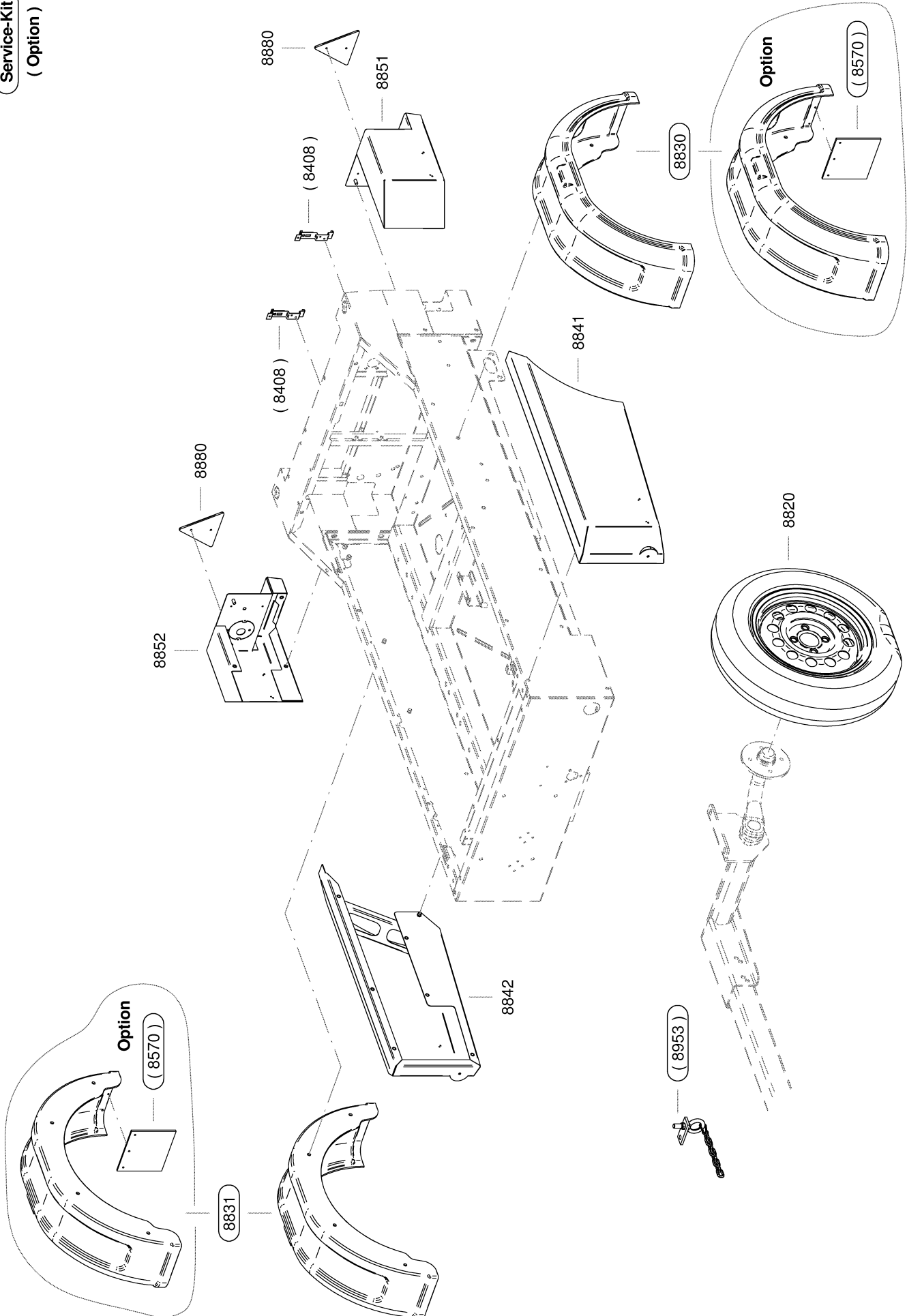
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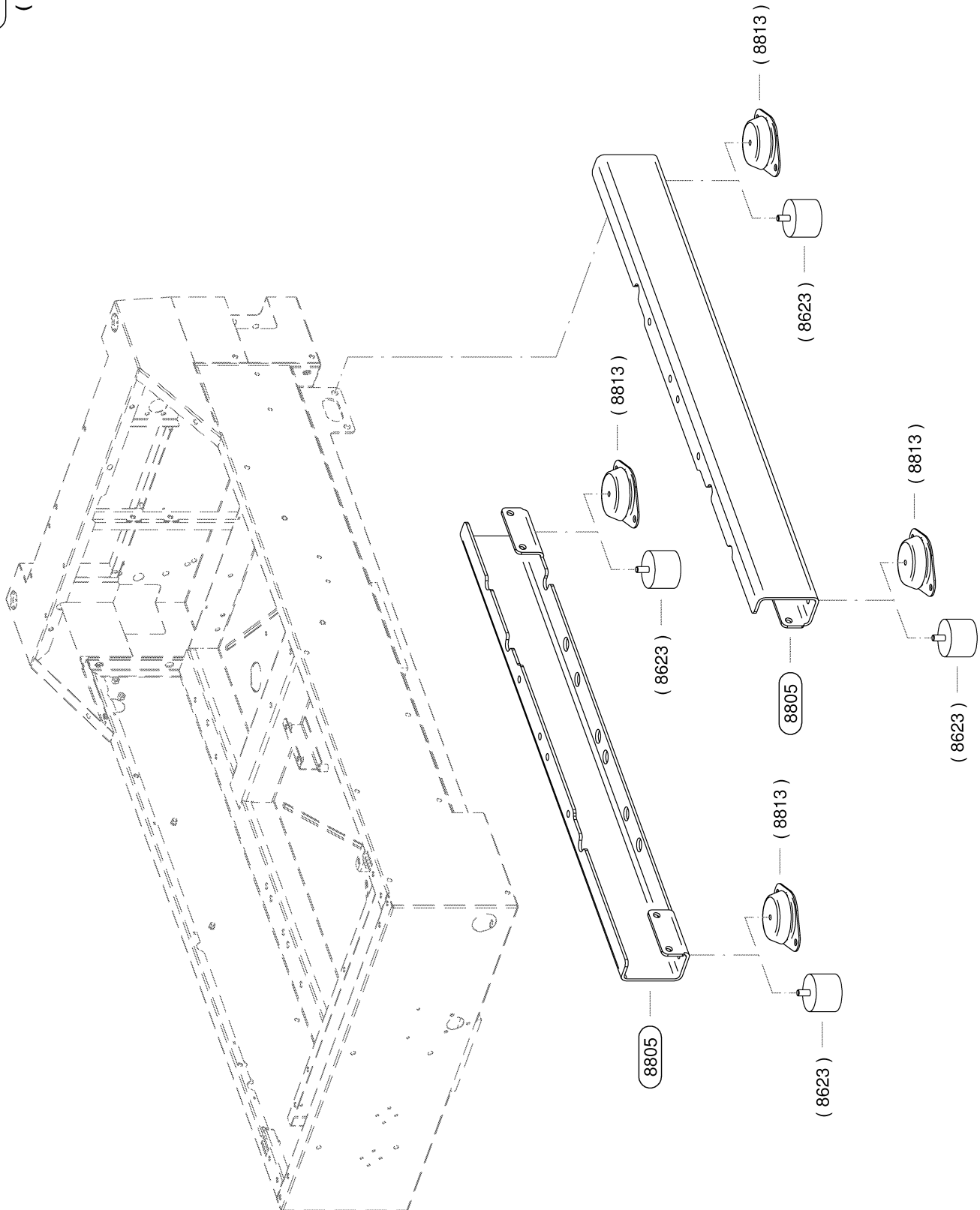
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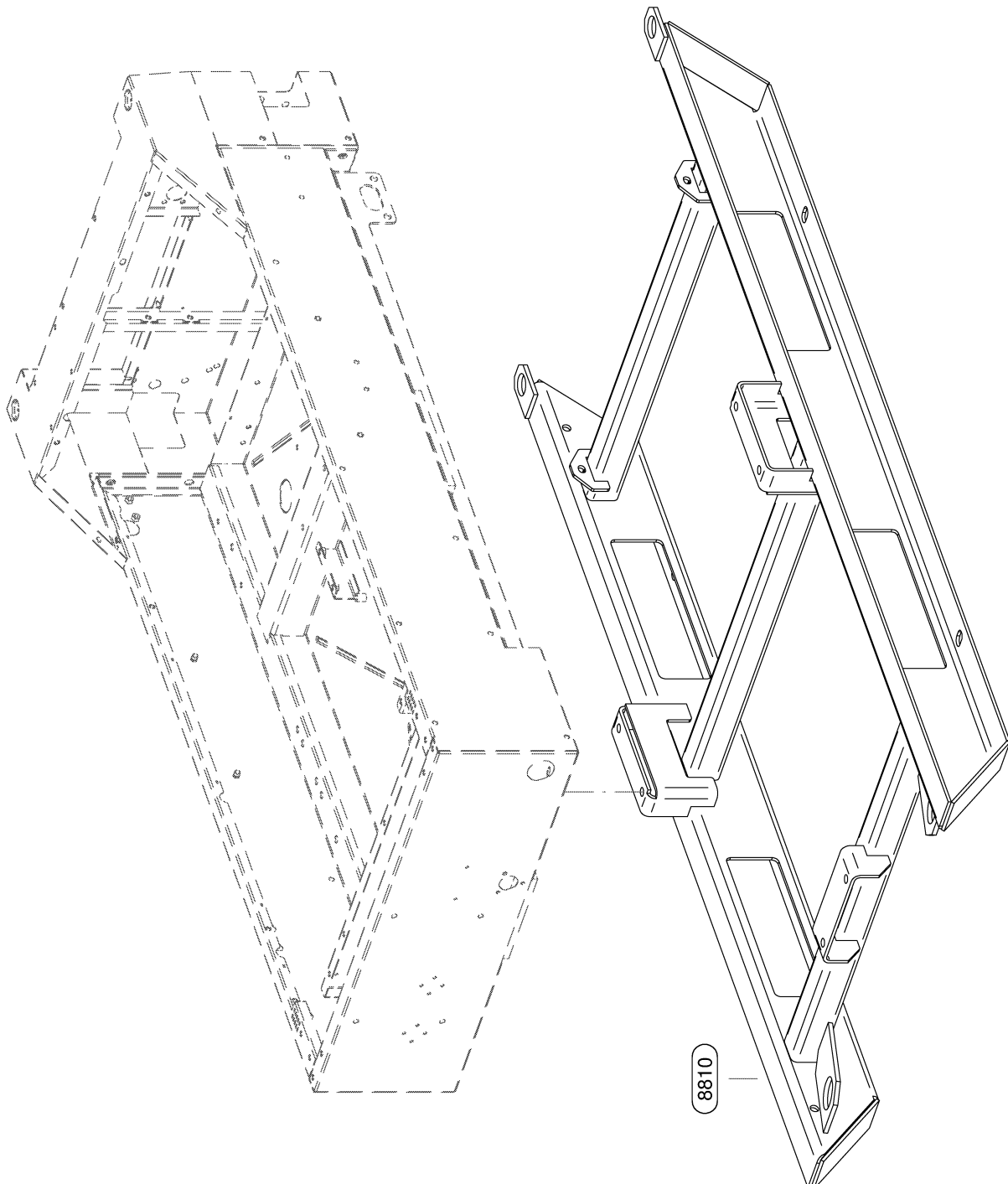
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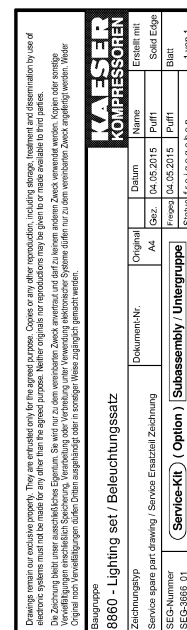
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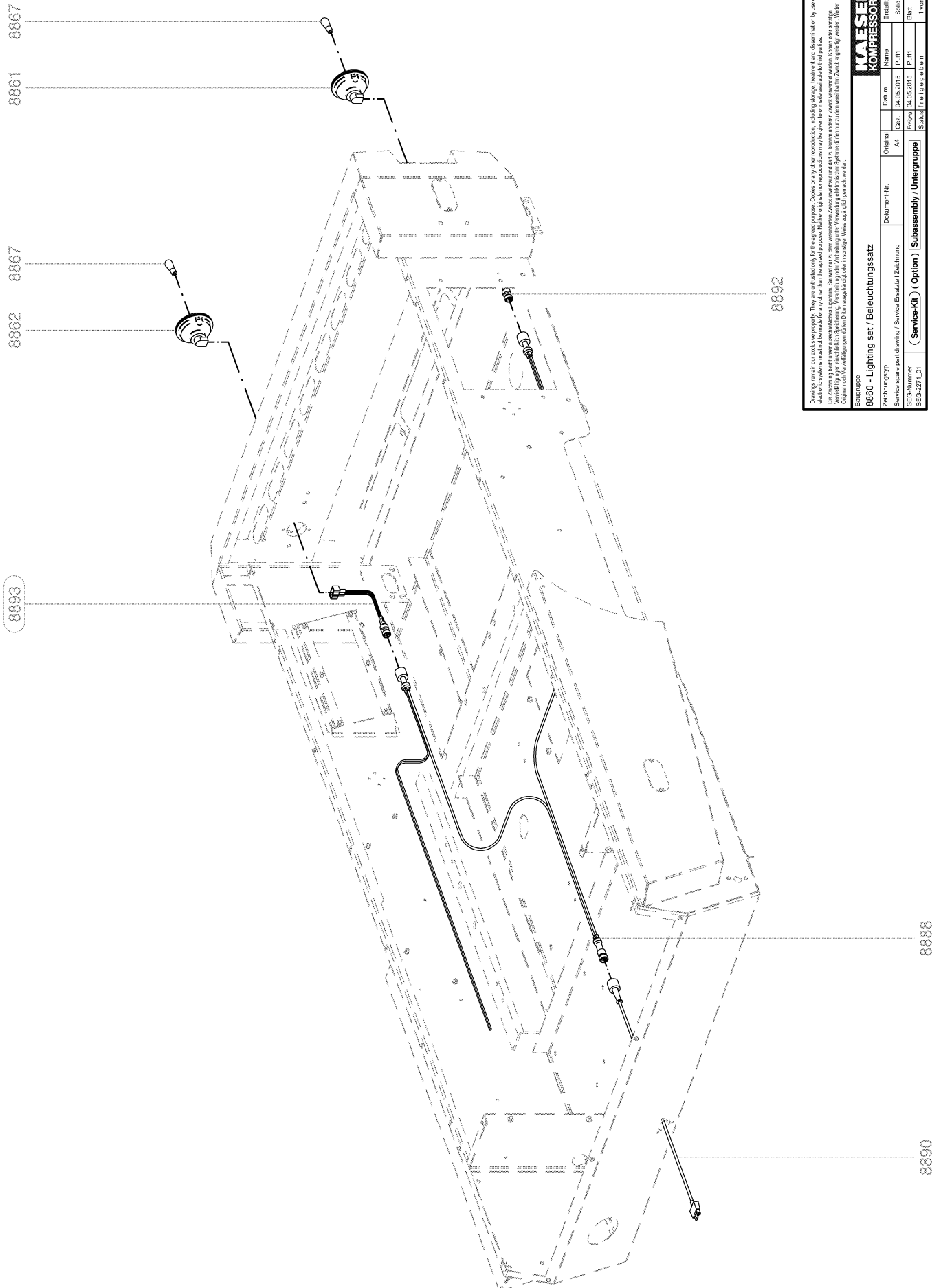


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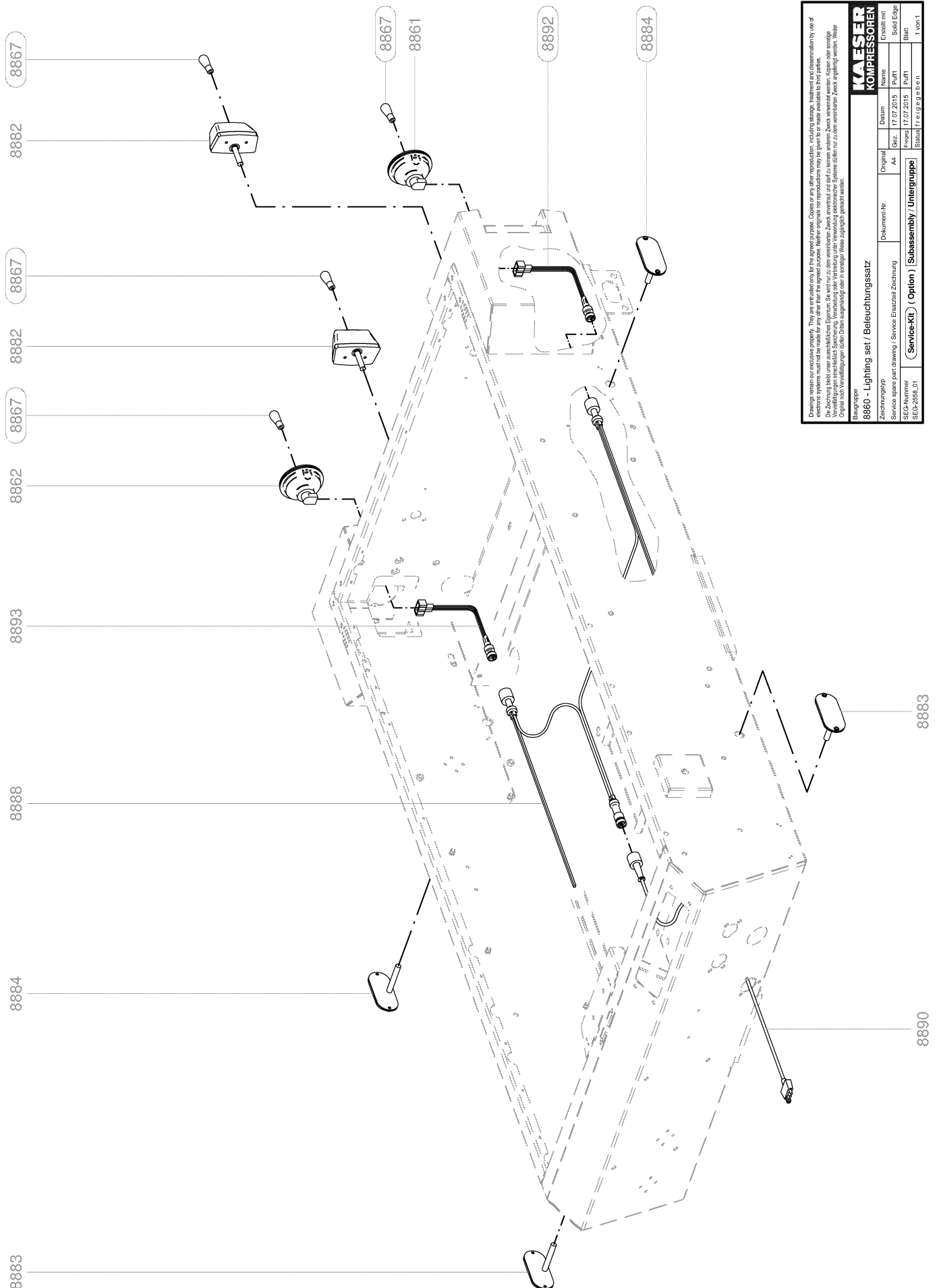
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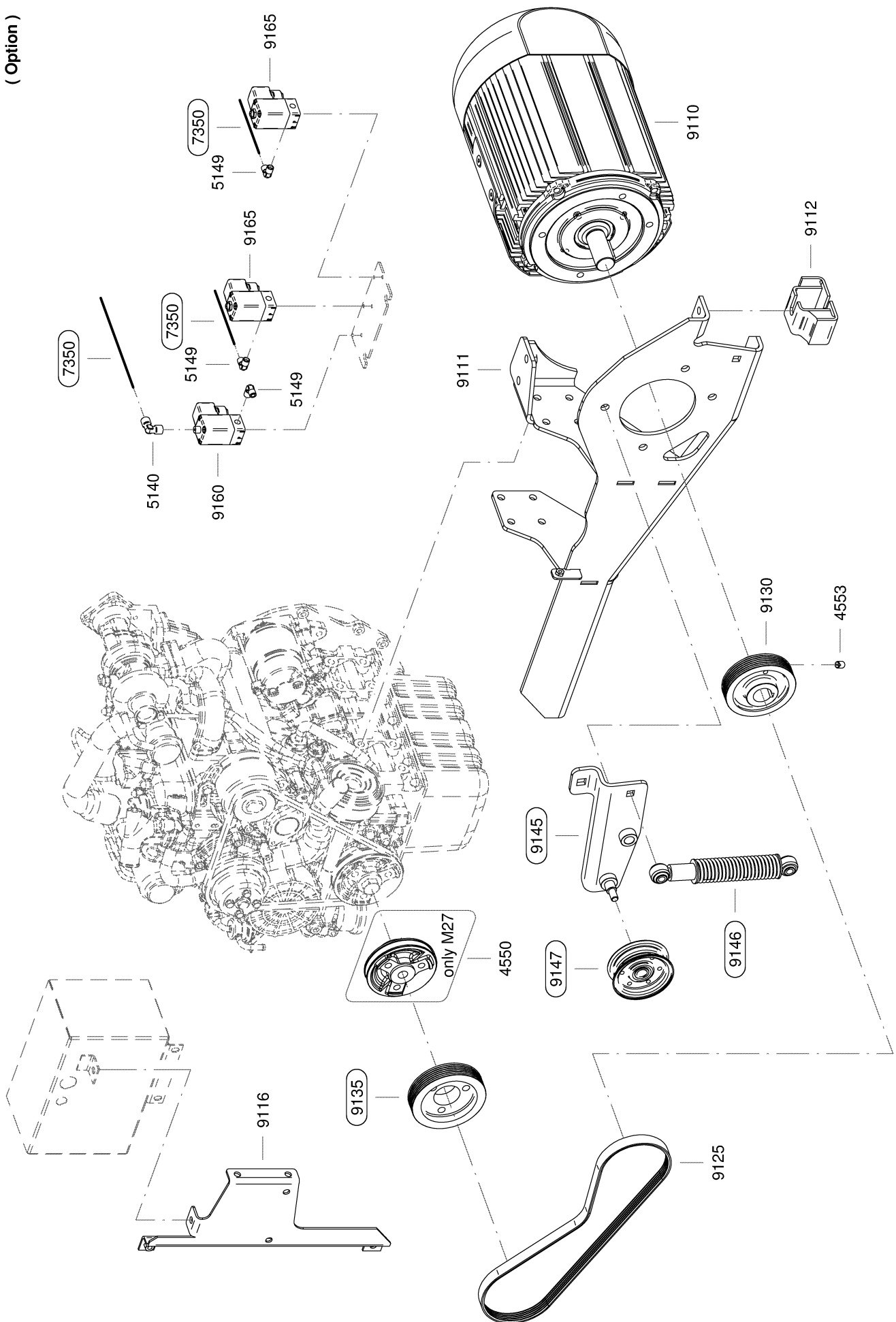
KAESER KOMPRESSOREN									
8860 - Lighting set / Beleuchtungssatz									
Zeichnungsgruppe	Dokument-Nr.	Original	Datum	Name	Erstellt mit				
Service spare part drawing / Service Ersatzteil Zeichnung	A4	04.05.2015	Perf1	Perf1	Solid Edge				
SEGA-Nummer	04.05.2015	Perf1	Perf1	Perf1	Blatt				
SEG-2271_01	04.05.2015	Perf1	Perf1	Perf1	1 von 1				
(Service-Kit) (Option) / Subassembly / Untergruppe									



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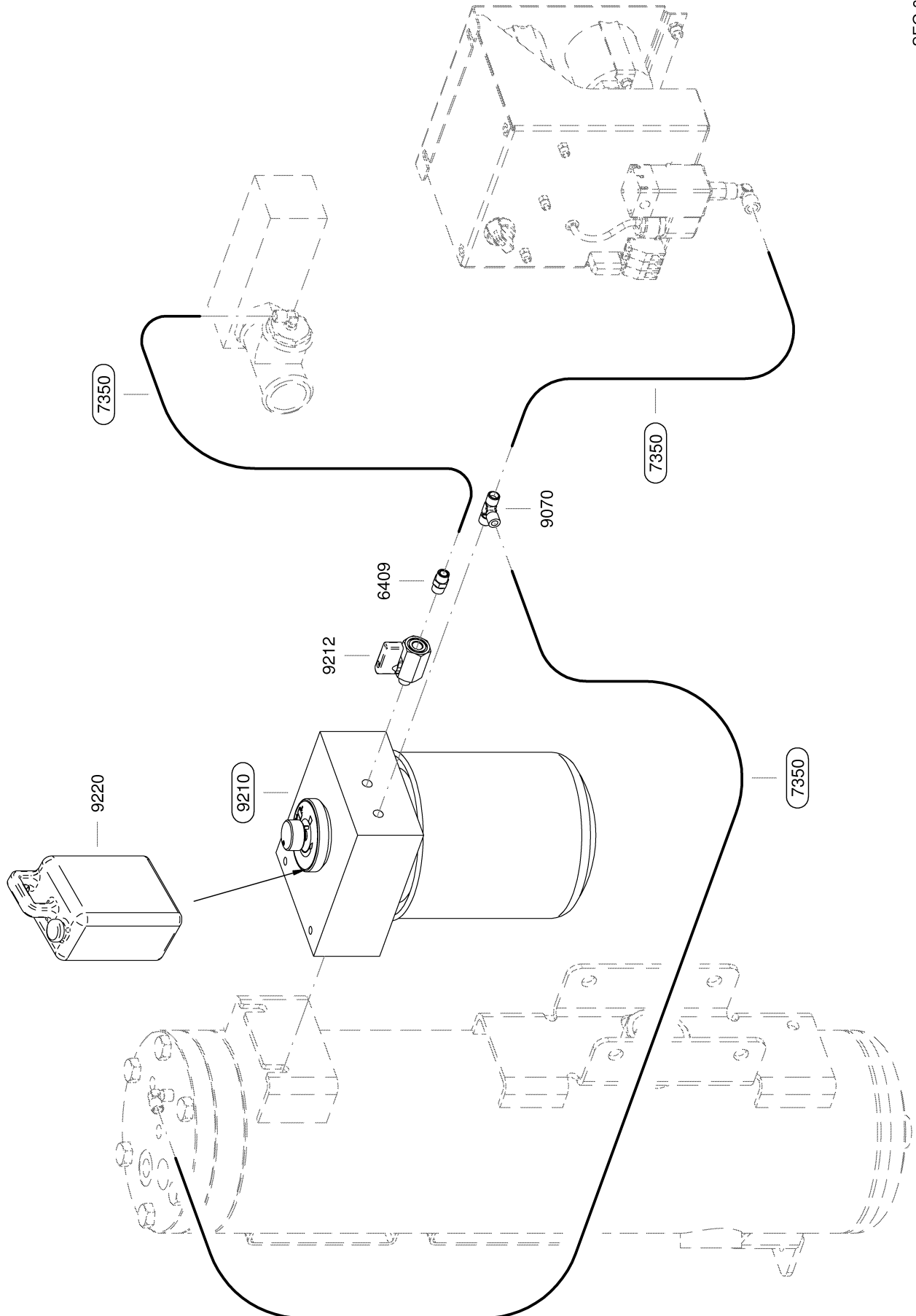
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Baugruppe		8860 - Lighting set / Beleuchtungssatz		KAESER KOMPRESSOREN	
Zeichnungsgrupp		Service spare part drawing / Service Ersatzteil Zeichnung		Einzelteil mit	
Dokument-Nr.		Original		Name	
A4		Gez.		17.07.2015	
Puffi		Puffi		Soll	
Soll		Puffi		17.07.2015	
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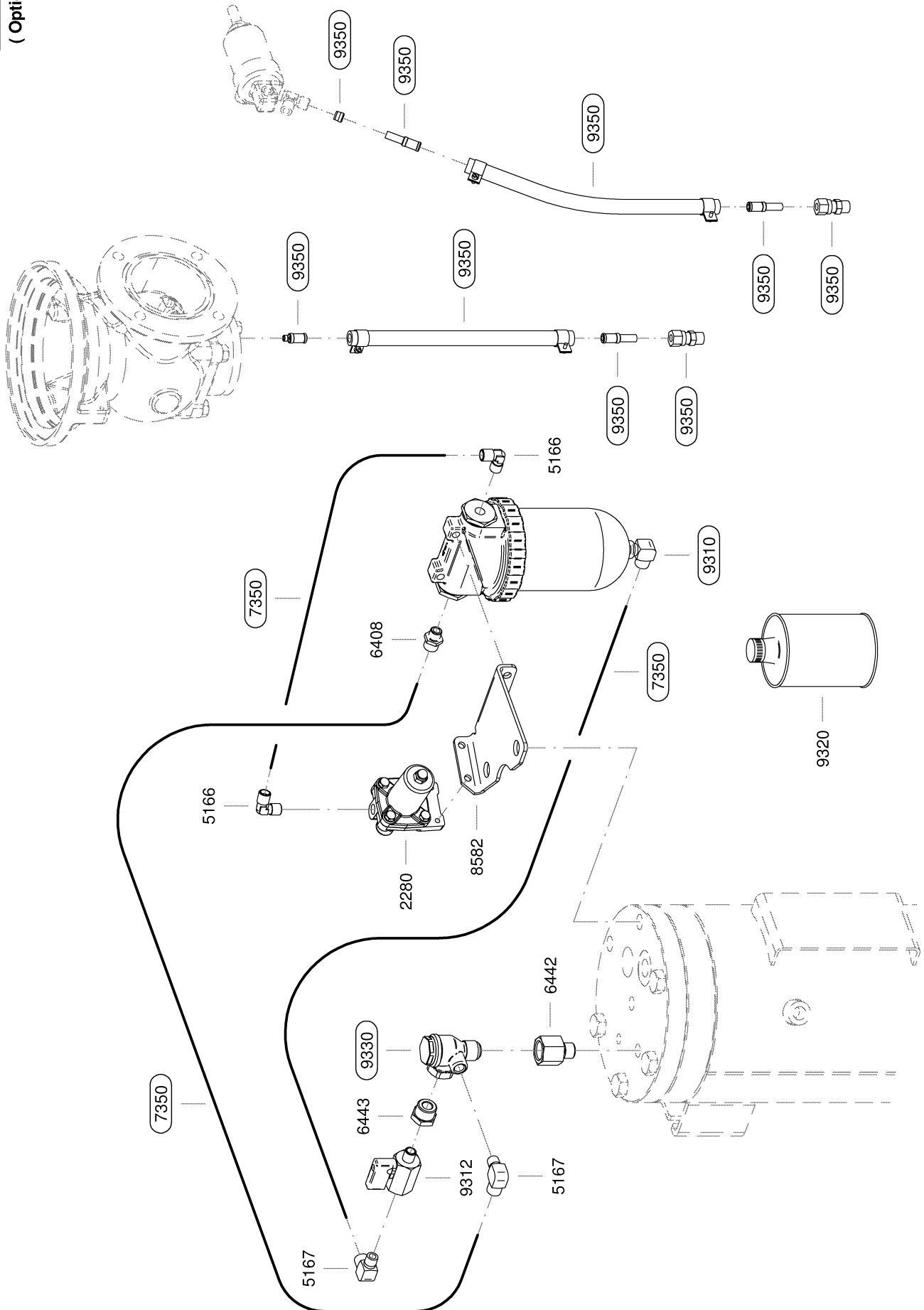


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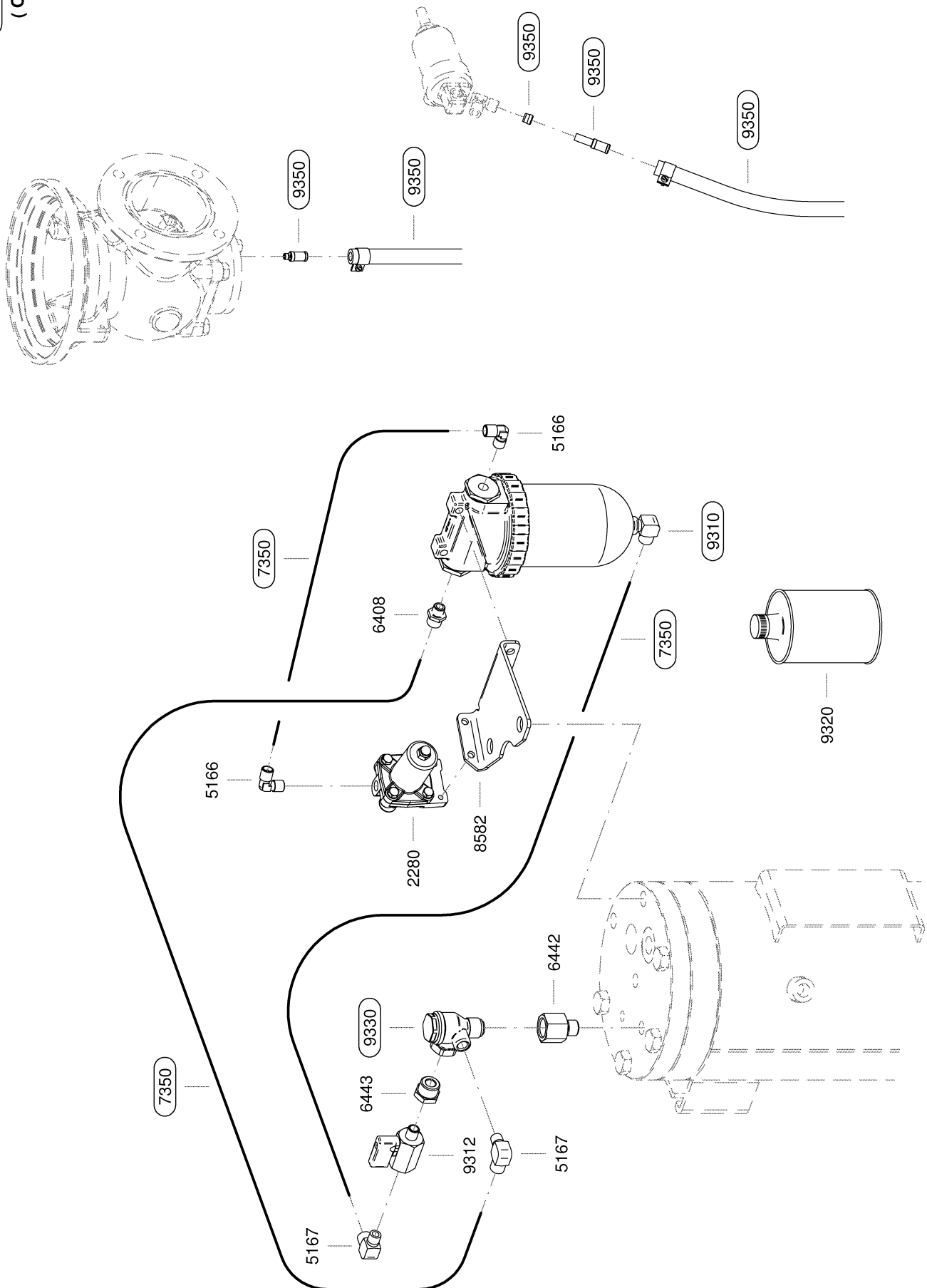


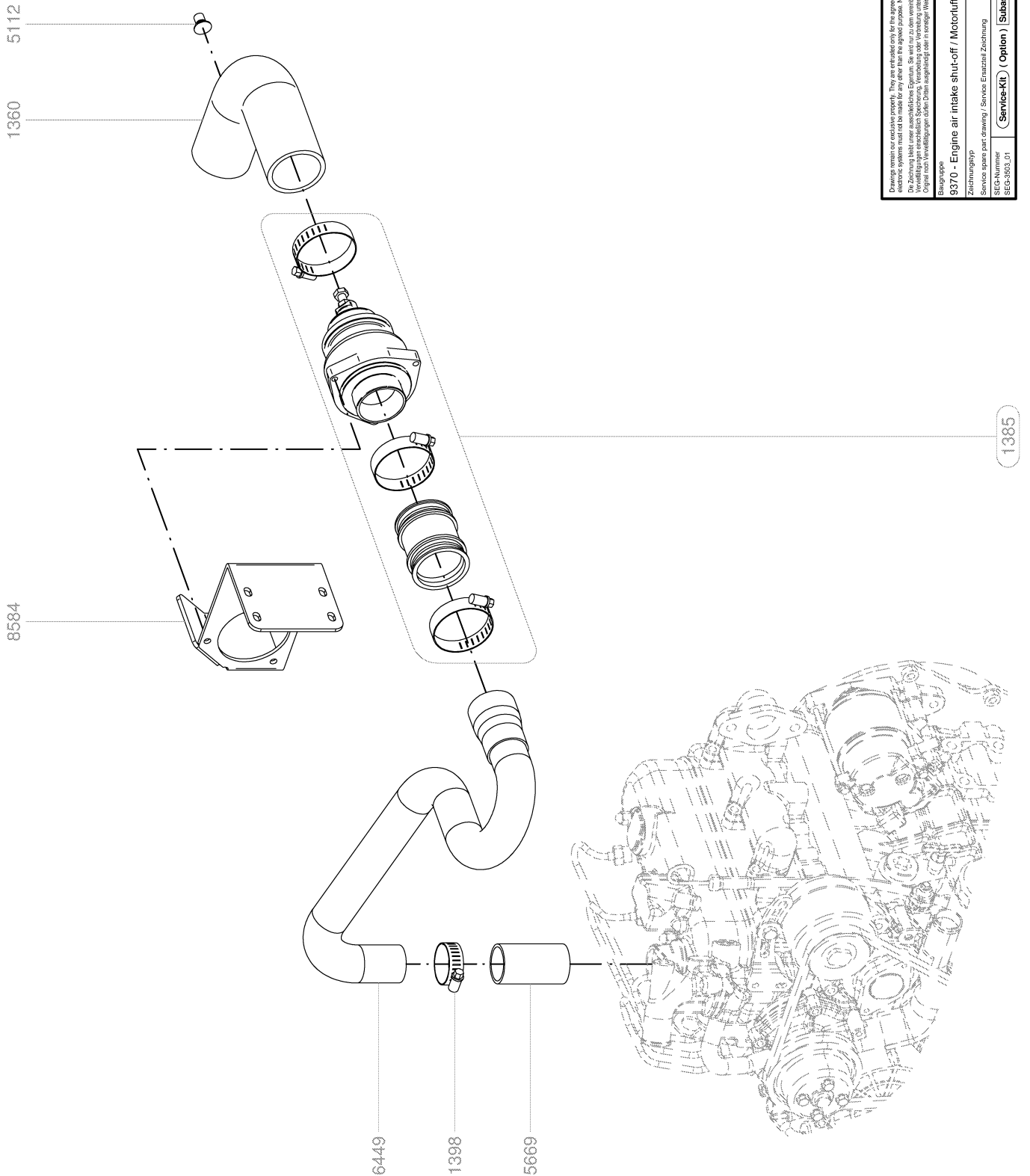
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(Option)



Service-Kit
(Option)

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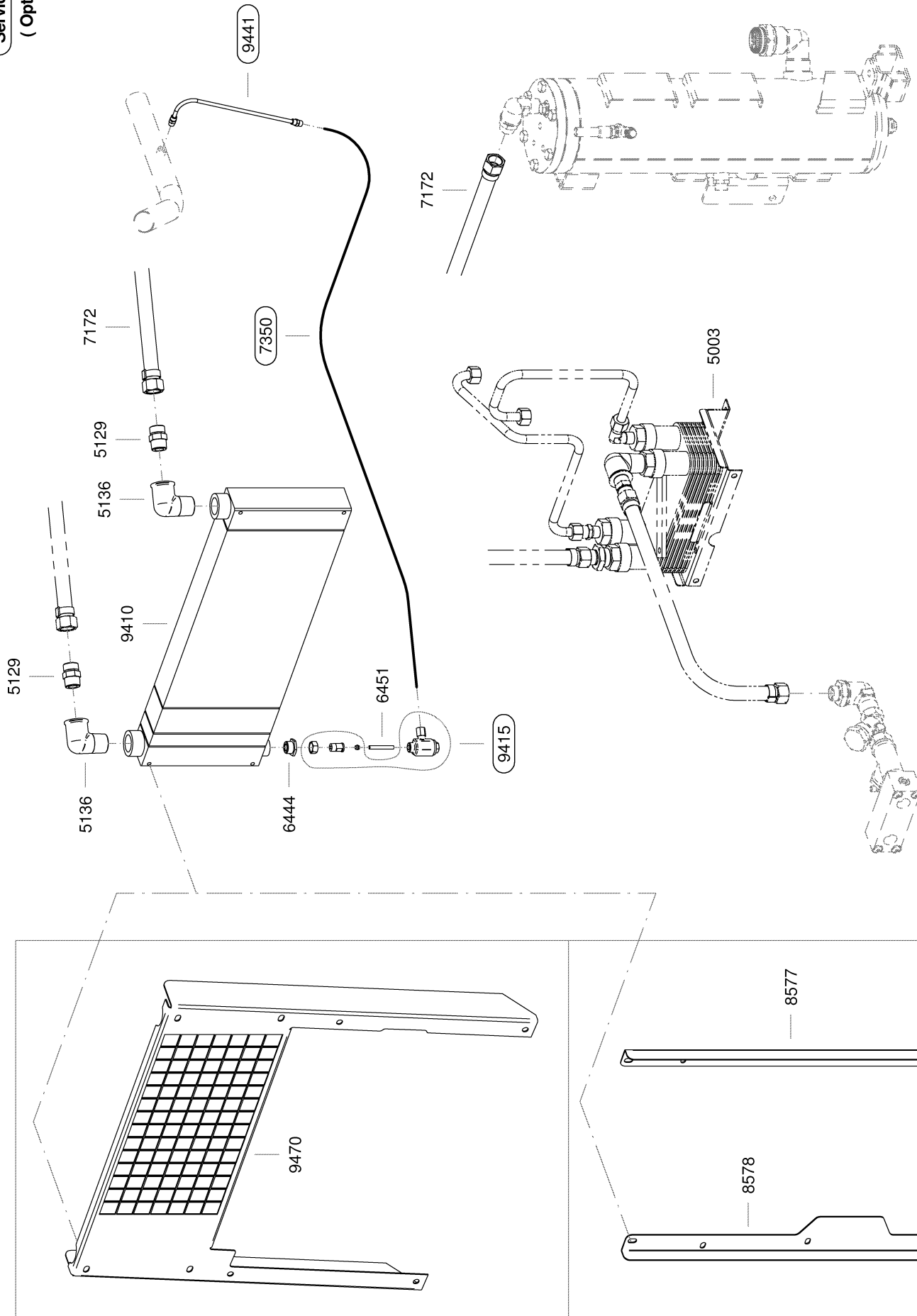




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9370 - Engine air intake shut-off / Motorluftabspernung									
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Service-Kit (Option) / Subassembly / Untergruppe									

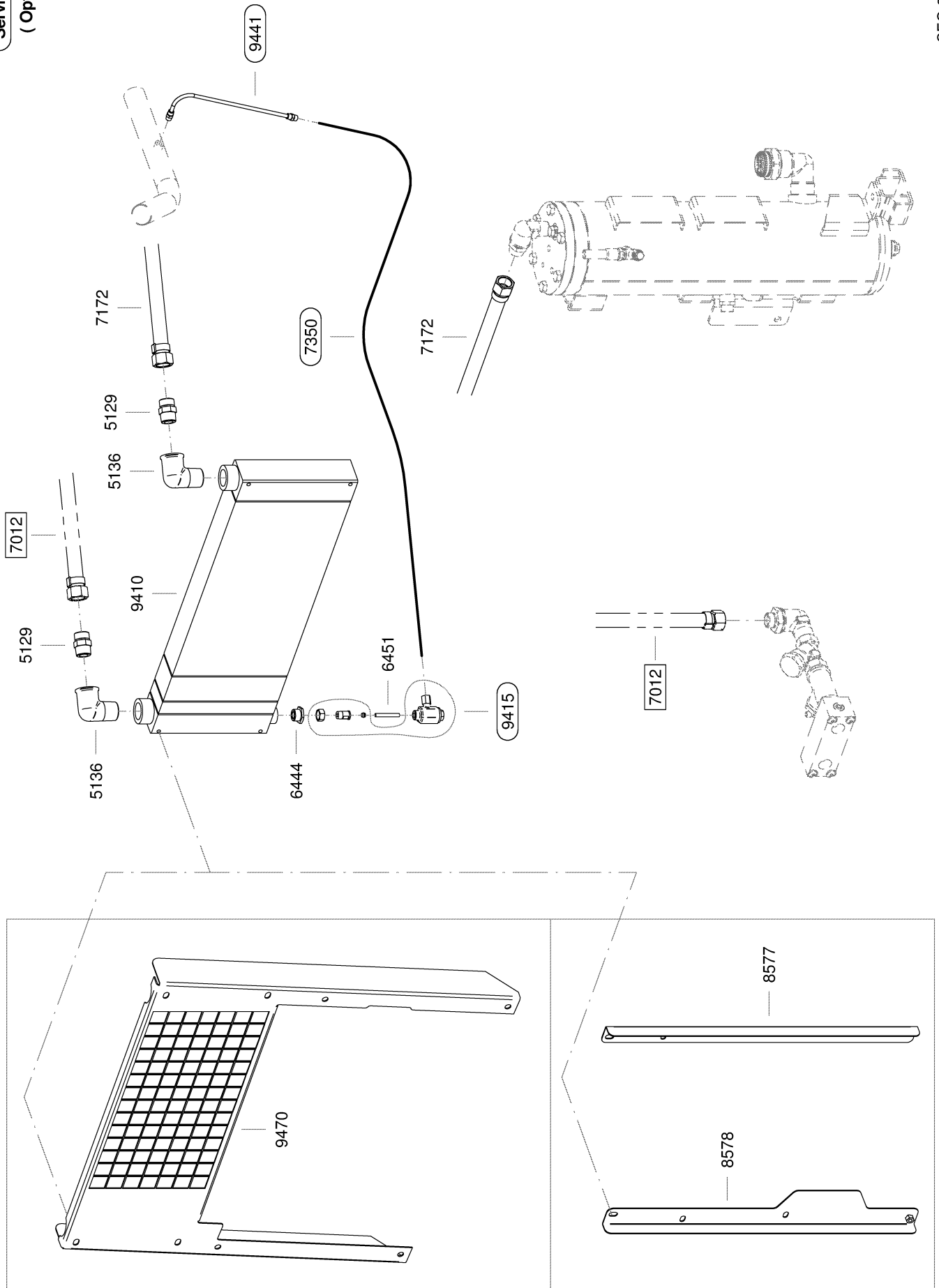
Service-Kit
(Option)

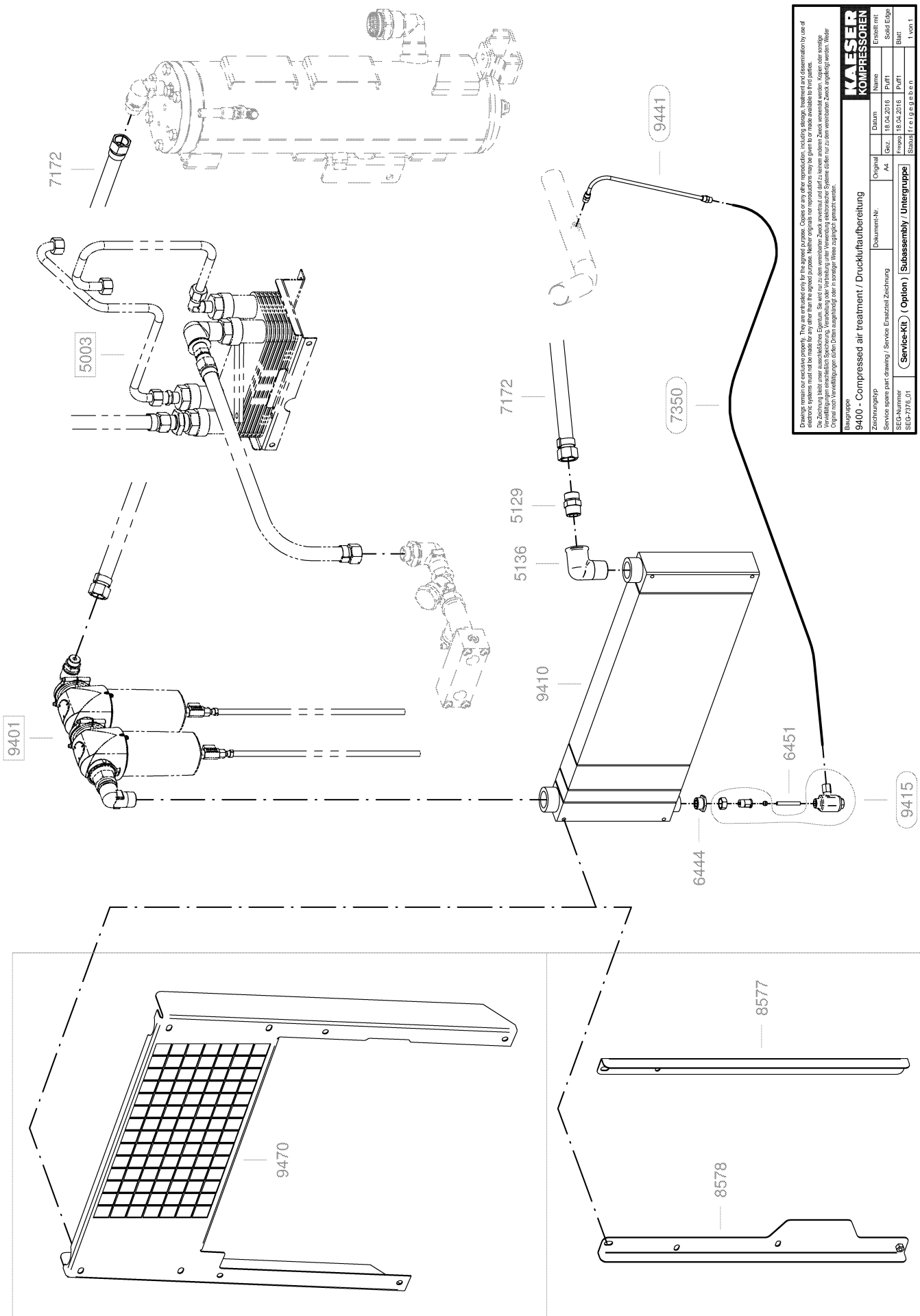
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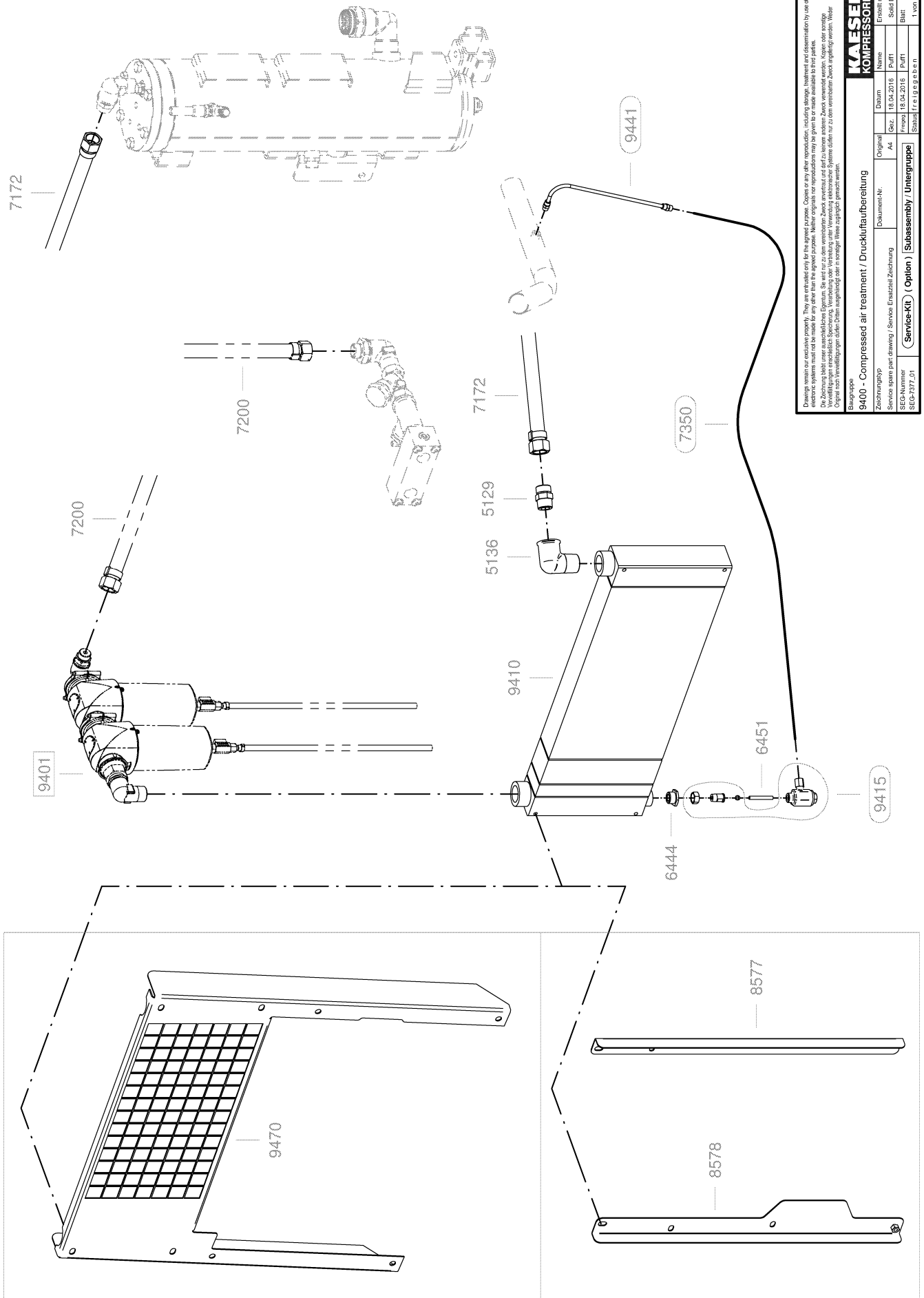
Service-Kit
(Option)

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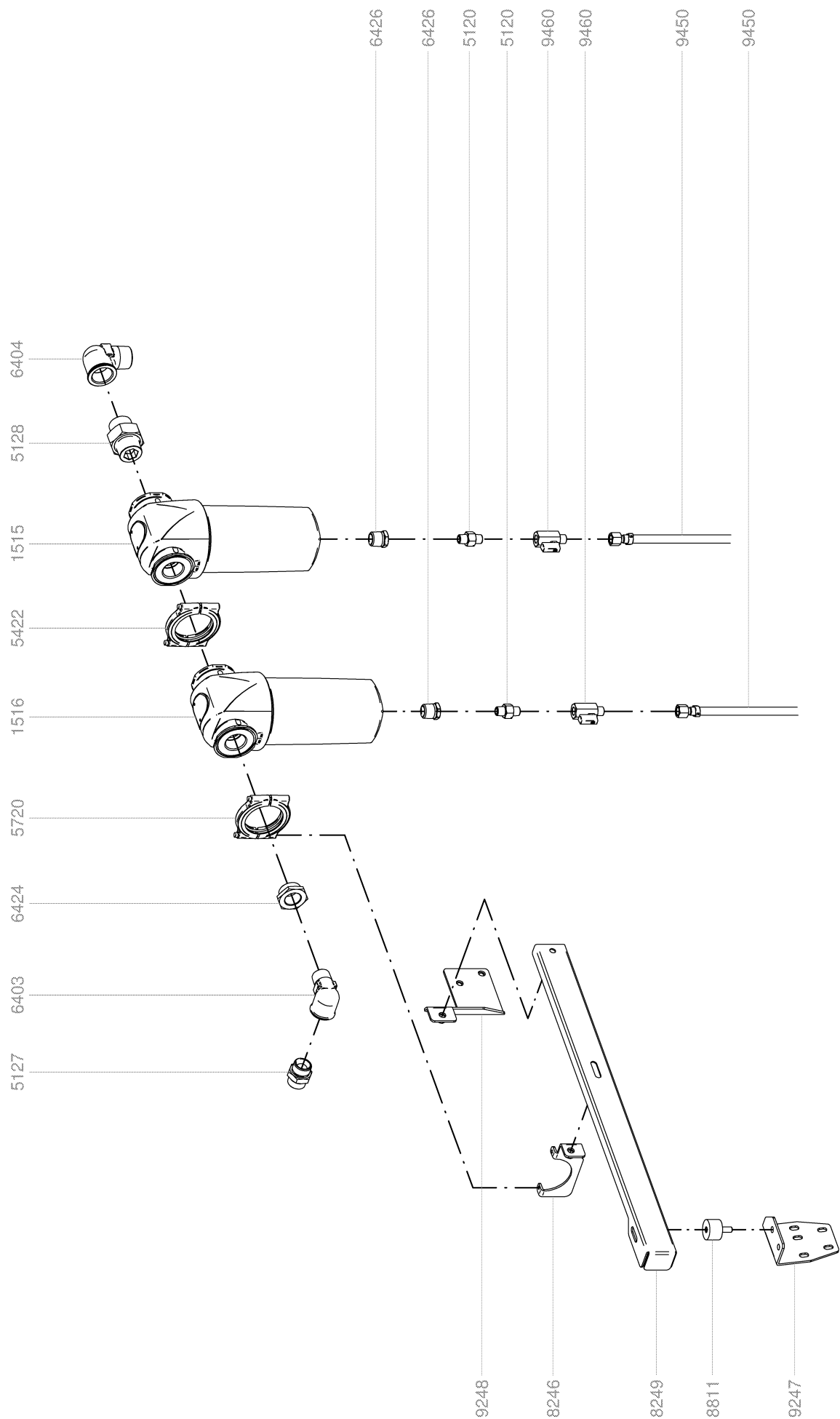




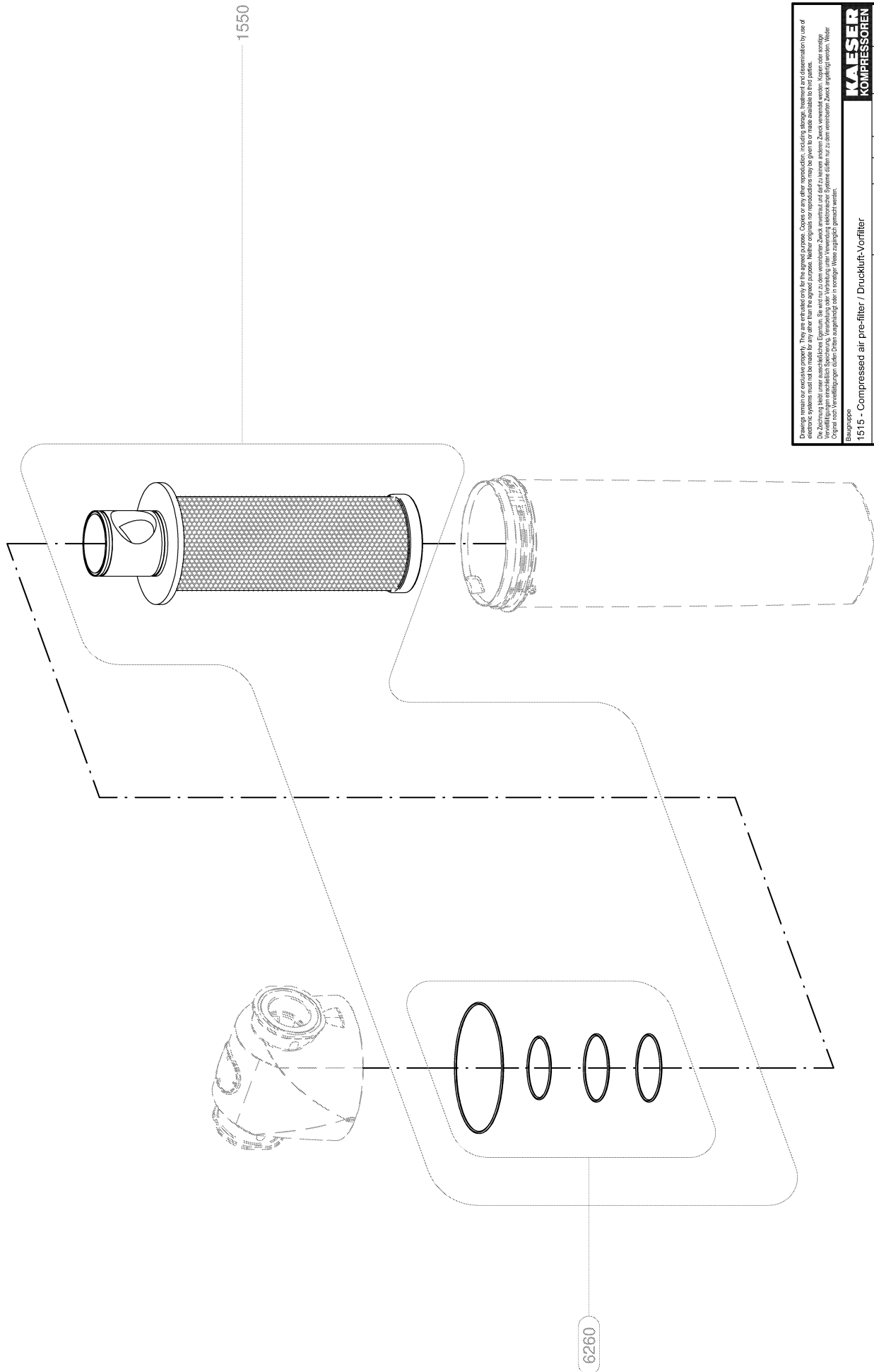
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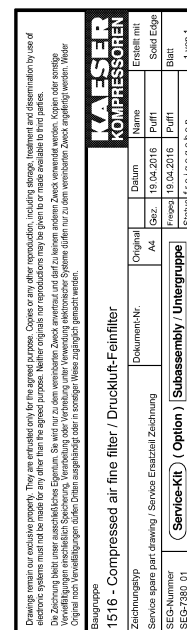


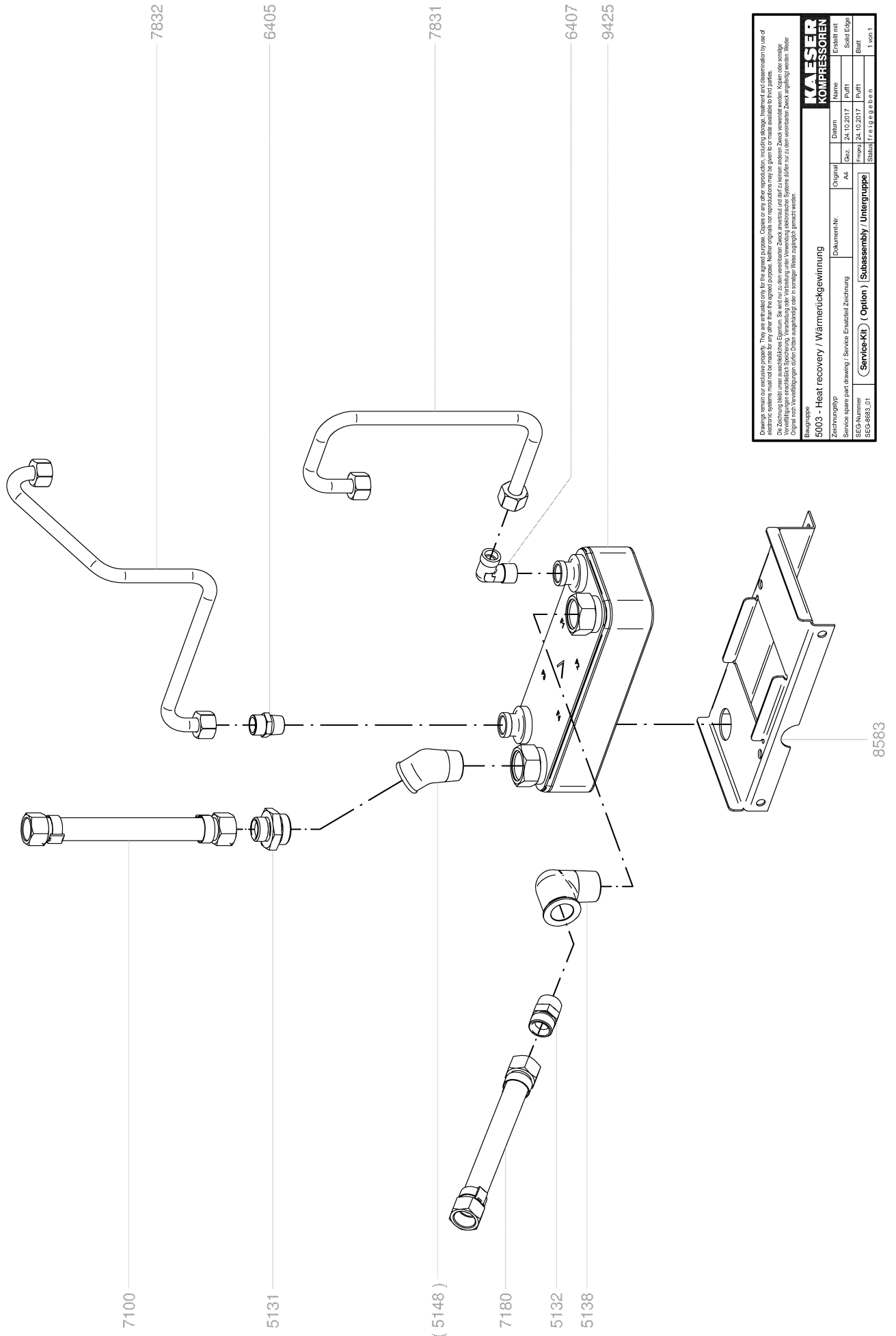
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KAESER KOMPRESSOREN									
Baugruppe 9401 - Option combination filter / Option Filterkombination									
Zeichnungsgruppe	Original	Name	Datum	Erstellt mit					
Service spare part drawing / Service Ersatzteil-Zeichnung	A4	Gez.	18.04.2015	Perf1					
SEGA-Nummer		Freigegeben	19.04.2015	Perf1					
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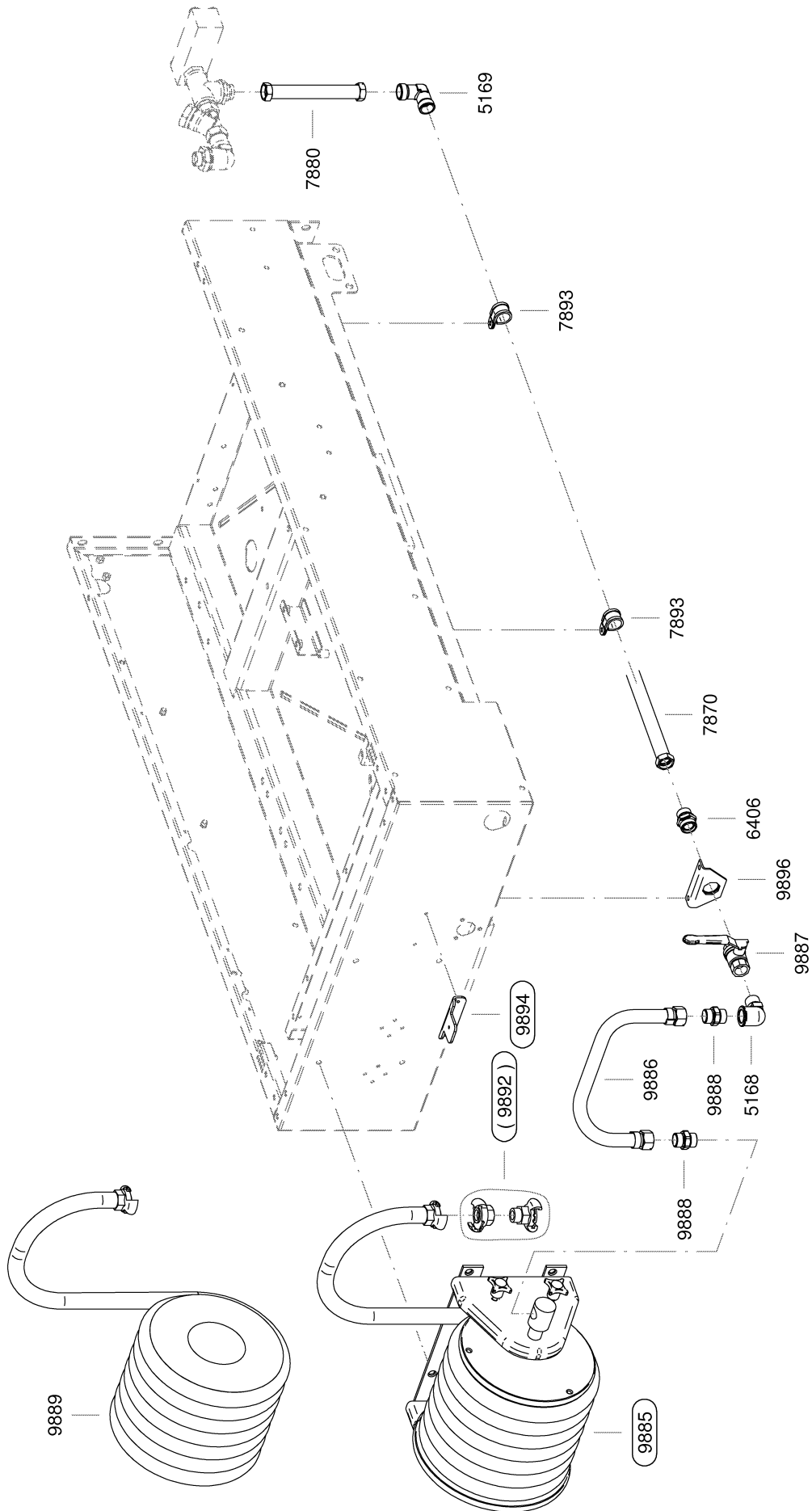




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Service-Kit
(Option)

SEG-3507_01



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 negative 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. 92 "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	Complied?
➤ Check engine coolant.	10.3.1	
➤ Drain the engine oil.	10.3.4	
➤ 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 10.3.4	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery, the negative terminal first and then the positive terminal, and store in a frost-free room.	–	
➤ Check the battery fluid level.	10.6.2	
➤ 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: <ul style="list-style-type: none"> ■ Engine air inlet ■ Compressor air inlet ■ Exhaust silencer 	–	
➤ Clean the bodywork and treat with preservative.	–	
➤ Hang a notice on the instrument panel informing of the decommissioning measurements taken.	–	

Tab. 93 "Long-term decommissioning and storage" checklist

- Hang the following notice on the instrument panel informing 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 the service manual.

Date / signature

Tab. 94 "Long-term decommissioning and storage" information notice

- Store in a dry place with consistent temperature.

12.2 Transport

To locally move the machine or to transport the machine as load, you can, depending on the option, decide for one of these transport options:

- Transport with a crane.
 - Transport by crane is allowed for all machines with crane lifting eye.
- Transport with a forklift truck.
 - Transport by forklift truck is allowed only for stationary machines with the frame designed as skid (Option rw).
- Transporting the machine as load.



Transporting the machine as trailer on public roads is shown in the chassis operating manual.

Precondition The machine is shut down.

The machine is secured against unintentional activation.

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

The machine has cooled down.

All compressed air consumers are disconnected.

All connecting lines and hoses disconnected and removed.

Any loose or movable parts that could fall off when transporting are removed or secured.

- Comply with all instructions.

12.2.1 Safety



Allow transport only by personnel trained in safely dealing with motor vehicles and the transport 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 transported is strictly forbidden.*

2. Make sure the danger area is clear of personnel.

12.2.2 Transporting 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 center 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 center of the canopy.

Precondition The canopy is closed and locked

1. Open the lifting eye cover.
2. Position the crane hook vertically over the lifting eye.
3. Engage the hook in the eye.
4. Lift the machine 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.

12.2.3 Option rw Transport with a forklift truck

Stationary machines with skid frame (Option rw) are fitted with lifting lugs into which forks can be driven. Only stationary machines with skid-type frames may be lifted and locally transported with a forklift truck.

Precondition The machine weight is known (nameplate).
A suitable forklift truck (designed for the machine weight) is available.
The machine is switched off.
All connecting lines and hoses disconnected and removed.

- Comply with all instructions.

12.2.3.1 Preparing for transport

When using a forklift truck to transport a stationary machine with skid-type frame, you must first drive the forks into the lifting lugs.

NOTICE

Incorrect fork placement can damage the machine!

➤ *Insert the lifting forks only into the lifting lugs provided.*

Option rw

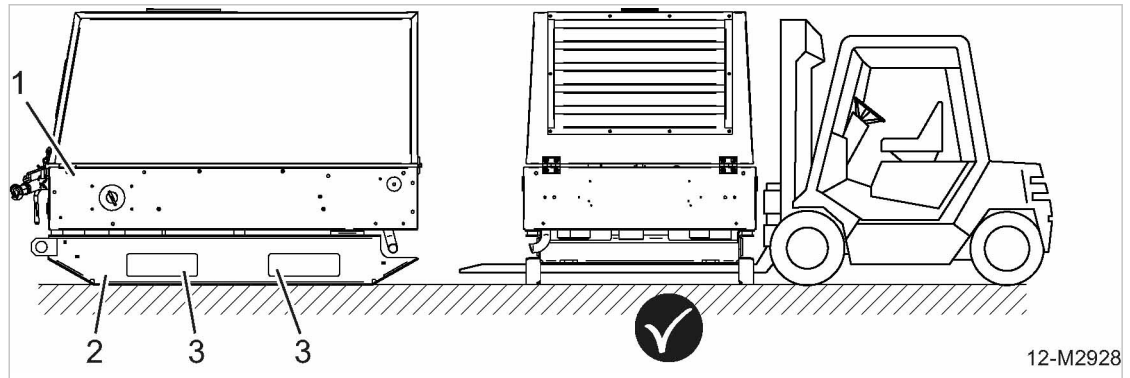


Fig. 62 Preparing for transport using a forklift truck

- | | |
|--------------------------|-------------------------------------|
| ① Transverse side | ③ Lifting lugs |
| ② Skid-type frame design | ④ Forks pushed through lifting lugs |

Precondition The machine is parked on even ground.

1. Close and lock the canopy.
2. Position the forklift truck to the transverse side of the machine with the forks opposite to the lifting lugs.
3. Align the forks with the machine's lifting lugs.
4. Carefully drive the forks over the full length through the lifting lugs.

Result Forks are driven over the full length through the lifting lugs.

12.2.3.2 Lifting the machine with a forklift truck

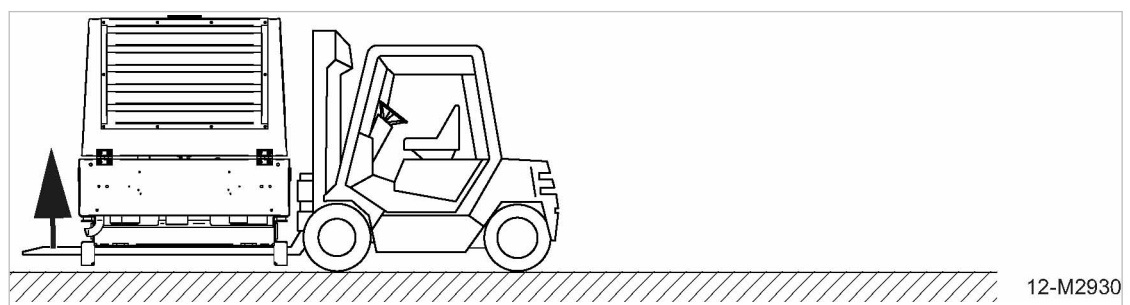


Fig. 63 Lifting the machine with a forklift truck

Precondition The machine is parked on even ground.

➤ Lift the machine carefully.

Result The machine rests fully on the lifting forks.

Proper transport position and transport elevation (minimum clearance to ground) for horizontal transport are given.

12.2.3.3 Transport with a forklift truck

Example: The machine is unloaded from the loading bay or loading platform and transported from A to B.

Following the unloading from a loading bay or loading platform, always lower the elevated forks as a prerequisite for horizontal transport.

Precondition The machine is unloaded and rests on the forks.
The forks are elevated, see Fig. 64.

⚠ CAUTION

*The machine falls off the elevated forks during transport!
Heavy machine damage.*

➤ After unloading from the loading bay or loading platform, lower the forks immediately.

Option rw

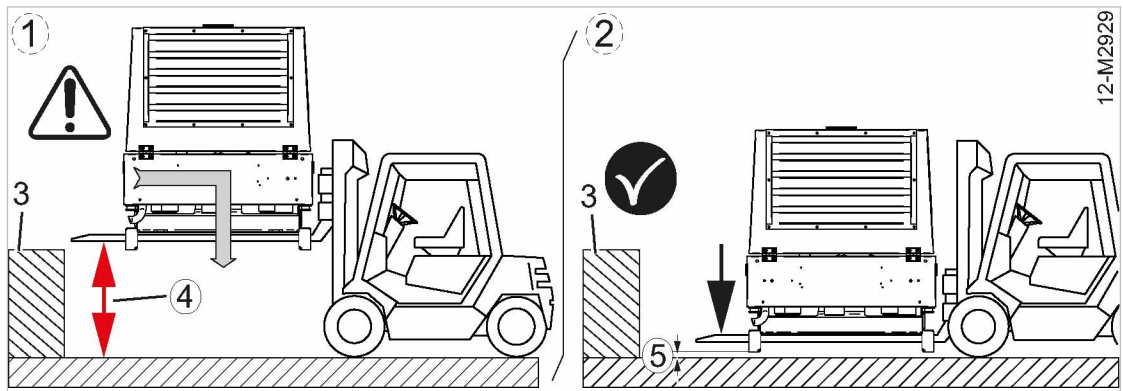


Fig. 64 Transport with a forklift truck

- | | |
|--|--------------------------------|
| ① Lifting the machine from loading bay or loading platform | ④ Improper transport elevation |
| ② Lowering the machine for horizontal transport | ⑤ Proper transport elevation |
| ③ Loading bay or loading platform | |

1. Carefully reverse the forklift truck with machine from the loading bay or loading platform.
2. Reverse the forklift truck until you have sufficient clear space to lower the forks.
3. Lower the forks immediately.
4. Lower the forks until the proper transport elevation (minimum clearance to the ground) is reached.
5. Transport the machine on the lowered forks from A to B.

12.2.4 Transporting 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.

Always observe valid accident and safety regulations when transporting.



- 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.
- Responsibility for properly secured loads falls on the driver, the vehicle keeper, and the carrier.



Contact KAESER 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.

Use the following transport safety devices:

- Wedges
- Squared timbers
- Restraints
- Straps

Material Chocks

Restraints or timber beams

Straps

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.*
- *Stationary machines with skid-type frames or rack may only be secured by means of straps across the chassis.*

- Comply with all instructions.

Further information Additional measures must be taken for the transport of machines by sea or air. Please contact KAESER for more information.

12.2.4.1 Perform load securing for portable machines

If necessary, use straps or other bracket systems across the chassis.

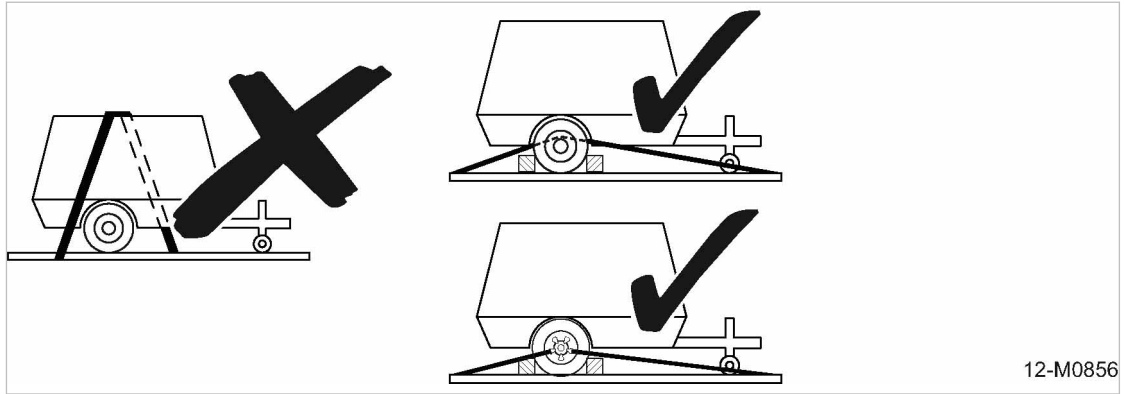


Fig. 65 Bracket systems as load securing (machine with chassis)

- The loads must be secured against rolling, tipping, slipping and falling.

12.2.4.2 Perform load securing for stationary machines

If necessary, use straps or other bracket systems across the skid-type frame/rack.

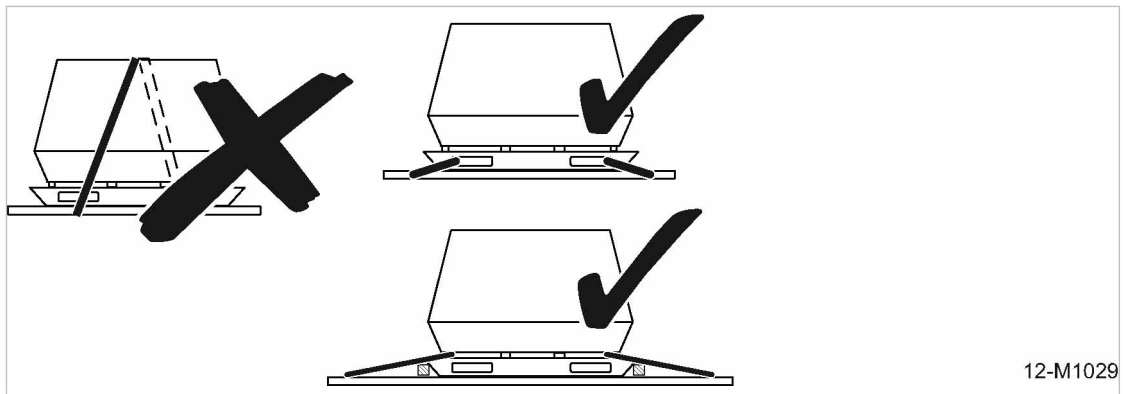


Fig. 66 Bracket systems as load securing (machine in stationary frame-type design)

- The load must be secured against rolling, tipping, slipping and falling.

12.2.4.3 To be noted 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. All hazardous materials must be removed.
 These include:
 - Residues of fuel or fuel vapors.
 - Lubricating and cooling oils in the engine and compressor unit.
 - Electrolyte charges in rechargeable batteries.
 - 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 $>32^{\circ}\text{F}$.
-
- 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.

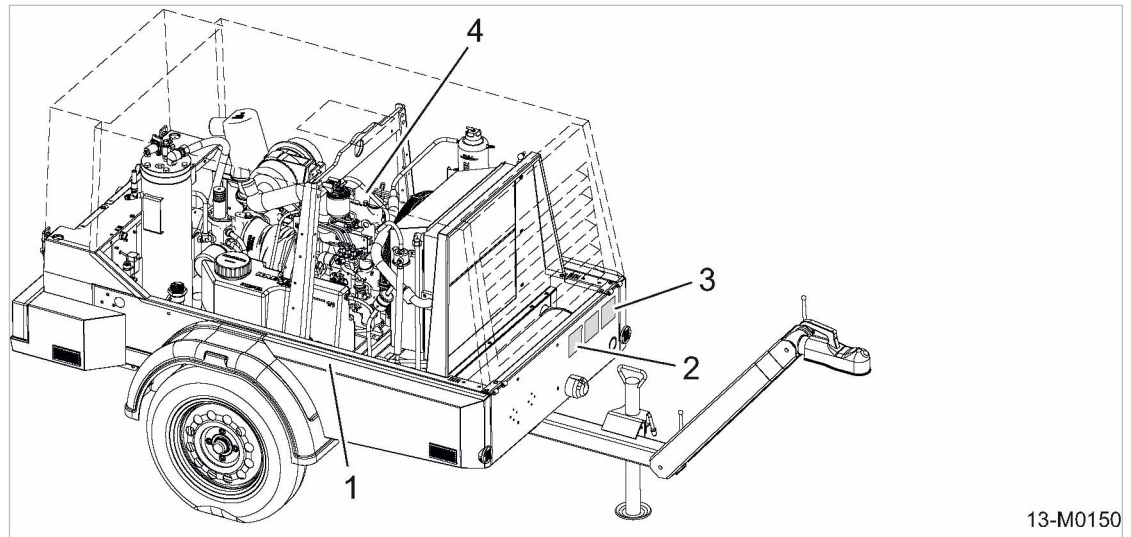
1. Completely drain the fuel from the machine.
2. Completely drain the cooling oil and engine oil from the machine.
3. Remove used filters and the oil separator cartridge.
4. Drain the coolant from water-cooled engines and systems.
5. The battery has been removed.
6. Hand the machine over to an authorized 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.
- Old batteries are hazardous waste and must be disposed of correctly in accordance with local environmental protection regulations

13 Annex

13.1 Identification

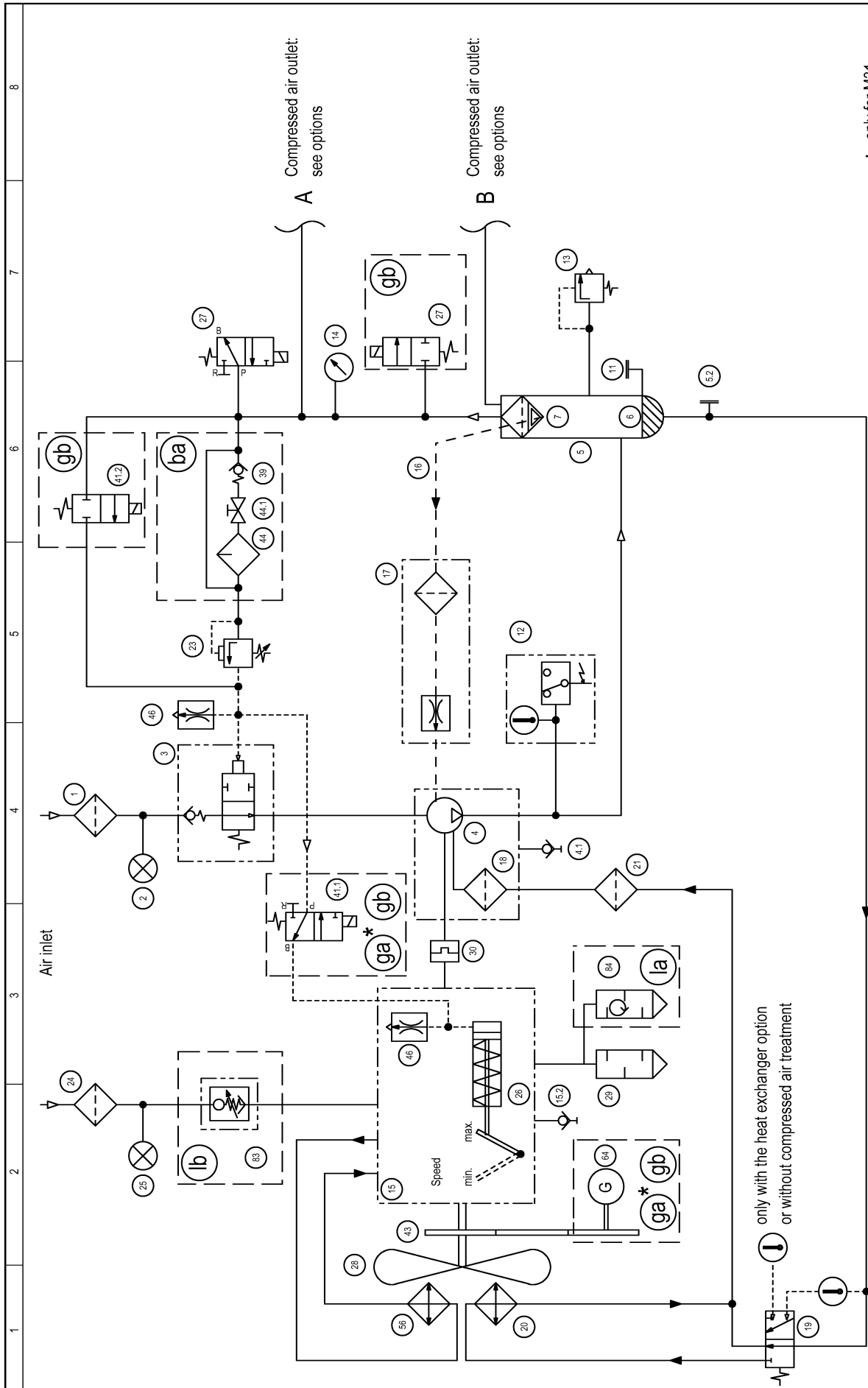


13-M0150

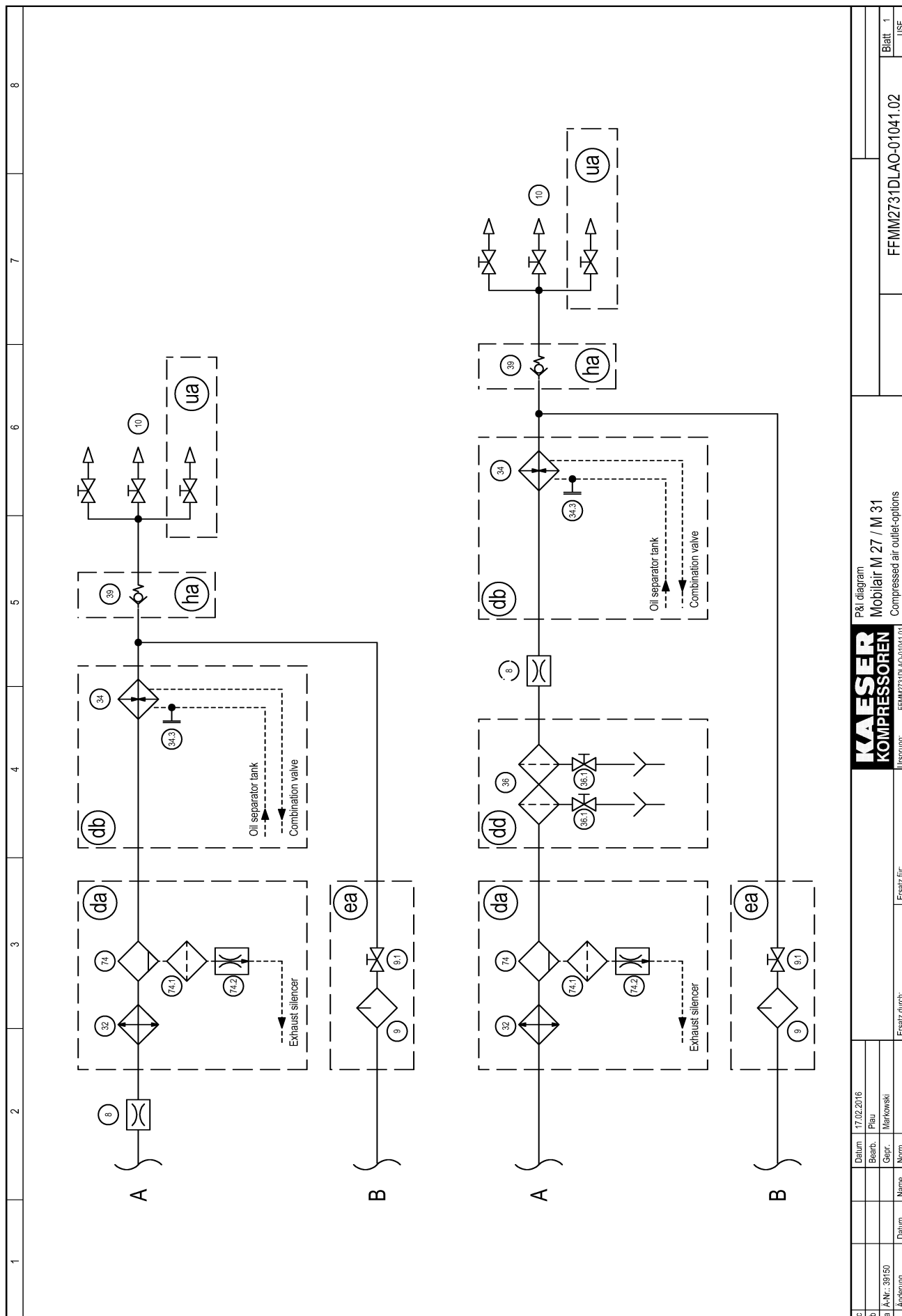
Fig. 67 Identification

- | | |
|--|--|
| ① VIN* (stamped into the bodywork)
*Vehicle Identification Number | ③ Machine nameplate with serial number |
| ② Options label | ④ Engine nameplate with serial number |

13.2 Pipeline and instrument flow diagram (P+I diagram)



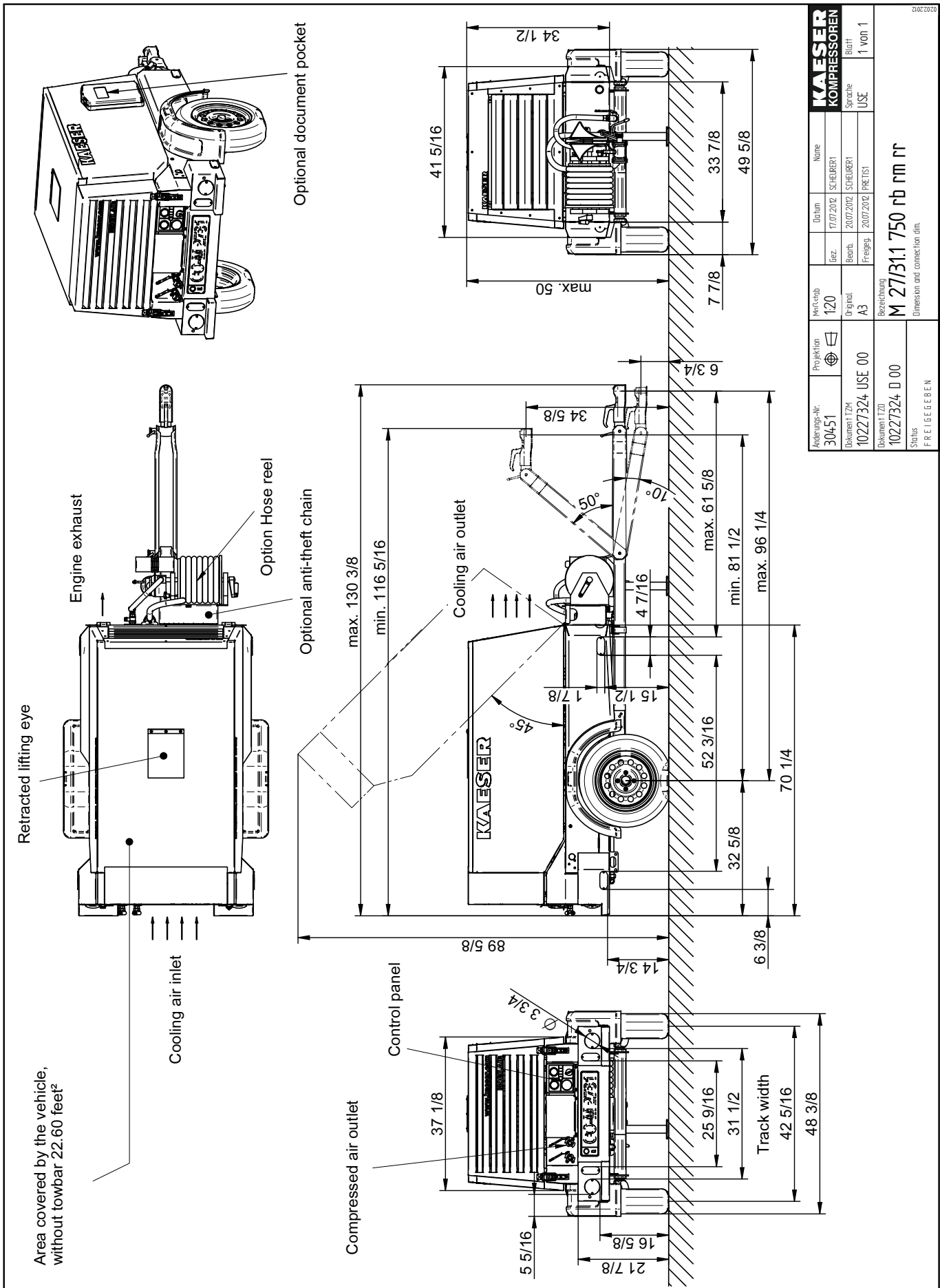
c		Datum	17.01.2014	P&I diagram	
b		Bearb.	Plau	Mobilair	
a	340829920	Gepr.	Markowski	M 27 / M 31	
Änderung	Datum	Name	Norm	Ersatz durch:	Ursprung:
					FFMM2731ST-01040.02
				Ersatz für:	FFMM2731ST-01040.03
					Blatt 1
					USE



13.3 Dimensional drawings

13.3.1 Option rb/rm/rr Dimensional drawing – chassis

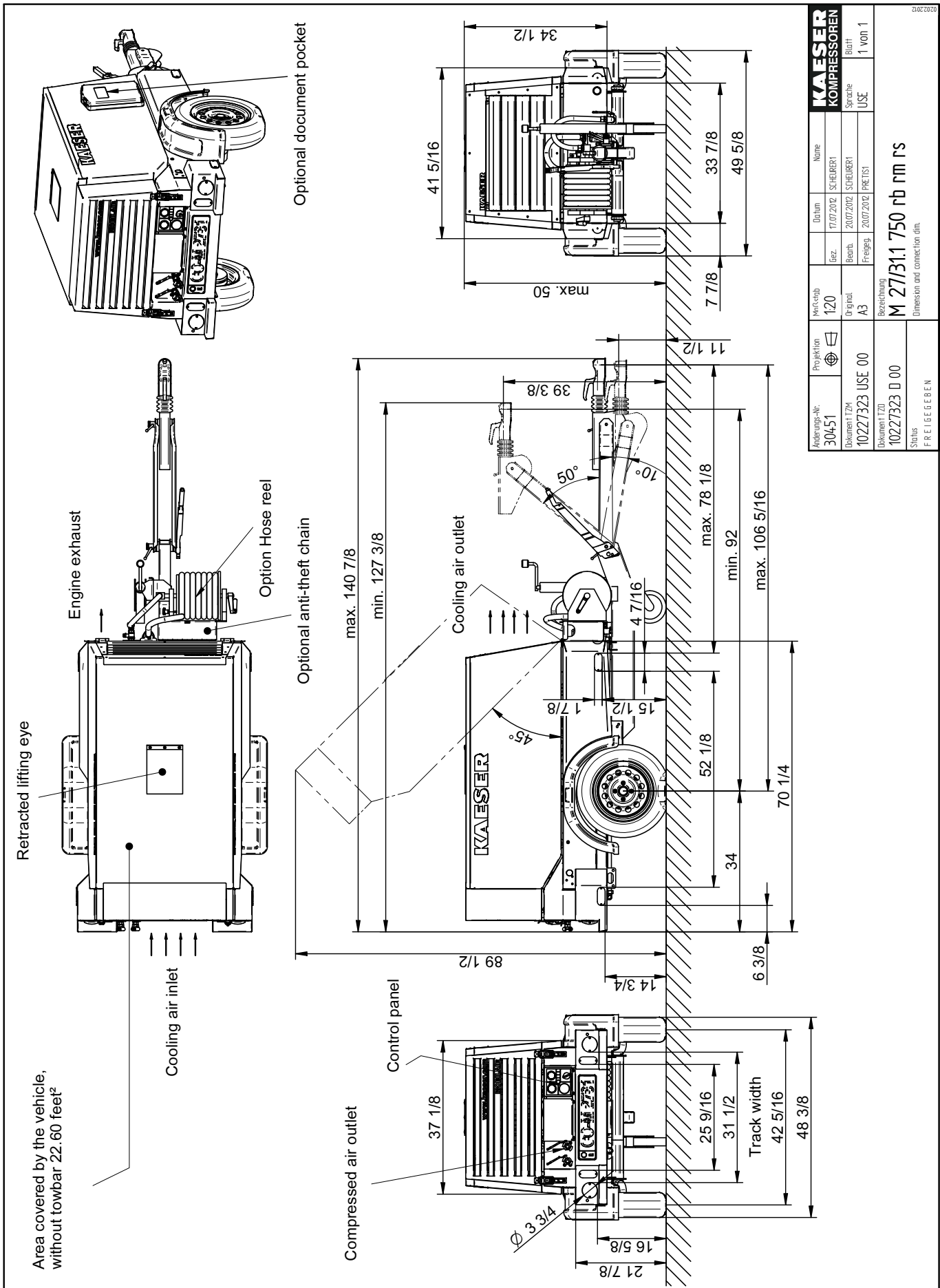
- Option rb - Chassis EU version
- Option rm - Chassis with height adjustment
- Option rr - Chassis without service brake



Anforderungs-Nr. 30451		Projektion 	Metzger 120		Name	
Dokument T24 10227324		USE 00	Gez. 17.07.2012		SE-UEBER1	
Dokument T20 10227324		0 00	Bezugs- 20.07.2012		SE-UEBER1	
Status FREIGEBEN			Freigeleg. 20.07.2012		PRETIS1	
			Seitenbezeichnung M 27/311 750 rb rm rr		Spreche USE	
					Blatt 1 von 1	

13.3.2 Option rb/rm/rs
Dimensional drawing – chassis

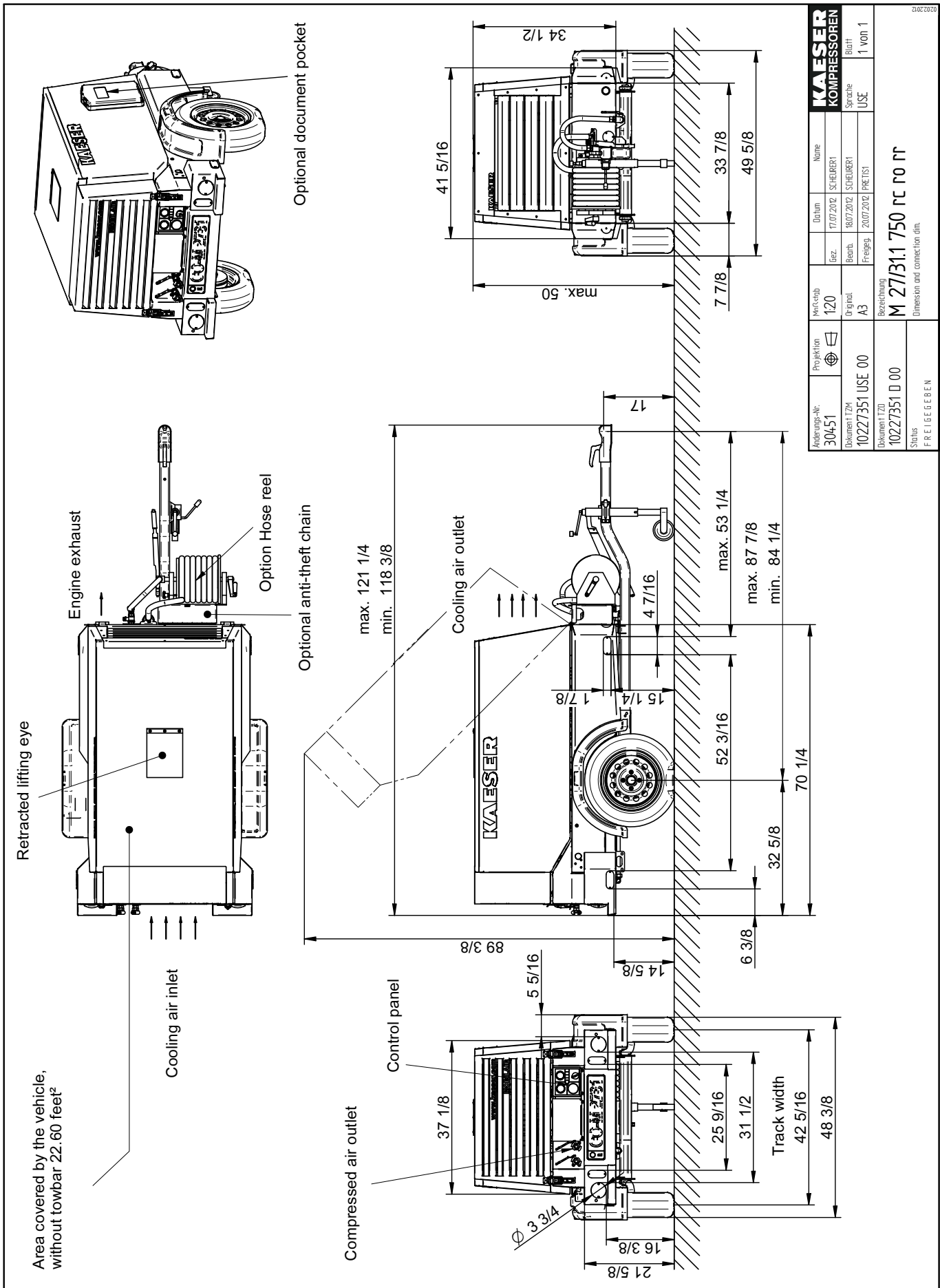
- Option rb - Chassis EU version
- Option rm - Chassis with height adjustment
- Option rs - Chassis with overrun brake



KAESER KOMPRESSOREN									
Änderungs-Nr.		Projektion	Werkst. abt.	Datum	Name				
30451			120	17.07.2012	SEIFERBERG				
10227323 USE 00				Gez.	Seif.	20.07.2012	SEIFERBERG		
10227323 USE 00				Original	A3	Beinh.	20.07.2012	PRETISCH	1 von 1
10227323 USE 00		Bezeichnung							
10227323 0 00		M 27/311 750 rb rm rs							
Status		Dimension and connection dim.							
FREIGEGEBEN									

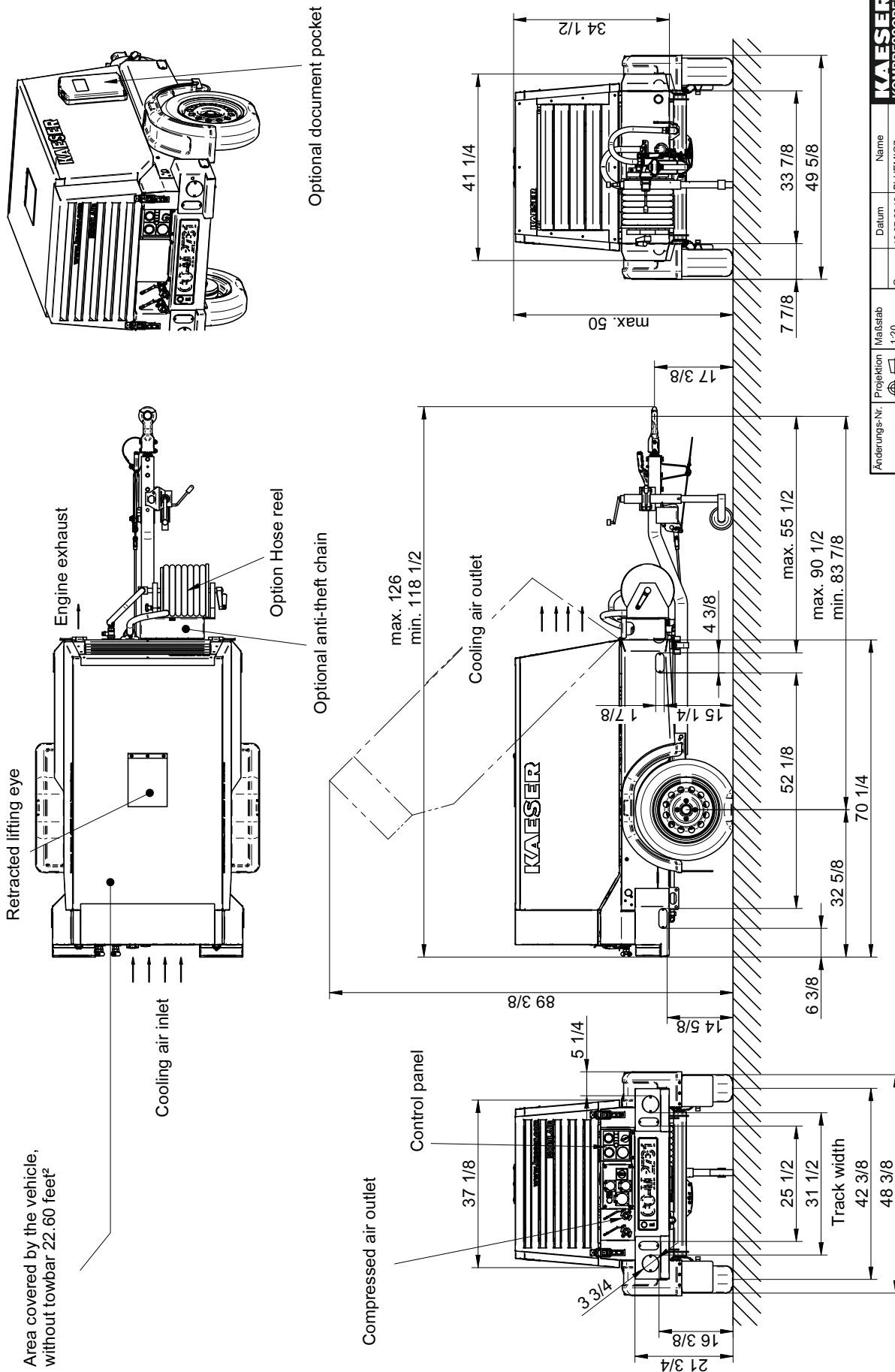
13.3.3 Option rc/ro/rr
Dimensional drawing – chassis

- Option rc - Chassis, GB type
- Option ro - Chassis without height adjustment
- Option rr - Chassis without service brake



13.3.4 Option rg/rp/rr
Dimensional drawing – chassis

- Option rg - Chassis, GB type
- Option rs - Chassis with anti-twist protection
- Option rr - Chassis without service brake



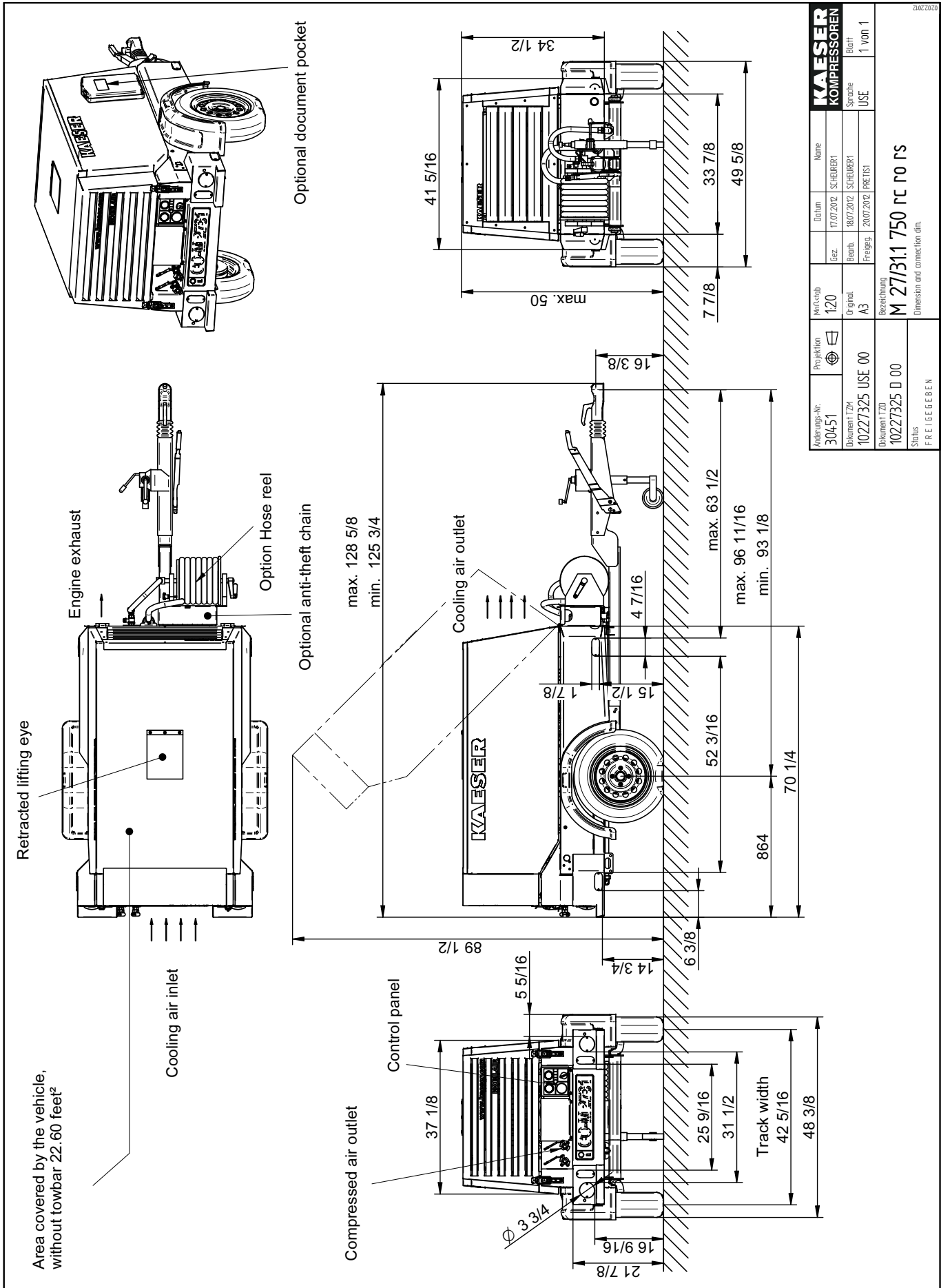
Änderungs-Nr.		Projektion	Maßstab	Datum	Name	KAESER KOMPRESSOREN
			1:20	Gez.	16.07.2013	
Dokument TZM		Original	Bearb.	16.07.2013	BLUEMIG7	
10251759 USE 00		A3	Freigez.	16.07.2013	PRETIS1	
Dokument TZD		Bezeichnung				
10251759 D 00		M 27/31,1 750 rg rr				
Status		Dimension and connection dim.				
FREIGE GEBEN						

Stand 12.11.2012

Die Zeichnung bleibt unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopien der sonstigen Verfügbaren sind dem vereinbarten Zweck angehängt. Weiter Original oder Kopie der Zeichnung ist ohne schriftliche Genehmigung von KAESER KOMPRESSOREN nicht zulässig. Die Zeichnung ist für die Verwendung in der CAD-Software geeignet. Änderungen sind nur über CAD möglich. Änderungen sind nur über CAD möglich. Änderungen sind nur über CAD möglich.

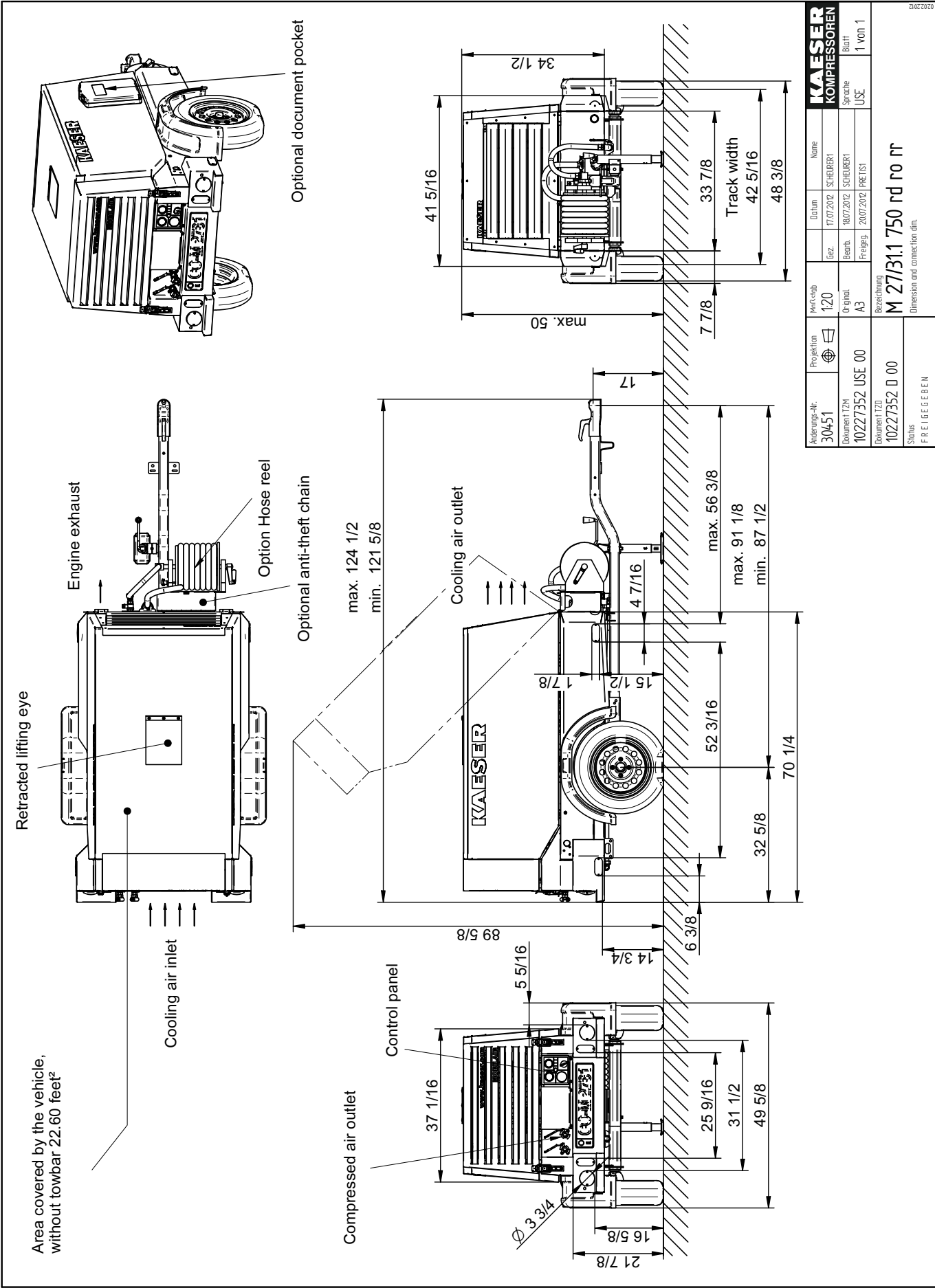
13.3.5 Option rc/ro/rs
Dimensional drawing – chassis

- Option rc - Chassis, GB type
- Option ro - Chassis without height adjustment
- Option rs - Chassis with overrun brake



13.3.6 Option rd/ro/rr
Dimensional drawing – chassis

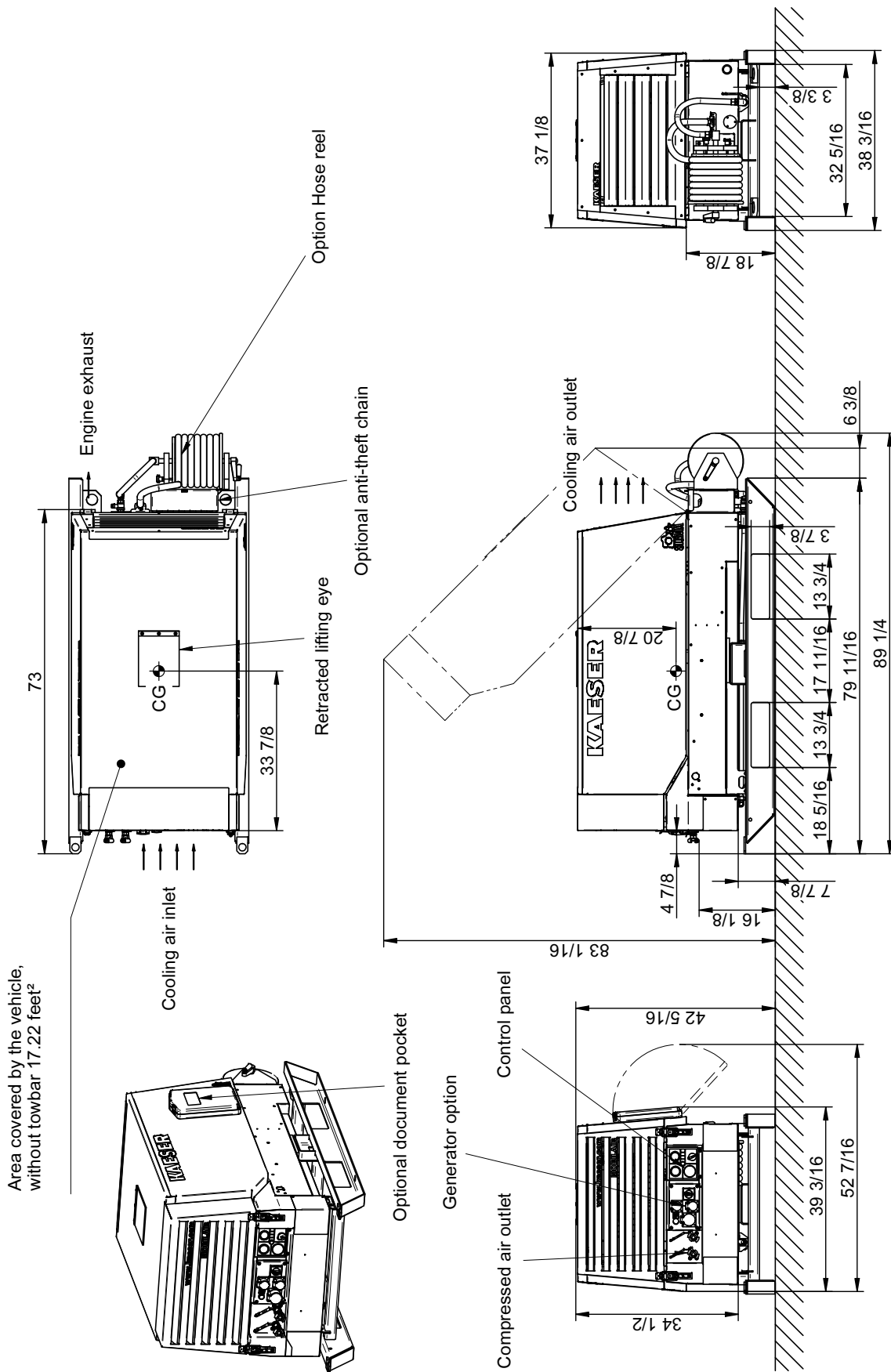
- Option rd - Chassis, US type
- Option ro - Chassis without height adjustment
- Option rr - Chassis without service brake



KAESER KOMPRESSOREN		Name	Datum	Gez.	Beinh.	Freigeig.	20.07.2012	1 von 1
30451		120	Original	A3	SCHNEIDER	SCHNEIDER	USE	Built
10227352 USE 00		10227352	USE 00	10227352	USE 00	10227352	USE 00	1 von 1
10227352 00		10227352	00	10227352	00	10227352	00	1 von 1
FREIGEGEBEN		M 27/311 750 rd r0 r1						
Status		Dimension and connection dim.						

13.3.7 Option rw
Dimensional drawing, stationary machine (skids)

- Option rw - Skid frame

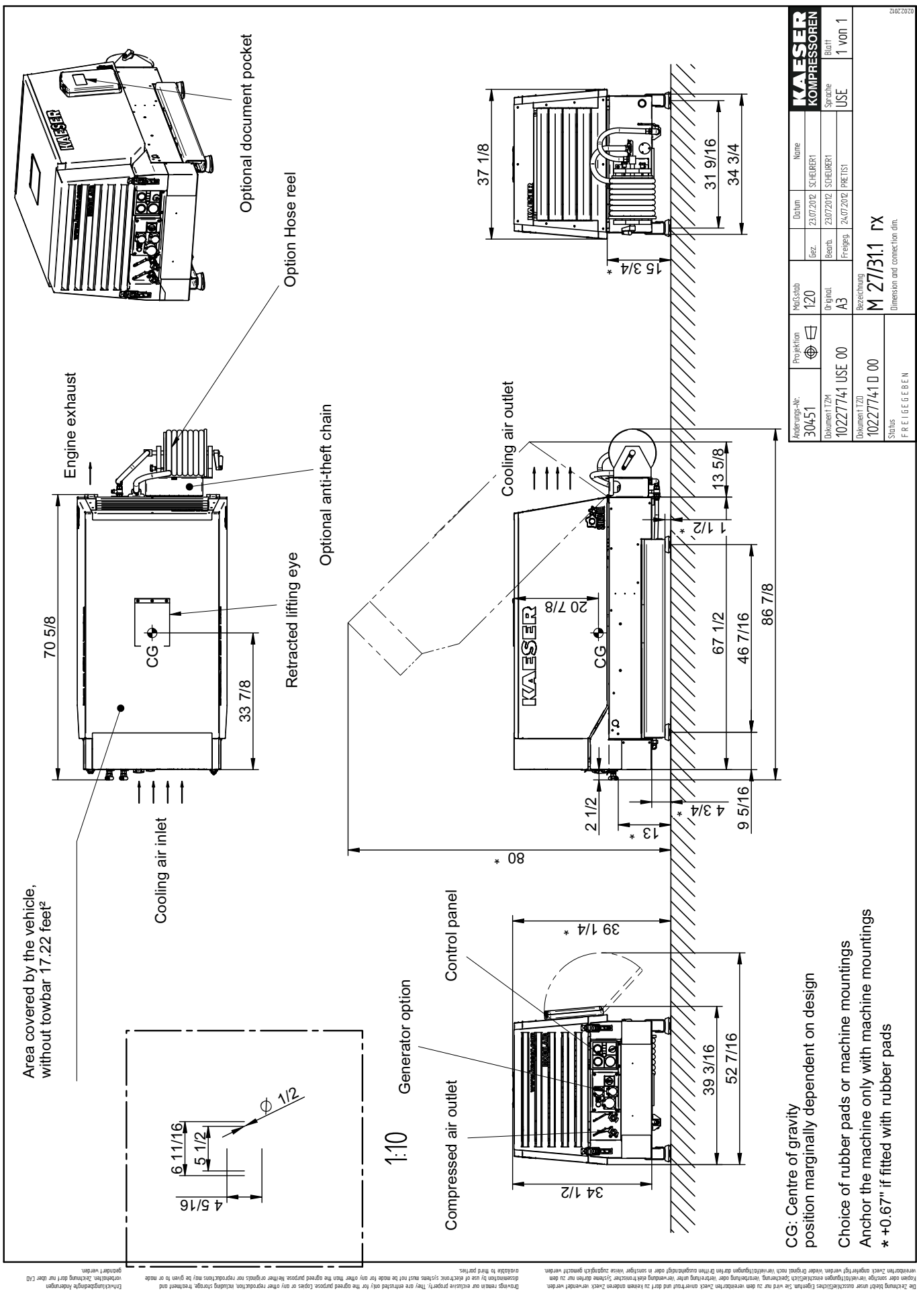


KAESER KOMPRESSOREN				Seite 1 von 1	
Maßstab	Projektion	Name	Datum	Spalte	Bauart
1:20	1.20	SCHNEIDER	23.07.2012	USE	1
Original	A3	SCHNEIDER	23.07.2012		
Freigegeben		PETIT	24.07.2012		
Bezeichnung				M 27/311 rW	
Dimension and connection dim.					
Status				FREIGEGEBEN	

CG: Centre of gravity
position marginally dependent on design

13.3.8 Option rx
Dimensional drawing, stationary version (frame)

- Option rx - Frame



13.4 Wiring diagrams**13.4.1 Electrical Diagram**

1	2	3	4	5	6	7	8
<div>Electrical diagrams</div> <div>MOBILAIR M27/M31</div> <div>KUBOTA - Motor</div> <div>Manufacturer: KAESER KOMPRESSOREN SE Postfach 2143 96410 Coburg</div>							
<p>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.</p>							
c		Datum		23.07.2014		E	
b		Bearbeiter		Sitter			
a		Geprüft		Weid			
A) Änderung		Datum		Name		Norm	
Ersatz durch:				Ersatz für:			
KAESER KOMPRESSOREN				Ursprung: AFA01028_01			
Cover page				MOBILAIR M27/M31			
				=		+	
				DFA2731-01028.02		page 1	
						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		DFA2731-01028.02	1	
2	List of contents		ZFA2731-01028.02	1	
3	Block diagram		UFA2731-01028.02	1	
4	Block diagram	Cross-reference			
5	Circuit diagram	Cable set Battery	SFA2731-01028.02	2	
6	Circuit diagram	Compressor - unit	SFA2731.BK-01028.00	1	=BK
7	Circuit diagram	Control panel	SFA2731.IKM-01028.00	1	=IKM
8	Circuit diagram		SFA2731.BT-01028.02	1	=BT
9	Circuit diagram		SFA2731.IK1-01028.01	1	=IK1
	Equipment parts list		GFA2731-01028.00	1	

c

b

a

A Änderung

Datum

Bearbeiter

Geprüft

Name

23.07.2014

Siller

Weid

Norm

Ersatz durch:

Ersatz für:

KAESER KOMPRESSOREN

Ursprung:

List of contents

MOBILAIR M27/M31

=

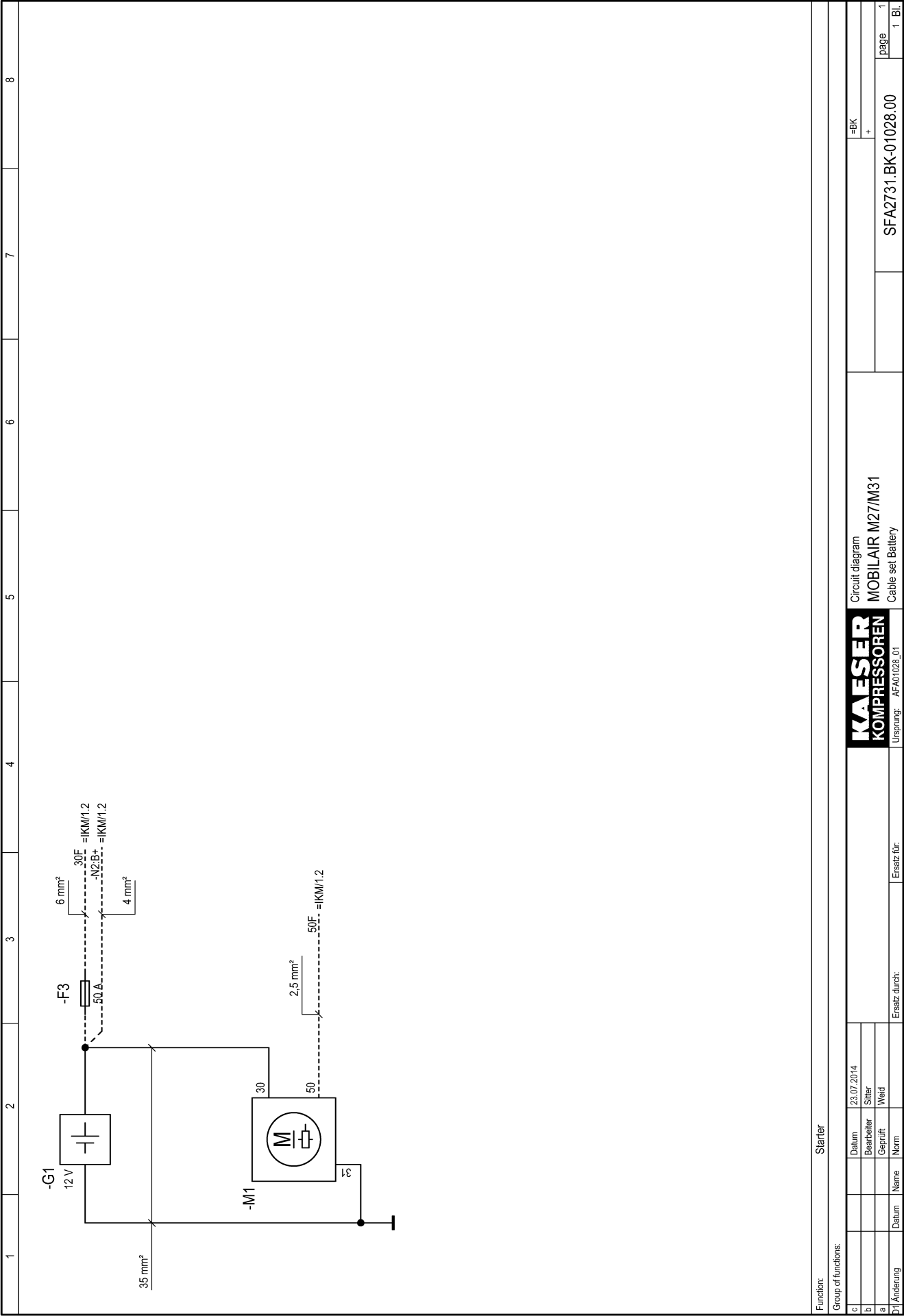
+

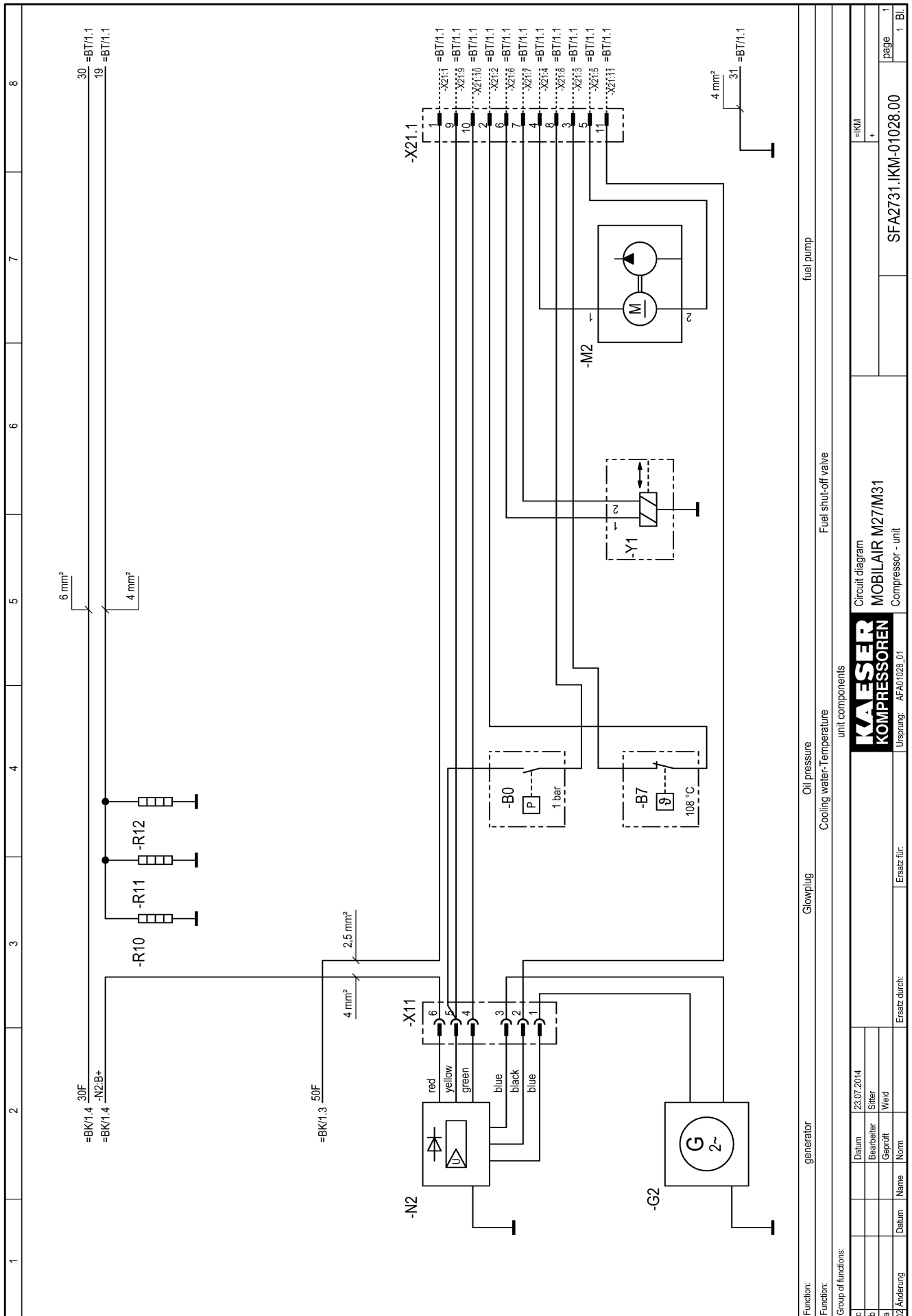
ZFA2731-01028.02

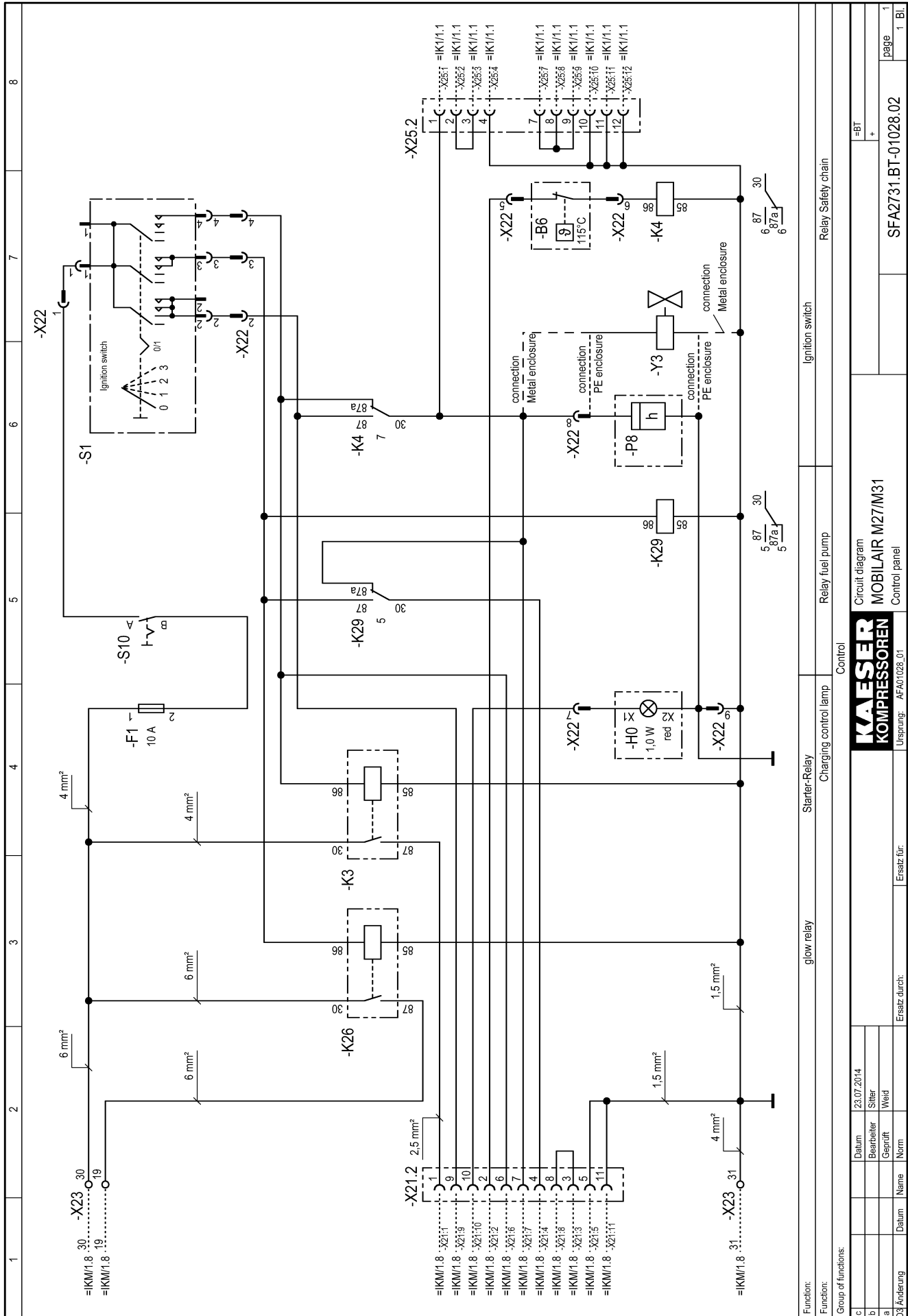
page 1 Bl. 1 Bl.

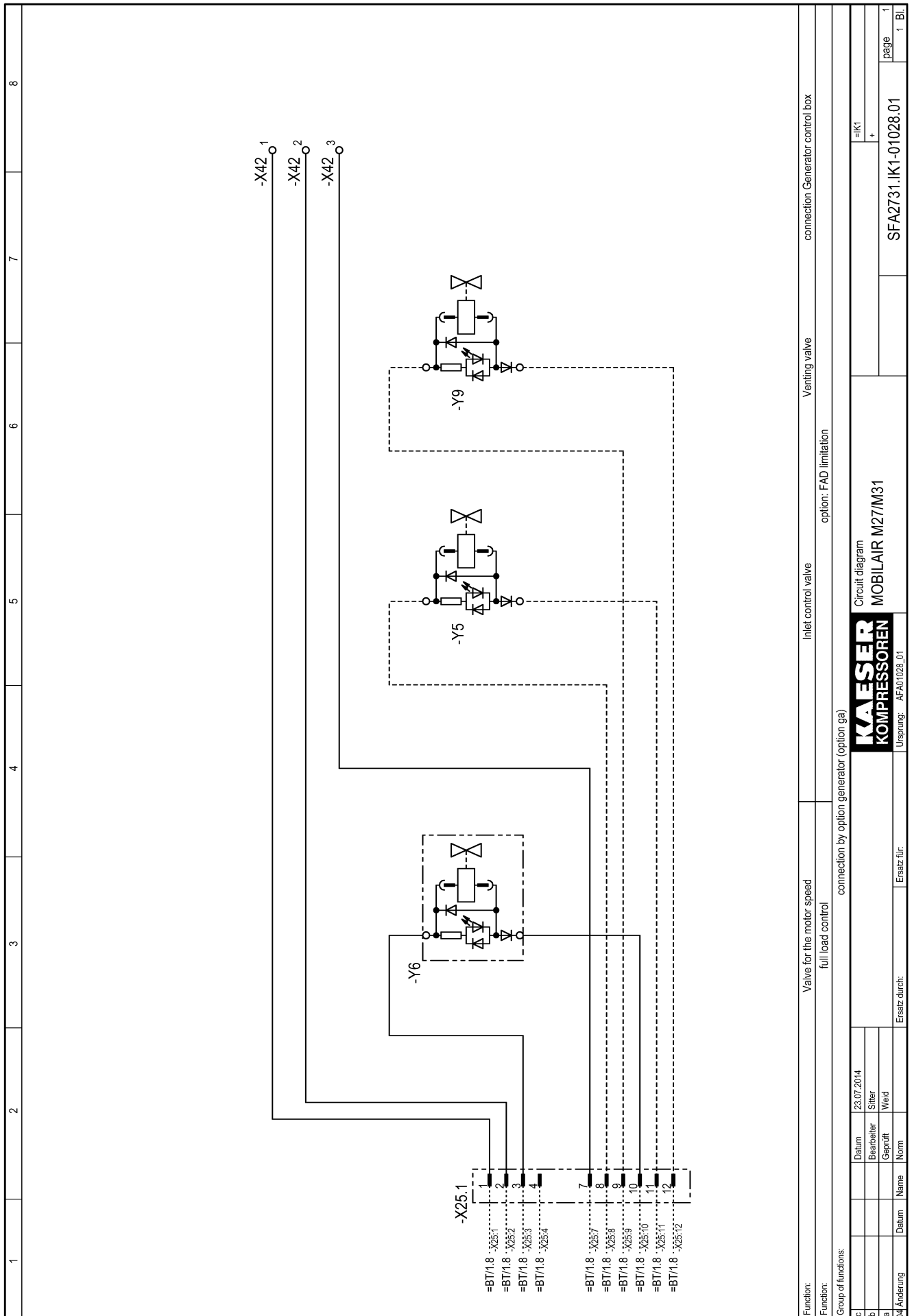
1	2	3	4	5	6	7	8
general instructions							
Control voltage 12VDC							
All non-designated conductors H07V-K 1,5 mm² black							
potentials: 15 switched plus + (unit ON)							
19 Preheat with glowplug							
30 + terminal (Battery)							
31 - terminal (Battery), earth							
50 Starter-Control							
components unit							
-G1 Battery							
-M1 Starter-Motor							
-B0 Oil pressure switch Motor							
-B7 Cooling water-Thermostat							
-G2 Alternator							
-M2 fuel pump							
-N2 Regulator Alternator							
-R10...-R12 Glowplug							
-Y1 Fuel shut-off valve							
-X21 Plug connection, Cable set Motor							
-X22 Plug connection, Control panel (only Metal enclosure)							
-X25 Plug connection, Cable set generator							
-X42 connection Generator control box							
-Y6 Valve for the motor speed full load control							
-Y5 Inlet control valve							
-Y9 Venting valve							
components Control panel							
-B6 Distance temperature gauge Compressor airend							
-H0 Charging control lamp							
-F1 Control fuse							
-F3 Fuse							
-K3 Starter - Relay							
-K4 Relay Safety chain							
-K26 glow relay							
-K29 Relay fuel pump							
-P8 Hour meter							
-S1 Ignition switch							
							0 = STOP
							1 = ON
							2 = Preheat with glowplug
							3 = START

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			SFA2731.BK-01028.00		BK		
Cable set: connection Motor			SFA2731.IKM-01028.00		IKM		
cabling Control panel			SFA2731.BT-01028.02		BT		
cabling unit components 1			SFA2731.IK1-01028.01		IK1		





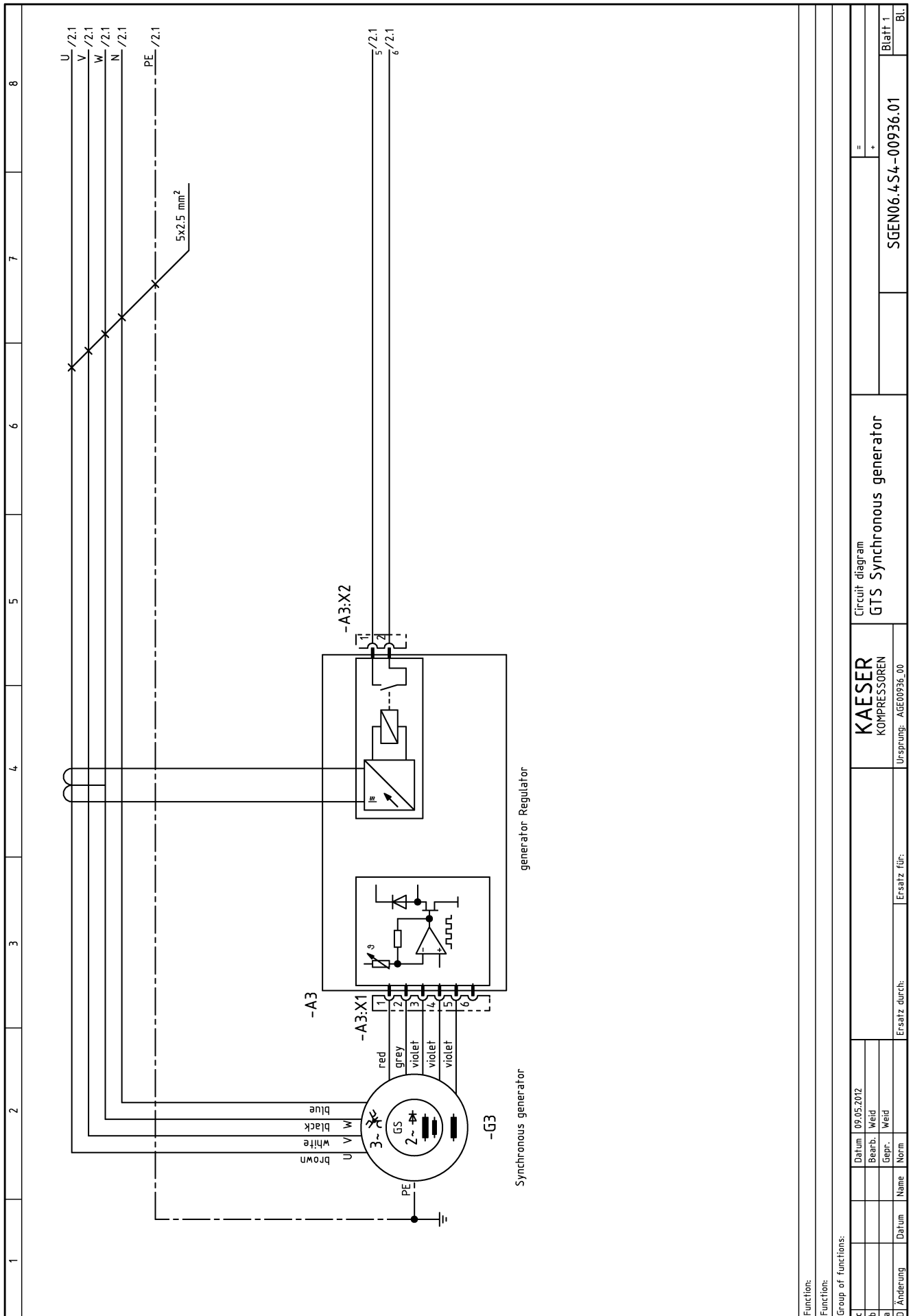


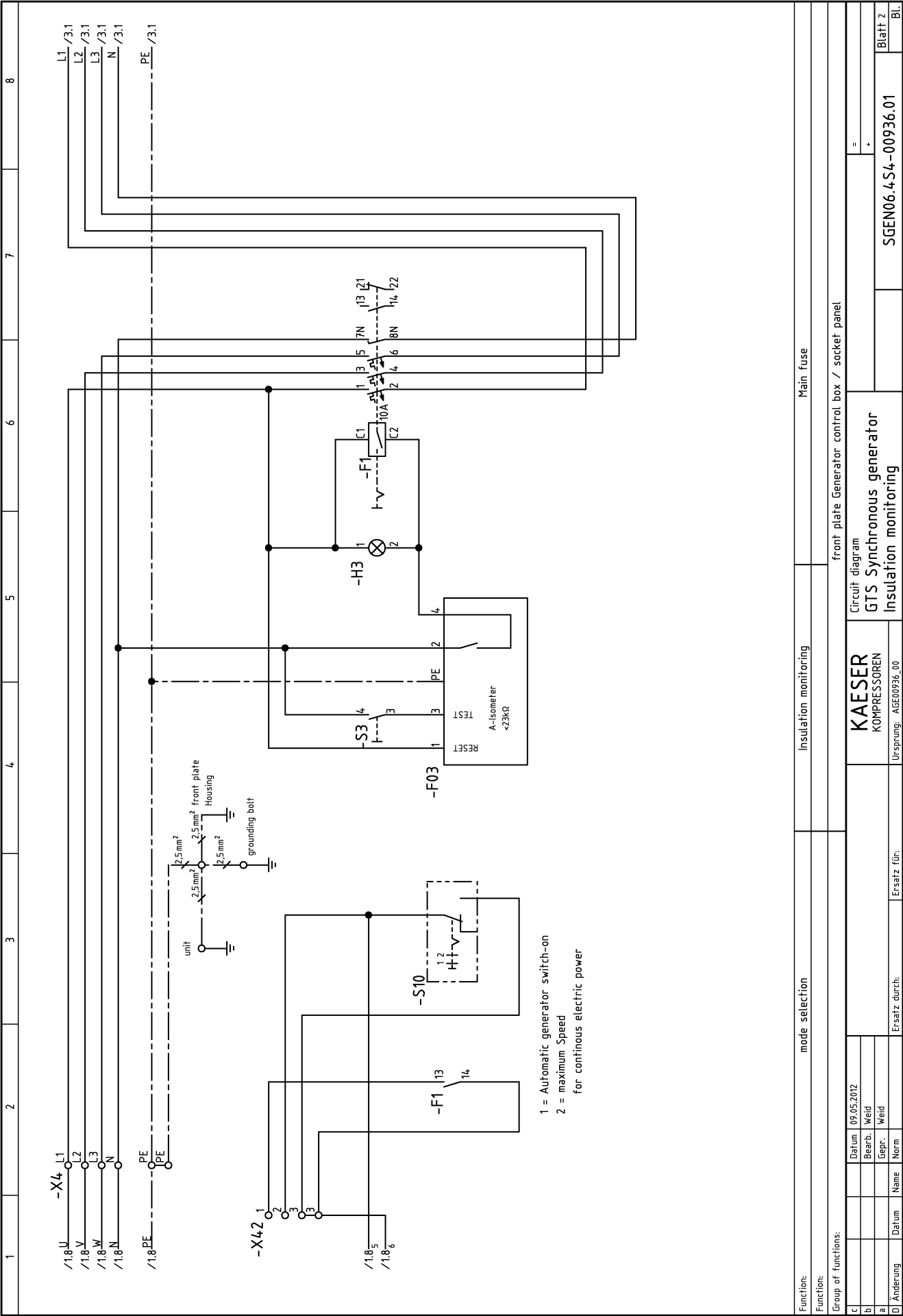


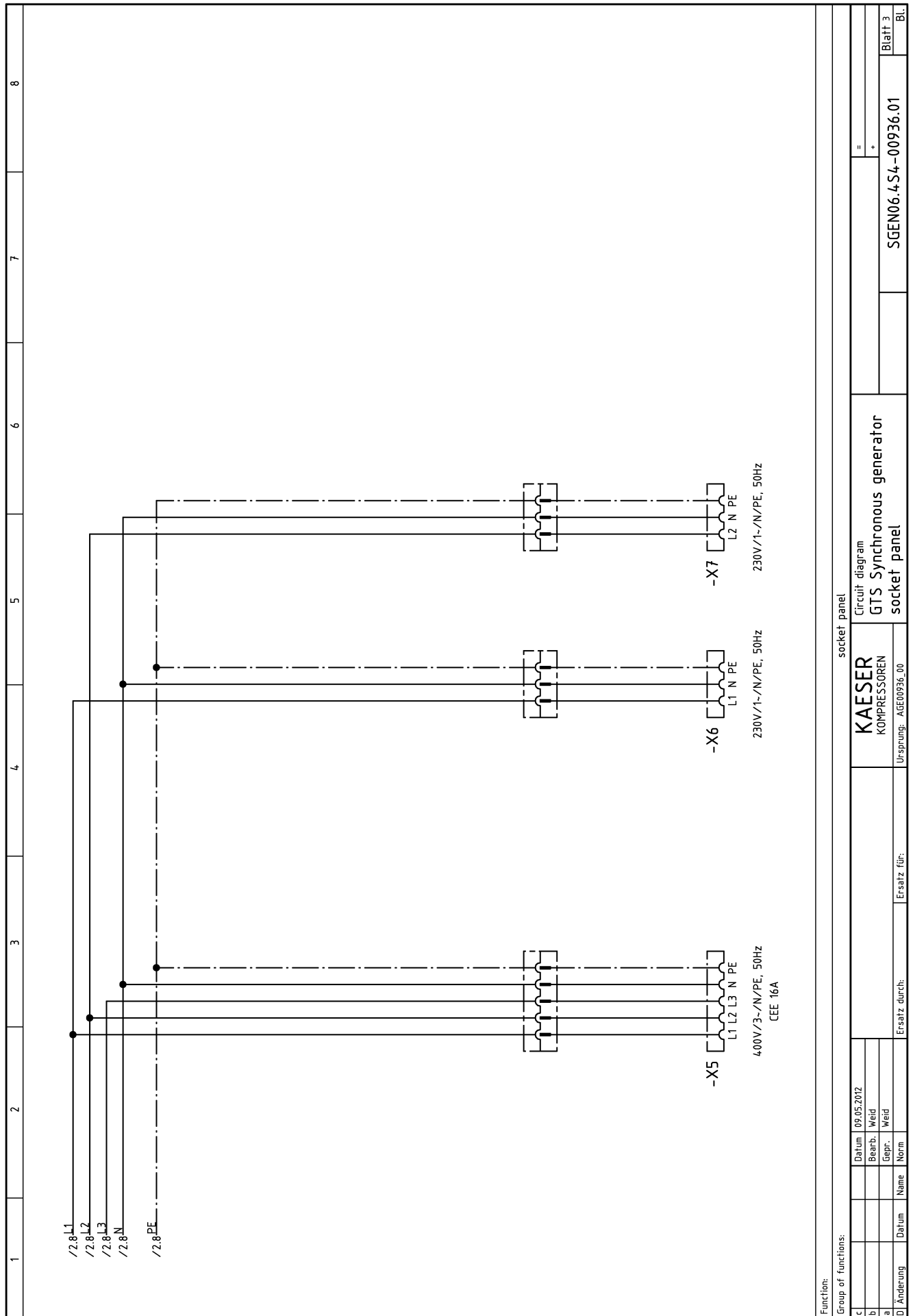
[illegible]

13.4.2 Option ga
Generator electrical diagram, 400V, 3-ph

1	2	3	4	5	6	7	8	
<div>Electrical diagrams Synchronous generator 400V/3~/50Hz, 6,0 kVA with Insulation monitoring</div> <div>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</div>								
<p>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.</p>								
A) Änderung		Datum	Name	Norm	Ersatz durch:			
		Datum	Name	Norm	Ersatz für:			
		Bearb.	Weid					
		Gepr.	Weid					
		Datum 09.05.2012			E			
KAESER KOMPRESSOREN					Cover page GTS Synchronous generator			
Ursprung: AGE00936_00					=			
					+			
					DGEN06.4.S4-00936.01			Blatt 1
								BL



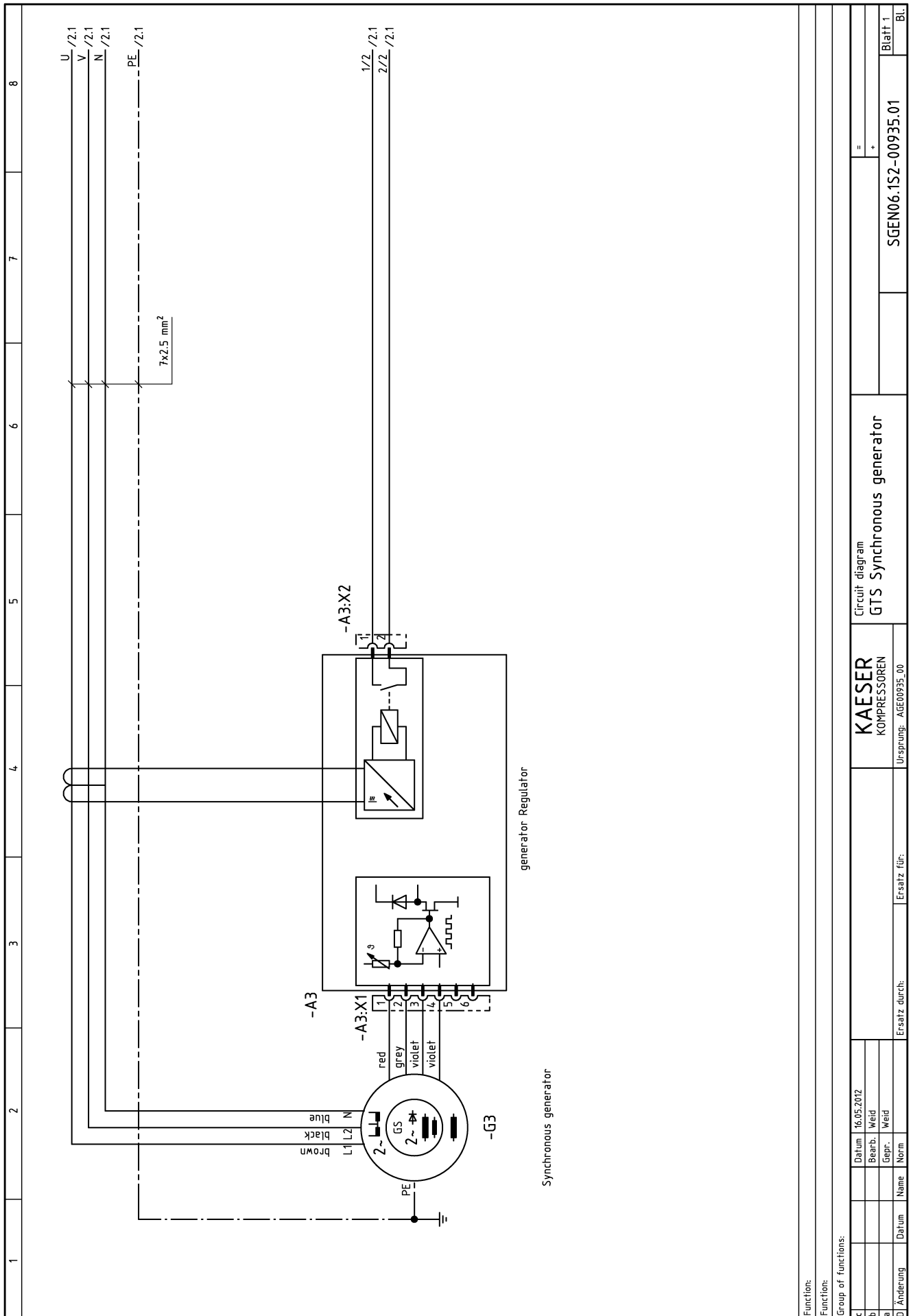




1	2	3	4	5	6	7	8
		-A3 generator-Regulator					
		-F1 Cut-out with overcurrent release					
		-F03 Insulation monitoring					
		-G3 generator					
		-H03 Earth leak lamp					
		-S3 Test button, Insulation monitoring					
		-S10 Selector switch					
		-X4 connection generator					
		-X5 Socket outlet 400V/3~/N/PE, 50Hz					
		-X6,-X7 Socket outlet 230V/1~/N/PE,50Hz					
		-X42 Terminal strip, Valve interference suppression					
				Electrical equipment identification			
				GTS Synchronous generator			
						SGEN06.4.S4-00936.01	
						=	
						+	
						Blatt 01	
						BL	

13.4.3 Option ga
Generator electrical diagram, 115 V, 2-ph

1	2	3	4	5	6	7	8
<div>Electrical diagrams Synchronous generator 115V/2~/50Hz, 6,0 kVA with Insulation monitoring</div> <div>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</div>							
<p>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.</p>							
c		Datum		16.05.2012		E	
b		Bearb.		Weid			
a		Gepr.		Weid			
A. Änderung		Datum		Name		Norm	
		Ersatz durch:		Ersatz für:			
KAESER KOMPRESSOREN				Cover page GTS Synchronous generator			
Ursprung: AGE00935_00				=			
				+			
				DGEN06.1S2-00935.01			
				Blatt 1			
				BL			

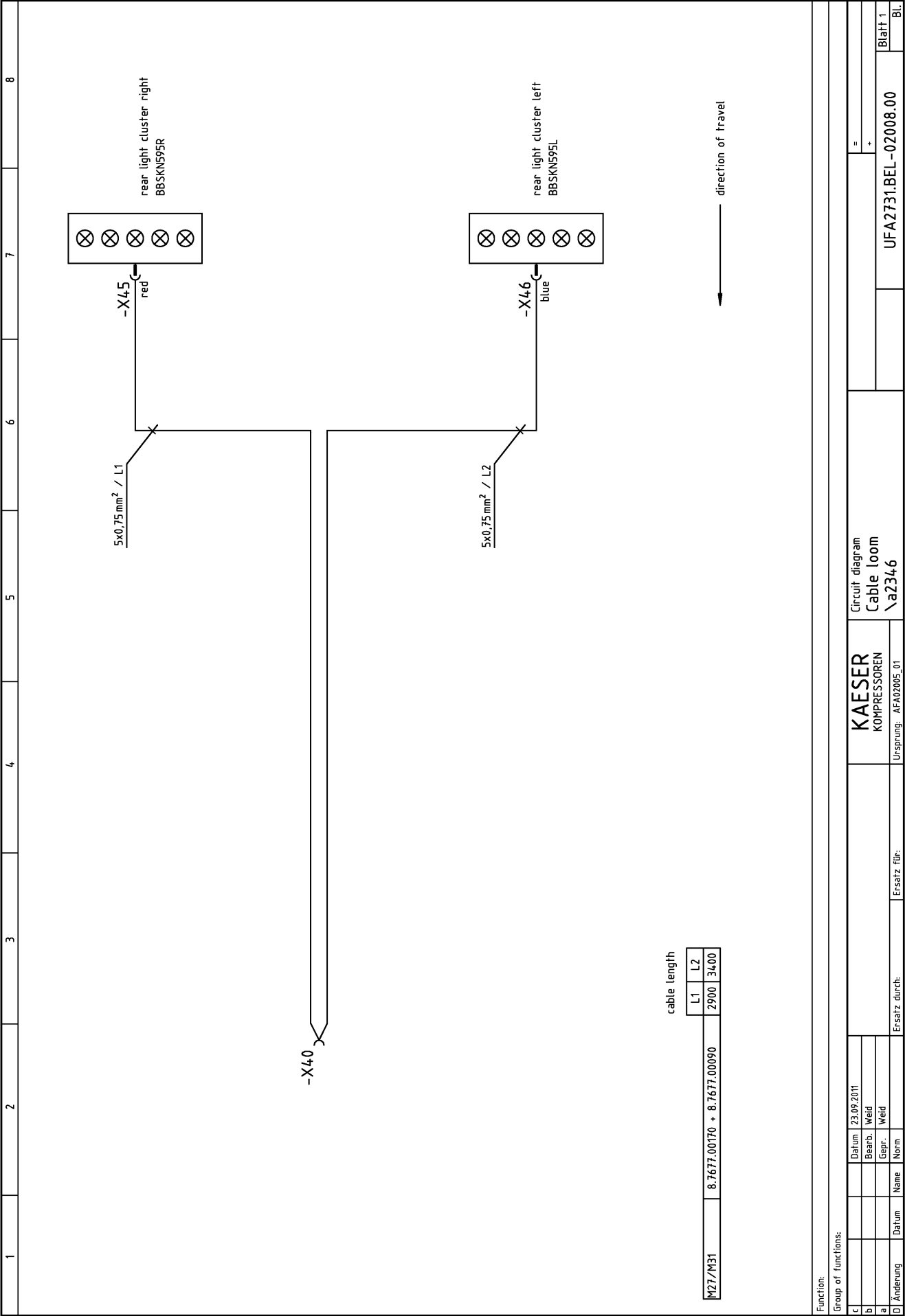


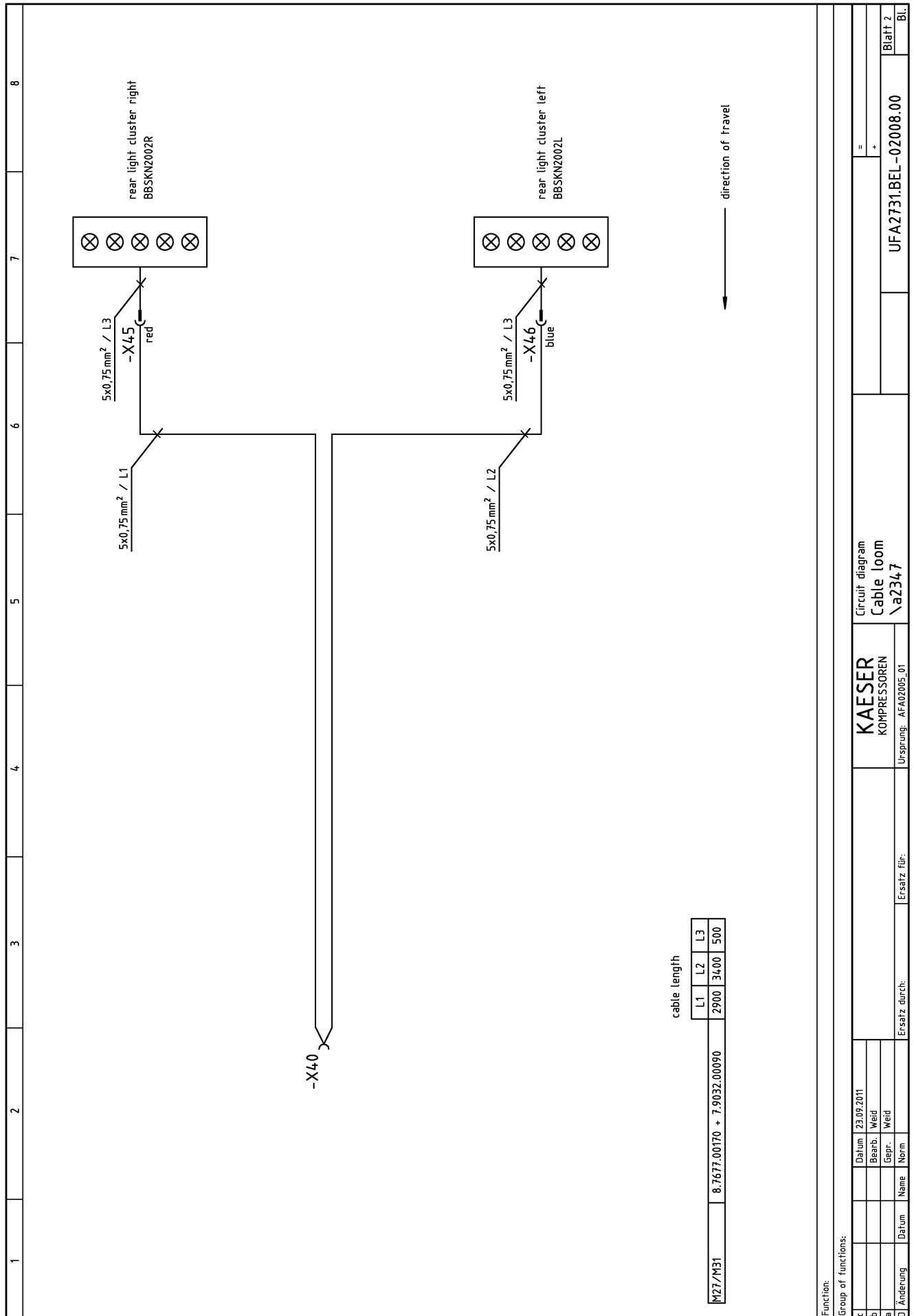


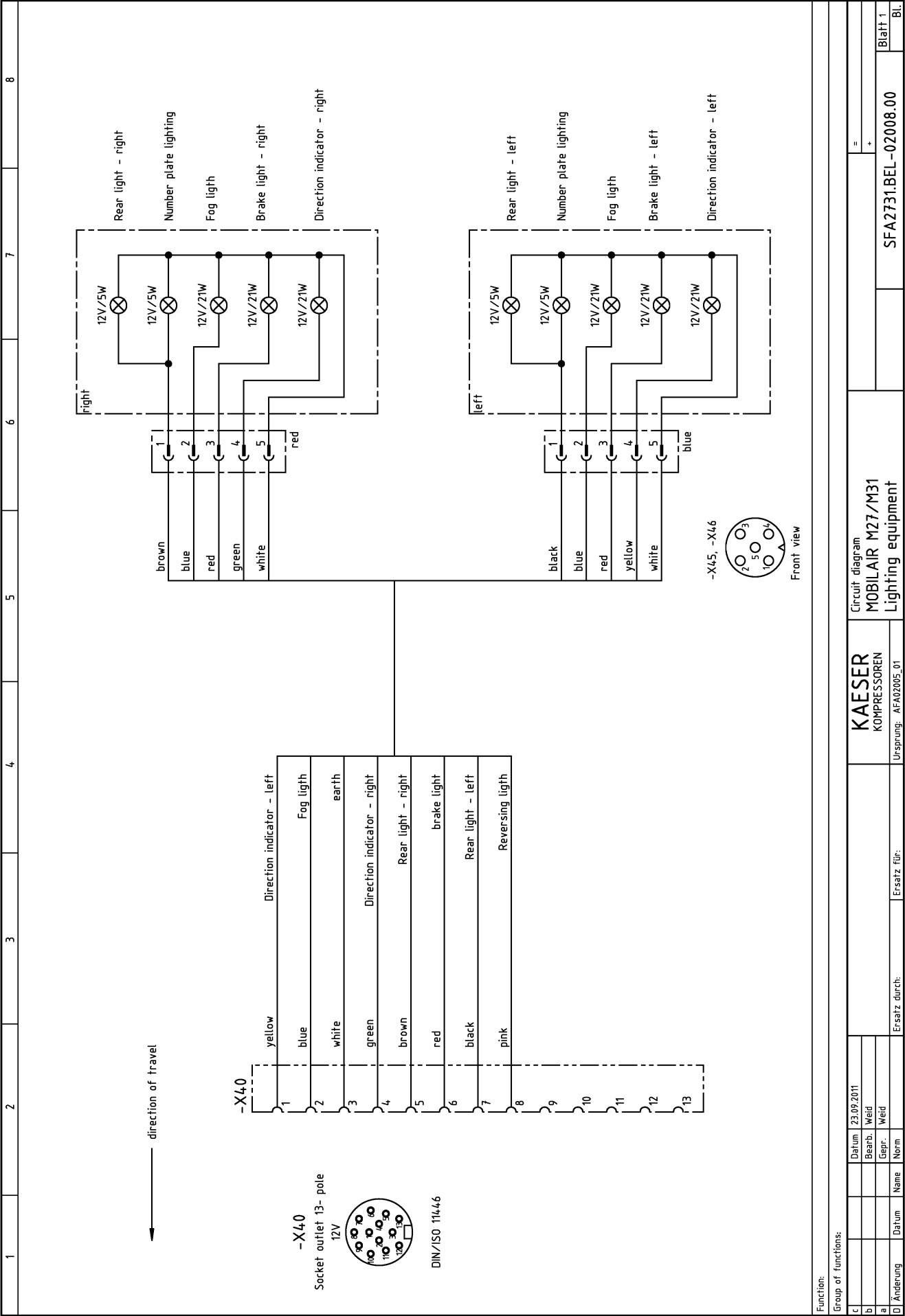
1	2	3	4	5	6	7	8
		-A3 generator-Regulator					
		-F1 Cut-out with overcurrent release					
		-F03 Insulation monitoring					
		-G3 generator					
		-H03 Earth leak lamp					
		-S3 Test button, Insulation monitoring					
		-S10 Selector switch					
		-X4 connection generator					
		-X5 Socket outlet 115V/1~/N/PE, 50Hz, 32A					
		-X6,-X7 Socket outlet 115V/1~/N/PE, 50Hz, 16A					
		-X42 Terminal strip, Valve interference suppression					
				Electrical equipment identification			
				GTS Synchronous generator			
						SGEN06.1S2-00935.01	
						=	
						+	
						Blatt 01	
						BL	

13.4.4 Option tc
Lighting and signaling system connection

1	2	3	4	5	6	7	8
<div>Electrical diagrams MOBILAIR M27/M31 Lighting equipment connection 12V/13-pole</div> <div>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</div>							
<p>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.</p>							
c			Datum	12.09.2011	E		
b			Bearb.	Weld			
a			Gepr.	Weld			
D	Änderung	Datum	Name	Norm	Ersatz durch:	Ersatz für:	
KAESER KOMPRESSOREN <small>Ursprung: AFA02005_01</small>					Cover page MOBILAIR M27/M31 Lighting equipment		
						=	
						+	
						DFA2731.BEL-02008.00	
						Blatt 1	
						Bl.	

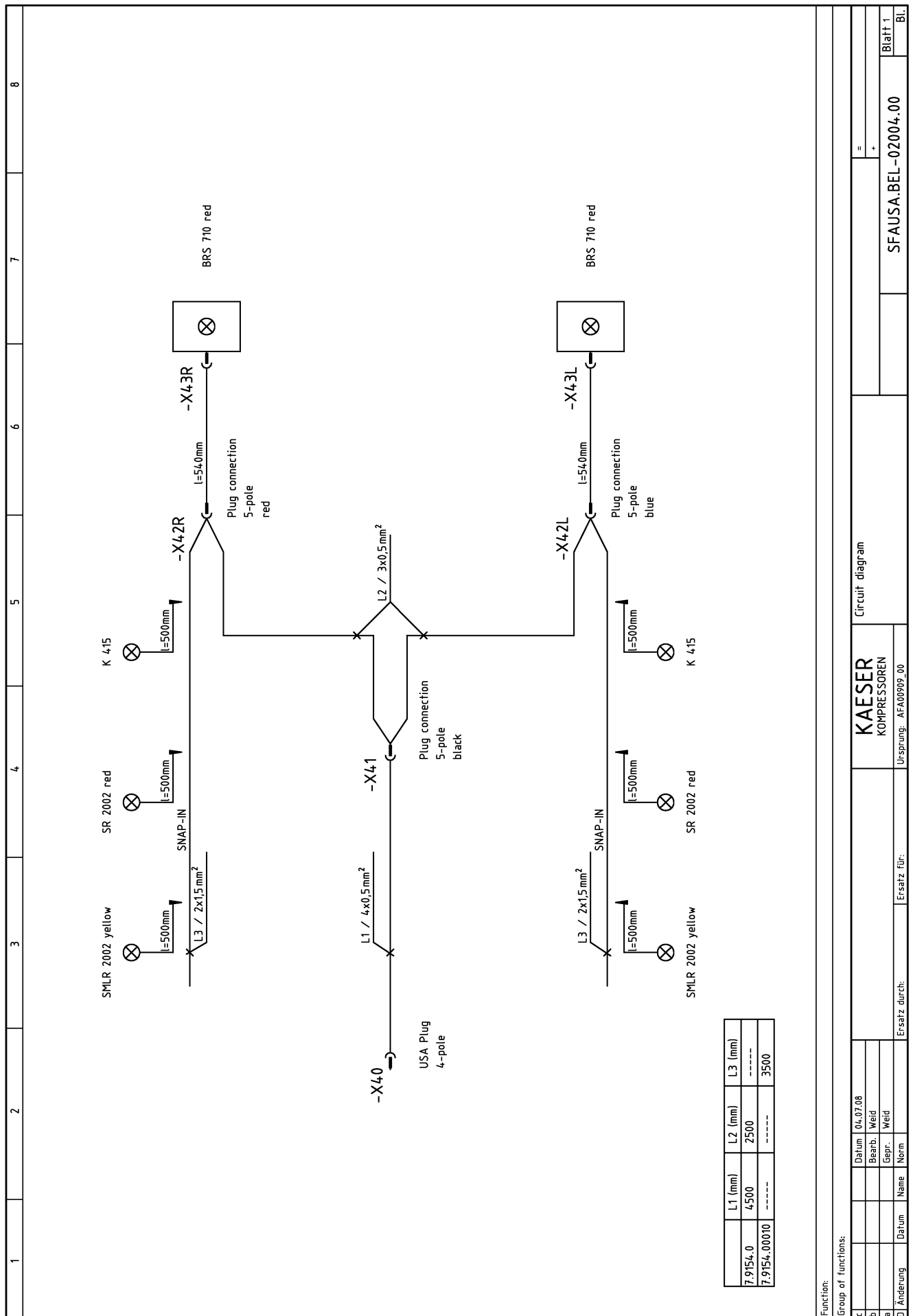


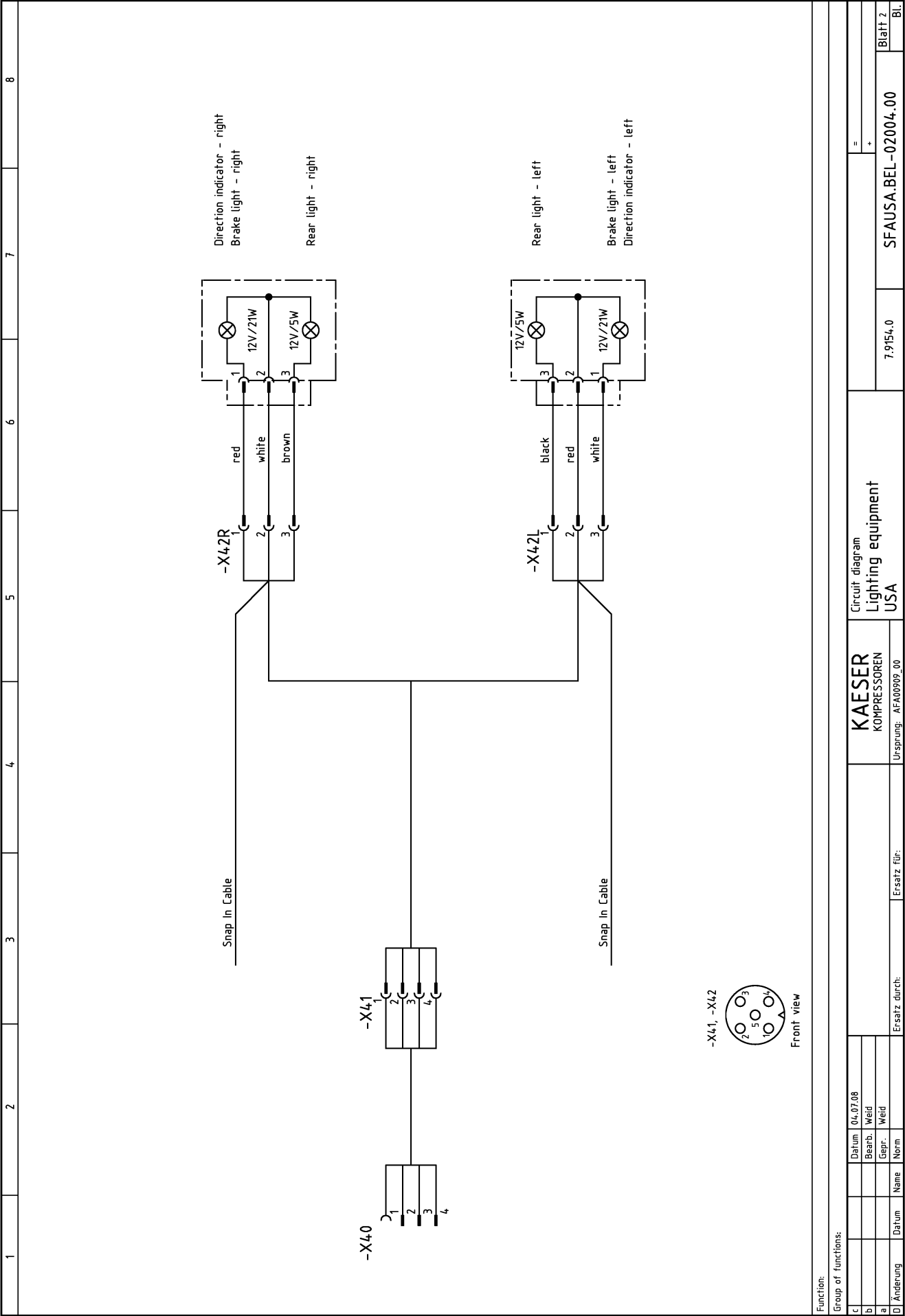




**13.4.5 Option te
Lighting and signaling system connection**

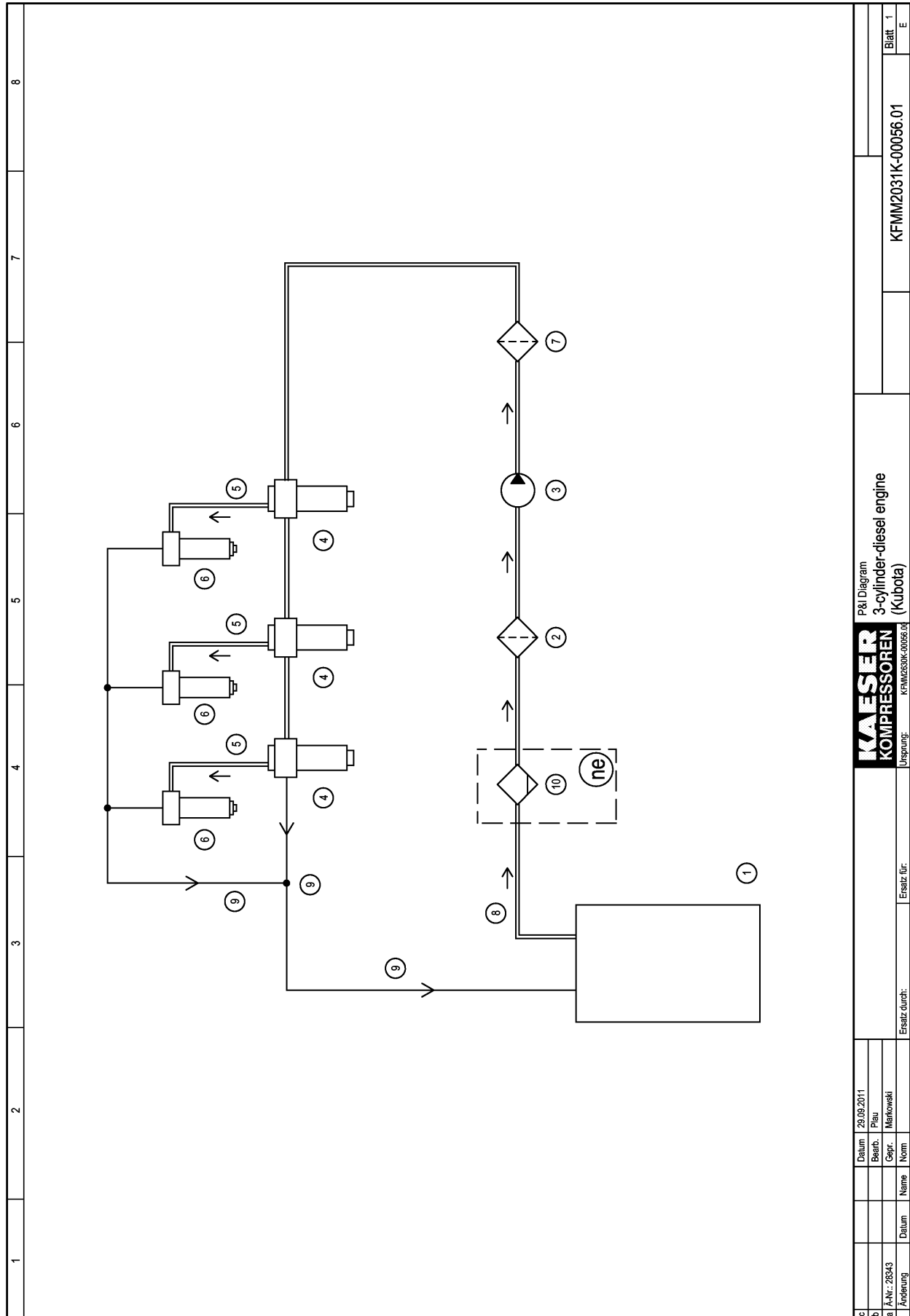
1	2	3	4	5	6	7	8
<div>Electrical diagrams MOBILAIR Lighting equipment for USA / CAN</div> <div>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</div>							
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, 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.</p>							
c				Datum	04.07.08	E	
b				Bearb.	Weid		
a				Gepr.	Weid		
D	Änderung	Datum	Name	Norm	Ersatz für:		Ersatz durch:
				KAESER KOMPRESSOREN		Cover page MOBILAIR Lighting equipment	
				Ursprung: AFA00909_00			
						=	
						+	
						DFAUSA.BEL-02004.00	Blatt 1
							Bl.





1	2	3	4	5	6	7	8
<div><div><div>Side marking lights yellow</div><div><div>LED</div><div>l=500mm</div><div>Snap In Plug</div></div></div><div><div>Side marking lights red</div><div><div>LED</div><div>l=500mm</div><div>Snap In Plug</div></div></div><div><div>Number plate lighting right</div><div><div>12V/5W</div><div>l=500mm</div><div>Snap In Plug</div></div></div></div> <div><div><div>Side marking lights yellow</div><div><div>LED</div><div>l=500mm</div><div>Snap In Plug</div></div></div><div><div>Side marking lights red</div><div><div>LED</div><div>l=500mm</div><div>Snap In Plug</div></div></div><div><div>Number plate lighting left</div><div><div>12V/5W</div><div>l=500mm</div><div>Snap In Plug</div></div></div></div>							
Function: Group of functions:							
		Datum 04.07.08				Circuit diagram Lighting equipment extension CAN	
		Bearb. Weid				=	
		Gepr. Weid				+	
Änderung		Datum	Name	Norm	Ersatz durch:	Ersatz für:	KAESER KOMPRESSOREN Ursprung: AFA00909_00
a							7,9154,00010
							SFAUSA.BEL-02004,00
							Blatt 3
							Bl.

13.5 Fuel circulation diagram



1	2	3	4	5	6	7	8
<div><div><div>1</div><div>fuel tank</div></div><div><div>2</div><div>fuel prefilter</div></div><div><div>3</div><div>fuel feed pump</div></div><div><div>4</div><div>injection pump</div></div><div><div>5</div><div>injection pipe</div></div><div><div>6</div><div>injection nozzle</div></div></div> <div><div><div>7</div><div>fuel filter</div></div><div><div>8</div><div>fuel supply line</div></div><div><div>9</div><div>fuel return line</div></div><div><div>10</div><div>water separator</div></div><div><div>option</div></div><div><div>ne</div><div>water separator</div></div></div>							
c							
b		Datum	29.09.2011				
a		Bearb.	Plau				
		Gepr.	Markowski				
		Name					
		Datum					
		Ersatz durch:					
		Ersatz für:					
				P&I Diagram legend 3-cylinder-diesel engine (Kubota)			
				KFM2031K-00056.01			
				KFM2031K-00056.01			
				Blatt 2			
				E			

13.6 Option ga

Maintenance tasks for the generator

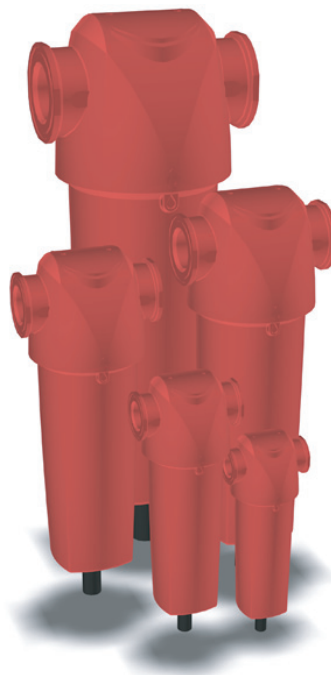
In order to ensure a safe operation of the machine, the generator must be inspected once every year by a trained and authorized electrician.

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.

13.7 Option dd

Operating instructions for compressed air filter (combination filter)



Filters for Compressed Air

005-055 (AO, AA, ACS, AR, AAR)

(EN) Original Language

(NL) (DE) (FR) (FI) (SV) (NO) (DA) (EL) (ES) (PT) (IT) (PL)
(SK) (CS) (ET) (HU) (LV) (LT) (RU) (SL) (TR) (MT) (RO)

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FILTER DH-OIL-X EVO AO AA 01-

FILTER DH-OIL-X EVO AO AA 01-



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 teostamisel korral võivad põhjustada kehavigastusi või surma.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása súlyos vagy végzetes személyi sérülést okozhat.
- Uzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var izraisīt ievainojumus vai nāvi.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima susižeisti ar mirtį.
- 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 sureçleri vurgular.
- Tissottolinea l-azzjonijiet jew il-proceduri, li jekk ma jsirux kif suppost, jista' jkun hemm korrimint jew mewt
- Evidențiază acțiunile sau proceduri care, dacă nu sunt corect efectuate, pot duce la leziuni personale sau la deces.
- 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 ζημιό 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 teostamisel korral võivad käesolevat toodet kahjustada.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása a termék károsodásához vezethet.
- Uzsver 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 sureçleri vurgular
- Tissottolinea l-azzjonijiet jew il-proceduri, li jekk ma jsirux kif suppost, tista' ssir hsara lil dan il prodott
- Evidențiază acțiunile sau proceduri care, dacă nu sunt corect efectuate, pot duce la deteriorarea acestui produs.
- Suitable gloves must be worn.
- Geeignete Schutzhandschuhe tragen.
- Käyttettävä asianmukaisia käsineitä.
- Bruk egnede hansker.
- Απαιτείται να φοράτε κατάλληλα γάντια
- Devem ser utilizadas luvas adequadas.
- Należy zakładać odpowiednie rękawice
- Kohustuslik kanda sobivaid kaitsekindaid
- Jävalkã piemēroti cimdi.
- Работы должны проводиться в соответствующих перчатках
- Uygun eldiven giyilmelidir
- Este necesară purtarea unor mănuși adecvate.
- 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 použiť vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvėti 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 bortskaftelse 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.
- Uzsver 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
- Evidențiază cerințele pentru depunerea la deșeuri a pieselor uzate și a reziduurilor.

	<ul style="list-style-type: none"> • Pressure. • Paine. • Πίεση • Ciśnienie • Nyomás alatt. • Tlak 	<ul style="list-style-type: none"> • Druk • Tryck • Presión. • Tlak.. • Spiediensi. • Basıncı 	<ul style="list-style-type: none"> • Druck. • Trykk • Pressão. • Tlak. • Slēgis. • Pressjoni 	<ul style="list-style-type: none"> • Pression. • Tryk • Pressione. • Surve. • Давление • Presiune.
	<ul style="list-style-type: none"> • Release Pressure. • Évacuation de pression. • Avlast trykk • Despresurizar. • Ciśnienie spustowe • Surve väljalase • Išleiskite slėgį. • Basıncı Kaldırın 	<ul style="list-style-type: none"> • Druk aflaten. • Vapauta paine. • Aflast tryk • Liberta Pressão. • Uvolnite tlak. • Engedje ki a nyomást. • Справит давление • Nehhi l-pressjoni 	<ul style="list-style-type: none"> • Druck ablassen. • Tryckutsläpp. • Εκτόνωση πίεσης • Scaricare la pressione. • Uvolnění tlaku. • Pazeminiēt spiedienu. • Sprostitev tlaka. • Depresurizare. 	
	<ul style="list-style-type: none"> • Replace every year • Remplacer tous les ans. • Skift ut hvert år • Sustituir anualmente • Należy wymieniać raz w roku • Asendage igal aastal • Keiskite kartä per metus • Her yıl değıştirin 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Jährlich austauschen • Byt varje år • Αντικατάσταση κάθε χρόνος • Sostituire ogni anno • Nutná výměna každý rok. • Nomainiet reizi gadā • Zamenjajte vsako leto. • Inlocuire anuală 	
	<ul style="list-style-type: none"> • Filter housing / Model • Logement du filtre/modèle. • Filterhus/-modell • Caja de filtro/modelo. • Obudowa filtra / model. • Filtri korpus/model • Filtro korpusas / modelis • Filtre muhafazası / Model 	<ul style="list-style-type: none"> • Filterhuis / Model • Suodatinkotelo/-malli • Filterhus/modell • Caixa / Modelo do filtro • Kryt filtra / Model • Szűrőház / típus • Корпус фильтра / модель • Kontenitur tal-filtru - Mudell 	<ul style="list-style-type: none"> • Filtergehäuse / Modell • Filterhus/modell • Υποδοχή/μοντέλο φίλτρου • Corpo del filtro / Modello • Kryt filtru / Model • Filtra korpus / modelis • Ohişje filtra / Model • Carcasă filtru / Model 	
	<ul style="list-style-type: none"> • High efficiency filter element • Hochleistungsfilterelement • Tehokas suodatinelementti • Høgeffektivt 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 	<ul style="list-style-type: none"> • 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 etkinlikli filtre öğesi • Element filtrant cu eficiență ridicată 		
	<ul style="list-style-type: none"> • 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 • Uistíte sa, že používate správny nástroj • Tagage õige tööriista kasutamine • Izmantojiet tikai atbilstošus darbarīkus • Убедитесь, что используется правильный инструмент • Doğru alet kullanılması sağlayın 	<ul style="list-style-type: none"> • Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käytettävä 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 szerszámmal használja • Jäsitikinkite, kad naudojamas reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun zgur li tintuža l-ghodda t-tajba • Asigurați-vă că este utilizată scula corectă 		
	<ul style="list-style-type: none"> • Next service date (month/year) • Nächster Wartungstermin (Monat/Jahr) • Seuraava huollon päivämäärä (kuukausi/vuosi) • Neste servicedato (måned/år) • Επόμενη ημερομηνία σέρβις (μήνας / έτος) • Data da próxima intervenção técnica (mês / ano) • Data następnego serwisu (miesiąc/rok) • Datum příští prohlídky (měsíc / rok) • Következő szerviz dátuma (hó / év) • Kitos techninės priežiūros data (mėnuo / metai) • Datum naslednjega servisa (mesec / leto) • Id-data tas-servis li jmiss (xahar / sena) 	<ul style="list-style-type: none"> • Volgende onderhoudsdatum (maand / jaar) • Date de la prochaine révision (mois/année) • Nästa servicedatum (månad/år) • Næste servicedato (måned/år) • Fecha de siguiente revisión (mes/año) • Prossimo intervento di assistenza (mese / anno) • Dátum nasledujúcej opravy (mesiac/rok) • Järgmise hoolduse kuupäev (kuu / aasta) • Nākamais apkopes datums (mēnesis / gads) • Дата следующего обслуживания (месяц/год) • Bir sonraki servis tarihi (ay / yıl) • Data următoarei vizite de service (lună/an) 		

**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

Attenzione

L'installazione e la manutenzione del prodotto devono essere affidate a personale competente e autorizzato, nel rigoroso rispetto delle presenti istruzioni di funzionamento, degli standard applicabili e delle normative in vigore, qualora appropriato.

Conservare questa guida utente per consultarla in seguito

Ostrzeżenie!

Instalacja i konserwacja urządzenia muszą być prowadzone przez wykwalifikowany personel, w zgodzie z poniższymi instrukcjami, obowiązującymi standardami i wymogami prawa.

Niniejszą instrukcję należy zachować do późniejszego wykorzystania.

Pozor!

Tento výrobok musí byť nainštalovaný a udržiavaný iba kompetentnou a autorizovanou osobou, pri prísnom dodržiavaní tohto návodu na použitie, príslušných štandardov a zákonných požiadaviek v prípade potreby.

Uschovajte túto užívateľskú príručku pre budúce použitie

Upozornění!

Tento produkt smí instalovat a údržbu smí provádět pouze kompetentní a autorizovaný personál, a to za přísného dodržování tohoto návodu k obsluze, veškerých relevantních norem a zákonných požadavků tam, kde je to nutné.

Tuto uživatelskou příručku uschovejte pro pozdější potřebu.

Hoiatus!

Toote paigaldamine ja hooldamine on lubatud ainult pädeval, vastavate volitustega töötajal, kes tegutseb kasutusjuhendi nõudeid, asjakohaseid standardeid ja kehtivaid eeskirju järgides

Hoidke käesolev kasutusjuhend alal edaspidiseks kasutamiseks

Figyelem!

A terméket csak szakképzett és felhatalmazott személy helyezheti üzembe és tarthatja karban, a kezelési utasítások, a vonatkozó szabványok és jogi előírások szigorú betartása mellett, ahol azok alkalmazhatók.

A leírást tartsa mindig elérhető helyen

Brīdinājums!

Iekārtas uzstādīšanu un apkopi drīkst veikt tikai kompetents un pilnvarots personāls, stingri ievērojot lietošanas instrukciju un citus saistītus standartus un likumdošanā noteiktās prasības, kad nepieciešams.

Saglabājiet šo lietotāja rokasgrāmatu turpmākām uzziņām

Ispėjimas!

Montuoti ir prižiūrėti šį gaminį gali tik kompetentingi ir įgalioti darbuotojai, griežtai laikydamiesi šių naudojimo instrukcijų, visų atitinkamų standartų bei teisinių reikalavimų, jei tai yra taikytina.

Pasilikite šį vartotojo vadovą, jame esančios informacijos gali prireikti vėliau

Предупреждение!

Установку и техническое обслуживание данного оборудования разрешается выполнять только специалисту, имеющему допуск к выполнению таких работ, при строгом соблюдении данной инструкции по эксплуатации, соответствующих стандартов и применимых нормативных актов.

Сохраните это руководство пользователя, чтобы обращаться к нему в дальнейшем

Opozorilo!

Izdelek lahko namestijo in vzdržujejo le usposobljeni in pooblašчени delavci, ki morajo pri tem strogo upoštevati navodila za uporabo, vse standarde in zakonske zahteve, ki veljajo za posamezno situacijo.

Shranite ta navodila za uporabo za v prihodnje

Dikkat!

Bu ürün yalnızca yetkili ve kalifiye personel tarafından monte edilmeli ve bakımı yapılmalıdır. Kullanım talimatına, ilgili standartlara ve yasal şartlara harfiyen uyulmalıdır.

Bu kullanım kılavuzunu ileride başvurmak için saklayın.

Twissija!

Dan il-prodott ghandu jiġi installat u jinghata l-manutenzjoni minn personal kompetenti u awtorizzat biss, taht sorveljanza stretta ta' dawn l-istruzzjonijiet tat-thaddim, u kwalunkwe standards u htigijiet legali rilevanti fejn hu xieraq.

Erfä' din il-gwida biex tikkonsultaha fil-futur.

Vertizare!

Acest produs trebuie instalat și întreținut numai de către personal competent și autorizat, cu respectarea strictă a acestor instrucțiuni de utilizare, a tuturor standardelor relevante și a cerințelor legale, unde este cazul.

Păstrați acest ghid al utilizatorului pentru consultări ulterioare

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Model	BSPT/NPT Port Size	Flow Rate	Dimensions	Weight	Operating Parameters	Filter Grade	Filter Models	Max Operating Pressure	Max Operating Temperature	Min Operating Temperature
Model	BSPT/NPT poortafmeting	Stroom snelheid	Atmetingen	Gewicht	Bedrijfs parameters	Filter kwaliteitsgraad	Filter modellen	Maximale bedrijfsdruk	Maximale bedrijfstemperatuur	Minimale bedrijfstemperatuur
Modell	BSPT/NPT Anschlussgröße	Durchflussrate	Abmessungen	Gewicht	Betriebsparameter	Filterklasse	Filtermodell	Max. Betriebsdruck	Max. Betriebstemperatur	Min. Betriebstemperatur
Modèle	Taille du port BSPT/NPT	Débit	Dimensions	Poids	Paramètres de fonctionnement	Grade de filtres	Modèles de filtres	Pression de fonctionnement max.	Température de fonctionnement max.	Température de fonctionnement min.
Malli	BSPT NPT- portin koko	Virtausnopeus	Mitat	Paino	Käyttöparametrit	Suodatinluokka	Suodatinmallit	Suurin käyttöpaino	Suurin käyttölämpötila	Pienin käyttölämpötila
Modell	BSPT NPT- öppningsstorlek	Flödes-hastighet	Mått	Vikt	Driftsparametrar	Filter-klass	Filter-modeller	Högsta driftstryck	Högsta drifts-temperatur	Lägst drifts-temperatur
Modell	BSPT NPT- Portstørrelse	Strømnings-hastighet	Mål	Vekt	Driftsparametere	Filter-type	Filter-modeller	Maks. drifts-trykk	Maks. drifts-temperatur	Min. drifts-temperatur
Model	BSPT NPT- portstørrelse	Flow-hastighed	Mål	Vægt	Driftsparametre	Filter-kvalitet	Filter-modeller	Maks. drifts-tryk	Maks. drifts-temperatur	Min. drifts-temperatur
Μοντέλο	Μέγεθος θύρας BSPT/NPT	Ρυθμός παροχής	Διαστάσεις	Βάρος	Παράμετροι λειτουργίας	Κατηγορία φίλτρου	Μοντέλα φίλτρων	Μέγ. πίεση λειτουργίας	Μέγ. θερμοκρασία λειτουργίας	Ελάχισ. θερμοκρασία λειτουργίας
Modelo	Tamaño de puerto BSPT/NPT	Caudal	Dimensiones	Peso	Parámetros de funcionamiento	Grado del filtro	Modelos de filtros	Presión de funcionamiento máxima	Temperatura de funcionamiento máxima	Temperatura de funcionamiento mínima
Modelo	Tamanho da Porta BSPT NPT	Taxa de Fluxo	Dimensões	Peso	Parâmetros de Funcionamento	Grau do Filtro	Modelos do Filtro	Pressão Máx. de Funcionamento	Temperatura Máxima de Funcionamento	Temperatura Mínima de Funcionamento
Modello	Dimensioni collegamento BSPT/NPT	Portata	Dimensioni	Peso	Parametri di esercizio	Grado di filtrazione	Filtri	Pressione di esercizio massima	Temperatura di esercizio massima	Temperatura di esercizio minima
Model	Wielkość otworu BSPT/NPT	Prędkość przepływu	Wymiary	Cieężar	Parametry pracy	Klasa filtra	Typy filtrów	Maks. ciśnienie robocze	Maks. temperatura pracy	Min. temperatura pracy
Model	BSPT/NPT Prietoková veľkosť portu	Prítoková rýchlosť Rate	Rozmery	Hmotnosť	Prevádzkové parametre	Trieda filtra	Typy filtrov	Max. prevádzkový tlak	Max. prevádzková teplota	Min. prevádzková teplota
Model	Velikost závitů BSPT/NPT	Rychlost průtoku	Rozměry	Hmotnost	Provozní parametry	Klasifikace filtru	Modely filtru	Maximální provozní tlak	Maximální provozní teplota	Minimální provozní teplota
Mudel	BSPT/NPT pordi suurus	Voolukulu	Mõõmed	Kaal	Talitlusparameetrid	Filtratsiooniaste	Filtri mudelid	Maksimaalne töösurve	Maksimaalne töötemperatuur	Minimaalne töötemperatuur
Tipus	BSPT/NPT Csőcsonk mérete	Áramlási sebesség	Méretek	Tömeg	Üzemi paraméterek	Szűrő fokozat	Szűrő típusa	Max. üzemi nyomás	Max. üzemi hőmérséklet	Min. üzemi hőmérséklet
Modelis	BSPT/NPT porta lielums	Plūsmas ātrums	Izmēri	Svars	Darbības parametri	Filtru kategorija	Filtru modeļi	Maks. darbības spiediens	Maks. darbības temperatūra	Min. darbības temperatūra
Modelis	BSPT/NPT Prievado dydis	Srauto tėkm greitis	Matmenys	Svoris	Darbiniai parametrai	Filtro klasė	Filtro modeliai	Maks. darbinis slėgis	Maks. darbinė temperatūra	Min. darbinė temperatūra
Модель	Диаметр отверстия BSPT/NPT	Скоросток	Габариты	Вес	Рабочие параметры	Качество фильтра	Модели фильтров	Макс. рабочее давление	Макс. рабочая температура	Мин. рабочая температура
Model	Velikost vrat BSPT/NPT	Hitrost pretoka	Mere	Teža	Delovni parametri	Razred filtra	Modeli filtrov	Maks. delovni tlak	Maks. delovna temperatura	Min. delovna temperatura
Model	BSPT/NPT Port Boyu	Akım Hızı	Boyutlar	Ağırlık	İşletim Parametreleri	Filtre Derecesi	Filtre Modelleri	Azami İşletme Basıncı	Azami İşletme Isısı	Asgari İşletme Isısı
Mudell	Dağıt tal-Port BSPT/NPT	Rata tal-Fluss	Dimensjonijiet	Piż	Parametri ta l-Operar	Grad tal-Filtru	Mudelli tal-Filtru	Pressjoni Massima ta' l-Operar	Temperatura Massima ta' l-Operar	Temperatura Minima ta' l-Operar
Mode	Dimensiune port BSPT/NPT	Debi	Dimensiuni	Greutate	Parametri de funcționare	Gradul filtrului	Modele de filtr	Presiune maximă de funcționare	Temperatură maximă de funcționare	Temperatură minimă de funcționare

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Model	Pipe Size	L/s	m³/min	m³/hr	cfm
005A	¼"	6	0.4	22	13
005B	¾"	6	0.4	22	13
005C	½"	6	0.4	22	13
010A	¼"	10	0.6	36	21
010B	¾"	10	0.6	36	21
010C	½"	10	0.6	36	21
015B	¾"	20	1.2	72	42
015C	½"	20	1.2	72	42
020C	½"	30	1.8	108	64
020D	¾"	30	1.8	108	64
020E	1"	30	1.8	108	64
025D	¾"	60	3.6	216	127
025E	1"	60	3.6	216	127
030E	1"	110	6.6	396	233
030F	1¾"	110	6.6	396	233
030G	1½"	110	6.6	396	233
035F	1¾"	160	9.6	576	339
035G	1½"	160	9.6	576	339
040G	1½"	220	13.2	792	466
040H	2"	220	13.2	792	466
045H	2"	330	19.8	1188	699
050I	2½"	430	25.9	1548	911
050J	3"	430	25.9	1548	911
055I	2½"	620	37.3	2232	1314
055J	3"	620	37.3	2232	1314

BSPT / NPT

AA005A □ FX

B = BSPT

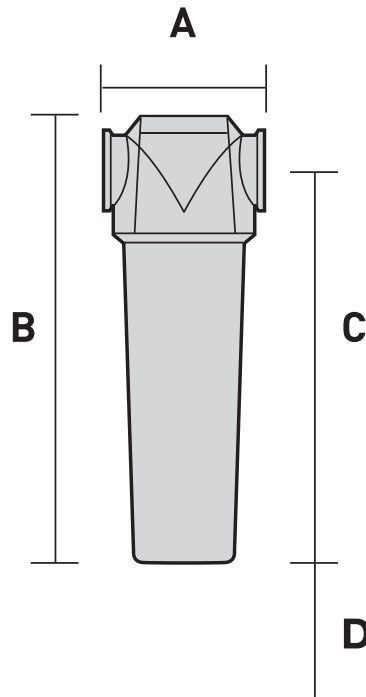
N = NPT

Filter Grade	Models	Max Operating Pressure		Max Recommended Operating Temperature		Min Recommended Operating Temperature	
		bar g	psi g	Temperature		Temperature	
AO	005 □ □ F □ -055 □ □ F □	16	232	80°C	176°F	1.5°C	35°F
AO	005 □ □ M □ -055 □ □ M □	20	290	100°C	212°F	1.5°C	35°F
AA	005 □ □ F □ -055 □ □ F □	16	232	80°C	176°F	1.5°C	35°F
AA	005 □ □ M □ -055 □ □ M □	20	290	100°C	212°F	1.5°C	35°F
AR	005 □ □ M □ -055 □ □ M □	20	290	100°C	212°F	1.5°C	35°F
AAR	005 □ □ M □ -055 □ □ M □	20	290	100°C	212°F	1.5°C	35°F
ACS	005 □ □ M □ -055 □ □ M □	20	290	50°C	122°F	1.5°C	35°F

Weights and Dimensions

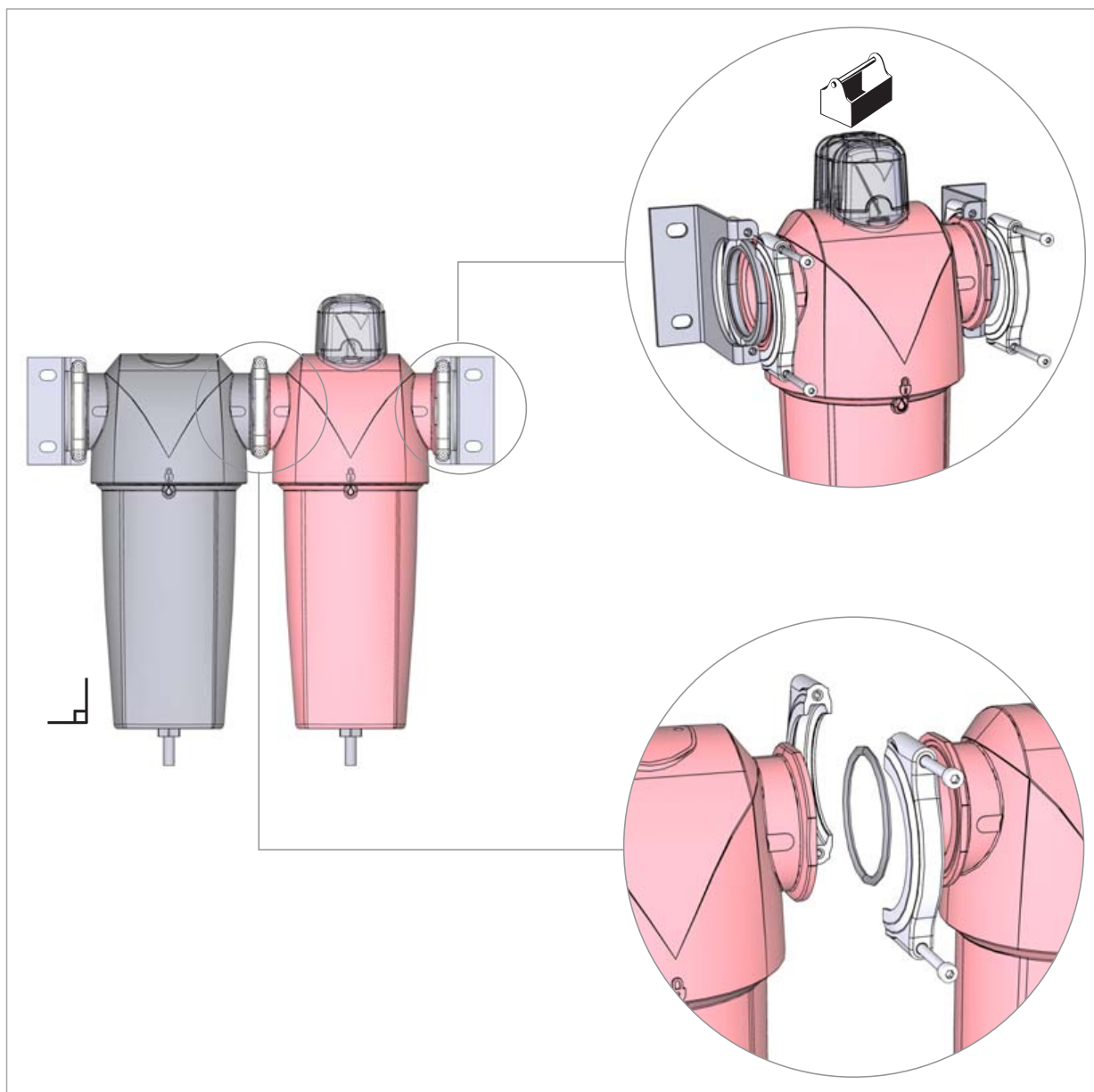
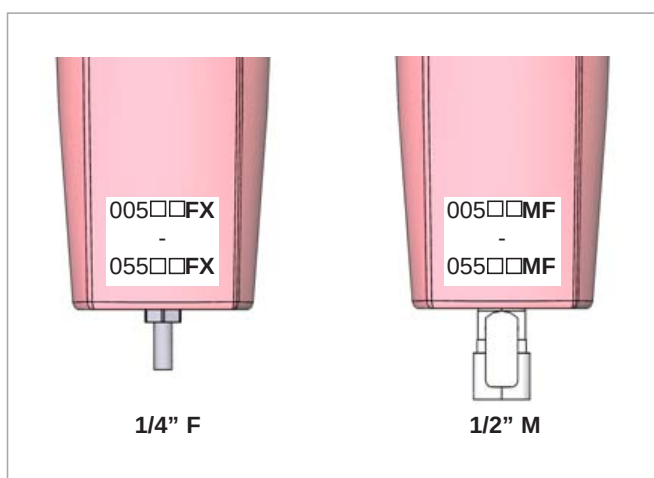
- Gewichten en afmetingen • Gewicht und Abmessungen • Poids et dimensions • Painot ja mitat • Vikter och mått • Vekt og dimensjone
- Vægt og mål • VΨgt og mΨl • Pesos y dimensiones • Pesos e Dimensões • Pesi e dimensioni • Ciężary i wymiary • Hmotnosti a rozmery
- Hmotnost a rozměry • Kaalud ja mõõtmised • Tömeg és méretek • Svors un izmēri • Svoris ir matmenys • Вес и габариты • Teže in mere
- Ağırlıklar ve Boyutlar • Pizijiet u Dimensjonijiet • Greutăți și dimensiuni

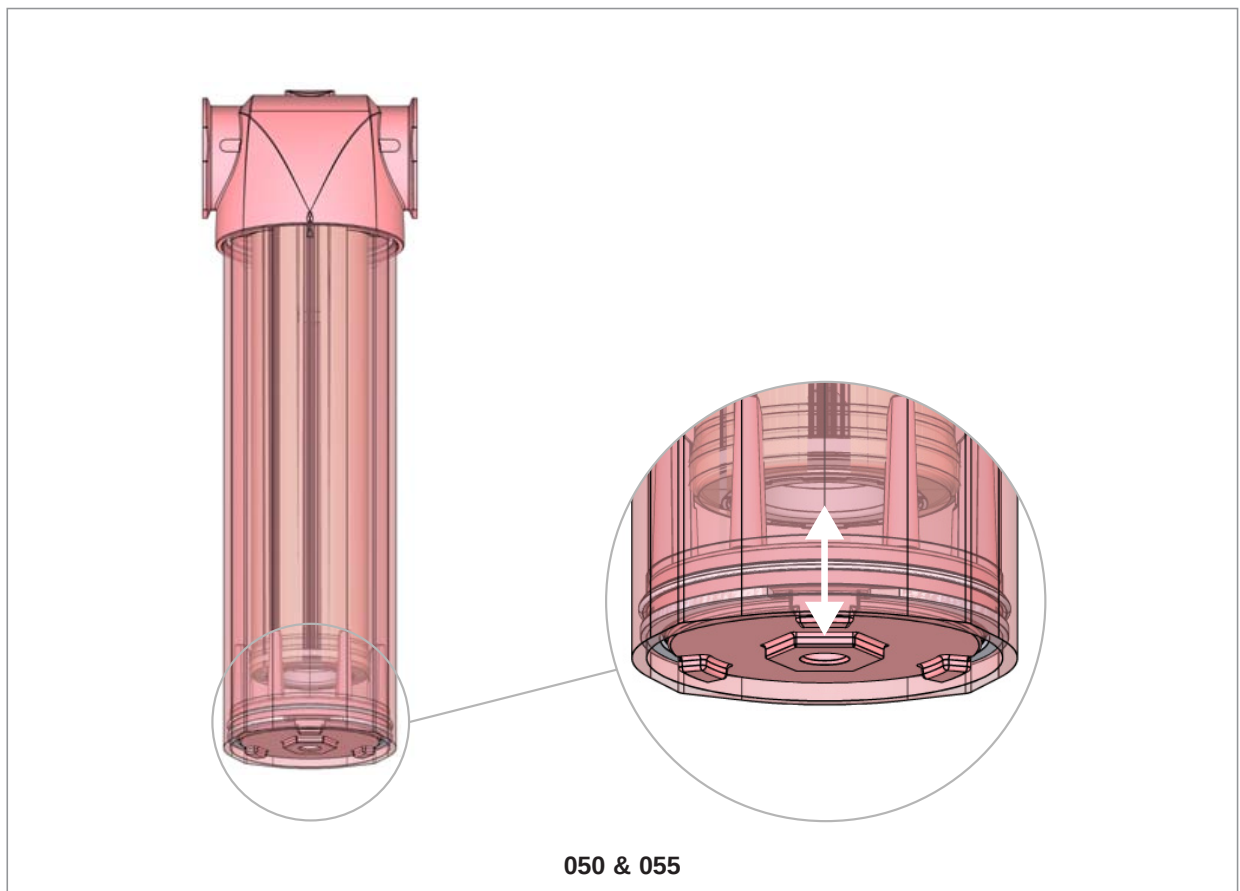
Model	Pipe Size	A		B		C		D		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
005A	¼"	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
005B	¾"	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
005C	½"	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
010A	¼"	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
010B	¾"	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
010C	½"	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
015B	¾"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
015C	½"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020C	½"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020D	¾"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020E	1"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
025D	¾"	129	5.1	275	10.8	232.5	9.2	70	2.76	2.2	2.5
025E	1"	129	5.1	275	10.8	232.5	9.2	70	2.76	2.2	2.5
030E	1"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
030F	1¼"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
030G	1½"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
035F	1¼"	170	6.7	432.5	17	382.5	15.1	100	3.94	5.1	11.2
035G	1½"	170	6.7	432.5	17	382.5	15.1	100	3.94	5.1	11.2
040G	1½"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
040H	2"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
045H	2"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
050I	2½"	205	8.1	641.5	25.3	581.5	22.9	120	4.72	11.1	24.4
050J	3"	205	8.1	641.5	25.3	581.5	22.9	120	4.72	11.1	24.4
055I	2½"	205	8.1	832	32.8	772	30.4	120	4.72	13.9	30.6
055J	3"	205	8.1	832	32.8	772	30.4	120	4.72	13.9	30.6



8

FILTER DH-OIL-X EVO AO AA 01-





- (EN) The lower closure plate may move when the filter is not pressurised.
- (NL) Het onderste sluitplaatje zou kunnen bewegen wanneer het filter niet onder druk staat.
- (DE) Die untere Verschlussplatte kann sich bewegen, wenn der Filter nicht mit Druck beaufschlagt ist.
- (FR) La plaque d'obturation la plus basse peut bouger si le filtre n'est pas pressurisé.
- (FI) Alempi sulkulevy saattaa liikkua, kun suodatin ei ole paineistettu.
- (SV) Den lägre slutningsplattan kan rubbas när filtret inte är trycksatt.
- (NO) Den nedre trykkplaten kan bevege seg når filteret ikke er trykksatt.
- (DA) Den nedre lukkeplade kan bevæge sig, når filtret ikke sættes under tryk.
- (EL) Η κάτω πλάκα κλεισίματος μπορεί να μετακινηθεί εάν το φίλτρο δεν βρίσκεται υπό πίεση.
- (ES) La placa inferior de cierre puede moverse si el filtro no está presurizado.
- (PT) A placa de isolamento inferior pode deslocar-se se o filtro não estiver pressurizado.
- (IT) Quando il filtro non è sotto pressione, la piastra di chiusura inferiore potrebbe spostarsi.

AO, AA, ACS, AR, AAR

005 - 055

- (PL) Pokrywa dolna może się przesuwać, gdy filtr nie będzie pod ciśnieniem.
- (SK) Ak filter nie je natlakovaný, spodná uzatváracia platňa sa môže posunúť.
- (CS) Spodní uzavírací deska se může pohybovat, pokud je filtr pod tlakem.
- (ET) Alumine sulgurplaat võib liikuda, kui filter ei ole rõhu all.
- (HU) Az alsó zárólemez elmozdulhat, ha a szűrő nincs nyomás alatt.
- (LV) Apakšējā noslēgplāksne var kustēties, ja filtrs nav zem spiediena.
- (LT) Jeigu filtre nėra slėgio, apatinė uždaromoji plokštė gali judėti.
- (RU) Если фильтр не загерметизирован, возможно смещение нижней замыкающей пластины.
- (SL) Spodnja plošča za zapiranje se lahko premika, ko filter ni pod pritiskom.
- (TR) Filtreye basınç uygulanmadığında alt kapama levhası hareket edebilir.
- (MT) L-aċċessorji għandhom ikunu mqabbdin ma' l-ert - art
- (RO) Placa inferioară de acoperire se poate deplasa atunci când filtrul nu este presurizat

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- **Kif Tixghel u Kif Thaddem**

EN

1. Open inlet valve slowly to gradually pressurise the unit.
2. Open outlet valve slowly to re-pressurise the downstream piping

Do not open inlet or outlet valves rapidly or subject unit to excessive pressure differential or damage may occur.

NL

1. Doe de inlaatklep langzaam open om het toestel geleidelijk onder druk te zetten.
2. Doe de uitlaatklep langzaam open om de leidingen verderop in het systeem opnieuw onder druk te zetten.

De inlaat- en uitlaatkleppen niet snel openen en het toestel niet aan een te groot drukdifferentieel blootstellen om schade te voorkomen.

DE

1. Einlassventil langsam öffnen, damit Einheit allmählich mit Druck beaufschlagt wird.
2. Auslassventil langsam öffnen, damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.

Einlass- und Auslassventil nicht schnell öffnen. Einheit nicht extremen Druckunterschieden aussetzen. Gefahr von Schäden.

FR

1. Ouvrez lentement la soupape d'admission pour mettre progressivement l'unité sous pression.
2. Ouvrez lentement la soupape de refoulement pour faire remonter la pression des conduits en aval.

Évitez d'ouvrir la soupape d'admission ou la soupape de refoulement trop rapidement ou de soumettre l'unité à une pression différentielle trop importante au risque d'entraîner des dommages.

FI

1. Paineista yksikkö asteittain avaamalla tuloventtiili.
2. Paineista laskuputkisto uudelleen avaamalla lähtöventtiili hitaasti

Älä avaa tulo- tai lähtöventtiiliä nopeasti tai altista yksikköä liialliselle paine-erolle, sillä yksikkö voi vaurioitua.

SV

1. Öppna inloppsventilen långsamt så att enheten trycksätts gradvis.
2. Öppna utloppsventilen långsamt för att trycksätta rören nedströms på nytt.

Öppna inte inlopps- eller utloppsventilerna snabbt och utsätt inte enheten för överdrivet differentialtryck, eftersom det kan orsaka skador.

NO

1. Åpne inntaksventilen langsomt for å sette enheten gradvis under trykk.
2. Åpne uttaksventilen langsomt for å sette nedstrømsrørene under trykk igjen.

Ikke åpne inntaks- eller uttaksventilene rast eller utsett enheten for høyt differensialtrykk, da dette kan føre til skade.

DA

1. Åbn langsomt indgangsventilen for gradvist at sætte enheden under tryk.
2. Åbn langsomt udløbsventilen for at sætte rørene længere fremme under tryk igen.

Åbn ikke indgangs- eller udgangsventiler hurtigt, og udsæt ikke enheden for store trykforskelle, da det kan medføre skader.

AO, AA, ACS, AR, AAR

005 - 055

EL

1. Ανοίξτε αργά τη βαλβίδα εισαγωγής για να ανέβει σταδιακά η πίεση της μονάδας.
2. Ανοίξτε αργά τη βαλβίδα εξαγωγής για να ανέβει η πίεση της σωλήνωσης κατάντι

Μην ανοίγετε γρήγορα τις βαλβίδες εισαγωγής ή εξαγωγής και μην υποβάλλετε τη μονάδα σε υπερβολική διαφορική πίεση, διότι μπορεί να προκύψει βλάβη.

ES

1. Abra lentamente la válvula de admisión para presurizar progresivamente la unidad.
2. Abra lentamente la válvula de descarga para volver a presurizar las tuberías aguas abajo.

Para evitar daños, no abra bruscamente las válvulas de admisión o de descarga ni someta la unidad a una diferencia de presiones excesiva.

PT

1. Abra lentamente a válvula de entrada para pressurizar gradualmente a unidade.
2. Abra lentamente a válvula de saída para pressurizar novamente a tubagem a jusante

Não abra rapidamente as válvulas de entrada ou saída nem sujeite a unidade a uma pressão diferencial excessiva, caso contrário poderão ocorrer danos.

IT

1. Apre lentamente la valvola di mandata per aumentare gradualmente la pressione nell'unità.
2. Apre lentamente la valvola di scarico per pressurizzare i tubi a valle

Non aprire rapidamente le valvole di mandata o scarico o sottoporre l'unità a una differenza di pressione eccessiva; rischio di danni.

PL

1. Powoli otwórz zawór wlotowy, aby stopniowo zwiększyć ciśnienie w urządzeniu.
2. Powoli otwórz zawór wylotowy, aby zwiększyć ciśnienie w rurach w dół przepływu.

Nie wolno szybko otwierać zaworów wlotowych ani wylotowych, ponieważ może to doprowadzić do zbyt dużej różnicy ciśnień w urządzeniu i do jego uszkodzenia.

SK

1. Pre postupné natlakovanie jednotky pomaly otvorte prívodný ventil.
2. Pre opätovné natlakovanie potrubia v smere toku pomaly otvorte vývodný ventil.

Neotvárajte prívodný alebo vývodný ventil rýchlo ani nevystavujte jednotku nadmernému rozdielu tlaku, lebo môže dôjsť k poškodeniu.

CS

1. Pomalým otevřením přívodního ventilu jednotku pozvolna natlakujte.
2. Pomalým otevřením výstupního ventilu znovu natlakujte potrubí ve směru rozvodu.

Přívodní ani výstupní ventily neotvírejte rychle, ani jednotku nevystavujte nadměrným rozdílům tlaku, v opačném případě může dojít k poškození.

ET

1. Üksuse järgjärguliseks survestamiseks avage sisselaskeventiil aeglaselt.
2. Surve taastamiseks väljavoolutorustikus avage väljalaskeventiil aeglaselt.

Sisselaske- ja väljalaskeventiile ei tohi avada kiiresti ega põhjustada üksuses liiga suurt surveangu, mis võib tekitada sellele kahjustusi.

HU

1. Az egység fokozatosan történő nyomás alá helyezéséhez a bemenő szelepet lassan nyissa meg.
2. Az elmenő csővezeték nyomásának visszaállításához lassan nyissa meg az elmenő szelepet

A berendezés károsodásának elkerülése érdekében ne nyissa meg túl gyorsan a bemenő vagy az elmenő szelepet, és ne tegye ki az egységet nagy nyomáskülönbségnek.

LV

1. Lēnām atveriet ieplūdes vārstu, lai iekārtā pamazām paaugstinātu spiedienu.
2. Lēnām atveriet izplūdes vārstu, lai caurulēs plūsmas virzienā samazinātu spiedienu

Neatveriet ieplūdes un izplūdes vārstus strauji, pretējā gadījumā attiecīgajā iekārtā var rasties pārmērīgi liels spiediens vai tā var sabojāties.

LT

1. Lėtai atidarydami įleidimo vožtuvą, palaipsniui sudarykite slėgį įrenginyje.
2. Lėtai atidarydami išleidimo vožtuvą, iš naujo sudarykite slėgį pasroviui esančiame vamzdyne

Negalima staigiai atidaryti įleidimo ar išleidimo vožtuvų, nei paveikti įrenginio pernelyg dideliu diferencialiniu slėgiu, nes galima sugadinti įrangą.

RU

1. Впускной клапан следует открывать плавно, чтобы постепенно создать давление в устройстве.
2. Плавно откройте выпускной клапан, чтобы создать давление в системе трубопровода

Запрещено резко открывать впускной или выпускной клапаны, а также используемое устройство, так как это может привести к перепаду давления и повреждениям.

SL

1. Za počasno dajanje pod pritisk počasi odprite dovodni ventil.
2. Počasi odprite dovodni ventil za ponovno dajanje spodnjih cevi pod pritisk.

Dovodne ali odvodne ventile odpirajte počasi in enote ne izpostavljajte prevelikim nihanjem tlaka, saj lahko to povzroči škodo.

TR

1. Giriş valfini yavaşça açıp üniteye yavaş yavaş basınç uygulayın.
2. Mensap tarafındaki borulara yeniden basınç uygulamak için çıkış valfini yavaşça açın

Giriş ve çıkış valflerini hızla açmayın ve üniteyi aşırı basınç farklarına maruz bırakmayın; aksi halde hasar görülebilir.

MT

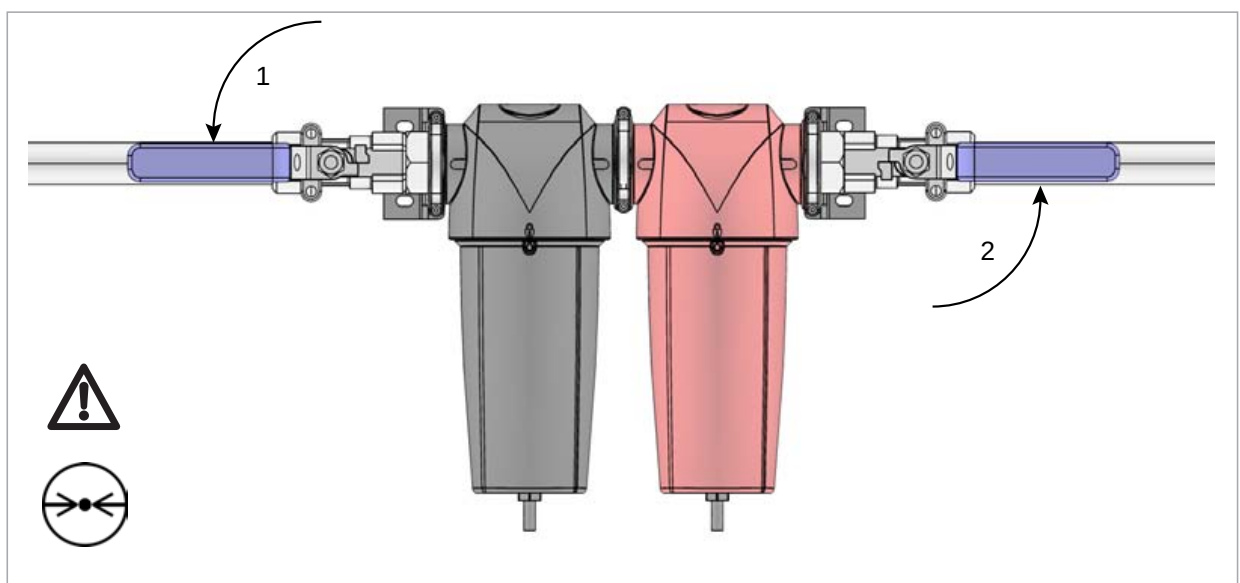
1. Iftah il-valv tad-dhul bil-mod, biex bil-mod tizzied il-pressjoni fit-tagħmir.
2. Iftah il-valv tal-hruġ bil-mod biex terġa' tibni l-pressjoni fil-pajps li jwasslu 'l isfel

Ara li ma tiftahx il-valvs tad-dhul jew tal-hruġ f'daqqa jew b'xi mod tikkawża differenza eċċessiva fil-pressjoni tat-tagħmir għax tista' tagħmel il-hsara.

RO

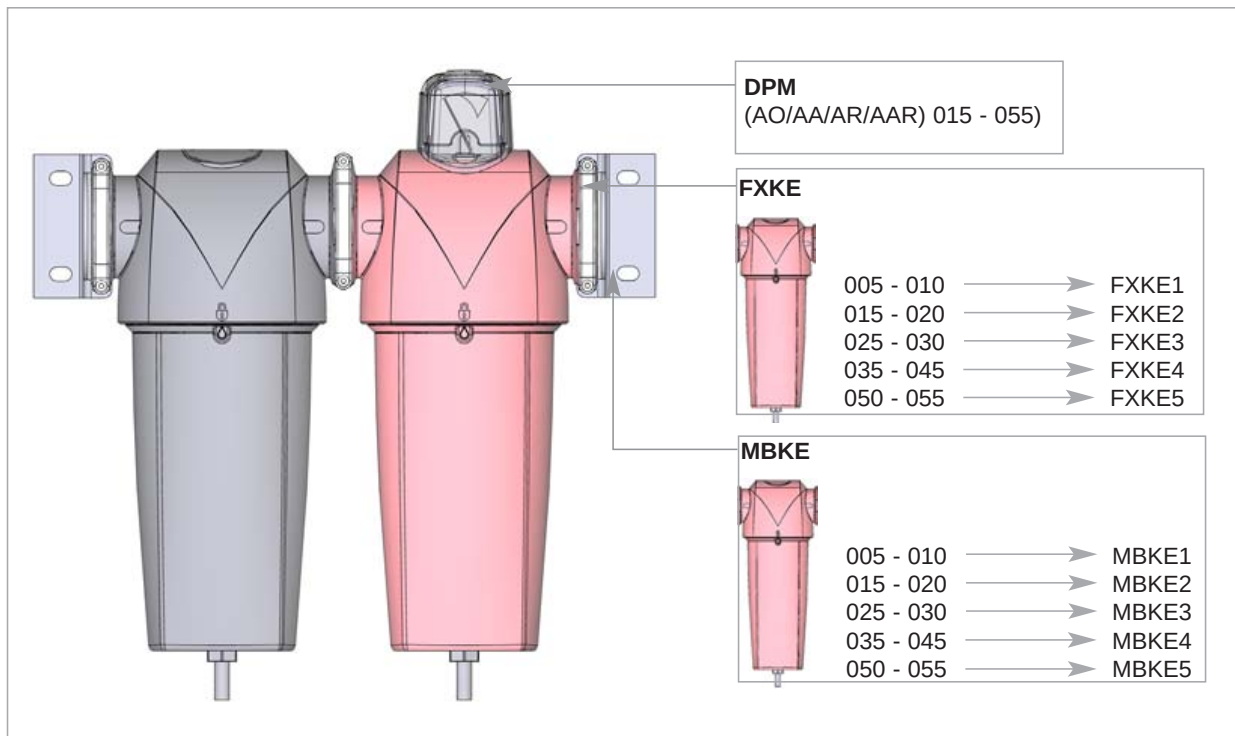
1. Deschideți lent supapa de admisie, pentru a presuriza gradat aparatul.
2. Deschideți lent supapa de evacuare pentru a represuriza sistemul de conducte din aval

Nu deschideți rapid supapele de admisie sau de evacuare fi nu supuneți aparatul la o diferență „excesivă” de presiune; În caz contrar, aparatul poate suferi deteriorări



4. Accessories

- Toebehoren • Zubehör • Accessoires • Lisävarusteet • Tillbehör • Tilbehør • Tilbehør • Εξαρτήματα • Accesorios • Acessórios • Accessori
- Wyposażenie • Príslušenstvo • Příslušenství • Tarvikud • Tartozékok • Piederumi • Priedai • Принадлежности • Dodatna oprema
- Aksesuarlar • Accessorji • Accesorii



AO, AA, ACS, AR, AAR 005 - 055

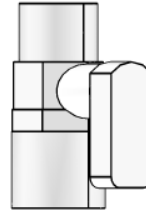
5. Spare Parts (Service Kits)

- Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) • Pièces de rechange (nécessaires d'entretien) • Varaosat (Huoltopakkausset)
- Reservdelar (servicesatser) • Reservedeler (service-sett) • Reservedele (Servicekit) • Ανταλλακτικά (Πακέτο 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)
- Półalkatrézsek (szervizkészletek) • Rezerwy części (apokopes komplekti) • Atsarginės dalys (priežiūros detalių komplektai)
- Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) • Yedek parça (Servis kitleri) • Partijiet Ghat-Tibdil (Kitts tas-Servizz) • Piese de schimb (Truse de service)



EF1

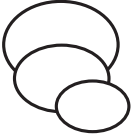
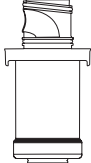
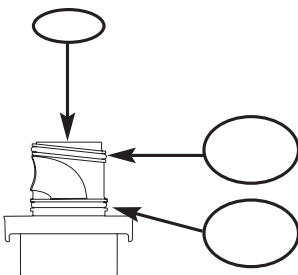
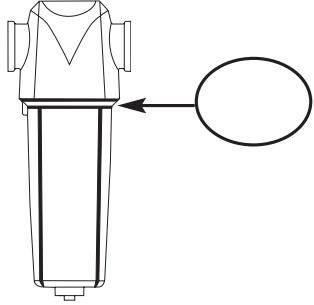
- AUTOMATIC DRAIN
- AUTOMATISCHER ABLAUF
- VIDANGE AUTOMATIQUE
- AUTOMISCHAFTAPPEN
- DRENAJE AUTOMATICO
- SCARIO AUTOMATICO
- AUTOMATISK AFLØB
- DRENO AUTOMÁTICO
- ΑΥΤΟΜΑΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ
- AUTOMATDRÄNERING
- AUTOMAATTINEN
- TYHJENNYSKAPPALE
- DREN AUTOMATYCZNY
- AUTOMATICKÉ VYSUŠENIE
- AUTOMATICKÉ VYPOUŠTĚNÍ
- AUTOMAATNE VÁLJALASE
- AUTOMATIKUS LEERESZTÉS
- AUTOMÁTISKA IZTECINĀŠANA
- AUTOMATINIS IŠLEIDIMAS
- АВТОМАТИЧЕСКИЙ ДРЕНАЖ
- SAMODEJNI ODTOK
- OTOMATİK SÜZDÜRÜCÜ
- DREJN AWTOMATIKU
- EVACUARE AUTOMATV



EM1

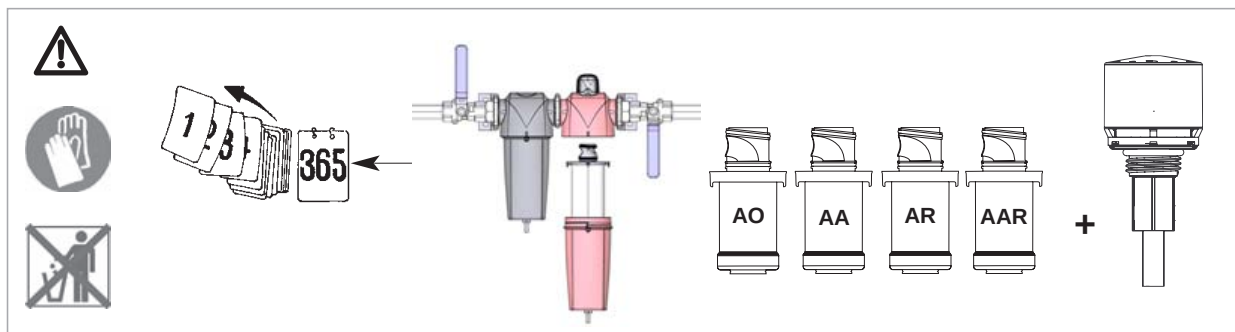
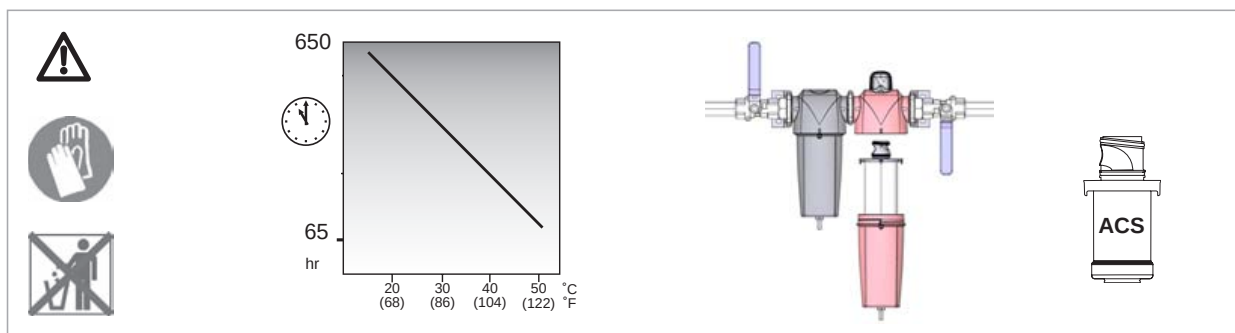
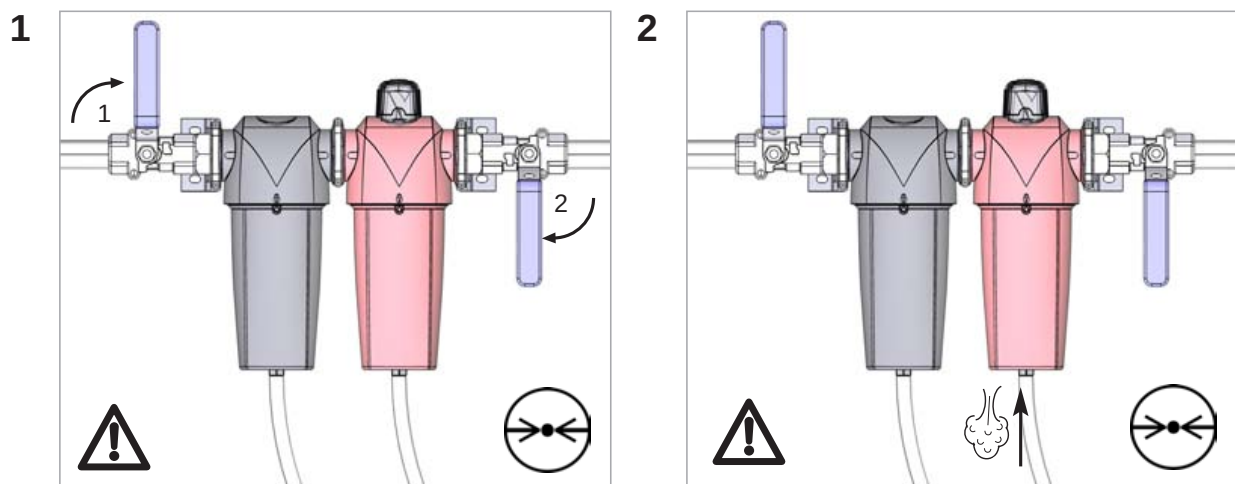
- MANUAL DRAIN
- MANUELLER ABLAUF
- VIDANGE MANUELLE
- MANUEEL AFTAPPEN
- DRENAJE MANUAL
- SCARIO MANUALE
- MANUELT AFLØB
- DRENO MANUAL
- ΧΕΙΡΟΚΙΝΗΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ
- MANUELL DRÄNERING
- KÄSIKÄYTTÖINEN
- TYHJENNYSKAPPALE
- DREN RĘCZNY
- RUČNÉ VYSUŠENIE
- RUČNÍ VYPOUŠTĚNÍ
- KÄSITSI VÁLJALASE
- KÉZI LEERESZTÉS
- MANUĀLA IZTECINĀŠANA
- RANKINIS IŠLEIDIMAS
- ДРЕНАЖ ВРУЧНУЮ
- ROČNI ODTOK
- ELLE KULLANILACAK SÜZDÜRÜCÜ
- DREJN MANWALI
- EVACUARE MANUALV

AO005A	005AO	AA005A	005AA	ACS005A	005ACS	AR005A	005AR	AAR005A	005AAR
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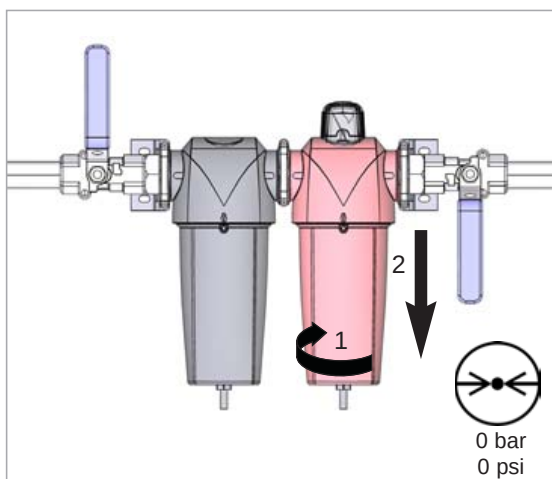
			
EMA1	005 - 010		
EMA2	015 - 020		
EMA3	025 - 030		
EMA4	035 - 045		
EMA5	050 - 055		

6. Maintenance

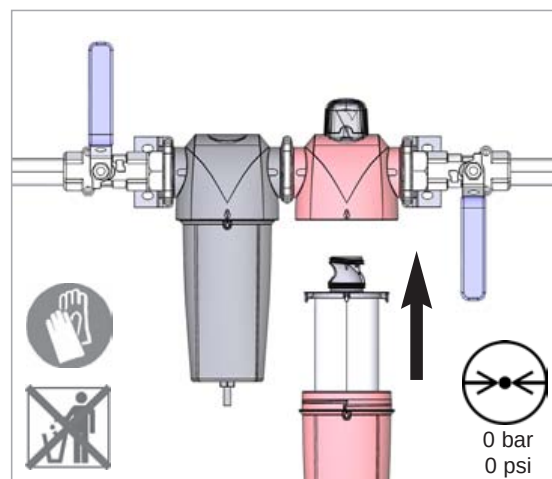
• Onderhoud • Wartung • Entretien • Kunnossapito • Underhåll • Vedlikehold • Vedligeholdelse • Συντήρηση • Mantenimiento • Manutenção • Manutenzione • Konserwacja • Údržba • Údržba • Hooldus • Karbantartás • Tehniskā apkope • Techninė priežiūra • Обслуживание • Vzdrževanja • Bakım • Manutenzjoni • Intreținere



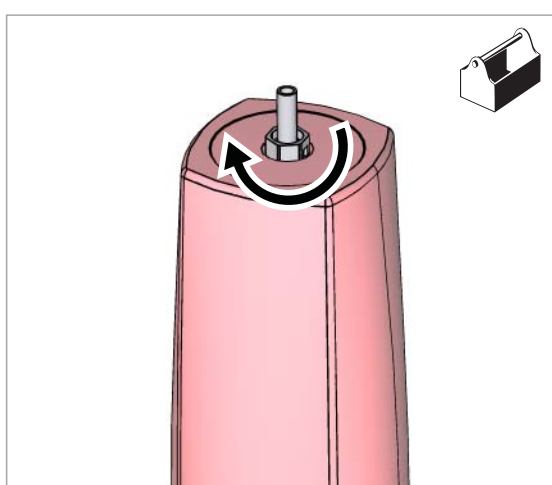
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4



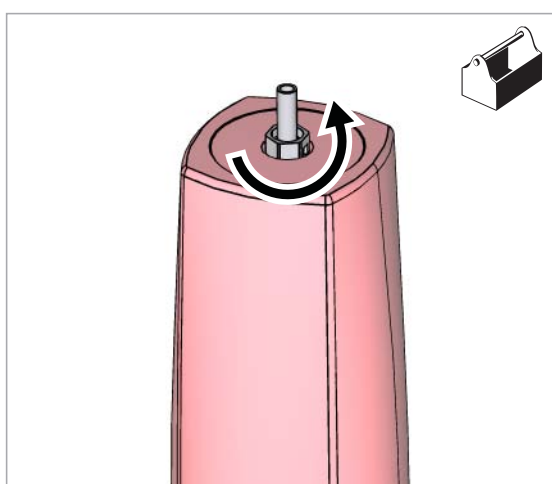
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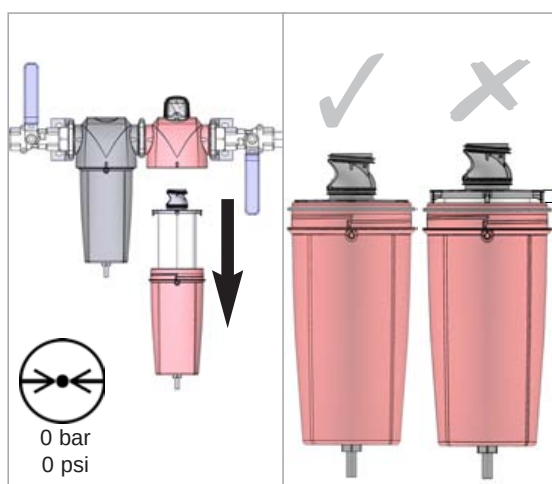
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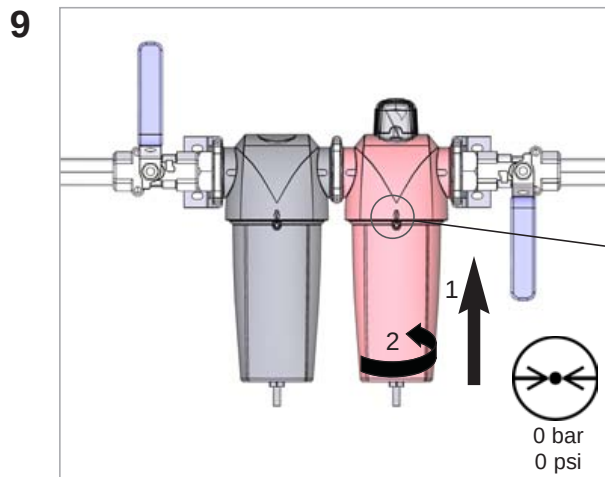
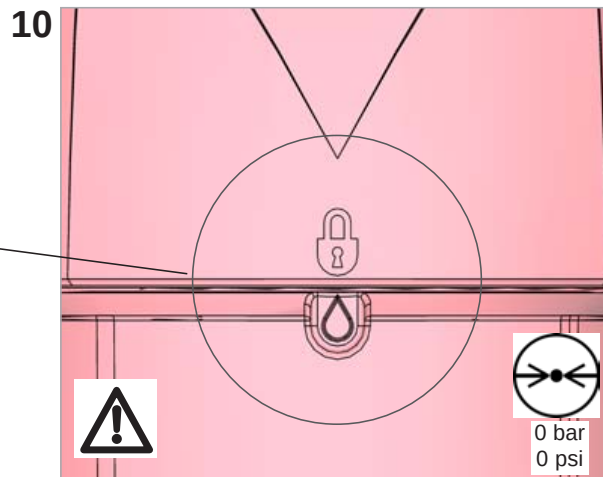
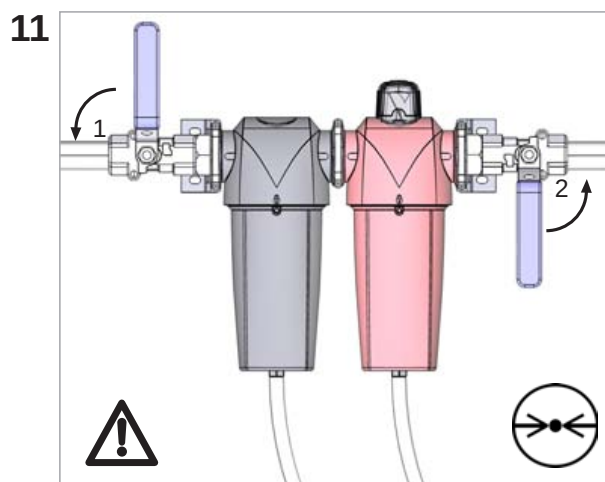
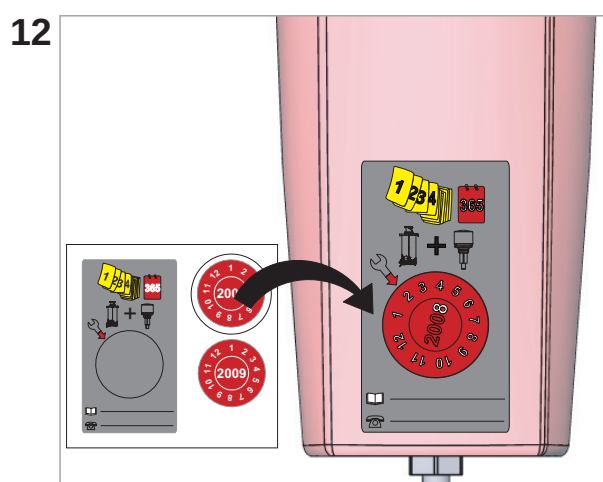


7



8

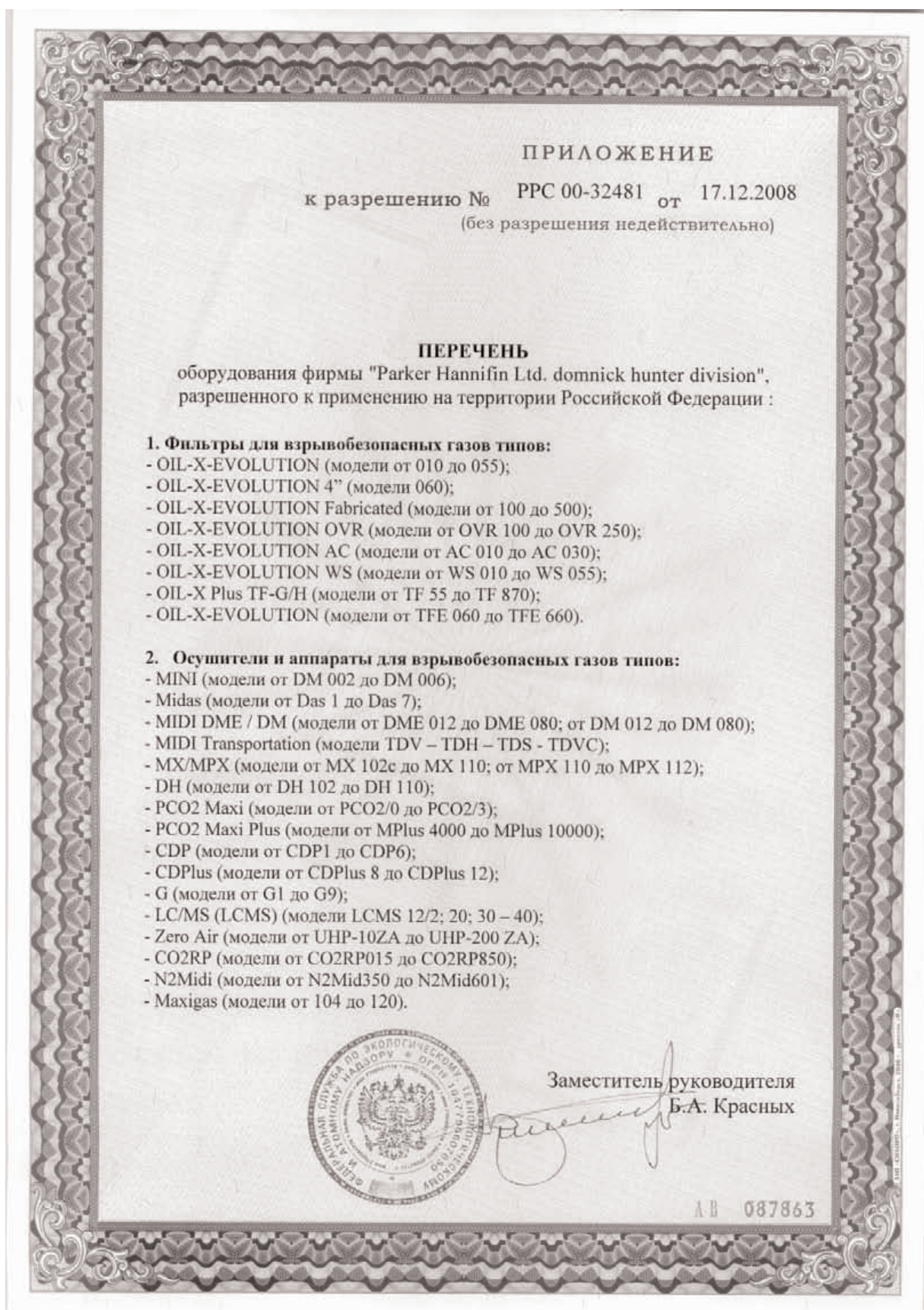




(EN)	Align the arrow to the month and year of the next service
(NL)	Breng de pijl op een lijn met de maand en het jaar van de volgende onderhoud beurt
(DE)	Stellen Sie den Pfeil auf Monat und Jahr der nächsten Wartung termin
(FR)	Alignez la flèche sur le mois et l'année de la prochaine révision
(FI)	Kohdi ta nuoli seuraavan huollon kuukauteen ja vuoteen
(SV)	Rikta pilen mot månaden och året för nästa service
(NO)	Ju ter pilen til måneden og året for neste service
(DA)	Stil pilen på måneden og år for næste service
(EL)	Ευθυγραμμίστε το βέλος με το μήνα και έτος του επόμενου σέρβις
(ES)	Alinee la flecha con el mes y año de la siguiente revisión
(PT)	Alinhe a seta com o mês e o ano da próxima intervenção técnica
(IT)	Allineare la freccia in corrispondenza del mese e anno del prossimo intervento di assistenza
(PL)	Należy ustawić strzałkę na miesiąc i rok daty następnego serwisu
(SK)	Šípku nasmerujte na mesiac a rok nasledujúcej opravy
(CS)	Umístěte šípku na měsíc a rok příští prohlídky
(ET)	Joondage nool järgmise hoolduse kuupäeva taga
(HU)	Íranyítsa a nyilat a következő szerviz hónapjára és évére
(LV)	Íranyítsa a nyilat a következő szerviz hónapjára és évére
(LT)	Nustatykite rodyklę ties kitos techninės priežiūros mėnesiu ir metais
(RU)	Совместите стрелку с месяцем и годом следующего обслуживания
(SL)	Puščico nastavite na mesec in leto naslednjega servisa
(TR)	Oku bir sonraki servis işleminin ay ve yılını hizalayın
(MT)	Allinja l-vleġġa għax-xahar u s-sena tas-servis li jmiss
(RO)	Aliniați săgeata în dreptul lunii și al anului următoarei vizite de service



FILTER DH-OIL-X EVO AO AA 01-



FILTER DH-OIL-X EVO AO AA 01-

Declaration of Conformity		EN
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directives	97/23/EC	
Standards used	Generally in accordance with ASMEVIII Div 1 2004	
PED Assessment Route	Article 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Module A (AO AA ACS AAR 035 040 045) Module B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Notified body for PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EC Type exam nat on Certificate	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Authorised Representative	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Declaration		
I declare that as the authorised representative of the above information in relation to the supply / manufacture of this product in conformity with the standards and other related documents I am aware of the provisions of the above Directives		
Signature		Date 8/8/2007
Declaration Number 0002/8807		

Verklaring van Conformiteit		NL
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Richtlijnen	97/23/EC	
Gehanteerde normen	Gewoonlijk volgens ASMEVIII Div 1 2004	
PED beoordelingsroute	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Module A (AO AA ACS AAR 035 040 045) Module B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Aangemelde instantie voor PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EC Type onderzoekscertificaat	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Bevoegde vertegenwoordiger	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Verklaring		
Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere behorende documentatie volgens de bepalingen van bovengenoemde richtlijnen		
Handtekening		Datum 8/8/2007
Verklaringnummer 0002/8807		

Konformitätserklärung		DE
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Richtlinien	97/23/EC	
Angewandte Normen	Allgemein in Übereinstimmung mit ASMEVIII Div 1 2004	
Beurteilungsrouten der Druckgerätekategorie	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Benannte Stelle für die Druckgerätekategorie	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EG Baumusterprüfbescheinigung	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Bevollmächtigter Vertreter	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
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 8/8/2007
Nummer der Erklärung 0002/8807		

Déclaration de conformité		FR
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directives	97/23/EC	
Normes utilisées	Générallement conforme à ASMEVIII Div 1 2004	
Méthode d'évaluation de la directive d'équipements de pression	Article 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Module A (AO AA ACS AAR 035 040 045) Module B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Organisme de notification pour la directive d'équipement sous pression	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Certificat d'examen de type CE	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
Représentant agréé	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
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. J'ai déclaré selon les dispositions des directives susmentionnées		
Signature		Date 8/8/2007
N° de déclaration 0002/8807		

Vaistumustenmukaisuusvakuutus		FI
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiivit	97/23/EC	
Käytetyt standardit	Yleensä seuraavan standardin mukaisesti ASMEVIII Div 1 2004	
PED arviointimenetelmä	Artikla 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Moduuli A (AO AA ACS AAR 035 040 045) Moduuli B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
PED säännösten ilmoittaminen	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EY tyyppihyväksynnän sertifikaatti	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Valtuutettu edustaja	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Vakuutus		
Valtuutetun edustajan vakuutus on tässä oltava tiedot, jotka liittyvät tämän tuotteen toimintaan täsmäsen laatuvarmistuksen, ova standardien ja muiden asiain liittyvien asukojen mukaisia ja noudatettavat yllä mainittuja direktiivejä		
Allekirjoitus		Päiväys 8/8/2007
Vakuutuksen numero 0002/8807		

Försäkran om överensstämmelse		SV
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiv	97/23/EC	
Använda standarder	Allmänt i överensstämmelse med ASMEVIII Div 1 2004	
Fastställningsväg för PED	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Anmält organ för PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EG intyg om typgodkänning	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
Auktoriserad representant	Derek Bankier Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
Försäkran		
Jag försäkrar i egenskap av auktoriserad representant att ovanstående information avseende leverans av denna produkt överensstämmer med standarder och övriga relevanta dokument enligt vilka korens i ovanstående direktiv		
Underskrift		Datum 8/8/2007
Försäkrans nummer 0002/8807		

Konformitetserklæring		NO
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiver	97/23/EC	
Benyttede standarder	Hovedsakelig i samsvar med ASMEVIII d v 1 2004	
Rule for vurdering av PED (d rett vet for trykklågt utstyr)	Paragraf 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Underrettet organ for PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
EC typegodkjenn ngssertifikat	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Autorisert representant	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Erklæring		
Jeg erklærer som autorisert representant at informasjonen ovenfor med hensyn til levering/produksjon av dette produktet er i overensstemmelse med standardene og andre relaterte dokumenter følge bestemmelsene i direktivene ovenfor		
Signatur		Dato 8/8/2007
Erklæring nr 0002/8807		

Declaración de conformidad		ES
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directivas	97/23/EC	
Normas utilizadas	Generalmente de conformidad con ASMEVIII Div 1 2004	
Rule de evaluación de la normativa PED	Artículo 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Módulo A (AO AA ACS AAR 035 040 045) Módulo B (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Organismo not ficado para la normativa PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Cert ficado de examen CE de tipo	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Representante autorizado	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Declaración		
Como representante autorizado declaro que la información anteriormente expuesta en relación con el suministro y/o fabricación de este producto cumple las normativas indicadas y otros documentos afines según las disposiciones de las Directivas citadas anteriormente		
Firma		Fecha 8/8/2007
Número de declaración 0002/8807		

Overensstemmelseerklæring		DA
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiver	97/23/EC	
Anvendte standarder	Generelt i overensstemmelse med ASMEVIII div 1 2004	
Forløb for PED bedømmelse	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Not ficeret organ for PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
EF typeprøvningsattest	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Autoriseret repræsentant	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Erklæring		
Jeg erklærer hermed som autoriseret repræsentant at ovennævnte oplysninger vedrørende leveringsproduktet og alt dette produkt er i overensstemmelse med de anførte standarder og øvrige tilknyttede dokumenter i henhold til bestemmelsene i ovenstående direktiv		
Underskrift		Dato 8/8/2007
Erklæringsnummer 0002/8807		

Declaração de Conformidade		PT
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directivas	97/23/EC	
Padrões utilizados	De forma geral em conformidade com ASMEVIII Div 1 2004	
Percurso de Avaliação do PED	Artigo 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Módulo A (AO AA ACS AAR 035 040 045) Módulo B (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Not ficado para o PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Cert ficado de Inspeção Tipo CE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Revendedor Autorizado	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Declaração		
Declaro na qualidade de representante autorizado que as informações acima contidas referentes ao fornecimento / fabrico deste produto estão em conformidade com as normas e outros documentos relacionados de acordo com as disposições das Directivas anteriores		
Assinatura		Dato 8/8/2007
Número da Declaração 0002/8807		

Δήλωση συμμόρφωσης		EL
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Οδηγίες	97/23/EC	
Πρότυπα που χρησιμοποιήθηκαν	Γενικά σε συμφωνία με το ASMEVIII Div 1 2004	
Διορθωτική αξιολόγηση για κανονικούς PED	Άρθρο 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Ενότητα Α (AO AA ACS AAR 035 040 045) Ενότητα Β (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Ενήμερος οργανισμός για κανονικούς PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Πιστοποιητικό εξέτασης τύπου EK	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Εξουσιοδοτημένος αντιπρόσωπος	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Δήλωση		
Δηλώνω ως εξουσιοδοτημένος αντιπρόσωπος ότι οι παραπάνω πληροφορίες σε σχέση με τη δοκιμή / κατασκευή αυτού του προϊόντος συμμορφώνονται ως προς τα πρότυπα και ως προς τα άλλα σχετικά έγγραφα που συνοδεύουν τις οδηγίες των προϊόντων		
Υπογραφή		Ημερομηνία 8/8/2007
Αριθμός δήλωσης 0002/8807		

Dichiarazione di conformità		IT
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directive	97/23/EC	
Norme utilizzate	Generalmente conforme a ASMEVIII Div 1 2004	
Procedura di valutazione PED	Articolo 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modulo A (AO AA ACS AAR 035 040 045) Modulo B (AO AA ACS AAR 050 055) Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Organismo accreditato per PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Attestato di certificazione tipo CE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Rappresentante autorizzato	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Dichiarazione		
In qualità di rappresentante autorizzato dichiaro che le informazioni di cui sopra in merito alla fornitura fabbricazione del prodotto in oggetto sono conformi alle norme indicate e a qualsiasi altro documento correlato alla forma basata su quanto prescritto dalle direttive menzionate		
Firma		Data 8/8/2007
Dichiarazione numero 0002/8807		

Deklaracja zgodności		PL
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Dyrektwy	97/23/EC	
Stosowane standardy	Ogólnie zgodny z ASMEVIII dział 1 2004	
Ścieżka potwierdzenia zgodności z PED	Artykuł 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Moduł A (AO AA ACS AAR 035 040 045) Moduł B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Organ/instytucja powiadamiana na mocy PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Certyfikat badań a typu WE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Deklaracja		
Oświadczam jako auto zowany przedstawiciel że powyższe informacje dotyczące dostawy / wykonania niniejszego produktu są zgodne ze standardami i innymi dokumentami powiązanymi z zgodą z z postanowieniami powyższych dyrektyw		
Podpis		Data 8/8/2007
Numer deklaracji 0002/8807		

Vastavusdeklaratsioon		ET
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiivid	97/23/EC	
Kasutatud standardid	Üld seil vastavuses standard ga ASMEVI I D v 1 2004	
PED vastavushinnangu jaotus	A tükkel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
PEDist (surveedamete direktivist) teav tatud asutus	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
EÜ tüübih ndamistõend	COV0413459/TEC	
Volitatud es ndaja	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Deklaratsioon		
Volitatud esindajana kinn tan et alltoodud teave seoses antud toote tam m sehootmisega on vastavuses standardite ja muude seotud dokumentidega vastava l alltoodud direktiivide sätetega		
Allkiri		Kuupäev 8/8/2007
Deklaratsiooni number 0002/8807		

Vyhlasenie o zhode		SK
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Smern ce	97/23/EC	
Použí té normy	Vo všeobecnosti v zhode s ASMEV II oddiel 1 2004	
Spôsob posudzovania podľa smernice PED	Článok 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Oboznámenný orgán podľa smernice PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Osvvedenie typovej skúšky ES	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Spinomocnený zástupca	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Vyhlasenie		
Ako spinomocnený zástupca vyhlasujem že informácie uvedené vyššie sú v súlade s dodávkou / výrobou tohto výrobku v zhode s normami a njmí súvisiac m dokumentmi podľa ustanovení uvedených smerníc		
Podpis		Dátum 8/8/2007
Číslo vyhlásenia 0002/8807		

Megfelelősségi nyilatkozat		HU
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktívák	97/23/EC	
Alkalmazott szabványok	Általában a következők alapján ASMEV II D v 1 2004	
PED értékelési irányvonal	3.3-as cikkely (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
PED del kapcsolatosan értes tett testület	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
EC t pusztigátlási bizonyítvány	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Hivatalos képviselő	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Nyilatkozat		
Hivatalos képviselőként kijelentem hogy a termék szállításával / gyártásával kapcsolatos fenti olvasható információk megfelelnek a fenti Direktívák elő ráisai szerinti szabványoknak és egyéb kapcsolódó dokumentumoknak		
Aláírás		Dátum 8/8/2007
Nyilatkozat száma 0002/8807		

Prohlášení o shodě		CS
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Směrn ce	97/23/EC	
Použí té normy	Obecně v souladu ASMEVIII Div 1 2004	
Metoda stanovení shody pro tlaková za ení (PED)	Článek 3.3 (AO AA ACS AAR 005 010 015 020 025 030) D íl část A (AO AA ACS AAR 035 040 045) D íl část B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Notif kovanný orgán pro PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Osvědčení o zkoušce typu ES	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Oprávněný zástupce	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Prohlášení		
Jako oprávněný zástupce prohlašuji že výše uvedené informace týkající se dodávky / výroby tohoto produktu jsou v souladu s normami a njmí souv sej cími dokumenty vyplývající z ustanovení výše uvedených směrnic		
Podpis		Datum 8/8/2007
Číslo prohlášení 0002/8807		

Atbilistības deklarācija		LV
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktīvas	97/23/EC	
Izmantotie standarti	Parasti saskaņ a ar ASMEVI I D v 1 2004	
PED novērtējums	Pants 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modulis A (AO AA ACS AAR 035 040 045) Modulis B (AO AA ACS AAR 050 055) Lloyds Register Verification 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Par PED informētā organizācija	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
EK sstādītā Eksaminācijas sertifikāts	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Pilnvarotais pārstāvis	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Deklarācija		
Es kā pilnvarotais pārstāvis ar šo paziņoju ka iepriekšminētā informācija kas a tiecas uz šī produkta piegādi / izstrādi atbilst standartiem un c tiem a bilstošiem dokumentiem saskaņ a ar iep iekšm rēģistru D rēģistru		
Paraksts		Datums 8/8/2007
Deklarācijas numurs 0002/8807		

Atitikties deklaracija		LT
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktyvos	97/23/EC	
Naudoti standartai	Atitinka bendrąsias ASMEVIII Div 1: 2004 nuostatas	
PED įvertinimo pakopą:	3.3 straipsnis (AO, AA, ACS, AAR - 005 010 015 020 025 030) Modulis A (AO, AA, ACS, AAR - 035 040 045) Modulis B (AO, AA, ACS, AAR - 050 055)	
PED notifikuoti institucija	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EB I po testavimo sertifikatas	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter d v s on	
Įgaliotasis atstovas	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter d v s on	
Deklaracija		
Aš, įgaliotasis atstovas, patvirtinu, kad aukščiau pateikta gaminių techninio apibūdinimo informacija atitinka aukščiau nurodytus standartus ir kitą su nurodytų direktyvų nuostatomis susijusią dokumentaciją.		
Parašas		Data 8/8/2007
Deklaracijos numeris 0002/8807		

Uyum Beyanı		TR
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktifler	97/23/EC	
Kullanılan standartlar	Genelde ASMEVIII Div 1: 2004'e uygun	
PED (Basınçlı Ekipman Direktifli) Değerlendirilmesi	Madde 3.3 (AO, AA, ACS, AAR - 005 010 015 020 025 030) Modül A (AO, AA, ACS, AAR - 035 040 045) Modül B (AO, AA, ACS, AAR - 050 055)	
PED için bildirimde bulunulan kuruluş:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
AT Tip İncelemesi Sertifikası:	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Yetkili Temsilci	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Beyan		
Yetkili temsilci olarak beyan ederim ki bu ürünün teminine / üretimine ilişkin olarak yukarıda verilen bilgiler yukarıda anılan Direktiflerin hükümlerine uyan standartlara ve ilgili başka belgelere uygundur.		
İmza:		Tarih: 8/8/2007
Beyan No 0002/8807		

Декларация соответствия		RU
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Требования	97/23/EC	
Применяемые стандарты	В большинстве случаев обеспечивается соответствие стандарту ASMEVIII, Раздел 1: 2004.	
Система обеспечения качества PED	Статья 3.3 (AO, AA, ACS, AAR - 005, 010 015 020 025 030) Модуль A (AO, AA, ACS, AAR - 035, 040 045) Модуль B (AO, AA, ACS, AAR - 050 055)	
Уполномоченный орган для PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Сертификат ЕС на проведение типовых испытаний:	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Уполномоченный представитель	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Декларация		
Как уполномоченный представитель, я заявляю, что приведенная выше информация относительно конструкции/производства данного продукта соответствует стандартам, другим связанным документам и положениям указанных выше требований.		
Подписи:		Дата: 8/8/2007
Номер декларации: 0002/8807		

Dikjarazzjoni ta' Konformità		MT
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direttivi	97/23/EC	
Standards użati	Generalment l'konformità ma' ASMEVIII Div 1: 2004	
Rotta ta' l'Assessorjat ta' PED	Artikolu 3.3 (AO, AA, ACS, AAR - 005 010 015 020 025 030) Modulu A (AO, AA, ACS, AAR - 035 040 045) Modulu B (AO, AA, ACS, AAR - 050 055)	
Korp notifikat għall-PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Certifikat ta' l-KE ta' l-eżaminazzjoni tad-Tip:	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Rappreżentant Awtorizzat	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Dikjarazzjoni		
Niddikjara li bħala r-rappreżentant awtorizzat, l-informazzjoni ta' hawn fuq, f'dak li għandu jgħod li jgħod mal-konformità mal-lejli-prodott, hija l'konformità ma' l-istandards u d-dokumenti l-oħra relatati li jsewju d-dispożizzjonijiet tad-Direttivi msemmija hawn fuq.		
Firma		Дата: 8/8/2007
Numru tad Dikjarazzjoni 0002/8807		

Izjava o skladnosti		SL
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktive	97/23/EC	
Uporabljeni standardi	Splošno skladno z ASMEVIII Div 1: 2004	
Ocenjevalna pot PED	Členek 3.3 (AO, AA, ACS, AAR - 005, 010, 015, 020, 025 030) Modul A (AO, AA, ACS, AAR - 035 040 045) Modul B (AO, AA, ACS, AAR - 050 055)	
Priглаšeni organ za PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Certifikat o tipskem pregledu ES	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Pooblašteni zastopnik	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Izjava		
Kot pooblašteni zastopnik izjavljam, da so zgornji podatki glede dobave/prozvodnje tega zdelka skladni s standardi in ostalimi sorodnimi dokumenti, ki sledijo določbam zgornjih direktiv.		
Podpis		Datum 8/8/2007
Število izjave 0002/8807		

Declarație de conformitate		RO
Parker Hannifin Ltd domnck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directive	97/23/EC	
Standarde utilizate	Splošno skladno z ASMEVIII Div 1: 2004	
Traseu de evaluare PED	Artikol 3.3 (AO, AA, ACS, AAR - 005, 010, 015, 020, 025 030) Modul A (AO, AA, ACS, AAR - 035 040 045) Modul B (AO, AA, ACS, AAR - 050 055)	
Organism notificat pentru PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Certificat de examinare de tip CE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Reprezentant autorizat	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domnck hunter division	
Declarație		
În calitate de reprezentant autorizat, declar că informațiile de mai sus, referitoare la furnizarea / fabricarea acestui produs, sunt în conformitate cu standardele și alte documente conexe care respectă prevederile Directivei de mai sus.		
Semnătură:		Дата: 8/8/2007
Număr declarație: 0002/8807		

FILTER DH-OIL-X EVO AO AA 01-