Operator Manual

Screw Compressor

MOBILAIR M50 PE

No.: 9_9435 29 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:

KAESER KOMPRESSOREN SE

96410 Coburg • PO Box 2143 • GERMANY • Tel. +49-(0)9561-6400 • Fax +49-(0)9561-640130

http://www.kaeser.com

Original instructions
/KKW/M50 2.09 en Z1 SBA-MOBILAIR-PE

20180726 135307

Contents

Contents

Contents

Contents

List of Illustrations

List of Illustrations

List of Tables

List of Tables

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

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)

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.
A list of the options fitted is given as code letters on the right side of the options label.

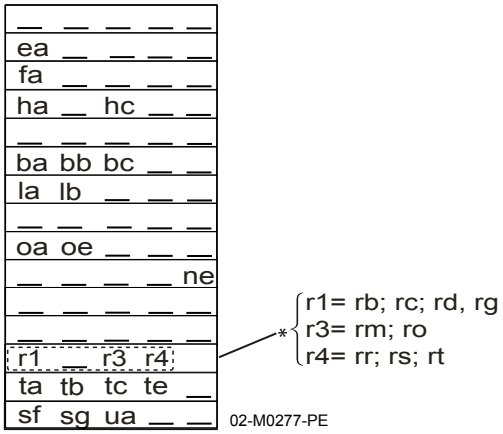
The nameplate can be found:

- 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 appear on the nameplate.

MOBILAIR M50 PE Material No. Serial number

Options fitted



* r1 - r5 = place holders for chassis options

Tab. 4 Options label

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

2.2.1 Option da Air treatment

Option	Option code	Equipped?
Aftercooler and water separator	da	
—	—	

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	
Separated compressed air distribution lines, down-stream of the option	fc	

Tab. 7 Compressed air distributor option

2.2.4 Option ba
Low temperature equipment

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

Tab. 8 Low temperature equipment options

2.2.5 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. 9 Optional equipment for fire hazard areas

2.2.6 Option ne
Fuel de-watering filter

Option	Option code	Equipped?
Fuel de-watering filter	ne	

Tab. 10 Option ne: Fuel de-watering filter

2.2.7 Option oa
Battery isolating switch

Option	Option code	Available?
Battery isolating switch	oa	

Tab. 11 Battery isolating switch option

2.2.8 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):		
EC = Europe, GB = Great Britain, US = United States of America		

Chassis	Option code	Available?
EG chassis	rb	
GB chassis	rc	
GB chassis	rg	
USA chassis	rd	
Height adjustment (rm, rn, ro):		
With height adjustment	rm	
Ajustable 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. 12 Chassis options

2.2.9 Option tb, tc, te Lighting

Option	Option code	Available?
Reflective warning triangle	tb	
EG 12 V	tc	
USA 12 V (DOT conformity)	te	

Tab. 13 Lighting options

2.2.10 Option oe Sealed floor pan

Option	Option code	Available?
Sealed floor pan	oe	

Tab. 14 Sealed floor pan option

2.2.11 Option ua Hose reels

Option	Option code	Available?
Hose reels	ua	

Tab. 15 Hose reel option

2.2.12 Option sf Anti-theft device

Option	Option code	Available?
Anti-theft device	sf	

Tab. 16 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

	M50
Guaranteed sound pressure level(1) [dB(A)]	76
(1) Applies exclusively to machines lined with sound proofing material.	

Tab. 17 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. 18 Tightening torques for screws (property class 8.8, coefficient of friction μ = 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	8.8	M10	407

Tab. 19 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. 20 Torques for lifting eye screws

2.3.3 Ambient conditions

Installation	Limit value
Maximum altitude amsl* [ft]	3000
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	113
Maximum ambient temperature** [°F]	122
* Higher altitudes are permissible only after consultation with the manufacturer.	
** Machines with increased fan capacity can be operated in ambient temperatures up to 122°F.	

Tab. 21 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 Compressor

2.5.1 Working pressure and FAD

Definition of FAD: Constant delivery volume relative to intake conditions

Max. working pressure [psig]	100	–	–	–
SIGMA airend	191	–	–	–
Flow rate [cfm]	180	–	–	–
FAD as per ISO 1217:2009. Annex D				

Tab. 22 Working gauge pressure and FAD

2.5.2 Compressed air outlet

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

Tab. 23 Compressed air distributor

2.5.3 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	■ Compressed air aftercooler ■ Compressed air water separator	cool and condensate-free	A
ea / ec	Tool lubricator	contains lubricants	E

Tab. 24 Interrelation between compressed air treatment and compressed air quality

2.5.4 Safety relief valve

Maximum working pressure: See machine nameplate

Maximum working pressure [psig]	100	–	–	–
Relief valve activating pressure* [psig]	140	–	–	–
*The safety relief valve is fitted onto the oil separator tank.				

Tab. 25 Relief valve activating pressure

2.5.5 Select temperature

2.5.5.1 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. 26 Machine temperatures

2.5.5.2 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	140–194

Tab. 27 Airend package discharge temperature

2.5.6 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
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. 28 Cooling oil recommendation

Cooling oils for applications in food processing

	SIGMA FLUID	
	FG-460	FG-680
Description	Synthetic oil	Synthetic oil

	SIGMA FLUID	
	FG-460	FG-680
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. 29 Cooling oil recommendation (food processing)

2.5.7 Cooling oil charge

Cooling oil	Fluid volume [qt]
Machine	9.5

Tab. 30 Cooling oil charge

2.6 Engine

2.6.1 Engine data

Feature	Specification
Make/Model	Kubota V1505–T
Engine control	Mechanical
Fuel injection	Mechanical
Rated engine power [hp]	44.3
Speed at LOAD mode [rpm]	3000
speed at IDLE mode [rpm]	2200
Type of fuel	Diesel *
Fuel consumption under LOAD mode [gal/h]	2.4

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

Feature	Specification
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. 31 Engine data

2.6.2 Oil recommendation

The engine oil must meet the following classification:

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

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

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

Tab. 32 Engine oil recommendation

2.6.3 Fuel recommendation

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

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

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

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

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

2.6.4 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 ground ions = 7.147 mg/l Ca^{2+} or 4.336 mg/l Mg^{2+}		

Tab. 33 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 further technical 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 coolant cooler is filled with a mixture of the following liquid components:

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

Tab. 34 Initial filling of engine water cooler

Miscibility with other corrosion inhibitors/antifreeze agents

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

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

2.6.5 Fluid volumes

Description	Fluid volume [gal]
Engine oil	1.32
Fuel	21.1 * 16.6 **
Coolant	1.9

* Standard

** For weight optimization, to comply with the permissible maximum weight.

Tab. 35 Fluid volumes

2.6.6 Batteries

Feature	Value
Voltage [V]	12
Capacity [Ah]	60
PTC testing current [A] (according to EN 50342)	480

Tab. 36 Batteries

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

2.7 Options

2.7.1 Option ea, ec Tool lubricator

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

Tab. 37 Road breaker lubricant recommendation

2.7.2 Low temperature equipment

2.7.2.1 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. 38 Ambient conditions, low temperature equipment

2.7.2.2 Option bb
Coolant pre-heater

Coolant pre-heater	Value
Voltage [V]	230
Power [W]	600

Tab. 39 Coolant pre-heater

2.7.2.3 Option bc
Compressed air line frost protection

Antifreeze	Fluid volume [qt]
Wabcothyl	0.32

Tab. 40 Recommended antifreeze

2.7.3 Compressed air quality

2.7.3.1 Option ba
Ambient temperature

The quality of the treated compressed air depends on the ambient temperature.

Ambient temperature	Limit value
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	113

Tab. 41 Interrelation between ambient temperature and compressed air quality

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.

3.4.4 Attachment of a "Hazardous goods" label

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

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

Number of labels per machine:

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

The operator of the machine but also the authorised users and transport personnel are responsible for compliance with this requirement. Please instruct your employees accordingly.

A violation of this regulation will be punished with a fine and the further machine transport will be forbidden.

➢ Have a "Hazardous goods" label attached.

Further information Chapter 3.7 “Safety signs” indicates the suggested position(s) for the hazardous goods label(s).

3.5 Dangers

Basic instructions

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

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

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

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

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a color- and odorless 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 a spark arrestor (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 rules.
- ➢ Regularly check that all electrical connections are tight and in proper condition.
- ➢ Switch off any external power sources.
  For example, the connection to the electrical engine coolant 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 any 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 pressurised components (e.g. pipes and vessels) as this influences the components' 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 service 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 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 re-starting.

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 combustion engine, 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 external compressed air hoses to the outlet valves.
- ➢ 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 insulation material for perfect condition of the sound insulation material.
- ➢ Wear ear protection if necessary.
  Safety relief valve blow-off results in high noise emission.
- ➢ 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, oils, lubricants, antifreeze and chemical substances.
- ➢ Avoid contact with skin and eyes.
- ➢ Do not inhale fumes or aerosols from fuel or oil.
- ➢ Do not eat or drink while handling fuel, oil, cooling and lubricating fluids or antifreeze.
- ➢ Keep suitable fire extinguishing agents ready for use.
- ➢ Use only KAESER approved operating materials.

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

- ➢ Use only spare parts approved by the manufacturer for use in this machine.
- ➢ Use only original KAESER spare 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 information will provide you with the necessary code of conduct to ensure safe handling of the machine during individual product life phases.

Personal protective equipment

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

- ➢ Wear protective clothing as necessary.

Suitable protective clothing (examples):

- Safety work wear
- Protective gloves
- Safety boots
- Eye protection (protective glasses)
- Ear protection

3.5.2.1 Transporting

In order to prevent accidents, the weight and size of the machine require safety measures to be taken during its transport.

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

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 road conditions. This applies particularly to unpaved roads and when negotiating 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 removed or turned off.

Transporting as trailer on public roads

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

Transporting with a crane

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

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

The following are forbidden:

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

3.5.2.2 Positioning

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

- ➢ Do not position the machine directly against a wall. A build-up of heat from the exhaust can damage the machine.
- ➢ Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- ➢ Do not operate in areas in which specific requirements with regard to explosion protection are in force.
  For example, requirements on the "proper use in areas at risk of explosion" according to 2014/34/EU ATEX Directive.
- ➢ 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 temperatures and humidity.
➢ The intake air must not contain any damaging contaminants.

Damaging contaminants are for instance:
- Exhaust gases from combustion engines,
- Flammable, explosive or chemically unstable gases or vapors,
- Acid- or base-forming chemicals 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, e.g., electricity, pressure and temperature. Careless actions can cause accidents with severe adverse effects for your health.
➢ Work should be carried out by authorized personnel only.
➢ Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
➢ Switch off the machine and lock out the power 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/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 EMERGENCY STOP push button,
- of parts needing monitoring.

➢ Pay particular attention to cleanliness during all maintenance and repair work. Cover components and exposed 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:
- they are of the right type and size for the highest permissible machine working pressure,

- they are not damaged, worn or of reduced quality,
- they have couplings and connections of the right type and size.

➢ 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 psig, compressed air hoses should be secured by a safety cable to their respective outlet valves.

3.5.2.4 Parking the machine

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 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 machine
➢ 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 and disposal

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

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

3.5.3 Organizational Measures

➢ Designate personnel and their responsibilities.
➢ Give clear instructions on reporting faults and damage to the machine.
➢ Give instructions on fire reporting and fire-fighting measures.

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.

Only authorized personnel may enter these areas.

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

Tab. 42 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 4.6.

3.7 Safety signs

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

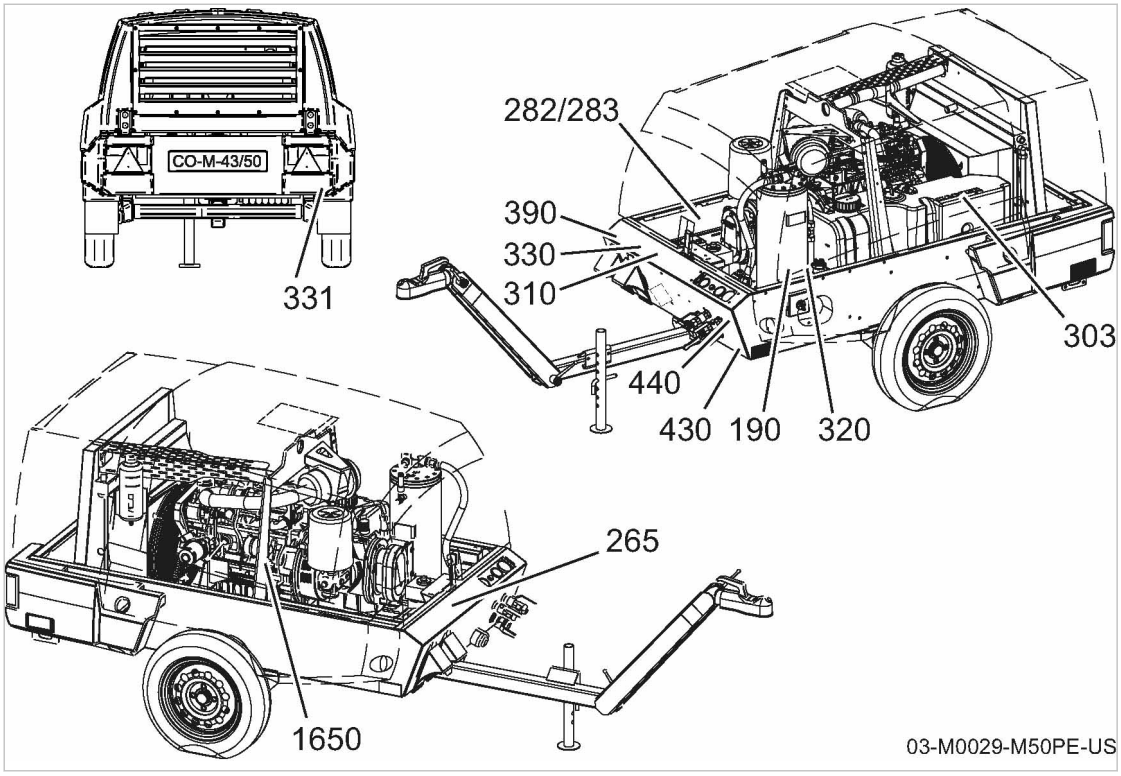


Fig. 1 Location of safety signs

Location	Symbol	Meaning
190(1)		Wrong cooling oil level! Risk of machine defects or rising oil consumption (oil content for pure air). ➢ Check cooling-oil level. ➢ Run the machine only with proper cooling-oil level.
265		Personal injury or damage to the machine due to incorrect operation! ➢ Read and understand the operating manual and all safety signs before switching on this machine.
282		Explosive hydrogen gas! Severe injury or death could result from exploding gas. ➢ Keep flames, sparks, and other sources of ignition away.
283		Battery contains acid! Severe injury results from contact with battery acid. ➢ Do not allow battery acid to contact eyes, skin, clothing, or painted surfaces. ➢ Do not attempt to jump-start if battery fluid is frozen. ➢ Bring temperature of battery up to at least 60°F before attempting to jump-start - it may explode!

(1) Location within the machine,
(2) Only machines equipped with option ga, gb,
(3) Only machines with option dc

Location	Symbol	Meaning
303		Fire or explosion caused by refueling! Severe injury or death result from inflaming fuel. ➢ Use diesel fuel only. ➢ NEVER attempt to refuel the compressor while it is operating. ➢ Always replace fuel filter cap after refueling. ➢ Always wipe up fuel spills which may occur inside the compressor enclosure and allow the machine to ventilate.
310 311		Injury or damage from open machine! ➢ Operate the machine only when closed. ➢ Transport the machine only when closed.
320(1)		Loud noise and oil mist when the safety relief valve opens! Ear damage and burns can result. ➢ Wear ear protection and protective clothing. ➢ Close all maintenance doors and cover panels. ➢ Work carefully.
330 331		Hot surface can cause burns! ➢ Let the machine cool down. ➢ Work carefully. ➢ Wear protective clothing and gloves.
332 333		Hot surface can cause burns! ➢ Let the machine cool down. ➢ Work carefully. ➢ Wear protective clothing and gloves. ➢ Do not inhale dangerous gases.
430		Connect air hoses only in full compliance with OSHA standard 29 CFR 1926,302 (bX7)! The required safety devices should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use.
440		Compressed air quality! Injury and/or contamination can result from breathing compressed air. Contamination of food can result from using untreated compressed air for food processing. ➢ Never breathe untreated compressed air! ➢ Air from this compressor must meet OSHA 29 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 within the machine,
(2) Only machines equipped with option ga, gb,
(3) Only machines with option dc

Location	Symbol	Meaning
450		Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected. ➢ Connect a suitable compressed air hose. ➢ Open the ball valve.
600(1)		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. ➢ Do not open or dismantle valves. ➢ Contact an authorized KAESER service representative in the event of a fault.
620 621		Pinch point hazard! ➢ Keep hands clear when opening the canopy.
850(2)		There is danger of fatal injury caused by contact with live components! ➢ Take protective measures.
1222(3)		Danger! Mortal danger from CO, CO_2 or toxic gas. ➢ Draw in only surrounding air of breathing quality.
		Danger! Danger to health from discharge of oily compressed air. ➢ Maintain surrounding air temperature between 34°F and 86°F. ➢ Check the oil indicator at least once a day.
1650(1)		Machine damage if switched while the engine is running! ➢ 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 within the machine,
(2) Only machines equipped with option ga, gb,
(3) Only machines with option dc

Tab. 43 Safety signs

3.8 Emergency situations

3.8.1 Correct fire fighting

Suitable measures

Calm and prudent action can safe 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

3.8.2 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.

3.9 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.

3.10 Environmental protection

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

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

4 Design and Function

4.1 Bodywork

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

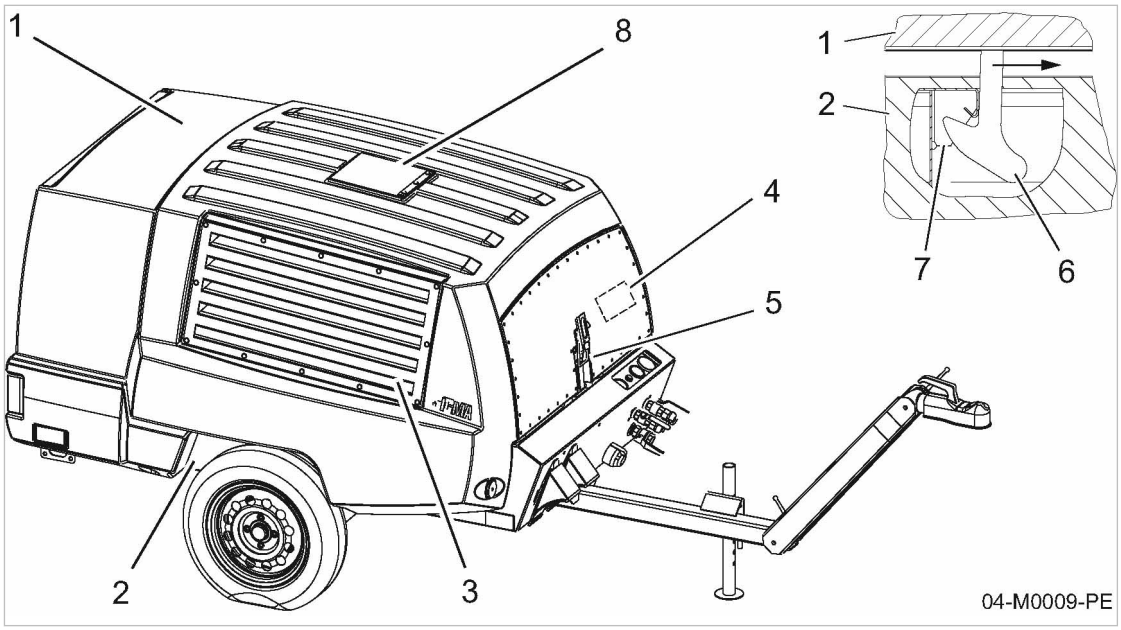


Fig. 2 Bodywork

1	Canopy	5	Snap fastener
2	Lower body	6	Canopy safety catch
3	Cooling air inlet	7	Lock
4	Recessed grip for the canopy	8	Cover for lifting eye

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.

The canopy 1 can be opened when the snap fastener 5 and the canopy safety latch 6 are released.
The safety latch is inside the canopy on the right side, next to the handle.
The safety latch can be seen when the snap fastener is released.
If the safety latch is unlocked (pressed in the direction of the arrow), the canopy opens independently.
Two gas-filled springs maintain the opened position of the canopy. For closing the canopy, a recessed grip is incorporated within the canopy 1.

The bodywork is not suitable for the following uses:

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

4.2 Machine structure

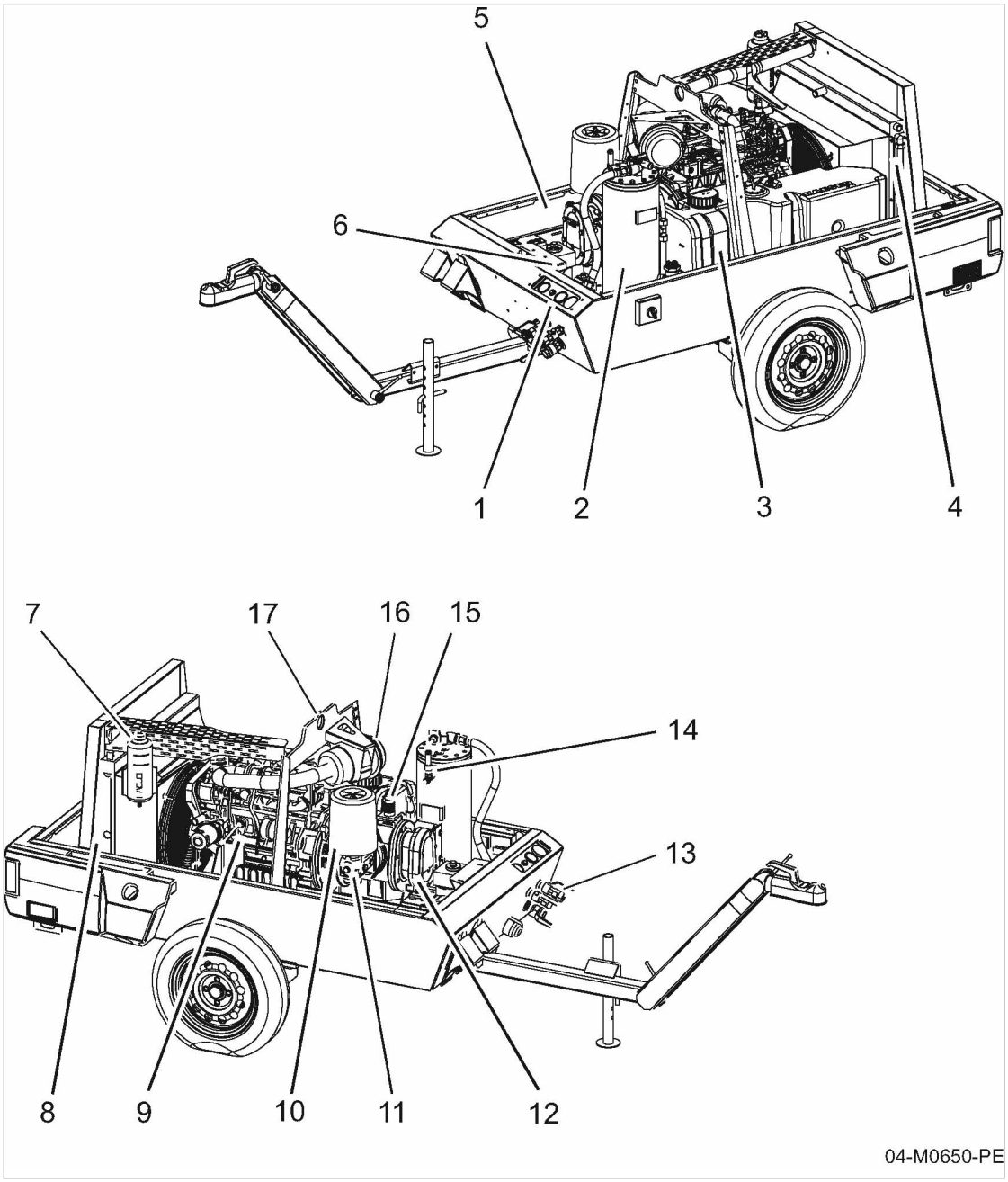


Fig. 3 Side view (enclosure removed)

1 Instrument panel
2 Oil separator tank
3 Fuel tank
4 Oil cooler
5 Battery
6 Enclosure safety catch lock
7 Coolant expansion tank
8 Water cooler
9 Drive engine
10 Compressor air filter
11 Inlet valve
12 Airend
13 Compressed air outlet valve
14 Safety relief valve
15 Thermostatic valve
16 Engine air filter
17 Lifting eye

4.3 Machine function

Machine function (with options)

Further information Pipe and instrument diagram (P&I diagram), see chapter 13.2.

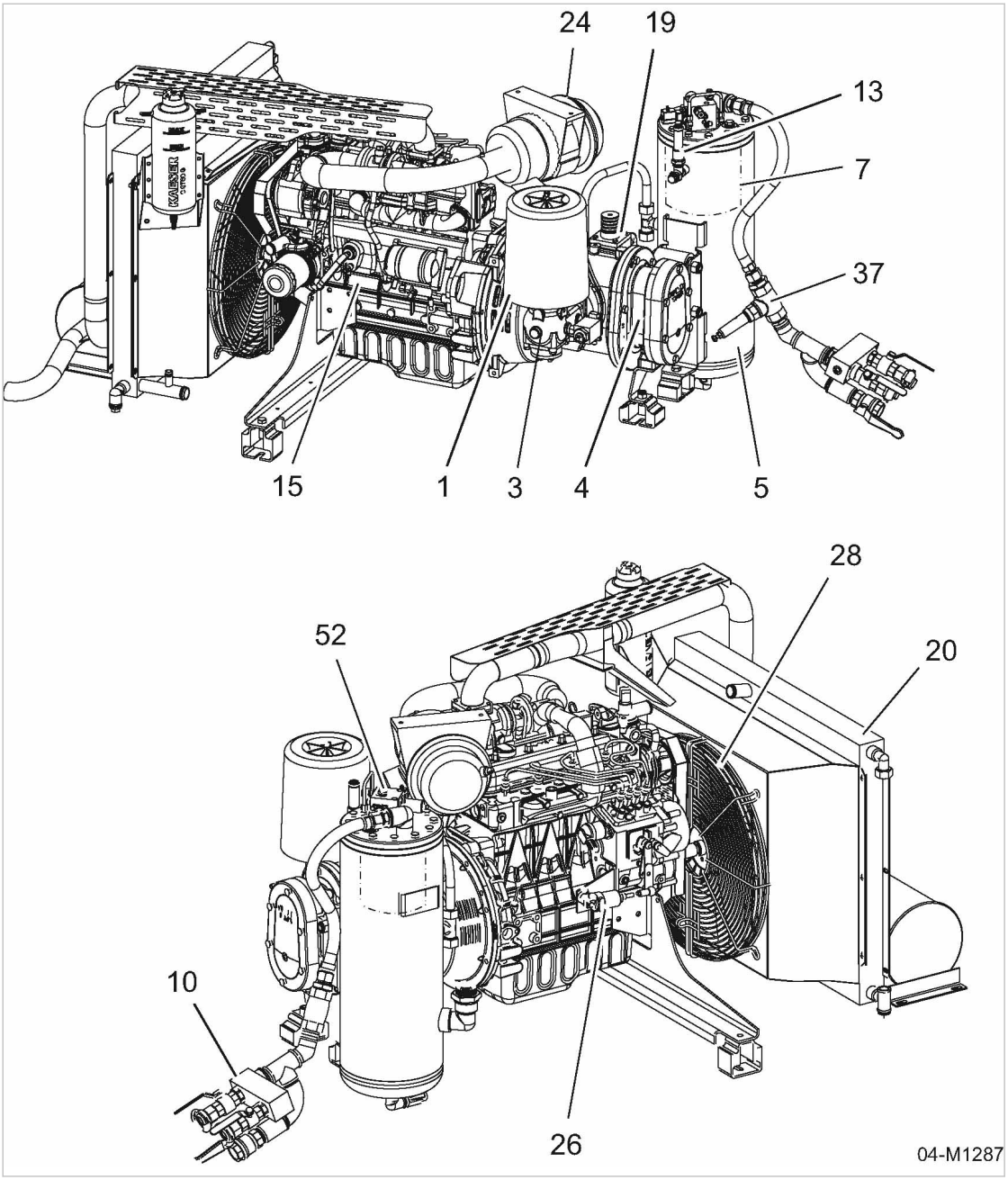


Fig. 4 Machine function

[1]	Compressor air filter	[19]	Thermostatic valve (oil temperature control)
[3]	Inlet valve	[20]	Oil cooler
[4]	Airend	[24]	Engine air filter
[5]	Oil separator tank	[26]	Engine speed control cylinder
[7]	Oil separator cartridge	[28]	Fan
[10]	Air distributor	[37]	Minimum pressure/check valve
[13]	Safety relief valve	[52]	Control valve
[15]	Engine		

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.

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 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] automatically maintains optimum 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 / check valve [37] into the air distributor [10]. The minimum pressure/check valve ensures sufficient internal 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

Further information Pipe and instrument diagram (P&I diagram), see chapter 13.2.

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 the fuel consumption of the engine. The load and fuel consumption of the engine rises and falls with the air demand.

The control valve [52] is mounted on the oil separator tank cover.
In compact design comprising the following components:

- Proportional controller [23]
- Venting valve [27]
- Combined control valve [62]

4.5 Setting full load operation

Upon starting, the machine initially runs in IDLE mode.
The load valve is not activated.
The unloaded motor run-up protects the machine from unnecessary wear. The motor must run up in unloaded state until an airend discharge temperature of 86°F has been attained.
The airend discharge temperature is shown by the temperature gauge switch. During this run-up phase, the machine is **not** ready to discharge compressed air.

In order to activate the LOAD mode after the warm-up phase, press «Full load ON».
The load valve is activated.
The machine is **ready** for discharging compressed air.
Upon actuation of the «Full load ON» button, the integrated *control indicator* of the «Full load ON» button will light up.

Further information

Start the machine, wait for the motor warm-up to be finished and press «Full load ON» to ensure the maximum compressed air discharge, see also chapter 8.2.

4.6 Safety devices

4.6.1 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.

4.6.2 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.

4.7 Options

The options available for your machine are described below.

4.7.1 Option da
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.

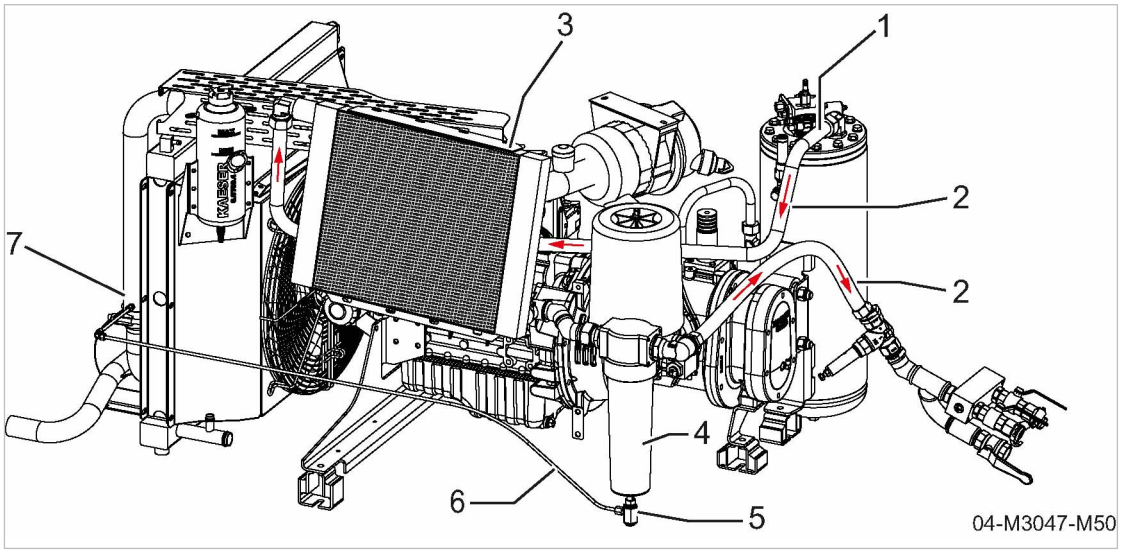


Fig. 5 Compressed air option da

1 Compressed air pipe
2 Direction of flow
3 Aftercooler
4 Centrifugal separator
5 Dirt trap
6 Condensate hose line
7 Exhaust gas pipe

4.7.1.1 Option da
Aftercooler

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

4.7.1.2 Option da
Centrifugal separator

The centrifugal separator sets the compressed air that still contains moisture into centrifugal motion via a swirl vane. The compressed air loses a significant proportion of its residual moisture load as a result of these centrifugal forces. The accumulating condensate falls to the bottom of the centrifugal separator.

4.7.1.3 Option da
Dirt trap with condensate hose line

A dirt trap with a condensate hose line is installed under the centrifugal separator. While the condensate flows through the dirt trap, existing dirt particles are picked up. Afterwards, the condensate flows into the condensate hose line. The condensate hose line leads into the exhaust gas pipe of the exhaust gas section.

4.7.1.4 Exhaust gas section

Due to the high temperatures in the exhaust gas section, the condensate evaporates completely.

4.7.2 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.

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

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

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

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

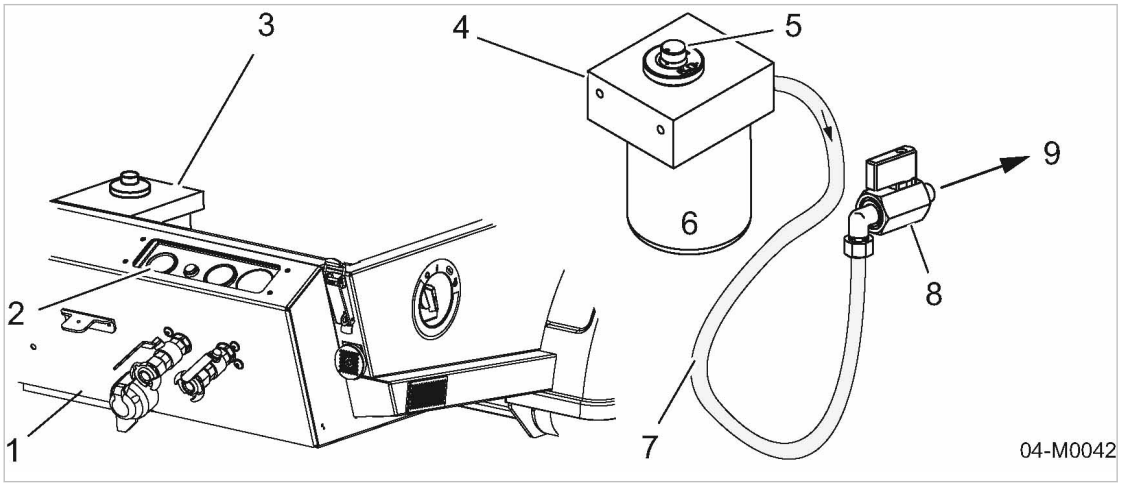


Fig. 6 Tool lubricator

1. Bodywork
2. Instrument panel
3. Location of the tool lubricator
4. Tool lubricator
5. Metering knob
6. Oil tank
7. Air line
8. Shut-off valve (opened)
9. Air pipe

Please note for air tools not to be lubricated:

NOTICE

Lubrication with tool oil!
Air tools not intended for lubrication can be damaged.

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

4.7.3 Option ba
Low temperature equipment

The machine is fitted with low-temperature equipment for the operation in extremely low temperatures up to -13 °F. The electrical equipment starts the drive engine of the machine at ambient temperatures as low as 14 °F.

You can improve the cold-start behavior of the machine with the following options:

Option / option designation	Function
Coolant pre-heating / bb	Pre-heat the drive engine coolant.
Defroster / bc	Moisten components of the control and regulating system with anti-freeze.

Tab. 44 Low temperature equipment options

4.7.3.1 Option bb
Pre-heat the drive engine coolant

The engine coolant can be pre-heated in order to attain an improved cold-start behavior. An electric pre-heating device has been installed for this purpose. The heating element of the pre-heating device protrudes directly into the drive engine coolant.

The thermal output from the heating element into the coolant results in a slower circulation of the coolant. Resulting from the circulation the supplied heat is evenly distributed. The coolant of the drive engine and its direct surrounding significantly warm up above the local ambient temperature. A melting protection protects against overheating.

The ideal pre-heating time depends on the outside temperature. Approx. 3 hours of pre-heating time result in thermal balance. This means that subsequently supplied heat only serves to maintain the already existing temperature. The rest of the subsequently supplied heat is emitted to the surroundings.

Damages to the engine and electrical pre-heating device are precluded with pre-heating times lasting longer than 3 hours. Continuous operation of maximum 6 hours must be followed by a rest of approximately 3 hours. However, the unnecessary energy consumption should be prevented by shutting down the pre-heating device on time!

A flexible power cable has been included with the machine. To commission the pre-heating device you only need to connect the power cable to the machine’s connection and the user's power socket.

Further information See Fig. 7 for the position of the device connection.

4.7.3.2 Option bb
Device connection of coolant pre-heating on the machine

Option bb

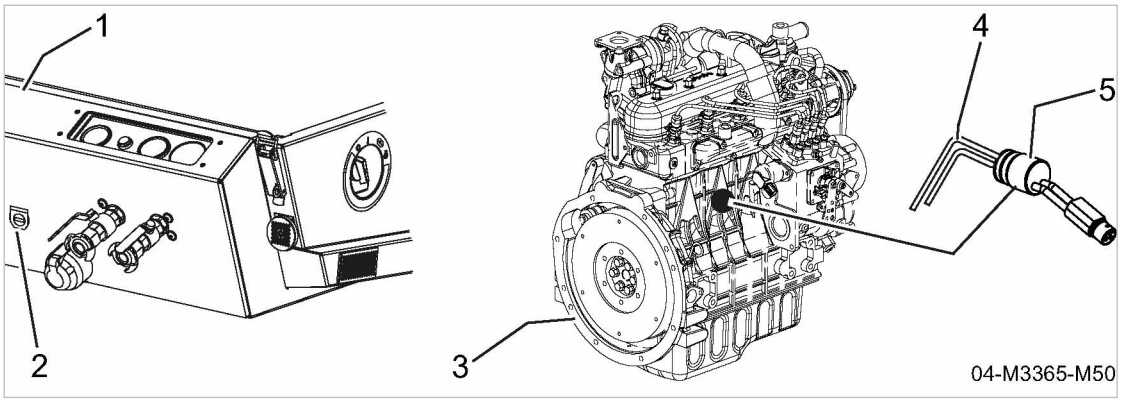


Fig. 7 Device connection on the machine

1 Machine
2 Device connection
3 Engine
4 Heating element
5 Pre-heating device

4.7.3.3 Option bc
Defroster

The control and regulating system of the machine can be moistened with antifreeze in order to attain an improved cold-start behavior. A defroster has been installed for this purpose. The defroster tank has been filled with antifreeze.

Antifreeze that is added to the air flow of the control and regulating system prevents the freezing of control lines, nozzles and valves. Adding antifreeze is solely required at ambient temperatures of below 32 °F. For this reason the defroster is fitted with a shut-off valve.

The correct switching position of the shut-off valve must be adjusted to the respective ambient temperatures.

Further information See Fig. 8 for the position of the shut-off valve.

4.7.3.4 Option bc
Frost protection

Option bc

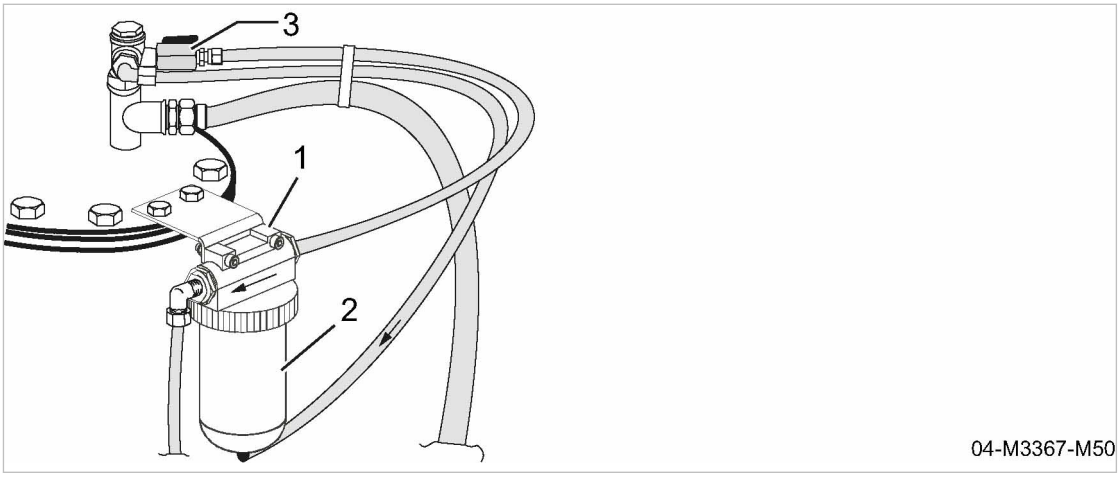


Fig. 8 Position of the defroster shut-off valve

1 Top of the defroster
2 Defroster tank
3 Shut-off valve

Further information See chapter 7.4.3 for antifreeze operation

4.7.4 Option Ia, Ib
Options for operating in fire hazard areas

4.7.4.1 Option Ia
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.

4.7.4.2 Option Ib
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.

4.7.5 Option ne
Fuel de-watering filter option

A combined water and particle filter element is installed to prevent such impurities in lower quality fuel reaching the pump.

4.7.6 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.

4.7.7 Option oa
Battery isolating switch

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

NOTICE

Danger of short circuit!
Damage to the machine electrical components is possible.

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

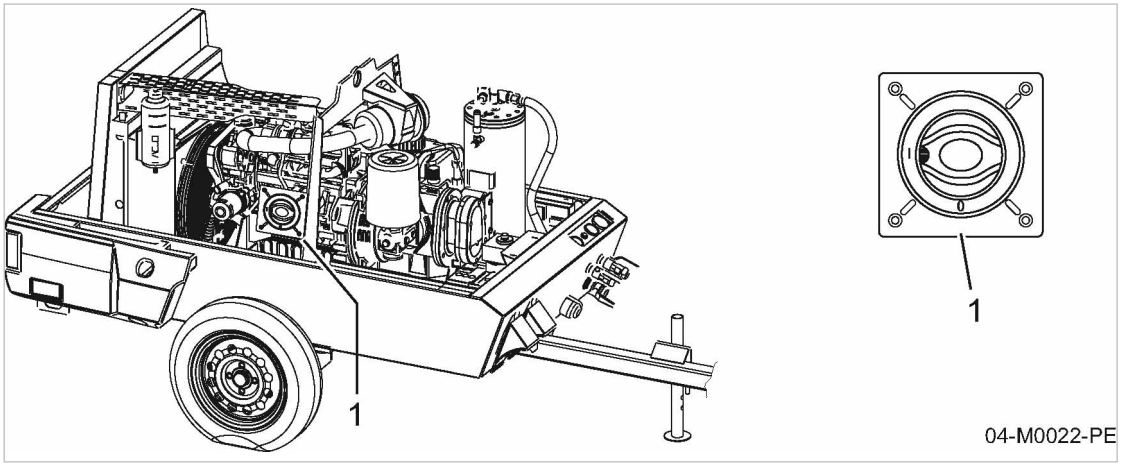


Fig. 9 Battery isolating switch

[1] «Battery isolating switch»

4.7.8 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.

4.7.9 Option sf
Anti-theft device option

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

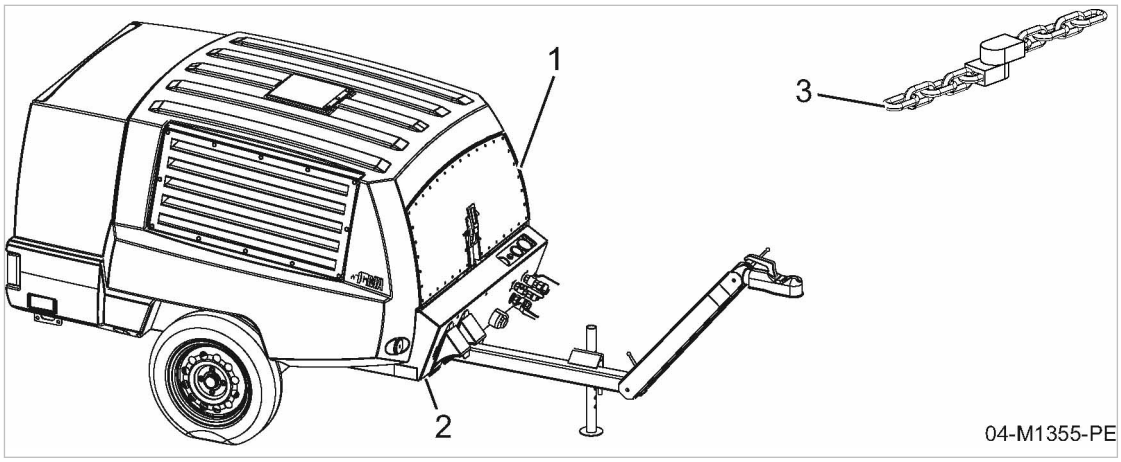


Fig. 10 Container for safety chain

[1] Machine
[2] Container for the safety chain
[3] Safety chain

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

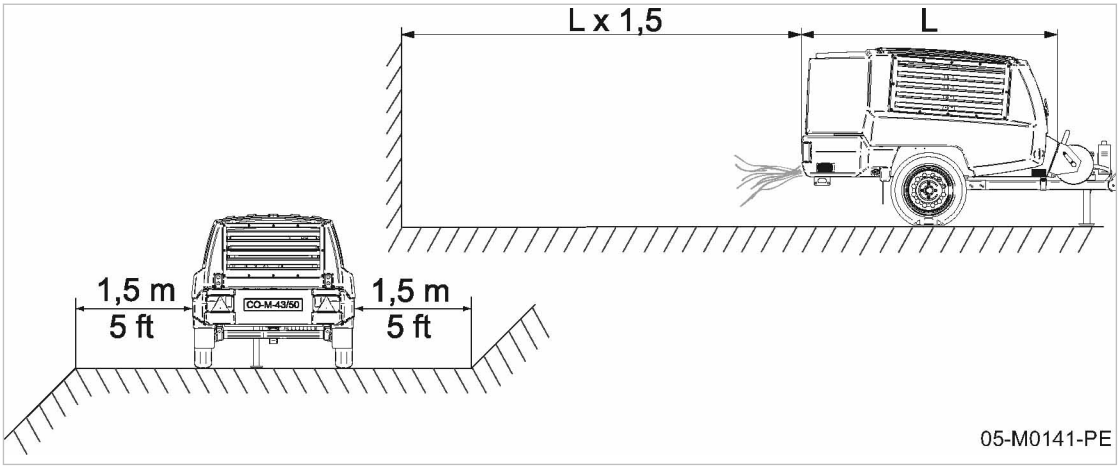


Fig. 11 Minimum distance from excavations/slopes and walls

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

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

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
4. **NOTICE** *Danger of burning from build up of heat and hot exhaust.*
   Insufficient distance from a wall may well cause heat build-up that could damage the machine.
   - ➢ *Do not position the machine directly against a wall.*
   - ➢ *Ensure always sufficient ventilation space around the machine.*
5. Position the machine as far as possible from any wall.
6. Ensure there is enough free space all round and above the machine.
7. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
8. Place 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 8.2.2.*
10. At ambient temperatures below 32 °F, follow instructions in chapter 7.4.

6 Installation

6.1 Ensuring safety

Follow the instructions below for safe installation.
Warning instructions are located before a potentially dangerous task.

Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- ➢ Follow the instructions in chapter 3 “Safety and Responsibility”.
- ➢ Installation work may only be carried out by authorized personnel.

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.

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:** ➢ 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: ➢ 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: ➢ Clean the body with a grease and dirt dissolving agent.
36 months	**Technical condition:** ➢ Have the overall technical condition checked by an authorized KAESER service representative.

Tab. 45 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	

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)	10.8.4	
➢ Canopy closed?	—	
➢ Are the access doors closed?	—	
➢ Are all body panels in place?	—	

Tab. 46 Checking installation and operating conditions

7.4 Low-temperature operation

Cold ambient temperatures during seasonal winter operation require adjustment of operating fluids, components and warming-up of the machine.

- Adjusting the operating fluids.
  - Use winter-grade engine oil
  - Use low viscosity cooling oil for the compressor
  - Use winter-grade diesel fuel
- Adjusting the components
  - Use stronger battery
  - Use short compressed air hoses
- Let the machine warm up
  - Carry out specific warming-up when temperatures are low
- Use low temperature equipment (option ba)
  - Pre-heat the engine coolant
  - Use antifreeze for the control and regulating system

➢ Follow all instructions!

Result The carried out adjustments increase the service life of your machine.

7.4.1 Carrying out warming-up when temperatures are low

1. **NOTICE** *Low temperatures disturb the pneumatic control of the machine! Damage to control and regulating devices may be caused by ice particles.*
   ➢ *Warm-up machine by letting it run in IDLE mode.*
2. Open the compressed air outlet valves at the compressed air outlet.
3. Start the machine.
4. Run the machine in unloaded state with opened air compressed air outlet valves until it has warmed up.
5. Wait until the airend discharge temperature of +86 °F has been reached.
6. Check on the *remote contact thermometer* that the airend discharge temperature of +86 °F has been reached.

7.4.2 Starting assistance

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

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-circuit currents caused by short-circuited battery. A damaged battery can catch fire or explode.
Battery casing may crack and allow acidic fluid to spray out.

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

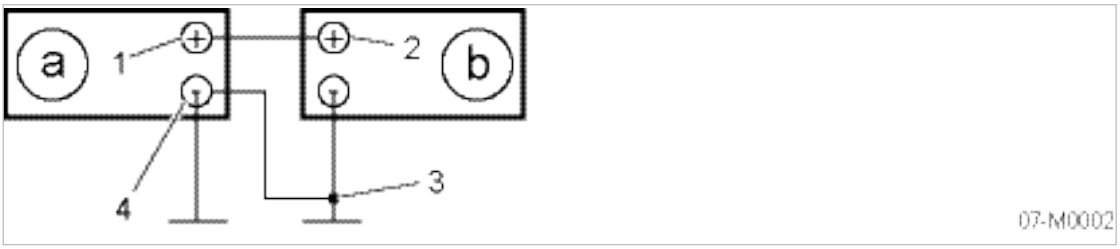


Fig. 12 Jumper cable connection diagram

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

Complying with safety instructions

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 machine's drive 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 engine of the machine.

Let the two engines run for approximately 10-15 minutes after the successful start.
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 of the machine, in particular, 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 machine's engine as soon as the cables are disconnected could indicate major damage (e.g. to the engine generator or battery) which must repaired by a specialized workshop.

7.4.3 Starting up low-temperature equipment

➢ Determine which low temperature equipment is fitted to your machine.

7.4.3.1 Option bb
Pre-heat the drive engine coolant

In order to improve the cold-start behavior your machine is equipped with an electric coolant preheating device. The corresponding power cable has been included with the machine.

See Fig. 13 for the position of the device connection on the machine.

Option bb

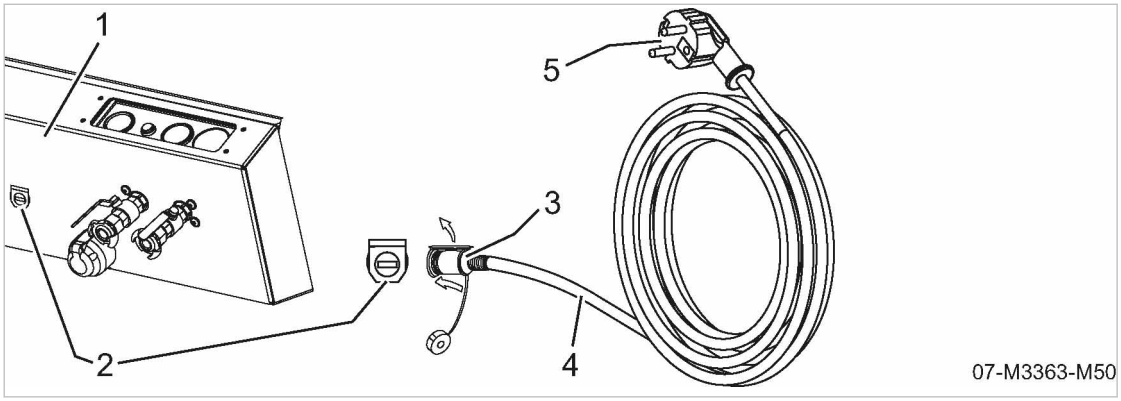


Fig. 13 Coolant pre-heating

[1] Bodywork
[2] Connection for the coolant pre-heater
[3] Unit plug
[4] Power cable
[5] Power plug

1. **DANGER** *Danger of fatal injury from electric shock*
   - ➢ *Connect power plug of power cable to user's power socket only.*
   - ➢ *Have the coolant pre-heating and associated power cable checked according to the maintenance schedule.*
2. Open the enclosure.
3. Remove the power cable from the machine's interior.
4. Close the enclosure.
5. Connect the unit plug to the connection of the machine.
6. Connect the power plug to the user's power outlet.
   The heating element of the pre-heating device warms up the drive engine's coolant.
7. Note the pre-heating time of approx. 3 hours.

7.4.3.2 Option bc
Switch on the antifreeze

When the ambient temperatures are constantly below 32°F (winter operation), individual components of the control system must be moistened with anti-freeze. A defroster has been installed to meet this requirement.

First of all, the corresponding shut-off valve must be manually set to the correct switching position to allow low quantities of the antifreeze to flow through the machine's control system.

See Fig. 14 for the switching positions of the corresponding shut-off valve.

The correct switching position for winter operation may vary depending on the model. Please see Table 47 for the correct switching position of your machine.

Option bc

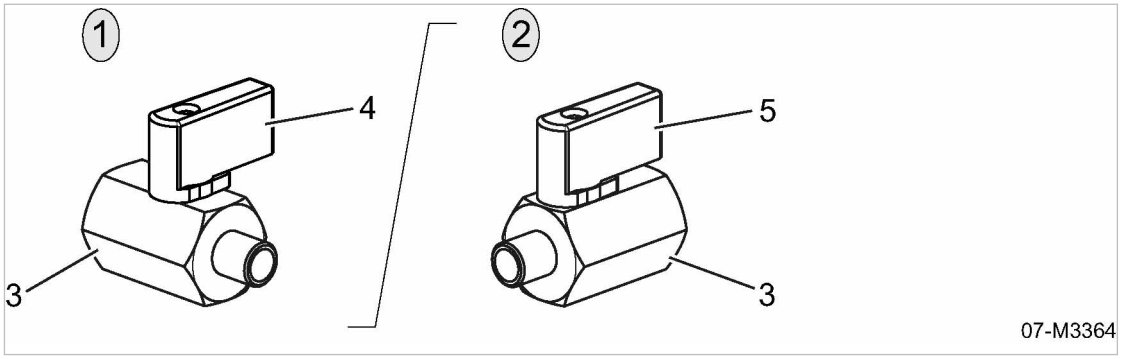


Fig. 14 Shut-off valve of switching position

1 Shut-off valve closed
2 Open shut-off valve
3 Shut-off valve
4 The lever is positioned across the flow direction
5 The lever is positioned in the flow direction

Precondition The machine is switched off and 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.

1. Open the enclosure.
2. Check the level of the antifreeze in the defroster tank, see chapter 10.8.4.
3. Set the corresponding defroster shut-off valve to winter operation, see table 47.

Instructions	Switching position for winter operation	Confirmed?
Open the shut-off valve	—	
Close the shut-off valve	X	

X ≙ applicable, — ≙ not applicable

Tab. 47 Switch on the antifreeze

4. Connect the negative cable to the battery.
5. Close the enclosure.

The heat generated by the machine prevents individual components of the control system from freezing up during operation. In order to prevent unnecessary use of antifreeze during the machine's operation, a solenoid valve downstream of the defroster blocks the constant addition of antifreeze to the air flow of the control system.

The solenoid valve opens only when the machine is switched on or off. As a result, the control system is moistened with small quantities of antifreeze for a short time; these small quantities are however sufficient to effectively prevent control lines, nozzles and valves from freezing.

➢ If the ambient temperatures are below 32 °F you must permanently set the corresponding shut-off valve of the defroster to winter operation!

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

Pictograms on the instrument panel illustrate the starting and stopping procedures, see also item [1] in the following illustration.

Precondition No personnel are working on the machine.

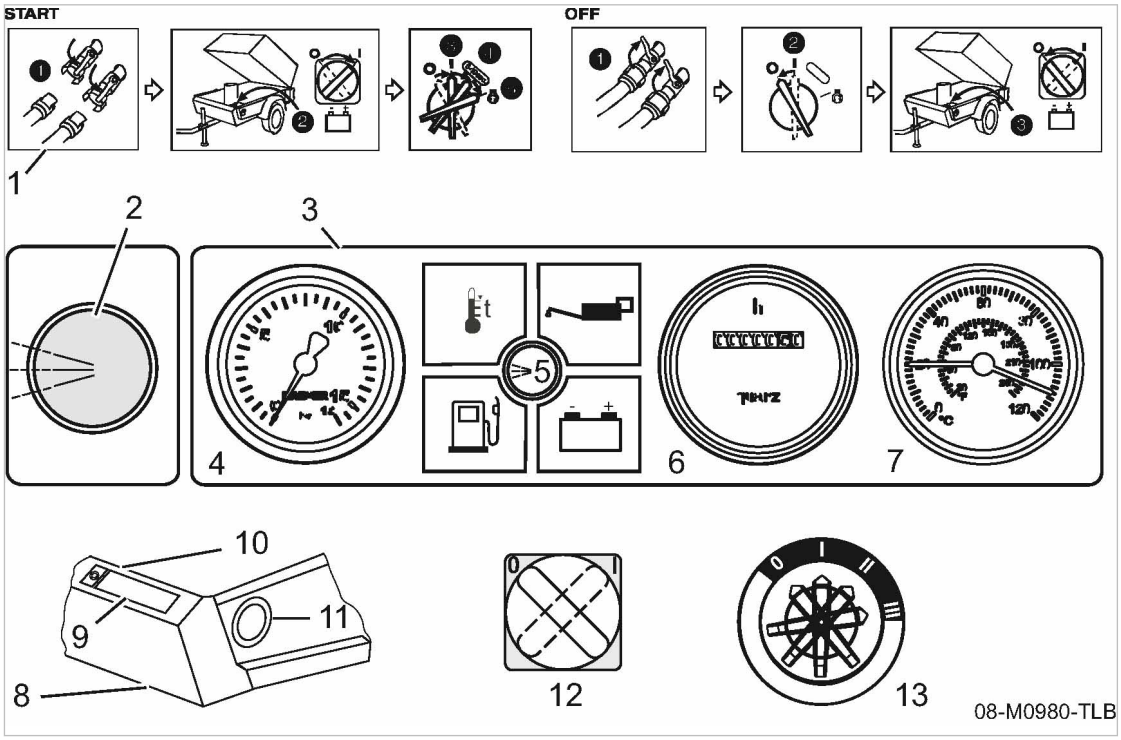


Fig. 15 Starting instruments

[1] Starting and stopping pictogram
[2] «Full load ON» push-button
[3] Instrument panel
[4] Compressed air outlet pressure gauge
[5] Alternator indicator, group alarm lamp
[6] Operating hours counter
[7] Temperature gauge switch
[8] Bodywork
[9] Location of the instrument panel
[10] Location of the «Controller ON» switch (within the machine)
[11] Location of the «Starter switch» on the machine
[12] «Control ON» switch
[13] «Starter switch»:
[0] STOP / OFF
[I] ON
[II] Preheating
[III] Start

8.2.1 Starting

1. **⚠ CAUTION** *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.*
2. **⚠ CAUTION** *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).*
3. Turn the «Controller On» [12] switch to “I”.
4. Turn the «starter switch» [13] to “I”.
   The *charging indicator lamp* [5] must light.
5. Turn the «starter switch» to “II” and hold (max. 5-10 seconds).
   The engine's glow plugs are energized and the engine pre-heated.
6. Turn the «starter switch» to "III" and release it as soon as the engine starts.
   The *charging indicator lamp* [5] extinguishes as soon as the engine is running.
   A fault has occurred if the *charging indicator lamp* does not extinguish, see chapter 9.2.
   The engine will automatically be set to IDLE mode.
   The machine is not yet ready for delivering compressed air.

The electric fuel pump starts when the starter switch is in the "II" position. This vents the fuel line before each start.
Maximum preheating time should be 5-10 seconds.

8.2.2 Allowing the machine to run up to operating temperature

To avoid unnecessary wear, the engine should be run in IDLE until the airend discharge temperature reaches 86°F.
The airend discharge temperature is shown at the remote thermometer contact on the instrument panel.
Pushing the «Full load ON» button sets the machine to LOAD.
«Full load ON» push-button [2] see figure 15.
If the machine is set to LOAD, the integrated *load mode indicator lamp* is lit.

Precondition
The airend discharge temperature of 86°F has been reached.
The engine runs at constant speed.
The compressed air outlet valves are closed.

- ➢ Press the «Full load On »button.
  The load valve is activated.
  The integrated *full load indicating lamp* lights up.
  The engine accelerates to maximum speed.
  The machine is ready for compressed air delivery.

8.2.3 Shutting down

1. **⚠ CAUTION** *Thermal overload of the turbocharger!*
   Abrupt stopping of the engine under load can cause a fault or damage to the turbocharger.
   ➢ *Run the engine 2 to 3 minutes in idle before shutting down to allow the turbocharger to cool.*
2. Close all «compressed air outlet valves» on the air distributor.
   The engine runs in IDLE and the turbo charger can cool down.
3. After approx. 2 to 3 minutes, switch the «Starter switch» [13] to “0”.
4. Turn the «Control ON» switch [12] to “0”.

Close and lock the canopy.

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.*

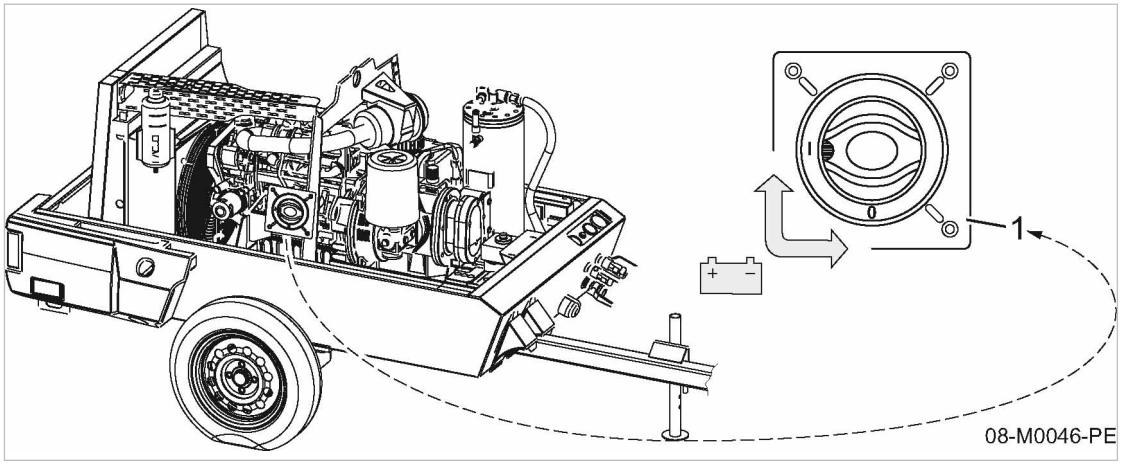


Fig. 16 Battery isolating switch

[1] «Battery isolating switch»
I – on
0 – off

➢ Raise the cover.

Starting 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 da
Checking the ambient temperature

➢ Check to ensure that the ambient temperature for air treatment is within the required limit values.

?

The moisture content of the transported air is too high.

The ambient temperature has fallen below or exceeds the permissible limit value.

➢ Shut down the machine.

Further information See chapter 2.7.3 for air treatment limit values.

8.5.3 Option ea
Operating the tool lubricator

Precondition The machine is shut down.

Tool lubricator filled with lubricant.

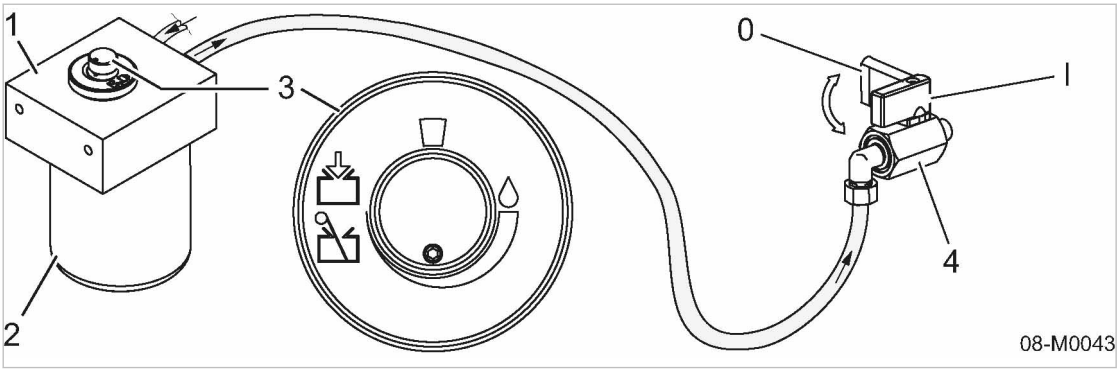


Fig. 17 Operating the tool lubricator

[1] Tool lubricator
[2] Lubricant container
[3] Metering knob
[4] Shut-off valve
I – open
0 – closed

➢ Open the canopy.

Adding lubricating oil

1. Open the shut-off valve [4].
2. Close the canopy.

Setting the oil flow

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

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

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

1. Set the required oil flow.
2. Close the canopy.

Further information Fill the tool lubricator with lubricant (see chapter 10.8.1).

Shutting off lubricating oil

1. Close the shut-off valve [4].
2. Close the canopy.

8.5.4 Option ba
Using the low-temperature equipment

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

8.5.4.1 Option bb
Using the coolant pre-heating

1. Start the coolant pre-heating as described in chapter 7.4.3.

2. Pre-heat the engine coolant for approx. 3 hours.
   Thermal balance achieved.
3. Disconnect the power plug from the user's power outlet.
4. Disconnect the unit plug from the connection of the machine.
5. Open the enclosure.
6. Stow the power cable inside the machine.
7. Close the enclosure.

➢ Gently start the machine with the pre-heated coolant of the engine.

Diesel engines run more efficiently if the diesel engine has been pre-heated. The use of coolant pre-heating therefore reduces pollutant emissions and the fuel consumption due to the shortened warm-up phase.

In addition, wear of the engine is reduced, thus increasing its service life.

8.5.4.2 Option bc
Using antifreeze

Precondition: The machine is switched off.

Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!

1. Open the canopy.
2. Check if the corresponding shut-off valve of the defroster has already been set to winter operation.
3. If required, set the shut-off valve as described in chapter 7.4.3.
4. Close the canopy.

Result: The control and regulating system of the machine is moistened with antifreeze when the machine is switched on or off.

Further information: See chapter 10.8.4 for filling the defroster tank with antifreeze.

8.5.5 Option ua
Using the hose reel

The hose reel is positioned at the front of the machine, to the right side of the towbar.

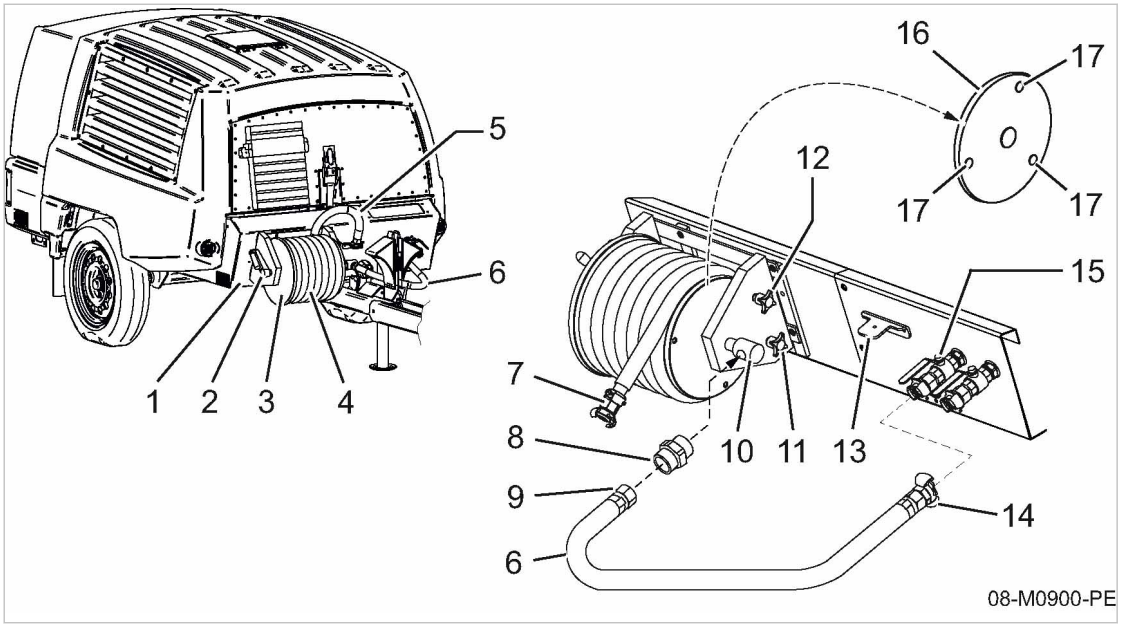


Fig. 18 Hose reel

[1] Front side, machine
[2] Winding handle (fold out)
[3] Hose reel
[4] Compressed air extension hose
[5] Hose end in safety position
[6] Connecting hose
[7] Claw coupling
[8] Adapter
[9] Union nut
[10] Connecting bore
[11] Clamping screw
[12] Transport securing bolt
[13] Bracket
[14] Claw coupling
[15] Compressed air outlet valve
[16] Side wall with safety bores
[17] Securing holes

8.5.5.1 Operating the machine with an extension air hose

A connecting hose [6] supplies the extension hose with compressed air.

Precondition The connecting hose is installed.
The compressed air outlet valve is closed.

1. Pull the hose coupling [7] of the bracket [13].
2. Loosen the transport securing bolt [12].
3. Loosen the clamping screw [11].
4. Unfold the crank [2].
5. Reel out the required length of the extension hose [4].
6. Tighten the clamping screw [11].
   The reel is locked against unwanted reeling in or out.
7. Fold the crank [2].
8. Connect the air tool.
9. Activate the machine
10. Hold the air consumer at its handle.
11. Open the compressed air outlet valve for the compressed air extension hose [15].

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.

8.5.5.3 Securing the hose reel for transport

1. Check that the compressed air extension hose is firmly and evenly reeled in.
2. Reel again, if necessary.
3. Tighten the clamping knob.
4. Engage the securing screw fully.
5. Plug the hose coupling onto the bracket.

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.	–	–
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 = Specialized 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 = Specialized workshop; KS = KAESER SERVICE			

Tab. 48 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
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 maladjusted or defective	Repair or have replaced if necessary.	X	X
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 49 Alarm: "Engine does not reach full speed".

9.2.3 Indicator lamp remains on

Possible cause	Remedy	Where can I get help?	
		SW	KS
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
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 50 Alarm: "Indicator lamp remains on"

9.2.4 Motor 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 = Specialized workshop; KS = KAESER SERVICE			

Tab. 51 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 does not close.	Check the controller, the control air line and the inlet valve and replace if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
Venting valve does not blow off.	Check the connections and function and have repaired or replaced as necessary.	–	X
SW = specialized workshop; KS = KAESER SERVICE			

Tab. 52 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.	Repair or have replaced if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
SW = specialized workshop; KS = KAESER SERVICE			

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
Safety relief valve maladjusted and/or leaking.	Have repaired or replaced if necessary.	–	X
Venting valve does not close.	Check the connections and function and have repaired or replaced as necessary.	–	X
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.	–	–
SW = specialized workshop; KS = KAESER SERVICE			

Tab. 53 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 does not close.	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
SW = specialized workshop; KS = KAESER SERVICE			

Tab. 54 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.	–	–
The working element of the combination valve not working.	Have repaired or replaced if necessary.	–	X
SW = specialized workshop; KS = KAESER SERVICE			

Possible cause	Remedy	Where can I get help?	
		Specialized workshop	KAESER Service
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
Compressor oil filter cartridge clogged.	Change, see chapter 10.4.4.	–	–
Compressor cooling oil level too low.	Replenish (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.	–	–
SW = specialized workshop; KS = KAESER SERVICE			

Tab. 55 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.	–	–
SW = specialized workshop; KS = KAESER SERVICE			

Tab. 56 Fault: Too much oil residue in the compressed air

9.3.6 Oil flows from the compressor air filter after shutdown

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

Tab. 57 Fault: Oil flows from the compressor air filter after shutdown

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. 58 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. 59 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. 60 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 500 operating hours.

Assembly: 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	
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 cooler.		X							10.5	
Check antifreeze concentration.			X						10.3.1	KS, FW
Change the coolant.				X					10.3.1	KS, FW
Remove residue within the water cooler.				X						KS, FW
Fill up the fuel tank.	X									
Replace the fuel pre-filter (*).				X					10.3.3	KS, FW

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

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
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 tank 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 engine mounts 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	
Carry out rubber sealing strip maintenance.			X						10.6.2	

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

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Check function of closed enclosure.			X						10.6.3	
Check connection elements.		X							10.6.4	
Check the function of the enclosure safety catch.		X							10.6.5	
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							KS, FW
Check the lighting system's function.	X									
KS ≙ Contact an authorized KAESER service representative, FW ≙ Contact specialized workshop.										

Tab. 61 Regular machine maintenance tasks

10.2.3.2 Maintenance schedule options

➢ 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 500 operating hours.

Option: Task	Daily	Weekly	A250	A500	A1000	A2000	See chapter	Note
Option ea – Tool lubricator								
Check lubricant level in the tool lubricator.	X						10.8.1	
Option da - compressed air aftercooler								
Clean the cooler.			X				10.8.2	
Option da - Centrifugal separator								
Clean/check the dirt trap (*).				X			10.8.3	
Option bb – Coolant pre-heating								
Have the coolant pre-heating checked.				X				EF
Have the power supply cable checked.				X				EF
Option bc – Defroster								
Check/top up the level of the receiver tank.		X					10.8.4	
Option la – spark arrestor								
Clean spark arrestor			X				10.8.5	
Blow out the spark arrestor with compressed air				X				
Option lb - engine air intake shut-off valve								
Have the engine air intake shut-off valve cleaned/checked.			X				10.8.6	KS, FW
Option ne - fuel/water separator:								
Check/empty the fuel/water separator.	X						10.3.3.3	
Replace fuel filter cartridge (*).					X		10.3.3.3	
Option oe – closed floor pan								
Check the machine interior for liquid accumulations.							10.8.7	

KS ≙ Contact an authorized KAESER service representative,
FW ≙ Contact specialized workshop,
EF ≙ Contact qualified electrician

Tab. 62 Regular maintenance task options

10.3 Drive engine maintenance

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

10.3.1 Maintaining the coolant cooler

Material
For suitable coolant, please see the information regarding the initial filling, chapter 2.6.4.
Coolant
Coolant tester
Cooler cleaning agent
Collecting vessel
Funnel
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!

⚠ 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 enclosure.

10.3.1.1 Checking the coolant level

The coolant level in the drive 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 drive engine has cooled down.

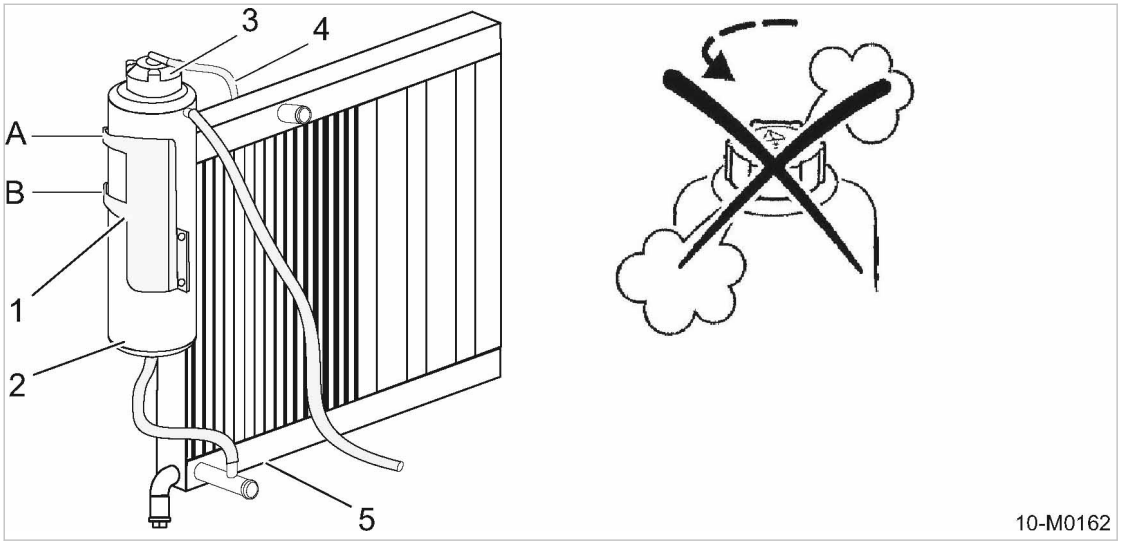


Fig. 19 Check the coolant level

1	Coolant level indicator	3	Filler neck with cap
A	*Maximum check mark* (FULL)	4	Overflow
B	*Minimum check mark* (LOW)	5	Coolant cooler
2	Coolant expansion tank		

1. Check the level of coolant in the coolant expansion tank.
   If the coolant level falls below the *minimum check mark* B: Top off the coolant.
2. Close the enclosure.

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

➢ Loosen and remove the expansion tank filler cap 3.

Performing 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 is badly discolored and/or contains floating particles: Change the coolant.

Performing antifreeze concentration measurement

A coolant 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 up as necessary.*
2. Use the coolant tester as instructed by the manufacturer to test the coolant.
   Concentration of antifreeze is too low: Change the coolant.

Performing final work steps

1. Close the filler cap.
2. Close the enclosure.

10.3.1.3 Mixing coolant

The coolant is a mixture of clean, fresh water and antifreeze with special coolant additives (corrosion/antifreeze additives).

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 20.

Fig. 20 Recommended mixture ratio for coolant
1 Water
2 Corrosion inhibitor/antifreeze

➢ For recommended coolant, please see the information regarding the initial filling, chapter 2.6.4!

Preparing coolant

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

➢ The coolant should be mixed in the ratio specified by the manufacturer.

Coolant mixture table:

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

Tab. 63 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 the coolant to expand without overflowing when hot.

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* Ⓐ.
3. Close the filler cap.
4. Connect the negative cable to the battery.
5. Close the enclosure.
6. Start the drive engine and allow to IDLE for about 1 minute.
7. Stop the drive engine.
8. Open the enclosure.
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 enclosure.

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 coolant cooler is drained by a separate screw plug (accessible from underneath through the access hole in the floor pan).

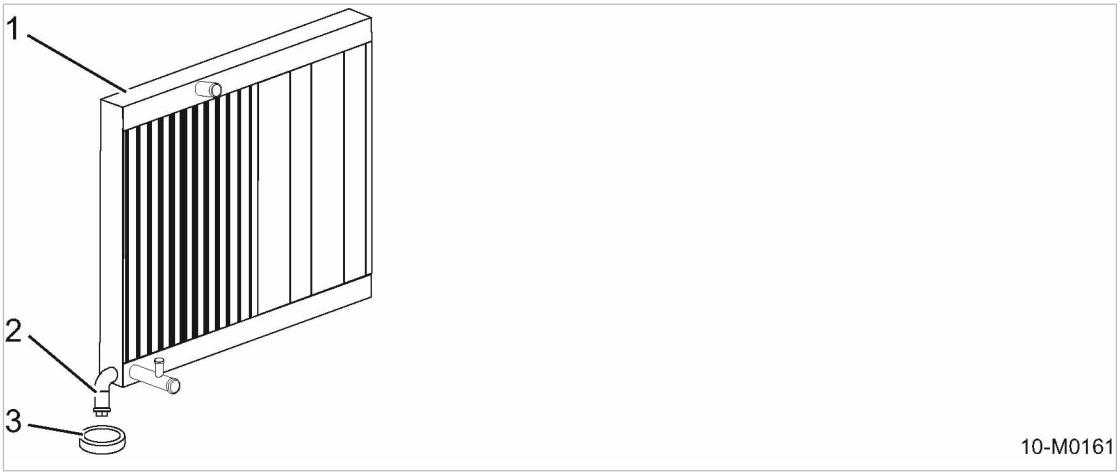


Fig. 21 Drain the coolant

[1] Coolant cooler
[2] Screw plug
[3] Bung (Option oe)

1. Loosen and remove the expansion tank filler cap.
2. For option oe (closed floor pan), the bung must also be removed from the floor panel.
3. Position a collecting vessel beneath the water cooler drain point (accessible through a hole in the floor panel).
4. Loosen and remove the screw plug [2].
5. Allow the coolant to drain out completely.
6. Insert the screw plug with a new gasket and tighten.
7. For option oe (closed floor pan), you must also close the opening in the floor panel, using the bung.
8. Close the filler cap.
9. Close the enclosure.

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

10.3.1.6 Removing scaling within the coolant cooler

After extended periods of use, scale may form in the cooling circuit and within the coolant 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 coolant 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 coolant cooler.

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

Renew the air filter element after one year at the latest or after it has been cleaned 3 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 in the engine from intake of contaminated air.

➢ *Do not try to clean the filter element by striking or knocking it.*

➢ *Do not wash the filter element.*

Checking contamination of the air filter

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

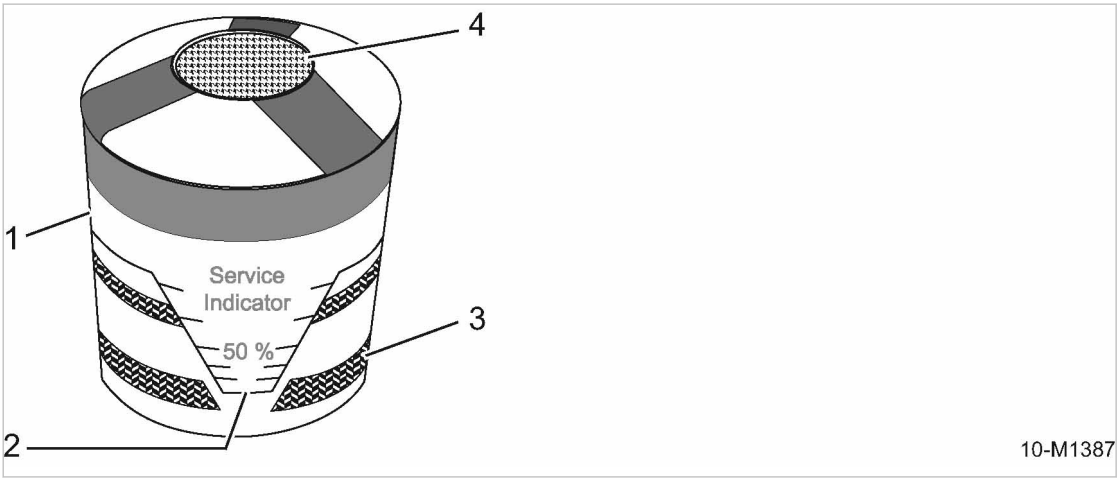


Fig. 22 Maintenance indicator

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, clean or replace the filter element.

Cleaning the air filter

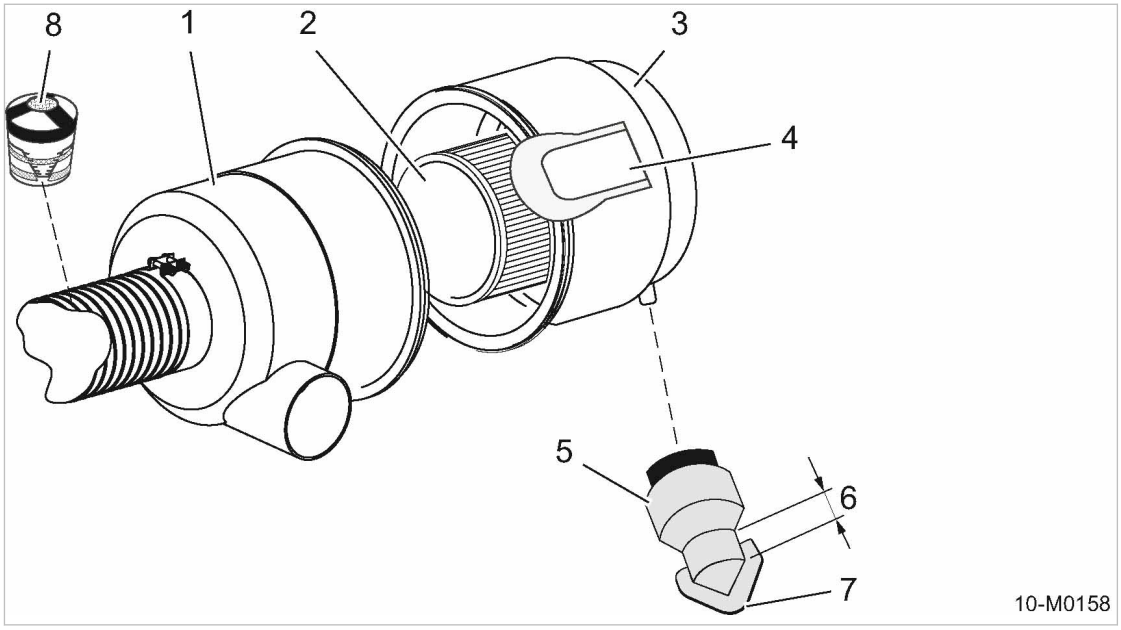


Fig. 23 Engine air filter maintenance

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

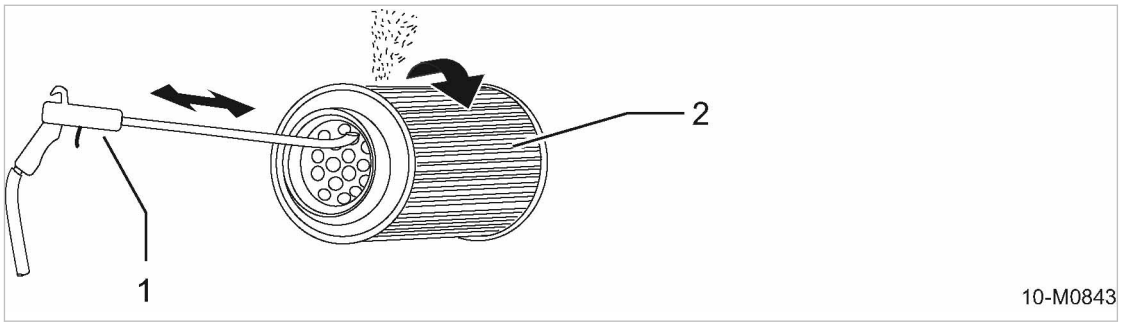


Fig. 24 Cleaning the filter element

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

1. Press both spring flaps together, lift the filter 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:
   - Pinch the valve part above the drain slit (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. Place the filter cap on the housing and press home.
8. 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 canopy.

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 insert
  - Replacing the filter element of the main fuel filter
  - Option: Fuel/water separator maintenance
  - Starting the machine and performing a test run

Material
Spare parts
Oil 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

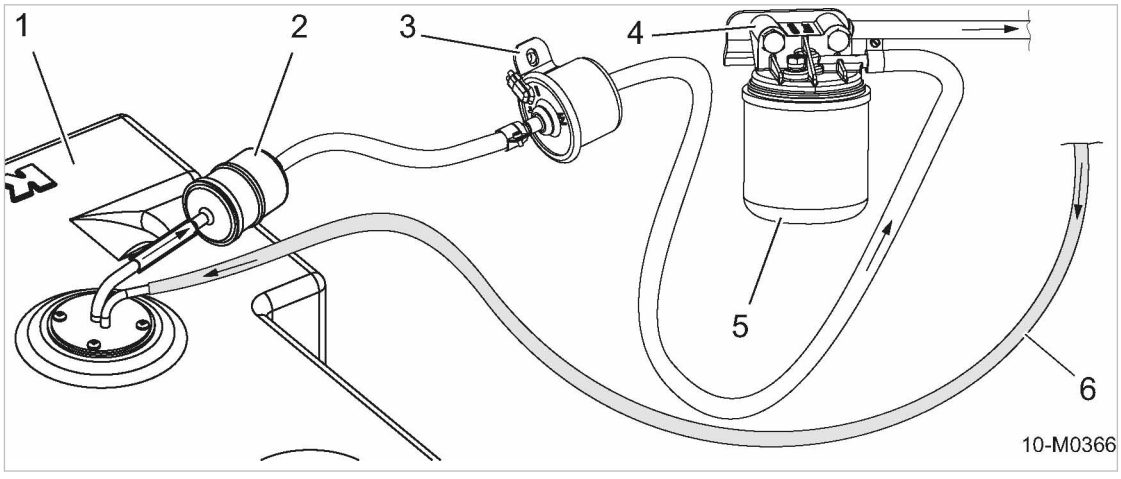


Fig. 25 Bleeding the fuel system

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

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. 26 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!

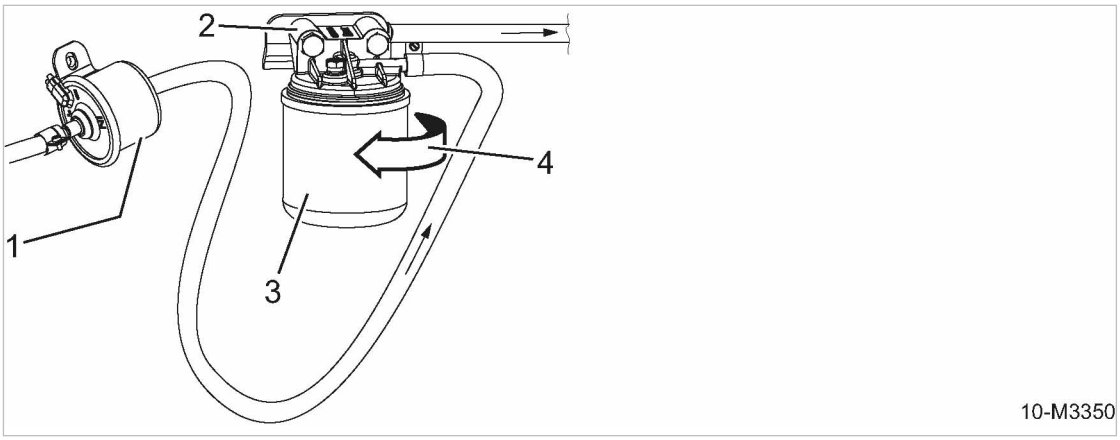


Fig. 27 Changing the filter cartridge

[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 fuel filter cartridge and transparent separator tank

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
Collecting vessel
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.

Option ne

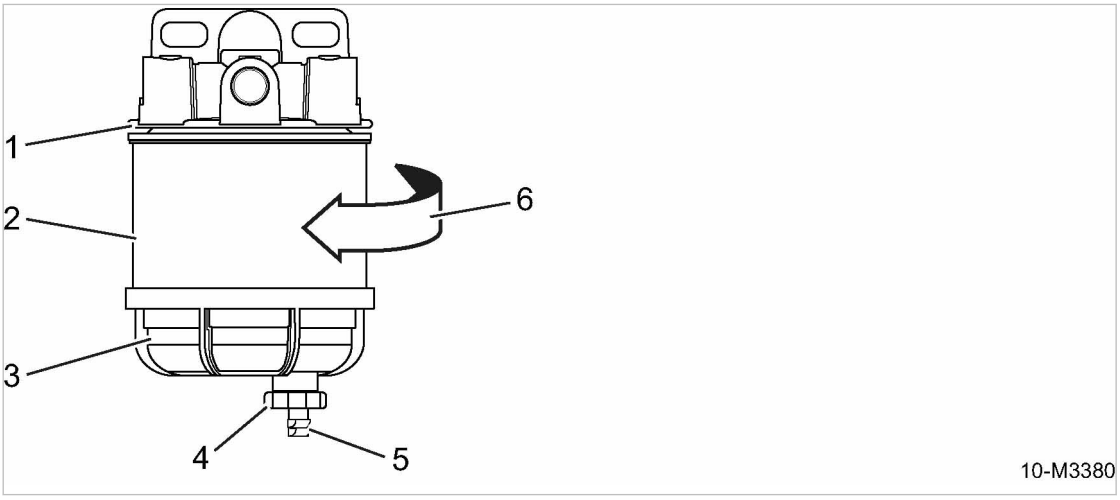


Fig. 28 Fuel/water separator

[1] Fuel filter head
[2] Fuel filter cartridge
[3] Transparent separator tank
[4] Hand wheel
[5] Drain pipe
[6] Direction of arrow

Empty the fuel/water separator

The fuel/water separator must be emptied at regular intervals, see maintenance schedule, chapter 10.2.3.2.

1. Place a collecting vessel underneath the water separator drain pipe [5].
2. Loosen the hand wheel [4] to open the drain pipe.
3. Drain separated water and dirt particles into the collecting vessel.
4. Tighten the hand wheel to close the drain pipe.
5. Connect the negative cable to the battery.
6. Close the canopy.

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 10.2.3.2. To replace the fuel filter cartridge, first remove the transparent separator tank.

Precondition Spare part is available.

The fuel/water separator is emptied.

1. In order to loosen the transparent separator tank, turn the transparent separator tank in the direction of the arrow [6].
2. Remove the separator tank.
3. In order to loosen the old fuel filter cartridge, turn the old fuel filter cartridge in the direction of the arrow [6].
4. Remove the old fuel filter cartridge.
5. Clean the fuel filter head, transparent separator tank and all sealing faces.
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. Install the transparent separator tank below the fuel filter cartridge.
11. Turn transparent separator tank clockwise.
12. Tighten the transparent separator tank by hand force.
13. Connect the negative cable to the battery.
14. 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 2.6.5 for engine oil filling quantity.
Receptacle
Wrench
Cleaning cloths

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

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

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

Draining the engine oil

In order to drain the engine oil, unscrew the screw plug in the oil pan. For this purpose, a drainage outlet is provided in the floor pan.

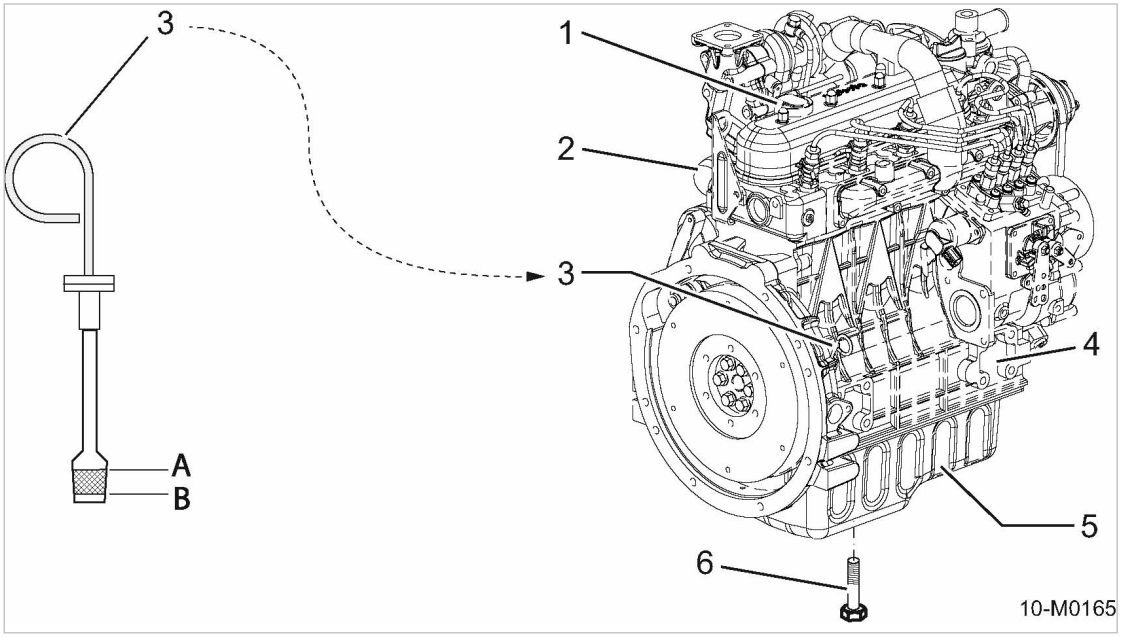


Fig. 29 Draining the engine oil

[1] Filler cap
[2] Oil filter
[3] Oil dipstick
[4] Engine block
[5] Engine oil sump
[6] Screw plug

1. Raise the canopy.
2. Remove the oil filler cover.
3. Place the oil receptacle below the drain hole in the floor pan.
4. Unscrew the drain plug and allow the engine oil to drain into the receptacle.
5. Clean the screw plug and screw in with a new gasket.

6. Replace the plug in the filler port.
7. Close the canopy.

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

Filling with engine oil

Precondition Screw plug with the sealing ring screwed into the oil pan.
Filler plug tightened.

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 dip stick to check the oil level.
The level must be between marks A and B.

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

Starting the machine and performing a trial run

Precondition Battery connected

1. Start the machine and run it in IDLE mode 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.

10.3.4.1 Option oe
Draining the engine oil by a shutoff valve

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 2.6.5 for engine oil filling quantity.
Receptacle
Hose coupling
Cleaning cloth
Funnel

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

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

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

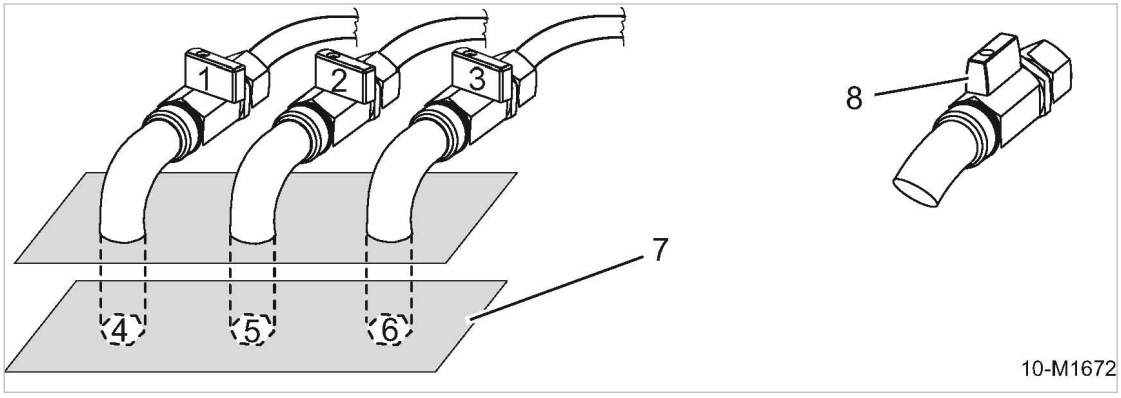


Fig. 30 Engine sump drain valve

[2] Engine sump shut-off valve
[5] Engine oil sump plug
[7] Lower bodywork
[8] Valve open position

Draining the engine oil

1. Remove the oil filler cap.
2. Position the receptacle.
3. Unscrew and remove the engine oil sump plug [5].
4. Open the engine oil sump plug valve [2].
   Engine oil flows into the receptacle.

10.3.5 Changing the engine oil filter

Material
Spare parts
Common tools
Cleaning cloths
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.*

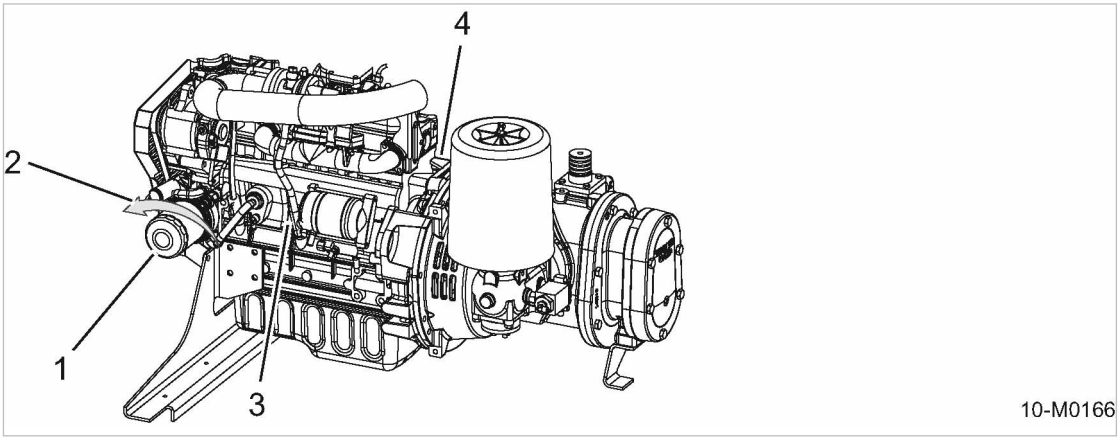


Fig. 31 Changing the engine oil filter

[1] Engine oil filter
[2] Direction of rotation to unscrew the filter
[3] Engine
[4] Oil dipstick

1. Open the canopy.
2. Prepare a receptacle.
3. Note the direction of rotation [2] to unscrew the 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 batteries 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 cover.

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 cover.

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.

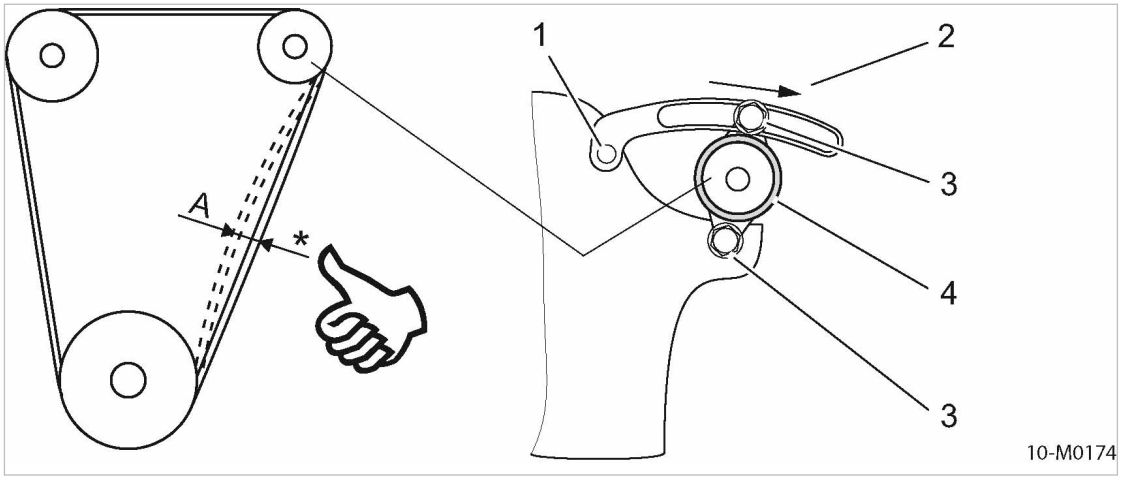


Fig. 32 Checking belt tension by hand

[A] Permissible deflection of the belt
[*] Approximate pressure exerted: 22 lb
Permissible movement: 0.3 – 0.35 inches
[1] Engine block mounting
[2] Direction of arrow
[3] Engine alternator screw
[4] Engine alternator

Checking and resetting belt tension with tension measuring device	Checking and resetting belt tension manually
1. Remove the belt guard.	1. Remove the belt guard.
2. Check belt tension with the tension measuring device.	2. Using your thumbs, push the belt between the belt pulleys (see illustration 32).
3. Tensioning a loose belt: ■ 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].	3. Tensioning a loose belt: ■ 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.	4. Replace the belt guard.
5. Reconnect the negative battery terminal.	5. Reconnect the negative battery terminal.

Changing the 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 into operation

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

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.

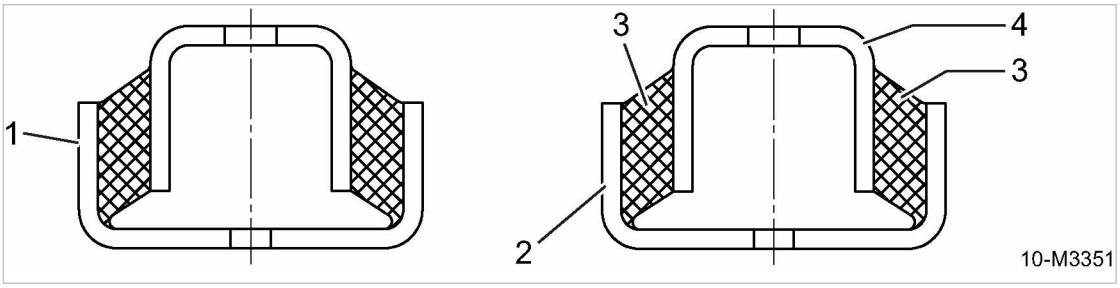


Fig. 33 Example for anti-vibration mount of drive engine

[1] Anti-vibration mount
[2] Bottom U-profile
[3] Elastomer
[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

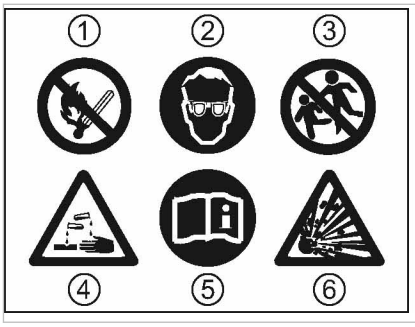
⚠ WARNING

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.



10-M0167

Fig. 34 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.

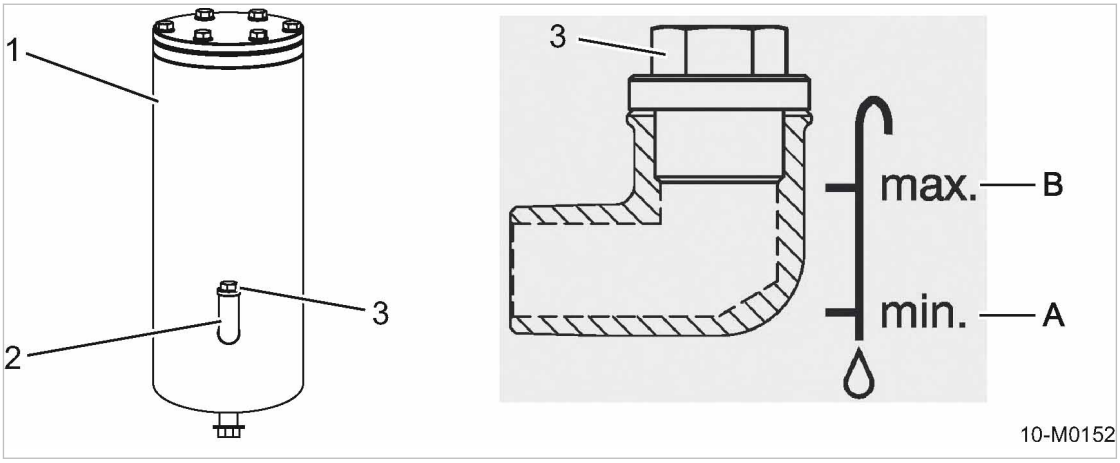


Fig. 35 Checking cooling oil level

[1] Oil separator tank
[2] Oil filler port
[3] Filler plug
[A] Mark for minimum oil level
[B] 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 [B] 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 2.5.7 for oil filling volume.
Receptacle
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 canopy.

10.4.3.1 Draining the cooling oil

The oil separator tank and oil cooler drain plugs are accessible from below through openings in the floor pan.

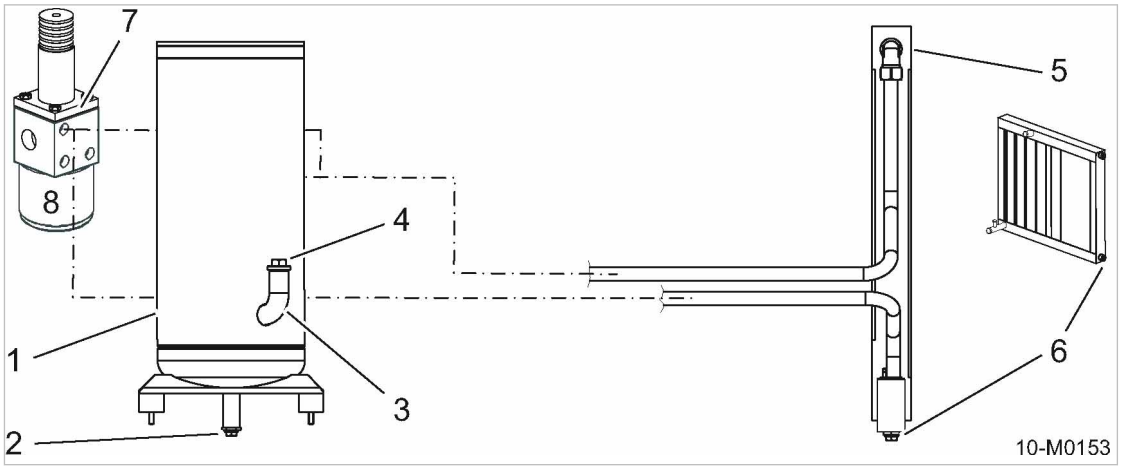


Fig. 36 Draining the compressor cooling oil

[1]	Oil separator tank	[5]	Oil cooler
[2]	Oil separator tank plug	[6]	Oil cooler plug
[3]	Oil filler port	[7]	Combination valve
[4]	Screw plug	[8]	Oil filter

1. Unscrew the filler plug in the oil separator tank.
2. Position a receptacle beneath the oil cooler plug (accessible through a hole in the floor panel).
3. Unscrew the drain plug and allow the cooling oil to drain into the receptacle.
4. Fit a new gasket on the plug and screw it back into the oil separator tank.
5. Position a receptacle beneath the oil cooler plug (accessible through a hole in the floor panel).
6. Unscrew the drain plug and allow the cooling oil to drain into the receptacle.
7. Fit a new gasket on the plug and screw it back into the oil cooler.

Perform final work steps

1. Replace the plug in the oil separator tank filling port.
2. Close the canopy.

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

Further information See chapter 10.4.2 for oil filling.

Option oe Draining cooling oil via the shut-off valve

Material
- Fresh cooling oil
- Receptacle
- New gasket for the filler caps
- Funnel
- Cleaning cloth

Precondition
- Machine shut down
- The machine is standing level.
- The machine is at operating temperature.
- 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.

⚠ CAUTION

Risk of burns from hot components and escaping oil!

➢ *Wear long-sleeved clothing and gloves.*

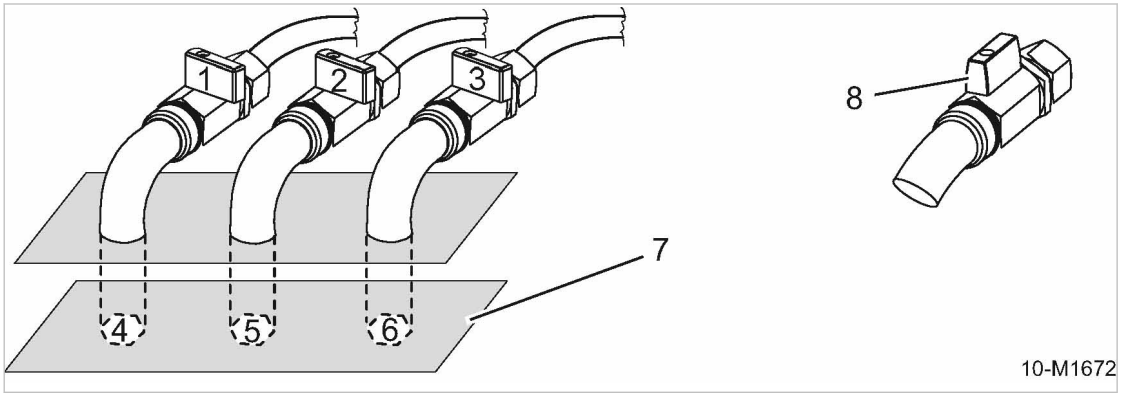


Fig. 37 Oil drain valves oil cooler and oil separator tank

[1]	Oil cooler shut-off valve (closed)	[5]	Engine oil sump plug
[2]	Engine sump shut-off valve (closed)	[6]	Oil separator tank plug
[3]	Separator tank shut-off valve (closed)	[7]	Lower bodywork
[4]	Oil cooler plug	[8]	Valve open position

1. Unscrew the oil filler cap.
2. Position the receptacle.
3. Unscrew and remove the oil cooler drain plug [4] and oil separator tank drain plug [6].
4. Open the shut-off valves [1] and [3] and drain the oil.

10.4.4 Replacing the compressor oil filter

Material
Spare parts
Tool
Receptacle
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,
negative cable to the batteries disconnected.

⚠ CAUTION

Danger of burning from hot components and escaping oil.

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

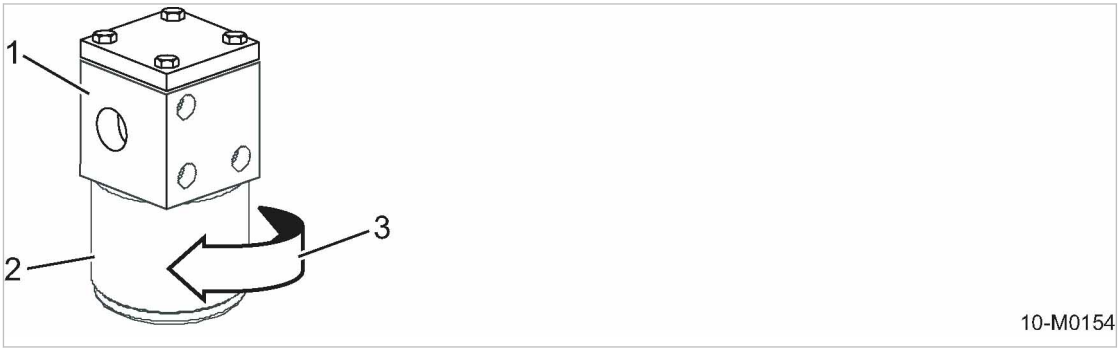


Fig. 38 Changing the compressor oil filter

1 Combination valve
2 Oil filter
3 Direction of rotation to unscrew the oil filter

Changing the compressor oil filter

1. Open the canopy.
2. Prepare a receptacle.
3. Loosen the filter by turning counter-clockwise 3 and catch any escaping oil.
4. Remove the oil filter.
5. Carefully clean sealing surfaces using lint-free cloth.
6. Lightly oil the new filter's gasket.
7. Set oil filter into installation position.
8. Turn the new oil filter clockwise by hand to tighten.
9. Check the oil level in the oil separator tank.

?

Cooling oil level too low.

➢ Top off the cooling oil.

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

Dispose of old cooling oil and any materials or parts contaminated with oil according to environmental 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 should read 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. Carry out a visual check for leaks.
9. Close the canopy.

10.4.5 Oil separator tank dirt trap maintenance

Material
Cleaning cloths
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.

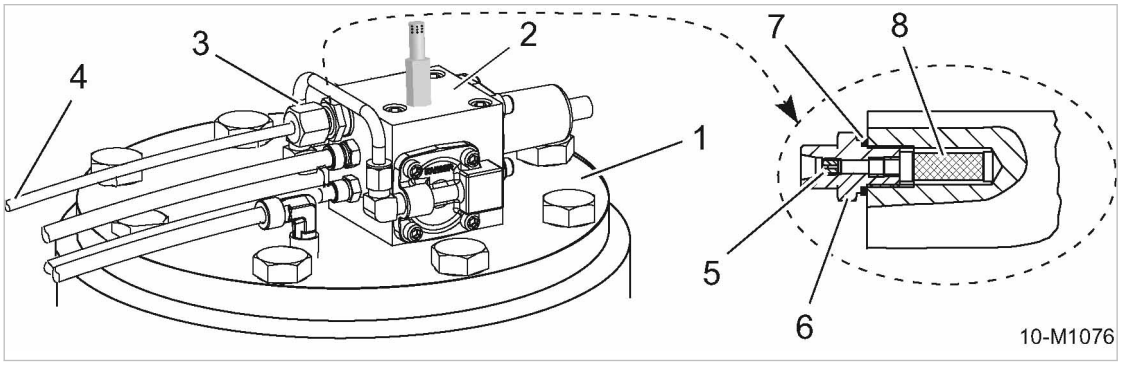


Fig. 39 Oil separator tank dirt trap maintenance

[1] Oil separator tank cover
[2] Control valve
[3] Union nut
[4] Oil return line
[5] Nozzle
[6] Screw-in connector
[7] Sealing ring
[8] Strainer

1. Open the canopy.
2. Undo the union nut [3] and bend the oil return line [4] to one side.
3. Unscrew the screw-in connector [6].
4. Unscrew the strainer [8] from the screw-in connector.
5. Use a screw driver to unscrew the nozzle [5] from the screw-in connector.
6. Clean the screw-in connector, strainer and sealing ring [7] with cleaning solvent or spirit.
7. Check the nozzle, strainer and sealing ring for function and wear.
   Replace components if they are heavily worn.
8. Fit the nozzle and strainer to the screw-in connector.
9. Screw in the connector making sure the sealing ring seats properly.
10. Refit the union nut of the oil scavenge line.

Returning the machine to operational readiness

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

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

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 adherence to the changing intervals for:
  - Cooling oil
  - Oil filter
  - Air filter

Material: Spare parts
Cleaning cloths

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

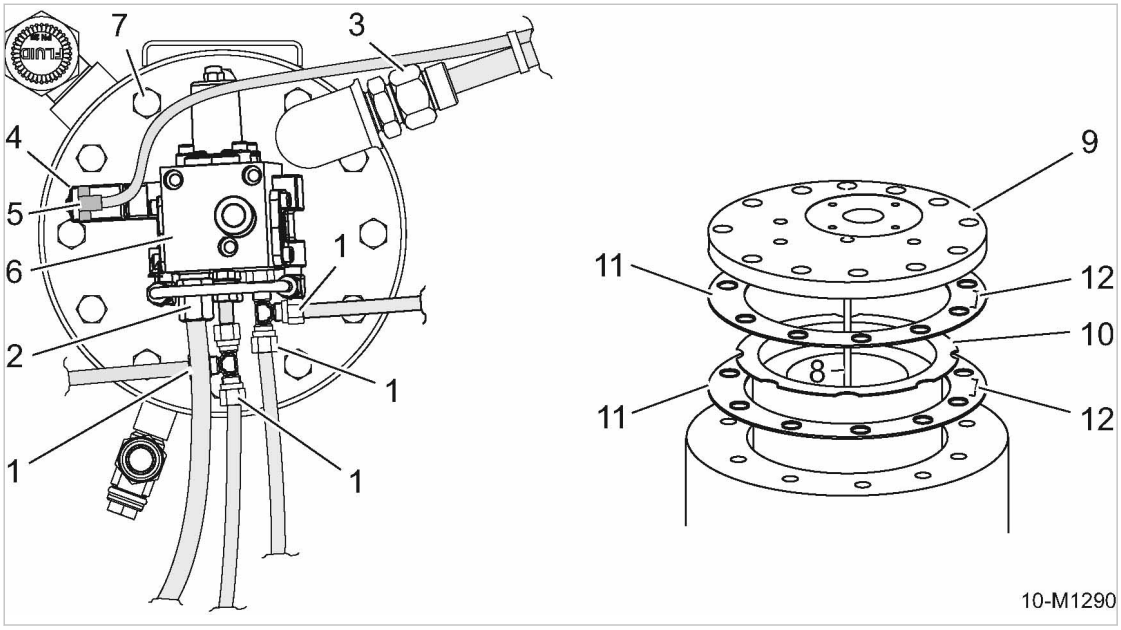


Fig. 40 Changing the oil separator cartridge

[1]	Control air line union nut	[7]	Fixing screw
[2]	Oil scavenge pipe union nut	[8]	Oil scavenge pipe
[3]	Compressed air hose union nut	[9]	Cover
[4]	Solenoid valve	[10]	Oil separator cartridge
[5]	Solenoid valve plug	[11]	Gasket
[6]	Control valve	[12]	Metal clip

Changing the oil separator cartridge

The dirt trap must be cleaned/changed when the oil separator cartridge is changed. Maintain dirt trap, (see chapter 10.4.5).

1. Undo the union nuts at [1], [2] and [3]
2. Remove the control line, oil scavenge line and compressed air hose.
3. Pull out the plug [5] with the connecting cable of the solenoid valve [4].
4. Remove the fixing screws [7] from the cover [9] of the oil separator tank, carefully lift the cover and place it to the side.
5. Remove the old oil separator cartridge [10] and the gaskets [11].
6. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.

Do not remove the metal clips from the gasket!
The individual parts of the oil separator cartridge are electrically interconnected. The gaskets [11] have metal clips [12] to make contact with the oil separator tank and the machine frame.

7. Insert the new oil separator cartridge with gaskets and screw down the cover.
8. Replace and tighten all fittings.
9. Plug the connecting cable back into the solenoid valve.
10. Check the oil level in the oil separator tank.
    Cooling oil level too low: Top off the cooling oil.
11. Reconnect the battery negative terminal.

Dispose of the old separator cartridge and gaskets, along with any working materials contaminated with cooling oil, in accordance with environmental protection regulations.

Option ba **Changing the oil separator cartridge**

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 10.8.4 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.

Starting the machine and performing a test run

1. Start the machine and run in idle until the operating temperature has been 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. Check the oil level after about 5 minutes.
   Top off if necessary.
7. Carry out a visual check for leaks.

10.4.7 Compressor air filter maintenance

Compressor air filter maintenance

- The filter element must cleaned at the latest when the corresponding maintenance indicator responds.
- As stipulated in the maintenance table, replace the filter element after one year.

- 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 the pressure system and cause premature wear and damage to the machine.

Material Spare parts
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 canopy.

Checking contamination of the air filter

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

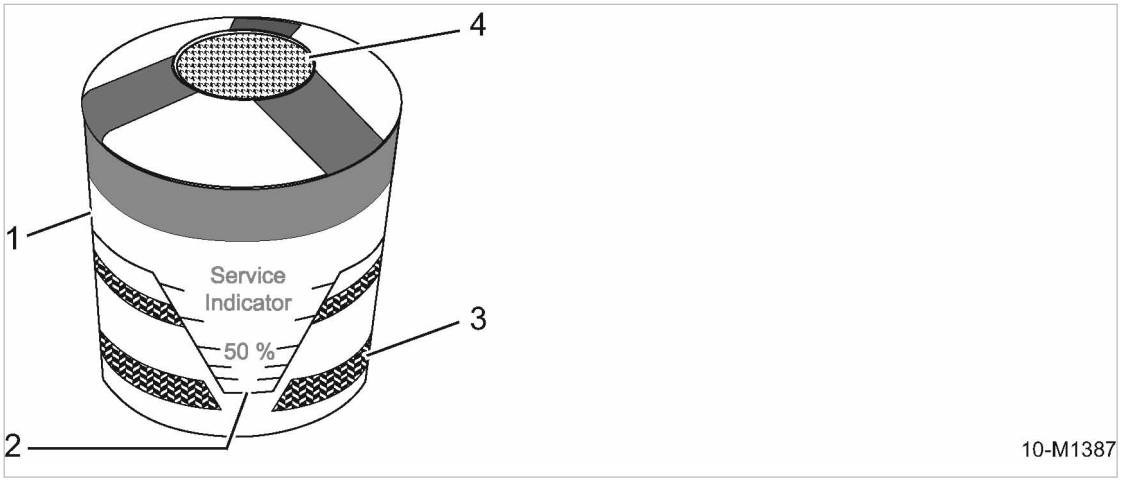


Fig. 41 Maintenance indicator

[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, clean the filter element.

Cleaning the filter element

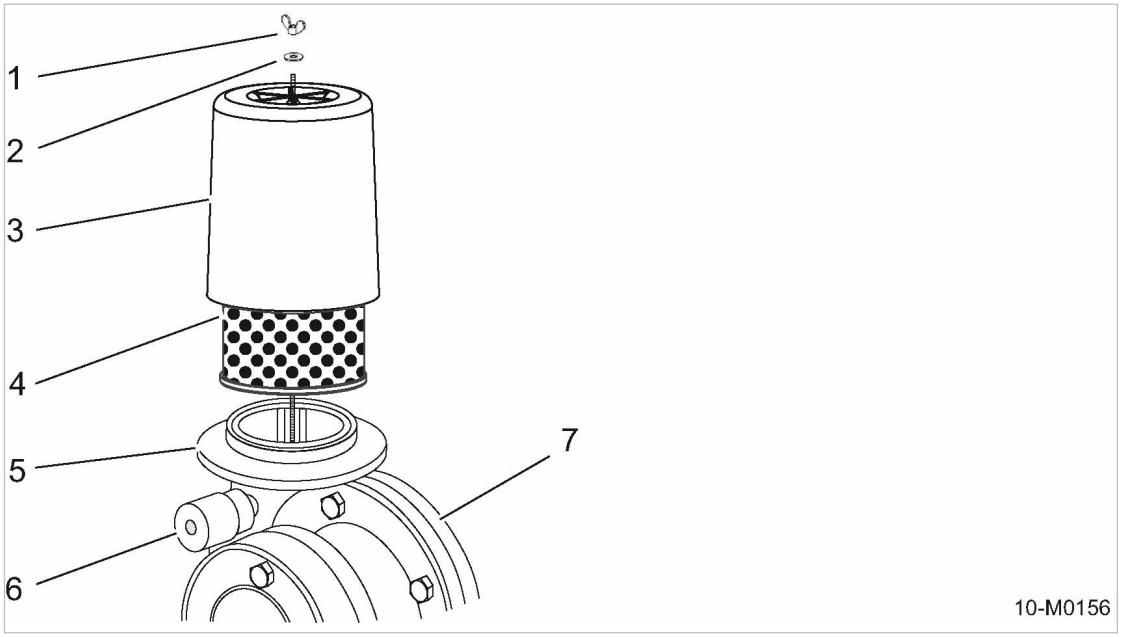


Fig. 42 Compressor air filter maintenance

1 Wing nut
2 Washer
3 Filter cap
4 Filter element
5 Inlet valve
6 Maintenance indicator
7 Airend

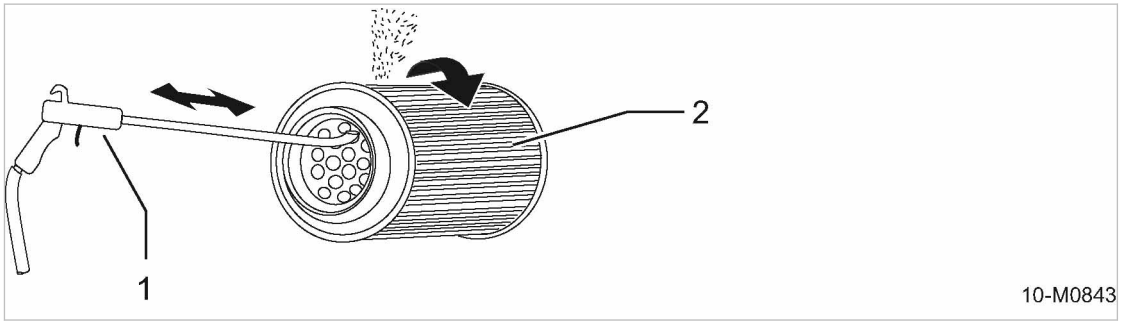


Fig. 43 Cleaning the filter element

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

1. Remove the wing nut and washer.
2. Remove the cover.
3. Remove the filter element.
4. Clean the filter housing and all sealing faces carefully with a damp cloth.
5. Cleaning the filter element:
   - Use dry compressed air (≤ 73 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

6. Inspect the element carefully for any damage.
   Damaged filter element: Replace filter element.
7. Insert the cleaned or new filter element into the filter housing. Make sure it is properly in place and sealed by its gaskets.
8. Replace the cover.
9. Secure the cover with washer and wing nut.
10. 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 canopy.

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 Cleaning the cooler

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 an authorized KAESER service representative.

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/coolant cooler.

- ➢ *Do not use hard objects to clean the oil cooler/coolant cooler.*

➢ Follow all instructions.

10.5.1 Ensure machine's stability

In order to clean both coolers, you must open the enclosure to its maximum opening angle. Due to the maximum opening angle of the enclosure (when the gas struts are removed), the center of the machine's gravity is changed. Prior to the removal of the gas struts, support the horizontally placed machine beneath its rear.

⚠ WARNING

Machine rear tips to the floor!
Risk of serious injury!

- ➢ *Support the machine accordingly.*

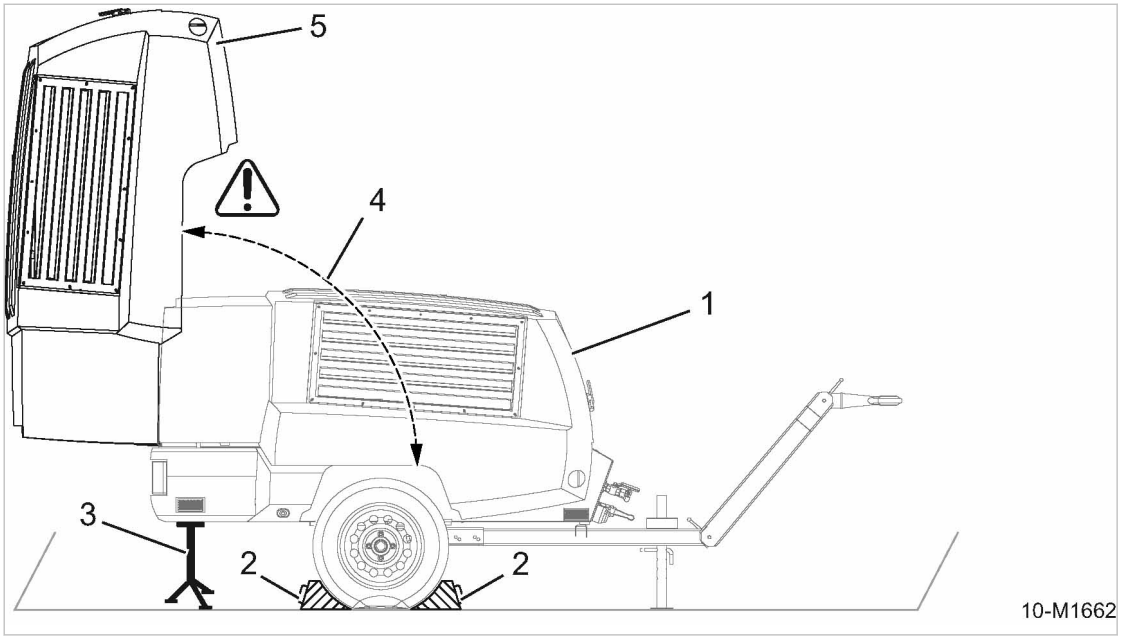


Fig. 44 Supporting the machine

[1] Machine (enclosure closed)
[2] Chock
[3] Axle stand
[4] Maximum opening angle
[5] The enclosure is fully opened

1. Secure the wheels with chocks.
2. Place chocks or squared timbers beneath the machine's rear.

10.5.2 Unhinge the gas struts of the enclosure

In order to achieve the maximum enclosure opening angle of the enclosure, you must unhinge the two gas struts at the enclosure.

Overview:

- Slightly lift the clip of the ball cup with a screwdriver.
- Pull the ball cup off the ball head.
- Keep the clip on the ball cup.

Precondition The machine is secured against moving.
Enclosure is open.
Use a suitable object or a second person to support the enclosure.

1. Push a suitable screwdriver below the clip of the ball cup of the gas strut cylinder.
2. Slightly angle and hold the screwdriver.
   The clip opens.
3. Pull the ball cup off the ball head.
4. Proceed in the same manner with the second gas strut.
   Both gas struts are unhinged.
5. Create maximum opening angle of enclosure.

Result Both coolers are accessible.

10.5.3 Cleaning the oil cooler and coolant cooler

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

1. Cover the intake openings of both the engine and compressor air filters.
2. Clean the cooling fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from outside to inside).
3. Remove the covers from the intake openings of both the engine and compressor air filters.

10.5.4 Hinge the gas struts of the enclosure

In order to ensure optimum lubrication and thus maximum life of the gas struts, the piston rod must always be aligned towards the ground.

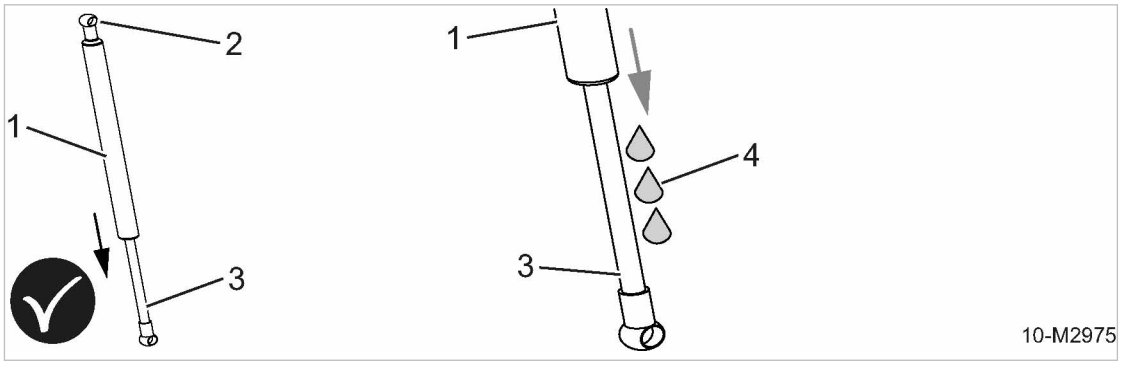


Fig. 45 Align gas strut

[1] Gas strut - cylinder
[2] Ball cup
[3] Piston rod

1. Move the enclosure downward until the mounting position has been reached.
2. Support the enclosure.
3. Push the ball cup with the clip of the gas strut cylinder onto the ball head of the enclosure until it latches audibly.
4. Proceed in the same manner with the second gas strut.

   Both gas struts are hinged.
5. Remove the supporting object.

10.5.5 Preparing for operation

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

10.5.6 Commissioning the machine

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.

10.5.7 Inspect both coolers for leaks

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

Is the oil cooler/coolant cooler leaking?

➢ Have the defective oil cooler/coolant cooler repaired or replaced immediately by an authorized KAESER service representative.

➢ Close the enclosure.

10.6 Checking the canopy

The machine's closed canopy 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 canopy and its connecting elements must always be in a perfect condition.

Overview:

- Check sound proofing material
- Maintain rubber sealing strips.
- Check closed canopy
- Check connecting elements
- Check the function of the canopy safety catch

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. Damages 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.

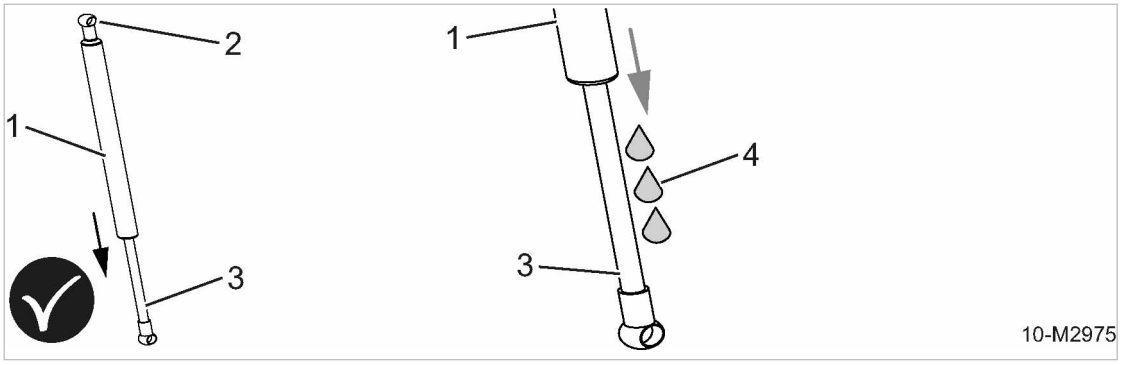


Fig. 46 Connecting rod alignment

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.

10.6.5 Checking the function of the canopy safety catch

In order to secure the canopy from opening independently, the machine is equipped with an canopy safety catch.

When the canopy locks are open and the canopy safety catch is locked in place, there is only a small gap between the machine's body and the canopy. In order to completely open the canopy, the canopy safety catch must be manually unlocked.

For the technically possible opening angle of the canopy, see the machine's dimensional drawing, Chapter 13.3

➢ Follow all instructions.

10.6.5.1 Checking the locking function

Precondition Canopy is closed.
All snap fasteners have been locked.

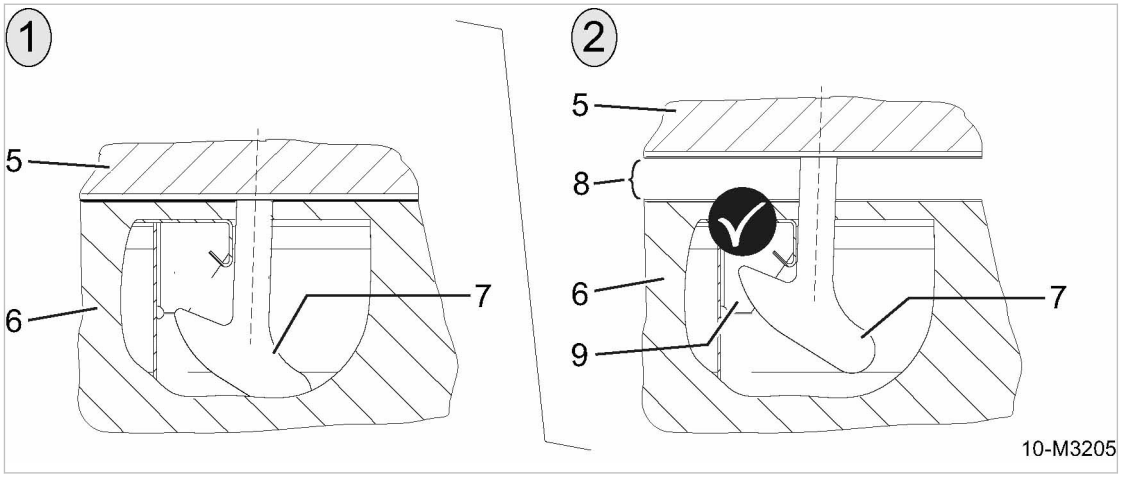


Fig. 47 Check the locking function

[1] Canopy is locked with snap fasteners
[2] Canopy safety catch is locked
[5] Canopy (top)
[6] Body (lower part)
[7] Canopy safety catch
[8] Gap
[9] Locking position

➢ Unlock all snap fasteners of the canopy.

Both gas struts will only open the canopy until the canopy safety catch locks into place in the locking position.
A gap [8] is created between the body and the canopy.

The canopy safety catch secures the canopy against independent complete opening.

After all snap fasteners have been unlocked, the canopy opens all the way immediately.

Canopy safety catch does not lock.

➢ Have a KAESER service representative replace the canopy safety catch immediately.

10.6.5.2 Unlocking the canopy safety catch

Precondition All snap fasteners have been unlocked.

The canopy safety catch has locked into place in the locking position.

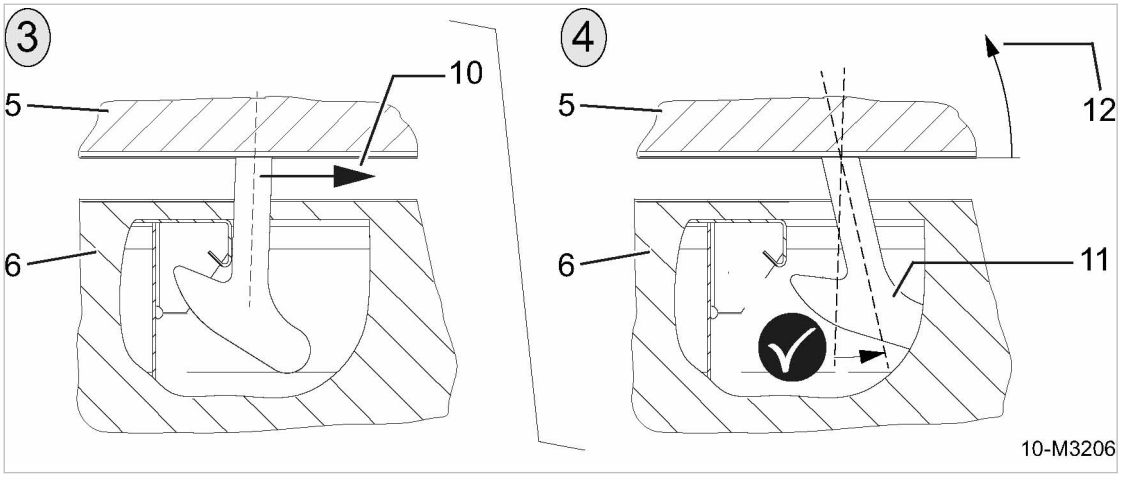


Fig. 48 Unlock the canopy safety catch

[3]	Manually unlock the canopy safety catch	[10]	Direction of arrow
[4]	Canopy safety catch has been unlocked	[11]	Unlocked canopy safety catch
[5]	Canopy (top)	[12]	Opening direction of canopy
[6]	Body (lower part)		

➢ Manually press the canopy safety catch into the direction of the arrow [10] in order to open the canopy all the way.

Canopy safety catch has been unlocked;
Two gas struts open the canopy all the way.

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 engine

Overview of all pressure hoses at engine:

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

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

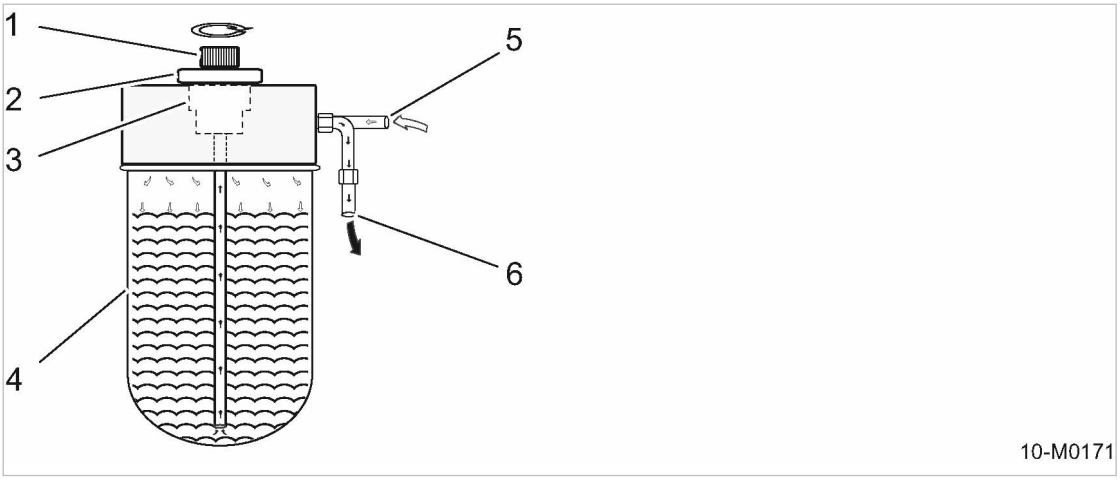


Fig. 49 Tool lubricator maintenance

[1] Metering knob
[2] Filler plug with dipstick and integrated riser tube
[3] Tool lubricator upper part with oil filling port
[4] Oil tank
[5] Compressed air inlet
[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 level in 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 up with tool lubricator oil

1. Slowly unscrew and withdraw the oil filter 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 in the filler port.
6. Close the canopy.

Further information See chapter 2.7.1 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 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.

⚠ 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 gauges.

➢ *Cover up electrical components such as the control cabinet, alternator, starter, and gauges.*
➢ *Do **not** direct water or steam jets at sensitive components such as the control cabinet.*
➢ *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 aftercooler

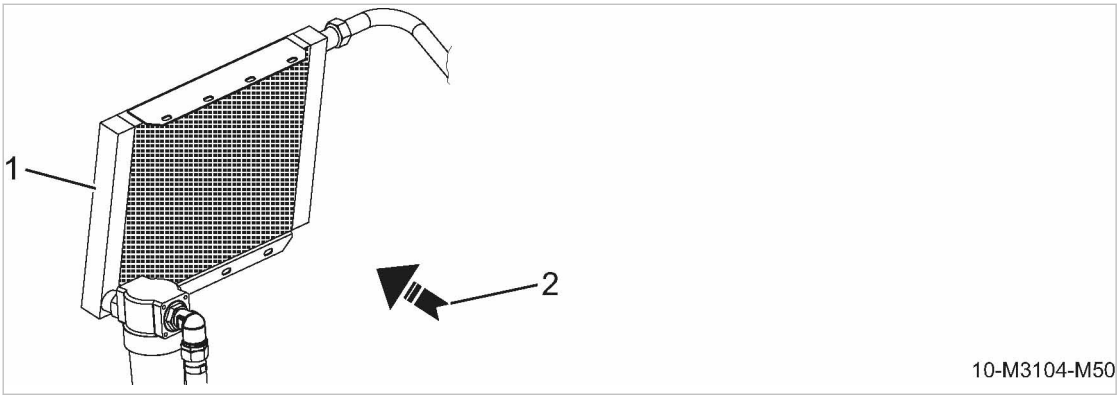


Fig. 50 Cleaning the compressed air aftercooler

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

Cover the intake openings of both air filters:

➢ Cover the intake openings of both the engine and compressor air filters.

Cleaning the compressed air aftercooler

➢ 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:

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

Putting in operation:

➢ Reconnect the negative battery terminal.
➢ Turn the «Controller On» switch to the “I” position.
➢ 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 canopy.

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

10.8.3 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 dirt trap [4] is mounted below the water separator [2].

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

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

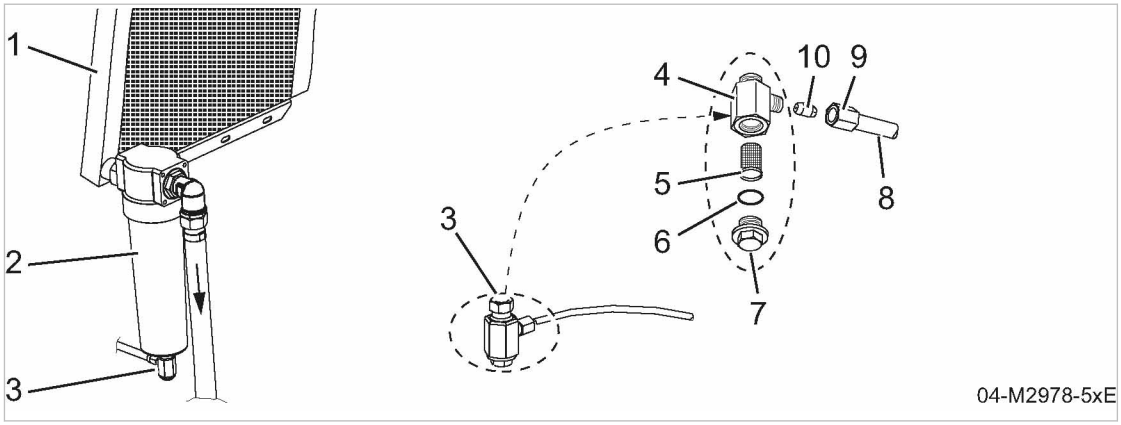


Fig. 51 Cleaning the dirt trap

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

➢ Comply with all instructions.

Cleaning the dirt trap:

1. Unscrew the plug [7] and remove the strainer [5]
2. Loosen the union nut [9]and detach condensate drain hose [8] from the dirt trap.
3. Remove union nut [9]
4. Use the small screwdriver to unscrew the nozzle [10]from the dirt trap housing.
5. Clean the nozzle, strainer, screw plug, O-ring [6] , and dirt trap housing [4] with cleaning solvent or spirit.
6. Check the nozzle, strainer, and O-ring for wear.

Components are damaged or show signs of wear.

➢ Replace components.

7. Place the strainer and O-ring on the screw plug.
8. Screw in the plug making sure the O-ring seats properly.
9. Screw in the nozzle and reattach the condensate drain hose.

Putting in operation:

➢ Reconnect the negative battery terminal.

➢ 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.
   Warm-up has been successful when required airend discharge temperature (ADT) has been reached.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
   Pressure gauge reads 0 psig!
4. Open the outlet valves.

Check the dirt trap and condensate drain hose for leaks:

1. Open the cover.
2. Check the housing of the water separator and the drain hose for leaks.
3. Close the cover.

10.8.4 Option bc Defroster maintenance

Regularly check the tank level when ambient temperatures are below 41 °F, see Maintenance schedule options 10.2.3.2.

The maximum tank level should be at $^{3}/_{4}$ of its capacity.

In order to check the level you must first remove the tank.

Material
New antifreeze
Cleaning cloth

Precondition
The machine is switched off and cooled down.
The machine is standing level.
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

Danger of fire or explosion caused by the spontaneous ignition of antifreeze!

➢ *Never top off antifreeze unless the machine is switched off and cooled down.*

⚠ WARNING

Compressed air!
The defroster is pressurized during operation.
Serious injury can result from loosening or opening components under pressure.

➢ *Depressurize the defroster.*

Option bc

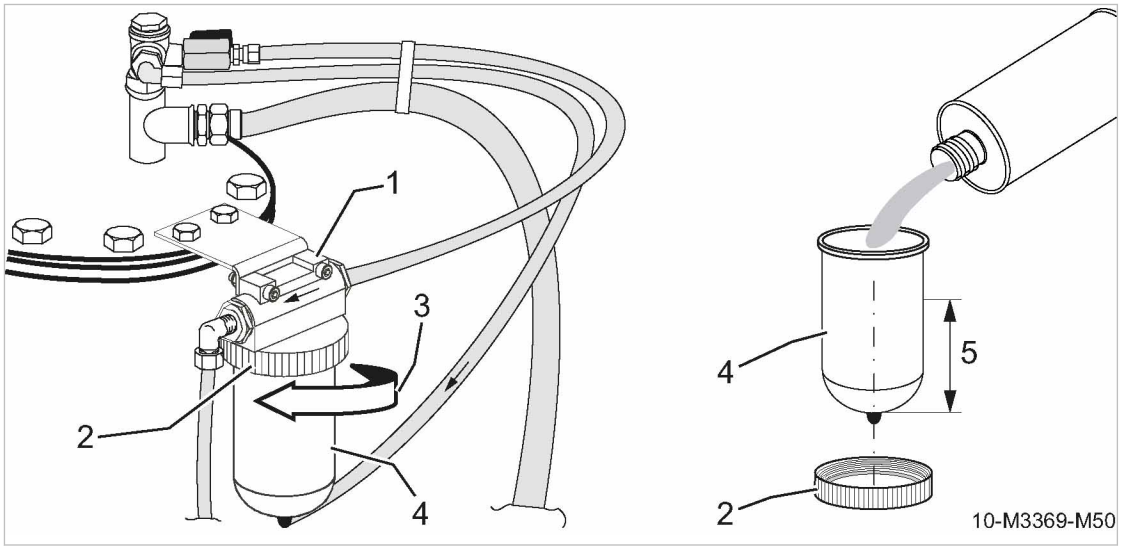


Fig. 52 Top off antifreeze

1 Top of the defroster
2 Threaded ring
3 Direction of arrow
4 Defroster tank
5 Maximum level

Removing the tank

1. In order to loosen the threaded ring, slowly turn the threaded ring in the direction of the arrow 3.
2. Completely depressurize in the event of any remaining pressure.
3. Continue to turn the threaded ring in the direction of the arrow until the threaded ring is completely removed from the top.
4. Remove the threaded ring and tank from the top.

Cleaning/checking the sealing surfaces and gasket

1. Clean all sealing surfaces.
2. Check the O-ring in the top for damages.
3. If necessary, replace damaged O-ring.

Checking/topping off level

1. Check filling level.
2. If necessary, top off with new antifreeze, by adhering to the maximum level [5].

Installing the tank

1. Hold tank underneath the top.
2. Install the threaded ring.
3. Tighten the threaded ring by hand force.
4. If necessary, wipe up any spilled antifreeze.

Dispose of antifreeze-soaked working materials according to environmental protection regulations.

10.8.5 Option Option Ia Spark arrester cleaning

The spark arrester must be cleaned of any soot residue every two months to prevent the emission of glowing particles from the exhaust silencer.

Material
Suitable rubber hose
Soot receptacle
Cleaning cloth
Protective gloves
Eye protection

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

⚠ DANGER

Danger of suffocation from toxic exhaust fumes.
Exhaust fumes from internal combustion engines contain carbon monoxide, which is odourless and deadly.

- ➢ *Use the machine only outdoors!*
- ➢ *Do not inhale exhaust fumes.*

⚠ CAUTION

Danger of burns from hot components and sparks.

- ➢ *Wear long-sleeved clothing and gloves.*
- ➢ *Wear eye protection.*

Cleaning the spark arrestor

In machines with sealed floor pan, the service openings are closed with plugs. In order to access the port of the soot drain, you must remove the appropriate plug.

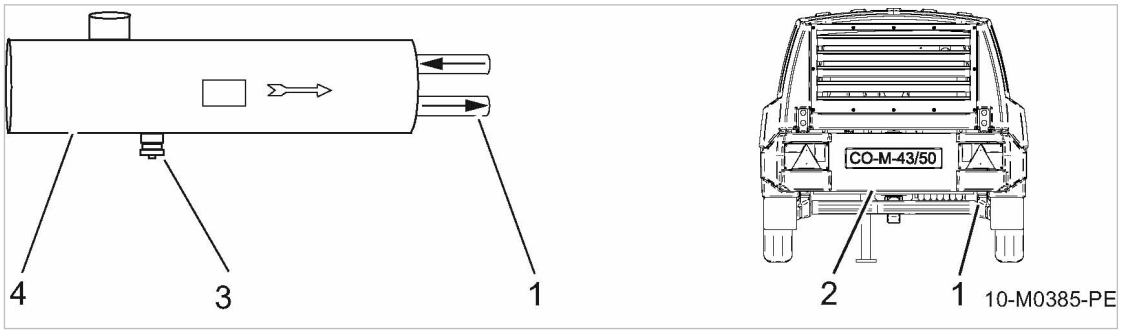


Fig. 53 Spark arrester cleaning

1	Exhaust silencer end pipe	3	Soot drain port with plug
2	Opening in floor panel to access drain port	4	Exhaust silencer with integrated spark arrester

1. If availabe, remove th plugs.
2. Unscrew the soot drain plug.
3. Push one end of the hose over the drain port and place the other end in the receptacle.
4. Start the compressor engine
5. In order to increase the pressure in the exhaust system, partially cover the exhaust discharge pipe with a fireproof object.

   Soot will drain through the hose into the receptacle.
6. Shut down the engine.
7. Remove the hose and replace the plug.

It is recommended to blow out the spark arrester with compressed air once a year.

Dispose of soot according to environment protection regulations.

10.8.6 Option Ib
Engine air intake shut-off valve maintenance

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

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

NOTICE

Engine air intake shut-off valve
The engine air intake shut-off valve does not close when flammable gas is drawn into the engine:
The machine does not shut down? Destruction of the engine and explosion and/or fire are possible!

- ➢ *Do not move the valve adjusting screw.*
- ➢ *Have the valve set by a specialist workshop or KAESER Service.*

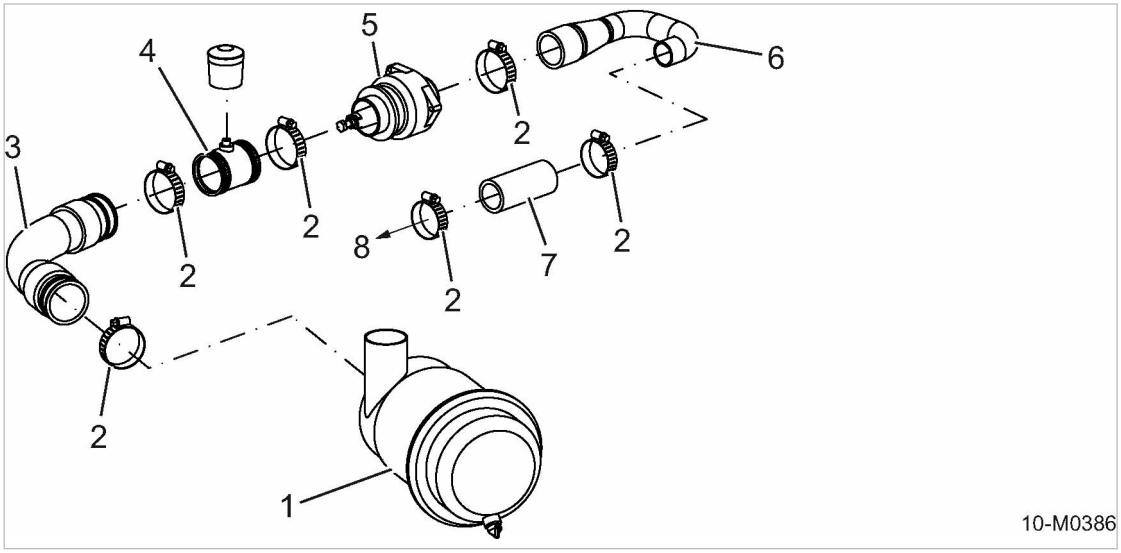


Fig. 54 Engine air intake shut-off valve maintenance

[1]	Air filter	[5]	Engine air intake shut-off valve
[2]	Hose clamp	[6]	Air intake hose (engine side)
[3]	Air intake hose (filter side)	[7]	Hose
[4]	Hose with maintenance indicator	[8]	Arrow direction motor inlet port

- ➢ 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? Damage to 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 motor 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 KAESER Service if dirt cannot be removed.

Check 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 on switching to LOAD, have the valve adjusted by a specialist workshop or KAESER Service.

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.

10.9 Documenting maintenance and service work

Machine model/part number:

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

Date	Maintenance task carried out	Operating hours	Signature

Tab. 64 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. 65 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. 66 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.

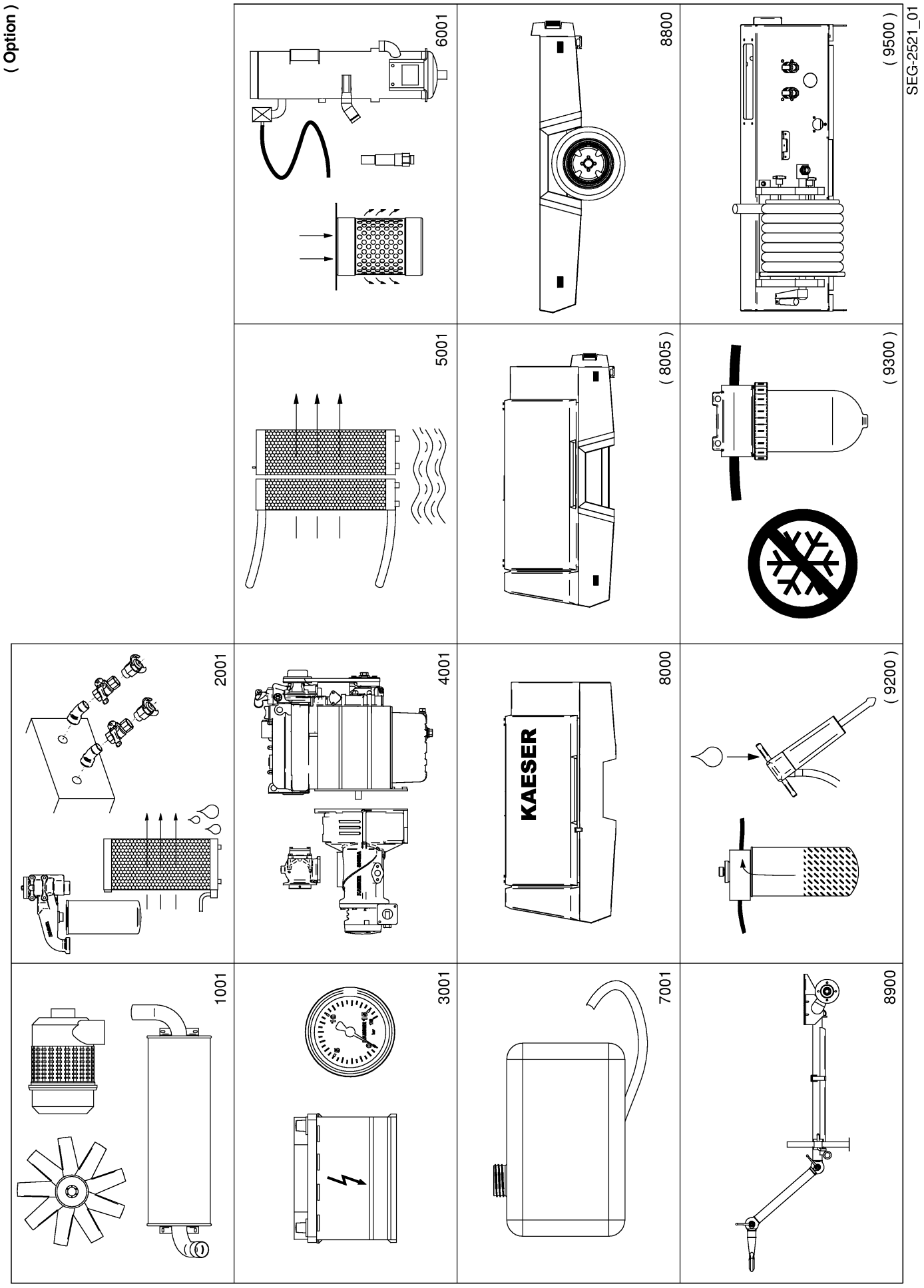
⚠ WARNING

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.*

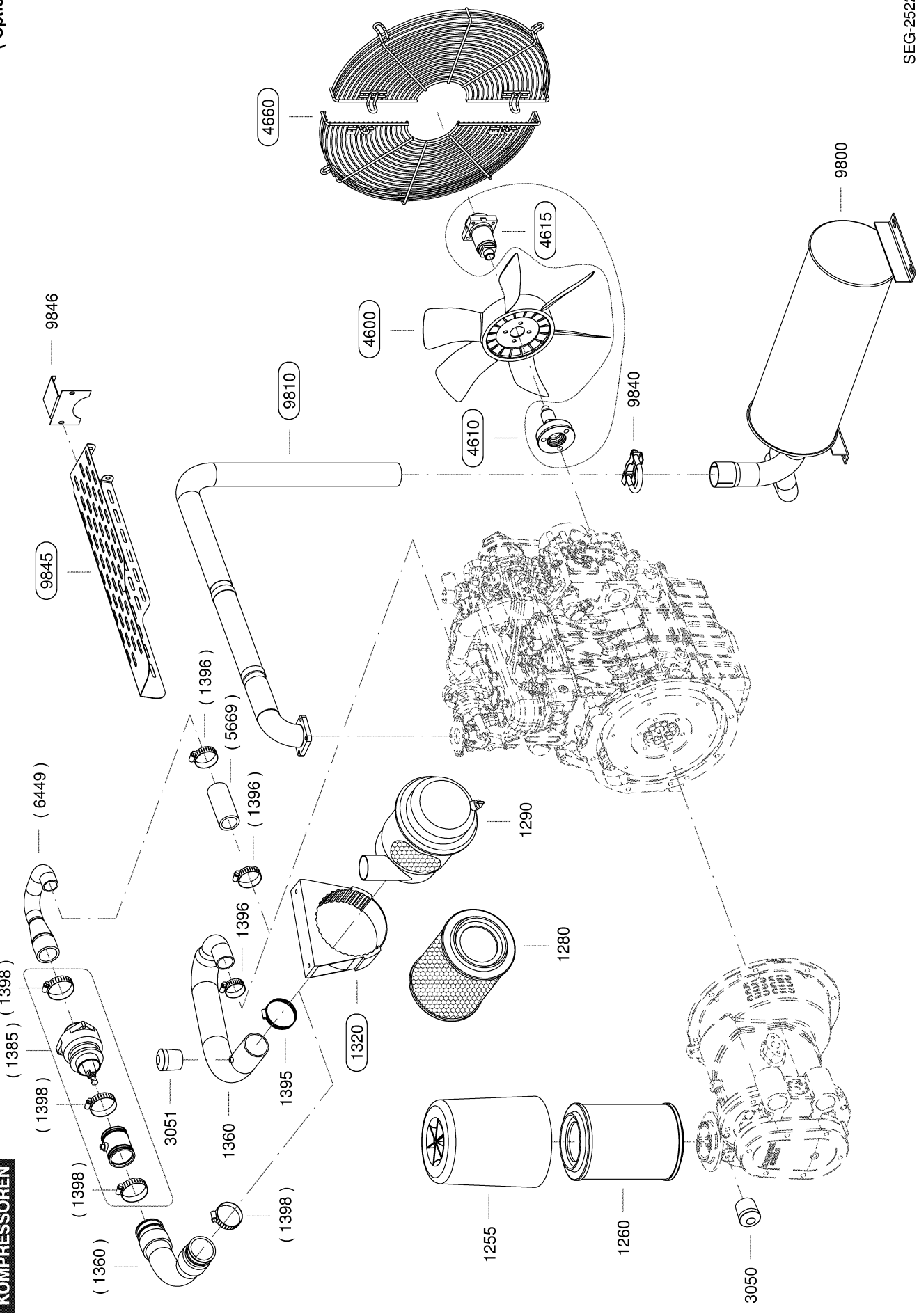
(Option)


6001
8800
(9500)
SEG-2521_01
5001
(8005)
(9300)
2001
4001
8000
KAESER
(9200)
1001
3001
7001
8900

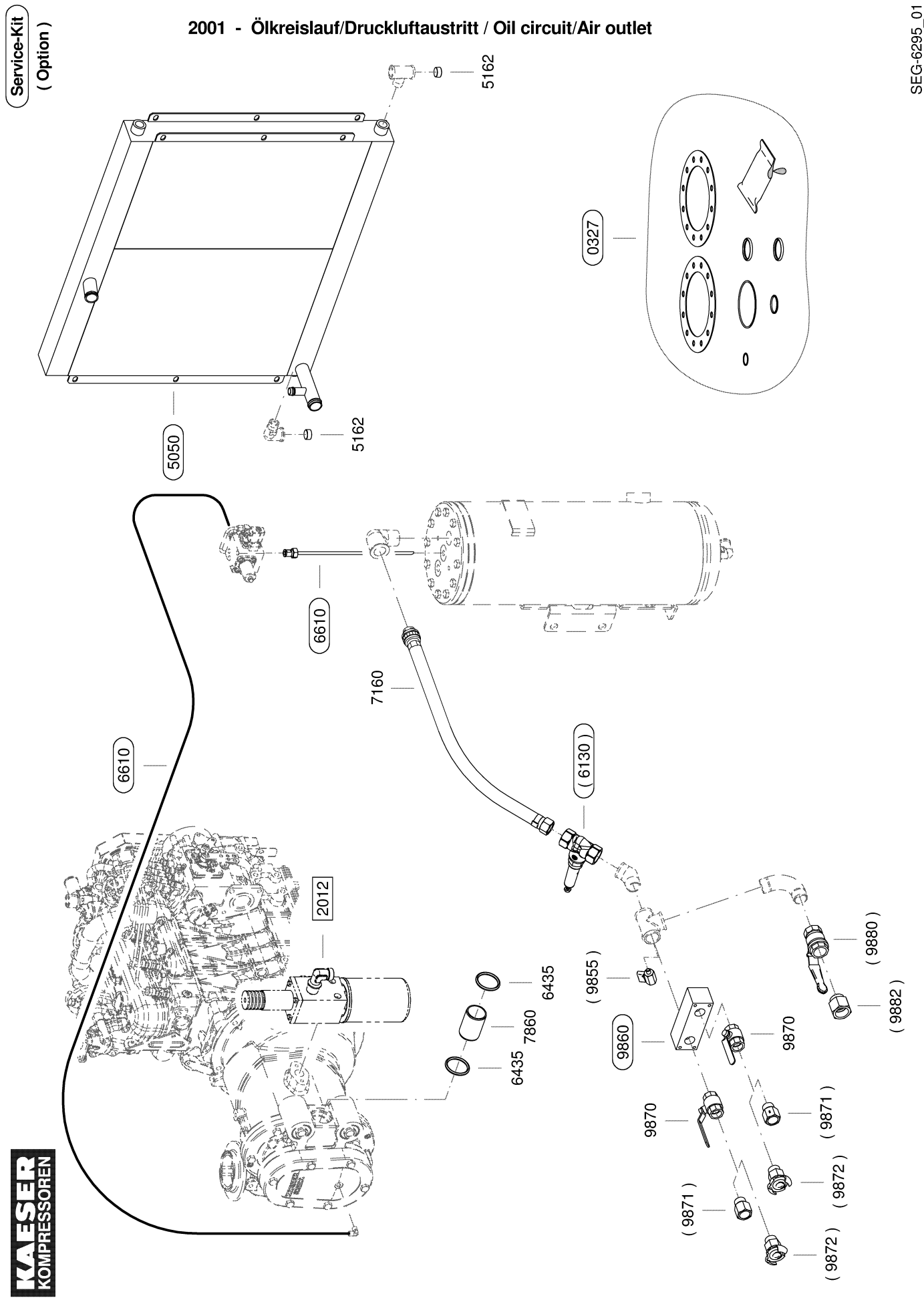
1001 Ansaugluft/Kühlluft/Abgas / Inlet air/Cooling air/Exhaust

Service-Kit (Option)

SEG-2522_01

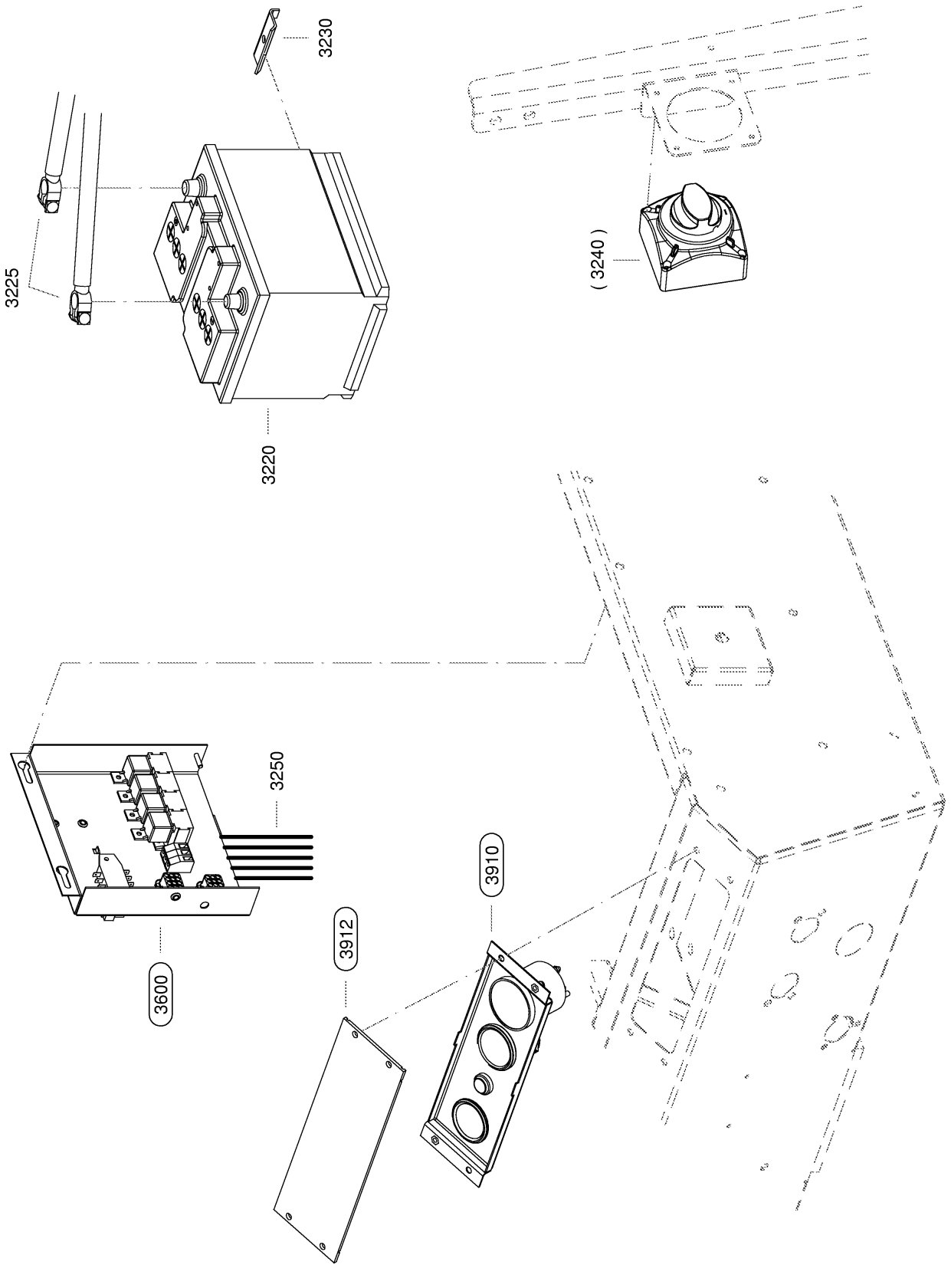


2001 - Ölkreislauf/Druckluftaustritt / Oil circuit/Air outlet



Service-Kit (Option)

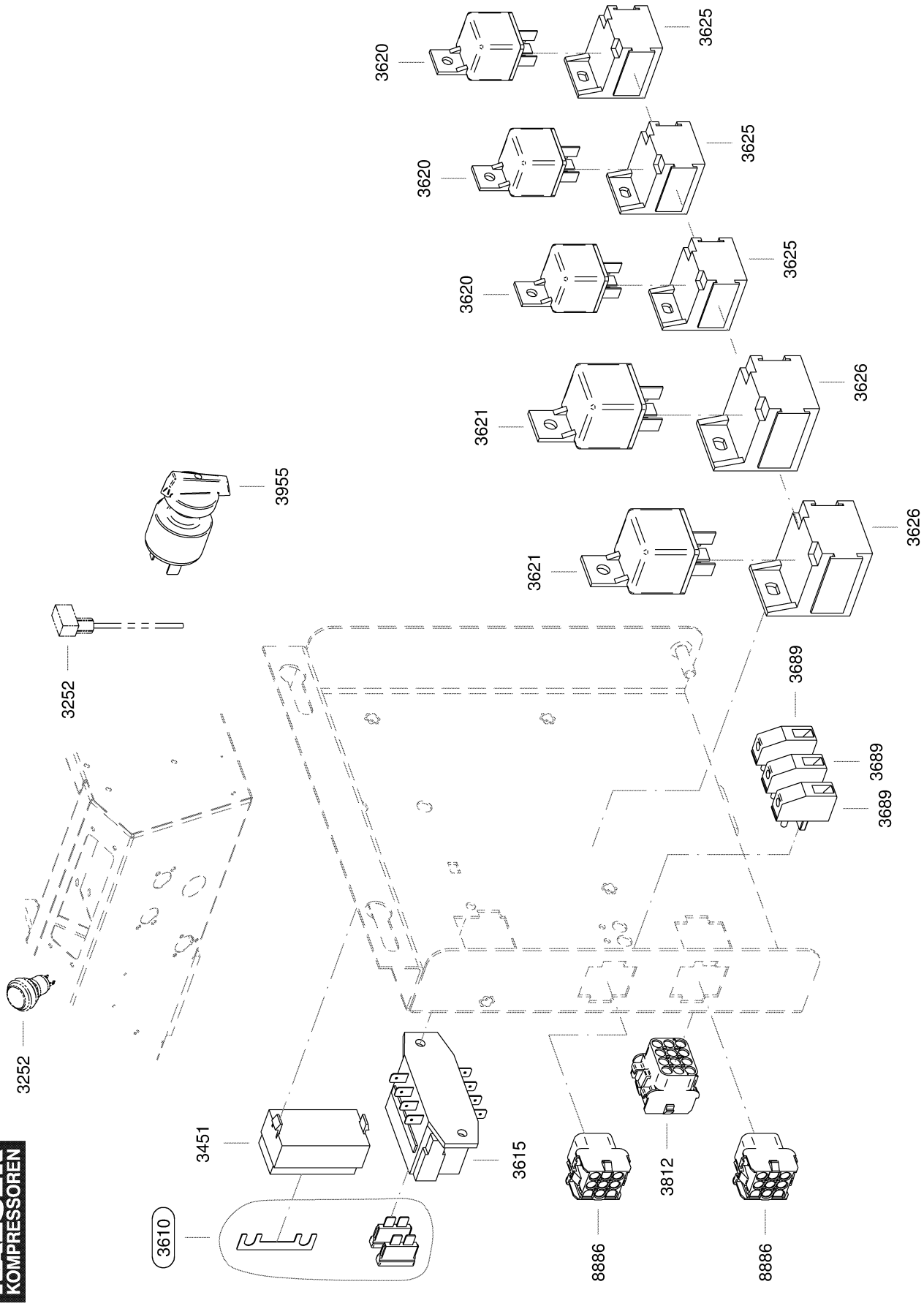
SEG-2524_01



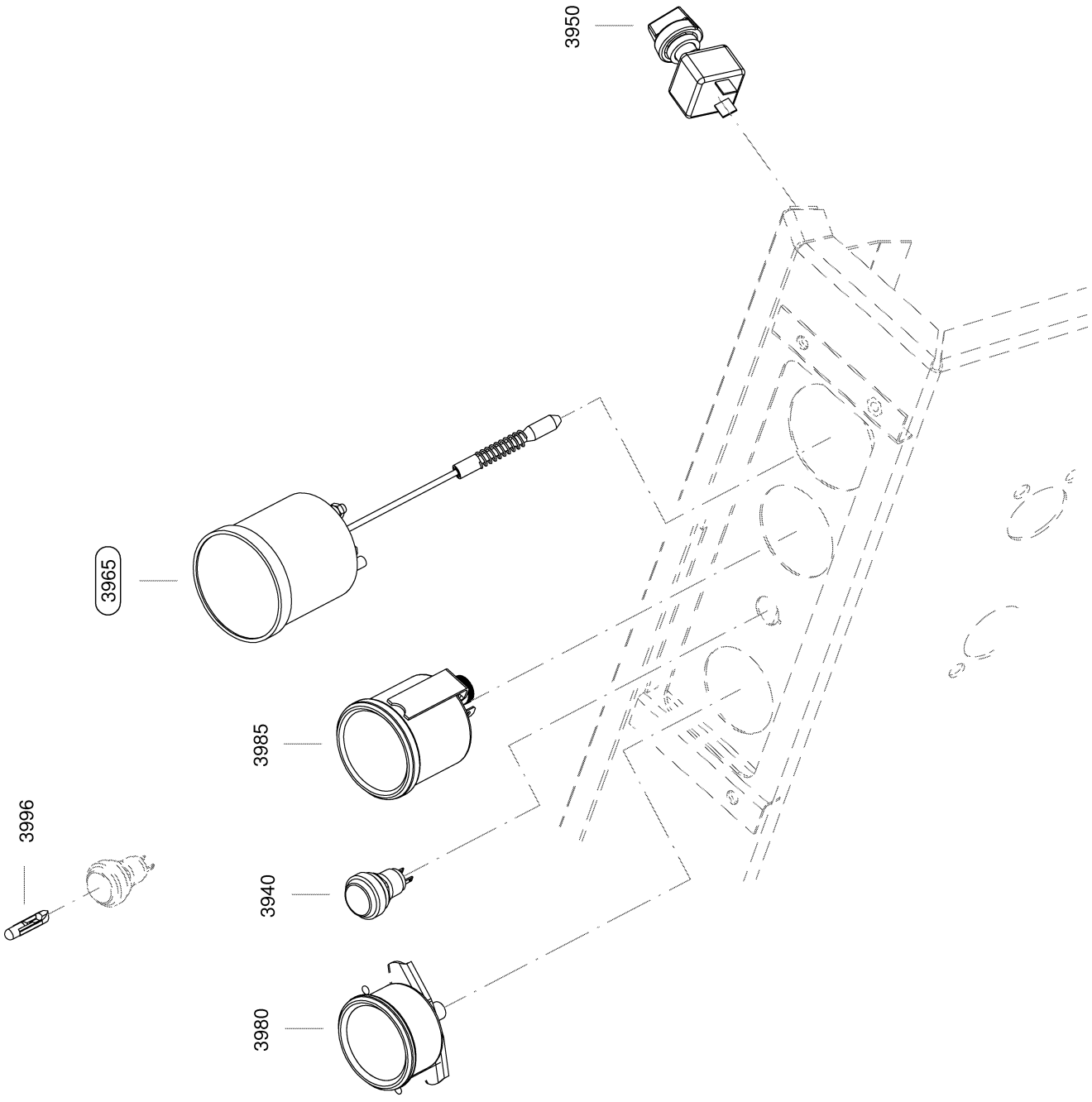
Service-Kit
(Option)

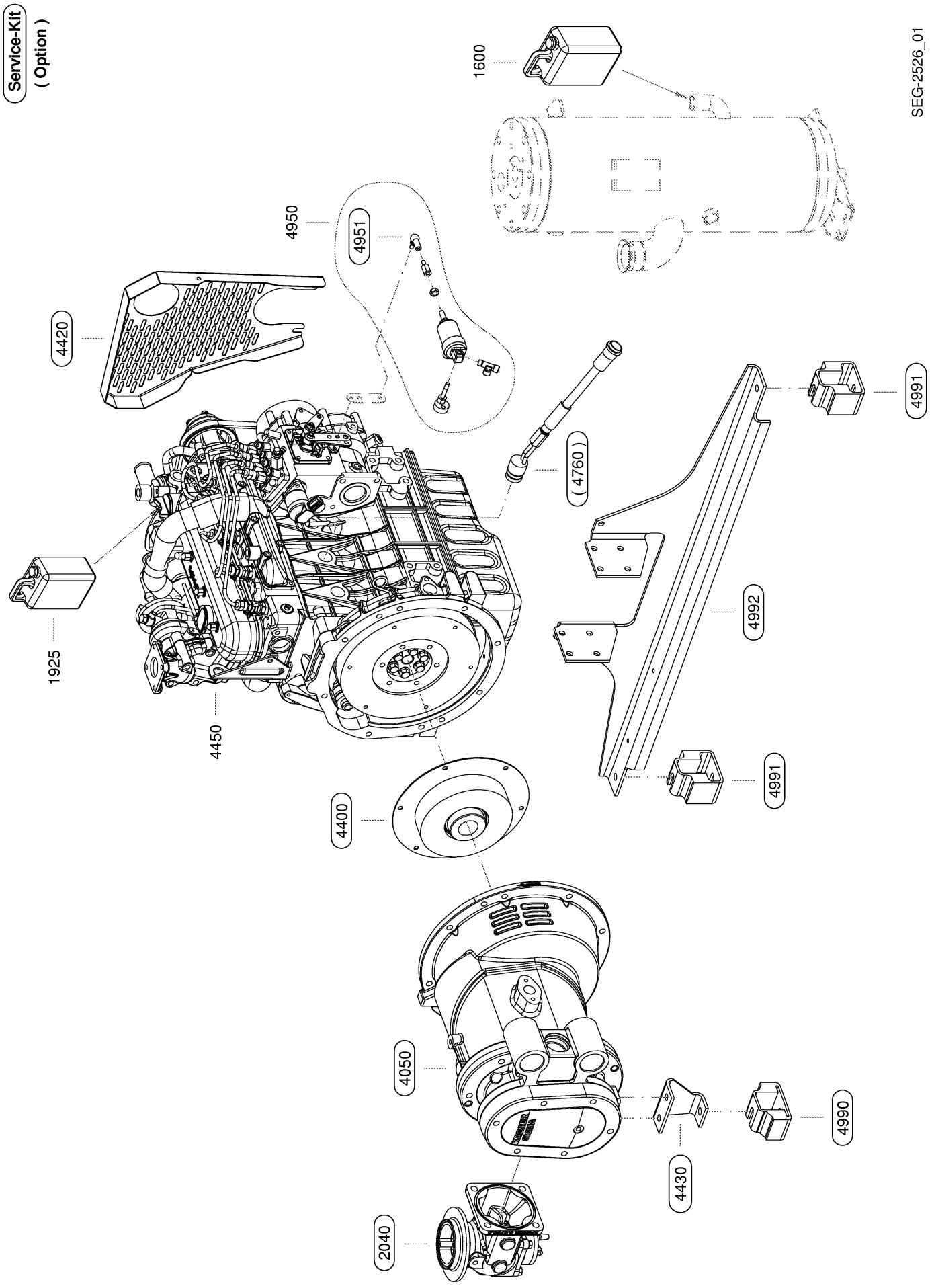
3600 Schaltschrank / Control cabinet

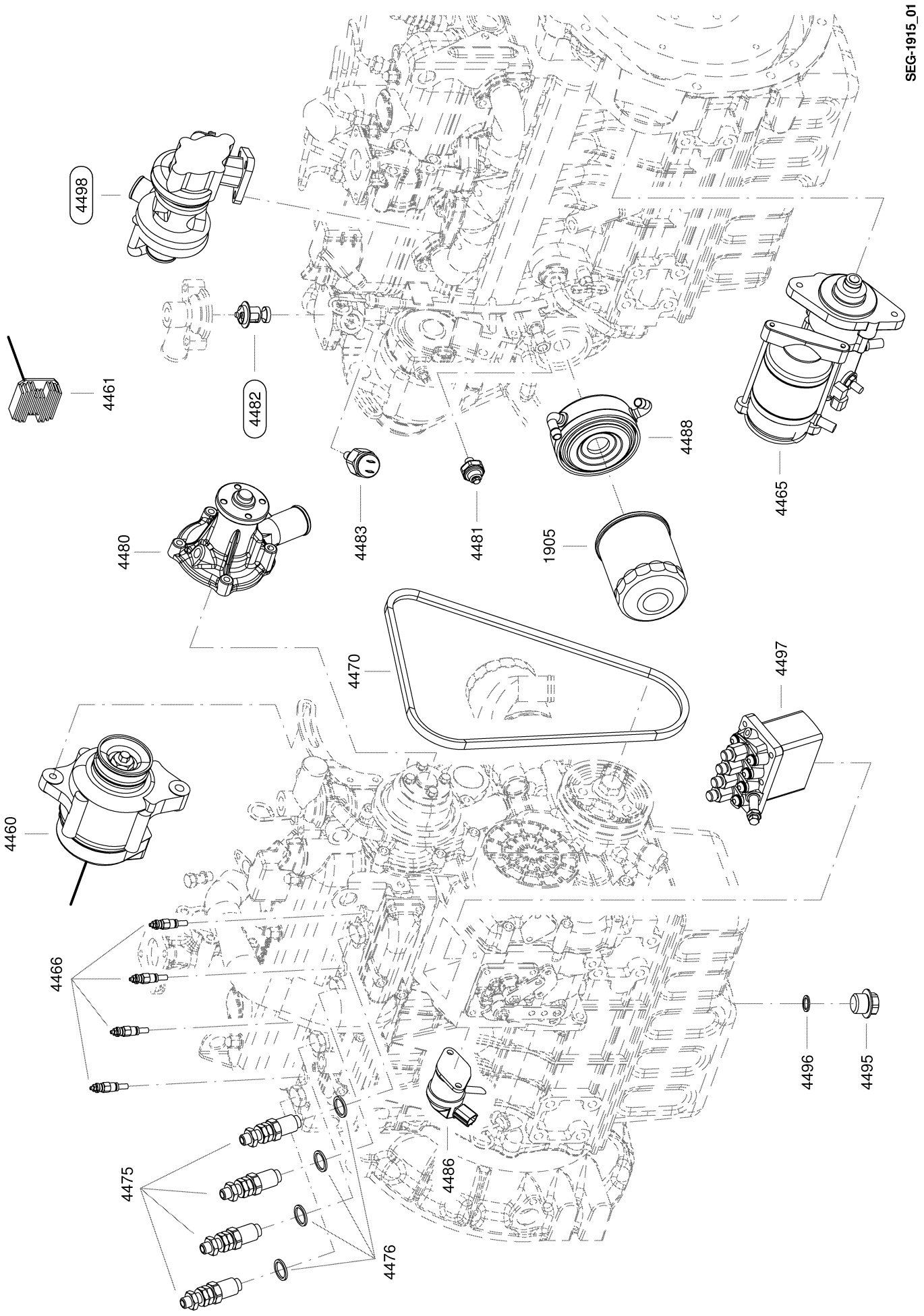
SEG-6324_01

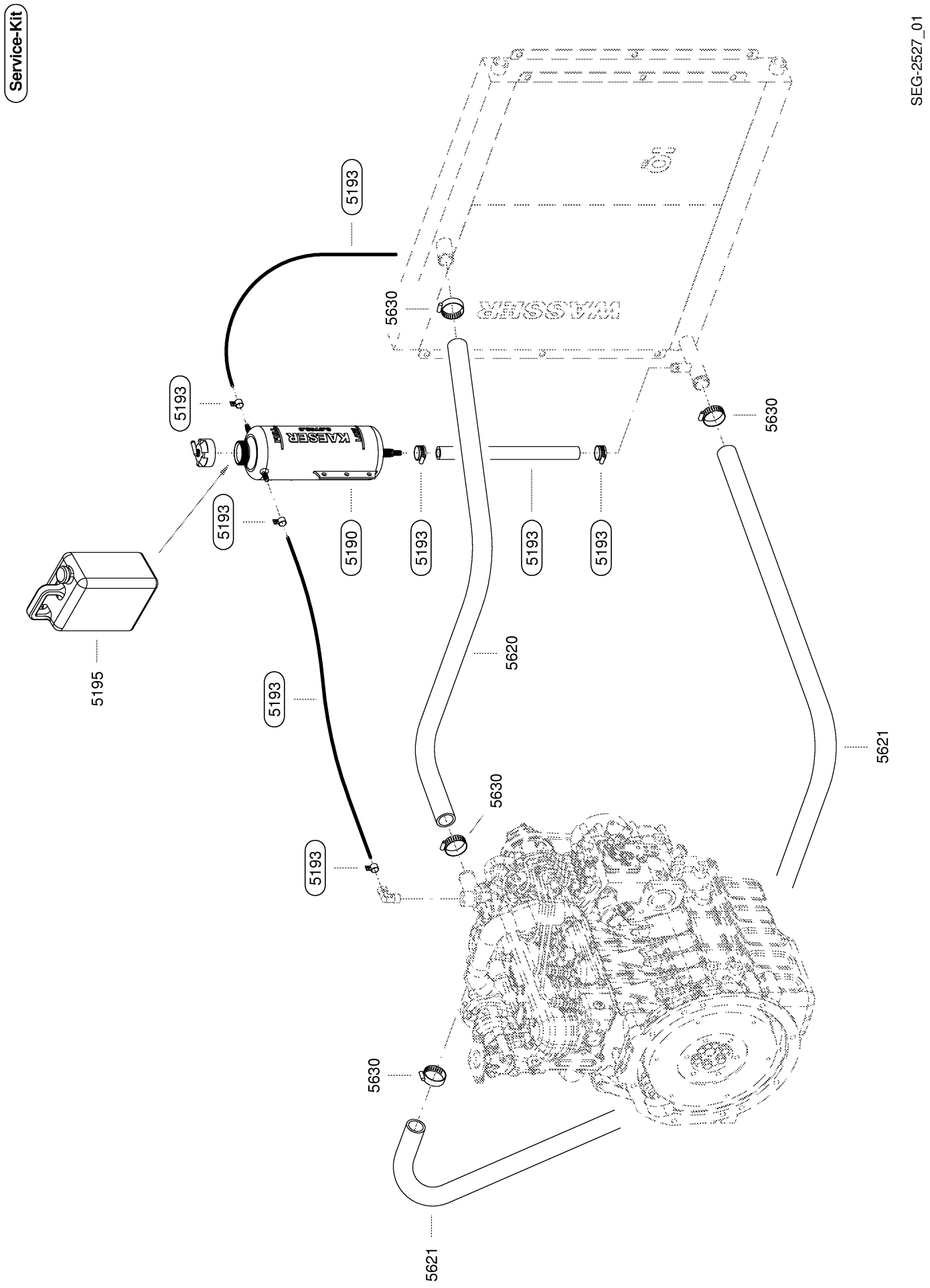


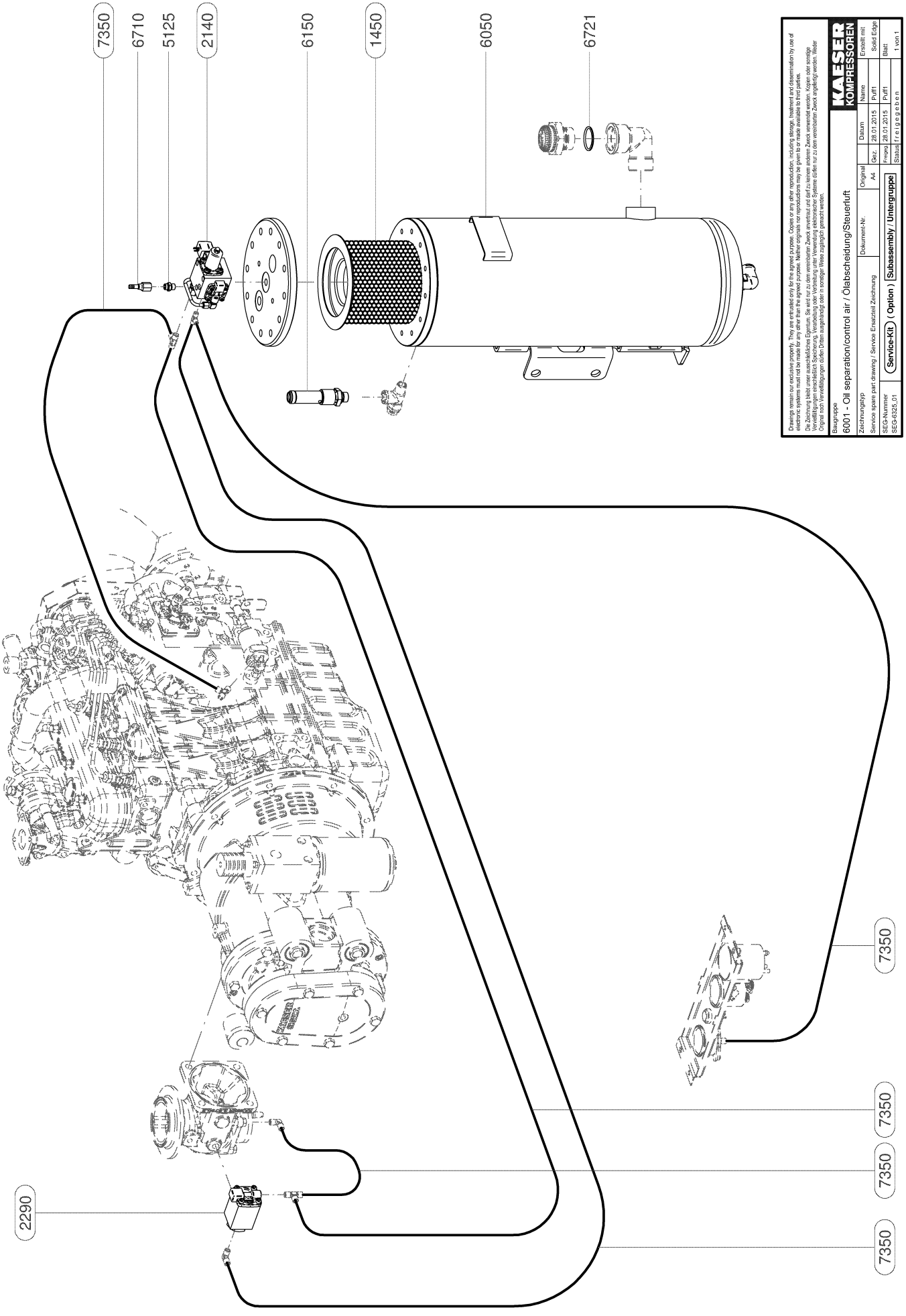
SEG-2315_01




Service-Kit
(Option)
SEG-2526_01
1600
4950
4951
4420
4991
(4760)
4992
1925
4450
4400
4991
4050
4990
4430
2040


SEG-1915_01
4498
4461
4482
4488
4465
4480
4483
4481
1905
4470
4497
4460
4466
4496
4495
4475
4486
4476


Service-Kit
SEG-2527_01
5193
5630
5193
5630
5193
5190
5193
5193
5193
5195
5620
5193
5621
5630
5193
5630
5621

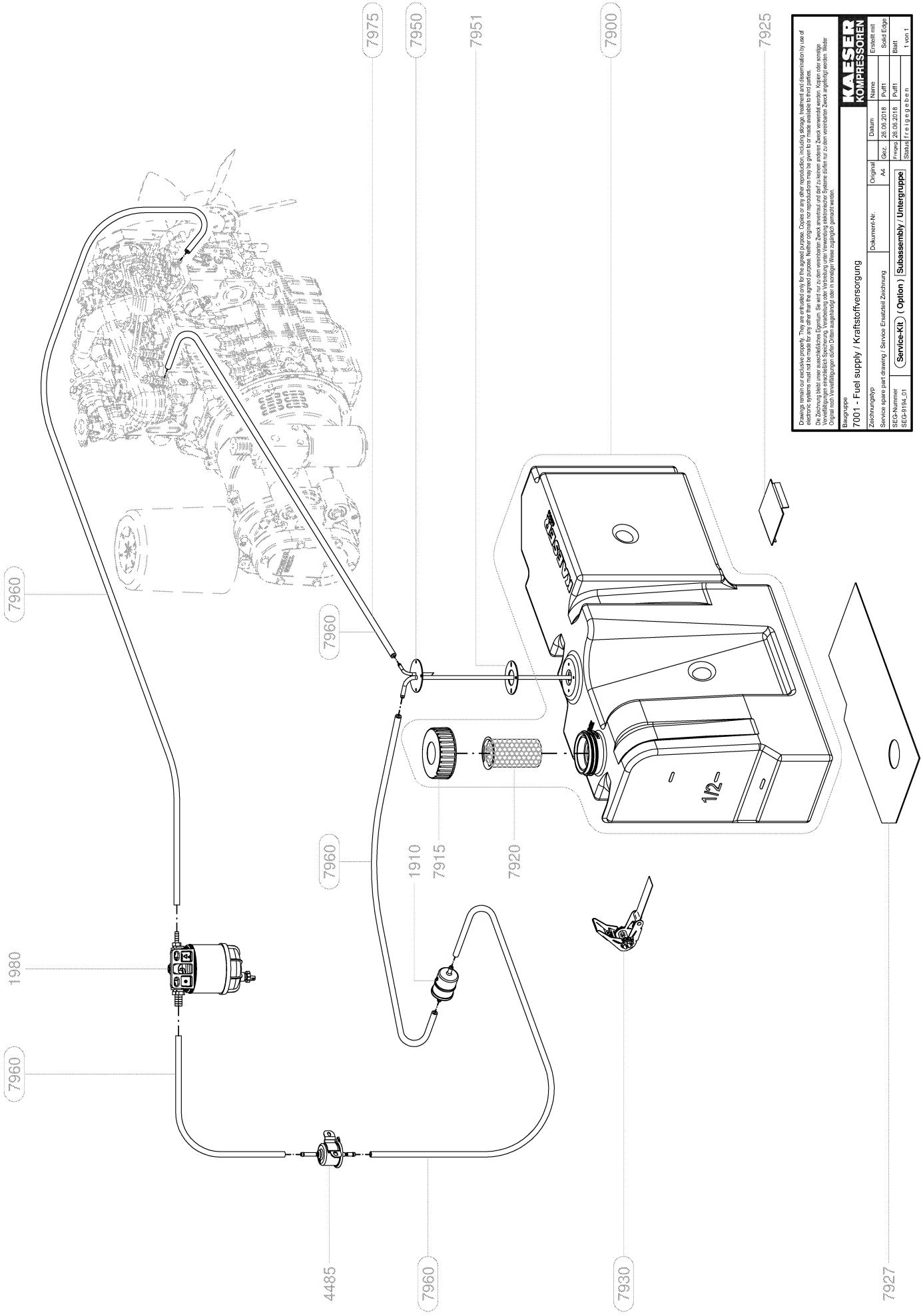


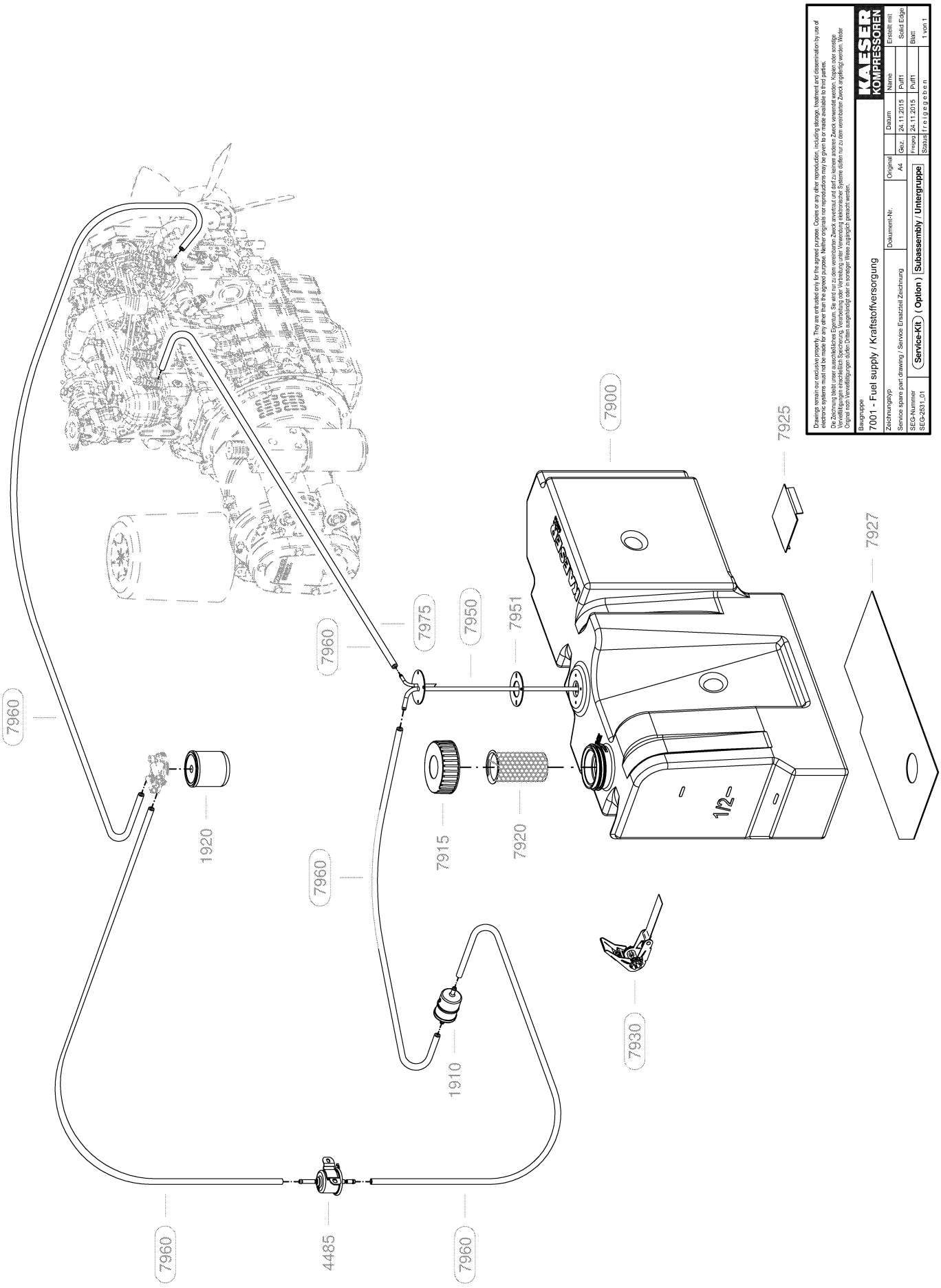
Drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproduction, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions may be given to or made available to third parties.
Die Zeichnung bleibt unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopien oder sonstige Vervielfältigungen einschließlich Speicherung, Verarbeitung unter Verwendung elektronischer Systeme dürfen nur zu dem vereinbarten Zweck angefertigt werden. Weder Originale noch Vervielfältigungen dürfen Dritten ausgehändigt oder in sonstiger Weise zugänglich gemacht werden.

KAESER KOMPRESSOREN

Baugruppe
6001 - Oil separation/control air / Ölabscheidung/Steuerluft

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	28.01.2015	Puffl	Solid Edge
SEG-Nummer	Service-Kit (Option) Subassembly / Untergruppe		Freigab	28.01.2015	Puffl	Blatt
SEG-0325_01			Status	f r e i g e g e b e n		1 von 1


7975
7950
7951
7900
7925
7960
7960
7960
7960
1910
7915
7920
1980
4485
7960
7930
7927
1/2"
KAESER KOMPRESSOREN
Baugruppe
7001 - Fuel supply / Kraftstoffversorgung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
SEG-Nummer
SEG-9194_01
Original
A4
Datum
26.06.2018
26.06.2018
Name
Pufft
Pufft
Erstellt mit
Solid Edge
Blatt
1 von 1
Service-Kit (Option) Subassembly / Untergruppe
freigegeben

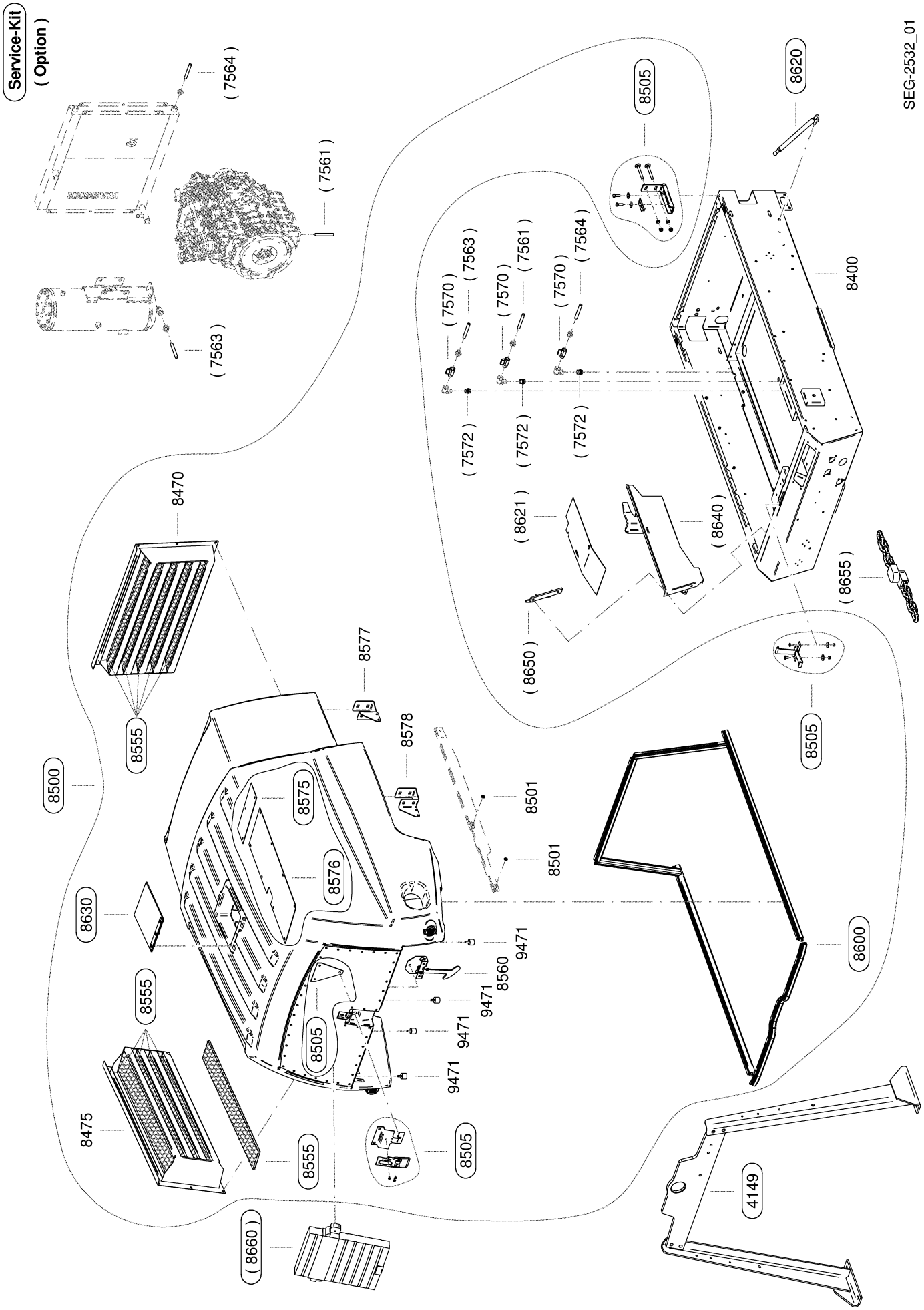


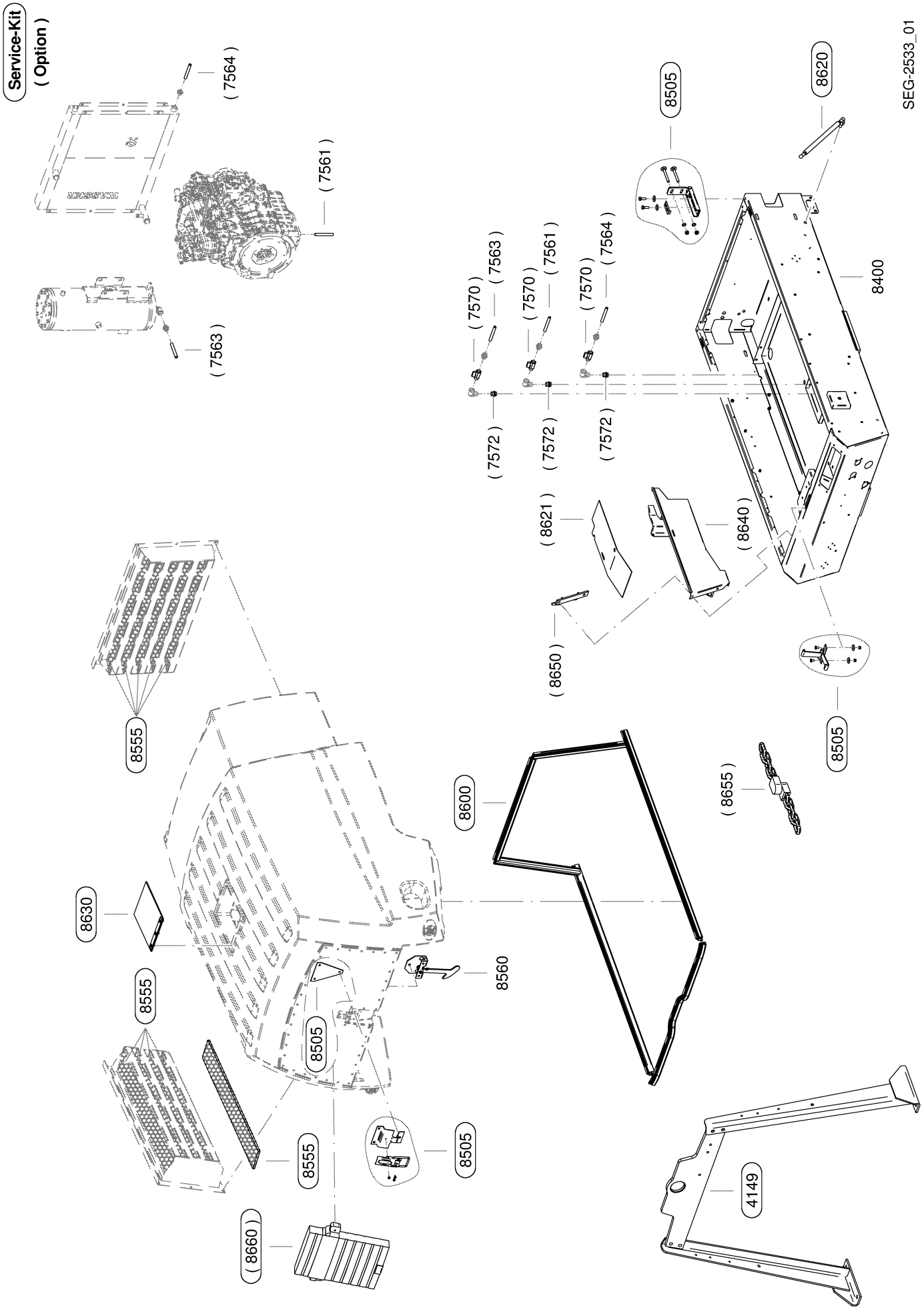
Drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproduction, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions may be given to or made available to third parties.
Die Zeichnung bleibt unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopien oder sonstige Vervielfältigungen einschließlich Speicherung, Verarbeitung oder Verbreitung unter Verwendung elektronischer Systeme dürfen nur zu dem vereinbarten Zweck angefertigt werden. Weder Original noch Vervielfältigungen dürfen Dritten ausgehändigt oder in sonstiger Weise zugänglich gemacht werden.

KAESER KOMPRESSOREN

Baugruppe
7001 - Fuel supply / Kraftstoffversorgung

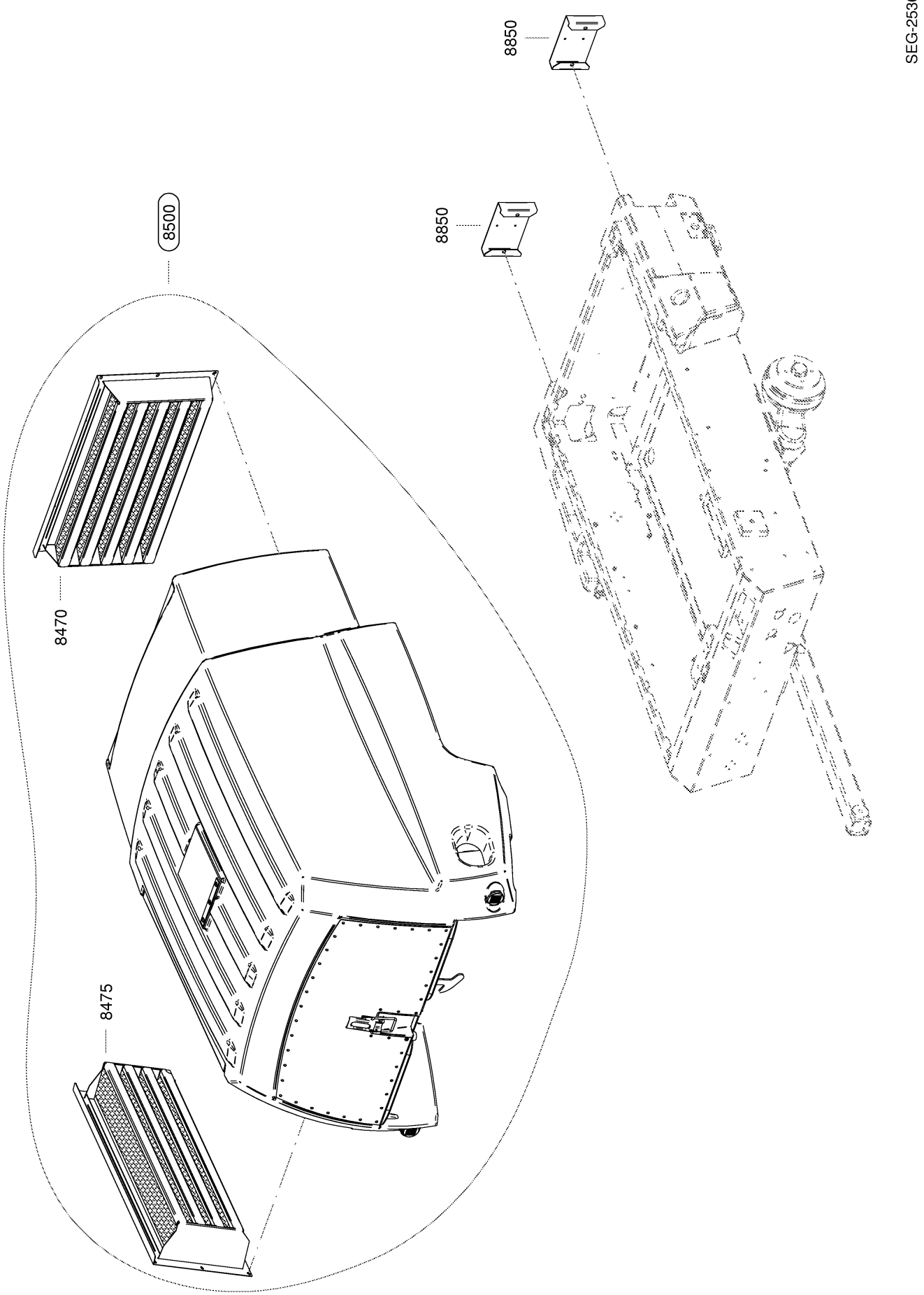
Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	24.11.2015	Puff	Solid Edge
SEG-Nummer	Service-Kit (Option) Subassembly / Untergruppe		Freigabe	24.11.2015	Puff	Blatt
SEG-2631_01			Status	f r e i g e g e b e n		1 von 1


Service-Kit
(Option)
(7564)
(7561)
(7563)
SEG-2532_01
8505
8620
8400
(7570)
(7563)
(7572)
(8621)
(8640)
(8655)
(8650)
8470
8555
8577
8578
8500
8575
8501
8576
8630
9471
8560
8600
8475
8660)
4149


Service-Kit
(Option)
(7564)
(7561)
(7563)
SEG-2533_01
8505
8620
8400
(7570)
(7563)
(7561)
(7564)
(7572)
(8621)
(8640)
(8650)
8555
8600
(8655)
8630
8560
8555
8505
8555
8505
(8660)
4149

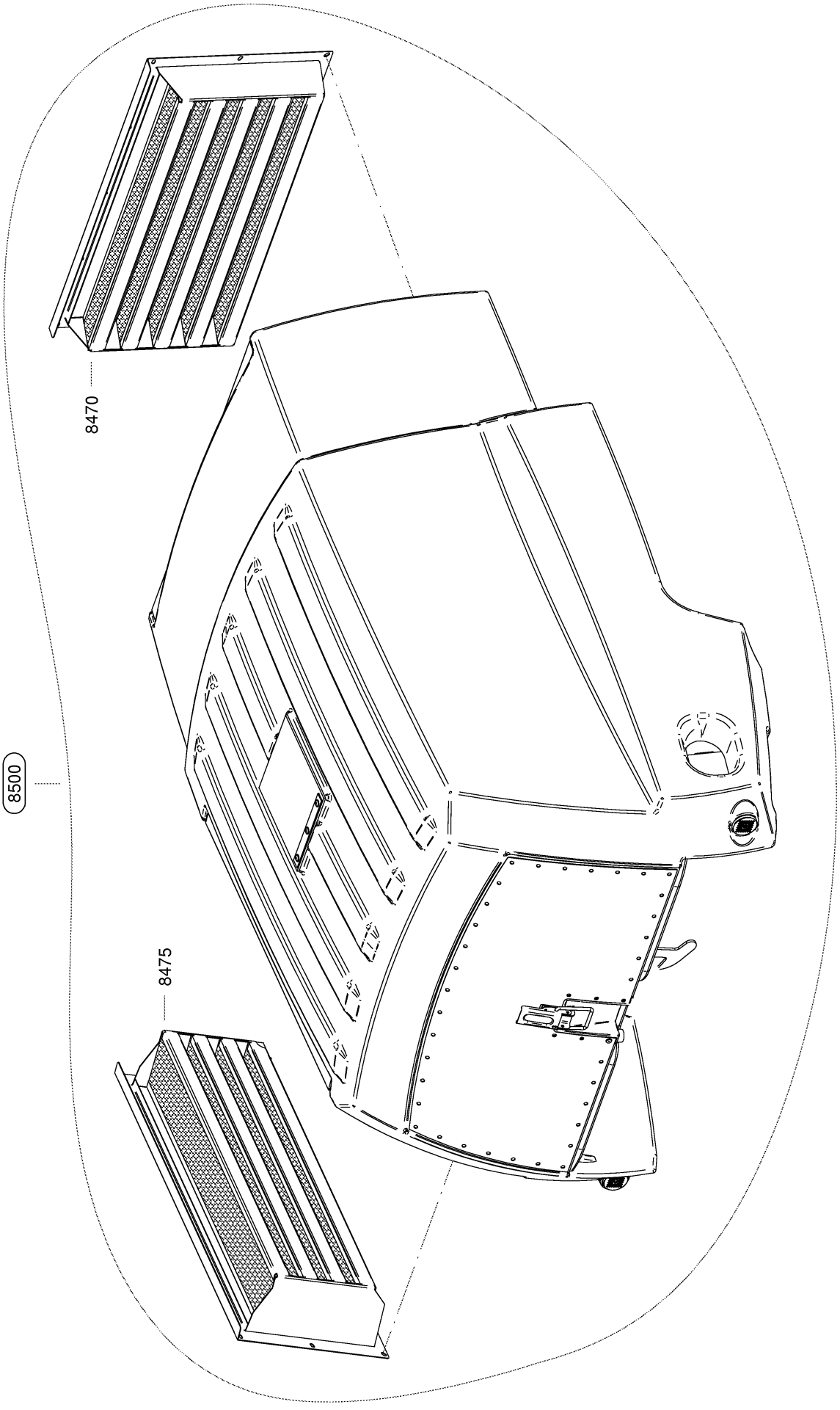
Service-Kit

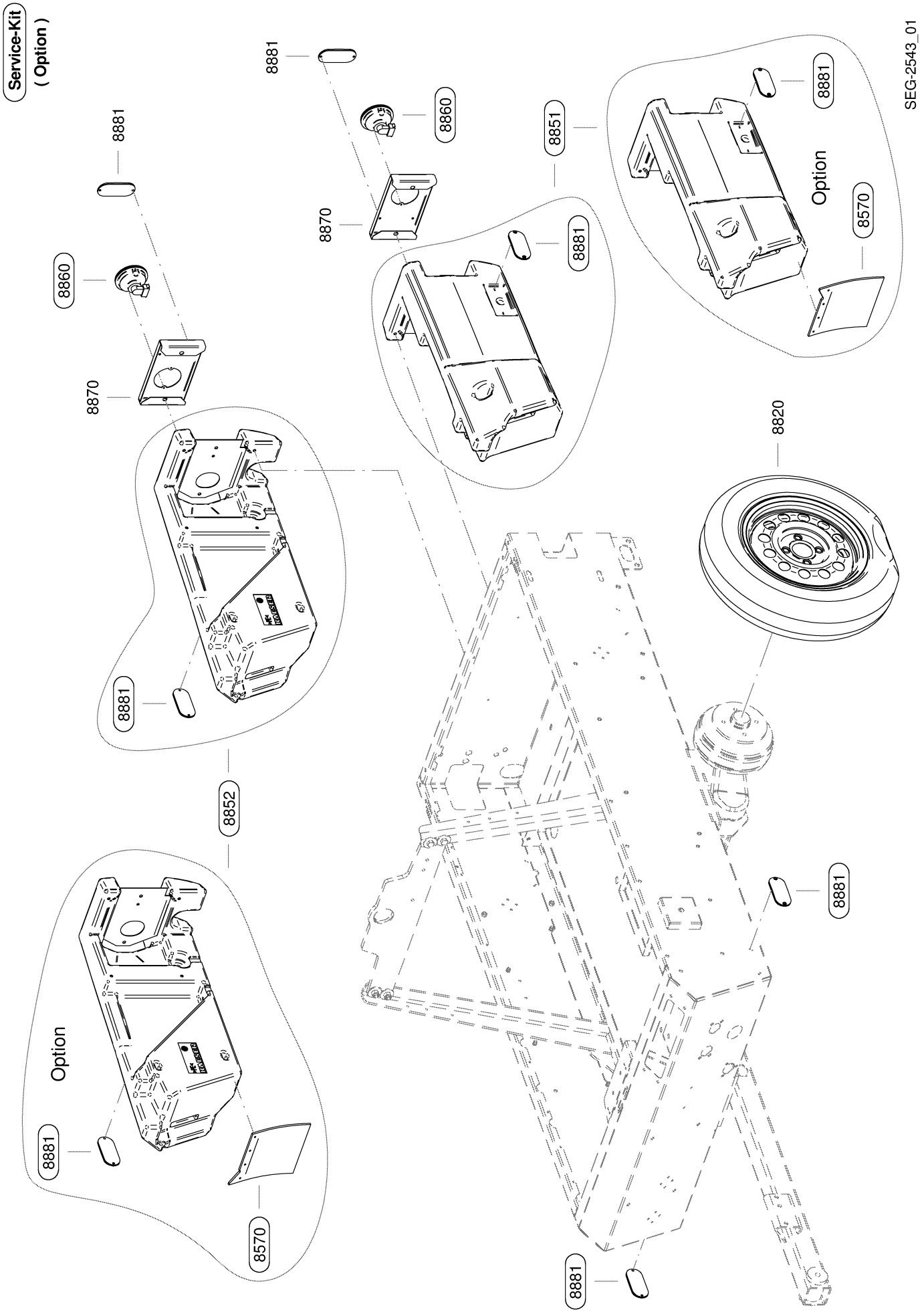
SEG-2536_01

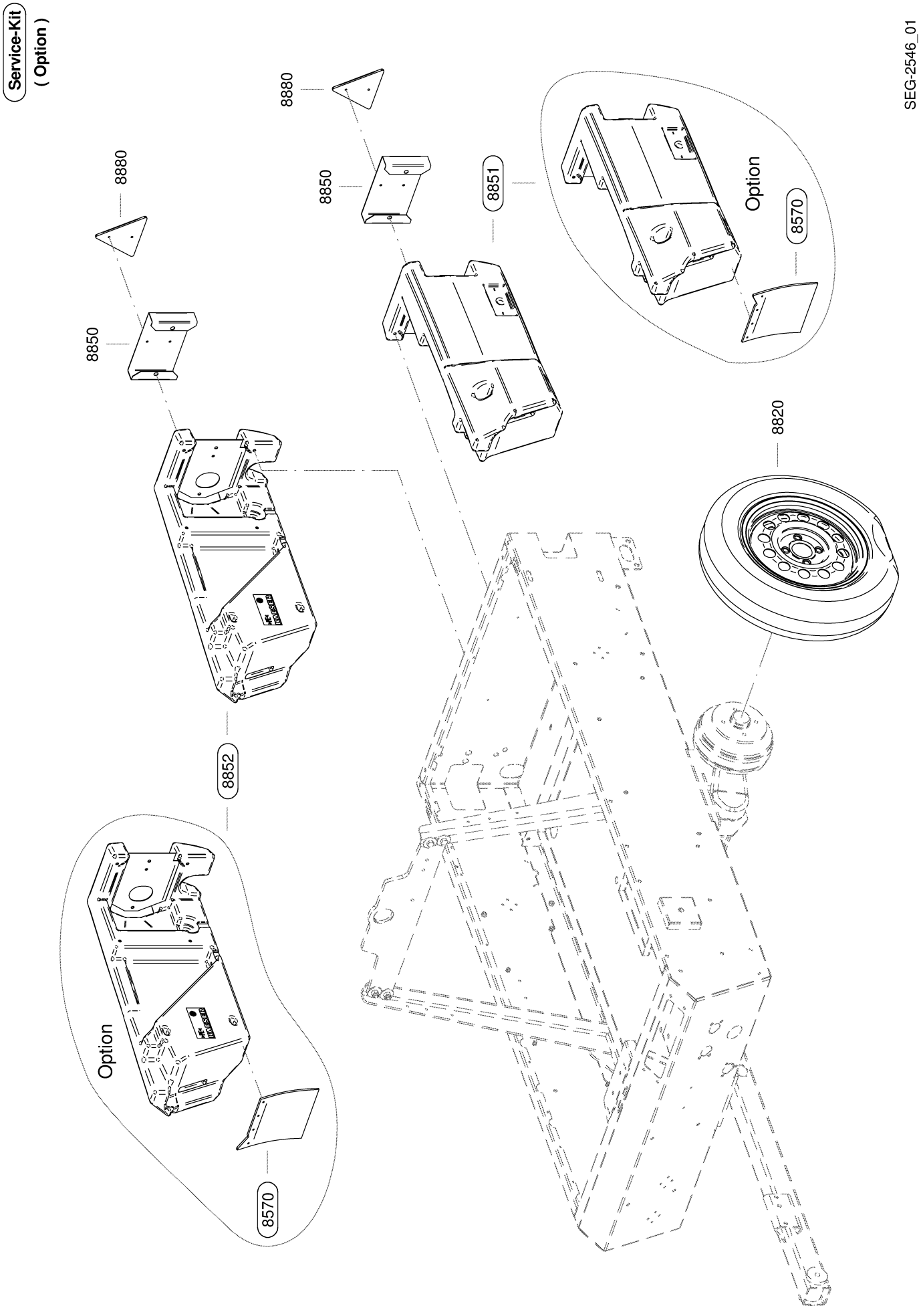


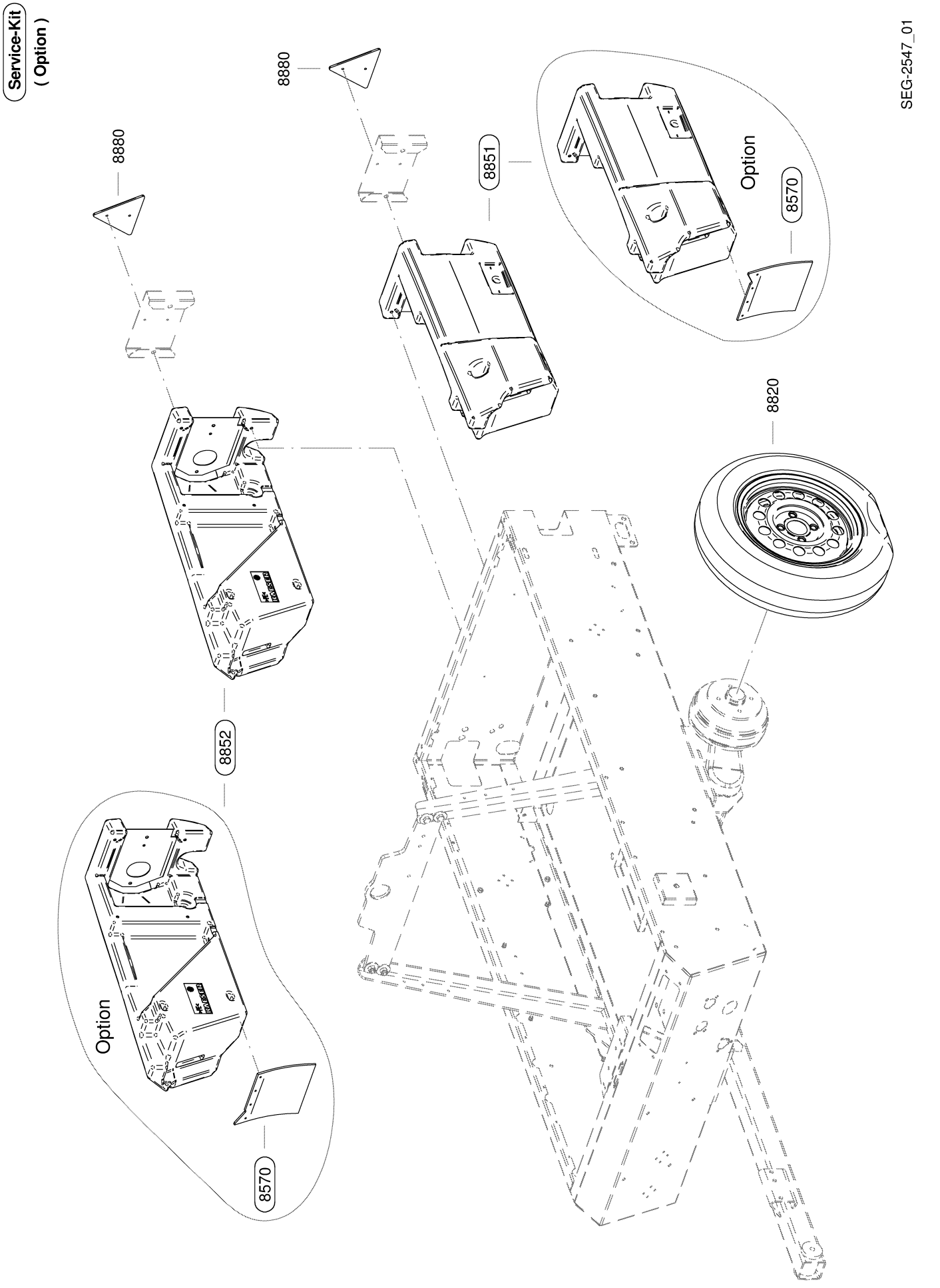
Service-Kit

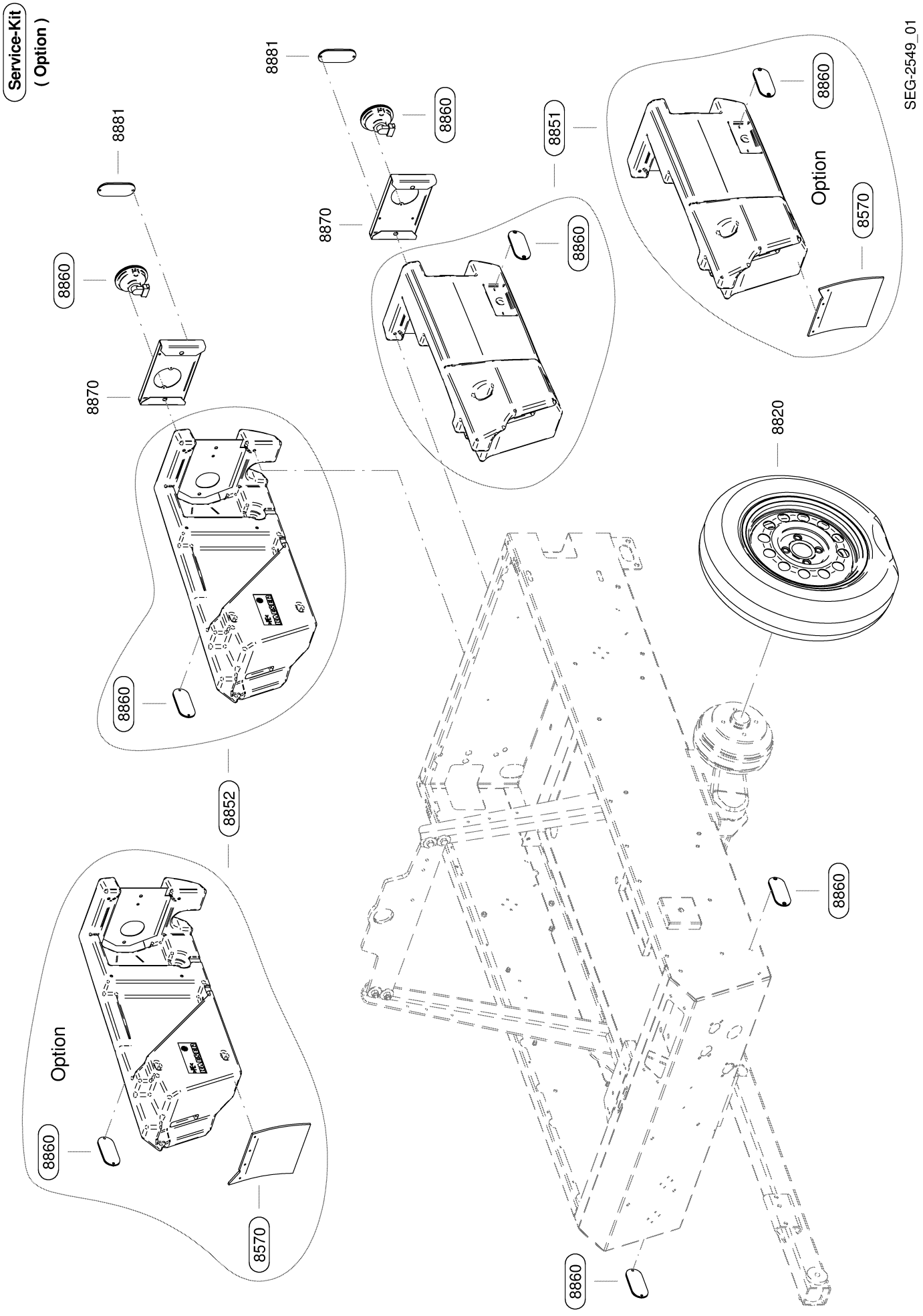
SEG-2539_01

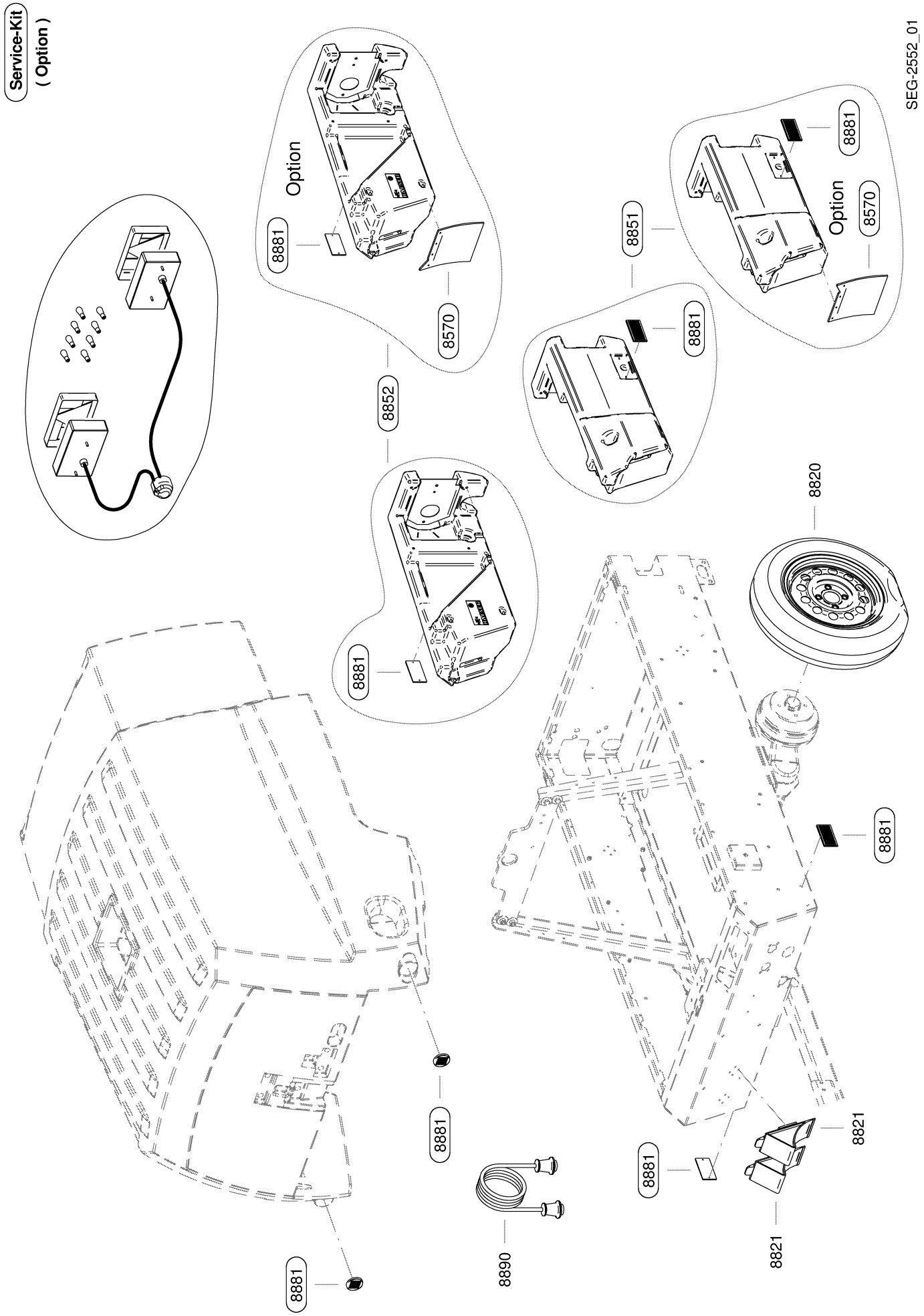



Service-Kit
(Option)
8881
8860
8870
8852
8851
8820
8570
Option
SEG-2543_01


Service-Kit
(Option)
SEG-2546_01
8880
8850
8851
Option
8570
8880
8850
8820
8852
Option
8570

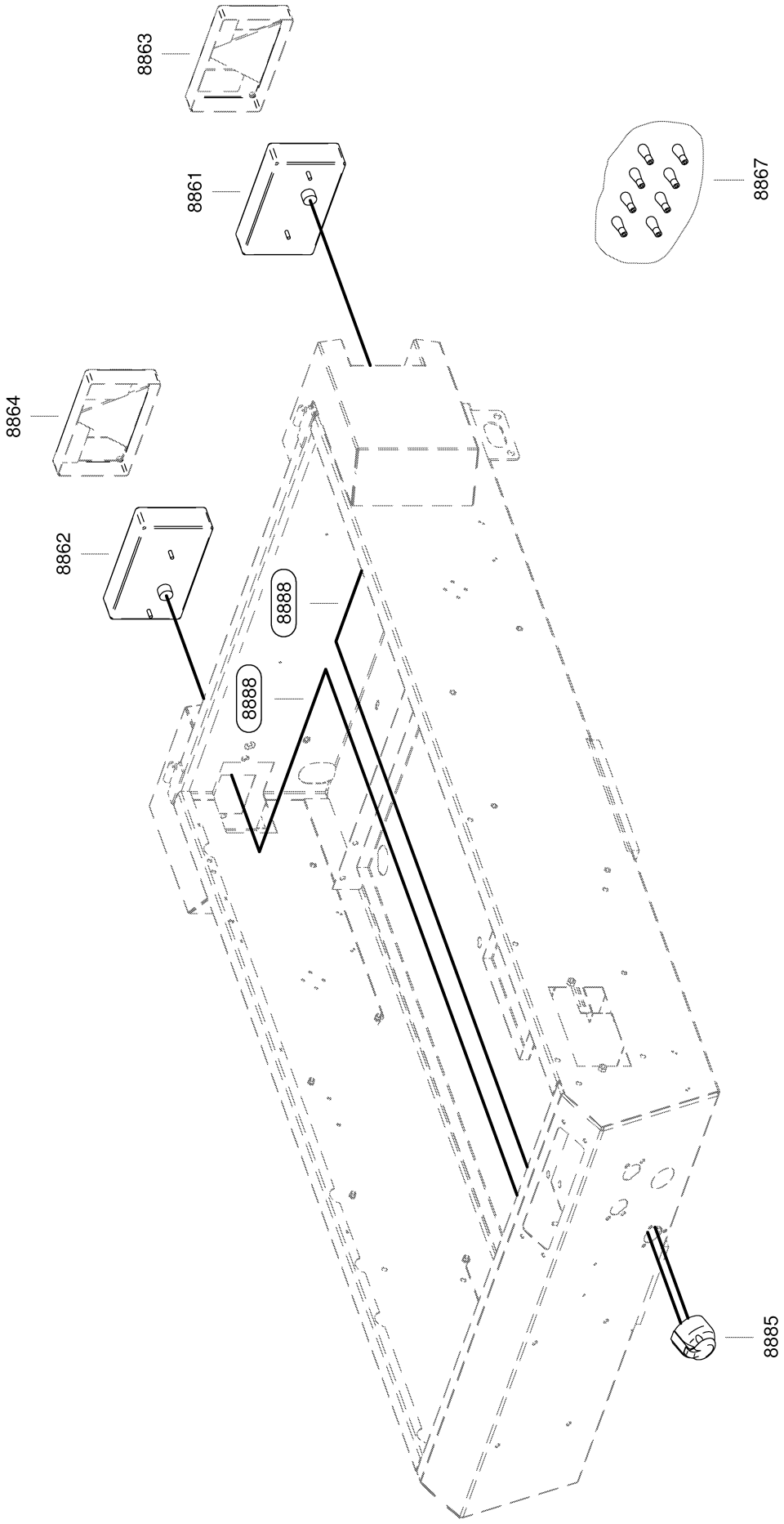

Service-Kit
(Option)
SEG-2547_01
8880
8880
8851
Option
8570
8820
8852
Option
8570

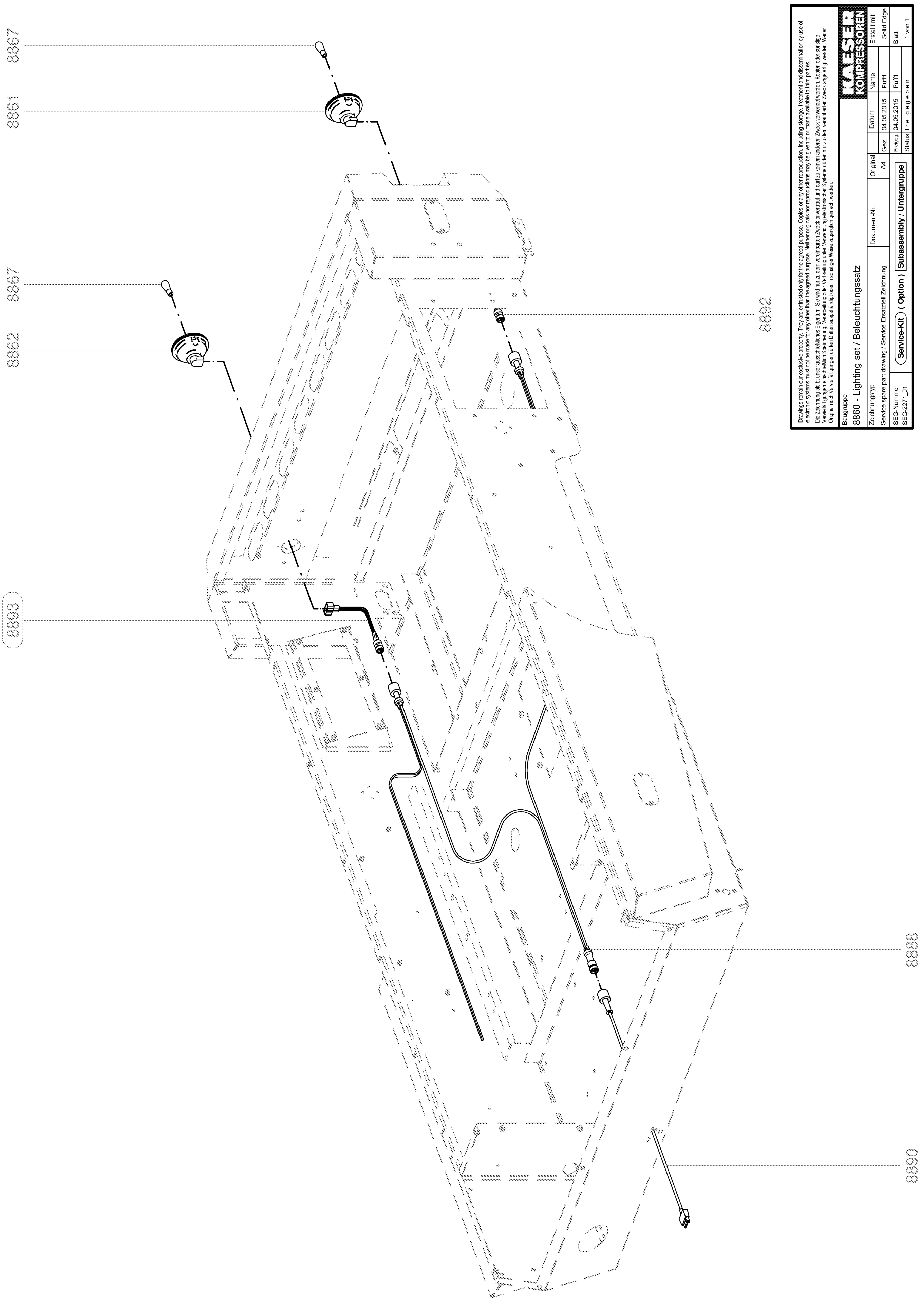

Service-Kit
(Option)
SEG-2549_01
8881
8860
8870
8851
Option
8570
8820
8852
8860
8570

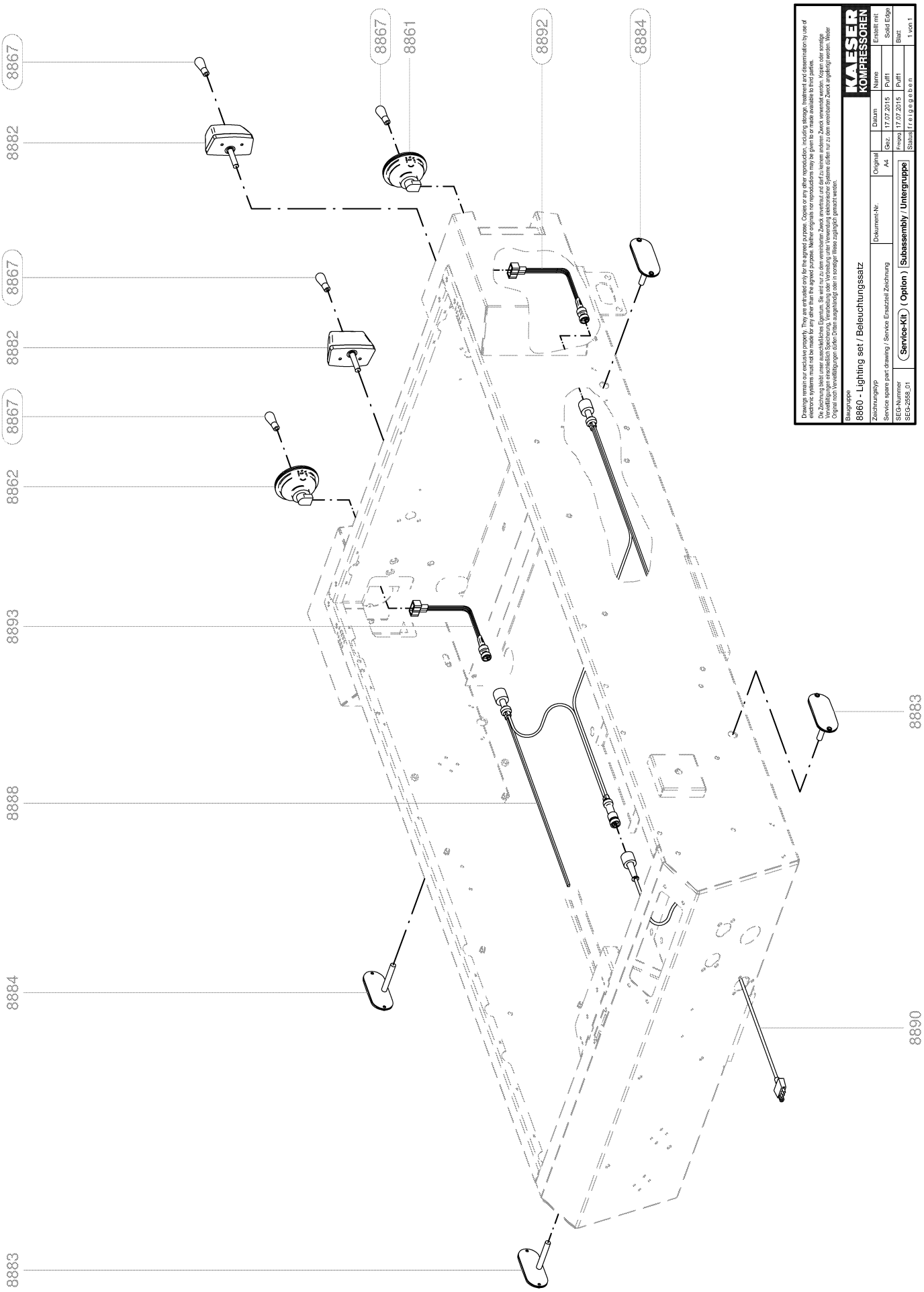

Service-Kit
(Option)
SEG-2552_01
Option
8881
8570
8852
8851
8881
Option
8881
8570
8881
8820
8881
8881
8881
8821
8881
8821
8890

Service-Kit

SEG-2250_01



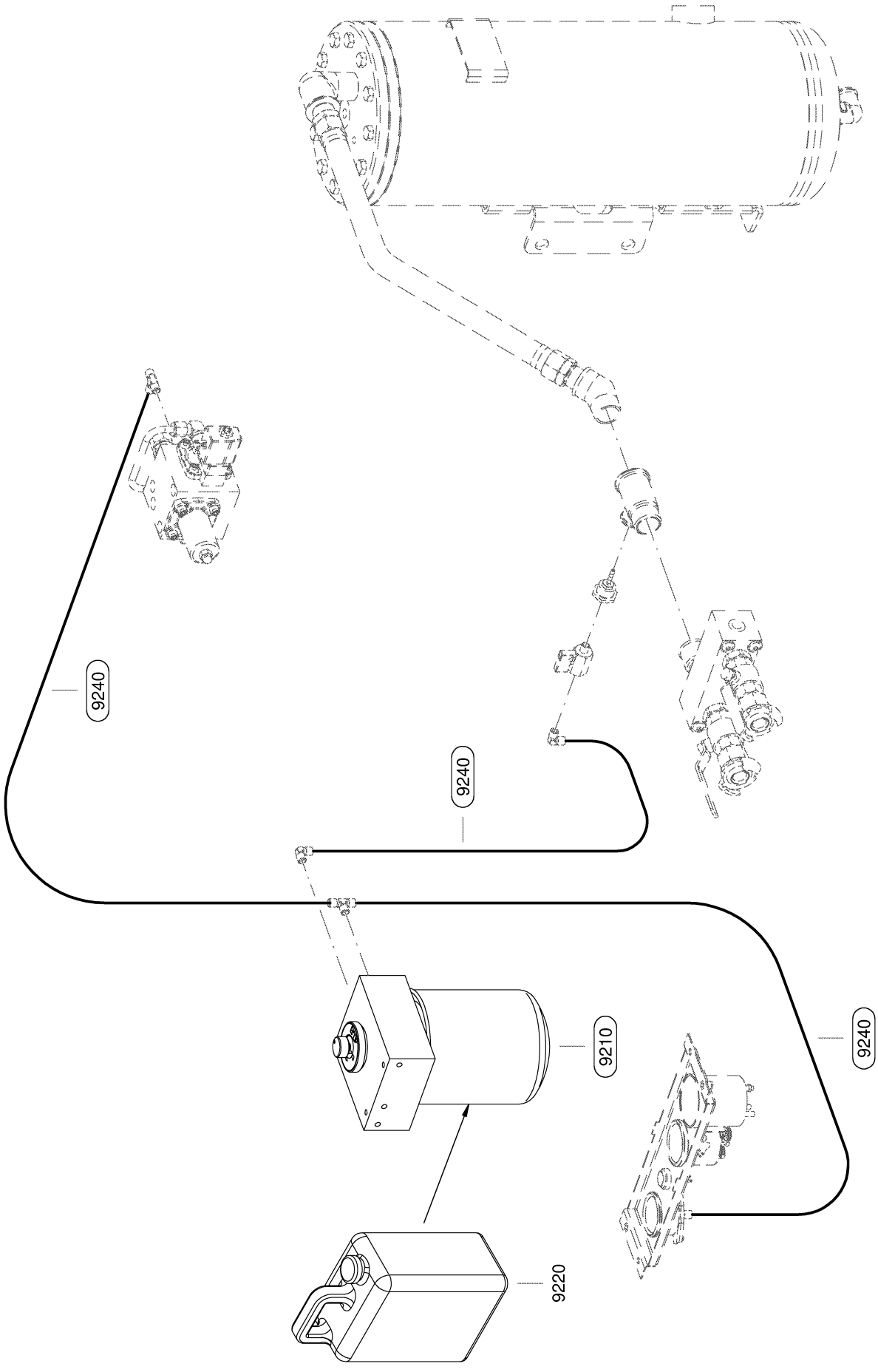

8867
8861
8867
8862
8893
8892
8888
8890
8860 - Lighting set / Beleuchtungssatz
Service-Kit
(Option)
Subassembly / Untergruppe
SEG-2271_01


8867
8861
8892
8884
8882
8867
8882
8867
8862
8893
8888
8884
8883
8883
8890
Drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproduction, 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 may be given to or made available to third parties.
Die Zeichnung bleibt unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopien oder sonstige Vervielfältigungen einschließlich Speicherung, Verarbeitung unter Verwendung elektronischer Systeme dürfen nur zu dem vereinbarten Zweck angefertigt werden. Weder Original noch Vervielfältigungen dürfen Dritten ausgehändigt oder in sonstiger Weise zugänglich gemacht werden.
KAESER KOMPRESSOREN
Baugruppe
8860 - Lighting set / Beleuchtungssatz
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-2556_01
Service-Kit (Option) Subassembly / Untergruppe
Dokument-Nr.
Original
A4
Datum
Name
Gez. 17.07.2015 Pulfl
Freigb 17.07.2015 Pulfl
Status freigegeben
Erstellt mit
Solid Edge
Blatt
1 von 1

Service-Kit (Option)

9200 - Werkzeugschmierung / Tool lubrication

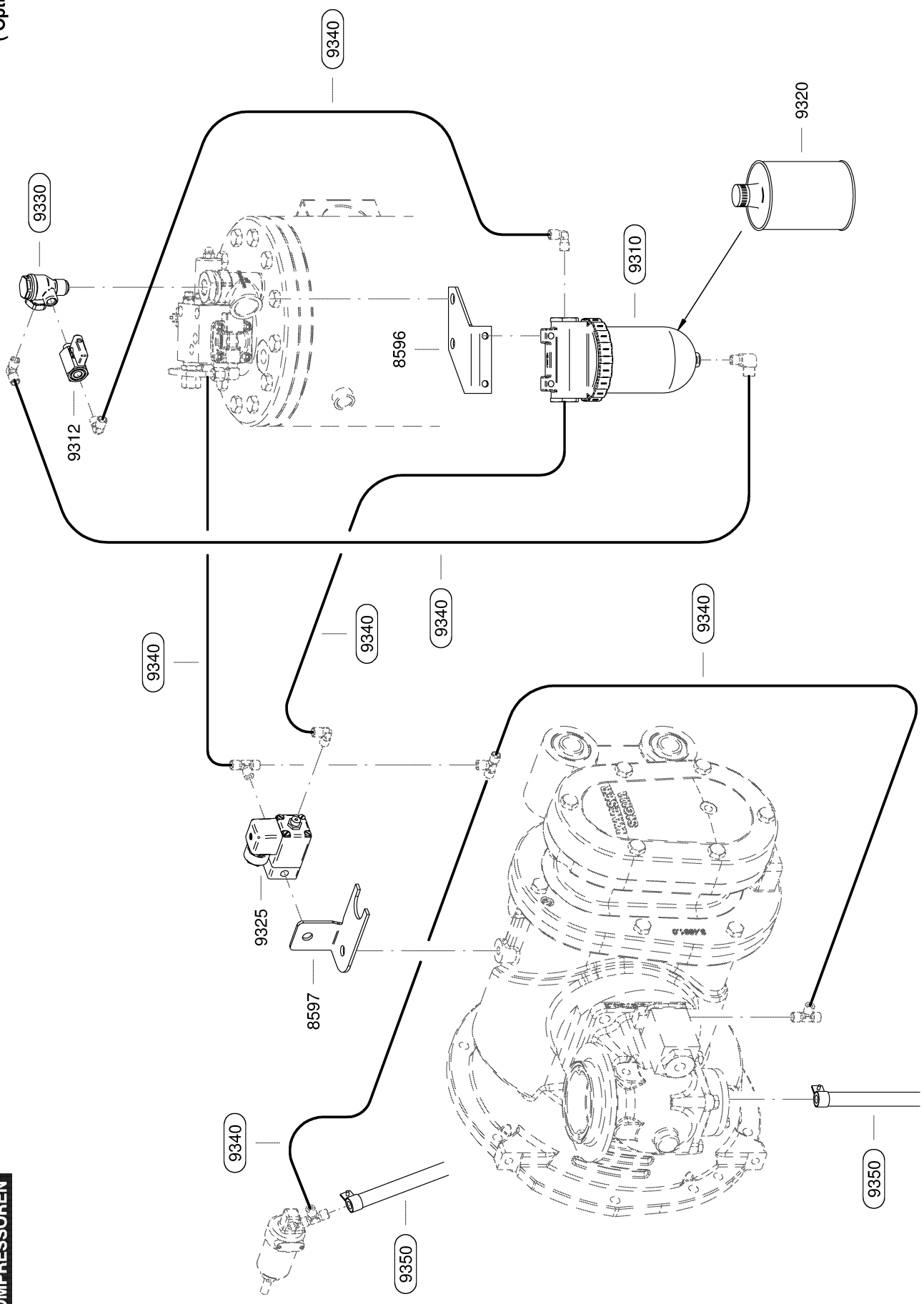
SEG-6326_01

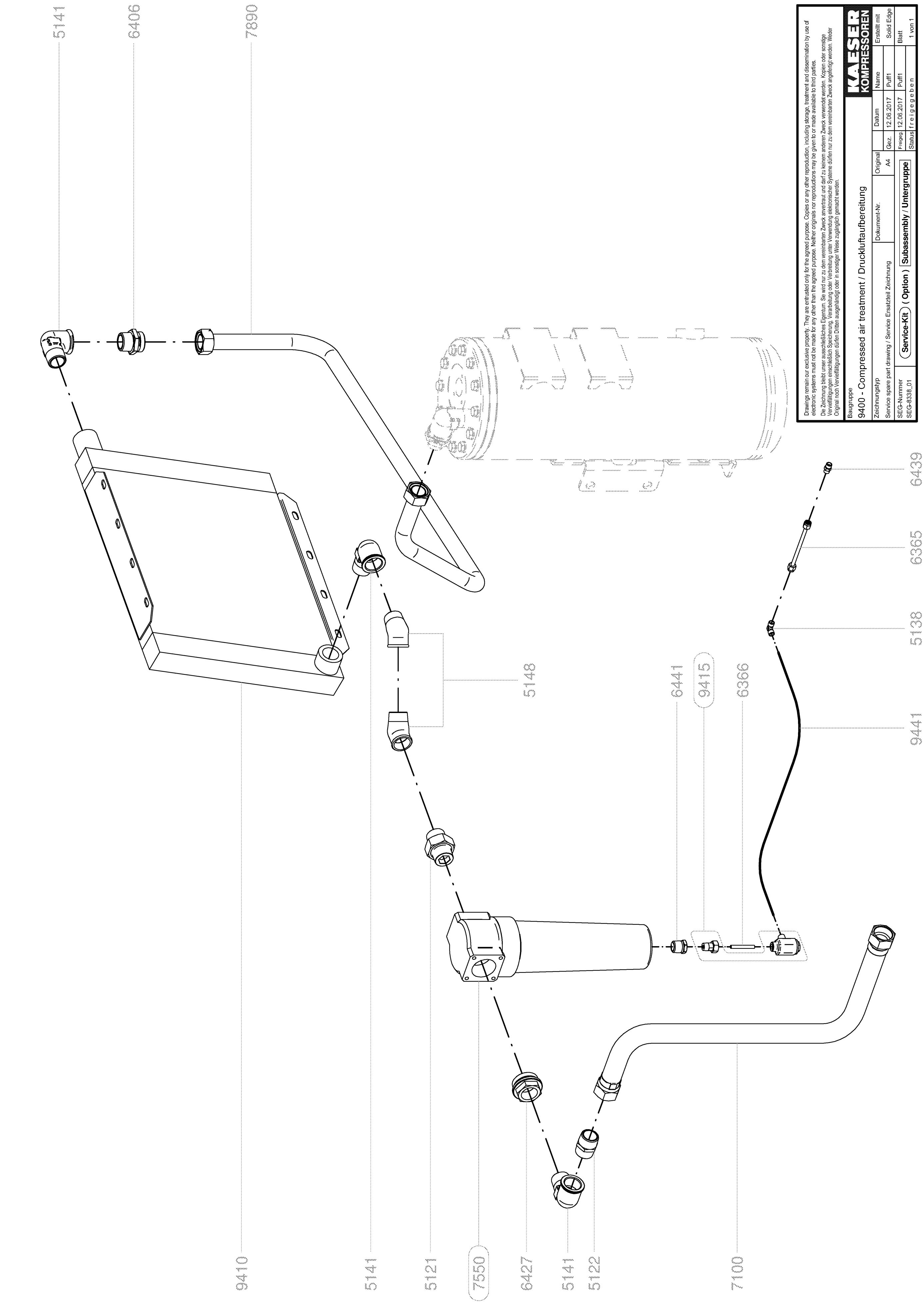


Service-Kit (Option)

9300 - Frostschutzeinrichtung / Frost protection device

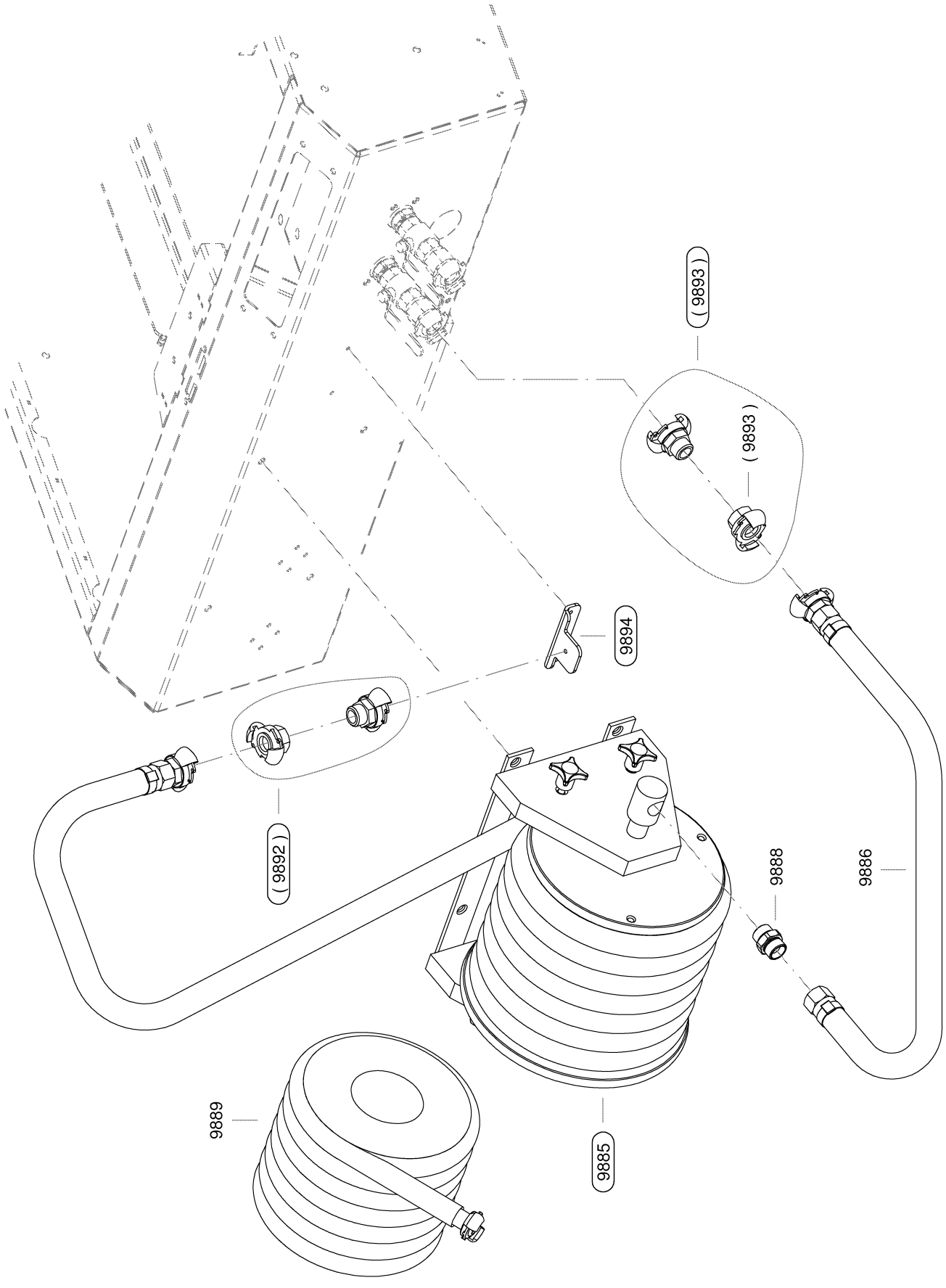
SEG-6327_01




5141
6406
7890
6439
6365
5138
9441
6441
9415
6366
5148
9410
5141
5121
7550
6427
5141
5122
7100
9400 - Compressed air treatment / Druckluftaufbereitung
Service spare part drawing / Service Ersatzteil Zeichnung
Service-Kit (Option) Subassembly / Untergruppe
SEG-8338_01
12.06.2017
Puff1
Solid Edge
1 von 1
KAESER KOMPRESSOREN

Service-Kit

SEG-2566_02



12 Decommissioning, Storage and Transport

12.1 De-commissioning

De-commissioning is necessary, for example, under the following circumstances:

- The machine is temporarily not needed
- The machine will not be needed for a considerable time.
- The machine is to be scrapped.

Precondition The machine is shut down.
Machine dry and cool.

1. Carry out the following de-commissioning procedures.
2. Place a notice on the instrument panel describing the de-commissioning procedures carried out.

12.1.1 Temporary de-commissioning

Decommissioning for about 4 months.

Material Plastic sheeting
Moisture-resistant adhesive tape

1. Disconnect the battery (the 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. 67 "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: ■ 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. 68 "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. 69 “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.
- 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 Transporting as a 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 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 service with any questions regarding transporting or load securing.

KAESER accepts no liability and provides no guarantee for damage arising from incorrect transport or insufficient or incorrect load securing provisions.

For hire, rental and trade fair plant, any transport safety devices used for the delivery must also be used for the return transport.

Use the following transport safety devices:

- Wedges
- Squared timbers
- Restraints
- Straps

Material
Chocks
Restraints or timber balks
Straps

NOTICE

Straps can damage the bodywork!
Movement during transportation can damage the bodywork.

➢ *Do not use straps over the bodywork.*

➢ *Secure portable machines only 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 service for more information.

12.2.3.1 Perform load securing for portable machines

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

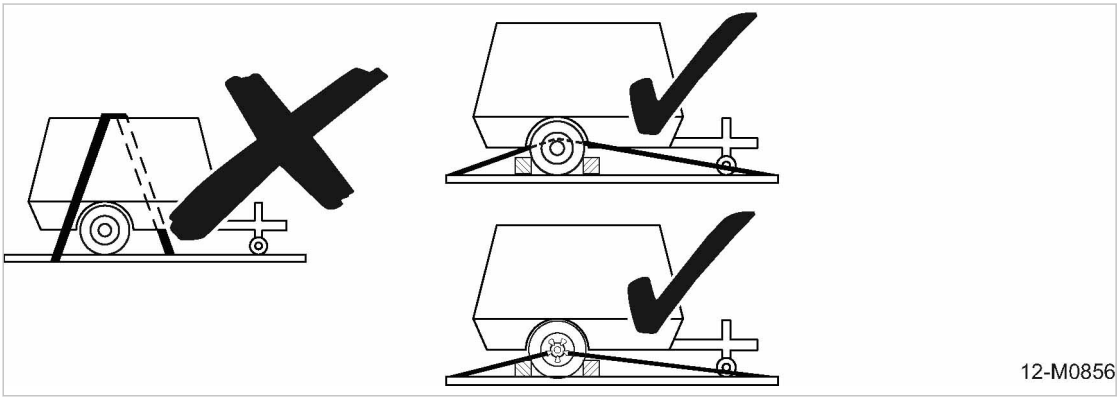


Fig. 55 Load secured by strapping

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

12.2.3.2 Before shipment as air freight

The machine is designated as dangerous goods for air freight purposes; any disregard can result in a heavy fine!

1. **⚠ WARNING** *Danger of fire or explosion from operating fluids/materials!*
   The machine incorporates an internal combustion engine.
   ➢ *Any dangerous fluids/materials contained within the machine must be removed before transport.*

2. Remove all dangerous fluids/materials.
   These include:
   - Residues of fuel or fuel 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 °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

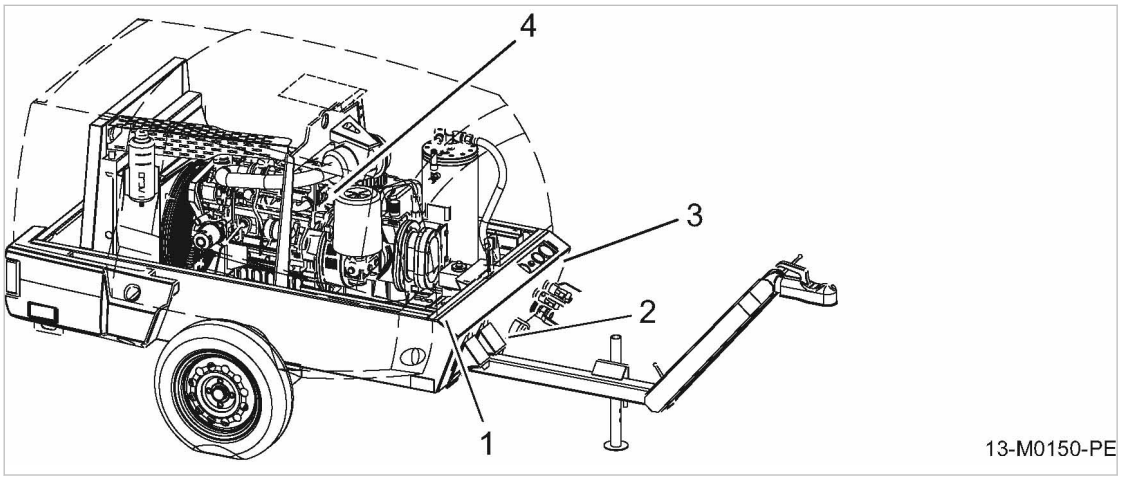
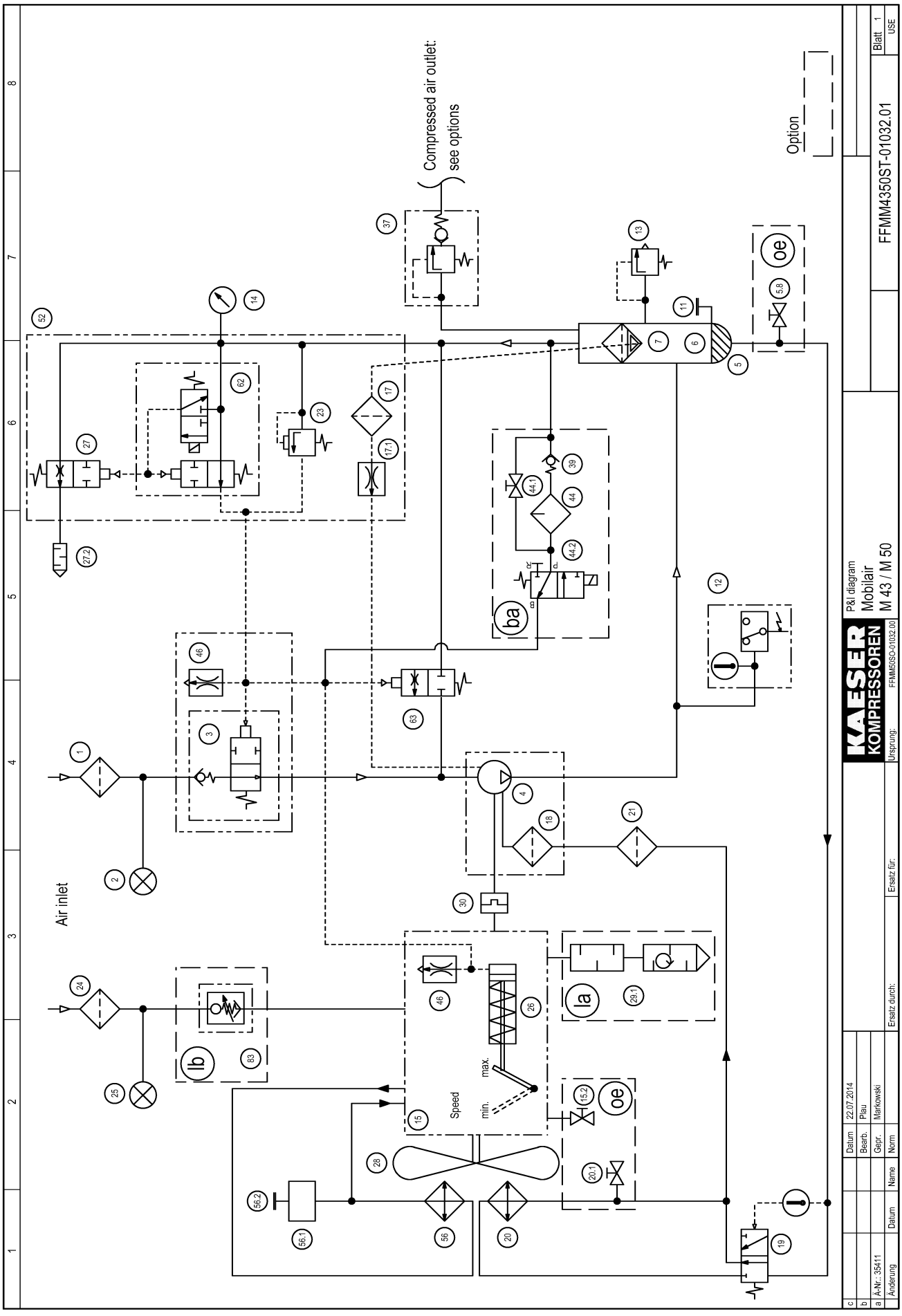


Fig. 56 Identification

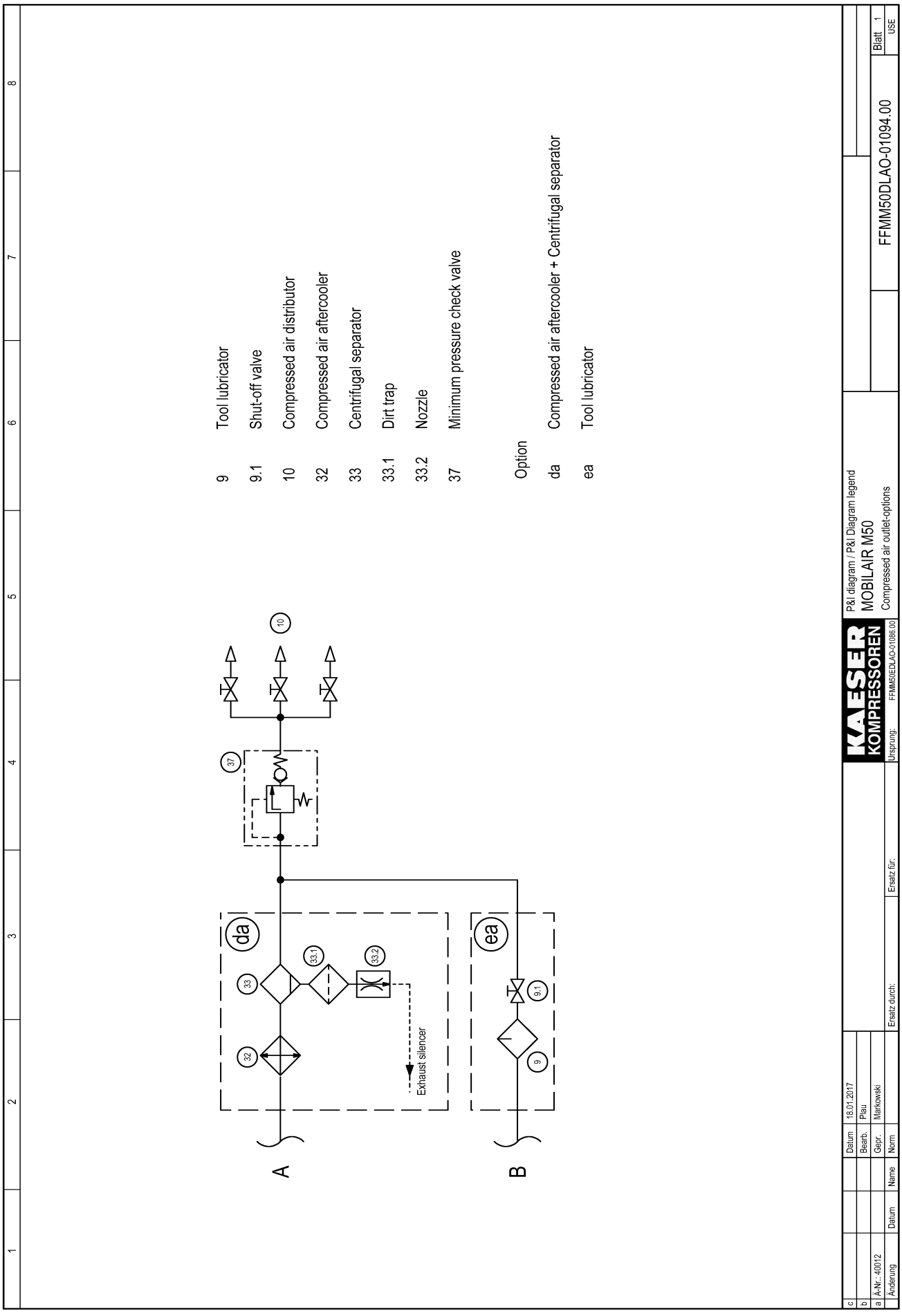
1 VIN* (stamped into the bodywork)
*Vehicle Identification Number
2 Options label
3 Machine nameplate with serial number
4 Engine nameplate with serial number

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


Compressed air outlet:
see options
Option
Air inlet
Speed
max.
min.
P&I diagram
Mobilair
M 43 / M 50
FFMM4350ST-01032.01
KAESER KOMPRESSOREN
FFMM50SO-01032.00

1	Compressor - Air filter
2	Filter maintenance indicator, Compressor -Air filter
3	Inlet valve
4	Airend
5	Oil separator tank
5.8	Shut-off valve - Oil drain device
6	Oil reserve
7	Oil separator cartridge
11	Oil filler with screw plug
12	Temperature gauge switch + Indicator
13	Safety relief valve
14	Pressure gauge - Control panel
15	Diesel engine
15.2	Shut-off valve - Oil drain device
16	Oil return line
17	Dirt trap
17.1	Nozzle
18	Strainer
19	Thermostatic valve
20	Oil cooler
20.1	Shut-off valve - Oil drain device
21	Oil filter
23	Proportional controller
24	Motor - Air filter
25	Filter maintenance indicator, Motor - Air filter
26	Engine speed adjusting piston
27	Venting valve
27.2	Silencer
28	Fan
29.1	Exhaust silencer with integrated spark arrestor
30	Coupling
37	Minimum pressure check valve
39	Check valve
44	Defroster
44.1	Shut-off valve
44.2	Solenoid valve
46	Nozzle (Secondary end Proportional controller)
52	Control valve
56	Water cooler
56.1	Cooling water expansion tank
56.2	Water filler port with screw plug
62	Combined control valve
63	Control valve (Air circulation valve)
83	Engine air intake shut-off valve (automatic shutoff)
Option	
ba	Low temperature equipment
la	Spark arrestor
lb	Engine air intake shut-off valve (automatic shutoff)
oe	Enclosed floor pan

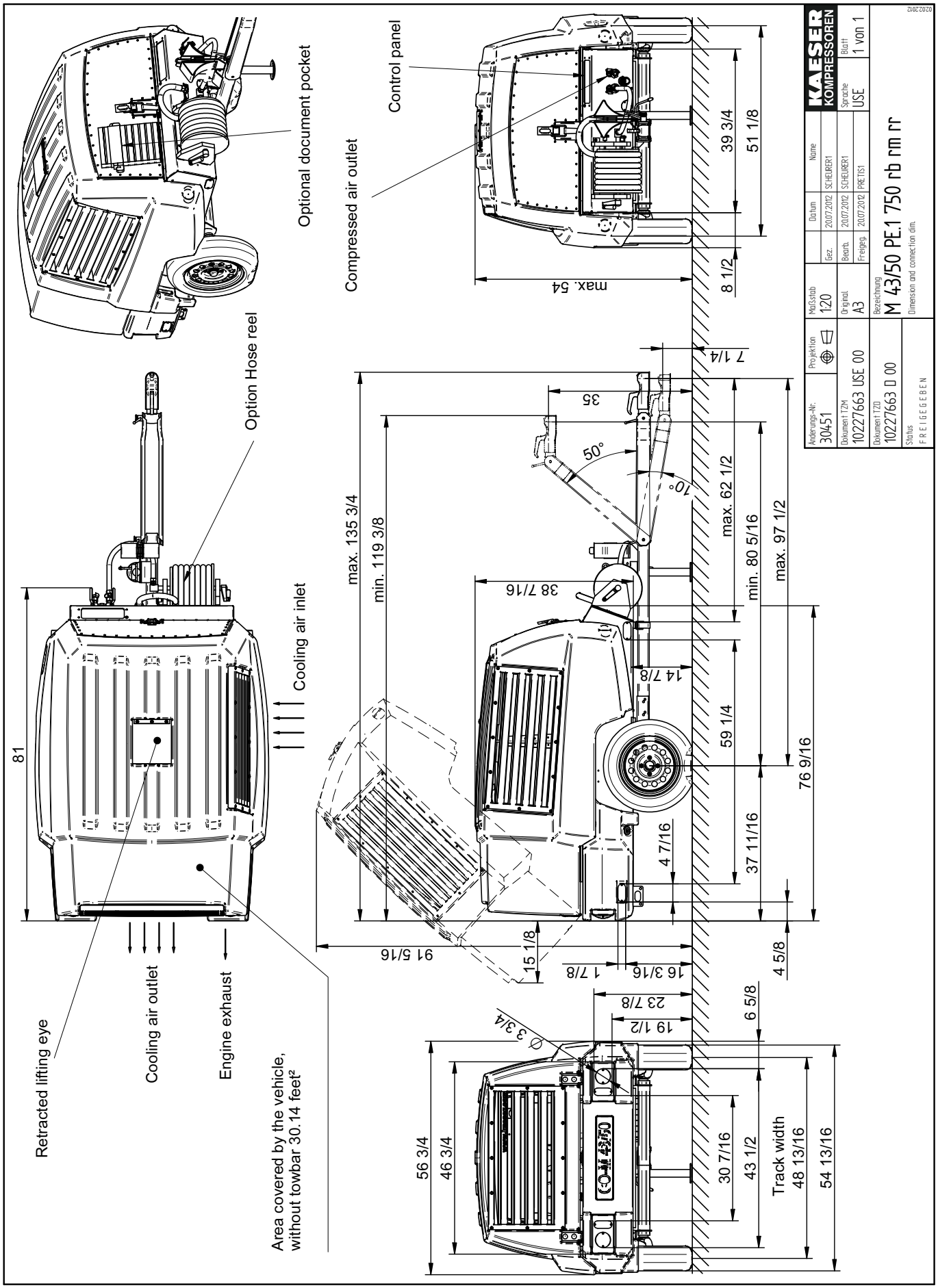
c				Datum	22.07.2014		KAESER KOMPRESSOREN	P&I Diagram legend	
b				Bearb.	Plau			Mobilair	
a	Text P.19 geä	09.09.2015	Plau	Gepr.	Markowski			M 43 / M 50	
	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: FFMM50SO-01032.00	FFMM4350ST-01032.01	Blatt 2 USE


9 Tool lubricator
9.1 Shut-off valve
10 Compressed air distributor
32 Compressed air aftercooler
33 Centrifugal separator
33.1 Dirt trap
33.2 Nozzle
37 Minimum pressure check valve
Option
da Compressed air aftercooler + Centrifugal separator
ea Tool lubricator
Exhaust silencer
A
B
P&I diagram / P&I Diagram legend
MOBILAIR M50
Compressed air outlet-options
FFMM50DLAO-01094.00
Blatt 1
USE
Datum 18.01.2017
Bearb. Pfau
Gepr. Markowski
Norm
Ersatz durch:
Ersatz für:
Ursprung: FFMM50EDLAO-01086.00
Änderung
Name
Datum
A-Nr.: 40012

13.3 Dimensional drawing

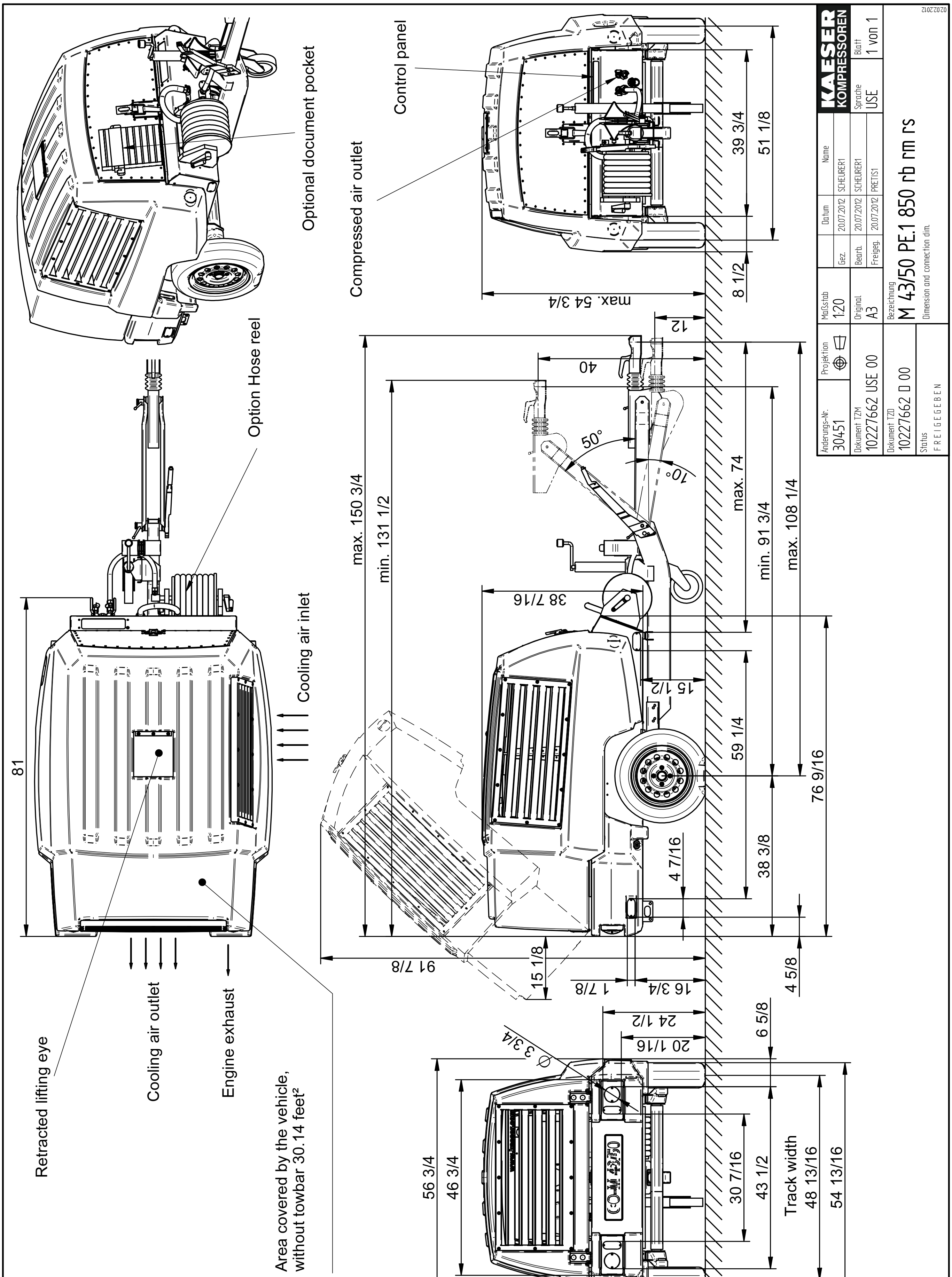
13.3.1 Option rb/rm/rr Dimensional drawing – chassis

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



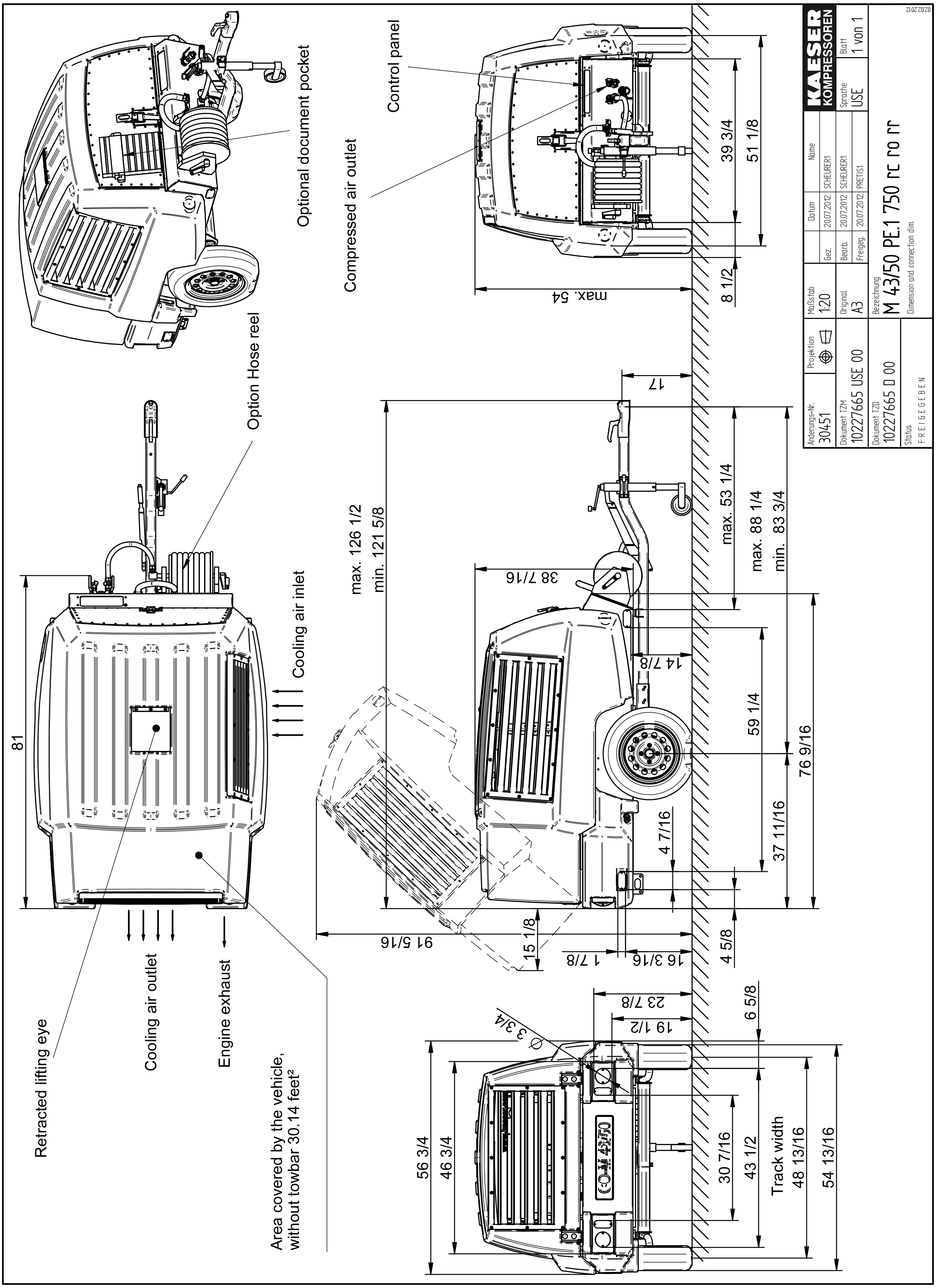
13.3.2 Option rb/rm/rs
Dimensional drawing – chassis

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


Control panel
Optional document pocket
Compressed air outlet
Option Hose reel
Cooling air inlet
Retracted lifting eye
Cooling air outlet
Engine exhaust
Area covered by the vehicle,
without towbar 30.14 feet²
max. 54 3/4
39 3/4
51 1/8
8 1/2
12
40
50°
10°
max. 150 3/4
min. 131 1/2
max. 74
min. 91 3/4
max. 108 1/4
38 7/16
15 1/2
59 1/4
76 9/16
4 7/16
38 3/8
91 7/8
15 1/8
1 7/8
16 3/4
4 5/8
24 1/2
6 5/8
20 1/16
Ø 3 3/4
81
56 3/4
46 3/4
30 7/16
43 1/2
Track width
48 13/16
54 13/16
KAESER KOMPRESSOREN
Maßstab 1:20
Original A3
Blatt 1 von 1
Sprache USE
Änderungs-Nr. 30451
Dokument TZM 10227662 USE 00
Dokument TZD 10227662 D 00
Status F R E I G E G E B E N
Bezeichnung M 43/50 PE.1 850 rb rm rs
Dimension and connection dim.
Gez. 20.07.2012 SCHEURER1
Bearb. 20.07.2012 SCHEURER1
Freigeg. 20.07.2012 PRETIS1

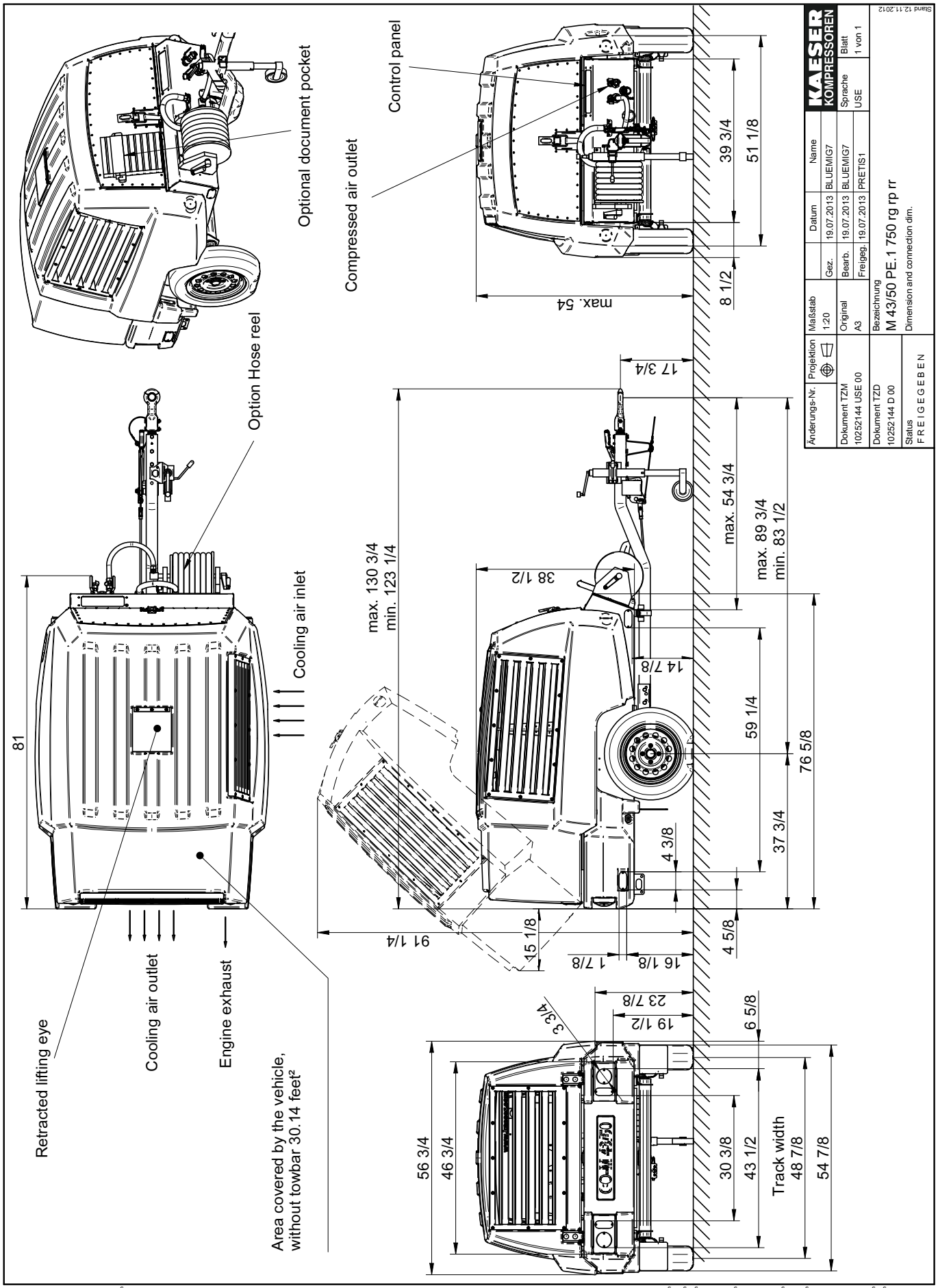
13.3.3 Option rc/ro/rr
Dimensional drawing – chassis

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


Control panel
Optional document pocket
Compressed air outlet
Option Hose reel
Cooling air inlet
Cooling air outlet
Engine exhaust
Retracted lifting eye
Area covered by the vehicle,
without towbar 30.14 feet²
max. 54
39 3/4
51 1/8
8 1/2
17
max. 126 1/2
min. 121 5/8
max. 53 1/4
max. 88 1/4
min. 83 3/4
38 7/16
14 7/8
59 1/4
76 9/16
37 11/16
4 7/16
81
91 5/16
15 1/8
1 7/8
16 3/16
4 5/8
23 7/8
19 1/2
6 5/8
∅ 3 3/4
56 3/4
46 3/4
30 7/16
43 1/2
Track width
48 13/16
54 13/16
KAESER KOMPRESSOREN
Maßstab 1:20
Original A3
Sprache USE
Blatt 1 von 1
Änderungs-Nr. 30451
Dokument TZM 10227665 USE 00
Dokument TZD 10227665 D 00
Bezeichnung M 43/50 PE.1 750
Dimension and connection dim.
Status FREIGEGEBEN

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

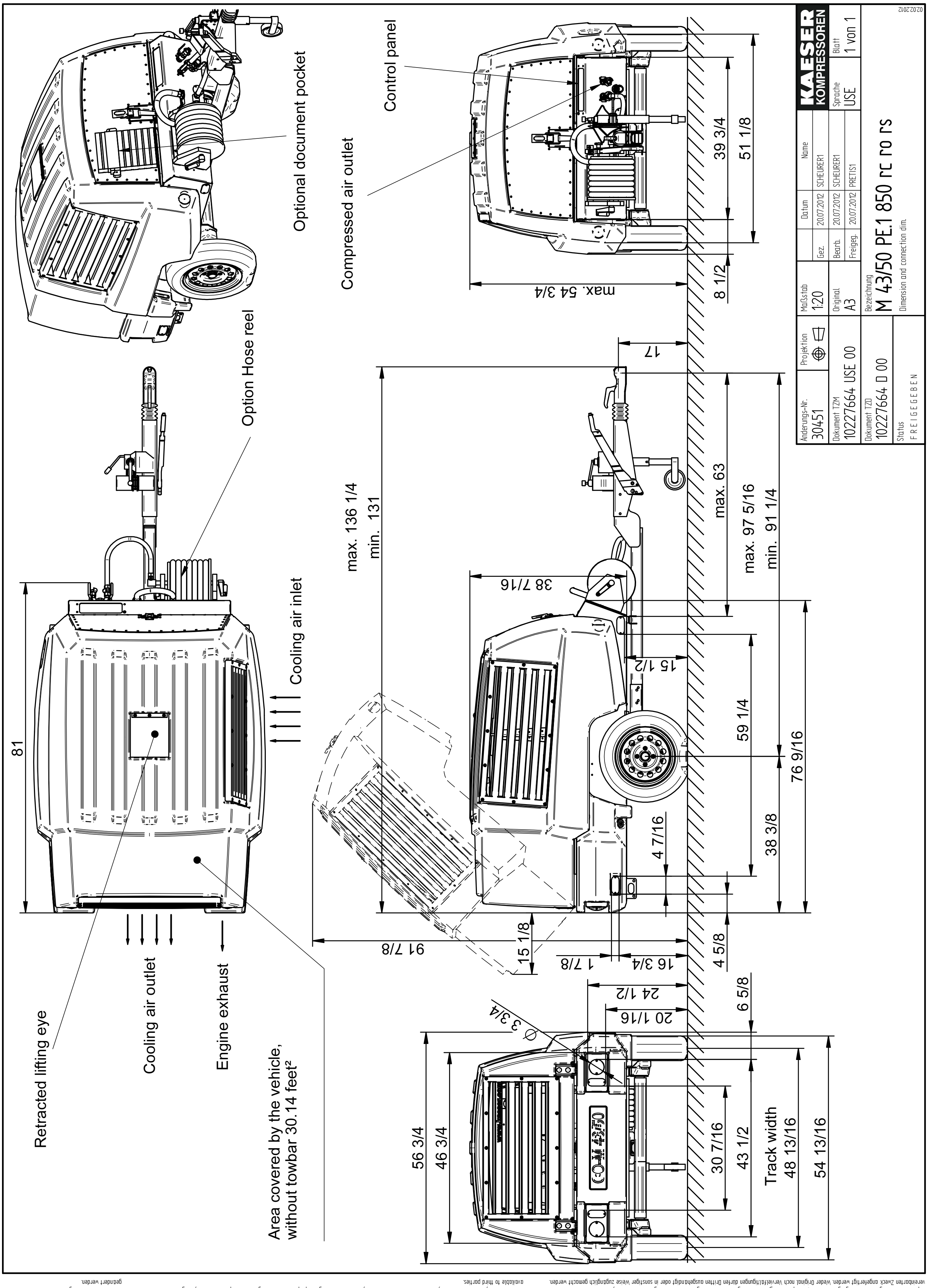


Änderungs-Nr.	Projektion	Maßstab		Datum	Name	KAESER KOMPRESSOREN	
		1:20	Gez.	19.07.2013	BLUEMIG7	Sprache	Blatt
Dokument TZM		Original	Bearb.	19.07.2013	BLUEMIG7	USE	1 von 1
10252144 USE 00		A3	Freigeg.	19.07.2013	PRETIS1		
Dokument TZD		Bezeichnung					
10252144 D 00		M 43/50 PE. 1 750 rg rp rr					
Status		Dimension and connection dim.					
F R E I G E G E B E N							

Stand 12.11.2012

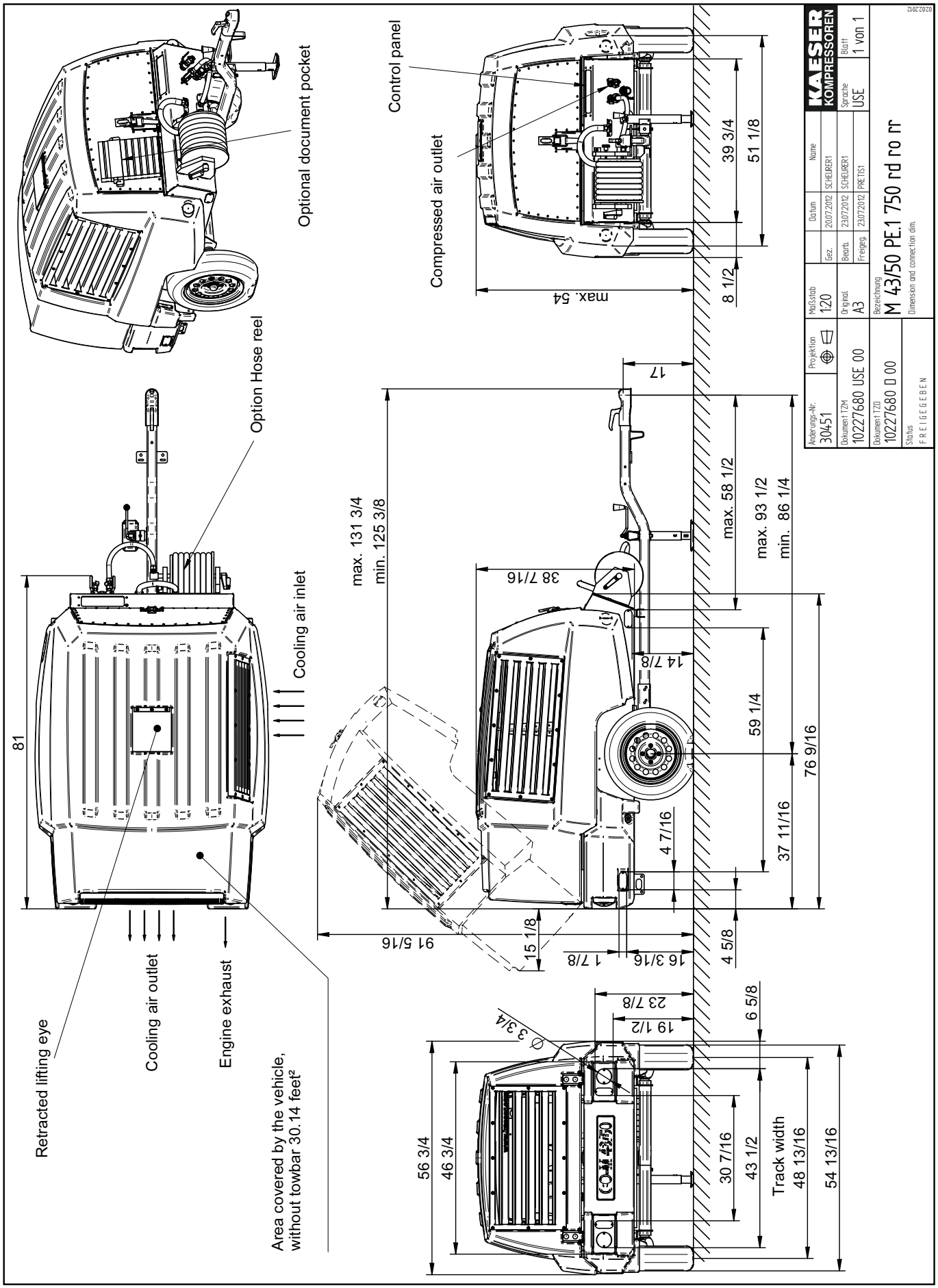
13.3.5 Option rc/ro/rs
Dimensional drawing – chassis

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


Control panel
Optional document pocket
Compressed air outlet
Option Hose reel
Cooling air inlet
Retracted lifting eye
Cooling air outlet
Engine exhaust
Area covered by the vehicle,
without towbar 30.14 feet²
max. 54 3/4
39 3/4
51 1/8
8 1/2
17
max. 136 1/4
min. 131
max. 63
max. 97 5/16
min. 91 1/4
38 7/16
15 1/2
59 1/4
76 9/16
81
4 7/16
38 3/8
91 7/8
15 1/8
4 5/8
1 7/8
16 3/4
24 1/2
6 5/8
20 1/16
Ø 3 3/4
56 3/4
46 3/4
30 7/16
43 1/2
Track width
48 13/16
54 13/16
Änderungs-Nr. 30451
Dokument TZM 10227664 USE 00
Dokument TZD 10227664 D 00
Status F R E I G E G E B E N
Maßstab 1:20
Original A3
Bezeichnung M 43/50 PE.1 850 rc ro rs
Dimension and connection dim.
Sprache USE
Blatt 1 von 1

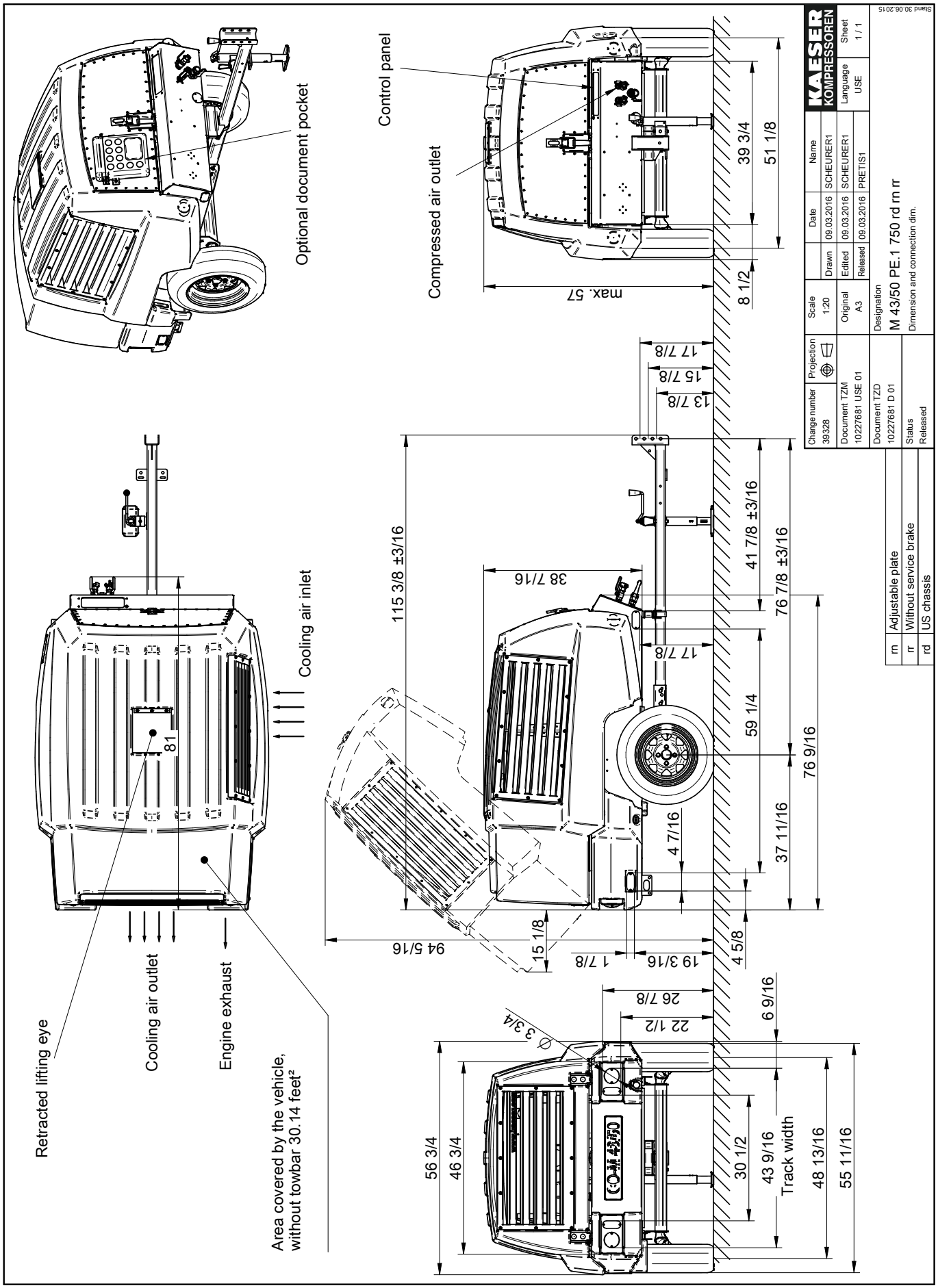
13.3.6 Option rd/ro/rr
Dimensional drawing – chassis

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



13.3.7 Option rd/rn/rr
Dimensional drawing – chassis

- Option rd - Chassis, US type
- Option rn - Chassis with height-adjustable tow bar
- Option rr - Chassis without service brake



13.4 Electrical Diagram

Electrical diagrams

MOBILAIR M43/M50

KUBOTA - Motor

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

c				Datum	18.09.2014 E		KAESER KOMPRESSOREN	Cover page	=	
b				Bearbeiter	Sitter			MOBILAIR M43/M50	+	
a				Geprüft	Weid					
A	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: afa03009_00	DFA4350-03009.01	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			DFA4350-03009.01	1	
2	List of contents			ZFA4350-03009.01	1	
3	Block diagram			UFA4350-03009.01	1	
4	Block diagram	Cross-reference		UFA4350-03009.01	2	
5	Circuit diagram	Cable set Battery		SFA4350.BK-03009.01	1	=BK
6	Circuit diagram	Compressor - unit		SFA4350.IKM-03009.01	1	=IKM
7	Circuit diagram	Control cabinet		SFA4350.SK-03009.01	1	=SK
8	Circuit diagram	Control panel		SFA4350.BT-03009.01	1	=BT
9	Equipment parts list	components		GFA4350-03009.01	1	

c				Datum	18.09.2014		KAESER KOMPRESSOREN	List of contents		=
b				Bearbeiter	Sitter			MOBILAIR M43/M50		+
a				Geprüft	Weid					
B	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung:	ZFA4350-03009.01	page 1 1 Bl.

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
-G2	Alternator
-M1	Starter-Motor
-M9	fuel pump
-B25	Oil pressure switch Motor
-B70	Cooling water-Thermostat
-E10	Glowplug
-K5	Fuel shut-off valve
-K7	Valve Full load operation, Venting
-T2	Regulator Alternator
-X11	Plug connection, Alternator
-X21	Plug connection, Cable set Motor

components Control cabinet

-F1	Control fuse	
-F30	Fuse Starter	
-F32	Fuse Glowplug	
-K30	Starter - Relay	
-K31	glow relay	
-K32	Relay fuel pump	
-K34	Relay Full load operation	
-K40	Relay Safety chain	
-S11	Ignition switch	0 = STOP 1 = ON 2 = Preheat with glowplug 3 = START
-X21,-X22	Plug connection, Control panel	
-X23	Terminals: Terminal strip, Control panel	

components Control panel

-B40	Distance temperature gauge Compressor airend
-P1	Charging control lamp
-P10	Hour meter
-S10	switch "Control ON"
-S12/-H12	Illuminated pushbutton Full load operation
-X22	Plug connection, Control panel

model-dependent components

-Q11	Battery isolating switch (option oa)
-K19	Valve defroster (option ba)

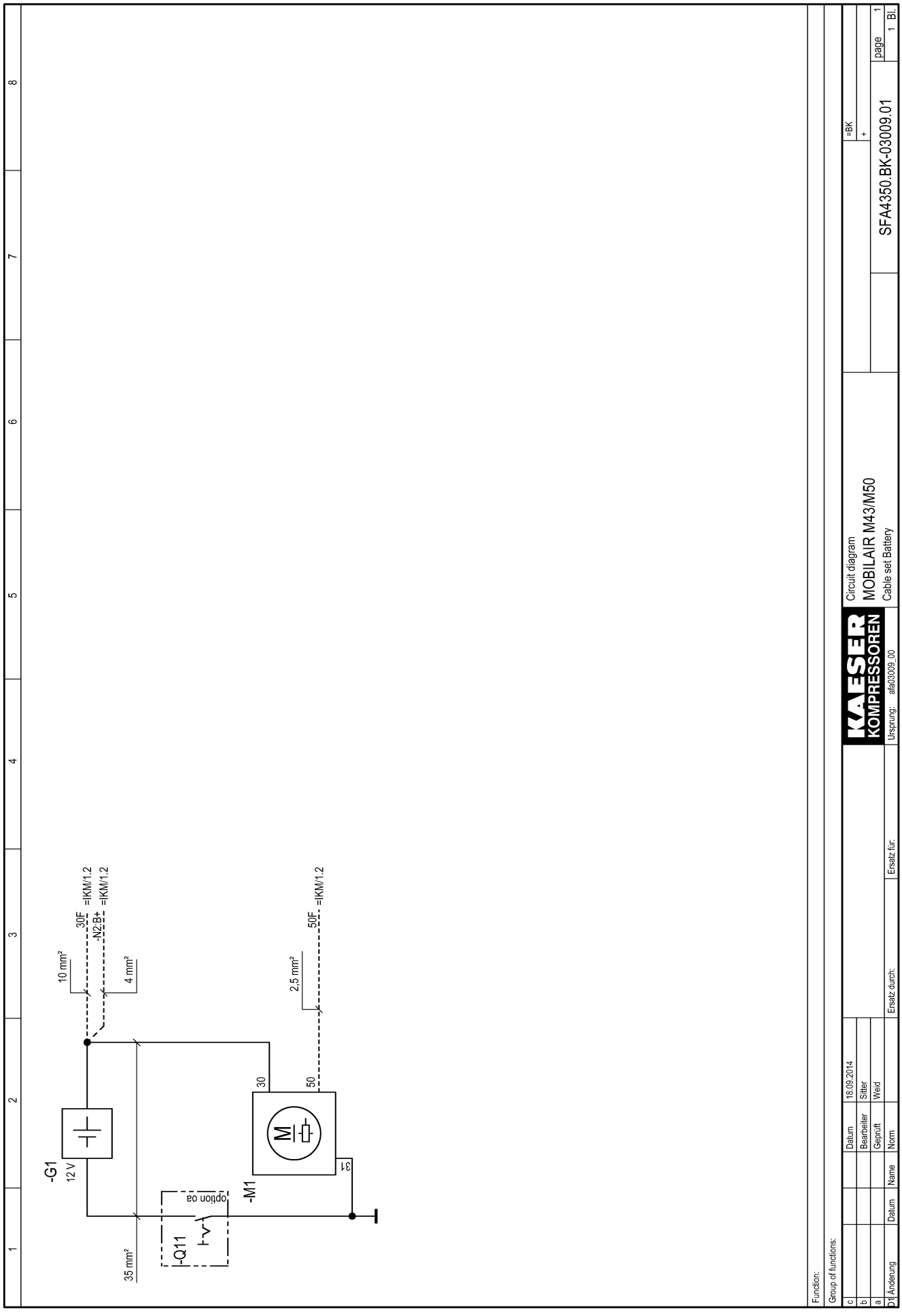
c				Datum	18.09.2014		KAESER KOMPRESSOREN	Block diagram	=
b				Bearbeiter	Sitter			general instructions	+
a				Geprüft	Weid				
C	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: afa03009_00	UFA4350-03009.01 page 1 / 2 Bl.

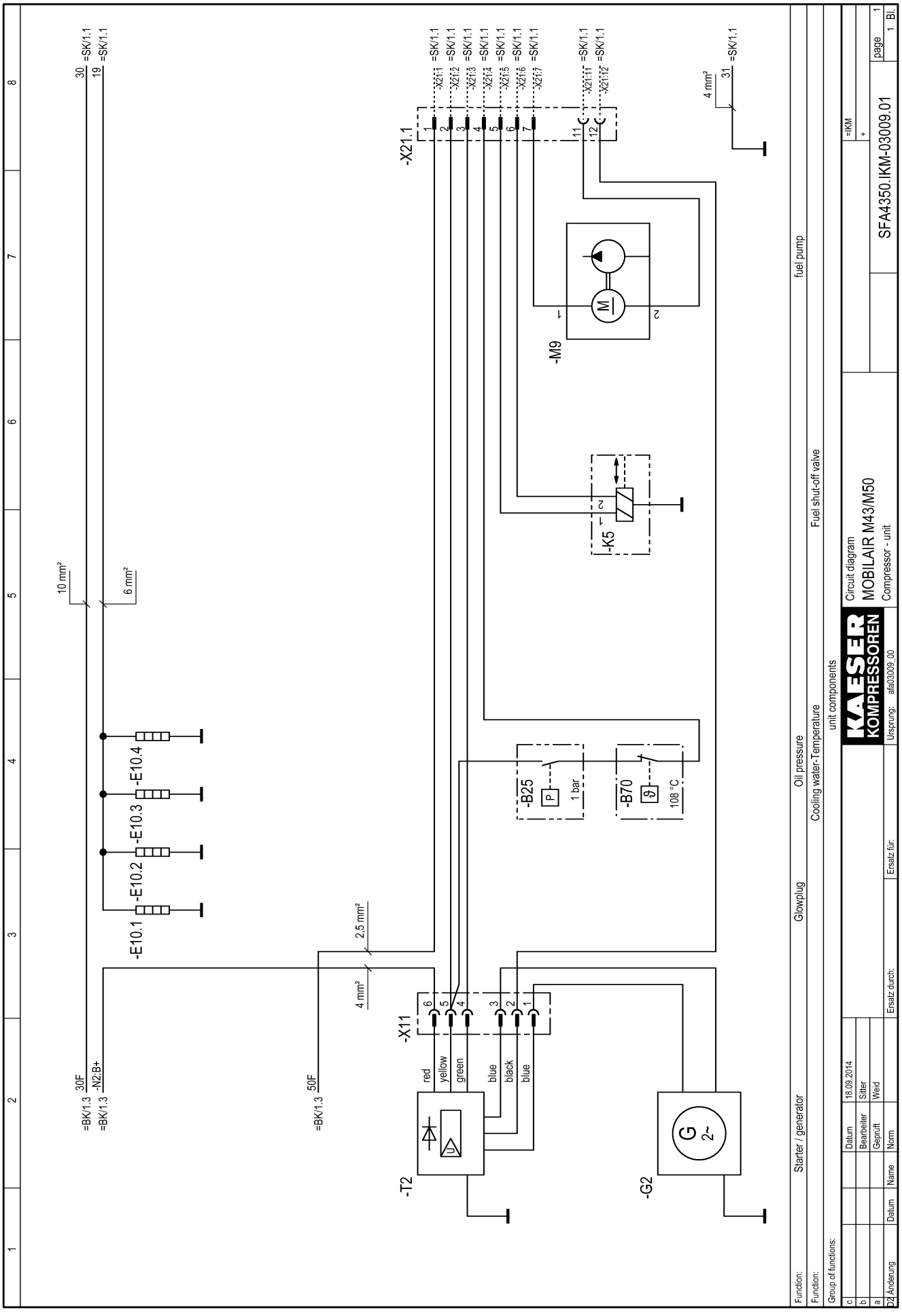
1	2	3	4	5	6	7	8

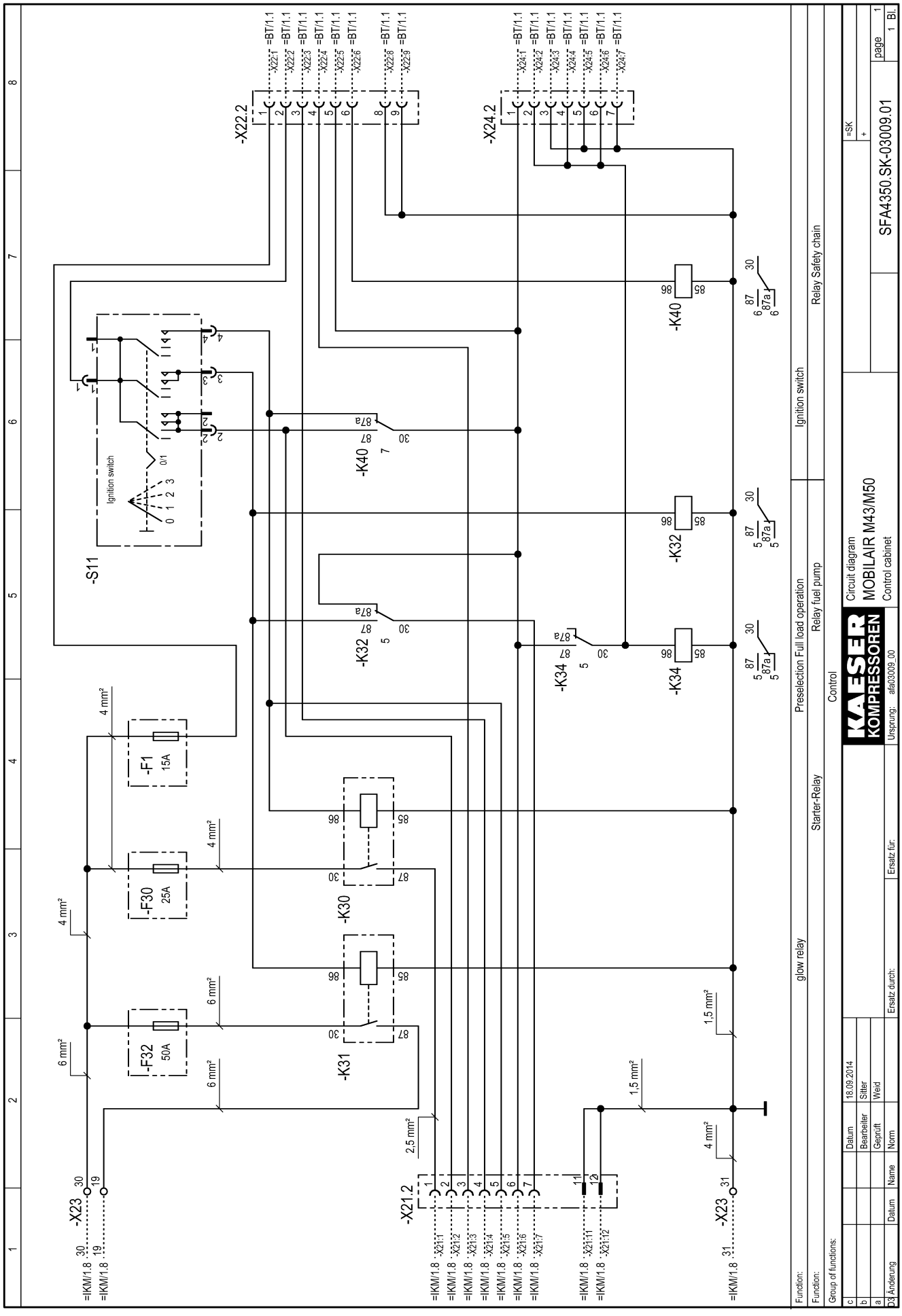
general instructions

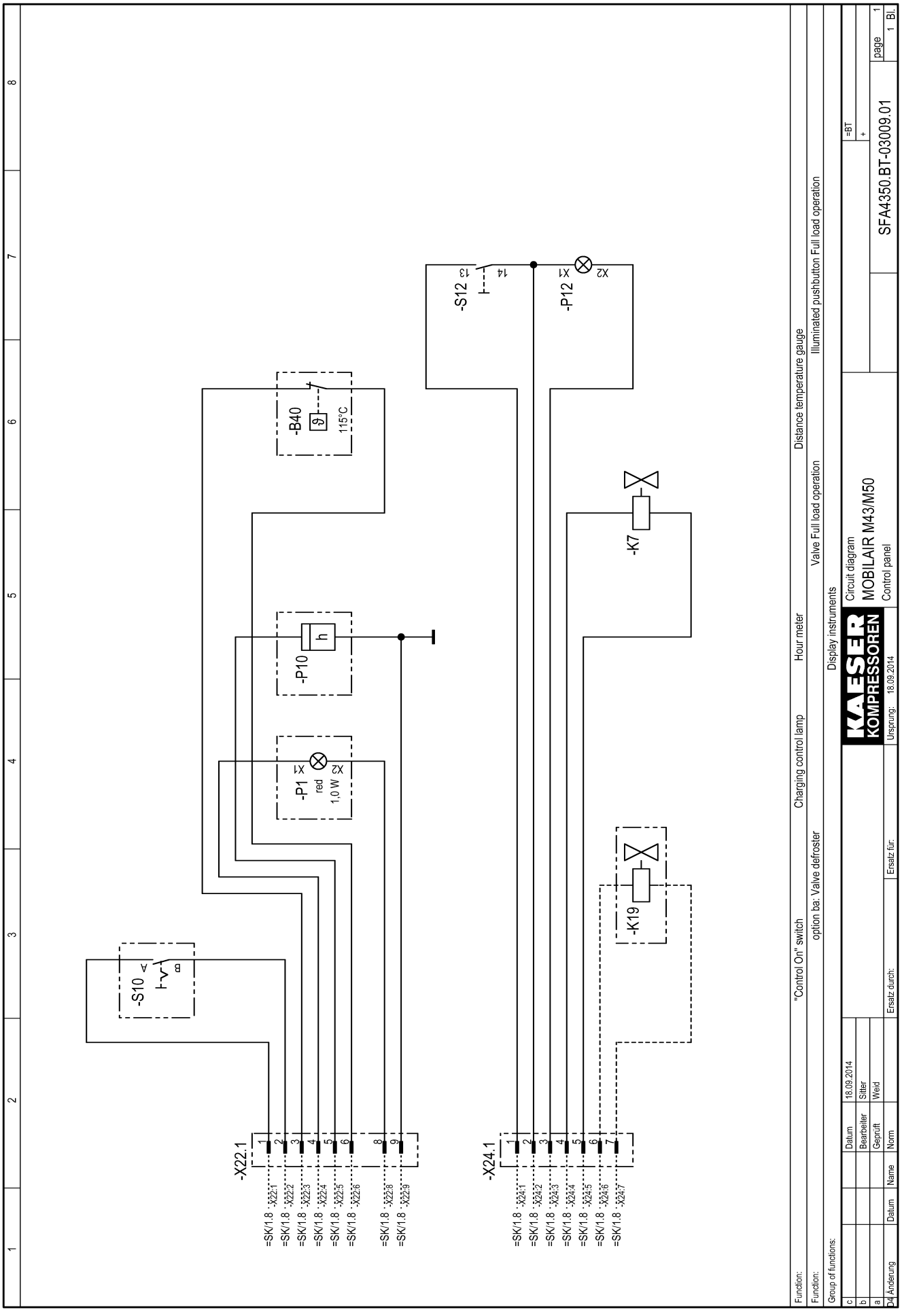
This document includes a common electrical diagram, consisting of documents:

module	Electrical diagrams	Cross-reference
Cable set: connection Battery	SFA4350.BK-03009.01	BK
Cable set: connection Motor	SFA4350.IKM-03009.01	IKM
cabling Control cabinet	SFA4350.SK-03009.01	SK
cabling Control panel	SFA4350.BT-03009.01	BT


10 mm²
30F
=IKM/1.2
-N2:B+
=IKM/1.2
4 mm²
2,5 mm²
50F
=IKM/1.2
30
50
-G1
12 V
-M1
31
option oa
-Q11
35 mm²
Function:
Group of functions:
Datum
18.09.2014
Bearbeiter
Sitter
Geprüft
Weid
Norm
Name
Datum
Änderung
Ersatz durch:
Ersatz für:
Ursprung: afa03009_00
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M43/M50
Cable set Battery
SFA4350.BK-03009.01
=BK
+
page 1
1 Bl.


=SK/1.1 30
=SK/1.1 19
10 mm²
6 mm²
-E10.1
-E10.2
-E10.3
-E10.4
=BK/1.3 30F
=BK/1.3 -N2:B+
=BK/1.3 50F
2,5 mm²
4 mm²
-X11
red
yellow
green
blue
black
blue
-T2
-G2
G 2~
-X21.1
-M9
-K5
-B25
1 bar
-B70
108 °C
4 mm²
=SK/1.1 31
Function: Starter / generator
Glowplug
Oil pressure
fuel pump
Function:
Cooling water-Temperature
Fuel shut-off valve
Group of functions:
unit components
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M43/M50
Compressor - unit
SFA4350.IKM-03009.01
=IKM
page 1
Datum 18.09.2014
Bearbeiter Sitter
Geprüft Weid
Norm
Name
Datum
Änderung
Ersatz durch:
Ersatz für:
Ursprung: afa03009_00
1 Bl.


-X22.2
-X24.2
-S11
Ignition switch
-K40
-K32
-K34
-K30
-K31
-F1 15A
-F30 25A
-F32 50A
-X23
-X21.2
Preselection Full load operation
glow relay
Starter-Relay
Relay fuel pump
Ignition switch
Relay Safety chain
Control
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M43/M50
Control cabinet
SFA4350.SK-03009.01
page 1
1 Bl.


-S10
-S12
-P12
-B40
115°C
-P10
-P1
red
1,0 W
-K7
-K19
-X22.1
-X24.1
Function:
"Control On" switch
Charging control lamp
Hour meter
Distance temperature gauge
Function:
option ba: Valve defroster
Valve Full load operation
Illuminated pushbutton Full load operation
Group of functions:
Display instruments
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M43/M50
Control panel
SFA4350.BT-03009.01
Datum
18.09.2014
Bearbeiter
Sitter
Geprüft
Weid
Norm
Ersatz durch:
Ersatz für:
Ursprung:
18.09.2014
Änderung
page 1
Bl. 1

1	2	3	4	5	6	7	8

A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller / Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer				D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 / Identifying symbol of device	F Stromlaufplan Planabschnitt / Circuit diagram sheet No.; section No.	G Einbauort / Location	Concerns only the manufacturer: Wst.-Nr. H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
	components Control cabinet												
1	Ignition switch	47.14.08		7.2097.00020	KEYA		-S11						
1	Control voltage ON/OFF switch	26 00 00	12/24 V 15/7,5 A	8.7045.0	MERIT		-S10						
2	KFZ-Relay	22 200 111	12 V, 1S, 70 A	8.6544.00030	WEHRLE		-K30,-K31						
3	KFZ-Relay	20 201 100	12 V, 1W, 20/30 A	8.6544.0	WEHRLE		-K40,-K34,-K32						
2	Relay socket	10 700 007		7.3411.00010	WEHRLE		-K30,-K31						
3	Relay socket	10 485 008		7.3411.0	WEHRLE		-K40,-K34,-K32						
1	Fuse socket 1-pole			7.6410.00010	L&K		-F32						
1	Fuse		50 A	7.6411.0	L&K		-F32						
1	Fuse socket 4-pole			7.6407.00010	L&K		-F1,-F30						
1	UNIVAL-Fuse		15 A	7.6411.00060	L&K		-F1						
1	UNIVAL-Fuse		25 A	7.6411.00070	L&K		-F30						
	components Control panel												
1	Indicator light red		12 V/red	7.9027.10200	SCHLEGEL		-P1						
1	Lamp	W2x4,6-12 V	12 V/1,0 W	8.7030.0	SCHLEGEL		-P1						
1	Hour meter			8.6569.0	BAUSER		-P10						
1	Distance temperature gauge	0-120°C/115°C	1 W	8.7915.00020	WIEGAND		-B40						
	model-dependent components												
	option oa:												
1	Battery isolating switch	DC 24V	500 A, 2500 A 10s	7.5788.00030	HELLA		-Q11						
	components Full load operation												
1	Illuminated pushbutton green	RKTME+T20FGN+BSRXU		7.9027.10010	SCHLEGEL		-S12/-P12						
1	Switching element	BTL5	2 W	7.9027.10030	SCHLEGEL		-S12/-P12						
1	Lamp	T5,5K-12	12 V/1,2 W	7.9027.10060	SCHLEGEL		-S12/-P12						

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift - Kennzeichen

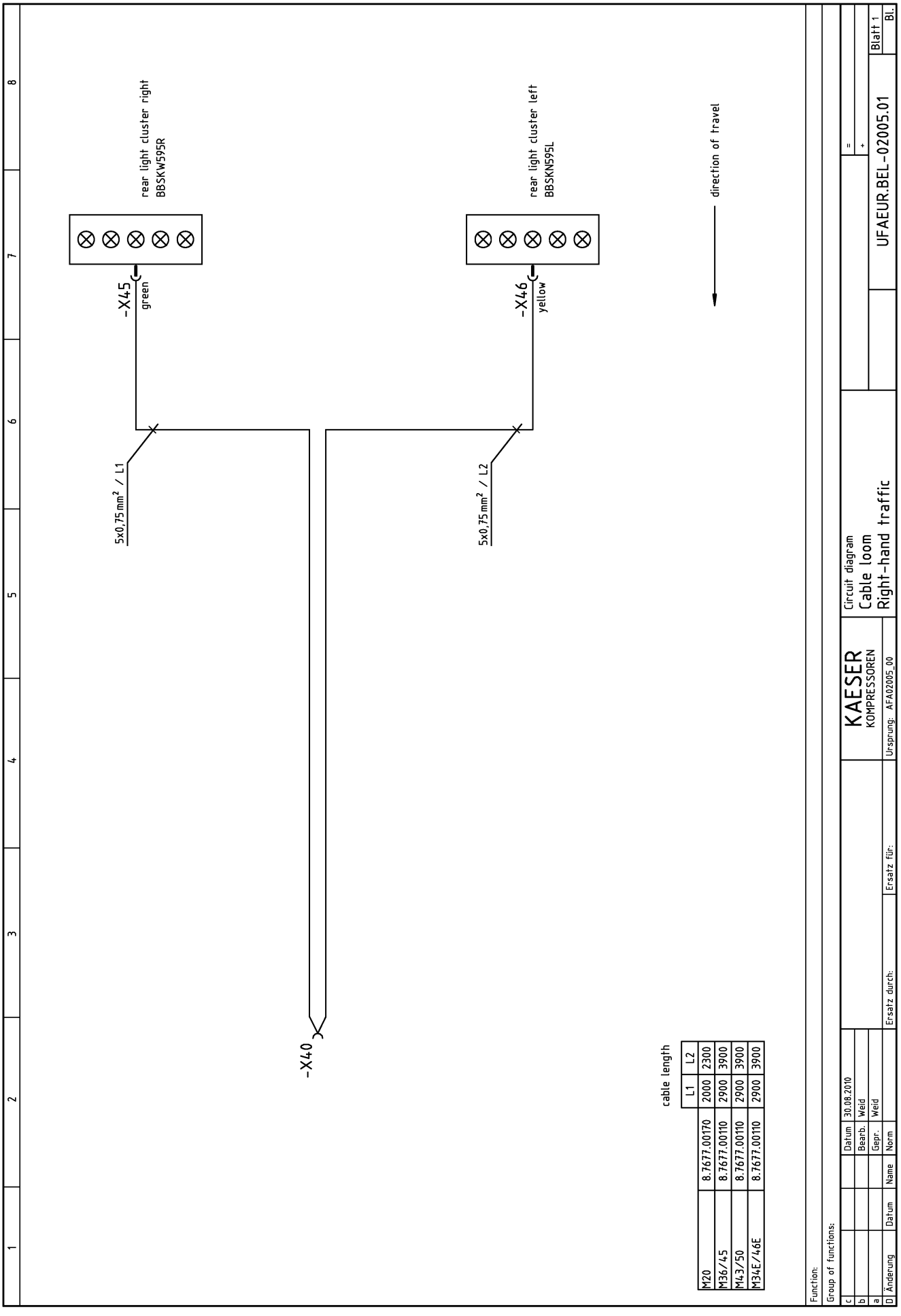
c				Datum	18.09.2014		KAESER KOMPRESSOREN	Equipment parts list		=	
b				Bearbeiter	Sitter			MOBILAIR M43/M50		+	
a				Geprüft	Weid			components			
F	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: afa03009_00		GFA4350-03009.01	page 1 / 1 Bl.

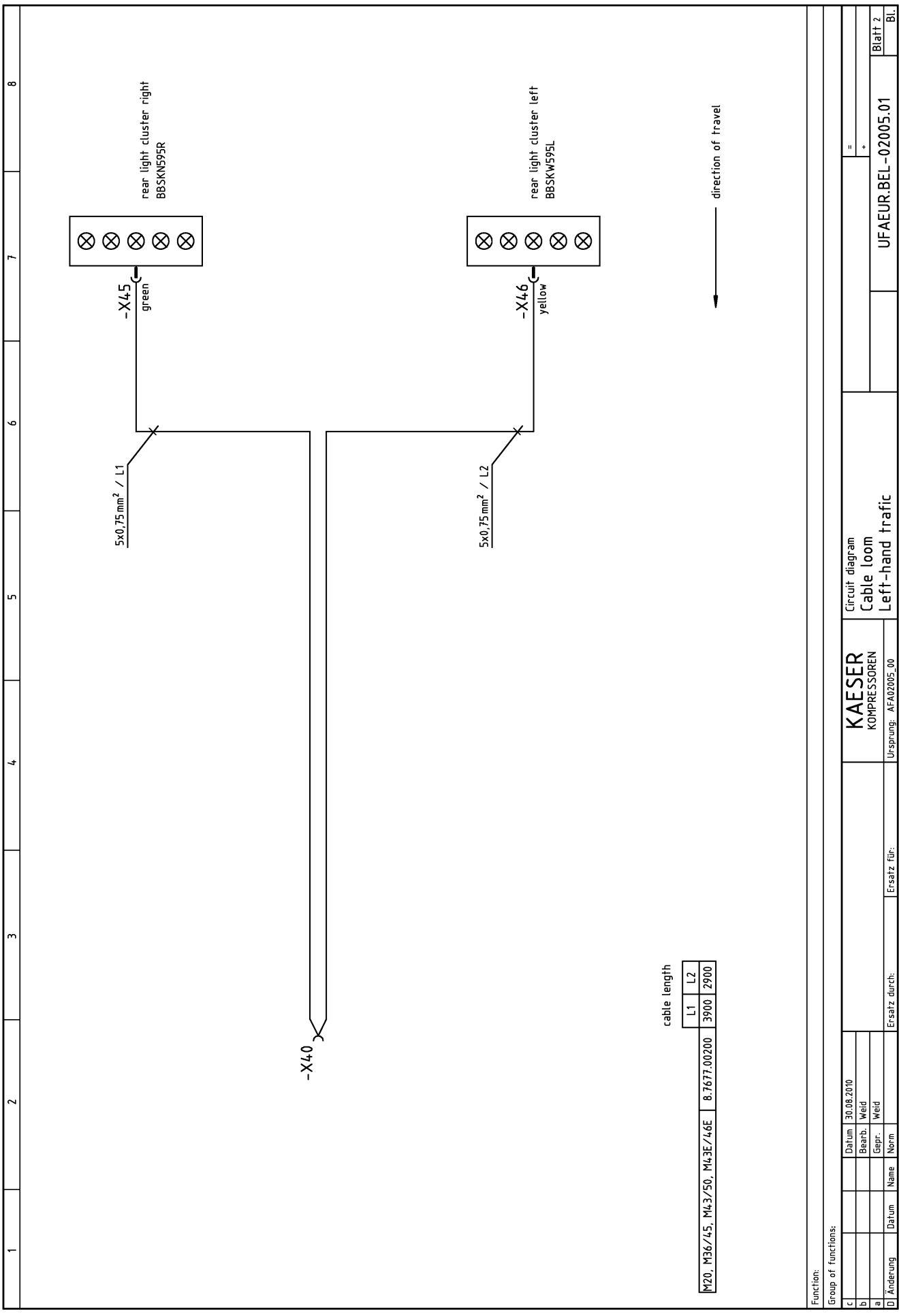
13.5 Option tc
Lighting and signaling system connection

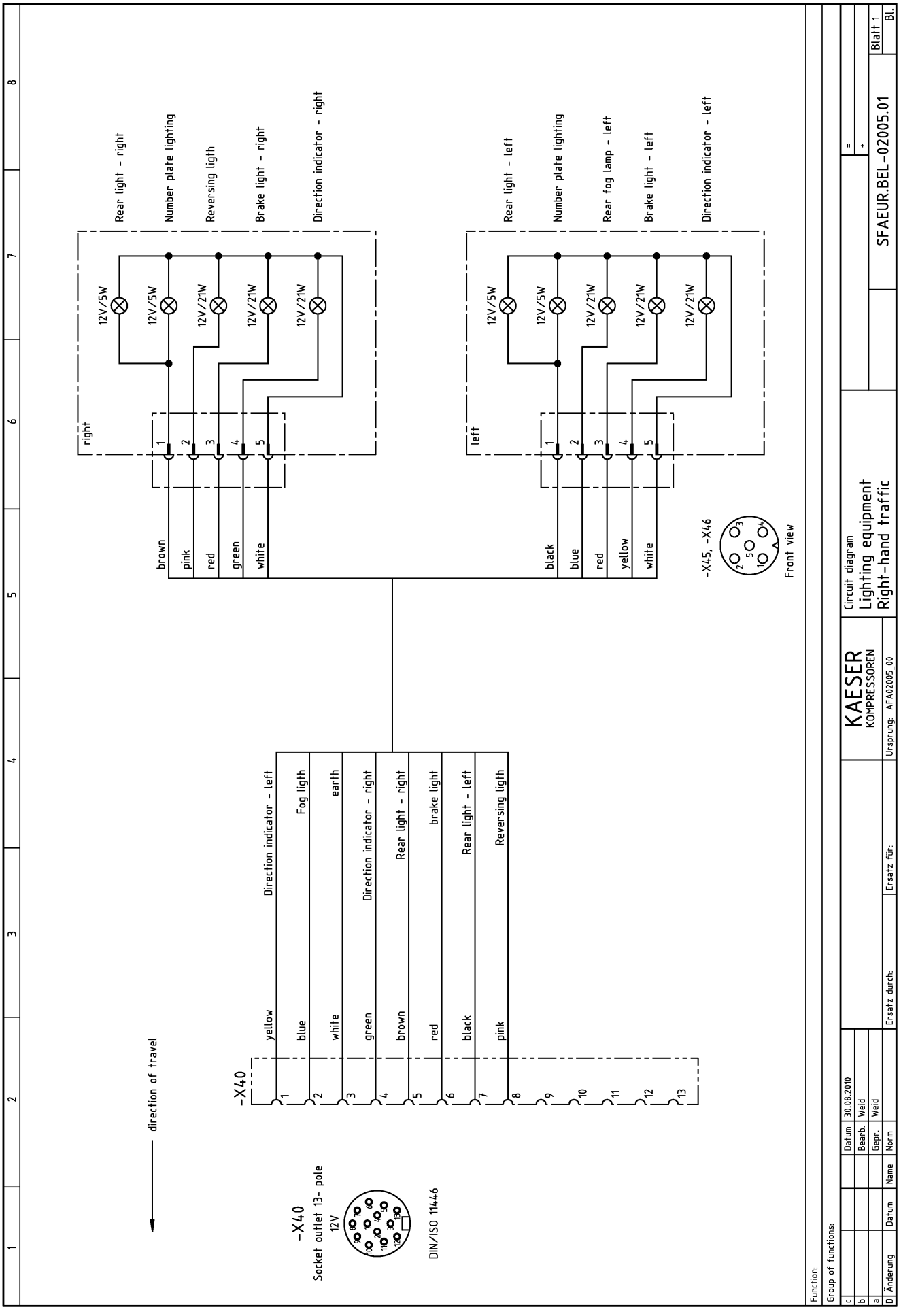
Electrical diagrams
MOBILAIR
Lighting equipment
connection 12V/13-pole

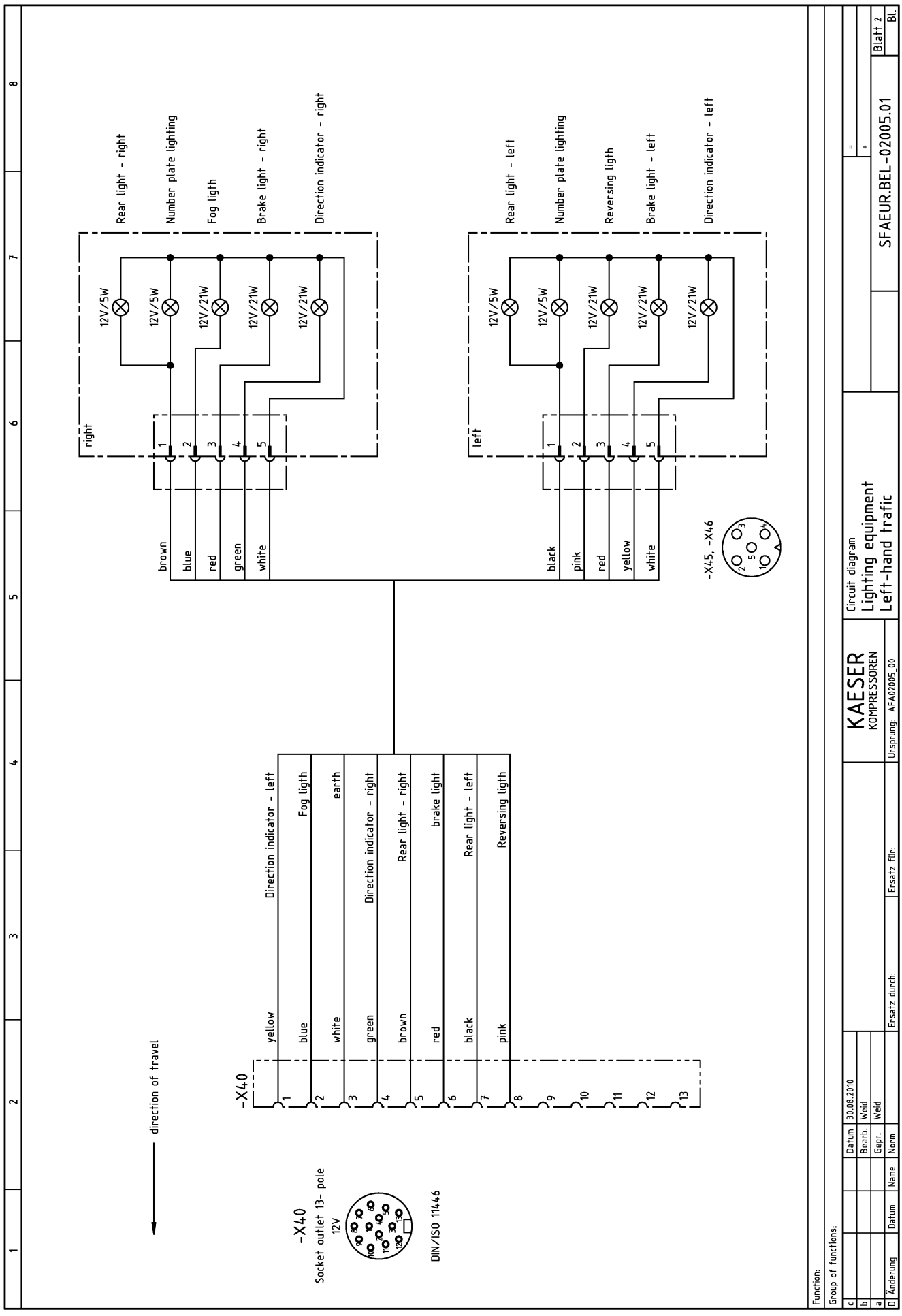
Manufacturer: Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg

c				Datum	30.08.2010 E		KAESER KOMPRESSOREN	Cover page MOBILAIR Lighting equipment	=
b				Bearb.	Weid				+
a				Gepr.	Weid				
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung: AFA02005_00	DFAEUR.BEL-02005.01	Blatt 1 Bl.


rear light cluster right
BBSKW595R
rear light cluster left
BBSKN595L
direction of travel
-X45
green
-X46
yellow
5x0,75 mm² / L1
5x0,75 mm² / L2
-X40
cable length
L1 L2
M20 8.7677.00170 2000 2300
M36/45 8.7677.00110 2900 3900
M43/50 8.7677.00110 2900 3900
M34E/46E 8.7677.00110 2900 3900
KAESER KOMPRESSOREN
Circuit diagram
Cable loom
Right-hand traffic
UFAEUR.BEL-02005.01
Blatt 1
Bl.
Ursprung: AFA02005_00
Ersatz für:
Ersatz durch:
Datum 30.08.2010
Bearb. Weid
Gepr. Weid
Norm
Name
Datum
Änderung
Function:
Group of functions:


rear light cluster right
BBSKN595R
rear light cluster left
BBSKW595L
direction of travel
-X45
green
-X46
yellow
5x0,75 mm² / L1
5x0,75 mm² / L2
-X40
cable length
L1 3900
L2 2900
M20, M36/45, M43/50, M43E/46E
8.7677.00200
KAESER KOMPRESSOREN
Circuit diagram
Cable loom
Left-hand trafic
UFAEUR.BEL-02005.01
Blatt 2
Function:
Group of functions:
Datum 30.08.2010
Bearb. Weid
Gepr. Weid
Name
Norm
Ersatz durch:
Ersatz für:
Ursprung: AFA02005_00


Rear light - right
Number plate lighting
Reversing ligth
Brake light - right
Direction indicator - right
12V/5W
12V/5W
12V/21W
12V/21W
12V/21W
right
1
2
3
4
5
brown
pink
red
green
white
Rear light - left
Number plate lighting
Rear fog lamp - left
Brake light - left
Direction indicator - left
12V/5W
12V/5W
12V/21W
12V/21W
12V/21W
left
1
2
3
4
5
black
blue
red
yellow
white
-X45, -X46
Front view
direction of travel
-X40
1 yellow Direction indicator - left
2 blue Fog ligth
3 white earth
4 green Direction indicator - right
5 brown Rear light - right
6 red brake light
7 black Rear light - left
8 pink Reversing ligth
9
10
11
12
13
-X40
Socket outlet 13- pole
12V
DIN/ISO 11446
Function:
Group of functions:
KAESER KOMPRESSOREN
Circuit diagram
Lighting equipment
Right-hand traffic
SFAEUR.BEL-02005.01
Blatt 1
Bl.
Datum 30.08.2010
Bearb. Weid
Gepr. Weid
Norm
Ersatz durch:
Ersatz für:
Ursprung: AFA02005_00
Änderung Datum Name

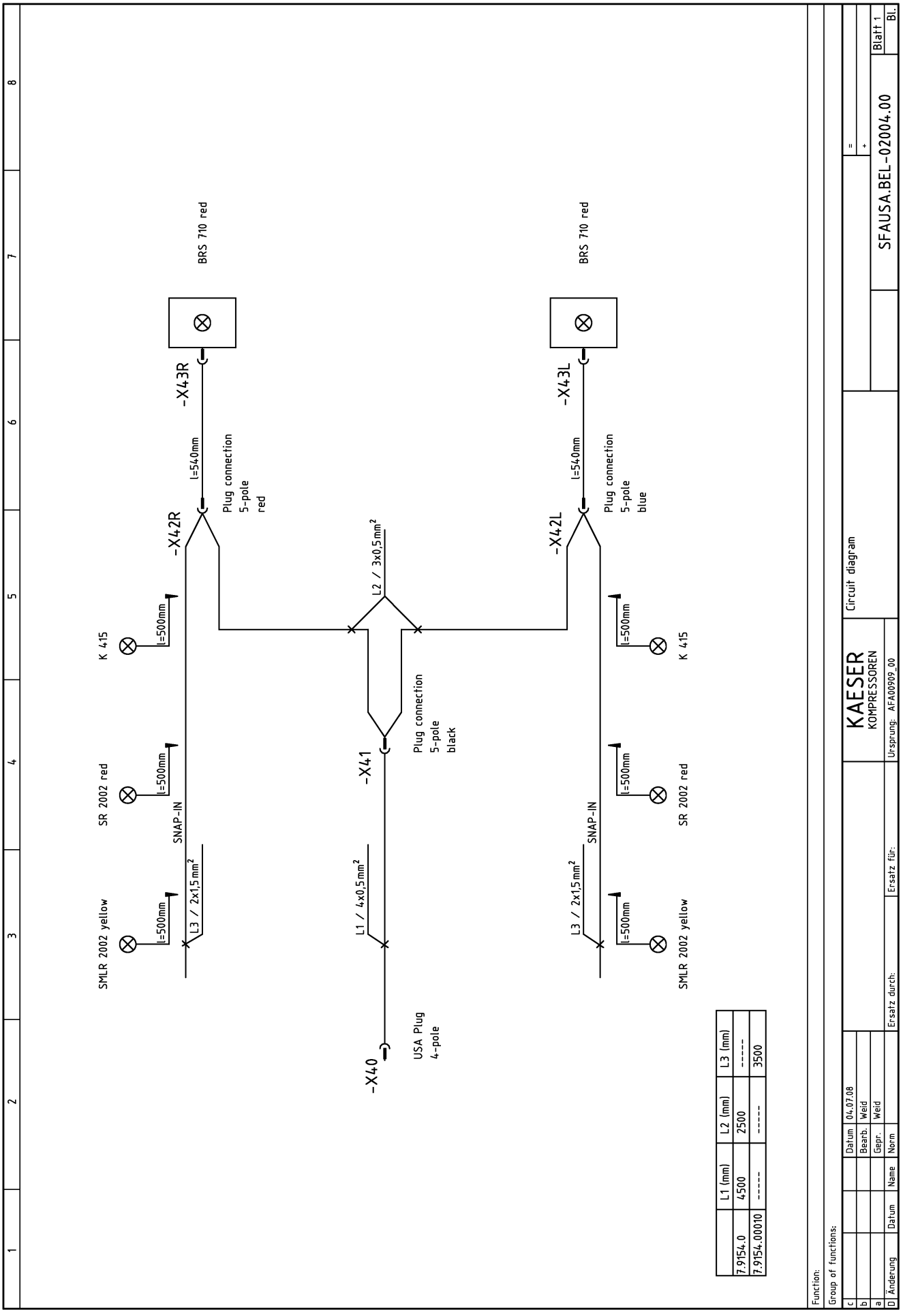

Rear light - right
Number plate lighting
Fog ligth
Brake light - right
Direction indicator - right
12V/5W
12V/5W
12V/21W
12V/21W
12V/21W
right
brown
blue
red
green
white
Rear light - left
Number plate lighting
Reversing ligth
Brake light - left
Direction indicator - left
12V/5W
12V/5W
12V/21W
12V/21W
12V/21W
left
black
pink
red
yellow
white
-X45, -X46
-X40
Direction indicator - left
Fog ligth
earth
Direction indicator - right
Rear light - right
brake light
Rear light - left
Reversing ligth
yellow
blue
white
green
brown
red
black
pink
direction of travel
-X40
Socket outlet 13- pole
12V
DIN/ISO 11446
KAESER KOMPRESSOREN
Circuit diagram
Lighting equipment
Left-hand trafic
SFAEUR.BEL-02005.01
Blatt 2
Bl.
Datum 30.08.2010
Bearb. Weid
Gepr. Weid
Norm
Name
Datum
Änderung
Ersatz durch:
Ersatz für:
Ursprung: AFA02005_00
Function:
Group of functions:

13.6 Option te
Lighting and signaling system connection

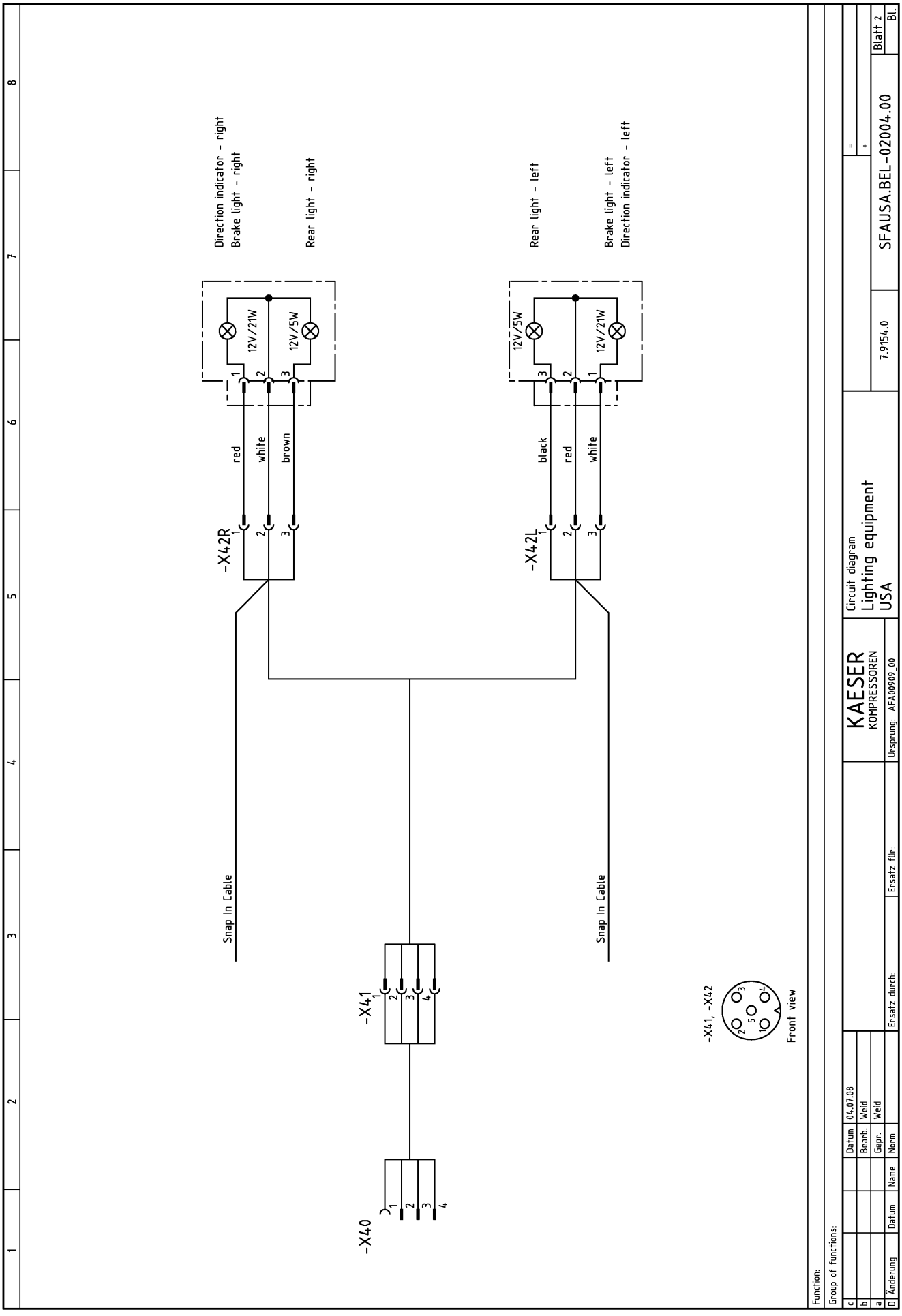
Electrical diagrams
MOBILAIR
Lighting equipment
for USA / CAN

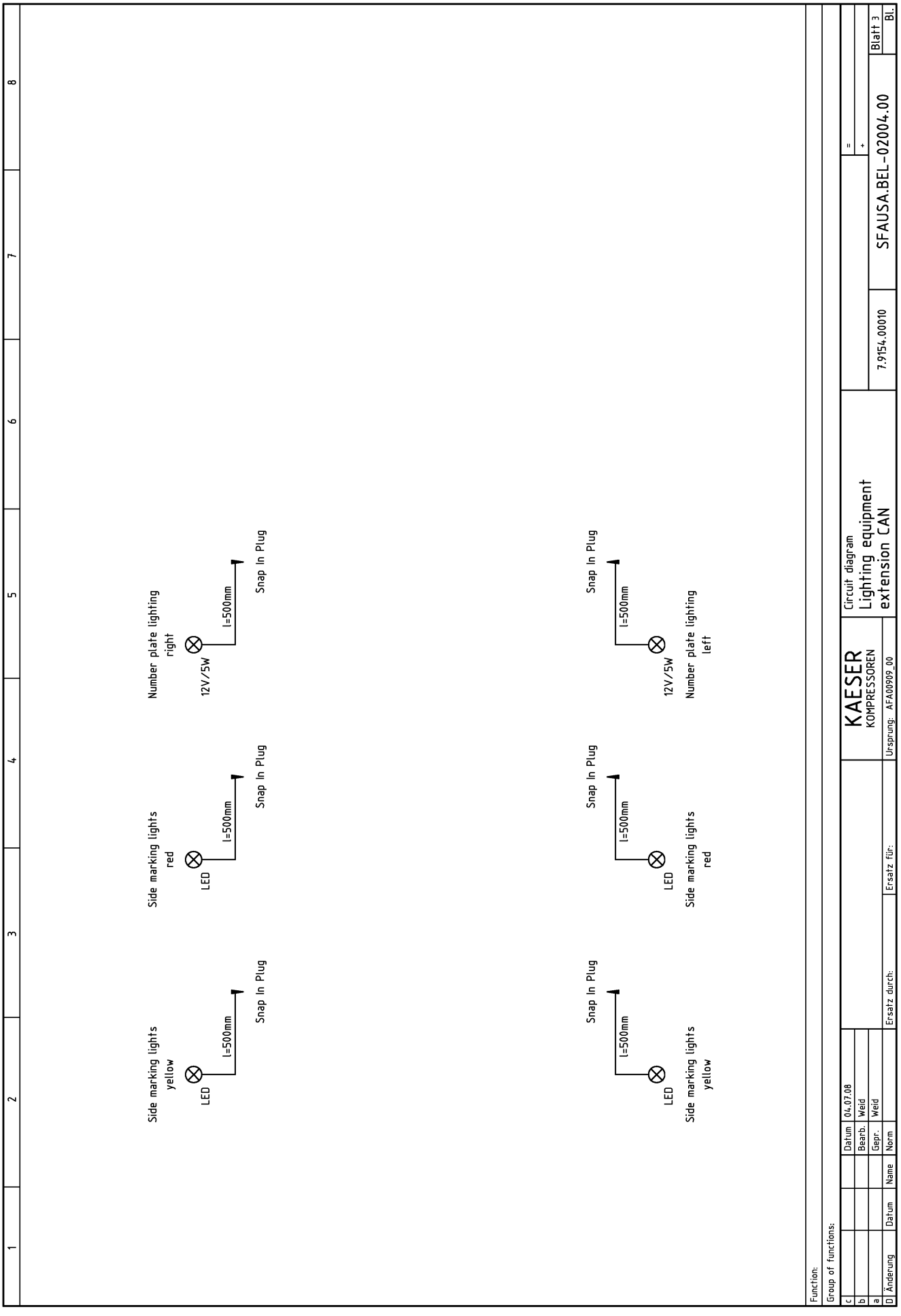
Manufacturer: Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg

c				Datum	04.07.08 E		KAESER KOMPRESSOREN	Cover page MOBILAIR Lighting equipment	=
b				Bearb.	Weid				+
a				Gepr.	Weid				
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung: AFA00909_00	DFAUSA.BEL-02004.00	Blatt 1 Bl.

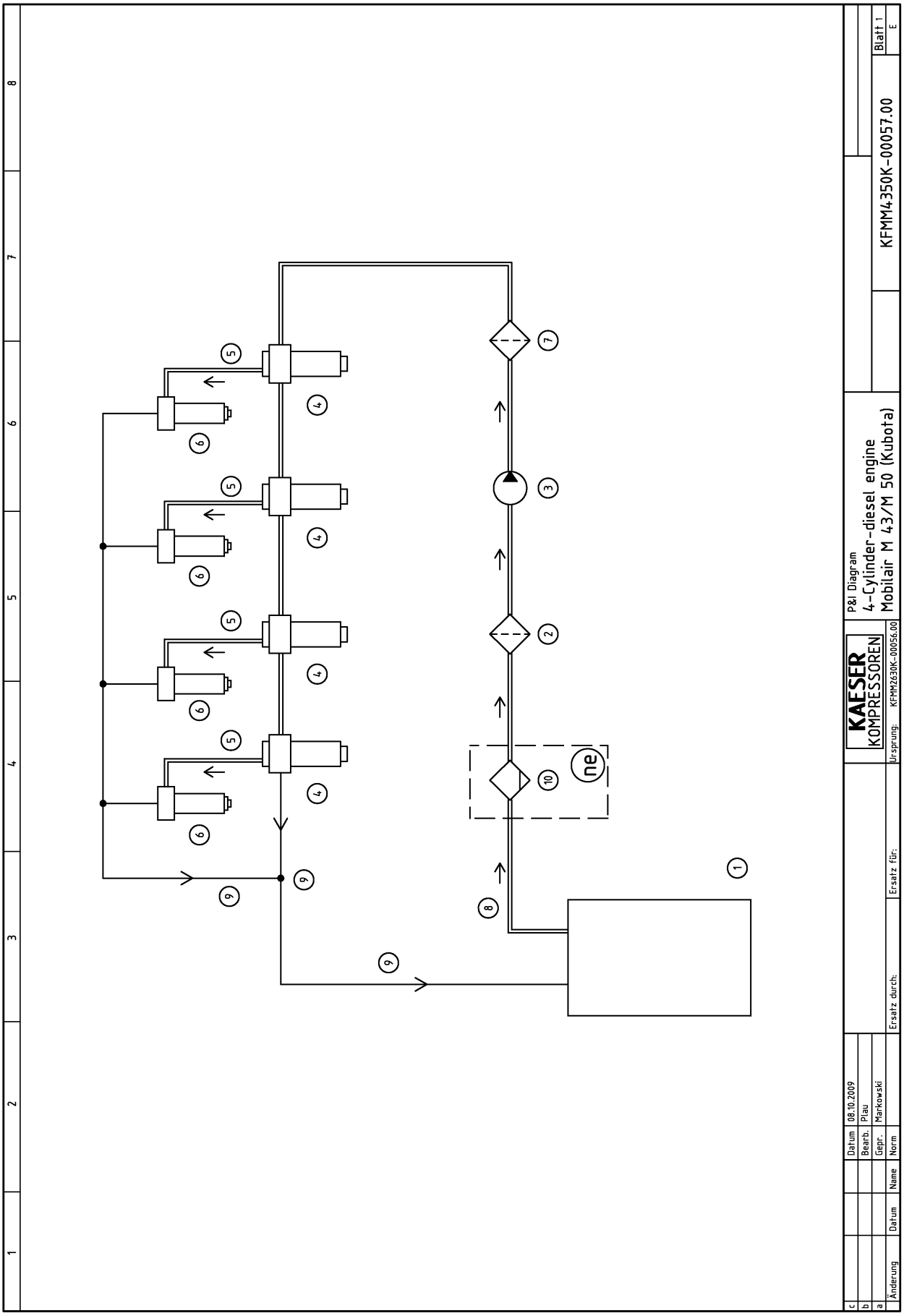


	L1 (mm)	L2 (mm)	L3 (mm)
7.9154.0	4500	2500	-----
7.9154.00010	-----	-----	3500


Direction indicator - right
Brake light - right
Rear light - right
Rear light - left
Brake light - left
Direction indicator - left
12V/21W
12V/5W
12V/5W
12V/21W
red
white
brown
black
red
white
-X42R
-X42L
Snap In Cable
Snap In Cable
-X41
-X40
-X41, -X42
Front view
Function:
Group of functions:
KAESER KOMPRESSOREN
Circuit diagram
Lighting equipment
USA
7.9154.0
SFAUSA.BEL-02004.00
Blatt 2
Datum 04.07.08
Bearb. Weid
Gepr. Weid
Norm
Name
Datum
Änderung
Ersatz durch:
Ersatz für:
Ursprung: AFA00909_00


Side marking lights
yellow
LED
l=500mm
Snap In Plug
Side marking lights
red
LED
l=500mm
Snap In Plug
Number plate lighting
right
12V/5W
l=500mm
Snap In Plug
Snap In Plug
l=500mm
Side marking lights
yellow
LED
Snap In Plug
l=500mm
Side marking lights
red
LED
Snap In Plug
l=500mm
Number plate lighting
left
12V/5W
Function:
Group of functions:
Datum 04.07.08
Bearb. Weid
Gepr. Weid
Name
Norm
Ersatz durch:
Ersatz für:
Ursprung: AFA00909_00
KAESER KOMPRESSOREN
Circuit diagram
Lighting equipment
extension CAN
7.9154.00010
SFAUSA.BEL-02004.00
Blatt 3
Bl.
Änderung
Datum

13.7 Fuel circulation diagram


P&I Diagram
4-Cylinder-diesel engine
Mobilair M 43/M 50 (Kubota)
KFMM4350K-00057.00
Blatt 1
KAESER KOMPRESSOREN
KFMM2630K-00056.00
Ursprung:
Ersatz für:
Ersatz durch:
Datum 08.10.2009
Bearb. Plau
Gepr. Markowski
Norm
Name
Datum
Änderung
ne

1	Fuel tank	7	Fuel filter
2	Fuel prefilter	8	Fuel supply line
3	Fuel feed pump	9	Fuel return line
4	Injection pump	10	Water separator
5	Injection pipe	Option	
6	Injection nozzle	ne	Water separator

c				Datum	08.10.2009		KAESER KOMPRESSOREN	P&I Diagram legend	
b				Bearb.	Plau			4-Cylinder-diesel engine	
a				Gepr.	Markowski			Mobilair M 43/M 50 (Kubota)	
	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: KFMM2630K-00056.00	KFMM4350K-00057.00 Blatt 2 E