

Service manual

Portable compressor

M122

No.: 9_6974 20 E

RAMIRENT

Manufacturer:

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Original instructions
/KKW/M122 2.00 en SBA-MOBILAIR

20110303 105803

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1 Regarding this document

1.1 Using this document

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

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

1.2 Further Documents

Further documents included with this operating manual are:

- Certificate of acceptance / operating instructions for the pressure vessel
- Declaration of Conformity in accordance with the applicable directive
- Engine documentation (not electric-motor-driven machines)

Missing documents can be requested from KAESER.

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

1.3 Copyright

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

1.4 Symbols and labels

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

1.4.1 Warnings

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

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

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

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

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

1 Regarding this document

1.4 Symbols and labels



DANGER

These show the kind of danger and its source.

The possible consequences of ignoring a warning are shown here.

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

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

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

For example,



1. **WARNING!**

These show the kind of danger and its source.

The possible consequences of ignoring a warning are shown here.

If you ignore the warning notice, the "WARNING" signal word indicates that a lethal or severe injury may occur.

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

2. Always read and comply with warning instructions.

1.4.2 Potential damage warnings

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

Warning notices for damages are identified by their signal term.

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

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

For example,



NOTICE

These show the kind of danger and its source.

Potential effects when ignoring the warning are indicated here.

- The protective measures against the damages are shown here.

- Carefully read and fully comply with warnings against damages.

1.4.3 Other alerts and their symbols



This symbol indicates particular important information.

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

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

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

1. In process instructions with several steps ...
2. ... the sequence of action steps is numbered.

Result Shows the expected conclusion of the previous action.

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



Information referring to potential problems are identified by a question mark.

The cause is named in the help text ...

➤ ... as is a solution.



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

Further information Further subjects are introduced here.

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2 Technical Specifications

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 here the nameplate data as a reference:

Feature	Value
Vehicle identity no.	
Permissible total weight	
Permissible coupling load	
Permissible axle load	
Portable compressor	
Material number	
Serial number:	
Year of manufacture	
Total weight	
Lifting point load capacity	
Rated motor power	
Engine speed	
Maximum working pressure	

Tab. 3 Nameplate

2.2 Options summary

A list of the options fitted to your machine helps to relate the information in this service manual. A list of options fitted is given as code letters on the right side of the coupling load / options label.

The label is to be found

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



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

M122	part number	Serial number:																																																																						
Here is given the specified coupling load.		Options fitted																																																																						
		<table border="1"> <tr><td>da</td><td>db</td><td>dc</td><td>dd</td><td>_</td></tr> <tr><td>ea</td><td>_</td><td>ec</td><td>_</td><td>_</td></tr> <tr><td>fa</td><td>_</td><td>fc</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>hc</td><td>hd</td><td>_</td></tr> <tr><td>ca</td><td>cb</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>ba</td><td>bb</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>la</td><td>lb</td><td>lc</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>oa</td><td>_</td><td>_</td><td>_</td><td>oe</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>si</td><td>sh</td></tr> <tr><td>sa</td><td>_</td><td>sc</td><td>sd</td><td>_</td></tr> <tr><td>ta</td><td>tb</td><td>tc</td><td>_</td><td>te</td></tr> <tr><td>sf</td><td>sg</td><td>_</td><td>pa</td><td>_</td></tr> </table>	da	db	dc	dd	_	ea	_	ec	_	_	fa	_	fc	_	_	_	_	hc	hd	_	ca	cb	_	_	_	ba	bb	_	_	_	la	lb	lc	_	_	_	_	_	_	_	oa	_	_	_	oe	_	_	_	_	_	_	_	_	si	sh	sa	_	sc	sd	_	ta	tb	tc	_	te	sf	sg	_	pa	_
da	db	dc	dd	_																																																																				
ea	_	ec	_	_																																																																				
fa	_	fc	_	_																																																																				
_	_	hc	hd	_																																																																				
ca	cb	_	_	_																																																																				
ba	bb	_	_	_																																																																				
la	lb	lc	_	_																																																																				
_	_	_	_	_																																																																				
oa	_	_	_	oe																																																																				
_	_	_	_	_																																																																				
_	_	_	si	sh																																																																				
sa	_	sc	sd	_																																																																				
ta	tb	tc	_	te																																																																				
sf	sg	_	pa	_																																																																				
		02-M0277																																																																						

Tab. 4 Combined label for coupling load and options fitted.

- Take a list of fitted options from the combined coupling load / options label and enter the fitted options as reference.

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

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

Tab. 5 Compressed air treatment options

**2.2.2 Option ea, ec
Tool lubricator**

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

Tab. 6 Tool lubricator option

**2.2.3 Option fa, fc
Compressed air distributor**

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

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

Tab. 7 Compressed air distributor option

2.2.4 Option hc, hd Check valve function

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

Tab. 8 Non-return option

2.2.5 Option ca, cb Proportional controller

Option	Option code	Available?
Without manual adjustment (7 bar)	ca	
With manual adjustment (≥ 10 bar)	cb	

Tab. 9 Proportional controller option

2.2.6 Option ba, bb Low temperature equipment

Option	Option code	Available?
Low temperature equipment	ba	
Low temperature equipment + engine coolant pre-heating	bb	

Tab. 10 Low temperature equipment options

2.2.7 Option lc Diesel particulate filter

Option	Option code	Available?
Diesel particulate filter	lc	

Tab. 11 Diesel particulate filter option

2.2.8 Option la, lb Equipment for fire hazard areas

Option	Option code	Available?
Spark arrestor	la	

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

Tab. 12 Optional equipment for fire hazard areas

2.2.9 Option oa Battery isolating switch

Option	Option code	Available?
Battery isolating switch	oa	

Tab. 13 Optional battery isolating switch

2.2.10 Option sa, sc, sd, sh, si Chassis

Option	Permissible axle load [kg]	Option code	Available?
Height adjustable towbar	1900	sa	
Fixed height towbar	1900	sd	
Fixed height towbar without parking brake	1900	sh	
Stationary, on skids	–	sc	
Stationary, on a base frame	–	si	

Tab. 14 Chassis options

2.2.11 Option ta, tb, tc, te Lighting

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

Tab. 15 Lighting options

2.2.12 Option oe Sealed floor pan

Option	Option code	Available?
Sealed floor pan	oe	

Tab. 16 Sealed floor pan

**2.2.13 Option sf
Anti-theft device**

Option	Option code	Available?
Anti-theft device	sf	

Tab. 17 Optional anti-theft device

**2.2.14 Option sg
Pedestrian protection**

Option	Option code	Available?
Pedestrian protection	sg	

Tab. 18 Pedestrian protection option

**2.2.15 Option pa
Instrument panel cover**

Option	Option code	Available?
Instrument panel cover	pa	

Tab. 19 Instrument panel cover option

2.3 Machine (without options)
2.3.1 Sound emission
2.3.1.1 Sound emission [dB(A)]

type	M122
Guaranteed sound power level* [dB(A)]	99

* To Directive 2000/14/EC

Tab. 20 Guaranteed sound power level [dB(A)]

type	M122
Emission sound pressure level* [dB(A)] According to EN ISO 11203: 1995 number 6.2.3.d.	81.0

Measuring distance: d = 1 m

Logarithmic surface ratio: Q2 = 18 dB(A)

* Calculated from the guaranteed sound power level (2000/14/EC Directive, Sound Emission Standard ISO 3744)

Tab. 21 Emission sound pressure level [dB(A)]

2.3.1.2 Sound pressure level [dB(A)]

The sound pressure level conforms to the US EPA Standard.

Measuring distance: 7 m

Sound Pressure Level	M122
Guaranties sound pressure level [dB (A)]	76

Tab. 22 Sound pressure level [dB(A)]

2.3.2 Torques

Recommended values for hexagonal bolts of strength category 8.8

Hex-head screws							
Thread	M6	M8	M10	M12	M14	M16	M18
Torque [Nm]	9,5	23	46	80	127	195	280

Tab. 23 Torques for hex-head screws

2.3.3 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [m]	1000
Minimum ambient temperature [°C]	-10
Maximum ambient temperature [°C]	+50

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

Tab. 24 Ambient conditions

2.3.4 Additional specifications according to the machine's operating licence

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

- dimensions,
- track width,
- footprint,

are to be found in the dimensioned drawing 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 Mass



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

Feature	Chassis		Stationary
	with	without	
Height adjustment	with	without	–
Actual total weight [kg]*			
Permissible axle load [kg]	1900	1900	–

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

Tab. 25 Mass of the machine

2.4.2 Tyres

Characteristic/markings	Value
Dekkdimensjon	195 R 14C
Maximum and recommended tyre pressure [bar]	4.5
Wheel bolts	M 12 x 1.5

Tab. 26 Tyres

2.4.3 Wheel nut/bolt tightening torque

Fixing medium	Thread	Wrench size	Torque [Nm]
Wheel bolt	M 12 x 1.5	19	90

Tab. 27 Wheel nut/bolt tightening torque

2.4.4 Towbar tightening torque

Components	Thread	Strength category	Torque [Nm]
Ball coupling	M16	8.8	210
Towing eye	M16	8.8	210
Towbar	M20	10.9	540–560
	M24	8.8	670–690

Tab. 28 Towbar tightening torque

2.5 Compressor

2.5.1 Working pressure and FAD

Maximum working pressure [bar]	7	8.6	10	12	14
SIGMA airend	29-G		27-G		
Free air delivery [m ³ /min]	11.1	10.1	9.5	8.2	7.3

Tab. 29 Working pressure and FAD

2.5.2 Compressed air outlet

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

Tab. 30 Compressed air distributor

2.5.3 Pressure relief valves

Maximum working pressure: see machine nameplate

Maximum working pressure [bar]	Activating pressure [bar]	
	Pressure relief valve *	Pressure relief valve **
7	9.5	–
8.6	10	–
10	14	12
12	15	14
14	16	15.5

* on the oil separator tank

** upstream of the compressed air outlet (option cb only)

Tab. 31 Pressure relief valve opening pressure

2.5.4 Temperature

Machine temperatures	Values
Recommended airend discharge temperature for switching to load [°C]	30
Typical airend discharge temperature during operation [°C]	75 100
Maximum airend discharge temperature (automatic safety shut-down) [°C]	115

Tab. 32 Machine temperatures

2.5.5 Cooling oil recommendation

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

Information on ordering cooling oil is found in chapter 11.

Characteristic	SIGMA FLUID	
Oil grade	S-460	MOL
Classification	Silicone-free, synthetic oil	Mineral oil

Characteristic	SIGMA FLUID	
Oil grade	S-460	MOL
Application	Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle.	Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a low duty cycle.
Approval	—	—
Viscosity at 40 °C	45 mm ² /s (D 445; ASTM test)	44 mm ² /s (DIN 51562-1)
Viscosity at 100 °C	7.2 mm ² /s (D 445; ASTM test)	6.8 mm ² /s (DIN 51562-1)
Flash point	238 °C (D 92; ASTM test)	220 °C (ISO 2592)
Density at 15 °C	864 kg/m ³ (ISO 12185)	—
Pour point	-46 °C (D 97; ASTM test)	-33 °C (ISO 3016)
Demulsibility at 54 °C	40/40/0/10 min (D 1401; ASTM test)	—

Tab. 33 Cooling oil recommendation

2.5.6 Cooling oil charge

Cooling oil	Fluid volume [litre]
Machine	22
Compressor unit + heat exchanger (Option db)	25

Tab. 34 Cooling oil charge

2.6 Engine

2.6.1 Engine data

Feature	Specification
Make/Model	Deutz / TCD 2012 L04
Engine control	Mechanical
Fuel injection	Mechanical
Rated engine power [kW]	83
Speed at LOAD mode [min ⁻¹]	2300
speed at IDLE mode [min ⁻¹]	1600

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

Feature	Specification
Type of fuel	Diesel *
Fuel consumption under LOAD mode [l/h]	20.5
Oil consumption related to fuel consumption [%]	approx. 0.5

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

Tab. 35 Engine data

2.6.2 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 [°C]	Viscosity class
-30 30	SAE 0W-30 SAE 5W-30
-30 50	SAE 0W-40 SAE 5W-40
-20 30	SAE 1 W-30
-30 50	SAE 10W-40
-15 50	SAE 15W-40
-5 50	SAE 20W-50

Tab. 36 Engine oil recommendation

Option Ic Recommended oil for engines with diesel particulate filters

The engine oil must meet the following classification:

- ACEA, class E6
- API, class CJ-4

Ambient temperature [°C]	Viscosity class	Approved by the manufacturer.
-20 +50	SAE 10W-40	Shell Rimula Signia 10W-40 *

* Use only engine with low white ash build up.

Tab. 37 Recommended oil for engines with diesel particulate filters

2.6.3 Recommended Cooling Fluid

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



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

The engine service manual gives further information on coolant application.

2.6.4 Fluid volumes

Description	Fluid volume [litre]
Engine oil	11.0
Fuel	170.0
Coolant	18.0

Tab. 38 Fluid volumes

2.6.5 Batteries

Feature	Value
Voltage [V]	24 (2 x 12)
Capacity [Ah]	2 x 80
PTC testing current [A] (according to EN 50342)	640

Tab. 39 Batteries

Further information Depending on machine equipment, a higher capacity battery may be required. See chapter 2.7.3.

2.7 Options

2.7.1 Option ea, ec Tool lubricator

Name	Temperature range [°C]	Fluid volume [l]
Special road breaker lubricant	-25 50	2.5

Tab. 40 Road breaker lubricant recommendation

2.7.2 Option dc Fresh air filter

Feature	Value
Maximum working pressure [bar]	16
Minimum ambient temperature [°C]	1.5
Maximum ambient temperature [°C]	30

Tab. 41 Fresh air filter conditions

2.7.3 Option ba
Low temperature equipment
2.7.3.1 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [m]	1000
Minimum ambient temperature [°C]	-25
Maximum ambient temperature [°C]	+50

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

Tab. 42 Environmental conditions, low temperature equipment

2.7.3.2 Compressed air line frost protection

Antifreeze	Fluid volume [litre]
Wabcothyl	0.3

Tab. 43 Recommended antifreeze

2.7.3.3 Batteries

Feature	Value
Voltage [V]	24 (2 x 12)
Capacity [Ah]	2 x 100
PTC testing current [A] (according to EN 50342)	850

Tab. 44 Batteries, low-temperature equipment

2.7.3.4 Option bb
Coolant pre-heating

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

Tab. 45 Coolant pre-heater

2.7.4 Option lc
Diesel particulate filter

Feature	Data
Fuel	Diesel *
Operating voltage [V]	12
Filter element	SiC monolith

* Use only diesel fuel to EN 590 or ASTM D975. Consult the engine manufacturer on the use of additives.

Feature	Data
Degree of particle separation [%] (by mass)	≥99 (elementary carbon)
Ambient temperature [°C]	-20 +50
Protection rating	IP 65

* Use only diesel fuel to EN 590 or ASTM D975. Consult the engine manufacturer on the use of additives.

Tab. 46 Diesel particulate filter data

RAMIRENT

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.

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 vapours.
- Do not operate the machine in areas in which specific requirements with regard to explosion protection are in force.

3.4 User's Responsibilities

3.4.1 Observe statutory and universally accepted regulations

These are, for example, nationally applied European directives and/or valid national laws and safety and accident prevention 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.

Authorised operators possess the following qualifications:

- are of legal age,
- are conversant 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.

Authorised maintenance personnel possess the following qualifications:

- are of legal age,
- have read, are conversant with and adhere to the safety instructions and sections of the service manual applicable to maintenance,
- are fully conversant 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.

Authorised transport personnel possess the following qualifications:

- are of legal age,
- are conversant with and adhere to the safety instructions and sections of the service manual relevant to transporting,
- are trained and authorised in safe vehicle transporting,
- are conversant with the safety regulations relating to handling motor vehicles and transport goods,
- are able to recognise 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.

Examples of German operation

- Have the pre-commissioning inspection carried out according to the Ordinance on Safety and Health, paragraph 14.
- Recurring inspections according to BGR 500, chapter 2.11:
The user must ensure that the machine's safety devices are checked for function as required or at least annually.

- Carry out oil changes to BGR 500, chapter 2.11.
The user must ensure that the cooling oil is changed as required or at least annually and the oil change must be documented. Intervals may be varied if an analysis proves that the oil is still usable.
- Keep to inspection intervals in accordance with the Ordinance on Industrial Safety and Health with maximum intervals as laid down in §15.

Inspection	Inspection interval	Inspecting authority
Equipment inspection	Before commissioning	Approved supervisory body
Internal inspection	Every 5 years after commissioning or the last inspection	Competent person (e. g. KAESER Service Technician)
Strength test	Every 10 years after commissioning or the last inspection	Competent person (e. g. KAESER Service Technician)

Tab. 47 Inspection intervals according to regulations

Checking the lifting point

The user is responsible for ensuring that the machine's lifting point and fixings are inspected according to national regulations for wear and damage.

- Have the lifting point checked.
If the lifting point and fixings are not fully in order the machine may not be lifted in this way.
Have the machine repaired immediately.

3.4.4 Option Ic Complying with inspection intervals for diesel particulate filters

The machine is subject to local inspection schedules. Inspecting authority: e.g. KAESER Service.

- Have the TRGS 554 inspection carried out annually and the TÜV (or local equivalent) every two years.

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 colour- and odour-less but highly toxic gas. The inhalation of minute quantities can be lethal.

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

- Do not inhale exhaust fumes.
- Never use the machine in enclosed spaces, only in the open.
- Direct the exhaust fumes to the open air with a pipe of at least 100 mm diameter.

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 re-fueling.
- Never refuel the machine when it is running.
- Do not allow fuel to overflow.
- Wipe up spilled fuel immediately.
- Provide a fire extinguisher in the immediate vicinity.
- For the operation in combustible environment, fit the machine with an exhaust silencer (Option Ia).

Hot coolant

The cooling system of a liquid-cooled engine at running temperature is under high pressure. Coolant can spray out when the filler cap is opened causing 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 death.

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

Forces of compression

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

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

Compressed air quality

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

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

Spring force

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

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

- Do not open or dismantle any valves.

Rotating components

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

- Do not open the access doors and cover panels while the machine is running.
- Switch off and lock out the machine and check that no voltage is present before opening the access doors or canopy.
- Wear close-fitting clothes and a hair net if necessary.
- Make sure all covers and safety guards are in place and secured before 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, for example, engine, compressor aircend, oil and compressed air lines, coolers and oil separator tank. Any objects in or near the flow of exhaust gas or discharged cooling air will become very hot.
- Wear protective clothing.
- Wear protective gloves when connecting or disconnecting compressed air hoses.
- Allow the machine to cool down before commencing any maintenance work.
- When welding is taking place on or near the machine take adequate measures to ensure that no parts of the machine or any oil vapours can ignite because of sparks or heat.

Noise

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

- Operate the machine only with closed bodywork and intact sound insulation.
- Wear hearing protection if necessary.
The pressure relief valve blowing off can be particularly loud.

Operating fluids/materials

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

- Strictly forbid fire, open flame and smoking.

- Follow safety regulations when dealing with fuel, lubricants, antifreeze and chemical substances.
- Avoid contact with skin and eyes.
- Do not inhale fumes or vapours from fuel or oil.
- Do not eat or drink while handling fuel, cooling and lubricating fluids or antifreeze.
- Suitable fire extinguishing material must be to hand.
- Use only KAESER approved operating materials.

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

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

Conversion or modification of the machine

Modifications, additions to and conversions of the machine can result in unpredictable dangers.

- Do not convert or modify the machine!
- Do not fit 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.
- Obtain written approval by the manufacturer prior to any technical modification or expansion of the machine.

3.5.2 Safe machine operation

Information on conduct that will help in handling the machine safely is given here.

Personal protective equipment

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

- Wear protective clothing as necessary.

Suitable protective clothing (examples):

- Safety workwear
- Protective gloves
- Safety boots
- Eye protection
- Ear protection

3.5.2.1 Transporting

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

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

Transport as trailer

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

- The maximum permissible load for the towing vehicle coupling and the maximum coupling load given for the machine must not be exceeded.
- Avoid causing a shift in the centre of gravity by an excessive or incorrectly distributed load.
- Do not tow in a manner that will impose excessive stress on the machine or chassis.
- Adjust towing speed to accommodate ground conditions. This applies particularly to unpaved roads and when taking curves.
- The towbar must be parallel with the ground otherwise towing instability can develop, resulting in damage to the machine and/or towing vehicle.
- Before moving the machine, make sure any security devices (e.g. anti-theft chain) are released.

Transport as trailer on public roads

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

Transporting with a crane

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

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



The following are forbidden:

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

3.5.2.2 Positioning

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

- Do not position the machine directly against a wall. A build up of heat from the exhaust can damage the machine.

- Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- Do not operate in areas in which specific requirements with regard to explosion protection are applied.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure adequate ventilation.
- Place the machine in such a manner that the working conditions in its environment are not impaired.
- Comply with limit values for ambient temperature and humidity.
- The intake air must not contain any damaging contaminants,

Damaging contaminants are for instance:

- Exhaust gasses from internal combustion engines,
 - flammable, explosive or chemically instable gases and vapours,
 - Acid or base forming substances such as ammonia, chlorine or hydrogen sulfide.
- Do not position the machine in warm cooling outlet air 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.

- Allow maintenance work to be carried out only by authorised personnel.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Switch off the machine and lock out the supply disconnecting device.
- Wait until the compressor has automatically vented (check: The pressure gauge must read 0 bar!)
- Then open the outlet valve carefully to ensure that the line between the minimum pressure / check valve and the compressed air outlet is vented.
- Allow the machine to cool down.
- Do not open the bodywork while the machine is switched on.
- Do not open or dismantle any valves.
- Use only spare parts approved by KAESER for use in this machine.
- Carry out regular inspections:
 - for visible damage and leakage,
 - of safety devices,
 - of the EMERGENCY STOP device,
 - of parts needing monitoring.
- Pay particular attention to cleanliness during all maintenance and repair work. Cover components and openings with clean cloths, paper or tape to keep them clean.
- Do not leave any loose components, tools or cleaning rags on or in the machine.

- Components removed from the machine can still be dangerous:
Do not attempt to open or destroy any components taken from the machine.
- Use only suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- that are of the right type and size for the highest permissible machine working pressure,
 - that are not damaged, worn or of reduced quality,
 - that have hose couplings and connections of the right type and size.
- Make sure compressed air hoses are de-pressurised before disconnecting from the machine.
 - Secure the open end of an air hose before applying air pressure. An unsecured hose may whip and cause injury.
 - At working pressures >7 bar, compressed air hoses should be secured by a cable to their respective outlet valves.

3.5.2.4 De-commissioning, storage and disposal

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

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

3.5.3 Organisational 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 3 m radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine.	Maintenance personnel
	Within a 1 m radius of the machine.	
Operation	Within a 1 m radius of the machine.	Operating personnel
Maintenance	Within the machine.	Maintenance personnel
	Within a 1 m radius of the machine.	

Tab. 48 Danger areas

3.6 Safety devices

Various safety devices ensure safe working with the machine.

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

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

3.7 Safety signs

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

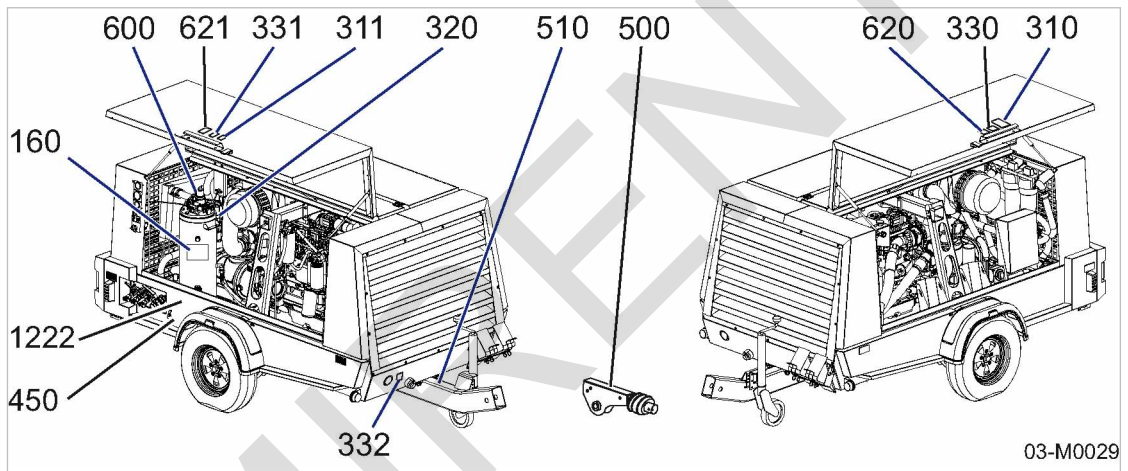









Fig. 1 Location of safety signs

Item	Sign	Meaning
160*		Incorrect oil levels can cause damage to the machine or excessive oil content in the compressed air! ➤ Check the oil level regularly and correct as necessary.
310 311		It is forbidden to run the machine with open access doors or panels. Personal injury or machine damage can result from an open machine enclosure. ➤ Operate only with the enclosure fully closed. ➤ Transport only with the enclosure fully closed.
320*		Loud noise and oil mist! Hearing damage and burns from relief valve blow off. ➤ Wear hearing protectors and protective clothing. ➤ Close the canopy or doors. ➤ Work with caution.

* Location within the machine

** Portable machines only



*** Only machines with option dc

Item	Sign	Meaning
330 331		Hot surface! Risk of burns caused by contact with hot components! <ul style="list-style-type: none"> ➤ Do not touch the surface. ➤ Wear long-sleeved garments (not synthetics such as polyester) and protective gloves.
332		Hot surfaces and dangerous gasses! Burns from contact with hot components or gasses. <ul style="list-style-type: none"> ➤ Do not touch the surface. ➤ Wear long-sleeved garments (not synthetics such as polyester) and protective gloves. ➤ Do not inhale dangerous gases.
450		Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected. <ul style="list-style-type: none"> ➤ Connect a compressed air hose. ➤ Open the ball valve.
500**		Risk of accident from unstable towing! Injury and machine damage possible. <ul style="list-style-type: none"> ➤ The compressor towbar must be parallel with the ground when coupled to the towing vehicle. ➤ Note instructions in the service manual regarding transporting.
510**		Malfunction due to insufficient maintenance. Injury and machine damage possible. <ul style="list-style-type: none"> ➤ Regularly maintain the chassis. ➤ Note the instructions in the operating manual regarding the chassis.
600*		Risk of fatal injury caused by dismantling valves (spring-loaded or under pressure)! <ul style="list-style-type: none"> ➤ Do not open or dismantle valves. ➤ Call an authorised Service Technician in the event of a fault.
620 621		Risk of serious lacerations or even severing of extremities (fingers) from rotating components. <ul style="list-style-type: none"> ➤ Operate the machine only with closed safety guards, access doors and panels. ➤ Shut down the machine before opening a door or canopy.

* Location within the machine

** Portable machines only

*** Only machines with option dc

Item	Sign	Meaning
1222***		Danger! Mortal danger from CO, CO ₂ or toxic gas. ➤ Draw in only surrounding air of breathing quality.
		Danger! Danger to health from discharge of oily compressed air. ➤ Maintain surrounding air temperature between +1.5 °C and 30 °C. ➤ Check the oil indicator at least once a day.

* Location within the machine

** Portable machines only

*** Only machines with option dc

Tab. 49 Safety signs

3.8 Emergencies

3.8.1 Correct fire fighting

Suitable measures

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

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

Extinguishing substances

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

3.8.2 Injury from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- fuel
- Lubricating oil
- Compressor cooling oil
- Engine coolant
- Battery electrolyte

- Tool lubricant (option e)
- Antifreeze (option ba)

Eye contact

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

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

Skin contact

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

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

Inhalation

Fuel and oil vapours impair breathing.

- Clear the respirator tract from fuel or oil vapour.
- 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 service 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,
- unauthorised 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 Environment protection

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

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

RAMIRENT

4 Design and Function

4.1 Bodywork

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

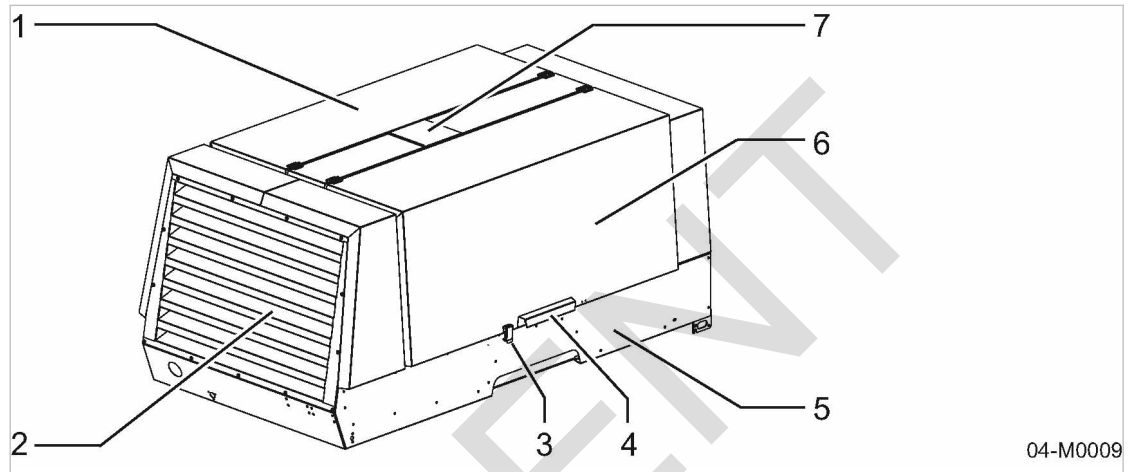


Fig. 2 Bodywork

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

The bodywork has several functions when it is closed:

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

The bodywork is not suitable for the following uses:

- Persons walking, standing or sitting on the machine.
- Use as resting place or storage of any kind of load.

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

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

The doors are held open by gas springs.

4.2 Machine installation

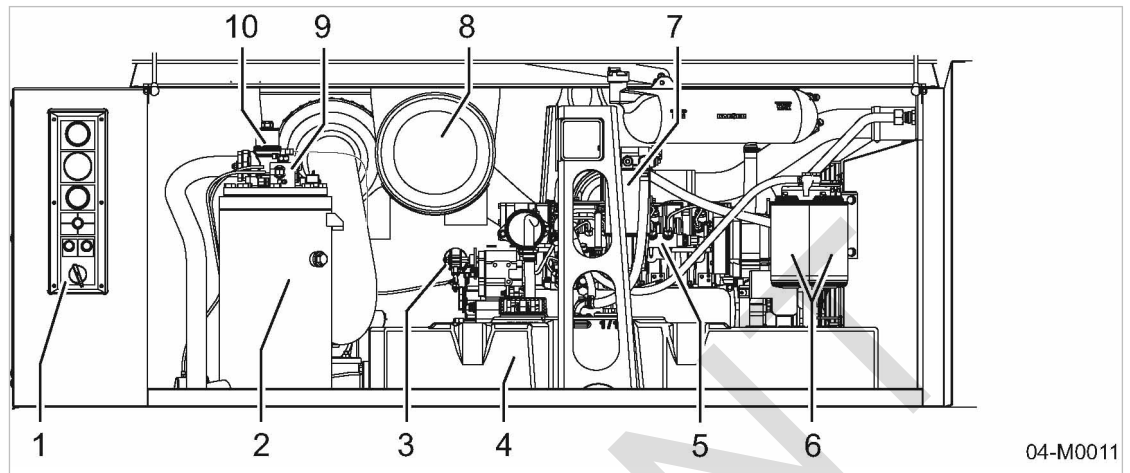


Fig. 3 Right-hand door opened

- | | |
|---------------------------------|--|
| ① Instrument panel | ⑥ Fuel filter. |
| ② Oil separator tank | ⑦ Fuel filter with water trap |
| ③ Engine speed control cylinder | ⑧ Engine air filter |
| ④ Fuel tank | ⑨ Control valve with proportional controller |
| ⑤ Drive motor | ⑩ Minimum pressure/check valve |

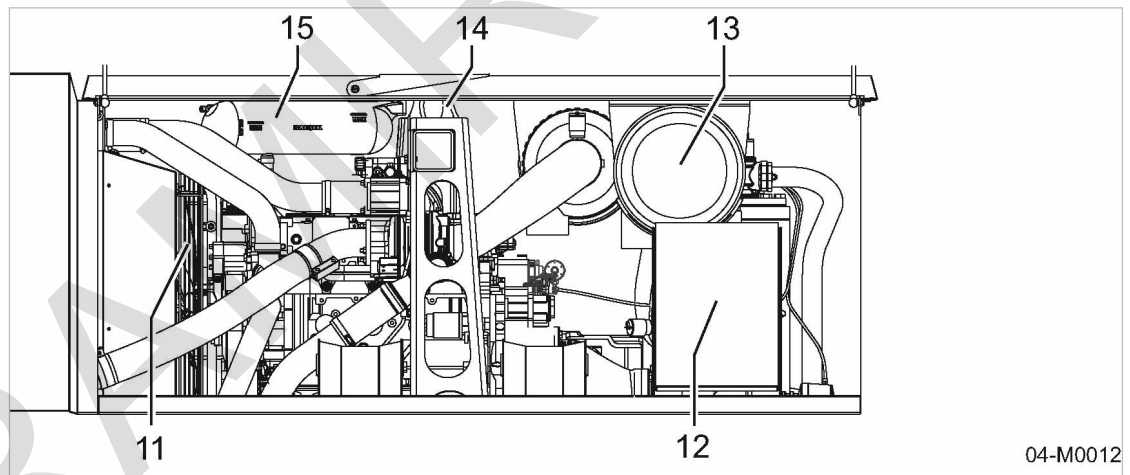


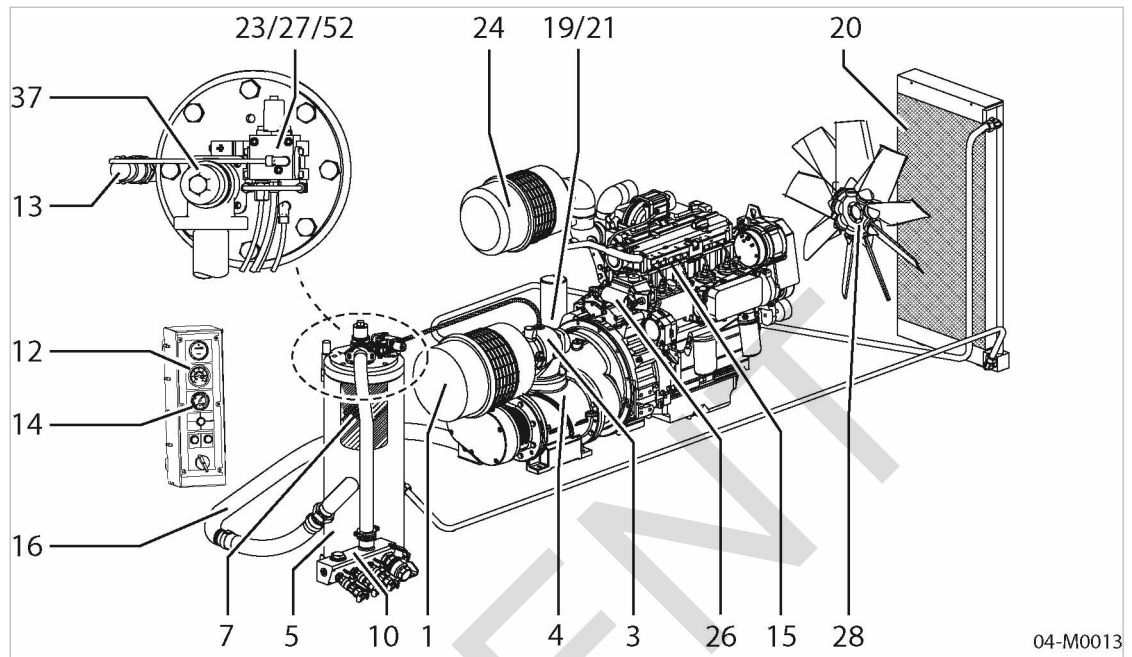
Fig. 4 Left-hand door opened

- | | |
|----------------------------|--------------------------|
| ⑪ Fan | ⑭ Lifting eye |
| ⑫ Electric control cubicle | ⑮ Coolant expansion tank |
| ⑬ Compressor air filter | |

4.3 Machine function

Machine function (without options)

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


Fig. 5 Machine layout

- | | |
|------------------------------|--|
| ① Compressor air filter | ⑲ Combination valve (thermostatic valve) |
| ③ Inlet valve | ⑳ Oil cooler |
| ④ Airend | ㉑ Oil filter |
| ⑤ Oil separator tank | ㉓ Proportional controller |
| ⑦ Oil separator cartridge | ㉔ Engine air filter |
| ⑩ Compressed air distributor | ㉖ Engine speed control cylinder |
| ⑫ Temperature gauge switch | ㉗ Venting valve |
| ⑬ Pressure relief valve | ㉘ Fan |
| ⑭ Pressure gauge | ㉙ Minimum pressure/check valve |
| ⑮ Drive motor | ㉚ Control valve |
| ⑯ Oil return line | |

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

The air is then compressed in the airend ④.

The airend is driven by an internal combustion engine ⑮.

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

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

Compressed air, freed of cooling oil in the oil separator tank ⑤, flows through the minimum pressure / check valve ㉙ into the air distributor ⑩. The minimum pressure / check valve ensures that there is always a minimum internal pressure sufficient to maintain cooling oil circulation in the machine.

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

4.4 Operating modes and control modes

4.4.1 Operating modes

The machine operates in the following modes:

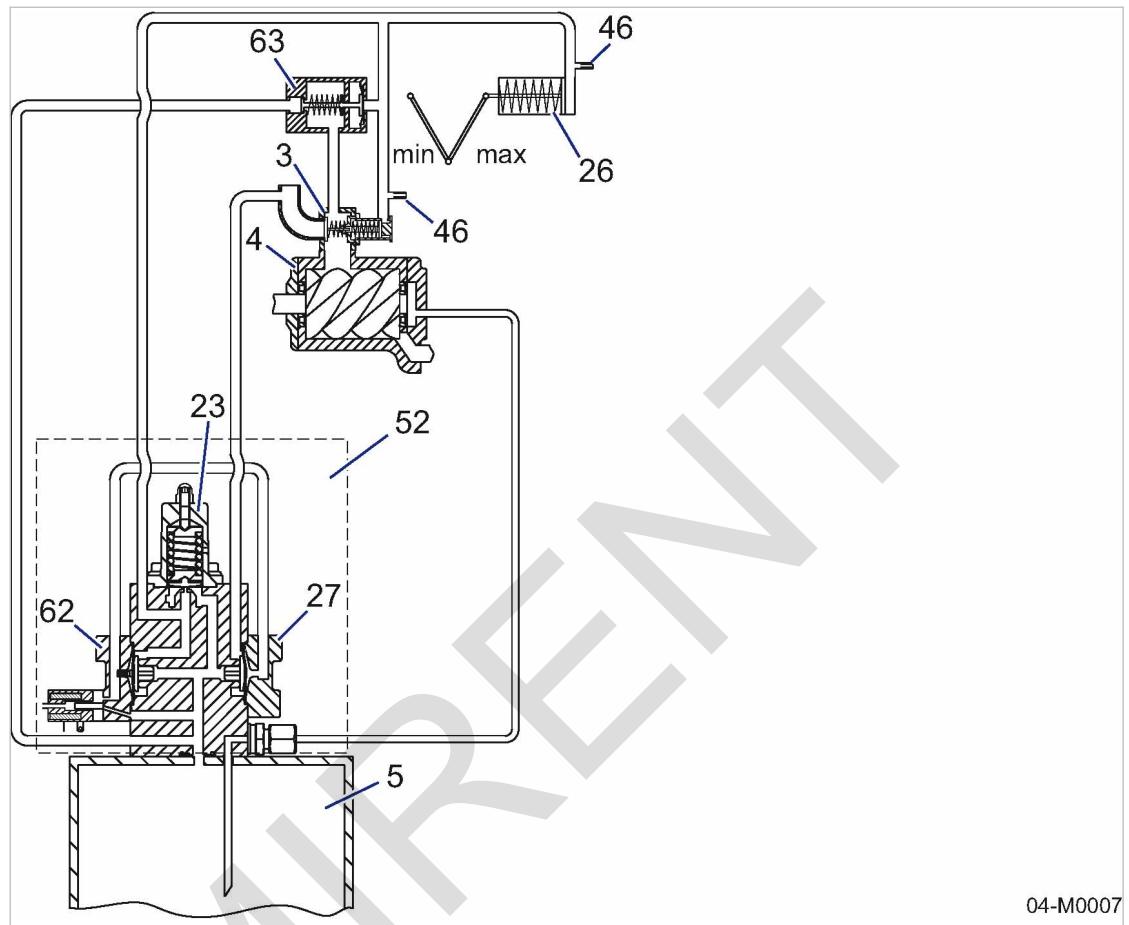
- **LOAD**
 - The inlet valve is open.
 - The engine runs at maximum speed.
 - The compressor block delivers compressed air.
- **MODULATING**
 - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is steplessly varied in response to the air demand.
 - The load and fuel consumption of the engine rises and falls with the air demand.
 - The compressor block 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 compressor block, 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 de-pressurise the machine.
 - The engine stops.

4.4.2 PART LOAD 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 compressor block provides compressed air for connected consumers.

This stepless delivery regulation minimises fuel consumption of the engine. Motorbelastningen og drivstofforbruket stiger/faller med trykkluftbehovet.



04-M0007

Fig. 6 Stepless regulation of FAD (standstill)

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

4.5 Safety devices

4.5.1 Monitoring functions with shutdown

The following functions are monitored automatically.

- Engine oil pressure
- Coolant temperature
- Air end discharge temperature
- Fuel level
- Engine alternator



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

4.5.2 Further safety devices

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

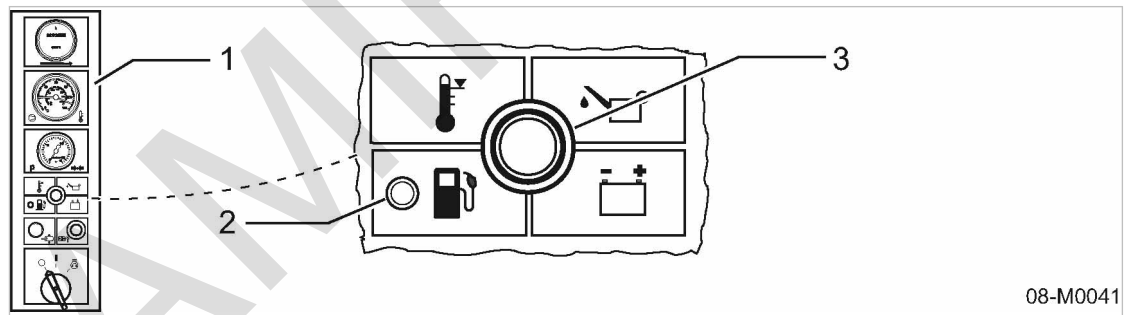
- Pressure relief valves
Pressure relief valves protect the system against unacceptable pressure rise. They are factory set.
- Enclosures and guards for moving parts and electrical connections
protect against accidental contact.

4.6 Fuel level monitoring

The *Fuel level monitoring* indicating lamp on the instrument panel is used for monitoring the fuel level within the system.



This combined indicating lamp signalises:

- when the filling level in the fuel tank falls below the recommended level
- and/or
- the filling level in the fuel pre-filter is exceeded (water trap).



08-M0041

Fig. 7 Fuel level monitoring

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

4.6.1 Fuel level monitoring

When the fuel level drops to a certain point (reserve), the combined indicating lamp *Fuel level monitoring* on the instrument panel lights.

It signalises that the fuel tank requires filling.

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

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



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

4.6.2 Fuel pre-filter level monitoring

When the fuel level in the pre-filter (water trap) drops to a certain point, the combined indicating lamp *Fuel level monitoring* on the instrument panel lights. It indicates that the water trap must be emptied immediately.

Further information See chapter 10.3.3 for the maintenance of the fuel pre-filter (water trap).

4.7 Options

The options available for your machine are described below.

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

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

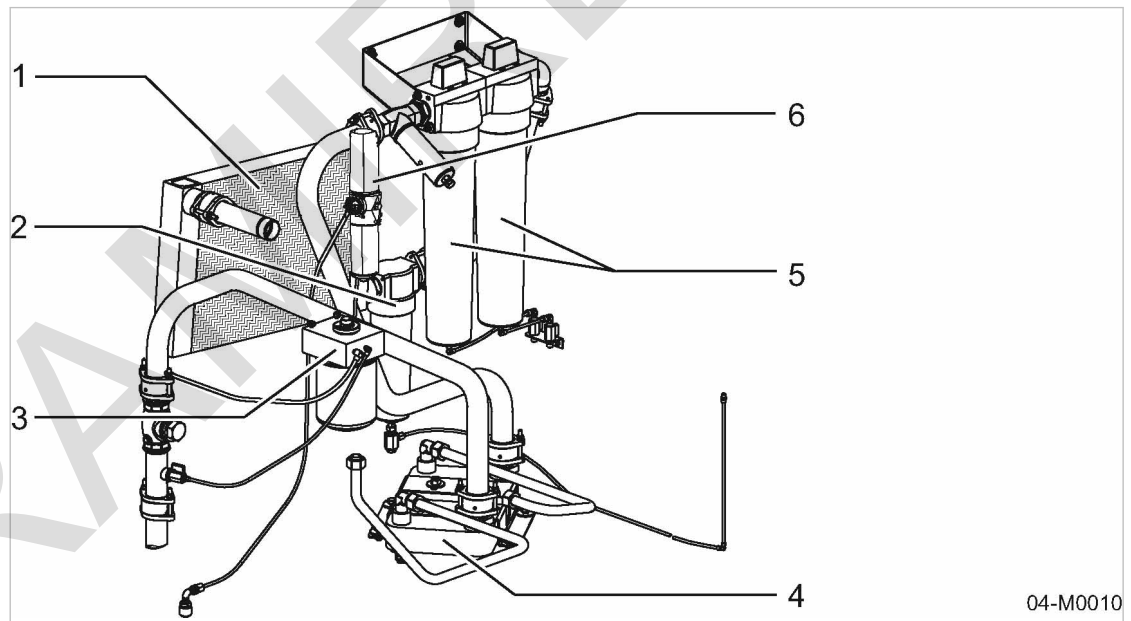


Fig. 8 Compressed air options

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

4.7.1.1 Option da Compressed air aftercooler

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

4.7.1.2 Option da
Cyclone separator

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

4.7.1.3 Option db
Heat exchanger

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

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

4.7.1.4 Option dd
Filter combination

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

4.7.1.5 Option dc
Fresh air filter

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

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

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

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

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

**DANGER**

Danger from toxic air!

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

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



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

Further information See chapter 2.7.2 for ambient conditions under which the fresh air filter can be used.

4.7.1.6 Option ea, ec
Tool lubricator

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

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

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

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

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

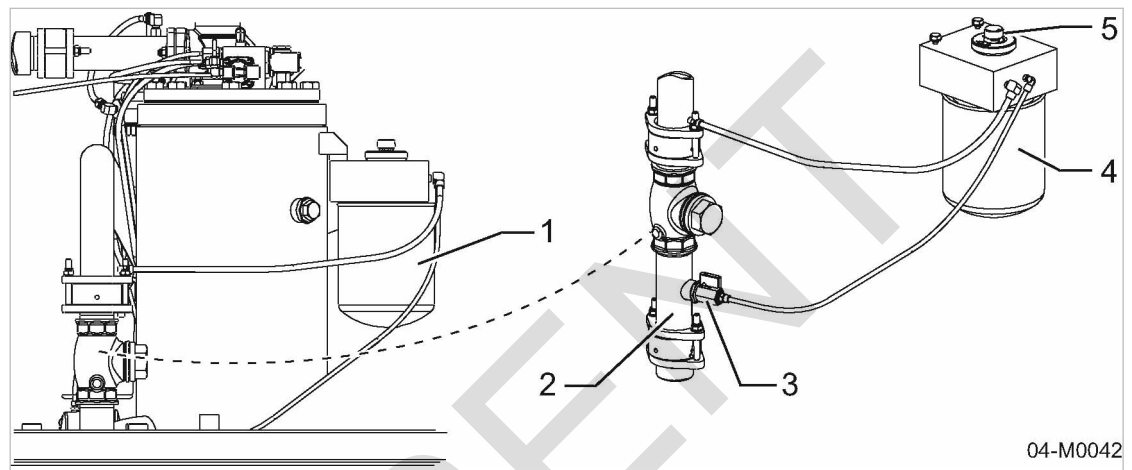


Fig. 9 Tool lubricator

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

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



NOTICE

Lubrication with tool oil.

Air tools that must not be lubricated can be damaged.

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

**4.7.2 Option ba, bb
Low temperature equipment options**

Special equipment is provided for operation in extremely low temperatures.

This equipment guarantees machine operation at temperatures from -25 °C..... +50 °C .

The electrical system enables trouble-free engine starting at ambient temperatures down to -20 °C.

**4.7.2.1 Option ba
Frost protection**

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

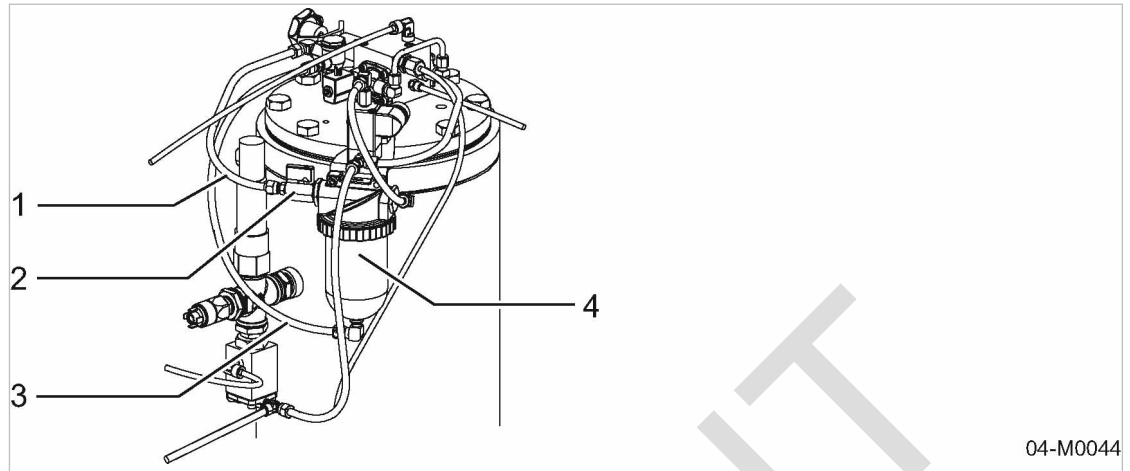


Fig. 10 Frost protector

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

Operating the machine in cold temperatures:

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

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

Machine operation in Summer:

Anti-freeze is not required for the regulating air at ambient temperatures of more than 0 °C.

**4.7.2.2 Option bb
Coolant pre-heating**

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

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

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

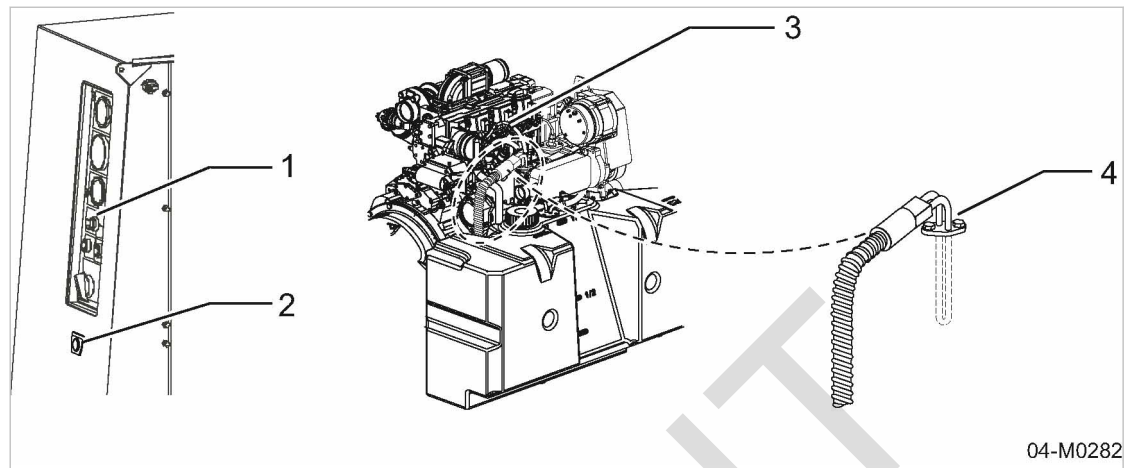


Fig. 11 Coolant pre-heating

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

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

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

4.7.3 Option oa Optional battery isolating switch

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



NOTICE

Danger of short circuit!

Damage to the machine electrics 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.

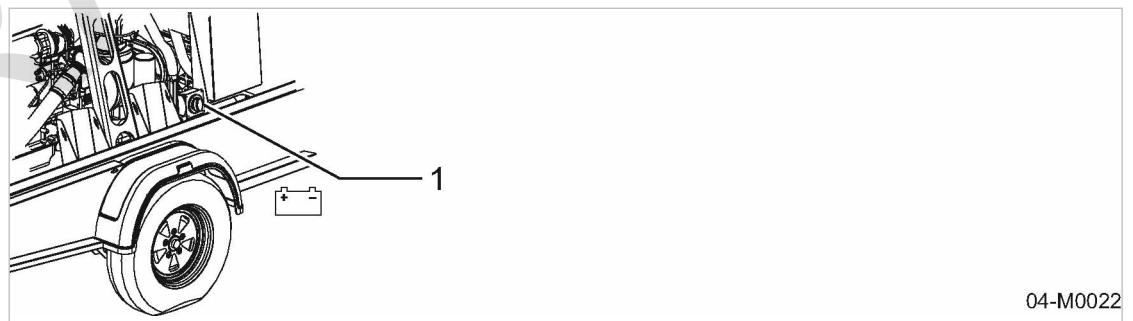


Fig. 12 Battery isolating switch

- ① «Battery isolating switch»

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 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.

Manual actuating the engine air shut-off valve:

The engine air intake shut-off valve may also be operated manually. Pulling a wire pull lever closes the intake valve.



NOTICE

Thermal overload of the engine!

Damage to the turbo charger by abrupt engine shutdown after high loading.

- Use the wire pull handle only in an emergency when the surrounding air contains a flammable gas.
- Do not use the wire pull handle as the normal means of shutting down the machine.



04-M0446

Fig. 13 Pull handle of engine air shut-off valve

- ① Handle

4.7.5 Option Ic Diesel particulate filter option

The exhaust from a diesel engine contains invisible particles that are dangerous to health. The diesel particulate filter reduces the amount of particles (mostly soot), protecting human health and the environment.

The diesel particulate filter is integrated in the engine's exhaust system. The engine exhaust flows through the filter module and nearly all the damaging particles are trapped. A control unit monitors the function of the diesel particulate filter system.

When the filter medium has trapped a specific amount of soot, it is regenerated while the machine is under LOAD. The control unit initiates and monitors the regeneration process. Diesel fuel is injected into the exhaust stream. This causes a special catalyst to heat the exhaust gas to over 550 °C and the soot is burnt off the filter medium in CO₂.

The machine is shut down if the back pressure in the exhaust exceeds a specific value.

General design

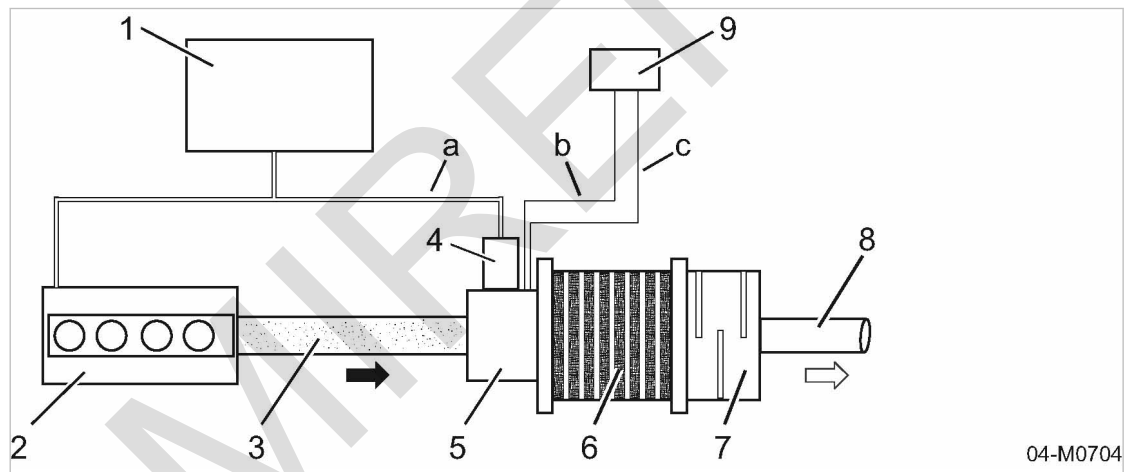


Fig. 14 General design of the diesel particulate filter system

- | | |
|---|-----------------------------------|
| ① Fuel tank | ⑦ Silencer module |
| ② Diesel engine | ⑧ Outlet of cleaned exhaust gas |
| ③ Exhaust pipe with contaminated gases. | ⑨ Electronic control unit |
| ④ Diesel injection | ⓐ Fuel line |
| ⑤ Oxidizing catalytic converter | ⓑ Exhaust back pressure monitor |
| ⑥ Filter module | ⓒ Exhaust gas temperature monitor |



The diesel particulate filter system meets the requirements of TRGS 554, TA and VERT (Switzerland).

4.7.6 Option sa, sc, sd, sh, si Transport options

4.7.6.1 Option sa Chassis

The chassis has the following features:

- Single-axle

- Rubber-spring axle
- Height-adjustable towbar

**4.7.6.2 Option sd
Chassis**

The chassis has the following features:

- Single-axle
- Rubber-spring axle
- Fixed height towbar

**4.7.6.3 Option sh
Chassis**

The chassis has the following features:

- Single-axle
- Rubber-spring axle
- Fixed height towbar
- Without parking brake

**4.7.6.4 Option sc
Stationary frame**

The frame has the following features:

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

**4.7.6.5 Option si
Stationary frame**

The frame has the following features:

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

**4.7.7 Option oe
Closed floor pan option**

The machine is fitted with a closed 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.

Position of service openings in the closed floor pan:

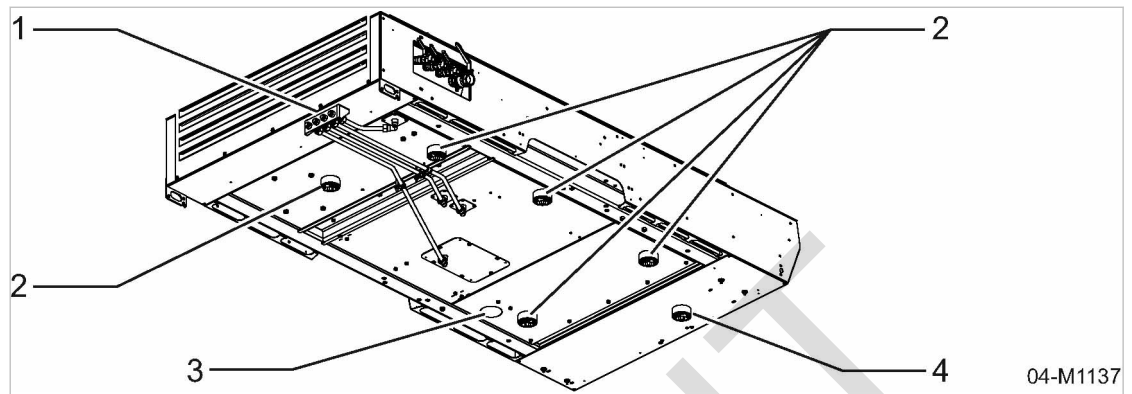


Fig. 15 Position of service openings in the closed floor pan

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

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

Position of drains for oil and coolant from engine and compressor

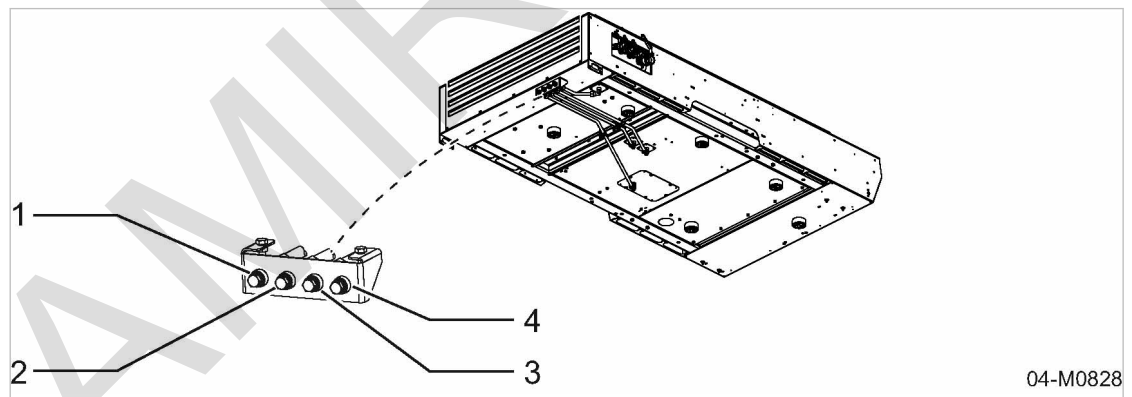


Fig. 16 Drains for oil and coolant from engine and compressor

- | | |
|---|--|
| ① Engine oil drain | ③ Coolant drain - water cooler engine |
| ② Coolant drain - oil cooler - compressor | ④ Coolant oil drain - coolant separator container - compressor |

4.7.8 Option sf Optional anti-theft device

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

4.7.9 Option sg Pedestrian protection option

The machine is provided with pedestrian protection that functions both as a deflector and against pedestrians being run-over.

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 applied.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Suitable fire extinguishing material must be to hand.
- 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 sulfide.

5.2 Installation conditions

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

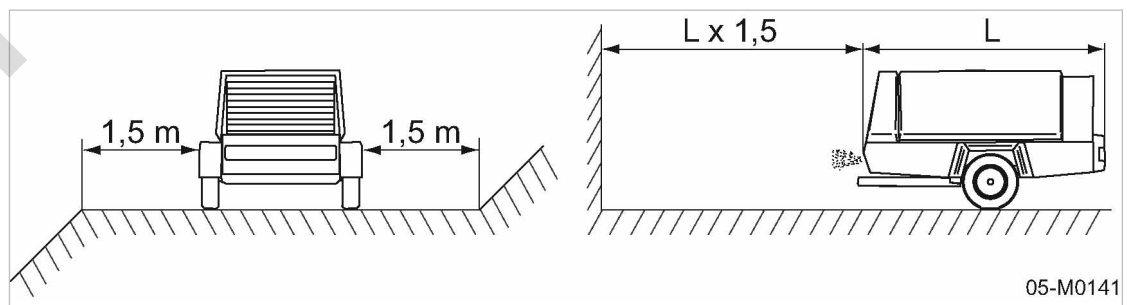


Fig. 17 Minimum distance from excavations/slopes and walls

1. Keep sufficient distance (at least 1.5 m) 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!**

Fire hazard from build-up of heat and hot exhaust system!
Insufficient distance from a wall may well cause heat build-up that could damage the machine.

- Do not position the machine directly against a wall.
- Ensure always sufficient ventilation space around the machine.

5. Position the machine as far as possible from any wall.

6. Ensure there is enough free space all round and above the machine.

7. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.

8. 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 8.2.3.

10. At ambient temperatures below 0 °C, 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 notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Installation work may only be carried out by authorised personnel.

Further information

Details of authorised personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

6.2 Reporting Transport Damage

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

6.3 Fitting the towbar

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

Material

Protective gloves

Wrench

Hard rubber hammer

Precondition

The machine is standing firm and level.

The machine is switched off.



CAUTION

Danger of pinching!

Severe pinching injury to fingers is possible.

- Wear safety gloves.
- Work with caution.

**6.3.1 Option sa
Fitting the height adjustable towbar**

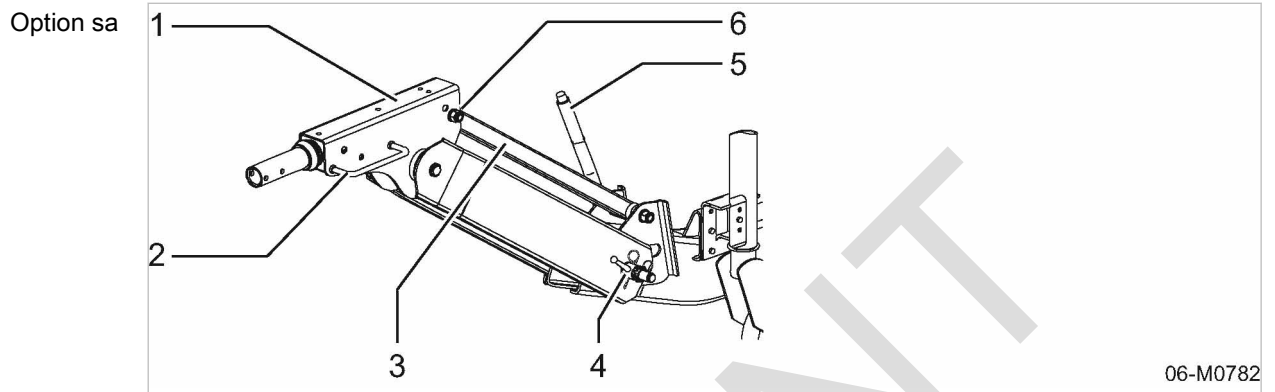


Fig. 18 Height adjustable towbar, fitted

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

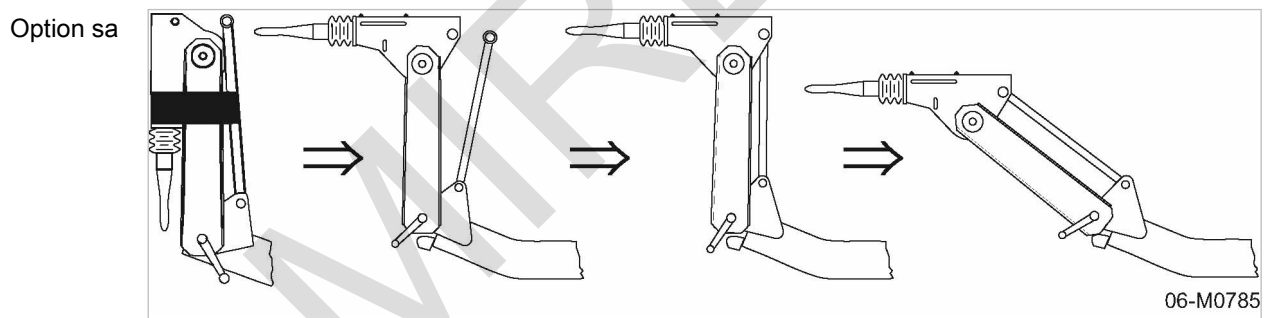
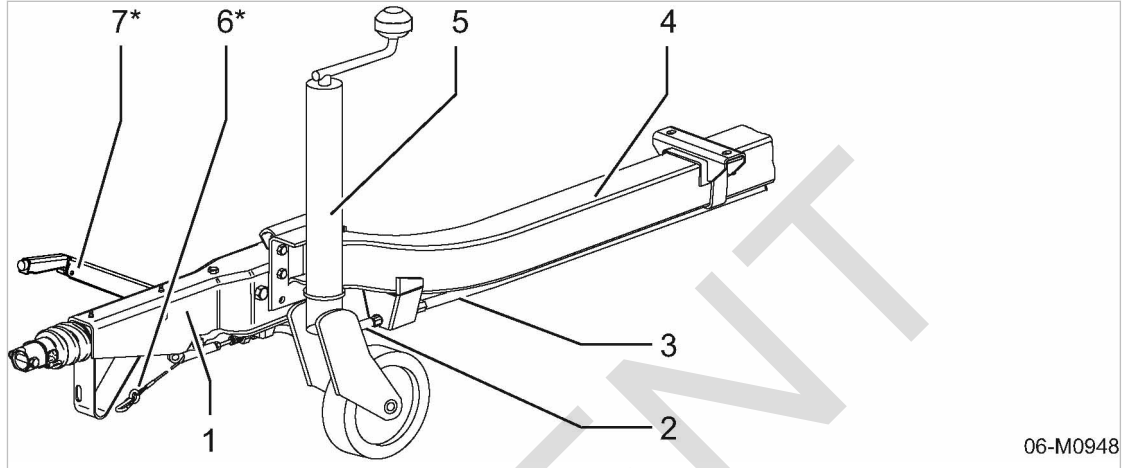


Fig. 19 Fitting the height adjustable towbar

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

**6.3.2 Option sd, sh
Fitting a non-adjustable towbar**

Option sd, sh



06-M0948

Fig. 20 Non-adjustable towbar fitted

- | | | | |
|---|---------------------------|---|--------------------------|
| ① | Overrun braking mechanism | ⑤ | Jockey wheel |
| ② | Brake transfer cable | ⑥ | Sikringstau |
| ③ | Brake rod | ⑦ | Parking brake |
| ④ | Towbar | * | not for USA type chassis |

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

Fitting the overrun braking mechanism of the non-adjustable towbar:

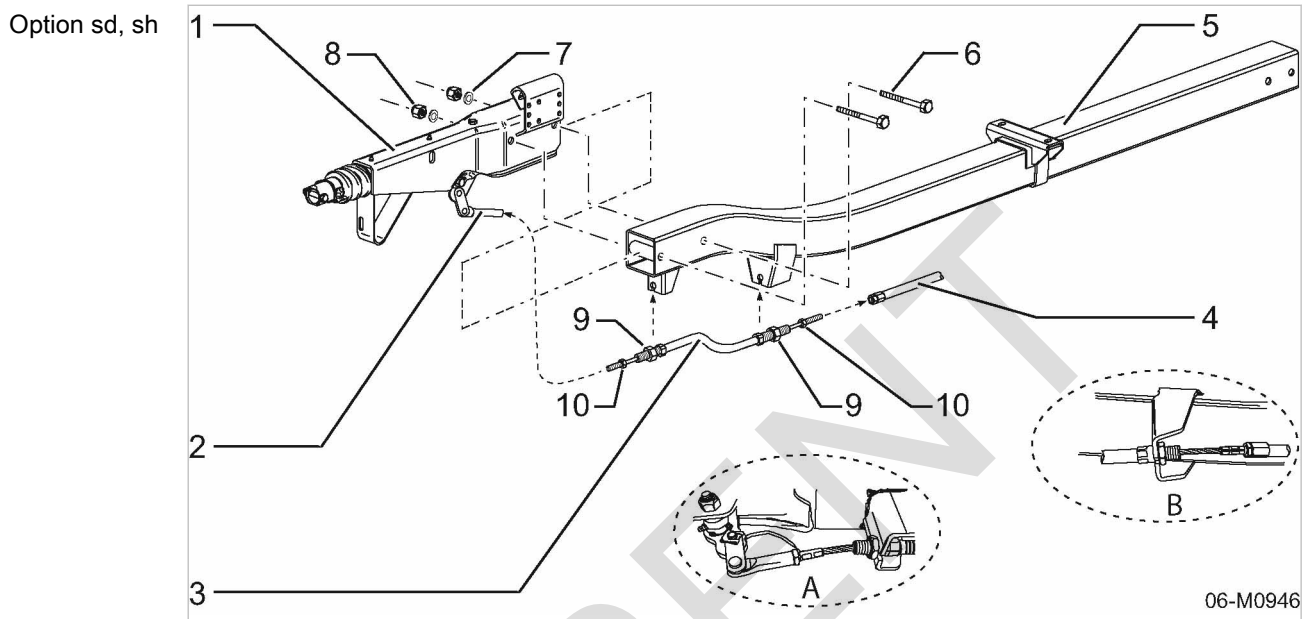


Fig. 21 Fitting the overrun braking mechanism of the non-adjustable towbar

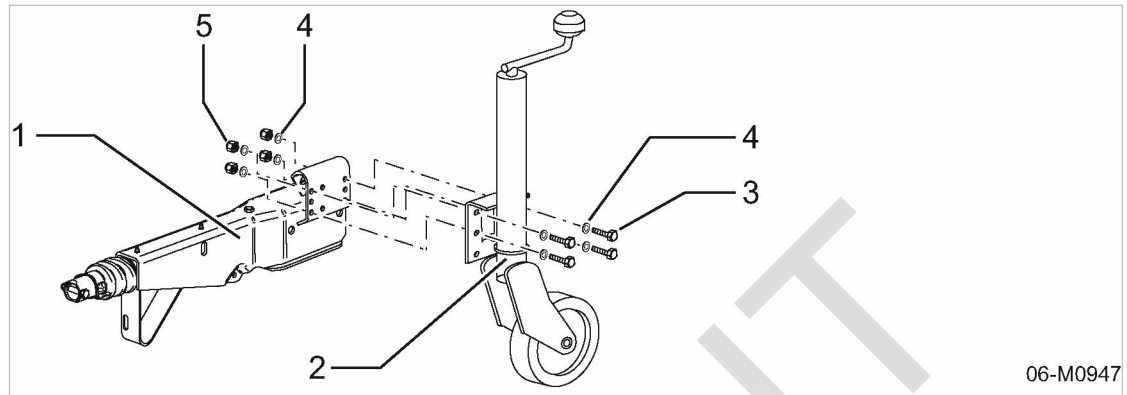
- | | | | |
|---|----------------------------|---|--|
| ① | Overrun braking mechanism | ⑦ | Washer |
| ② | Lever with securing sleeve | ⑧ | Hexagon nut (self-locking) |
| ③ | Brake transfer cable | ⑨ | Hexagon nut (locknut) |
| ④ | Brake rod | ⑩ | Locknut |
| ⑤ | Towbar | A | Front screw fastening brake transfer cable |
| ⑥ | Securing bolts | B | Rear screw fastening brake transfer cable |

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

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

Fitting the jockey wheel of the non-adjustable towbar:

Option sd, sh



06-M0947

Fig. 22 Fitting the jockey wheel of the non-adjustable towbar

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

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

6.4 Adjusting the chassis

Material Pliers
Hard rubber hammer

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



CAUTION

Danger of pinching!
Severe injury to fingers is possible if they become trapped in the adjusting mechanism.

- Wear safety gloves.
- Work with caution.

6.4.1 Option sa
Adjusting the towbar height

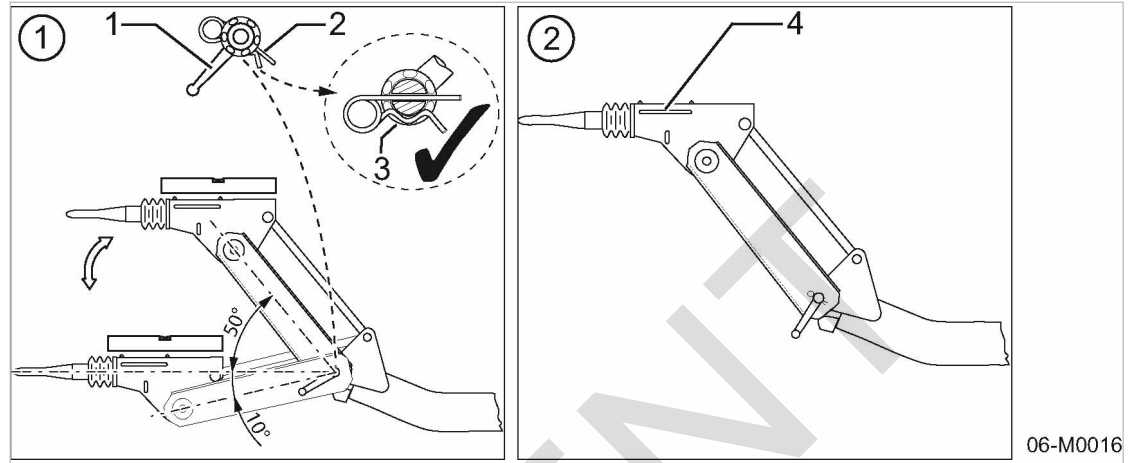


Fig. 23 Towbar height adjustment

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

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



The parallel tie bar ensures that the overrun braking mechanism stays horizontal (Fig. 23).

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

3. Tighten the locking lever again and secure by striking with a hard rubber hammer.
4. Insert the cotter pin.
5. Check if:
 - the teeth in the adjustment joint are fully engaged.
 - The locking lever is tight.
 - The split pin is correctly inserted to secure the locking lever (see 3 in Fig. 23).
6. Tighten the locking lever again after 50 km.



The serrations joint will not disengage. The serrations are corroded together.
 ➤ Free the serrations by jerking the towbar horizontally and vertically.

6.4.2 Changing the towing eye

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

- Material Protective gloves
Wrench
Hammer
Installation pin (thin metal rod \varnothing 8–10 mm)

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

**6.4.2.1 Option sa
Changing the towing eye on a height-adjustable towbar**

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

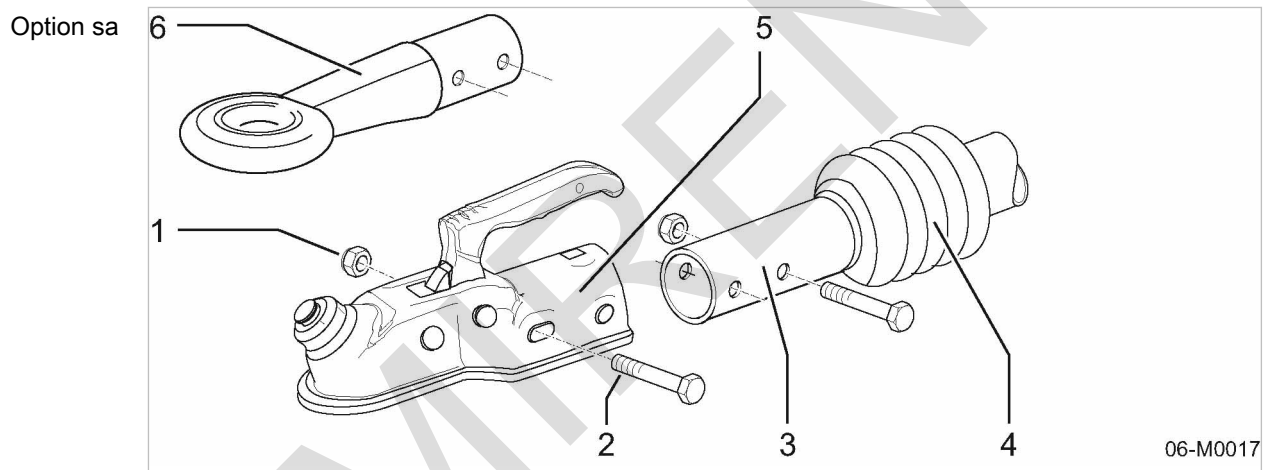


Fig. 24 Changing the towing eye (height-adjustable drawbar)

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

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

Fitting the ball coupling	Fitting the towing eye
<ol style="list-style-type: none"> 1. Fit the new ball coupling (5) to the towbar. 2. Position the various parts so that the bolts can be freely inserted. 3. Insert the bolts (2) through the corresponding fixing holes of both screw connections and secure with self-locking nuts (1). 	<ol style="list-style-type: none"> 1. Slide the towing eye (6) into or onto the towbar (3). 2. Position the various parts so that the bolts can be freely inserted. 3. Insert the bolts (2) through the corresponding fixing holes of both screw connections and secure with self-locking nuts (1). 4. Draw the protective sleeve (4) over the fixings.

6.4.2.2 Option sd, sh
Changing the towing eye on a fixed height towbar

The shock absorber is secured in the rear fixing screw. The shock absorber extends automatically. Use a mounting pin (thin metal rod with \varnothing 8–10 mm) to facilitate the installation.

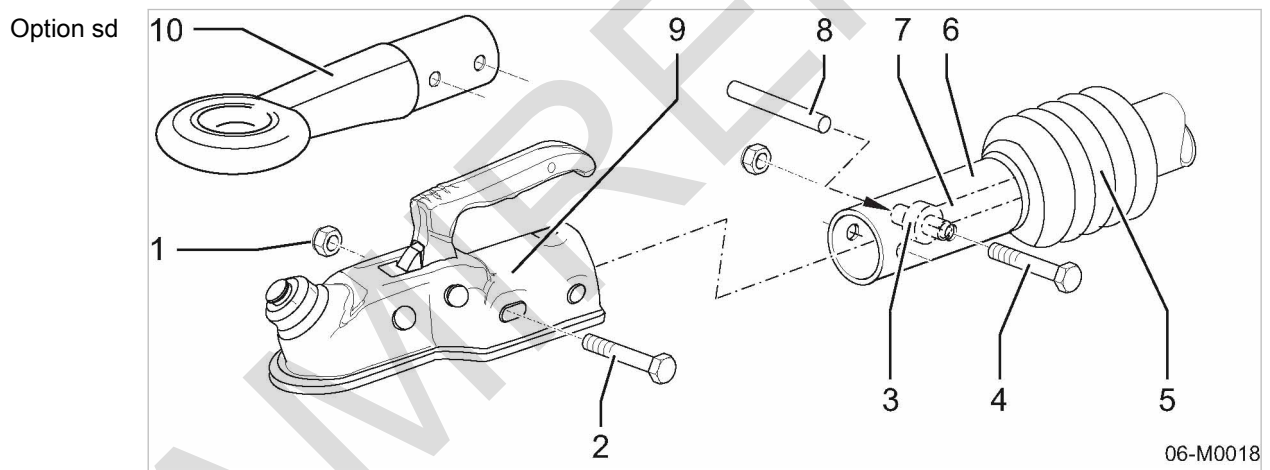


Fig. 25 Changing the towing eye (fixed height towbar, GB chassis version)

- | | |
|----------------------------|--------------------|
| ① Self-locking hexagon nut | ⑥ Tension rod |
| ② Hex-head screw | ⑦ Damper |
| ③ Damper fixing eye | ⑧ Installation pin |
| ④ Hex-head screw | ⑨ Ball coupling |
| ⑤ Protective sleeve | ⑩ Towing eye |

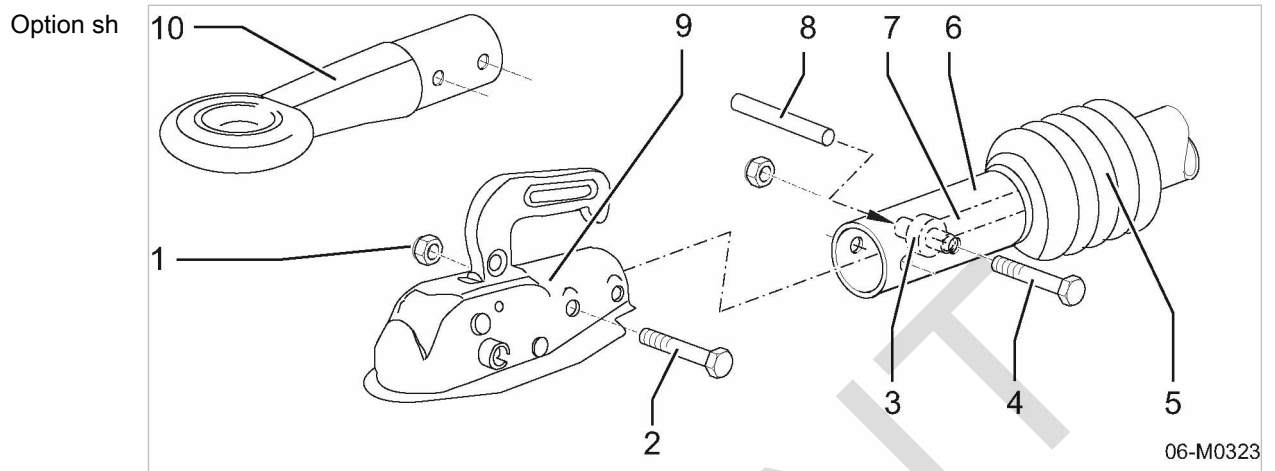


Fig. 26 Changing the towing eye (fixed height towbar, USA chassis version)

- | | |
|----------------------------|--------------------|
| ① Self-locking hexagon nut | ⑥ Tension rod |
| ② Hex-head screw | ⑦ Damper |
| ③ Damper fixing eye | ⑧ Installation pin |
| ④ Hex-head screw | ⑨ Ball coupling |
| ⑤ Protective sleeve | ⑩ Towing eye |

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

Checking the overrun braking mechanism

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

7 Initial Start-up

7.1 Ensuring safety

Here you will find instructions for a 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 notes

Disregard of safety notes can cause unforeseeable dangers!

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

Further information

Details of authorised 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 Note when commissioning



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 authorised installation and service personnel who have been trained on this machine.
- Remove all packing materials on and in the machine.
- Observe the machine during the first few hours of operation to ensure that it is operating correctly.

7.2.2 Special measures for re-commissioning after storage

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

Storage period longer than:	Remedy
5 months	<ul style="list-style-type: none"> ➤ Remove the desiccant from the openings in the air intake filters of the engine and compressor. ➤ Check the air and oil filters. ➤ Drain the preserving oil from the separator tank. ➤ Fill with cooling oil. ➤ Drain the preserving oil from the engine. ➤ Fill with engine oil. ➤ Check the engine coolant ➤ Check the battery charge. ➤ Re-connect the battery (batteries). ➤ Check all fuel lines, engine oil lines and compressor cooling oil lines for leaks, loose connections, wear and damage. ➤ Clean the bodywork with a grease and dirt dissolving agent. ➤ Check the tyre pressures.
36 months	<ul style="list-style-type: none"> ➤ Have the overall technical condition checked by an authorised KAESER Service Technician.

Tab. 50 Measures for re-commissioning the compressor after a long period of storage

7.3 Checking installation and operating conditions

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

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

Tab. 51 Positioning and operating conditions checklist

7.4 Low-temperature operation (winter)

The machine's electrical equipment is designed for starting at ambient temperatures as low as $-10\text{ }^{\circ}\text{C}$.

- In temperatures below $0\text{ }^{\circ}\text{C}$, use the following operating materials/components:
 - winter-grade engine oil,
 - low viscosity cooling oil for the compressor,
 - winter-grade diesel fuel
 - Stronger batteries



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

Allow the engine to warm up:



1. **NOTICE!**
Problems with pneumatic control at low temperatures.
Damage to the machine may be caused by ice particles in the pneumatic control and feedback systems.
 - Let the machine warm up in IDLE to ensure trouble-free regulation.
2. Allow the machine to warm up in idle with open air outlet valves until an airend discharge temperature of $+30\text{ }^{\circ}\text{C}$ is reached. The airend discharge temperature is shown by the temperature gauge switch on the instrument panel.

7.4.1 Starting assistance

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

Material Jumper cables

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



WARNING

Fire and explosion hazard.

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

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

- Observe the instructions provided with the 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.

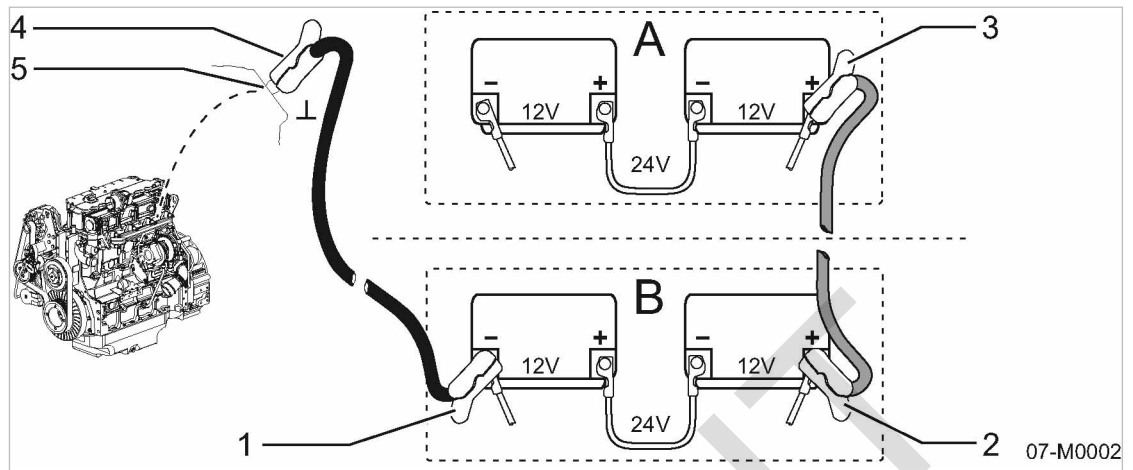


Fig. 27 Jumper cable connection diagram

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

Observing the safety instructions:



1. **WARNING!**

Fault in starting aid process!

- Connect only batteries of the same voltage.
- Ensure that machine and assisting vehicle do not touch.
- Switch off all consumers prior to connecting and disconnecting the batteries.
- Only use standard jumper cables of sufficient diameter and with insulated terminal clamps.
- Observe the instructions provided with the jumper cables.
- Keep jumper cables away from rotating parts.
- Avoid short-circuits due to incorrect poling and/or bridging with tools.
- Do not bend over the batteries when attaching jumper cables.
- Do not attempt to start the machine if its batteries are frozen. Allow the batteries 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. Clamp the first terminal clamp ③ of the red jumper cable to the positive pole of the engine's battery.
2. Clamp the second terminal clamp ② of the red jumper cable to the positive pole of the assisting vehicle's battery.
3. **DANGER!**
Explosion hazard!
A spark may ignite an explosive gas mixture.
 - Do not, under any circumstances, connect the negative pole of the assisting machine to the negative pole of the battery in the machine to be started.
This can cause sparks when connecting and disconnecting the pole clamps of the jumper cable.
 - Work with caution.
4. Connect the first pole clamp ④ of the black jumper cable to the engine block or a connected, solid and unpainted metal component of the engine ⑤ (as distant as possible to the batteries).
5. Clamp the second terminal clamp ① of the black jumper cable to the negative pole of the assisting vehicle's battery.

**Starting the engine**

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



Upon a successful start, run both engines for approximately 10 – 15 minutes. This is important, in particular for fully discharged 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 batteries of the assisting vehicle. The engine electronics in particular, of the machine is sensitive to overvoltages and could be damaged easily.

Disconnecting the battery jumper cables

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



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

7.4.2 Option ba, bb**Starting up low-temperature equipment**

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

Option ba **Operating the frost protector**

- Use the checklist when initially starting the frost protector.

Check	See chapter	Confirmed?
Check the level of antifreeze in the frost protector.	10.8.5	
Close the tap on the frost protector.	8.5	

Tab. 52 Low-temperature equipment checklist

Option bb **Operating the coolant pre-heater:**

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

The connection for the mains supply is located on the machine's instrument panel.

Option bb

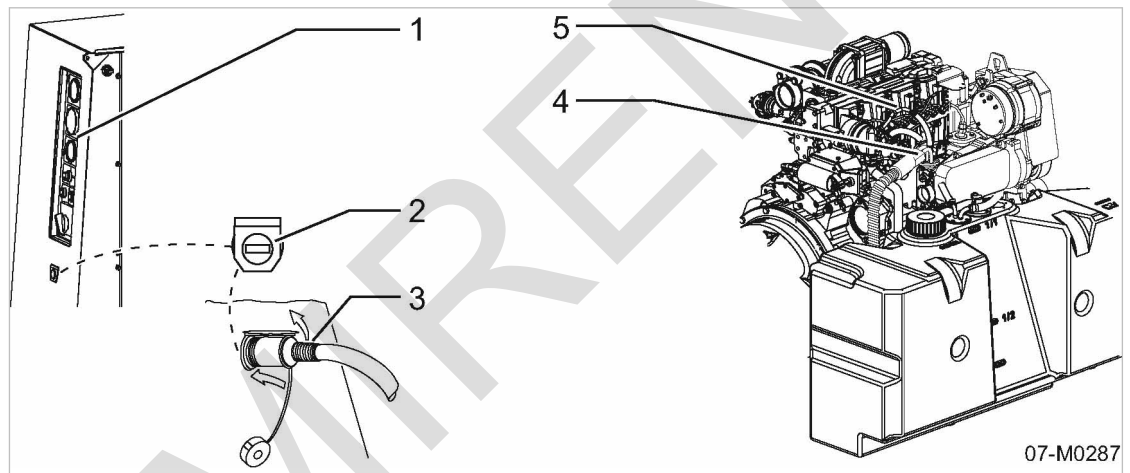


Fig. 28 Coolant pre-heating

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



1. **DANGER!**

Danger of fatal injury from electric shock!

Serious injury or death can result from a short-circuit in the electric coolant pre-heater.

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

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

8 Operation

8.1 Ensuring safety

Here you will find instructions for a 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 notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Make sure that no one is working on the machine.



WARNING

Danger of injury from hot, rotating and electrically live components!
Serious injury can be caused by touching such components.

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

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

8.2 Starting and stopping

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



NOTICE

Serious damage to engine from cold starting sprays.
Cold-start assists, such as ether or other sprays, can cause severe engine damage.

- Do not use cold start sprays.

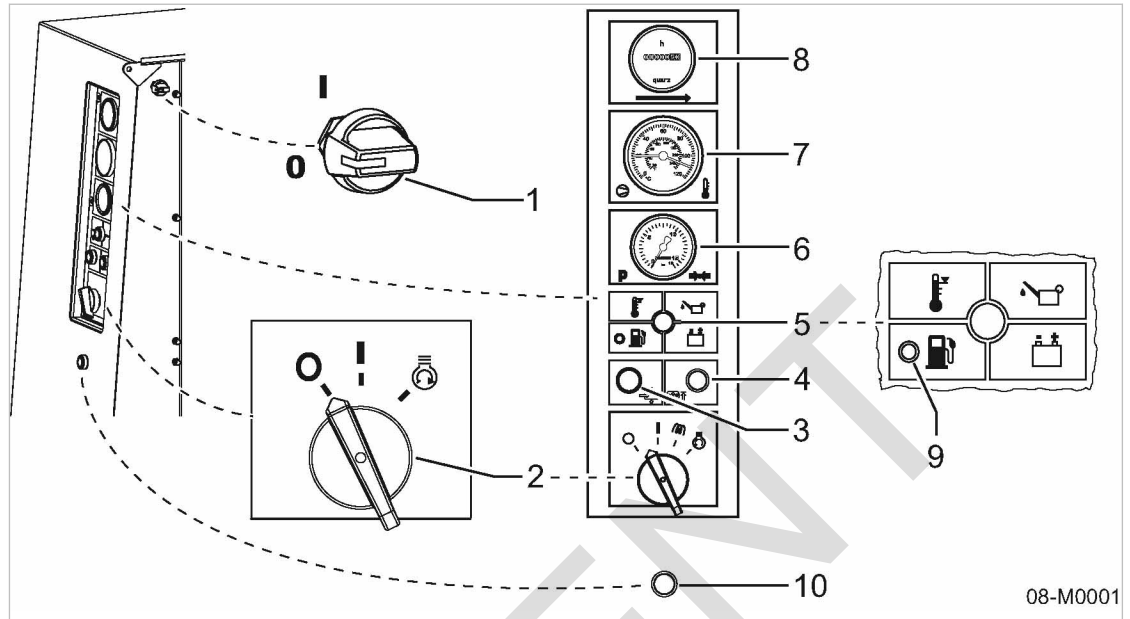


Fig. 29 Starting instruments

- | | |
|--|--|
| ① «Controller on » switch | ⑥ Compressed air outlet pressure gauge |
| ② «Starter switch » | ⑦ Temperature gauge switch |
| ○ – STOP/Off | ⑧ Operating hours counter |
| I – On | ⑨ – Fuel level monitoring combination indicator lamp |
| – START | ⑩ Indicator fault on the diesel particulate filter (Option Ic only) |
| ③ – «Full load mode ON» pushbutton with integrated FULL LOAD MODE control lamp. | |
| ④ – Back-pressure indicator | |
| ⑤ – Charging indicating light, group alarm lamp | |

Notes concerning snow and ice

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

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

8.2.1 Commissioning the machine

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

8.2.2 Starting the machine



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



If the *Back-pressure* lamp lights, back-pressure is present in the system and the start is prevented. The engine can be only started when the pressure in the system has fallen enough to allow this lamp to extinguish.

8.2.2.1 Option Ic
Note the indicator for the diesel particulate filter

Upon activating the «starter switch», the indicator light *Alarm, diesel particle filter* will light up briefly and goes out if there is no fault. The machine can be operated normally. The diesel particulate filter traps any soot emitted from the engine. When the filter module has reached capacity, the control unit switches automatically to regeneration.

- Note the indication *alarm, diesel particle filter*.
Indicating lamp dark: diesel particulate filter works normal.
Indicating lamp flashes or is lit: take measures as described in chapter 9.4 "Faults in the diesel particulate filter".

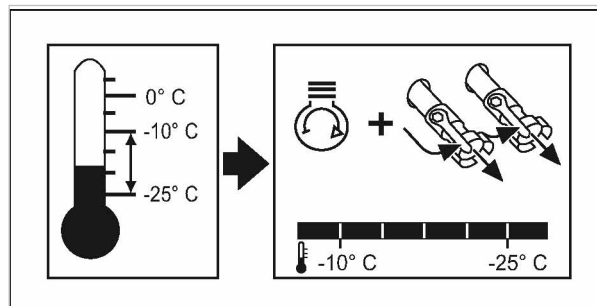


The control unit records the alarm message so it can be proven if the machine continues to be operated with an illuminated alarm indication. The manufacturer accepts no liability from consequential damage.

8.2.3 Allow the machine to run up to operating temperature

To avoid unnecessary wear, the engine should be run in IDLE until the aird discharge temperature reaches +30 °C. The aird discharge temperature is shown by the temperature gauge switch on the instrument panel.

Option ba



08-M0008

Fig. 30 Label referring to the warm-up period when ambient temperatures are below -10 °C

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

8.2.4 Switching to LOAD

Precondition The aircend discharge temperature must be at least +30 °C



1. **WARNING!**
Compressed air can cause serious injury!
 - Never direct compressed air at a person or animal!
 - No personnel may work on the machine.
 - All body panels must be secured in place.
 - All access doors must be closed.
2. Press the «Load On »button.

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

8.2.5 Manual pressure setting

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



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

Precondition The machine is switched off.

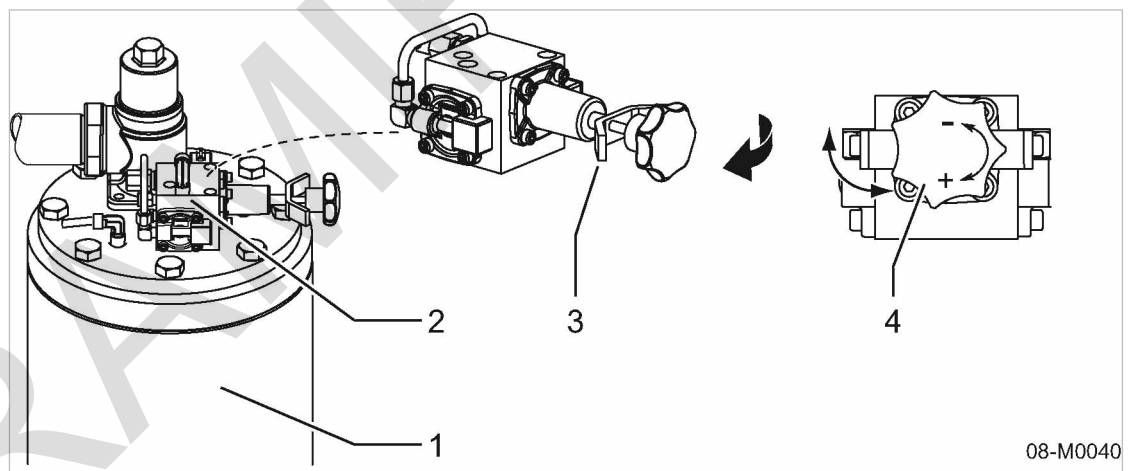


Fig. 31 Proportional controller

- | | |
|--|---|
| <ol style="list-style-type: none"> ① Oil separator tank ② Oil separator tank cover | <ol style="list-style-type: none"> ③ Adjusting knob lock ④ «Pressure adjustment» knob |
|--|---|

1. Open the right-hand access door.
2. Unlock the «pressure adjustment »knob by turning counter-clockwise.
3. Set the required pressure with the «pressure adjusting knob».
 - Turn clockwise to increase pressure.
 - Turn counter-clockwise to decrease pressure.
4. Re-tighten the locking device.
5. Close the access door.
6. Start the machine and switch to LOAD mode.

7. Open the «compressed air outlet valve» on the air distributor slightly.
8. Check pressure on the instrument panel gauge.



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

8.2.6 Shutting down the machine

Operating the machine in the cool-down phase



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

Shutting down the machine:

1. Open the right-hand access door.
2. Switch off the «Controller On» switch.
3. Close the access door.



Secure both doors with locks as necessary.

8.3 Monitoring the fuel level

The fuel system of the machine is equipped with the following level monitors:

- Fuel tank filling level
- Fuel pre-filter filling level (water trap)

The combined indicating lamp *Fuel level monitoring* is located on the machine's instrument panel.

This indicating lamp signalises:

- when the filling level in the fuel tank falls below the recommended level
- the condensate filling level in the fuel pre-filter is exceeded (water trap).

- Check the *Fuel level monitoring* indicating lamp.

The indicating lamp is dark: sufficient fuel in the tank, no condensate in the fuel pre-filter (water trap).



Indicator lights.

- Machine must be re-fuelled immediately and/or
- water trap must be emptied immediately

Further information Further information on the fuel system monitoring can be found in chapter 4.6. See chapter 10.3.3 for the maintenance of the fuel pre-filter (water trap).

8.4 Option ea, ec Operating the tool lubricator

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

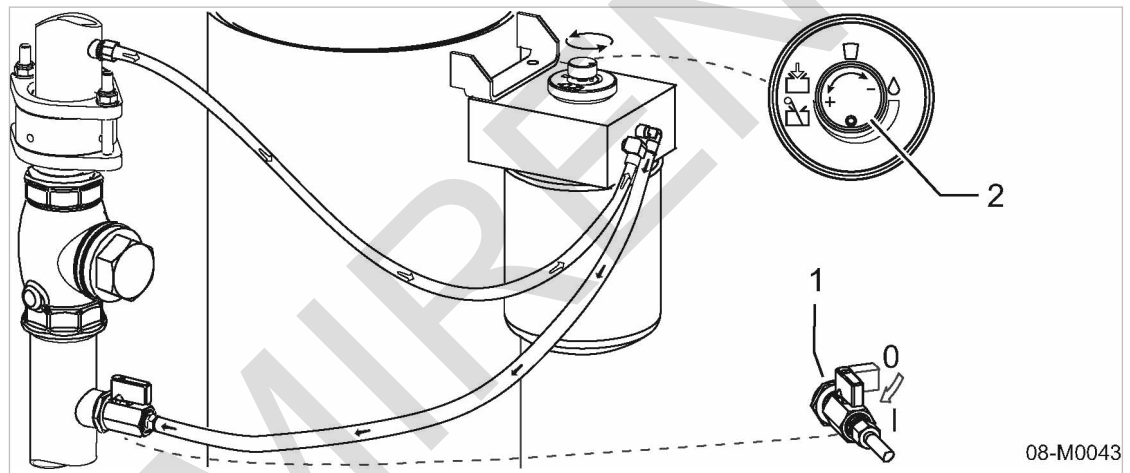


Fig. 32 Setting the tool lubricator

- ① Shut-off valve
1 – open
0 – closed
 - ② Metering knob
- Open the right-hand access door.

Adding lubricating oil

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

Setting the oil flow

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

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

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

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

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

Shutting off lubricating oil

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

**8.5 Option ba, bb
Using the low-temperature equipment**

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

**8.5.1 Option ba
Using with the frost protector switched on**

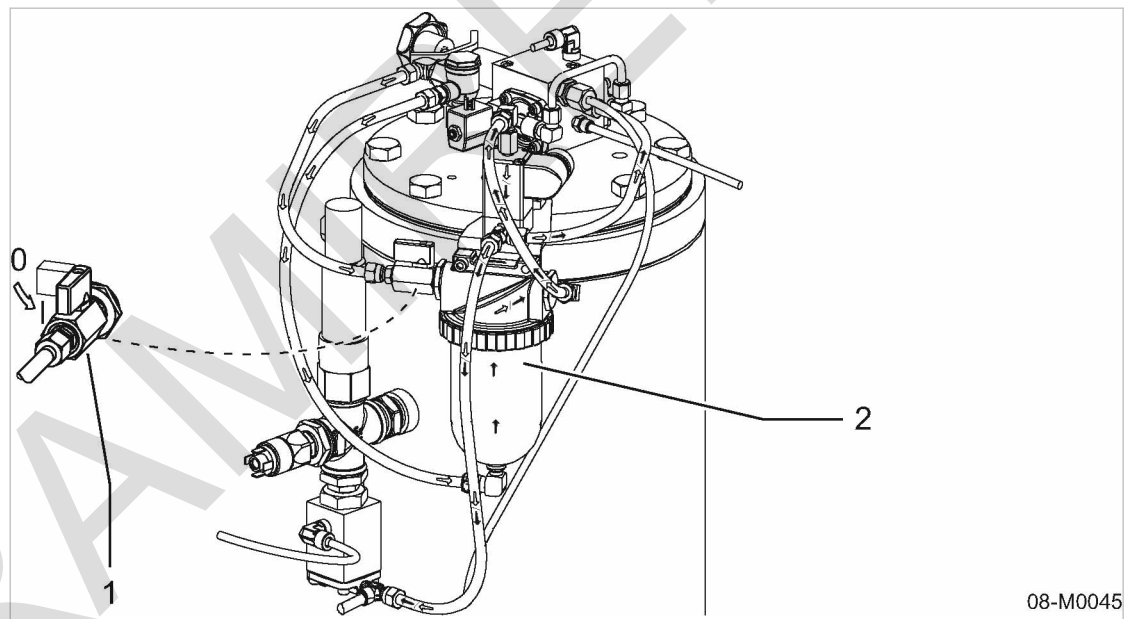


Fig. 33 Frost protector on and off

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

Precondition The machine is switched off.

- Open the right-hand access door.

Machine operation with activated frost protector:

Operation at temperatures below 0 °C (winter operation).

Precondition Frost protector filled with antifreeze

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

Result The machine is ready for winter operation.

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

Machine operation without activated frost protector:

Operation at temperatures above 0 °C (summer operation).

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

**8.5.2 Option bb
Coolant pre-heating**

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

**8.6 Option oa
Operating the battery isolating switch**

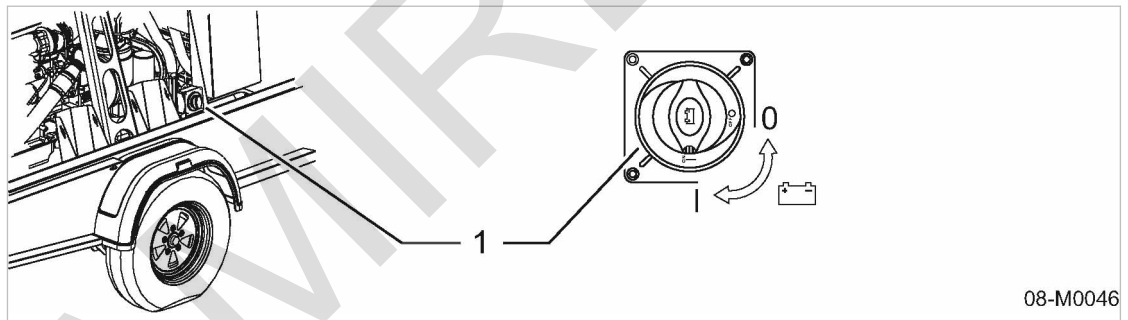


Fig. 34 Battery isolating switch

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

- Open the left-hand door.

Start the machine

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

Shutting down the machine:

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

8.7 Option 1b Shut down the machine if any dangerous situation arises

If there is a danger of the engine drawing in flammable gas the air intake shut-off valve can be manually closed to bring it to an immediate stop.

A handle is provided to close the air intake valve. A wire pulls the valve closed preventing air entering the engine and causing it to stop.

Precondition Flammable gas is detected in the surrounding air.

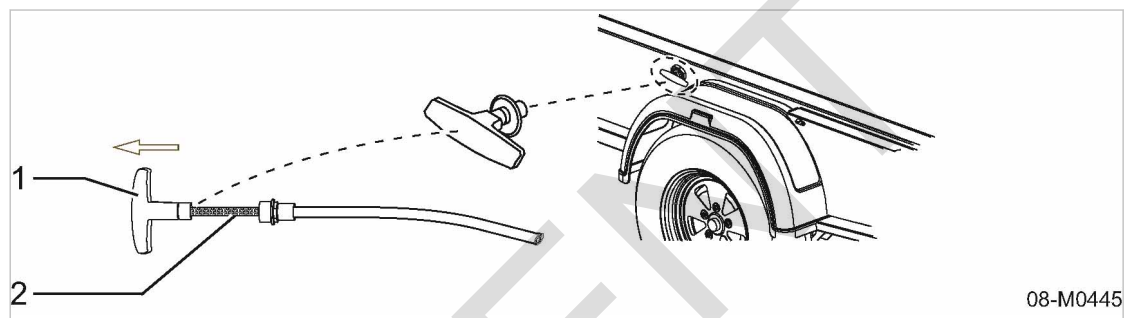


Fig. 35 Handle for manually closing the engine air intake valve

- ① Handle
- ② Pull wire

Closing the engine air intake valve manually

- Pull the handle out as far as it will go and hold until the engine comes to a complete stop. The engine stops and the *group alarm indicator* lights on the instrument panel.

Restarting the machine:

Before the machine can be restarted, the «starter switch» on the instrument panel must be turned to the off position (restart inhibitor).



The engine air intake valve is self-opening but this can take a few minutes. The pull wire cannot be pushed in.

Check whether the handle has returned to position and the engine air intake valve is open again. Otherwise, the engine cannot be restarted.

Precondition No flammable gas is detected in the surrounding air.

1. Switch on the «starter switch». The *group alarm indicator* is extinguished.
2. Check the position of the air intake valve handle. The pull wire is completely drawn in: The machine can now be started. If the pull wire has not returned the handle to its withdrawn position, wait until this is completed.

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 also with local applicable safety provisions!

9.2 Evaluate engine faults and alarms

Further information The engine service manual gives further information.

9.2.1 Engine refuses to start or does not turn over

Possible cause	Remedy	Where can I get help?		
		Specialised workshop	KAESER -service	Engine service manual
Defective starter.	have replaced.	X	–	–
The fuel cut-off device has not opened.	Check the coil and electrics and have 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).	–	–	X
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	–	–	X
Fuel line broken.	have replaced.	X	X	–
Defective control fuse or relay.	Have repaired or replaced if necessary.	X	X	–
Airend discharge temperature too high.	Have adjusted.	–	X	–
Defective temperature gauge switch giving no enable signal.	Have repaired or replaced if necessary.	–	X	–
Starter switch defective.	Have repaired or replaced if necessary.	–	X	–
Electrical connections and/or cables loose or broken.	Tighten the connection or have the cable replaced.	X	X	–
Defective battery or low charge.	Maintain battery, see chapter 10.6.	–	–	–

Possible cause	Remedy	Where can I get help?		
		Specialised workshop	KAESER -service	Engine service manual
Defective alternator.	Have repaired or replaced if necessary.	X	X	–
Defective alternator regulator.	Have repaired or replaced if necessary.	X	X	–
Oil pressure switch indicating insufficient oil pressure.	Check engine oil level, see chapter 10.3.4.	–	–	X
	Have the engine repaired or exchanged.	X	X	–
<i>Option 1b:</i> Engine intake shut-off valve operated (toggle pulled).	Wait until the cable retracts automatically (see chapter 8.7).	–	–	–

Tab. 53 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?		
		Specialised workshop	KAESER -service	Engine service manual
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.3.3).	–	–	X
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	–	–	X
Fuel line broken.	have replaced.	X	X	–
Speed adjustment cylinder maladjusted or defective.	Repair or have replaced if necessary.	X	X	–

Tab. 54 Fault: engine does not reach full speed.

9.2.3 Indicator lamp remains on

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

Possible cause	Remedy	Where can I get help?		
		Specialised workshop	KAESER-service	Engine service manual
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
	Check the engine and have repaired if necessary.	X	X	–

Tab. 55 Indicator lamp remains on

9.3 Evaluate compressor faults and alarms

9.3.1 Working pressure too high

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

Tab. 56 Fault: working pressure too high

9.3.2 Working pressure too low.

Possible cause	Remedy	Where can I get help?	
		Specialised workshop	KAESER-service
Proportional controller maladjusted or defective.	Have repaired or replaced if necessary.	–	X
Inlet valve not opening or only opening partially.	Repair or have replaced if necessary.	–	X
Pressure gauge indicating false pressure.	Have repaired or replaced if necessary.	–	X
Pressure relief valve maladjusted and/or leaking.	Have repaired or replaced if necessary.	–	X

Possible cause	Remedy	Where can I get help?	
		Specialised workshop	KAESER-service
Venting valve does not close.	Check the connections and function and have repaired or replaced as necessary.	–	X
The engine runs at maximum speed (LOAD).	See chapter 9.2.	X	X
Engine air filter and/or compressor air filter clogged.	Clean or change, see chapters 10.3.2 and 10.4.7.	–	–
Oil separator cartridge heavily clogged.	Change, see chapter 10.4.6.	–	–

Tab. 57 Fault: working pressure too low

9.3.3 Pressure relief valve blowing off

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

Tab. 58 Fault: pressure relief valve blowing off

9.3.4 Machine overheating

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

Possible cause	Remedy	Where can I get help?	
		Specialised workshop	KAESER-service
Compressor oil filter clogged.	Change, see chapter 10.4.4.	–	–
Compressor cooling oil level too low.	Topping up, see chapter 10.4.2.	–	–
Oil pipes leaking.	Seal leaks or have pipes changed.	X	X
Engine cooling system or cooling fan defective.	Have repaired.	X	X
Ambient temperature too high.	See installation conditions in chapter 5.2.	–	–

Tab. 59 Fault: machine overheating

9.3.5 Too much oil residue in the compressed air

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

Tab. 60 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?	
		Specialised workshop	KAESER-service
Defective non-return function of the inlet valve.	Repair or have replaced if necessary.	–	X

Tab. 61 Fault: oil flows from the compressor air filter after shutdown

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

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

Tab. 62 Fault: high moisture content in the compressed air

9.4 Option Ic
Evaluate faults in the diesel particulate filter

A fault in the diesel particulate filter will trigger the indication *fault, diesel particulate filter*.

Indication	Meaning	Remedy
Flashes	The exhaust temperature is too low for regenerating the filter module. Regeneration of the filter module interrupted by shutting down the machine or IDLE running.	Run the machine in LOAD mode for some time.
Illuminates for about 10 seconds every minute.	Maintenance due on the diesel particulate filter.	Contact KAESER Service.
Remains illuminated	Fault in the diesel particulate filter system	Disabling the machine Contact KAESER Service.

Tab. 63 Faults in the diesel particulate filter

Blue engine exhaust

There is unburnt lubricating oil in the engine exhaust which is partially deposited in the filter module of the diesel particulate filter and the rest escapes as blue smoke.

Meaning	Remedy	Where can I get help?		
		Specialised workshop	KAESER-service	Engine service manual
A diesel particulate filter overburdened with oil and regenerated at too high temperature can result in damage to the ceramic filter module.	Carry out engine maintenance to avoid damage to the filter module.	X	X	X

Tab. 64 Fault 'blue engine exhaust'

Grey or brownish exhaust gas

Meaning	Remedy	Where can I get help?		
		Specialised workshop	KAESER-service	Engine service manual
The exhaust contains residues of hydrocarbons or sulphate.	Have the fuel injection system checked. Use an engine oil that produces low white ash.	X	X	X

Tab. 65 Grey or brownish exhaust gas

RAMIRENT

10 Maintenance

10.1 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 notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Allow maintenance work to be performed by authorised personnel only.
- Make sure that no one is working on the machine.
- Ensure that all protective devices and cover panels are in place and secured.
- Ensure that all tools have been removed from the machine.
- Do not carry out any checks or maintenance while the machine is running.



The access doors are held up by gas struts.

- Check that the doors remain open.

Change any gas strut that is not able to hold the door open.

When working on the compressed air system

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

- Disconnect the air consumers.
- Wait until the machine is automatically vented (check that the pressure gauge indicates 0 bar).
- Open outlet valves carefully to ensure that the line between the minimum pressure/check valve and the compressed air outlet is vented.
- 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 authorised personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

Option Ic Work on the diesel particulate filter



NOTICE

Damage of the diesel particulate filter!

- The machine must be shut down immediately if any damage or functional defect in the diesel particulate filter is noticed.
- Only authorised specialists, such as KAESER Service Technicians may carry out maintenance work on the diesel particulate filter.

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, perform maintenance work at shorter intervals.

Adverse conditions are, e.g.:

- high temperatures
- much dust
- frequent use

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

- Logging all maintenance work.

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

Further information A list is given in chapter 10.9.

10.2.2 Maintenance tasks after commissioning

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

- Carry out maintenance tasks according to the following schedule.

Component: Task	After the first 50 h	See chapter	Note
Engine			
Check belt tension and re-tension if necessary.	X	10.3.8	Engine SM
Check coolant level.	X	10.3.1	Engine SM
Wheels/chassis:			
t = driftstimer; Motor-BA = se motorproducentens bruksanvisning.			

Component: Task	After the first 50 h	See chapter	Note
Re-tighten the wheel nuts/bolts.	X		

t = driftstimer; Motor-BA = se motorproducentens bruksanvisning.

Tab. 66 Maintenance tasks after commissioning

10.2.3 Regular maintenance tasks

The following table lists the various maintenance intervals.

Maintenance interval	Short description
Daily	–
Every 250 h, at least annually.	A250
Every 500 h, at least annually.	A500
Every 1000 h, at least annually.	A1000
Every 1500 h, at least annually.	A1500
Every 2000 h, at least every 2 years.	A2000
Every 3000 operating hours	A3000
Every 36000 h, at least every 6 years.	A36000

Tab. 67 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.

Component: Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Engine										
Check inlet air filter maintenance indicator	X								10.3.2	
Check engine oil level.	X								10.3.4	Engine SM
Clean the engine air filter			X						10.3.2	
Change the engine oil			X						10.3.6	

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

Component: Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Replace the engine oil filter.			X						10.3.7	Engine SM
Check/adjust the drive belt tension.			X						10.3.8	Engine SM
Change engine air filter.				X					10.3.2	
Have intercooler maintained.			X							SW
Have the turbocharger checked.				X						SW
Have the crankcase venting valve checked.				X						SW
Have the engine mounts checked.				X						SW
Have the valve clearance adjusted.					X					SW Engine SM
Replace the drive belt.							X		10.3.8	SW Engine SM
Have the multi-ribbed belt / jockey wheel checked/replaced.							X			SW Engine SM
Have the crankcase venting valve replaced.							X			SW
Check the engine coolant level.	X								10.3.1	Engine SM
Clean the radiator.		X							10.5	
Check coolant hoses and clamps.			X							
Check antifreeze concentration.			X						10.3.1	Engine SM
Replace the coolant.				X					10.3.1	Engine SM
Fill up the fuel tank	X									
Emptying the fuel pre-filter (water trap).	X								10.3.3	
Clean the fuel filter.			X						10.3.3	Engine SM
Have the fuel pump cleaned.				X						SW
Clean the tank fuel strainer.			X							
Clean the fuel tank.			X							

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

Component: Function	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Check fuel lines and hose clamping bands, have replaced if necessary.				X						SW
Change the fuel pre-filter.				X					10.3.3	Engine SM
Replace the fuel micro-filter.				X					10.3.3	Engine SM
Check the fuel return line for leakage and firm fixing.			X							
Have the fuel injectors checked.							X			SW
Have the fuel injector pump checked.							X			SW
Check the battery electrolyte level and connections.			X						10.3.9	
Compressor:										
Check inlet air filter maintenance indicator.	X								10.4.7	
Check the cooling oil level.	X								10.4.1	
Clean the compressor air filter.		X							10.4.7	
Clean the oil cooler.		X							10.5	
Have the pressure relief valve(s) checked.			X						10.4.8	
Check/clean the oil separator tank dirt trap.			X						10.4.5	
Change compressor air filter.				X					10.4.7	
Change the cooling oil.				X					10.4.3	
Change the compressor oil filter.				X					10.4.4	
Change the separator cartridge in the oil separator tank.						X			10.4.6	
Wheels/chassis/bodywork:										
Check the tyre pressures.		X								
Check wheel bolts and nut for tightness.		X								
Carry out chassis maintenance.			X						10.7	
Grease the ball coupling, joints and towbar.			X						10.7.2	
Brake maintenance			X						10.7.3	

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

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

Tab. 68 Regular machine maintenance tasks

10.2.3.2 Maintenance schedule for options

- Carry out maintenance tasks according to the following schedule.

Option Function	Daily	A250	A500	A1500	See chapter	Note
Option ea, ec - tool lubricator						
Check the oil level in the tool lubricator.	X				10.8.1	
Options da, db, dc, dd – cyclone separator:						
Clean and check the dirt trap.			X		10.8.2	
Options da, db, dc, dd – compressed air aftercooler:						
Clean the radiator.		X			10.5.2	
SW = refer to a specialised workshop; KS = call KAESER Service						

Option Function	Daily	A250	A500	A1500	See chapter	Note
Option dd – filter combination:						
Drain condensate.	X				10.8.3	
Change the filter elements			X		10.8.3	
Option dc – fresh air filter:						
Drain condensate.	X				10.8.4	
Check the oil indicator.	X				10.8.4	
Change the filter elements			X		10.8.4	
Option ba – frost protector:						
Winter operation: Check the level of antifreeze in the frost protector.	X				10.8.5	
Engine coolant pre-heater (Option bb)						
Have the coolant pre-heating and associated wiring checked.			X			SW
Option la – spark arrestor:						
Clean the spark arrestor.		X			10.8.6	
Blow out the spark arrestor with compressed air.			X			
Option lb - engine air intake shut-off valve						
Clean and check the engine air intake shut-off valve		X			10.8.7	
Check the manual operation of the engine air intake shut-off valve.			X		8.7	
Option lc – diesel particulate filter						
Have the whole diesel particu- late filter system serviced.			X		13.8	SW KS
Have the diesel engine emission checked according to TRGS 554.				X	3.4.4	SW KS
SW = refer to a specialised workshop; KS = call KAESER Service						

Tab. 69 Regular maintenance task options

10.3 Engine maintenance

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

10.3.1 Water cooler maintenance

Material Coolant
Coolant tester
Receptacle
Drain hose with hose coupling is disconnectedly laying at the machine
Funnel
Cleaning cloth

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

**WARNING**

Danger of scalding by hot coolant!
Serious injuries can be caused by hot coolant.

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

**CAUTION**

There is danger of injury from coolant containing antifreeze!

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

**NOTICE**

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

- Check the coolant level daily.
 - Top up the coolant as necessary.
- Open the right-hand access door.

10.3.1.1 Checking coolant level

Check the coolant level of the engine daily before starting.

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* with the engine cooled down.

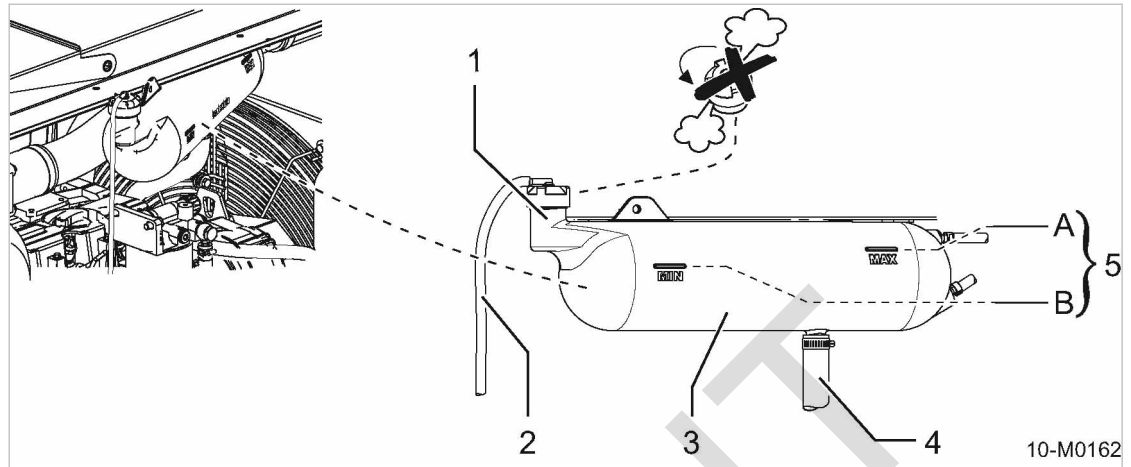


Fig. 36 Checking coolant level

- | | |
|----------------------------|----------------------------------|
| ① Filler port with cap | ⑤ Coolant level |
| ② Overflow | Ⓐ <i>maximum markings</i> (FULL) |
| ③ Coolant expansion tank | Ⓑ <i>minimum-markings</i> (LOW) |
| ④ Radiator connection hose | |

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



Determine and rectify the cause of coolant loss.

10.3.1.2 Checking the coolant

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

Coolant quality can be determined by the following parameters:

- Visual check
 - Antifreeze concentration measurement
- Unscrew and remove the expansion tank filler cap ①.

Visual check

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

- Take a coolant sample and analyse.
The coolant should be changed if it is discoloured or has floating particles.

Antifreeze concentration measurement

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

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



1. **NOTICE!**

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

Corrosion

Damages in the cooling system.

Engine casing fracture

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

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

Change the coolant when the concentration of antifreeze is too low.

Finish off the work steps:

1. Screw the cover back on again.
2. Close the access door.

10.3.1.3 Mixing coolant

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

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

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

The maximum permissible coolant life is 2 years.

- Follow coolant recommendations in chapter 2.6.3.

Preparing coolant

Precondition Coolant must meet the specification of ASTM D4985.

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

KAESER coolant mixture table

Antifreeze	Water	Frost protection to [°C]
1 part	2 parts	-18
1 part	1.5 parts	-25
1 part	1 part	-37

Tab. 70 KAESER coolant mixture table



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

10.3.1.4 Filling and topping up the coolant

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



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

Precondition Negative cable to the batteries disconnected.

1. Twist and remove the expansion tank filler cap.
2. Mix a quantity of coolant according to the table and top up to the mark.
Top up until the coolant level is just below the *maximum mark* (A).
3. Screw on the filler cap.
4. Reconnect the negative cable to the batteries.
5. Close the access door.
6. Start the engine and allow to IDLE for about 1 minute.
7. Stop the engine.
8. Open the right-hand access door.
9. Check the coolant level.
Top up if the coolant level in the expansion tank has fallen.
10. Visually inspect for leaks.
11. Close the access door.

10.3.1.5 Draining the coolant

Precondition Machine is cooled down.
Negative cable to the batteries disconnected.

Draining coolant (machines with chassis):

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

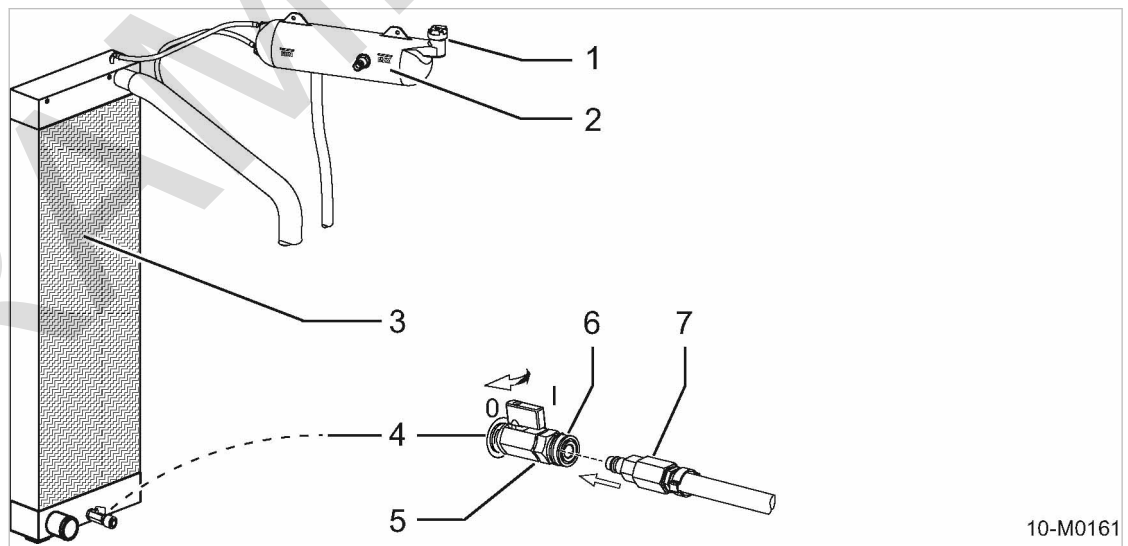


Fig. 37 Draining the coolant from the radiator

- | | |
|--------------------------|--------------------------------|
| ① Filler cap | ⑤ Shut-off ball valve |
| ② Coolant expansion tank | I – open |
| ③ Radiator | 0 – closed |
| ④ Radiator drain | ⑥ Quick-release coupling |
| | ⑦ Drain hose with male fitting |

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

Option oe, sc, si Draining the coolant (closed floor pan - stationary machine):

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

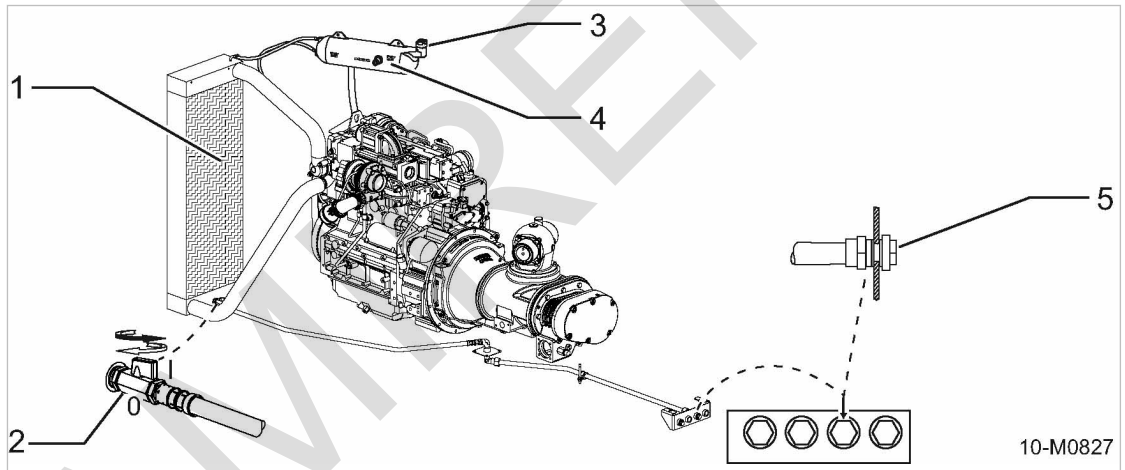


Fig. 38 Draining the coolant from the radiator (closed floor pan - stationary machine)

- | | |
|---|---------------------------------------|
| ① Radiator | ④ Coolant expansion tank |
| ② Shut-off ball valve
I – open
0 – closed | ⑤ Screwed sealing cap - coolant drain |
| ③ Filler cap | |

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



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

Further information

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

10.3.2 Engine air filter maintenance

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

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



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

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

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



NOTICE

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

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

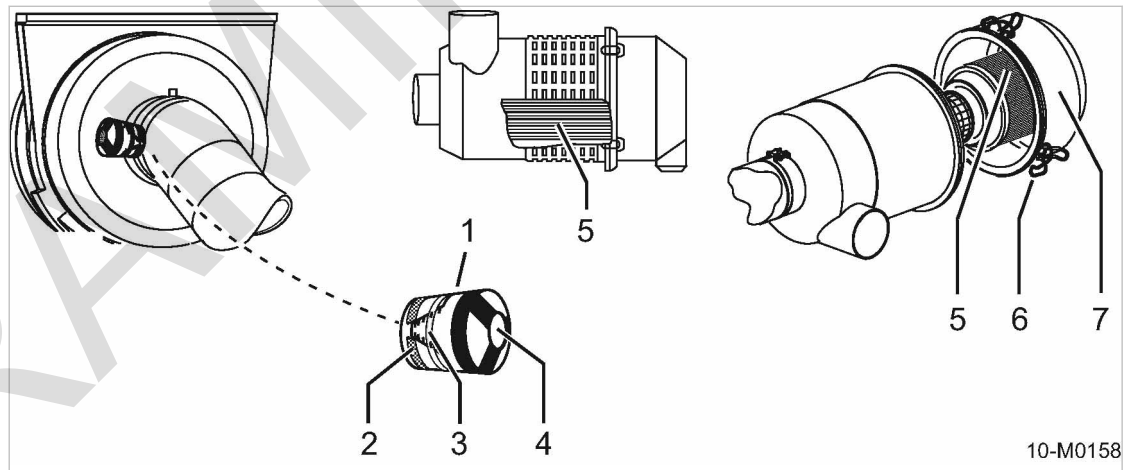
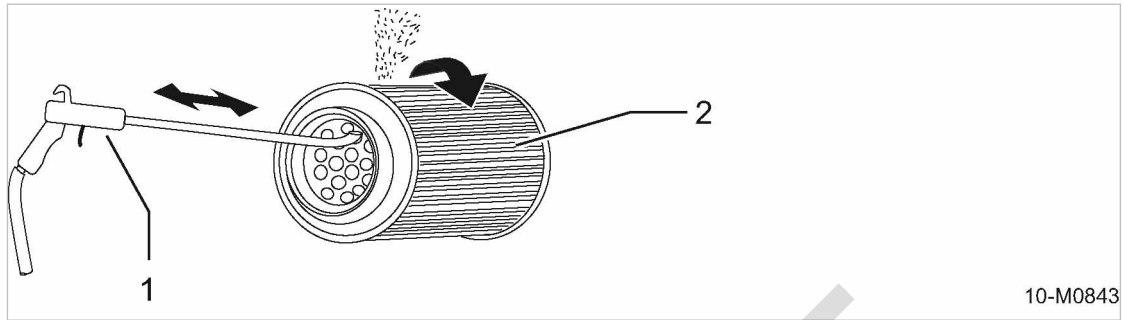


Fig. 39 Engine air filter maintenance

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



10-M0843

Fig. 40 Cleaning the filter element

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

- Open both doors.

Checking contamination of the air filter:

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

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

Cleaning the air filter:

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

Resetting the maintenance indicator:

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



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

10.3.3 Fuel system maintenance

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

Material Spare parts
Receptacle
Cleaning cloth

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



DANGER

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

- Do not allow open flames or sparks at the place of use.
- Ensure that the maximum ambient temperature is not exceeded at the place of use.
- Stop the engine.
- Wipe up escaped fuel.
- Keep away from hot machine parts.

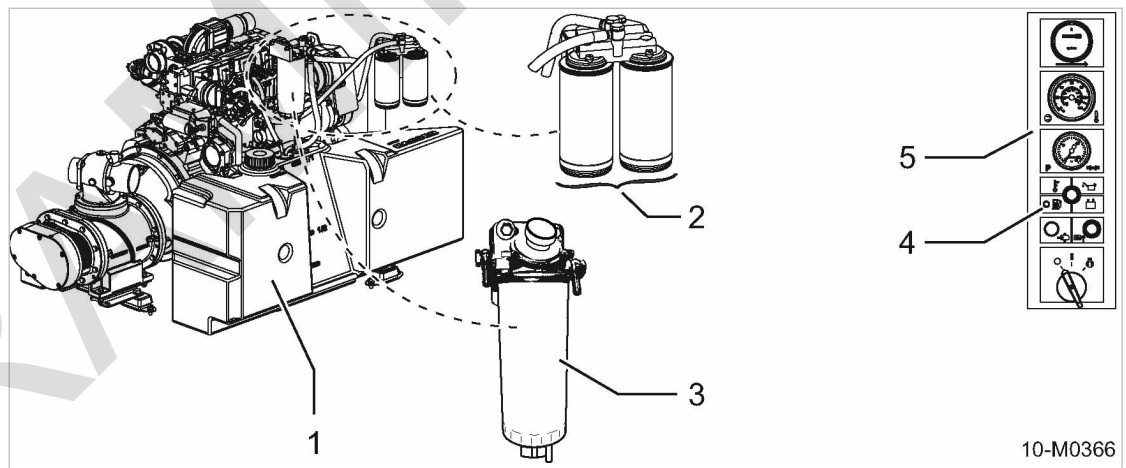


Fig. 41 Fuel system maintenance

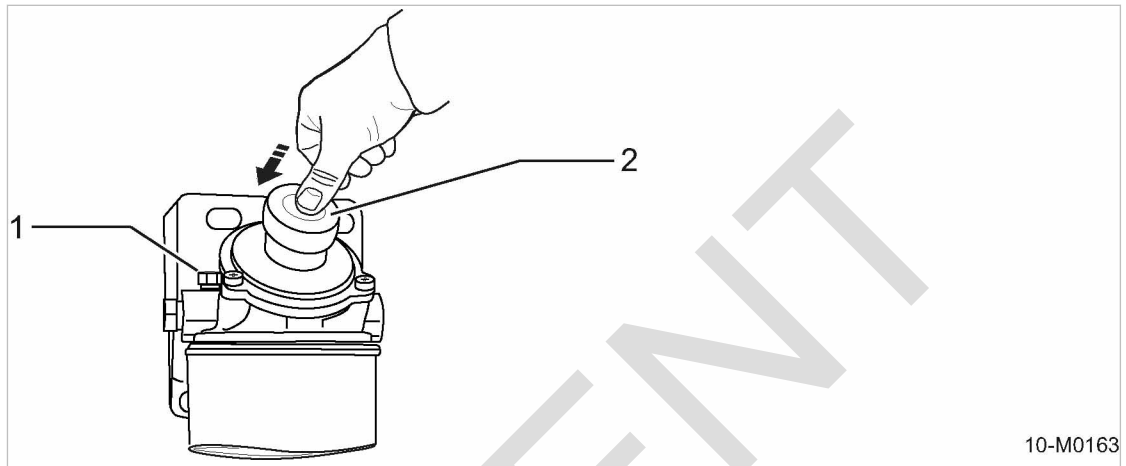
- | | |
|---|--|
| <ul style="list-style-type: none"> ① Fuel tank ② Fuel fine filter ③ Fuel pre-filter with integrated water trap | <ul style="list-style-type: none"> ④ – Combined indicating lamp (LED yellow):
<i>Fuel level monitoring</i> ⑤ Instrument panel |
|---|--|

- Open the right-hand access door.

10.3.3.1 Bleeding the fuel system

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

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



10-M0163

Fig. 42 Bleeding the fuel system

- ① Bleed screw
- ② Manual fuel pump

1. Place a receptacle beneath the fuel pre-filter housing.
2. Open the bleed screw at the filter head.
3. Actuate the manual fuel pump until the bleed screw does no longer emit air bubbles.
4. Close the bleed screw at the filter head.
5. Continue to actuate the manual pump until high resistance is felt and pumping is very slow.
6. Keep pumping until the return line is filled.
7. Reconnect the batteries.
8. Close the access door.



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

9. Open the right-hand access door.
10. Check the fuel pre-filter for leaks.
If a leak is found, tighten the filter element and fittings.
11. Close the access door.

10.3.3.2 Fuel pre-filter maintenance

Emptying the water trap

The fuel pre-filter is equipped with a water trap. Contaminants in the water are trapped in the water receptacle of the filter cartridge.

The water trap is connected to an indicator lamp on the instrument panel. If the water in the receptacle rises to a set level, the indicator lamp *fuel level monitoring* on the instrument panel lights. It indicates that the water trap must be emptied immediately.

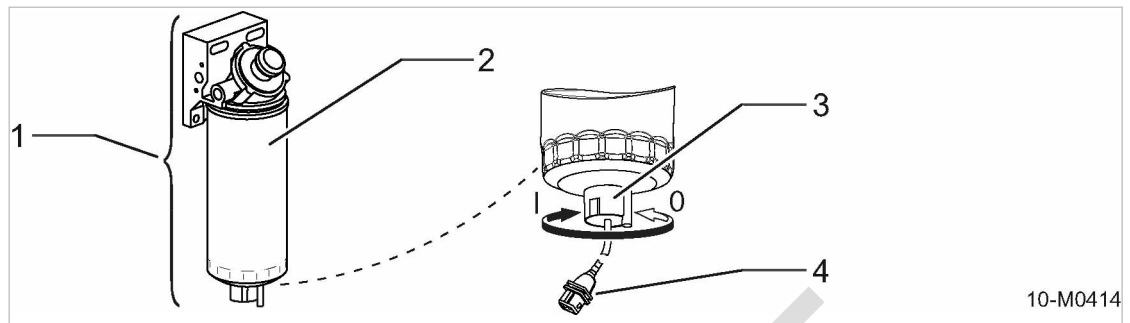


Fig. 43 Emptying the fuel pre-filter water trap

- | | |
|---|--|
| <ul style="list-style-type: none"> ① Fuel pre-filter ② Filter cartridge with integrated water receptacle. | <ul style="list-style-type: none"> ③ Water draining stopper with integrated level sensor
I - open
0 - close ④ Level sensor connecting plug (fuel filter maintenance) |
|---|--|

1. Place a receptacle beneath the fuel pre-filter housing.
2. Unscrew the draining stopper on the bottom of the filter cartridge (2 turns max.) and drain water and contamination.
3. Close the draining stopper.
4. Reconnect the batteries.
5. Close the access door.



The indicator lamp *fuel filter water level* on the instrument panel extinguishes when the water trap is emptied.



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

Changing the filter cartridge

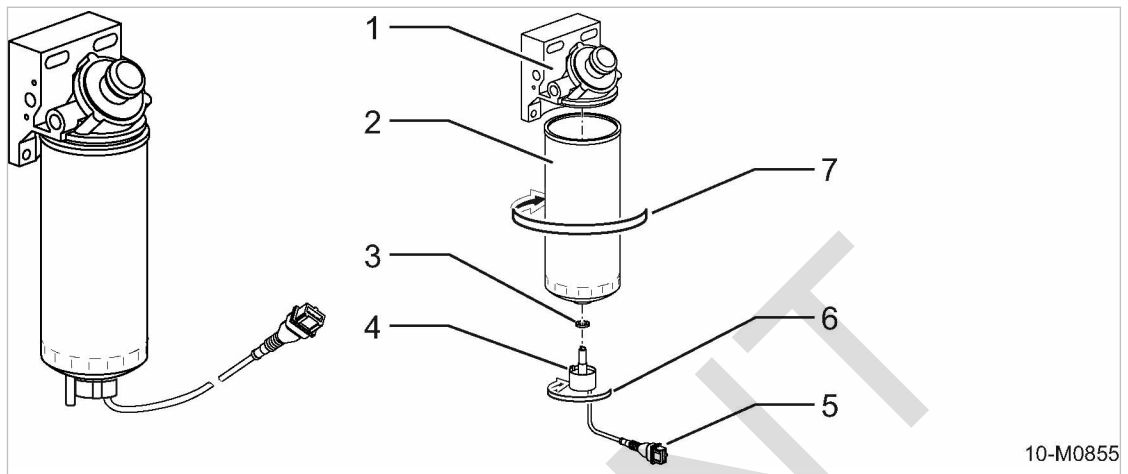


Fig. 44 Changing the fuel pre-filter cartridge

- | | |
|--|--|
| ① Filter head | ⑤ Water level sensor connecting plug (fuel filter maintenance) |
| ② Filter cartridge with integrated water receptacle. | ⑥ Direction of rotation to unscrew the draining stopper. |
| ③ Draining stopper seal | ⑦ Turn in this direction to unscrew the filter cartridge. |
| ④ Draining stopper with integrated level sensor | |

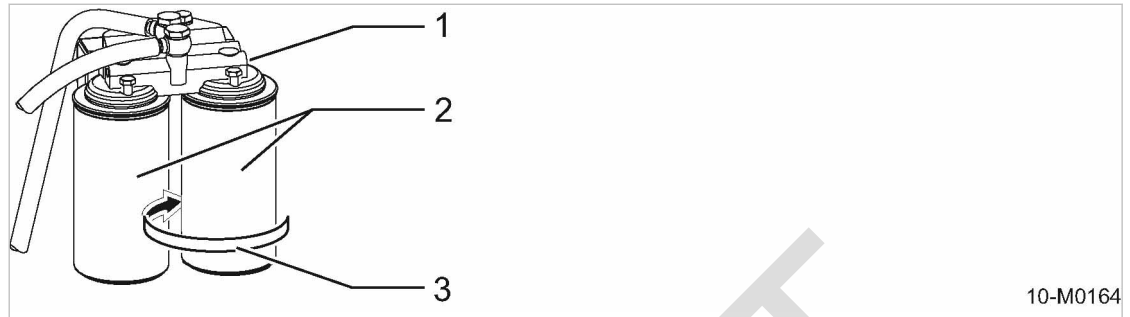
1. Place a receptacle beneath the fuel pre-filter housing.
2. Unscrew the draining stopper on the bottom of the filter cartridge (2 turns max.) and drain water and contamination.
3. Remove the connecting plug of the water level sensor.
4. Use a standard wrench to loosen and unscrew (counter-clockwise) the filter cartridge.
5. Empty any remaining fuel into a receptacle.
6. Unscrew the draining stopper of the filter cartridge and clean with lint-free cloth.
7. Check the seal of the draining stopper.
Change the gasket if defective.
8. Screw the draining stopper to a new filter cartridge.
9. Clean the sealing faces of the filter cartridge and filter head with a damp cloth.
10. Mount the filter cartridge to the filter head:
 - Moisten the sealing faces of the new filter cartridge with some fuel.
 - Manually screw the filter cartridge to the filter head (clockwise), until seal is tight.
 - Continue to manually turn until the filter cartridge is seated tightly ($\frac{1}{2}$ to $\frac{3}{4}$ turn approximately).
11. Fasten the connecting plug of the water level sensor.
12. Reconnect the batteries.
13. Close the access door.



The fuel system must be bled after the filter cartridge has been changed.



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

10.3.3.3 Fuel filter maintenance


10-M0164

Fig. 45 Fuel filter maintenance

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

1. Place a container beneath the fuel filter.
2. Use a filter wrench to loosen then unscrew the micro-filter cartridge. Collect any escaping fuel.
3. Clean the sealing faces of the micro-filter cartridges and the opposite site of the filter mount with lint-free cloth.
4. Mount the micro-filter cartridges on the filter mount:
 - Moisten the rubber seals of the filter mount and the sealing faces of the new micro-filter cartridges with some fuel.
 - Manually screw the micro-filter cartridge to the filter mount (clockwise), until seal is tight.
 - Continue to manually turn until the micro-filter cartridges are seated tightly ($\frac{1}{2}$ to $\frac{3}{4}$ turn approximately).
5. Reconnect the batteries.
6. Close the access door.



The fuel system must be bled after the filter cartridge has been changed.



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

Starting the machine and performing a test run:

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

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

10.3.4 Checking the engine oil level

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

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

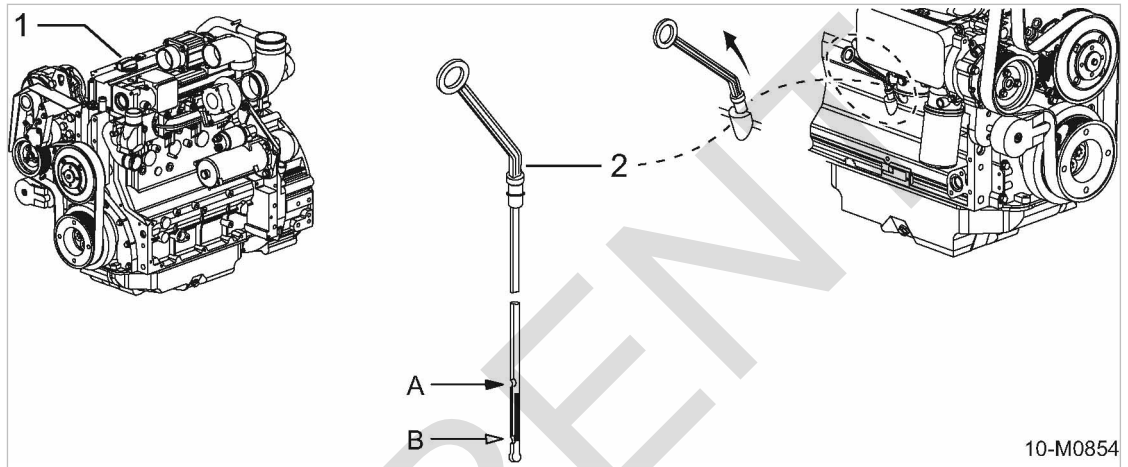


Fig. 46 Checking the engine oil level

- | | |
|-------------------------------------|---------------------------------------|
| ① Oil filler neck cover, engine oil | (A) Mark for <i>maximum oil level</i> |
| ② Dipstick | (B) Mark for <i>minimum oil level</i> |

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



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

10.3.5 Engine oil filling and topping up

- Material** Engine oil
Cleaning cloth
Funnel
- Precondition** The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 bar.
All compressed air consumers are disconnected and the air outlet valves are open.
Negative cable to the batteries disconnected.

Filling with engine oil

See chapter 2.6.4 for engine oil filling volume.
The oil dipstick is marked with the «maximum oil level».

1. Open the right-hand access door.
2. Remove the filler cap and fill with fresh oil.
3. Wait 5 minutes then check the oil level.



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

Top up if the level is too low.

4. Replace the plug in the filler port.
5. Reconnect the negative cable to the batteries.
6. Close the access door.

Starting the machine and performing a test run:

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

10.3.6 Changing the engine oil

The engine oil should be changed:

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



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

Material Engine oil
Receptacle
Wrench
Cleaning cloth

Precondition The machine is shut down.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 bar.
Engine at operating temperature.
All compressed air consumers are disconnected and the air outlet valves are open.
Negative cable to the batteries disconnected.



CAUTION

Danger of burns from hot components and escaping engine oil!
➤ Wear long-sleeved clothing and gloves.

Draining the engine oil (machines with chassis):

In machines with chassis (no closed floor pan, no stationary machine), the engine oil is drained directly at the machine's oil pan. For this purpose, a drainage outlet is provided in the floor pan.

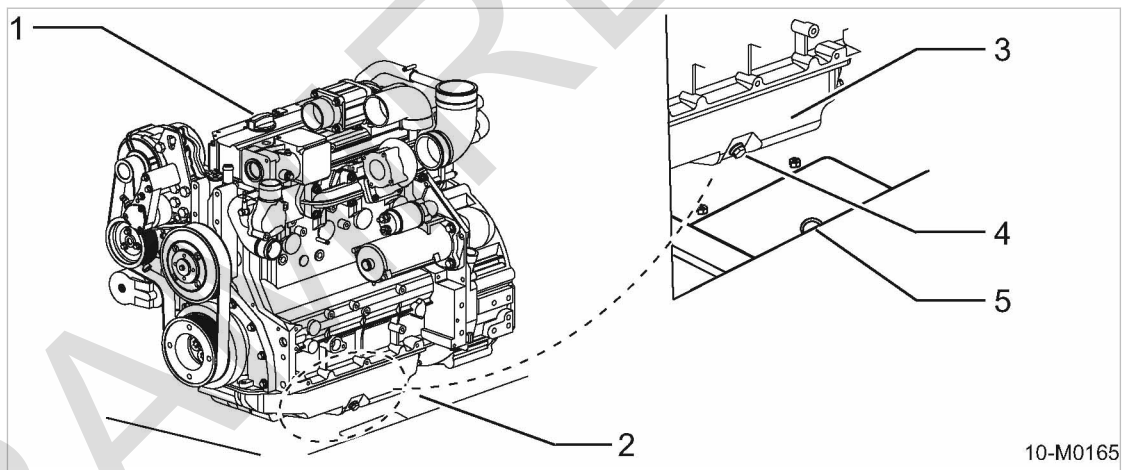


Fig. 47 Draining the engine oil

- | | |
|-------------------------------------|-------------------------------|
| ① Oil filler neck cover, engine oil | ④ Drain plug |
| ② Floor pan | ⑤ Drain hole in the floor pan |
| ③ Engine oil sump | |

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

Option oe, sc, si **Draining the engine oil (closed floor pan - stationary machine):**

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

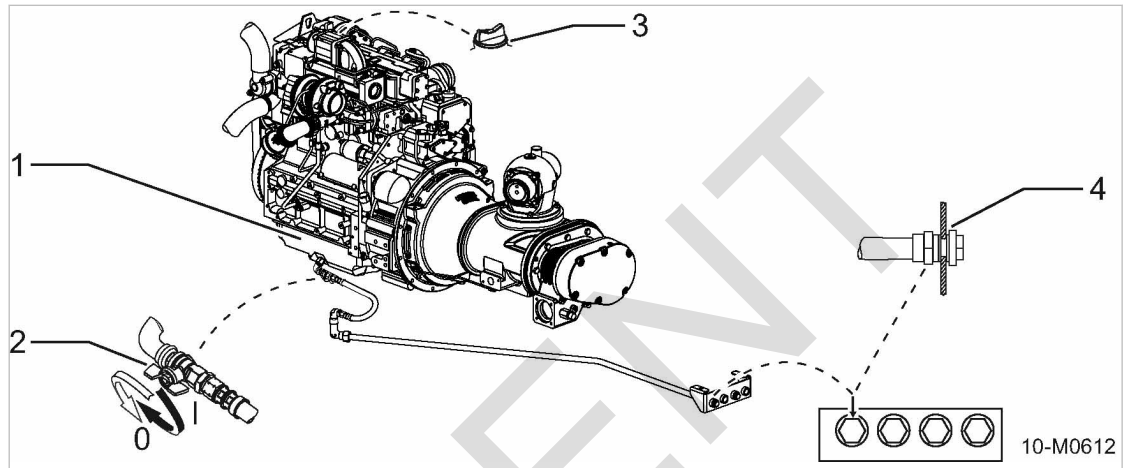


Fig. 48 Draining the engine oil (closed floor pan - stationary machine):

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

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



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

Further information See chapter 10.3.5 for oil filling.
The engine service manual gives instructions on oil changing.

10.3.7 Replace the engine oil filter

Material Spares
Chain pipe wrench (part no. 8.8095.0)
Cleaning cloth
Receptacle

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



CAUTION

Danger of burns from hot components and escaping engine oil!
➤ Wear long-sleeved clothing and gloves.

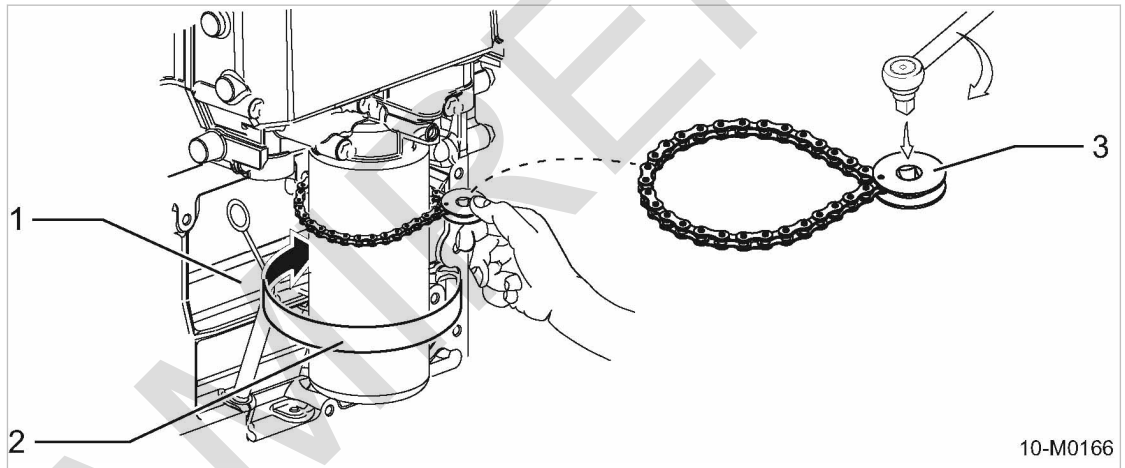


Fig. 49 Changing the oil filter

- ① Engine
- ② Direction of rotation to unscrew the filter
- ③ Chain wrench

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

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



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

10.3.8 Drive belt maintenance

The 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 Ratchet
Locking pin
V-belt tension measuring device
Spares

Precondition The machine is shut down.
The machine is fully vented, the pressure gauge reads 0 bar.
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 both doors.

Removing the belt guard:

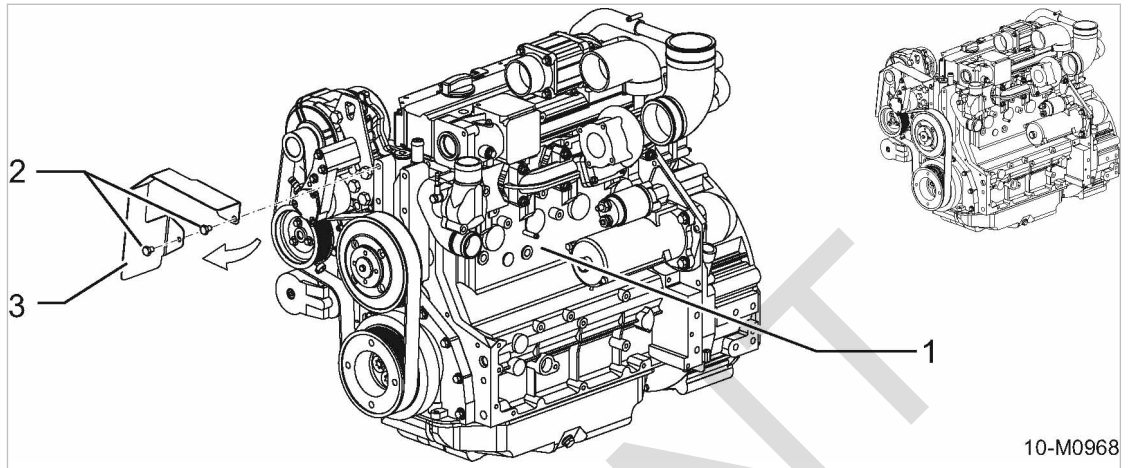


Fig. 50 Belt guard attachment

- ① Engine
- ② Hexagon screws (belt guard attachment)
- ③ Belt guard

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

10.3.8.1 Visual check

1. Check the belts thoroughly for cracks, fraying or stretching.
Replace the belt immediately if any damage or wear is found.
2. Replace the belt guard.
3. Reconnect the negative cable to the batteries.
4. Close the doors.

10.3.8.2 Checking belt tension

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

The engine manufacturer recommends a tension measuring device for belts. For operation see the engine service manual.

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

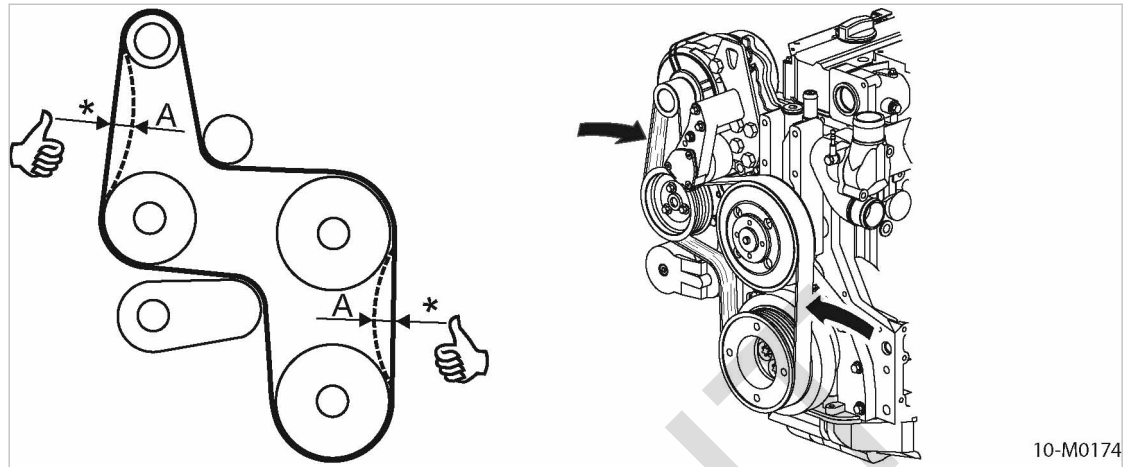


Fig. 51 Belt tension checking by hand

- Ⓐ Permissible deflection of the belt
- * Approximate pressure exerted: 10 kg
Permissible movement: 10 – 15 mm

Checking belt tension with tension measuring device.	Belt tension checking by hand
<ol style="list-style-type: none"> 1. Check belt tension with the tension measuring device. 2. Increase the tension on a loose belt. 	<p>Press the belts in with the thumb at the midpoint between pulleys.</p> <ol style="list-style-type: none"> 1. Check belt tension by hand (see Fig. 51). 2. Increase the tension on a loose belt.

Making operational:

1. Replace the belt guard.
2. Reconnect the negative cable to the batteries.
3. Close the doors.

10.3.8.3 Changing/tensioning the drive belt

The drive belt is pre-tensioned by the spring force in the jockey wheel. By turning the jockey wheel you can adjust the belt tension.

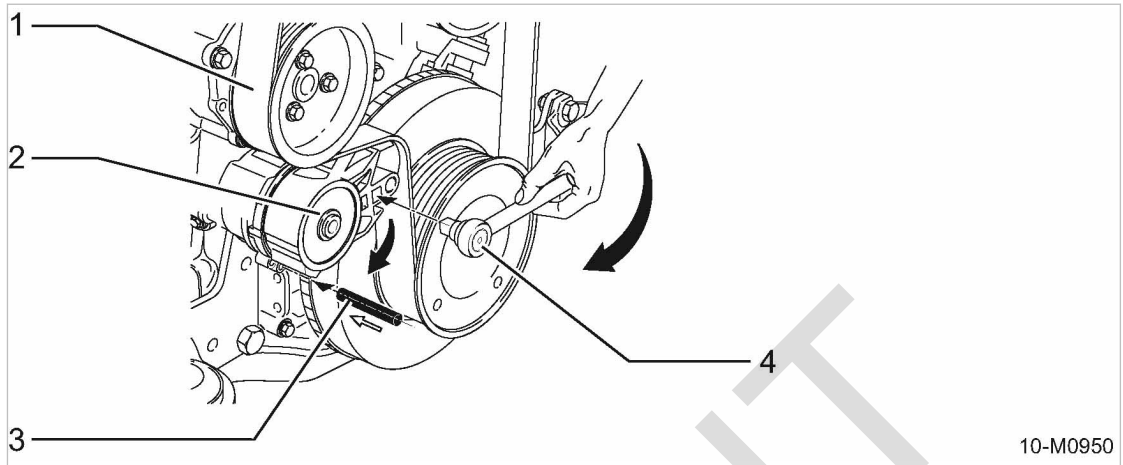


Fig. 52 Changing/tensioning the drive belt

- | | |
|----------------|---------------|
| ① Drive belt | ③ Locking pin |
| ② Jockey wheel | ④ Ratchet |

Tensioning the drive belt:

1. Insert the ratchet square in the corresponding hole in the jockey wheel.
2. Using the ratchet, press the jockey wheel opposite the arrow direction. Ensure that the drive belt is correctly positioned in its guide.
3. Check the belt tension (see Fig. 51).
If the belt tension is too low, further press the jockey wheel opposite the arrow direction using the ratchet.
Belt tension too high: slightly press the jockey wheel in arrow direction using the ratchet.

Changing the belts

1. Insert the ratchet square in the corresponding hole in the jockey wheel.
2. Using the ratchet, press the jockey wheel in arrow direction until the locking pin can be fastened in the mounting hole.
3. Insert locking pin in mounting hole.
The drive belt is free of tension.
4. Pull the drive belt first off the smallest or the jockey wheel.
5. Check the pulleys for dirt and wear.
Dirty pulley: Clean pulley.
Worn pulley: Have the pulley changed.
6. Manually route the new drive belt over the pulleys without using force.
7. Hold up the jockey wheel with the ratchet and remove the locking pin.
The jockey wheel is pushed upwards by spring tension and pre-tensions the drive belt.
8. Tension the drive belt. Ensure that the drive belt is correctly positioned in its guide.



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



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

Making operational:

1. Replace the belt guard.
2. Reconnect the negative cable to the batteries.
3. Close the doors.

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

10.3.9 Battery maintenance

- Check the charging system if batteries discharge without reason.

10.3.9.1 Safety

WARNING

Danger of acid burns from escaping electrolyte!

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

When working on batteries, comply with the following safety signs:

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



10-M0167

Fig. 53 Safety signs - warning stickers on the battery.

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

The individual safety signs have the following meaning:

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

Further instructions on working with batteries:

- Do not remove battery terminal covers unnecessarily.

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

10.3.9.2 Battery checking and care

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



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

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

Precondition

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

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

Check the battery electrolyte level

The acid quantity is generally sufficient for the life of the battery. Nevertheless, the fluid level should be checked annually. The level should be up to the mark, 1 cm above the plates.



Replace the battery immediately if the casing leaks.



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

- Top up only with distilled water.

2. Check the electrolyte level.



If the level does not reach the mark:

- Top up with distilled water.

- Close the access door.

Winter operation:

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 $-10\text{ }^{\circ}\text{C}$.

- Check battery charge with a specific gravity tester.
- Recharge the batteries.
- Clean the cable connections and apply terminal grease.

2. Check the battery charge weekly.

Recharge as necessary.

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

In extreme cases, the use of heavy-duty cold-start batteries and/or additional batteries is recommended.

10.3.9.3 Battery removal and installation

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

**1. WARNING!**

There is danger of batteries bursting!

If a battery is short-circuited it will overheat and can burst.

- Never short-circuit a battery (e.g. with a hand tool).
- Wear gloves and eye protection.

**2. NOTICE!**

Excessive voltage produced by the alternator.

Voltage peaks can destroy the alternator regulator and diodes.

- The batteries serve as a buffer and must not be disconnected while the engine is running.
- Carry out work on batteries only with the machine shut down.

3. Open the left-hand door.**4. Disconnect the negative cable first, then the positive cable.****5. Unscrew the battery fixing clamp.****6. Replace in the reverse order.****7. Make sure the battery is properly secured.****8. Close the access door.****Replacing batteries**

Replacement batteries must have the same capacity, current strength and form as the original batteries.

- 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 environment protection regulations.

10.4 Compressor Maintenance

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

10.4.1 Checking cooling oil level

The oil level is checked at the oil separator tank filling port. Oil must be visible in the port when the filler plug is removed.

Material Wrench

Cleaning cloth

Precondition The machine is shut down.

The machine is standing level.

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

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

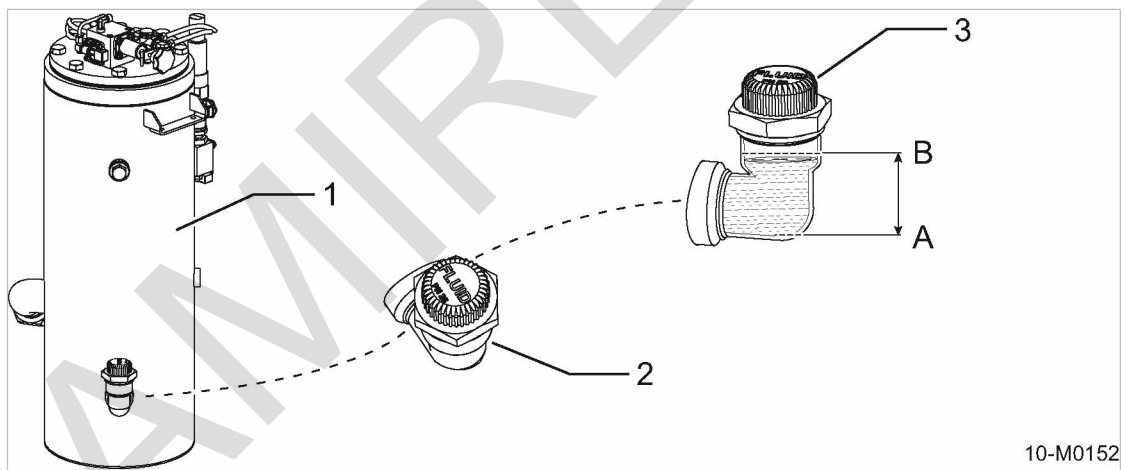


Fig. 54 Checking cooling oil level

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

- Ⓐ Minimum level
- Ⓑ Maximum level

1. Open the right-hand access door.
2. Slowly unscrew and withdraw the plug from the oil filler port.
3. Check the cooling oil level.
Top up if no oil is visible.
4. Replace the plug in the filler port.
5. Close the access door.

10.4.2 Cooling oil filling and topping up


Material Cooling oil
Funnel
Cleaning cloth
Wrench

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

Filling with cooling oil

A sticker on the oil separator tank specifies the type of oil used.



1. **NOTICE!**
The machine could be damaged by unsuitable oil.
 - Never mix different types of oil.
 - Never top up with a different type of oil than that already used in the machine.
2. Open the right-hand access door.
3. Slowly unscrew and withdraw the plug from the oil filler port.
4. Top up the cooling oil to the maximum level  with the help of a funnel.
5. Check the oil level.
6. Check the filler plug gasket for damage.
Change a damaged gasket.
7. Replace the plug in the filler port.
8. Reconnect the negative cable to the batteries.
9. Close the access door.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the right-hand access door.
7. Check the oil level after about 5 minutes.
Top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.3 Changing the cooling oil

Drain the oil completely from the following components:

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

Material

Cooling oil

Receptacle

Drain hose with hose coupling is disconnectedly laying at the machine

New gasket for the drain plug

Funnel

Cleaning cloth

Precondition

The machine is shut down.

The machine is standing level.

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

The machine is at operating temperature.

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

Negative cable to the batteries disconnected.

**CAUTION**

There is risk of burns from hot components and escaping oil.

- Wear long-sleeved clothing and gloves.

- Open both doors.

10.4.3.1 Draining the cooling oil (machine with chassis)

In machines with chassis (no closed floor pan, no stationary machine), the cooling oil is drained directly at the oil separator tank and the oil cooler.

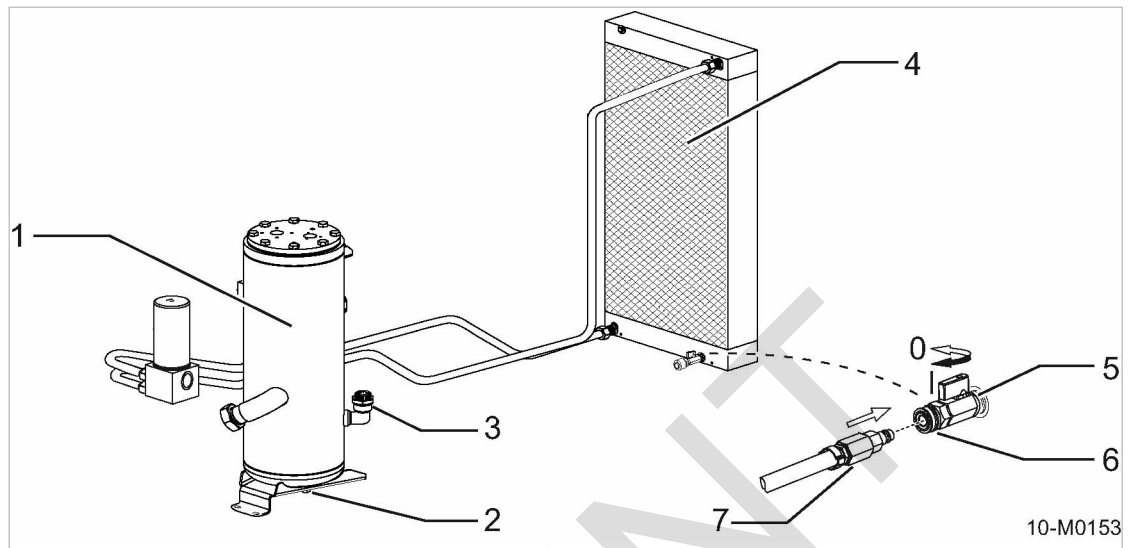


Fig. 55 Draining cooling oil

- | | |
|---------------------------------|---|
| ① Oil separator tank | ⑤ Shut-off ball valve
I – open
0 – closed |
| ② Oil separator tank drain plug | ⑥ Quick-release coupling |
| ③ Oil filler plug | ⑦ Drain hose with male coupling |
| ④ Oil cooler | |

- Remove the plug ③ from the oil separator tank filling port.

Draining the cooling oil from the separator tank:

The oil separator tank can be drained from a point accessible through a hole in the floor panel.

1. Place the oil receptacle below the corresponding drain hole in the floor pan.
2. Unscrew the drain plug ② and allow the cooling oil to drain into the receptacle.
3. Fit a new gasket on the drain plug and screw it back in.

Draining the oil from the oil cooler

This is done from a drain valve with the aid of a separate drain hose.

1. Position a receptacle beneath the oil cooler drain point (accessible through a hole in the floor panel).
2. Connect the drain hose ⑦ to the oil cooler quick-release coupling ⑥.
3. Lead the hose through the hole in the floor panel and into the receptacle, securing it in place.
4. Slowly open the shut-off valve ⑤ and catch the draining cooling oil.
5. Close the shut-off valve and remove the drain hose.

Finish off the work steps:

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



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

Further information See chapter 10.4.2 for oil filling.

10.4.3.2 Option oe, sc, si
Draining the cooling oil (closed floor pan - stationary machine):

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

Option oe, sc, si

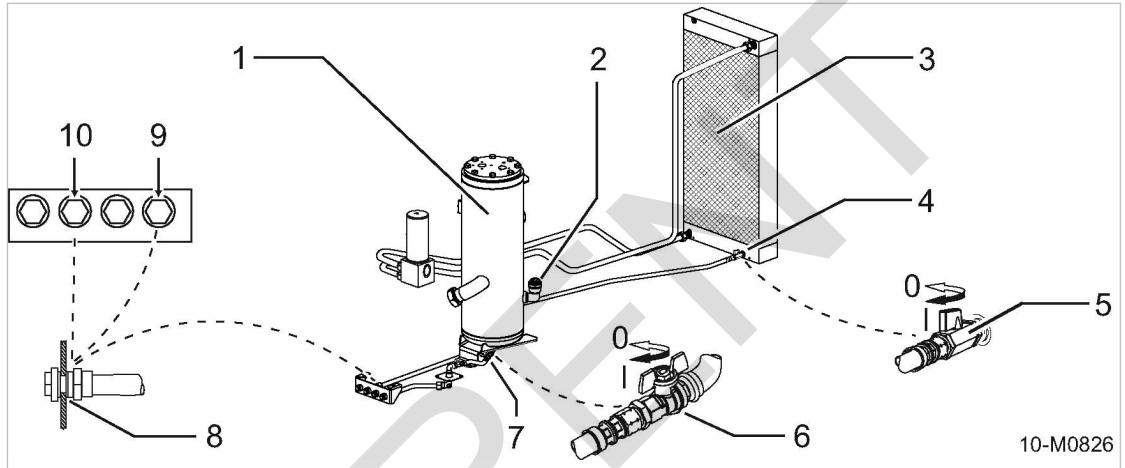


Fig. 56 Draining the cooling oil (closed floor pan - stationary machine)

- | | |
|-------------------------------|---|
| ① Oil separator tank | ⑦ Oil separator tank drain connection |
| ② Oil filler plug | ⑧ Screwed sealing cap - cooling oil drain |
| ③ Oil cooler | ⑨ Oil separator tank drain |
| ④ Oil cooler drain connection | ⑩ Oil cooler drain |
| ⑤/⑥ Shut-off ball valve | |
| I – open | |
| 0 – closed | |

- Remove the plug ② from the oil separator tank filling port.

Draining the cooling oil from the separator tank:

1. Place the oil receptacle below the oil separator tank drain point ⑨.
2. Unscrew the corresponding screwed sealing cap at the cooling oil drain.
3. Open the shut-off valve ⑥ at the drainage connection of the oil separator tank and catch the draining cooling oil.
4. Close the shut-off valve and replace the screwed sealing cap.

Draining the oil from the oil cooler

1. Place the oil receptacle below the oil separator tank drain point ⑩.
2. Unscrew the corresponding screwed sealing cap at the cooling oil drain.
3. Open the shut-off valve ⑤ at the drain connection of the oil cooler and catch the draining cooling oil.
4. Close the shut-off valve and replace the screwed sealing cap.

Finish off the work steps:

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



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

Further information See chapter 10.4.2 for oil filling.

10.4.4 Replace the compressor oil filter

Material Spares
Receptacle
Cleaning cloth

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



CAUTION

There is risk of burns from hot components and escaping oil.

- Wear long-sleeved clothing and gloves.

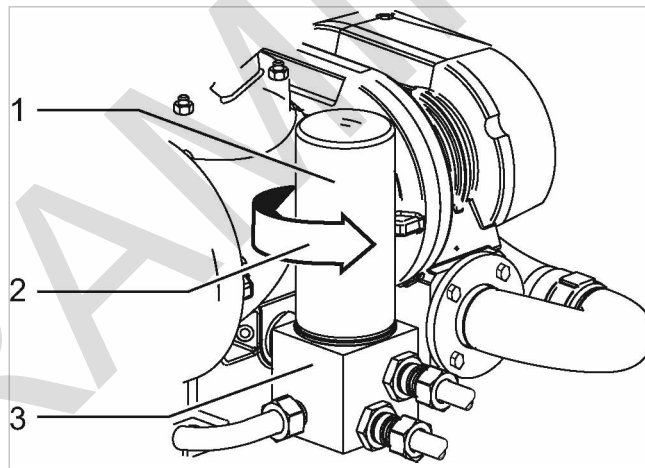


Fig. 57 Changing the oil filter

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

Changing the oil filter:

1. Open the left-hand door.
2. Prepare a receptacle.
3. Loosen the filter by turning counter-clockwise and catch any escaping oil.
4. Carefully clean sealing surfaces using lint-free cloth.

5. Lightly oil the new filter's gasket.
6. Turn the oil filter clockwise by hand to tighten.
7. Check the oil level in the oil separator tank.
Top up if necessary.
8. Reconnect the negative terminals to the batteries.
9. Close the access door.



Dispose of old cooling oil and any materials or parts contaminated with oil according to environment protection regulations.

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the left-hand door.
7. Check the oil level after about 5 minutes.
Oil level too low: top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.5 Oil separator tank dirt trap maintenance

Material Cleaning cloth
Wrench
Small screwdriver
Maintenance kit, control valve
Petroleum ether or spirit

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

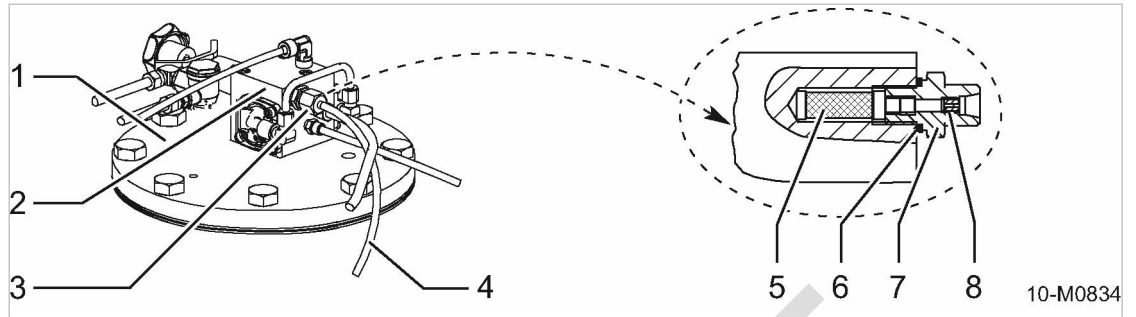


Fig. 58 Oil separator tank dirt trap maintenance

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

➤ Open the right-hand access door.

Dirt trap maintenance:

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

Making operational:

1. Reconnect the negative cable to the batteries.
2. Close the access door.



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

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
4. Open the outlet valves.
5. Open the right-hand access door.
6. Visually inspect for leaks.
7. Shut down the machine.
8. Close the access door.

10.4.6 Changing the oil separator cartridge

The oil separator 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 Spares

Cleaning cloth

Wrench

Precondition The machine is shut down.

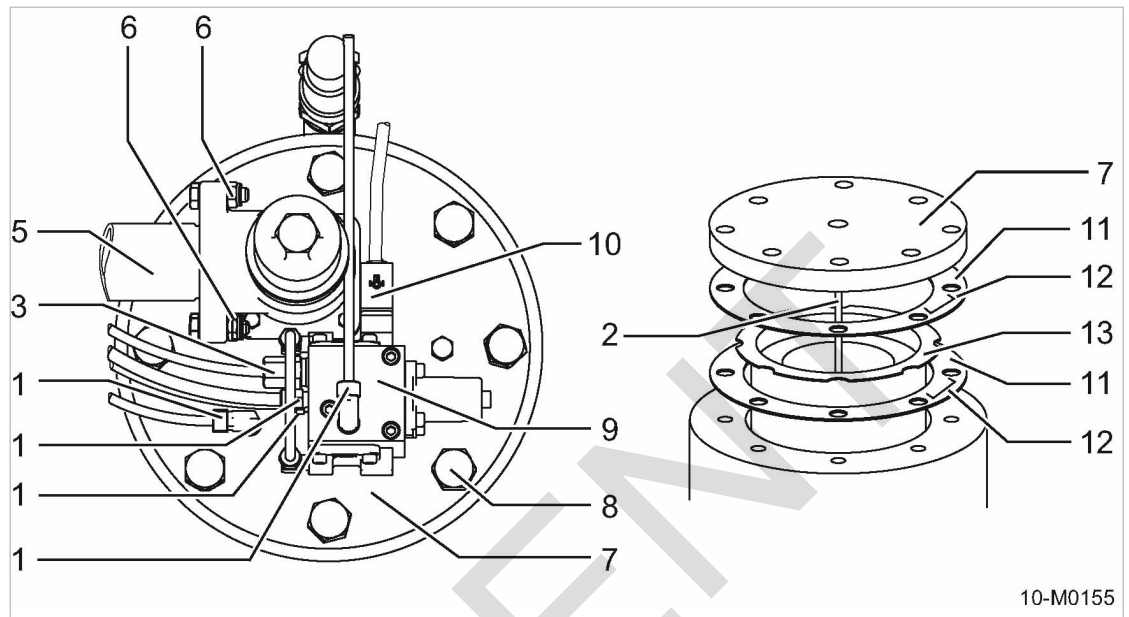
The machine is fully vented, the pressure gauge reads 0 bar.

Machine is cooled down.

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

Negative cable to the batteries disconnected.

- Open the right-hand access door.

10.4.6.1 Changing the oil separator cartridge

Fig. 59 Changing the oil separator cartridge

- | | | | |
|---|--|---|-------------------------|
| ① | Control air line union nut | ⑧ | Fixing screw |
| ② | Oil scavenge pipe (screwed to the cover) | ⑨ | Control valve |
| ③ | Oil scavenge pipe union nut (screwed to the dirt trap) | ⑩ | Solenoid valve plug |
| ⑤ | Air pipe | ⑪ | Gasket |
| ⑥ | Pipe fitting | ⑫ | Metal clip |
| ⑦ | Cover | ⑬ | Oil separator cartridge |

Changing the oil separator cartridge

1. Unscrew the union nuts ① and ③ and place the components with connections carefully to one side.
2. Pull out the plug to the solenoid valve ⑩ and withdraw the cable.
3. Unscrew the fitting ⑥ and turn the air pipe ⑤ to one side.
4. Remove the screws ⑧ securing the cover ⑦ to the tank.
5. Carefully lift the cover and put to one side.



Take care that the oil scavenge pipe ② screwed to the underside of the cover is not bent in the process.

6. Take out the old cartridge ⑬ and gaskets ⑪.
7. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.



Do not remove the metal clips!

The metal parts of the oil separator cartridge are electrically interconnected. The gaskets ⑪ are fitted with metal clips ⑫ that fulfil this requirement and provide an electrical path to the oil separator tank and to the frame of the machine.

8. Insert the new oil separator cartridge with gaskets and screw down the cover.
9. Re-position the air pipe ⑤.
10. Replace and tighten all loosened fittings.

11. Reconnect cables.
12. Check the oil level in the oil separator tank.
Top up if necessary.



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

Further information Information on control valve dirt trap maintenance is given in chapter 10.4.5.

Making operational:

1. Reconnect the negative cable to the batteries.
2. Close the access door.



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

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the right-hand access door.
7. Check the oil level after about 5 minutes.
Top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

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

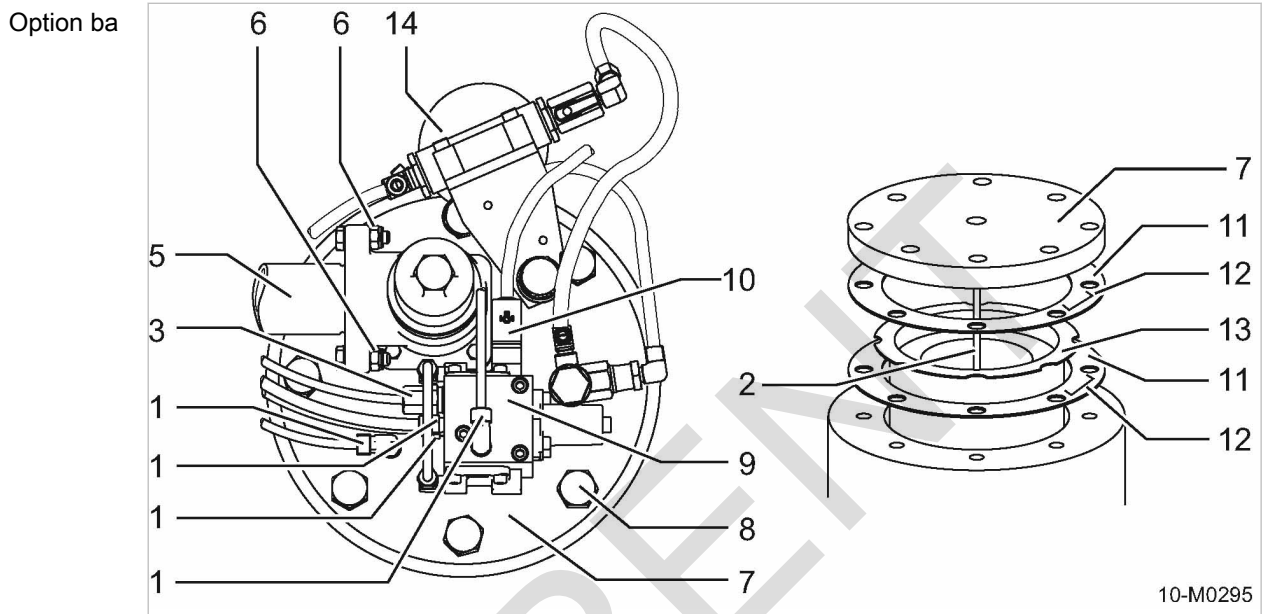


Fig. 60 Changing the oil separator cartridge (Option ba)

- | | |
|--|---------------------------|
| ① Control air line union nut | ⑨ Control valve |
| ② Oil scavenge pipe (screwed to the cover) | ⑩ Solenoid valve plug |
| ③ Oil scavenge pipe union nut (screwed to the dirt trap) | ⑪ Gasket |
| ⑤ Air pipe | ⑫ Metal clip |
| ⑥ Pipe fitting | ⑬ Oil separator cartridge |
| ⑦ Cover | ⑭ Frost protector |
| ⑧ Fixing screw | |

1. Unscrew the union nuts ① and ③ and place the components with connections carefully to one side.
2. Pull out the plug to the solenoid valve ⑩ and withdraw the cable.
3. Unscrew the fitting ⑥ and turn the air pipe ⑤ to one side.
4. Loosen the frost protector clamp ring ⑭ and empty the bowl. See chapter 10.8.5 on frost protector maintenance.
5. Remove the screws ⑧ securing the cover ⑦ to the tank.
6. Carefully lift the cover and put to one side.



Take particular care with the following components:

- The frost protector ⑭ connected to the control line,
- The oil scavenge line ② screwed to the underside of the cover.

7. Take out the old cartridge ⑬ and gaskets ⑪.

8. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.



Do not remove the metal clips!

The metal parts of the oil separator cartridge are electrically interconnected. The gaskets (11) are fitted with metal clips (12) that fulfil this requirement and provide an electrical path to the oil separator tank and to the frame of the machine.

9. Insert the new cartridge and gaskets.
10. Carefully replace the cover on the tank and the frost protector with holder on the cover.
11. Screw down the cover.
12. Re-position the air pipe (5).
13. Replace and tighten all loosened fittings.
14. Check the oil level in the oil separator tank.
Top up if necessary.



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

Further information

Information on control valve dirt trap maintenance is given in chapter 10.4.5.

Making operational:

1. Reconnect the negative cable to the batteries.
2. Close the access door.



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

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the right-hand access door.
7. Check the oil level after about 5 minutes.
Top up if necessary.
8. Visually inspect for leaks.
9. Close the access door.

10.4.7 Compressor air filter maintenance

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

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



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

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

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



NOTICE

Damaged air filter element.
Machine damage due to contaminated intake air.

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

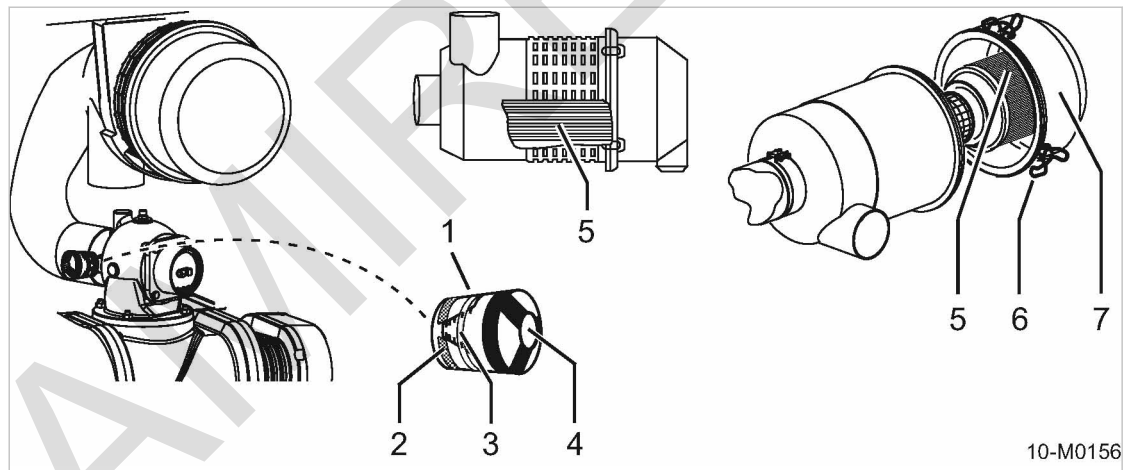
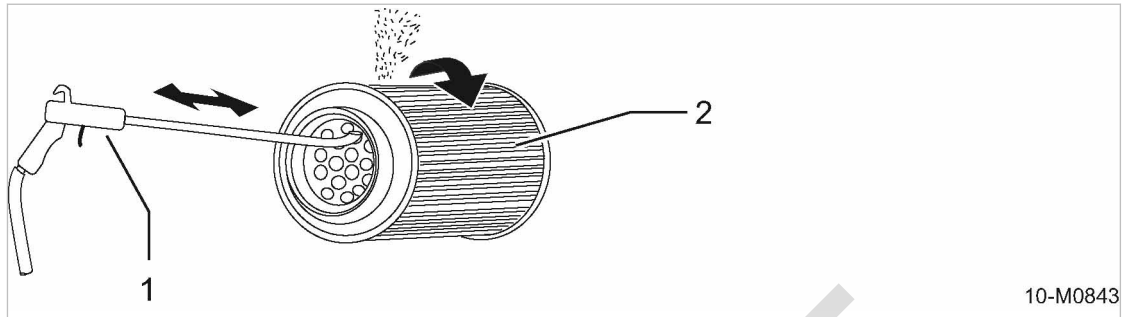


Fig. 61 Compressor air filter maintenance

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



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Fig. 62 Cleaning the filter element

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

➤ Open both doors.

Checking contamination of the air filter:

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

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

Cleaning the air filter:

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

Resetting the maintenance indicator:

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



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

10.4.8 Checking pressure relief valves

- Have pressure relief valves checked by KAESER Service in accordance with the maintenance schedule.

10.5 Clean cooler/radiator

The frequency of cleaning is mainly dependent on local operating conditions. Heavy clogging of the cooler/radiator can cause oil overheating and overheating of the engine. Check the cooler/radiator regularly for clogging. Avoid creating dust eddies. Wear breathing protection if necessary. Do not clean the cooler/radiator with a sharp instrument, otherwise it could be damaged. A severely contaminated cooler/radiator should be cleaned by KAESER Service.

Material Compressed air
Face mask (as required)
Water or steam jet blaster

Precondition Machine is placed over a washing station equipped with an oil separator.
The machine is shut down.
Machine is cooled down.
The machine is fully vented, the pressure gauge reads 0 bar.
All compressed air consumers are disconnected and the air outlet valves are open.
Negative cable to the batteries disconnected.

**NOTICE**

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

- Cover up electrical components such as the control cabinet, alternator, starter and instruments.
 - Do **not** direct water or steam jets at sensitive components such as alternator, starter or indicating instruments.
 - Deploy the extension pole of the pressure washer at a distance of at least 50 cm and approximately 90° angle to the cooler/radiator surface.
- Open both doors.

10.5.1 Cleaning the cooler/ radiator.

The compressor oil cooler and engine coolant radiator are combined in a single cooler block.

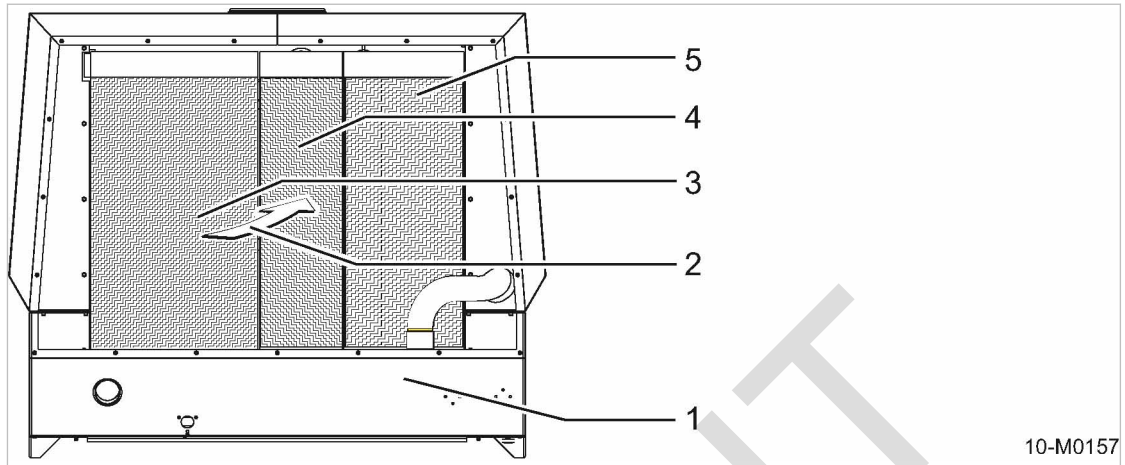


Fig. 63 Cleaning the cooler/ radiator.

- | | | | |
|---|---|---|---------------------------|
| ① | Front end of machine, sound insulation (radiator grill) removed | ④ | Turbo air cooler (engine) |
| ② | Direction of impacting water or steam jet (from outside to inside). | ⑤ | Radiator (engine) |
| ③ | Compressor oil cooler | | |

Cooler cleaning

1. Seal off the air intakes of the engine and compressor air filters before starting cleaning.
2. Remove the sound damping louver in front of the cooler/radiator.
3. Clean the cooling fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).
4. Replace the sound damping louvre.
5. Remove the protective coverings from the air filters.
6. Reconnect the batteries negative terminals.
7. Close the doors.
8. Start the machine and run up to operating temperature so that excess water is evaporated.

Check the cooler for leaks

1. Open both doors.
2. Visually inspect for leaks. Does oil/cooling water flow out?



Is a cooler leaking?

➤ Have the defective cooler repaired immediately by KAESER Service.

➤ Close the doors.

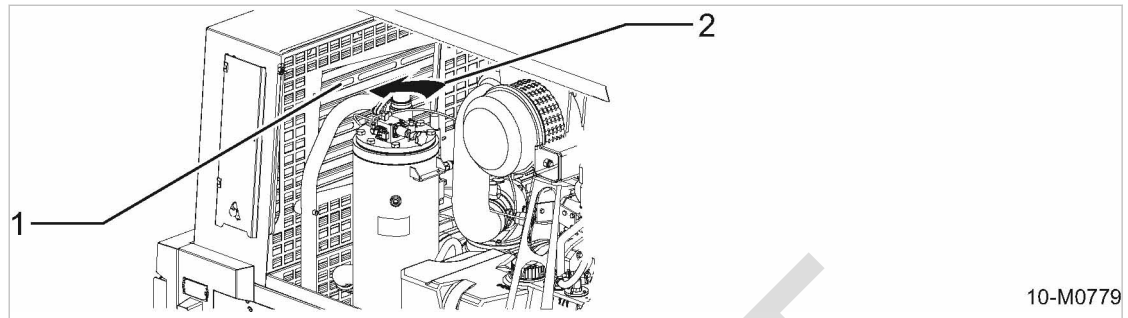


Clean the cooler/radiator only in a washing area equipped with an oil separator.

**10.5.2 Option da, db, dc, dd
Cleaning the compressed air aftercooler**

The compressed air aftercooler is located near the air treatment devices.

Option da, db, dc, dd



10-M0779

Fig. 64 Cleaning the compressed air aftercooler

- ① Compressed air aftercooler
- ② Direction of impacting water or steam jet (from inside to outside).

1. Seal off the air intakes of the engine and compressor air filters before starting cleaning.
2. Clean the aftercooler with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).
3. Remove the protective coverings from the air filters.
4. Reconnect the batteries negative terminals.
5. Close the doors.
6. Start the machine and run up to operating temperature so that excess water is evaporated.



Clean the cooler/radiator only in a washing area equipped with an oil separator.

10.6 Maintenance of rubber sealing strips

The rubber sealing strips between the body panels and the access doors serve both as a sound-proofing measure and to prevent ingress of rain water.

Care of the rubber sealing strips is especially necessary in winter to prevent the strips from sticking and tearing when the access panels are opened.

Material Cleaning cloth
Silicone or Vaseline

Precondition The machine is shut down.

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

Machine is cooled down.

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

1. Open all the doors.
2. Clean the rubber sealing strips with a lint-free cloth and check for cracks, holes and other damage.
Have any damaged gasket replaced.
3. Properly grease the rubber strips.
4. Close the doors.

10.7 Chassis maintenance

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

10.7.1 Wheel checks

Check the wheels for tightness, visible damage and tyre pressures:

- after the first 50 km
- after every wheel change
- at least every six months

Material Torque wrench
Tyre pressure gauge

Precondition Machine shut down and secured against restarting.

1. Check/adjust for wheel fixing torques.
2. Check the tyres and wheels for any defect.
Replace any damaged or worn tyres.
3. Check the tyre treads for sufficient depth.



According to local roadworthy regulations, at least 1.6 mm in most countries.

Profile depth too low: change tyres.

4. Check the tyre pressures.

Result Tyre pressure too low: pump tyres.

Further information See chapter 2.4.3 for wheel fixing torques.
See chapter 2.4.2 for tyre pressures.
A sticker is found on each wheel arch giving the recommended tyre pressure.

10.7.2 Towbar maintenance

Clean and lubricate all sliding and rotating bearings as necessary but at least every 6 months.

Material Lithium-enriched multi-purpose grease
Acid-free oil
Cleaning cloth

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

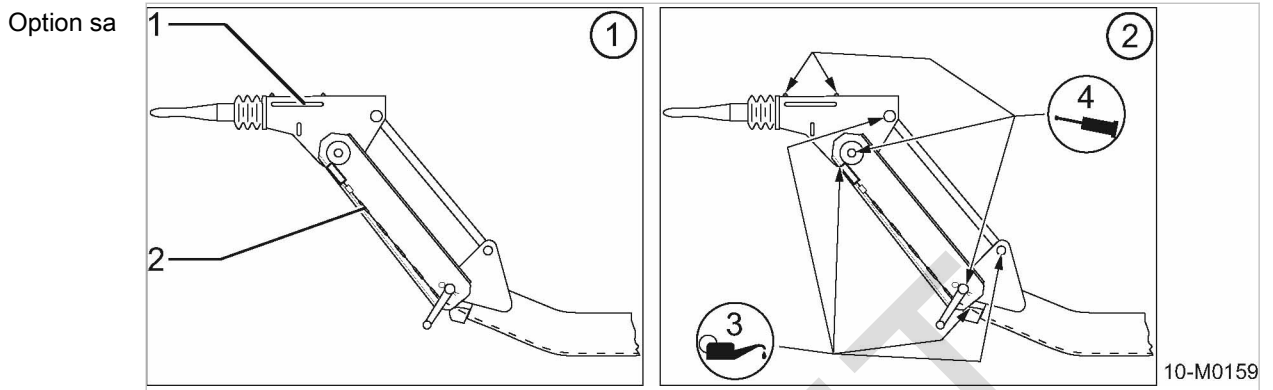


Fig. 65 Towbar maintenance

- | | |
|------------------|----------------------|
| ① Handle | ③ Lubricating points |
| ② Transfer cable | ④ Lubricating points |

10.7.2.1 Check the towbar

1. Check the towbar for correct function and movement.
2. Clean and oil all sliding and rotating bearings.

Option sa Check the height setting of the towbar

- Check the towbar height adjustment function.



The locking teeth on the towbar height adjustment joint are corroded and jammed and the towbar height cannot be adjusted.

- If necessary, free the teeth by jerking the towbar horizontally and vertically.
- Clean the toothed coupling and smear with water-repellent grease.

Further information See chapter 6.4.1 for towbar height adjustment.

Option sa, sd Maintaining the parking brake

- Lightly lubricate the pins and adjustment joints.

10.7.2.2 Overrun braking mechanism maintenance

Overrun braking mechanism greasing

- Pump fresh grease into the nipple until old grease is squeezed out.

Further information For greasing points see figure 65.

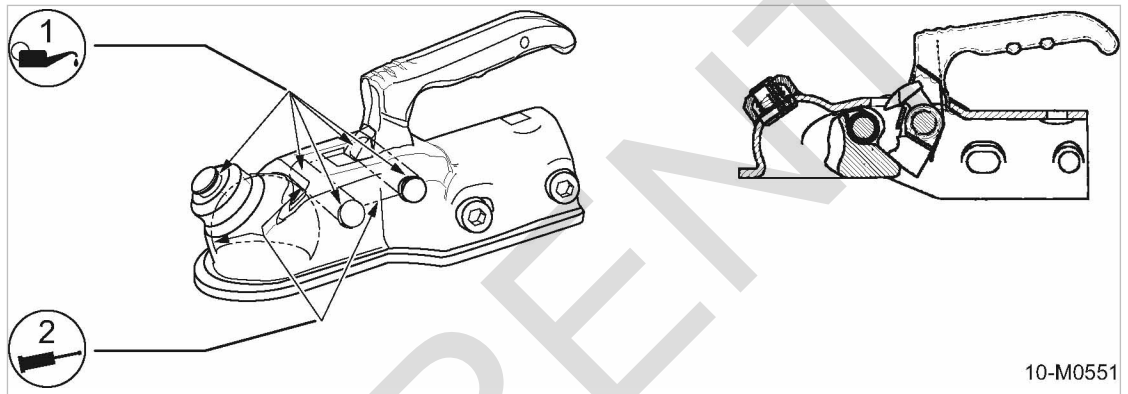
Checking the shock absorber

1. Loosen the transfer cable one side.

2. Press in the shock absorber against its damping force.
Have the shock absorber replaced by a specialist workshop if:
 - There is little resistance to pushing in,
 - Air has entered the device,
 - there is little resistance to pulling out the shock absorber.
 - Oil leaks out.

10.7.2.3 Ball coupling maintenance

Option sa, sd

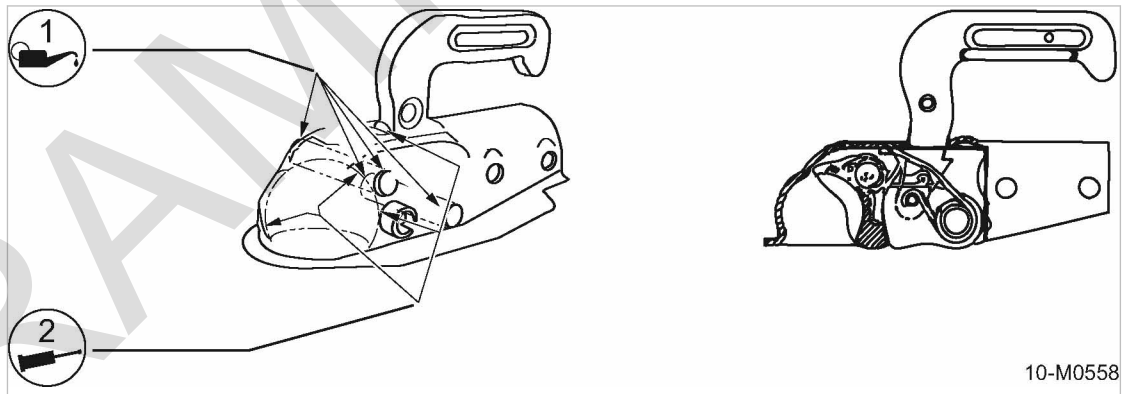


10-M0551

Fig. 66 Ball coupling (EC version)

- ① Lubricating points
- ② Lubricating points

Option sh



10-M0558

Fig. 67 Ball coupling (USA version)

- ① Lubricating points
- ② Lubricating points

1. Check the ball coupling for correct function and movement.
2. Clean the ball coupling. Grease or oil the ball cup, joints and bearings.

10.7.3 Brake system maintenance

The brake adjusting procedure ensures even wear on the brake linings by adjusting the brake shoes.

The following points must be observed:

- Carry out the adjustment procedure on all wheel brakes, one after the other.
- During adjustment, turn the wheel in the 'forward' direction only.

Material Screwdriver
 Wrench
 Torch
 Cleaning cloth
 Lithium-enriched multi-purpose grease

Precondition The machine is switched off.

1. Jack up the machine and lower it onto supports.
2. Release the parking brake and completely pull out the overrun braking mechanism.
 The brake cables are not tensioned.

10.7.3.1 Checking the brake system settings

1. Pull up the parking brake to first notch.
2. Turn the wheels in the forward direction.
3. Check that there is the same braking resistance on both wheels.
 Adjust the braking system if the resistance is not the same.
4. Release the parking brake.

10.7.3.2 Checking wheel brake lining wear

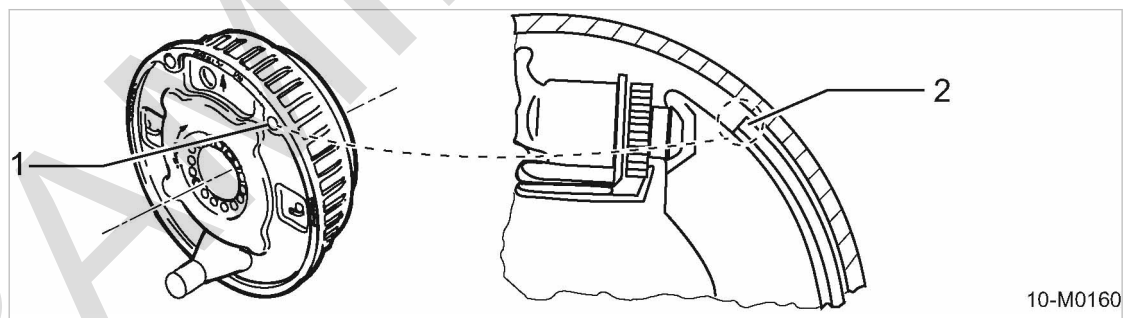


Fig. 68 Checking the brake lining thickness

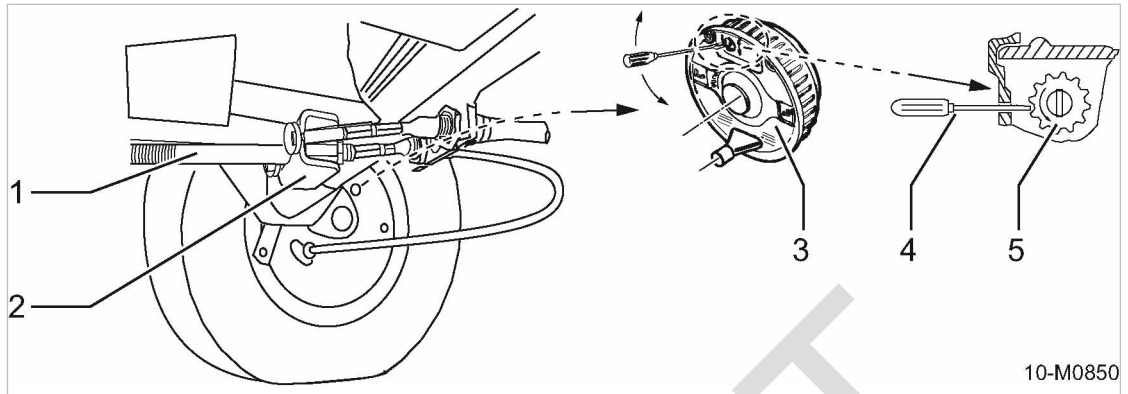
- ① Inspection hole
- ② Brake linings

1. Remove the plug from the inspection hole.
2. With the aid of a torch, check the brake lining thickness.
 Brake linings of less than 2 mm thickness should be replaced by a specialist workshop.
3. Replace the plug in the inspection hole.

10.7.3.3 Brake system adjustment

There is an arrow pressed into the brake back plate near the adjustment hole.

- Turning in the direction of the arrow increases brake force.
- Turning in the opposite direction to the arrow releases brake force.



10-M0850

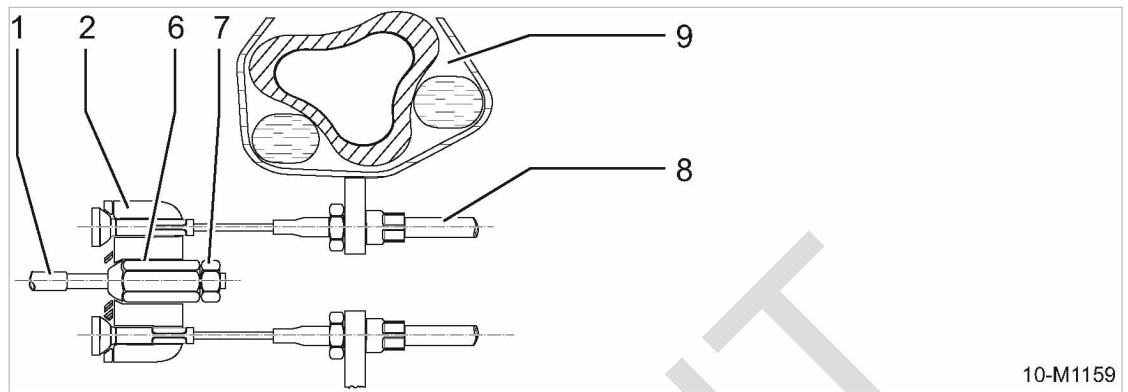
Fig. 69 Brake system adjustment

- | | |
|-----------------|---------------------------------|
| ① Brake rod | ④ Screwdriver as adjusting tool |
| ② Equaliser | ⑤ Adjusting wheel |
| ③ Brake support | |

1. Remove the plug from the inspection hole.
2. Use a screwdriver to turn the adjusting wheel ⑤ until the wheels no longer turn in the forward direction.
3. Apply the parking brake a number of times to centre the brake linings.
4. Use the screwdriver to turn the adjusting wheel back (3 to 5 notches) until there is no more braking resistance to the wheels turning forward.
5. Pull up the parking brake.
6. Check the position of the equaliser ② on the brake rod ①.
If the equaliser is perpendicular to the brake rod, the brake clearance is the same on each wheel.
If the equaliser is not perpendicular, adjust the brakes again.
7. Pull the parking brake lightly on and compare the braking force on the wheels.
If the braking force on the wheels is not equal, the brakes must be adjusted again.
8. Replace the plug in the inspection hole.

A light rubbing sound when the wheels turn is permissible if it does not affect free turning.



Brake rod adjustment:


10-M1159

Fig. 70 Brake rod adjustment

- | | |
|-------------|------------------------|
| ① Brake rod | ⑦ Sekskantmutter |
| ② Equaliser | ⑧ Brake cable (Bowden) |
| ⑥ Ball nut | ⑨ Axle (cross-section) |

1. To free the brake rod, remove the hexagon nut ⑦ at the equaliser ② and loosen the ball nut ⑥.
2. Clean and grease the brake rod threads.
3. Tighten the ball nut without using a power tool.
4. Pull and release the parking brake three times.
5. Turn the wheel in forward direction and simultaneously tighten the ball nut up to a clearly experienced braking resistance.



You must still be able to manually turn the wheel in forward driving direction.

6. Screw the hexagon nut onto the brake rod and lock the ball nut.
 - Test by applying the brake a number of times.

10.7.3.4 Greasing the brake rods

Grease the brake rods when necessary (stiff movement) but at least annually.

Precondition The machine is shut down.

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

- Clean and grease the brake rods sliding and adjustment joints.

10.8 Maintenance of Optional Items

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

**10.8.1 Option ea, ec
Tool lubricator maintenance**

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

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

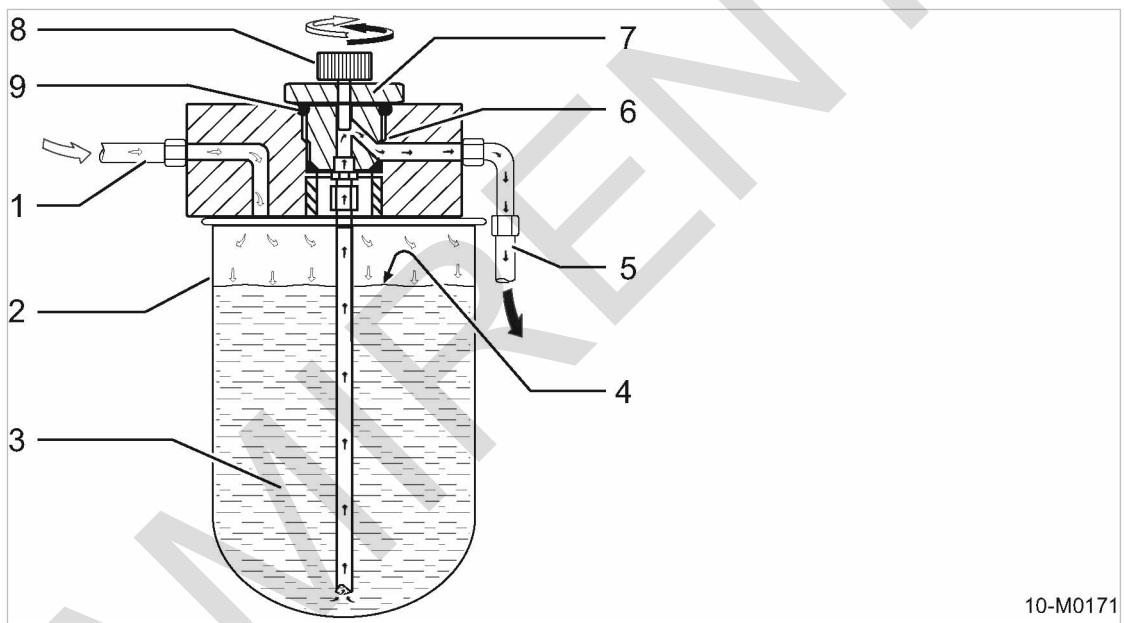


Fig. 71 Tool lubricator maintenance

- | | |
|------------------------|---|
| ① Compressed air inlet | ⑥ Tool lubricator upper part with oil filling port |
| ② Oil tank | ⑦ Filler plug with dipstick and integrated riser tube |
| ③ Oil volume | ⑧ Metering knob |
| ④ Oil surface | ⑨ O-ring |
| ⑤ Tool oil outlet | |

➤ Open the right-hand access door.

Checking the tool lubricator oil level

Check the oil level daily.

A dip stick is attached to the underside of the oil filler plug with which to measure the oil level.

The oil level should be in the upper third of the dipstick.

1. Slowly unscrew and withdraw the oil filler plug.
2. Wipe off the dipstick with a lint-free cloth or rag and screw the plug fully in again.

3. Unscrew and withdraw the plug once more and read off the oil level on the dipstick.
Oil level at the upper third of the dip stick: OK.
Top up if the oil does not reach this level.
4. Close the access door.

Filling and topping up with tool lubricator oil

1. Slowly unscrew and withdraw the oil filler plug.
2. Use a funnel to pour in the oil to the maximum level (10 – 15 mm below the top of the tank).
3. Check the oil level.
4. Check the filler plug O-ring for external damage.
Change a damaged O-ring.
5. Insert the plug in the filler port.
6. Close the access door.

Further information See chapter 2.7.1 for suitable oil grade and volume.

**10.8.2 Option da, db, dc, dd
Cyclone separator maintenance**

Clean the cyclone separator dirt trap if the moisture content in the compressed air is too high.

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

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

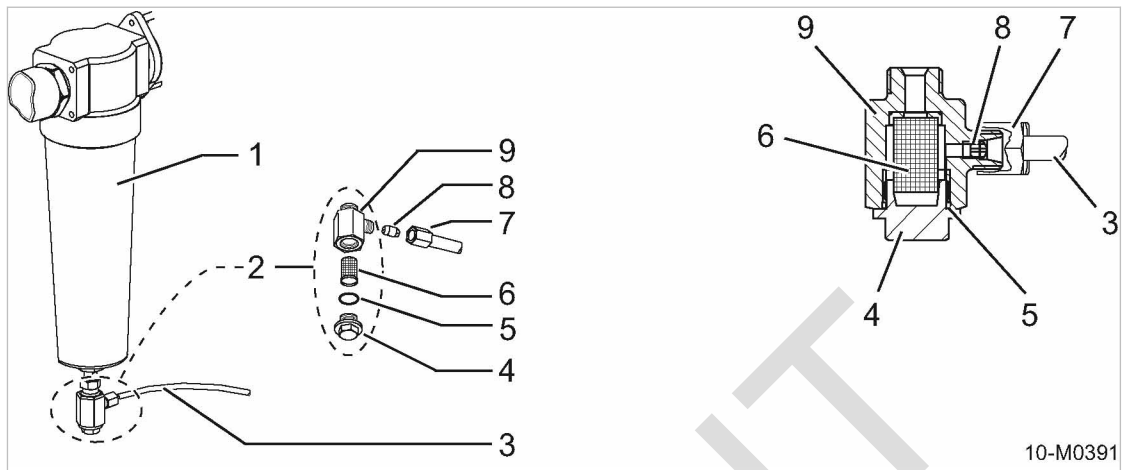


Fig. 72 Cleaning the dirt trap

- | | |
|-------------------------|-----------------------------------|
| ① Cyclone separator | ⑥ Strainer |
| ② Dirt trap | ⑦ Condensate drain hose union nut |
| ③ Condensate drain hose | ⑧ Nozzle |
| ④ Filler plug | ⑨ Dirt trap housing |
| ⑤ O-ring | |

➤ Open the left-hand door.

Cleaning the dirt trap:

1. Unscrew the plug ④ and remove the strainer.
2. Loosen the union nut ⑦ and detach the condensate drain hose ③ from the dirt trap.
3. Use the small screwdriver to unscrew the nozzle ⑧ from the dirt trap housing.
4. Clean the nozzle, strainer, screw plug, O-ring ⑤ and dirt trap housing ⑨ with cleaning solvent or spirit.
5. Check the nozzle, strainer and O-ring for wear.
Replace components if they are heavily worn.
6. Place the strainer on the screw plug.
7. Screw in the plug making sure the O-ring seats properly.
8. Screw in the nozzle and re-attach the condensate drain hose.

Making operational:

1. Reconnect the negative cable to the batteries.
2. Close the access door.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
4. Open the outlet valves.
5. Open the left-hand door.

6. Check the cyclone separator housing and hose line for leaks.
7. Close the access door.

10.8.3 Option dd Combination filter maintenance

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



WARNING

Danger of injury from compressed air!
The combination filter is under pressure when operating; serious injury can result from loosening or opening components under pressure.

- Wait until the machine is completely vented (check that the pressure gauge indicates 0 bar).
- De-pressurise the combination filter.

Option dd

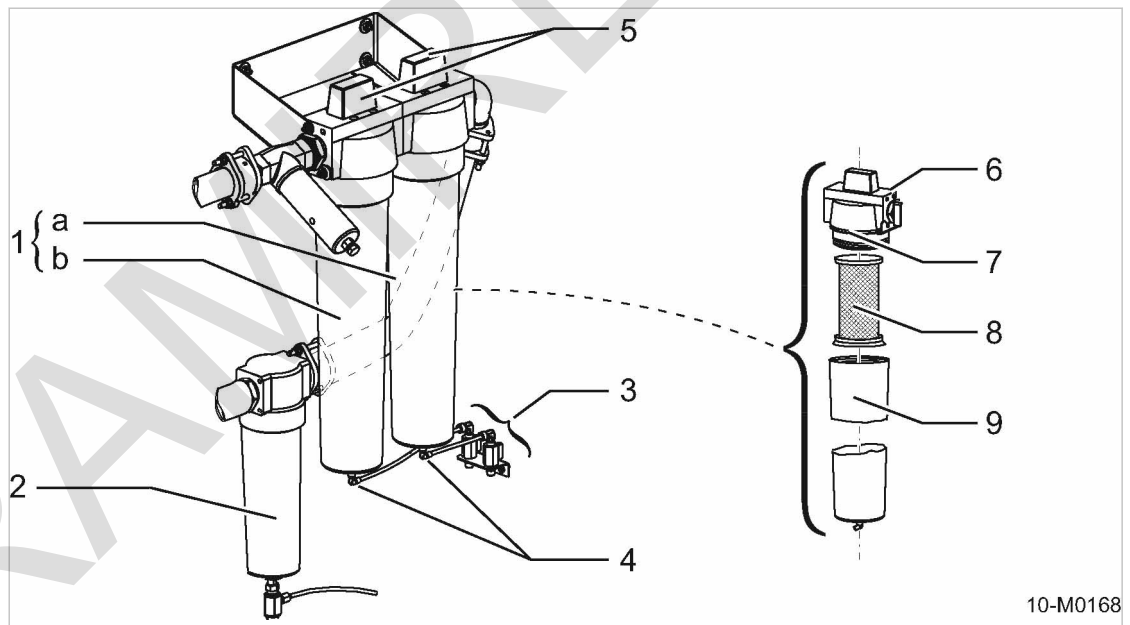


Fig. 73 Combination filter maintenance

- | | |
|---|--|
| ① Filter combination | ⑤ Pressure differential gauge (check fittings for Service personnel) |
| ② Cyclone separator | ⑥ Filter head |
| ③ Shut-off ball valve for condensate drainage | ⑦ Casing gasket |
| ④ Condensate drain hose fittings | ⑧ Filter element |
| | ⑨ Filter housing |

- Open the left-hand door.

10.8.3.1 Draining condensate

Material Receptacle
Cleaning cloth

1. Place the receptacle under the combination filter hose lines.
2. Open the pre-filter and micro-filter condensate drain shut off valves.
3. Close the access door.
4. Start up the machine and run in IDLE.
The condensate collecting in the filter housings is blown out.
5. Stop the compressor as soon as air escapes.
6. Open the left-hand door.
7. Close the shut-off valve.
8. Close the access door.



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

10.8.3.2 Changing the filter elements

The pre-filter and microfilter contain different elements and these must be changed as a pair. Note location!



Using the combination filter without an element installed is not permitted.
Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – Contamination risk!

Material Spare parts
Filter wrench
Wrench
Cleaning cloth
Clean fabric gloves

Precondition Machine is cooled down.
Negative cable to the batteries disconnected.

Ensure that the combination filter is not under pressure.

- Slowly open the pre-filter and micro-filter condensate drain shut off valves.
Remaining pressure escapes.

Changing the pre-filter element:

1. Unscrew and remove the drain hose from the filter housing.
2. Unscrew the filter housing counter-clockwise.
3. Draw the filter element down and out.
4. Clean the filter head, housing and sealing surface with a lint-free cloth.
5. Check the housing gasket.
When damaged, replace the housing gasket.

6. Insert the new filter element.



Wear gloves!

7. Screw on the filter housing clockwise.
8. Screw on the condensate drain hose.

Changing the micro-filter element:

1. Unscrew and remove the drain hose from the filter housing.
2. Unscrew the filter housing counter-clockwise.
3. Draw the filter element down and out.
4. Clean the filter head, housing and sealing surface with a lint-free cloth.
5. Check the housing gasket.
When damaged, replace the housing gasket.
6. Insert the new filter element.



Wear gloves!

7. Screw on the filter housing clockwise.
8. Screw on the condensate drain hose.

Making operational:

1. Close the condensate drain shut-off valves.
2. Tighten the filter combination fittings.
3. Reconnect the negative cable to the batteries.
4. Close the access door.



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

Further information

Further information on changing elements can be found in the filter instructions in chapter 13.6.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
4. Open the outlet valves.
5. Open the left-hand door.
6. Check the combination filter housing and hose lines for leaks.
7. Close the access door.

**10.8.4 Option dc
Fresh air filter maintenance**

Before commencing work on the fresh air filter, read and understand the operating instructions for pressurised air filters (fresh air filters) provided in chapter 13.7.

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

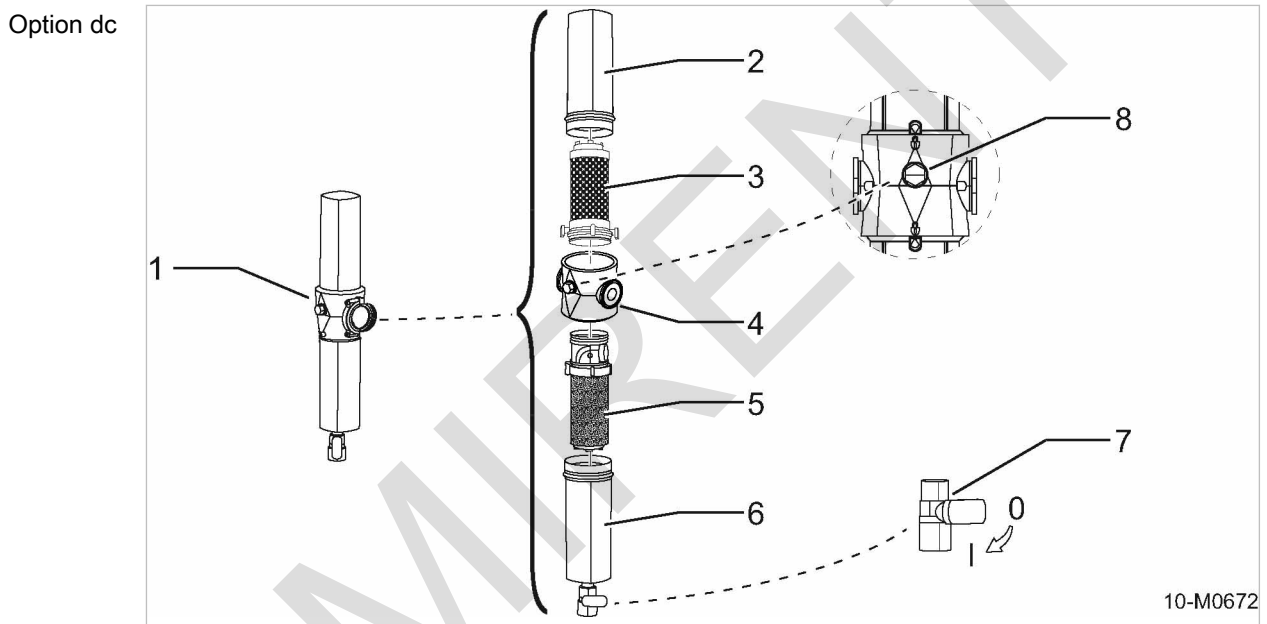


Fig. 74 Fresh air filter maintenance

- | | |
|--------------------------------------|--|
| ① Fresh air filter | ⑤ Lower filter element (high capacity element) |
| ② Upper housing | ⑥ Lower housing |
| ③ Upper element (adsorption element) | ⑦ Condensate drain (tap for manual draining)
0 - closed
I - open |
| ④ Body | ⑧ Oil indicator |

➤ Open both doors.

10.8.4.1 Draining condensate

- Material** Receptacle
 Cleaning cloth

1. Place the receptacle below the fresh air filter condensate drain point.
2. Open the condensate drain valve.
3. Close the doors.
4. Switch the machine on and run it in IDLE mode for approx. 2 minutes.
 The condensate collecting in the filter housings is blown out.

5. Shut down the machine.
6. Open both doors.
7. Close the drain valve.
8. Carefully remove the receptacle.
9. Close the doors.



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

10.8.4.2 Check the oil indicator

The fresh air filter is fitted with an oil indicator. When the indicator is blue, the filtration function can no longer be ensured and the filter must not be used. Both filter elements and the oil indicator must be changed (regardless of the maintenance schedule).

The oil indicator must be checked at least once daily.



The oil indicator does not give information on the filter element changing interval.

- Check the oil indicator.
Indicator blue - change both filter elements and the indicator.

10.8.4.3 Changing consumable parts

The fresh air filter contains two different element and both must be changed as a pair. Note location!



Using the fresh air filter without an element installed is not permitted!

Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – Contamination risk!

Material Spare parts
Filter wrench
Wrench
Cleaning cloth
Clean fabric gloves

Precondition Machine is cooled down.
Negative cable to the batteries disconnected.

Ensuring the fresh air filter is depressurized:

- Open the fresh air filter drain tap to release any remaining pressure.

Change the lower filter element (high performance element):

1. Unscrew the lower housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the lower housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
When damaged, replace the housing gasket.

5. Insert a new lower filter element.



Wear gloves!

6. Screw on the lower housing clockwise.

Change the upper filter element (adsorption insert).

1. Unscrew the upper housing counter-clockwise.
2. Draw the filter element up and out.
3. Clean the lower housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
When damaged, replace the housing gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the upper housing clockwise.

Change the oil indicator:

1. Unscrew the oil indicator.
2. Clean the housing and sealing surface with a lint-free cloth.
3. Screw in the new oil indicator.

Making operational:

1. Close the drain valve.
2. Reconnect the negative cable to the batteries.
3. Close the doors.



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

Further information

Further information on changing elements can be found in the operating instructions in chapter 13.7.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
4. Open the outlet valves.
5. Open both doors.
6. Check the fresh air filter housing and hose line for leaks.
7. Close the doors.

10.8.5 Option ba
Frost protector maintenance

At temperatures below 5°C, the level of antifreeze in the protector must be checked daily before starting the compressor.

Material Antifreeze (Wabcothyl)
Cleaning cloth

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



DANGER

Spontaneous ignition of antifreeze!

Danger of fire or explosion caused by the spontaneous ignition can result in serious injury.

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



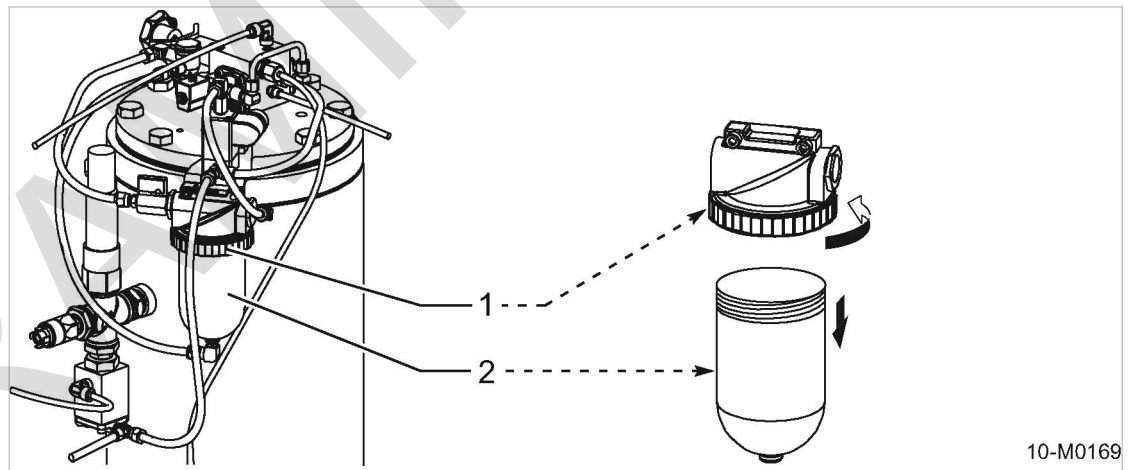
WARNING

Compressed air!

The frost protector is under pressure when operating; serious injury can result from loosening or opening components under pressure.

- De-pressurise the frost protector

Option ba



10-M0169

Fig. 75 Filling the frost protector

- ① Defroster fitting
- ② Defroster lower part

1. Open the right-hand access door.
2. Unscrew the clamp ring and remove the bowl.
3. Fill the bowl ¾ full with antifreeze.
4. Carefully screw the bowl back into place.
5. Close the access door.

**10.8.6 Option 1a
Spark arrestor cleaning**

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

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

- Precondition
- The machine is shut down.
 - The machine is standing level.
 - The machine is fully vented, the pressure gauge reads 0 bar.
 - 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 (standard):

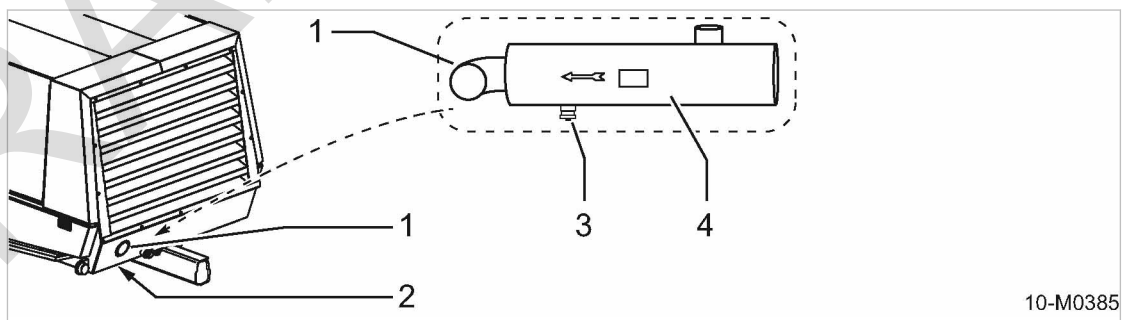


Fig. 76 Cleaning the spark arrestor (standard)

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

1. Unscrew the soot drain plug.
2. Push one end of the hose over the drain port and place the other end in the receptacle.
3. Start the compressor engine.

4. In order to increase the pressure in the exhaust system, partially cover the exhaust discharge pipe with a fire-proof object.
Soot will drain through the hose into the receptacle.
5. Shut down the engine.
6. Remove the hose and replace the plug .



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



Dispose of soot according to environment protection regulations.

Option oe Cleaning the spark arrestor (closed floor pan):

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

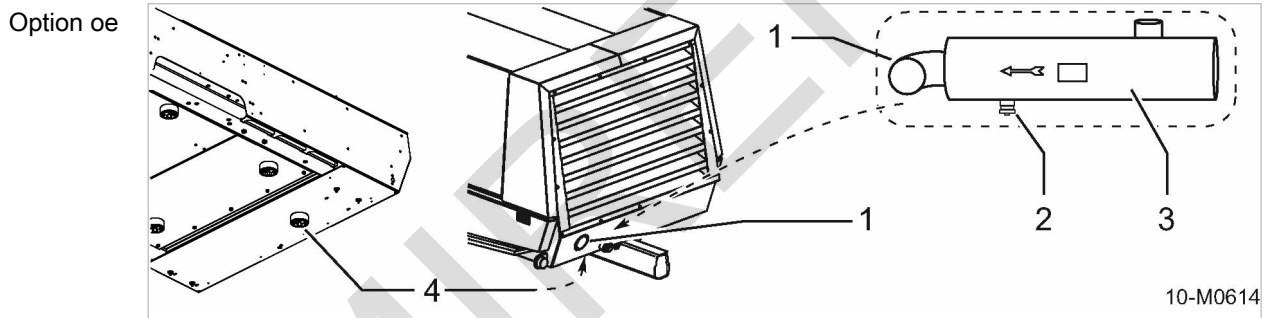


Fig. 77 Cleaning the spark arrestor (closed floor pan)

- | | |
|--|---|
| <ul style="list-style-type: none"> ① Exhaust silencer end pipe ② Soot drain port with plug | <ul style="list-style-type: none"> ③ Exhaust silencer with integrated spark arrestor ④ Service opening, closed with bung (access to drain port) |
|--|---|

1. Unscrew the bung.
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 fire-proof object.
Soot will drain through the hose into the receptacle.
6. Shut down the engine.
7. Remove the hose and replace the plug .
8. Screw the bung into the floor pan.



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



Dispose of soot according to environment protection regulations.

10.8.7 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 bar.
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.

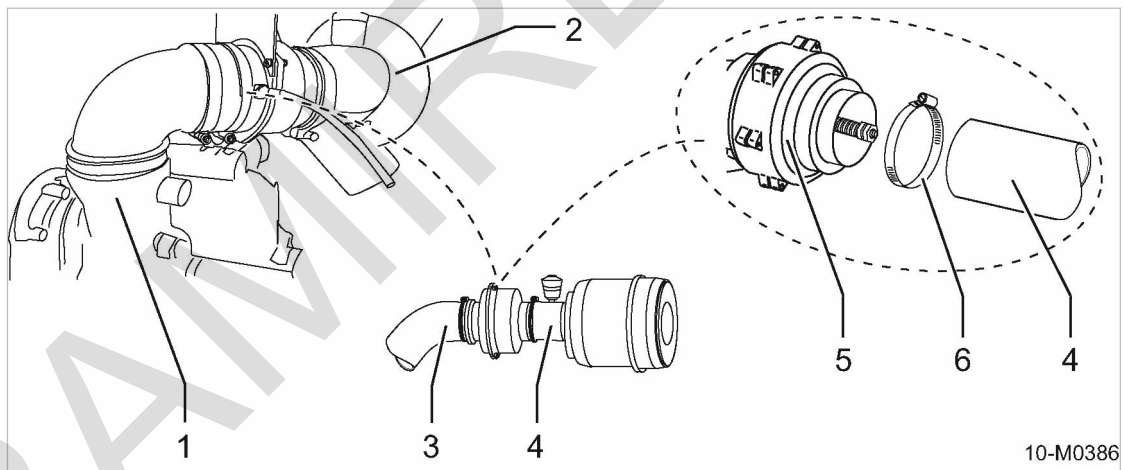


Fig. 78 Engine air intake shut-off valve maintenance

- | | |
|---------------------------------|------------------------------------|
| ① Engine air intake | ④ Air intake hose (filter side) |
| ② Engine air filter | ⑤ Engine air intake shut-off valve |
| ③ Air intake hose (engine side) | ⑥ Hose clamp |

- Open both doors.

Cleaning the engine air intake shut-off valve:



1. **NOTICE!**
The engine air intake shut-off valve does not close fully.
The machine does not shut down? Destruction of the engine and explosion and/or fire are possible!
➤ Do not grease the valve, as this may cause a build up of dust and valve sticking.
2. Loosen the hose clamp on the filter side of the valve and turn the air intake hose to one side.

3. Check if the interior of the shut-off valve is clean.
Blow out any dirt with compressed air.



If necessary, clean the valve with petroleum ether or spirit and allow to dry.
Refer to a specialised workshop or KAESER Service if dirt cannot be removed.

Checking the engine air intake shut-off valve for correct function and movement:

1. Check the valve for signs of excessive wear.
2. Check that the valve plate closes fully and easily.

Result Have the valve changed if it is heavily worn or malfunctions in any way.

1. Reposition the air intake hose and tighten the clamp.
2. Close the doors.
3. Start the machine and switch to LOAD.

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

Checking manual operation of the engine air intake valve

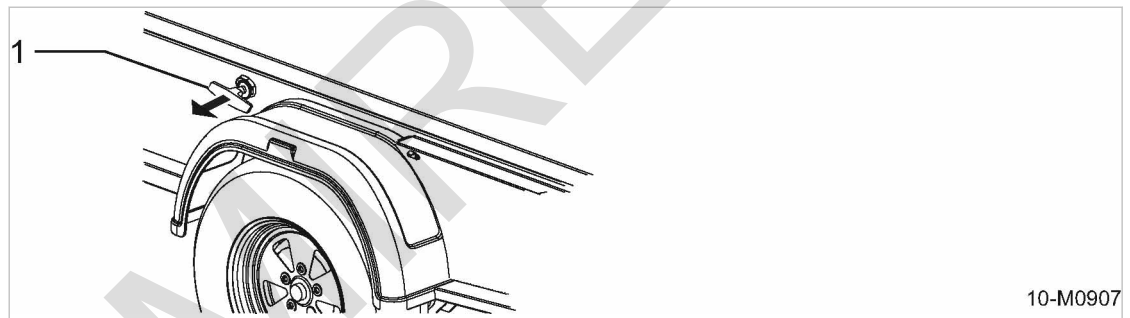


Fig. 79 Checking manual operation of the engine air intake valve

① Handle

1. Start the machine and switch to LOAD.
2. Pull the handle to the stop and hold.
The engine should stop in a few seconds.



Engine does not stop.

➤ Have the engine air intake valve checked by a specialist workshop or KAESER Service.

Further information

Further information on manual valve operation is given in chapter 8.7 "Shut down the machine if any dangerous situation arises".

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 enquiry and order for spares.

11.2 Ordering consumable parts and operating fluids/materials

KAESER consumable parts and operating materials are original Kaeser products. They are matched to application in our machines and ensure trouble-free operation.

Unsuitable or poor quality maintenance parts and operating materials may damage the machine or impair its proper function.

Damage to the machine can also result in personal injury.



WARNING

There is risk of personal injury or damage to the machine resulting from the use of unsuitable spare parts or operating 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. 72 Compressor consumables

DEUTZ 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	1	4475
Injector sealing ring	1	4476
V-belt	1	4470
Engine oil	1	1925

Tab. 73 Consumable engine 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 Service Addresses

Addresses of KAESER agents are given at the end of this manual.


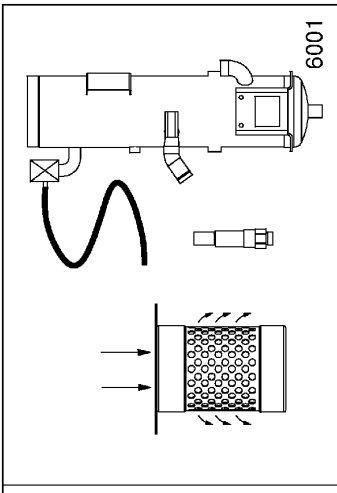
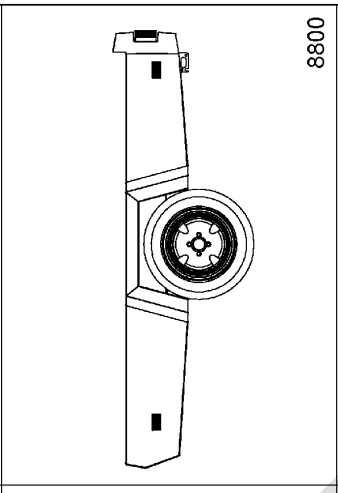
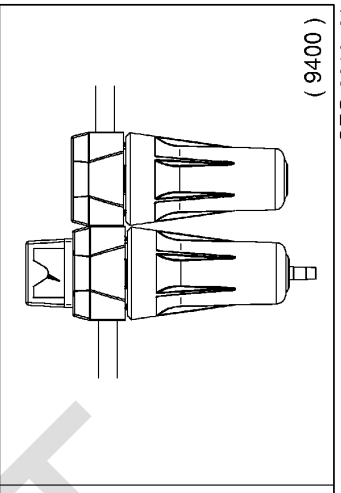

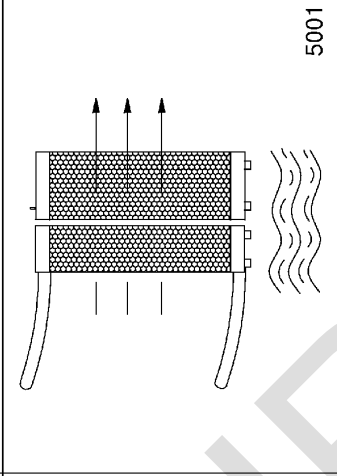
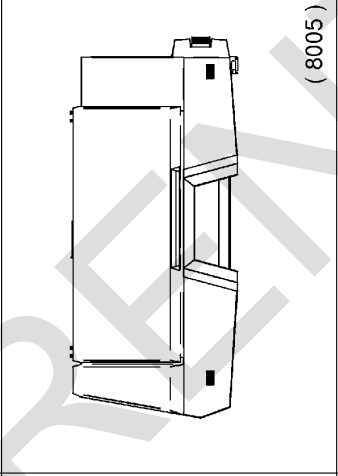
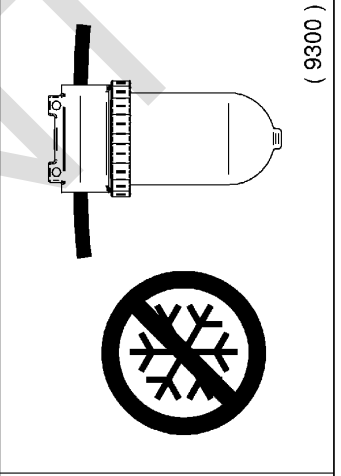
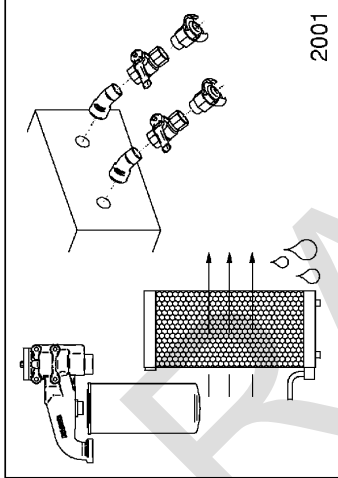
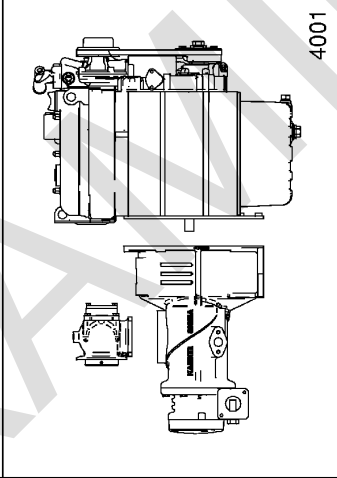
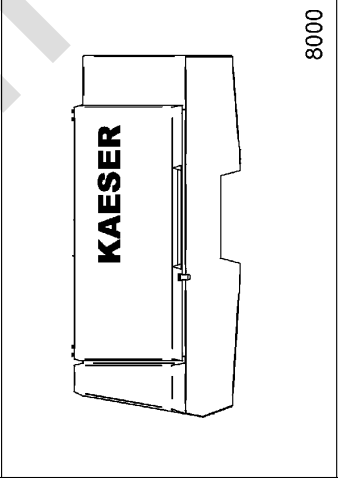
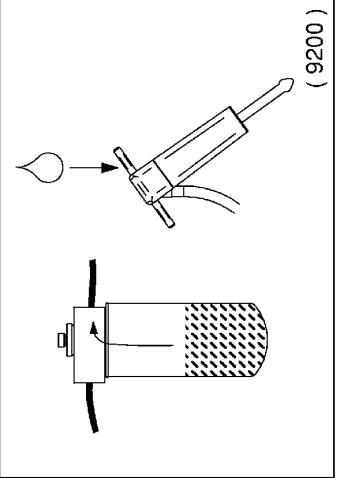
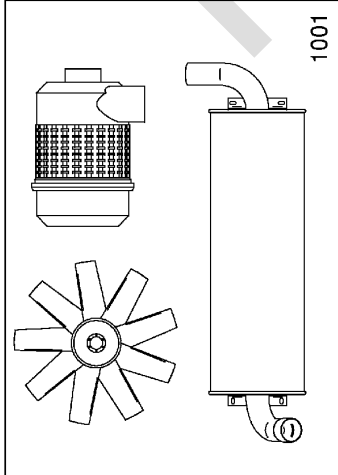
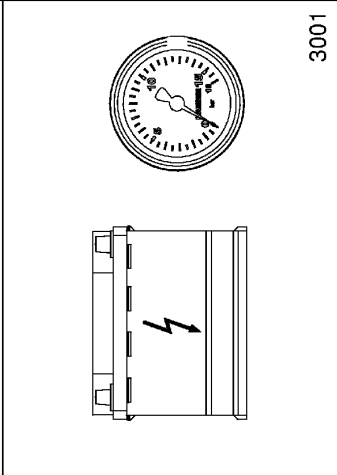
11.5 Spares for service and repair

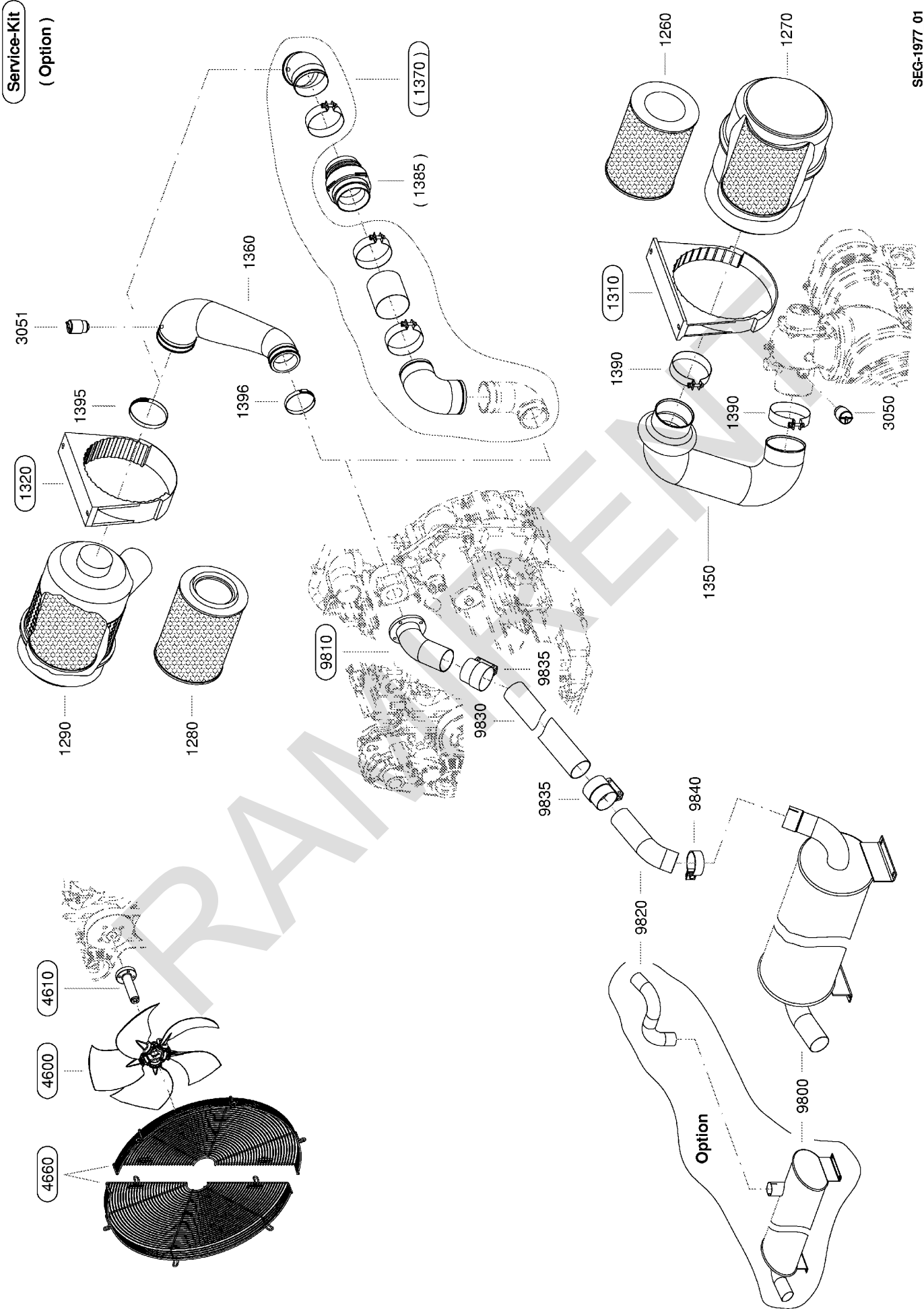
With the help of this parts list you can plan your material requirement according to operating conditions and order the spare parts you need.



- Make sure that any service or repair tasks not described in this manual are carried out by an authorised KAESER Service Technician.

(Option)

 <p>1001</p>	 <p>2001</p>	 <p>5001</p>	 <p>6001</p>
 <p>3001</p>	 <p>4001</p>	 <p>8000</p>	 <p>(8005)</p>
 <p>7001</p>	 <p>8900</p>	 <p>(9200)</p>	 <p>(9300)</p>
 <p>8800</p>	 <p>(9400)</p>	<p>SEG-2010_01</p>	



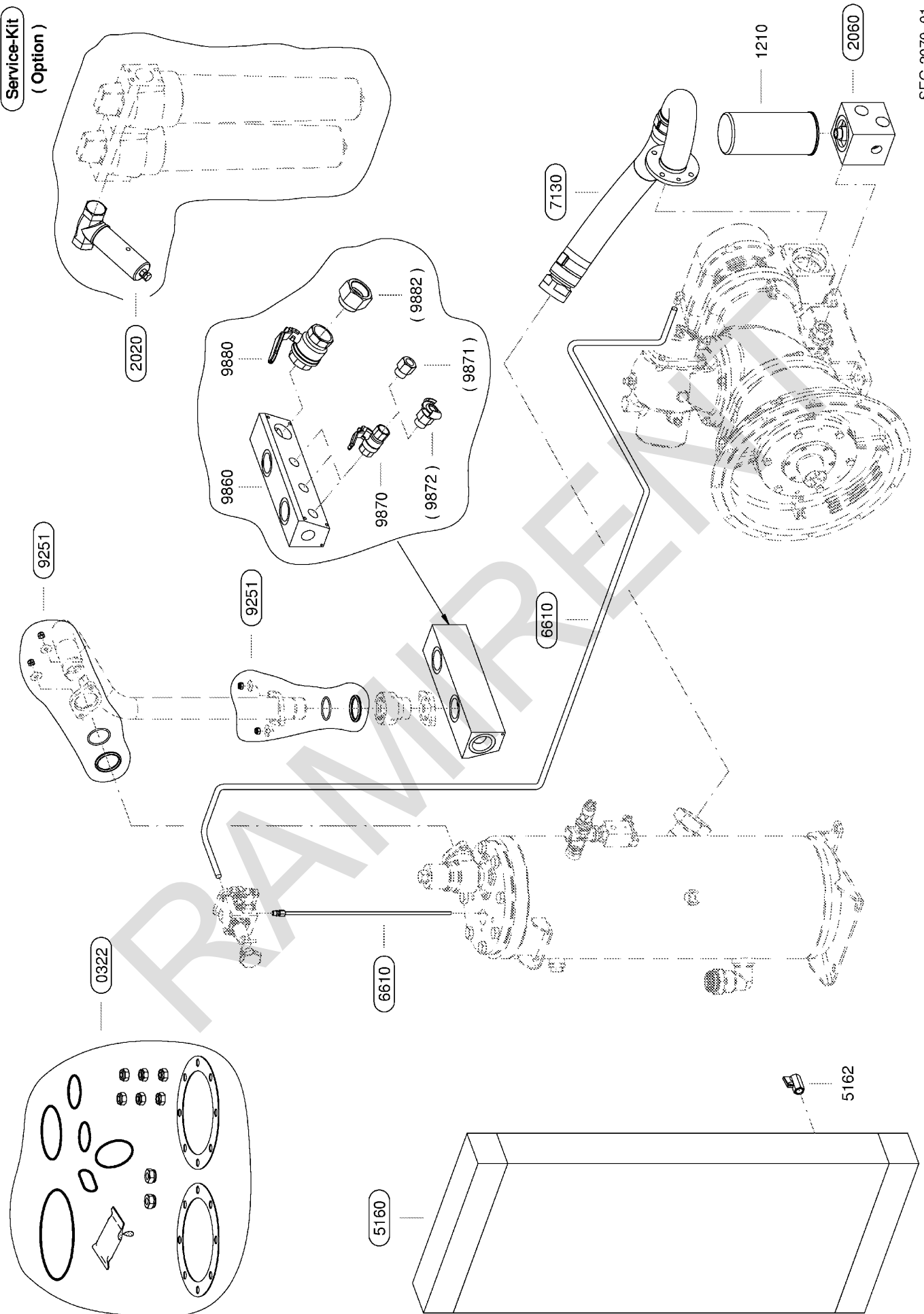
SEG-1977_01

Legend	KAESER
Inlet air/Cooling air/Exhaust	SEL-1803_01E

Item	Name	Option
1260	Compressor air filter element	
1270	Compressor air filter, complt.	
1280	Engine air filter element	
1290	Engine air filter, complete	
1310	Compressor air filter holder	
1320	Engine air filter holder	
1350	Compressor intake hose	
1360	Engine air intake hose	
1370	Connection-Kit chalwyn-valve	X
1385	Engine stop valve	X
1390	Hose clamp	
1395	Hose clamp	
1396	Hose clamp	
3050	Air filter maint. indicator	
3051	Maintenance indicator for engine air filter	
4600	Engine fan	
4610	Fan coupling	
4660	Fan guard	
9800	Exhaust silencer	
9810	Engine exhaust pipe	
9820	Exhaust pipe silencer	
9830	Exhaust hose	
9835	Exhaust hose clamp	
9840	Exhaust pipe clamp	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



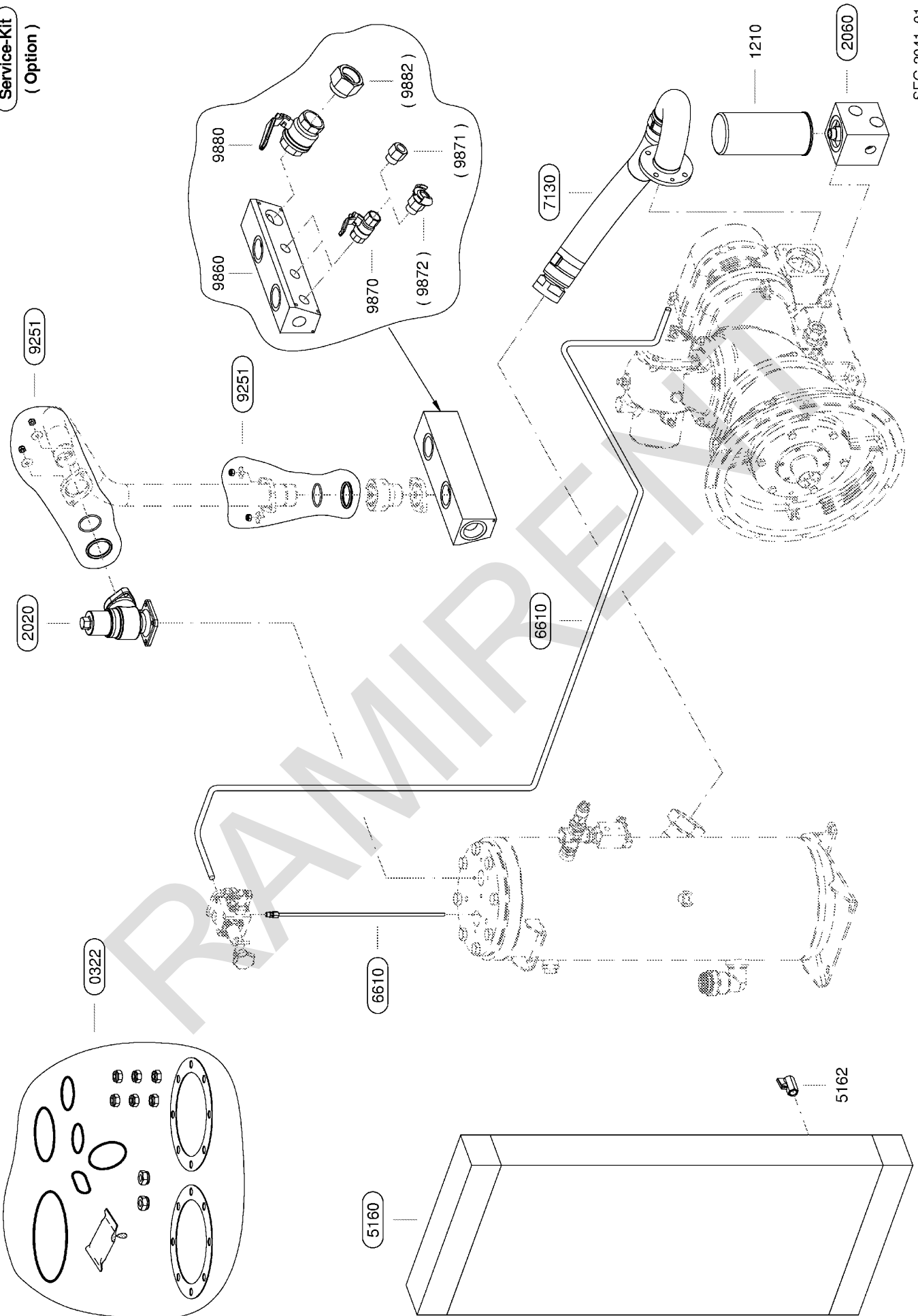
SEG-2070_01

		Legend	KAESER
		Oil circuit/Comprsd.air outlet	SEL-1743_01E
Item	Name	Option	
0322	Oil/air gasket set		
1210	Compressor oil filter element		
2020	Minimum pressure/check valve		
2022	Maintenance kit, MP/CV		
2024	Overhaul kit, MP/CV		
2060	Combination valve		
2062	Maintenance kit, combi. valve		
2064	Overhaul kit, combination valve		
5160	Compressor cooler		
5162	Compressor oil cooler drain		
6610	Oil scavenge line		
7130	Prepared hose		
9251	Pipe connection seal		
9860	Compressed air distributor		
9870	Outlet valve		
9871	Claw coupling adapter	X	
9872	Claw coupling	X	
9880	Large outlet valve		
9882	Adapter	X	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit
(Option)



SEG-2041_01

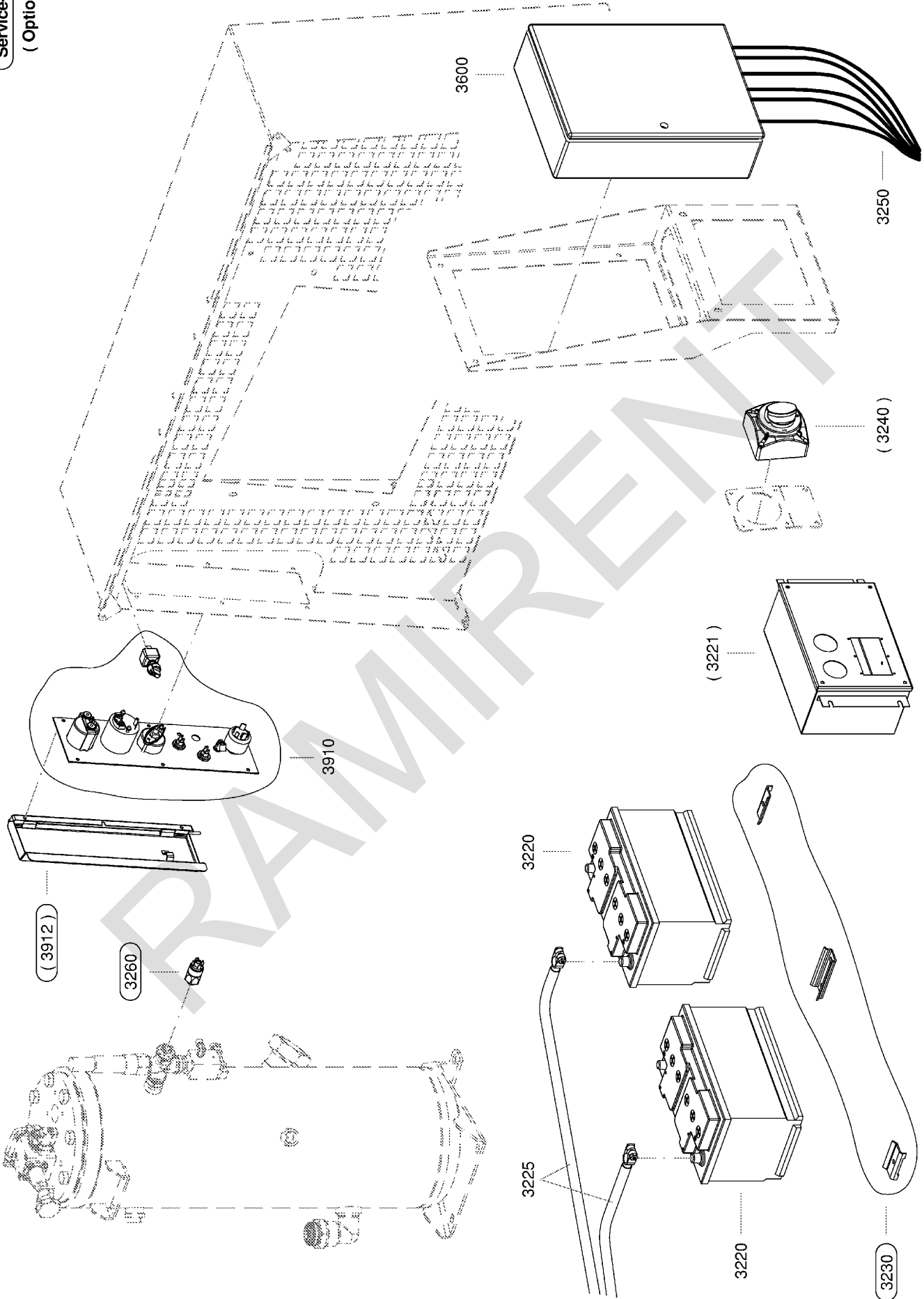
		Legend	KAESER
		Oil circuit/Comprsd.air outlet	SEL-1743_01E
Item	Name	Option	
0322	Oil/air gasket set		
1210	Compressor oil filter element		
2020	Minimum pressure/check valve		
2022	Maintenance kit, MP/CV		
2024	Overhaul kit, MP/CV		
2060	Combination valve		
2062	Maintenance kit, combi. valve		
2064	Overhaul kit, combination valve		
5160	Compressor cooler		
5162	Compressor oil cooler drain		
6610	Oil scavenge line		
7130	Prepared hose		
9251	Pipe connection seal		
9860	Compressed air distributor		
9870	Outlet valve		
9871	Claw coupling adapter	X	
9872	Claw coupling	X	
9880	Large outlet valve		
9882	Adapter	X	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit
(Option)

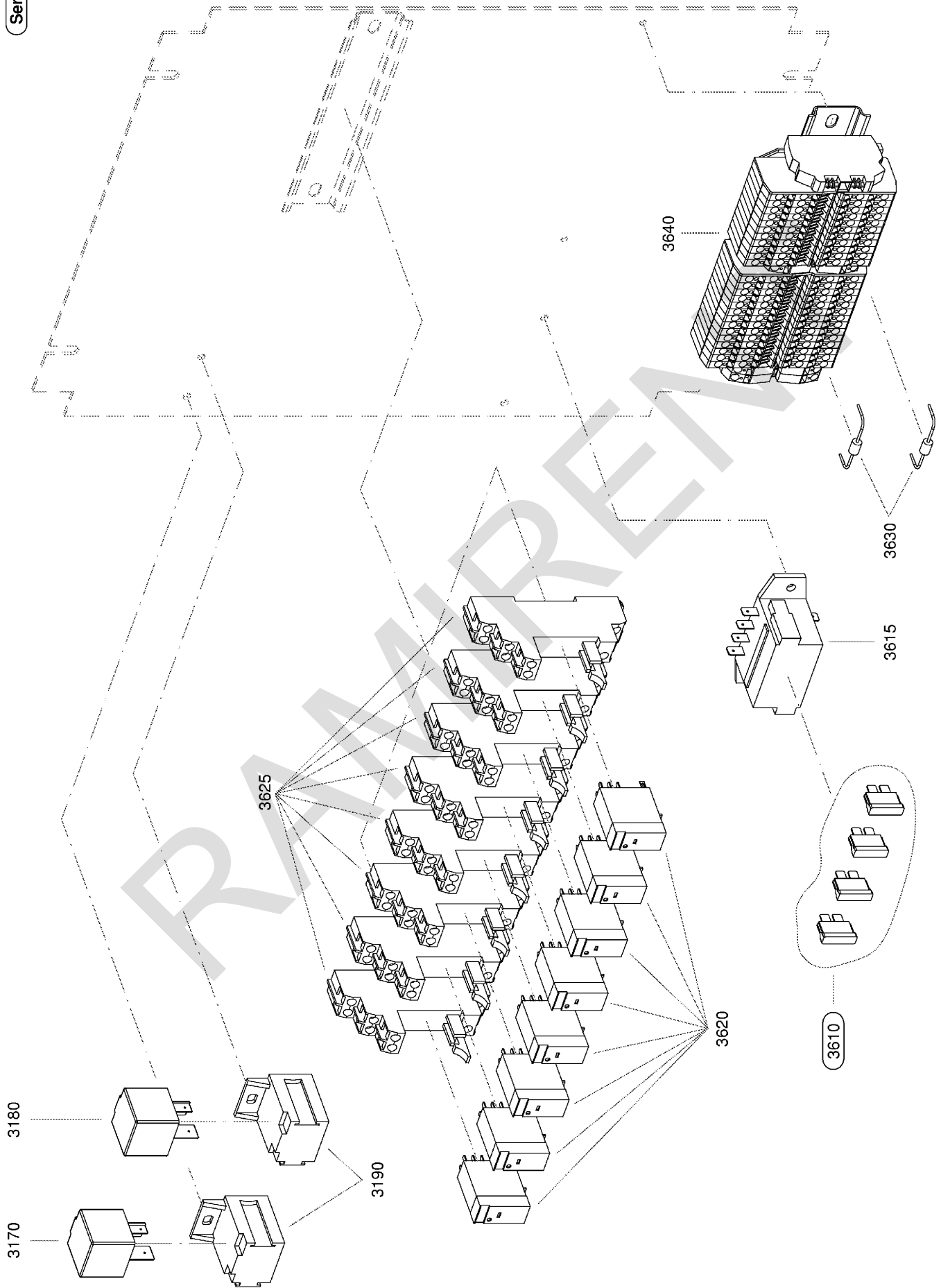
SEG-1972_01



		Legend	KAESER
		Electrics/Instruments	SEL-1807_01E
Item	Name	Option	
3220	Battery		
3221	Battery charger	X	
3225	Battery cable		
3230	Battery bracket		
3240	Battery isolating switch	X	
3250	Mains supply cable set		
3260	Back-pressure switch		
3732	Protective cap		
3600	Control cabinet		
3910	Instrument panel		
3912	Cover Instrument panel	X	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



Legend	KAESER
Terminal box	SEL-2170_01E

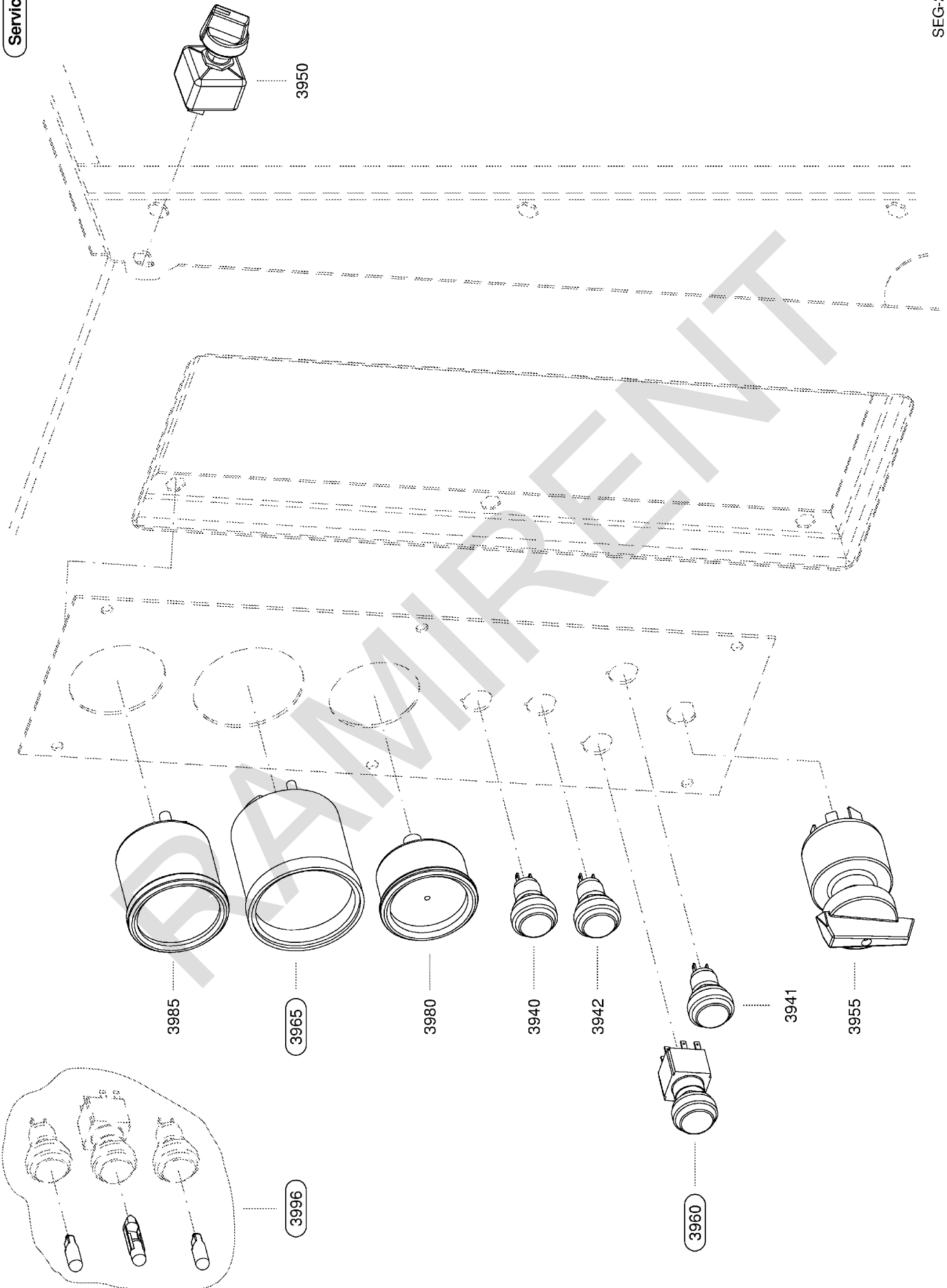
Item	Description	Option
3170	Starting relay	
3180	Shutdown relay	
3190	Power relay socket	
3610	Control fuse set	
3615	Fuse socket (set)	
3620	Control relay	
3625	Control relay socket	
3630	Diode	
3640	Terminal strip	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

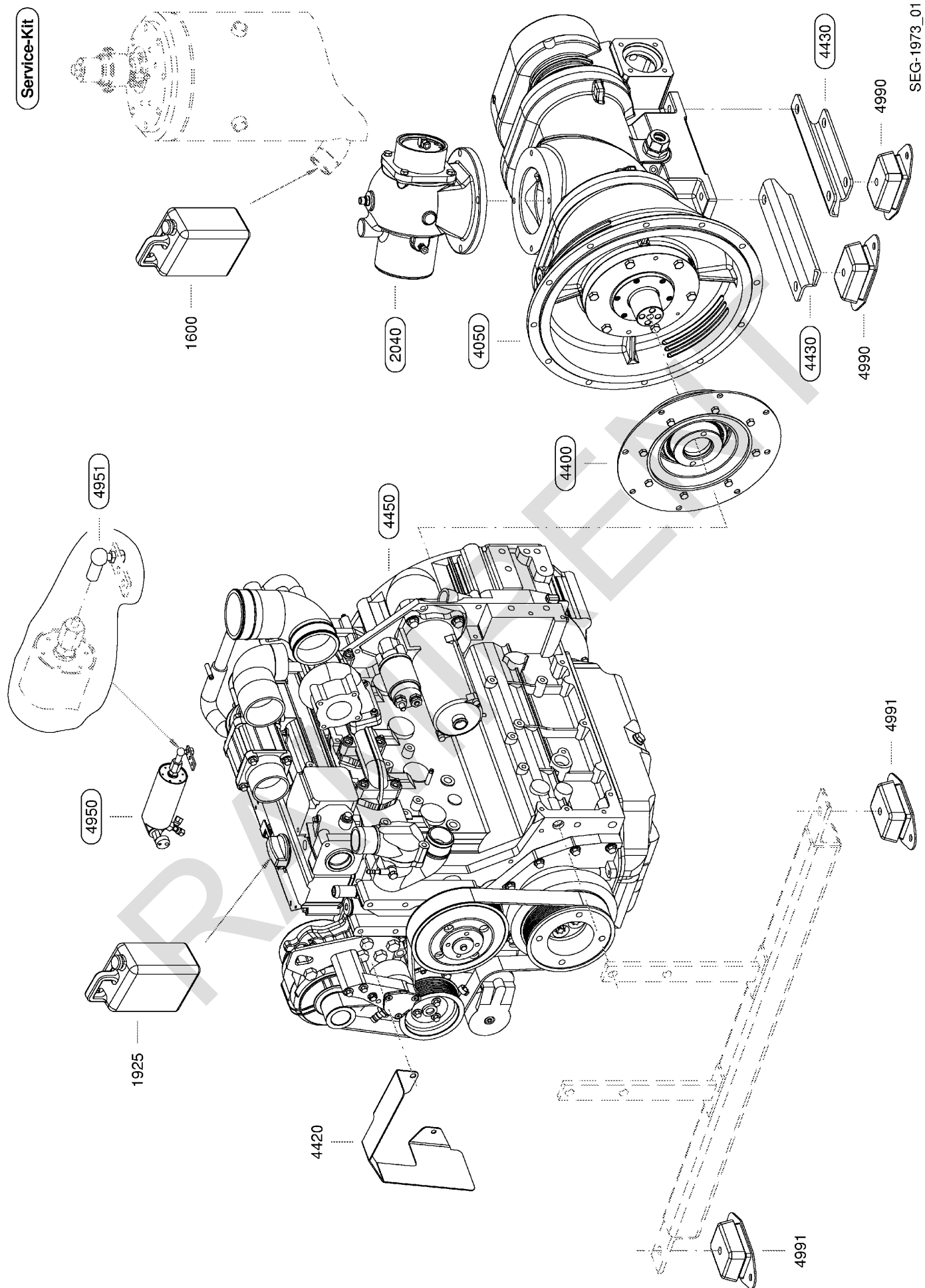
Service-Kit



		Legend	KAESER
		Instrument panel M122	SEL-1746_01E
Item	Name	Option	
3940	Charging/fault indicator lamp		
3941	Back-pressure indicator		
3942	Fuel gauge		
3950	Main switch		
3955	Starter switch		
3960	Changeover switch full load mode		
3965	Temperature gauge		
3980	Pressure gauge, instrument panel		
3985	Operating hours counter		
3996	Instrument lamp set		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



SEG-1973_01

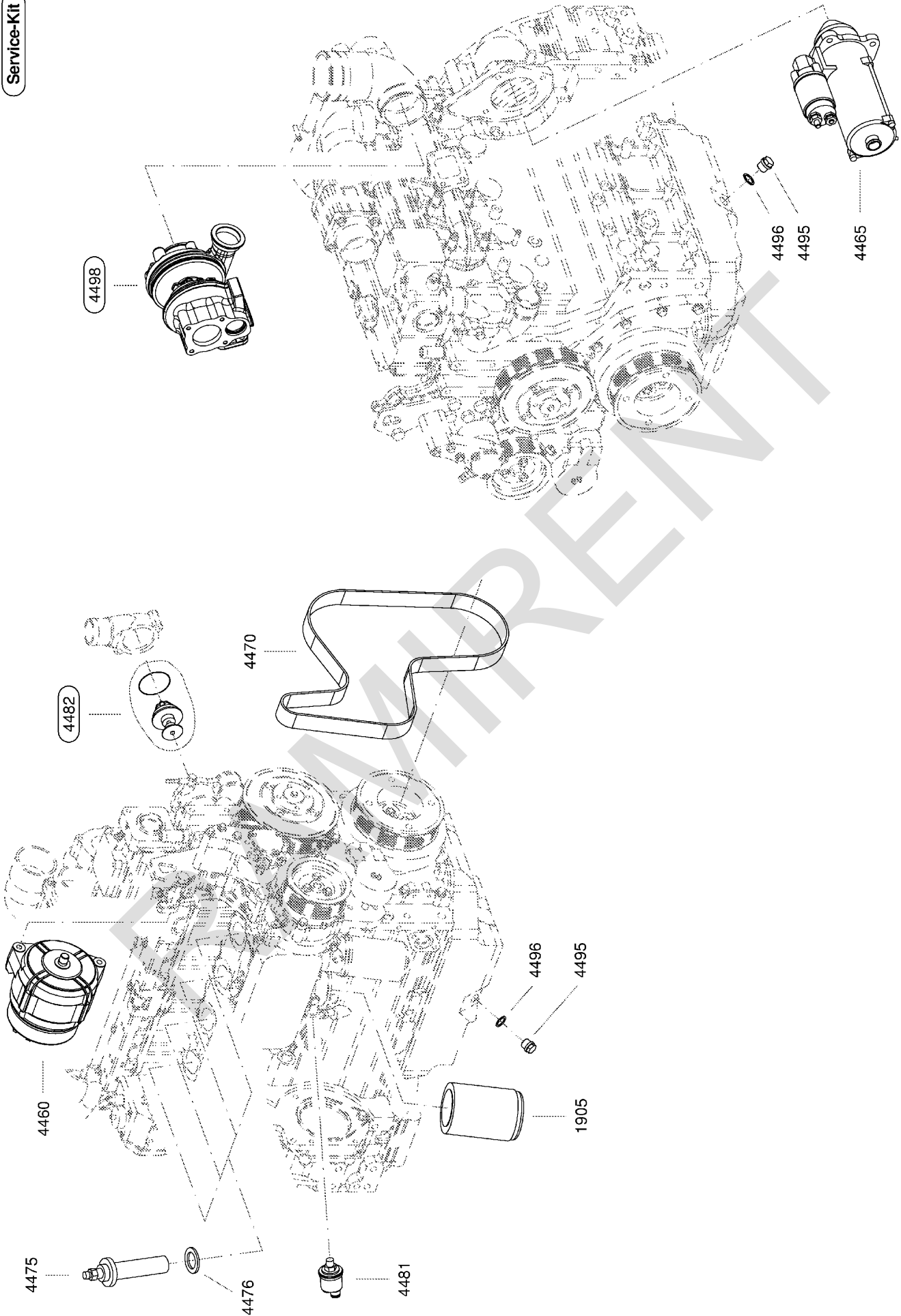
		Legend	KAESER
		Airend/engine M122	SEL-1811_01E
Item	Name	Option	
1600	Sigma Fluid *)		
1925	Engine oil *)		
2040	Inlet valve		
2042	Maintenance kit, inlet valve		
2044	Overhaul kit, inlet valve		
4050	SIGMA exchange airend		
4400	Drive coupling		
4420	Belt guard		
4430	Mounting bracket for airend base		
4450	Engine		
4950	Speed adjusting cylinder		
4951	Swivel joint		
4990	Compressor mountings		
4991	Engine mountings		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

*) see cooling oil/engine oil recommendations

Service-Kit



SEG-1610_01

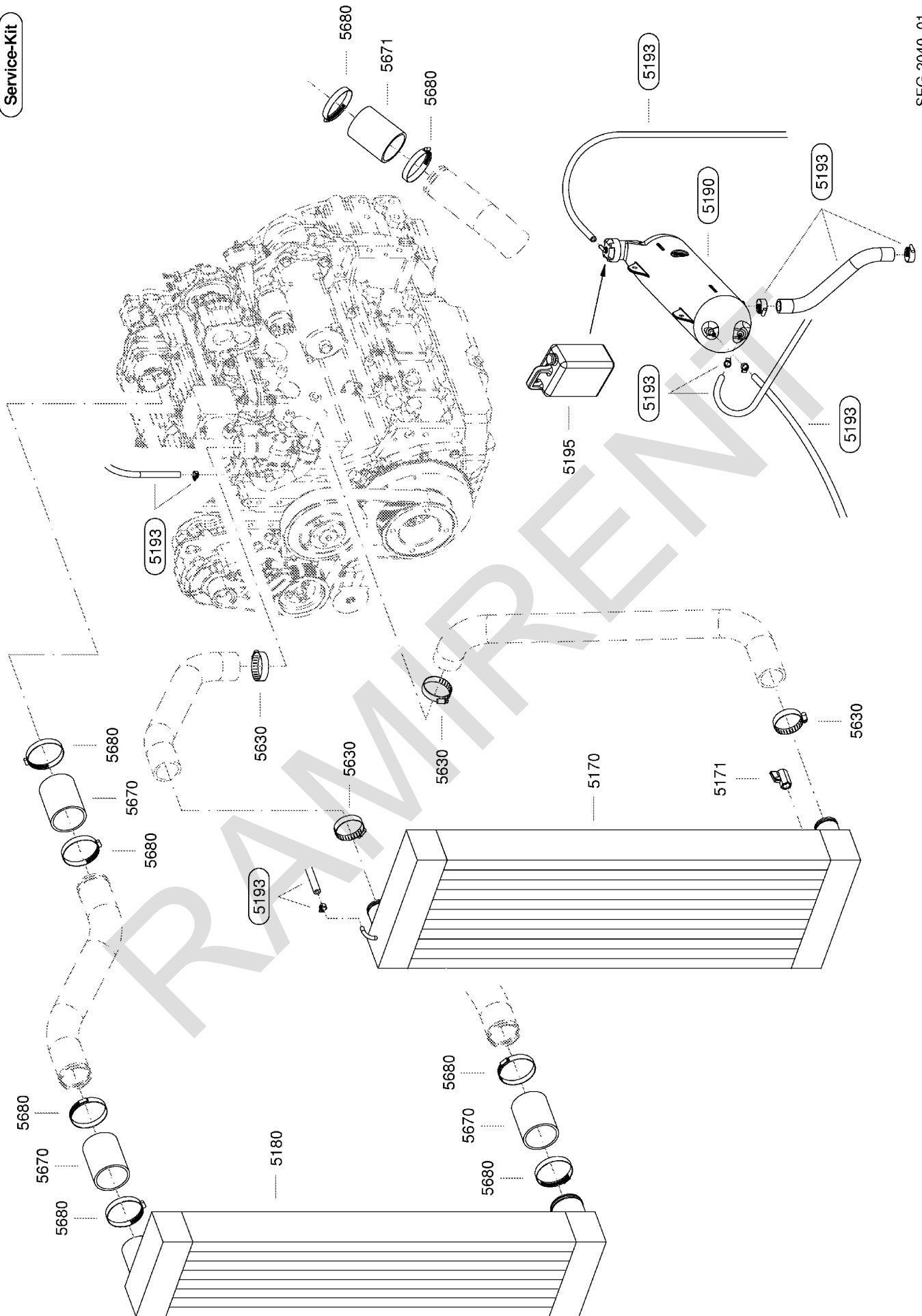
		Legend	KAESER
		Engine	SEL-1531_01E
Item	Description	Option	
1905	Engine oil filter element		
4460	Alternator		
4465	Starter		
4470	Engine V-belt		
4475	Injector nozzle		
4476	Injector nozzle seal		
4481	Oil pressure switch		
4482	Coolant thermostat		
4490	Engine gasket set		
4495	Engine oil drain		
4496	Oil drain seal		
4498	Turbo charger		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit

SEG-2040_01

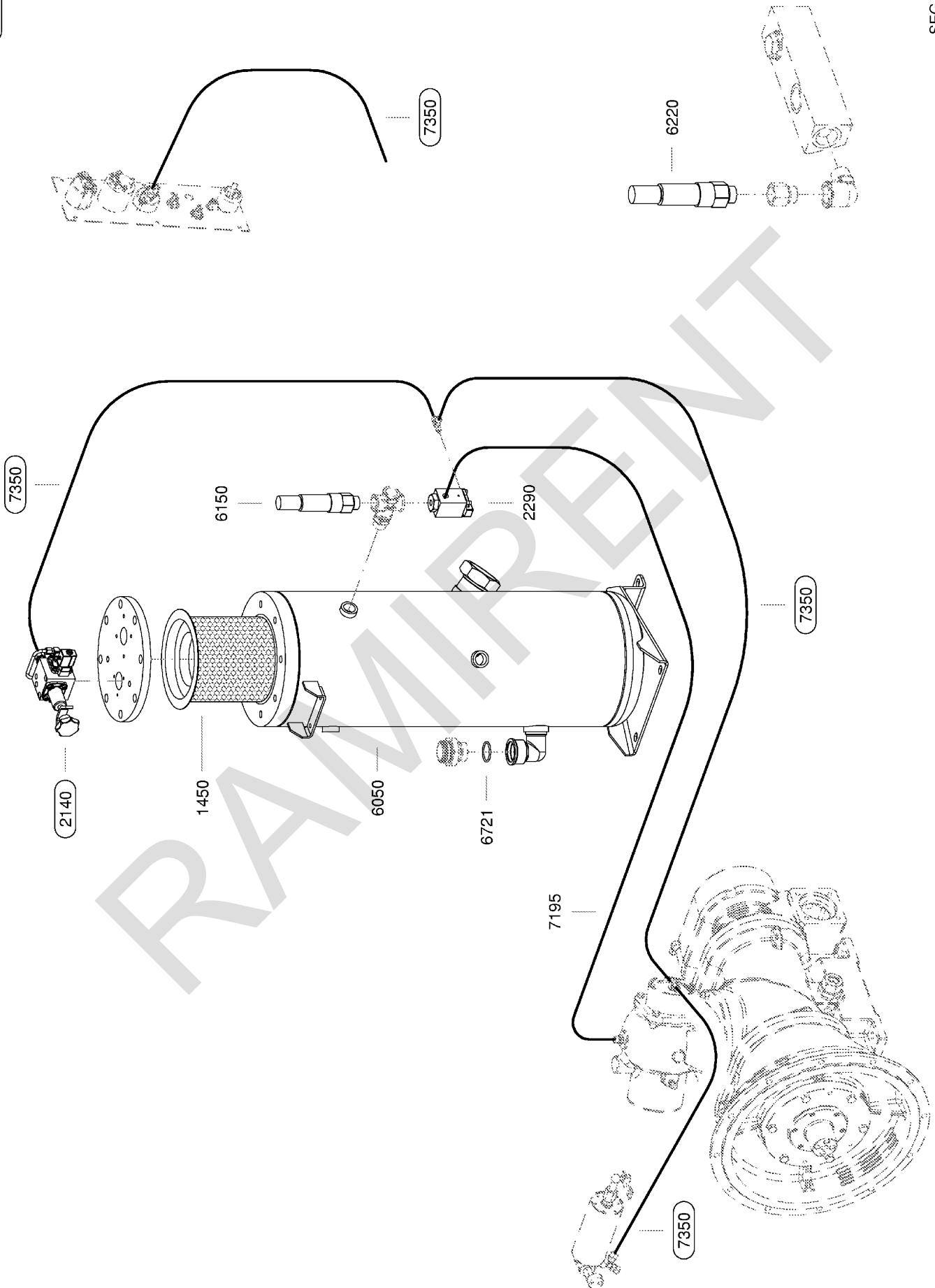


		Legend	KAESER
		Engine cooling M122	SEL-1742_01E
Item	Name	Option	
5170	Engine radiator		
5171	Engine coolant drain		
5180	Intercooler		
5190	Expansion tank		
5193	Expansion tank pipes		
5195	Engine antifreeze *)		
5630	Hose clamp		
5670	Charge air hose		
5671	Corrugated hose		
5680	Hose clamp		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

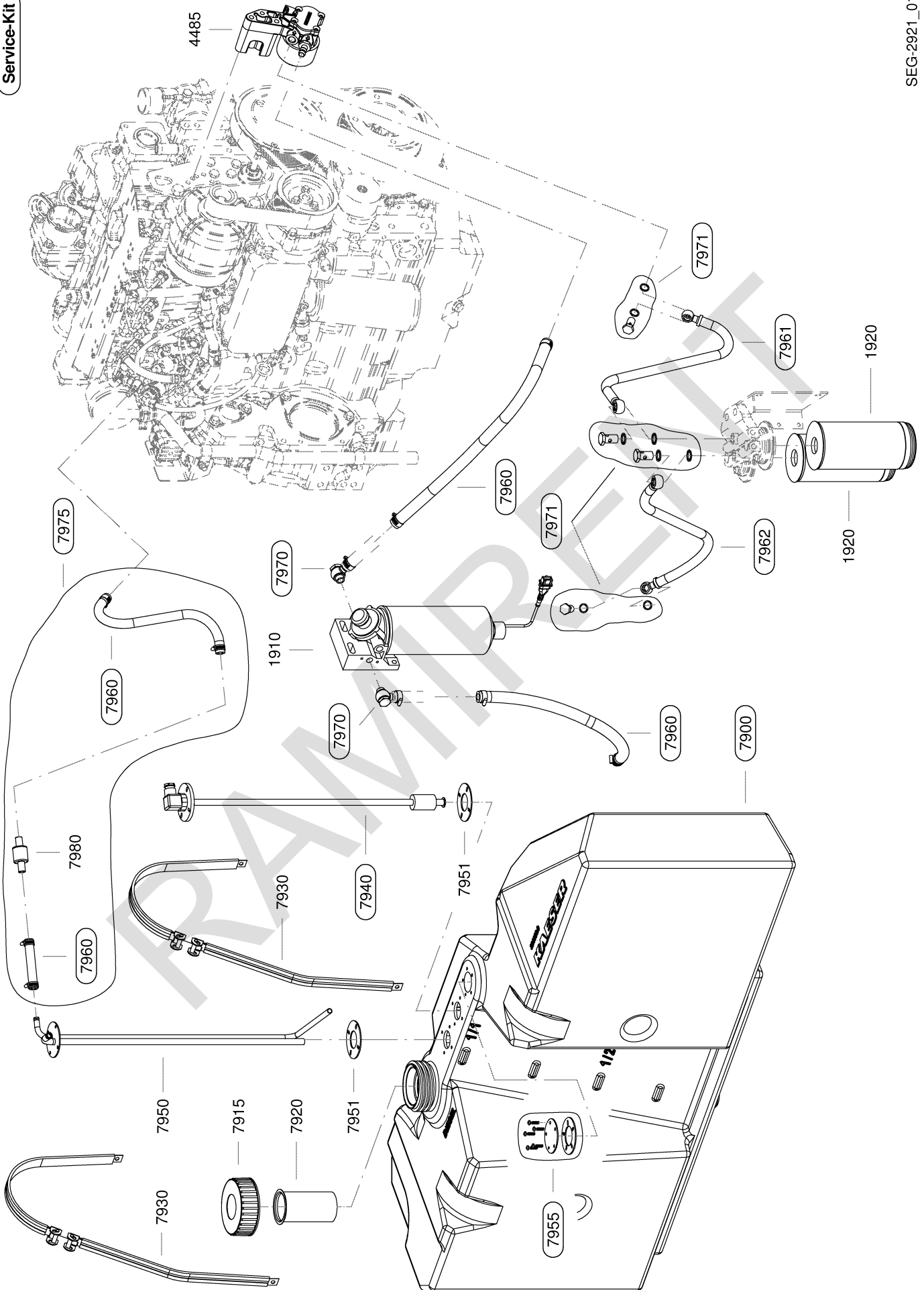
Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

*) see antifreeze recommendations



		Legend	KAESER
		Oil separation/control air	SEL-1815_01E
Item	Name	Option	
1450	Oil separator cartridge		
2140	Control valve		
2142	Maintenance kit, control valve		
2290	Directional control valve		
2292	Directional valve maint. kit		
6050	Oil separator tank		
6150	Pressure relief valve for oil separator tank		
6220	Air distributor safety valve		
6721	Oil filler seal		
7195	Prepared hose		
7350	Control line kit		
<p>Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.</p> <p>Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.</p>			

Service-Kit

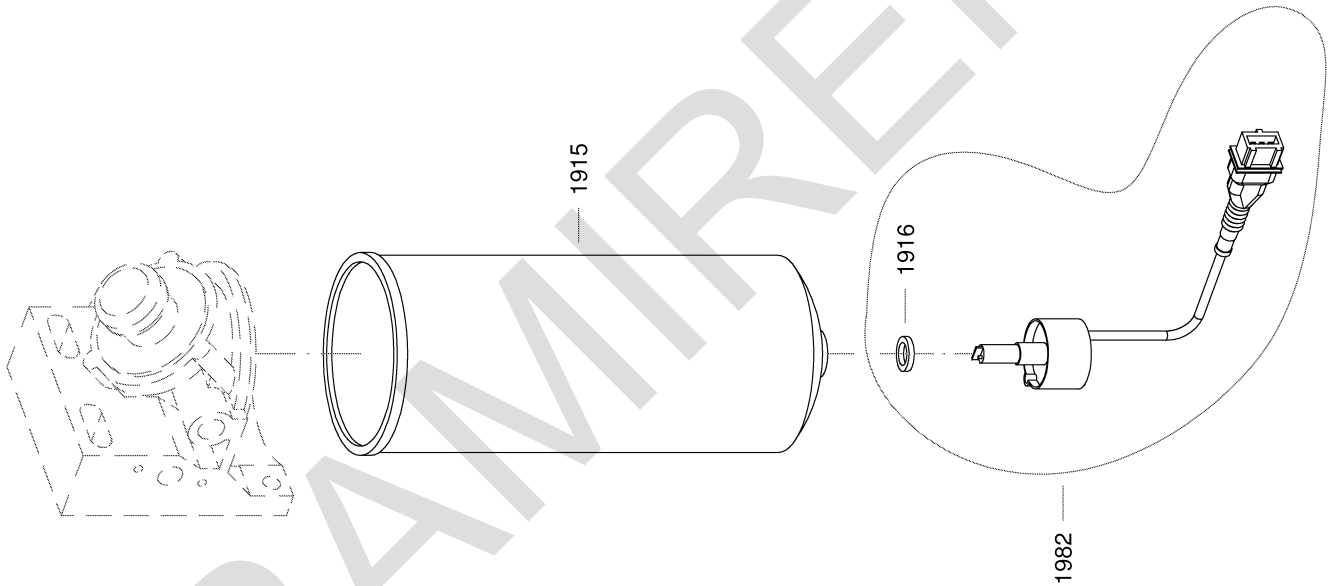


SEG-2921_01

		Legend	KAESER
		Fuel supply M122	SEL-2259_01E
Item	Name	Option	
1910	Fuel prefilter		
1920	Fuel fine filter element		
4485	Fuel pump		
7900	Fuel tank		
7915	Fuel tank cap		
7920	Fuel strainer		
7930	Tank fixing		
7940	Fuel level switch		
7950	Fuel suction pipe		
7951	Connection gasket		
7955	End cap (set)		
7960	Fuel lines set		
7961	Fuel hose		
7962	Fuel hose		
7970	Fuel hose connection		
7971	Fuel hose connection		
7975	Fuel return line		
7980	Fuel check valve		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

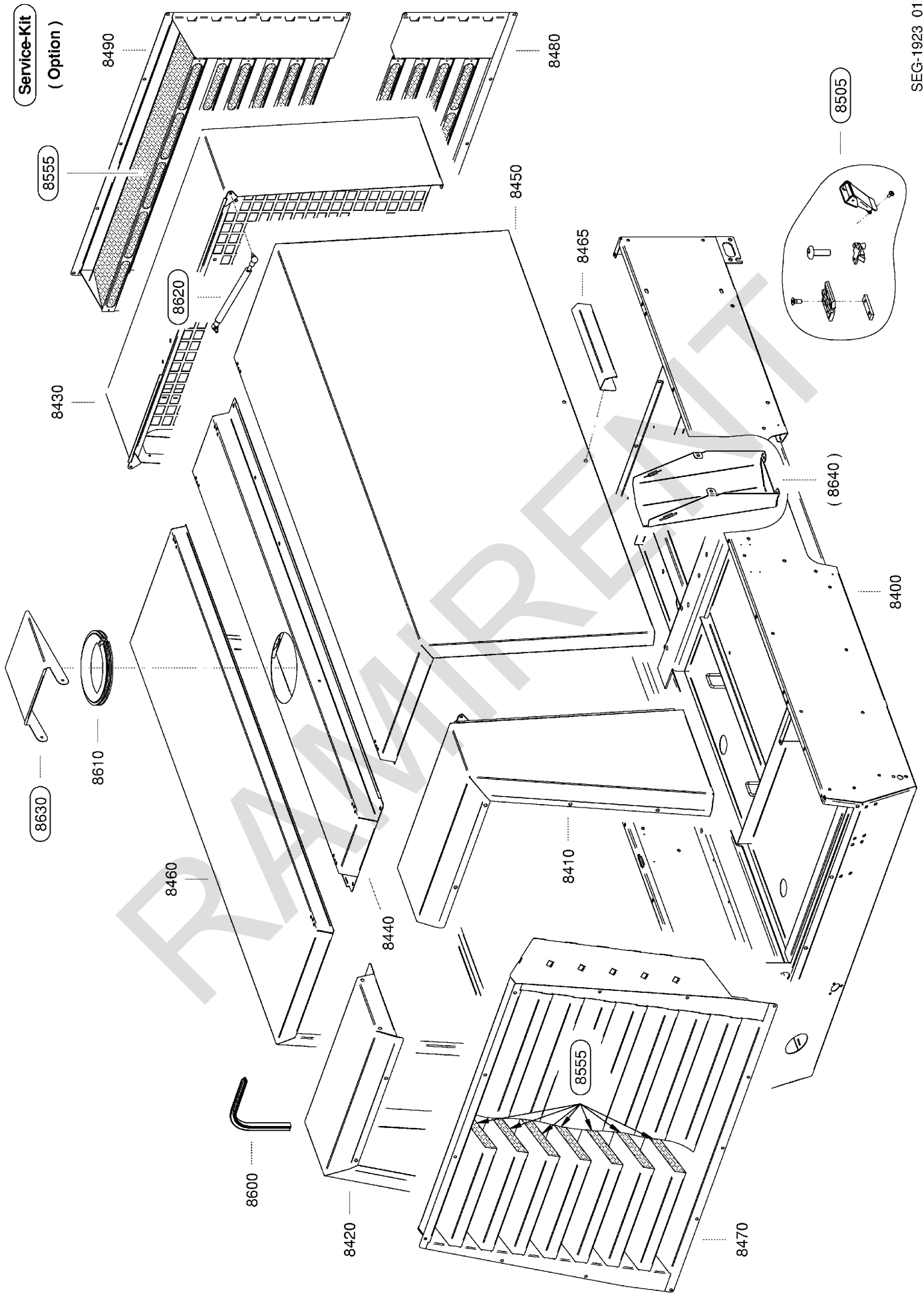


		Legend	KAESER
		Drivstofforfilter	SEL-2256_01E
Item	Description	Option	
1915	Fuel prefilter (element)		
1916	Prefilter gasket set		
1982	Level sensor		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT



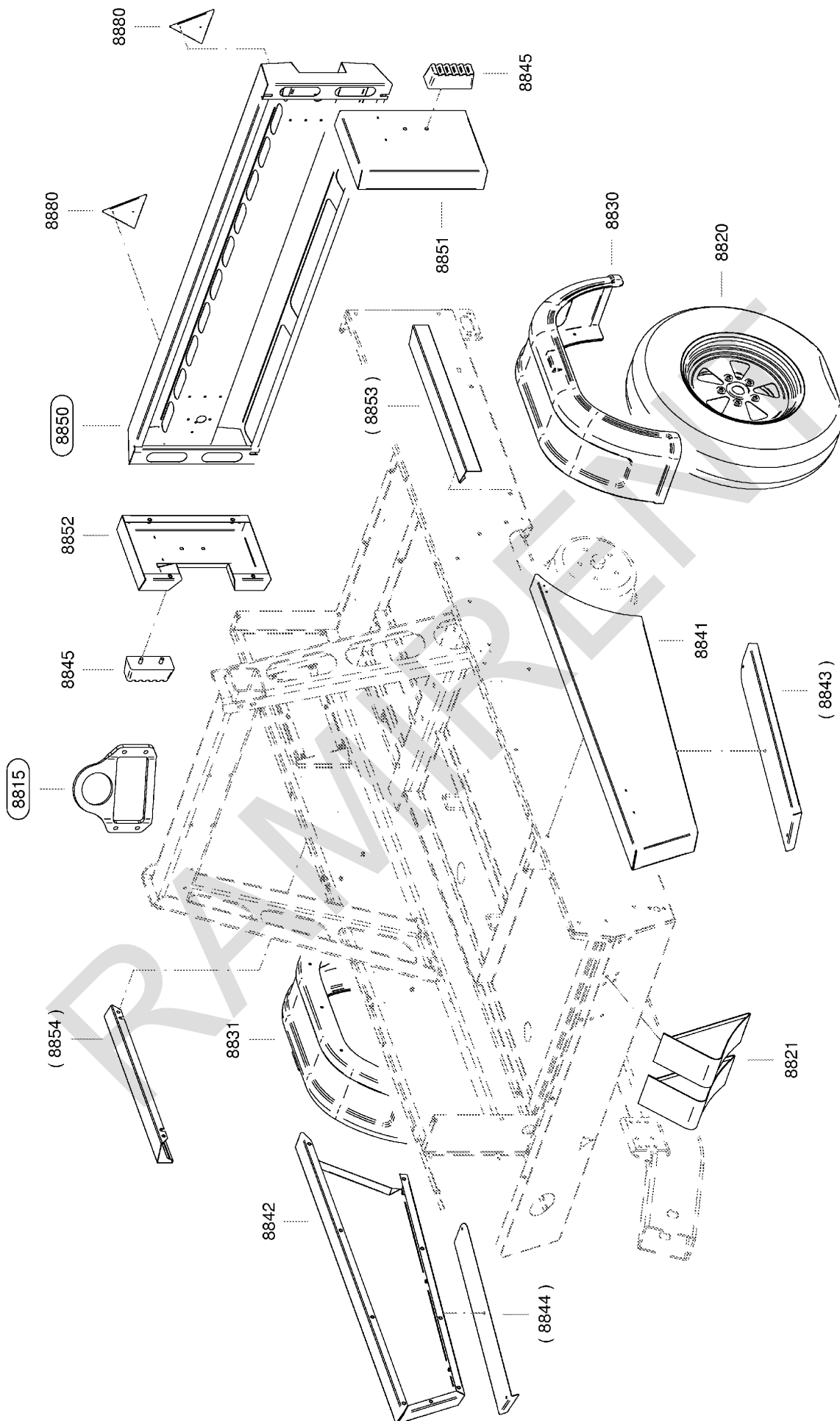
SEG-1923_01

		Legend	KAESER
		Bodywork	SEL-1819_01E
Item	Name	Option	
8400	Lower bodywork		
8410	Canopy, front-left		
8420	Canopy, front-right		
8430	Canopy rear		
8440	Canopy, upper-centre		
8450	Left-hand wing door		
8460	Right-hand wing door		
8465	Door handle		
8470	Exhaust air grill		
8480	Lower inlet air grill		
8490	Upper inlet air grill		
8505	Hinge/closure set		
8555	Sound damping louver kit		
8600	Sealing profile		
8610	Edge protecting strip		
8620	Gas strut		
8630	Cover for lifting eye		
8640	Toolbox		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit
(Option)

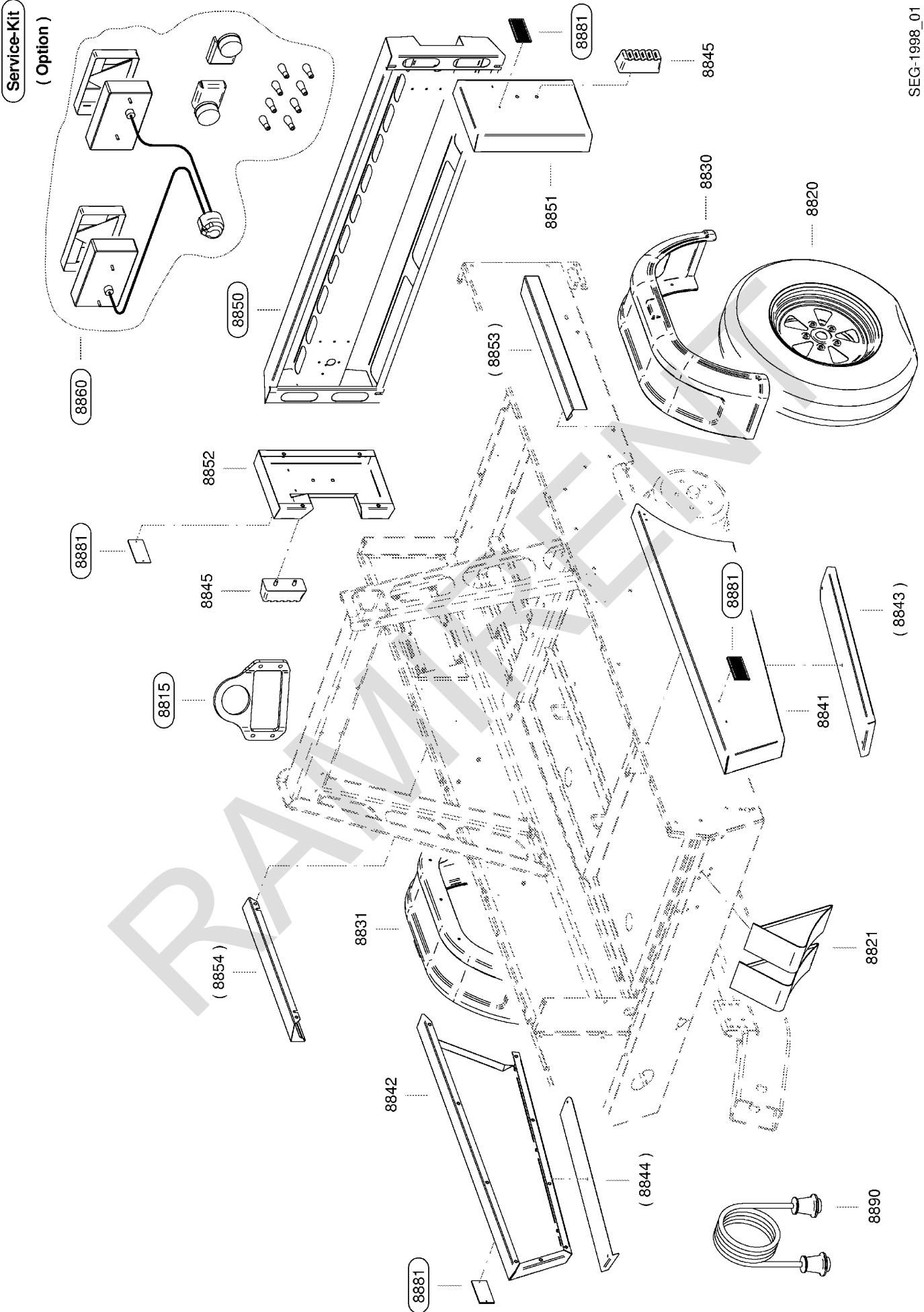


SEG-1997_01

		Legend	KAESER
		Chassis	SEL-1823_01E
Item	Name	Option	
8815	Lifting eye		
8820	Wheel		
8821	Chock		
8830	Left mudguard		
8831	Right mudguard		
8841	Collision guard, front-left		
8842	Collision guard, front-right		
8843	Pedestrian protection, left	X	
8844	Pedestrian protection, right	X	
8845	Collision guard, rear		
8850	Lighting bracket		
8851	Collision guard, rear-left		
8852	Collision guard, rear-right		
8853	Trim, rear-left		
8854	Trim, rear-right		
8880	Reflector		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

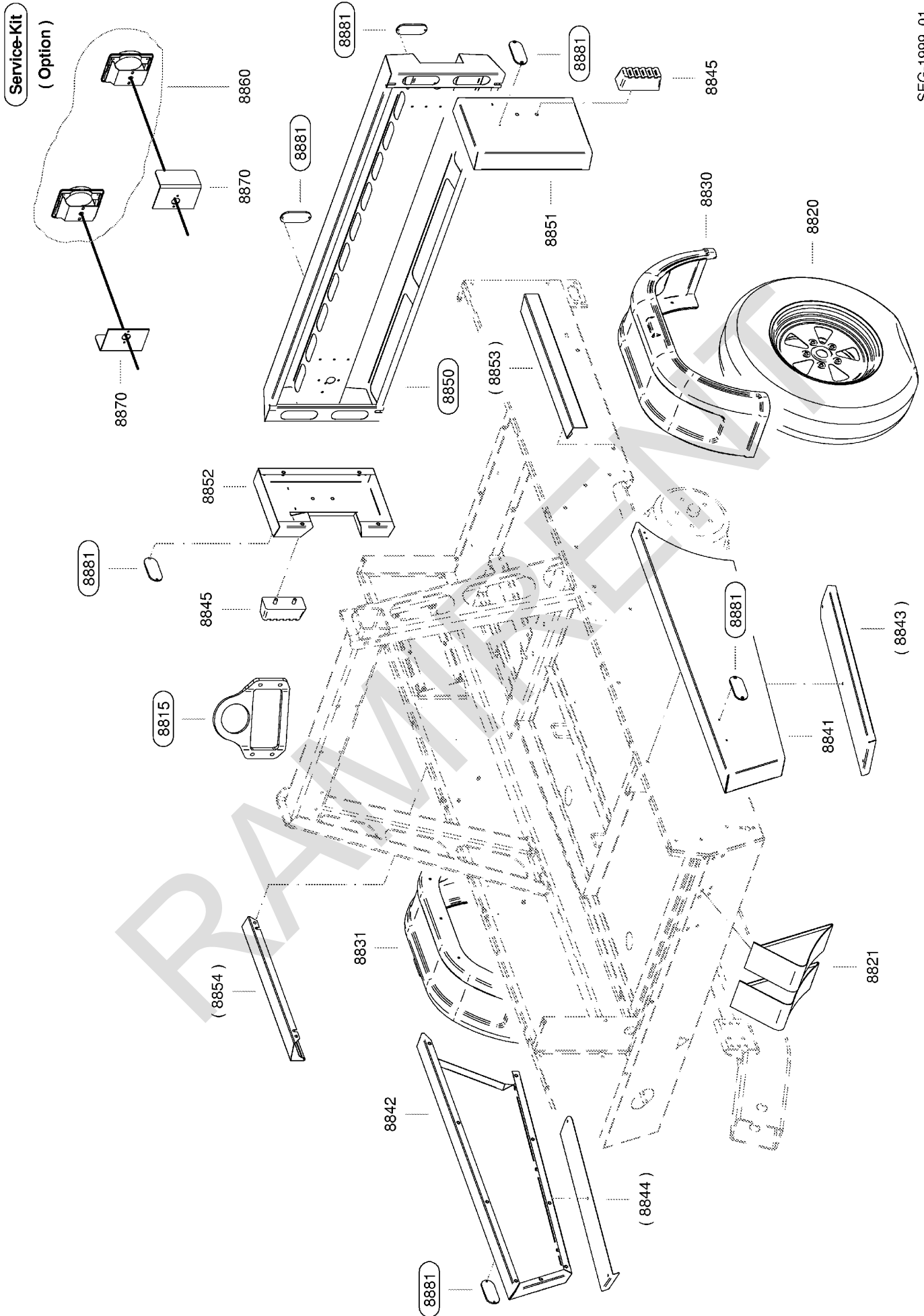


SEG-1998_01

		Legend	KAESER
		Chassis	SEL-1825_01E
Item	Name	Option	
8815	Lifting eye		
8820	Wheel		
8821	Chock		
8830	Left mudguard		
8831	Right mudguard		
8841	Collision guard, front-left		
8842	Collision guard, front-right		
8843	Pedestrian protection, left	X	
8844	Pedestrian protection, right	X	
8845	Collision guard, rear		
8850	Lighting bracket		
8851	Collision guard, rear-left		
8852	Collision guard, rear-right		
8853	Trim, rear-left		
8854	Trim, rear-right		
8860	Lighting set		
8881	Reflectors (set)		
8890	Connector cable		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



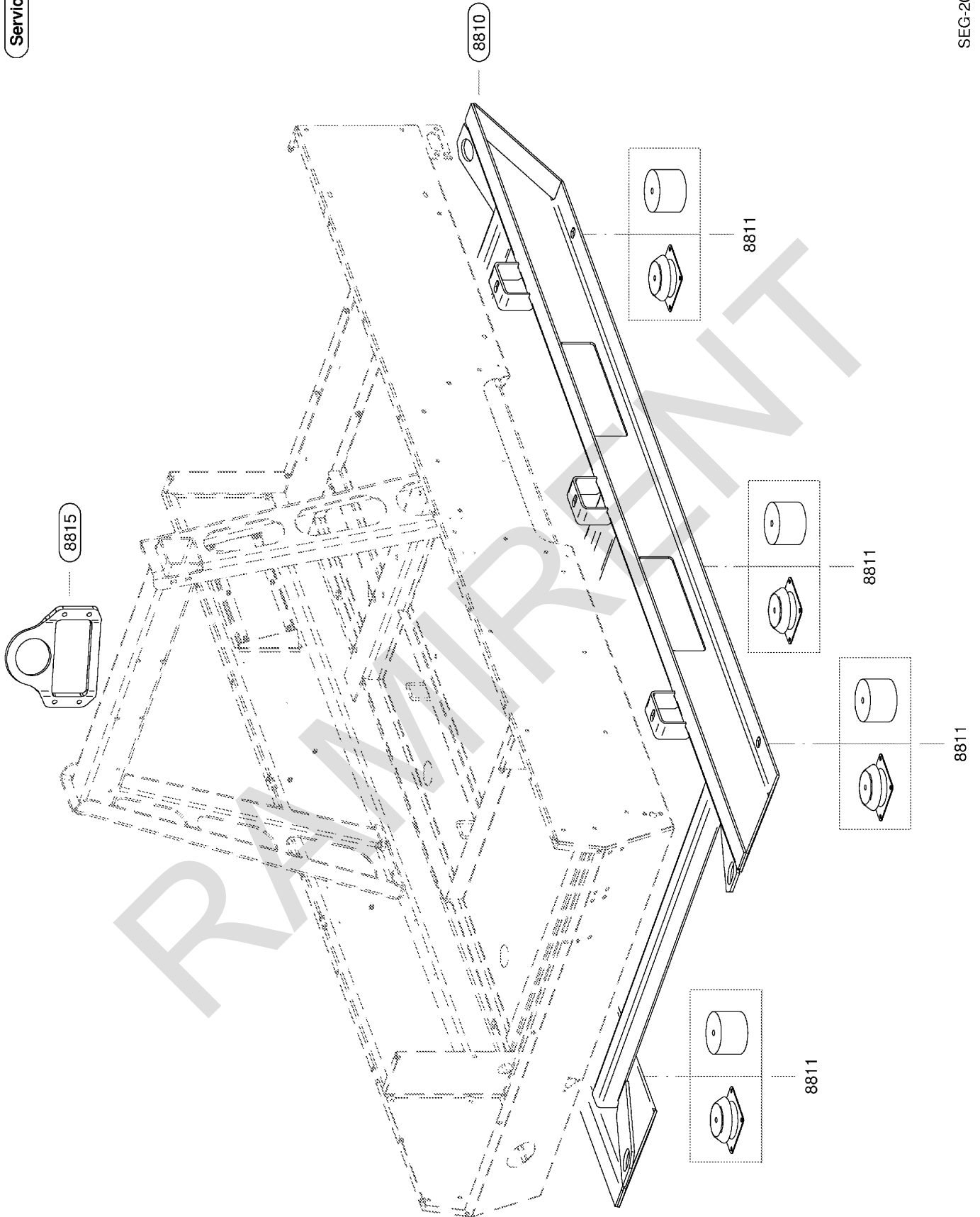
		Legend	KAESER
		Chassis	SEL-1827_01E
Item	Name	Option	
8815	Lifting eye		
8820	Wheel		
8821	Chock		
8830	Left mudguard		
8831	Right mudguard		
8841	Collision guard, front-left		
8842	Collision guard, front-right		
8843	Pedestrian protection, left	X	
8844	Pedestrian protection, right	X	
8845	Collision guard, rear		
8850	Lighting bracket		
8851	Collision guard, rear-left		
8852	Collision guard, rear-right		
8853	Trim, rear-left		
8854	Trim, rear-right		
8860	Lighting set		
8870	Rear light guard		
8881	Reflectors (set)		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit

SEG-2000_01



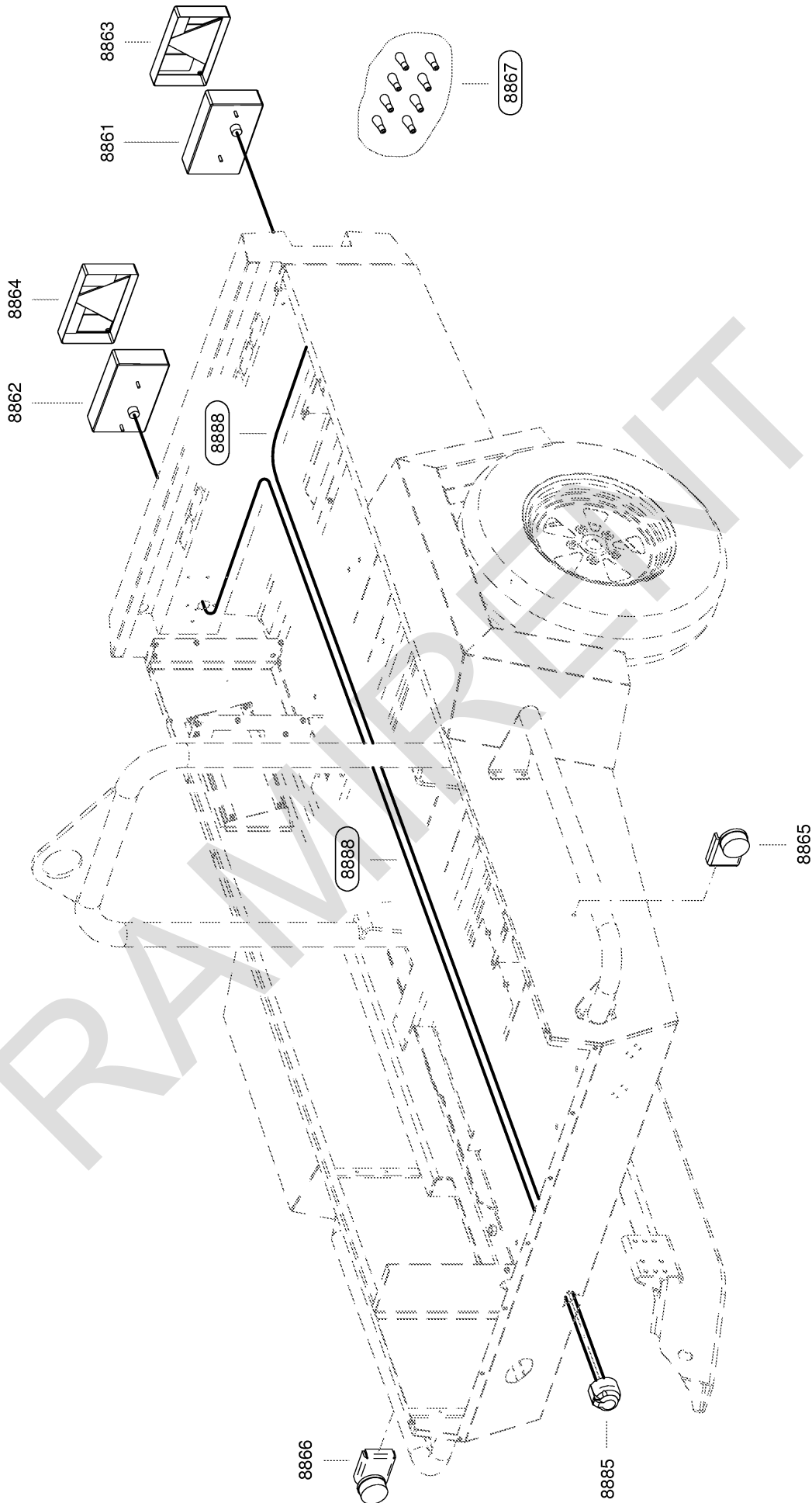
		Legend	KAESER
		Chassis (stationary)	SEL-1829_01E
Item	Name	Option	
8810	Skids		
8811	Machine mounts for the skid		
8815	Lifting eye		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

Service-Kit



SEG-1630_01

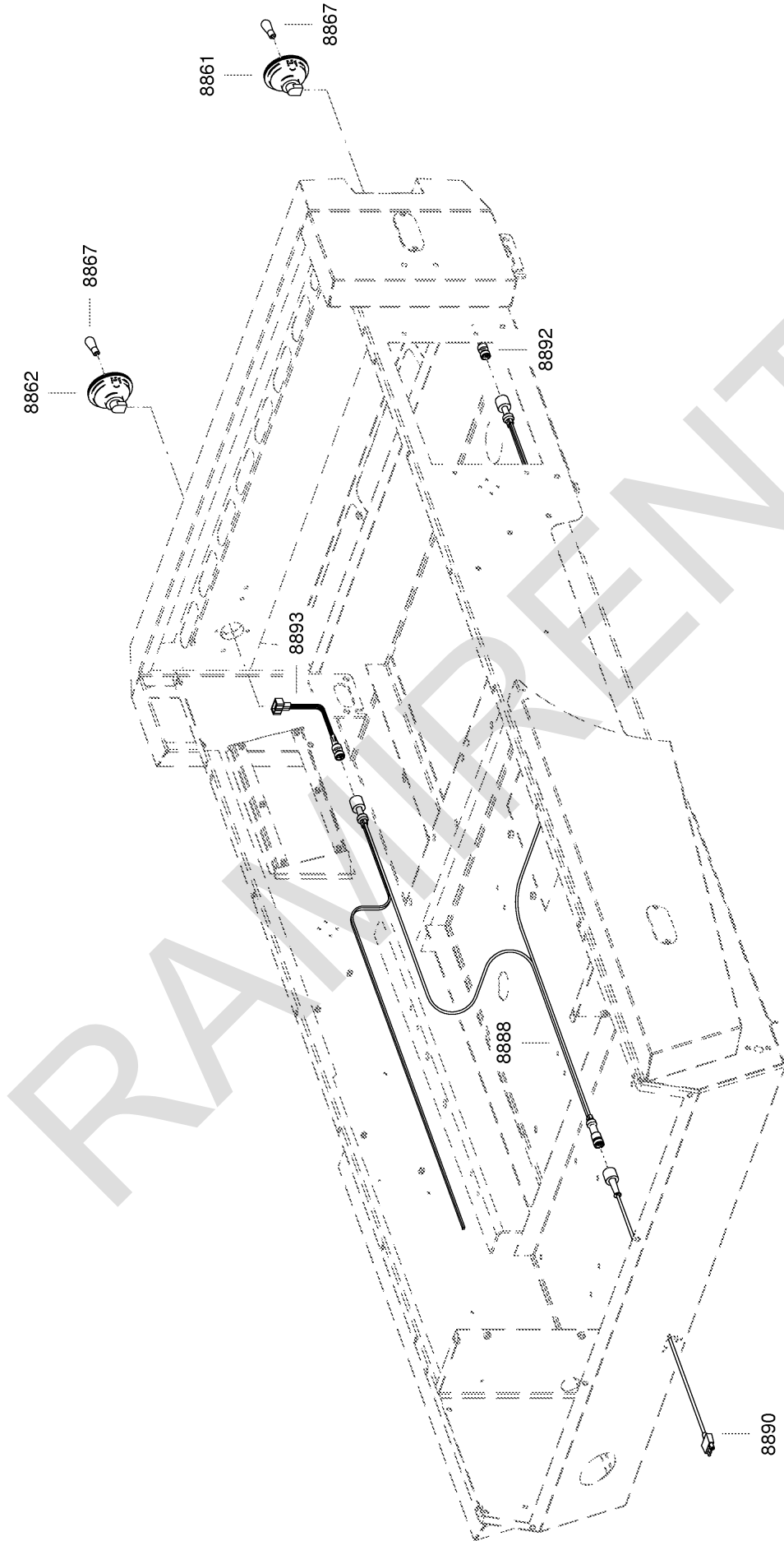
Legend	KAESER
Lighting set	SEL-1541_01E

Item	Description	Option
8861	Left rear light	
8862	Right rear light	
8863	Left light lens	
8864	Right light lense	
8865	Left side light	
8866	Right side light	
8867	Lighting bulb set	
8885	Lighting connecting socket	
8888	Connector cable	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT



Legend	KAESER
Lighting set USA	SEL-1959_01E

Item	Description	Option
8861	Left rear light	
8862	Right rear light	
8867	Lighting bulb set	
8888	Connector cable	
8890	Connector cable, vehicle	
8892	Connecting cable left (blue)	
8893	Connecting cable right (red)	

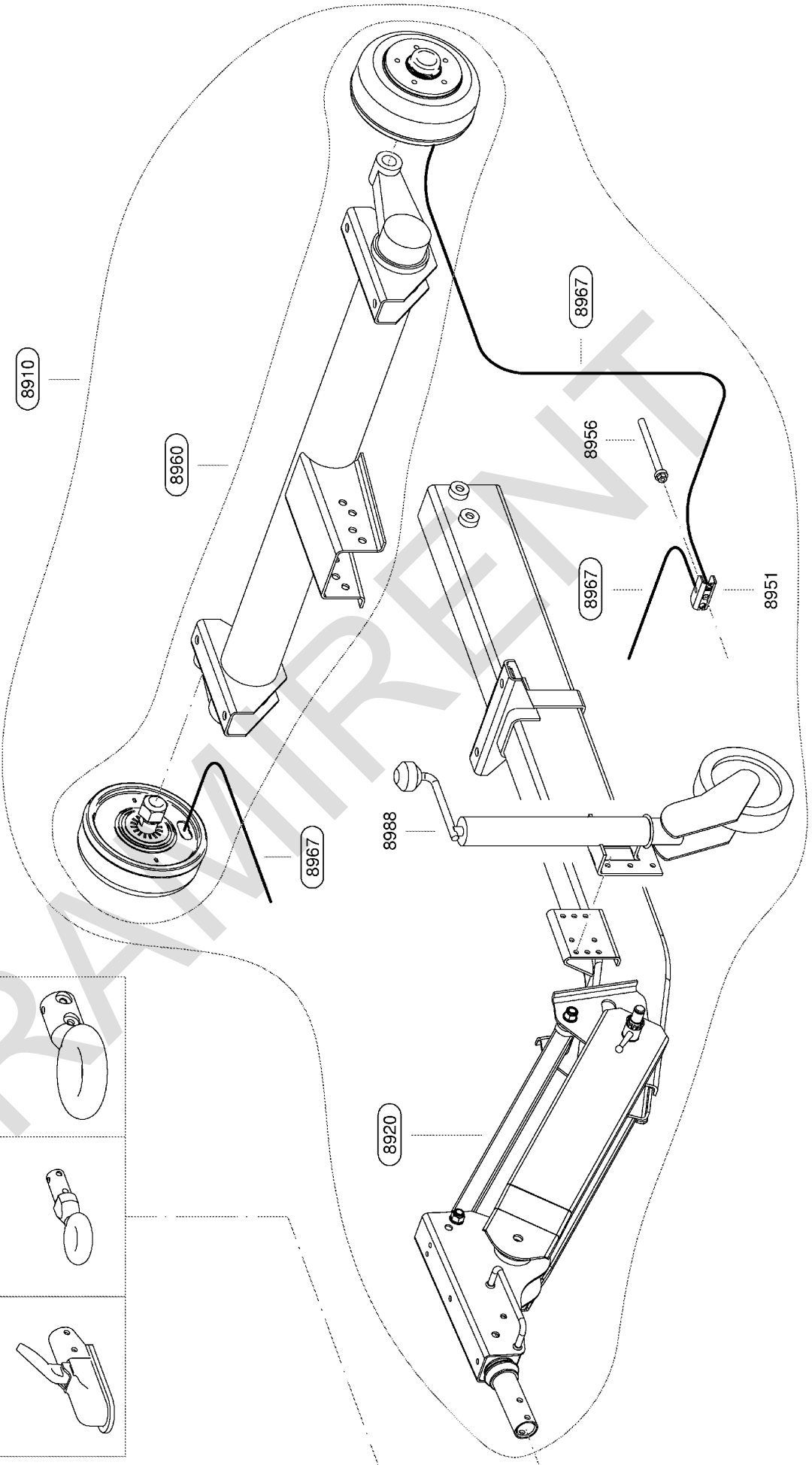
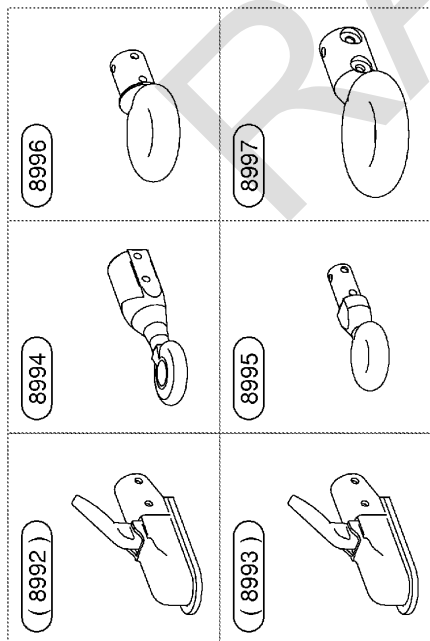
Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

Service-Kit
(Option)

SEG-1631_01

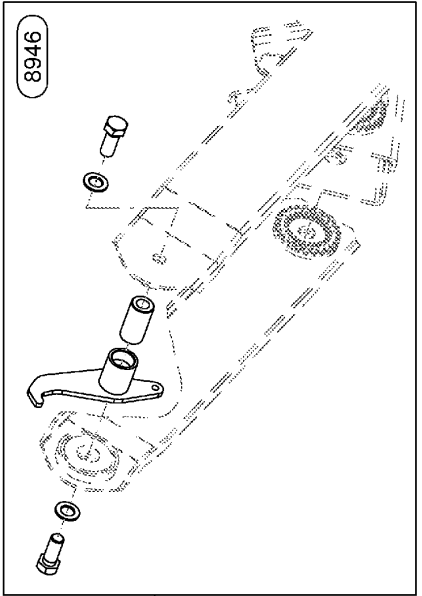


		Legend	KAESER
		Chassis Europe, M121/122	SEL-1551_01E
Item	Description	Option	
8910	Chassis frame, complete		
8920	Towbar, complete		
8951	Braking cable bracket		
8956	Brake actuating rod bracket		
8960	Complete axle		
8967	Wheel brake cable		
8988	Jockey wheel, complete		
8992	Ball coupling for car, ø 50 (DIN)		
8993	Ball coupling for car, 2"		
8994	Towing eye for HGV, ø 40 (DIN)		
8995	Towing eye for HGV, ø 45		
8996	Towing eye for HGV, ø 68		

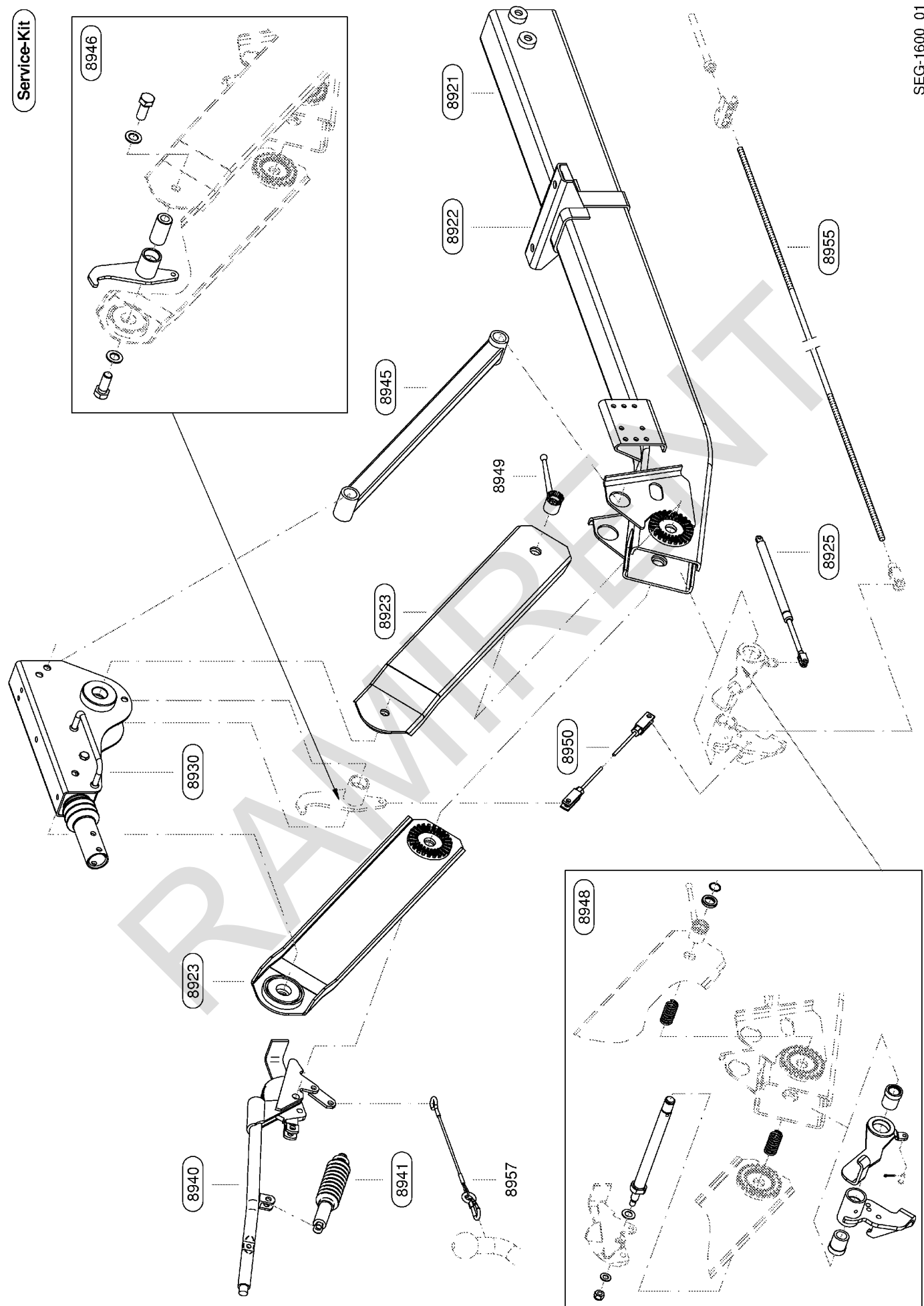
Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit



8946



8921

8922

8955

8945

8949

8925

8923

8950

8930

8923

8948

8940

8941

8957

SEG-1600_01

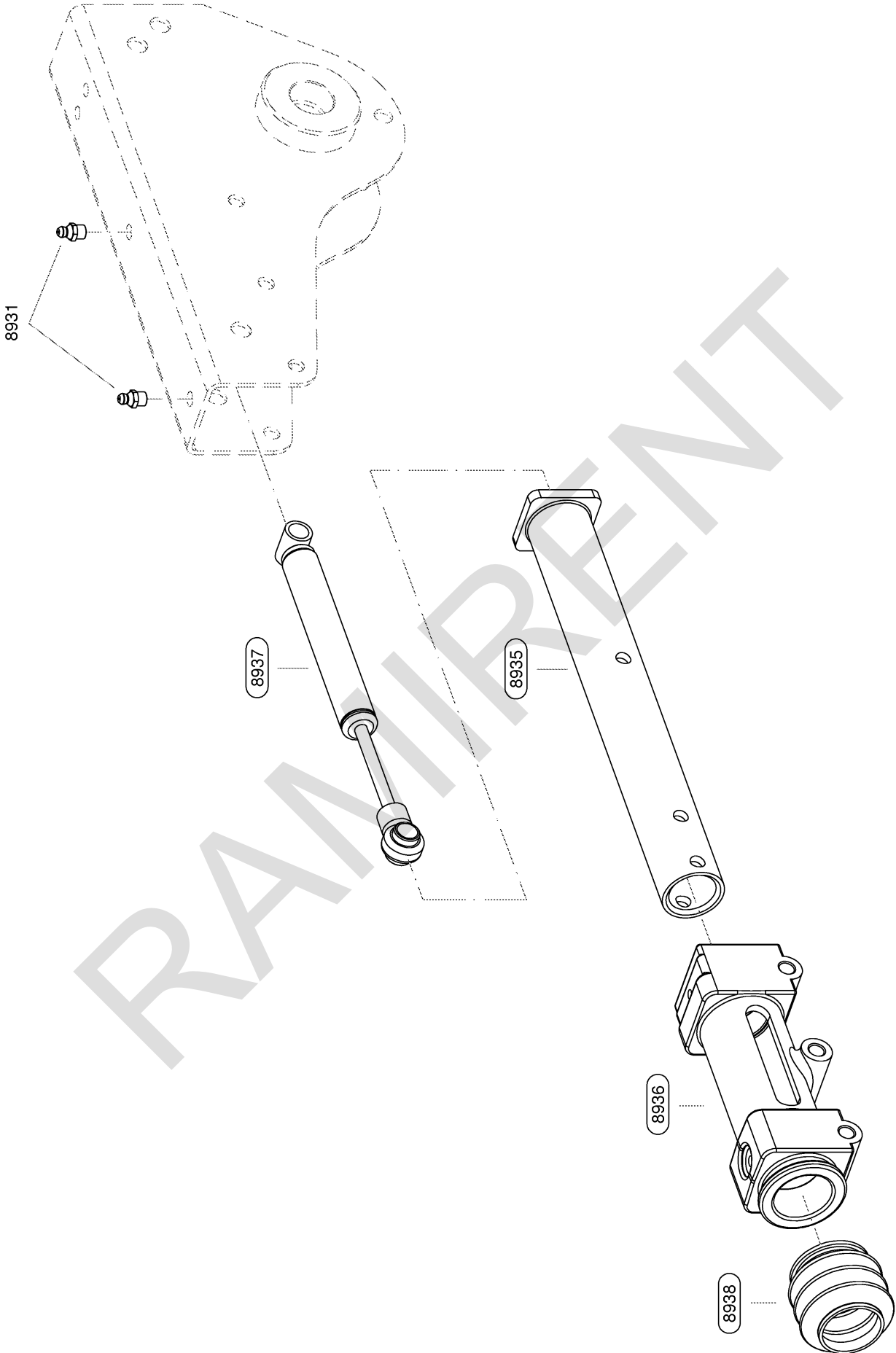
		Legend	KAESER
		Towbar, cpl. EU M121/122	SEL-1553_01E
Item	Description	Option	
8921	Towbar		
8922	Chassis mounting block		
8923	Height-adjustment bar		
8925	Gas strut for height adjustment		
8930	Overrun braking mechanism		
8940	Parking brake lever		
8941	Parking brake gas spring		
8945	Tie bar		
8946	Upper guide bearing		
8948	Lower guide bearing		
8949	Locking toggle, lower		
8950	Brake transfer cable		
8955	Brake actuating rod		
8957	Breakaway cable		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit

SEG-1601_01



Legend	KAESER
Overrun braking mechanism, EU M121/122	SEL-1555_01E

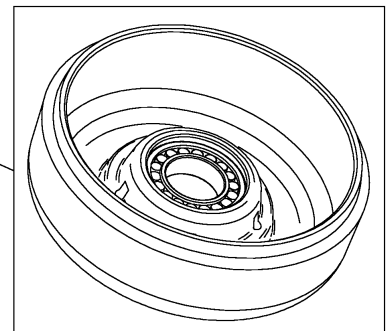
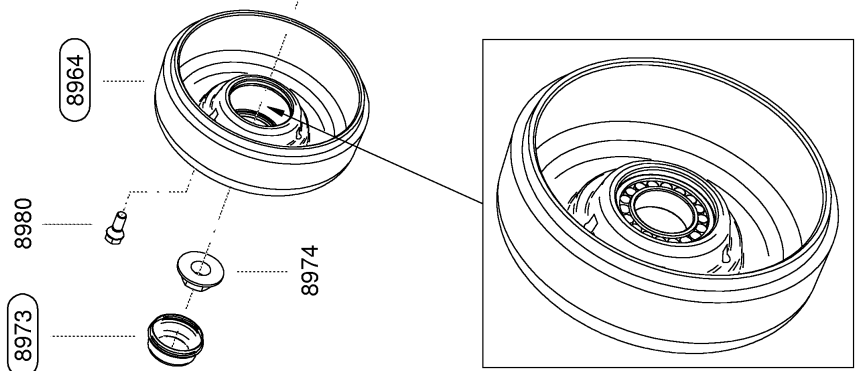
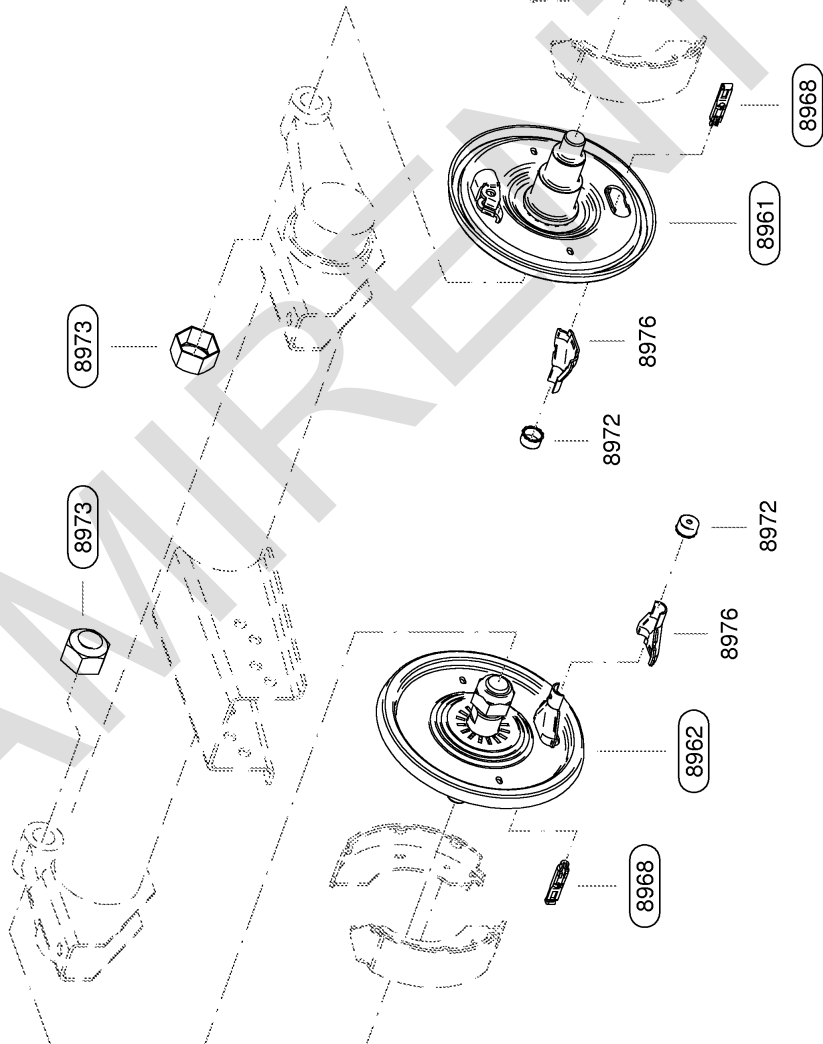
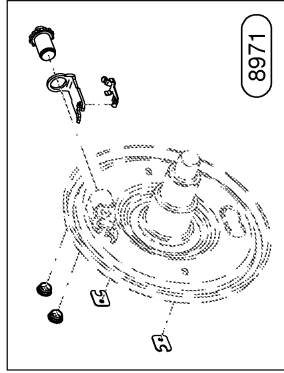
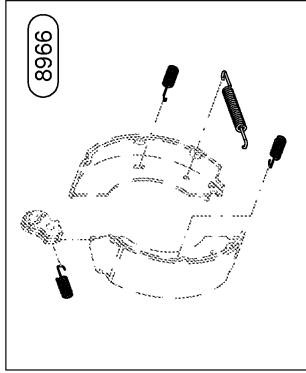
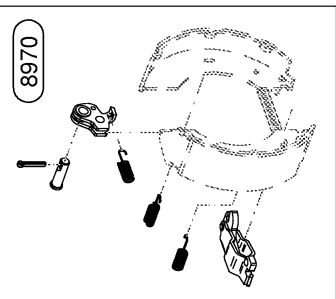
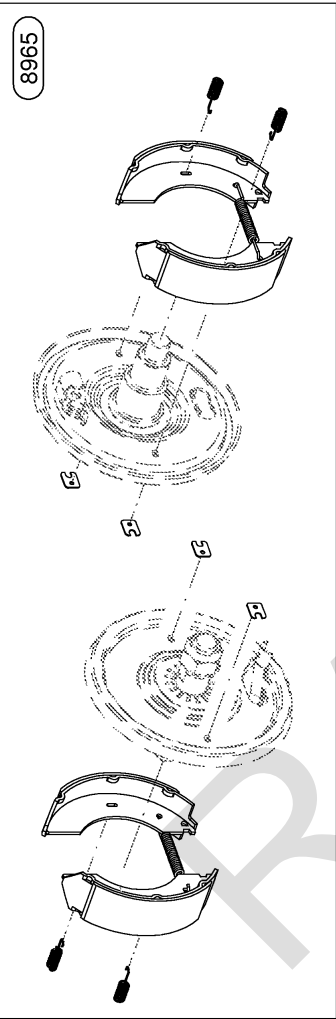
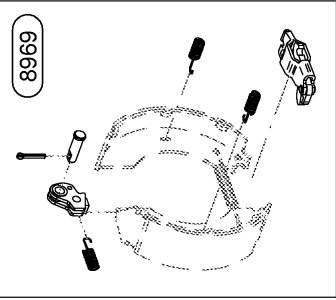
Item	Description	Option
8931	Grease nipple for overrun head	
8935	Towbar	
8936	Towbar guide bush	
8937	Towbar shock absorber	
8938	Towbar protective sleeve	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

Service-Kit



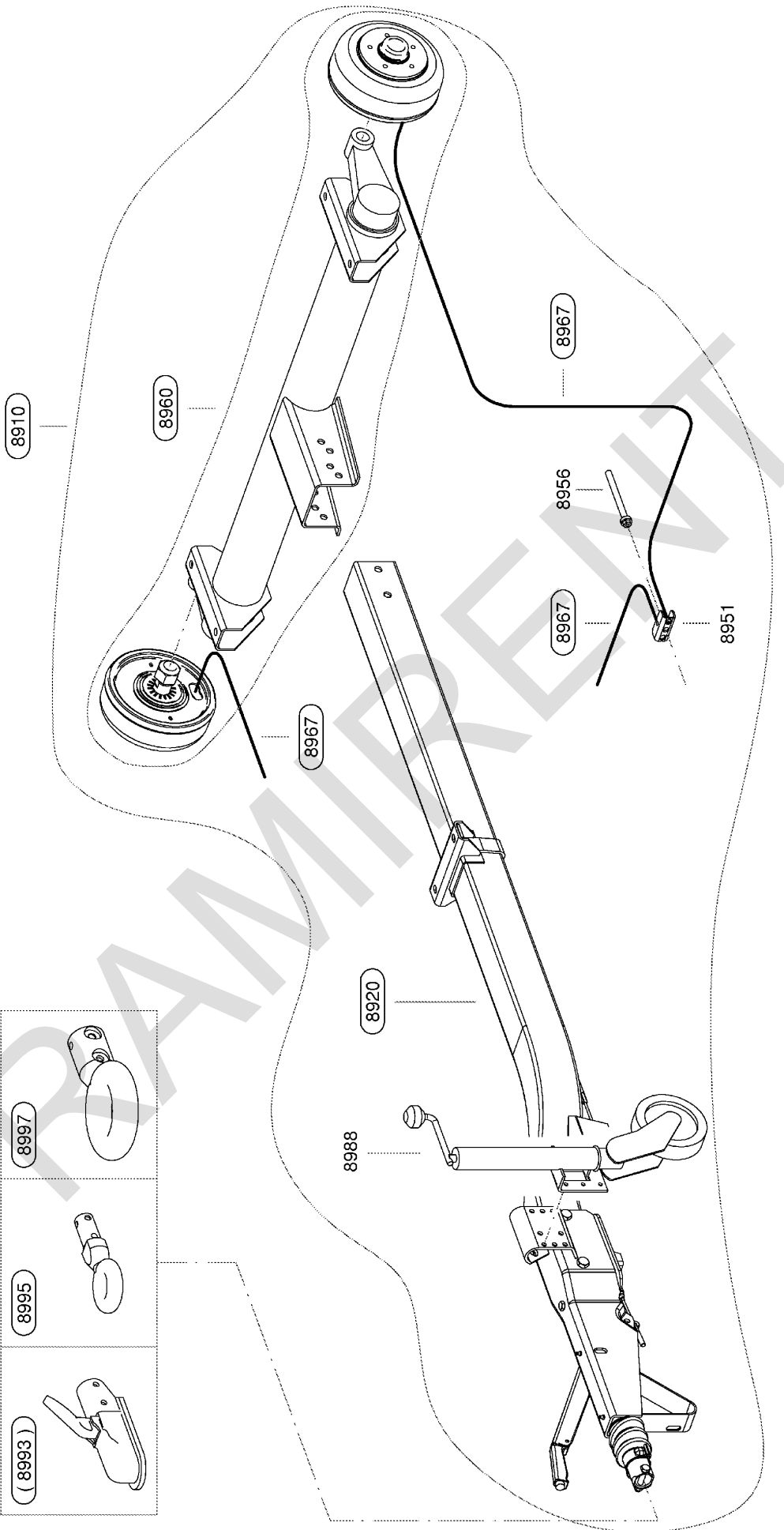
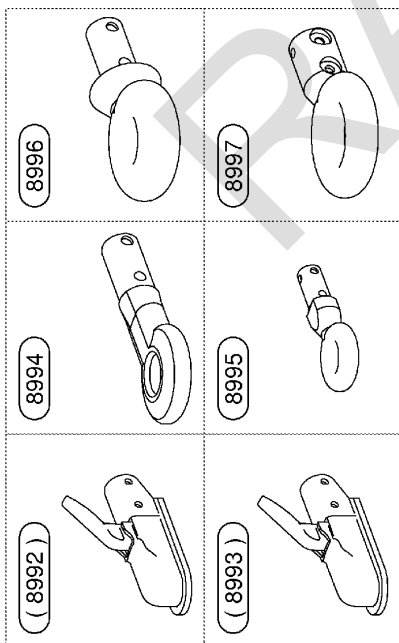
		Legend	KAESER
		Axle, complete	SEL-1557_01E
Item	Description	Option	
8961	Brake backplate, left		
8962	Brake backplate, right		
8964	Brake drum		
8965	Brake shoe set		
8966	Brake shoe spring set		
8968	Brake cable hook-in pin		
8969	Brake actuating set, left		
8970	Brake actuating set, right		
8971	Brake adjusting set		
8972	Sealing cap for brake backplate		
8973	Grease cap for the brake drum		
8974	Flanged locknut, axle bearing		
8976	Protective shell, brake cable		
8980	Wheel bolt		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit
(Option)

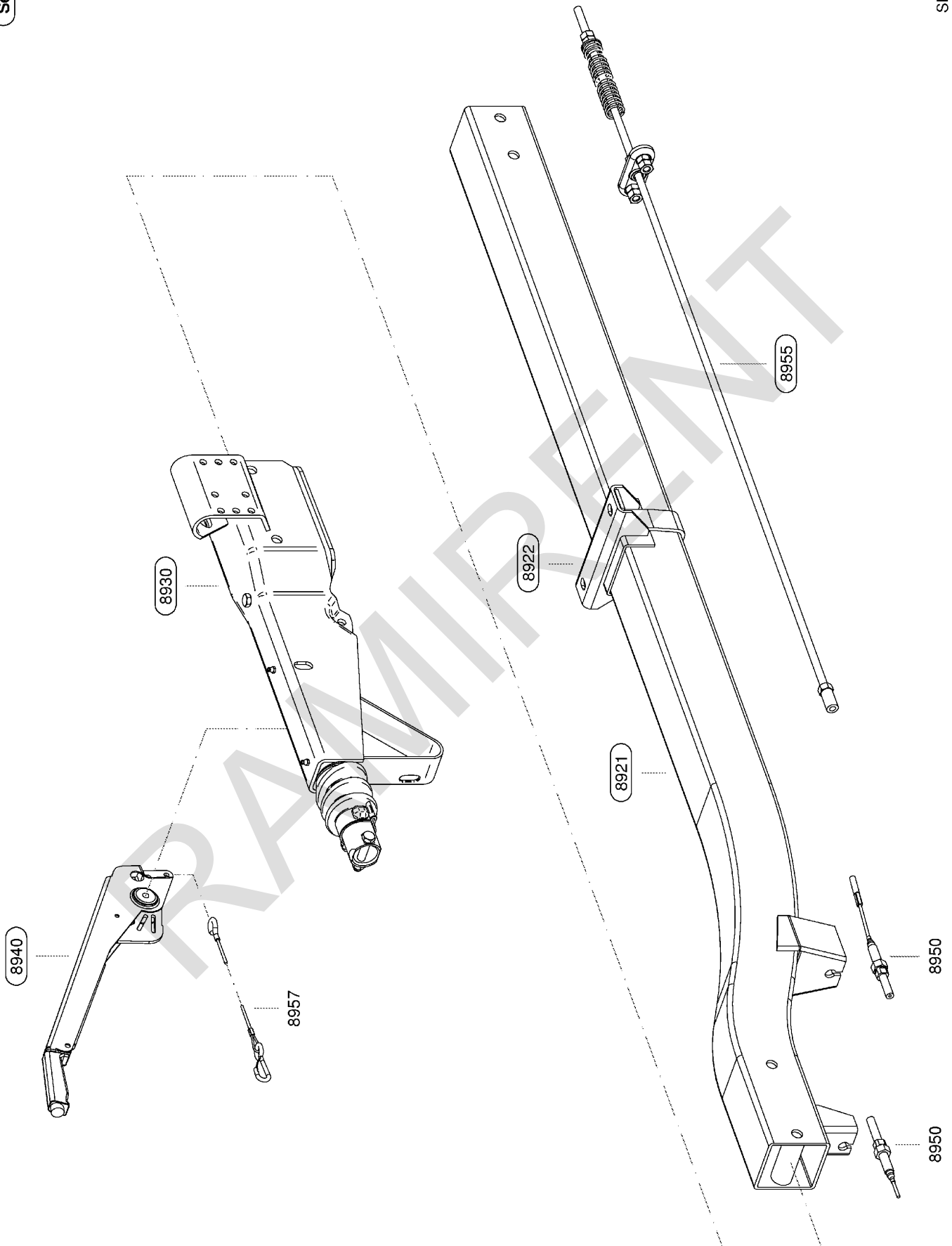
SEG-1713_01



		Legend	KAESER
		Chassis	SEL-1649_01E
Item	Description	Option	
8910	Chassis frame, complete		
8920	Towbar, complete		
8951	Braking cable bracket		
8956	Brake actuating rod bracket		
8960	Complete axle		
8967	Wheel brake cable		
8988	Jockey wheel, complete		
8992	Ball coupling for car, \varnothing 50 (DIN)		
8993	Ball coupling for car, 2"		
8994	Towing eye for HGV, \varnothing 40 (DIN)		
8995	Towing eye for HGV, \varnothing 45		
8996	Towing eye for HGV, \varnothing 68		
8997	Towing eye for HGV, \varnothing 76		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



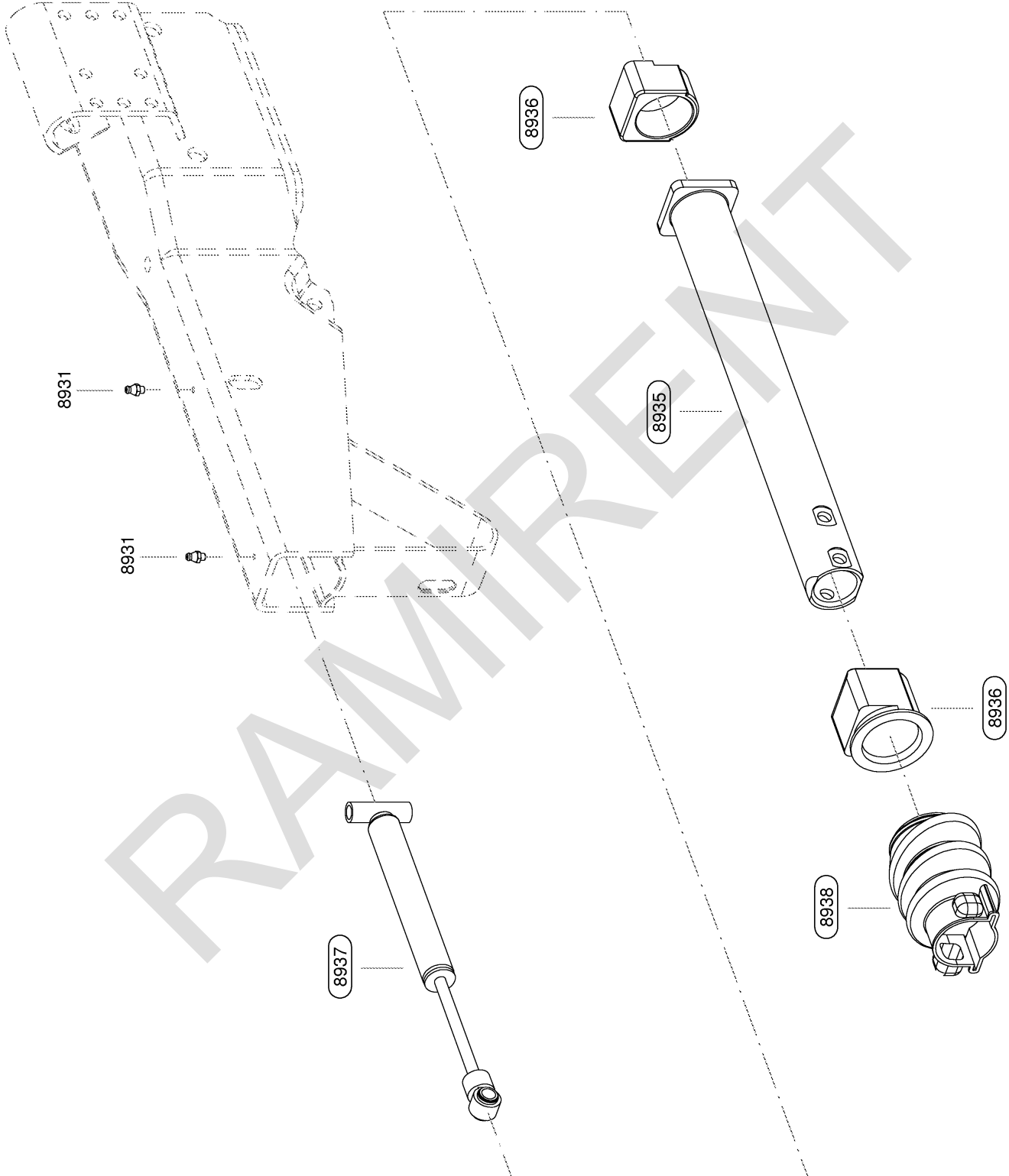
Legend	KAESER
Towbar, cpl. GB	SEL-1651_01E

Item	Description	Option
8921	Towbar	
8922	Chassis mounting block	
8930	Overrun braking mechanism	
8940	Parking brake lever	
8950	Brake transfer cable	
8955	Brake actuating rod	
8957	Breakaway cable	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT



Legend	KAESER
Overrun braking mechanism	SEL-1653_01E

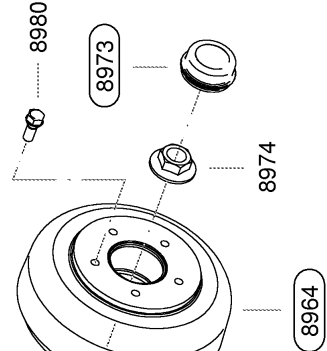
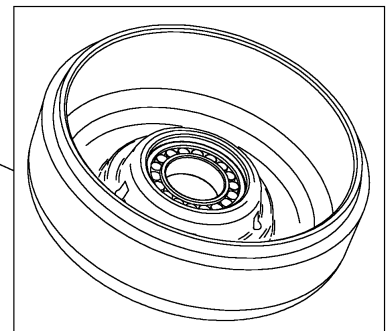
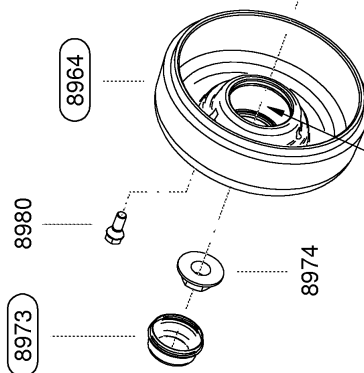
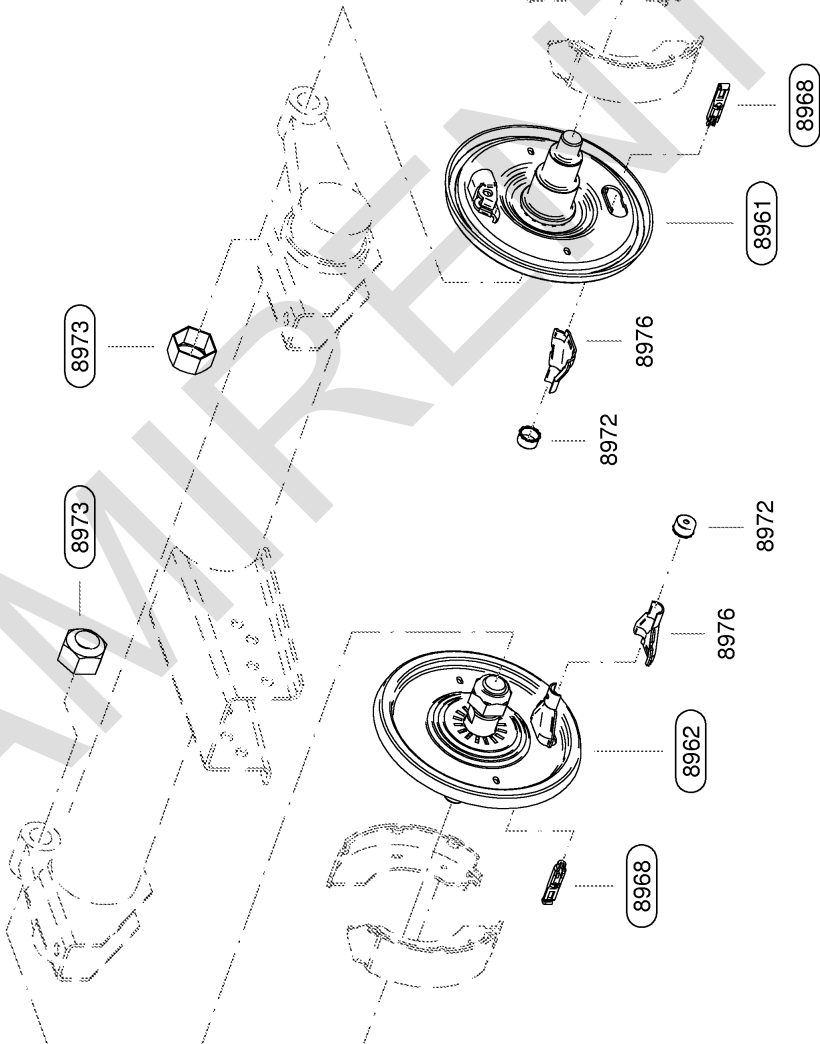
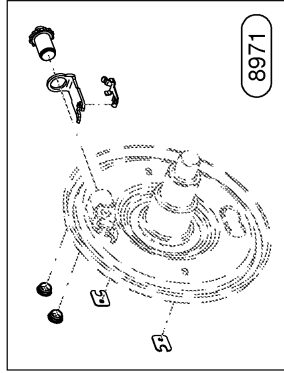
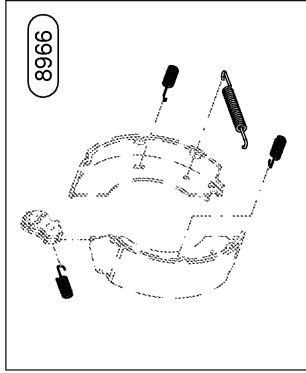
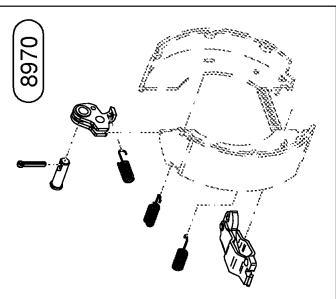
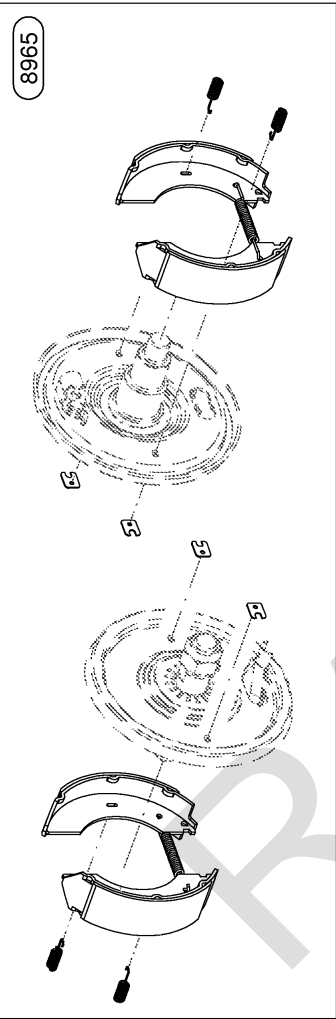
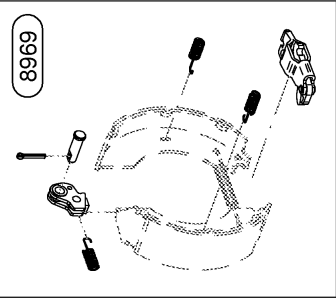
Item	Description	Option
8931	Grease nipple for overrun head	
8935	Towbar	
8936	Towbar guide bush	
8937	Towbar shock absorber	
8938	Towbar protective sleeve	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

Service-Kit



SEG-1632_01

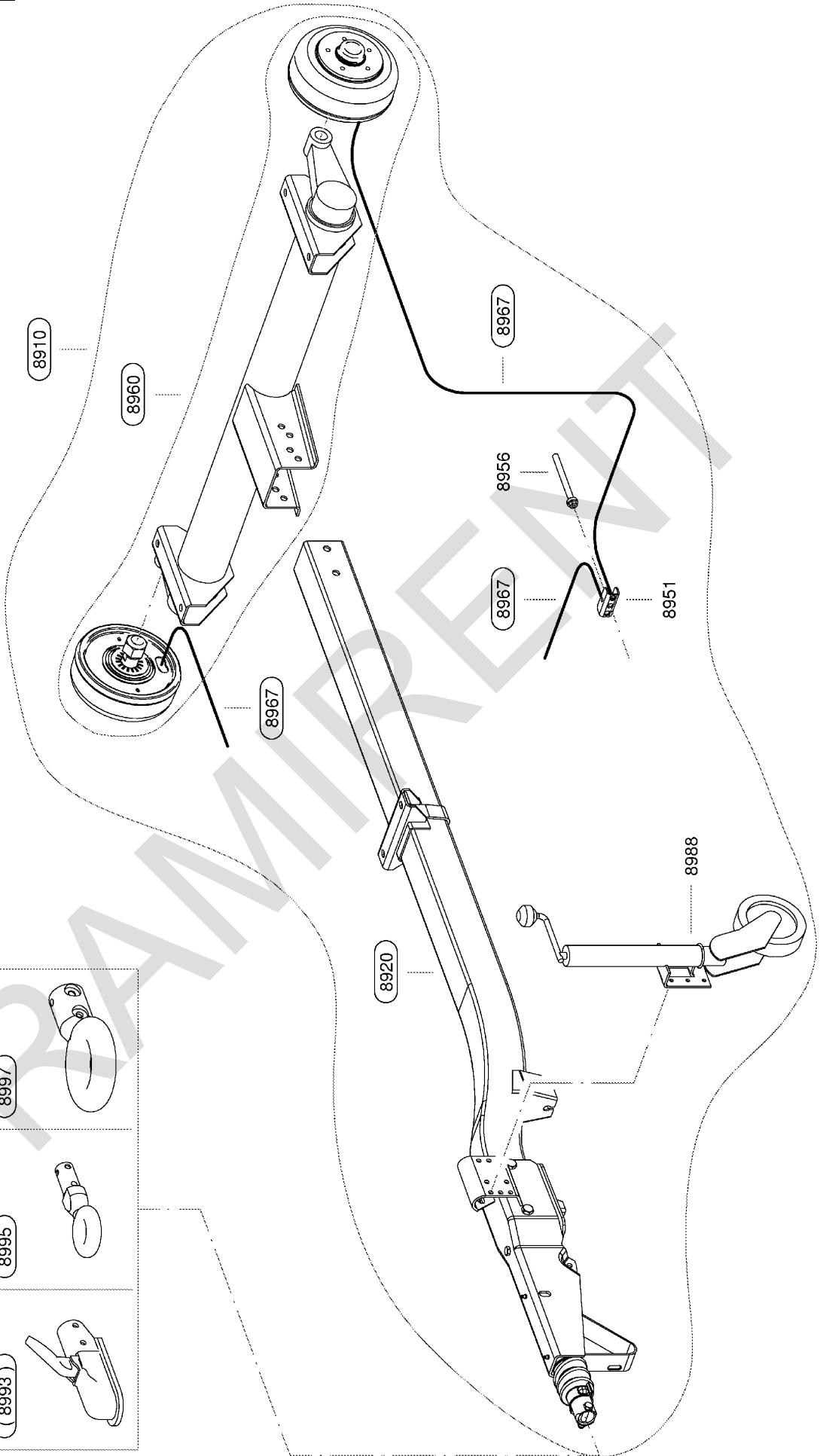
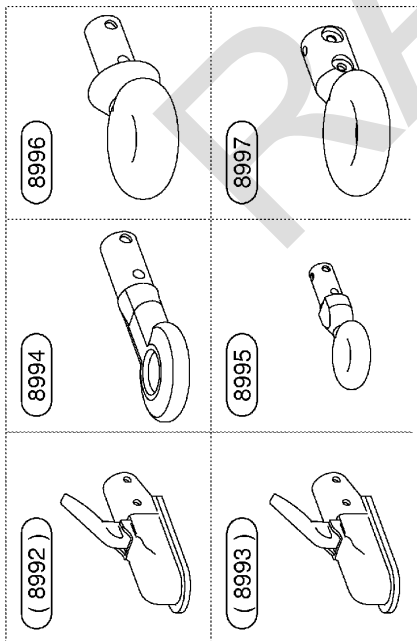
		Legend	KAESER
		Axle, complete	SEL-1557_01E
Item	Description	Option	
8961	Brake backplate, left		
8962	Brake backplate, right		
8964	Brake drum		
8965	Brake shoe set		
8966	Brake shoe spring set		
8968	Brake cable hook-in pin		
8969	Brake actuating set, left		
8970	Brake actuating set, right		
8971	Brake adjusting set		
8972	Sealing cap for brake backplate		
8973	Grease cap for the brake drum		
8974	Flanged locknut, axle bearing		
8976	Protective shell, brake cable		
8980	Wheel bolt		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit
(Option)

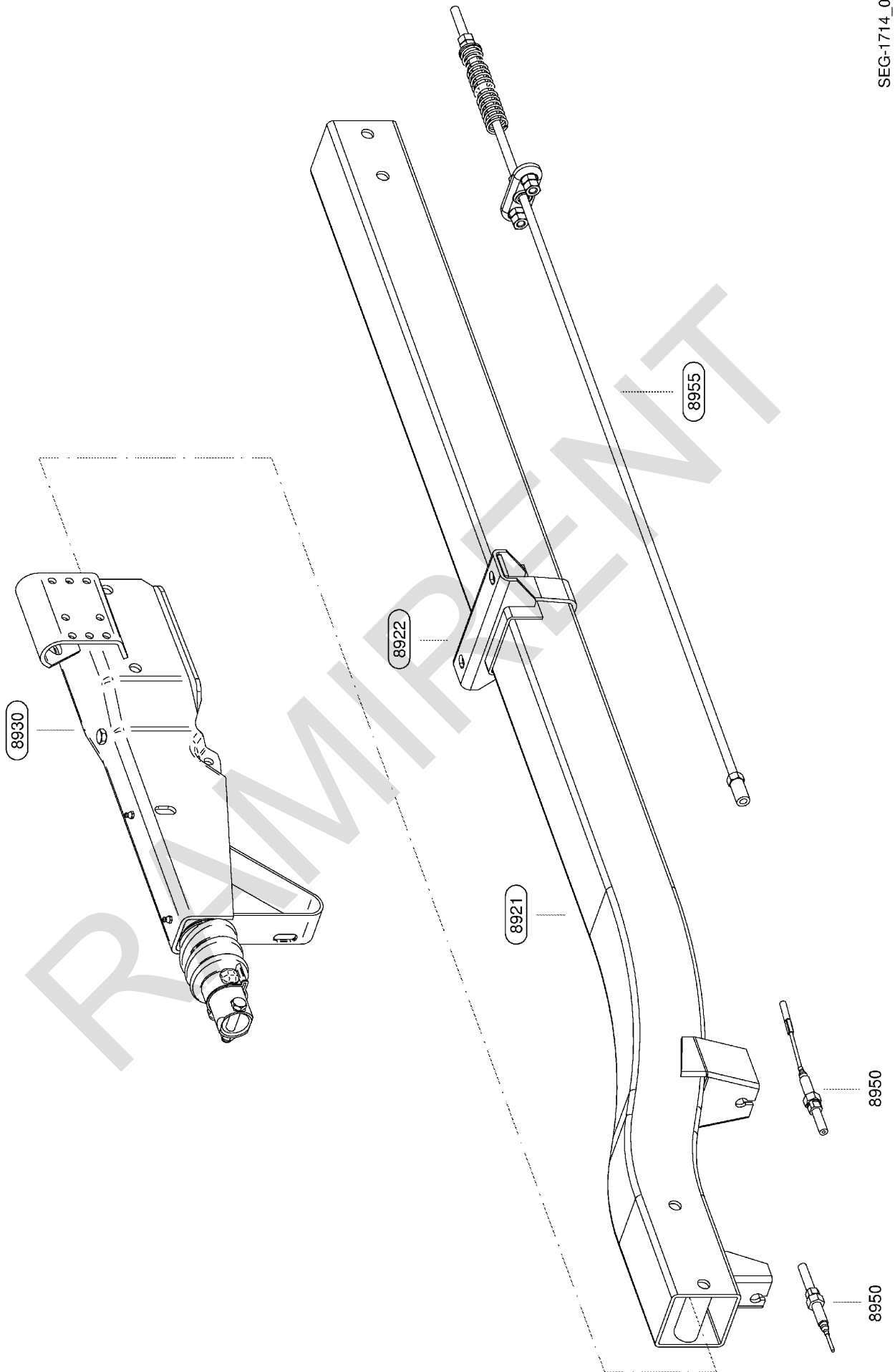
SEG-1715_01



		Legend	KAESER
		Chassis	SEL-1655_01E
Item	Description	Option	
8910	Chassis frame, complete		
8920	Towbar, complete		
8951	Braking cable bracket		
8956	Brake actuating rod bracket		
8960	Complete axle		
8967	Wheel brake cable		
8988	Jockey wheel, complete		
8992	Ball coupling for car, ø 50 (DIN)		
8993	Ball coupling for car, 2"		
8994	Towing eye for HGV, ø 40 (DIN)		
8995	Towing eye for HGV, ø 45		
8996	Towing eye for HGV, ø 68		
8997	Towing eye for HGV, ø 76		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



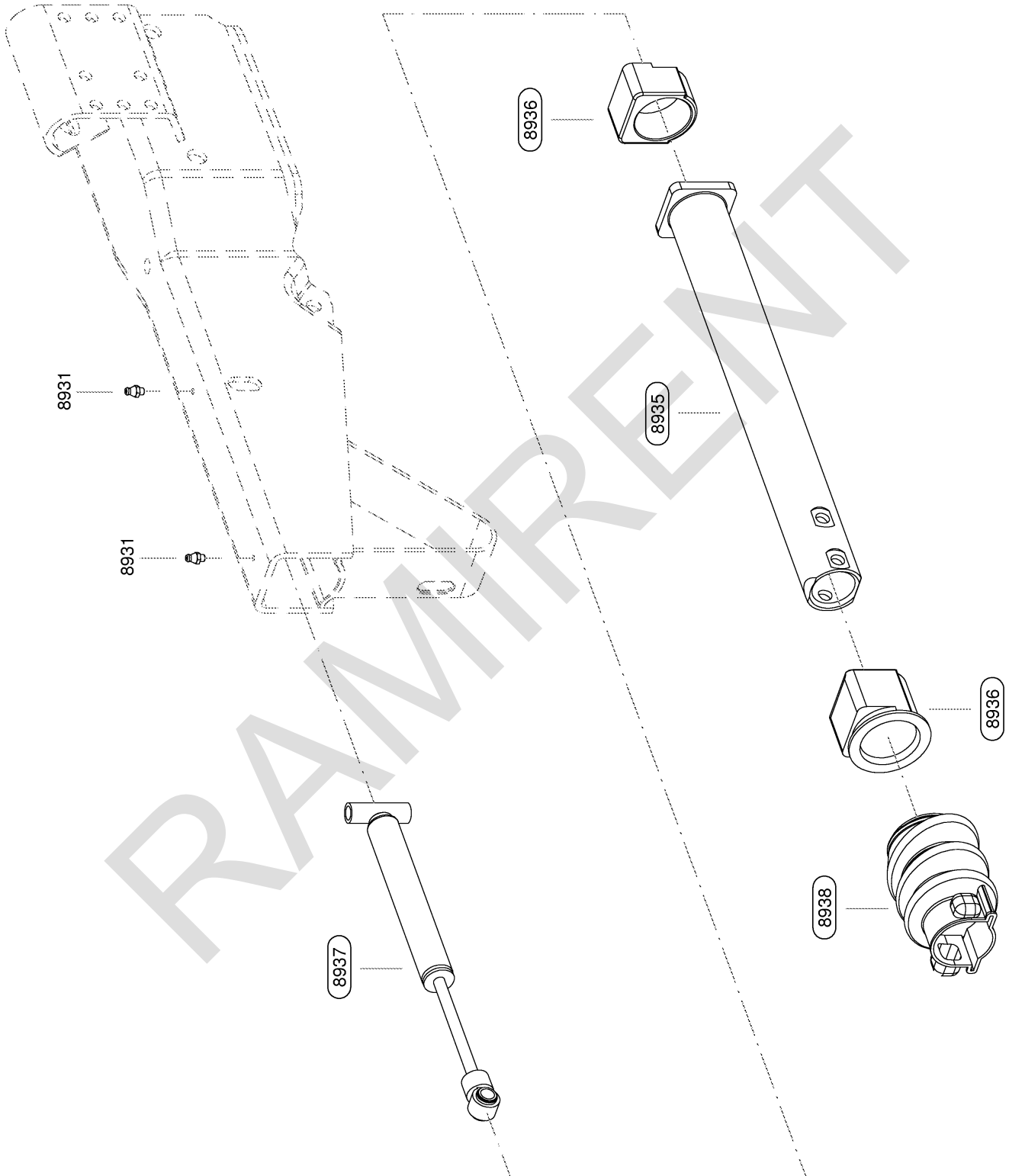
Legend	KAESER
Towbar, cpl. US	SEL-1657_01E

Item	Description	Option
8921	Towbar	
8922	Chassis mounting block	
8930	Overrun braking mechanism	
8950	Brake transfer cable	
8955	Brake actuating rod	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT



Legend	KAESER
Overrun braking mechanism	SEL-1653_01E

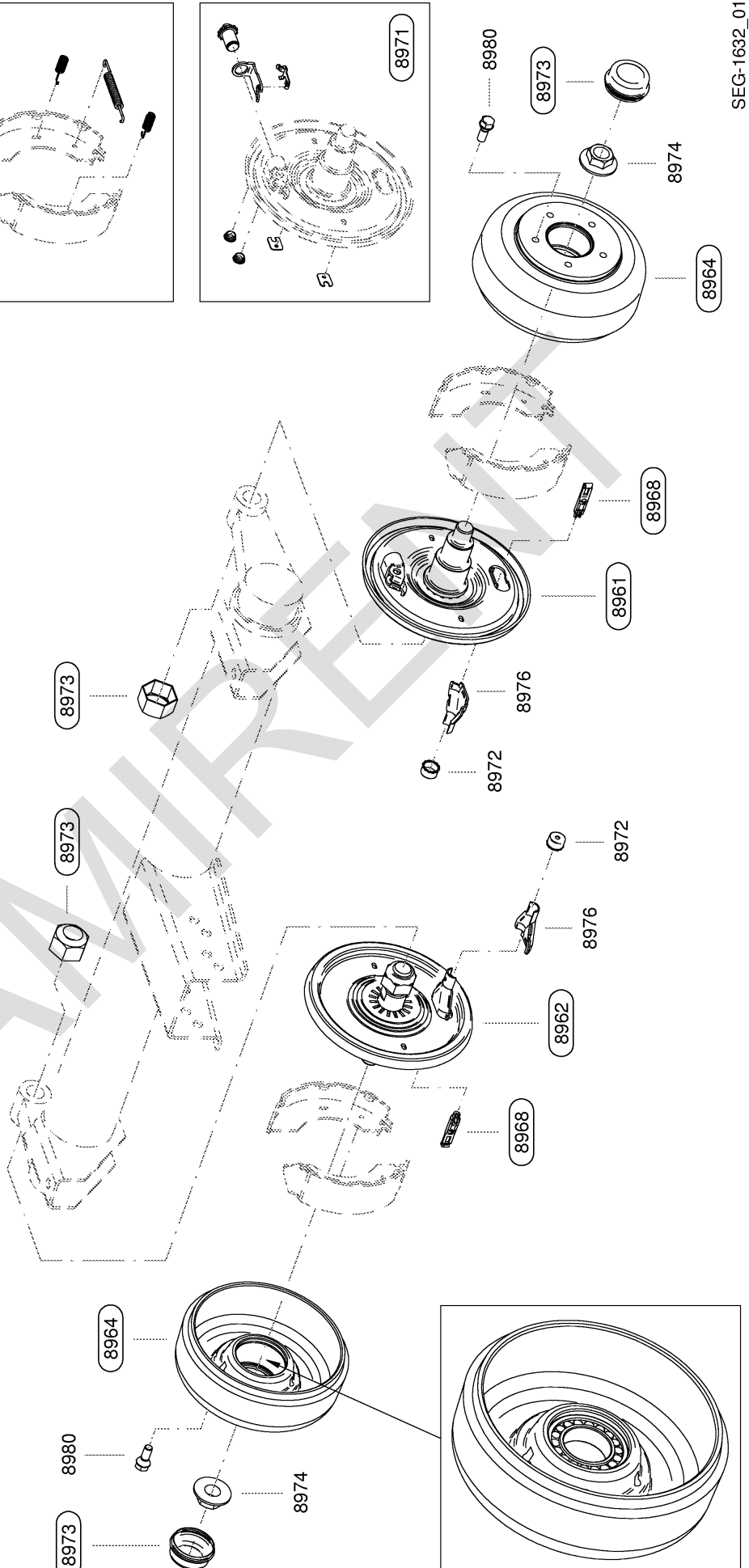
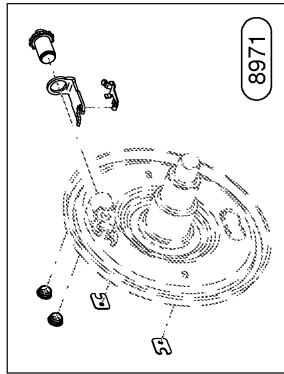
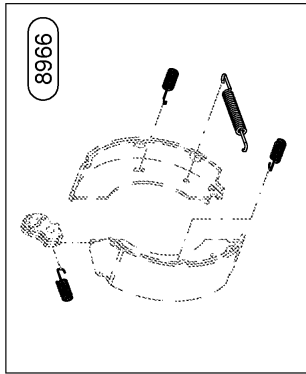
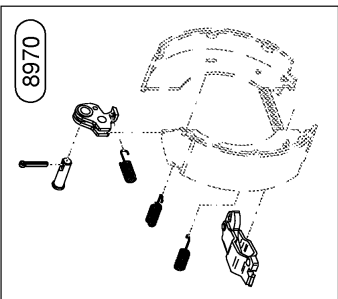
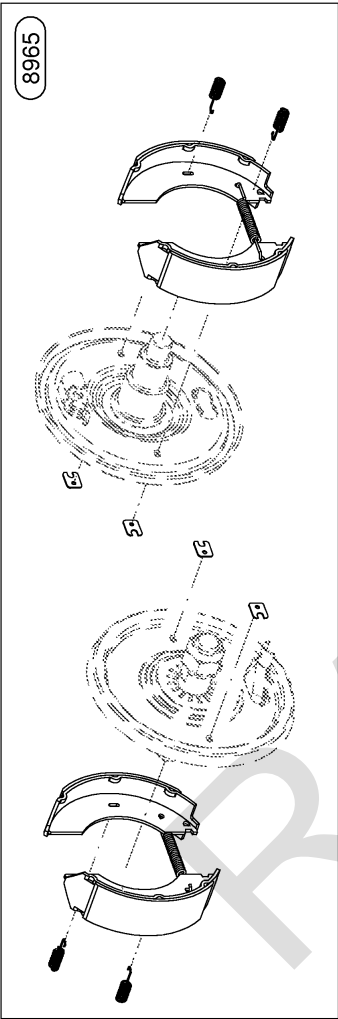
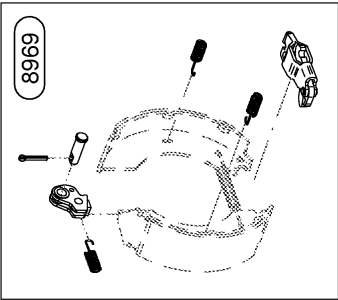
Item	Description	Option
8931	Grease nipple for overrun head	
8935	Towbar	
8936	Towbar guide bush	
8937	Towbar shock absorber	
8938	Towbar protective sleeve	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

Service-Kit



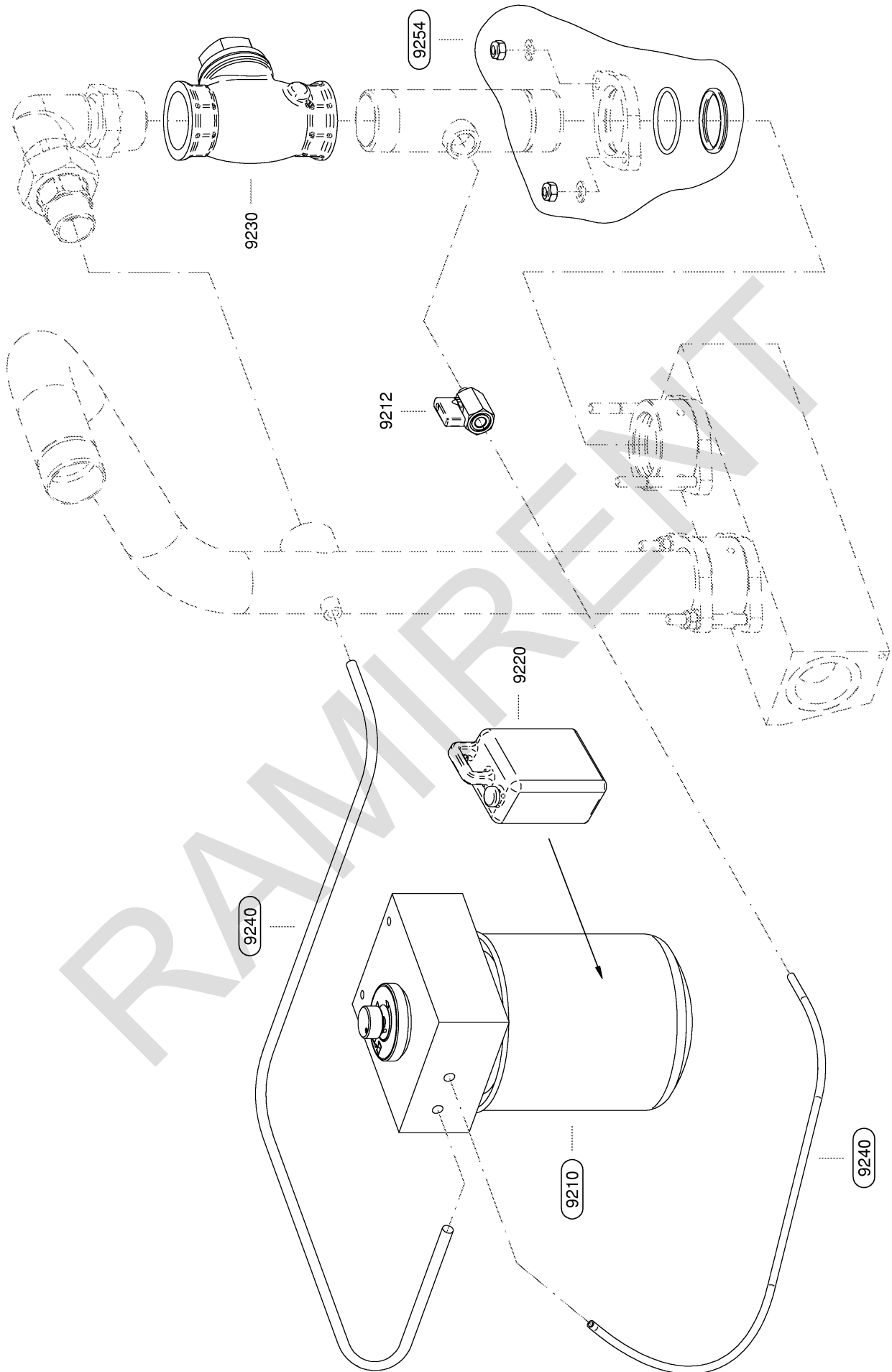
SEG-1632_01

		Legend	KAESER
		Axle, complete	SEL-1557_01E
Item	Description	Option	
8961	Brake backplate, left		
8962	Brake backplate, right		
8964	Brake drum		
8965	Brake shoe set		
8966	Brake shoe spring set		
8968	Brake cable hook-in pin		
8969	Brake actuating set, left		
8970	Brake actuating set, right		
8971	Brake adjusting set		
8972	Sealing cap for brake backplate		
8973	Grease cap for the brake drum		
8974	Flanged locknut, axle bearing		
8976	Protective shell, brake cable		
8980	Wheel bolt		

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

Service-Kit



SEG-2002_01

Legend	KAESER
Tool lubrication	SEL-1833_01E

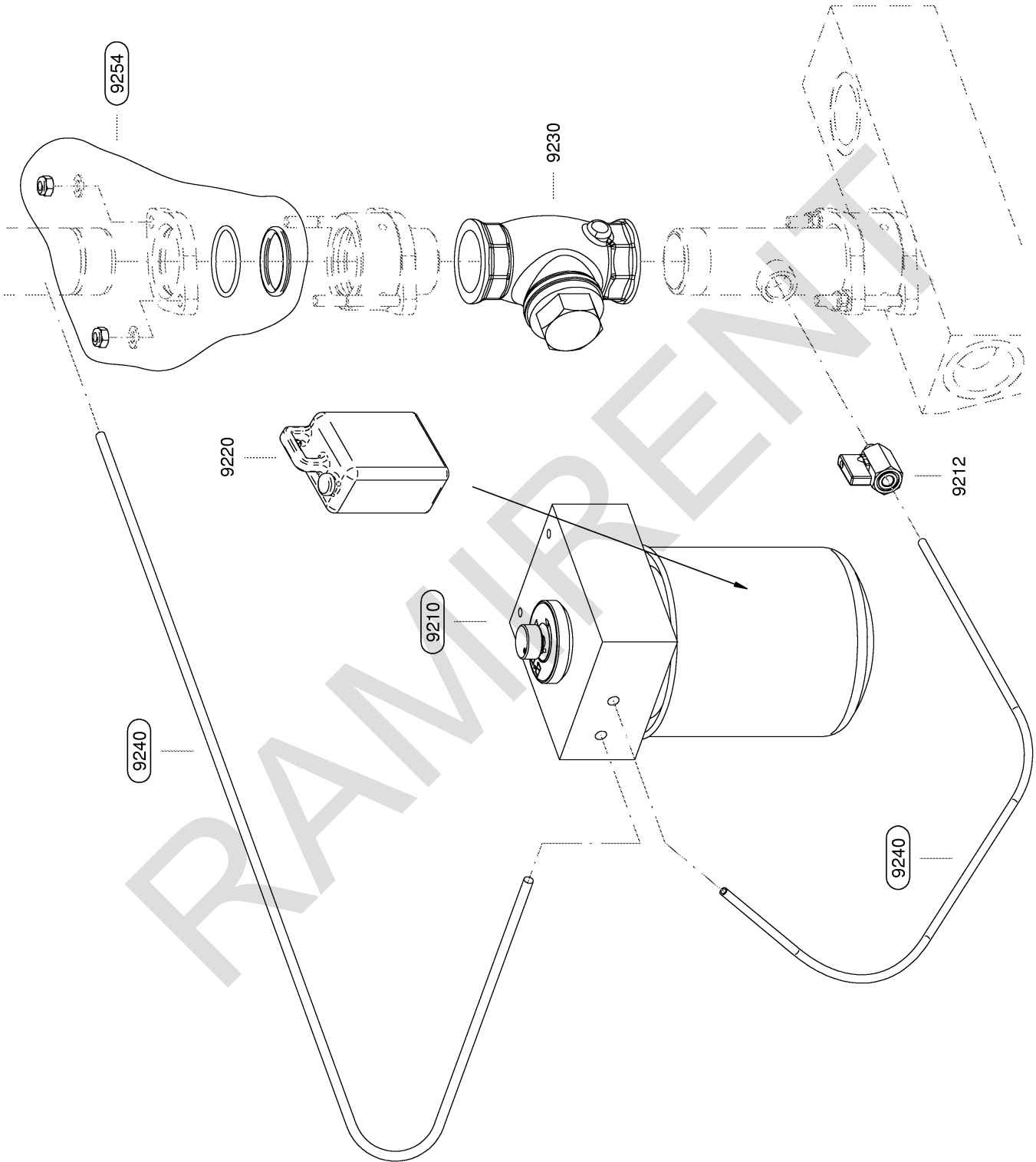
Item	Name	Option
9210	Tool lubricator	
9212	Tool lubricator shut-off valve	
9220	Tool oil *)	
9230	Tool lubricator check valve	
2412	Check valve overhaul kit	
9240	Control line kit for tool lubricator	
9254	Pipe connection sealing ring	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

*) see lubricating recommendations for road breakers

RAMIRENT



Legend	KAESER
Tool lubrication	SEL-1831_01E

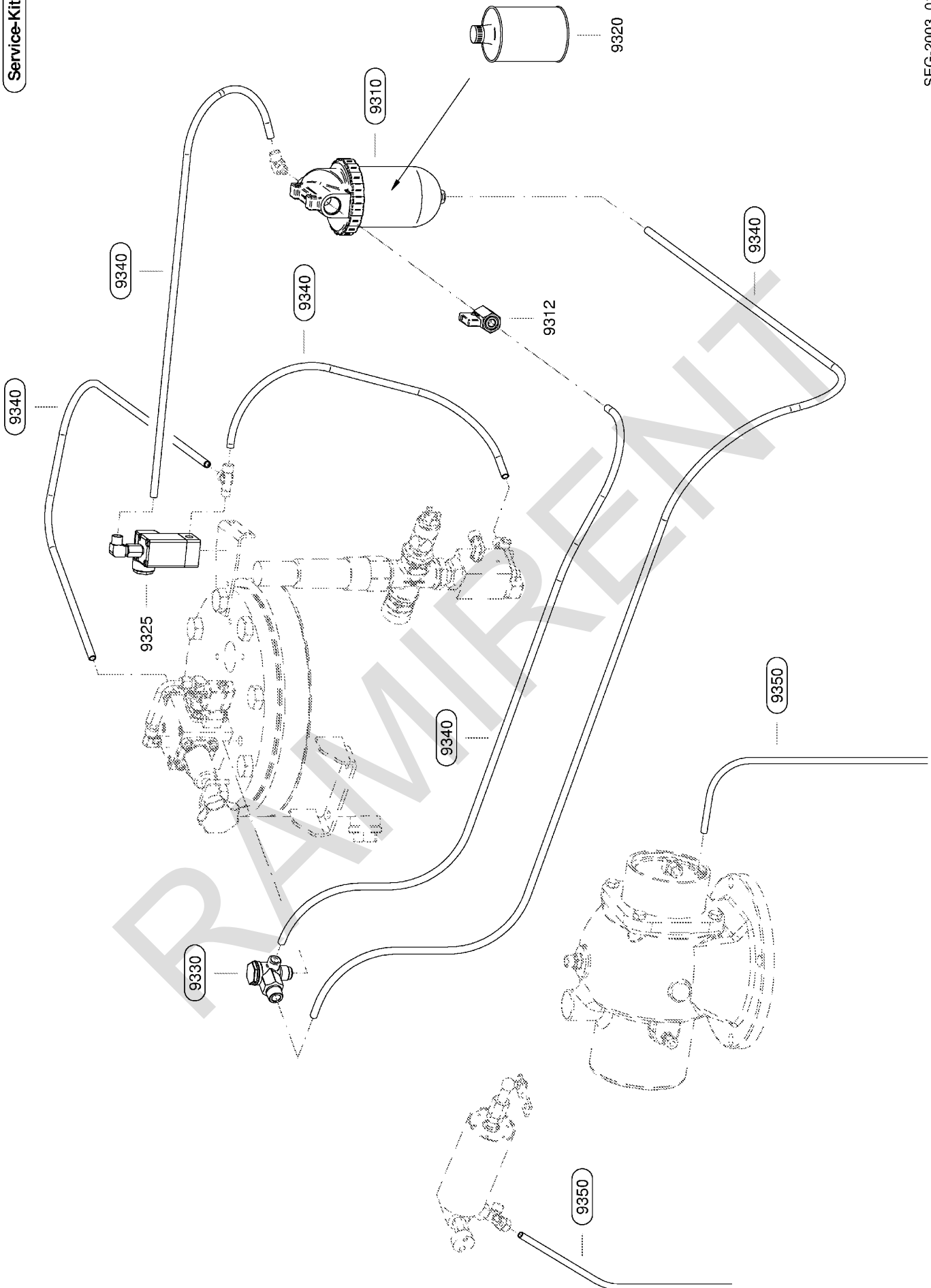
Item	Name	Option
9210	Tool lubricator	
9212	Tool lubricator shut-off valve	
9220	Tool oil *)	
9230	Tool lubricator check valve	
2412	Check valve overhaul kit	
9240	Control line kit for tool lubricator	
9254	Pipe connection sealing ring	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

*) see lubricating recommendations for road breakers

Service-Kit



SEG-2003_01

Legend	KAESER
Frost protection device	SEL-1835_01E

Item	Name	Option
9310	Frost protector	
9312	Shut-off valve	
9320	Frost protector antifreeze *)	
9330	Frost protector check valve	
2412	Check valve overhaul kit	
9340	Frost protector control lines	
9350	Antifreeze drain set	

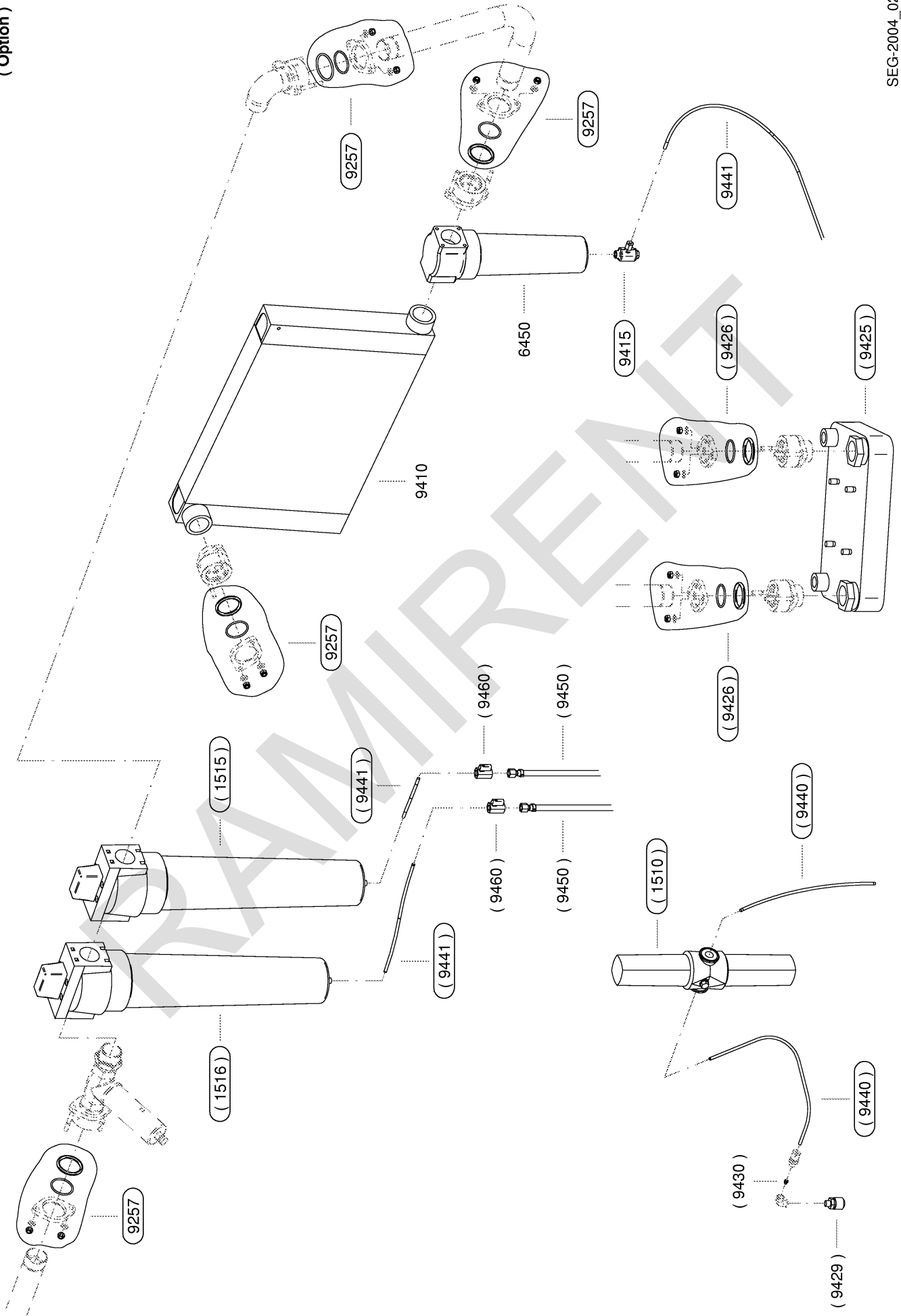
Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

*) see antifreeze recommendations

Service-Kit
(Option)

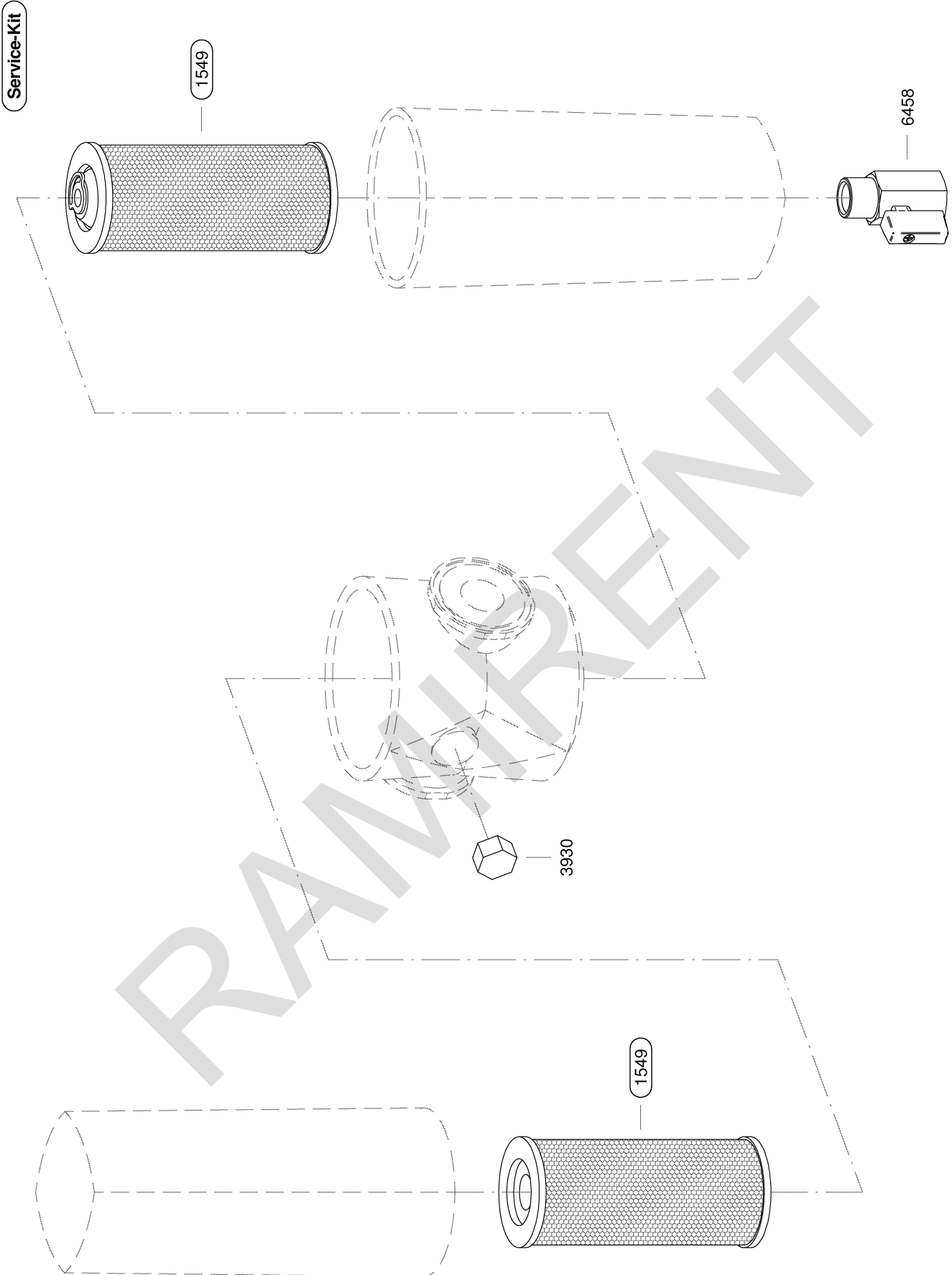
SEG-2004_02



		Legend	KAESER
		Compressed air treatment plant	SEL-1837_02E
Item	Name	Option	
1510	Fresh air filter	X	
1515	Pre-filter for compressed air	X	
1516	Fine filter for compressed air	X	
6450	Condensate separator		
9257	Pipe connection sealing ring		
9410	Compressed air aftercooler		
9415	Separator dirt trap		
9416	Dirt trap maintenance kit		
9425	Compressed air re-heater	X	
9426	Gasket, heat exchanger	X	
9429	Outlet coupling for breathing air	X	
9430	Air regulator for breathing air	X	
9440	Outlet pipe kit for breathing air	X	
9441	Condensate drain line		
9450	Condensate drain hose	X	
9460	Compr.air filter shut-off vlv.	X	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.



SEG-2482_02

Legend	KAESER
Fresh air filter	SEL-2292_01E

Item	Description	Option
1549	Fresh air filter element	
3930	Indicator insert	
6458	Shut-off valve	

Please quote the part number and serial number of the machine together with the item number and the description of the part when ordering.

Before and during all work, be sure to read and follow the safety and service instructions in the machine's service manual.

RAMIRENT

12 Decommissioning, Storage and Transport

12.1 De-commissioning

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

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

Precondition The machine is shut down.

Machine dry and cool.

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

12.1.1 Temporary de-commissioning

Decommissioning for about 4 months.

Material Plastic sheeting

Moisture-resistant adhesive tape

1. Disconnect the battery (the minus terminal first and then the plus terminal).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape.
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer
3. Attach the following notice on the instrument panel showing the decommissioning measures taken.

Attention!

1. The machine is temporarily decommissioned.
2. The following machine openings have been covered:
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer
3. Recommission according to service manual.

Date / signature

Tab. 74 "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 $-10\text{ }^{\circ}\text{C}$.
 - 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 de-commissioning and storage

De-commissioning the machine for 5 months or longer.

- Material
- Receptacle
 - Preserving oil
 - Preservative
 - Desiccant
 - Plastic sheeting
 - Moisture-resistant adhesive tape

➤ The following measures must be taken for long-term decommissioning and storage:

Long-term decommissioning and storage tasks	See chapter	Confirmed?
➤ Check engine coolant.	10.3.1	
➤ Drain the engine oil.	10.3.6	
➤ Drain the oil from the oil separator tank and the oil cooler.	10.4.3	
➤ Fill the separator tank and engine with preserving oil.	10.4.2 10.3.5	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery, the minus terminal first and then the plus terminal, and store in a frost-free room.	–	
➤ Check the battery fluid level.	10.6	
➤ Check the battery charge monthly and recharge if necessary to prevent the battery fluid freezing.	–	
➤ Clean the battery terminals and coat with acid-resistant grease.	–	
➤ Close the compressed air outlet valves.	–	
➤ Use plastic sheeting and moisture-resistant adhesive tape to seal off the following openings: <ul style="list-style-type: none"> ■ Engine air inlet ■ Compressor air inlet ■ Exhaust silencer 	–	
➤ Clean the bodywork and treat with preservative.	–	

Long-term decommissioning and storage tasks	See chapter	Confirmed?
➤ Feste et skilt på betjeningspanelet med angivelse av utførte tiltak fordi maskinen satt ut av drift.	–	

Tab. 75 "Long-term decommissioning and storage" checklist

- Attach the following notice on the instrument panel showing the decommissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For re-commissioning:
 - Measures for re-commissioning the compressor after a long period of storage.
 - Recommission according to service manual.

Date / signature

Tab. 76 Text for the "long-term decommissioned and storage" information notice

- Store in a dry place with even temperature.

12.2 Transport

Precondition Machine switched off and locked off.
The machine is fully vented, the pressure gauge reads 0 bar.
Machine is cooled down.
All compressed air consumers are disconnected.
All connecting lines and hoses disconnected and removed.
Any loose or movable parts that may fall when transporting are removed or secured.

12.2.1 Safety



Allow transportation only by personnel trained in safely dealing with motor vehicles and the transporting of goods.



1. **WARNING!**
There is danger of being run over or crushed by an overturning vehicle.
Death or serious injury can result from being crushed or run-over by a machine under tow.
 - Riding on the machine while it is under tow is strictly forbidden.
2. Make sure the danger area is clear of personnel.

12.2.2 Road transport of the machine as a trailer

Machines with appropriate chassis versions and running gear are approved for towing on public roads. The machine is designed for a maximum towing speed of 100 km/h. National and local regulations must be observed when towing the machine on public highways.



1. **WARNING!**
Risk of accident when towing the unilluminated machine on public roads.
Death or severe injury possible due to accidents with unilluminated trailer.
 - Do not tow machines without illumination on public roads.
2. Observe the safety instructions in chapter 3.5.2 "Safe machine operation".

12.2.2.1 Preparing for transport

Stowing payload:

Do not exceed the permissible loading (overall weight, coupling load, axle load).
Observe national traffic laws. If additional loading is not permitted, the additional load must be stowed in the towing vehicle.

1. Check that loading the machine with tools or accessories during transport is permissible.
2. Place additional loads only in the spaces provided (if available) and secure carefully.

Additional precautions for a very dirty machine:

The machine can become very dirty after prolonged use on a construction site. A machine in such condition is not suitable for towing on public roads.

1. Clean the machine, particularly the chassis, running gear, the lights and direction indicators.
2. Check the function of wheels, brakes, lights and signalling equipment.
Functional defects must be repaired prior to transport.

Additional precautions for conditions of snow and ice:

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



1. **CAUTION!**
Risk of accidents caused by snow and/or ice falling off the machine!
Snow or ice falling from the towed machine can endanger following vehicles.
Problems with driving dynamics and damage to the machine could occur.
The maximum permissible axle load could be exceeded.
 - Do not tow the machine if it is coated in snow or ice.
2. Remove any snow or ice before towing.

Perform the following tasks prior to transporting the machine:

1. Make sure the towing hitch is compatible with the ball or eye coupling on the towed machine.
2. Check that the machine is shut down and secured against accidental restarting.
3. Detach all connecting lines and hoses.
4. Make sure there are no unsecured tools lying on or in the machine.
5. Close and lock the access doors.

Option sa Adjust the tow bar to suit the height of the towing vehicle hitch:

When the machine is coupled up, the tow bar must be parallel with the ground.

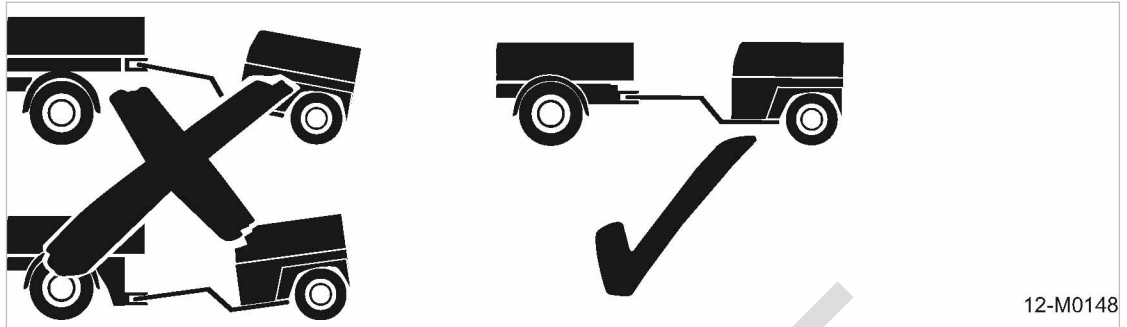


Fig. 80 Towing alignment



1. **WARNING!**

Danger from problematic driving dynamics!
The permissible loading range may be exceeded or undercut.
Personal injury may result from towing.
Damage to the machine and/or towing vehicle is possible.

- Do not couple up the machine at an angle to the towing vehicle.
- Ensure that the towbar is horizontal when coupled to the towing vehicle.

2. Adjust the towbar height to suit the height of the hitch on the towing vehicle.

Further information See chapter 6.4.1 for tow bar height adjustment.

12.2.2.2 Coupling-up

Option sa, sd Coupling machine with ball coupling (EC version):

To hitch up the machine, lower the open coupling onto the ball of the towing vehicle so that it clicks into place. The coupling is fully locked when the green locking indicator protrudes and is visible from the side.

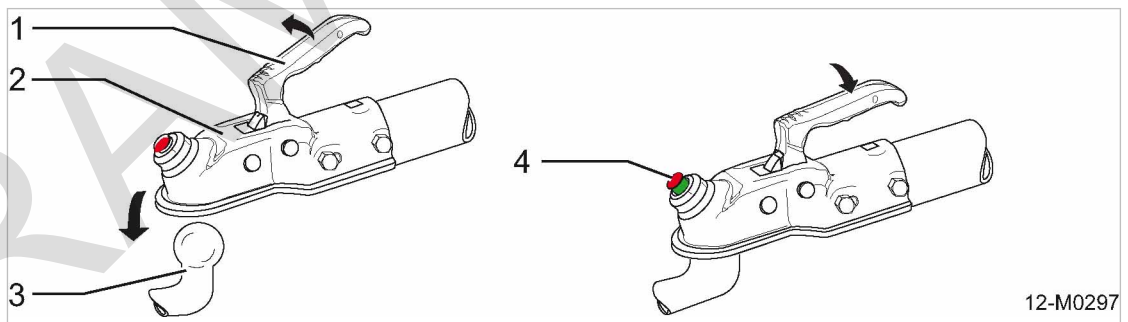


Fig. 81 Ball coupling (ALKO-EU)

- | | |
|-------------------|----------------------------------|
| ① Coupling handle | ③ Towing vehicle ball hitch |
| ② Ball coupling | ④ Locking indicator (protruding) |



1. **NOTICE!**

High risk of injury by trapped fingers!
They can be trapped in the spring-loaded closing mechanism.

- Never place your fingers inside an open ball coupling.
- Wear safety gloves.

2. Pull up the coupling handle.
The coupling opens.



3. **WARNING!**

Risk of accident due to unhitching of the ball coupling during transport!

If the coupling is not fully closed the compressor can become uncoupled from the towing vehicle and cause an accident.

- Check correct coupling.

4. Place the open coupling over the towing vehicle ball hitch.

The weight on the coupling will cause it to audibly latch. The coupling locks automatically. Closing and locking is automatic.

5. Push the handle down to be certain of locking.

The coupling is fully locked when the handle is fully down and can be pushed no further.

6. Check correct coupling.

- Check that the coupling handle cannot be pushed further down.
- Check that the locking indicator is protruding and visible.



The locking indicator is not visible.

- Lift the handle and uncouple.
- Set the coupling back on the towing vehicle ball hitch and push down.

Checking the ball coupling wear indicator (EU version):

The ball coupling is equipped with a wear indicator.

The wear indicator shows:

- Wear on the ball hitch.
- Wear on the coupling.

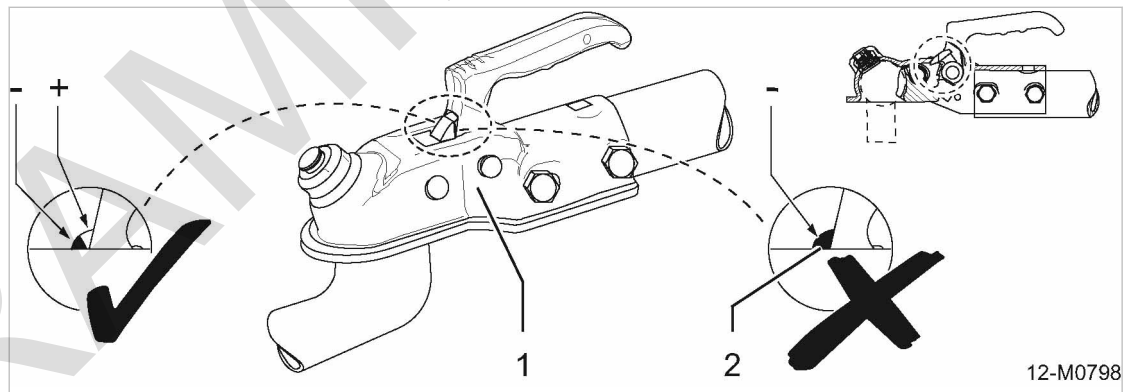


Fig. 82 Ball coupling wear indicator ALKO-EU

- | | | | |
|---|----------------|---|------------------------------------|
| ① | Ball coupling | + | Green zone (OK) |
| ② | Wear indicator | - | Red zone (wear tolerance exceeded) |



1. **WARNING!**

Danger of accident from worn coupling!

The machine may detach from the towing vehicle.

- Do not tow the machine.
- Have the ball coupling and ball hitch checked.
- Worn parts must be replaced.

2. Couple-up the machine and tow slowly and carefully for about 500 m.
The action of towing sets the coupling mechanism to maximum closure and gives a true reading on the wear indicator.
3. Interpret the wear indicator as follows:

Wear indicator	Meaning
Green zone showing	<ul style="list-style-type: none"> ■ Coupling in new condition. ■ Towing vehicle ball hitch wear within acceptable limits. ➤ No action necessary.
Red zone showing	<ul style="list-style-type: none"> ■ Ball hitch wear at acceptable limit, ball coupling unworn. ■ Ball hitch in new condition; ball coupling showing increased wear. ■ Both ball and coupling showing increased wear. ■ Ball coupling is damaged. ➤ Have the ball coupling and ball hitch checked by a specialist workshop. ➤ Worn parts must be replaced.

Tab. 77 Ball coupling wear indicator

Option sh Coupling machine with ball coupling (US version):

To couple up the compressor, lower the open coupling onto the ball hitch of the towing vehicle so that it clicks into place.

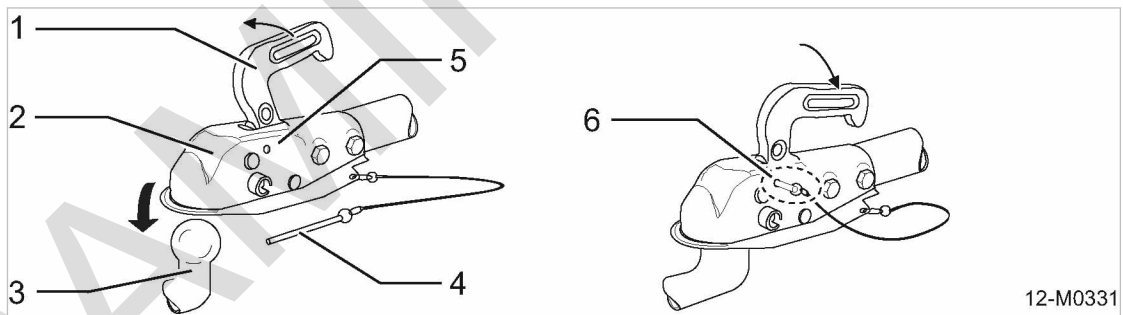


Fig. 83 Ball coupling (ALKO-USA)

- | | |
|-----------------------------|-----------------------------------|
| ① Coupling handle | ④ Safety pin |
| ② Ball coupling | ⑤ Mounting opening for safety pin |
| ③ Towing vehicle ball hitch | ⑥ Ball hitch properly secured |



1. **NOTICE!**
High risk of injury by trapped fingers!
They can be trapped in the spring-loaded closing mechanism.
 - Never place your fingers inside an open ball coupling.
 - Wear safety gloves.
2. Check if the security pin is removed from the coupling and draw it out if not.
3. Pull up the coupling handle.
The coupling opens.


4. WARNING!

Risk of accident due to unhitching of the ball coupling during transport!

If the coupling is not fully closed the compressor can become uncoupled from the towing vehicle and cause an accident.

- Check correct coupling.
- Check correct location of the security pin.

5. Place the open coupling over the towing vehicle ball hitch.

The weight on the coupling will cause it to audibly close. The coupling locks automatically. Closing and locking is automatic.

6. Push the handle down to be certain of locking.

The coupling is fully locked when the handle is fully down and can be pushed no further.

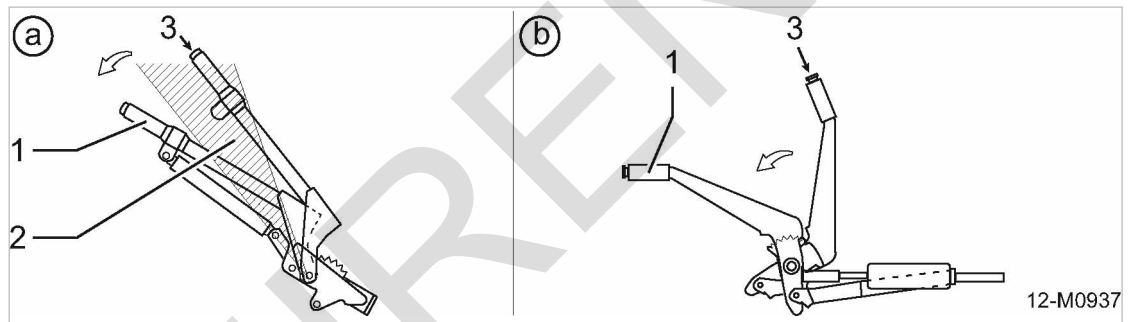
7. Insert the security pin in the ball coupling fixing opening.
12.2.2.3 Ensure transport readiness of the coupled machine.


Fig. 84 Release the parking brake.

- | | |
|--|---|
| Ⓐ Parking brake with gas spring assistance | Ⓑ Parking brake with ratchet and spring loading |
| ① Parking brake lever | ③ Brake lever release button |
| ② Dead point zone | |

Option sa Prepare the machine with adjustable chassis for transport:

1. Check that the tow bar is adjusted to the correct height. (see also chapter 6.4.1)
Check if:
 - The teeth in the tow bar height adjusting joints are fully engaged.
 - The locking levers are tightened
 - the safety pins are properly inserted
2. Wind the jockey wheel to its uppermost position.
3. Check that the wheels are securely fitted and the tyres are in good condition.
4. Check the tyre pressures.
5. Connect the cable for the lighting and indicator systems and carry out a function check.
6. Release the parking brake:
(see Fig. 84/a).
 - Pull the brake lever a little further on and press the release button.
 - Hold the release button in and push the lever down past the dead point zone.
7. Remove the chocks.

Option sd Prepare the machine with fixed chassis with parking brake) for transport:

1. Wind the jockey wheel to its uppermost position.
2. Check that the wheels are securely fitted and the tyres are in good condition.
3. Check the tyre pressures.
4. Connect the cable for the lighting and indicator systems and carry out a function check.
5. Release the parking brake:
(see Fig. 84/b).
 - Pull the brake lever a little further on and press the release button.
 - Hold in the release button and push the lever fully down.
6. Remove the chocks.

Option sh Prepare the machine with fixed chassis (without parking brake) for transport:

Option sh



Fig. 85 Safety sign - secure the chocks


1. WARNING!
Missing chocks

Serious injury or death can result from an unsecured machine rolling away.

- Secure the chocks in the transport securing device before transporting the machine.
- Replace missing chocks immediately.

2. Wind the jockey wheel to its uppermost position.
3. Check that the wheels are securely fitted and the tyres are in good condition.
4. Check the tyre pressures.
5. Attach the lighting and indicator systems and carry out a function check.
6. Remove the chocks and secure them in the transport securing device.



Replacement chocks can be purchased from KAESER representatives. A list is given at the end of this manual. The part number of the chock is 5.1325.0.

Option sa, sd Ensure emergency braking in the case of breakaway from the towing vehicle:

If the compressor breaks away from the towing vehicle, the cable tightens and pulls on the emergency brake (parking brake).

It is essential that the breakaway cable is threaded through its guides for correct emergency braking.

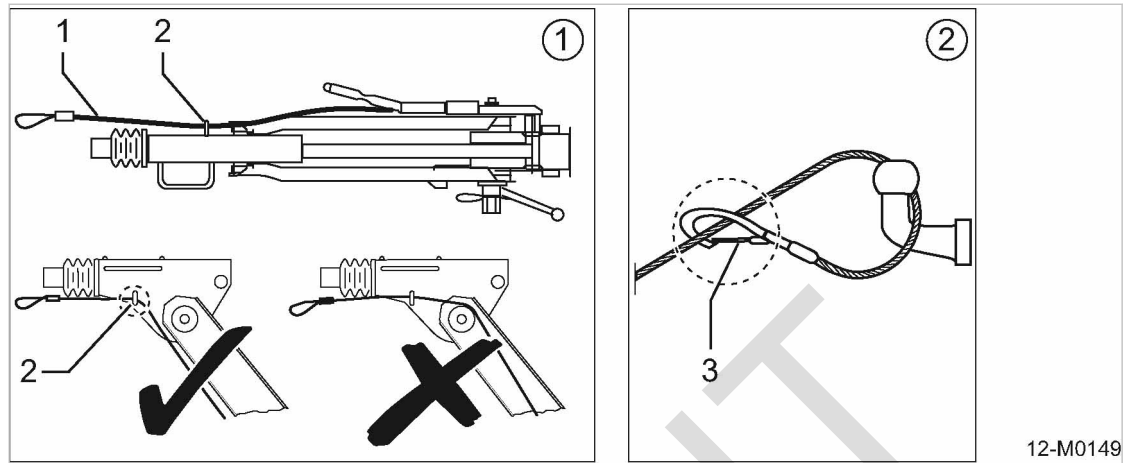


Fig. 86 Breakaway cable attachment

- ① Breakaway cable
- ② Breakaway cable guide (eye)
- ③ Connection (spring clip)



1. **NOTICE!**

Unintentional brake application.

If the breakaway cable is too short it can apply the brakes when rounding a curve. This imposes high wear on the braking system.

- Make sure the breakaway cable is long enough.

2. Thread the breakaway cable through the guide welded on the side of the towbar.

3. Loop the end of the cable round the towing vehicle hitch and secure with the spring clip.

12.2.3 Parking the compressor

The parking brake is not a running brake and is used only to lock the wheels when the machine is positioned.

The machine is generally only moved by being coupled to a towing vehicle.



CAUTION

Injury can occur if the towbar is unsupported and allowed to fall.

A falling towbar can cause injury, especially by crushing the feet.

If the jockey wheel is raised completely, the spindle can disengage and allow the towbar to fall to the ground.

- Do not wind the jockey wheel completely out when the machine is uncoupled from the towing vehicle.

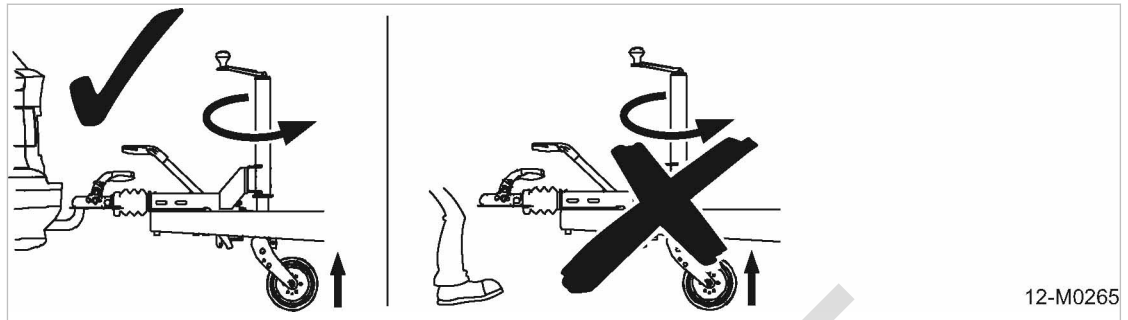


Fig. 87 Warning "Risk of injury due to falling towbar"

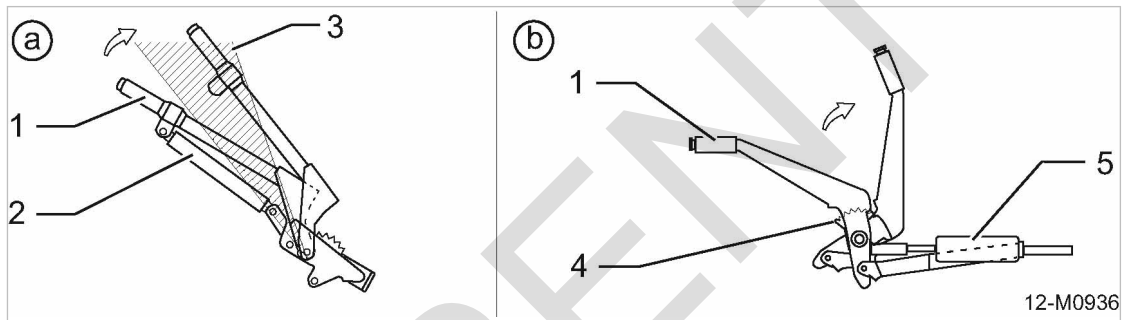


Fig. 88 Actuating the parking brake

- | | |
|--|---|
| Ⓐ Parking brake with gas spring assistance | Ⓑ Parking brake with ratchet and spring loading |
| ① Parking brake lever | ④ Ratchet |
| ② Gas spring | ⑤ Spring loading device |
| ③ Dead point zone | |

Option sa Parking the machine with height-adjustable chassis:

When parking on a slope, securely chock the machine before uncoupling.

1. Disconnect the lighting and signaling cable.
2. Pull on the parking brake past the dead point zone (see Fig.88/a).
The gas spring holds the brake under tension.
3. Detach the breakaway cable.
4. Wind down the jockey wheel.
5. Place chocks under the wheels.
6. Uncouple the compressor from the towing vehicle:
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.



The gas spring automatically increases parking brake force if the machine rolls backwards or when parked on a slope.

Option sd Parking the machine with fixed-height chassis (with parking brake):

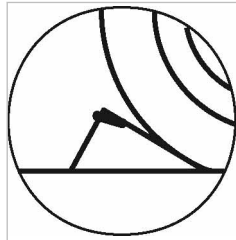
When parking on a slope, securely chock the machine before uncoupling.

1. Disconnect the lighting and signaling cable.

2. Pull on the parking brake to the last ratchet tooth (see Fig. 88/b).
When the hand brake lever is horizontal, the brake is under spring loading.
If the lever is not horizontal, the brake is not fully applied and the machine may roll away.
3. Detach the breakaway cable.
4. Wind down the jockey wheel.
5. Place chocks under the wheels.
6. Uncouple the compressor from the towing vehicle:
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.

Option sh Parking the machine with fixed-height chassis (without parking brake):

When parking on a slope, securely chock the machine before uncoupling.



12-M0392

Fig. 89 Safety sign - secure the chocks



1. **WARNING!**
Machine without parking brake.
Serious injury or death can result from an unsecured machine rolling away.
 - Securely chock the machine before uncoupling.
 - As a general rule, the machine should always be blocked with chocks when it is not being moved.
 - The machine should not be manoeuvred by hand.
2. Wind down the jockey wheel.
3. Place chocks under the wheels.
4. Dismantle the lighting and signaling system.
5. Uncouple the compressor from the towing vehicle:
 - Withdraw the security pin from the ball coupling.
 - Pull up the coupling release lever.
 - Lift the coupling off the towing hitch ball.
 - Insert the security pin in the ball coupling fixing opening.

12.2.4 Transport with a crane

Additional precautions for conditions of snow and ice:

Considerable snow or ice may build up on the machine under low temperature conditions. This may adversely effect the machine's centre of gravity. It is possible that the permissible loading on the crane or lifting eye is exceeded.

- Perform the following tasks in snow and ice conditions:
 - Remove any snow and ice from the machine before lifting by a crane.
 - Make sure the lifting eye cover plate is freely accessible and can be opened.

Perform the following tasks prior to moving the machine by crane:

A lifting eye is provided for transporting with a crane. The lifting eye is located beneath a lift-up cover in the centre of the canopy.

1. Unlock the cover from inside and lift up.
2. Position the crane hook vertically over the lifting eye.
3. Engage the hook in the eye.
4. Close and lock the access doors.
5. Lift 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.

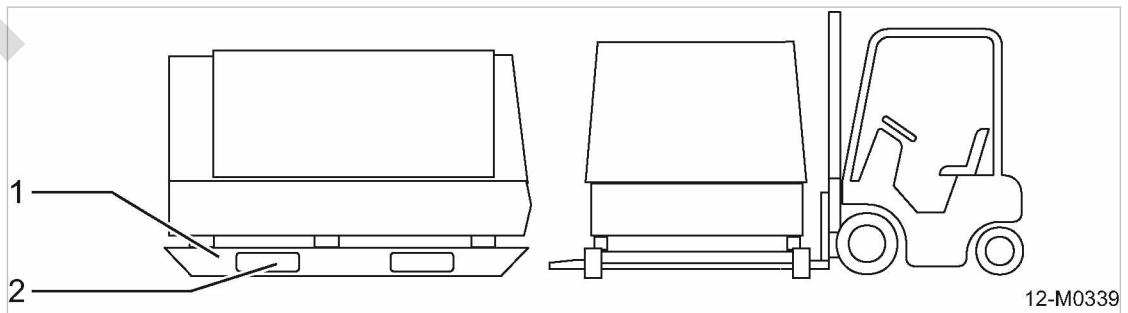
12.2.5 Option sc Transporting with a forklift truck

Precondition The machine is shut down.
All connecting lines and hoses disconnected and removed.



- CAUTION**
Damage to the machine by incorrect lifting with a fork truck.
The machine may fall or be damaged by the forks.
- Do not use a fork truck to lift towable machines.
 - Only stationary machines with skids may be transported with a fork truck.
 - Pick up the machine only from the side with the forks through the lifting lugs.

Option sc



12-M0339

Fig. 90 Transport using a forklift truck

- ① Skids
- ② Lifting lugs

1. Close and lock the access doors or canopy.
2. Position the fork truck to the side of the machine with the forks lined up with the lifting lugs.
3. Drive the forks fully through the lifting lugs as far as possible.
The forks are fully under the machine.
4. Lift the machine carefully.

12.2.6 Transporting 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.

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

Material Chocks

Restraints or timber bunks

Straps

Carry out a freight securing:



- National directives and regulations for securing loads should be followed.
- Load securing is taken to mean that by full braking or sudden turning the load will not slide, fall, roll or cause unnecessary noise. Accepted technical regulations should be observed (e.g. VDI directive 2700 ff in Germany).
- Responsibility for properly secured loads falls on the driver, the vehicle keeper and the carrier.

Use chocks, restrainers or timber bunks for securing the load.

If necessary, use straps across the chassis and the tow bar.

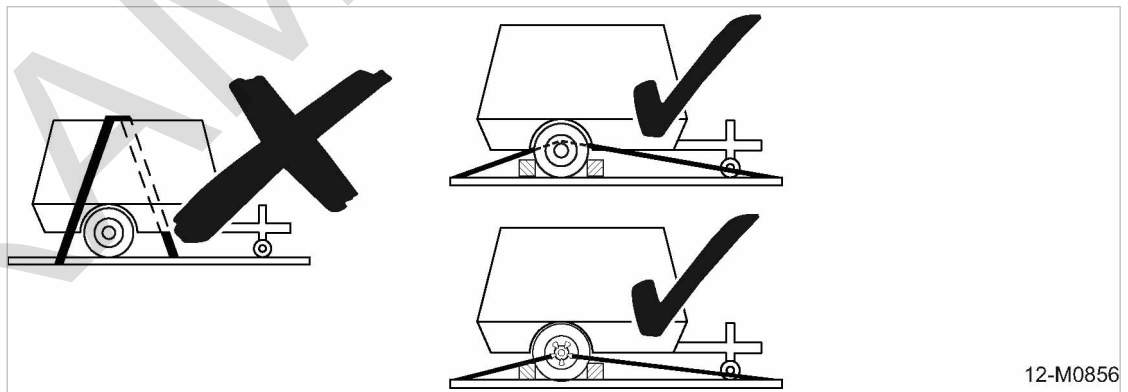


Fig. 91 Load secured by strapping



1. **NOTICE!**

Vehicle body damage due to guys!

Movement during transportation can damage the bodywork.

- Do not use straps over the bodywork.
- Use straps only over the chassis.

2. Always observe valid accident and safety regulations when transporting.

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



Contact KAESER Service with any questions regarding transporting or load securing. KAESER accepts no liability and provides no guarantee for damage arising from incorrect transport or insufficient or incorrect load securing provisions.

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

Before shipment as air freight

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

**1. WARNING!**

Fire and explosion risk arising from operating supplies!
The machine incorporates an internal combustion engine.

➤ Any dangerous fluids/materials contained within the machine must be removed before transport.

2. All hazardous materials must be removed.

These include:

- Residues of fuel or fuel vapours
- 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 $>0\text{ }^{\circ}\text{C}$.
- 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 authorised disposal expert.

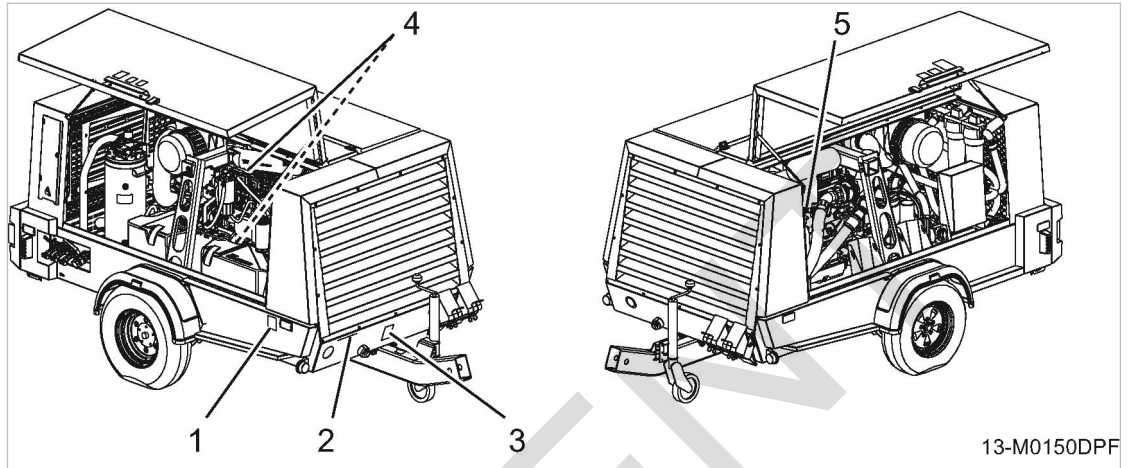


- Operating materials and components contaminated with fuel, cooling oil or engine oil must be disposed of in accordance with local environment protection regulations.
- Old batteries are hazardous waste and must be disposed of correctly in accordance with local environment protection regulations

RAMIRENT

13 Annex

13.1 Identification

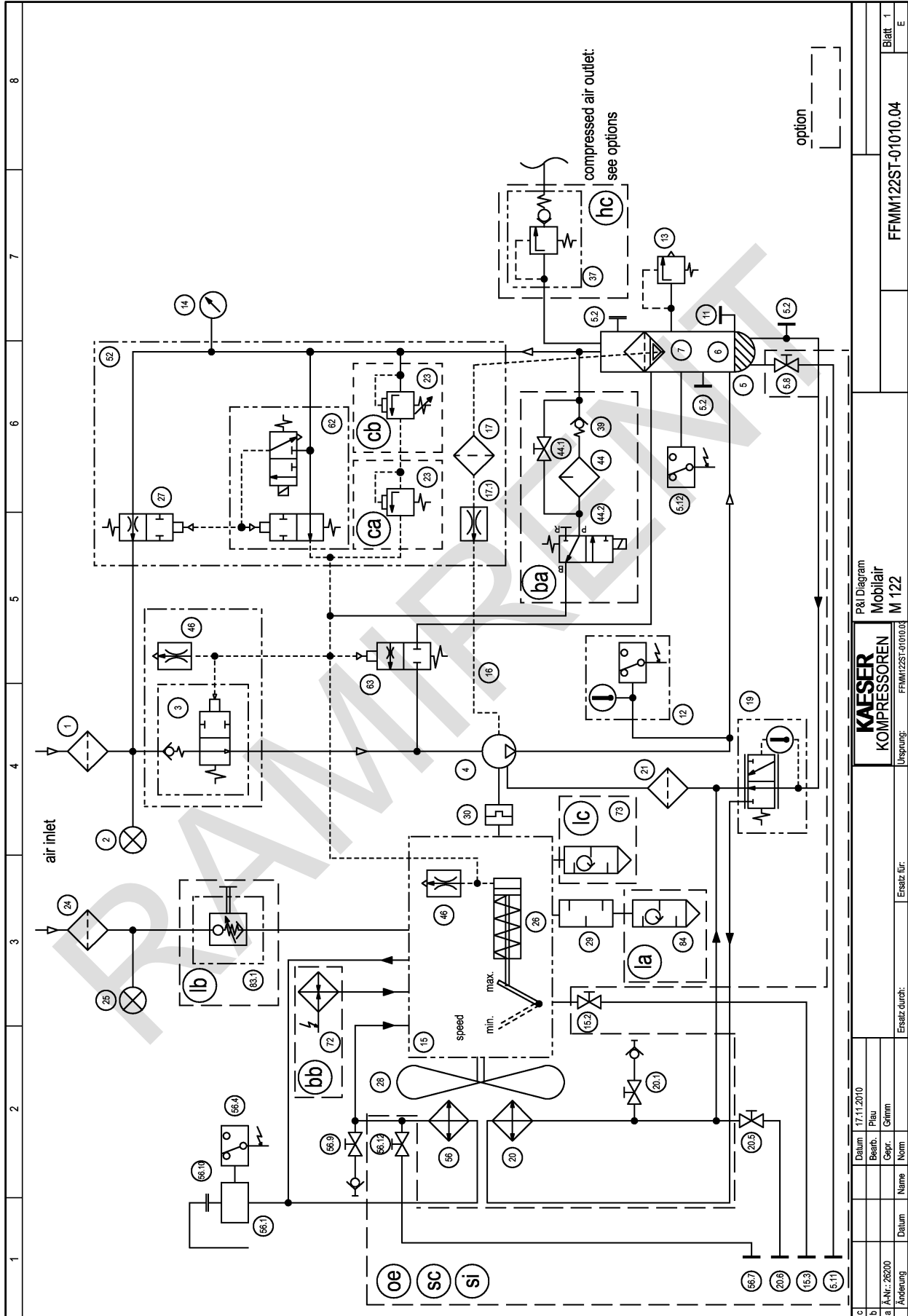


13-M0150DPF

Fig. 92 Identification

- | | |
|--|--|
| <p>① Machine nameplate with serial number</p> <p>② VIN *) (stamped in the bodywork)
*Vehicle identity number</p> <p>③ Combined label for coupling loading and built-in options</p> | <p>④ Engine nameplate with serial number
(on the cylinder head cover or crankcase).</p> <p>⑤ Option Ic only:
Inspection label for the diesel particle filter
(on fan casing)</p> |
|--|--|

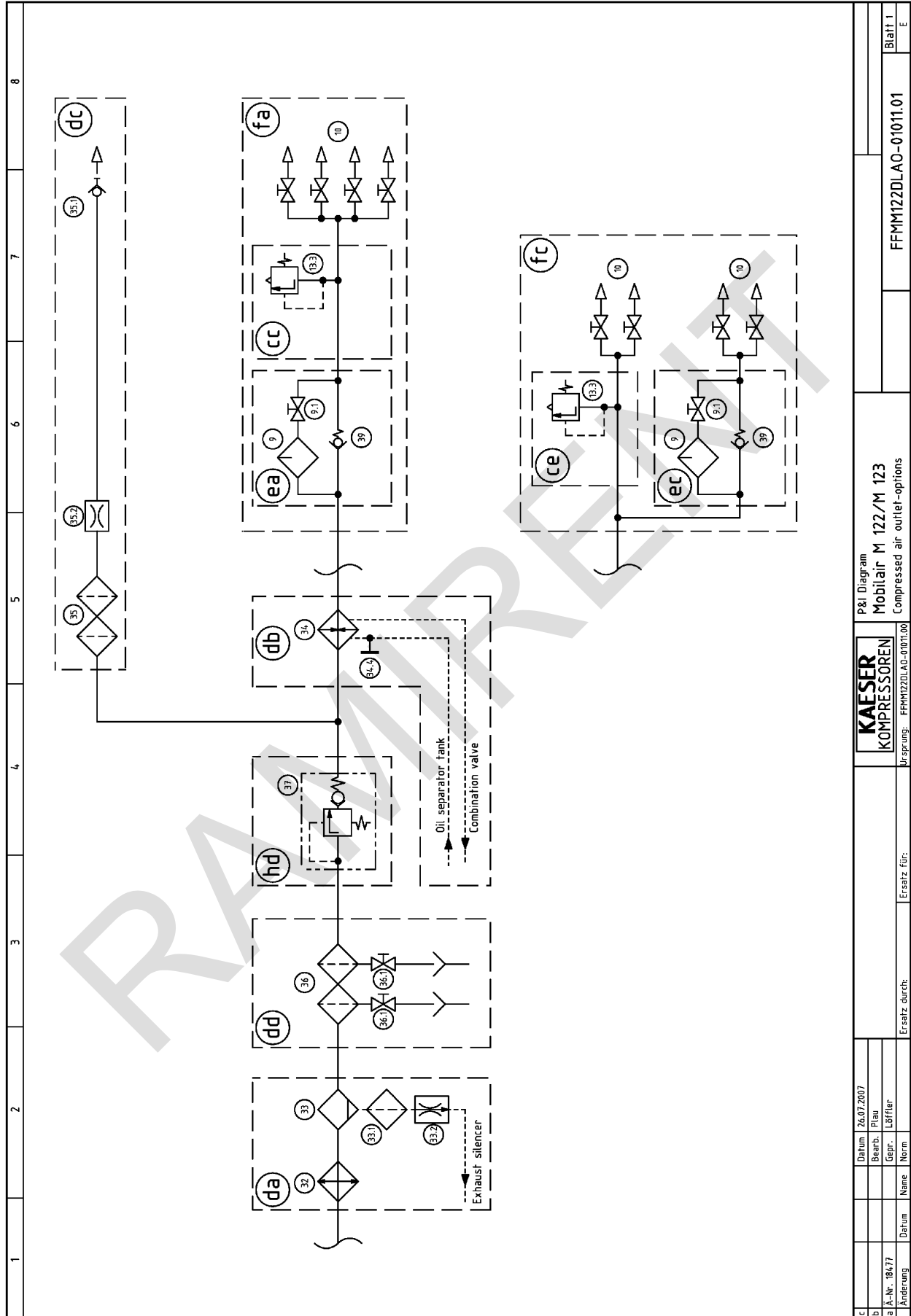
13.2 Pipeline and instrument flow diagram (P+I diagram)



Date		17.11.2010	
Bearb.		Pleu	
a) A-Nr.: 20200		Copr. Grimm	
Änderung		Name Norm	
Ersatz durch:		Ersatz für:	
Umsprung:		FFMM122ST-01010.04	
P&I Diagram		Mobilair M 122	
Kaeser KOMPRESSOREN		FFMM122ST-01010.04	
Blatt 1		E	

1	2	3	4	5	6	7	8
1	compressor - air filter	20	oil cooler	56.7	screw plug - water drain		
2	filter maintenance indicator, compressor - air filter	20.1	shut-off valve with hose coupling - oil drain	56.9	shut-off valve with hose coupling - water drain		
3	inlet valve	20.5	shut-off valve - oil drain	56.10	water filling port with plug and pressure relief valve		
4	air end	20.6	screw plug - oil drain	56.12	shut-off valve - water drain		
5	oil separator tank	21	oil filter	62	combined control valve		
5.2	screw plug	23	proportional controller	63	control valve (air circulation valve)		
5.8	shut-off valve - oil drain	24	motor - air filter	72	fail-safe heat exchanger		
5.11	screw plug - oil drain	25	filter maintenance indicator, motor - air filter	73	exhaust silencer with particulate filter		
5.12	pressure switch - back pressure	26	engine speed adjusting piston	83.1	engine air intake shut-off valve (automatic and manual shutoff)		
6	oil reserve	27	venting valve	84	spark arrester		
7	oil separator cartridge	28	fan	option			
11	oil filter with screw plug	29	exhaust silencer	ba	low temperature equipment		
12	temperature gauge switch + indication	30	coupling	bb	cooling water pre-heating		
13	pressure relief valve	37	minimum pressure check valve	ca	without manual adjustment possibility		
14	pressure gauge compressed air - control panel	39	check valve	cb	with manual adjustment possibility		
15	diesel engine	44	defroster	hc	minimum pressure check valve (without combination filter)		
15.2	shut-off valve - oil drain	44.1	shut-off valve	la	spark arrester		
15.3	screw plug - oil drain	44.2	solenoid valve	lb	spark arrester + engine air intake shut-off valve (automatic and manual shutoff)		
16	oil return line	46	nozzle (secondary end proportional controller)	lc	diesel particulate filter		
17	dirt trap	52	control valve	oe	enclosed floor pan		
17.1	nozzle	56	water cooler	sc	stationary with skid		
19	combination valve - oil temperature controller	56.1	cooling water expansion tank	si	stationary with frame		
		56.4	opto-electronic cooling water level sensor				

c	Datum	17.11.2010	P+I Diagram legend		Blatt 2	
b	Bearb.	Plau	Mobilair		E	
a	Gepr.	Grimm	M 122		FFMM122ST-01010.04	
Änderung	Name	Norm	Übersage: FFMM122ST-01010.04			
			Ersatz für:			



Date: 26.07.2007		P&I Diagram	
Drawn: Plau		Mobilair M 122/M 123	
Checked: Löffler		Compressed air outlet-options	
Name: Norm		FFMM122DLAO-01011.01	
Date: 08.77		Blatt I	
Change:		E	
Ersatz durch:		Ursprung: FFMM122DLAO-01011.00	

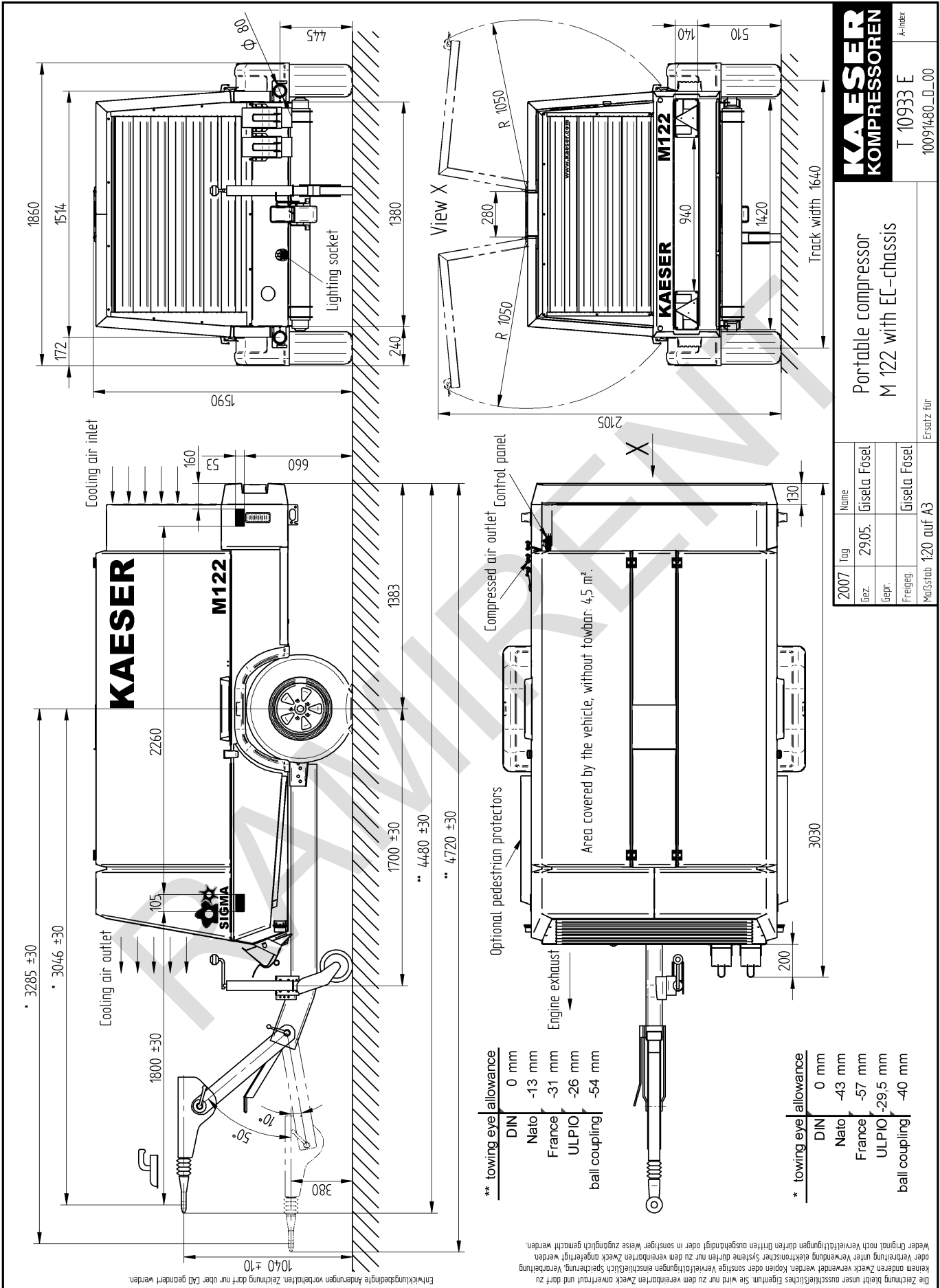
1	2	3	4	5	6	7	8
	9 Tool lubricator			Option			
	9.1 Shut-off valve						
	10 Compressed air distributor			cc second pressure relief valve, with option fa			
	13.3 Pressure relief valve			ce second pressure relief valve, with option fc			
	32 Air cooler			da Aftercooler + Centrifugal separator			
	33 Centrifugal separator			db Heat exchanger			
	33.1 Dirt trap			dc Breathing air filter			
	33.2 Nozzle			dd Filter combination			
	34 Heat exchanger			ea tool lubricator, with option fa			
	34.4 Screw plug - Oil drain			ec tool lubricator, with option fc			
	35 Breathing air filter			fa Direct air flow			
	35.1 Hose coupling			fc Air flow split downstream of options			
	35.2 Nozzle			hd Minimum pressure check valve (with combination filter)			
	36 Filter combination						
	36.1 Shut-off valve for condensate drain						
	37 Minimum pressure check valve						
	39 Check valve						
c		Datum	26.07.2007	P&I Diagram legend			
b		Bearb.	Plau	Mobilair M 122/M 123			
a		A-Nr.	10477	Compressed air outlet-options			
Änderung	Datum	Name	Norm	Ursprung: FFM122DLAO-0101100			
				Ersatz für:			
				Ersatz durch:			
				FFMM122DLAO-01011.01			
				Blatt 2			
				E			

13.3 Dimensional drawings

13.3.1 Option sa

Dimensional drawing - chassis with height-adjustable tow bar

RAMIRENT



2007		Tag	Name
dez.	29.05.	Gepr.	Gisela Fösel
Freigez.		Freigez.	Gisela Fösel
Maßstab 1:20 auf A3		Ersatz für	

T 10933 E
 A-Index
 10091480_01_00

KAESER
KOMPRESSOREN

Portable compressor
 M 122 with EC-chassis

Entwicklungsbedingte Änderungen vorbehalten. Zeichnung darf nur über CAD geändert werden.

Die Zeichnung zeigt 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. Weiter Original noch Vervielfältigungen dürfen Dritten ausgehandelt oder in sonstiger Weise zugänglich gemacht werden.

** towing eye allowance

DIN	0 mm
Nato	-13 mm
France	-31 mm
ULPIO	-26 mm
ball coupling	-54 mm

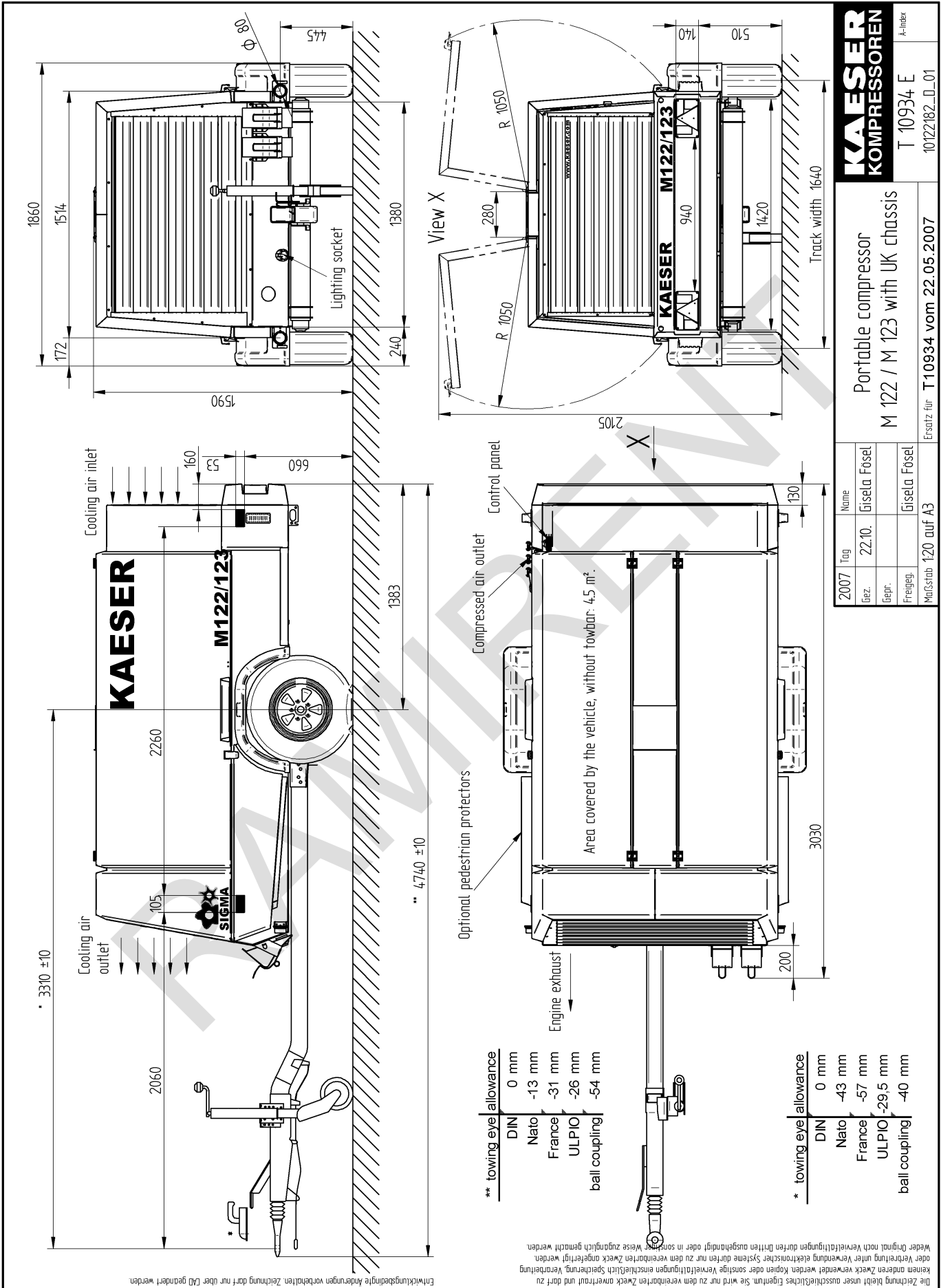
* towing eye allowance

DIN	0 mm
Nato	-43 mm
France	-57 mm
ULPIO	-29,5 mm
ball coupling	-40 mm

13.3.2 Option sd

Dimensional drawing, chassis with fixed height tow bar

RAMIRENT



KAESER
KOMPRESSOREN

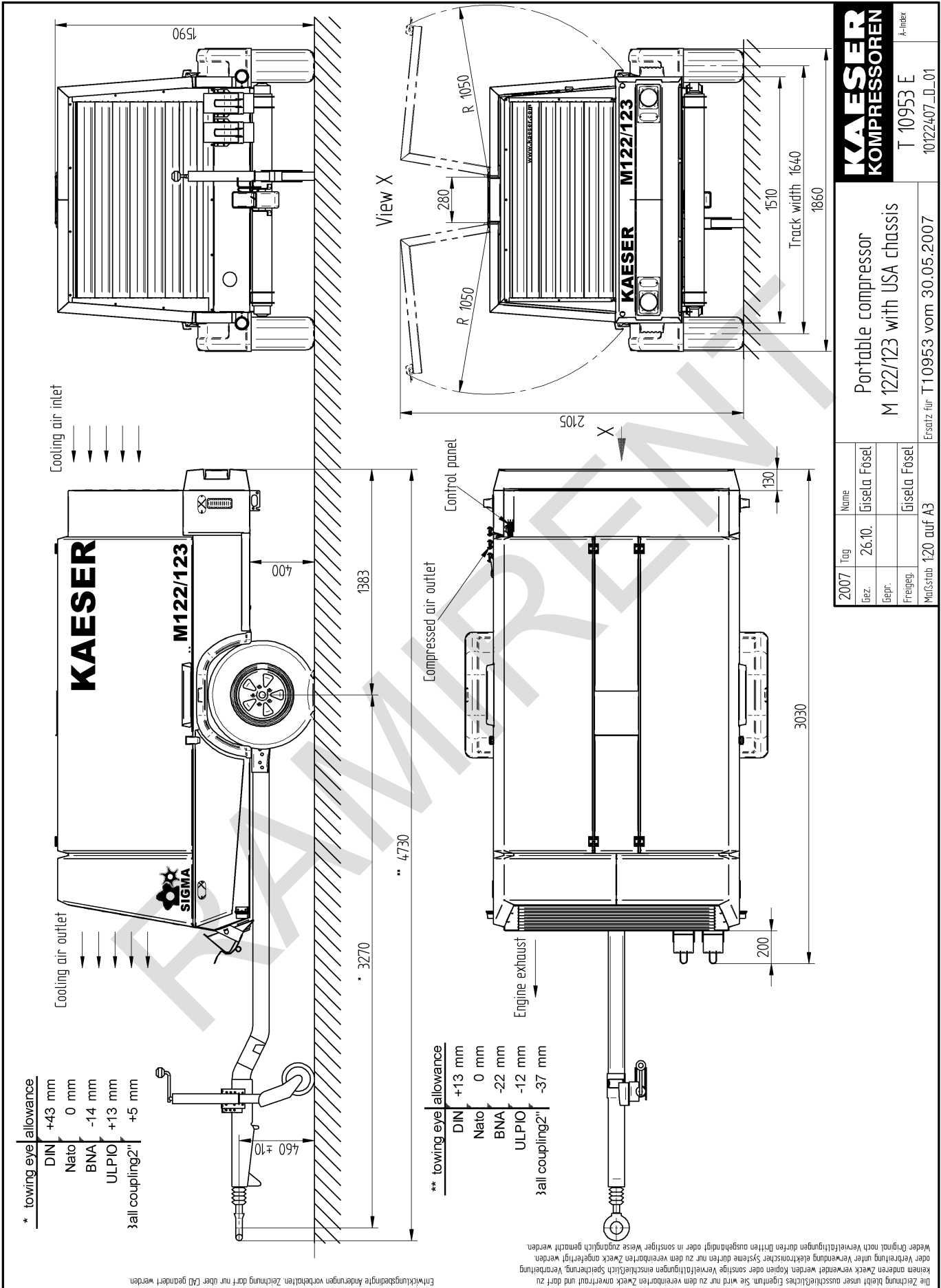
Portable compressor
M 122 / M 123 with UK chassis

T 10934 E
A-Index
10122182_D_01

Ersatz für T 10934 vom 22.05.2007

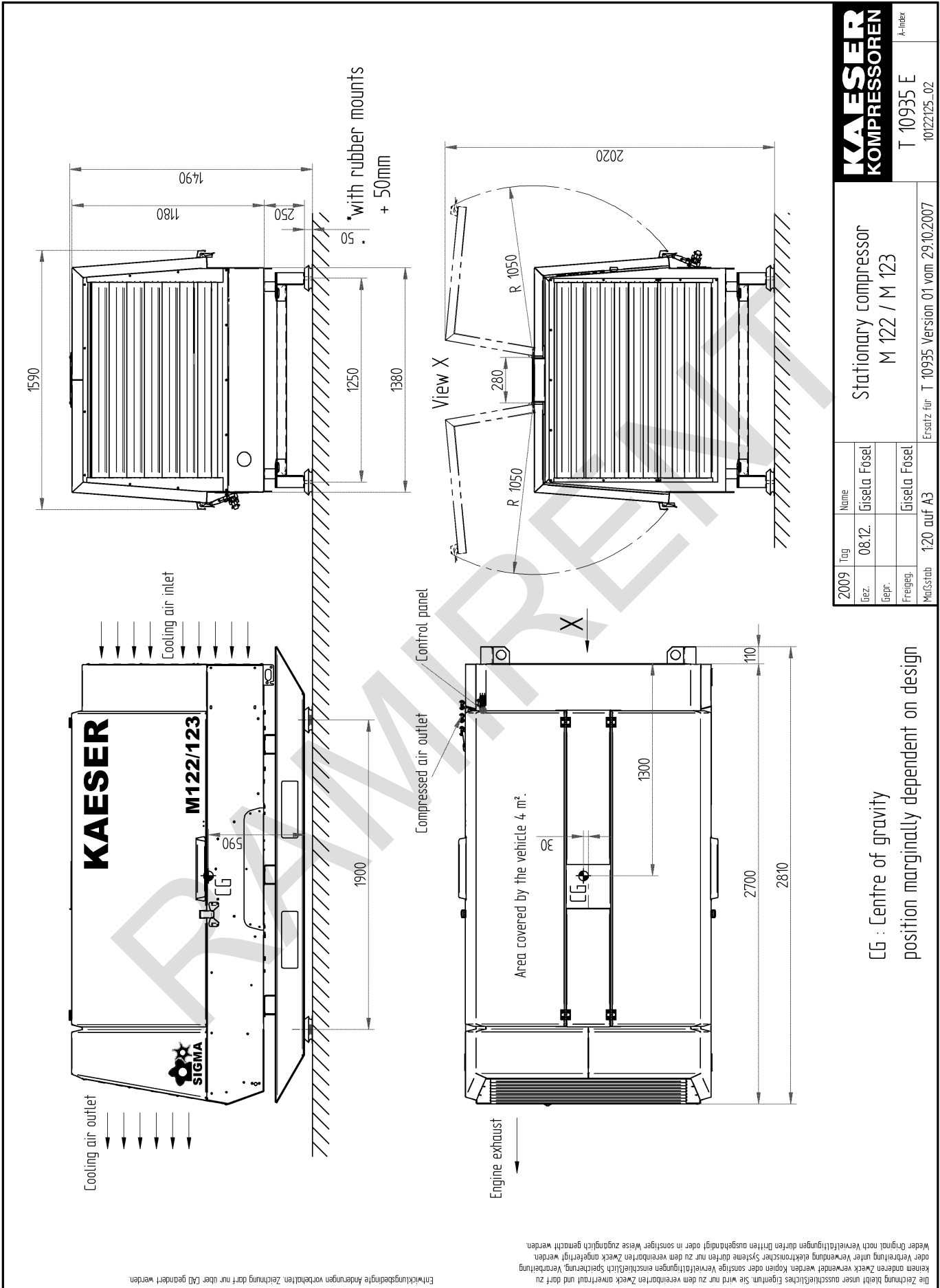
13.3.3 Option sh
Dimensional drawing, chassis without parking brake

RAMIRENT



13.3.4 Option sc
Dimensional drawings of stationary machine (skids)

RAMIRENT

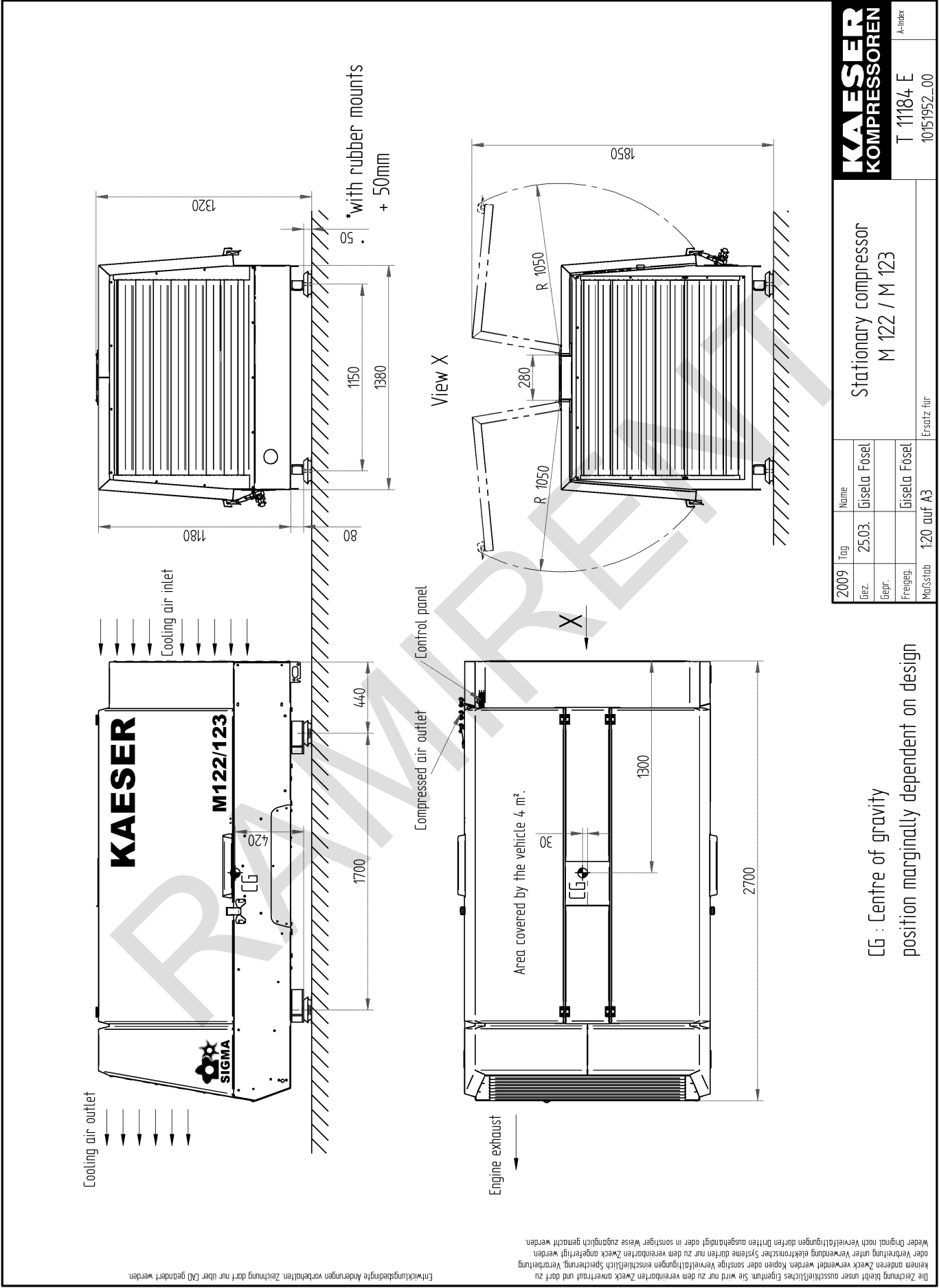


2009		Name		Stationary compressor	
Tag	08.12.	Gisela Fösel		M 122 / M 123	
Bez.		Gisela Fösel		T 10935 E	
Bepr.		Gisela Fösel		10/22/125_02	
Freigez.		120 auf A3		Ersatz für T 10935 Version 01 vom 29.10.2007	
Maßstab				A-Index	

CG : Centre of gravity
position marginally dependent on design

13.3.5 Option si
Dimensional drawings of stationary machine (base frame)

RAMIRENT



2009		Name	
Tag	25.03.	Gisela Fösel	
Bez.		Gisela Fösel	
Bepr.		Gisela Fösel	
Freigeig.		120 auf A3	
Maßstab	Ersatz für		

Stationary compressor
M 122 / M 123

CG : Centre of gravity
position marginally dependent on design

KAESER
KOMPRESSOREN

T 11184 E
10151952_00

13.4 Wiring diagrams

13.4.1 Electrical Diagram

RAMIRENT

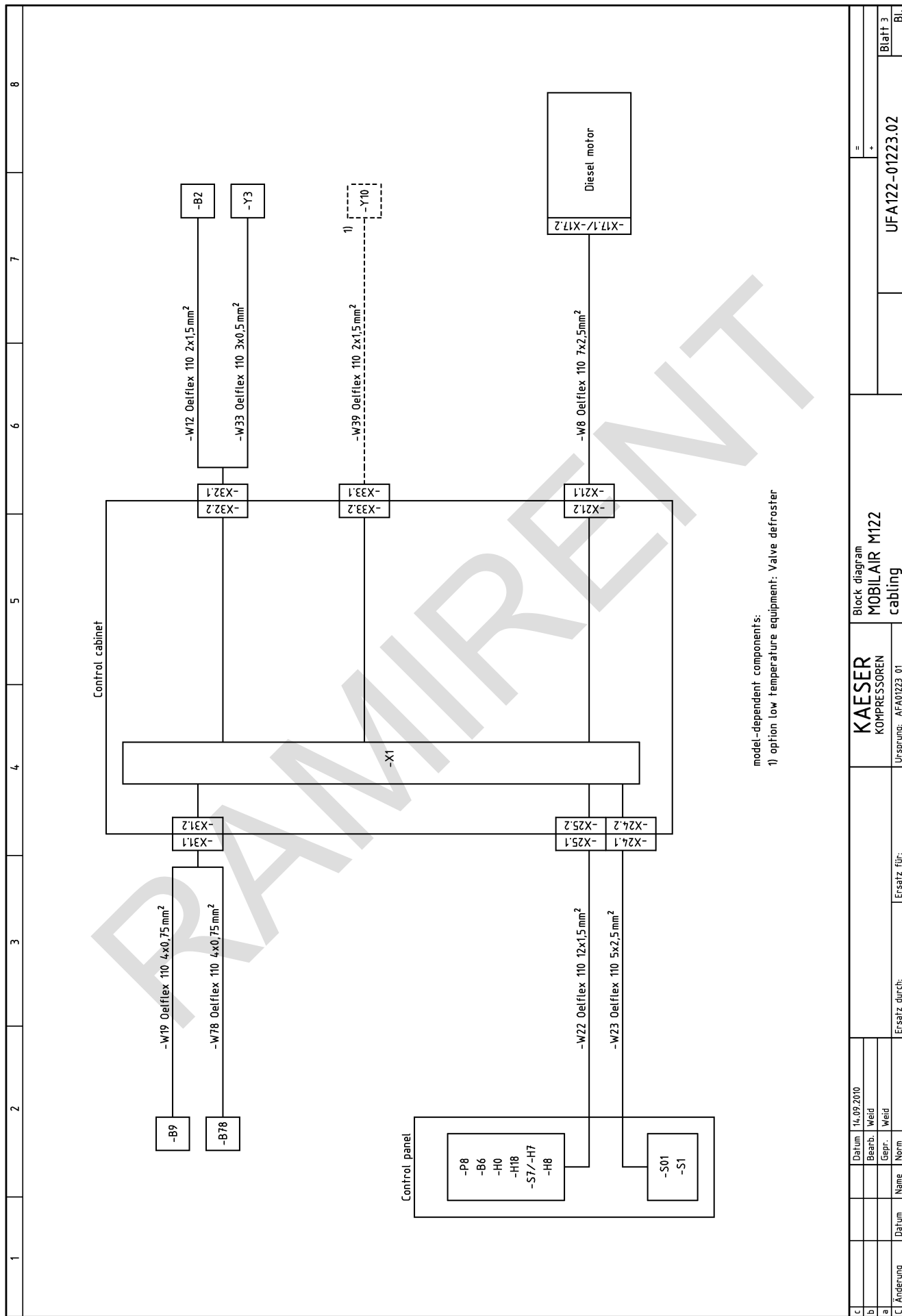
1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>MOBILAIR M122</p> <p>DEUTZ Motor</p> <p>Water cooled, 24VDC</p>								
<p>Manufacturer: Kaeser Kompressoren GmbH</p> <p>Postfach 2143</p> <p>96410 Coburg</p>								
<p>RAMIRENT</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	14.09.2010	E	Kaeser Kompressoren				Cover page
b	Bearb. / Weid			KOMPRESSOREN				MOBILAIR M122
a	Gepr. / Weid			URSPRUNG: AFA01223_01				DF A122-01223.02
A. Änderung	Datum	Name	Norm	Ersatz durch:				Blatt 1
				Ersatz für:				Bl.

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DFA122-01223.02	1	
2	List of contents		ZFA122-01223.02	1	
3	Block diagram		UFA122-01223.02	1	
4	Block diagram	Cross-reference	UFA122-01223.02	2	
5	Block diagram	cabling	UFA122-01223.02	3	
6	Circuit diagram	Cable set Battery	SFA122.BK-01223.00	1	=BK
7	Circuit diagram	Cable set Motor	SFA122.IKM-01223.00	1	=IKM
8	Circuit diagram	Control panel	SFA122.BT-01223.00	1	=BT
9	Circuit diagram	switching on	SFA122.SK-01223.02	1	=SK
10	Circuit diagram	switching on	SFA122.SK-01223.02	2	=SK
11	Circuit diagram	Control	SFA122.SK-01223.02	3	=SK
12	Circuit diagram	Cable set sensors	SFA122.IK1-01223.00	1	=IK1
13	Circuit diagram	Cable set Oil separator	SFA122.IK2-01223.00	1	=IK2
14	Circuit diagram	low temperature equipment	SFA122.IK3-01223.00	1	=IK3
15	Equipment parts list	control cabinet	GFA122-01223.01	1	
16	Terminal schedule	Terminal strip -X1	KFA122-01223.02	1	=SK
17	Terminal schedule	Plug connection -X21	KFA122-01223.02	10	
18	Terminal schedule	Plug connection -X24	KFA122-01223.02	11	
19	Terminal schedule	Plug connection -X25	KFA122-01223.02	12	
20	Terminal schedule	Plug connection -X31	KFA122-01223.02	20	
21	Terminal schedule	Plug connection -X32	KFA122-01223.02	21	
22	Terminal schedule	Plug connection -X33	KFA122-01223.02	22	
23	Component layout	Mounting plate	AFA122-01223.00	1	
24	Component layout	Control panel	AFA122-01223.00	2	

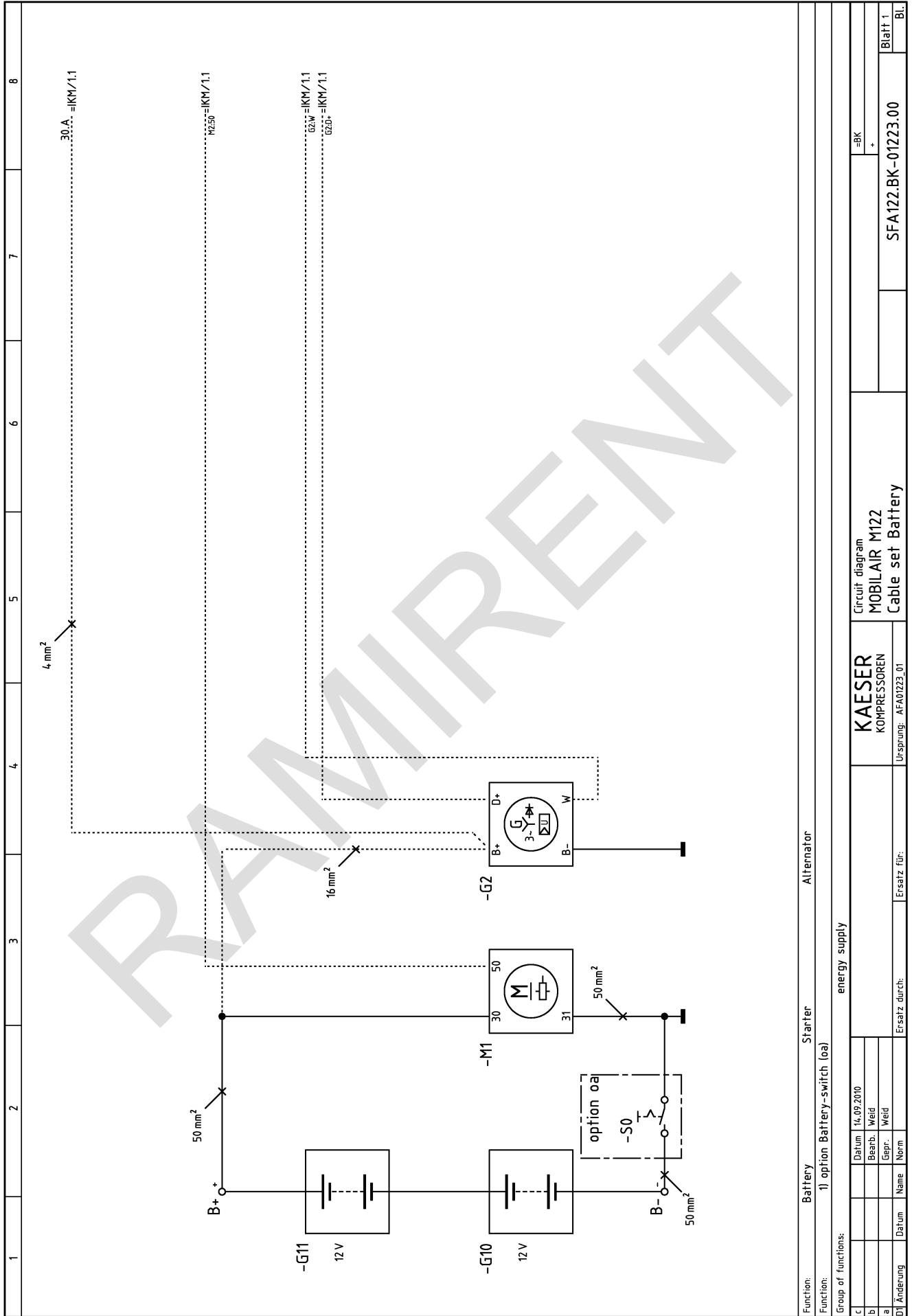
c	Datum	14.09.2010	List of contents		=
b	Bearb. / Weid		MOBILAIR M122		+
a	Gepr. / Weid		KOMPRESSOREN		
B. Änderung	Datum	Name	Ersatz für:	Ursprung: AFA01223_01	Blatt 1
					ZFA122-01223.02
					Bl.

1	2	3	4	5	6	7	8
<p>general instructions</p> <p>Control voltage: 24VDC</p> <p>control cabinet wiring for non-designated conductors: black 2 H05V2-K/UL/CSA blue 1,0 mm² H07V2-K/UL/CSA orange 1,5 mm² H05V2-K/UL/CSA violet 1,0 mm² H07V-K black</p> <p>All control lines marked a) are 1,5 mm² H05V-K/UL blue All control lines marked b) are 2,5 mm² H07V-K black</p>							
<p>potentials:</p> <p>15 switched plus + (unit ON) 30 + terminal (Battery) 31 - terminal (Battery), earth 50 Starter-Control</p>							
<p>wiring colors:</p> <p>bl = blue or = orange bn = brown rs = pink ge = yellow rt = red gn = green sw = black gnge = green-yellow vi = violet gr = grey ws = white</p>							
<p>components Control cabinet</p> <ul style="list-style-type: none"> -F6,-F9 Fuse -K3 Relay Starter -K4 Relay Safety chain -K5,-K8,-K9,-K10, Auxiliary relay -K17,-K18,-K30,-K39 Resistor -R10,-R11 Diode -V10 Terminal strip -X1 plug connection -X21,-X24,-X25 -X31,-X32,-X33 				<p>components Control panel</p> <ul style="list-style-type: none"> -B6 airend Distance temperature gauge -H0 Charging control lamp -H8 Indicator light Back pressure -H18 Indicator light Low fuel -P8 Hour meter -S01 Control voltage ON/OFF switch -S1 Ignition switch -S7// -H7 illuminated pushbutton Full load operation 			
<p>model-dependent components:</p> <ul style="list-style-type: none"> <i>option Battery isolating switch</i> -S0 Battery isolating switch <i>option low temperature equipment</i> -Y10 Valve defroster 							
<p>components unit</p> <ul style="list-style-type: none"> -B2 Pressure switch Back pressure -Y3 Valve Full load operation, Venting 							
<p>components Drive motor</p> <ul style="list-style-type: none"> -B0 Oil pressure switch -B7 temperature switch coolant -G2 Alternator -G10,-G11 Battery -M1 Starter -Y1 Fuel shut-off valve 							
<p>Block diagram</p> <p>general instructions</p>							
<p>KAESER KOMPRESSOREN</p> <p>Ursprung: AFA0723_01</p>							
<p>Erstattet durch: Ersatz für:</p>							
<p>Datum 14.09.2010</p> <p>Bearb. Weid</p> <p>Gepr. Weid</p>							
<p>Blatt 1</p>							
<p>UFA122-01223.02</p>							
<p>Bl.</p>							

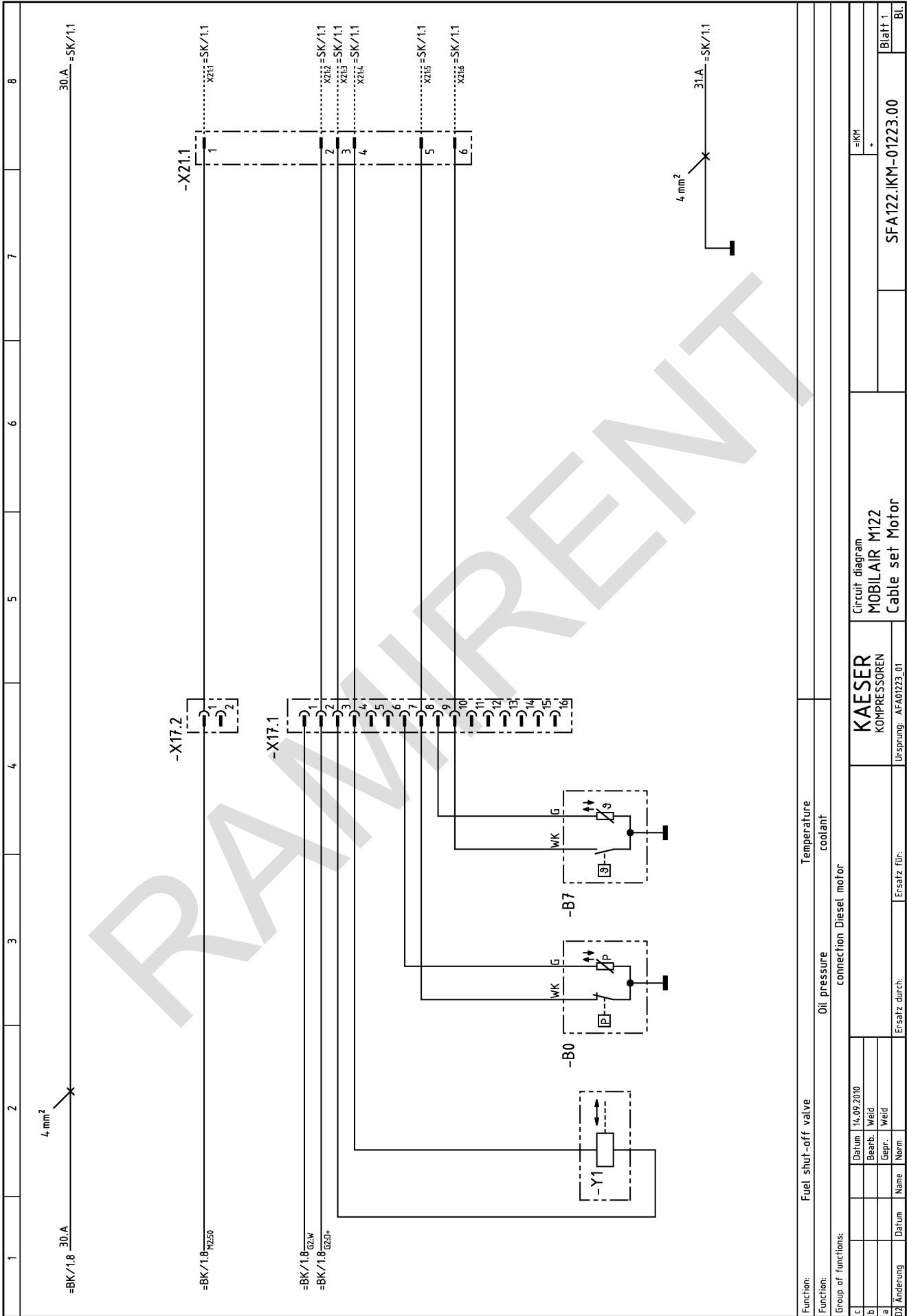
1	2	3	4	5	6	7	8
<p>general instructions This document includes a common electrical diagram, consisting of documents:</p>							
module	Electrical diagrams	Cross-reference					
Cable set: connection Battery	SFA122.BK-01223.00	BK					
Cable set: connection Motor	SFA122.IKM-01223.00	IKM					
cabbling Control panel	SFA122.BT-01223.00	BT					
cabbling Control cabinet	SFA122.SK-01223.02	SK					
cabbling unit components 1	SFA122.IK1-01223.00	IK1					
cabbling unit components 2	SFA122.IK2-01223.00	IK2					
cabbling unit components 3	SFA122.IK3-01223.00	IK3					
Terminal schedule	KFA122-01223.02						
<p>KAESER KOMPRESSOREN</p>		<p>Block diagram general instructions Cross-reference</p>		<p>= +</p>		<p>UFA122-01223.02</p>	
<p>Ursprung: AFA01223_01</p>		<p>Ersatz für:</p>		<p>Blatt 2</p>		<p>Bl.</p>	
c	Datum	14.09.2010					
b	Bearb.	Weld					
a	Gepr.	Weld					
C	Änderung	Datum	Name	Norm			



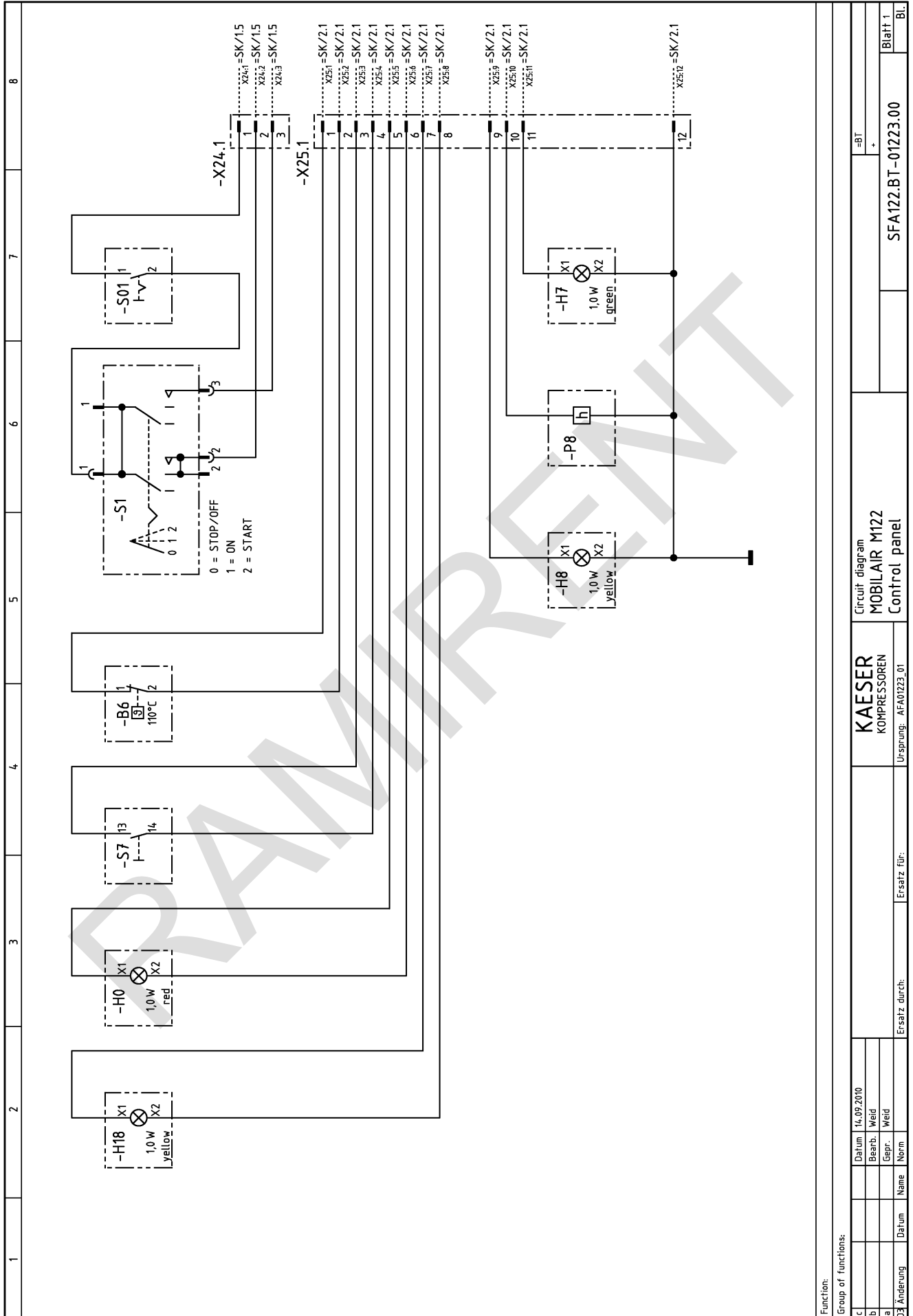
										8
										7
										6
										5
										4
										3
										2
										1
c		Datum	14.09.2010	Block diagram MOBILAIR M122 cabling		KAESER KOMPRESSOREN		UFA122-01223.02		Blatt 3
b		Bearb.	Weld							Bl.
a		Gepr.	Weld							
c	Änderung	Datum	Name	Ersatz durch:		Ersatz für:				

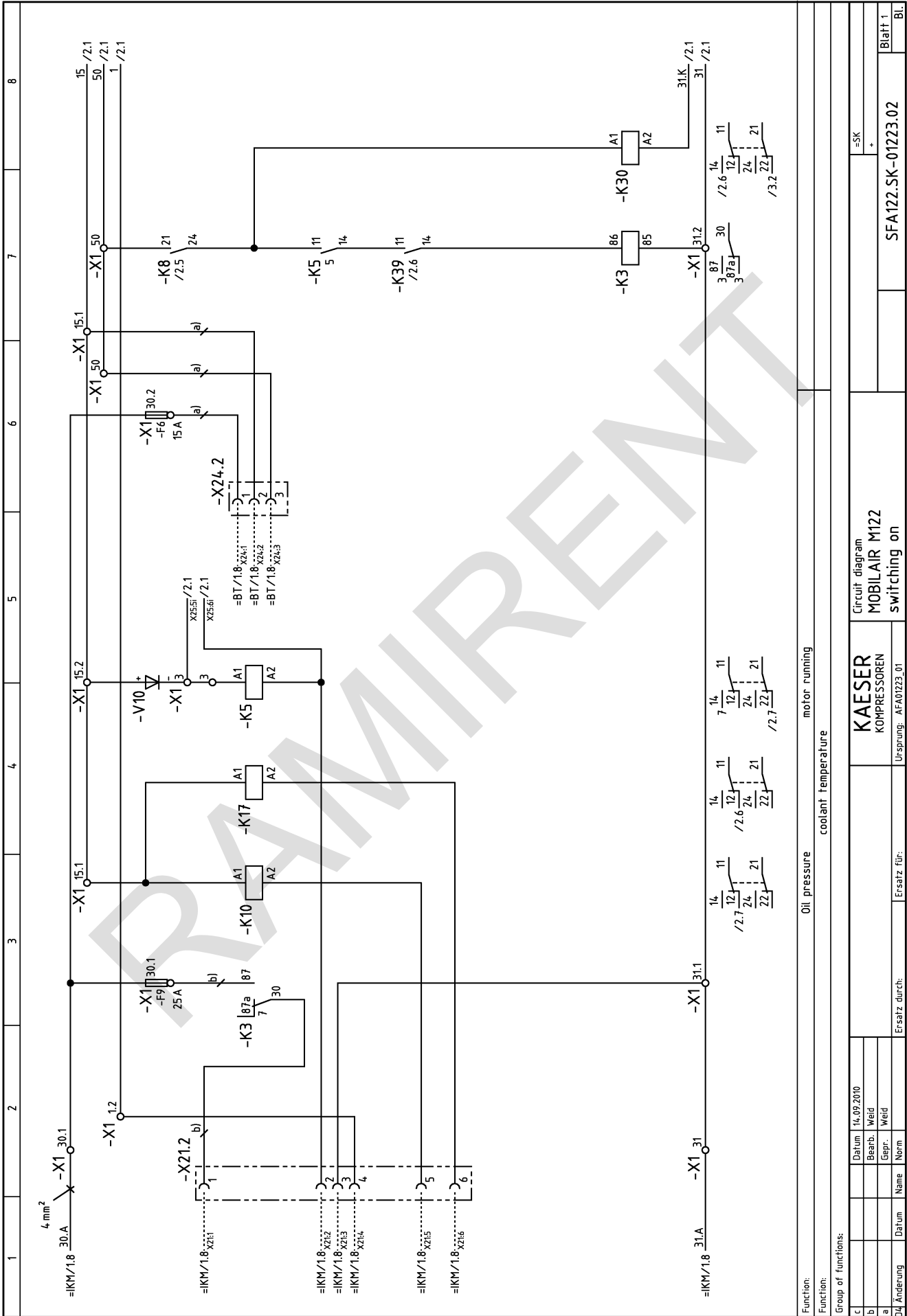


Function: Battery		Starter		Alternator	
Function: 1) option Battery-switch (oa)					
Group of functions: energy supply					
c		Datum	14.09.2010		
b		Bearb.	Weld		
a		Gepr.	Weld		
d1	Änderung	Datum	Name	Norm	
			Ersatz durch:	Ersatz für:	
Kaeser KOMPRESSOREN			MOBILAIR M122		
Circuit diagram			Cable set Battery		
SFA122.BK-01223.00			-BK +		
					Blatt 1
					Bl.



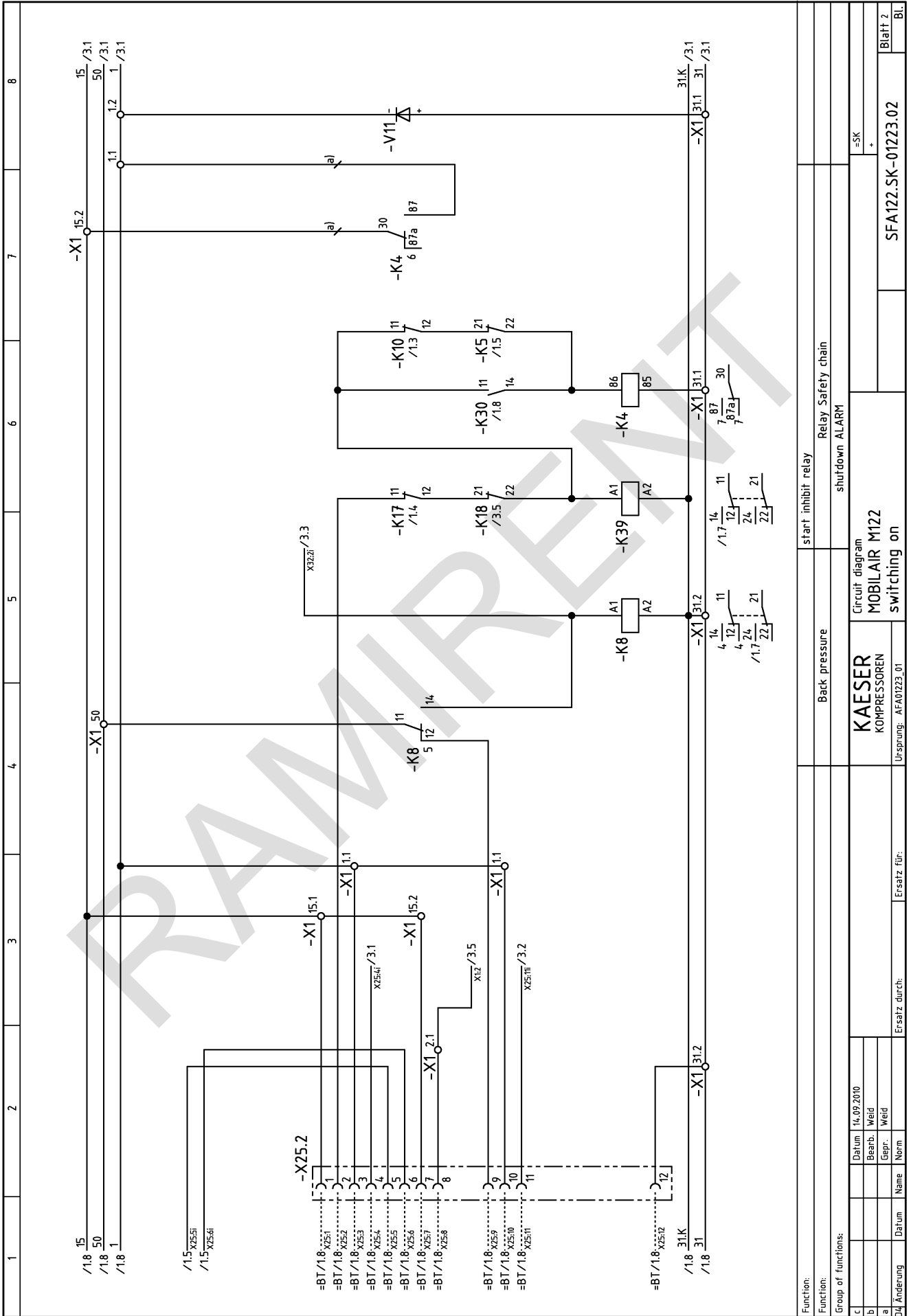
Function: Fuel shut-off valve		Temperature coolant connection Diesel motor	
Function: Oil pressure connection Diesel motor			
Group of functions:			
c	Datum	14.09.2010	=IKM +
b	Bearb. / Weid		
a	Gepr. / Weid		
12	Änderung	Datum	Name
Ersatz durch:		Ersatz für:	
Kaeser KOMPRESSOREN		Circuit diagram MOBILAIR M122 Cable set Motor	
Ursprung: AIFA01223_01		SFA122.IKM-01223.00	
Blatt 1		Blatt 1	



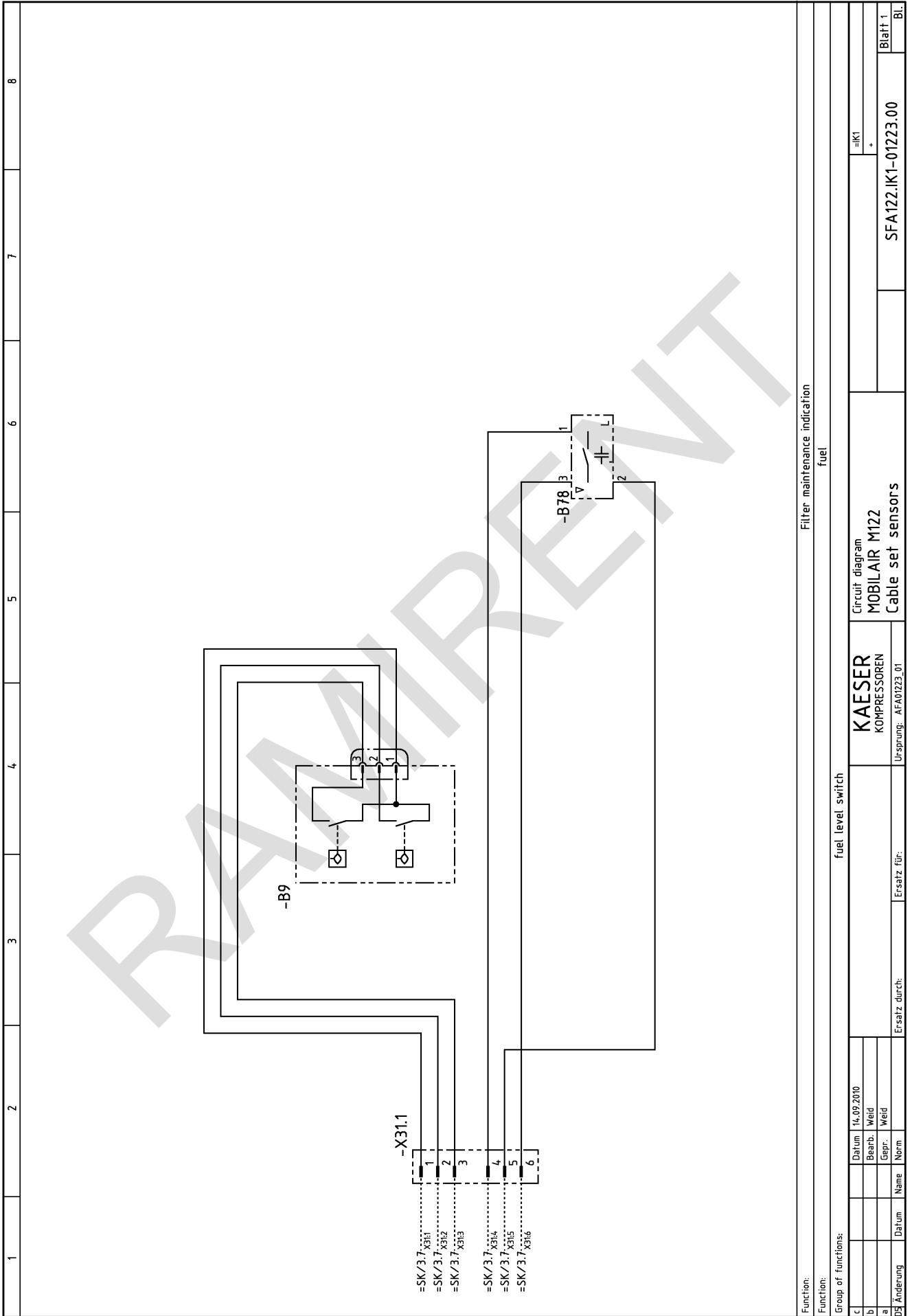


Function: oil pressure
Function: coolant temperature
Group of functions: motor running

c	Datum	14.09.2010	Kaeser KOMPRESSOREN		Circuit diagram	SFA122.SK-01223.02	Blatt 1
b	Bearb.	Weid	KOMPRESSOREN		MOBILAIR M122		
a	Gepr.	Weid	URSPRUNG: AIFA01223_01		switching on		
D4	Änderung	Datum	Name	Norm	Ersatz für:		



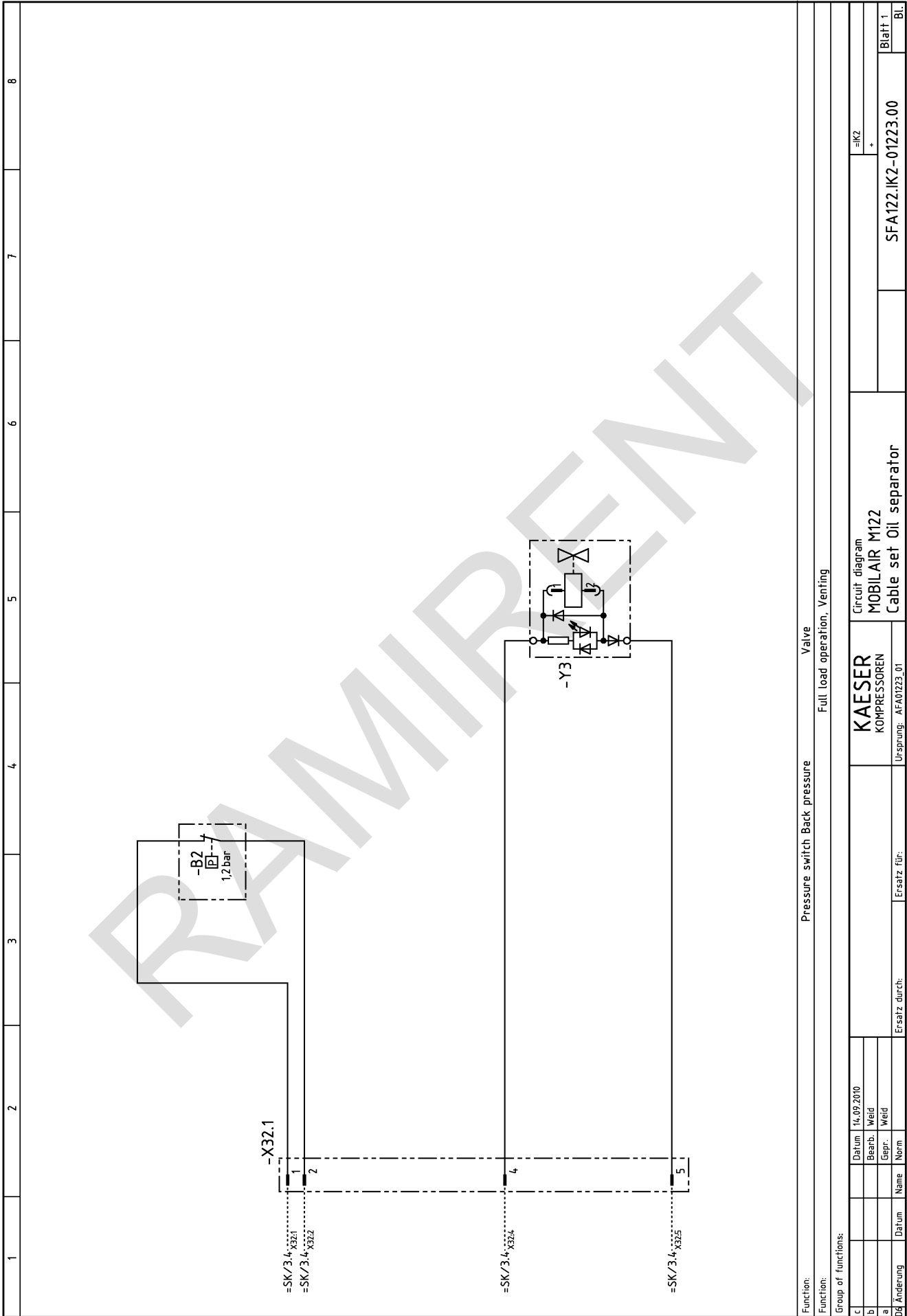
Function:		start inhibit relay	Relay Safety chain
Function:		Back pressure	Relay Safety chain
Group of functions:			shutdown ALARM
c	Datum	14.09.2010	
b	Bearb. Weid		
a	Gepr. Weid		
D4	Änderung	Datum	Name
Ersatz durch:		Ersatz für:	
URSPRUNG		Ersatz für:	
KOMPRESSOREN		MOBILAIR M122	
Ersatz für:		SFA122.SK-01223.02	
Blatt 2		Blatt 2	



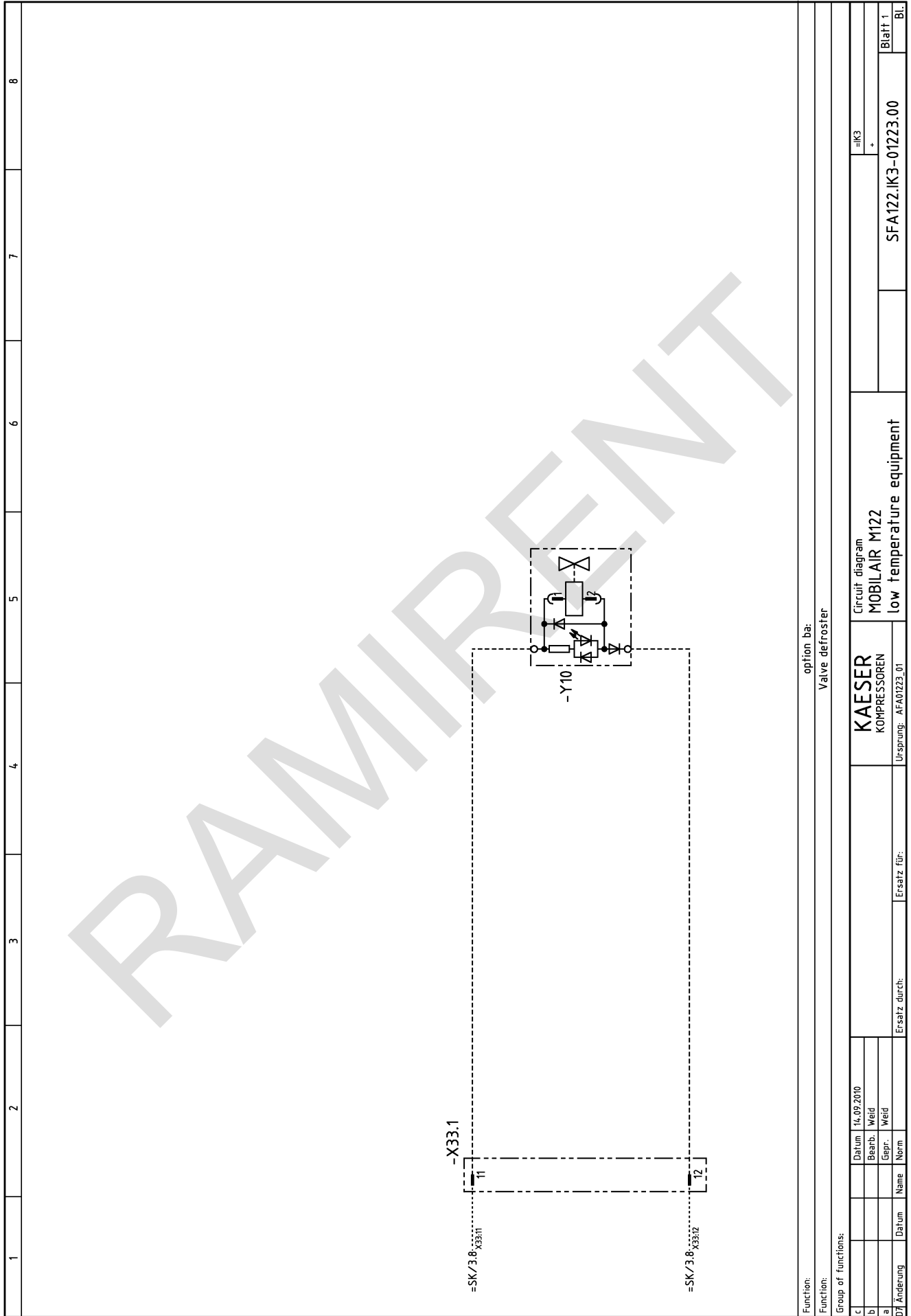
Function: Filter maintenance indication
fuel

fuel level switch

Kaeser logo		Circuit diagram MOBILAIR M122 Cable set sensors		=IK1 +		Blatt 1
Kaeser logo		KOMPRESSOREN		SFA122.IK1-01223.00		Bl.
Group of functions:		Ersatz für:		Ursprung: AFA01223_01		
c	Datum	14.09.2010				
b	Bearb. / Weid					
a	Gepr. / Weid					
05	Änderung	Datum	Name			



Function:		Pressure switch Back pressure		Valve	
Function:		Full load operation, Venting		Full load operation, Venting	
Group of functions:					
c	Datum	14.09.2010			
b	Bearb. / Weid				
a	Gepr. / Weid				
04	Änderung	Datum	Name	Norm	
Ersatz durch:		Ersatz durch:			
Kaeser		Kaeser		Kaeser	
KOMPRESSOREN		KOMPRESSOREN		KOMPRESSOREN	
MOBILAIR M122		MOBILAIR M122		MOBILAIR M122	
Cable set Oil separator		Cable set Oil separator		Cable set Oil separator	
SFA122.IK2-01223.00		SFA122.IK2-01223.00		SFA122.IK2-01223.00	
Blatt 1		Blatt 1		Blatt 1	
Bl.		Bl.		Bl.	



1	2	3	4	5	6	7	8			
A Stück- zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatbezeichnung 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	H Schabl. Nr.	I BZ- Pos.	J VA (Kz. *)	K Eingangs- vermerk
	control cabinet kpl.:									
1	Control cabinet	400x300x120	Rittal							
1	Mounting plate		Rittal							
8	Coupling relay	2 W, 5 A								
8	Relay-socket	P2RF-08-E	Omron	-K5,-K8,-K9,-K10,-K17						
2	Relay	023948.0	Omron	-K18,-K30,-K39						
13	Terminal	WKFN2.5D2/2/35	Wehrle	-K3,-K4						
1	Terminal	WKFN4/35	Wieland	-X1						
2	Fuse terminal	WKFN4/35	Wieland	-X1						
1	Fuse UNIVAL	WKFN 4FSI	Wieland	-X1, -F6,-F9						
1	Fuse UNIVAL	25 A	L&K	-F9						
2	Diode	15 A	L&K	-F6						
		BY 550-600 (5 A/600 V)	BÜRKLIN	-V10,-V11						
	Control panel									
2	Indicator light	24 V yellow	Schlegel	-H8,-H18						
1	Indicator light	24 V red	Schlegel	-H0						
3	Lamp	24 V 1,2 W	Schlegel	-H0,-H8,-H18						
1	Push button green	RKTME+T20FGN+BSRXU	Schlegel	-S7/-H7						
1	Switching element	BTL5	Schlegel	-S7/-H7						
1	Lamp	T5,5K-24 V	Schlegel	-H7						
1	Ignition switch	4.7-14-08	KEYA	-S1						
1	switch Control voltage ON/OFF	26 00 00	MERIT	-S01						
	model-dependent components									
	option oa:									
1	Battery-switch	DC 24 V	HELLA marine	-S0						
		500 A, 2500 A 10s								

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 Gerätebestell-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Seriennummer 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 are 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.

c) Datum 14.09.2010		Equipment parts list	
b) Bearb. Weid		MOBILAIR M122	
a) Gepr. Weid		control cabinet	
F. Änderung	Datum Name Norm	Ersatz für:	Ursprung: AFA01223_01
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
			control cabinet
			KAESER KOMPRESSOREN
			Equipment parts list
			MOBILAIR M122
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Cable identification	Connection number	Component identification	Location	Wire link	Terminal legend	Terminal number	Connection number	Component identification	Cable identification																																																																																																																							
Destination internal	Terminal strip: =BT-X25.1 total 12 Terminals								Destination external																																																																																																																							
Destination internal	Terminal strip: =SK-X25.2 total 12 Terminals								Destination external																																																																																																																							
Cable identification									-W22 Delflex 110 12x1.5mm ²																																																																																																																							
<table style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width:10%; text-align:right;">-B6</td><td style="width:10%;">1</td><td style="width:10%;">=BT/1.8</td><td style="width:10%;">=SK-X25.2</td><td style="width:10%;">1</td><td style="width:10%;">=BT-X25.1</td><td style="width:10%;">1</td><td style="width:10%;">=SK/2.2</td><td style="width:10%;">-X1</td><td style="width:10%;">15.1</td> </tr> <tr> <td style="text-align:right;">-S7</td><td>2</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>2</td><td>=BT-X25.1</td><td>2</td><td>=SK/2.2</td><td>-K17</td><td>1.1</td> </tr> <tr> <td style="text-align:right;">-S7</td><td>3</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>3</td><td>=BT-X25.1</td><td>3</td><td>=SK/2.2</td><td>-X1</td><td>1.1</td> </tr> <tr> <td style="text-align:right;">-H0</td><td>4</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>4</td><td>=BT-X25.1</td><td>4</td><td>=SK/2.2</td><td>-K30</td><td>2.2</td> </tr> <tr> <td style="text-align:right;">-H18</td><td>5</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>5</td><td>=BT-X25.1</td><td>5</td><td>=SK/2.2</td><td>-X1</td><td>3</td> </tr> <tr> <td style="text-align:right;">-H0</td><td>6</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>6</td><td>=BT-X25.1</td><td>6</td><td>=SK/2.2</td><td>-K5</td><td>A2</td> </tr> <tr> <td style="text-align:right;">-H18</td><td>7</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>7</td><td>=BT-X25.1</td><td>7</td><td>=SK/2.2</td><td>-X1</td><td>15.2</td> </tr> <tr> <td style="text-align:right;">-H8</td><td>8</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>8</td><td>=BT-X25.1</td><td>8</td><td>=SK/2.2</td><td>-X1</td><td>2.1</td> </tr> <tr> <td style="text-align:right;">-H8</td><td>9</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>9</td><td>=BT-X25.1</td><td>9</td><td>=SK/2.2</td><td>-K8</td><td>1.2</td> </tr> <tr> <td style="text-align:right;">-P8</td><td>10</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>10</td><td>=BT-X25.1</td><td>10</td><td>=SK/2.2</td><td>-X1</td><td>1.1</td> </tr> <tr> <td style="text-align:right;">-H7</td><td>11</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>11</td><td>=BT-X25.1</td><td>11</td><td>=SK/2.2</td><td>-K9</td><td>2.1</td> </tr> <tr> <td style="text-align:right;">-H8</td><td>12</td><td>=BT/1.8</td><td>=SK-X25.2</td><td>12</td><td>=BT-X25.1</td><td>12</td><td>=SK/2.2</td><td>-X1</td><td>31.2</td> </tr> </table>									-B6	1	=BT/1.8	=SK-X25.2	1	=BT-X25.1	1	=SK/2.2	-X1	15.1	-S7	2	=BT/1.8	=SK-X25.2	2	=BT-X25.1	2	=SK/2.2	-K17	1.1	-S7	3	=BT/1.8	=SK-X25.2	3	=BT-X25.1	3	=SK/2.2	-X1	1.1	-H0	4	=BT/1.8	=SK-X25.2	4	=BT-X25.1	4	=SK/2.2	-K30	2.2	-H18	5	=BT/1.8	=SK-X25.2	5	=BT-X25.1	5	=SK/2.2	-X1	3	-H0	6	=BT/1.8	=SK-X25.2	6	=BT-X25.1	6	=SK/2.2	-K5	A2	-H18	7	=BT/1.8	=SK-X25.2	7	=BT-X25.1	7	=SK/2.2	-X1	15.2	-H8	8	=BT/1.8	=SK-X25.2	8	=BT-X25.1	8	=SK/2.2	-X1	2.1	-H8	9	=BT/1.8	=SK-X25.2	9	=BT-X25.1	9	=SK/2.2	-K8	1.2	-P8	10	=BT/1.8	=SK-X25.2	10	=BT-X25.1	10	=SK/2.2	-X1	1.1	-H7	11	=BT/1.8	=SK-X25.2	11	=BT-X25.1	11	=SK/2.2	-K9	2.1	-H8	12	=BT/1.8	=SK-X25.2	12	=BT-X25.1	12	=SK/2.2	-X1	31.2
-B6	1	=BT/1.8	=SK-X25.2	1	=BT-X25.1	1	=SK/2.2	-X1	15.1																																																																																																																							
-S7	2	=BT/1.8	=SK-X25.2	2	=BT-X25.1	2	=SK/2.2	-K17	1.1																																																																																																																							
-S7	3	=BT/1.8	=SK-X25.2	3	=BT-X25.1	3	=SK/2.2	-X1	1.1																																																																																																																							
-H0	4	=BT/1.8	=SK-X25.2	4	=BT-X25.1	4	=SK/2.2	-K30	2.2																																																																																																																							
-H18	5	=BT/1.8	=SK-X25.2	5	=BT-X25.1	5	=SK/2.2	-X1	3																																																																																																																							
-H0	6	=BT/1.8	=SK-X25.2	6	=BT-X25.1	6	=SK/2.2	-K5	A2																																																																																																																							
-H18	7	=BT/1.8	=SK-X25.2	7	=BT-X25.1	7	=SK/2.2	-X1	15.2																																																																																																																							
-H8	8	=BT/1.8	=SK-X25.2	8	=BT-X25.1	8	=SK/2.2	-X1	2.1																																																																																																																							
-H8	9	=BT/1.8	=SK-X25.2	9	=BT-X25.1	9	=SK/2.2	-K8	1.2																																																																																																																							
-P8	10	=BT/1.8	=SK-X25.2	10	=BT-X25.1	10	=SK/2.2	-X1	1.1																																																																																																																							
-H7	11	=BT/1.8	=SK-X25.2	11	=BT-X25.1	11	=SK/2.2	-K9	2.1																																																																																																																							
-H8	12	=BT/1.8	=SK-X25.2	12	=BT-X25.1	12	=SK/2.2	-X1	31.2																																																																																																																							
<table style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width:10%; text-align:right;">1</td><td style="width:10%;">2</td><td style="width:10%;">3</td><td style="width:10%;">4</td><td style="width:10%;">5</td><td style="width:10%;">6</td><td style="width:10%;">7</td><td style="width:10%;">8</td><td style="width:10%;">9</td><td style="width:10%;">10</td><td style="width:10%;">11</td><td style="width:10%;">12</td> </tr> </table>									1	2	3	4	5	6	7	8	9	10	11	12																																																																																																												
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a	Datum	14.09.2010	Weld	KAESER KOMPRESSOREN		Terminal schedule	MOBILAIR M122	=	+	Blatt 12	Bl.		
b	Bearb.		Weld	KFA122-01223.02		Plug connection -X25							
c	Gepr.		Weld										
H	Anderung	Datum	Name				Norm	Ersatz durch: Ursprung: AFA01223_01					

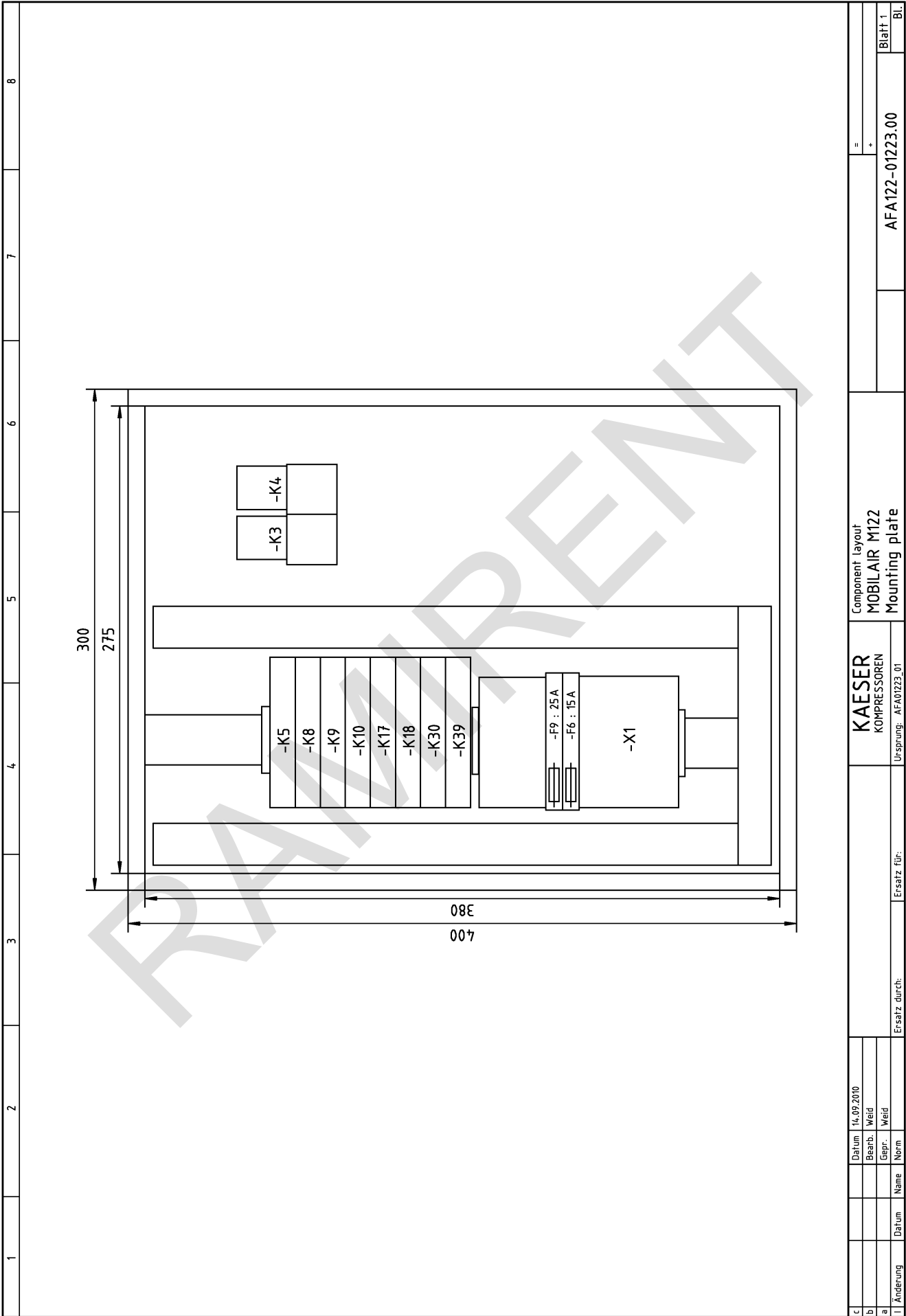
Cable identification		Terminal strip identification		Terminal strip: =IK1-X31,1		Terminal strip: =SK-X31,2		Total 12 Terminals		Terminal strip: =IK1-X31,1		Terminal strip: =SK-X31,2		Total 12 Terminals								
Destination	Connection number	Destination	Component identification	Location	Wire link	Terminal legend	Terminal number	Connection number	Component identification	Location	Wire link	Terminal legend	Terminal number	Connection number	Component identification							
External								-B9														
								1									1	=IK1/1,2	=SK-X31,2	1	=IK1/1,2	=SK-X31,2
								2									2	=IK1/1,2	=SK-X31,2	2	=IK1/1,2	=SK-X31,2
								3									3	=IK1/1,2	=SK-X31,2	3	=IK1/1,2	=SK-X31,2
								4									4	=IK1/1,2	=SK-X31,2	4	=IK1/1,2	=SK-X31,2
								5									5	=IK1/1,2	=SK-X31,2	5	=IK1/1,2	=SK-X31,2
								6									6	=IK1/1,2	=SK-X31,2	6	=IK1/1,2	=SK-X31,2
								7									7	=IK1/1,2	=SK-X31,2	7	=IK1/1,2	=SK-X31,2
								8									8	=IK1/1,2	=SK-X31,2	8	=IK1/1,2	=SK-X31,2
								9									9	=IK1/1,2	=SK-X31,2	9	=IK1/1,2	=SK-X31,2
								10									10	=IK1/1,2	=SK-X31,2	10	=IK1/1,2	=SK-X31,2
								11									11	=IK1/1,2	=SK-X31,2	11	=IK1/1,2	=SK-X31,2
12	12	=IK1/1,2	=SK-X31,2	12	=IK1/1,2	=SK-X31,2																
External								-B9														
								1									1	=IK1-X31,1	=SK/3,6	1	=IK1-X31,1	=SK/3,6
								2									2	=IK1-X31,1	=SK/3,6	2	=IK1-X31,1	=SK/3,6
								3									3	=IK1-X31,1	=SK/3,6	3	=IK1-X31,1	=SK/3,6
								4									4	=IK1-X31,1	=SK/3,6	4	=IK1-X31,1	=SK/3,6
								5									5	=IK1-X31,1	=SK/3,6	5	=IK1-X31,1	=SK/3,6
								6									6	=IK1-X31,1	=SK/3,6	6	=IK1-X31,1	=SK/3,6
								7									7	=IK1-X31,1	=SK/3,6	7	=IK1-X31,1	=SK/3,6
								8									8	=IK1-X31,1	=SK/3,6	8	=IK1-X31,1	=SK/3,6
								9									9	=IK1-X31,1	=SK/3,6	9	=IK1-X31,1	=SK/3,6
								10									10	=IK1-X31,1	=SK/3,6	10	=IK1-X31,1	=SK/3,6
								11									11	=IK1-X31,1	=SK/3,6	11	=IK1-X31,1	=SK/3,6
12	12	=IK1-X31,1	=SK/3,6	12	=IK1-X31,1	=SK/3,6																
Cable identification								-W19														
								1									1	=IK1-X31,1	=SK/3,6	1	=IK1-X31,1	=SK/3,6
								2									2	=IK1-X31,1	=SK/3,6	2	=IK1-X31,1	=SK/3,6
								3									3	=IK1-X31,1	=SK/3,6	3	=IK1-X31,1	=SK/3,6
								4									4	=IK1-X31,1	=SK/3,6	4	=IK1-X31,1	=SK/3,6
								5									5	=IK1-X31,1	=SK/3,6	5	=IK1-X31,1	=SK/3,6
								6									6	=IK1-X31,1	=SK/3,6	6	=IK1-X31,1	=SK/3,6
								7									7	=IK1-X31,1	=SK/3,6	7	=IK1-X31,1	=SK/3,6
								8									8	=IK1-X31,1	=SK/3,6	8	=IK1-X31,1	=SK/3,6
								9									9	=IK1-X31,1	=SK/3,6	9	=IK1-X31,1	=SK/3,6
								10									10	=IK1-X31,1	=SK/3,6	10	=IK1-X31,1	=SK/3,6
								11									11	=IK1-X31,1	=SK/3,6	11	=IK1-X31,1	=SK/3,6
12	12	=IK1-X31,1	=SK/3,6	12	=IK1-X31,1	=SK/3,6																
total 12 Terminals																						
Terminal strip: =SK-X31,2																						
total 12 Terminals																						
Terminal strip: =IK1-X31,1																						
total 12 Terminals																						

c	Datum	14.09.2010	Ersatz durch:	Ersatz für:		Ursprung: AFA0123_01	Terminal schedule MOBILAIR M122 Plug connection -X31	= + KFA122-01223.02	Blatt 20 Bl.
	Bearb.	Weld	Ersatz durch:		Ersatz für:				
	Gepr.	Weld	Ersatz durch:		Ersatz für:				
H Änderung			Datum	Name	Norm				

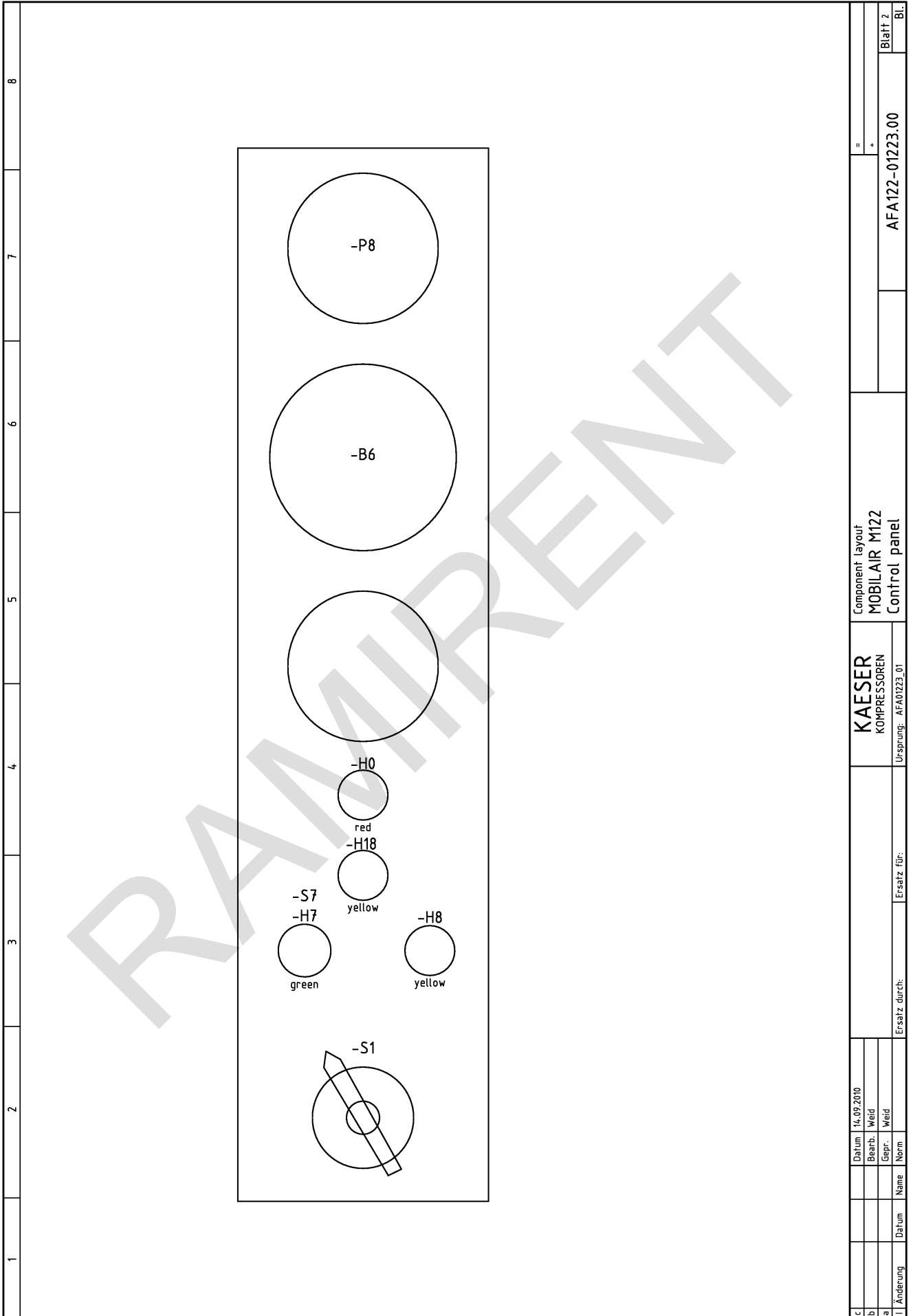
Cable identification		Terminal strip		Terminal strip		Cable identification	
Destination	Internal	Connection number	Component identification	Location	Wire link	Terminal legend Link	Terminal number
external							
Terminal strip: =IK2-X32.1		total 12 Terminals					
		-B2	=IK2/1,2				1
		-B2	=IK2/1,2				2
		-Y3	=IK2/1,2				3
		-Y3	=IK2/1,2				4
		-Y3	=IK2/1,2				5
			=IK2/1,2				6
			=IK2/1,2				7
			=IK2/1,2				8
			=IK2/1,2				9
			=IK2/1,2				10
			=IK2/1,2				11
			=IK2/1,2				12
Terminal strip: =SK-X32.2		total 12 Terminals					
		-B2	=SK/3,4				1
		-B2	=SK/3,4				2
		-Y3	=SK/3,4				3
		-Y3	=SK/3,4				4
		-Y3	=SK/3,4				5
			=SK/3,4				6
			=SK/3,4				7
			=SK/3,4				8
			=SK/3,4				9
			=SK/3,4				10
			=SK/3,4				11
			=SK/3,4				12
Cable identification		Terminal strip: =K9					
		-K9	=K9				21
		-K9	=K9				22
		-K9	=K9				23
		-K9	=K9				24
		-K9	=K9				25
		-K9	=K9				26
		-K9	=K9				27
		-K9	=K9				28
		-K9	=K9				29
		-K9	=K9				30
		-K9	=K9				31
		-K9	=K9				32
		-K9	=K9				33
		-K9	=K9				34
		-K9	=K9				35
		-K9	=K9				36
		-K9	=K9				37
		-K9	=K9				38
		-K9	=K9				39
		-K9	=K9				40
		-K9	=K9				41
		-K9	=K9				42
		-K9	=K9				43
		-K9	=K9				44
		-K9	=K9				45
		-K9	=K9				46
		-K9	=K9				47
		-K9	=K9				48
		-K9	=K9				49
		-K9	=K9				50
Cable identification		Terminal strip: =IK2-X32.1					
		-W12	=W12				1
		-W33	=W33				2
		-W12	=W12				3
		-W33	=W33				4
		-W12	=W12				5
		-W33	=W33				6
		-W12	=W12				7
		-W33	=W33				8
		-W12	=W12				9
		-W33	=W33				10
		-W12	=W12				11
		-W33	=W33				12
		-W12	=W12				13
		-W33	=W33				14
		-W12	=W12				15
		-W33	=W33				16
		-W12	=W12				17
		-W33	=W33				18
		-W12	=W12				19
		-W33	=W33				20
		-W12	=W12				21
		-W33	=W33				22
		-W12	=W12				23
		-W33	=W33				24
		-W12	=W12				25
		-W33	=W33				26
		-W12	=W12				27
		-W33	=W33				28
		-W12	=W12				29
		-W33	=W33				30
		-W12	=W12				31
		-W33	=W33				32
		-W12	=W12				33
		-W33	=W33				34
		-W12	=W12				35
		-W33	=W33				36
		-W12	=W12				37
		-W33	=W33				38
		-W12	=W12				39
		-W33	=W33				40
		-W12	=W12				41
		-W33	=W33				42
		-W12	=W12				43
		-W33	=W33				44
		-W12	=W12				45
		-W33	=W33				46
		-W12	=W12				47
		-W33	=W33				48
		-W12	=W12				49
		-W33	=W33				50

Terminal schedule		=	
MOBILAIR M122		+	
Plug connection -X32		KFA122-01223.02	
KAESER KOMPRESSOREN		Blatt 21	
Ersatz für:		Bl.	
Ersatz durch:		Bl.	
Datum 14.09.2010		Bl.	
Bearb. Weid		Bl.	
Gepr. Weid		Bl.	
Datum Name Norm		Bl.	
Ursprung: AFA01223_01		Bl.	

C	Datum	14.09.2010	Ersatz durch:		Ersatz für:	Terminal schedule MOBILAIR M122 Plug connection -X33																																
b	Bearb.	Weld						=	+																													
a	Gepr.	Weld																																				
H	Anderung	Datum	Name	Norm	Ursprung: AFA01223_01	KFA122-01223.02				Blatt 22	Bl																											
Cable identification					-W39 Deiflex 110 2x1.5mm ²	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																
external	Terminal strip: =K3-X33.1 total 12 Terminals					<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																
Destination	Terminal strip: =K3-X33.2 total 12 Terminals				1 2	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																
Destination	Terminal strip: =SK-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Terminal strip	Terminal strip: =SK-X33.2 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
internal	Terminal strip: =SK-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Cable identification	Terminal strip: =K3-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Destination	Terminal strip: =K3-X33.2 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Terminal strip	Terminal strip: =SK-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Destination	Terminal strip: =SK-X33.2 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Terminal strip	Terminal strip: =SK-X33.2 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Destination	Terminal strip: =SK-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Terminal strip	Terminal strip: =SK-X33.2 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	
Destination	Terminal strip: =SK-X33.1 total 12 Terminals				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> </table>																																	



c	Datum	14.09.2010	Component layout		=	+	AFA122-01223.00	Blatt 1
b	Bearb.	Weid	MOBILAIR M122					
a	Gepr.	Weid	Mounting plate					
l	Änderung	Datum	Name	Norm	Ersatz für: Ursprung: AFA01223_01			
			Ersatz durch:					
			Ersatz durch:					



13.4.2 Option Ic
Connection adapter for the diesel particulate filter

RAMIRENT

1	2	3	4	5	6	7	8
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Electrical diagrams

MOBILAIR

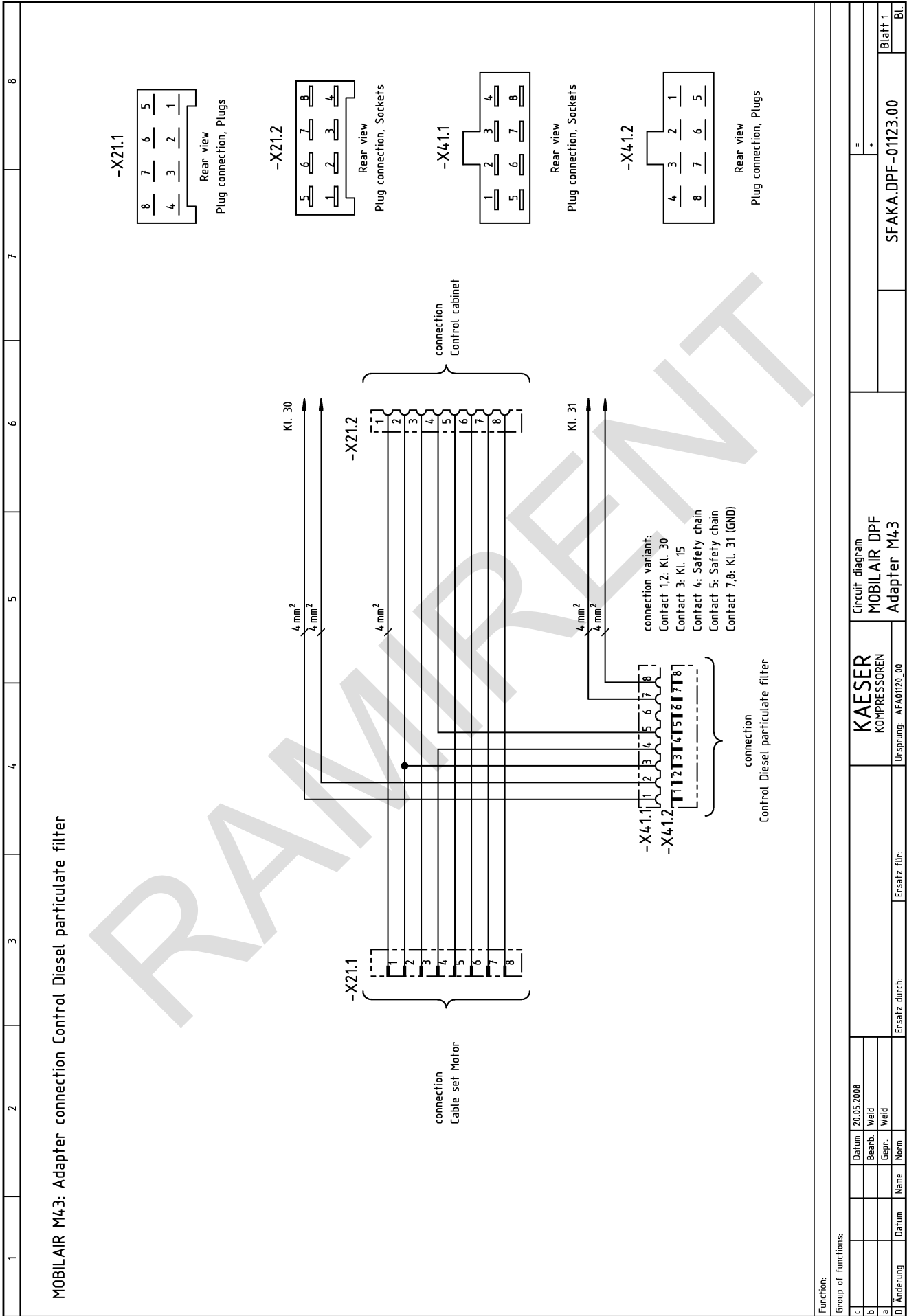
connection - Adapter

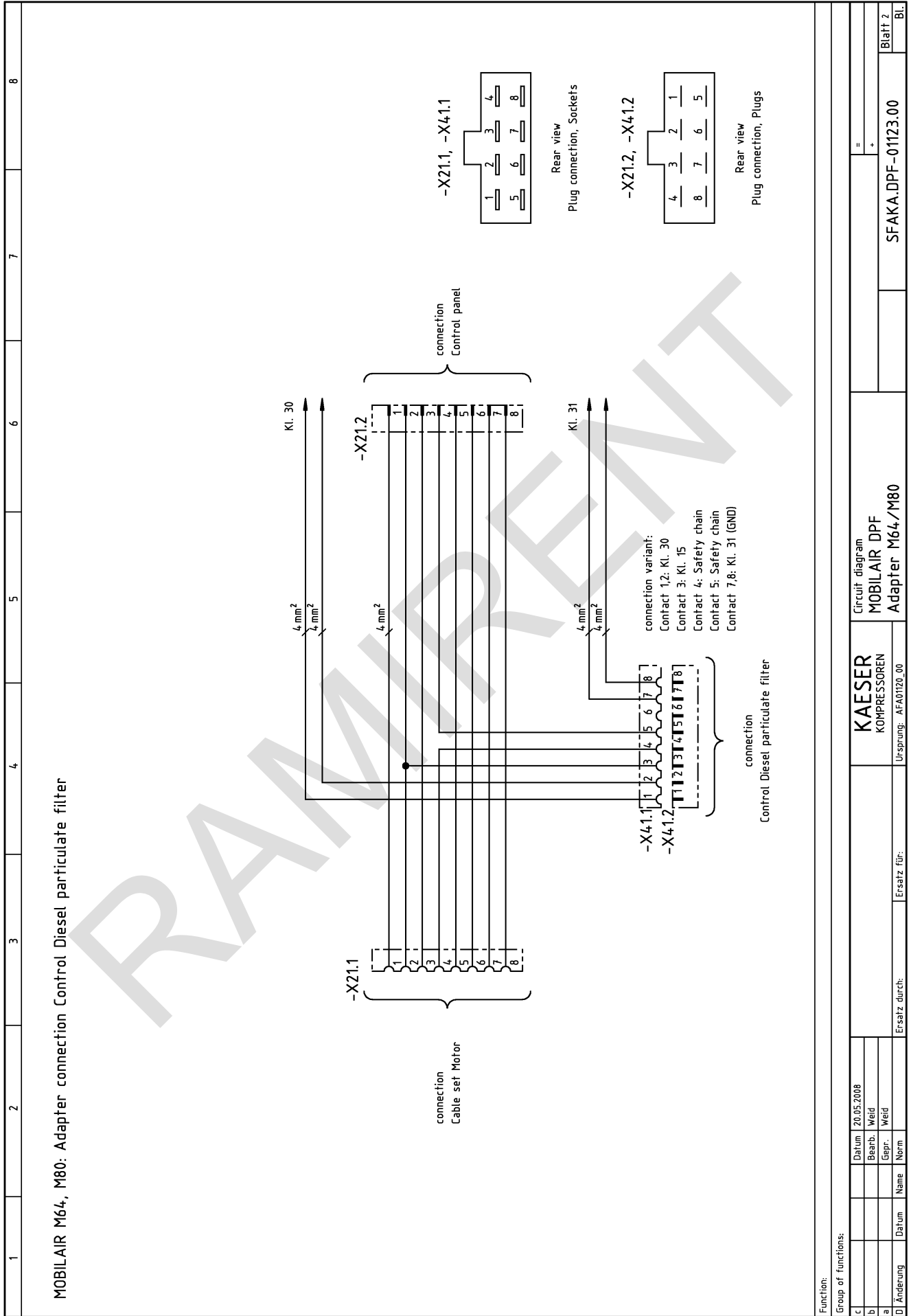
Control Diesel particulate filter

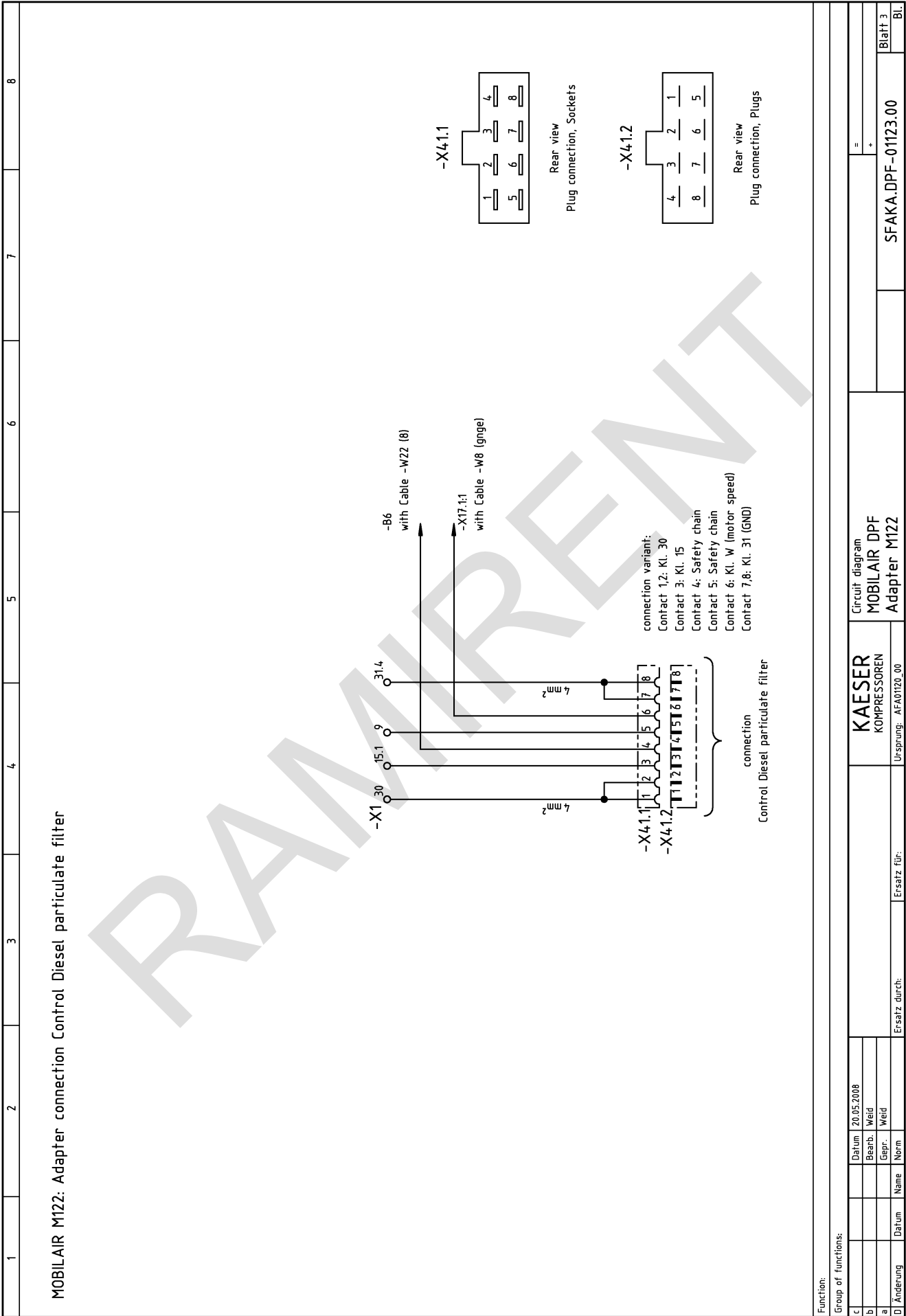
Manufacturer: Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg

The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.

	Datum	20.05.2008	E				
a)	Bearb.	Weid					
b)	Gepr.	Weid					
c)	Name	Norm					
A) Änderung	Datum	Name	Norm	Ersatz durch:			
				Ersatz für:			
				KOMPRESSOREN	MOBILAIR DPF	DFAKA.DPF-01123.00	Blatt 1
				URSPRUNG: AFA01720_00			
				Cover page			



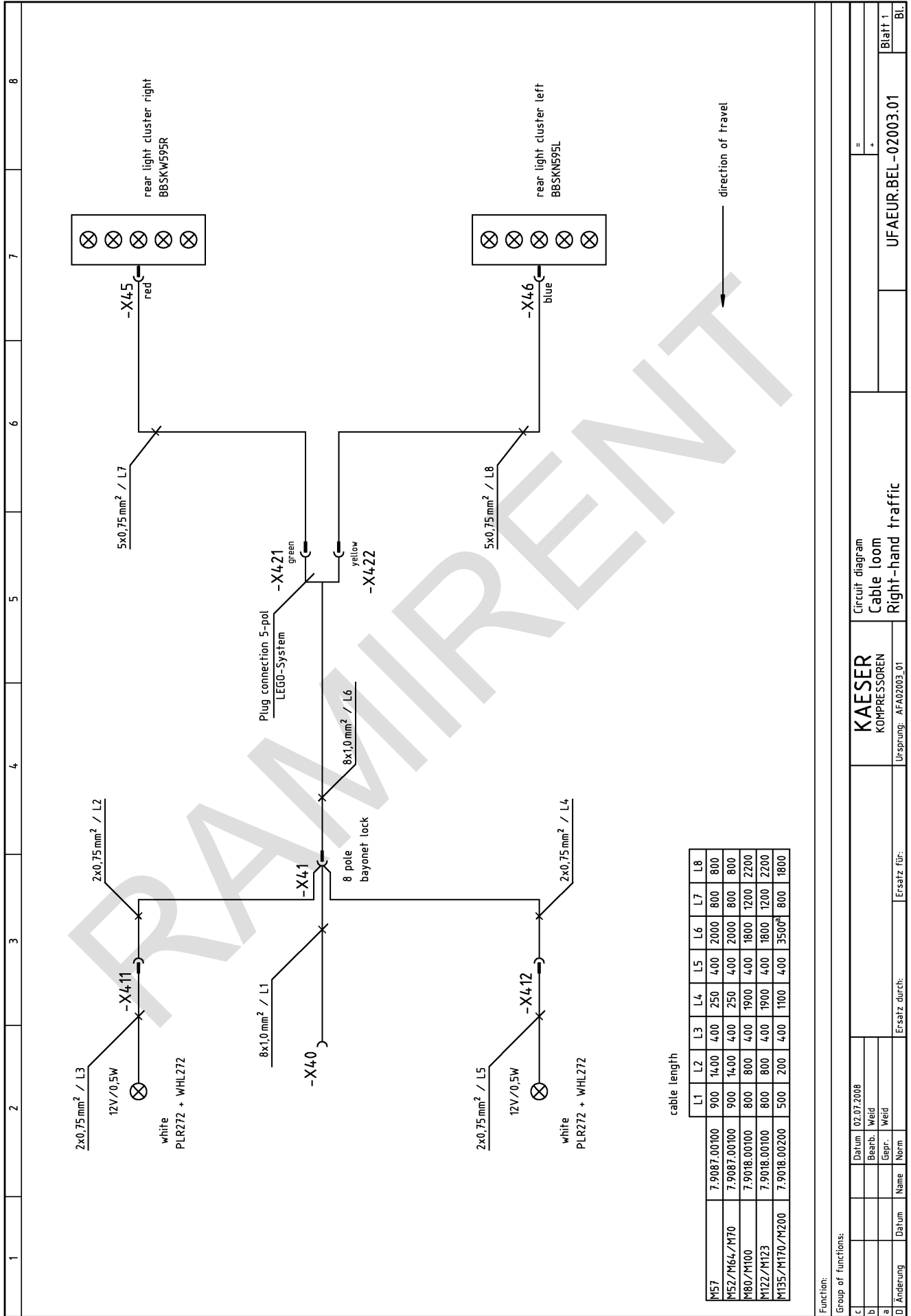


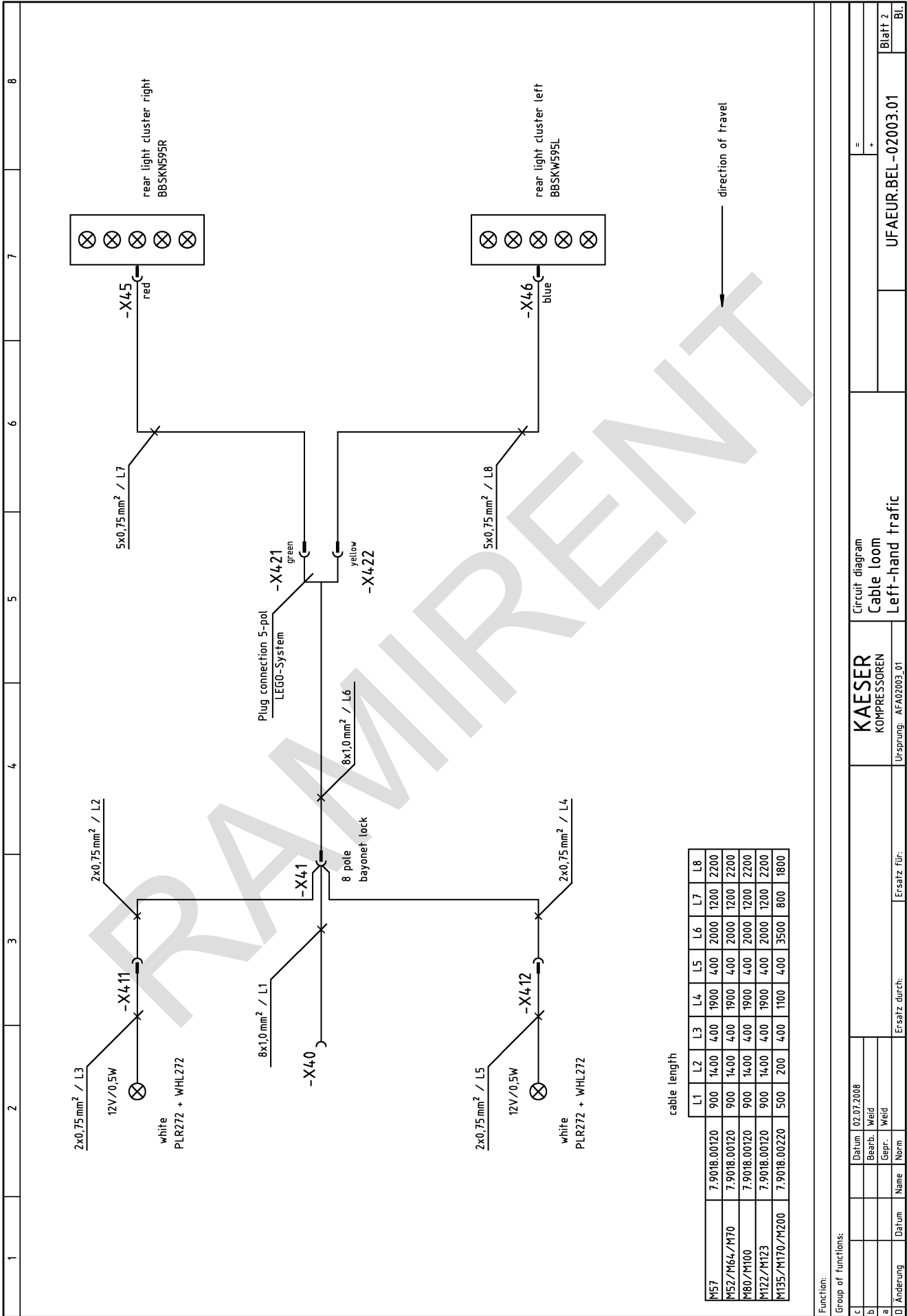


13.4.3 Option tc
Lighting and signalling system connection

RAMIRENT

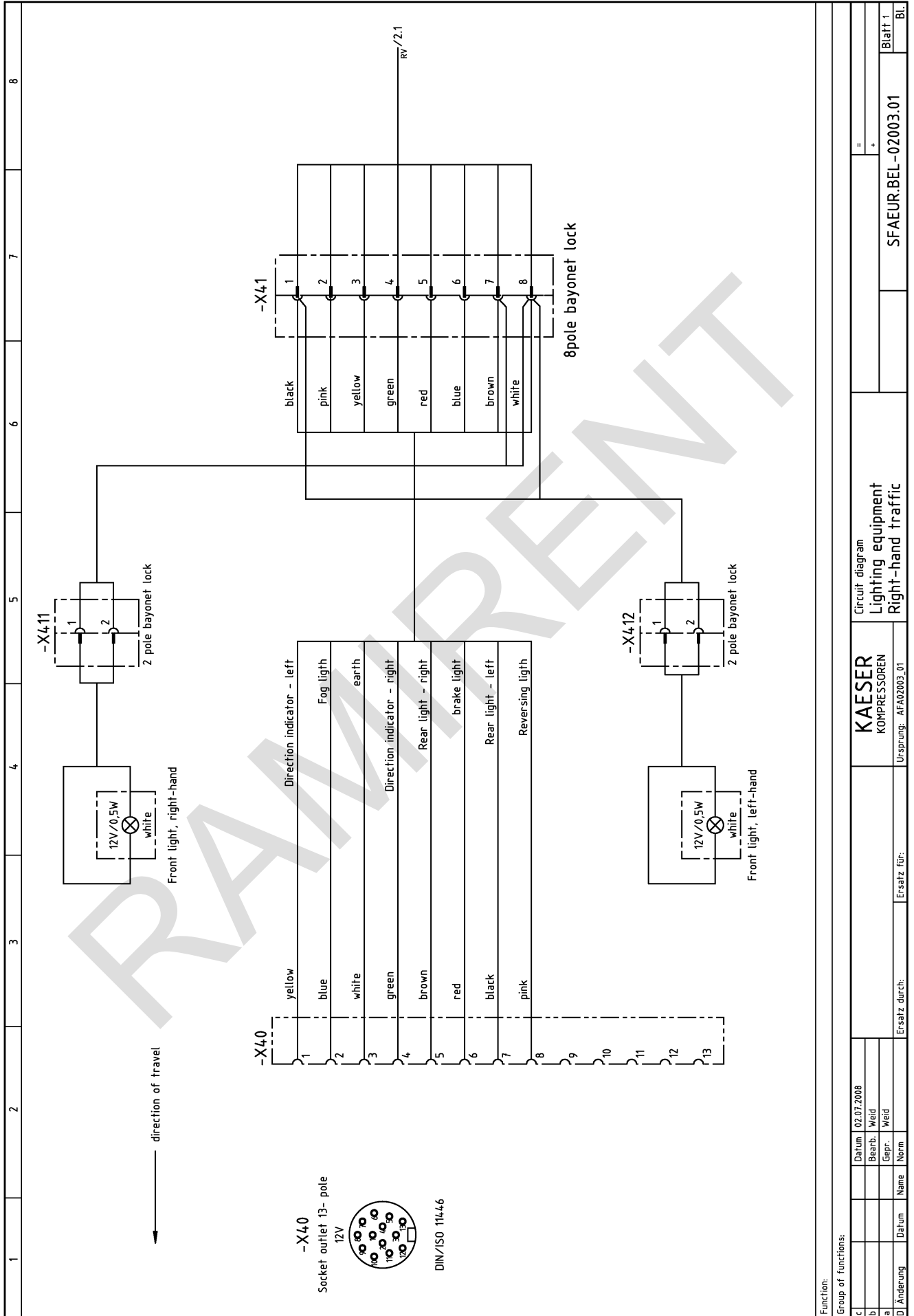
1	2	3	4	5	6	7	8	
<p>Electrical diagrams MOBILAIR Lighting equipment connection 12V/13-pole</p> <p>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</p>								
<p>RAMIRRENT</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	02.07.2008	E					
b	Bearb.	Weld						
a	Gepr.	Weld						
D	Änderung	Datum	Name	Norm	Ersatz durch:			
				Ersatz für:				
				<p>KAESER KOMPRESSOREN Ursprung: AFA02003_01</p>				
				<p>Cover page MOBILAIR Lighting equipment</p>				
				<p>= +</p>				
				<p>DFAEUR.BEL-02003.01</p>				Blatt 1
								Bl.

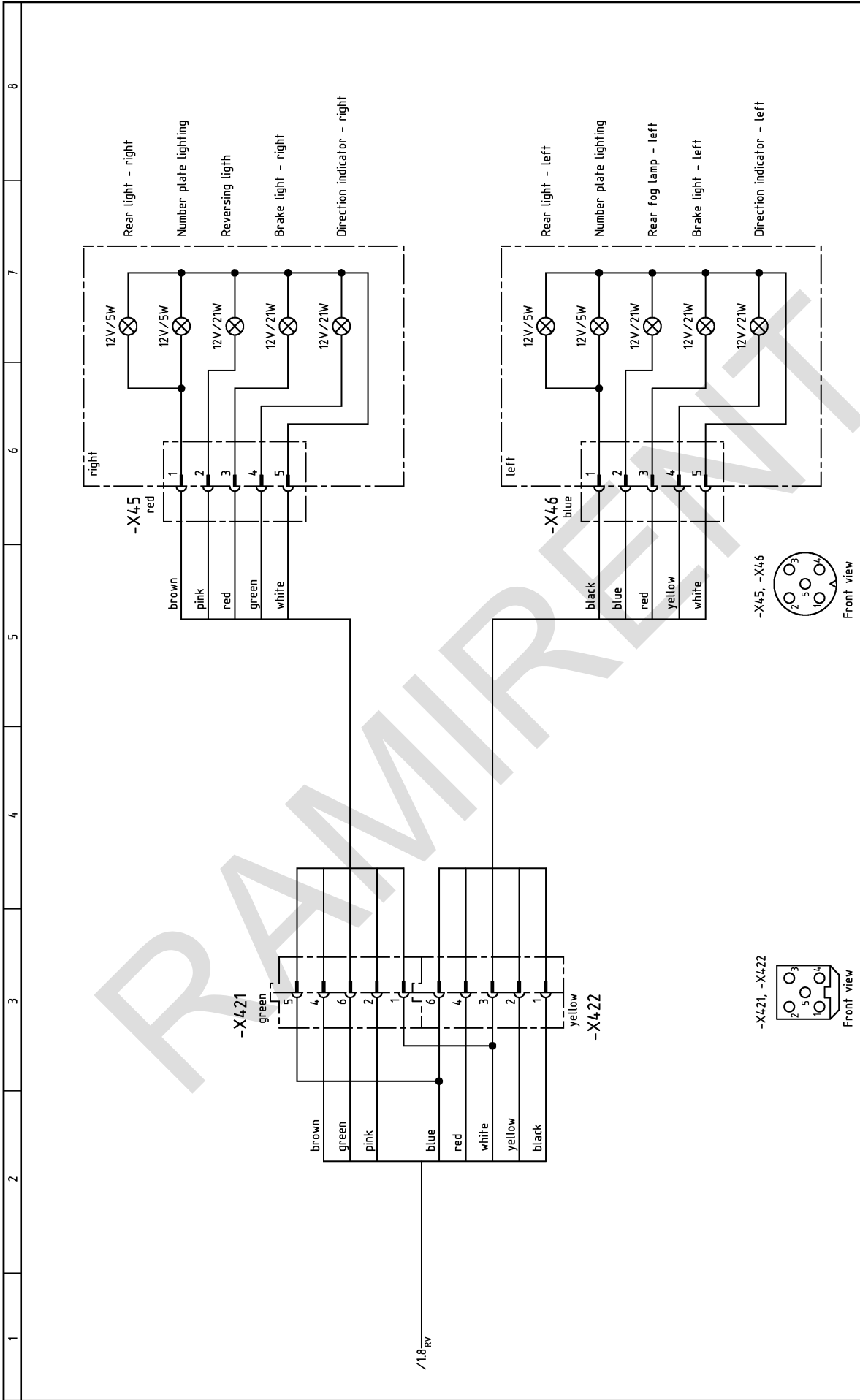




Function:
Group of functions:

Kaeser logo		Circuit diagram		Blatt 2	
KOMPRESSOREN		Cable loom		UFAEUR.BEL-02003.01	
URSPRUNG: AIFA02003_01		Left-hand traffic		=	
Ersatz durch:		Ersatz für:		+	
Datum: 02.07.2008		Bearb.: Weid			
Gepr.: Weid		Norm:			
Datum:		Name:			
a		D			

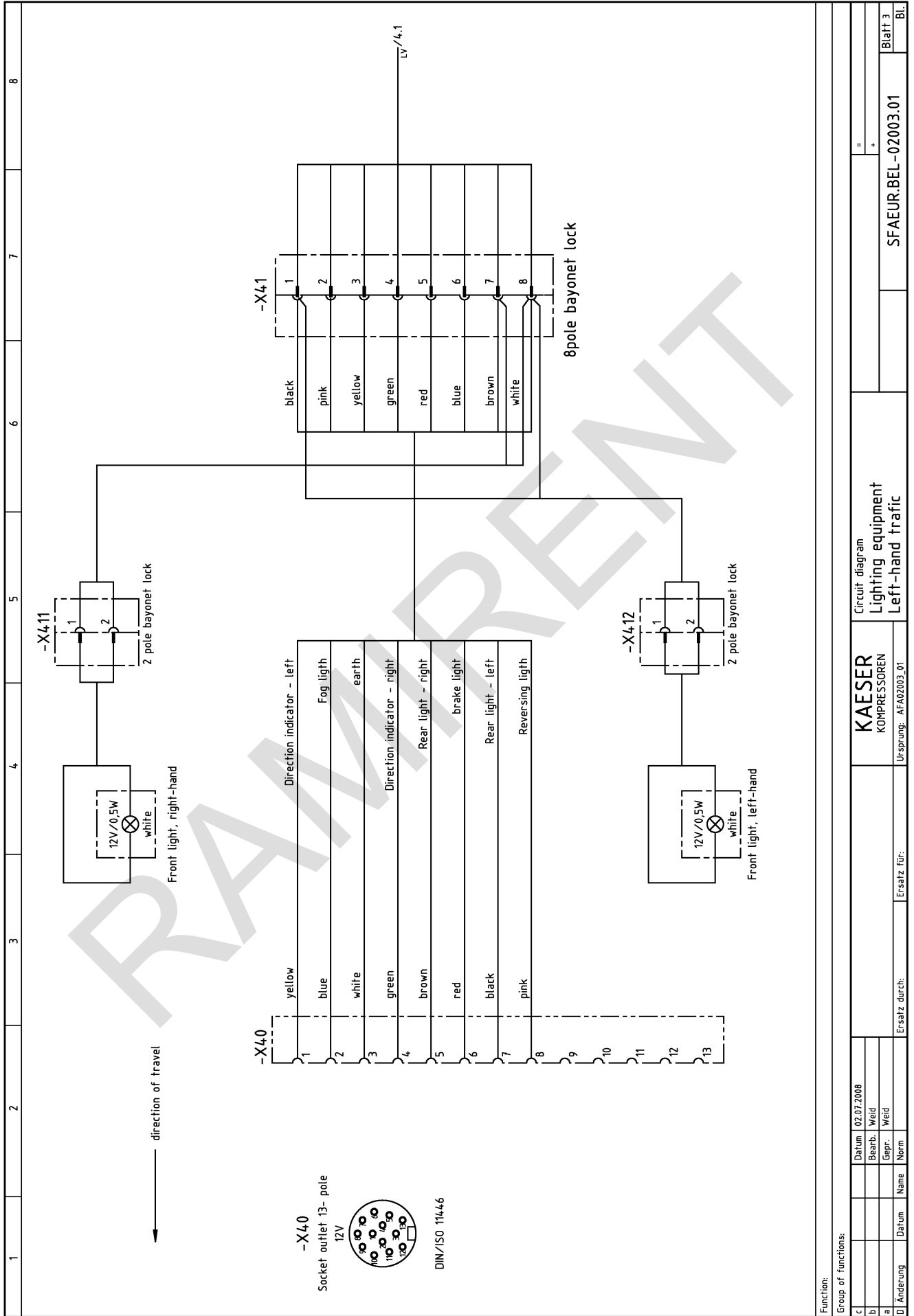


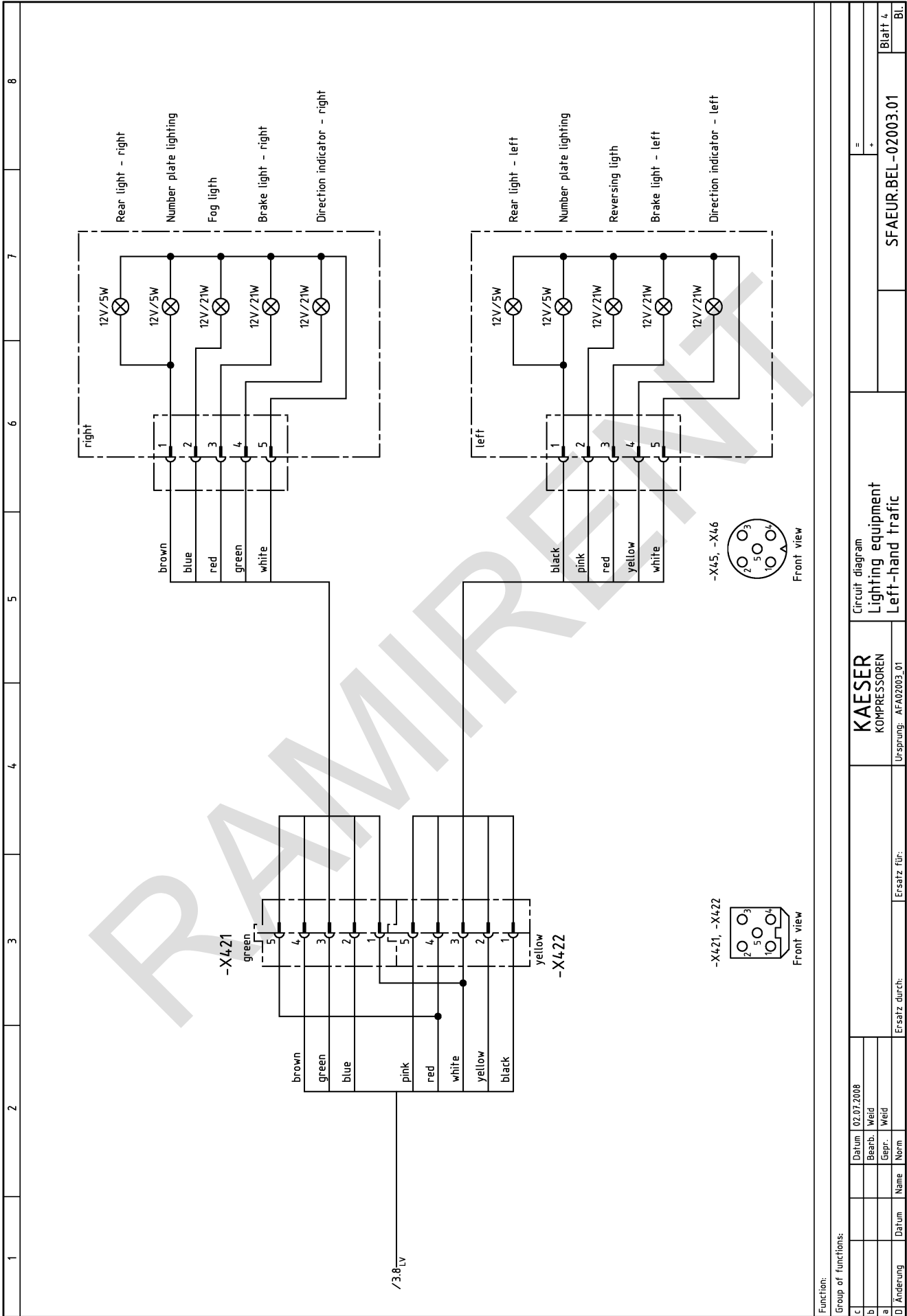


Function:

Group of functions:

c	Datum	02.07.2008	Circuit diagram		SF AEUR.BEL-02003.01	Blatt 2
b	Bearb.	Weid	Lighting equipment			
a	Gepr.	Weid	Right-hand traffic			
D	Änderung	Datum	Name	Norm	Ersatz durch:	
				Ersatz für:		
				Ursprung: AFA02003_01		
				KAESER KOMPRESSOREN		
				Circuit diagram		
				Lighting equipment		
				Right-hand traffic		

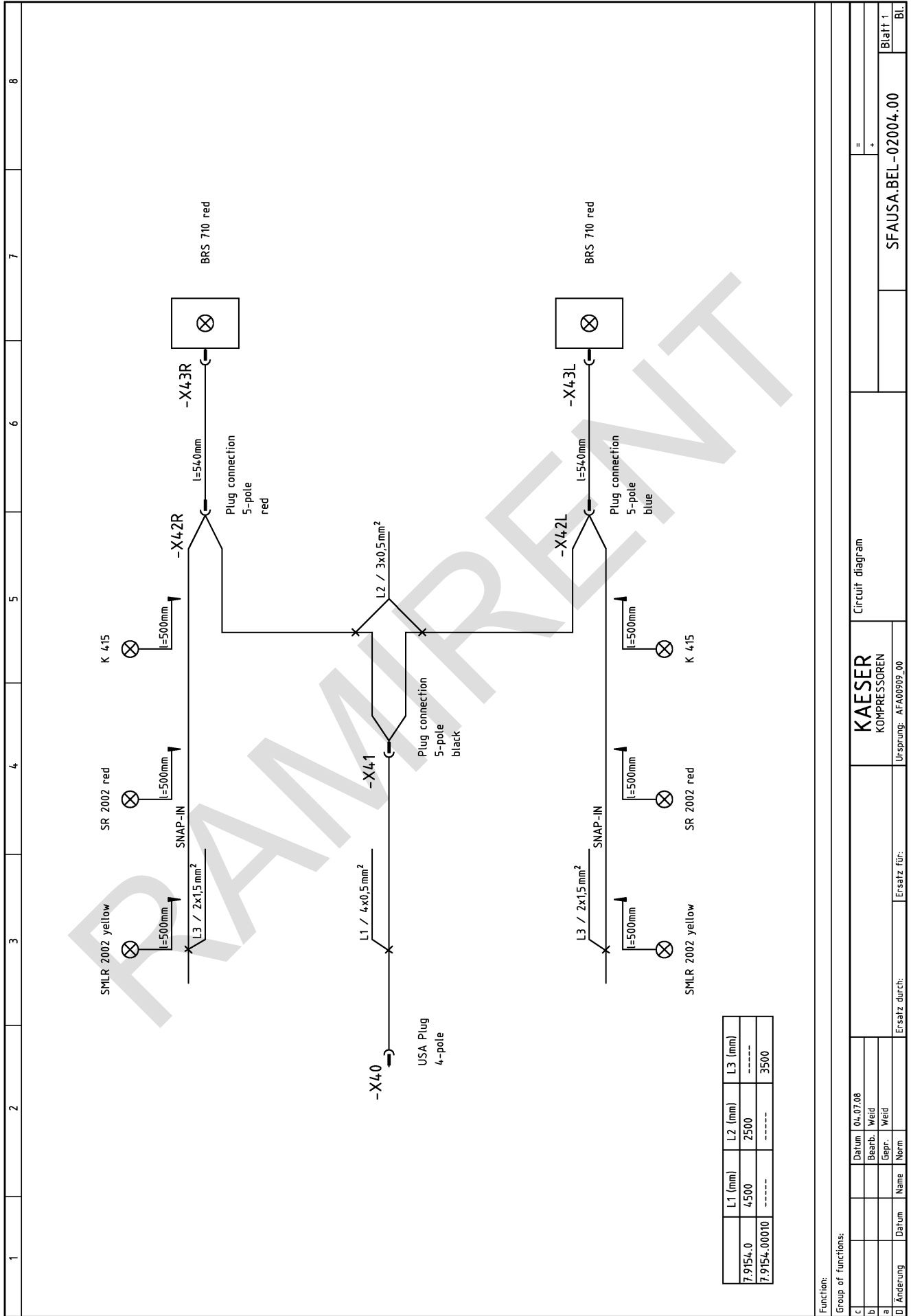




13.4.4 Option te
Lighting and signalling system connection

RAMIRENT

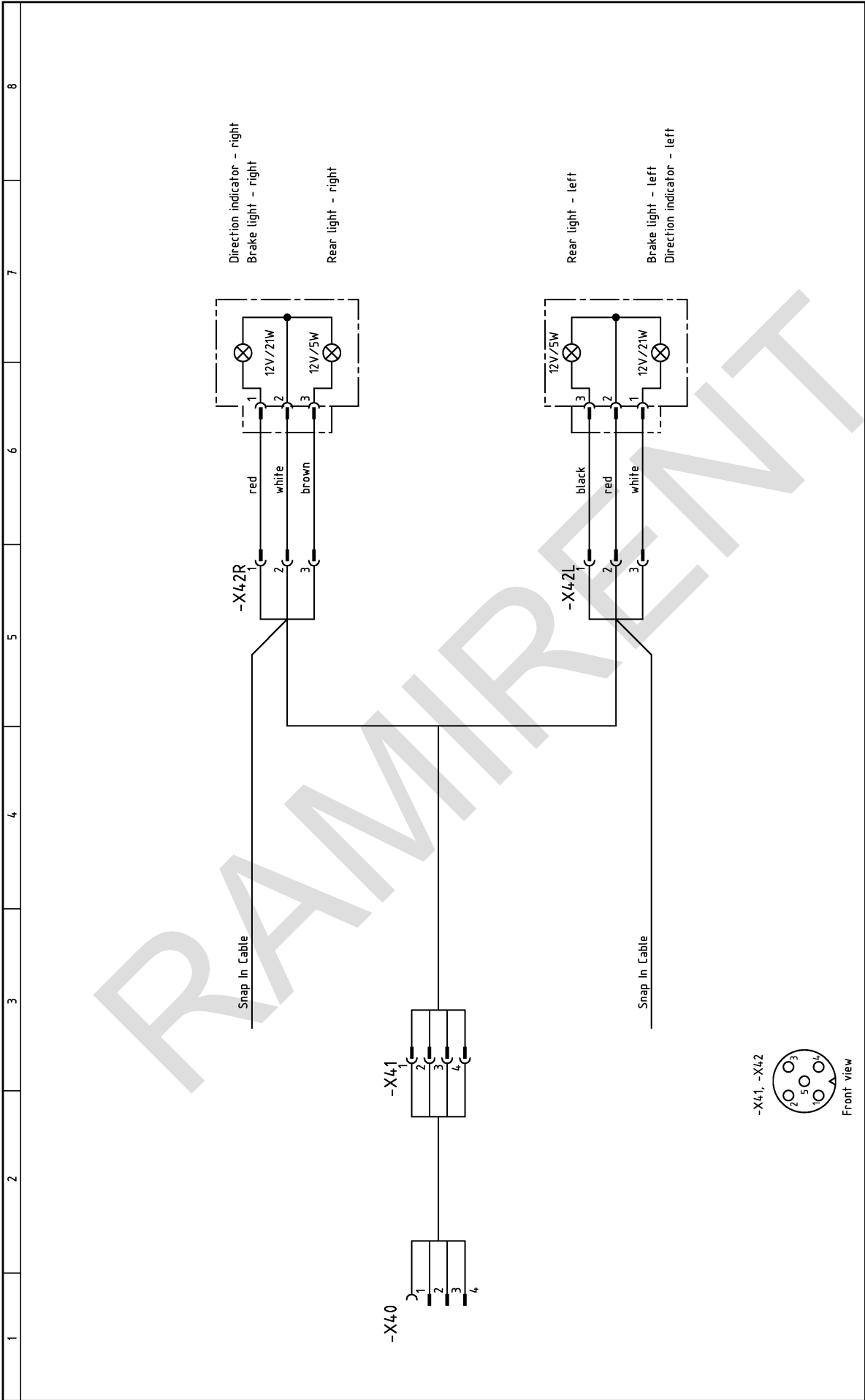
1	2	3	4	5	6	7	8	
<p>Electrical diagrams MOBILAIR Lighting equipment for USA / CAN</p> <p>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</p>								
<p>RAMIRENT</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	04.07.08	E					
b	Bearb.	Weid						
a	Gepr.	Weid						
d	Norm							
D	Änderung	Datum	Name	Ersatz durch:	Ersatz für:			
				Kaeser Kompressoren				
				MOBILAIR				
				Lighting equipment				
				Cover page				
				=				
				+				
				DFAUSA.BEL-02004.00				
				Blatt 1				
				Bl.				



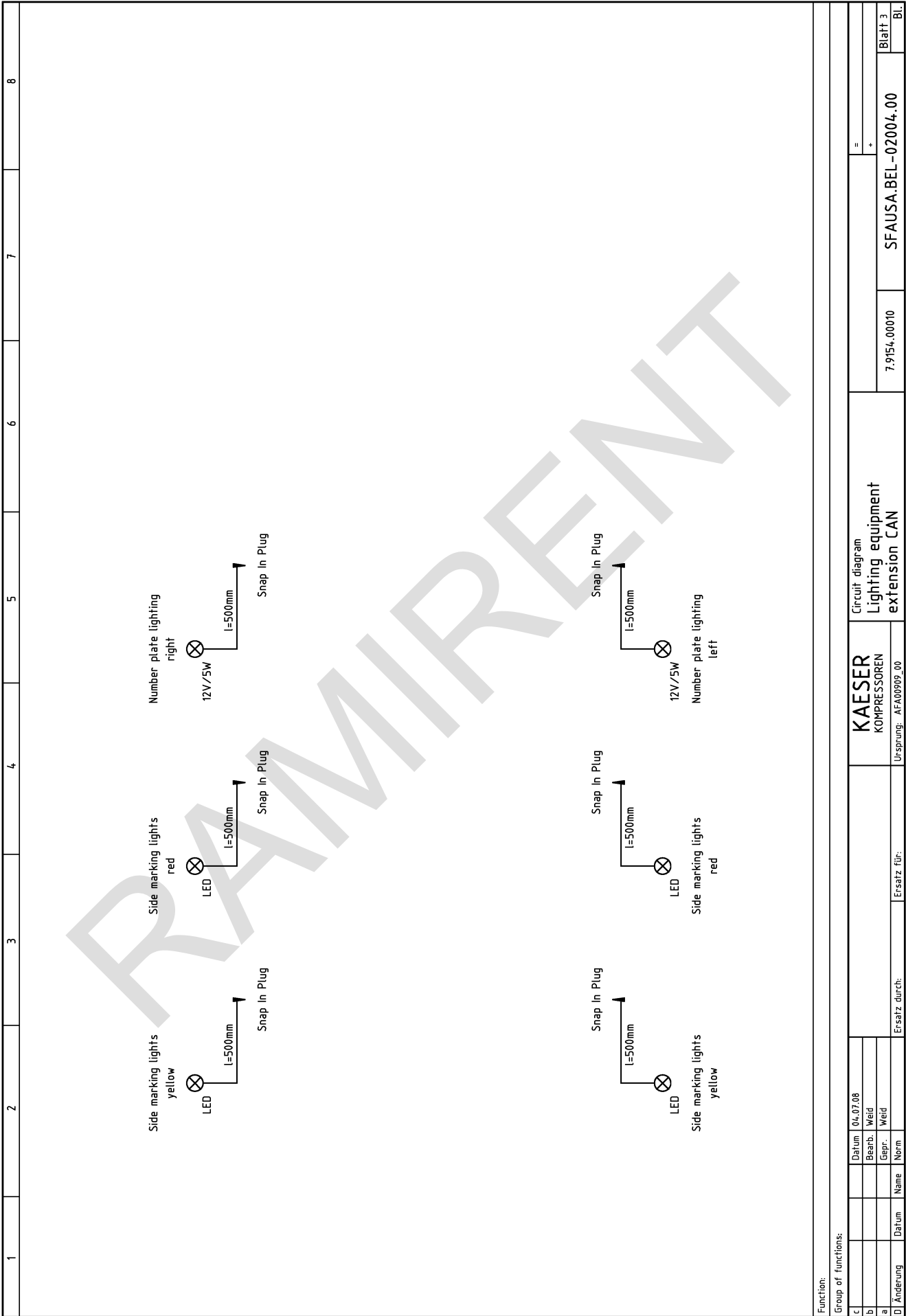
Function:

Group of functions:

Kaeser logo		Circuit diagram	
Kaeser logo		Kaeser logo	
Ersatz für:		Ersatz für:	
Datum		Datum	
Bearb.		Bearb.	
Gepr.		Gepr.	
Name		Name	
Datum		Datum	
Norm		Norm	
Ersatz für:		Ersatz für:	
URSPRUNG: AFA00902_00		URSPRUNG: AFA00902_00	
SFAUSA.BEL-02004.00		SFAUSA.BEL-02004.00	
Blatt 1		Blatt 1	

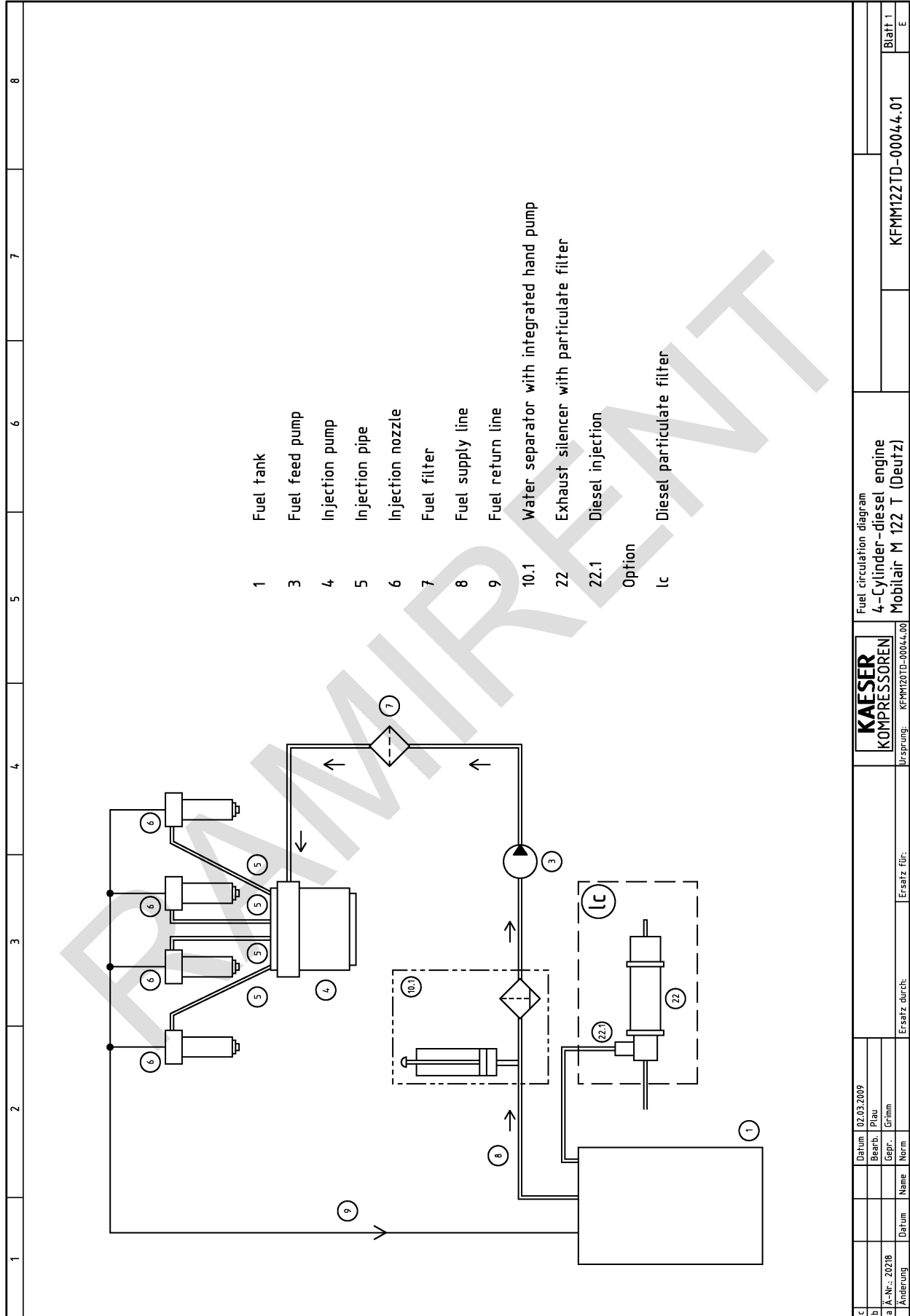


Function:		Group of functions:	
c		Datum	04.07.08
b		Bearb.	Weid
a		Gepr.	Weid
D	Änderung	Datum	Name
		Ersatz durch:	
		Ersatz für:	
		Ursprung:	AFA00902_00
		KAESER KOMPRESSOREN	Circuit diagram Lighting equipment USA
		7.9154.0	SFAUSA.BEL-02004.00
		=	+
		Blatt 2	Bl.



13.5 Fuel circulation diagram

RAMIRENT



13.6 Option dd
Operating instructions for compressed air filter (combination filter)

RAMIRENT

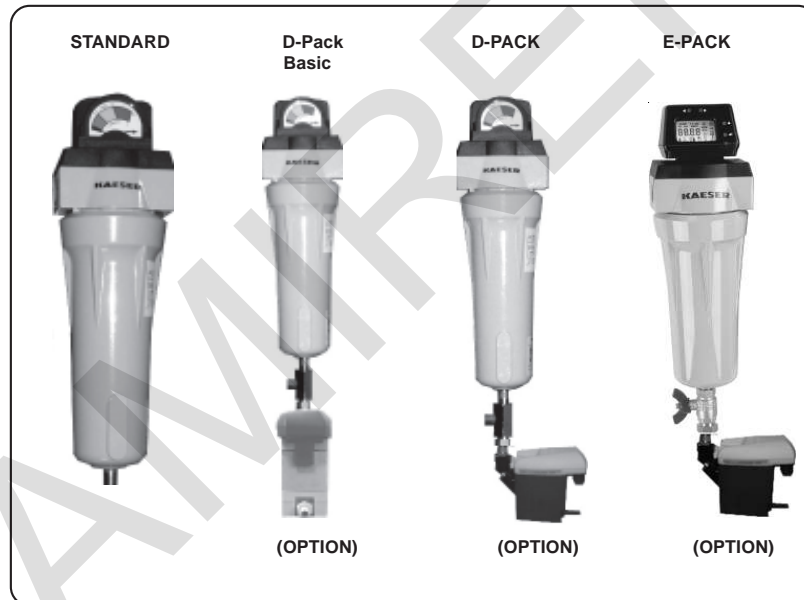
Bedienungsanleitung
Instruction Manual

Hochleistungs - Druckluftfilter

Compressed-air filters

Serie / Series

FA (D), FB (D&E), FC (D&E), FD (E), FE (D&E), FF (D&E), FG



Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg
Tel.: 09561/640-0
Fax: 09561/640130
<http://www.kaeser.com>

KAESER

gültig ab 01.04.2007

D

GB

A Kap. 9.2, 9.3 Wartungsintervalle	04.12.08	SK
Änd. Mittlg.	Datum	Bearb.

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung

Sign of material

Filter: Standard		Filter: D-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.
FA-6	9.4600.0	FA-6 D	9.4600.00110	E-A-6	9.4800.0
FA-10	9.4601.0	FA-10 D	9.4601.00110	E-A-10	9.4801.0
FA-18	9.4602.0	FA-18 D	9.4602.00110	E-A-18	9.4802.0
FA-28	9.4603.0	FA-28 D	9.4603.00110	E-A-28	9.4803.0
FA-48	9.4604.0	FA-48 D	9.4604.00010	E-A-48	9.4804.0
FA-71	9.4605.0	FA-71 D	9.4605.00010	E-A-71	9.4805.0
FA-107	9.4606.0	FA-107 D	9.4606.00010	E-A-107	9.4806.0
FA-138	9.4607.0	FA-138 D	9.4607.00010	E-A-138	9.4807.0
FA-177	9.4608.0	FA-177 D	9.4608.00010	E-A-177	9.4808.0
FA-221	9.4609.0	FA-221 D	9.4609.00010	E-A-221	9.4809.0
FA-185	9.4610.0	FA-185 D	9.4610.00010	E-A-185	9.4810.0
FA-283	9.4611.0	FA-283 D	9.4611.00010	E-A-283	9.4811.0
FA-354	9.4612.0	FA-354 D	9.4612.00010	E-A-185	9.4810.0
FA-526	9.4613.0	FA-526 D	9.4613.00010	E-A-185	9.4810.0
FA-708	9.4614.0	FA-708 D	9.4614.00010	E-A-185	9.4810.0
FA-885	9.4615.0	FA-885 D	9.4615.00010	E-A-185	9.4810.0
FA-1420	9.4616.0	FA-1420 D	9.4616.00010	E-A-185	9.4810.0
FA-1950	9.4617.0	FA-1950 D	9.4617.00010	E-A-185	9.4810.0
FA-2480	9.4618.0	FA-2480 D	9.4618.00010	E-A-185	9.4810.0

D-Pack: Filter mit ECO-DRAIN /

D-Pack: Filter with ECO-DRAIN

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Typ/Type	Nr./No.
FB-6	9.4620.0	FB-6 B	9.4620.00110	FB-6 D	9.4620.00120	FB-6 E	E-B-6	E-B-6	9.4812.0
FB-10	9.4621.0	FB-10 B	9.4621.00110	FB-10 D	9.4621.00120	FB-10 E	E-B-10	E-B-10	9.4813.0
FB-18	9.4622.0	FB-18 B	9.4622.00110	FB-18 D	9.4622.00120	FB-18 E	E-B-18	E-B-18	9.4814.0
FB-28	9.4623.0	FB-28 B	9.4623.00110	FB-28 D	9.4623.00120	FB-28 E	E-B-28	E-B-28	9.4815.0
FB-48	9.4624.0	FB-48 B	9.4624.00110	FB-48 D	9.4624.00120	FB-48 E	E-B-48	E-B-48	9.4816.0
FB-71	9.4625.0	FB-71 B	9.4625.00110	FB-71 D	9.4625.00120	FB-71 E	E-B-71	E-B-71	9.4817.0
FB-107	9.4626.0	FB-107 B	9.4626.00110	FB-107 D	9.4626.00120	FB-107 E	E-B-107	E-B-107	9.4818.0
FB-138	9.4627.0	FB-138 B	9.4627.00110	FB-138 D	9.4627.00120	FB-138 E	E-B-138	E-B-138	9.4819.0
FB-177	9.4628.0	FB-177 B	9.4628.00110	FB-177 D	9.4628.00120	FB-177 E	E-B-177	E-B-177	9.4820.0
FB-221	9.4629.0	FB-221 B	9.4629.00110	FB-221 D	9.4629.00120	FB-221 E	E-B-221	E-B-221	9.4821.0
FB-185	9.4630.0	-	-	FB-185 D	9.4630.00120	FB-185 E	E-B-185	E-B-185	9.4822.0
FB-283	9.4631.0	-	-	FB-283 D	9.4631.00120	FB-283 E	E-B-283	E-B-283	9.4823.0
FB-354	9.4632.0	-	-	FB-354 D	9.4632.00120	FB-354 E	E-B-185	E-B-185	9.4822.0
FB-526	9.4633.0	-	-	FB-526 D	9.4633.00120	FB-526 E	E-B-185	E-B-185	9.4822.0
FB-708	9.4634.0	-	-	FB-708 D	9.4634.00120	FB-708 E	E-B-185	E-B-185	9.4822.0
FB-885	9.4635.0	-	-	FB-885 D	9.4635.00120	FB-885 E	E-B-185	E-B-185	9.4822.0
FB-1420	9.4636.0	-	-	FB-1420 D	9.4636.00020	FB-1420 E	E-B-185	E-B-185	9.4822.0
FB-1950	9.4637.0	-	-	FB-1950 D	9.4637.00020	FB-1950 E	E-B-185	E-B-185	9.4822.0
FB-2480	9.4638.0	-	-	FB-2480 D	9.4638.00020	FB-2480 E	E-B-185	E-B-185	9.4822.0

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

- 2 -

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung

Sign of material

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Typ/Type	Nr./No.
FC-6	9.4640.0	FC-6 B	9.4640.00110	FC-6 D	9.4640.00120	FC-6 E	E-C-6		9.4824.0
FC-10	9.4641.0	FC-10 B	9.4641.00110	FC-10 D	9.4641.00120	FC-10 E	E-C-10		9.4825.0
FC-18	9.4642.0	FC-18 B	9.4642.00110	FC-18 D	9.4642.00120	FC-18 E	E-C-18		9.4826.0
FC-28	9.4643.0	FC-28 B	9.4643.00110	FC-28 D	9.4643.00120	FC-28 E	E-C-28		9.4827.0
FC-48	9.4644.0	FC-48 B	9.4644.00110	FC-48 D	9.4644.00120	FC-48 E	E-C-48		9.4828.0
FC-71	9.4645.0	FC-71 B	9.4645.00110	FC-71 D	9.4645.00120	FC-71 E	E-C-71		9.4829.0
FC-107	9.4646.0	FC-107 B	9.4646.00110	FC-107 D	9.4646.00120	FC-107 E	E-C-107		9.4830.0
FC-138	9.4647.0	FC-138 B	9.4647.00110	FC-138 D	9.4647.00120	FC-138 E	E-C-138		9.4831.0
FC-177	9.4648.0	FC-177 B	9.4648.00110	FC-177 D	9.4648.00120	FC-177 E	E-C-177		9.4832.0
FC-221	9.4649.0	FC-221 B	9.4649.00110	FC-221 D	9.4649.00120	FC-221 E	E-C-221		9.4833.0
FC-185	9.4650.0	-	-	FC-185 D	9.4650.00120	FC-185 E	E-C-185		9.4834.0
FC-283	9.4651.0	-	-	FC-283 D	9.4651.00120	FC-283 E	E-C-283		9.4835.0
FC-354	9.4652.0	-	-	FC-354 D	9.4652.00120	FC-354 E	E-C-185		9.4834.0
FC-526	9.4653.0	-	-	FC-526 D	9.4653.00120	FC-526 E	E-C-185		9.4834.0
FC-708	9.4654.0	-	-	FC-708 D	9.4654.00120	FC-708 E	E-C-185		9.4834.0
FC-885	9.4655.0	-	-	FC-885 D	9.4655.00120	FC-885 E	E-C-185		9.4834.0
FC-1420	9.4656.0	-	-	FC-1420 D	9.4656.00020	FC-1420 E	E-C-185		9.4834.0
FC-1950	9.4657.0	-	-	FC-1950 D	9.4657.00020	FC-1950 E	E-C-185		9.4834.0
FC-2480	9.4658.0	-	-	FC-2480 D	9.4658.00020	FC-2480 E	E-C-185		9.4834.0

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Filter: Standard		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Typ/Type	Typ/Type	Nr./No.
FD-6	9.4660.0	FD-6 E		E-D-6	9.4836.0
FD-10	9.4661.0	FD-10 E		E-D-10	9.4837.0
FD-18	9.4662.0	FD-18 E		E-D-18	9.4838.0
FD-28	9.4663.0	FD-28 E		E-D-28	9.4839.0
FD-48	9.4664.0	FD-48 E		E-D-48	9.4840.0
FD-71	9.4665.0	FD-71 E		E-D-71	9.4841.0
FD-107	9.4666.0	FD-107 E		E-D-107	9.4842.0
FD-138	9.4667.0	FD-138 E		E-D-138	9.4843.0
FD-177	9.4668.0	FD-177 E		E-D-177	9.4844.0
FD-221	9.4669.0	FD-221 E		E-D-221	9.4845.0
FD-185	9.4670.0	FD-185 E		E-D-185	9.4846.0
FD-283	9.4671.0	FD-283 E		E-D-283	9.4847.0
FD-354	9.4672.0	FD-354 E		E-D-185	9.4846.0
FD-526	9.4673.0	FD-526 E		E-D-185	9.4846.0
FD-708	9.4674.0	FD-708 E		E-D-185	9.4846.0
FD-885	9.4675.0	FD-885 E		E-D-185	9.4846.0
FD-1420	9.4676.0	FD-1420 E		E-D-185	9.4846.0
FD-1950	9.4677.0	FD-1950 E		E-D-185	9.4846.0
FD-2480	9.4678.0	FD-2480 E		E-D-185	9.4846.0

E-Pack: Filter mit Filtermonitor

E-Pack: Filter with filtermonitor

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

Materialkennzeichnung

Sign of material

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	Nr./No.
FE-6	9.4700.0	FE-6 B	9.4700.00110	FE-6 D	9.4700.00120	FE-6 E	E-E-6		9.4860.0
FE-10	9.4701.0	FE-10 B	9.4701.00110	FE-10 D	9.4701.00120	FE-10 E	E-E-10		9.4861.0
FE-18	9.4702.0	FE-18 B	9.4702.00110	FE-18 D	9.4702.00120	FE-18 E	E-E-18		9.4862.0
FE-28	9.4703.0	FE-28 B	9.4703.00110	FE-28 D	9.4703.00120	FE-28 E	E-E-28		9.4863.0
FE-48	9.4704.0	FE-48 B	9.4704.00110	FE-48 D	9.4704.00120	FE-48 E	E-E-48		9.4864.0
FE-71	9.4705.0	FE-71 B	9.4705.00110	FE-71 D	9.4705.00120	FE-71 E	E-E-71		9.4865.0
FE-107	9.4706.0	FE-107 B	9.4706.00110	FE-107 D	9.4706.00120	FE-107 E	E-E-107		9.4866.0
FE-138	9.4707.0	FE-138 B	9.4707.00110	FE-138 D	9.4707.00120	FE-138 E	E-E-138		9.4867.0
FE-177	9.4708.0	FE-177 B	9.4708.00110	FE-177 D	9.4708.00120	FE-177 E	E-E-177		9.4868.0
FE-221	9.4709.0	FE-221 B	9.4709.00110	FE-221 D	9.4709.00120	FE-221 E	E-E-221		9.4869.0
FE-185	9.4710.0	-	-	FE-185 D	9.4710.00120	FE-185 E	E-E-185		9.4870.0
FE-283	9.4711.0	-	-	FE-283 D	9.4711.00120	FE-283 E	E-E-283		9.4871.0
FE-354	9.4712.0	-	-	FE-354 D	9.4712.00120	FE-354 E	E-E-185		9.4870.0
FE-526	9.4713.0	-	-	FE-526 D	9.4713.00120	FE-526 E	E-E-185		9.4870.0
FE-708	9.4714.0	-	-	FE-708 D	9.4714.00120	FE-708 E	E-E-185		9.4870.0
FE-885	9.4715.0	-	-	FE-885 D	9.4715.00120	FE-885 E	E-E-185		9.4870.0
FE-1420	9.4716.0	-	-	FE-1420 D	9.4716.00020	FE-1420 E	E-E-185		9.4870.0
FE-1950	9.4717.0	-	-	FE-1950 D	9.4717.00020	FE-1950 E	E-E-185		9.4870.0
FE-2480	9.4718.0	-	-	FE-2480 D	9.4718.00020	FE-2480 E	E-E-185		9.4870.0

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Typ/Type	Nr./No.	Nr./No.
FF-6	9.4720.0	FF-6 B	9.4720.00110	FF-6 D	9.4720.00120	FF-6 E	E-F-6		9.4872.0
FF-10	9.4721.0	FF-10 B	9.4721.00110	FF-10 D	9.4721.00120	FF-10 E	E-F-10		9.4873.0
FF-18	9.4722.0	FF-18 B	9.4722.00110	FF-18 D	9.4722.00120	FF-18 E	E-F-18		9.4874.0
FF-28	9.4723.0	FF-28 B	9.4723.00110	FF-28 D	9.4723.00120	FF-28 E	E-F-28		9.4875.0
FF-48	9.4724.0	FF-48 B	9.4724.00110	FF-48 D	9.4724.00120	FF-48 E	E-F-48		9.4876.0
FF-71	9.4725.0	FF-71 B	9.4725.00110	FF-71 D	9.4725.00120	FF-71 E	E-F-71		9.4877.0
FF-107	9.4726.0	FF-107 B	9.4726.00110	FF-107 D	9.4726.00120	FF-107 E	E-F-107		9.4878.0
FF-138	9.4727.0	FF-138 B	9.4727.00110	FF-138 D	9.4727.00120	FF-138 E	E-F-138		9.4879.0
FF-177	9.4728.0	FF-177 B	9.4728.00110	FF-177 D	9.4728.00120	FF-177 E	E-F-177		9.4880.0
FF-221	9.4729.0	FF-221 B	9.4729.00110	FF-221 D	9.4729.00120	FF-221 E	E-F-221		9.4881.0
FF-185	9.4730.0	-	-	FF-185 D	9.4730.00120	FF-185 E	E-F-185		9.4882.0
FF-283	9.4731.0	-	-	FF-283 D	9.4731.00120	FF-283 E	E-F-283		9.4883.0
FF-354	9.4732.0	-	-	FF-354 D	9.4732.00120	FF-354 E	E-F-185		9.4882.0
FF-526	9.4733.0	-	-	FF-526 D	9.4733.00120	FF-526 E	E-F-185		9.4882.0
FF-708	9.4734.0	-	-	FF-708 D	9.4734.00120	FF-708 E	E-F-185		9.4882.0
FF-885	9.4735.0	-	-	FF-885 D	9.4735.00120	FF-885 E	E-F-185		9.4882.0
FF-1420	9.4736.0	-	-	FF-1420 D	9.4736.00020	FF-1420 E	E-F-185		9.4882.0
FF-1950	9.4737.0	-	-	FF-1950 D	9.4737.00020	FF-1950 E	E-F-185		9.4882.0
FF-2480	9.4738.0	-	-	FF-2480 D	9.4738.00020	FF-2480 E	E-F-185		9.4882.0

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter mit Filtermonitor und ECO-DRAIN

E-pack: Filter with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

- 4 -

F0507	05.03.07	KC	05.03.07	KC	F0412	
D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

FI HANK-MOB_02 D E

Materialkennzeichnung
Sign of material

Filter: Standard		Filter: Element/Cartridge	
Typ/Type	Nr./No.	Typ/Type	Nr./No.
FG-6	9.4740.0	E-G-6	9.4884.0
FG-10	9.4741.0	E-G-10	9.4885.0
FG-18	9.4742.0	E-G-18	9.4886.0
FG-28	9.4743.0	E-G-28	9.4887.0
FG-48	9.4744.0	E-G-48	9.4888.0
FG-71	9.4745.0	E-G-71	9.4889.0
FG-107	9.4746.0	E-G-107	9.4890.0
FG-138	9.4747.0	E-G-138	9.4891.0
FG-177	9.4748.0	E-G-177	9.4892.0
FG-221	9.4749.0	E-G-221	9.4893.0
FG-185	9.4750.0	E-G-185	9.4894.0
FG-283	9.4751.0	E-G-283	9.4895.0
FG-354	9.4752.0	E-G-185	9.4894.0
FG-526	9.4753.0	E-G-185	9.4894.0
FG-708	9.4754.0	E-G-185	9.4894.0
FG-885	9.4755.0	E-G-185	9.4894.0
FG-1420	9.4756.0	E-G-185	9.4894.0
FG-1950	9.4757.0	E-G-185	9.4894.0
FG-2480	9.4758.0	E-G-185	9.4894.0

Filter: Standard		Filter: D-Pack Basic		Filter: D-Pack		Filter: E-Pack
Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type	Nr./No.	Typ/Type
FFG-6	9.4760.0	FFG-6 B	9.4760.00110	FFG-6 D	9.4760.00120	FFG-6 E
FFG-10	9.4761.0	FFG-10 B	9.4761.00110	FFG-10 D	9.4761.00120	FFG-10 E
FFG-18	9.4762.0	FFG-18 B	9.4762.00110	FFG-18 D	9.4762.00120	FFG-18 E
FFG-28	9.4763.0	FFG-28 B	9.4763.00110	FFG-28 D	9.4763.00120	FFG-28 E
FFG-48	9.4764.0	FFG-48 B	9.4764.00110	FFG-48 D	9.4764.00120	FFG-48 E
FFG-71	9.4765.0	FFG-71 B	9.4765.00110	FFG-71 D	9.4765.00120	FFG-71 E
FFG-107	9.4766.0	FFG-107 B	9.4766.00110	FFG-107 D	9.4766.00120	FFG-107 E
FFG-138	9.4767.0	FFG-138 B	9.4767.00110	FFG-138 D	9.4767.00120	FFG-138 E
FFG-177	9.4768.0	FFG-177 B	9.4768.00110	FFG-177 D	9.4768.00120	FFG-177 E
FFG-221	9.4769.0	FFG-221 B	9.4769.00110	FFG-221 D	9.4769.00120	FFG-221 E
FFG-185	9.4770.0	-	-	FFG-185 D	9.4770.00120	FFG-185 E
FFG-283	9.4771.0	-	-	FFG-283 D	9.4771.00120	FFG-283 E
FFG-354	9.4772.0	-	-	FFG-354 D	9.4772.00120	FFG-354 E
FFG-526	9.4773.0	-	-	FFG-526 D	9.4773.00120	FFG-526 E
FFG-708	9.4774.0	-	-	FFG-708 D	9.4774.00120	FFG-708 E
FFG-885	9.4775.0	-	-	FFG-885 D	9.4775.00120	FFG-885 E
FFG-1420	9.4776.0	-	-	FFG-1420 D	9.4776.00020	FFG-1420 E
FFG-1950	9.4777.0	-	-	FFG-1950 D	9.4777.00020	FFG-1950 E
FFG-2480	9.4778.0	-	-	FFG-2480 D	9.4778.00020	FFG-2480 E

Filterkombination bestehend aus Serie FF & FG

Filter combination consist of series FF & FG

D-Pack: Filter mit Differenzdruckmanometer und ECO-DRAIN

D-pack: Filter with differential pressure gauge and ECO-DRAIN

D-Pack-Basic: Filter mit Differenzdruckmanometer und ECO-DRAIN 30

D-pack-basic: Filter with differential pressure gauge and ECO-DRAIN 30

E-Pack: Filter Serie FF mit Filtermonitor und ECO-DRAIN

E-pack: Filter series FF with filtermonitor and ECO-DRAIN

Anzahl Filterelemente siehe Kapitel 3. „Technische Daten“.

Quantity of filter cartridges see chapter 3. „Technical data“.

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Wir haben den Inhalt der Bedienungsanleitung auf Übereinstimmung mit dem beschriebenen Gerät geprüft. Dennoch können Abweichungen nicht ausgeschlossen werden, so daß wir für die vollständige Übereinstimmung keine Gewähr übernehmen.

We have examined the content of the operating instructions for conformity with the appliance described. Inconsistencies cannot be ruled out, however, with the result that we do not guarantee complete conformity

Technische Änderungen vorbehalten.

We reserve the right to alter the specifications without prior notice

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1. Einleitung

1.1 Allgemeines

Die in dieser Betriebsanleitung dokumentierten Druckluftfilter erfüllen alle Anforderungen, die an moderne Filtersysteme gestellt werden.


Um Sie optimal nutzen zu können, benötigt der Anwender ausführliche Informationen.

In der vorliegenden Betriebsanleitung haben wir diese Informationen möglichst vollständig und in entsprechende Kapitel gegliedert zusammengestellt.

Lesen und beachten Sie diese Informationen. Sie helfen Ihnen auch Unfälle zu vermeiden.


1.2 Erklärung der Symbole in der Bedienungsanleitung

- Aufzählungen werden mit diesem Punkt oder Sternchen * gekennzeichnet.


 Mit diesem Symbol werden Textstellen gekennzeichnet, die unbedingt zu beachten sind.

- Wichtige Sicherheitshinweise
- Wichtige Bedienungs-/Wartungshinweise
- Warnung vor möglichen Fehlbedienungen
- Warnung vor Gefahren

 Elektrisches Gefahrensymbol

 Ausführende Tätigkeit. Vom Bediener auszuführende Bedienschritte.

1.3 Erklärung der Symbole am Gerät

 Automatischer Kondensatablaß / Automatic Condensate Drain

 Elektroanschluß / Electrical Supply

1. Introduction

1.1 General remarks

The compressed air filters documented in these instruction manual has all requirements that can be expected from a modern filter/ -system.

In order to obtain maximum benefit from using the filters/ -system the user should have sufficient information.

These instruction manual gave the user this information which has been divided into separate sections for easy reference.


Please read carefully before installing and operating the filter/ -system.


1.2 Explanation to the symbols in the instruction manual

- Technical data or instructions.
*


 Parts that require absolute attention


- Vital safety instructions
- Essential operation and maintenance instructions
- Warnings on handling or moving the dryer
- Danger areas

 Electrical danger symbol

 Changes sequence of operation

1.3 Symbols used in the filter

 Drucklufteintritt / Compressed Air Inlet

 Druckluftaustritt / Compressed Air Outlet

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**2. Sicherheitsregeln,
Warnhinweise**

**2. Safety rules,
warnings**

2.1 Bestimmungsgemäßer Gebrauch

2.1 Use of filter/ -system

⚠ Achtung!

- Die Filter dürfen nur für die in dieser Bedienungsanleitung vorgesehenen Einsatzfälle zur Aufbereitung von Druckluft verwendet werden.
- Der einwandfreie und sichere Betrieb der Produkte erfordert sachgerechten Transport, Lagerung, Aufstellung und Montage, sowie sorgfältige Bedienung und Instandhaltung.

⚠ Achtung!

- The filter must only be used for the purpose as designated in the instruction manual to upgrading the compressed air.
- To obtain maximum efficiency and operation of the filter/ -system ensure all sections of the manual are read carefully.

2.2 Sicherheitsregeln

2.2 Safety rules

⚠ Warnung!

- Die Filter dürfen nur von qualifiziertem Personal genutzt, bedient, gewartet oder instandgesetzt werden.
- Qualifiziertes Personal im Sinne der sicherheitsbezogenen Hinweise in dieser Dokumentation oder auf dem Produkt selbst, ist Personal das:
 - * im Umgang mit Einrichtungen der Druckluft vertraut und unterwiesen sowie über die damit verbundenen Gefahren unterrichtet ist.
 - * Den auf die Bedienung bezogenen Inhalt dieser Dokumentation kennt.
 - * Es besitzt als solches eine zur Inbetriebnahme und Wartung derartiger Einrichtungen befähigende Ausbildung bzw. Berechtigung.

⚠ Warning!

- The filter/ -system must only be used, operated, inspected and repaired by trained personnel.
- Trained personnel are defined as follows:
 - * Operating staff who are skilled in the field of compressed air engineering and who are familiar with the filter/ -system and possible dangers in unauthorised operation or service.
 - * Who can interpret and action the contents of this operation instruction manual.
 - * Who have had the appropriate training and qualified as being competent in these fields.

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**2. Sicherheitsregeln,
Warnhinweise**

**2. Safety rules,
warnings**

2.3 Warnhinweise

2.3 Security-warnings

 **Warnung!**


Das (die) Filter beinhalten unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.

 **Warning!**

The filter/ -system contains components under high pressure.
Before starting any service work turn off compressed air supply to the dryer and depressurise the system.

 **Warnung!**

Filtersysteme mit elektrisch gesteuerten Kondensatableitern enthalten unter elektrischer Spannung stehende Bauteile.
Vor Servicearbeiten sind diese allpolig vom elektrischen Spannungsversorgungsnetz zu trennen.
(Netzstecker ziehen, Hauptschalter ausschalten)

 **Warning!**

The filter/ -systems with electrical condensate discharger contains components that are electrically live and which can cause danger to life.
Before starting any service work ensure all power is isolated from the filter/ -system, mains isolator to be off, mains plug if fitted to be removed.

ACHTUNG!
Alle Arbeiten am elektrischen System dürfen nur von elektrotechnisch geschultem Fachpersonal, oder unter Aufsicht von diesem, durch Unterwiesene ausgeführt werden.

ATTENTION!
Any electrical work on the dryer must only be carried out by skilled staff - qualified electricians, or persons under supervision of qualified staff.

 **Hinweis!**

Die Filter sind ausschließlich zur Aufbereitung von Druckluft einzusetzen.

 **Remark!**

Use filter for compressed air applications only.

ACHTUNG!
Die Verwendung in Verbindung mit brennbaren Gasen ist verboten!

Attention!
The use of combustible gases is prohibited.

 **ACHTUNG!**

Filter/ -systeme zur Aufbereitung von Atemluft dürfen nur nach Genehmigung des Herstellers der Filter/ -systeme eingesetzt und betrieben werden.

 **ATTENTION!**

Filter/ -systems for breathing air applications must be approved from manufacturer.

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3. Technische Daten

3. Technical data

MODELL BEZEICHNUNG / MODEL DESIGNATION		Volumenstrom Capacity	Anschluß Connection	Betriebsdruck Working Pressure	Abmessungen Dimensions		Gewicht Weight	AUSTAUSCH-FILTERELEMENTE FILTER REPLACEMENT CARTRIDGE		
FILTER- GRAD / GRADE	FILTER- GEHÄUSE / HOUSING	[m³/min]	[]	[max]	Höhe / Height [mm]	Breite / Width [mm]	[kg]	FILTER- GRAD / GRADE	FILTER- GEHÄUSE / HOUSING	Anzahl Quantity
MODUL-BAUWEISE / MODULAR SYSTEM										
-6	-6	0,58	3/8"	16		105			-6	1
-10	-10	1,00	1/2"	16	siehe Kapitel	105	siehe Kapitel	E-A	-10	1
-18	-18	1,75	1/2"	16	„Maßzeich- nung“	105	„Maßzeichnung“	E-B	-18	1
-28	-28	2,83	3/4"	16		133		E-C	-28	1
-48	-48	4,83	1"	16		133		E-D	-48	1
-71	-71	7,10	1-1/2"	16	see chapter „dimensional drawing“	164	see chapter „dimensional drawing“	E-E	-71	1
-107	-107	10,7	1-1/2"	16		164		E-F	-107	1
-138	-138	13,8	2	16		194		E-G	-138	1
-177	-177	17,7	2-1/2"	16		194			-177	1
-221	-221	22,1	2-1/2"	13		194			-221	1
BEHÄLTER-BAUWEISE / PRESSURE VESSEL										
-185	-185	18,5	DN80	16	1025	350	siehe Kapitel	E-F	-185	1
-283	-283	28,3	DN80	16	1045	400	„Maßzeichnung“	E-F	-283	2
-354	-354	35,4	DN80	16	1045	400	„Maßzeichnung“	E-F	-354	2
-526	-526	52,6	DN100	16	1085	440	see chapter „dimensional drawing“	E-G	-526	3
-708	-708	70,8	DN100	16	1105	535	see chapter „dimensional drawing“	E-G	-708	4
-885	-885	88,5	DN100	16	1105	535	see chapter „dimensional drawing“	E-G	-885	5
-1420	-1420	142	DN150	16	1215	600	see chapter „dimensional drawing“	E-G	-1420	8
-1950	-1950	195	DN150	16	1245	720	see chapter „dimensional drawing“	E-G	-1950	11
-2480	-2480	248	DN150	16	1245	750	see chapter „dimensional drawing“	E-G	-2480	14

- Volumenstrom m³/h bezogen auf +20°C und 1 bar absolut, bei Betriebsüberdruck 7 bar / Air flow m³/h based on +20°C and 1 bar absolute, at working pressure 7 bar
- Größere Betriebsdrücke auf Anfrage / Contact factory for dryers with a higher working pressure
- Filtergehäuse F-185 – F-2480: Konstruktion der Behälter entspricht der EG-Richtlinie 87/404/EEC für einfache Druckbehälter und ist mit CE-Zeichen versehen / Filter bowls F-185 – F-2480: Vessel construction complies with directive 87/404/EEC, simple pressure vessels, and is marked with the CE symbol

Volumenstrom - Korrekturtabelle / Sizing

Minimaler Betriebsdruck / Minimum working pressure bar															
Korrekturfaktor / Correction factor	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	0,38	0,52	0,63	0,75	0,88	1,00	1,13	1,26	1,38	1,52	1,65	1,76	1,87	2	2,14

Auslegung

Bei Drücken abweichend von 7 bar berechnet sich der max. Volumenstrom wie folgt:

den Korrekturfaktor des entsprechenden minimalen Betriebsdruckes mit dem gewählten Volumenstrom aus o.g. Tabelle multiplizieren.

Based on

To find the maximum flow at pressures other than 7 bar:

multiply the flow (from table above) by the correction factor corresponding to the minimum working pressure of the filter.

Betriebsbedingungen:

Min. Betriebstemperatur: +1°C

Max. Betriebstemperatur: 66°C.

Min. Betriebsdruck mit automatischem Kondensatableiter: 2,0 bar

Working conditions:

Min. Working temperature: +1°C

Max. Working temperature: 66°C

Min. working pressure with automatic condensate drain: 2.0 bar

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4. Funktionsbeschreibung

4. Description of operation

4.3 Serie FC

4.3 Series FC

1-MIKRON-COALESCEING-FILTER

1-MICRON-COALESCEING-FILTER

- Zweistufige Tiefenfiltration bewirkt hervorragende Leistung und höhere Standzeiten des Filterelementes
- Entfernt 100% des Kondensats
- Entfernt Feststoffpartikel bis herunter zu 1 Mikron
- Restölgehalt < 1 ppm w/w
- Automatischer Kondensatableiter
- Differenzdruckanzeige am Filtergehäuse
- max. Flüssigkeitsbelastung: 2g/m³

- Two in-depth filter beds offer superior performance and extended cartridge life
- Removes 100% of liquid water
- Removes solid particles down to 1 micron
- Oil content < 1 ppm w/w
- Automatic condensate drain
- Differential pressure indicator at the filter housing
- max. liquid load: 2g/m³

Anwendungen:

Application:

- Allgemeine Filter für Werkstattluft
- Vorfilter für Hochleistungsfilter
- Nachfilter für Adsorptionstrockner
- Endstellenfiltration bei Einsatz von Nachkühlern oder Trocknern

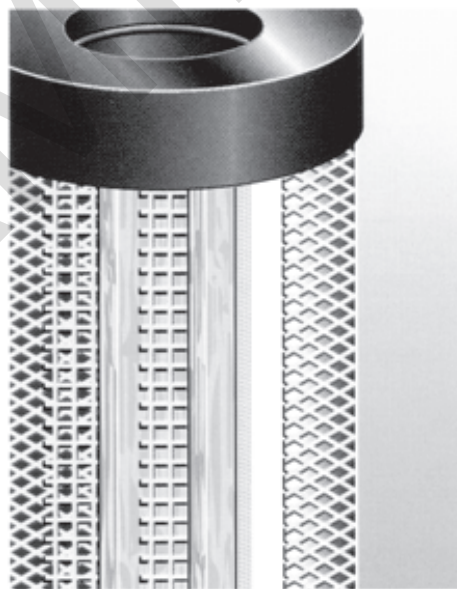
- General filter for shop air
- Prefilter for high efficiency filters
- Afterfilter for pressure-swing desiccant dryers
- Point-of-use filter on systems utilising aftercoolers or dryers

Funktion:

Operation:

Die Luft tritt von oben in das Filterelement FC ein und strömt radial durch den perforierten inneren Stützmantel zur 1. Filtrationsstufe. Diese Stufe besteht aus mehreren Lagen Glasfaser und einer stützenden Glasfasermatte. Größere Feststoffteilchen werden hier zurückgehalten. Die Luft gelangt nun in die 2. Filtrationsstufe, bestehend aus einer mehrlagigen Mischung von imprägnierten Glasfasern und Mikrofibern. In beiden Stufen werden Feststoffpartikel und Flüssigkeiten nach dem Prinzip der Tiefenfiltration sowie des Coalescings ausgefiltert. Die Luft tritt durch den perforierten äußeren Stützmantel aus.

Air enters the inside of the cartridge FC and flows outwardly through two in-depth beds of glass fibres. Larger particles are collected in the first bed while all remaining particles one micron and larger are collected in the second bed. A combination of large void areas and stabilized media allows heavy particulate loading and low pressure drop resulting in a long service life for the cartridge. Throughout both stages, liquid aerosols are captured and coalesced. The coalesced liquids then drain to the bottom of the cartridge for removal.



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4. Funktionsbeschreibung

4. Description of operation

4.5 Serie FE

4.5 Series FE

0,01-MIKRON-COALESZING-FILTER
(bei 0,01 ppm w/w max. Ölgehalt)

0,01-MICRON-COALESZING-FILTER
(at 0,01 ppm w/w max. oil content)

DUO-System Abscheidung

DUO-system separation

1. Stufe: flüssige Bestandteile
2. Stufe: Ölbestandteile

1. Stage: liquid particles
2. Stage: oil particles

- Entfernt mehr als 99,99% der Öl-Aerosole
- Entfernt Feststoffpartikel bis herunter zu 0,01 Mikron
- Restölgehalt < 0,01 ppm w/w
- Automatischer Kondensatableiter
- Differenzdruckanzeige am Filtergehäuse
- max. Flüssigkeitsbelastung: 1g/m³

- Removes more than 99,99% of oil aerosols
- Removes solid particles down to 0,01 microns
- Oil content < 0,01 ppm w/w
- Automatic condensate drain
- Differential pressure indicator at the filter housing
- max. liquid load: 1g/m³

Anwendungen:

Application:

- Vorfilter für Membrantrockner
- Vorfilter für Adsorptionstrockner
- Endstellenfiltration (falls geringfügige Feuchtigkeit vorhanden ist)

- Prefilter for membrane dryers
- Prefilter for pressure-swing desiccant dryers
- Point-of-use filter (may be used if light liquid load is present)

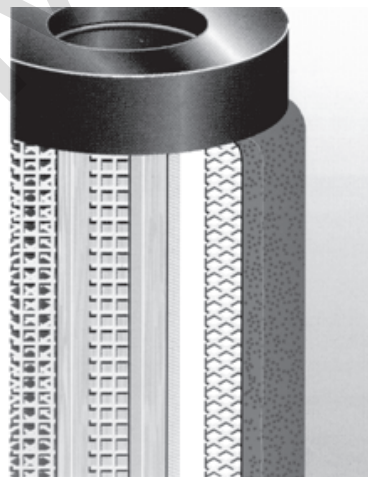
Funktion:

Operation:

Die Luft tritt von oben in das Filterelement FE ein und strömt durch den inneren Stützmantel, radial durch verschiedenartige Lagen Fiberglas. Dann strömt die Luft durch ein weiteres Sieb. In dieser 1. Filtrationsstufe werden größere Partikel entfernt. In der zweiten Filtrationsstufe werden Aerosole und feste Bestandteile durch eine Mehrschicht-Membranwand aus epoxidharz verstärktem Fiberglas gefiltert, daß speziell für feinste Aerosole geeignet ist. Das Filtermedium ist ein Bett aus submikrofeinen Glasfasern und wirkt nach dem Prinzip des Coalescings sowie der Tiefenfiltration. Der innere Schaumstoffmantel gleicht Luftschwankungen und Aerosolkonzentrationen aus und gewährleistet eine gleichmäßige Verteilung. Im äußeren Schaumstoffmantel werden die Öltröpfchen gesammelt, fließen durch Schwerkraft in den unteren Teil des Filters und tropfen dann in den Filterbehälter ab.

Air enters the inside of the cartridge FE and flows through an inner foam sleeve, radially outward through various layers of glass fibers. Then the air flows through another screen. In the first stage filter section the larger solid particles are trapped. In the second stage filter section aerosols and solid particles are trapped using a multi-layered membrane wall made of epoxy resin-reinforced glass fibres which was especially designed for the finest aerosols.

The filter media is a bed of submicronic glass fibers and works to the principle of coalescing and in-depth filtration. The inner foam sleeve compensates air cycling and aerosol concentrations and maintains uniform distribution. The outer foam sleeve collects the coalesced oil droplets which then, due to gravity, travel downstream to the bottom of the sleeve and drain to the bottom of the filter bowl.



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7. Montage

7. Mounting

7.1 Montageort

Das Filter/ -system sollte in einem trockenen, frostfreien Innenraum installiert werden.
Zur Wartung ist genügend Freiraum vorzusehen.

7.1 Location of mounting

The filter/ -system should be installed in a dry and frost-proof room indoors.
Ample free, space should be allowed for the maintenance.

7.2 Montage

Das Filter/ -system ist senkrecht so zu montieren, daß der Druckluft-ein- und austritt waagrecht erfolgt.

7.2 Mounting

Mount the filter/ -system so that inlet and outlet connections are horizontal (filter bowl vertical).

Im Filtergehäuse eingebaute Filterelemente können sich während des Transportes lösen.
Prüfen Sie den richtigen Sitz der Filterelemente vor der Inbetriebnahme.

Cartridges installed in the filter housing may become dislodged during transport.
Make sure that the cartridge is correctly installed before use.

⚠ ACHTUNG!
Achten Sie bei der Montage darauf, daß keine Zug- und Druckkräfte auf die Geräteanschlüsse übertragen werden.

⚠ ATTENTION!
When installing the filter/ -system ensure all connections are even and no pressure is placed on inlet and outlet connections.

⚠ Hinweis!
Bei den Standard-Filtern FB, FC, FE und FF der Größe -185 & -283 ... -2480, den D-Pack-Basic-Filtern FB, FC, FE und FF, sowie den E-Pack-Filtern FA, FB, FC, FE und FF sind die Kondensatableiter beige packt und müssen wie in Kapitel 11. „Maßzeichnung“ angebaut werden.

⚠ Remark!
By the standard-filter FB,FC,FE and FF with the size -185 & -283 ... -2480, by the D-pack-basic-filter FB, FC, FE, FF and by the E-pack-filter FA, FB, FC, FE and FF the condensate drains are attached and must mount as shown in chapter 11. „Dimensional drawing“.

7.3 Anschluß an das Druckluftnetz

Die Druckluftein- und -austrittsleitung sollte für Servicezwecke mit einem Bypass versehen werden.
Die Dimensionierung der Anschlüsse entnehmen Sie bitte dem Kapitel 3. „Technische Daten“.

7.3 Connection to the compressed air system

The compressed air inlet and outlet line should be equipped with a by-pass system for the maintenance.
For the sizing of the connections please see chapter 3. „Technical data“.

⚠ ACHTUNG!
Durchflußrichtung beachten.
Druckluftein- und austritt dürfen nicht vertauscht werden.

⚠ ATTENTION!
Pay attention to the flow direction.
Do not exchange the compressed air inlet and outlet.

7.4 Kondensatableitung

Für die automatische Kondensatableitung ist bei den Filtern (FA, FB, FC, FE, FF) ein Anschluß vorhanden.
Die Dimensionierung des Anschlusses entnehmen Sie bitte Kapitel 5. „Kondensatableiter“.

7.4 Condensate drain

The filters (FA, FB, FC, FE, FF) are equipped with one connection for the automatically condensate drain.
For the sizing of the connection please see chapter 5. „Condensate discharger“.

⚠ Achten Sie bei der Montage der Kondensatableitung darauf, daß das abgeschiedene Kondensat ungehindert abfließen kann.

⚠ When fitting the drains please see to it, that the condensate separated is drained off into a system that does not create a back pressure.

⚠ HINWEIS!
Bei der Entsorgung des Kondensats ist der Schmutzanteil zu berücksichtigen.
Beachten Sie die jeweils geltenden gesetzlichen Vorschriften.

⚠ Instruction!
When disposing of the condensate the amount of pollution has to be taken into consideration. Please act according to the prevailing regulations of law.

Bei den Filtern FD, FG entfällt der Kondensatableitungsanschluß.

Condensate drain does not exist in filters FD, FG.


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8. Inbetriebnahme, Betrieb

8. Start-up, operation

8.1 Bereitschaft zur Inbetriebnahme





8.1 Preconditions for starting the dryer





-  **Druckluftfilter/ -systeme sind bereit zur Inbetriebnahme, wenn:**
- Der auf dem Typenschild angegebene Druck dem maximalen Betriebsdruck entspricht.
 - Sie entsprechend Kapitel 7. „Montage“ installiert wurden.
 - Alle Zu- und Ableitungen sachgerecht angeschlossen sind.
 - Die erforderlichen Energien (Druckluft) verfügbar sind.
 - Absperrorgane (z.B. Ventil, Kugelhahn) in der Druckluftein- und austrittsleitung geschlossen sind.
 - Kondensat durch die Kondensatableitung ungehindert abfließen kann.
 - Der elektrisch gesteuerte Kondensatableiter an das elektrische Spannungsversorgungsnetz mit der richtigen Betriebsspannung angeschlossen ist. (Nur bei elektrisch gesteuerten Kondensatableitern)
 - Das Filter/ -system mit den richtigen Filterelementen ausgerüstet ist.

-  **The filter/ -system is ready for starting when:**
- Check unit serial number tag to verify working pressure.
 - They has been installed in accordance with section 7. „Mounting“.
 - All inlet and outlet lines have been correctly connected.
 - The required forms of energy (compressed-air) are available.
 - The shut-off devices (e.g. ball valve) in the compressed-air inlet and outlet lines are closed.
 - The condensate is able to flow through the condensate discharger without obstruction.
 - The electrical condensate drain has been connected to the electric power supply system with the correct operating voltage (only electrical condensate drains).
 - The filter/ -system is equipped with the right cartridges.

8.2 Inbetriebnahme, Betrieb

8.2 Start up, operation

-  **Vor der Inbetriebnahme ist sicherzustellen, daß alle Bedingungen des Abschnittes 8.1 „Bereitschaft zur Inbetriebnahme“ erfüllt sind.**
-  Setzen Sie das Filter/ -system durch langsames Öffnen der Drucklufteintritts- und austrittsleitung unter Druck.
-  Schließen Sie das Absperrorgan im Bypass (falls vorhanden).
-  **Das Filter/ -system ist nun in BETRIEB.**

-  **Before starting the dryer, ensure that all the requirements specified in section 8.1 „Preconditions for starting the dryer“ have been fulfilled.**
-  Place filter/ -system under pressure gradually by slowly opening the compressed air inlet/outlet.
-  Close the shut-off device in the bypass (if installed).
-  **The filter/ -system is now OPERATIVE.**

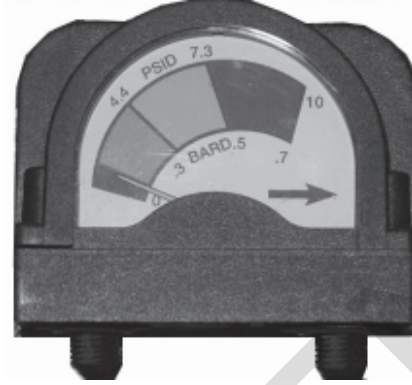
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D-Name	erstellt	Name	gepr.	Name	ersetzt f.	ersetzt d.

8. Inbetriebnahme, Betrieb

8. Start-up, operation

8.3 Differenzdruckanzeige-Standard und D-Pack (OPTION)

8.3 Differential pressure indicator-standard and D-Pack (OPTION)



Die Differenzdruckanzeige informiert als Störanzeige über eine atypische Verschmutzung.

The differential pressure indicator indicates atypical contamination.

⚠ **Unabhängig von der Differenzdruckanzeige müssen die Filterelemente gemäß der Wartungsintervalle gewechselt werden. (Siehe Kapitel 9)**

⚠ **We recommend installing a new filter cartridge according to the maintenance periods. (See chapter 9)**

⚠ **Das Filter FG benötigt keine Differenzdruckanzeige.**

⚠ **The FG filter does not require a differential pressure gauge.**

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**9. Wartung
Austausch der Filterelemente**

9. Servicing, filter cartridge replacement

9.1 Standzeit der Filterelemente

9.1 Serviceable life of cartridge

Die Standzeit der Filterelemente ist abhängig von der Beladung. Mit steigender Beladung der Elemente erhöht sich der Differenzdruck über den Filter.
Die Filterelemente müssen gemäß unten stehender Tabelle gewechselt werden.

The cartridge's serviceable life depends upon the degree of contamination. As the cartridge becomes more contaminated, the differential pressure above the filter increases.
The filterelements must be changed according to the table below.

9.2 Austausch der Filterelemente

9.2 Replacing the cartridge

Filtergehäuse -6 bis -221

Filter housing -6 to -221

Anzahl der Filterelemente siehe Kapitel 4. „Technische Daten“.

Number of cartridges see chapter 4. „Technical data“.

⚠️ WARNUNG!

⚠️ CAUTION!

- Verwenden Sie keine Werkzeuge! (Filtergehäuse -6 bis -48)
- Öffnen und Schließen Sie das Filter nicht mit Gewalt.
- Das (die) Filter beinhaltet(n) unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.

- Do not use any tools (filter housings -6 to -48)
- Do not force the filter open or closed.
- The filter(s) contain(s) systems under high pressure.
All pressure must be let off before servicing.

Absperrvorrichtung im Druckluftein- und -austritt schließen.

Close the shut-off device in the compressed air inlet/outlet.

Kondensatableitungsschlauch an (1) lösen.
(Nur bei FB, FC, FE, FF).

Loosen condensate drain hose at (1) (only on FB, FC, FE, FF models).

Rändelschraube (1) langsam im Uhrzeigersinn lösen.
Das Filtergehäuse wird entlüftet.

Slowly turn the knurled screw (1) clockwise. This will release the air from the housing.

Wartungsintervalle / Maintenance-intervals

Wartungsteil Part of maintenance	Type	Anwendung Application	Wartungs-Intervall Maintenance-interval
Filter-Elemente / filter cartridges	FB, FC	Vorfilter Pre-filter	6.000 Bh, max. 1 Jahr / 6.000 Bh, max. 1 year
	FE, FF	Microfilter	3.000 Bh, max. 1 Jahr/ 3.000 Bh, max. 1 year
	FEG	Filterkombination Filter combination	3.000 Bh, max. 1 Jahr (Type FE) 3.000 Bh, max. 1 year Type (FE)
	FFG		1.000 Bh, max. 1 Jahr (Type FG) 1.000 Bh, max. 1 year Type (FG)
	FD	Nachfilter After-filter	6.000 Bh, max. 1 Jahr/ 6.000 Bh, max. 1 year
	FG	Aktivkohlefilter Act.carbon filter	1.000 Bh
Kondensatableiter / condensate drain	Service-unit	Vorfilter Pre-filter	6.000 Bh
	Service-unit	Microfilter	6.000 Bh
	Service-unit	Filterkombination Filter combination	6.000 Bh

Bh = Kompressor-Betriebsstunden / Working hours




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**9. Wartung
Austausch der Filterelemente**


 Filtergehäuse entfernen.

- **Filtergehäuse -6 bis -48 (Bajonett-Verschluss)**
 - * Das Filtergehäuse nach oben, gegen den Filterkopf drücken.
 - * Dann das Filtergehäuse im Uhrzeigersinn langsam gegen den Anschlag drehen (etwa 1/8 Drehung) und nach unten abziehen.
- **Filtergehäuse -71 bis -221 (Gewinde-Verschluss)**
 - * Schrauben Sie das Filtergehäuse gegen den Uhrzeigersinn (per Hand oder mit Hilfe eines Filterschlüssels) auf.

 Filterelement gemäß unten stehender Skizze abziehen, bzw. wechseln.

Hinweis: Die Schaumstoffummantelung der Filterelemente Serie FE, FF und FG dürfen nicht mit den Fingern angefaßt werden.

 Filtergehäuse in umgekehrter Reihenfolge zusammenbauen.

 Filter durch langsames Öffnen der Absperrvorrichtung wieder mit Druck beaufschlagen.




Filtergehäuse -185 bis -2480

Anzahl der Filterelemente siehe Kapitel 3. „Technische Daten“.


 **WARNUNG!**

- Das (die) Filter beinhaltet(n) unter erhöhtem Druck stehende Systeme.
Vor Servicearbeiten sind sie drucklos zu machen.


9. Servicing, filter cartridge replacement

 Remove housing.

- **Housing -6 to -48 (bayonet-style head)**
 - * Push housing upwards against the filter head.
 - * Then slowly turn the housing clockwise to the stop (about 1/8 of a turn) and remove by pulling downwards.
- **Housing -71 to -221 (threaded head)**
 - * Screw off the housing counter-clockwise (by hand or using a filter wrench).

 Remove and replace cartridge as shown below.

Please note: Do not touch the foam sleeves of the cartridges from the FE, FF and FG series with your fingers.

 Re-assemble the housing in the reverse order.

 Place filter under pressure again by slowly opening the shut-off device.



Housing -185 to -2480










Number of cartridges see chapter 3. „Technical data“.

 **CAUTION!**










- The filter(s) contain(s) systems under high pressure.
Alle pressure must be let off before servicing

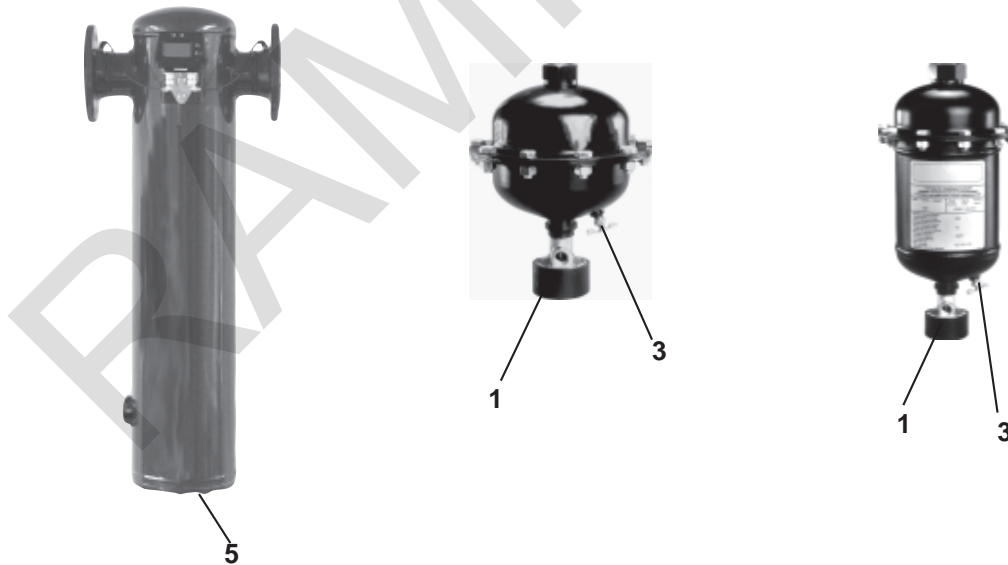
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**9. Wartung
Austausch der Filterelemente**

-  Absperrvorrichtung im Druckluftein- und -austritt schließen.
 -  Kondensatableitungsschlauch an (1) lösen. (Nur bei FB, FC, FE, FF).
 -  Um das Filtergehäuse zu entlüften müssen Sie beim:
- Kondensatableiter Nr. 30505 und Nr. 30506 die Entlüftungsschraube (3) entgegen dem Uhrzeigersinn lösen.
- FG den Kugelhahn (5) öffnen.
 -  Schrauben der Flanschverbindung am Boden des Filtergehäuses vorsichtig lösen, da evtl. noch ein geringer Restdruck im System vorhanden ist.
 -  Schrauben bis auf eine entfernen und Flansch zur Seite schwenken.
 -  Filterelemente entgegen dem Uhrzeigersinn herausschrauben.
 -  Neue Filterelemente ohne Werkzeug „fingerfest“ einschrauben.
- Hinweis:** Die Schaumstoffummantelung der Filterelemente Serie FE, FF, FG dürfen nicht mit den Fingern angefaßt werden.
-  Filtergehäuse in umgekehrter Reihenfolge schließen.
 -  Filter durch langsames Öffnen der Absperrvorrichtungen wieder mit Druck beaufschlagen.

9. Servicing, filter cartridge replacement

-  Close shut-off device in compressed air inlet/outlet.
 -  Loosen condensate drain hose at (1) (only on FB, FC, FE, FF models).
 -  Follow these steps to release the air from the housing:
- for condensate drain no. 30505 and no. 30506, loosen the bleed screw (3) in counter-clockwise direction.
- on FG models, open the ball valve (5).
 -  Gently loosen the screws at the bottom flange of the housing. Caution is necessary as the system may still be under slight residual pressure.
 -  Remove all screws except one and swing flange to the side.
 -  Screw out cartridge counter-clockwise.
 -  Screw in new cartridge by hand until „handtight“. Do not use a wrench.
- Please note:** Do not touch the foam sleeves of the cartridges from the FE, FF, FG series with your fingers.
-  Close housing in reverse order.
 -  Place filter under pressure again by slowly opening the shut-off device.



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**9. Wartung
Austausch der Filterelemente**

**9. Servicing, filter cartridge
replacement**

9.3 Austausch der

**Schwimmerableiter /
ECO-DRAIN Service-unit /
ECO-DRAIN Membransätze**

9.3 Changing of

**Float drain /
ECO-DRAIN Service-unit /
ECO-DRAIN membrane set**

Die Kondensatableiter / Wartungspakete sind gemäß unten aufgeführter Tabelle regelmäßig zu wechseln.

The condensate drains / service packages must be changed according to the table below.

Wartungsteil Part of maintenance	Wartungs-Intervall Maintenance-interval
Schwimmer-Kondensatableiter/ Float drain	3.000 Bh
Service-Unit (ECO DRAIN 30/31)	6.000 Bh
ECO DRAIN Verschleißteilsatz (ECO DRAIN 13/14) ECO DRAIN wearing part set (ECO DRAIN 13/14)	6.000 Bh

Nähere Informationen finden Sie auch im Anhang ECO DRAIN.

For more details please see annexe ECO DRAIN.

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10. Garantiebedingungen

10. Garantie conditions

10.1 Allgemeines

Die Garantie erstreckt sich, im Rahmen unserer allgemeinen Lieferbedingungen, auf das gelieferte Filter/-system.

10.1 General

The guarantee covers the delivered device with regard to our general terms of delivery.

10.2 Garantieausschluß

Garantieansprüche bestehen nicht,

- wenn das Filter/ -system durch Einfluß höherer Gewalt oder durch Umwelteinflüsse beschädigt oder zerstört wird.
- bei Schäden, die durch unsachgemäße Behandlung, insbesondere Nichtbeachtung der Betriebs- und Wartungsanleitung aufgetreten sind (regelmäßige Kontrolle des Kondensatableiters / regelmäßiger Wechsel der Filterelemente).
- falls das Filter/ -system nicht seinen Bestimmungen entsprechend eingesetzt war (siehe Kapitel 3. „Technische Daten“).
- falls das Filter/ -system durch nicht hierfür autorisierte Werkstätten oder andere Personen unsachgemäß geöffnet oder repariert wurde und/oder mechanische Beschädigungen irgendwelcher Art aufweist.

10.2 Exclusion from guarantee coverage

No guarantee claims shall be assertible,

- if the filter/ -system is damaged or destroyed due to force majeure or environmental effects.
- for damage resulting from incorrect handling, in particular failure to comply with the operating and maintenance instructions (regular inspection of the condensate discharger, regular change of the filter cartridges).
- if the filter/ -system has not been used in accordance with its specifications (see section 3. „Technical data“).
- if the filter/ -system has been opened or repaired by workshops or other persons unauthorised for this purpose and/or reveals any type of mechanical damage.

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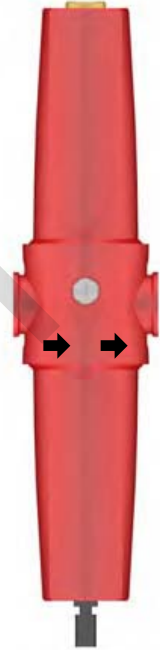
13.7 Option dc

Operating instructions for compressed air filter (fresh air filter)

RAMIRENT



domnick hunter



AC010 - AC030

OIL-X
EVOLUTION

Original Language (EN) **OIL VAPOUR & ODOUR REMOVAL FILTERS**

(NL) OLIEDAMP & GEUR VERWIJDERINGSFILTERS	(DE) FILTER ZUM ENTFERNEN VON ÖLNEBEL UND GERÜCHEN
(FR) FILTRES D'ÉLIMINATION DES ODEURS ET DES VAPEURS D'HUILE	(FI) ÖLJYHÖYRYN JA HAJUN POISTOSUODATTIMET
(SV) FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	(NO) OLJEDAMP- OG OLJELUKTFJERNINGSFILTRE
(DA) FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	(EL) ΦΙΛΤΡΑ ΑΦΑΙΡΕΣΗΣ ΑΤΜΩΝ & ΟΣΜΩΝ ΛΑΔΙΟΥ
(ES) FILTROS DE ELIMINACIÓN DE OLORES Y VAPORES DE ACEITE	(PT) VAPOR DO ÓLEO E FILTROS DE REMOÇÃO DOS CHEIROS
(IT) FILTRI PER L'ELIMINAZIONE DEGLI ODORI E DEI VAPORI D'OLIO	(PL) FILTRY DO USUWANIA OPARÓW I ZAPACHU OLEJU
(SK) FILTRE NA ODSTRAŇOVANIE OLEJOVÝCH VÝPAROV A ZÁPACHU	(CS) OLEJOVÉ A PROTIPACHOVÉ FILTRY
(ET) ÕLISUDU JA -HAISU EEMALDUSFILTRID	(HU) OLAJGŐZ- ÉS SZAGELTÁVOLÍTÓ SZŰRŐK
(LV) EĻĻAS TVAIKU UN AROMĀTA NOVĒRŠANAS FILTRI	(LT) ALYVOS GARŲ IR KVAPO ŠALINIMO FILTRAI
(RU) ФИЛЬТРЫ ДЛЯ УСТРАНЕНИЯ ЗАПАХА И ПАРОВ МАСЛА	(SL) FILTRI ZA ODSTRANJEVANJE OLJNIH HLAPOV IN VONJAV
(TR) YAĞ BUHARI VE KOKUSU GİDERİCİ FİLTRELER	(MT) FILTRI LI JNEHHU L-FWAR TAŻ-ŻJUT U L-IRWEJJAĦ

RAMIRENT

AC010 - AC030



Warning

- Highlights actions or procedures, which if not performed correctly, may lead to personal injury or death.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, lichamelijk letsel of de dood kunnen veroorzaken.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Verletzungen und tödlichen Unfällen führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent entraîner des dommages corporels ou la mort.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat aiheuttaa henkilövahingon tai kuoleman.
- Anger åtgärder och metoder som kan orsaka personskador eller dödsfall om de inte utförs korrekt.
- Fremhæver handlinger eller prosedyrer som kan føre til personskade eller dødsfall hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre personskade eller dødsfald, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να οδηγήσουν σε τραυματισμό προσωπικού ή σε θάνατο
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar daños personales o la muerte.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão provocar danos pessoais ou morte.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di infortuni o morte.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą prowadzić do obrażeń ciała lub śmierci.
- Zvýrazňuje činnosti alebo postupy, ktoré v prípade nesprávneho vykonania viesť zraneniu alebo usmrteniu.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést ke zranění nebo usmrcení osob.
- Tóstab esile toimingud või protseduurid, mis väära teostamise korral võivad põhjustada kehavigastusi või surma.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása súlyos vagy végzetes személyi sérülést okozhat.
- Uzsvēr darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var izraisīt ievainojumus vai nāvi.
- Zymy veiksmus ar procedūras, kuriuos atlikus neteisingai, galima susižeisti ar mirtį.
- Указывает на действия, ненадлежащее выполнение которых может привести к нанесению вреда здоровью или смерти
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo človeka ali povzročijo smrt.
- Doğru bir şekilde yerine getirilmediği takdirde bu ürüne hasar verebilecek işlem ve süreçleri vurgular.
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, jista' jkun hemm korrimnt jew mewt



Caution

- Highlights actions or procedures, which if not performed correctly, may lead to damage to this product.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, schade kunnen berokkenen aan dit product.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Schäden am Gerät führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent endommager ce produit.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat vaurioittaa tätä laitetta.
- Anger åtgärder och metoder som kan orsaka skador på den här produkten om de inte utförs korrekt.
- Fremhæver handlinger eller prosedyrer som kan føre til skade på produktet hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre beskadigelse af dette produkt, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να προκαλέσουν ζημιά στο προϊόν αυτό
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar el deterioro del producto.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão danificar este produto.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di danneggiare il prodotto.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą powodować uszkodzenie produktu.
- Zvýrazňuje činnosti alebo postupy, ktoré v prípade nesprávneho vykonania môžu viesť k poškodeniu tohto výrobku.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést k poškození tohoto výrobku.
- Tóstab esile toimingud või protseduurid, mis väära teostamise korral võivad käesolevat toodet kahjustada.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása a termék károsodásához vezethet.
- Uzsvēr darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var sabojāt šo izstrādājumu.
- Zymy veiksmus ar procedūras, kuriuos atlikus neteisingai, galima sugadinti šį gaminį.
- Указывает на действия, ненадлежащее выполнение которых может привести к повреждению данного изделия
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo izdelek.
- Doğru bir şekilde yerine getirilmediği takdirde yaralanma ya da ölüme yol açabilecek işlem ve süreçleri vurgular
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, tista' ssir hsara lil dan il prodott












- Suitable gloves must be worn.
- Geeignete Schutzhandschuhe tragen.
- Käytettävä asianmukaisia käsineitä.
- Bruk egnete hansker.
- Απαιτείται να φοράτε κατάλληλα γάντια
- Devem ser utilizadas luvas adequadas.
- Należy zakładać odpowiednie rękawice
- Kohustuslik kanda sobivaid kaitsekindaid
- Jävalkä piemēroti cimdi.
- Работы должны проводиться в соответствующих перчатках
- Uyğun eldiven giymelidir

- Altijd geschikte handschoenen dragen.
- Le port de gants adaptés est obligatoire.
- Använd lämpliga handskar.
- Der skal anvendes egnete handsker.
- Se deben llevar puestos guantes apropiados.
- Indossare guanti di protezione.
- Je nutné použít vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvēti tinkamas pirštines.
- Uporabiti je treba ustrezne rokavice.
- Ghandhom jintlibsu ingwanti adatti



- Highlights the requirements for disposing of used parts and waste.
- Benadrukt de vereisten voor het weggoeien van gebruikte onderdelen en afval.
- Weist auf die Anforderungen zur Entsorgung gebrauchter Teile und Abfall hin.
- Met en relief les consignes de mise au rebut des pièces usagées et des déchets.
- Osoittaa käytettyjen osien ja jätteen hävittämistä koskevia vaatimuksia.
- Anger de krav som ställs på bortskaflande av gamla delar och avfall.
- Fremhæver kravene for avhending av brukte deler og avfall.
- Fremhæver kravene til bortskaflelse af udtjente dele og affald.
- Επισημαίνει τις απαιτήσεις απόρριψης χρησιμοποιημένων εξαρτημάτων και των απορριμμάτων
- Destaca los requisitos para desechar las piezas usadas y los residuos.
- Realça os requisitos para eliminar as peças utilizadas e os desperdícios.
- Segnala i criteri per lo smaltimento di componenti usati e rifiuti.
- Wskazuje wymagania dotyczące usuwania zużytych części i odpadów.
- Zvýrazňuje požiadavky pre zneškodňovanie použitých dielov a odpadu.
- Upozornění na požadavky týkající se likvidace použitých dílů a odpadu.
- Tóstab esile kasutatud osade ja jääkide utiliseerimisele esitatavad nõuded
- A használt alkatrészek és a hulladék megfelelő módon történő elhelyezésére hívja fel a figyelmet.
- Uzsvēr prasības tam, kā atbrīvoties no lietotajām detaļām un atkritumiem.
- Zymy panaudotų dalių ir atliekų išmetimo reikalavimus.
- Указывает на требования по уничтожению использованных деталей и отходов
- Označuje zahteve za odlaganje rabljenih delov in odpadkov.
- Kullanihmış parçaların ve atıkların atılmasına ilişkin gereklilikleri vurgular
- Tissottolinea l-kundizzjonijiet biex wiehed jarmi l-partijiet uzati u l-iskart

AC010 - AC030

	<ul style="list-style-type: none"> • Pressure. • Paine. • Πίεση • Ciśnienie • Nyomás alatt. • Tlak 	<ul style="list-style-type: none"> • Druk • Trykk • Presión. • Tlak. • Spiediensi. • Basınc 	<ul style="list-style-type: none"> • Druck. • Trykk • Pressão. • Tlak. • Sléigis. • Pressjoni 	<ul style="list-style-type: none"> • Pression. • Tryk • Pressione. • Surve. • Давление
	<ul style="list-style-type: none"> • Release Pressure. • Evacuation de pression. • Avlast trykk • Despresurizar. • Ciśnienie spustowe • Surve väljalase • Ísleiskite slégi. • Basıncı Kaldırın 	<ul style="list-style-type: none"> • Druk aflaten. • Vapauta paine. • Aflast tryk • Liberta Pressão. • Uvolnitie tlak. • Engedje ki a nyomást. • Стравить давление • Nehhi l-pressjoni 	<ul style="list-style-type: none"> • Druck ablassen. • Tryckutsläpp. • Εκτόνωση πίεσης • Scaricare la pressione. • Uvolnění tlaku. • Pazeminiet spiedienu. • Sprostitev tlaka. 	
	<ul style="list-style-type: none"> • Replace every year • Remplacer tous les ans. • Skift ut hvert år • Sustituir anualmente • Należy wymieniać raz w roku • Asendage igal aastal • Keiskite kartā per metus • Her yıl değiştirin 	<ul style="list-style-type: none"> • Elk jaar vervangen • Vaihda vuosittain. • Udskift en gang om året • Substituir todos os anos • Každý rok vymieňajte • Evente cserélje • Заменять каждый год. • İbdel kull sena 	<ul style="list-style-type: none"> • Jährlich austauschen • Byt varje år • Αντικατάσταση κάθε χρόνο • Sostituire ogni anno • Nutná výměna každý rok. • Nomainiet reizi gadā • Zamenjajte vsako leto. 	
	<ul style="list-style-type: none"> • Filter housing / Model • Logement du filtre/modèle. • Filterhus/-modell • Caja de filtro/modelo. • Obudowa filtra / model. • Filtri korpus/mudel • Filtr korpusas / modelis • Filtre muhafazası / Model 	<ul style="list-style-type: none"> • Filterhuis / Model • Suodatinkotelo/-malli • Filterhus/modell • Caixa / Modelo do filtro • Kryt filtra / Model • Szűrőház / típus • Корпус фильтра / модель • Kontenitur tal-filtru - Mudell 	<ul style="list-style-type: none"> • Filtergehäuse / Modell • Filterhus/modell • Υποδοχή/μοντέλο φίλτρου • Corpo del filtro / Modello • Kryt filtra / Model • Filtra korpus / modelis • Ohišje filtra / Model 	
	<ul style="list-style-type: none"> • High efficiency filter element • Hochleistungsfilterelement • Tehokas suodatinelementti • Høyeffektivt filterelement • Φίλτρο υψηλής απόδοσης • Elemento do filtro de elevado rendimento • Wysokowydajny wkład filtra • Vysoce účinný filtrační prvek • Nagy hatékonyságú szűrőelem • Labai efektyvus filtravimo elementas • Visoko učinkovit filtrirni element • Element tal-filtru b'effiċjenza kbira 	<ul style="list-style-type: none"> • Zeer efficiënt filterelement • Cartouche filtrante haute efficacité. • Høgeffektivt filterelement • Høgeffektivt filterelement • Elemento filtrante de gran eficiencia. • Elemento filtrante ad alta efficienza • Vysoko účinný filtračný článok • Kőrgtőotlik filterelement • Augstas produktivitātes filtra elements • Высокоэффективный фильтрующий элемент • Yüksek etkinlikli filtre ögesi 		
	<ul style="list-style-type: none"> • Adsorption filter cartridge - Granular carbon • Adsorptionsfiltereinsatz - Granulatkohle • Adsorptiosuodatinelementti - rakeinen hiili • Adsorpsjonsfilterpatron - Karbon i kornform • Φυσιγγίο φίλτρου προσρόφησης - Κοκκώδης άνθρακας • Cartucho do filtro de absorção - Carvão granular • Adsorpcyjny wkład filtrujący z węgla ziamistego • Adsorpcni filtračni prvek - granulovaný uhlik • Adsorpciós szűrőbetét - granulált szén • Adsorbicinio filtro kasetė - anglies granulės 	<ul style="list-style-type: none"> • Adsorptiefilter cartridge - korrelvormige actieve kool • Cartouche filtrante d'adsorption - Charbon en granulés. • Adsorptionsfilterkassett - Kornigt kol • Adsorptionsfilterkassett - Kornigt kol • Cartucho filtrante de adsorción, granulos de carbón. • Filtro a cartuccia ad adsorbimento - granulati di carbone • Adsorpcná filtračná kazeta - Granulovaný uhlik • Adsorpcionfiltri kassett - teraline süsi • Absorbėjoša filtra kasetne - graudains ogleklis • Адсорбционный фильтрующий элемент - гранулированный уголь • Adsorpsiyon filtresi kartuşu - Taneli karbon 		
	<ul style="list-style-type: none"> • Kaseta adsorpcyjna filtra - zrnasti ogjik • Kaxxa assorbenti tal-filtru - Karbonju mrammel 			
	<ul style="list-style-type: none"> • Adsorption filter element - Wrapped carbon cloth • Adsorptie filterelement - gewikkelde koolstofdoek • Adsorptionsfilterelement - eingewickeltes Filtertuch aus Kohlenstoff • Cartouche filtrante d'adsorption - Charbon entouré de tissu. • Adsorptiosuodatinelementti - käärittö hiilikangas • Adsorptionsfilterelement - Veckad kolfiberduk • Adsorpsjonsfilterelement - Innpakket karbonstoff • Adsorptionsfilterelement - Veckad kolfiberduk • Φίλτρο προσρόφησης - Τυλιγμένο ύφασμα άνθρακα • Elemento filtrante de adsorción, capas de tejido de carbón. • Elemento do filtro de absorção - Pano revestido de carvão • Elemento filtrante ad adsorbimento - tessuto al carbone con struttura ad avvolgimento • Wkład adsorpcyjny filtra ze zwijanej tkaniny z włókna węglowego • Adsorpcni filtrační článok - Zabalená uhliková tkanina • Adsorpcni filtračni prvek - zabalená uhliková tkanina • Adsorpcionfiltri element - isoleeritud süsinikriie • Adsorpciós szűrőelem - göngyölt szénszövet • Absorbėjošs filtra elements - saīta oglekļa drāniņa • Adsorbicinis filtravimo elementas - susuktas anglies audinys • Адсорбционный фильтрующий элемент - ткань из углеродистого волокна • Adsorpcijski filtrirni element - navita ogjikova krpa • Adsorpsiyon filtresi ögesi - Sarılı karbon kumaş • Element tal-filtru li jassorbixxi - Xoqqa tal-karbonju mgezwra 			
	<ul style="list-style-type: none"> • Ensure correct tool is used • Zorg dat het juiste gereedschap wordt gebruik • Vérifier que les outils adéquats sont utilisés. • Se till att rätt verktyg används. • Sørg for at benytte korrekt værktøj • Asegúrese de que se utiliza la herramienta adecuada • Assicurarsi di utilizzare l'utensile corretto • Uistite sa, že používate správny nástroj • Tagage öge tööriista kasutamine • Izmantojiet tikai atbilstošus darbarīkus • Убедитесь, что используется правильный инструмент • Doğru alet kullanilmasini sağlayın 		<ul style="list-style-type: none"> • Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käyttävää oikeaa työkalua • Pass på at korrekt værktøj bruges • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο • Certifique-se de que é utilizada a ferramenta correcta • Należy używać odpowiedniego narzędzia. • Zkontrolujte použití správného nástroje • Mindig a célnak megfelelő szerszámot használja • Isitinkite, kad naudojamas reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun zgur li tintuza l-ghodda t-tajba 	

AC010 - AC030

**Warning!**

This product must be installed and maintained by competent and authorised personnel only, under strict observance of these operating instructions, any relevant standards and legal requirements where appropriate.

Retain this user guide for future reference

Waarschuwing!

Dit product mag alleen geïnstalleerd en onderhouden worden door deskundig en bevoegd personeel met strikte inachtneming van deze bedieningsinstructies en de betreffende normen en wettelijke vereisten indien van toepassing.

Bewaar deze handleiding als naslag.

Warnung!

Das Produkt darf ausschließlich von autorisiertem Fachpersonal unter strikter Befolgung dieser Betriebsanleitung, ggf. relevanter Normen sowie gesetzlicher Vorschriften installiert und gewartet werden.

Bewahren Sie die Bedienungsanleitung zu Referenzzwecken auf.

Attention !

Ce produit doit être installé et entretenu exclusivement par un personnel compétent et autorisé, dans le respect le plus strict de ce mode d'emploi et des normes applicables et exigences légales éventuelles.

Conserver ce guide de l'utilisateur à titre de référence future

Varoitus!

Tämän tuotteen saa asentaa ja huoltaa vain pätevä ja valtuutettu henkilöstö, noudattaen tarkasti näitä käyttöohjeita, kaikkia asiaankuuluvia normeja ja tarpeen vaatiessa lain asettamia vaatimuksia.

Säilytä tämä käyttöohje tulevaa tarvetta varten.

Varning!

Produkten får endast installeras och underhållas av utbildad och behörig personal, som följer denna bruksanvisning och eventuella tillämpliga normer och lagföreskrifter noga i förekommande fall.

Behåll denna användarhandbok som referens

Advarsel!

Dette produktet må bare installeres og vedlikeholdes av kompetent og autorisert personale, i streng overholdelse av disse betjeningsanvisningene, alle relevante standarder og rettslige krav der det passer.

Ta vare på denne brukerveiledningen for senere bruk

Advarsel!

Dette produkt må kun installeres og vedlikeholdes af autoriseret personale, under nøje overholdelse af disse driftsinstruktioner, relevante standarder og lovgivningsmæssige krav, hvor dette er aktuelt.

Gem denne vejledning til senere reference.

Προειδοποίηση!

Η εγκατάσταση και συντήρηση αυτού του προϊόντος πρέπει να γίνεται μόνο από κατάλληλα εκπαιδευμένο και εξουσιοδοτημένο προσωπικό, με αυστηρή τήρηση των οδηγιών χειρισμού, των εφαρμοζόμενων προτύπων και των νομικών απαιτήσεων όπου απαιτείται.

Φυλάξτε αυτό το εγχειρίδιο χρήσης για μελλοντική αναφορά

Advertencia

La instalación y mantenimiento de este producto debe ser efectuada únicamente por personal competente y autorizado, respetándose de forma estricta estas instrucciones de funcionamiento, así como cualquier norma y requerimiento legal que sean aplicables.

Conserve esta guía del usuario para poder consultarla en el futuro.

Advertência!

A instalação e a manutenção deste produto só deve ser realizada por pessoal autorizado e competente, sob estrita observância destas instruções de utilização e de quaisquer normas e requisitos legais relevantes, quando adequado.

Conserve este guia do utilizador para referência futura

AC010 - AC030

(MT)

Rakkomandazzjonijiet għall-Installazzjoni

Nirakkomandaw li l-arja kumpressata tiġi trattata qabel ma tidhol fis-sistema ta' distribuzzjoni kif ukoll fil-punti ċ l-applikazzjonijiet kritiċi ta' l-użu.

L-installazzjoni ta' taghmir li jnixxef l-arja kumpressata fuq sistema li kienet imxarriba jista' jirriżulta f'aktar taghbija ta' hmieg għall-filtri li jintużaw f'punt wiehed, għall-perjodu sakemm is-sistema ta' distribuzzjoni tinxef. L-elementi tal-filtri jista' jkollhom bżonn li jinbidlu aktar spiss matul dan il-perjodu.

Għal installazzjonijiet fejn jintużaw kumpressuri minghajr żejt, xorta jkun hemm prezenti ajrusols u partijiet ta' l-ilma, għalhekk xorta għandhom jintużaw gradi bi skop ġenerali u b'effiċjenza kbira.

Filtru għal skopijiet ġenerali għandu dejjem jiġi installat biex jiproteġi l-filtru ta' effiċjenza kbira mill-volum kbir ta' ajrusols likwidi u partijiet solidi.

Installa taghmir ta' purifikazzjoni fl-aktar temperatura baxxa possibbli imma b'mod li ma jkunx hemm iffrizar, preferibbilment aktar 'l isfel mill-aftercoolers u mir-riċevituri ta' l-arja.

Taghmir tal-purifikazzjoni fil-punt ta' l-użu għandu jiġi installat kemm jista' jkun qrib tal-post fejn għandu japplika.

It-taghmir ta' purifikazzjoni m'għandux jiġi installat aktar 'l isfel mill-valvs li jifthu malajr u għandu jkun protett minn possibbiltà ta' fluss b'lura jew kundizzjonijiet oħra stressanti.

Naddaf il-pajps kollha li jwasslu għat-taghmir ta' purifikazzjoni qabel tinstalla u l-pajps kollha wara li tinstalla t-taghmir ta' purifikazzjoni u qabel ma tqabbad ma' l-applikazzjoni finali.

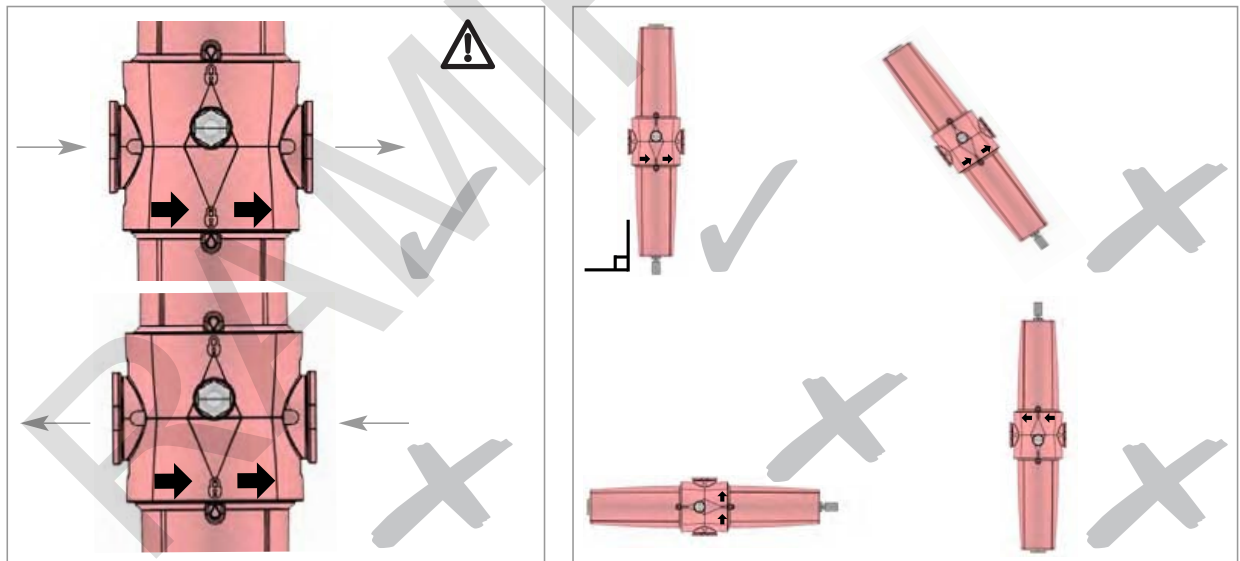
Jekk tiffittja linji ta' by-pass madwar it-taghmir ta' purifikazzjoni, kun żgur li hemm biżżejjed filtrazzjoni f'fittjata mal-linja tal-by-pass biex ma thallix li jkun hemm kontaminazzjoni tas-sistema aktar 'l isfel.

Ipprovdni faċilità biex tiddrejnja l-likwidi li jingabru mit-taghmir tal-purifikazzjoni. Il-likwidi li jingabru għandhom jiġu trattati u mormija b'mod responsabbli.

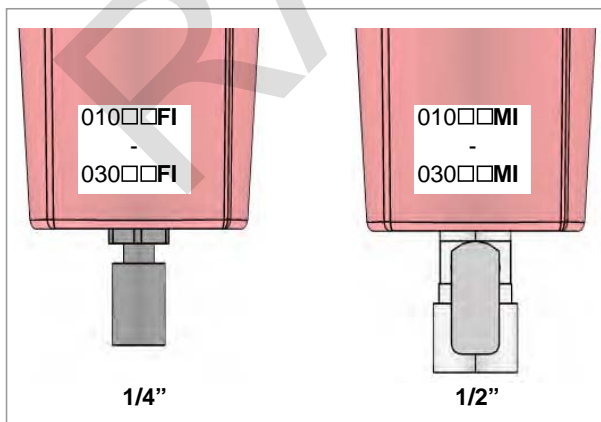
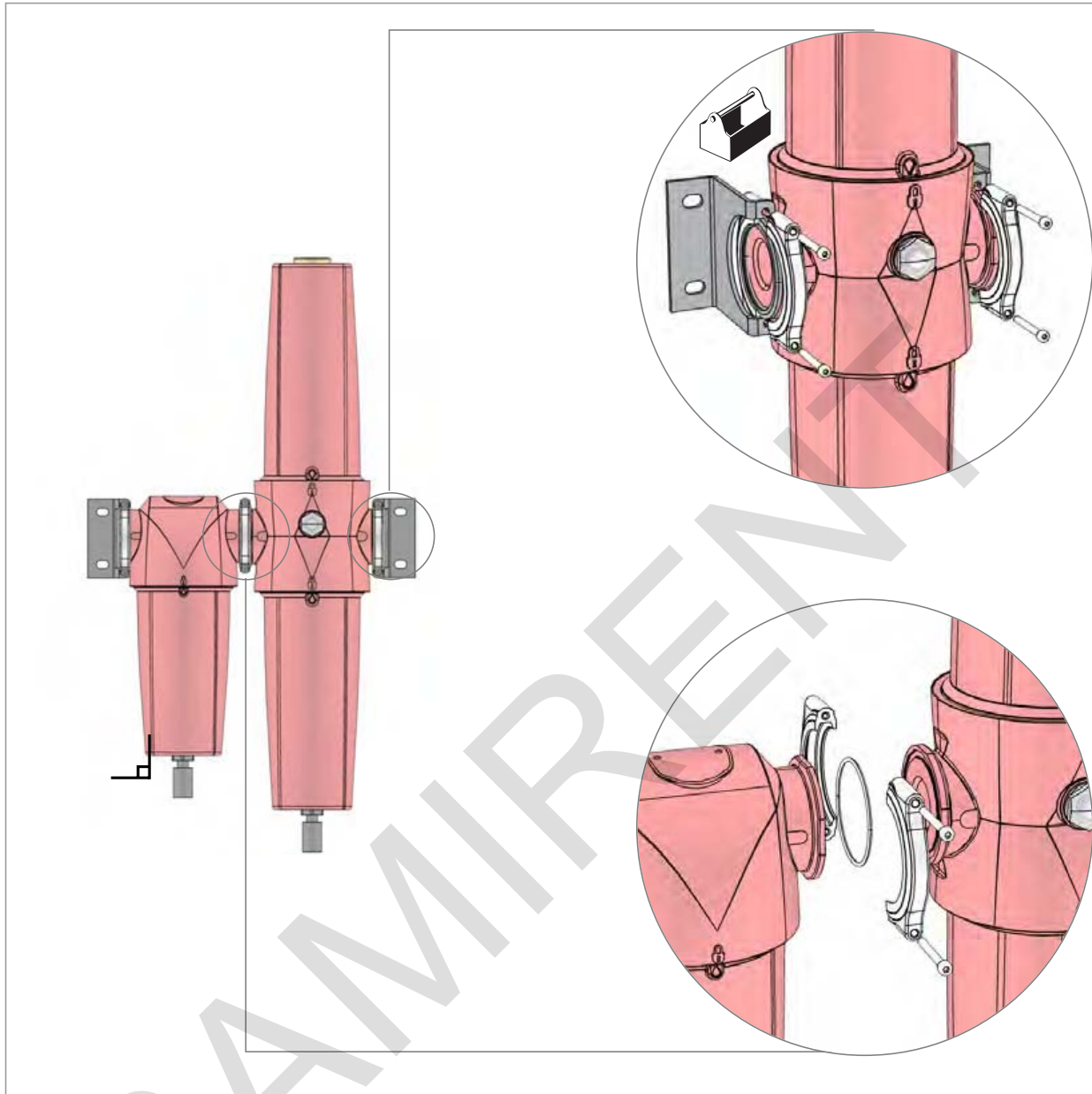
Iż-żmien kemm idumu jersvu l-elementi tal-filtru li jneħhi l-fwar taż-żjut huwa affettwat mill-koncentrazzjoni taż-żejt tad-dhul, l-umdità relattiva u t-temperatura tas-sistema ta' l-arja kumpressata. L-elementi li jneħhu l-fwar taż-żjut ikollhom bżonn jinbidlu aktar ta' sikwit mill-element shih ekwivalenti.

Mudelli AC010□□□□ - AC030□□□□ huma f'fittjati b'indikatur tal-volum taż-żejt. Kemm l-elementi tal-filtru kif ukoll l-indikatur għandhom jinbidlu jekk l-indikatur isir ta' kulur blu.

Jekk Joghġbok Innota - Dan hu indikatur tal-volum taż-żejt u ma jindikax iż-żmien li jdm iservi l-element tal-filtru.



AC010 - AC030



6


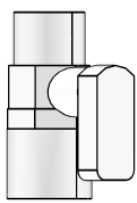
FILTER-DH-OIL-XEVOLUTION 01




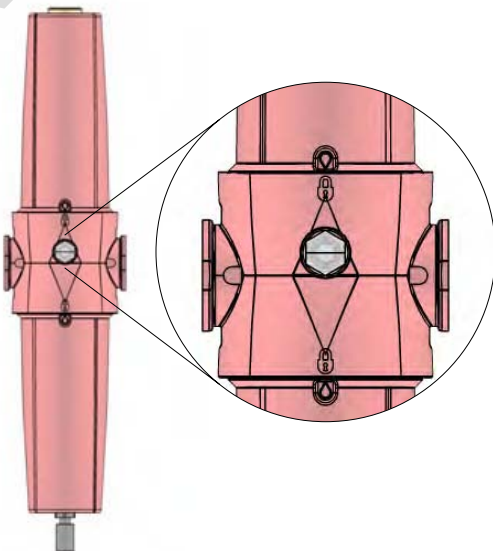
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AC010 - AC030

5. Spare Parts (Service Kits)

- Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) • Pièces de rechange (nécessaires d'entretien) • Varaosat (Huoltopakkaukset) • Reservdelar (servicesatser) • Reservedeler (service-sett) • Reservedele (Servicekit) • Ανταλλακτικά (Πακέτα τεχνικής υποστήριξης) • Piezas de repuesto (kits de mantenimiento) • Peças Sobressalentes (Kit de Reparação) • Ricambi (kit per l'assistenza) • Części zamienne (zestawy serwisowe) • Náhradné diely (Servisná súprava) • Náhradní díly (Sady pro údržbu) • Varuosad (hooldekomplektid) • Pótalkatrészek (szervizkészletek) • Rezerwes części (apkopes komplekti) • Atsarginės dalys (priežiros detalių komplektai) • Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) • Yedek parça (Servis kitleri) • Partijiet Ghat-Tibdil (Kitts tas-Servizz)

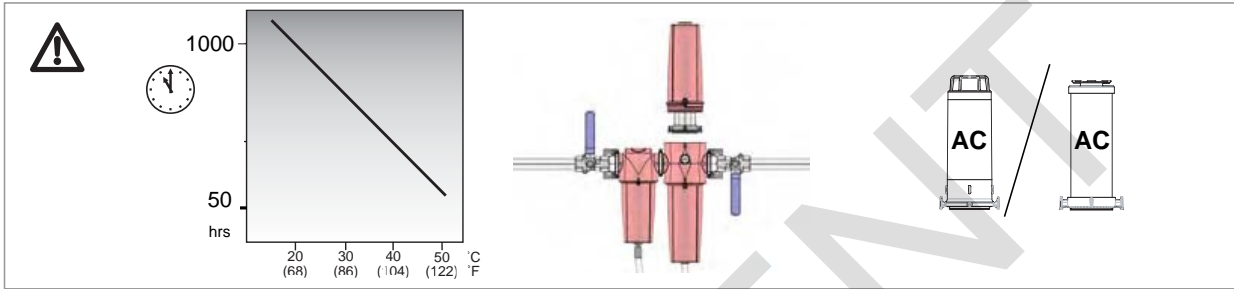
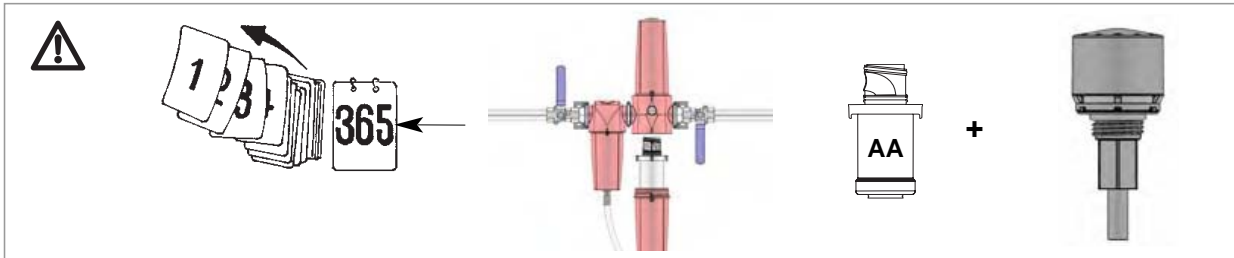
 EF1	<ul style="list-style-type: none"> • AUTOMATIC DRAIN • AUTOMATISCHER ABLAUF • VIDANGE AUTOMATIQUE • AUTOMISCHAFTAPPEN • DRENAJE AUTOMATICO • SCARIO AUTOMATICO • AUTOMATISK AFLØB • DRENO AUTOMÁTICO • ΑΥΤΟΜΑΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ • AUTOMATDRÄNERING • AUTOMAATTINEN • TYHJENNYSKAPPALE • DREN AUTOMATYCZNY • AUTOMATICKÉ VYSUŠENIE • AUTOMATICKÉ VYPOUŠTĚNÍ • AUTOMAATNE VÄLJALASE • AUTOMATIKUS LEERESZTÉS • AUTOMÁTISKA IZTECINĀŠANA • AUTOMATINIS IŠLEIDIMAS • АВТОМАТИЧЕСКИЙ ДРЕНАЖ • SAMODEJNI ODTOK • ОТОМАТИК СÜZDÜRÜCÜ • DREJN AWTOMATIKU 	 EM1	<ul style="list-style-type: none"> • MANUAL DRAIN • MANUELLER ABLAUF • VIDANGE MANUELLE • MANUEEL AFTAPPEN • DRENAJE MANUAL • SCARIO MANUALE • MANUELT AFLØB • DRENO MANUAL • ΧΕΙΡΟΚΙΝΗΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ • MANUELL DRÄNERING • KÄSIKÄYTTÖINEN • TYHJENNYSKAPPALE • DREN RECZNY • RUČNÉ VYSUŠENIE • RUČNÍ VYPOUŠTĚNÍ • KÄSITSI VÄLJALASE • KÉZI LEERESZTÉS • MANUĀLA IZTECINĀŠANA • RANKINIS IŠLEIDIMAS • ДРЕНАЖ ВРУЧНЮЮ • ROČNI ODTOK • ELLE KULLANILACAK SÜZDÜRÜCÜ • DREJN MANWALI
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 010 A 010 B 010 C 015 B 015 C 020 C 020 D 020 E 025 D 025 E 030 E 030 F 030 G	 010AA 015AA 020AA 025AA 025AA 030AA	 010AC 015AC 020AC 025DAC 025EAC 030AC	 BOIE1 AC010 □□□ I - AC030 □□□ I
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AC010 - AC030

6. Maintenance

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



Models AC010□□□I - AC030□□□I are fitted with a bulk oil indicator. Both filter elements and indicator should be changed if indicator is blue in colour.

Please Note - This is a bulk oil indicator, it does not indicate filter element life.

Modellen AC010□□□I - AC030□□□I zijn uitgerust met een bulk olie indicator. Zowel de filterelementen als de indicator moeten vervangen worden als de indicator blauw van kleur is.

N.B. - Dit is een bulk olie indicator, het is geen indicator voor de levensduur van het filterelement.

Die Modelle AC010□□□I - AC030□□□I sind mit einer Ölanzeige ausgestattet. Sowohl die Filterelemente also auch die Anzeige sollte ausgetauscht werden, wenn sich die Anzeige blau färbt.

Bitte beachten - Es handelt sich hier um eine Ölanzeige. Diese gibt keinen Hinweis auf die Lebensdauer des Filterelements.

Les modèles AC010□□□I - AC030□□□I sont fournis avec un indicateur de présence massive d'huile. Lorsque l'indicateur est bleu, il est nécessaire de remplacer les cartouches et l'indicateur.

Remarque : Il s'agit d'un indicateur de présence massive d'huile, et non pas de la durée de vie des cartouches.

Malleissa AC010□□□I - AC030□□□I on öljynilmaisin. Sekä suodatinelementit että ilmaisin on vaihdettava, jos ilmaisin on sininen.

Huomautus - Tämä on öljynilmaisin. Se ei ilmaise suodatinelementin ikää.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera — indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Modell AC010□□□I - AC030□□□I er monteret med bulkvolum oljeindikator. Både filterelementer og indikator skal skiftes når indikatoren er blå.

Merk - Dette er en bulkvolum oljeindikator, den indikerer ikke filterelementets levetid.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera — indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Τα μοντέλα AC010□□□I - AC030□□□I διαθέτουν ένα δείκτη παρουσίας λαδιού. Όταν ο δείκτης είναι μπλε πρέπει να αλλάζονται τόσο τα φίλτρα όσο και οι δείκτες.

Παρακαλούμε σημειώστε ότι - Αυτός είναι ένας δείκτης παρουσίας λαδιού, δεν υποδεικνύει τη διάρκεια ζωής του φίλτρου.

Los modelos AC010□□□I - AC030□□□I disponen de un indicador de presencia de aceite. Si el indicador se vuelve azul deben cambiarse tanto los elementos filtrantes como el indicador.

Nota importante: se trata de un indicador de presencia de aceite. No indica la vida del elemento filtrante.

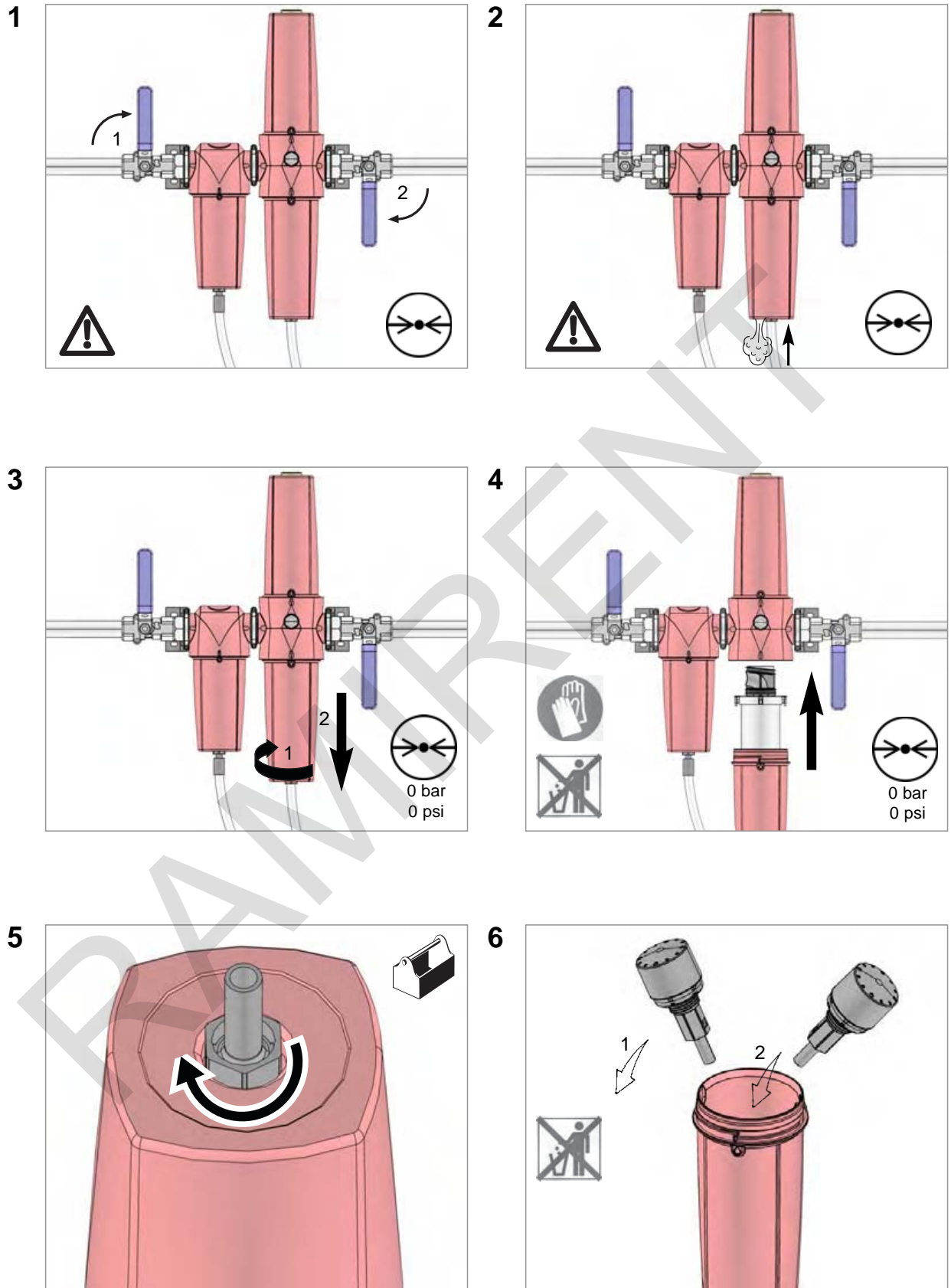
Modelos AC010□□□I - AC030□□□I são instalados com um indicador do óleo em bruto. Ambos os elementos do filtro e o indicador deverão ser mudados se o indicador estiver azul.

Nota - Este é um indicador do óleo em bruto, não indica a vida útil do elemento do filtro.

I modelli AC010□□□I - AC030□□□I sono provvisti di un indicatore degli oli misti. Sostituire gli elementi filtranti e l'indicatore quando il secondo assume una colorazione blu.

Nota - L'indicatore segnala la presenza di oli misti, ma non la durata dell'elemento filtrante.

AC010 - AC030

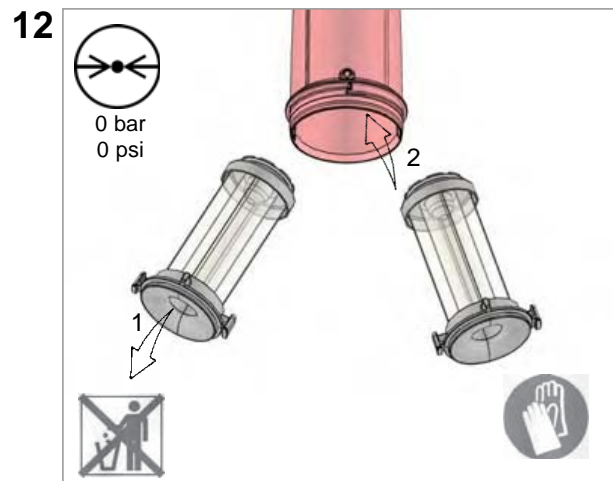
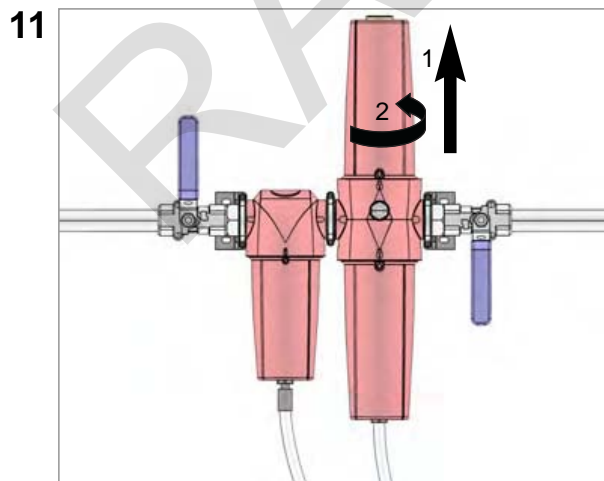
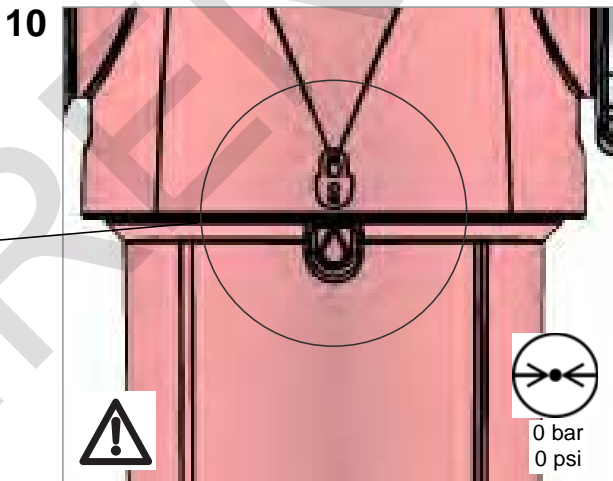
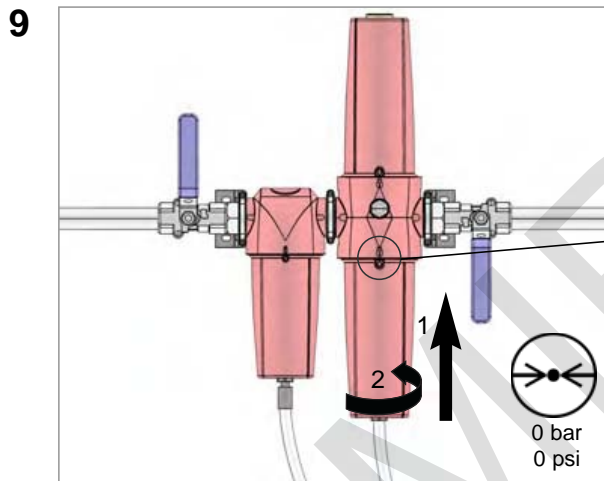
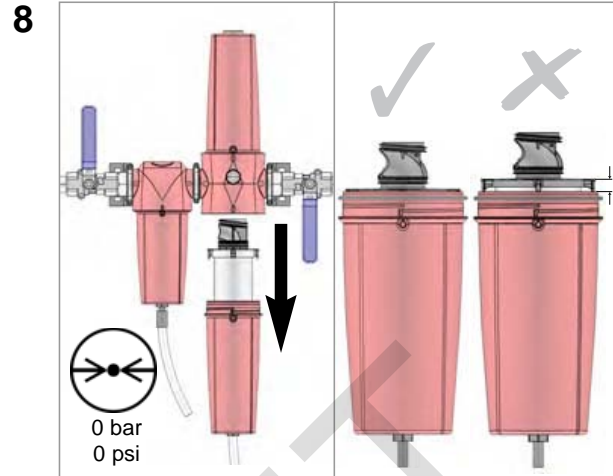
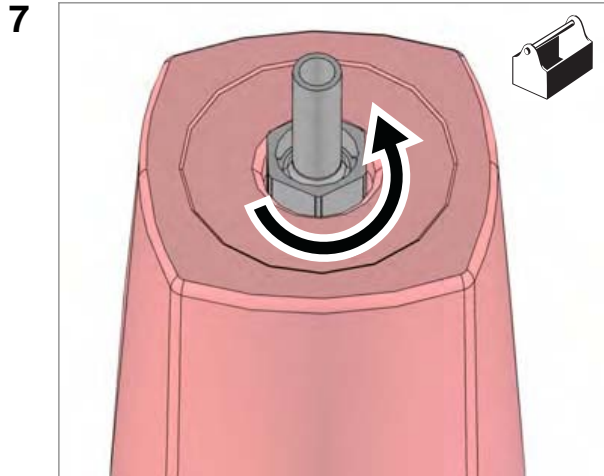


9

FILTER-DH-OIL-XEVOLUTION 01

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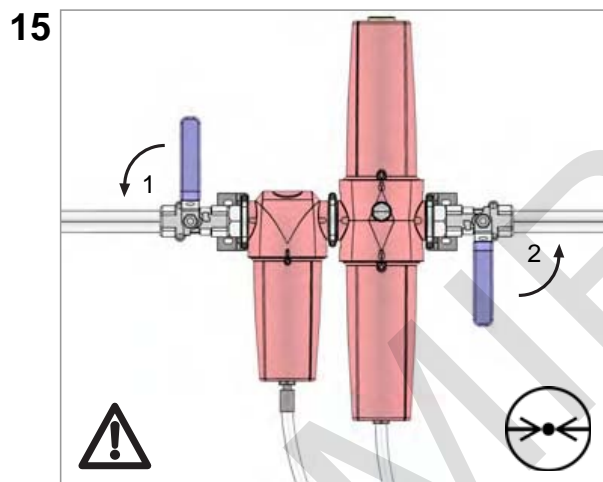
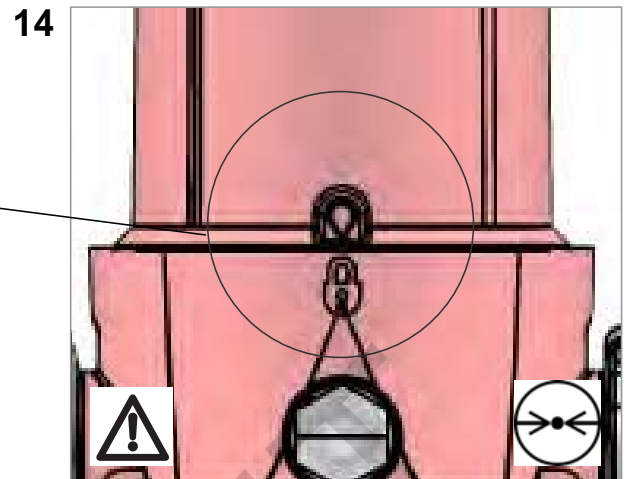
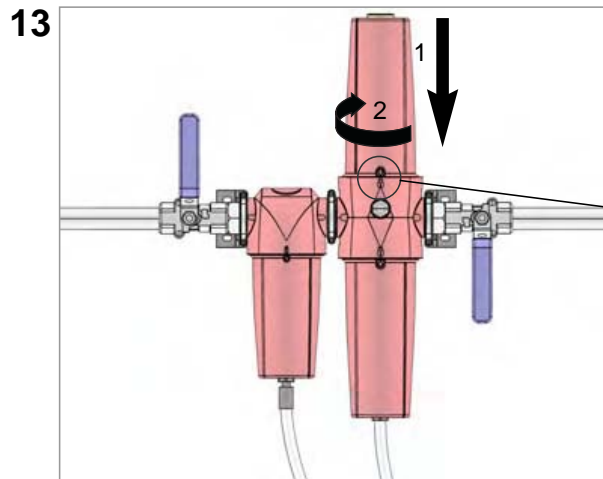
AC010 - AC030




10


FILTER-DH-OIL-XEVOLUTION 01


AC010 - AC030





AC010 - AC030


Konformitätserklärung		DE
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GROSSBRITANNIEN AC010, 015, 020 025, 030 97/23/EC.		
Richtlinien	Allgemein in Übereinstimmung mit ASMEVIII Div 1 : 2004.	
Angewandte Normen	Artikel 3.3 (AC 010, 015, 020, 025) Modul A (AC030)	
Beurteilungsrouten der Druckgeräterichtlinie:	N/A	
Benannte Stelle für die Druckgeräterichtlinie:	N/A	
EG-Baumusterprüfbescheinigung:	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Bevollmächtigter Vertreter	N/A	
<p>Erklärung</p> <p>Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien.</p>		
Unterschrift:		Datum: 28 / 09 / 05
Nummer der Erklärung: 0001/280905		

Försäkran om överensstämmelse		SV
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, Storbritannien AC010, 015, 020 025, 030 97/23/EC.		
Direktiv	Allmänt enligt med ASMEVIII Div 1: 2004.	
Använda standarder	Artikel 3.3 (AC010, 015, 020, 025, 030) Modul A (AC030)	
Fastställningsväg för PED:	N/A	
Anmält organ för PED:	N/A	
EG-intyg om typprovning:	N/A	
Auktoriserad representant	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
<p>Försäkran</p> <p>Jag försäkrar, i egenskap av auktoriserad representant, att ovan nämnda information avseende överensstämmelse, i enlighet med denna produktcertifikatnummer med standarder och övriga relevanta dokument enligt Villkoren i ovanstående direktiv.</p>		
Underskrift:		Datum: 28 / 09 / 05
Försäkran nummer: 0001/280905		

Verklaring van Conformiteit		NL
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.		
Richtlijnen	Gewoonlijk volgens ASMEVIII Div 1: 2004.	
Gehanteerde normen	Artikel 3.3 (AC 010, 015, 020, 025) Module A (AC 030)	
PED-beoordelingsstraject:	N/A	
Aangemelde instantie voor PED:	N/A	
EC Type onderzoekcertificaat:	N/A	
Bevoegde vertegenwoordiger	Barry Wade Manager Bedrijfsysteemverbetering domnick hunter ltd	
<p>Verklaring</p> <p>Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.</p>		
Handtekening:		Datum: 28 / 09 / 05
Verklaringnummer: 0001/280905		

Vaatim�nmuksuusvakuutus		FI
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, ISO-BRITANNIA AC010, 015, 020 025, 030 97/23/EC.		
Direktiivit	Yleensä seuraavan standardin mukaisesti: ASMEVIII Div 1: 2004.	
Käytetyt standardit	Artikla 3.3 (AC010, 015, 020, 025, 030) Moduul A (AC030)	
PED-arviointimenetely:	N/A	
PED-sääntösten ilmoitettu laitos:	N/A	
EY-tyyppihyväksynnän sertifikaatti:	N/A	
Valtuutettu edustaja	Barry Wade Yhtisjärjestelmien kehityspäällikkö domnick hunter ltd	
<p>Vakuutus</p> <p>Valtuutettuna edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän tuotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden asiaan liittyvien asiakirjojen mukaisia ja noudattavat yllä mainittuja direktiivejä.</p>		
Allekirjoitus:		Päiväys: 28 / 09 / 05
Vakuutuksen numero: 0001/280905		

Declaration of Conformity		EN
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK AC010, 015, 020 025, 030 97/23/EC.		
Directives	Generally in accordance with ASMEVII Div 1: 2004.	
Standards used	Article 3.3 (AC 010, 015, 020, 025) Module A (AC 030)	
PED Assessment Route :	N/A	
Notified body for PED:	N/A	
EC Type-examination Certificate:	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
Authorised Representative	N/A	
<p>Declaration</p> <p>I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the standards and other related documents following the provisions of the above Directives.</p>		
Signature:		Date: 28 / 09 / 05
Declaration Number: 0001/280905		

Déclaration de conformité		FR
domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.		
Directives	Généralement conforme à ASMEVII div. 1: 2004.	
Normes utilisées	Article 3.3 (AC010, 015, 020, 025, 030) Module A (AC030)	
Méthode d'évaluation de la directive d'équipements de pression :	N/A	
Organisme de notification pour la directive d'équipement sous pression :	N/A	
Certificat d'examen de type CE :	N/A	
Représentant agréé	Barry Wade Business Systems Improvement Manager domnick hunter ltd	
<p>Déclaration</p> <p>Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents liés déclarés selon les dispositions des directives susmentionnées.</p>		
Signature :		Date : 28 / 09 / 05
N° de déclaration : 0001/280905		

13.8 Option Ic

Service tasks on the diesel particulate filter

To ensure the proper functioning of the diesel particulate filter, an authorised service technician must perform annual maintenance.

Have the following tasks performed by a specialist shop or the KAESER Service:

- Pressure lines:
 - Check for tight joints, wear and leaks.
- Solenoid valve
 - Check that all electrical connections are tight.
 - Undo fittings and hoses and clean the inside of the valve.
 - Check for leaks.
- Fuel pump(s)
 - Make a visual and auditory check.
 - Check that all electrical connections are tight.
 - Check fuel hoses for leaks.
- Aerosol generator
 - Check that all electrical connections are tight.
 - Check fuel connection for leaks.
 - Clean the injector nozzle.
- Filter module
 - Visually inspect for damage, inside and outside.
 - Check monoliths for cracks/soot emissions.
 - Remove dirt with industrial vacuum cleaner.
 - Check tightness of straps and/or clamps.

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