

SERVICE MANUAL

Screw Compressor

M 13 / 15 / 17

No.: 9_6983 07 USE

Original instructions
/KKW/MC0 1.08 en 01 SBA-MOBILAIR

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1 Regarding this Document

1.1 Using the Document

The service manual is part of the machine.

- Keep the service manual in a safe place throughout the life of the machine.
- Pass the manual on to the next owner/user of the machine.
- Ensure that all amendments received are entered in the manual.
- Enter details from the machine nameplate and individual items of equipment in the table in chapter 2.

1.2 Further Documents

Included with this service manual are additional documents intended to assist in the safe operation of the machine:

- Certificate of acceptance / operating instructions for the pressure vessel
- Manufacturer's declaration / declaration of conformity in accordance with applicable directives
- 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 give 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 Identification

1.4.1 Warnings

Warning notices indicate three levels of danger signified by the signal word.

- DANGER
- WARNING
- CAUTION

1. **▲ DANGER** *These show the kind of danger and its source!
The possible consequences of ignoring a warning are shown here.
The word "Danger" indicates that death or severe injury can result from ignoring the instruction.*
 - *The measures required to protect yourself from danger are shown here.*
2. Always read and comply with warning instructions.

Signal word	Meaning	Consequences of non-observance
DANGER	Warns of an imminent threat of danger	Death or serious injury may result
WARNING	Warns of possible danger	Death or serious injury are possible

Signal word	Meaning	Consequences of non-observance
CAUTION	Warns of a possibly dangerous situation	Light injuries or material damage are possible

Tab. 1 The levels of danger and their meaning

1.4.2 Other instructions and symbols



This symbol refers to particularly 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.
Here conditions relevant to safety are named that will help you to avoid dangerous situations.

Option H1 ➤ This bullet is placed by lists of actions comprising one stage of a task.
In lists of actions with several stages the sequence of actions is numbered.
Information that refers to only one option is marked with an indicator (e.g.: H1 means that this section is only valid for machines with adjustable machine mountings). Option indicators used in this service manual are explained in chapter 2.2 .



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



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

Further information Here, your attention is drawn to further topics.

2 Technical Data

2.1 Nameplate

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

➤ Enter here the nameplate data as a reference:

Feature	Value
Options	
Vehicle identity no.	
Portable compressor	
Material number	
Serial number	
Year of manufacture	
Lifting point load capacity	
Rated motor power	
Engine speed	
Maximum working pressure	

Tab. 2 Nameplate

2.2 Options

A list of the options fitted to your machine helps to relate the information in this service manual.



The following tables list all possible options.

➤ Take the list of installed options from the sales documents or consult the dealer.

2.2.1 Option de Prepared machine

➤ Enter the fitted options as reference.

Option	Option code	Exists?
Machine provided with additional connections	de	

Tab. 3 Prepared machine

2.2.2 Option da
Compressed air treatment

➤ Enter the fitted options as reference.

Option	Option code	Exists?
Aftercooler and condensate separator	da	

Tab. 4 Air Treatment

2.2.3 Option ha
Check valve

➤ Enter the fitted option as reference.

Option	Option code	Exists?
Check valve	ha	

Tab. 5 Check valve

2.2.4 Option sa, sc
Chassis

➤ Enter the fitted option as reference.

Option	Option code	Exists?
Chassis	sa	
Stationary	sc	

Tab. 6 Chassis

2.3 Machine (without options)
2.3.1 Sound emission
2.3.1.1 Model classification

Model	M 13				M 15	M 17	
Working pressure [psig]	100	145	175	190	100	100	217
Sound power level according to Directive 2000/14/EC	x	x	x	x	–	–	x

x ≙ yes

– ≙ no

Tab. 7 Model classification

2.3.1.2 Sound emission

Model	M 13	M 15	M 17
Emission sound pressure level* [dB(A)] according to EN ISO 11203: 1995 number 6.2.3.d.	82.5	–	82.5

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

Measuring distance: d = 1 m

Logarithmic surface ratio: Q2 = 14.7 dB(A)

Tab. 8 Emission sound pressure level

Model	M 13	M 15	M 17
Guaranteed sound power level [dB(A)] according to Directive 2000/14/EC	97	–	97

Tab. 9 Guaranteed sound power level

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. 10 Torques for hex-head screws

2.3.3 Ambient conditions

Positioning	Limit value
Maximum altitude AMSL* [ft]	3000
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	104

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

Tab. 11 Ambient conditions

2.3.4 Dimensions and locations

General dimensions and locations are to be found in the dimensional drawing in chapters 13.4, 13.5 and 13.6.

Examples of function-relevant locations are:

- Compressed air outlet

- Exhaust
- instrument panel

2.4 Chassis

2.4.1 Weights



The loading capacity of the lifting frame (see machine nameplate) corresponds to the **total weight** of the machine.

The weight of the machine is also given on a label to the right of the operating hours counter.

Characteristic	Chassis	Stationary
Load capacity of the lifting frame [lb]*		
* Enter here, for reference, the load capacity of the lifting frame taken from the nameplate.		

Tab. 12 Machine weights

2.4.2 Tires

	M 13	M 15	M 17
Tire size	10 1/4 x 3 3/8	10 1/4 x 3 3/8	10 1/4 x 3 3/8
Recommended tire pressure [psig]	36	36	36

Tab. 13 Tires

2.4.3 Wheel fixing

	Dimensions	Quantity
Spacer	Ø 33 x Ø 25 x 1.0	2
Circlip	25 x 1.2	1

Tab. 14 Wheel fixing

2.5 Compressor

2.5.1 Free air delivery

Maximum working pressure [psig]	Free air delivery [cfm]		
	M13	M15	M17
100	42	50	60
145	35	–	–
175	32	–	–
190	30	–	–

Maximum working pressure [psig]	Free air delivery [cfm]		
	M13	M15	M17
217	–	–	35

Tab. 15 Free air delivery

2.5.2 Compressed air outlet

Model	M 13				M 15	M 17	
Working pressure [psig]	100	145	175	190	100	100	217
Number of outlet valves	1	1	1	1	1	1	1
Outlet valve G 1/2	x	x	x	x	–	–	x
Outlet valve 1/2 NPT	–	–	–	–	x	x	–

x ≙ fitted

– ≙ not fitted

Tab. 16 Compressed air distributor

2.5.3 Safety relief valve

Further information Maximum working pressure: see nameplate

Maximum working pressure [psig]	Relief valve blow-off setting* [psig]
100	130
145	175
175	217
190	217
217	232

* on the oil separator tank

Tab. 17 Safety relief blow-off setting

2.5.4 Temperature

Machine temperatures	Values
Recommended airend discharge temperature for switching to load [°F]	86
Typical airend discharge temperature during operation [°F]	167 – 212

Machine temperatures	Values
Maximum airend discharge temperature (automatic safety shut-down) [°F]	230

Tab. 18 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
Application	Standard oil for all applications except in connection with food products. Particularly suitable for machines with a high duty cycle.	Standard oil for all applications except in connection with food products. Particularly suitable for machines with a low duty cycle.
Approval	—	—
Viscosity at 40 °C	46 cSt (D 445; ASTM test)	44 cSt (D 445; ASTM test)
Viscosity at 100 °C	7.2 cSt (D 445; ASTM test)	6.8 cSt (D 445; ASTM test)
Flash point	470 °F (D 92; ASTM test)	428 °F (ISO 2592)
Density at 60 °F	7.1 lb/gal (ISO 12185)	—
Pour point	-60 °F (D 97; ASTM test)	-27 °FC (ISO 3016)
Demulsibility at 129 °F	40/40/0/10 min (D 1401; ASTM test)	—

Tab. 19 Cooling oil recommendation

2.5.6 Cooling oil charge

	M 13	M 15	M 17
Total charge [qt]	4.8	4.8	4.8

Tab. 20 Cooling oil charge

2.6 Engine

2.6.1 Engine data

	M 13	M 15	M 17	
Engine	Honda GX-630		Honda GX-630	
Engine power [hp] * (at maximum speed)	20.8	20.8	20.8	
Maximum speed [rpm]	3600	3600	3600	
Speed under full load [rpm]	2500	3000	3300	2300
Idling speed [rpm]	2200	2200	2200	2000
Fuel consumption under load [qt/h]	4.0	5.0	6.3	5.9
Type of fuel	Lead-free petrol	Lead-free petrol	Lead-free petrol	Lead-free petrol
Required octane rating	≥86			
Oil consumption related to fuel consumption [%] (approx.)	0.2			

* The performance data of the engine given in this document is according to SAE J1349, taken from a production series engine at a specified speed. Data of individual engines may vary slightly. The performance of an engine in a finished machine may vary according to factors such as engine speed, environmental influences, the quality of maintenance, etc.

Tab. 21 Engine data



This motor is certified for the operation with unleaded fuel with 86 octane or higher. You may use unleaded petrol with maximum 10% by volume Ethanol (E 10) or maximum 5% by volume Methanol. Methanol also must contain cosolvents and corrosion inhibitors. Using fuels with a higher Ethanol or Methanol content than shown above may cause problems during starting and/or with performance. Damages to metal, rubber, and plastic components of the fuel system can also occur. Motor damage and reduced performance due to the use of a fuel with higher Ethanol or Methanol percentages than those shown here are not covered by the warranty.

2.6.2 Oil recommendation



Use engine oil for petrol engines of "SJ" or higher service class.

Ambient temperature [°F]	Viscosity class
14–122	SAE 15W/40
–4–86	SAE 5W/30
–4–122	SAE 10W/40

Tab. 22 Engine oil recommendation

2.6.3 Fluid volumes

Name	Fluid volume [qt]
Engine oil	1.5
Engine oil (with additional filter change)	1.8
Fuel	21.1

Tab. 23 Fluid volumes

2.6.4 Battery

Characteristic	Value
Voltage [V]	12
Capacity [Ah]	30
PTC testing current [A] (according to EN 50342)	180

Tab. 24 Battery

2.7 Options
**2.7.1 Option da
Ambient temperature for Air treatment**

Ambient temperature	Limit value
Minimum ambient temperature [°F]	> 41
Maximum ambient temperature [°F]	104

Tab. 25 Ambient temperature air treatment

**2.7.2 Option ha
Check valve**

Working pressure [psig]	100	145	175	190	217
Check valve	–	x	x	x	x

– ≙ No check valve fitted, x ≙ Check valve available as an option

Tab. 26 Optional check valve

3 Safety and Responsibility

3.1 Basic Information

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.

⚠ DANGER

Disregard of these instructions can result in serious injury.

- *Read the service manual carefully and take note of the contents for safe machine operation.*
- 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 there from. The user alone is liable for any risks incurred.

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

3.3 Improper Use

- Never direct compressed air at persons or animals.
- Do not use untreated compressed air for breathing purposes.
- Do not allow the machine to breathe in toxic, acidic, flammable or explosive gases or vapors.
- Do not operate the machine in areas in which specific requirements with regard to explosion protection are in 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 legislation, safety and accident prevention regulations.

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

3.4.2 Defining personnel

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

Authorized operators possess the following qualifications:

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

Authorized maintenance personnel possess the following qualifications:

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

Authorized transport personnel possess the following qualifications:

- are of legal age,
- are familiar with and adhere to the safety instructions and sections of the service manual relevant to transporting,
- are trained and authorized in safe vehicle transporting,
- are conversant with the safety regulations relating to handling motor vehicles and transport goods,
- are able to recognize the possible dangers of motor vehicles and take appropriate measures to safeguard persons and property.

1. **▲ DANGER** *There is danger of fatal injury caused by contact with live components.*
 - *Only qualified electricians may work on the installation, maintenance and repair of the machine's electrical assemblies. This includes work on current-carrying components.*
2. Ensure that personnel entrusted with operation, maintenance and transporting are qualified and authorized to carry out their tasks.

3.5 Dangers

Basic Information

Information concerning the various forms of danger that can arise during machine operation are found here.

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

Information is found here concerning how to counter the various forms of danger that can arise during machine operation.

Exhaust fumes

Exhaust fumes from combustion engines contain carbon monoxide; this gas is odorless and can cause death.

- Use the machine only outdoors!
- Do not inhale exhaust fumes.
- Direct the exhaust fumes to the open air with a pipe ($\varnothing > 100$ mm).

Fire and explosion

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

- Allow no open flames or sparks at the place of use.
- Do not smoke while refuelling.
- Never refuel the machine when it is running.
- Do not allow fuel to overflow.
- Wipe up spilled fuel immediately.
- Keep fuel away from hot machine parts.
- Make sure that the ambient temperature at the machine's place of use is within permissible limits.

Forces of compression

Escaping compressed air can cause serious injury. 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 psig!)
- 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 no longer ensured.

Spring force

Sudden release of spring force can cause serious energy.

Check valves, pressure relief valves and inlet valves are powerfully spring-loaded.

- Do not open or dismantle any valves.

Compressed air quality

- Never directly inhale compressed air.
- Use appropriate systems for air treatment before using the compressed air from this machine as breathing air and/or for the processing of food products.
- Use food-grade cooling oil whenever compressed air is to come into contact with food products.

Rotating components

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

- Operate the machine only with closed safety guards, access doors and panels.
- Shut down the machine before opening a door or canopy.
- Wear close-fitting clothes and a hair net if necessary.
- Fit all safety devices and panels before starting the engine.

Electricity

- Allow only qualified and authorized electricians or trained personnel under the supervision of a qualified and authorized electrician to carry out work on electrical equipment according to electrical engineering regulations.
- During repair work on the starter, ensure it is disconnected from the battery.
- Before carrying out any work on the electrical installation, ensure that the capacitor has completely discharged.
- Check regularly that all electrical connections are tight and in order.

Temperature

- Avoid contact with hot components. These include, for example, engine, compressor airend, oil and compressed air lines, coolers and oil separator tank.
- Wear protective clothing.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapors or parts of the machine.

Noise

- Operate the machine only with intact soundproofing.
- Open canopy for checks for a short period only.
- Wear hearing protection if necessary. The pressure relief valve blowing off, for example, can be particularly loud.

Operating fluids/materials

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

Unsuitable spare parts

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

Conversion or modification of the machine

- Do not permit conversion or modification of the machine as this can compromise function and safe working.

3.5.2 Safe machine operation

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

Transportation

- Shut down and fully disconnect the machine before transporting it.
- Allow transportation only by personnel trained in safely dealing with motor vehicles and the transport of goods.
- Ensure that no persons are on the machine when transporting.

Transporting with a crane

- Observe regulations when using lifting gear and slings:
 - Do not enter the danger zone while the machine is being lifted.
 - Never lift the machine over people or occupied buildings.
 - Secondary or attached loads may not:
 - cause excessive loading on the machine's lifting point (lifting eye),
 - adversely influence the machine's center of gravity so that it hangs off-balance.
 - Use lifting slings that are suitable for the loads to which they will be subjected.
 - 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 tamper with the fixing points of the 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.
- Further points to be noted:
 - Transporting by slinging beneath a helicopter is forbidden.
 - Dropping the machine by parachute is forbidden.

Positioning

- Do not position the machine directly against a wall. A build up of heat from the exhaust can damage the machine.
- Do not operate in areas in which specific requirements regarding explosion protection are in force.
- Ensure adequate ventilation.

- Ensure that required ambient conditions are maintained with regard to:
 - Ambient temperature
 - clean inlet air with no damaging contaminants,
 - inlet air free of explosive or chemically unstable gases or vapors,
 - inlet air free of exhaust gases from internal combustion engines,
 - inlet air free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulfide.
- Do not position the machine in warm exhaust air from other machines.
- Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- Chock the wheels to prevent unwanted movement.

Operation

- Keep the canopy closed for safety and to ensure correct cooling function.
- Carry out regular inspections:
 - for visible damage and leakage,
 - of safety devices,
 - of components needing to be monitored.
- Never operate machines without an air filter when drawing in air from the surroundings.

Maintenance

- Make sure the machine is shut down, cooled down and pressure-free before beginning any maintenance work.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Do not leave any loose components, tools or cleaning rags on or in the machine.
- Do not open or destroy removed components as some (inlet valves, for instance) are powerfully spring-loaded.

Decommissioning, storage, disposal

- Drain out operating liquids and dispose of correctly.
These include, for example, fuel, engine and compressor oil and coolant.
- Dispose of the machine in accordance with local environmental regulations.

3.5.3 Organizational Measures

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

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.
Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 10 ft radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine.	Maintenance personnel
	Within a 3.5 ft radius of the machine.	
Operation	Within a 3.5 ft radius of the machine.	Operating personnel
Maintenance	Within the machine.	Maintenance personnel
	Within a 3.5 ft radius of the machine.	

Tab. 27 Danger areas

3.6 Safety Devices

Safety devices ensure safe working with the machine.

- Do not change, bypass or disable safety devices.
- Check safety devices for correct function regularly.
- 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, section 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.

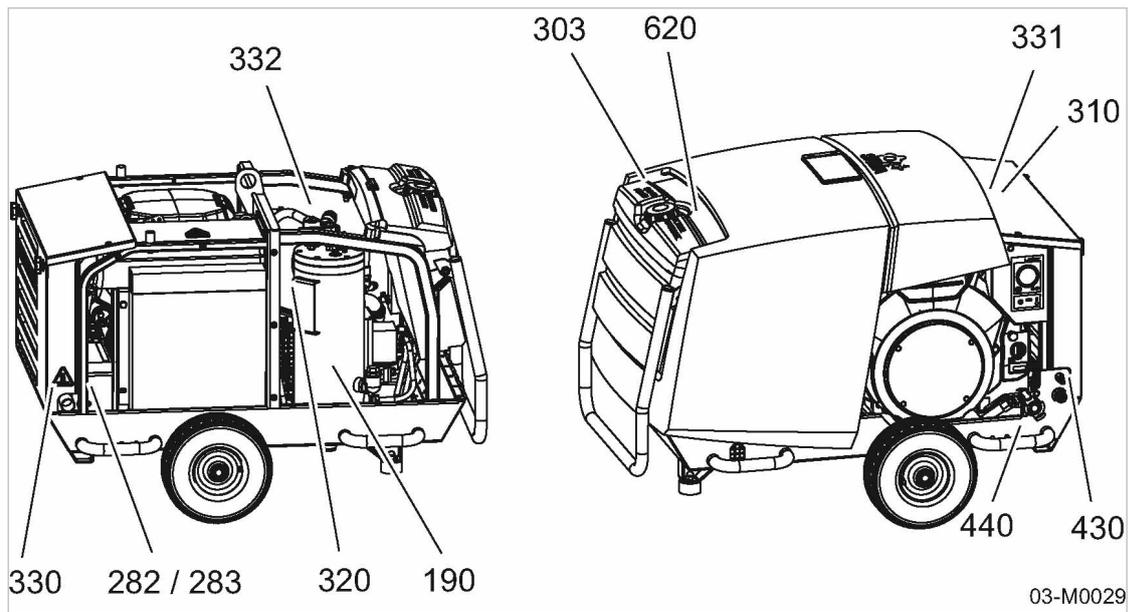
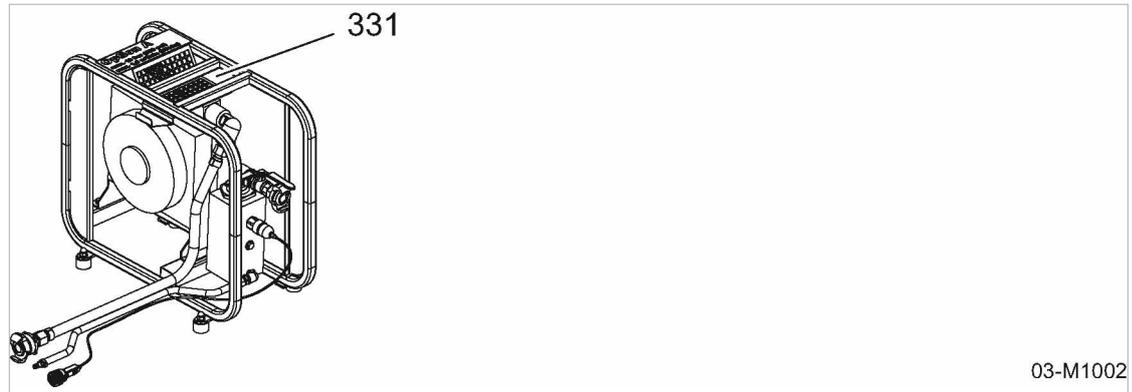


Fig. 1 Location of safety signs

Option da



03-M1002

Fig. 2 Position of safety signs on the external air treatment option

Item	Sign	Meaning
190		Incorrect oil levels can cause damage to the machine or excessive oil content in the compressed air. <ul style="list-style-type: none"> ➤ Check the oil level regularly and correct as necessary.
282		Explosive hydrogen gas. Severe injury or death could result from exploding gas. <ul style="list-style-type: none"> ➤ Keep flames, sparks and other sources of ignition away.
283		Battery contains acid. Severe injury result from contact with battery acid. <ul style="list-style-type: none"> ➤ Do not allow battery acid to contact eyes, skin, clothing or painted surfaces. ➤ Do not attempt to jump-start if battery fluid is frozen. ➤ Bring temperature of battery up to at least 60°F before attempting to jump-start it may explode.
303		Fire or explosion caused by refueling. Severe injury or death result from inflaming fuel. <ul style="list-style-type: none"> ➤ Use unleaded gasoline only. ➤ NEVER attempt to refuel the compressor while it is operating. ➤ Always replace fuel filter cap after refueling. ➤ Always wipe up fuel spills which may occur inside the compressor enclosure and allow the machine to ventilate.
310		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. <ul style="list-style-type: none"> ➤ Operate only with the enclosure fully closed. ➤ Transport only with the enclosure fully closed.
320*		Loud noise and oil mist! Hearing damage and burning by relief valve blow off. <ul style="list-style-type: none"> ➤ Wear hearing protectors and protective clothing. ➤ Close the canopy or doors. ➤ Work with caution.

* Location within the machine

Item	Sign	Meaning
330		<p>Hot surfaces and dangerous gasses! Burning, from contact with hot components or gasses.</p> <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 noxious gases.
331 332*		<p>Hot surface! Risk of burns caused by contact with hot components!</p> <ul style="list-style-type: none"> ➤ Do not touch the surface. ➤ Wear long-sleeved garments (not synthetics such as polyester) and protective gloves.
430		<p>Connect air hoses only in full compliance with OSHA standard 29 CFR 1926,302 (bX7). The required safety devices should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use.</p>
440		<p>Compressed air quality. Injury and/or contamination can result from breathing compressed air. Contamination of food can result from using untreated compressed air for food processing.</p> <ul style="list-style-type: none"> ➤ Never breathe untreated compressed air! ➤ Air from this compressor must meet OSHA 29 CFR1910.134 and FDA 21 CFR178.3570 standards, if used for breathing or food processing. Use proper compressed air treatment. ➤ Food grade coolant must be used for food processing.
620		<p>Risk of serious lacerations or severing of extremities due to rotating components!</p> <ul style="list-style-type: none"> ➤ To close the canopy, slowly lower the canopy with both hands. ➤ Operate the machine only with closed safety guards and canopy. ➤ Shut down the machine before opening a door or canopy.

* Location within the machine

Tab. 28 Safety signs

3.8 In Emergency

3.8.1 Correct fire fighting

Suitable extinguishing agents:

- Foam
- Carbon dioxide
- Sand or dirt

Unsuitable extinguishing agents:

- Strong jet of water

1. Keep calm.
2. Give the alarm.
3. Shut down the machine from the instrument panel if possible.
4. Move to safety.
 - Warn persons in danger.
 - Help incapacitated persons.
5. Try to extinguish the fire if you have the skill to do so.

3.8.2 Contact with operating materials

The following operating materials are in the machine:

- fuel
- battery electrolyte
- lubricating oil
- compressor cooling oil



If necessary, request a copy of the safety data sheet for KAESER SIGMA FLUID.

- Eye contact:
rinse thoroughly with lukewarm water and seek medical assistance.
- Skin contact:
wash off immediately.

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,
- unauthorized modifications,
- incorrect maintenance,
- incorrect repair.

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

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

3.10 Environmental Protection

- Store and dispose of operating materials and replaced parts in accordance with local environmental protection regulations.

- Observe relevant national regulations.



This applies particularly to parts contaminated with fuel, oil, coolants and acids.



- Do not allow operating materials to escape to the environment or into the sewage system.

4 Design and Function

4.1 Bodywork

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

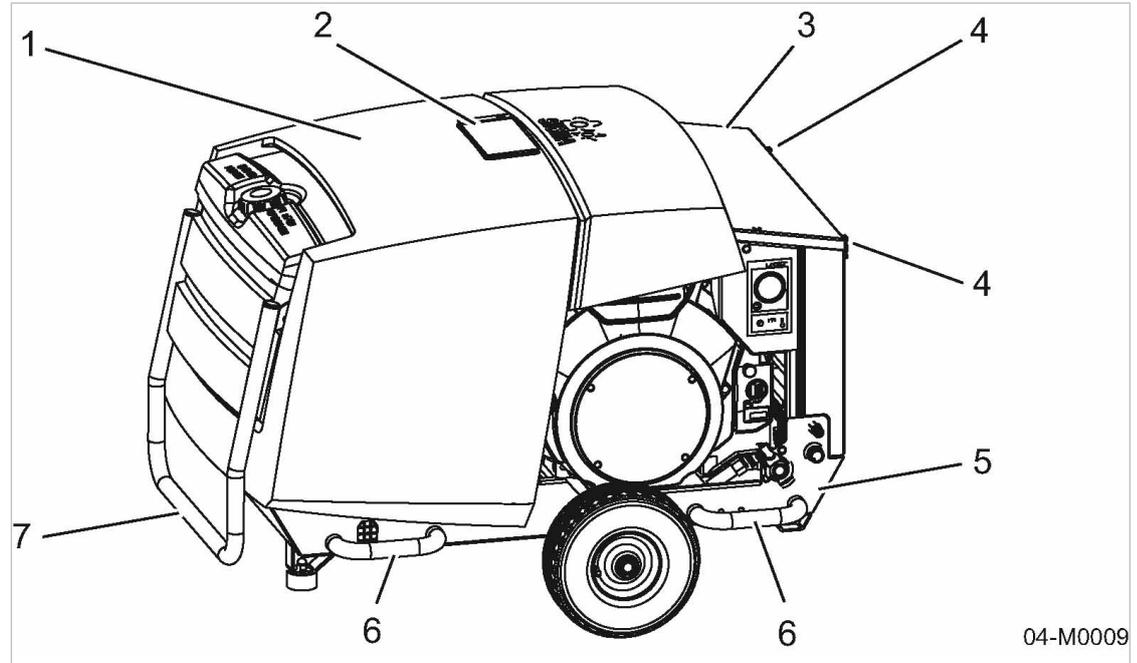


Fig. 3 Bodywork

- | | |
|---------------------|------------------|
| ① Canopy | ⑤ Lower body |
| ② Lifting eye cover | ⑥ Lifting handle |
| ③ Rear panel | ⑦ Push-bar |
| ④ Rear panel locks | |

Safe and reliable operation is only ensured when the bodywork is closed.
The bodywork has several functions when it is closed:

- weather protection,
- sound insulation,
- guarding against touching,
- cooling air flow control.

The canopy ① can be opened.

The push-bar ⑦ is folding.

When the locks ④ are opened, the rear panel ③ can be removed.

The lifting handles ⑥ allow the machine to be carried by at least 4 people.

4.2 Component identification

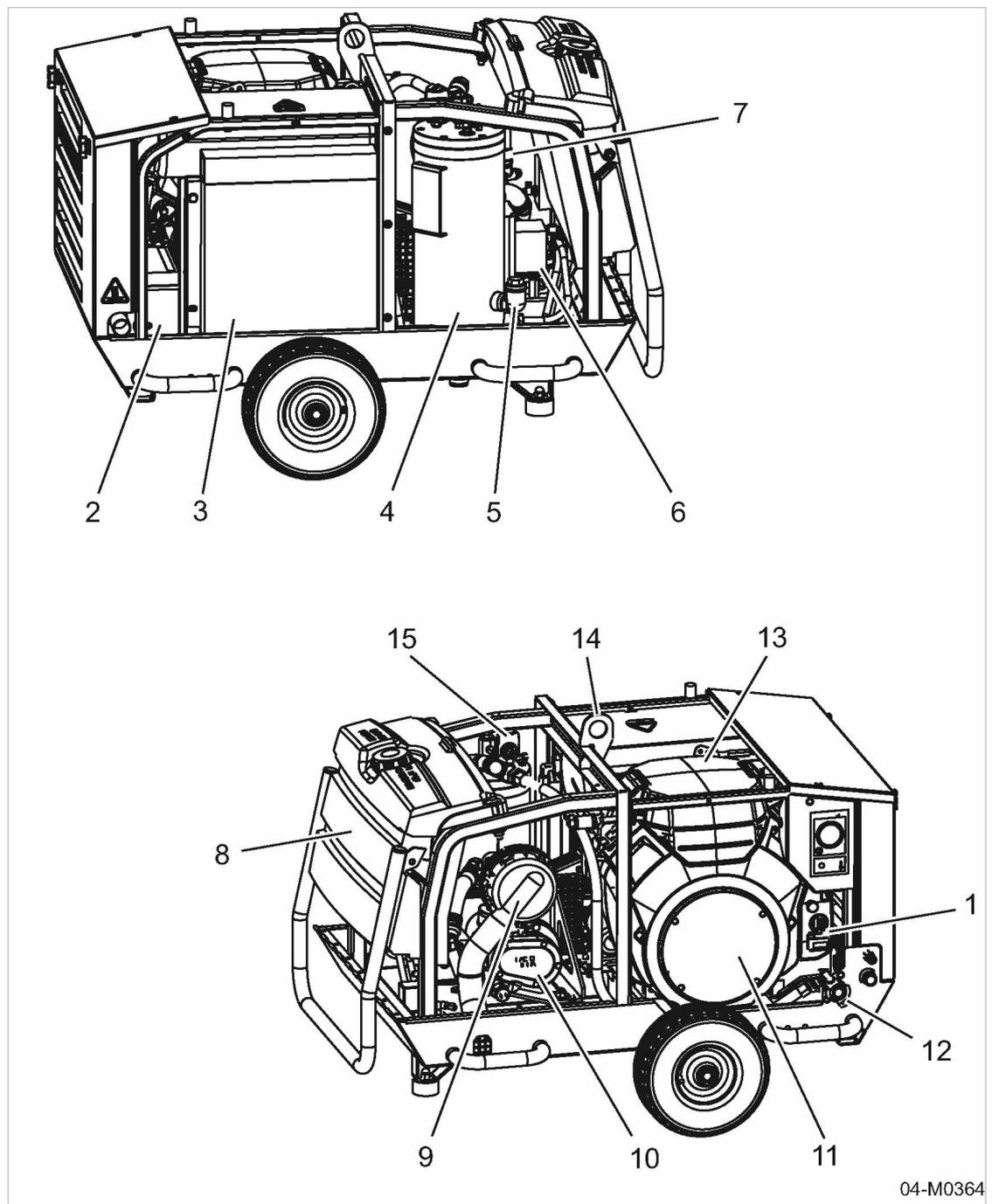


Fig. 4 Side view (canopy removed)

- | | |
|-----------------------------|-------------------------------|
| ① Instrument panel | ⑨ Compressor air filter |
| ② Battery | ⑩ Airend |
| ③ Oil cooler | ⑪ Engine |
| ④ Oil separator tank | ⑫ Compressed air outlet valve |
| ⑤ Oil filler port with plug | ⑬ Engine air filter |
| ⑥ Combination valve | ⑭ Lifting eye |
| ⑦ Pressure relief valve | ⑮ Proportional controller |
| ⑧ Fuel tank | |

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4.3 Machine function

Machine function (without options)

Item numbers correspond to the pipe and instrument flow diagram in chapter 13.3.

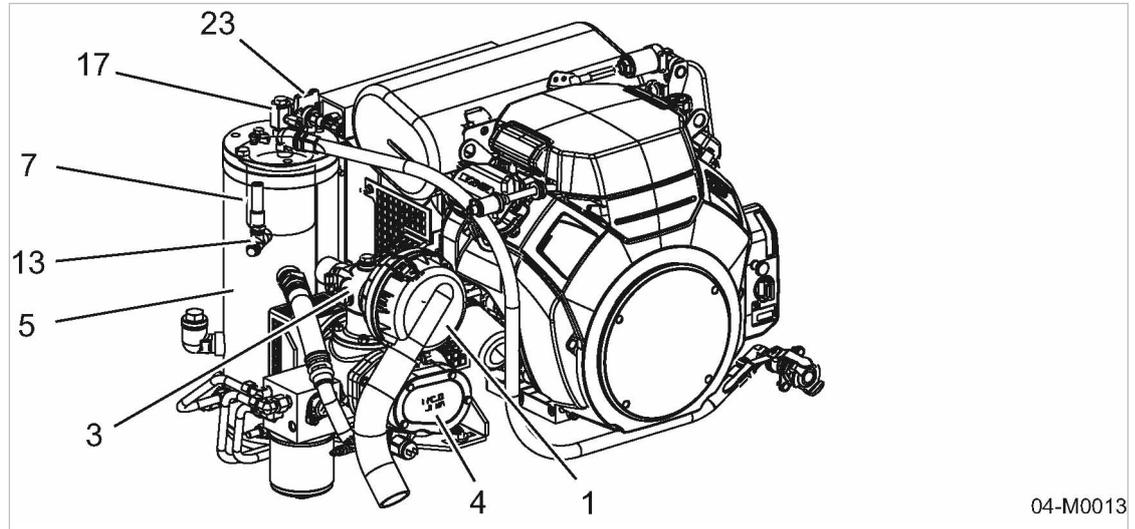


Fig. 5 General arrangement (01)

- | | |
|-------------------------|---------------------------|
| ① Compressor air filter | ⑦ Oil separator cartridge |
| ③ Inlet valve | ⑬ Pressure relief valve |
| ④ Airend | ⑰ Dirt trap |
| ⑤ Oil separator tank | ⑳ Proportional controller |

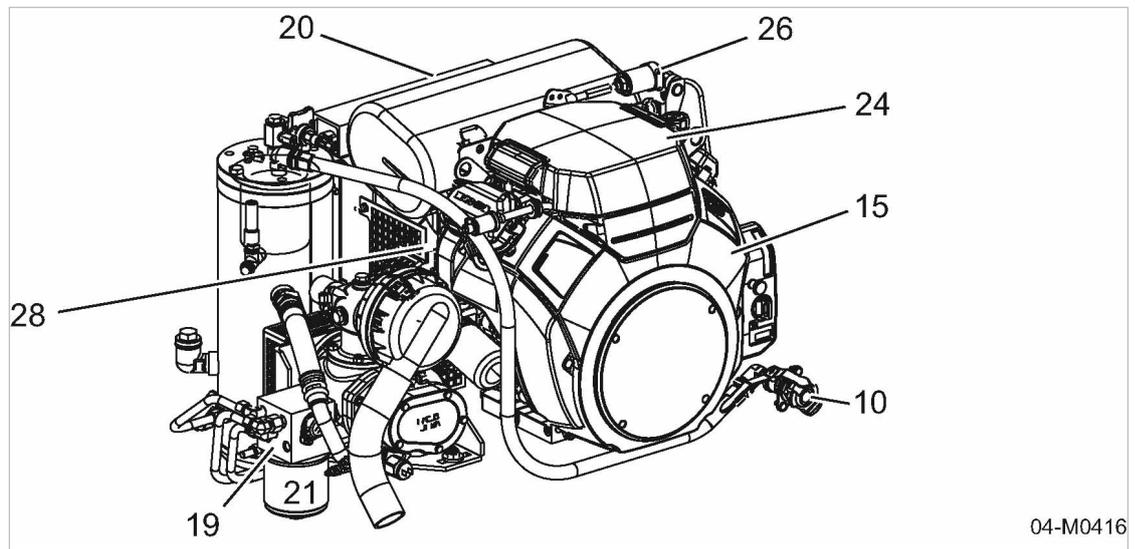


Fig. 6 General arrangement (02)

- | | |
|--|---------------------------------|
| ⑩ Compressed air distributor | ⑳ Oil cooler |
| ⑮ Engine | ㉑ Oil filter |
| ⑲ Combination valve (oil temperature thermostat) | ㉒ Engine air filter |
| ⑳ Oil cooler | ㉓ Engine speed control cylinder |
| | ㉔ Fan |

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

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

The airend is driven by an internal combustion engine.

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. The combination valve (19) maintains optimum cooling oil temperature.

Compressed air, freed of cooling oil in the oil separator tank (5), flows through the minimum pressure nozzle (8) into the air distributor (10). The minimum pressure nozzle ensures that there is always a minimum internal air 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

Further information Pipe and Instrument Diagram (P & I Diagram) see chapter 13.3.

4.4.1 Operating modes

The machine operates in the following modes:

- **LOAD**
 - The inlet valve is open.
 - The engine speed control cylinder is at maximum speed.
 - The airend provides compressed air for connected consumers.
 - The minimum pressure nozzle ensures that the pressure in the oil separator tank cannot fall below the set minimum. The minimum pressure ensures continuous circulation of cooling oil through the machine.
- **MODULATING**
 - With the help of a control valve; the proportional controller, the opening and closing of the inlet valve is continuously varied in relation to the actual air demand.
 - Engine speed is also varied accordingly by the control cylinder.
 - The airend provides compressed air for connected consumers.
 - This MODULATING control ensures minimum fuel consumption during times of low demand. The load and fuel consumption of the engine rises and falls with the air demand.
 - The control valve is factory set. The setting should not be changed without consultation with KAESER Service.
- **NO-LOAD/IDLE**
 - The engine speed control cylinder is at minimum speed.
 - The inlet valve is closed.
 - The minimum pressure nozzle maintains minimum internal pressure.

4.5 Safety devices

4.5.1 Monitoring functions with shutdown

The following functions are monitored automatically.

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



Ignition is cut when a fault occurs. The engine comes to a stop and the venting valve releases pressure from the machine.

4.5.2 Further safety devices

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

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

4.6 Compressed air treatment options

There follows a description of the possible air treatment options that may be fitted to the machine.

4.6.1 Option de Prepared machine

The machine must be provided with appropriate additional connections to accept external treatment components.

Additional connections

- Male hose fitting
- 12V power socket

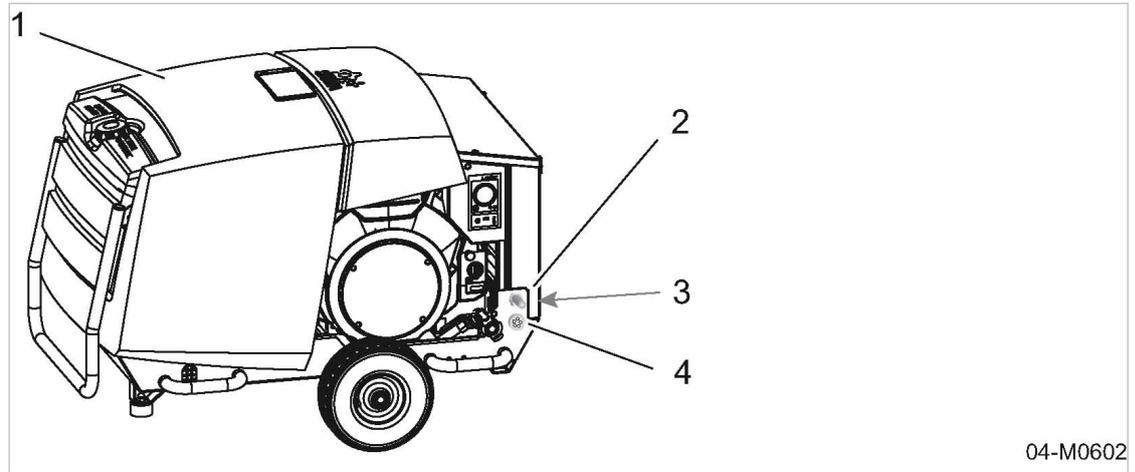


Fig. 7 Prepared machine

- | | |
|--|------------------------------|
| ① Prepared machine | ③ Condensate drain dirt trap |
| ② Male hose coupling for condensate drainage | ④ Socket for the fan |

4.6.2 Option da
External compressed air treatment components

⚠ CAUTION

Icing of the external compressed air treatment system will occur if the temperature falls below the required ambient temperature!

- Check the ambient temperature.
- Maintain the ambient temperature at above +41 °F.

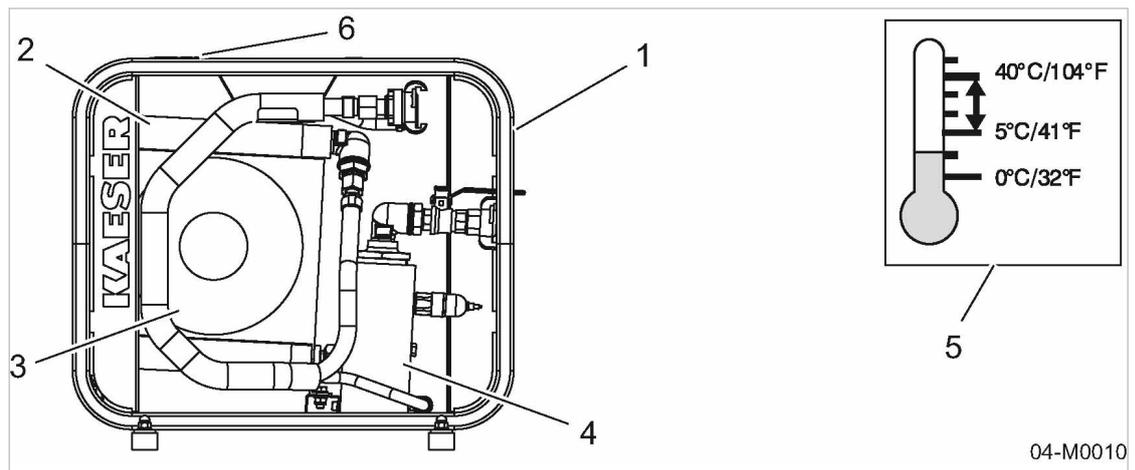


Fig. 8 Compressed air options

- | | |
|-------------------------------------|--|
| ① Frame | ④ Condensate separator (option da) |
| ② Compressed air cooler (option da) | ⑤ Adhesive label ambient temperatures |
| ③ Fan | ⑥ Position of the adhesive label on the external compressed air treatment system |

Air cooler

The cooler brings down the compressed air temperature to only 9 F to 18 F above ambient. Most of the moisture carried in the compressed air is removed in this way.

Condensate separator

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

Further information See chapter 6.3 for installation of external air treatment units.

5 Installation and Operating Conditions

5.1 Safety

- Strictly forbid fire, open flame and smoking.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapors or parts of the machine.
- The machine is not explosion-proof!
Do not operate in areas in which specific requirements regarding explosion protection are in force.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure that required ambient conditions are maintained with regard to:
 - ambient temperature,
 - clean inlet air with no damaging contaminants,
 - inlet air free of explosive or chemically unstable gases or vapors,
 - inlet air free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulfide.
- Keep suitable fire extinguishing agents ready for use.

5.2 Machine placement

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

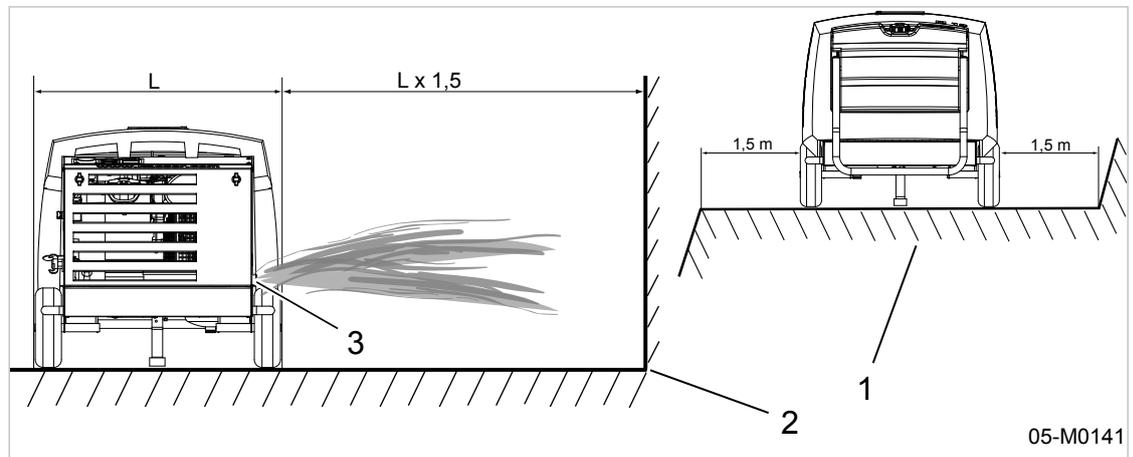


Fig. 9 Minimum distance from excavations/slopes and walls

- ① Distance from excavations/slopes
- ② Required wall distance
- ③ Side exhaust outlet, see also chapter 13.4.

1. Keep sufficient distance (at least 5 feet) from the edges of excavations and slopes, see Fig. 9, item ①.
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. **⚠ CAUTION** *Danger of burning from build up of heat and hot exhaust. Insufficient distance from a wall may well cause heat build-up that could damage the machine.*
 - *Do not position the machine directly against a wall.*
 - *Ensure always sufficient ventilation space around the machine.*
5. Locate the machine with maximum possible distance from any wall, see Fig. 9, item ②.
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. Do not allow wind to blow into the cooling air outlet.
9. Do not allow exhaust gases and heated cooling air to be drawn into the compressor.
10. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
11. **⚠ CAUTION** *Ambient temperature too low! Frozen condensate and highly viscous engine or compressor oil can cause damage when starting the machine.*
 - *Use winter grade engine oil.*
 - *Use low viscosity compressor oil.*
 - *Allow the machine to warm up in idle, see chapter 8.1.2.*
12. At ambient temperatures below 32 °F, follow instructions in chapter 7.5.

6 Installation

6.1 Safety

Follow the instructions below for safe installation.

Warning instructions are located before a potentially dangerous task.

Basic safety instructions

1. Follow the instructions in chapter "Safety and Responsibility".
2. Installation work may only be carried out by authorized personnel.

Further information Information on authorized personnel are found in chapter 3.4.2.
Information on 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 Option de,da Connecting an external air treatment unit

The compressed air treatment components in a prepared machine (option de) can be combined with the external components of air cooler and condensate separator (option da).

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

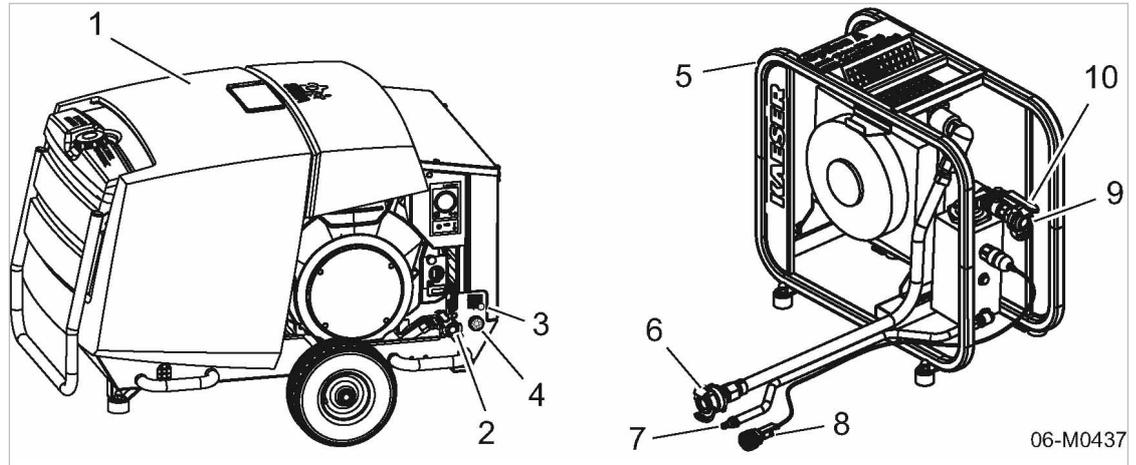


Fig. 10 Connecting the air treatment components

- | | | | |
|---|--|---|---------------------------------------|
| ① | Machine | ⑥ | Hose coupling (compressed air inlet) |
| ② | Claw coupling (machine) | ⑦ | Hose coupling for condensate drainage |
| ③ | Male hose coupling for condensate drainage | ⑧ | Plug for fan |
| ④ | Socket for the fan | ⑨ | Claw coupling (treated air) |
| ⑤ | External air treatment unit | ⑩ | Compressed air outlet valve |

Making necessary connections

1. Connect the hose ⑥ to the point ② on the machine ①.
2. Connect the hose ⑦ to the point ③ on the machine ①.
3. Connect the plug ⑧ to the point ④ on the machine ①.
4. Connect the consumer hose to the claw coupling ⑨.
5. Check if the following components are correctly connected:
 - Compressed air hose
 - Condensate drainage
 - Electrical power cable for the fan

Result The external air treatment unit is completely connected.

7 Initial Start-up

7.1 Safety

Here you will find instructions for safe commissioning of the machine. Warning instructions are located before a potentially dangerous task.

Basic safety instructions

1. Follow the instructions in chapter "Safety and Responsibility".
2. Commissioning work may only be carried out by authorized operating and maintenance personnel.

Further information Information on authorized personnel are found in chapter 3.4.2. Information on dangers and their avoidance are found in chapter 3.5.

7.2 Instructions to be observed before commissioning or recommissioning



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

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

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

7.3 Checking positioning and operating conditions

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

Task	See chapter	Confirmed?
➤ Are the operators fully familiar with safety regulations?	–	
➤ Have all the positioning conditions been fulfilled?	5	
➤ Is there sufficient cooling oil in the separator tank?	10.4.1	
➤ Is there sufficient oil in the engine?	Engine SM	
➤ Is there sufficient fuel in the fuel tank?	Engine SM	
➤ Canopy closed and all panels in place?	–	
➤ Are the tire pressures OK?	–	

Engine SM ≙ engine manufacturer's service manual.

Tab. 29 Positioning and operating conditions checklist

7.4 After storing the machine for a long period

- Carry out the following before every re-commissioning after a long period of storage.

Storage period longer than	Action
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 compressor oil. ➤ Drain the preserving oil from the engine. ➤ Fill up with engine oil. ➤ Check the battery charge. ➤ Re-connect the battery. ➤ Check all fuel lines, engine oil lines and compressor oil lines for leaks, loose connections, wear and damage. ➤ Clean the bodywork with a grease and dirt cleansing agent. ➤ Check the tire pressure.
36 months	<ul style="list-style-type: none"> ➤ Have the overall technical condition checked by an authorized KAESER Service Technician.

Tab. 30 Measures for re-commissioning the compressor after a long period of storage

7.5 Low-temperature operation (winter)

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

- At temperatures below 32 °F use:
 - winter-grade engine oil
 - low viscosity compressor oil
 - stronger battery



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

Machine operational state

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

7.5.1 Starting assistance

If the machine's starter batteries are discharged, it can be started by jump-starting from the battery of another engine-driven machine or vehicle.

Material Jumper cables

Precondition The machine is standing firm and level.

⚠ DANGER

Fire and explosion hazard.

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

- *Observe the instructions provided with the battery jumper cables.*
 - *Do not connect the battery jumper cables to the negative pole of the discharged battery or to the bodywork of the machine.*
- Follow the safety rules when dealing with batteries:
- Connect batteries of the same voltage only.
 - The starting machine and machine to be started must not touch.
 - Do not bend over the battery when attaching jumper cables.
 - Only use battery jumper cables of sufficient cross-sectional area and with insulated terminal clamps.
 - Observe the instructions provided with the battery jumper cables.
 - Keep jumper cables away from rotating parts.
 - Do not attempt to start the machine if its battery is frozen. Allow the battery to thaw first.
 - Do not try to start the machine with a boost charger.

Connecting the battery jumper cables

1. Stop the engine of the assisting vehicle.
2. Switch off all power consumers.
3. Connect positive battery poles.
4. **⚠ DANGER** *Explosion hazard.*
Danger of sparks igniting 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 (connecting or disconnecting may cause sparking).*
5. Connect the negative (-) pole of the assisting battery to a bare metal point on the compressor engine to be started as far away from the battery as possible.

Starting the engine

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



Let both engines run for approximately 3 minutes.

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 (+).



If the compressor engine stops as soon as the cables are disconnected, it can mean serious damage to the alternator or battery and it should be handed over to a specialized workshop.

8 Operation

8.1 Starting and Stopping

Precondition No personnel are working on the machine.

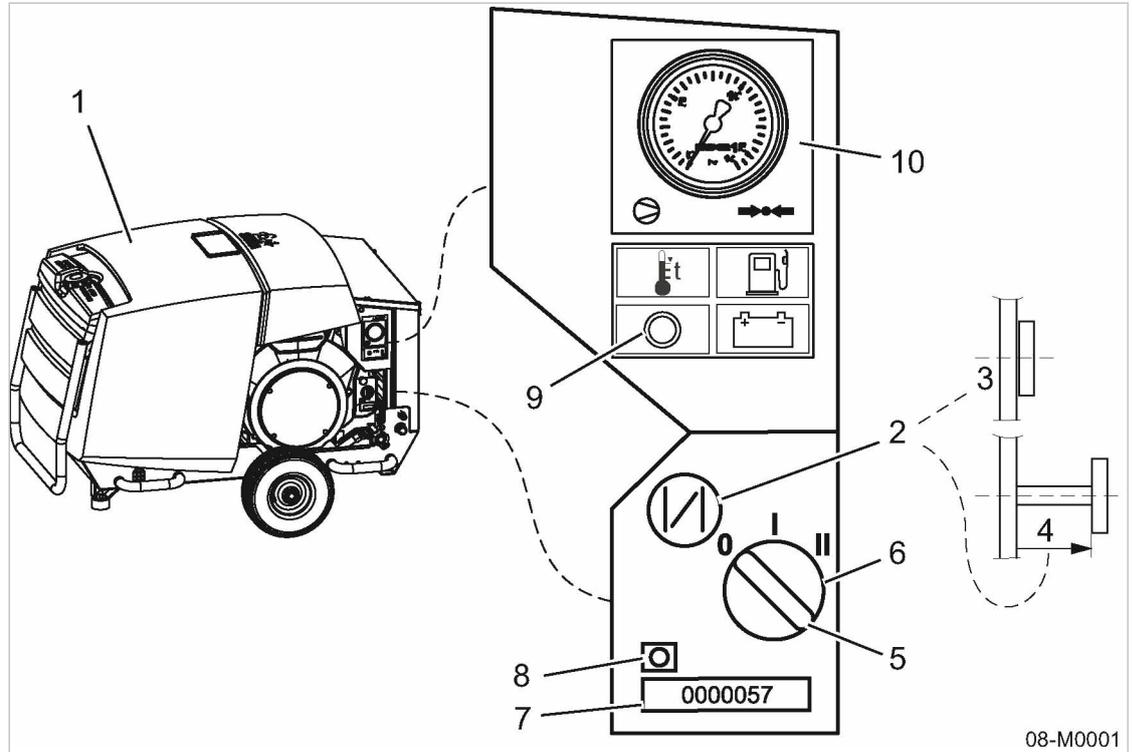


Fig. 11 Instruments

- | | | | |
|---|--------------|---|--|
| ① | Machine | ⑥ | Starter switch:
0: OFF position
I: OPERATION position
II: STARTING position |
| ② | Choke | ⑦ | Operating hours counter |
| ③ | Choke open | ⑧ | Engine oil indicating lamp |
| ④ | Choke closed | ⑨ | Charging indicator lamp, group alarm lamp |
| ⑤ | Ignition key | ⑩ | Compressed air outlet pressure gauge |

8.1.1 Starting

1. **⚠ CAUTION** *Serious damage to engine from the use of cold starting sprays. The use of ether or other cold start sprays can cause serious damage to the engine.*
 - Do not use cold start sprays.
2. **⚠ CAUTION** *Destruction of the starter! Improper operation could destroy the starter.*
 - The starter must not operate while the engine is running.
 - The ignition key must not be held in the start position longer than 5 seconds.
 - Wait 10 seconds between starting attempts.
 - Turn the ignition key back to the "0" position between each starting attempt (repeat-start inhibit).

3. Disconnect air consumers.
4. Open air outlet valve.
5. Insert the ignition key **5**.
The starter switch is in the "0" position.
6. Pull out the choke **2** to position **4** (mixture enrichment) for every start.
7. Turn the starter switch **5** to the "I" position.
The charging indicator lamp **9** signalises operational readiness.
8. Turn the ignition key **5** to the "II" position and release it as soon as the engine starts.
The starter switch **6** springs back to the "I" position.
The charging indicator lamp extinguishes.
9. When the engine is running smoothly, push in the choke **2** slowly to the **3** position.

8.1.2 Allow the machine to run up to operating temperature

To avoid unnecessary wear, the engine should be run in idle for 3 to 5 minutes until an appropriate airend discharge temperature has been reached. The warm-up time depends on the ambient temperatures.

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

8.1.3 Shutting down



For minimum wear shut-down:
Allow the machine to run in idle before shutting down.

1. Close the compressed air outlet valve.
The machine runs at idle speed.
2. Turn the ignition key **5** to the "0" position.
3. Wait until the machine has automatically vented (check pressure gauge **10** reads 0 psig).
4. Withdraw the ignition key **5** from the starter switch **6** and secure in a safe place.

8.1.4 Automatic switching-off at high temperature

The machine will automatically switch off if the airend temperature exceeds the permissible threshold value.

The fault is indicated by the indicating lamp **9**, see Fig. 11.

You may restart the machine only after the machine has cooled down.

- Allow the machine to cool down.

8.2 Option da Operating the external air treatment unit

Precondition Ambient temperature is more than 41 °F; see chapter 4.6.2.
The machine is warmed up (see chapter 8.1.2).
The installation tasks described in chapter 6.3 have been carried out.

1. Start the machine (see chapter 8.1).

2. Open the compressed air outlet valve on the compressor.
3. Open the compressed air outlet valve on the external air treatment unit.

Result Consumers are supplied with treated compressed air.

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. Inform KAESER Service if the fault cannot be removed by the action suggested.

Further information Observe the instructions in chapter "Safety" and prevailing local safety regulations when rectifying faults and malfunctions.

9.2 Engine faults and alarms

Further information See also the engine service manual.

9.2.1 Engine refuses to start or comes to a stop

Possible cause	Action	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Defective starter.	Exchange.	X	–	–
The fuel cut-off device has not opened.	Check the coil and electrical components and exchange if necessary.	X	–	–
Fuel tank empty.	Fill up the fuel tank	–	–	–
Airlock in the fuel line between fuel tank and carburetor.	Bleed the fuel line.	–	–	X
Fuel filter clogged.	Clean or change.	–	–	–
Fuel line broken.	Change.	X	–	–
Defective control fuse or relay.	Change.	X	X	–
Airend discharge temperature too high.	Have adjusted.	–	X	–
Defective temperature gauge switch giving no enable signal.	Change.	–	X	–
Defective starter switch.	Change.	X	–	X
Defective spark plug connector.	Change.			
Defective spark plug.	Check and adjust gap or change.	–	–	X
Electrical connections and/or cables loose or broken.	Tighten connection or replace cable.	X	–	–
Defective battery or low charge.	Maintain battery, see chapter 10.3.4.	–	–	–
Defective alternator.	Change.	X	–	X

Possible cause	Action	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Defective alternator regulator.	Change.	X	–	X
Oil pressure switch sensing insufficient oil pressure.	Check the engine oil pressure. Have the engine repaired or exchanged.	X	–	X

Tab. 31 Alarm: Engine refuses to start or comes to a stop.

9.2.2 Engine does not reach full speed.

Possible cause	Action	Where can I get help?		
		Specialized workshop	KAESER Service	Engine service manual
Airlock in the fuel line between fuel tank and carburetor.	Bleed the fuel line.	–	–	X
Fuel filter clogged.	Clean or change.	–	–	–
Fuel line broken.	Change.	X	–	–
Speed adjustment cylinder maladjusted or defective.	Repair or replace if necessary.	–	X	–

Tab. 32 Alarm: Engine does not reach full speed.

9.3 Compressor faults and alarms

9.3.1 Working pressure too high

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Proportional controller maladjusted or defective.	Check the diaphragm and clean the nozzle or replace proportional controller if necessary.	–	X
Inlet valve not closing.	Check the controller, the control air line and the inlet valve and replace if necessary.	–	X
Pressure gauge giving false reading.	Change.	–	X
Venting valve does not blow off.	Check the connections and function and repair or replace as necessary.	–	X

Tab. 33 Alarm: "Working pressure too high"

9.3.2 Working pressure too low.

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Proportional controller maladjusted or defective.	Check the diaphragm and clean the nozzle or replace proportional controller if necessary.	–	X
Inlet valve not opening or only opening partially.	Repair or replace if necessary.	–	X
Pressure gauge giving false reading.	Change.	–	X
Pressure relief valve maladjusted and/or leaking.	Replace if necessary.	–	X
Venting valve does not close.	Check the connections and function and repair or replace as necessary.	–	X
Engine not running at full speed.	See chapter 9.2.	–	–
Engine air filter and/or compressor air filter clogged.	Clean or change, see chapters 10.3.1 and 10.4.7.	–	–
Oil separator cartridge heavily clogged.	Change, see chapter 10.4.6.	–	–

Tab. 34 Alarm: "Working pressure too low"

9.3.3 Safety relief valve blowing off

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

Tab. 35 Alarm: "Safety relief valve blowing off"

9.3.4 Machine overheating

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Defective cooling fan.	Replace blades or the complete fan wheel.	–	X

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Oil cooler clogged.	Clean surface, see chapter 10.4.10.	–	–
Defective working element in the combination valve.	Change.	–	X
Working pressure too high (proportional controller maladjusted).	Reset to the permissible value or replace.	–	X
Oil separator cartridge heavily clogged.	Measure the pressure differential and change the cartridge if greater than 15 psig (see chapter 10.4.6).	–	X
Oil filter cartridge heavily contaminated. (at 217 psig working pressure)	Measure the pressure differential and change the cartridge if greater than 11 psig (see chapter 10.4.6).	–	X
Compressor oil filter clogged.	Change, see chapter 10.4.4.	–	–
Compressor oil level too low.	Top up, see chapter 10.4.2.	–	–
Oil pipes leaking.	Seal leaks or change pipes.	X	X
Defective engine cooling fan.	Repair.	X	X
Ambient temperature too high.	See conditions given in chapter 5.2.	–	–

Tab. 36 Alarm: "Machine overheating"

9.3.5 Too much oil residue in the compressed air

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Oil separator cartridge scavenge line clogged.	Clean the strainer in the separator cartridge dirt trap or change if necessary (see chapter 10.4.6).	–	X
Fractured oil separator cartridge.	Change, see chapter 10.4.6.	–	–
Compressor oil level too high.	Reduce to maximum level, see chapters 10.4.1 and 10.4.3.	–	–

Tab. 37 Alarm: "Too much oil residue in the compressed air"

9.3.6 Oil flows from the compressor air filter after shutdown

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

Tab. 38 Alarm: "Oil flows from the compressor air filter after shutdown"

9.4 Faults and alarms on external air treatment units
9.4.1 The temperature of the treated air is too high

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
The air treatment unit fan is faulty.	Check connecting cables and change if necessary. Check plug connections.	–	–

Tab. 39 Alarm: "Air temperature too high"

9.4.2 Outflow of condensate

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Condensate drain is faulty or incorrectly connected.	Check condensate feed hoses and connections for leaks and tightness.	–	–

Tab. 40 Alarm: "Outflow of condensate"

10 Maintenance

10.1 Safety

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

Basic safety instructions

1. Follow the instructions in chapter 'Safety and Responsibility'.
2. Maintenance work may only be carried out by authorized personnel.
3. Before restarting the machine, make sure that:
 - no personnel are working on the machine,
 - all protective guards and cover panels are screwed back on,
 - all tools have been removed from the machine.

Working on pressure systems

1. Disconnect all air consumers.
2. Wait until the machine is automatically vented (check that the pressure gauge indicates 0 psig).
3. Do not open or dismantle any valves.

Working on the drive system

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

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

10.2 Maintenance schedules

The maintenance schedules provide an overview of the maintenance instructions for the machine.
➤ Read the relative section before undertaking maintenance.

10.2.1 Logging maintenance work



The maintenance intervals given are those recommended for average applications and operating conditions.
Maintenance schedules may be modified to take into account the application, the environment and the quality of maintenance.

1. **⚠ WARNING** *Wear and machine damage through unusual applications or operating conditions.*
 - *Maintenance tasks must be carried out more frequently when operating conditions are unfavorable (e.g. dusty atmosphere) or when the equipment is in constant use.*
 - *Adjust the maintenance intervals with regard to local installation and operating conditions.*

2. Keep a log of all properly carried out maintenance and service work.
This enables the frequency of individual maintenance tasks and deviations from our recommendations to be determined.

Further information A prepared list is provided in chapter 10.7.

10.2.2 Maintenance tasks after commissioning

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

- Perform maintenance tasks according to the following schedule.

Component Task	After the first 20 h	After the first 50 h	see chapter	Note
Engine:				
Change the oil	x		10.3.2	engine SM

h $\hat{=}$ operating hours; Engine SM $\hat{=}$ engine manufacturer's service manual

Tab. 41 Maintenance tasks after commissioning

10.2.3 Regular maintenance tasks

The following table lists the various maintenance intervals.

Maintenance interval	Short description
Daily	–
Every 50 operating hours	A50
Every 2 to 3 months	A100
Every 250 h, at least annually.	A250
Every 500 h, at least annually.	A500
Every 1000 h, at least annually.	A1000
Every 2000 h, at least annually.	A2000

Tab. 42 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.

10.2.4 Machine maintenance schedule

➤ Carry out maintenance tasks according to the following schedule.

Tasks	Daily	A50	A250	A500	A1000	A2000	See chapter	Note
Engine								
Check the oil level	X							Engine SM
Air filter: Check foam and paper filters.	X						10.3.1	Engine SM
Change the oil			X				10.3.2	Engine SM
Replace the oil filter			X					Engine SM
Check/clean the foam filter element			X				10.3.1	Engine SM
Renewing the paper filter element			X				10.3.1	Engine SM
Clean the engine oil cooler (if fitted)			X					Engine SM
Replace the fuel filter				X				Engine SM
Grease the regulating rods (engine speed).				X				
Fan wheel					X			
Check the spark plugs					X			Engine SM
Check the valves.					X			Engine SM
Check battery connections and electrolyte level.		X						
Compressor unit								
Check the oil level	X						10.4.1	
Check the air filter element.	X						10.4.7	
Clean the oil cooler.							10.4.10	
Have the pressure relief valve checked.					X		10.4.9	
Replace the air filter element.					X		10.4.7	
Change the oil					X		10.4.3	
Replace the oil filter.					X		10.4.4	
Replace drive belts.						X	10.4.8	

Tasks	Daily	A50	A250	A500	A1000	A2000	See chapter	Note
Check/clean the oil separator tank dirt trap.			X				10.4.5	
Replace the oil separator cartridge.						X	10.4.6	
Chassis								
Check the tire pressures.		X					2.4.2	
Check the condition of the locking rings.					X			
Lubricate the canopy hinges.				X				
Maintain the rubber sealing strips.				X				
Check the lifting handles.				X				
Have lifting eye checked.				X				SW
Other maintenance tasks								
Check that all screwed joints are tight.				X				
Check all lines and clamps for wear and firm seating.				X				
Check prepared hoses for leaks.				X				
Check that all electrical connections are tight.				X				
Engine SM $\hat{=}$ engine manufacturer's service manual; SW $\hat{=}$ specialized workshop.								

Tab. 43 Regular machine maintenance tasks

10.2.5 Maintenance schedules for options

- Carry out maintenance tasks according to the following schedule.

Tasks	A1000	See chapter	Note
Option de - dirt trap			
Cleaning the condensate drain dirt trap	X	10.6.1	

Tab. 44 Regular maintenance tasks for options

10.3 Engine

- Carry out maintenance according to schedule.

10.3.1 Air filter maintenance

- Material
- Damp cloths
 - Warm soapy water
 - Non-flammable solvent
 - Compressed air for blowing out
 - Spare parts (as required)

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

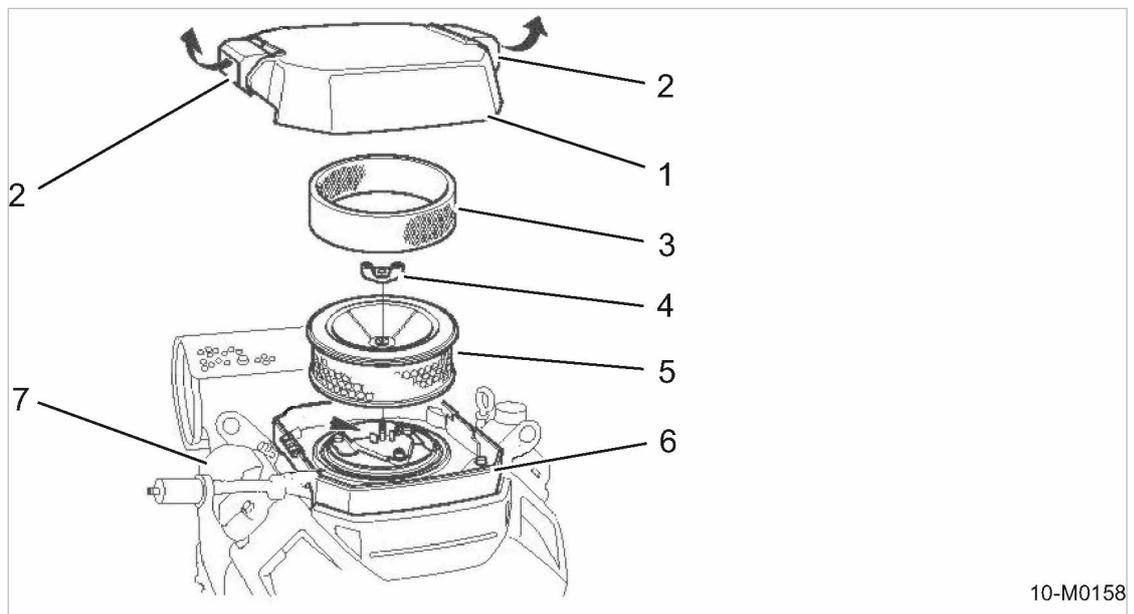


Fig. 12 Engine air filter maintenance

- | | | | |
|---|-----------------|---|----------------|
| ① | Filter cap | ⑤ | Paper element |
| ② | Retaining clips | ⑥ | Filter housing |
| ③ | Foam element | ⑦ | Engine |
| ④ | Wing nut | | |

Checking contamination of the air filter:

Both filter elements should be checked daily before first use of the compressor.

- Check the degree of contamination of the filter elements.
1. Release all retaining clips ②.
 2. Take off the filter cap ①.
 3. Remove the wing nut ④.
 4. Remove the combined filter insert comprising paper element ⑤ and foam element ③ from the filter housing ⑥.
 5. Separate the foam element ③ from the paper element ⑤.

6. Check the foam element (3).
Visually check for:
 - Damage
The foam filter element (3) must be replaced if it is damaged (see section on *replacing the foam filter element*).
 - Excessive dirt contamination
 - Large dirt particles
If the foam element (3) can obviously be reused after cleaning, it should be cleaned according to the instructions "*Cleaning the foam filter element*".
7. Check the paper element (5).
Visually check for:
 - Damage
The paper filter element (5) must be replaced if it is damaged (see "*Replacing the paper filter element*").
 - Excessive dust clogging
If the paper filter element (5) can obviously be reused after cleaning, it should be cleaned according to the instructions "*Cleaning the paper filter element*".
8. If cleaning of the elements is not necessary, they should be correctly re-installed.
 - Press foam element (3) around the paper element (5) .
 - Check whether the gasket is present beneath the paper element (5) .
 - Place the combined filter insert into the filter housing (6) .
 - Place the wing nut (4) onto the threaded stud and turn to tighten.
 - Replace the filter cap (1) on the housing (6).
 - Secure all retaining clips (2).

Renewing the foam filter element

1. Release all retaining clips (2).
2. Take off the filter cap (1).
3. Remove the wing nut (4).
4. Remove the combined filter insert comprised of paper element (5) and foam element (3) from the filter housing (6) .
5. Separate the foam element (3) from the paper element (5) .
6. Clean all sealing faces with a damp cloth.
7. Press the new foam element (3) around the paper element (5) .
8. Check whether the gasket is present beneath the paper element (5) .
9. Place the combined filter insert into the filter housing (6) .
10. Place the wing nut (4) onto the threaded stud and turn to tighten.
11. Replace the filter cap (1) on the housing (6).
12. Secure all retaining clips (2).

Cleaning the foam filter element

1. Release all retaining clips (2).
2. Take off the filter cap (1).
3. Remove the wing nut (4).

4. Remove the combined filter insert comprising paper element (5) and foam element (3) from the filter housing (6).
5. Separate the foam element (3) from the paper element (5).
6. Clean the foam element (3) in warm soapy water or non-flammable solvent.
7. Allow the foam element (3) to dry out (*do not* apply oil).
8. Clean all sealing faces with a damp cloth.
9. Press foam element (3) around the paper element (5).
10. Check whether the gasket is present beneath the paper element (5).
11. Place the combined filter insert into the filter housing (6).
12. Place the wing nut (4) onto the threaded stud and turn to tighten.
13. Replace the filter cap (1) on the housing (6).
14. Secure all retaining clips (2).

Renewing the paper filter element

1. Release all retaining clips (2).
2. Take off the filter cap (1).
3. Remove the wing nut (4).
4. Remove the combined filter insert comprising paper element (5) and foam element (3) from the filter housing (6).
5. Separate the foam element (3) from the paper element (5).
6. Clean all sealing faces with a damp cloth.
7. Press foam element (3) around the paper element (5).
8. Check whether the gasket is present beneath the paper element (5).
9. Place the combined filter insert into the filter housing (6).
10. Place the wing nut (4) onto the threaded stud and turn to tighten.
11. Replace the filter cap (1) on the housing (5).
12. Secure all retaining clips (2).

Cleaning the paper filter element

1. Release all retaining clips (2).
2. Take off the filter cap (1).
3. Remove the wing nut (4).
4. Remove the combined filter insert comprising paper element (5) and foam element (3) from the filter housing (6).
5. Separate the foam element (3) from the paper element (5).
6. Clean all sealing faces with a damp cloth.
7. Dislodge dirt from the element (5) by tapping against a firm surface or by blowing out with compressed air (max 30 psig), **do not** attempt to brush the dirt out.
8. Press foam element (3) around the paper element (5).
9. Check whether the gasket is present beneath the paper element (5).
10. Place the combined filter insert into the filter housing (6).
11. Place the wing nut (4) onto the threaded stud and turn to tighten.
12. Replace the filter cap (1) on the housing (6).
13. Secure all retaining clips (2).

10.3.2 Changing the engine oil

Warm engine oil will drain quickly and entirely.

For this reason, let the engine warm up prior to the oil change, if it was not in operation.

The engine oil should be changed:

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

Material See chapter 2.6.3 for engine oil filling quantity.

New gasket

Receptacle

Cleaning cloth

Funnel

Precondition The machine is shut down.

The machine is standing level.

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

Engine at operating temperature.

All compressed air consumers are disconnected and the air outlet valve is open.

Rear panel removed.

The negative cable to the battery is disconnected.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

➤ *Wear long-sleeved clothing and gloves.*

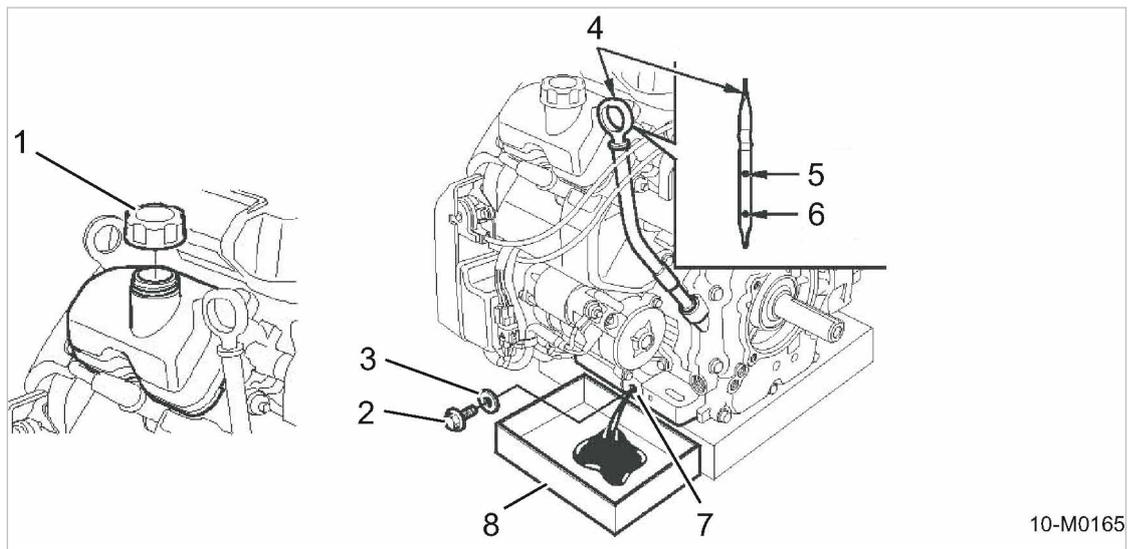


Fig. 13 Changing the engine oil

- | | |
|----------------|-----------------|
| ① Filler cap | ⑤ Maximum level |
| ② Drain plug | ⑥ Minimum level |
| ③ Gasket | ⑦ Drain hole |
| ④ Oil dipstick | ⑧ Receptacle |

Changing the engine oil

1. Place the receptacle (8) below the drain hole (7).
2. Twist and remove the lid (1) of the oil filler port.
3. Loosen and remove the drain plug (2) with the gasket (3).
Engine oil drains.
4. Wait until the engine oil has completely drained into the receptacle.
5. Insert the drain plug (2) with a new gasket (3) into the drain hole.
6. Tighten the drain plug (2).
7. Use a funnel when filling oil into the filter port.
8. Fill the new oil engine oil.
9. Wait until the new engine oil has spread.
10. Check the oil level with the dipstick (4).
Add more fresh engine oil if the level is too low.
 - Indication (5) = maximum level
 - Indication (6) = minimum level
11. Reconnect the negative cable to the battery.
12. Replace the machine rear panel.
13. Engage locks.



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

Further information See engine service manual for oil change under dusty conditions.

Starting the machine and performing a test run:

1. Start the machine and allow it to idle for at least 5 minutes.
2. Check the engine oil level in accordance with the engine service manual.
Top up as necessary.
3. Visually inspect for leaks.
4. Shut down the machine.

10.3.3 Changing the engine oil filter

Material Spares

See chapter 2.6.3 for engine oil filling quantity.

Common tools

Cleaning cloth

Receptacle

Precondition

The machine is shut down.

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

Engine cooled down.

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

Rear panel removed.

The negative cable to the battery is disconnected.

Engine oil has been drained.

Filler plug and new gasket are screwed in and tightened.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

➤ *Wear long-sleeved clothing and gloves.*

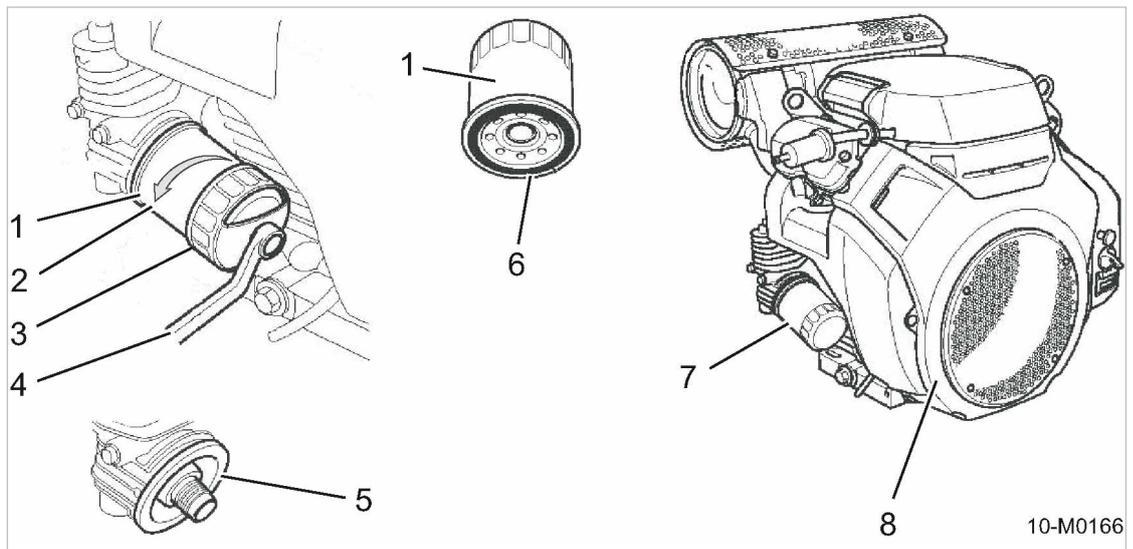


Fig. 14 Changing the oil filter

- | | |
|---|------------------------------------|
| ① Oil filter | ⑤ filter assembly plinth |
| ② Direction of rotation to unscrew the filter | ⑥ Seal |
| ③ Oil filter key | ⑦ Position of oil filter at engine |
| ④ Wrench | ⑧ Engine |

1. Prepare the receptacle.
2. Note the direction of rotation ② to loosen the oil filter ①.
3. Place the oil filter key ③ onto the oil filter.
4. Apply the wrench ④.
5. Unscrew the oil filter ①.

6. Remove the old oil filter.
7. Catch any draining engine oil.
8. Clean the filter assembly plinth **5** .
9. Check the gasket **6** of the new oil filter **1** for dirt.
10. Lubricate the gasket **6** with fresh engine oil.
11. Place the new oil filter **1** onto the filter assembly plinth **5** and manually turn it until the sealing faces are touching.
12. Place the oil filter key **3** onto the oil filter.
13. Apply the wrench **4** .
14. Tighten the oil filter with a torque of 12 Nm for a 3/4 turn.
15. Fill the crank casing with the recommended engine oil and the specified quantity.
16. Check the oil level.
17. Close the oil filling port.

Result A new engine oil filter is installed.
Fresh engine oil has been filled.



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

Starting the machine and carrying out a trial run

1. Switch the machine on.
2. Run the machine for about 5 minutes in idle.
3. Check the oil level.
Add more fresh engine oil if the level is too low.
4. Visually inspect for leaks.
In particular, check the interface of
 - filter assembly plinth
 - engine oil filter
5. Switch the machine off.

10.3.4 Battery maintenance

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

10.3.4.1 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.*

Observe the following points when working on the batteries:

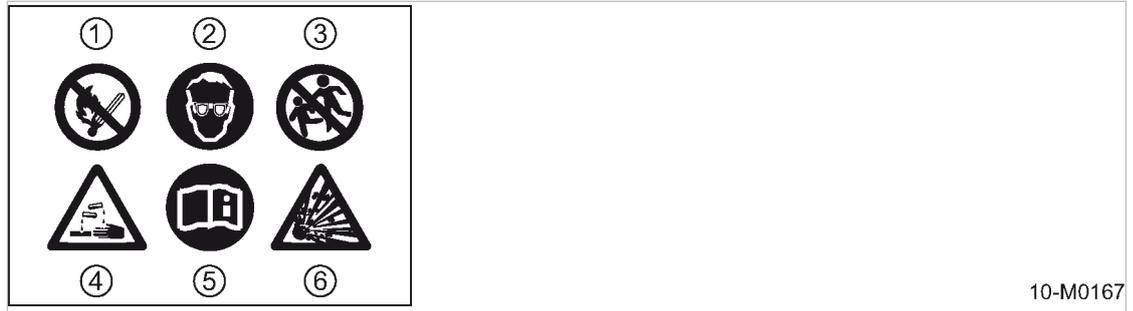


Fig. 15 Safety signs - warning stickers on the battery.

- ① Fire, sparks, open flame and smoking are forbidden.
- ② Wear eye and face protection. Danger of acid burn.
- ③ Keep children well away from batteries and electrolyte.
- ④ Batteries are filled with caustic electrolyte.
- ⑤ Observe the battery manufacturer's instructions.
- ⑥ Explosion hazard!

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

Further instructions on working with batteries

1. Do not remove battery terminal covers unnecessarily.
2. Do not lay tools on the battery. These can lead to short circuiting, overheating and battery bursting.
3. 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 good ventilation.

10.3.4.2 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 minimizes the discharge rate.

- Material
- Terminal grease
 - Distilled water
 - Cleaning cloths
 - Protective gloves

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

1. Clean the casing and terminals.
2. Lightly grease the terminals to prevent corrosion.
3. Check the battery is properly secured, if necessary tighten the battery fixing clamp.
4. Check that connections are tight and tighten if necessary.

Check the battery electrolyte level.

The electrolyte level must be checked weekly. The level should be up to the mark, 10 mm above the plates.



If a battery casing leaks fluid, the battery must be replaced immediately.

1. **⚠ WARNING** *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.

Winter operation

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

1. **⚠ CAUTION** *Danger of batteries freezing!*
Discharged batteries are subject to frost damage and can freeze at 14 °F.
 - *Check battery charge with a specific gravity tester.*
 - *Recharge the battery*
 - *Clean the battery terminals and wipe with grease.*
2. Check the battery charge weekly.
Recharge as necessary.
3. If the machine is to be unused for a number of weeks, remove the battery and store in a frost-proof room.



In extreme cases, the use of heavy-duty cold-start batteries (to DIN 75311) and/or additional batteries is recommended.

10.3.4.3 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 psig.
Machine cooled down.

Removing the battery

1. **⚠ WARNING** *There is danger of batteries bursting!*
If a battery is short circuited it will overheat and can burst.
Battery electrolyte will be sprayed out in such an event.
 - *Never short-circuit a battery (e.g. with a hand tool).*
 - *Always wear protective gloves.*
2. **⚠ CAUTION** *Excessive voltage produced by the alternator.*

Voltage peaks can destroy the alternator regulator and diodes.

➤ *The battery serves as a buffer and must not be disconnected while the engine is running.*

3. Remove the machine rear panel.
4. Disconnect the negative cable first, then the positive cable.
5. Unscrew the battery fixing clamp.
6. Remove the battery from the machine.

Battery replacement

If the battery is to be replaced, the new battery should have the same capacity, current rating and shape as the original battery.

➤ Always replace a battery with one of the same type.

Installing the battery

1. Place the battery in the machine.
2. Tighten the battery fixing clamp.
3. Make sure the battery is properly secured.
4. Connect first the positive cable, then the negative cable.
5. Replace the machine rear panel.
6. Engage locks.



The old battery is hazardous waste and must be disposed of correctly in accordance with local environment protection regulations.

10.4 Compressor

➤ Carry out maintenance tasks in accordance with the schedule in chapter 10.2.4 .

10.4.1 Check cooling oil level.

The oil level is checked at the oil separator tank filling port. An adhesive label at the oil separator tank ④ indicates the correct cooling oil level. Cooling oil must be visible in the port when the filler plug is removed.

Material Wrench

Cleaning cloth

Precondition The machine is shut down.

The machine is standing level.

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

All compressed air consumers are disconnected and the air outlet valve is open.

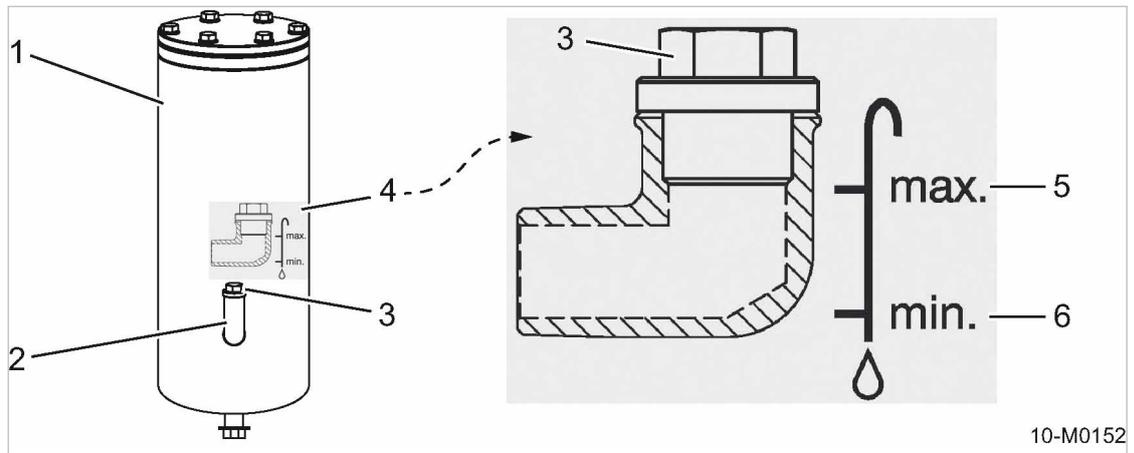


Fig. 16 Check cooling oil level.

- | | |
|----------------------|--|
| ① Oil separator tank | ④ Adhesive label, cooling oil level |
| ② Oil filler | ⑤ Marking <i>maximum cooling oil level</i> |
| ③ Screw plug | ⑥ Marking <i>minimum cooling oil level</i> |

1. Slowly unscrew the plug ③ from the oil filler port ②.
2. Unscrew and remove the oil filler plug.
3. Check that cooling oil is visible.
If no cooling oil is visible: Replenish the cooling oil.
4. Screw the filler plug into the oil filler port.
5. Tighten the plug.

10.4.2 Topping up the cooling oil

Material Cooling oil
Funnel
Wrench
Cleaning rags

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

Filling with cooling oil

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

1. **⚠ CAUTION** *The machine could be damaged by unsuitable oil.*
 - *Never mix incompatible types of oil.*
 - *Never top up with a different type of oil to that already used in the machine.*
2. Slowly unscrew and withdraw the plug from the oil filler port.
3. Top up the cooling oil to the maximum level with the help of a funnel.
4. Check the oil level

5. Check the filler plug gasket for damage.
Change a damaged gasket immediately.
6. Replace the plug in the filler port.
7. Reconnect the negative cable to the battery.

Starting the machine and carrying out a trial run

1. Start the machine and run in idle up to operating temperature.
2. Close the compressed air outlet valve.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig.
5. Open the outlet valve.
6. Check the oil level after about 5 minutes.
Top up if necessary.
7. Carry out a visual check for leaks.

10.4.3 Changing the cooling oil

Drain all cooling-oil from:

- the oil separator tank,
- the oil cooler,
- the oil pipes.

Material Cooling oil

Receptacle

New gasket for the drain plug

Funnel

Cleaning rags

Precondition The machine is shut down.

The machine is standing level.

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

The machine is at operating temperature.

All compressed air consumers are disconnected and the air outlet valve is open.

The negative cable to the battery is disconnected.

⚠ CAUTION

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

➤ *Wear long-sleeved clothing and gloves.*

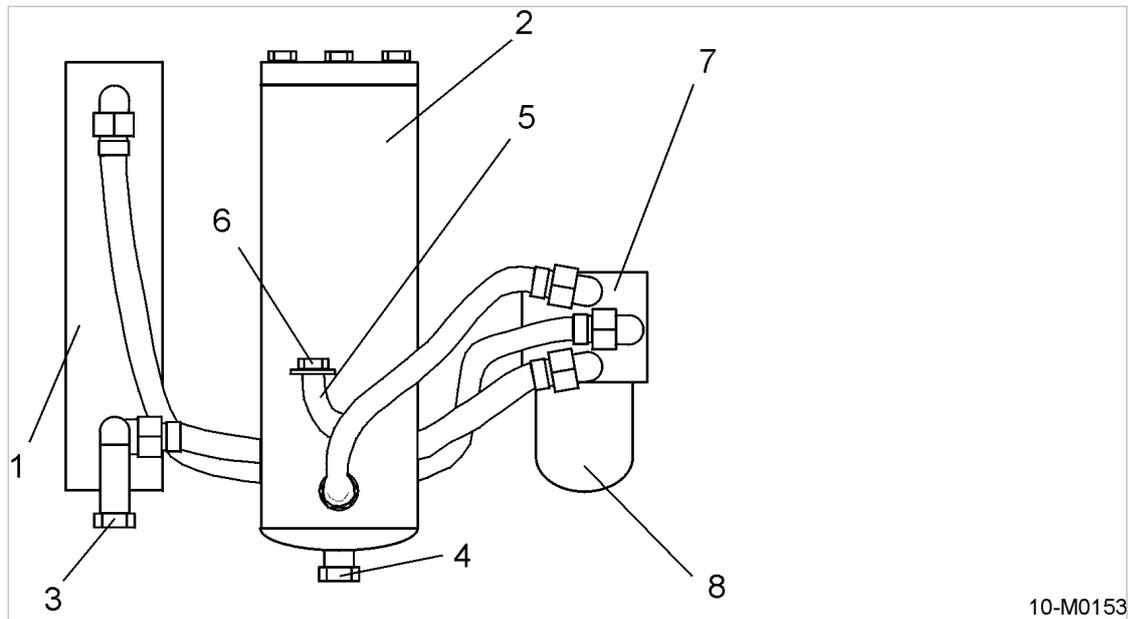


Fig. 17 Changing the cooling oil

- | | | | |
|---|-------------------------------|---|-------------------|
| ① | the oil cooler, | ⑥ | Oil filler plug |
| ② | the oil separator tank, | ⑦ | Combination valve |
| ③ | Oil cooler drain plug | ⑧ | Oil filter |
| ④ | Oil separator tank drain plug | ⑨ | Airend |
| ⑤ | Oil filler port | | |

Changing the cooling oil

1. Remove the plug ⑥ from the oil separator tank ② filling port.
2. Position the receptacle below the separator tank drain plug ④.
3. Unscrew the drain plug and allow the oil to drain into the receptacle.
4. Fit a new gasket on the drain plug ④ and screw it back in again.
5. Place the receptacle beneath the oil cooler ①.
6. Unscrew the drain plug ③ and allow the cooling oil to drain into the receptacle.
7. Fit a new gasket on the drain plug ③ and screw it back in again.
8. Fill up the cooling oil using a funnel.
9. Check the cooling oil level.
10. Check the filler plug ⑥ gasket for damage.
Change a damaged gasket immediately.
11. Replace the plug in the filler port ⑤.
12. Reconnect the negative cable to the battery.



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

Starting the machine and carrying out a trial run

1. Start the machine and run in idle up to operating temperature.
2. Close the compressed air outlet valve.
3. Shut down the machine.

4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig.
5. Open the outlet valve.
6. Check the oil level after about 5 minutes.
Top up if necessary.
7. Carry out a visual check for leaks.

10.4.4 Changing the oil filter

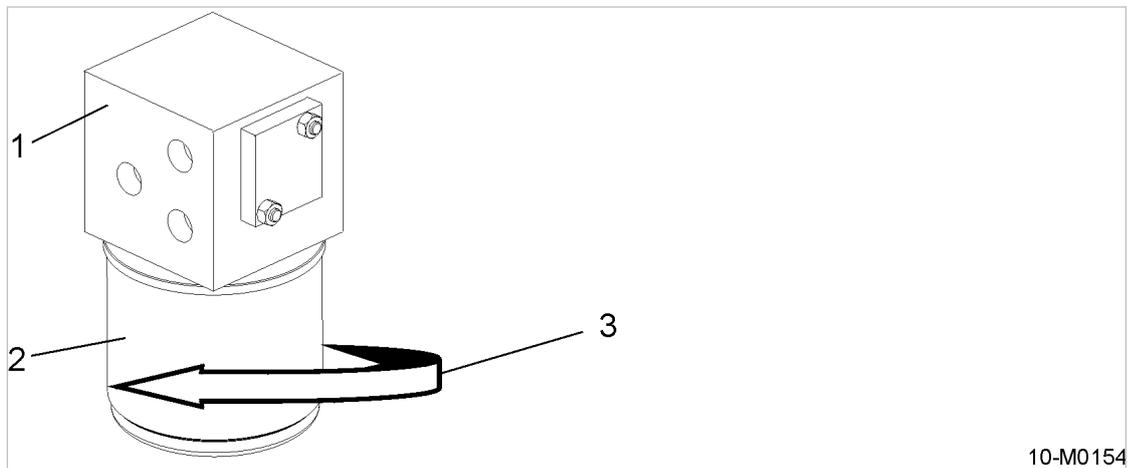
Material Spares
Receptacle
Cleaning rags

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

⚠ CAUTION

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

- *Wear long-sleeved clothing and gloves.*



10-M0154

Fig. 18 Changing the oil filter

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

Changing the oil filter

1. Prepare a receptacle.
2. Loosen the filter ② by turning counter-clockwise ③ and catch any escaping oil.
3. Carefully clean sealing surfaces using lint-free cloth.
4. Lightly oil the new filter's ② gasket.

5. Turn the oil filter  clockwise by hand to tighten.
6. Check the oil level in the oil separator tank.
Top up if necessary.
7. Reconnect the negative cable to the battery.
8. Replace the machine rear panel.
9. Lock the rear panel closed.



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

Starting the machine and carrying out a trial run

1. Start the machine and run in idle up to operating temperature.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig.
5. Open the outlet valve.
6. Check the oil level after about 5 minutes.
Top up if necessary.
7. Carry out a visual check for leaks.

10.4.5 Maintenance of the oil separator tank dirt trap

Material Cleaning cloths
Wrench
Dirt trap maintenance kit

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

The dirt trap is located in the centre of the oil separator tank cover (see Fig 19).

1. Raise the canopy.
2. Undo the oil scavenge line union nut .
3. Remove the oil scavenge line.
4. Remove the plug .
5. Remove the sealing ring  and strainer .
6. Unscrew the dirt trap housing .
7. Clean the housing, strainer, sealing ring and plug.
8. Check the strainer and sealing ring for function and wear.
Renew if non functional.
9. Screw the dirt housing trap back in.
10. Insert the strainer and sealing ring.

11. Insert the plug and tighten.
12. Refit the oil scavenge line and tighten the union nut.
13. Reconnect the negative cable to the battery.
14. Replace the machine rear panel.
15. Engage locks.
16. Close the canopy.

10.4.6 Changing the oil separator cartridge



If the pressure relief valve blows off during operation of the machine, the pressure drop over the oil separator cartridge is too high (see chapter 9.3).

- The oil separator cartridge must be changed immediately.

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

Material Spares

Cleaning cloths

Precondition The machine is shut down.

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

Machine cooled down.

All compressed air consumers are disconnected and the air outlet valve is open.

Rear panel removed.

The negative cable to the battery is disconnected.

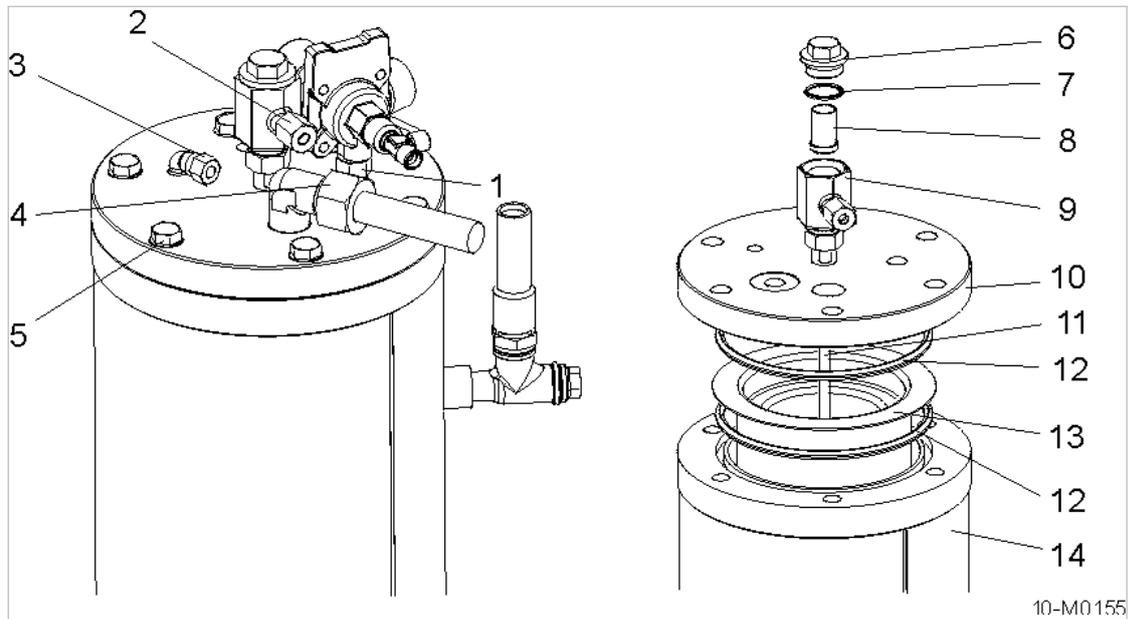


Fig. 19 Changing the oil separator cartridge

- | | | | |
|---|---------------------------------------|---|-------------------------|
| ① | Proportional controller fitting | ⑧ | Strainer |
| ② | Oil scavenge line union nut | ⑨ | Dirt trap |
| ③ | Pressure gauge control line union nut | ⑩ | Cover |
| ④ | Compressed air hose union nut | ⑪ | Oil scavenge pipe |
| ⑤ | Fixing screw | ⑫ | Gasket or O-ring |
| ⑥ | Screw plug | ⑬ | Oil separator cartridge |
| ⑦ | O-ring | ⑭ | Oil separator tank |

Changing the oil separator cartridge

1. Loosen the following fittings:
 - Proportional controller fitting ①
 - Oil scavenge line union nut ②
 - Pressure gauge line union nut ③
 - Compressed air hose union nut ④
2. Remove all obstructions to the oil separator tank cover ⑩
3. Loosen and remove the dirt trap ⑥ plug ⑨.
4. Remove the O-Ring ⑦ and strainer ⑧.
5. Loosen the screws ⑤ securing the cover ⑩ to the separator tank.
6. Remove all fixing screws ⑤.
7. Remove the oil separator tank cover ⑩.
8. Lay the cover down on its upper surface to avoid damage to the oil scavenge pipe ⑪.
9. Take out the old cartridge ⑬ and gaskets (O-rings) ⑫.
10. Clean all sealing surfaces with cloths, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.
11. Insert the new oil separator cartridge ⑬ with new gaskets (O-rings) ⑫.
12. Carefully place the cover on the tank ⑩.
13. Insert all fixing screws.
14. Tighten up fixing screws.

15. Insert a new strainer (8) and O-ring (7) in the dirt trap (9).
16. Insert the plug (6) and tighten.
17. Position the proportional controller, line, hose and fittings on the cover.
18. Replace and tighten all fittings loosened or removed in point 1.
19. Check the oil level in the separator tank (14).
Top up if necessary.
20. Reconnect the negative cable to the battery.
21. Replace the machine rear panel.
22. Engage locks.



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

Starting the machine and carrying out a trial run

1. Start the machine and run in idle up to operating temperature.
2. Close the compressed air outlet valve.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig.
5. Open the outlet valve.
6. Check the oil level after about 5 minutes.
Top off if necessary.
7. Carry out a visual check for leaks.

10.4.7 Air filter maintenance

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

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

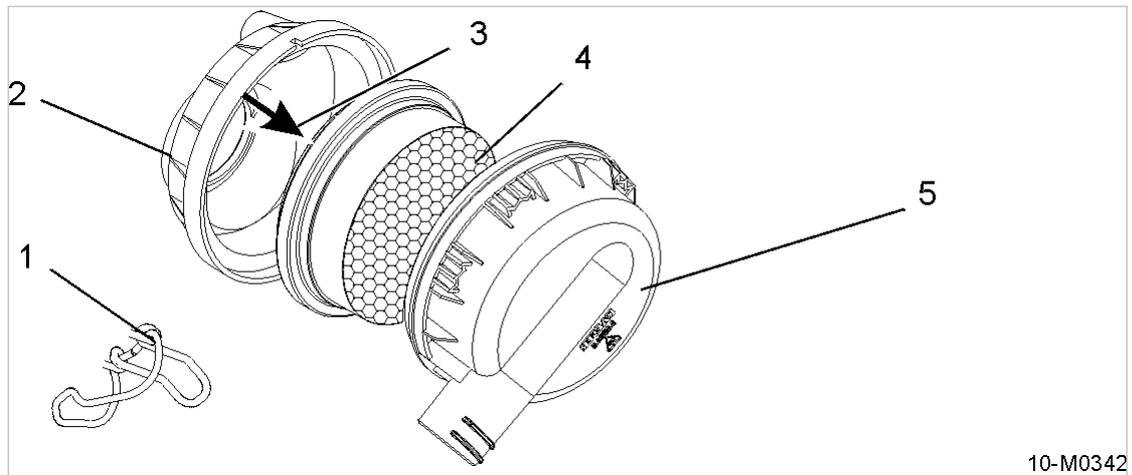


Fig. 20 Compressor air filter maintenance

- | | | | |
|---|------------------------|---|--------------------|
| ① | Retaining clip | ④ | Air filter element |
| ② | Air filter housing | ⑤ | Filter cap |
| ③ | Direction of air blast | | |

Checking contamination of the filter element



The filter element should be checked visually for contamination.

Checking should be carried out according to the compressor maintenance schedule in chapter 10.2.4.

► Check the filter element.

1. Release both retaining clips ①.
2. Take off the filter cap ⑤.
3. Withdraw the element ④ from the housing ②.
4. Check the filter element ④.

Visually check for:

- Damage
The element ④ must be replaced if it is damaged (see section on replacing the air filter element).
 - Excessive dirt contamination
 - Large dirt particles
If it can be seen that the element ④ can be reused after cleaning, it should be cleaned according to the given instructions.
5. If cleaning is not necessary, the element should be correctly re-installed.
 - Insert the element ④ in the housing ②.
 - Replace the filter cap ⑤.
 - Secure the cap ⑤ with the two retaining clips ①.

Renewing the filter element

1. Release both retaining clips ①.
2. Take off the filter cap ⑤.
3. Withdraw the filter insert ④.

4. Clean the air filter cap (5) and housing (2).
5. Clean all sealing faces.
6. Insert the new element (4) in the housing (2).
7. Replace the filter cap (5).
8. Secure the cap (5) with the two retaining clips (1).

Cleaning the filter element by gently tapping

Gently tapping the element will remove coarse dirt.

1. Carry out element renewal steps 1 to 5.
2. Tap the inlet side of the filter element a number of times against the palm of the hand.
Coarse dirt particles are freed from the element.
3. Insert the cleaned element in the housing.
4. Carry out element renewal steps 7 and 8.

Blowing the filter element clean



- Use compressed air at less than 73 psig.
- The direction of air blast (3) through the element is always contra to the intake direction.

Contamination in the filter element can be blown out with compressed air.

1. Carry out element renewal steps 1 to 5.
2. Blow out the filter element with compressed air.
Dirt particles are freed from the element.
3. Insert the cleaned element in the housing.
4. Carry out element renewal steps 7 and 8.

10.4.8 Checking the drive belt

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

Excessive tension on the belt causes excessive stretch and results in a short life span. Over-tight belts also place unnecessary stress on bearings and shorten their life.

Material	Belt tension measuring device Spares
Precondition	The machine is shut down. The machine is fully vented, the pressure gauge reads 0 psig. Machine is cooled down. All compressed air consumers are disconnected and the air outlet valve is open. Rear panel removed. The negative cable to the battery is disconnected.

⚠ WARNING

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

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

➤ Observe the safety instructions in chapter 3.5.

10.4.8.1 Visual inspection

1. Remove the belt guard, if fitted.
2. Check the belt thoroughly for cracks, fraying or stretching.
Replace a damaged belt.
3. Reconnect the negative battery terminal.

10.4.8.2 Checking belt tension

Belt tension can be checked with a measuring device or by hand.

Precondition Check belt tension when the belts are warm but not hot (temperature variations cause variations in length).

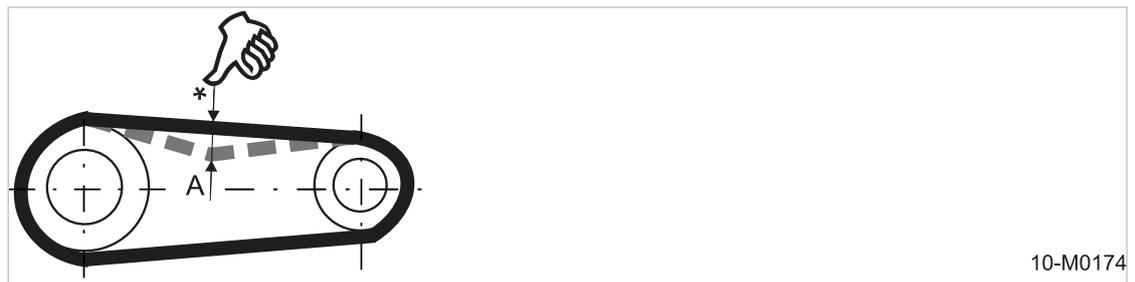


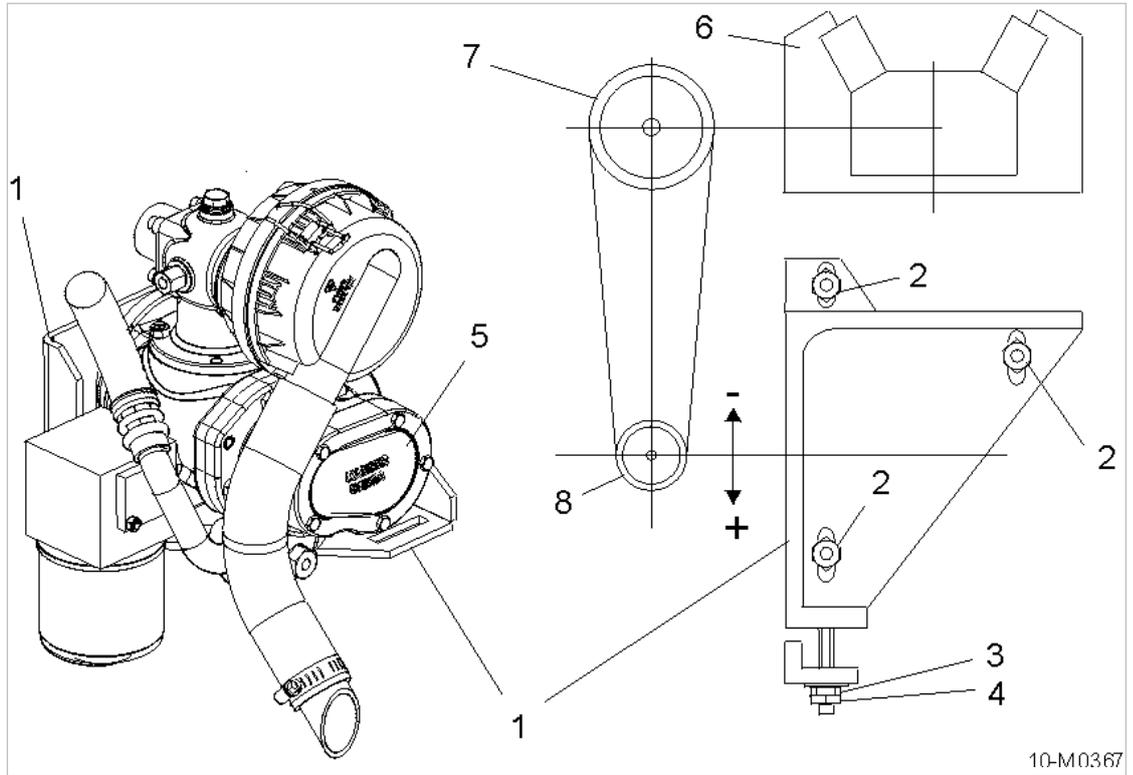
Fig. 21 Manual checking of the belt tension

- Ⓐ Permissible movement
- * Compressive load approximately: 16.5 lb
permissible intrusion depth: 0.4–0.5in

Checking belt tension with a measuring device	Belt tension checking by hand
<ol style="list-style-type: none"> 1. Check belt tension with the tension measuring device. 2. Tensioning a loose belt: see chapter 10.4.8.3 3. Replace the belt guard. 4. Reconnect the negative battery terminal. 	<p>Press the belts in with the thumb at the mid-point between pulleys.</p> <ol style="list-style-type: none"> 1. Check belt tension by hand (see Fig. 21). 2. Tensioning a loose belt: see chapter 10.4.8.3 3. Replace the belt guard. 4. Reconnect the negative battery terminal.

10.4.8.3 Belt tensioning

For simple belt tensioning, the airend ⑤ is mounted on an adjustable tensioning device (see Fig. 22). The nuts ② clamp the airend to the tensioning device and allow adjustment of the distance between the engine and airend pulleys. The nuts ② are accessible from above.



10-M0367

Fig. 22 Belt tensioning

- | | | | |
|---|------------------------|---|----------------|
| ① | Belt tensioning device | ④ | Locking collar |
| + | more tension | ⑤ | Airend |
| - | less tension | ⑥ | Engine |
| ② | Clamping nut | ⑦ | Engine pulley |
| ③ | Adjusting nut | ⑧ | Airend pulley |

Tension is adjusted by turning the adjusting nut ③:

- Clockwise $\hat{=}$ more tension
- Counter-clockwise $\hat{=}$ less tension



It is not necessary to secure the bolts while loosening the nuts ②.

1. Use a socket wrench to loosen all nuts ②.
2. Loosen the locknut ④.
3. Turn the adjusting nut ③ to increase or decrease belt tension as required.
4. Check belt tension.
Repeat steps 3 and 4 if tension is still not correct.
5. Hold the adjusting nut ③ in position with a wrench while tightening the locknut ④.
6. Tighten all clamping nuts ②.
The machine is ready for further operation.

10.4.9 Checking the safety relief valve

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

10.4.10 Cleaning coolers

The frequency is mainly dependent on local operating conditions.

Heavily clogged coolers cause oil circuit overheating.

Check coolers regularly for clogging.

Avoid dust. Wear breathing protection if necessary.

Do not clean the coolers with a sharp instrument, otherwise they could be damaged.

A severely contaminated cooler should be cleaned by KAESER Service.

Material Compressed air

Water or steam jet blaster

Precondition Machine placed over a washing point equipped with an oil separator.

The machine is shut down.

Machine cooled down.

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

All compressed air consumers are disconnected and the air outlet valve is open.

Rear panel removed.

The negative cable to the battery is disconnected.

CAUTION

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 alternator, starter and instruments.*
- *Do **not** direct water or steam jets at sensitive components such as the starter or instruments.*

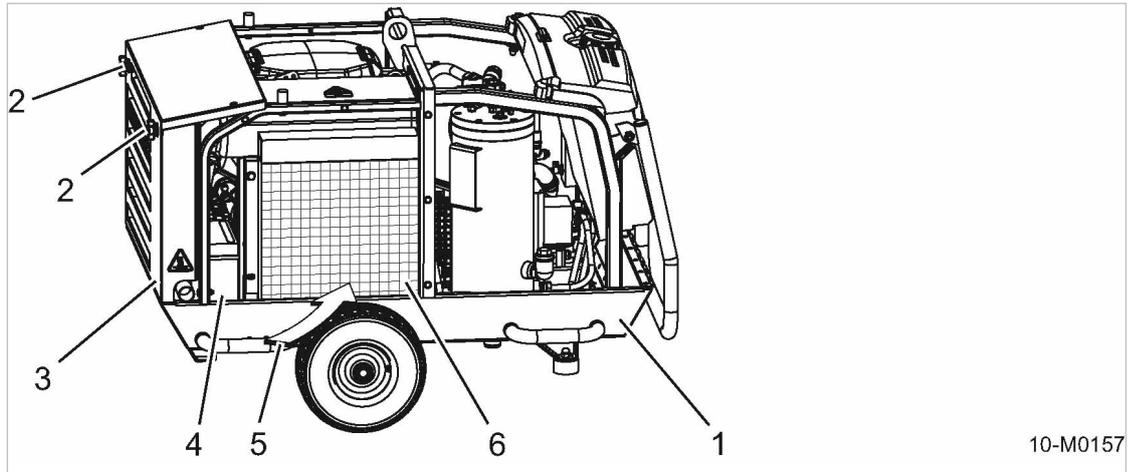


Fig. 23 Cleaning coolers

- | | | | |
|---|---------------------------|---|---|
| ① | Side view, canopy removed | ④ | Battery |
| ② | Rear panel locks | ⑤ | Direction of impacting water or steam jet (from outside to inside). |
| ③ | Rear panel | ⑥ | Cooler |

1. Seal off the air intakes of the engine and compressor air filters before starting cleaning.
2. Clean the cooler with compressed air, water or steam jet in the opposite direction to the cooling air flow.
3. Remove the protective coverings from the air filters.
4. Reconnect the battery ④.
5. Replace the machine rear panel ③.
6. Engage locks ②.
7. Start the machine and run up to operating temperature so that excess water is evaporated.



Clean the coolers only in a washing area equipped with an oil separator.

10.5 Wheel checks

Material Tire pressure gauge

Precondition The machine is switched off.

1. Check that the wheel fixings are tight (visual check of locking ring)
2. Check tires for wear and damage and change as necessary.
3. Check the tire pressures.

10.6 Options

- Carry out maintenance tasks in accordance with the schedules in chapter 10.2.5 .

10.6.1 Option de Maintaining the condensate drain dirt trap

The dirt trap must be cleaned regularly.

See chapter 4.6.1 for the location of the dirt trap.

Material Cleaning cloths
Dirt trap maintenance kit

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

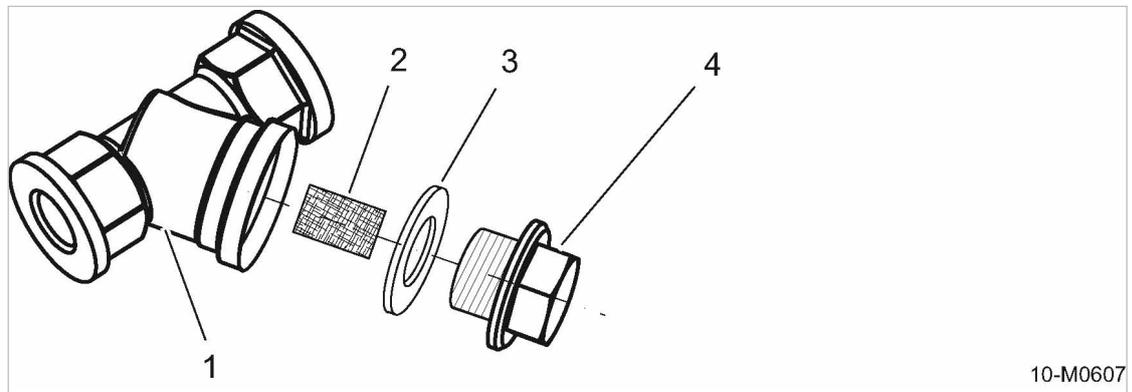


Fig. 24 Cleaning the dirt trap

- | | | | |
|---|-------------------|---|--------------|
| ① | Dirt trap housing | ③ | Sealing ring |
| ② | Strainer | ④ | Screw plug |

Cleaning the dirt trap

1. Remove the plug ④.
2. Remove the sealing ring ③.
3. Remove the strainer ② from the housing ①.
4. Clean the dirt-trap housing, strainer, sealing ring and plug.
Renew if defective.
5. Replace the strainer and screw in the plug with sealing ring.
6. Replace the machine rear panel.
7. Engage locks.

Function and leakage check

1. Run the machine with the external air treatment components for about 5 minutes.
2. Check the dirt trap for leaks.

11 Spares, Operating Materials, Service

11.1 Note the nameplate

The nameplate contains all information to identify your machine. This information is essential to us in order to provide you with optimal service.

- Please give the information from the nameplate with every inquiry and order for spares.

11.2 Ordering consumable parts and operating materials

KAESER consumable parts and operating materials are all genuine KAESER parts. They are selected for use in KAESER machines.

⚠ WARNING

There is risk of personal injury or damage to the machine resulting from the use of unsuitable spare parts or operating materials.

Unsuitable or poor quality consumable parts and operating materials may damage the machine or impair its proper function.

In the event of damage, personal injury may result.

- *Use only genuine KAESER parts and operating materials.*
- *Have an authorized KAESER Service Technician carry out regular maintenance.*

Compressor

Name	Quantity	Number
Air filter element	1	1260
Oil filter	1	1200
Oil separator cartridge set	1	1450
Cooling oil	1	1600

Tab. 46 Compressor consumables

Engine parts: HONDA

Name	Quantity	Number
Foam air filter element	1	1275
Paper air filter element	1	1280
Fuel filter	1	1910
Oil filter	1	1905
Oil drain plug sealing ring	1	4496
Spark plug	2	4467
Multi-ribbed belts	1	1801
Engine oil	1	1925

Tab. 47 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 representatives are given at the end of this manual.

11.5 Spares for service and repair

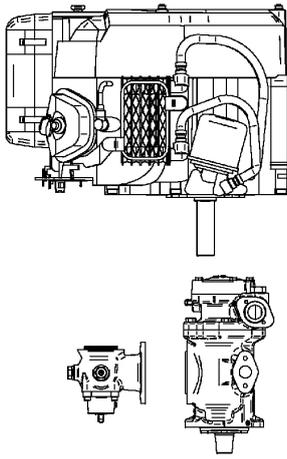
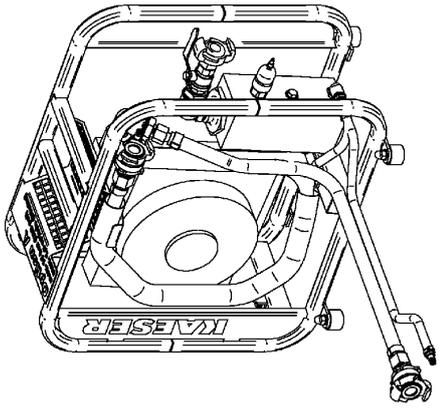
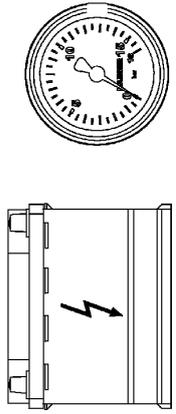
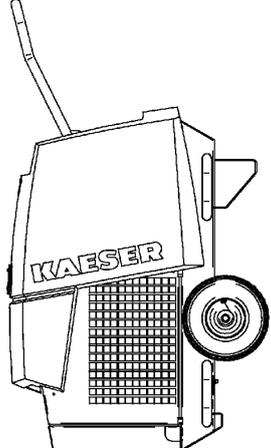
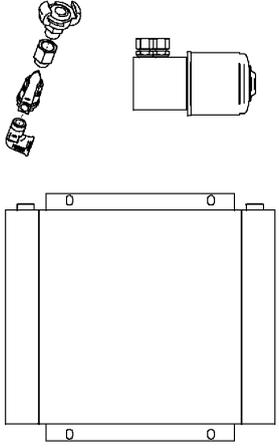
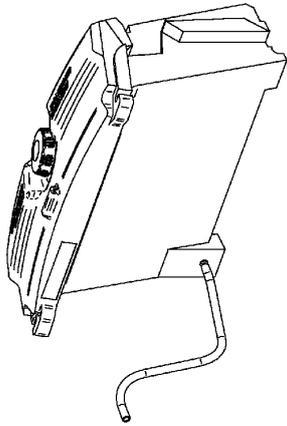
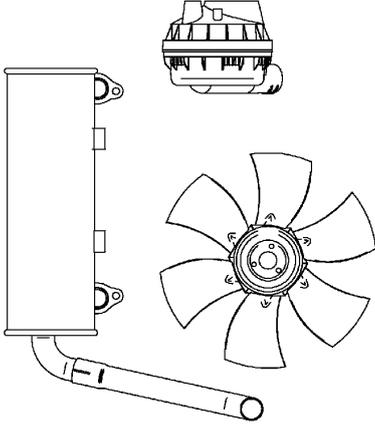
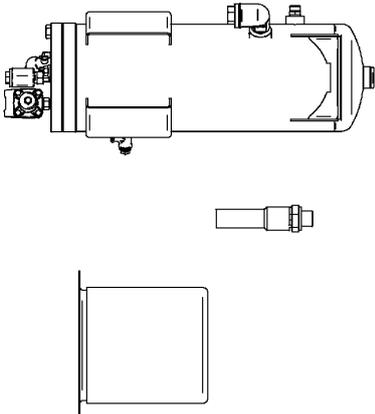
Use this parts list to plan your material requirement according to operating conditions and to order the required spare parts.

⚠ WARNING

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

- *Inspections, preventive maintenance or repair tasks not described in this manual must not be carried out by unqualified personnel.*
- *Other tasks, not described in this service manual, must be carried out by specialist workshops or KAESER Service.*

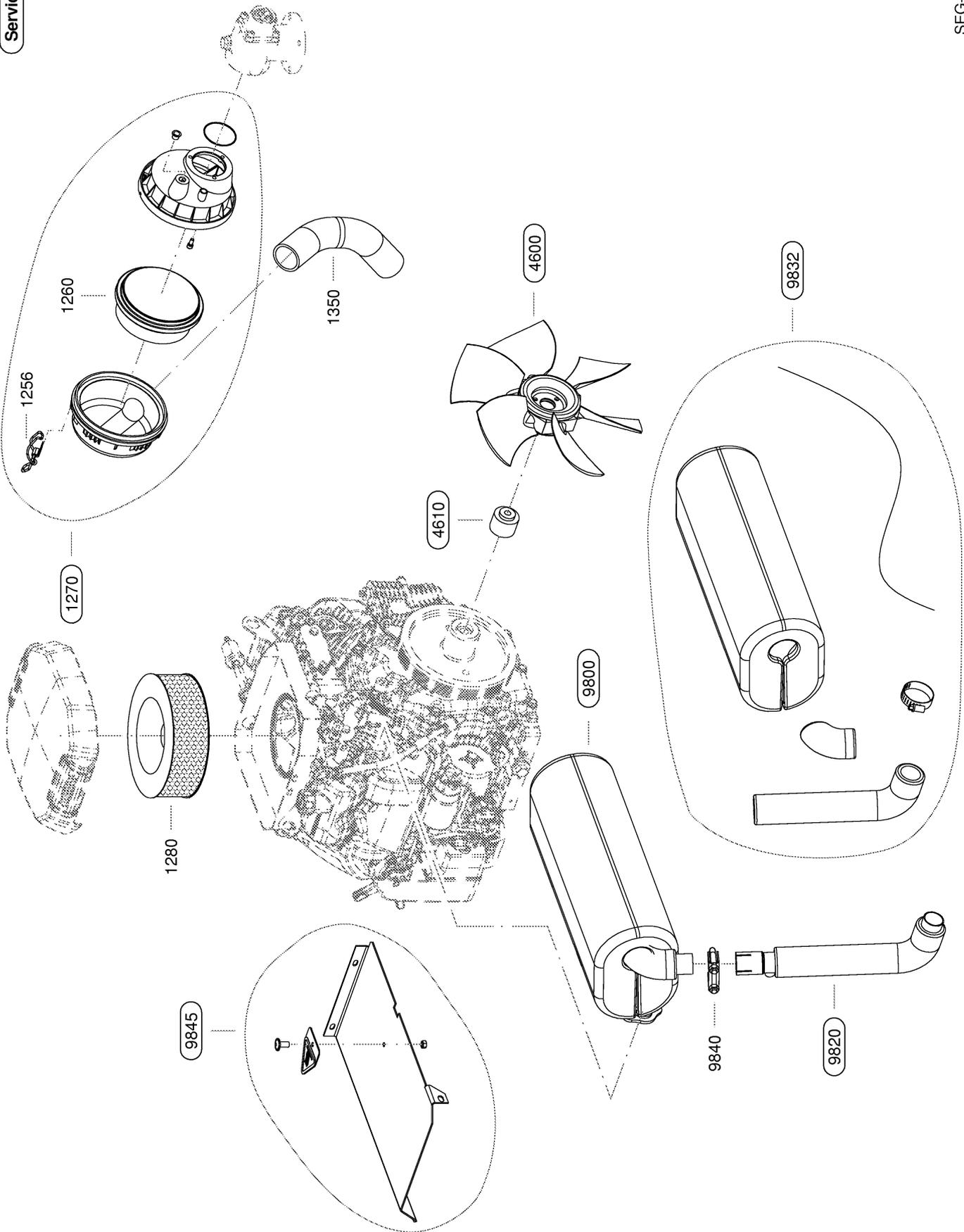
(Option)

	<p>4001</p>  <p>(9400)</p>
	<p>3001</p>  <p>8000</p>
	<p>2001</p>  <p>7001</p>
	<p>1001</p>  <p>6001</p>

SEG-1967_01

Service-Kit

SEG-2847_01



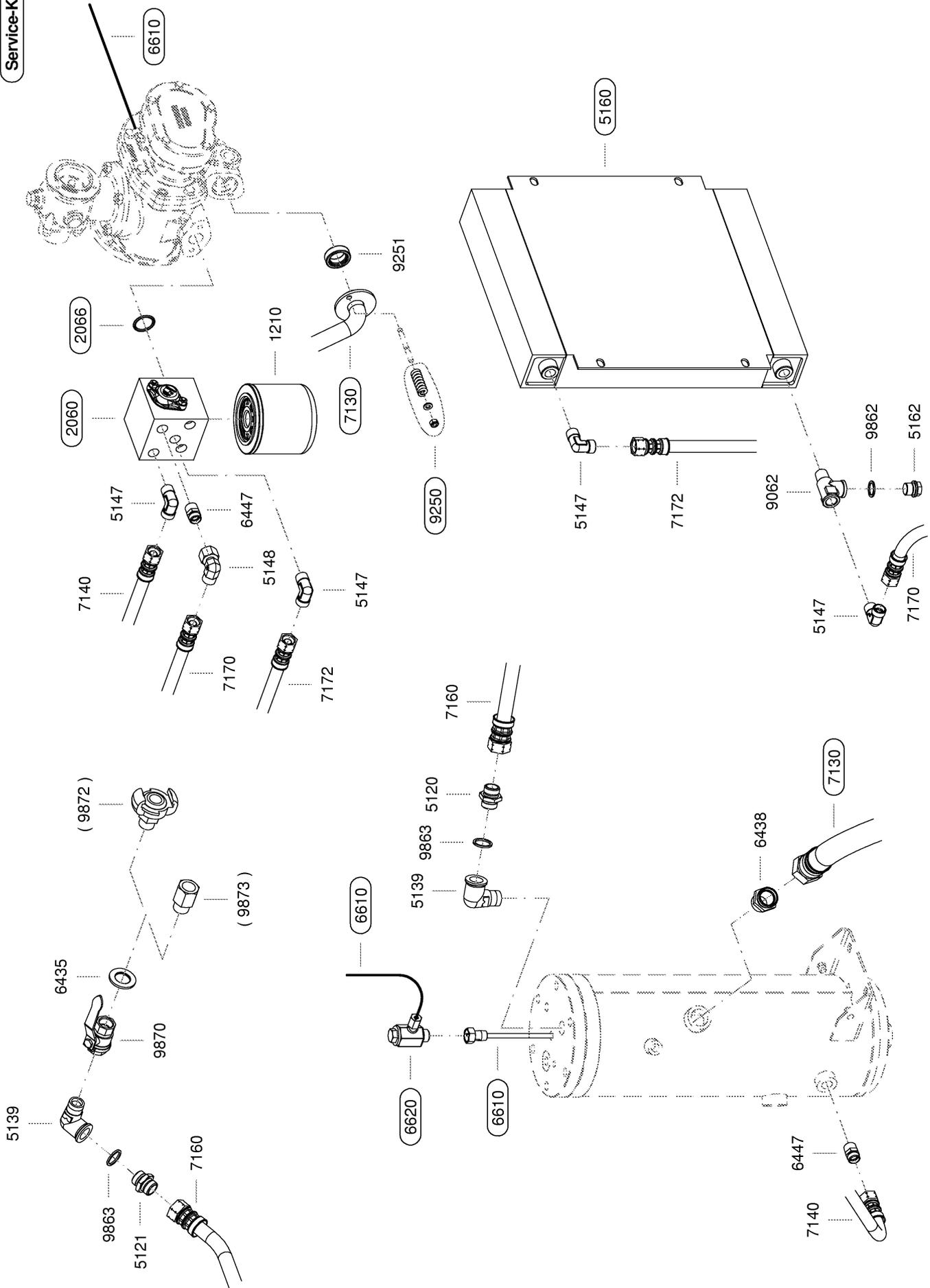
Legend	KAESER
Inlet air/Cooling air/Exhaust	SEL-2216_01E

Item	Description	Option
1256	Snap fastener	
1260	Compressor air filter element	
1270	Compressor air filt. w.housing	
1280	Engine air filter element	
1350	Compressor intake hose	
4600	Engine fan	
4610	Fan coupling	
9800	Exhaust silencer	
9820	Exhaust pipe silencer	
9832	Heat Insulation	
9840	Exhaust pipe clamp	
9845	Guarding against touching	

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-2848_01

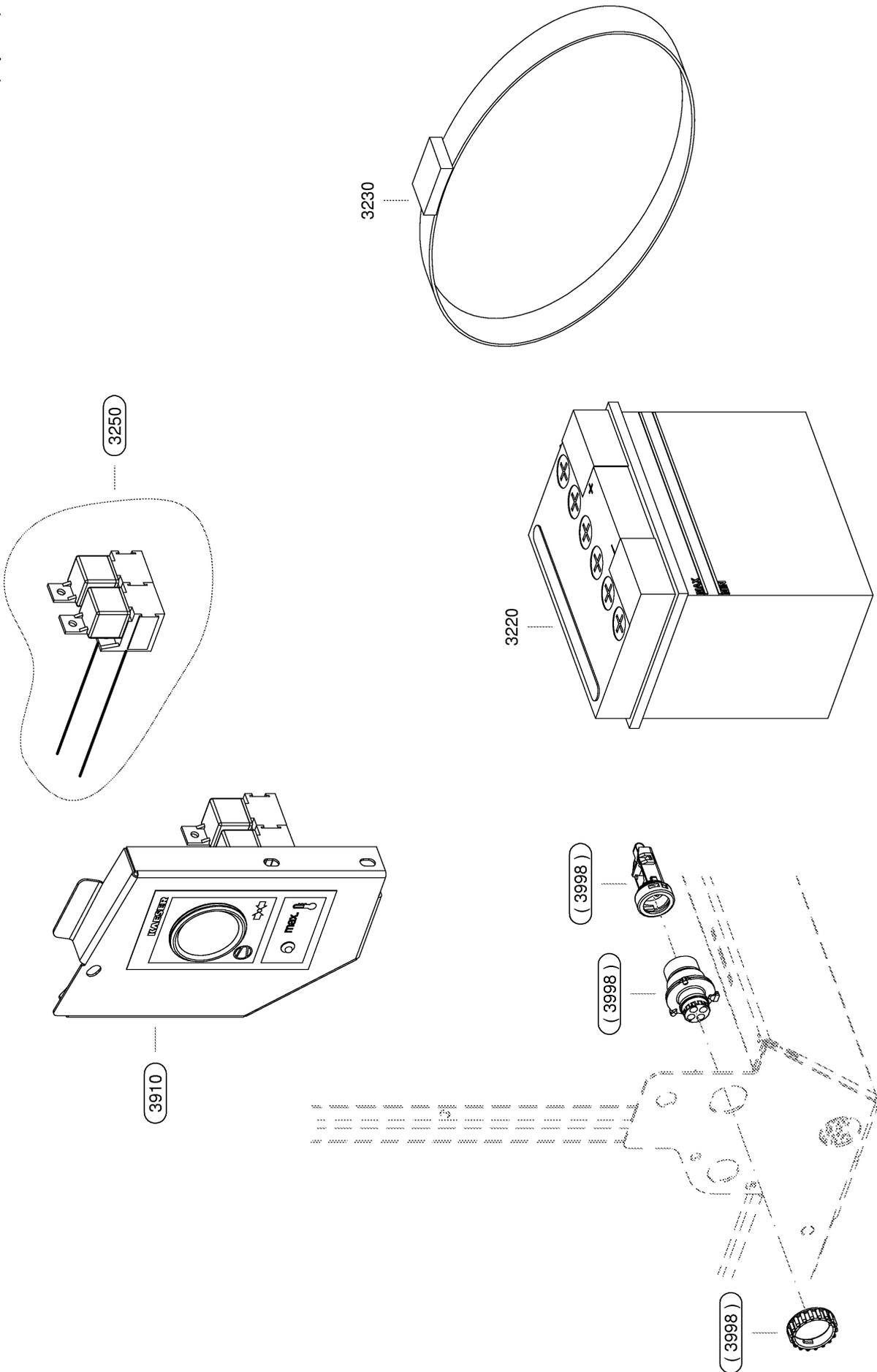
		Legend	KAESER
		Oil circuit/Comprsd.air outlet	SEL-2217_01E
Item	Description	Option	
1210	Compressor oil filter		
2060	Combination valve		
2062	Maintenance kit, combi. valve		
2064	Overhaul kit, combination valve		
2066	Combi. valve connection gasket		
5120	Nipple		
5121	Nipple		
5139	Elbow fitting		
5147	Elbow fitting		
5148	Elbow fitting		
5160	Compressor cooler		
5162	Compressor oil cooler drain		
6435	Gasket		
6438	Screw-in connector		
6447	Screw-in connector		
6610	Suction line kit		
6620	Dirt trap, oil scavenge line		
9416	Dirt trap maintenance kit		
7130	Hose line		
7140	Hose line		
7160	Hose line		
7170	Hose line		
7172	Hose line		
9062	T-pieces		
9250	Pipe clamp kit		
9251	Pipe connection sealing ring		
9862	Gasket		
9863	Gasket		
9870	Outlet valve		
9872	Claw coupling		X
9873	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-2849_01



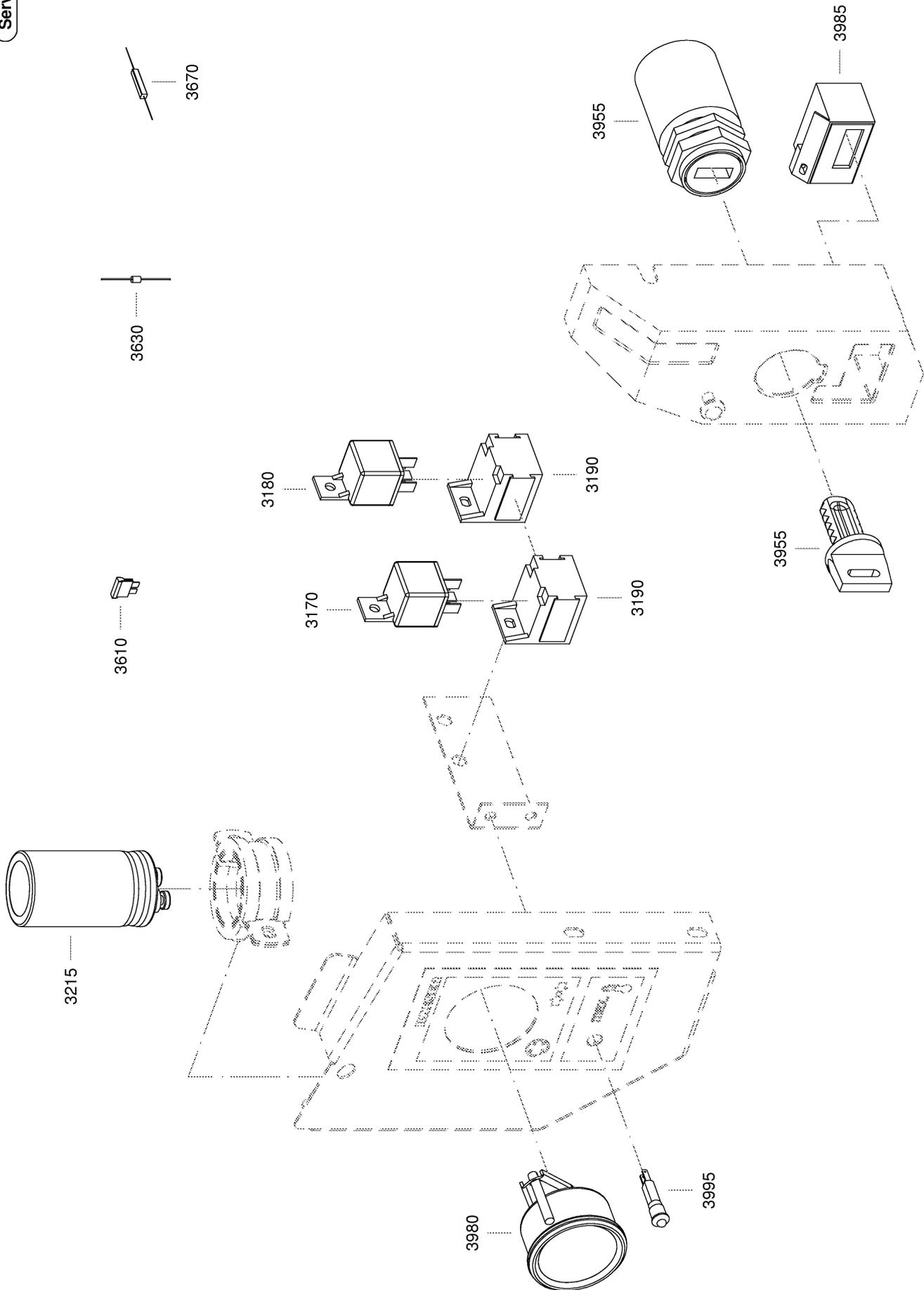
Legend	KAESER
Electrics/Instruments	SEL-2218_01E

Item	Description	Option
3220	Battery	
3230	Battery bracket	
3250	Drive motor cable set	
3910	Instrument panel	
3998	Connecting plug kit	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



SEG-2850_01

Legend	KAESER
Instrument panel	SEL-2219_01E

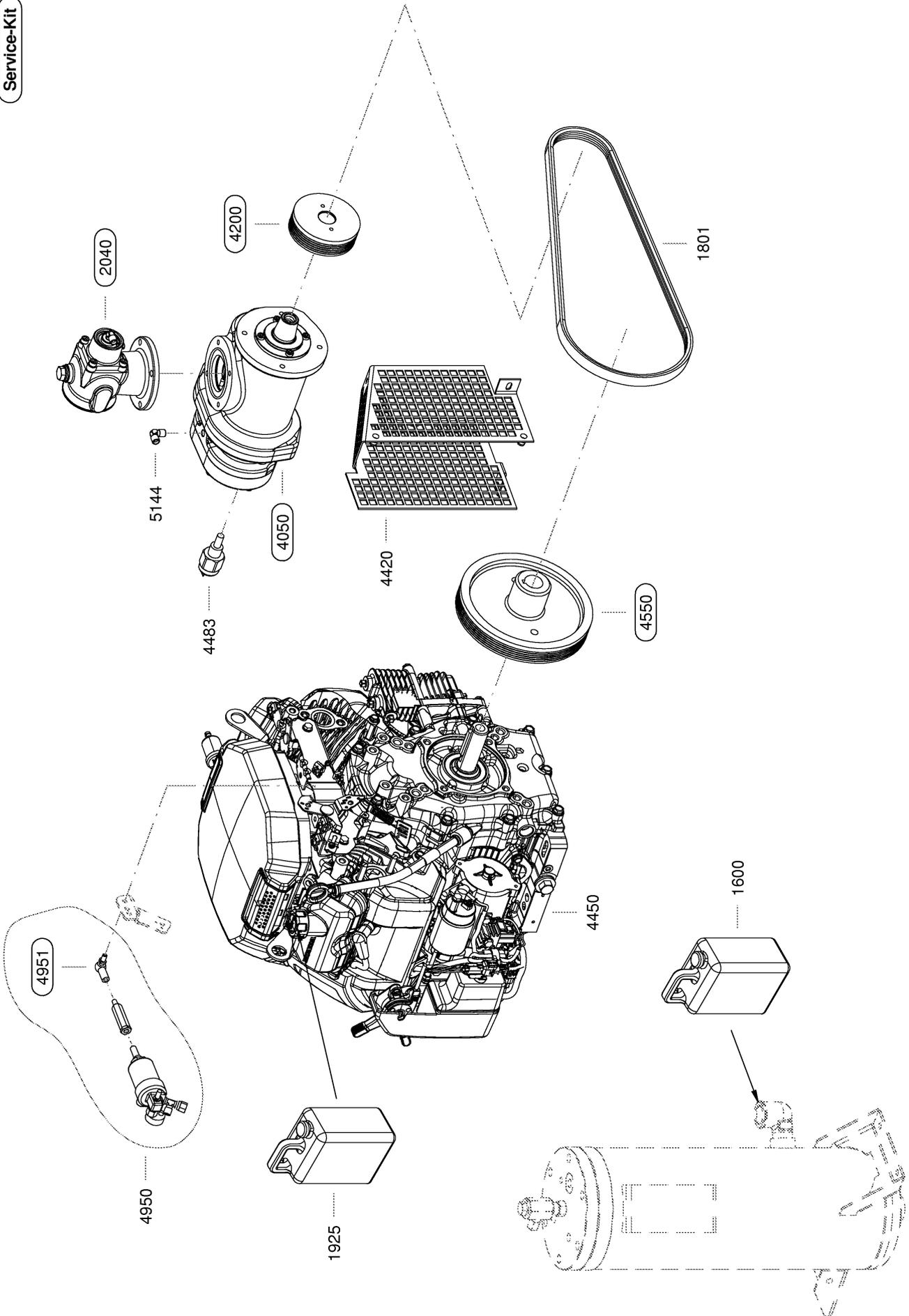
Item	Description	Option
3170	Starting relay	
3180	Shutdown relay	
3190	Power relay socket	
3215	Condenser	
3610	Control fuse set	
3630	Diode	
3670	Resistance	
3955	Starter switch	
3980	Pressure gauge, instrument panel	
3985	Operating hours counter	
3995	LED lamp	

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-2851_01

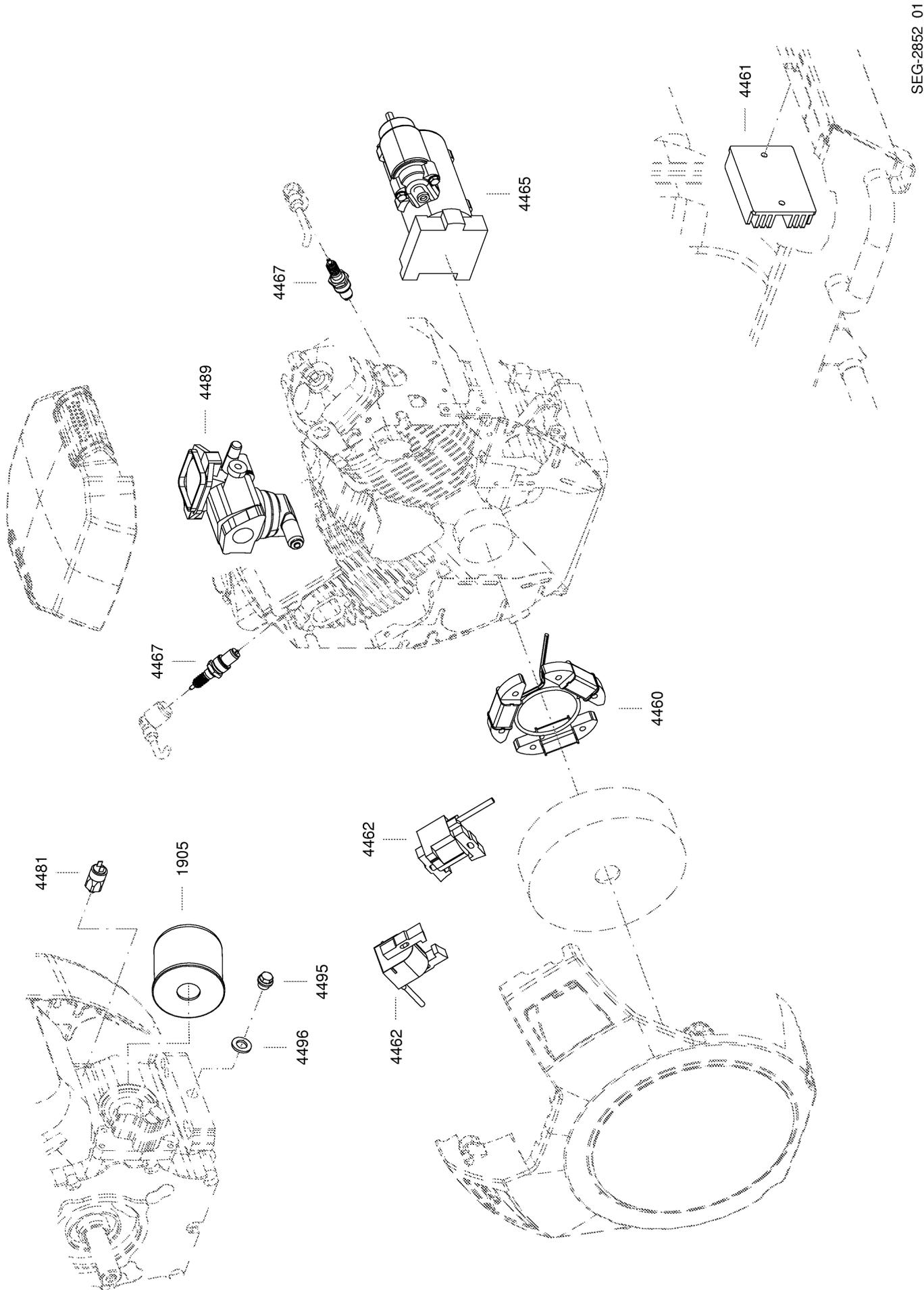


		Legend	KAESER
		Airend/engine	SEL-2220_01E
Item	Description	Option	
1600	Sigma Fluid *)		
1801	Drive belt		
1925	Engine oil *		
2040	Inlet valve		
2042	Maintenance kit, inlet valve		
2044	Overhaul kit, inlet valve		
4050	SIGMA exchange airend		
4200	Crankshaft pulley		
4420	Belt guard		
4450	Drive motor		
4483	Temperature switch		
4550	Engine drive pulley		
4950	Speed adjusting cylinder		
4951	Swivel joint		
5144	Elbow fitting		

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



SEG-2852_01

Legend	KAESER
Engine	SEL-2221_01E

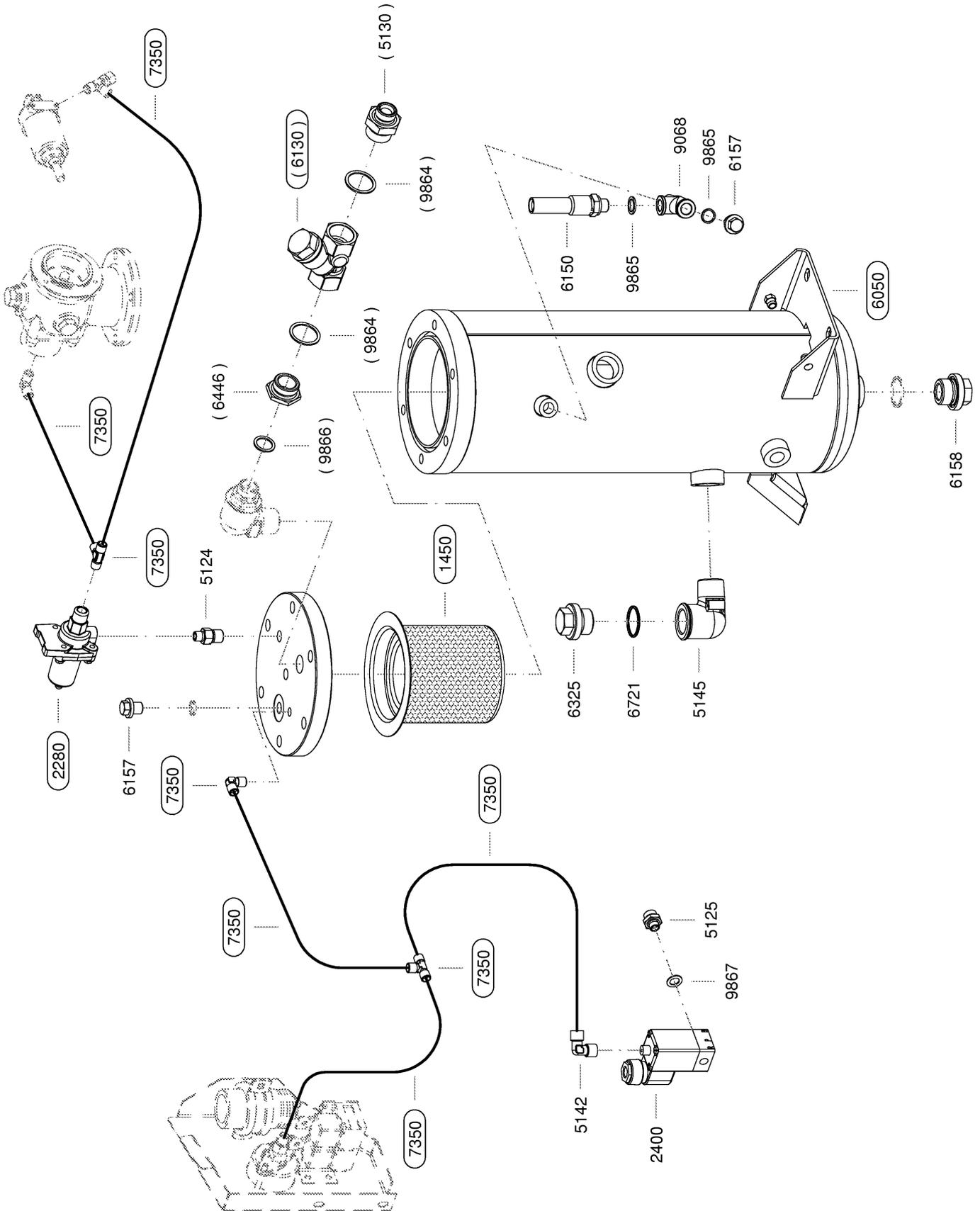
Item	Name	Option
1905	Engine oil filter	
4460	Alternator	
4461	Alternator regulator	
4462	Ignition coil	
4465	Starter	
4467	Spark plug	
4481	Oil pressure switch	
4489	Carburettor	
4495	Engine oil drain	
4496	Oil drain seal	

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-2853_01



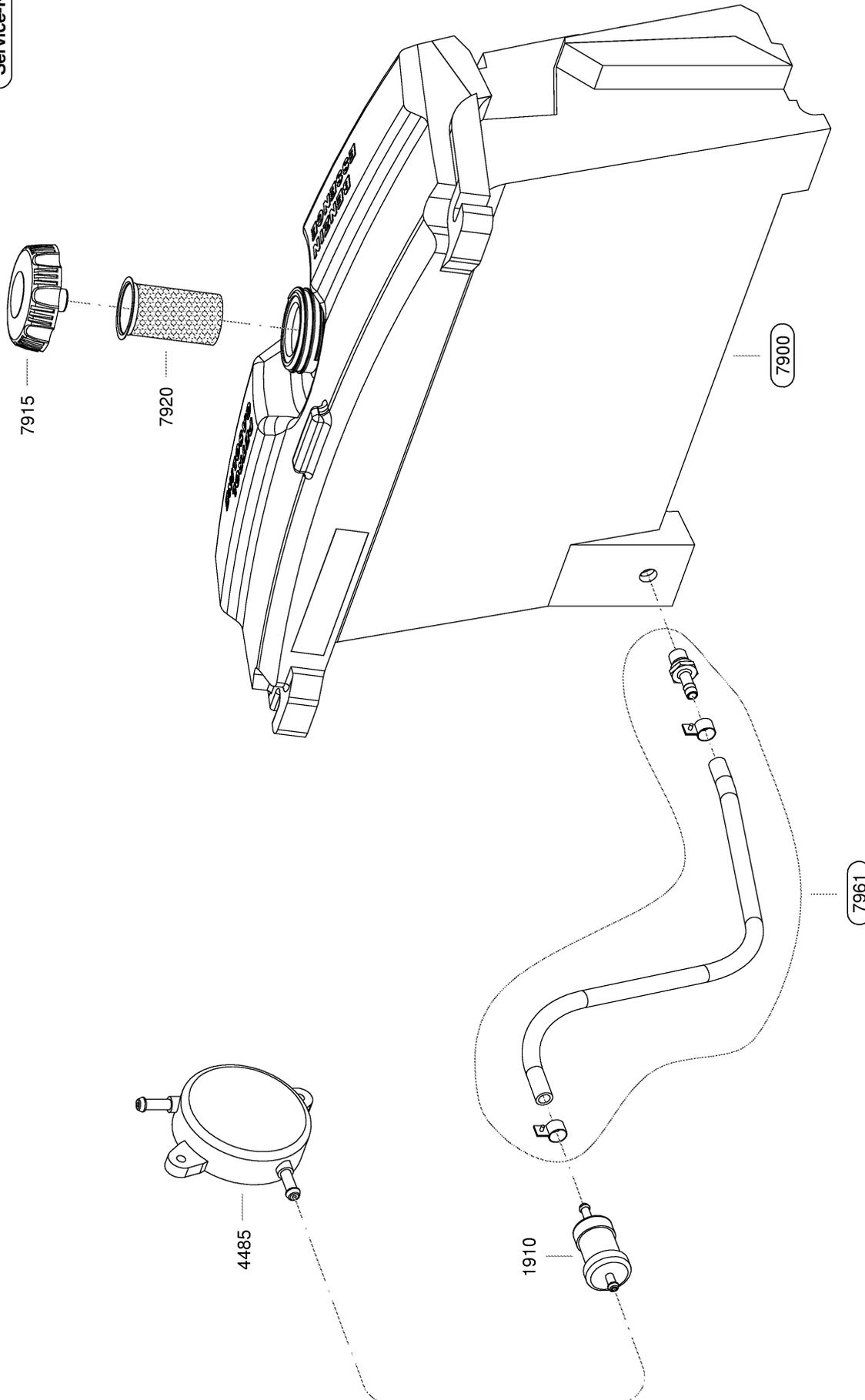
		Legend	KAESER
		Oil separation/control air	SEL-2222_01E
Item	Description	Option	
1450	Oil separator cartridge		
2280	Proportional controller		
2282	Maintenance kit, proportional controller		
2400	Solenoid valve		
5124	Nipple		
5125	Nipple		
5130	Nipple	X	
5142	Elbow fitting		
5145	Elbow fitting		
6050	Oil separator tank		
6130	Angle check valve	X	
2412	Check valve overhaul kit		
6150	Pressure relief valve for oil separator tank		
6157	Remove screw plug		
6158	Remove screw plug		
6325	Remove plug		
6446	Reducer	X	
6721	Oil filler seal		
7350	Control line kit		
9864	Gasket	X	
9865	Gasket		
9866	Gasket	X	
9867	Gasket		

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-2854_01



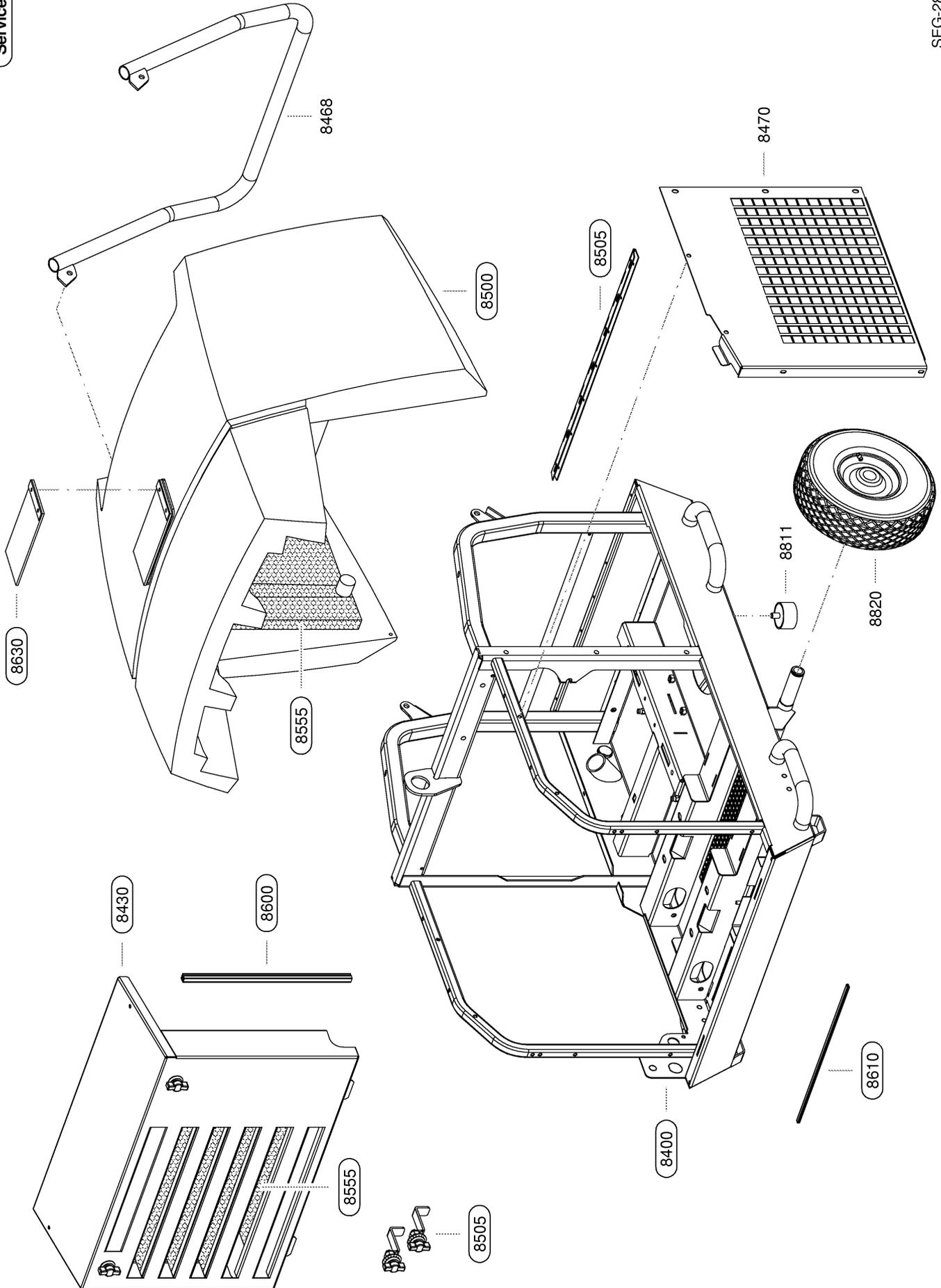
Legend	KAESER
Fuel supply	SEL-2223_01E

Item	Description	Option
1910	Fuel filter	
4485	Fuel pump	
7900	Fuel tank	
7915	Fuel tank cap	
7920	Fuel strainer	
7961	Fuel hose	

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

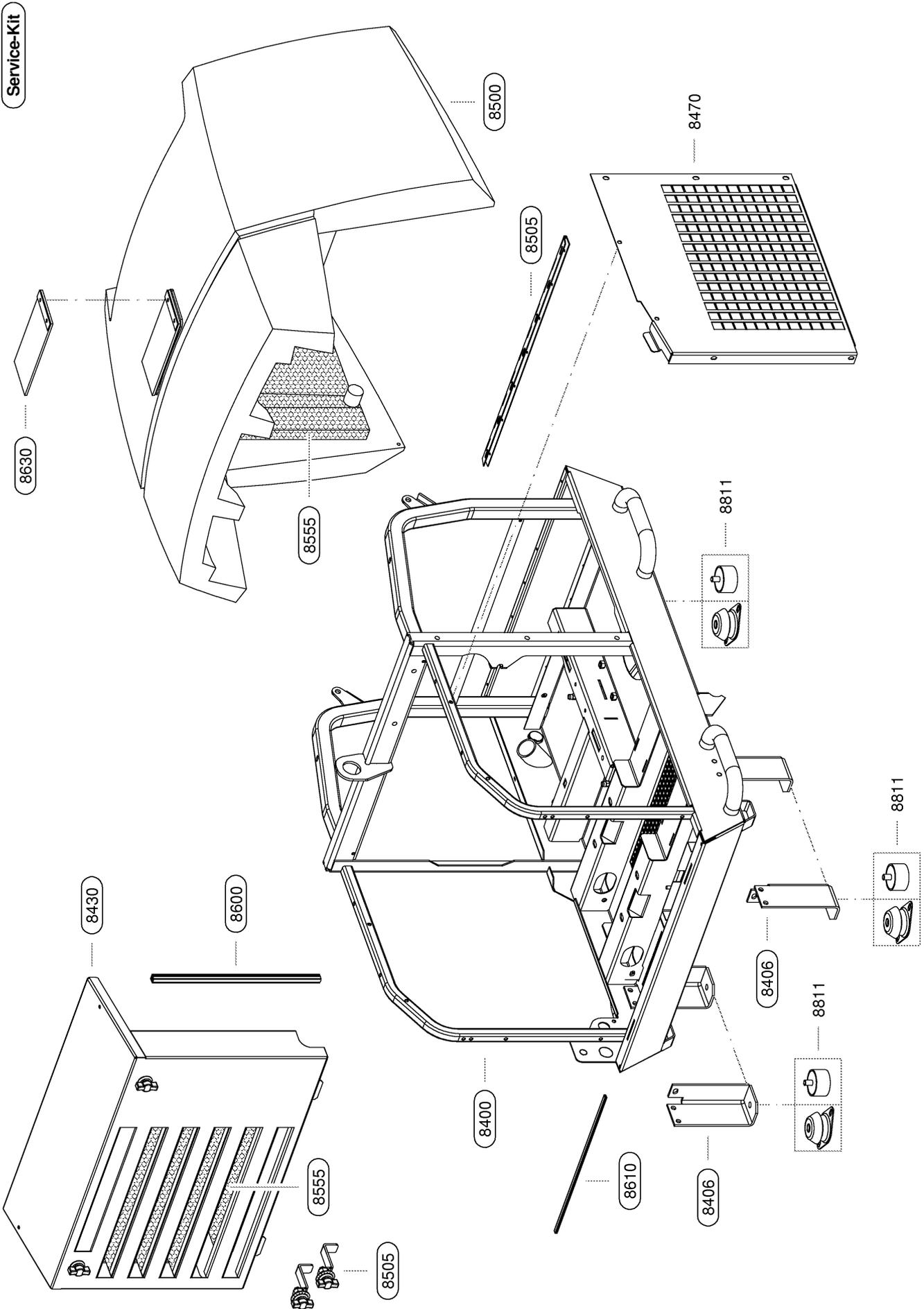


Legend	KAESER
Bodywork (portable)	SEL-2224_01E

Item	Description	Option
8400	Lower bodywork	
8430	Canopy rear	
8468	Push-bar	
8470	Exhaust air grill	
8500	Canopy	
8505	Hinge/closure set	
8555	Sound damping louver kit	
8600	Sealing profile	
8610	Edge protecting strip	
8630	Cover for lifting eye	
8811	Machine foot	
8820	Wheel	

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.

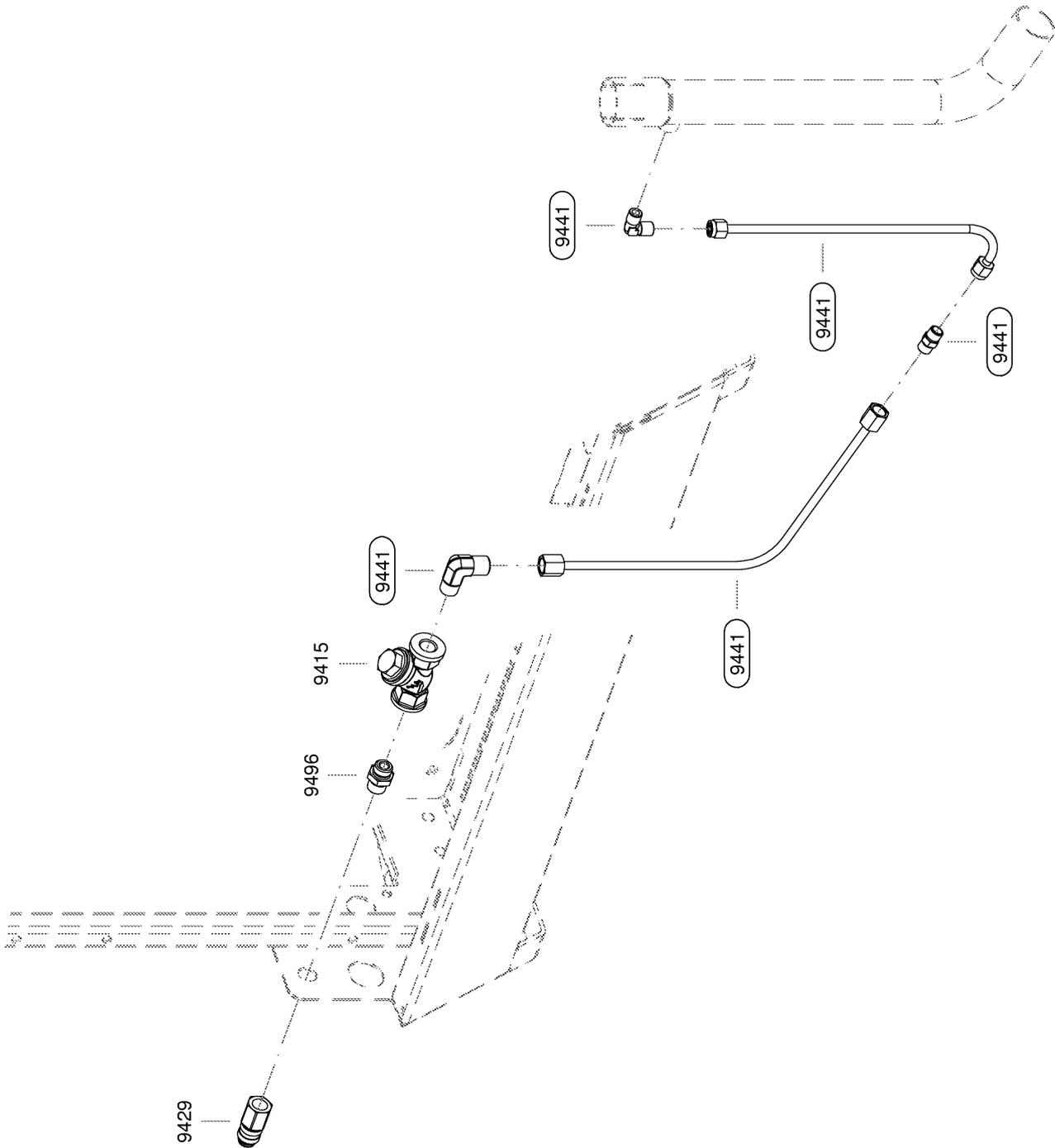


Legend	KAESER
Bodywork (stationary)	SEL-2225_01E

Item	Description	Option
8400	Lower bodywork	
8406	Lower part propstand	
8430	Canopy rear	
8470	Exhaust air grill	
8500	Canopy	
8505	Hinge/closure set	
8555	Sound damping louver kit	
8600	Sealing profile	
8610	Edge protecting strip	
8630	Cover for lifting eye	
8811	Machine foot	

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
Compressed air treatment	SEL-2226_01E

Item	Description	Option
9415	Separator dirt trap	
9429	Fresh air outlet coupling	
9441	Condensate drain line set	
9496	Adapter	

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.

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 decommissioning

Decommissioning for about 4 months.

Material Plastic foil

Moisture-resistant adhesive tape

1. Disconnect the battery (the negative terminal first and then the positive terminal).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape.
 - Engine air inlet
 - Compressor air inlet
 - Exhaust
3. Place the following notice on the instrument panel informing of the decommissioning measurements taken.

Attention!

1. The machine is temporarily decommissioned.
2. The following machine openings have been covered:

- Engine air inlet
- Compressor air inlet
- Exhaust

3. Recommission according to service manual.

Date / signature

Tab. 48 "Temporarily decommissioned" information notice

Decommissioning of the compressor for several weeks during severe frost

1. **⚠ CAUTION** *Danger of batteries freezing.*
Discharged batteries are subject to frost damage and can freeze at 14 °F.
 - *Store the battery in a frost-free place.*
 - *Store the battery preferably fully charged.*

2. Remove the battery and store in a frost-free room.
3. Make sure the battery is fully charged.

12.1.2 Long-term decommissioning

Decommissioning the machine for 5 months or longer.

Material Receptacle
 Preserving oil
 Preservative
 Desiccant
 Plastic sheeting
 Moisture-resistant adhesive tape

- The following measures must be taken for long-term decommissioning.

Long-term decommissioning tasks	See chapter	Confirmed?
➤ Drain the engine oil.	Engine SM	
➤ Drain the cooling oil from the separator tank and oil cooler.	10.4.3	
➤ Fill the engine and oil separator tank with preserving oil.	Engine SM 10.4.2	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery (batteries), the negative terminal first and then the positive terminal, and store in a frost-free room.	–	
➤ Check the battery fluid level.	10.3.4	
➤ Check the battery charge monthly and recharge if necessary to prevent the battery freezing.	–	
➤ Clean the battery terminals and coat with acid-resistant grease.	–	
➤ Close the 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 intake – Compressor air intake – Exhaust outlet 	–	
➤ Clean the bodywork and treat with a preservative.	–	
➤ Place a notice on the instrument panel informing of the decommissioning measurements taken.	–	

Engine SM ≙ engine manufacturer's service manual.

Tab. 49 Long-term decommissioning checklist

- Place the following notice on the instrument panel informing of the decommissioning measurements taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For recommissioning:
 - Take measures for recommissioning after a long period of storage.
 - Recommission according to service manual.

Date / signature

Tab. 50 Text for the long-term decommissioned information notice

- Store in a dry place with even temperature.

12.2 Transporting

- Precondition Machine switched off and locked off.
All connecting lines and hoses disconnected and removed.
Any loose or movable parts that may fall when transporting, removed or secured.
- Make sure the danger area is clear.

12.2.1 Positioning on site

One person is able to manoeuvre the machine on a level location.
A folding push-bar is provided for this purpose (see chapter 13.4).

1. Fold the push-bar out to the horizontal.
2. Grip the push-bar.
3. Push the machine to the required location.
4. Park the machine to the new operating location.
5. Fold up the push-bar.
6. Chock the wheels if necessary to prevent unwanted movement.

12.2.2 Transporting with a crane

Additional precautions for conditions of snow and ice

Considerable snow or ice may build up on the machine under low temperature conditions.
This may adversely effect the machine's center of gravity.

It is possible that the permissible loading on the crane or lifting eye is exceeded.

- Additional measures should be taken under conditions of snow or ice.
 - 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.

Carry out the following tasks before transporting the machine

A lifting eye is provided for transporting with a crane. The lifting eye is located beneath a lift-up cover in the center of the canopy.

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

12.2.3 Transporting a stationary version 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 (without chassis and wheels) may be lifted with a fork truck.*
- *Lift the machine only from the side.*

1. Close the canopy.
2. Be careful of protruding components within the canopy, e.g. the oil separator tank.
3. Drive the forks under the machine from the side and observe point 2 above regarding their positioning.
4. Drive the forks in as far as possible beneath the frame.
The forks are fully under the machine.
5. Lift the machine carefully.

12.2.4 Transporting as a load

The method 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.

Consult KAESER Service for advice concerning sea or air transport.

Material Restraints or timber balks
Straps (tie-downs)

Load securing devices

Use restrainers or timber balks for securing the load.

Braces may only be used at the 4 rigging positions ② designated by the manufacturer.

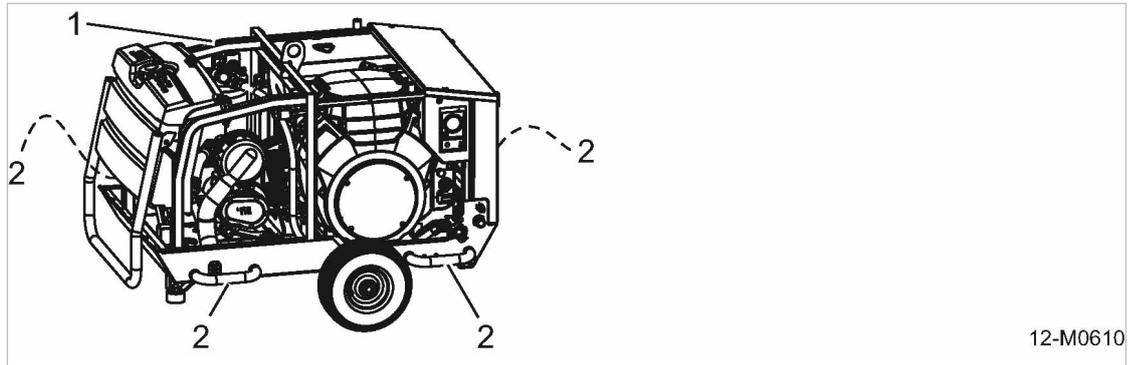


Fig. 25 Rigging positions

- ① Bodywork
- ② Rigging positions

1. **⚠ CAUTION** *Braces can damage the bodywork. Movement during transport can damage the bodywork.*
 - Use braces only at the designated positions.
 - Do not use straps over the bodywork.
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 for damages arising through incorrect transport methods or insufficient or wrong securing of loads. On rented, hired or exhibition machines, the transport securing devices should be re-used for the return journey.

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. **⚠ DANGER** *Danger of fire or explosion from operating materials. The machine incorporates an internal combustion engine.*
 - Any dangerous materials contained within the machine must be removed before transport.
2. Remove all dangerous materials.

These include:

 - Residues of fuel or fuel vapors
 - Lubricating and cooling oils in the engine and compressor unit
 - Battery electrolyte.

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.



Advice can be obtained from KAESER on storage and commissioning.

⚠ CAUTION

Moisture and frost can damage the machine.

- *Prevent ingress of moisture and formation of condensation.*
 - *Maintain a storage temperature of >32 °F.*
- Store the machine in a dry place, free from frost if possible.

12.4 Disposal

When disposing of a machine, drain out all liquids and remove old filters.

Precondition The machine is decommissioned.

1. Completely drain the fuel from the machine.
2. Completely drain the cooling oil and engine oil from the machine.
3. Remove used filters and the oil separator cartridge.
4. Drain the coolant from water-cooled engines and systems.
5. Hand the machine over to an authorized disposal expert.



- Parts contaminated with cooling oil or engine oil must be disposed of in accordance with local environment protection regulations.

13 Annex

13.1 Marking

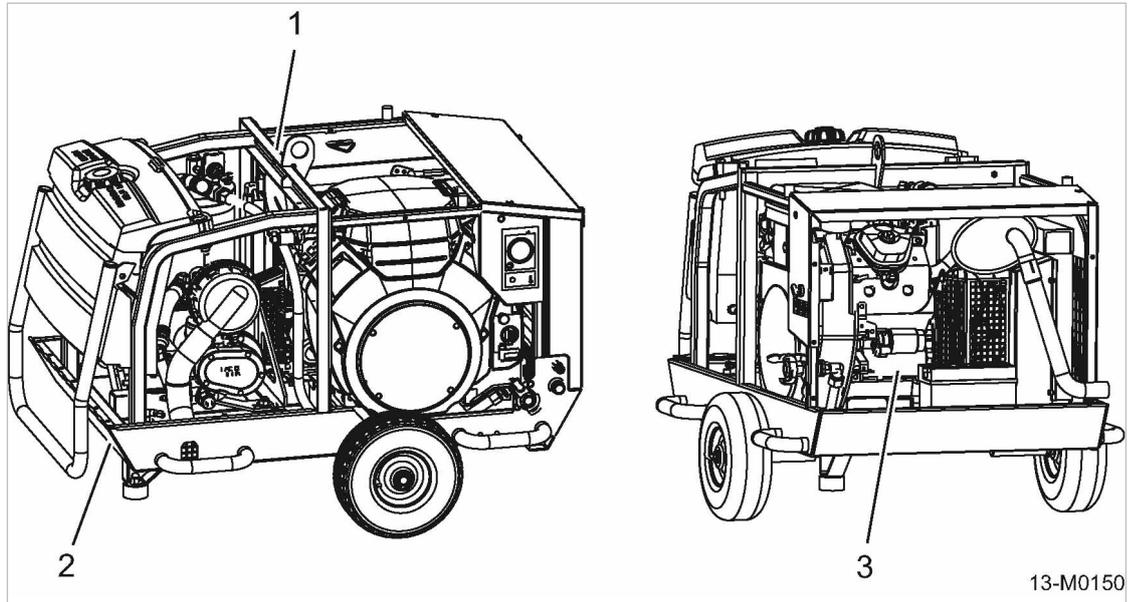


Fig. 26 Marking

- ① VIN number (vehicle identification number)
- ② Machine nameplate with serial number
- ③ Engine nameplate with serial number

13.2 Option da

Marking of external compressed air treatment components

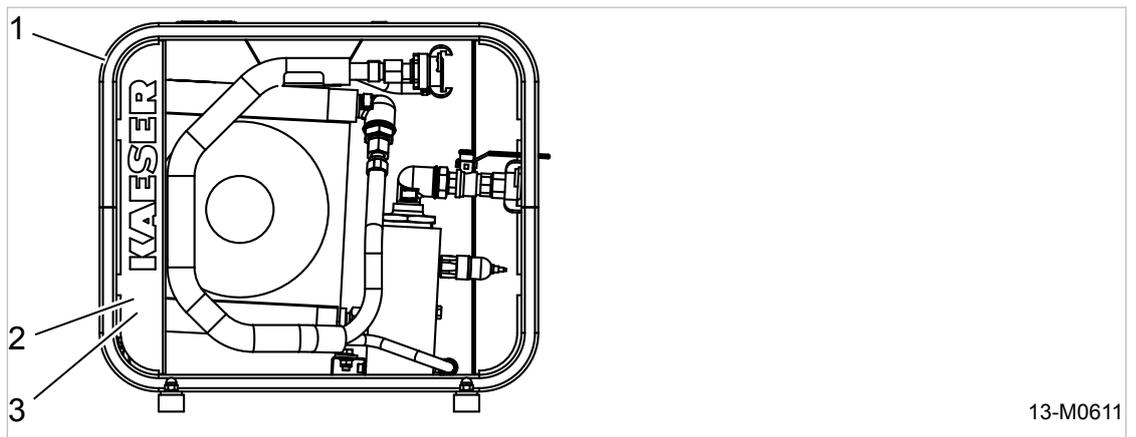


Fig. 27 Marking options

- ① External compressed air treatment components
- ② VIN number (vehicle identification number)
- ③ Production number

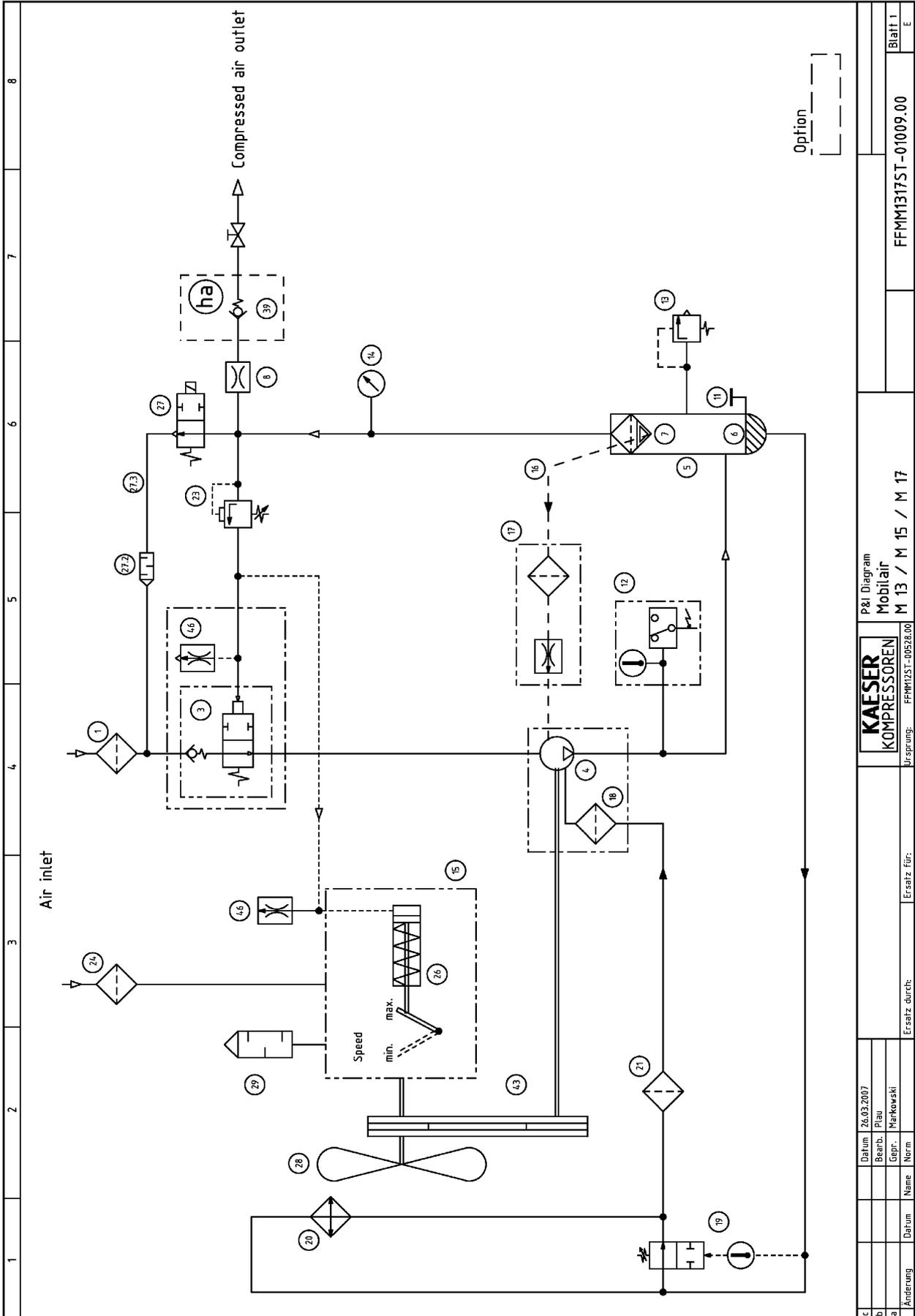
Marking type differences

- The compressor and treatment components are sold as **one product**.
 - Marking with **VIN number**.

The compressor and the treatment components are marked with the same VIN number; later allocation is possible.
- The external treatment components are marked as **an independent component**.
 - Marking with **FA number**.

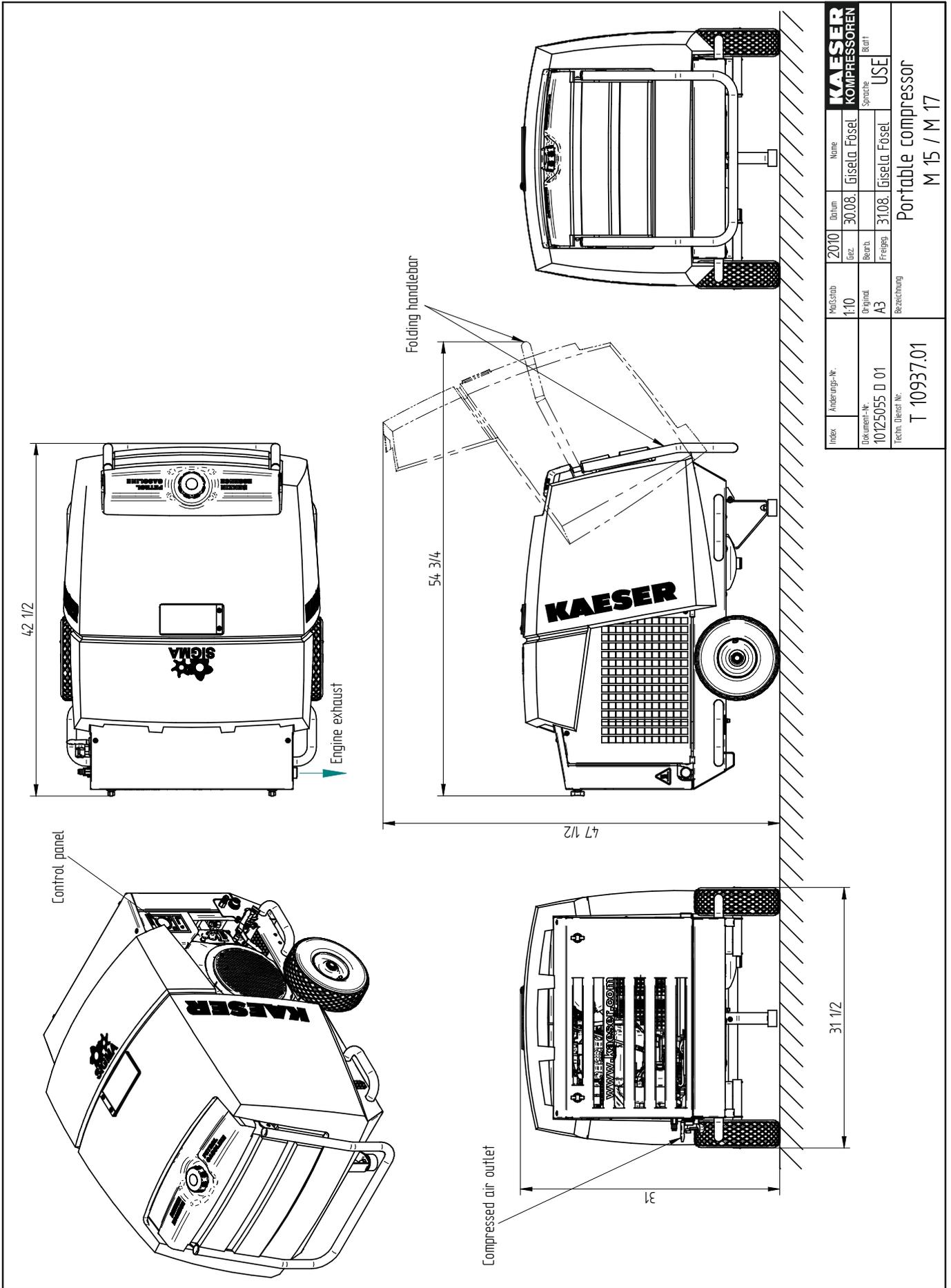
The treatment components receive a production number that is not related to a particular compressor.

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



Date: 26.03.2007		P&I Diagram	
Author: Plau		Mobilair	
Drawing: Markowski		M 13 / M 15 / M 17	
Original: FFMM1317ST-00528.00		FFMM1317ST-01009.00	
Replacement by:		Blatt 1	
Replacement through:		E	

13.4 Option sa Dimensional drawing (version with chassis)



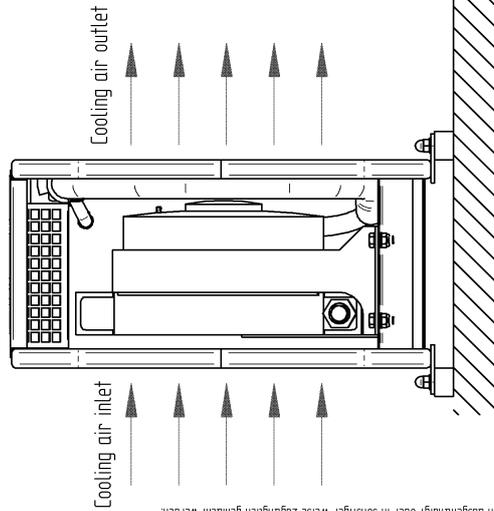
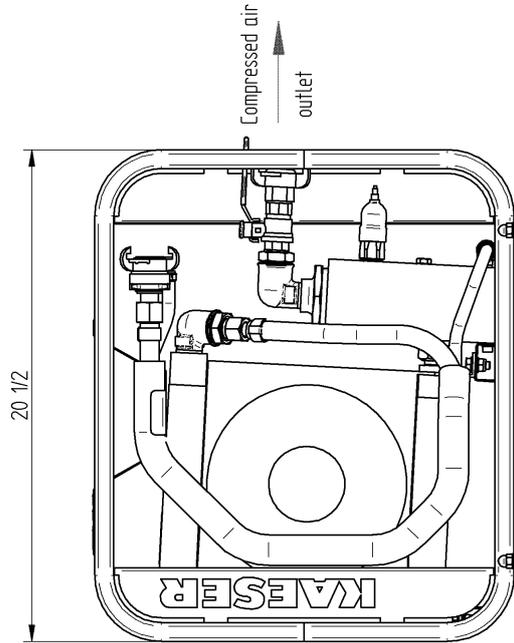
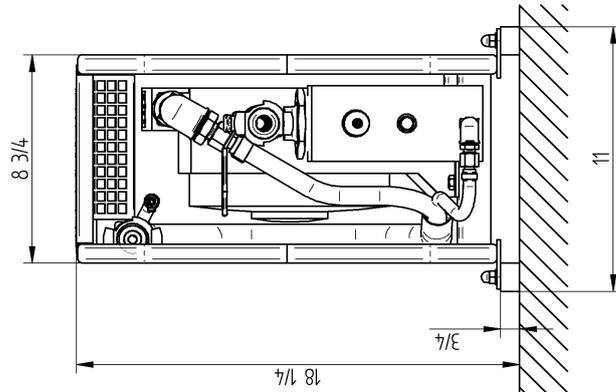
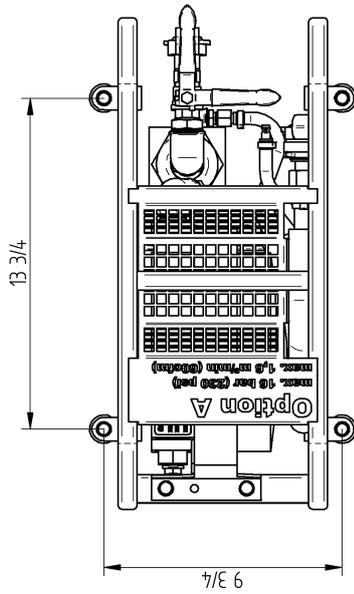
Index	Änderungs-Nr.	Maßstab	Datum	Name
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Zeichn.-Nr.	Original	Gez.	30.08.	Bezeichnet
1025055 D 01	A3	Freigez.	31.08.	Gisela Fösel
Techn. Dienst Nr.	Bezeichnung	Kategorie		
T 10937.01	Portable compressor	USE		
		M 15 / M 17		

Die Zeichnung bildet unser geschütztes Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Weiter Original noch Verfügbarhalten für den Dritten auszuhändigen oder in sonstiger Weise zugänglich gemacht werden. Kopen oder sonstige Verfügbarhalten einschließlich Speicherung, Vervielfältigung oder Verbreitung ohne Veränderung elektronischer Systeme dürfen nur zu dem vereinbarten Zweck angefertigt werden. Nachdruck, Vervielfältigung oder Verbreitung in Form oder durch andere elektronische oder mechanische Mittel ist ohne schriftliche Genehmigung von KAESER COMPRESSORS verboten. Zeichnung darf nur über CAD-Entwicklungsstelle Änderungen gestattet werden.

13.5 Option sc

Dimensional drawing, stationary version

13.6 Option da
Dimensional drawing of external compressed air treatment components



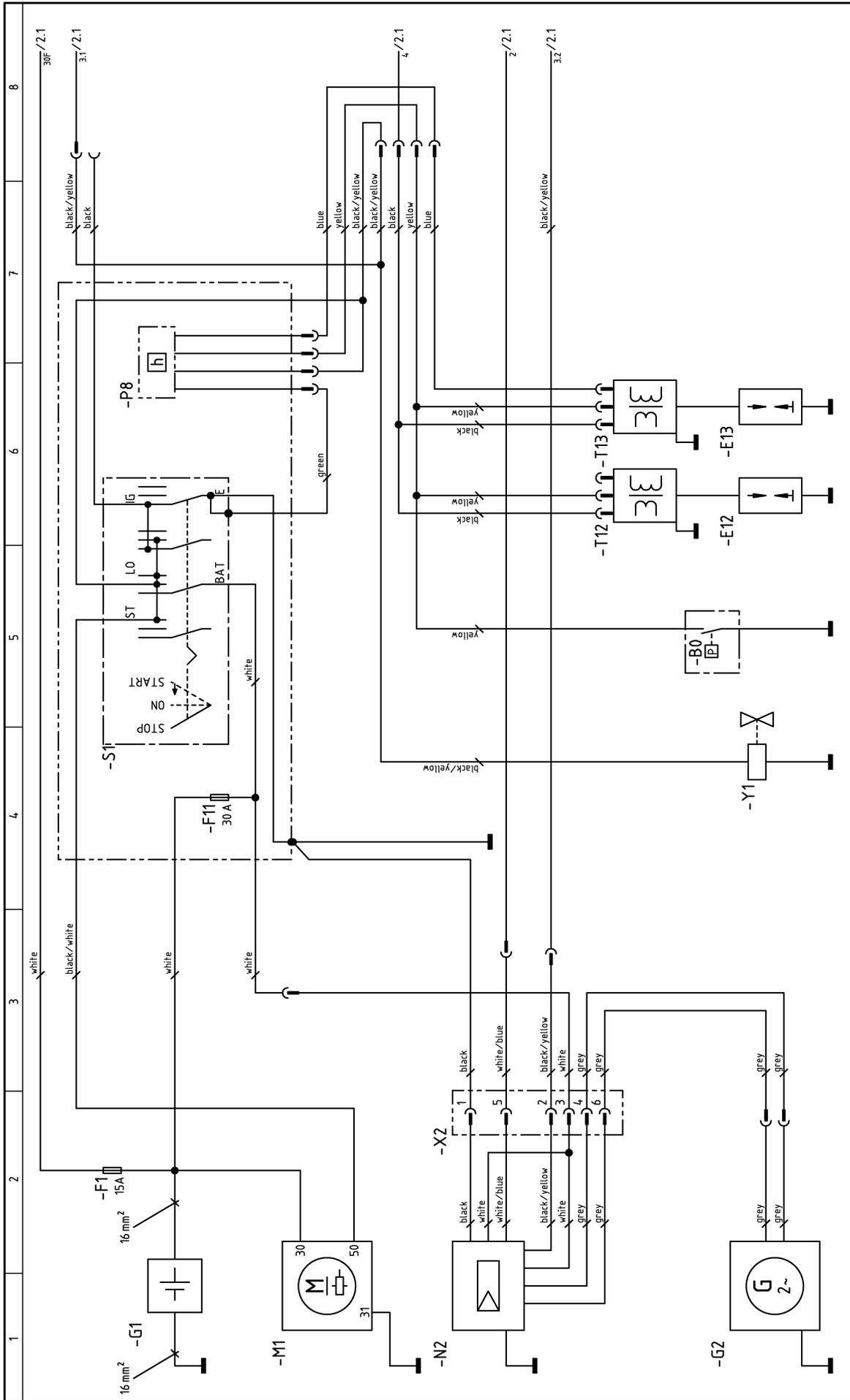
Entwicklungsbedingte Änderungen vorbehalten. Zeichnung darf nur über CAD geändert werden

Die Zeichnung bleibt unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopien oder sonstige Vervielfältigungen einschließlich Speicherung, Verarbeitung oder Verbreitung unter Verwendung elektronischer Systeme dürfen nur zu dem vereinbarten Zweck angefertigt werden. Weiter Original noch Vervielfältigungen dürfen Dritten ausgedruckt oder in sonstiger Weise zugänglich gemacht werden.

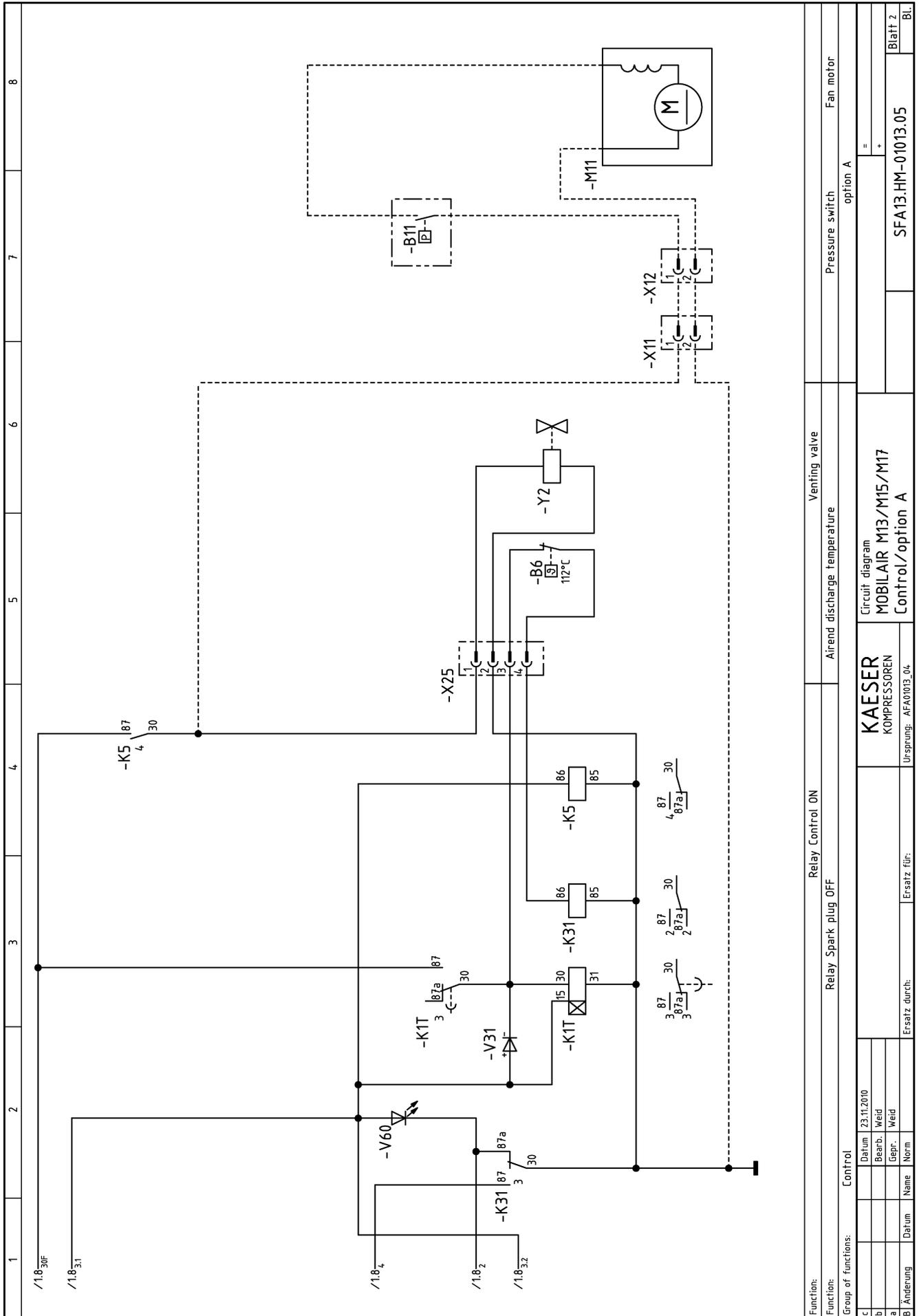
2008		Tag		Name	
Bez.	3103	Gisela Fösel		Option A	
Gepr.	3103	Pretis		M 13 / M 15 / M 17	
Freigegeben	3103	Gisela Fösel		T 11015 USE	
Maßstab	15 auf A3	Ersatz für		10135860_D_00	

13.7 Electrical Diagram

1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>MOBILAIR M13 / M15 / M17</p> <p>HONDA-Motor GX630</p>								
<p>Manufacturer: Kaeser Kompressoren GmbH</p> <p>Postfach 2143</p> <p>96410 Coburg</p>								
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c	Datum	23.11.2010	E		Cover page			=
b	Bearb.	Weid			MOBILAIR M13/M15/M17			+
a	Gepr.	Weid						
A	Änderung	Datum	Name	Norm	Ersatz für:		Blatt 1	
					Ersatz durch:		BL	
					Ursprung: AFA01013_04		DFA13.HM-01013.05	



Function: Battery / Starter generator		Fuel shut-off valve		Oil pressure switch		Ignition coil	
Function: generator		Control		Spark plug			
Group of functions:							
c							
b		Datum	23.11.2010	Circuit diagram			
a		Bearb. / weid		MOBILAIR M13/M15/M17			
		Gepr. / weid		Motor connection			
B. Änderung	Datum	Name	Norm	Ursprung: AFA01013_04		SFA13.HM-01013.05	Blatt 1
							BL



1	2	3	4	5	6	7	8																																								
model-dependent components																																															
-B0	Oil pressure switch/Motor				-B11	Pressure switch																																									
-B6	temperature switch Aired discharge temperature				-M11	Fan Air cooler																																									
-E12,-E13	Spark plug				-X11, -X12	Plug connection																																									
-F1, -F11	Fuse																																														
-G1	Battery																																														
-G2	single-phase-generator																																														
-K1T	Time relay																																														
-K5,-K31	Relay																																														
-M1	Starter-Motor																																														
-N2	Regulator																																														
-P8	Hour meter																																														
-R31	Resistor																																														
-S1	Ignition switch, STOP/ON/START																																														
-T12,-T13	Ignition coil																																														
-V31,-V32	Diode																																														
-V60	LED red																																														
-X2,-X25	Plug connection																																														
-Y1	Fuel shut-off valve																																														
-Y2	Venting valve																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">c</td> <td style="width: 15%;">Datum</td> <td colspan="2">23.11.2010</td> <td style="width: 25%;">Electrical equipment identification</td> <td colspan="2"></td> <td style="width: 10%;"></td> </tr> <tr> <td>b</td> <td>Bearb. / Weid</td> <td colspan="2"></td> <td>MOBILAIR M13/M15/M17</td> <td colspan="2"></td> <td></td> </tr> <tr> <td>a</td> <td>Gepr. / Weid</td> <td colspan="2"></td> <td>Ursprung: AFA0103_04</td> <td colspan="2"></td> <td></td> </tr> <tr> <td>E. Änderung</td> <td>Datum</td> <td>Name</td> <td>Norm</td> <td>Ersatz durch:</td> <td colspan="2"></td> <td>Blatt 01</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="2">SFA13.HM-01013.05</td> <td>BL</td> </tr> </table>								c	Datum	23.11.2010		Electrical equipment identification				b	Bearb. / Weid			MOBILAIR M13/M15/M17				a	Gepr. / Weid			Ursprung: AFA0103_04				E. Änderung	Datum	Name	Norm	Ersatz durch:			Blatt 01						SFA13.HM-01013.05		BL
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E. Änderung	Datum	Name	Norm	Ersatz durch:			Blatt 01																																								
					SFA13.HM-01013.05		BL																																								

13.8 Fuel circulation diagram

