Operator Manual

Screw Compressor

MOBILAIR M13 / 15 / 17

No.: 9_6983 26 USE

⚠ WARNING

This product can expose you to chemicals including gasoline engine exhaust and unleaded gasoline (fully vaporized), which are known to the State of California to cause cancer.

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

Manufacturer:

KAESER KOMPRESSOREN SE

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

www.kaeser.com

Original instructions
/KKW/MC0V 2.06 en Z1 SBA-MOBILAIR

20190404 155625

KAESER KOMPRESSOREN

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1 Regarding this Document

1.1 Using this document

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

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

1.2 Further documents

Further documents included with this operating manual are:

- Certificate of acceptance / operating instructions for the pressure vessel
- Declaration of Conformity in accordance with the applicable directive

Missing documents can be requested from KAESER.

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

1.3 Copyright

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

1.4 Symbols and labels

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

1.4.1 Warnings

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

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

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

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

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

⚠ DANGER

These show the kind of danger and its source.
The possible consequences of ignoring a warning are shown here.
If you ignore the warning notice, the "DANGER" signal word indicates a lethal or severe injury will occur.

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

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

For example,

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

1.4.2 Potential damage warnings

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

Warning notices for damages are identified by their signal term.

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

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

For example,

NOTICE

These show the kind of danger and its source.
Potential effects when ignoring the warning are indicated here.

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

➢ Carefully read and fully comply with warnings against damages.

1.4.3 Other alerts and their symbols

This symbol indicates particular important information.

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

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

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

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

Result — Shows the expected conclusion of the previous action.

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

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

The cause is named in the help text ...

➢ ... and a remedy given.

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

Further information — Further topics are introduced here.

2 Technical Data

2.1 Nameplate

The machine's nameplate provides the model designation and important technical information.

The nameplate is located on the outside of the machine (see illustration in chapter 13.1)

➢ Enter here the nameplate data as a reference:

Feature	Value
Vehicle identity number	
Permissible total weight	
Permissible coupling load	
Permissible axle load	
Portable compressor	
Material number	
Serial number	
Year of manufacture	
Total weight	
Lifting point load capacity	
Rated motor power	
Engine speed	
Maximum working pressure	

Tab. 3 Nameplate

2.2 Options

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 note of installed options (option codes) from the sales documents or consult with KAESER.

2.2.1 Option da, dd Compressed air treatment

➢ Enter the fitted options as reference in this overview.

Option	Option code	Equipped?
Compressed air after-cooler and condensate separator	da	

Option	Option code	Equipped?
Compressed air after-cooler, condensate separator and compressed air filter combination	da + dd	

Tab. 4 Compressed air treatment

2.2.2 Option ha Check valve

➢ Enter the fitted option for reference.

Option	Option code	Equipped?
Check valve	ha	

Tab. 5 Check valve

2.2.3 Option ra, rx Chassis

➢ Enter the fitted option for reference.

Option	Option code	Equipped?
Chassis	ra	
Stationary	rx	

Tab. 6 Chassis

2.3 Machine (without options)

2.3.1 Sound pressure level

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

	M 13
Guaranteed sound pressure level(1) [dB(A)]	76
(1) Applies exclusively to machines lined with sound proofing material.	

Tab. 7 Sound pressure level

2.3.2 Tightening torques for screws

Recommended values for screws of property class 8.8

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

Tab. 8 Tightening torques for screws (property class 8.8, coefficient of friction μ = 0.12)

2.3.2.1 Torque cover fixing screws oil separator tank

Recommended values for screws corresponding to the strength category:

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

Tab. 9 Torque cover fixing screws oil separator tank

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. 10 Ambient conditions

2.3.4 Additional specifications

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

- dimensions,
- track width,
- footprint,

can be found in the dimensioned drawings in Chapter 13.3.

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

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

2.4 Chassis

2.4.1 Option ra, rx Weight of the machine

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.

Option	ra	rx
Version	Chassis	Stationary
Load capacity of the lifting frame [lb]*		
*Enter the load capacity of the lifting frame from the nameplate into the table for reference.		

Tab. 11 Weight of the machine

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
Minimum and recommended tire pressure [psi]	36	36	36

Tab. 12 Tires

2.4.3 Wheel fixing

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

Tab. 13 Wheel fixing

2.5 Compressor

2.5.1 Working pressure and flow rate

Definition of volumetric flow rate: Constant delivery volume relative to intake conditions

	Volumetric flow rate [cfm]		
Maximum working gauge pressure [psig]	M13	M15	M17
100	42	50	60
145	35	–	–
175	32	–	–
190	30	–	–
215	–	–	35
Volumetric flow rate as per ISO 1217:2009. Annex D			

Tab. 14 Working pressure and flow rate

2.5.2 Compressed air outlet

Outlet valve ["]	Quantity
G 1/2	1
–	

Tab. 15 Compressed air outlet

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
215	230

* on the oil separator tank

Tab. 16 Safety relief activating pressure

2.5.4 Temperature

A combination valve regulates the compressor temperature accordingly.

Machine temperatures	Values
Recommended airend discharge temperature for switching to LOAD operation [°F]	86
Typical airend discharge temperature during operation [°F]	167 – 212
Maximum airend discharge temperature (automatic safety shut-down) [°F]	230

Tab. 17 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 foodstuffs. Particularly suitable for machines with a high duty cycle.	Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a low duty cycle.
Approval	—	—
Viscosity at 104 °F	45 mm^2/s (D 445; ASTM test)	44 mm^2/s (DIN 51562–1)
Viscosity at 212 °F	7.2 mm^2/s (D 445; ASTM test)	6.8 mm^2/s (DIN 51562–1)
Flash point	460 °F (D 92; ASTM test)	428 °F (ISO 2592)
Density at 59 °F	864 kg/m^3 (ISO 12185)	–

Characteristic	SIGMA FLUID	
Oil grade	S–460	MOL
Pour point	-50.8 °F (D 97; ASTM test)	-27.4 °F (ISO 3016)
Demulsibility at 29 °F	40/40/0/10 min (D 1401; ASTM test)	–

Tab. 18 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. 19 Cooling oil charge

2.6 Engine

2.6.1 Engine specification

	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. 20 Engine specification

This engine 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. Engine 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. 21 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. 22 Fluid volumes

2.6.4 Battery

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

Tab. 23 Battery

2.7 Options

2.7.1 Option ha
Check valve

Working pressure [psig]	100	145	175	190	215
Check valve	–	x	x	x	x

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

Tab. 24 Optional check valve

3 Safety and Responsibility

3.1 Basic instructions

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

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

⚠ Disregard of warning or safety instructions can cause serious injuries!

➢ Use this machine only if it is in a technically perfect condition and only for the purpose for which it is intended; observe all safety measures and the instructions in the service manual!

➢ Immediately rectify (have rectified) any faults that could be detrimental to safety!

3.2 Specified use

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

➢ Keep to the specifications listed in this service manual.

➢ Operate the machine only within its performance limits and under the permitted ambient conditions.

➢ Do not use compressed air for breathing purposes unless it is specifically treated.

➢ Do not use compressed air for any application that will bring it into direct contact with food products unless it is specifically treated.

3.3 Incorrect Use

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

➢ Only use the machine as intended.

➢ Never direct compressed air at persons or animals.

➢ Do not use untreated compressed air for breathing purposes.

➢ Do not allow the machine to take in toxic, acidic, flammable, or explosive gases or vapors.

➢ Do not operate the machine in areas in which specific requirements with regard to explosion protection are in effect.

3.4 User's Responsibilities

3.4.1 Observe statutory and universally accepted regulations

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

3.4.2 Determining personnel

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

Authorized operators possess the following qualifications:

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

Authorized maintenance personnel possess the following qualifications:

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

Authorized transport personnel possess the following qualifications:

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

➢ Ensure that personnel entrusted with operation, maintenance and transporting are qualified and authorized to carry out their tasks.

3.5 Dangers

Basic instructions

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

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

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

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

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a color- and odor-less but highly toxic gas. The inhalation of minute quantities can be lethal.
Furthermore, diesel exhaust contains soot particles, some of which are noxious.

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

Fire and explosion

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

- ➢ Do not allow open flames or sparks at the place of use.
- ➢ Do not smoke while refueling.
- ➢ Never refuel the machine when it is running.
- ➢ Do not allow fuel to overflow.
- ➢ Wipe up spilled fuel immediately.
- ➢ Provide a fire extinguisher in the immediate vicinity.
- ➢ For the operation in combustible environment, fit the machine with an exhaust silencer (Option Ia).

Hot coolant

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

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

Electricity

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

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

Forces of compression

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

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

Compressed air quality

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

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

Spring forces

Springs under tension or compression store energy. Uncontrolled release of this energy can cause serious injury or death.
Minimum pressure / check valves, safety relief valves and inlet valves are powerfully spring-loaded.

- ➢ Do not open or dismantle any valves.

Rotating components

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

- ➢ Do not open the access doors or panels while the machine is running.
- ➢ Prior to opening the service doors or the enclosure, switch off the engine, disconnect from power source, verify that no voltage is present, and secure against unintended reactivation.
- ➢ Wear close-fitting clothes and a hair net if necessary.
- ➢ Ensure that all covers and safety guards are in place and secured before restarting.

Temperature

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

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

Noise

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

- ➢ Operate the machine only with closed body.
- ➢ Check machines that are lined with sound proofing material for perfect condition of the sound proofing material.
- ➢ Wear hearing protection if necessary.
  The safety relief valve blowing off can be particularly loud.
- ➢ Never generate compressed air without consumers being connected.

Operating fluids/materials

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

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

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

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

Conversion or modification of the machine

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

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

3.5.2 Safe machine operation

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

Personal protective equipment

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

- ➢ Wear protective clothing as necessary.

Suitable protective clothing (examples):

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

3.5.2.1 Transport

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

- ➢ Allow transport only by personnel trained in safely dealing with machines and the transport of goods.
- ➢ Shut down and fully disconnect the machine before transporting it.
- ➢ Ensure that the anti-theft chains are disassembled.
- ➢ Ensure that the correct fixtures (push bars, handles) at the machine are used for the transport.
- ➢ Ensure that no persons are on the machine when transporting.

Transporting with a crane

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

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

The following are forbidden:

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

3.5.2.2 Installation

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

- ➢ Do not position the machine directly against a wall. A build-up of heat from the exhaust can damage the machine.
- ➢ Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- ➢ Do not operate in areas in which specific requirements with regard to explosion protection are in force.
- ➢ Ensure adequate ventilation.
- ➢ Place the machine in such a manner that the working conditions in its environment are not impaired.
- ➢ Comply with limit values for ambient temperature and humidity.
- ➢ The intake air must not contain any damaging contaminants.

Damaging contaminants are for instance:

- Exhaust gases from combustion engines,
- Combustible, explosive or chemically unstable gases or vapors,
- Acid- or base-forming chemicals such as ammonia, chlorine, or hydrogen sulfide.

➢ Do not position the machine in the warm exhaust air flow from other machines.
➢ Keep suitable fire extinguishing agents ready for use.
➢ Chock the wheels to prevent unwanted movement.
➢ Do not place additional loads on the machine (e.g. excavator bucket as anti-theft measure).

3.5.2.3 Commissioning, operation and maintenance

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

➢ Maintenance work should be carried out by authorized personnel only.
➢ Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
➢ Switch off the machine and lock out the supply disconnecting device.
➢ Wait until the compressor has automatically vented (The pressure gauge must read 0 psig!)
➢ Then open the outlet valve carefully to ensure that the line between the minimum pressure / check valve and the compressed air outlet is vented.
➢ Allow the machine to cool down.
➢ Do not open the body while the machine is switched on.
➢ Do not open or dismantle any valves.
➢ Use only spare parts approved by KAESER for use in this machine.
➢ Carry out regular inspections:

- for visible damage and leakage,
- of safety devices,
- of the EMERGENCY STOP push button,
- of parts needing monitoring.

➢ Pay particular attention to cleanliness during all maintenance and repair work. Cover components and openings with clean cloths, paper, or tape to keep them clean.
➢ Do not leave any loose components, tools, or cleaning rags on or in the machine.
➢ Components removed from the machine can still be dangerous:
Do not attempt to open or destroy any components taken from the machine.
➢ Use only suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- they are of the right type and size for the highest permissible machine working pressure,
- they are not damaged, worn or of reduced quality,
- they have couplings and connections of the right type and size.

➢ Make sure compressed air hoses are depressurized before disconnecting from the machine.

- ➢ Secure the open end of an air hose before applying air pressure. An unsecured hose may whip and cause injury.
- ➢ At working pressures>100 psi, compressed air hoses should be secured by a cable to their respective outlet valves.

3.5.2.4 De-commissioning, storage and disposal

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

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

3.5.3 Organizational Measures

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

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.

Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 10 ft radius of the machine.	■ Operating personnel to prepare for transport. ■ Allow transportation only by personnel trained in the safe movement of machines and loads.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine. Within a 3 ft radius of the machine.	Maintenance personnel
Operation	Within a 3 ft radius of the machine.	Operating personnel
Maintenance	Within the machine. Within a 3 ft radius of the machine.	Maintenance personnel

Tab. 25 Danger areas

3.6 Safety devices

Safety devices ensure safe working with the machine.

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

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

3.7 Safety signs

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

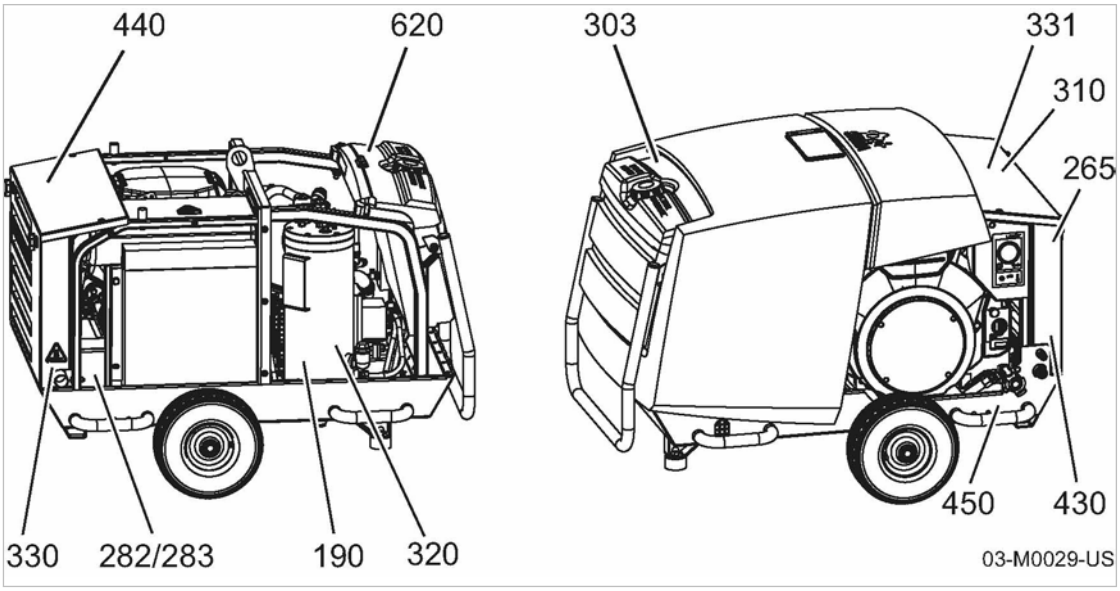

Fig. 1 Position of safety signs on the machine

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

(1) Location within the machine

Position	Sign	Meaning
303		Fire or explosion caused by refueling. Severe injury or death result from inflaming fuel. ➢ 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 operate the machine with open canopy or cover panels! Personal injury or machine damage can result from an open machine enclosure. ➢ Operate the machine only with the enclosure fully closed. ➢ Transport the machine only with the enclosure fully closed.
320(1)		Loud noise and oil mist! Hearing damage and burns caused from relief valve blow off. ➢ Wear hearing protectors and protective clothing. ➢ Close the canopy or doors. ➢ Work with caution.
330 331		Hot surface! Burns caused from contact with hot components or gases. ➢ Do not touch the surface. ➢ Wear long-sleeved garments (no synthetics such as polyester) and protective gloves.
430		Connect air hoses only in full compliance with OSHA standard 29 CFR 1926,302 (bX7). The required safety devices should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use.
440		Compressed air quality. Injury and/or contamination can result from breathing compressed air. Contamination of food can result from using untreated compressed air for food processing. ➢ Never breathe untreated compressed air! ➢ Air from this compressor must meet OSHA 29 CFR1910.134 and FDA 21 CFR178.3570 standards, if used for breathing or food processing. Use proper compressed air treatment. ➢ Food grade coolant must be used for food processing.
450		Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected. ➢ Connect a compressed air hose. ➢ Open the ball valve.

(1) Location within the machine

Position	Sign	Meaning
600(1)		Pressure and spring force. Risk of fatal injury caused by dismantling valves or other components that are under pressure or heavy spring loading. ➢ Do not open or dismantle valves. ➢ Call an authorized KAESER service representative in the event of a fault.
620		Risk of serious lacerations or even severing of extremities (fingers) from rotating components. ➢ To close the canopy, slowly lower the canopy with both hands. ➢ Operate the machine only with canopy, safety guards, access doors, and panels closed. ➢ Shut down the machine before opening a door or canopy.

(1) Location within the machine

Tab. 26 Safety signs

3.8 Emergency situations

3.8.1 Correct fire fighting

Suitable measures

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

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

Extinguishing substances

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

3.8.2 Injury from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- Fuel
- Lubricating oils
- Compressor cooling oil
- Engine coolant

- Battery electrolyte
- Tool lubricant (Option ea)
- Antifreeze (Option ba)

Eye contact:

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

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

➢ Seek medical advice for persistent irritation.

Skin contact:

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

➢ Wash thoroughly with skin cleaner, then with soap and water.

➢ Contaminated clothing should be intensively cleaned before reuse.

Inhalation:

Fuel and oil vapors impair breathing.

➢ Clear the respirator tract from fuel or oil vapor.

➢ Seek medical help if difficulty with respiration continues.

Ingestion:

➢ Wash out the mouth immediately.

➢ Do not induce vomiting.

➢ Seek medical aid.

3.9 Warranty

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

A condition of our warranty is that the machine is used for the purpose for which it is intended under the conditions specified.
Due to the multitude applications for which the machine is suitable the obligation lies with the user to determine its suitability for his specific application.

In addition, we accept no warranty obligation for:

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

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

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

3.10 Environmental protection

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

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

4 Design and Function

4.1 Bodywork

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

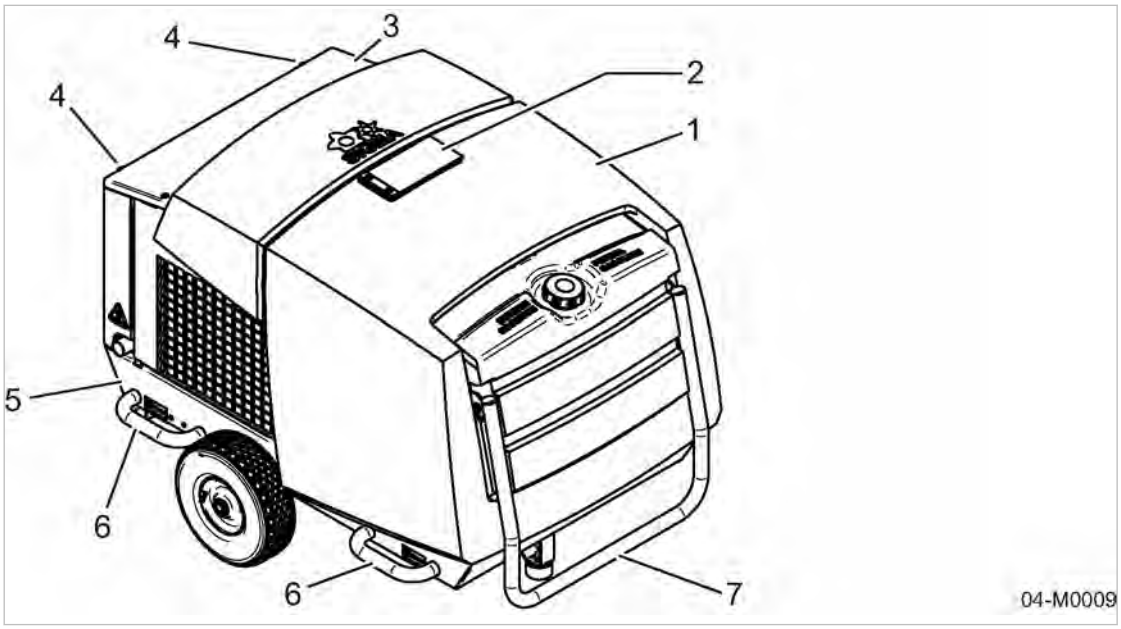

Fig. 2 Bodywork

[1]	Canopy	[5]	Lower body
[2]	Cover for lifting eye	[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

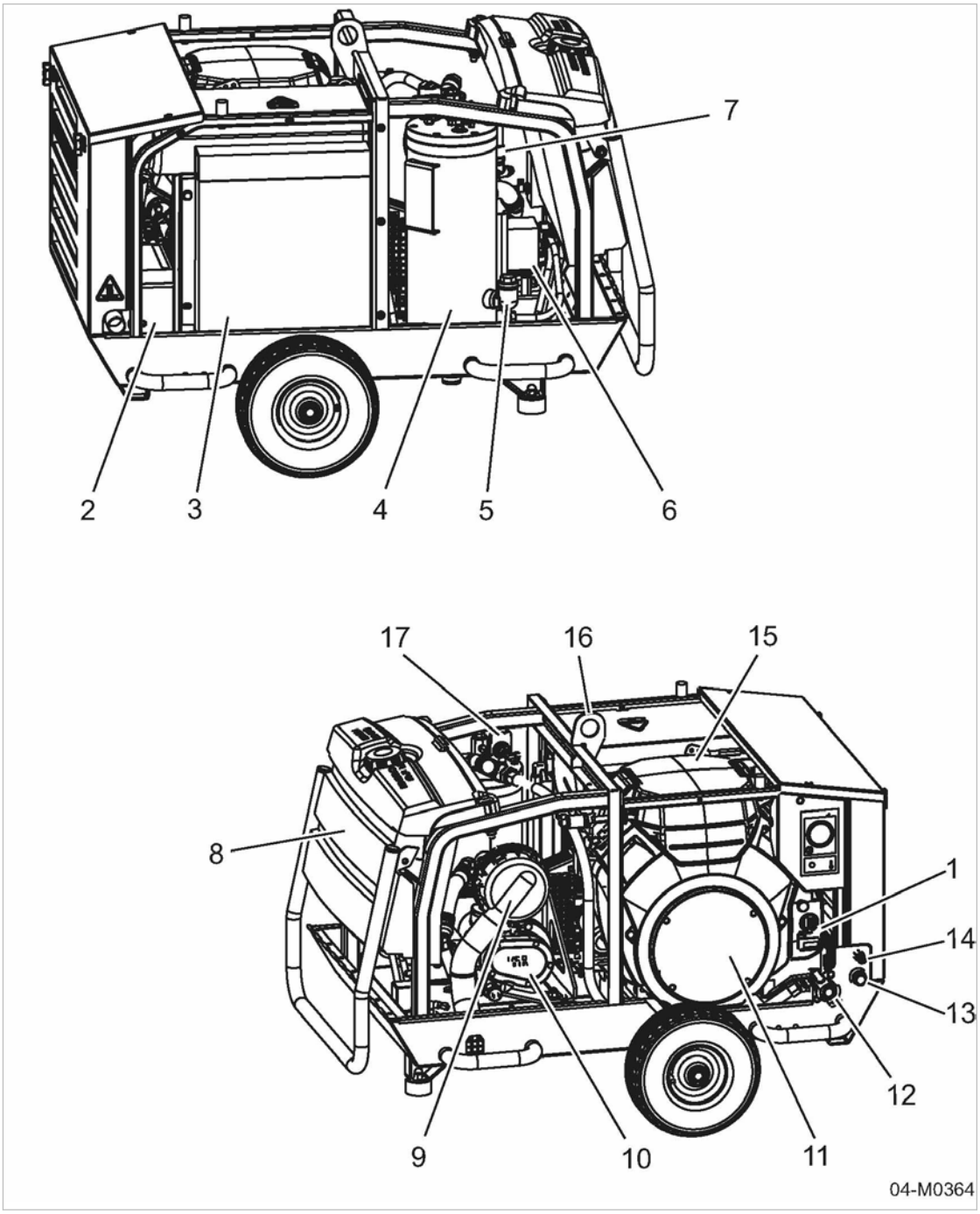

Fig. 3 Component identification (side view, canopy removed)

1 Instrument panel
2 Battery
3 Oil cooler
4 Oil separator tank
5 Oil filler port with plug
6 Combination valve
7 Safety relief valve
8 Fuel tank
9 Compressor air filter
10 Airend
11 Engine
12 Compressed air outlet valve
13 Socket for fan
14 Plug-in hose fitting for condensate drainage
15 Engine air filter
16 Lifting eye
17 Proportional controller

4.3 Machine function

Machine function (without options)

Item numbers correspond to the pipe and instrument flow diagram in chapter 13.2.

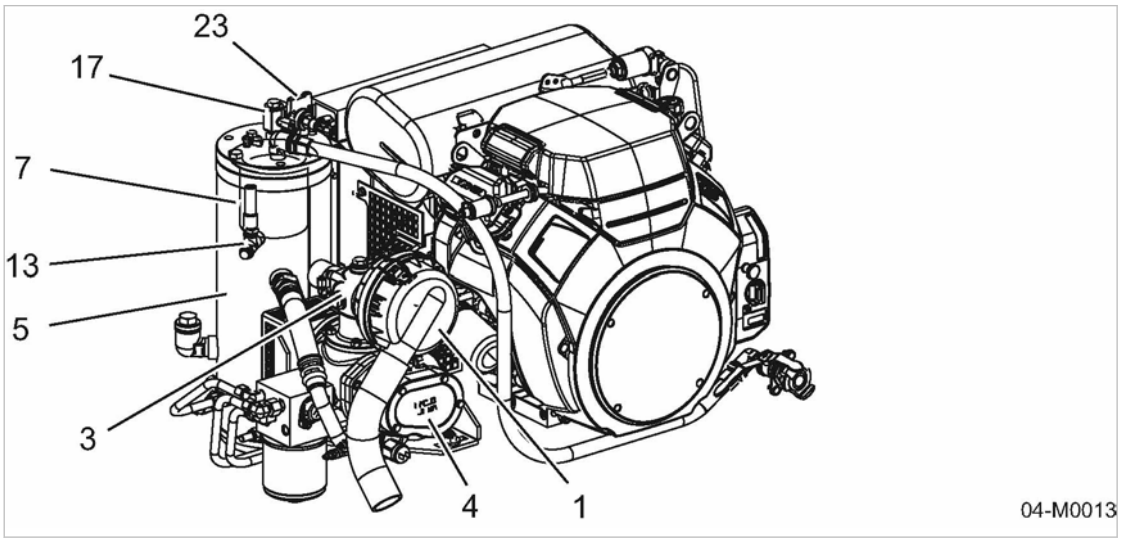

Fig. 4 General arrangement (01)

[1] Compressor air filter
[3] Inlet valve
[4] Airend
[5] Oil separator tank
[7] Oil separator cartridge
[13] Safety relief valve
[17] Dirt trap
[23] Proportional controller

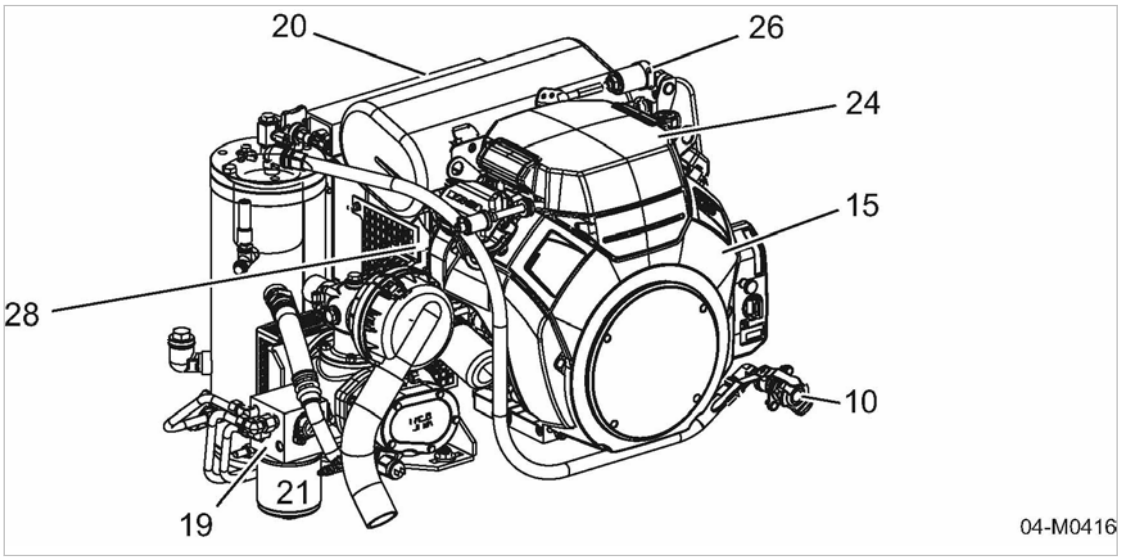

Fig. 5 General arrangement (02)

[10] Compressed air distributor
[15] Engine
[19] Combination valve (oil temperature thermostat)
[20] Oil cooler
[21] Oil filter
[24] Engine air filter
[26] Engine speed control cylinder
[28] Fan

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

The air is then compressed in the airend [4].

The airend is driven by an internal combustion engine.

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, free 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 mode

4.4.1 Machine operating modes

The machine operates in the following modes:

- LOAD
  - The inlet valve is open.
  - The engine runs at maximum speed.
  - The airend delivers compressed air.
- MODULATING
  - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is continuously varied in response to the air demand.
  - The load and fuel consumption of the engine rises and falls with the air demand.
  - The airend delivers compressed air.
- IDLE
  - The inlet valve is closed.
  - The control valve opens, allowing pressure in the oil separator tank to be applied to the inlet valve.
  - Compressed air then flows in a closed circuit through the airend, the oil separator tank and the control valve.
  - The pressure in the oil separator tank remains constant.
  - The drive engine runs at minimum speed.
- STANDSTILL (shut down)
  - The inlet valve closes.
  - The venting valve opens to depressurize the machine.
  - The engine stops.

4.4.2 MODULATING control

The control system regulates the volume of air generated to match the actual demand. The machine keeps the working pressure constant by continuously varying the volumetric flow rate within the machine's regulating range, independent of the air demand.

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

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

4.5 Safety devices

4.5.1 Monitoring functions with shut-down

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.

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

4.6 Compressed air treatment options

4.6.1 Prepared machine

Connections for external compressed air treatment units:

- Plug-in hose fitting
- 12 V power socket

For the operation of external compressed air treatment units, this machine is equipped with the required connections.

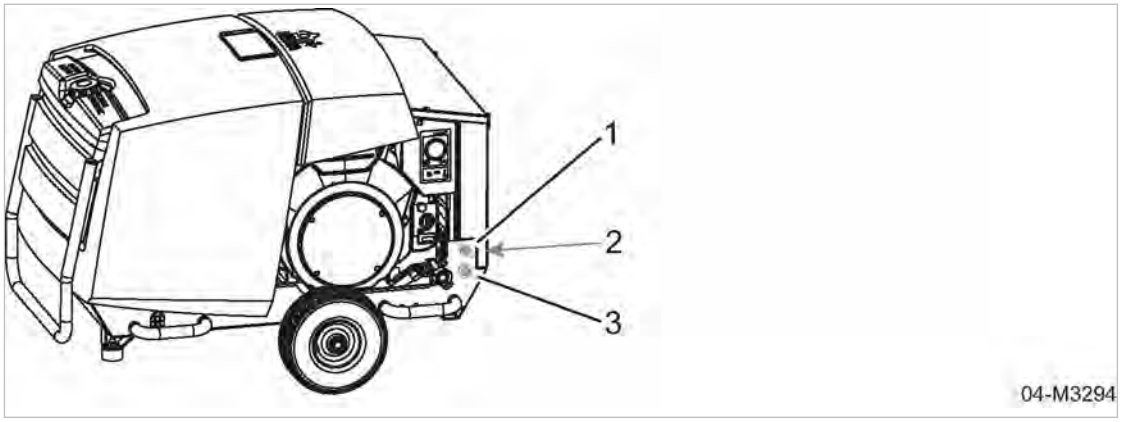

Fig. 6 Prepared machine

1 Plug-in hose fitting for condensate drainage
2 Condensate drain dirt trap
3 Electrical socket for the fan

The operating manual for the compressed air treatment option can be found in the appendix of this operating manual.

- Service manual for compressed air aftercooler, please refer to chapter 13.6.
- Service manual for compressed air filter combination, please refer to chapter 13.7.

4.7 Options

The options available for your machine are described below.

4.7.1 Manually movable and stationary machine options

4.7.1.1 Option ra
Manually moveable chassis

The machine can be locally moved by one person when the push bar is folded up.

Option	Characteristics
ra	■ Single-axle ■ Prop stand ■ Foldable push bar

Tab. 27 Manually moveable chassis

Further information See chapter 13.3 for the dimensional drawings of the machine.

4.7.1.2 Option rx
Stationary frame design

The machine can be bolted down if machine feet are provided.

Option	Characteristics
rx	■ The mounting assembly is designed as a frame. ■ You can select rubber pads or machine feet for the supports.
–	–

Tab. 28 Stationary frame design

Further information For dimensional drawings of stationary machines, see chapter 13.3.

5 Installation and Operating Conditions

5.1 Ensuring safety

The conditions in which the machine is installed and operated have a decisive effect on safety.

Warning instructions are located before a potentially dangerous task.

⚠ Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- ➢ Strictly forbid fire, open flame and smoking.
- ➢ If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapours or parts of the machine.
- ➢ Do not store inflammable material in the vicinity of the machine.
- ➢ The machine is not explosion-proof:
  Do not operate in areas in which specific requirements with regard to explosion protection are in force.
  For instance, the requirements of ATEX directive 2014/34/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- ➢ Keep suitable fire extinguishing agents ready for use.
- ➢ Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

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

5.2 Installation conditions

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

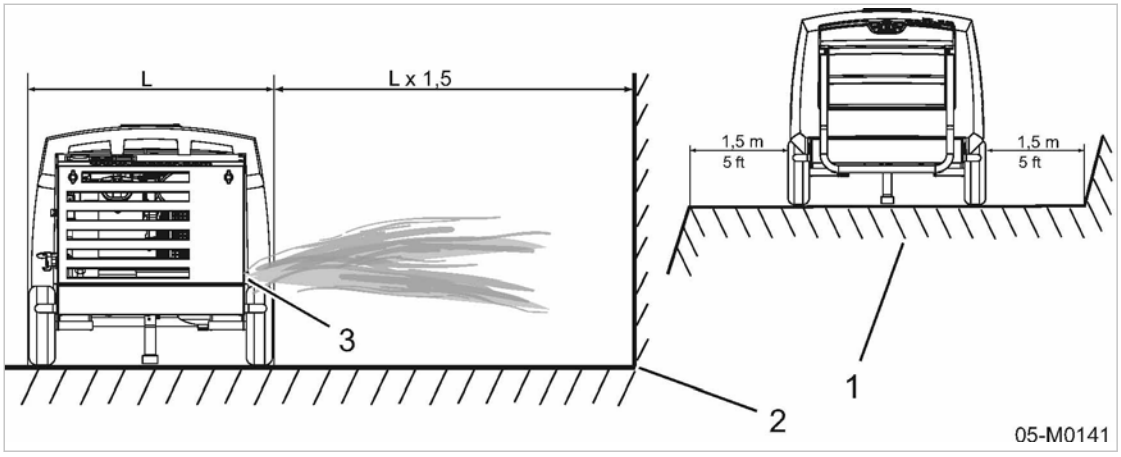

Fig. 7 Minimum distance from excavations/slopes and walls

[1] Distance from excavations/slopes
[2] Required wall distance
[3] Side exhaust outlet, see also chapter 13.3.1.

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

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

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
4. **NOTICE** *Fire hazard from build up of heat and hot exhaust!*
   Insufficient distance from a wall may well cause heat build-up that could damage the machine.
   - ➢ *Do not position the machine directly against a wall.*
   - ➢ *Ensure always sufficient ventilation space around the machine.*
5. Position the machine as far as possible from any wall.
6. Ensure there is enough free space all round and above the machine.
7. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
8. Install the machine ensuring that
   - wind does not blow into the cooling air outlet.
   - exhaust gases and heated cooling air can not be drawn into the compressor.
9. **NOTICE** *Ambient temperature too low!*
   Frozen condensate and highly viscous engine or compressor cooling oil can cause damage when starting the machine.
   - ➢ *Use winter grade engine oil.*
   - ➢ *Use low viscosity compressor cooling oil.*
   - ➢ *Allow the machine to warm up in IDLE (low speed), see chapter 8.2.2.*
10. At ambient temperatures below 32°F, follow the instructions in chapter 7.4.

6 Installation

6.1 Ensuring safety

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

Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

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

Further information

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

6.2 Reporting Transport Damage

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

7 Initial Start-up

7.1 Ensuring safety

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

Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

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

Further information

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

7.2 Before initial start-up (or recommissioning)

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

7.2.1 Instructions to be observed before commissioning or recommissioning

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

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

7.2.2 Special measures for recommissioning after storage or decommissioning

➢ Carry out the following before every start-up of the machine after any long period of storage or decommissioning:

Storage/ decommissioning period longer than:	Action
5 months	**Drive engine:** ➢ Remove desiccant from engine air filter. ➢ Check the engine air filter. ➢ Check the engine oil filter. ➢ Drain the preserving oil from the engine. ➢ Fill up with engine oil. ➢ Check the battery charge state. ➢ Connect the battery. ➢ Check all fuel hoses for leaks, loose connections, wear and damage. ➢ Check all pressure hoses of the drive engine for leaks, loose connections, wear and damage.
	Compressor: ➢ Remove desiccant from compressor air filter. ➢ Check the compressor air filter. ➢ Check the compressor oil filter. ➢ Drain the preserving oil from the oil separator tank. ➢ Fill with cooling oil. ➢ Check all pressure hoses/lines of the compressor (cooling oil, compressed air, control air, condensate) for leaks, loose connections, wear and damage.
	Bodywork: ➢ Clean the bodywork with a grease and dirt dissolving agent. ➢ Check the tire pressures.
36 months	**Technical condition:** ➢ Have the overall technical condition checked by an authorized KAESER service representative.

Tab. 29 Special measures for recommissioning the compressor after a long period of storage or decommissioning

7.3 Checking installation and operating conditions

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

Task	See chapter	Confirmed?
➢ Are the operators completely familiar with safety regulations?	–	
➢ Have all the positioning conditions been fulfilled?	5	
➢ Is there sufficient cooling oil in the separator tank?	10.4.1	

Task	See chapter	Confirmed?
➢ Is there sufficient oil in the engine?	10.3.3	
➢ Is there sufficient fuel in the fuel tank?		
➢ Is the cover closed and all panels in place?	–	
➢ Are the tire pressures OK?	2.4.2	

Tab. 30 Checking installation and operating conditions

7.4 Low-temperature operation (winter)

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

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

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

Allow the engine to warm up

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

7.4.1 Starting assistance

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

Material Jumper cables

Precondition The machine is standing firm and level.
The receiving battery and the donor battery have the same rated voltage.

⚠ WARNING
Fire and explosion hazard!
High currents can flow if the battery is short-circuited. 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.*
➢ *Work with caution.*

Complying with safety warnings

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

Preparations

Precondition The engine the machine with the donor battery is shut off.
All power consumers are switched off.

1. Park the machines at a close distance to each other.
2. Check the distance of both machines.
   The machine bodies do not touch each other.
3. Unlock the rear panel locks.
4. Remove the rear panels.
5. Remove the pole protecting caps.

Connecting the battery jumper cables

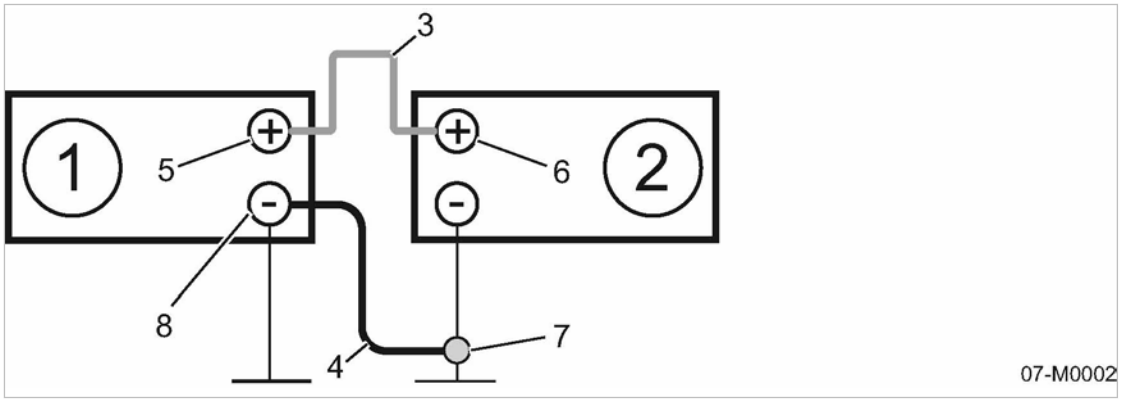

Fig. 8 Jumper cable connection diagram

[1] Donor battery
[2] Receiving battery
[3] Jumper cable (red)
[4] Jumper cable (black)
[5] Positive pole, donor battery
[6] Positive pole, receiving battery
[7] Metallic blank part of the engine block (machine with receiving battery)
[8] Negative pole, donor battery

1. Clamp the first terminal clamp [3] of the red jumper cable to the positive pole [6] of the receiver battery.
2. Clamp the second pole clamp of the red jumper cable to the positive pole [5] of the donor battery.
3. **⚠ DANGER** *Explosion hazard!*
   A spark may ignite an explosive gas mixture.
   - ➢ *Do not, under any circumstances, connect the negative pole of the donor battery to the negative pole of the receiver battery.*
     This can cause sparks when connecting and disconnecting.
   - ➢ *Work with caution.*
4. Connect the first pole clamp [4] of the black jumper cable to the engine block or a connected, solid and unpainted metal component [7] of the machine with receiver battery (as distant as possible to the battery).
5. Clamp the second pole clamp of the black jumper cable to the negative pole [8] of the donor battery.

Starting the engine

1. Start the engine of the assisting vehicle and run at high speed.
2. Start the engine of the machine with the receiver battery.

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

Disconnecting the battery jumper cables

1. Shut off the engine of the machine with the receiver battery.
2. Disconnect the jumper cables in the reverse order, first negative (-) then positive (+).
3. Place the pole caps.
4. Replace the rear panels.
5. Engage locks.

A stop of the machine with donor battery as soon as the cables are disconnected could indicate major damage to the alternator or battery requiring repair by a specialized workshop.

8 Operation

8.1 Ensuring safety

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

⚠ Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!
- ➢ Follow the instructions in chapter 3 “Safety and Responsibility”.
- ➢ Make sure that no one is working on the machine.
- ➢ Ensure that all service doors and panels are closed and secured.

Preventing accidental contact

Intensely heated, rotating, or electrically-live components can cause severe injuries.
- ➢ Ensure that all doors, canopy and panels are closed.
- ➢ Do not carry out any checks or settings while the machine is running.
- ➢ Shut down the machine before opening any doors/canopy.

When working on live components

Touching voltage-carrying components can result in electric shocks, burns or death.
- ➢ Work on electrical equipment may only be carried out by authorized electricians.

Safe working with compressed air tools and hoses

Open pressurized compressed air hoses move erratically and can cause serious injury to people.
- ➢ Pressurize compressed air hoses only after the tool has been connected.
- ➢ Do not pressurize open compressed air hoses.
- ➢ Detach compressed air hoses only after the hose has been purged of compressed air.
- ➢ At working pressures >100 psig, compressed air hoses should be secured by a cable to their respective outlet valves.

Condensate formation in compressed air hoses

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

Condensate formation in compressed air receivers

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

➢ Regularly drain the condensate.

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

8.2 Starting and stopping

Precondition No personnel are working on the machine.

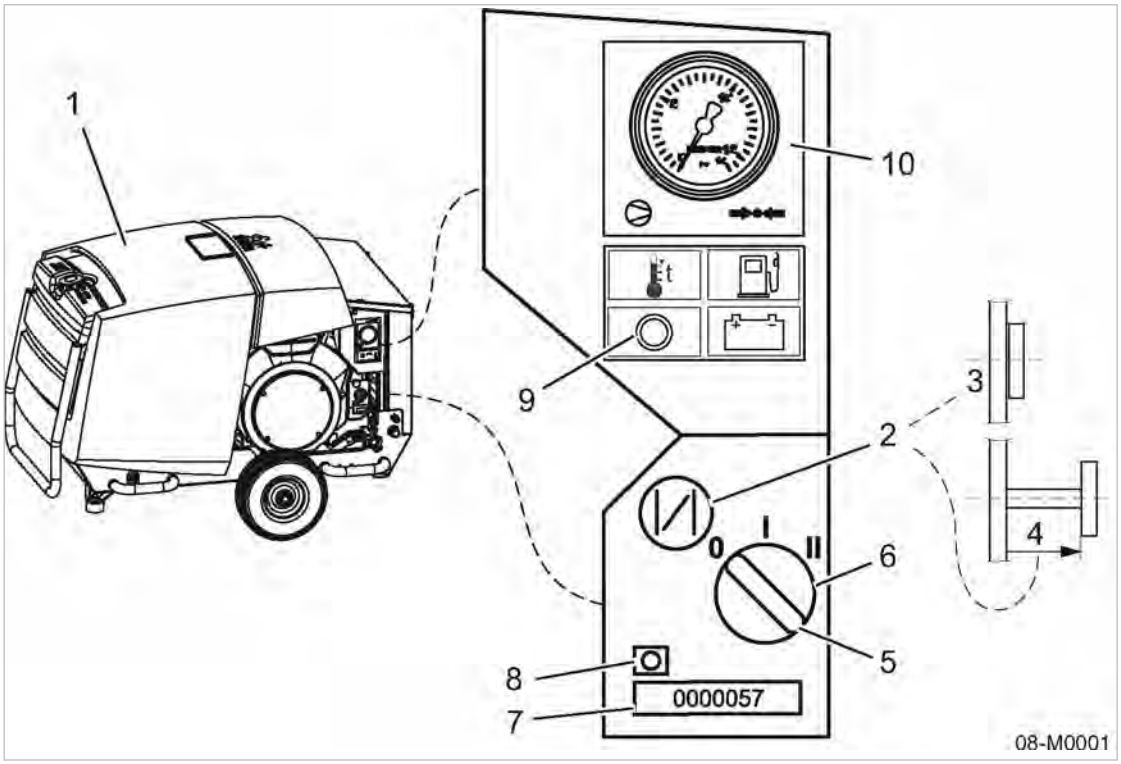

Fig. 9 Instruments

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

8.2.1 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.

8.2.2 Allow the machine to run up to operating temperature

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

1. Close the air outlet valves.
2. Allow the machine to warm up (in IDLE speed).

8.2.3 Shutting down

For minimum wear shut-down:
Allow the machine to run in IDLE for 15–20 seconds before shutting down.

1. Close the air outlet valves.
   The machine runs at IDLE speed for 15–20 seconds.
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.

8.2.4 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. 9.
You may restart the machine only after the machine has cooled down.

➢ Allow the machine to cool down.

8.3 Cleaning the machine after operation

Material High-pressure cleaner

Precondition The machine is placed over a washing station equipped with an oil separator.
The machine is switched off.
The machine has cooled down.
The machine is fully vented, the pressure gauge reads 0 psig.
All compressed air consumers are disconnected and the air outlet valve is open.

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

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

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

Cleaning with dry-ice jets is strictly forbidden. Unforeseeable damages can result.

1. **NOTICE** *Machine damage caused by strong water jet!*
   Direct water jets can damage or even destroy sensitive components.
   - ➢ *Do **not** directly focus a strong water jet towards sensitive components.*
   - ➢ *Work carefully.*
2. Carefully clean the machine with the high-pressure cleaner.

9 Fault Recognition and Rectification

9.1 Basic instructions

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

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

Further information

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

9.2 Engine faults and alarms

9.2.1 Engine refuses to start or come to a stop

Possible cause	Action	Where can I get help?	
		SW	KS
Defective starter.	Replace.	X	–
The fuel cut-off device has not opened.	Check the coil and electrical components and replace, if necessary.	X	–
Fuel tank empty.	Fill up the fuel tank.	–	–
Airlocks in the fuel line between fuel tank and carburetor.	Bleed the fuel line.	–	–
Fuel filter clogged.	Clean or change.	–	–
Fuel pre-filter at the carburetor is clogged.	Clean or change.	X	–
Fuel line broken.	Replace.	X	–
Defective control fuse or relay.	Replace.	X	X
Airend discharge temperature too high.	Have checked.		X
Defective temperature gauge switch giving no enable signal	Replace.	–	X
Defective starter switch.	Replace.	X	–
Defective spark plug connector.	Replace.	X	X
Defective spark plugs.	Check and adjust electrode gap or replace, if necessary.	X	X
Electrical connections and/or cables loose or broken.	Tighten connection or replace cable, if necessary.	X	–
Defective battery or low charge.	Service battery, see chapter 10.3.5.	–	–
Defective alternator.	Replace.	X	–

SW = Specialized workshop; KS = KAESER SERVICE

Possible cause	Action	Where can I get help?	
		SW	KS
Defective alternator regulator.	Replace.	X	–
Oil pressure switch indicating insufficient oil pressure.	Check the engine oil pressure. Have the engine repaired or exchanged.	X	–
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 31 Fault: Engine refuses to start or come to a stop

9.2.2 Engine does not reach full speed

Possible cause	Action	Where can I get help?	
		SW	KS
Airlocks in the fuel line between fuel tank and carburetor.	Bleed the fuel line.	–	–
Fuel filter clogged.	Clean or change.	–	–
Fuel line broken.	Replace.	X	–
Speed adjustment cylinder maladjusted or defective.	Repair or replace if necessary.	–	X
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 32 Fault: Engine does not reach full speed

9.2.3 Indicator lamp remains on

Possible cause	Action	Where can I get help?	
		SW	KS
Electrical connections and/or cables loose or broken.	Tighten the connection or have the cable replaced.	X	X
Defective alternator.	Have repaired or replaced if necessary.	X	X
Defective alternator regulator.	Have repaired or replaced if necessary.	X	X
Drive engine oil pressure too low.	Check drive engine oil level, see chapter 10.3.3.	–	–
	Check the engine and have repaired if necessary.	X	X
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 33 Alarm: Indicator lamp remains on

9.3 Compressor faults and alarms

9.3.1 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
Oil cooler clogged.	Clean surface, see chapter 10.5.	–	–
The working element of the combination valve not working.	Replace.	–	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 14.5 psi (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 11.6 psi (see chapter 10.4.6).	–	X
Compressor oil filter cartridge clogged.	Change, see chapter 10.4.4.	–	–
Compressor oil level too low.	Replenish, 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. 34 Machine overheating

9.3.2 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.	–	–

Possible cause	Action	Where can I get help?	
		Specialized workshop	KAESER Service
Compressor oil level too high.	Reduce to maximum level, see chapters 10.4.1 and 10.4.3.	–	–

Tab. 35 Too much oil residue in the compressed air

9.3.3 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. 36 Oil flows from the compressor air filter after shutdown

10 Maintenance

10.1 Ensuring safety

Follow the instructions below for safe machine maintenance.

Warning instructions are located before a potentially dangerous task.

⚠ Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- ➢ Follow the instructions in chapter 3 “Safety and Responsibility”.
- ➢ Maintenance work may only be carried out by authorized personnel.
- ➢ Use one of the safety signs below to advise others that the machine is currently being serviced:

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

Tab. 37 Advise others that the machine is being serviced.

- ➢ Before switching on, make sure that:

- ■ nobody is working on the machine,
- ■ all protective guards and cover panels are attached,
- ■ all doors, canopy, and panels are closed,
- ■ all tools have been removed from the machine.

- ➢ Do not carry out any checks or maintenance while the machine is running!

When working on the pressure system

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

- ➢ Disconnect any air consumers or tools.
- ➢ Depressurize all pressurized components and enclosures.

- ■ Wait until the compressor has automatically vented.
- ■ Open the compressed air outlet valve carefully.
- ■ Check: the pressure gauge reads 0 psig!

- ➢ Do not open or dismantle any valves.

When working on the drive system

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

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

Further information

Details of authorized personnel are found in chapter 3.4.2.

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

10.2 Following the maintenance plans

10.2.1 Logging maintenance work

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

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

Adverse conditions are, e.g.:

- Poor fuel quality
- High/low temperatures
- Much dust
- Frequent use

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

➢ Logging all maintenance work.

This enables you to determine the frequency of individual maintenance tasks and deviations from our recommendations.

Further information A list is available in chapter 10.9.

10.2.2 Maintenance tasks after commissioning

The table below lists maintenance tasks required after commissioning (initial startup).

➢ Perform maintenance tasks according to the following schedule.

Component: Task	After the first 20 h	After the first 50 h	See chapter	Note
Engine:				
Changing the oil.	X		10.3.3	
Check fuel lines and clamps.		X		KS, FW

h ≙ operating hours
KS ≙ Contact KAESER SERVICE,
FW ≙ Contact specialized workshop.

Tab. 38 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

Maintenance interval	Short description
Every 250 h, at least annually.	A250
Every 500 h, at least annually.	A500
Every 1,000 h, at least annually.	A1000
Every 2,000 h, at least every 2 years.	A2000

Tab. 39 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

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

10.2.3.1 Machine maintenance schedule

➢ Carry out maintenance tasks according to the following schedule:

Tasks	Daily	A50	A250	A500	A1000	A2000	A36000	see Chapter	Note
Engine:									
Check the oil level.	X								
Air filter: Check foam and paper filters.	X							10.3.1	
Replace the engine oil.			X					10.3.3	
Replace the engine oil filter.			X						KS, FW
Air filter: Check/clean the foam filter element.			X					10.3.1	KS, FW
Air filter: Replace the paper filter element.			X					10.3.1	KS, FW
Clean the engine oil cooler (if fitted)			X						
Replace the fuel filter.				X					KS, FW
Grease the regulating rods (engine speed).				X					
Check the fan wheel.					X				
Check the spark plug and change if necessary.					X				KS, FW
Check the valves.					X				KS, FW
Have the combustion chamber cleaned.					X				KS, FW
Battery: Check battery connections and electrolyte level.		X							
Compressor:									
Check the oil level	X							10.4.1	

Tasks	Daily	A50	A250	A500	A1000	A2000	A36000	see Chapter	Note
Check the air filter element.	X							10.4.7	
Clean the oil cooler.								10.5	
Replace the air filter element.					X			10.4.7	
Change the oil.					X			10.4.3	
Replace the oil filter.					X			10.4.4	
Have the drive belt replaced.						X		10.4.8	KS, FW
Check/clean the dirt trap of the oil separator tank's dirt trap.			X					10.4.5	
Replace the oil separator cartridge.						X		10.4.6	
Have the safety relief valve checked.					X			10.4.9	KS, FW
Enclosure:									
Check sound proofing material.				X				10.6.1	
Carry out rubber sealing strip maintenance.				X				10.6.2	
Check connection elements.			X					10.6.3	
Wheels/chassis:									
Check the tire pressures.		X						2.4.2	
Check the condition of the locking rings.					X				
Check the lifting handles.				X					
Have lifting eye and fixings checked.				X					KS, FW
Hose lines (pressure hoses, fuel hoses):									
Check all hose lines of the machine for proper seating, leaks and wear; have them replaced if necessary.				X				10.7	KS, FW
Have the fuel lines of the drive engine replaced.							X	10.7.1	KS, FW
Have the pressure hoses of the drive engine replaced.							X	10.7.2	KS, FW
Have the pressure hoses of the compressor replaced.							X	10.7.3	KS, FW
Other maintenance tasks:									
Check all screwed joints for wear and tightness.				X					

Tasks	Daily	A50	A250	A500	A1000	A2000	A36000	see Chapter	Note
Check all lines and clamps for wear and firm seating.				X					
Check that all electrical connections are tight.				X					
KS ≙ Contact an authorized KAESER service representative, FW ≙ Contact specialized workshop.									

Tab. 40 Machine maintenance schedule

10.3 Drive engine maintenance

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

10.3.1 Engine air filter maintenance

Check and maintain the air filter according to the maintenance table.

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

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

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

NOTICE

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

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

➢ *Do not try to clean the paper filter element by brushing the dirt out.*

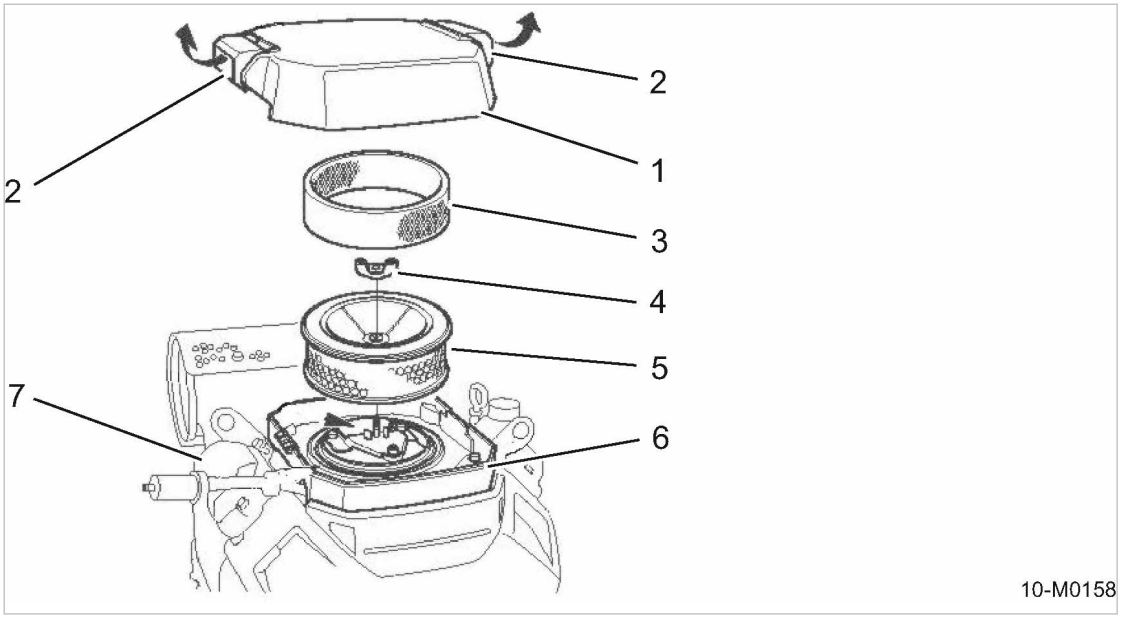

Fig. 10 Engine air filter maintenance

[1] Filter cap
[2] Retaining clip
[3] Foam element
[4] Wing nut
[5] Paper element
[6] Filter housing
[7] Drive engine

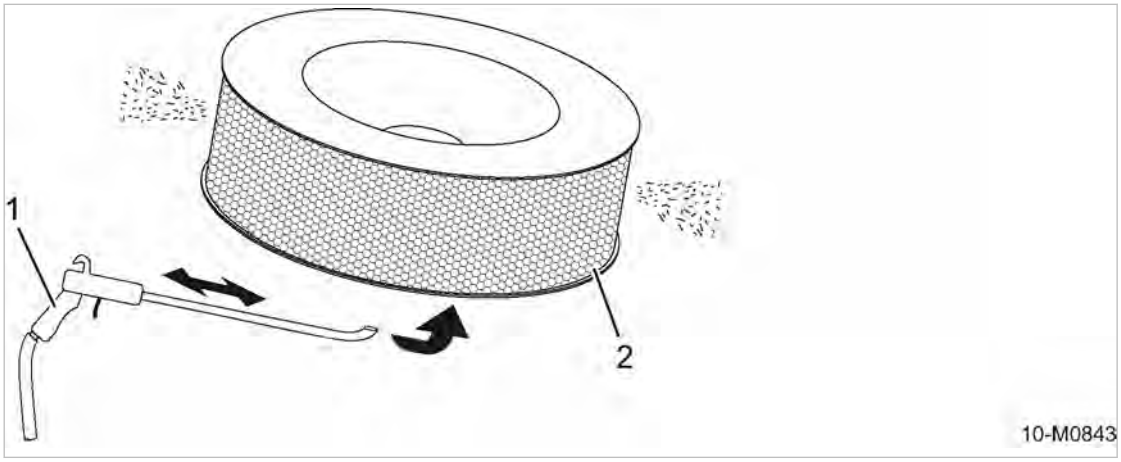

Fig. 11 Cleaning the filter element

[8] Compressed air gun with blast pipe bent to 90° at the end
[5] Paper element

➢ Raise the cover.

Checking the contamination level 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 reinstalled.
   - 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].

Replacing 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].

Replacing 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 psi), **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 Fuel system maintenance

Make sure no dirt enters the fuel system during maintenance.

Material
Spare parts
Oil receptacle
Cleaning cloths

Precondition
Maintenance should take place in a clean environment.
The machine is switched off.
The machine is standing level.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valve is open.
The negative cable to the battery is disconnected.

⚠ DANGER

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

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

➢ Raise the cover.

10.3.2.1 Fuel filter maintenance

Fig. 12 Fuel filter maintenance
[1] Fuel line
[2] Hose clamp
[3] Fuel filter

1. Place the fuel receptacle under the fuel filter.
2. Loosen the hose clamp on the filter cap.
3. Pull off the fuel line.

4. Catch fuel in the receptacle.
5. Release and remove the fuel filter cap.
6. Remove and dispose of the filter element.
7. Clean all parts of the fuel filter.
8. Insert the new element.
9. Replace and secure the filter cap.
10. Connect the fuel line.
11. Tighten the hose clamp.

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

Starting the machine and performing a test run

Venting the fuel system is not necessary.

1. Switch the machine on and run it in IDLE mode for approximately 1 minute.
2. Shut down the machine.
3. Raise the cover.
4. Visually check the fuel system for leaks.
5. Close the cover.

10.3.3 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
Oil 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,
the engine is at operating temperature,
all compressed air consumers are disconnected and the air outlet valve is open,
the rear panel is 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 protective gloves.*

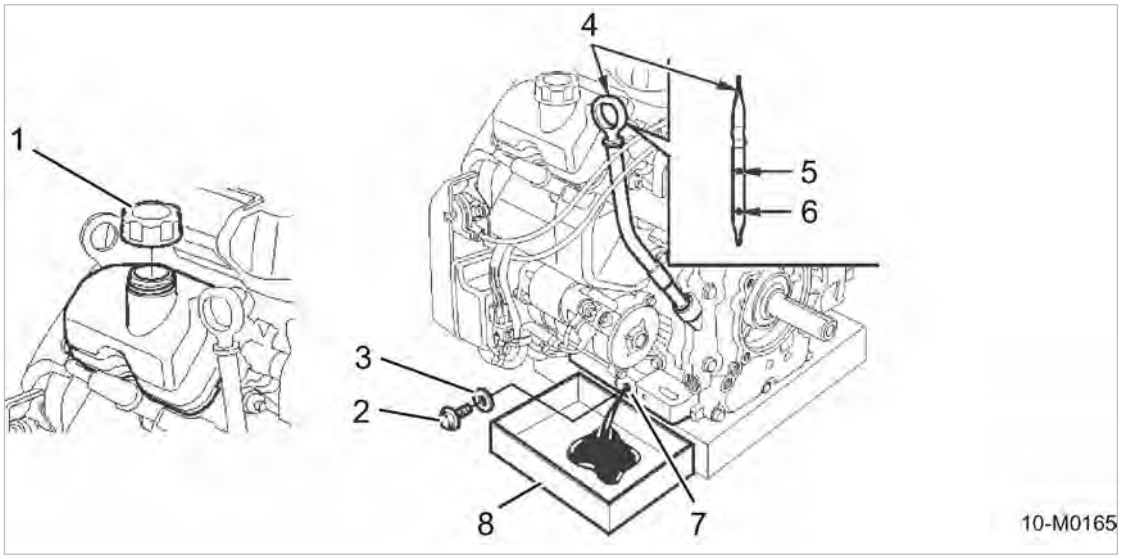

Fig. 13 Changing the engine oil

[1]	Filler cap	[5]	Maximum level
[2]	Drain plug	[6]	Minimum level
[3]	Gasket	[7]	Drain hole
[4]	Oil dipstick	[8]	Oil receptacle

Changing the engine oil

1. Place the oil 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].
   The engine oil drains.
4. Wait until the engine oil has completely drained into the oil 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 with new 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. Close the filler port with the lid [1].
12. Reconnect the negative cable to the battery.
13. Replace the machine rear panel.
14. Engage locks.

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

Starting the machine and performing a test run

1. Switch on the machine.
2. Run the machine in IDLE for approximately 5 minutes.
3. Shut down the machine.
4. Check the oil level.

Oil level too low.

➢ Replenish fresh engine oil.

5. Visually inspect for leaks.

10.3.4 Changing the engine oil filter

Tools customary in the trade, such as filter wrench or belts may be used in order to loosen the old engine oil filter for removal. Tighten the new engine oil filter with the recommended and maximum torque (see table 41).

Material
Spare parts
See chapter 2.6.3 for engine oil filling quantity.
Common tools
Cleaning cloths
Oil receptacle

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

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

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

NOTICE

Overstraining of components!
Leaking engine oil circuit.

➢ *Install new engine oil filter only by hand force.*

➢ *Tighten new engine oil filter only with the recommended and maximum torque.*

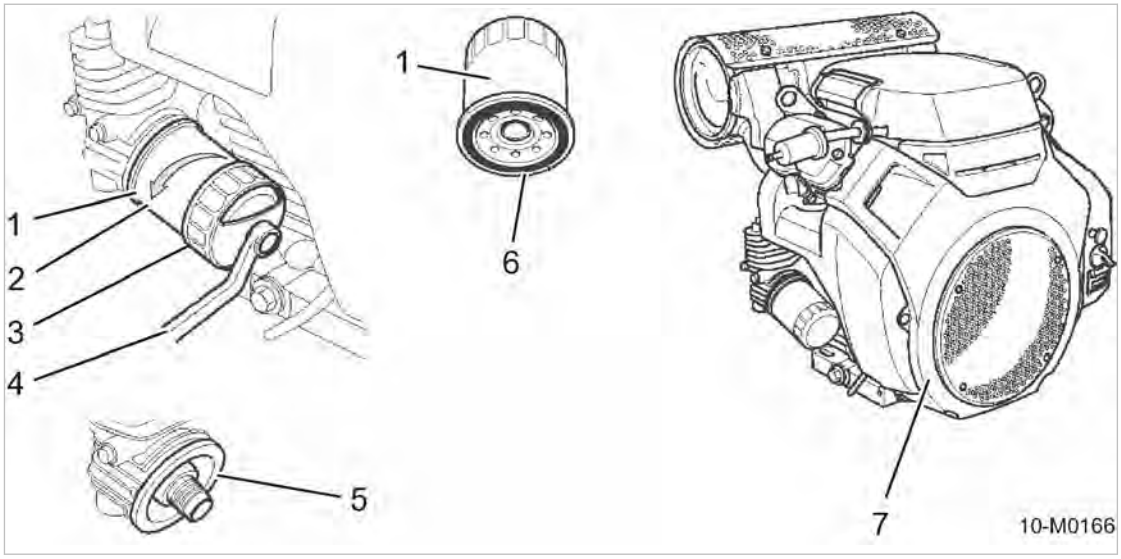

Fig. 14 Change the engine oil filter

[1]	Oil filter	[5]	Filter assembly plinth
[2]	Direction of rotation to unscrew the filter	[6]	Gasket
[3]	Oil filter key	[7]	Engine
[4]	Wrench		

Remove the old engine oil filter

1. Prepare the oil receptacle.
2. Use a filter wrench to loosen and unscrew the oil filter (turn in direction of arrow [1].
3. Remove the old engine oil filter.
4. Catch any escaping engine oil.
5. Carefully clean sealing surface using lint-free cloth..

Install the new engine oil filter

1. Lightly oil the new gasket of the engine oil filter.
2. Set new engine oil filter into installation position.
3. Turn the new engine oil filter clockwise using only hand force until the gasket fits tightly on the sealing surface.
4. Tighten new engine oil filter by hand force.

Comply with specified torque:

Torque	Value
Tightening torque for engine oil filter [lbf in]	106

Tab. 41 Tightening torque for engine oil filter

5. Tighten the engine oil filter with the recommended and maximum torque (see table 41).

Fill with fresh engine oil

1. Fill the crank casing with the recommended engine oil and the specified quantity.

2. Check the engine oil level.
3. Close the oil filling port.

Starting the machine and performing a trial run

1. Switch on the machine.
2. Run the machine in IDLE speed for approx. 5 minutes.
3. Shut down the machine.
4. Check the engine oil level.

Engine oil level too low.

➢ Replenish fresh engine oil.

5. Visually inspect for leaks.

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

10.3.5 Battery maintenance

➢ Check the charging system if the batteries discharge without reason.

10.3.5.1 Safety

⚠ WARNING

Danger of acid burns from escaping electrolyte!

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

When working on batteries, comply with the following safety signs

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

10-M0167

Fig. 15 Safety signs - warning stickers on the battery

➢ Take heed of any safety signs on the battery warning labels.
The individual safety signs have the following meaning:
- [1] – Fire, sparks, open flames, and smoking are forbidden!
- [2] – Eye and face protection must be worn because of the danger of acid burns.
- [3] – Keep children well away from batteries and acids!
- [4] – Wear protective gloves, batteries are filled with caustic electrolyte!
- [5] – Observe the battery manufacturer's instructions!
- [6] – Follow the safety rules, explosion hazard!

Further instructions on working with batteries

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

10.3.5.2 Ensure the batteries are charged

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

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

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

10.3.5.3 Battery checking and care

Even '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 cloth
Protective gloves
Eye protection

Precondition
The machine is switched off,
the machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the discharge valve is open,
the machine is fully vented, the pressure gauge reads 0 psig!
The rear panel has been removed.

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

Check the battery electrolyte level:

The electrolyte level must be checked weekly The level should be up to the mark, 0.4 in. above the plates.

Replace the battery immediately if the casing leaks!

1. **NOTICE** *Battery destruction!*
   Topping off with pure acid will increase the electrolyte concentration and can destroy the battery.
   ➢ *Top off only with distilled water.*
2. Check the electrolyte level.

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

Winter operation:

Battery performance is particularly affected by winter operating conditions. Only a fraction of the normal starting energy is available at low temperatures.

1. **NOTICE** *Danger of batteries freezing!*
   Discharged batteries are subject to frost damage and can freeze at 14 °F.
   ➢ *Check battery charge with a specific gravity tester.*
   ➢ *Recharge the battery.*
   ➢ *Clean the battery terminals and wipe with grease.*
2. Check the battery charge weekly.
   Recharge as necessary.
3. For machine standstill times of several weeks: Remove the battery and store in a frost-free room.

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

10.3.5.4 Battery removal and installation

Precondition The machine is switched off,
the machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the discharge valve is open,
the machine is fully vented, the pressure gauge reads 0 psig!

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

2. **NOTICE** *Excessive voltage produced by the alternator!*
   Voltage peaks can destroy the alternator regulator and diodes.
   - ➢ *The batteries serve as a buffer and must not be disconnected while the engine is running.*
   - ➢ *Carry out work on batteries only with the machine shut down.*
3. Remove the machine rear panel.
4. Disconnect the negative cable first, then the positive cable.
5. Unscrew the battery fixing clamp.
6. Replace in the reverse order.
7. Make sure the battery is properly secured.
8. Replace the rear panel of the machine.
9. Engage locks.

Replacing batteries

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

➢ Always replace batteries with the same type.

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

10.4 Compressor Maintenance

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

10.4.1 Checking cooling oil level

The oil level is checked at the oil separator tank filling port. 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.

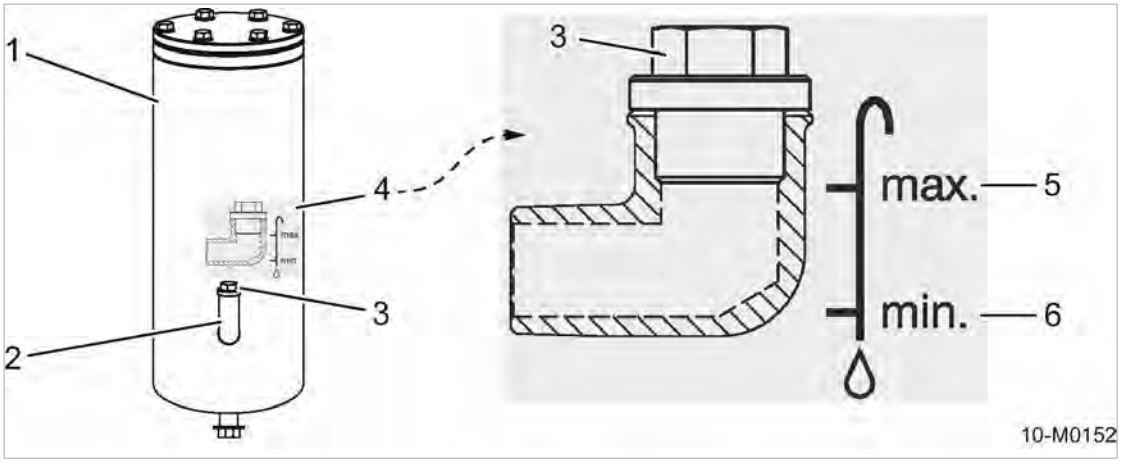

Fig. 16 Check cooling oil level

[1] Oil separator tank
[2] Oil filler
[3] Screw plug
[4] Adhesive label for cooling oil level
[5] Mark for *maximum cooling oil level*
[6] Mark for *minimum cooling oil level*

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 Filling or topping off the cooling oil

Material
Cooling oil
Funnel
Cleaning cloths
Wrench

Precondition
The machine is shut down,
the machine is standing level,
the machine is fully vented, the pressure gauge reads 0 psig,
the machine has 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 to be used.

1. **NOTICE** *The machine could be damaged by unsuitable oil!*
   - ➢ *Never mix different types of oil.*
   - ➢ *Never top off with a type of oil that differs from the one already used in the machine.*
2. Raise the cover.
3. Slowly unscrew and withdraw the plug from the oil filler port.
4. Top up the cooling oil to the maximum level [B] with the help of a funnel.

5. Check the oil level.
6. Check the filler plug gasket for damage.
   Damaged gasket: replace gasket.
7. Replace the plug in the filler port.
8. Connect the battery negative cable.
9. Close the canopy.

Starting the machine and performing a test run

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the 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. Raise the cover.
7. Check the oil level after about 5 minutes.
   Cooling oil level too low: Top off the cooling oil.
8. Visually inspect for leaks.
9. Close the canopy.

10.4.3 Changing the cooling oil

Drain all cooling-oil from:

- Oil separator tank
- Oil cooler
- Oil pipes

Material
Cooling oil
Oil receptacle
New gasket for the filler cap
Funnel
Cleaning cloths

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

Danger of burning from hot components and oil.

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

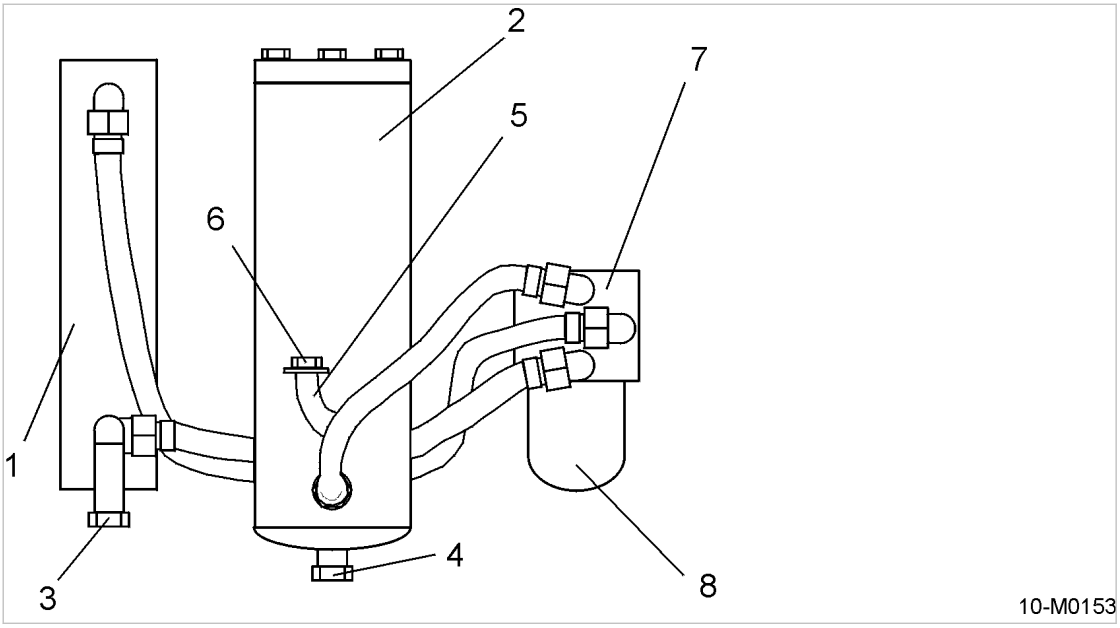

Fig. 17 Changing the cooling oil

[1] Oil cooler
[2] Oil separator tank
[3] Plug, oil cooler
[4] Plug, oil separator tank
[5] Oil filler port
[6] Oil filler plug
[7] Combination valve
[8] Oil filter
[9] Airend

Changing the cooling oil

1. Remove the plug [6] from the oil separator tank filling port [5].
2. Position the oil 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 oil receptacle beneath the oil cooler [1].
6. Unscrew the drain plug [3] and allow the cooling oil to drain into the oil 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.
    Damaged gasket: replace.
11. Replace the plug in the filler port [5].
12. Reconnect the negative battery terminal.

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

Starting the machine and performing a test run

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the 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. After approximately 5 minutes: Check the cooling oil level.
   Cooling oil level too low: Replenish with more cooling oil.
7. Visually inspect for leaks.

10.4.4 Changing the compressor oil filter

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

Material
Spare parts
Receptacle
Cleaning cloths

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

⚠ CAUTION

Danger of burning from hot components and oil!

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

NOTICE

Overstraining of components!
Leaking cooling oil circuit.

➢ *Install and tighten new oil filter only by hand force.*

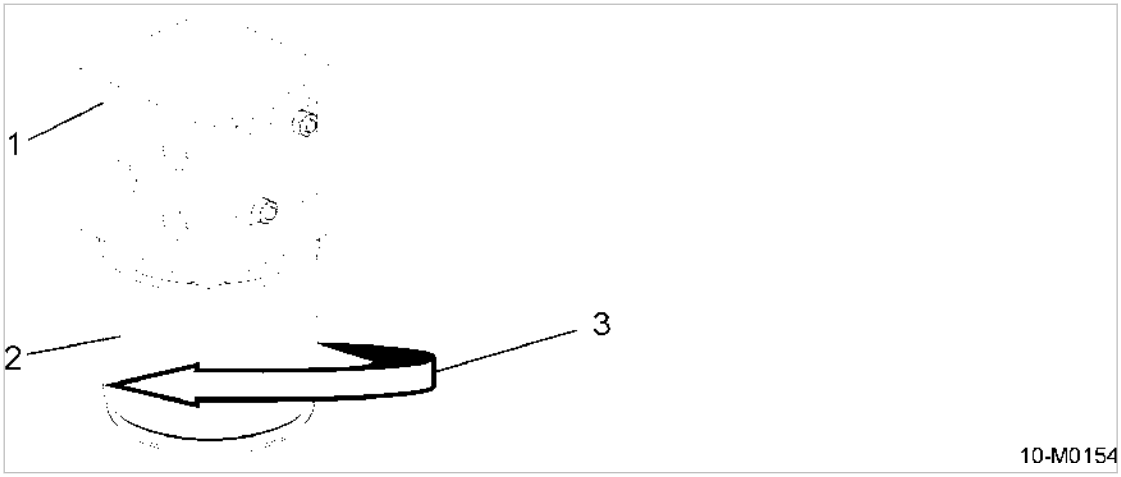

Fig. 18 Changing the compressor oil filter

[1] Combination valve
[2] Oil filter
[3] Direction of arrow to unscrew the oil filter

Remove the old oil filter

1. Prepare the oil receptacle.
2. Loosen the oil filter [2] (turn in direction of arrow) [3]).
3. Remove the oil filter.
4. Catch any draining oil.
5. Carefully clean sealing surface using lint-free cloth.

Install the new oil filter

1. Lightly oil the gasket of the new oil filter [2].
2. Set oil filter into installation position.
3. Turn the new oil filter clockwise using only hand force until the gasket fits tightly on the sealing surface.
4. Tighten new oil filter by hand force.

Check the oil level

➢ Check the oil level in the oil separator tank.

?

Oil level too low.

➢ Top off the oil.

Putting in operation

1. Reconnect the negative cable to the battery.
2. Replace the machine rear panel.
3. Engage the rear panel locks.

Starting the machine and performing a test run

1. Start the machine and run in IDLE until the operating temperature is reached.

2. Close the discharge valve.
3. Shut off the machine.
4. Wait until the machine has automatically vented.
   Pressure gauge reads 0 psig!
5. Open the discharge valve.
6. Remove the rear panel.
7. After approximately 5 minutes: check the oil level.

Cooling oil level too low.

➢ Top off the cooling oil again.

8. Visually inspect for leaks.

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

10.4.5 Oil separator tank dirt trap maintenance

The dirt trap is positioned on the oil separator tank.

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

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

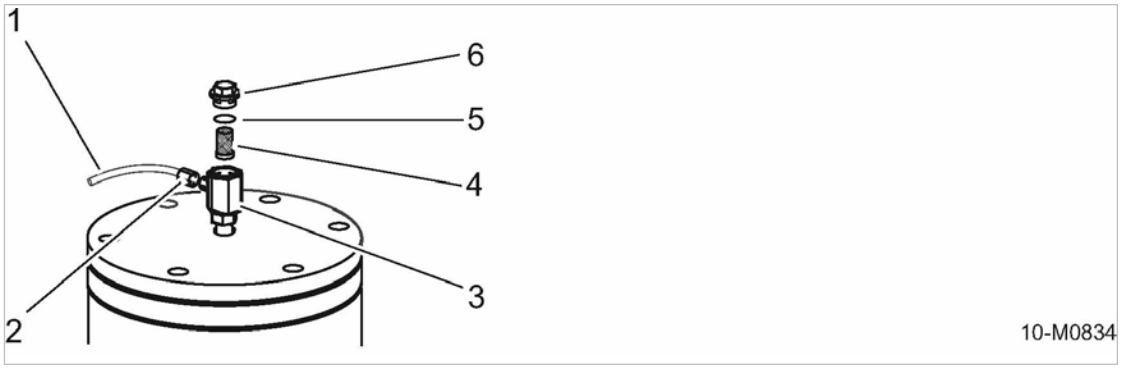

Fig. 19 Oil separator tank dirt trap maintenance

[1] Oil scavenge line
[2] Union nut
[3] Dirt trap housing
[4] Strainer
[5] O-ring
[6] Screw plug

➢ Raise the cover.

Dirt trap maintenance

1. Undo the oil scavenge line union nut.
2. Remove the oil scavenge line.
3. Release and remove the plug.
4. Remove the O-Ring and the strainer.
5. Unscrew the dirt trap housing.
6. Clean the dirt trap housing, strainer, O-ring and plug with cleaning solvent or spirit.
7. Check the strainer and O-ring for wear.
   When clearly worn: Replace components.
8. Screw in the dirt trap housing.
9. Insert the strainer and O-ring.
10. Insert the plug and tighten.
11. Refit the oil scavenge line and tighten the union nut.

Making operational

1. Reconnect the negative battery terminal.
2. Replace the machine rear panel.
3. Engage locks.

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

Starting the machine and performing a test run

1. Switch the machine on and run it in IDLE mode for approximately 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
   Pressure gauge reads 0 psig!
4. Open the outlet valves.
5. Raise the cover.
6. Visually inspect for leaks.
7. Close the canopy.

10.4.6 Changing the oil separator cartridge

The oil separator cartridge cannot be cleaned.

The life of the oil separator cartridge is influenced by:

- contamination in the air drawn into the compressor,
- and adhering to the changing intervals for:
  - Cooling oil
  - Oil filter
  - Air filter

Material
Spare parts
Cleaning cloths
Wrench

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

➢ Raise the cover.

10.4.6.1 Changing the oil separator cartridge

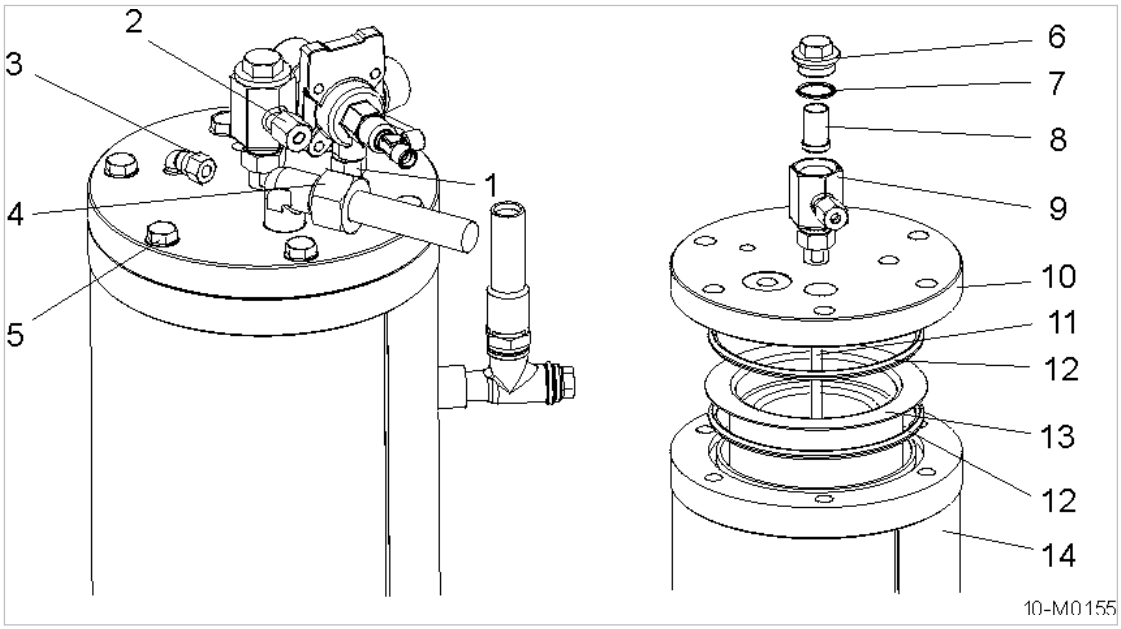

Fig. 20 Changing the oil separator cartridge

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	Pipe oil scavenge line
5	Fastening 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
   - Oil scavenge line union nut
   - Pressure gauge control line union nut
   - Compressed air hose union nut
2. Remove all obstructions to the oil separator tank cover.

3. Remove the fixing screws [5].
4. Remove all fixing screws.
5. Carefully lift and remove the cover of the separator tank.

Take care that the oil scavenge pipe [11] screwed to the underside of the cover is not bent in the process.

6. Place the cover
7. Remove the oil separator cartridge together with the gaskets (o-rings).
8. Clean all sealing surfaces, taking care that no foreign bodies (dirt particles) fall into the oil separator tank.
9. Insert the new cartridge and gaskets.
10. Carefully place the cover on the oil separator tank.
11. Insert all fixing screws.
12. Tighten all nuts with the corresponding torque.
13. Position the proportional controller, line, hose and fittings on the cover of the oil separator tank.
14. Replace and tighten all fittings loosened or removed in point 1.
15. Check the oil level in the oil separator tank.
    Cooling oil level too low: Top off the cooling oil.

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

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

Making operational

1. Connect the battery negative cable.
2. Replace the machine rear panel.
3. Engage locks.

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

Starting the machine and performing a test run

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the 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. Raise the cover.
7. After approximately 5 minutes: Check the cooling oil level.
   Cooling oil level too low: Top off the cooling oil.
8. Visually inspect for leaks.
9. Close the canopy.

10.4.7 Compressor air filter maintenance

Check the air filter according to your maintenance schedule and/or replace the filter element.

- Using the machine without an air filter element is not permitted!
- Do not use a damaged air filter element.
- The use of an unsuitable air filter element can permit dirt to enter the pressure system and cause premature wear and damage to the machine.
- The air filter element cannot be cleaned.

Material: Spare parts
Cleaning cloths

Precondition: The machine is switched off,
the machine is fully vented, the pressure gauge reads 0 psig,
the machine has cooled down,
all compressed air consumers are disconnected and the air outlet valve is open.

NOTICE

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

➢ *Replace the filter element*

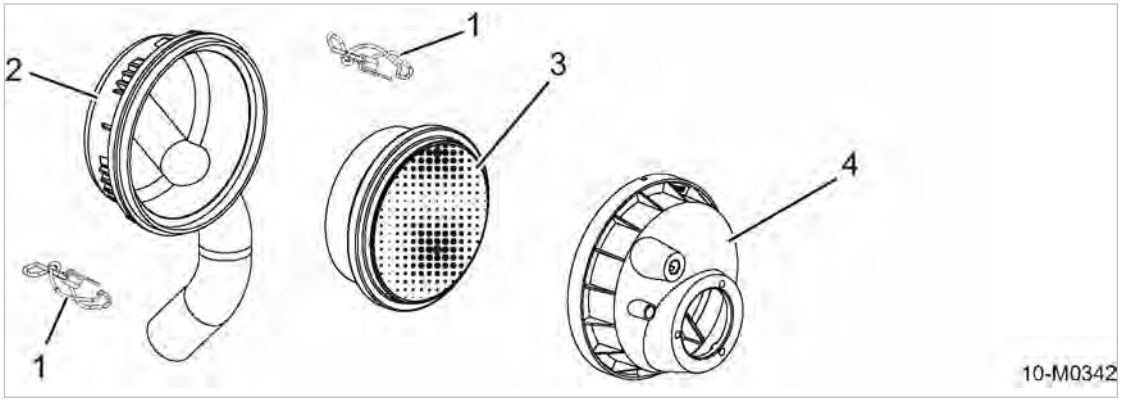

Fig. 21 Compressor air filter maintenance

[1] Retaining clip
[2] Air filter housing
[3] Filter element
[4] Filter cap

➢ Raise the cover.

Checking/replacing the filter element

Visually check the filter element.

1. Release both retaining clips [1].
2. Take off the filter cap [4].
3. Withdraw the filter element [3] from the housing [2].
4. Check the filter element for damage.
   Use a replacement part if the air filter element is damaged.

5. Clean the housing, filter cap and all sealing faces.
6. Insert the element in the housing.
7. Replace the filter cap.
8. Secure the cap with the two retaining clips.

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

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 stretching and results in a shorter life span. Over-tightened belts also place unnecessary stress on bearings and shorten their life.

Material
Suitable socket wrench
Belt tension measuring device
Spare part

Precondition
The machine is switched off,
the machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the outlet valve is open,
the machine is fully vented, the pressure gauge reads 0 psig.
The rear panel is 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.

- ➢ *Check the belt only when the drive motor is at standstill.*
- ➢ *Never operate the machine without a belt guard.*

➢ Comply with 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.

Cracks, fraying or stretching exist.

➢ Replace the drive belt.

3. Reconnect the negative battery terminal.

10.4.8.2 Checking the 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).

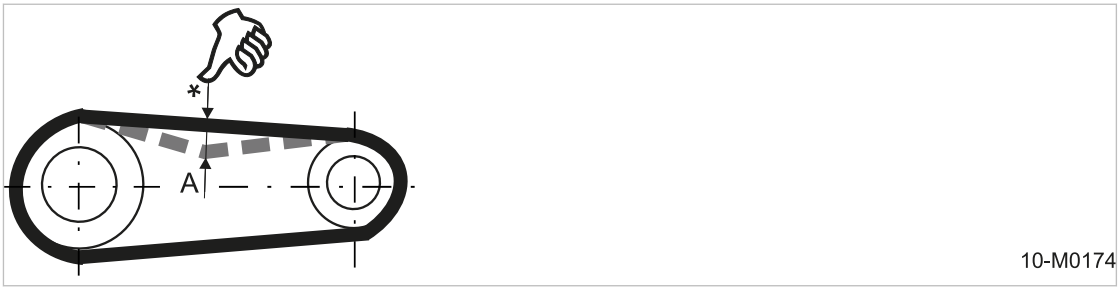

Fig. 22 Manually check the belt tension

[A] Permissible belt impression depth
[*] Compressive load approximately: 16.5 lb.
permissible impression depth: 0.4–0.5 in.

Check belt tension with the measuring device:	Check belt tension by hand:
1. Check belt tension with the tension measuring device. 2. Tighten loose belt (see chapter 10.4.8.3). 3. Replace the belt guard, if provided. 4. Reconnect the negative battery terminal.	To check the belt tension, press the belt in with the thumb at the mid-point between pulleys. 1. Check belt tension by hand (see Fig. 22). 2. Tighten loose belt (see chapter 10.4.8.3). 3. Replace the belt guard, if provided. 4. Reconnect the negative battery terminal.

10.4.8.3 Belt tensioning

To tension the belt, the airend with pulley unit is adjusted on a tensioning device [5] that is equipped with oblong holes (see Fig. 23).

The nuts [6] hold the tensioning device in place. In order to change the belt tension, first loosen the nuts [6].

Best installation option: Remove all nuts [6] with corresponding socket wrench accessing from the top.

By moving the adjusting nut [8] in clockwise direction, the tensioning device moves in the direction of the arrow [11] and increases the axis distance [12] between the two pulleys. The drive belt is tensioned.

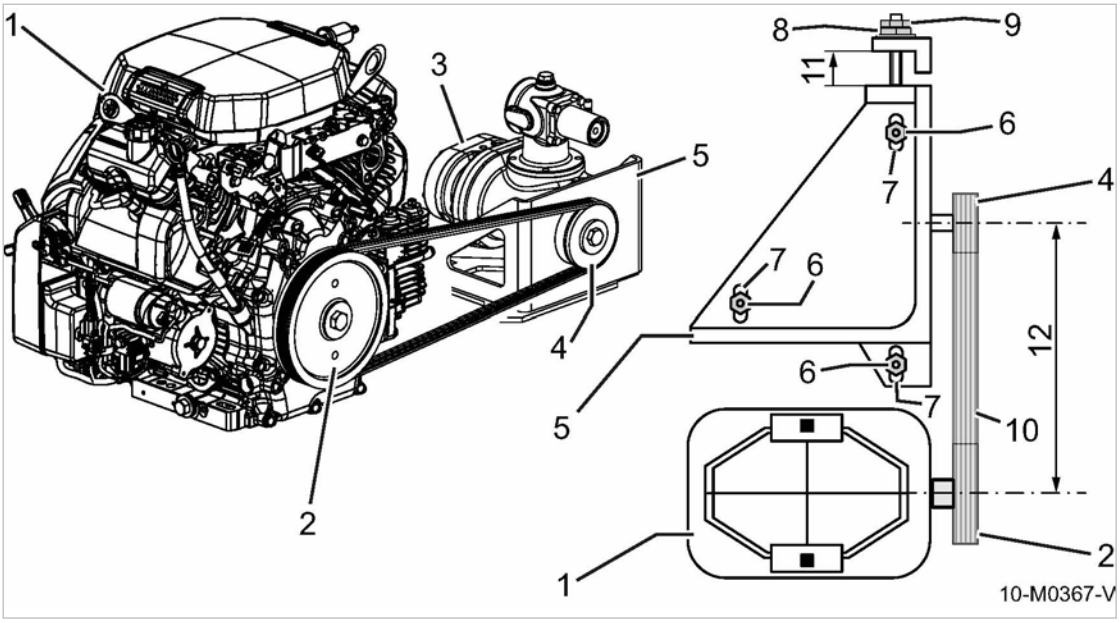

Fig. 23 Belt tensioning

[1]	Drive motor	[7]	Oblong hole
[2]	Drive motor pulley	[8]	Adjusting nut
[3]	Airend	[9]	Counter nut
[4]	Airend pulley	[10]	Drive belt
[5]	Tensioning device	[11]	Direction of arrow
[6]	Nut	[12]	Axis distance

It is not necessary to secure the bolts while loosening the nuts [6]!

1. Use a socket wrench to loosen all nuts [6].
2. Loosen the counter nut [9].
3. Turn the adjusting nut [8] in clockwise direction as required.
   The tensioning device turns in the direction of the arrow [11].
   The drive belt is tensioned.
4. Check belt tension.

Tension incorrect.
➢ Repeat steps 3 and 4.

5. Use a wrench to hold the adjusting nut [8] in position while tightening the counter nut [9].
6. Tighten all nuts [6].
7. Replace the rear panel.
8. Engage locks.
9. Close the enclosure.

Result The machine is ready for further operation.

10.4.9 Checking safety relief valves

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

10.5 Cleaning the cooler

The cleaning frequency is mainly dependent on local operating conditions.

Severe clogging of the cooler causes overheating and machine damage.

Check the cooler regularly for contamination.

Avoid creating dust. Wear breathing protection if necessary.

To prevent damages, do not clean the cooler with pointed objects or sharp instruments.

A severely contaminated cooler should be cleaned by an authorized KAESER service representative.

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

Precondition
The machine is placed over a washing station equipped with an oil separator,
the machine is switched off,
the machine has cooled down,
the machine is fully vented, the pressure gauge reads 0 psig,
all compressed air consumers are disconnected and the air outlet valves are open,
the rear panel is removed,
the negative cable to the battery is disconnected.

NOTICE

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

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

➢ Raise the cover.

10.5.1 Cleaning the compressor cooler

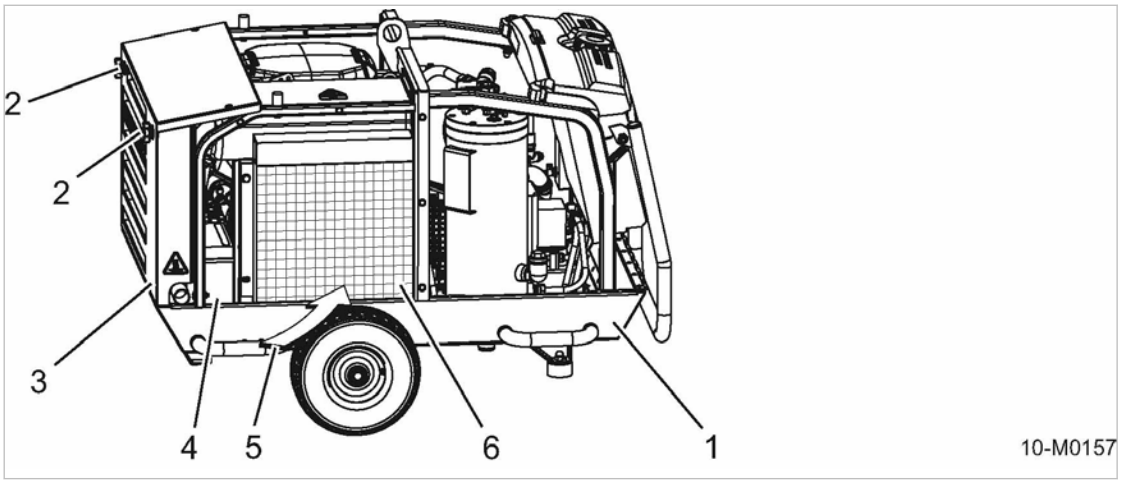

Fig. 24 Cleaning the compressor cooler

[1] Side view, cover removed
[2] Rear panel locks
[3] Rear panel
[4] Battery
[5] Direction of impacting water or steam jet (from outside to inside)
[6] Compressor cooler

Cleaning the compressor cooler

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

Checking the compressor cooler for leaks

1. Raise the cover.
2. Visually inspect for leaks. Does oil escape?

Is the cooler leaking?

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

➢ Close the cover.

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

10.6 Checking the enclosure

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

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

Overview:

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

Precondition The machine is switched off.

The machine is installed on level ground,
the machine has cooled down.

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

➢ Follow all instructions.

10.6.1 Check sound proofing material

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

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

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

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

10.6.2 Maintain rubber sealing strips.

Material Cleaning cloth

Silicone or Vaseline

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

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

Rubber sealing strips are damaged.

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

10.6.3 Checking connecting elements of enclosure

Material Lithium-enriched multi-purpose grease
Grease gun

The connecting elements of the enclosure may include:

- Screw connections
- Hinges

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

10.7 Check/replace hose lines

Overview of hose lines of machine:

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

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

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

➢ Comply with all instructions!

10.7.1 Replace the fuel lines of the drive engine

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

10.7.2 Replace the pressure hoses of the drive engine

Overview of all pressure hoses at drive engine:

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

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

10.7.3 Replace the pressure hoses of the compressor

Overview of all pressure hoses on the compressor:

- Cooling oil
- Compressed air
- Control air
- Condensate

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

10.8 Chassis maintenance

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

10.8.1 Wheel checks

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

- after the first 30 miles
- after every wheel change
- at least every six months

Material Tire pressure gauge

Precondition Machine shut down and secured against restarting.

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 treads for sufficient depth and change as necessary.
4. Check the tire pressures and pump tires as necessary.

10.9 Documenting maintenance and service work

Machine model/part number:

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

Date	Maintenance task carried out	Operating hours	Signature

Tab. 42 Maintenance log

11 Spares, Operating Materials, Service

11.1 Note the nameplate

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

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

11.2 Ordering spare parts and operating fluids/materials

KAESER spare parts and operating fluids/materials are all genuine KAESER products. They are specifically 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 fluids/materials.
Unsuitable or poor quality spare parts and operating fluids/materials may damage the machine or impair its proper function.
Damage to the machine can also result in personal injury.

➢ *Use only original parts and operating fluids/materials.*

➢ *Have an authorized KAESER service representative technician carry out regular maintenance.*

Compressor spare parts

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

Tab. 43 Compressor spare parts

Engine spare parts

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. 44 Engine spare parts (Honda)

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 Spare parts for service and repair

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

⚠ WARNING

Personal injury or machine damage due to incorrect working on the machine!
Incorrect inspection, service or repair can damage the machine or severely impair its function. Damage to the machine can also result in personal injury.

➢ *Make sure that any service or repair tasks not described in this manual are carried out by an authorized KAESER service representative.*

(Option)

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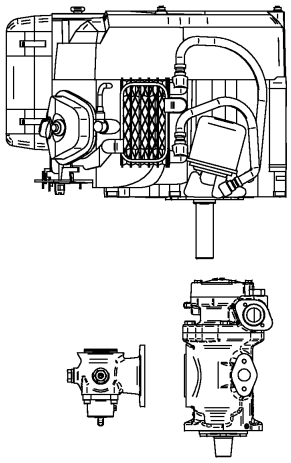

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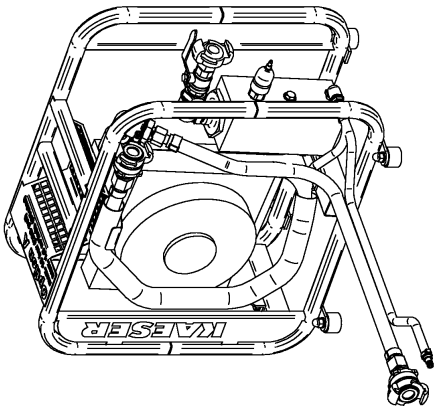

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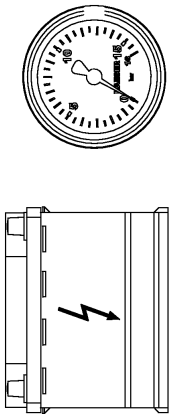

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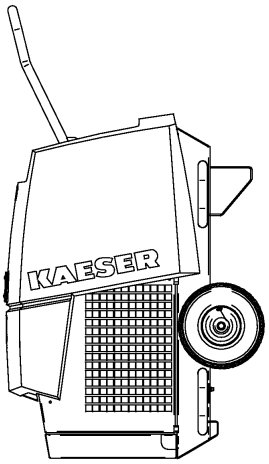

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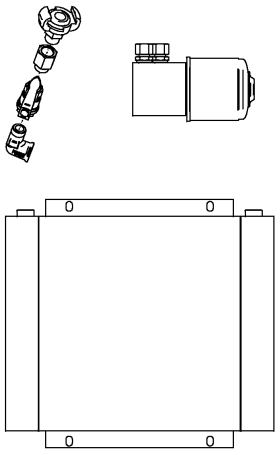

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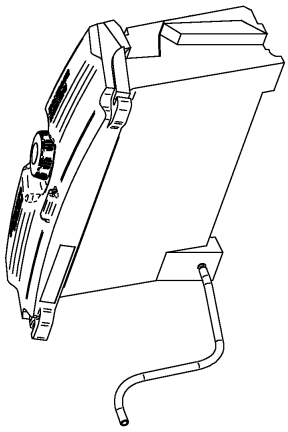

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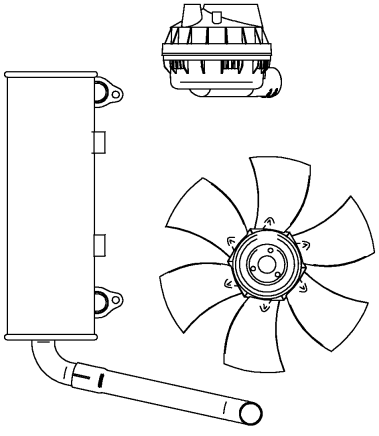

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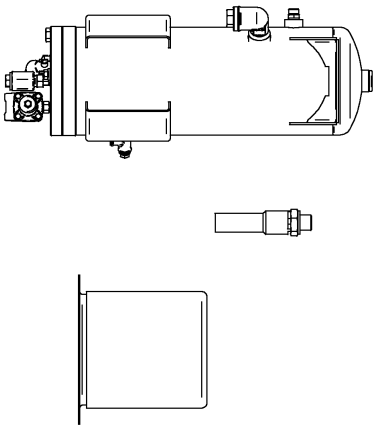

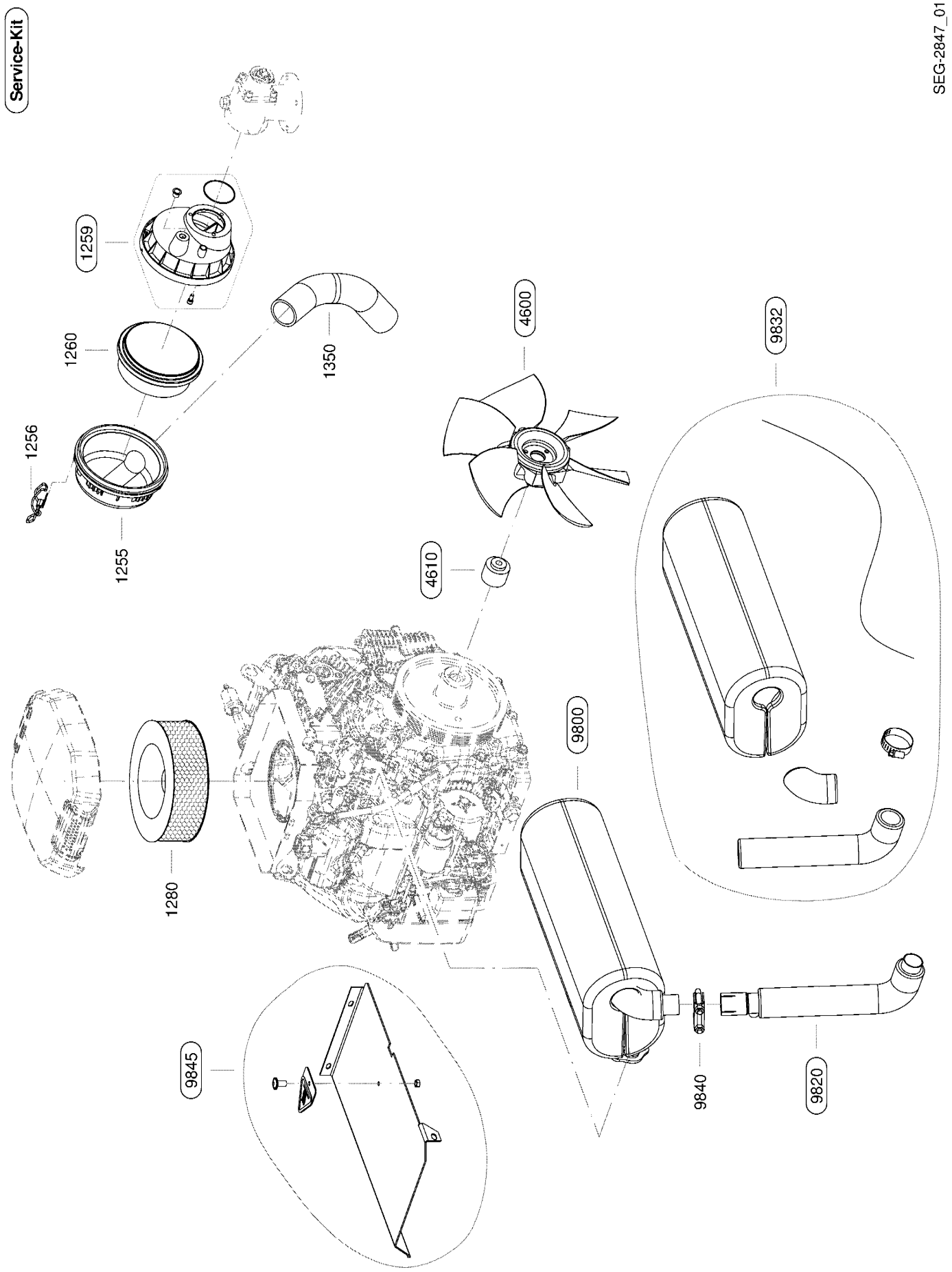
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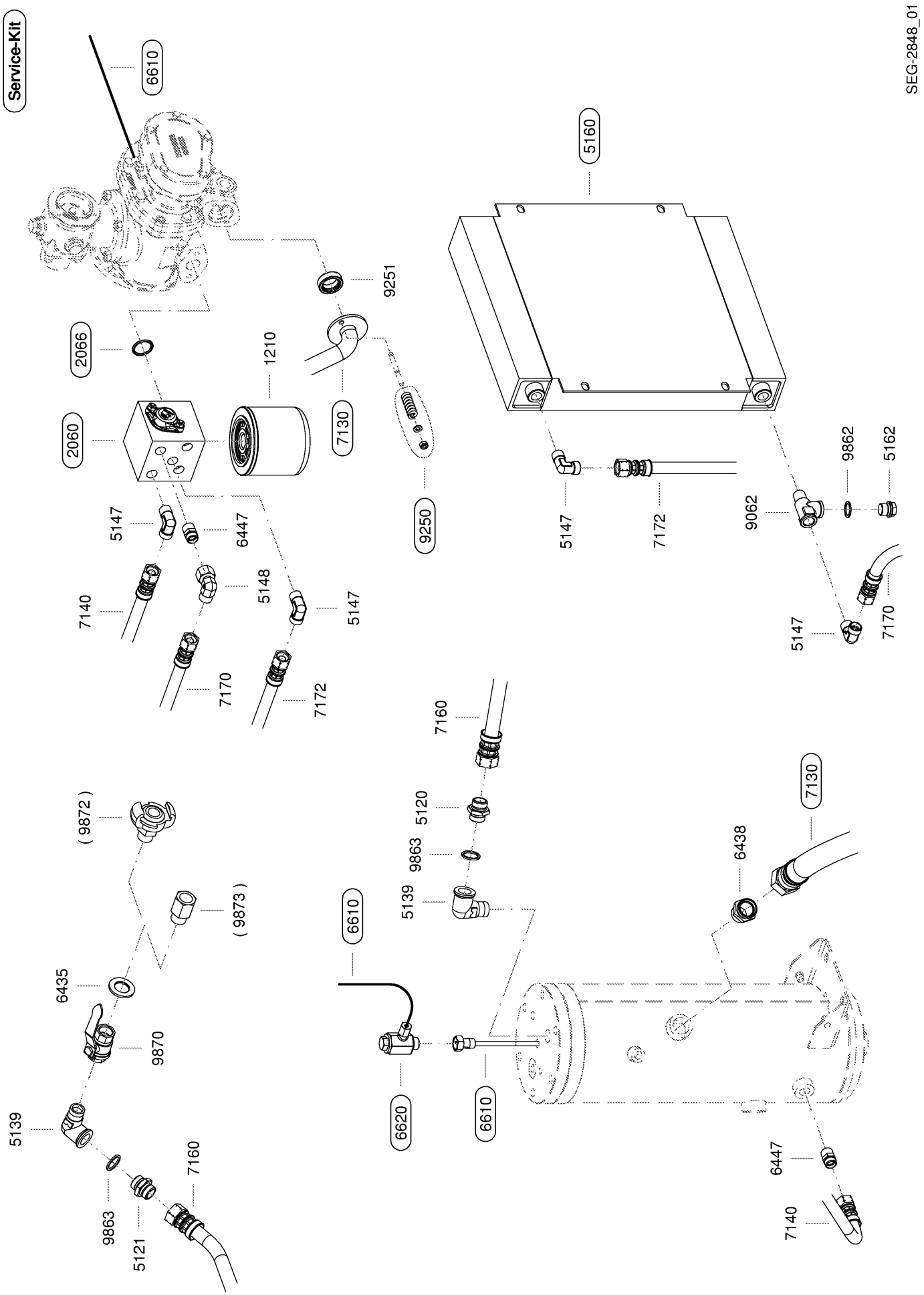
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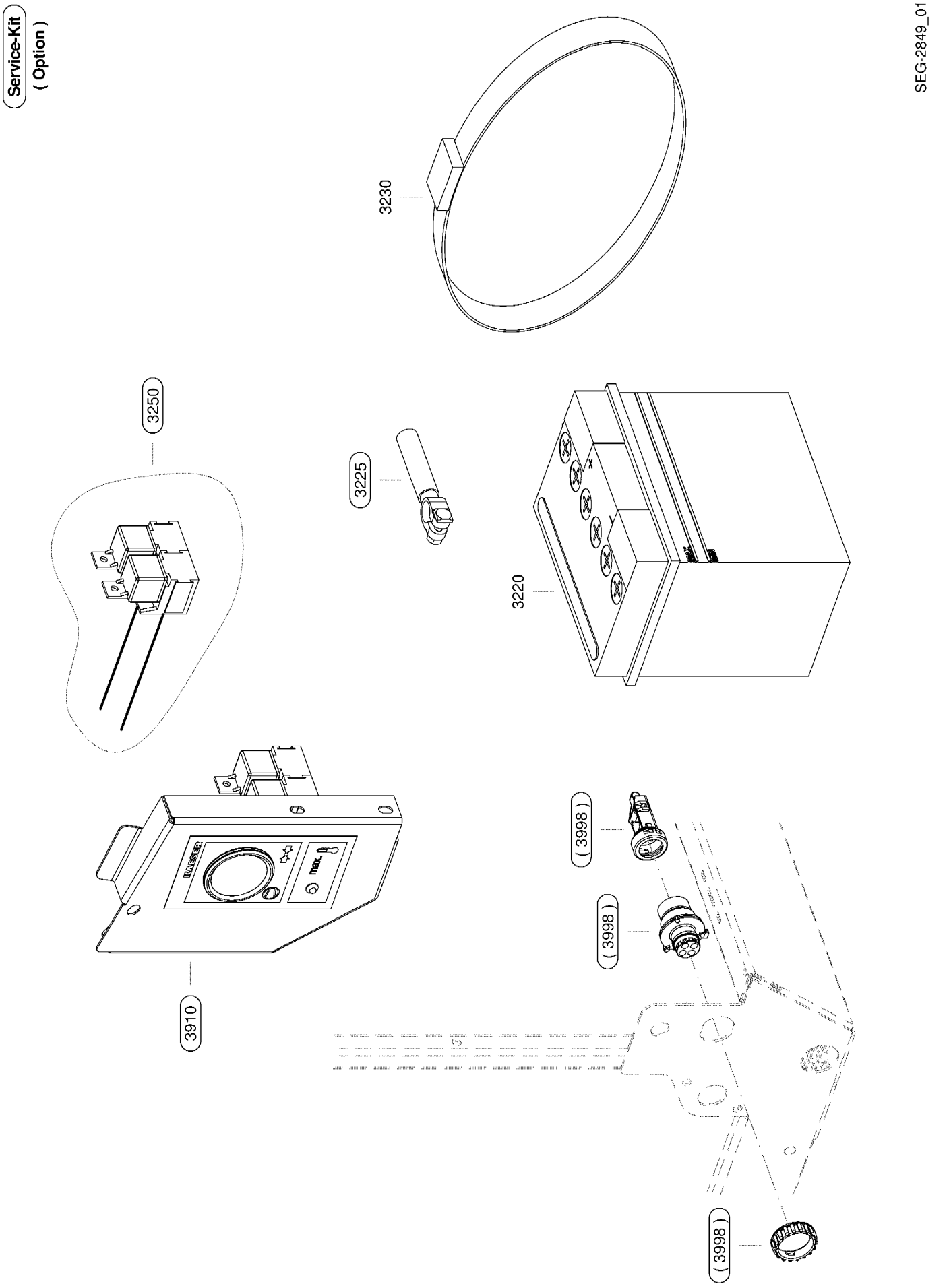
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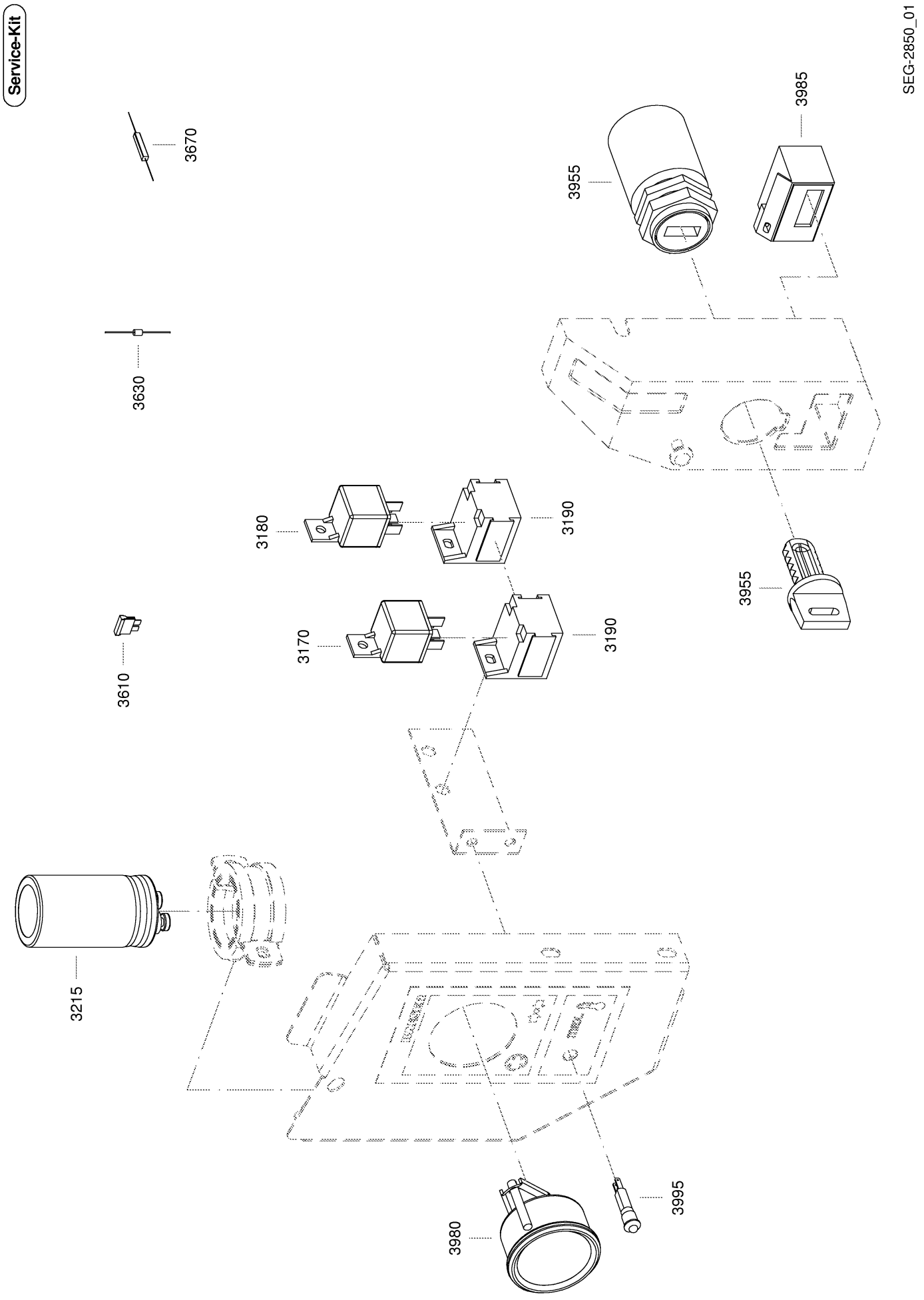
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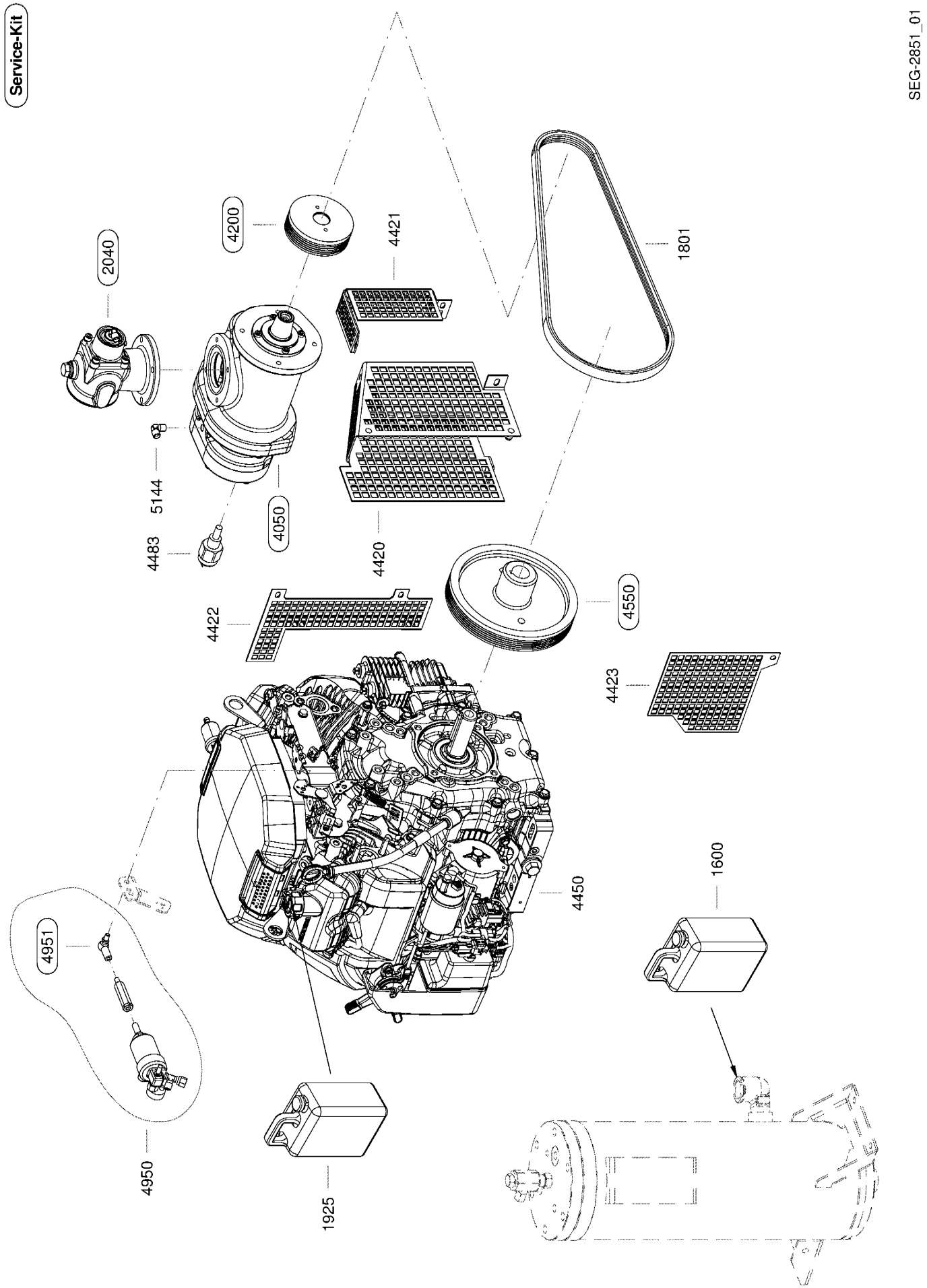
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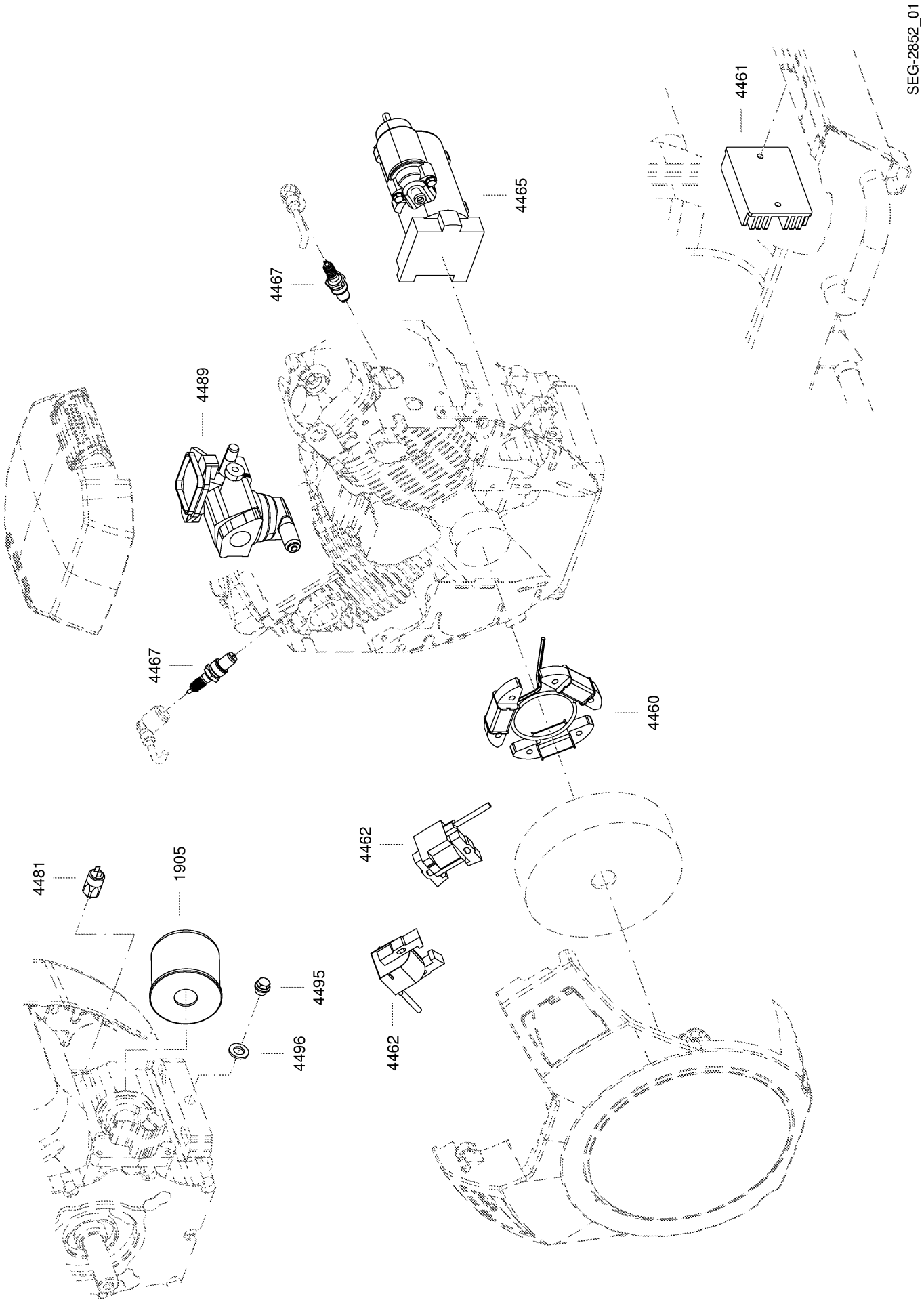
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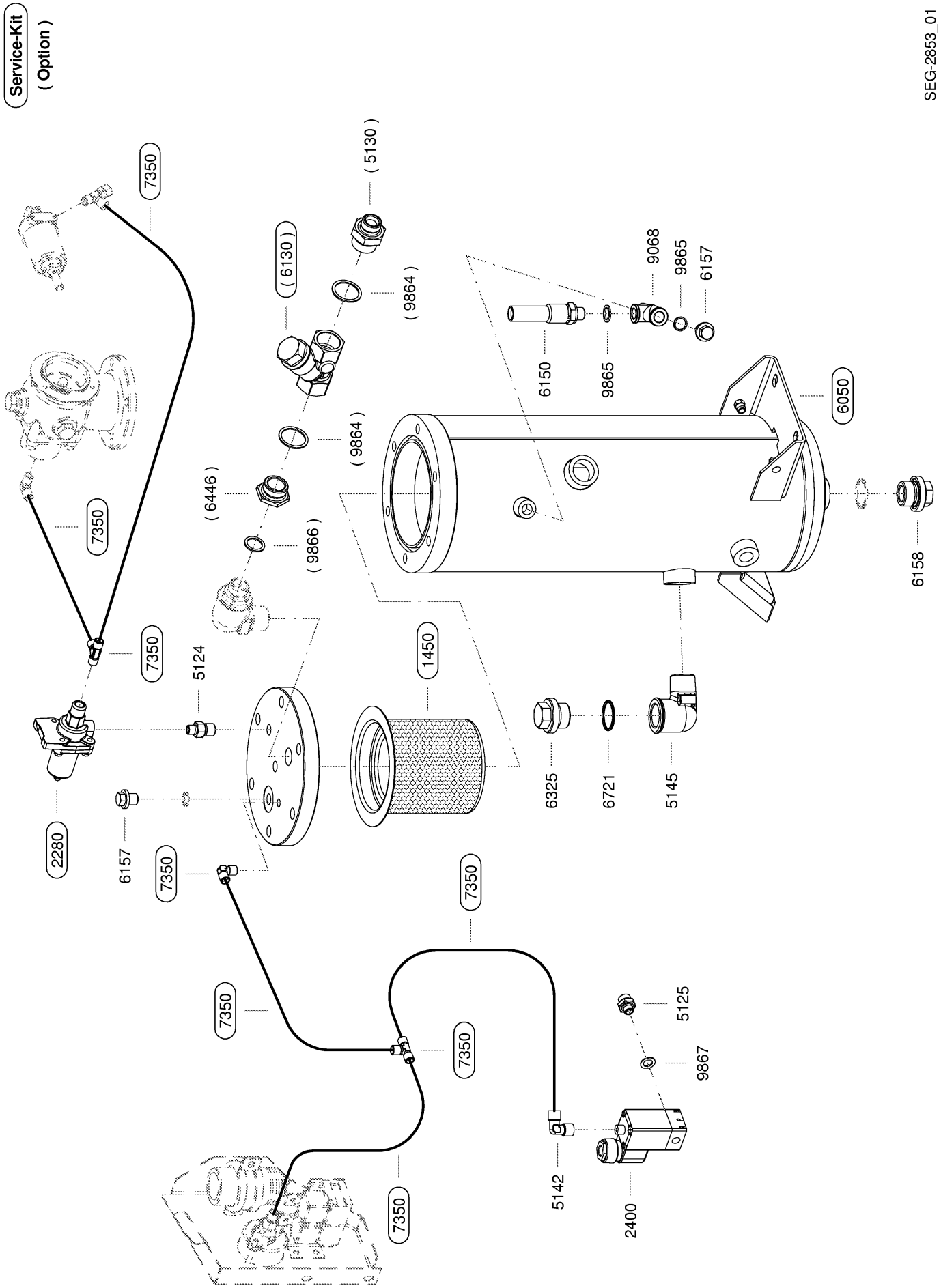
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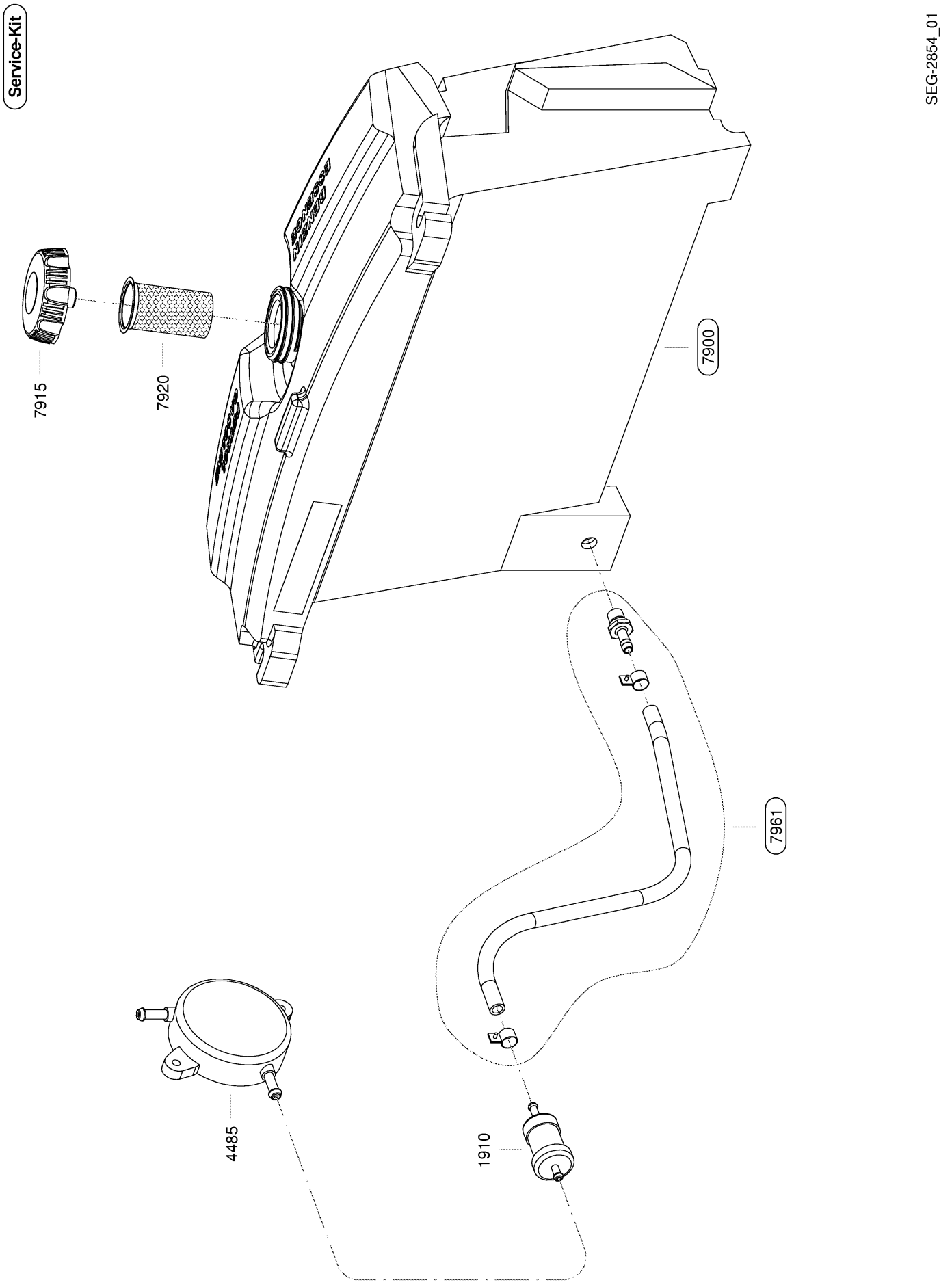
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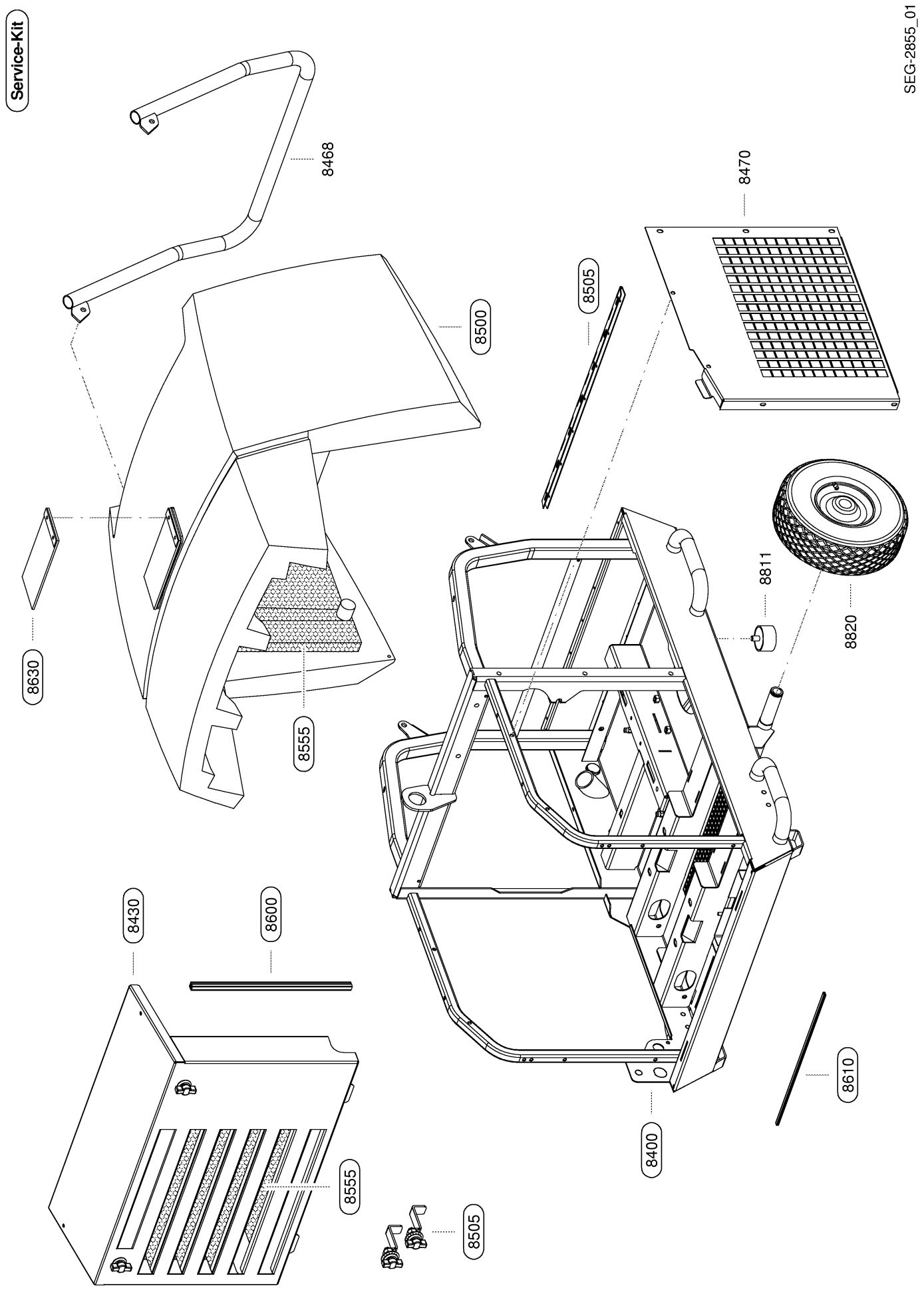
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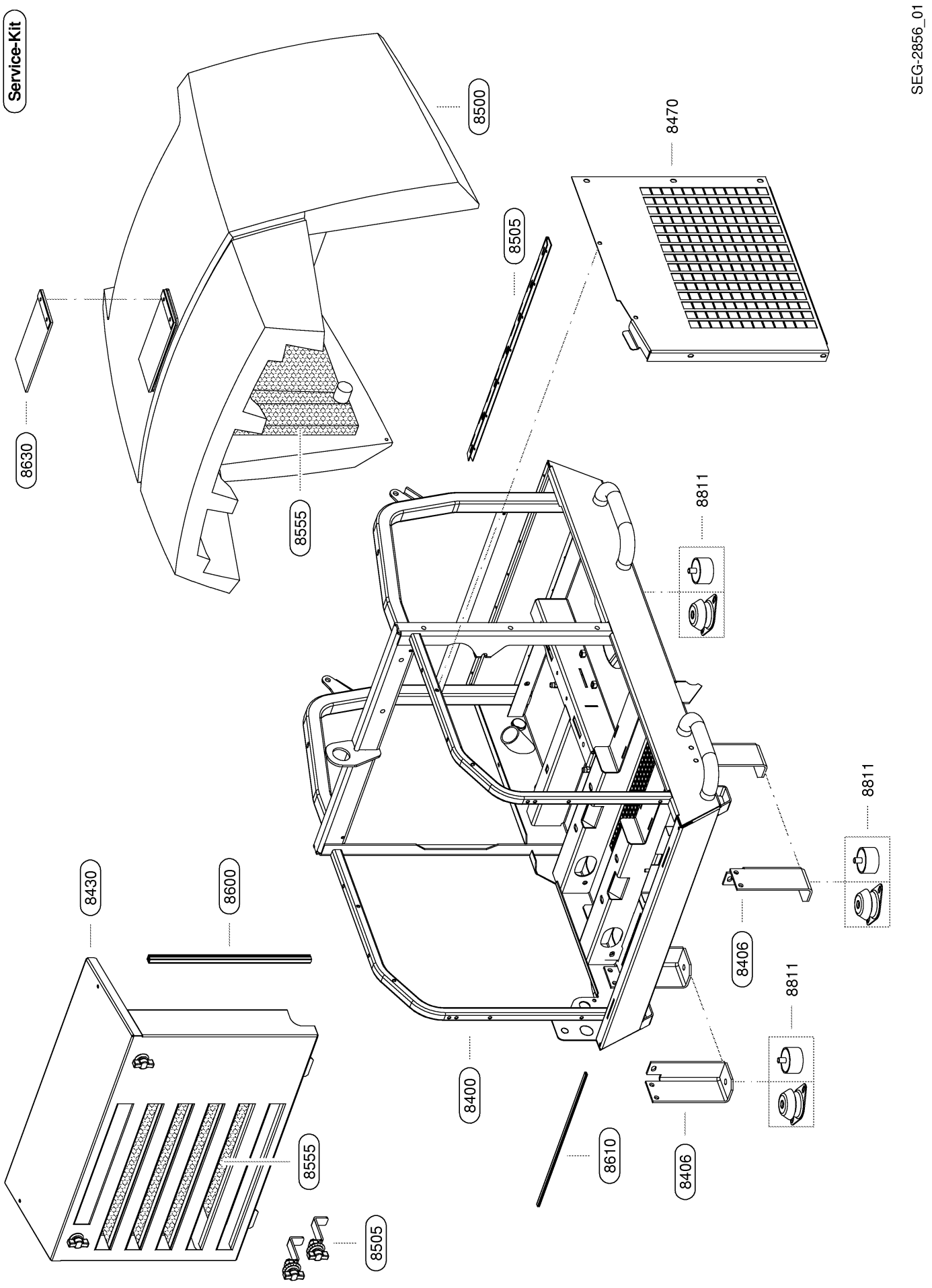
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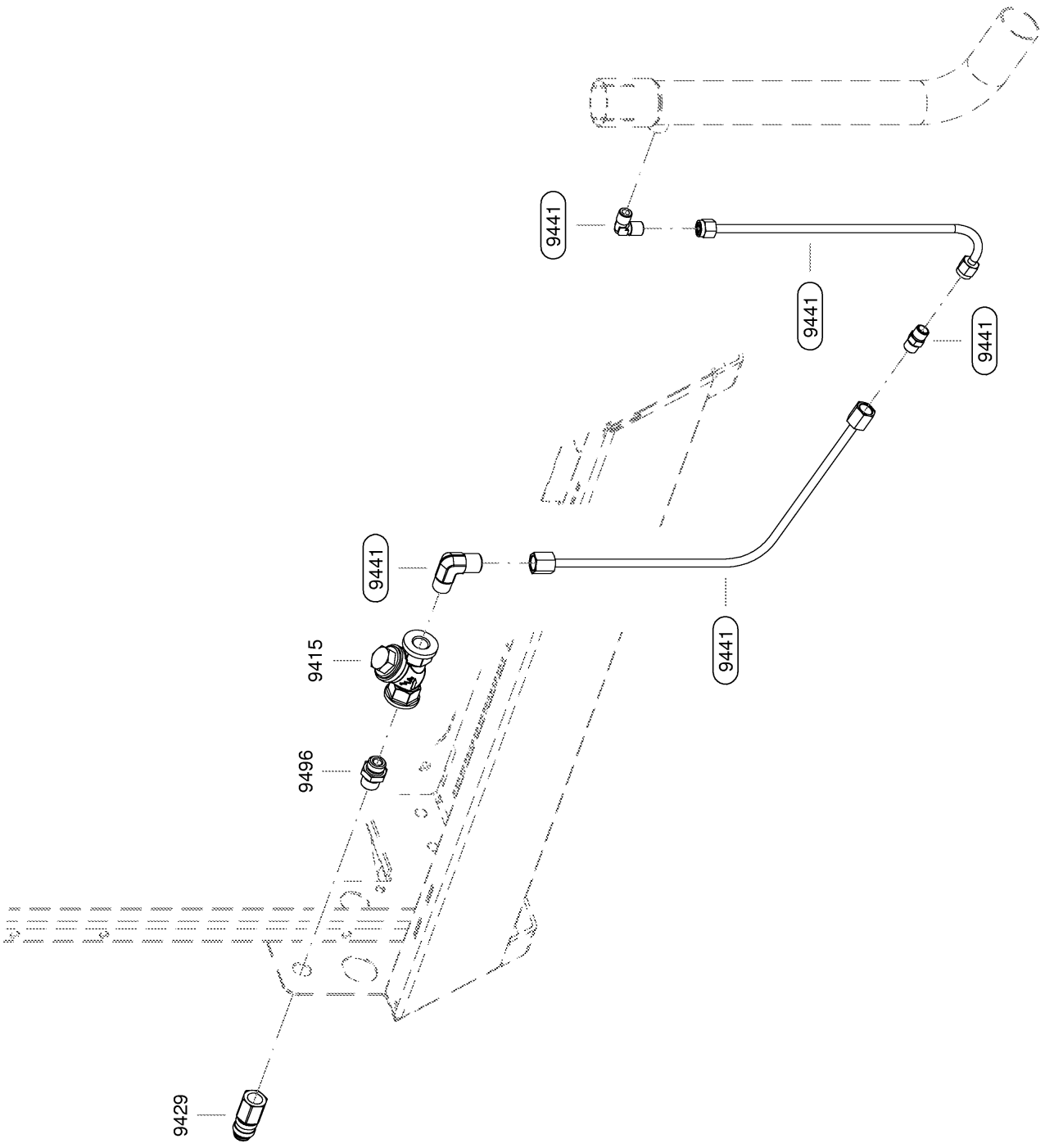
Service-Kit

SEG-2857_01



12 Decommissioning, Storage and Transport

12.1 De-commissioning

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

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

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

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

12.1.1 Temporary de-commissioning

Decommissioning for about 4 months.

Material Plastic sheeting
Moisture-resistant adhesive tape

1. Disconnect the battery (the negative terminal first and then the plus terminal).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape.
   - Engine air inlet
   - Compressor air inlet
   - Exhaust silencer
3. Attach the following notice on the instrument panel showing the decommissioning measures taken.

Attention!

1. The machine is temporarily decommissioned.

2. The following machine openings have been covered:

- Engine air inlet
- Compressor air inlet
- Exhaust silencer

3. Recommission according to service manual.

Date / signature

Tab. 45 "Temporarily decommissioned" information notice

Decommissioning of the compressor for several weeks during severe frost

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

2. Remove the battery (batteries) and store in a frost-free room.
3. Make sure batteries are fully charged.

12.1.2 Long-term decommissioning and storage

Please find instructions below for decommissioning the machine for 5 months or longer.

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

➢ The following measures must be taken for long-term decommissioning and storage:

Long-term decommissioning and storage tasks	See chapter	Complied?
➢ Drain the engine oil.	10.3.3	
➢ Drain the oil from the oil separator tank and the oil cooler.	10.4.3	
➢ Fill the separator tank and engine with preserving oil.	10.4.2 10.3.3	
➢ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➢ Disconnect the battery, the minus terminal first and then the plus terminal, and store in a frost-free room.	–	
➢ Check the battery fluid level.	10.6.2	
➢ Check the battery charge monthly and recharge if necessary otherwise there is danger of the electrolyte freezing under cold conditions.	–	
➢ Clean the battery terminals and coat with acid-resistant grease.	–	
➢ Close the compressed air outlet valves.	–	
➢ Cover the following openings with plastic foil and moisture-proof duct tape: ■ Engine air inlet ■ Compressor air inlet ■ Exhaust silencer	–	
➢ Clean the bodywork and treat with preservative.	–	
➢ Hang a notice on the instrument panel informing of the decommissioning measurements taken.	–	

Tab. 46 Long-term decommissioning and storage checklist

➢ Hang the following notice on the instrument panel informing of the decommissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For recommissioning:

- Take measures for recommissioning the compressor after a long period of storage.
- Recommission according to the service manual.

Date / signature

Tab. 47 “Long-term decommissioning and storage” information notice

➢ Store in a dry place with consistent temperature.

12.2 Transport

Precondition Machine switched off and locked off.
The machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
All compressed air consumers are disconnected.
All connecting lines and hoses disconnected and removed.
Any loose or movable parts that could fall off when transporting are removed or secured.

12.2.1 Safety

Allow transportation only by personnel trained in safely dealing with motor vehicles and the transporting of goods.

1. **⚠ WARNING** *There is danger of being run over or crushed by an overturning vehicle. Death or serious injury can result from being crushed or run-over by a machine under tow.*
   ➢ *Riding on the machine while it is under tow is strictly forbidden.*
2. Ensure that only authorized personnel are present in the danger area.

12.2.2 Positioning on site

Pushing the machine

One person is able to manoeuvre the machine on a level location.
A folding push-bar is provided for this purpose (see chapter 13.3.1).

Precondition The ground is suitable and solid.

1. Fold the push-bar out horizontally.
2. Grip the push-bar.
3. Push the machine to the required location.
4. Place the machine at the new operating location.

5. Fold up the push-bar.
6. Chock the wheels if necessary to prevent unwanted movement.

The ground is not solid.

➢ Four people can carry the machine.

Carrying the machine

The stationary machine may be carried by four people over a short distance. Four handles are installed for this purpose, see also dimensional drawing in chapter 13.3.1.

Precondition Suitable personnel are available.

1. Position all persons around the machine.
2. Each person grips one handle.
3. Lift the machine simultaneously.
4. Place the machine at the new operating location.

12.2.3 Transport with a crane

Additional precautions for conditions of snow and ice

Considerable snow or ice may build up on the machine under low temperature conditions.
This may adversely effect the machine's center of gravity.
It is possible that the permissible load 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.

Perform the following tasks prior to moving the machine by crane

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

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

Take care when setting down the machine

1. **NOTICE** *Incorrect setting down can damage the machine.*
   Machine components, particularly the chassis, can be damaged by incorrectly setting down.
   ➢ *Set the machine down carefully.*
   ➢ *Do not set down unevenly.*
2. Set the machine down slowly and carefully.

12.2.4 Transport as a load

The type of transporting will determine the type of packing and load securing.
Packing and securing methods must be such that, assuming proper handling, the goods arrive in perfect condition at the destination.

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

Material
Chocks
Timber balks
Straps

Load securing devices

Suitable timber balks should be used to secure the load.
Select the timber balks and ensure that the machine's wheels will not touch the groundspeeds are to be used only in the 4 rigging positions [3] specified by the manufacturer. Load the straps to maximum 450 lbf, see labels at the lifting handles.

Attach the straps in opposite lengthwise and crosswise directions.
Depending on the local circumstances, ensure the optimum bracing angle (see figure 26).

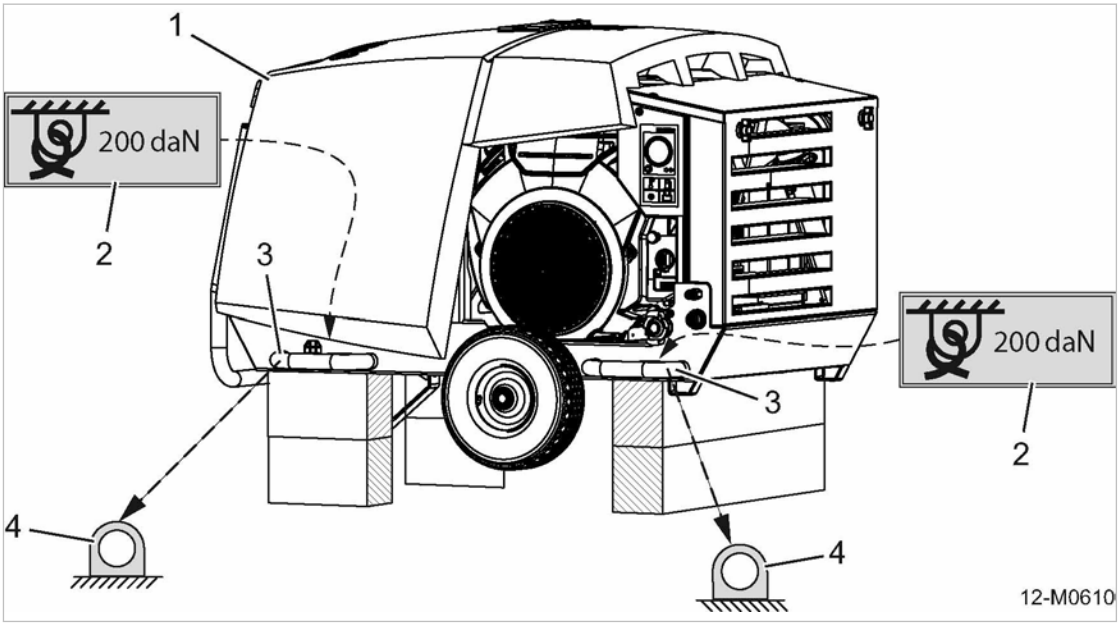


Fig. 25 Rigging positions

[1] Machine
[2] Label indicating maximum load force
[3] Lifting handles, rigging positions at the machine
[4] Rigging positions on load area

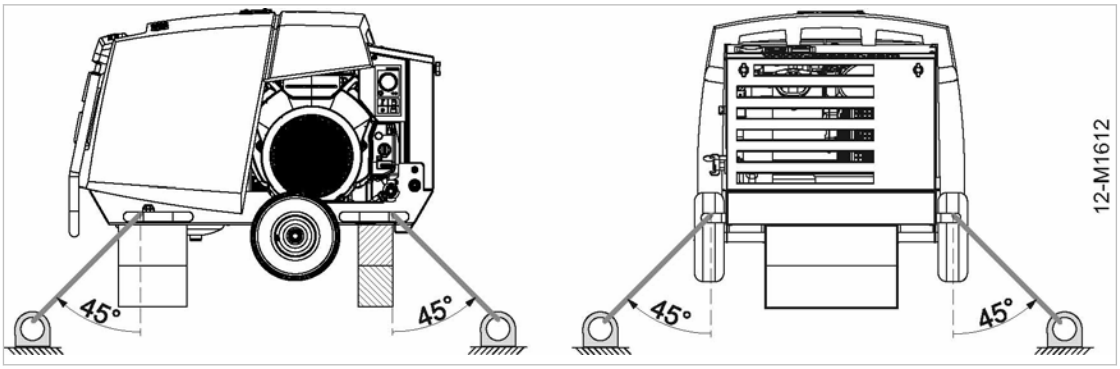


Fig. 26 Bracing directions and angles

1. **⚠ CAUTION** *Straps can damage the bodywork!*
   Movement during transportation can damage the bodywork.
   - ➢ *Use braces only at the designated rigging 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.

If you have any questions about transport and load securing, please contact an authorized KAESER service representative.
KAESER accepts no liability and provides no guarantee for damage arising from incorrect transport or insufficient or incorrect load securing provisions.
For rental, lease and trade show systems, any transport securing means used for the delivery must be also used for the return shipment.

Before shipment as airfreight

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 fluids/materials!*
   The machine incorporates an internal combustion engine.
   - ➢ *Any dangerous fluids/materials contained within the machine must be removed before transport.*
2. Remove all dangerous fluids/materials.
   These include:
   - Residual quantities of fuel and fuel vapors.
   - Lubricating and cooling oils in engine and compressor unit.
   - Electrolyte charges in rechargeable batteries.

12.3 Storage

Moisture can lead to corrosion, particularly in the engine, airend and oil separator tank.

Frozen moisture can damage components, valve diaphragms and gaskets.

The following measures also apply to machines not yet commissioned.

Please consult with KAESER if you have questions to the appropriate storage and commissioning.

NOTICE

Moisture and frost can damage the machine!

- ➢ *Prevent ingress of moisture and formation of condensation.*
- ➢ *Maintain a storage temperature of >32 °F.*

➢ Store the machine in a dry place, free from frost if possible.

12.4 Disposal

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

Precondition The machine is decommissioned.

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

- ➢ Operating materials and components contaminated with fuel, cooling oil or engine oil must be disposed of in accordance with local environmental protection regulations.
- ➢ Old batteries are hazardous waste and must be disposed of correctly in accordance with local environmental protection regulations

13 Annex

13.1 Identification

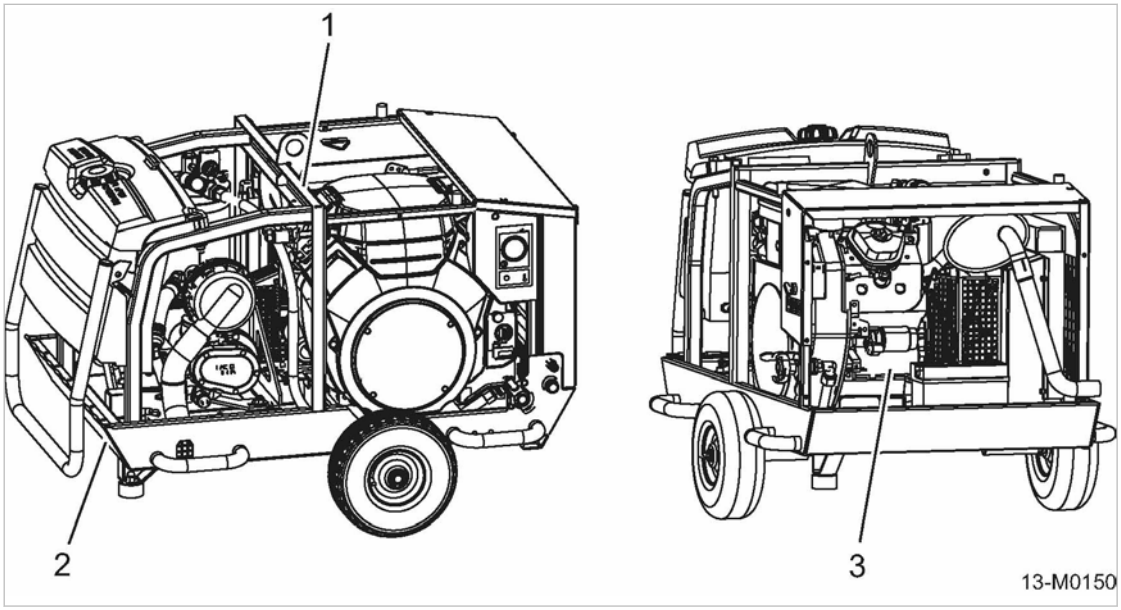
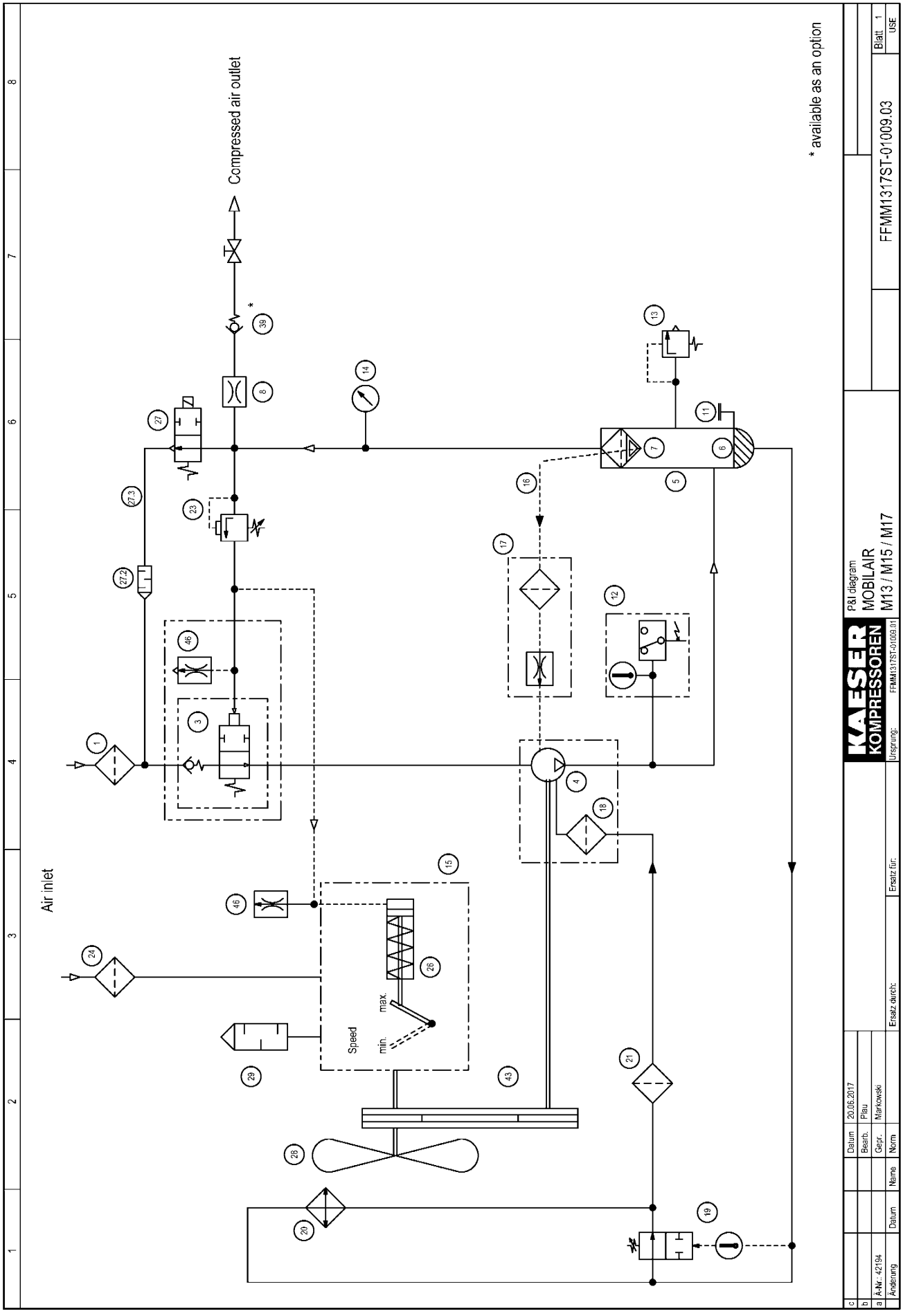


Fig. 27 Identification

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

13.2 Pipeline and instrument diagram (P&I diagram)


Compressed air outlet
* available as an option
Air inlet
Speed
max.
min.
P&I diagram
MOBILAIR
M13 / M15 / M17
FFMM1317ST-01009.03
KAESER KOMPRESSOREN
Ursprung:
Ersatz für:
Ersatz durch:
Datum
Bearb.
Gepr.
Norm
Name
20.06.2017
Pfau
Markowski
A-Nr.: 42194
Änderung
Blatt 1
USE

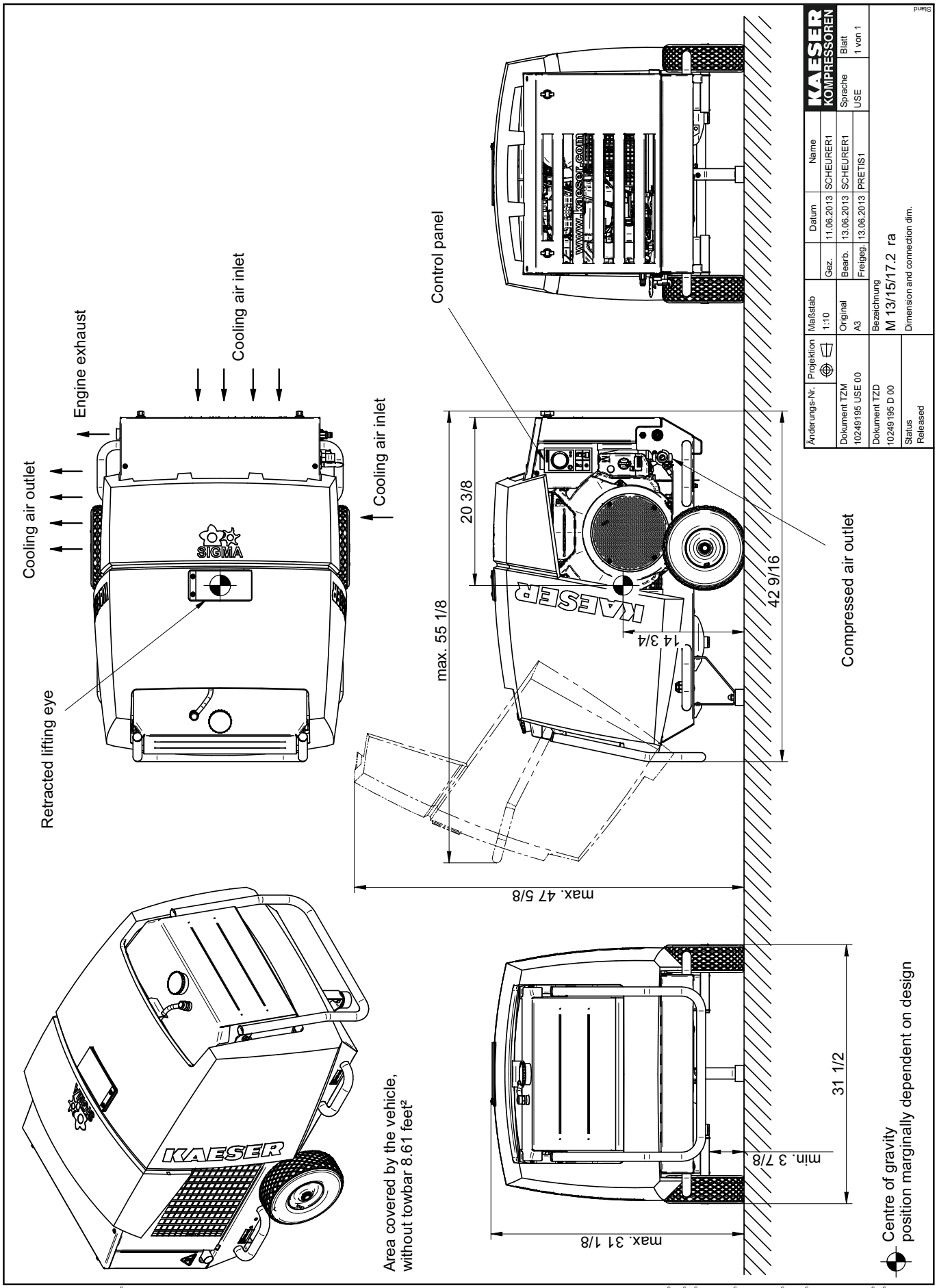
1	Compressor - Air filter
3	Inlet valve
4	Rotary screw airend
5	Oil separator tank
6	Oil reserve
7	Oil separator cartridge
8	Minimum pressure nozzle
11	Oil filler with screw plug
12	Temperature gauge switch
13	Safety relief valve
14	Pressure gauge - Control panel
15	Motor
16	Oil return line
17	Dirt trap with nozzle
18	Strainer
19	Thermostatic valve
20	Oil cooler
21	Oil filter
23	Proportional controller
24	Motor - Air filter
26	Engine speed adjusting piston
27	Venting valve
27.2	Silencer
27.3	Air feedback on machines with working pressures >145 psig
28	Fan
29	Exhaust silencer
39*	Check valve
43	V-belt
46	Nozzle (Secondary end - Proportional controller)

* available as an option

c				Datum	20.06.2017		KAESER KOMPRESSOREN	P&I Diagram legend MOBILAIR M13 / M15 / M17		
b				Bearb.	Plau					
a				Gepr.	Markowski					
	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: FFMM1317ST-01009.01	FFMM1317ST-01009.03	Blatt 2 USE

13.3 Dimensional drawings

13.3.1 Option ra
Dimensional drawing, chassis options



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Dokument TZM 10249195 USE 00		Original A3	Bearb.	13.06.2013	SCHEURER1	Sprache USE	Blatt 1 von 1
			Freigeg.	13.06.2013	PRETIS1		
Dokument TZD 10249195 D 00		Bezeichnung M 13/15/17.2 ra					
Status Released		Dimension and connection dim.					

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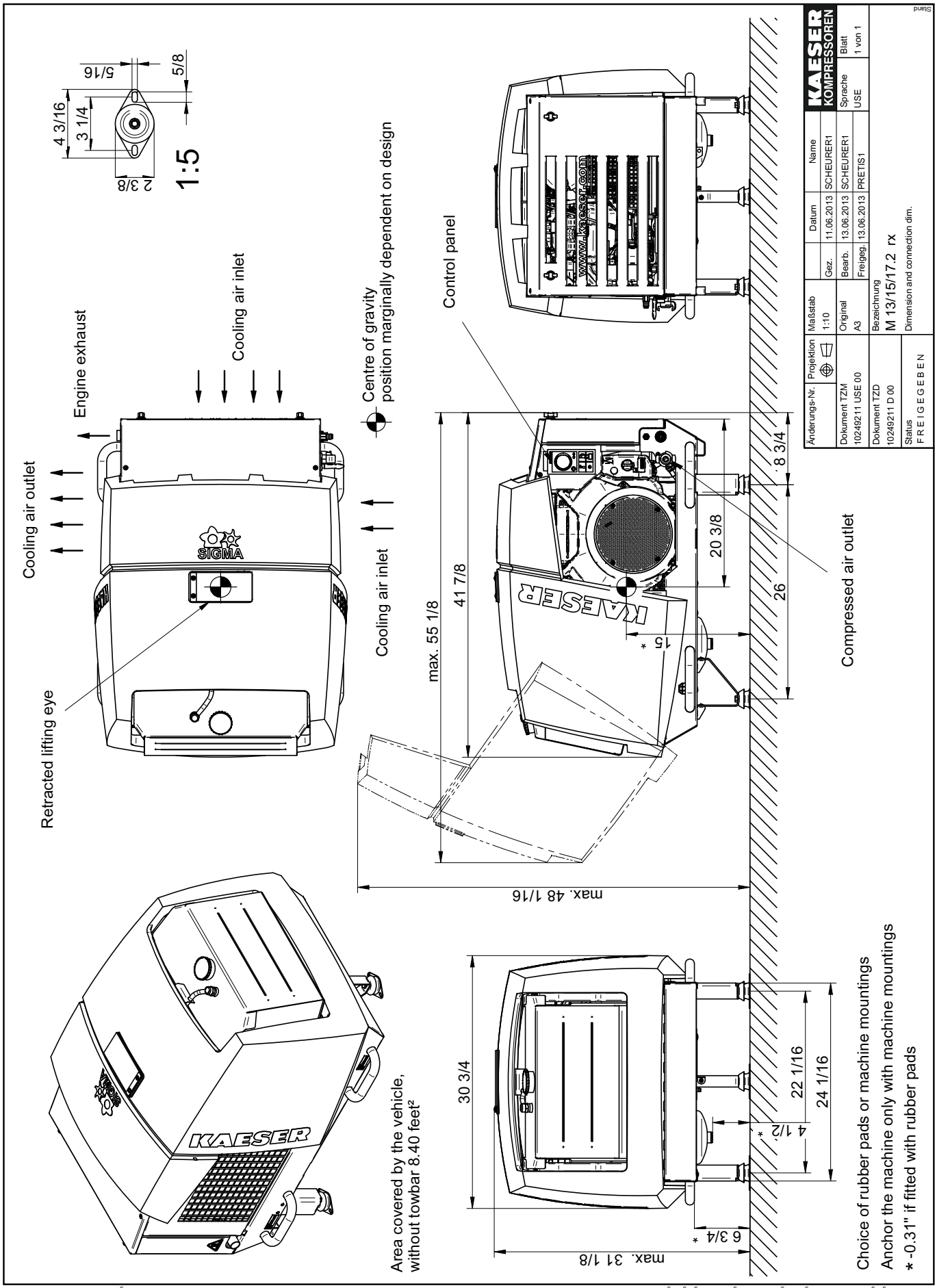
13.3.2 Option rx
Dimensional drawings, stationary version (base frame)



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13.4 Wiring diagrams

13.4.1 Electrical Diagram

Electrical diagrams

MOBILAIR M13 / M15 / M17

HONDA-Motor GX630

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

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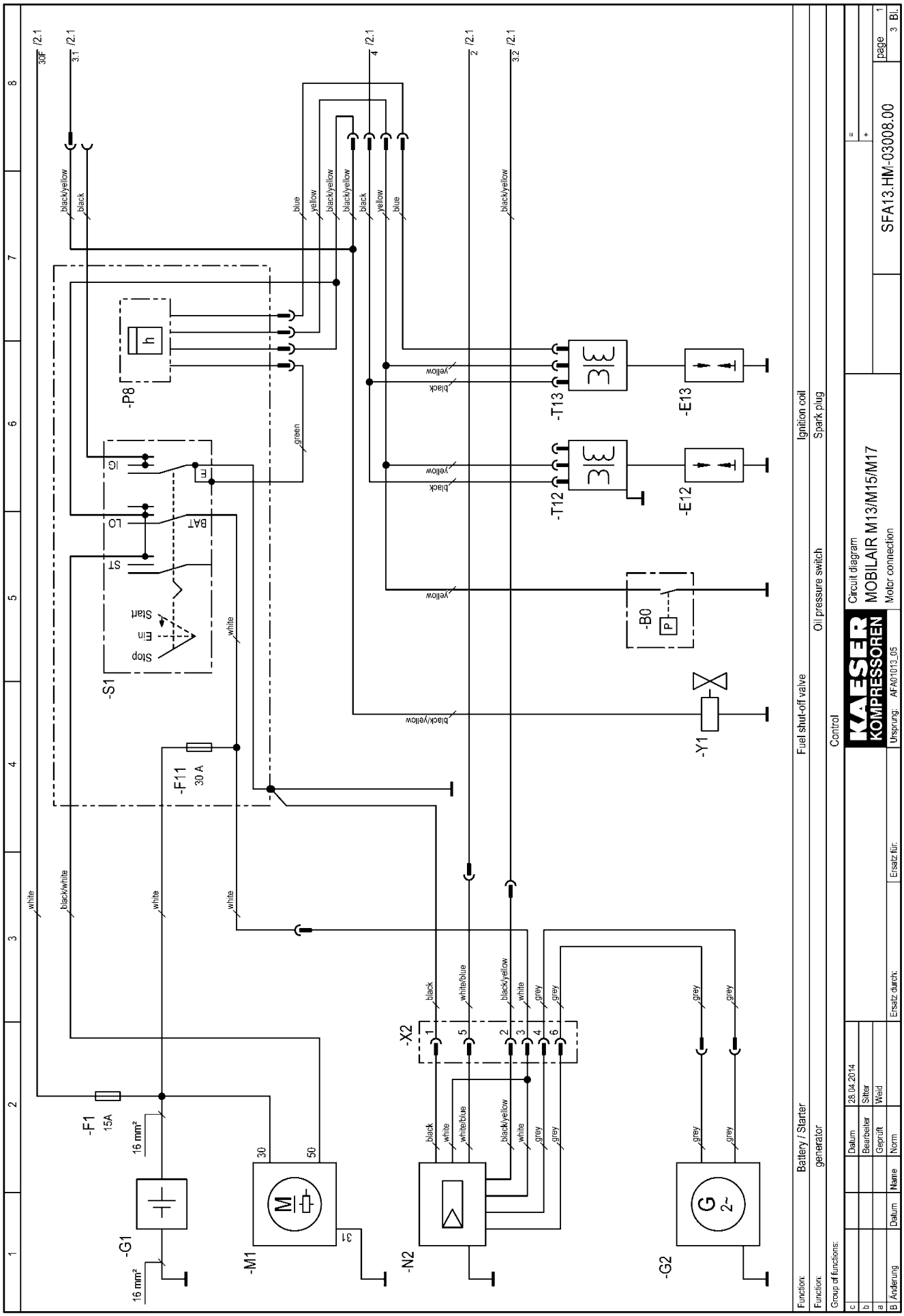
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-S1
-F11
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-F1
15A
-G1
-M1
-N2
-G2
-X2
-T13
-T12
-E13
-E12
-B0
-Y1
Start
Stop
BAT
Fuel shut-off valve
Ignition coil
Oil pressure switch
Spark plug
Control
Battery / Starter
generator
Circuit diagram
MOBILAIR M13/M15/M17
Motor connection
SFA13.HM-03008.00
KAESER KOMPRESSOREN
Ursprung: AFA01013_05
Ersatz durch:
Ersatz für:
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Name
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28.04.2014
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Änderung
Bearbeiter
Geprüft
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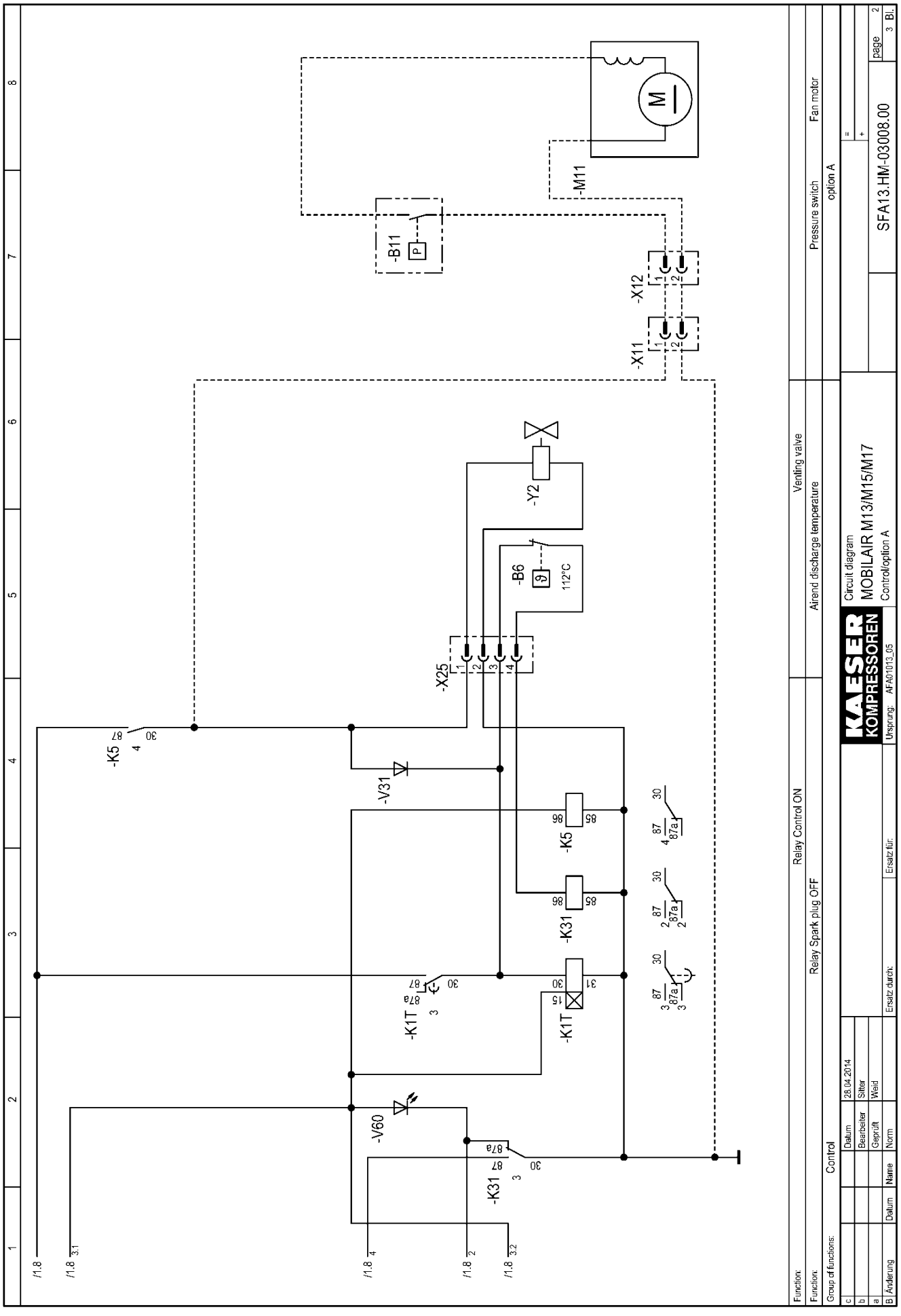
-M11
-B11
-X12
-X11
-Y2
-B6
112°C
-X25
-K5
-V31
-K31
-K1T
-V60
Relay Control ON
Relay Spark plug OFF
Control
Venting valve
Airend discharge temperature
Pressure switch
option A
Fan motor
SFA13.HM-03008.00
Circuit diagram
MOBILAIR M13/M15/M17
Control/option A
AFA01013_05

model-dependent components

-B0	Oil pressure switch/Motor
-B6	temperature switch Airend discharge temperature
-E12,-E13	Spark plug
-F1, -F11	Fuse
-G1	Battery
-G2	single-phase-generator
-K1T	Time relay
-K5,-K31	Relay
-M1	Starter-Motor
-N2	Regulator
-P8	Hour meter
-S1	Ignition switch, STOP/ON/START
-T12,-T13	Ignition coil
-V31	Diode
-V60	LED red
-X2,-X25	Plug connection
-Y1	Fuel shut-off valve
-Y2	Venting valve
-B11	Pressure switch
-M11	Fan Air cooler
-X11, -X12	Plug connection

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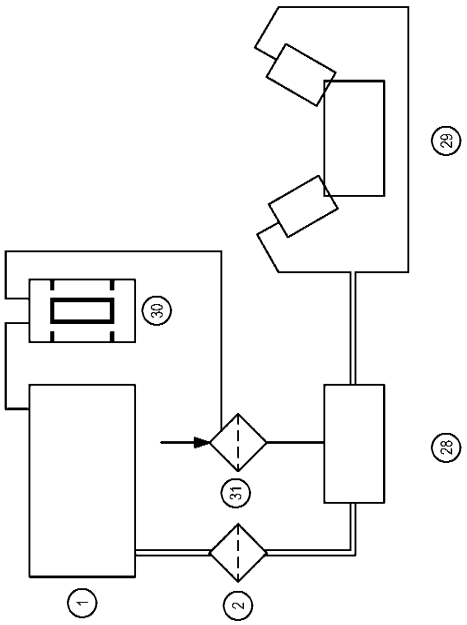
E	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: AFA01013_05	SFA13.HM-03008.00 page 3 / 3 Bl.

13.5 Fuel circulation diagram

1 fuel tank
2 fuel prefilter
28 carburettor
29 combustion engine
30 activated carbon filter (if statutory)
31 motor -air filter



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			Bearb.	Plau			
			Gepr.	Markowski			
Änderung	Datum	Name	Norm		Ersetz durch:	Ersatz für:	Ursprung: KFMM13170-00045.01

KAESER KOMPRESSOREN
Fuel circulation diagram
Mobilair
M 13 / M 15 / M 17
KFMM13170-00045.02
Blatt 1
E

13.6 Option da
External compressed air treatment, compressed air aftercooler

Operator manual

External air treatment

Compressed air aftercooler

No.: 901871_01 USE

Manufacturer:

KAESER KOMPRESSOREN SE

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

http://www.kaeser.com

/KKW/MC0V 2.00 en Z1 EXTERNE DRUCKLUFTAUFBEREITUNG-A

20180112 092337

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List of Tables

1 Technical Data

1.1 Checking the scope of applicability

This service manual for the external compressed air treatment applies to a defined subset of machine types. Table 1 lists the applicable machine types. One of the machine types shown must match the model of your machine.

Machine model	Drive engine of the machine	Identification by operator
M13/15/17	Combustion engine	
M13E	Electric motor	

Tab. 1 Scope of application

1. Check whether the type of your machine is listed in the table.
2. Mark the row displaying your machine type.
3. Memorize the machine type and drive type of the drive engine.

In the further course of these operating instructions, the operator must make independent decisions on safety-relevant user instructions, depending on the type of the drive engine. Therefore, these safety-relevant instructions are clearly arranged in tabular form according to the type of drive of the drive engine.

Further information Observe safety-relevant instructions depending on the type of drive of the drive engine, see Chapter 2.1.

1.2 Option da
Air quality at the compressed air outlets

The compressed air outlet of the external air treatment is identified with the code for the compressed air quality.

Interrelation between compressed air treatment and compressed air quality:

Air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	■ Aftercooler ■ Condensate separator	cool and condensate-free	A

Tab. 2 Interrelation between compressed air treatment and compressed air quality

1.3 Option da
Ambient temperature for compressed air treatment

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

1 Technical Data

1.3 Ambient temperature for compressed air treatment

Ambient temperature	Limit value
Maximum ambient temperature [°F]	104

Tab. 3 Ambient temperature for compressed air treatment

2 Safety and Responsibility

2.1 Follow safety-relevant instructions

Safety must be ensured during all work on the machine and on the external compressed air treatment. This applies in particular to the following work:

- Assembly
- Initial start-up
- Operation
- Maintenance

Classification of the safety-relevant instructions, depending on the type of drive of the drive motor:

Type	M13/15/17	M13E
Drive motor	Combustion engine	Electric motor
1	—	➢ Connecting the power supply
2	➢ Starting the machine	➢ Starting the machine
3	➢ Switching off the machine	➢ Switching off the machine
4	—	➢ Depressurize the machine
5	—	➢ Verify the absence of any voltage
6	➢ Depressurize the machine ➢ Open the compressed air outlet valve	➢ Depressurize the machine ➢ Open the compressed air outlet valve
7	➢ Check that the machine is depressurized ➢ Check the pressure gauge display	➢ Check that the machine is depressurized ➢ Check the pressure gauge display
8	➢ Depressurize the external air treatment ➢ Open the compressed air outlet valve(s)	➢ Depressurize the external air treatment ➢ Open the compressed air outlet valve(s)

Tab. 4 Ensuring safety

➢ Observe safety-relevant instructions depending on the type of drive of the drive motor.

2.2 Safety signs

The diagram shows the positions of the safety signs on the external unit for the compressed air treatment. The table lists the various safety signs used and their meanings.

Option da

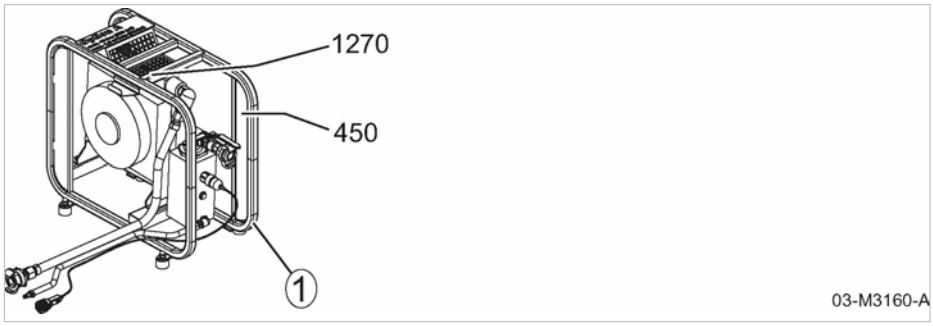


Fig. 1 Location of safety signs

1 External compressed air treatment, compressed air aftercooler

Location	Symbol	Meaning
450		Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected. ➢ Connect a compressed air hose. ➢ Open the ball valve.
1270		Risk of personal injury or property damage due to incorrect operation! ➢ Before using the external compressed air treatment, read and understand the operating instructions of the machine and/or the operating instructions for the external compressed air treatment and all safety instructions.

Tab. 5 Safety signs

3 Design and Function

3.1 Compressed air treatment option

The following describes the possible air treatment options that may be fitted to the machine.

Machine type	Drive engine of the machine
M13/15/17	Combustion engine
M13E	Electric motor

Tab. 6 Machine types

3.1.1 Machines prepared

As an option for the operation of an external compressed air treatment, the machine types provided for this purpose must be equipped with additional connections.

Required connections:

- Plug-in nozzle
- 12V power socket

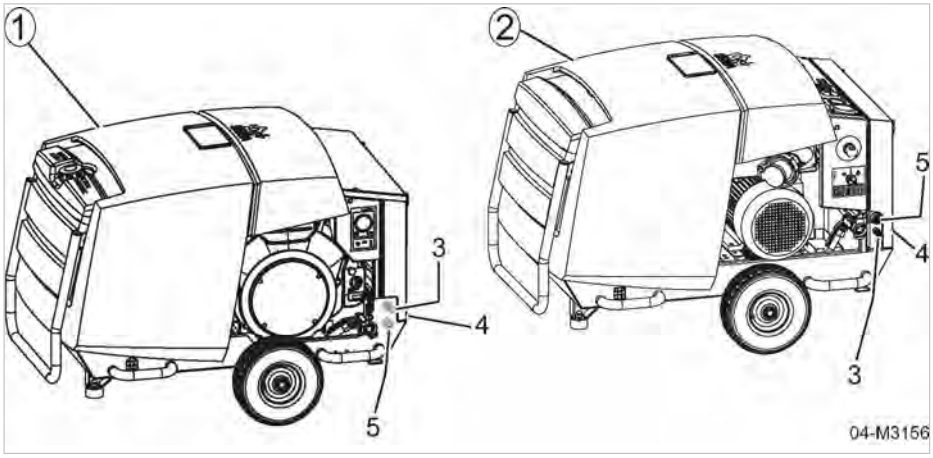


Fig. 2 Machines prepared

1 Machine prepared (M13 / 15 / 17 with combustion engine)
2 Machine prepared (M13E with electric motor)
3 Plug-in nozzle for condensate drainage
4 Dirt trap for condensate drainage (inside the machine)
5 Socket for fan

3.1.1.1 Machine M13E prepared

A condensate collector is located on the inside of the electrically driven machine.

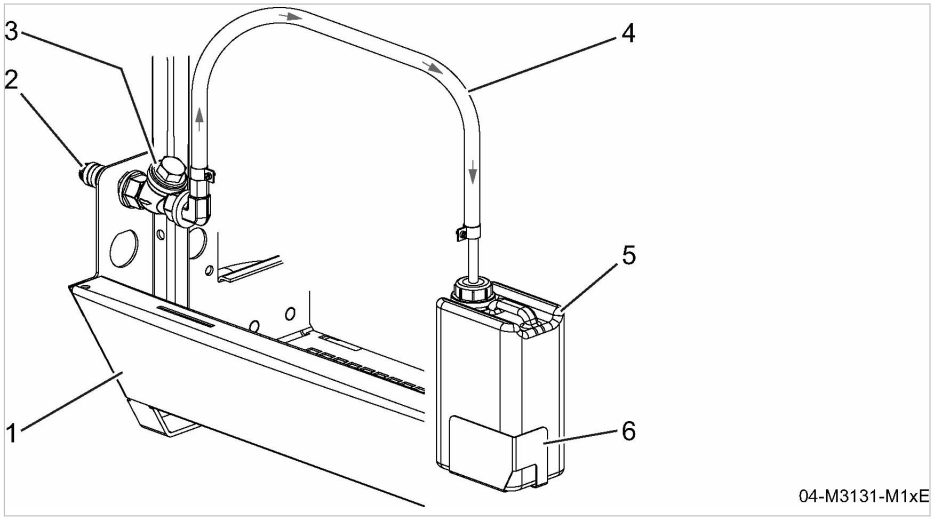


Fig. 3 Condensate collector (rear panel of the machine removed)

1	Rear of the machine	4	Condensate hose line
2	Plug-in nozzle	5	Condensate collector
3	Dirt trap	6	Support

3.1.2 Option da
External compressed air treatment

⚠ CAUTION

The external compressed air treatment equipment may freeze if the ambient temperature falls below the required value.

- ➢ *Check the ambient temperature.*
- ➢ *Comply with the required ambient temperature of more than 41 °F.*

Option da

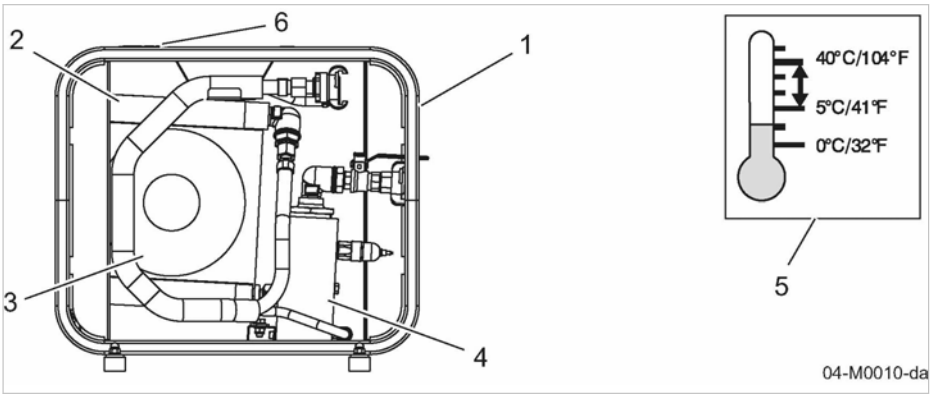


Fig. 4 Compressed air option da

1 Rack
2 Air cooler (option da)
3 Fan
4 Condensate separator (Option da)
5 Adhesive label, ambient temperatures
6 Position of the adhesive label on the external compressed air treatment system

Option da Air cooler

The air cooler cools the compressed air temperature to approximately 5 K to 10 K above the ambient temperature. Most of the moisture present in the compressed air is removed.

Option da Condensate separator

Machine type	M13/15/17	M13E
Drive engine of the machine	Combustion engine	Electric motor
Condensate separator	Condensate accumulating during the air cooling process is separated, fed to the exhaust gas silencer, and evaporated there.	—
Condensate separator	—	Condensate accumulating during the air cooling process is separated and fed to the condensate collector.

Tab. 7 Condensate separation for machine types

Further information See Chapter 4.1 for installation of external compressed air treatment units.

4 Installation

4.1 Option da
Mounting the external compressed 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). An adhesive label [12] on the external compressed air treatment unit advises to first read the operating instructions of the machine.

Overview:

- Ensure safety during assembly.
  - Machine type with combustion engine.
  - Machine type with electric motor.
- Make the required connections.

Precondition The operator manual for the machine has been read.

Option da

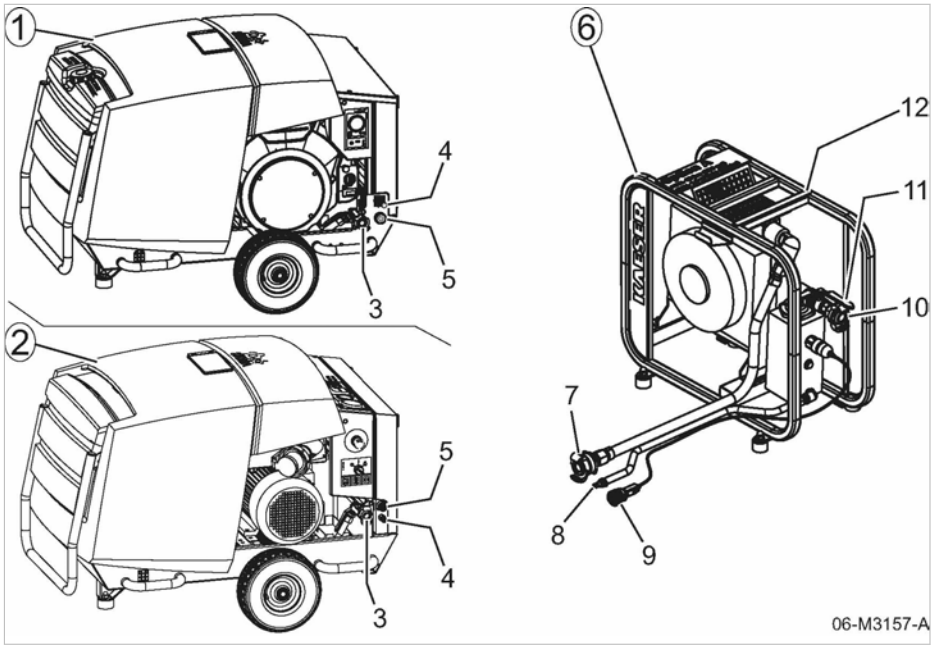


Fig. 5 Connecting the compressed air treatment components

[1] Machine prepared (with combustion engine)
[2] Machine prepared (with electric motor)
[3] Claw coupling (machine)
[4] Plug-in nozzle for condensate drainage
[5] Socket for fan
[6] External compressed air treatment unit
[7] Hose coupling (compressed air input)
[8] Hose coupling for condensate drainage
[9] Plug for fan
[10] Claw coupling for moisture-reduced compressed air
[11] Compressed air outlet valve
[12] Adhesive label "Read machine operating instructions"

Ensure safety during assembly

➢ Follow these instructions.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Check to ensure that the pressure gauge shows 0 psig.	➢ Check to ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air outlet valve.	➢ Switch off the main switch on site.
5	—	➢ Secure the main switch against re-connection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air outlet valve.

Tab. 8 Ensure safety during assembly

Make the required connections

Precondition Machine is de-pressurized
The machine is disconnected from the power supply.

1. Connect hose coupling [7] to the position [3] of the machine.
2. Connect hose coupling [8] to the position [4] of the machine.
3. Connect plug [9] to the position [5] of the machine.
4. Connect hose coupling for consumer to the claw coupling [10] .
5. Check that the following components are connected correctly:
   - Compressed air hoses
   - Condensate drainage
   - Electrical connecting cable for the fan

Result The external compressed air treatment unit is fully connected.

5 Operation

5.1 Option da
Operating the external compressed air treatment unit

An adhesive label on the external compressed air treatment unit advises to first read the operating instructions of the machine.

Precondition
The operator manual of the machine has been read.
Ambient temperature is more than 41 °F; see Chapter 3.1.2.
Machine has been warmed up; see operator manual for the machine.
The installation tasks described in Chapter 4.1 have been carried out.

Option da

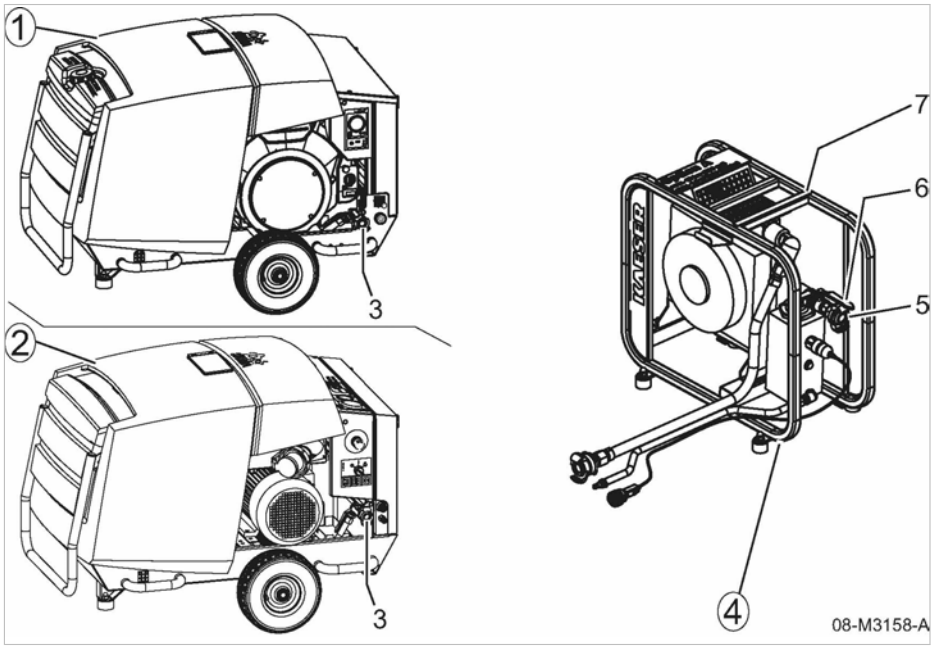


Fig. 6 Operating the external compressed air treatment unit

1. Machine (with combustion engine)
2. Machine (electric motor)
3. Compressed air outlet valve of the machine
4. External air treatment unit
5. Claw coupling
6. Compressed air outlet valve
7. Adhesive label "Read machine operator manual"

1. Start the machine; see operator manual for the machine.
2. Open the compressed air outlet valve on the machine.
3. Open the compressed air outlet valve on the external air treatment unit.

Result
Consumers are supplied with treated compressed air.

6 Fault Recognition and Rectification

6.1 Faults and alarms on external compressed air treatment units

6.1.1 Outflow of condensate

Possible cause	Action	Where can I get help?	
		SW	KS
Condensate drainage is faulty or incorrectly connected.	Check condensate feed hoses and connections for leaks and tightness.	–	–
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 9 Alarm: "Outflow of condensate”

6.1.2 High moisture content in the compressed air

Possible cause	Action	Where can I get help?	
		SW	KS
Condensate drainage of condensate separator blocked.	Clean the dirt trap of the condensate separator.	–	–
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 10 Alarm: "Moisture content of compressed air too high"

6.1.3 The temperature of the treated compressed air is too high

Possible cause	Action	Where can I get help?	
		SW	KS
The air treatment unit fan does not work properly or not at all.	Check electrical connecting cable and replace if necessary. Check plug connections.	–	–
SW = Specialized workshop; KS = KAESER SERVICE			

Tab. 11 Alarm: "Air temperature too high"

7 Maintenance

7.1 Maintenance schedule, external compressed air treatment

➢ Perform maintenance tasks according to the following table:

Maintenance work marked with (*) applies exclusively to electrically driven machines (Type M13E).

Tasks	Daily	A250	A500	A1000	See chapter	Note
Dirt trap						
Clean the dirt trap of the condensate drainage.				X	7.2	
Condensate hose line (*)						
Check that the condensate hose line and condensate collector are properly installed.	X				7.3	
Condensate collector (*)						
Check filling level /empty	X				7.3	
Option da - compressed air aftercooler						
Clean the compressed air aftercooler.		X			7.4	

Tab. 12 Regular maintenance tasks, external compressed air treatment

7.2 Maintaining the condensate drainage dirt trap

The dirt trap must be cleaned regularly.

See Chapter 3.1.1 for the location of the dirt trap.

Material Cleaning cloth

Dirt trap maintenance kit

Ensure safety during maintenance

➢ Follow these instructions.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
3	➢ Check to ensure that the pressure gauge shows 0 psig.	➢ Check to ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air discharge valve.	➢ Switch off the main switch on site.
5	—	➢ Secure the main switch against reconnection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air outlet valve.

Tab. 13 Ensure safety during assembly

Clean the dirt trap:

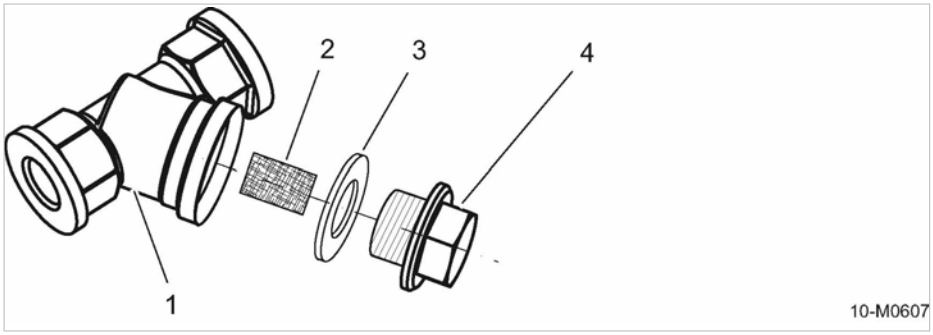


Fig. 7 Clean the dirt trap

[1] Dirt trap housing
[2] Screen filter
[3] Sealing ring
[4] Screw plug

1. Loosen the screw plug [4].
2. Remove the screw plug [4].
3. Remove the sealing ring [3].
4. Remove the screen filter [2] from the dirt trap housing [1]
5. Clean the dirt trap housing, screen filter, sealing ring, and screw plug.

Screen filter or sealing ring are no longer functional.
➢ Replace parts.

6. Insert the screen filter into the dirt trap housing.
7. Insert the screw plug with sealing ring.
8. Tighten the screw plug.
9. Replace the rear panel of the machine.
10. Engage locks.

Check for function and leaks:

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

7.3 Inspecting/maintaining condensate drainage

When there is a high moisture content in the ambient air, a considerable amount of condensation is produced during operation of the electrically driven machine. The condensate is fed into the condensate collector of the machine via a hose line.
The maximum fill capacity of the condensate collection tank is limited. Therefore, the condensate collection tank must be checked/maintained daily.

Material: Cleaning cloth
Tank

Precondition: The machine is switched off.
The enclosure is open.
The on-site main switch is switched off on all poles,
is secured against re-connection,
the absence of voltage has been verified,
the power supply cable has been removed.
The machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the discharge valve is open,
the machine is fully depressuriszed, the pressure gauge reads 0 psig.
The rear panel has been removed.

➢ Follow all instructions.

Condensate is contaminated and harmful to the environment!
Therefore proceed as follows in accordance with applicable environmental regulations:
➢ Store condensate in special containers.
➢ Dispose of the container contents regularly and properly.

7.3.1 Emptying the condensate collection tank

1. Pull the condensate hose from the cover of the condensate collection tank.
2. Remove the condensate collection tank from the machine support.
3. Loosen and remove the lid from the condensate collection tank.
4. Fill the condensate into an external container.
5. Properly seal the emptied condensate collector with the lid.
6. Place the emptied condensate collector in the holder inside the machine.
7. Place the condensate hose line in the cover of the condensate collection tank.

7.3.2 Check condensate hose line

In order for all of the accumulated condensate to reach the condensate collection tank, the condensate hose must always be properly affixed to the lid of the condensate collection tank.

1. Check daily whether the condensate hose is properly affixed to the lid of the condensate collection tank.
2. Check daily whether the lid of the condensate collection tank is properly closed.
3. After operation of the machine, check for leakages within the machine.

Leakages of condensate are visible.
- ➢ Check the condensate hose line for leaks.
- ➢ Check for proper attachment.

7.3.3 Install the rear panel

1. Install the rear panel.
2. Engage both locks.
3. Close the enclosure.

7.4 Option da
Maintaining the compressed air aftercooler

The compressed air aftercooler is installed separately to the external compressed air treatment components. The frequency of cleaning is heavily dependent on local operating conditions.

Check the compressed air aftercooler regularly for contamination.

Have severe contamination cleaned by KAESER SERVICE.

Clean the compressed air aftercooler of the external compressed air treatment only when disconnected from the machine.

Material
Compressed air
Breathing mask (if necessary)

Water or steam jet

Precondition
The electrical connection between the machine and the external compressed air treatment has been disconnected.
All hose lines between the machine and the external compressed air treatment have been disconnected.

External compressed air treatment has been placed on a cleaning station with oil separator.
The external compressed air treatment has cooled down.

The external air treatment is completely depressurized!

⚠ CAUTION

Swirling dust due to cleaning with compressed air!
Risk of injury to respiratory tract.
- ➢ *Wear breathing mask.*

NOTICE

Damage can be caused by water or steam jets.
Direct water or steam jets may damage or destroy electrical components.

- ➢ *Cover electrical components.*
- ➢ *Do **not** direct water or steam jets at sensitive components.*
- ➢ *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and an approximately 90° angle to the cooler surface.*

NOTICE

Improper cleaning with hard objects!
The compressed air aftercooler will be damaged.

- ➢ *Do not clean the compressed air aftercooler with hard objects.*

➢ Follow all instructions!

7.4.1 Cleaning the compressed air aftercooler

Option da

Fig. 8 Cleaning the compressed air aftercooler

1. Frame
2. Compressed air aftercooler
3. Cleaning direction for water or steam jet

Cleaning the compressed air aftercooler

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

Preparing external compressed air treatment components for operation:

1. Install condensate drainage equipment.
2. Install compressed air hose.
3. Install the electrical connection cable for the fan.

Further information Perform required installation work as per Chapter 4.1.

Start the machine and external compressed air treatment:

➢ Start the machine with the compressed air treatment installed so that excess water can evaporate.

Ensure safety for the leak check:

➢ Carry out instructions in the given sequence.

Type	M13/15/17	M13E
Drive motor	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Ensure that the pressure gauge shows 0 psig.	➢ Ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air discharge valve on the external compressed air treatment equipment.	➢ Switch off the on-site main switch on all poles.
5	—	➢ Secure the main switch against re-connection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air discharge valve on the external compressed air treatment equipment.

Tab. 14 Ensure safety for the leak check

Inspect compressed air aftercooler for leaks:

➢ Visually inspect for leaks: Does condensate escape?

Is the compressed air aftercooler leaking?

➢ Have defective compressed air aftercooler immediately repaired/replaced by authorized KAESER SERVICE.

Clean the cooler fins only in cleaning stations equipped with an oil separator!

8 Annex

8.1 Option da
Identification of external compressed air treatment components

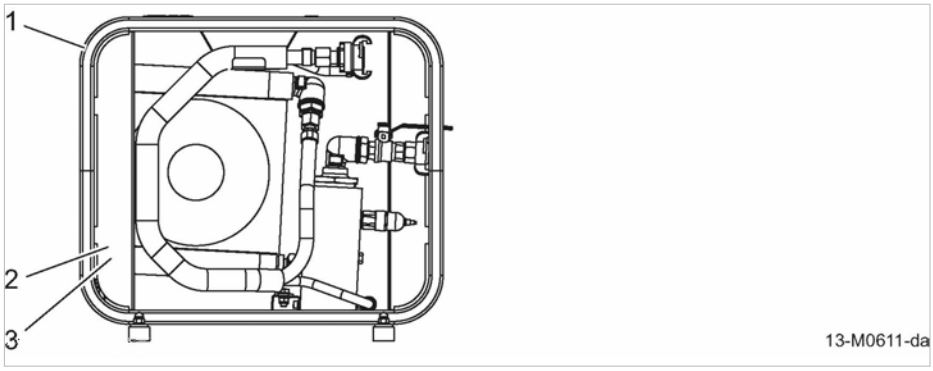


Fig. 9 Identification for options

1 External compressed air treatment components
2 VIN number (Vehicle Identification Number)
3 Production number

Identification type differences:

- The compressor and treatment components are sold as **one product**.
  - Identification 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**.
  - Identification with **FA number**.

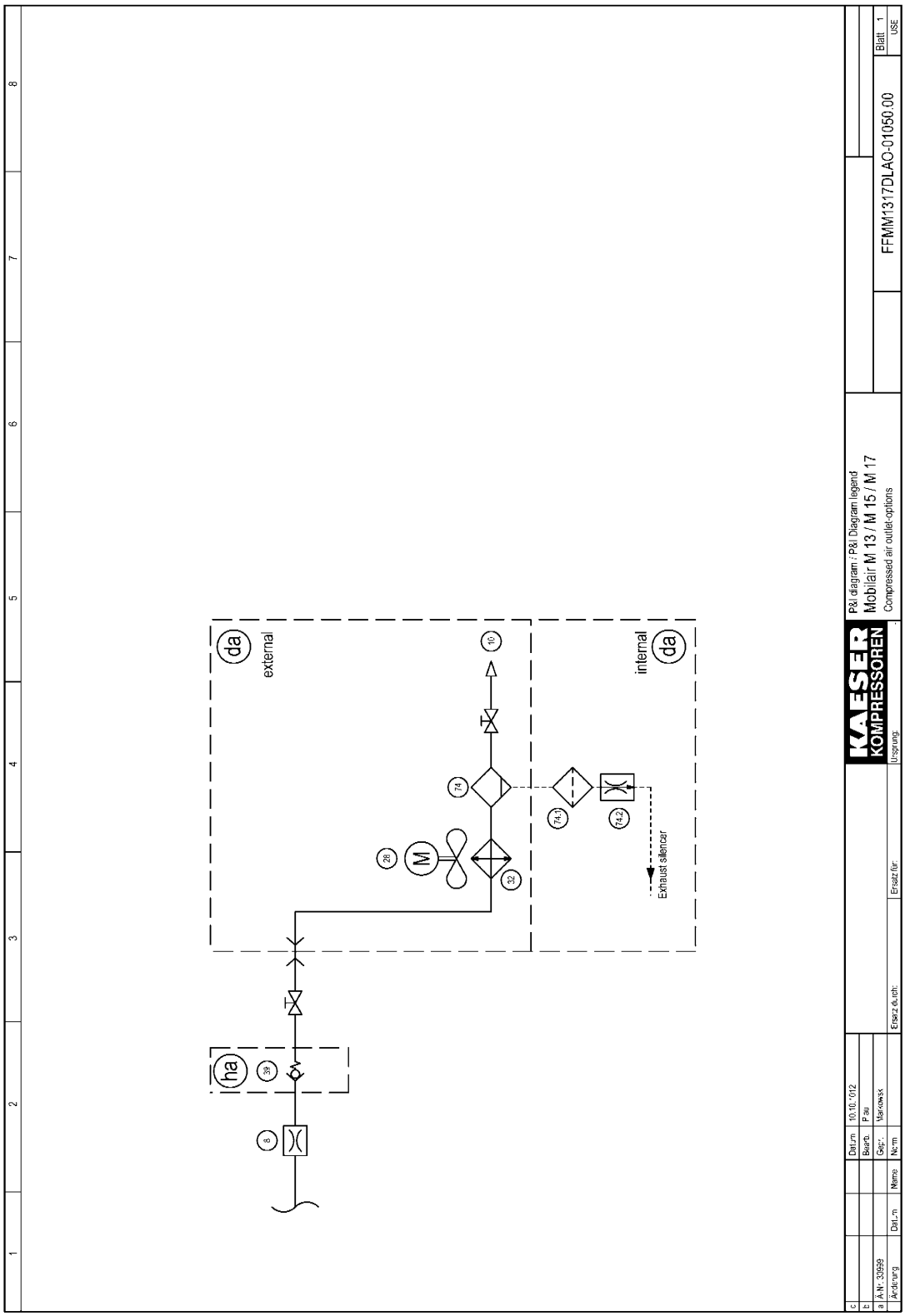
    The treatment components receive a production number that is not related to a particular compressor.

8.2 Pipeline and instrument diagram (P&I diagram)

8.2.1 Option da
External compressed air treatment

Applicable to:

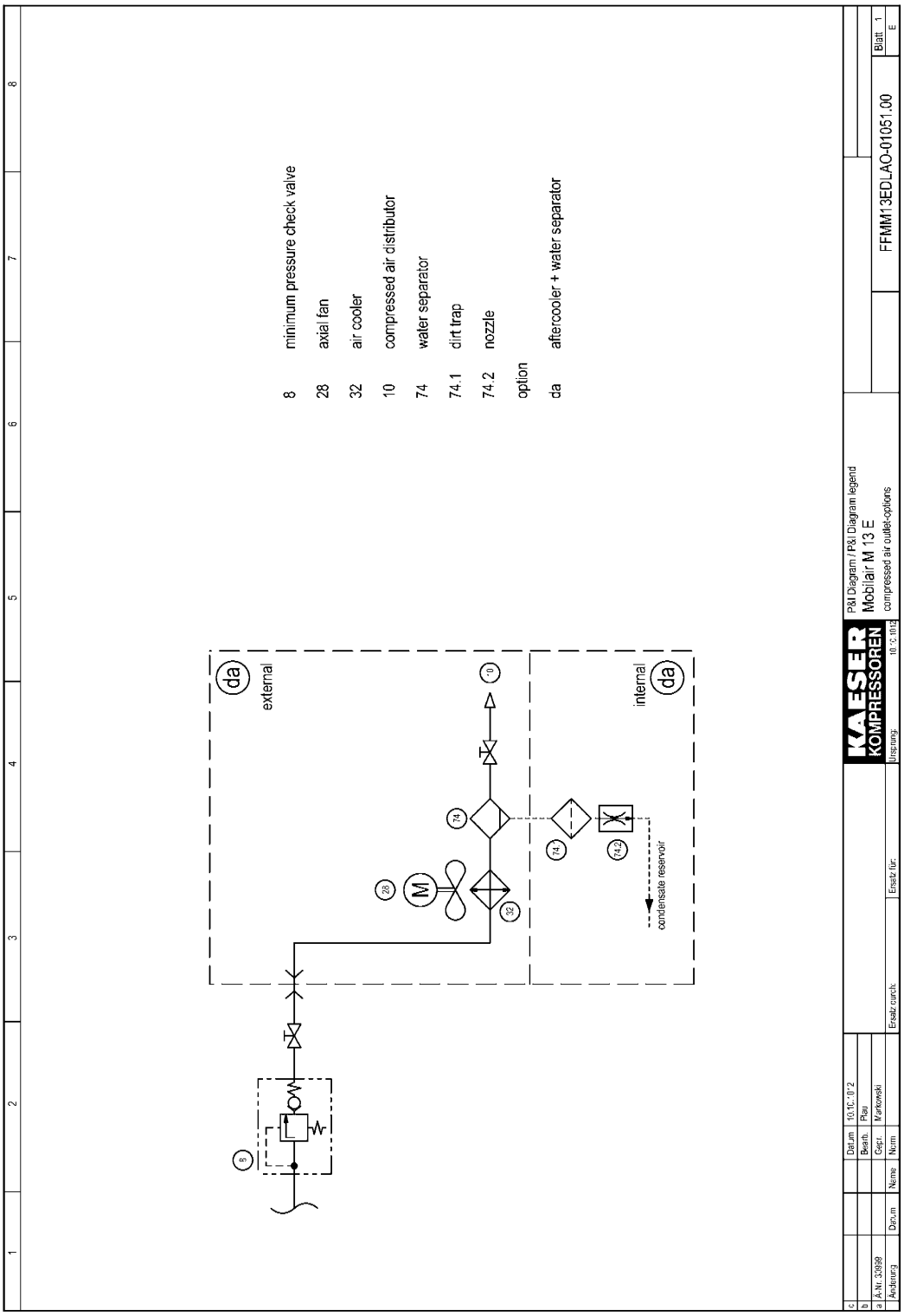
- Type M13/15/17
  - Machine with combustion engine.
  - Condensate drainage into the exhaust gas tract of the machine.


da
external
internal
da
10
74
74.1
74.2
28
32
Exhaust silencer
ha
39
8
P&I diagram : P&I Diagram legend
Mobilair M 13 / M 15 / M 17
Compressed air outlet-options
FFMM1317DLAC-01050.00
Blatt 1
USE
Datum 10.10.2012
Bearb. P.au
Ges'. Markowsk
Norm
Name
Dat.-n
Änderung
a A-Nr. 30999
b
c
Ersatz zu/ch:
Ersatz für:
Ursprung

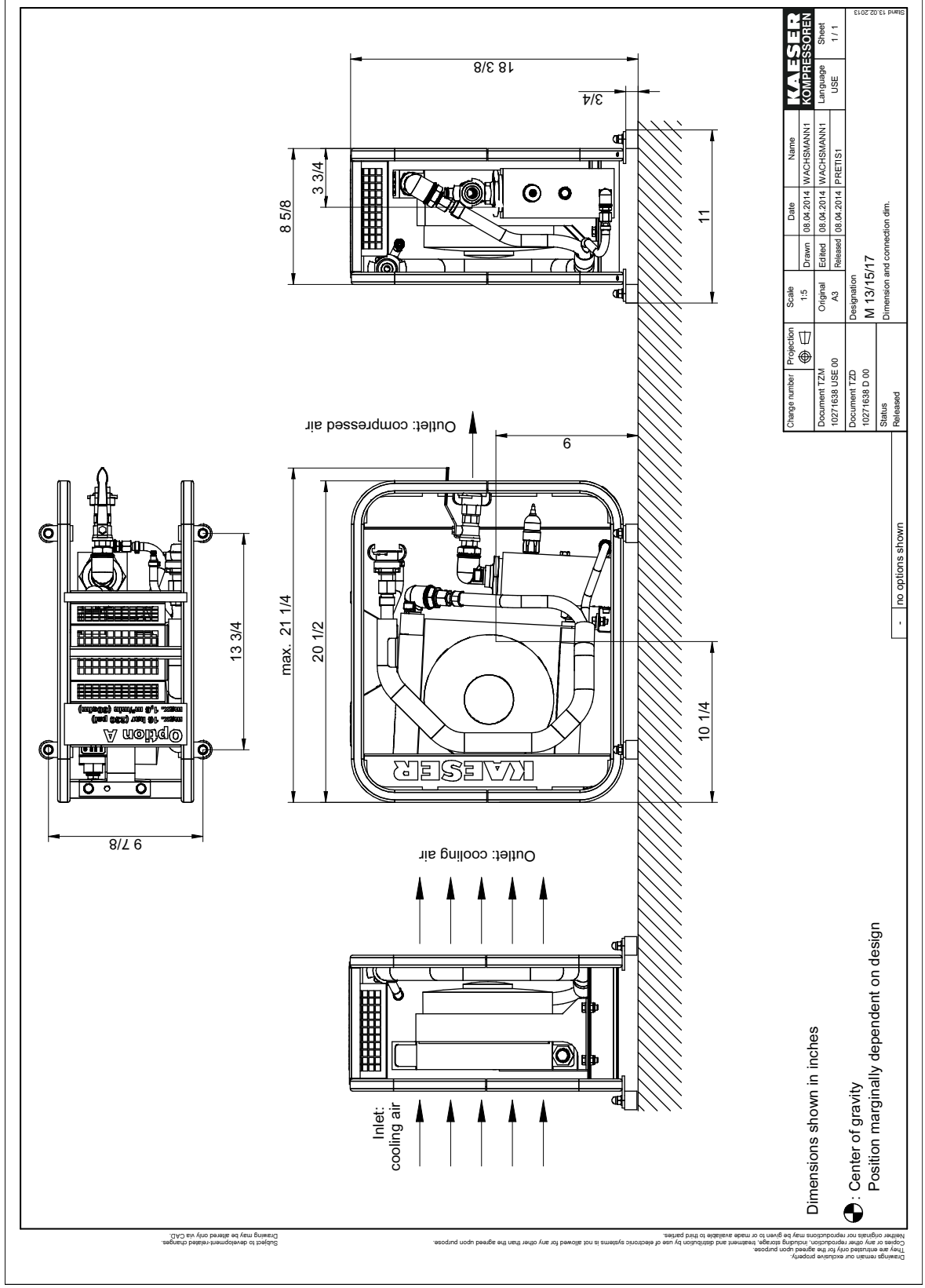
8.2.2 Option da
External compressed air treatment

Applicable to:

- Type M13E
  - Machine with electric motor.
  - Condensate drainage into the condensate collection tank of the machine.


8 minimum pressure check valve
28 axial fan
32 air cooler
10 compressed air distributor
74 water separator
74.1 dirt trap
74.2 nozzle
option
da aftercooler + water separator
external
internal
condensate reservoir
P&I Diagram / P&I Diagram legend
Mobilair M 13 E
compressed air outlet-options
FFMM13EDLAO-01051.00

8.3 Option da
Dimensional drawing, external compressed air treatment components



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13.7 Option dd
External compressed air treatment, compressed air filter combination

Operator manual

External air treatment

Compressed air filter combination

No.: 901872_01 USE

Manufacturer:

KAESER KOMPRESSOREN SE

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

http://www.kaeser.com

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20180112 094750

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1 Technical Data

1.1 Checking the scope of applicability

This service manual for the external compressed air treatment applies to a defined subset of machine types. Table 1 lists the applicable machine types. One of the machine types shown must match the model of your machine.

Machine model	Drive engine of the machine	Identification by operator
M13/15/17	Combustion engine	
M13E	Electric motor	

Tab. 1 Scope of application

1. Check whether the type of your machine is listed in the table.
2. Mark the row displaying your machine type.
3. Memorize the machine type and drive type of the drive engine.

In the further course of these operating instructions, the operator must make independent decisions on safety-relevant user instructions, depending on the type of the drive engine. Therefore, these safety-relevant instructions are clearly arranged in tabular form according to the type of drive of the drive engine.

Further information Observe safety-relevant instructions depending on the type of drive of the drive engine, see Chapter 2.1.

1.2 Option dd Air quality at the compressed air outlets

The compressed air outlet of the external air treatment is identified with the code for the compressed air quality.

Interrelation between compressed air treatment and compressed air quality:

Air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	■ Compressed air aftercooler ■ Condensate separator	cool and condensate-free	A
da + dd	■ Compressed air aftercooler ■ Condensate separator ■ Compressed air filter combination	dry and technically oil-free	F

Tab. 2 Interrelation between compressed air treatment and compressed air quality

1.3 Option da
Ambient temperature for compressed air treatment

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

Tab. 3 Ambient temperature for compressed air treatment

2 Safety and Responsibility

2.1 Follow safety-relevant instructions

Safety must be ensured during all work on the machine and on the external compressed air treatment. This applies in particular to the following work:

- Assembly
- Initial start-up
- Operation
- Maintenance

Classification of the safety-relevant instructions, depending on the type of drive of the drive motor:

Type	M13/15/17	M13E
Drive motor	Combustion engine	Electric motor
1	—	➢ Connecting the power supply
2	➢ Starting the machine	➢ Starting the machine
3	➢ Switching off the machine	➢ Switching off the machine
4	—	➢ Depressurize the machine
5	—	➢ Verify the absence of any voltage
6	➢ Depressurize the machine ➢ Open the compressed air outlet valve	➢ Depressurize the machine ➢ Open the compressed air outlet valve
7	➢ Check that the machine is depressurized ➢ Check the pressure gauge display	➢ Check that the machine is depressurized ➢ Check the pressure gauge display
8	➢ Depressurize the external air treatment ➢ Open the compressed air outlet valve(s)	➢ Depressurize the external air treatment ➢ Open the compressed air outlet valve(s)

Tab. 4 Ensuring safety

➢ Observe safety-relevant instructions depending on the type of drive of the drive motor.

2.2 Safety signs

The diagram shows the positions of the safety signs on the external unit for the compressed air treatment. The table lists the various safety signs used and their meanings.

Option da, dd

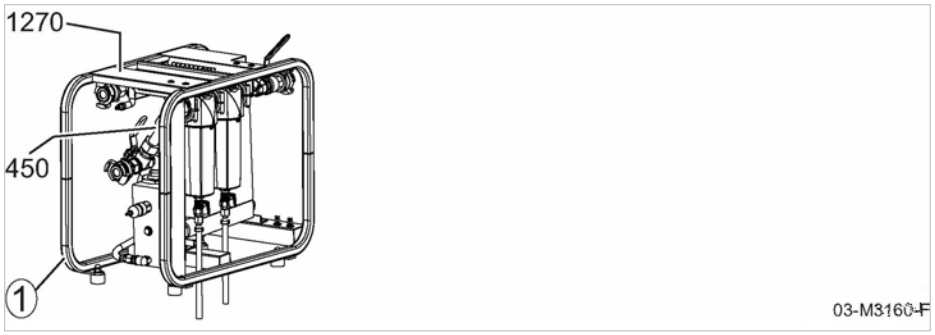


Fig. 1 Location of safety signs

[1] External compressed air treatment, compressed air filter combination

Location	Sign	Meaning
450		Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected. ➢ Connect a compressed air hose. ➢ Open the ball valve.
1270		Risk of personal injury or property damage due to incorrect operation! ➢ Before using the external compressed air treatment, read and understand the operating instructions of the machine and/or the operating instructions for the external compressed air treatment and all safety instructions.

Tab. 5 Safety signs

3 Design and Function

3.1 Compressed air treatment option

The following describes the possible air treatment options that may be fitted to the machine.

Machine type	Drive engine of the machine
M13/15/17	Combustion engine
M13E	Electric motor

Tab. 6 Machine types

3.1.1 Machines prepared

As an option for the operation of an external compressed air treatment, the machine types provided for this purpose must be equipped with additional connections.

Additional connections:

- Plug-in nozzle
- 12V power socket

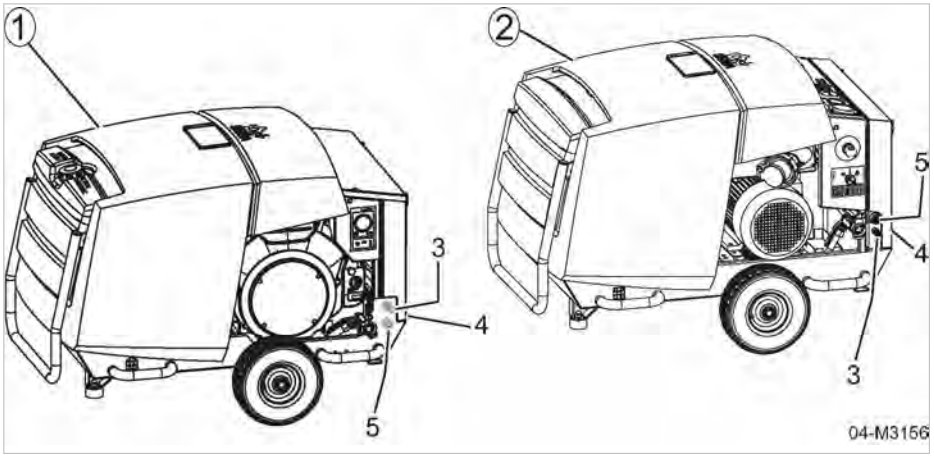


Fig. 2 Machines prepared

1 Machine prepared (M13 / 15 / 17 with combustion engine)
2 Machine prepared (M13E with electric motor)
3 Plug-in nozzle for condensate drainage
4 Dirt trap for condensate drainage (inside the machine)
5 Socket for fan

3.1.1.1 Machine M13E prepared

A condensate collector is located on the inside of the electrically driven machine.

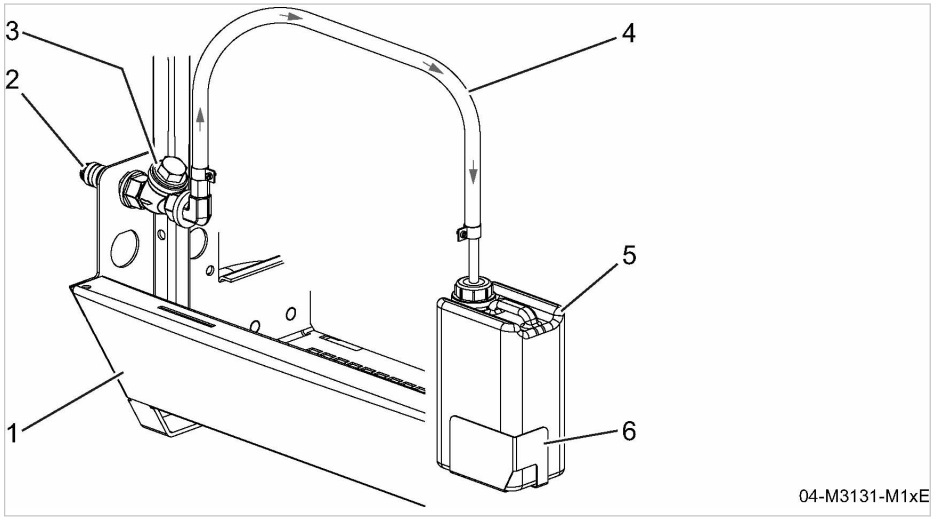


Fig. 3 Condensate collector (rear panel of the machine removed)

1	Rear of the machine	4	Condensate hose line
2	Plug-in nozzle	5	Condensate collector
3	Dirt trap	6	Support

3.1.2 Option dd
External air treatment

The external unit, compressed-air treatment, supplies either moisture-reduced compressed air or technically oil-free compressed air, as desired. In order to obtain different compressed air qualities, corresponding compressed air outlet valves are installed downstream from the respective components of the compressed air treatment.. The corresponding compressed air outlet valves are marked with symbols indicating the compressed air quality.

⚠ CAUTION

The external air treatment may freeze over when the ambient temperature falls below the required value.

- ➢ *Check the ambient temperature.*
- ➢ *Comply with the required ambient temperature of more than 41 °F.*

Option dd

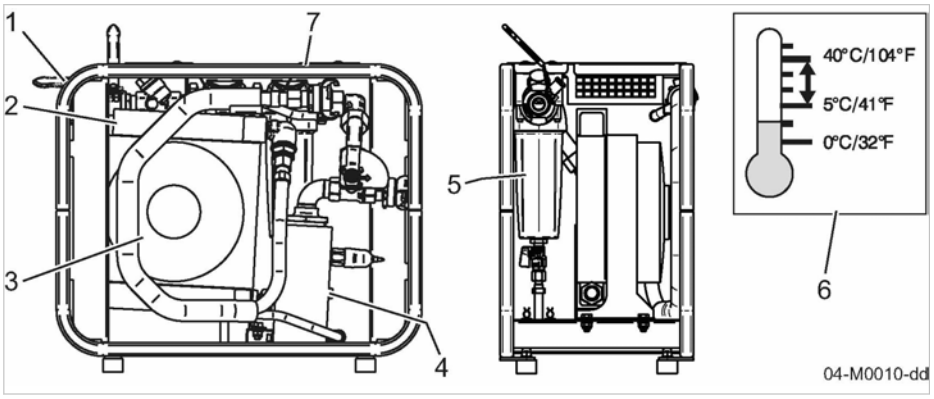


Fig. 4 Compressed air option dd

1. Rack
2. Air cooler (option da)
3. Fan
4. Condensate separator (option da)
5. Compressed air filter combination (option dd)
6. Adhesive label, ambient temperatures
7. Position of the adhesive label on the external compressed air treatment system

Option da Air cooler

The air cooler cools the compressed air temperature to approximately 5 K to 10 K above the ambient temperature. Most of the moisture present in the compressed air is removed.

Option da Condensate separator

Machine model	M13/15/17	M13E
Drive motor of the machine	Combustion engine	Electric motor
Condensate separator	Condensate accumulating during the air cooling process is separated, fed to the exhaust gas silencer, and evaporated there.	—
Condensate separator	—	Condensate accumulating during the air cooling process is separated and fed to the condensate collector.

Tab. 7 Condensate separation for machine types

Option dd Compressed air filter combination

In order to obtain technically oil-free compressed air, the moisture reduced compressed air is passed through a combination of pre-filter and fine filter where solid particles and oil components are removed.

Further information

See Chapter 4.1 for installation of external compressed air treatment units.

Please see Chapter 5.1 for setting the moisture-reduced or technically oil-free compressed air quality to the external compressed air treatment.

4 Installation

4.1 Option dd
Mounting the external compressed air treatment unit

The compressed air treatment components in a prepared machine (option de) can be combined with the external unit “air cooler, condensate separator, and compressed air filter combination” (option dd).
An adhesive label (14) on the external compressed air treatment unit advises to first read the operating instructions of the machine.

Overview:

- Ensure safety during assembly.
  - Machine type with combustion engine.
  - Machine type with electric motor.
- Make the required connections.

Precondition The operator manual for the machine has been read.

4 Installation

4.1 Mounting the external compressed air treatment unit

Option dd

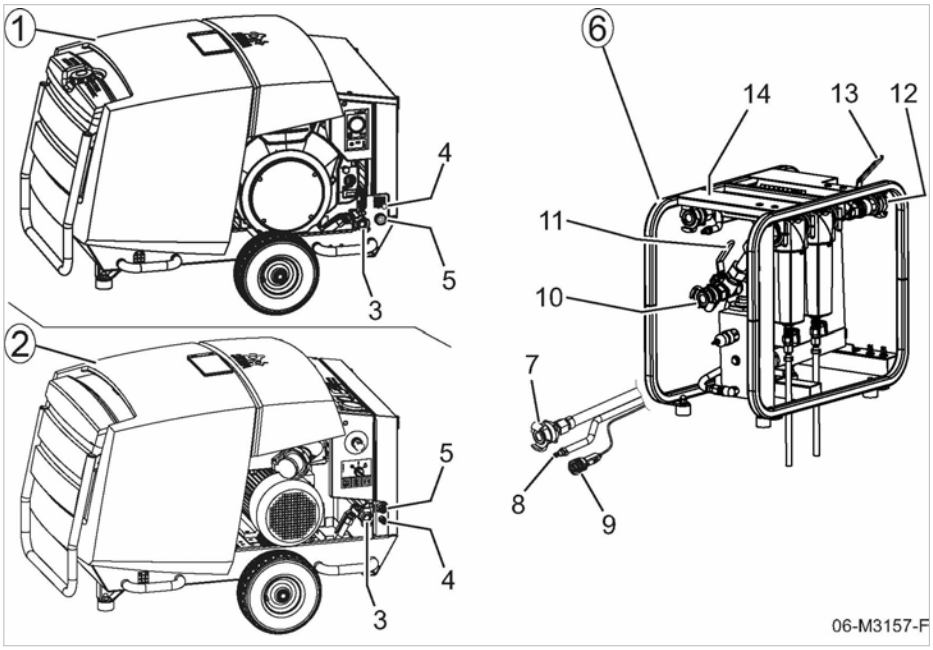


Fig. 5 Connecting the air treatment components

1 Machine prepared (with combustion engine)
2 Machine prepared (with electric motor)
3 Claw coupling (machine)
4 Plug-in nozzle for condensate drainage
5 Socket for fan
6 External compressed air treatment unit
7 Hose coupling compressed air input
8 Hose coupling for condensate drainage
9 Plug for fan
10 Claw coupling for moisture-reduced compressed air
11 Compressed air outlet valve
12 Claw coupling for oil-free compressed air
13 Compressed air outlet valve
14 Adhesive label "Read machine operating instructions"

Ensure safety during assembly

➢ Follow these instructions.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Check to ensure that the pressure gauge shows 0 psig.	➢ Check to ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air outlet valve.	➢ Switch off the main switch on site.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
5	—	➢ Secure the main switch against reconnection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air outlet valve.

Tab. 8 Ensure safety during assembly

Make the required connections

Precondition Machine is depressurized
The machine is disconnected from the power supply.

1. Connect hose coupling [7] to the position [3] of the machine.
2. Connect hose coupling [8] to the position [4] of the machine.
3. Connect plug [9] to the position [5] of the machine.
4. Connect hose coupling for consumer to the claw coupling [10] .
5. Check that the following components are connected correctly:
   - Compressed air hoses
   - Condensate drainage
   - Electrical connecting cable for the fan

Result The external compressed air treatment unit is fully connected.

5 Operation

5.1 Option dd
Operating the external compressed air treatment unit

An adhesive label on the external compressed air treatment unit advises to first read the operating instructions of the machine.

Depending on the required compressed air quality, the compressed air outlet valves must be adjusted to the external compressed air treatment.

Precondition
The service manual of the machine has been read.
Ambient temperature is more than 41 °F; see Chapter 3.1.2.
Machine is at operating temperature; see service manual for the machine.
The installation tasks described in Chapter 4.1 have been carried out.

Option dd

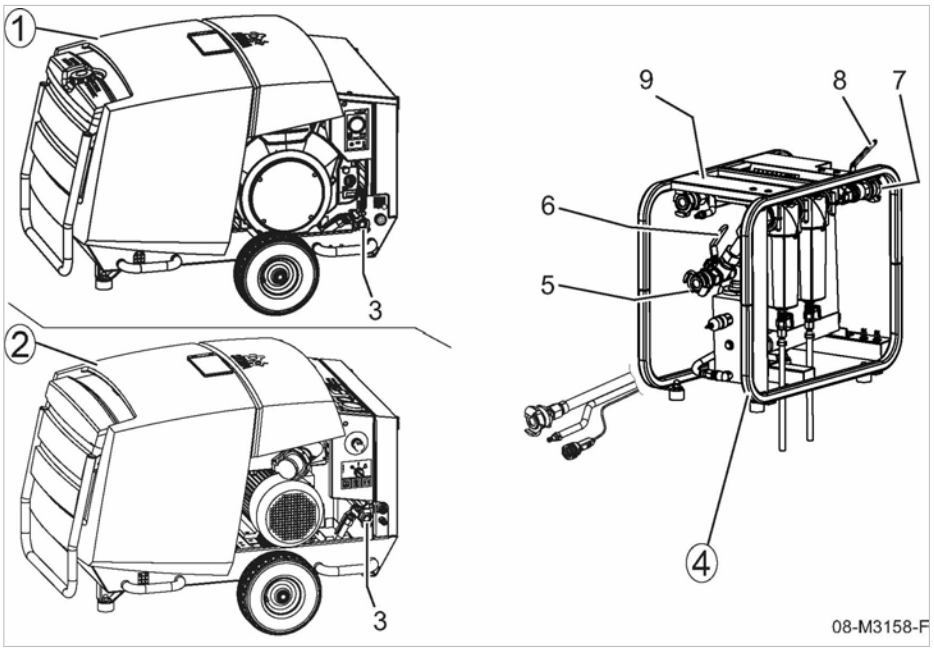


Fig. 6 Operating the compressed air treatment unit

1. Machine (with combustion engine)
2. Machine (electric motor)
3. Compressed air outlet valve of the machine
4. External air treatment unit
5. Claw coupling for moisture-reduced compressed air
6. Compressed air outlet valve
7. Claw coupling for technically oil-free compressed air
8. Compressed air outlet valve
9. Adhesive label "Read machine operator manual"

5 Operation

5.1 Operating the external compressed air treatment unit

Produce humidity-reduced compressed air	Produce technically oil-free compressed air
1. Connect the consumer to the claw coupling downstream of the condensate separator. 2. Set the compressed air tap downstream of the condensate separator to passage direction. The bypass line to the compressed air filter combination is blocked. 3. Check whether the compressed air outlet valve is closed downstream of the compressed air filter combination. 4. Start the machine; see service manual for the machine. 5. Open the compressed air outlet valve on the machine. Consumer is supplied with moisture-reduced compressed air.	1. Connect the consumer to the claw coupling downstream of the compressed air filter combination. 2. Close the compressed air outlet valve downstream of the condensate separator. The bypass line to the compressed air filter combination is opened. 3. Open the compressed air outlet valve downstream of the compressed air filter combination (set to passage direction). 4. Start the machine; see service manual for the machine. 5. Open the compressed air outlet valve on the machine. Consumer is supplied with moisture-reduced and technically oil-free compressed air.

6 Fault Recognition and Rectification

6.1 Faults and alarms on external compressed air treatment units

6.1.1 Outflow of condensate

Possible cause	Action	Where can I get help?	
		SW	KS
Condensate drainage is faulty or incorrectly connected.	Check condensate feed hoses and connections for leaks and tightness.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 9 Alarm: "Outflow of condensate”

6.1.2 High moisture content in the compressed air

Possible cause	Action	Where can I get help?	
		SW	KS
Condensate drainage of condensate separator blocked.	Clean the dirt trap of the condensate separator.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 10 Alarm: "Moisture content of compressed air too high"

6.1.3 The temperature of the treated compressed air is too high

Possible cause	Action	Where can I get help?	
		SW	KS
The air treatment unit fan does not work properly or not at all.	Check electrical connecting cable and replace if necessary. Check plug connections.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 11 Alarm: "Air temperature too high"

6.1.4 The oil content of the treated compressed air is too high

Possible cause	Action	Where can I get help?	
		SW	KS
The condensate content in the treated compressed air is too high.	Drain condensate.	–	–
Filter elements of the compressed air filter combination are damaged or contaminated.	Change the filter elements.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 12 Alarm: "Oil content of compressed air too high"

7 Maintenance

7.1 Maintenance schedule, external compressed air treatment

➢ Perform maintenance tasks according to the following table:

Maintenance work marked with (*) applies exclusively to electrically driven machines (Type M13E).

Tasks	Daily	A250	A500	A1000	See chapter	Note
Dirt trap						
Clean the dirt trap of the condensate drainage.				X	7.2	
Condensate hose line (*)						
Check that the condensate hose line and condensate collector are properly installed.	X				7.3	
Condensate collector (*)						
Check filling level /empty.	X				7.3	
Option da - compressed air aftercooler						
Clean the compressed air aftercooler.		X			7.4	
Option dd – compressed air filter combination						
Drain condensate.	X				7.5	
Change the filter elements.			X		7.5	
Replace seal of filter element (*).			X		7.5	

Tab. 13 Regular maintenance tasks, external air treatment

7.2 Maintaining the condensate drainage dirt trap

The dirt trap must be cleaned regularly.

See Chapter 3.1.1 for the location of the dirt trap.

Material Cleaning cloth

Dirt trap maintenance kit

Ensure safety during maintenance

➢ Follow these instructions.

Type	M13/15/17	M13E
Drive engine	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Check to ensure that the pressure gauge shows 0 psig.	➢ Check to ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air discharge valve.	➢ Switch off the main switch on site.
5	—	➢ Secure the main switch against reconnection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air outlet valve.

Tab. 14 Ensure safety during assembly

Clean the dirt trap:

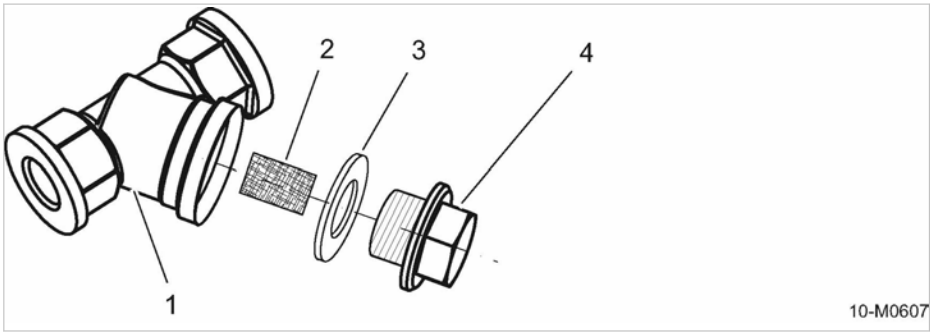


Fig. 7 Clean the dirt trap

[1] Dirt trap housing
[2] Screen filter
[3] Sealing ring
[4] Screw plug

1. Loosen the screw plug [4].
2. Remove the screw plug [4].
3. Remove the sealing ring [3].
4. Remove the screen filter [2] from the dirt trap housing [1]
5. Clean the dirt trap housing, screen filter, sealing ring, and screw plug.

? Screen filter or sealing ring are no longer functional.
➢ Replace parts.

6. Insert the screen filter into the dirt trap housing.
7. Insert the screw plug with sealing ring.

8. Tighten the screw plug.
9. Replace the rear panel of the machine.
10. Engage locks.

Check for function and leaks:

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

7.3 Inspecting/maintaining condensate drainage

When there is a high moisture content in the ambient air, a considerable amount of condensation is produced during operation of the electrically driven machine. The condensate is fed into the condensate collector of the machine via a hose line.
The maximum fill capacity of the condensate collection tank is limited. Therefore, the condensate collection tank must be checked/maintained daily.

Material: Cleaning cloth
Tank

Precondition: The machine is switched off.
The enclosure is open.
The on-site main switch is switched off on all poles,
is secured against re-connection,
the absence of voltage has been verified,
the power supply cable has been removed.
The machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the discharge valve is open,
the machine is fully depressuriszed, the pressure gauge reads 0 psig.
The rear panel has been removed.

➢ Follow all instructions.

Condensate is contaminated and harmful to the environment!
Therefore proceed as follows in accordance with applicable environmental regulations:
➢ Store condensate in special containers.
➢ Dispose of the container contents regularly and properly.

7.3.1 Emptying the condensate collection tank

1. Pull the condensate hose from the cover of the condensate collection tank.
2. Remove the condensate collection tank from the machine support.
3. Loosen and remove the lid from the condensate collection tank.
4. Fill the condensate into an external container.
5. Properly seal the emptied condensate collector with the lid.
6. Place the emptied condensate collector in the holder inside the machine.
7. Place the condensate hose line in the cover of the condensate collection tank.

7.3.2 Check condensate hose line

In order for all of the accumulated condensate to reach the condensate collection tank, the condensate hose must always be properly affixed to the lid of the condensate collection tank.

1. Check daily whether the condensate hose is properly affixed to the lid of the condensate collection tank.
2. Check daily whether the lid of the condensate collection tank is properly closed.
3. After operation of the machine, check for leakages within the machine.

Leakages of condensate are visible.

➢ Check the condensate hose line for leaks.

➢ Check for proper attachment.

7.3.3 Install the rear panel

1. Install the rear panel.
2. Engage both locks.
3. Close the enclosure.

7.4 Option da
Maintaining the compressed air aftercooler

The compressed air aftercooler is installed separately to the external compressed air treatment components. The frequency of cleaning is heavily dependent on local operating conditions.

Check the compressed air aftercooler regularly for contamination.

Have severe contamination cleaned by KAESER SERVICE.

Clean the compressed air aftercooler of the external compressed air treatment only when disconnected from the machine.

Material
Compressed air
Breathing mask (if necessary)

Water or steam jet

Precondition
The electrical connection between the machine and the external compressed air treatment has been disconnected.
All hose lines between the machine and the external compressed air treatment have been disconnected.

External compressed air treatment has been placed on a cleaning station with oil separator.
The external compressed air treatment has cooled down.

The external air treatment is completely depressurized!

⚠ CAUTION

Swirling dust due to cleaning with compressed air!
Risk of injury to respiratory tract.

➢ *Wear breathing mask.*

NOTICE

Damage can be caused by water or steam jets.
Direct water or steam jets may damage or destroy electrical components.

- ➢ *Cover electrical components.*
- ➢ *Do **not** direct water or steam jets at sensitive components.*
- ➢ *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and an approximately 90° angle to the cooler surface.*

NOTICE

Improper cleaning with hard objects!
The compressed air aftercooler will be damaged.

- ➢ *Do not clean the compressed air aftercooler with hard objects.*

➢ Follow all instructions!

7.4.1 Cleaning the compressed air aftercooler

Option da

Fig. 8 Cleaning the compressed air aftercooler

1. Frame
2. Compressed air aftercooler
3. Cleaning direction for water or steam jet

Cleaning the compressed air aftercooler

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

Preparing external compressed air treatment components for operation:

1. Install condensate drainage equipment.
2. Install compressed air hose.
3. Install the electrical connection cable for the fan.

Further information Perform required installation work as per Chapter 4.1.

Start the machine and external compressed air treatment:

➢ Start the machine with the compressed air treatment installed so that excess water can evaporate.

Ensure safety for the leak check:

➢ Carry out instructions in the given sequence.

Type	M13/15/17	M13E
Drive motor	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Ensure that the pressure gauge shows 0 psig.	➢ Ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air discharge valve on the external compressed air treatment equipment.	➢ Switch off the on-site main switch on all poles.
5	—	➢ Secure the main switch against re-connection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air discharge valve on the external compressed air treatment equipment.

Tab. 15 Ensure safety for the leak check

Inspect compressed air aftercooler for leaks:

➢ Visually inspect for leaks: Does condensate escape?

Is the compressed air aftercooler leaking?

➢ Have defective compressed air aftercooler immediately repaired/replaced by authorized KAESER SERVICE.

Clean the cooler fins only in cleaning stations equipped with an oil separator!

7.5 Option dd
Maintaining the compressed air filter combination

The compressed air filter combination is installed separately to the external compressed air treatment components. In order to ensure the proper function of the compressed air filter combination, the "Draining condensate", maintenance task must be performed daily, see figure 9.

Overview:

- Draining condensate
- Change the filter elements

➢ Follow all instructions!

7.5.1 Draining condensate

The "Draining condensate" maintenance task must be carried out during operation of the attached compressed air treatment equipment.

- Comply with all safety measures concerning protective clothing, gloves, goggles, and hearing protection!
- Keep a safe distance from rotating parts and hot surfaces.
- Keep a safe distance from the running machine.

Material: Collecting vessel
Cleaning cloth

Precondition: The external compressed air treatment is installed.
Machine is operating.
Compressed air filter combination of external compressed air treatment is under pressure.

⚠ WARNING

Danger of injury from escaping compressed air!
Compressed air filter combination is under pressure during operation. Serious injury can result from loosening or opening components under pressure.

➢ *Work with caution.*

Option dd

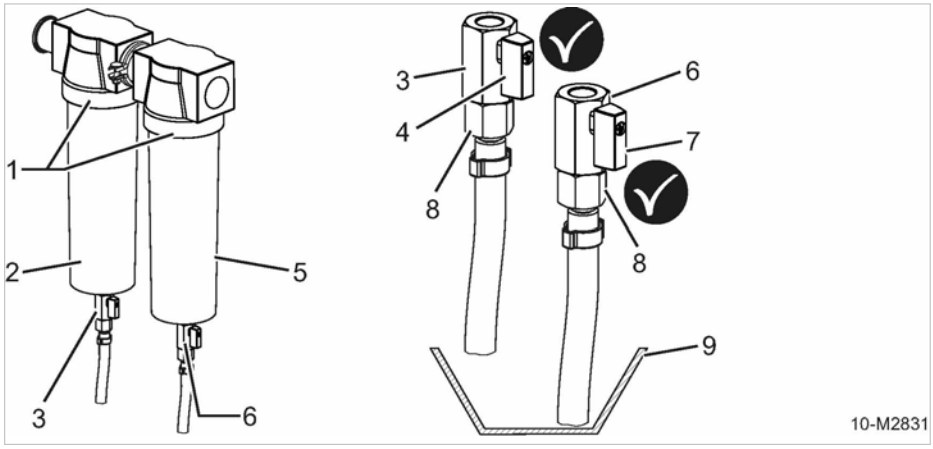


Fig. 9 Maintaining the compressed air filter combination

[1] Compressed air filter combination
[2] Prefilter
[3] Shut-off valve, prefilter
[4] Lever, shut-off valve, prefilter
[5] Fine filter (microfilter)
[6] Shut-off valve, fine filter
[7] Lever, shut-off valve, fine filter
[8] Condensate drainage hose fitting
[9] Collecting vessel

1. Place the collecting vessel beneath the hose lines of the compressed air filter combination.
2. Carefully open the prefilter shut-off valve.
   The shut-off valve lever is positioned in flow direction.
3. Carefully open the shut-off valve of the fine filter.
   The shut-off valve lever is positioned in flow direction.
   The condensate discharged in the housings of the compressed air filter combination is blown out.
4. As soon as only compressed air flows out, close both shut-off valves.

The collected condensate must be stored in suitable containers and disposed of in accordance with local environmental regulations.

7.5.2 Change the filter elements.

Prefilters and fine filters contain two different filter elements. These filter elements must be changed as a pair. Note location!

Operation of the compressed air filter combination without inserted filter elements is not permitted.

Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – contamination risk!

Material
Spare parts
Filter wrench
Wrench
Cleaning cloth
Clean fabric gloves

Precondition
The machine is switched off.

⚠ WARNING

Danger of injury from escaping compressed air!
Compressed air filter combination is under pressure during operation. Serious injury can result from loosening or opening components under pressure.

- ➢ *Wait until the machine is completely vented (check: check to ensure that the machine pressure gauge reads 0 psig).*
- ➢ *Open all compressed air discharge valves of the external compressed air treatment.*
- ➢ *Disconnect all hoses, lines, and electrical connecting cables of the external compressed air treatment equipment from the machine.*
- ➢ *Depressurize the compressed air filter combination.*

Vent the compressed air filter combination:

➢ Slowly open the prefilter and fine-filter condensate drain shut-off valves.
Remaining pressure escapes.

Gaining access to the filter housing:

➢ Loosen the fitting of the condensate drain hoses from the filter housings of the prefilter and fine-filter and remove the drain hoses.

Changing the prefilter element:

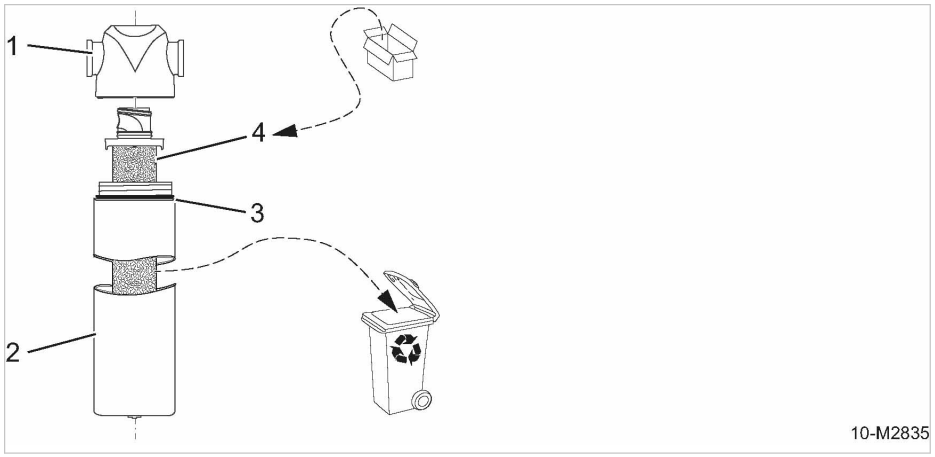


Fig. 10 Replace filter element

1	Filter head	3	Seal
2	Filter housing	4	Filter element

1. Loosen the filter housing counterclockwise and unscrew it.
2. Pull off the filter element downward.
3. Clean the filter head, housing, and sealing surface with a lint-free cloth.
4. Check the seal.
   Seal damaged: replace seal.
5. Insert new filter element.

Wear gloves!

6. Install the filter housing by turning clockwise.

Changing the filter element of the fine-filter:

1. Loosen the filter housing counter-clockwise and unscrew it.
2. Pull off the filter element downward.
3. Clean the filter head, housing, and sealing surface with a lint-free cloth.
4. Check the seal.
   Seal damaged: replace seal.
5. Insert new filter element.

Wear gloves!

6. Install the filter housing by turning clockwise.

Preparing for operation:

Option dd

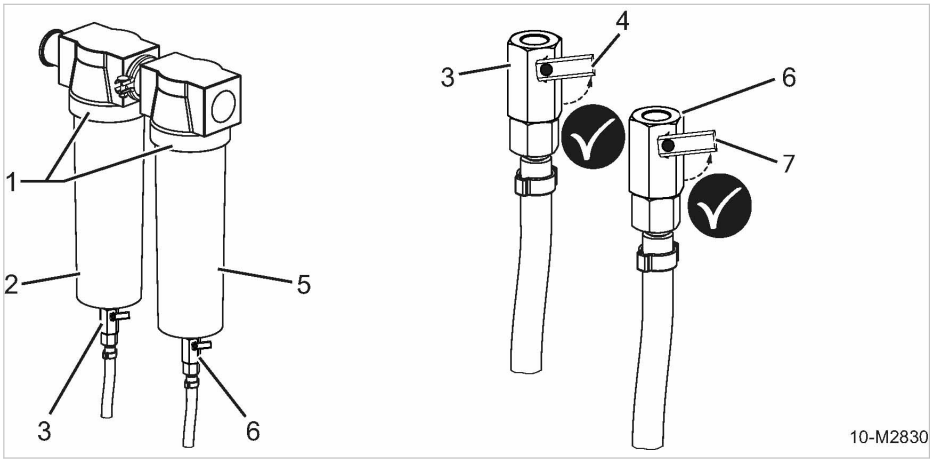


Fig. 11 Compressed air filter combination

1. Compressed air filter combination
2. Prefilter
3. Shut-off valve, prefilter
4. Lever, shut-off valve, prefilter
5. Fine filter
6. Shut-off valve, fine filter
7. Lever, shut-off valve, fine filter

1. Screw the condensate drainage hoses on to the housings of the prefilter and the fine-filter.
2. Close the shut-off valve of the prefilter.
   The lever of the shut-off valve is positioned across the flow direction.
3. Close the shut-off valve of the fine-filter.
   The lever of the shut-off valve is positioned across the flow direction.
4. Tighten all fittings of the compressed air filter combination.
5. Install the hose coupling for the compressed air hose.
6. Install the coupling for the condensate drainage.
7. Connect the electrical connecting cable for the fan.
8. Connect the consumers to the external compressed air treatment.

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

Further information For further information regarding the changing of filter elements, please refer to the operating instructions for the compressed air filter combination, in Chapter 8.4.

Preparing external compressed air treatment components for operation:

1. Install the condensate drainage.
2. Install compressed air hose.
3. Install the electrical connecting cable for the fan.

Further information Perform required installation work as per Chapter 4.1.

Start the machine and external compressed air treatment:

➢ Briefly operate the machine with the compressed air treatment equipment.
The compressed air filter combination is pressurized.

Ensure safety for the leak check:

➢ Carry out instructions in the given sequence.

Type	M13/15/17	M13E
Drive motor	Combustion engine	Electric motor
1	➢ Switch off the machine.	➢ Switch off the machine.
2	➢ Wait until the machine has automatically vented.	➢ Wait until the machine has automatically vented.
3	➢ Check to ensure that the pressure gauge shows 0 psig.	➢ Check to ensure that the pressure gauge shows 0 psig.
4	➢ Open the compressed air discharge valve on the external air treatment equipment.	➢ Switch off the on-site main switch on all poles.
5	—	➢ Secure the main switch against re-connection.
6	—	➢ Verify the absence of any voltage.
7	—	➢ Open the compressed air discharge valve on the external air treatment equipment.

Tab. 16 Ensure safety for the leak check

Check the compressed air filter combination for leaks:

➢ Visually inspect for leaks: Is condensate escaping?

Is the compressed air filter combination leaking?

➢ Have defective compressed air filter combination immediately repaired/replaced by KAESER SERVICE.

8 Annex

8.1 Option dd
Identification of external compressed air treatment components

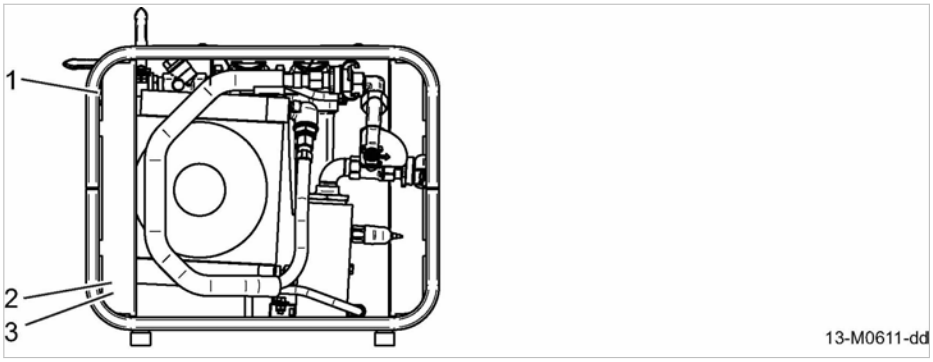


Fig. 12 Marking option

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

Identification type differences:

- The compressor and treatment components are sold as a **one product**.
  - Identification 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**.
  - Identification with **production number**.

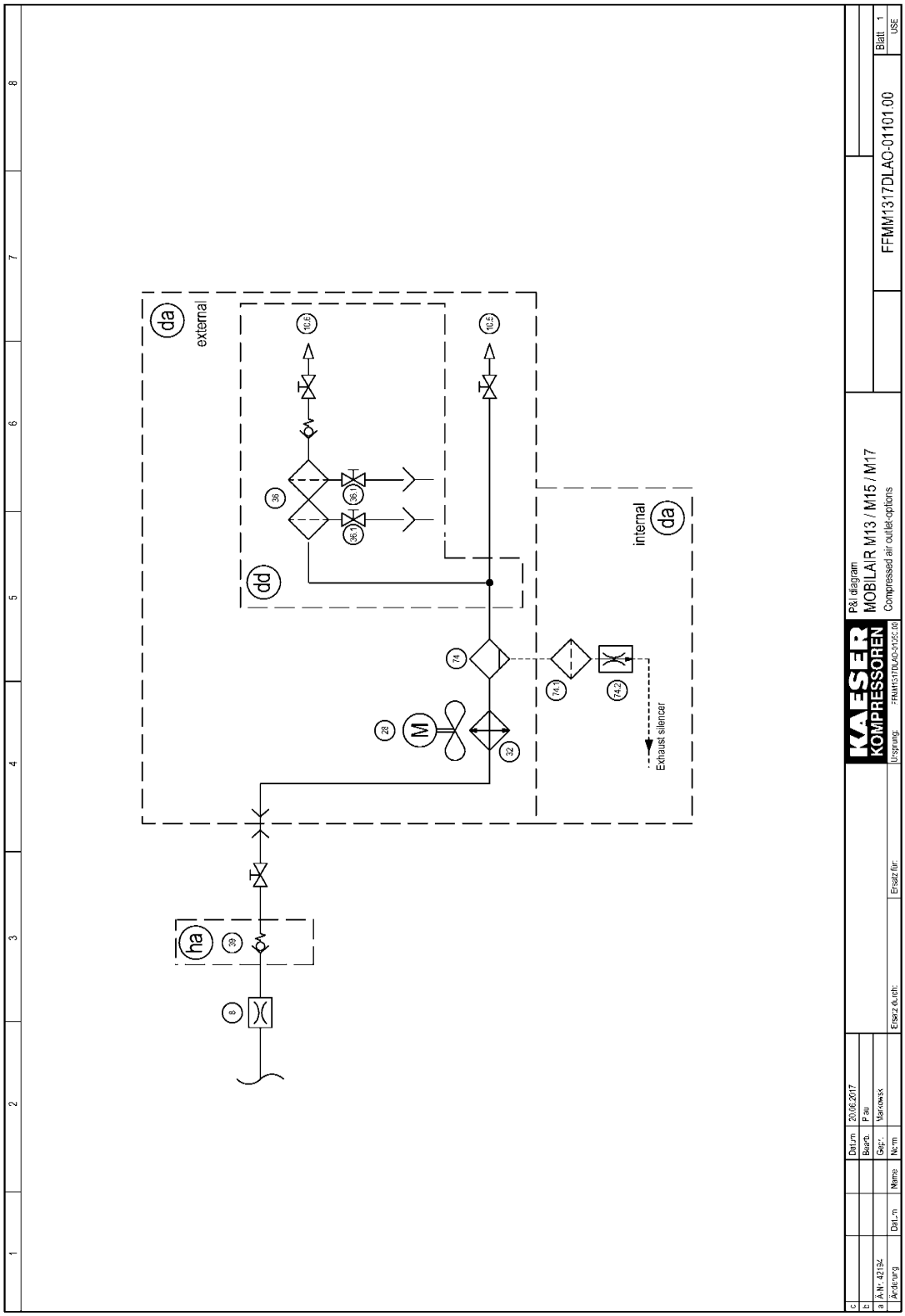
    The treatment components receive a production number that is not related to a particular compressor.

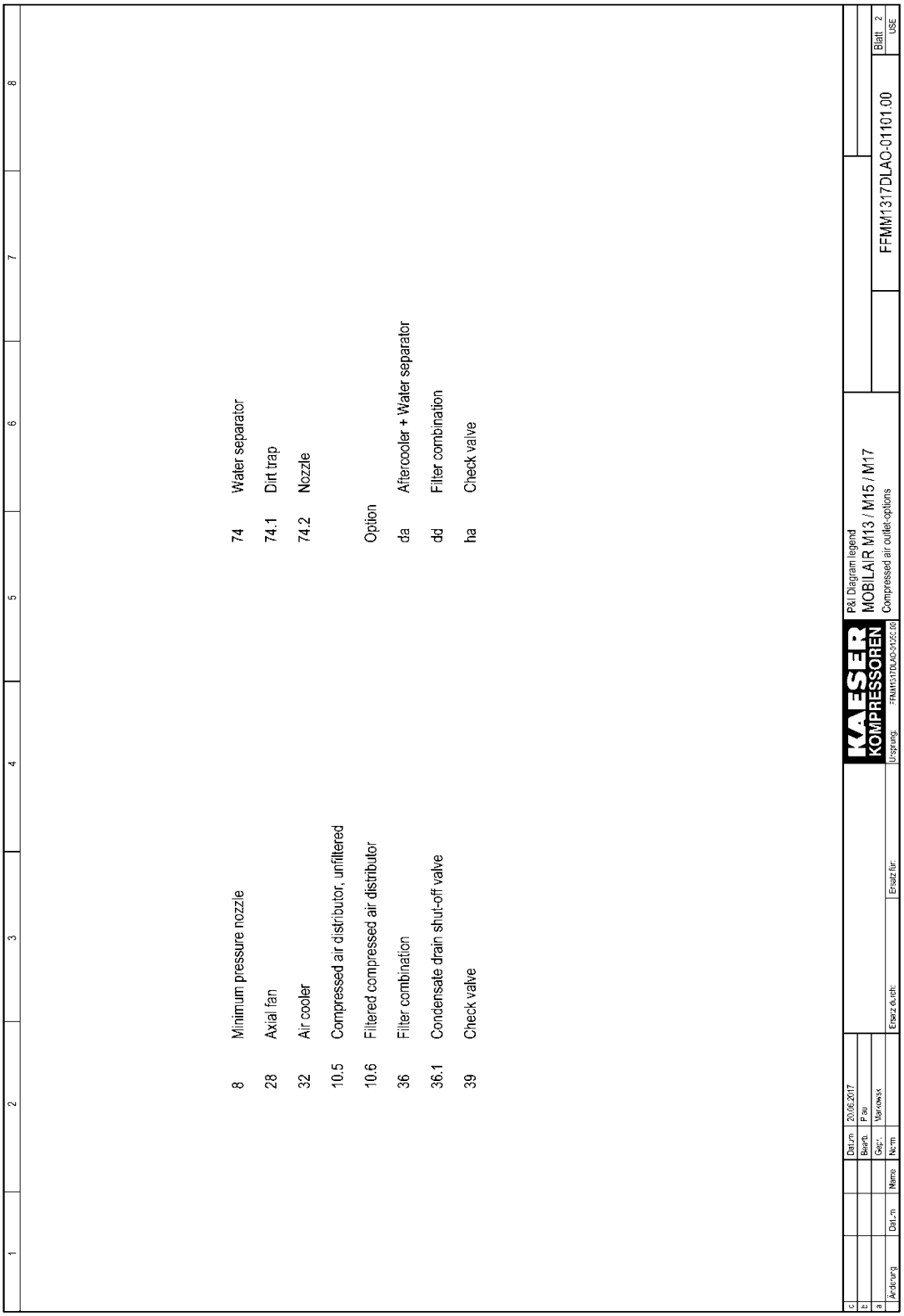
8.2 Pipeline and instrument diagram (P&I diagram)

8.2.1 Option dd
External compressed air treatment

Applicable to:

- Type M13/15/17
  - Machine with combustion engine.
  - Condensate drainage into the exhaust gas tract of the machine.

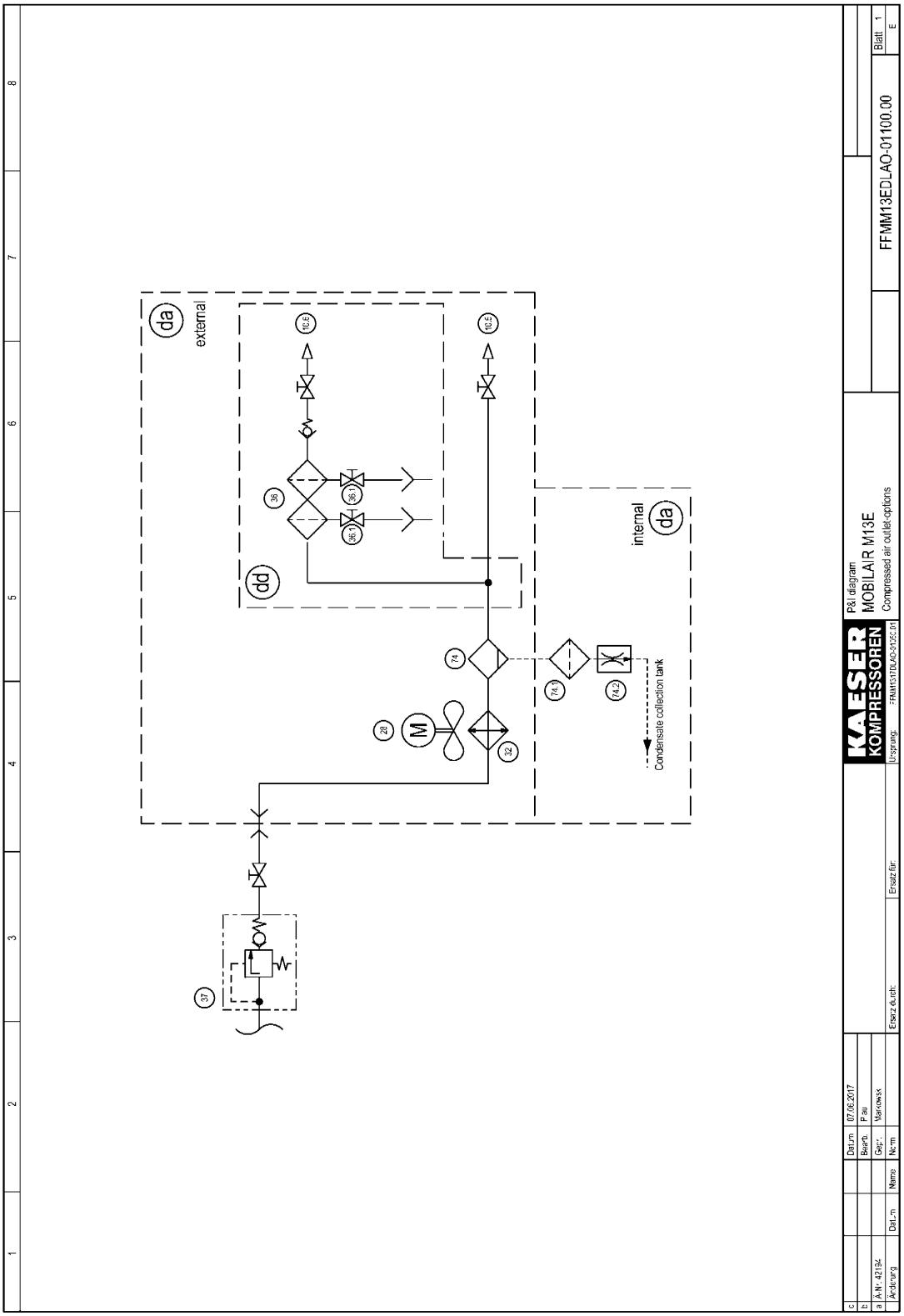

da
external
10.5
10.5
36
36.1
36.1
dd
internal
da
74
74.1
74.2
28
32
Exhaust silencer
ha
39
8
P&I diagram
MOBILAIR M13 / M15 / M17
Compressed air outlet-options
FFMM1317DLAC-01101.00
Blatt 1
USE
Datum 20.06.2017
Bearb. P au
Gepr.: Markowsk
Norm
Ersatz für:
Ursprung:
Ersatz durch:
Änderung
Dat.-n
Norm
Gepr.:
Bearb.
Datum
A-Nr. 42134

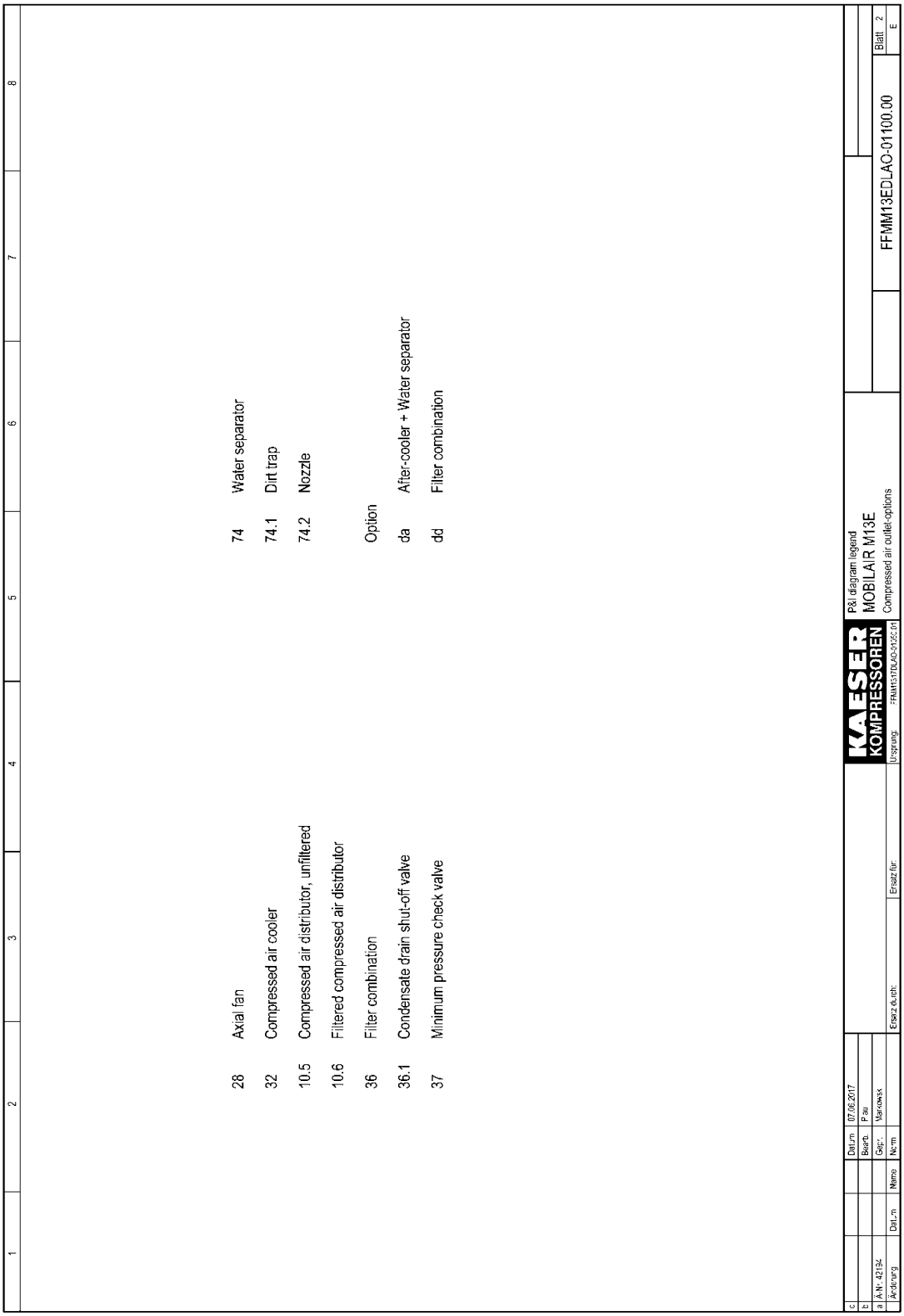

8 Minimum pressure nozzle
28 Axial fan
32 Air cooler
10.5 Compressed air distributor, unfiltered
10.6 Filtered compressed air distributor
36 Filter combination
36.1 Condensate drain shut-off valve
39 Check valve
74 Water separator
74.1 Dirt trap
74.2 Nozzle
Option
da Aftercooler + Water separator
dd Filter combination
ha Check valve
P&I Diagram legend
MOBILAIR M13 / M15 / M17
Compressed air outlet-options
FFMM1317DLAO-01101.00
Blatt 2
USE

8.2.2 Option dd
External compressed air treatment

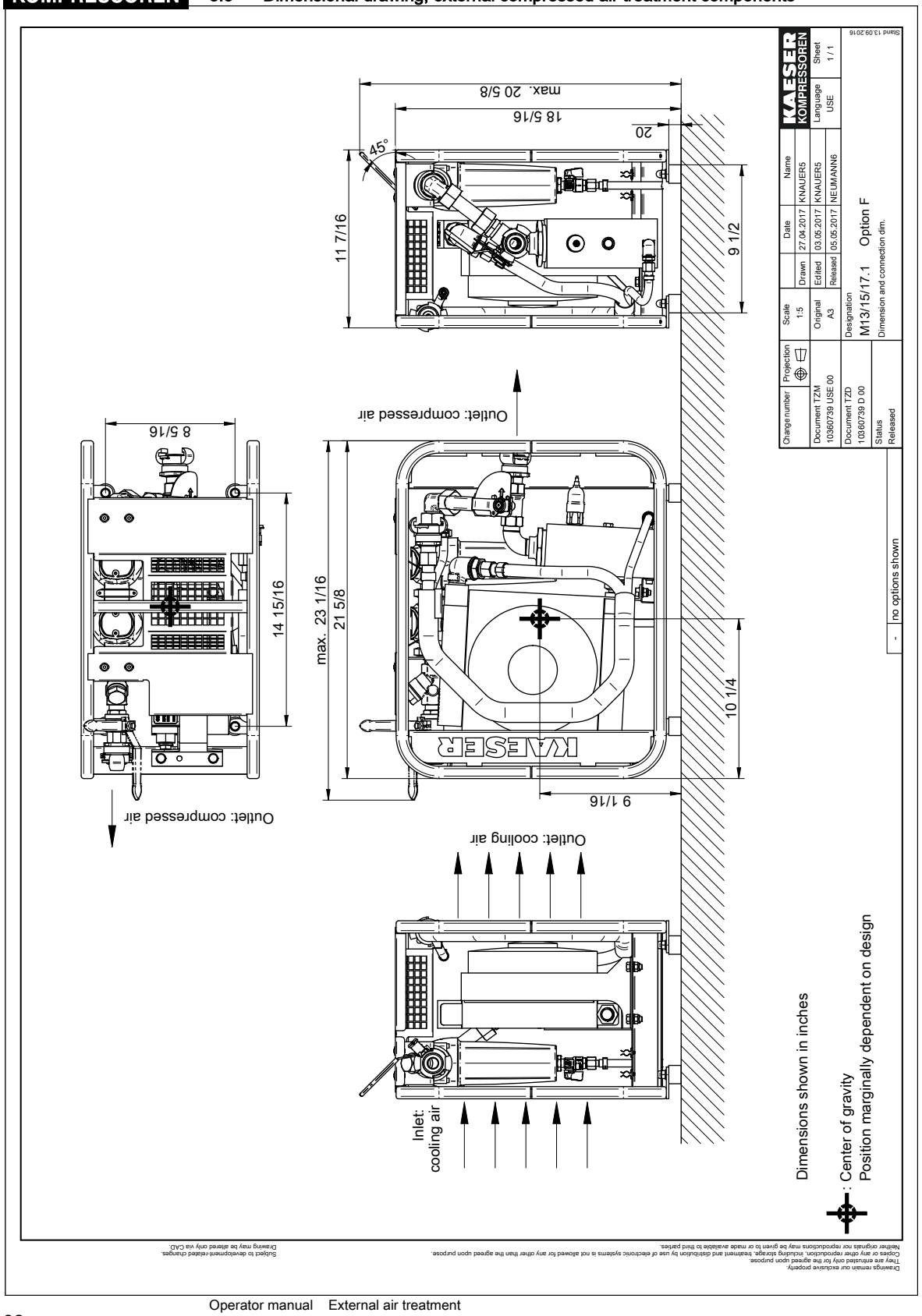
Applicable to:

- Type M13E
  - Machine with electric motor.
  - Condensate drainage into the condensate collection tank of the machine.


da
external
dd
internal
da
Condensate collection tank
P&I diagram
MOBILAIR M13E
Compressed air outlet-options
FFMM13EDLAO-01100.00
Blatt 1


28 Axial fan
32 Compressed air cooler
10.5 Compressed air distributor, unfiltered
10.6 Filtered compressed air distributor
36 Filter combination
36.1 Condensate drain shut-off valve
37 Minimum pressure check valve
74 Water separator
74.1 Dirt trap
74.2 Nozzle
Option
da After-cooler + Water separator
dd Filter combination
P&I diagram legend
MOBILAIR M13E
Compressed air outlet-options
FFMM13EDLAO-01100.00
Blatt 2
E
KAESER KOMPRESSOREN
Datum 07.06.2017
Bearb. P au
Gepr.: Markowsk
Norm
Ersatz für:
Ursprung: FFMM13EDLAO-01100.01
Änderung
Dat.-n
Name
Ä-Nr. 42134

8.3 Option dd
Dimensional drawing, external compressed air treatment components


max. 20 5/8
18 5/16
20
45°
11 7/16
9 1/2
Outlet: compressed air
8 5/16
14 15/16
max. 23 1/16
21 5/8
10 1/4
9 1/16
Outlet: compressed air
Outlet: cooling air
Inlet: cooling air
Dimensions shown in inches
: Center of gravity
Position marginally dependent on design
KAESER KOMPRESSOREN
Sheet 1 / 1
Language USE
Name
Date
Drawn KNAUER5 27.04.2017
Edited KNAUER5 03.05.2017
Released NELMANN6 05.05.2017
Scale 1:5
Original A3
Designation M13/15/17.1 Option F
Dimension and connection dim.
Projection
Change number
Document TZM 10360739 USE 00
Document TZD 10360739 D 00
Status Released
- no options shown
Stand 13.09.2016
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Drawing may be altered only via CAD.

8.4 Operator manual for compressed air filter combination

Filters for Compressed Air

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

EN Original Language

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

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker
dh domnick hunter

ENGINEERING YOUR SUCCESS.

FILTER DH-OIL-X EVO AO AA 01-

FILTER DH-OIL-X EVO AO AA 01-

KAESER KOMPRESSOREN
8 Annex
8.4 Operator manual for compressed air filter combination

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

Warning

- Highlights actions or procedures, which if not performed correctly, may lead to personal injury or death.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, lichamelijk letsel of de dood kunnen veroorzaken.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Verletzungen und tödlichen Unfällen führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent entraîner des dommages corporels ou la mort.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat aiheuttaa henkilövahingon tai kuoleman.
- Anger åtgärder och metoder som kan orsaka personskador eller dödsfall om de inte utförs korrekt.
- Fremhever handlinger eller prosedyrer som kan føre til personskade eller dødsfall hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre personskade eller dødsfald, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να οδηγήσουν σε τραυματισμό προσωπικού ή σε θάνατο
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar daños personales o la muerte.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão provocar danos pessoais ou morte.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di infortuni o morte.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą prowadzić do obrażeń ciała lub śmierci.
- Zvýrazňuje činnosti alebo postupy, ktoré môžu v prípade nesprávneho vykonania viesť zraneniu alebo usmrteniu.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést ke zranění nebo usmrcení osob.
- Tõstab esile toimingud või protseduurid, mis väära teostamise korral võivad põhjustada kehavigastusi või surma.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása súlyos vagy végzetes személyi sérülést okozhat.
- Uzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var izraisīt ievainojumus vai nāvi.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima susižeisti ar mirti.
- Указывает на действия, ненадлежащее выполнение которых может привести к нанесению вреда здоровью или смерти
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo človeka ali povzročijo smrt.
- Doğru bir şekilde yerine getirilmediği takdirde bu ürüne hasar verebilecek işlem ve süreçleri vurgular.
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, jista' jkun hemm korriment jew mewt
- Evidențiază acțiuni sau proceduri care, dacă nu sunt corect efectuate, pot duce la leziuni personale sau la deces.

Caution

- Highlights actions or procedures, which if not performed correctly, may lead to damage to this product.
- Benadrukt de acties of procedures die, indien niet juist uitgevoerd, schade kunnen berokkenen aan dit product.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Schäden am Gerät führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent endommager ce produit.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat vaurioittaa tätä laitetta.
- Anger åtgärder och metoder som kan orsaka skador på den här produkten om de inte utförs korrekt.
- Fremhever handlinger eller prosedyrer som kan føre til skade på produktet hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre beskadigelse af dette produkt, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να προκαλέσουν ζημιά στο προϊόν αυτό
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar el deterioro del producto.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão danificar este produto.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di danneggiare il prodotto.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą powodować uszkodzenie produktu.
- Zvýrazňuje činnosti alebo postupy, ktoré v prípade nesprávneho vykonania môžu viesť k poškodeniu tohto výrobku.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést k poškození tohoto výrobku.
- Tõstab esile toimingud või protseduurid, mis väära teostamise korral võivad käesolevat toodet kahjustada.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása a termék károsodásához vezethet.
- Uzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var sabojāt šo izstrādājumu.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima sugadinti šį gaminį.
- Указывает на действия, ненадлежащее выполнение которых может привести к повреждениям данного изделия
- Označuje dejanja ali postopke, ki lahko ob nepravilnem izvajanju poškodujejo izdelek.
- Doğru bir şekilde yerine getirilmediği takdirde yaralanma ya da ölüme yol açabilecek işlem ve süreçleri vurgular
- Tissottolinea l-azzjonijiet jew il-proċeduri, li jekk ma jsirux kif suppost, tista' ssir ħsara lil dan il prodott
- Evidențiază acțiuni sau proceduri care, dacă nu sunt corect efectuate, pot duce la deteriorarea acestui produs.

- Suitable gloves must be worn.
- Geeignete Schutzhandschuhe tragen.
- Käytettävä asianmukaisia käsineitä.
- Bruk egnede hansker.
- Απαιτείται να φοράτε κατάλληλα γάντια
- Devem ser utilizadas luvas adequadas.
- Należy zakładać odpowiednie rękawice
- Kohustuslik kanda sobivaid kaitsekindaid
- Jāvalkā piemēroti cimdi.
- Работы должны проводиться в соответствующих перчатках
- Uygun eldiven giyilmelidir
- Este necesară purtarea unor mănuşi adecvate.
- Altijd geschikte handschoenen dragen.
- Le port de gants adaptés est obligatoire.
- Använd lämpliga handskar.
- Der skal anvendes egnede handsker.
- Se deben llevar puestos guantes apropiados.
- Indossare guanti di protezione.
- Je nutné použít vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvėti tinkamas pirštines.
- Uporabiti je treba ustrezne rokavice.
- Għandhom jintlibsu ingwanti adatti

- Highlights the requirements for disposing of used parts and waste.
- Benadrukt de vereisten voor het weggooien van gebruikte onderdelen en afval.
- Weist auf die Anforderungen zur Entsorgung gebrauchter Teile und Abfall hin.
- Met en relief les consignes de mise au rebut des pièces usagées et des déchets.
- Osoittaa käytettyjen osien ja jätteen hävittämistä koskevia vaatimuksia.
- Anger de krav som ställs på bortskaffande av gamla delar och avfall.
- Fremhever kravene for avhending av brukte deler og avfall.
- Fremhæver kravene til bortskaffelse af udtjente dele og affald.
- Επισημαίνει τις απαιτήσεις απόρριψης των χρησιμοποιημένων εξαρτημάτων και των απορριμμάτων
- Destaca los requisitos para desechar las piezas usadas y los residuos.
- Realça os requisitos para eliminar as peças utilizadas e os desperdícios.
- Segnala i criteri per lo smaltimento di componenti usati e rifiuti.
- Wskazuje wymagania dotyczące usuwania zużytych części i odpadów.
- Zvýrazňuje požiadavky pre zneškodňovanie použitých dielov a odpadu.
- Upozornění na požadavky týkající se likvidace použitých dílů a odpadu.
- Tõstab esile kasutatud osade ja jääkide utiliseerimisele esitatavad nõuded
- A használt alkatrészek és a hulladék megfelelő módon történő elhelyezésére hívja fel a figyelmet.
- Uzsver prasības tam, kā atbrīvoties no lietotajām detaļām un atkritumiem.
- Žymi panaudotų dalių ir atliekų išmetimo reikalavimus.
- Указывает на требования по уничтожению использованных деталей и отходов
- Označuje zahteve za odlaganje rabljenih delov in odpadkov.
- Kullanılmış parçaların ve atıkların atılmasına ilişkin gereklilikleri vurgular
- Tissottolinea l-kundizzjonijiet biex wieħed jarmi l-partijiet użati u l-iskart
- Evidențiază cerințele pentru depunerea la deșeuri a pieselor uzate şi a reziduurilor.

1

FILTER DH-OIL-X EVO AO AA 01-

8 Annex

8.4 Operator manual for compressed air filter combination

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

- Pressure. • Druk • Druck. • Pression.
- Paine. • Tryck • Trykk • Tryk
- Πίεση • Presión. • Pressão. • Pressione.
- Ciśnienie • Tlak.. • Tlak. • Surve.
- Nyomás alatt. • Spiediens. • Slėgis. • Давление
- Tlak • Basınç • Pressjoni • Presiune.

- Release Pressure. • Druk aflaten. • Druck ablassen.
- Évacuation de pression. • Vapauta paine. • Tryckutsläpp.
- Avlast trykk • Aflast tryk • Εκτόνωση πίεσης
- Despresurizar. • Liberta Pressão. • Scaricare la pressione.
- Ciśnienie spustowe • Uvoľnite tlak. • Uvolnění tlaku.
- Surve väljalase • Engedje ki a nyomást. • Pazeminiet spiedienu.
- Išleiskite slėgį. • Стравить давление • Sprostitev tlaka.
- Basıncı Kaldırın • Neħħi l-pressjoni • Depresurizare.

- Replace every year • Elk jaar vervangen • Jährlich austauschen
- Remplacer tous les ans. • Vaihda vuosittain. • Byt varje år
- Skift ut hvert år • Udskift en gang om året • Αντικατάσταση κάθε χρόνο
- Sustituir anualmente • Substituir todos os anos • Sostituire ogni anno
- Należy wymieniać raz w roku • Každý rok vymieňajte • Nutná výměna každý rok.
- Asendage igal aastal • Évente cserélje • Nomainiet reizi gadā
- Keiskite kartą per metus • Заменять каждый год. • Zamenjajte vsako leto.
- Her yıl değiştirin • Ibdel kull sena • Înlocuire anuală

- Filter housing / Model • Filterhuis / Model • Filtergehäuse / Modell
- Logement du filtre/modèle. • Suodatinkotelo/-malli • Filterhus/modell
- Filterhus/-modell • Filterhus/modell • Υποδοχή/μοντέλο φίλτρου
- Caja de filtro/modelo. • Caixa / Modelo do filtro • Corpo del filtro / Modello
- Obudowa filtra / model. • Kryt filtra / Model • Kryt filtru / Model
- Filtri korpus/mudel • Szűrőház / típus • Filtra korpuss / modelis
- Filtro korpusas / modelis • Корпус фильтра / модель • Ohišje filtra / Model
- Filtre muhafazası / Model • Kontenitur tal-filtru - Mudell • Carcasă filtru / Model

- High efficiency filter element • Zeer efficiënt filterelement
- Hochleistungsfilterelement • Cartouche filtrante haute efficacité.
- Tehokas suodatinelementti • Högeffektivt filterelement
- Høyeffektivt filterelement • Högeffektivt filterelement
- Φίλτρο υψηλής απόδοσης • Elemento filtrante de gran eficiencia.
- Elemento do filtro de elevado rendimento • Elemento filtrante ad alta efficienza
- Wysokowydajny wkład filtra • Vysoko účinný filtračný článok
- Vysoce účinný filtrační prvek • Kõrgtootlik filterelement
- Nagy hatékonyságú szűrőelem • Augstas produktivitātes filtra elements
- Labai efektyvus filtravimo elementas • Высокоэффективный фильтрующий элемент
- Visoko učinkovit filtrirni element • Yüksek etkinlikli filtre öğesi
- Element tal-filtru b'effiċjenza kbira • Element filtrant cu eficienţă ridicată

- Ensure correct tool is used • Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden.
- Zorg dat het juiste gereedschap wordt gebruik • Käytettävä oikeaa työkalua
- Vérifier que les outils adéquats sont utilisés. • Pass på at korrekt verktøy brukes
- Se till att rätt verktyg används. • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο
- Sørg for at benytte korrekt værktøj • Certifique-se de que é utilizada a ferramenta correcta
- Asegúrese de que se utiliza la herramienta adecuada • Należy używać odpowiedniego narzędzia.
- Assicurarsi di utilizzare l'utensile corretto • Zkontrolujte použití správného nástroje
- Uistite sa, že používate správny nástroj • Mindig a célnak megfelelő szerszámot használja
- Tagage õige tööriista kasutamine • Įsitikinkite, kad naudojamas reikiamas įrankis
- Izmantojiet tikai atbilstošus darbarīkus • Poskrbite, da boste uporabili ustrezno orodje
- Убедитесь, что используется правильный инструмент • Kun żgur li tintuża l-għodda t-tajba
- Doğru alet kullanılmasını sağlayın • Asigurați-vă că este utilizată scula corectă
-

- Next service date (month/year) • Volgende onderhoudsdatum (maand / jaar)
- Nächster Wartungstermin (Monat/Jahr) • Date de la prochaine révision (mois/année)
- Seuraava huollon päivämäärä (kuukausi/vuosi) • Nästa servicedatum (månad/år)
- Neste servicedato (måned/år) • Næste servicedato (måned/år)
- Επόμενη ημερομηνία σέρβις (μήνας / έτος) • Fecha de siguiente revisión (mes/año)
- Data da próxima intervenção técnica (mês / ano) • Prossimo intervento di assistenza (mese / anno)
- Data następnego serwisu (miesiąc/rok) • Dátum nasledujúcej opravy (mesiac/rok)
- Datum příští prohlídky (měsíc / rok) • Järgmise hooldus kuupäev (kuu / aasta)
- Következő szerviz dátuma (hó / év) • Nākamais apkopes datums (mēnesis / gads)
- Kitos techninės priežiūros data (mėnuo / metai) • Дата следующего обслуживания (месяц/год)
- Datum naslednjega servisa (mesec / leto) • Bir sonraki servis tarihi (ay / yıl)
- Id-data tas-servis li jmiss (xahar / sena) • Data următoarei vizite de service (lună/an

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Warning!
This product must be installed and maintained by competent and authorised personnel only, under strict observance of these operating instructions, any relevant standards and legal requirements where appropriate.

Retain this user guide for future reference

Waarschuwing!
Dit product mag alleen geïnstalleerd en onderhouden worden door deskundig en bevoegd personeel met strikte inachtneming van deze bedieningsinstructies en de betreffende normen en wettelijke vereisten indien van toepassing.

Bewaar deze handleiding als naslag.

Warnung!
Das Produkt darf ausschließlich von autorisiertem Fachpersonal unter strikter Befolgung dieser Betriebsanleitung, ggf. relevanter Normen sowie gesetzlicher Vorschriften installiert und gewartet werden.

Bewahren Sie die Bedienungsanleitung zu Referenzzwecken auf.

Attention !
Ce produit doit être installé et entretenu exclusivement par un personnel compétent et autorisé, dans le respect le plus strict de ce mode d'emploi et des normes applicables et exigences légales éventuelles.

Conserver ce guide de l'utilisateur à titre de référence future

Varoitus!
Tämän tuotteen saa asentaa ja huoltaa vain pätevä ja valtuutettu henkilöstö, noudattaen tarkasti näitä käyttöohjeita, kaikkia asiaankuuluvia normeja ja tarpeen vaatiessa lain asettamia vaatimuksia.

Säilytä tämä käyttöohje tulevaa tarvetta varten.

Varning!
Produkten får endast installeras och underhållas av utbildad och behörig personal, som följer denna bruksanvisning och eventuella tillämpliga normer och lagföreskrifter noga i förekommande fall.

Behåll denna användarhandbok som referens

Advarsel!
Dette produktet må bare installeres og vedlikeholdes av kompetent og autorisert personale, i streng overholdelse av disse betjeningsanvisningene, alle relevante standarder og rettslige krav der det passer.

Ta vare på denne brukerveiledningen for senere bruk

Advarsel!
Dette produkt må kun installeres og vedligeholdes af autoriseret personale, under nøje overholdelse af disse driftsinstruktioner, relevante standarder og lovgivningsmæssige krav, hvor dette er aktuelt.

Gem denne vejledning til senere reference.

Προειδοποίηση!
Η εγκατάσταση και συντήρηση αυτού του προϊόντος πρέπει να γίνεται μόνο από κατάλληλα εκπαιδευμένο και εξουσιοδοτημένο προσωπικό, με αυστηρή τήρηση των οδηγιών χειρισμού, των εφαρμοζόμενων προτύπων και των νομικών απαιτήσεων όπου απαιτείται.

Φυλάξτε αυτό το εγχειρίδιο χρήσης για μελλοντική αναφορά

Advertencia
La instalación y mantenimiento de este producto debe ser efectuada únicamente por personal competente y autorizado, respetándose de forma estricta estas instrucciones de funcionamiento, así como cualquier norma y requerimiento legal que sean aplicables.

Conserve esta guía del usuario para poder consultarla en el futuro.

Advertência!
A instalação e a manutenção deste produto só deve ser realizada por pessoal autorizado e competente, sob estrita observância destas instruções de utilização e de quaisquer normas e requisitos legais relevantes, quando adequado.

Conserve este guia do utilizador para referência futura

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

Conservare questa guida utente per consultarla in seguito

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

Niniejszą instrukcję należy zachować do późniejszego wykorzystania.

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

Uschovajte túto užívateľskú príručku pre budúce použitie

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

Tuto uživatelskou příručku uschovejte pro pozdější potřebu.

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

Hoidke käesolev kasutusjuhend alal edaspidiseks kasutamiseks

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

A leírást tartsa mindig elérhető helyen

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

Saglabājiet šo lietotāja rokasgrāmatu turpmākām uzziņām

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

Pasilikite šį vartotojo vadovą, jame esančios informacijos gali prireikti vėliau

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

Сохраните это руководство пользователя, чтобы обращаться к нему в дальнейшем

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

Shranite ta navodila za uporabo za v prihodnje

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

Bu kullanım kılavuzunu ileride başvurmak için saklayın.

Twissija!
Dan il-prodott għandu jiġi installat u jingħata l-manutenzjoni minn personal kompetenti u awtorizzat biss, taħt sorveljanza stretta ta' dawn l-istruzzjonijiet tat-tħaddim, u kwalunkwe standards u ħtiġijiet legali rilevanti fejn hu xieraq.

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

Vertizare!
Acest produs trebuie instalat şi întreţinut numai de către personal competent şi autorizat, cu respectarea strictă a acestor instrucţiuni de utilizare, a tuturor standardelor relevante şi a cerinţelor legale, unde este cazul.

Păstraţi acest ghid al utilizatorului pentru consultări ulterioare

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	Model	BSPT/NPT Port Size	Flow Rate	Dimensions	Weight	Operating Parameters	Filter Grade	Filter Models	Max Operating Pressure	Max Operating Temperature	Min Operating Temperature
EN	Model	BSPT/NPT Port Size	Flow Rate	Dimensions	Weight	Operating Parameters	Filter Grade	Filter Models	Max Operating Pressure	Max Operating Temperature	Min Operating Temperature
NL	Model	BSPT/NPT poortafmeting	Stroom snelheid	Afmetingen	Gewicht	Bedrijfs parameters	Filter kwaliteitsgraad	Filter modellen	Maximale bedrijfs druk	Maximale bedrijfs temperatuur	Minimale bedrijfs temperatuur
DE	Modell	BSPT/NPT Anschlussgröße	Durchfluss-rate	Abmessungen	Gewicht	Betriebsparameter	Filterklasse	Filtermodell	Max. Betriebs-druck	Max. Betriebstemperatur	Min. Betriebstem peratur
FR	Modèle	Taille du port BSPT/NPT	Débit	Dimensions	Poids	Paramètres de fonctionnement	Grade de filtres	Modèles de filtres	Pression de fonctionnement max.	Température de fonctionnement max.	Température de fonctionnement min.
F	Malli	BSPT NPT-portin koko	Virtaus-nopeus	Mitat	Paino	Käyttö-parametrit	Suodatin-luokka	Suodatin-mallit	Suurin käyttö-paine	Suurin käyttö-lämpötila	Pienin käyttö-lämpötila
SV	Modell	BSPT NPT-öppningsstorlek	Flödes-hastighet	Mått	Vikt	Drifts-parametrar	Filter-klass	Filter-modeller	Högsta drifts-tryck	Högsta drifts-temperatur	Lägsta drifts-temperatur
NO	Modell	BSPT NPT-Portstørrelse	Strømnings-hastighet	Mål	Vekt	Drifts-parametere	Filter-type	Filter-modeller:	Maks. drifts-trykk	Maks. drifts-temperatur	Min.drifts-temperatur
DA	Model	BSPT NPT-portstørrelse	Flow-hastighed	Mål	Vægt	Drifts-parametre	Filter-kvalitet	Filter-modeller	Maks. drifts-tryk	Maks. drifts-temperatur	Min.drifts-temperatur
EL	Μοντέλο	Μέγεθος θύρας BSPT/NPT	Ρυθμός παροχής	Διαστάσεις	Βάρος	Παράμετροι λειτουργίας	Κατηγορία φίλτρου	Μοντέλα φίλτρων	Μέγ. πίεση λειτουργίας	Μέγ. θερμοκρασία λειτουργίας	Ελάχ. θερμοκρασία λειτουργίας
ES	Modelo	Tamaño de puerto BSPT/NPT	Caudal	Dimensiones	Peso	Parámetros de funcionamiento	Grado del filtro	Modelos de filtros	Presión de funcionamiento máxima	Temperatura de funcionamiento máxima	Temperatura de funcionamiento mínima
PT	Modelo	Tamanho da Porta BSPT NPT	Taxa de Fluxo	Dimensões	Peso	Parâmetros de Funcionamento	Grau do Filtro	Modelos do Filtro	Pressão Máx. de Funcionamento	Temperatura Máxima de Funcionamento	Temperatura Mínima de Funcionamento
T	Modello	Dimensioni collega-mento BSPT/NPT	Portata	Dimensioni	Peso	Parametri di esercizio	Grado di filtrazione	Filtri	Pressione di esercizio massima	Temperatura di esercizio massima	Temperatura di esercizio minima
PL	Model	Wielkość otworu BSPT/NPT	Prędkość przepływu	Wymiary	Ciężar	Parametry pracy	Klasa filtra	Typy filtrów	Maks. ciśnienie robocze	Maks. temperatura pracy	Min. temperatura pracy
SK	Model	BSPT/NPT Veľkosť portu	Prietoková rýchlosť Rate	Rozmery	Hmotnosť	Prevádzkové parametre	Trieda filtra	Typy filtrov	Max. prevádzkový tlak	Max. prevádzková teplota	Min. prevádzková teplota
CS	Model	Velikost závitu BSPT/NPT	Rychlost průtoku	Rozměry	Hmotnost	Provozní parametry	Klasifikace filtru	Modely filtru	Maximální provozní tlak	Maximální provozní teplota	Minimální provozní teplota
ET	Mudel	BSPT/NPT pordi suurus	Voolukulu	Mõõtmed	Kaal	Talitlusparameetrid	Filtratsioonieaste	Filtri mudelid	Maksimaalne töösurve	Maksimaalne töötemperatuur	Minimaalne töötemperatuur
HU	Tipus	BSPT/NPT Csőcsonk mérete	Áramlási sebesség	Méretek	Tömeg	Üzemi paraméterek	Szűrő fokozat	Szűrő típusa	Max. üzemi nyomás	Max. Üzemi hőmérséklet	Min. Üzemi hőmérséklet
LV	Modelis	BSPT/NPT porta lielums	Plūsmas ātrums	Izmēri	Svars	Darbības parametri	Filtru kategorija	Filtru modeļi	Maks. darbības spiediens	Maks. darbības temperatūra	Min. darbības temperatūra
LT	Modelis	BSPT/NPT Prievado dydis	Srauto tėkmgreitisės	Matmenys	Svoris	Darbiniai parametrai	Filtro klasė	Filtro modeliai	Maks. darbinis slėgis	Maks. darbinė temperatūra	Min. darbinė temperatūra
RU	Модель	Диаметр отверстия BSPT/NPT	Скорпотока	Габариты	Вес	Рабочие параметры	Качество фильтра	Модели фильтров	Макс. рабочее давление	Макс. рабочая температура	Мин. рабочая температура
SL	Model	Velikost vrat BSPT/NPT	Hitrost pretoka	Mere	Teža	Delovni parametri	Razred filtra	Modeli filtrov	Maks. delovni tlak	Maks. delovna temperatura	Min. delovna temperatura
TR	Model	BSPT/NPT Port Boyu	Akım Hızı	Boyutlar	Ağırlık	İşletim Parametreleri	Filtre Derecesi	Filtre Modelleri	Azami İşletme Basıncı	Azami İşletme Isısı	Asgari İşletme Isısı
MT	Mudell	Daqs tal-Port BSPT/NPT	Rata tal-Fluss	Dimensjonijiet	Piż	Parametri ta l-Operar	Grad tal-Filtru	Mudelli tal-Filtru	Pressjoni Massima ta' l-Operar	Temperatura Massima ta' l-Operar	Temperatura Minima ta' l-Operar
RO	Mode	Dimensiune port BSPT/NP	Debi	Dimensiun	Greutat	Parametri de funcţionar	Gradul filtrului	Modele de filtr	Presiune maxim, de funcţionar	Temperatur, maxim, de funcţionar	Temperatur, minim, de funcţionar

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• Speċifikazzjoni Teknika • **Specificaţie tehnică**

Model	Pipe Size	L/s	m³/min	m³/hr	cfm
005A	¼"	6	0.4	22	13
005B	⅜"	6	0.4	22	13
005C	½"	6	0.4	22	13
010A	¼"	10	0.6	36	21
010B	⅜"	10	0.6	36	21
010C	½"	10	0.6	36	21
015B	⅜"	20	1.2	72	42
015C	½"	20	1.2	72	42
020C	½"	30	1.8	108	64
020D	¾"	30	1.8	108	64
020E	1"	30	1.8	108	64
025D	¾"	60	3.6	216	127
025E	1"	60	3.6	216	127
030E	1"	110	6.6	396	233
030F	1¼"	110	6.6	396	233
030G	1½"	110	6.6	396	233
035F	1¼"	160	9.6	576	339
035G	1½"	160	9.6	576	339
040G	1½"	220	13.2	792	466
040H	2"	220	13.2	792	466
045H	2"	330	19.8	1188	699
050I	2½"	430	25.9	1548	911
050J	3"	430	25.9	1548	911
055I	2½"	620	37.3	2232	1314
055J	3"	620	37.3	2232	1314

BSPT / NPT

AA005A □ FX

- B = BSPT
- N = NPT

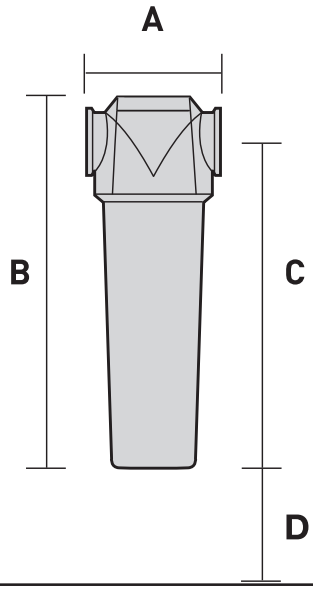
Filter Grade	Models	Max Operating Pressure		Max Recommended Operating Temperature		Min Recommended Operating Temperature	
		bar g	psi g				
AO	005□□F□-055□□F□	16	232	80ºC	176ºF	1.5ºC	35ºF
AO	005□□M□-055□□M□	20	290	100ºC	212ºF	1.5ºC	35ºF
AA	005□□F□-055□□F□	16	232	80ºC	176ºF	1.5ºC	35ºF
AA	005□□M□-055□□M□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

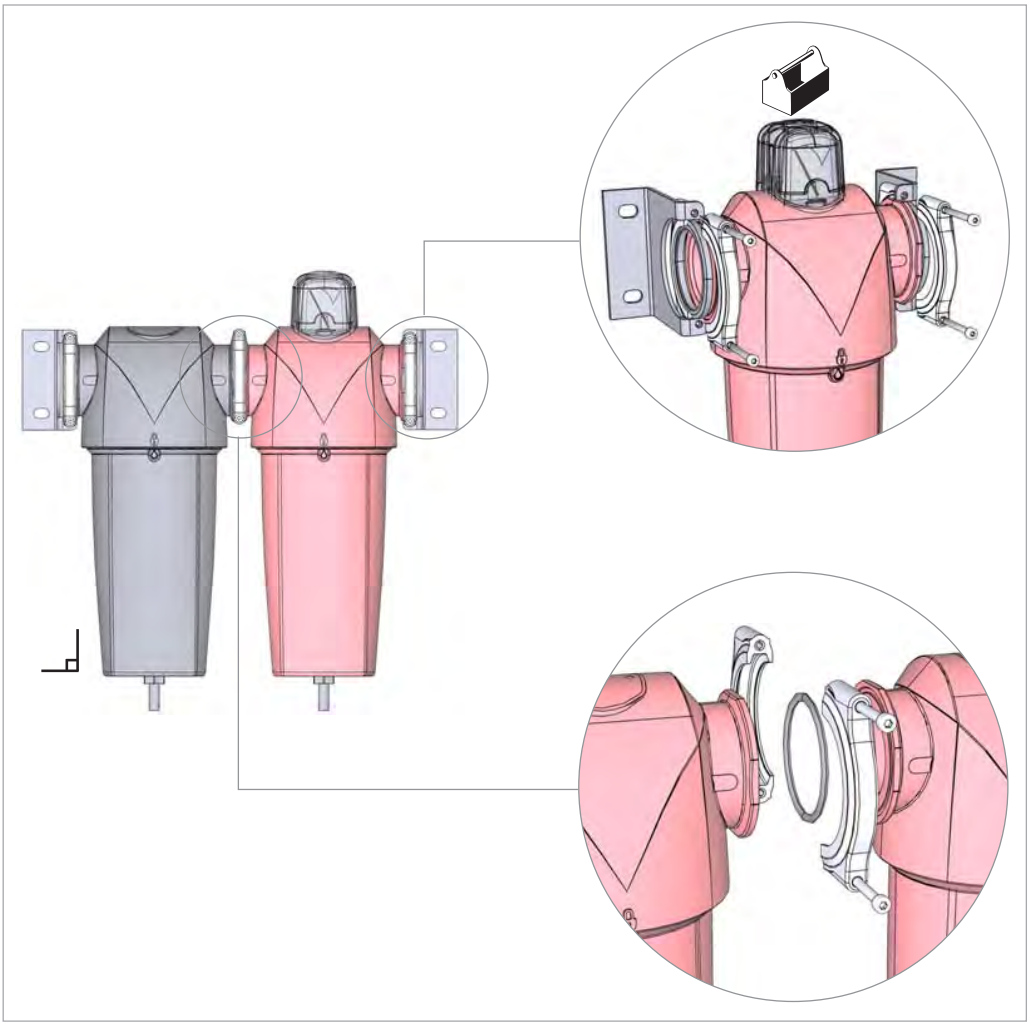
AO, AA, ACS, AR, AAR 005 - 055

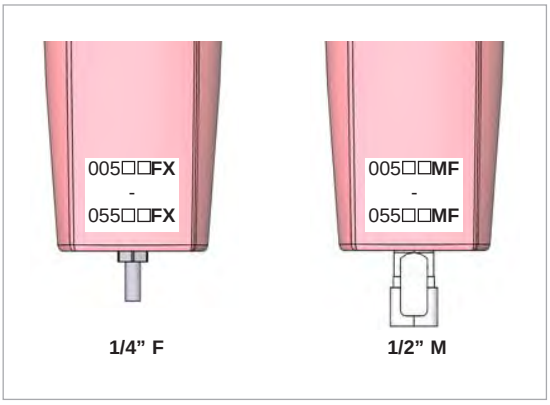
Weights and Dimensions

• Gewichten en afmetingen • Gewicht und Abmessungen • Poids et dimensions • Painot ja mitat • Vikter och mått • Vekt og dimensjone • Vægt og mål • VΨgt og mΪ • Pesos y dimensiones • Pesos e Dimensões • Pesi e dimensioni • Ciężary i wymiary • Hmotnosti a rozmery • Hmotnost arozměry • Kaalud ja mõõtmed • Tömeg és méretek • Svars un izmēri • Svoris ir matmenys • Вес игабариты • Teže in mere • Ağırlıklar ve Boyutlar • Pižijiet u Dimensjonijiet • **Greutăţi şi dimensiuni**

Model	Pipe Size	A		B		C		D		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
005A	¼"	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
005B	⅜	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
005C	½"	76	3	154.5	6.1	126.5	5	40	1.58	0.5	1.1
010A	¼"	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
010B	⅜	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
010C	½"	76	3	181.5	7.2	153	6	40	1.58	0.6	1.3
015B	⅜"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
015C	½"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020C	½"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020D	¾"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
020E	1"	97.5	3.8	235	9.3	201	7.9	50	1.97	1.1	2.4
025D	¾"	129	5.1	275	10.8	232.5	9.2	70	2.76	2.2	2.5
025E	1"	129	5.1	275	10.8	232.5	9.2	70	2.76	2.2	2.5
030E	1"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
030F	1¼"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
030G	1½"	129	5.1	364.5	14.3	322	12.7	70	2.76	2.7	2.9
035F	1¼"	170	6.7	432.5	17	382.5	15.1	100	3.94	5.1	11.2
035G	1½"	170	6.7	432.5	17	382.5	15.1	100	3.94	5.1	11.2
040G	1½"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
040H	2"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
045H	2"	170	6.7	524.5	20.6	474.5	18.7	100	3.94	7	12.5
050I	2½"	205	8.1	641.5	25.3	581.5	22.9	120	4.72	11.1	24.4
050J	3"	205	8.1	641.5	25.3	581.5	22.9	120	4.72	11.1	24.4
055I	2½"	205	8.1	832	32.8	772	30.4	120	4.72	13.9	30.6
055J	3"	205	8.1	832	32.8	772	30.4	120	4.72	13.9	30.6







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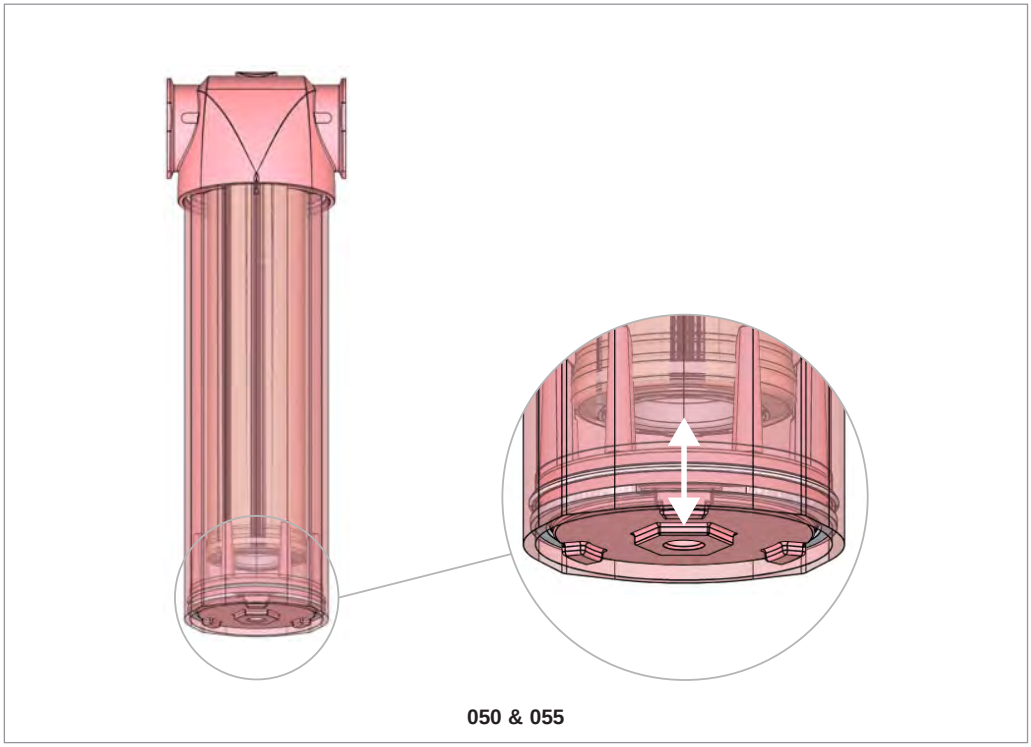
FILTER DH-OIL-X EVO AO AA 01-

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



050 & 055

EN The lower closure plate may move when the filter is not pressurised.

NL Het onderste sluitplaatje zou kunnen bewegen wanneer het filter niet onder druk staat.

DE Die untere Verschlussplatte kann sich bewegen, wenn der Filter nicht mit Druck beaufschlagt ist.

FR La plaque d'obturation la plus basse peut bouger si le filtre n'est pas pressurisé.

FI Alempi sulkulevy saattaa liikkua, kun suodatin ei ole paineistettu.

SV Den lägre slutningsplattan kan rubbas när filtret inte är trycksatt.

NO Den nedre trykkplaten kan bevege seg når filteret ikke er trykksatt.

DA Den nedre lukkeplade kan bevæge sig, når filtret ikke sættes under tryk.

EL Η κάτω πλάκα κλεισίματος μπορεί να μετακινηθεί εάν το φίλτρο δεν βρίσκεται υπό πίεση.

ES La placa inferior de cierre puede moverse si el filtro no está presurizado.

PT A placa de isolamento inferior pode deslocar-se se o filtro não estiver pressurizado.

IT Quando il filtro non è sotto pressione, la piastra di chiusura inferiore potrebbe spostarsi.

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

PL Pokrywa dolna może się przesuwać, gdy filtr nie będzie pod ciśnieniem.

SK Ak filter nie je natlakovaný, spodná uzatváracia platňa sa môže posunúť.

CS Spodní uzavírací deska se může pohybovat, pokud je filtr pod tlakem.

ET Alumine sulgurplaat võib liikuda, kui filter ei ole rõhu all.

HU Az alsó zárólemez elmozdulhat, ha a szűrő nincs nyomás alatt.

LV Apakšējā noslēgplāksne var kustēties, ja filtrs nav zem spiediena.

LT Jeigu filtre nėra slėgio, apatinė uždaromoji plokštė gali judėti.

RU Если фильтр не загерметизирован, возможно смещение нижней замыкающей пластины.

SL Spodnja plošča za zapiranje se lahko premika, ko filter ni pod pritiskom.

TR Filtreye basınç uygulanmadığında alt kapama levhası hareket edebilir.

MT L-aċċessorji għandhom ikunu mqabbdin ma' l-ert - art

RO Placa inferioară de acoperire se poate deplasa atunci când filtrul nu este presurizat

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

3. Startup and Operation

• **Starten en bediening** • Start und Betrieb • **Démarrage et exploitation** • Käynnistys ja toiminta • **Start och drift** • Oppstart og betjening • **Start og drift** • Έναρξη λειτουργίας και χειρισμός • **Puesta en marcha y funcionamiento** • Arranque e Operação • **Avvio e funzionamento** • Uruchomienie i eksploatacja • Spustenie a prevádzka • Spuštění a provoz • Käikulaskmine ja töötamine • Beindítás és üzemeltetés • Darbības uzsākšana un darbība • Paleidimas ir naudojimas • Запуск и эксплуатация • Zagon in uporaba • **Çalıştırma ve İşletme** • **Kif Tixghel u Kif Thaddem**

EN

1. Open inlet valve slowly to gradually pressurise the unit.

2. Open outlet valve slowly to re-pressurise the downstream piping

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

NL

1. Doe de inlaatklep langzaam open om het toestel geleidelijk onder druk te zetten.

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

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

DE

1. Einlassventil langsam öffnen, damit Einheit allmählich mit Druck beaufschlagt wird.

2. Auslassventil langsam öffnen, damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.

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

FR

1. Ouvrez lentement la soupape d'admission pour mettre progressivement l'unité sous pression.

2. Ouvrez lentement la soupape de refoulement pour faire remonter la pression des conduits en aval.

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

FI

1. Paineista yksikkö asteittain avaamalla tuloventtiili.

2. Paineista laskuputkisto uudelleen avaamalla lähtöventtiili hitaasti

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

SV

1. Öppna inloppsventilen långsamt så att enheten trycksätts gradvis.

2. Öppna utloppsventilen långsamt för att trycksätta rören nedströms på nytt.

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

NO

1. Åpne inntaksventilen langsomt for å sette enheten gradvis under trykk.

2. Åpne uttaksventilen langsomt for å sette nedstrømsrørene under trykk igjen.

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

DA

1. Åbn langsomt indgangsventilen for gradvist at sætte enheden under tryk.

2. Åbn langsomt udløbsventilen for at sætte rørene længere fremme under tryk igen.

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

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

EL

1. Ανοίξτε αργά τη βαλβίδα εισαγωγής για να ανέβει σταδιακά η πίεση της μονάδας.

2. Ανοίξτε αργά τη βαλβίδα εξαγωγής για να ανέβει η πίεση της σωλήνωσης κατάντι

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

ES

1. Abra lentamente la válvula de admisión para presurizar progresivamente la unidad.

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

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

PT

1. Abra lentamente a válvula de entrada para pressurizar gradualmente a unidade.

2. Abra lentamente a válvula de saída para pressurizar novamente a tubagem a jusante

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

IT

1. Aprire lentamente la valvola di mandata per aumentare gradualmente la pressione nell'unità.

2. Aprire lentamente la valvola di scarico per pressurizzare i tubi a valle

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

PL

1. Powoli otwórz zawór wlotowy, aby stopniowo zwiększyć ciśnienie w urządzeniu.

2. Powoli otwórz zawór wylotowy, aby zwiększyć ciśnienie w rurach w dół przepływu.

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

SK

1. Pre postupné natlakovanie jednotky pomaly otvorte prívodný ventil.

2. Pre opätovné natlakovanie potrubia v smere toku pomaly otvorte vývodný ventil.

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

CS

1. Pomalým otevřením přívodního ventilu jednotku pozvolna natlakujte.

2. Pomalým otevřením výstupního ventilu znovu natlakujte potrubí ve směru rozvodu.

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

ET

1. Üksuse järkjärguliseks survestamiseks avage sisselaskeventiil aeglaselt.

2. Surve taastamiseks väljavoolutorustikus avage väljalaskeventiil aeglaselt.

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

HU

1. Az egység fokozatosan történő nyomás alá helyezéséhez a bemenő szelepet lassan nyissa meg.

2. Az elmenő csővezeték nyomásának visszaállításához lassan nyissa meg az elmenő szelepet

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

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

LV

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

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

LT

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

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

RU

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

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

SL

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

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

TR

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

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

MT

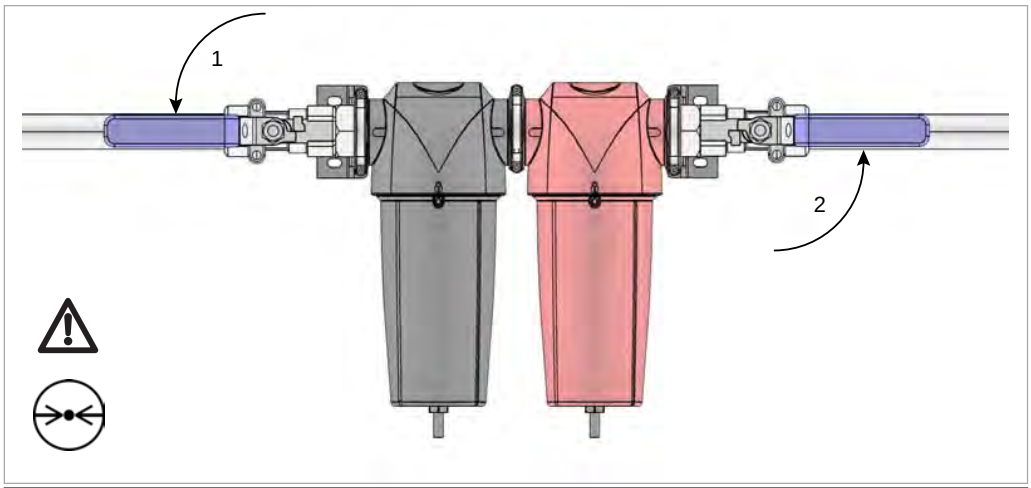
1. Iftaħ il-valv tad-dħul bil-mod, biex bil-mod tiżdied il-pressjoni fit-tagħmir.
2. Iftaħ il-valv tal-ħruġ bil-mod biex terġa' tibni l-pressjoni fil-pajps li jwasslu 'l isfel

Ara li ma tiftaħx il-valvs tad-dħul jew tal-ħruġ f'daqqa jew b'xi mod tikkawża differenza eċċessiva fil-pressjoni tat-tagħmir għax tista' tagħmel il-ħsara.

RO

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

Nu deschide¸i rapid supapele de admisie sau de evacuare ſi nu supune¸i aparatul la o diferen¸„ excesiv„ de presiune; Ón caz contrar, aparatul poate suferi deterior„ri



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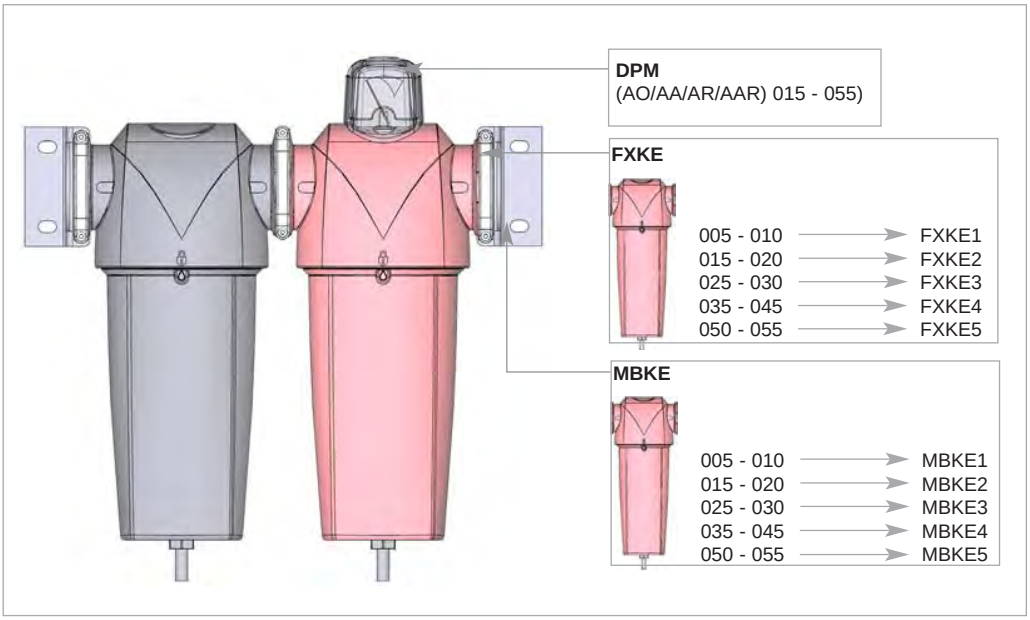
FILTER DH-OIL-X EVO AO AA 01-

4. Accessories

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



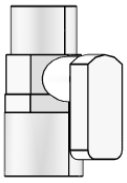
AO, AA, ACS, AR, AAR 005 - 055

5. Spare Parts (Service Kits)

• Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) **• Pièces de rechange (nécessaires d'entretien)** • Varaosat (Huoltopakkaukset) **• Reservdelar (servicesatser)** • Reservedeler (service-sett) **• Reservedele (Servicekit)** • Ανταλλακτικά (Πακέτα τεχνικής υποστήριξης) **• Piezas de repuesto (kits de mantenimiento)** • Peças Sobressalentes (Kit de Reparação) **• Ricambi (kit per l'assistenza)** • Części zamienne (zestawy serwisowe) • Náhradné diely (Servisná súprava) • Náhradní díly (Sady pro údržbu) • Varuosad (hooldekomplektid) • Pótalkatrészek (szervizkészletek) • Rezerves daļas (apkopes komplekti) • Atsarginės dalys (priežiros detalių komplektai) • Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) **• Yedek parça (Servis kitleri)** • Partijiet Ghat-Tibdil (Kitts tas-Servizz) **• Piese de schimb (Truse de service)**

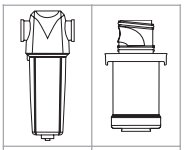
EF1

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

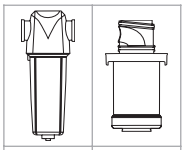


EM1

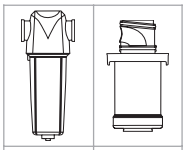
- **MANUAL DRAIN**
- **MANUELLER ABLAUF**
- **VIDANGE MANUELLE**
- **MANUEEL AFTAPPEN**
- **DRENAJE MANUAL**
- **SCARIO MANUALE**
- **MANUELT AFLØB**
- **DRENO MANUAL**
- ΧΕΙΡΟΚΙΝΗΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ
- **MANUELL DRÄNERING**
- **KÄSIKÄYTTÖINEN**
- **TYHJENNYSKAPPALE**
- DREN RĘCZNY
- RUČNÉ VYSUŠENIE
- RUČNÍ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



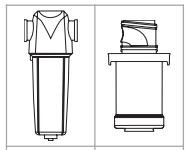
AO005A	005AO
AO005B	005AO
AO005C	005AO
AO010A	010AO
AO010B	010AO
AO010C	010AO
AO015B	015AO
AO015C	015AO
AO020C	020AO
AO020D	020AO
AO020E	020AO
AO025D	025AO
AO025E	025AO
AO030E	030AO
AO030F	030AO
AO030G	030AO
AO040G	040AO
AO040H	040AO
AO045H	045AO
AO050I	050AO
AO050J	050AO
AO055I	055AO
AO055J	055AO



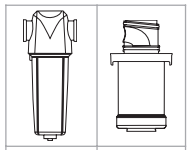
AA005A	005AA
AA005B	005AA
AA005C	005AA
AA010A	010AA
AA010B	010AA
AA010C	010AA
AA015B	015AA
AA015C	015AA
AA020C	020AA
AA020D	020AA
AA020E	020AA
AA025D	025AA
AA025E	025AA
AA030E	030AA
AA030F	030AA
AA030G	030AA
AA040G	040AA
AA040H	040AA
AA045H	045AA
AA050I	050AA
AA050J	050AA
AA055I	055AA
AA055J	055AA



ACS005A	005ACS
ACS005B	005ACS
ACS005C	005ACS
ACS010A	010ACS
ACS010B	010ACS
ACS010C	010ACS
ACS015B	015ACS
ACS015C	015ACS
ACS020C	020ACS
ACS020D	020ACS
ACS020E	020ACS
ACS025D	025ACS
ACS025E	025ACS
ACS030E	030ACS
ACS030F	030ACS
ACS030G	030ACS
ACS040G	040ACS
ACS040H	040ACS
ACS045H	045ACS
ACS050I	050ACS
ACS050J	050ACS
ACS055I	055ACS
ACS055J	055ACS



AR005A	005AR
AR005B	005AR
AR005C	005AR
AR010A	010AR
AR010B	010AR
AR010C	010AR
AR015B	015AR
AR015C	015AR
AR020C	020AR
AR020D	020AR
AR020E	020AR
AR025D	025AR
AR025E	025AR
AR030E	030AR
AR030F	030AR
AR030G	030AR
AR040G	040AR
AR040H	040AR
AR045H	045AR
AR050I	050AR
AR050J	050AR
AR055I	055AR
AR055J	055AR



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AAR005C	005AAR
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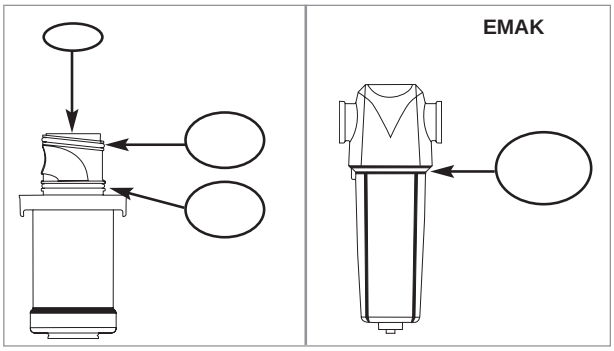
AAR010B	010AAR
AAR010C	010AAR
AAR015B	015AAAR
AAR015C	015AAR
AAR020C	020AAR
AAR020D	020AAR
AAR020E	020AAR
AAR025D	025AAR
AAR025E	025AAR
AAR030E	030AAR
AAR030F	030AAR
AAR030G	030AAR
AAR040G	040AAR
AAR040H	040AAR
AAR045H	045AAR
AAR050I	050AAR
AAR050J	050AAR
AAR055I	055AAR
AAR055J	055AAR

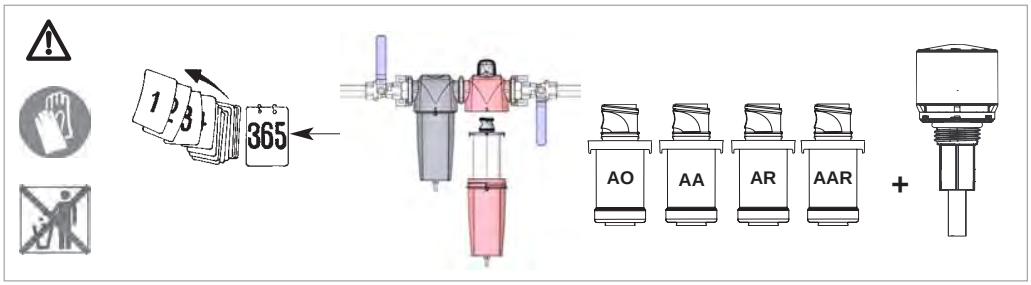
AO, AA, ACS, AR, AAR 005 - 055

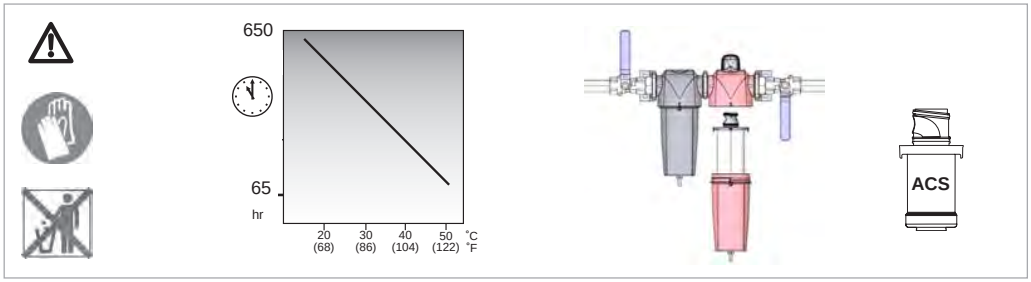
EMAK1	005 - 010
EMAK2	015 - 020
EMAK3	025 - 030
EMAK4	035 - 045
EMAK5	050 - 055

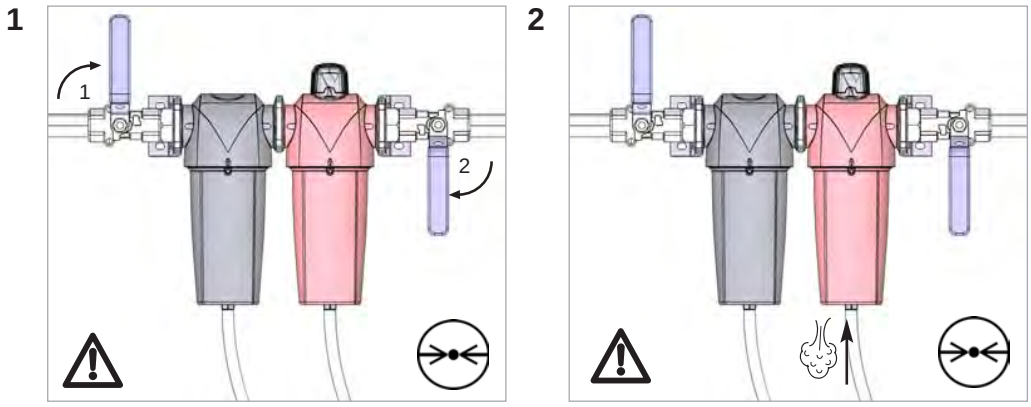


6. Maintenance

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

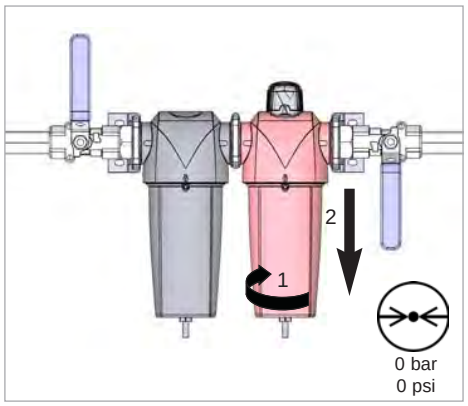






AO, AA, ACS, AR, AAR 005 - 055

3



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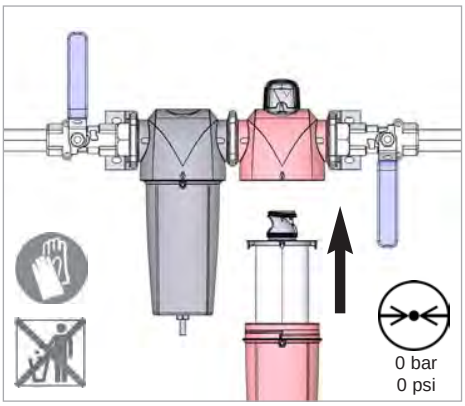

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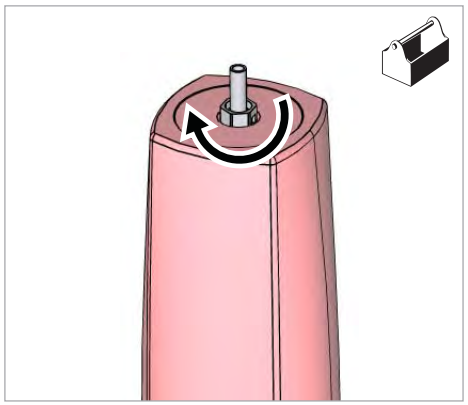

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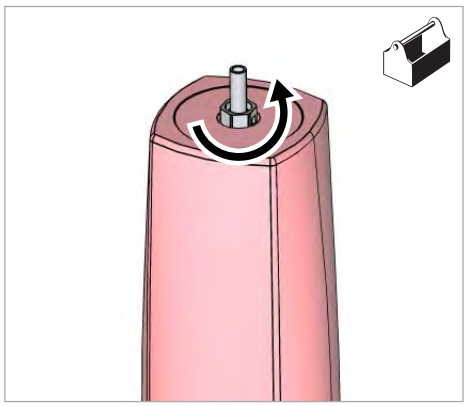

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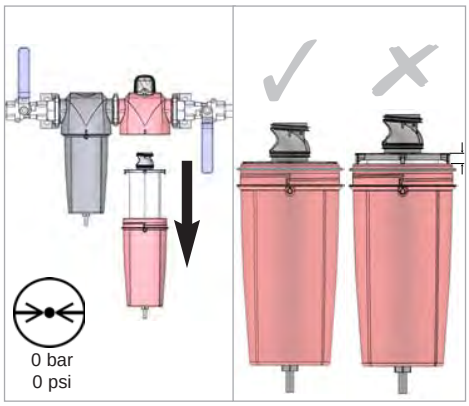

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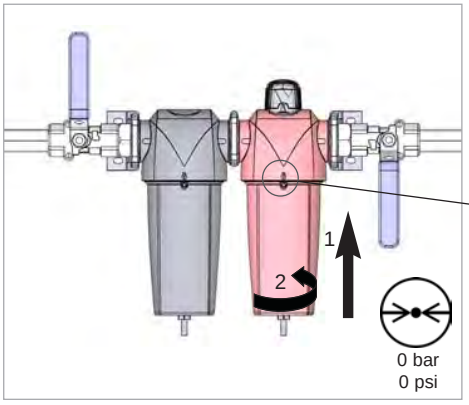

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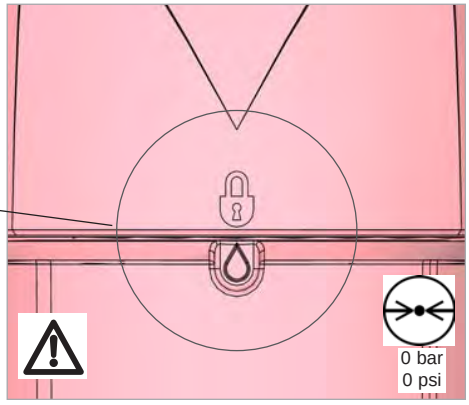

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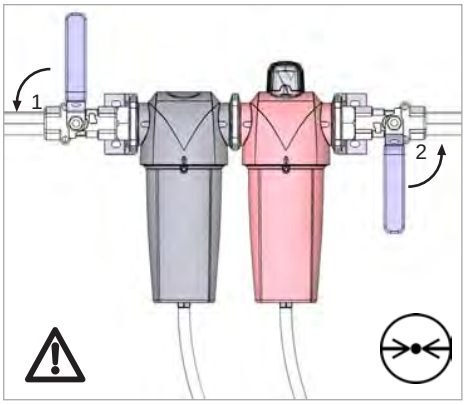

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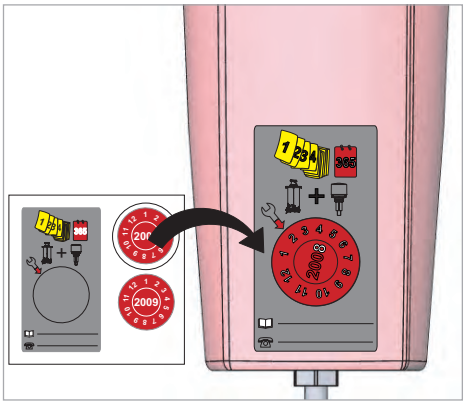
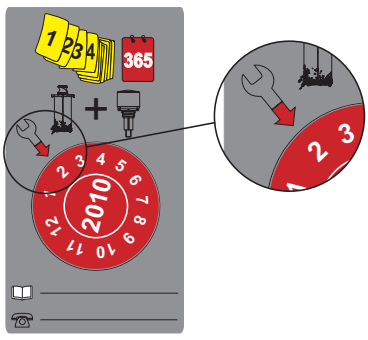




(EN) Align the arrow to the month and year of the next ervice
(NL) Breng de pijl op een lijn met de maand en het jaar van de volgende onderhoud beurt
(DE) Stellen Sie den Pfeil auf Monat und Jahr de näch ten Wartung termin Alignez la flèche ur
(FR) le moi et l'année de la prochaine révi ion
(FI) Kohdi ta nuoli euraavan huollon kuukauteen ja vuoteen
(SV) Rikta pilen mot månaden och året för nä ta ervice
(NO) Ju ter pilen til måneden og året for ne te ervice
(DA) Stil pilen på måned og år for næ te ervice
(EL) Ευθυγραμμίστε το βέλος με το μήνα και έτος του επόμενου σέρβις
(ES) Alinee la flecha con el me y año de la iguiente revi ión
(PT) Alinhe a eta com o mê e o ano da próxima intervenção técnica
(IT) Allineare la freccia in corri pondenza del me e e anno del pro imo intervento di a i tenza
(PL) Należy ustawić strzałkę na miesiąc i rok daty następnego serwisu
(SK) Šípku nasmerujte na mesiac a rok nasledujúcej opravy
(CS) Umístěte šipku na měsíc a rok příští prohlídky
(ET) Joondage nool järgmi e hooldu e kuu ja aa taga
(HU) Irányítsa a nyilat a következő szerviz hónapjára és évére
(LV) Irányítsa a nyilat a következő szerviz hónapjára és évére
(LT) Nustatykite rodyklę ties kitos techninės priežiūros mėnesiu ir metais
(RU) Совместите стрелку с месяцем и годом следующего обслуживания
(SL) Puščico nastavite na mesec in leto naslednjega servisa
(TR) Oku bir sonraki servis işleminin ay ve yılına hizalayın
(MT) Allinja l-vleġġa għax-xahar u s-sena tas-servis li jmiss
(RO) Aliniați săgeata în dreptul lunii și al anului următoarei vizite de service

ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ЭКОЛОГИЧЕСКОМУ, ТЕХНОЛОГИЧЕСКОМУ И АТОМНОМУ НАДЗОРУ

РАЗРЕШЕНИЕ № РРС 00-32481

На применение

Оборудование (техническое устройство, материал):
Оборудование, работающее под давлением, в соответствии с перечнем в приложении к настоящему разрешению.

Код ОКП (ТН ВЭД): Оборудование комплектное, коды ОКП (ТН ВЭД) в соответствии с технической документацией.

Изготовитель (поставщик): Фирма "Parker Hannifin Ltd. domnick hunter division" (Великобритания).

Основание выдачи разрешения: Техническая документация, заключение экспертизы промышленной безопасности ООО "ХАНК" № 419-840-2008 от 27.10.2008 г., сертификаты соответствия ОС ООО "ХАНК" № РОСС GB.ГС03.В00284 - №РОСС GB.ГС03.В00286 от 29.10.2008 г.

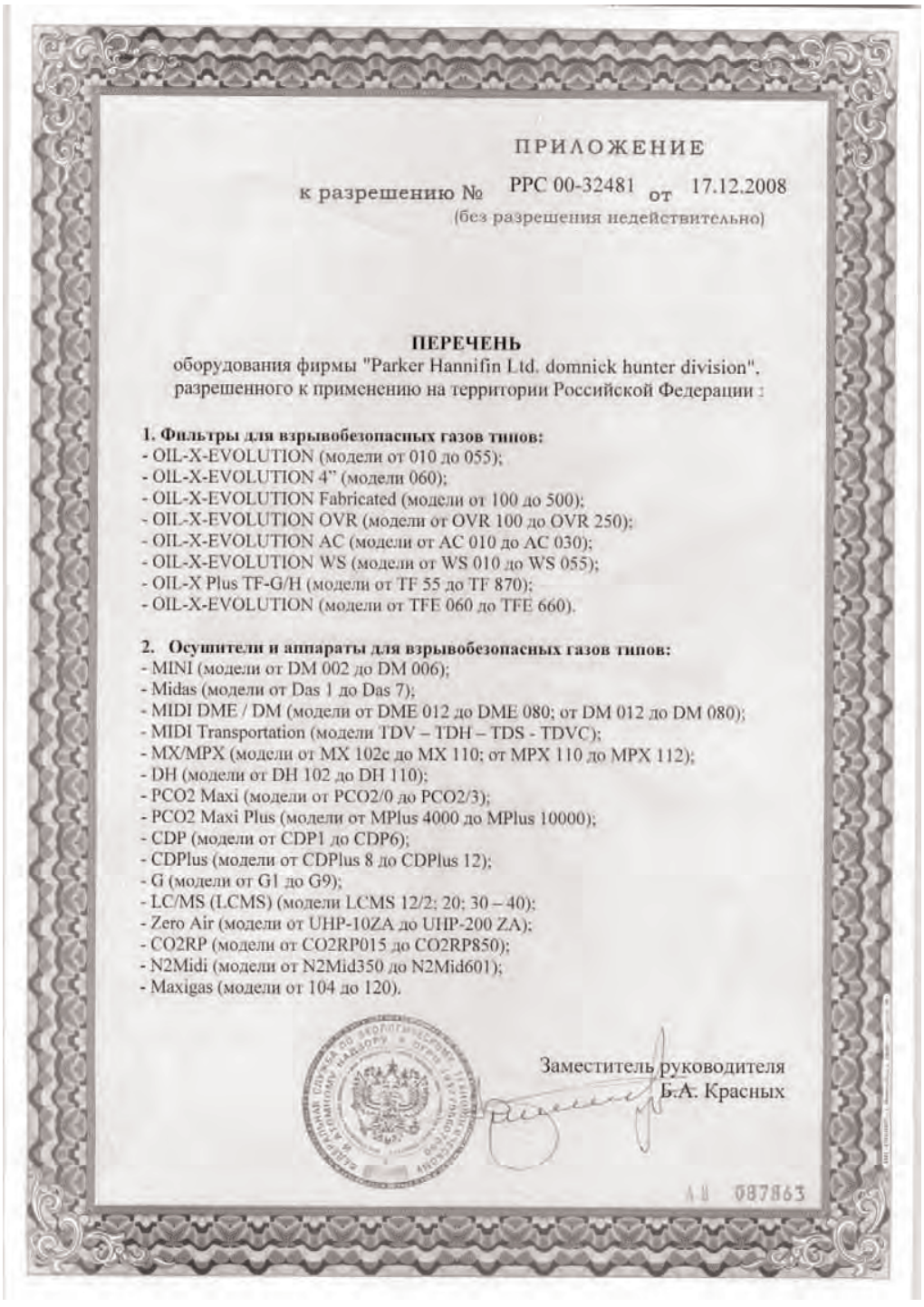
Условия применения:
1. Оформление технической документации на оборудование (паспортов, чертежей, инструкций по монтажу и эксплуатации) в соответствии с требованиями действующих в России правил промышленной безопасности на русском языке.
2. Осуществление монтажа, ввода в работу и эксплуатации оборудования в соответствии с требованиями "Правил устройства и безопасной эксплуатации сосудов, работающих под давлением".

Срок действия разрешения до 17.12.2013

Дата выдачи 17.12.2008

Заместитель руководителя
Б.А. Красных

АА 009261



ПРИЛОЖЕНИЕ

к разрешению № РРС 00-32481 от 17.12.2008

(без разрешения недействительно)

ПЕРЕЧЕНЬ

оборудования фирмы "Parker Hannifin Ltd. domnick hunter division", разрешенного к применению на территории Российской Федерации :

1. Фильтры для взрывобезопасных газов типов:
- OIL-X-EVOLUTION (модели от 010 до 055);
- OIL-X-EVOLUTION 4" (модели 060);
- OIL-X-EVOLUTION Fabricated (модели от 100 до 500);
- OIL-X-EVOLUTION OVR (модели от OVR 100 до OVR 250);
- OIL-X-EVOLUTION AC (модели от AC 010 до AC 030);
- OIL-X-EVOLUTION WS (модели от WS 010 до WS 055);
- OIL-X Plus TF-G/H (модели от TF 55 до TF 870);
- OIL-X-EVOLUTION (модели от TFE 060 до TFE 660).

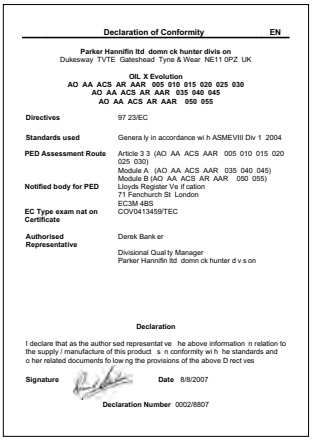
2. Осушители и аппараты для взрывобезопасных газов типов:
- MINI (модели от DM 002 до DM 006);
- Midas (модели от Das 1 до Das 7);
- MIDI DME / DM (модели от DME 012 до DME 080; от DM 012 до DM 080);
- MIDI Transportation (модели TDV – TDH – TDS - TDVC);
- MX/MPX (модели от MX 102e до MX 110; от MPX 110 до MPX 112);
- DH (модели от DH 102 до DH 110);
- PCO2 Maxi (модели от PCO2/0 до PCO2/3);
- PCO2 Maxi Plus (модели от MPlus 4000 до MPlus 10000);
- CDP (модели от CDP1 до CDP6);
- CDPlus (модели от CDPlus 8 до CDPlus 12);
- G (модели от G1 до G9);
- LC/MS (LCMS) (модели LCMS 12/2; 20; 30 – 40);
- Zero Air (модели от UHP-10ZA до UHP-200 ZA);
- CO2RP (модели от CO2RP015 до CO2RP850);
- N2Midi (модели от N2Mid350 до N2Mid601);
- Maxigas (модели от 104 до 120).

Заместитель руководителя
Б.А. Красных

АА 087863

FILTER DH-OIL-X EVO AO AA 01-

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



Declaration of Conformity **EN**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directives 97 23/EC

Standards used Genera ly in accordance wi h ASMEVIII Div 1 2004

PED Assessment Route Article 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Module A (AO AA ACS AAR 035 040 045)
Module B (AO AA ACS AR AAR 050 055)

Notified body for PED Lloyds Register Ve if cation
71 Fenchurch St London
EC3M 4BS

EC Type exam nat on Certificate COV0413459/TEC

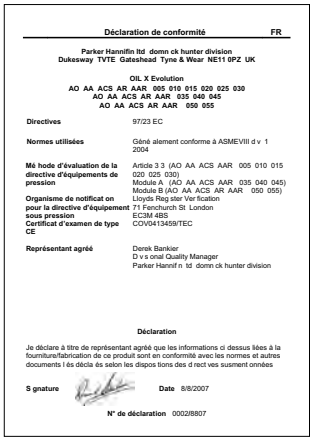
Authorised Representative Derek Bank er
Divisional Qual ty Manager
Parker Hannifin ltd domn ck hunter d v s on

Declaration

I declare that as the author sed representat ve he above information n relation to the supply / manufacture of this product s n conformity wi h he standards and o her related documents fo low ng the provisions of the above D rect ves

Signature **Date** 8/8/2007

Declaration Number 0002/8807



Déclaration de conformité **FR**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directives 97/23 EC

Normes utilisées Généˊ element conforme à ASMEVIII d v 1 2004

Mé hode d'évaluation de la directive d'équipements de pression Article 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Module A (AO AA ACS AAR 035 040 045)
Module B (AO AA ACS AR AAR 050 055)

Organisme de notificat on pour la directive d'équipement sous pression Lloyds Reg ster Ver fication
71 Fenchurch St London
EC3M 4BS

Certificat d'examen de type CE COV0413459/TEC

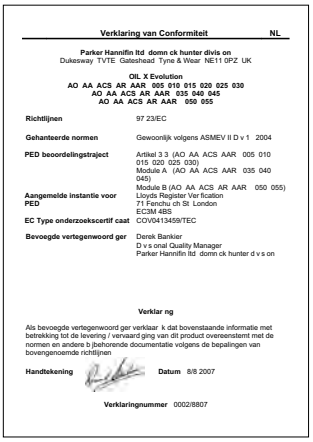
Représentant agréé Derek Bankier
D v s onal Quality Manager
Parker Hannif n td domn ck hunter division

Déclaration

Je déclare à titre de représentant agréé que les informations ci dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents l és décla és selon les dispos tions des d rect ves susment onnées

S gnature **Date** 8/8/2007

N° de déclaration 0002/8807



Verklaring van Conformiteit **NL**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Richtlijnen 97 23/EC

Gehanteerde normen Gewoonlijk volgens ASMEV II D v 1 2004

PED beoordelingstraject Artikel 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Module A (AO AA ACS AAR 035 040 045)
Module B (AO AA ACS AR AAR 050 055)

Aangemelde instantie voor PED Lloyds Register Ver fication
71 Fenchu ch St London
EC3M 4BS

EC Type onderzoeksertif caat COV0413459/TEC

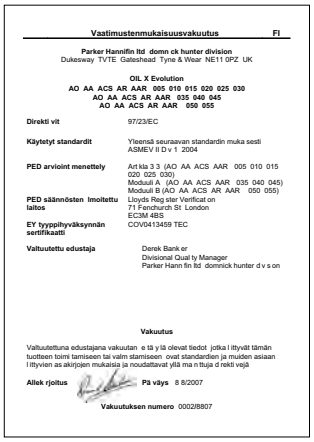
Bevoegde vertegenwoord ger Derek Bankier
D v s onal Quality Manager
Parker Hannifin ltd domn ck hunter d v s on

Verklar ng

Als bevoegde vertegenwoord ger verklaar k dat bovenstaande informatie met betrekking tot de levering / vervaard ging van dit product overeenstemt met de normen en andere b jbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen

Handtekening **Datum** 8/8 2007

Verklaringnummer 0002/8807



Vaatimustenmukaisuusvakuutus **FI**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direkti vit 97/23/EC

Käytetyt standardit Yleensä seuraavan standardin muka sesti ASMEV II D v 1 2004

PED arvioint menettely Art kla 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Moduuli A (AO AA ACS AAR 035 040 045)
Moduuli B (AO AA ACS AR AAR 050 055)

PED säännösten lmoitettu laitos Lloyds Reg ster Verificat on
71 Fenchurch St London
EC3M 4BS

EY tyyppihyväksynnän sertifikaatti COV0413459 TEC

Valtuutettu edustaja Derek Bank er
Divisional Qual ty Manager
Parker Hann fin ltd domnick hunter d v s on

Vakuutus

Valtuutettuna edustajana vakuutan e tä y lä olevat tiedot jotka l ittyvät tämän tuotteen toimi tamiseen tai valm stamiseen ovat standardien ja muiden asiaan l ittyvien as akirjojen mukaisia ja noudattavat ylä ma n ttuja d rekti vejä

Allek rjoitus **Pä väys** 8 8/2007

Vakuutuksen numero 0002/8807

Konformitätserk ärung **DE**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Richtlinien 97/23/EC

Angewandte Normen Allgemein in Übere nst mmung m t ASMEVIII Div 1 2004

Beurteilungsroute der Druckgeräter chtlinie Artkel 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Modul A (AO AA ACS AAR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)

Benannte Stelle für die Druckgeräter chtlinie Lloyds Reg ster Verificat on
71 Fenchurch St London
EC3M 4BS

EG Baumusterprüfbesche nigung COV0413459 TEC

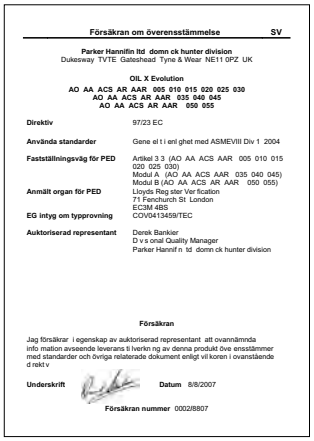
Bevollmächtigter Vertreter Derek Bank er
Divisional Qual ty Manager
Parker Hann fin ltd domnick hunter d v s on

Erklärung

Hiermit erklä e ch als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herste lung d eses Produkts mit den Normen und ande en zugehörigen Dokumenten gemäß den Best mmungen der oben genannten R chtlin en

Unterschrift **Datum** 8 8/2007

Nummer der Erklärung 0002 8807



Försäkran om överensstämmelse **SV**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktiv 97/23 EC

Använda standarder Gene el l i enl ghet med ASMEVIII Div 1 2004

Fastställningsväg för PED Artikel 3 3 (AO AA ACS AAR 005 010 015 020 025 030)
Modul A (AO AA ACS AAR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)

Anmält organ för PED Lloyds Reg ster Ver fication
71 Fenchurch St London
EC3M 4BS

EG intyg om typprovning COV0413459/TEC

Auktoriserad representant Derek Bankier
D v s onal Quality Manager
Parker Hannif n td domn ck hunter division

Försäkran

Jag försäkrar i egenskap av auktoriserad representant att ovannämnda info mation avseende leverans fi tverkn ng av denna produkt öve ensstämmer med standarder och övriga relaterade dokument enligt vil koren i ovanstående d rekt v

Underskrift **Datum** 8/8/2007

Försäkran nummer 0002/8807

FILTER DH-OIL-X EVO AO AA 01-

KAESER KOMPRESSOREN

8 Annex

8.4 Operator manual for compressed air filter combination

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

Konformitetserk ær ng **NO**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktiver	97 23/EC
Benyttede standarder	Hovedsakelig i samsvar med ASMEVIII d v 1 2004
Rute for vurdering av PED (d rekt vet for trykkpålagt utstyr)	Paragraf 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Underrettet organ for PED	Lloyds Register Ver fication 71 Fenchu ch St London EC3M 4BS
EC typegodkjenn ngssertifikat	COV0413459/TEC
Autorisert representant	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter d v s on

Erklæring

Jeg erklærer som autor sert representant at nformasjonen ovenfor med hensyn til levering/produksjon av dette produktet er i overensstemmelse med standardene og and e relaterte dokumenter følge bestemmelsene i direkt vene ovenfor

Signatur **Dato** 8/8/2007

Erklæring nr 0002/8807

Declaración de conformidad **ES**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directivas	97 23 EC
Normas ut lizadas	Generalmente de conform dad con ASMEVIII Div 1 2004
Ruta de evaluación de la normativa PED	Artículo 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Módulo A (AO AA ACS AAR 035 040 045) Módulo B (AO AA ACS AR AAR 050 055)
Organismo not ficado para la normativa PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS
Cert ficado de examen CE de t po	COV0413459/TEC
Representante autorizado	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter division

Declarac ón

Como representante autorizado declaro que la información anter ormente expuesta en relac ón con el sum n stro y/o fabr cac ón de este p oducto cumple las normativas ndicadas y otros documentos afines según las disposiciones de las Direct vas c tadas anteriormente

Firma **Fecha** 8 8/2007

Número de declaración 0002/8807

Overensstemmelseserklæring **DA**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktiver	97/23 EC
Anvendte standarder	Generelt i overensstemmelse med ASMEVIII div 1 2004
Forløb for PED bedømmelse	Artikel 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Not ficeret organ for PED	Lloyds Reg ster Ver fication 71 Fenchurch St London EC3M 4BS
EF typeafprevningsattest	COV0413459/TEC
Autoriseret repræsentant	Derek Bankier D v s onal Quality Manager Parker Hannif n td domn ck hunter division

Erklæring

Jeg erklærer hermed som autor seret repræsentant at ovennævnte oplysninger ved anende levering/produkt on af dette produkt er i overensstemmelse med de anførte standarder og øvrige tilknyttede dokumenter i henhold t l bestemmelserne i ovenstående d rekt ver

Underskrift **Dato** 8/8/2007

Erklær ngsnummer 0002/8807

Declaração de Conformidade **PT**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directivas	97/23/EC
Padrões utilizados	De forma geral em concordânc a com ASMEV II D v 1 2004
Percurso de Aval ação do PED	Artigo 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Módulo A (AO AA ACS AAR 035 040 045) Módulo B (AO AA ACS AR AAR 050 055)
Not ficado para o PED	Lloyds Reg ster Ver fica t on 71 Fenchurch St London EC3M 4BS
Cert ficado de Inspecção Tipo CE	COV0413459 TEC
Revendedor Autorizado	Derek Bankier D v s onal Quality Manager Parker Hannif n td domnick hunter division

Declaração

Declaro na qualidade de representante auto izado que as nformações acima contidas referentes ao fornec mento / fabrico deste produto estão em conformidade com as normas e outros documentos relac onados de acordo com as dispos ções das Directivas anteriores

Assinatura **Data** 8/8/2007

Número da Declaração 0002/8807

Δήλωση συμμόρφωσης **EL**

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Οδηγίες	97 23/EC
Πρότυπα που χρησιμοποιήθηκαν	Γεν κά ος συμφων α με το ASMEVIII Div 1 2004
Δ αδρομή αξιολόγησης για κανον σμούς PED	Αρθρο 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Ενότητα Α (AO AA ACS AAR 035 040 045) Ενότητα Β (AO AA ACS AR AAR 050 055)
Ενήμερος οργανισμός για κανον σμούς PED	Lloyds Register Ver f cation 71 Fenchurch St London EC3M 4BS
Π στοποιητ κό εξέτασης τύπου ΕΚ	COV0413459/TEC
Εξουσιοδοτημένος αντ πρόσωπος	Derek Bankier Divisional Qual ty Manager Parker Hannifin ltd domn ck hunter divis on

Δήλωση

Δηλώνω ως ο εξουσιοδοτημένος αντ πρόσωπος ότι οι παραπάνω πληροφορ ες σε σχέση με τη δ άθεση / κατασκευή αυτού του προ όντος συμμορφώνονται ως προς τα πρότυπα και ως προς τα άλλα σχετ κά έγγραφα που συνοδεύουν τ ς δ ατάξεις των πιο πάνω οδη ών

Υπογραφή **Ημερομηνία** 8/8 2007

Αριθμός δήλωσης 0002/8807

Dichiarazione di conformità **IT**

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direttive	97 23 EC
Norme util zzate	Generalmente confo me a ASMEVIII Div 1 2004
Procedura di valutazione PED	Articolo 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Moduli B (AO AA ACS AR AAR 050 055)
Organismo accreditato per PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS
Attestato di certif cazione tipo CE	COV0413459/TEC
Rappresentante autor zzato	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter division

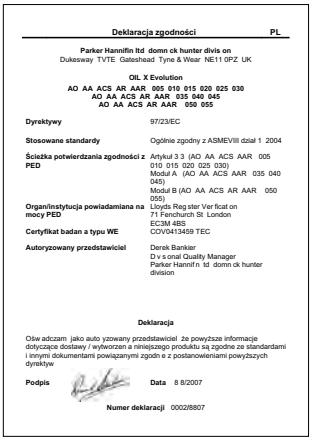
Dichiarazione

In qualità di rappresentante auto izzato dichiaro che le informaz oni di cui sopra in mer to alla fornitura fabbr caz one del prodotto n oggetto sono conformi alle norme ndicate e a qualsiasi a tro documento correlati a la fom tura basato su quanto prescri to dalle dire tive menzionate

Firma **Data** 8 8/2007

Dichiarazione numero 0002/8807

FILTER DH-OIL-X EVO AO AA 01-



Deklaracja zgodności PL

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Dyrektywy	97/23/EC
Stosowane standardy	Ogólnie zgodny z ASMEVIII dział 1 2004
Ścieżka potwierdzania zgodności z PED	Artykul 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Organ/instytucja powiadamiana na mocy PED	Lloyds Reg ster Ver fication 71 Fenchurch St London EC3M 4BS
Certyfikat badan a typu WE	COV0413459 TEC
Autoryzowany przedstawiciel	Derek Bankier D v s onal Quality Manager Parker Hannif n ltd domn ck hunter division

Deklaracja

Ośw adczam jako auto yzowany przedstawiciel że powyższe informacje dotyczące dostawy / wytworzen a niniejszego produktu są zgodne ze standardami i innymi dokumentami powiązanymi zgodn e z postanowieniami powyższych dyrektyw

Podpis **Data** 8 8/2007

Numer deklaracji 0002/8807

Vastavusdeklaratsioon ET

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

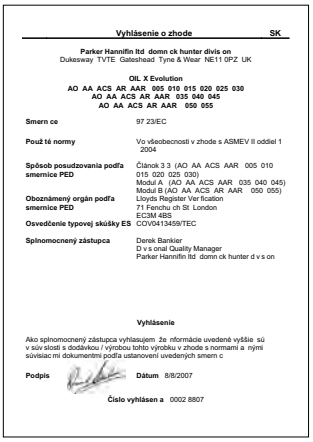
Direkti vid	97/23 EC
Kasutatud standardid	Üld selt vastavuses standard ga ASMEVI I D v 1 2004
PED vastavushinnangu jaotus	A tikkel 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Moodul A (AO AA ACS AAR 035 040 045) Moodul B (AO AA ACS AR AAR 050 055)
PEDist (surveseadmete direktiivist) teav tatud asutus	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS
EÜ tüübih ndamistõend	COV0413459/TEC
Volitatud es ndaja	Derek Bankier D v s onal Quality Manager Parker Hannif n ltd domn ck hunter division

Deklaratsioon

Volitatud esindajana kinn tan et üla toodud teave seoses antud toote tarn m se/tootmisega on vastavuses standardite ja muude seotud dokumentidega vastava l üla toodud d rektiiv de sätetele

Allkiri **Kuupäev** 8 8/2007

Deklaratsiooni number 0002/8807



Vyhlásenie o zhode SK

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

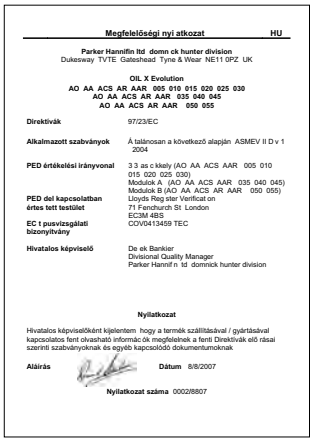
Smern ce	97 23/EC
Použ té normy	Vo všeobecnosti v zhode s ASMEV II oddiel 1 2004
Spôsob posudzovania podľa smernice PED	Článok 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Oboznámený orgán podľa smernice PED	Lloyds Register Ver fication 71 Fenchu ch St London EC3M 4BS
Osvedčenie typovej skúšky ES	COV0413459/TEC
Splnomocnený zástupca	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter d v s on

Vyhlásenie

Ako splnomocnený zástupca vyhlasujem že nformácie uvedené vyššie sú v súv slosti s dodávkou / výrobou tohto výrobku v zhode s normami a nými súvisiac mi dokumentmi podľa ustanovení uvedených smern c

Podpis **Dátum** 8/8/2007

Číslo vyhlásen a 0002 8807



Megfelelőségi nyi atkozat HU

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

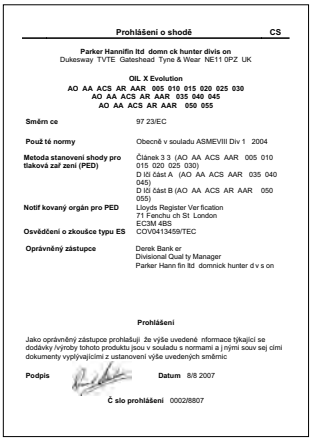
Direktivák	97/23/EC
Alkalmazott szabványok	Á talánosan a következő alapján ASMEV II D v 1 2004
PED értékelési irányvonal	3 3 as c kkely (AO AA ACS AAR 005 010 015 020 025 030) Modulok A (AO AA ACS AAR 035 040 045) Modulok B (AO AA ACS AR AAR 050 055)
PED del kapcsolatban értes tett testület	Lloyds Reg ster Verificat on 71 Fenchurch St London EC3M 4BS
EC t pusvizsgálati bizonylitvány	COV0413459 TEC
Hivatalos képviselő	De ek Bankier Divisional Quality Manager Parker Hannif n td domnick hunter division

Nyilatkozat

Hivatalos képviselőként kijelentem hogy a termék szállításával / gyártásával kapcsolatos fent olvasható informác ók megfelelnek a fenti Direktivák elő rásai szerinti szabványoknak és egyéb kapcsolódó dokumentumoknak

Aláírás **Dátum** 8/8/2007

Nyilatkozat száma 0002/8807



Prohlášení o shodě CS

Parker Hannifin ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

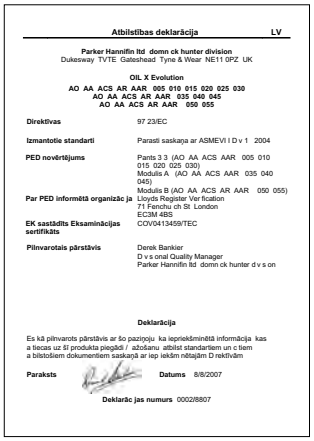
Směrn ce	97 23/EC
Použ té normy	Obecně v souladu ASMEVIII Div 1 2004
Metoda stanovení shody pro tlaková zař zení (PED)	Článek 3 3 (AO AA ACS AAR 005 010 015 020 025 030) D lčí část A (AO AA ACS AAR 035 040 045) D lčí část B (AO AA ACS AR AAR 050 055)
Notif kovaný orgán pro PED	Lloyds Register Ver fication 71 Fenchu ch St London EC3M 4BS
Osvědčení o zkoušce typu ES	COV0413459/TEC
Oprávněný zástupce	Derek Bank er Divisional Qual ty Manager Parker Hann fin ltd domnick hunter d v s on

Prohlášení

Jako oprávněný zástupce prohlašuji že výše uvedené nformace týkající se dodávky /výroby tohoto produktu jsou v souladu s normami a j nými souv sej cími dokumenty vyplývajícími z ustanovení výše uvedených směrnic

Podpis **Datum** 8/8 2007

Č slo prohlášení 0002/8807



Atbilstības deklarācija LV

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktīvas	97 23/EC
Izmantotie standarti	Parasti saskaņa ar ASMEVI I D v 1 2004
PED novērtājums	Pants 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Moduls A (AO AA ACS AAR 035 040 045) Moduls B (AO AA ACS AR AAR 050 055)
Par PED informētā organizāc ja	Lloyds Register Ver fication 71 Fenchu ch St London EC3M 4BS
EK sastādīts Eksaminācijas sertifikāts	COV0413459/TEC
Pilnvarotais pārstāvis	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter d v s on

Deklarācija

Es kā pilnvarots pārstāvis ar šo paziņoju ka iepriekšminētā informācija kas a tiecas uz šī produkta piegādi / ražošanu atbilst standartiem un c tiem a bīstošiem dokumentiem saskaņā ar iep iekšm nētajām D rektīvām

Paraksts **Datums** 8/8/2007

Deklarāc jas numurs 0002/8807

Atitikties deklaracija LT

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktyvos	97 23/EC
Naudoti standartai	Atitinka bendrąsias ASMEVIII Div 1 : 2004 nuostatas
PED įvertinimo pakopa:	3 3 stra psn s (AO AA ACS AAR 005 010 015 020 025 030) Modulis A (AO AA ACS AAR 035 040 045) Modulis B (AO AA ACS AR AAR 050 055)
PED notifikuotoji institucija	Lloyds Register Ver fication 71 Fenchu ch St London EC3M 4BS
EB t po testavimo sertifikatas	COV0413459/TEC
Įgaliotasis atstovas	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter d v s on

Deklaracija

Aš, įgaliotasis atstovas, patvirtinu, kad aukščiau pateikta gaminio tiekimo/pagaminimo informacija atitinka aukščiau nurodytus standartus ir kitą su nurodytų direktyvų nuostatomis susijusią dokumentaciją.

Parašas **Data** 8 8/2007

Deklaracijos numeris 0002 8807

Uyum Beyanı TR

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

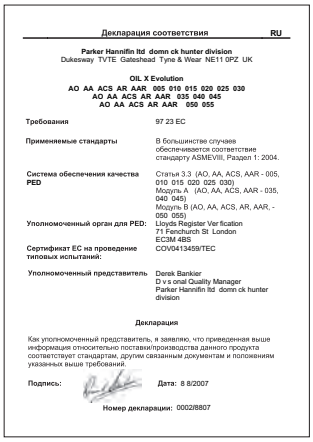
Direktifler	97/23 EC
Kullanılan standartlar	Genelde ASMEV II D v 1 2004'e uygun
PED (Basınçlı Ekipman Direktifi) Değerlendirmesi Yolu	Madde 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modül A (AO AA ACS AAR 035 040 045) Modül B (AO AA ACS AR AAR 050 055)
PED için bild rimde bulunulan kuruluş:	Lloyds Reg ster Ver fication 71 Fenchurch St London EC3M 4BS
AT Tip İncelemesi Sertifikası:	COV0413459/TEC
Yetkili Temsilci	Derek Bankier D v s onal Quality Manager Parker Hannifin td domn ck hunter division

Beyan

Yetkili temsilci olarak beyan ederim ki bu ürünün teminine / üretimine ilişkin olarak yukarıda verilen bilgiler yukarıda anılan Direktiflerin hükümlerine uyan standartlara ve ilgili başka belgelere uygundur.

İmza: **Tarih:** 8/8 2007

Beyan No 0002/8807



Декларация соответствия RU

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

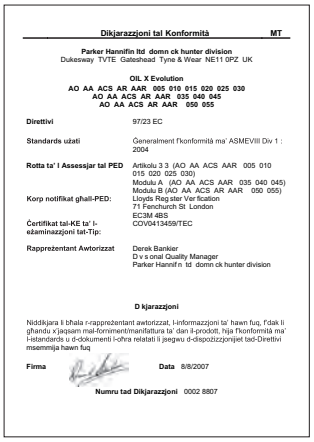
Требования	97 23 EC
Применяемые стандарты	В большинстве случаев обеспечивается соответствие стандарту ASMEVIII, Раздел 1: 2004.
Система обеспечения качества PED	Статья 3.3 (AO, AA, ACS, AAR - 005, 010 015 020 025 030) Модуль A (AO, AA, ACS, AAR - 035, 040 045) Модуль B (AO, AA, ACS, AR, AAR, - 050 055)
Уполномоченный орган для PED:	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS
Сертификат ЕС на проведение типовых испытаний:	COV0413459/TEC
Уполномоченный представитель	Derek Bankier D v s onal Quality Manager Parker Hannifin ltd domn ck hunter division

Декларация

Как уполномоченный представитель, я заявляю, что приведенная выше информация относительно поставки/производства данного продукта соответствует стандартам, другим связанным документам и положениям указанных выше требований.

Подпись: **Дата:** 8 8/2007

Номер декларации: 0002/8807



Dikjarazzjoni tal Konformità MT

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direttivi	97/23 EC
Standards użati	Generalment f'konformità ma' ASMEVIII Div 1 : 2004
Rotta ta' l Assessjar tal PED	Artikolu 3 3 (AO AA ACS AAR 005 010 015 020 025 030) Modulu A (AO AA ACS AAR 035 040 045) Modulu B (AO AA ACS AR AAR 050 055)
Korp notifikat għall-PED:	Lloyds Reg ster Ver fication 71 Fenchurch St London EC3M 4BS
Ċertifikat tal-KE ta' l-eżaminazzjoni tat-Tip:	COV0413459/TEC
Rappreżentant Awtorizzat	Derek Bankier D v s onal Quality Manager Parker Hannifin td domn ck hunter division

D kjarazzjoni

Niddikjara li bħala r-rappreżentant awtorizzat, l-informazzjoni ta' hawn fuq, f'dak li għandu x'jaqsam mal-formiment/manifattura ta' dan il-prodott, hija f'konformità ma' l-istandards u d-dokumenti l-oħra relatati li jirreġu d-dispożizzjonijiet taċ-Direttivi msemmija hawn fuq

Firma **Data** 8/8/2007

Numru tad Dikjarazzjoni 0002 8807

Izjava o skladnosti SL

Parker Hannifin ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

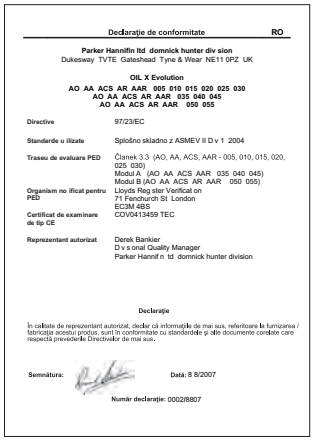
Direktive	97/23 EC
Uporabljeni standardi	Splošno skladno z ASMEVIII Div 1 2004
Ocenjevalna pot PED	Članek 3.3 (AO, AA, ACS, AAR - 005, 010, 015, 020, 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Priglašeni organ za PED	Lloyds Register Ver fication 71 Fenchurch St London EC3M 4BS
Cert fikat o tipskem pregledu ES	COV0413459/TEC
Pooblaščeni zastopnik	Derek Bankier D v s onal Quality Manager Parker Hannif n ltd domn ck hunter division

Izjava

Kot pooblaščeni zastopnik izjavljam, da so zgornji podatki glede dobavljeno zvodnje tega zdelka skladni s standardi n ostalimi sorodnimi dokumenti, ki sledijo določbam zgornjih direktiv.

Podpis **Datum** 8/8 2007

Štev lka izjave 0002/8807



Declarație de conformitate RO

Parker Hannifin ltd domnick hunter div sion
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directive	97/23/EC
Standarde u tilizate	Splošno skladno z ASMEV II D v 1 2004
Traseu de evaluare PED	Članek 3.3 (AO, AA, ACS, AAR - 005, 010, 015, 020, 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055)
Organism no ificat pentru PED	Lloyds Reg ster Verificat on 71 Fenchurch St London EC3M 4BS
Certificat de examinare de tip CE	COV0413459 TEC
Reprezentant autorizat	Derek Bankier D v s onal Quality Manager Parker Hannif n td domnick hunter division

Declarație

În calitate de reprezentant autorizat, declar că informațiile de mai sus, referitoare la furnizarea / fabricația acestui produs, sunt în conformitate cu standardele și alte documente conexe care respectă prevederile Directivelor de mai sus.

Semnătura: **Data:** 8 8/2007

Număr declarație: 0002/8807