

Operator manual



Portable compressor

M 64

No.: 9_5898 26 E

RAMIRENT

Manufacturer:

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RAMIRENT

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1	Regarding this document	
1.1	Using this document	1
1.2	Further documents	1
1.3	Copyright	1
1.4	Symbols and labels	1
1.4.1	Warnings	1
1.4.2	Potential damage warnings	2
1.4.3	Other alerts and their symbols	2
2	Technical Specifications	
2.1	Nameplate	4
2.2	Options – options label	4
2.2.1	Compressed air treatment devices	5
2.2.2	Tool lubricator	5
2.2.3	Compressed air distributor	5
2.2.4	Low temperature equipment	6
2.2.5	Equipment for fire hazard areas	6
2.2.6	Battery isolating switch	6
2.2.7	Chassis	6
2.2.8	Lighting	7
2.2.9	Generator	7
2.2.10	Hose reels	8
2.2.11	Anti-theft device	8
2.2.12	Pedestrian protection	8
2.2.13	Instrument panel cover	8
2.2.14	Diesel particulate filter	8
2.3	Machine (without options)	9
2.3.1	Noise emission	9
2.3.2	Tightening torques for screws	9
2.3.3	Ambient conditions	9
2.3.4	Additional specifications according to the machine's operating licence	9
2.4	Chassis	10
2.4.1	Chassis options	10
2.5	Machines with stationary frame design	10
2.5.1	Mass of machines with stationary frame design	10
2.6	Compressor	10
2.6.1	Working pressure and FAD	10
2.6.2	Compressed air outlet	11
2.6.3	Pressure relief valves	11
2.6.4	Temperature	11
2.6.5	Cooling oil recommendation	11
2.6.6	Cooling oil charge	13
2.7	Engine	13
2.7.1	Engine specification	13
2.7.2	Oil recommendation	13
2.7.3	Fuel recommendation	14
2.7.4	Engine coolant recommendation	14
2.7.5	Fluid volumes	15
2.7.6	Battery	15
2.8	Options	15
2.8.1	Air treatment options	15
2.8.2	Low temperature equipment	16
2.8.3	Diesel particulate filter	17
2.8.4	Generator (50 Hz version)	17
2.8.5	Generator (60 Hz version)	20

3	Safety and Responsibility	
3.1	Basic instructions	23
3.2	Specified use	23
3.3	Incorrect Use	23
3.4	User's responsibilities	23
3.4.1	Observe statutory and universally accepted regulations	23
3.4.2	Determining personnel	24
3.4.3	Keeping to Inspection Schedules and Accident Prevention Regulations	24
3.4.4	Complying with inspection intervals for diesel particulate filters	25
3.4.5	Attachment of a "Hazardous goods" label	25
3.5	Dangers	26
3.5.1	Safely dealing with sources of danger	26
3.5.2	Safe machine operation	29
3.5.3	Organisational Measures	32
3.5.4	Danger areas	32
3.6	Safety devices	33
3.7	Safety signs	33
3.8	Generator operation	36
3.8.1	Comply with the protective measures against dangerous electric current	36
3.8.2	Safe generator operation	36
3.8.3	Connecting extension cables	36
3.8.4	Do not exceed the maximum supply system load	37
3.8.5	Perform regular generator inspections	37
3.9	Emergencies	37
3.9.1	Correct fire fighting	37
3.9.2	Injury from handling operating fluids/materials	38
3.10	Warranty	38
3.11	Identifying the effects of improper modifications	39
3.12	Environment protection	40
4	Design and Function	
4.1	Bodywork	41
4.2	Machine structure	42
4.3	Machine function	43
4.4	Operating modes and control mode	44
4.4.1	Operating modes	44
4.4.2	MODULATING control	44
4.5	Safety devices	45
4.5.1	Monitoring functions with shutdown	45
4.5.2	Further safety devices	46
4.6	Options	46
4.6.1	Air treatment options	46
4.6.2	Low temperature equipment options	49
4.6.3	Optional battery isolating switch	51
4.6.4	Options for operating in fire hazard areas	51
4.6.5	Generator option	52
4.6.6	Diesel particulate filter option	54
4.6.7	Hose reel option	55
4.6.8	Optional anti-theft device	55
4.6.9	Pedestrian protection option	55
4.6.10	Instrument panel cover option	56
4.7	Frame design options for stationary machines	56
4.7.1	Chassis types of stationary machines	56

5	Installation and Operating Conditions	
5.1	Ensuring safety	57
5.2	Installation conditions	57
6	Installation	
6.1	Ensuring safety	59
6.2	Reporting Transport Damage	59
7	Initial Start-up	
7.1	Ensuring safety	60
7.2	Before Initial Start-up (or Recommissioning)	60
7.2.1	Note when commissioning	60
7.2.2	Special measures for re-commissioning after storage or de-commissioning	61
7.3	Checking installation and operating conditions	61
7.4	Low-temperature operation (winter)	62
7.4.1	Starting assistance	62
7.4.2	Starting up low-temperature equipment	64
7.5	Putting the generator into operation	66
8	Operation	
8.1	Ensuring safety	69
8.2	Starting and stopping	70
8.2.1	Running the machine	70
8.2.2	Engine pre-heating	71
8.2.3	Starting the machine	71
8.2.4	Allow the machine to run up to operating temperature	72
8.2.5	Switching to LOAD	72
8.2.6	Regulating the shut-off valve	72
8.2.7	Shutting down the machine	73
8.3	Ending the reverse engine run	74
8.4	Using the hose reel	74
8.4.1	Using the hose reel (EC version)	74
8.4.2	Using the hose reel (USA version)	76
8.5	Operating the tool lubricator	77
8.6	Using the low-temperature equipment	78
8.6.1	Coolant pre-heating	78
8.6.2	Operating the machine with frost protector	78
8.7	Operating the battery isolating switch	79
8.8	Generator operation	80
8.8.1	Note when operating the generator	80
8.8.2	Switching in the generator	80
8.8.3	Switching off the generator	81
8.9	Cleaning the machine after operation	81
9	Fault Recognition and Rectification	
9.1	Basic instructions	83
9.2	Evaluating engine faults and alarms	83
9.2.1	Engine refuses to start or does not turn over	83
9.2.2	Engine does not reach full speed	84
9.2.3	Indicator lamp remains on	84
9.2.4	Motor running backwards	85
9.3	Analysing compressor faults and alarms	85
9.3.1	Working pressure too high	85
9.3.2	Working pressure too low.	85
9.3.3	Pressure relief valve blowing off	86
9.3.4	Machine overheating	86

9.3.5	Too much oil residue in the compressed air	87
9.3.6	Oil flows from the compressor air filter after shutdown	87
9.3.7	High moisture content in the compressed air	88
9.4	Evaluate faults in the diesel particulate filter	88
9.5	Evaluate generator faults and alarms	89
9.5.1	There is no voltage or too low a voltage from the generator	89
9.5.2	Generator voltage too high	89
10	Maintenance	
10.1	Ensuring safety	91
10.2	Following the maintenance plans	92
10.2.1	Logging maintenance work	92
10.2.2	Maintenance tasks after commissioning	92
10.2.3	Regular maintenance tasks	93
10.3	Engine maintenance	97
10.3.1	Water cooler maintenance	98
10.3.2	Engine air filter maintenance	103
10.3.3	Fuel system maintenance	105
10.3.4	Checking the engine oil level	109
10.3.5	Engine oil filling and topping up	110
10.3.6	Changing the engine oil	111
10.3.7	Replace the engine oil filter	114
10.3.8	Drive belt maintenance	115
10.3.9	Battery maintenance	118
10.3.10	Checking the fastening of the fuel tank	121
10.4	Compressor Maintenance	122
10.4.1	Checking cooling oil level	122
10.4.2	Cooling oil filling and topping up	123
10.4.3	Changing the cooling oil	124
10.4.4	Replacing the compressor oil filter	126
10.4.5	Oil separator tank dirt trap maintenance	128
10.4.6	Changing the Oil Separator Cartridge	129
10.4.7	Compressor air filter maintenance	133
10.4.8	Check pressure relief valves	136
10.4.9	Fit the flexible pipe connection	136
10.5	Cleaning the cooler	137
10.5.1	Cleaning the compressor cooler and engine radiator	137
10.5.2	Cleaning the compressed air aftercooler	138
10.6	Maintenance of rubber sealing strips	139
10.7	Maintenance of Optional Items	140
10.7.1	Tool lubricator maintenance	140
10.7.2	Cyclone separator maintenance	141
10.7.3	Combination filter maintenance	143
10.7.4	Fresh air filter maintenance	146
10.7.5	Frost protector maintenance	149
10.7.6	Spark arrestor cleaning	151
10.7.7	Engine air shut-off valve maintenance	152
10.7.8	Generator drive belt maintenance	154
10.8	Documenting maintenance and service work	161
11	Spares, Operating Materials, Service	
11.1	Note the nameplate	162
11.2	Ordering consumable parts and operating fluids/materials	162
11.3	KAESER AIR SERVICE	163
11.4	Service Addresses	163

11.5	Replacement parts for service and repair	163
12	Decommissioning, Storage and Transport	
12.1	De-commissioning	196
12.1.1	Temporary de-commissioning	196
12.1.2	Long-term de-commissioning and storage	197
12.2	Transport	198
12.2.1	Safety	199
12.2.2	Transport with a crane	199
12.2.3	Transport with a forklift truck	199
12.2.4	Transporting the machine as load	202
12.3	Storage	203
12.4	Disposal	204
13	Annex	
13.1	Marking	205
13.2	Pipeline and instrument flow diagram (P+I diagram)	205
13.3	Dimensional drawings	210
13.3.1	Drawing chassis	210
13.3.2	Drawing chassis	212
13.3.3	Dimensional drawing – chassis	214
13.3.4	Dimensional drawing, stationary version	216
13.3.5	Dimensional drawing, stationary version	218
13.4	Wiring diagrams	220
13.4.1	Electrical Diagram	220
13.4.2	Connection adapter for the diesel particulate filter	233
13.4.3	Lighting and signalling system connection	238
13.4.4	Lighting and signalling system connection	246
13.4.5	Generator electrical diagram, 400V, 3-ph	251
13.4.6	Generator electrical diagram, 230V, 3-ph	260
13.4.7	Generator electrical diagram, 115V, 2-ph	269
13.4.8	Generator electrical diagram, 230V, 2-ph	278
13.5	Fuel circulation diagram	287
13.6	Operating instructions for compressed air filter (combination filter)	290
13.7	Operating instructions for compressed air filter (fresh air filter)	318
13.8	Service tasks on the diesel particulate filter	332
13.9	Service tasks - Generator	332

RAMIRENT

Fig. 1	Location of safety signs	34
Fig. 2	Overview Bodywork	41
Fig. 3	Right-hand door opened	42
Fig. 4	Left-hand door opened	42
Fig. 5	Machine overview	43
Fig. 6	Stepless regulation of FAD (standstill)	45
Fig. 7	Compressed air options	46
Fig. 8	Tool lubricator	48
Fig. 9	Principle tool lubricator	49
Fig. 10	Coolant pre-heating	50
Fig. 11	Frost protector	50
Fig. 12	Battery isolating switch	51
Fig. 13	Instrument panel – generator control box, 400 V AC	53
Fig. 14	Instrument panel – generator control box, 230 V AC	53
Fig. 15	Generator instrument panel - control box, 115 V, single-phase (50 Hz)	54
Fig. 16	Generator instrument panel - control box, 230 V, single-phase (60 Hz)	54
Fig. 17	General design of the diesel particulate filter system	55
Fig. 18	Minimum distance from excavations/slopes and walls	58
Fig. 19	Jumper cable connection diagram	63
Fig. 20	Coolant pre-heating	65
Fig. 21	Operating the frost protector	65
Fig. 22	Insulation monitoring – 400 V three-phase Generator	66
Fig. 23	Insulation monitoring – 230 V three-phase Generator	66
Fig. 24	Insulation monitoring - 115 V, single-phase generator (50 Hz)	67
Fig. 25	insulation monitoring - 230 V, single-phase generator (60 Hz)	67
Fig. 26	Starting instruments	70
Fig. 27	Label referring to the warm-up period when ambient temperatures are below -10 °C	72
Fig. 28	Control line shut-off valve	73
Fig. 29	Hose reel (EC design)	75
Fig. 30	Hose reel (EC design)	76
Fig. 31	Setting the tool lubricator	77
Fig. 32	Frost protector on and off	78
Fig. 33	Battery isolating switch	79
Fig. 34	Checking coolant level	99
Fig. 35	Draining the coolant from the radiator	102
Fig. 36	Engine air filter maintenance	103
Fig. 37	Cleaning the filter element	104
Fig. 38	Fuel system maintenance	105
Fig. 39	Bleeding the fuel system	106
Fig. 40	Fuel water separator maintenance	107
Fig. 41	Changing the fuel pre-filter	108
Fig. 42	Fuel fine filter maintenance	108
Fig. 43	Checking the engine oil level	110
Fig. 44	Draining the engine oil	112
Fig. 45	Changing the engine oil	113
Fig. 46	Change the oil filter	114
Fig. 47	Belt guard attachment	115
Fig. 48	Checking the drive belt seating	116
Fig. 49	Manually checking the belt tension	116
Fig. 50	Changing/tensioning the drive belt	117
Fig. 51	Safety signs - warning stickers on the battery.	118
Fig. 52	Checking cooling oil level	122
Fig. 53	Draining the compressor cooling oil	125
Fig. 54	Draining the oil from the heat exchanger	126

Fig. 55	Change the oil filter	127
Fig. 56	Oil separator tank dirt trap maintenance	128
Fig. 57	Changing the Oil Separator Cartridge	130
Fig. 58	Changing the oil separator cartridge (Option ba)	132
Fig. 59	Compressor air filter maintenance	134
Fig. 60	Cleaning the filter element	135
Fig. 61	Fit the flexible pipe connection	136
Fig. 62	Cleaning the compressor cooler and engine radiator	138
Fig. 63	Cleaning the compressed air aftercooler	139
Fig. 64	Tool lubricator maintenance	140
Fig. 65	Cleaning the dirt trap	142
Fig. 66	Filter combination	143
Fig. 67	Combination filter maintenance	144
Fig. 68	Fresh air filter maintenance	147
Fig. 69	Filling the frost protector	150
Fig. 70	Spark arrestor cleaning	151
Fig. 71	Maintain the engine air shut-off valve	153
Fig. 72	Securing the belt guard at the generator	155
Fig. 73	Belt tension checking by hand	156
Fig. 74	Generator belt tensioning	157
Fig. 75	Generator belt tensioner	157
Fig. 76	Checking the pulley alignment	159
Fig. 77	Aligning the generator	160
Fig. 78	Preparing for transport using a forklift truck	200
Fig. 79	Lifting the machine with a forklift truck	201
Fig. 80	Transport with a forklift truck	202
Fig. 81	Guys to secure the freight	203
Fig. 82	Marking	205

Tab. 1	Danger levels and their definitions (personal injury)	1
Tab. 2	Danger levels and their definition (damage to property)	2
Tab. 3	Nameplate	4
Tab. 4	Options label	5
Tab. 5	Compressed air treatment options	5
Tab. 6	Tool lubricator option	5
Tab. 7	Compressed air distributor option	5
Tab. 8	Low temperature equipment options	6
Tab. 9	Optional equipment for fire hazard areas	6
Tab. 10	Optional battery isolating switch	6
Tab. 11	Chassis options	6
Tab. 12	Options, stationary frame	7
Tab. 13	Lighting options	7
Tab. 14	Generator option	7
Tab. 15	Hose reel option	8
Tab. 16	Optional anti-theft device	8
Tab. 17	Pedestrian protection option	8
Tab. 18	Instrument panel cover options	8
Tab. 19	Diesel particulate filter option	8
Tab. 20	Guaranteed sound power level	9
Tab. 21	Emission sound pressure level	9
Tab. 22	Tightening torques for screws (property class 8.8, coefficient of friction $\mu = 0,12$)	9
Tab. 23	Ambient conditions	9
Tab. 24	Mass of the machine	10
Tab. 25	Working pressure and FAD	10
Tab. 26	Compressed air distributor	11
Tab. 27	Pressure relief valve opening pressure	11
Tab. 28	Machine temperatures	11
Tab. 29	Airend discharge temperature	11
Tab. 30	Cooling oil recommendation	12
Tab. 31	Cooling oil recommendation (food processing)	12
Tab. 32	Cooling oil charge	13
Tab. 33	Engine specification	13
Tab. 34	Engine oil recommendation	14
Tab. 35	Recommended oil for engines with diesel particulate filters	14
Tab. 36	Fluid volumes	15
Tab. 37	Battery	15
Tab. 38	Road breaker lubricant recommendation	15
Tab. 39	Fresh air filter conditions	15
Tab. 40	Interrelation between compressed air treatment and compressed air quality	16
Tab. 41	Environmental conditions, low temperature equipment	16
Tab. 42	Coolant pre-heater	16
Tab. 43	Recommended antifreeze	17
Tab. 44	Battery, low-temperature equipment	17
Tab. 45	Diesel particulate filter data	17
Tab. 46	Generator data	17
Tab. 47	Delivery in generator mode	18
Tab. 48	Connection sockets	18
Tab. 49	Circuit breaker	19
Tab. 50	Generator operating limits	19
Tab. 51	Maximum three-phase mains loading	20
Tab. 52	Maximum single-phase mains loading	20
Tab. 53	Power reduction at elevated ambient temperatures	20
Tab. 54	Generator data	20

Tab. 55	Delivery in generator mode	21
Tab. 56	Connection sockets	21
Tab. 57	Circuit breaker	22
Tab. 58	Generator operating limits	22
Tab. 59	Maximum power supply load	22
Tab. 60	Power reduction at elevated ambient temperatures	22
Tab. 61	Inspection intervals according to Ordinance on Industrial Safety and Health	25
Tab. 62	Danger areas	33
Tab. 63	Safety signs	34
Tab. 64	Generator / Compressor operation	52
Tab. 65	Generator operating modes	52
Tab. 66	Stationary machines	56
Tab. 67	Measures for re-commissioning the compressor after a long period of storage or de-commissioning	61
Tab. 68	Positioning and operating conditions checklist	61
Tab. 69	Low-temperature equipment checklist	65
Tab. 70	Test instructions for a generator with an earth leak detection device.	68
Tab. 71	Fault: engine refuses to start or comes to a stop.	83
Tab. 72	Alarm: "engine does not reach full speed".	84
Tab. 73	Alarm: "Control lamp remains on"	84
Tab. 74	"Motor running backwards" fault	85
Tab. 75	Fault: working pressure too high	85
Tab. 76	Fault: working pressure too low	85
Tab. 77	Fault: pressure relief valve blowing off	86
Tab. 78	Fault: machine overheating	86
Tab. 79	Alarm: "Too much oil residue in the compressed air"	87
Tab. 80	Alarm: "Oil flows from the compressor air filter after shutdown"	87
Tab. 81	Fault: high moisture content in the compressed air	88
Tab. 82	Faults in the diesel particulate filter	88
Tab. 83	Fault 'blue engine exhaust'	88
Tab. 84	Grey or brownish exhaust gas	89
Tab. 85	There is no voltage or too low a voltage from the generator	89
Tab. 86	Generator voltage too high	89
Tab. 87	Advise others that the machine is being serviced.	91
Tab. 88	Maintenance tasks after commissioning	93
Tab. 89	Maintenance intervals and regular maintenance tasks	93
Tab. 90	Regular machine maintenance tasks	94
Tab. 91	Regular maintenance task options	96
Tab. 92	KAESER coolant mixture table	100
Tab. 93	Dimensions of the flexible pipe connection	136
Tab. 94	Belt tension values	156
Tab. 95	Maintenance log	161
Tab. 96	Compressor consumables	162
Tab. 97	Consumable engine parts	162
Tab. 98	Replacement parts, combination filter	163
Tab. 99	Replacement parts, fresh-air filter	163
Tab. 100	"Temporarily decommissioned" information notice	196
Tab. 101	"Long-term decommissioning and storage" checklist	197
Tab. 102	Text for the "long-term decommissioned and storage" information notice	198

1 Regarding this document

1.1 Using this document

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

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

1.2 Further documents

Further documents included with this operating manual are:

- Certificate of acceptance / operating instructions for the pressure vessel
- Declaration of Conformity in accordance with the applicable directive
- Chassis documentation (where applicable)

Missing documents can be requested from KAESER.

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

1.3 Copyright

This operating manual is protected by copyright. Any queries regarding the use or duplication of this 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.

1 Regarding this document

1.4 Symbols and labels

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 a lethal or severe injury may occur.

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

2. Always read and comply with warning instructions.

1.4.2 Potential damage warnings

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

Warning notices for damages are identified by their signal term.

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

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

For example,



NOTICE

These show the kind of danger and its source.

Potential effects when ignoring the warning are indicated here.

- The protective measures against the damages are shown here.

- Carefully read and fully comply with warnings against damages.

1.4.3 Other alerts and their symbols



This symbol indicates particular important information.

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

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

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

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

Result Shows the expected conclusion of the previous action.

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



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



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

Further information Further subjects are introduced here.

2 Technical Specifications

2.1 Nameplate

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

➤ Enter here the nameplate data as a reference:

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

Tab. 3 Nameplate

2.2 Options – options label

A list of the options fitted to your machine helps to relate the information in this service manual. Options fitted to the machine are listed on the options label (code letters).

The nameplate is to be found:

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



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

M 64	Material No.	Serial no.																																																																	
		Options fitted																																																																	
		<table border="1"> <tr><td>da</td><td>db</td><td>dc</td><td>dd</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>ec</td><td>_</td><td>_</td></tr> <tr><td>fa</td><td>_</td><td>fc</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>ba</td><td>bb</td><td>bc</td><td>bd</td><td>_</td></tr> <tr><td>la</td><td>lb</td><td>lc</td><td>_</td><td>_</td></tr> <tr><td>ga</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>oa</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>_</td><td>_</td><td>_</td><td>_</td><td>_</td></tr> <tr><td>r1</td><td>r3</td><td>r4</td><td>r5</td><td>*</td></tr> <tr><td>ta</td><td>tb</td><td>tc</td><td>te</td><td></td></tr> <tr><td>sf</td><td>sg</td><td>ua</td><td>pa</td><td>pb</td></tr> </table>	da	db	dc	dd	_	_	_	ec	_	_	fa	_	fc	_	_	_	_	_	_	_	ba	bb	bc	bd	_	la	lb	lc	_	_	ga	_	_	_	_	oa	_	_	_	_	_	_	_	_	_	_	_	_	_	_	r1	r3	r4	r5	*	ta	tb	tc	te		sf	sg	ua	pa	pb
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		<p>r1 = rb; rc; rd r3 = rm; ro r4 = rr; rs; rt r5 = rw; rx</p> <p>02-M0277</p> <p>* r1 - r5 = place holders for chassis options</p>																																																																	

Tab. 4 Options label

➤ Take a list of fitted options from the options label and enter the fitted options as reference.

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

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

Tab. 5 Compressed air treatment options

**2.2.2 Option ec
Tool lubricator**

Option	Option code	Available?
Tool lubricator	ec	

Tab. 6 Tool lubricator option

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

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

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

Tab. 7 Compressed air distributor option

2.2.4 Option ba Low temperature equipment

Option	Option code	Available?
Low temperature equipment	ba	
Engine coolant pre-heating	bb	
Frost protector	bc	
stronger batteries	bd	

Tab. 8 Low temperature equipment options

2.2.5 Option la, lb Equipment for fire hazard areas

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

Tab. 9 Optional equipment for fire hazard areas

2.2.6 Option oa Battery isolating switch

Option	Option code	Available?
Battery isolating switch	oa	

Tab. 10 Optional battery isolating switch

2.2.7 Option rb/rm/rs, rc/ro/rs, rd/rn/rr, rw, rx Chassis



Chassis are defined by the combination of several option designations as follows:

Model/Height adjustment/Service brake

Example: *rb/rm/rs* means

EU chassis with height-adjustable tow bar and overrun brake

Chassis:

Chassis	Option code	Available?
Model (rb, rc, rd):		
EU chassis	rb	

Chassis	Option code	Available?
GB chassis	rc	
US chassis	rd	
Height adjustment (rm, ro, rn):		
With height adjustment	rm	
Without height adjustment	ro	
Height adjustment via adjustable plate	rn	
Service brake (rs, rr):		
With overrun brake	rs	
Without service brake	rr	

Tab. 11 Chassis options

Stationary frame

Chassis	Option code	Available?
Stationary (rw, rx):		
on skids	rw	
on frame	rx	

Tab. 12 Options, stationary frame

**2.2.8 Option ta, tb, tc, te
Lighting**

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

Tab. 13 Lighting options

**2.2.9 Option ga
Generator**

Option	Option code	Available?
Generator	ga	

Tab. 14 Generator option

**2.2.10 Option ua
Hose reels**

Option	Option code	Available?
Hose reels	ua	

Tab. 15 Hose reel option

**2.2.11 Option sf
Anti-theft device**

Option	Option code	Available?
Anti-theft device	sf	

Tab. 16 Optional anti-theft device

**2.2.12 Option sg
Pedestrian protection**

Option	Option code	Available?
Pedestrian protection	sg	

Tab. 17 Pedestrian protection option

**2.2.13 Option pa, pb
Instrument panel cover**

Option	Option code	Available?
Instrument panel cover	pa	
Generator control box cover	pb	

Tab. 18 Instrument panel cover options

**2.2.14 Option lc
Diesel particulate filter**

Option	Option code	Available?
Diesel particulate filter	lc	

Tab. 19 Diesel particulate filter option

2.3 Machine (without options)

2.3.1 Noise emission

Guaranteed sound power level:

Model	M 64
Guaranteed sound power level* [dB(A)]	98
* To Directive 2000/14/EC	

Tab. 20 Guaranteed sound power level

Emission sound pressure level

Model	M 64
Emission sound pressure level* [dB(A)] (according to EN ISO 11203:)	80.5
Measurement distance: d = 1 m	
Logarithmic surface ratio: Q2 = 17.3 dB(A)	
** Calculated from the guaranteed sound power level (2000/14/EC Directive, Sound Emission Standard ISO 3744)	

Tab. 21 Emission 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 [Nm]	3.0	5.9	10.0	24.5	48.0	84.0	133.0	206.0	295.0	415.0

Information provided according to VDI 2230.

Tab. 22 Tightening torques for screws (property class 8.8, coefficient of friction $\mu = 0,12$)

2.3.3 Ambient conditions

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

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

Tab. 23 Ambient conditions

2.3.4 Additional specifications according to the machine's operating licence

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

- dimensions,

- track width,
- footprint,

are to be found in the dimensioned drawing in chapter 13.3.



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

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

2.4 Chassis

2.4.1 Chassis options

- Chassis instructions are found in the separate chassis documentation.

2.5 Machines with stationary frame design

2.5.1 Option rw, rx

Mass of machines with stationary frame design

Actual mass of individual machines are dependent on equipment fitted (see machine nameplate).

- Enter the actual overall weight* from the nameplate as reference.

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

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

Tab. 24 Mass of the machine

2.6 Compressor

2.6.1 Working pressure and FAD

Maximum working gauge pressure [bar]	7	10
SIGMA airend	270	260
Free air delivery [m ³ /min]	6.4	5.0
FAD as per ISO 1217:2009. Annex D		

Tab. 25 Working pressure and FAD

2.6.2 Compressed air outlet

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

Tab. 26 Compressed air distributor

2.6.3 Pressure relief valves

Maximum working pressure: see machine nameplate

Maximum working pressure [bar]	Relief valve activating pressure [bar]
7	10
10	13

Tab. 27 Pressure relief valve opening pressure

2.6.4 Temperature

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

Tab. 28 Machine temperatures

Temperature at the compressor block discharge port		
Ambient temperature [°C]	Thermostatic valve	
	with ambient temperature acquisition [°C]	without ambient temperature acquisition [°C] (Option db)
10	90	–
20	–	90
25	60	–

Tab. 29 Airend discharge temperature

2.6.5 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.

Cooling oils for general applications

	SIGMA FLUID		
	MOL	S-460	S-570
Description	Mineral oil	Silicone-free synthetic oil	Synthetic oil
Application	Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a low duty cycle.	Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle. Not suitable for East- / South-East-Asian countries.	Special oil for ambient conditions with high temperatures and humidity. Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle.
Approval	—	—	—
Viscosity at 40 °C	44 mm ² /s (DIN 51562-1)	45 mm ² /s (D 445; ASTM test)	52.8 mm ² /s (D 445; ASTM test)
Viscosity at 100 °C	6.8 mm ² /s (DIN 51562-1)	7.2 mm ² /s (D 445; ASTM test)	8.0 mm ² /s (D 445; ASTM test)
Flash point	220 °C (ISO 2592)	238 °C (D 92; ASTM test)	258 °C (D 92; ASTM test)
Density at 15 °C	—	864 kg/m ³ (ISO 12185)	0.869 kg/l (D 1298; ASTM test)
Pour point	-33 °C (ISO 3016)	-46 °C (D 97; ASTM test)	-54 °C (D 97; ASTM test)
Demulsibility at 54 °C	—	40/40/0/10 min (D 1401; ASTM test)	15 min (D 1401; ASTM test)

Tab. 30 Cooling oil recommendation

Cooling oils for applications in food processing

	SIGMA FLUID	
	FG-460	FG-680
Description	Synthetic oil	Synthetic oil
Application	Specifically for machines in applications where the compressed air may come into contact with foodstuff.	Special oil for ambient conditions with high temperatures and humidity. Specifically for machines in applications where the compressed air may come into contact with foodstuff.
Approval	USDA H-1, NSF Approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.	USDA H-1, NSF Approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.
Viscosity at 40 °C	50.7 mm ² /s (D 445; ASTM test)	70.0 mm ² /s (D 445; ASTM test)

	SIGMA FLUID	
	FG-460	FG-680
Viscosity at 100 °C	8.2 mm ² /s (D 445; ASTM test)	10.4 mm ² /s (D 445; ASTM test)
Flash point	245 °C (D 92; ASTM test)	245 °C (D 92; ASTM test)
Density at 15 °C	—	—
Pour point	—	—
Demulsibility at 54 °C	—	—

Tab. 31 Cooling oil recommendation (food processing)

2.6.6 Cooling oil charge

Cooling oil	Fluid volume [l]
Machine	15.0
Compressor unit + heat exchanger (option db)	17.0

Tab. 32 Cooling oil charge

2.7 Engine

2.7.1 Engine specification

Feature	Specification
Make/Model	Kubota V 2403-T
Engine control	Mechanical
Fuel injection	Mechanical
Rated engine power [kW]	43.3
Speed at LOAD operation [min ⁻¹]	2700
Speed at IDLE operation [min ⁻¹]	2000
Type of fuel	Diesel
Fuel consumption under LOAD mode [l/h]	11.7
Oil consumption relative to fuel consumption [%]	approx. 0.2

Tab. 33 Engine specification

2.7.2 Oil recommendation

The engine oil must meet the following classification:

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



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

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

Tab. 34 Engine oil recommendation

Option Ic Recommended oil for engines with diesel particulate filters

The engine oil must meet the following classification:

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

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

* Use only engine with low white ash build up.

Tab. 35 Recommended oil for engines with diesel particulate filters

2.7.3 Fuel recommendation

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

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

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

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



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

2.7.4 Engine coolant recommendation

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



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

2.7.5 Fluid volumes

Description	Fluid volume [litre]
Engine oil	9.0
Fuel	105.0
Coolant	9.5

Tab. 36 Fluid volumes

2.7.6 Battery

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

Tab. 37 Battery

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

2.8 Options
2.8.1 Air treatment options
**2.8.1.1 Option ec
Tool lubricator**

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

Tab. 38 Road breaker lubricant recommendation

**2.8.1.2 Option dc
Fresh air filter**

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

Tab. 39 Fresh air filter conditions

2.8.1.3 Air quality at the compressed air outlets

Interrelation between compressed air treatment and compressed air quality:

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

Tab. 40 Interrelation between compressed air treatment and compressed air quality



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

**2.8.2 Option ba
Low temperature equipment**
2.8.2.1 Ambient conditions

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

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

Tab. 41 Environmental conditions, low temperature equipment

**2.8.2.2 Option bb
Engine coolant pre-heating**

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

Tab. 42 Coolant pre-heater

2.8.2.3 Option bc
Compressed air line frost protection

Antifreeze	Fluid volume [l]
Antifreeze protection for air brake systems (e.g., Wabcothyl)	0.3

Tab. 43 Recommended antifreeze

2.8.2.4 Option bd
Battery

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

Tab. 44 Battery, low-temperature equipment

2.8.3 Option lc
Diesel particulate filter

Feature	Data
Fuel	Diesel *
Operating voltage [V]	12
Filter element	SiC monolith
Degree of particle separation [%] (by mass)	≥99 (elementary carbon)
Ambient temperature [°C]	-20 50
Protection rating	IP 65

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

Tab. 45 Diesel particulate filter data

2.8.4 Option ga
Generator (50 Hz version)
Generator specification:

Features	Generator 400V, 3-ph		Generator 230V, 3-ph		Generator 115V, 2-phase
Rated power [kVA] 3-phase/2-phase	13.0	8.5	13.0	8.5	7.0
Rated power [kVA] single-phase	7.0	5.0	7.5	5.0	5.0

Features	Generator 400V, 3-ph		Generator 230V, 3-ph		Generator 115V, 2- phase
Voltage constant [%] balanced load	±5				
Voltage constant [%] single-phase, unbalanced load	+6/-10				
Rated power [kVA] 3-phase/2-phase	18.8	12.3	32.6	21.0	31.0
Rated current [A] 1-phase	30.0	21.7	32.6	21.0	45.0
Rated current [A] short circuit (0.3 s/170 V)	300.0	260.0	330.0	330.0	420.0
Power factor (cos ϕ)	0.8 – 1				
Frequency [Hz]	50				
Speed [min ⁻¹]	3000				
Distortion factor [%]	<5				
Type	Synchronous internal pole (electronically controlled)				
Protection rating	IP 54				

Tab. 46 Generator data

Reduced FAD:

Features	Generator 13.0 [kVA]	Generator 8.5 [kVA]		Generator 7.0 [kVA]
Maximum working pres- sure [bar]	7	7	10	7
SIGMA airend	260	260	270	260
Free air delivery [m ³ /min]	5.0	5.0	6.4	5.0
FAD with simultaneous generator operation [m ³ /min]	1.7	3.9	3.0	3.9

Tab. 47 Delivery in generator mode

Connections:

Type	Generator 400V, 3-ph	Generator 230V, 3-ph	Generator 115V, 2-phase
Power sockets	Quantity:		
16 A; 230 V/1~/N/PE	3	–	–
16 A; 400 V/3~/N/PE	1	–	–
16 A; 230 V/2~/PE	–	2	–
32 A; 230 V/3~/PE	–	1	–

Type	Generator 400V, 3-ph	Generator 230V, 3-ph	Generator 115V, 2-phase
Power sockets	Quantity:		
16 A; 230 V/3~/PE	–	1	–
32 A; 115 V/2~/PE	–	–	1
16 A; 115 V/2~/PE	–	–	2

Tab. 48 Connection sockets

Overload protection switch

Type	Generator 400V, 3-ph	Generator 230V, 3-ph	Generator 115V, 2-phase
Miniature circuit breaker [A]	Quantity:		
16	1	1	2
32	–	1	1

Tab. 49 Circuit breaker

Operating limits:

(to EN 60034-22, page 10, table)

Features	Value
Design category	G3
Voltage adjustment range [%]	±5
Static voltage deviation [%]	1
Maximum dynamic voltage drop [%]	–15
Maximum dynamic voltage rise [%]	20
Maximum voltage settling time [ms]	1500
Maximum voltage asymmetry [%]	1

Tab. 50 Generator operating limits

Maximum power loading by consumers

Resistive consumers include lamps and heaters, for example.

Electric motors and transformers are inductive consumers.

Nominal rating conditions:

- Ambient temperature: 25 °C
- Max. height above sea level at the place of use: 1000 m

Three-phase power supply

Generator		400V, 3-ph		230V, 3-ph	
Rated power [kVA]		13.0	8.5	13.0	8.5
Resistive consumers [kVA]	–	13.0	8.5	12.7	8.5
Inductive consumers [kW]	Rated power	7.5	5.0	12.7	8.5

Tab. 51 Maximum three-phase mains loading

AC power:

Generator		400V, 3-ph		230V, 3-ph		115V, 2-ph
Rated power [kVA]		13.0	8.5	13.0	8.5	7.0
Resistive consumers [kVA]	per phase	3.5	–	3.5	–	–
	total	10.5	5.0	10.5	5.0	5.0
Inductive consumers [kW]	Rated power per phase	3.5	–	3.5	–	–
	Rated power total	10.5	5.0	10.5	5.0	5.0

Tab. 52 Maximum single-phase mains loading

Power reduction at elevated ambient temperatures:

Ambient temperature [°C]	Generator power
≤30	Full power available
>30	Reduction of 10 % for each temperature rise of 10 °C.

Tab. 53 Power reduction at elevated ambient temperatures

**2.8.5 Option ga
 Generator (60 Hz version)**
Generator specification:

Features	Generator 250V, 2-phase	
Rated power [kVA] 2-phase	13.0	8.0
Rated power [kVA] single-phase	7.0	5.0
Voltage [V]	250/125	
Voltage constant [%] balanced load	±5	

Features	Generator 250V, 2-phase	
Voltage constant [%] single-phase, unbalanced load	+6/-10	
Rated current [A] 2-phase (230 V)	56.0	35.0
Rated current [A] 2-phase (115 V)	56.0	44.0
Rated current [A] short circuit (0.3 s/170 V)	360.0	360.0
Power factor (cos j)	0.8 – 1	
Frequency [Hz]	60	
Speed [min ⁻¹]	3600	
Distortion factor [%]	<5	
Type	Synchronous internal pole (electronically controlled)	
Protection rating	IP 54	

Tab. 54 Generator data

Reduced FAD:

Features	Generator 13.0 [kVA]	Generator 8.0 [kVA]	
Maximum working pres- sure [bar]	7	7	10
Free air delivery [m ³ /min]	5.4	7.0	5.4
FAD with simultaneous generator operation [m ³ /min]	1.8	3.2	1.8

Tab. 55 Delivery in generator mode

Connections:

Power sockets	Quantity:
30 A; 250 V/2~/PE	2
20 A; 125 V/2~/PE	2

Tab. 56 Connection sockets

Overload protection switch

Type	Generator 250V, 2-phase	Generator 125V, 1-phase
Miniature circuit breaker [A]	Quantity:	
20	1	1

Tab. 57 Circuit breaker

Operating limits:

(to EN 60034-22, page 10, table)

Features	Value
Design category	G3
Voltage adjustment range [%]	±5
Static voltage deviation [%]	1
Maximum dynamic voltage drop [%]	-15
Maximum dynamic voltage rise [%]	20
Maximum voltage settling time [ms]	1500
Maximum voltage asymmetry [%]	1

Tab. 58 Generator operating limits

Maximum power loading by consumers

Resistive consumers include lamps and heaters, for example.

Electric motors and transformers are inductive consumers.

Nominal rating conditions:

- Ambient temperature: 25 °C
- Max. height above MSL of the place of installation: 1,000 m

Generator [kVA]		13.0	8.0
Resistive consumers [kVA]	per phase	6.5	4.0
	total	13.0	8.0
Inductive consumers [kW]	Rated power	5.0	5.0

Tab. 59 Maximum power supply load

Power reduction at elevated ambient temperatures:

Ambient temperature [°C]	Generator power
≤30	Full power available
>30	Reduction of 10 % for each temperature rise of 10 °C.

Tab. 60 Power reduction at elevated ambient temperatures

3 Safety and Responsibility

3.1 Basic instructions

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

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



Disregard of warning or safety instructions can cause serious injuries!

- Use this machine only if it is in a technically perfect condition and only for the purpose for which it is intended; observe all safety measures and the instructions in the service manual!
- Immediately rectify (have rectified) any faults that could be detrimental to safety!

3.2 Specified use

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

- Keep to the specifications listed in this service manual.
- Operate the machine only within its performance limits and under the permitted ambient conditions.
- Do not use compressed air for breathing purposes unless it is specifically treated.

3.3 Incorrect Use

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

- Only use the machine as intended.
- Never direct compressed air at persons or animals.
- Do not use untreated compressed air for breathing purposes.
- Do not allow the machine to take in toxic, acidic, flammable or explosive gases or vapours.
- Do not operate the machine in areas in which specific requirements with regard to explosion protection are in force.

3.4 User's responsibilities

3.4.1 Observe statutory and universally accepted regulations

These are, for example, nationally implemented European directives and/or applicable national legislation, safety and accident prevention regulations.

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

3.4.2 Determining personnel

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

Authorised operators possess the following qualifications:

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

Authorised maintenance personnel possess the following qualifications:

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

Authorised transport personnel possess the following qualifications:

- are of legal age,
 - are conversant with and adhere to the safety instructions and sections of the service manual relevant to transporting,
 - are trained and authorised in safe vehicle transporting,
 - are conversant with the safety regulations relating to handling motor vehicles and transport goods,
 - are able to recognise the possible dangers of motor vehicles and take appropriate measures to safeguard persons and property.
- Ensure that personnel entrusted with transport, operation, and maintenance are qualified and authorised to carry out their tasks.

3.4.3 Keeping to Inspection Schedules and Accident Prevention Regulations

The machine is subject to local inspection schedules.

Examples for requirements in Germany

- Have the pre-commissioning inspection carried out according to the Ordinance on Industrial Safety and Health, paragraph 14.
- Recurring inspections according to *DGUV Regulation 100–500*, chapter 2.11:
The user must ensure that the compressor's safety devices are checked for function as required or at least annually.

- Oil changing according to *DGUV Regulation 100–500*, chapter 2.11:
The user must ensure that the compressor's oil change is completed and documented as required or at least annually. Intervals may be varied if an analysis proves that the oil is still usable.
- Keep to inspection intervals in accordance with the Ordinance on Industrial Safety and Health with maximum intervals as laid down in §15.

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

Tab. 61 Inspection intervals according to Ordinance on Industrial Safety and Health

Checking the lifting point

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

- Have lifting eye and fixings checked.
Lifting point is not O.K. The machine must not be transported by crane. Have the machine repaired immediately.

3.4.4 Option Ic Complying with inspection intervals for diesel particulate filters

The machine is subject to local inspection schedules. KAESER SERVICE is an inspecting authority.

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

3.4.5 Attachment of a "Hazardous goods" label

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

This regulation requires that machines filled with more than 1 litre petrol or 5 litres diesel (in the fuel tank) during transport must be identified with hazardous goods labels on the machine's exterior.

Number of labels per machine:

- *Fuel tank content 60l - 450l*
 - ➤ Attach one label to the exterior.
- *Fuel tank content 450l - 1500l*
 - ➤ Attach one label on every exterior side.



The operator of the machine but also the authorised users and transport personnel are responsible for compliance with this requirement. Please instruct your employees accordingly. A violation of this regulation will be punished with a fine and the further machine transport will be forbidden.

- Have a "Hazardous goods" label attached.

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

3.5 Dangers

Basic instructions

The following describes the various forms of danger that can occur during machine operation. Basic safety instructions are found in this service manual at the beginning of each chapter in the section entitled 'Safety'.

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

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

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a colour- and odour-less but highly toxic gas. The inhalation of minute quantities can be lethal.

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

- Do not inhale exhaust fumes.
- 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.

- Allow no 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 scalding.

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

Electricity

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

- Allow only qualified and authorised electricians or trained personnel under the supervision of a qualified and authorised electrician to carry out work on electrical equipment according to electrical engineering regulations.
- Check regularly that all electrical connections are tight and in 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 bar)
- Then open an outlet valve carefully to ensure that the line between the minimum pressure / check valve and the compressed air outlet is vented.
- Do not carry out welding, heat treatment or mechanical modifications to pressurized components (e.g. pipes and vessels) as this influences the component's resistance to pressure. The safety of the machine is then no longer ensured.

Compressed air quality

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

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

Spring forces

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

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

- Do not open or dismantle any valves.

Rotating components

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

- Do not open the service doors or panels while the machine is running.
- Prior to opening the service doors or the canopy, switch off the engine, disconnect from power source and secure against unintended reactivation.
- Wear close-fitting clothes and a hair net if necessary.
- Ensure that all covers and safety guards are in place and secured before re-starting.

Temperature

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

- Avoid contact with hot components.
These include, 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 vapours 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 and intact sound insulation.
- Wear hearing protection if necessary.
The blowing-off of the pressure relief valve 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, antifreeze and chemical substances.
- Avoid contact with skin and eyes.
- Do not inhale fumes or aerosols from fuel or oil.
- Do not eat or drink while handling fuel, cooling and lubricating fluids or antifreeze.
- Keep suitable fire extinguishing agents ready for use.
- Use only KAESER approved operating materials.

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

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

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 motor vehicles and the transport of goods.
- Ensure that no persons are on the machine when transporting.

Transport as trailer

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

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

Transport as trailer on public roads

- Do not tow machines without service brake on public roads.

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

Transporting with a crane

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

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



The operator must ensure that only authorised personnel has access to the machine.

General instructions

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

- Do not position the machine directly against a wall. A build up of heat from the exhaust can damage the machine.
- Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- Do not operate in areas in which specific requirements with regard to explosion protection are in force.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure adequate ventilation.
- Place the machine in such a manner that the working conditions in its environment are not impaired.

- Comply with limit values for ambient temperature and humidity.
- The intake air must not contain any damaging contaminants,

Damaging contaminants are for instance:

- Exhaust gases from combustion engines,
 - Combustible, explosive or chemically unstable gases or vapours,
 - Acid- or base-forming chemicals such as ammonia, chlorine, or hydrogen sulphide.
- Do not position the machine in the warm exhaust air flow from other machines.
 - Keep suitable fire extinguishing agents ready for use.

Parking the machine:

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

- To park the machine, select an even and solid surface which is capable of bearing the machine's weight.
- Move the machine only with a towing vehicle.
- Secure the parked machine:
 - Lower the prop stand / wind down the jockey wheel.
 - Chock the wheels to prevent unwanted movement.
 - Place chocks under the wheels.
 - Pull on the parking brake.
- Unauthorised persons must not be present in the parking area of the machine. The parking area must be properly secured.
- The machine – the chassis and the towing mechanism in particular – must not be stepped on or used for sitting.
- Do not place additional loads on the machine (e.g. excavator bucket as anti-theft measure).

3.5.2.3 Commissioning, operation and maintenance

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

- Allow maintenance work to be carried out only by authorised personnel.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Switch off the machine and lock out the supply disconnecting device.
- De-pressurise all pressurised components and enclosures.
 - Wait until the machine has automatically vented.
 - Carefully open the compressed air outlet valve.
 - Check: The pressure gauge must read 0 bar!
- 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.
- Operate the machine only in technically sound condition.

- Carry out regular inspections:
 - for visible damage and leakage,
 - of safety devices,
 - of the EMERGENCY STOP devices (if present),
 - 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.
- Self-locking nuts removed for the installation must not be reused but replaced by new nuts, because the non-positive safety is no longer ensured.
- 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.
- Wear protective gloves when connecting or disconnecting compressed air hoses.
- Make sure compressed air hoses are de-pressurised before disconnecting from the machine.
- Secure the open end of an air hose before applying air pressure. An unsecured hose may whip and cause injury.
- At working pressures > 7 bar, compressed air hoses should be secured by a cable to their respective outlet valves.
- Connect and operate only suitable air tools.
 - The air tools must meet the set output pressure of the machine.
 - Use a pressure reducer for air tools requiring a lower pressure.
 - Use compressed air tools only with the pressure appropriate for its purpose (tool working pressure).

3.5.2.4 De-commissioning, storage and disposal

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

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

3.5.3 Organisational Measures

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

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.

Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 3 m radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine.	Maintenance personnel
	Within a 1 m radius of the machine.	
Operation	Within a 1 m radius of the machine.	Operating personnel
Maintenance	Within the machine.	Maintenance personnel
	Within a 1 m radius of the machine.	

Tab. 62 Danger areas

3.6 Safety devices

Various safety devices ensure safe working with the machine.

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

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

3.7 Safety signs

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



During cleaning or maintenance work, a check should be made that safety signs have not been removed or obliterated. Have missing or illegible signs replaced!

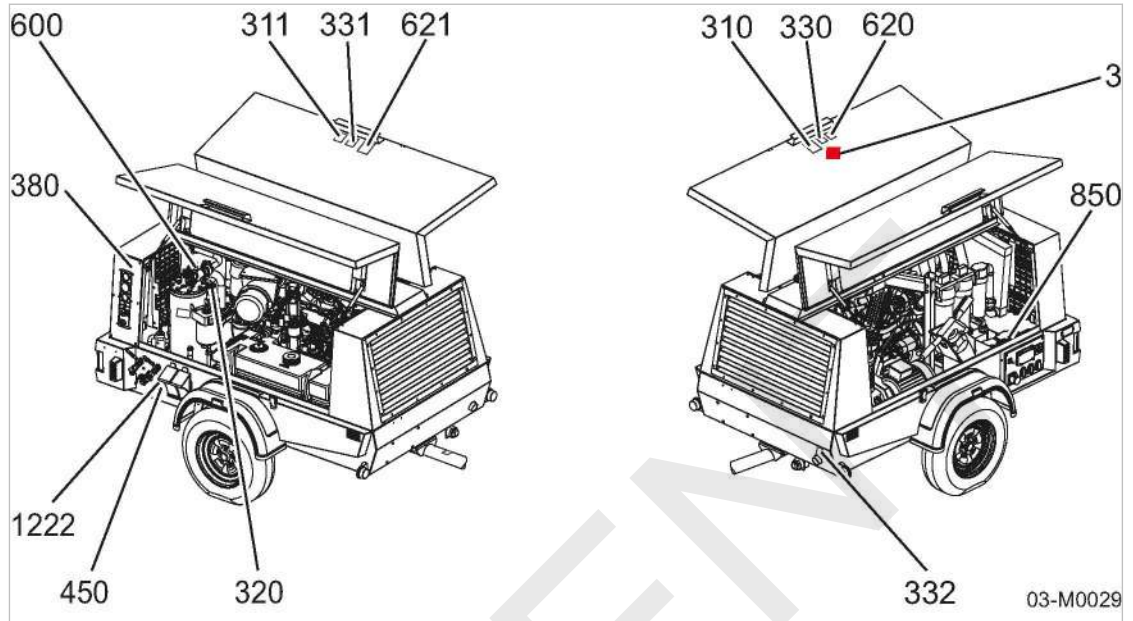









Fig. 1 Location of safety signs

Item	Sign	Meaning
3		Hazardous good! Identifies machines filled with fuel during transport as a hazardous good.
310 311		It is forbidden to operate the machine with open doors or enclosure! Personal injury or machine damage can result from an open machine enclosure. ➤ Operate only with the enclosure fully closed. ➤ Transport only with the enclosure fully closed.
320*		Loud noise and oil mist! Hearing damage and burns from relief valve blow off. ➤ Wear hearing protectors and protective clothing. ➤ Close the canopy or doors. ➤ Work with caution.
330 331		Hot surface! Risk of burns caused by contact with hot components! ➤ Do not touch the surface. ➤ Wear long-sleeved garments (no synthetics such as polyester) and protective gloves.
332		Hot surfaces and dangerous gasses! Burns from contact with hot components or gasses. ➤ Do not touch the surface. ➤ Wear long-sleeved garments (no synthetics such as polyester) and protective gloves. ➤ Do not inhale dangerous gasses.

* Position within the machine

*** only machines with option dc

**** only machines with option ga

Item	Sign	Meaning
380		<p>Toxic exhaust gases into areas of work!</p> <ul style="list-style-type: none"> ➤ Never use the machine in enclosed spaces, only in the open. ➤ Direct the exhaust fumes to the open air. ➤ Do not inhale dangerous gases.
450		<p>Loud noise and compressed air blast! Damage to hearing and injury if ball valve is opened without a compressed air hose being connected.</p> <ul style="list-style-type: none"> ➤ 1. Connect a compressed air hose. ➤ 2. Open the ball valve.
600*		<p>Risk of fatal injury caused by dismantling valves (spring-loaded or under pressure)!</p> <ul style="list-style-type: none"> ➤ Do not open or dismantle valves. ➤ Call an authorised Service Technician in the event of a fault.
620 621		<p>Risk of serious lacerations or even severing of extremities (fingers) from rotating components.</p> <ul style="list-style-type: none"> ➤ Operate the machine only with closed safety guards, access doors and panels. ➤ Shut down the machine before opening a door or canopy and prevent from restarting.
850****		<p>Risk of fatal injury caused by contact with live components!</p> <ul style="list-style-type: none"> ➤ Take protective measures.
1222***		<p>Danger! Mortal danger from CO, CO₂ or toxic gasses.</p> <ul style="list-style-type: none"> ➤ Draw in only surrounding air of fresh air quality.
		<p>Danger! Danger to health from discharge of oily compressed air.</p> <ul style="list-style-type: none"> ➤ Maintain surrounding air temperature between +1,5 °C and 30 °C. ➤ Check the oil indicator at least once a day.

* Position within the machine

*** only machines with option dc

**** only machines with option ga

Tab. 63 Safety signs

3.8 Option ga Generator operation

3.8.1 Comply with the protective measures against dangerous electric current

Protection against dangerous electric current is regulated by the "Low-voltage current generating installations" directive IEC 60364–5–551 (DIN VDE 0100–551).

The protective measure concerning "isolation, insulation monitoring and shut-down" is applied. The generator is equipped with an automatic mains cut-out with overcurrent release and insulation monitoring in accordance with this protective measure.

- Observe and follow the regulations concerning protection against dangerous electric current when using the generator.

3.8.2 Safe generator operation

Take note of the following to ensure the safe operation of the machine with a generator:

- Check correct function of the insulation monitoring device daily.
- Do not earth the neutral line (N) or connect it to the common protective earth/equipotential bonding (PE).
- Make sure the equipotential bonding to earth is properly carried through (mains and machine through cable to consumer).
- If the generator feeds a network (TN network), let the network's protective measures remain effective or create another protective measure that is effective.
- Adjust the protective measures accordingly if the generator feeds a different network.
- Only a qualified electrician is allowed to carry out work on the generator or generator control box. The electrician is responsible for the effectiveness of the protective measures provided.
- Do not use the generator for feeding the construction current distribution.
- A generator with insulation monitoring must not be connected to another insulation monitoring device as these monitoring devices can then have counter effects.
- Ground fault current (F1) protection switches do not function in unearthed networks (IT network such as provided by the generator). The isolation provided by the generator, however, makes a further ground fault current protection switch unnecessary.
- Follow the regulations of the local electricity supply utility and obtain any necessary permits.
- When cleaning the inside of the machine do not direct water or steam jets directly at the generator or terminal box.
- Check regularly that all electrical connections are tight and in proper condition.

3.8.3 Connecting extension cables

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

Bear in mind:

- In IT networks, the total length of power cables may not exceed 250 m (DIN VDE 0100, Part 728 / IEC 60364-5-551).
- Use at least H07RN-F cables to DIN VDE 0282 Part 4 (IEC 60245-4 / HD 22.4) as non-fixed extension cables.

3.8.4 Do not exceed the maximum supply system load

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

Bear in mind:

- The power consumption values of simultaneous consumers are added.
- The maximum continuous power loading on the generator by the connected consumers is limited by the safety cut-out.

3.8.5 Perform regular generator inspections

To ensure a safe operation, the machine must be subjected to regular inspections.

Daily inspection prior to activating the device by authorised operating personnel:

- Insulation monitor function check.

Annual inspection by trained and authorised electrician:

- Inspect the generator and generator control cubicle for mechanical damages.
- Inspect the protective conductor.
- Measure the dielectric resistance.
- Measure the substitute leakage current.
- Test the generator functionality.
- Test the proper functioning of the generator fan and clean, if required.
- Clean the cooling air openings.
- Check and tighten the screw connections at the generator and the generator control cubicle.
- Check covers and power socket caps for damage and good sealing.
- Check the completeness of labeling and warning labels.

3.9 Emergencies

3.9.1 Correct fire fighting

Suitable measures

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

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

Extinguishing substances

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

3.9.2 Injury from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- fuel
- Lubricating oil
- Compressor cooling oil
- Engine coolant
- Battery electrolyte
- Tool lubricant (option e)
- Antifreeze (option ba)

Eye contact

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

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

Skin contact

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

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

Inhalation

Fuel and oil vapours impair breathing.

- Clear the respirator tract from fuel or oil vapour.
- Seek medical help if difficulty with respiration continues.

Ingestion

- Wash out the mouth immediately.
- Do not induce vomiting.
- Seek medical aid.

3.10 Warranty

This operating manual does not contain any independent warranty commitment. Our general terms and conditions apply with regard to warranty.

A condition of our warranty is that the machine is used solely for the purpose for which it is intended and under the conditions specified.

Due to the multitude of applications for which the machine is suitable, the user is obliged to determine its suitability for his specific application.

Furthermore, we do not assume any warranty obligation for damages caused by:

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

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

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

3.11 Identifying the effects of improper modifications

The machine and various modules are designed according to applicable regulations and are submitted for approval procedures by the relevant authorities (where applicable).

Concerned modules include:

- Engine
- Fuel supply
- Exhaust system
- Chassis (if available)
- Compressor
- Pressure-bearing components (e.g., valves, vessels, pipelines)

Remodeling or modifications can have the result that the interaction of the individual modules according to regulations is no longer ensured. Thus, the prerequisites required for approval by the authorities may no longer be given.

The concerned directives and regulations can be:

- Machinery directive
- Pressure vessel directive
- EMC directive
- Directive on environmental noise

In machines requiring a national road traffic permit, remodeling or modifications may adversely affect their approval for road traffic.

- Exhaust emission limits may not be met.
- The prerequisites for approval are no longer given.

Remodeling or modifications restrict the service work that can be performed for you (examples):

- Warranty (if directly and originally affected by the remodeling or modification)
- Reduced replacement part supply (scope, delivery times)

3.12 Environment protection

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

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

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4 Design and Function

4.1 Bodywork

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

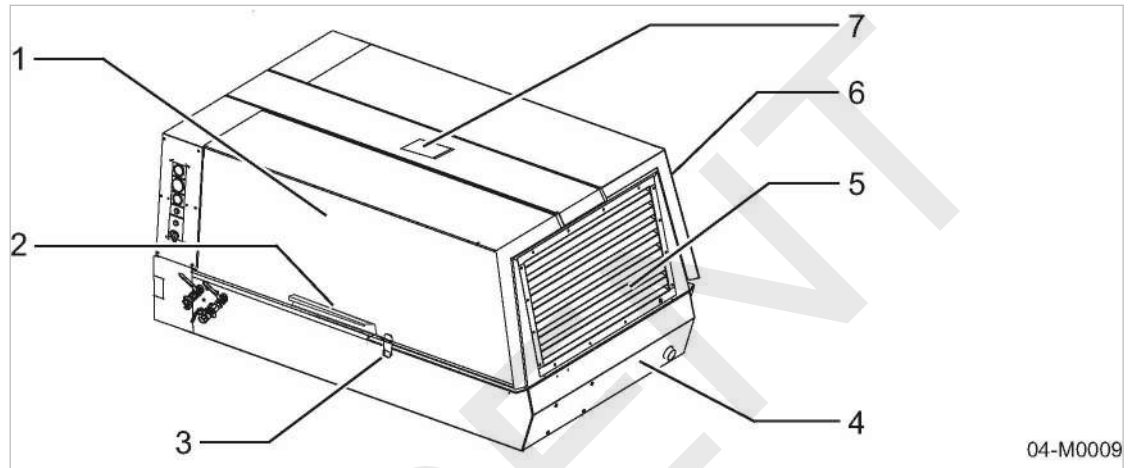


Fig. 2 Overview Bodywork

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

The bodywork has several functions when it is closed:

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

The bodywork is not suitable for the following uses:

- Walking on, standing or sitting on.
- Use as resting place or storage of any kind of load.



CAUTION

Danger of pinching!

Severe injuries of the fingers if they are caught when closing doors and covers.

- Work carefully.
- If necessary, wear protective gloves.

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

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

The doors are held open by gas springs.

4.2 Machine structure

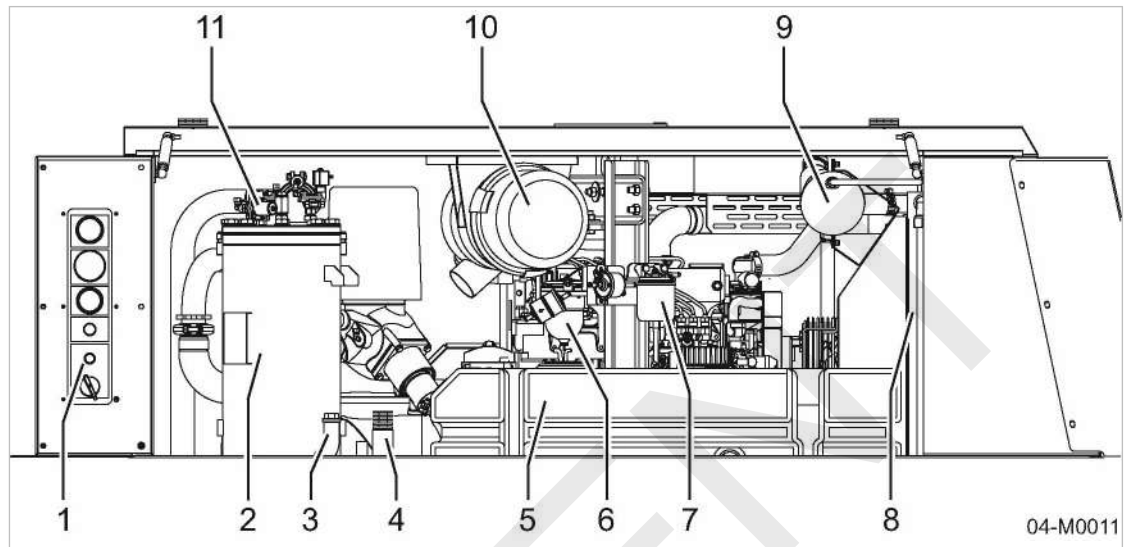


Fig. 3 Right-hand door opened

- | | |
|-----------------------------------|--|
| ① Operating panel | ⑦ Fuel micro-filter |
| ② Oil separator tank | ⑧ Oil cooler |
| ③ Oil filler port with plug | ⑨ Cooling water expansion tank |
| ④ Thermostatic valve | ⑩ Engine air filter |
| ⑤ Fuel tank | ⑪ Control valve with proportional controller |
| ⑥ Fuel pre-filter with water trap | |

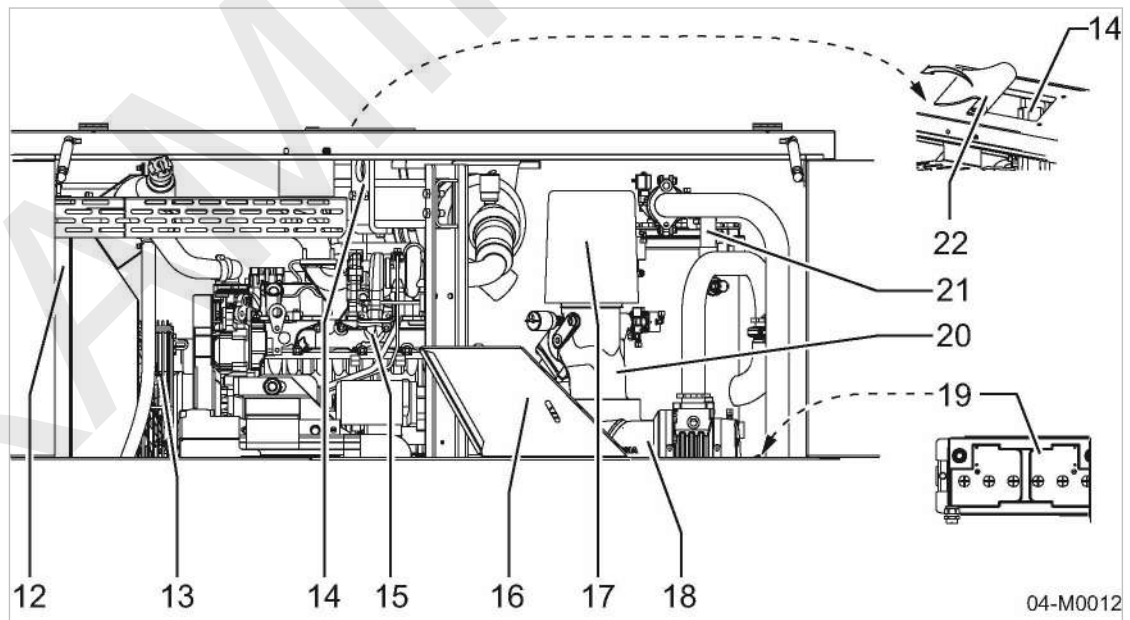


Fig. 4 Left-hand door opened

- | | |
|-------------------------|-------------------------|
| ⑫ Water cooler | ⑱ Airend |
| ⑬ Fan | ⑲ Battery |
| ⑭ Lifting eye | ⑳ Inlet valve |
| ⑮ Drive motor | ㉑ Pressure relief valve |
| ⑯ Toolbox | ㉒ Lifting eye cover |
| ⑰ Compressor air filter | |

4.3 Machine function

Machine function (without options)

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

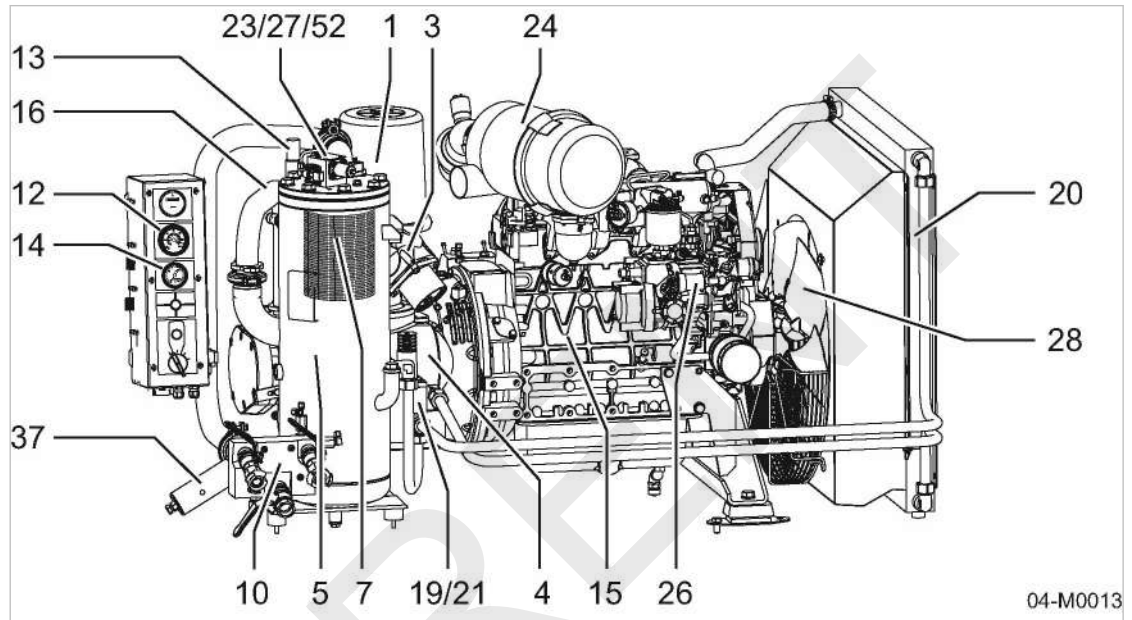


Fig. 5 Machine overview

- | | |
|--------------------------------|--------------------------------|
| ① Compressor air filter | ⑩ Air distributor |
| ③ Inlet valve | ⑪ Remote contact thermometer |
| ④ Airend | ⑫ Pressure relief valve |
| ⑤ Oil separator tank | ⑬ Pressure gauge |
| ⑦ Oil separator cartridge | ⑭ Drive motor |
| ⑯ Oil return line | ⑮ Oil filter |
| ⑰ Thermostatic valve | ⑯ Proportional controller |
| ⑲ Oil cooler | ⑰ Engine air filter |
| ⑳ Oil filter | ⑱ Venting valve |
| ㉑ Proportional controller | ㉒ Fan |
| ㉒ Engine air filter | ㉓ Minimum pressure check valve |
| ㉓ Venting valve | ㉔ Control valve |
| ㉔ Fan | |
| ㉕ Minimum pressure check valve | |
| ㉖ Control valve | |

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

The air is then compressed in the airend ④.

The airend is driven by an internal combustion engine ⑮.

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

Cooling oil recovered from the compressed air in the oil separator tank ⑤ gives up its heat in the oil cooler ⑲. The oil then flows through the oil filter ⑳ and back to the point of injection. Air pressure within the machine keeps the oil circulating. A separate pump is not necessary. A thermostatic valve ⑱ automatically maintains optimum cooling oil temperature.

Compressed air, freed of cooling oil in the oil separator tank ⑤, flows through the minimum pressure / check valve ㉓ into the air distributor ⑩. The minimum pressure/check valve ensures sufficient internal pressure to maintain cooling oil circulation.

The cooling fan ㉒ ensures optimum cooling of all components within the enclosure.

4.4 Operating modes and control mode

4.4.1 Operating modes

The machine operates in the following modes:

- **WARM UP**
 - The inlet valve is nearly fully closed.
 - The minimum intake air volume escapes via the venting valve.
 - The engine runs at minimum speed.
- **LOAD**
 - The inlet valve is open.
 - The engine runs at maximum speed.
 - The airend delivers compressed air.
- **MODULATING**
 - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is steplessly varied in response to the air demand.
 - The load and fuel consumption of the engine rises and falls with the air demand.
 - The airend delivers compressed air.
- **IDLE**
 - The inlet valve is closed.
 - The control valve opens, allowing pressure in the oil separator tank to be applied to the inlet valve.
 - Compressed air then flows in a closed circuit through the airend, the oil separator tank and the control valve.
 - The pressure in the oil separator tank remains constant.
 - The engine runs at minimum speed.
- **RUN-ON PERIOD/STOPPED**
 - The inlet valve closes.
 - The venting valve opens to de-pressurise the machine.
 - Machine cools down.
 - The engine stops.

4.4.2 MODULATING control

The control system regulates the volume of air generated to match the actual demand. The machine keeps the working pressure constant by varying the volume of compressed air delivered, thereby matching the air demand.

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

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

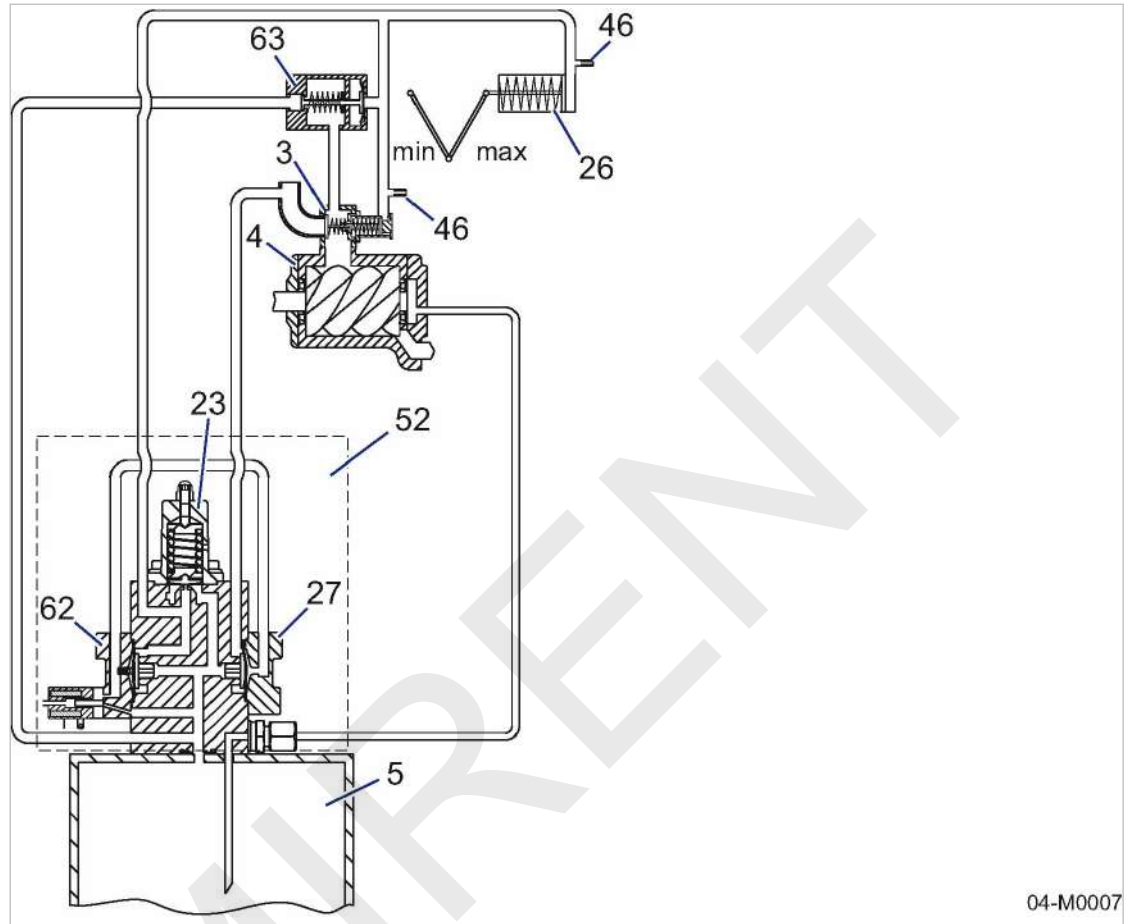


Fig. 6 Stepless regulation of FAD (standstill)

- | | |
|---|---|
| <ul style="list-style-type: none"> ③ Inlet valve ④ Air end ⑤ Oil separator tank ②⑥ Engine speed control cylinder ④⑥ Nozzle | <ul style="list-style-type: none"> ⑥③ Control valve (proportional valve) ⑤② Control valve comprising the following components: <ul style="list-style-type: none"> ②③ Proportional controller ②⑦ Venting valve ⑥② Combined auxiliary valve (directional control valve) |
|---|---|

4.5 Safety devices

4.5.1 Monitoring functions with shutdown

The following functions are monitored automatically.

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



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

4.5.2 Further safety devices

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

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

4.6 Options

The options available for your machine are described below.

4.6.1 Option da, db, dc, dd, ec Air treatment options

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

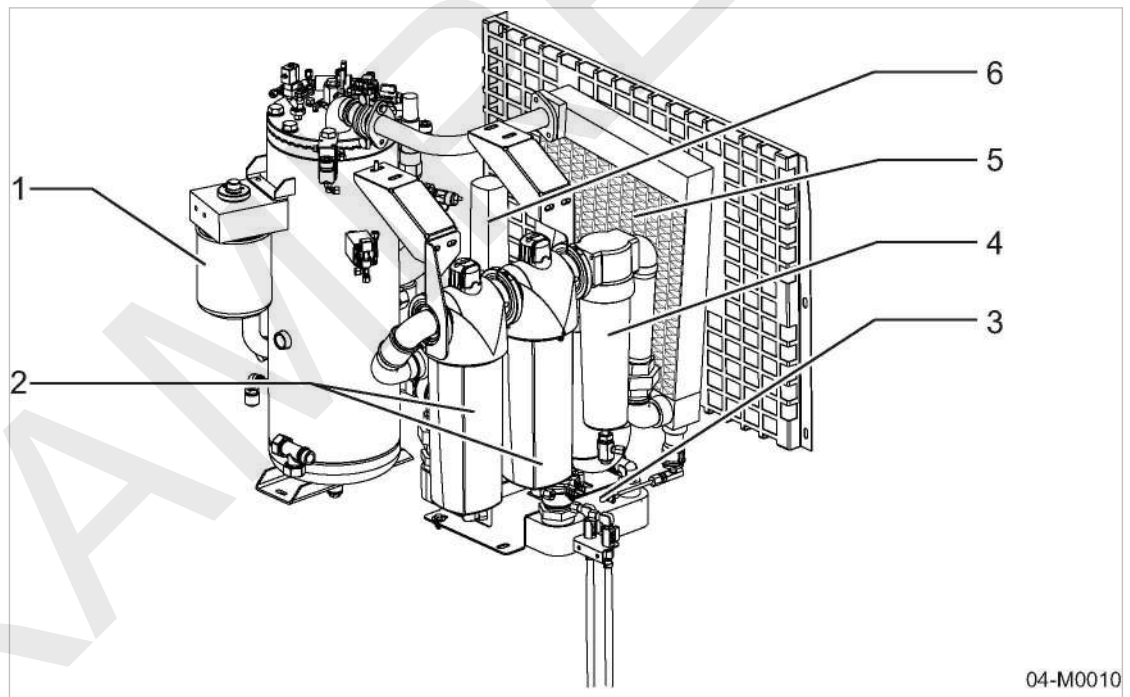


Fig. 7 Compressed air options

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

4.6.1.1 Option da After-cooler

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

4.6.1.2 Option da
Cyclone separator

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

4.6.1.3 Option db
Heat exchanger

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

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

4.6.1.4 Option dd
Filter combination

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

4.6.1.5 Option dc
Fresh air filter

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

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

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

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

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

**DANGER**

Danger from toxic air!

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

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



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

Further information See chapter 2.8.1.2 for ambient conditions under which the fresh air filter can be used.

Further information See DIN EN 12021 for more information regarding permissible limit values for hazardous contaminants in breathing air.

4.6.1.6 Option ec
Tool lubricator

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

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

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

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

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

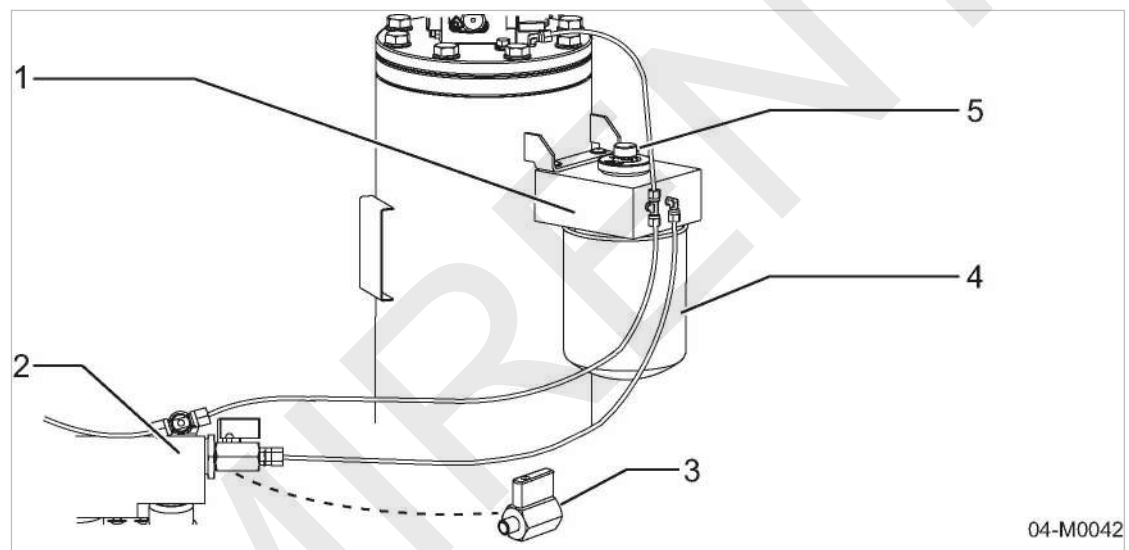
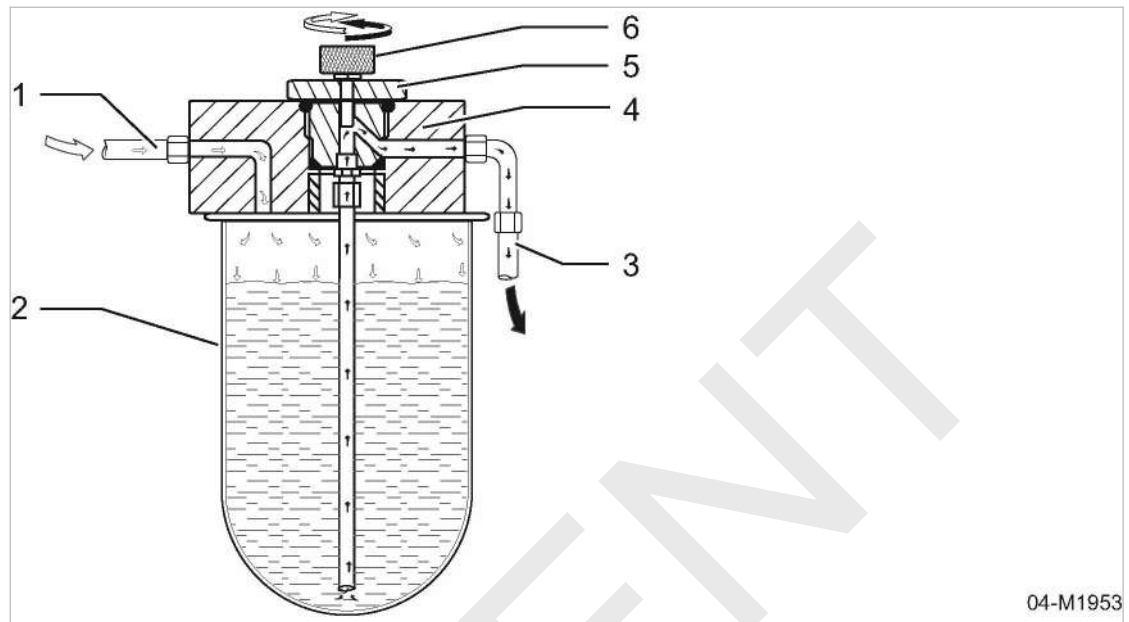


Fig. 8 Tool lubricator

- | | |
|-------------------------------------|-----------------|
| ① Tool lubricator | ④ Oil tank |
| ② Compressed air outlet distributor | ⑤ Metering knob |
| ③ Shut-off ball valve | |



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Fig. 9 Principle tool lubricator

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

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



NOTICE

Lubrication with tool oil.

Air tools that must not be lubricated can be damaged.

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

4.6.2 Option ba Low temperature equipment options

Special equipment is provided for operation in extremely low temperatures.

This equipment assures trouble-free operation in ambient temperatures from -25 °C to +50 °C.

The electrical system starts the engine without problem at ambient temperatures down to -20 °C.

4.6.2.1 Option bb Coolant pre-heating

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

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

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

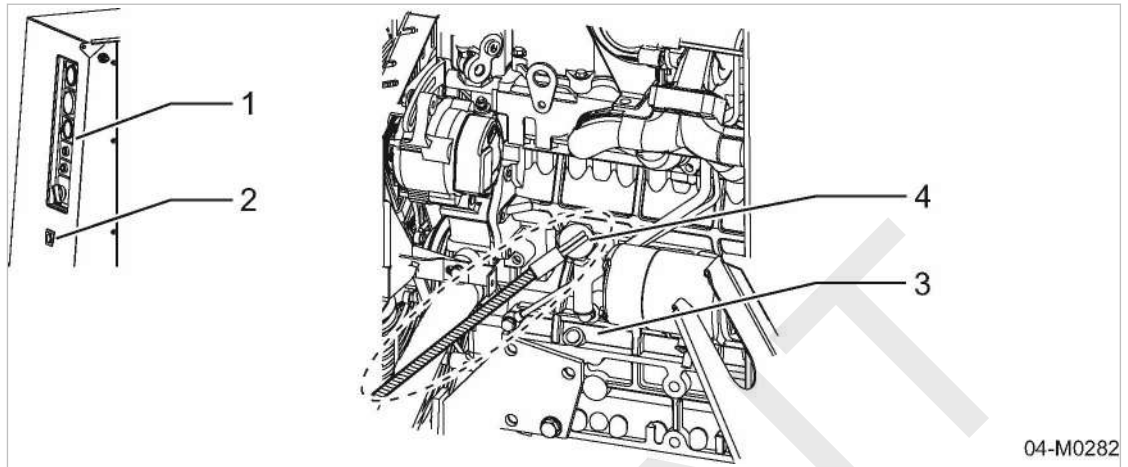


Fig. 10 Coolant pre-heating

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

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

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

4.6.2.2 Option bc Frost protection

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

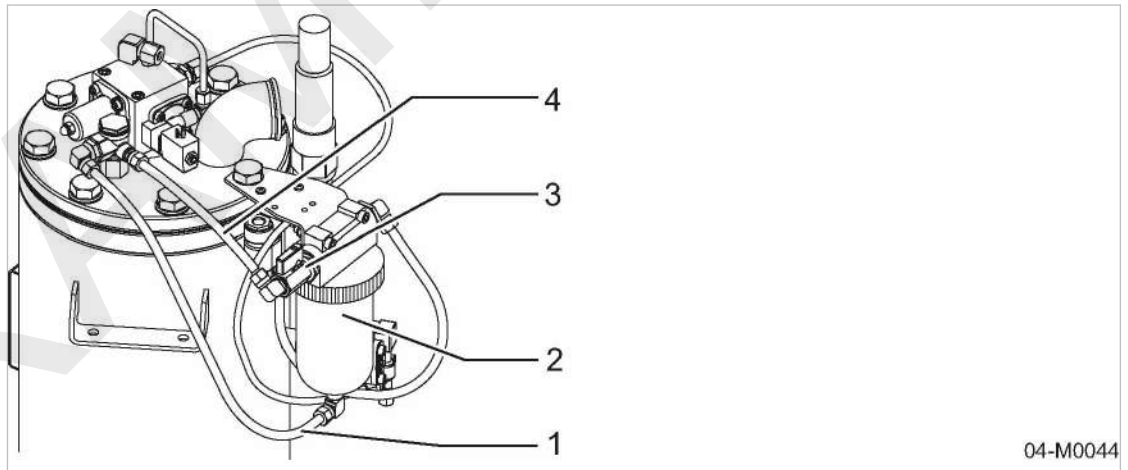


Fig. 11 Frost protector

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

Operating the machine in cold temperatures:

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

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

Machine operation in Summer:

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

4.6.3 Option oa Optional battery isolating switch

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

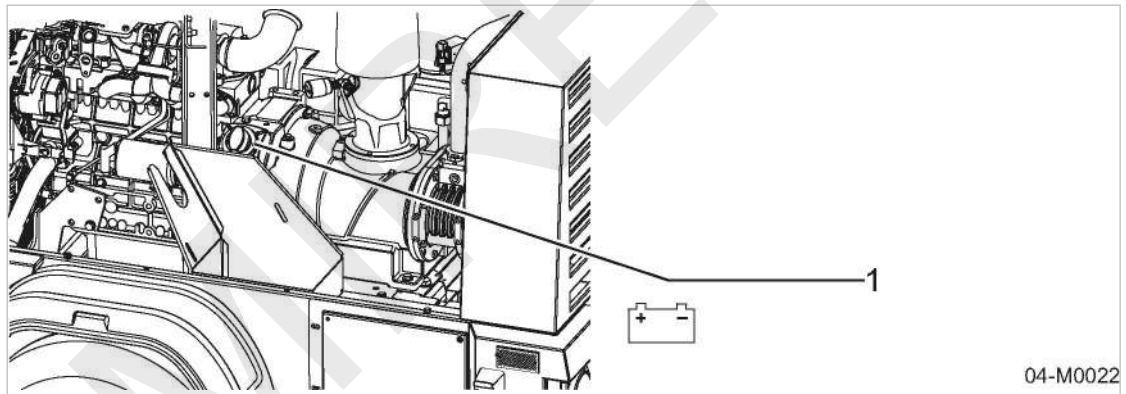


NOTICE

Danger of short circuit!

Damage to the machine electrics is possible.

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



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Fig. 12 Battery isolating switch

① «Battery isolating switch»

4.6.4 Option la, lb Options for operating in fire hazard areas

Diesel engines represent a potential source of ignition in environments with concentrations of gas, vapour or dust, and may cause major fires with disastrous consequences for people, the environment and the production.

For the operation in fire hazard areas, the machine is equipped with the following accessories:

- Engine air intake shut-off valve
- Spark arrestor

4.6.4.1 Option lb Engine air intake shut-off valve

If flammable gases and vapours are drawn by the Diesel engine from the environment into the air intake, they will act like catalytic converters. This causes a sudden and uncontrolled increase in engine speed that can result in serious mechanical damage. Without appropriate preventive measures, the engine and compressor can be destroyed. Explosion or fire are also possible.

When flammable gas is drawn into the engine, shutting off the fuel supply will not stop the engine right away. In order to shut down the engine quickly and reliably in these events, the intake of the combustion air must be interrupted.

If a certain engine speed is exceeded, the engine controller closes the engine air shut-off valve for intake air. This brings the engine to an immediate stop.

4.6.4.2 Option la Spark arrestor

Sparks in exhaust fumes represent a considerable risk in environments with flammable materials. Flying sparks combined with flammable materials may cause fires and explosions.

A spark arrestor on the exhaust silencer is required when operating a diesel engine in a fire hazard area and in forestry and agricultural applications. In such applications, a spark may ignite flammable materials.

The spark arrestor prevents the exhaust silencer emitting any glowing fuel residue.

4.6.5 Option ga Generator option

A generator is installed to provide a power supply to electrical consumers. The generator is driven from the engine by a drive belt. A tensioning device automatically ensures optimum belt tension.

4.6.5.1 Operating modes

The compressor works with the normal air delivery regulation and generates electrical power at the same time.

The generator can work in two modes. These are selected by the mode switch:

- Automatic cut-in
- Continuous load

Generator main switch	Mode selector switch	What is provided?
OFF	-	Compressed air
ON	Position 1 (automatic start mode)	Compressed air and electrical power
	Position 2 (continuous load)	Electrical power and compressed air

Tab. 64 Generator / Compressor operation

Operating mode	Automatic cut-in	Continuous load
Switch position	Position 1	Position 2
Engine speed	Electrical power input > 100 VA: automatic maximum speed	Permanent maximum speed (engine under full load)
	Power consumption below minimum value: Engine run-on time of approximately 2 minutes at maximum speed	

Operating mode	Automatic cut-in	Continuous load
Advantages	Fuel saving Constant oscillation between maximum and minimum speed avoided	Continuous generator power available without delay

Tab. 65 Generator operating modes

4.6.5.2 Operating controls

The switches, fuses and outlet sockets for electrical consumers are located on the generator control box. Individual consumers are connected only by these outlet sockets.

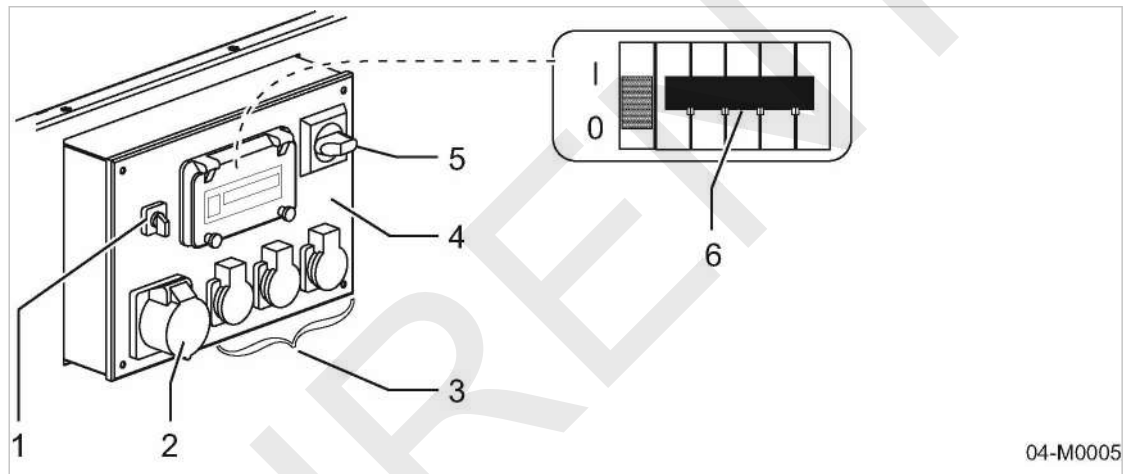


Fig. 13 Instrument panel – generator control box, 400 V AC

- ① «Mode selector switch»
- ② Three-phase power sockets
- ③ Single-phase power sockets
- ④ Generator control box
- ⑤ «Generator main switch»
- ⑥ «Safety cut-out» (with overcurrent release)

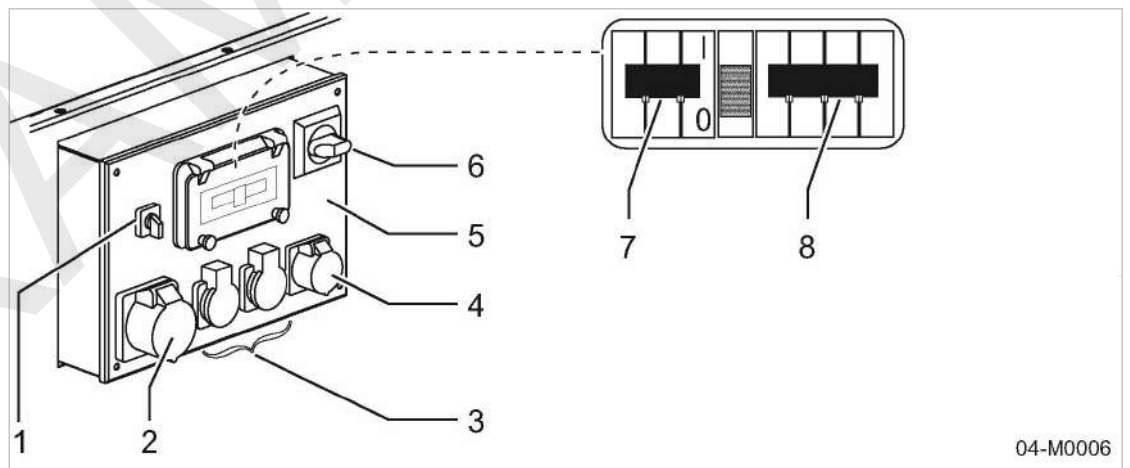


Fig. 14 Instrument panel – generator control box, 230 V AC

- ① «Mode selector switch»
- ② 32 A three-phase power socket
- ③ Single-phase power sockets
- ④ 16 A three-phase power socket
- ⑤ Generator control box
- ⑥ «Generator main switch»
- ⑦ «Safety cut-out»
- ⑧ «Safety cut-out» (with overcurrent release)

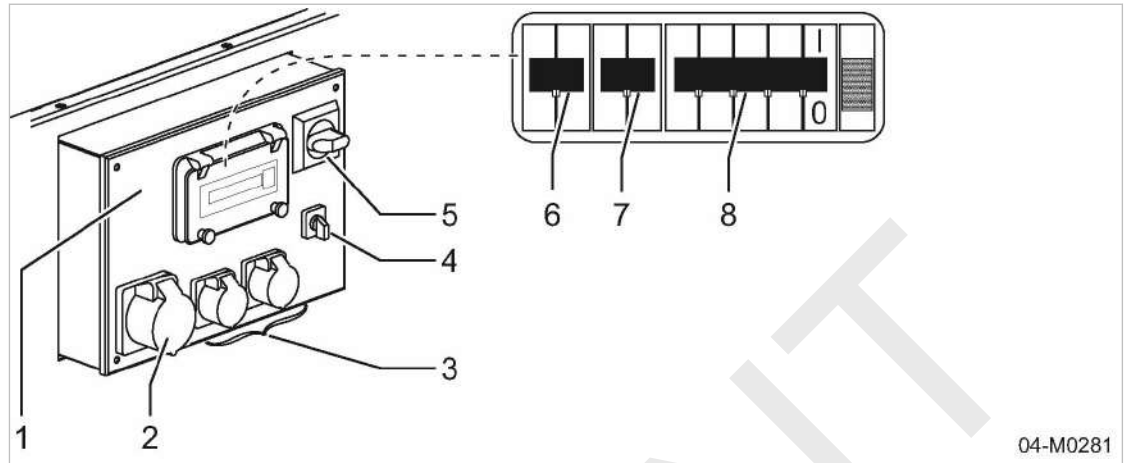


Fig. 15 Generator instrument panel - control box, 115 V, single-phase (50 Hz)

- | | |
|--------------------------|---|
| ① Generator control box | ⑤ «Generator main switch» |
| ② Power socket, 32 A | ⑥ «Safety cut-out» |
| ③ Power socket, 16 A | ⑦ «Safety cut-out» |
| ④ «Mode selector switch» | ⑧ «Safety cut-out» (with overcurrent release) |

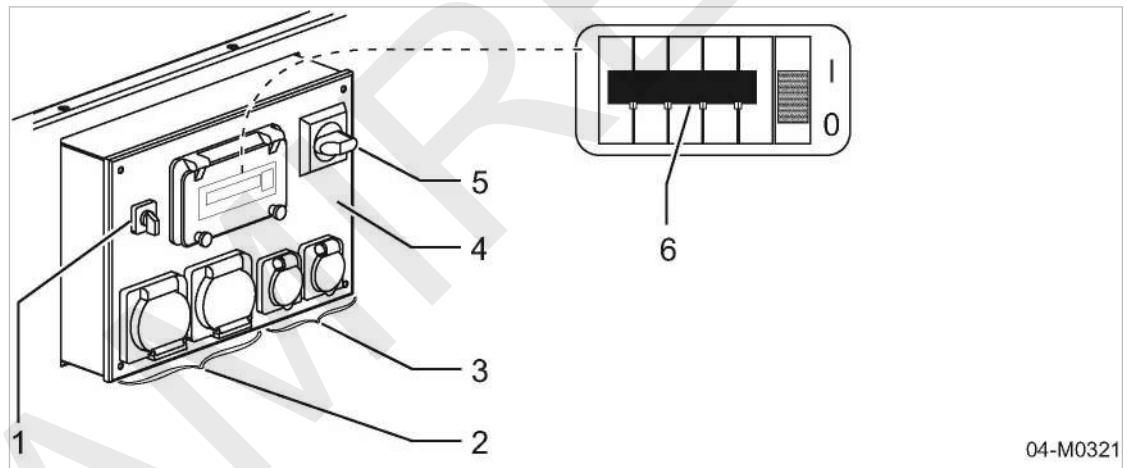


Fig. 16 Generator instrument panel - control box, 230 V, single-phase (60 Hz)

- | | |
|--------------------------|---|
| ① «Mode selector switch» | ④ Generator control box |
| ② Power socket, 250 V | ⑤ «Generator main switch» |
| ③ Power socket, 125 V | ⑥ «Safety cut-out» (with overcurrent release) |

4.6.6 Option Ic Diesel particulate filter option

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

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

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

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

General design

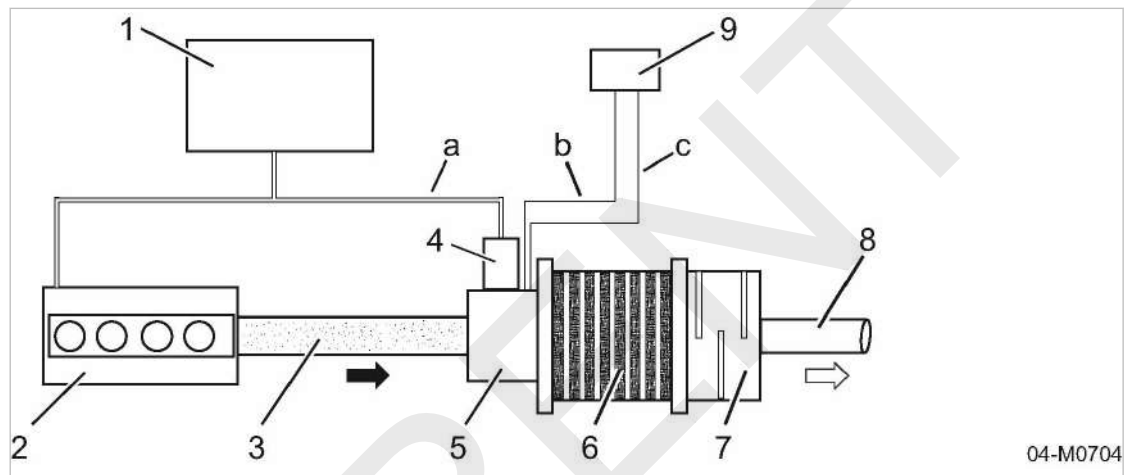


Fig. 17 General design of the diesel particulate filter system

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



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

**4.6.7 Option ua
Hose reel option**

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

**4.6.8 Option sf
Optional anti-theft device**

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

**4.6.9 Option sg
Pedestrian protection option**

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

4.6.10 Option pa, pb
Instrument panel cover option

To prevent unauthorised use and as protection during transport the machine is fitted with instrument panel cover(s).

- Instrument panel cover (option pa)
- Generator control box cover (option ga)

4.7 Frame design options for stationary machines

4.7.1 Option rw , rx
Chassis types of stationary machines

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

Tab. 66 Stationary machines

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

5 Installation and Operating Conditions

5.1 Ensuring safety

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



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Strictly forbid fire, open flame and smoking.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapours or parts of the machine.
- Do not store inflammable material in the vicinity of the machine.
- The machine is not explosion-proof!
Do not operate in areas in which specific requirements with regard to explosion protection are applied.
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Suitable fire extinguishing material must be to hand.
- Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

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

5.2 Installation conditions

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

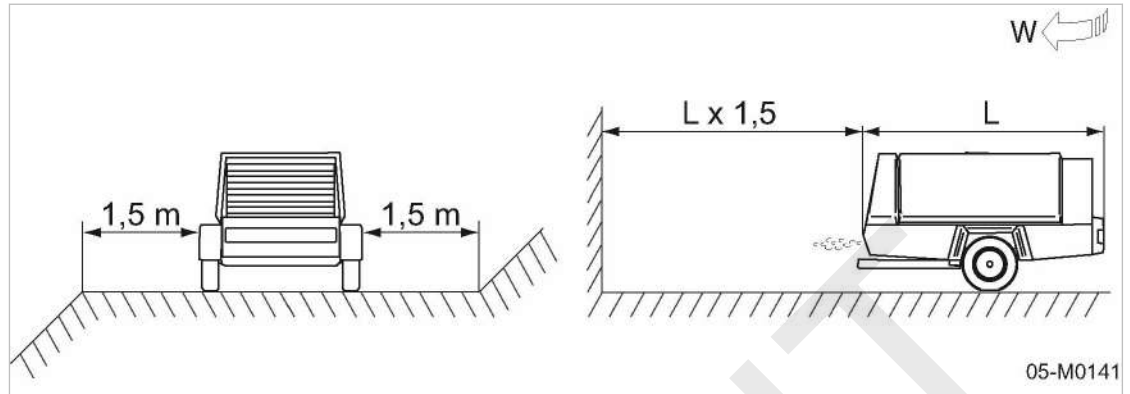


Fig. 18 Minimum distance from excavations/slopes and walls

(W) Wind direction

1. Keep sufficient distance (at least 1.5 m) from the edges of excavations and slopes.
2. Ensure that the machine is as level as possible.



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



3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance. The operator panel must be accessible and within reach at any time.

4. **NOTICE!**

Fire hazard from build-up of heat and hot exhaust system!

Insufficient distance from a wall may well cause heat build-up that could damage the machine.

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

5. Position the machine as far as possible from any wall.
6. Ensure there is enough free space all round and above the machine.
7. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
8. Install the machine ensuring that

- exhaust gases and heated exhaust air can escape freely.
- Do not allow exhaust gases and heated cooling air to be drawn into the compressor.
Note the wind direction! (see figure 18)
- Ensure the unimpeded intake of fresh air (air intake, cooling air).



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 winter diesel fuel.
- Use low viscosity compressor cooling oil.

10. At ambient temperatures below 0 °C, 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 notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Installation work may only be carried out by authorised personnel.
- Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.

Further information

Details of authorised personnel are found in chapter 3.4.2.

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

6.2 Reporting Transport Damage

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

7 Initial Start-up

7.1 Ensuring safety

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



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

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

Further information

Details of authorised personnel are found in chapter 3.4.2.

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

7.2 Before Initial Start-up (or Recommissioning)

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

7.2.1 Note when commissioning



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

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

7.2.2 Special measures for re-commissioning after storage or de-commissioning

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

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

Tab. 67 Measures for re-commissioning the compressor after a long period of storage or de-commissioning

7.3 Checking installation and operating conditions

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

Check	See chapter	Confirmed?
➤ Are the operators fully conversant with safety regulations?	–	
➤ Have all the positioning conditions been fulfilled?	5	
➤ Is there sufficient cooling oil in the separator tank?	10.4.1	
➤ Is there sufficient oil in the engine?	10.3.4	
➤ Is the maintenance indicator on the air intake filters (engine and compressor) OK?	10.3.2, 10.4.7	
➤ Is there sufficient coolant in the coolant expansion tank?	10.3.1	
➤ Is there sufficient fuel in the fuel tank?	–	
➤ Is there sufficient tool oil in the tool lubricator? (Option ec)	10.7.1	
➤ Is there enough antifreeze in the frost protector? (Option ba)	10.7.5	
➤ Are the access doors closed and all body panels in place?	–	
➤ Are the tyre pressures OK?	–	

Tab. 68 Positioning and operating conditions checklist

7.4 Low-temperature operation (winter)

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

- In temperatures below $0\text{ }^{\circ}\text{C}$, use the following operating materials/components:
 - Winter-grade engine oil,
 - Low viscosity cooling oil for the compressor
 - Winter-grade diesel fuel
 - stronger 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 open air outlet valves until an airend discharge temperature of $+30\text{ }^{\circ}\text{C}$ is reached. The airend discharge temperature is shown at the remote thermometer contact on the instrument panel.

7.4.1 Starting assistance

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

Material Jumper cables

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



WARNING

Fire and explosion hazard.

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

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

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

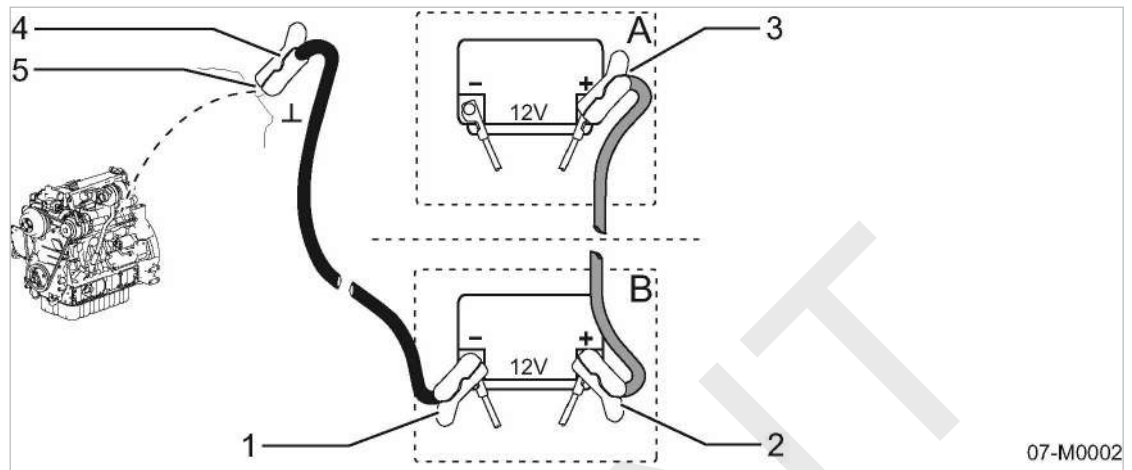


Fig. 19 Jumper cable connection diagram

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

Complying with safety notes



1. **WARNING!**

Fault in starting aid process!

- Connect batteries of the same voltage only.
- Ensure that machine and assisting vehicle do not touch.
- Switch off all consumers prior to connecting and disconnecting the batteries.
- Only use battery jumper cables of sufficient diameter and with insulated terminal clamps.
- Observe the instructions provided with the battery jumper cables.
- Keep jumper cables away from rotating parts.
- Avoid short-circuits due to incorrect poling and/or bridging with tools.
- Do not bend over the batteries when attaching jumper cables.
- Do not attempt to start the machine if its battery is frozen. Allow the battery to thaw first.
- Do not try to start the machine with a boost charger.

2. Comply with the safety instruction shown when using starting aids and starter batteries.

Preparations:

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

Connecting the battery jumper cables

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

**Starting the engine:**

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



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

Disconnecting the battery jumper cables

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



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

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

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

Option bb Operating the engine cooling water pre-heater

The engine coolant can be pre-heated to improve starting under cold conditions. The connection for the mains supply is located on the machine's instrument panel.

Option bb

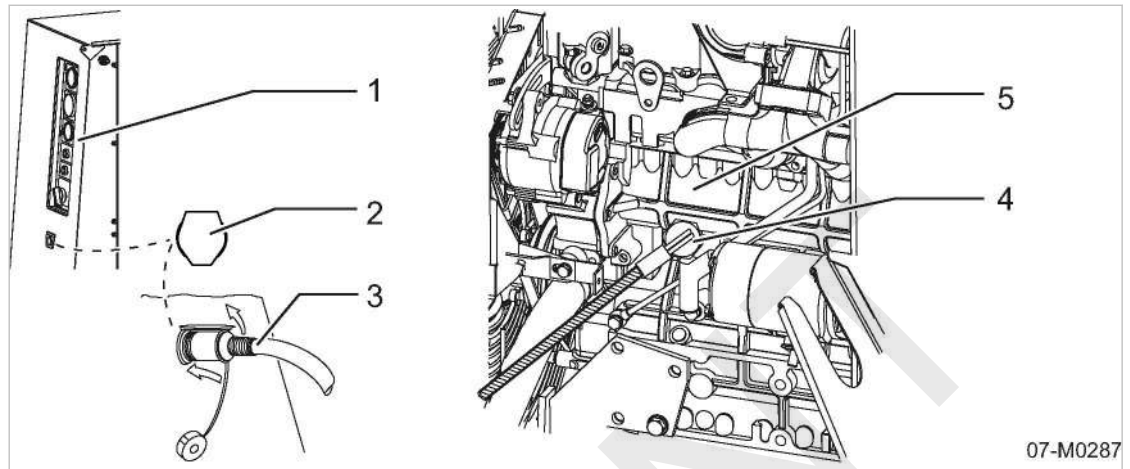


Fig. 20 Coolant pre-heating

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



1. **DANGER!**

Danger of fatal injury from electric shock!

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

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

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

Option bc **Operating the frost protector**

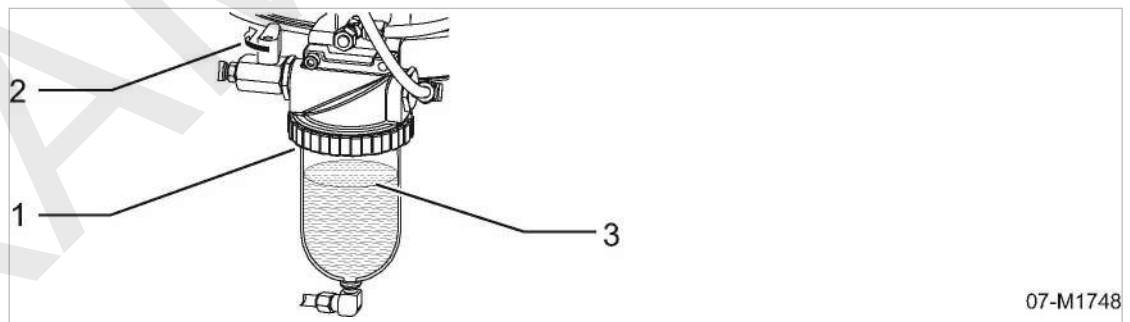


Fig. 21 Operating the frost protector

- | |
|-----------------------|
| ① Frost protector |
| ② Ball valve (closed) |
| ③ Level of antifreeze |

- Use the checklist when initially starting the frost protector.

To be checked	see chapter	Confirmed?
Level of antifreeze in the frost protector.	10.7.5	

To be checked	see chapter	Confirmed?
Close the tap on the frost protector.	8.6	

Tab. 69 Low-temperature equipment checklist

7.5 Option ga Putting the generator into operation

The generator can be operated without earthing.

Test the insulation monitoring daily with the motor running before putting the generator into operation.

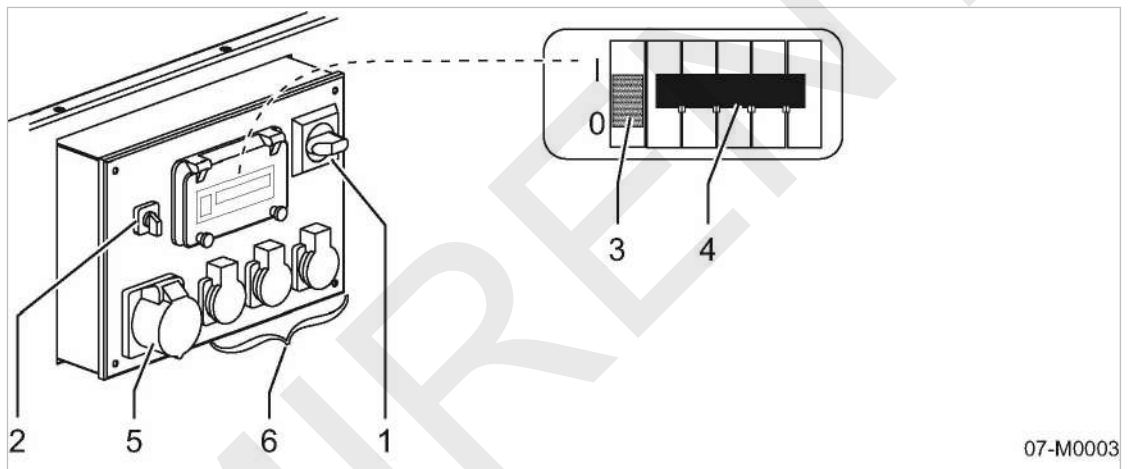


Fig. 22 Insulation monitoring – 400 V three-phase Generator

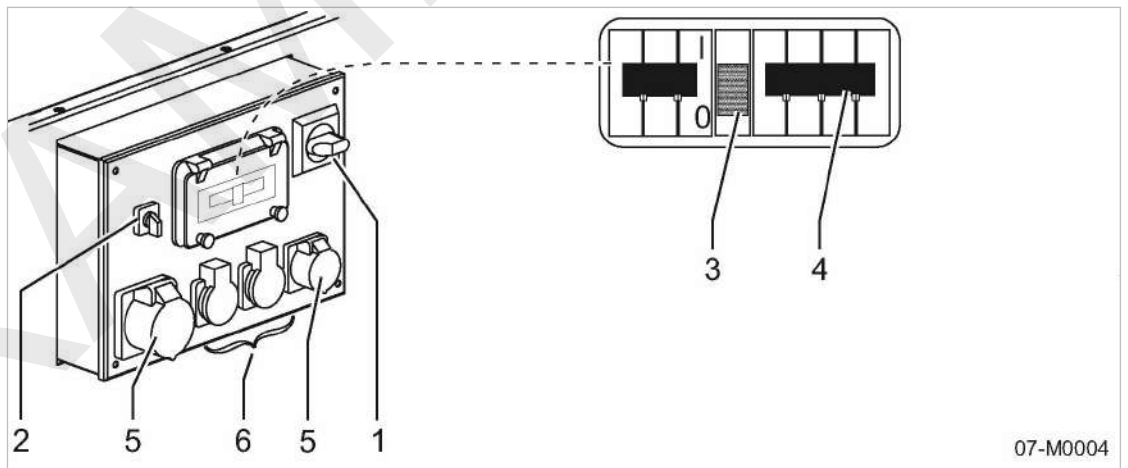


Fig. 23 Insulation monitoring – 230 V three-phase Generator

- | | |
|---|---|
| ① «Main switch» | ④ «Mains circuit breaker» |
| ② «Operating mode selector switch» | («Circuit breaker» designed as automatic circuit-breaker with shunt trip) |
| ③ Test button with <i>earth leak</i> warning lamp for «insulation monitoring» | ⑤ Three-phase power sockets |
| | ⑥ Single-phase power sockets |

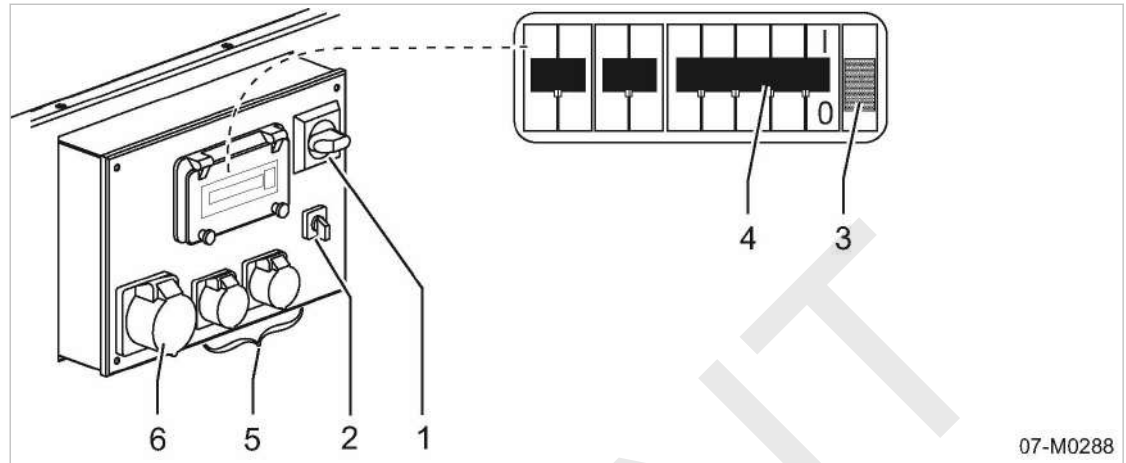


Fig. 24 Insulation monitoring - 115 V, single-phase generator (50 Hz)

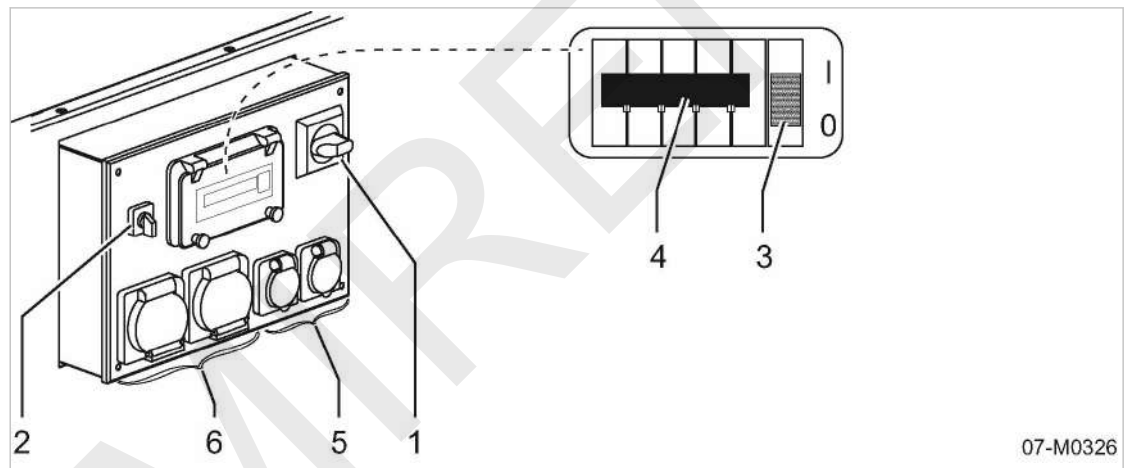


Fig. 25 insulation monitoring - 230 V, single-phase generator (60 Hz)

- | | |
|--|---|
| ① «Main switch» | ④ «Mains circuit breaker»
(«Circuit breaker» designed as automatic
circuit-breaker with shunt trip) |
| ② «Operating mode selector switch» | |
| ③ Test button with <i>earth leak</i> warning lamp
for «insulation monitoring» | ⑤/⑥ Single-phase power sockets |

1. Start the machine.

2. **DANGER!**

Risk of fatal injury caused by contact with live components!

- The generator may only be used if the «circuit breaker» («mains circuit breaker») has tripped during the test!



3. Check the insulation monitor according to instructions:



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

DANGER!**Electrical power**

Risk of fatal injury caused by contact with live components!

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

Checking the «safety cut-out»:

- ▶ Switch on the «mains circuit breaker» ④ for the generator.
- ▶ Press and hold the «test button» ③ for 3 seconds.

The «mains circuit breaker» ④ trips.

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

- ▶ Shut down the generator and call KAESER SERVICE.

Tab. 70 Test instructions for a generator with an earth leak detection device.

8 Operation

8.1 Ensuring safety

Here you will find instructions for a safe operation of the machine.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

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

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.

Safe working with compressed air tools and hoses

Open and pressurised compressed air hoses move erratically and can cause serious injury to people.

- Pressurise compressed air hoses only after the tool has been connected.
- Do not pressurise open compressed air hoses.
- Detach compressed air hoses only after the hose has been purged of compressed air.
- At working pressures >7 bar, 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 minimise 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 authorised personnel are found in chapter 3.4.2.

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

8.2 Starting and stopping

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



NOTICE

Serious damage to engine from cold starting sprays.
Cold-start assists, such as ether or other sprays, can cause severe engine damage.
➤ Do not use cold start sprays.

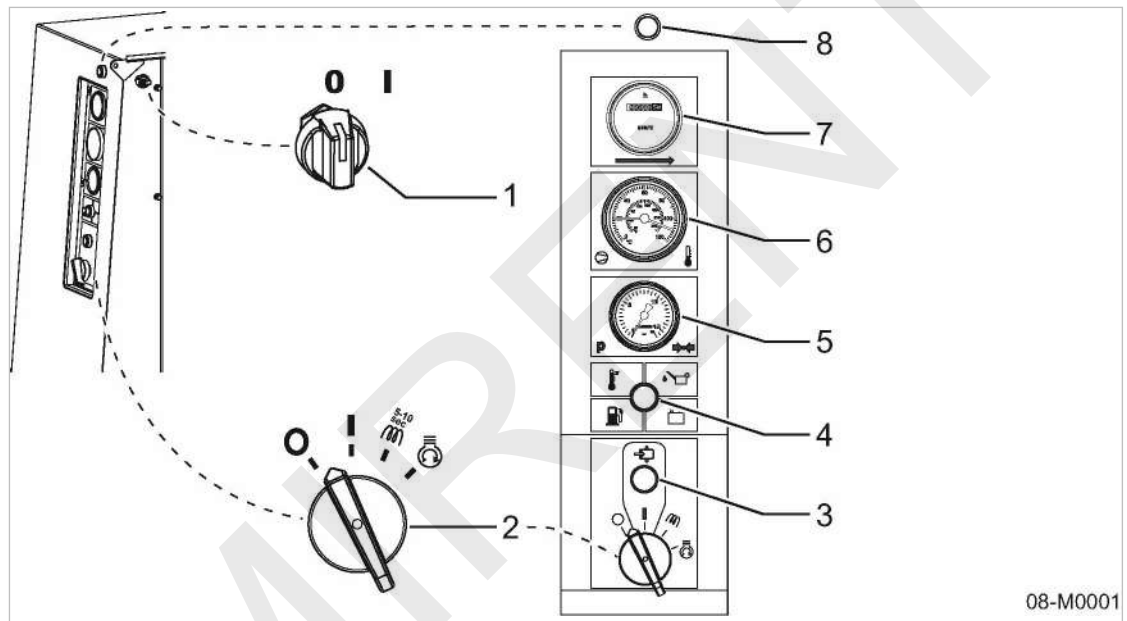


Fig. 26 Starting instruments

- | | |
|---|--|
| <p>① «Controller On» switch</p> <p>② «Starter switch »</p> <p>○ – STOP/Off</p> <p>⊏ – On</p> <p>⊏ – Preheat</p> <p>⊏ – START</p> <p>③ ⊏ – «Load On» key with integrated <i>LOAD mode</i> indicating light</p> <p>④ <i>Charging indicator lamp, group alarm lamp</i></p> | <p>⑤ Compressed air outlet pressure gauge</p> <p>⑥ Temperature gauge switch</p> <p>⑦ Operating hours counter</p> <p>⑧ Indicator <i>fault on the diesel particulate filter</i> (Option Ic only)</p> |
|---|--|

Notes concerning snow and ice

Considerable snow or ice may build up on the machine under low temperature conditions.
➤ Remove any snow and ice from the machine before operating.

8.2.1 Running the machine

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

4. Turn the « starter switch » to "ON".
The *charging indicating light* must light.

8.2.2 Engine pre-heating

The pre-heating period should be between 5 and a maximum of 10 seconds depending on ambient temperature. Low ambient temperatures require a longer pre-heating period.



The electric fuel pump starts automatically during pre-heating. This vents the fuel line before each start.



1. **NOTICE!**
Destruction of the glow plug!
Excessive pre-heating can cause severe damage to the glow plug.
 - Never allow the glow plugs to operate for longer than 10 seconds.
2. Turn the «starter switch» to the "Pre-heat" position and hold for 8 to 10 seconds.
The engine's glow plugs are energised and the engine pre-heated.

8.2.3 Starting the machine



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

8.2.3.1 Option Ic

Note the indicator for the diesel particulate filter

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

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

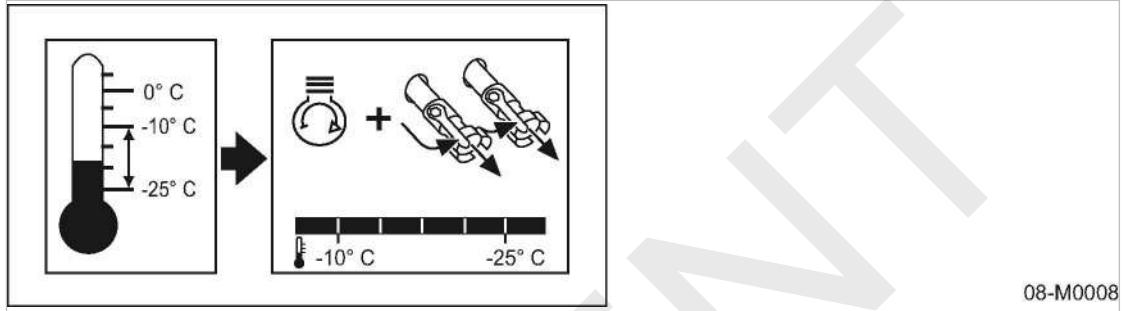


The control unit records the alarm message so it can be proven if the machine continues to be operated with an illuminated alarm indication. The manufacturer accepts no liability from consequential damage.

8.2.4 Allow the machine to run up to operating temperature

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

Option ba



08-M0008

Fig. 27 Label referring to the warm-up period when ambient temperatures are below -10 °C

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

8.2.5 Switching to LOAD

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



1. **WARNING!**
Compressed air can cause serious injuries.
 - Never direct compressed air at persons or animals.
 - Make sure that no one is working on the machine.
 - Ensure that all panels are in place.
 - Ensure that all machine doors are closed.
2. Press the «Load On »button.

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

8.2.6 Regulating the shut-off valve

To prevent users' devices from venting when the compressor shuts down and automatically vents, a shut-off valve is installed in the control air line between oil separator tank and air distributor.

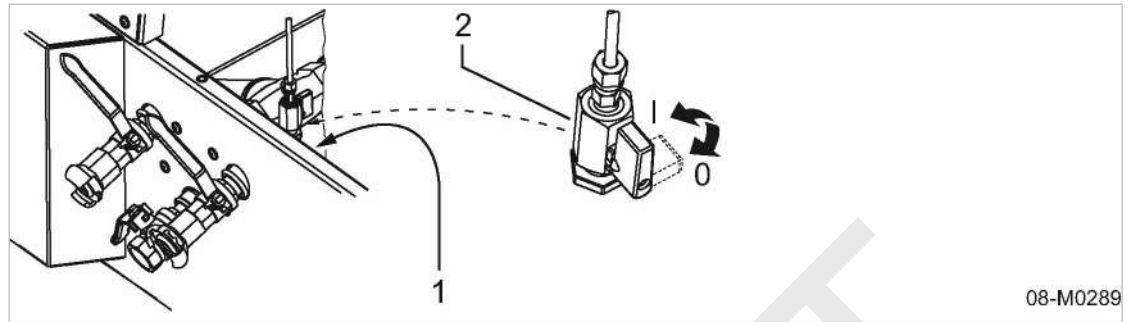


Fig. 28 Control line shut-off valve

- ① Compressed air outlet distributor
- ② Shut-off ball valve
- 1 – open
- 0 – closed

1. Open the right-hand access door.
2. Check the shut-off valve in the control line.
Shut-off valve is closed: open the shut-off valve.
The machine is ready for operation.
3. Close the door.

8.2.7 Shutting down the machine



NOTICE

Thermal overload of the turbocharger!

Abrupt stopping of the engine under load can cause a fault or damage to the turbocharger.

- Run the engine a few minutes in idle before shutting down to allow the turbocharger to cool.

Operating the machine in the cool-down phase

1. Close all «compressed air outlet valves» on the air distributor.
The engine runs in IDLE and the turbocharger can cool down.
2. After approx. 2 to 3 minutes, switch the «starter switch» to the "STOP/Off" position.
The engine turns off.

Make sure equipment is protected from venting

Compressed air lines to consumers should not vent when the compressor shuts down.
A typical example would be a user's auxiliary air receiver.



The shut-off valve must remain open for any other applications!

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

Further information Close the shut-off valve in the control line (see Fig. 28).

Shutting down the machine:

1. Switch off the «Controller On» switch.
2. Close the door.



Secure both doors with locks as necessary.

8.3 Ending the reverse engine run

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

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

**Characteristics of a reverse engine run**

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

**CAUTION**

Reverse engine run
Mechanical damage from interrupted oil circuit.

- Shut down the machine immediately.

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

**8.4 Option ua
Using the hose reel**

The machine is fitted with an compressed air extension hose.

A hose reel is provided for safe storage of this hose.

- Check which hose reel is fitted to your machine.

8.4.1 Using the hose reel (EC version)

The hose reel is on the front of the machine.

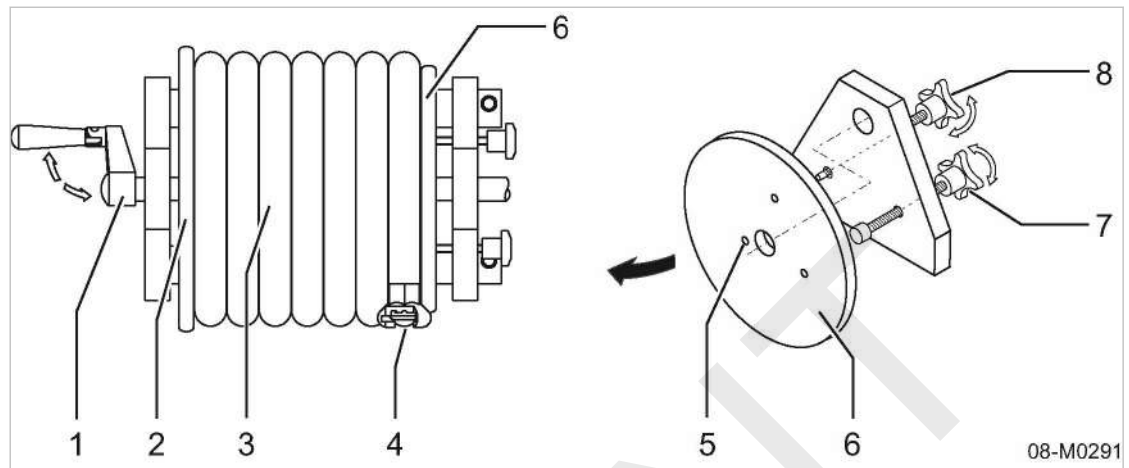


Fig. 29 Hose reel (EC design)

- | | | | |
|---|---------------------------|---|-------------------------|
| ① | Winding handle (fold out) | ⑤ | Securing holes |
| ② | Hose reel | ⑥ | Hose reel side plate |
| ③ | Hose | ⑦ | Clamping screw |
| ④ | Hose coupling | ⑧ | Transport securing bolt |

8.4.1.1 Operating the machine with an extension air hose.

- Loosen the transport securing pin ⑧ and the clamping screw ⑦.
- Fold out the crank handle ① and reel out the required length of hose ③.
- Tighten the clamping knob.
The reel is locked against unwanted reeling in or out.
- Fold in the handle.
- Connect the air tool.
- Activate the machine.
- Open the compressed air shut-off valve.

8.4.1.2 Operating the machine without an extension air hose.

- Close the compressed air shut-off valve.
- Disconnect the air consumer.
- Fold out the winding handle ① and reel in the hose ③ firmly and evenly.
- Tighten the clamping screw ⑦.
The reel is locked against unwanted reeling in or out.
- Fold in the handle.

8.4.1.3 Securing the hose reel for transport

- Check that the hose is firmly and evenly reeled in. Reel again, if necessary.
- Locate the securing hole ⑧ in the reel's side plate ⑤ until it is aligned with the securing screw ②.
- Screw in the securing bolt fully.
- Tighten the clamping screw ⑦.

8.4.2 Using the hose reel (USA version)

The hose reel is mounted on the towbar.

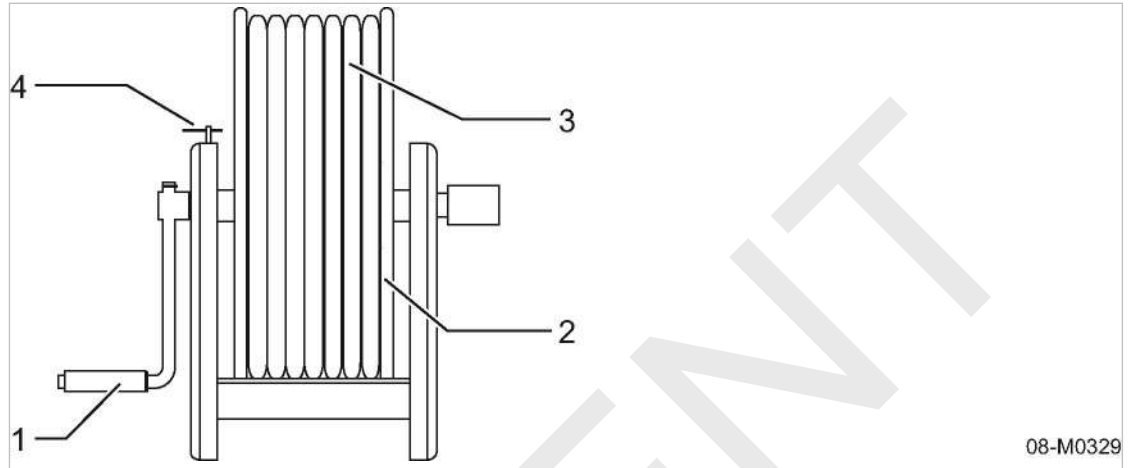


Fig. 30 Hose reel (EC design)

- | | | | |
|---|----------------|---|----------------|
| ① | Winding handle | ③ | Hose |
| ② | Hose reel | ④ | Clamping screw |

8.4.2.1 Operating the machine with an extension air hose.

1. Loosen the clamping screw ④.
2. Reel out the required length of hose ③.
3. Tighten the clamping knob.
The reel is locked against unwanted reeling in or out.
4. Connect the air tool.
5. Activate the machine.
6. Open the compressed air shut-off valve.

8.4.2.2 Operating the machine without an extension air hose.

1. Close the compressed air shut-off valve.
2. Disconnect the air consumer.
3. Loosen the clamping screw ④.
4. Use the winding handle ③ to reel in the hose ① firmly and evenly.
5. Tighten the clamping knob.
The reel is locked against unwanted reeling in or out.

8.4.2.3 Securing the hose reel for transport

1. Check that the hose is firmly and evenly reeled in. Reel again, if necessary.
2. Tighten the clamping screw ④.
The reel is locked against unwanted reeling in or out.

8.5 Option ec Operating the tool lubricator

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

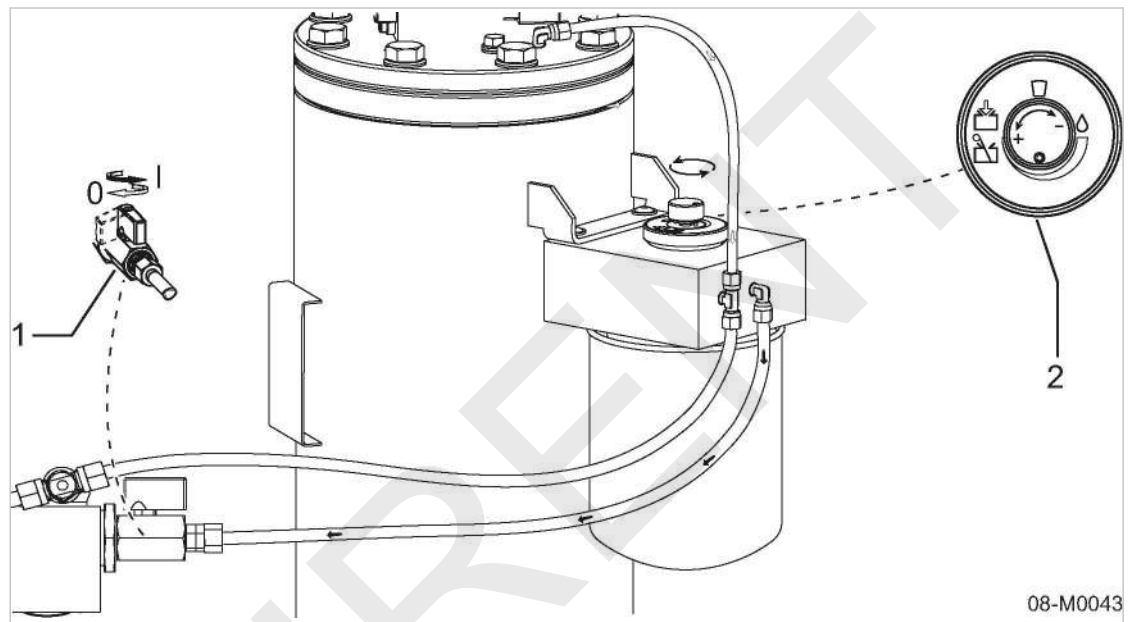


Fig. 31 Setting the tool lubricator

- ① Shut-off valve
I – open
0 – closed
- ② Metering knob

➤ Open the right-hand access door.

Adding lubricating oil

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

Setting the oil flow

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

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

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

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

Further information Fill the tool lubricator with suitable oil (see chapter 10.7.1)

Shutting off lubricating oil

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

**8.6 Option ba
Using the low-temperature equipment**

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

**8.6.1 Option bb
Coolant pre-heating**

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

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

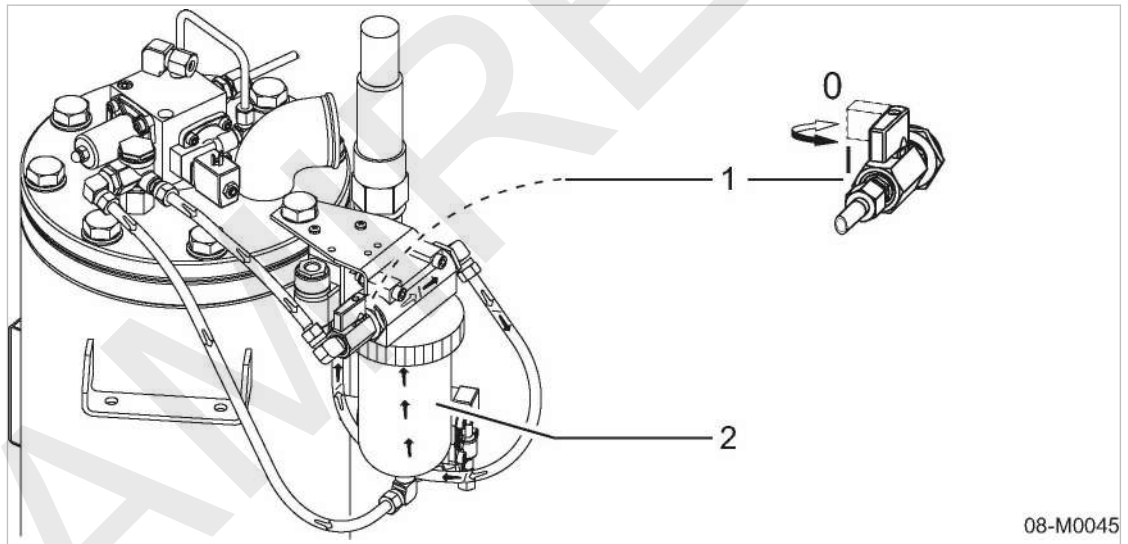


Fig. 32 Frost protector on and off

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

Precondition The machine is switched off.

- Open the right-hand access door.

Using with the frost protector switched on

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

Precondition Frost protector filled with antifreeze

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

Result The machine is ready for winter operation.

Further information See chapter 10.7.5 for filling the frost protector with antifreeze.

Using with the frost protector switched off

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

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

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

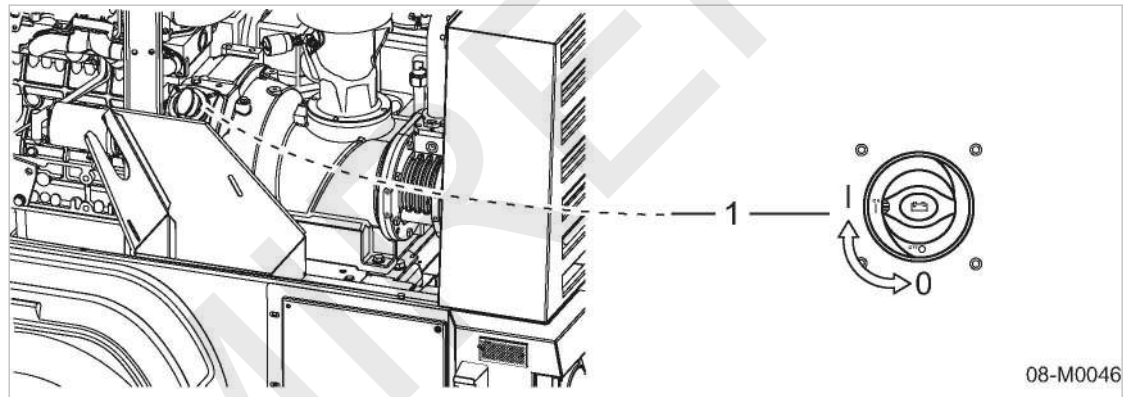


Fig. 33 Battery isolating switch

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

➤ Open the left-hand door.

Start the machine

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

Shutting down the machine

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

8.8 Option ga Generator operation



DANGER

Risk of fatal injury caused by contact with live components!

- Check correct function of the insulation monitoring device daily (see chapter 7.5).
- Have the generator and control box checked annually by a qualified electrician (see chapter 13.9).

- Follow instructions in chapter 3.8.

8.8.1 Note when operating the generator

Do not exceed the maximum supply system load:

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

Bear in mind:

- The power consumption values of simultaneous consumers are added.
- The maximum continuous power loading on the generator by the connected consumers is limited by the safety cut-out.

8.8.2 Switching in the generator

Precondition LOAD mode

1. Turn the «generator main switch »to the "I" position.
2. Set the «automatic circuit-breaker(s)» to the "I" position.
3. Turn the mode selector switch to the required mode of operation.

Result The engine runs at maximum speed and the generator generates power.

Further information See chapter 4.6.5.2 for generator controls.
See chapter 4.6.5.1 for generator operating modes.

Connect electrical consumers



1. **DANGER!**

Devices start automatically without warning.
Serious injury and damage to property is possible.

- Make sure that electric consumers are switched off.

2. Before connecting electrical consumers, carry out the following:
 - Determine the consumption values of the electric consumers.
 - Do not exceed the maximum system load caused by electric consumers. If necessary, reduce the number of connected consumers.
 - Read the technical specification for the generator before connecting voltage-sensitive equipment.
 - Check that electrical consumers and their connecting cables are in perfect condition.
 - Plug in and switch on consumers one-by-one.
 - Consumers with unfavourable on/off characteristics (e.g. high starting current) should be started first.

Do not allow the rated current for each electrical socket and for the generator to be exceeded.

8.8.3 Switching off the generator

Before deactivating the generator, carry out the following:

- Switch off electrical consumers and unplug them one-by-one.
- Switch off consumers drawing the highest current last.
- Check that the protective covers on the power sockets are correctly closed.



1. **NOTICE!**

Thermal overload of the turbo generator.

Stopping the machine abruptly after the generator has been in operation for some time can cause heat damage to the generator.

- Allow the engine to run for about 2 minutes in idle before shutting down to allow the generator to cool down.

2. Set the «automatic circuit breaker(s)» to the "0" position.
3. Turn the «generator main switch» to the "0" position.
4. Close all «compressed air outlet valves» on the air distributor.

The engine runs in IDLE and the generator can cool down.

After running about 2 minutes in IDLE, the generator has cooled down sufficiently for the engine to be stopped.

8.9 Cleaning the machine after operation

Material High-pressure cleaner

Precondition The machine is switched off.

The machine has cooled down.

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

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

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

- Circular section jets: approximately 70 cm
- Fan jets: approximately 30 cm
- Dirt blasters: approximately 30 cm



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



Cleaning with dry-ice jets is strictly forbidden. Unforeseeable subsequent damages can be the 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 with caution.

2. Carefully clean the machine with the high-pressure cleaner.

RAMIRENT

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 authorised KAESER SERVICE representative.

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

9.2 Evaluating engine faults and alarms

9.2.1 Engine refuses to start or does not turn over

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective starter.	Have changed.	X	–
The fuel cut-off device has not opened.	Check the coil and electrics and have changed if necessary.	X	–
Fuel tank empty.	Fill up the fuel tank	–	–
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.3.3).	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	X	X
Fuel line broken.	Have changed.	X	X
Defective control fuse or relay.	Have repaired or replaced if necessary.	X	X
Airend discharge temperature too high.	Have checked.	–	X
Defective temperature gauge switch giving no enable signal	Have repaired or replaced if necessary.	–	X
Ignition switch defective.	Have repaired or replaced if necessary.	–	X
Electrical connections and/or cables loose or broken	Tighten the connection or have the cable replaced.	X	X
The battery is electrically isolated from the on-board power supply.	Set the battery isolating switch (option) to the "I" position, see chapter 8.	–	–
Defective battery or low charge.	Maintain battery, see chapter 10.3.9.	–	–
Motor alternator defective.	Have repaired or replaced if necessary.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective alternator regulator.	Have repaired or replaced if necessary.	X	X
Oil pressure switch indicating insufficient oil pressure.	Check engine oil level, see chapter 10.3.4.	X	X
	Have the engine repaired or exchanged.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 71 Fault: engine refuses to start or comes to a stop.

9.2.2 Engine does not reach full speed

Possible cause	Remedy	Where can I get help?	
		SW	KS
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.3.3).	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.3.3.	X	X
Fuel line broken.	Have changed.	X	X
Speed adjustment cylinder maladjusted or defective.	Repair or have replaced if necessary.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 72 Alarm: "engine does not reach full speed".

9.2.3 Indicator lamp remains on

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 73 Alarm: "Control lamp remains on"

9.2.4 Motor running backwards

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 74 "Motor running backwards" fault

9.3 Analysing compressor faults and alarms
9.3.1 Working pressure too high

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 75 Fault: working pressure too high

9.3.2 Working pressure too low.

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

SW = specialised workshop; KS = KAESER SERVICE

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 76 Fault: working pressure too low

9.3.3 Pressure relief valve blowing off

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 77 Fault: pressure relief valve blowing off

9.3.4 Machine overheating

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective cooling fan.	Have the blades or the complete fan wheel replaced.	–	X
Oil cooler surface clogged.	Clean surface, see chapter 10.5.	–	–
The working element of the thermostatic valve not workingl.	Have repaired or replaced if necessary.	–	X
Working pressure too high (proportional controller maladjusted).	Reset to the permissible value or have replaced.	–	X

SW = specialised workshop; KS = KAESER SERVICE

Possible cause	Remedy	Where can I get help?	
		SW	KS
Oil separator cartridge heavily clogged.	Measure the pressure differential and change the cartridge if greater than 1 bar. Change, see chapter 10.4.6.	–	X
Compressor oil filter cartridge clogged.	Change, see chapter 10.4.4.	–	–
Compressor cooling oil level too low.	Replenish, see chapter 10.4.2.	–	–
Oil pipes leaking.	Seal leaks or have pipes changed.	X	X
Engine cooling system or cooling fan defective.	Have repaired.	X	X
Sediments in the water cooler.	Clean the water cooler from inside, see chapter 10.3.1.	X	X
Ambient temperature too high.	See installation conditions in chapter 5.2.	–	–

SW = specialised workshop; KS = KAESER SERVICE

Tab. 78 Fault: machine overheating

9.3.5 Too much oil residue in the compressed air

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

SW = specialised workshop; KS = KAESER SERVICE

Tab. 79 Alarm: "Too much oil residue in the compressed air"

9.3.6 Oil flows from the compressor air filter after shutdown

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective non-return function of the inlet valve.	Repair or have replaced if necessary.	–	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 80 Alarm: "Oil flows from the compressor air filter after shutdown"

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

Possible cause	Remedy	Where can I get help?	
		SW	KS
Blocked condensate drain on the cyclone separator.	Clean the cyclone separator dirt trap or replace the strainer and nozzle if necessary. See chapter 10.7.2	–	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 81 Fault: high moisture content in the compressed air

9.4 Option lc
Evaluate faults in the diesel particulate filter

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

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

Tab. 82 Faults in the diesel particulate filter

Blue engine exhaust

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

Meaning	Remedy	Where can I get help?	
		SW	KS
A diesel particulate filter overburdened with oil and regenerated at too high temperature can result in damage to the ceramic filter module.	Carry out engine maintenance to avoid damage to the filter module.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 83 Fault 'blue engine exhaust'

Grey or brownish exhaust gas

Meaning	Remedy	Where can I get help?	
		SW	KS
The exhaust contains residues of hydrocarbons or sulphate.	Have the fuel injection system checked. Use an engine oil that produces low white ash.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 84 Grey or brownish exhaust gas

9.5 Option ga

Evaluate generator faults and alarms

9.5.1 There is no voltage or too low a voltage from the generator

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective drive belt.	Have changed.	X	X
Generator/regulator defective	Have repaired.	X	X
Overload protection switch triggered because of overload or defect.	Check the power requirement of the connected consumers and reduce if necessary; check the consumers for short circuits.	X	–
	Check the overload protection switch and have changed if necessary.	X	X
Engine speed too low.	Have reset to rated speed.	X	X
Generator not switched in.	Switch in the generator.	–	–
The compressor's working pressure is set too high, engine overloaded, speed drops off	Have the working pressure adjusted.	X	X
The engine power is reduced because of climatic or other effects.	Keep the generator and compressor load below the rated power	–	–

SW = specialised workshop; KS = KAESER SERVICE

Tab. 85 There is no voltage or too low a voltage from the generator

9.5.2 Generator voltage too high

Possible cause	Remedy	Where can I get help?	
		SW	KS
Generator/regulator defective	Have repaired.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Possible cause	Remedy	Where can I get help?	
		SW	KS
Engine speed too high.	Have reset to rated speed.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 86 Generator voltage too high

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10 Maintenance

10.1 Ensuring safety

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





Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Maintenance work may only be carried out by authorized personnel.
- Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.
- 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. 87 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 perform any checks or maintenance while the machine is running.



The access doors are held up by gas struts.

- Check that the doors remain open.

If door does not remain opened: Have the gas-filled spring changed.

When working on the compressed air 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 the air consumers.
- De-pressurise all pressurised components and enclosures.

- Wait until the machine has automatically vented.
- Carefully open the compressed air outlet valve.
- Check: The pressure gauge must read 0 bar!
- Do not open or dismantle any valves.

When working on the drive system

Touching rotating, very hot or current-carrying components can cause severe injuries.

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

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

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

Further information A list is given in chapter 10.8.

10.2.2 Maintenance tasks after commissioning

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

- Carry out maintenance tasks according to the following schedule.

Component: Task	After the first 10 h	After the first 50 h	see chapter	Note
Engine:				
Check the fuel lines and clamps.		X		KS , FW
Option ga, gb – generator				
Check the generator-drive belt tension and re-tension if necessary.	X		10.7.8	
h ≙ operating hours KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialised workshop.				

Tab. 88 Maintenance tasks after commissioning

10.2.3 Regular maintenance tasks

The following table lists the various maintenance intervals.

Maintenance interval	Short description
Daily	–
Every 250 h, at least annually.	A250
Every 500 h, at least annually.	A500
Every 1000 h, at least annually.	A1000
Every 1500 h, at least annually.	A1500
Every 2000 h, at least every two years.	A2000
Every 3000 operating hours	A3000
Every 20000 operating hours	A20000
Every 36000 h, at least every six years.	A36000

Tab. 89 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

1. Carry out maintenance tasks punctually taking ambient and operating conditions into consideration.
2. Change consumables and operating fluids according to each site.

10.2.3.1 Machine maintenance schedule

➤ Carry out maintenance tasks according to the following schedule.

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Engine:										
Check inlet air filter maintenance indicator	X								10.3.2	
Check the oil level.	X								10.3.4	
Replace the engine oil.		X							10.3.6	
Replace the engine oil filter.		X							10.3.7	KS , FW
Clean the engine air filter.		X							10.3.2	KS , FW
Replace the engine air filter.				X					10.3.2	
Check/adjust the drive belt tension.		X							10.3.8	KS , FW
Replace the drive belt.			X						10.3.8	KS , FW
Check the engine coolant level.	X								10.3.1	KS , FW
Clean the cooler.		X							10.5	
Have coolant hoses and clamps checked.		X								KS , FW
Check antifreeze concentration.		X							10.3.1	KS , FW
Change the coolant.				X					10.3.1	KS , FW
Remove deposits within the water cooler.				X						
Fill up the fuel tank	X									
Check/empty the fuel water trap.	X								10.3.3	
Check fuel lines and hose clamping bands, have replaced if necessary.		X								KS , FW
Replace fuel lines and clamps.						X				KS , FW
Clean the fuel micro-filter.		X							10.3.3	KS , FW
Change the fuel pre-filter.			X						10.3.3	
Replace the fuel fine filter.			X						10.3.3	KS , FW
Check the fuel tank for dirt and clean, if necessary.			X							
Clean the tank fuel strainer.			X							
Check fuel tanks for secure fixing.		X							10.3.10	

KS ≙ contact KAESER SERVICE,
 FW ≙ contact specialised workshop

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Check the fuel return line for leakage and firm seating.			X							
Have the fuel injectors checked.					X					KS , FW
Have the fuel injector pump checked.							X			KS , FW
Have the engine bearing checked.				X						
Have the valve clearance adjusted.				X						KS , FW
Have the turbocharger checked.							X			KS , FW
Check the battery electrolyte level and connections.			X						10.3.9	
Compressor:										
Check inlet air filter maintenance indicator.	X								10.4.7	
Check the cooling oil level.	X								10.4.1	
Change the cooling oil.				X					10.4.3	
Change the compressor oil filter.				X					10.4.4	
Clean the oil cooler.		X							10.5	
Clean the compressor air filter.		X							10.4.7	
Change the compressor air filter.				X					10.4.7	
Check/clean the oil separator tank dirt trap.			X						10.4.5	
Change the separator cartridge in the oil separator tank.						X			10.4.6	
Have the pressure relief valve(s) checked.			X						10.4.8	
Bodywork										
Check all screw connections, hinges, locks, catches, handles and snap fasteners for wear and secure fixing.		X								
Grease the door hinges.			X							
Carry out rubber sealing strip maintenance.			X						10.6	
Have lifting eye and fixings checked.			X							KS , FW
KS ≙ contact KAESER SERVICE, FW ≙ contact specialised workshop										

Component: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A36000	See chapter	Note
Other maintenance tasks										
Check all accessible screw fittings, pipes and clamps for wear and tightness.			X							KS , FW
Check hoses for proper seating, leaks and wear.			X							KS , FW
Have hose lines replaced.								X		KS , FW
Check that all electrical connections are tight.			X							KS , FW
Check the lighting system's function.	X									
KS ≙ contact KAESER SERVICE, FW ≙ contact specialised workshop										

Tab. 90 Regular machine maintenance tasks

10.2.3.2 Maintenance schedule for options

- Carry out maintenance tasks according to the following schedule.

Option: Task	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option ec - tool lubricator:								
Check the level in the tool lubricator.	X						10.7.1	
Option da, db, dc, dd – cyclone separator:								
Clean and check the dirt trap.			X				10.7.2	
Options da, db, dc, dd – compressed air aftercooler:								
Clean the cooler.		X					10.5.2	
Option dd – filter combination:								
Drain condensate.	X						10.7.3	
Change the filter elements.			X				10.7.3	
Option dc – fresh air filter: setting dimension:								
Drain condensate.	X						10.7.4	
Check the oil indicator.	X						10.7.4	
Change the filter elements.			X				10.7.4	
KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialised workshop, EF ≙ Contact qualified electrician								

Option: Task	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option ba – frost protector:								
Winter operation: Check the level of antifreeze in the frost protector.	X						10.7.5	
Option bb – engine coolant pre-heater:								
Have the coolant pre-heating and associated wiring checked.			X					FW
Option la – spark arrestor								
Clean the spark arrestor.		X					10.7.6	
Blow out the spark arrestor with compressed air.			X					
Option lb - engine air intake shut-off valve								
Have the the engine air intake shut-off valve cleaned/checked.		X					10.7.7	KS , FW
Option ga, gb – generator								
Check/adjust belt tension.		X					10.7.8	
Carry out visual check of drive belt.		X					10.7.8	
Have the generator and control box checked.			X				13.9	EF
Replace the drive belt.					X		10.7.8	
Have the generator bearings checked.				X				FW
Have the generator bearings changed.						X		FW
Option lc – diesel particulate filter								
Have the whole diesel particu- late filter system serviced.			X				3.4.4	KS , FW
Have the diesel engine emission checked according to TRGS 554.					X		3.4.4	KS , FW
KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialised workshop, EF ≙ Contact qualified electrician								

Tab. 91 Regular maintenance task options

10.3 Engine maintenance

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

10.3.1 Water cooler maintenance

Material Coolant
Coolant tester
Cooler cleaning agent
Receptacle
Wrench
Funnel
Cleaning cloths

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

**WARNING**

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

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

**CAUTION**

Risk of chemical burns from coolant containing antifreeze!

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

**NOTICE**

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

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

10.3.1.1 Checking coolant level

The coolant level in the engine cooling circuit must be checked daily prior to startup.
The level is checked on the coolant expansion tank.

- The tank is semi-transparent so the coolant level can be seen from outside.
- The level should be between the *minimum and maximum markings* when the engine has cooled down.

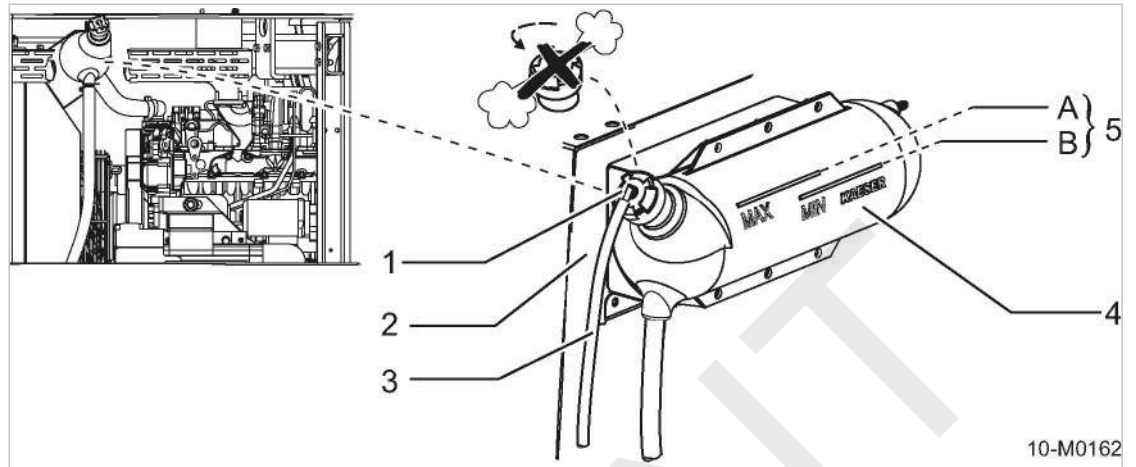


Fig. 34 Checking coolant level

- | | |
|---------------------------|------------------------------------|
| ① Filler neck with cap | ⑤ Coolant level |
| ② Water cooler | Ⓐ <i>Maximum check mark (FULL)</i> |
| ③ Overflow | Ⓑ <i>Minimum check mark (LOW)</i> |
| ④ Coolant equalising tank | |

1. Check the level of coolant in the expansion tank.
Top up when the coolant level falls below the *minimum check mark* (Ⓑ): Replenish the coolant.
2. Close the door.



Have the cause for the coolant loss determined and rectified.

10.3.1.2 Checking the coolant

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

Coolant quality can be determined by the following parameters:

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

Visual check

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

- Take a coolant sample and analyze.
The coolant is discoloured and/or has contains floating particles. Change the coolant.

Antifreeze concentration measurement

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

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



1. **NOTICE!**

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

Corrosion

Damage to the cooling system.

Engine casing fracture

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

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

Concentration of antifreeze is too low: Change the coolant.

Performing final work steps:

1. Screw on the filler cap.
2. Close the door.

10.3.1.3 Mixing coolant

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

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

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

The maximum permissible coolant life is 2 years.

- Follow coolant recommendations in chapter 2.7.4.

Preparing coolant

Precondition Coolant must meet the specification of ASTM D4985.

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

KAESER coolant mixture table

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

Tab. 92 KAESER coolant mixture table



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

10.3.1.4 Filling and topping up the coolant

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



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

Precondition The negative cable to the battery is disconnected.

1. Twist and remove the expansion tank filler cap.
2. Mix a quantity of coolant according to the table and replenish to the mark.
Replenish the coolant just below the *maximum mark* (A).
3. Screw on the filler cap.
4. Reconnect the negative battery terminal.
5. Close the door.
6. Start the engine and allow to IDLE for about 1 minute.
7. Stop the engine.
8. Open the left-hand door.
9. Check the coolant level.
If the coolant level in the expansion tank has decreased: Replenish the coolant.
10. Visually inspect for leaks.
11. Close the door.



If the coolant has been changed, check the level of the new coolant frequently at first as it can decrease due to the escape of air locks in the cooling circuit.

10.3.1.5 Draining the coolant

The complete volume of coolant contained in the circuit can be drained from the radiator. The water cooler is drained by a separate drain plug (accessible from underneath through the access hole in the floor pan).

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

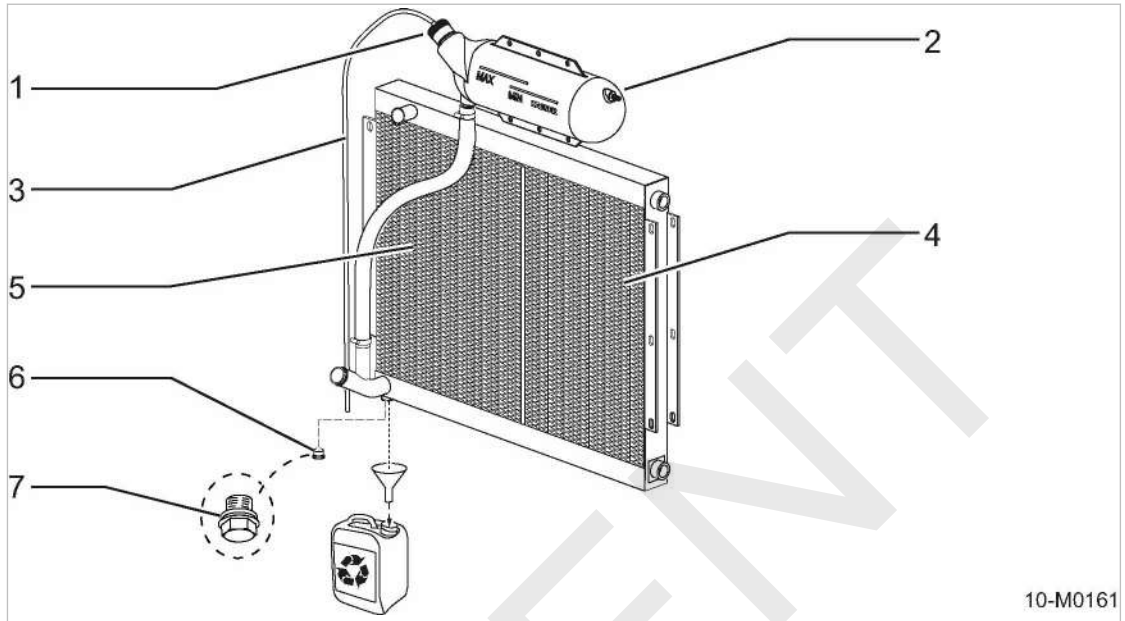


Fig. 35 Draining the coolant from the radiator

- | | | | |
|---|-------------------------|---|---------------------|
| ① | Filler cap | ⑤ | Water cooler |
| ② | Coolant equalising tank | ⑥ | Radiator drain plug |
| ③ | Coolant expansion tank | ⑦ | Gasket |
| ④ | Oil cooler | | |

1. Unscrew and remove the expansion tank filler cap ①.
2. Position a receptacle beneath the water cooler drain point (accessible through a hole in the floor panel).
3. Unscrew the drain plug ⑥ and allow the coolant to drain into the receptacle.
4. Fit a new gasket on the drain plug ⑦ and screw it back in again.
5. Screw on the filler cap.
6. Close the door.



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

10.3.1.6 Removing scale within the water cooler

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



NOTICE

Scaling in the cooling circuit
Damage caused by engine overheating.

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

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

Further information

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

10.3.2 Engine air filter maintenance

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

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



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

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

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



NOTICE

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

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

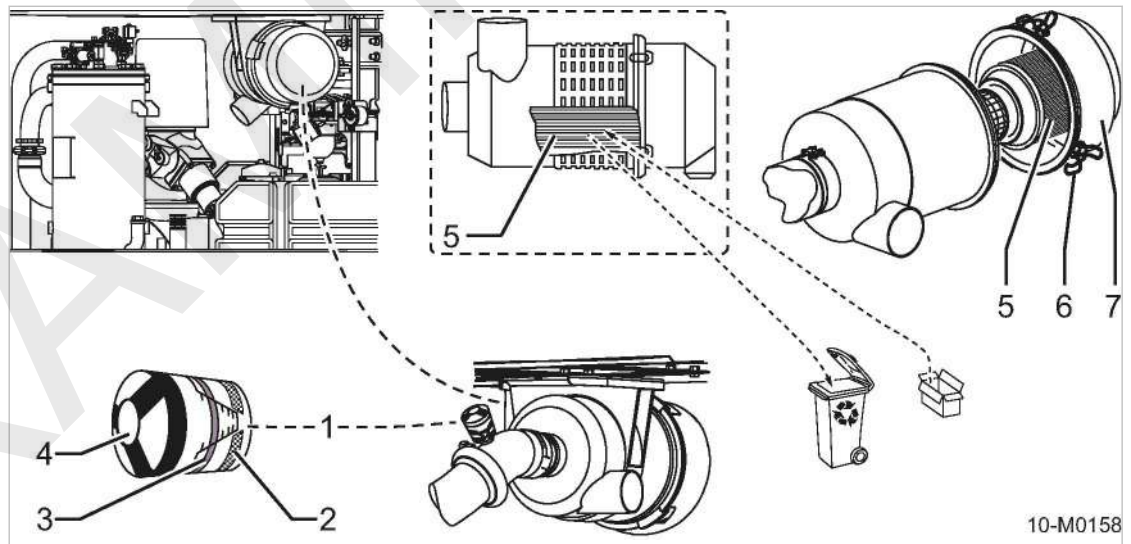


Fig. 36 Engine air filter maintenance

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

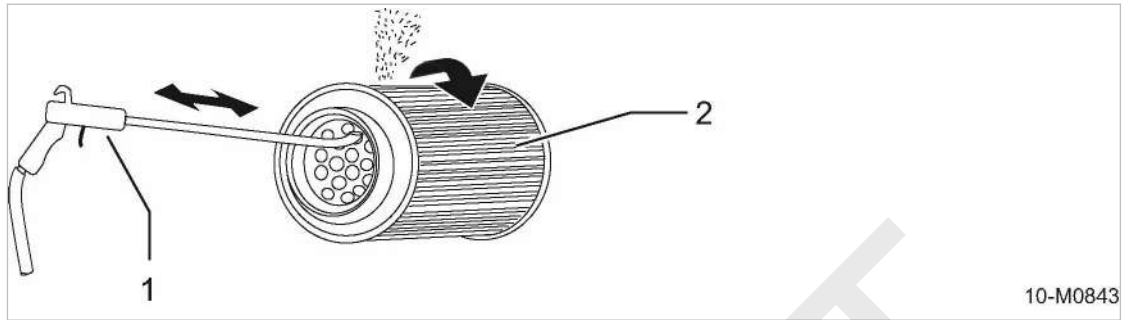


Fig. 37 Cleaning the filter element

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

Checking contamination of the air filter:

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

1. Open the left-hand door.
2. Check the air filter maintenance indicator.
If the yellow piston reaches the red zone, clean or renew the filter element.
3. Close the door.

Cleaning the air filter:

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

Resetting the maintenance indicator:

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



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

10.3.3 Fuel system maintenance

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

Material Spare parts
Oil receptacle
Cleaning cloths

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



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.

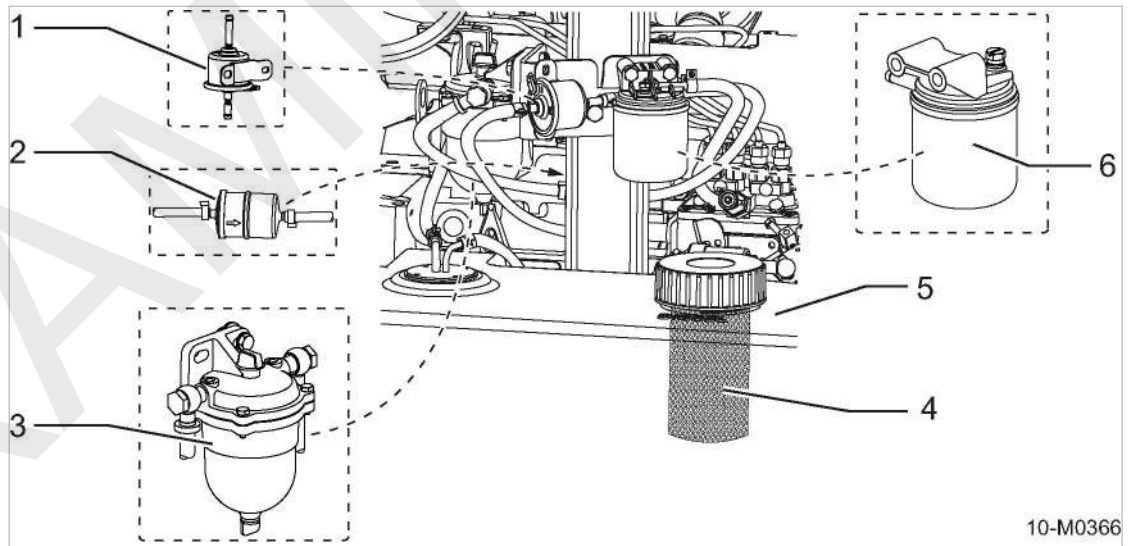


Fig. 38 Fuel system maintenance

- | | |
|------------------------|---------------------|
| ① Fuel pump | ④ Fuel strainer |
| ② Fuel prefilter | ⑤ Fuel tank |
| ③ Fuel water separator | ⑥ Fuel micro-filter |

- Open the right-hand access door.

10.3.3.1 Bleeding the fuel system

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

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

Precondition Battery connected.

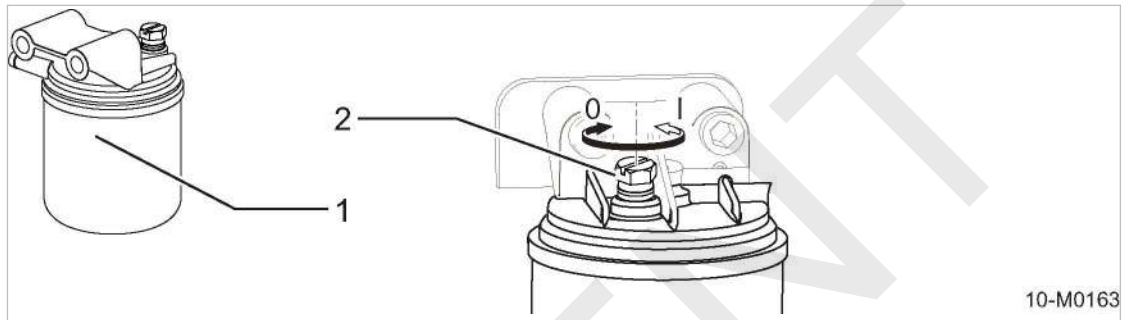


Fig. 39 Bleeding the fuel system

- ① Fuel micro-filter
- ② Bleed screw

1. Place a receptacle beneath the fuel fine filter housing.
2. Loosen the micro-filter bleed screw.
3. Close the door.
4. Turn the «starter switch» (operator panel) to the "On" position.
The fuel pump runs and air is bled out of the fuel system.
5. After approx. 10 to 15 minutes, switch the «starter switch» to the "STOP/Off" position.
6. Open the right-hand access door.
7. Tighten the bleed screw again.
8. Remove the receptacle.
9. Close the door.



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

10. Open the right-hand access door.
11. Visually check the fuel system for leaks. If required, re-tighten all fittings.
12. Close the door.

10.3.3.2 Fuel water separator maintenance

A water trap is installed between the tank and the fuel pump. The separator tank is semi-transparent so the fuel level can be seen from outside.

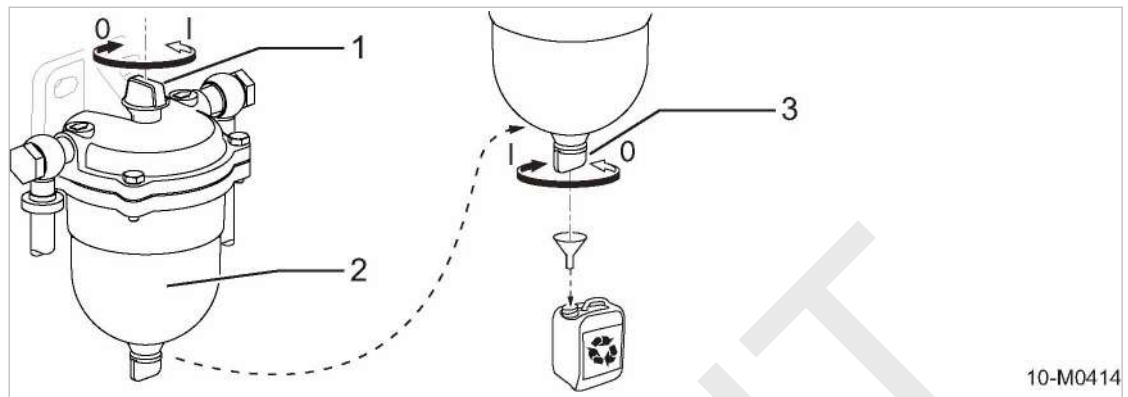


Fig. 40 Fuel water separator maintenance

- ① Bleeding screw
- ② Separator tank
- ③ Drain plug

Check the fuel water separator:

Water, being denser than diesel fuel, sinks to the bottom of the separator tank. The water impurity also differs in colour from the fuel. A check should be made daily as to whether water and dirt has accumulated.

- Check the fuel in the transparent water trap.
- Fuel contaminated: Empty the fuel water separator immediately.

Empty the fuel water separator:

Precondition Water and/or contamination are visible in the water trap.

1. Place a receptacle beneath the fuel micro-filter housing.
2. Loosen the bleed screw ① in the filter head.
3. Loose the drain screw ③ and allow water and dirt to drain out into the receptacle.
4. Remove the receptacle.
5. Reconnect the battery.
6. Close the door.



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

10.3.3.3 Fuel filter maintenance

Changing the fuel prefilter:

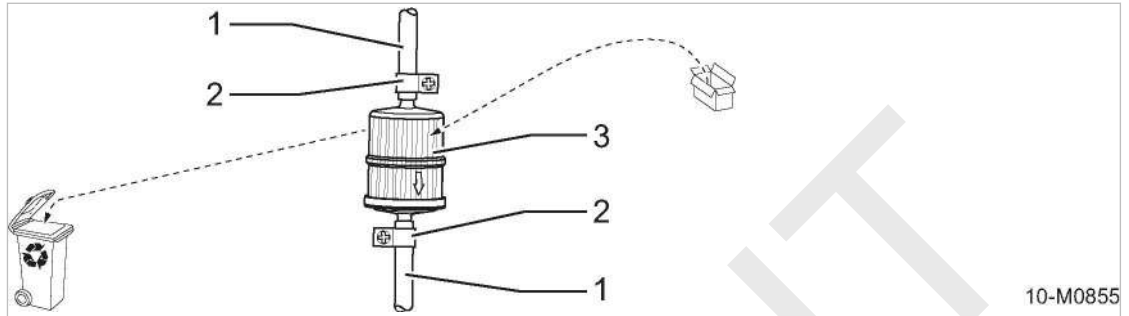


Fig. 41 Changing the fuel pre-filter

- ① Fuel hose
- ② Hose clamp
- ③ Fuel prefilter

1. Place a receptacle beneath the fuel pre-filter housing.
2. Loosen the hose clamps, carefully pull the fuel hoses from the connection at the fuel pre-filter. Capture and wipe off any escaping fuel.
3. Install a new fuel pre-filter between the plastic hoses and secure using hose clamps, taking care the flow is in the right direction.
4. Remove the receptacle.

Replacing the fuel fine filter:

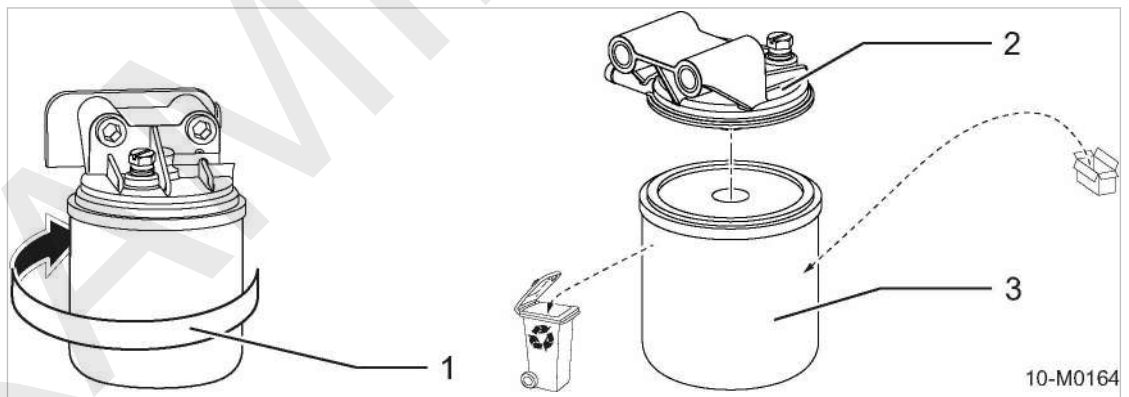


Fig. 42 Fuel fine filter maintenance

- ① Direction of rotation for unscrewing the filter cartridge
- ② Filter holder
- ③ Fine filter cartridge

1. Place a receptacle beneath the fuel fine filter housing.
2. Use standard tools to loosen then unscrew the fine filter cartridge. Catch fuel in the receptacle.
3. Clean the sealing faces of the micro-filter cartridges and the opposite site of the filter mount with lint-free cloth.

4. Mount the micro-filter cartridges on the filter mount:
 - Moisten the rubber seals of the filter mount and the sealing faces of the new filter cartridge with some fuel.
 - Manually screw the filter cartridge to the filter head (clockwise), until seal is tight.
5. Reconnect the battery.
6. Close the door.



The fuel system must be bled after the filter cartridges have been changed.



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

Starting the machine and performing a test run:

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

10.3.4 Checking the engine oil level

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

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

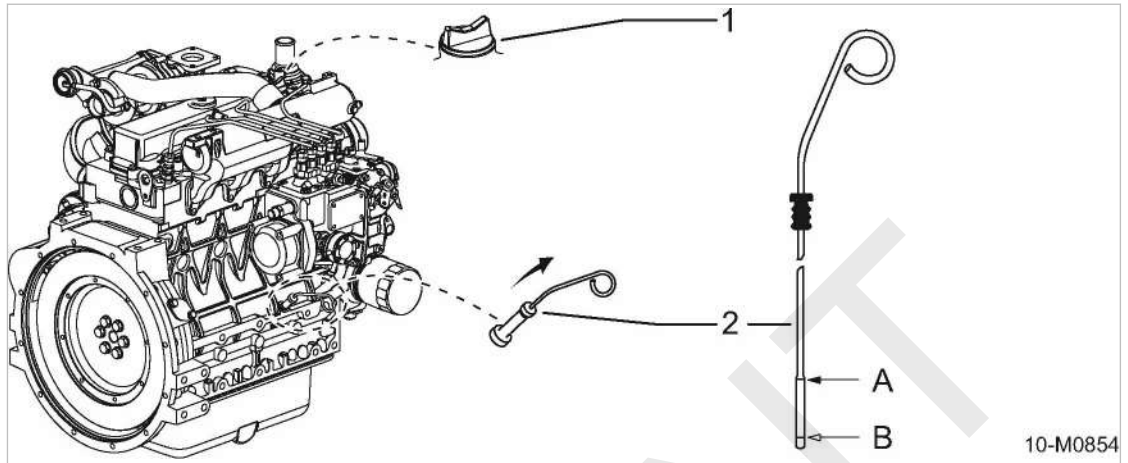


Fig. 43 Checking the engine oil level

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

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



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

10.3.5 Engine oil filling and topping up

Material Engine oil
Cleaning cloth
Funnel

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

Filling with engine oil



See chapter 2.7.5 for engine oil filling volume.
The oil dipstick is marked with the «maximum oil level».

1. Open the right-hand access door.
2. Remove the filler cap and fill with fresh oil.

3. Wait 5 minutes then check the oil level.



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

Top up if the level is too low.

4. Replace the plug in the filler port.
5. Reconnect the negative battery terminal.
6. Close the door.

Starting the machine and performing a test run:

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

10.3.6 Changing the engine oil

The engine oil should be changed:

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

Material Engine oil
Oil receptacle
Wrench
Cleaning cloths

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



CAUTION

Danger of burns from hot components and escaping motor oil!

- Wear long-sleeved clothing and gloves.

Draining the engine oil

The oil is drained directly at the engine's oil pan. For this purpose, a drainage outlet is provided in the floor pan.

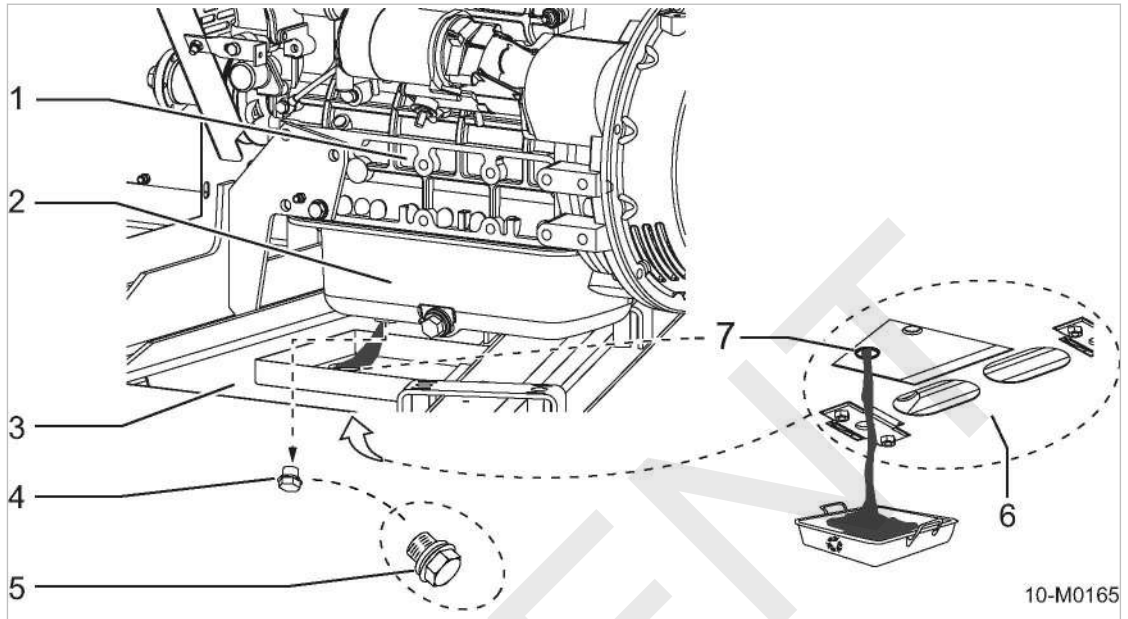


Fig. 44 Draining the engine oil

- | | |
|-------------------------|-------------------------------|
| ① Engine block | ⑤ Sealing ring |
| ② Engine oil sump | ⑥ Underside of floor pan |
| ③ Floor pan | ⑦ Drain hole in the floor pan |
| ④ Engine oil drain plug | |

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



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

Further information See chapter 10.3.5 for engine oil filling.

10.3.6.1 Option ga Changing the engine oil

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

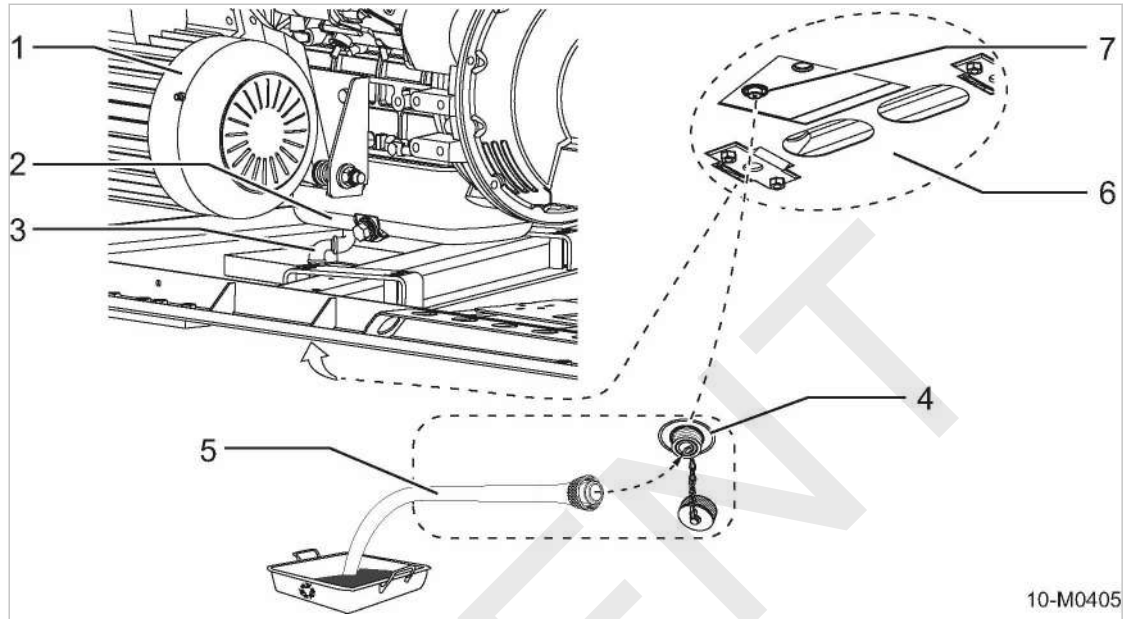


Fig. 45 Changing the engine oil

- | | |
|-------------------------|--|
| ① Generator | ⑤ Drain hose with quick-release coupling |
| ② Engine oil sump | ⑥ Underside of floor pan |
| ③ Engine oil drain line | ⑦ Drain hole in the floor pan |
| ④ Oil drain valve | |

Draining the engine oil

1. Open the left-hand door.
2. Remove the oil oil filler cover.
3. Place the oil receptacle below the drain hole in the floor pan.
4. Lay the free end of the drain hose (⑤) in the receptacle.
5. Remove the protective cap from the oil drain valve (④).
6. Screw the drain hose with quick-release coupling onto the oil drain valve.
The valve opens and oil drains through the hose.
7. When all the oil has drained out, uncouple and remove the drain hose.
8. Replace the protective cap on the oil drain valve.
9. Replace the plug in the filler port.
10. Close the door.



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

Further information See chapter 10.3.5 for engine oil filling.

10.3.7 Replace the engine oil filter

Material Spare part
Filter wrench
Cleaning cloths
Oil receptacle

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



CAUTION

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

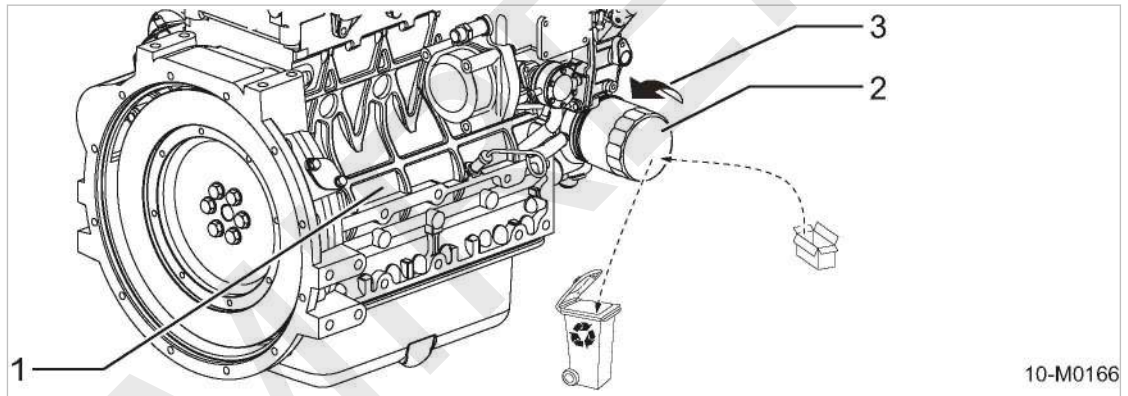


Fig. 46 Change the oil filter

- ① Engine block
- ② Oil filter
- ③ Direction of rotation to unscrew the filter

1. Open the left-hand door.
2. Prepare a receptacle.
3. Use a filter wrench to loosen and unscrew the filter. Catch any escaping oil.
4. Carefully clean sealing surfaces using lint-free cloth.
5. Lightly oil the new filter's gasket.
6. Turn the oil filter clockwise by hand to tighten.
7. Check the engine oil level.
Low oil level: Replenish engine oil.
8. Reconnect the negative battery terminal.
9. Close the door.



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

10.3.8 Drive belt maintenance

The lifespan of the drive belts is affected by belt tension.

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

Material Wrench
Suitable clamping lever (short, thin rod)
Spare part

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



WARNING

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

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

Removing the belt guard:

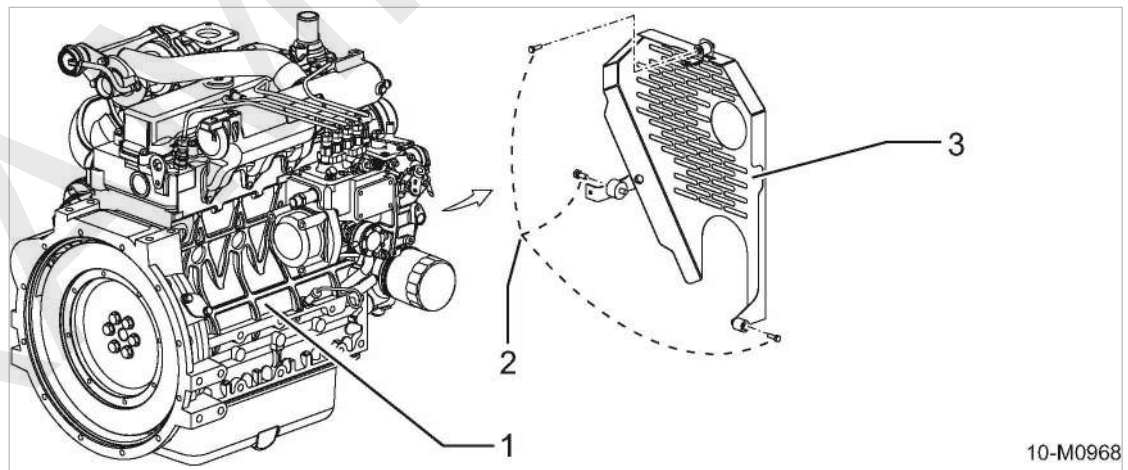


Fig. 47 Belt guard attachment

- ① Engine block
- ② Hexagon bolt
- ③ Belt guard

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

10.3.8.1 Carry out visual check

Visual inspection for damages:

- Check the belt thoroughly for cracks, fraying or stretching.
When damaged or worn: Replace the drive belt immediately.

Check the belt seating

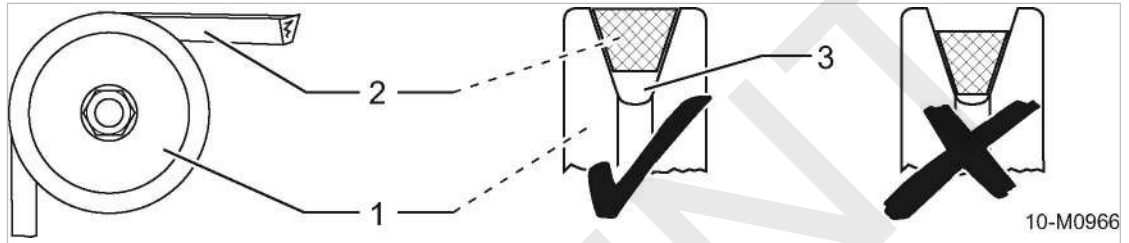


Fig. 48 Checking the drive belt seating

- ① Belt pulley
- ② Drive belt
- ③ Pulley guidance groove

- Check the drive belt seating.
Belt is positioned too deeply in the guidance groove: Replace the drive belt immediately.

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

10.3.8.2 Checking belt tension

Check belt tension when they are warm, not hot, to avoid length variations through temperature. The belt tension can be checked by hand: To check the tension, press the belt inwards with the thumb at the mid-point between pulleys.

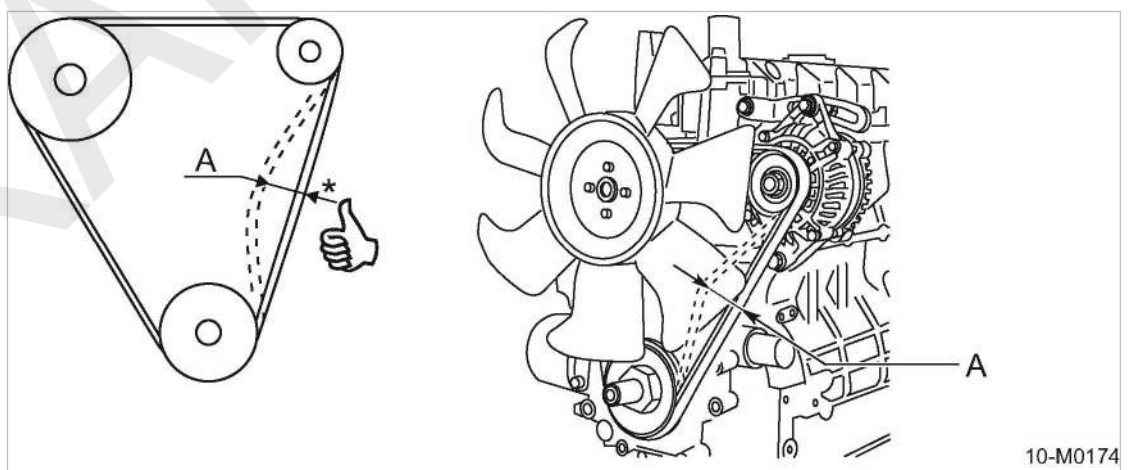


Fig. 49 Manually checking the belt tension

- Ⓐ Drive belt testing position
- * - Compressive load approximately: 10 Kg
- Play approximately: 7–9 mm

1. Check belt tension by hand (see Fig. 49).
2. Increase the tension on a loose belt.
3. Replace the belt guard.
4. Reconnect the negative battery terminal.
5. Close the doors.

10.3.8.3 Changing/tensioning the drive belt

The drive belt is tensioned via the screw fastening of the alternator.

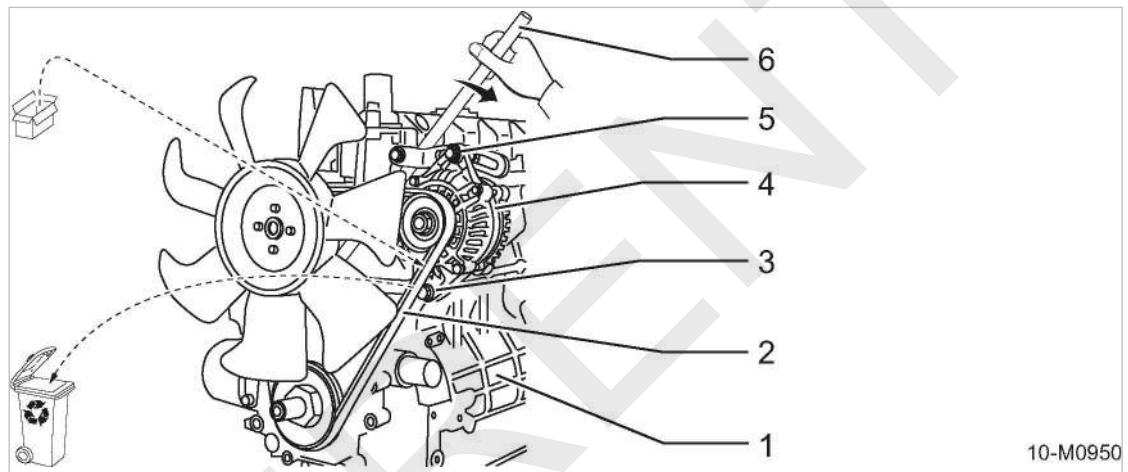


Fig. 50 Changing/tensioning the drive belt

- | | |
|----------------------------------|-------------------------|
| ① Engine block | ④ Alternator |
| ② Drive belt | ⑤ Hexagon nut (locknut) |
| ③ Hexagon screw (securing screw) | ⑥ Lever |

Tensioning the drive belt:

1. Loosen the alternator securing screw and clamping nut.
2. Place a suitable lever between the alternator and engine block.
3. Gently push the alternator in the direction of the arrow (outwards) using the lever until the drive belt is tensioned.
4. Re-tighten the securing screw and clamping screw.
5. Remove the lever.
6. Check the belt tension (see Fig. 49).

Belt tension too low: Press the alternator further into arrow direction.

Belt tension too high: Slightly swivel the alternator against the arrow direction.

Replace the drive belt:

1. Loosen the alternator securing screw and clamping nut until the drive belt can be taken off the pulleys.
2. Remove the belt.
3. Check the pulleys for dirt and wear.
 - Dirty pulley: Clean pulley.
 - Worn pulley: Have the pulley changed.

4. Manually route the new drive belt over the pulleys without using force.
5. Tension the drive belt. Ensure that the drive belt is correctly positioned in its guide.



A belt that has been replaced may not be used again.
After running for two to three hours, check the belt tension again.



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

Putting in operation:

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

10.3.9 Battery maintenance

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

10.3.9.1 Safety



WARNING

Danger of acid burns from escaping electrolyte!

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

When working on the battery comply with the following safety signs:

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



10-M0167

Fig. 51 Safety signs - warning stickers on the battery.

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

The individual safety signs have the following meaning:

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

Further instructions on working with batteries:

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

10.3.9.2 Battery checking and care

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



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

Material Terminal grease
Distilled water
Cleaning cloth
Protective gloves
Eye protection

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

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

Check the battery electrolyte level

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



Replace the battery immediately if the casing leaks.



1. **NOTICE!**

Battery destruction!

Topping up with pure acid will increase the electrolyte concentration and can destroy the battery.

- Top up only with distilled water.

2. Check the electrolyte level.



If the level does not reach the mark:

- top up with distilled water.

- Close the door.

Winter operation:

The battery is especially stressed during the winter. Only a fraction of the normal starting energy is available at low temperatures.



1. **NOTICE!**

Danger of batteries freezing!

A discharged battery is endangered by freezing temperatures and could freeze at a temperature of -10 °C.

- Check battery charge with a acid density tester.
- Recharge the battery.
- Clean the cable connections and apply terminal grease.

2. Check the battery charge weekly.

Recharge as necessary.

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



In extreme cases, the use of a heavy-duty cold-start battery and/or an additional booster battery is recommended.

10.3.9.3 Battery removal and installation

Precondition

The machine is shut down.

The machine is standing level.

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

Machine is cooled down.



1. **WARNING!**

There is danger of batteries bursting!

A short circuited battery heats up quickly 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 battery serves as a buffer and must not be disconnected while the engine is running.
- Carry out work on batteries only with the machine shut down.

3. Open the left-hand door.

4. Disconnect the negative cable first, then the positive cable.
5. Unscrew the battery fixing clamp.
6. Replace in the reverse order.
7. Make sure the battery is properly secured.
8. Close the door.

Battery replacement:

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

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



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

10.3.10 Checking the fastening of the fuel tank

The machine is equipped with a fuel tank or tanks. These are fastened with lashing strips and ratchets.

Precondition

The machine is shut down.

The machine is standing level.

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

The machine is cooled down.

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

**NOTICE**

The lashing strip of the fuel tank is overly tightened.

The plastic tank can be damaged by excessive tightening of the lashing strips.

The fuel tank may burst and spill.

- Do not overtighten the lashing strips.
- Slightly hand-tighten the lashing strips.

Carry out visual check

1. Check the lashing strips for tears and fraying in the fabric, and for damages to the ratchet. Change any damaged lashing strip immediately.
2. Check whether the lashing strips are tight with the tank and that the ratchet is closed. If the lashing strips sits loose, or the ratchet is not closed properly, tighten the fastening.

Tightening the fastening of the fuel tank:

The lashing strips are tensioned via the integrated ratchet.

The lashing strips must fit closely around the fuel tank. The tensioning force of the strips must not exceed 10 daN (slightly hand-tighten only).

- Hand-tighten the lashing strip with the integrated ratchet and push the ratchet to the strip.

10.4 Compressor Maintenance

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

10.4.1 Checking cooling oil level

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

Material Wrench
Cleaning cloth

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

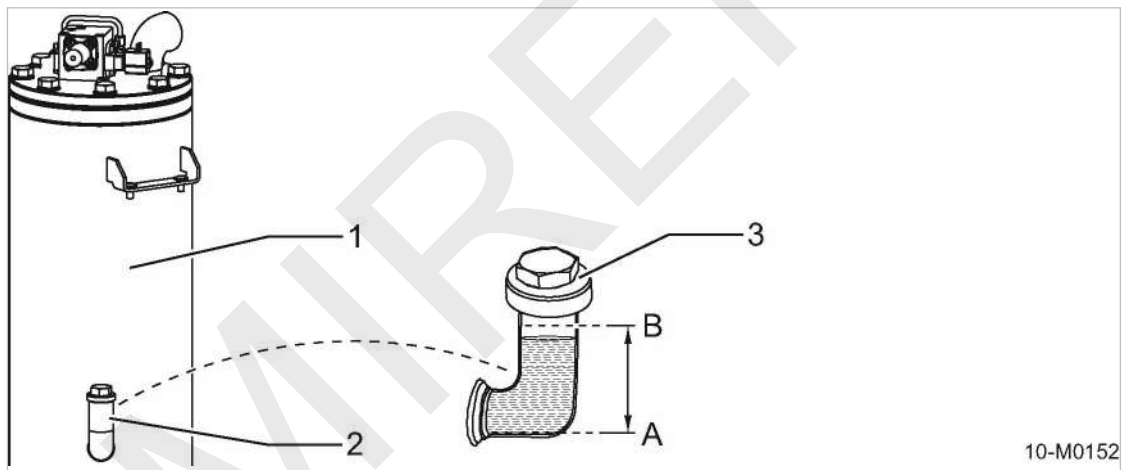


Fig. 52 Checking cooling oil level

- | | |
|----------------------|-----------------|
| ① Oil separator tank | Ⓐ Minimum level |
| ② Oil filler port | Ⓑ Maximum level |
| ③ Filler plug | |

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

10.4.2 Cooling oil filling and topping up


Material Cooling oil
Funnel
Cleaning cloth
Wrench

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

Filling with cooling oil

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



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

Starting the machine and performing a test run:

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

10.4.3 Changing the cooling oil

Drain the oil completely from the following components:

- Oil separator tank
 - Oil cooler
 - Oil pipes
 - Heat exchanger (Option db)
- Always change the oil filter when changing the oil.

Material Cooling oil
Receptacle
New gasket for the drain plug
Funnel
Cleaning cloth

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

**CAUTION**

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

- Wear long-sleeved clothing and gloves.
- Open the right-hand access door.

10.4.3.1 Draining the cooling oil

The cooling oil is drained directly at the oil separator tank and the oil cooler.

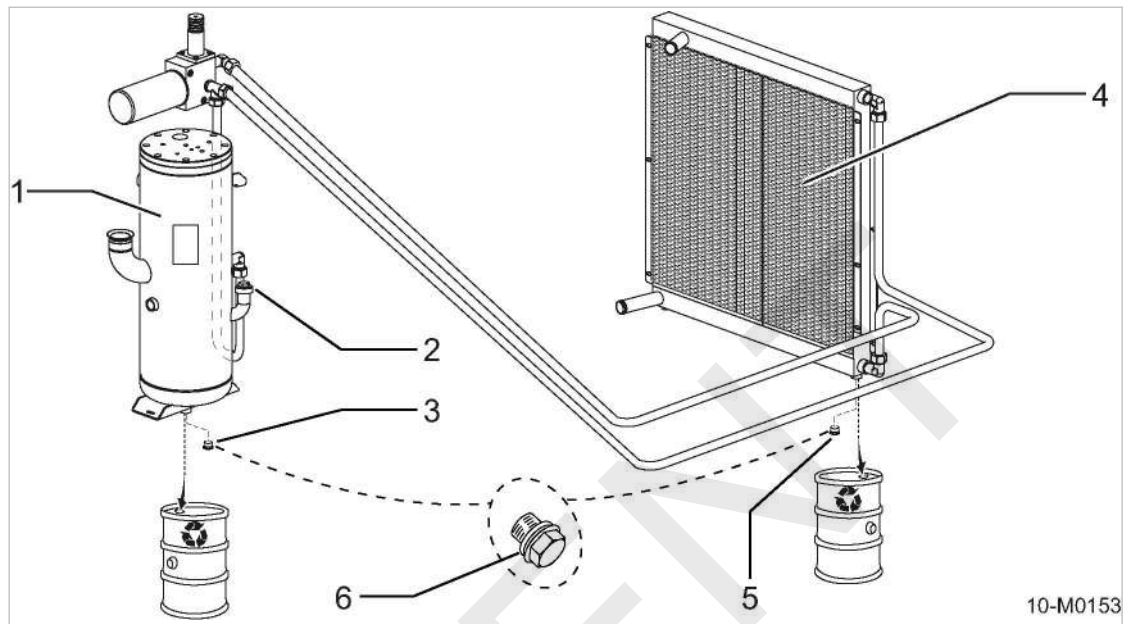


Fig. 53 Draining the compressor cooling oil

- | | |
|---------------------------------|-------------------------|
| ① Oil separator tank | ④ Oil cooler |
| ② Oil filler plug | ⑤ Oil cooler drain plug |
| ③ Oil separator tank drain plug | ⑥ Gasket |

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

Draining the cooling oil from the oil separator tank:

The oil separator tank can be drained by a separate oil drain plug located on the underside of the tank (accessible from underneath through the access hole in the floor pan).

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

Draining the oil from the oil cooler

The oil cooler can be drained by a separate oil drain plug located on the underside of the oil collection box (accessible from underneath through the access hole in the floor pan).

1. Place the oil receptacle below the corresponding drain hole in the floor pan.
2. Unscrew the drain plug ⑤ and allow the cooling oil to drain into the receptacle.
3. Fit a new gasket on the drain plug and screw it back in again.

Option db Draining the oil from the heat exchanger:

The heat exchanger can be drained by a separate oil drain plug located on the underside of the heat exchanger (accessible from underneath through the access hole in the floor pan).

Option db

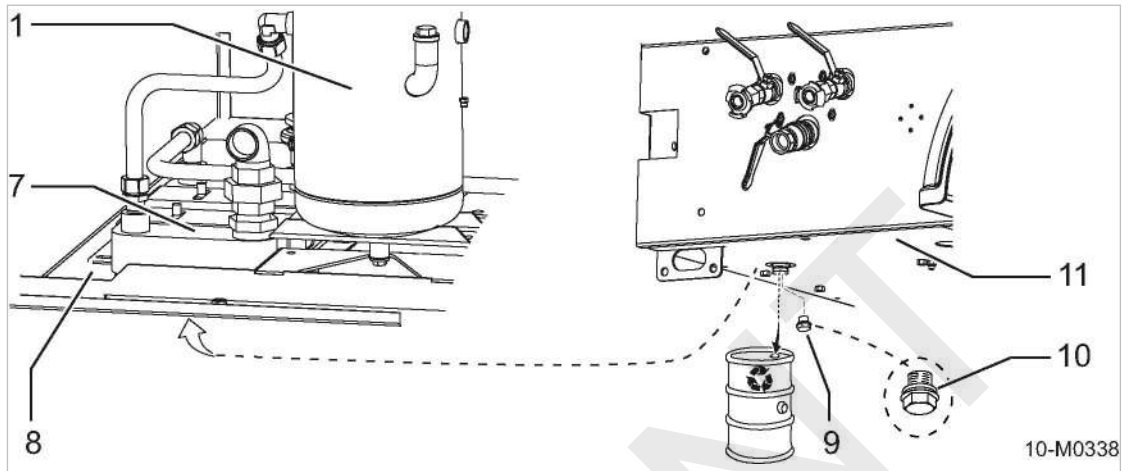


Fig. 54 Draining the oil from the heat exchanger

- | | |
|----------------------|-----------------------------|
| ① Oil separator tank | ⑨ Heat exchanger drain plug |
| ⑦ Heat exchanger | ⑩ Gasket |
| ⑧ Floor pan | ⑪ Underside of floor pan |

1. Place the oil receptacle below the corresponding drain hole in the floor pan.
2. Unscrew the drain plug ⑨ at the heat exchanger and allow the cooling oil to drain into the receptacle.
3. Fit a new gasket on the drain plug and screw it back in again.

Performing final work steps:

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



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

Further information See chapter 10.4.2 for cooling oil filling.

10.4.4 Replacing the compressor oil filter

- Material**
- Spare part
 - Oil receptacle
 - Cleaning cloths

- Precondition**
- The machine is switched off.
 - The machine is fully vented, the pressure gauge reads 0 bar.
 - The machine has cooled down.
 - All compressed air consumers are disconnected and the air outlet valves are open.
 - The negative cable to the battery is disconnected.



CAUTION

Danger of burning from hot components and oil.
 ➤ Wear long-sleeved clothing and gloves.

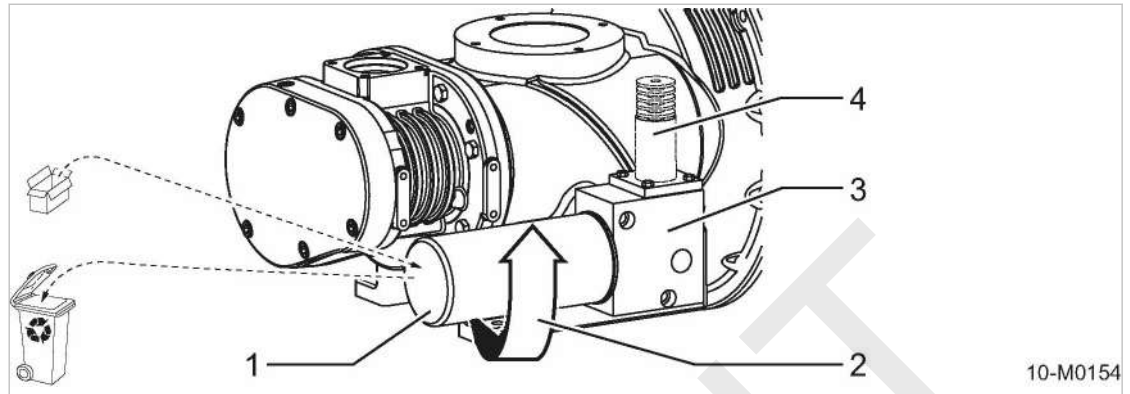


Fig. 55 Change the oil filter

- | | |
|--|---|
| ① Oil filter | ③ Thermostatic valve |
| ② Direction of rotation to unscrew the oil filter. | ④ Ambient temperature sensor (not with Option db) |

Changing the oil filter:

1. Open the right-hand access door.
2. Prepare a receptacle.
3. Loosen the filter by turning counter-clockwise and catch any escaping oil.
4. Carefully clean sealing surfaces using lint-free cloth.
5. Lightly oil the new filter's gasket.
6. Turn the oil filter clockwise by hand to tighten.
7. Check the oil level in the oil separator tank.
Cooling oil level too low: Top up the cooling oil.
8. Reconnect the negative battery terminal.
9. Close the door.



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

Starting the machine and performing a test run:

1. Start the machine and run in IDLE until the operating temperature is reached.
2. Close the outlet valves.
3. Shut down the machine.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the right-hand access door.
7. After approximately 5 minutes: Check the cooling oil level.
Cooling oil level too low: Replenish with more cooling oil.
8. Visually inspect for leaks.
9. Close the door.

10.4.5 Oil separator tank dirt trap maintenance

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

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

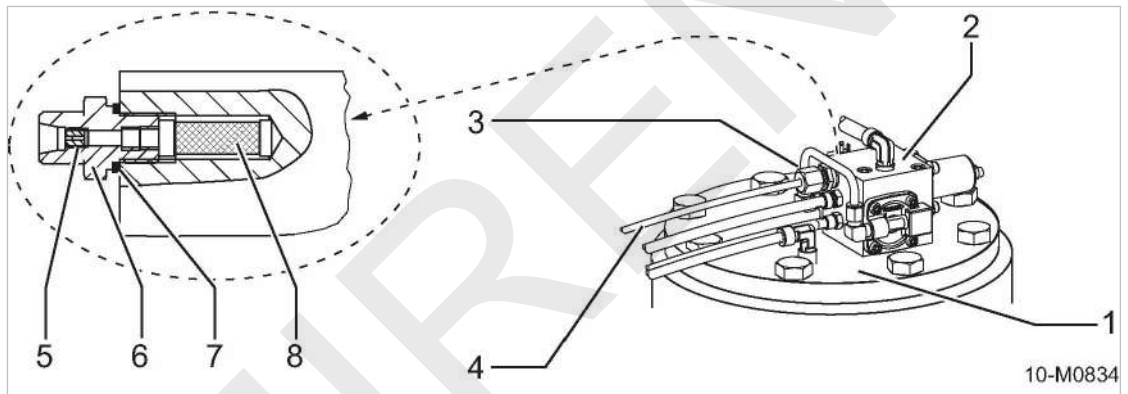


Fig. 56 Oil separator tank dirt trap maintenance

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

➤ Open the right-hand access door.

Dirt trap maintenance:

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

Making operational:

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



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

Starting the machine and performing a test run:

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

10.4.6 Changing the Oil Separator Cartridge

The oil separator element cannot be cleaned.

The life of the oil separator cartridge is influenced by:

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

Material Spares
Cleaning cloth
Wrench

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

- Open the right-hand access door.

10.4.6.1 Changing the Oil Separator Cartridge

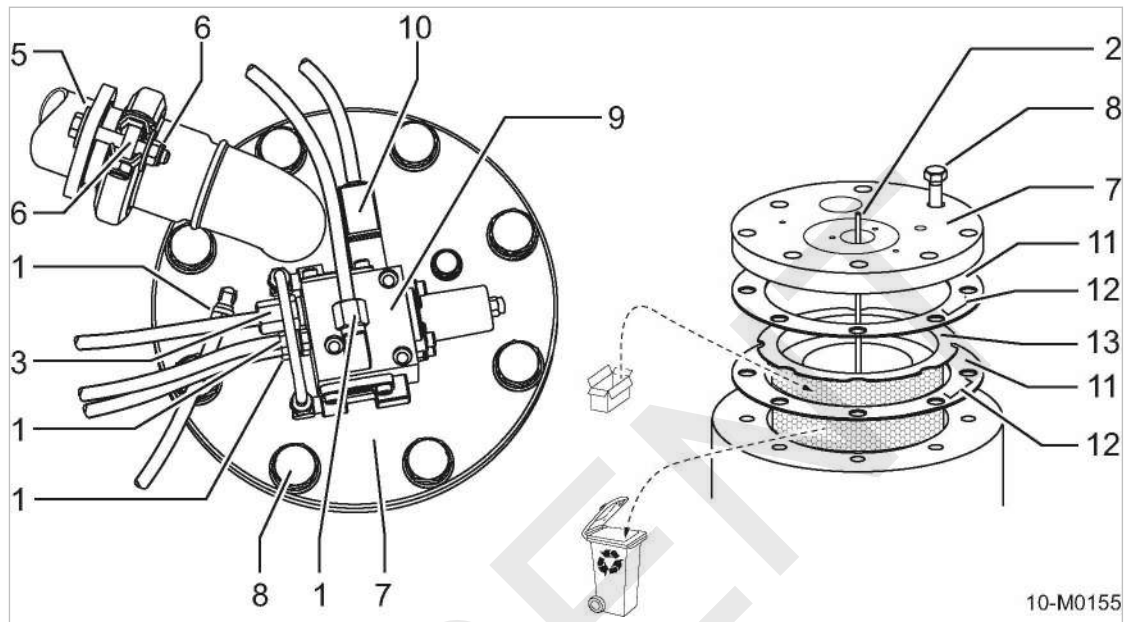


Fig. 57 Changing the Oil Separator Cartridge

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

Changing the oil separator cartridge

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



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

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



Do not remove the metal clips!
The metal parts of the oil separator cartridge are electrically interconnected. The gaskets ⑪ are fitted with metal clips ⑫ that fulfil this requirement and provide an electrical path to the oil separator tank and to the frame of the machine.

8. Insert the new oil separator cartridge with gaskets and screw down the cover.
9. Re-position the air pipe ⑤.

10. Replace and tighten all loosened fittings.
11. Reconnect cables.
12. Check the oil level in the oil separator tank.
Top up if necessary.



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

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

Making operational:

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



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

Starting the machine and performing a test run:

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

10.4.6.2 Option ba

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

Option ba

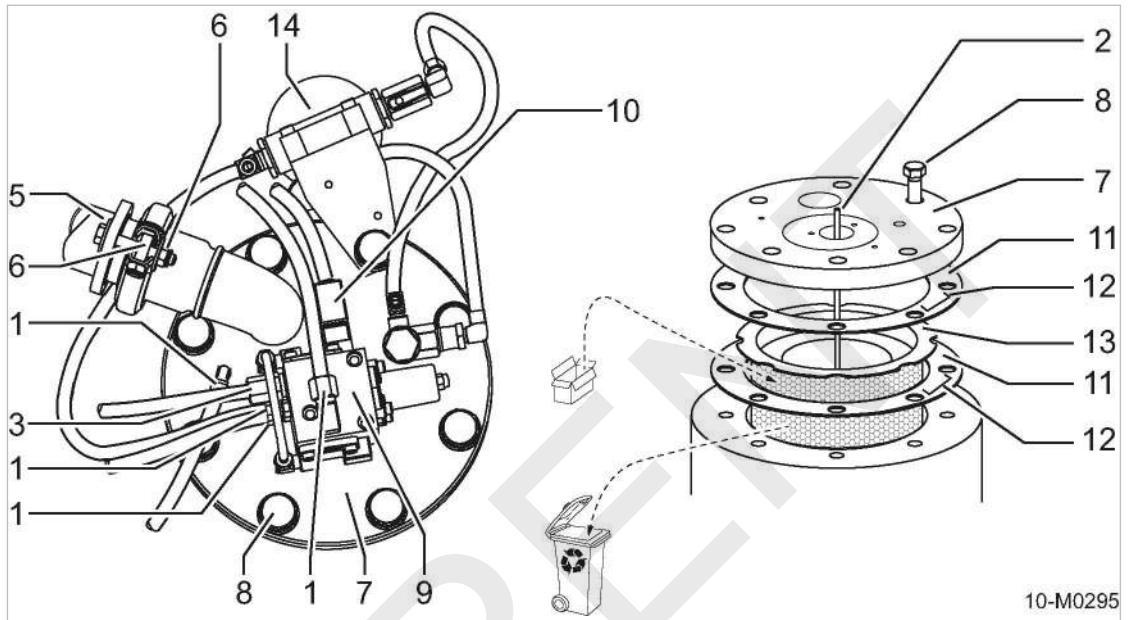


Fig. 58 Changing the oil separator cartridge (Option ba)

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

1. Unscrew the union nuts ① and ③ and place the components with connections carefully to one side.
2. Pull out the plug to the solenoid valve ⑩ and withdraw the cable.
3. Unscrew the fitting ⑥ and turn the air pipe ⑤ to one side.
4. Loosen the frost protector clamp ring ⑭ and empty the bowl. See chapter 10.7.5 on frost protector maintenance.
5. Remove the screws ⑧ securing the cover ⑦ to the tank.
6. Carefully lift the cover and put to one side.

Take particular care with the following components:

 - The frost protector ⑭ connected to the control line,
 - The oil scavenge line ② screwed to the underside of the cover.
7. Take out the old cartridge ⑬ and gaskets ⑪.

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



Do not remove the metal clips!

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

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



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

Further information

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

Making operational:

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



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

Starting the machine and performing a test run:

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

10.4.7 Compressor air filter maintenance

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

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



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

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

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



NOTICE

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

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

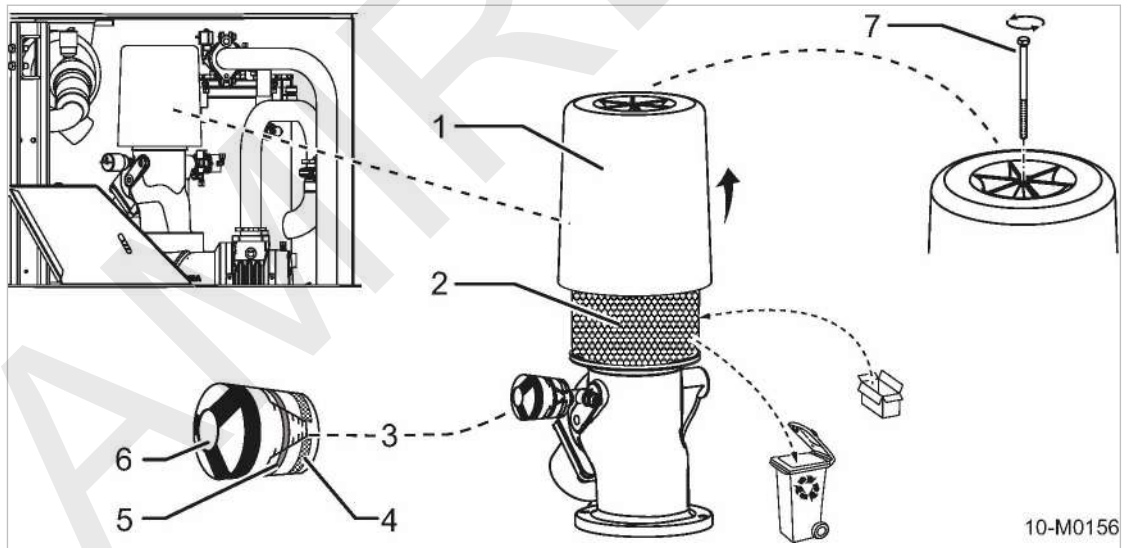
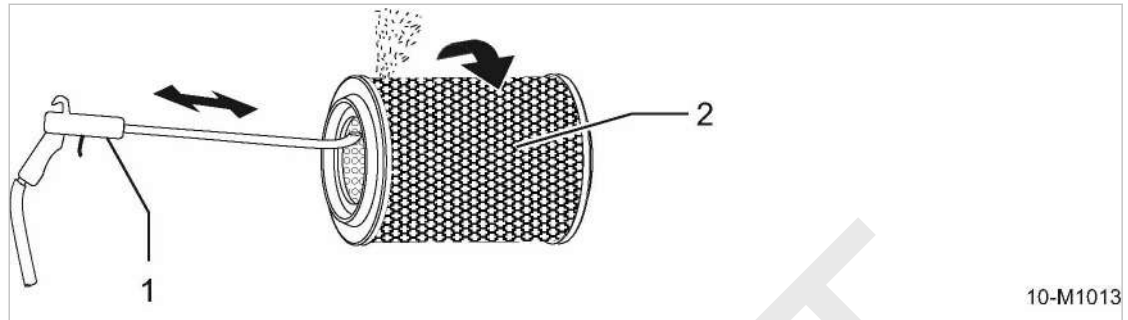


Fig. 59 Compressor air filter maintenance

- | | |
|--|---|
| <ul style="list-style-type: none"> ① Filter cap ② Air filters ③ Maintenance indicator ④ Red zone indicator scale | <ul style="list-style-type: none"> ⑤ Indicating piston of the maintenance indicator ⑥ Reset knob for the maintenance indicator ⑦ Loosen the screws |
|--|---|



10-M1013

Fig. 60 Cleaning the filter element

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

- Open the left-hand door.

Checking contamination of the air filter:

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

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

Cleaning the air filter:

1. Unscrew the hex-head screw in the filter cap.
2. Lift up the cap and remove the air filter element with a slight twisting action.
3. Clean the inside of the cap, the element holder and the sealing surfaces with a damp cloth.
4. Cleaning the filter element:
 - Use dry compressed air (≤ 5 bar!) at an angle to blow dust from the element from inside to outside until no further dust develops.
 - The blast pipe must be long enough to reach the bottom of the element.
 - The tip of the blast pipe must not touch the element.
 - Cleaning sealing faces.
5. Inspect the element carefully for any damage.
Replace any damaged filter element.
6. Insert the new or cleaned air filter element in the holder. Make sure it is properly in place and sealed by its gaskets.
7. Replace the cap and secure with the hex-head screw.

Resetting the maintenance indicator:

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



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

10.4.8 Check pressure relief valves

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

10.4.9 Fit the flexible pipe connection



With the machine stopped, the clamping bolts must be freely movable by hand and parallel with the pipe.

In LOAD operation, all clamping bolts must be equally loaded.

- Replace the self-locking nuts.

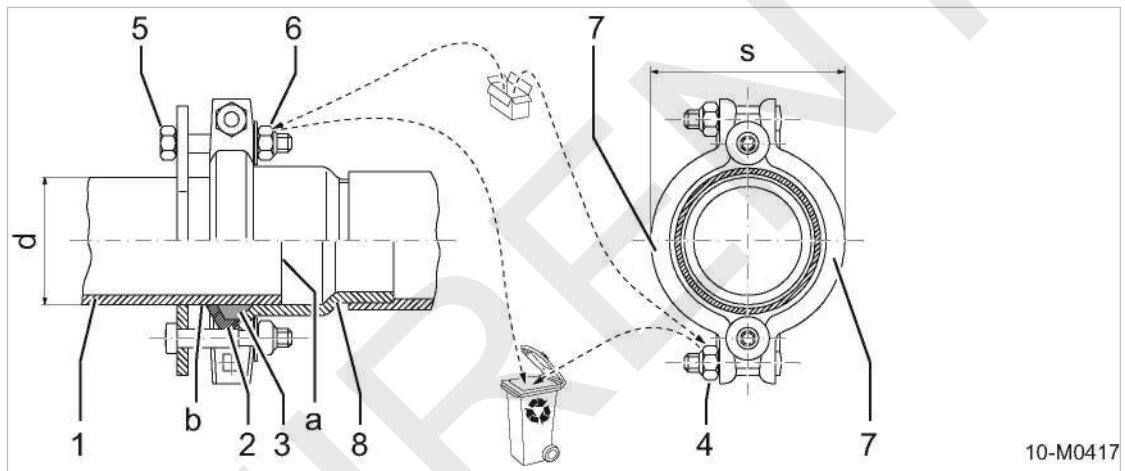


Fig. 61 Fit the flexible pipe connection

- | | |
|----------------------|---|
| ① Pipe | ⑦ Pipe clamp halves |
| ② Seal holder | ⑧ Sleeve |
| ③ Gasket (seal ring) | ① Pipe cut edge |
| ④ Self-locking nut | ② Pipe sealing surface |
| ⑤ Clamping screw | ③ Pipe diameter (outside) |
| ⑥ Self-locking nut | ④ Dimension of the flexible pipe joint under tension. |

Precondition The components to be connected must be flush-aligned.

The pipe must be deburred and the sealing face clean and undamaged. Point-shaped small concavities can be ignored, the axial direction must not exhibit any grooves.

1. Slide the seal holder ② and gasket ③ over the pipe ①.
2. Slide the pipe end ⑧ into the bush without pretension.
3. Ensure proper alignment of the pipe and push the sealing ring with sealing holder up to the beveled edge of the sleeve.
4. Lay the pipe clamp halves ⑦ over the seal holder ② and bush ⑧ and tighten the self-locking nuts ④ until the dimension ④ is reached.

Pipe diameter: d [mm]	Clamp diameter: s [mm]
48.0	81.5

Tab. 93 Dimensions of the flexible pipe connection

5. Tighten up the clamping bolts (5) with the self-locking nuts (6).
It must be just possible to manually move the screw connections.

10.5 Cleaning the cooler

The frequency of cleaning is mainly dependent on local operating conditions.

Severe clogging of the coolers causes overheating and machine damage.

Check coolers regularly for clogging.

Avoid creating dust eddies. Wear breathing protection if necessary.

Do not clean the coolers/radiators with a sharp instrument as they may be damaged.

A severely contaminated cooler/radiator should be cleaned by KAESER SERVICE.

Material	Compressed air Breathing mask (if necessary) Water or steam jet blaster
Precondition	The machine is 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 bar. All compressed air consumers are disconnected and the air outlet valves are open. 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 50 cm and an approximately 90° angle to the cooler/radiator surface.
- Open both doors.

10.5.1 Cleaning the compressor cooler and engine radiator

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

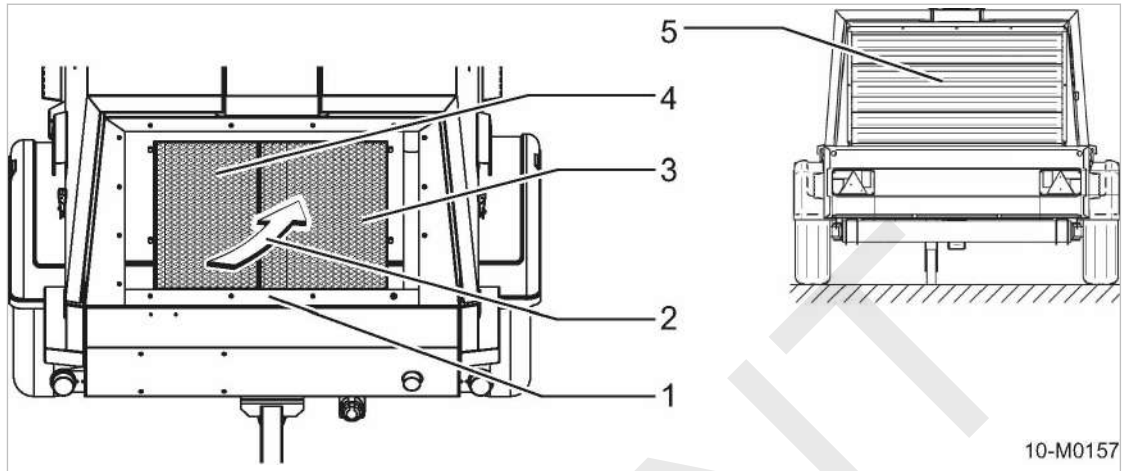


Fig. 62 Cleaning the compressor cooler and engine radiator

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

Cooler cleaning

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

Check the cooler for leaks:

1. Open both doors.
2. Visually inspect for leaks. Does oil or cooling water escape?



Is a cooler leaking?

➤ Have the defective cooler repaired or replaced immediately by KAESER SERVICE.

➤ Close the doors.

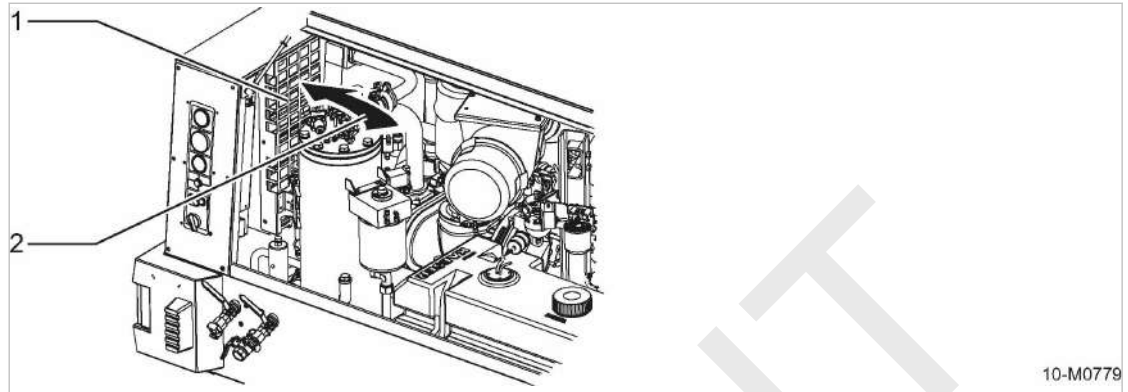


Clean the cooler blades only in a washing area equipped with an oil separator.

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

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

Option da, db, dc, dd


Fig. 63 Cleaning the compressed air aftercooler

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

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



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

10.6 Maintenance of rubber sealing strips

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

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

Material Cleaning cloth
Silicone or Vaseline

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

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

10.7 Maintenance of Optional Items

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

10.7.1 Option ec Tool lubricator maintenance

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

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

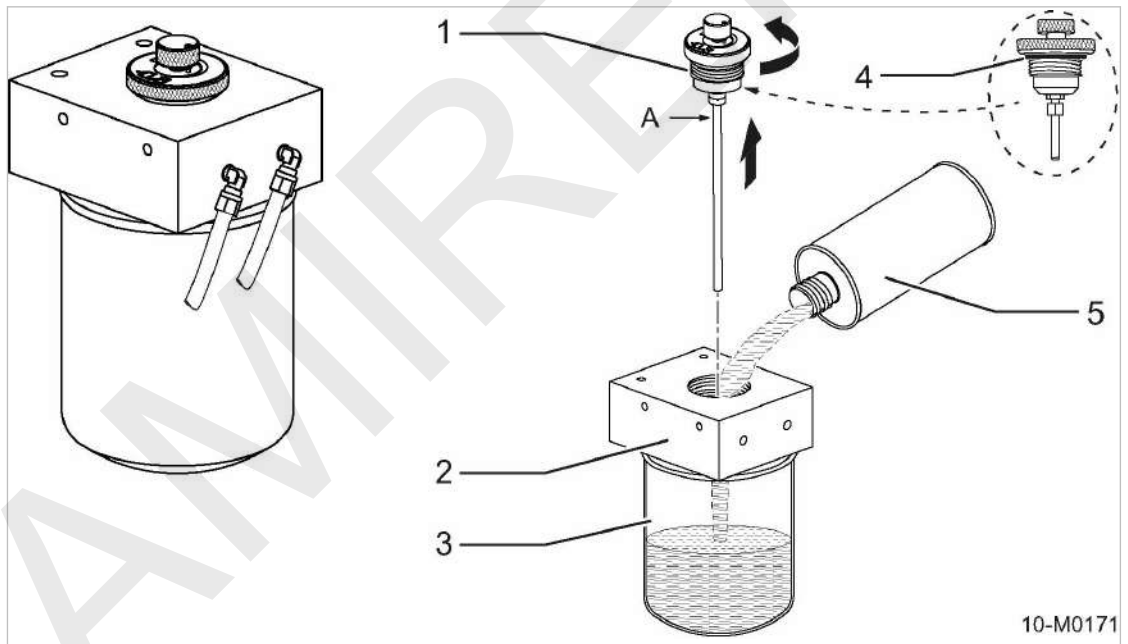


Fig. 64 Tool lubricator maintenance

- | | | | |
|---|---|---|----------|
| ① | Filler plug with dipstick and integrated riser tube | ③ | Oil tank |
| Ⓐ | Minimum and recommended oil level | ④ | O-ring |
| ② | Tool lubricator upper part with oil filling port | ⑤ | Tool oil |

- Open the right-hand access door.

Checking the tool lubricator oil level

Check the oil level daily.

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

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

1. Slowly unscrew and withdraw the oil filler plug.

2. Wipe off the dipstick with a lint-free cloth or rag and screw the plug fully in again.
3. Unscrew and withdraw the plug once more and read off the oil level on the dipstick.
Oil level at the upper third of the dip stick: Oil level is correct.
If oil does not reach this level: Immediately replenish tool oil.
4. Close the door.

Filling and topping up with tool lubricator oil

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

Further information See chapter 2.8.1.1 for suitable oil grade and volume.

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

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

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

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

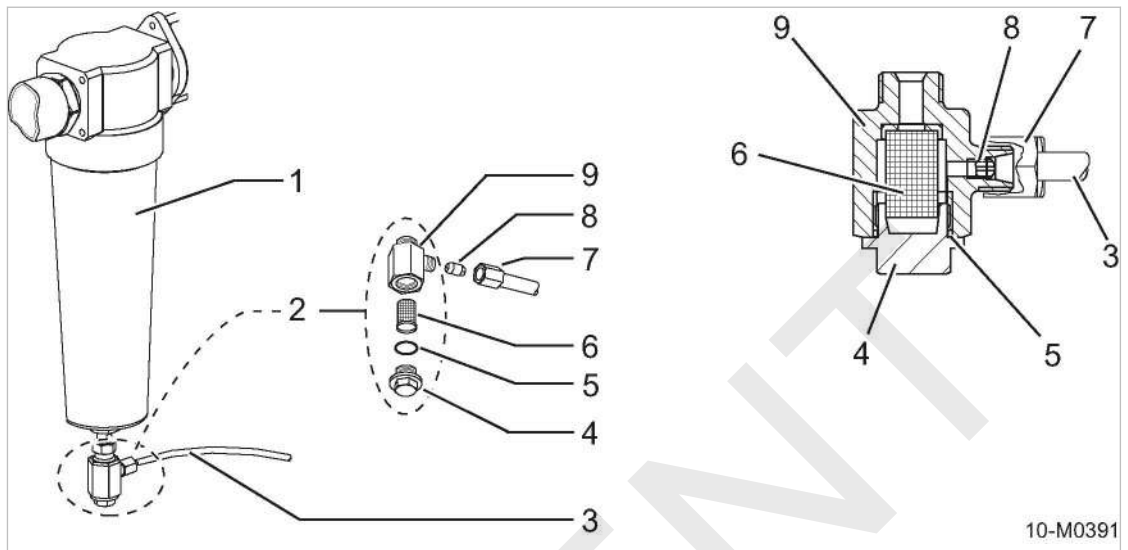


Fig. 65 Cleaning the dirt trap

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

➤ Open the left-hand door.

Cleaning the dirt trap:

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

Making operational:

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

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar.

4. Open the outlet valves.
5. Open the left-hand door.
6. Check the cyclone separator housing and hose line for leaks.
7. Close the door.

10.7.3 Option dd Combination filter maintenance

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



WARNING

Danger of injury from compressed air!

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

- Wait until the machine has automatically vented (check: pressure gauge reads 0 bar!
- De-pressurise the combination filter.

Option dd

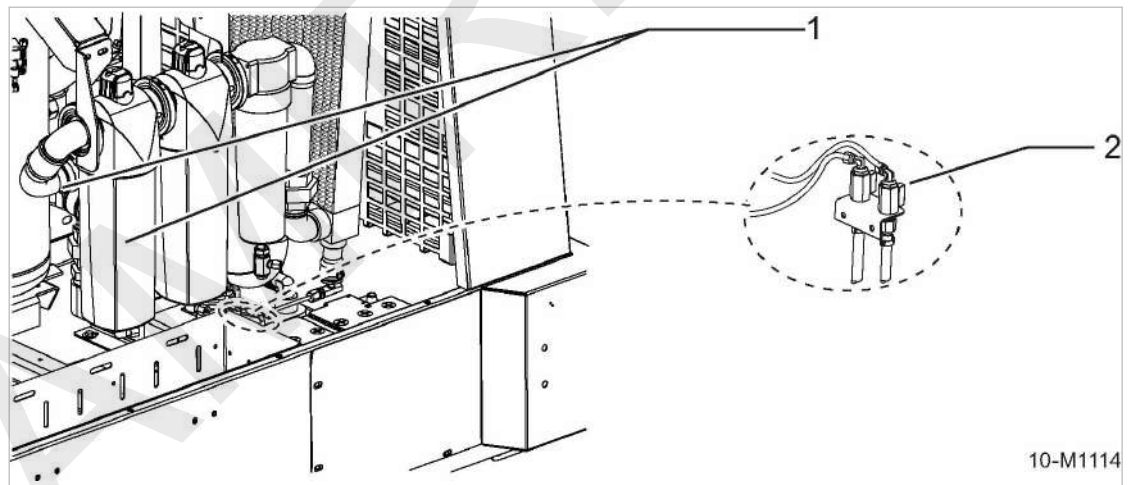


Fig. 66 Filter combination

- ① Filter combination
- ② Shut-off valve condensate drain

Option dd

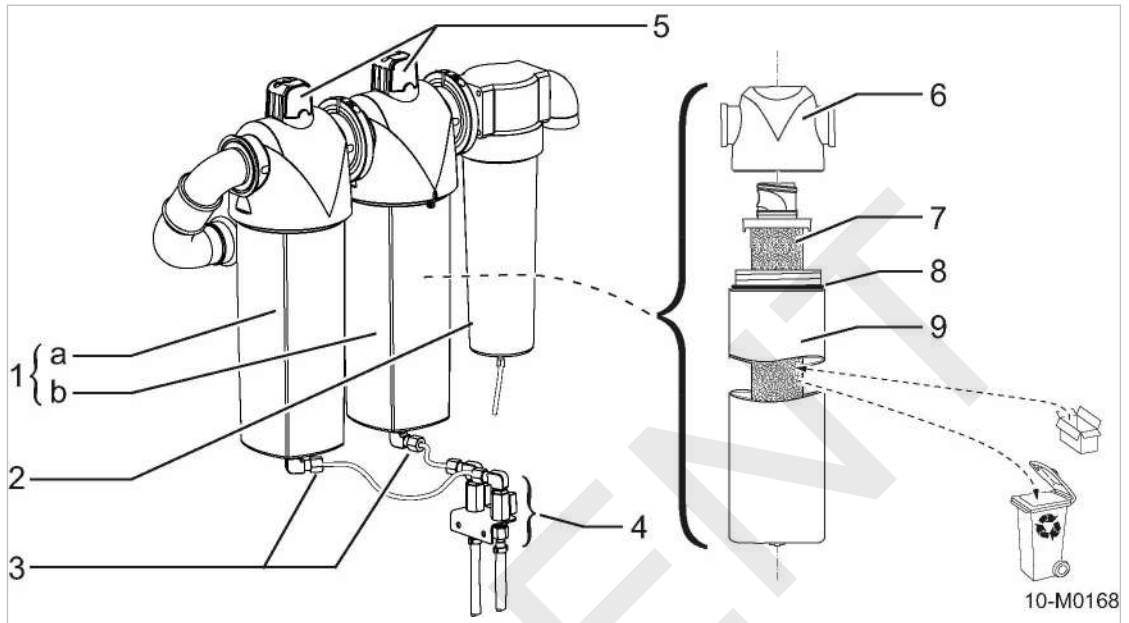


Fig. 67 Combination filter maintenance

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

➤ Open the left-hand door.

10.7.3.1 Drain condensate

Material Oil receptacle
Cleaning cloths

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



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

10.7.3.2 Changing the filter elements

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



Using the combination filter without an element installed is not permitted.

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

Material Spare parts
 Filter wrench
 Wrench
 Cleaning cloths
 Clean fabric gloves

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

Ensure that the combination filter is not under pressure.

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

Gaining access to the filter housing

- Loosen the screw fitting of the condensate drain hoses from the filter housings of pre-filter and micro-filter and remove the drain hoses.

Changing the prefilter element

1. Unscrew the filter housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the filter head, housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
 Housing gasket is damaged: replace gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the filter housing clockwise.

Changing the pre-filter element

1. Unscrew the filter housing counter-clockwise.
2. Draw the filter element down and out.
3. Clean the filter head, housing and sealing surface with a lint-free cloth.
4. Check the housing gasket.
 Housing gasket is damaged: replace gasket.

5. Insert a new filter element.



Wear gloves!

6. Screw on the filter housing clockwise.

Putting in operation:

1. Screw the condensate drain hoses to the housings of the pre-filter and the micro-filter.
2. Close the condensate drain shut-off valves.
3. Tighten the filter combination fittings.
4. Turn on the «battery isolating switch».
5. Close the door.



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

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

Starting the machine and performing a test run:

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

**10.7.4 Option dc
Fresh air filter maintenance**

Before commencing work on the fresh air filter, read and understand the operating instructions given in chapter 13.7.

Precondition The machine is shut down.

The machine is standing level.

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

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

Option dc

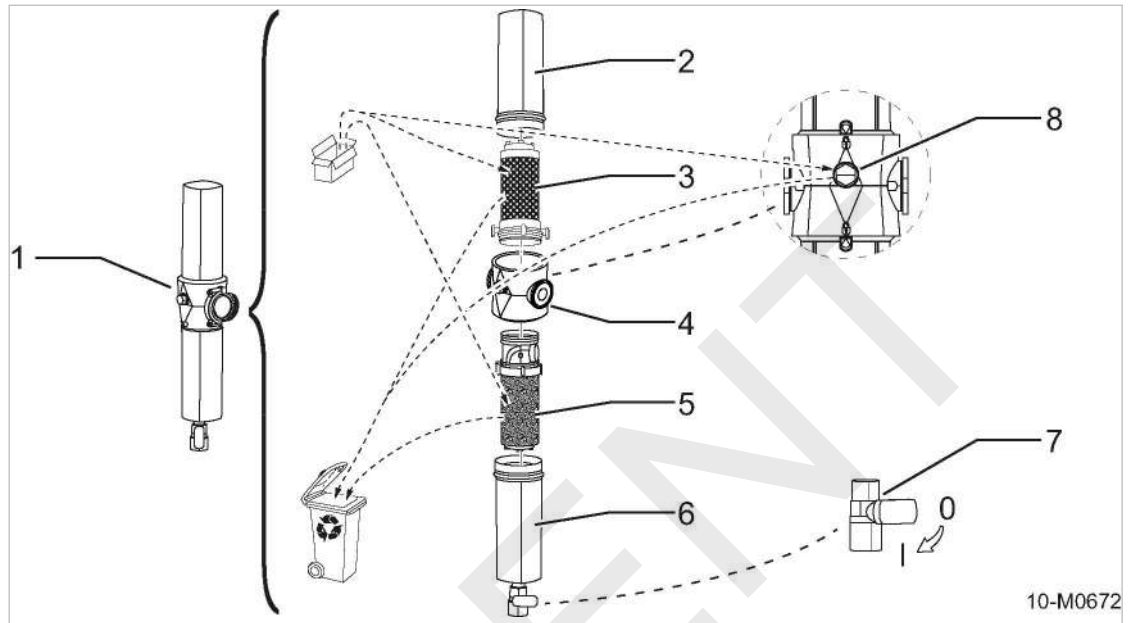


Fig. 68 Fresh air filter maintenance

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

➤ Open both doors.

10.7.4.1 Draining condensate

Material Receptacle
Cleaning cloth

1. Place the receptacle below the fresh air filter condensate drain point.
2. Open the condensate drain valve.
3. Close the doors.
4. Switch the machine on and run it in IDLE mode for approx. 2 minutes.
The condensate collecting in the filter housings is blown out.
5. Shut down the machine.
6. Open both doors.
7. Close the drain valve.
8. Carefully remove the receptacle.
9. Close the doors.



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

10.7.4.2 Check the oil indicator

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

The oil indicator must be checked at least once daily.



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

➤ Check the oil indicator.

Indicator blue - change both filter elements and the indicator.

10.7.4.3 Changing consumable parts

The fresh air filter contains two different elements which must be changed as a pair. Note location!



Using the fresh air filter without an element installed is not permitted.

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

- Material
- Spare parts
 - Filter wrench
 - Wrench
 - Cleaning cloth
 - Clean fabric gloves

- Precondition
- Machine is cooled down.
 - The negative cable to the battery is disconnected.

Ensuring the fresh air filter is depressurized:

➤ Open the fresh air filter drain tap to release any remaining pressure.

Change the lower filter element (high performance element)

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



Wear gloves!

6. Screw on the lower housing clockwise.

Changing the upper filter element (adsorption insert):

1. Unscrew the upper housing counter-clockwise.
2. Draw the filter element up and out.
3. Clean the lower housing and sealing surface with a lint-free cloth.

4. Check the housing gasket.
When damaged, replace the housing gasket.
5. Insert a new filter element.



Wear gloves!

6. Screw on the upper housing clockwise.

Change the oil indicator:

1. Unscrew the oil indicator.
2. Clean the housing and sealing surface with a lint-free cloth.
3. Screw in the new oil indicator.

Making operational:

1. Close the drain valve.
2. Reconnect the negative battery terminal.
3. Close the doors.



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

Further information

Further information on changing elements can be found in the operating instructions for pressurised air filters (fresh air filters) in chapter 13.7.

Starting the machine and performing a test run:

1. Switch the machine on and run it in IDLE mode for approx. 5 minutes.
2. Shut down the machine.
3. Wait until the machine has automatically vented.
Pressure gauge reads 0 bar.
4. Open the outlet valves.
5. Open both doors.
6. Check the fresh air filter housing and hose line for leaks.
7. Close the doors.

**10.7.5 Option bc
Frost protector maintenance**

At temperatures below 5°C, the level of antifreeze in the protector must be checked daily before starting the compressor.

Material Antifreeze: Antifreeze protection for air brake systems
z. B. Wabcothyl (part no. 9.5400.0)
Cleaning cloths

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



DANGER

Spontaneous ignition of anti-freeze!
Risk of fire and explosion caused by spontaneous ignition can cause severe injury.

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



WARNING

Danger of injury from compressed air!
The frost protector is pressurised during operation. Serious injury can result from loosening or opening components under pressure.

- Wait until the machine has automatically vented (check: pressure gauge reads 0 bar!

Option bc

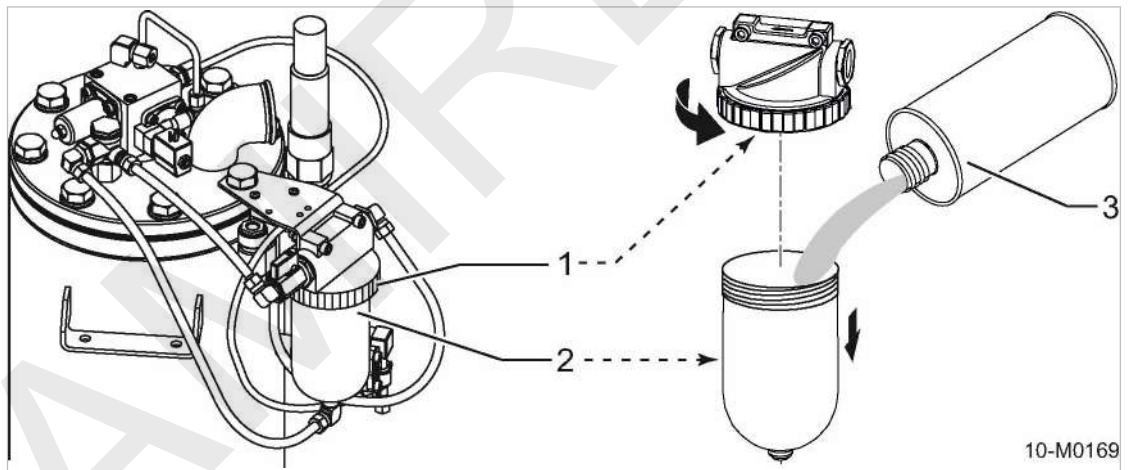


Fig. 69 Filling the frost protector

- ① Frost protector clamp ring
- ② Frost protector bowl
- ③ Antifreeze container

1. Open the right-hand access door.
2. Unscrew the clamp ring and remove the bowl.
3. Fill the bowl $\frac{3}{4}$ full with antifreeze.
4. Screw the bowl carefully back into place.
5. Close the door.

10.7.6 Option Ia
Spark arrestor cleaning

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

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

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



DANGER

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

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



CAUTION

Danger of burns from hot components and sparks.

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

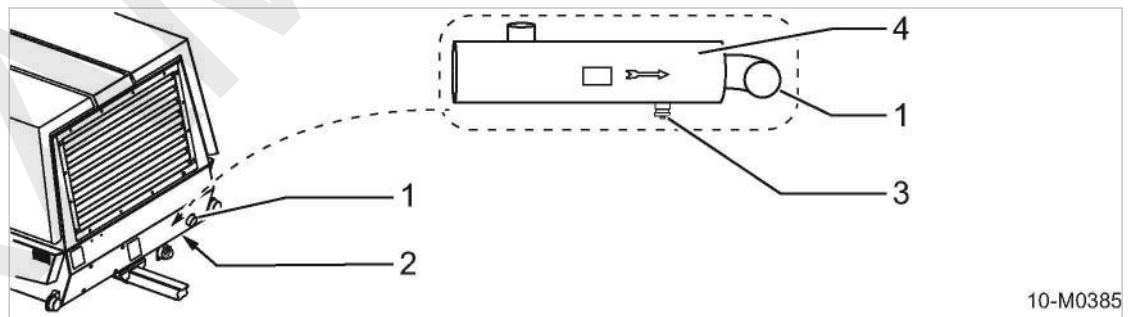


Fig. 70 Spark arrestor cleaning

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

1. Unscrew the soot drain plug.
2. Push one end of the hose over the drain port and place the other end in the receptacle.
3. Start the compressor engine.

4. In order to increase the pressure in the exhaust system, partially cover the exhaust discharge pipe with a fire-proof object.
Soot will drain through the hose into the receptacle.
5. Shut down the engine.
6. Remove the hose and replace the plug.



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



Dispose of soot according to environment protection regulations.

10.7.7 Option 1b Engine air shut-off valve maintenance

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

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



NOTICE

Adjusted engine air intake shut-off valve

The engine air intake shut-off valve does not close when flammable gas is drawn into the engine:

The machine does not shut down? Destruction of the engine and explosion and/or fire are possible.

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

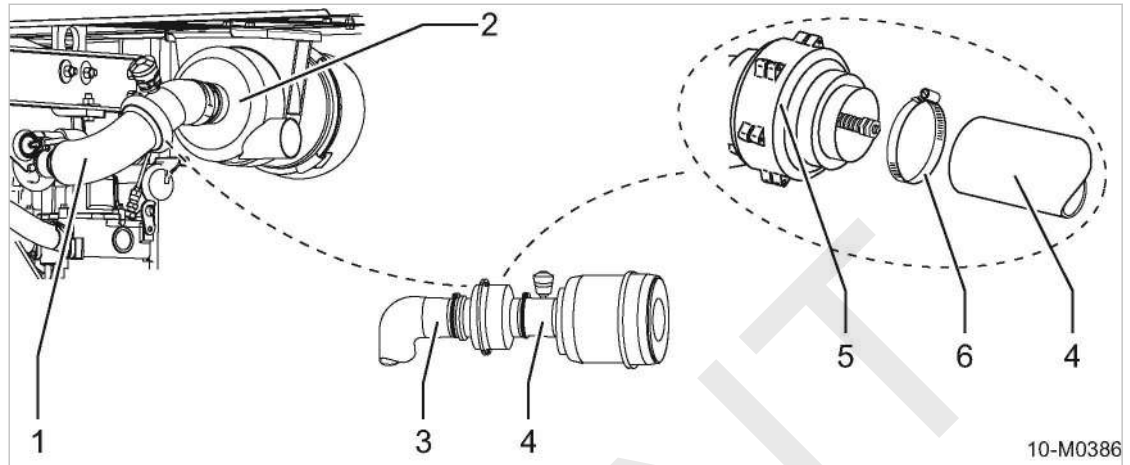


Fig. 71 Maintain the engine air shut-off valve

- | | |
|--------------------------------|------------------------------------|
| ① Engine air intake | ④ Air inlet hose (air filter side) |
| ② Engine air filter | ⑤ Engine air shut-off valve |
| ③ Air inlet hose (engine side) | ⑥ Hose clamp |

➤ Open both doors.

Clean the engine air shut-off valve:



1. **NOTICE!**
The engine air intake shut-off valve does not close fully.
The machine does not shut down? Destruction of the engine and explosion and/or fire are possible.
➤ Do not grease the valve, as this may cause a build up of dust and valve sticking.
2. Loosen the hose clamp on the filter side of the valve and turn the air intake hose to one side.
3. Check if the interior of the shut-off valve is clean.
Engine shut-off valve is clogged: Blow out with compressed air.



- If necessary, clean the valve with cleaning fluid or spirit and allow to dry.
- If dirt cannot be removed: Contact specialist workshop or KAESER SERVICE.

Checking the engine air intake shut-off valve for correct function and movement:

1. Check the valve for signs of excessive wear.
2. Check that the valve plate closes fully and easily.

Result When severe wear or function problems are apparent: Have the engine air intake valve replaced.

1. Reposition the air intake hose and tighten the clamp.
2. Close the doors.
3. Start the machine and switch to LOAD operation.

The engine stops in LOAD operation: Have the engine air intake valve checked by a specialist workshop or KAESER SERVICE.

10.7.8 Option ga Generator drive belt maintenance

Correct belt tension is extremely important for the function of the generator and the operational life of the belts themselves. The lifespan of the drive belts is affected by belt tension.

- Slack V-belts can cause belt slip and damage to the belts.
- Over-tight belts stretch and fatigue quicker. Over-tight belts also place unnecessary stress on bearings and shorten their life.

Material Spare parts (if required)
Wrench
V-belt tension measuring device
Liquid thread lock

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

**WARNING**

Beware of rotating pulleys and moving belts.
Touching the moving drive belt may result in severe bruising or even loss of limb or extremities.

- Check the belt only when the compressor is shut down.
- Never run the machine without a belt guard.

- Open the left-hand door.

Remove the safety screen and the belt guard:

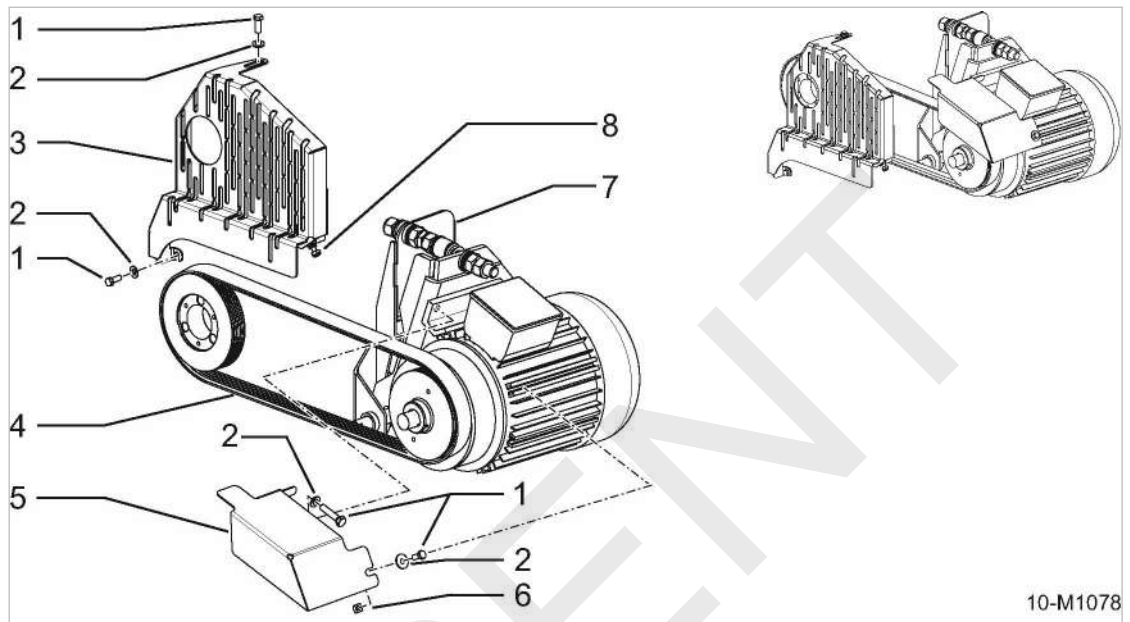


Fig. 72 Securing the belt guard at the generator

- | | |
|------------------|------------------------------|
| ① Hex-head screw | ⑤ Belt guard |
| ② Washer | ⑥ Square nut |
| ③ Safety screen | ⑦ Support for belt tensioner |
| ④ Generator belt | ⑧ Hexagonal nut |

➤ Loosen the bolts on safety screen and belt guard and remove both protective devices.

10.7.8.1 Visual check for belt damage

1. Turn the pulley by hand and inspect the full length of the belt for splits, frays or any sign of stretching.

Change the belt immediately if any damage or wear is found.

2. Re-attach the safety screen and the belt guard.
3. Reconnect the negative battery terminal.
4. Close the door.

10.7.8.2 Checking belt tension



Check belts when it is warm, not hot, to avoid length variations through temperature.

Checking belt tension on the drive belt:

A belt tension measuring device may be used to verify the belt tension. See the manufacturer's instructions for operation.

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

Generator	Checking with an instrument.		Checking by hand	
	Rated power [kVA]	Permissible belt tension [N]	Compressive force [N]	Permissible intrusion depth A [mm]
7.0 – 8.5	420 – 520	80	8	
13.0	580 – 680	100	8.5	

Tab. 94 Belt tension values

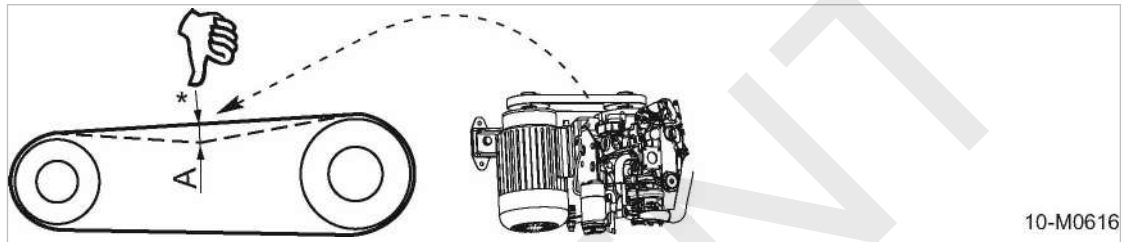


Fig. 73 Belt tension checking by hand

- Ⓐ Permissible deflection of the belt
- * Force approximately 8 – 10 kg

➤ Checking belt tension with a measuring device or by hand according to the following instructions:

Checking belt tension with tension measuring device	Belt tension checking by hand
Use a measuring device to check belt tension. 1. Check belt tension with the tension measuring device. 2. Increase the tension on a loose belt.	Press the belts in with the thumb at the mid-point between pulleys. 1. Check belt tension by hand (see Fig. 73). 2. Increase the tension on a loose belt.

Checking belt tension on the tensioner:

Belt tension can be also checked using the belt tensioner, in alternative to the check directly at the drive belt.

See chapter 10.7.8.3; Figure 75.

To determine if the belt needs tensioning, the tensioner (6) should be loosened from the tensioning frame (4).

1. Loosen the locking nuts (24) and (8).
2. Check if there is a gap between the sleeve (11) and the two adjacent washers and whether the spherical seat washer (10) and /or washer (20) are present.
Tension the belts if a gap can be seen.
3. Tighten the nut (8) against the tensioning frame (4) and lock with the locknut (24).

Making operational:

1. Re-attach the safety screen and the belt guard.
2. Reconnect the negative battery terminal.
3. Close the door.

10.7.8.3 Belt tensioning

(see figure 75 for location).

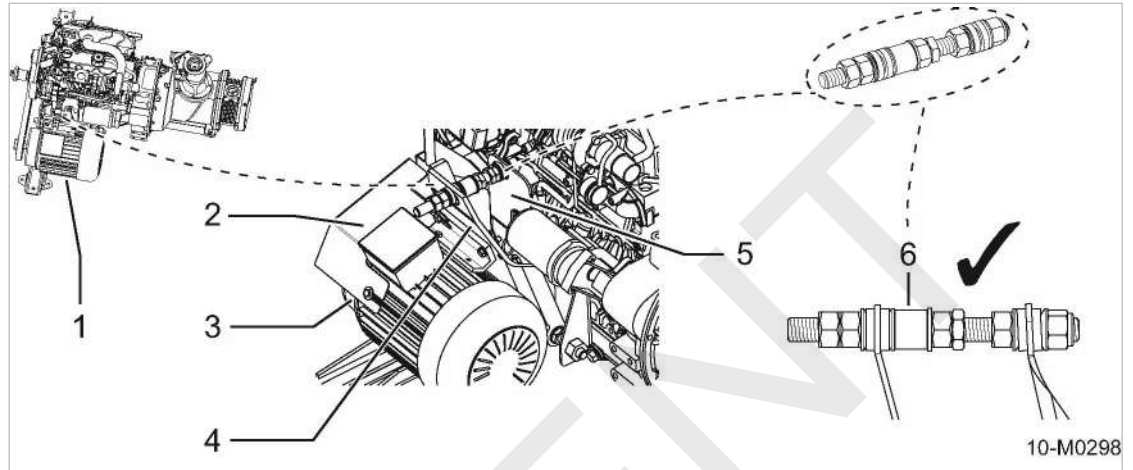


Fig. 74 Generator belt tensioning

- | | | | |
|---|------------|---|----------------------------------|
| ① | Generator | ④ | Tensioning frame |
| ② | Belt guard | ⑤ | Tensioning spindle fixed bracket |
| ③ | Drive belt | ⑥ | Tensioning spindle |

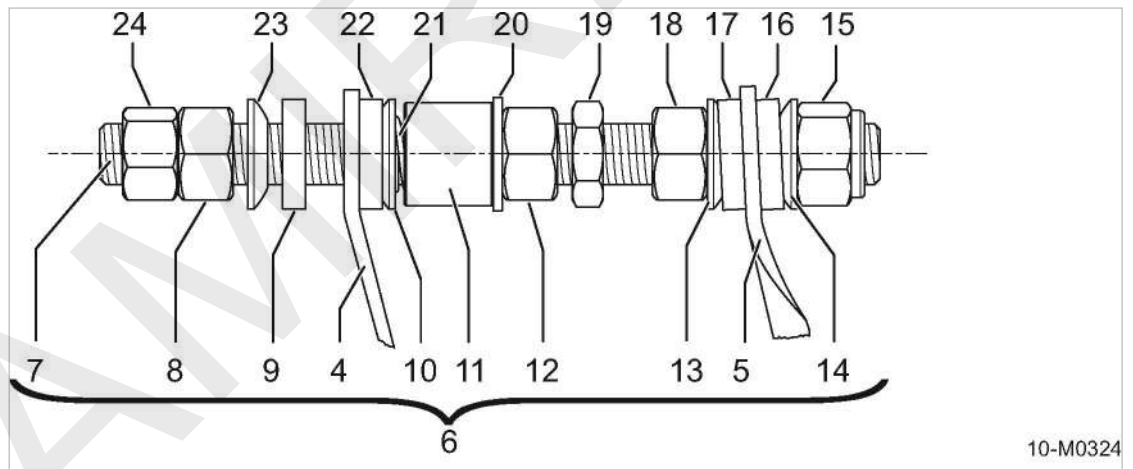


Fig. 75 Generator belt tensioner

- | | | | |
|---|------------------------------|---|------------------------------|
| ⑦ | Threaded rod | ⑬ | Spherical seat washer |
| ⑧ | Hexagonal nut | ⑭ | Spherical seat washer |
| ⑨ | Conical seat washer | ⑮ | Hexagonal nut (self-locking) |
| ⑩ | Spherical seat washer | ⑯ | Conical seat washer |
| ⑪ | Sleeve | ⑰ | Conical seat washer |
| ⑫ | Hexagonal nut | ⑱ | Locknut (low) |
| ⑬ | Spherical seat washer | ⑲ | Locknut (low) |
| ⑭ | Spherical seat washer | ⑳ | Washer |
| ⑮ | Hexagonal nut (self-locking) | ㉑ | Washer |
| ⑯ | Conical seat washer | ㉒ | Compression spring |
| ⑰ | Conical seat washer | ㉓ | Conical seat washer |
| ⑱ | Locknut (low) | ㉔ | Spherical seat washer |
| ⑲ | Locknut (low) | ㉕ | Locknut |
| ⑳ | Washer | | |
| ㉑ | Washer | | |
| ㉒ | Compression spring | | |
| ㉓ | Conical seat washer | | |
| ㉔ | Spherical seat washer | | |
| ㉕ | Locknut | | |

Tensioning the drive belt:

1. Loosen the locknut (24) and nuts (8), (19) and (12).

2. Turn the nut (12) by hand until there is no gap between the sleeve (11) and spherical seat washer (10) and/or washer (20).
3. Lock the nut (19) with the nut (12).
4. Tighten the nut (8) against the side of the tensioning frame (4). The conical seat washer (9) and the spherical seat washer (23) must lay in the tensioning frame.
5. Lock the nut (24) with the nut (8).

Making operational:

1. Re-attach the safety screen and the belt guard.
2. Reconnect the negative battery terminal.
3. Close the door.

10.7.8.4 Changing the belt

1. Remove the tensioning device (see Fig. 75).
 - Loosen nuts (24) and (8) and lock together at the end of the threaded rod (7).
 - Loosen nuts (19) and (12) on the tensioning frame (4) until the belt is completely slack.
 - Loosen the locking nut (18).
 - With the help of the nut (6), unscrew the tensioning device (8) from the locknut (15).
 - Remove the tensioning device (6) from the tensioning frame (4) and belt tensioner holder (5).
2. Changing the belts
 - Remove the belts from the pulleys.
 - Check the pulleys for dirt and wear.
 - Clean the pulleys.
 - Slitt remskive: Skift ut remskiven.
 - Check that the pulleys are lined up.
 - If the pulleys are not lined up, adjust the position of the generator until they are.
 - Without using force, place the new belt over the engine and generator pulleys.
3. Mount the tensioning device (see Fig. 75).
 - Mount the tension device (6) in the tensioner holder (5) and tensioning frame (4) as illustrated.
 - Lock the nut (8) to the nut (24).
 - Tighten the tensioning device (6) to the side of the motor with the nut (15). For this, the tensioning device must be screwed into the locknut (15).
 - Use a wrench to fixate the nut (18). Use another wrench to turn nut (8) counter-clockwise. Secure the nut (18) with a drop of liquid thread lock to prevent a potential loosening due to vibration stresses.
 - Tension the belt as described in chapter 10.7.8.3.



A belt that has been replaced may not be used again.



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

Making operational:

1. Re-attach the safety screen and the belt guard.

2. Reconnect the negative battery terminal.
3. Close the door.

Performing a test run:

1. Run the compressor under LOAD operation for 15–20 minutes.
2. Open the left-hand door.
3. Remove the belt guard.
4. Check the belts again and re-tension if necessary.
5. Close the door.



Check the belt again after a further 2 operating hours.

10.7.8.5 Aligning the generator

The engine and generator pulleys must be in line.

Misaligned pulleys cause:

- a belt that does not run true and may jump off the pulleys,
- high wear on one side of the belt,
- excessive noise.

Material Alignment ruler
Wrench
Liquid thread lock

1. Open the left-hand door.
2. Remove the safety screen and the belt guard.

Checking the alignment:

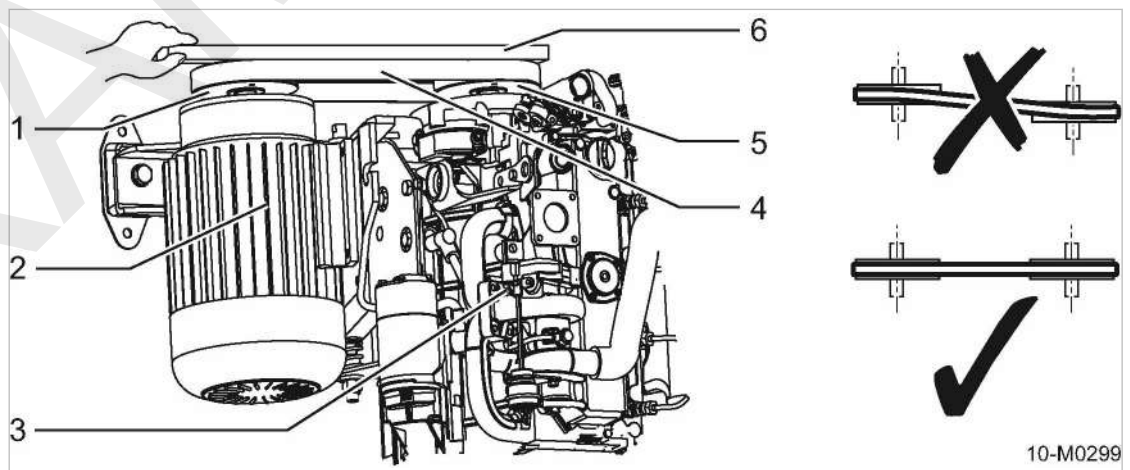


Fig. 76 Checking the pulley alignment

- | | |
|--------------------------|-------------------|
| ① Generator drive pulley | ④ Drive belt |
| ② Generator | ⑤ Engine pulley |
| ③ Engine | ⑥ Alignment ruler |

1. Lay the alignment ruler against the engine and generator pulleys.
If the pulleys are offset, adjust the position of the generator.
2. Re-attach the safety screen and the belt guard.
3. Reconnect the negative battery terminal.
4. Close the door.

Aligning the generator:

The generator is aligned by turning the tensioning nut on the swing frame pivot axis. This moves the generator around its axis.

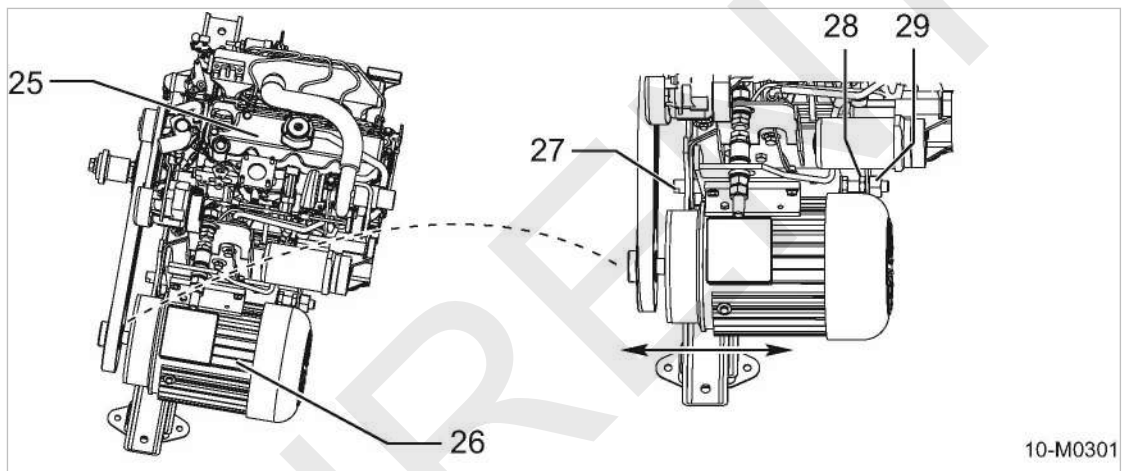


Fig. 77 Aligning the generator

- | | | | |
|-----------|--|-----------|--|
| 25 | Engine | 28 | Hexagonal nut |
| 26 | Generator | 29 | Tensioning nut (hexagon, self-locking) |
| 27 | Tensioning frame pivot axle head with flats for a wrench | | |

1. Remove the tensioning device (see chapter 10.7.8.4).
2. Using a suitable wrench, steady hold the tensioning frame axle head **27**.
3. Loosen the hexagon nut **28**.
4. Align the generator pulley with the engine pulley by turning the tensioning nut **29**.
5. Check the pulley alignment with the alignment ruler.
6. Tighten the nut **28** using non-permanent liquid thread lock to prevent a potential loosening due to vibration stresses.
7. Replace the tensioning device (see chapter 10.7.8.4).
8. Tension the belt as described in chapter 10.7.8.3.
9. Re-attach the safety screen and the belt guard.
10. Reconnect the negative battery terminal.
11. Close the door.

11 Spares, Operating Materials, Service

11.1 Note the nameplate

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

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

11.2 Ordering consumable parts and operating fluids/materials

KAESER consumable parts and operating materials are original KAESER products. They are matched to application in our machines and ensure trouble-free operation.

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

Personal injury may result from damage.



WARNING

There is risk of personal injury or damage to the machine resulting from the use of unsuitable spares or operating fluids/materials.

- Use only original parts and operating fluids/materials.
- Do not use alternative consumable parts and operating fluids and materials.

Compressor

Name	Quantity	Number
Air filter element	1	1260
Compressor oil filter	1	1210
Oil separator cartridge (complete set)	1	1450
Cooling oil	1	1600

Tab. 96 Compressor consumables

Kubota engine parts

Name	Quantity	Number
Air filter element	1	1280
Fuel prefilter	1	1910
Fuel fine filter (cartridge)	1	1920
Fuel water separator	1	1980
Engine oil filter (cartridge)	1	1905
Oil drain seal	1	4496
Injector nozzle	1	4475
Injector nozzle seal	1	4476
Engine belt	1	4470

Name	Quantity	Number
Glow plug	1	4466
Engine oil	1	1925

Tab. 97 Consumable engine parts

Option dd Filter combination

Name	Quantity	Number
Filter element for pre-filter	1	1550
Filter element fine filter	1	1551
Casing gasket	2	1548

Tab. 98 Replacement parts, combination filter

Option dc Fresh air filter

Name	Quantity	Number
Filter elements, fresh-air filter (Filter-Kit)	1	1549
Indicator insert	1	3930

Tab. 99 Replacement parts, fresh-air filter

11.3 KAESER AIR SERVICE

KAESER AIR SERVICE offers:

- authorised 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 spares,
 - Increased legal certainty as all regulations are kept to.
- It make sense to sign a maintenance agreement for KAESER AIR SERVICE.
The advantages:
lower costs and higher compressed air availability.

11.4 Service Addresses

Addresses of KAESER agents are given at the end of this manual.

11.5 Replacement parts for service and repair

With the help of the parts list you can plan your material requirement according to operating conditions, and order the spare parts you need.


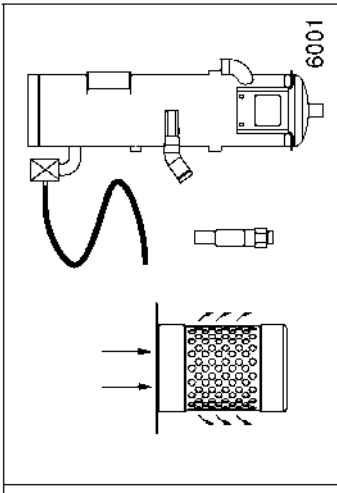
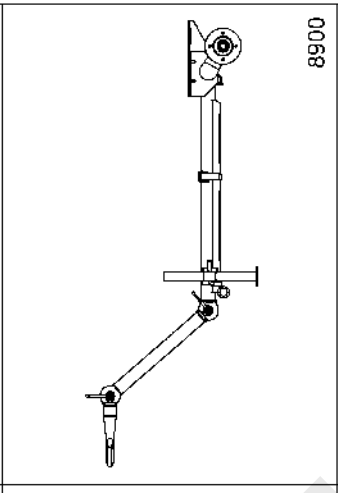
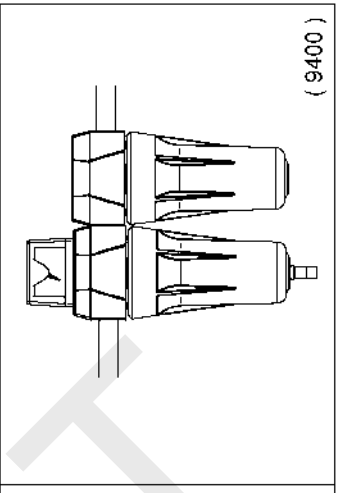

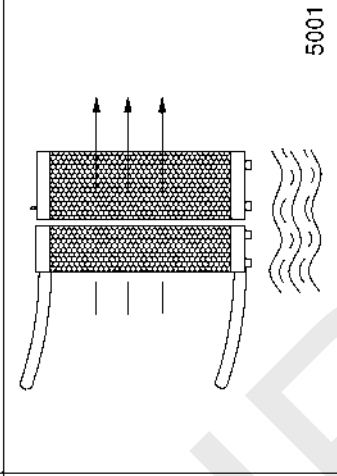
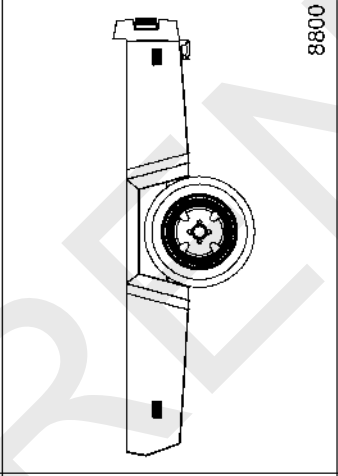
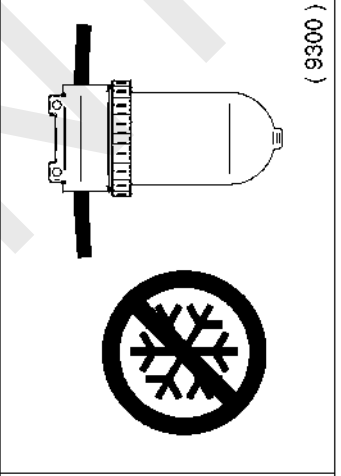
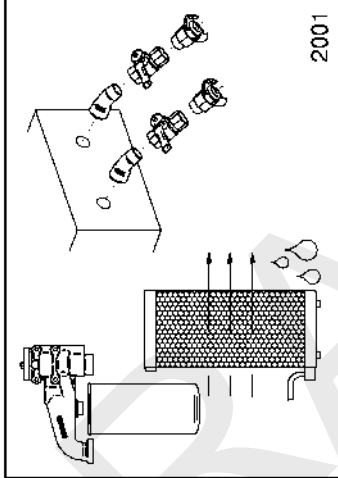
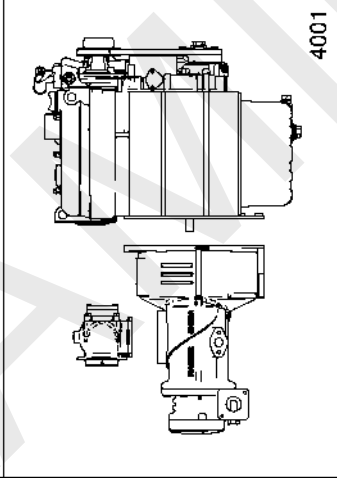
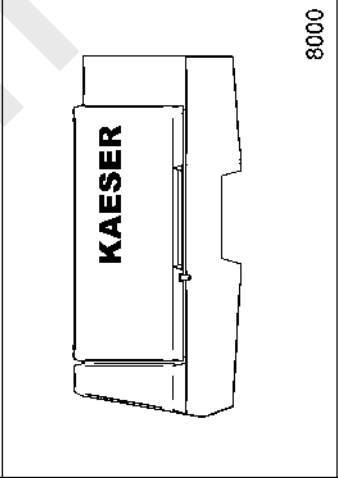
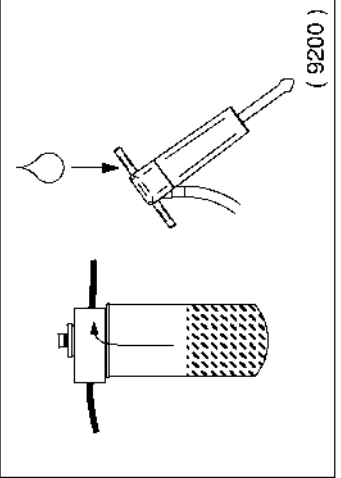
**WARNING**

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

- Inspections, preventive maintenance or repair tasks not described in this manual must not be carried out by unqualified personnel.
- Have further tasks, not described in this service manual, carried out by motor vehicle workshops or KAESER SERVICE.

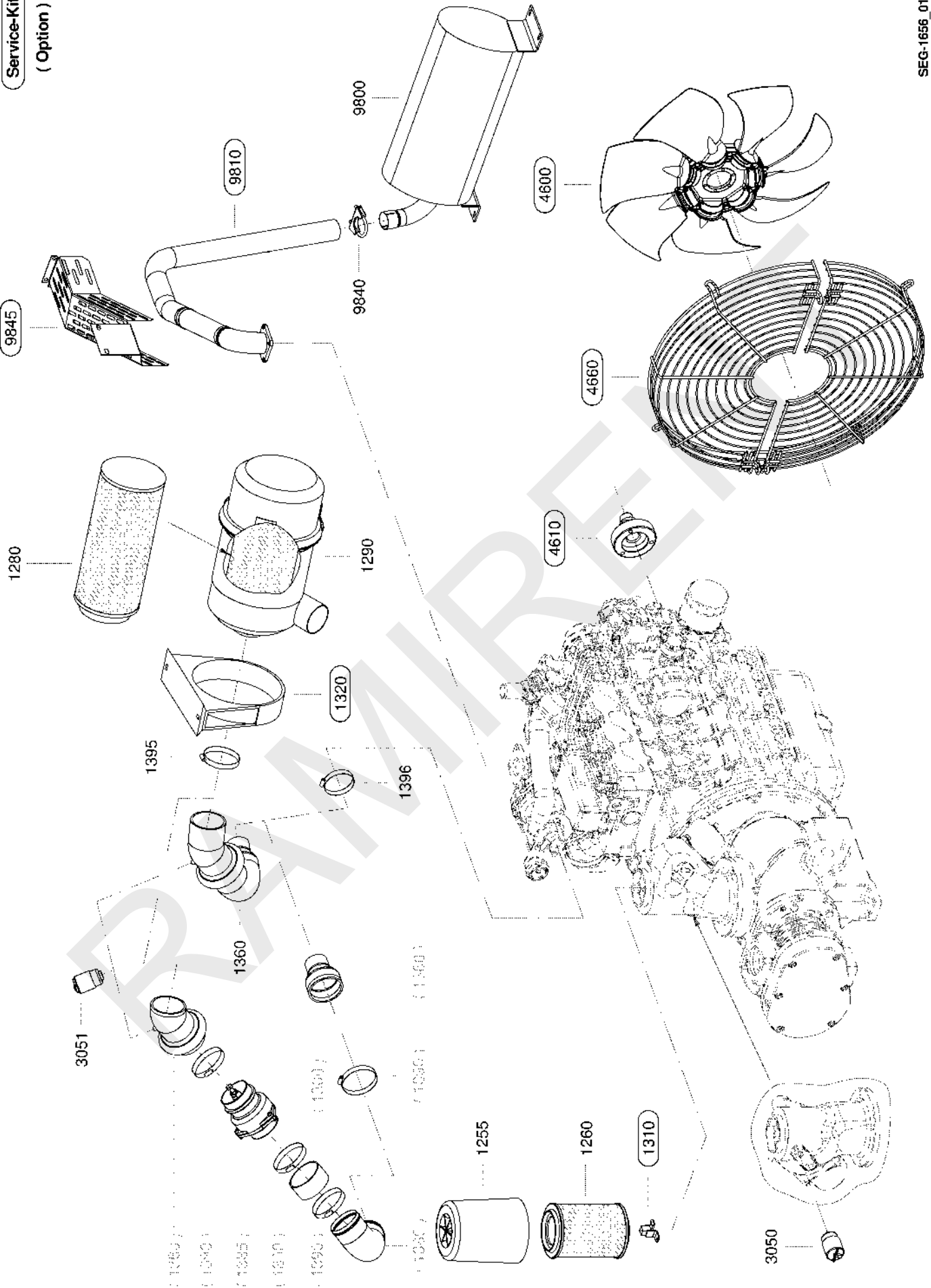
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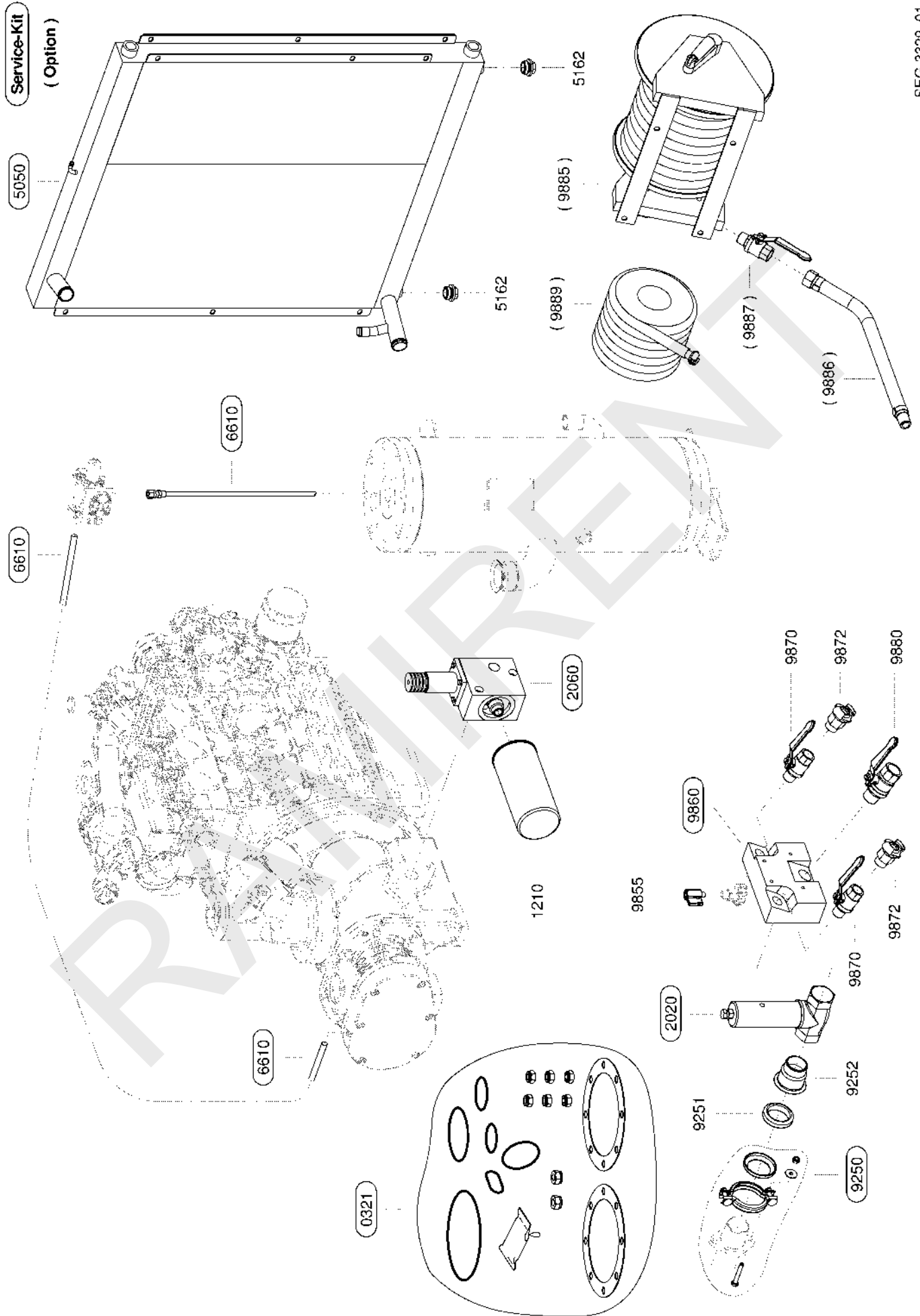
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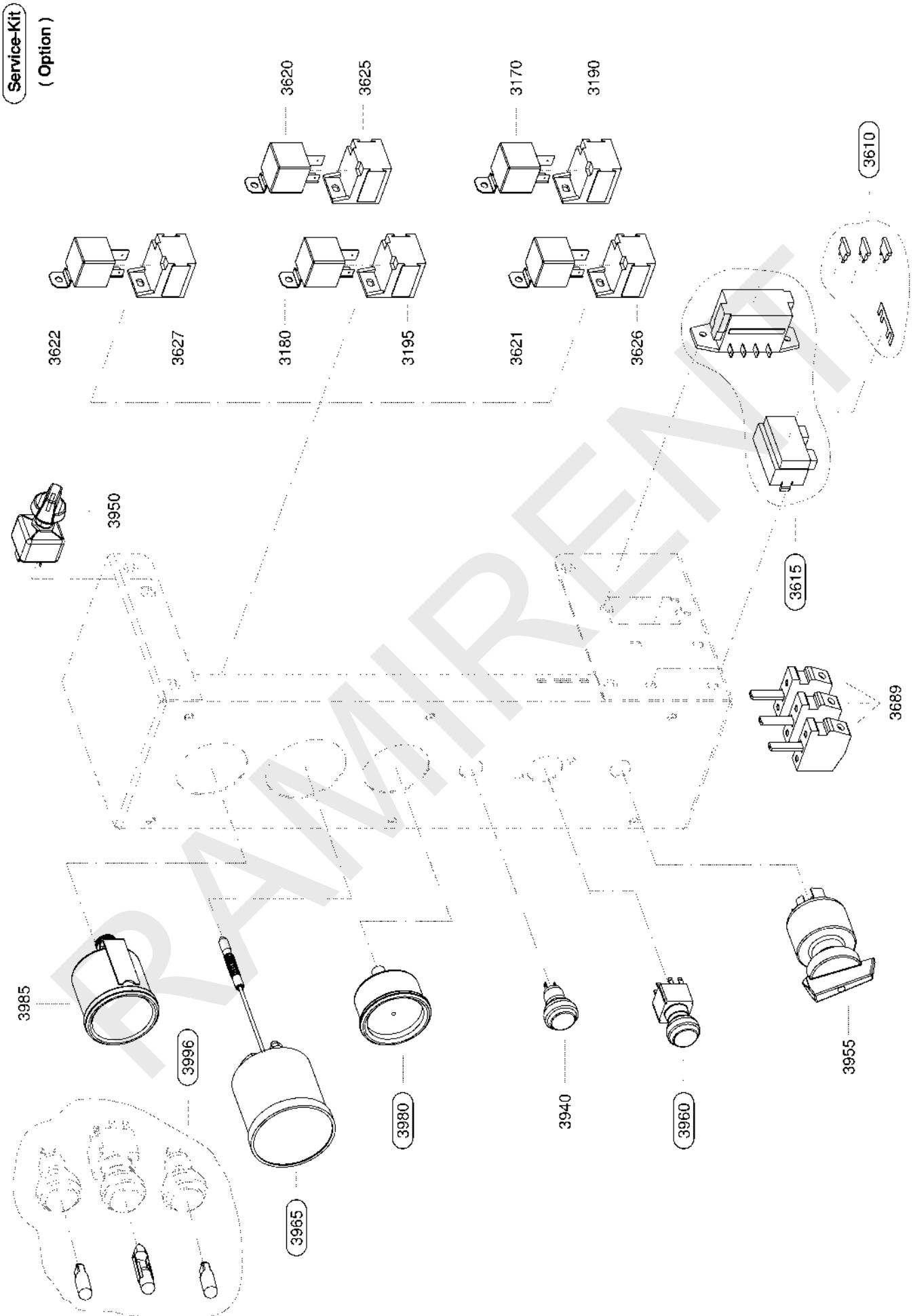
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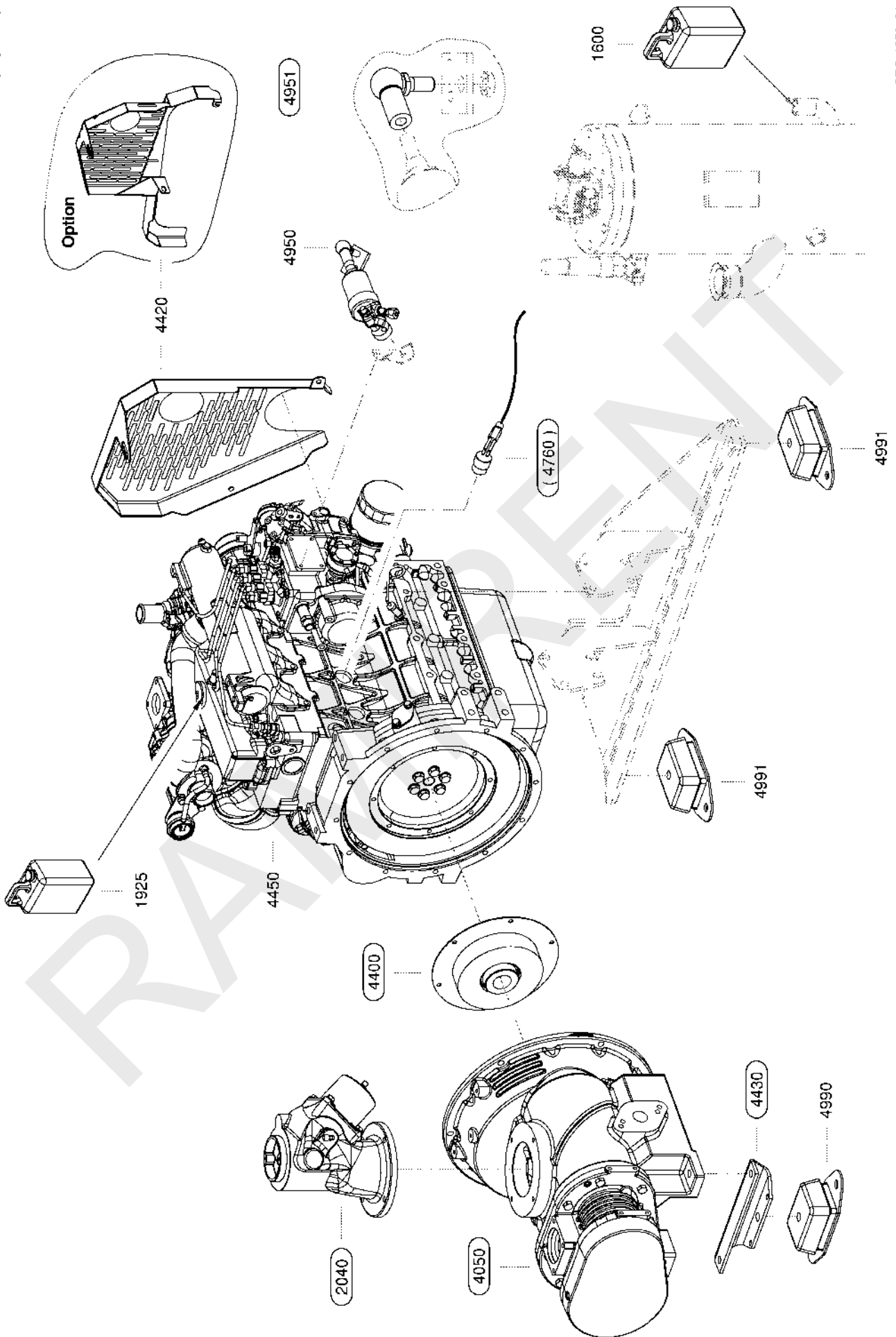


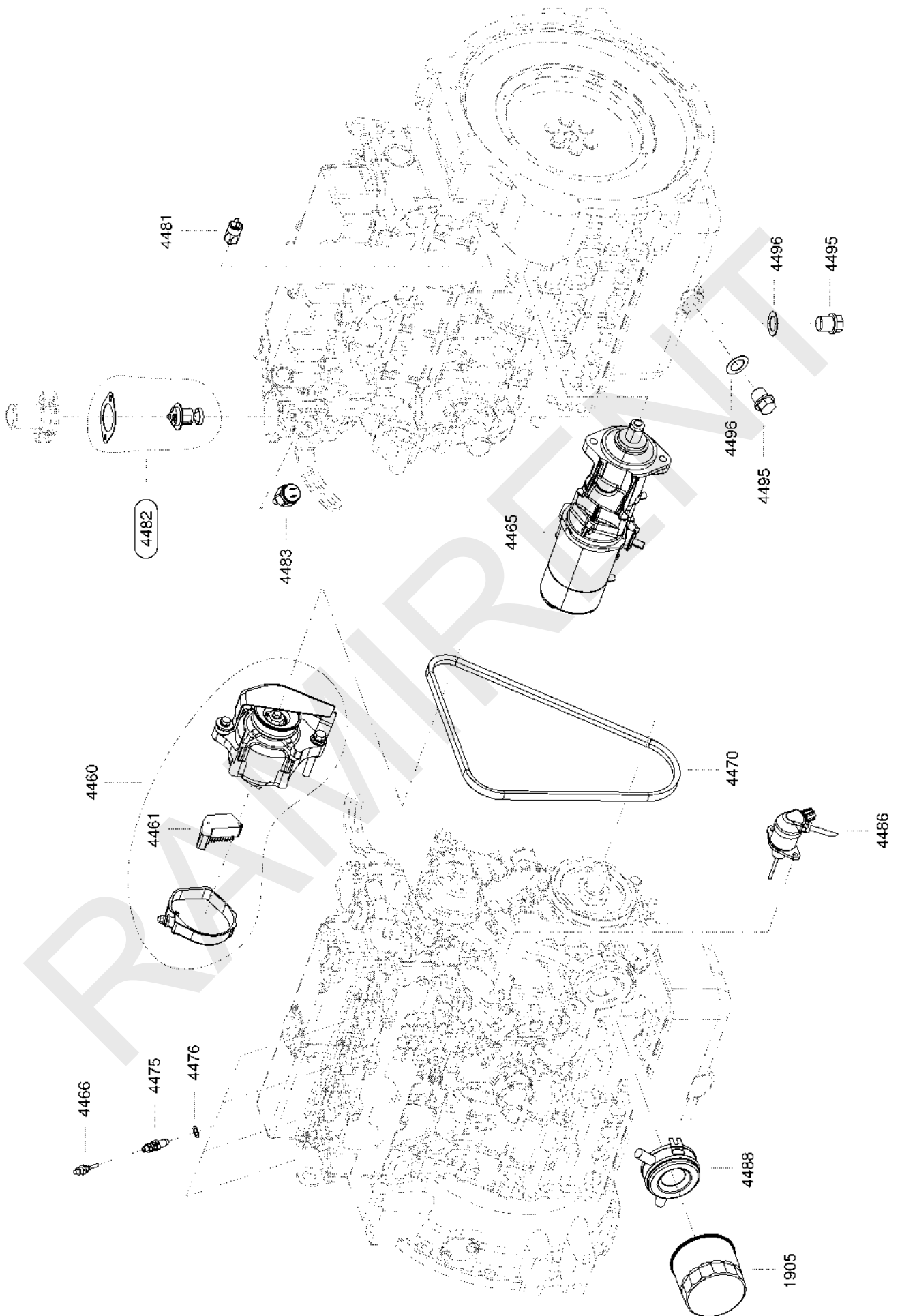
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Service-Kit
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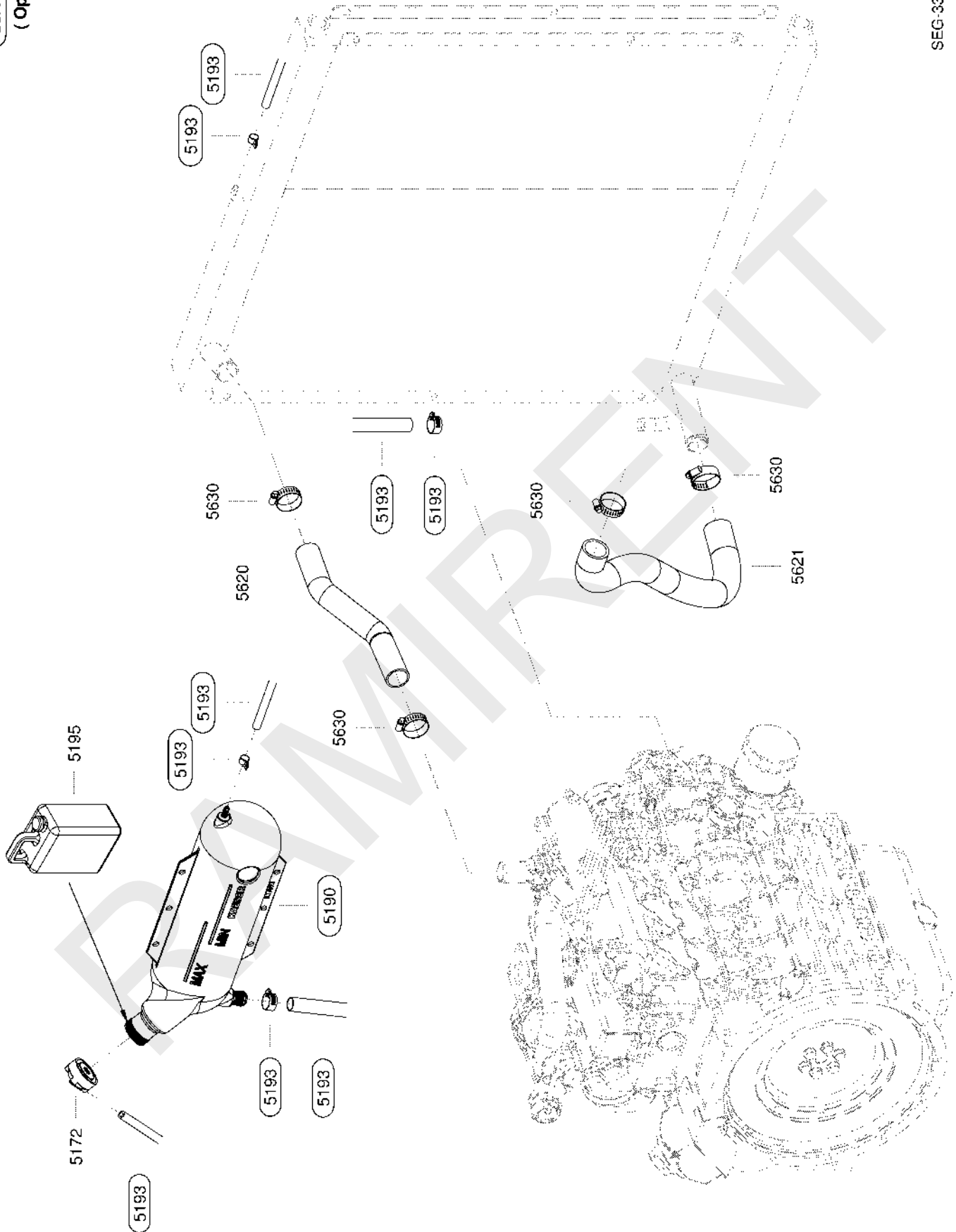
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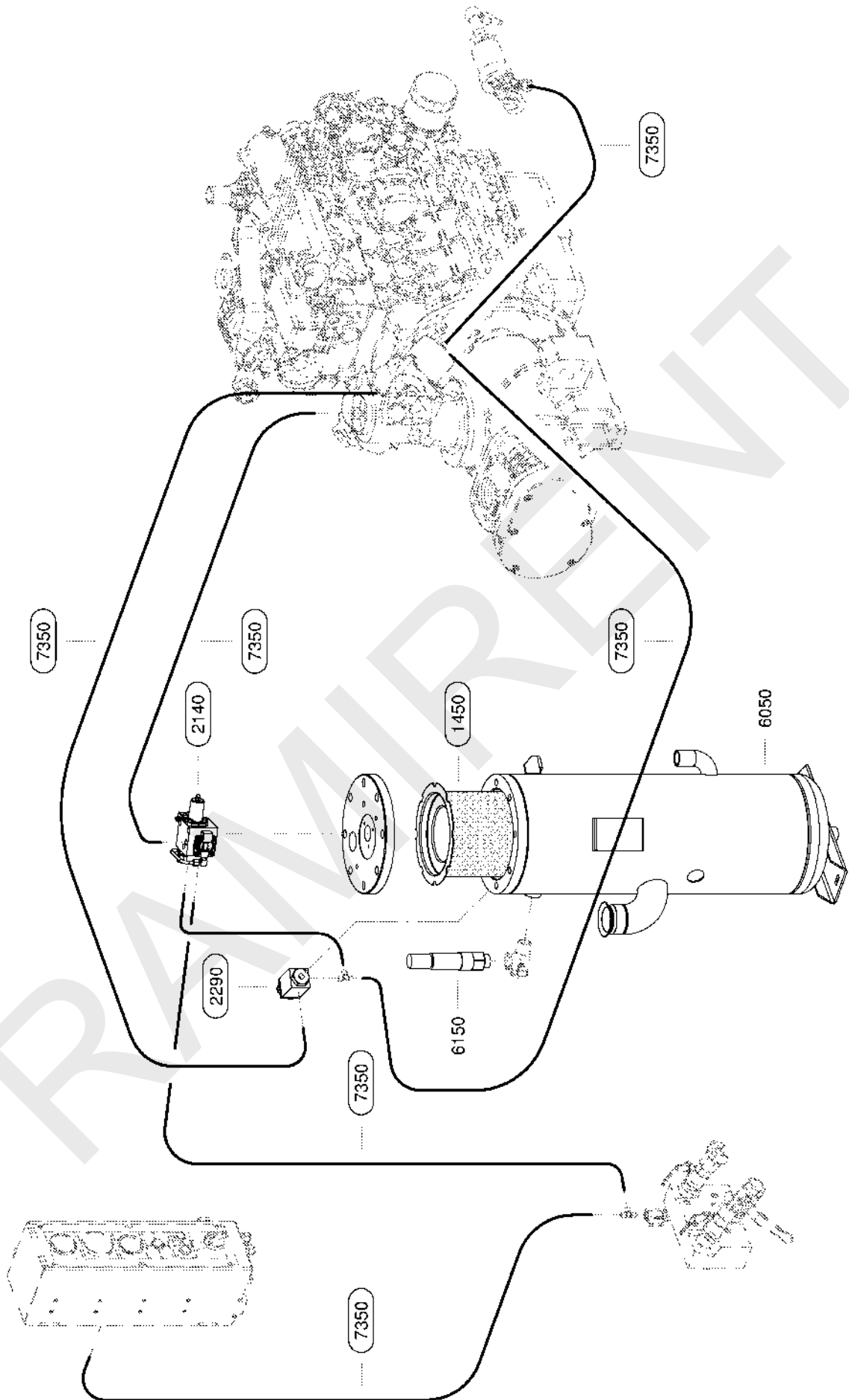
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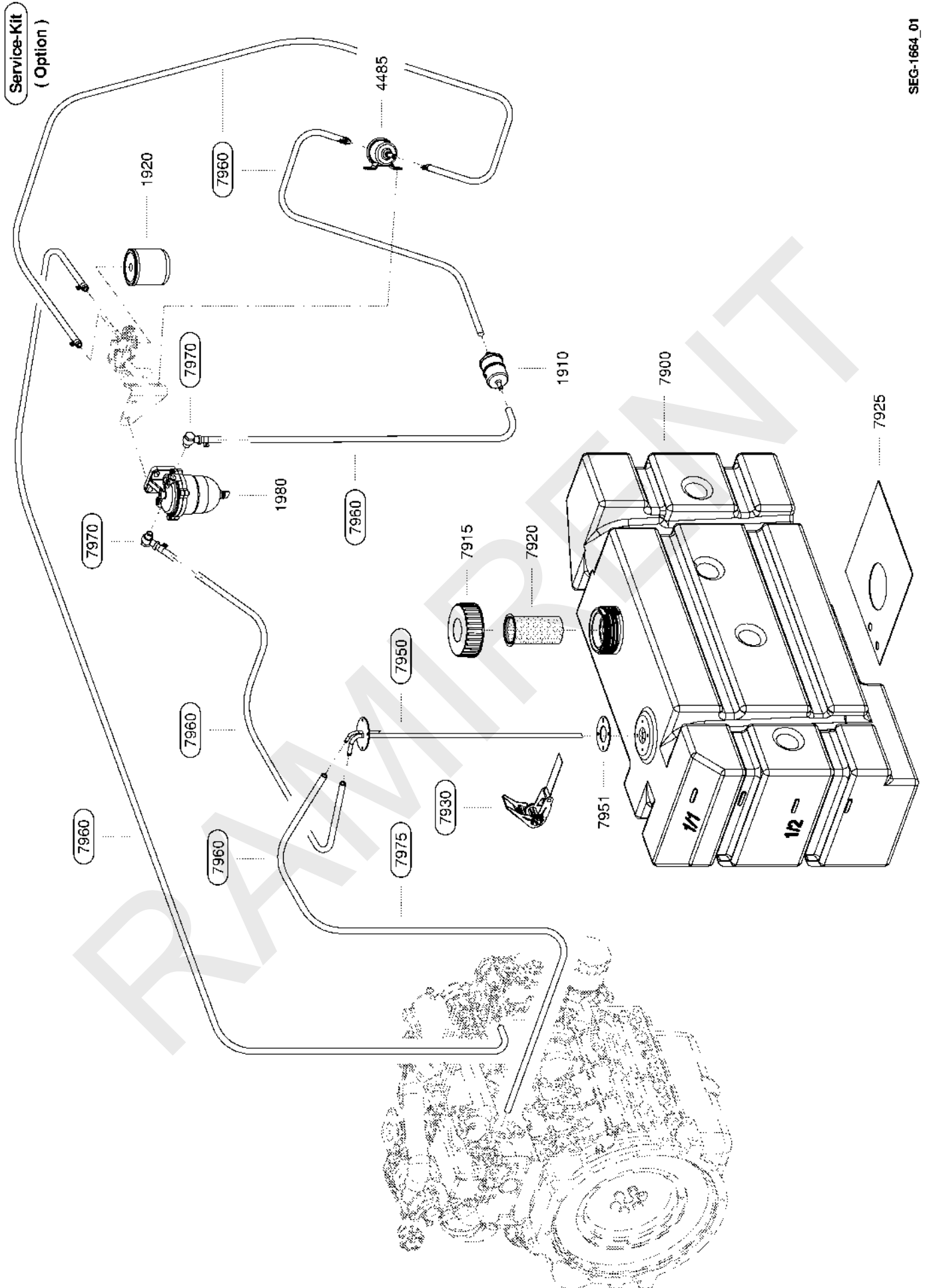
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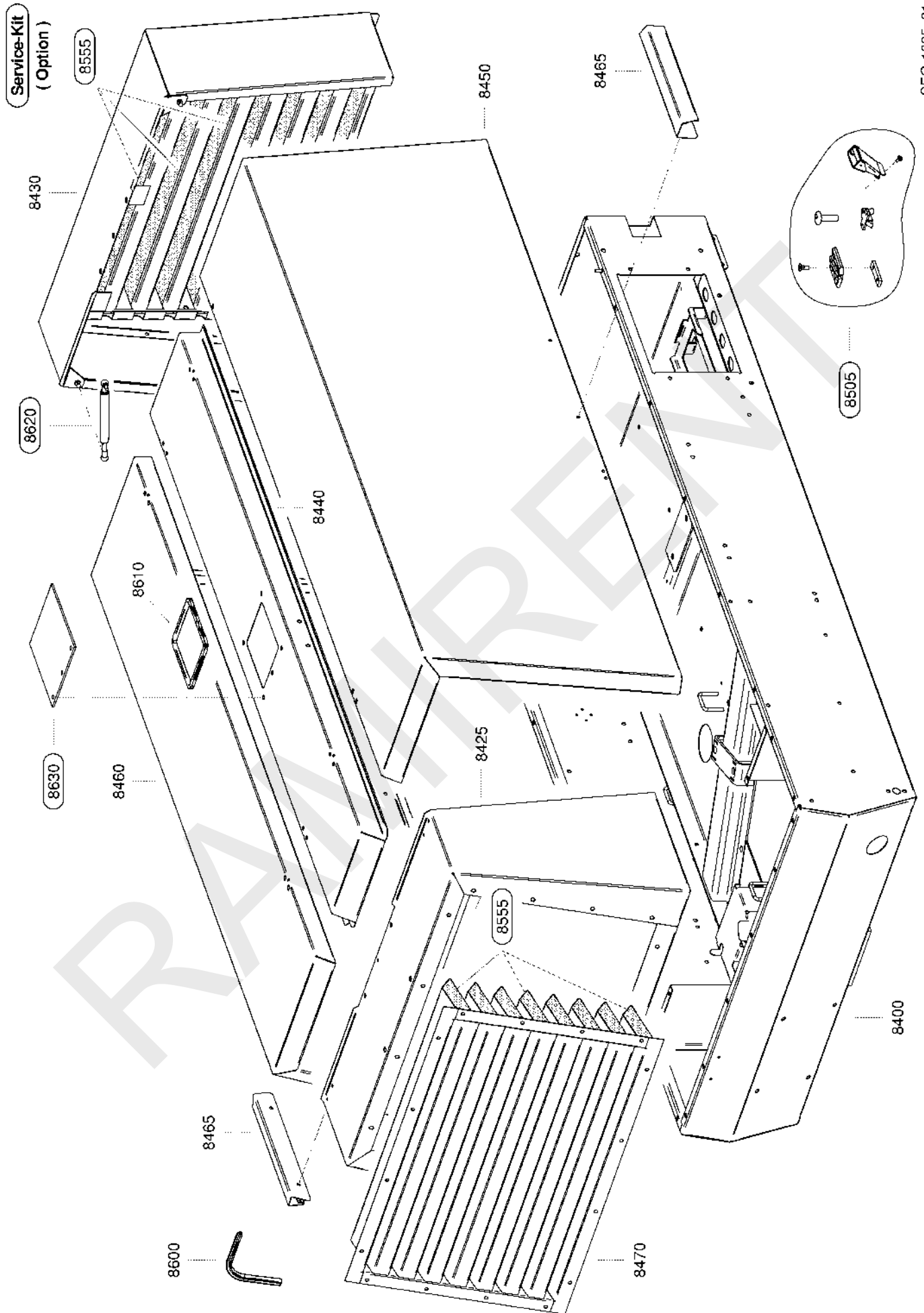


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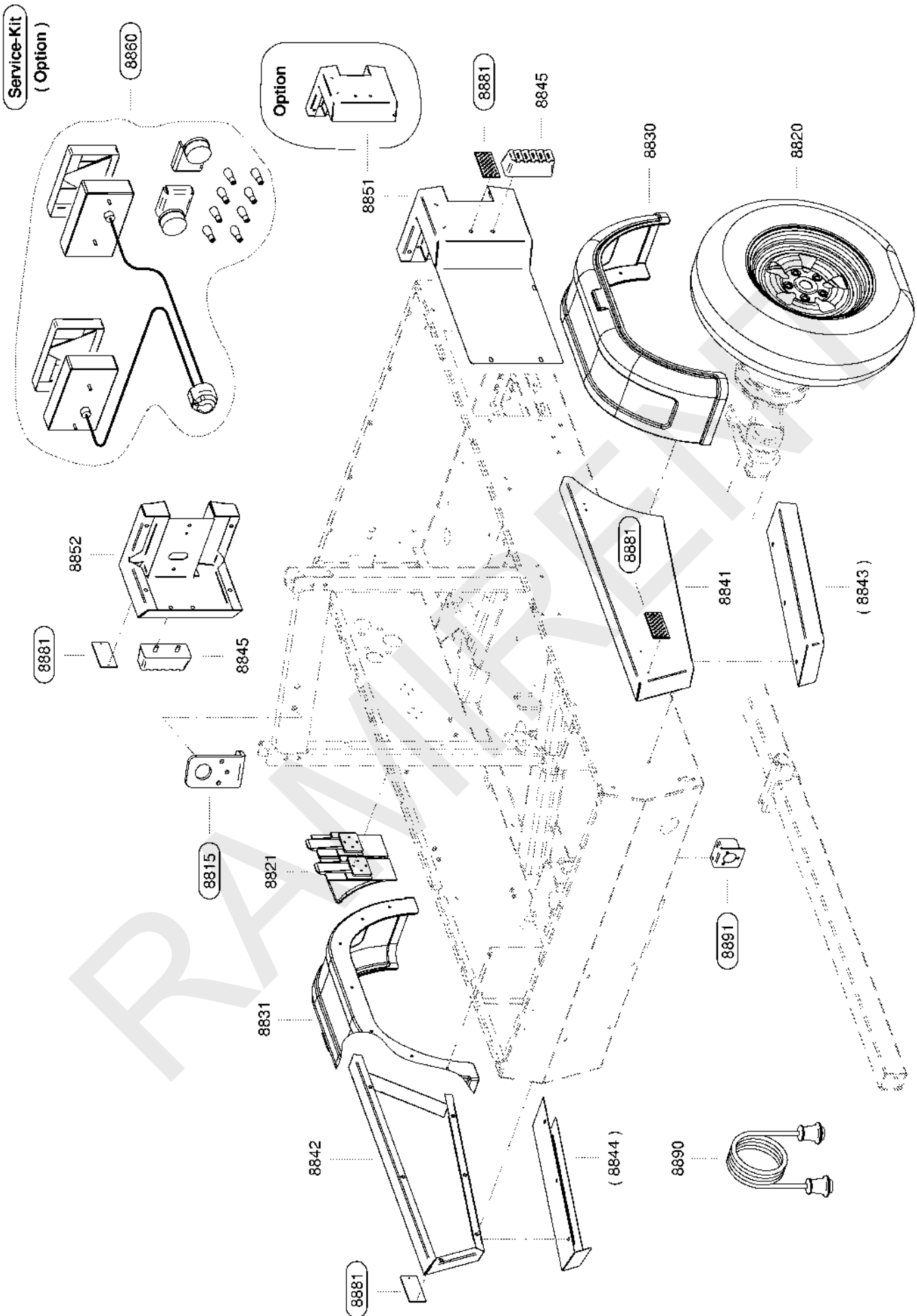
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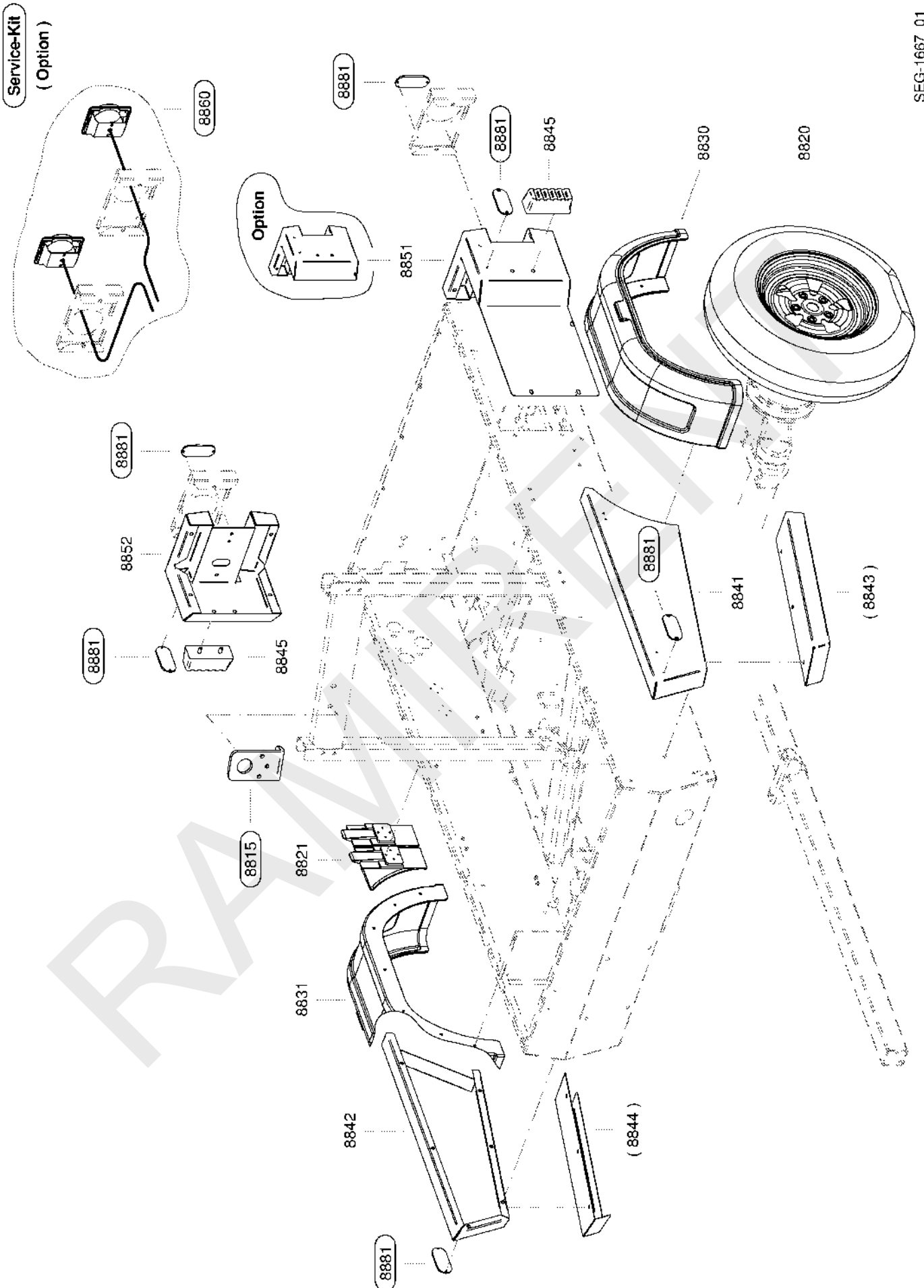






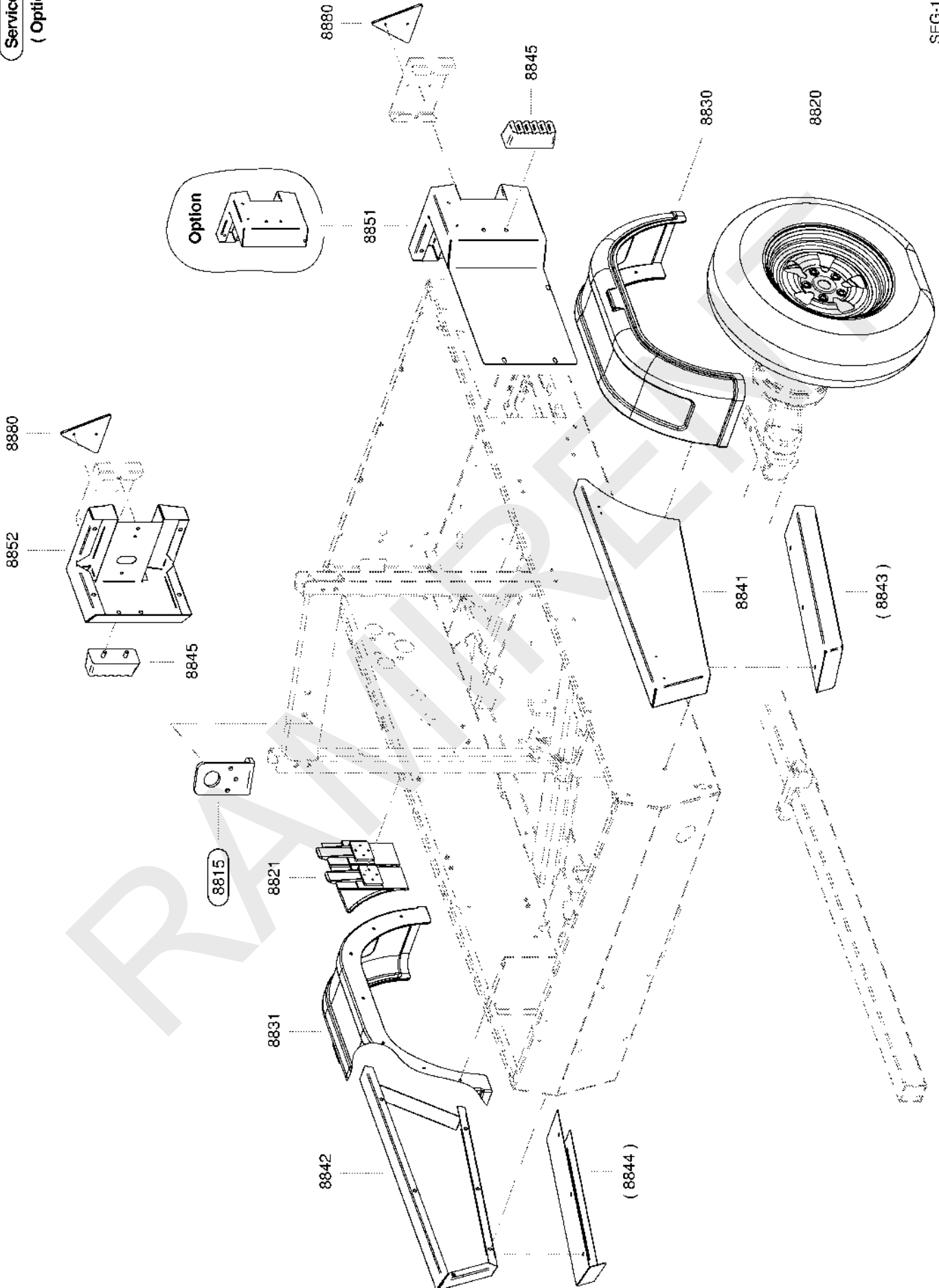
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Service-Kit
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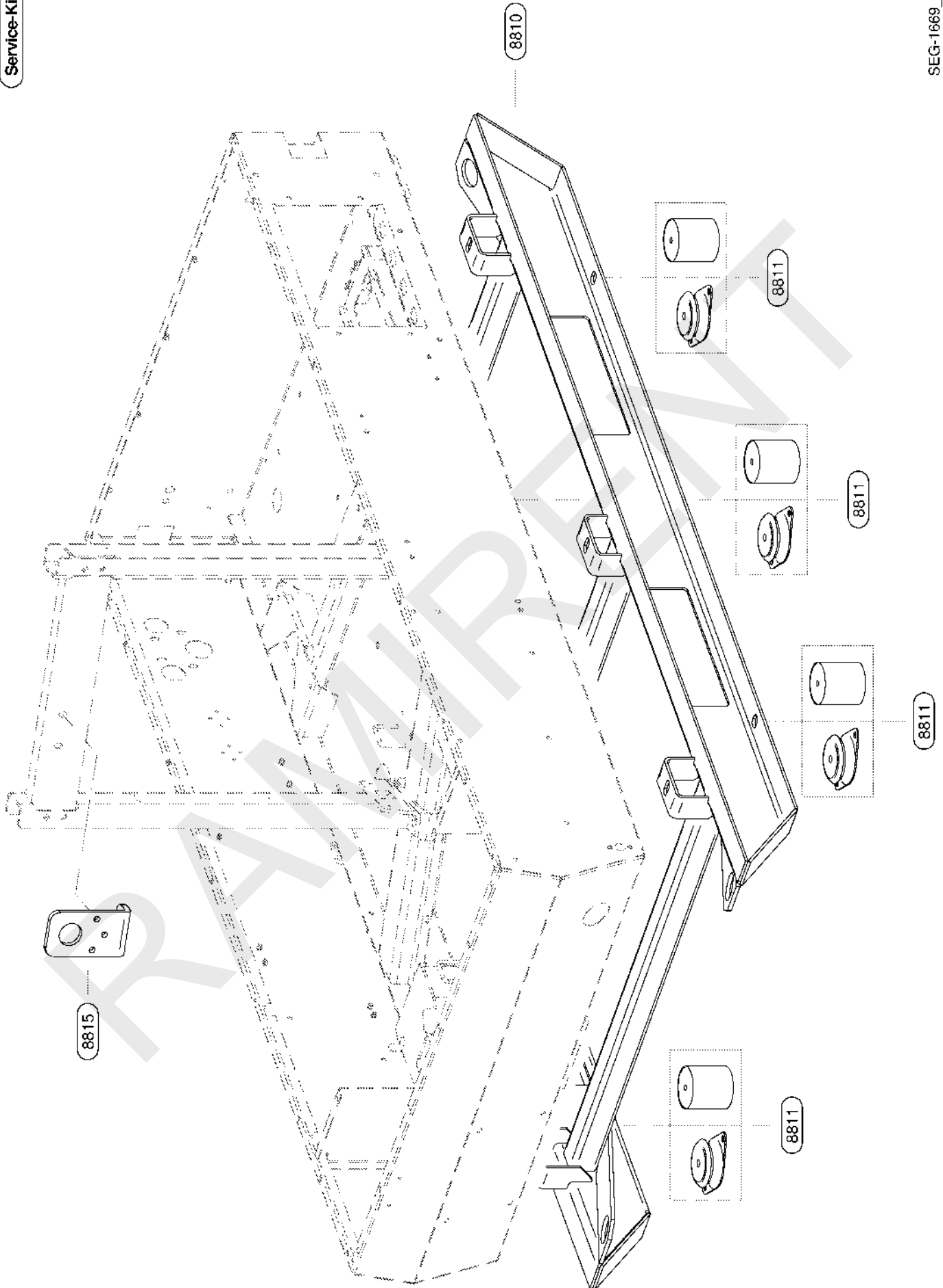
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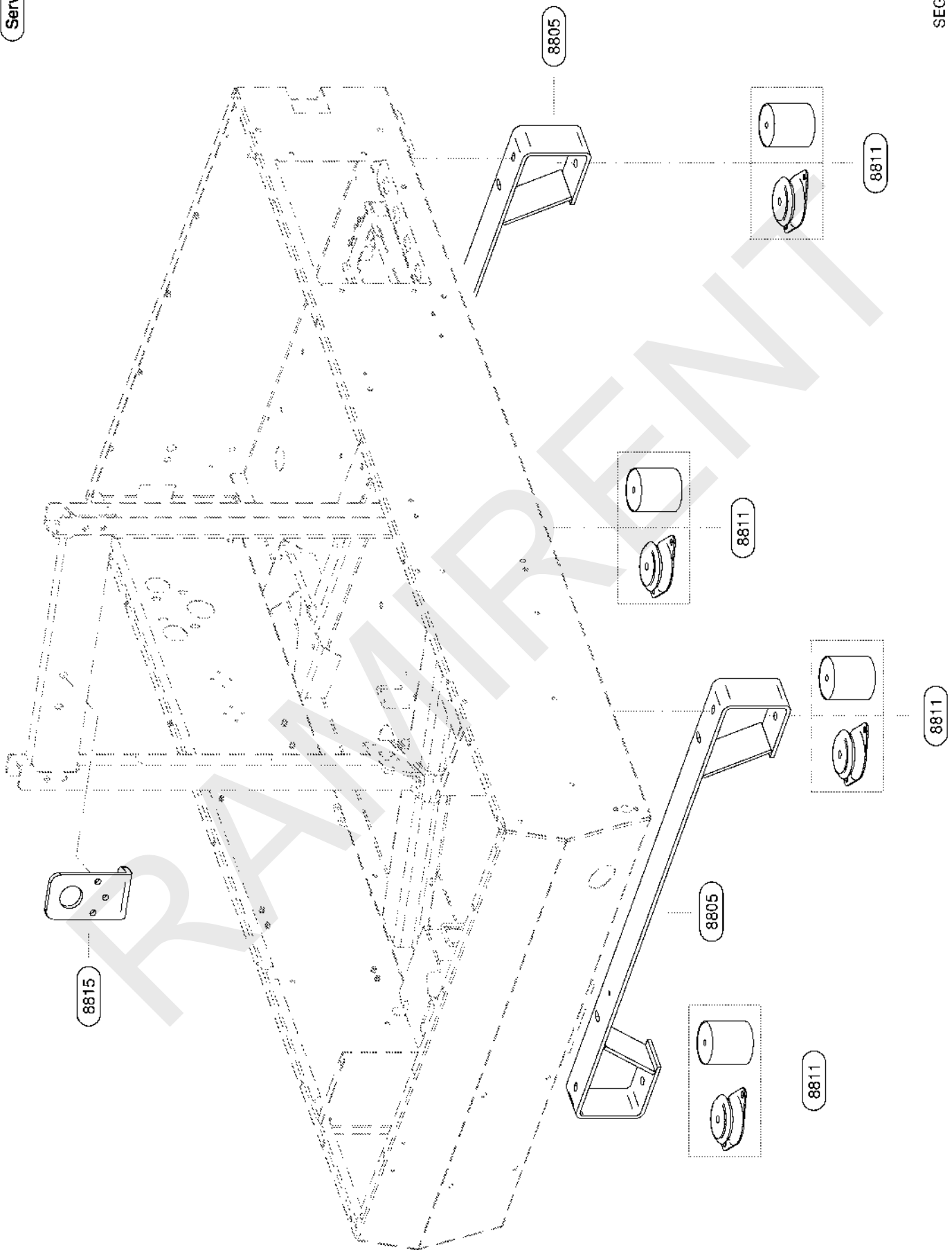
Service-Kit

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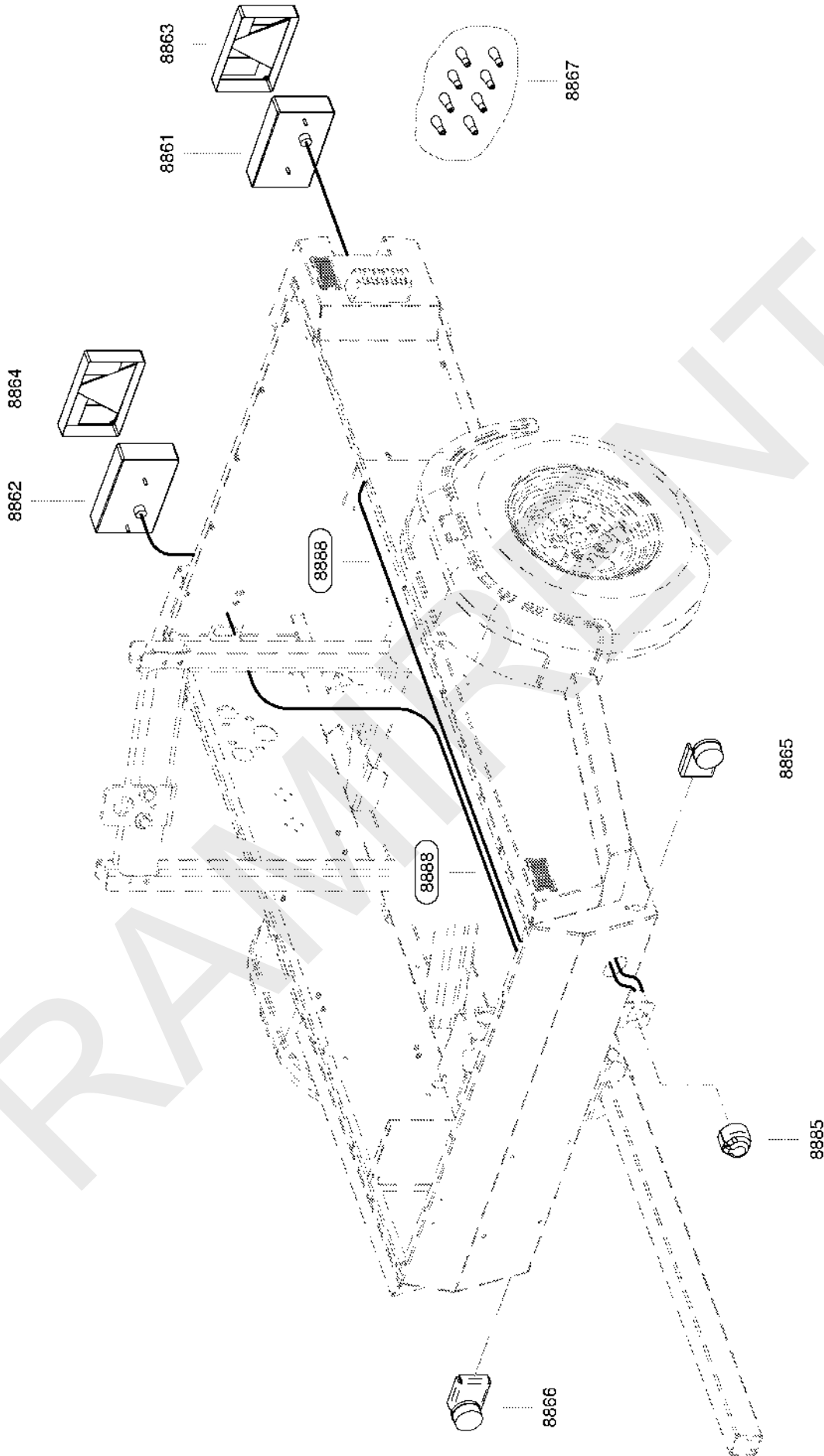
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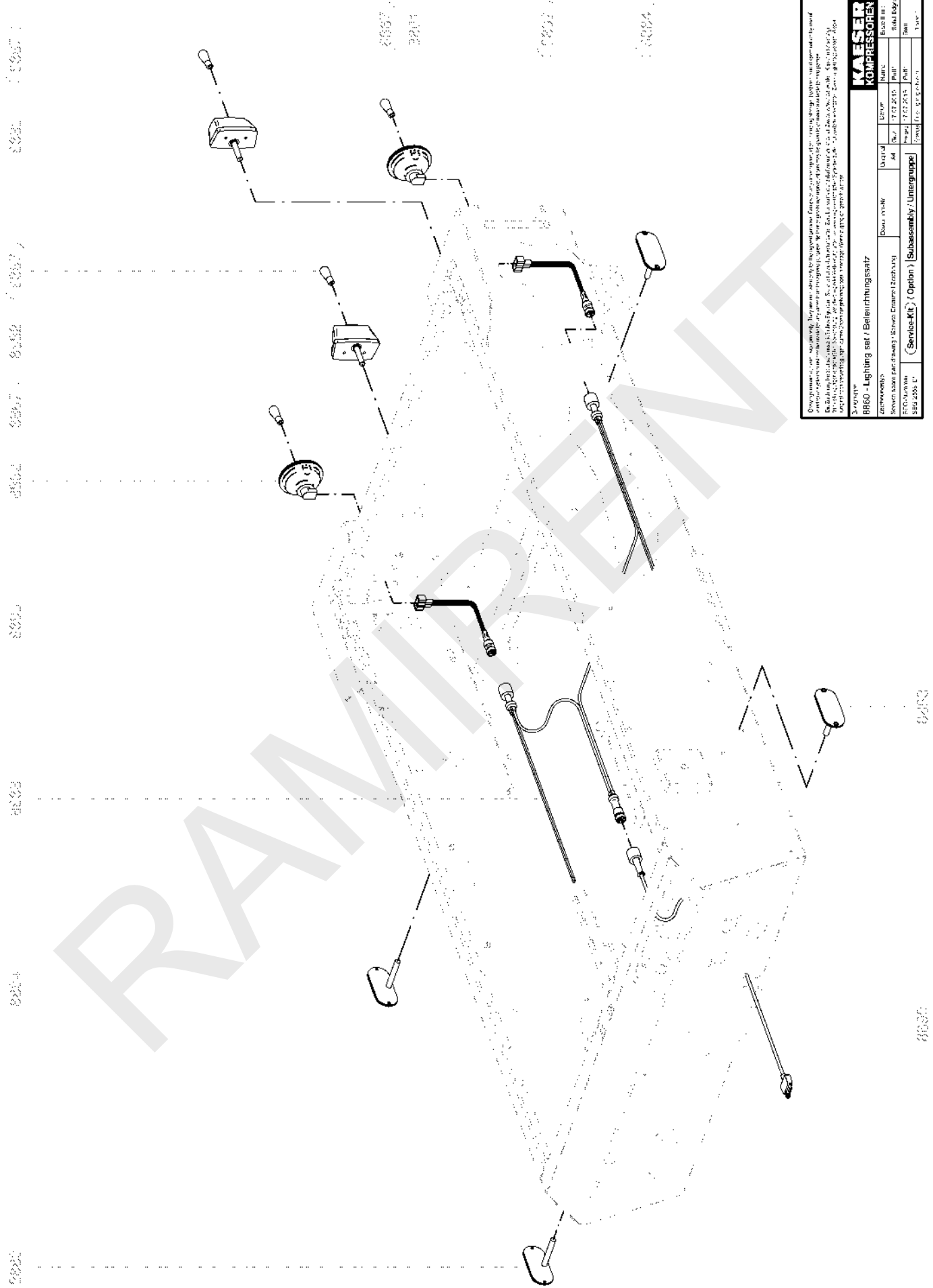
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Service-Kit

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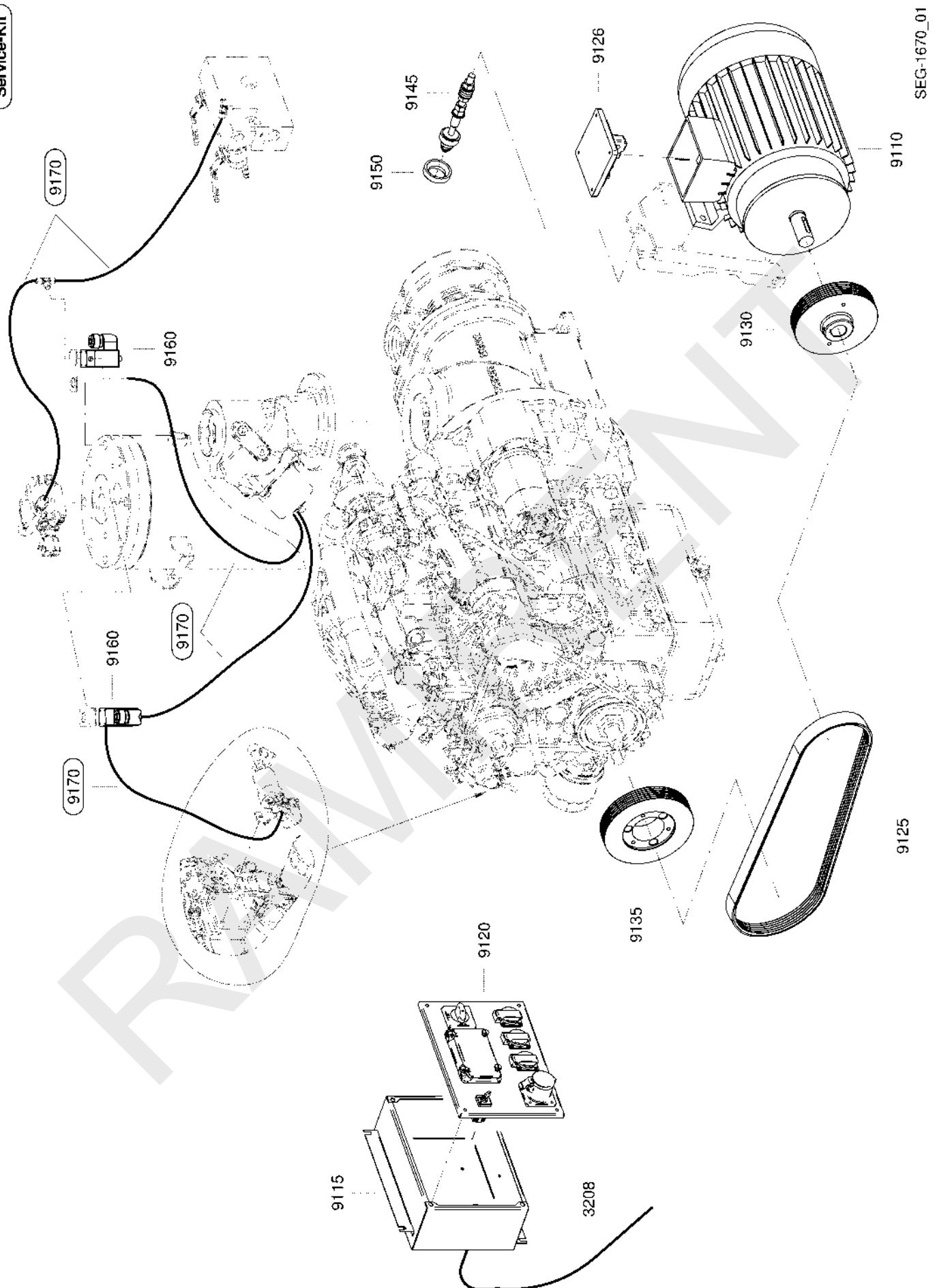
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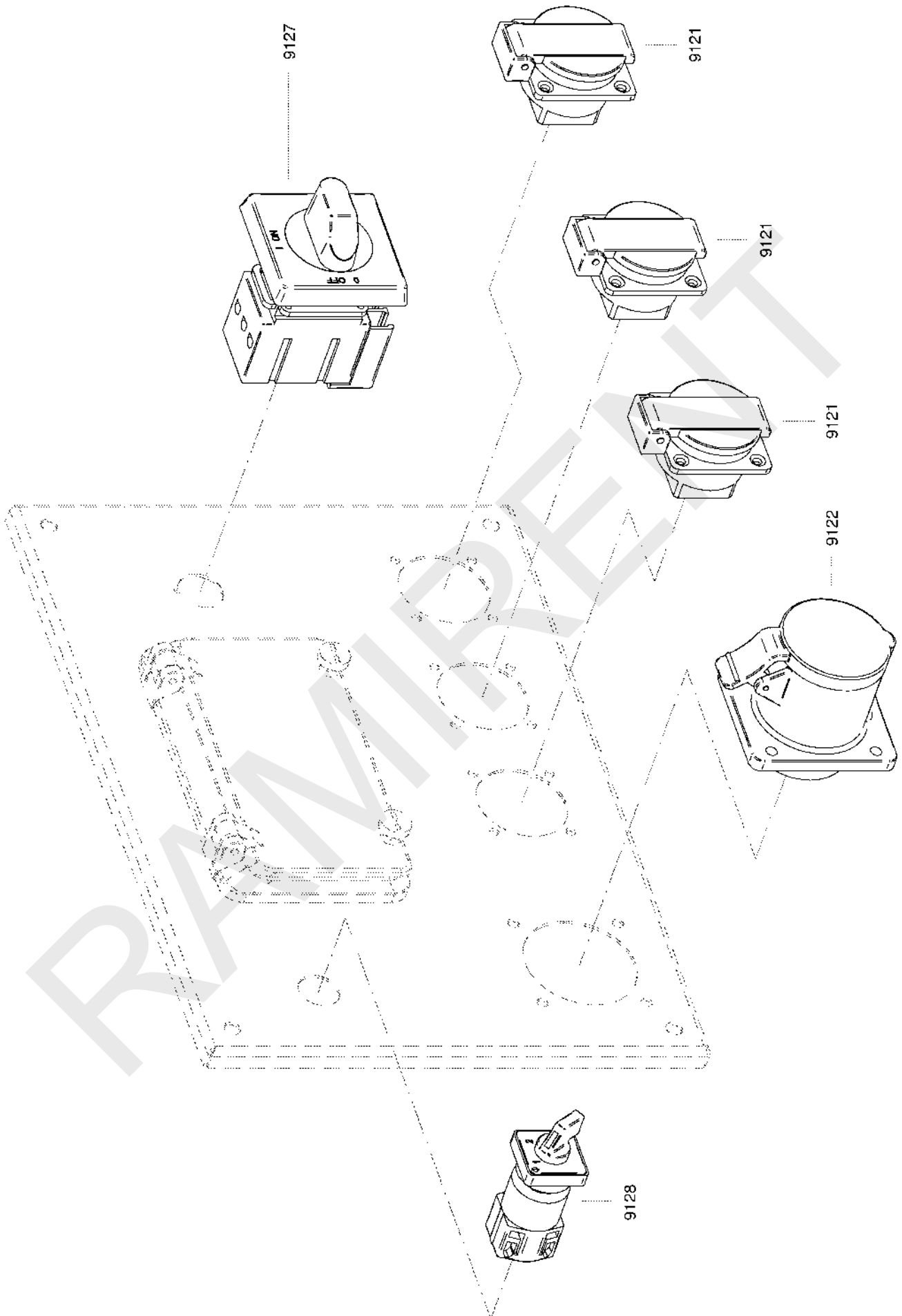
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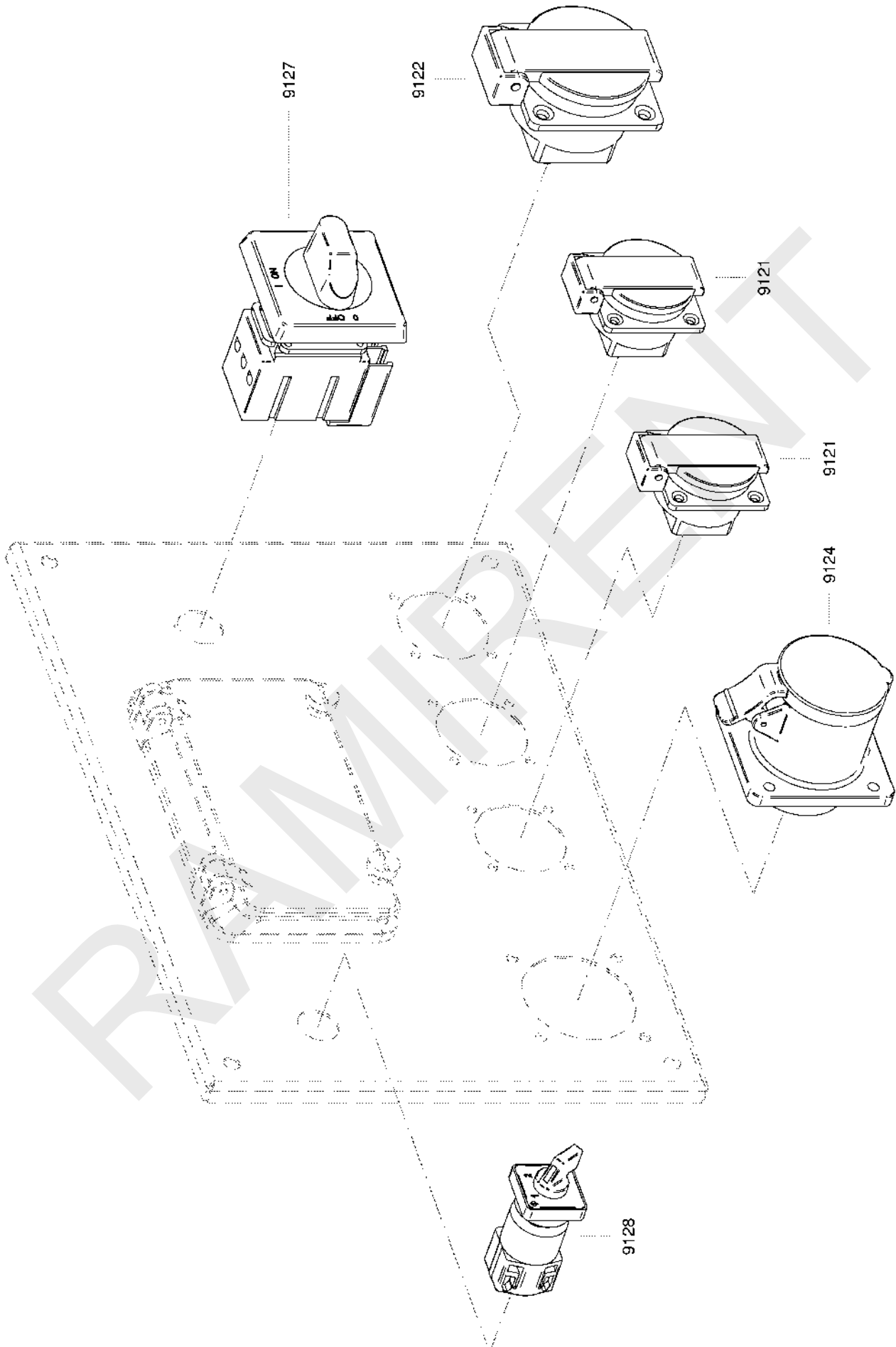
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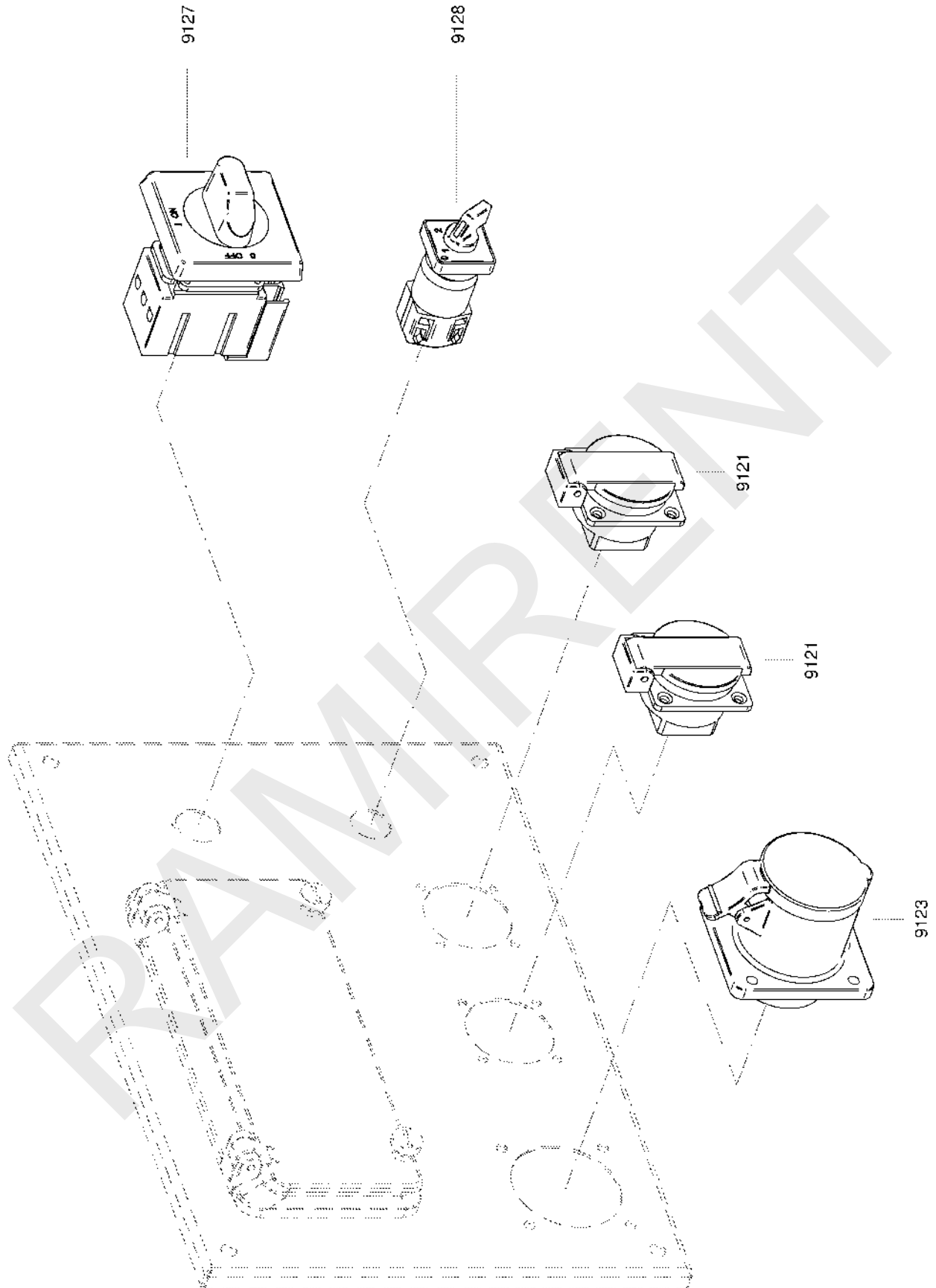
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Produktionsort		Produktionsort		Produktionsort	
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Service-Kit



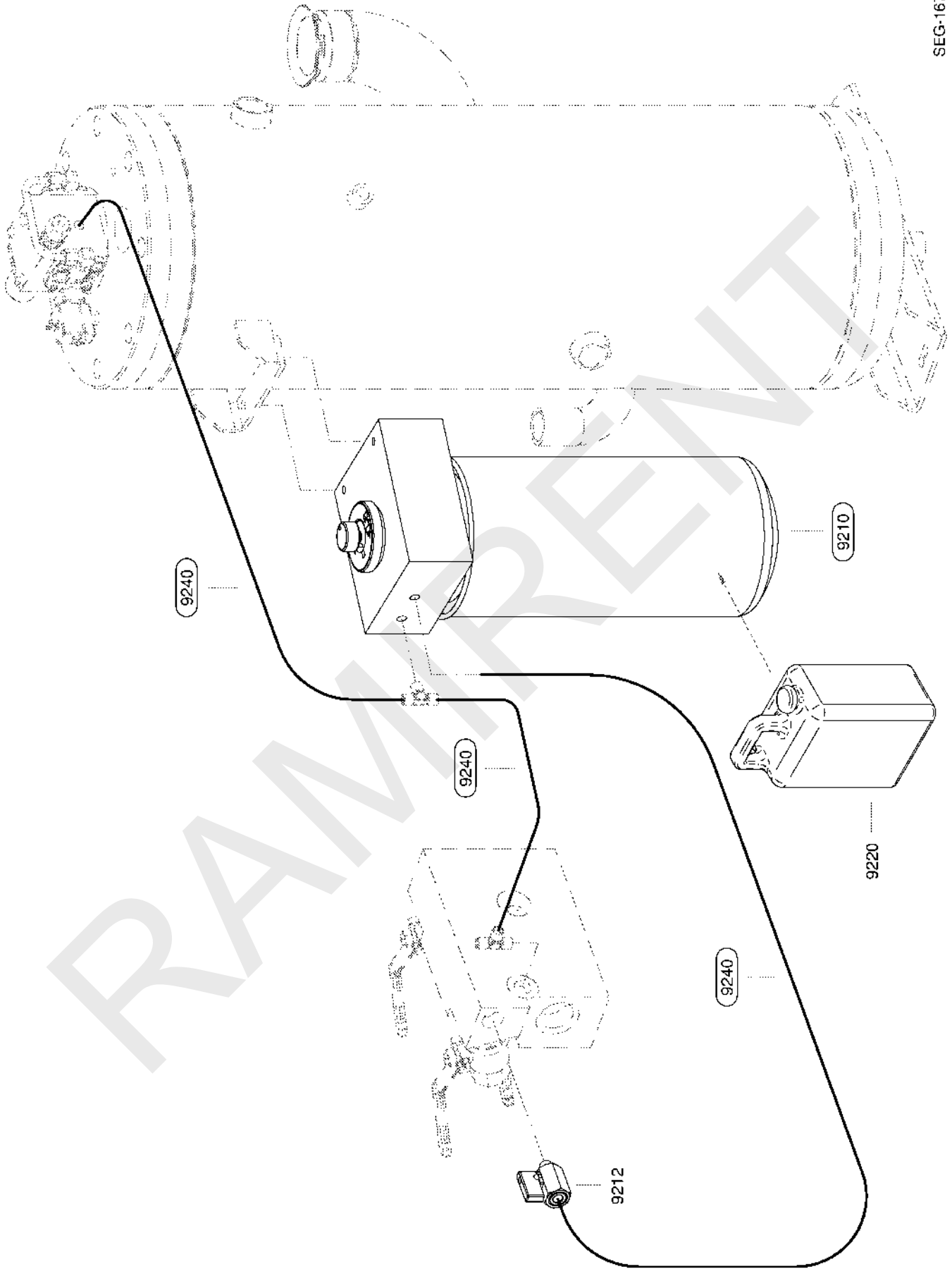




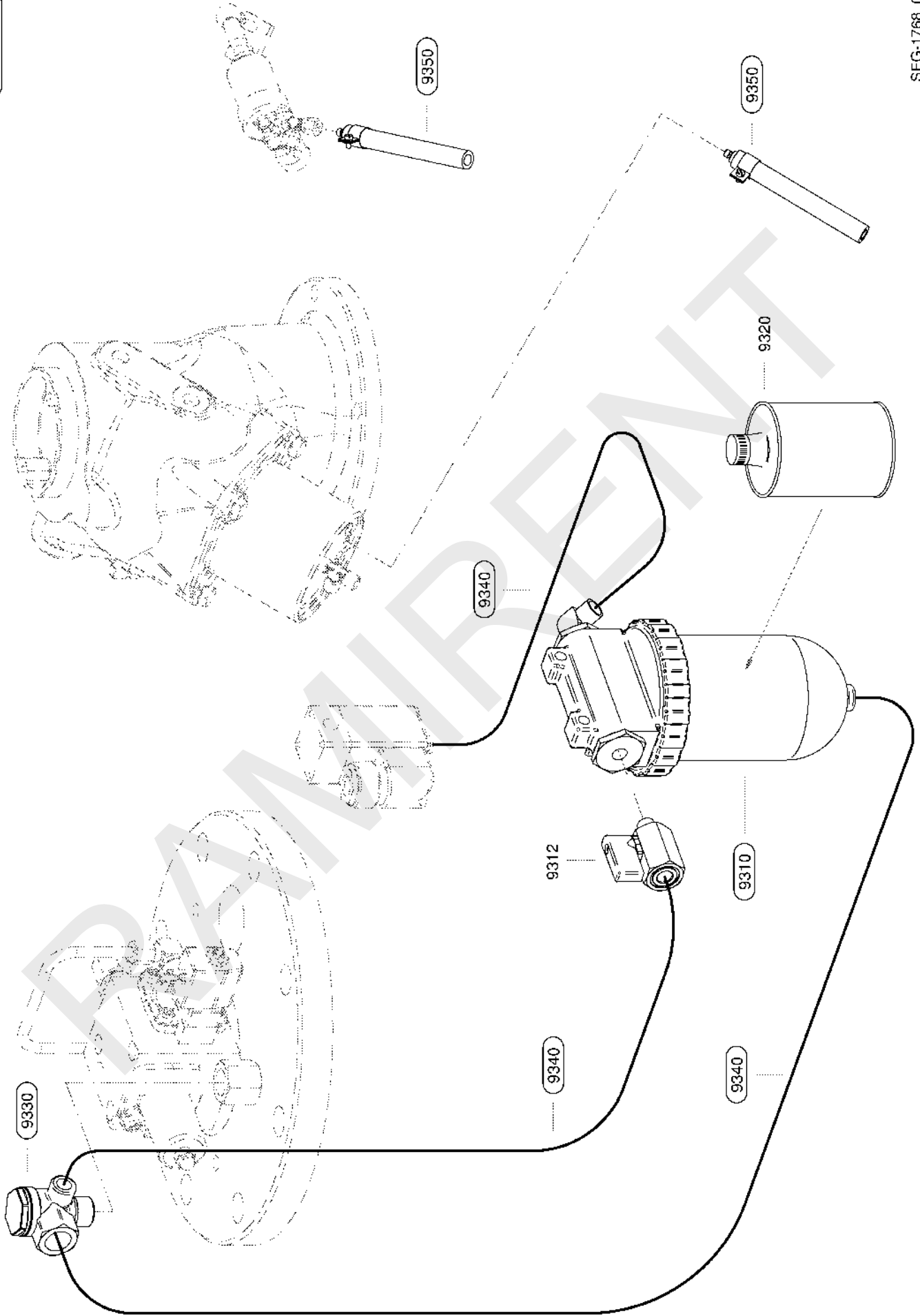


Service-Kit

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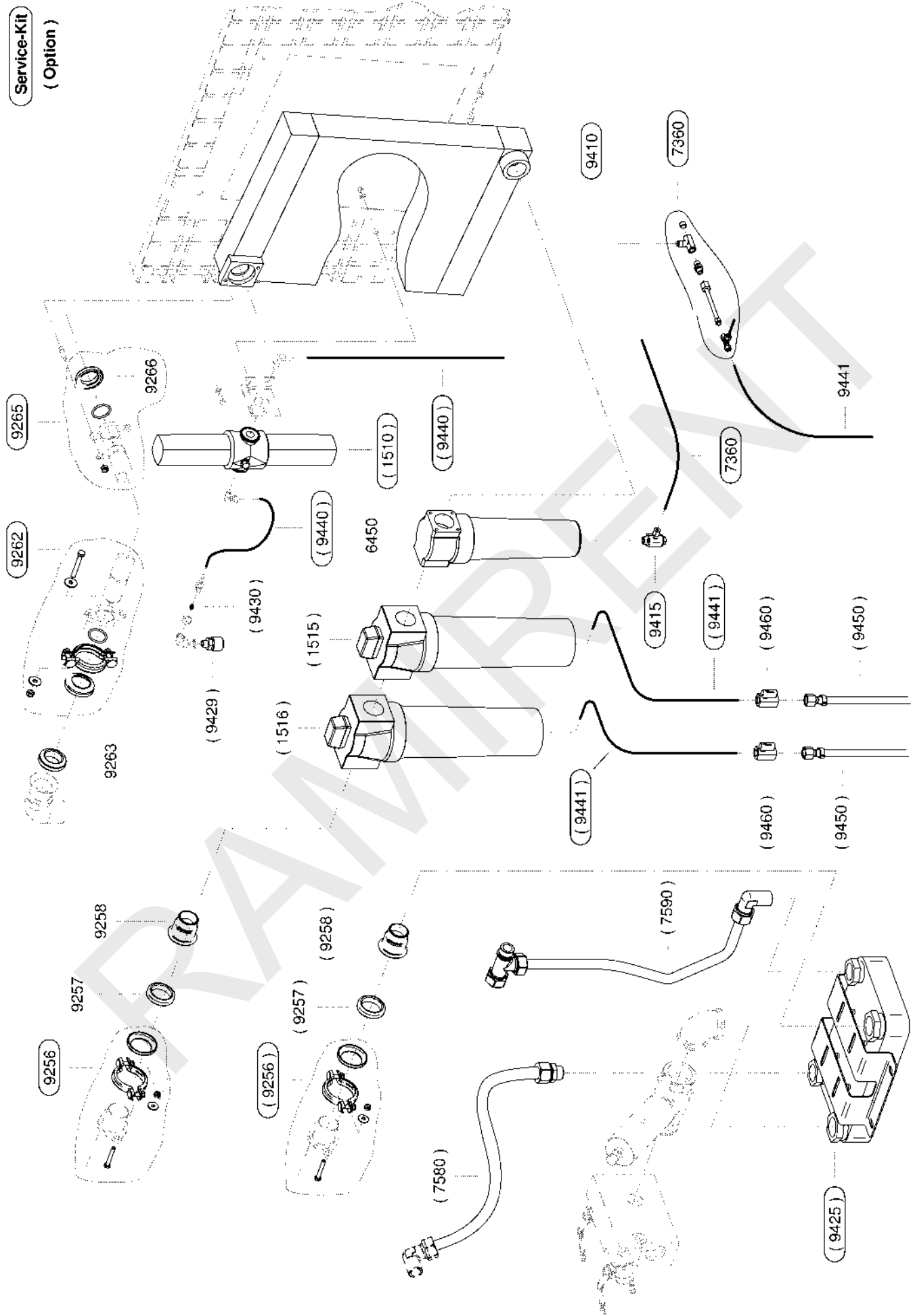


Service-Kit



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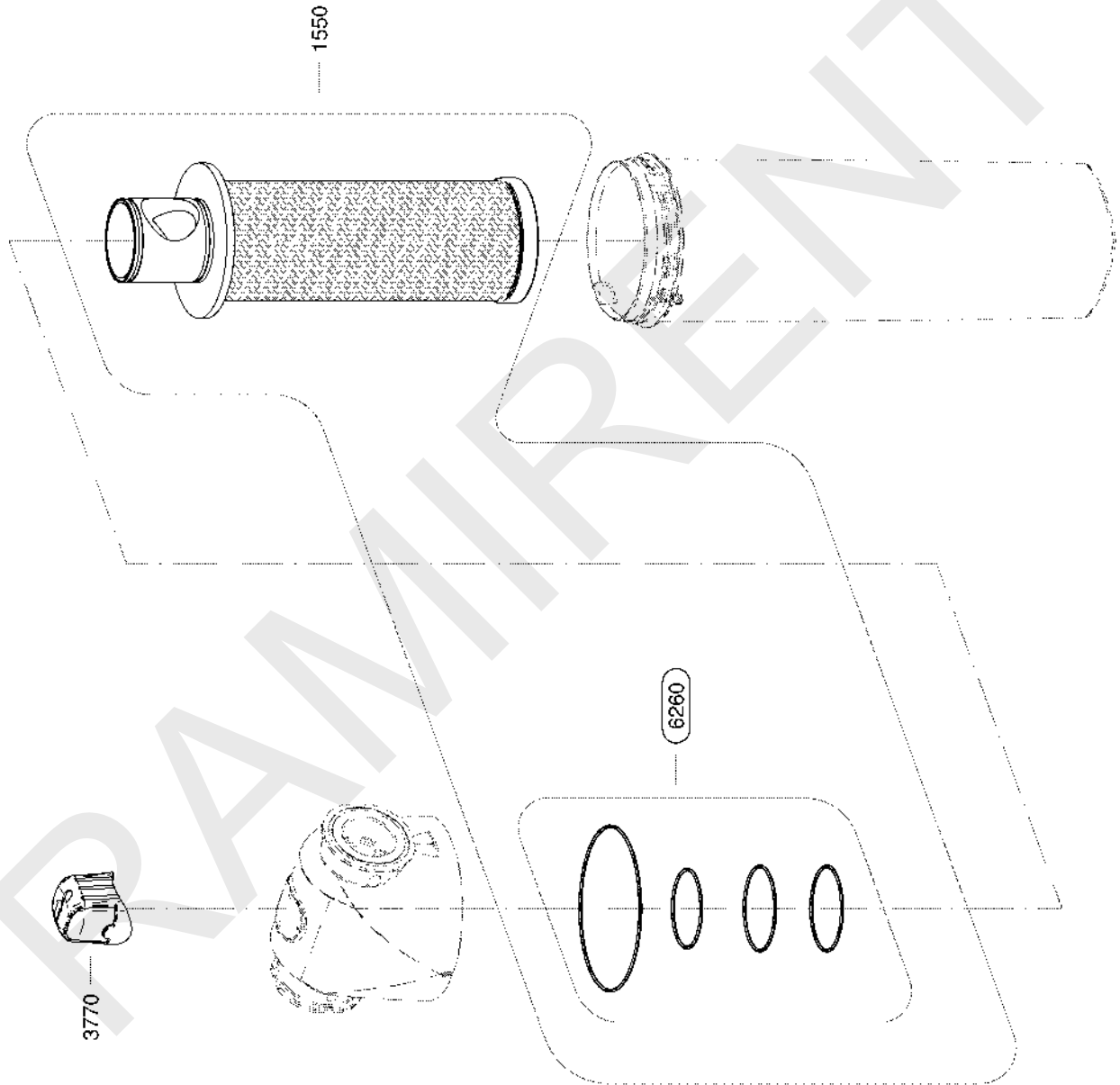
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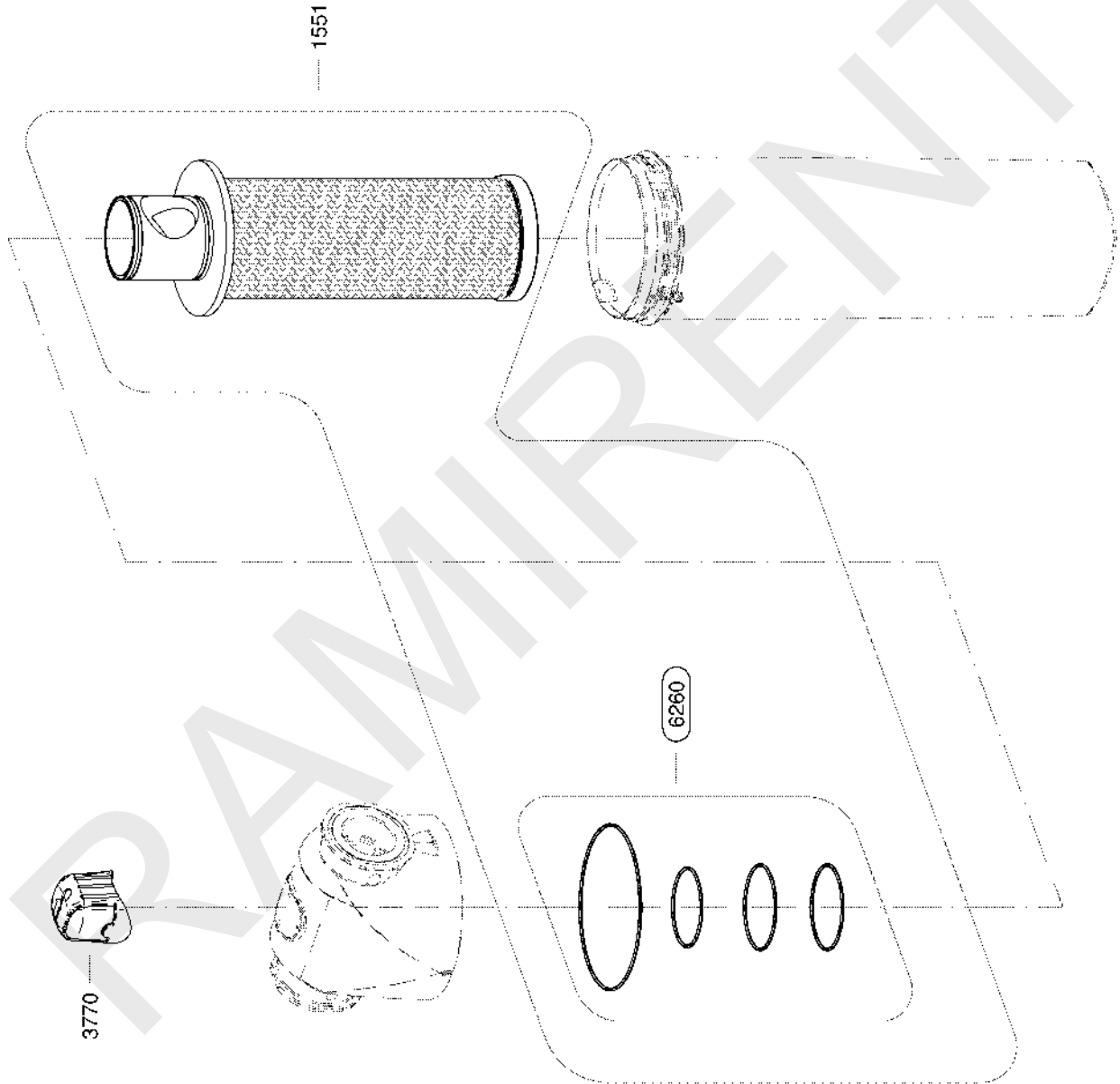
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12 Decommissioning, Storage and Transport

12.1 De-commissioning

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

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

Precondition The machine is shut down.

Machine dry and cool.

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

12.1.1 Temporary de-commissioning

Decommissioning for about 4 months.

Material Plastic sheeting

Moisture-resistant adhesive tape

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

Attention!

1. The machine is temporarily decommissioned.
2. The following machine openings have been covered:
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer

3. Recommission according to service manual.

Date / signature

Tab. 100 "Temporarily decommissioned" information notice

Decommissioning of the compressor for several weeks during severe frost



1. **NOTICE!**
 Danger of batteries freezing!
 Discharged batteries are subject to frost damage and can freeze at $-10\text{ }^{\circ}\text{C}$.
 - Store batteries in a frost-free place.
 - Store batteries preferably fully charged.
2. Remove the battery (batteries) and store in a frost-free room.
3. Make sure batteries are fully charged.

12.1.2 Long-term de-commissioning and storage

De-commissioning the machine for 5 months or longer.

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

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

Long-term decommissioning and storage tasks	See chapter	Confirmed?
➤ Check engine coolant.	10.3.1	
➤ Drain the engine oil.	10.3.6	
➤ Drain the oil from the oil separator tank and the oil cooler.	10.4.3	
➤ Drain oil from the heat exchanger (Option db).	10.4.3	
➤ Fill the separator tank and engine with preserving oil.	10.4.2 10.3.5	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery, the minus terminal first and then the plus terminal, and store in a frost-free room.	–	
➤ Check the battery fluid level.	10.6	
➤ Check the battery charge monthly and recharge if necessary to prevent the battery fluid freezing.	–	
➤ Clean the battery terminals and coat with acid-resistant grease.	–	
➤ Close the compressed air outlet valves.	–	
➤ Use plastic sheeting and moisture-resistant adhesive tape to seal off the following openings: <ul style="list-style-type: none"> ■ Engine air inlet ■ Compressor air inlet ■ Exhaust silencer 	–	
➤ Clean the bodywork and treat with preservative.	–	

Long-term decommissioning and storage tasks	See chapter	Confirmed?
➤ Feste et skilt på betjeningspanelet med angivelse av utførte tiltak fordi maskinen satt ut av drift.	–	

Tab. 101 "Long-term decommissioning and storage" checklist

- Attach the following notice on the instrument panel showing the decommissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For re-commissioning:
 - Measures for re-commissioning the compressor after a long period of storage.
 - Recommission according to service manual.

Date / signature

Tab. 102 Text for the "long-term decommissioned and storage" information notice

- Store in a dry place with even temperature.

12.2 Transport

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

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



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

Precondition

- The machine is shut down.
- The machine is secured against unintentional activation.
- The machine is fully vented, the pressure gauge reads 0 bar.
- The machine has cooled down.
- All compressed air consumers are disconnected.
- All connecting lines and hoses disconnected and removed.
- Any loose or movable parts that could fall off when transporting are removed or secured.
- Comply with all instructions.

12.2.1 Safety

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



1. **WARNING!**
There is danger of being run over or crushed by an overturning vehicle. Death or serious injury can result from being crushed or run-over by a machine under tow.
 - Riding on the machine while it is transported is strictly forbidden.
2. Make sure the danger area is clear of personnel.

12.2.2 Transport with a crane**Additional precautions for conditions of snow and ice:**

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

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

- Perform the following tasks in snow and ice conditions:
 - Remove any snow and ice from the machine before lifting by a crane.
 - Make sure the lifting eye cover plate is freely accessible and can be opened.

Perform the following tasks prior to moving the machine by crane:

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

1. Unlock the cover from inside and lift up.
2. Position the crane hook vertically over the lifting eye.
3. Engage the hook in the eye.
4. Close and lock the access doors.
5. Lift and transport carefully.

Take care when setting down the machine

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

**12.2.3 Option rw
Transport with a forklift truck**

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

- Precondition The machine mass is known (nameplate).
 A suitable forklift truck (designed for the machine mass) is available.
 The machine is switched off.
 All connecting lines and hoses disconnected and removed.
- Comply with all instructions.

12.2.3.1 Preparing for transport

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



NOTICE

Incorrect fork placement can damage the machine.

- Insert the lifting forks only into the lifting lugs provided.

Option rw

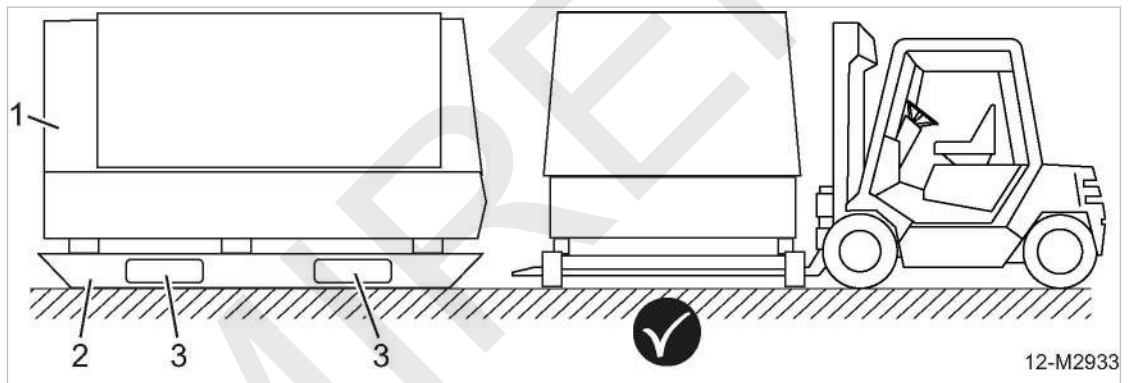


Fig. 78 Preparing for transport using a forklift truck

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

- Precondition The machine is parked on even ground.
1. Close and lock the access doors.
 2. Position the forklift truck to the transverse side of the machine with the forks opposite to the lifting lugs.
 3. Align the forks with the machine's lifting lugs.
 4. Carefully drive the forks over the full length through the lifting lugs.

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

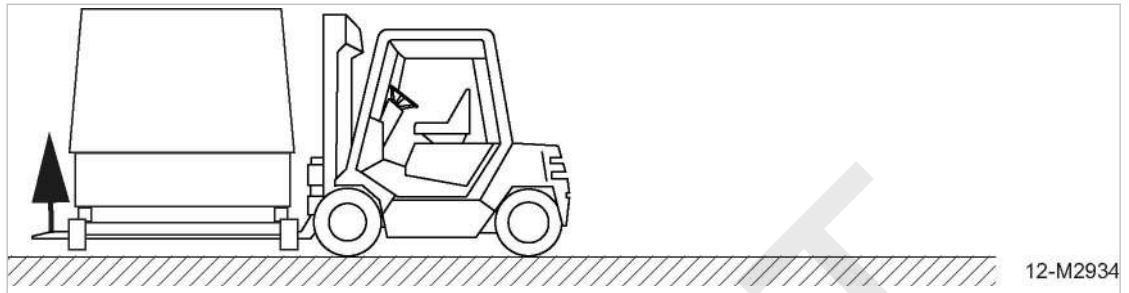
12.2.3.2 Lifting the machine with a forklift truck

Fig. 79 Lifting the machine with a forklift truck

Precondition The machine is parked on even ground.

- Lift the machine carefully.

Result The machine rests fully on the lifting forks.

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

12.2.3.3 Transport with a forklift truck

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

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

Precondition The machine is unloaded and rests on the forks.
The forks are elevated, see Fig. 80.

**CAUTION**

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

- After unloading from the loading bay/lorry load platform, lower the forks immediately.

Option rw

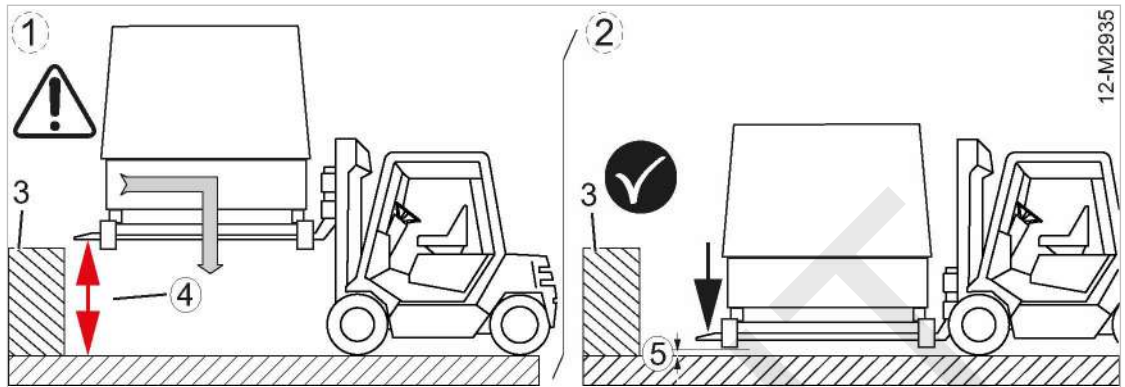


Fig. 80 Transport with a forklift truck

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

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

12.2.4 Transporting the machine as load

The medium of transport determines the type of packing and securing.

Packing and securing methods must be such that, assuming proper handling, the goods arrive in perfect condition at the destination.

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

Material Chocks
Restraints or timber balks
Straps

Carry out a freight securing:



- National directives and regulations for securing loads should be followed.
- Load securing is taken to mean that by full braking or sudden turning the load will not slide, fall, roll or cause unnecessary noise. Generally accepted technical regulations should be observed (e.g., in Germany: the VDI Directive 2700 ff).
- Responsibility for properly secured loads falls on the driver, the vehicle keeper and the carrier.

Chocks, drag shoes or squared timber must be used as transport securing means. If necessary, use straps across the chassis and the towbar.

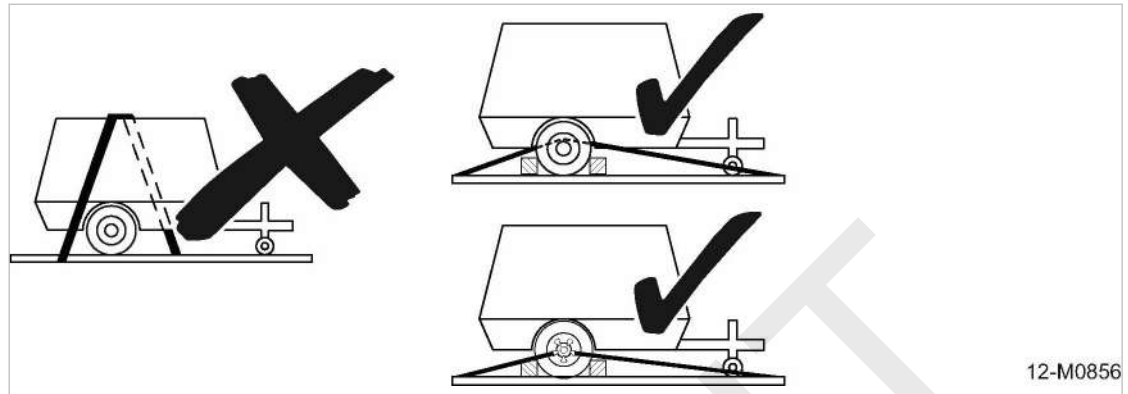


Fig. 81 Guys to secure the freight



1. **NOTICE!**

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

- Do not use straps over the bodywork.
- Use straps only over the chassis.

2. Always observe valid accident and safety regulations when transporting.

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



Contact KAESER SERVICE with any questions regarding transporting or load securing.
 KAESER accepts no liability and provides no guarantee for damage arising from incorrect transport or insufficient or incorrect load securing provisions.

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

Before shipment as air freight

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



1. **WARNING!**

Danger of fire or explosion from operating fluids/materials.
 The machine incorporates an internal combustion engine.

- Any dangerous fluids/materials contained within the machine must be removed before transport.

2. Remove all dangerous fluids/materials.

These include:

- Residues of fuel or fuel vapours
- Lubricants in engine and compressor.
- Battery electrolyte
- Residual quantities of tool oil in the lubricator (Option ec)
- Residual quantities of antifreeze in the frost protector (Option ba)

12.3 Storage

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

Frozen moisture can damage components, valve diaphragms and gaskets.

The following measures also apply to machines not yet commissioned.



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

**NOTICE**

Moisture and frost can damage the machine!

- Prevent ingress of moisture and formation of condensation.
 - Maintain a storage temperature of $>0\text{ }^{\circ}\text{C}$.
- Store the machine in a dry place, free from frost if possible.

12.4 Disposal

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

Precondition The machine is decommissioned.

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



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

13 Annex

13.1 Marking

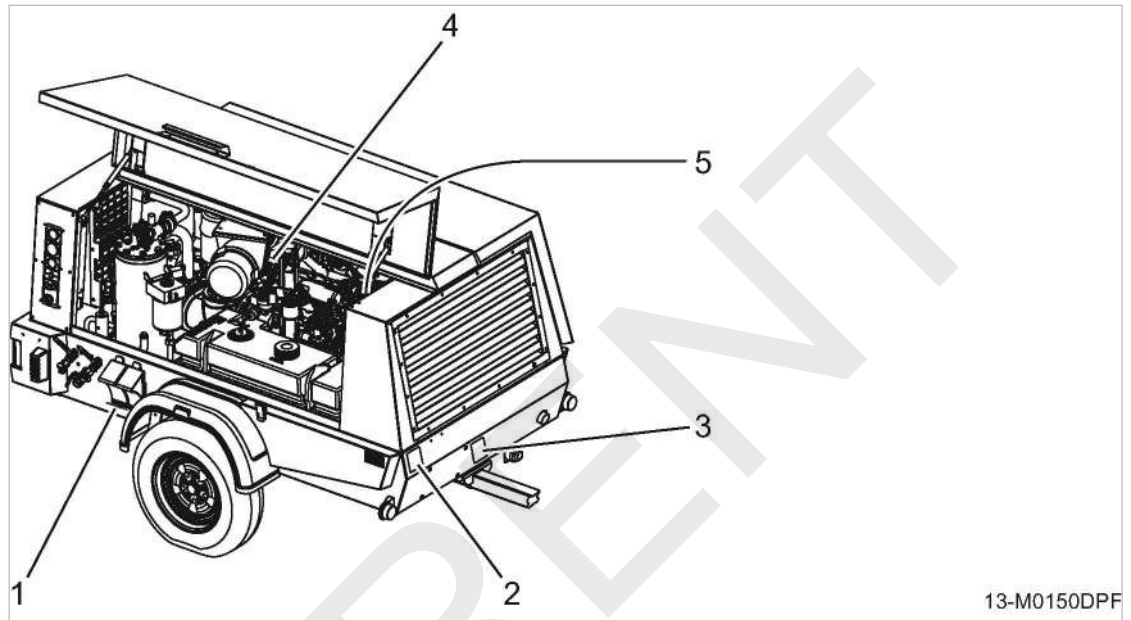
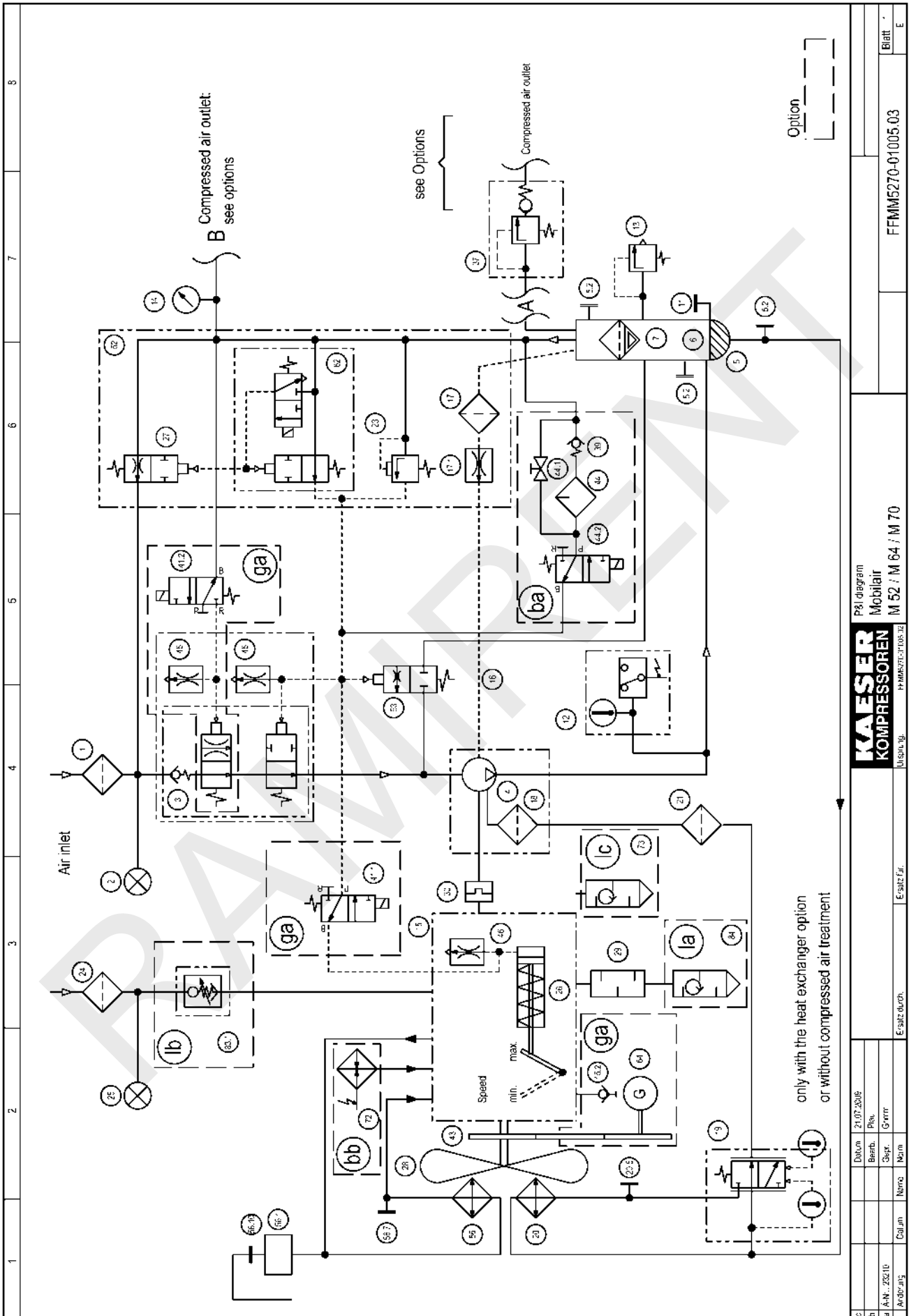


Fig. 82 Marking

- | | | | |
|---|--|---|--|
| ① | VIN *) (stamped in the bodywork)
*Vehicle identity number | ④ | Engine nameplate with engine serial number |
| ② | Machine nameplate with system serial number | ⑤ | only option Ic:
Inspection label for the diesel particle filter (on fan casing) |
| ③ | Options label | | |

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



Date: 21.07.2016		Blatt: E	
Bearb.:	Proj.:	FFMM5270-01005.03	
Skiz.	Grupp.		
Zeichn.:	Norm:		
Calam:	Esalt für:	M 52 / M 64 / M 70	
Andring:	Esalt durch:	FFMM5270-01005.03	
Ausgabe:		FFMM5270-01005.03	
KOMPRESSOREN		KOMPRESSOREN	
Mobilair		Mobilair	
P+I Diagram		P+I Diagram	

1	2	3	4	5	6	7	8
1	Compressor - Air filter			30	Coupling		
2	Maintenance indicator, Compressor -Air filter			37	Minimum pressure / check valve (without air treatment)		
3	Inlet valve			39	Check valve		
4	Rotary screw air end			41.1	Solenoid valve - Full load control		
5	Oil separator tank			41.2	Solenoid valve - Inlet control		
5.2	Screw plug			43	V-belt		
6	Oil reserve			44	Frost protector		
7	Oil separator cartridge			44.1	Shut-off valve		
11	Oil filler port with plug			44.2	Solenoid valve		
12	Remote contact thermometer + Indication			46	Nozzle (Secondary end Proportional controller)		
13	Pressure relief valve			52	Control valve		
14	Pressure gauge - Control panel			56	Water cooler		
15	Diesel engine			56.1	Cooling water expansion tank		
15.2	Hose coupling - Oil drain device			56.7	Screw plug - Water drain device		
16	Oil return line			56.10	Water filling port with plug and pressure relief valve		
17	Dirt trap			62	Combined control valve		
17.1	Nozzle			63	Regulating valve (Directional control valve)		
18	Strainer			64	Generator		
19	Thermostatic valve			72	Fail-safe heat exchangers		
20	Oil cooler			73	Exhaust silencer with particulate filter		
20.5	Screw plug - Oil drain device			83.1	Engine air intake shut-off valve (automatic shut-off)		
21	Oil filter			84	Spark arrester		
23	Proportional controller			Option			
24	Motor - Air filter			ba	Low temperature equipment		
25	Maintenance indicator, Motor - Air filter			bb	Coolant pre-heating		
26	Engine speed adjusting piston			ga	Generator		
27	Venting valve			la	Spark arrester		
28	Fan			lb	Engine air intake shut-off valve (automatic shut-off)		
29	Exhaust silencer			lc	Diesel particulate filter		

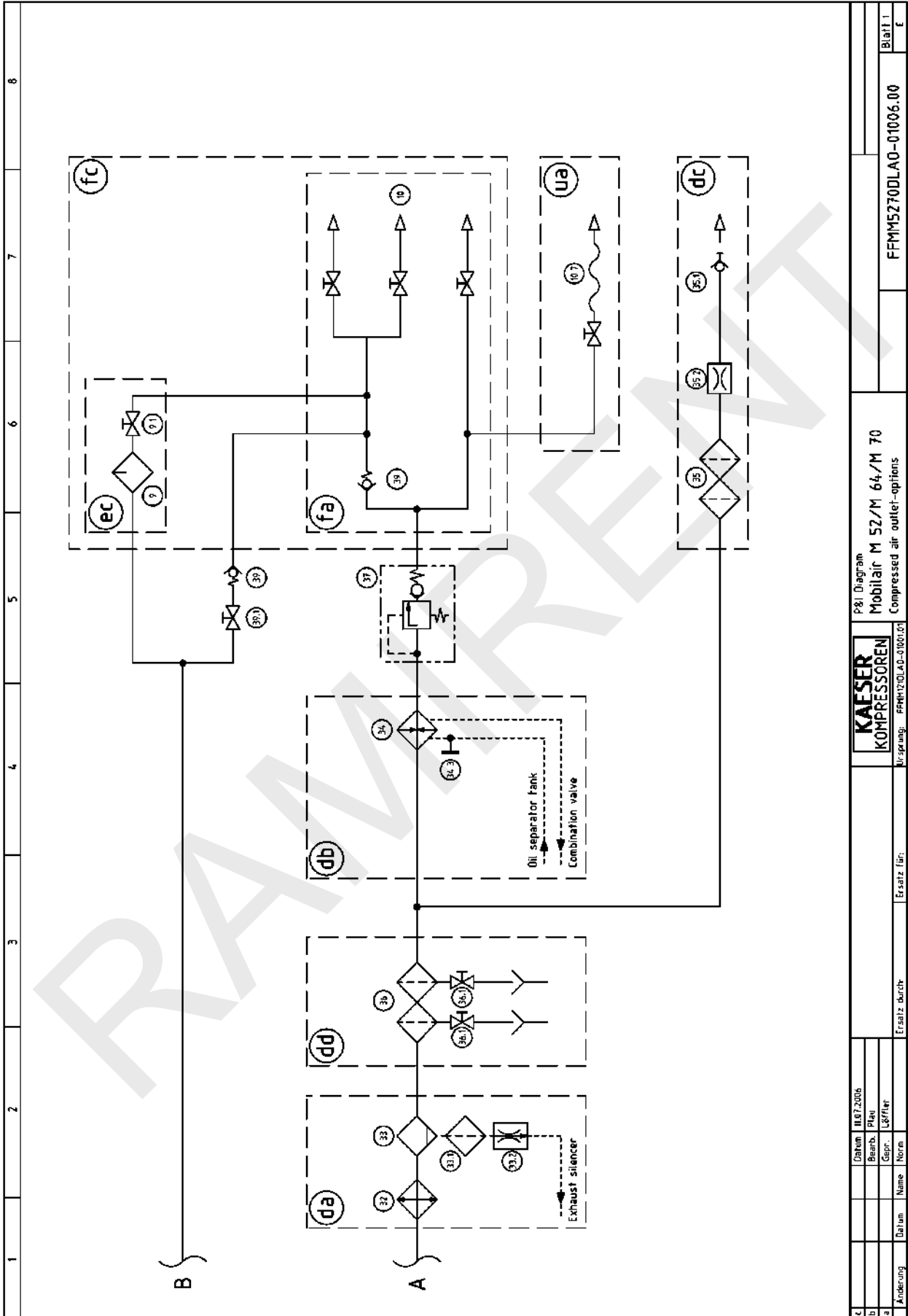
P&I diagram legend
Mobilair
M 52 / M 64 / M 70




Docum.	21.07.2016
Bearb.	Plw.
Check	Grom
Drawn	
Checked	
Approved	

FFMM5270-01005.03

Blatt 2
E



c	Drawn	11.07.2006	P&I Diagram		FFMM5270DLA0-01006.00		Blatt 1
b	Revised	Flau	Mobilair M 52/M 64/M 70				E
a	Checked	LS87ter	Compressed air outlet-options				
Änderung	Datum	Name	Ersatz durch:		Ersatz für:		
			Nr.-sprung: FFMM5270DLA0-01006.00				

1	2	3	4	5	6	7	8
9	Tool lubricator			Option			
9.1	Shut-off valve			da	Aftercooler + Centrifugal separator		
10	Compressed air distributor			db	Heat exchanger		
10.7	Hose line			dc	Breathing air filter		
32	Air cooler			dd	Filter combination		
33	Centrifugal separator			ec	tool lubricator, with option fc		
33.1	Dirt trap			fa	Direct air flow		
33.2	Nozzle			fc	Air flow split downstream of options		
34	Heat exchanger			ua	Hose reel		
34.3	Shut-off valve - Oil drain						
35	Breathing air filter						
35.1	Hose coupling						
35.2	Nozzle						
36	Filter combination						
36.1	Shut-off valve for condensate drain						
37	Minimum pressure / check valve (with air treatment)						
39	Check valve						
39.1	Shut-off valve						
c	Drum	11.07.2006					
b	Beimb.	Plau					
a	Gepr.	Leffler					
Änderung		Datum		Name		Norm	
				Ersatz durch:		Ersatz für:	
				Nr.-sprung: FFMM5270DLA0-01001.01			
							
				P&I Diagram legend Mobilair M 52/M 64/M 70 Compressed air outlet-options			
				FFMM5270DLA0-01006.00		Blatt 2	
						E	

13.3 Dimensional drawings

13.3.1 Option rb/rm/rs Drawing chassis

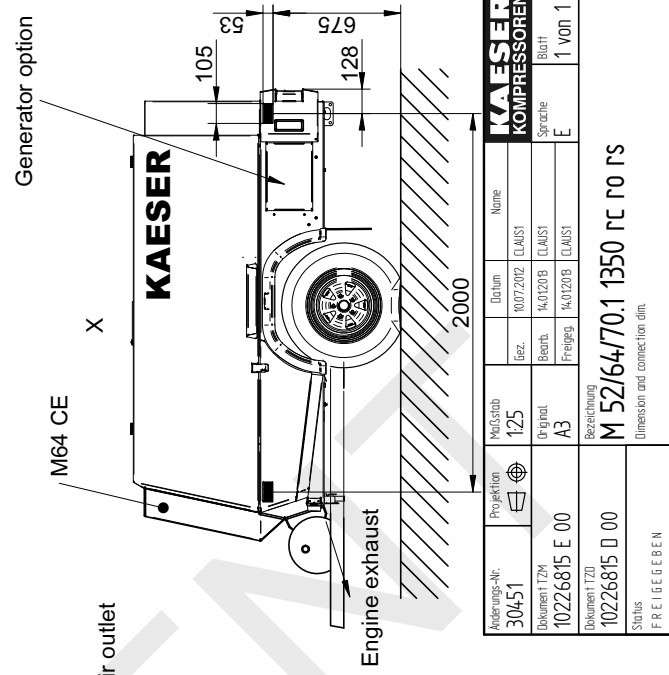
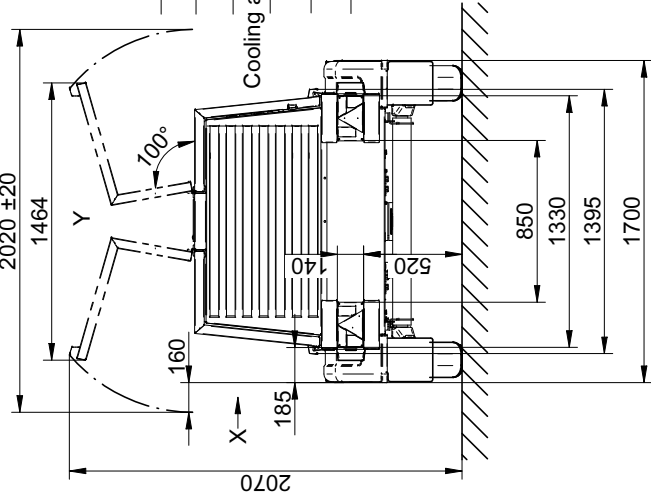
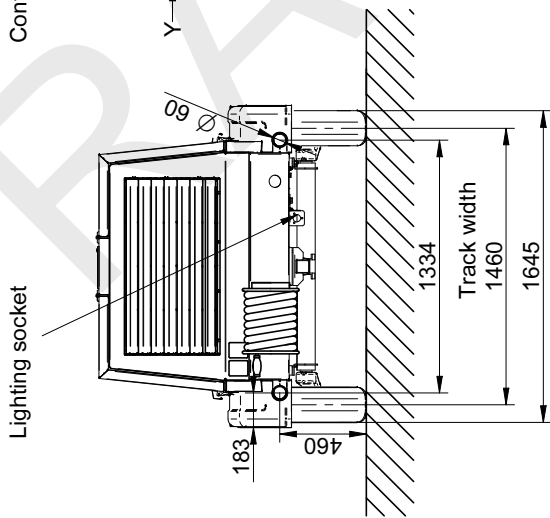
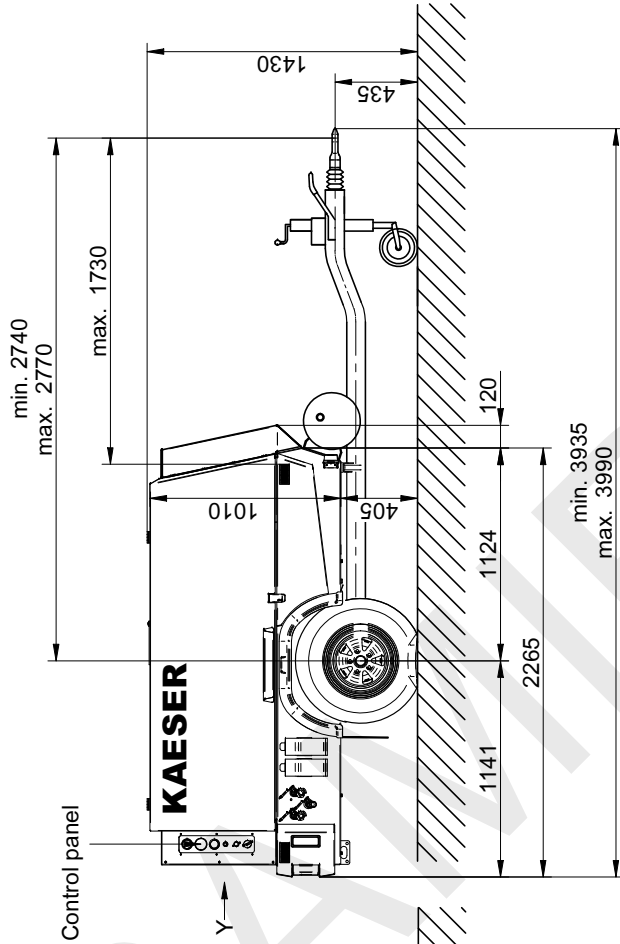
- Option rb - chassis EU version
- Option rm - chassis with height-adjustable tow bar
- Option rs - chassis with overrun brake

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13.3.2 Option rc/ro/rs Drawing chassis

- Option rc - chassis GB version
- Option ro - chassis with fixed height tow bar
- Option rs - chassis with overrun brake

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Meßstab	1:25	Original	A3	Bezeichnung	M 52164/70.1 1350 rC r0 rS
Projektion	1. Ordnung	Original	A3	Zeichnung	Dimension and connection dim.
Zeichnungs-Nr.	30451	Dokument / ZFM	10226815 E 00	Status	FREI GEBEN
Datum	10.07.2012	Gez.	10.07.2012	Freigegeben	1. von 1
Name	LAUST	Bezeichnet	LAUST	Sprache	E
Gezeichnet	LAUST	Gezeichnet	LAUST	Blatt	1 von 1

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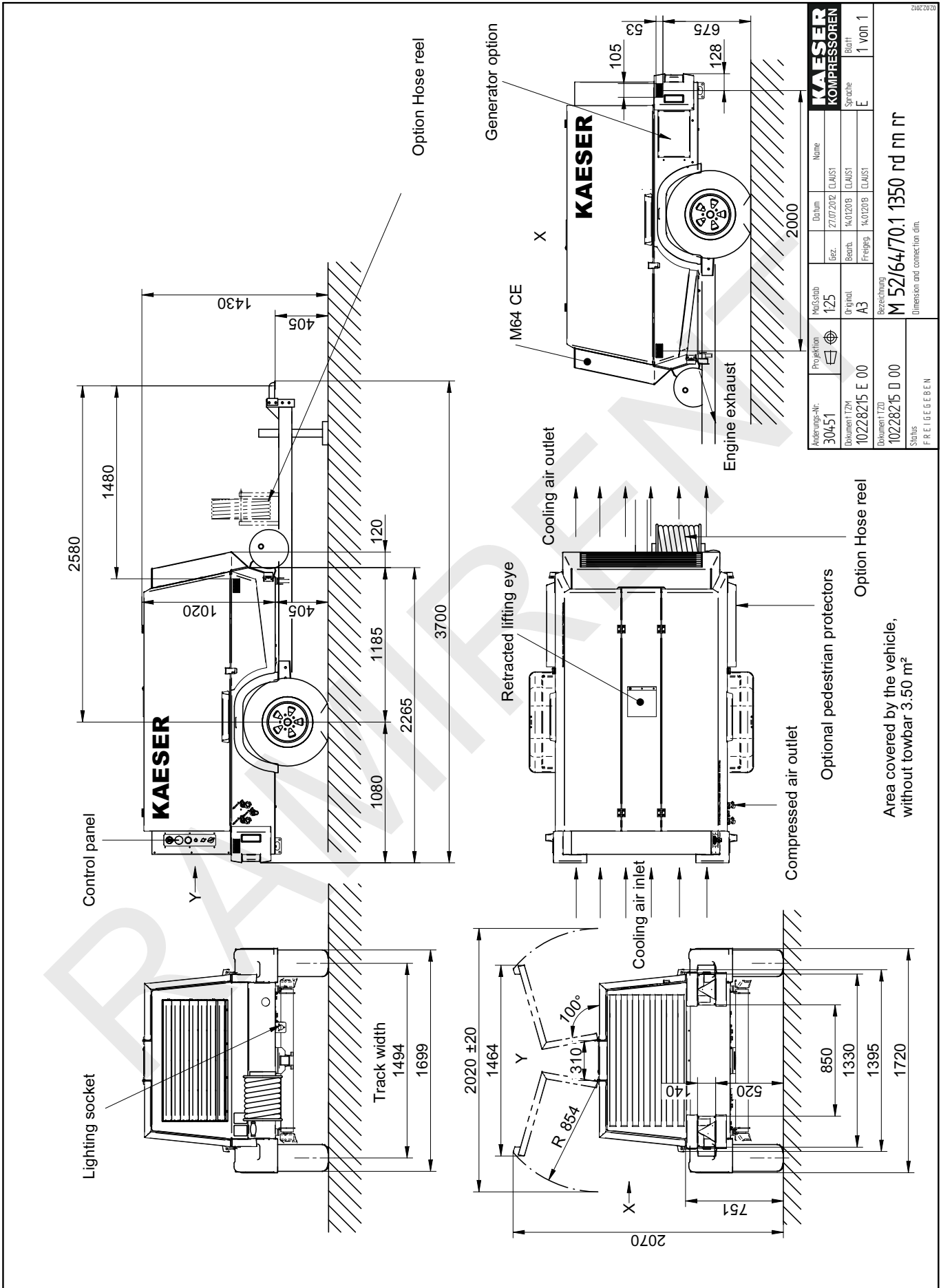
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13.3.3 Option rd/rn/rr Dimensional drawing – chassis

- Option rd - Chassis, US type
- Option rn - Height adjustment via adjustable plate
- Option rr - Chassis without service brake

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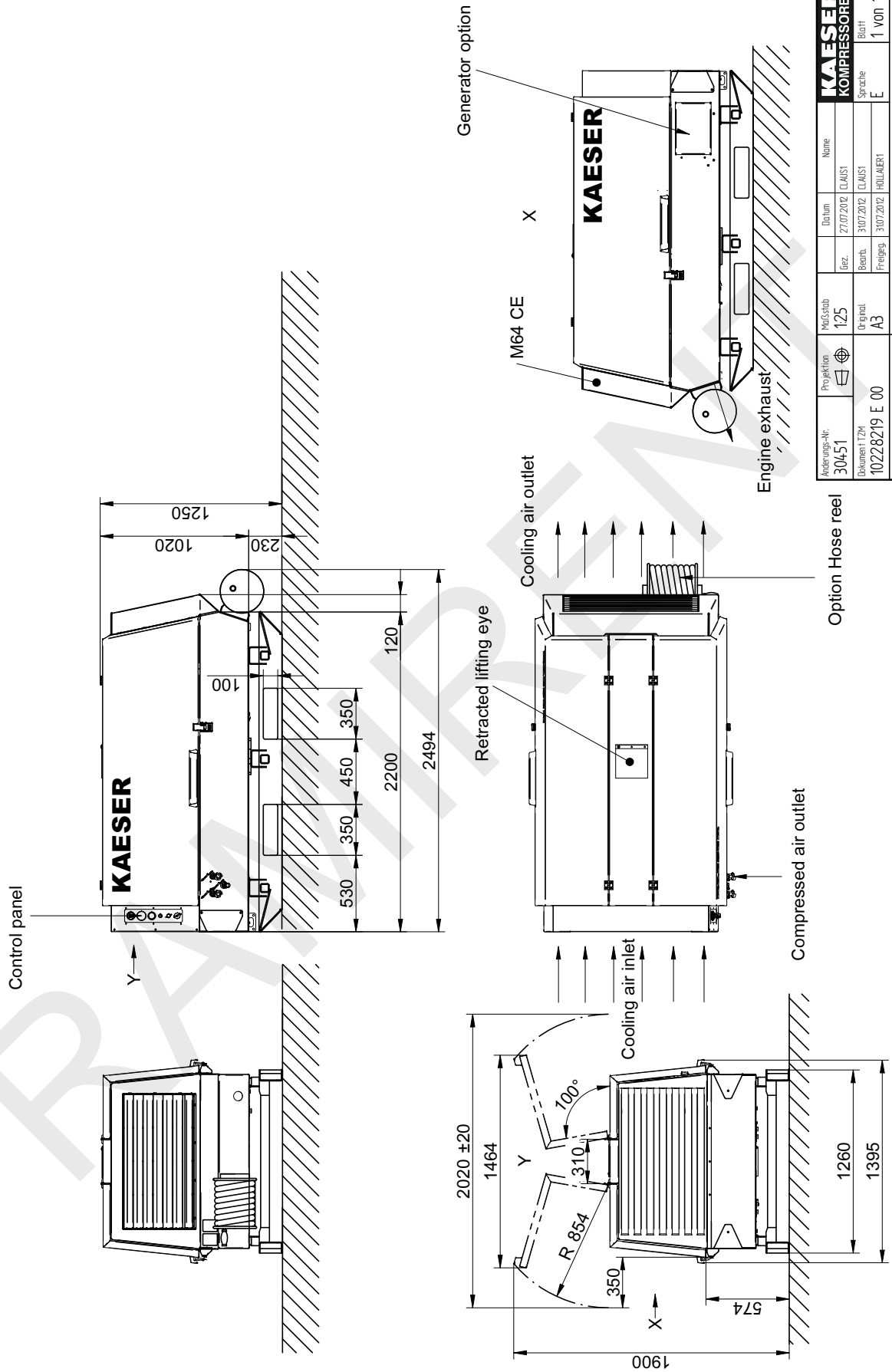
KESSEL-Nr. 30451		Projektion		Maßstab 1:25		Name	
Datum 27.07.2012		Original A3		125		KESSEL-Nr. 1 von 1	
Gez. 14.01.2019		Freigez. 14.01.2019		Original A3		Sprache E	
Blatt 1 von 1		Freigez. 14.01.2019		Original A3		Blatt 1 von 1	
Bezeichnung M 52/64/70.1 1350 rd rd rr		Dimension and connection dim.		M 52/64/70.1 1350 rd rd rr		Blatt 1 von 1	
Status FREI GEBEN		Status FREI GEBEN		Status FREI GEBEN		Status FREI GEBEN	

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13.3.4 Option rw Dimensional drawing, stationary version

- Option rw - Skid frame on runners

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Kaeser-Nr. 30451		Projektion		Maßstab 1:25		Name	
Dokument T2M 10228219 E 00		Original A3		Gez. 27.07.2012 ELAUSI		Datum 27.07.2012 ELAUSI	
Dokument T20 10228219 D 00		Reisezeichnung		Bearb. 31.07.2012 ELAUSI		Sprache E	
Status FREI GEBEN		M 52164/70.1 rW		Freigegeben 31.07.2012 HOLLAUER1		Blatt 1 von 1	
Dimension and connection dim.							

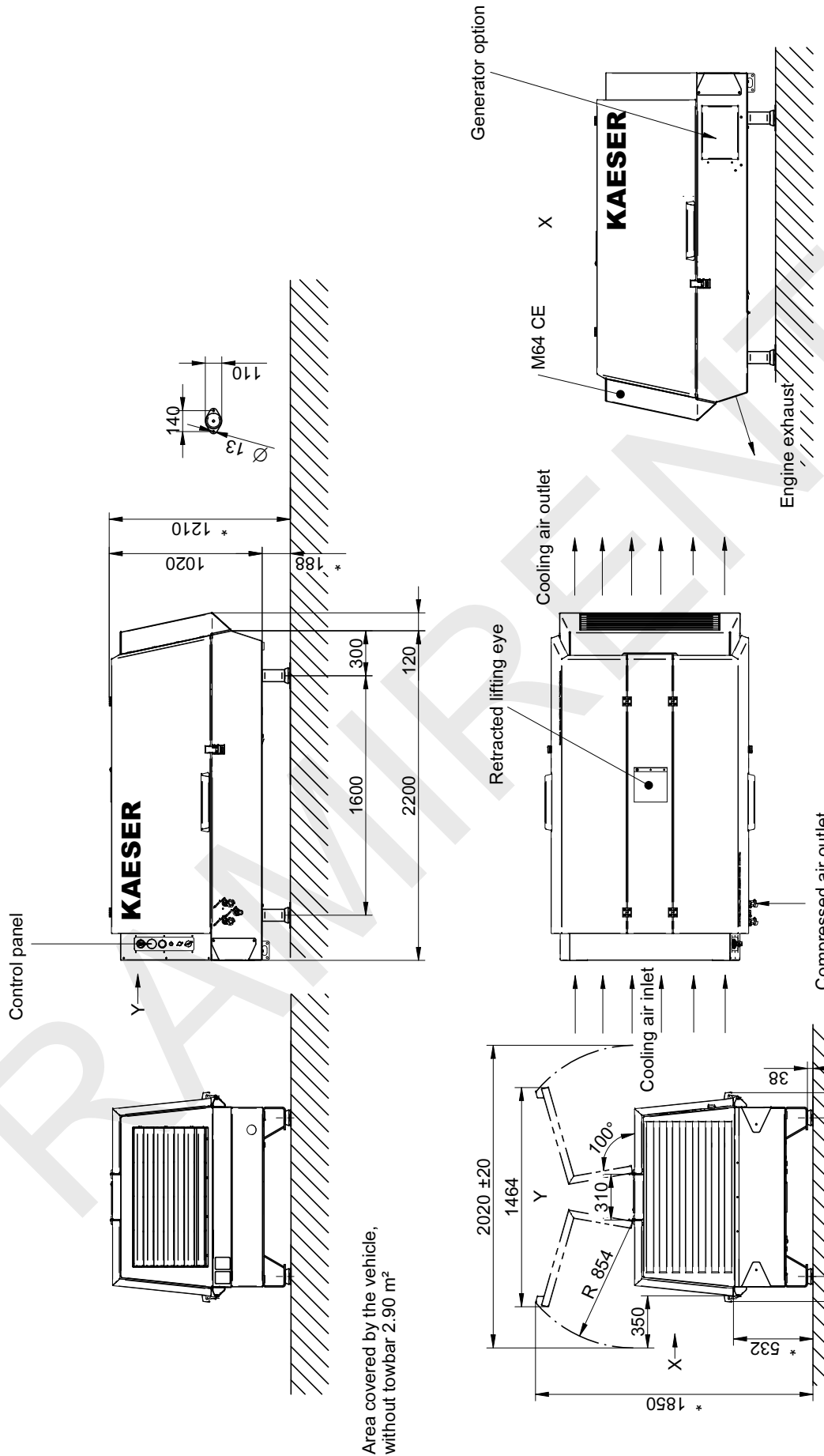
Option Hose reel
 Area covered by the vehicle, without towbar 2.90 m²

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13.3.5 Option rx Dimensional drawing, stationary version

- Option rx - Frame

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Area covered by the vehicle,
without towbar 2.90 m²

Choice of rubber pads or machine mountings
Anchor the machine only with machine mountings
* +62.00 mm if fitted with rubber pads

Zeichnungs-Nr. 30451	Projektion 1:25	Maßstab Original	Name L. LAUSI	Date 27.07.2012		Name L. LAUSI	
Dokument-TYP 10228209 E 00	Original	A3	Gez. 31.07.2012	Bearb. 31.07.2012		Sprache E	
Dokument-TZ0 10228209 D 00	Reisezeichnung	M 52/64/70.1	Freigegeben 31.07.2012	HOLLAUER1		Blatt 1 von 1	
Status FREIGEGEBEN	Dimension and connection dim.			31.07.2012			

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13.4 Wiring diagrams

13.4.1 Electrical Diagram

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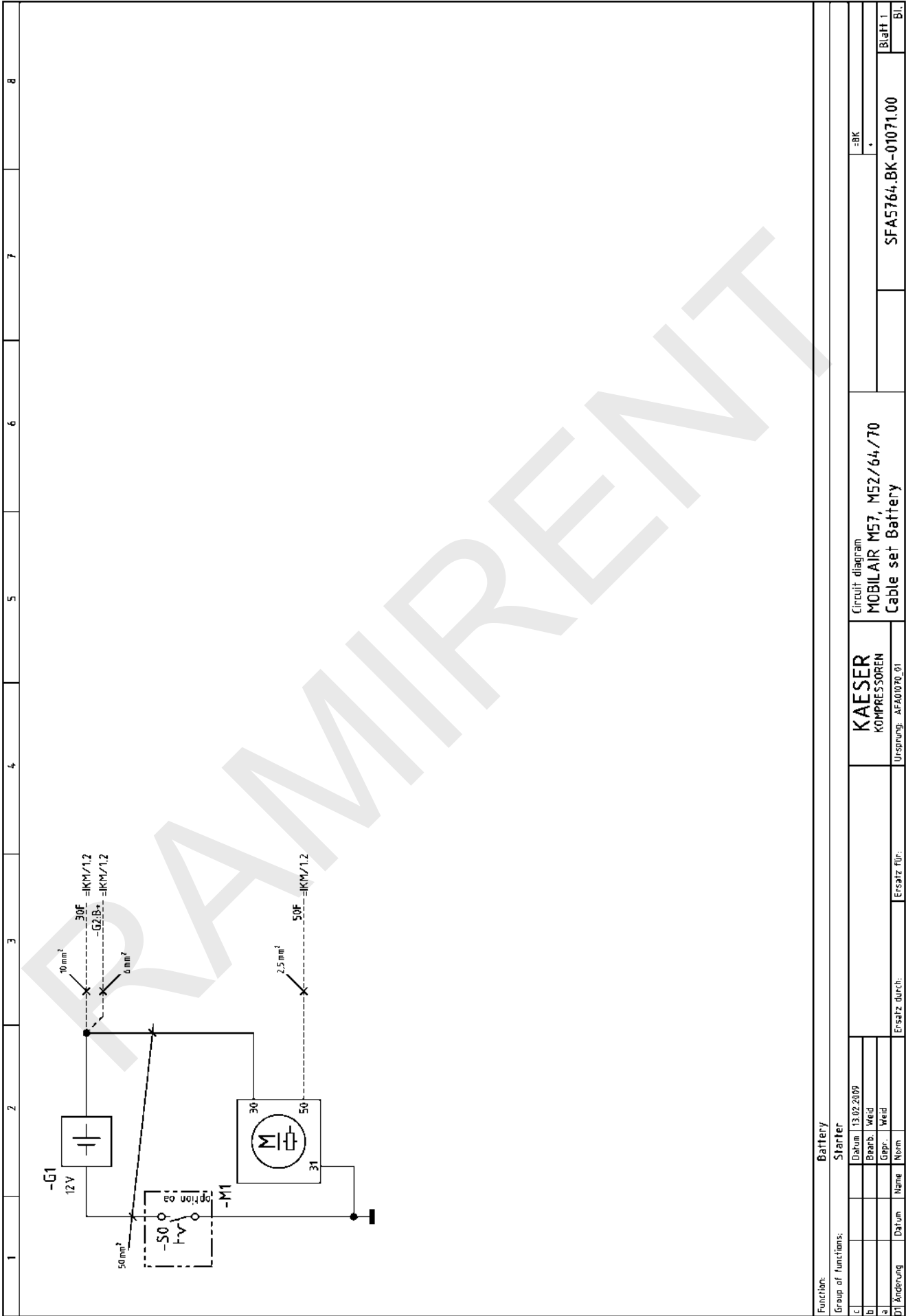
1	2	3	4	5	6	7	8
<div style="border: 1px solid black; padding: 10px; margin: 0 auto; width: 80%;"> <p style="margin: 0;">Electrical diagrams</p> <p style="margin: 0;">MOBILAIR</p> <p style="margin: 0;">M57, M52/M64/M70</p> <p style="margin: 0;">KUBOTA-Motor</p> </div> <p style="margin: 20px 0 0 100px;">Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</p>							
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>							
A) Änderung		Datum		Name		Ersatz durch:	
		Datum		Name		Ersatz durch:	
		13.02.2009		E			
B) Bearb. / Weid		Gepr. / Weid		Norm		Ersatz durch:	
Kaeser Kompressoren				Cover page			
URSPRUNG: AFA0070_01				MOBILAIR M57, M52/64/70			
				DFA5764-01071.00			
				Blatt 1			
				Bl.			

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DFA5764-01071.00	1	
2	List of contents		ZFA5764-01071.00	1	
3	Block diagram		UFA5764-01071.00	1	
4	Block diagram Cross-reference		UFA5764-01071.00	2	
5	Circuit diagram Cable set Battery		SFA5764-BK-01071.00	1	=BK
6	Circuit diagram Compressor - unit		SFA5764-UK1-01071.00	1	=UK1
7	Circuit diagram Control		SFA5764-BT-01071.00	1	=BT
8	Circuit diagram Control		SFA5764-BT-01071.00	2	=BT
9	Circuit diagram Cable set Control		SFA5764-UK1-01071.00	1	=UK1
10	Electrical equipment identification Cable set generator		SFA5764-UK2-01071.00	1	=UK2
11	Circuit diagram low temperature equipment		SFA5764-UK3-01071.00	1	=UK3
12	Equipment parts list		GFA5764-01071.00	1	

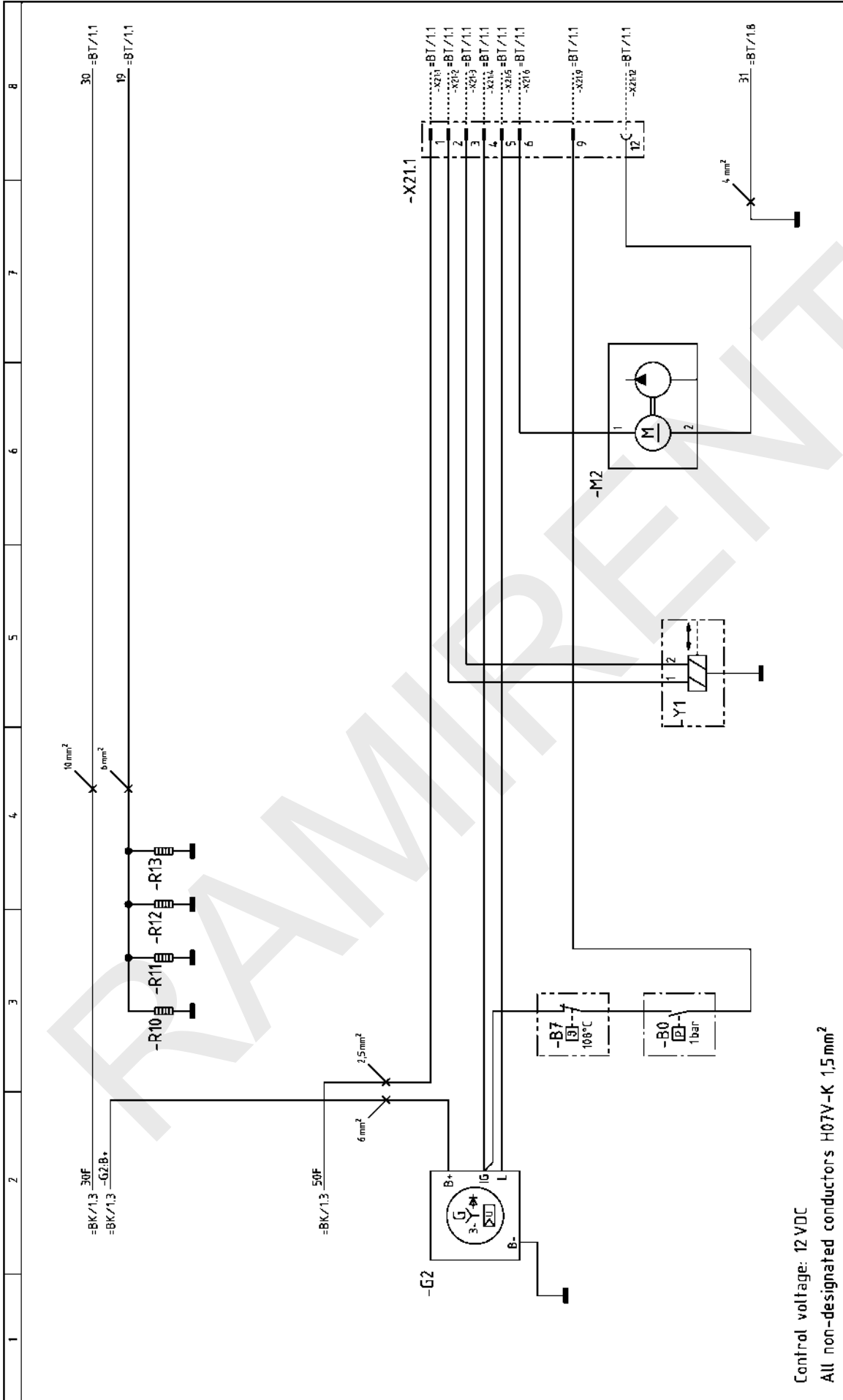
List of contents		MOBILAIR M57, M52/64/70		ZFA5764-01071.00	
Kaeser KOMPRESSOREN		Ursprung: AFA01070_01		Blatt 1	
Ersatz durch:		Ersatz für:		Bl.	

1	2	3	4	5	6	7	8
<p>general instructions Control voltage 12VDC All non-designated conductors H07V-K 1,5 mm² black</p> <p>potentials: 15 switched plus + (unit ON) 19 Preheat with glowplug 30 + terminal (Battery) 31 - terminal (Battery), earth 50 Starter-Control</p>							
<p>components unit</p> <ul style="list-style-type: none"> -G1 Battery -M1 Starter-Motor -B0 Oil pressure switch Motor -B7 Cooling water-Thermostat -G2 Alternator -M2 fuel pump -R10 heating flange -Y1 Fuel shut-off valve -Y3 Valve Full load operation, Venting 							
<p>components Control panel</p> <ul style="list-style-type: none"> -B6 Distance temperature gauge Compressor aircend -F1 Control fuse -F3 Fuse Glowplug -F4 Fuse Starter -H0 Charging control lamp -H8 Indicator light Back pressure -K3 Starter - Relay -K4 Relay Safety chain -K9 Relay Full load operation -K26 glow relay -K29 Relay fuel pump -P8 Hour meter -S01 switch "Control ON" -S1 Ignition switch <p>0 = STOP 1 = ON 2 = Preheat with glowplug 3 = START</p>							
<p>model-dependent components</p> <ul style="list-style-type: none"> -S0 Battery isolating switch (option oa) -Y5 option generator: Valve FAD limitation -Y6 option generator: Valve for the motor speed full load control option: Valve defroster -X42 Plug connection, Generator control box 							
<p>Block diagram general instructions</p> <ul style="list-style-type: none"> -S7/-H7 Illuminated pushbutton -X21,-X24, Preselection Full load operation -X25,-X27 Plug connection, Control panel -X23 Terminal strip, Control panel 							
<p>KAESER KOMPRESSOREN Ursprung: AFA0070_01</p>							
<p>Block diagram general instructions</p>							
<p>UFA5764-01071.00</p>							
<p>Blatt 1</p>							
<p>Bl.</p>							

1	2	3	4	5	6	7	8
<p>general instructions This document includes a common electrical diagram, consisting of documents:</p>							
module	Electrical diagrams	Cross-reference					
Cable set: connection Battery	SFA5764.BK-01071.00	BK					
Cable set: connection Motor	SFA5764.IKM-01071.00	IKM					
cabling Control panel	SFA5764.BT-01071.00	BT					
cabling unit components 1	SFA5764.IK1-01071.00	IK1					
cabling unit components 2	SFA5764.IK2-01071.00	IK2					
cabling unit components 3	SFA5764.IK3-01071.00	IK3					
<p>KAESER KOMPRESSOREN Ursprung: AFA0070_01</p>		<p>Block diagram general instructions Cross-reference</p>		<p>UFA5764-01071.00</p>		<p>Blatt 2 Bl.</p>	
<p>Erstellt durch:</p>	<p>Ersatz durch:</p>	<p>Ersatz für:</p>					
<p>Datum</p>	<p>13.02.2009</p>						
<p>Bearb. Weid</p>							
<p>Gepr. Weid</p>							
<p>Norm</p>							

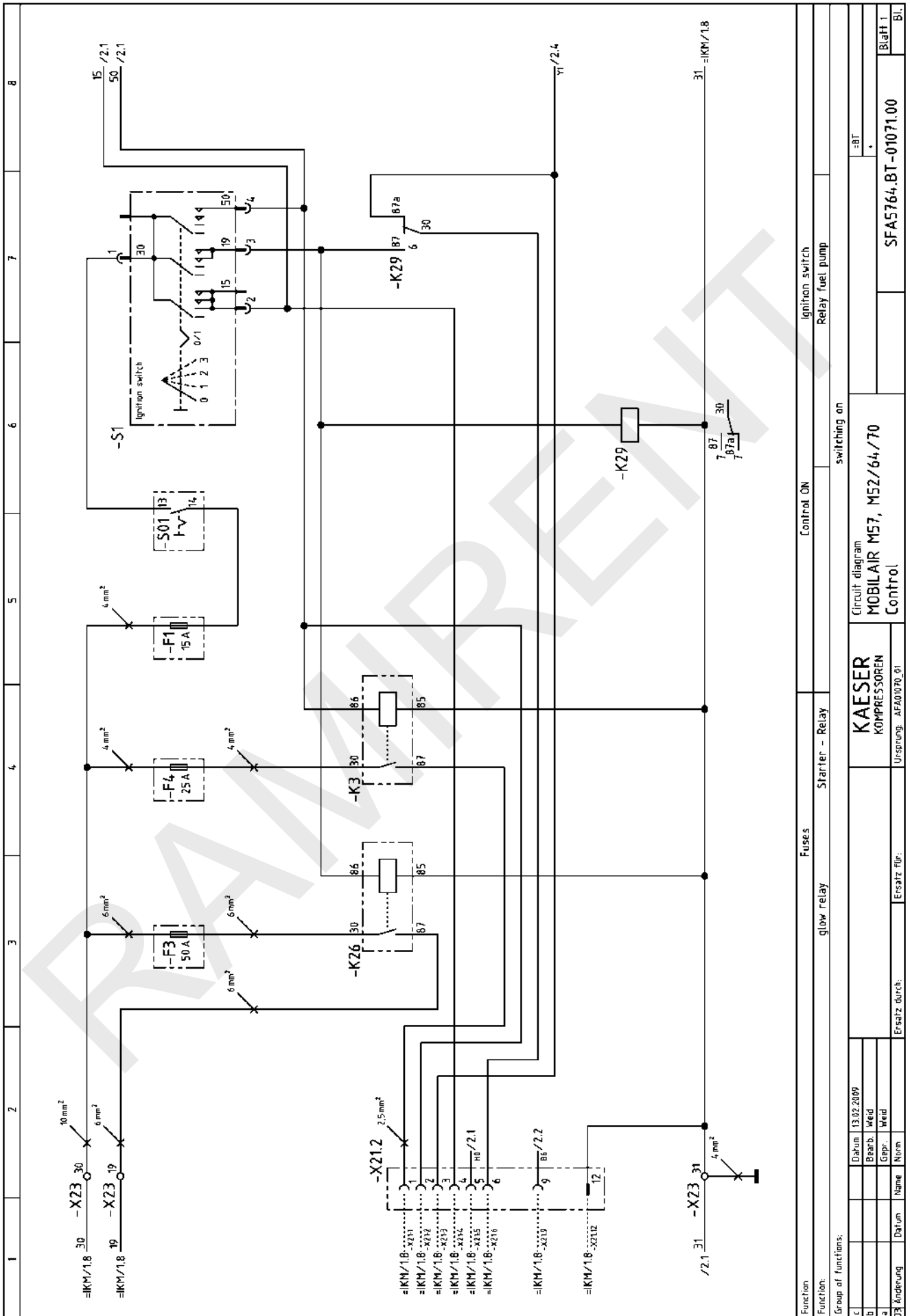


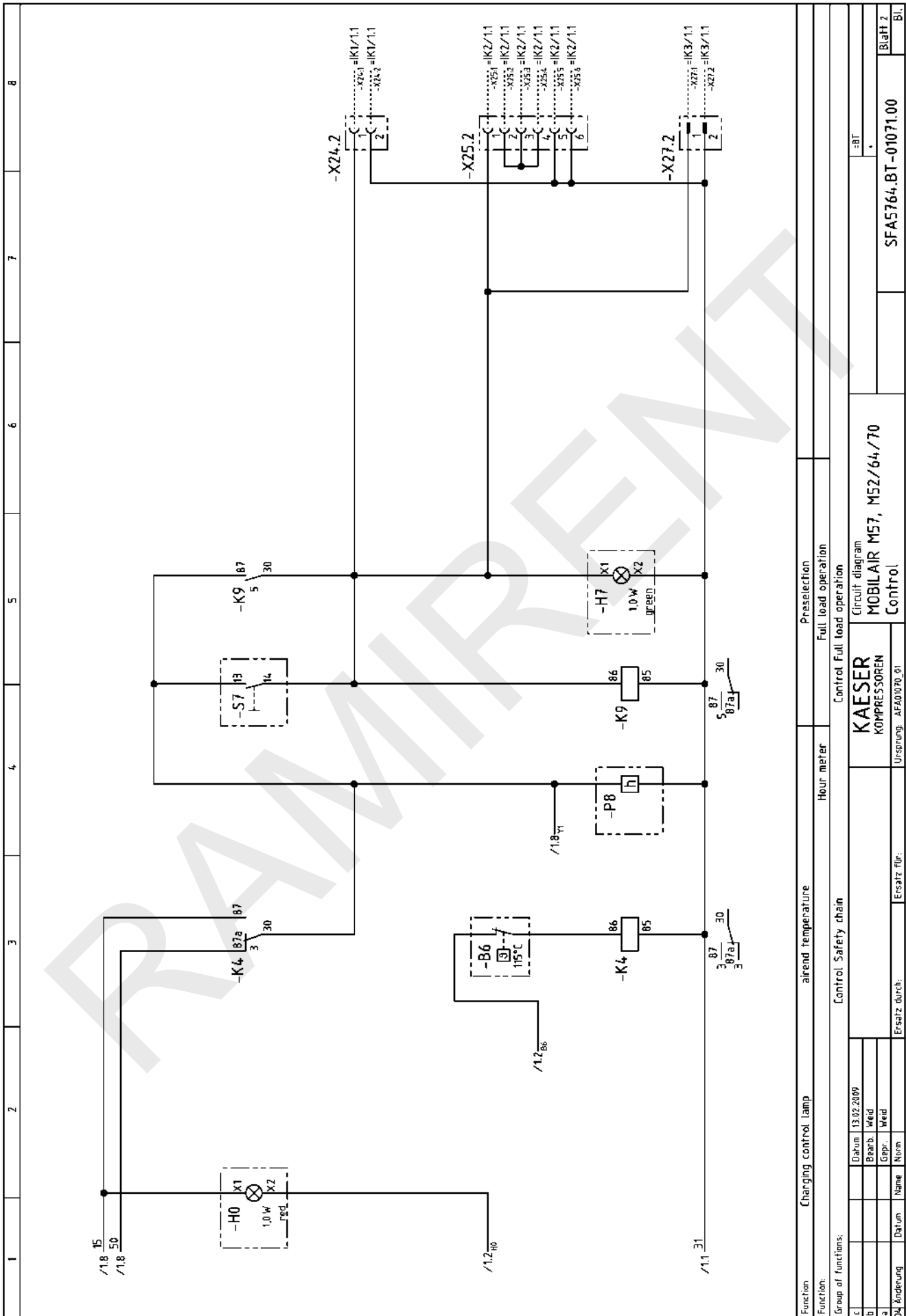
Funktion:		Battery	
Group of functions:		Starter	
c	Datum	13.02.2009	
b	Bearb.	Weid	
a	Gepr.	Weid	
d	Änderung	Datum	Name
Ersatz durch:		Ersatz für:	
Kaeser KOMPRESSOREN		Ursprung: AFA01970_01	
Circuit diagram		MOBILAIR M57, M52/64/70	
MOBILAIR M57, M52/64/70		Cable set Battery	
SFA5764, BK-01071.00		-BK	
Blatt 1		Blatt 1	
Bl.		Bl.	



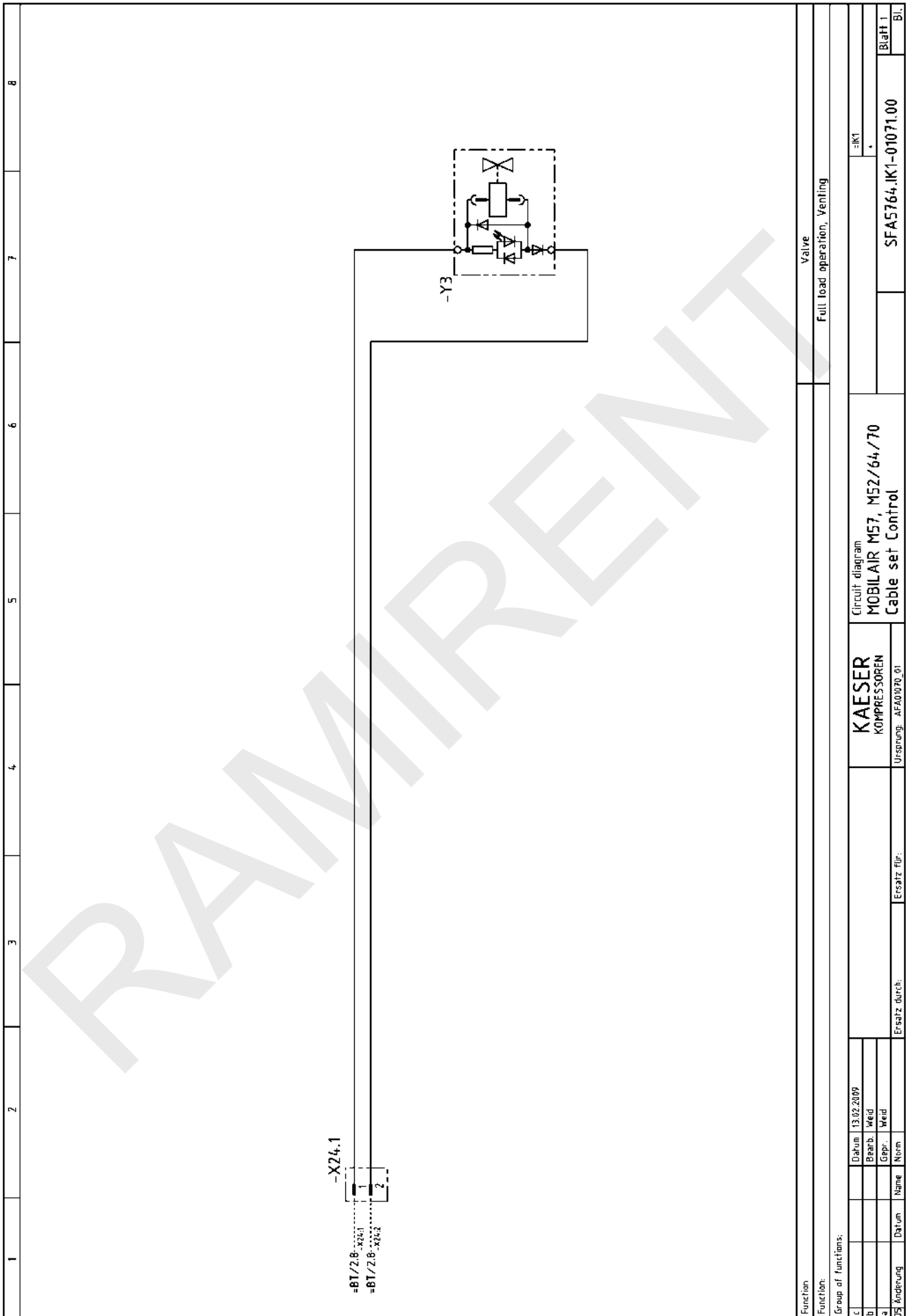
Control voltage: 12 VDC
All non-designated conductors H07V-K 1,5 mm²

Function: generator		Cooling water- Temperature		Fuel shut-off valve		fuel pump	
Group of functions:		Oil pressure					
c	Datum	13.02.2009	unit components		-IKH		
b	Bearb.	Weid	KAESER		Circuit diagram		
a	Gepr.	Weid	KOMPRESSOREN		MOBILAIR M57, M52/64/70		
BZ	Änderung	Datum	Name	Norm	Ersatz für:	Compressor - unit	
					Ursprung: AFA0070_01	SFA5764.1KM-01071.00	
						Blatt 1	
						Bl.	

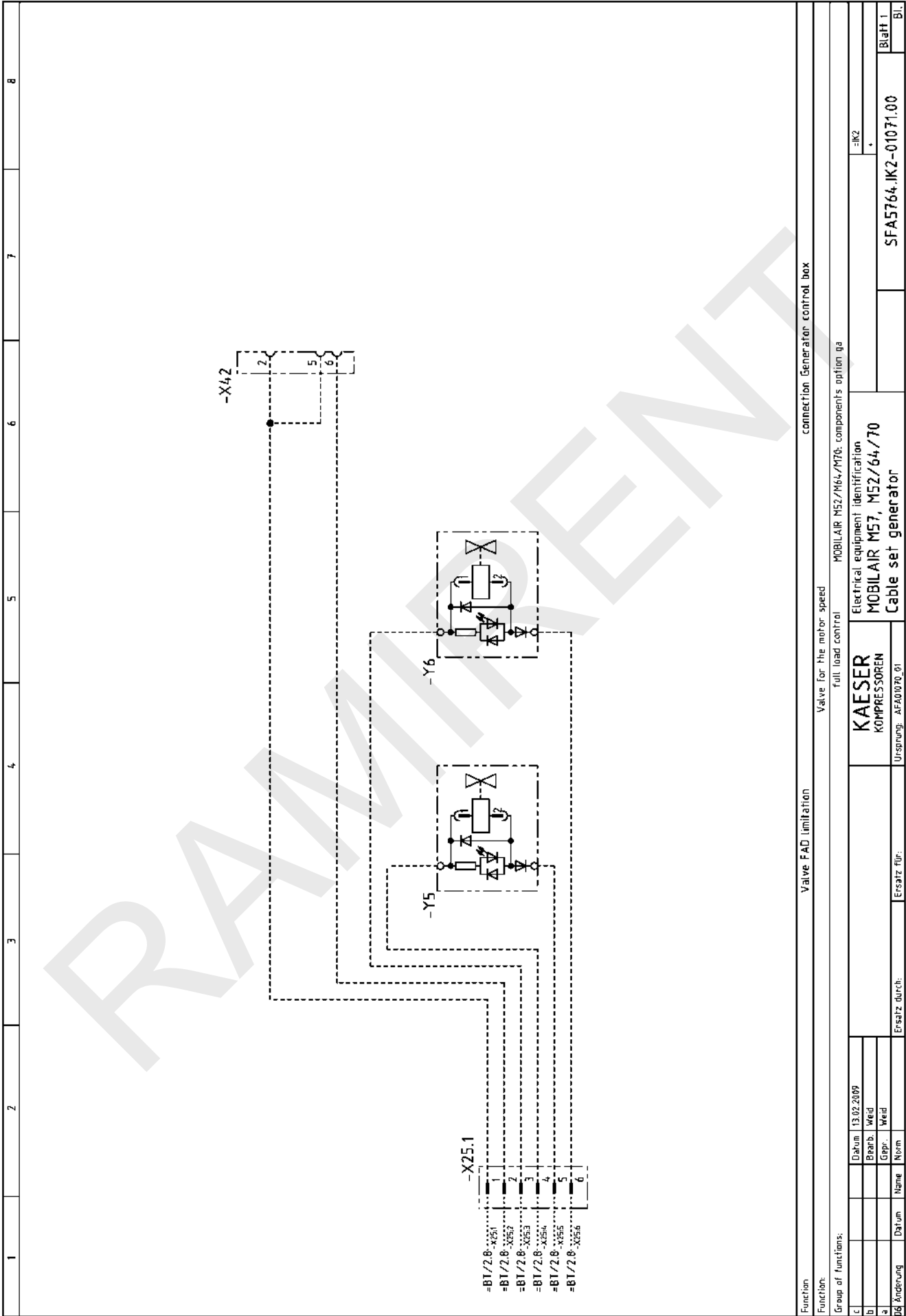


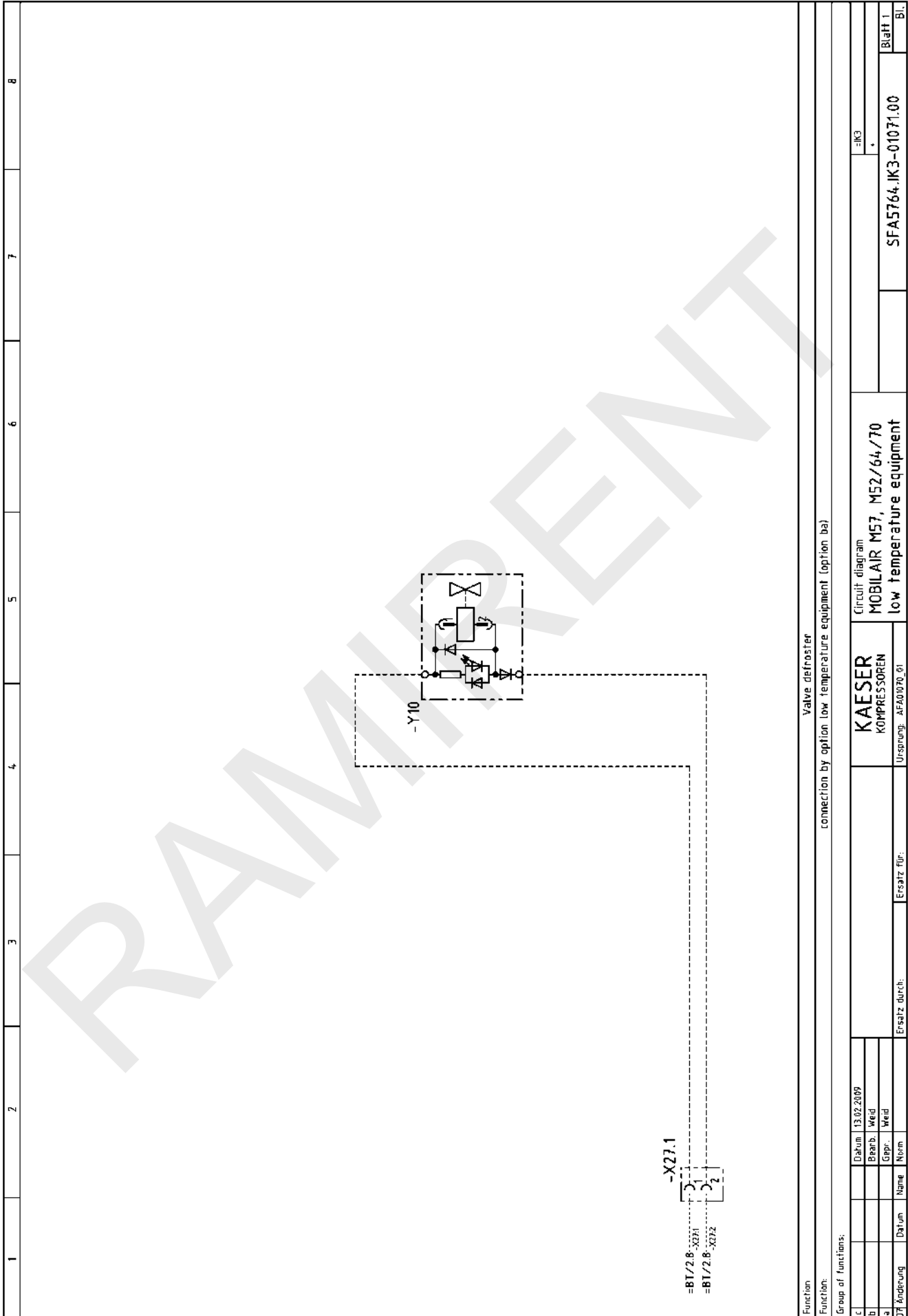


Function: Charging control lamp		air/ind temperature		Hour meter		Praselection	
Function: Group of functions:		Control Safety chain		Control Full load operation		Full load operation	
c	Datum	13.02.2009	Kaeser		MOBILAIR M57, M52/64/70		-BT
b	Bearb.	Weid	KOMPRESSOREN		Control		Blatt 2
a	Gepr.	Weid	Ursprung: AFA0070_01		SFA5764.BT -01071.00		Bl.
d	Datum	Norm	Ersatz durch:				



Funktion:		Valve	
Fuction:		Full load operation, Venting	
Group of functions:			
c	Datum	13.02.2009	=IK1
b	Bearb.	Weid	
a	Gepr.	Weid	
Änderung		Datum	Name
Ersatz durch:		Ersatz für:	
Ursprung: AFA0070_01		MOBILAIR M57, M52/64/70 Cable set Control	
KAESEKOMPRESSOREN		SFA5764, IK1-01071.00	
Circuit diagram		Blatt 1	
MOBILAIR M57, M52/64/70		Bl.	
Cable set Control		Bl.	

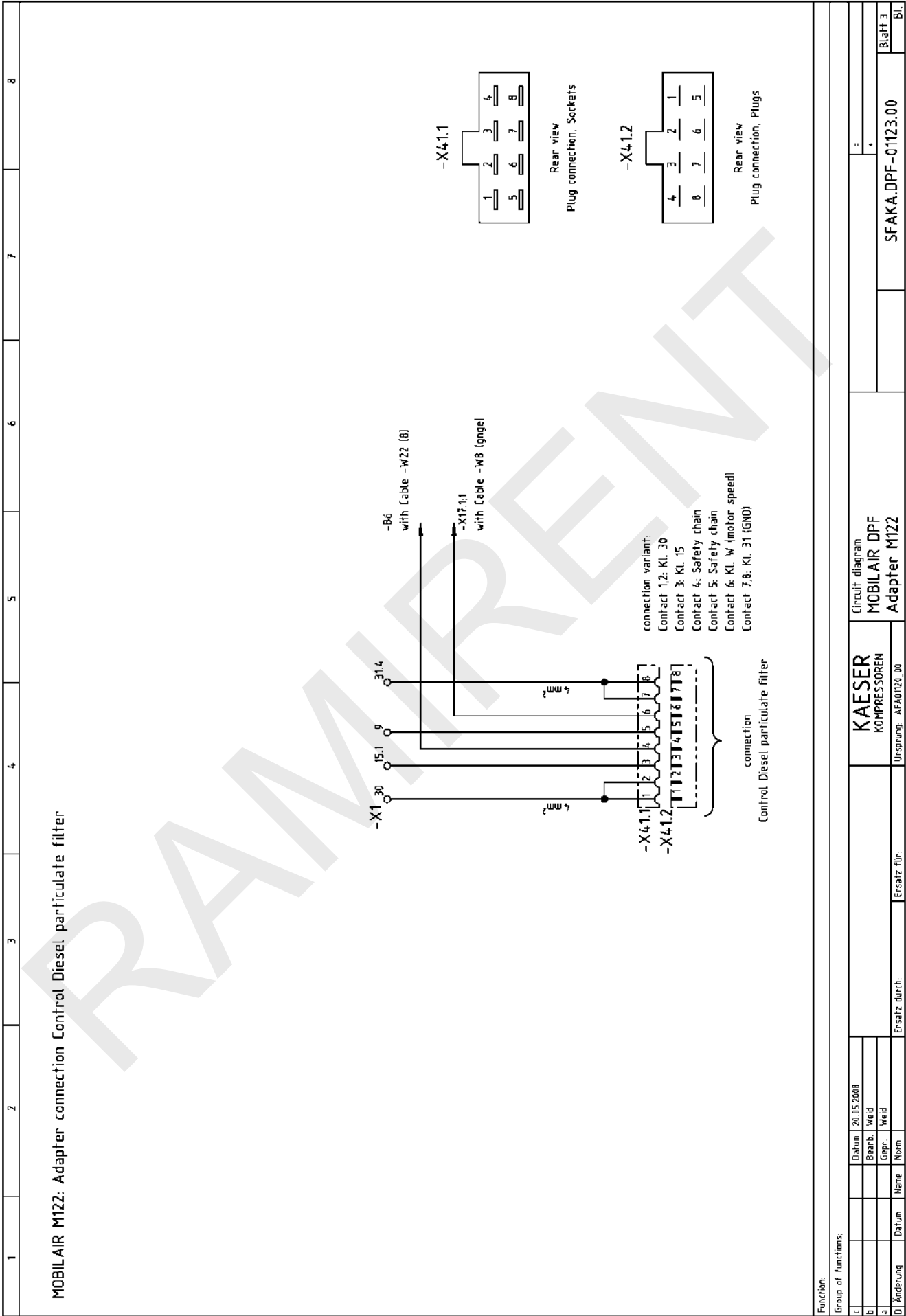




13.4.2 Option Ic
Connection adapter for the diesel particulate filter

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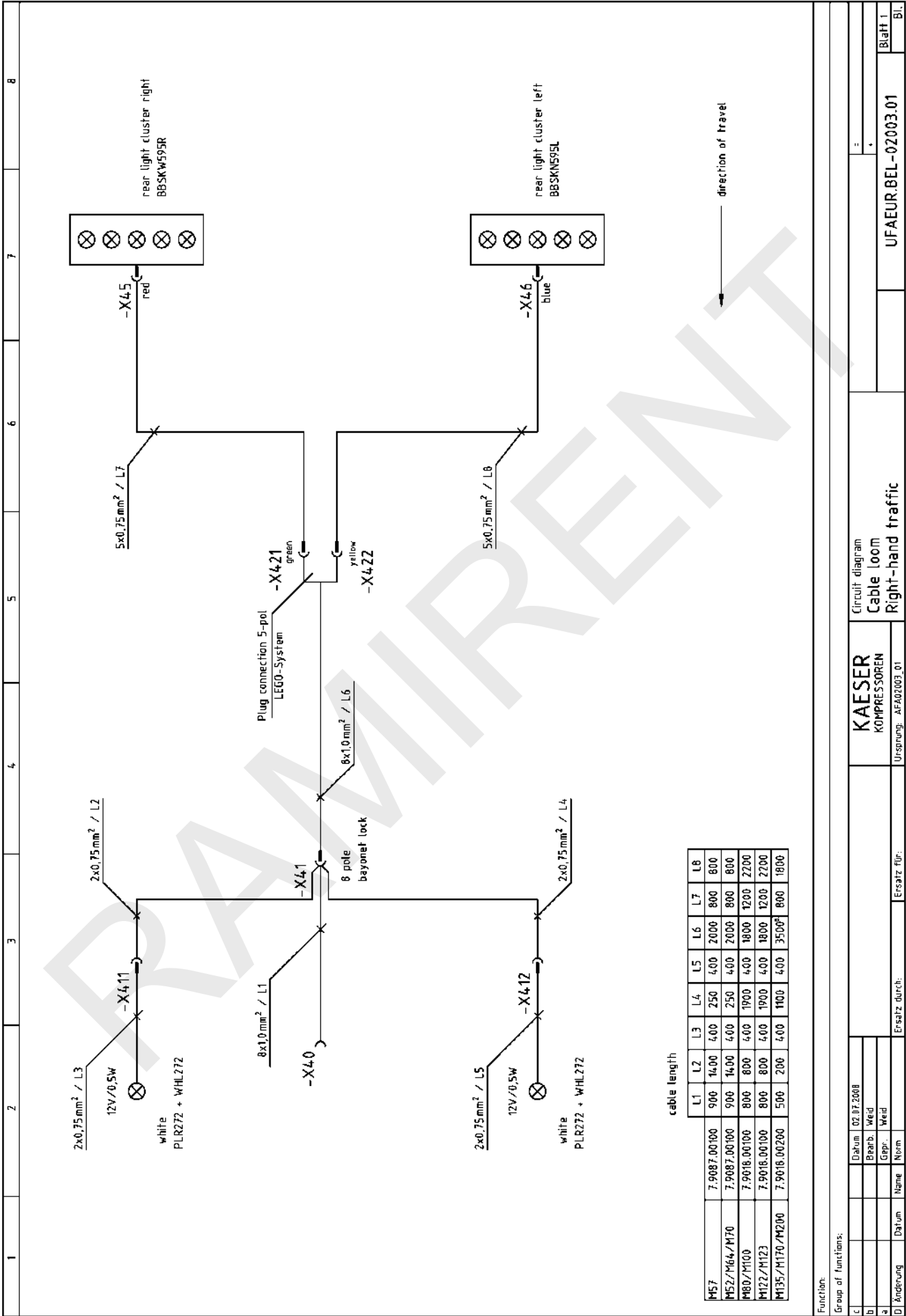
1	2	3	4	5	6	7	8	
<div style="border: 1px solid black; padding: 10px; margin: 0 auto; width: 80%;"> <p style="font-size: 1.2em; margin: 0;">Electrical diagrams</p> <p style="font-size: 1.2em; margin: 0;">MOBILAIR</p> <p style="font-size: 1.2em; margin: 0;">connection - Adapter</p> <p style="font-size: 1.2em; margin: 0;">Control Diesel particulate filter</p> </div> <p style="margin-top: 20px; text-align: center;"> Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg </p>								
<p style="font-size: 0.8em; margin: 0;">The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	20.05.2008	E	Kaeser Kompressoren MOBILAIR DPF				Cover page
b	Bearb. / Weid			Kaeser Kompressoren				MOBILAIR DPF
a	Gepr. / Weid			Ursprung: AFA0102_00				DFAKA.DPF-01123.00
A) Änderung	Datum	Name	Norm	Ersatz durch:				Blatt 1
							Ersatz für:	Bl.



13.4.3 Option tc
Lighting and signalling system connection

RAMIRENT

1	2	3	4	5	6	7	8	
<p>Electrical diagrams MOBILAIR Lighting equipment connection 12V/13-pole</p> <p>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</p>								
<p>RAMIRENT</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	02.07.2008	E	KAESER KOMPRESSOREN Ursprung: AFA02003_01				Cover page
b	Bearb.	Weid		MOBILAIR Lighting equipment				Blatt 1
a	Gepr.	Weid		DFAEUR.BEL-02003.01				Bl.
d	Änderung	Datum	Name	Ersatz durch:				

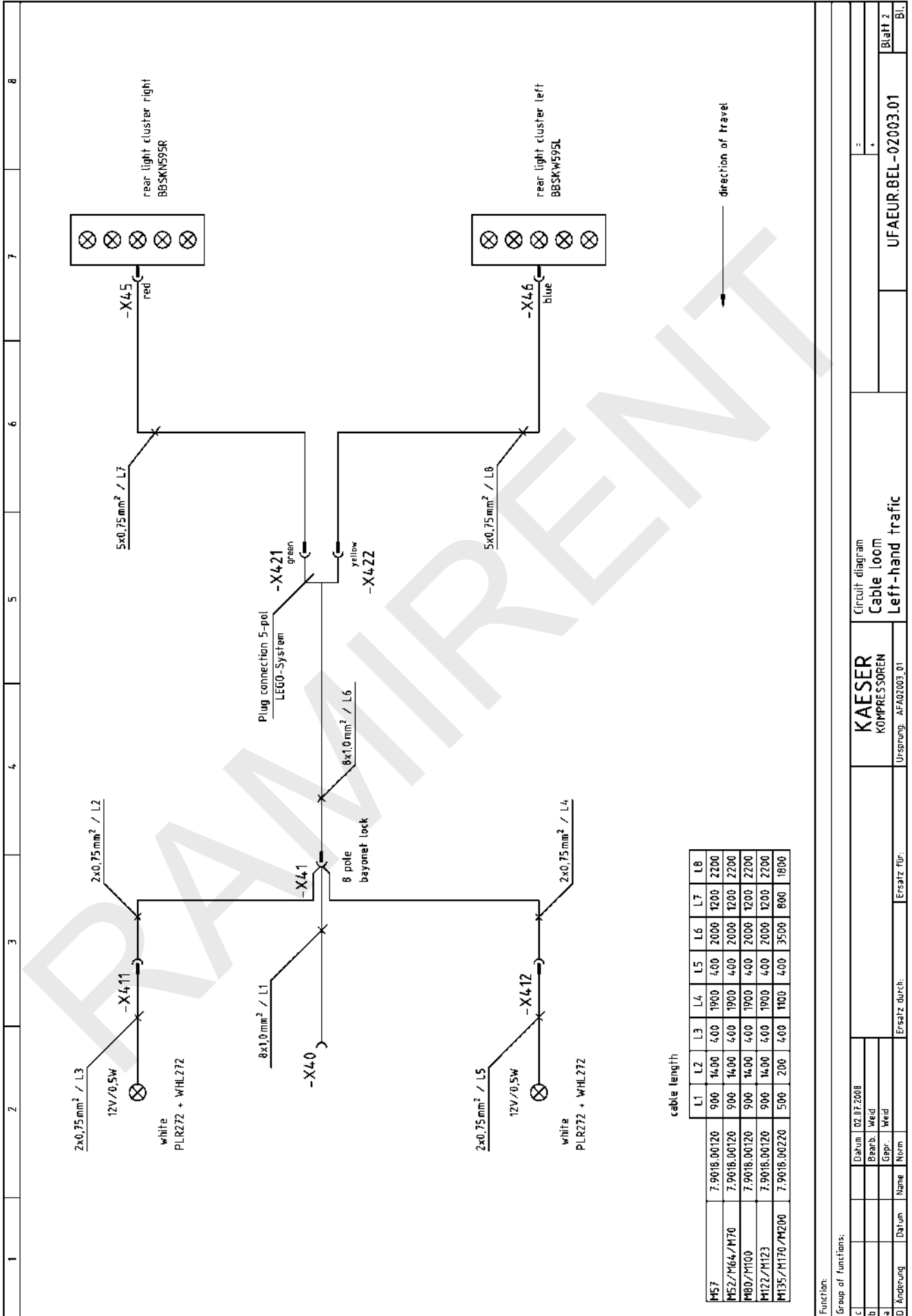


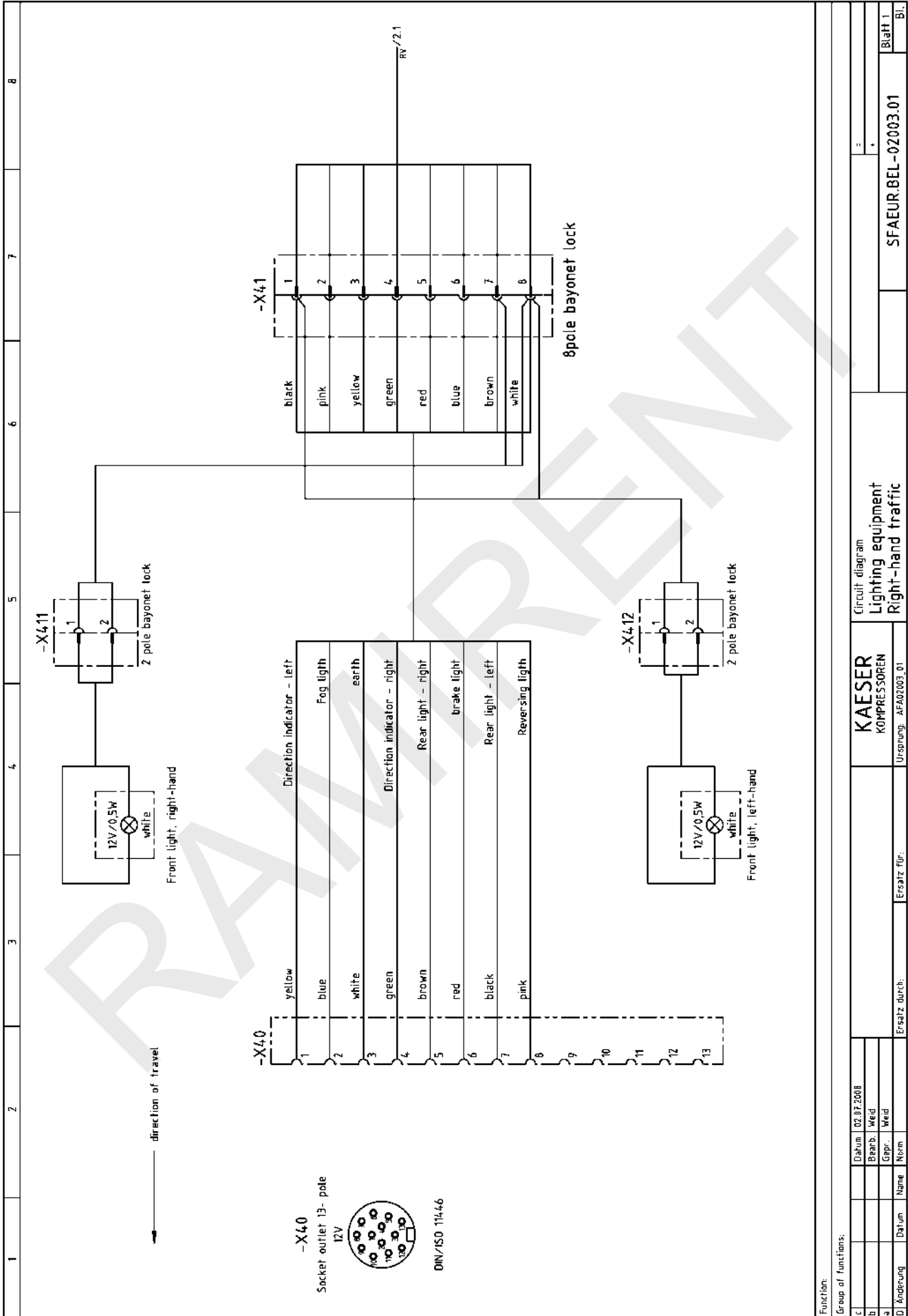
cable length

	L1	L2	L3	L4	L5	L6	L7	L8
M57	7.9087.00100	900	1400	400	2500	400	2000	800
M52/M64/M170	7.9087.00100	900	1400	400	2500	400	2000	800
M80/M100	7.9018.00100	800	800	400	1900	400	1800	1200
M122/M123	7.9018.00100	800	800	400	1900	400	1800	1200
M135/M170/M200	7.9018.00200	500	200	400	1100	400	3500 ²	800

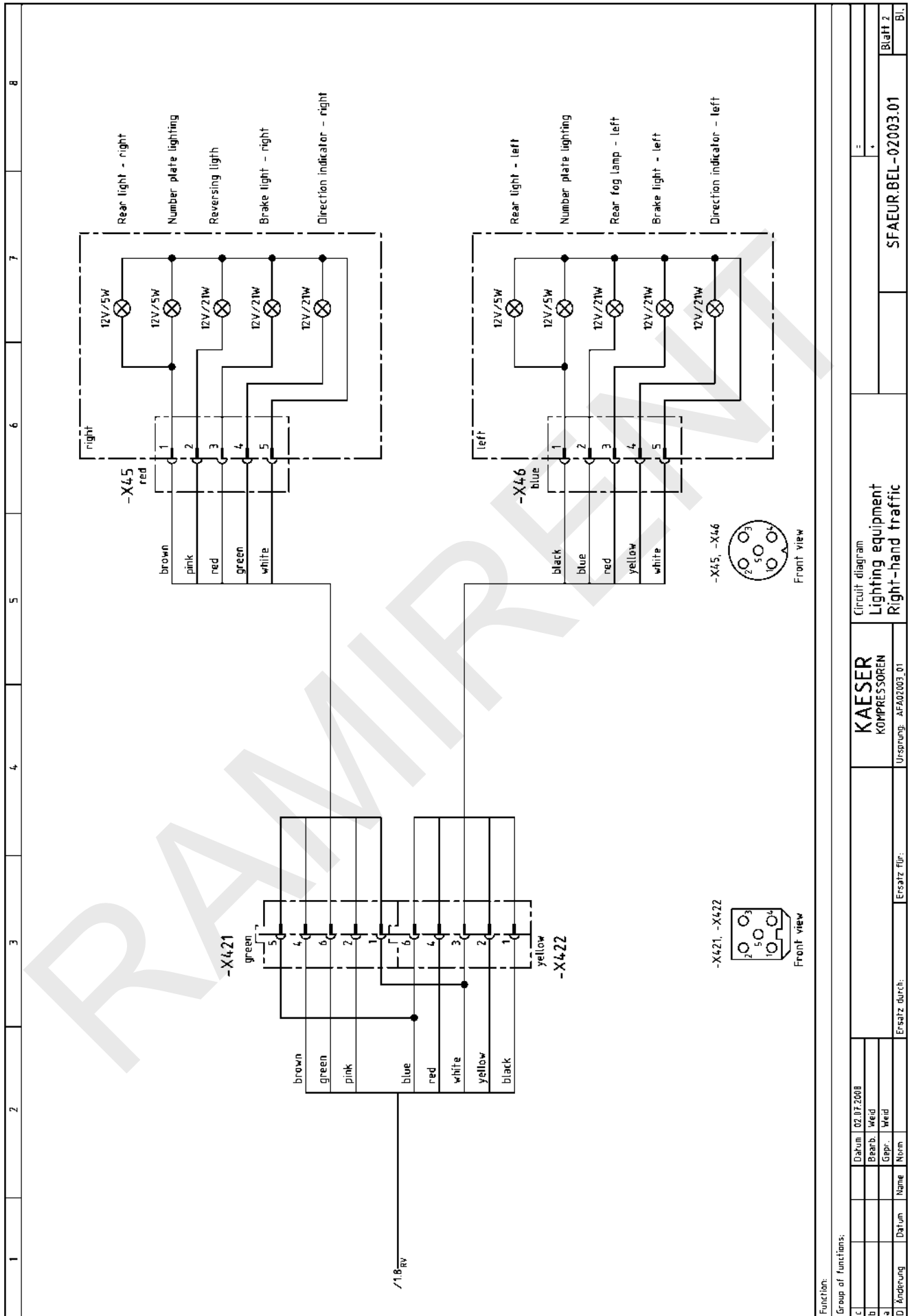
Function:
Group of functions:

l	Datum	02.07.2008
b	Bearb.	Weid
a	Gepr.	Weid
D	Änderung	Datum
Ersatz durch:		Ersatz für:
KAESER KOMPRESSOREN		
Ursprung: AFA02003_01		
Circuit diagram Cable loom Right-hand traffic		
UFAEUR.BEL-02003.01		Blatt 1
		BL





Function:		Circuit diagram	
Group of functions:		Lighting equipment	
c		-	
d		+	
a		-	
D		-	
Änderung	Datum	Name	Norm
Ersatz durch:	Ersatz durch:	Ursprung: AFA02003_01	
Kaeser KOMPRESSOREN		SFAEUR.BEL-02003.01	
Blatt 1		Blatt 1	



Function:
Group of functions:

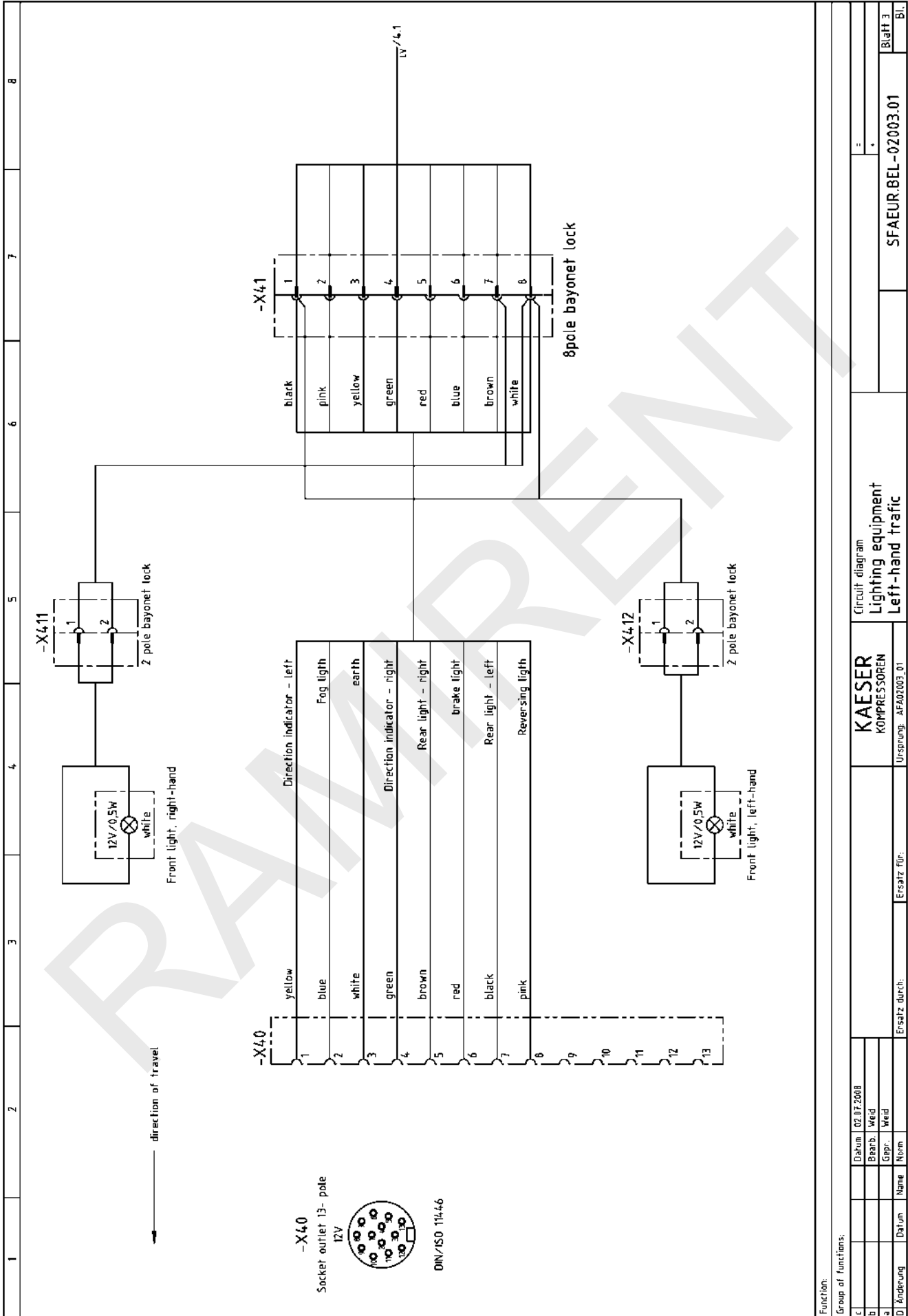
c	Datum	02.07.2008
b	Bearb.	Weid
a	Gepr.	Weid
d	Änderung	Datum Name Norm

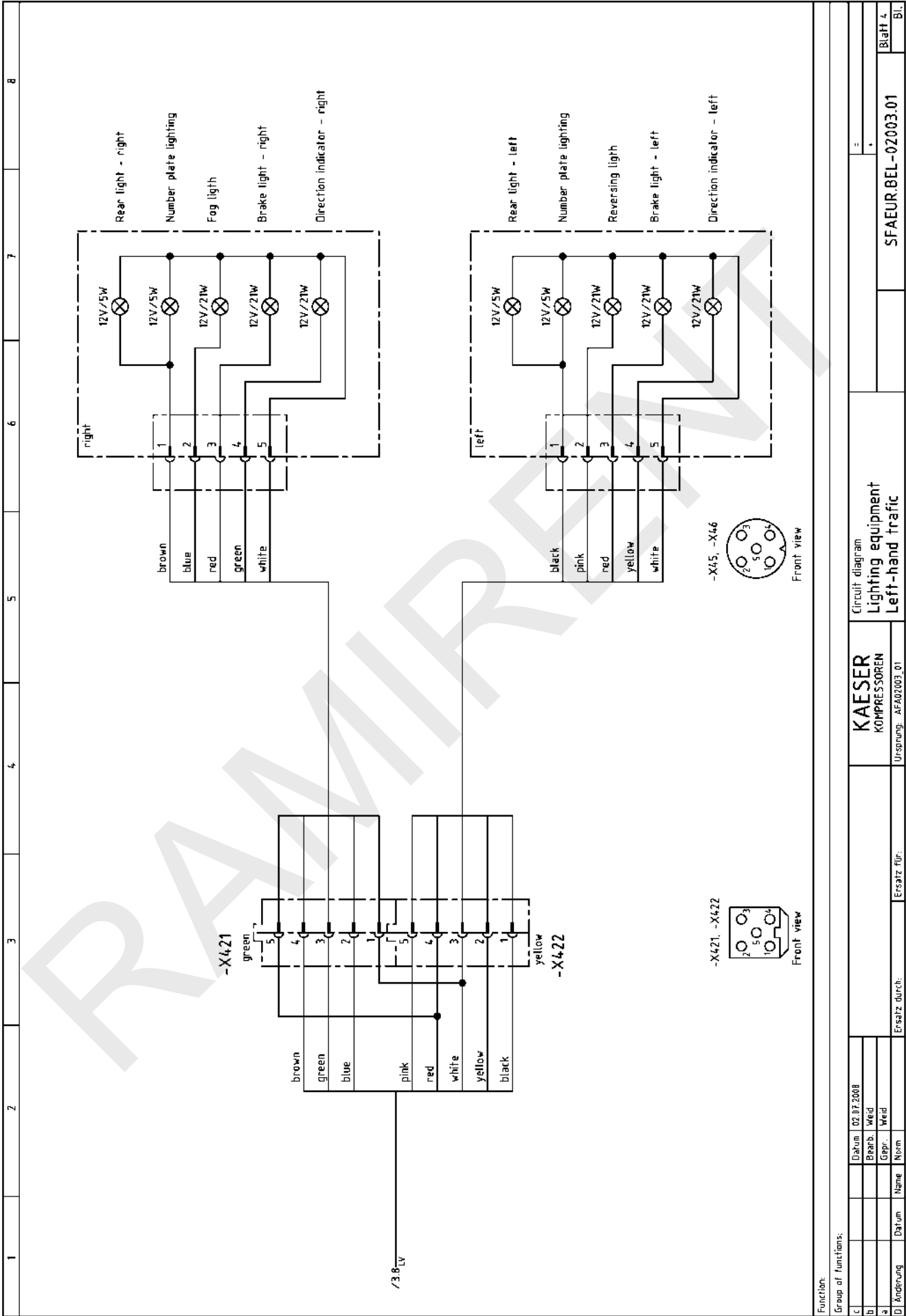
Circuit diagram
Lighting equipment
Right-hand traffic

KAESER
KOMPRESSOREN
Ursprung: AFA02003_01

SFAEUR.BEL-02003.01

Blatt 2





Funktion:	
Group of functions:	
c	Datum 02.07.2008
b	Bearb. Weid
a	Gepr. Weid
d	Änderung Datum Name Norm
Ersatz durch:	
Ersatz für:	

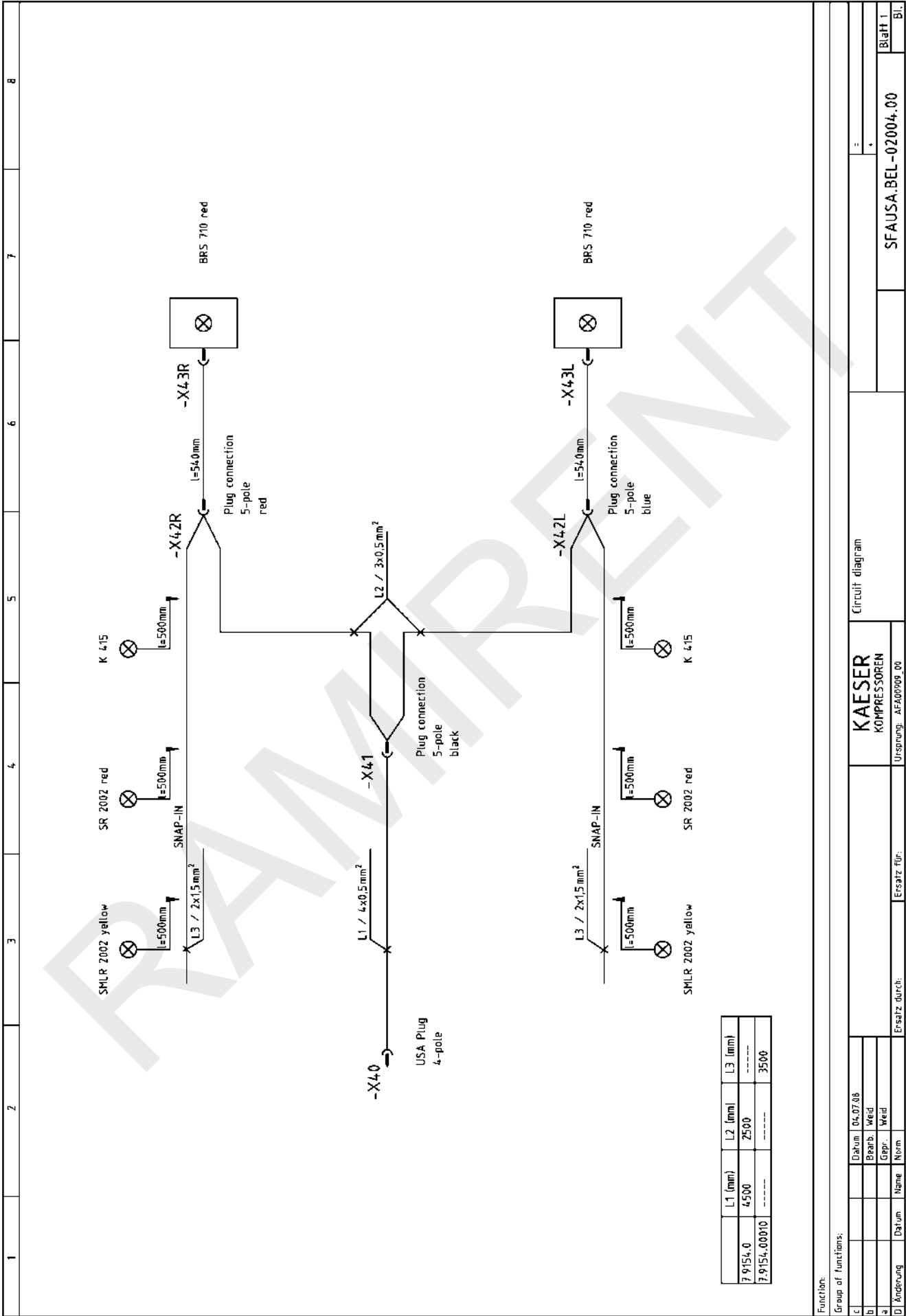
Circuit diagram
Lighting equipment
Left-hand traffic

SFAEUR.BEL-02003.01
Blatt 4
Bl.

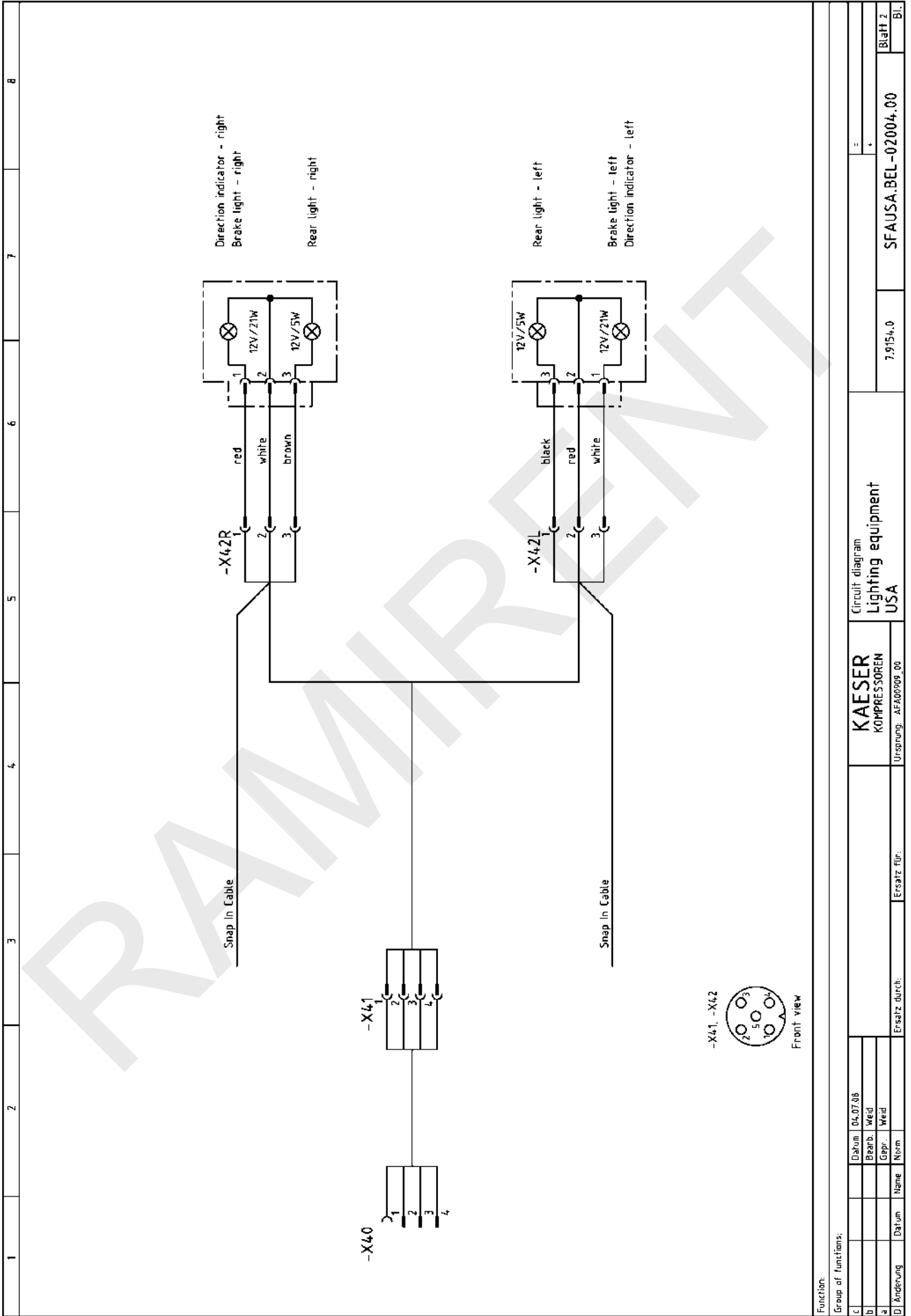
13.4.4 Option te
Lighting and signalling system connection

RAMIRENT

1	2	3	4	5	6	7	8	
<p>Electrical diagrams MOBILAIR Lighting equipment for USA / CAN</p> <p>Manufacturer: Kaeser Kompressoren GmbH Postfach 2143 96410 Coburg</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Datum	06.07/08	E		Kaeser Kompressoren			Cover page
b	Bearb.	Weid			KOMPRESSOREN			MOBILAIR
a	Gepr.	Weid			Ursprung: DFA00909_00			Lighting equipment
d	Änderung	Datum	Name	Ersatz durch:		Ersatz für:		
							DFAUSA.BEL-02004.00	Blatt 1
								Bl.



Funktion:		Circuit diagram	
Group of functions:		KAESER KOMPRESSOREN	
Date:		06.07.08	
Bearb.:		Weid	
Gepr.:		Weid	
Datum:		Name:	
Ersatz durch:		Ursprung: AFA00909_00	
SFAUSA.BEL-02004.00		Blatt 1	
BL		BL	



Fuction:
Group of functions:

l	Datum	06.07/08
b	Bearb.	Weid
a	Gepr.	Weid
D	Änderung	Datum Name Norm

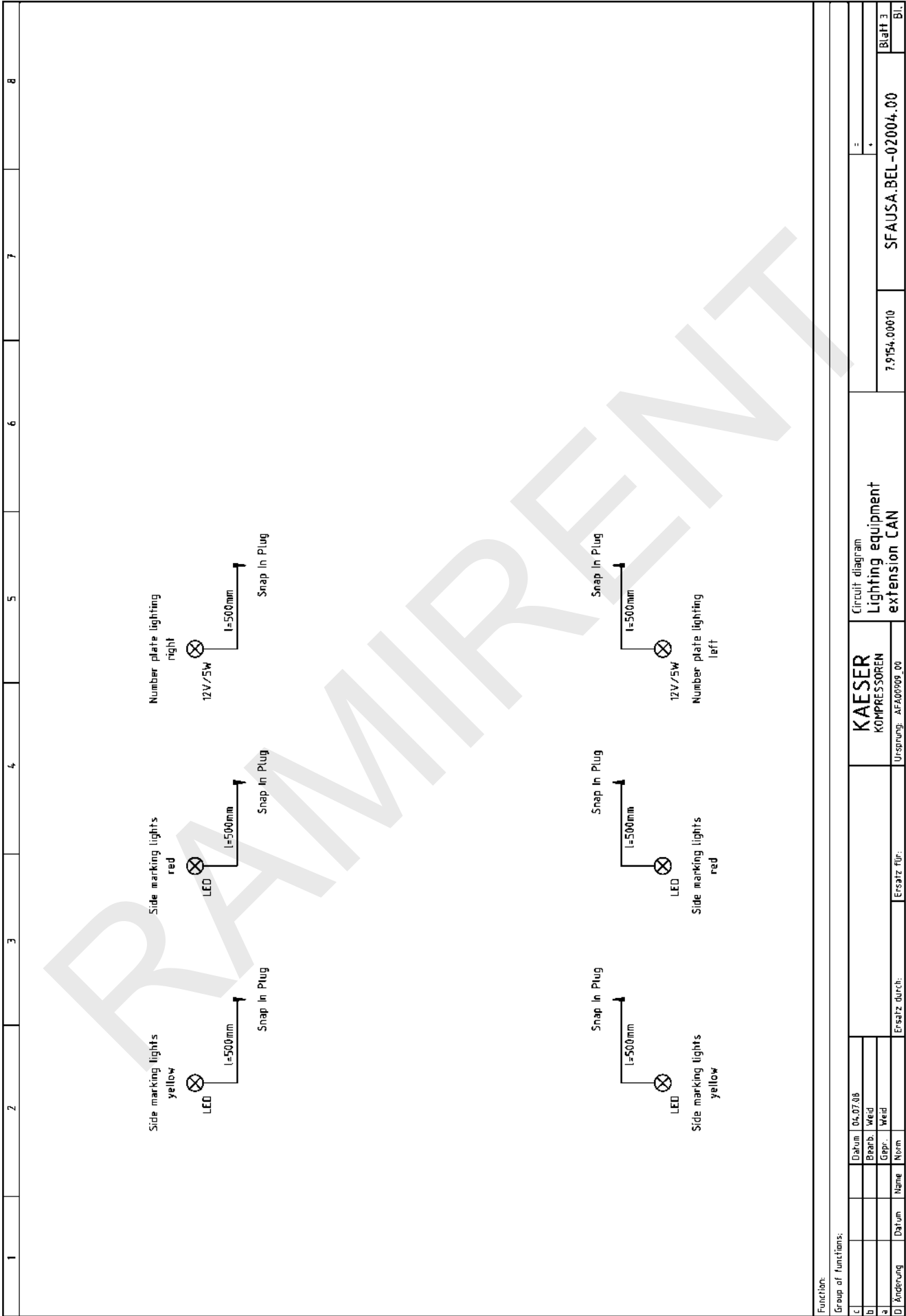
Circuit diagram
Lighting equipment
USA

KAESER
KOMPRESSOREN
Ursprung: AFA00909_00

Ersatz für:

7,9154,0

SFAUSA.BEL-02004.00
Blatt 2
Bl.



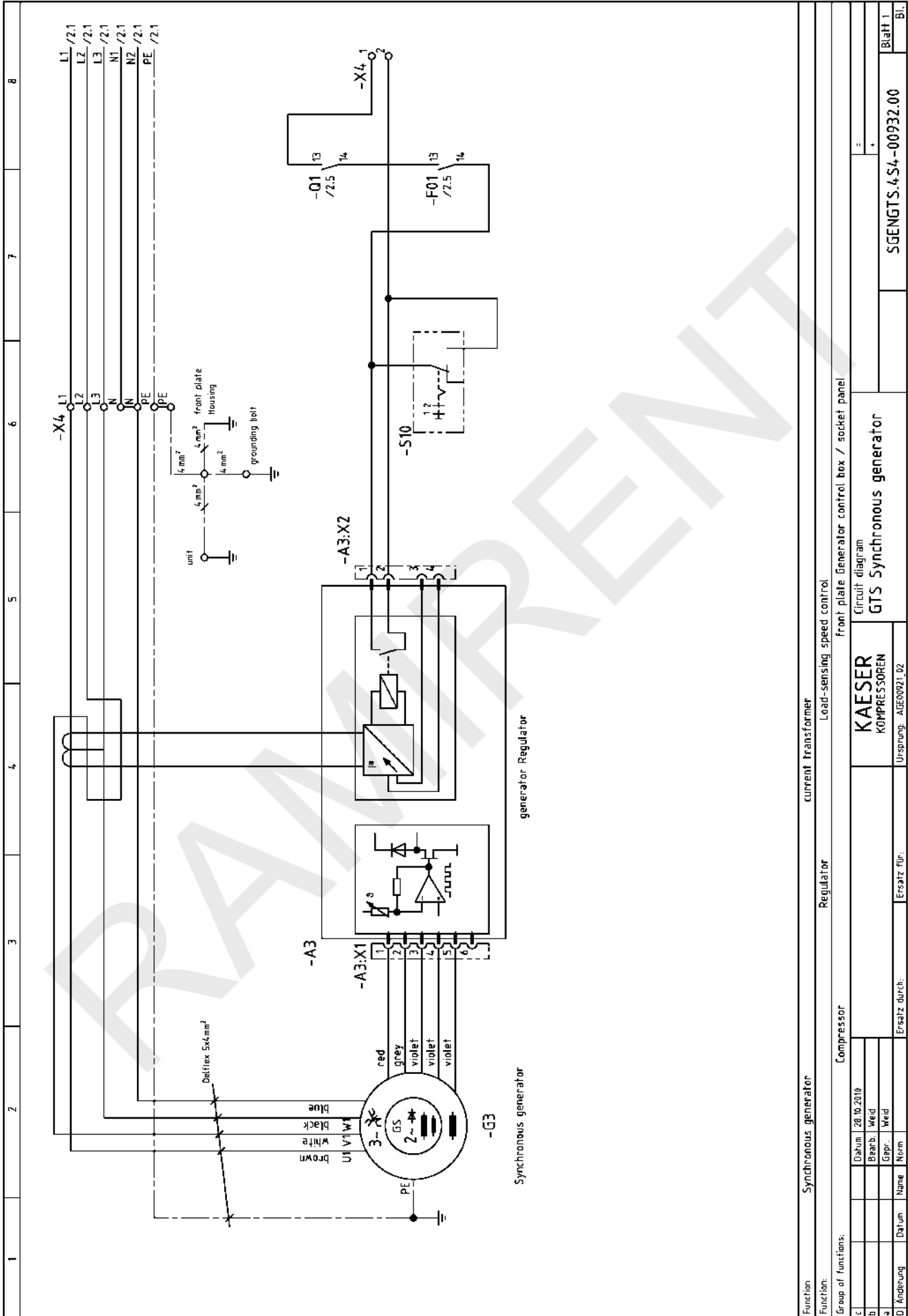
13.4.5 Option ga
Generator electrical diagram, 400V, 3-ph

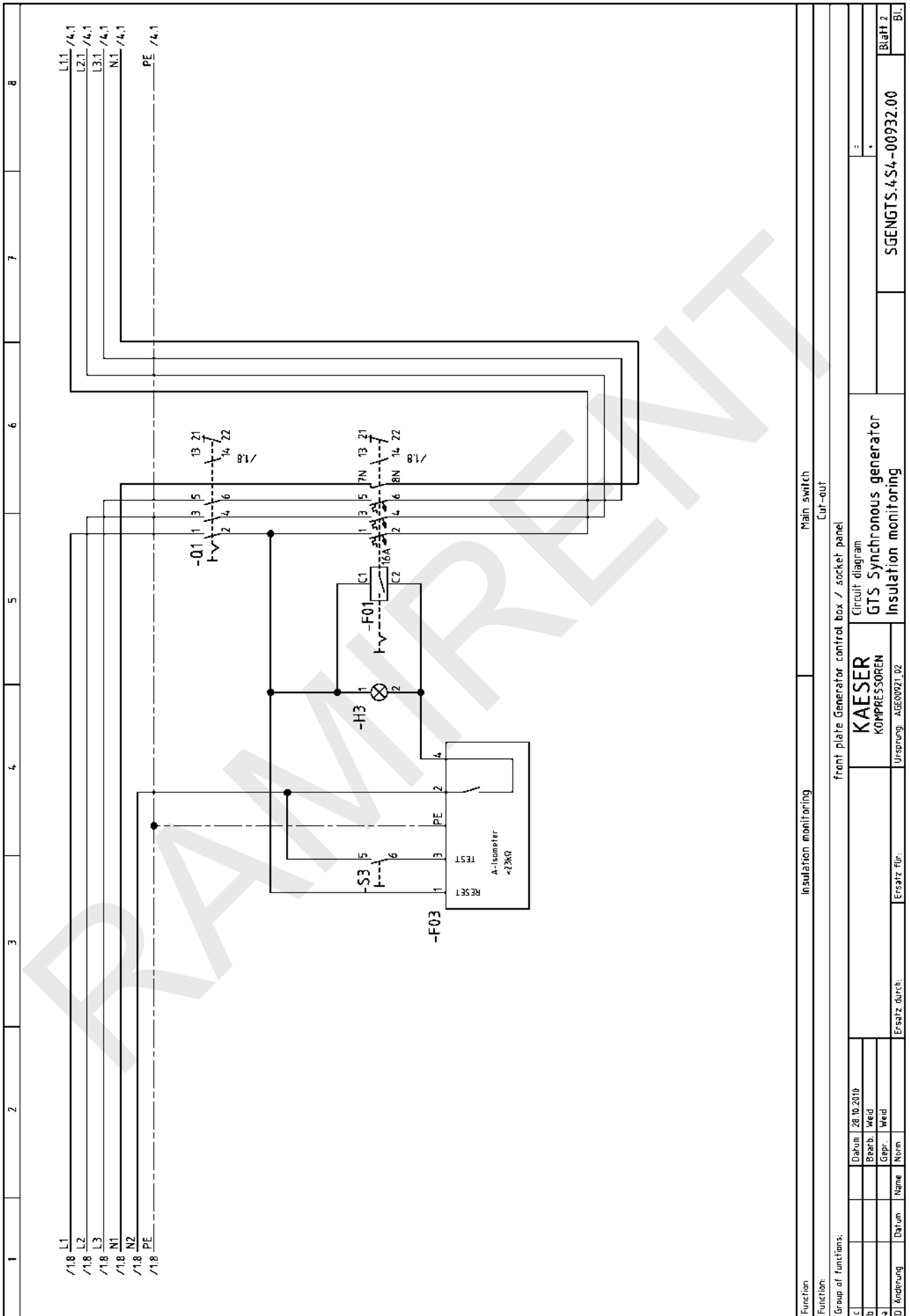
RAMIRENT

1	2	3	4	5	6	7	8
<p>Electrical diagrams</p> <p>Synchronous generator</p> <p>400V/3~/50Hz, 8,5/13 kVA</p> <p>with Insulation monitoring</p>							
<p>Manufacturer: Kaeser Kompressoren GmbH</p> <p>Postfach 2143</p> <p>96410 Coburg</p>							
<p>RAMIRRENT</p>							
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>							
c	Datum	28.10.2010	E				
b	Bearb.	Weid					
a	Gepr.	Weid					
A) Änderung	Datum	Name	Ersatz durch:				
			KAESER		Cover page		
			KOMPRESSOREN		GTS Synchronous generator		
			Ursprung: AUE00921_02		DGENGTS.4.S4-00932.00		
					Blatt 1		
					Bl.		

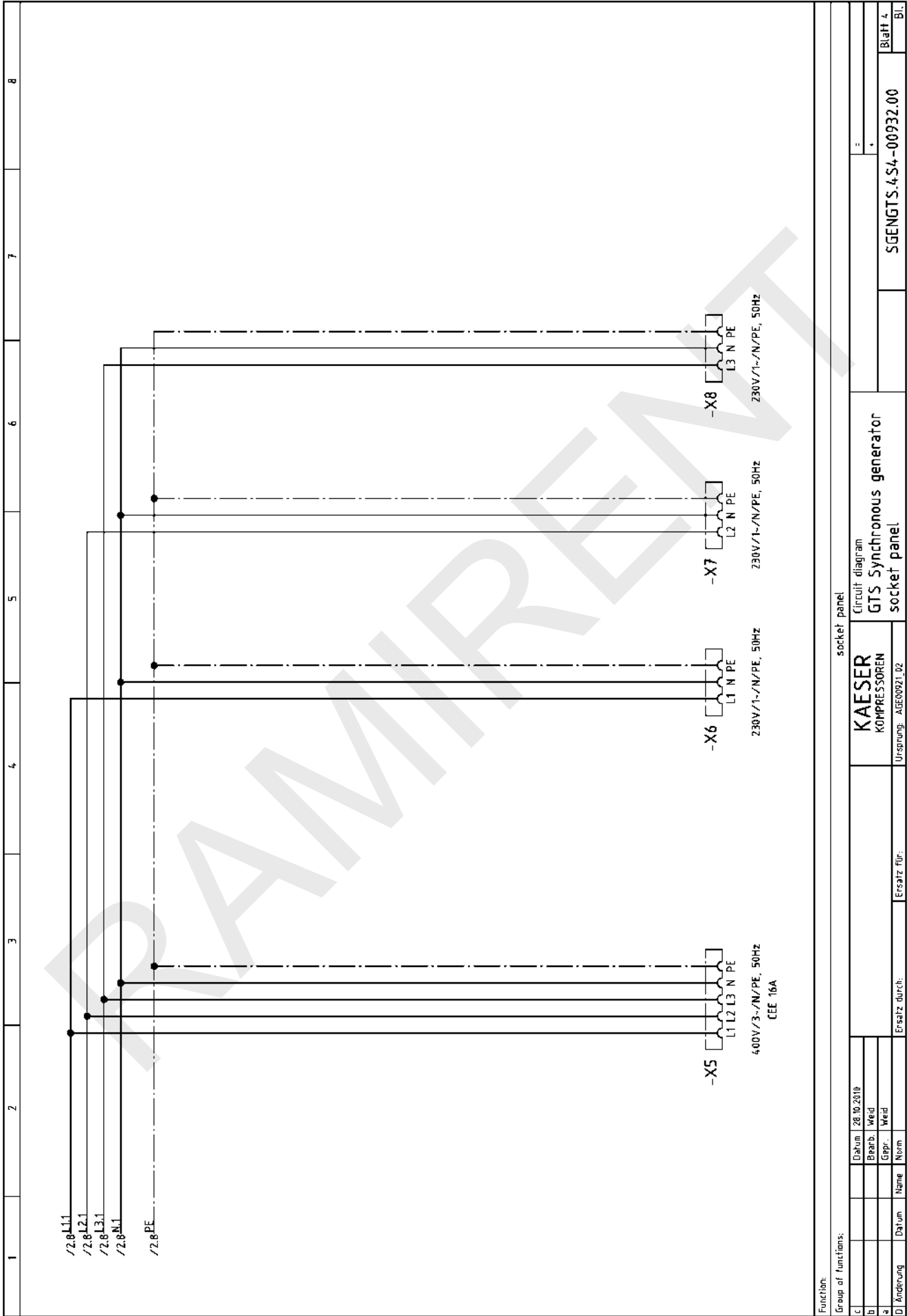
Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGENGTS.4.S4-00932.00	1	
2	List of contents		ZGENGTS.4.S4-00932.00	1	
3	Circuit diagram		SGENGTS.4.S4-00932.00	1	
4	Circuit diagram Insulation monitoring		SGENGTS.4.S4-00932.00	2	
5	Circuit diagram socket panel		SGENGTS.4.S4-00932.00	4	
6	Electrical equipment identification		SGENGTS.4.S4-00932.00	01	
7	Circuit diagram		GGENGTS.4.S4-00932.00	1	
8	Component layout front plate		AEGNGTS.4.S4-00932.00	1	

List of contents		KAESER KOMPRESSOREN Ursprung: AEG00921_02		ZGENGTS.4.S4-00932.00	
Datum: 26.10.2019		Ersatz für:		Blatt 1	
Bearb. Weid		Ersatz durch:		Bl.	
Gepr. Weid					
Norm					

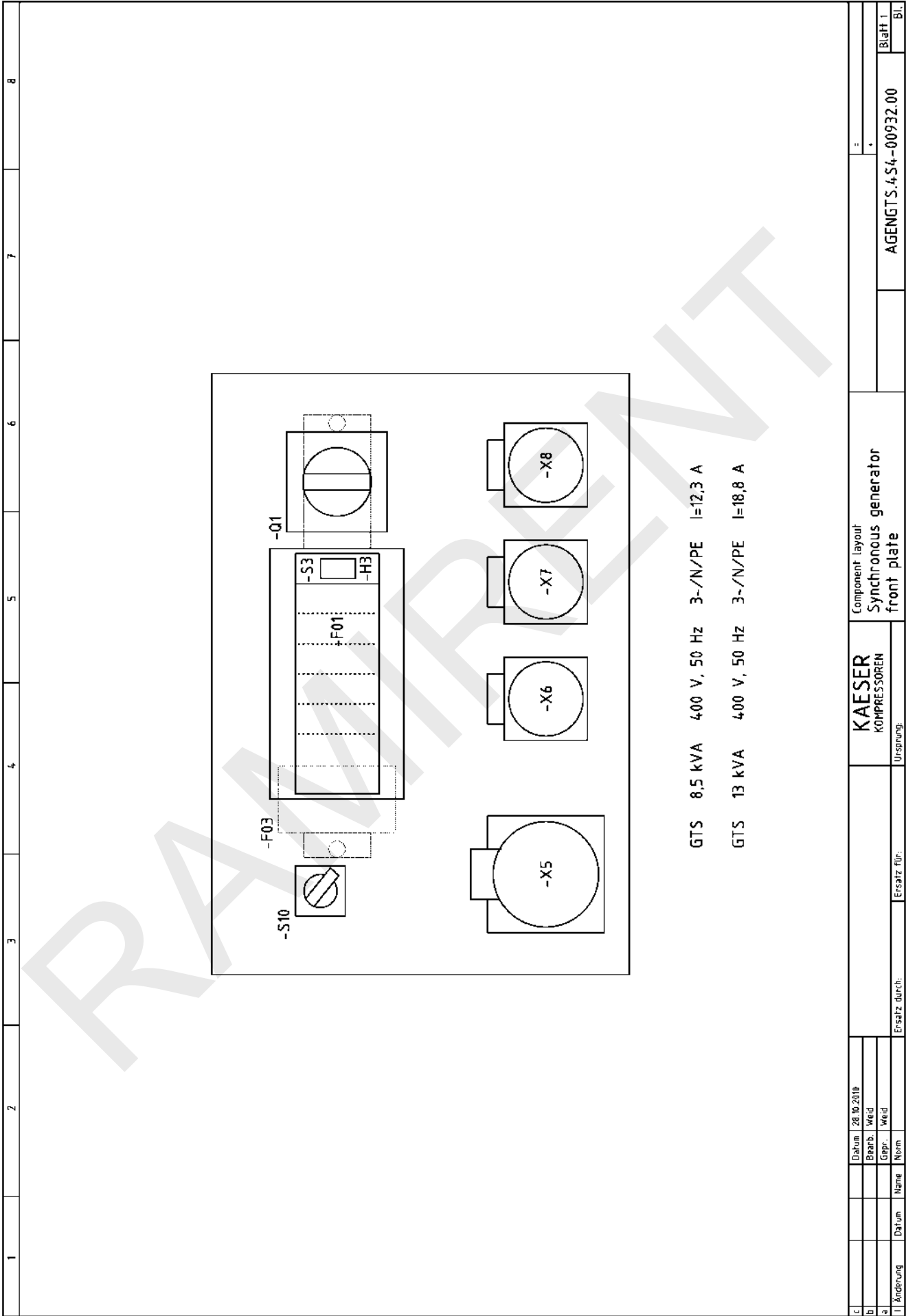




Funktion: Insulation monitoring		Main switch	
Funktion: Insulation monitoring		Cut-out	
Group of functions: front plate Generator control box / socket panel			
KAESE KOMPRESSOREN		Circuit diagram	
GTS Synchronous generator		Insulation monitoring	
Ursprung: AUE00921_02		SGENGT S.4.S4-00932.00	
Ersatz durch:		Blatt 2	
Datum: 28.10.2019		Bl.	
Bearb.: Weid			
Gepr.: Weid			
Datum:			
Name:			
Norm:			



1	2	3	4	5	6	7	8	
		-A3 generator-Regulator						
		-F01 Cut-out with overcurrent release						
		-F03 Insulation monitoring generator						
		-G03 Earth leak lamp						
		-Q1 Main switch						
		-S3 Test button, insulation monitoring						
		-S10 Selector switch						
		-X4 connection generator						
		-X5 Socket outlet 400V/3~/N/PE, 50Hz						
		-X6,-X7,-X8 Socket outlet 230V/1~/N/PE,50Hz						
		-X42 Terminal strip, Valve interference suppression						
c	Datum	28.10.2019						
b	Bearb.	Weid						
a	Gepr.	Weid						
e	Änderung	Datum	Name	Ersatz durch:				
			KAESER KOMPRESSOREN Ursprung: AJE009ZL_D2		Electrical equipment identification GTS Synchronous generator			
							SGENGT S.4.S4-00932.00	Blatt 01
								Bl.



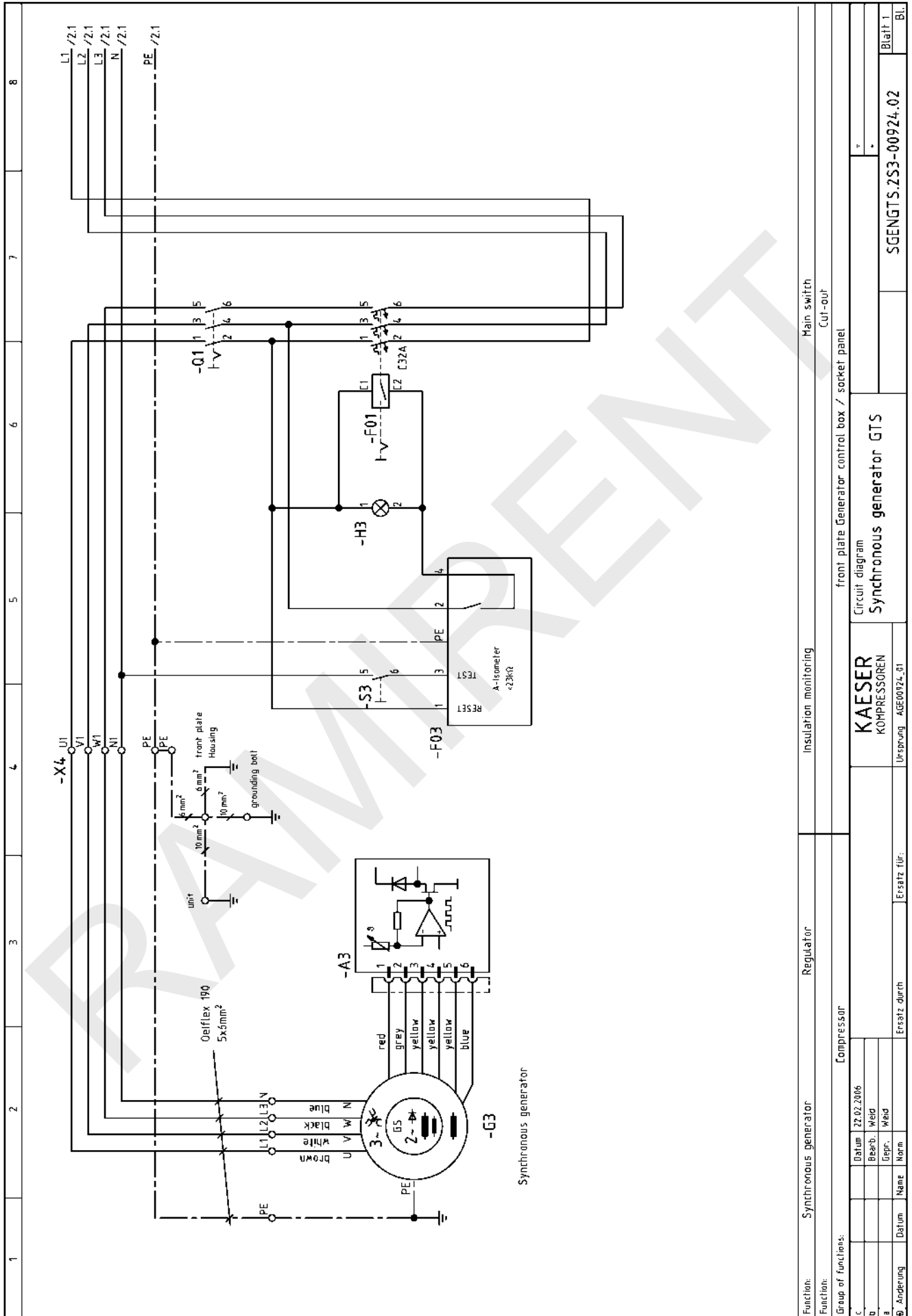
13.4.6 Option ga
Generator electrical diagram, 230V, 3-ph

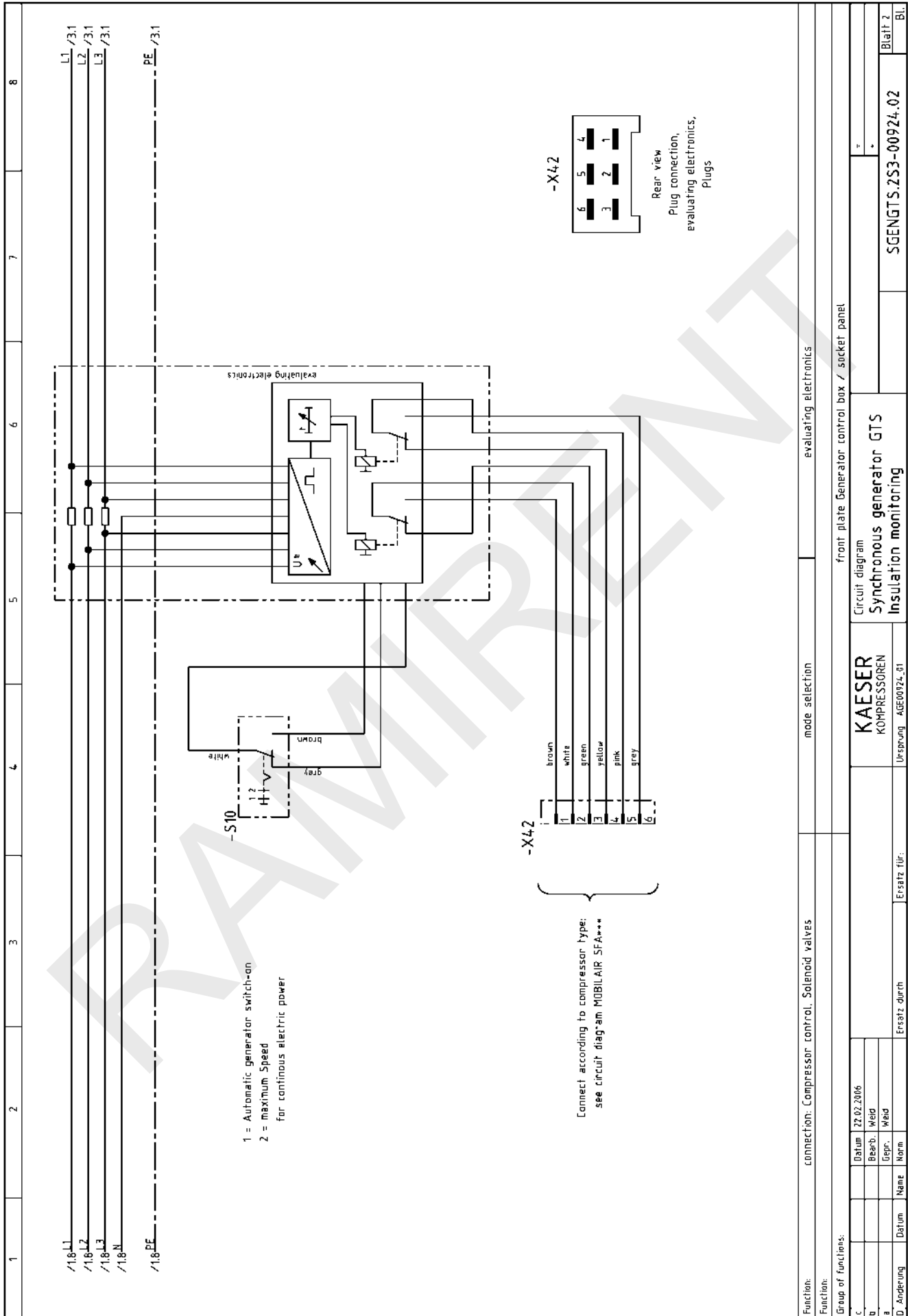
RAMIRENT

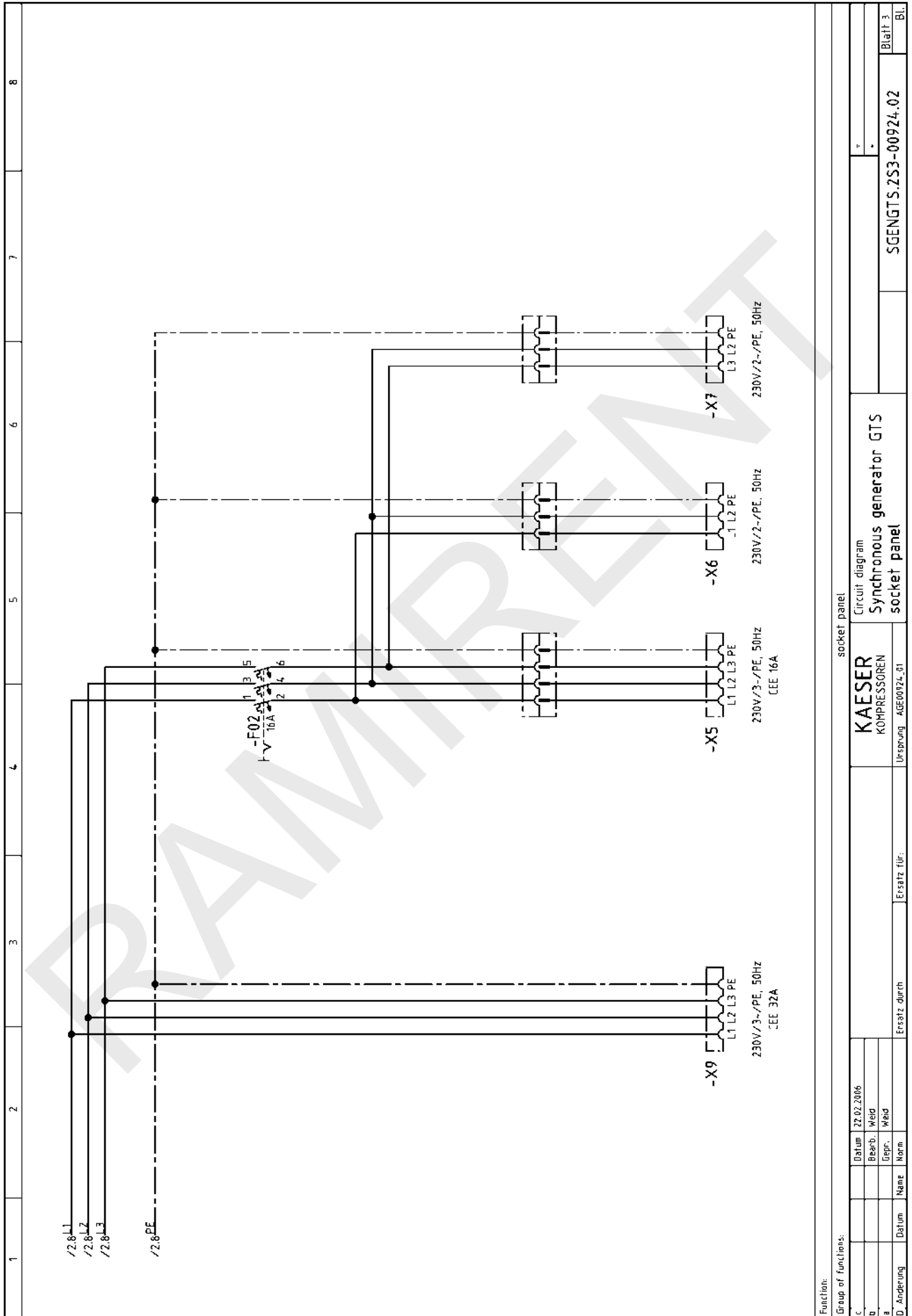
1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>Synchronous generator</p> <p>230V/3~/50Hz, 8,5/13kVA</p> <p>with Insulation monitoring</p>								
<p>Manufacturer: KAESER KOMPRESSOREN SE</p> <p>Postfach 2143</p> <p>96410 Coburg</p>								
<p>RAMMIRENT</p>								
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C.	Datum	22.02.2006	E					
b.	Bearb.	Weld						
a.	Gepr.	Weld						
A. Änderung	Datum	Name	Norm	Ersatz durch		Ersatz für:		
				KAESER KOMPRESSOREN		Cover page		
				Ursprung: AGE0024_01		Synchronous generator GTS		
				DGENGTS.2S3-00924.02		Blatt 1		
						BL		

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGENGTS.ZS3-00924.02	1	
2	List of contents		ZGENGTS.ZS3-00924.02	1	
3	Circuit diagram		SGENGTS.ZS3-00924.02	1	
4	Circuit diagram Insulation monitoring		SGENGTS.ZS3-00924.02	2	
5	Circuit diagram socket panel		SGENGTS.ZS3-00924.02	3	
6	Electrical equipment identification		SGENGTS.ZS3-00924.02	01	
7	Equipment parts list		GGENGTS.ZS3-00924.02	1	
8	Component layout front plate		AGENGTS.ZS3-00924.02	1	

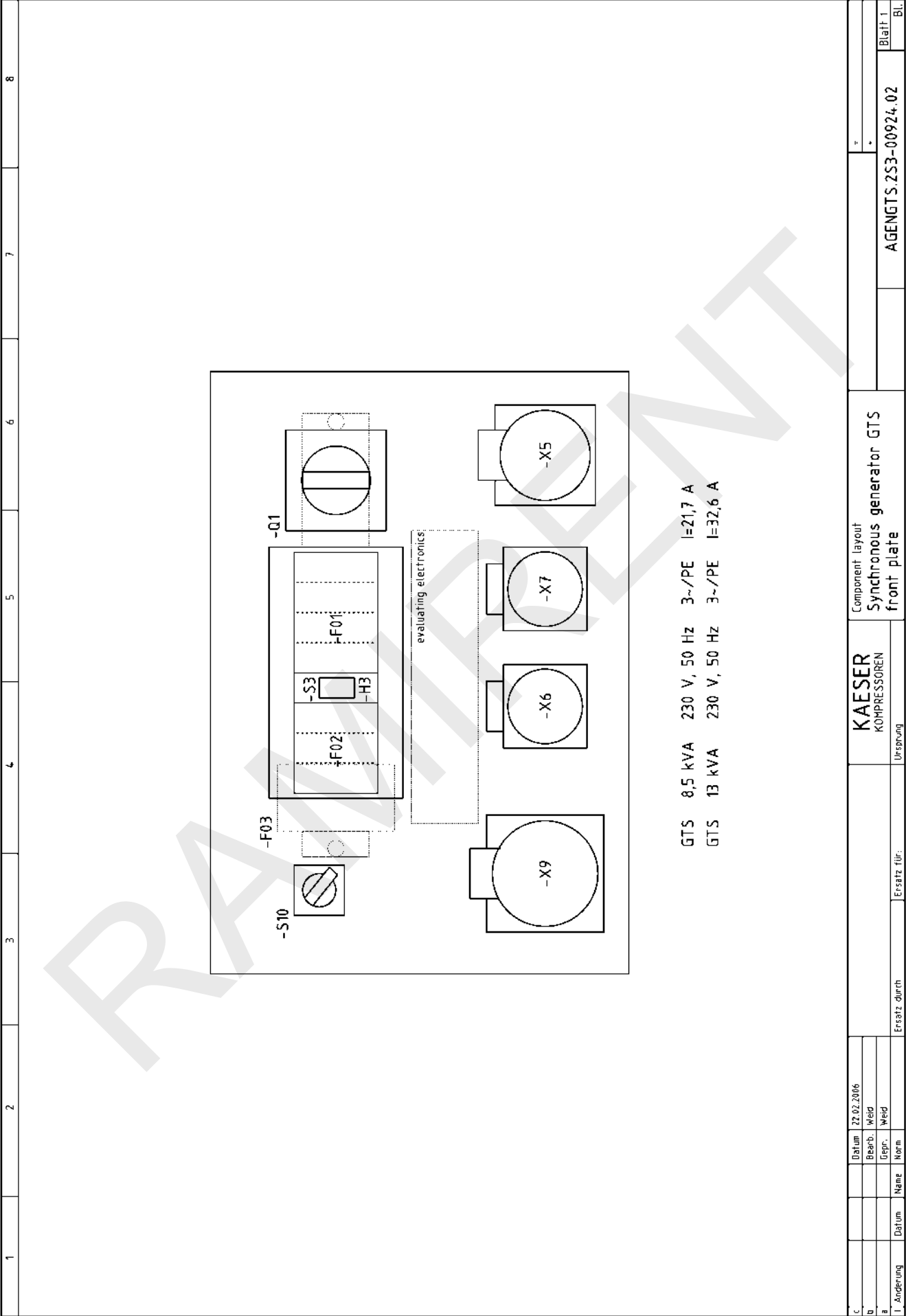
c.	Datum	22.02.2006			List of contents GTS Synchronous generator	ZCENGTS.ZS3-00924.02	Blatt 1
d.	Bearb.	Wied					
a	Gepr.	Wied					
B. Änderung	Datum	Name	Ersatz durch		Ersatz für:		BL







1	2	3	4	5	6	7	8	
		-A3 generator-Regulator						
		-F01 Cut-out with overcurrent release						
		-F02 Cut-out						
		-F03 Insulation monitoring						
		-G3 generator						
		-H03 Earth leak lamp						
		-Q1 Main switch						
		-S3 Test button, insulation monitoring						
		-S10 Selector switch						
		-X4 Generator terminals						
		-X5 Socket outlet 230V/3~/PE, 50Hz 16A						
		-X6,-X7 Socket outlet 230V/2~/PE, 50Hz 16A						
		-X9 Socket outlet 230V/3~/PE, 50Hz 32A						
		-X42 Plug connection, Valve interference suppression						
C.	Datum	22.02.2006						
B.	Bearb.	Weid						
A.	Gepr.	Weid						
E. Änderung	Datum	Name	Ersatz durch		Ersatz für:			
					KAESER KOMPRESSOREN Ursprung: AGE0024_01			
					Electrical equipment identification Synchronous generator GTS			
					SCENGT.S.2S3-00924.02		Blatt 01	
							BL	



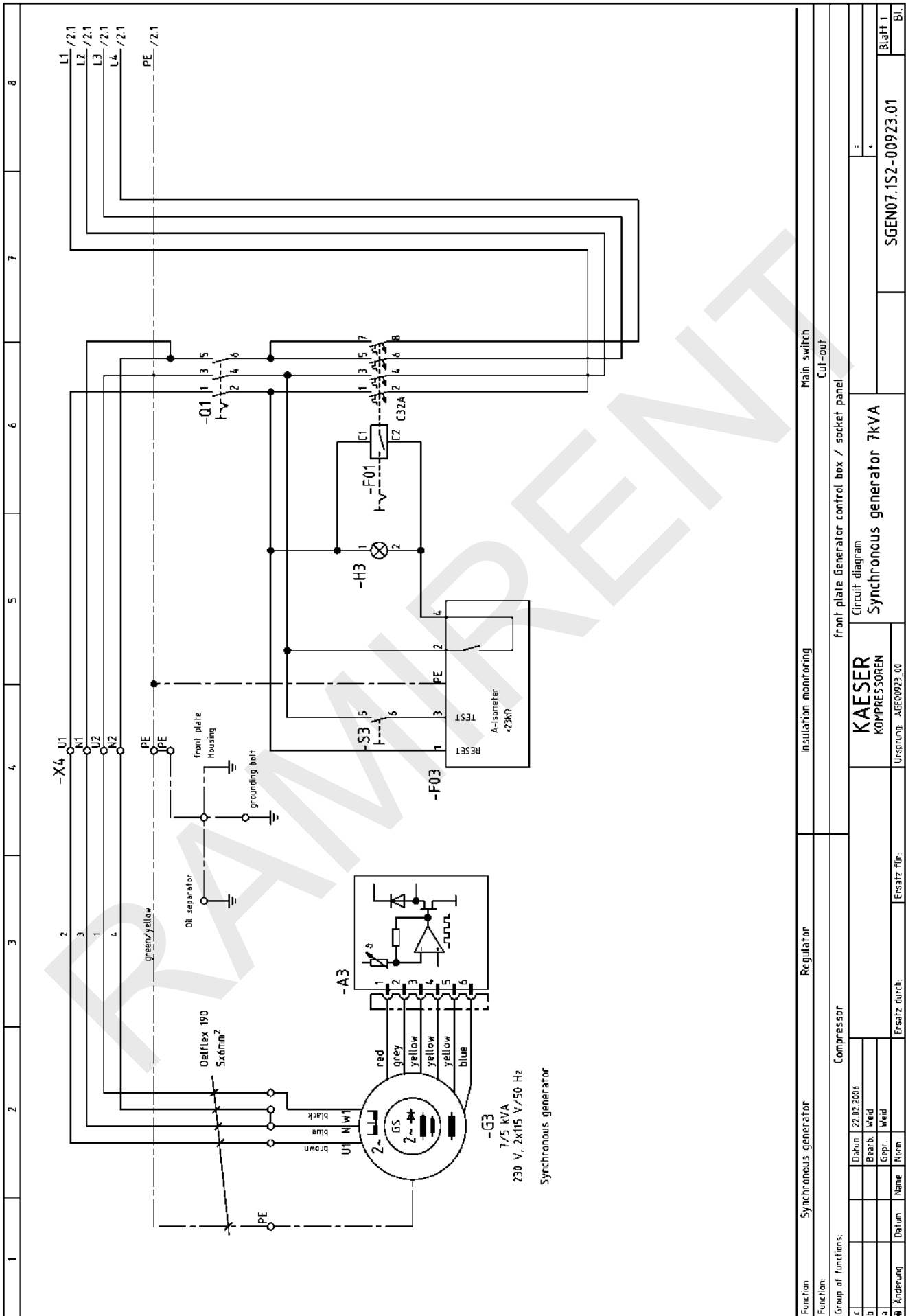
13.4.7 Option ga
Generator electrical diagram, 115V, 2-ph

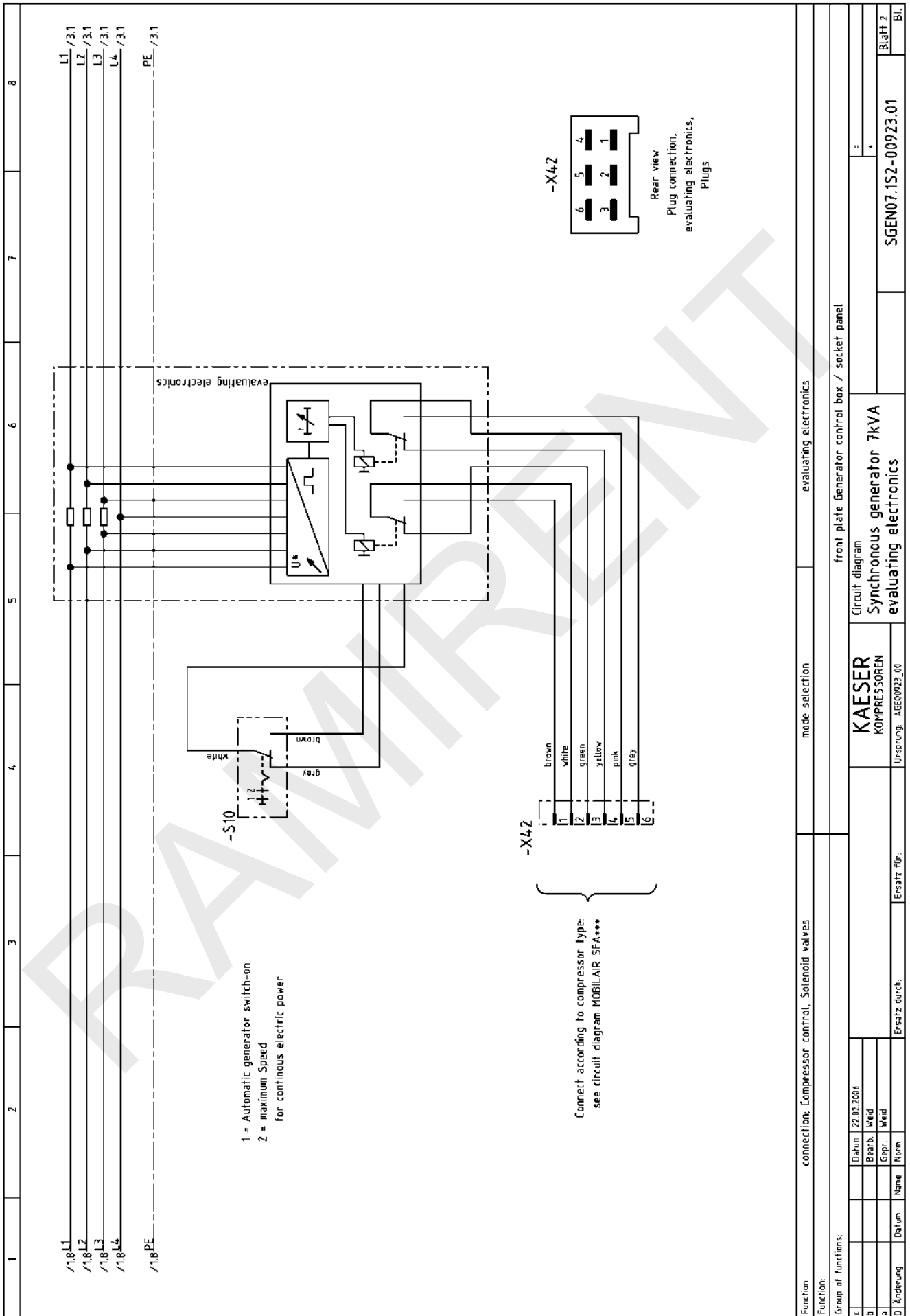
RAMIRENT

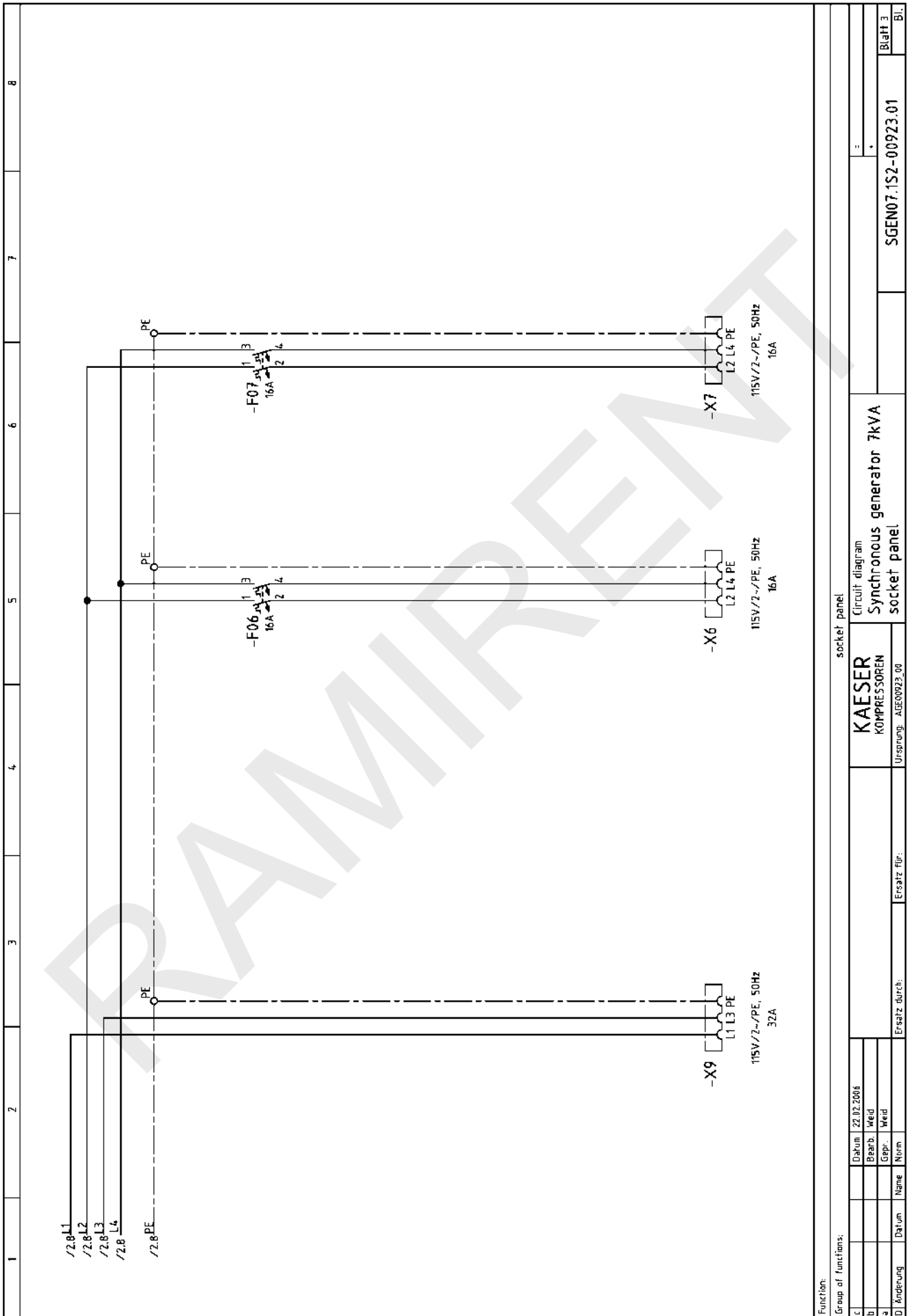
1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>Synchronous generator GTS</p> <p>7/5 kVA, 115 V 50Hz</p> <p>with Insulation monitoring</p>								
<p>Manufacturer: Kaeser Kompressoren GmbH</p> <p>Postfach 2143</p> <p>96410 Coburg</p>								
<p>RAMIRRENT</p>								
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c	Datum	22.02.2006	E	Kaeser Kompressoren				Cover page
b	Bearb. / Weid			KOMPRESSOREN				Portable Compressor
a	Gepr. / Weid			Ursprung: AUE00923_00				Synchronous generator
A / Änderung	Datum	Name	Norm	Ersatz durch:				DGEN07.1S2-00923.01
							Blatt 1	
							Bl.	

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page	Synchronous generator	DGEN07.1S2-00923.01	1	
2	List of contents		ZGEN07.1S2-00923.01	1	
3	Circuit diagram		SGEN07.1S2-00923.01	1	
4	Circuit diagram	evaluating electronics	SGEN07.1S2-00923.01	2	
5	Circuit diagram	socket panel	SGEN07.1S2-00923.01	3	
6	Electrical equipment identification	Electrical equipment identification	SGEN07.1S2-00923.01	01	
7	Circuit diagram		GGEN07.1S2-00923.01	1	
8	Component layout	front plate	AEGEN07.1S2-00923.01	1	

List of contents		List of contents	
GTS Synchronous generator		GTS Synchronous generator	
KAESER KOMPRESSOREN		KAESER KOMPRESSOREN	
Ursprung: AEG00923_00		Ursprung: AEG00923_00	
Ersatz für:		Ersatz für:	
Datum: 22.02.2006		Datum: 22.02.2006	
Bearb. Weid		Bearb. Weid	
Gepr. Weid		Gepr. Weid	
Norm:		Norm:	
Blatt 1		Blatt 1	
ZGEN07.1S2-00923.01		ZGEN07.1S2-00923.01	
Bl.		Bl.	







Fuction:		socket panel	
Group of functions:		socket panel	
c	Datum	22.02.2006	
b	Bearb.	Weid	
a	Gepr.	Weid	
D	Änderung	Datum	Name
Ersatz durch:		Ersatz durch:	
Ursprung: AUE00923_00		KAESE KOMPRESSOREN	
Circuit diagram		Synchronous generator 7kVA	
socket panel		socket panel	
SGEN07.1S2-00923.01		Blatt 3	
Blatt 3		Bl.	

1	2	3	4	5	6	7	8	
		-A3 generator-Regulator						
		-F01 Cut-out with overcurrent release						
		-F06,-F07 Cut-out						
		-F03 Insulation monitoring						
		-G3 generator						
		-H3 Earth leak lamp						
		-Q1 Main switch						
		-S3 Test button, insulation monitoring						
		-S10 Selector switch						
		-X4 Generator terminals						
		-X6,-X7 Socket outlet 115V/2~/PE, 50Hz 16A						
		-X9 Socket outlet 115V/2~/PE, 50Hz 32A						
		-X42 Plug connection, Valve interference suppression						
c	Datum	22.02.2006	Electrical equipment identification					
b	Bearb.	Weid	Synchronous generator GTS					
a	Gepr.	Weid	Electrical equipment identification					
E/Änderung	Datum	Name	Ersatz für:					
			KAESER					
			KOMPRESSOREN					
			Ursprung: AUE00923_00					
			SGEN07.1S2-00923.01					Blatt 01
								Bl.

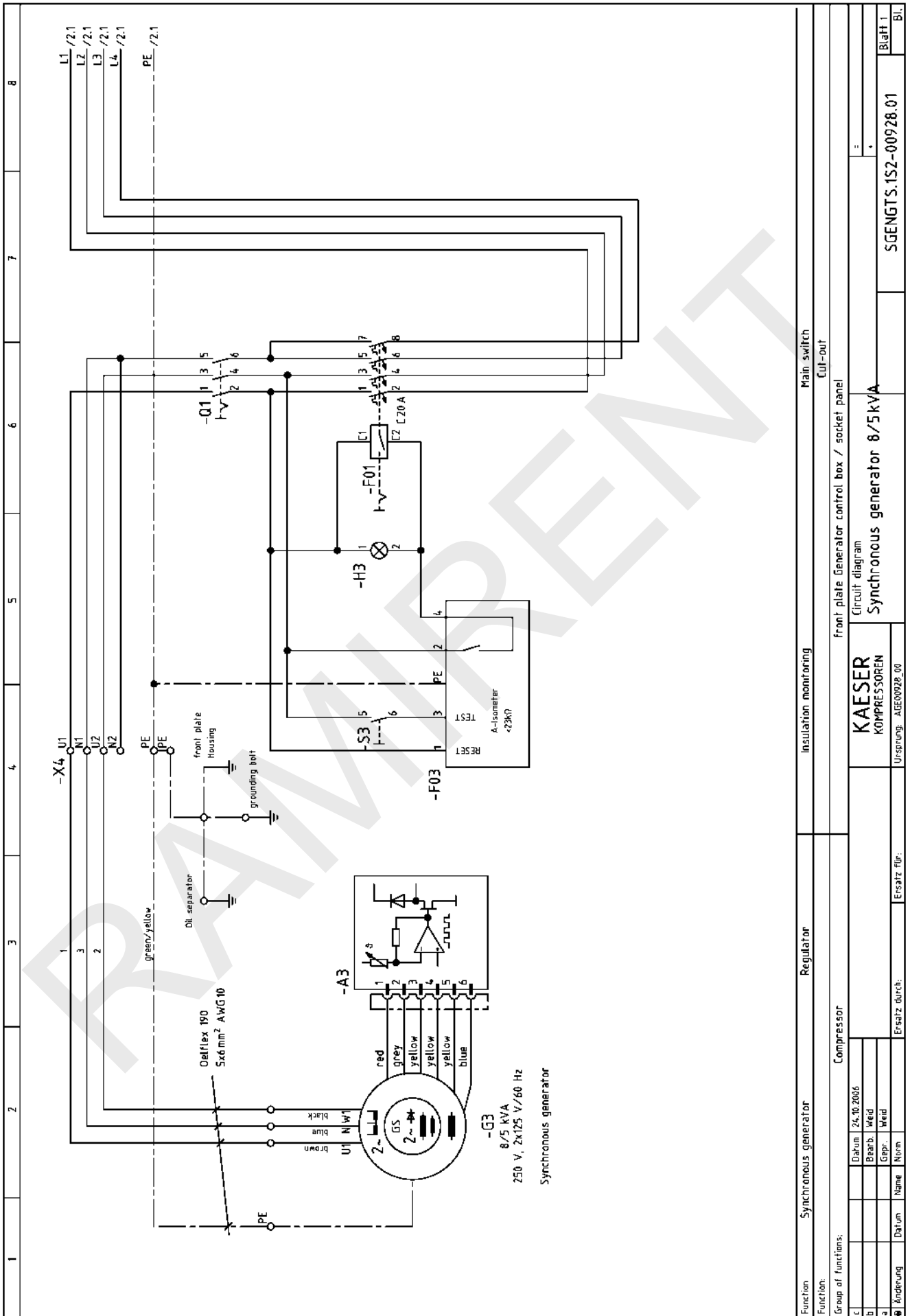
13.4.8 Option ga
Generator electrical diagram, 230V, 2-ph

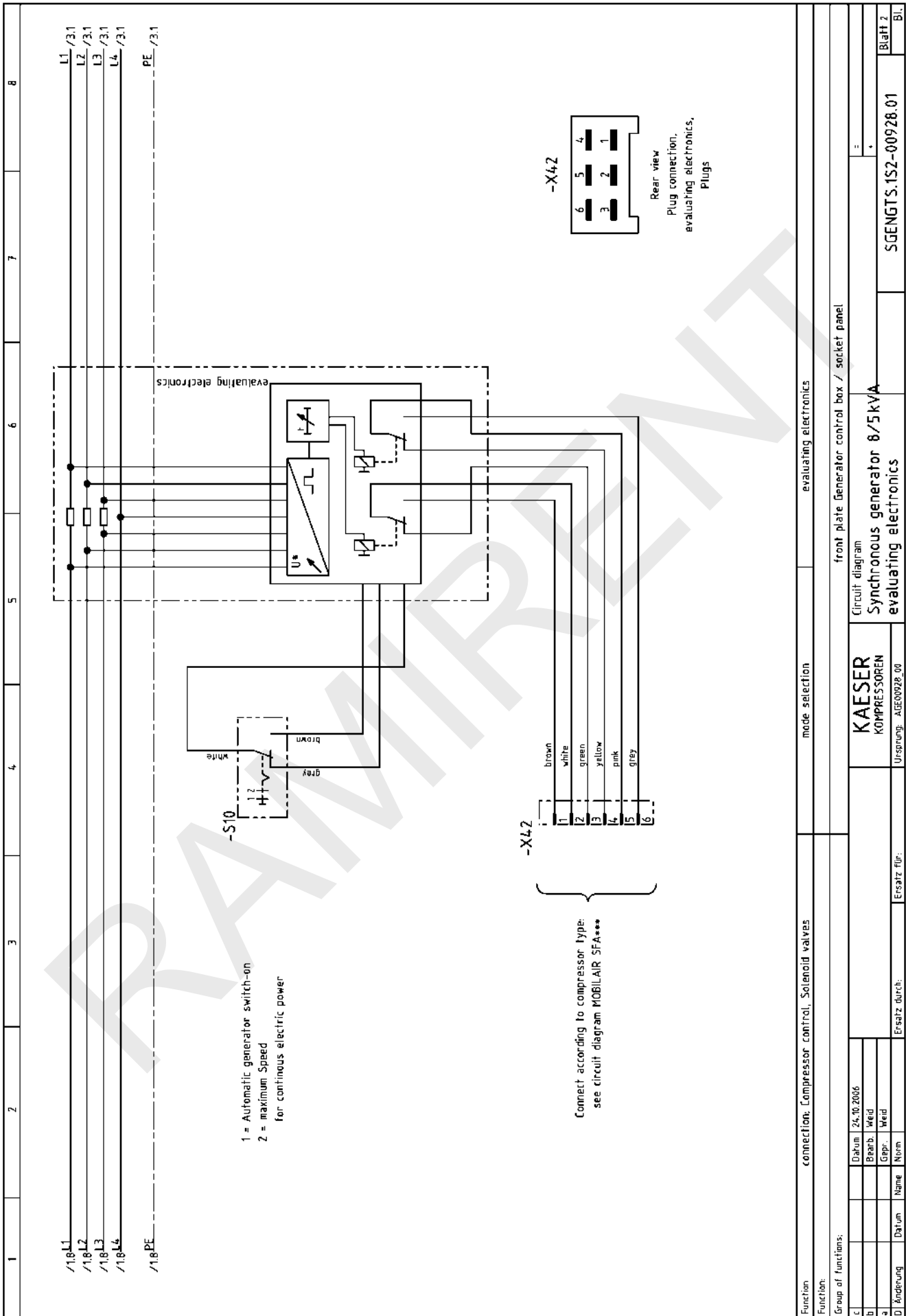
RAMIRENT

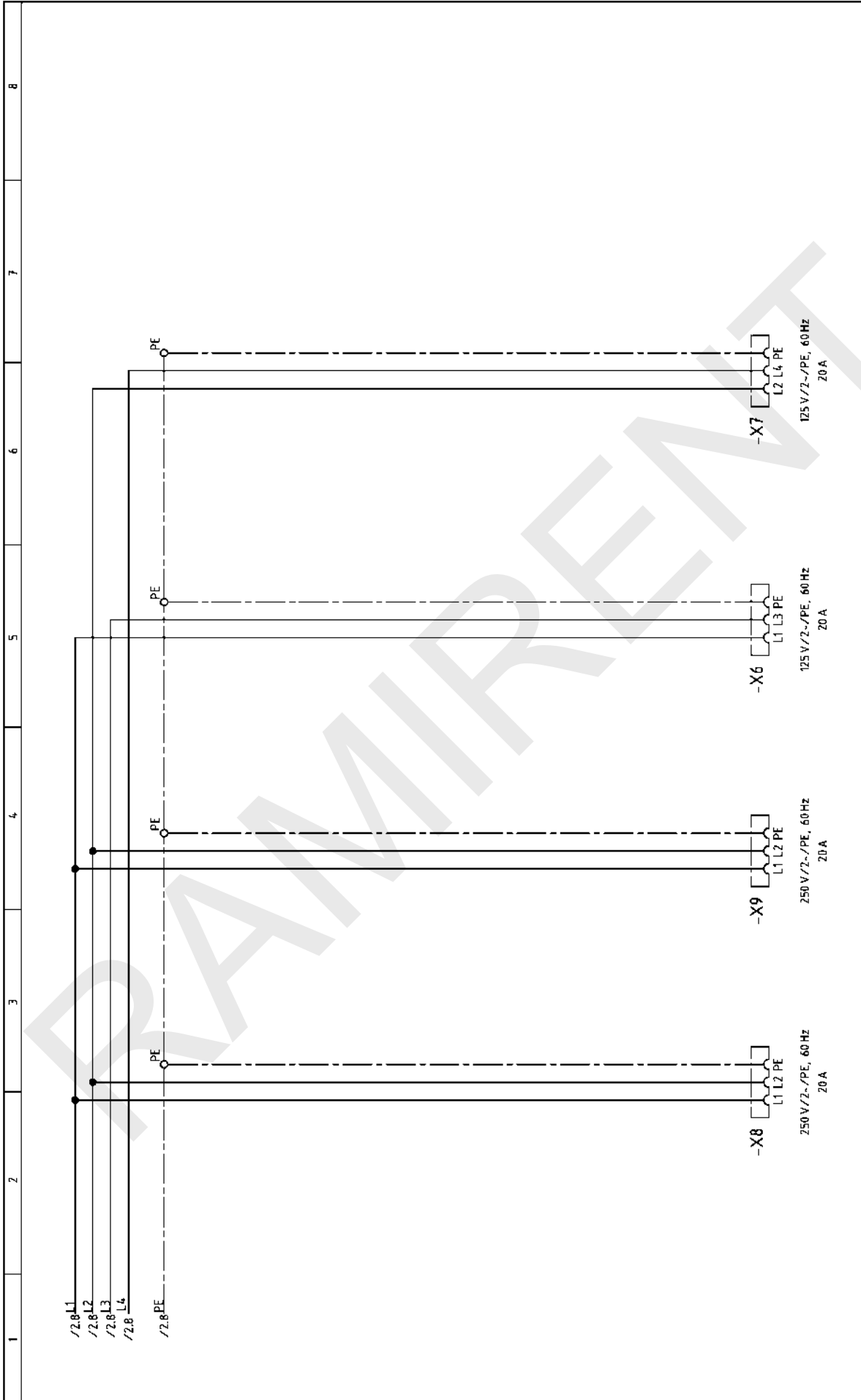
1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>Synchronous generator GTS</p> <p>8/5 kVA, 125/250 V 60Hz</p> <p>with Insulation monitoring</p>								
<p>Manufacturer: Kaeser Kompressoren GmbH</p> <p>Postfach 2143</p> <p>96410 Coburg</p>								
<p>RAMMRENT</p>								
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c	Datum	24.10.2006	E		Cover page			
b	Bearb.	Weid			MOBILAIR			
a	Gepr.	Weid			Synchronous generator			
A	Änderung	Datum	Name	Norm	Ersatz durch:	Ersatz für:	Ursprung: AJEE0028_00	
							OGENGTS.1S2-00928.01	
							Blatt 1	
							Bl.	

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGENGTS.1S2-00928.01	1	
2	List of contents		ZGENGTS.1S2-00928.01	1	
3	Circuit diagram		SGENGTS.1S2-00928.01	1	
4	Circuit diagram evaluating electronics		SGENGTS.1S2-00928.01	2	
5	Circuit diagram socket panel		SGENGTS.1S2-00928.01	3	
6	Electrical equipment identification Electrical equipment identification		SGENGTS.1S2-00928.01	01	
7	Circuit diagram		GGENGTS.1S2-00928.01	1	
8	Component layout front plate		AGENGTS.1S2-00928.01	1	

List of contents		KAESER KOMPRESSOREN Ursprung: AUE00928_00		ZGENGTS.1S2-00928.01	
Datum: 24.10.2006		Ersatz durch:		Blatt 1	
Bearb. Weid		Ersatz durch:		Bl.	
Gepr. Weid		Ersatz durch:		Bl.	
Norm		Ersatz durch:		Bl.	

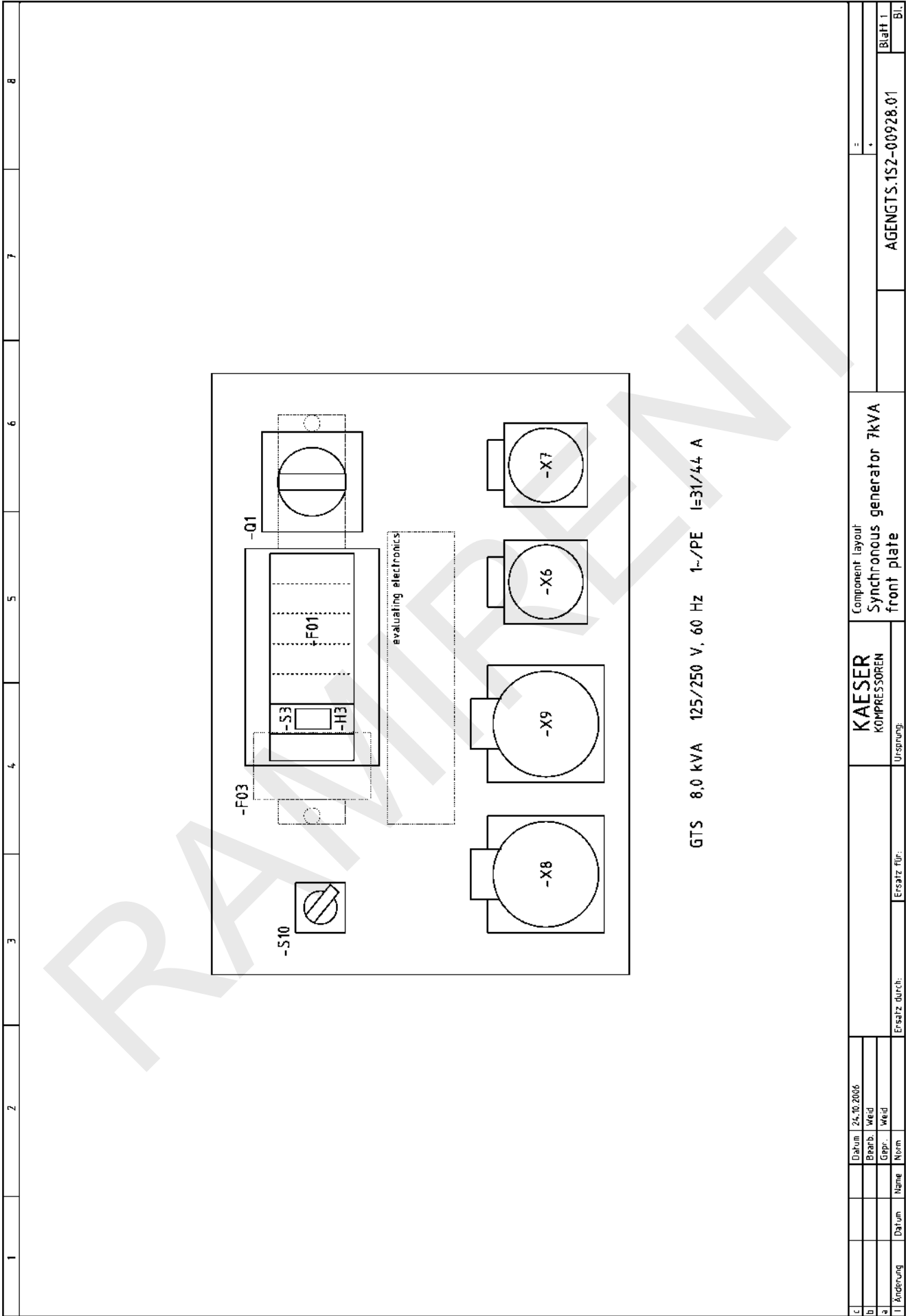






Fuction:		socket panel	
Group of functions:		socket panel	
c	Datum	24.10.2006	
b	Bearb.	Weid	
a	Gepr.	Weid	
D	Änderung	Datum	Name
Ersatz durch:		Ersatz durch:	
Ursprung: AUE00928_00		KAESER KOMPRESSOREN	
Circuit diagram		Synchronous generator 8/5 kVA	
socket panel		socket panel	
SGENGT.S.1S2-00928.01		Blatt 3	
		Bl.	

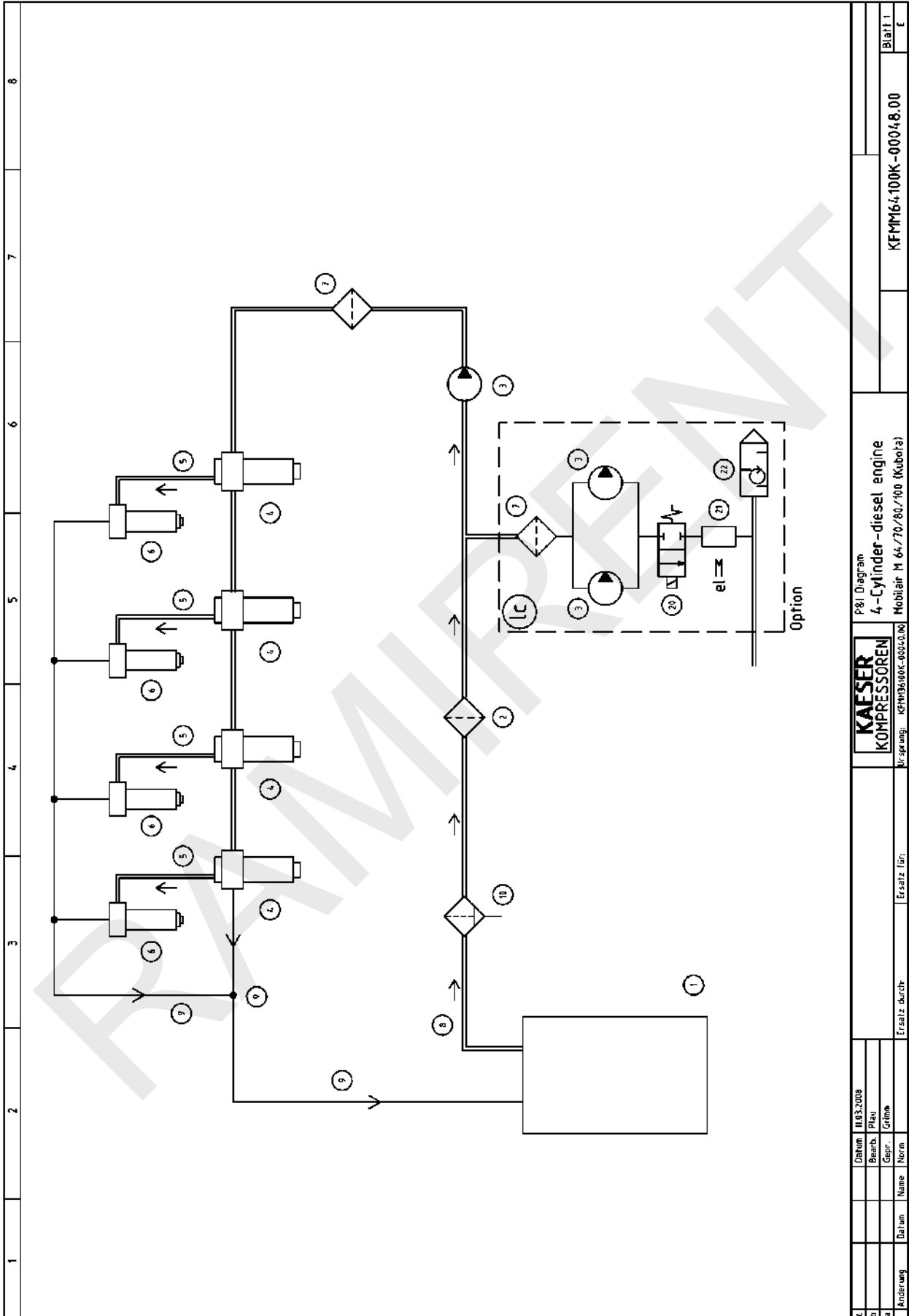
1	2	3	4	5	6	7	8	
		-A3 generator-Regulator						
		-F01 Cut-out with overcurrent release						
		-F06,-F07 Cut-out						
		-F03 Insulation monitoring						
		-G3 generator						
		-H3 Earth leak lamp						
		-Q1 Main switch						
		-S3 Test button, insulation monitoring						
		-S10 Selector switch						
		-X4 Generator terminals						
		-X6,-X7 Socket outlet 125V/2~/PE, 60 Hz 20 A						
		-X8,-X9 Socket outlet 250V/2~/PE, 60 Hz 20 A						
		-X42 Plug connection, Valve interference suppression						
c	Datum	24.10.2006						
b	Bearb.	Weid						
a	Gepr.	Weid						
E/Änderung	Datum	Name	Ersatz durch:					
			KAESER KOMPRESSOREN		Electrical equipment identification			
			Ursprung: AUE00928_00		Synchronous generator GTS			
					Electrical equipment identification			
					SGENGT.S1S2-00928.01			
					Blatt 01			
					Bl.			



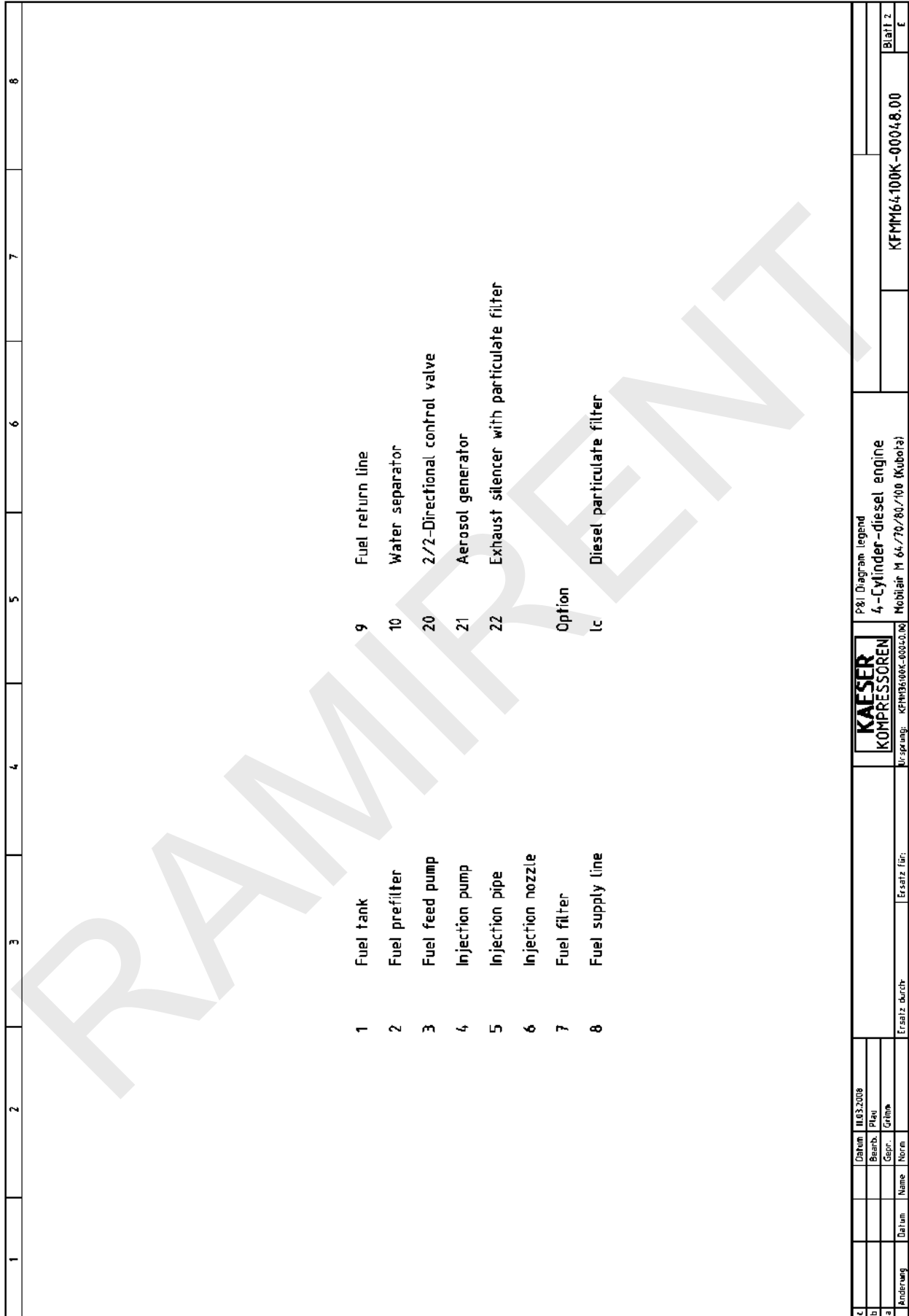
c	Datum	24.10.2006							
b	Bearb.	Weid							
a	Gepr.	Weid							
l	Änderung	Datum	Name	Ersatz durch:					
				AGENGTS.1S2-00928.01					
				Blatt 1					
				Bl.					

13.5 Fuel circulation diagram

RAMIRRENT

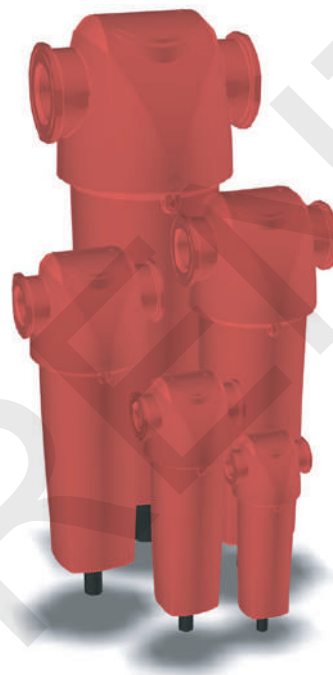


1	2	3	4	5	6	7	8
Date: 11.03.2008		Drawn: Pflau		Checked: Gellens		Blatt: E	
Drawing: KFM135.00K-0000.00		Title: P&I Diagram		Description: 4-Cylinder-diesel engine		Part No.: KFM164.100K-0004.8.00	
Author: Pflau		Checked: Gellens		Approved: (Kobler)		Scale: 1:1	
Date: 11.03.2008		Drawing: KFM135.00K-0000.00		Title: P&I Diagram		Part No.: KFM164.100K-0004.8.00	
Author: Pflau		Checked: Gellens		Approved: (Kobler)		Scale: 1:1	
Date: 11.03.2008		Drawing: KFM135.00K-0000.00		Title: P&I Diagram		Part No.: KFM164.100K-0004.8.00	
Author: Pflau		Checked: Gellens		Approved: (Kobler)		Scale: 1:1	



13.6 Option dd
Operating instructions for compressed air filter (combination filter)

RAMIRENT



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



ENGINEERING YOUR SUCCESS.

FILTER DH-OIL-X EVO AO AA 01-

RAMIRENT

FILTER DH-OIL-X EVO AO AA 01-



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 uitgeoerd, 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 k zraneniu alebo usmrteniu.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést ke zranění nebo usmrcení osob.
- Tóstab esile toimingud või protseduurid, mis võivad teostamisel korral võivad põhjustada kehavigastusi või surma.
- Olyan műveleteket vagy eljárásokat jelöl, amelyek nem megfelelő módon történő végrehajtása súlyos vagy végzetes személyi sérülést okozhat.
- Uzsver darbības vai procedūras, kuru rezultātā, ja tās neveic pareizi, var izraisīt ievainojumus vai nāvi.
- Žymi veiksmus ar procedūras, kuriuos atlikus neteisingai, galima susižeisti ar 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-proceduri, li jekk ma jsirux kif suppost, jista' jkun hemm korrimnt 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 uitgeoerd, schade kunnen berokkenen aan dit product.
- Weist auf Aktionen oder Verfahren hin, die bei fehlerhafter Durchführung zu Schäden am Gerät führen können.
- Met en relief les actions ou procédures qui, si elles ne sont pas exécutées correctement, peuvent endommager ce produit.
- Osoittaa toimenpiteitä tai menettelytapoja, jotka väärin suoritettuina saattavat vaurioittaa tätä laitetta.
- Anger åtgärder och metoder som kan orsaka skador på den här produkten om de inte utförs korrekt.
- Fremhever handlinger eller prosedyrer som kan føre til skade på produktet hvis de ikke utføres på korrekt måte.
- Fremhæver handlinger eller fremgangsmåder, som kan medføre beskadigelse af dette produkt, hvis de ikke udføres korrekt.
- Επισημαίνει τις ενέργειες ή τις διαδικασίες, οι οποίες αν δεν πραγματοποιηθούν σωστά, μπορεί να προκαλέσουν ζημιό στο προϊόν αυτό
- Destaca acciones o procedimientos que, de no realizarse correctamente, pueden ocasionar el deterioro del producto.
- Realça as acções ou procedimentos que, se não forem executados correctamente, poderão danificar este produto.
- Segnala azioni o procedure che, se non eseguite correttamente, comportano il rischio di danneggiare il prodotto.
- Wskazuje działania i procedury, które w razie niewłaściwego wykonania mogą powodować uszkodzenie produktu.
- Zvýrazňuje činnosti alebo postupy, ktoré v prípade nesprávneho vykonania môžu viesť k poškodeniu tohto výrobku.
- Upozornění na činnosti nebo postupy, jejichž nesprávné provádění může vést k poškození tohoto výrobku.
- Tóstab esile toimingud või protseduurid, mis võivad teostamisel korral võivad kääsolestav 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-proceduri, li jekk ma jsirux kif suppost, tista' ssir hsara 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 mănuși adecvate.

- Altijd geschikte handschoenen dragen.
- Le port de gants adaptés est obligatoire.
- Använd lämpliga handskar.
- Der skal anvendes egnede handsker.
- Se deben llevar puestos guantes apropiados.
- Indossare guanti di protezione.
- Je nutné použiť vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvēti tinkamas pirštines.
- Uporabiti je treba ustrezne rokavice.
- Ghandhom jintlibsu ingwanti adatti



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

	<ul style="list-style-type: none"> • Pressure. • Paine. • Πίεση • Ciśnienie • Nyomás alatt. • Tlak 	<ul style="list-style-type: none"> • Druk • Tryck • Presión. • Tlak.. • Spiediens. • Basınc 	<ul style="list-style-type: none"> • Druck. • Trykk • Pressão. • Tlak. • Slėgis. • Pressjoni 	<ul style="list-style-type: none"> • Pression. • Tryk • Pressione. • Surve. • Давление • Presiune.
	<ul style="list-style-type: none"> • Release Pressure. • Évacuacion de pression. • Avlast trykk • Despresurizar. • Ciśnienie spustowe • Surve väljalase • Išleiskite slėgį. • Basıncı Kaldırın 	<ul style="list-style-type: none"> • Druk aflaten. • Vapauta paine. • Aflast tryk • Liberta Pressão. • Uvolnění tlaku. • Engedje ki a nyomást. • Справитть давление • Nehhi l-pressjoni 	<ul style="list-style-type: none"> • Druck ablassen. • Tryckutsläpp. • Εκτόνωση πίεσης • Scaricare la pressione. • Uvolnění tlaku. • Pazeminiet spiedienu. • Sprostitev tlaka. • Depresurizare. 	
	<ul style="list-style-type: none"> • Replace every year • Remplacer tous les ans. • Skift ut hvert år • Sustituir anualmente • Należy wymieniać raz w roku • Asendage igal aastal • Keiskite kartä per metus • Her yıl deęiştirin 	<ul style="list-style-type: none"> • Elk jaar vervangen • Vaihda vuosittain. • Udskift en gang om året • Substituir todos os anos • Každý rok vymieňajte • Evente cserélje • Заменяй каждый год. • Ibdel kull sena 	<ul style="list-style-type: none"> • Jährlich austauschen • Byt varje år • Αντικατάσταση κάθε χρόνο • Sostituire ogni anno • Nutná výměna každý rok. • Nomainiet reizi gadā • Zamenjajte vsako leto. • Inlocuire anuală 	
	<ul style="list-style-type: none"> • Filter housing / Model • Logement du filtre/modèle. • Filterhus/-modell • Caja de filtro/modelo. • Obudowa filtra / model. • Filtri korpus/mudel • Filtro korpusas / modelis • Filtre muhafazası / Model 	<ul style="list-style-type: none"> • Filterhuis / Model • Suodatinkotelo/-malli • Filterhus/modell • Caixa / Modelo do filtro • Kryt filtra / Model • Szűrőház / típus • Корпус фильтра / модель • Kontenitur tal-filtru - Mudell 	<ul style="list-style-type: none"> • Filtergehäuse / Modell • Filterhus/modell • Υποδοχή/μοντέλο φίλτρου • Corpo del filtro / Modello • Kryt filtru / Model • Filtra korpus / modelis • Ohšje filtra / Model • Carcasă filtru / Model 	
	<ul style="list-style-type: none"> • High efficiency filter element • Hochleistungselement • Tehokas suodatinelementti • Høyeffektivt filterelement • Φίλτρο υψηλής απόδοσης • Elemento do filtro de elevado rendimento • Wysokowydajny wkład filtra • Wysoce účinný filtrační prvek • Nagy hatékonyságú szűrőelem • Labai efektyvus filtravimo elementas • Visoko učinkovit filtrirni element • Element tal-filtru b'effiċjenza kbira 	<ul style="list-style-type: none"> • Zeer efficiënt filterelement • Cartouche filtrante haute efficacité. • Høgeffektivt filterelement • Høgeffektivt filterelement • Elemento filtrante de gran eficiencia. • Elemento filtrante ad alta efficienza • Vysoko účinný filtrační článok • Kőrgtőotlik filterelement • Augstas produktivitātes filtra elements • Высокоэффективный фильтрующий элемент • Yüksek etkinlikli filtre öğesi • Element filtrant cu eficiență ridicată 		
	<ul style="list-style-type: none"> • Ensure correct tool is used • Zorg dat het juiste gereedschap wordt gebruikt • Vérifier que les outils adéquats sont utilisés. • Se till att rätt verktyg används. • Sørg for at benytte korrekt værktøj • Asegúrese de que se utiliza la herramienta adecuada • Assicurarsi di utilizzare l'utensile corretto • Uistíte sa, že používate správny nástroj • Tagage õige tööriista kasutamise • Izmantojiet tikai atbilstošus darbarīkus • Убедитесь, что используется правильный инструмент • Doğru alet kullanılması sağlayın 	<ul style="list-style-type: none"> • Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käyttävä oikeaa työkalua • Pass på at korrekt verktoy brukes • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο • Certifique-se de que é utilizada a ferramenta correcta • Należy używać odpowiedniego narzędzia. • Zkontrolujte použití správného nástroje • Mindig a célnak megfelelő szerszámot használja • Isitinkite, kad naudojamais reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun žgur li tintuža l-ghodda t-tajba • Asigurați-vă că este utilizată scula corectă 		
	<ul style="list-style-type: none"> • Next service date (month/year) • Nächster Wartungstermin (Monat/Jahr) • Seuraava huollon päivämäärä (kuukausi/vuosi) • Neste servicedato (månad/år) • Επόμενη ημερομηνία σέρβις (μήνας / έτος) • Data da próxima intervenção técnica (mês / ano) • Data następnego serwisu (miesiąc/rok) • Datum příští prohlídky (měsíc / rok) • Következő szerviz dátuma (hó / év) • Kitos techninės priežiūros data (mėnuo / metai) • Datum naslednjega servisa (mesec / leto) • Id-data tas-servis li jmiss (xahar / sena) 	<ul style="list-style-type: none"> • Volgende onderhoudsdatum (maand / jaar) • Date de la prochaine révision (mois/année) • Nästa servicedatum (månad/år) • Næste servicedato (månad/år) • Fecha de siguiente revisión (mes/año) • Prossimo intervento di assistenza (mese / anno) • Dátum nasledujúcej opravy (mesiac/rok) • Järgmise hoolduse kuupäev (kuu / aasta) • Nākamais apkopes datums (mēnesis / gads) • Дата следующего обслуживания (месяц/год) • Bir sonraki servis tarihi (ay / yıl) • Data următoarei vizite de service (lună/an) 		

**Warning!**

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

Retain this user guide for future reference

Waarschuwing!

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

Bewaar deze handleiding als naslag.

Warnung!

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

Bewahren Sie die Bedienungsanleitung zu Referenzzwecken auf.

Attention !

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

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

Varoitus!

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

Säilytä tämä käyttöohje tulevaa tarvetta varten.

Varning!

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

Behåll denna användarhandbok som referens

Advarsel!

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

Ta vare på denne brukerveiledningen for senere bruk

Advarsel!

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

Gem denne vejledning til senere reference.

Προειδοποίηση!

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

Φυλάξτε αυτό το εγχειρίδιο χρήσης για μελλοντική αναφορά

Advertencia

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

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

Advertência!

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

Conserve este guia do utilizador para referência futura

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

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 výrobek musí být nainstalovaný a udržovaný 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 pooblašteni delavci, ki morajo pri tem strogo upoštevati navodila za uporabo, vse standarde in zakonske zahteve, ki veljajo za posamezno situacijo.

Shranite ta navodila za uporabo za v prihodnje

Dikkat!

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

Bu kullanım kılavuzunu ileride başvurmak için saklayın.

Twissija!

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

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

Vertizare!

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

Păstrați acest ghid al utilizatorului pentru consultări ulterioare

Index

- **Index** • Stichwortverzeichnis • **Index** • Sisältö • **Index** • Innholdsfortegnelse • **Indeks** • Ευρετήριο • **Índice** • Índice • **Indice** • Skorowidz
- Obsah • Rejstřík • Register • Index • Saturs • Turinys • Указатель • Kazalo • **Dizin** • **Indiçi** • **Index**

1. Technical Specification

- **Technische specificaties** • Technische Angaben • **Caractéristiques techniques** • Tekniset tiedot • **Tekniska specifikationer**
- **Tekniske spesifikasjoner** • **Tekniske specifikationer** • **Τεχνικές προδιαγραφές** • **Especificaciones técnicas** • **Especificações Técnicas**
- **Caratteristiche tecniche** • Dane techniczne • **Technická špecifikácia** • **Technická specifikace** • Tehnilised andmed • Műszaki adatok
- Tehniskā specifikācija • Techninė specifikacija • **Технические характеристики** • Tehnične specifikacije • **Teknik Spesifikasyon**
- **Specifikazzjoni Teknika** • **Specificație tehnică**

2. Installation Recommendations

- **Installatie** • Installation • **Installation** • Asennus • **Installation** • Innstallasjon • **Installation** • Εγκατάσταση • **Instalación** • Instalação
- **Installazione** • Zalecenia dotyczące instalacji • Odporúčania ohľadom inštalácie • Doporučení ohledně instalace • Paigaldussoovitused
- Telepítési követelmények • Isteikumi uzstādīšanai • Montavimo rekomendacijos • Рекомендации по установке
- Priporočila za namestitve • **Kurma Konusunda Tavsiyeler** • **Rakkomandazzjonijiet għall-Installazzjoni** • **Recomandări de instalare**

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** • **Pornire și funcționare**

4. Accessories

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

5. Spare Parts (Service Kits)

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

6. Maintenance

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

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

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

1. Technical Specification

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- Tehniskā specifikācija • Tehninē specifikācija • Технические характеристики • Tehnične specifikacije • Teknik Spesifikasyon
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Model	Pipe Size	L/s	m ³ /min	m ³ /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

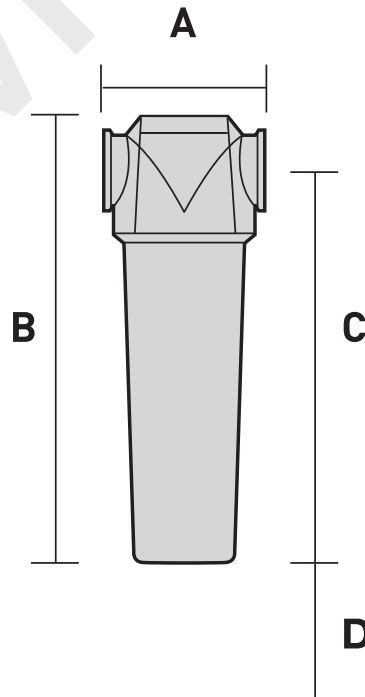
— N = NPT

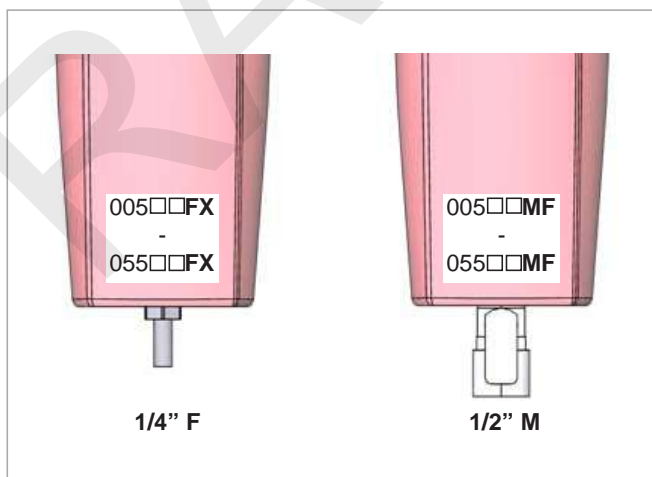
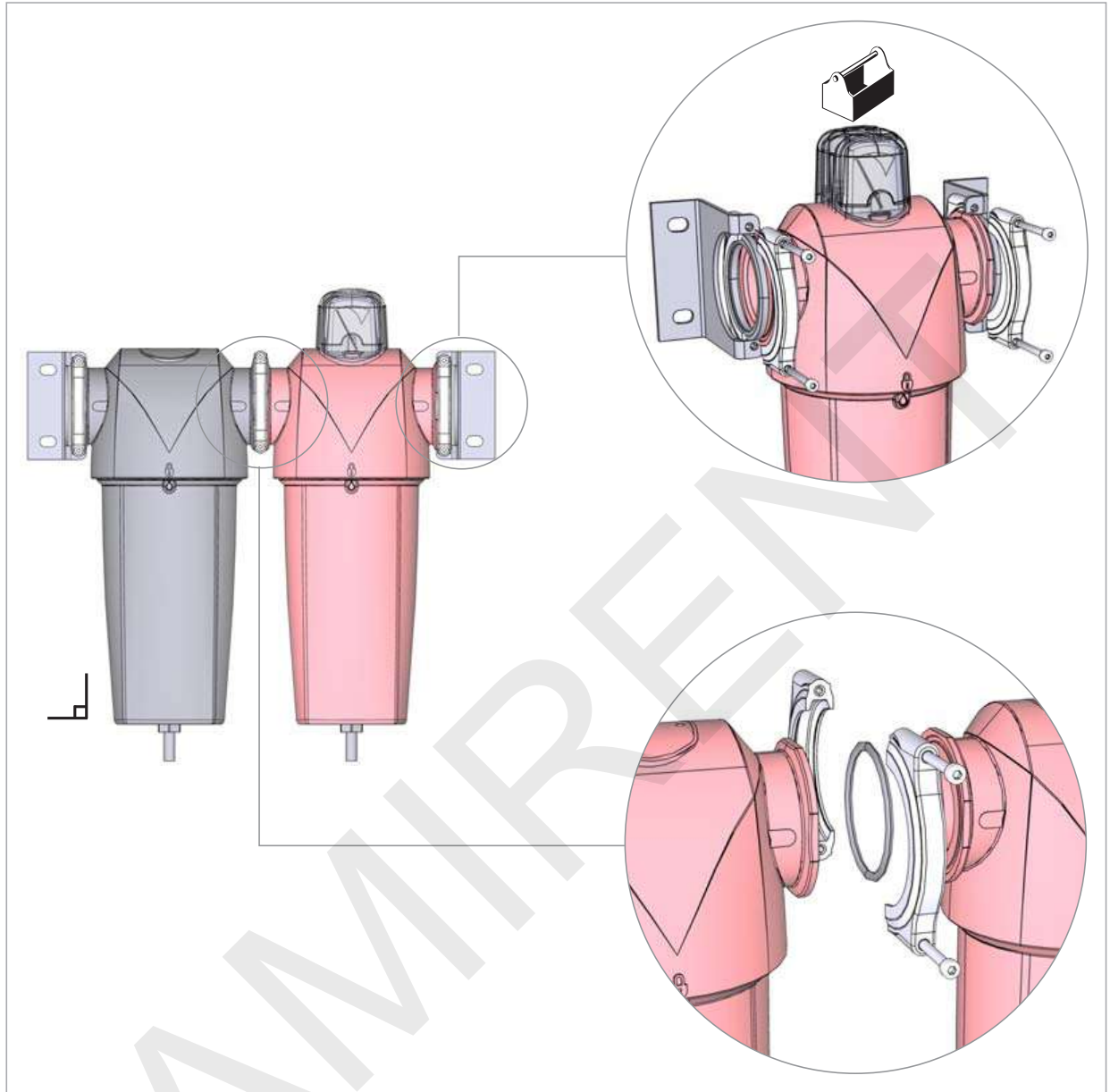
Filter Grade	Models	Max Operating Pressure		Max Recommended Operating Temperature		Min Recommended Operating Temperature	
		bar g	psi g	Temperature		Temperature	
AO	005 □ □ F □ -055 □ □ F □	16	232	80°C	176°F	1.5°C	35°F
AO	005 □ □ M □ -055 □ □ M □	20	290	100°C	212°F	1.5°C	35°F
AA	005 □ □ F □ -055 □ □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

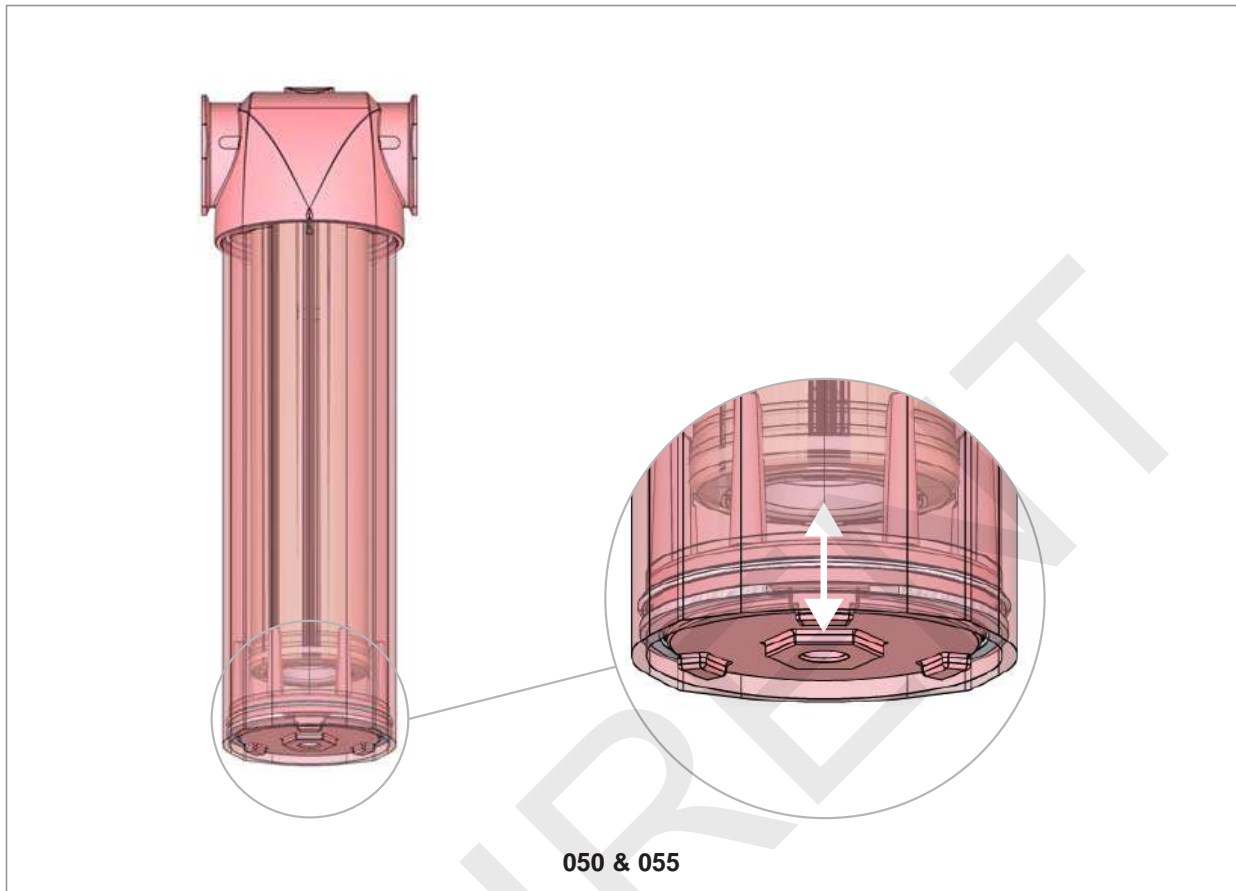
Weights and Dimensions

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







- (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 filtrė 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-accessorji gżandhom ikunu mqabbdin ma' l-ert - art
- (RO) Placa inferioară de acoperire se poate deplasa atunci când filtrul nu este presurizat

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**
- Uruchoimienie 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 Thadden**

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. Aprete lentamente la valvola di mandata per aumentare gradualmente la pressione nell'unità.
2. Aprete 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 povolna 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 surveelangu, 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 выпускной клапан, чтобы создать давление в системе трубопровода

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

(SL)

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

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

(TR)

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

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

(MT)

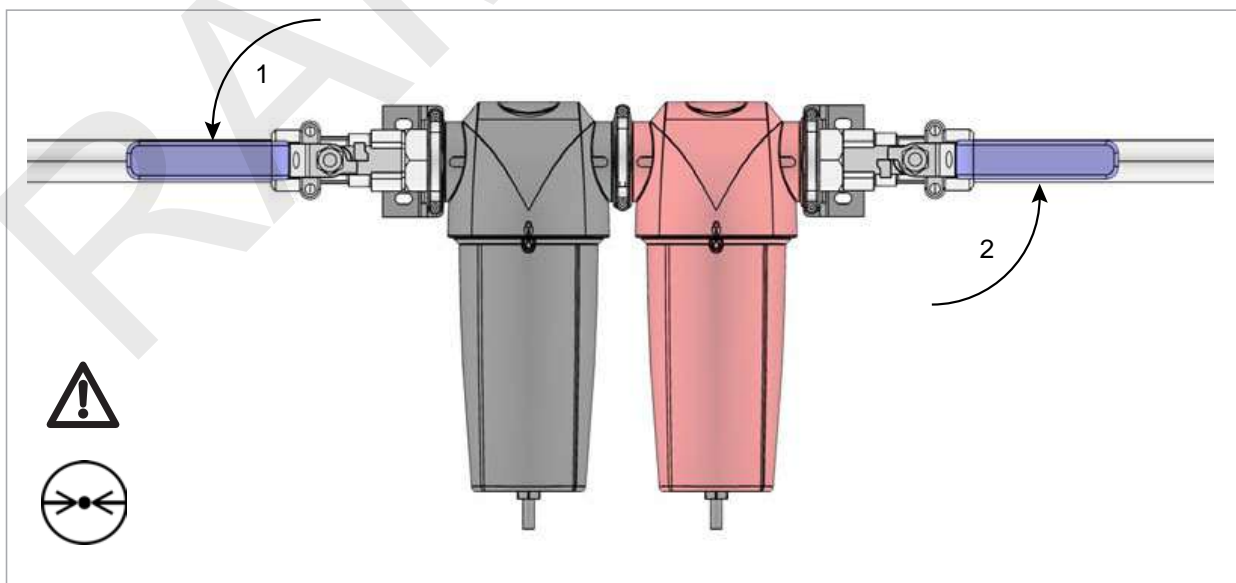
1. Iftah il-valv tad-dhul bil-mod, biex bil-mod tizzied il-pessjoni fit-tagħmir.
2. Iftah il-valv tal-hruġ bil-mod biex terġa' tibni l-pessjoni fil-pajps li jwasslu 'l isfel

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

(RO)

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

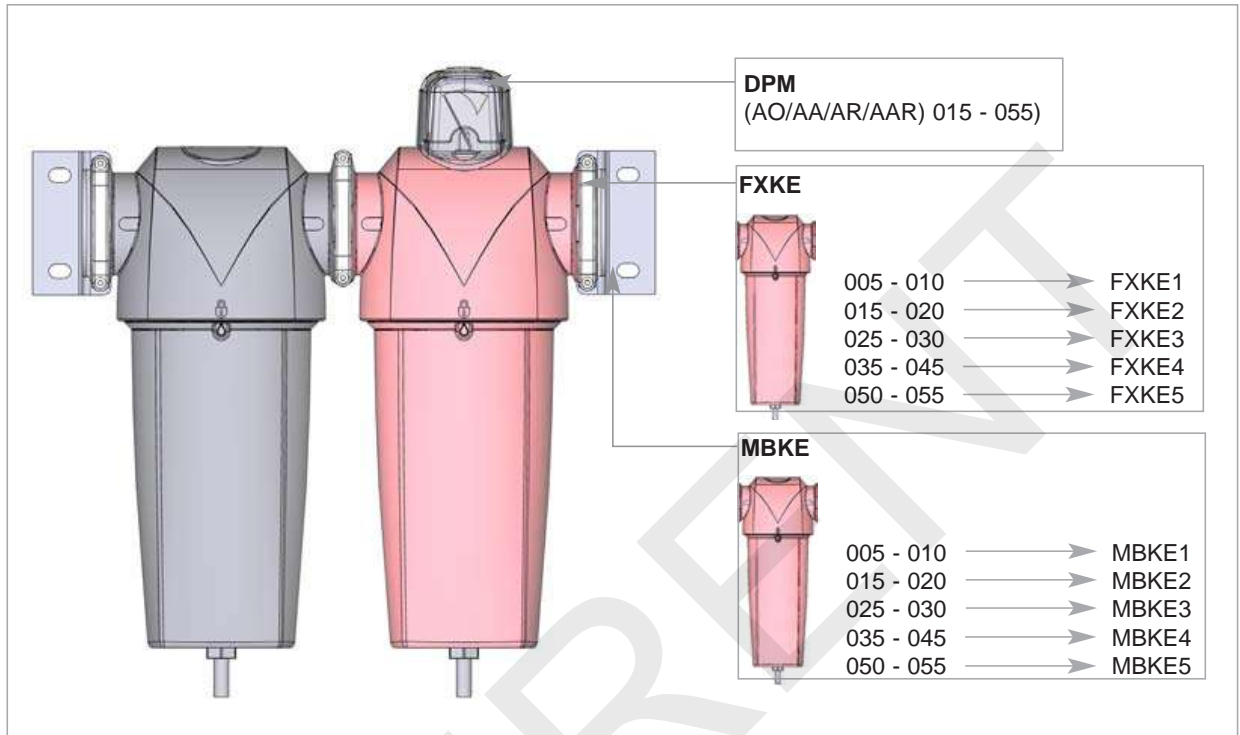
Nu deschide,ți rapid supapele de admisie sau de evacuare fî nu supune,ți aparatul la o diferen,„ excesiv,„ de presiune; Őn caz contrar, aparatul poate suferi deterior,ri



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

4. Accessories


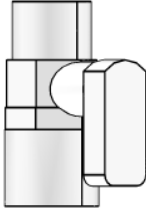
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- Wyposażenie • Príslušenstvo • Příslušenství • Tarvikud • Tartozékok • Piederumi • Priedai • Принадлежности • Dodatna oprema
- Aksesuarlar • Accessorji • Accesorii

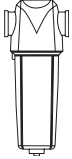



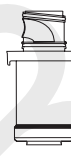

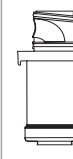


AO, AA, ACS, AR, AAR 005 - 055

5. Spare Parts (Service Kits)

- Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) • Pièces de rechange (nécessaires d'entretien) • Varaosat (Huoltopakkausset)
- Reservdelar (servicesatser) • Reservdeler (service-sett) • Reservdele (Servicekit) • Ανταλλακτικά (Πακέτο τεχνικής υποστήριξης)
- Piezas de repuesto (kits de mantenimiento) • Peças Sobressalentes (Kit de Reparação) • Ricambi (kit per l'assistenza)
- Części zamienne (zestawy serwisowe) • Náhradné diely (Servisná súprava) • Náhradní díly (Sady pro údržbu) • Varuosad (hooldekomplektid)
- Pótalkatrészek (szervizkészletek) • Rezerwes części (apkopes komplekti) • Atsarginės dalys (priežiros detalių komplektai)
- Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) • Yedek parça (Servis kitleri) • Partijiet Għat-Tibdil (Kitts tas-Servizz) • Piese de schimb (Truse de service)

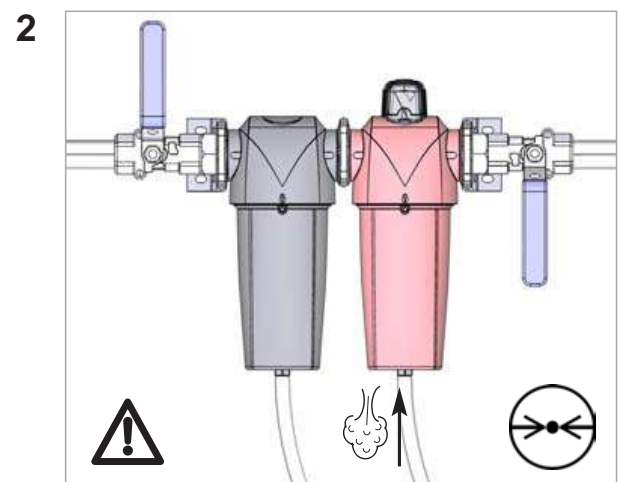
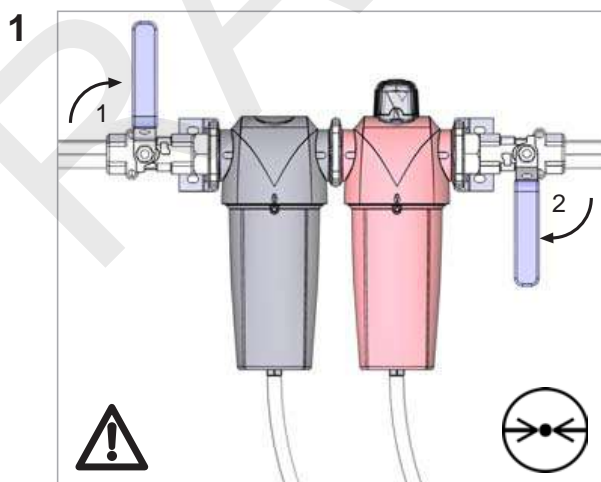
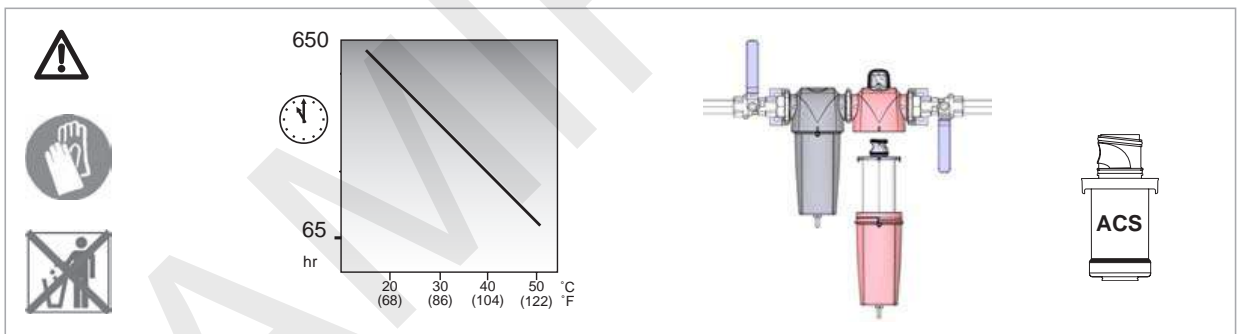
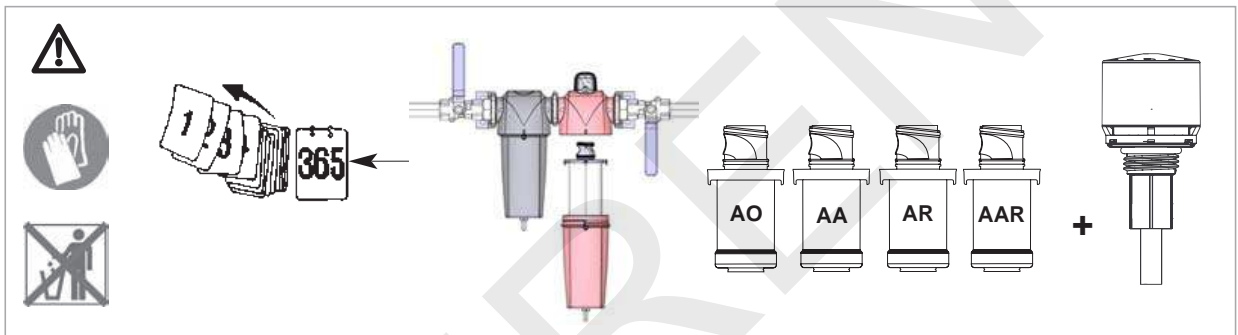
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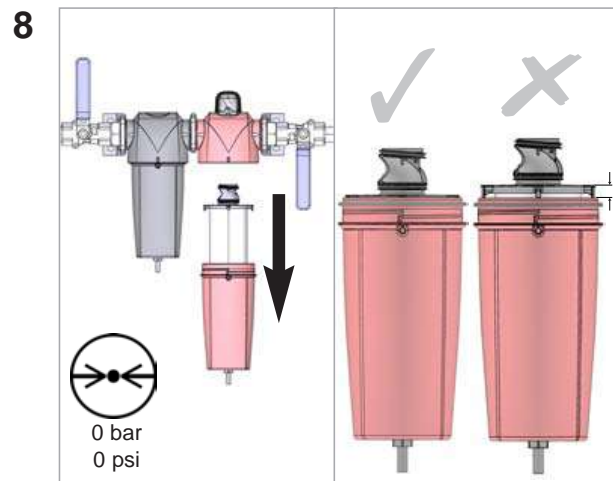
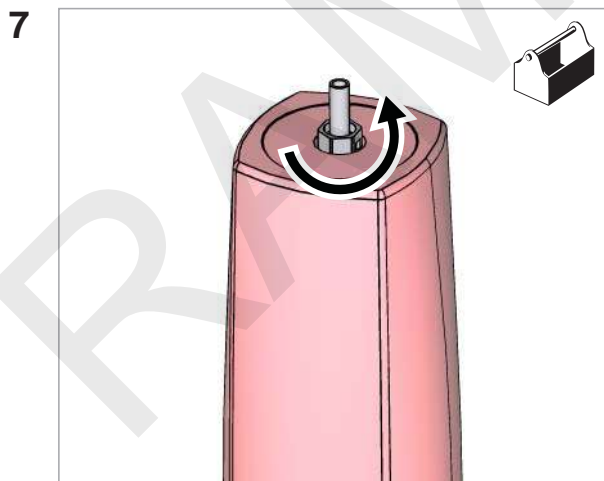
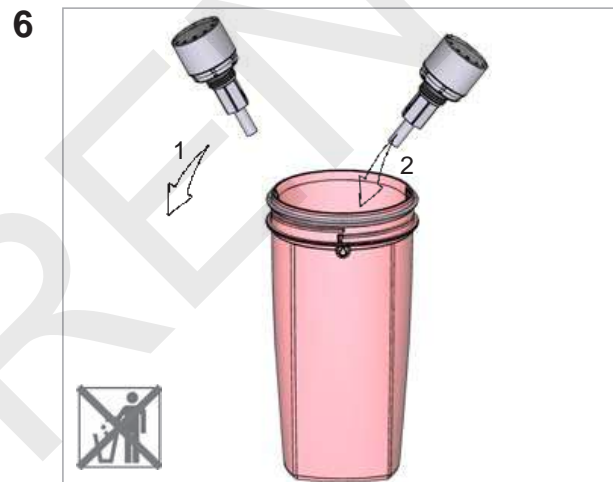
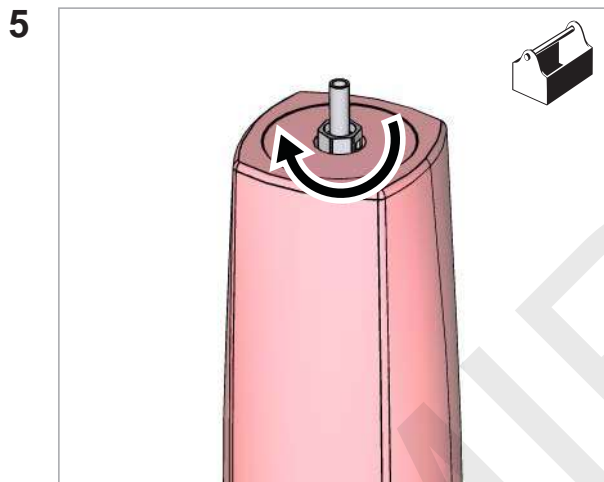
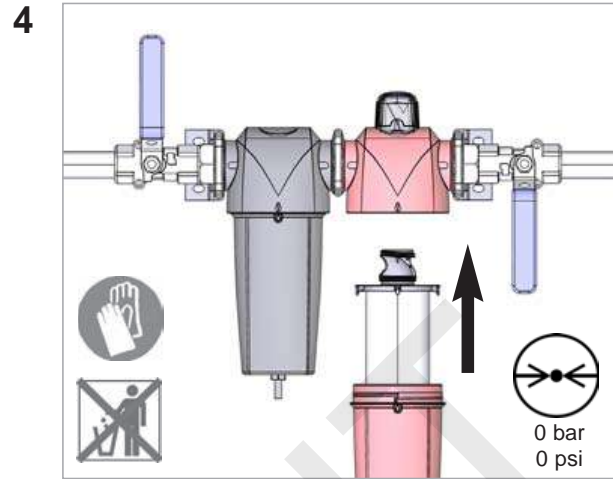
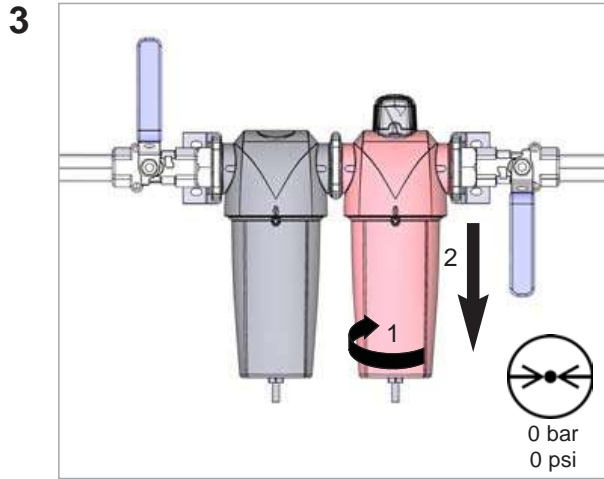
									
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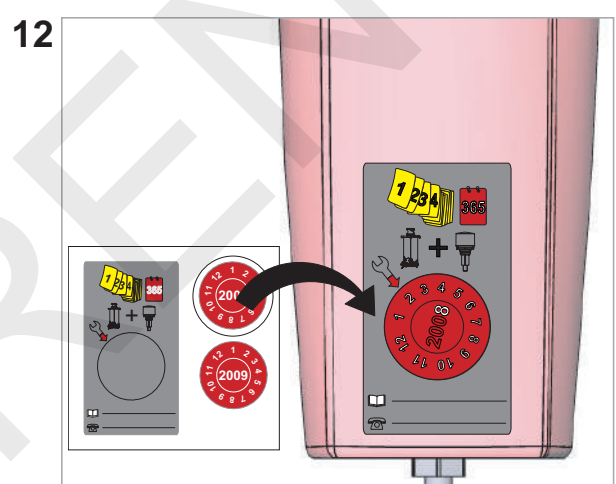
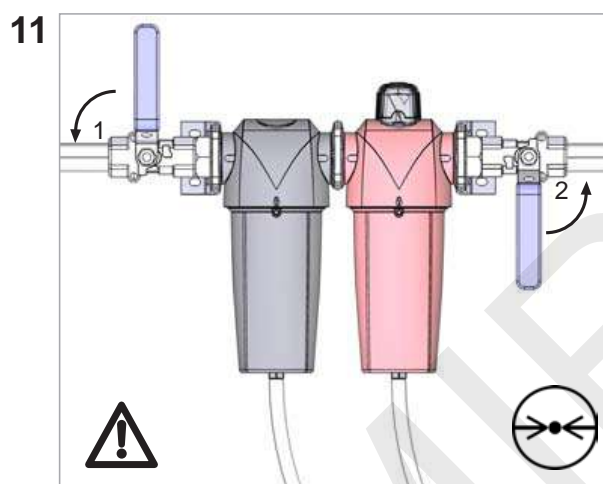
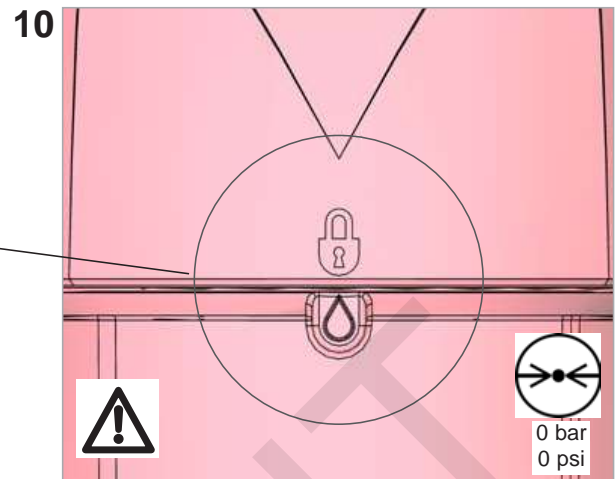
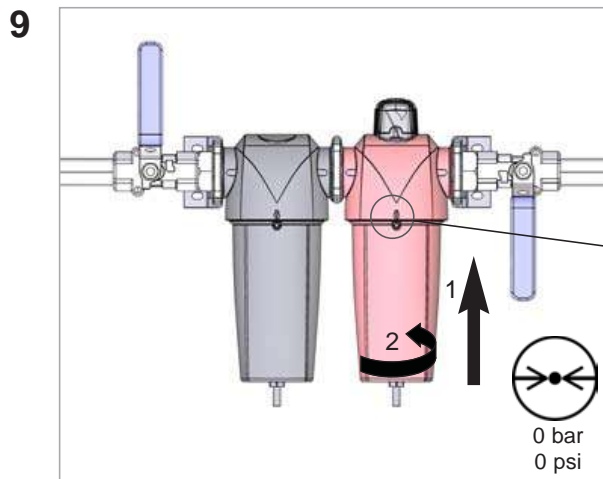
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EMAK2	015 - 020		
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EMAK5	050 - 055		

6. Maintenance

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



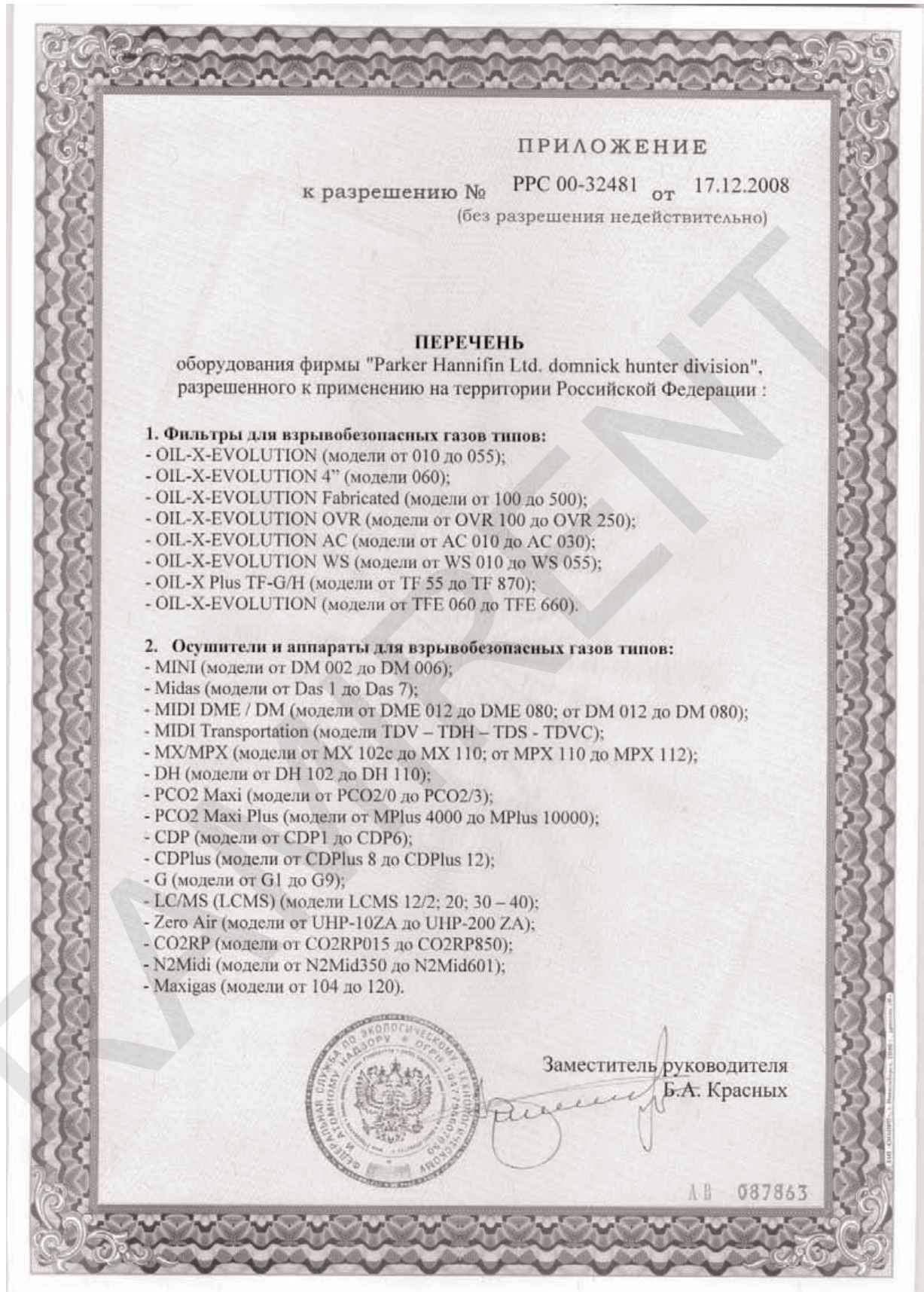




(EN) Align the arrow to the month and year of the next service
 (NL) Breng de pijl op een lijn met de maand en het jaar van de volgende onderhoud beurt
 (DE) Stellen Sie den Pfeil auf Monat und Jahr der nächsten Wartungstermin. Alignedz la flèche sur le mois et l'année de la prochaine révision
 (FR)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



FILTER DH-OIL-X EVO AO AA 01-



FILTER DH-OIL-X EVO AO AA 01-

Declaration of Conformity		EN
Parker Hannifin Ltd domn ck hunter 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	
Standards used	Generally in accordance with ASMEVIII Div 1 2004	
PED Assessment Route	Article 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Module A (AO AA ACS AAR 035 040 045) Module B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Notified body for PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EC Type exam nat on Certificate	COV0413459/TEC	
Authorised Representative	Derek Banker Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Declaration		
I declare that as the authorised representative I have above information in relation to the supply / manufacture of this product in conformity with the standards and other related documents following the provisions of the above directives		
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	Généralément conforme à ASMEVIII d 1 2004	
Méthode d'évaluation de la directive d'équipements de pression	Article 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Module A (AO AA ACS AAR 035 040 045) Module B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Organisme de notification pour la directive d'équipement sous pression	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Certificat d'examen de type CE	COV0413459/TEC	
Représentant agréé	Derek Banker Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
Déclaration		
Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents I les déclare selon les dispositions des directives susmentionnées		
Signature		Date 8/8/2007
N° de déclaration 0002/8807		

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

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		
Direktiivit	97/23/EC	
Käytetyt standardit	Yleensä seuraavan standardin mukaisesti ASMEV II D v 1 2004	
PED arviointimenetelmä	Artikla 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Moduuli A (AO AA ACS AAR 035 040 045) Moduuli B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
PED säännösten ilmoitettuihin laitoksiin	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EY tyyppilyyväksynnän sertifikaatti	COV0413459/TEC	
Valluutettu edustaja	Derek Banker Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Vakuutus		
Vakuutuslupaa edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän tuotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden osien liittyvien asukirjojen mukaisia ja noudattavat yllä mainittuja direktiivejä		
Allekirjoitus		Päiväys 8/8/2007
Vakuutuksen numero 0002/8807		

Konformitätserklärung		DE
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		
Richtlinien	97/23/EC	
Angewandte Normen	Allgemein in Übereinstimmung mit ASMEVIII Div 1 2004	
Beurteilungsrouten der Druckgerätekategorie	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Benannte Stelle für die Druckgerätekategorie	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EG Baumusterprüfbescheinigung	COV0413459/TEC	
Bevollmächtigter Vertreter	Derek Banker Divisional Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Erklärung		
Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien		
Unterschrift		Datum 8/8/2007
Nummer der Erklärung 0002/8807		

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	Generellt i enlighet med ASMEVIII Div 1 2004	
Fastställningsväg för PED	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AR AAR 050 055) Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
Anmält organ för PED	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS COV0413459/TEC	
EG intyg om typgodkänning	COV0413459/TEC	
Auktoriserad representant	Derek Banker Divisional Quality Manager Parker Hannifin Ltd domn ck hunter division	
Försäkran		
Jag försäkras i egenskap av auktoriserad representant att ovanstående information avseende leverans av denna produkt överensstämmer med standarder och övriga relevanta dokument enligt vilka i ovanstående direktiv		
Underskrift		Datum 8/8/2007
Försäkran nummer 0002/8807		

Konformitetserklæring		NO
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiver	97/23/EC	
Benyttede standarder	Hovedsakelig i samsvar med ASMEVIII d v 1 2004	
Route for vurdering av PED (d rett vet for trykkplågt utstyr)	Paragraf 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London	
Underrettet organ for PED	EC3M 4BS COV0413459/TEC	
EC typegodkjenningsattest	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Autorisert representant	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter d v s on	
Erklæring		
Jeg erklærer som autorisert representant at informasjonen ovenfor med hensyn til levering/produksjon av dette produktet er i overensstemmelse med standardene og andre relaterte dokumenter følger bestemmelsene i direktivene ovenfor		
Signatur	Dato	8/8/2007
Erklæringsnr 0002/8807		

Declaración de conformidad		ES
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directivas	97/23 EC	
Normas utilizadas	Generalmente de conformidad con ASMEVIII Div 1 2004	
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 AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Organismo notificado para la normativa PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Certificado de examen CE de tipo	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Representante autorizado	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Declaración		
Como representante autorizado declaro que la información anteriormente expuesta en relación con el suministro y/o fabricación de este producto cumple las normativas indicadas y otros documentos afines según las disposiciones de las Directivas citadas anteriormente.		
Firma	Dato	8/8/2007
Número de declaración 0002/8807		

Overensstemmelseerklæring		DA
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Direktiver	97/23 EC	
Anvendte standarder	Generelt i overensstemmelse med ASMEVIII div 1 2004	
Forløb for PED bedømmelse	Artikel 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modul A (AO AA ACS AAR 035 040 045) Modul B (AO AA ACS AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London	
Notificeret organ for PED	EC3M 4BS COV0413459/TEC	
EF typeprøvningsattest	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Autoriseret representant	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Erklæring		
Jeg erklærer hermed som autoriseret representant at ovennævnte oplysninger vedrørende levering/produktet er i overensstemmelse med de anførte standarder og øvrige tilknyttede dokumenter i henhold til bestemmelse i ovenstående direktiv		
Underskrift	Dato	8/8/2007
Erklæringsnummer 0002/8807		

Declaração de Conformidade		PT
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directivas	97/23/EC	
Padrões utilizados	De forma geral em conformância com ASMEV D v 1 2004	
Percurso de Avaliação do PED	Artigo 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Módulo A (AO AA ACS AAR 035 040 045) Módulo B (AO AA ACS AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Notificado para o PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Certificado de Inspeção Tipo CE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Revendedor Autorizado	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Declaração		
Declaro na qualidade de representante autorizado que as informações acima contidas referentes ao fornecimento / fabricação deste produto estão em conformidade com as normas e outros documentos relacionados de acordo com as disposições das Diretivas anteriores		
Assinatura	Dato	8/8/2007
Número da Declaração 0002/8807		

Δήλωση συμμόρφωσης		EL
Parker Hannifin Ltd domn ck hunter divis on Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Οδηγίες	97/23/EC	
Πρότυπα που χρησιμοποιήθηκαν	Γενικά σε συμφωνία με το ASMEVIII Div 1 2004	
Διορθωμένη αξιολόγηση για κανονικούς PED	Άρθρο 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Ενότητα Α (AO AA ACS AAR 035 040 045) Ενότητα Β (AO AA ACS AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Επίσημος οργανισμός για κανονικούς PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Πιστοποιητικό εξέλιξης τύπου EK	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Εξουσιοδοτημένος αντιπρόσωπος	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Δήλωση		
Δηλώνω ως εξουσιοδοτημένος αντιπρόσωπος ότι οι παραπάνω πληροφορίες σε σχέση με τη δόση / κατασκευή αυτού του προϊόντος συμμορφώνονται ως προς τα πρότυπα και ως προς τα άλλα σχετικά έγγραφα που συνοδεύουν τις οδηγίες που το προϊόν οδηγούν.		
Υπογραφή	Ημερομηνία	8/8/2007
Αριθμός δήλωσης 0002/8807		

Dichiarazione di conformità		IT
Parker Hannifin Ltd domn ck hunter division Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK		
OIL X Evolution AO AA ACS AR AAR 005 010 015 020 025 030 AO AA ACS AR AAR 035 040 045 AO AA ACS AR AAR 050 055		
Directive	97/23 EC	
Norme utilizzate	Generalmente conforme a ASMEVIII Div 1 2004	
Procedura di valutazione PED	Articolo 3.3 (AO AA ACS AAR 005 010 015 020 025 030) Modulo A (AO AA ACS AAR 035 040 045) Modulo B (AO AA ACS AAR 050 055) Lloyds Register Verificalion 71 Fenchurch St London EC3M 4BS COV0413459/TEC	
Organismo accreditato per PED	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Attestato di certificazione tipo CE	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Rappresentante autorizzato	Derek Bankier D v s onal Quality Manager Parker Hannifin Ltd domn ck hunter division	
Dichiarazione		
In qualità di rappresentante autorizzato dichiaro che le informazioni di cui sopra in merito alla fornitura/fabbricazione del prodotto in oggetto, sono conformi alle norme indicate e a qualsiasi altro documento correlato alla formatura basato su quanto prescritto dalle diretive menzionate.		
Firma	Dato	8/8/2007
Dichiarazione numero 0002/8807		

Deklaracja zgodności **PL**

Parker Hannifin Ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Dyrektwy 97/23/EC

Stosowane standardy Ogólnie zgodny z ASMEVIII dział 1 2004

Ścieżka potwierdzenia zgodności z PED Artykuł 3.3 (AO AA ACS AR 005 010 015 020 025 030)
Moduł A (AO AA ACS AR 035 040 045)
Moduł B (AO AA ACS AR AAR 050 055)


Organ/instytucja powiadamiana na mocy PED Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Certyfikat badań a typu WE COV0413459/TEC

Autoryzowany przedstawiciel Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domn ck hunter division

Deklaracja

Oświadczam, jako auto zowany przedstawiciel, że powyższe informacje dotyczące dostawcy / wytwórcy niniejszego produktu są zgodne ze standardami i innymi dokumentami powiązanymi z zgodą i posłanowieniami powyższych dyrektyw

Podpis  **Data** 8/8/2007

Numer deklaracji: 0002/8807

Vastavusdeklaratsioon **ET**

Parker Hannifin Ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktiivid 97/23/EC

Kasutatud standardid Üld seel vastavuses standardga ASMEV I D v 1 2004

PED vastavushinnangu jaotus A tükkel 3.3 (AO AA ACS AR 005 010 015 020 025 030)
Modul A (AO AA ACS AR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)

PEDIst (surveedmete direktiivist) teav taotlus Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

EÜ tüübih ndamistõend COV0413459/TEC

Volitatud es ndaja Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domn ck hunter division

Deklaratsioon

Volitatud es ndajana kinnitan et ülaltoodud teave seoses antud toote lam m seahoomisega on vastavuses standardite ja muude seotud dokumentidega vastava l ülaltoodud d rekti v d sätetele

Alkirij  **Kuupäev** 8/8/2007

Deklaratsioon number 0002/8807

Vyhlasenie o zhode **SK**

Parker Hannifin Ltd domn ck hunter divis on
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Smern ce 97/23/EC

Použit normy Vo všeobecnosti v zhode s ASMEV II oddiel 1 2004

Spôsob posudzovania podľa smernice PED Článok 3.3 (AO AA ACS AR 005 010 015 020 025 030)
Modul A (AO AA ACS AR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)


Obznanovaný orgán podľa smernice PED Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Osvädčenie typovej skôskvity ES COV0413459/TEC

Spinomocnený zástupca Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domn ck hunter d v s on

Vyhlasenie

Ako spinomocnený zástupca vyhlasujem že informácie uvedené vyššie sú v súlade s dodatky / výrobou tohto produktu jsou v souladu s normami a jnymi súvisiacimi dokumentami podľa ustanovení uvedených smernice

Podpis  **Dátum** 8/8/2007

Číslo vyhlásenia 0002/8807

Megfelelőeségi nyilatkozat **HU**

Parker Hannifin Ltd domn ck hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Direktívák 97/23/EC

Alkalmazott szabványok Általában a következők alapján ASMEV II D v 1 2004

PED értékelési irányvonal 3.3-as cikkely (AO AA ACS AR 005 010 015 020 025 030)
Modul A (AO AA ACS AR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)


PED del kapcsolatban értes tett tesztület Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

EC I pusvüzsgálati bizonyítvány COV0413459/TEC

Hivatalos képviselő Derek Bankier
Divisional Quality Manager
Parker Hannifin Ltd domn ck hunter division

Nyilatkozat

Hivatalos képviselőként kijelentem hogy a termék szállításával / gyártásával kapcsolatos fent olvasható információk megfelelnek a fenti Direktívák elő rássai 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

Smern ce 97/23/EC

Použit normy Obecně v souladu ASMEVIII Dv 1 2004

Metoda stanovení shody pro tlaková zař zení (PED) Článek 3.3 (AO AA ACS AR 005 010 015 020 025 030)
Díl část A (AO AA ACS AR 035 040 045)
Díl část B (AO AA ACS AR AAR 050 055)


Notif kovaný orgán pro PED Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Osvědčení o zkoušce typu ES COV0413459/TEC

Oprávněný zástupce Derek Bankier
Divisional Quality Manager
Parker Hannifin Ltd domn ck hunter d v s on

Prohlášení

Jako oprávněný zástupce prohlašuji, že výše uvedené informace týkající se dodatky / výrobou tohto produktu jsou v souladu s normami a jnymi souv seji cími dokumenty vyplývajícími z ustanovení výše uvedených smernice

Podpis  **Datum** 8/8/2007

Číslo 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 saskaņā ar ASMEV I D v 1 2004

PED novērtējums Pārbaudot 3.3 (AO AA ACS AR 005 010 015 020 025 030)
Modul A (AO AA ACS AR 035 040 045)
Modul B (AO AA ACS AR AAR 050 055)

Par PED informētā organizācija Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

EK saskaņotā 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 pilnvarotais pārstāvis ar šo paziņoju, ka iepriekšminētā informācija kas a tiecas uz šī produkta piegādi / s izstrādi atbilst standartiem un c tiem a būtībā dokumentiem saskaņā ar iep rakšminētajiem D rektīvd

Paraksts  **Datums** 8/8/2007

Deklarācijas numurs 0002/8807

Atitikties deklaracija LT

Parker Hannifin Ltd domis cks 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

Naudojami standartai Atitinka bendrasias ASMEVIII Div 1: 2004 nuostatas

PED (vertinimo pakopa): 3.3 sra pasn 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, AAR 050 055)

PED notifikuoti institucija Lloyds Register Ver fication
71 Fenchurch St. London
EC3M 4BS

EB t po testavimo sertifikatas COV0413459/TEC

Igaliotasis atstovas Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domis cks hunter d v s on

Deklaracija

As, igaliotasis atstovas, patvirtu, kad auksciau pateikta gaminio techniniamagamimo informacija atitinka auksciau nurodytus standartus ir kila su nurodytu direktyvu nuostatomis susijusia dokumentacija.

Parasas *Derek Bankier* **Data** 8/8/2007

Deklaracijos numeris 0002/8807

Uyum Beyanı TR

Parker Hannifin Ltd domis cks 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

Kullanilan standartlar Genelde ASMEV II D v 1 2004'e uygun

PED (Basunçi Ekigman Direktifli) Degertlendirilmesi Yolu Madde 3.3 (AO, AA, ACS, AAR 005 010 015 020 025 030)
Modul A (AO, AA, ACS, AAR 035 040 045)
Modul B (AO, AA, ACS, AAR 050 055)

PED ign bild rimde bulunulan kurulus: Lloyds Register Ver fication
71 Fenchurch St. London
EC3M 4BS

AT Tip Incelemesi Sertifikasi: COV0413459/TEC

Yetkil Temsilci Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domis cks hunter division

Beyan

Yetkil temsilci olarak beyan ederim ki bu urunun teminine / uretimine iliskin olarak yukanda verilen bilgiler yukanda anilan Direktiflerin hukuklerine uygun standartlara ve ilgili baska belgelere uygundur.

Imza: *Derek Bankier* **Tarih:** 8/8/2007

Beyan No 0002/8807

Декларация соответствия RU

Parker Hannifin Ltd domis cks 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 А (AO, AA, ACS, AAR - 035, 040 045)
Модуль В (AO, AA, ACS, 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 domis cks hunter division

Декларация

Как уполномоченный представитель, я заявляю, что приведенная выше информация относительно поставщик/производства данного продукта соответствует стандартам, другим связанным документам и положениям указанных выше требований.

Подпись: *Derek Bankier* **Дата:** 8/8/2007

Номер декларации: 0002/8807

Dikjarazzjoni ta' Konformita MT

Parker Hannifin Ltd domis cks 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 uzati Generalment fkonformita ma' ASMEVIII Div 1: 2004

Rotta ta' l'Assessorjat ta' PED Artikolu 3.3 (AO, AA, ACS, AAR 005 010 015 020 025 030)
Modulu A (AO, AA, ACS, AAR 035 040 045)
Modulu B (AO, AA, ACS, AAR 050 055)

Korp notifikat ghal-PED: Lloyds Register Ver fication
71 Fenchurch St. London
EC3M 4BS

Certifikat ta' KE ta' l-eżaminazzjoni ta' Tip: COV0413459/TEC

Rappreżentant Awtorizzat Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domis cks hunter division

Dikjarazzjoni

Niddikjara li bhala r-repreżentanti awtorizzati, l-informazzjoni ta' hawn fuq, f'dak li għandu x jaqam mal-forniment/manifattura ta' dan il-prodott, hija fkonformita ma' l-istandards u d-dokumenti l-oħra relatati li jsewgu d-dipozizzjonijiet tad-Direttivi msemmija hawn fuq

Firma *Derek Bankier* **Data** 8/8/2007

Numru tad-Dikjarazzjoni 0002/8807

Izjava o skladnosti SL

Parker Hannifin Ltd domis cks 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

Ocenjevalni 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, AAR 050 055)

Priglašeni organ za PED Lloyds Register Ver fication
71 Fenchurch St. London
EC3M 4BS

Certifikat o tipskem pregledu ES COV0413459/TEC

Pooblašteni zastopnik Derek Bankier
D v s onal Quality Manager
Parker Hannifin Ltd domis cks hunter division

Izjava

Kot pooblašteni zastopnik izjavljam, da so zgornji podatki glede dobave/prozvodnje tega zefelka skladni s standardi in ostalimi sorodnimi dokumenti, ki sledijo celotnem zgornjim direktivam.

Podpis *Derek Bankier* **Datum** 8/8/2007

Štev ila izjave 0002/8807

Declaratie de conformitate RO

Parker Hannifin Ltd domis cks hunter division
Dukesway TVTE Gateshead Tyne & Wear NE11 0PZ UK

OIL X Evolution
AO AA ACS AR AAR 005 010 015 020 025 030
AO AA ACS AR AAR 035 040 045
AO AA ACS AR AAR 050 055

Directive 97/23/EC

Standarde u lizate 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, AAR 050 055)

Organism no licat pentru PED Lloyds Register Ver fication
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 Hannifin Ltd domis cks hunter division

Declaratie

In calitate de reprezentant autorizat, declar ca informatiile de mai sus, referitoare la furnizarea / fabricajea acestui produs, sunt in conformitate cu standardele si alte documente conelate care respecta prevederile Directivei de mai sus.

Semnatura: *Derek Bankier* **Data:** 8/8/2007

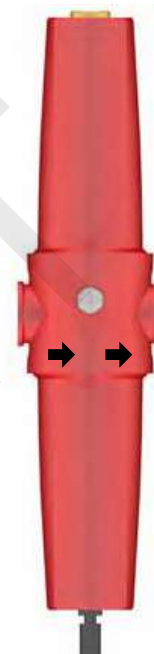
Numar declaratie: 0002/8807

13.7 Option dc
Operating instructions for compressed air filter (fresh air filter)

RAMIRENT



domnick hunter



AC010 - AC030

OIL-X
EVOLUTION

Original Language **EN** OIL VAPOUR & ODOUR REMOVAL FILTERS

NL OLIEDAMP & GEUR VERWIJDERINGSFILTERS	DE FILTER ZUM ENTFERNEN VON ÖLNEBEL UND GERÜCHEN
FR FILTRES D'ÉLIMINATION DES ODEURS ET DES VAPEURS D'HUILE	FI ÖLJYHÖYRYN JA HAJUN POISTOSUODATTIMET
SV FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	NO OLJEDAMP- OG OLJELUKTFJERNINGSFILTRE
DA FILTER FÖR AVLÄGSNING AV OLJEÅNGOR OCH LUKT	EL ΦΙΛΤΡΑ ΑΦΑΙΡΕΣΗΣ ΑΤΜΩΝ & ΟΣΜΩΝ ΛΑΔΙΟΥ
ES FILTROS DE ELIMINACIÓN DE OLORES Y VAPORES DE ACEITE	PT VAPOR DO ÓLEO E FILTROS DE REMOÇÃO DOS CHEIROS
IT FILTRI PER L'ELIMINAZIONE DEGLI ODORI E DEI VAPORI D'OLIO	PL FILTRY DO USUWANIA OPARÓW I ZAPACHU OLEJU
SK FILTRE NA ODSTRAŇOVANIE OLEJOVÝCH VÝPAROV A ZÁPACHU	CS OLEJOVÉ A PROTIPACHOVÉ FILTRY
ET ÕLISUDU JA -HAISU EEMALDUSFILTRID	HU OLAJGŐZ- ÉS SZAGELTÁVOLÍTÓ SZŰRŐK
LV EĻĻAS TVAIKU UN AROMĀTA NOVĒRŠANAS FILTRI	LT ALYVOS GARŲ IR KVAPO ŠALINIMO FILTRAI
RU ФИЛЬТРЫ ДЛЯ УСТРАНЕНИЯ ЗАПАХА И ПАРОВ МАСЛА	SL FILTRI ZA ODSTRANJEVANJE OLJNIH HLAPOV IN VONJAV
TR YAĞ BUHARI VE KOKUSU GİDERİCİ FİLTRELER	MT FILTRI LI JNEHHU L-FWAR TAŻ-ŻJUT U L-IRWEJJAĦ

RAMIRENT

AC010 - AC030



Warning

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



Caution

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












- Suitable gloves must be worn.
- Geeignete Schutzhandschuhe tragen.
- Käytettävä asianmukaisia käsineitä.
- Bruk egnete handsker.
- Απαιτείται να φοράτε κατάλληλα γάντια
- Devem ser utilizadas luvas adequadas.
- Należy zakładać odpowiednie rękawice
- Kohustuslik kanda sobivaid kaitsekindaid
- Jävalkä piemēroti cimdi.
- Работы должны проводиться в соответствующих перчатках
- Uyğun eldiven giymelidir

- Altijd geschikte handschoenen dragen.
- Le port de gants adaptés est obligatoire.
- Använd lämpliga handskar.
- Der skal anvendes egnete handsker.
- Se deben llevar puestos guantes apropiados.
- Indossare guanti di protezione.
- Je nutné použít vhodné rukavice.
- Viseljen megfelelő védőkesztyűt.
- Reikia mūvēti tinkamas pirštines.
- Uporabiti je treba ustrezne rokavice.
- Ghandhom jintlibsu ingwanti adatti



- Highlights the requirements for disposing of used parts and waste.
- Benadrukt de vereisten voor het weggooiën van gebruikte onderdelen en afval.
- Weist auf die Anforderungen zur Entsorgung gebrauchter Teile und Abfall hin.
- Met en relief les consignes de mise au rebut des pièces usagées et des déchets.
- Osoittaa käytettyjen osien ja jätteen hävittämistä koskevia vaatimuksia.
- Anger de krav som ställs på bortskaflande av gamla delar och avfall.
- Fremhæver kravene for avhending av brukte deler og avfall.
- Fremhæver kravene til bortskaflelse af udtjente dele og affald.
- Επισημαίνει τις απαιτήσεις απόρριψης 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.
- Tóstab esile kasutatud osade ja jääkide utiliseerimisele esitatavad nõuded
- A használt alkatrészek és a hulladék megfelelő módon történő elhelyezésére hívja fel a figyelmet.
- Uzsvēr prasības tam, kā atbrīvoties no lietotajām detaļām un atkritumiem.
- Zymí panaudotų dalių ir atliekų išmetimo reikalavimus.
- Указывает на требования по уничтожению использованных деталей и отходов
- Označuje zahteve za odlaganje rabljenih delov in odpadkov.
- Kullanimış parçaların ve atıkların atılmasına ilişkin gereklilikleri vurgular
- Tissottolinea l-kundizzjonijiet biex wiehed jarmi l-partijiet uzati u l-iskart

AC010 - AC030

	<ul style="list-style-type: none"> • Pressure. • Paine. • Πίεση • Ciśnienie • Nyomás alatt. • Tiak 	<ul style="list-style-type: none"> • Druk • Trykk • Presión. • Tlak. • Spiediensi. • Basınc 	<ul style="list-style-type: none"> • Druck. • Trykk • Pressão. • Tlak. • Sléigis. • Pressjoni 	<ul style="list-style-type: none"> • Pression. • Tryk • Pressione. • Surve. • Давление
	<ul style="list-style-type: none"> • Release Pressure. • Evacuation de pression. • Avlast trykk • Despresurizar. • Ciśnienie spustowe • Surve väljalase • Ísleiskite sléj. • Basıncı Kaldırın 	<ul style="list-style-type: none"> • Druk aflaten. • Vapauta paine. • Aflast tryk • Liberta Pressão. • Uvolnite tlak. • Engedje ki a nyomást. • Стравить давление • Nehhi l-pressjoni 	<ul style="list-style-type: none"> • Druck ablassen. • Tryckutsläpp. • Εκτόνωση πίεσης • Scaricare la pressione. • Uvolnění tlaku. • Pazeminiet spiedienu. • Sprostitev tlaka. 	
	<ul style="list-style-type: none"> • Replace every year • Remplacer tous les ans. • Skift ut hvert år • Sustituir anualmente • Należy wymieniać raz w roku • Asendage igal aastal • Keiskite kartä per metus • Her yıl değiştirin 	<ul style="list-style-type: none"> • Elk jaar vervangen • Vaihda vuosittain. • Udskift en gang om året • Substituir todos os anos • Každý rok vymieňajte • Evente cserélje • Заменять каждый год. • İbdel kull sena 	<ul style="list-style-type: none"> • Jährlich austauschen • Byt varje år • Αντικατάσταση κάθε χρόνο • Sostituire ogni anno • Nutná výměna každý rok. • Nomainiet reizi gadā • Zamenjajte vsako leto. 	
	<ul style="list-style-type: none"> • Filter housing / Model • Logement du filtre/modèle. • Filterhus/-modell • Caja de filtro/modelo. • Obudowa filtra / model. • Filtri korpus/mudel • Filtró korpusas / modelis • Filtre muhafazası / Model 	<ul style="list-style-type: none"> • Filterhuis / Model • Suodatinkotelo/-malli • Filterhus/modell • Caixa / Modelo do filtro • Kryt filtra / Model • Szűrőház / típus • Корпус фильтра / модель • Kontenitur tal-filtru - Mudell 	<ul style="list-style-type: none"> • Filtergehäuse / Modell • Filterhus/modell • Υπόδοχη/μοντέλο φίλτρου • Corpo del filtro / Modello • Kryt filtru / Model • Filtra korpus / modelis • Ohišje filtra / Model 	
	<ul style="list-style-type: none"> • High efficiency filter element • Hochleistungsfilterelement • Tehokas suodatinelementti • Høyeffektivt filterelement • Φίλτρο υψηλής απόδοσης • Elemento do filtro de elevado rendimento • Wysokowydajny wkład filtra • Vysoce účinný filtrační prvek • Nagy hatékonyságú szűrőelem • Labai efektyvus filtravimo elementas • Visoko učinkovit filtrirni element • Element tal-filtru b'effiċjenza kbira 	<ul style="list-style-type: none"> • Zeer efficiënt filterelement • Cartouche filtrante haute efficacité. • Høgeffektivt filterelement • Høgeffektivt filterelement • Elemento filtrante de gran eficiencia. • Elemento filtrante ad alta efficienza • Wysoko účinný filtračný článok • Kõrgtootlik filterelement • Augstas produktivitātes filtra elements • Высокоэффективный фильтрующий элемент • Yüksek etkinlikli filtre ögesi 		
	<ul style="list-style-type: none"> • Adsorption filter cartridge - Granular carbon • Adsorptionsfiltereinsatz - Granulatkohle • Adsorptiosuodatinelementti - rakeinen hiili • Adsorpsjonsfilterpatron - Karbon i kornform • Φυσιγγίο φίλτρου προσρόφησης - Κοκκώδης άνθρακας • Cartucho do filtro de absorção - Carvão granular • Adsorpcyjny wkład filtrujący z węgla ziamistego • Adsorpcni filtračni prvek - granulovaný uhlik • Adsorpciószűrőbetét - granulált szén • Adsorbicinio filtro kasetė - anglies granulės 	<ul style="list-style-type: none"> • Adsorptiefilter cartridge - korrelvormige actieve kool • Cartouche filtrante d'adsorption - Charbon en granules. • Adsorptionsfilterkassett - Kornigt kol • Adsorptionsfilterkassett - Kornigt kol • Cartucho filtrante de adsorción, granulos de carbón. • Filtro a cartuccia ad adsorbimento - granuli di carbone • Adsorpcná filtračná kazeta - Granulovaný uhlik • Adsorpciofilteri kassett - teraline süsi • Absorbėjoša filtra kasetne - graudains ogleklis • Адсорбционный фильтрующий элемент - гранулированный уголь • Adsorpsiyon filtersi kartuşu - Taneli karbon 		
	<ul style="list-style-type: none"> • Kaseta adsorbicijnskega filtra - zrnasti ogljik • Kaxxa assorbenti tal-filtru - Karbonju mrammel 			
	<ul style="list-style-type: none"> • Adsorption filter element - Wrapped carbon cloth • Adsorptie filterelement - gewikkelde koolstofdoek • Adsorptionsfilterelement - eingewickeltes Filtertuch aus Kohlenstoff • Cartouche filtrante d'adsorption - Charbon entouré de tissu. • Adsorptiosuodatinelementti - käärittö hiilikangas • Adsorptionsfilterelement - Veckad kolfiberduk • Adsorpsjonsfilterelement - Innpakket karbonstoff • Adsorptionsfilterelement - Veckad kolfiberduk • Φίλτρο προσρόφησης - Τυλιγμένο ύφασμα άνθρακα • Elemento filtrante de adsorción, capas de tejido de carbón. • Elemento do filtro de absorção - Pano revestido de carvão • Elemento filtrante ad adsorbimento - tessuto al carbone con struttura ad avvolgimento • Wkład adsorpcyjny filtra ze zwijanej tkaniny z włókna węglowego • Adsorpcni filtrační článok - Zabalená uhlíková tkanina • Adsorpcni filtračni prvek - zabalená uhlíková tkanina • Adsorpciofilteri element - isoleeritud süsinikriie • Adsorpciószűrőelem - göngyölt szénzövet • Absorbėjošs filtra elements - saīta ogleklā drāniņa • Adsorbicinis filtravimo elementas - susuktas anglies audinys • Адсорбционный фильтрующий элемент - ткань из углеродистого волокна • Adsorbicijski filtrirni element - navita ogljikova krpa • Adsorpsiyon filtersi ögesi - Sarılı karbon kumaş • Element tal-filtru li jassorbixxi - Xoqqa tal-karbonju mgeżwra 			
	<ul style="list-style-type: none"> • Ensure correct tool is used • Zorg dat het juiste gereedschap wordt gebruik • Vérifier que les outils adéquats sont utilisés. • Se till att rätt verktyg används. • Sørg for at benytte korrekt værktøj • Asegúrese de que se utiliza la herramienta adecuada • Assicurarsi di utilizzare l'utensile corretto • Uistite sa, že používate správny nástroj • Tagage öge tööriista kasutamine • Izmantojiet tikai atbilstošus darbarīkus • Убедитесь, что используется правильный инструмент • Doğru alet kullanımlarını sağlayın 		<ul style="list-style-type: none"> • Stellen Sie sicher, dass Sie das richtige Werkzeug verwenden. • Käyttävää oikeaa työkalua • Pass på at korrekt verktoy brukes • Βεβαιωθείτε ότι χρησιμοποιείται το σωστό εργαλείο • Certifique-se de que é utilizada a ferramenta correcta • Należy używać odpowiedniego narzędzia. • Zkontrolujte použití správného nástroje • Mindig a célnak megfelelő szerszámot használja • Isitinkite, kad naudojamais reikiamas įrankis • Poskrbite, da boste uporabili ustrezno orodje • Kun žgur li tintuza l-ghodda t-tajba 	

AC010 - AC030

**Warning!**

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

Retain this user guide for future reference

Waarschuwing!

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

Bewaar deze handleiding als naslag.

Warnung!

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

Bewahren Sie die Bedienungsanleitung zu Referenzzwecken auf.

Attention !

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

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

Varoitus!

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

Säilytä tämä käyttöohje tulevaa tarvetta varten.

Varning!

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

Behåll denna användarhandbok som referens

Advarsel!

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

Ta vare på denne brukerveiledningen for senere bruk

Advarsel!

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

Gem denne vejledning til senere reference.

Προειδοποίηση!

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

Φυλάξτε αυτό το εγχειρίδιο χρήσης για μελλοντική αναφορά

Advertencia

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

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

Advertência!

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

Conserve este guia do utilizador para referência futura

AC010 - AC030

MT

Rakkomandazzjonijiet għall-Installazzjoni

Nirakkomandaw li l-arja kumpressata tiġi trattata qabel ma tidhol fis-sistema ta' distribuzzjoni kif ukoll fil-punti ċ l-applikazzjonijiet kritiċi ta' l-użu.

L-installazzjoni ta' tagħmir li jnixxef l-arja kumpressata fuq sistema li kienet imxarba jista' jirriżulta f'aktar tagħbija ta' hmieg għall-filtri li jintużaw f'punt wiehed, għall-perjodu sakemm is-sistema ta' distribuzzjoni tinxej. L-elementi tal-filtri jista' jkollhom bżonn li jinbidlu aktar spiss matul dan il-perjodu.

Għal installazzjonijiet fejn jintużaw kumpressuri mingħajr żejt, xorta jkun hemm prezenti ajrusols u partijiet ta' l-ilma, għalhekk xorta għandhom jintużaw gradi bi skop ġenerali u b'effiċjenza kbira.

Filtru għal skopijiet ġenerali għandu dejjem jiġi installat biex jiproteġi l-filtru ta' effiċjenza kbira mill-volum kbir ta' ajrusols likwidi u partijiet solidi.

Installa tagħmir ta' purifikazzjoni fl-aktar temperatura baxxa possibbli imma b'mod li ma jkunx hemm iffriżar, preferibbilment aktar 'l isfel mill-aftercoolers u mir-riċevituri ta' l-arja.

Tagħmir tal-purifikazzjoni fil-punt ta' l-użu għandu jiġi installat kemm jista' jkun qrib tal-post fejn għandu japplika.

It-tagħmir ta' purifikazzjoni m'għandux jiġi installat aktar 'l isfel mill-valvs li jifflu malajr u għandu jkun protett minn possibiltà ta' fluss b'lura jew kundizzjonijiet oħra stressanti.

Naddaf il-pajps kollha li jwasslu għat-tagħmir ta' purifikazzjoni qabel tinstalla u l-pajps kollha wara li tinstalla t-tagħmir ta' purifikazzjoni u qabel ma tqabbad ma' l-applikazzjoni finali.

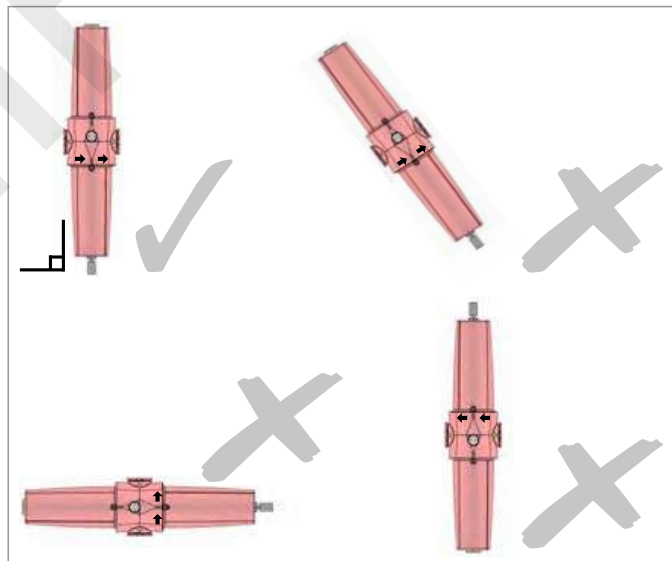
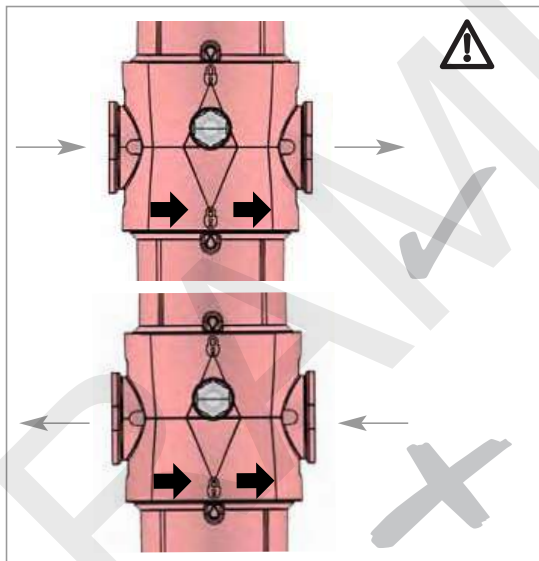
Jekk tiffittja linji ta' by-pass madwar it-tagħmir ta' purifikazzjoni, kun żgur li hemm biżżejjed filtrazzjoni f'fittjata mal-linja tal-by-pass biex ma thallix li jkun hemm kontaminazzjoni tas-sistema aktar 'l isfel.

Ipprovdni faċilità biex tiddrejnja l-likwidi li jingabru mit-tagħmir tal-purifikazzjoni. Il-likwidi li jingabru għandhom jiġu trattati u mormija b'mod responsabbli.

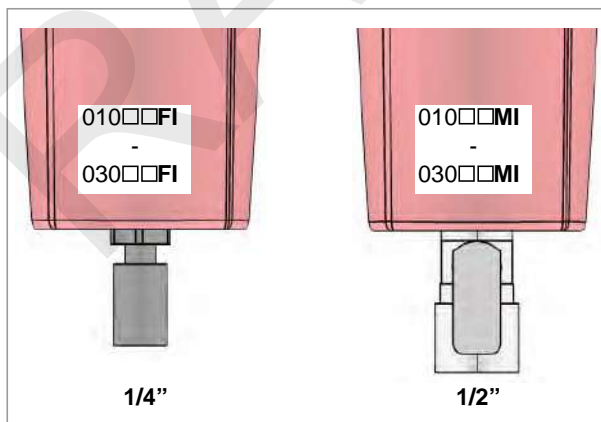
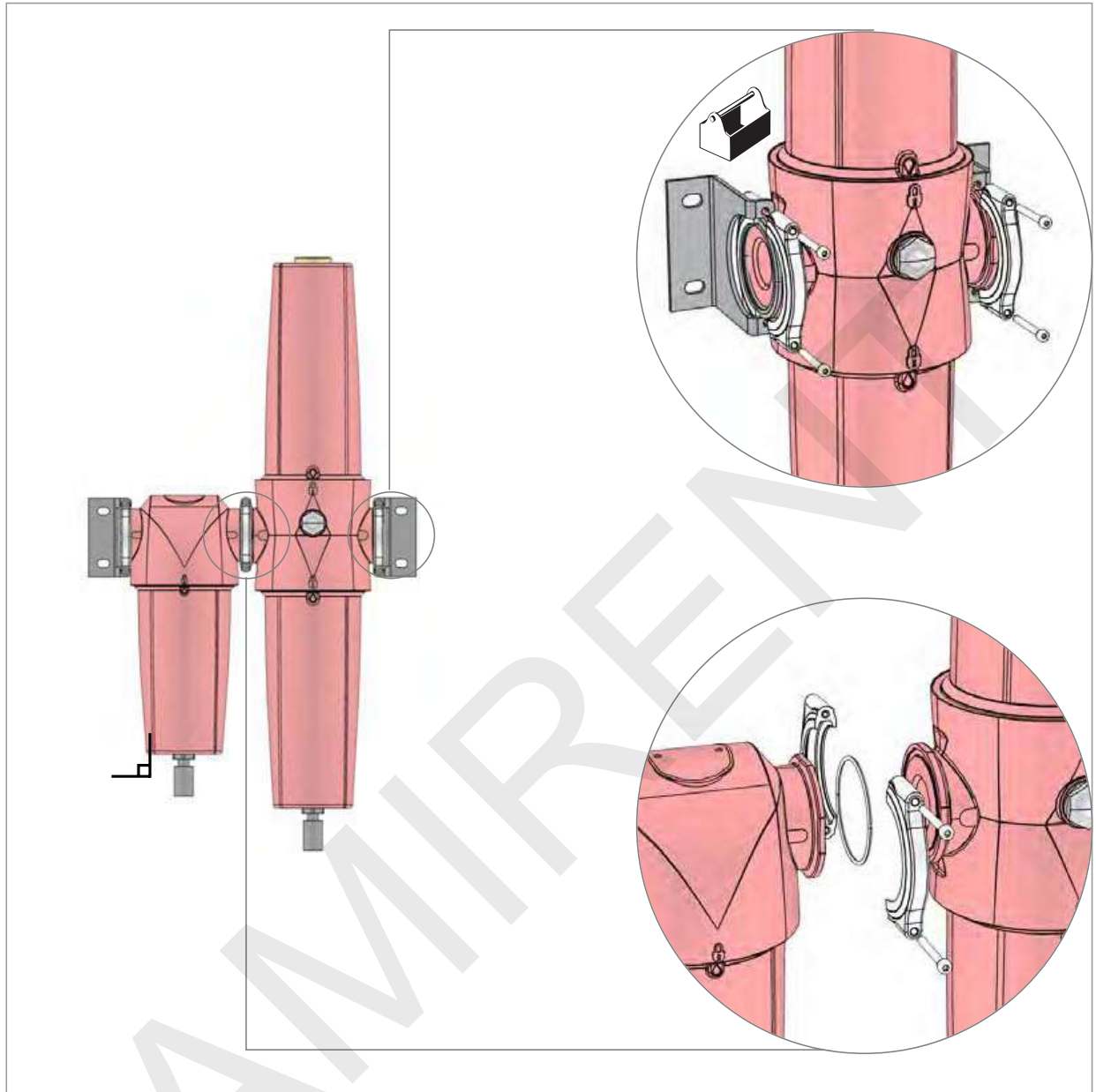
Iż-żmien kemm idumu jersvu l-elementi tal-filtru li jneħhi l-fwar taż-żjut huwa affettwat mill-koncentrazzjoni taż-żejt tad-dhul, l-umdità relattiva u t-temperatura tas-sistema ta' l-arja kumpressata. L-elementi li jneħhu l-fwar taż-żjut ikollhom bżonn jinbidlu aktar ta' sikwit mill-element shih ekwivalenti.

Mudelli AC010□□□□ - AC030□□□□ huma f'fittjati b'indikatur tal-volum taż-żejt. Kemm l-elementi tal-filtru kif ukoll l-indikatur għandhom jinbidlu jekk l-indikatur isir ta' kulur blu.

Jekk Joghġbok Innota - Dan hu indikatur tal-volum taż-żejt u ma jindikax iż-żmien li jdum iservi l-element tal-filtru.




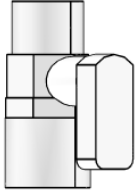
AC010 - AC030








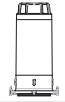




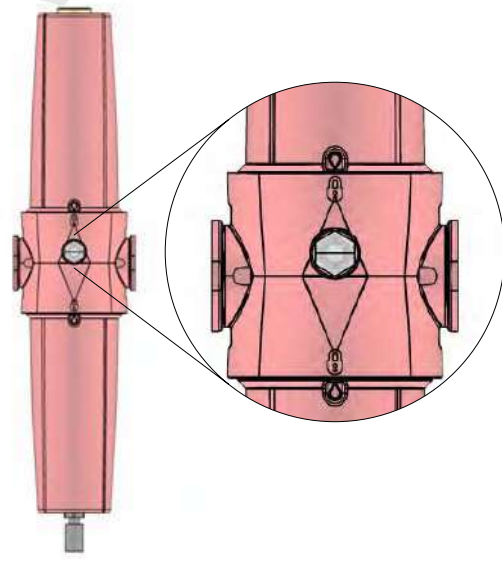
AC010 - AC030

5. Spare Parts (Service Kits)

Reserve-onderdelen (servicekits) • Ersatzteile (Service-Kits) • Pièces de rechange (nécessaires d'entretien) • Varaosat (Huoltopakkaukset) • Reservdelar (servicesatser) • Reservedeler (service-sett) • Reservedele (Servicekit) • Ανταλλακτικά (Πακέτα τεχνικής υποστήριξης) • Piezas de repuesto (kits de mantenimiento) • Peças Sobressalentes (Kit de Reparação) • Ricambi (kit per l'assistenza) • Części zamienne (zestawy serwisowe) • Náhradné diely (Servisná súprava) • Náhradní díly (Sady pro údržbu) • Varuosad (hooldekomplektid) • Pótalkatrészek (szervizkészletek) • Rezerwes części (apkopes komplekti) • Atsarginės dalys (priežiros detalių komplektai) • Запасные части (ЗИП) • Nadomestni deli (servisni kompleti) • Yedek parça (Servis kiti) • Partijiet Ghat-Tibdil (Kitts tas-Servizz)

 EF1	<ul style="list-style-type: none"> • AUTOMATIC DRAIN • AUTOMATISCHER ABLAUF • VIDANGE AUTOMATIQUE • AUTOMISCHAFTAPPEN • DRENAJE AUTOMATICO • SCARIO AUTOMATICO • AUTOMATISK AFLØB • DRENO AUTOMÁTICO • ΑΥΤΟΜΑΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ • AUTOMATDRÄNERING • AUTOMAATTINEN • TYHJENNYSKAPPALE • DREN AUTOMATYCZNY • AUTOMATICKÉ VYSUŠENIE • AUTOMATICKÉ VYPOUŠTĚNÍ • AUTOMAATNE VÄLJALASE • AUTOMATIKUS LEERESZTÉS • AUTOMÁTISKA IZTECINĀŠANA • AUTOMATINIS IŠLEIDIMAS • АВТОМАТИЧЕСКИЙ ДРЕНАЖ • SAMODEJNI ODTOK • OTOMATİK SÜZDÜRÜCÜ • DREJN AWTOMATIKU 	 EM1	<ul style="list-style-type: none"> • MANUAL DRAIN • MANUELLER ABLAUF • VIDANGE MANUELLE • MANUEEL AFTAPPEN • DRENAJE MANUAL • SCARIO MANUALE • MANUELT AFLØB • DRENO MANUAL • ΧΕΙΡΟΚΙΝΗΤΗ ΑΠΟΣΤΡΑΓΓΙΣΗ • MANUELL DRÄNERING • ΚΑΣΙΚΑΥΤΤΟΙΝΕΝ • TYHJENNYSKAPPALE • DREN RĘCZNY • RUČNÉ VYSUŠENIE • RUČNÍ VYPOUŠTĚNÍ • KÄSITSI VÄLJALASE • KÉZI LEERESZTÉS • MANUĀLA IZTECINĀŠANA • RANKINIS IŠLEIDIMAS • ДРЕНАЖ ВРУЧНУЮ • ROČNI ODTOK • ELLE KULLANILACAK SÜZDÜRÜCÜ • DREJN MANWALI
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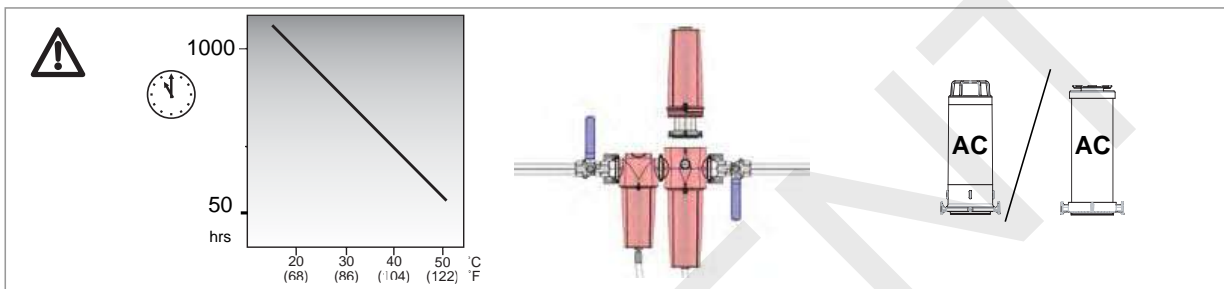
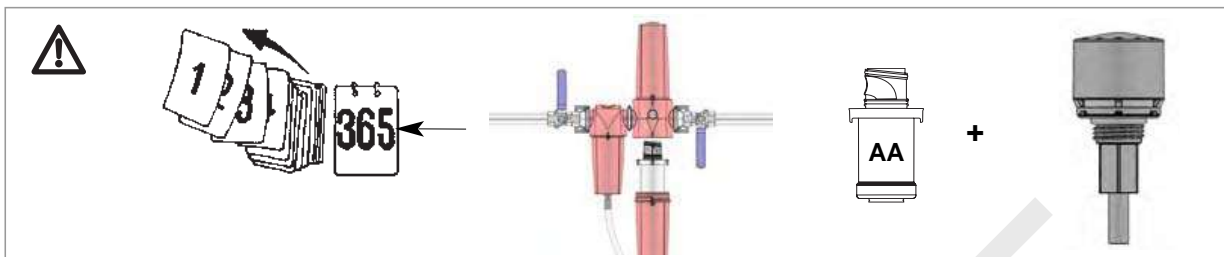
	 AA	 AC	 AC
010 A	010AA	010AC	
010 B			
010 C			
015 B	015AA	015AC	
015 C			
020 C			
020 D	020AA	020AC	
020 E			
025 D	025AA	025DAC	
025 E	025AA	025EAC	
030 E			
030 F	030AA	030AC	
030 G			



BOIE1
AC010 □□□ I - AC030 □□□ I

AC010 - AC030
6. Maintenance

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



Models AC010□□□I - AC030□□□I are fitted with a bulk oil indicator. Both filter elements and indicator should be changed if indicator is blue in colour.

Please Note - This is a bulk oil indicator, it does not indicate filter element life.

Modellen AC010□□□I - AC030□□□I zijn uitgerust met een bulk olie indicator. Zowel de filterelementen als de indicator moeten vervangen worden als de indicator blauw van kleur is.

N.B. - Dit is een bulk olie indicator, het is geen indicator voor de levensduur van het filterelement.

Die Modelle AC010□□□I - AC030□□□I sind mit einer Ölanzeige ausgestattet. Sowohl die Filterelemente also auch die Anzeige sollte ausgetauscht werden, wenn sich die Anzeige blau färbt.

Bitte beachten - Es handelt sich hier um eine Ölanzeige. Diese gibt keinen Hinweis auf die Lebensdauer des Filterelements.

Les modèles AC010□□□I - AC030□□□I sont fournis avec un indicateur de présence massive d'huile. Lorsque l'indicateur est bleu, il est nécessaire de remplacer les cartouches et l'indicateur.

Remarque : Il s'agit d'un indicateur de présence massive d'huile, et non pas de la durée de vie des cartouches.

Malleissa AC010□□□I – AC030□□□I on öljynilmais. Sekä suodatinelementit että ilmaisin on vaihdettava, jos ilmaisin on sininen.

Huomautus – Tämä on öljynilmais. Se ei ilmaise suodatinelementin ikää.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera — indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Modell AC010□□□I - AC030□□□I er monteret med bulkvolum oljeindikator. Både filterelementer og indikator skal skiftes når indikatorn er blå.

Merk – Dette er en bulkvolum oljeindikator, den indikerer ikke filterelementets levetid.

Modell AC010□□□I - AC030□□□I har en indikator för större mängder olja. Både filterelement och indikator ska bytas om indikatorn har blå färg.

Observera — indikatorn visar oljeförekomst, den indikerar inte filterelementets livslängd.

Τα μοντέλα AC010□□□I - AC030□□□I διαθέτουν ένα δείκτη παρουσίας λαδιού. Όταν ο δείκτης είναι μπλε πρέπει να αλλάζονται τόσο τα φίλτρα όσο και οι δείκτες.

Παρακαλούμε σημειώστε ότι - Αυτός είναι ένας δείκτης παρουσίας λαδιού, δεν υποδεικνύει τη διάρκεια ζωής του φίλτρου.

Los modelos AC010□□□I - AC030□□□I disponen de un indicador de presencia de aceite. Si el indicador se vuelve azul deben cambiarse tanto los elementos filtrantes como el indicador.

Nota importante: se trata de un indicador de presencia de aceite. No indica la vida del elemento filtrante.

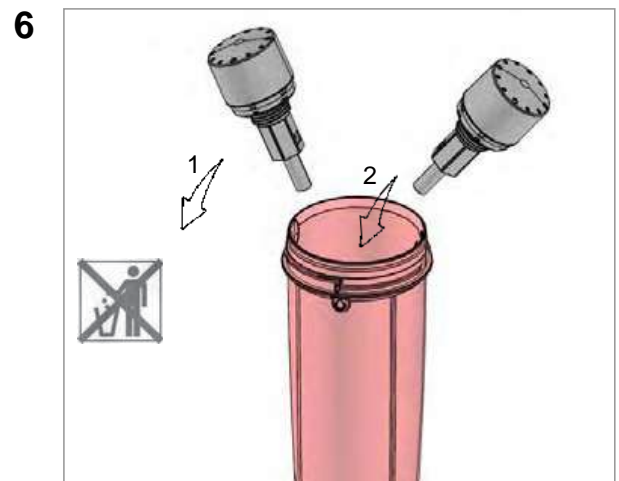
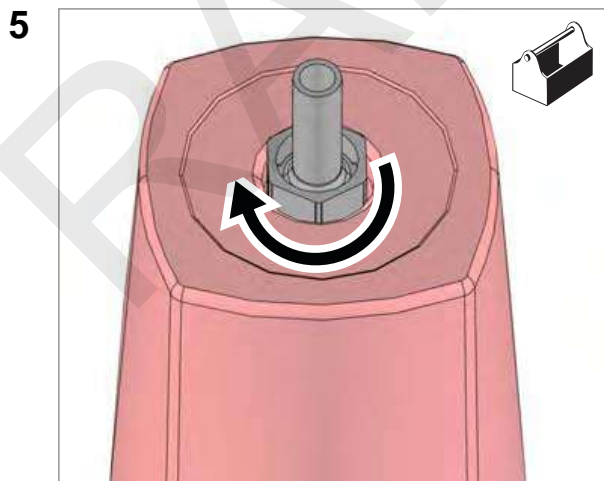
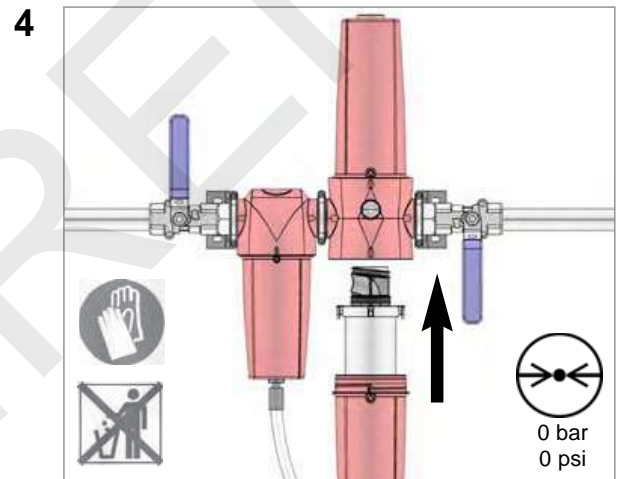
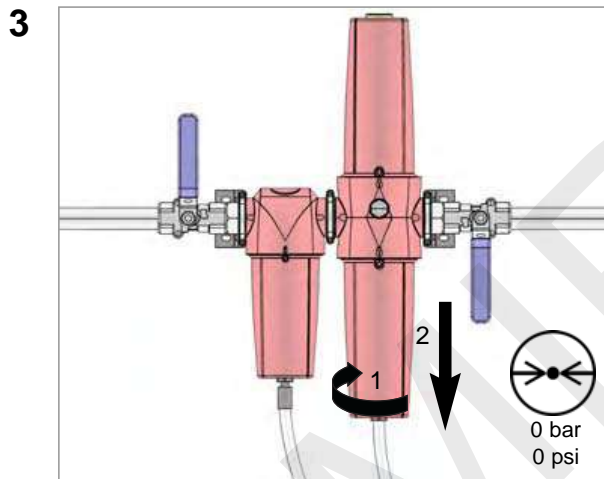
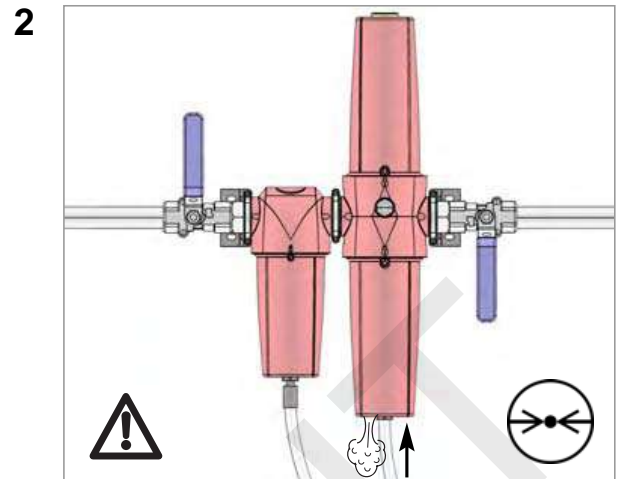
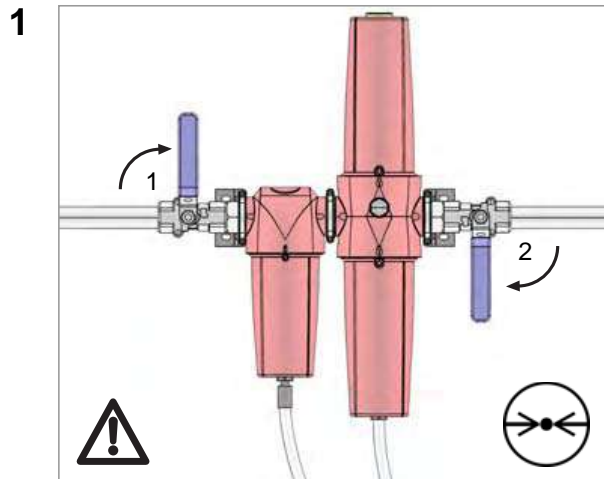
Modelos AC010□□□I - AC030□□□I são instalados com um indicador do óleo em bruto. Ambos os elementos do filtro e o indicador deverão ser mudados se o indicador estiver azul.

Nota - Este é um indicador do óleo em bruto, não indica a vida útil do elemento do filtro.

I modelli AC010□□□I - AC030□□□I sono provvisti di un indicatore degli oli misti. Sostituire gli elementi filtranti e l'indicatore quando il secondo assume una colorazione blu.

Nota - L'indicatore segnala la presenza di oli misti, ma non la durata dell'elemento filtrante.

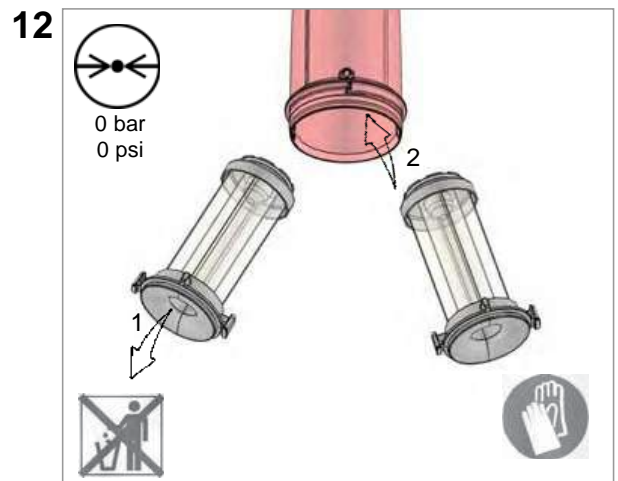
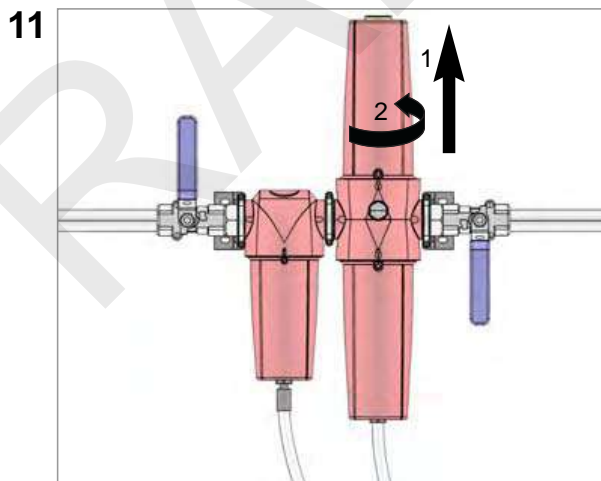
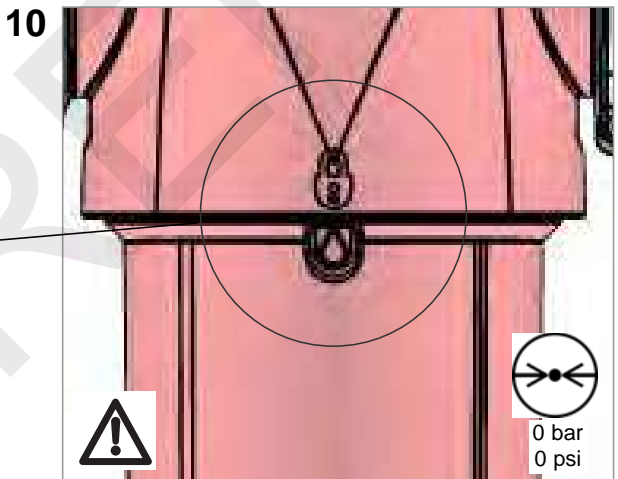
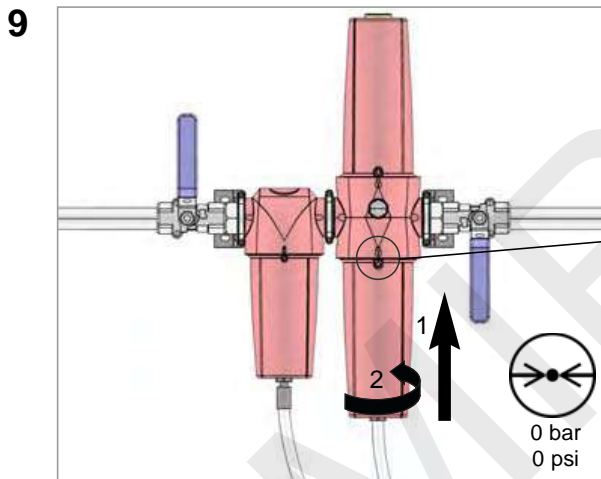
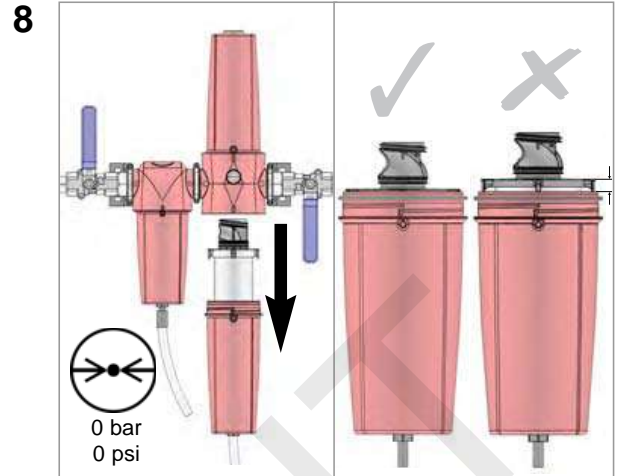
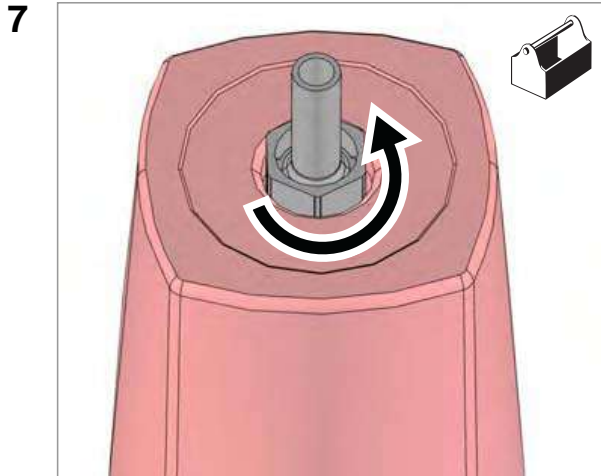
AC010 - AC030



9

FILTER-DH-OIL-XEVOLUTION 01

AC010 - AC030

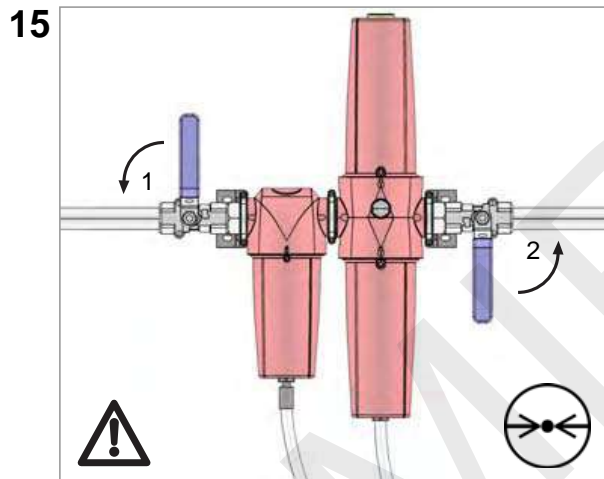
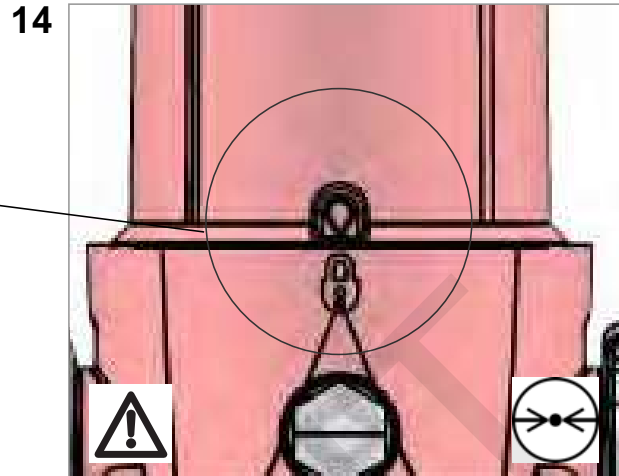
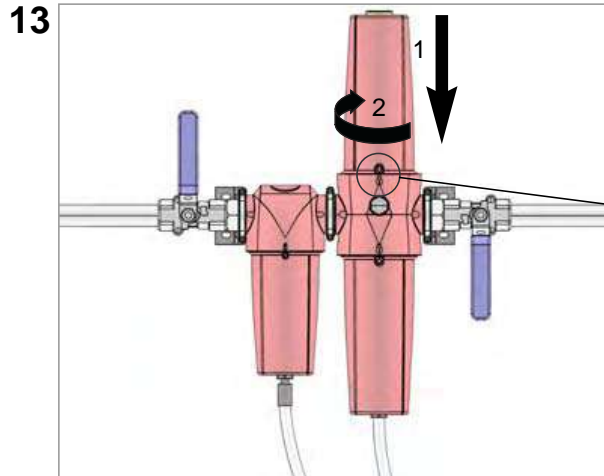


10










FILTER-DH-OIL-XEVOLUTION 01

30

AC010 - AC030



AC010 - AC030

EN	NL	DE
<p>Declaration of Conformity</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK AC010, 015, 020 025, 030 97/23/EC.</p> <p>Generally in accordance with ASMEV11 Div 1 : 2004.</p> <p>Article 3.3 (AC 010, 015, 020, 025) Module A (AC 030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Declaration</p> <p>I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the standards and other related documents following the provisions of the above Directives.</p> <p>Signature:  Date: 28 / 09 / 05</p> <p>Declaration Number: 0001/280905</p>	<p>Verklaring van Conformiteit</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.</p> <p>Gewoonlijk volgens ASMEV11 Div 1 : 2004.</p> <p>Artikel 3.3 (AC 010, 015, 020, 025) Module A (AC 030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Manager Bedrijfsysteemverbetering domnick hunter ltd</p> <p>Verklaring</p> <p>Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.</p> <p>Handtekening:  Datum: 28 / 09 / 05</p> <p>Verklaringnummer: 0001/280905</p>	<p>Konformitätserklärung</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear NE11 0PZ GROSSBRITANNIEN AC010, 015, 020 025, 030 97/23/EC.</p> <p>Allgemein in Übereinstimmung mit ASMEV11 Div 1 : 2004.</p> <p>Artikel 3.3 (AC 010, 015, 020, 025) Modul A (AC030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Erklärung</p> <p>Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien.</p> <p>Unterschrift:  Datum: 28 / 09 / 05</p> <p>Numer der Erklärung: 0001/280905</p>
<p>Declaration of conformity</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ GB AC010, 015, 020 025, 030 97/23/EC.</p> <p>Yleensä seuraavaan standardin mukaisesti: ASMEV11 Div 1; 2004.</p> <p>Artikla 3.3 (AC010, 015, 020, 025, 030) Moduul A (AC030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Yhtisjärjestelmien kehittäjäosasto domnick hunter ltd</p> <p>Vakuutus</p> <p>Vakuutuksena edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän tuotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden asiaan liittyvien asiakirjien mukaisia ja noudattavat yllä mainittuja direktiivejä.</p> <p>Allekirjoitus:  Päiväys: 28 / 09 / 05</p> <p>Vakuutuksen numero: 0001 /280905</p>	<p>Verklaring van Conformiteit</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.</p> <p>Gewoonlijk volgens ASMEV11 Div 1 : 2004.</p> <p>Artikel 3.3 (AC 010, 015, 020, 025) Module A (AC 030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Manager Bedrijfsysteemverbetering domnick hunter ltd</p> <p>Verklaring</p> <p>Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.</p> <p>Handtekening:  Datum: 28 / 09 / 05</p> <p>Verklaringnummer: 0001/280905</p>	<p>Försäkran om överensstämmelse</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, Storbritannien AC010, 015, 020 025, 030 97/23/EC.</p> <p>Generellt i enlighet med ASMEV11 Div 1: 2004.</p> <p>Artikel 3.3 (AC010, 015, 020, 025, 030) Modul A (AC030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Försäkran</p> <p>Jag försäkrar, i egenskap av auktoriserad representant, att ovanstående information avseende leverans/ tillverkning av denna produkt överensstämmer med standarder och övriga relevanta dokument enligt Villkoren i ovanstående direktiv.</p> <p>Underskrift:  Datum: 28 / 09 / 05</p> <p>Försäkran nummer: 0001/280905</p>
<p>Déclaration de conformité</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ GB AC010, 015, 020 025, 030 97/23/EC.</p> <p>Généralement conforme à ASMEV11 div. 1 : 2004.</p> <p>Article 3.3 (AC010, 015, 020, 025, 030) Module A (AC030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Déclaration</p> <p>Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents liés déclarés selon les dispositions des directives susmentionnées.</p> <p>Signature :  Date : 28 / 09 / 05</p> <p>N° de déclaration : 0001/280905</p>	<p>Verklaring van Conformiteit</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, GB AC010, 015, 020 025, 030 97/23/EC.</p> <p>Gewoonlijk volgens ASMEV11 Div 1 : 2004.</p> <p>Artikel 3.3 (AC 010, 015, 020, 025, 025) Module A (AC 030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Verklaring</p> <p>Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.</p> <p>Handtekening:  Datum: 28 / 09 / 05</p> <p>Verklaringnummer: 0001/280905</p>	<p>Konformitätserklärung</p> <p>domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear NE11 0PZ GROSSBRITANNIEN AC010, 015, 020 025, 030 97/23/EC.</p> <p>Allgemein in Übereinstimmung mit ASMEV11 Div 1 : 2004.</p> <p>Artikel 3.3 (AC 010, 015, 020, 025, 030) Modul A (AC030)</p> <p>N/A</p> <p>N/A</p> <p>Barry Wade Business Systems Improvement Manager domnick hunter ltd</p> <p>Erklärung</p> <p>Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien.</p> <p>Unterschrift:  Datum: 28 / 09 / 05</p> <p>Numer der Erklärung: 0001/280905</p>

13.8 Service tasks on the diesel particulate filter

To ensure the proper functioning of the diesel particulate filter, an authorised service technician must perform annual maintenance.

Have the following tasks performed by a specialist workshop or the KAESER SERVICE:

- Pressure lines:
 - Check for tight joints, wear and leaks.
- Solenoid valve
 - Check that all electrical connections are tight.
 - Undo fittings and hoses and clean the inside of the valve.
 - Check for leaks.
- Fuel pump(s)
 - Make a visual and auditory check.
 - Check that all electrical connections are tight.
 - Check fuel hoses for leaks.
- Aerosol generator
 - Check that all electrical connections are tight.
 - Check fuel connection for leaks.
 - Clean the injector nozzle.
- Filter module:
 - Visually inspect for damage, inside and outside.
 - Check monoliths for cracks/soot emissions.
 - Remove dirt with industrial vacuum cleaner.
 - Check tightness of straps and/or clamps.

13.9 Option ga Service tasks - Generator

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

Have the following tasks performed by a specialist electrician or the KAESER SERVICE:

- Inspect the generator and generator control cubicle for mechanical damages.
- Inspect the protective conductor.
- Measure the dielectric resistance.
- Measure the substitute leakage current.
- Test the generator functionality.
- Test the proper functioning of the generator fan and clean, if required.
- Clean the cooling air openings.
- Check and tighten the screw connections at the generator and the generator control cubicle.
- Check covers and power socket caps for damage and good sealing.
- Check the completeness of labeling and warning labels.