Service instructions
for heating engineers

Vitoflame 100
Oil pressure jet burner (type VE III)
for Vitoplex 100
Rated output 90 to 210 kW

See notes on applicability, page 2.

VITOFLAME 100

Vitoflame 100 oil burner fitted to Vitoplex 100

5692 533 GB 5/2003

Please keep safe

Safety instructions

Please follow these safety instructions closely to prevent accidents and material losses.

Work on the equipment
Installation, initial start-up, inspection, maintenance and repairs must only be carried out by a competent person (heating engineer/installation contractor).

Before working on the equipment/ heating system, isolate the mains electrical supply (e.g. by removing a separate mains fuse or by means of a mains electrical isolator) and safeguard against unauthorised reconnection.

Repair work
It is not permitted to carry out repairs on parts that fulfil a safety function. Use only original Viessmann spare parts, or equivalent parts that have been approved by Viessmann.

Initial start-up
The initial start-up must be carried out by the system installer or a designated commissioning engineer; all actual values should be recorded in a commissioning/service report.

Instructing the system user
The system installer must hand the operating instructions to the system user and instruct him/her in the operation of the system.

Applicability

from serial no.
7170981 3 00001 ␣␣␣, 7174936 3 00001 ␣␣␣, 7174937 3 00001 ␣␣␣ and 7174938 3 00001 ␣␣␣

Operating and service documents

1. Complete and detach the customer registration card:
   - Give the system user this part for safe-keeping.
   - Retain the heating engineer portion.
2. Keep all parts lists, operating and service instructions in the folder and hand this over to the system user.

5692 533 GB

Index

Page

General information
Safety instructions 2
Applicability 2
Operating and service documents 2

Initial start-up, inspection and maintenance
Steps – initial start-up, inspection and maintenance 4
Further details regarding the individual steps 5

Troubleshooting
Diagnostics 16

Component summary 20

Connection and wiring diagrams 23

Parts list 28

Appendix
Specification 36
Standard values for burner settings 37
Commissioning/service report 38
Keyword index 52

5692 533 GB

Steps – initial start-up, inspection and maintenance

For further instructions on individual steps, see pages indicated.

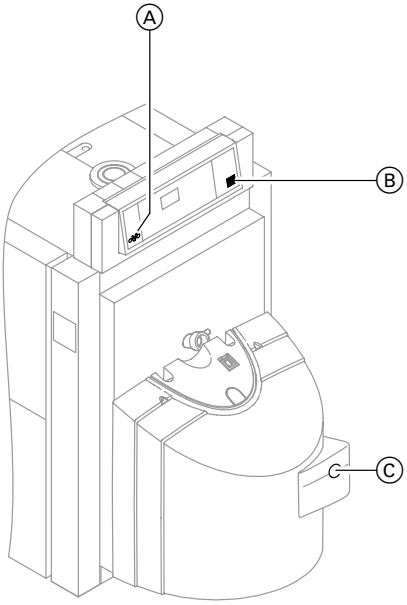
C	I	M		Page
C			**1. System start-up**	5
C	I	M	**2. Checking adjustment of air damper actuator**	6
C		M	**3. Oil pressure adjustment and vacuum check**	7
C		M	**4. Air volume adjustment**	9
C		M	**5. Checking burner (record values on page 38 of commissioning report)**	
	I	M	**6. Checking and cleaning flame monitor**	11
	I	M	**7. System shutdown**	
	I	M	**8. Checking tightness of electrical connections**	
		M	**9. Cleaning burner**	12
	I	M	**10. Checking impeller fixings**	
	I	M	**11. Checking flame tube fixings**	
		M	**12. Nozzle replacement**	13
	I	M	**13. Checking and, if required, adjusting ignition electrodes**	14
		M	**14. Burner chassis installation on burner housing**	
		M	**15. Cleaning and, if required, replacing oil pump filter**	15
		M	**16. Replacing pre-filter element**	
	I	M	**17. System start-up**	
	I	M	**18. Checking oil supply pipes and connections for leaks**	
		M	**19. Checking burner again and entering actual values in commissioning report**	

5692 533 GB

Further details regarding the individual steps

To obtain the optimum combustion values, it is essential to adjust the burner with the boiler heated to operating temperature (min. 60 °C).
Also carry out measurements at base load.

System start-up



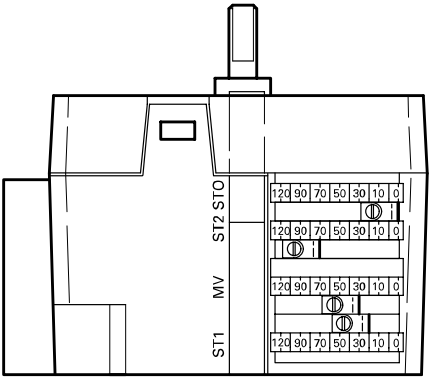
Service instructions
Boiler control unit

1. Check the heating system pressure and the oil level in the tank.
2. Open the shut-off valves in the oil supply lines on the oil tank and on the filter.
3. Fill the oil suction line and the filter with fuel oil using a manual oil suction pump **before** switching the burner ON.
4. Switch ON the mains electrical isolator (outside the boiler room).
5. Switch ON system ON/OFF switch Ⓑ on the control unit. If fault indicator lamp Ⓐ on the control unit lights up, press reset button Ⓒ on the burner.

5692 533 GB

Further details regarding the individual steps (cont.)

Checking adjustment of air damper actuator



The burner is equipped with an air damper actuator motor with adjustable switching cams for setting the air damper position and for switching the solenoid valves.
During a regular shutdown, the burner air damper will drive into the "closed" position. This reduces cooldown losses.
The switching cams are located below the air damper actuator motor cover. A scaling ring is located adjacent to each switching cam, which enables the set angle of the air damper to be checked.

The switching cams have the following function:
ST 0 Air damper closed (0°)
Never alter the ST 0 setting.
ST 1 Air damper setting stage 1
ST 2 Air damper setting stage 2
MV Solenoid valve stage 2

The switching cams for stage 1 and 2 are set up at the factory.
For factory settings, see page 37.

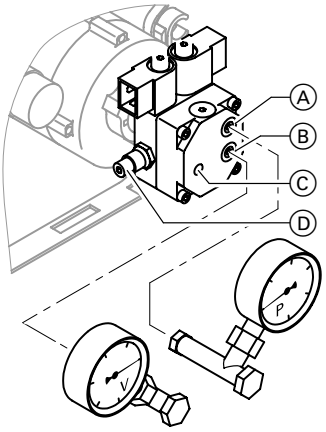
The switching cams are adjusted via the slotted screws on the cams.

5692 533 GB

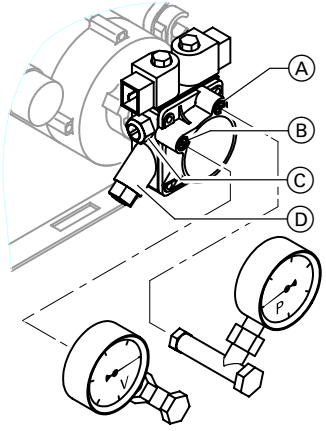
Further details regarding the individual steps (cont.)

Oil pressure adjustment and vacuum check

The oil pressure is preset at the factory according to the oil throughput. Re-adjust the oil pressure if necessary.



Danfoss oil pump, type BFP 52



Suntec oil pump, type AT 2-55

1. Isolate the mains electrical isolator and safeguard against unauthorised reconnection.

2. Remove plug "P" Ⓐ from the oil pump.

3. Remove plug "V" Ⓑ from the oil pump.

This allows the oil to drain from the oil pump.

4. Insert a pressure gauge (range 0-40 bar) and a vacuum gauge (range 0-1 bar).

Seal the pressure and vacuum gauges only with copper or aluminium gaskets or O-rings. Do not use sealing tape.

5. Start the burner.

The solenoid valve opens.

6. Read off the oil and vacuum pressures of the pump on the relevant gauges (vacuum should be max. 0.35 bar given a head of 3 m between the oil pump and the bottom of the tank).

Where the vacuum measures higher than 0.35 bar, check the filter for cleanliness or the pipe run.

5692 533 GB

Further details regarding the individual steps (cont.)

7. If necessary, adjust the oil pressure at the pressure adjusting screw for stage 1 Ⓒ and stage 2 Ⓓ.
Turn clockwise → pressure rises
Anti-clockwise → pressure falls.

For standard values for burner settings, see page 37.

8. Check the emission values by taking actual measurements after checking the oil pressure.

9. Switch OFF the mains isolator and safeguard against unauthorised reconnection.

10. Remove the pressure and vacuum gauges.

11. Insert plugs "P" Ⓐ and "V" Ⓑ.

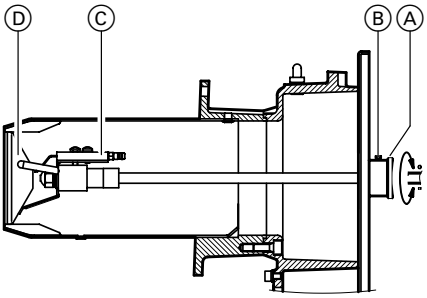
Check the plugs for damage and replace if necessary.

12. Start the burner and check the plugs for leaks.

Further details regarding the individual steps (cont.)

Air volume adjustment

The air volume is preset at the factory. If necessary, readjust the air volume, first adjusting the air volume for stage 2 at the blast tube connection. Starting up the burner may require a fine adjustment.



Fine adjustment stage 2

1. Release locking screw Ⓑ.

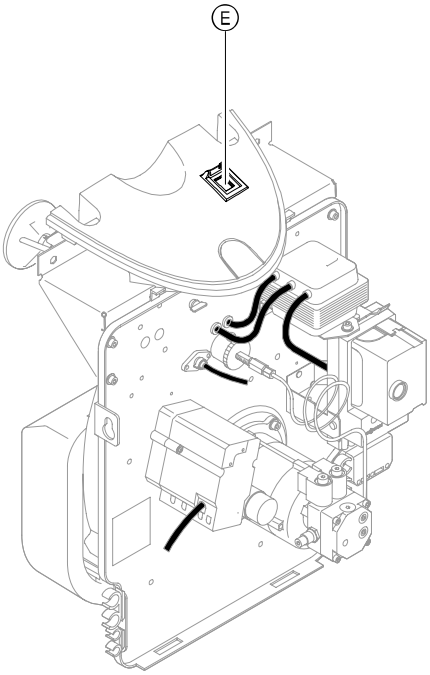
2. Modify the position of sensor plate Ⓓ inside flame tube Ⓒ. To do this, turn thumb screw Ⓐ:
- Clockwise
  → larger cross-section
  → more air,
- Anti-clockwise
  → smaller cross-section
  → less air.

Please note:
For standard values for burner settings, see page 37.

3. Tighten locking screw Ⓑ.

5692 533 GB

Further details regarding the individual steps (cont.)



Fine adjustment stage 1

1. Set service switch Ⓔ to position II (automatic mode), and close the cover flap.

2. Switch the burner over to stage 1 by pulling plug 90.

3. Remove the actuator motor cover.

4. Modify the air volume by turning the adjusting screw on switching cams ST 1 (see fig. on page 6):
   - Clockwise → more air,
   - Anti-clockwise → less air.

   Please note:
   Adjust switching cams ST 1 (fine adjustment) in small steps.
   The set value for switching cam MV must not lie below the set value of switching cam ST 1 and not above that of switching cam ST 2.
   After every adjustment of switching cam ST1, briefly drive the burner to stage 2 and back again to stage 1 (connect plug 90 and remove again or use the service plug), to balance out the switching hysteresis.

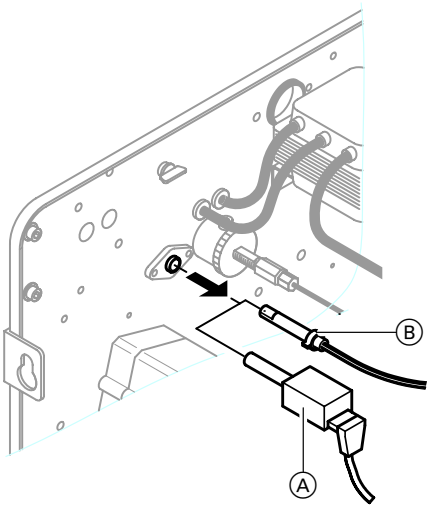
5. Fit the actuator motor cover.

6. Check the service plug adjustment.

5692 533 GB

Further details regarding the individual steps (cont.)

Checking and cleaning flame monitor



Remove flame monitor Ⓐ **(photo resistance)** from its holder with the burner running.
The system should then perform a fault shutdown, if the flame monitor is covered up.

Remove flame monitor Ⓑ **(flicker light detector)** from its holder, when the burner has been running for 30 s. When the flame monitor is covered, the flame must die down and the start-up should be repeated.

Please note:
The flicker light detector is preset at the factory to setting 4. Only adjust to a higher setting if necessary.

5692 533 GB

Further details regarding the individual steps (cont.)

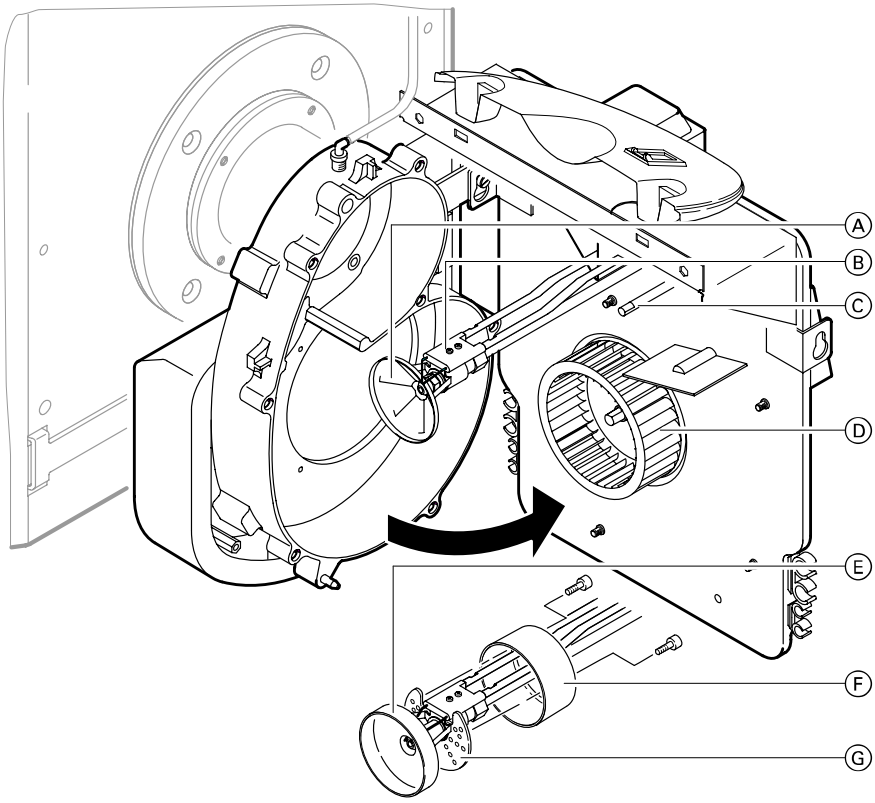
Cleaning burner

1. Set the burner to maintenance.

2. Clean the housing, the flame tube, sensor plate Ⓐ, ignition electrodes Ⓑ, flame monitor Ⓒ and impeller Ⓓ.

3. Sensor plate 90 kW Ⓔ:
Remove screen cylinder Ⓕ, and clean sensor plate Ⓔ and baffle plate Ⓖ.

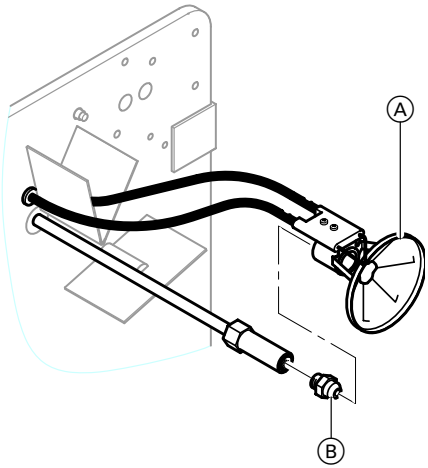
For cleaning the combustion chamber and hot gas flues, see boiler service instructions.



5692 533 GB

Further details regarding the individual steps (cont.)

Nozzle replacement



1. Remove sensor plate Ⓐ from the blast tube connection.
2. Replace nozzle Ⓑ (hold the blast tube connection to avoid the formation of air bubbles inside the blast tube connection).

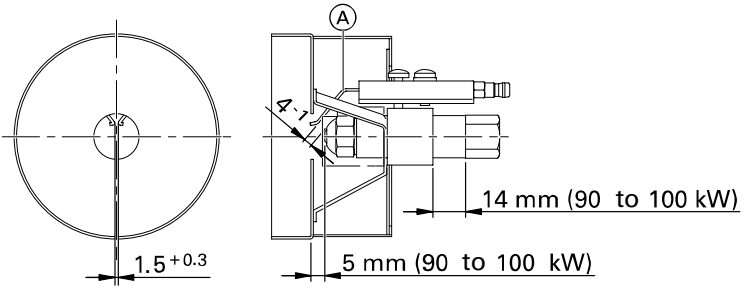
   For make and type of nozzle, see standard values for burner settings on page 37.
3. Install sensor plate Ⓐ.
   Position the nozzle centrally inside the sensor plate, and observe the clearance between the sensor plate and the nozzle (see page 14).

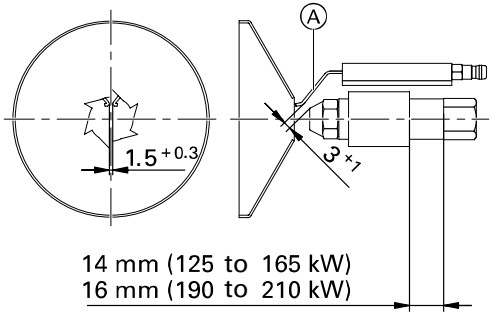
5692 533 GB

Further details regarding the individual steps (cont.)

Checking and, if required, adjusting ignition electrodes

Check ignition electrodes Ⓐ for wear, contamination and size (see fig.) and replace if necessary.

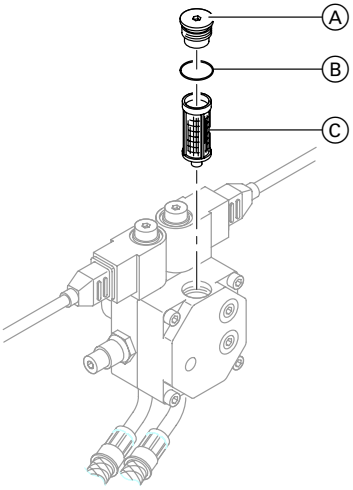




Further details regarding the individual steps (cont.)

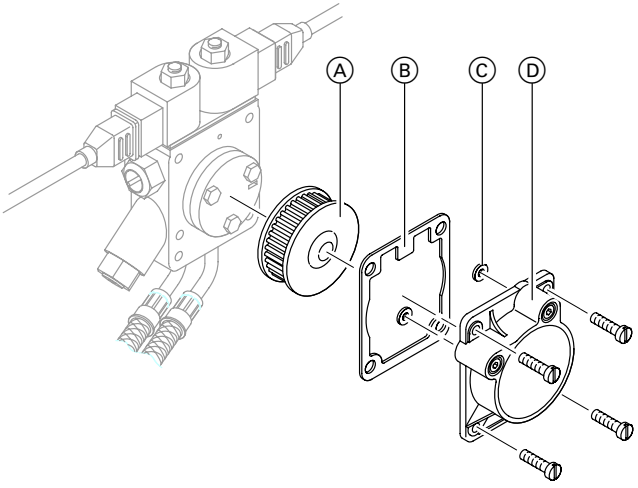
Oil pump filter, cleaning and replacing if necessary,

Danfoss oil pump, type BFP 52



Ⓐ Filter plug
Ⓑ O-ring (replace)
Ⓒ Filter (replace)

Suntec oil pump, type AT 2-55



Ⓐ Filter (clean or replace)
Ⓑ Flat gasket (replace)
Ⓒ O-rings (replace)
Ⓓ Cover

5692 533 GB

Diagnostics

Fault	Cause	Remedy
Burner does not start	No voltage present	Check fuse in control unit and in plug-in terminal block, check electrical connections, position of ON/OFF switch on control unit and mains electrical isolator
	High limit safety cut-out activated	Press reset button on boiler control unit
	Low water indicator has switched OFF	Check water level and top up, if necessary. Press reset button at boiler control unit.
	Motor faulty	Replace motor
	Actuator faulty	Replace actuator
Burner starts, but no flame builds	Ignition electrodes poorly adjusted	Adjust correctly (see page 14)
	Ignition electrodes damp and contaminated	Clean ignition electrode block
	Insulation of ignition electrodes cracked	Replace ignition transformer
	Ignition transformer faulty	Replace ignition electrode block
	Pump does not feed oil	Install pressure and vacuum gauges on pump and check build-up of pressure (see following paragraph)
	Actuator faulty	Replace actuator
	Actuator incorrectly adjusted	Correct setting

5692 533 GB

Diagnostics (cont.)

Fault	Cause	Remedy
Pump does not feed oil	Shut-off valves closed at filter or in oil pipe	Open valves
	Filter blocked	Clean filter (pre-filter and pump filter)
	Clutch between motor and pump faulty	Replace clutch
	Suction pipe leaking	Tighten connections. Check oil pipes and connections for leaks and tighten.
	Oil flow and return hoses interchanged	Connect correctly acc. to pump markings
	Vacuum in suction line too high (higher than 0.35 bar)	Check cross-section of oil supply pipe. Clean filter.
Burner starts up, but no oil injected; pressure gauge on pump indicates pressure	Solenoid valve does not open	Replace solenoid coil
	Nozzle blocked	Replace nozzle
	Control unit issues no voltage to solenoid valve	Flame monitor check (external light)
	Flame monitor faulty	Replace flame monitor
Burner starts up and flame is formed, but burner cuts out after safety time expires	Flame monitor contaminated	Clean flame monitor
	Flame monitor receives insufficient light	Clean sensor plate and inside of flame tube
	Flame monitor faulty	Replace flame monitor
	Control device faulty	Replace control device
	Water in tank	Pump out water

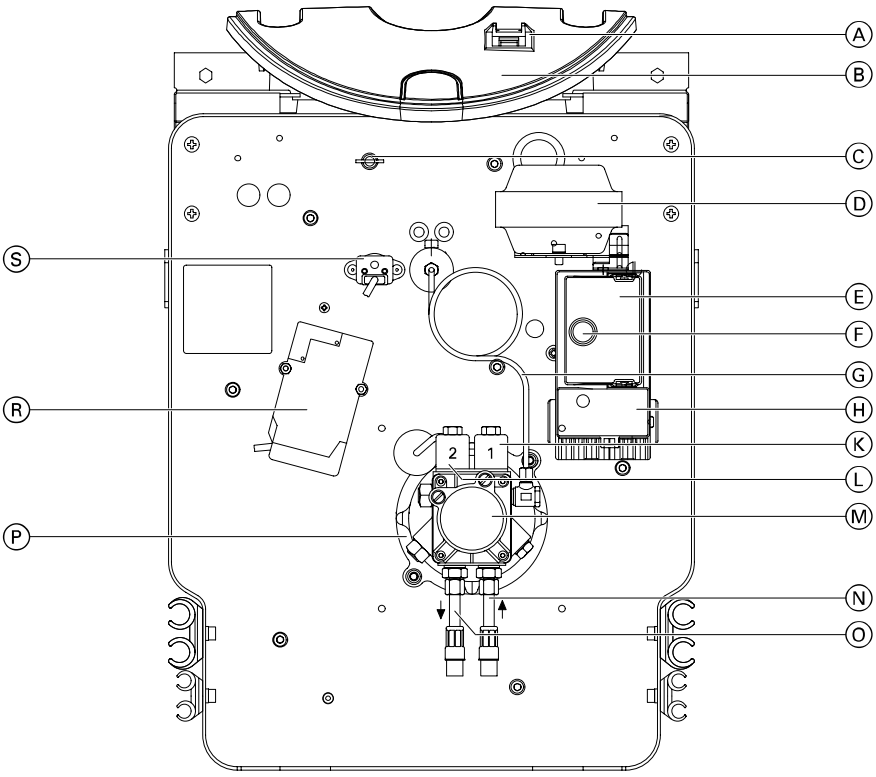
5692 533 GB

Diagnostics (cont.)

Fault	Cause	Remedy
Flame extinguishes during operation	Air in suction line	Seal line and filter
	Nozzle faulty	Nozzle replacement
	Air incorrectly adjusted, pump pressure incorrectly adjusted	Adjust pre-settings correctly (see page 37)
	Sensor plate and inside of flame tube contaminated	Clean sensor plate and inside of flame tube
	Flame monitor faulty	Replace flame monitor
Ignition switches ON during operation at stage 1	Flame monitor contaminated	Clean flame monitor
	Flame monitor faulty	Replace flame monitor
	Sensor plate or flame tube contaminated	Clean sensor plate or flame tube
Burner sooty	Too little or too much air	Correct setting. Check and clean impeller. Check boiler room ventilation.
	Insufficient chimney draught	Check flue and flue gas baffles
	Nozzle faulty	Replace nozzle and install correct nozzle (see page 37)
CO_2 content too low	Incorrect setting	Check setting (see page 37)
	Infiltrating air	Seal flue pipe at boiler adaptor. Retighten boiler door screws and those on flue outlet.
Flue gas temperature too high	Oil consumption too high	Match oil flow to rated output of boiler
	Boiler contaminated with soot	Clean boiler and correct burner settings

5692 533 GB

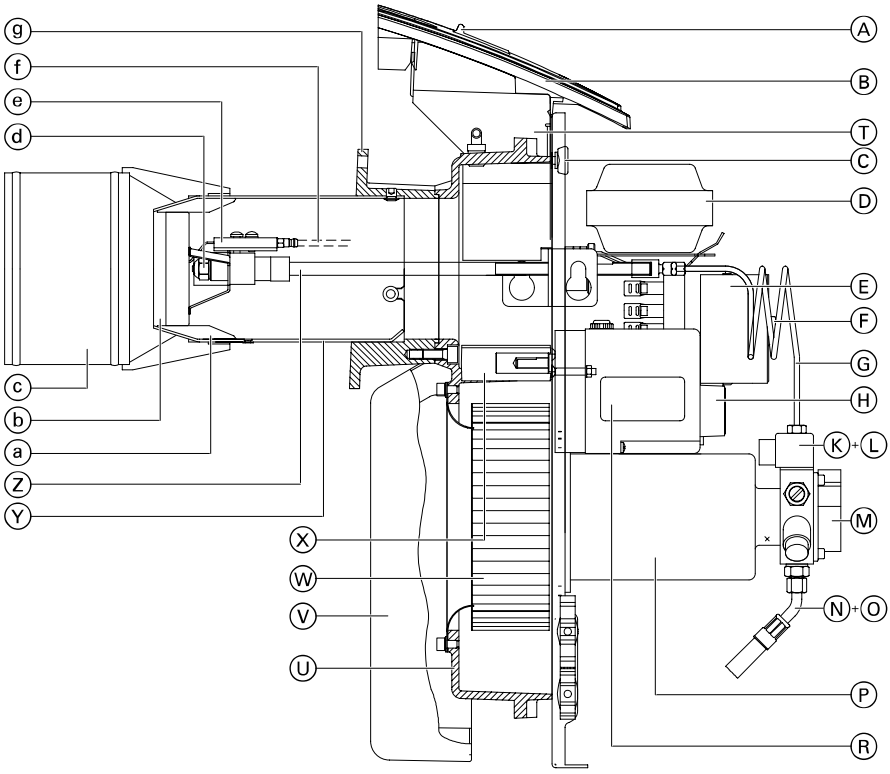
Component summary



Ⓐ Service switch (for burner adjustment)
Ⓑ Hood adaptor
Ⓒ Quick-action fastener
Ⓓ Ignition transformer
Ⓔ Burner control unit
Ⓕ Reset button
Ⓖ Oil supply pipe
Ⓗ Plug-in terminal block
Ⓚ Solenoid valve stage 1
Ⓛ Solenoid valve stage 2
Ⓜ Oil pump
Ⓝ Suction line
Ⓞ Return line
Ⓟ Fan motor
Ⓡ Actuator motor
Ⓢ Flame monitor
Ⓣ Mounting plate for burner hood adaptor
Ⓤ Valve housing
Ⓥ Suction air silencer
Ⓦ Impeller
Ⓧ Air regulating damper
Ⓨ Flame tube
Ⓩ Blast tube connection
ⓐ Guide brackets
ⓑ Sensor plate
ⓒ Flame tube extension (only for 90 kW)
ⓓ Oil burner nozzle
ⓔ Ignition electrodes
ⓕ Ignition cable
ⓖ Flange

5692 533 GB

Component summary (cont.)



5692 533 GB

Connection and wiring diagram

Legend

34	External solenoid valve
35	Solenoid valve stage 1
36	Solenoid valve stage 2
54	Ignition transformer
90	Controller burner stage 1
100	Burner motor
121	Strapping plug
122	Actuator
123	Actuator
124	Flame monitor
126	Service switch
127	Hours run counter stage 1
128	Hours run counter stage 2
[41]	Burner plug on control unit
F1	Fuse in plug-in module
TR/STB	Safety equipment inside control unit
K..	Burner relay contact
90 ●	Internal connection inside plug-in connector [90]
① - ⑫	Plug-in terminals on burner control unit

Control program

t1	Purge time	approx. 13 s
t2	Safety time	max. 10 s
t3	Pre-ignition time	approx. 13 s
t3n	Post-ignition time when flame is established at start of safety time (if flame forms later, correspondingly shorter down to value 0)	approx. 15 s
t4	Actuator running time into required stage	approx. 2 s
ST 0	Actuator switch position stage 0	
ST 1	Actuator switch position stage 1	
ST 2	Actuator switch position stage 2	

Colour coding to DIN/IEC 757

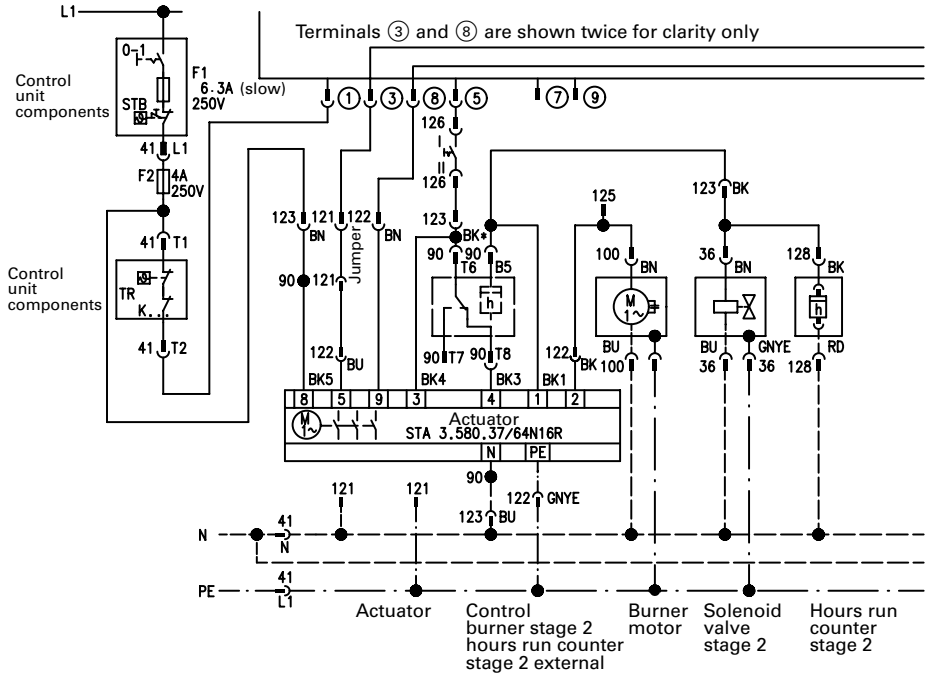
BK	black
BK*	black wire with imprint
BN	brown
BU	blue
GNYE	green/yellow
RD	red

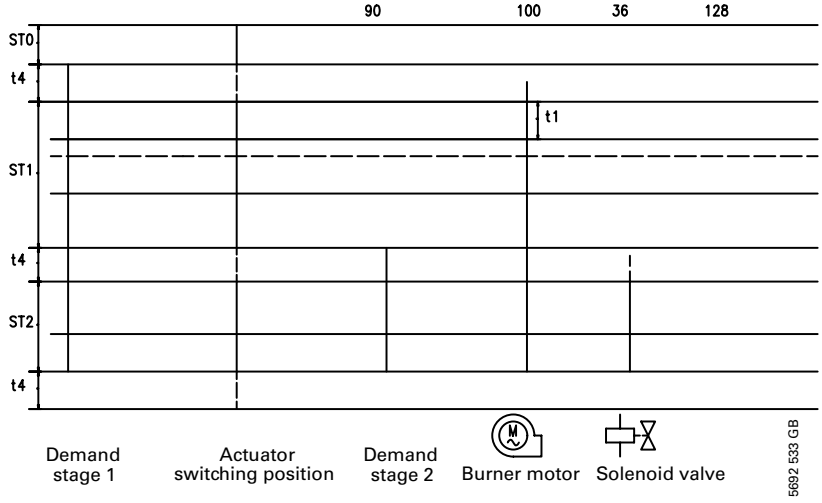
Please note:
The wiring diagrams on the following pages only apply in conjunction with Viessmann products.

5692 533 GB

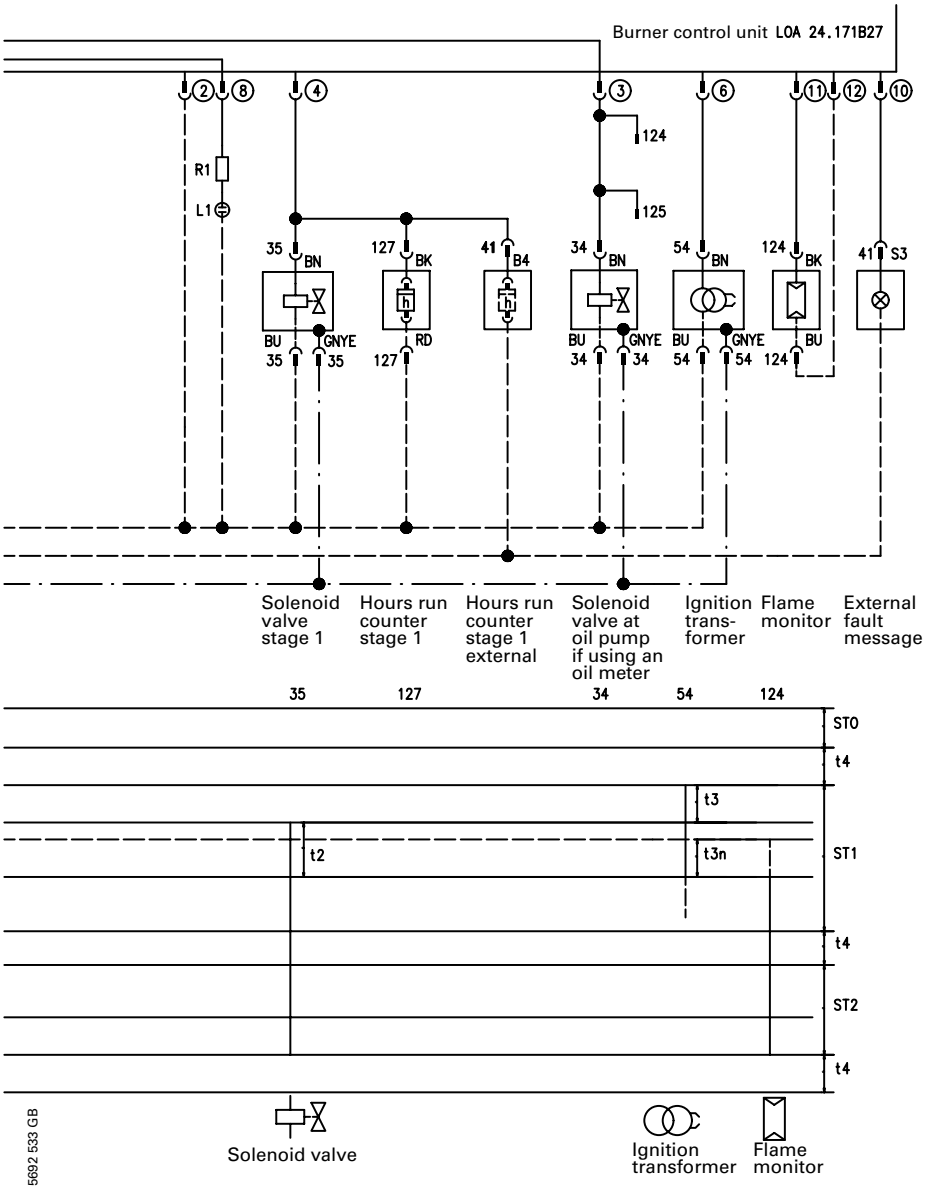
Connection and wiring diagram (cont.)

Flame monitoring through photo resistance



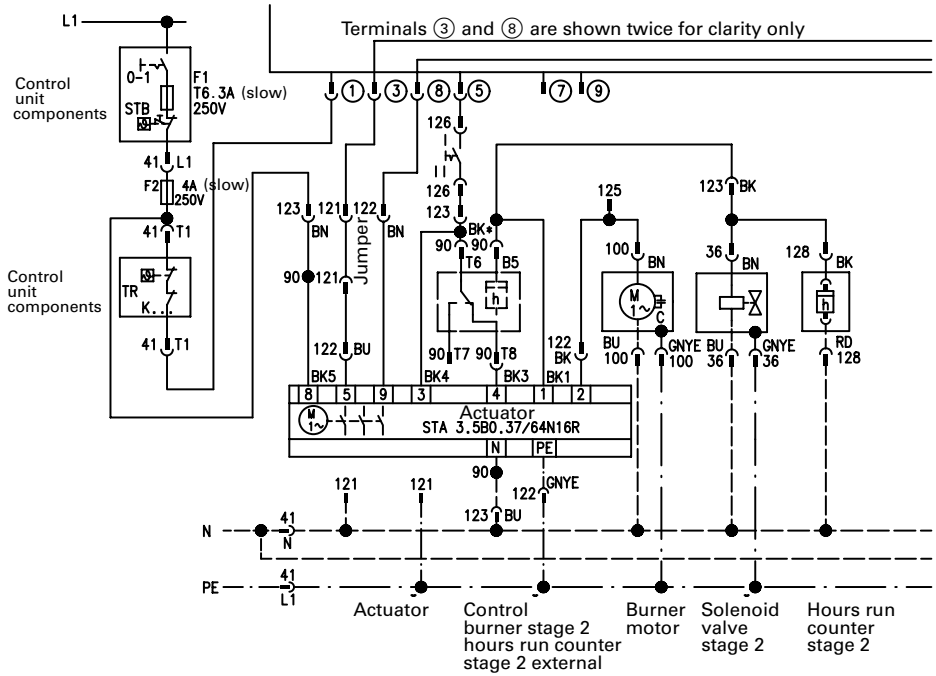


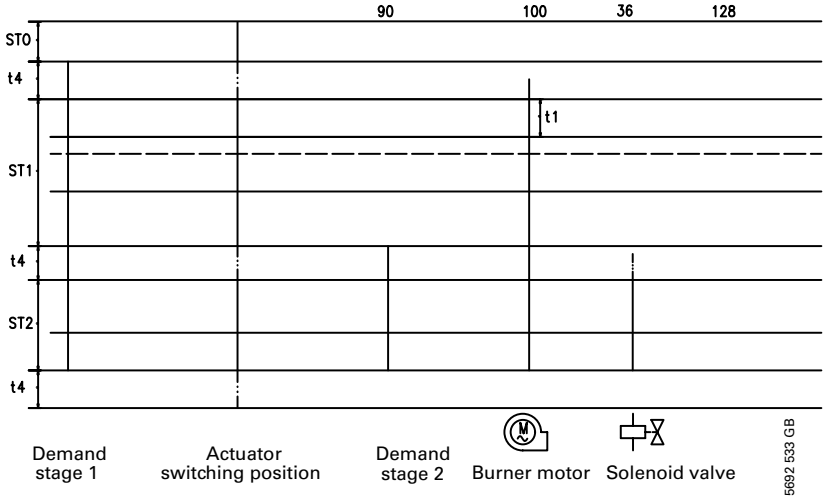
Connection and wiring diagram (cont.)



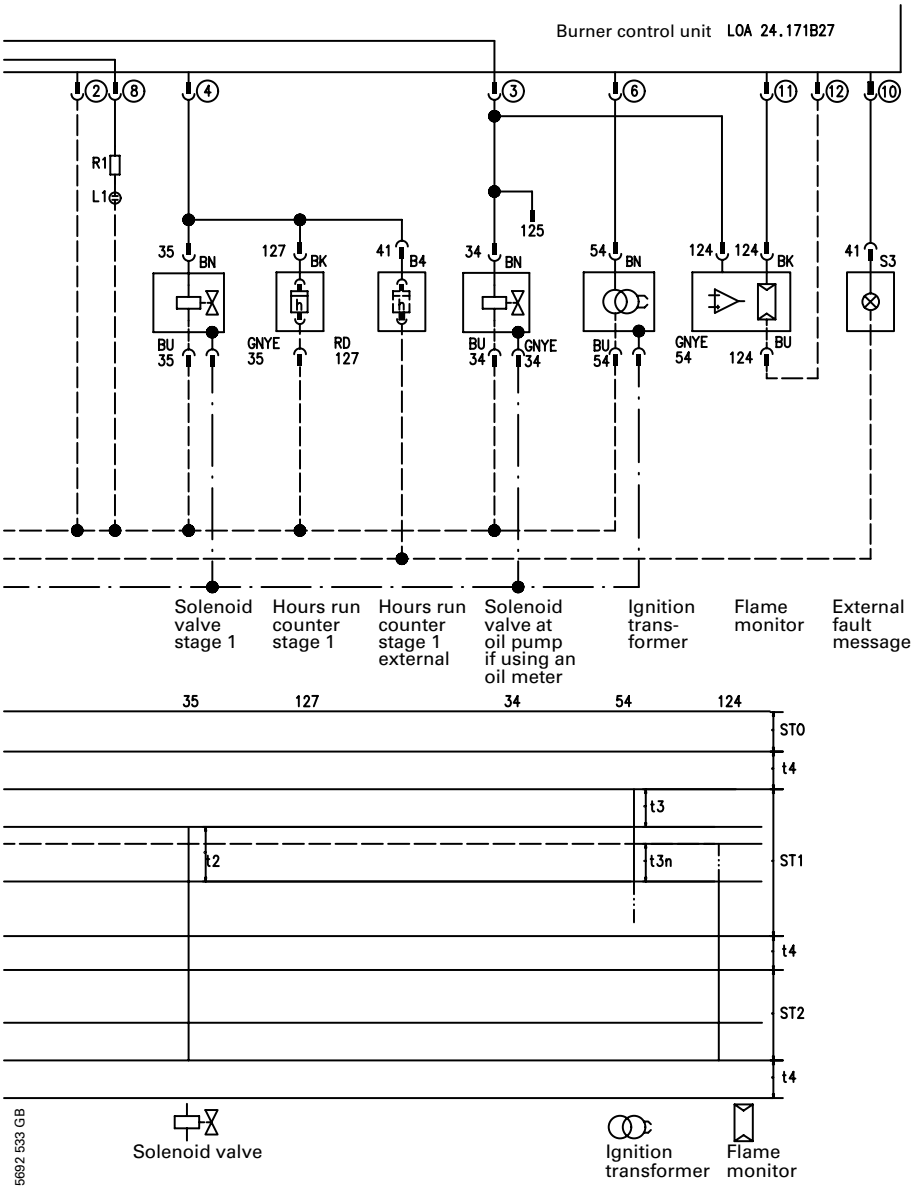
Connection and wiring diagram (cont.)

Flame monitoring through flicker light detector





Connection and wiring diagram (cont.)



Parts list

When ordering spare parts
Quote the type and serial no. (see type plate) and the item no. of the required part (as per parts list). Obtain common parts from your local supplier.

Parts

001 Burner housing
002 Blast tube
003 Small parts comprising: see below
004 Blast tube fixing screw
005 Burner adjusting nut
006 Burner flange seal ring
008 Fan motor
009 Oil supply pipe
010 Impeller
011 Plug-in coupling set
012 Oil return hose
013 Oil flow hose
014 Threaded nipple
015 Seal ring
016 Air regulating damper
017 Burner hood
018 Cover
019 Fixing flange
020 Flame tube extension*[1]
027 Blast tube connection
028 Sensor plate
032 Ignition transformer
033 Burner control unit
034 Plug-in terminal block
035 Flame monitor
036 Actuator
046 O-ring 19 × 2.5 mm
047 Angle compression fitting
048 Burner hood latches
056 Profile stud
060 Quick-action fastener
064 Solenoid valve for Suntec oil pump stages 1 and 2
065 Solenoid valve nut for Suntec oil pump
081 Strapping plug no. 121
082 Fuse 4 A/250 V (slow)
083 Strapping plug no. 126
085 Silencer hood
086 Solenoid valve connection cable for oil pump stage 1
087 Solenoid valve connection cable for oil pump stage 2
090 Suntec oil pump
091 Solenoid valve core for Suntec oil pump stage 1
093 Solenoid valve core for Suntec oil pump stage 2
095 Danfoss oil pump
097 Solenoid valve for Danfoss oil pump stages 1 and 2
099 Ignition cable set
100 Burner hood mounting bracket
109 Burner plate gasket*[2]
110 Burner plate*[2]
130 Service switch (incl. with item 134 and 135)
131 Grommet
134 Cover flap
135 Frame for cover flap
140 Burner hood adaptor (oil)

*[1] *Only for serial no. 7170981 3 00001 ␣␣␣.*
*[2] *Only for serial no. 7174937 3 00001 ␣␣␣ and 7174938 3 00001 ␣␣␣.*

5692 533 GB

Parts list (cont.)

003 Small parts comprising:
3a Cheese-head screw M 6 × 16
3b Cheese-head screw M 6 × 10
3c Serrated washer A 6.4
3d Double clip 18 × 18
3e Double clip 12 × 12
3f Cheese-head screw M 4 × 8
3g Serrated washer A 4.3
3h Cheese-head screw M 6 × 10
3i Nut M 5
3j Countersunk screw M 4 × 25
3k Spring washer A 5
3l Oval head screw with collar M 6 × 3, DIN 923
3m Countersunk screw M 8 × 25
3o Dowel pin
3p Cheese-head screw M 5 × 12 with washer
3q Cheese-head screw M 5 × 16
3s Pipe gland
3t Oval head screw with spigot M 6 × 10
3u Union BA LL 4, M 10 × 1
3v Seal ring A 5 × 9 × 1-Cu
3w Spacer bolt M 8 × 60, SW 12
3x Threaded nipple

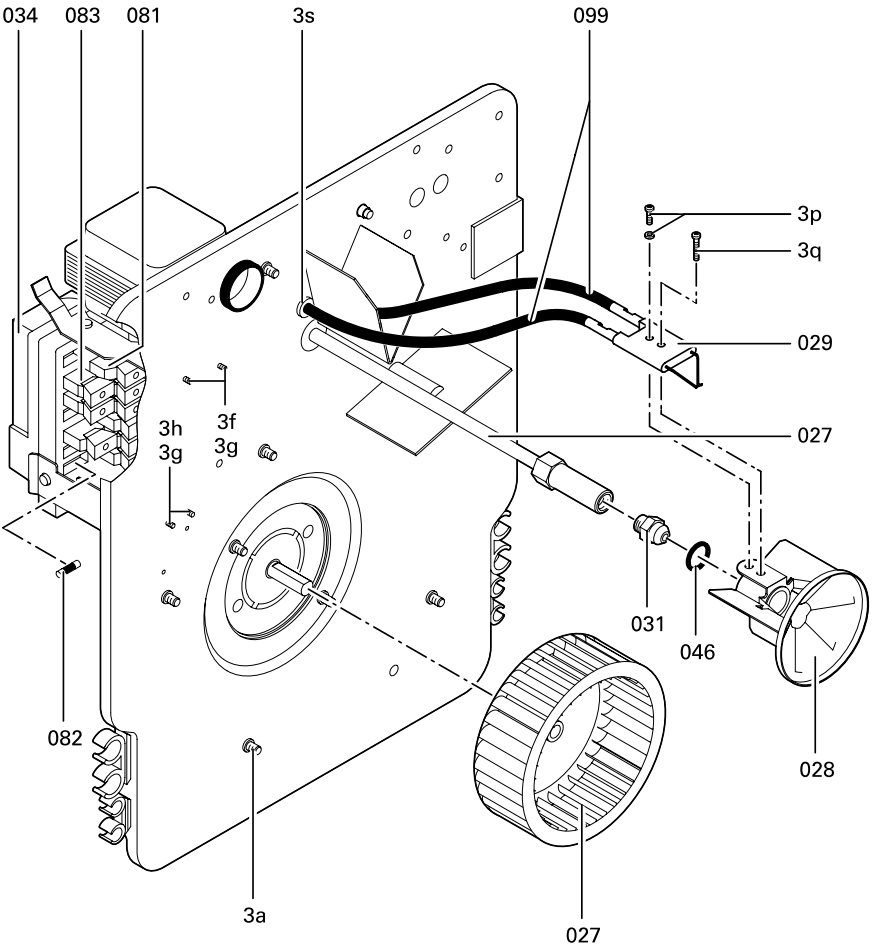
Parts not shown
051 Allen key SW 5
052 Burner housing pack
053 Installation instructions
054 Operating instructions
055 Service instructions
056 Parts list
088 Connection cable for oil pump stage 1 (only in conjunction with an oil meter)

Wear parts
029 Ignition electrode
031 Nozzle
061 Spare parts kit for Suntec oil pump (strainer, lid gasket, O-ring)
096 Cartridge filter for Danfoss oil pump

Ⓐ Type plate

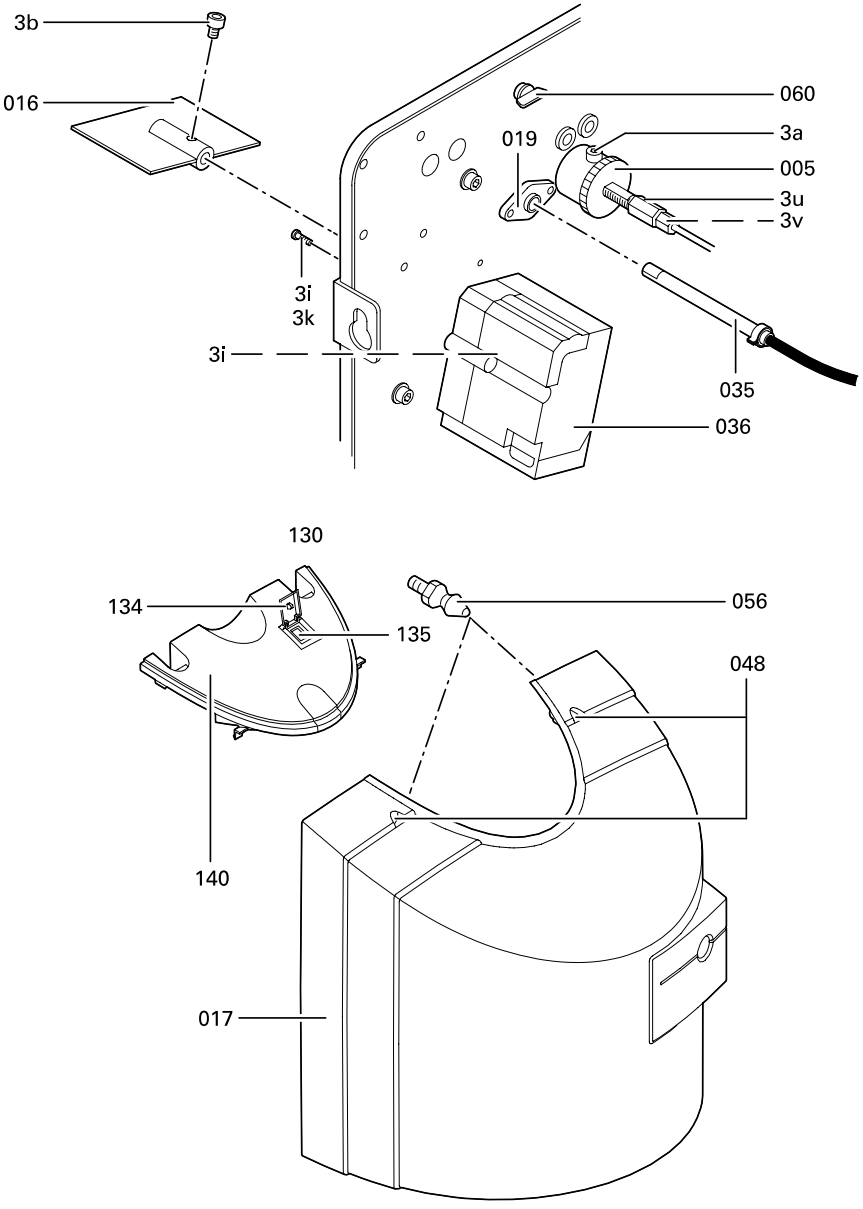
5692 533 GB

Parts list (cont.)



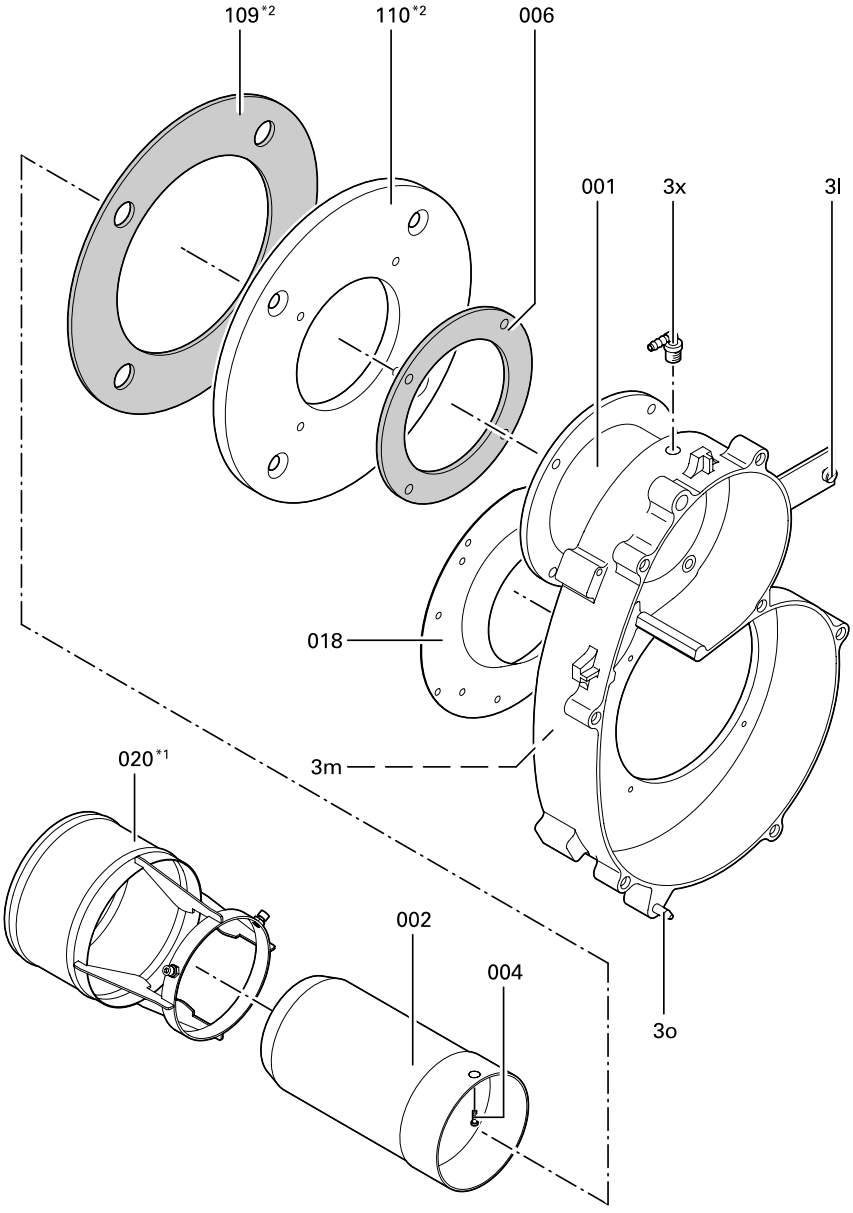
5692 533 GB

Parts list (cont.)



5692 533 GB

Parts list (cont.)



5692 533 GB

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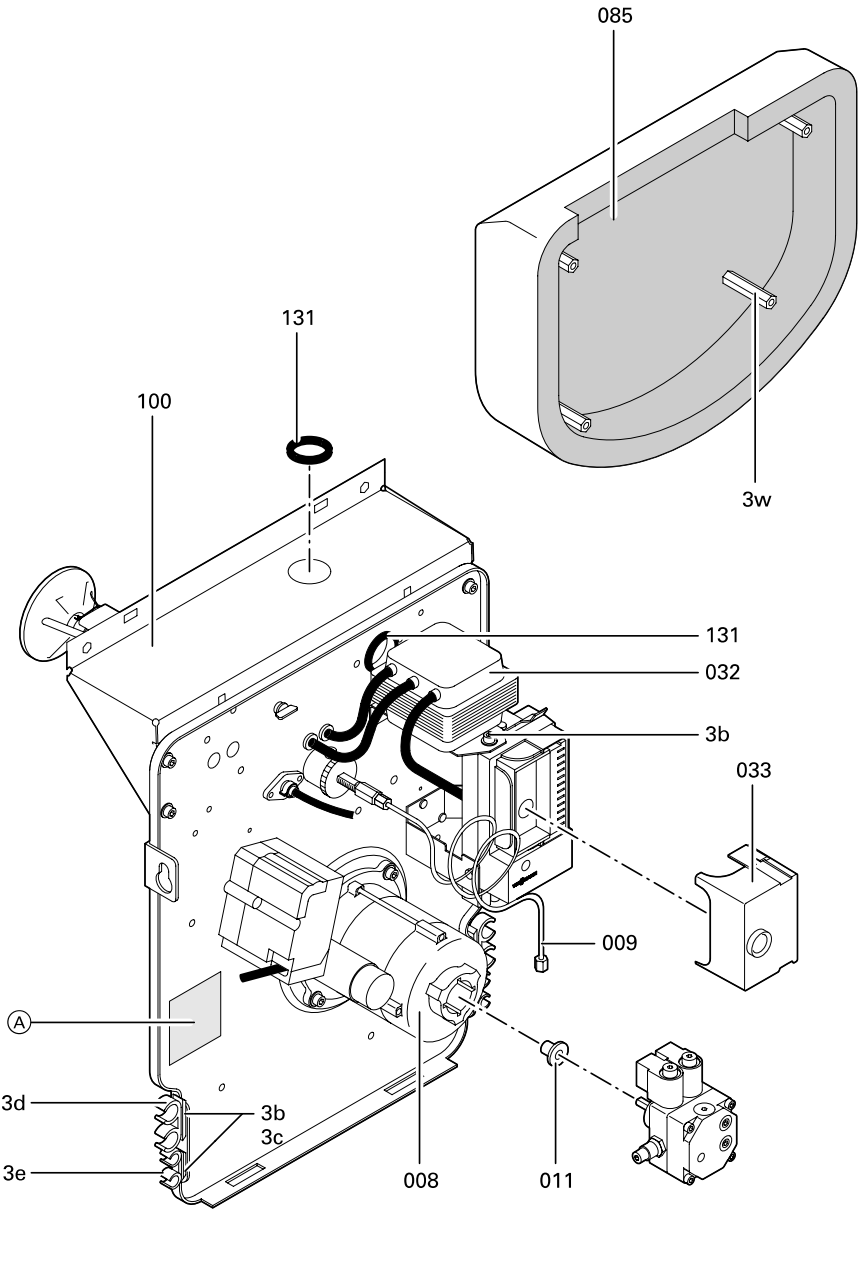
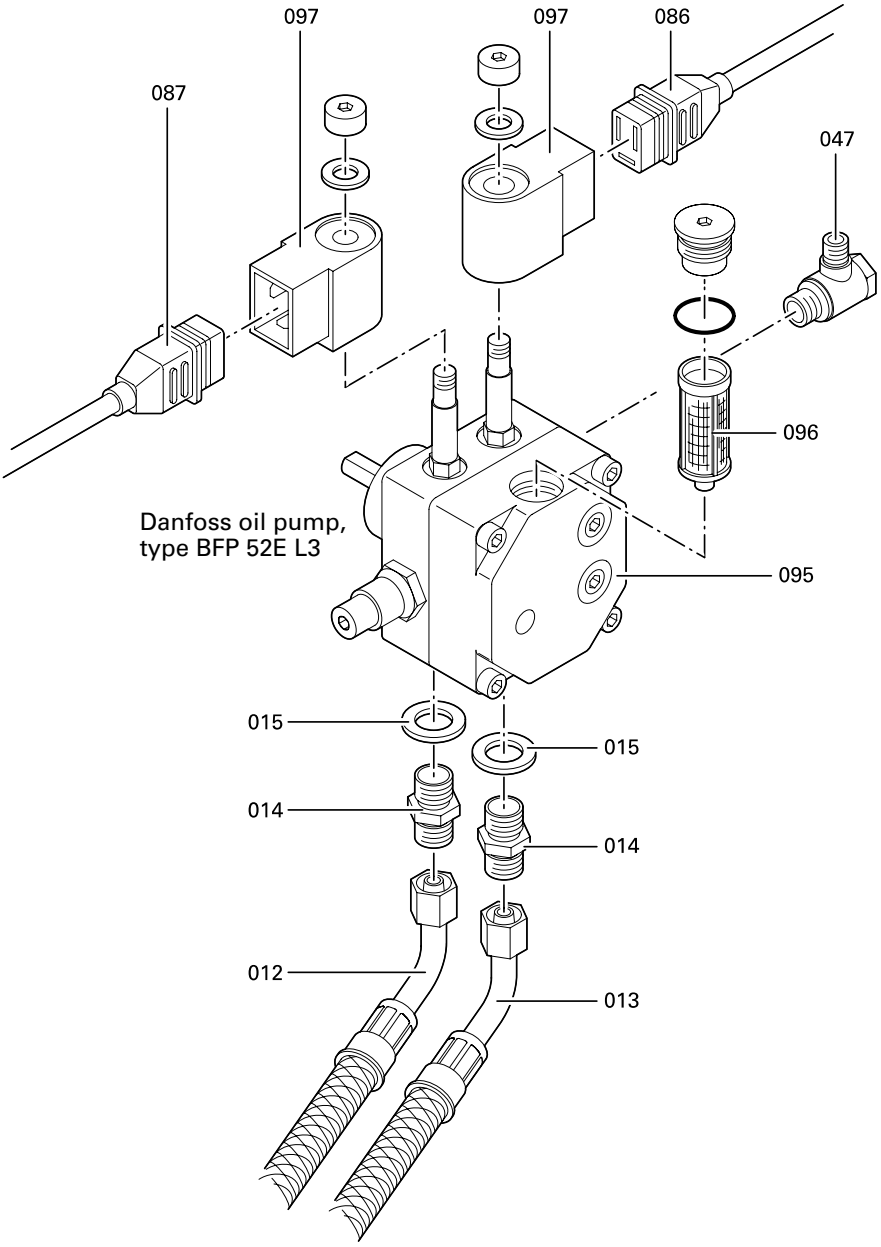


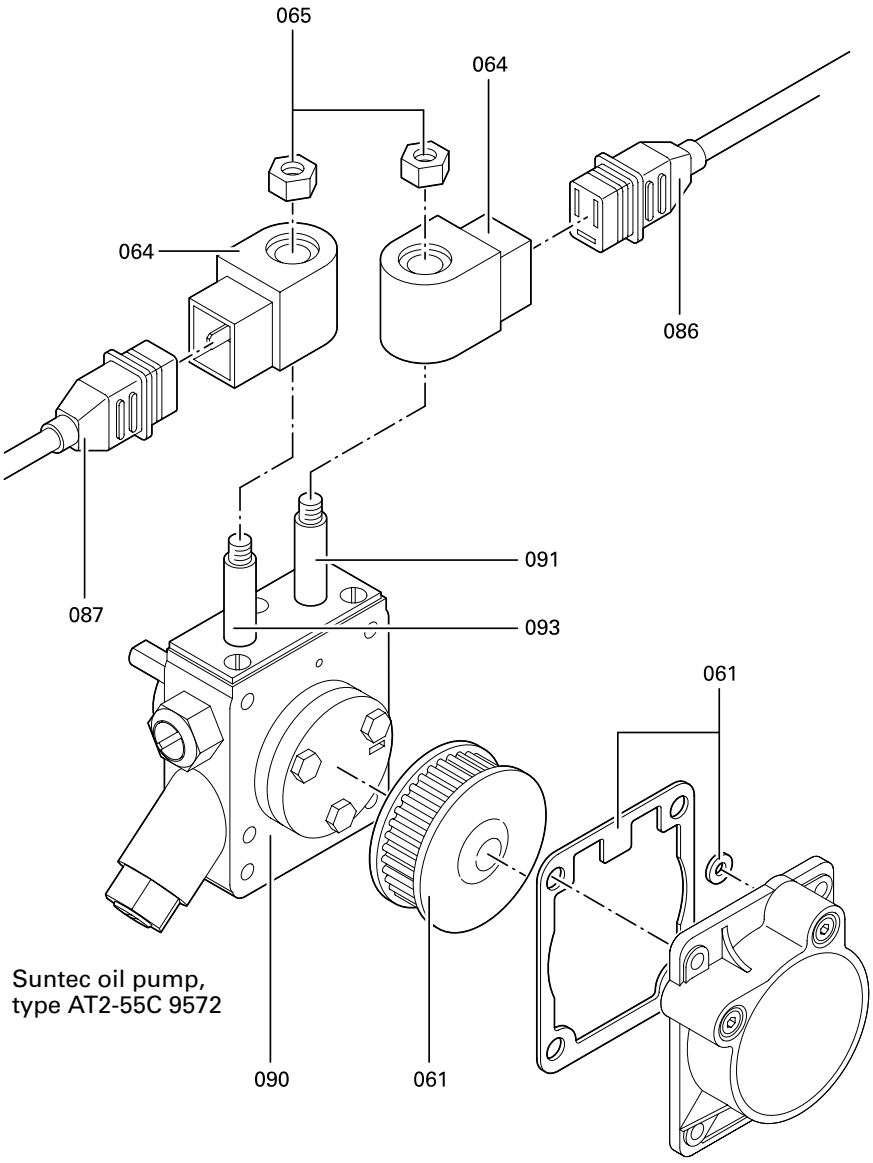
5692 533 GB

Parts list (cont.)



5692 533 GB

Parts list (cont.)



Suntec oil pump,
type AT2-55C 9572

5692 533 GB

Specification

Rated output range	from kW to kW	90 100		125 140		150 165		190 210	
Boiler output	kW	90	100	125	140	150	165	190	210
Burner output stage 1/2 *1	kW	69/ 98	76/ 109	95/ 136	106/ 152	114/ 163	125/ 179	145/ 207	160/ 228
Type of burner		VE III-1PX		VE III-2PX		VE III-3PX		VE III-4PX	
Type test no. acc. to EN 267									
Voltage	V	230							
Frequency	Hz	50							
Power consumption	W	270		300		320		420	
Motor speed	rpm	2800							
Version		Two stage							
Oil pump throughput	l/h	70							
Connections Suction and return lines on supplied oil hoses	R (female thread)	⅜″							
Max. permissible inlet pressure in the supply lines (for ring lines)		2							

*1 *Corresponds to the boiler rated thermal load.*

5692 533 GB

Standard values for burner settings

Please note:
Check that the service instructions are valid for the burner concerned (see notes on applicability, page 2 and serial no. on the burner type plate).

Rated output range	from kW to kW		90 100		125 140		150 165		190 210
Boiler output	kW	90	100	125	140	150	165	190	210
Oil burner nozzle									
Make Fluidics	Type	45°H	—	45°S	—	45°S	45°S	45°S	45°S
Make Steinen	Type	—	45°S	—	45°S	—	—	—	—
	Gph	1.65	1.75	2.25	2.50	2.50	2.75	3.50	3.50
Oil pressure approx.[*1]									
Stage 1	bar min.	10.0	10.0	11.5	9.7	10.5	11.0	9.0	11.5
Stage 2	bar	17.5	21.0	23.6	20.0	23.5	23.0	18.0	24.0
Oil flow rate									
Stage 1	kg/h	5.8	6.4	8.0	9.0	9.6	10.6	12.2	13.5
	l/h	6.8	7.5	9.4	10.6	11.3	12.4	14.4	15.9
Stage 2	kg/h	8.3	9.2	11.5	12.8	13.7	15.1	17.4	19.3
	l/h	9.7	10.8	13.5	15.0	16.1	17.7	20.5	22.6
Switch cam position at the air damper actuator									
ST 1	°	19	20	24	27	21	25	29	29
ST 2	°	38	70	70	70	40	55	46	42
MV	°	25	35	35	35	30	35	35	35
Blast connection setting	mm	8	18	13	16	9	10	12	16

*[*1]The oil pressure may vary from that indicated by the values shown, due to nozzle tolerances and varying oil characteristics.*

5692 533 GB

Commissioning/service report

Setting and test values				Initial start-up
			Date:	
			By:	
Oil pressure	Stage 1	actual	*bar*	
		set	*bar*	
	Stage 2	actual	*bar*	
		set	*bar*	
Vacuum		actual	*bar*	
		after maintenance	*bar*	
Soot indicator	Stage 1	located		
		after maintenance		
	Stage 2	located		
		after maintenance		
Carbon dioxide content CO_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
or				
Oxygen content O_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
Gross flue gas temperature	Stage 1	actual	*°C*	
		adjusted	*°C*	
	Stage 2	actual	*°C*	
		adjusted	*°C*	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

5692 533 GB

Commissioning/service report (cont.)

Setting and test values				Initial start-up
			Date:	
			By:	
Flue gas loss	Stage 1	actual	*%*	
		set	*%*	
	Stage 2	actual	*%*	
		set	*%*	
Draught (at boiler end)		actual	*hPa*	
		adjusted	*hPa*	
Blast connection setting		actual	*mm*	
		set	*mm*	
Air damper adjustment		located		
		set		
Switch cam position at the air damper actuator	ST 1	actual	*°*	
		set	*°*	
	ST 2	actual	*°*	
		set	*°*	
	MV	actual	*°*	
		set	*°*	
Hours run counter indication	Stage 1	actual	*h*	
	Stage 2	actual	*h*	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

5692 533 GB

Commissioning/service report (cont.)

Setting and test values				Maint./service
			Date:	
			By:	
Oil pressure	Stage 1	actual	*bar*	
		set	*bar*	
	Stage 2	actual	*bar*	
		set	*bar*	
Vacuum		actual	*bar*	
		after maintenance	*bar*	
Soot indicator	Stage 1	located		
		after maintenance		
	Stage 2	located		
		after maintenance		
Carbon dioxide content CO_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
or				
Oxygen content O_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
Gross flue gas temperature	Stage 1	actual	*°C*	
		adjusted	*°C*	
	Stage 2	actual	*°C*	
		adjusted	*°C*	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

5692 533 GB

Commissioning/service report (cont.)

Setting and test values			Date: By:	Maint./service
Flue gas loss	Stage 1	actual	*%*	
		set	*%*	
	Stage 2	actual	*%*	
		set	*%*	
Draught (at boiler end)		actual	*hPa*	
		adjusted	*hPa*	
Blast connection setting		actual	*mm*	
		set	*mm*	
Air damper adjustment		located		
		set		
Switch cam position at the air damper actuator	ST 1	actual	*°*	
		set	*°*	
	ST 2	actual	*°*	
		set	*°*	
	MV	actual	*°*	
		set	*°*	
Hours run counter indication	Stage 1	actual	*h*	
	Stage 2	actual	*h*	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

Commissioning/service report (cont.)

Setting and test values				Maint./service
			Date:	
			By:	
Oil pressure	Stage 1	actual	*bar*	
		set	*bar*	
	Stage 2	actual	*bar*	
		set	*bar*	
Vacuum		actual	*bar*	
		after maintenance	*bar*	
Soot indicator	Stage 1	located		
		after maintenance		
	Stage 2	located		
		after maintenance		
Carbon dioxide content CO_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
or				
Oxygen content O_2	Stage 1	actual	*% by vol.*	
		set	*% by vol.*	
	Stage 2	actual	*% by vol.*	
		set	*% by vol.*	
Gross flue gas temperature	Stage 1	actual	*°C*	
		adjusted	*°C*	
	Stage 2	actual	*°C*	
		adjusted	*°C*	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

5692 533 GB

Commissioning/service report (cont.)

Setting and test values			Date: By:	Maint./service
Flue gas loss	Stage 1	actual	%	
		set	%	
	Stage 2	actual	%	
		set	%	
Draught (at boiler end)		actual	hPa	
		adjusted	hPa	
Blast connection setting		actual	mm	
		set	mm	
Air damper adjustment		located		
		set		
Switch cam position at the air damper actuator	ST 1	actual	o	
		set	o	
	ST 2	actual	o	
		set	o	
	MV	actual	o	
		set	o	
Hours run counter indication	Stage 1	actual	h	
	Stage 2	actual	h	

5692 533 GB

Maint./service	Maint./service	Maint./service	Maint./service

Keyword index

A
Air volume adjustment, 9
Applicability, 2

B
Burner cleaning, 12

C
Commissioning/service report, 38
Component summary, 20
Connection and wiring diagrams, 23

D
Diagnostics, 16

F
Flame monitor checking, 11
Further details regarding the individual steps, 5

I
Ignition electrodes checking, 14
Ignition electrodes setting, 14

N
Nozzle replacement, 13

O
Oil pressure adjustment, 7
Oil pump filter, cleaning and replacing if necessary, 15
Operating and service documents, 2

P
Parts list, 28

S
Safety instructions, 2
Specification, 36
Standard values for burner settings, 37
Steps, 4
System start-up, 5

T
Troubleshooting, 16

V
Vacuum checking, 7

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