

Fan wheel replacement (34367120), 200-series
burners with 60HZ electric motors.

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1 Introduction

1.1 Safety precautions

Read these instructions carefully before installation, commissioning, operation or maintenance of the device. The given instructions must be followed. Throughout this manual, the following three symbols are used to point out very important information:



Use special caution. The DANGER symbol indicates an immediate hazard that will result in serious injury or death.



Use special caution. The WARNING symbol indicates a hazard that may result in serious injury or death.



Use caution. The CAUTION symbol indicates a hazard that may result in an injury.



Pay attention. The NOTICE symbol indicates a risk of damage to the equipment, components, or surroundings.



The 'i' (info) symbol indicates important information as well as useful tips and hints.

Keep these instructions as well as the electrical diagrams available near the device.

Oilon products are manufactured according to general product standards and directives, and based on our best knowledge about product design, and technologies. Operational safety is one of the leading principles in our product development. However, it is wise to be prepared, and think about safety. Read the following principal safety warnings and instructions:



Connectors in the control box are under voltage. Only authorized users may open the safety cover.

Connectors in the control box are under voltage. Only users authorized by Oilon may open the safety cover.



Firing with too low residual oxygen may cause an explosion hazard. Firing with too high residual oxygen may cause unstable combustion and faults in burner operation.



If the Wobbe index for the new fuel differs from the original fuel's Wobbe index by more than 5%, readjust the burner.

Installation, commissioning, or service of the appliance is to be carried out by authorized and trained personnel only, adhering to all local regulations and requirements.

Installation, commissioning, or service of the appliance is to be carried out by Oilon authorized personnel only, adhering to all local regulations and requirements.



Installation, commissioning, or service of the appliance is to be carried out by a service provider authorized by the manufacturer, adhering to all local regulations and requirements.

Installation, commissioning, or service of the appliance is to be carried out by a service provider authorized by Atlas Copco, adhering to all local regulations and requirements.

Installation, commissioning, or service of the appliance is to be carried out by a service provider authorized by Trane, adhering to all local regulations and requirements.



IN CASE OF FIRE OR OTHER EMERGENCY

- Cut off power supply.
- Close the main fuel shut-off valve.
- Follow safety instructions.
- Contact the safety supervisor.



IN CASE OF A FUEL LEAK

- Do not light fire or touch electric equipment.
- Close the main fuel shut-off valve.
- Make sure there are no people in the leakage area.
- Make sure the leakage area is properly ventilated.
- Take appropriate action.
- Contact the safety supervisor.



Cut off power supply to the burner and close the manual shut-off valves always before any maintenance work. Cutting power is adequate when just inspecting the device.



Secure all safety covers, enclosures, and guards with all screws before start-up. Use appropriate tools.



Wear proper hearing protection and personal protective equipment, such as protective footwear, gloves, and safety goggles when necessary.



Do not touch hot pipes or surfaces during operation or maintenance.



If burner start-up fails consecutively three times, do not restart burner before carefully investigating the reason for the failure.



Permissible gas inlet temperature range is $-15...+50$ °C. Permissible gas inlet temperature range is $+5...+122$ °F. Pay special attention to gas temperature when using LNG.



Fuel changeover shall always be done by an expert.



In standard deliveries maximum temperature of recirculated flue gas is 250 °C (FGR).



- Maximum temperature of combustion air is 250 °C.
- Maximum temperature of combustion air is 482 °F.
- Make sure that the servomotors receive enough cooling air by using pressurized air or duct fan, for example.
- Need for forced-draught cooling is 3000 m³/h, 20 mbar.
- Need for forced-draught cooling is 1766 cfm, 8 in. WC.



If the burner control system, including all related components, does not support continuous operation, a controlled shutdown will be performed every 24 hours to ensure safe operation.



Make sure that the burner gets a sufficient amount of combustion air.

Emergency shutdown

In an emergency, cut off power supply to the burner. Close the manual shut-off valves. After safety check you can restart the burner. Check the settings, and monitor that operation continues as normal.

Take care of the boiler room



Never light a fire in the boiler room.

Do not store any inflammable materials in boiler room.



Keep the boiler hatch closed while starting the burner and during burner operation.

- Maintain tidiness in the boiler room, and keep the boiler room door closed.
- Make sure that there is always enough water and pressure in the heating system.
- Make sure that the boiler and chimney are swept regularly.
- Check flue damper adjustment and the gate valve regularly.
- Make sure that the air inlet to the boiler room is open.
- Make sure that shut-off valves in pressure gauges are shut.
- Make sure that the necessary components are regularly checked in accordance with rules and regulations by public authorities. This includes the system's pipework and its tightness, safety appliances in the boiler system, and the burner.
- Make sure there aren't any points where oil can leak on hot surfaces in case of a loose or damaged connection. Screen the pipes on site or use other protective means, for example a drip tray under the burner.
- Check the boiler and its components.

We recommend obtaining a maintenance contract.

1.2 Special considerations



Cut off power supply to the burner and close the manual shut-off valves always before any maintenance work. Cutting power is adequate when just inspecting the device.



Use safe lifting methods and tools.

General tightening torques for clamping screws:

M4 = 2Nm

M5 = 3Nm

M6 = 4Nm

M8 = 5Nm

1.3 Tools required

- 17 mm wrench
- 8 mm wrench
- 7 mm wrench
- 3 mm and 4 mm Allen key (hex key)
- Phillips head screwdriver, size PH2
- Appropriate lifting tools (hoist with a sling or lifting strap)

2 Maintenance

2.1 Detach the fan motor assembly

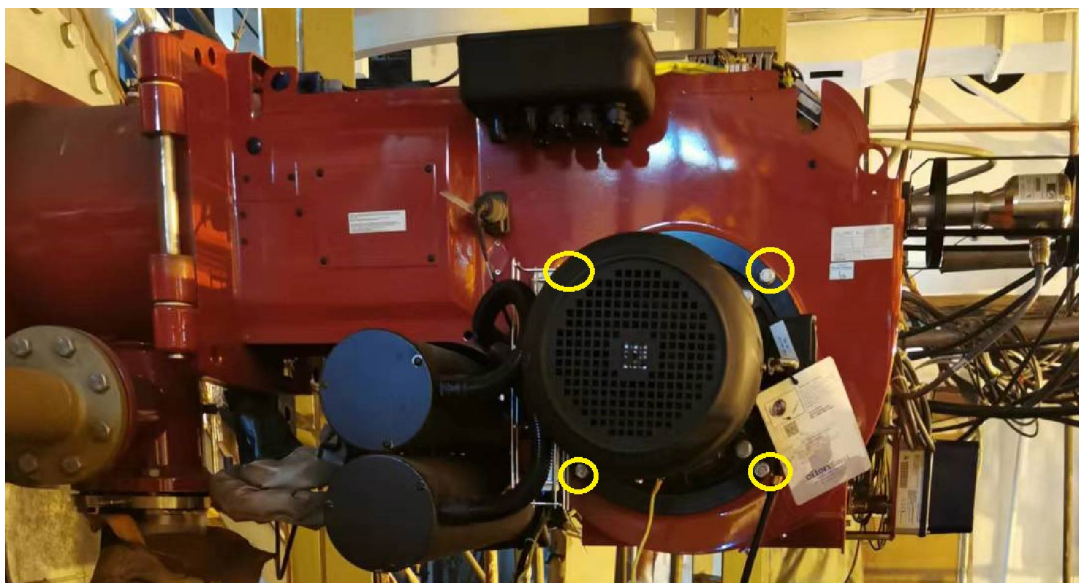
NOTICE

To avoid damage, it is advisable to ask another person to keep the motor assembly from spinning during lifting.

NOTICE

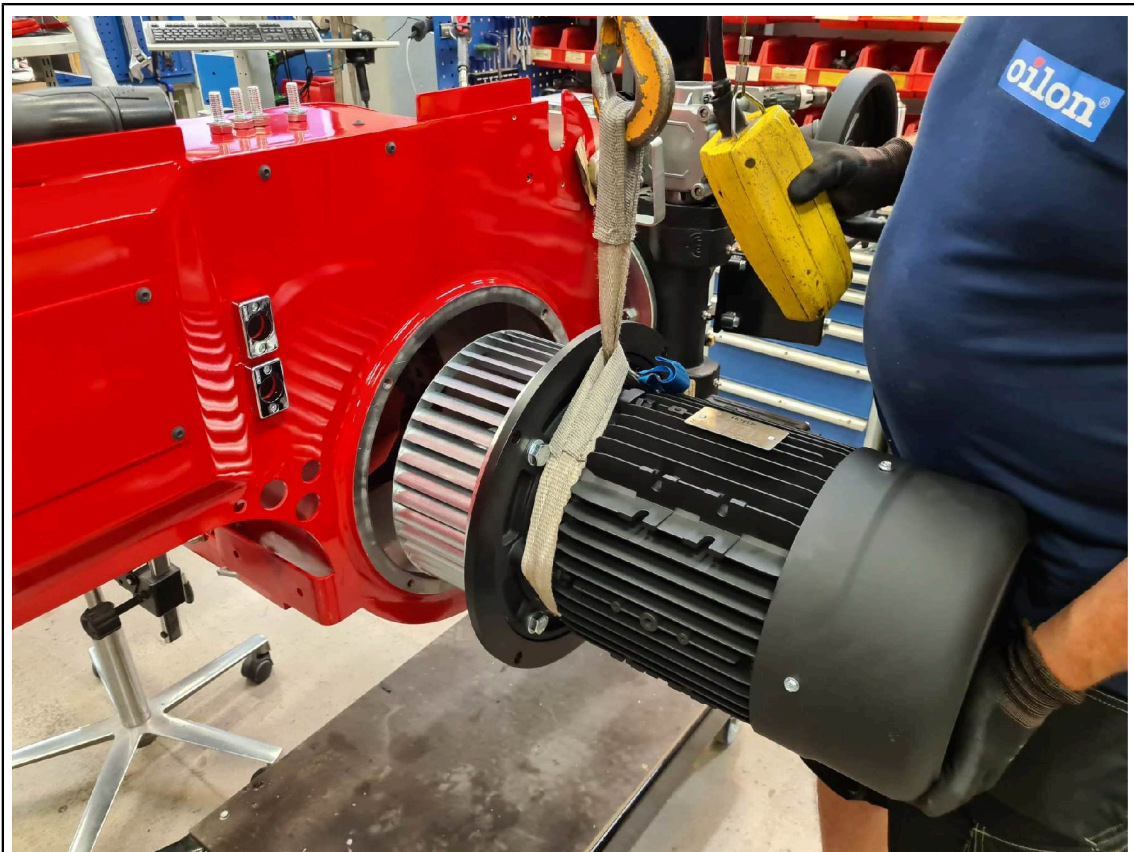
The fan wheel is delicate. Be careful not to damage the fan wheel when handling the components, especially during lifting.

1. Disconnect the fan motor power supply cable from the fan motor.
2. Fasten a sling (or lifting strap) to the fan motor assembly. Support the assembly with the sling.
 - Make sure that the assembly is well balanced on the sling to avoid damage during lifting.
3. Remove the fastening screws (4 pcs, marked in yellow) from the fan motor mounting plate. Use a 17 mm wrench.



Fastening screws, fan motor assembly 1 ver. 1

4. Lift the motor assembly (fan motor, fan wheel, and mounting plate) off of the burner. Move it out of the way, and lower the assembly down in a safe location.



Air cone assembly lifting ver. 1

Detaching and lifting the fan motor assembly



Fan motor assembly on the floor ver. 1

Fan motor assembly lowered onto the floor a safe distance away

2.2 Dismounting and changing fan wheel

Reinforced fan wheel set

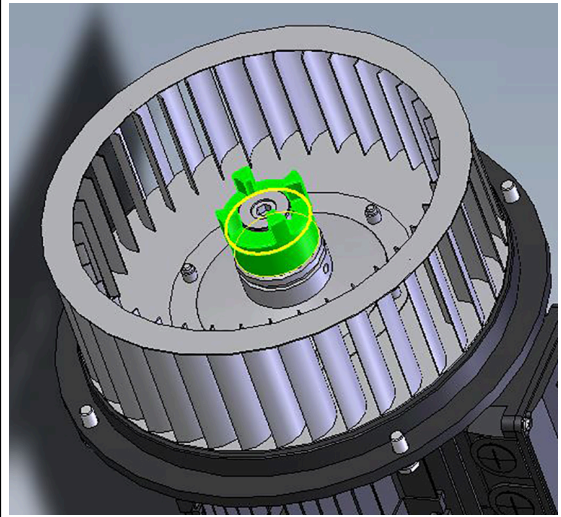
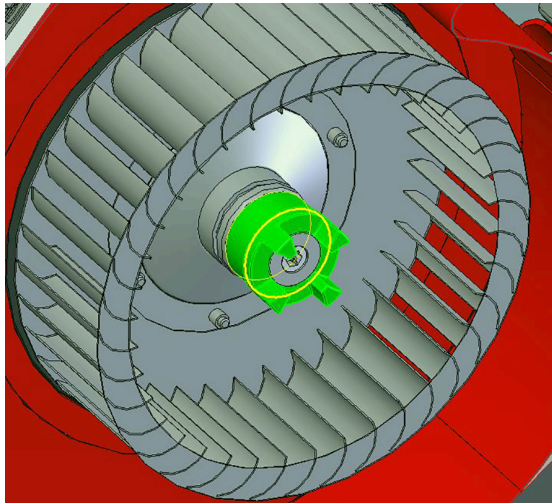
The reinforced fan wheel set contains two parts. Fan wheel (34367120) and the bushing (30461525).

Reinforced fan wheel with the bushing



1. Remove the Allen key bolt (8 mm) and its spring washer from the shaft's end. Take out the shaft coupling.
2. Dismount the fan wheel from the electric motor.
3. Remove the bushing.
4. Install new bushing to the electric motor shaft and use the old shaft key from previous installation. If the shaft key is damaged, replace it with a new one. Bushing with the groove, will be pointing upwards towards the fan wheel.
5. When shaft bushing is in its place, assemble fan wheel to the electric motor shaft towards the bushing.
6. Install shaft coupling with the spring washer and the Allen key bolt to the shaft and tighten with torqued of 5 Nm.
7. Install the fan motor assembly back to the burner.

Shaft coupling



Electric motor and bushing before assembly



Electric motor and bushing after assembly



New bushing and reinforced fan wheel assembled



Everytime when combustion air fan wheel is changed, burner fuel/ air ratio curve must be inspected and verify correct O2 levels using combustion analysis device. Adjust if necessary.

Adjusting and the combustion analysis can be done only trained personnel

2.3 Reinstall fan motor to the burner

NOTICE

To avoid damage, it is advisable to ask another person to keep the motor assembly from spinning during lifting.

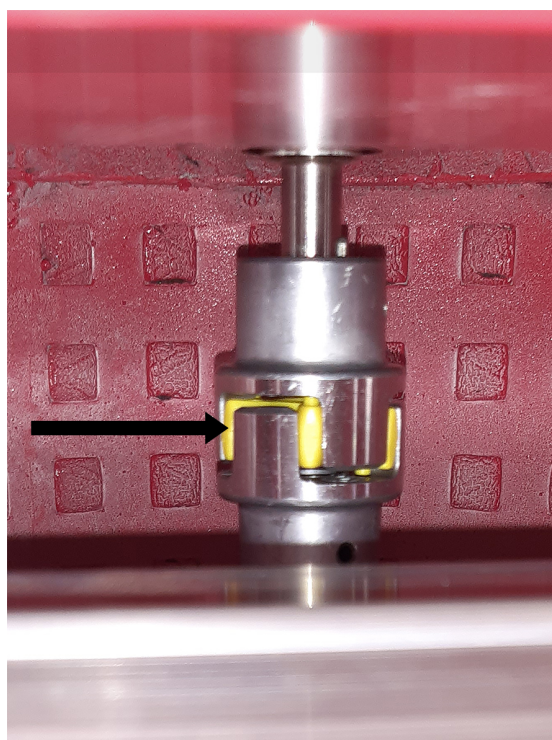
NOTICE

The fan wheel is delicate. Be careful not to damage the fan wheel when handling the components, especially during lifting.

Oil pump and fan motor coupling

Check the alignment of the coupling between the oil pump and fan motor coupling.

Check that there is 2-3 mm of clearance (arrow) between the halves to allow the coupling to move.



1. Lift the fan motor assembly (fan motor, fan wheel, and mounting plate) with a lifting strap or sling, and bring the assembly next to the burner.
2. Carefully push the assembly into place. Fasten with four fastening screws.



Fastening screws, fan motor assembly 2 ver. 1



Fastening screws, fan motor assembly 3 ver. 1

3. Reconnect the power supply cable for the fan motor.

2.4 Final check

Check that the fan wheel is able to rotate freely without catching or rubbing against the air cone.

1. Remove the cooling fan cover from the fan motor.
 - The cover is held in place with four screws. Remove the screws one by one with a Philips head screwdriver.



Motor cover screws ver. 1

2. Turn the impeller of the motor cooling fan counterclockwise by hand, and check if the fan wheel is stuck or rubs against the air cone.



Motor cooling fan impeller rotation ver. 1

3. If there is a problem, check the table below. If the fan wheel rotates freely, reinstall the cover onto the fan motor.

Problem	Cause	Solution
The fan wheel does not move or rubs against the air cone.	The air cone is slightly misaligned.	Use the small clearance in the fastening screw holes to align the air cone.
	The fan motor is slightly misaligned.	Use the small clearance in the fastening screw holes to align the fan motor.
	The tip of the air pressure impulse pipe extends over the rim of the air cone, and the fan wheel catches on the pipe.	Move the impulse pipe so that it is at the rim of the air cone, but does not extend over it.

Contact information of Oilon dealer:

Date of installation:

The Oilon logo features the word "oilon" in a white, lowercase, sans-serif font. A small green leaf icon is positioned above the letter "i". A registered trademark symbol (®) is located to the upper right of the word.

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