

Blower Assembly, Nortec GS

2584517
2586135
2586136



Part No.	Description
2584517	SP, GS, Blower Assembly, (GS 100, GS 200), 140 kBTU (41.0 kW), 120 V
2586135	SP, GS, Blower Assembly, (GS 50), 70 kBTU (20.5 kW), 120 V
2586136	SP, GS, Blower Assembly, (GS 150, GS 300, GS 450, GS 600), 210 kBTU (61.5 kW), 120 V

Kits Consist of the Following

- 1× Blower assembly (with valve)
- 1× Gasket, burner-blower
- 1× Tube, 1/8 in (3 mm) I.D. × 9 in (230 mm), on compact units (Nortec GS 50/100) only
- 1x Rectifier and wire harness

Tools You May Need

- Allen key, 2 mm
- Screwdriver, flat-head, small
- Flue analyzer (CO₂)
- Sentry Seal compoud, F-1000
- Teflon tape
- Manometer, digital, range 0-10 mbar ± 0.5 % accuracy

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Before You Start

1. Review the safety precautions on the next page.
2. Shut down the humidifier as described in the operation and maintenance manual.
3. Disconnect the power supply to the humidifier, and lockout and tag the power supply.
4. Make sure that the gas supply is also turned off.
5. Allow the unit to cool down.
6. Remove the door panels from the unit.

Notes

For Nortec GS 50/100/200 units: The gas valves in newer units are connected to rectifiers that are located on the humidifier cabinet. In older units, the rectifier must be replaced. A rectifier and adapter are provided to allow the installation of new blowers in older humidifiers.

Safety Precautions

- The installation must only be performed by qualified personnel who are familiar with the humidifier. It is the owner's responsibility to verify proper qualification of the personnel.
- Only use the supplied hardware in the kit.
- The conversion of this appliance does not require the removal or replacement of any components.
- To successfully convert this appliance from one gas type to another, each gas valve in the appliance must be adjusted per the steps outlined below.
 - Each valve must be calibrated with all other gas valves shut off.
 - The conversion of this appliance requires that the new gas supply has been connected to the unit.
- The unit must be placed into operation to successfully convert to the new gas type.
- Observe all safety precautions described in the operation and maintenance manual.



WARNING!
Natural Gas or Propane!
Risk of fire, explosion, or carbon monoxide poisoning!

The conversion and adjustment shall be performed and installed by a qualified service agent in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an explosion, or production of carbon monoxide may result causing property damage, personal injury, or loss of life. The qualified service agent is responsible for the proper installation. The installation is not proper and complete until the operation of the converted appliance is checked, as specified in the manufacturer's instructions.



WARNING!
Risk of severe burn injuries!

The components in the plumbing cabinet can be up to 212 °F (100 °C).

Prevention: Wait for the unit to cool down to a safe temperature before proceeding.

Removing the Blower - refer to figure 1 on the next page

1. Remove the following from the blower and gas valve assembly:

- a. All wires and cables.

- b. The tube (3) connected to the air proving switch (4). Do NOT discard tube or air proving switch. Try to leave the tube attached to the air proving switch.

Note: This tube (3) is connected to the first blower assembly in the humidifier. For multi-burner humidifiers, the burners are numbered 1 to "n", starting from the electrical panel (1) side of the humidifier.

Note: On compact units (Nortec GS 50/100), this tube (3) is located on the blower connector (14).

- c. The tube (2) connecting the gas valve (6) to the blower (5).

Note: On compact units (Nortec GS 50/100), this tube (2) runs from the gas valve (6) and connects to the blower connector (14) of the air intake tube (13).

- d. The air intake tube (13). Requires you to loosen clamps (15).

Note: For compact units, this tube (13) connects to a blower connector (14) and cabinet. The flexible air intake tube (13) will have to be pushed down from inside the humidifier so you can remove the blower connector (14) from the blower (5).

- e. The gas hose (11). Do NOT discard hose.

Note: For compact units, you will need to loosen or remove the gas hose fitting (12) at the bottom of the humidifier.

- f. The blower-burner tube (8) connected to the burner. Note the orientation of the mounting plate (9). Do NOT discard the blower tube, the bolts, or the mounting brackets and plates. Remove and discard the gasket (7) between the blower tube (8) and the blower (5).

2. Remove the blower (5) (and attached gas valve (6)) assembly from the mounting brackets (10) or mounting plate (9). The blower assembly can now be removed from the humidifier.

Note: For compact units, a mounting bracket secures the blower assembly to the cabinet. The bracket is secured to the cabinet with M4x10 bolts (17), and the blower is secured to the bracket with torx screws (18). Do NOT discard the bolts and screws.

Installing the Blower - refer to figure 1 on the next page

Note: For compact units (Nortec GS 50/100), secure the blower assembly to the mounting bracket (10) with tamper-proof torx screws (18). It is recommended to install gas, air, and other tube connections before finally securing the bracket (and attached blower assembly) to the cabinet.

1. Install the tube (2) from the gas valve (6) to the blower (5).

Note: For compact units, you must first install the blower connector (14). The blower connector (14) will be installed between the flexible air intake tube (13) and the blower (5). Secure the blower connector tube onto the blower assembly with clamps. The tube (2) connects from the gas valve (6) to the blower connector (14).

2. Place the blower assembly (and bracket, for compact units) into the humidifier. Do NOT secure to the humidifier yet.

Note: For compact units, place the blower connector (14) over the flexible air intake tube (13) and secure with clamps (15).

3. Install the gas hose (11) to the gas valve (6). Ensure that the gas hose is secured at both ends.

4. Install the blower tube (8) that connects to the burner.

- a. Install the mounting plate (9). This should be located at the blower (5) to blower-burner tube (8) connection.

- b. Ensure that a new gasket (7) is placed between the blower-burner tube (8) and the blower (5).

- c. Secure with M5x16 hex-head bolts (16). Torque to 30 in-lb (3.5 N-m).

5. Secure the blower assembly to the humidifier.

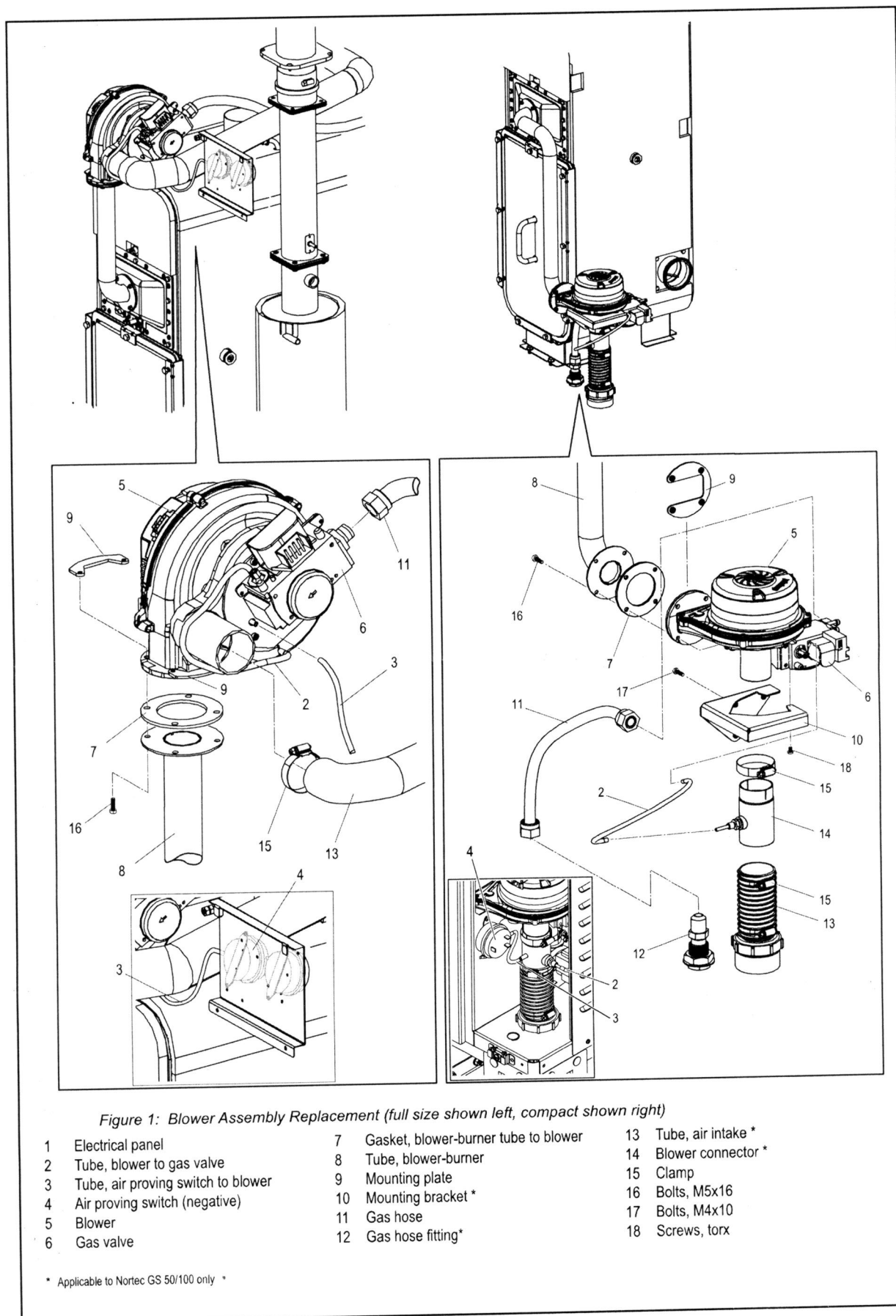
Note: For compact units, secure the bracket (10) and attached blower assembly to the humidifier cabinet with M4x10 bolts (17).

6. Reinstall the air pressure switch tubes (3) to the blower assembly. Ensure that the air proving switch (4) is connected to the first blower (closest to the electrical panel (1)). Ensure that the air pressure switch tube is connected to the *negative* air pressure switch.

Note: For compact units, the *negative* air pressure switch is located on the other side of the shroud separating the blower from the tank.

7. Reattach cables and wires.

8. Open the gas valve and check for leaks. If there are no complications, power up the unit and test the burners.



Adjusting the Gas Valve - refer to figure 2 on the next page

To be performed individually on each gas valve.

1. Prepare the new gas valve and blower.
 - a. Turn on the unit and disable all other burners (if present). From the touch screen, enter the menu screen [0 3 3 5].
Select Service > General Service > Burners > Disable Burners > Burner "n".
The burners are numbered 1 to "n", starting from the electrical panel side.
 - b. Set the humidity demand to 100%.
 - c. Check that the gas supply to the unit is turned on.
 - d. At the exhaust port (2), remove the plug and install a flue gas analyzer probe. Do NOT discard the plug.
 - e. Ensure that the following connections are secure.
 - The tube (7) between the blower and the gas valve.
 - The air intake tube (3) is properly connected to the blower.

2. Check ignition
 - a. Use a flat-head screwdriver to turn the throttle adjustment screw (4) in the gas valve clockwise until it stops. Then turn the screw counter-clockwise eight, full turns (8x 360°).
 - b. Set the On/Off switch on the humidifier to the On position to initiate ignition. Allow the unit to attempt ignition three times. If ignition does not occur, check the red LED in the ignition control module and perform the following:
 - i. If the red LED flashes three times consecutively, power-cycle the unit – set the On/Off switch to the Off position and wait for five seconds, then set it to the On position.
 - ii. If ignition does not occur, turn the throttle adjustment screw (4) counter-clockwise one full turn. Then power-cycle the unit.
Note: While adjusting the gas valve, ignition may be rough. This will be resolved automatically once the valve setup is completed.
 - iii. Repeat the above steps until ignition occurs.

When ignition occurs, allow the unit to ramp up to 100% output (approximately 30 seconds).

3. Check CO₂ levels

Gas Type	Target CO ₂ Level
Natural gas	9.5% ±0.25%
Propane gas	10.5% ±0.25%

- a. Use the flue gas analyzer to check the carbon dioxide (CO₂) level. Set the CO₂ level to the target level for the appropriate gas type – refer to the table above.
 - Turn the throttle adjustment screw (4) clockwise (1/4 turn-at-a-time) to reduce the CO₂ level.
 - Turn counter-clockwise to increase the CO₂ level.
 - b. Once the target CO₂ level has been achieved, reduce the humidity demand to the minimum demand (for the unit capacity), and allow the blower rotational speed to stabilize.
4. Adjust the offset
 - a. Use a flat-head screwdriver to turn the pressure sampling port adjustment screw (6) in the gas valve counter-clockwise one full turn to open the port.
Note: the adjustment screw is inside the sampling port.
 - b. Reset the manometer to zero. Then connect manometer to the sampling port.
 - c. Remove the tube (7) from the gas valve, and check the manometer. On the gas valve, turn the offset adjustment screw (5) to adjust the pressure to **-0.01" w.c. ± .005**. Turning clockwise increases the pressure.
 - d. Remove the manometer, then turn the adjustment screw (6) to close the pressure sampling port.
 - e. Reconnect the tube (7) to the gas valve.
 5. Increase the humidity demand to 100% and verify CO₂ level.
 6. After the gas valve has been set up, enable all burners individually.
 7. Remove the gas analyzer probe from the exhaust port (2). Apply Teflon tape to the threads of the plug before placing it in the exhaust test port.
 8. Apply a drop of Sentry Seal compound on the throttle adjustment screw (4) and the offset adjustment screw (5) as a tamper protection seal.
 9. Set the humidity demand to 100% and verify that all burners ignite smoothly.

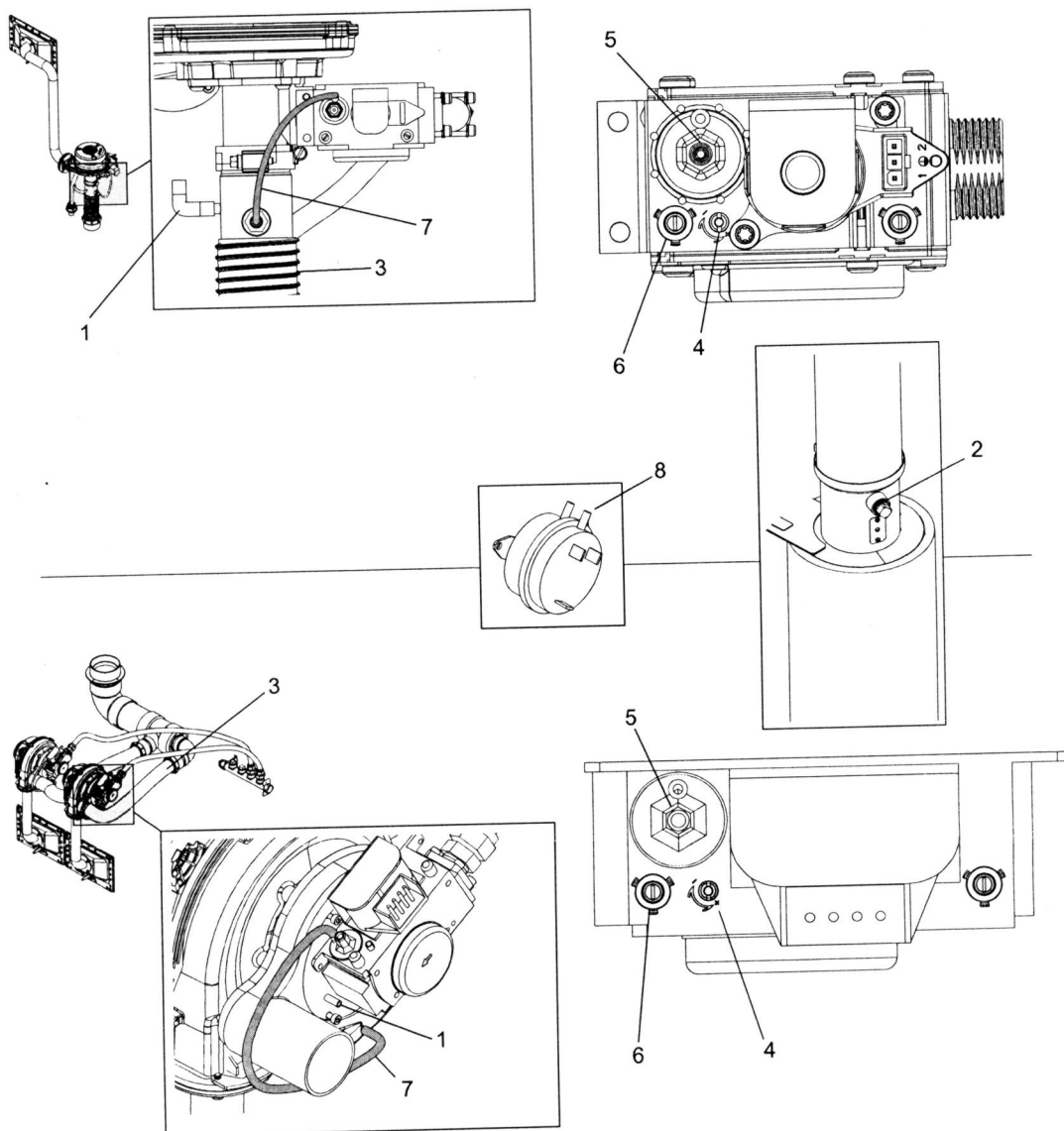


Figure 2: Gas Valve Set-up (full size shown bottom, compact shown top)

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|---|-----------------------------|---|--------------------------------|---|--|
| 1 | Tube, to air proving switch | 4 | Throttle adjustment screw | 7 | Tube, gas valve to blower (or blower connector in compact units) |
| 2 | Test port, exhaust | 5 | Offset adjustment screw | 8 | Air proving switch |
| 3 | Tube, air intake | 6 | Sampling port adjustment screw | | |