

Testing Air Pressure Switches with our Boiler Fault Finder Application

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To test a two wire air pressure switch (no demand)

- Electrically isolate boiler / system controls
- Disconnect both wires from the switch terminals
- Ensure both wires are resting safely and not touching any other component or earth – a well insulated heat mat is good for this
- Set **multi-meter on ohms scale** for resistance readings, across switch terminals (black test lead to C and red test lead to NC)
- Open circuit (infinity) across both terminals = ok (switch in rest / no air flow position)

To test a two wire air pressure switch (on a demand)



240 V LIVE TEST

- Ensure both wires are still resting safely and not touching any other component or earth
- Restore power and create a demand for heat
- Set multimeter on ohms scale for resistance readings, across switch terminals (black test lead to C and red test lead to NO)
- With fan running (at high speed) check continuity/resistance readings across both switch terminals.

Note: Some appliances will give you very little time to check a proved air flow – ensure the fan is at high speed for this check.

- Continuity = ok (switch in proved air flow position)
- Closed circuit of less than 1 ohm = ok (switch in proved air flow position)

Should an open circuit (infinity) reading be present, it does not prove a fault with the switch itself, but could be fan, venturi, blockages, hose problems etc needs – further investigation.

- Electrically isolate boiler – Replace both wires back onto their respective terminals – Restore power once more

To test a three wire air pressure switch (no demand)

- Electrically isolate boiler / system controls
- Disconnect all three wires from the switch terminals (note positions and colours respectively)
- Ensure all three wires are resting safely and not touching any other component or earth (a well insulated heat mat is good for this)
- Join safely both the C and NC wires together (two spade connectors joined together)

are good for this)

- Set multimeter on ohms scale for resistance readings, across switch terminals (black test lead to C and red test lead to NO)
- Closed circuit of less than 1 ohm = ok (switch in rest / no air flow position)
- Continuity = ok (switch in rest / no air flow position).

To test a three wire air pressure switch (on a demand)



240 V LIVE TEST

- Ensure all wires are still resting safely and not touching any other component or earth
- With the C and NC wires still touching (simulating rest / no air flow position), the fan should run at its normal high speed
- Restore power and create a demand for heat
- Set multimeter on ohms scale for resistance readings, across switch terminals (black test lead to C and red test lead to NO)
- With fan running (at high speed) check continuity/resistance readings across both switch terminals.

Note: Some appliances will give you very little time to check a proved air flow – ensure the fan is at high speed for this check.

- Continuity = ok (switch in proved air flow position)
- Closed circuit of less than 1 ohm = ok (switch in proved air flow position)

Should an open circuit (infinity) reading be present, it does not prove a fault with the switch itself, but could be fan, venturi, blockages, hose problems etc (needs further investigation). Electrically isolate boiler replace both wires back onto their respective terminals and restore power once more.

Where an air pressure switch is not present, purposely designed thermistors are used to measure the differential temperatures of the flue/air ducts, which are then transmitted to the printed circuit board for correct operation.

Some boilers use a low DC voltage, whereas others use a 240 V AC voltage. (Remember – the input will appear as an output, unless a fault is present).

Some air pressure switches use a push (positive) pressure on the diaphragm to make the micro switch, whereas others will use a pull (negative) pressure on the diaphragm to make the micro switch. The operation depends on the position of the return force (spring or gravity) when the fan is at rest.

A continuity check of the wiring harness at the printed circuit board end will ascertain correct operation of switch and the integrity of wires also, where it is difficult to gain access.