UPDATING DOMESTIC CIRCULATOR PUMPS

In this issue's Q&A, *Dave Lacey*, Director of Sales for Domestic Building Services at Grundfos Pumps, talks to flow about updating domestic circulator pumps to the current electronic versions.

flow: Why might a domestic circulator pump need to be replaced with a different model?
Dave Lacey: Due to a change in legislation, from 1 January 2013, traditional domestic circulators with induction motors were no longer available for sale in the UK or other European markets, because of increasingly stringent energy efficiency requirements. This meant that from that date, only electronically controlled variable speed pumps with permanent magnet DC motor technology could be legally supplied.

This change redefined the pump choice selection for the majority of the installed base of pumps in the home, at the point of replacement. To help, pump manufacturers produced a number of tools and reference materials to simplify the changeover process.

Dave Lacey, Director of Sales for Domestic Building Services, Grundfos

flow: How simple is it to replace a domestic three-speed circulator with one of the new electronic versions?
DL: When a system issue is recorded, the first step is to establish if the failure of the heating system is due to the pump and establish if the pump can be brought back into operation. It could be that the underperformance is due to air in the system, incorrect system balancing, or there is a power supply issue.

Where a replacement pump is deemed to be the solution, a suitable model will need to be selected, taking into account any recent system changes. Hard copy, pdf and on-line replacement guides are widely available, some of which can be accessed via apps on smartphones or tablets.

If it is deemed to be a pump failure, depending on the condition of the pump casing, it may be possible to replace just the pump head. Still, this option is dependent upon several factors, and an installer can best advise the feasibility of this option.

The basic steps involved in replacing a pump (or pump head only) include:

1. Switching off the heating system.
2. Switching off and disconnecting the power supply to the pump. It is vital that the power supply cannot be accidentally switched back on.
3. Isolating the pump hydraulically (closing the inlet and outlet valves). In older installations, isolating valves may be blocked, and if they need to be replaced, the system may need to be drained down.
4. Disconnecting the pump unions and removing the pump from the pipework (once the system has cooled down sufficiently). Alternatively, replacing the pump head (usually via four screws).
5. Re-connecting the pump to the pipework unions using the new washers supplied (or fitting the new pump head) and refilling and bleeding the system.
6. Re-connecting the power supply wires to the new pump. The pump power supply connection may need re-wiring, as a replacement pump may require an alternative power plug system. A qualified electrician should always assess the safety of electrical installation.
7. Switching the heating system back on in full accordance with all and any relevant Installation and operating instructions.

Changing a circulator pump offers the opportunity to check the whole system, including electrical installation safety compliance and hydronic balancing. By ensuring the heating medium is correctly distributed, and the right amount of heat is delivered as required, balancing affects comfort levels as well as overall system efficiency.

Another advantage of the modern domestic heating circulator is that variable speed pumps include automatic control modes which help reduce energy consumption. Depending on the type of hydraulic system, it can be a proportional pressure (radiators) or constant pressure (underfloor heating), where pump performance is adjusted depending on the current settings of control valves (TRV). By aligning its performance with requirements, the pump can reduce energy consumption.

So, it is straightforward for a qualified professional to exchange a pump. This also offers an excellent opportunity to look at the entire system to ensure that the optimal pump is selected, that the system is operating as efficiently as possible and that it is fully compliant with the latest regulations and recommended best practice.

Of course, any pump replacement or corrective actions should only be carried out by a suitably qualified industry professional.

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