

Technical Information

Air-to-Water

Subject: Air-to-Water Mono-bloc H2O (pump abnormality) Error

 **WARNING**

This service information is designed for experienced technicians only and is not designed for used by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1. Background

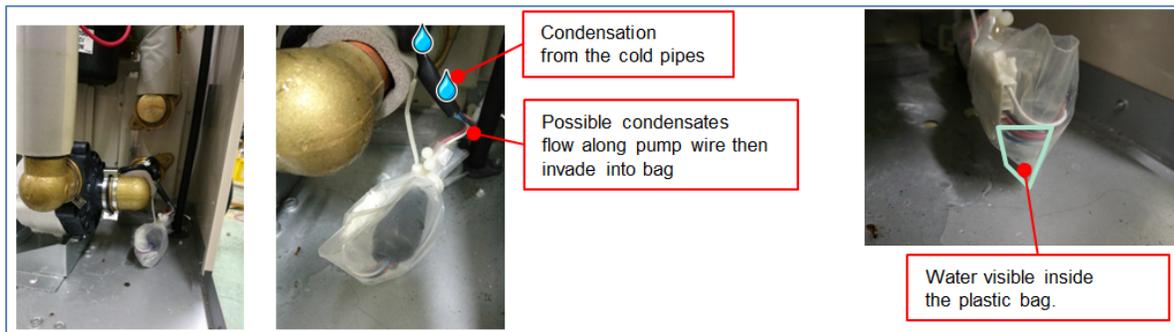
Our mono-bloc air-to-water product line is intended to be used primarily for heating. However, when operated in cooling mode, some condensation may occur on the cold piping, particularly the water inlet and water outlet tubing.

2. Symptoms

The pump leadwire connector is protected with a plastic bag but in rare cases where environmental conditions cause excessive dew formation inside the unit during cooling mode operation, condensates from cold pipes drop through the opening of the bag and accumulate inside it. This condition could lead to short circuit on the water pump wire connection when electrical power is supplied to the pump. Refer to Figure 1 for details.

When power is supplied constantly to the pump and arc discharge occurs consistently due to the water on the connector, the wire on the pump connector will burn (refer Figure 2) and cause erroneous data to be feedback to the microcontroller about the speed of pump rotation, triggering the H2O alarm.

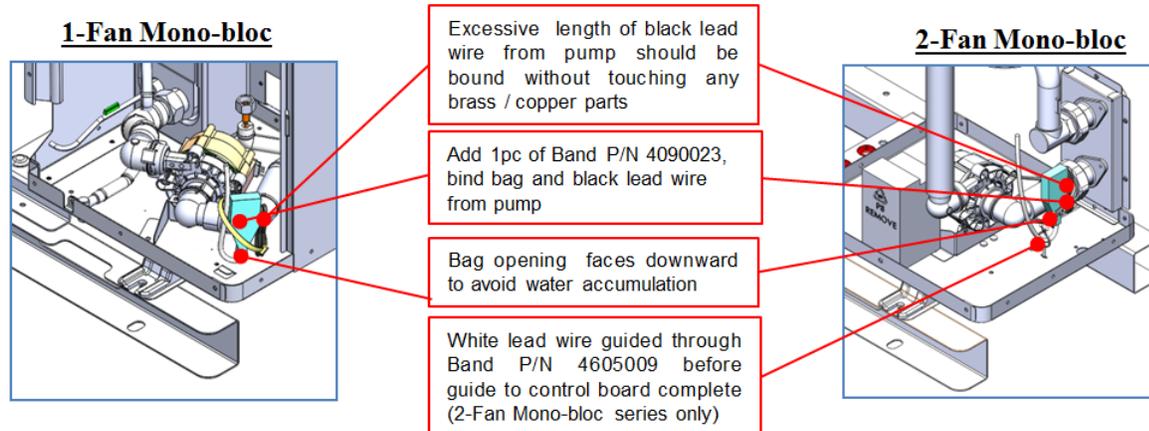
When this happens, the DC pump and main PCB need to be replaced. To prevent recurrence, ensure the position of the pump connector is as shown in Figure 3 and the countermeasure (refer 3) is implemented.



3. Countermeasure

Starting production July 2017, the following changes will be implemented to prevent the condition from happening (refer Figure 3 for illustration):

1. Pump connector wire guiding direction is changed from horizontal to vertical with the opening of the plastic bag facing down towards the chassis to prevent water accumulation inside the bag.
2. Excess length of the pump leadwire and the plastic bag are bound with a band (part number 4090023) without touching any brass or metal parts.
3. For 2 Fan mono-bloc models, the white lead wire is guided through the band (part number 4605009) to the control board.



4. Models Concerned

The models and their respective serial numbers listed below already have the above countermeasure implemented.

Model	Countermeasure Serial Number
WH-MDC05F3E5	56144 03489
WH-MDC06G3E5	56178 01001
WH-MDC09G3E5	56175 00920
WH-MDC12G6E5	56170 00404
WH-MDC16G6E5	56171 00318
WH-MHF09G3E5	56166 00571
WH-MHF09G3E8	56168 00018
WH-MHF12G6E5	56167 00337
WH-MHF12G9E8	56169 00088
WH-MXC09G3E5	56160 00239
WH-MXC09G3E8	56162 00200
WH-MXC12G6E5	56161 00364
WH-MXC12G9E8	56163 00258
WH-MXC16G9E8	56172 00225