YORK
BY JOHNSON CONTROLS

Service Information

File In/With: 155.16-M3.1 (supersedes 1009 version)	SI0213 0614
Equipment Affected: YIA Absorption Chillers	
New style level switches (1F and 3F)	

GENERAL

A design change was made to change out the 1F and 3F refrigerant float switches used on the YIA single stage absorbers. The older style float type switches were replaced by a stationary, conductivity probe style which functions to detect a refrigerant level without the use of a moving float mechanism. The function of the new style switches is identical to the old style float switches. However, the appearance is somewhat different and there are no moving parts that could eventually fail.

For those familiar with the two stage absorption product, these switches are identical to the level switch (LS), which is used on the direct fired, first stage generator to detect a solution level.

To perform the tasks outlined in this document, the technician should reference:

- 155.17-M3 (204) Absorption Welding Instructions
- 155.17 –NM1 (SB3) Thread Joint Sealant Procedures

Level Switch Installation

The new style switch can be identified by the smaller threaded connection on the top of the enclosure box; this connection is a 3/8” NPT connection. The “spark plug” looking wiring harness is red in color (see FIG.1).

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FIG. 1 – REFRIGERANT FLOAT SWITCH (1F)

The probe or electrode part number (024-25572-000) is good for 50 and 60 Hz applications. The electrode will be longer than required and will need to be cut before installation. Cut the electrode (metal portion) to a length of 1-3/16” from the end of the white Teflon sleeve to the end of the probe (see FIG. 2). This 1-3/16” length will also be applicable for inserting the probe into the 3F enclosure. Please see the specific instructions below if installing the 3F level switch with no existing 3F enclosure. Thread the electrode into the enclosure using proper thread sealing procedures; cleaning, priming and sealing. Make sure the electrode does not come in contact with the metallic enclosure or it will not function properly.

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FIG. 2 – REFRIGERANT FLOAT SWITCH

The wiring harness (575-06503-451) is applicable for both 50 & 60 Hz applications. It will be approximately 68" long and runs from the top of the sensing element to the LLCO terminal on the controller. At the sensor end it has a ring terminal (025-31790-000), and the controller end has a push-on terminal (025-23738-000).

The controller has more than one part number which depends on the application.
Order the controller per the criteria below:
225-29922-000, 120 VAC, 60 Hz, NEMA 1 enclosure
025-31333-001, 120 VAC, 50 Hz, NEMA 1 enclosure
025-42093-000, 120 VAC, 50 & 60 Hz, no enclosure
240VAC, 50 Hz, NEMA 4 controller is available through special order.

Mounting

Controllers with enclosures can be mounted on the evaporator spill box if an existing mounting plate is already at this location. If no mounting plate is attached to this box, mount the controller under the micro panel bracket. Never weld directly on the pressure vessel without contacting Product Technical Support. A locally supplied mounting plate will be necessary to complete the under panel mount.

If the controller has an enclosure, mount the enclosure directly to the mounting plate using the existing holes in the enclosure as a template. Controllers with no enclosures are designed to be mounted in a pre-existing enclosure, such as in the OptiView panel. When mounting this type of controller, ½" stand-offs must be used to insulate the controller from the mounting surface.

Millenium Control Panel

Connect the wiring as follows on units with the **Millennium** control panel:

- Connect the harness from the appropriate probe to the LLCO terminal on the respective controller board.
- Connect the ground terminal on the controller board to the ground screw on the enclosure.
- Jumper together terminal L1 and common on the controller board and land on terminal 1 on TB6.
- Connect terminal L2 on the controller board to terminal 2 on TB6.
- Connect the NO connection on the 1F controller board to terminal 10 on the digital input board.
- Connect the NO connection on the 3F controller board to terminal 11 on the digital input board.

The red LED light will illuminate when power is applied to indicate the probe is functioning.

OptiView Control Panel

Connect the wiring as follows on units with the **OptiView** control panel:

- Connect the harness from the appropriate probe to the LLCO terminal on the respective controller board.
- Connect the ground terminal on the controller board to the ground screw in the control panel.
- Jumper together terminal L1 and NO connection on the controller board and land on terminal 1 on TB6.
- Connect terminal L2 on the controller board to terminal 2 on TB6.
- Connect the common terminal on the 1F controller board to terminal 95 on the I/O board.
- Connect the common terminal on the 3F controller board to terminal 82 on the I/O board.

The red LED light will illuminate when power is applied to indicate the probe is functioning.

Specific Instructions for 3F Level Switch

The 3F level switch is used only on the new style refrigerant pumps to ensure an adequate supply of refrigerant is available to properly cool the motor. It must be mounted somewhere on the piping before the pump's suction connection (see FIG. 3). On older units this switch is mounted in a special enclosure (see FIG. 4).

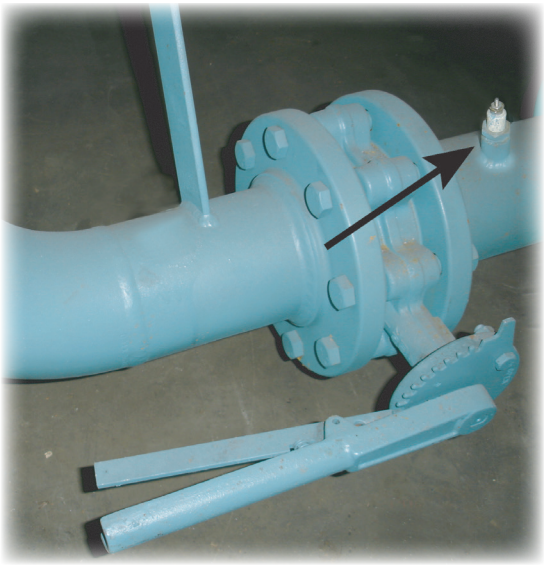

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FIG. 3 – 3F LEVEL SWITCH LOCATION

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FIG. 4 – 3F SPECIAL ENCLOSURE

If installing this switch for a new style retrofit pump or if converting an old style "float type" switch to the newer style switch. Use the arrangement as in above FIG. 3. Mount a half coupling (068-00082-000) top and center of the section of pipe between the refrigerant pump suction and isolation valve. If no isolation valve is present, mount the probe on the horizontal section of pipe just before the refrigerant pump suction connection. Cut the probe so that it protrudes to the center line of the suction piping.

On 4 inch OD pipe the probe cut length will be approx 2 inches (shown in FIG. 2).
On 6 inch OD pipe the probe cut length will be approx 3 inches (shown in FIG. 2).
Use the proper thread sealing procedures as described in 155.17-NM1. See above for the wiring instructions.

Summary of part numbers:

024-25572-000	Electrode
575-06503-451	Wiring Harness
225-29922-000	120 VAC, 60 Hz, NEMA 1 Enclosure
025-31333-001	120 VAC, 50 Hz, NEMA 1 Enclosure
025-42093-000	120 VAC, 50 & 60 Hz, no Enclosure
025-31790-000	Sensor End Ring Terminal
025-23738-000	3/16" Insulated Push-on Terminal
025-21156-000	¼" Insulated Push-on Terminal
025-18732-000	Insulated Spring Spade Terminal
068-00082-000	3/8" NPTI Half Coupling

Level Sensor Kit (225-29922-000) consisting of:

- NEMA 1 level controller
- Electrode
- Wiring harness
- Locknut