SERVICE BULLETIN #1 - IMMEDIATE ACTION REQUIRED

February 28, 2020

WATER INJECTION TEST FAILURES

SkyMark Refuelers, LLC ("SkyMark") has become aware of some aircraft refueler filter-water separator water defense systems ("Water Defense Systems") that have not passed water injection tests ("Water Injection Tests"). The floats in these Water Defense Systems are identified as part numbers LS-SKYM-1030, LS-SKYM-1050, LS-SKYM-1051.

SkyMark manufactures aircraft refuelers equipped with Water Defense Systems, and it has also supplied these floats as after-market parts. Our records reflect that your company operates and/or supplies fuel to one or more of these aircraft refuelers utilizing these floats as original equipment, and/or we have supplied your company with one or more of these floats as an after-market part (as identified on the attached exhibit).

Airlines for America ("A4A" f/k/a "ATA"), Joint Inspection Group ("JIG") and ASTM International ("ASTM") publish widely-accepted industry standards, guidelines and best practices for aviation turbine fuel distribution and quality control at airports. These publications set forth requirements for periodically testing Water Defense Systems on aircraft refuelers. Procedures, frequencies and cautionary statements pertaining to Water Defense System tests are incorporated into these publications to assure that Water Defense Systems operate properly.

Water Defense Systems are tested by injecting a prescribed volume of water directly into the filter-water separator sump and observing the immediate automatic shutdown of the refueling system, as performed in accordance with the above-referenced publications. While there are other methods to detect presence of water in aviation fuel and to test the operability of Water Defense System circuitry, a Water Injection Test is the most widely-accepted method to determine that a Water Defense System operates properly in all respects.

IMMEDIATE ACTION REQUIRED

SKYMARK URGENTLY RECOMMENDS WATER INJECTION TESTS TO BE PERFORMED IMMEDIATELY ON AIRCRAFT REFUELERS EQUIPPED WITH WATER DEFENSE SYSTEMS. ADVISE ALL FUELING OPERATORS TO PERFORM THIS TEST WHERE YOU OPERATE AIRCRAFT REFUELERS, SUPPLY AIRCRAFT REFUELERS, AND/OR SUPPLY FUEL. IF A REFUELER DOES NOT PASS A WATER INJECTION TEST BY FAILING TO SHUT DOWN AS REQUIRED BY THE TEST, THE REFUELER SHOULD BE IMMEDIATELY REMOVED FROM SERVICE. CONTACT SKYMARK IMMEDIATELY WITH PASS AND/OR FAIL RESULTS AT (913) 749-1220.

It is imperative that trained personnel **immediately** perform a Water Injection Test on each of the refueler(s) identified on the attached exhibit, and on refuelers that may have one of these floats installed as an after-market part, **regardless of dates and results of any recent Water Injection Tests performed, and regardless of whether or not Water Injection Tests are due to be performed at this time.**

SkyMark further recommends that a Water Injection Test be performed on all refuelers with these parts on at least a monthly basis until further notice.

If you are not able to contact the fueling operator(s) of any aircraft refueler(s) identified on the attached exhibit, please contact SkyMark immediately at (913) 749-1220.

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In addition to the foregoing and out of an abundance of caution, we recommend you perform a Water Injection Test as soon as practical on all other aircraft refuelers not listed on the exhibit that are equipped with Water Defense Systems of any kind, whether or not they utilize these particular floats and whether or not the refuelers were manufactured by SkyMark. We further recommend you strictly adhere to all practices set forth in industry accepted fuel quality control publications pertinent to your operation, such as routine checking for and draining of water in product tanks and filter sumps, testing differential pressure gauges and related systems, monitoring differential pressure readings, and changing filter elements and coalescers as required.

HOW TO CONTACT SKYMARK AND WHAT WE WILL DO REGARDING SKYMARK AIRCRAFT REFUELERS

If you observe a Water Injection Test FAIL, immediately remove the refueler from service and contact us for assistance. We will immediately supply parts at no charge which will need to be installed prior to returning your refueler to service.

If you observe a Water Injection Test PASS, please contact us as soon as possible. We will supply replacement parts at no charge which will need to be installed immediately upon receipt.

We have established a special telephone number and email address for you to contact us regarding the results of your Water Injection Test, or if you are unsure what to do in response to this Service Bulletin.

(913) 749- 1220 • bulletin@skymarkrefuelers.com

We also encourage you to communicate with us immediately:

- If you do not know how to perform a Water Injection Test,
- If you do not have equipment to perform a Water Injection Test,
- If you do not have qualified trained personnel available to perform a Water Injection Test,
- If you are unaware of or not in possession of latest edition industry accepted publications pertaining to Water Defense Systems and Water Injection Tests (such as ATA Specification 103, JIG, ASTM MNL5),
- If any of the aircraft refuelers identified in the attached exhibit are not directly or indirectly under your control,
- If you have any questions about this Service Bulletin.

IMPORTANT WAYS YOU CAN ASSIST

If there are other fueling operators we should contact regarding the aircraft refuelers listed on the attached exhibit, please contact us with that information. You can also refer those parties to this Service Bulletin which is published on our web site at https://skymarkrefuelers.com/bulletin.

ATTACHMENTS:

1) Exhibit of affected aircraft refuelers and floats supplied to you by SkyMark
2) Photographs and technical specifications of LS-SKYM-1030, LS-SKYM-1050, LS-SKYM-1051
3) SkyMark recommended procedures for testing Water Defense Systems

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ATTACHMENT 2 - Photographs and technical specifications of LS-SKYM-1030, LS-SKYM-1050, LS-SKYM-1051

LS-SKYM-1030	LS-SKYM-1050	LS-SKYM-1051
FLOAT SWITCH ASSEMBLY, FOR WATER DETECTION, 4" OAL, 2 1/2" FLOAT LEVEL ACTIVATION, 1 1/4" NPT, BRASS/BUNA, .93 SP. GR., NO (FLOAT AWAY FROM FITTING)	FLOAT SWITCH ASSEMBLY, FOR WATER DETECTION, 4" OAL, 2 1/2" FLOAT LEVEL ACTIVATION, 1 1/4" NPT, BRASS/BUNA, .93 SP. GR., NO (FLOAT AWAY FROM FITTING), PRE-WIRED W/ 24 INCH 18 GA CABLE & MALE DEUTSCH PLUG	FLOAT SWITCH ASSEMBLY, FOR WATER DETECTION, 4" OAL, 2 1/2" FLOAT LEVEL ACTIVATION, 1 1/4" NPT, BRASS/BUNA, .93 SP. GR., NO (FLOAT AWAY FROM FITTING), PRE-WIRED W/ 24 INCH 18 GA CABLE & MALE DEUTSCH PLUG, INCLUDES PUSH ROD FOR TESTING

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ATTACHMENT 3 - SkyMark recommended procedures for testing Water Defense Systems

Industry Publications

SkyMark recommends that you perform Water Injection Tests in accordance with the industry accepted standards, guidelines and best practices pertinent to your operation, including the observance of and adherence to all cautionary statements contained therein. Those instructions are generally found in publications issued by A4A, ASTM and JIG. There may also be Water Injection Test policies and procedures required by/published by/available from your fuel suppliers and customers. The A4A, ASTM and JIG publications are available online as follows:

A4A / ATA Specification 103: https://publications.airlines.org/CommerceProductDetail.aspx?Product=289

ASTM MNL5: https://www.astm.org/DIGITAL_LIBRARY/MNL/SOURCE_PAGES/MNL5-5TH.htm

JIG: http://www.jigonline.com/jig-products/

Water Injection Pumps

A water injection pump is required to perform a Water Injection Test. These pumps are available from Gammon Technical Products product catalog (https://www.gammontech.com/files/catalog/b063.pdf and other sources.

Additional Notes Regarding SkyMark Aircraft Refuelers

1) SkyMark Water Defense Systems detect water with an electric-style float switch. On the aircraft refueler main control panel, there **may or may not be** an electric toggle switch labeled "Water detection Test Switch". Skymark recommends that you momentarily activate this switch during your normal daily checks while recirculating fuel. When activated, the fueling system should shut down and the red light labeled "Water Detector" should illuminate. **Note that this test only evaluates the operation of Water Defense System circuitry and is not a substitute for the Water Injection Test.**

2) On SkyMark aircraft refuelers using the LS-SKYM-1051 float, a push rod is installed (see photo in Attachment 2) which physically moves the float into the upward position where it would be if it were floating in water. Skymark recommends that, once per week during your normal daily checks while recirculating fuel, the push rod is pushed to its full upward position and released. The push rod will remain in the upward position, the fueling system should shut down and the red light labeled "Water Detector" will illuminate. After testing, pull the push rod into the full downward position. **Note that this test only evaluates the operation of Water Defense System circuitry and freedom of float movement and is not a substitute for the Water Injection Test.**

3) **Never perform a Water Injection Test during aircraft refueling.** During your periodic Water Injection Tests, do not inject more than (1) gallon of clean water in order to assure that water does not escape the filter sump during test. The test should be conducted in high throttle mode at the maximum flow rate of the refueler. As water is injected, the float inside the filter sump will rise. Once enough water is injected, the fueling system will shut down and the "Water Detector Light" will illuminate. The test is considered a "pass" if less than one (1) gallon of water causes the fueling system to stop and if the water detector light illuminates. **All water must be drained from the sump prior to returning the aircraft refueler from service.**

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