

Severe Cold Weather Problems & Adjustments

Systems, LLC manufactures Poweramp, McGuire and DLM dock levelers and restraining devices to function in a wide range of temperatures and weather situations. However, during sustained severe cold weather, adjustments may be required to keep equipment functioning normally. This TSB provides a general overview of various issues encountered in severe cold weather, along with recommended solutions.

Hydraulic Equipment

Problem: Equipment struggles at all stages of operation. Electrical overload device may be tripping. Fluid is thick and has a syrup-like consistency or appears cloudy.

Typical cause: Incorrect or aged hydraulic fluid.

Solution: Systems, LLC hydraulic equipment requires the use of fluids that meet specification **MIL-H-5606-G**, also known as a “5606” hydraulic fluid. This fluid is rated for extreme cold; fluid supplied by Systems, LLC is rated for -70° F, while other “5606” blends are typically rated for at least -50° F. “5606” fluid should never appear thick or syrup-like, even in extreme cold.

Incorrect fluid is the primary cause of cold weather issues. Fluids such as ISO 32, Automatic Transmission Fluid, SAE 10 and others are not acceptable and will void warranty!

Aged hydraulic fluid can also display similar issues. Over time, the fluid can absorb moisture and debris, which reduces the fluid’s ability to work in extreme temperatures. Systems, LLC recommends that hydraulic fluid is replaced yearly for ideal operation.

Problem: Leveler raises as expected, but sticks or hangs up when lowering.

Typical cause: Velocity fuse overpowered by fluid returning to tank.

Solution: Adjust leveler down-speed. While “5606” hydraulic fluid is rated for a wide range of temperatures, it still experiences a slight change in viscosity in extreme cold conditions. This slight change is enough to overpower the velocity fuse and cause dock levelers to hang up. To compensate, fluid flow back to the tank must be reduced by adjusting down-speed.

Down-speed adjustment varies by equipment and may be located on the fluid logic block or motor/pump assembly, but typically a minor 1/8 to 1/4 turn clockwise adjustment is all that is required. See the Owners/Users Manual for your equipment for specific instructions.

Severe Cold Weather Problems & Adjustments (continued)

**Problem: Jumpy or erratic operation; spool valves sticking or shifting inconsistently.
Fuses blowing and/or solenoid coils failing.**

Typical cause: Equipment covered in snow and/or ice.

Solution: In severe weather conditions, care must be taken so that snow and/or ice does not trap vehicle restraints or fill pans that contain valve blocks with solenoid coils. Spool valves can fill with ice and fail to shift, solenoid coils may short-circuit, and other issues could occur. If there is a severe accumulation, a heater may be required to thaw the system.

CentraAir Equipment

Problem: Leveler valves sticking or freezing.

Typical cause: Insufficient Kilfrost supply.

Solution: CentraAir equipment relies on Kilfrost to provide valve lubrication, eliminate system moisture and prevent icing in cold conditions. Kilfrost is continuously injected into the system at the regulator and depletes over time; if the reservoir is run empty, residual moisture in the system can cause valves to freeze and stick. Systems, LLC recommends that the regulator moisture trap is drained, and Kilfrost supply is checked weekly and replenished as needed.

Conclusion

The issues described in this TSB are the most commonly experienced issues with dock equipment in severe cold weather. Systems, LLC stocks MIL-H-5606-G hydraulic fluid, replacement spool valves and solenoid coils, Kilfrost refills, and many other items that may be needed in severe cold weather. Optional heater blankets for fluid reservoirs and Powerhook cylinders are also available if required.

If you have any questions or concerns about severe cold weather functionality, contact Systems, LLC Technical Services at (800) 643-5424 or techservices@docksystemsinc.com.