



## TECHNICAL BULLETIN : PRODUCT INFORMATION

### NuAire Hydraulic Base Preventative Maintenance

For many years NuAire has manufactured many variations of products that have incorporated hydraulic lift systems. These hydraulic lift systems being both manual (crank) and electrical were used as adjustable base stands for biosafety cabinets, airflow products and animal transfer stations where the hydraulic lift is built into the product itself.

As these hydraulic lift systems are used and age, it is important that they are routinely inspected to ensure they remain in a safe operating condition. This document details the recommended annual checks that should be performed to assure safe and effective usage of NuAire hydraulic lift systems.

#### Life Cycle

The hydraulic lift systems that NuAire uses are rated for 10,000 cycles. How long it takes to reach this limit will vary by usage. As an example, if the hydraulic lift system was used 4 times per day, a typical year has 260 business days per year, this would equal 1040 cycles per year and would take 10 years to reach the 10,000 rated cycles.

Other factors that can contribute to usable life would be the environment the hydraulic lift system is used in. If the environment is dusty/dirty or the hydraulic lift system cylinder rods are routinely exposed to cleaning materials. Any debris or materials on the lift system cylinder rods can affect the hydraulic fluid seals and impact usable life.

The hydraulic lift systems will also lose ¼ inch (6mm) or more of travel over its usable lifetime. This is due to losing a very small amount of hydraulic fluid through the cylinder seals either naturally through usage or prematurely due to materials on the cylinder rods as discussed above.

It is important to monitor or check this fluid loss in terms of each cylinder's travel distance. If the travel distance is not the same for each one of the (4) cylinders, this can cause binding and stress on the hydraulic system internal parts (i.e. seals, cylinder lead screw and holder) that can result in system failure.

The hydraulic lift systems as designed into NuAire products have a 10 year usable life. NuAire will provide support of all identified replacement parts. For hydraulic lift systems older than 10 years, limited support may be available; however NuAire would recommend the lift system be replaced.

## Recommended Annual Preventative Maintenance Review

### **Cycle Periodically**

The hydraulic lift system should be fully cycled periodically to ensure seals remain lubricated. If the usage of the lift system is only occasionally (less than once per week) or only minor movements (up/down 1 or 2 inches of travel), the cylinder rods may not be fully lubricated. Fully cycling the lift system will ensure the seals are well lubricated for smooth operation up and down. If the product seems to not be moving smoothly specifically in the down direction it should be run 4-5 cycles full up and down to lubricate the seals.

### **Look Up**

With mobile units such as animal transfer stations it is important to be aware of what is above the unit. Be aware of things like pipes, sprinklers, or changes in the ceiling height. If the unit were to be stopped from moving by an obstruction while being raised damage could occur to the lift or to the facility itself. Biosafety Cabinets connected to a ducted system need to be positioned with the unit's exhaust directly underneath the duct to prevent any crimping/damaging of the flex duct when the unit is raised and lowered.

## Annual Checks

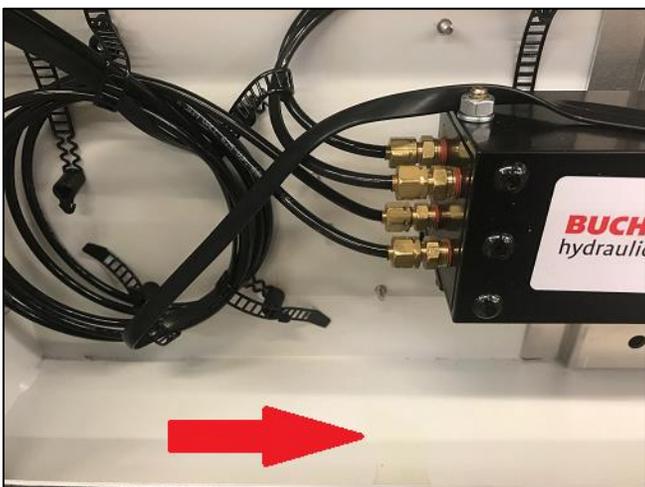
### **General Observation**

**Note:** If there are any concerns prior to raising/lowering the lift, consult NuAire's Service Dept.

Before activating the lift, a simple look around should be done first. Check for proper ceiling clearance and that nothing is underneath the unit. Ensure the back of the unit is not touching the wall.

A simple look and listen should be done. Activate lift by raising and lowering it with the up/down switch. While the lift is in motion, constantly observe that the unit remains level and listen for any unusual noises coming from the motor that would indicate a possible problem.

Look around the unit for any hydraulic fluid that would indicate the unit is leaking fluid somewhere. If fluid were to be leaking, it is generally found at the base of the legs or where the lines go into the pump. The fluid is a light yellow color oil (as seen in pictures below):

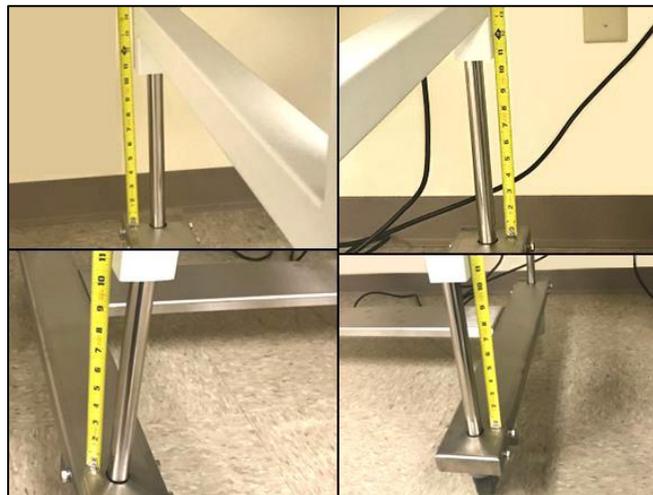


**Take Measurements**

Raise the hydraulic lift system to its highest point and measure the distance from the floor or the base plate to a mobile point on the unit. Take a measurement in all 4 corners. (Please see pictures below). The measurements should all be within 1/2 inch (13mm) of each other. These measurements should be recorded annually into a log (example below) and referenced from year to years as the hydraulic lift system ages.

If the measurements do not fall within the 1/2 inch (13mm) acceptable tolerance range, the hydraulic lift system is **not level** within acceptable usable range and needs to be taken out of service for further investigation. Then based upon the findings, the hydraulic lift system should be repaired or replaced. Some measurement examples are shown below.

**Hydraulic Lift extended to highest point:**



**Measurements taken at all (4) corners:**

**Auto Basestand Preventative Maintenance Log (Example)**

Date:	Fluid present? (Yes/No)	Full Cycle Test (✓)	Maximum Height (in-mm)				Acceptable to use? (Yes/No)
			All measurements must be within 1/2 inch (13mm)				
			R-F	R-R	L-F	L-R	

## Inspect Casters

The casters, if applicable, should be inspected for wear or damage. The casters should also be checked to ensure all the bolts securing them are tight. If any casters are found to be loose, they should be backed out and re-installed using blue Loctite.



## Additional Information

For caster specific information relating to NuAire models NU-612 and NU-617, refer to STB0185.