RECOMMENDED MAINTENANCE FOR

VACUUM-FORMING SYSTEMS

5-1-2018

These systems consist of:

* Heaters
* Vacuum pump(s)
* Pneumatic-powered motions

Heaters

Vacuum any debris from the top surfaces of the lower heaters BEFORE starting the heaters. ONLY vacuum the lower heaters while they are COOL!

Examine the wiring from each heater all of the way back to the enclosure. Look for discoloration in the insulation. If discoloration is found, determine why the wire overheated and replace it if the insulation is damaged. Use only ceramic “wire-nuts” inside the junction boxes. Ensure that you reinstall the cloth ‘sock’ over the wire bundles.

Vacuum Pumps

The vacuum pumps used on these systems are oil-less. The only thing the user must be alert to is a change in the sound of these pumps: if they start sounding noisier than usual, then the vanes inside the pump may be failing and should be examined and/or replaced. Worn vanes will prevent adequate vacuum.

Pneumatic-powered motions

The sliding surfaces of the guide-bars for all system motions MUST be kept free of rust and debris. Wipe on a light coat of light machine oil to all sliding surfaces once a month. More often in humid areas.

General

Once a quarter, a mechanical inspection of the entire system is required. Using the appropriate hex-key wrench, the inspector must ensure that all fasteners are secure. Look for evidence that connectors have worked loose during operation and move these point back into position. Increase the frequency of inspections if certain areas of the system experiences loosening of fasteners.

Use blue Thread-locking fluid at critical point to reduce or eliminate the need to frequent re-tightening of fasteners.

Check for air-leaks at all pneumatic fittings. Correct all leaks found.

Verify that all locking-nuts for pneumatic flow-restrictors are secure to prevent undesired changes in motion.

Electrical

Electrical inspections should ONLY be carried out by an experienced technician. The system should be idle and cool.

Turn main power to the system OFF using the main disconnect on the door. Open the enclosure and look for discolored wiring. Using the appropriate tool, tighten each terminal on all components firmly. (You do NOT need to pretend that they are head-bolts on an engine!)

Carefully examine any wiring the appears to be discolored: if the terminal it is connected to is also discolored, then the terminal must be replaced and the wire stripped back and reattached. Tighten the connection firmly.

After this tightening of terminals has been carried out a couple of times during the life of the machine, it seldom needs to be repeated.

Clean the enclosure air-filters.

Vacuum out any debris inside the enclosure. By keeping the enclosure clean ad free of debris, you will more readily be able to spot problems created by careless technicians who leave trash inside the enclosure. DO NOT store spare parts inside the enclosure.

Keep the area in front of the enclosure clear out to 36 inches! This is a legal requirement in all states.

Examine the umbilical cable to the operator’s station if so equipped. Replace the cable if it is damaged.

Use a strong flashlight and examine any cable or pneumatics cable-carriers. The links must be intact and securely connected together. The cable or hoses inside the carrier must be undamaged and the carrier free of debris.

By following this procedure monthly, you will prevent most problems.