



Maintenance Schedule

KVAL recommends the following maintenance schedule to ensure that the machine operates properly.

- Cycles refers to the quantity of processed doors.
- Cleaning curtains build up of sawdust and grime which causes issues with the operation of the machine.
- Inspecting, finds issues before they become problems.
- Lubricating decreases wear and keeps this machine running smoothly.

300 Cycles	
Clean	Use pressured air to blow off dust and debris on entire machine
Clean	Blow out dust collection cans

600 Cycles	
Inspect	Air Pressure Gages. Adjust, if necessary, to the proper PSI located on the label. (Adjust only if Trained in Maintenance)
Inspect	Inspect Air Filter Water Traps. Empty if necessary
Inspect	Inspect the Tooling for wear, (Drill Bits, Cutting Tools, Screw Driver Bits)
Lubricate	Lubricate the inside of the Hoppers with a light coat of dry silicone spray.
Clean	Empty All Dust Collection Units

3,000 Cycles	
Inspect	Inspect feed belts for proper tension or damage.
Inspect	Inspect screw drop tubes for kinks, cracks or wear from rubbing. Ensure tube clamps are tight.
Inspect	Inspect all photo eyes secure and tight.
Inspect	Inspect all limit switch arms for tightness or breaks
Inspect	Inspect split shells and screw receivers on six shooters for cracks or breaks. Replace if broken.
Inspect	Inspect all airlines for kinks or rubbing.
Lubricate	Refill all lubricators. Replace fluid if milky or discolored. Use an ISO 32 standard hydraulic oil.
Lubricate	Grease ball screw bearings (if applicable). See "Lubrication Schedule" on reverse page.
Clean	Clean all bearing shafts with clean, dry cloth.

12,000 Cycles	
Inspect	Inspect chains for proper tension or damage
Inspect	Inspect all air cylinders for air leaks. Replace if seal is leaking
Inspect	Inspect hydraulic lines for loose fittings, leaks and cracks.
Inspect	Inspect ball rail shafts for pitting or abrasions.
Lubricate	Clean and lubricate all slides and cylinder rods with dry silicone spray
Lubricate	Lubricate all bearing shafts and hex shafts with silicone and clean rag.
Clean	Clean inside the hoppers with WD-40 and a 3M Scotchbrite™ pad. Wipe dry with a clean dry rag

72,000 Cycles	
Inspect	Inspect All nuts and bolts for tightness. Tighten if necessary.
Inspect	Check for a smooth transition in door feeding into and out of the machine.
Back Up	Back-up computer software.
Clean	Wash the filters and lubricator bowls with soap and water.



Prior to performing any maintenance, repairs, cleaning or when clearing jammed debris, you must disconnect, tagout, or lockout the electrical and air pressure systems.

Tool Change Schedule

Changing and inspecting the tooling on a regular basis keeps the door machining process running accurately and efficiently. KVAL recommends using the tables below as a reference to change or inspect the machine tooling.

Lock Section Tooling	
Face Plate Router Bit	2,500 cycles
2-1/8" Face Bore Bit	2,500 cycles
2-1/8" Face Bore Bit Inserts	2,500 cycles
Insert Scoring Spur for 2-1/8" Bit	2,500 cycles
Face Bore Chip-Out Block	2,500 cycles
1" Bolt Drill Bit	2,500 cycles

Hinge Router and Pre-Drill Tooling	
Hinge Router Bit	1500 cycles
Chisels Inserts	1500 cycles
Chip-Out Block	10,000-20,000 cycles
9/64" Pre-Drill Bit	10,000-20,000 cycles
1/8" Pre-Drill Bit	10,000-20,000 cycles

Screw Receiver and 6-Shooter Tooling	
Screwdriver Bits	1,500 cycles
Steel Rings	7,500 cycles
Rubber Rings	7,500 cycles
Screw Receivers	30,000 cycles
Split Shells	30,000 cycles
Springs	30,000 cycles

Note: For detailed descriptions about service, see the Service Manual

Suggested Lubrication Schedule

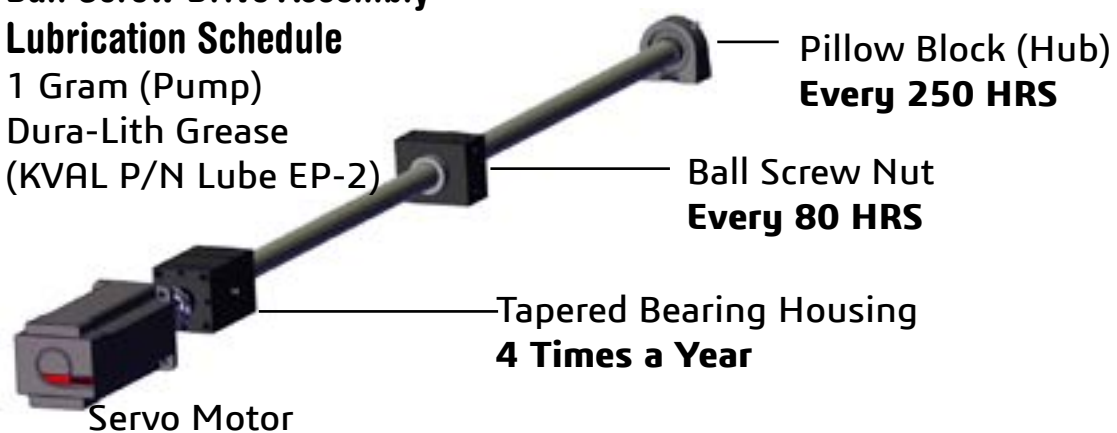


Locate the Zerk Fitting and apply grease with applicator.



Ball Screw Drive Assembly Lubrication Schedule

1 Gram (Pump)
Dura-Lith Grease
(KVAL P/N Lube EP-2)



Bearings

1 gram (Pump) Every 250 HRS
Dura-Lith Grease



Pulley

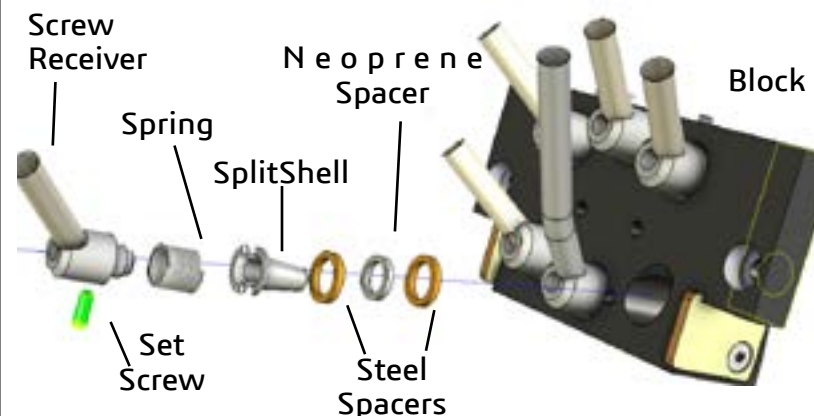
1 Gram (Pump) Monthly
Dura-Lith Grease



Lubrication Kit P/N LUBEKIT



Hinge Block Assembly



The assembly is spring loaded. While holding receiver tube in place, loosen corresponding set screw. Make sure parts stay together while removing parts. Replace parts and reverse process.

Example of Worn Tool Bits

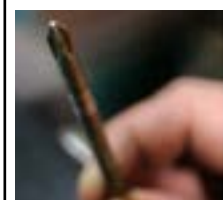
Dull Router Bit



Rounded Flute Edges and Dull Point



Rounded Flute Edges and Dull Point



BAD

GOOD

Worn Router Bit and Drill Bit Symptoms:

- Tear-out on cuts.
- Misshapen cuts
- Different than normal sound when operating
- Burning smell

Worn Screw Driver Bit Symptoms:

- Screws not fully inserted in the jamb or door edge
- Stripped screw heads

Trouble Shooting Tips

Issue	Probable Cause
6-Shooter screw-drivers not spinning in forward direction	<ul style="list-style-type: none"> • Check the 6-Shooter Reverse Limit Switch functionality. (See Illustration) • Check PLC 6-Shooter Reverse Limit Input for an ON state when activated • Check PLC Screwdrivers Reverse Valve Output for an ON state • Check that the 24VDC Screwdrivers Reverse Valve Wafer Relay is turning on. (See Illustration) May have to replace contact on relay.
	<p>24VDC Wafer Relay Reverse Limit Switch</p>
6-Shooter screw-drivers not spinning in forward or reverse direction	<ul style="list-style-type: none"> • Check the PLC 6-Shooter Driver Pump output for an ON state • Check fuses and the overload • Check Gear Box (Hand rotate one of the screw driver bits .All Bits should move. If not there is an issue with the Box)
Cutter motor not turning on	<ul style="list-style-type: none"> • Check for VFD fault (Located on High Freq Panel) • Check fuses and the overloads • Check PLC Cutter Motor Output for an ON state
Cylinder not extending/retracting	<ul style="list-style-type: none"> • Power machine off (LOTO) and activate valve to check mechanical function of valve and cylinder • Check PLC Cylinder Retract Output for an ON state
Clamp issues with door or jamb	<ul style="list-style-type: none"> • Check the state of the Air Solenoid Valve • Used compressed air to blow out debris from foot pedal • Check PLC Jamb/Door Clamp Input for an ON state for when activated • Check mech. function of valve and cylinder
Servo Position Following Error (Code 0x4550)	<ul style="list-style-type: none"> • Check air assist cylinders for correct air pressure, clean muffler plug (More Common) • Check if calibration values are accurate • Check if axis moves freely by hand (LOTO machine) • Grease axis following the Lubrication Schedule • Clean loose debris from machine heads such as wood chips, hinge screws, broken bits • Check belt and pulley tightness at servo motor
Not cutting hinge to correct size, or error when trying to cut a particular door	<ul style="list-style-type: none"> • Check if calibration values are accurate • Check if bits are dull, broken, or need re-sharpening • Check Ball Screw Drive Assembly for play
Not Homing	<ul style="list-style-type: none"> • Check PLC Retracted Inputs for an ON state • Check PLC Extended Inputs for an OFF state

a Refer to the Electrical Schematic when checking PLC's

Phone and Fax:

In the U.S. and Canada, call (800) 553-5825 or fax (707) 762-0485

Outside the U.S. and Canada, call (707) 762-7367 or fax (707) 762-0485

Or visit our website and create a Support Ticket on our Maintenance Support page at: <http://www.kvalinc.com>

