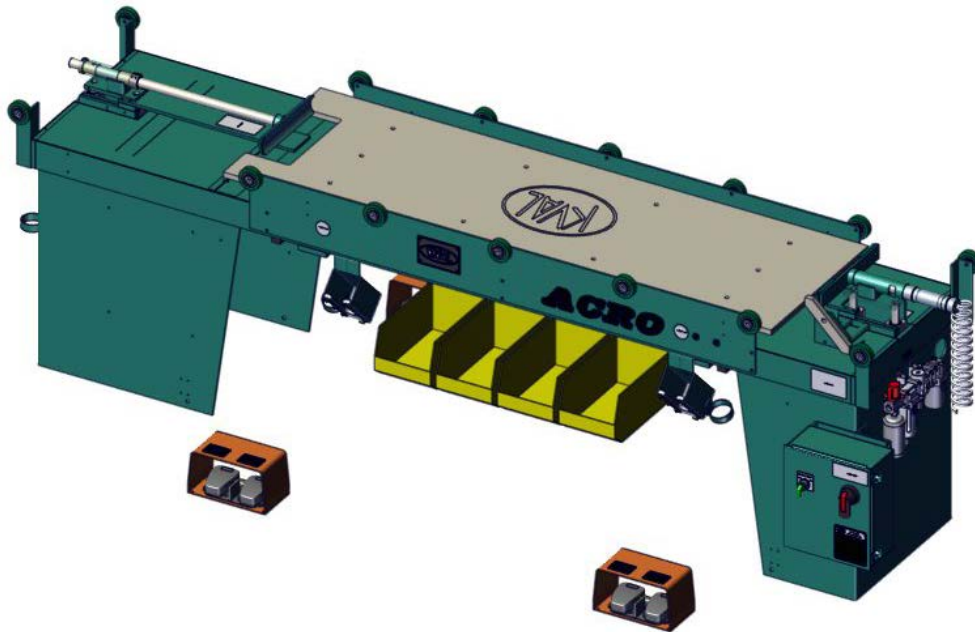




KVAL INC.

INSTRUCTION MANUAL



Acro

Metal Door Machine

Congratulations on your purchase of a new KVAL

Acro

SERIAL

No. _____

**DATE OF
PURCHASED** _____

This manual is designed with safety in mind. We at KVAL want to begin FAST and SAFE production as soon as possible. It is very important that all OPERATORS and MAINTENANCE personnel read this manual thoroughly. We have included important safety information that will help prevent serious injury; as well as complete maintenance, and troubleshooting instructions.

Proper operation and maintenance of your new KVAL machine will guarantee many years of trouble-free, fast-paced production.

KVAL INC.

Operator's and Parts Manual

For further information about this manual or other Kval Incorporated products, contact the Customer Support Department, Kval Incorporated, 825 Petaluma Boulevard South, Petaluma, CA 94952. 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.

Kval Incorporated welcomes your opinion regarding this document. Please send them to the Customer Support address shown above.

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www.kvalinc.com**

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Customer Service Information

KVAL is happy to help its customer make the most of their investment, and help solve any problems that may occur. When you call, please have the electrical print, air print number, and the serial number of the machine ready, so that we are able to accommodate your needs efficiently.



HOURS

6:30 AM to 4:30 PM Pacific Standard Time – Monday thru Friday

Phone: (800)-553-5825

Fax: (707) 762-0485

www.kvalinc.com

Returning Parts / Equipment to KVAL

Before returning parts and/or equipment to Kval Inc. please call KVAL at (707) 762-7367 to receive RMA # (Return Merchandise Authorization number).

***Note**

Non-Warranty returns are subject to **15%** Re-stocking Charge.

When you call

1. Have your Packing Slip and/or invoice #'s available
2. Have reason for return available

When sending merchandise back

1. Make sure that the Item(s) you are returning are securely packaged and well protected from shipping damage.
2. Including Packing Slip #
3. Include your RMA # on the outside of the package so our shipping receiver will see it.

Kval tries hard to satisfy its Customers, if you have any questions concerning merchandise purchased through KVAL, please call.

Getting Started

Your new KVAL Machine arrives at your plant crated, banded, taped and has painted set collars on all shafts; keeping all of the precision moving parts secure during shipping.

1. Move the machine as close to the area it will be stationed before removing the crate to protect against damaging the machine with the forklift.
2. Remove the machine from the crate. Be careful! Anytime the machine is lifted to remove the skids there is a chance of the machine dropping suddenly, and damaging the machine, or injuring people near the machine.
3. Remove all painted set collars from the shafts. Just about every shaft on the machine has set collars to secure the moveable assembly mounted to the shafts.
4. Take off any tape securing the various buttons, switches and knobs.
5. Level your KVAL machine by putting metal shims underneath the corners of the base. Leave a clear shot from the bolt holes in the foot pads to your shop floor. Now, make sure the machine won't rock back and forth.
6. Once the machine is level, anchor it to the floor so that it won't move across the floor during operation. KVAL recommends a ½ RED HEAD, TRUE BOLT ANCHOR in each of the foot pads. When drilling the concrete for the anchor bolts use a 5/8 bit.

Note

KVAL wants to provide the industry's safest and highest quality wood working machines. The following page is a quality control and safety checklist. Our technicians have already performed an initial quality control check before shipping your machine. Please review the checklist and return "Acknowledgment Copy" to KVAL Verifying complete contents.



Safety First Danger

This section contains important safety information. Failure to follow these safety guidelines may subject the operator to physical hazards that may result in serious bodily arm, or death.



Responsibility

It is the responsibility of each employee to maintain safe working conditions in his or her area. Failure to understand and correctly follow this procedure is direct violation of safety rules and regulations. Violations of this policy can lead to severe injury.

PROCEDURE

To lockout or tag out a piece of equipment, the following steps must be taken:

1. Assess the equipment to fully understand all energy sources (multiple electrical supplies air and/or hydraulic pressures, spring tension, weight shifts, etc.)
2. Inform all affected personnel of the eminent shutdown, and the duration of the shutdown.
3. Obtain lock and tags from employer.
4. Shutdown machine(s) by normal means, i.e., disconnect switch(s), air pressure relief valve(s), on/off button, etc. **NOTE:** Control power switches do not serve as adequate shutdown devices. The main source(s) of energy must be disconnected as well. Also, ensure that all mechanically stored energy has been released, i.e., lifting booms lowered to bottom of travel, carriages in "HOME" position etc., No one may remove a tag or lock installed by someone else. Only the person who attached the tag or lock is authorized to remove it.
5. Once the lock and tag is in place, the employee must try to operate the machine to ensure all energy sources are defeated.
6. When maintenance or repairs are completed, the person that did the work must ensure all tools, spare parts, test equipment, etc. are completely removed and that all guards and safety devices are installed.
7. Before removing the lock and tag, the person who attached them shall inspect the equipment to ensure that the machine will not be put in an unsafe condition when re-energized.
8. The lock and tag can now be removed (only by the person who place them), and the machine can be re-energized.
9. The tag shall be destroyed and the lock and key returned to the lockout center.

In addition to safety concerns, this policy is required by OSHA regulation 1910.147 and Cal OSHA'S SB198 ruling of July 1991.



Lock out and Tag Out Procedure

1. **P...** PROCESS SHUTDOWN
2. **R...** RECOGNIZE ENERGY TYPE
3. **O...** OFF - SHUT OFF ISOLATING DEVICES
4. **P...** PLACE LOCK AND TAG
5. **E...** ENERGY RELEASE STORED ENERGY (0 ENERGY STATE)
6. **R...** RECHECK CONTROLS AND RETURN TO PROPER SETTING

ENERGY TYPES

Recognize the Types of Energy to Shut Down

1. Electrical Energy
2. Hydraulic and/or Pneumatic Energy
3. Fluids and Gases
4. Mechanical Energy

ACCIDENT SITUATIONS

- **Accident Start Up**

Equipment can accidentally be turned on and your hands may be in the point of operation or while you are inside.

- **Electrical Shock**

You can be accidentally electrocuted if the power is still on or if it is accidentally turned on.

- **Hazardous Materials**

If released can go into confined areas or the work area.

- **Stored Energy**

You could be caught in equipment that can move due to stored energy, even with the power off.

The Solution Is Quite Simple — These Accidents Can Be Prevented Using the P-R-O-P-E-R Lock-Out Procedures

LOCK RULES

1. Use an appropriate “Lock-Out Device”, such as Lock Tongs, or a Lock Tag. Each person must attach his or her own lock to the Lock-Out Device.
2. **Identify Locks**
Each lock will be identified by a number or a name. A lock without a tag is not good enough. Additional information that identifies the person / persons doing the work must be on the tag. Also the type of work that is being performed should be on the tag.
3. **Sign The Tag**
In some instances one tag is enough, however, the tag must be signed by each worker. In some circumstances a supervisor will also need to sign the tag.
4. One Key Per Lock
5. Never give your key to anyone else.

Recheck controls and return to proper setting

P-R-O-P-E-R ELECTRICAL LOCK-OUT

P Process Shut Down

Open disconnect before pulling the plug. Shut down process or equipment.

R Recognize Energy Type

Recognize the correct power source.

O Off! -Shut off all Power Controls

Shut off machine and electrical energy at both machine and main power switch. There may be more than one source of power and all must be shut off. If necessary, electrical drawings and a supervisor may need to be involved.

P Place Lock-Out Device, Lock and Tag

Each person working on equipment needs to put his or her lock on the switches and sign the tag.

E Energy - Release Stored Energy

Bleed electrical capacitors if any.

R Recheck Controls and Return To “OFF” Setting

Recheck the start button and properly test that you have zero energy state.

P-R-O-P-E-R HYDRAULIC AND/OR PNEUMATIC LOCK-OUT

P Process Shut Down

Shut down process using recommended procedures.

R Recognize Energy Type

Recognize all sources of energy – the electric that powers the pumps or compressors, and the air or hydraulic valves themselves.

O Off! -Shut off all Power Controls

Shut off each energy type.

P Place Lock-Out Device, Lock and Tag

The shape or location on some valves may be difficult to lock out. If there is not a specific lock out tag out procedure in place you should ask your supervisor.

E Energy - Release Stored Energy

Bleed the stored energy by bleeding the air line and draining the compressor, or by using other prescribed methods. Keep in mind that when bleeding stored energy it could cause some parts of the equipment to move, as it is being held by the stored energy.

R Recheck Controls and Return To “OFF” Setting

Return controls to proper settings.

P-R-O-P-E-R FLUIDS AND GASES LOCK-OUT

P Process Shut Down

Shut down process using recommended procedures.

R Recognize Energy Type

Recognize the material and its hazards. If material is hazardous, use the proper protective equipment. Even water can become a hazardous fluid under high pressure.

O Off! -Shut off all Isolating Valves

If a job requires breaking in to a line close off isolating device, blanking if necessary. Some valves may be difficult to lock out. A locking bar or chains may be needed. Check with supervisor.

P Place Lock-Out Device, Lock and Tag

Sign tag.

E Energy - Release Stored Energy

Release pressure and drain to achieve zero energy state.

R Recheck Controls and Return “OFF” Setting

Recheck line and test properly and make sure you have zero energy state.

P-R-O-P-E-R MECHANICAL ENERGY LOCK-OUT

Mechanical Energy may be released at the point of operation, or where two or more points of operation come together. This is where you might get caught. In most cases blocking mechanical energy is done in addition to shutting off the primary source, such as electrical, hydraulic and pneumatic. Some examples include inserting restraining pins or bars in the point of operation or block under a lift. In cases where these blocks to mechanical energy are not locked in place, they should not be the primary means of shutting off energy. Mechanical energy can also be stored.

1 Gravity

Things that are up can fall of their own weight. Pins or blocking may be required.

2 Springs

BOING! can spell DEATH Release tension or compressed springs by using methods prescribed by the equipment manufacture

3 Tensions

Things under tension can spring in. Release tension by using prescribed method by equipment manufacturer

P Process Shut Down

Shut down the process

R Recognize Energy Type

Recognize all forms of energy – Need to be shut off, such as electrical and Mechanical
Mechanical is usually a secondary energy source closest to point of operation

O Off! -Shut off all Power Controls

Such as switches, valves and other isolating devices

P Place Lock-Out Device, Lock and Tag

Place lock on the isolating device and sign tag

E Energy - Release Stored Energy

Release, spring or tension to achieve, zero energy state

R Recheck Controls and Return To “OFF” Setting

ZERO ENERGY START UP

Zero Energy State to Start-up to Operating State

Starting the equipment is just as important as Lock-Out/Tag-Out in terms of safety.

Start-up

- Inspection
- Clean up
- Replace guards
- Check controls
- Remove locks
- Visual checks

Inspect

When work is finished the equipment must be inspected for proper adjustment before starting equipment.

Clean Up

All materials and debris must be cleaned up. Any combustible materials and old parts used during repairs must be cleaned up.

Replace Guards

Replace all guards to the equipment. If adjustments can not be made with the guard on after start-up, leave off only the ones to be adjusted after start-up.

Check Controls

Make sure all switches are in the off position. In some cases the machine can start automatically when energy is restored.

Remove Locks

Each person must remove his or her own lock or tag. This will ensure you are in a safe place when the equipment is started.

Visual Checks

If the equipment is too large to see all around it, station personnel around the area and sound the personnel alarm before starting the equipment. If your operation is more complex, having many pieces of equipment and a lot of people, a comprehensive Lock-Out/Tag-Out procedure may involve additional steps. You will need to ask your supervisor about these procedures. A specific lock out procedure may be posted at each machine. On larger or long term maintenance projects or installation projects, the procedures should be explained to all participants and a copy of the procedures posted on site for the duration of the work. Provisions which ensure protection during shift changes when contractor or outside help is used also need to follow the Lock-Out/Tag-Out Procedures. Comprehensive Lock-Out/Tag-Out may use a gang box or other system to ensure that locks are secure and not removed without authorization. Remember Lock-Out Tag-Out procedures work because you are the only one with the key to your lock. Proper Lock-Out/Tag-Out can save lives, limbs and money. Help make your work environment safe for yourself and your fellow employees. Make sure you follow the P-R-OP-E-R Lock-Out/Tag-Out procedures, and that those around you do also.

YOUR LIFE MAY DEPEND ON IT.

<http://www.concrete-pipe.org/sab.htm>

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Safety Guidelines

ELECTRICAL

Electrical circuitry on this machine is protected by an approved lockable disconnect circuit. In addition to this equipment, you must install an approved disconnect for the electrical power supplying this machine.

COMPRESSED AIR

The compressed air system connected to this machine should have a three-way air valve for shut-off and pressure relief. The air supply providing the pressure to this machine also has a three-way air valve for the supply line.

OPERATING SAFETY

Prior to changing any cutters or doing any maintenance work, you must disconnect, tag out, or lock out the electrical, air pressure and hydraulic systems. This should be done in accordance with the State and/or Federal code requirements.

COMPLIANCE WITH CODES AND REGULATIONS

It is advised that you request an on-site state safety review of your installation of this machine. This is to ensure conformance to any additional specific safety and health regulations which apply in your area.

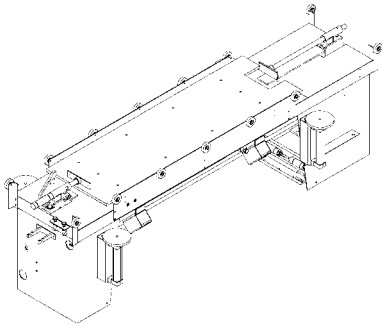
OPERATORS TRAINING

You must ensure that all operators of this machine be trained to know the potential electrical hazards, pressure pinch points, rotating cutters, and other similar hazards. It is also your responsibility to train the operators, or potential operators on how to operate the machine safely.

OTHER HAZARD CONTROL ACTION

If you believe that any part or operation of this machine is in violation of any health or safety regulation, it is your responsibility to immediately protect your employees against any such hazard and bring the matter to our attention for review and correction, if deemed advisable.

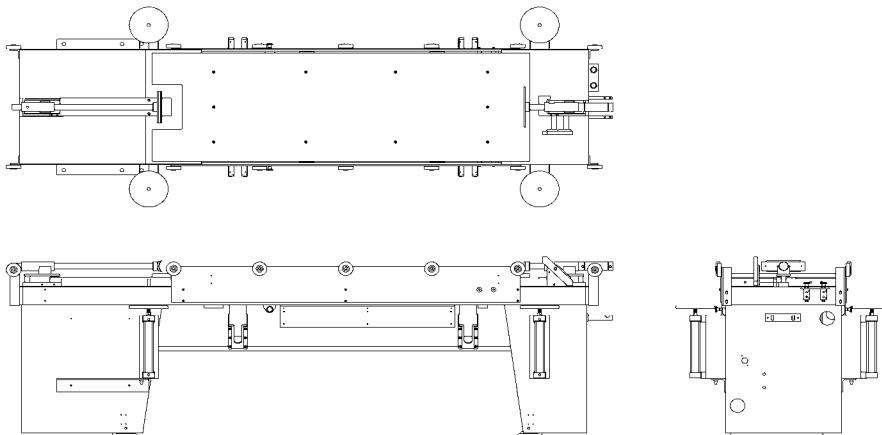
You will not that additional detailed safety guidelines are included in the operating instructions of this manual. We will be pleased to review with you any questions you may have regarding the safe operations of this machine.



SPECIFICATIONS

The Kval's Acro line is a machine designed to allow operators to insert door lights, flip doors to attach brick moulding, assemble head and jambs, and then tilt the door with frame for easy off loading. A light rests on a pop up table and the door rolls into position over the table. Simply pressing foot pedals inserts the light for fastening with a hand-held screw gun or a highly-recommended self feeding screw gun.

To orient the in-swings exterior face up for assembly and brick mould, the door is then gripped by the ends, elevated, rotated 180 degrees and then lowered back to the wheels. The Acro will accommodate doors from 6'8" to 8' in height and doors up to 3' wide.



Options:

Option D: Out swing door support

Option E: Drop in Rolls

Option F: Adjustable Corner Supports, For 6'6", 6'8", 8'0" doors. Will not work with option H

Option H" Width Adjust Wheels for 28-1/2" wide raised moulding. Will not work with option F

Option I: Jamb Support Arms

Option J: Side Shift

Option: Spare Parts Package

Uncrating the Acro

RECEIVING THE ACRO

The Acro is crated before shipping to protect the machine from damage that might occur while in transit to your location. The vast majority of the time our machine arrives intact, but unfortunately sometimes that's not the case. When you receive you machine, look it over for missing bolts, or part box(s) that have shaken loose in the truck. Also the bearings that allow the the light table to float have been removed; you will find them inside the parts box. Re-install the bearings before connecting the machine to an air or electrical supply.

TO RE-INSTALL the Ball Bearings:

The ball bearing retaining pockets are located at the corners of the light table frame assembly. The ball bearings rest on flat metal support plates, and the light table frame assembly rests on top of the bearings. Since the retaining pockets are on top of the bearings, each corner must be raised individually. Take care not to raise the table so much as to allow the other bearings to roll off their respective support plates (and onto the floor) Once ball bearing is placed in the center of the support plate, lower the retaining pocket over the bearing. Repeat this procedure for the other three corners... watch your fingers!!!!!!!!!!!!!!!!!!!!!!

NOTE: Use a pry bar to lift the corners of the light table frame assembly when inserting bearings.

UNCRATING YOUR MACHINE

When you receive your machine all the moving assemblies have either been taped, banded, or painted set collars installed to prevent any movement during shipping. Before beginning set-up procedures maker sure that all shipping materials have been removed.

TOOLS REQUIRED

1. Hammer
2. Pair of wire cutters
3. 1/2" Ratchet, 13/16", 15/16", 3/4" sockets
4. Razor blade knife
5. Floor Jack
6. Fork Lift
7. 3/16 Long "T" handled Allen Wrench

UNCRATING PROCEDURE

1. If machine is fully crated remove all the 1" X 6" boards from the crate and the 2" X 4" frame.
2. Move the machine to its approximate location.
3. Carefully cut and remove all banding and tape from part boxes, electrical panel, control panel, buttons, knobs and switches.
4. Bolt the electrical box to its proper location on the machine frame.
5. Un-bolt and remove the cross pieces from the skids.

6. Remove the lag bolts that secure the machine to the skids from the four foot pads at the corners of the machine.
7. Jack up one end of the machine above the skids.
8. Carefully pull skids outward far enough that when the machine is lowered the frame rests on the ground
9. Remove all the painted set collars securing the various assemblies in their shipping locations
10. Remount / Insert all routers and bits provided in the part boxes.

ANCHORING THE MACHINE TO THE FLOOR

When you have set-up and test run your machine to ensure that it is feeding the material properly KVAL recommends anchoring the machine to the floor with ½ Red head, True Bolt Anchors in each of the foot pads. An alternative way to bolting the machine, you may want to use Epoxy and hardened threaded rods to prevent the bolts from vibrating loose. KVAL doesn't require the use of epoxy though its added fastening strength is significant.

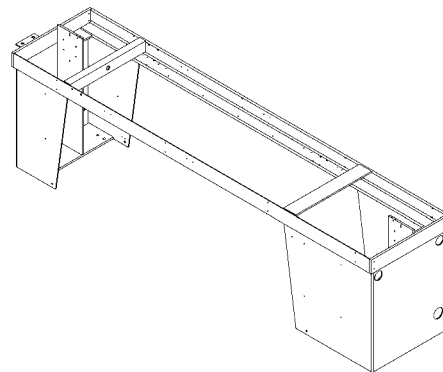
- **Standard Anchoring Instructions:**

- * With machine in place and leveled, drill 3" deep holes in the concrete using a 5/8" dia. masonry bit, using the mounting hole as a guide.

- * Clean out holes with an air compressor to ensure that the anchor heads get a firm bite on the walls of the holes.

- * Insert anchors through the mounting holes in the foot pads and into the holes you have drilled into the concrete. If an anchor's expansion sleeve binds inside the hole, simply tap the bolt head with a hammer until the binding stops.

- * Tighten bolts until they are snug. Avoid over tightening the bolt as this may cause the head of the bolt to break.



- **Anchoring Instructions using Epoxy:**

- * With machine in place and leveled, drill 3" deep holes in the concrete using a 9/16" dia. masonry bit, using the mounting hole as a guide.

- * Clean out holes with an air compressor. Complete hole preparation with use of a nylon brush (do not use wire brush).

- * When starting a fresh cartridge of anchoring epoxy, epoxy must be an evenly blended light gray color. Insert nozzle into the bottom of the hole. Fill hole to ½ the hole depth.

- * Insert 1/2", (hardened) threaded rod into the bottom of the hole using a slow twisting motion. This insures the epoxy fills voids and crevices. Hardening begins in 7 minutes @ room temperature.

- * After recommended cure time, bolt in place.

Maintenance Schedule

Daily, Monthly, Six Month

| Daily Preventive Maintenance | |
|----------------------------------|--|
| Op | Operation Description |
| Clean | Blow off dust from the entire machine. Wipe down the outside of the machine with a clean dry cloth. |
| Check | Check tooling for wear. |
| Clean | Wipe off the photo eyes with a clean dry cloth, and check to ensure that all fastening nuts are snug. |
| Check | Check the air pressure to make sure it is set at 80 psi to 100 psi. |
| Clean | Empty any Dust Collection Units. |
| Check | Check for obstructed flow when excessive sawdust appears. |
| Check | Check the air filter water trap. Empty if full. |
| Weekly Preventive Maintenance | |
| Op | Operation Description |
| Check | Check the machine for smooth motion through a complete door cycle |
| Clean | Clean linear bearings and the chrome shaft with a clean dry cloth, then lubricate. |
| Check | Check all air lines & electrical wiring for kinks or rubbing. |
| LUBE | Refill lubricator with an ISO 32 standard hydraulic oil (KVAL part# SYSLUBG) |
| Six Month Preventive Maintenance | |
| Op | Operation Description |
| Clean | Wash filter and lubricator bowls with soapy water. |
| LUBE | Grease all bearings and tighten all bolts. Access to some grease fittings is difficult and will require a special needle point grease tip (supplied with your system). |
| Clean | Clean and lubricate all slides and cylinder rods with dry silicone spray. |
| Tighten | Tighten all bolts. |
| Back-up | Backup computer software. |
| LUBE | Lubricate linear bearings and chrome shafts with silicone. |

Lubrication Schedule

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

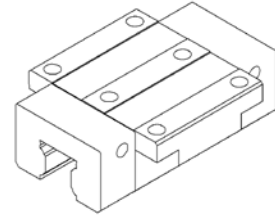
Recommended Lubrication Schedule

| Type of Assembly | Recommended Schedule | Recommended Lubrication Type |
|----------------------|--|---|
| Linear Bearing | Every 250 Hours of Machine Operation | Dura-Lith Grease (KVAL P/N Lube EP-2) |
| Pillow Block Bearing | | |
| Flange Block Bearing | | |
| Ball Screw | Every 80 Hours of Machine Operation | |
| Air Line Lubricator | One drop of oil every 2 or 3 cycles Check the lines every week to two weeks | <ul style="list-style-type: none"> • Either lubricant listed below is approved to use. • KVAL P/N SYSLUBG • Chevron AW Hydraulic Oil 32 • G-C lubricants light AW R&O • Mobile DTE 24 • Shell Tellus32 • Gulf Harmony 32 |
| Gear Box | 2000 Hours of Machine Operation or six months of operation | <ul style="list-style-type: none"> • AGMA #8 gear lube • MOBILUBE HD 80 W-90 • or equivalent |

LUBRICATION REQUIREMENTS

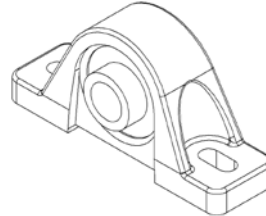
Linear Bearings

If bearing is equipped with a grease fitting, it should receive 1 Gram (one pump from grease gun) of Dura-Lith Grease (KVAL P/N Lube EP-2) grease every 30 days. Bearings without grease fittings have been pre-lubricated at the factory and do not require further lubrication.



Flange Bearing

Dura-Lith grease; 1 gram every 60 days.



Lubricate special high speed bearings

With optimal long time PD2 (KVAL P/N Lube PD2) bearings must be re-lubricated once every 60 days.

Approved Lubrication Products

Chevron AW Hydraulic Oil 32 – or KVAL P/N SYSLUBG or G-C lubricants light AW R&O or Mobile DTE 24 or Shell Tellus32 or Gulf Harmony 32.

Lubricator Adjustments

Using knob on the top of the lubricator, adjust until one drop per every other cycle is used (as observed through sight glass.) Turn flow all the way open then reduce flow to proper specifications.

Gear Motor Lubrication Requirements

Oil change is recommended after 2000 hours or six months of operation. Use AGMA #8 gear lube or MOBILUBE HD 80 W-90 or equivalent.

Mist Oil Lubrication

Spindle housing mist oilers require syslube lubricant, available through KVAL. Optimum flow is 3 to 5 drops per minute @ 5-10 psi.

NOTE: These oils cannot be interchanged.

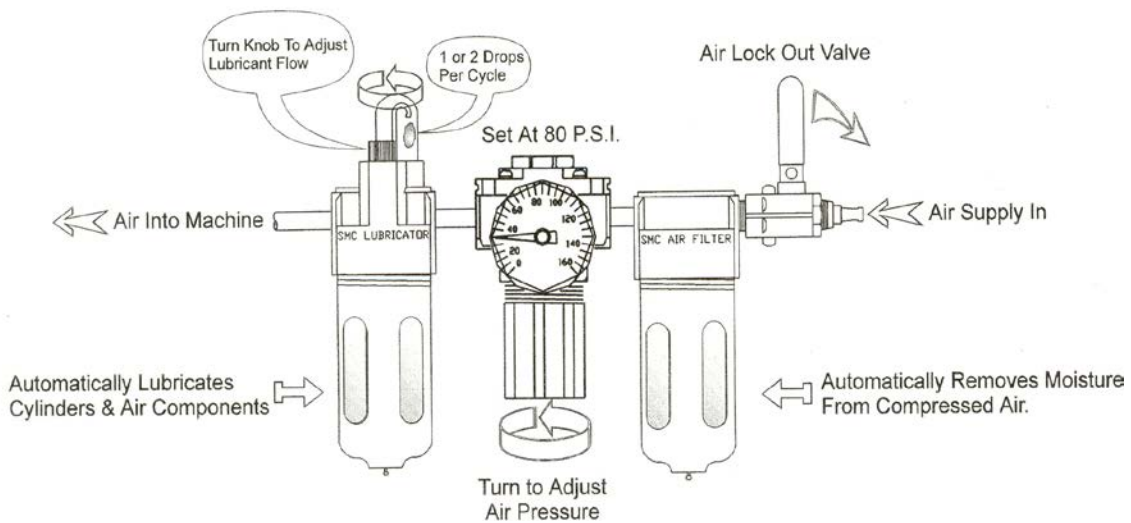
Priming the Lubricator

New and used machinery run out of oil from time to time. It is a good practice to check your machine lubricator to insure that it is putting the proper dose of oil in the air lines. Usually 4 drops of oil every 3 cycles is a good rule of thumb.

To prime the lubricator, find an air line on the Front Section of the machine that is energized, and disconnect it, allowing the air stream to bleed air pressure away from any persons. Direct the air stream at the machine so you can see when there is an oily film blowing out of the air hose. Repeat this same procedure for the back section and other trouble areas.

Check the lines every week to two weeks

Figure 1: This shows how to adjust the lubricators and shows the air lock out valves 1 drop every 3-4 cycles



CONTROL PANEL OPERATIONS

Control Switch/ Lubricator Light:

The control switch supplies power to the control circuitry when pulled to the “ON” position. The same switch is wired to “BLINK” when the lubricator is low.

INSERT TABLE UP:

The “Insert Table UP” controls the raising of the light table from a “fixed” position to a “free floating”, and from “free floating” to the fully raised position (light inserted in doors).

NOTE: Besides the three functions; at step 2, the light table can be raised in small increments to allow full control of the raising of the light into the cut out, by pressing the foot pedal in short taps, rather than fully depressing the pedal.

INSERT TABLE DOWN:

The “insert table down” controls the lowering of the light table to the “fixed” position. This switch performs two different lowering functions as follows:

1. From the fully raised position, the first press of the foot pedal lowers the light table in its free floating position.
2. The second press of the foot pedal lowers the light table into its “FIXED” position..

NOTE: Just as the Up Foot Pedal, the lower pedal allows full control of the lowering of the light table thru its travel by pressing the foot pedal in short taps rather than fully depressing the pedal.

DOOR PIVOT UP:

The door pivot up foot pedal controls the positioning and clamping of the door flip assembly, and the raising of the door 18” to allow for flipping the door.

DOOR PIVOT DOWN:

The door pivot down foot pedal controls the lowering of the door from the fully raised position, unclamping the door, and lowering the flip assembly down and out of the way.

TILT UP VALVES:

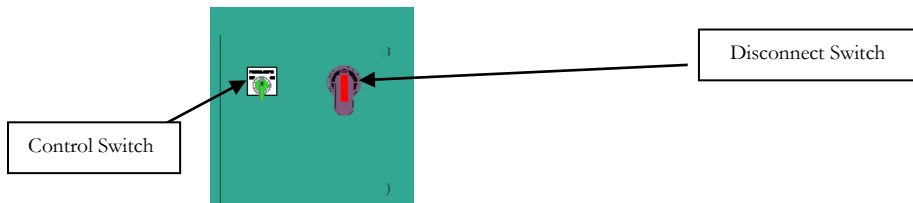
The tilt up valve tilts the off-feed end of the machine to allow easy handling of the completed door frame.

TILT DOWN VALVE:

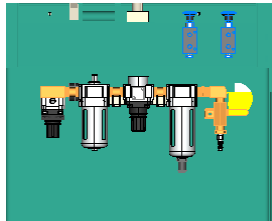
The tilt down valve lowers the off-feed end of the machine from its tilted position.

Operating the Acro:

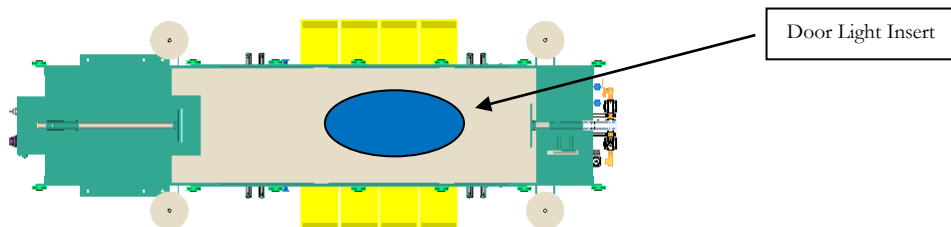
1. Turn the Disconnect Switch to the “ON” position.
2. Switch the Green Control switch to “ON”



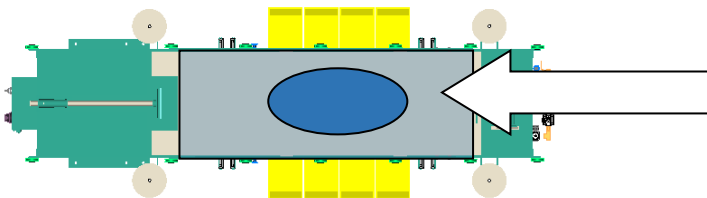
3. Check the air pressure at the F.R.L. to ensure that pressure is at 80-90 PSI.



4. Place light on light insert table



5. Roll door over the light insert table.



6. Press the door insert table “UP” foot pedal once to raise the light insert table into its “free floating” position.



7. Center the light with in the cut-out.
8. Press the door insert table “UP” foot pedal once (fully) to raise the light into the cut-out; OR “Tap” the foot-pedal to raise the light in small increments to more accurately line-up the light with in the opening, before fully raising it into the cutout.
9. Fasten the light with in the opening.
10. Insert head and jambs, manually flush the comers.
11. Press the pivot up foot pedal once to center the clamp assembly on the door ends.



12. Press the pivot up foot pedal once to clamp the head, jambs and door together.
13. Press the pivot up foot pedal again to raise the door and door frame 18” manually flip the door to its opposite side.
14. Press the pivot down foot pedal to lower the door back on to the feed wheels
15. Fasten the backside of the door light, as will as the brick moulding
16. Join the head and jab with the door clamps still activated
17. Press the pivot down foot pedal to unclamp the door
18. Attach the sill to the door frame
19. Roll door and door frame toward the out feed end of the machine
20. Push the tilt up valve to tilt the door up and unload the door
21. Push the tilt down valve to reset the table.

TROUBLE SHOOTING

LIMIT SWITCHES

If a machine suddenly stops in mid cycle check the limit switches, a worn limit switch arm or a misadjusted limit switch is more than likely the cause. Depending on the model of limit switch you receive the amount of “pre-travel” (amount of movement from the arms resting position) is either 5 or 20 degrees before the limit switch actuates (Clicks) on a Acro all the limit switches have 20 degrees of pre-travel. If the arm is moved to the full extent of its travel and you do not hear the limit switch “Click”, the switch needs to be adjusted here is how you adjust it follow the following drawings.

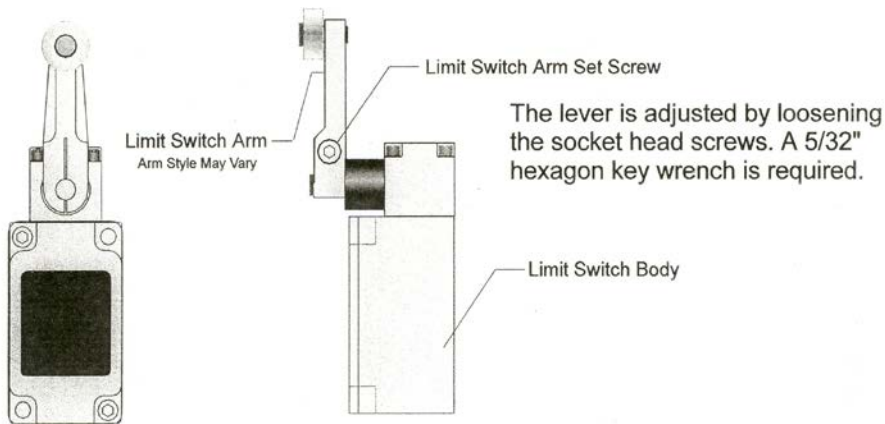
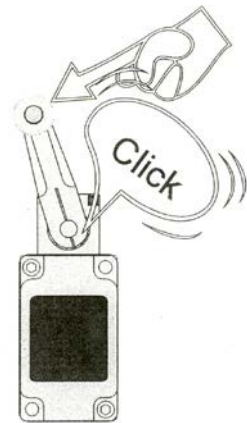


PHOTO EYES

The sending and receiving eyes either a door a moving part on t operation or initiate operation d

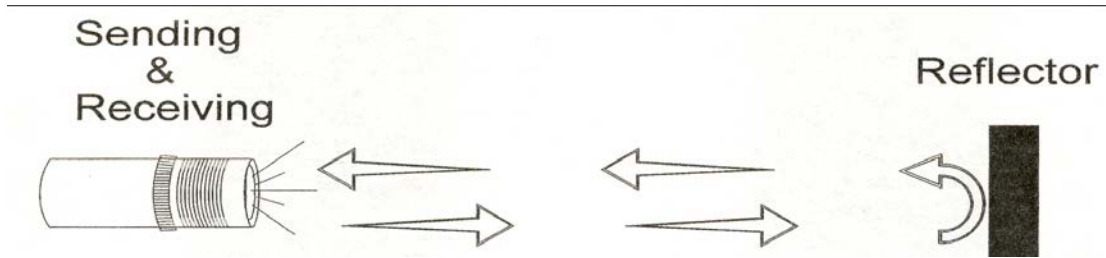
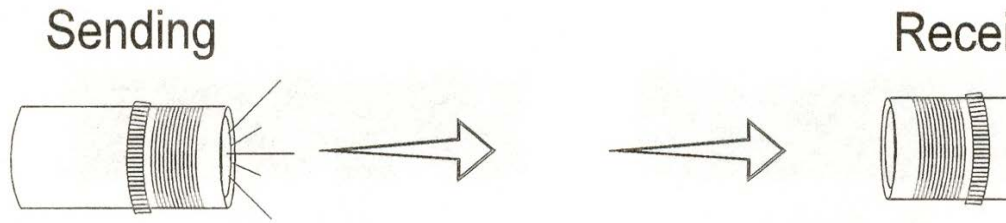


PHOTO EYES

The sending and receiving units are in one unit, these operate in the same manner as the ones described previously.

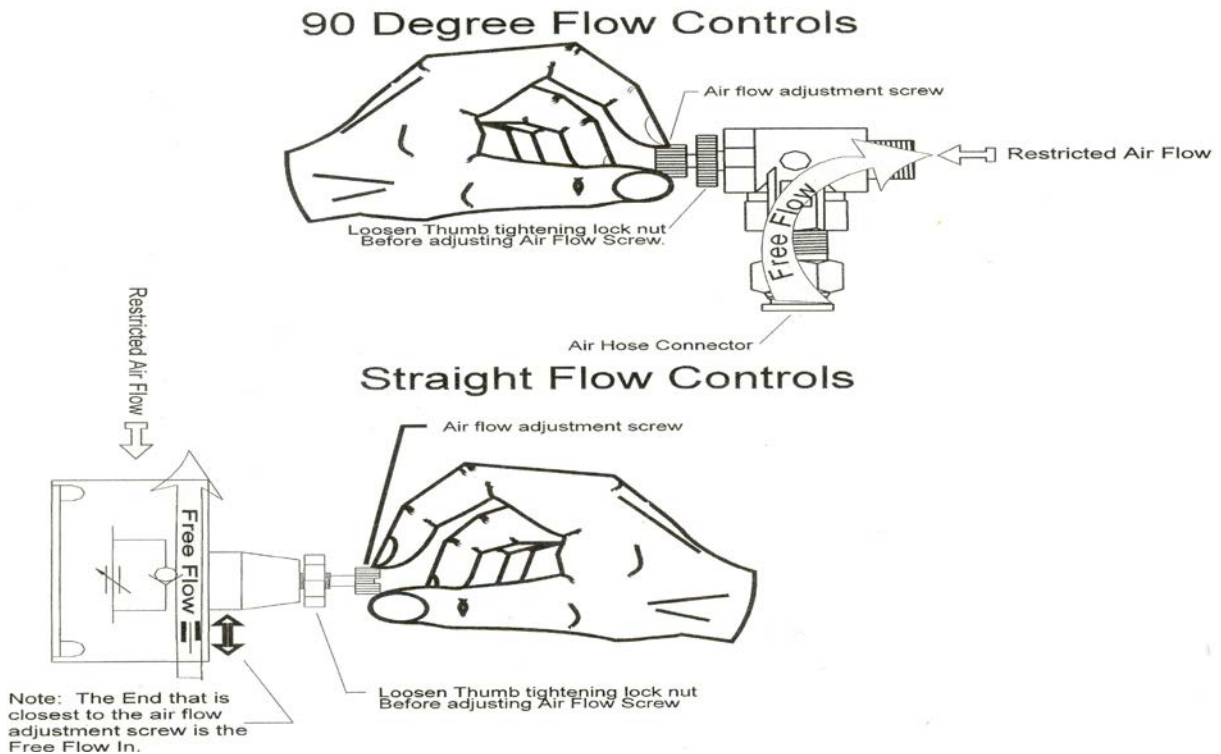
Note: When a machine stops for no reason it is usually the fault of dirty photo eye or a misaligned limit switch arm.

GENERAL AIR CIRCUITRY TROUBLE SHOOTING

IF A CYLINDER IS NOT FUNCTIONING CORRECTLY HERE ARE A COUPLE OF ITEMS TO CHECK:

Most cylinders have an extend and retract port. To adjust the extend motion of a cylinder you must adjust the flow control on the retract port; this regulates the air flow exhausting from the cylinder and the opposite is true for the retract motion.

1. Check the air pressure to the machine.
2. Check the flow controls to see that they are adjusted correctly and to the proper specifications.



3. Check for and obstructions to the cylinders such as screws or a misplaced tool etc... *
FOLLOW ALL SAFETY GUIDELINES AND SIGNS DURING THIS PROCESS.
4. Check the solenoid air valves:
The solenoid valves can be manually operated by pushing the slotted button on the end of the valve. If you wish to keep the valve open, the push button assembly can be removed using an open ended wrench and inserting a 3/8" N.C. cap screw. DO NOT over tight when reassembling the valve.
5. If the valve seems to be leaking, the seals may be dry or contaminated with water or it maybe that the cylinder "O" rings are damaged and air is passing from one side to the other side of the cylinder which means the air is exhausting through the solenoid valve. It maybe is necessary to purchase a rebuild kit or a new cylinder.

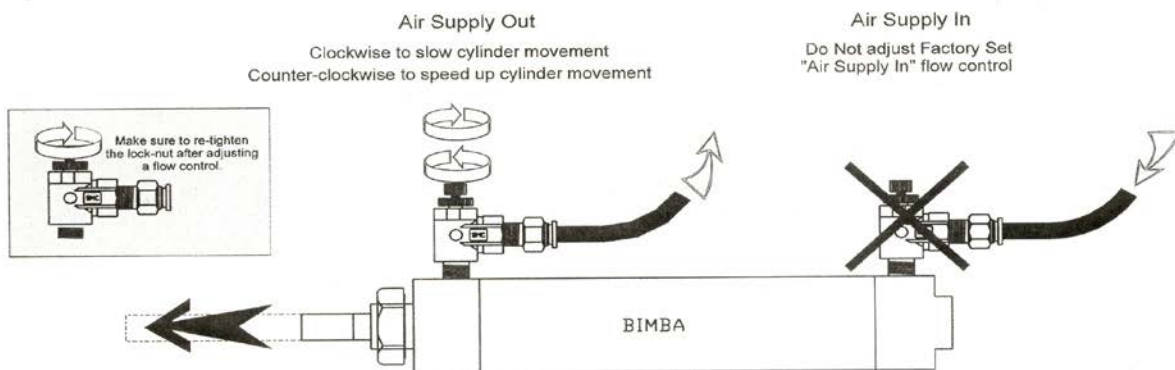
6. If the valve is not receiving an electrical signal, see “Electrical Trouble Shooting” instruction. It might be necessary to call in a specialist or check with KVAL customer service at 1-800-553-5825

If an Air Leak is coming from an exhaust port on the solenoid air bank:

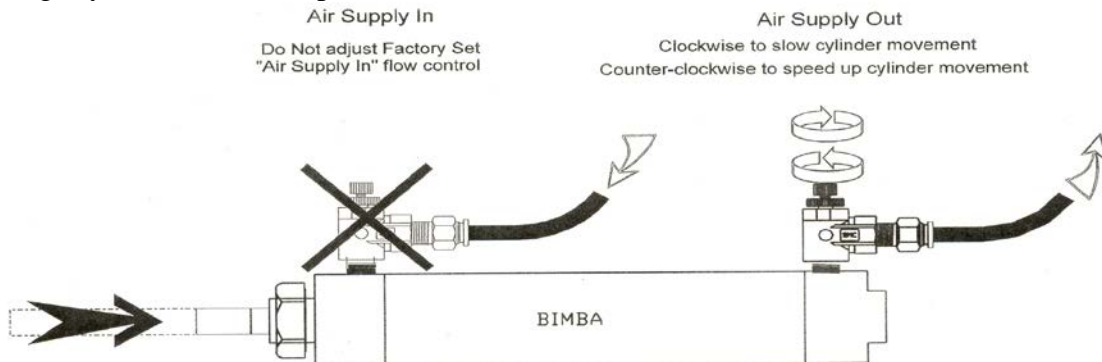
Check the solenoid for the manual override. If the solenoid has a manual override you can push each of the buttons one at a time. When the air leak stops or weakens it usually means that one or more of the cylinders that the solenoid is operating are faulty.

Adjusting the flow controls to change the cylinder extension speed is done by the following drawing. Please review this drawing as this adjustment is not done in a normal manner.

To change cylinder extension speed:



To change cylinder retraction speed:



BASIC ELECTRICAL TROUBLE SHOOTING

THE FOLLOWING SHOULD ONLY BE ATTEMPTED BY TRAINED ELECTRICAL PERSONNEL.

The electrical component systems are designed to expedite the troubleshooting process and minimize “down time”. In general, component systems have the input or feed functions at the top. Output or load functions are positioned at the bottom. Most two voltage electrical panels are designed with the LOW VOLTAGES on the LEFT, and the HIGH VOLTAGES on the RIGHT. The majority of the system components are labeled with numbers that correspond with the electrical prints included in the electrical box door.

Computer controlled machines have signals on the computer that light up when the input or output functions are energized, respectively. Computer controlled as well as non-computer controlled machines have white 120V control power terminal strips. This will indicate power supply from the respective circuits.

Idec controllers also have lights on them for the input and output functions. You can easily find out which circuits are failing by watching the lights turn on or off. Compare the lights on the IDEC controller to the electrical diagram to determine what systems are being affected.

IF THE POWER STOPS DURING NORMAL OPERATIONS:

1. Check that the input power disconnect switch is not turned off.
2. Check that all of the emergency stop buttons are in the normal position.
3. Lock Out and Tag Out the main power source.
4. Turn the panel disconnect switch in the off position, open the electrical panel door.
5. Observe the disconnect switches. Look for loose or broken wires at the disconnect then at all of the components.
6. Check for continuity of all fuses with an OHM meter.
7. Check motor overloads by pressing each white button (usually at the bottom of the panel in SEQUENCE, if one is tripped there will be a slight resistance to touch and a click as it is reset.

DANGER

The following checks will require the electrical panel to be energized these trouble shooting checks MUST BE PERFORMED BY A QUALIFIED ELECTRICAL TECHNICIAN.

1. Remove lock and tag outs on the main power sources
2. Manually close disconnect switches and energize the control circuit or transformer with its respective switch. Observe that the numbers 1, 3 & 4 are lit on the white lighted terminal strip.
3. This tells you that there are no overloads or emergency stops tripped. On computer controlled units, make sure that the POWER and RUN lights are lit at the lower left of the computer.
4. Most electrical problems are related to mechanical malfunction (i.e. stuck motors, jammed chain, non tripped limit switches, etc...) The most common failure is an improperly adjusted limit switch. To check a limit switch, manually operate the limit switch. If the computer terminal strips lights, the switch needs to be re-adjusted. For more information on the limit switch see the manufactures information at the end of this manual.
5. If a solenoid valve is suspected, and not cleared in the air checks section mentioned previously, it can be electrically jumped to check operation.





<http://www.kvalinc.com>



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