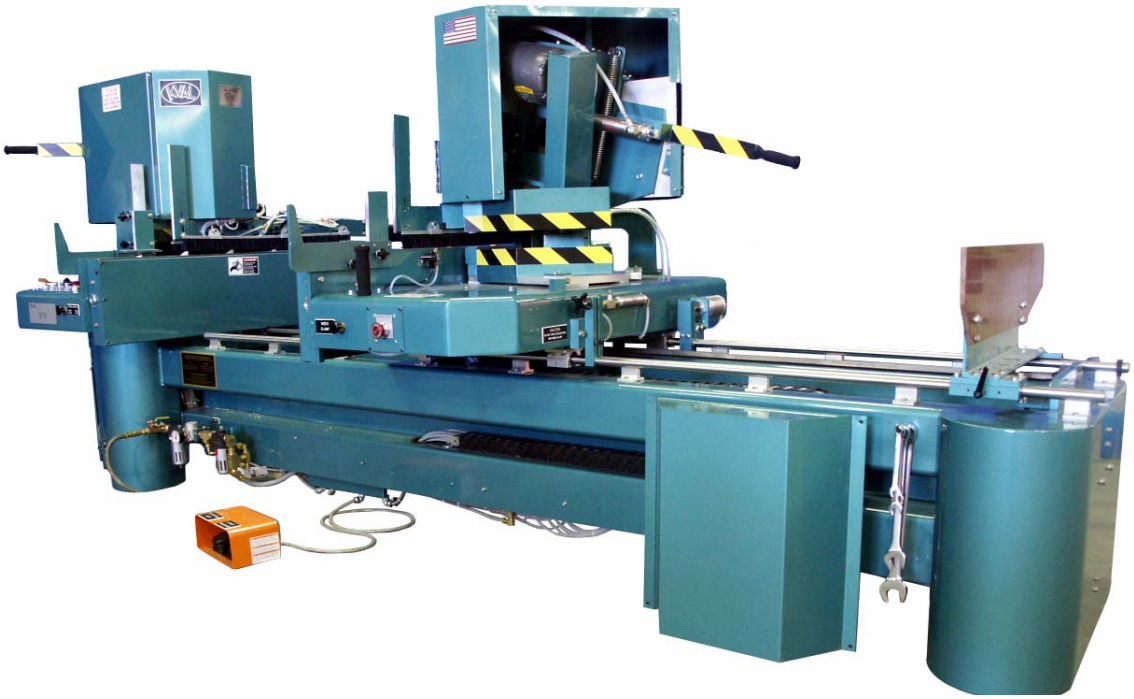
KVAL INC.

INSTRUCTION MANUAL



979

Compound Miter Trim Saw

CONGRATULATIONS ON YOUR PURCHASE OF A NEW KVAL

979

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.

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.

Proprietary Notice

825 Petaluma Blvd So.
Phone (707)-762-7367 • Fax (707)-762-0485

www.kvalinc.com

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Chapter

1

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 a 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.

Chapter

2

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 manufacturer.

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-0ut/Tag-Out Procedures. Comprehensive Lock-0ut/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-0ut/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-0ut/Tag-Out procedures, and that those around you do also.

YOUR LIFE MAY DEPEND ON IT.

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

Lock Out Diagrams

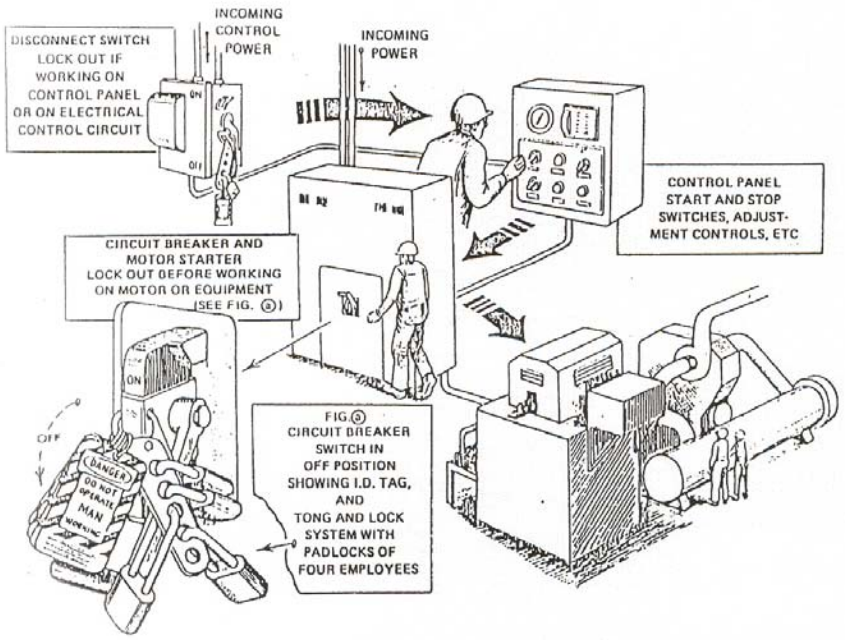


Illustration 1
Lockout/Tagout Procedure for Electrical Energy Source

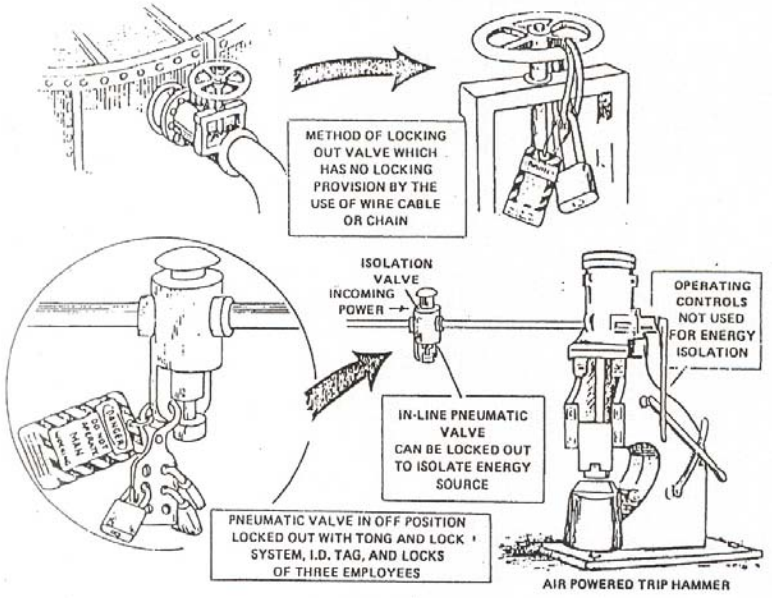


Illustration 2
Lockout/Tagout Procedure for Hydraulic-Pneumatic Energy Source

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.

979 GUARD PLACEMENTS AND PURPOSE

The following diagram shows the location of the various guards on your new KVAL 979. In addition to location of the guards, a description of the mechanism being guarded, and the hazard being guarded against are listed on the following pages.

1. **Saw Assembly Guard:**
   Located on both saw carriages, covering the entire saw assembly. The Saw Assembly Guard protects the operator from possible amputation, cuts, broken bones, bruises, and eye injury from dust and wood particles. There are saw blade access doors on the back side of both guards. **NEVER ACCESS SAW BLADES WITH POWER ON!**

   - **Removal and Replacement:**
     There are four bolts securing each Saw Assembly Guard. There are two bolts on the top of the guard(s), and two bolt at the base of the guard(s) toward the end(s) of the machine. Removal of the Saw Assembly Guard is a two person job. Never attempt to remove the guard by yourself.

2. **Belt Guard:**
   Located on both saw carriages, INSIDE the Saw Assembly Guard, toward the outboard front of the saw assembly. The Belt Guard protects the operator from getting hands caught between the belt and the belt pulleys. Possible injuries include amputation, cuts, bruises, broken bones. NEVER ACCESS THE BELT GUARD WHILE THE POWER IS ON!

   - **Removal and Replacement**
     There are two bolts securing each belt guard, located on the flange of the guard near the saw assembly springs. Removal of the belt guard requires the operator to first remove the Saw Assembly Guard.

3. **Feed Assembly Guard:**
   Located on the inboard sides of both saw carriage feed dog assemblies. The Feed Assembly Guard protects the operator from getting hands caught inside the many moving part of the feed assembly. The guard provides protection against possible amputation, cuts, bruises, broken bones. **NEVER ACCESS THE FEED ASSEMBLY GUARD WHILE THE POWER IS ON!**

   - **Removal and Replacement**
     There are eight socket head securing bolts on each of the two Feed Assembly Guards. The fastening bolts are located in two rows of four bolts on the ends of the guard(s), toward the front and back of the feed dog assembly.

4. **Kerf Blade Guard:**
   Mounted directly over the kerf blade(s) on both kerf routers located on either end of the 979. The Kerf Blade Guard is designed to protect the operator from the Kerf Blade, whether or not the machine is operating. The Kerf Blade Guard is designed to protect the operator from the Kerf Blade, whether or not the machine is operating. The Kerf Blade Guard protects the operator from possible amputation, cuts, eye injury from airborne dust and wood particles. **NEVER ACCESS THE KERF BLADE GUARD WITH THE POWER ON!**
   - **Removal and Replacement**
     The Kerf Blade Guard(s) is secured by two bolts on either side of the Kerf Blade Guard.

NOTE: These guards are present only when the Kerf Saw Option has been installed.

Chapter

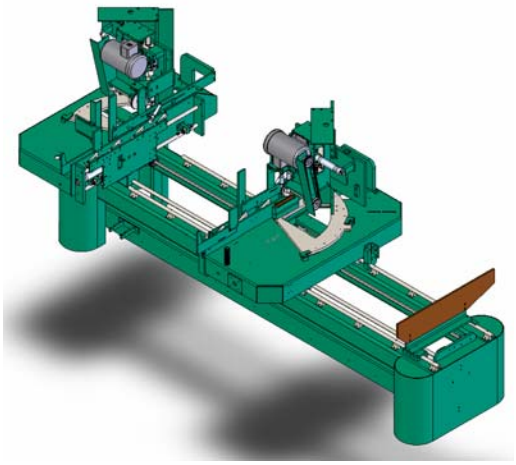
3

SPECIFICATIONS

KVAL's Model 979 Miter Saw is designed to cut doorstops and casing including brick mould at a rate of up to 40 pieces a minute. It is available with an optional spline attachment. Hopper feed system accommodates most casing profiles up to 3-1/2" wide and lengths from 12" to 98". Saw motors are 3 HP, 3450 RPM, 3 phase units, and arbors are 3/4" with 10" blades. Pieces are fed from the hopper by a reciprocating dog system. The feed dog arms on each carriage are splined together to guarantee parallel indexing of work pieces underneath the saw blade.

Pushbutton controls make possible the pivoting of either or both saw carriages from 90 to 45 degrees. Both saws also tilt up to 15 degrees to match brick moldings to sill slopes.

An electronically-controlled auto compensation feature ensures that material is cut to exactly the same length, regardless of width or whether or not it is square or mitered (measured on short side). A length-of-cut indexing system also allows the operator to re-index at preset locations using a pushbutton for perfect repetition between setups.



Saw carriages are designed to cut work pieces in a downward motion through the face of the piece, as in a power miter box. This provides three major advantages over models with blades popping up from below: minimal tear-out, no adjustments when material width changes, and easier maintenance since accessibility is improved. In addition, the saw carriage design allows scraps to fall below the machine without assistance from compressed air nozzles. Air consumption is just 8 CFM.

SPECIFICATIONS
Footprint Size: 12' x 5'
Crated Dimensions: 148"L x 57"W x 65"H
Shipping Weight: 2,100 lbs

Options:

Option A: Spline Saw System
Cuts slots for kerf nail in head and leg casing miter.

Option B: Door Stop Miter Capability
Allows doorstop to be fed on edge. Requires a changeover time of approximately 10 minutes. Typical productivity is 18 pieces per minute.

Option D: Self-Contained Dust Collection
Includes one 3HP 3-phase vacuum unit with hoses and transitions.

Option F: LCD Readout
In addition to indexed stop positions preset at 2" intervals, an LCD readout displays continuous measurement of length. Unit must be re-zeroed for left, right or head settings.

Option: Tooling and Lubricant Package
Please review with your KVAL consultant to determine your needs.

Option: Spare Parts Package
Please review with your KVAL consultant to determine your needs.

Option: UL Certified Electrical Panel
Electric panel will be built according to Underwriter's Laboratories specifications, and 'UL' Label applied.

Option: Canada Service Contract Subscription
At the time of machinery purchase, Canadian clients are required to purchase a Machinery Service Contract Subscription that is to be renewed annually. Without this annual subscription, as directed by the Canadian government, no services (including installation or warranty work) can be performed by KVAL technicians in the customer's plant.

Hidden Option(s):

Option E: Wide Casing Miter

Miters casing up to 4-1/4" straight and 6-1/16" on a 45 degree angle.

Uncrating the 979 Miter Trim Saw

RECEIVING THE 979 MITER TRIM SAW

The 979 Miter Trim Saw 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.

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 make 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
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.

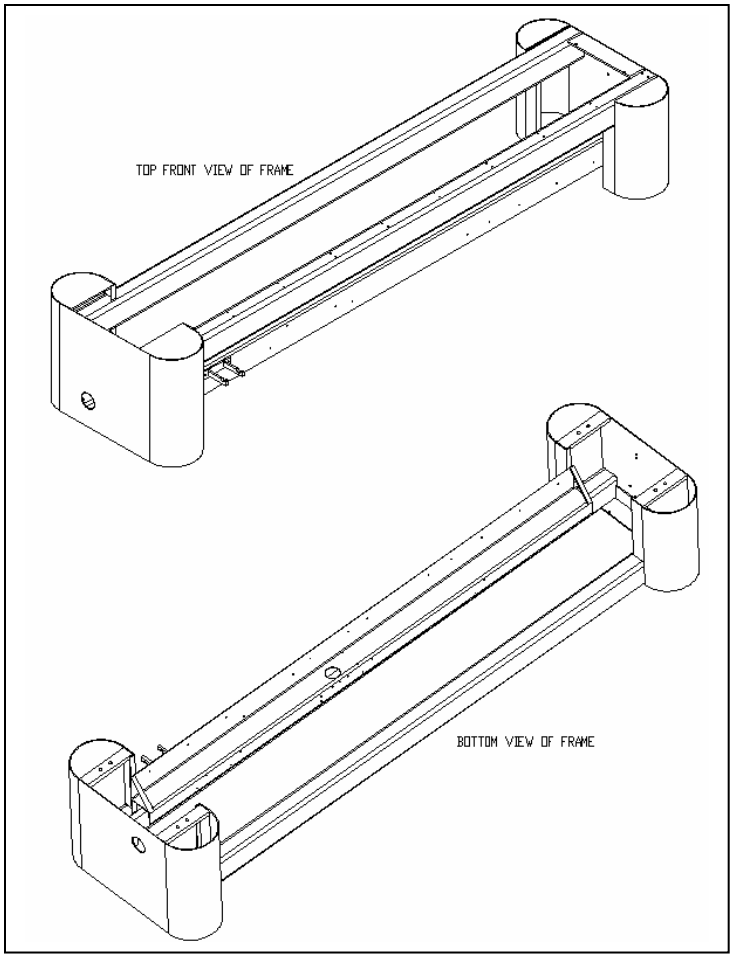
- Standard Anchoring Instructions:

  * 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 a 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 FOR 979 MITER TRIM SAW

DAILY

1. Blow off dust from entire machine.
2. Lubricate linear bearings and chrome shaft with silicone.
3. Wipe down machine
4. Check tooling for wear
5. Empty water filter bowl if not a self draining system
6. Photo eyes should be wiped off and checked to ensure that all fastening rings are snug.
7. Check the air pressure
8. Check the Chip-Out blocks for wear.
9. Refill lubricator with proper type of oil (see lubrication requirements)

WEEKLY

1. Check machine for smooth motion through a complete cycle.
2. Clean linear bearings and chrome shaft, then lubricate.
3. Check air pressure to and on the machine
4. Adjust and lock flow controls.
5. Check all air lines & electrical wiring for kinks or rubbing.

MAY AND DECEMBER CHECK UPS

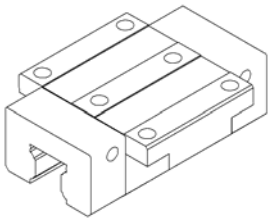
1. Wash filter and lubricator bowls with soapy water.
2. Grease all bearings and tighten all bolts.
3. Clean and lubricate all slides and cylinder rods with dry silicone spray.

* Carburetor cleaner can be used to remove pitch. If carburetor cleaner is used, re-lubricate the affected surface.

LUBRICATION REQUIREMENTS

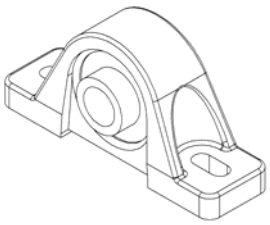
Linear Bearings

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 hrs. 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.

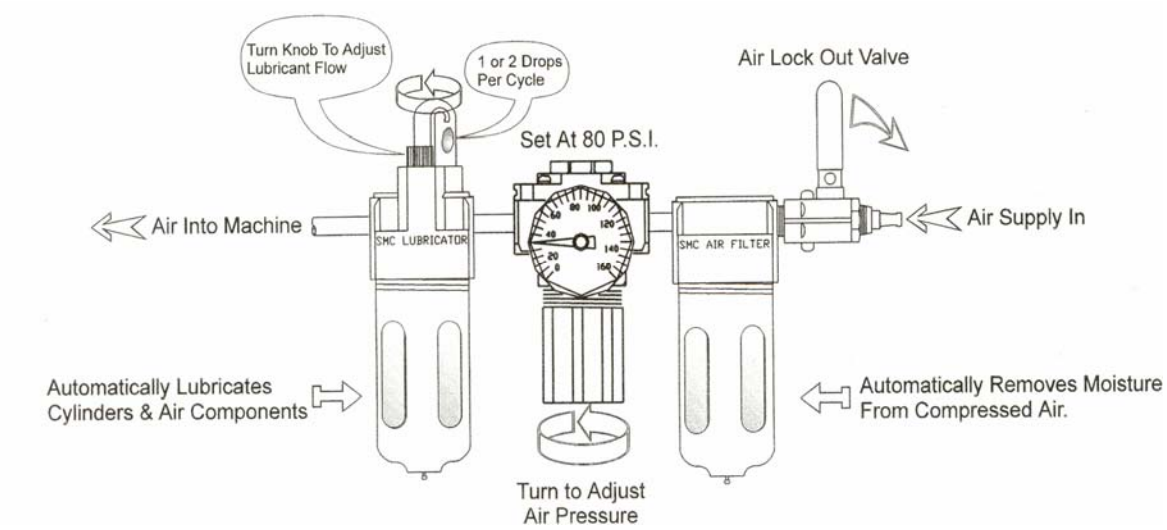
Priming the Lubricator

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

WIDE CASING:
This switch gives the dogs (slides) clamp longer during the cutting process to make for a better cut

FEED MODE:
This allows the machine to be operated manually or automatically.

LEFT HEAD:
This allows you to choose what angle you want to cut the casing on the left side of the machine. The machine is set up to cut 0 or 45 degrees.

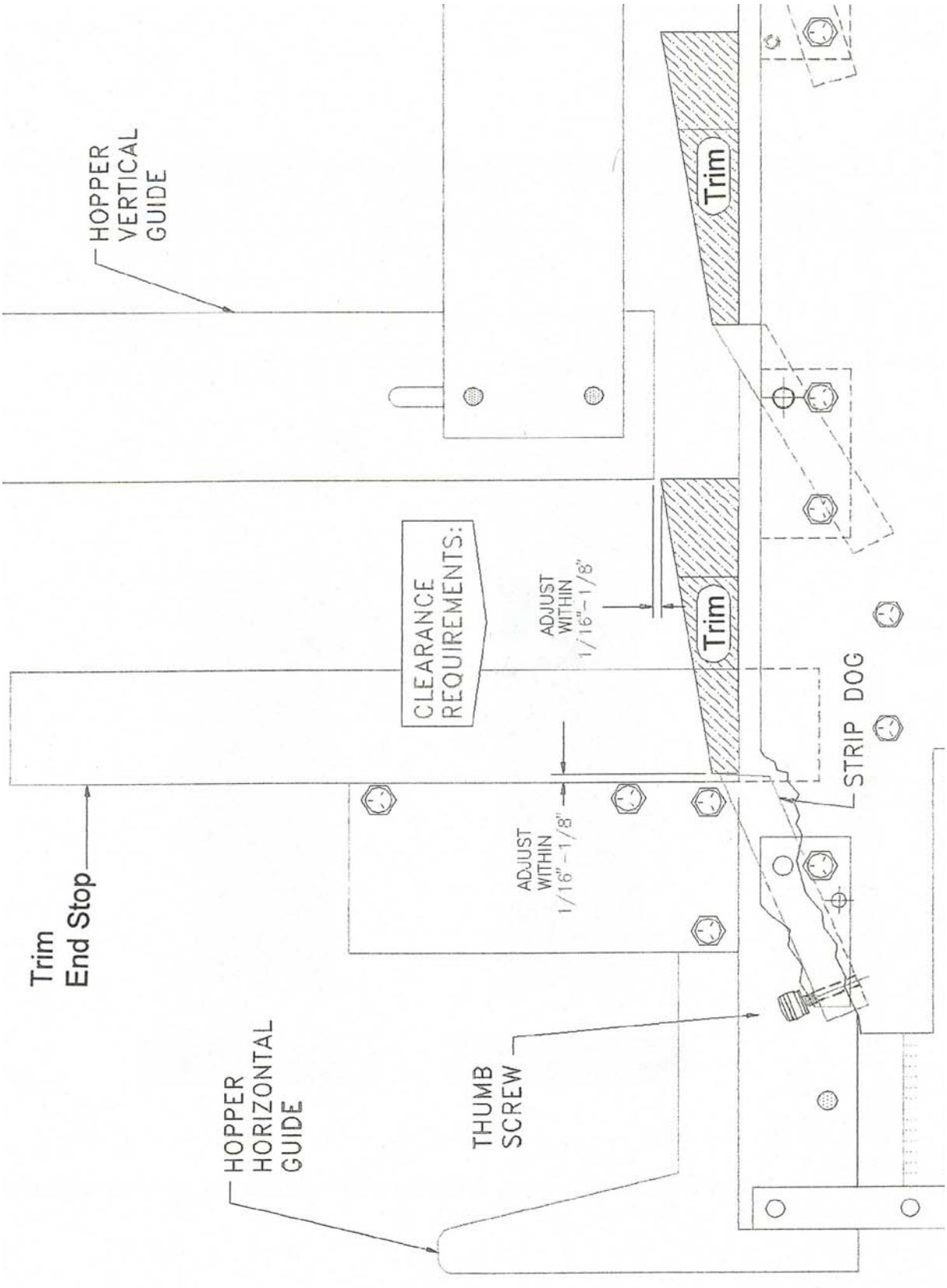
RIGHT HEAD:
This allows you to choose what angle you want to cut the casing on the right side of the machine. The machine is set up to cut 0 or 45 degrees.

EMERGENCY STOP:
This stops the machine in its current state. Once this is pushed you must pull it back out to start the machine again.

FOOT PEDAL OPERATING CONTROLS

EMERGENCY STOP:
Halts the machine in its current position so that the machine is safe if there is an accident or a problem.

START SEQUENCE:
This starts the sequence for the machine to machine the casing that your are cutting.



SETTING UP FOR A CUT:

The 979 machine is able to accommodate any thickness trim up to 1-1/4". To cut different thickness trim stock you must first adjust the following: (1) **Strip Dog** (2) **Vertical Hopper** (3) **Horizontal Hopper Guide** (4) **End Stop** (5) **45 Degree Cylinder Clamp**

1. **Strip Dog:**

   The strip dogs remove the trim stock from the hopper. The primary dogs accomplish the removal process by pushing against the edge of the bottom piece of trim in the hopper and moving it towards the cutting assembly. To prevent the dogs from grabbing two pieces of trim at the same time, adjust the dogs each time a different thickness of trim is cut. In addition, se the Wide/ Narrow selector switch to Narrow for standard trim, and Wide for wider or high profile trim pieces.

   To adjust the left and right strip dogs:

   - Place trim stock in front of the strip dogs.
   - While sighting down the top of the left strip dog, adjust the dog up or down, so that the top corner nearest the trim is 1/16" to 1/8" below the top of the trim face.
   - Repeat process on the right side.

2. **Vertical Hopper Guide:**

   The vertical hopper guide is an adjustable guide that holds a stack of trim pieces over the strip dog. The vertical hopper has an opening at the bottom that allows the primary dog to strip only one trim piece at a time from the hopper.

   To adjust the hopper vertical guide:

   - Place trim in the hopper
   - Loosen the two bolts on the hopper vertical guide.
   - Raise the hopper vertical guide 1/8" above the top surface of the trim piece.
   - Re-tighten the two bolts on the side of the hopper vertical guide.

3. Hopper Horizontal Guide:

The hopper horizontal guide is an adjustable guide on the hopper that holds a stack of trim pieces over the strip dog. The hopper horizontal guide directs the trim to the opening at the bottom of the hopper vertical guide.

To adjust the hopper horizontal guide:

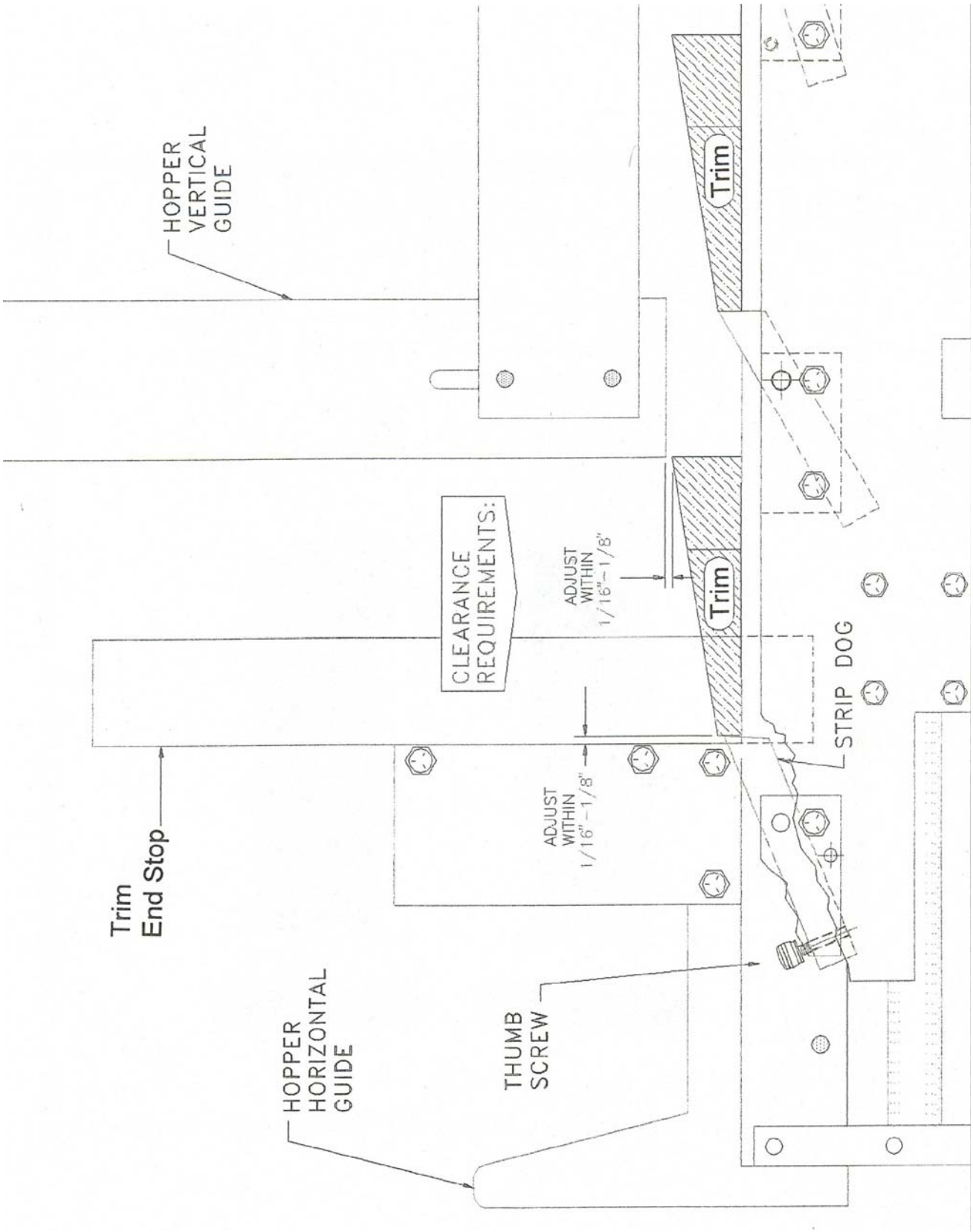
- Place trim stock in the hopper
- Loosen the two handles on the hopper horizontal guide.
- Lift the trim piece above the opening on the hopper vertical guide
- Push the hopper horizontal guide so that the trim stock is pinched in between the guides
- Slide the hopper horizontal guide back 1/16" to 1/8", make sure the trim moves up and down smoothly.
- Re-tighten the two handles on the hopper horizontal guide.

4. Left Side Stop:

The left side stop determines the amount cut off on the fixed end of the 979. The left side stop is the reference point for measurement of the length of cut. There is tape located on the top edge of the stop plate to help determine the amount cut. Reference off of the left side of the index block. 0" will barely shave 90 degree cuts. On 45 degree cuts, adjust the left side stop the amount to be cut off, plus the width of the trim.

To adjust the left side stop

- Place the trim in the hopper
- Loosen the two knobs on the side of the left side stop
- Slide the left side stop left or right as desired
- Re-tighten the two knobs on the side of the left side stop
- Re-check position of the side stops.



SETTING UP FOR A CUT CONTINUED:

5. 45 DEGREE CYLINDER CLAMP:

The 45 degree cylinder clamp pushes the trim stock against the dog while the trim is in the saw assembly. The 45 degree cylinder clamp insures that the trim is straight, and the cut is accurate. There are two 45 degree cylinder clamps on the 979; one on the left saw carriage, and one on the right; adjust both. There is a measuring tape attached to the top edge of the cylinder clamp mounting plate to set the 45 degree clamp properly. Slide the clamp forward or backward until the width of the trim measurement is centered on the rear clamp mounting screw.

To adjust the 45 degree cylinder clamps:

LOCK AND TAG OUT TO SET UP

- If the trim stock is less that ¾" thick, use the top set of mounting holes in the 45 degree clamp slide bars.
- If the trim stock is ¾" to 1-1/4" thick, use the bottom set of mounting holes in the 45 degree clamp slide bars.
- Stand behind the clamps and sight down the clamp to the top corner of the trim
- Slide the 45 degree cylinder clamp forward or backward until the clamp angle is accurately aligned with the top corner of the trim
- Re-tighten the bolts on the 45 degree cylinder clamp slide bar.
- Repeat on the other side.
- Push the star sequence button to check for proper clamping.

Cut Depth Set-up

Adjusting the Saw Height

Lock and Tag out the machine before making any adjustments to the saw carriage. Refer the "Safety First" section of this manual for further information on Lock and Tag Out procedures.

The 979 saw travel is controlled at two points within the saw carriage, the mounting plate, and the limit switch. To adjust the saw's travel you will have to adjust both.

- Lock and Tag out the 979
- Remove the saw carriage guard.
- Remove the saw travel limit switch actuator mounting plate (A).
- Loosen the two bolts securing the saw mounting plate (B).
- Raise or lower the saw position as necessary.
- Re-tighten the saw mounting plate bolts.
- Re-install the saw travel limit switch actuator mounting plate.
- Adjust the saw travel limit switch actuator adjusting screw (if necessary) in or out, until the saw travels properly.

Note:

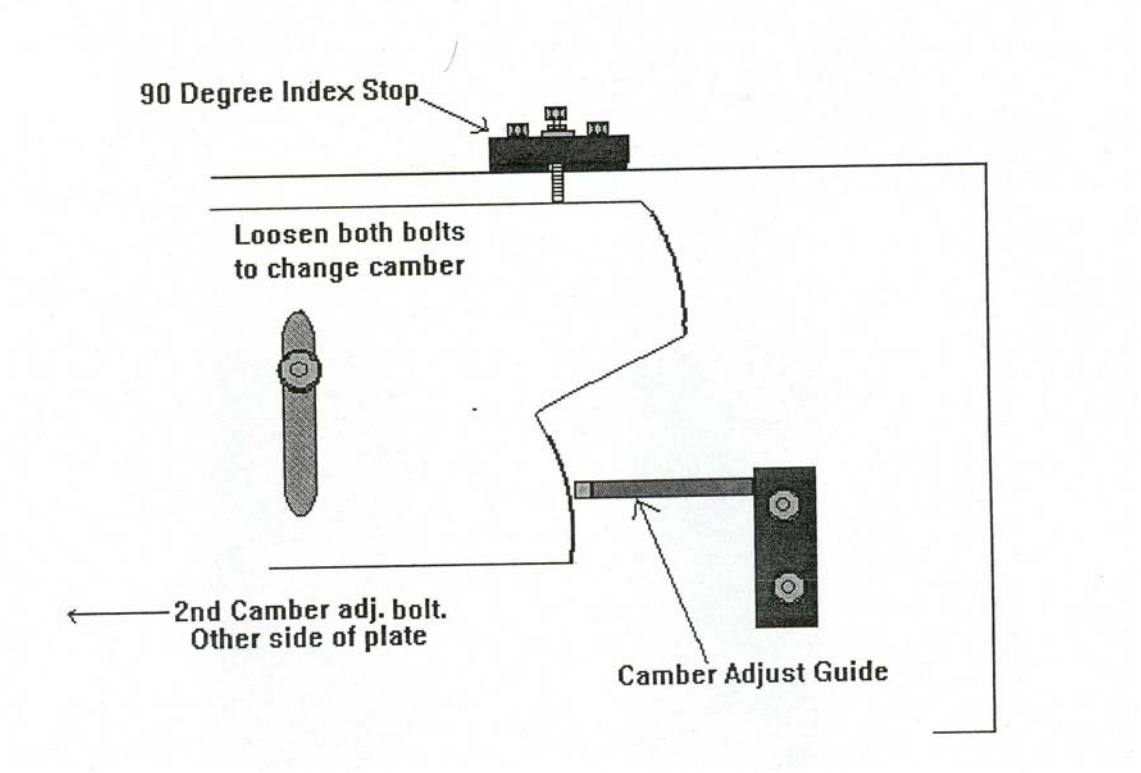
Adjust the saws' travel keeping in mind that if the saws raise to much, the saw may not lower enough to cut through particularly wide trim pieces.

- Replace the saw carriage guard(s).
- Un-lock and sign off tag.

Camber Set-up

Camber Adjustment

The 979 is able to cut compound miters with only a few adjustments to the motor mounting plates. On each of the two carriages there are two bolts. The bolts secure the motor mount plates in position. Change the camber by loosening both bolts and then changing the camber, then re-tightening the bolts. Make a test cut before beginning a production run.



On the top edge of the motor mount plate there is an indexing spacer stop pin that has been factory adjusted to 90 degrees. When changing the camber back to 90 degrees, loosen the bolts and shift the motor mounting plates back until the stop bolt on the motor mounting plate hits the indexing spacer stop pin.

Lock and Tag out the 979 before adjusting the camber. There is an extreme hazard present; cuts, bruises, broken bones, and amputation.

Cut Length Set-up

979

There are three places on the 979 that measurements can be adjusted, the length compensator, the set collars, and the hair line tape indicator. The length compensator is primarily a one time adjustment. The set collars easily adjust to any measurement. The hair line tape indicator slides back and forth to compensate for any discrepancy in the relative measurement between the true length of cut and the length the tape indicator displays at any given measurement setting.

After setting the length compensator, short production runs will probably be easier if you change the location of the set collars, or the hair line tape indicator, the operator can preserve the original length compensator settings to change back to the most often used setting quickly and easily.

Always make a couple of test cuts after changing any of the 979 length measurement tools.

.*NOTE: Length Compensation is an Option

Positioning the set collars for length carriage lock

- The length carriage lock accurately locks the saw carriage at predetermined measurements. Setting the stops is easy but takes a little time. Following these instructions will have you making lighting fast change overs from one length to another.
- Slide one of the set collars under the length carriage lock clamp. Leave the Allen bolts loose
- Push the length carriage lock button in. Since the set collars aren't tight yet, it's still possible to move the carriage up and down the shaft.
- Position the movable carriage exactly at the measurement you want, while reading the tape and the movable carriage tape index pointer for reference.
- Tighten the Allen bolts on the set collars enough to keep the carriage from moving.
- Make a test cut to ensure the length is exactly what you want. If it is, tighten the Allen bolts all the way. If the measurement is off, adjust as necessary.
- Don't forget to clear all tools from the carriage before you begin operating the 979.
- Once you have set the collars, you probably will not have to readjust them ever again.

Adjusting the length Compensator (OPTION)

The length compensator's design allows the operator to adjust for the difference in measurement when the saw heads rotate between zero and 45 degree positions, or when saw blades of different thickness are interchanged. The length compensator adjustment bolts' location is inside the right end of the 979 frame. There are three bolts and one turret in the length compensator adjustment assembly. Each bolt in the assembly is responsible for one 979 saw head degree option. The turret gives the operator the ability to compensate for the variance between the measurement of door stops and casings, without moving the saw carriage. The chart below explains which bolt to adjust for each possible degree combination.

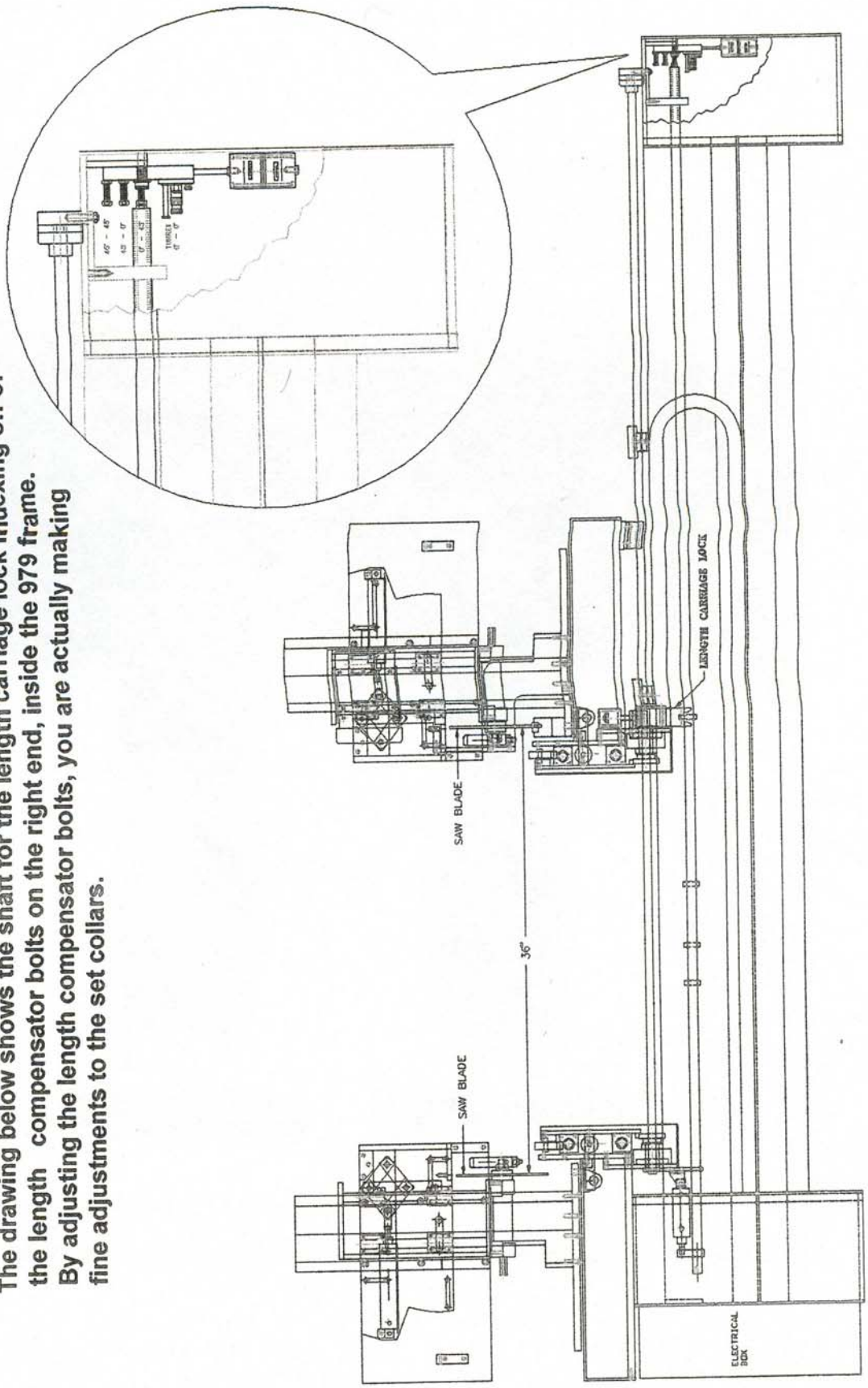
LEFT CARRIAGE	RIGHT CARRIAGE	FROM TOP BOLT
0 DEGREES	**0 DEGREES**	**4TH (TURRET)**
0 DEGREES	**45 DEGREES**	**3RD**
45 DEGREES	**0 DEGREES**	**2ND**
45 DEGREES	**45 DEGREES**	**1ST**

TO ADJUST THE LENGTH COMPENSATOR:

- Set the movable saw carriage at 36", make a test cut
- Turn off all power to the 979.
- Using the chart above, loosen the lock nut on the compensator bolt for the specific saw head degree option being adjusted.
- Adjust bolt in or out as necessary
- Re-tighten the lock nut
- Turn on the power to the 979
- Make a test cut
- Repeat as necessary
- Adjustments to the turret are exactly the same as the adjustments to the fixed bolts on the length compensator.

ADJUSTING THE LENGTH COMPENSATOR CONT.

The drawing below shows the shaft for the length carriage lock indexing off of the length compensator bolts on the right end, inside the 979 frame. By adjusting the length compensator bolts, you are actually making fine adjustments to the set collars.



979 Operating Controls

Set-Up On/Off:

The set-up switch has two settings to select from. The Off position allows the 979 to cycle normally. Use this position when machine is in production. The "ON" position breaks up the cutting sequence into individual function segments. Each stage of the cutting sequence is initiated by pressing the START SEQUENCE button. The best feature of the set-up function is that the blades do not turn while the operator is making important checks and adjustments.

Using the Set-up Function:

- Turn on the control transformer
- Turn the set-up switch to the on position
- Press start machine button
- Press starts sequence again to move to next stage of the cycle.
- Make checks or adjustments to that cycle segment
- Repeat checks and adjustments, press start sequence to advance cycle.
- Continue the process until the entire cycle of operation is completed and checked for proper adjustment
- Turn off set up function; turn off control transformer turn control transformer on again push start machine button. **WARNING**: Blades will start turning!!!

Auto/Manual:

Pulling this button will activate the AUTO program on the 979. Pushing this button will activate the MANUAL program. The AUTO program will allow the 979 to continually feed trim into the cutting assembly. The MANUAL program will feed one piece of trim through the cutting assembly and then stop. The manual program is ideal for cutting difficult to stack trim.

- While in the auto program, you may use the manual button to stop the feeding of trim.

Left Head 0 Degree to 45 Degree:

This switch allows the operator to quickly change from a square cut set up on the left saw to a 45 degree set up.

Right Head 0 Degree to 45 Degree:

This switch allows the operator to quickly change from a square cut set up on the right saw to a 45 degree set up.

Start Sequence:

The start sequence button begins the 979 into its cycle of operation. Make sure that you are ready to begin operation before starting the 979.

Emergency Stop:

There are three EMERGENCY STOPS on this machine, one on the electrical box, one on the movable carriage, and one on the foot pedal. Use any one of these emergency stops to halt the machines operation, and return the saws to their home positions.

Start Machine:

The start machine button controls the saw motors. Pushing this button will start the saw motors.

Narrow/ Wide:

The narrow/wide selector allows the operator (in wide mode) to increase the quality of trim cuts on wide, high profile trim pieces while making the 45 degree cuts. Standard applications use the narrow mode for increased speed.

Length Carriage Lock:

The length carriage lock clamps the carriage at operator designated positions the length carriage lock button is located next to the emergency stop button on the 979 movable carriage. Push the lock button to clamp. Pull the lock button to release. To engage the carriage lock, slide the carriage with in 1/8" of the desired (and properly positioned) set collar, and push the lock button. The clamp system is designed to align itself perfectly with your measurements.

Push Button Carriage Lock:

The hand carriage lock, allows the operator to clamp the carriage in place, when the length of cut is not one of predetermined by set collars. Simply slide the carriage to the desired location and push the button to lock in place. This is ideal for short run projects.

IMPORTANT:

Make sure that either the length of the carriage lock or the hand carriage lock is being used at all times when saws are in motion.

Chapter 4

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). If the arm is moved to the full extents of its travel and you do not here the limit switch "Click", the switch needs to be adjusted here is how you adjust it follow the following drawings.

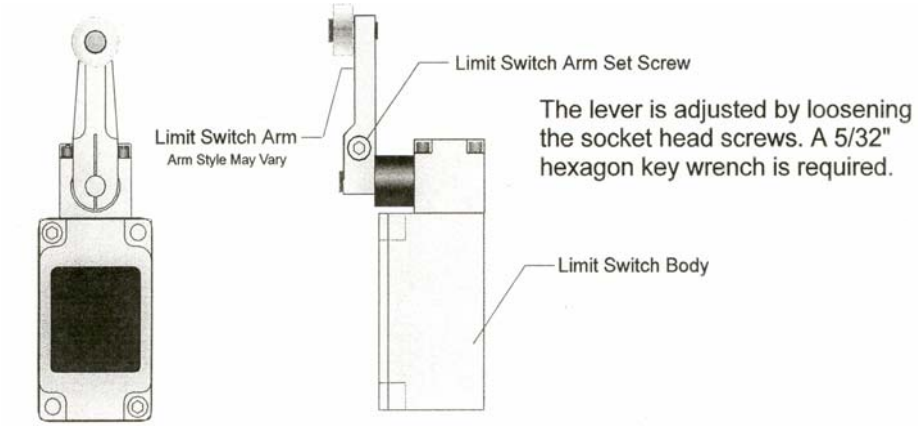
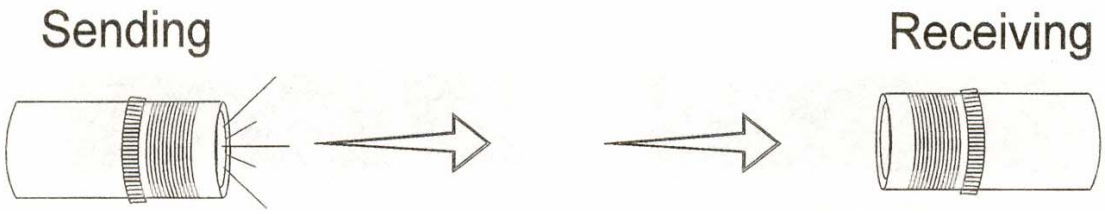
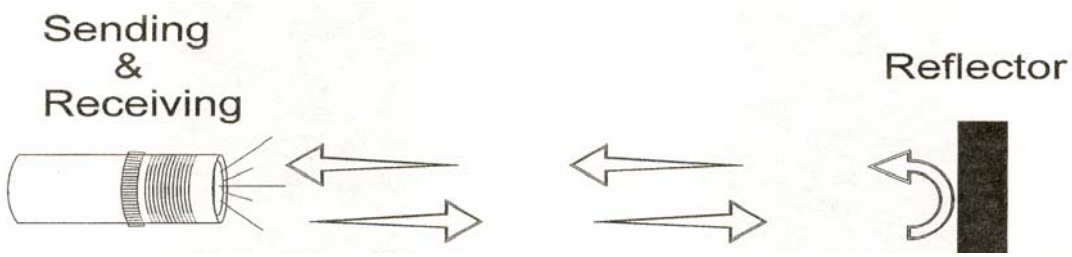


PHOTO EYES



The sending and receiving eyes "talk" to each other when the beam between the two is broken by either a door a moving part on the machine such as the thru beams, these beams may either stop



operation or initiate operation depending on their location and function.

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

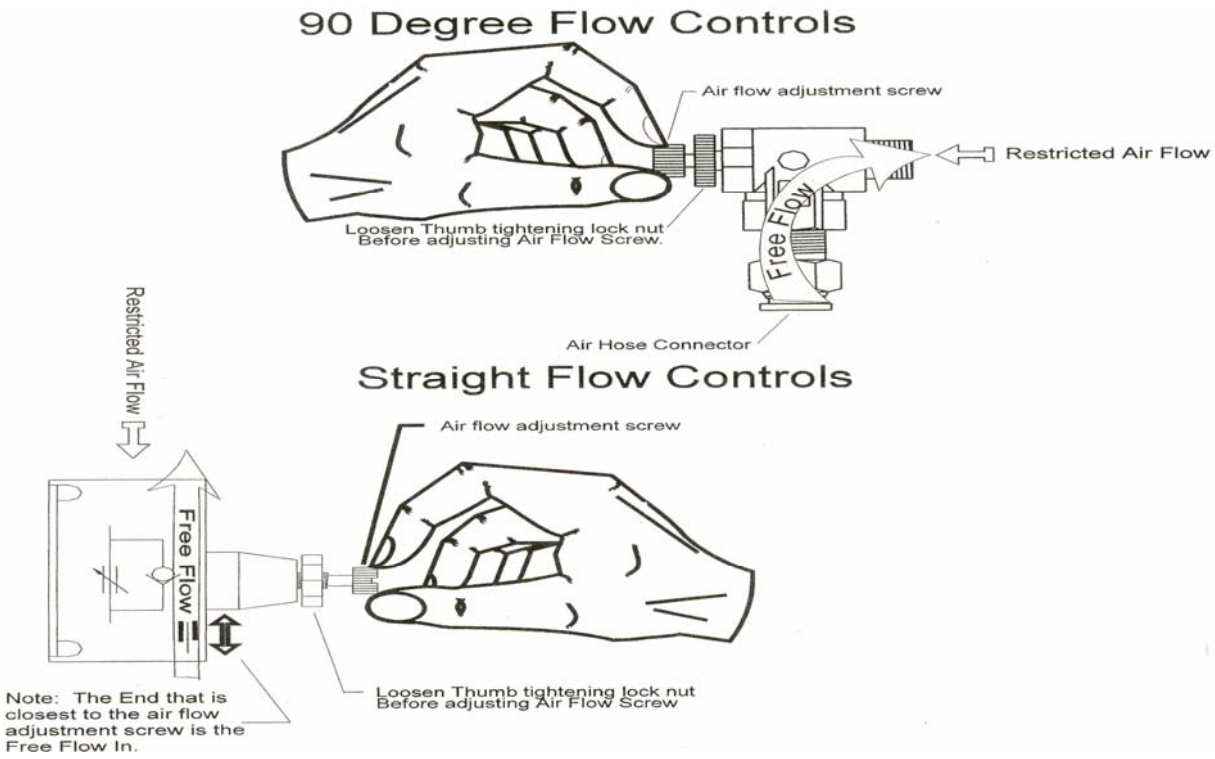
Note: When a machine stops for no reason it is usually the fault of dirt photo eye or a misaligned limit switch arm.

GENERAL AIR CIRCUITRY TROUBLE SHOOTING

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

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 air valves:
   The air 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 and open ended wrench and inserting a 3/8" N.C. cap screw. DO NOT over tight when reassembling the valve.

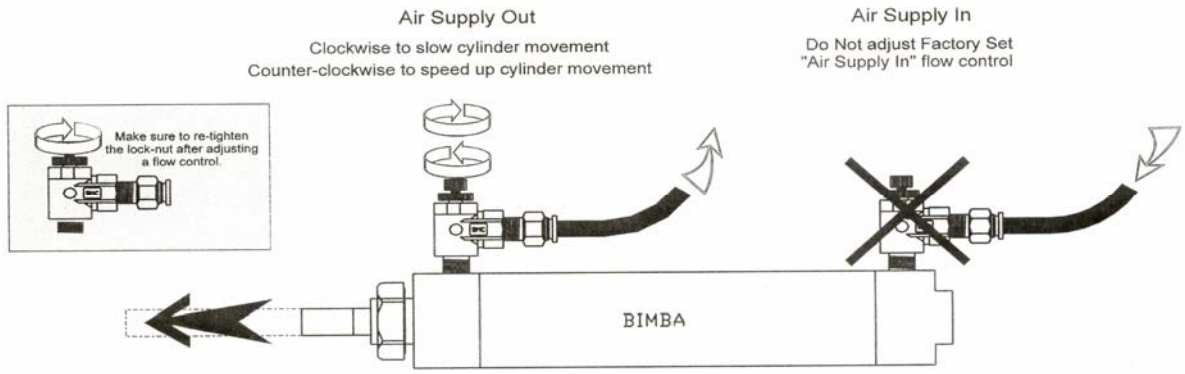
5. If the valve seems to be leaking, the seals may be dry or contaminated with water or it maybe that the cylinder "O" rings are damaged and air is passing from one side to the other side of the cylinder. It maybe is necessary to purchase a rebuild kit or a new cylinder.

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 air bank:

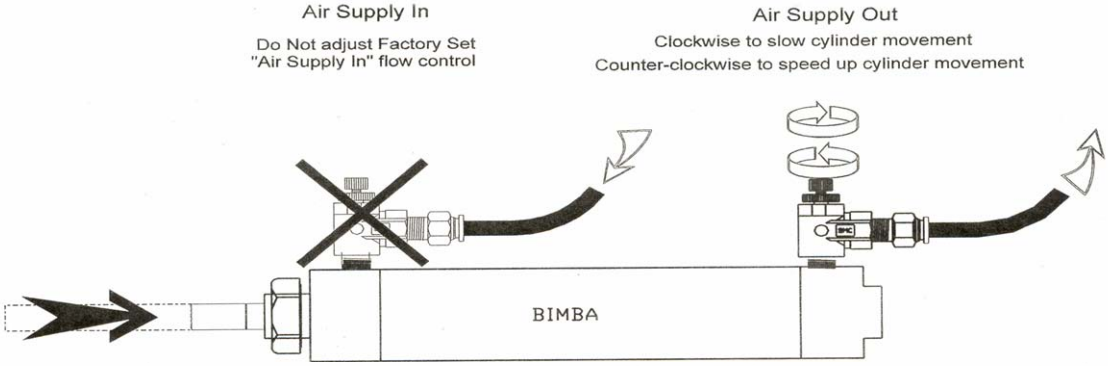
Check the solenoid for the manual override. If the solenoid has a manual override you can push each of the buttons one at a time. When the air leak stops or weakens it usually means that one or more of the cylinders that the solenoid is operating are faulty.

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 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 when the input or output functions are energized, respectively. Computer controlled as well as non-computer controlled machines have white lighted, 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: DE-ENERGIZED:

1. Check that the input 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.

Warranty

KVAL Inc. will repair or replace any unserviceable parts not covered by their own manufacturer's warranty when malfunction is caused by faulty manufacturing or design up to one year or 2080 production hours after the delivery date, whichever comes first. This warranty does not cover items that wear out during normal use, such as (but not limited to) tooling, chipout blocks, and screwdriver bits.

This warranty does not cover parts that become damaged or unserviceable due to misuse or abuse of the machine as determined by material safety data information and maintenance recommendations in this owners' manual. Parts returned under warranty will be inspected by Kval to determine whether that part qualifies for repair or replacement as specified in this warranty.

KVAL Inc. is not responsible for costs associated with downtime, lost orders, damage to customer's product or workpieces, or other costs not specifically covered in this warranty.

When problems cannot reasonably be resolved via telephone support, we will send a technician to your facility. For machines with an existing Ethernet connection capability, cost of technician's visit will not be included under warranty unless a broadband connection has first been made to the machine.

Assy

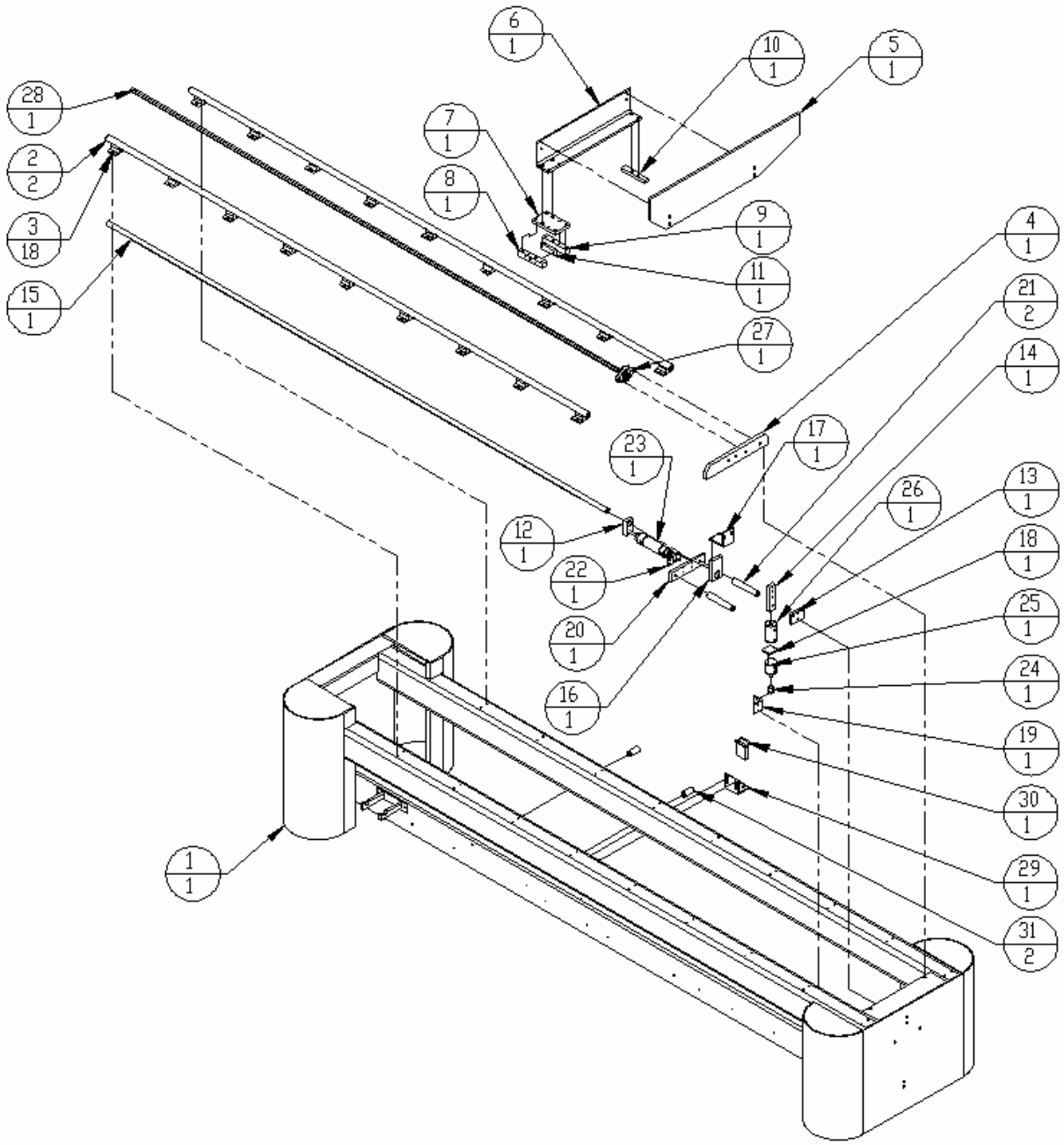


Fig. 49-00-50

Fig. 49-00-50 Bills of Material

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	49-00-01	979 FRAME WELDENT &
2	2	49-00-BF	LENGTH ADJUST SHAFTS
3	18	526C	1 DIA SHAFT STANDOFF
4	1	49-00-GS	SPLINE END BEARING MOUNT
5	1	49-00-HH	
6	1	49-00-HI	CENTER SUPPORT BASE
7	1	49-00-HK	CENTER SUPPORT TOP GUIDE
8	1	49-00-HL	CENTER SUPPORT GUIDE
9	1	49-00-HL1	CENTER SUPPORT GUIDE
10	1	49-00-HM	CENTER SUPPORT TOP GUIDE
11	1	49-00-HJ	CENTER SUPPORT CLAMP PAD
12	1	49-00-GD	LENGTH ROD CYLINDER TIE-
13	1	49-00-GE	
14	1	49-00-GF	INDEX SLIDE
15	1	49-00-GG	
18	1	49-00-GJ	PANCAKE SPACER
19	1	49-00-GK	PANCAKE CYLINDER MOUNT
20	1	49-00-GV	BIMBA 242 MOUNTING PLATE
21	2	49-00-GW	SPACER
22	1	D-620	
23	1	BIM242DP	2" STROKE CYLINDER
24	1	FABRC31 (ROD CLEVIS FOR 121)	
25	1	FABE121X	
26	1	FABI121X	Pancake Cylinders
27	1	VF2S-247	FB230X3/4
28	1	49-00-GB	HEX SHAFT
29	1	49-00-GH	CARRIAGE INDEX SHAFT
30	1	49-00-GH-0	CARRIAGE INDEX SHAFT
31	2	49-00-G1	SPACER FOR E-BOX

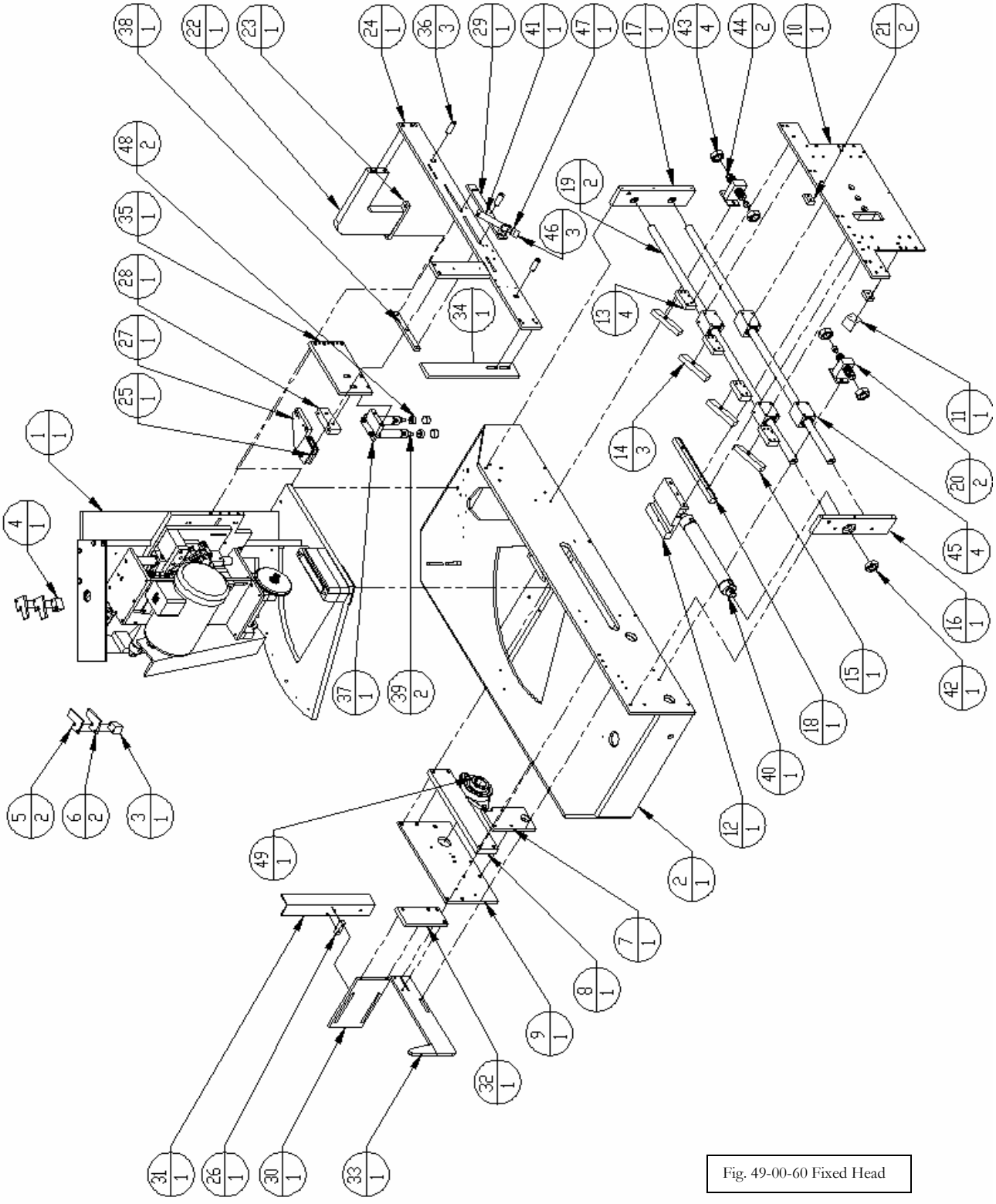


Fig. 49-00-60 Fixed Head

Fig. 49-00-60 Bills of Material

ITEN	QTY	PART NUNBER	DESCRIPTION
1	1	49-00-06L	LEFT HAND HEAD ASSEMBLY
2	1	49-00-CA-0L	FORNED SECTION WELDMENT
3	1	49-00-DE	45° & 90° STOP BLOCKS
4	1	49-00-DE1	45° & 90° STOP BLOCKS
5	2	49-00-DJ	
6	2	49-00-DJ1	
7	1	49-00-GC	LEGTH ADJUST ROD HOLDER
8	1	49-00-GM	PARALLEL ROD SUPPORT
9	1	49-00-GN	PARALLEL ROD SUPPORT
10	1	49-00-HA	FEED CARRIAGE PLATE
11	1	49-00-HB	DOG FEED ADJUST
12	1	49-00-HC1	FEED CYLINDER ROD MOUNT
13	4	49-00-HD1	DOG FEED BACKING PLATE
14	3	49-00-HE	FEED DOGS
15	1	49-00-HE1	FEED DOGS
16	1	49-00-HF1	FEED SHAFT END PLATES
17	1	49-00-HG	FEED SHAFT OUTFEED END
18	1	49-00-HO	MODIFED BROWNING 3/4"
19	2	49-00-HP	FEED SHAFT
20	2	49-00-HR-0	WELDMENT SHOCK MOUNT
21	2	49-00-HR	FEED SHOCK BLOCK
22	1	49-00-JA	HOLD DOWN BACK POST
23	1	49-00-JA1	HOLD DOWN POST BRACKET
24	1	49-00-JB1-0	HOLD DOWN BAR WELDMENT
25	1	49-00-JC-0	HOLD DOWN BAR PIVOT
26	1	49-00-JD	
27	1	49-00-JE	TOP ROTATE POINT
28	1	49-00-JF	SPACER
29	1	49-00-JG-0L	ADJUSTABLE CLAMP MOUNT
30	1	49-00-JH	
31	1	49-00-JI	
32	1	49-00-JJA	HOPPER BACK PLATES
33	1	49-00-JK-0	HOPPER BACK PLATE BASE
34	1	49-00-JL	HOPPER FRONT PLATES
35	1	49-00-JN	PIVOT TO CARRIAGE
36	3	49-00-JS	BRUSH SPACERS FOR
37	1	49-00-JTL	
38	1	49-00-JU	
39	2	BIM092DP	
40	1	BIM249DP	BIMBA 249 DP
41	1	BIMD042D	BIMBA 042-D CYLINDER
42	1	D-1331	
43	4	ENDNUT03	L-12 NUT
44	2	ENDEN10B	1" ENDINE SHOCK MOUNT
45	4	KVALBB16A	LINEAR BEARING BLOCK
46	3	P160800-F	FELT PAD
47	1	P160804FA	ALUMINUM PAD
48	2	P160806FA	ALUMINUM PAD
49	1	VF2S-247	FB230X1-1/2

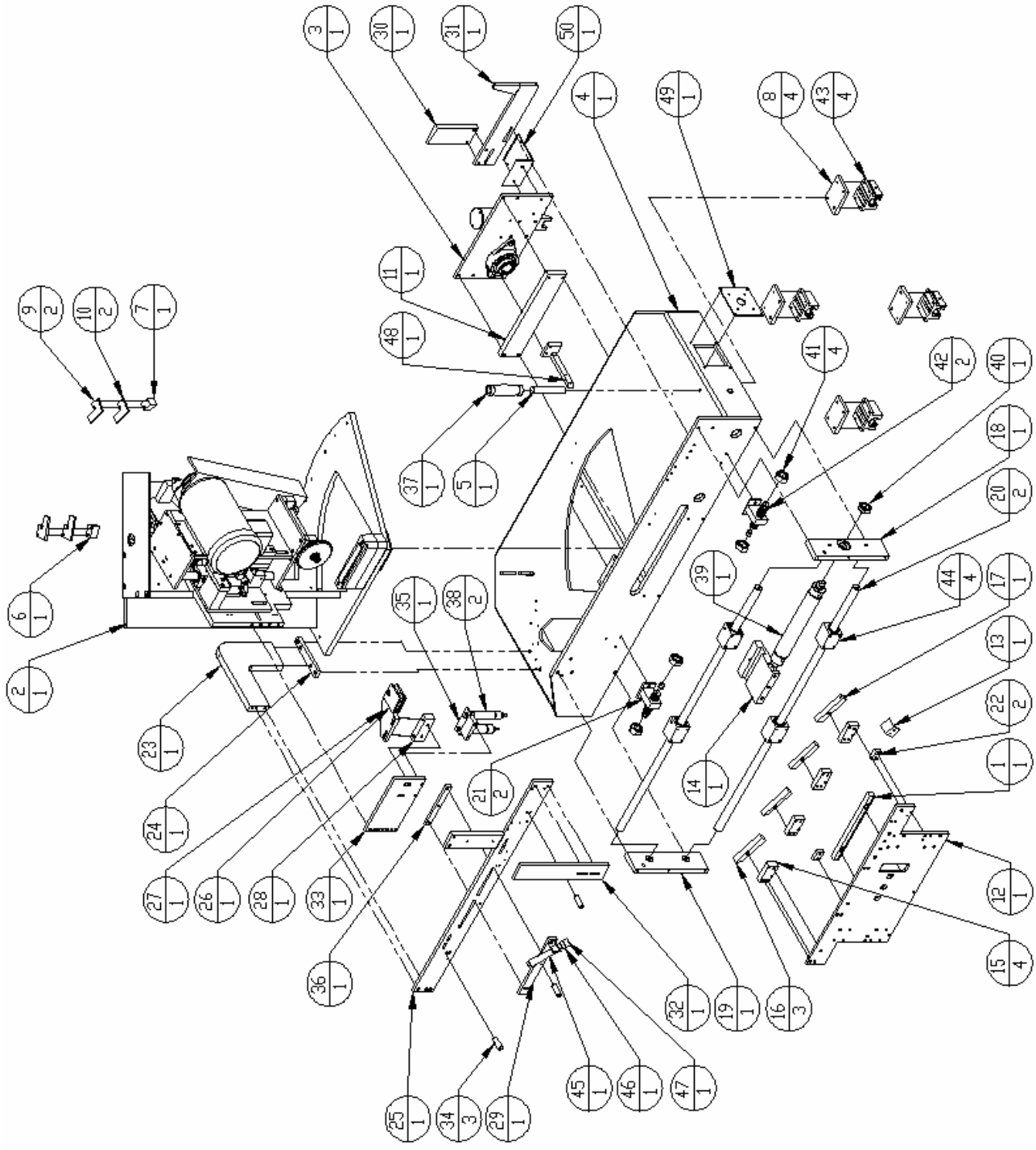
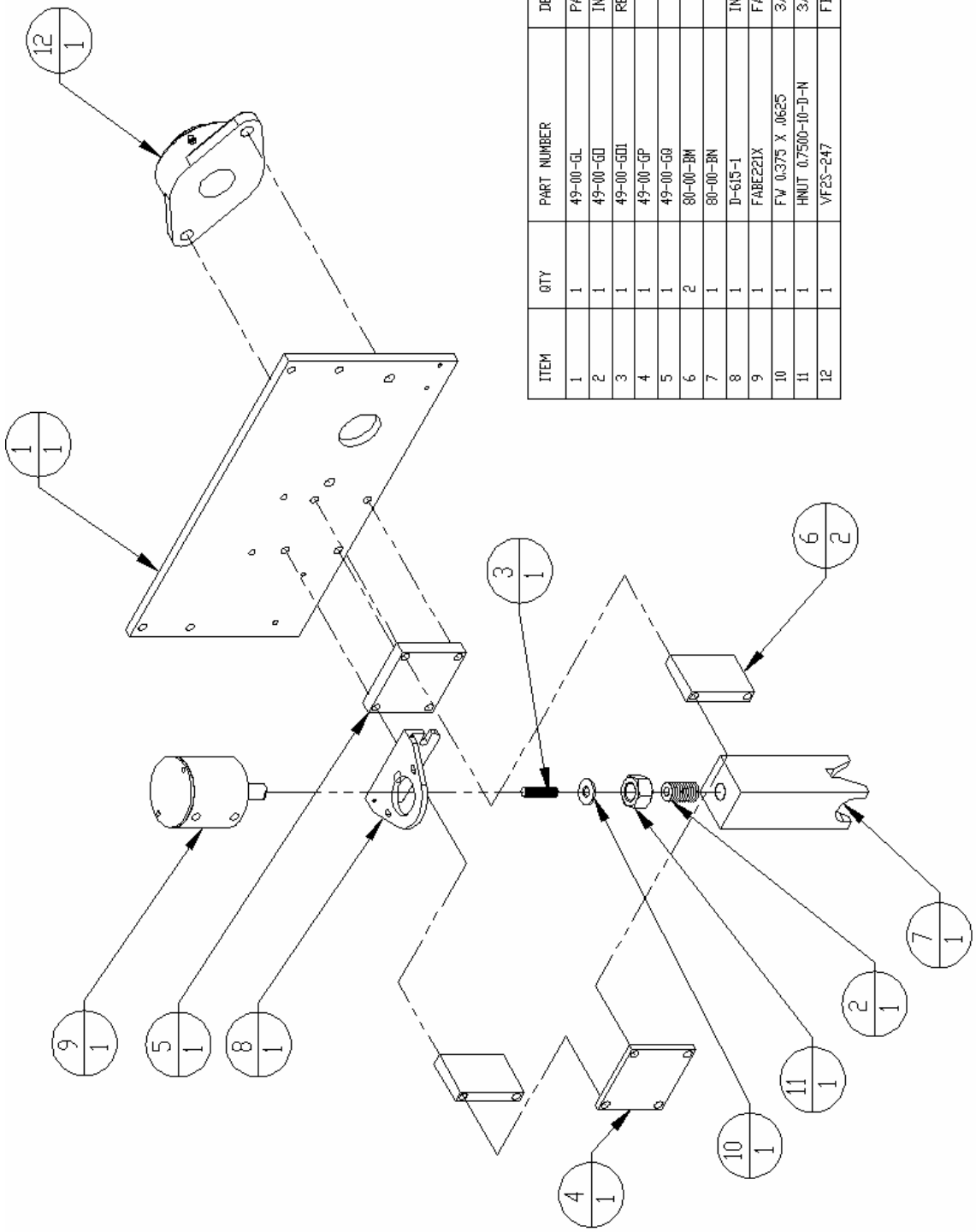


Fig. 49-00-70 Moveable Head

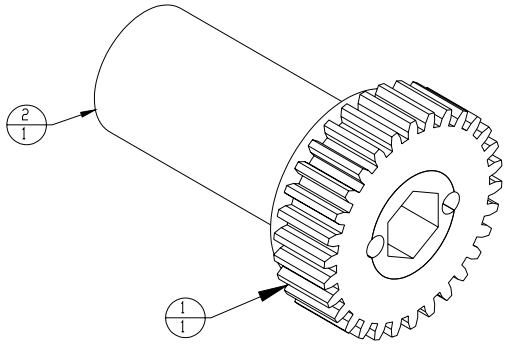
Fig. 49-00-70 Bills of Material

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	17-00-J	6NSR 12X34
2	1	49-00-06R	RIGHT HAND HEAD ASSEMBLY
3	1	49-00-75	PICKLE FORK ASSEMBLY
4	1	49-00-CA-0R	FORMED SECTION WELDMENT
5	1	49-00-DD	CARRIAGE HANDLE
6	1	49-00-DE	45° & 90° STOP BLOCKS
7	1	49-00-DE1	45° & 90° STOP BLOCKS
8	4	49-00-DH	CARRIAGE PILLOW BLOCK
9	2	49-00-DJ	
10	2	49-00-DJ1	
11	1	49-00-GM	PARALLEL ROD SUPPORT
12	1	49-00-HA1	FEED CARRIAGE PLATE
13	1	49-00-HB	DOG FEED ADJUST
14	1	49-00-HC1A	FEED CYLINDER ROD MOUNT
15	4	49-00-HD	DOG FEED BACKING PLATE
16	3	49-00-HE	FEED DOGS
17	1	49-00-HE1	FEED DOGS
18	1	49-00-HF	FEED SHAFT END PLATES
19	1	49-00-HG1	FEED SHAFT OUTFEED END
20	2	49-00-HP	FEED SHAFT
21	2	49-00-HQ-0	WELDMENT SHOCK MOUNT
22	2	49-00-HR	FEED SHOCK BLOCK
23	1	49-00-IA	HOLD DOWN BACK POST
24	1	49-00-IA1	HOLD DOWN POST BRACKET
25	1	49-00-IB1-0	HOLD DOWN BAR WELDMENT
26	1	49-00-IC-0	HOLD DOWN BAR PIVOT
27	1	49-00-IE	TOP ROTATE POINT
28	1	49-00-IF	SPACER
29	1	49-00-IG-0R	ADJUSTABLE CLAMP MOUNT
30	1	49-00-IJ	HOPPER BACK PLATES
31	1	49-00-IK-0	HOPPER BACK PLATE BASE
32	1	49-00-IL	HOPPER FRONT PLATES
33	1	49-00-IN	PIVOT TO CARRIAGE
34	3	49-00-IS	BRUSH SPACERS FOR
35	1	49-00-IT	
36	1	49-00-IU	
37	1	BIKEGRIPS_1(HANDLE BLACK)	HANDLE BAR GRIPS BLACK
38	2	BIN0520P	
39	1	BIN249DP	BINBA 249 DP
40	1	D-1331	
41	4	ENDNUT03	1-12 NUT
42	2	ENDDEM10B	1" ENDONE SHOCK MOUNT
43	4	INASPB160	1" OPEN BEARING
44	4	KVALBB16A	LINEAR BEARING BLOCK
45	1	BINB042D	BINBA 042-D CYLINDER
46	1	P160B04FA	ALUMINUM PAD
47	1	P160B00-F	FELT PAD
48	1	49-00-DJ	POINTER MOUNTING BRACKET
49	1	49-00-DK	
50	1	49-00-GA	TRACK MOUNTING BRACKET



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	49-00-GL	PARALLEL ROD SUPPORT
2	1	49-00-GD	INDEX CLAMP ROD
3	1	49-00-GDI	REDI-ROD
4	1	49-00-GP	
5	1	49-00-G0	
6	2	80-00-BM	
7	1	80-00-BN	
8	1	D-615-1	INDEX PICKLE FORK
9	1	FABE221X	FABCO E-221-X
10	1	FW 0.375 X .0625	3/8 X 1/16 FLAT WASHER
11	1	HNUT 0.7500-10-D-N	3/4-10 REGULAR NUT
12	1	VF2S-247	FB230X1-1/2

Fig. 49-00-07 Feed Timing Gear Assy.



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	49-00-GT1	MODIFIED SPUR GEAR
2	1	49-00-GT	FEED TIMING GEAR HUB

Notes

Our Mission: Innovation, Quality and Honesty!

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