

TAK Enterprises, Inc.



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#2 & #3 PNEUMATIC CUT OFF SYSTEM QUILL ON QUILL CUTTER



70 Enterprise Drive
(860) 583-0517

Bristol, CT 06010-7400
(860) 585-0479

E-mail: tak@takenterprises.com

www.takenterprises.com



TAK Feed & Cut-off System

General Introduction

The TAK family of feed and cutoff systems is designed to produce straightened, precisely cut, and close tolerance length pieces from wire, shapes or narrow strip material.

Each of the styles of cutoff systems offered is a precision crafted device that provides every user with an extremely versatile machine that is compact, easy to operate, and cost effective.

Versatility Plus

There are four major elements of versatility that these systems apply to every application. Any combination of these makes these systems very justifiable.

- ✚ **Very wide range of materials** – A quick change over of the "cassette" style tooling allows every unit to be able to accommodate a range of materials. The 1st shift could be running gold plated copper, the 2nd shift could run stainless steel, and the 3rd a paper wrapped tempered steel.
- ✚ **Any diameter up to .375"** – Each of our cutoff systems has a very wide range of operation that allows for many different size diameters to be run.
- ✚ **Variable cut lengths** – Our pneumatic systems can cut lengths up to 300 feet while our servo systems are only limited by the amount of material on the coil or spool.
- ✚ **Various Shapes** – Again the use of "cassette" style tooling allows an operator to quickly change from one shape material to another.

Quality & Precision

Every TAK cutoff system is capable of providing close tolerance length cuts, some within .0005", as well as cut ends that are clean, burr free and square. If the system utilizes our precision grade wire straighteners, then the user is assured to get the straightest parts. For the application that requires no marks or material distortions the tooling items can be fabricated from special materials and fashioned in such a manner to maintain the pristine condition of the material.

Options

There are a number of system options available that provide extended performance characteristics for all the TAK cutoff systems. The Fine Adjustment Device, Production Performance Package, and Data Display options are just a few that are available. Available option descriptions are listed in section #4 of this manual.

GENERAL SYSTEM REQUIREMENTS:

1. The TAK SF&C system requires that the wire payoff mechanism be of a motorized design with loop control to ensure that our feed device provides a repeatable precision length piece.
2. The TAK system requires a continuous supply of regulated 80-psi clean dry air.
3. Regulated 110VAC, 2 amps of power.
4. Optimum system performance requires that the SF&C unit be securely affixed to a worktable or other platform.



Feed & Cut-off System - General Specifications

All SF&C Series Types



Most any Shape & any Material
 Square End, Burr Free Cuts



Fast - Versatile - Reliable

- Operation
- I/O Remote Activation
- Parts Counter
- Wire out Sensor
- Base Plate
- Safety Cover
- Stroke Length Limit
- # of strokes
- Electrical Requirements
- Air Requirements
- Air Regulator
- Tooling Material Make-up
- Part Length Adjustment
- Emergency Kill Switch
- Length of Piece Tolerance
- System Out-put for Lengths
- Sized System Tooling
- System Hand Tools
- System Controller
- 4 Modes of Operation
- Parts Collection
- System Alarms – **Option Dependant**
- Production Performance Package
- Wire Payoff / Decoiler
- Wire Straightener
- Wire Cleaner / Lubricator
- Fine Adjustment Device

Automatic

Standard
Standard
Standard
Standard

Standard – Clear Molded Lexan / Interlock
 6” or 12” Standard – (¼” & 3” on Series #02)
 1 to 300 (Programmable)

110 VAC 2 amps Standard – Others Optional
 80 psi Clean & Dry

Standard - with Filter

Various – Application Dependant – Carbide Typical

Manual – Set by Caliper / Gauge Block

Standard - Manual

+/- .002” Typical - .0005” Achievable

Application Dependant - <12” Up to 450 ppm

Set includes – Grippers, Guides, and Quills - Application Dependant & Sized to fit

Allen Wrench Set Included – Torque Wrench with Optional Straightener

Allen Bradley® PLC – Touch Screen Activated

Single Stroke – Single Stroke Batch – Multi-Stroke – Multi-Stroke Batch

Customer Responsibility – TAK will supply upon request

Wire Out – Payoff Snag – Low Air – Count Reached –Remote Device Error – Cover Off

Optional – System Status Light, Low Air Sensor, Extra I/O, Auto Shut Down, Self Monitoring

Optional – Application Specific – up to 2,000Lb Available – Spool or Coil Configured

Optional – Application Dependant – Usually Required – Includes Interface Adaptor

Optional – Recommended for all tight tolerance straightness applications – Series #02 Only

Optional – Series #02 only

Run Screen
 Speed
 Count
 Alarms

| RUN SCREEN | | |
|---------------------|-------------------------|-------------------------|
| SKIP PRESET 123 | PART PRESET 123,123 | PART ACTUAL 123,123 |
| ED PFM 1234 | BATCH PRESET 123,123 | BATCH ACTUAL 123,123 |
| START | ALARM RESET | PAUSE RESUME |
| STOP | EDIT | MAIN |
| REQ NOT READY S 123 | | |

Alarm Screen
 Type
 Reset
 History

| Alarm No | Crit | Message |
|----------|------|-----------|
| 1 | 1 | Message-1 |
| 2 | 2 | Message-2 |
| 3 | 3 | Message-3 |
| 4 | 4 | Message-4 |
| 5 | 5 | Message-5 |
| 6 | 6 | Message-6 |
| 7 | 7 | Message-7 |

ALARM RESET ALARM SILENCE ALARM HISTORY RETURN

Program Screen
 Batch
 Quantity
 Skip Value

| PART SET QTY | | BATCH SET QTY | |
|--------------|---|---------------|---|
| ▲ | ▼ | ▲ | ▼ |
| 1 | 2 | 1 | 2 |
| 3 | 4 | 3 | 4 |
| 5 | 6 | 5 | 6 |
| 7 | 8 | 7 | 8 |

SKIP VALUE ALARM STACK TOT SPEED DELAY
 12345 OFF 123

SEQUENCE RESET RETURN

Main Screen
 Admin
 Setup
 Alarms
 Run

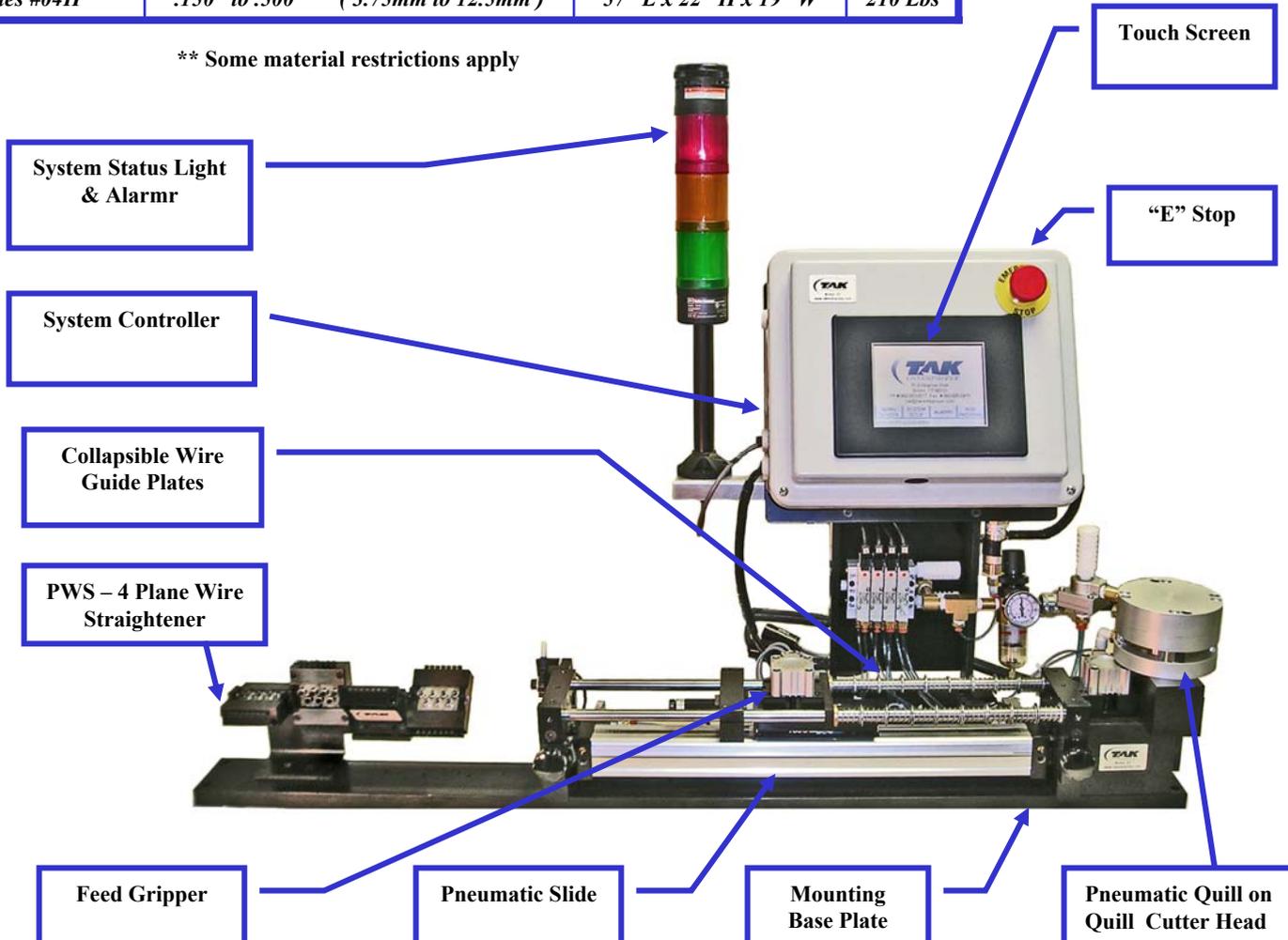
| | | |
|--|-----------------|--------|
| <p>70 Enterprise Drive Bristol, CT 06010 Ph # 860-583-0517, Fax # 860-585-0479 tak@takenterprises.com</p> | | |
| ADMIN SCREEN | SYSTEM SETUP | ALARMS |
| RUN PROGRAM | | |



Precision Straighten, Feed and Cut-off (SF&C) System Features

| | | | |
|-------------|--|-----------------------|---------|
| Series #02 | .007" to .070" (0.18mm to 1.8mm) | 43" L x 23" H x 13" W | 72 Lbs |
| Series #03 | .065" to .125" (1.6mm to 3.13mm) | 51" L x 23" H x 13" W | 74 Lbs |
| Series #04L | .100" to .187" (2.5mm to 4.67mm) | 57" L x 22" H x 19" W | 195 Lbs |
| Series #04H | .150" to .500" ** (3.75mm to 12.5mm) | 57" L x 22" H x 19" W | 210 Lbs |

** Some material restrictions apply



System Options

| | |
|--------------------------------------|--------------------------------------|
| Wire payoff | Batching |
| Industrial Mounting Table | Information |
| Sound Enclosure | TCPIP |
| Wire Cleaner Lubricator | Tooling |
| Length of Stroke | Expanded I/O |
| Pro-Pak | Remote Start Stop - Pause |
| Fine Adjustment Device | Loop Control |



SF&C System Options

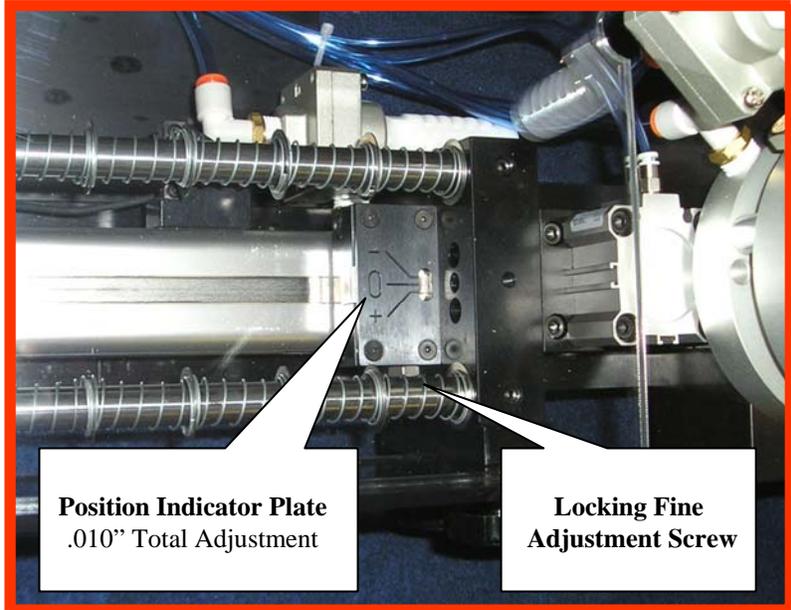
Fine Adjustment Device (FAD)

Adjustments down to .0002"

The TAK **Fine Adjustment Device** option is designed to allow the user to more precisely set the cut length tolerance "band" on the Series #02 SF&C system.

The **FAD** option is comprised of a fully integrated mounting block with precision guide rails, locking fine adjustment screw, and position indicator plate. The **FAD** is positioned just forward of the system's rear gripper and cutter head and either retracts or extends the "dead stop" point of the stroking mechanism.

Operation – Once the basic cut length is set on the SF&C system the operator simply measures any cut piece to determine where the piece fits within the tolerance "bell curve" and either turns the adjustment screw in or out to bring the cut length to the center value. Each ¼ turn of the screw is equal to .0002" of adjustment. The **FAD** eliminates the need for the operator to have to stop the system and manually reset the cut length tolerance.



Series #02 SF&C System

With "Pro-Pack" Option



SF&C System Options

Production Performance Package

For "hands free" system operation



The TAK "Production Performance Package" consists of an ergonomically positioned controller, status indicator light pole with sound element, and a series of sensors to detect various conditions and shut the system down automatically. The system will shut down if the preset quantity count is reached, the system runs out of wire, a "snag" signal is received from the payoff unit, the air volume falls below optimum operating level, an integrated ancillary component fails to function, or any other remote down stream customer device provides a signal/

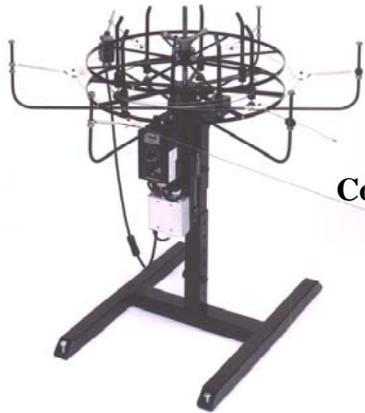
Pro-Pack is available on any TAK series feed and cutoff system to run completely independent of constant operator monitoring. Any detected problem immediately shuts the system down. Due to the quick response of the sensors many problems can be quickly addressed without having to "re-thread" the machine or other time consuming operations.

- Status Light Pole w/ Audible Signal
- Material Feed Snag Sensor I/O
- Low Air Pressure Sensor
- Part on Command I/O
- Preset Count Shutdown
- Remote Start / Stop I/O
- Master / Slave I/O
- Wire out Sensor

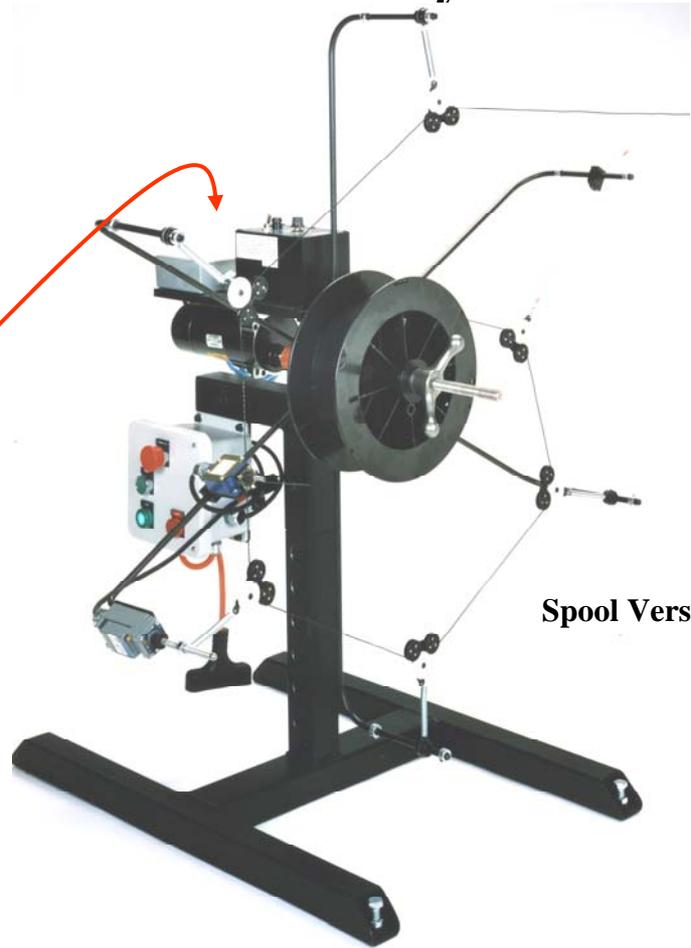




Motorized Fine Wire Pay-off



Coil Version



Spool Version

General Specifications

- Operation
- Configuration
- Spool ID Range
- Coil Set-up Extras - Included
- Maximum Weight Capacity
- Base Stand – Height Adjustable
- Wire Sizes
- # of Guide Arms
- Electrical Requirements
- Air Requirements
- Spring Tension Guide Roller Assemblies
- System Controls
- Feed Rate
- Floor Space Footprint
- Loop Control Reservoir
- Micro-switch w/Adjustable Set Point
- Low Stress “French Curve” Unwind
- Special Long Wear Ceramic Lined “V” Rollers
- Wire “Snag” Sensor

Automatic with Continuous Back Tension – Micro-switch Activated
 Spool, Coil, or Combination – 24” OD Standard – 30” Optional
 .625” to 2.40” – Tapered Retainer with Threaded Locking Brace
 8 Adjustable Coil ID Limit Spokes – “Top Hat” Coil Retainer
 50 Pounds

Standard with Leveling Screws
 .006” up through .050”

Six – Free Floating Arm – Position Adjustable
 110 VAC 2 amps Standard – Others Optional
 None

Six – 1 Cable, 1 Traveling, 1 Switch, and 3 General – Plastic “V”
 Adjustable Rate – Forward / Reverse Selectable – DC Gear Drive
 83 RPM Maximum - Adjustable
 Maximum Envelope = H 57’ – W 43” – D 43”

Built in – 4 feet of reserve material

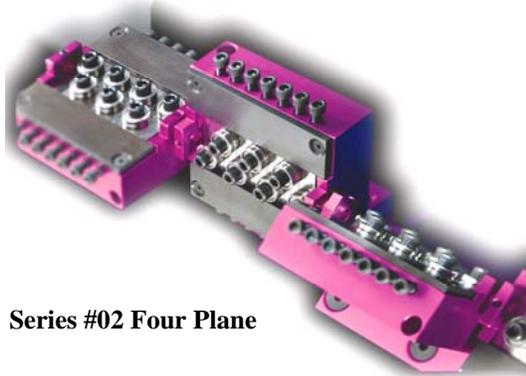
Standard

Standard

Standard – Employs low friction roller bearings with “float” tracking
Standard - Includes Auto Shut Down & Extra Control Output



Precision Wire & Strip Straighteners



Series #02 Four Plane

www.wirestraighteners.com

| Model | Wire Range Inches | Wire Range MM | Weight |
|-----------|-------------------|---------------|------------------------------|
| Series 00 | .006" - .012" | 0.15 - 0.30 | 2P = 1 1/4lb 4P = 2 lb |
| Series 0 | .010" - .025" | 0.25 - 0.625 | 2P = 3/4 lb 4P = 1 1/2 lb |
| Series 01 | .020" - .035" | 0.50 - 0.90 | 2P = 2 1/4lb 4P = 4 3/4lb |
| Series 02 | .030" - .065" | 0.76 - 1.65 | 2P = 3 1/4lb 4P = 7 1/2lb |
| Series 03 | .060" - .110" | 1.50 - 2.80 | 2P = 12lb 4P = 28lb |
| Series 04 | .100" - .187" | 2.54 - 4.75 | 2P = 37lb 4P = 75lb |
| Series 05 | .150" - .250" | 3.81 - 6.35 | 2P = 62lb 4P = 124lb |
| Series 06 | .200" - .350" | 5.08 - 8.89 | 2P = 274lb |
| Series 07 | .300" - .500" | 7.62 - 12.7 | 2P = 364lb |

Available in 1, 2, 3, or 4 plane configurations



Series #00 Two Plane

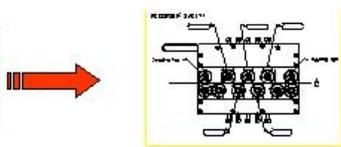
Standard 120 degree 'V' Grooved Bearings - Applies a less drastic pressure angle, reducing wire deformation and marking.



Closest Bearing Position in the Market -TAK's bearings are placed closer in proximity to each other and react to fine adjustments much more aggressively. Adjustments as fine as .001" can change wire direction.



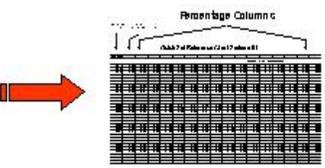
Recording Chart -Every TAK PWS straightener is supplied with a Recording Chart to accurately list actual bearing offset values for repeat set-ups and addressing ISO procedures.



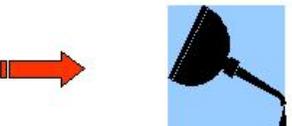
Caliper Measurement Confirmation -TAK straighteners are made so precise that any standard gauge block can be used to set or determine the exact bearing off-set value for repeat set-ups or documentation.



Quick Set Reference Chart - A quick zeroing of the straightener that reduces set up time. A documentation format to accurately preset the straightener based on wire size and off set percentage.



High Quality Penetrating Lubricant - TAK includes a molybdenum based lubricant with every straightener. A fast drying, moisture displacing, dry film, solidified grease dissolving lubricant.



TAK Torque Wrench -TAK supplies a torque wrench with every series #00 to #05 straightener that controls the precise amount of torque, preventing unintentional damage or abuse, regardless of the operators level of experience.

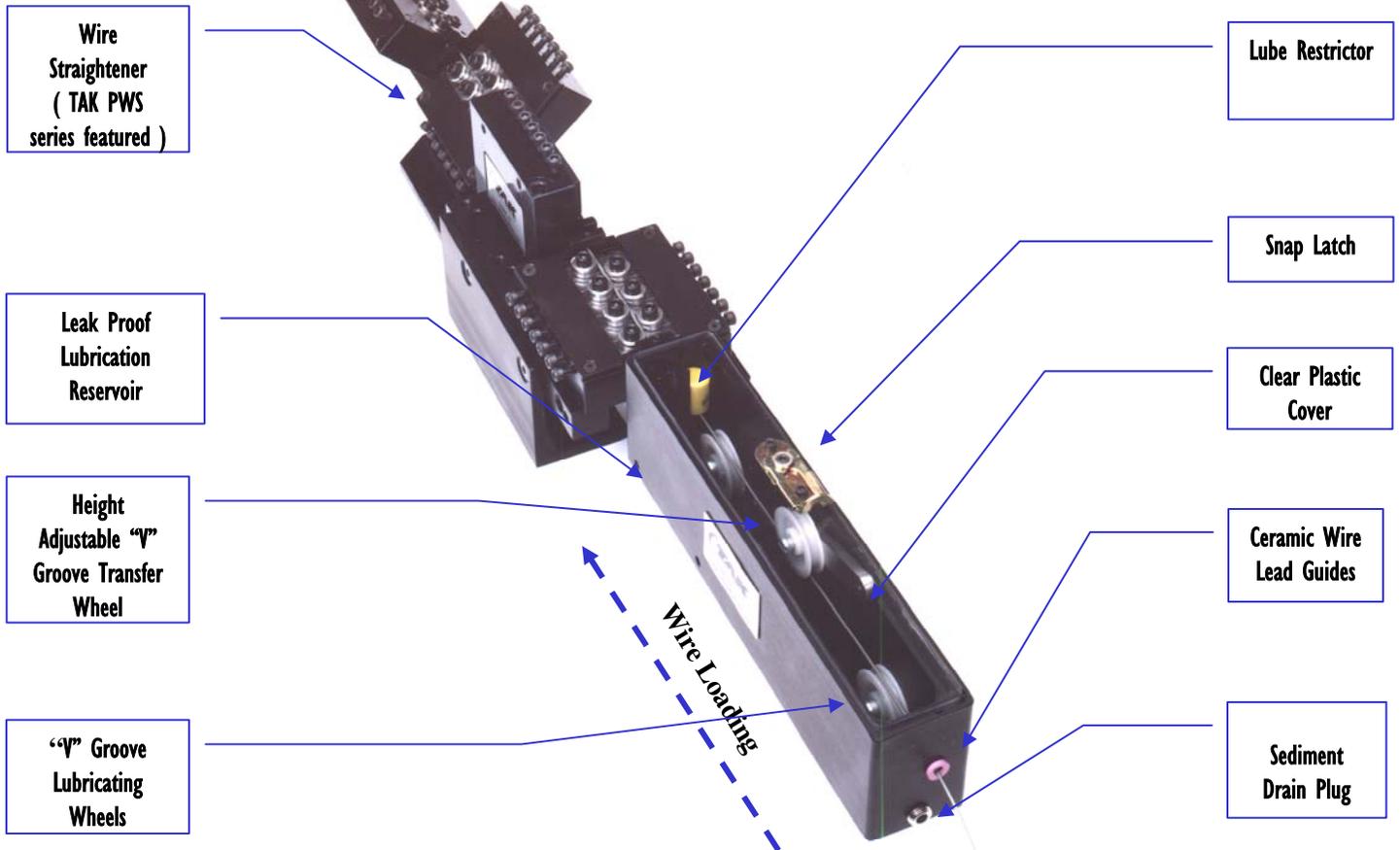


TAK's Wide Range of Options -TAK offers many PWS options. 1) Radius, Shaped, Sealed or Polished Bearings. 2) Quick Release Feature 3) Pivot & Pole Mounts 4) Multi-plane upgrade.





WCL - Wire Cleaner Lubricator



| | |
|---|--|
| <input type="checkbox"/> Wire Sizes | Up to .050" in Diameter |
| <input type="checkbox"/> Wire Shapes | Round and Shaped |
| <input type="checkbox"/> Materials | All Metals |
| <input type="checkbox"/> Fluid Capacity | .4 Fluid Ounces |
| <input type="checkbox"/> Operation | Passive Floating Film |
| <input type="checkbox"/> Dimensions | 10" x 2" x 3" |
| <input type="checkbox"/> Weight | 14 Ounces |
| <input type="checkbox"/> Inclusions | Mounting Bracket for TAK Straighteners |
| <input type="checkbox"/> Wire Lead -In & Out Guides | Ceramic Standard - Application Dependant |
| <input type="checkbox"/> Rollers | "V" Grooved Plastic - 3 each |
| <input type="checkbox"/> Quick Drain Plug | Standard |
| <input type="checkbox"/> Lube Restrictor | Standard |

Note: There are many wire straightening advantages when a lubricant is applied to the wire and should be employed when ever possible. Subsequent tools and machinery are protected from foreign particles while being lubricated for consistent manufacturing quality. Many manufactures cannot have any residual oils on their products due to down stream operations or other concerns and either have to use an evaporating lubricant or none at all. The TAK designed lubricator works well with evaporating lubricants due to the enclosed and covered reservoir design.



TAK Feed & Cut-off System

Application Set-up – Threading the Material – Setting the Length



Safety Warning

Before Proceeding Read These Safety Points

- ✚ Unplug the unit from both the power input source and air supply line before attempting any adjustments or attempting to thread up the system with material.
- ✚ When the power and air is connected to the system the front gripper automatically clamps down. This will deny the passage of material through the system by hand.
- ✚ Almost all cylinders used on this system have a low thrust value, so extreme care is required in the tightening of the attaching screws. Use a minimum amount of torque on the attaching screws to keep from stripping the threads as the majority of the threads are into aluminum.

Step 1. Select the proper tooling items for the application and check the condition of each item for operational use.

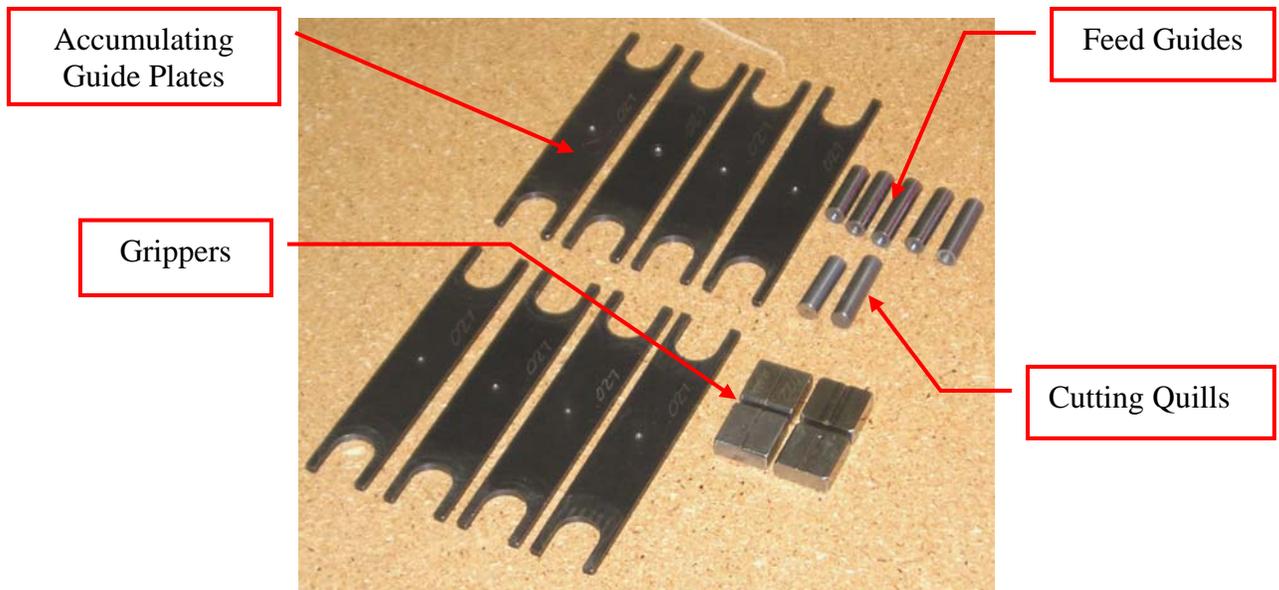


Fig 1 (Series #02 tooling shown)

Tooling Note: Typically the tooling provided is as pictured in figure # 1 above. Applications for material sized .020" and under will employ a set of *Square Shaped* cutting quills. The square quills will only fit into the *Square Cutting Block Assembly*. In the series #02 system the short quill is the stationary and the long one is the traveling. Also in the series #02 one guide is shorter and is always placed in the *Front Gripper*.

Step 2. Remove lexan safety cover by unscrewing the 4 plastic knobs.

Step 3. Remove any existing material from the system. Remove any installed tooling and check system for signs of wear. Check maintenance count number on admin screen and if needed perform scheduled maintenance and reset the counter.

Step 4. Place the wire out sensor in the up position.

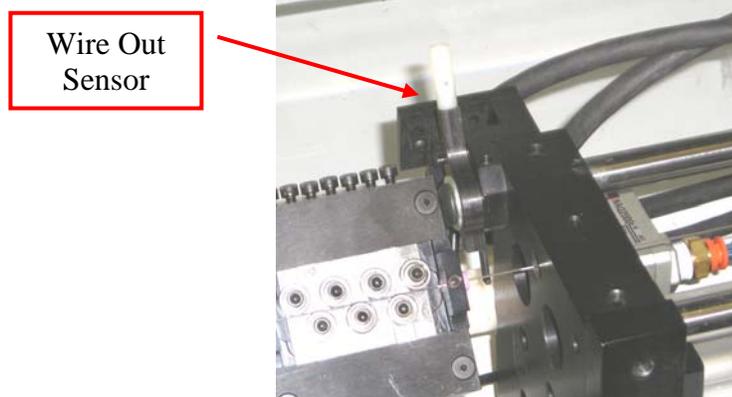


Fig 2

Special Notes:

- ✚ If your feed and cut system has a straightening unit attached (roll type or rotary type) completely read the Instructions for straightening before proceeding. The material should be straightened prior to setting the feed and cut section elements
- ✚ If your system employs a TAK Wire Cleaner / Lubricator completely read the instructions for its use.
- ✚ If your system employs a loop control device be sure to completely read the instructions for its use.
- ✚ If you are utilizing a wire payoff or de-coiler device be sure to have read the instructions for that item.

Step 5. Thread the material through any of the ancillary equipment such as wire straighteners, wire guides, cleaner / lubricators, etc as required prior to threading it into the TAK feed and cutoff system. In so doing make sure that there will be no mechanical restrictions that will keep the material from running freely once the TAK system is activated.

Step 6. Thread the material from the left hand side through the hole in the rear gripper body, the feed guides, all the accumulating guide plates, the front gripper body, all the way through the cutter body and pull out approximately 2 to 3 inches from the cutter head. System thread-up is now complete.



Step 7. To roughly estimate the length of the material to be cut push the *floating clamp mount* (*Figure #9*) to the extreme right side against the internal stop at the cutter end of the stroke. To adjust your required length, measure from the *rear traveling end plate* on the rear of the *floating clamp mount* to the *stop button* face located in the *rear stop block* Loosen the (4) clamping screws and move the *rear stop block* to the desired stroke length required. Retighten the (4) clamping screws being careful not to use too much torque. Push the *floating clamp mount* with *rear gripper body* as far to the left as possible. This will position the *floating clamp mount* against the *rear stop block*. Be sure to push it far enough to collapse the *gas shock stop* and bottom out against the *stop button*. Make sure the material is still sticking out of the *cutter body* as described in Step 6.

Safety Warning



Before proceeding, remove any tools or objects from the *Feed and Cut System*. DO NOT put hands in front of the cut-off area or near any moving parts. The material will exit at a fast rate and could cause severe injury during the operating mode. If step # 8 is attempted without pushing the *floating clamp mount* to the far left position against the *stop button* the unit might jump to its starting position. If the *rear stop block* was not securely clamped to the *accumulating guide shafts* the *floating clamp mount* may travel further than expected and again possibly causing severe injury. Replace *lexan safety cover* since the unit will not run until the cover sensor makes contact.

Step 8. Plug unit into a standard 120 volt AC 60 Hz grounded 2 amp outlet. If unit is configured for non-USA voltage connect to proper rated outlet. Connect the air line to a source of clean, dry air and set the system regulator to approximately 80 psi. **NEVER** exceed 120 psi. Connection of the air will cause the *front gripper cylinder* to activate and grip the material firmly so it will not move.

Step 9. Take one of the smaller size Allen hex wrenches (supplied as part of the tooling package) and momentarily press the manual activation button located on the *air valve assembly* that controls the *cutoff cylinder* (item #6 figure #8) so that the material just threaded through the system will be cut off.

Step 10. Turn on the system by flipping the “red rocker” switch on the top of the controller box. Using the touch screen on the controller (see screen description page) select the “run program”. Set the desired number of samples you wish to cut to validate proper cut length by using the counter buttons on the face of the *touch screen*. Push “START” to run the sample parts and check length. Please refer to the screen & operational section for a complete description of all system and screen functions.



TAK Feed & Cut-off System

Adjusting the Length & Speed – Changing to a Different Size, Shape, or Type of Material

Adjusting the Length:

Note: Before proceeding, check the setting of your “*Fine Adjustment Device*” (FAD) if so equipped. Set the position to “zero”.

Step 1 Set the desired number of samples you wish to cut to validate proper cut length by using the counter buttons on the face of the “*Program Screen*” by going to it from the “*Run Screen*” after starting at the “*Main Screen*” Once the quantity is entered press the “*Return*” button which will take you back to the “*Run Screen*” Push “*START*” to run the sample parts and check the lengths for accuracy.

Safety Warning



BEFORE PROCEEDING, Disconnect the air supply line coming from the source. **DO NOT** re-connect the air supply until the unit is completely adjusted and ready to run according to the following instructions: Remove *lexan safety cover*.

Step 2. Refer to **figure # 9** - Measure the distance from the *rear shaft support* or a clamp placed on *the accumulating guide rod*, to the back of *the rear stop block*. This reference dimension will be used to adjust the *rear stop block* to achieve the correct blank length you desire. The use of precisely ground gage blocks are recommended for cut lengths of +/- .020”.

Step 3. For fine adjustment, loosen the four clamping screws on the *rear stop block*. Move the *rear stop block* either towards the cutter end to get to get a shorter blank or towards the *rear shaft support* for a longer blank. Use the reference dimension found in the previous step along with the error in the blank length to achieve the correct spacing between the *rear shaft support* or the clamp and the *rear stop block*.

Step 4. Gently move the *rear stop block* to the new calculated dimension and tighten the four clamping screws on the *rear stop block*.

Step 5. Push the *floating clamp mount* firmly against *the rear stop block*, replace the *lexan safety cover* and reconnect the air supply. Cycle the system to cut a couple of piece lengths and repeat steps 2 though 5 until successful.

Note: The set cut length may be multiplied before a cut is made by any quantity up to 300 times by adjusting the “*skip*” value from the “*run screen*” on the system controller.



Changing to a Different Size, Shape, or Type of Material

| <i>Tooling Components Typically Involved:</i> | <i>Hand Tools Required</i> |
|---|--|
| (1) Traveling Quill | Allen Wrenches / Hex Keys - English |
| (1) Stationary Quill | Needle Nose Pliers or Pencil Magnet |
| (4) Feed Grippers | Dial Indicator or Micrometer Depth Gauge & Surface Plate |
| (4) Feed guides - ONLY IF NEEDED | Quality bearing grease & cleaning items |
| (?) Accumulating guide plates - ONLY IF NEEDED | (Each component has the diameter/size etched into it.) |

Note1: There are many occasions where some tooling items (guides & quills) may be used for smaller sized material and therefore may not have to be changed out. In about all cases the grippers must always be changed to the size of the material in order for the system to be able to feed the material correctly.

Note 2: Always check each tooling item for wear and damage. Set aside for cleaning & maintenance.

Safety Warning



BEFORE PROCEEDING, Disconnect the air supply line coming from the source. **DO NOT** re-connect the air supply until the unit is completely adjusted and ready to run according to the following instructions: Remove *lexan safety cover*.

Step 1. Remove all material from feed mechanism.

Step 2. Skip this step's procedure if the new size doesn't require a guide change. Remove *accumulating guide plates* by rotating them to remove them from between the spring washers on the *accumulating guide shafts*. Replace the *accumulating guide plates* with the proper size for the new material being processed.

Step 3. Remove *rear gripper cylinder* by removing the four retaining cap screws on top.

Step 4. Remove the upper and lower *feed grippers* positioned within the *rear gripper body*. Loosen the two set screws retaining the *feed guides* in the *rear gripper body*, located at both the entry and exit ends. Push the *feed guides* out of the *rear gripper body* and remove.

Note: All lead-in holes with counter-sinks on the *feed guides* must be facing to the feed in side.

Step 5. Take *a feed guides* (for the size and shape you are switching to) and insert it into the hole in the *rear gripper body*. The lead-in counter-sunk hole end of the *feed guides* must be facing toward the left. (**DO NOT** force the *feed guides* against the free moving *feed grippers*.)

Series #02 System – General Details

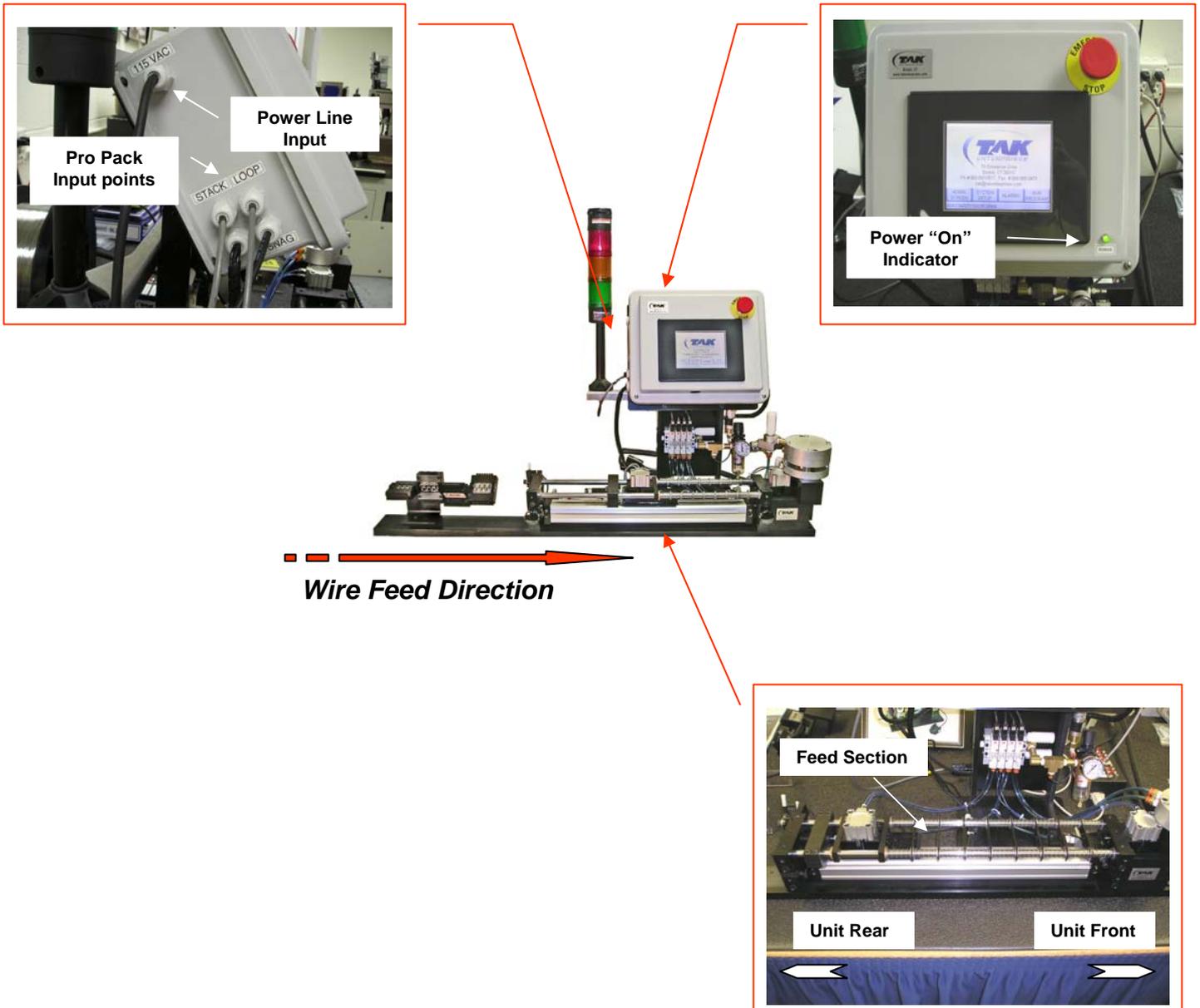


Fig # 10

Series #02 System Details – Feed Area

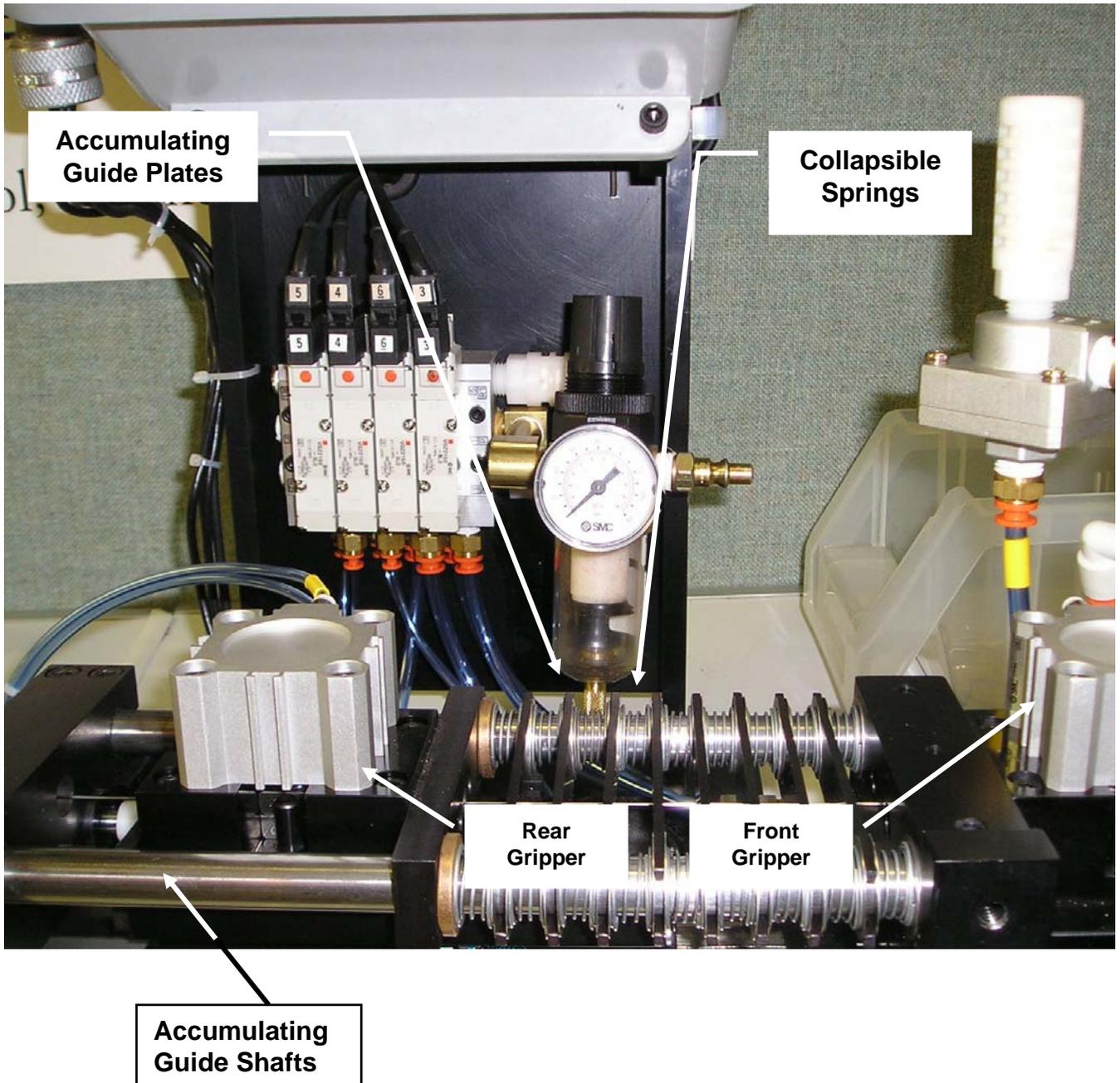


Fig 7

Series #02 System Details – Air Valves

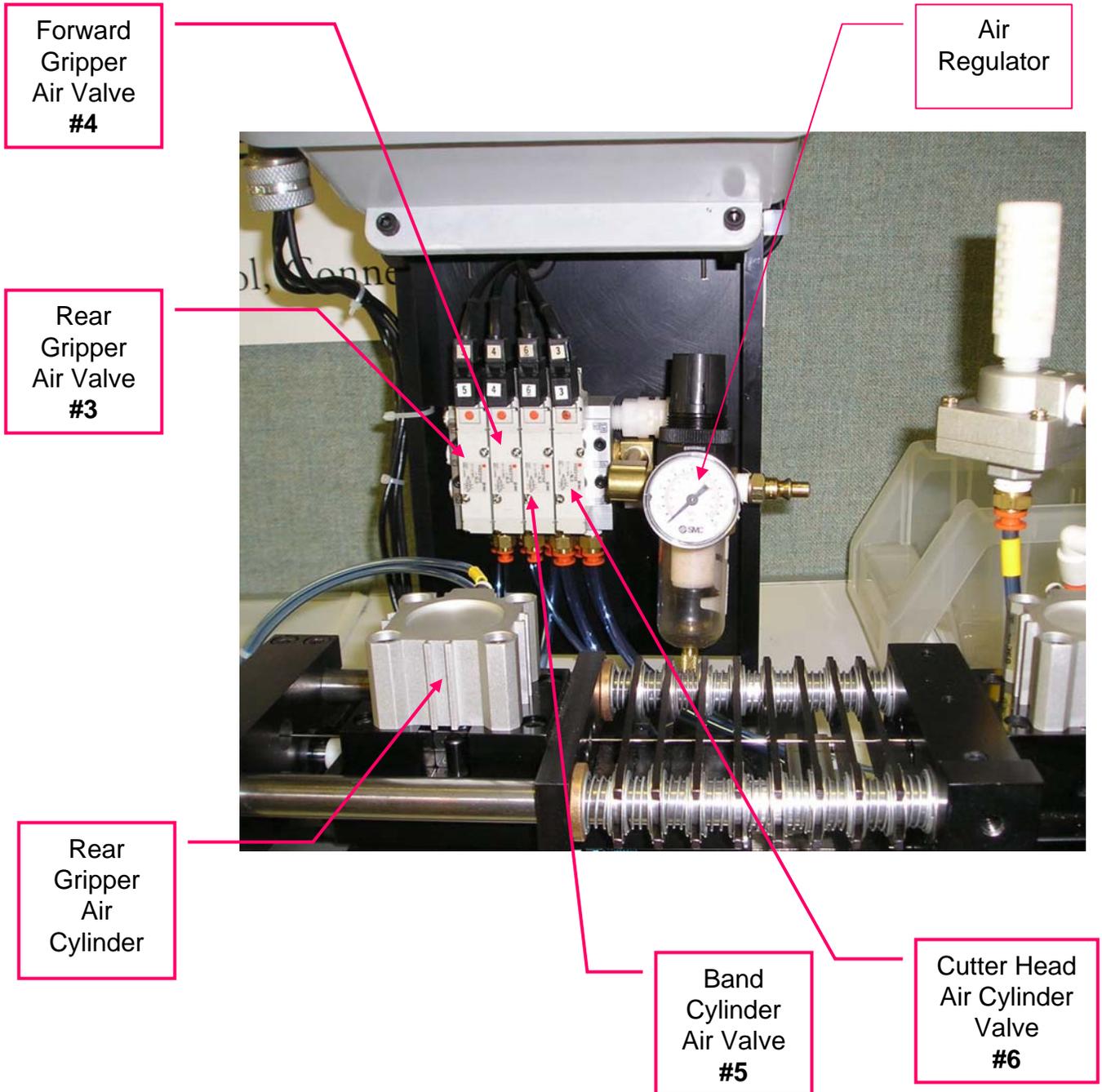
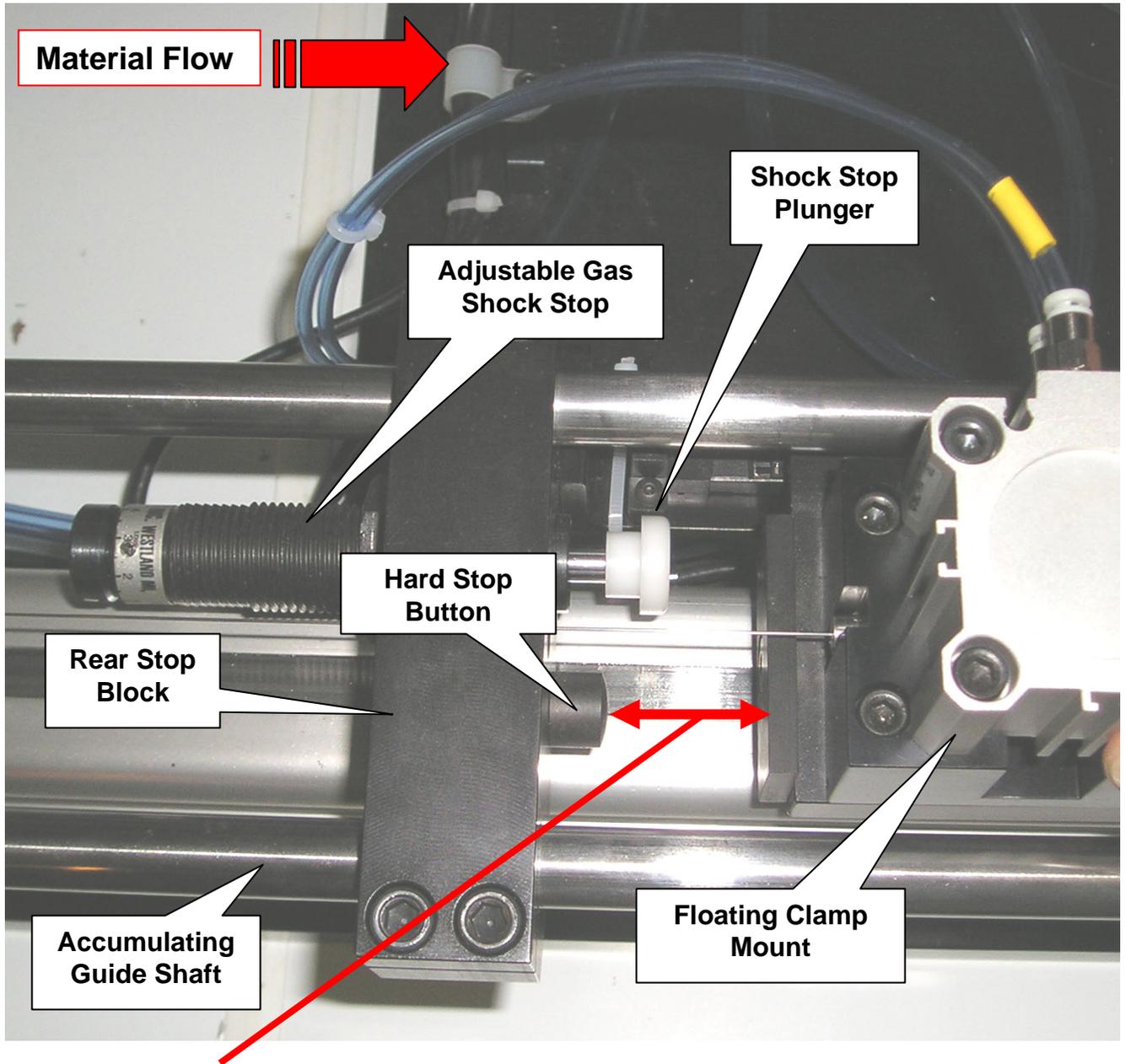


Fig 8

Series #02 System Details – Setting the Length



Red arrow indicates the actual, single stroke, distance the gripper will travel.

Fig # 9



INSTALLATION OF “SWING-IN” ACCUMULATING GUIDE PLATES

Step 1. Install the new “swing-in” guide plates with the larger chamfered hole side towards the “wire in” side as shown.

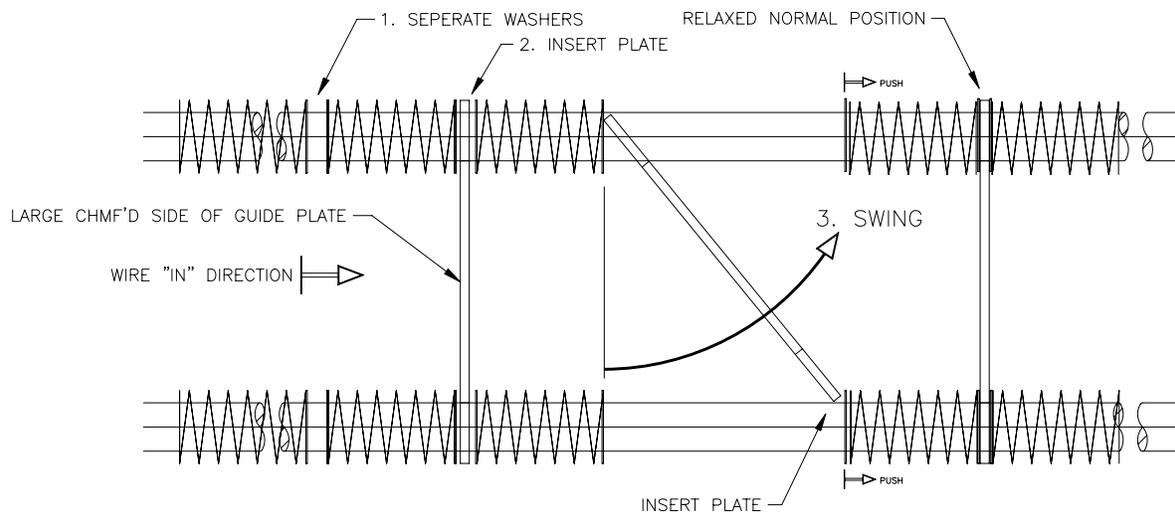
Step 2. Separate the first set of washers and insert one end of a new plate so that the cutout portion slips over the shaft and between the washers.

Step 3 Separate the corresponding washers on the other shaft and pull them apart far enough to swing the other end of the guide plate between the shafts and slip the cutout end of the plate over the shaft. (fig. 1)

Step 4. Release the springs, washers and guide plate.

The result should be a washer on each side of the accumulating guide plate backed by a spring. (fig. 1)

Fig. (1)





TAK Feed & Cut-off System

Optional Fine Adjustment Device

The Fine Adjustment Device (**FAD**) will be installed at the factory and is only available on the series #02 TAK SF&C system.

The **FAD** allows the user to more precisely set the cut length tolerance “band” on the series #02 SF&C system.

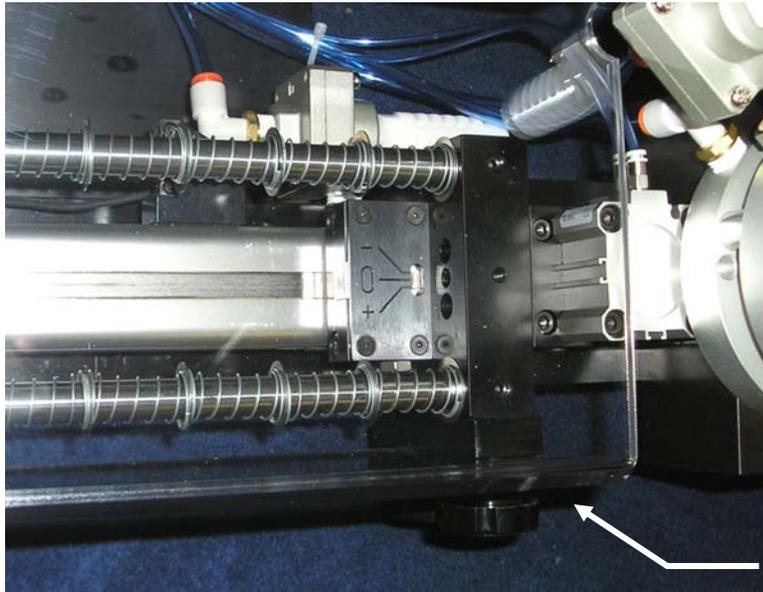
Step 1: Set the cut length to as precise a setting as possible using the proscribed method as set forth in the “Adjusting the Length” section of the setup procedures. This means that the **FAD** should be set at zero and your length setting is within .010” of the nominal length you desire.

Step 2: Set the output speed of the system to slow amount so that not too many cut pieces are made during the **FAD** adjustment process.

Step 3: Measure the cut length of your pieces. Depending on the desired “direction” within the tolerance bell curve that you wish to have the cut length fall within simply turn the “adjustment screw” either “in” to increase the cut length or “out” to shorten the cut length. Each ¼ turn of the “adjustment screw” is equal to about .0002” (0.025mm).

Step 4: Let the system make a few cuts to ensure that it has “steadied out” on that setting before checking the cut length. Always “walk” the adjustment in the direction you wish to achieve. A forward and then backward adjustment is not recommended to achieve a repeatable cut length value.

Step 5: Repeat steps 3 & 4 until the desired repeatability is obtained.



*Adjusting
screw located
on this side*



System Alarms

General Notes – Alarm Types - Resetting - Alarm History

All TAK SF&C units have alarm capabilities. Some of the alarms and related historical information are only available if the TAK **Production Performance Package** option was purchased. See section # 4 for a description of this option. The system alarms provide information to the operator, shift supervisors, and maintenance personal regarding the on-going performance of the system

Much of the alarm information allows the operator to quickly diagnose a system problem that has caused the unit to cease operations. Some of the alarm history information can be reviewed by both the operator and supervisor to determine proficiency with the system operation, set-up, and problem resolution. Additionally, some of the alarm history information can be applied to “cause and effect” studies like machine down time due to loss of air. Lastly, alarm information in conjunction with maintenance count values will assist the maintenance personnel in the performance of their duties.

| Alarm Count | | |
|-------------|-----|-----------|
| Alarm No | Cnt | Message |
| 1 | 1 | Message-1 |
| 2 | 2 | Message-2 |
| 3 | 3 | Message-3 |
| 4 | 4 | Message-4 |
| 5 | 5 | Message-5 |
| 6 | 6 | Message-6 |
| 7 | 7 | Message-7 |

| | | | |
|----------------|------------------|------------------|--------|
| ALARM RESET | ALARM SILENCE | ALARM HISTORY | RETURN |
|----------------|------------------|------------------|--------|

Fig 3

Alarm Types:

Alarm types fall into two general categories. The first deals with the basic TAK feed and cut system. The second deals with integrated ancillary equipment or system inputs.

Type I Alarms

-  Wire out or no wire.
-  Safety Cover not attached
-  Cut home
-  Cut away
-  Feed home
-  Feed away

Type II Alarms

-  Low Air
-  Remote Item Error



Resetting:

When an alarm is activated the message appears on the bottom of all display screens with the exception of the “*Alarm History*” and the “*Alarm Details*” screens. The alarm message remains displayed until the “*Alarm Reset*” section of the screen is touched. The alarm will not reset unless the problem is resolved first then the reset button pushed on the screen.

| RUN SCREEN | | | |
|---------------------------|---------------------------------|---|--------|
| <u>SKIP PRESET</u> 123 | <u>PART PRESET</u> 123 ,123 | <u>RUN ACTUAL</u> PARTS 123 ,123 TOTAL 123 ,123 | |
| <u>SPEED PPM</u> 1234 | <u>BATCH PRESET</u> 123 ,123 | <u>BATCH ACTUAL</u> 123 ,123 | |
| START | ALARM RESET | PAUSE | RESUME |
| STOP | ALARM SILENCE | EDIT | MAIN |
| SEQ 0 NOT READY S 123 | | | |

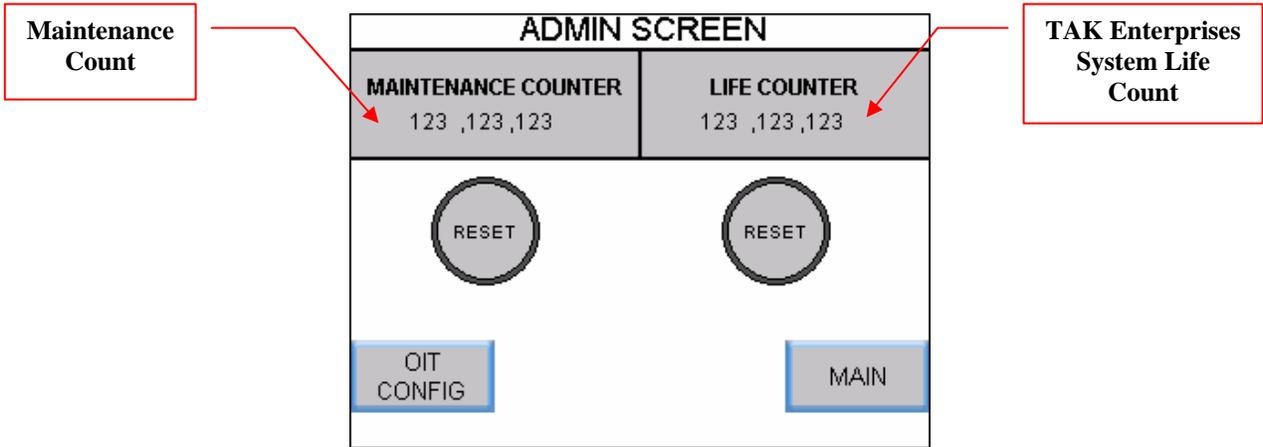
Fig 4

Alarm Message
Displayed Here

Maintenance:

The complete system is designed to operate on clean dry un-lubricated air. Always keep the *Feed and Cut System* moving components clean and lightly oiled. Keep the *traveling quill block* greased. And if you have a *Precision Wire Straightener*, please keep all moving parts clean and lightly oiled.

The system has, as part of its software program, an admin screen that displays a re-settable maintenance counter. This counter allows the user to establish a number of cut cycles, depending on their application, they wish to use as a targeted maintenance value. This number is password protected and has a maximum value of 999,999,999. When reset the counter returns to zero and the count value is once more monitored by the software and identifies, via the touch screen, when this value is reach again. There is a system life count value which is not accessible by anyone other than TAK Enterprises Inc.



Disclaimer



TAK Enterprises Inc. assumes no responsibility for neither injury of person or product or any liability resulting from the purchase of products sold with the intention of modifying or attaching to existing equipment. Any equipment modified from the original configuration stated on the purchase order or considered as modified configuration by TAK Enterprises Inc. will not be covered by any guaranty of operation or function. Any support for the modified equipment will be determined by TAK Enterprises Inc. on an individual incident basis.



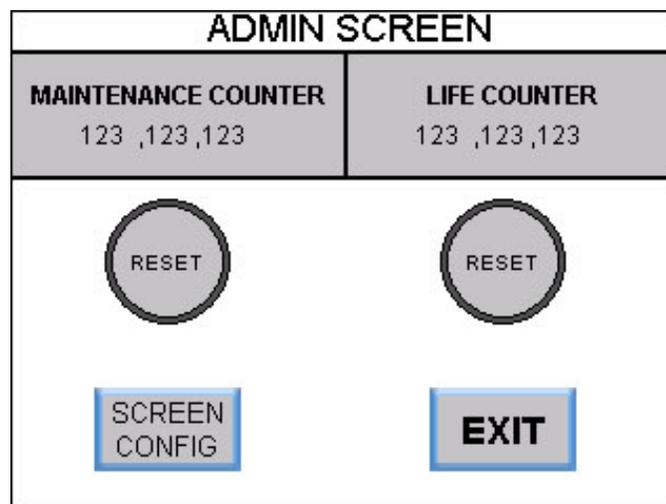
System Screens

TAK Intro Screen:



When the system starts up this will be the first screen showing. From this screen you will be able to access Administration functions, System running functions, System alarm information and the Program running section. To access any of the screens from here just touch the appropriate screen button. If the screen you are trying to access is password protected you will be shown a keypad to enter the code. **The Supervisory password is 3333.**

TAK Admin Screen:



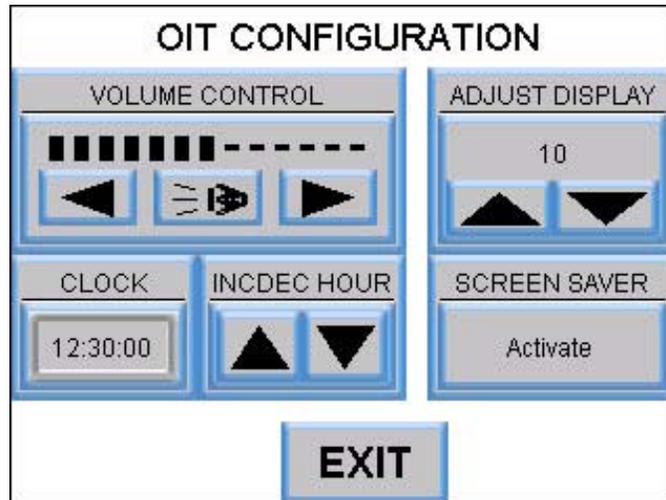
From the Main TAK Intro screen a “Supervisory” password will be necessary to access this screen.

Maintenance Count Reset; A “Supervisory” password will be necessary to reset this counter. This counter can be used to track any system maintenance feature you wish to track based on parts produced.



System Screens

Life Count Reset; A “Factory Only” password is necessary to reset this counter.
OIT/Screen Configure; A “Factory Only” password is necessary to access this feature.



Exit; Returns you the Main TAK Intro screen.

System Alarm Screens:

| Alarm Count | | |
|-------------|-----|------------------|
| Alarm No | Cnt | Message |
| 1 | 0 | SAFETY DOOR OPEN |
| 2 | 0 | AIR PRESSURE LOW |
| 3 | 0 | WIRE OUT |

ALARM HISTORY

ALARM RESET AUDIBLE SILENCE EXIT

On this screen you can view the last (3) alarm conditions and the # of times that the specific alarm has been triggered.

System Screens

If an alarm is active this will be shown on the screen. This “Alarm Present” pop-up will show on all system screens if an alarm condition is detected. Touching “OK” will remove the pop-up if the condition has been fixed or it will return after a few seconds if the condition is still present. The actual alarm description will be shown in the lower left portion of the screens to make identification of the problem easier to detect.



Alarm History; Touching this button will open the alarm history screen where all un-cleared alarm events can be viewed.

| Alarm History | | Total of 6 Alarms | |
|---------------|----------|-------------------|---------|
| Entry No | Alarm No | Message | Confirm |
| 1 | 2 | AIR PRESSURE LOW | |
| 2 | 3 | WIRE OUT | |
| 3 | 6 | FEED NOT HOME | |
| 4 | 1 | SAFETY DOOR OPEN | |
| 5 | 7 | FEED NOT AWAY | |
| 6 | 5 | CUT NOT AWAY | |

Alarm Coun Page Up Page Down Line Up Line Down Details Clear All Exit

The touch buttons along the bottom edge will bring you to the screens as described for viewing or actions you wish to initiate.



System Screens

Alarm Detail; Touching this button will open the alarm detail screen where the chosen alarm event can be viewed in detail.

| Alarm History Details | |
|-----------------------|----------------------|
| Entry No: | 1 |
| Message: | AIR PRESSURE LOW |
| Activated: | 05-JAN-2007 12:50:13 |
| Cleared: | |
| Actual Value: | On |
| High/Low/Dis: | Discrete |
| Low: | |
| High: | |
| Confirm Cleared: | |

Prev Next Confir m Exit

Alarm Count; Touching this button will open the alarm count screen where the alarm events can be viewed based on the number of occurrences.

| Alarm Count | | |
|-------------|-----|------------------|
| Alarm No | Cnt | Message |
| 1 | 1 | SAFETY DOOR OPEN |
| 2 | 1 | AIR PRESSURE LOW |
| 3 | 1 | WIRE OUT |
| 4 | 0 | CUT NOT HOME |
| 5 | 1 | CUT NOT AWAY |
| 6 | 1 | FEED NOT HOME |
| 7 | 1 | FEED NOT AWAY |
| 8 | 0 | SNAGGED |

Alarm Page Page Line Line Clear Clear Exit
Histo Up Down Up Down All



System Screens

System setup screen;

For explanation of operation of each timer, Please see the appropriate section of the Screen and Operational information/explanations. This screen is supervisory password protected.

| SETUP SCREEN | | | |
|-----------------------------------|-----------------------------------|------------------------------------|------|
| T01 PRESET R GRIP ON 12345 | T02 PRESET F GRIP ON 12345 | T03 PRESET BAND ON 12345 | |
| T04 PRESET F GRIP OFF 12345 | T05 PRESET R GRIP OFF 12345 | T08 PRESET BAND OFF 12345 | |
| CUT TYPE SELECT TIMED | T06 PRESET D'WELL CUT 12345 | T10 PRESET BATCH DELAY 12345 | EXIT |

Cut Select; Touching this button will give the option of a sensor controlled cut action or the default time based cut.

T06 Preset Select; Touching this button will open a keypad to enter the cutter time for the default time based cut.

System Run Screen;

This screen is the main monitoring screen to run or view the system operation.

| RUN SCREEN | | | |
|---------------------------|---------------------------------|---|--------|
| <u>SKIP PRESET</u> 123 | <u>PART PRESET</u> 123 ,123 | <u>RUN ACTUAL</u> PARTS 123 ,123 TOTAL 123 ,123 | |
| <u>SPEED PPM</u> 1234 | <u>BATCH PRESET</u> 123 ,123 | <u>BATCH ACTUAL</u> 123 ,123 | |
| START | ALARM RESET | PAUSE | RESUME |
| STOP | ALARM SILENCE | EDIT | MAIN |
| SEQ 0 NOT READY S 123 | | | |

Skip Preset; This is a “view only” indication of how many skips were preset in the program setup on the edit screen.

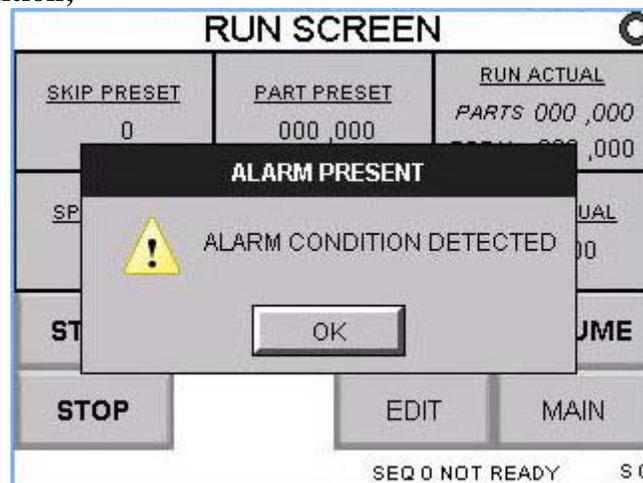


System Screens

- Part Preset;** This is a “view only” indication of how many parts were preset in the program setup on the edit screen.
- Run Actual Parts;** This is a “view only” indication of how many parts have been made in the current batch.
- Run Actual Total;** This is a “view only” indication of the total parts that have been made in the current job.
- Speed;** This is a “view only” indication of the parts per minute that the system is producing at the current settings.
- Batch Preset;** This is a “view only” indication of how many batches were preset in the program setup on the edit screen.
- Batch Actual;** This is a “view only” indication of how many batches have been made in the current run.
- Start;** This initiates the system to run.
- Stop;** This will Stop the system. For detailed information, please see the “Cause & Effect” section of this manual.
- Alarm Reset;** This button will clear/reset an alarm condition.
- Alarm Silence;** This button will silence the audible alert if the system has this option.
- Pause;** This will pause the system. For detailed information, please see the “Cause & Effect” section of this manual.
- Edit;** This button will bring you to the edit screen where you can set the parameters for the job/run.
- Resume;** This will resume the system. For detailed information, please see the “Cause & Effect” section of this manual.
- Main;** This button will bring you to the Main intro screen.
- Clear;** By momentarily pressing this button it will clear the “Run Actual” parts count. By holding this button for more than 5 seconds it will clear the “Total” and the “Batch Actual” also.

Reference Screen Shots;

View with alarm condition;



System Screens

View while normal running condition;

| RUN SCREEN | | |
|---------------------------|---------------------------------|---|
| <u>SKIP PRESET</u> 123 | <u>PART PRESET</u> 123 ,123 | <u>RUN ACTUAL</u> PARTS 123 ,123 TOTAL 123 ,123 |
| <u>SPEED PPM</u> 1234 | <u>BATCH PRESET</u> 123 ,123 | <u>BATCH ACTUAL</u> 123 ,123 |
| | | PAUSE RESUME |
| STOP | EDIT MAIN | |

View with cleared alarm pop-up condition;

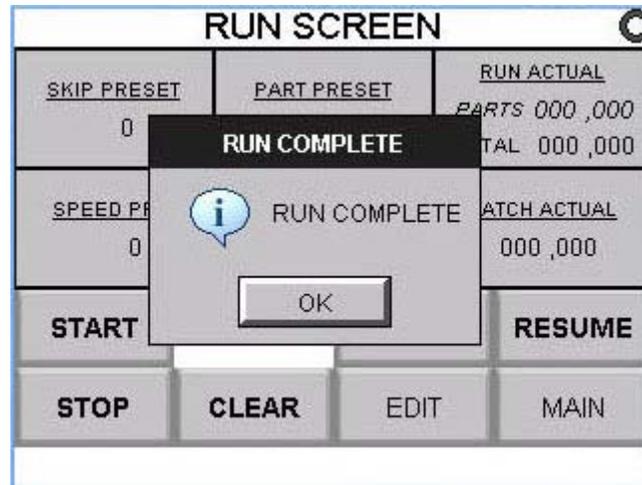
| RUN SCREEN | | | |
|-------------------------|---------------------------------|---|-------------|
| <u>SKIP PRESET</u> 0 | <u>PART PRESET</u> 000 ,000 | <u>RUN ACTUAL</u> PARTS 000 ,000 TOTAL 000 ,000 | |
| <u>SPEED PPM</u> 0 | <u>BATCH PRESET</u> 000 ,000 | <u>BATCH ACTUAL</u> 000 ,000 | |
| START | ALARM RESET | | |
| STOP | ALARM SILENCE | EDIT | MAIN |
| SEQ 0 NOT READY S 0 | | | |

View with system paused condition;

| RUN SCREEN | | | |
|-------------------------|--|---|---------------|
| <u>SKIP PRESET</u> 0 | <u>PART PRESET</u> | <u>RUN ACTUAL</u> PARTS 000 ,000 L 000 ,000 | |
| <u>SPEED PP</u> 0 | | <u>CH ACTUAL</u> 000 ,000 | |
| START | MACHINE PAUSE i MACHINE PAUSED OK | | RESUME |
| STOP | CLEAR | EDIT | MAIN |
| SEQ 0 NOT READY S 0 | | | |

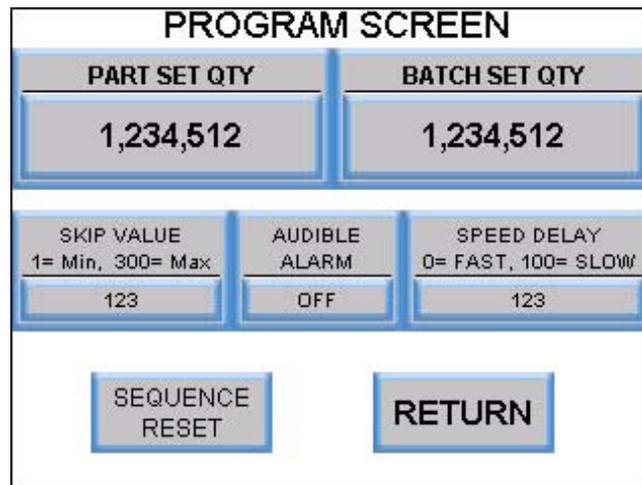
System Screens

View with run complete condition;



System Edit/Program Screen;

This screen is where the presets for parts, batch and skip quantities are entered. The machine speed factor can be entered here. The only entry on this screen that can be changed during operation is the speed delay.



- Audible Alarm;** If the system is equipped, the audible alarm can be turned on or off for use during the job being setup.
- Sequence reset;** This button will clear all counts and reset the system to the beginning of the program run.
- Return;** This button will return you to the run screen.



System Screens

Part quantity entry; By touching the number section on the part set quantity section of the screen, a keypad will popup. Enter the desired quantity to produce and touch enter.

Batch quantity entry; Is entered the same as the part quantity entry.



Screen and Operational information/explanations.

ERROR Messages: (Some features apply to optional equipment)

But not limited to the following;

1. Wire out.
2. Feed not Home.
3. Feed not Away.
4. Cut Fail. (Optional equipped)
5. Loss of Air. (Optional equipped)
6. Snag on De-Coil. (Optional equipped)
7. Remote device Error. (Optional equipped)
8. System Timeout Error.
9. Safety Cover Missing.

Stack Light Sequence: (Only with optional “Pro-Pack”)

| | |
|---------------------------------|----------------------------------|
| RED (Steady)..... | System Idle/Sitting |
| GREEN (Steady)..... | System Running |
| GREEN/AMBER (Alternating) | System Paused |
| AMBER/RED (Alternating) | System Error Paused |
| Audible Alert (Pulsing)..... | System Error Paused (If enabled) |
| AMBER (Flashing)..... | End of Job |

Timers;

- 01Rear grip energize to Front grip energize
- 02Front grip energize to Band cylinder energize
- 03Band cylinder energize to Front grip de-energize
- 04Front grip de-energize to Rear grip de-energize
- 05Rear grip de-energize to Band cylinder de-energize
- 06Cut cylinder energize to cut cylinder de-energize
- 07Speed delay timer
- 08Rear Home Sensor to Rear grip energize
- 09Cut cylinder de-energize to rear grip de-energize
- 10End of batch to start of next batch.

Description of some terms and operational guidelines;

- Life count**.....The total # of cut cycles produced on the machine since manufacture or rebuild.
.....*Reset by TAK only.*
- Maintenance count**.....A re-settable counter showing the # of cut cycles since the last manual admin re-set.
.....*Admin reset.*
- Dwell timers**.....System timers used to delay PLC actions to compensate for air movement.
.....*Admin reset.*
- Timed cut**.....The choice of using a set dwell time in milliseconds for the cut actuation.
.....Operator job setup.
- Sensor cut**.....The choice of using actual positional sensors for the cut actuation.
.....Operator job setup.
- Sonic Alarm**.....Audible alarm switching for “On or Off”.
.....Operator job setup.
- Batch mode cut**.....A cutting mode where the operator can choose the number of batches to cut.
.....Operator job setup.
- Batch mode clear**.....To clear the count in a currently running batch, to start the current batch over.
.....Operator run mode.



Screen and Operational information/explanations.

Single lot modeA cutting mode where the operator can choose the total number of parts to cut.
.....Operator job setup.

Batch numberThe operator will choose the number of batches to cut in a job.
.....Operator job setup.

Batch run quantityThe operator will choose the number of parts to cut in each batch.
.....Operator job setup.

Job quantityThe operator will choose the total number of parts to cut in the current job.
.....Operator job setup.

Skip valueThe number of feed strokes before a cut cycle.
.....Operator job setup.

StartTo start running in pre determined operational mode.

Pause/StopTo suspend running of a job for any reason other than a complete job restart.

ResumeTo resume running after clearing an error or a pause command.

System Reset !!To stop all job functions and clear all part count displays.

Neutral / System Startup condition:

- 1) All valves non-energized.
- 2) Rear sensor engaged.
- 3) Cover Safety engaged.
- 4) Counter set or reset.
- 5) Band cylinder slide w/gripper body in the rearmost position.
- 6) Front gripper, holding stock.

This condition puts air pressure on the main band cylinder forcing it to the rear (away from the cutter end), the cut-off cylinder to the retract position, the front gripper cylinder in the engaged (gripping) position, the traveling gripper cylinder in the retract (open) position.



Screen and Operational information/explanations.

SF&C CONTROL CAUSE & EFFECT

1. *RUNNING SINGLE STROKE PARTS;*

PAUSE CONDITION = STAYS IN SEQUENCE & STOPS @ NEXT FEED “HOME”.
 STOP CONDITION = IMMEDIATE STOP & RESET TO “STAND-BY”.
 COUNT ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED .

2. *RUNNING SKIP MULTIPLE STROKE PARTS;*

PAUSE CONDITION = STAYS IN SEQUENCE & STOPS @ NEXT FEED “HOME”.
 STOP CONDITION = IMMEDIATE STOP & RESET TO “STAND-BY”.
 COUNT ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED.
 SKIP ACTUAL = AUTOMATIC “CLEAR” ON STOP CONDITION.

3. *RUNNING SINGLE STROKE PARTS IN BATCH MODE ;*

PAUSE CONDITION = STAYS IN SEQUENCE & STOPS @ NEXT FEED “HOME”.
 STOP CONDITION = IMMEDIATE STOP & RESET TO “STAND-BY”.
 COUNT ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED.
 BATCH ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED.
 CURRENT BATCH COUNT = MANUAL “CLEAR” REQUIRED IF DESIRED.

4. *RUNNING MULTIPLE STROKE PARTS IN BATCH MODE ;*

PAUSE CONDITION = STAYS IN SEQUENCE & STOPS @ NEXT FEED “HOME”.
 STOP CONDITION = IMMEDIATE STOP & RESET TO “STAND-BY”.
 COUNT ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED.
 BATCH ACTUAL = MANUAL “CLEAR” REQUIRED IF DESIRED.
 CURRENT BATCH COUNT = MANUAL “CLEAR” REQUIRED IF DESIRED.
 SKIP ACTUAL = AUTOMATIC “CLEAR” ON STOP CONDITION.

| ERROR | CONDITION | CHOICES | CONTINUE |
|---------------|------------------|----------------|-----------------|
| SAFETY COVER | STOP | REPAIR | START |
| AIR LOSS | STOP | REPAIR | START |
| WIRE OUT | PAUSE | REPAIR, STOP | RESUME/ START |
| CUT NOT HOME | STOP | REPAIR | START |
| CUT NOT AWAY | STOP | REPAIR | START |
| FEED NOT HOME | STOP | REPAIR | START |
| FEED NOT AWAY | STOP | REPAIR | START |
| SNAG FAULT | PAUSE | REPAIR, STOP | RESUME/ START |
| REMOTE FAULT | PAUSE | REPAIR, STOP | RESUME/ START |



Screen and Operational information/explanations.

PLC and Operational information explanations.

Micrologix Inputs; (Some features optional equipped)

| | | | |
|----|------------------|--------------------|------------------|
| I0 | Control power | NPN/dry contact NO | system sensor |
| I1 | Safety Cover | NPN/dry contact NO | system sensor |
| I2 | Min air pressure | NPN/dry contact NO | third party unit |
| I3 | Wire out | NPN/NO | system sensor |
| I4 | Cut home | NPN/NO | system sensor |
| I5 | Cut away | NPN/NO | system sensor |
| I6 | Feed home | NPN/NO | system sensor |
| I7 | Feed away | NPN/NO | system sensor |

Micrologix Remote System inputs; (Some features optional equipped)

| | | | |
|--------|---------------------|--------------------|-------------------|
| I8 | Snag Sensor | NPN/dry contact NO | third party unit |
| I9 | Spare | NPN/dry contact NO | remote activation |
| AUX I0 | Remote Start | NPN/dry contact NO | remote activation |
| AUX I1 | Remote Stop | NPN/dry contact NO | remote activation |
| AUX I2 | Remote Pause | NPN/dry contact NO | remote activation |
| AUX I3 | Remote Resume | NPN/dry contact NO | remote activation |
| AUX I4 | Remote Device Error | NPN/dry contact NO | remote activation |
| AUX I5 | Batch Handshake | NPN/dry contact NO | remote activation |
| AUX I6 | Loop Pause | NPN/dry contact NO | remote activation |
| AUX I7 | Loop Resume | NPN/dry contact NO | remote activation |

Micrologix Outputs; (Some features optional equipped)

| | | | |
|--------|---------------------------|----|----------|
| O0 | Spare | | |
| O1 | Rear grip valve | NO | SS RELAY |
| O2 | Front grip valve | NO | SS RELAY |
| O3 | Band cylinder valve | NO | SS RELAY |
| O4 | Cut cylinder valve | NO | SS RELAY |
| O5 | “Red” Light Stack/error | NO | SS RELAY |
| AUX O0 | “Green” Light Stack/error | NO | SS RELAY |
| AUX O1 | “Amber” Light Stack/error | NO | SS RELAY |
| AUX O2 | “Sonic” Alert Stack/error | NO | SS RELAY |
| AUX O3 | Close @ Cycle Start | NO | SS RELAY |
| AUX O4 | Close During Cycle run | NO | SS RELAY |
| AUX O5 | Close @ Batch End | NO | SS RELAY |
| AUX O6 | Spare | | |
| AUX O8 | Spare | | |



SHARPENING & SETTING PROCEDURES FOR QUILL ON QUILL Straighten, Feed & Cut Off Machine

NOTE: Wire hole cutting edge, and any surface leading to wire hole cutting edge should be free of all tool marks and/or grinding lines. (Figures 1, 2)

Step 1: *Grind Traveling Quill(#56)*

Grind end (A) of Quill (opposite wire lead side) flat and perpendicular to body (B) within .0002. Remove enough material to clean and acquire sharp edge for the full diameter of the wire hole. See Fig #1

NOTE: After grinding, surface (A) must be lapped to ensure longevity. (Step 3)

Step 2: *Grind Stationary Quill(#12)*

Grind end (A) of quill (opposite wire exit side) flat and perpendicular to body (B) within .0002. Remove enough material to clean and acquire sharp edge for the full diameter of the wire hole. See Fig #1

Step 3: *Lapping Procedure*

- a. Use diamond lapping compound to remove all grinding lines.
- b. Radius break the wire hole cutting edge approx. .002 **for hard wire only.**

Quill on Quill Setting Procedure

Step 1: *Stationary Quill (#12)*

Set *stationary quill* (#12) with surface (A) (Fig 1) flush to surface (B). (Fig 2) Do not extend above surface (B).

Step 2: *Traveling Quill (#56)*

Set *traveling quill* (#56) with surface (A) (Fig 1) flush or below the quill block surface (D). (Fig 3) Do not extend out from surface (D).

NOTE: Properly set quills should have clearance between surface (A) on *stationary quill* (#12) and surface (A) on *traveling quill* (#56) dependent on the wire type and hardness.

Illustration:

**Cut-off quill cutting face.
Lap smooth to remove any
grinding marks for extended life.**

Fig. #1

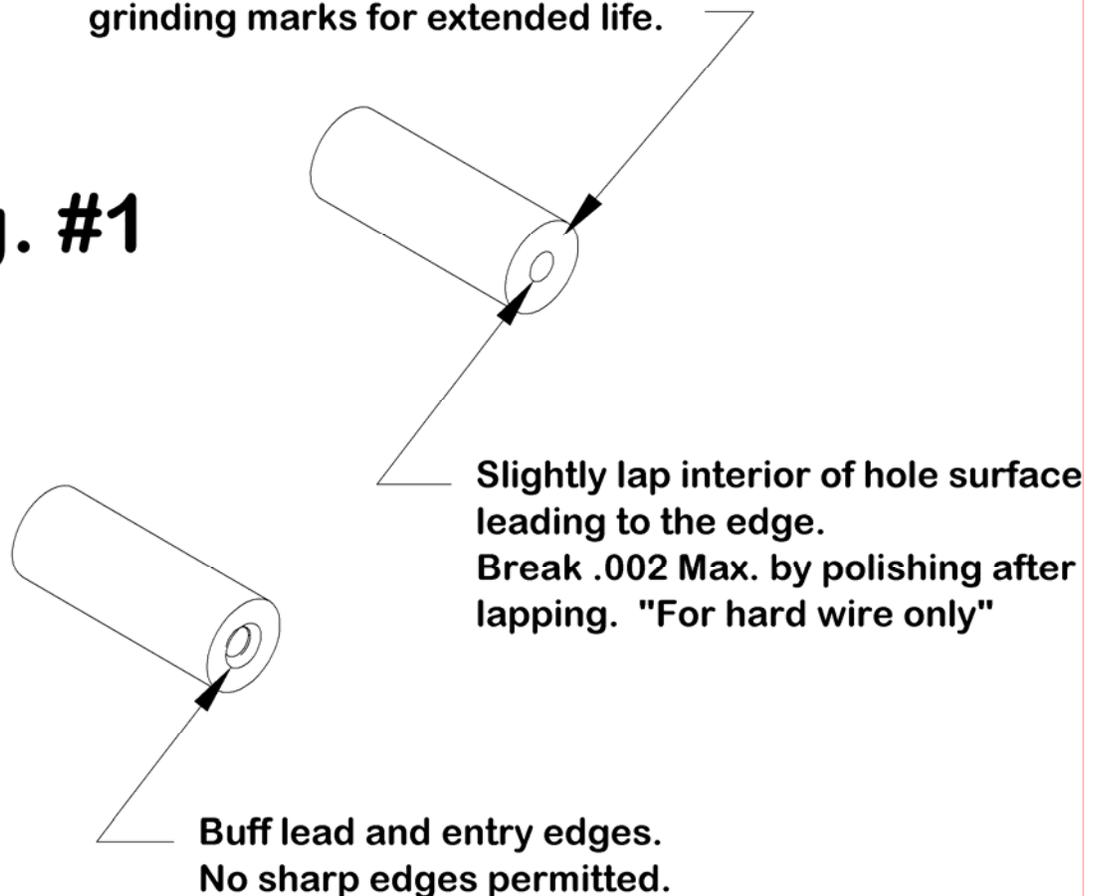


Illustration:

FIG. #2
CUTTER BODY

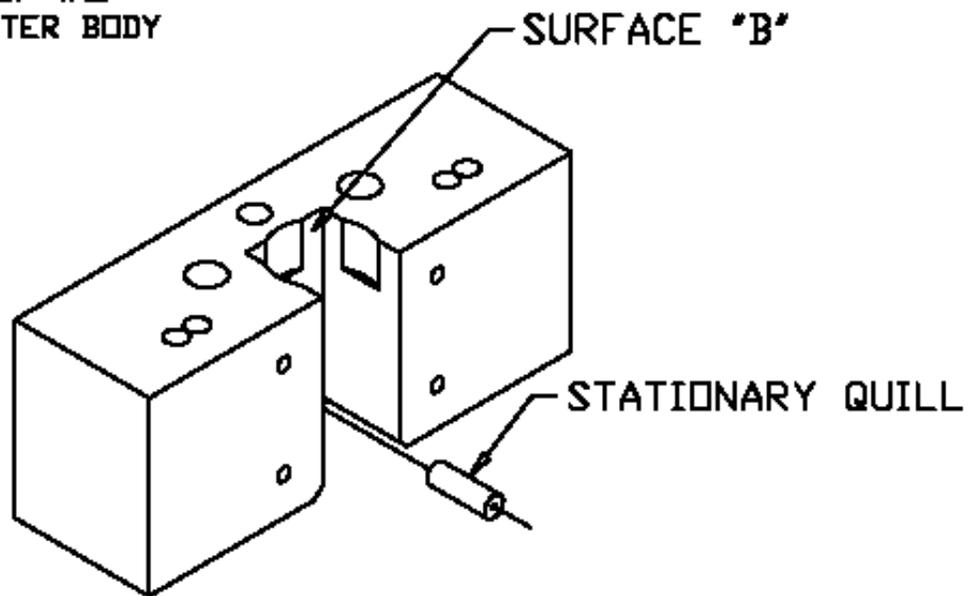
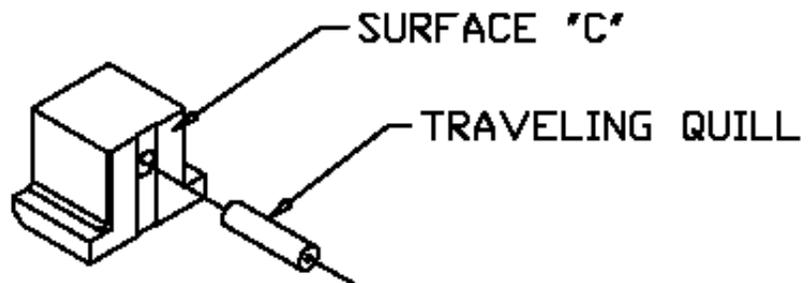


FIG. #3
TRAVELING
QUILL BLOCK





Installation/Sharpening of square quills:

If your purchased unit was ordered with square quills or you have added this option to an existing machine, the following instructions and included drawings will guide you thru the removal, sharpening & replacement of the quill sets.

ATTENTION: Remove the air supply and shut off the power to the unit. The following instructions make reference to item numbers shown in drawings in the user manual and this addendum.

DISASSEMBLY:

1. Remove the (2) screws holding the cutter cylinder (#28) to the cutter body (#25).
2. Lay the cylinder to the side out of the way. There is no need to disconnect the air lines from the cylinder.
3. Remove the (2) screws holding the cutter body assembly to the base (#20).
4. You will observe that the gas spring (#21) under the cutter assembly will push the assembly up appr. .06 from the seated position, this is normal.
5. Remove the cutter arm cover (#26) from the cutter body.
6. Remove the cutter quill body block (#23) from the cutter body.
7. Remove the stationary quill (#30) from the cutter body.
8. Remove the traveling quill (#22) from the quill body block.

SHARPENING:

The cutting quills are marked and are different lengths. The stationary quill will have the smaller wire hole and will be shorter in length than the traveling quill. One face is closer to the alignment pin, this face will be the cutting end and the other will have a tapered entry or exit depending which quill is being sharpened.

When sharpening the cutting quills be sure to keep the alignment pin in its groove and the (2) halves square and aligned in a “V” block or other fixture.

1. Grind the cutting face until the worn/dull section of the shape is gone.
2. Lap the face of the quills until the surface is smooth and grind lines are gone.
3. Use a small piece of brass or wood with fine lapping compound and very lightly remove the sharp edge around the shape or hole.

RE-ASSEMBLY:

Please refer to the enclosed addendum drawing.

1. Orient the quills so that the (2) halves are on top and bottom.
2. Place the stationary quill into the cutter body with the just sharpened face (#1) extended into the groove shown as (#2) then adjusted as follows.
3. The face of this quill **must be placed flush** with the inside surface of (#2) and tightened into place. A block or a dial indicator placed in this groove can be used to assure that the quill is not sticking out or depressed below the surface.



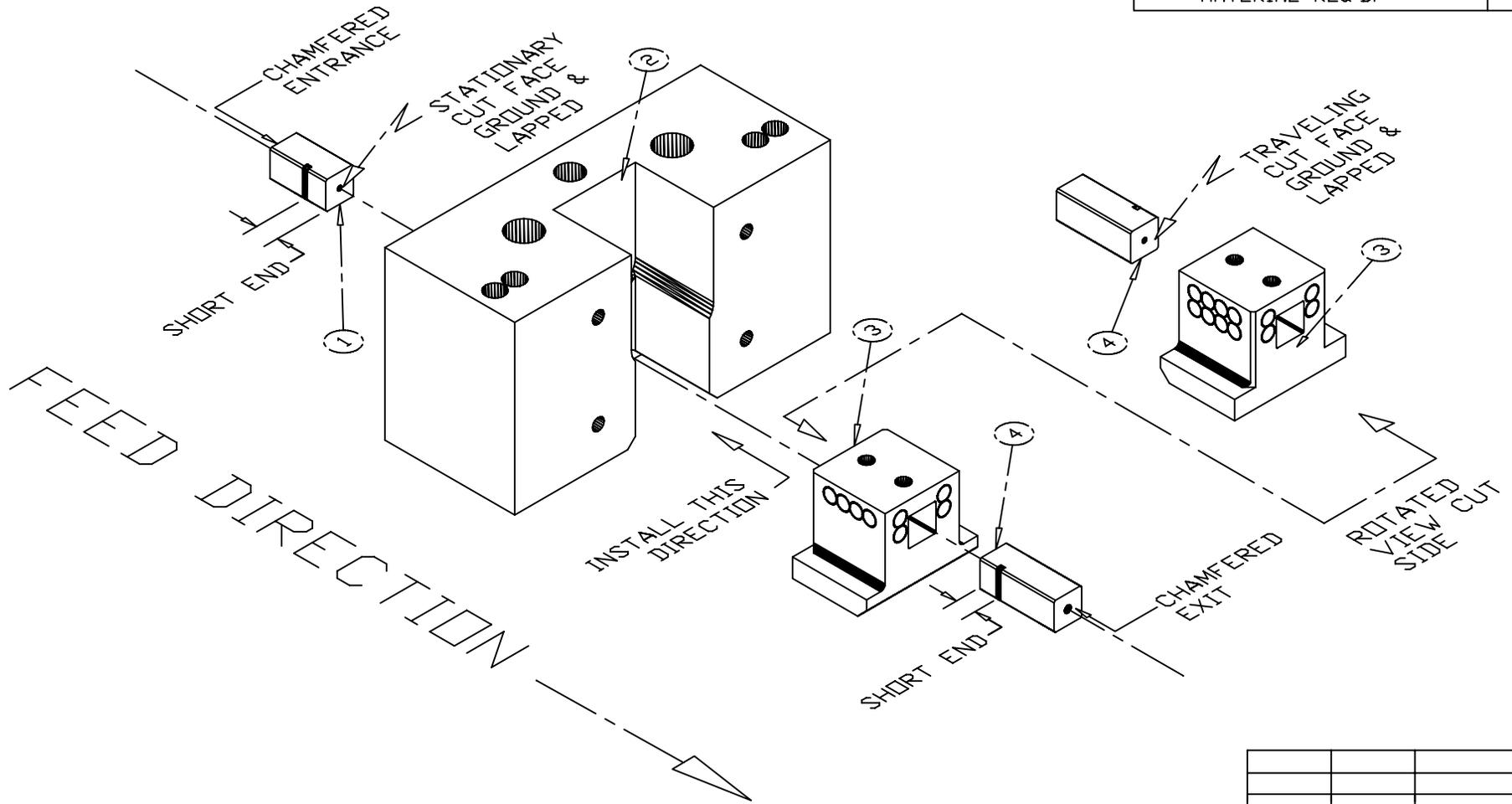
Installation/Sharpening of square quills:

4. Place the traveling quill into the quill body block with the just sharpened face (#4) extending out past face (#3) this face is also identified by the chamfers on (2) of the vertical edges.
5. This is the quill that needs be adjusted to provide the correct amount of clearance to achieve the “break” required for the material being cut. This clearance value will have to be determined by the operator by experimentation. The correct value will give a cut with a clean square surface with no burr. If the clearance is set too tight, tool edge life will be shortened and if set too large the material will have burrs or not cut off correctly.
6. The best method of setting this clearance is to use a dial indicator that has a resolution of .0001 inch.
7. Place the quill body block on a surface plate or other suitable surface with the face (#3) facing up.
8. Indicate the face (#4) of the quill and place it below the face (#3) a predetermined amount that was recorded previously or at a point you wish to use to evaluate a cut.
9. Slide the quill body block back into the groove shown as (#2) with the sharpened faces of the quills facing each other.
10. Replace the cutter arm cover.
11. Place the cutter assembly back over the gas spring and tighten in place.
12. Replace the cut cylinder and tighten in place.
13. Re-initialize the unit and proceed making trial cuts to verify cut quality.

This instruction is very similar across the complete SF&C line of machines, independent of the quill or material shape or size.

MATERIAL REQ'D.

R.C.



| | | | |
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| | TOLERANCE UNLESS OTHERWISE STATED | | CAD | DRAWING / PART NO. |
| | ∇ $\pm 3^\circ$ \perp ± 0.0003 \odot ± 0.0002 \oplus ± 0.0005 \equiv ± 0.0005 | FRACT +/- 1/16 .X $\pm .032$.XX $\pm .015$.XXX $\pm .005$.XXXX $\pm .0005$ | DWN | PART NAME |
| | | | CHK | CUSTOMER |
| | | | SCALE | |
| | | | DATE | |



Frequently Asked Questions

Q. If I have various applications that encompass different types of materials to be fed and cut do I need another machine to do this?

A. *No. The cassette tooling design of the TAK SF&C system allows for the replacement of all the tooling components. The tooling can be fabricated using many different materials and / or processes to accommodate just about any stringent application needs.*

Q. If my application parameters go beyond a particular operation range of one of the SF&C series does that mean that I must purchase two different systems?

A. *Not necessarily. Typically the series with the larger size capability can employ smaller sized tooling to run a smaller size material.*

Q. What type of cutting application is best suited for a servo-based system as opposed to the pneumatic type?

A. *Usually the two main differences are price and performance. A servo system can produce any cut length but is best used for very long cut lengths if speed is important. Secondly servo systems typically employ more sophisticated controls and usually have very easy "key in" set-up and control panels. The pneumatic style systems are still considered the best for high speed, close tolerance, short length application. The pneumatic styles are very reliable and usually cost less.*

Q. What is the maximum length the machine can run?

A. *Our standard machine has a maximum 12" stroke, but it is capable of feeding multiple times before the cut off action occurs. It can feed up to 300 strokes before the wire is cut.*

Q. Can my system which is set up for round material be able to straighten something like a hex shape?

A. *The TAK SF&C systems can be easily re-configured to accommodate various shapes of material to include square, hex, "D", rectangular, triangular is a simple adjustment; loosen four screws and move the rear stop to the desired length.*

Q. Will I still need a 12" machine when my part length is never over 4"?

A. *No, the TAK series #02 & #03 SF&C systems are available in several standard stroke lengths. The series #02 is available in a ¼", 3", 6" and 12" stroke length. The series #03 is not available in a ¼" stroke length. Usually the shorter stroke system will provide a little faster production rate than the 12" stroke unit on smaller length parts.*

Q. What types of options and configurations are available on the TAK feed and cut-off systems?

A. *The TAK feed and cut-off systems can be fitted with many special items & options. Call to discuss yours.:*

-  Overseas power requirements
-  Process line interface with remote mounting of controller
-  Motorized wire payoffs / de-coilers
-  Customized simple end forming stations
-  Cut piece collection and packaging
-  Wire straighteners, Cleaner / Lubricators, Fine Adjustment Device, etc. See section #4 for some standard items.



Basic Troubleshooting List.

This list is intended to guide you to some common solutions and all the following checks should be read and or tried prior to contacting technical support. The proper function of this machine depends upon, but not limited to, the following (4) categories. **NOTICE:** *Any attempt to access or modify inner components or modify the operation of the basic machine without the express consent or direction of technical support will result in restrictions stated in the disclaimer shown elsewhere in this manual.*

Basics: *Before proceeding check the following primary items first.*

- ✚ Check the touch screen for any error messages first. Correct identified problems.
- ✚ Check to ensure that proper tooling items & sizes correctly correspond to the application attempting to be run.
- ✚ Check for proper electrical connection and power values.
- ✚ Check that all components are in their proper place, orientation, and secured correctly.
- ✚ Check to ensure that any integrated ancillary items are all running properly.

Pneumatics:

Q: Will the machine make a complete cycle ?

A: 1. Check for proper air supply and recommended 80 PSI pressure.

Q: Where in the cycle does the machine stop ?

A: 1. Check that all components are in their proper place and secured correctly.
2. Check for binding in the machine or on the wire line.
3. Check for proper sensor operation by referring to electrical section.

Q: Does the machine cycle but not cut.?

A: 1. Check for proper air supply and recommended 80 PSI pressure.
2. Manually check the function of the cut-off cylinder air valve by depressing the small button located on the valve.

Q: Does the machine cycle but not feed.?

A: 1. Check for proper air supply and recommended 80 PSI pressure.
2. Manually check the function of all the air valves by depressing the small button located on each valve.
3. Check for proper gripper operation by referring to mechanical section.

Q: Does the machine feed correctly for the first few pieces then feed erratic?

A: 1. Check for proper air supply and recommended 80 PSI pressure.
2. Check and increase supply air line size if necessary.
3. Check for proper gripper operation by referring to mechanical section.
4. Check to be sure that the exhaust is not restricted at all ports.



Q: Does the machine feed correctly then start feeding short?

- A:**
1. Check for proper air supply and recommended 80 PSI pressure.
 2. Check and increase supply air line size if necessary.
 3. Check for proper gripper operation by referring to mechanical section.
 4. Check to be sure that the exhaust is not restricted at all ports.

Q: Does the machine run correctly then stop?

- A:**
1. Check for excessive heat anywhere on the machine
 2. Check for excessive bouncing on the wire out sensor arm.
 3. Check for loss of air pressure in lines.
 4. Check for loss of power.
 3. Check the safety cover interlock. The magnet in the cover should be positioned over the switch.

Electronics:

Q: Was the machine running before the problem, or did the problem arise when turning on the machine.?

- A:**
1. Check for proper electrical connection.
 2. Check the fuse inside the control box if you suspect power problem.
 3. Check the safety cover interlock. The magnet in the cover should be positioned over the switch.
 4. If the screen is backlit and the display is functional, assume the control power is OK

Q: Will the machine make a complete cycle ?

- A:**
1. Make sure the cylinder is in the rearmost position prior to any cycle.
 2. With the safety cover in place, observe the rearmost sensor. If your machine has photo electric sensors the indicator light will be "off".
 3. If the light stays on, check for proper alignment and slide position to break the light beam.
 4. Adjust or replace as required.
 5. Remove the safety cover and disconnect the air supply. Manually push the slide to the forward most position and replace the safety cover. Observe the front sensor. (See previous step.)

Q: Does the machine cycle but not cut or feed properly ?

- A:**
1. During cycling, observe the indicator lights on the valve for each cylinder.
 2. If each does not light in sequence, check wiring.

Q: Why when the machine is turned on, are the buttons on the run screen dark. ?

- A:**
1. If the system is turned on and it is in an error condition this happens.
 2. Fix the error condition.
 3. Turn off the system using the power rocker switch then turn back on.



Mechanical:

Q: Will the machine make a complete cycle ?

- A:**
1. Verify that there are no excessive back pressures in the wire decoiling system.
 2. If the machine stops during the cycle, check for binding through out the system.

Q: Does the machine cycle but not cut.?

- A:**
1. Verify the operation of the cutter head.

Q: Does the machine cycle but not feed.?

- A:**
1. Check that all components are in their proper place and secured correctly.
 2. Verify the operation of the grippers and cylinders.
 3. Remove the grippers and check for wear or contamination that would prevent them from closing.
 4. Check for material variation.

Part Quality & Condition:

Q: Inconsistent lengths ?

- A:**
1. Verify that there are no excessive back pressures in the wire decoiling system.
 2. If the machine stops during the cycle, check for binding through out the system.

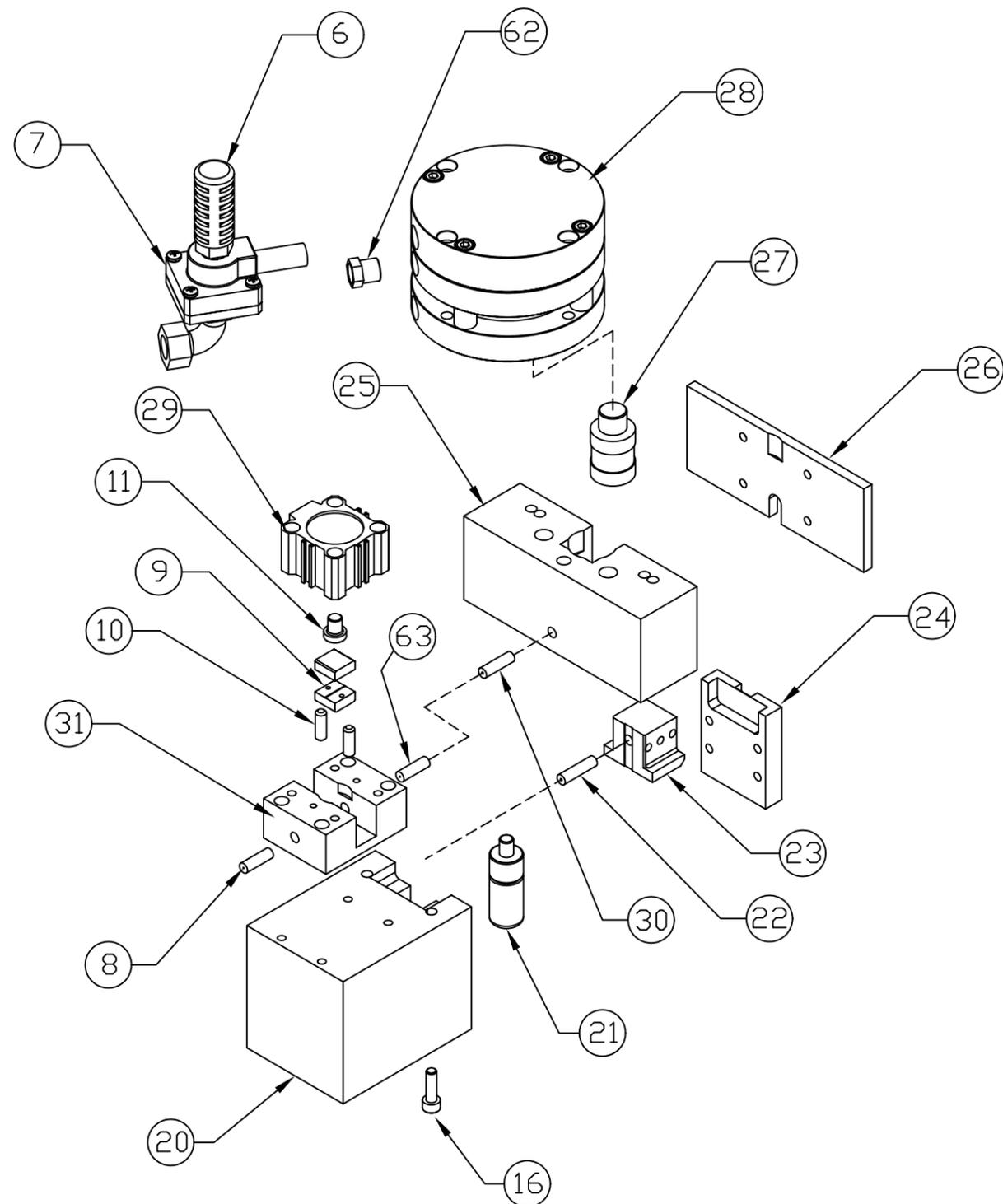
Q: Cut pieces have marks on them.?

- A:**
1. Verify the operation of the cutter head.

Q: My end cut is not good.?

- A:**
1. Check that all components are in their proper place and secured correctly.
 2. Verify the operation of the grippers and cylinders.
 3. Remove the grippers and check for wear or contamination that would prevent them from closing.
 4. Check for material variation.

PARTS LIST



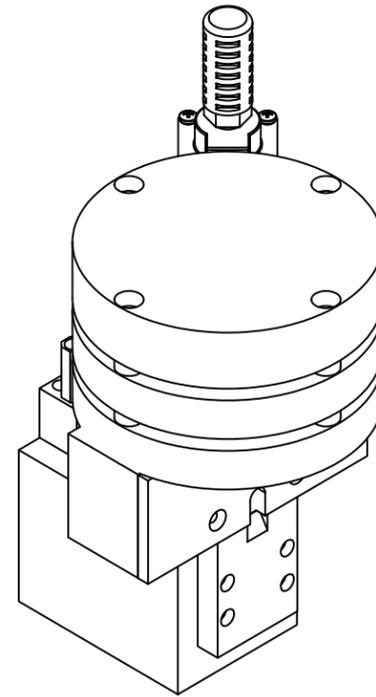
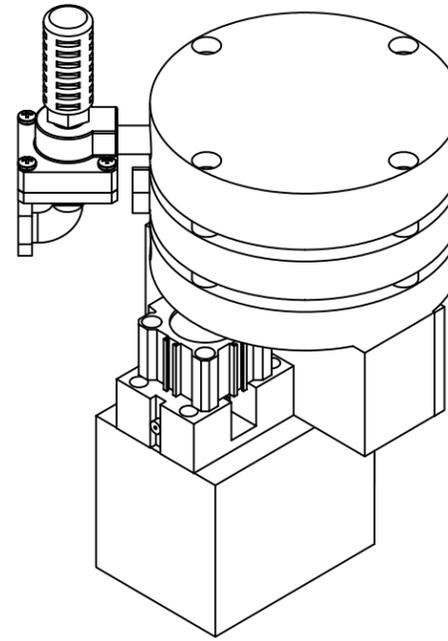
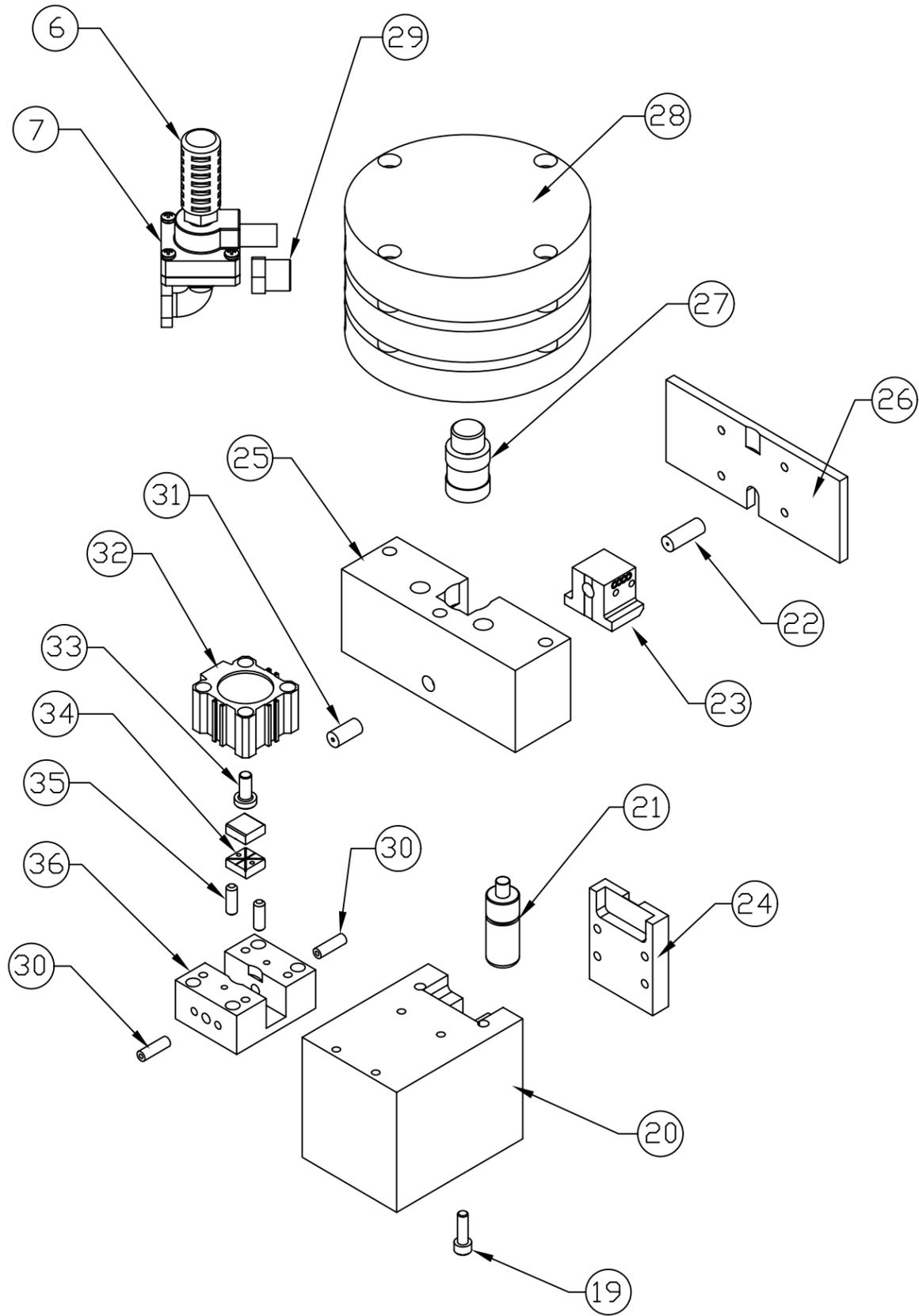
| No. | PART NUMBER | Description |
|-----|-------------|-------------------------|
| 6 | 9405-010 | SILENCER |
| 7 | 9402-004 | DUMP VALVE |
| 8 | 4000-7XX | FEED GUIDE |
| 9 | 4001-8XX | FEED GRIPPER |
| 10 | 9007-039 | DOWEL (GRIPPERS) |
| 11 | 4000-074 | GRIPPER PIN 32 MM |
| 16 | 900M-041 | M6-1 X 20mm SHCS |
| 20 | 4002-427 | CUTTER BASE |
| 21 | 9020-500 | GAS SPRING |
| 22 | 4001-4XX | TRAVELING CUTOFF QUILL |
| 23 | 4002-426 | QUILL BODY BLOCK |
| 24 | 4002-428 | GAS COVER |
| 25 | 4002-432 | CUTTER BODY |
| 26 | 4002-079 | CUTTER ARM COVER |
| 27 | 4001-463 | CYLINDER EXTENDER |
| 28 | 9400-521 | CUTOFF CYLINDER |
| 29 | 9400-509 | GRIPPER CYLINDER |
| 30 | 4001-2XX | STATIONARY CUTOFF QUILL |
| 31 | 4001-405 | GRIPPER BODY |
| 62 | 9404-008 | FILTER |
| 63 | 4000-8XX | FEED GUIDE |

REF. SF&C ASSEMBLIES
 4002-006
 4002-007
 4002-012
 4002-019

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| ± 0.0005 | .XXX ± .005 | DATE 5/2/03 | CUSTOMER |
| ± 0.0005 | .XXXX ± .0005 | | |



| No. | PART NUMBER | Description |
|-----|-------------|---------------------------|
| 6 | 9405-010 | AIR EXHAUST SILENCER |
| 7 | 9402-004 | DUMP VALVE |
| 19 | 900M-041 | M6-1 X 20mm SHCS |
| 20 | 4002-427 | CUTTER BASE |
| 21 | 9020-500 | GAS SPRING |
| 22 | 4003-2XX | TRAVELING QUILL |
| 23 | 4003-427 | QUILL BODY BLOCK |
| 24 | 4002-428 | GAS COVER |
| 25 | 4003-418 | CUTTER BODY |
| 26 | 4002-079 | CUTTER ARM COVER |
| 27 | 4002-438 | 3/4-16 CYLINDER |
| 28 | 9400-526 | 4 X .187 DOUBLE ACT. CYL. |
| 29 | 9404-038 | FILTER |
| 30 | 4000-7XX | FEED GUIDE |
| 31 | 4003-3XX | STATIONARY QUILL |
| 32 | 9400-509 | GRIPPER CYLINDER |
| 33 | 4000-074 | GRIPPER PIN 32 MM |
| 34 | 4001-8XX | FEED GRIPPER (SET OF 2) |
| 35 | 9007-039 | DOWEL |
| 36 | 4001-405 | GRIPPER BODY |

REF. SF&C ASSEMBLIES

4003-006 & 006E
 4003-012 & 012E
 4003-016 & 016E
 4003-022 & 022E

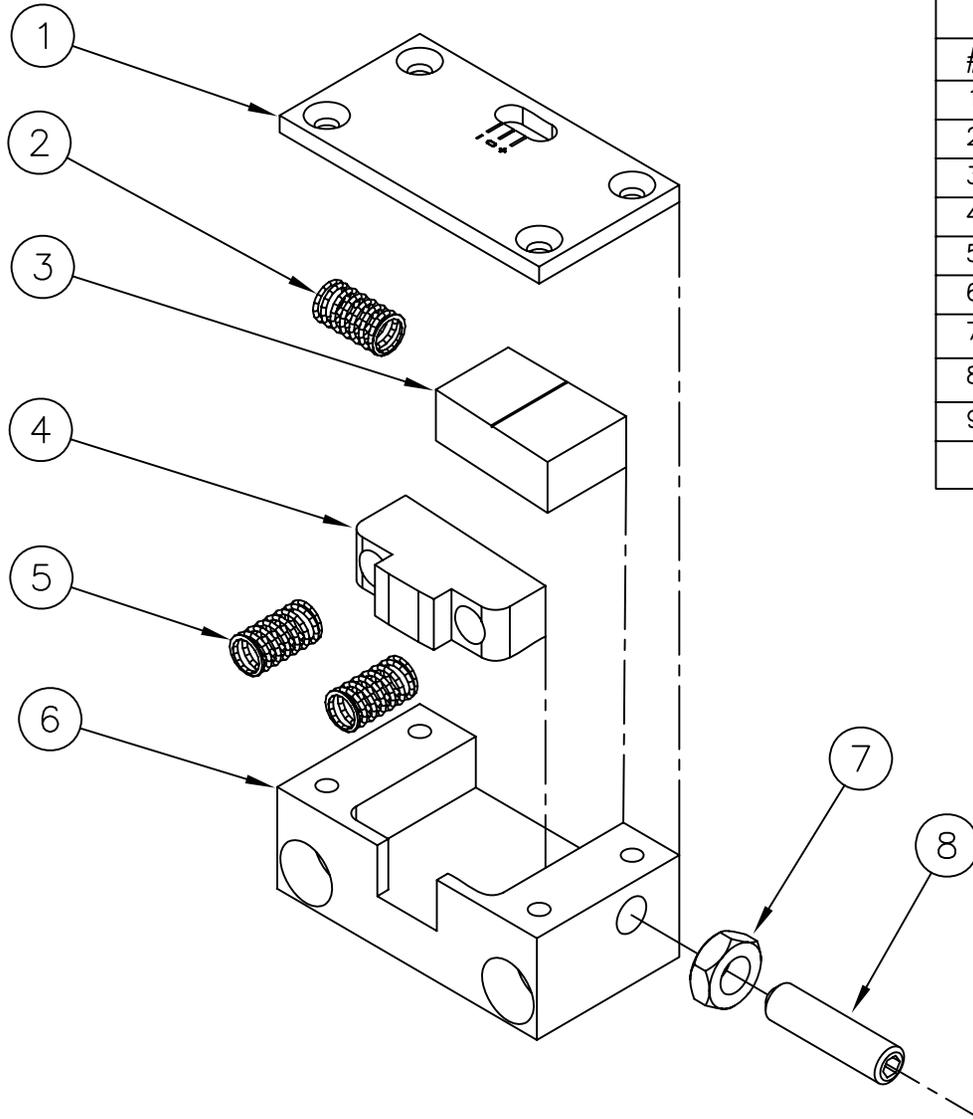
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| ± 0.0002 | SCALE | CUTTER HEAD ASSY |
| ± 0.0005 | DATE 5/22/03 | CUSTOMER |
| ± 0.0005 | | |

PART LISTING

| # | PN # | DESCRIPTION | QTY. |
|---|----------|------------------------|------|
| 1 | 4010-228 | BODY COVER | 1 |
| 2 | 9020-040 | COMPRESSION SPRING | 1 |
| 3 | 4010-226 | REAR WEDGE BLOCK | 1 |
| 4 | 4010-227 | FRONT WEDGE STOP BLOCK | 1 |
| 5 | 9020-041 | COMPRESSION SPRING | 2 |
| 6 | 4010-225 | FINE ADJUST BODY | 1 |
| 7 | 906-009 | 1/4-28 JAM NUT | 1 |
| 8 | 9003-105 | 1/4-28 X 1" SET SCREW | 1 |
| 9 | | | |



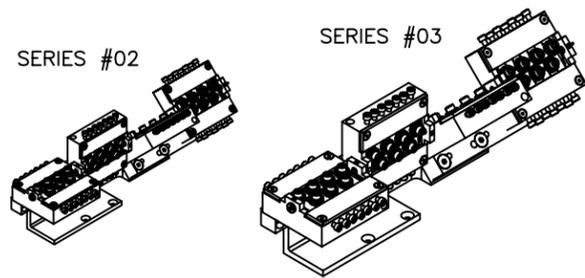
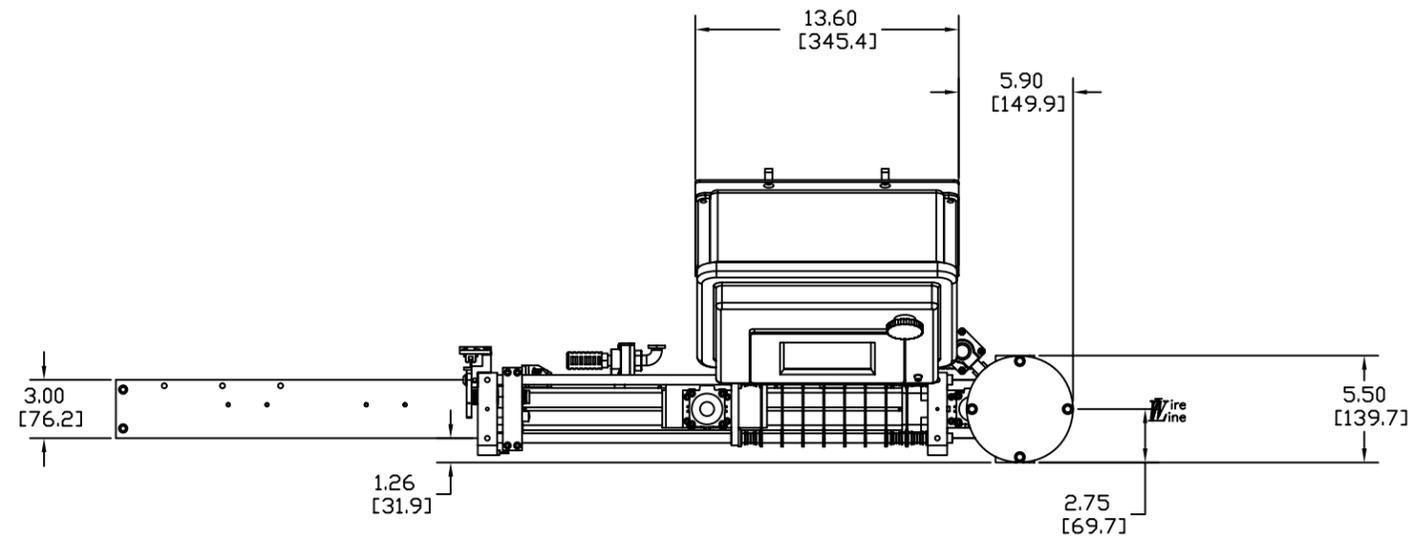
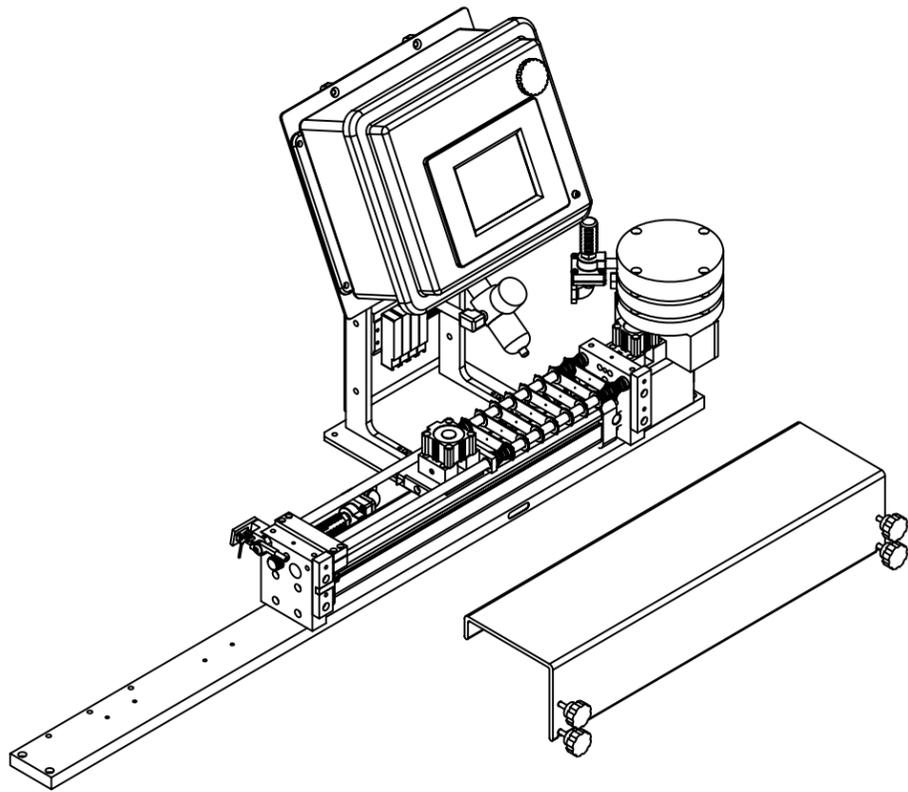
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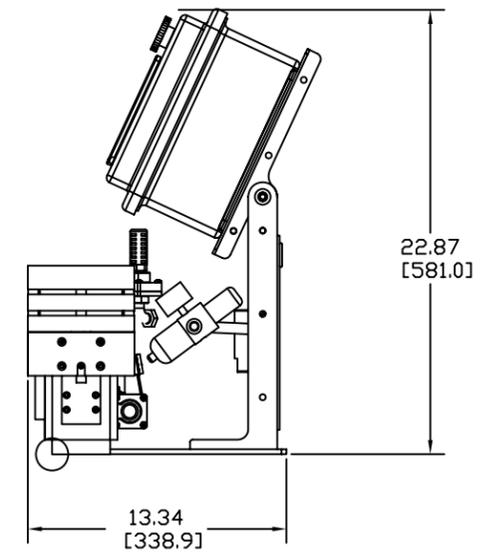
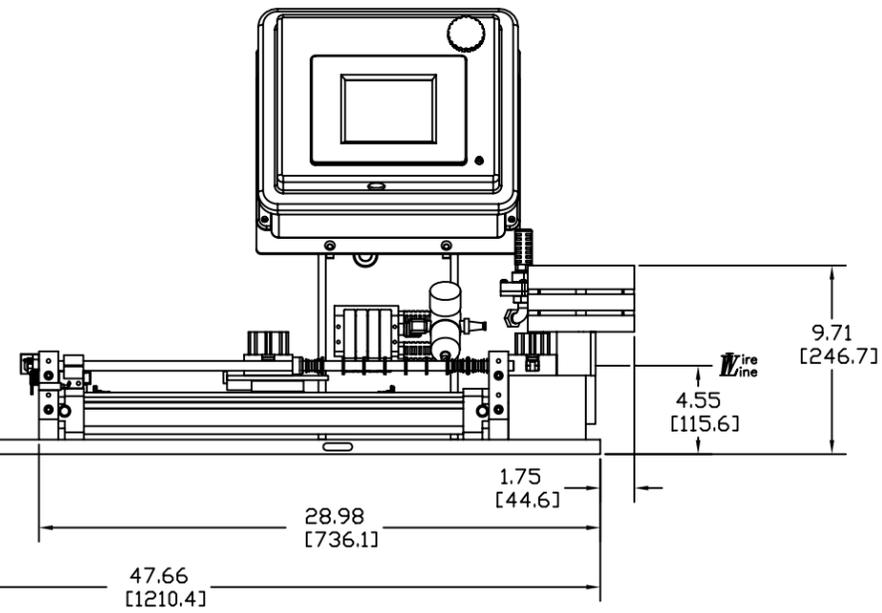
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| CUSTOMER |

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 DIM'S IN (X.X) ARE IN MM



PWS UP TO 4-PLANE ASSY

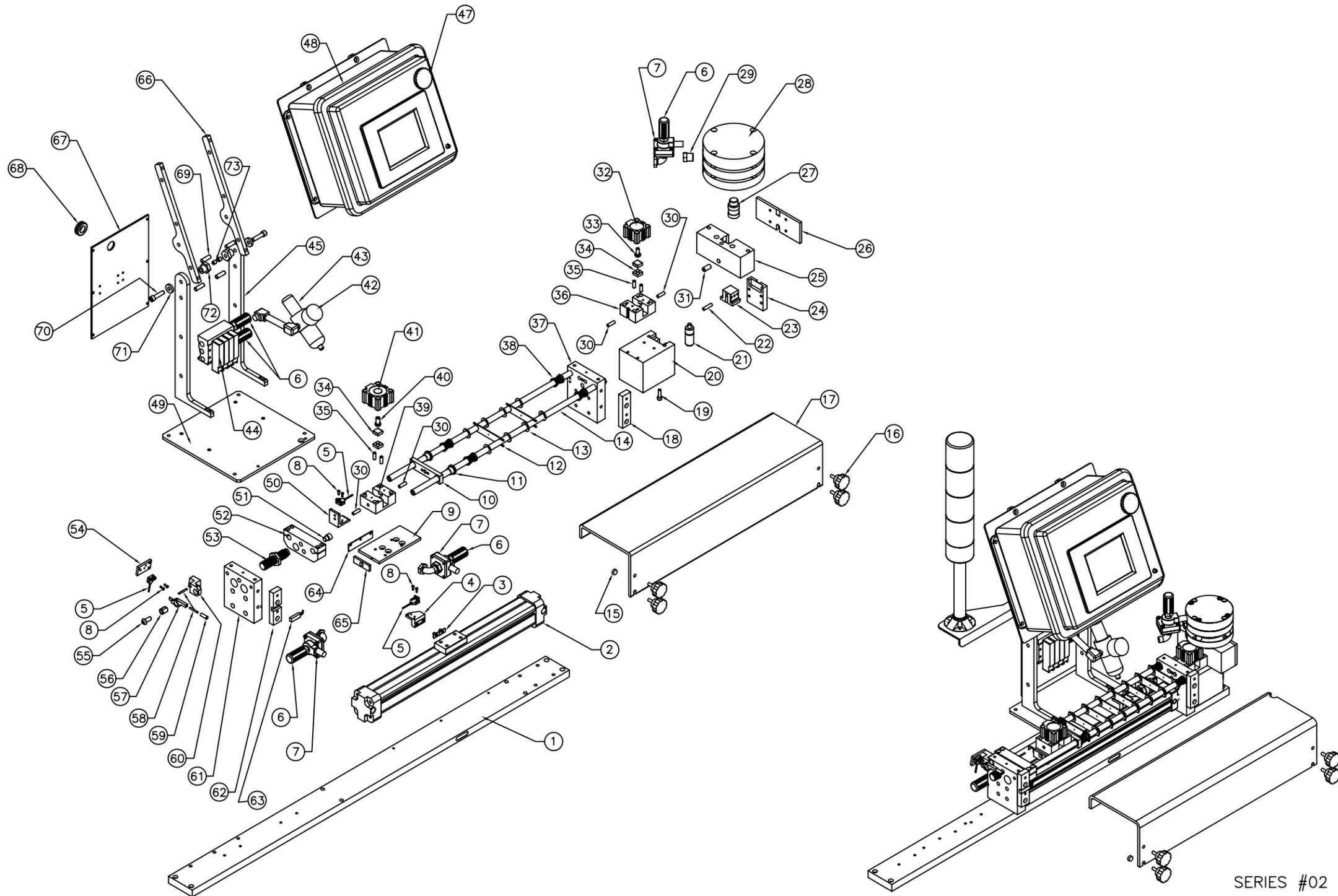
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 SERIES #03 PWS / 4003-501 MOUNTING BRKT



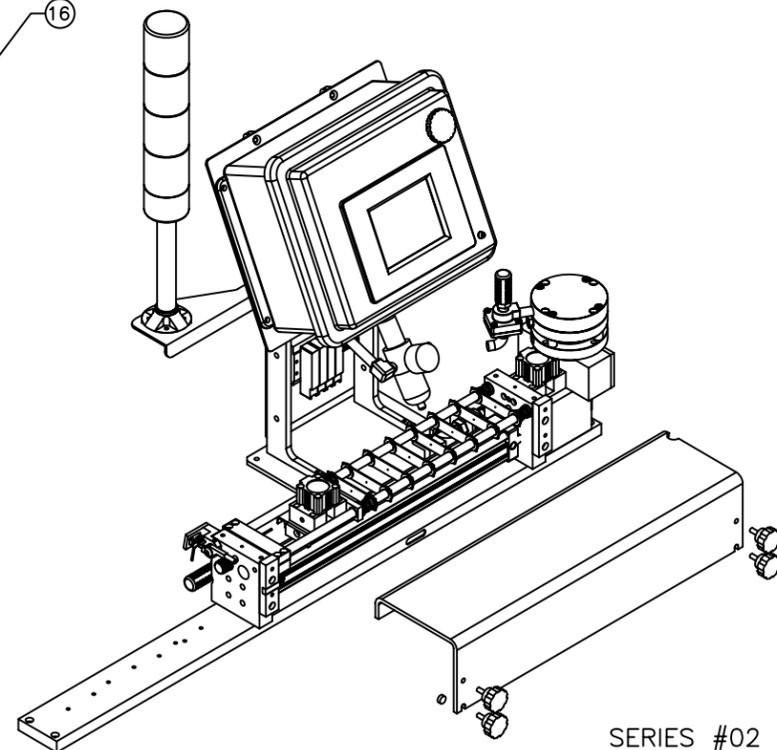
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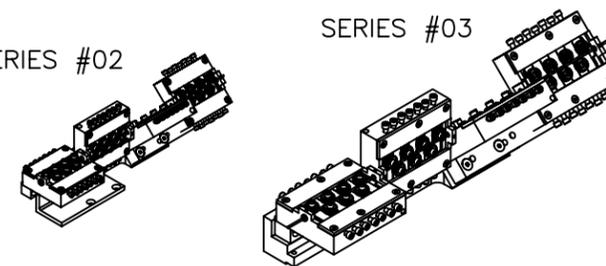


| No. | PART NUMBER | Description | QTY |
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| 1 | 4001-367 | MAIN BASE PLATE | 1 |
| 2 | 9400-301 | TOLOMATIC | 1 |
| 3 | 4002-492 | FRONT BRACKET NUT BLOCK | 2 |
| 4 | 4003-414 | FRONT SENSOR BRACKET | 1 |
| 5 | 9100-044 | SENSOR | 3 |
| 6 | 9405-010 | AIR EXHAUST SILENCER | 5 |
| 7 | 9402-004 | DUMP VALVE | 2 |
| 8 | 9002-018 | 4-40 X 5/16 BHCS | 6 |
| 9 | 4003-412 | PHOTO FLOATING CLAMP | 1 |
| 10 | 4003-413 | PHOTO SENSOR TRAVELING PLATE | 1 |
| 11 | 9311-001 | OILITE BUSHING | 2 |
| 12 | 4001-6XX | ACCUMULATING GUIDE PLATE | 8 |
| 13 | 9008-014 | ACCUMULATING GUIDE SHIM | 32 |
| 14 | 4001-519 | ACCUMULATING GUIDE SHAFT | 2 |
| 15 | 9100-013 | MAGNET FOR SWITCH | 1 |
| 16 | 9010-011 | PLASTIC KNOBS | 4 |
| 17 | 4100-050 | LEXAN COVER | 1 |
| 18 | 4100-048 | COVER SPACER EXTENSION | 1 |
| 19 | 900M-041 | M6-1 X 20mm SHCS | 1 |
| 20 | 4002-427 | CUTTER BASE | 1 |
| 21 | 9020-500 | GAS SPRING | 1 |
| 22 | 4003-2XX | TRAVELING QUILL | 1 |
| 23 | 4003-427 | QUILL BODY BLOCK | 1 |
| 24 | 4002-428 | GAS COVER | 1 |
| 25 | 4003-418 | CUTTER BODY | 1 |
| 26 | 4002-079 | CUTTER ARM COVER | 1 |
| 27 | 4002-438 | 3/4-16 CYLINDER | 1 |
| 28 | 9400-526 | 4 X .187 DOUBLE ACT. CYL. | 1 |
| 29 | 9404-038 | FILTER | 1 |
| 30 | 4000-7XX | FEED GUIDE | 4 |
| 31 | 4003-3XX | STATIONARY QUILL | 1 |
| 32 | 9400-509 | GRIPPER CYLINDER | 1 |
| 33 | 4000-074 | GRIPPER PIN 32 MM | 1 |
| 34 | 4001-8XX | FEED GRIPPER (SET OF 2) | 2 |
| 35 | 9007-039 | DOWEL | 4 |
| 36 | 4001-405 | GRIPPER BODY | 1 |
| 37 | 4002-442 | FRONT SUPPORT | 1 |
| 38 | 9020-001 | ACC. SPRINGS | 18 |
| 39 | 4002-406 | LG. GRIPPER BODY | 1 |
| 40 | 4000-075 | GRIPPER BODY 40 MM | 1 |
| 41 | 9400-510 | GRIPPER CYLINDER 40 MM | 1 |
| 42 | 9402-006 | AIR REGULATOR GAGE | 1 |
| 43 | 9402-003 | AIR REGULATOR | 1 |
| 44 | 9403-040 | VALVE ASSEMBLY | 1 |
| 45 | 4000-095 | UPRIGHT BRACKET | 2 |
| 46 | 4000-057 | TOUCH PANEL ADAPTER | 1 |
| 47 | 9100-021 | EMERGENCY STOP BUTTON | 1 |
| 48 | 4000-001 | CONTROL BOX ASSY | 1 |
| 49 | 4000-093 | CONTROL MOUNTING PLATE | 1 |
| 50 | 4003-409 | REAR PHOTO BRKT | 1 |
| 51 | 9011-019 | SPHERICAL LOCATOR BUTTON | 1 |
| 52 | 4002-402 | REAR STOP | 1 |
| 53 | 9401-001 | GAS STOP SHOCK | 1 |
| 54 | 4000-088 | W/O SENSOR BACK PLATE | 1 |
| 55 | 9002-118 | W/O SENSOR BUTTON HEAD SCREW | 1 |
| 56 | 4000-090 | W/O SENSOR ARM PIVOT | 1 |
| 57 | 4000-091 | W/O SENSOR ARM & TARGET | 1 |
| 58 | 9007-024 | DOWEL FOR W/O | 2 |
| 59 | 9802-007 | W/O SENSOR NYLON TIP | 1 |
| 60 | 4000-089 | W/O SENSOR MOUNT BRACKET | 1 |
| 61 | 4002-441 | REAR SHAFT SUPPORT | 1 |
| 62 | 4100-049 | COVER SPACE EXTENSION (SLOT) | 1 |
| 63 | 9100-012 | MAGNETIC READ SWITCH | 1 |
| 64 | 4003-415 | PHOTO SENSOR TARGET | 1 |
| 65 | 4002-448 | REAR STOP PLATE | 1 |
| 66 | 4000-096 | PIVOT BRACKET | 2 |
| 67 | 4000-094 | MOUNTING PLATE | 1 |
| 68 | 9101-036 | GROMMET | 1 |
| 69 | 9007-052 | DOWEL | 4 |
| 70 | 9000-121 | 5/16-18 X 1.25 SHCS | 2 |
| 71 | 9008-102 | 5/16 HARD WASHER | 2 |
| 72 | 4000-067 | SLEEVE NUT | 2 |
| 73 | 9003-109 | 5/16-18 X .375 SET SCREW | 2 |
| 74 | 9020-035 | RH TORSION SPRING (NOT SHOWN) | 1 |
| 75 | 9020-036 | LH TORSION SPRING (NOT SHOWN) | 1 |
| 76 | 4000-051 | 8 X 10 INNER BOX PANEL (NOT SHOWN) | 1 |



SERIES #02

SERIES #03



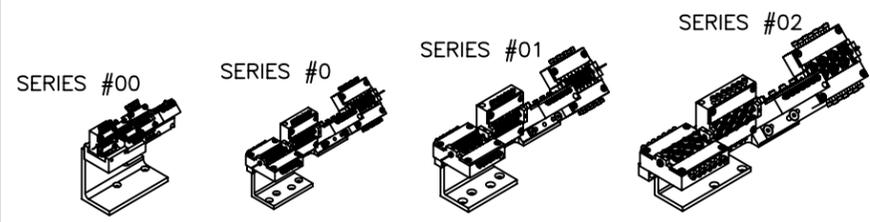
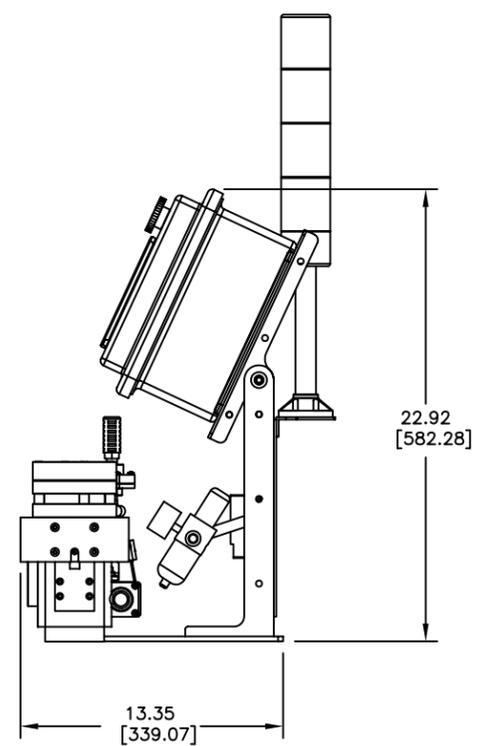
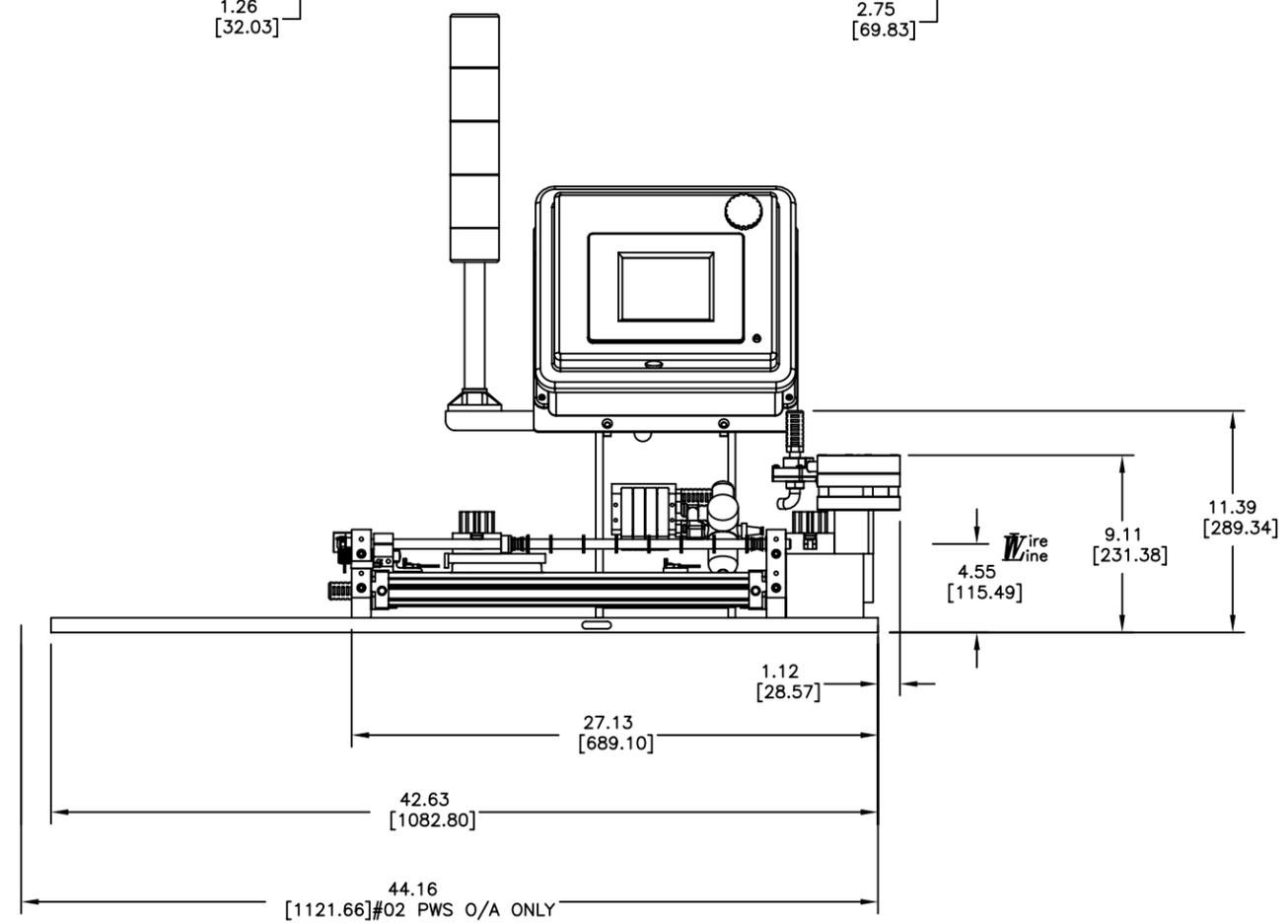
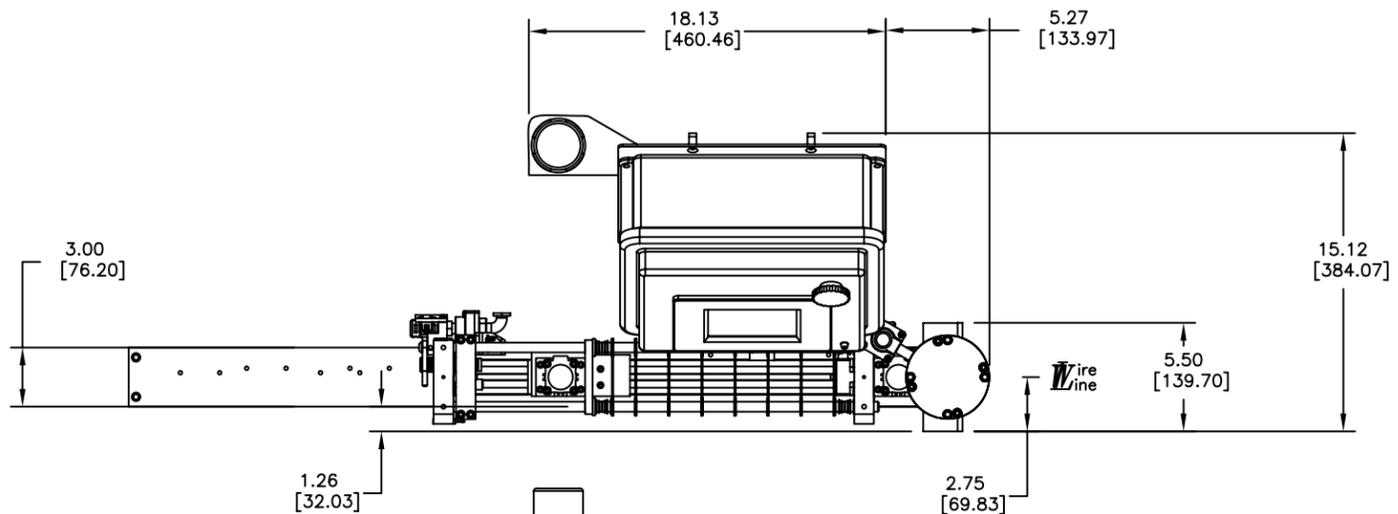
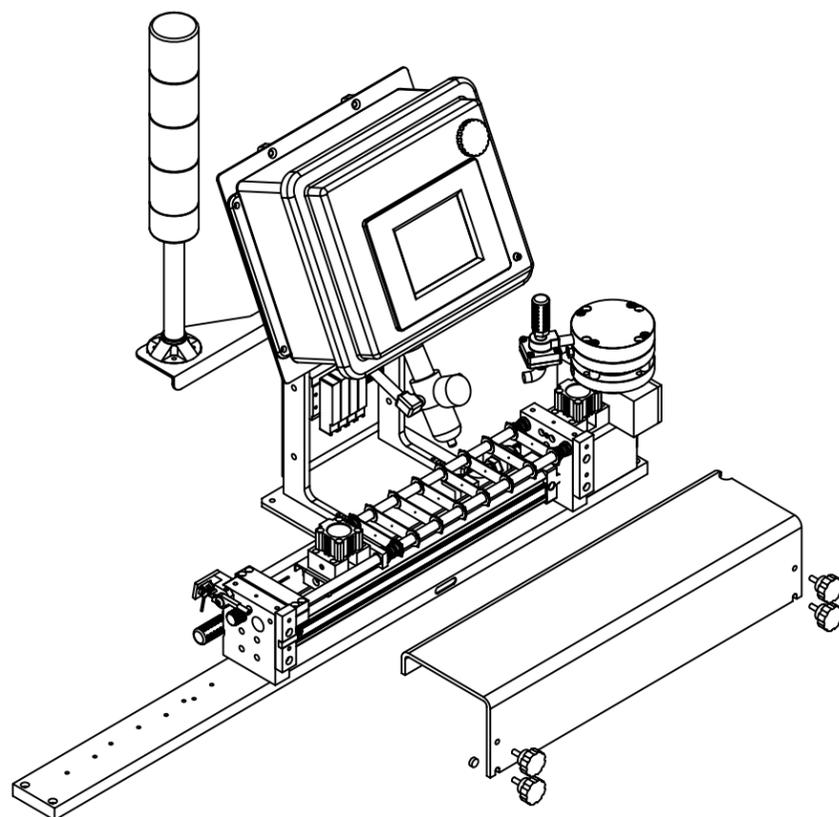
PWS UP TO 4-PLANE ASSY
 SERIES #02 PWS / 4002-409 MOUNTING BRKT
 SERIES #03 PWS / 4003-501 MOUNTING BRKT

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DIM'S ARE APPROXIMATE
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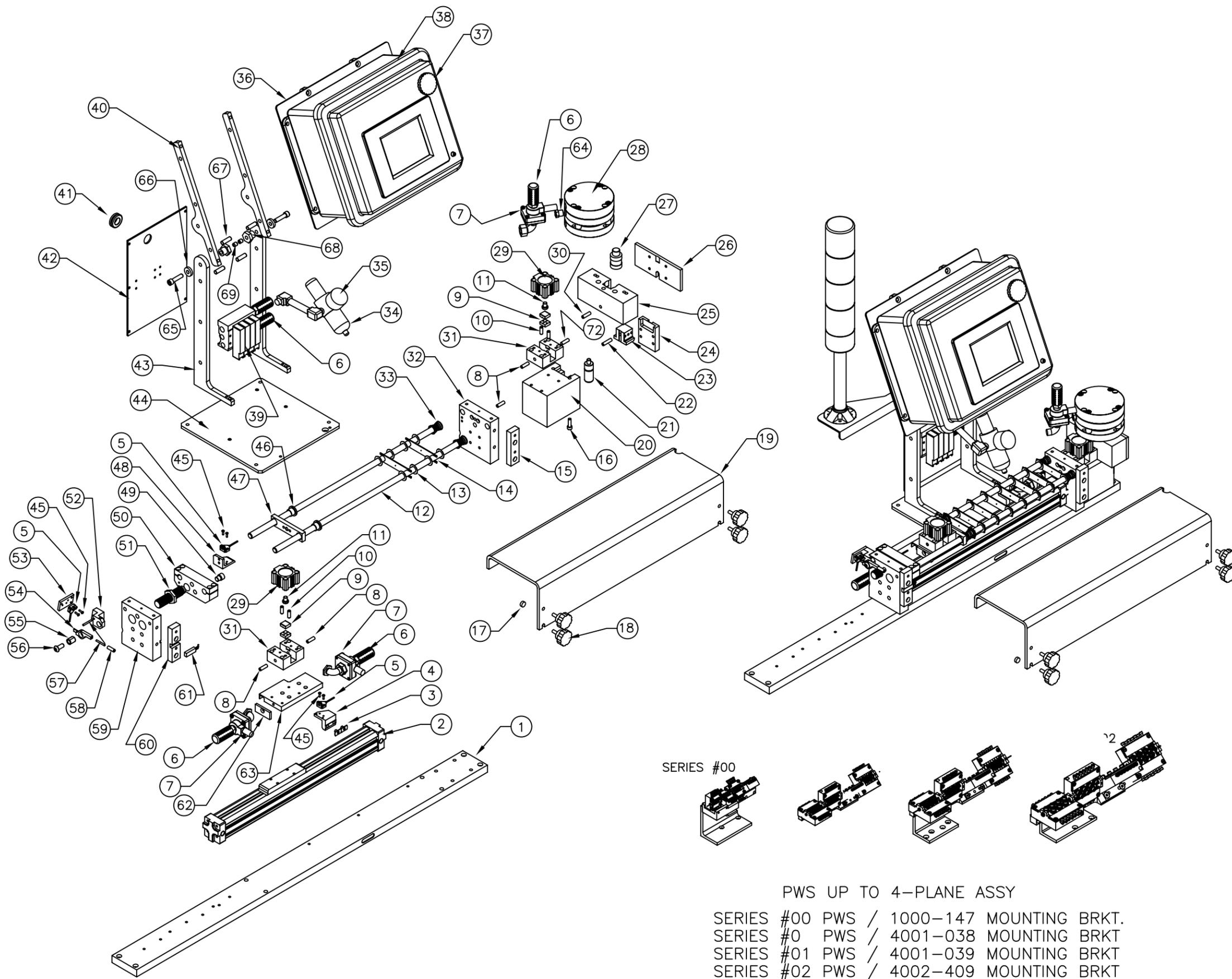
PWS UP TO 4-PLANE ASSY

- SERIES #00 PWS / 1000-147 MOUNTING BRKT.
- SERIES #0 PWS / 4001-038 MOUNTING BRKT
- SERIES #01 PWS / 4001-039 MOUNTING BRKT
- SERIES #02 PWS / 4002-409 MOUNTING BRKT

| REV | ECN | CHG BY | DATE |
|-----|-----|--------|------|
| | | | |

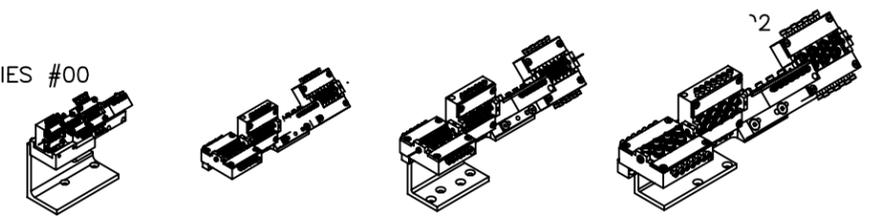


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|-----------------------------------|----------------|---------|--------------------|
| TOLERANCE UNLESS OTHERWISE STATED | | CAD | DRAWING / PART NO. |
| ∠ ± 3° | FRACT +/- 1/16 | DWN GDH | 4002-019E-A |
| ⊥ ± 0.0003 | .X ± .032 | CHK | PART NAME |
| ⊙ ± 0.0002 | .XX ± .015 | SCALE | SF&C #2 12" QQ |
| ⊕ ± 0.0005 | .XXX ± .005 | DATE | CUSTOMER |
| ≡ ± 0.0005 | .XXXX ± .0005 | 093005 | |



| No. | PART NUMBER | Description | QTY |
|-----|-------------|----------------------------------|-----|
| 1 | 4001-317 | MAIN BASE PLATE | 1 |
| 2 | 9400-201 | BAND CYLINDER | 1 |
| 3 | 4002-492 | FRONT BRACKET NUT BLOCK | 2 |
| 4 | 4002-488 | FRONT SENSOR BRACKET | 1 |
| 5 | 9100-044 | SENSOR | 3 |
| 6 | 9405-010 | SILENCER | 5 |
| 7 | 9402-004 | DUMP VALVE | 2 |
| 8 | 4000-7XX | FEED GUIDE | 4 |
| 9 | 4001-8XX | FEED GRIPPER (SET OF 2) | 2 |
| 10 | 9007-039 | DOWEL (GRIPPERS) | 4 |
| 11 | 4000-074 | GRIPPER PIN 32 MM | 2 |
| 12 | 4001-533 | ACCUMULATING GUIDE SHAFTS | 2 |
| 13 | 9008-014 | ACCUMULATING GUIDE SHIMS | 32 |
| 14 | 4001-6XX | ACCUMULATING GUIDE PLATES | 8 |
| 15 | 4100-048 | COVER SPACER EXTENSION | 1 |
| 16 | 900M-041 | M6-1 X 20mm SHCS | 1 |
| 17 | 9100-013 | MAGNET | 1 |
| 18 | 9010-011 | PLASTIC KNOBS | 4 |
| 19 | 4100-062 | LEXAN COVER | 1 |
| 20 | 4002-427 | CUTTER BASE | 1 |
| 21 | 9020-500 | GAS SPRING | 1 |
| 22 | 4001-4XX | TRAVELING CUTOFF QUILL | 1 |
| 23 | 4002-426 | QUILL BODY BLOCK | 1 |
| 24 | 4002-428 | GAS COVER | 1 |
| 25 | 4002-432 | CUTTER BODY | 1 |
| 26 | 4002-079 | CUTTER ARM COVER | 1 |
| 27 | 4001-463 | CYLINDER EXTENDER | 1 |
| 28 | 9400-521 | CUTOFF CYLINDER | 1 |
| 29 | 9400-509 | GRIPPER CYLINDER | 2 |
| 30 | 4001-2XX | STATIONARY CUTOFF QUILL | 1 |
| 31 | 4001-405 | GRIPPER BODY | 2 |
| 32 | 4002-455 | FRONT SHAFT SUPPORT | 1 |
| 33 | 9020-001 | ACCUMULATING SPRING | 18 |
| 34 | 9402-003 | AIR REGULATOR | 1 |
| 35 | 9402-006 | AIR REGULATOR GAGE | 1 |
| 36 | 4000-057 | TOUCH PANEL ADAPTER | 1 |
| 37 | 9100-021 | EMERGENCY STOP BUTTON | 1 |
| 38 | 4000-001 | CONTROL BOX ASSY | 1 |
| 39 | 9403-045 | VALVE ASSEMBLY | 1 |
| 40 | 4000-096 | PIVOT BRACKET | 2 |
| 41 | 9101-036 | GROMMET | 1 |
| 42 | 4000-094 | AIR MOUNTING PLATE | 1 |
| 43 | 4000-095 | UPRIGHT BRACKET | 2 |
| 44 | 4000-093 | CONTROL MOUNTING PLATE | 1 |
| 45 | 9002-018 | 4-40 X 5/16 BHCS | 6 |
| 46 | 9311-001 | OILITE BUSHING | 2 |
| 47 | 4003-413 | TRAVELING END PLATE | 1 |
| 48 | 4002-490 | REAR SENSOR BRACKET | 1 |
| 49 | 9011-019 | SPHERICAL LOCATOR BUTTON | 1 |
| 50 | 4002-402 | REAR STOP | 1 |
| 51 | 9401-001 | GAS STOP SHOCK | 1 |
| 52 | 4000-089 | W/O SENSOR MOUNT BRACKET | 1 |
| 53 | 4000-088 | W/O SENSOR BACK PLATE | 1 |
| 54 | 4000-091 | W/O SENSOR ARM & TARGET | 1 |
| 55 | 4000-090 | W/O SENSOR ARM PIVOT | 1 |
| 56 | 9002-118 | W/O SENSOR BUTTON HEAD SCREW | 1 |
| 57 | 9007-024 | DOWEL FOR W/O | 2 |
| 58 | 9802-007 | W/O SENSOR NYLON TIP | 1 |
| 59 | 4002-400 | REAR SHAFT SUPPORT | 1 |
| 60 | 4100-049 | COVER SPACE EXTENSION (SLOT) | 1 |
| 61 | 9100-012 | MAGNETIC READ SWITCH | 1 |
| 62 | 4002-440 | REAR STOP PLATE | 1 |
| 63 | 4002-491 | FLOATING CLAMP PLATE | 1 |
| 64 | 9404-008 | FILTER | 1 |
| 65 | 9000-121 | 5/16-18 x 1.25 SHCS | 2 |
| 66 | 9008-102 | 5/16 HARD WASHER | 2 |
| 67 | 9007-052 | 5/16 X 1 DOWEL PIN | 4 |
| 68 | 4000-067 | SLEEVE NUT (SPRING SUPPORT) | 2 |
| 69 | 9003-109 | 5/16-18 X 3/8 SET SCREW | 2 |
| 70 | 9020-035 | LEFT TORSION SPRING (NOT SHOWN) | 1 |
| 71 | 9020-036 | RIGHT TORSION SPRING (NOT SHOWN) | 1 |
| 72 | 4000-8XX | FEED GUIDE | 1 |

SERIES #00



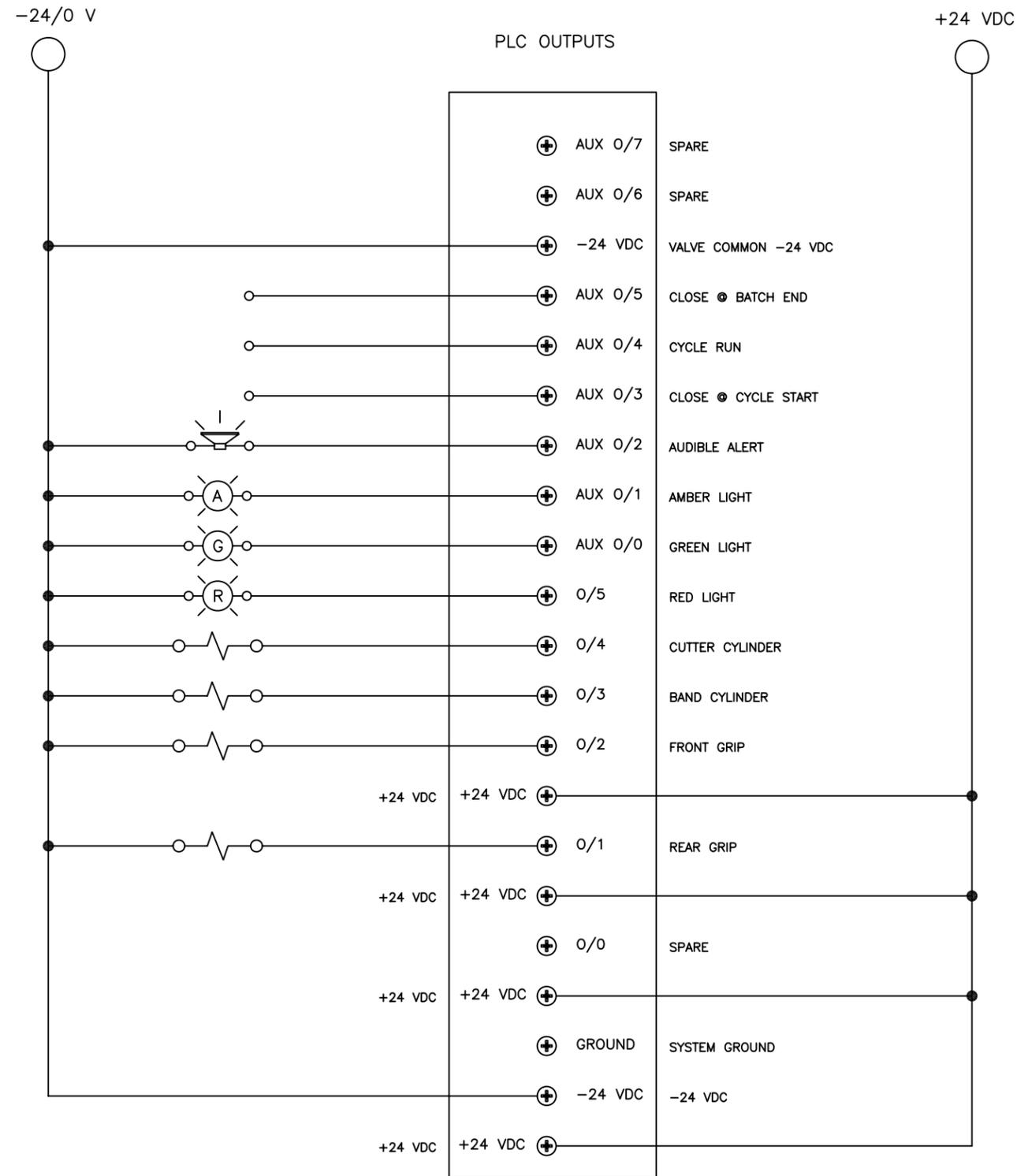
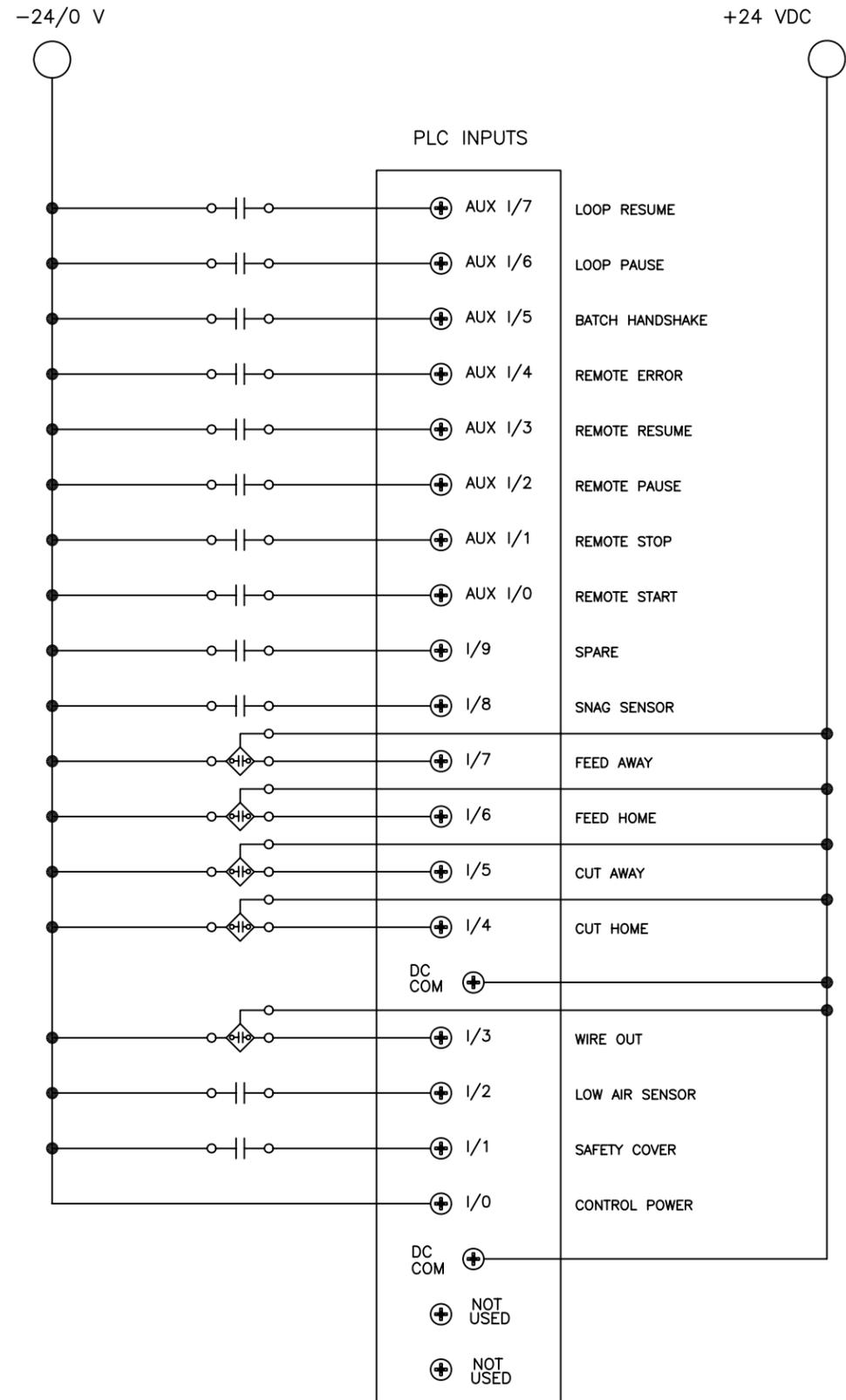
PWS UP TO 4-PLANE ASSY

- SERIES #00 PWS / 1000-147 MOUNTING BRKT.
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| | | | |



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|-----------------------------------|----------------|--------------|--------------------|
| TOLERANCE UNLESS OTHERWISE STATED | | CAD | DRAWING / PART NO. |
| ∠ ± .3" | FRACT +/- 1/16 | DWN KPL | 4002-019E |
| ⊥ ± 0.0003 | .X ± .032 | CHK | PART NAME |
| ⊙ ± 0.0002 | .XX ± .015 | SCALE | SFC #2 12" QQ |
| ⊕ ± 0.0005 | .XXX ± .005 | DATE 5/16/03 | CUSTOMER |
| ≡ ± 0.0005 | .XXXX ± .005 | | |



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| REV | ECN | CHG BY | DATE |
| | | | |



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|-----------------------------------|----------------|-------------|--------------------|
| TOLERANCE UNLESS OTHERWISE STATED | | CAD | DRAWING / PART NO. |
| ∠ ± 3° | FRACT +/- 1/16 | DWN GDH | 9111-101-10 |
| ⊥ ± 0.0003 | .X ± .032 | CHK | PART NAME |
| ⊙ ± 0.0002 | .XX ± .015 | SCALE | SYSTEM IO |
| ⊕ ± 0.0005 | .XXX ± .005 | DATE 010307 | CUSTOMER |
| ≡ ± 0.0005 | .XXXX ± .0005 | | |



WARNING

The operator of the equipment offered herein must not be in or near the point-of-operation of any such machine or operating parts of any equipment installed on a machine, or bodily injury could result. The EMPLOYER must conspicuously display adequate warning signs on the machine with proper warnings for the machine and the specific application to which the machine and equipment are being applied.

OSHA Sections 1910.147, 1910.211, 1910.212 and 1910.217 contain installation information on the required distance between danger points and point-of-operation guards and devices. No specific references have been made to which paragraph of OSHA 1910.147, 1910.211, 1910.211, 1910.217 or any other applicable sections because the paragraphs may change with each edition of the publications of OSHA provisions.

All equipment manufactured by TAK Enterprises is designed to meet the construction standards of OSHA in effect at the time of sale, however, the EMPLOYER ultimately installs the equipment and is therefore responsible for installation, use, application, training and maintenance, as well as ensuring that adequate warning signs are visible on the machine onto which the equipment will be installed.

OSHA states that the EMPLOYER must ensure that safe operating methods designed to control or eliminate hazards to operating personnel are developed and employed, and that operators are trained in safe operation of the equipment.

It shall be the responsibility of the EMPLOYER to establish and follow a program of periodic and regular inspections and maintenance of machinery to insure that all their parts, auxiliary equipment and safeguards are in a safe operating condition and adjustment. Each machine should be inspected and tested no less than weekly to determine and confirm that the operating condition of the machine meets safety standards. Necessary maintenance or repairs to machinery, auxiliary equipment and safeguards shall be performed and completed before the machine is operated. The EMPLOYER shall maintain accurate records of these inspections and maintenance work performed.

It is not the responsibility of TAK Enterprises to provide notification to the user of this equipment concerning future changes in State or Federal laws, or construction standards.

SAFETY PROGRAM

Accident free operation will result from a well developed, management sponsored and enforced safety program.

Of vital importance to the success of a safety program is the proper selection of guards and devices. However, there is no safety device that will insure "automatic" or "fool proof" safety to your operation.

Of equal importance to the proper selection of machine guards and devices is effective training of operating personnel. Each individual must be trained in the proper operation in accordance with established standards developed for the guards or safety devices employed, with emphasis on why specific guards and safety devices have been provided on the equipment. Rules for safe operation should be in writing, available to company personnel and enforced at all times.

An effective safety program must include regularly scheduled inspections and maintenance of all equipment, with accurate records to reflect the successful completion of inspections and maintenance.

To ensure that a safe working environment is maintained at all times, management, supervisors, safety engineers and all production employees must assume their proper share of responsibility to establish and maintain an effective safety program. All members of the company community should be involved so that an accurate view of the specific areas within the facility that require attention are addressed.

To assist you in the development of and maintenance of an effective safety program, many trade groups and safety related organizations provide guidelines and recommendations that are available to you. However, you must know when and how to apply these guidelines. The equipment manufacturers provide information to assist you in properly adjusting and maintaining your equipment. It is recommended that the employer comply with these guidelines at all times.