

TAK Enterprises, Inc.



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#4H PNEUMATIC FEED & CUT OFF SYSTEM QUILL ON QUILL CUTTER

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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.



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.

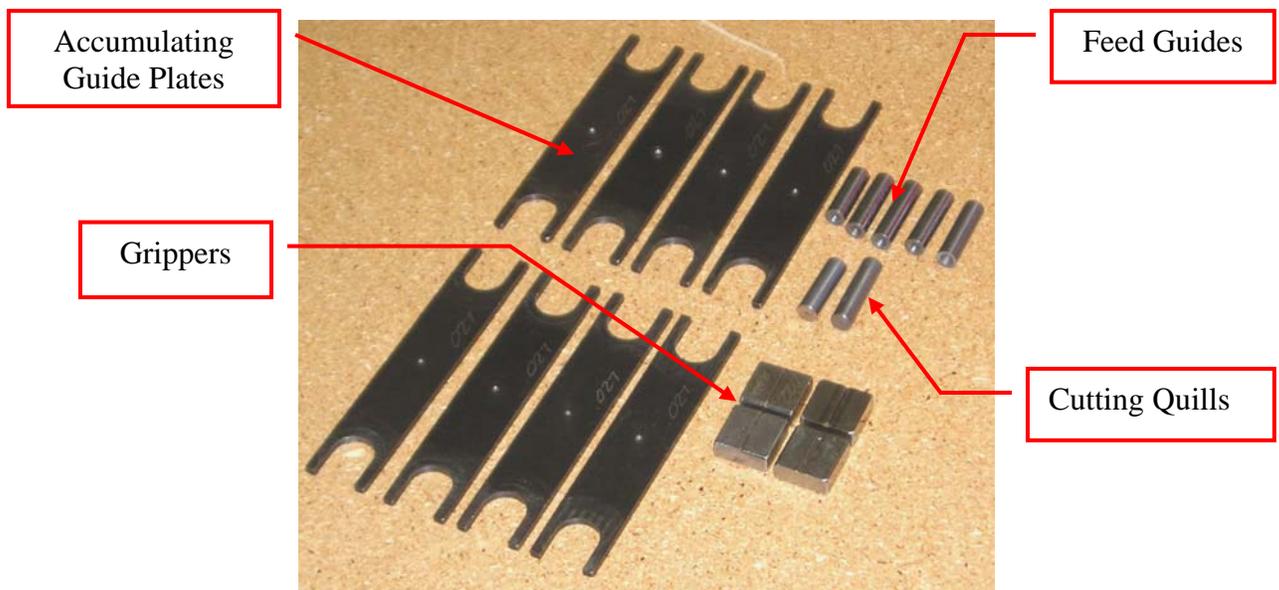


Fig 1 (Series #02 tooling shown)

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*. Tooling configuration is similar in appearance throughout the SF&C product lines.

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.

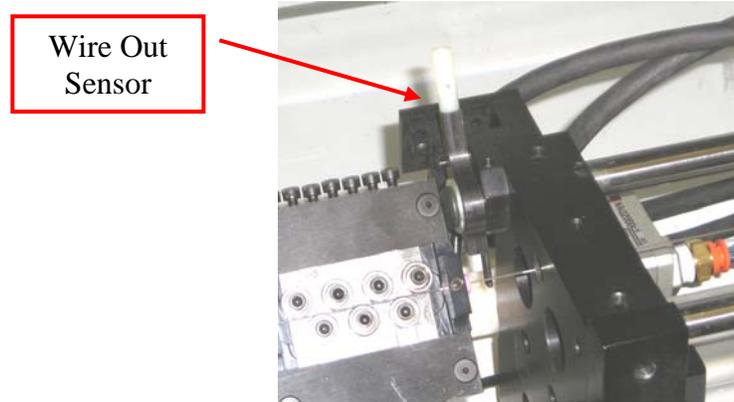


Fig 2

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* 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* 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. 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 +/- .002”.

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 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 pieces and repeat steps 2 thru 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.

Adjusting the Speed:

System Manual

www.takenterprises.com



The speed is adjusted on the Program screen.

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
(8) Accumulating guide plates - ONLY IF NEEDED	(Each component has the diameter/size etched into it.)

Note 1: 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 the *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*.)



Step 6. Place a *feed gripper* into the center of the *rear gripper body* with the ground groove traversing from left to right, the same as the material feed line. Place the second *feed gripper* on top of the first, aligning the radii or “V” groove. A material sized for the grippers should move freely through the *feed grippers* until pressure is applied.

Note: Some systems which have been configured for applications under .020” (0.5mm) in diameter may have small springs set in the corners of the *feed grippers*. Take care to ensure that all springs are in place when placing the top *feed gripper* onto the bottom one.

Step 7. Replace the *rear gripper cylinder*.

Step 8. Replacement of *feed grippers* and *feed guides* for the *front gripper body* is the same as the procedure outlined in steps #3-7.

Step 9. Cutter Change Over: Remove the *cutoff cylinder* by removing the two retaining cap screws that hold the *cutoff cylinder* to the *cutter body*.

Step 10. Remove the *cutter body* by removing two cap screws that hold it to the *cutter base*. Then slide the *cutter body* to the right to remove. Remove the *cutter arm cover* then remove *the traveling quill block*. Remove the *traveling quill*.

Now you can remove the *stationary quill* from the *cutter body* by loosening the retaining set screw with an English version Allen wrench or hex key.

Step 11. Reinstall the *stationary quill* flush to the inner surface of the *cutter body*, tighten the quill retaining set screw with your Allen wrench. Re-Install the *traveling quill* and recess it from the face of the *traveling quill block* a predetermined amount for the clearance for the type and diameter of material being cut. Tighten the quill retaining set screw with your Allen wrench. Reinstall the *traveling quill block* into the *cutter body* . Replace the *cutter arm cover*.

Step 12. Re-mount the *cutter body* to the *cutter base* and the *cutoff cylinder* to the *cutter body*.

Step 13. Replace *lexan safety cove* and plug the unit into a standard 120 volt AC 60 Hz grounded outlet. Connect the air line to a source of clean, dry air at approximately 60 to 80 psi. **NEVER** exceed 120 psi.

Safety Warning



BEFORE PROCEEDING: Remove any tools or objects from the feed area. Momentarily press the manual activation button located on the *air valve assembly* that controls the *cutoff cylinder* and test for the proper cutter movement



SHARPENING PROCEDURE

For QUILL ON QUILL Type

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*

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

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

Step 2: Grind *Stationary Quill*

Grind end (A) of quill (opposite wire entry 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 or break the wire hole cutting edge approx. .002 **for hard wire only.**



Quill on Quill Setting Procedure

Step 1: *Stationary Quill*

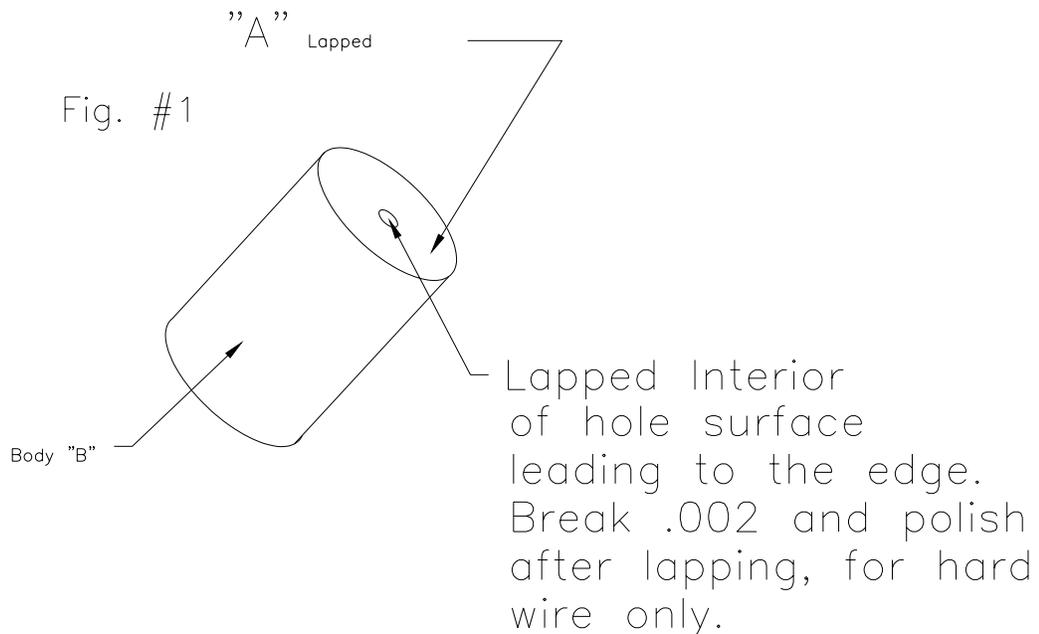
Set *stationary quill* with surface (A) (Fig 1) flush to surface (B). (Fig 2) Do not extend above surface (B). Use appropriate shim grind rings to set surface (A) of the *stationary quill* flush to surface (B) of the *cutter body*.

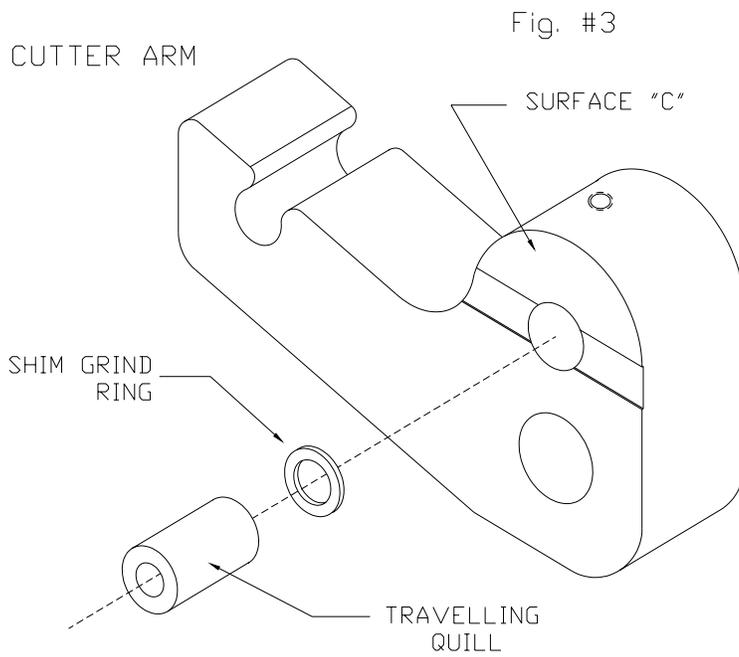
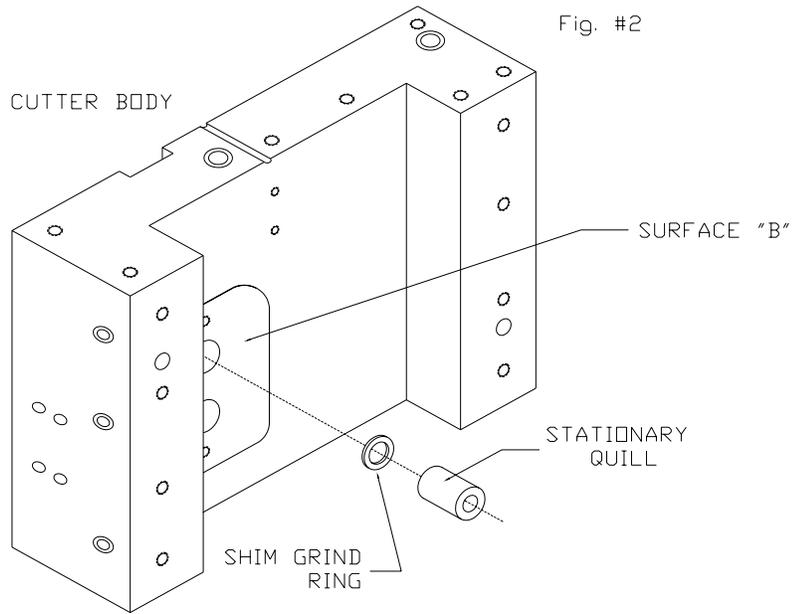
Step 2: *Traveling Quill*

Set *traveling quill* with surface (A) (Fig 1) flush or below the *cutter arm* surface (C) (Fig 3) do not extend out from surface (C). Use appropriate shim grind rings to set surface (A) of the *travelling quill* flush or below surface (C) of the *cutter arm*.

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

Illustrations:

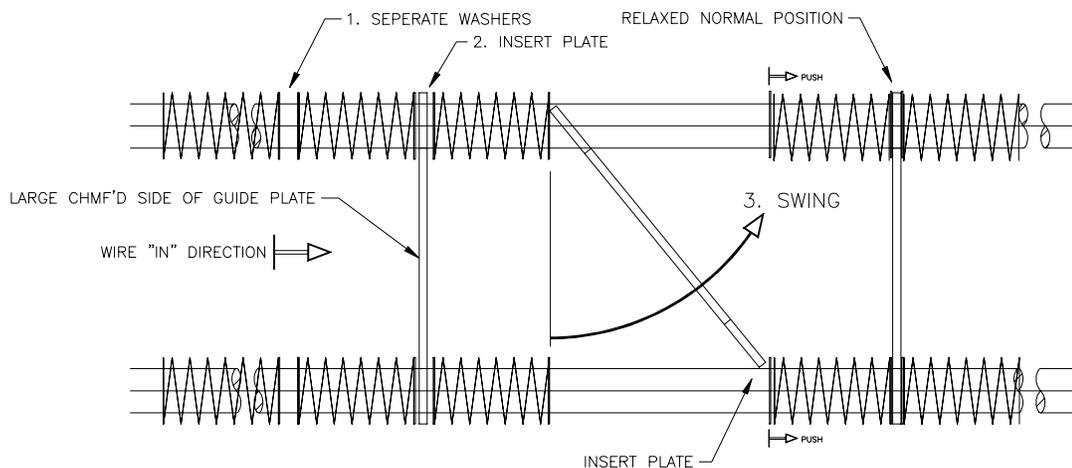




INSTALLATION OF “SWING-IN” ACCUMULATING GUIDE PLATES

1. Install the new “swing-in” guide plates with the larger chamfered hole side towards the “wire in” side as shown.
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.
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)
4. Release the springs, washers and guide plate.
5. The result should be a washer on each side of the accumulating guide plate backed by a spring. (fig. 1)

Fig. (1)





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		



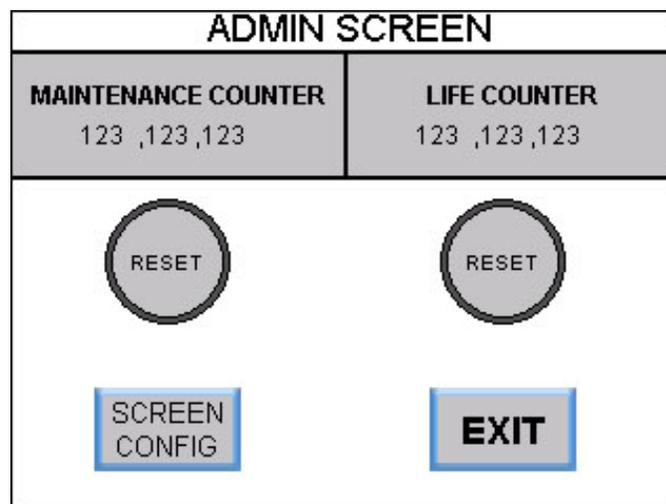
System Screens

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:



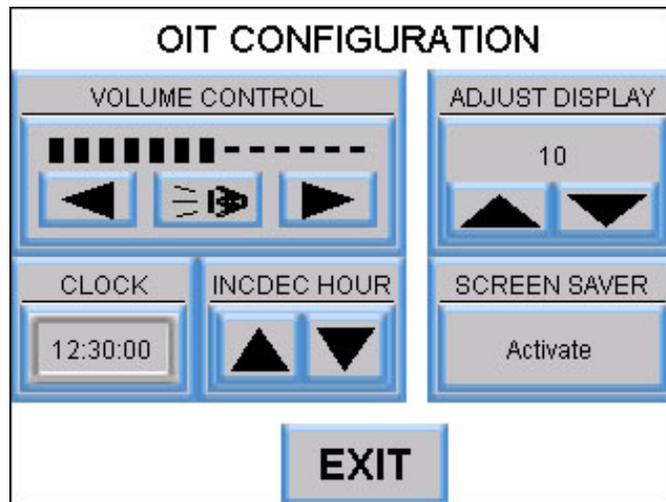
From the Main TAK Intro screen a “Supervisory” password will be necessary to access this screen.

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.



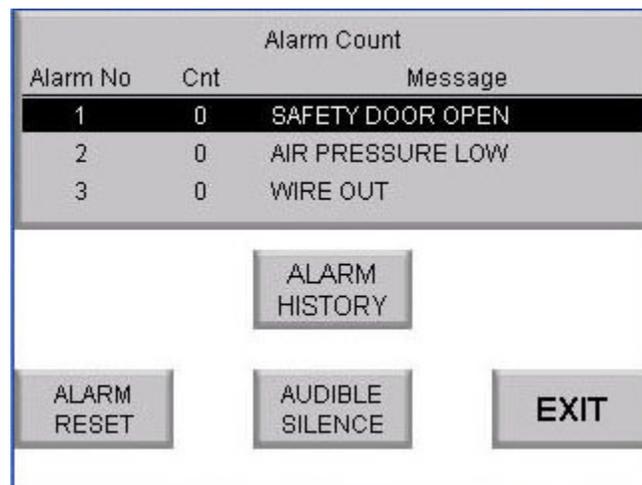
System Screens

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.

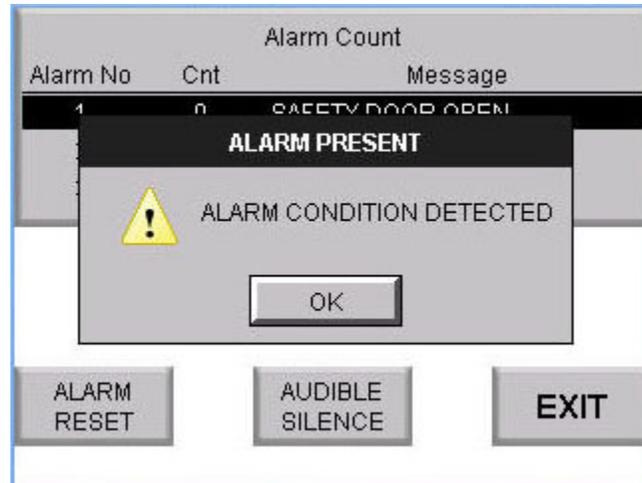
System Alarm Screens:



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

Detail s

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 DWEELL 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.

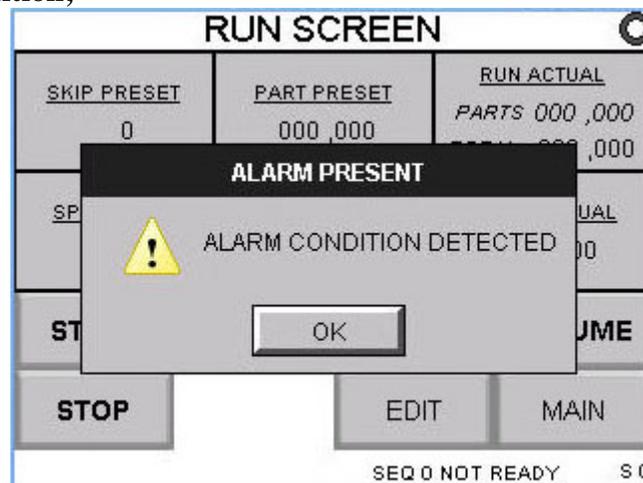


System Screens

- 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;

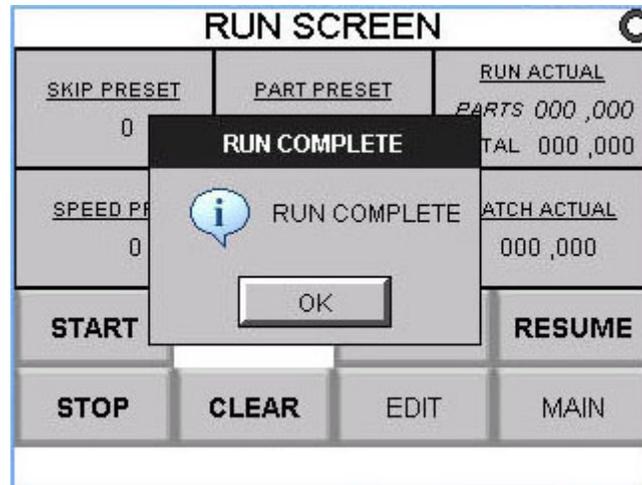
RUN SCREEN			
<u>SKIP PRESET</u> 0	<u>PART PRESET</u> 000 ,000	<u>RUN ACTUAL</u> PARTS 000 ,000 TOTAL 000 ,000	
<u>SPEED PPM</u> 0	<u>BATCH PRESET</u> 000 ,000	<u>BATCH ACTUAL</u> 000 ,000	
START	ALARM RESET		
STOP	ALARM SILENCE	EDIT	MAIN
SEQ 0 NOT READY S 0			

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 MACHINE PAUSED		RESUME
STOP	CLEAR	EDIT	MAIN
SEQ 0 NOT READY S 0			

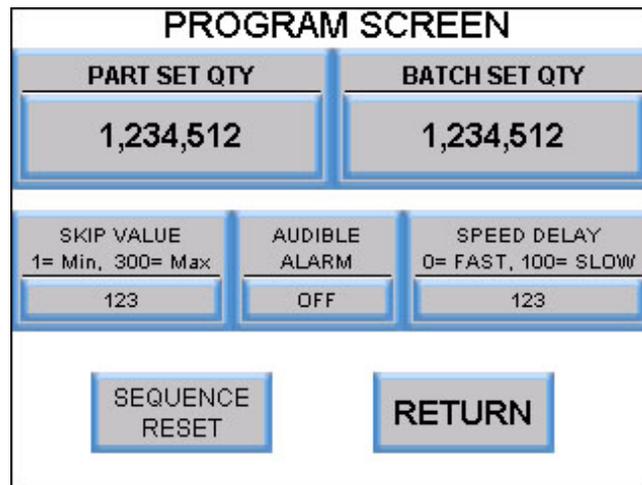
System Screens

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.



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 and many more.*

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

A. *No, the TAK series 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. The series 4L & 4H are available in 6" and 12" stroke length only. 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 ?

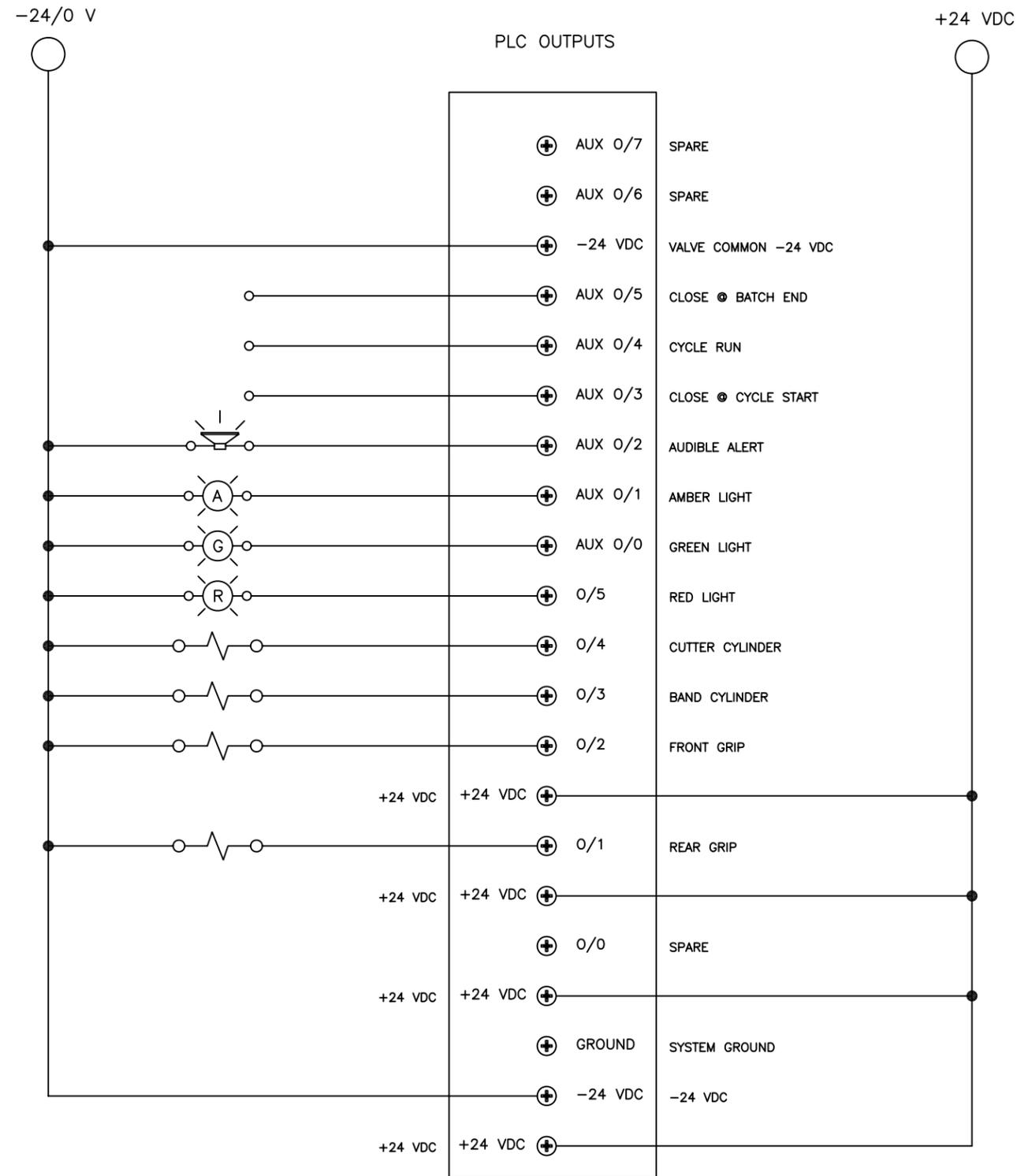
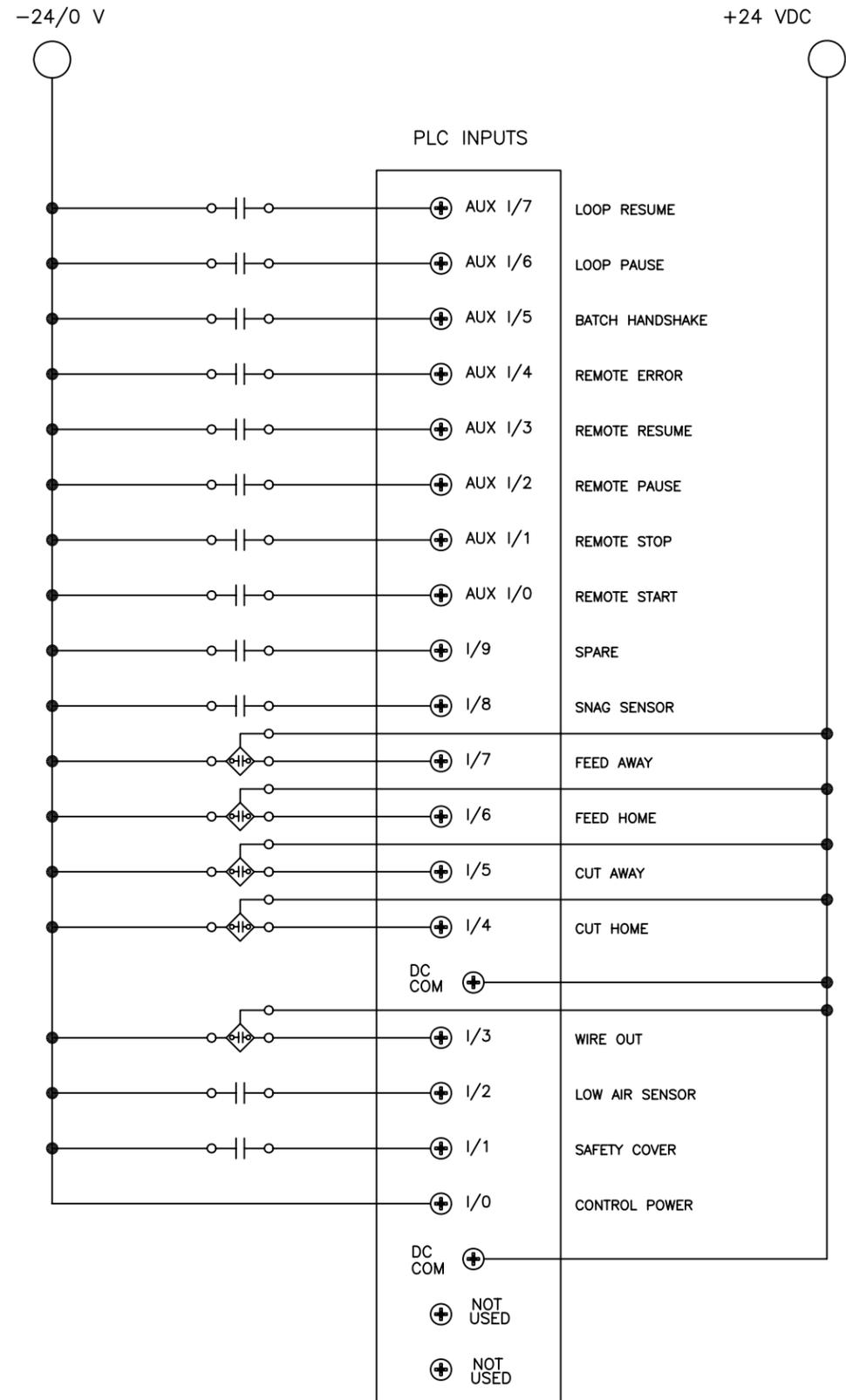
- A:**
1. Verify that there are no excessive back pressures in the wire decoiling system.
 2. If the machine stops during the cycle, check for binding through out the system.

Q: Cut pieces have marks on them.?

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

Q: My end cut is not good.?

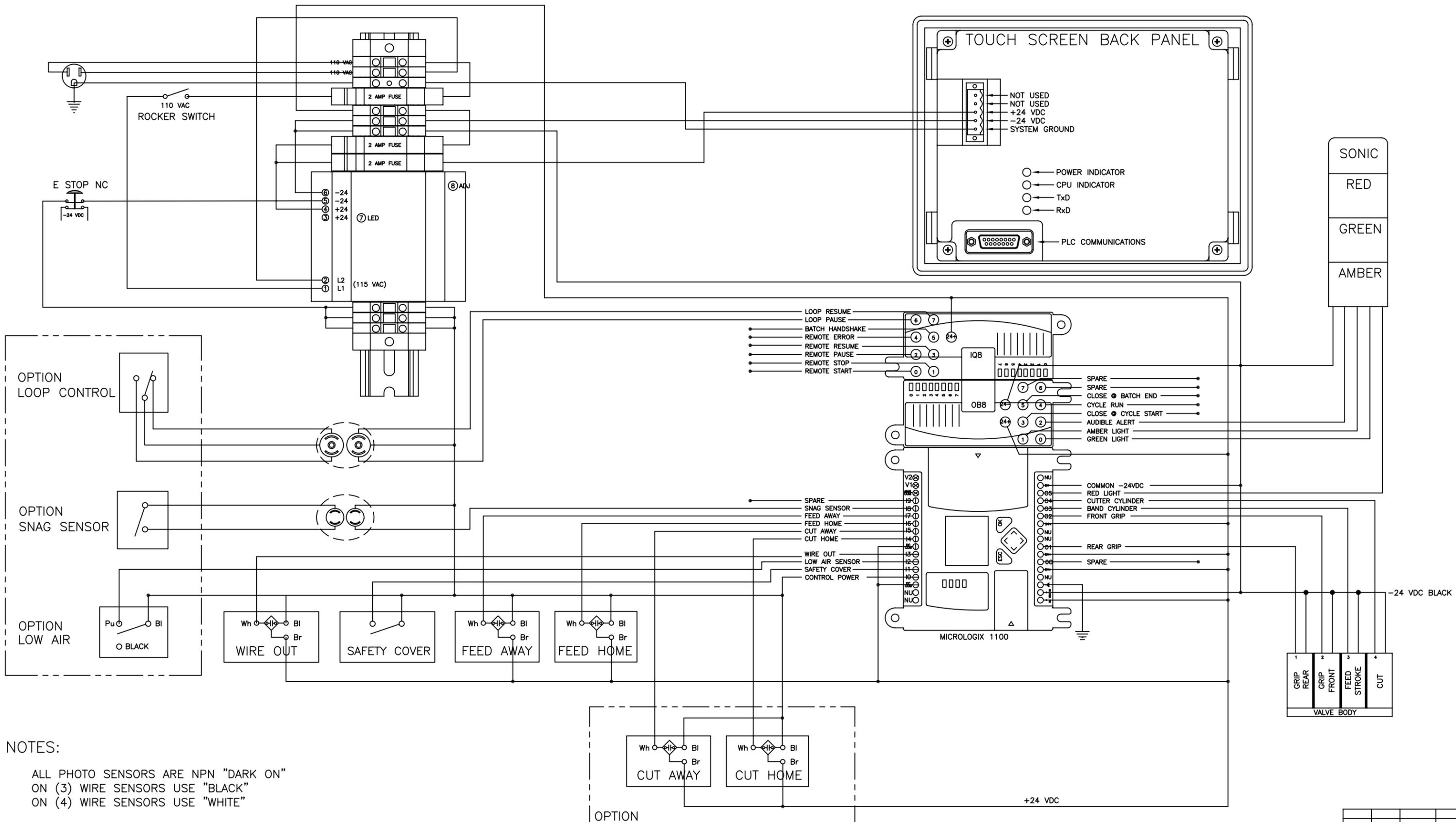
- A:**
1. Check that all components are in their proper place and secured correctly.
 2. Verify the operation of the grippers and cylinders.
 3. Remove the grippers and check for wear or contamination that would prevent them from closing.
 4. Check for material variation.



REV	ECN	CHG BY	DATE



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		



NOTES:
 ALL PHOTO SENSORS ARE NPN "DARK ON"
 ON (3) WIRE SENSORS USE "BLACK"
 ON (4) WIRE SENSORS USE "WHITE"
 ALL DRY CONTACTS ARE TO BE "NO"

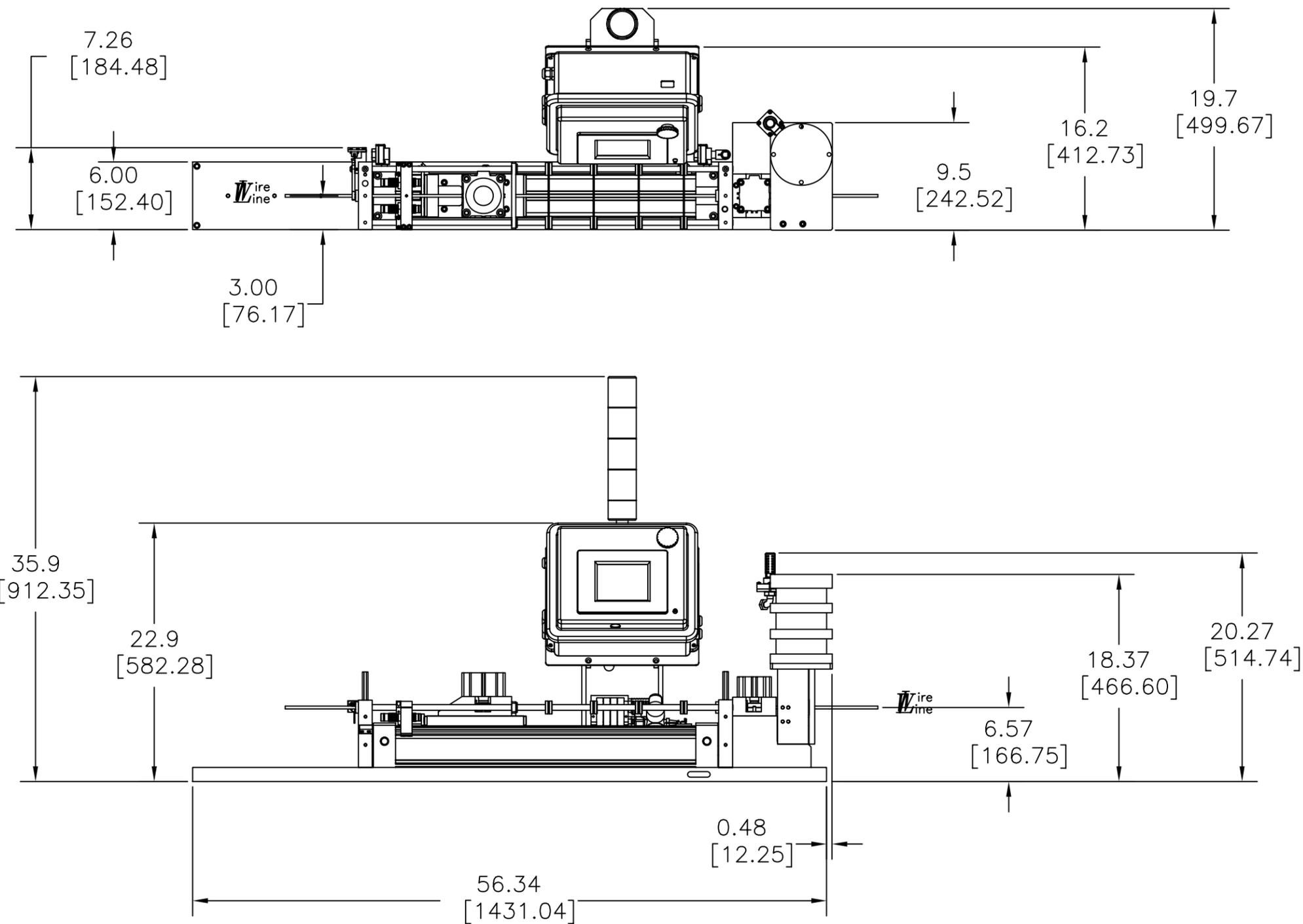
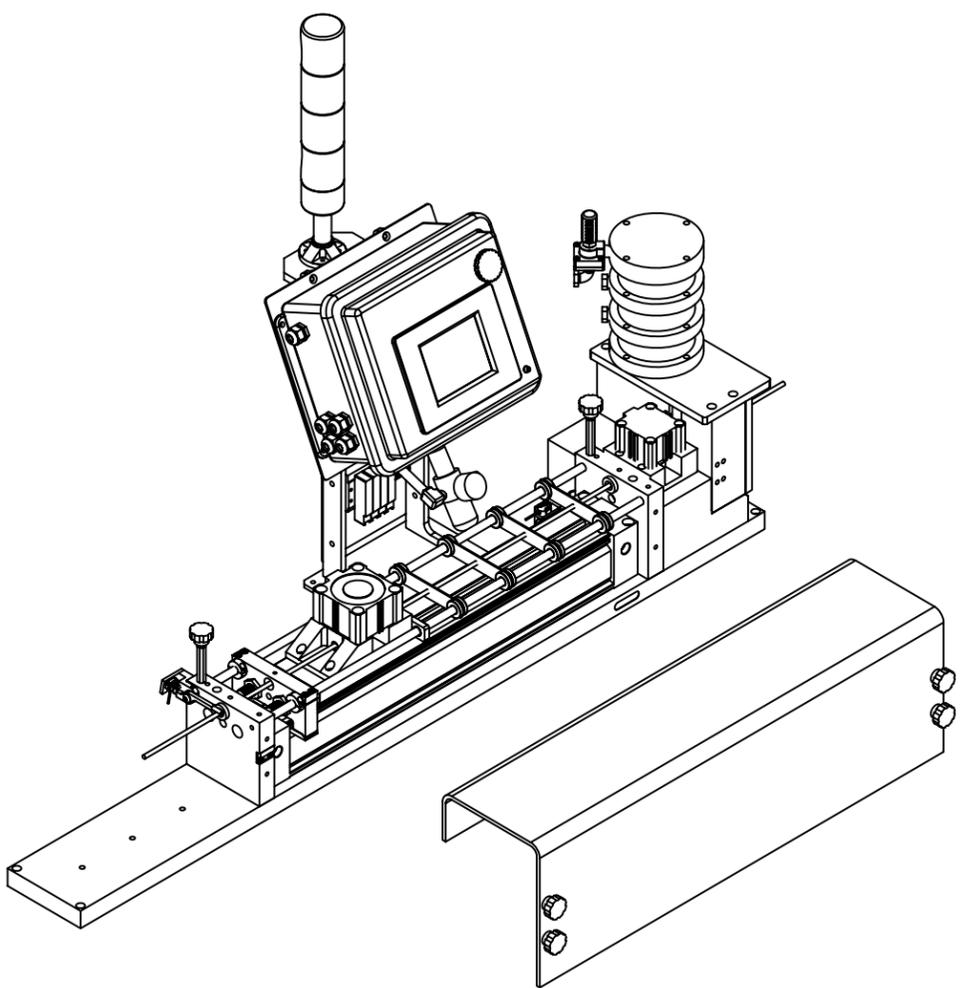
B	230B	GDH	072707
REV	ECN	CHG BY	DATE



TOLERANCE UNLESS OTHERWISE STATED		CAD	DRAWING / PART NO.
Δ ± 3"	FRACT +/- 1/16	DWN GDH	9111-101
\perp ± 0.0003	.X ± .032	CHK	PART NAME
\odot ± 0.0002	.XX ± .015	SCALE	STANDARD TOUCH SCREEN
\oplus ± 0.0005	.XXX ± .005	DATE 010307	CUSTOMER
\equiv ± 0.0005	.XXXX ± .0005		TAK

- NOTES: #3 UNIBODY - #4 UNIBODY - #4 QUICK RELEASE
 #3 PWS 2-PLANE ASSY. REF 1003-002 & BRKT 4004-126
 #3 PWS 4-PLANE ASSY. REF 1003-004 & BRKT 4004-171
 #4 PWS 2-PLANE ASSY. REF 1004-012 & BRKT 4004-158
 #4 PWS 2-PLANE QR ASSY. REF 1004-002 & BRKT 4004-146
 #5 PWS 2-PLANE ASSY. REF 1005-012 & BRKT 4004-172
 #5 PWS 2-PLANE QR ASSY. REF 1005-002 & BRKT 4004-150

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



A	230C	GDH	082207
REV	ECN	CHG BY	DATE

#4H SFC QUILL ON QUILL 12 " ASSY



TOLERANCE UNLESS OTHERWISE STATED		CAD	DRAWING / PART NO.
± 3"	FRACT +/- 1/16	DWN KPL	4004-062A
± 0.0003	.X ± .032	CHK	PART NAME
± 0.0002	.XX ± .015	SCALE	12" SF&C #4H DIMS
± 0.0005	.XXX ± .005	DATE 6/11/03	CUSTOMER
± 0.0005	.XXXX ± .0005		

NOTES: #3 UNIBODY - #4 UNIBODY - #4 QUICK RELEASE

#3 PWS 2-PLANE ASSY, REF 1003-002 & BRKT 4004-126

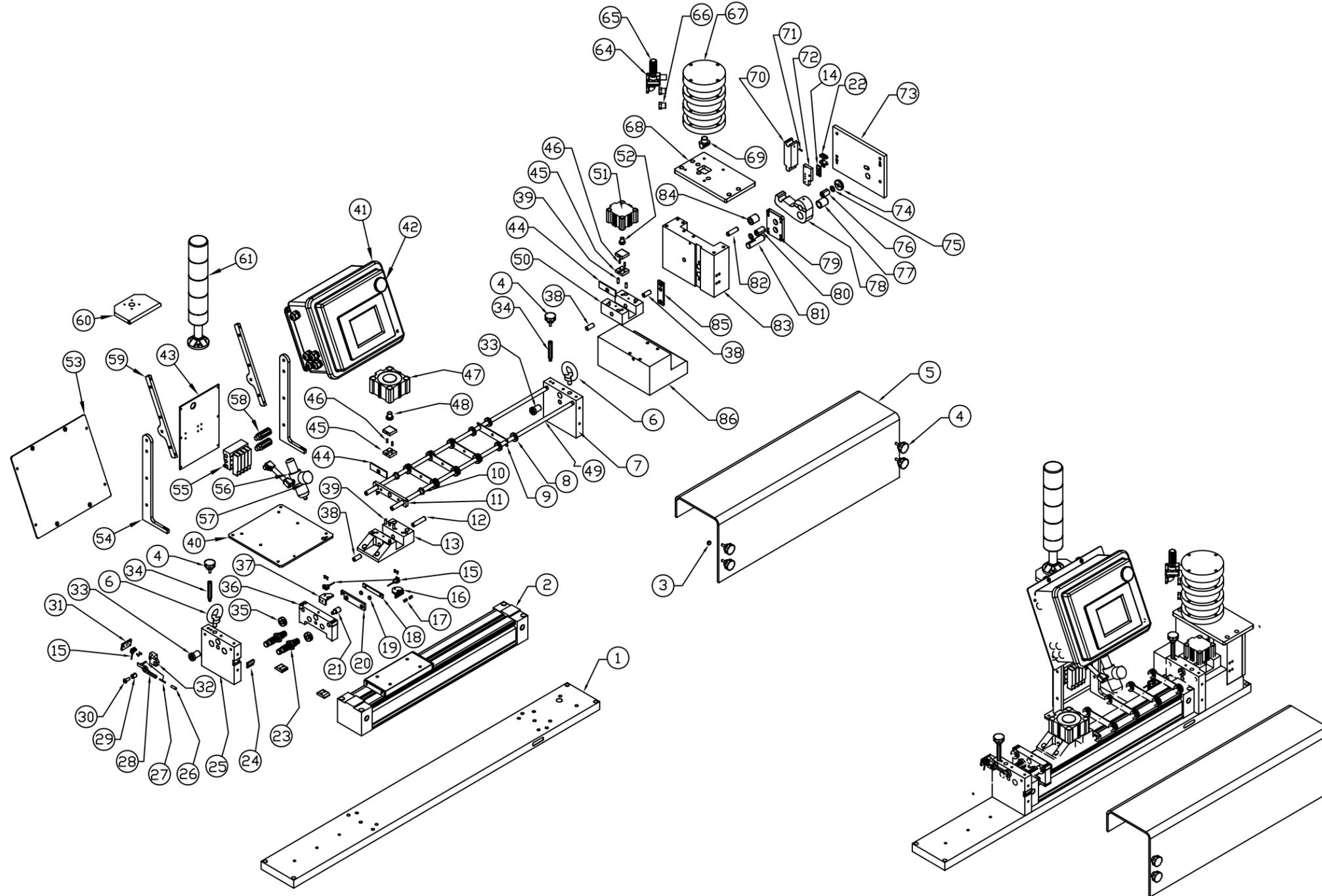
#3 PWS 4-PLANE ASSY, REF 1003-004 & BRKT 4004-171

#4 PWS 2-PLANE ASSY, REF 1004-012 & BRKT 4004-158

#4 PWS 2-PLANE QR ASSY, REF 1004-002 & BRKT 4004-146

#5 PWS 2-PLANE ASSY, REF 1005-012 & BRKT 4004-172

#5 PWS 2-PLANE QR ASSY, REF 1005-002 & BRKT 4004-150



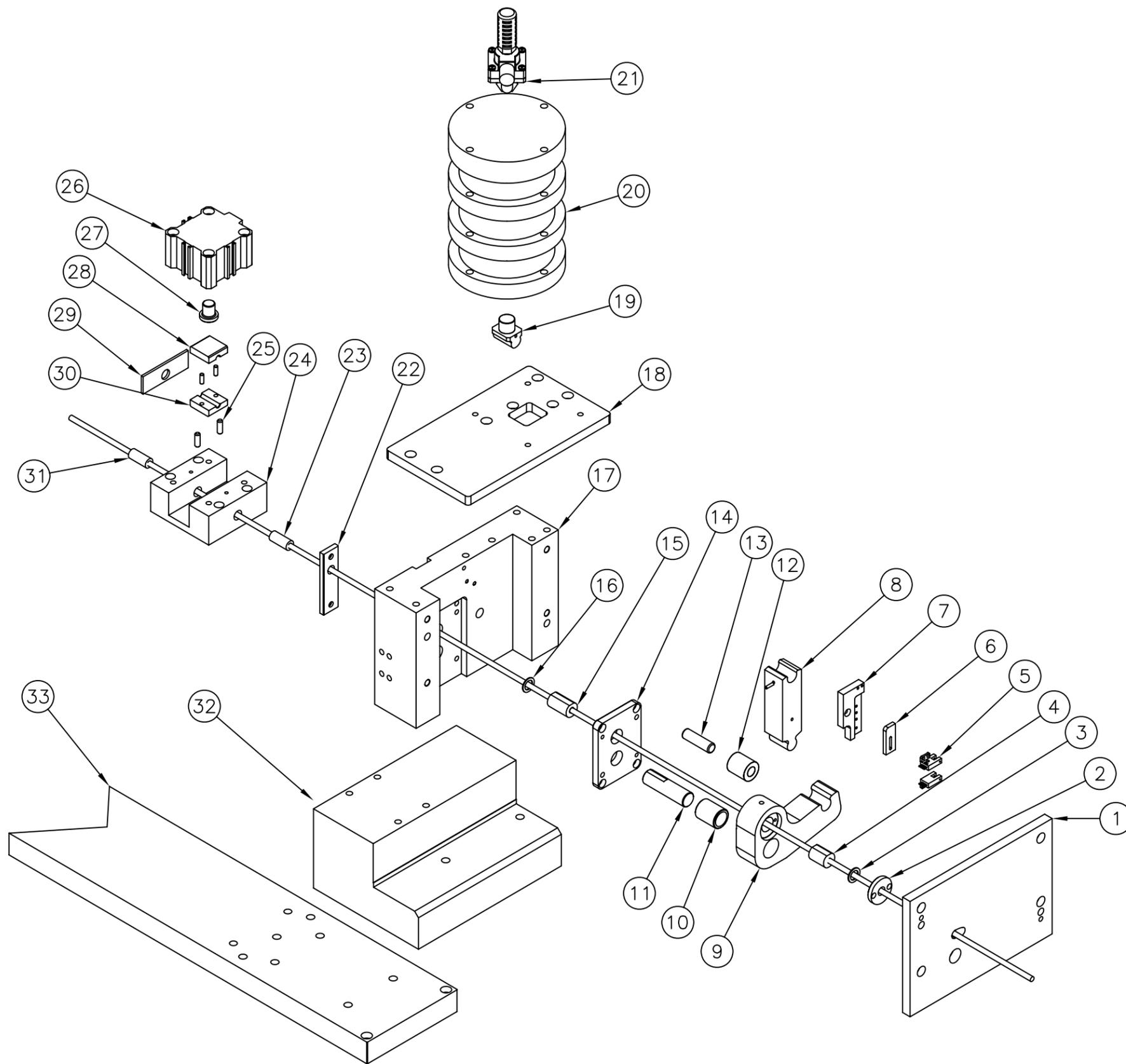
No.	PART NUMBER		QTY
1	4004-458	MAIN BASE PLATE	1
2	9400-406	BAND CYLINDER	1
3	9100-013	MAGNET	1
4	9010-011	PLASTIC KNOB	6
5	4100-107	LEXAN COVER	1
6	9010-020	EYEBOLT	2
7	4004-101	FRONT SUPPORT	1
8	9008-013	SHIM WASHER	16
9	4004-9XX	ACCUMULATING GUIDE PLATE	4
10	9311-001	DILITE BUSHING	2
11	4004-167	PHOTO TARGET PLATE	1
12	4004-58XX	FEED GUIDE	1
13	4004-102	REAR GRIPPER BODY	1
14	4004-194	SENSOR ADJUSTER	8
15	9100-044	SENSOR	3
16	4004-165	FRONT PHOTO BRACKET	1
17	4004-166	NUT (FRONT PHOTO BRKT #16)	2
18	4004-123	TRAVELING STOP SPACER	1
19	4004-124	TRAVELING STOP PIN	2
20	4004-168	TARGET STOP PLATE	1
21	9011-020	STOP BUTTON	1
22	9100-058/059	UPPER/LOWER SENSOR	2
23	9401-001	SHOCK STOP	2
24	9100-013	MAGNETIC REED SWITCH	1
25	4004-100	REAR SUPPORT	1
26	9802-007	WD NYLON TIP	1
27	9007-024	WD DOWEL PIN (REAR SENSOR)	2
28	4004-169	WD SENSOR ARM	1
29	4000-090	WD PIVOT BUSHING	1
30	9002-118	WD BHCS ATTACH	1
31	4000-088	WD SENSOR PLATE	1
32	4004-170	WD SENSOR MOUNT BRACKET	1
33	9800-008	CERAMIC INSERT	2
34	9011-015	HEX STAND OFF	2
35	9011-008	COLLAR (SPLIT)	2
36	4004-104	CLAMPING REAR STOP	1
37	4004-164	REAR PHOTO BRACKET	1
38	4004-5XX	FEED GUIDE	3
39	9007-041	DOWEL PIN (GRIPPER)	4
40	4000-093	MAIN MOUNT PLATE	1
41	4000-001	CONTROL BOX	1
42	9100-108	PUSH E-STOP BUTTON	1
43	4000-094	AIR MOUNTING PLATE	1
44	4004-113	GRIPPER WEAR PLATE	2
45	4004-6XX	GRIPPER (2 PCS. PER SET)	2
46	9020-022	SPRING (INTERNAL GRIPPER)	4
47	9400-528	GRIPPER CYLINDER 80MM	1
48	4000-077	GRIPPER PIN 80MM	1
49	4001-535	ACCUMULATING GUIDE SHAFT	2
50	4004-103	FRONT GRIPPER BODY	1
51	9400-512	GRIPPER CYLINDER 63MM	1
52	4000-076	GRIPPER PIN 63MM	1
53	4000-057	CONTROL ADAPTER PANEL	1
54	4000-096	UPRIGHT CONTROL BRACKET	2
55	9403-024	MAC 400 SERIES VALVE ASSY.	1
56	9402-008	AIR REGULATOR 3000	1
57	9402-006	AIR REGULATOR GAGE	1
58	9405-010	EXHAUST SILENCER	2
59	4000-095	CONTROL BOX BRACKET	2
60	4000-083	STACK LIGHT BRACKET	1
61	9103-008	STACK LIGHT	1
62			
63			
64	9402-009	DUMP VALVE	3
65	9405-011	SILENCER	1
66	9404-038	FILTER	2
67	9400-531	BIMBA TRIPLE ACTING	1
68	4004-136	CYLINDER ADAPTER PLATE	1
69	4010-205	CYLINDER PIVOT	1
70	4004-134	CUTTER ARM LINK	1
71	9007-020	Ø.125 X .50 LG DOWEL PIN	1
72	4004-193	FRONT SENSOR BRACKET	1
73	4004-131	CUTTER ARM COVER	1
74	4004-135	CUTTER ARM QUILL BACKER CAP	1
75	9008-002	QUILL ADJUSTMENT SHIM	2
76	4004-8XX	TRAVELING QUILL	1
77	9311-006	DILITE BUSHING	1
78	4004-160	CUTTER ARM	1
79	4004-163	CUTTER ARM BACKER	1
80	4004-7XX	STATIONARY QUILL	1
81	4004-137	CUTTER ARM PIVOT SHAFT	1
82	9007-085	DOWEL DIA .250 X 1.75 LG	1
83	4004-159	CUTTER BODY	1
84	4004-173	SLEEVE	1
85	4004-132	QUILL BACKER BLOCK	1
86	4004-129	CUTTER BASE	1
87	9020-028	HOOR GLASS SPRINGS (NOT SHOWN)	10
88			

4H SF&C QUILL ON QUILL 12" ASSY & PARTS LIST



TOLERANCE UNLESS OTHERWISE STATED	CAD	DRAWING / PART NO.
± .0003	DWN GDH	4004-062
± .0002	CHK	PART NAME
± .0005	SCALE	12" SF&C #4H ASSY.
± .0005	DATE 120205	CUSTOMER
		EXPLODED VIEW

REV	ECN	CHG BY	DATE



PART LISTING			
#	PN #	DESCRIPTION	QTY
1	4004-131	CUTTERARM COVER	1
2	4004-135	CUTTRE ARM QUILL BACKER	1
3	9008-002	ADJUSTING SHIM	AR
4	4004-8XX	TRAVELING QUILL	1
5	9100-058/059	UPPER/LOWER SENSOR	2
6	4004-194	LOWER SENSOR ADJUSTER	1
7	4004-193	FRONT SENSOR BRACKET	1
8	4004-134	CUTTER ARM LINK	1
9	4004-160	CUTTER ARM	1
10	9311-006	OILITE BUSHING	1
11	4004-137	CUTTER ARM PIVOT SHAFT	1
12	4004-173	STOP SLEEVE	1
13	9007-058	DOWEL	1
14	4004-163	CUTTER ARM BACKING PLATE	1
15	4004-7XX	STATIONARY QUILL	1
16	9008-002	ADJUSTING SHIM	AR
17	4004-159	CUTTER BODY	1
18	4004-136	CYLINDER ADAPTER PLATE	1
19	4010-205	CYLINDER PIVOT	1
20	9400-531	TRIPLE ACTING CUTTER CYLINDER	1
21	9402-009	EXHAUST DUMP VALVE	1
22	4004-132	QUILL BACKER BLOCK	1
23	4004-5XX	FEED GUIDES	1
24	4004-103	GRIPPER BODY	1
25	9007-041	GRIPPER DOWEL	2
26	9400-512	GRIPPER CYLINDER	1
27	4000-077	63 MM GRIPPER PIN	1
28	4004-6XX	GRIPPER	1
29	4004-113	GRIPPER WEAR PLATE	1
30	4004-6XX	GRIPPER	1
31	4004-5XX	FEED GUIDES	1
32	4004-129	CUTTER BASE	1
33	4004-4XX	MAIN BASE PLATE	1
34			
35			
36			
37			
38			

REV	ECN	CHG BY	DATE



TOLERANCE UNLESS OTHERWISE STATED		CAD	DRAWING / PART NO.
Δ \pm .3"	FRACT +/- 1/16	DWN GDH	#4 SF&C
\perp \pm 0.0003	.X \pm .032	CHK	PART NAME
\odot \pm 0.0002	.XX \pm .015	SCALE	GENERIC 4H CUT HEAD
\oplus \pm 0.0005	.XXX \pm .005	DATE 082207	CUSTOMER
\ominus \pm 0.0005	.XXXX \pm .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.