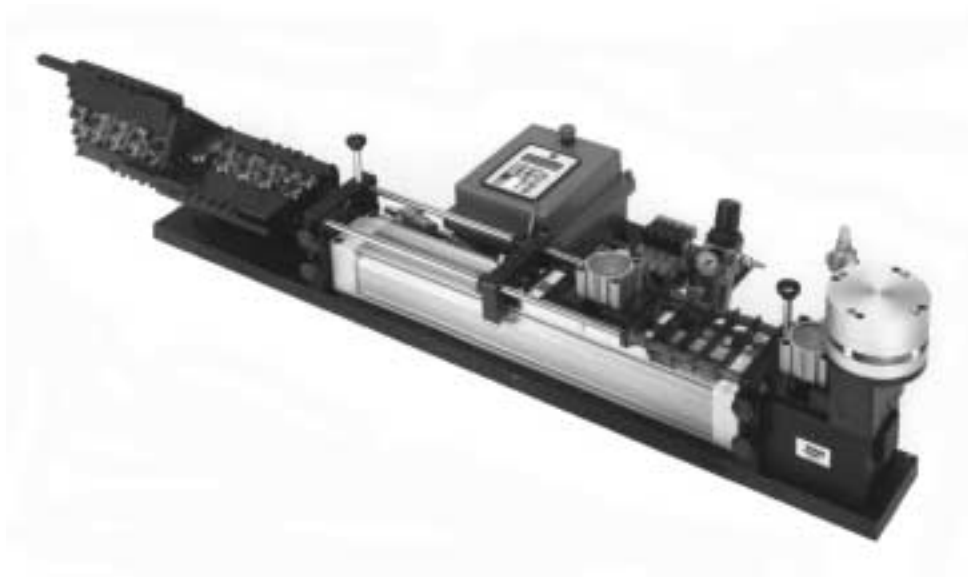


TAK Enterprises, Inc.



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



70 Enterprise Drive • Bristol, CT 06010-7400
(860) 583-0517 • (860) 585-0479

E-mail: tak@takenterprises.com • www.takenterprises.com

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:

- 1) Check for proper air supply and recommended 80 PSI pressure.
- 2) Check for proper electrical connection.
- 3) Check that all components are in their proper place and secured correctly.
- 4) Check that the safety cover is on and in the proper position.

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.

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.

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* (#44) greased. And if you have a *Precision Wire Straightener*, please keep all moving parts clean and lightly oiled.

Disclaimer

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WARNING!

BEFORE PROCEEDING, unplug the unit from 120 VAC outlet. Disconnect the air supply line coming from the source. **DO NOT** connect the air until the unit is completely adjusted and ready to run according to the following instructions:

TAK FEED & CUT-OFF SYSTEM

Note: If your “*Feed and Cut System*” has a straightening unit attached, read completely “*Instructions For Straightening*” before proceeding. The material should be straightened prior to setting the feed and cut section. Once you have straightened the material to your requirements you need to adjust the feed length.

Note: The *front gripper body* (#44) is used to clamp the material when the *Feed and Cut System* is connected to 120 VAC and air supply is connected. For this reason, the air and power must be disconnected.

Note: 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 but firm enough to prevent them from working loose during operation. The majority of threads on the machine are into aluminum and with proper care they should last indefinitely.

Step 1. Remove *lexan safety cover* (#7) by removing (6) *plastic knobs* (#6).

Step 2. Feed the material from the left through the hole in *rear gripper body* (#3), through all of the *accumulating Guide Plates* (#4) and through *front gripper body* (#44). Feed the material all the way through the *cutter body* (#49) and pull out approximately 2". Loading is now complete.

Step 3. To roughly estimate the length of the material to be cut push the *slide* 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 stop* (#23) on the rear of the *slide* to the *stop screw* (#20) face located in the *rear stop block* (#24). Loosen the all clamping screws and move the *rear stop block* (#24) to the desired stroke length required. Retighten the all clamping screws. Push the *slide* with *rear gripper body* (#3) as far to the left as possible. This will position the *slide* against the *rear stop block* (#24). Be sure to push it far enough to collapse the *gas shock stop* (#19) and bottom out against the *rear stop screw* (#20). Make sure the wire is still sticking out of the *cutter body* (#49) as described in Step 1.

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. The following step

might cause the unit to jump to its starting position if the *slide* was not pushed to the far left position against the *stop screw* (#20). Replace *lexan safety cover*, unit will not run until sensors make contact.

Step 4. Plug unit into a standard 120 volt AC 60 Hz grounded outlet. Connect the air line to a source of clean, dry air at approximately 60-80 psi. **NEVER** exceed 120 psi. This will cause the *front gripper cylinder* (#12) to activate and grip the material firmly so it will not move.

Step 5. Momentarily press the manual activation button located on the *air valve assembly* (#37) that controls the *cutoff cylinder* (#47) so that the material will be cut off.

Step 6. Set the desired number of samples you wish to cut by using the counter buttons on the face of the *touch pad*. Push “START” to run the sample parts and check length.

If length is not correct and needs adjustment:

WARNING!

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

Step 7. Measure the distance from the *rear shaft support* (#27) or a clamp placed on the *accumulating guide rod* (#17), to the back of the *rear stop block* (#24). This reference dimension will be used to adjust the *rear stop block* (#24) to achieve the correct blank length you desire.

Step 8. For fine adjustment, loosen the four top clamping screws and the four lower clamping screws on the *rear stop block* (#24). Move the *rear stop block* (#24) either towards the cutter end to get a shorter blank or towards the *rear shaft support* (#27) 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* (#27) or the clamp and the *rear stop block* (#24).

Step 9. Gently move the *rear stop block* (#24) to the new calculated dimension and tighten all clamping screws on the *rear stop block* (#24).

Step 10. Push the *slide* firmly against the *rear stop block* (#24), replace *lexan safety cover* and reconnect the air supply.

Step 11. Repeat step #5

Step 12. If necessary, repeat step #5 through #9 to obtain proper material length.

DIAMETER CHANGEOVER SET-UP

Components Necessary:

- (1) Traveling Quill
 - (1) Stationary Quill
 - (4) Feed Grippers
 - (4) Accumulating Guide Plates - **ONLY IF NEEDED**
- (Most components have the diameter/size etched into it.)

Note: Before attempting to change set-up, make sure the air supply is disconnected and the unit is unplugged and remove *lexan safety cover*.

Step 1. Remove all material from feed mechanism.

Step 2. Skip this step's procedure if the new size or shape doesn't require a guide change. Remove the *accumulating guide plates* (#4). Replace the *accumulating guide plates* (#4) with the proper size or shape for the new material being processed.

Step 3. Remove *rear gripper cylinder* (# 12) by removing the retaining cap screws on top.

Step 4. Remove upper and lower *feed grippers* (#13), positioned within the *rear gripper body* (#3). Loosen set screw retaining the *feed guide* (#50) in the *rear gripper body* (#3), located at the entry end. Push the *feed guide* (#50) out of the *rear gripper body* (#3) and remove.

Note: All lead-in holes with counter-sinks on the *feed guides* (#50) must be facing to the feed in side.

Step 5. Take the appropriate *feed guide* (#50) (for the size and shape you are switching to) and insert it into the hole in the *rear gripper body* (#3). The lead-in counter-sunk hole end of the *feed guide* (#50) must be facing toward the left and the *feed guide* (#50) must be flush against the inside of the *rear gripper body* (#3). (DO NOT force the *feed guide* (#50) against the free moving *feed grippers* (#13).)

Step 6. Place a *feed gripper* (#13) into the center of the *rear gripper body* (#3) with the ground groove traversing from left to right, the same as the material line. Place the second *feed gripper* (#13) on top of the first, aligning the radii or "V" groove. A material sized for the grippers, should move freely through the *feed grippers* (#13) until pressure is applied.

Step 7. Replace the *rear gripper cylinder* (#12).

Step 8. Replacement of *feed grippers* (#13) and *feed guide* (#50) for *front gripper body* (#44) is the same procedure outlined in steps #3-7.

Step 9. Cutter Change Over: Remove the *cutoff cylinder* (#47) by removing the four retaining cap screws that hold the *cutoff cylinder* (#47) to the *cylinder adapter plate* (#48). Then remove the four cap screws that hold the *cylinder adapter plate* (#48) to the *cutter body* (#49).

Step 10. Remove the *cutter body* (#49) by removing two cap screws that hold it to the *cutter base* (#40). Then slide the *cutter body* (#49) to the right to remove. Now you can remove the *stationary quill* (#51) from the *cutter body* (#49) by loosening the retaining set screws with an Allen wrench. Remove the *cutter arm cover* (#45) then remove the *traveling quill block* (#42). Remove the *traveling quill* (#52).

Step 11. Re-install the *stationary quill* (#51) using the correct amount of shims behind the quill to make it flush to the inner surface of the *cutter body* (#49), tighten the quill retaining set screws with your hex wrench. Re-Install the *traveling quill* (#52) and recess it from the face of the *traveling quill block* (#42) using the correct amount of shims behind the quill to make it the predetermined amount for the clearance for the type and diameter of material being cut. Tighten the quill retaining set screws with your hex wrench. Re-install the *traveling quill block* (#42) into the *cutter body* (#49). Replace the *cutter arm cover* (#45)

Step 12. Re-mount the *cutter body* (#49) to the *cutter base* (#40). Replace *cylinder adapter plate* (#48) and *cutoff cylinder* (#47).

Step 13. Replace *lexan safety cover* 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.

Step 14. Before proceeding, remove any tools or objects from the feed. Momentarily press the manual activation button located on the *air valve assembly* (#37) that controls the *cutoff cylinder* (#47) and test for the proper cutter movement.

To Change Number of Strokes per cut:

The *Feed & Cut System* must not be running when you change the # of strokes per cut. Stop the machine and press the stroke increase or decrease buttons on the *touch pad* to desired number of strokes by observing the numbers in the *LCD* screen. Re-start the unit and proceed as before.



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 | | |



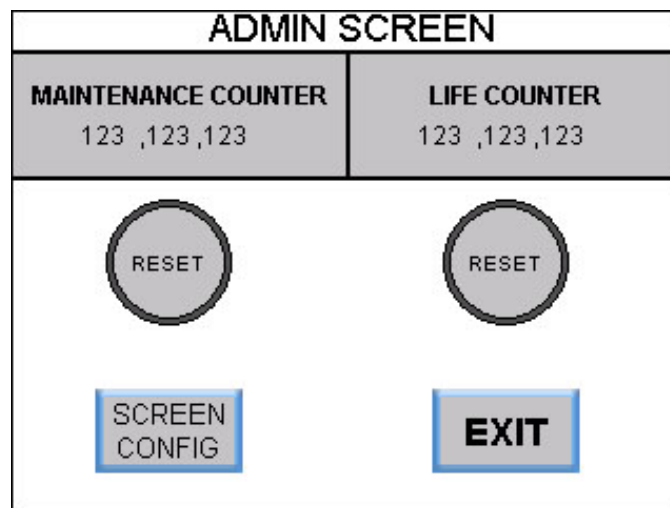
System Screens

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.

TAK Admin Screen:



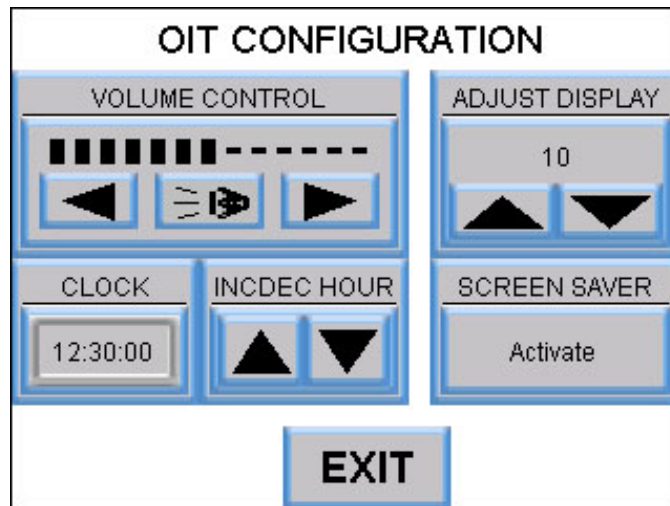
From the Main TAK Intro screen a “Supervisory” password will be necessary to access this screen.

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.



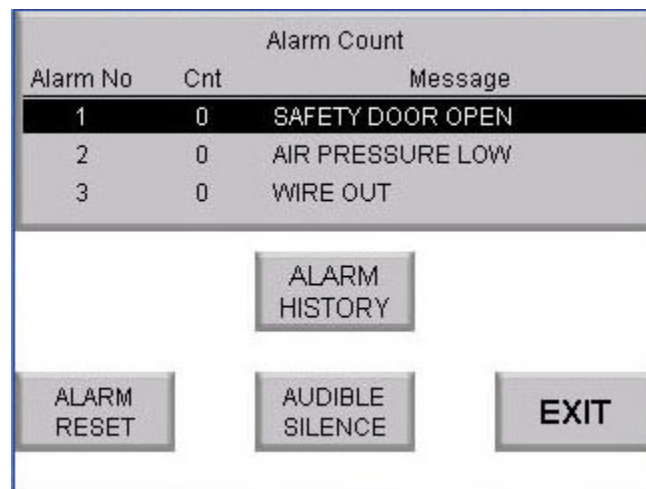
System Screens

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 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 | | | |

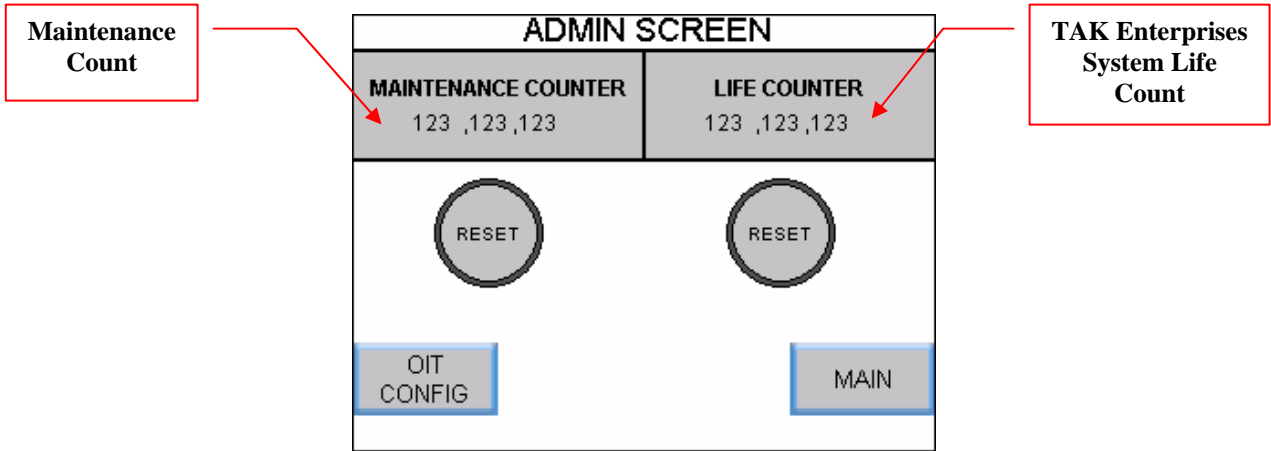
Fig 4

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.



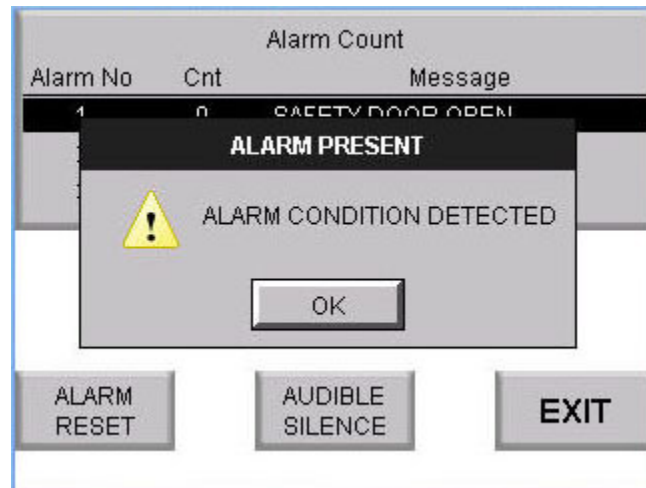
Disclaimer



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

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.

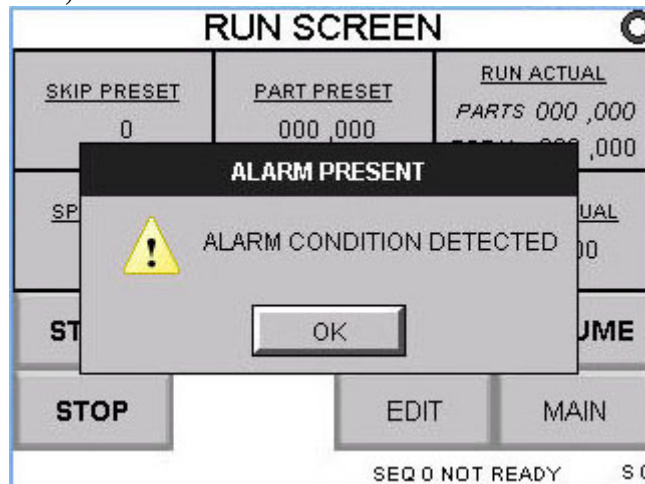


System Screens

- 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 | RESUME | |
| STOP | CLEAR | EDIT MAIN |
| SEQ 0 NOT READY S 0 | | |

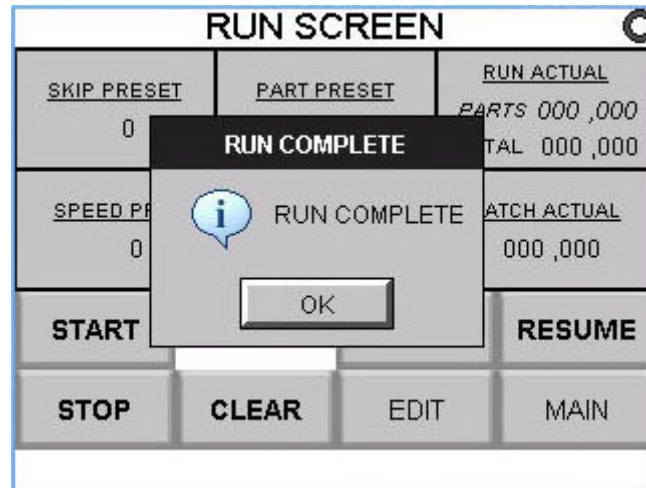
MACHINE PAUSE

i MACHINE PAUSED

OK

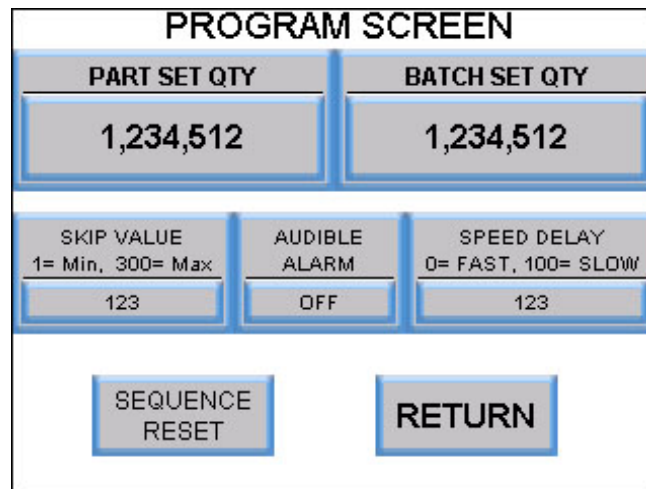
System Screens

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

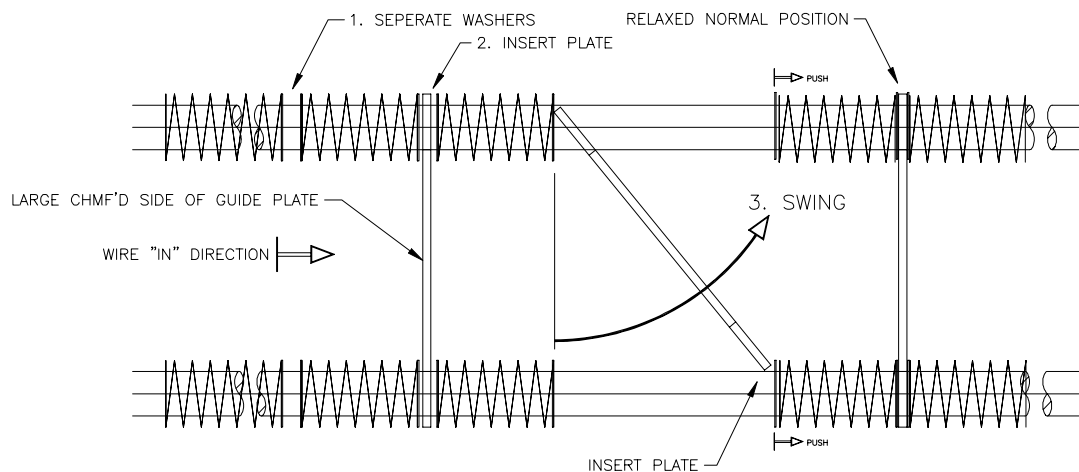
Part quantity entry; By touching the number section on the part set quantity section of the screen, a keypad will popup. Enter the desired quantity to produce and touch enter.

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

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)





**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)*

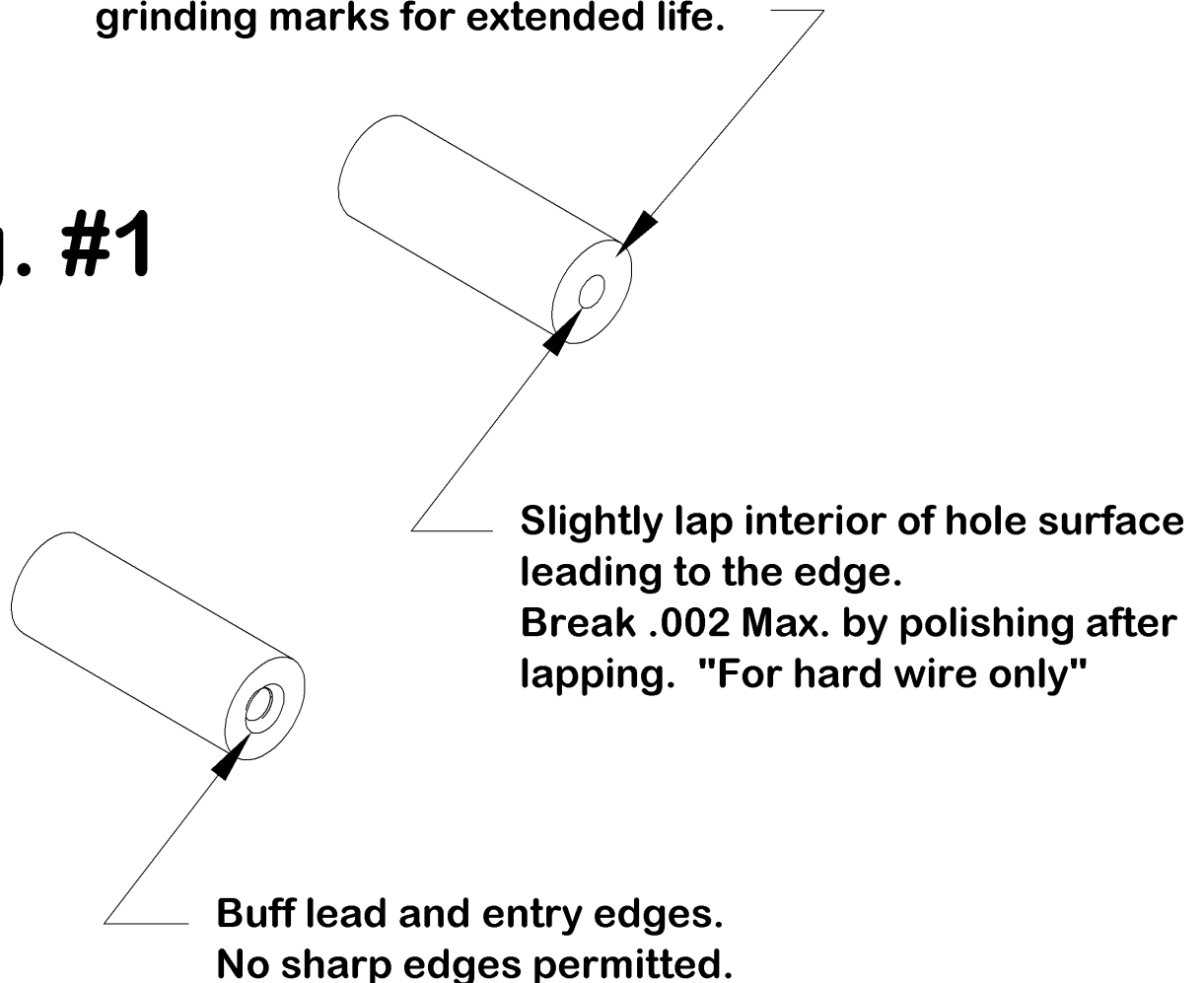
Set *traveling quill* (#56) with surface (A) (Fig 1) flush or below the quill block surface (D). (Fig 3) Do not extend out from surface (D).

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:

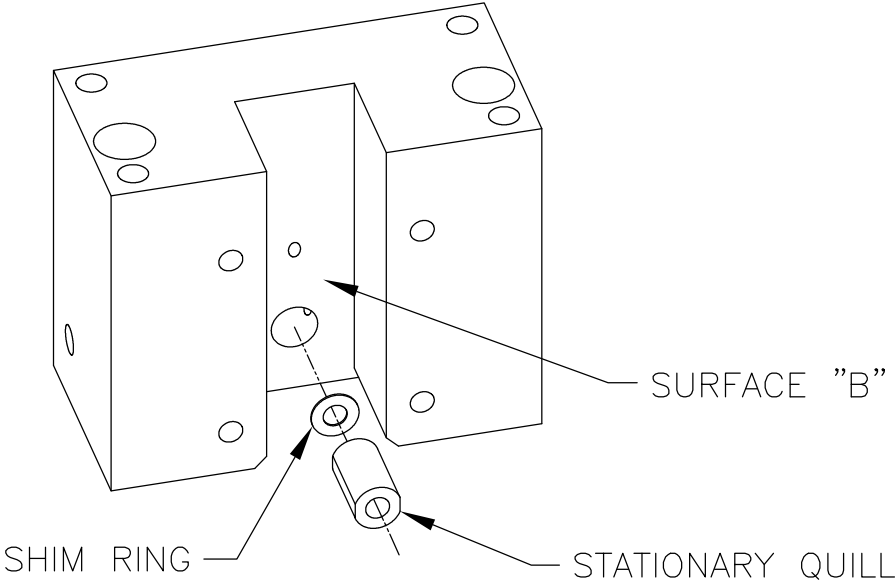
**Cut-off quill cutting face.
Lap smooth to remove any
grinding marks for extended life.**

Fig. #1



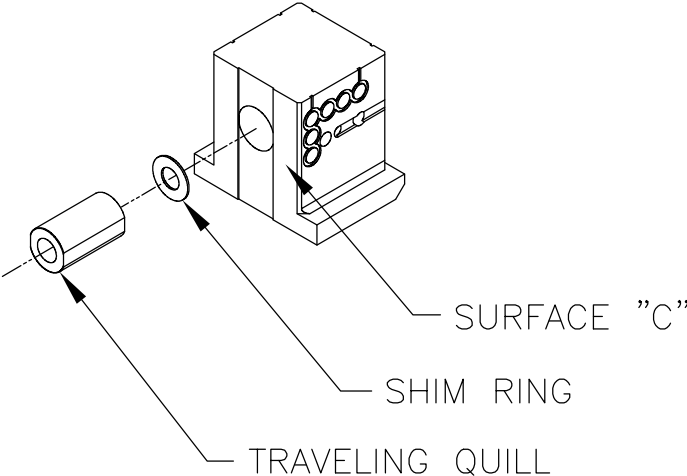
CUTTER BODY

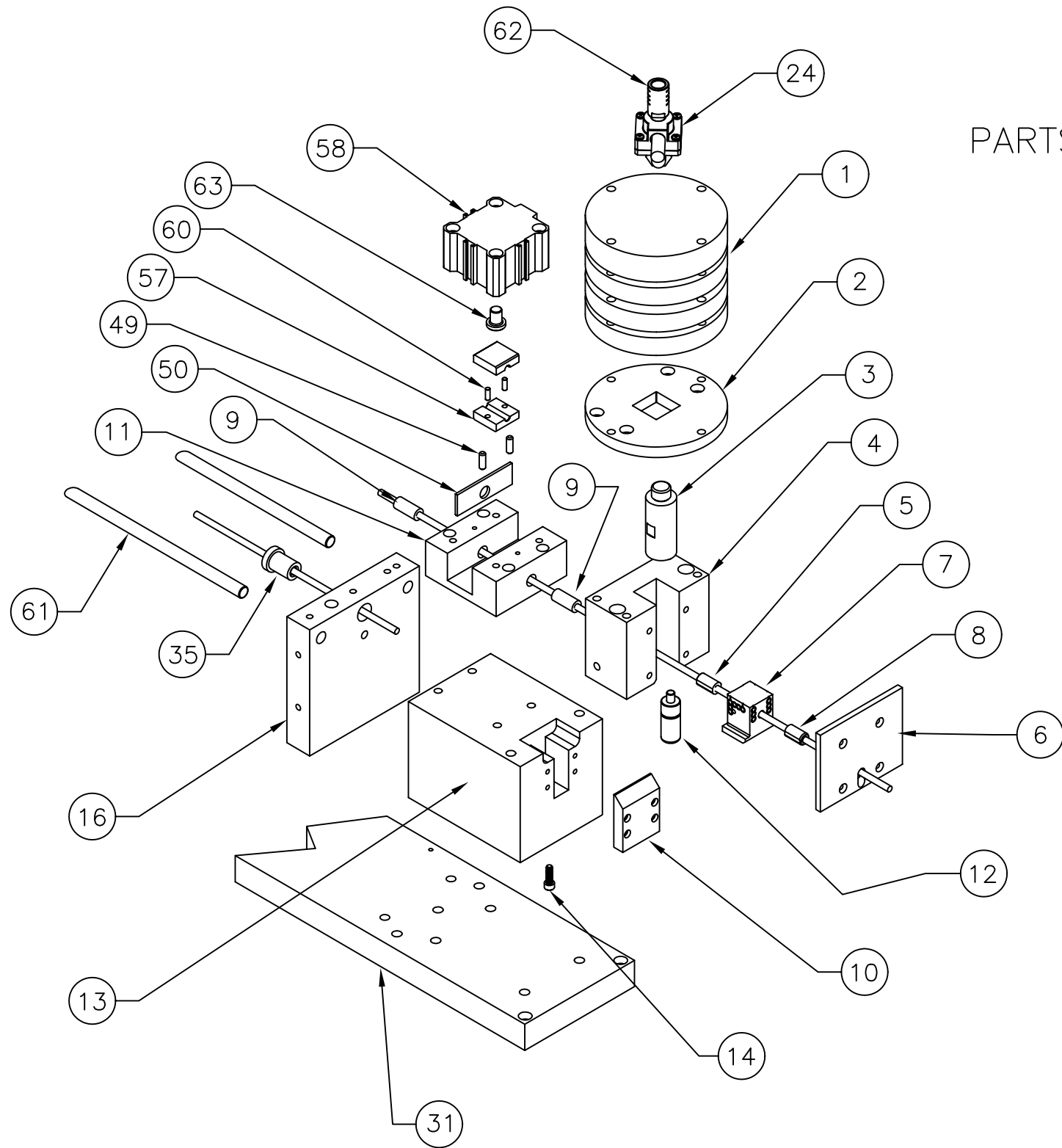
Fig #2



TRAVELING QUILL BLOCK

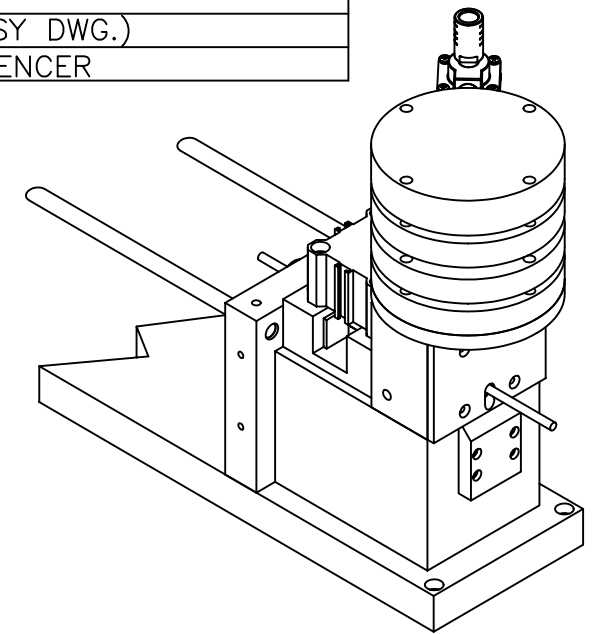
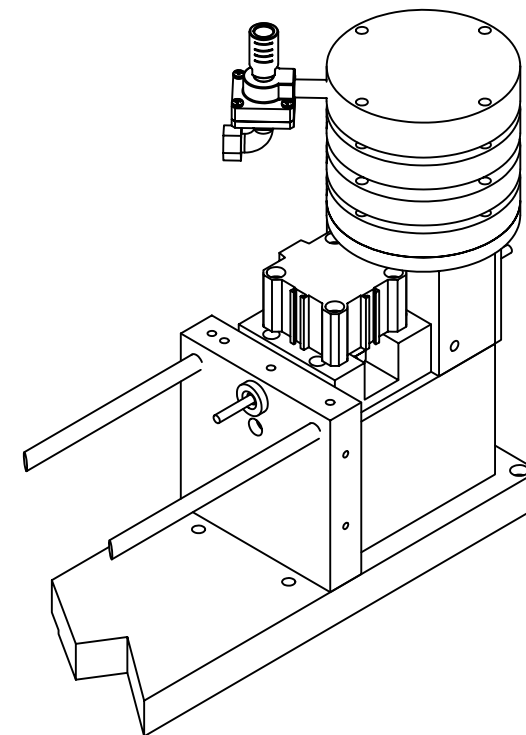
Fig #3





PARTS LIST

| ITEM | P/N# | REV | DESCRIPTION | MATERIAL REQ'D. | R.C. |
|------|----------|-----|----------------------------|-----------------|------|
| 1 | 9400-533 | | BIMBA TRIPLE CYLINDER | | |
| 2 | 4004-118 | | CYLINDER ADAPTOR | | |
| 3 | 4004-108 | B | CYLINDER EXTENDER | | |
| 4 | 4004-106 | B | CUTTER BODY | | |
| 5 | 4004-2XX | | STATIONARY QUILL | | |
| 6 | 4004-110 | | CUTTER ARM COVER | | |
| 7 | 4004-109 | C | QUILL BODY BLOCK | | |
| 8 | 4004-3XX | | CUT OFF QUILL | | |
| 9 | 4004-5XX | | FEED GUIDE | | |
| 10 | 4004-111 | | GAS COVER | | |
| 11 | 4004-103 | F | FRONT GRIPPER BODY | | |
| 12 | 9020-500 | | NITROGEN SPRING | | |
| 13 | 4004-105 | | CUTTER BASE | | |
| 14 | 900M-041 | | M6-1 X 20MM SHCS | | |
| 16 | 4004-101 | E | FRONT SUPPORT | | |
| 24 | 9402-009 | | QUICK EXHAUST (DUMP VALVE) | | |
| 31 | 4004-4XX | | BASE PLATE (PER ASSY.) | | |
| 35 | 9800-008 | | CERAMIC GUIDE | | |
| 49 | 9007-041 | | DOWEL PIN | | |
| 50 | 4004-113 | C | GRIPPER WEAR PLATE | | |
| 57 | 4004-6XX | | FEED GRIPPER | | |
| 58 | 9400-512 | | CLAMP CYLINDER 63 MM | | |
| 59 | 4000-076 | | GRIPPER PIN 63MM | | |
| 60 | 9020-022 | | GRIPPER SPRING | | |
| 61 | 4001-5XX | | SHAFTS (SEE ASSY DWG.) | | |
| 62 | 9405-011 | | AIR EXHAUST SILENCER | | |



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

#04L CUTTER HEAD ASSY

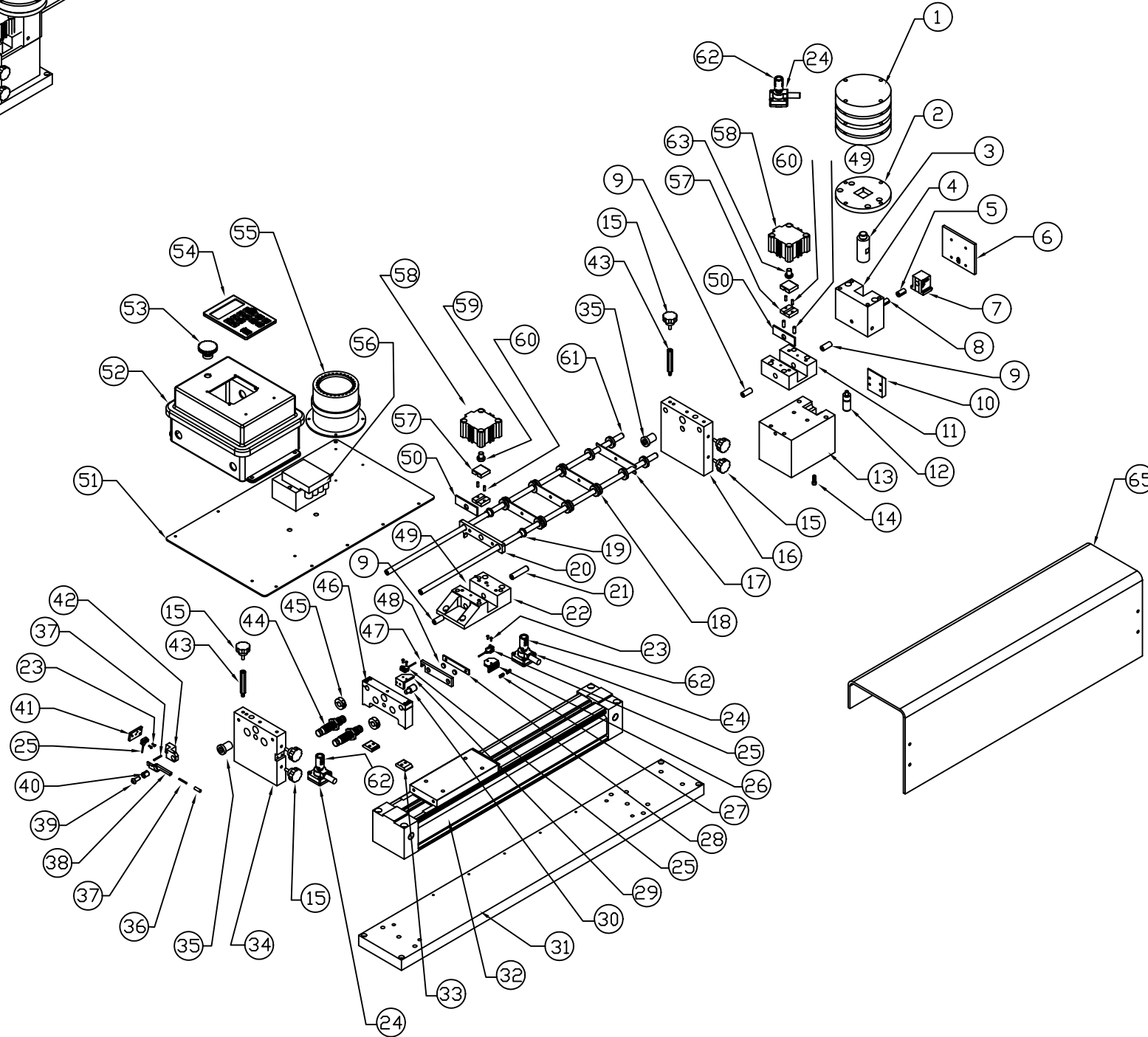
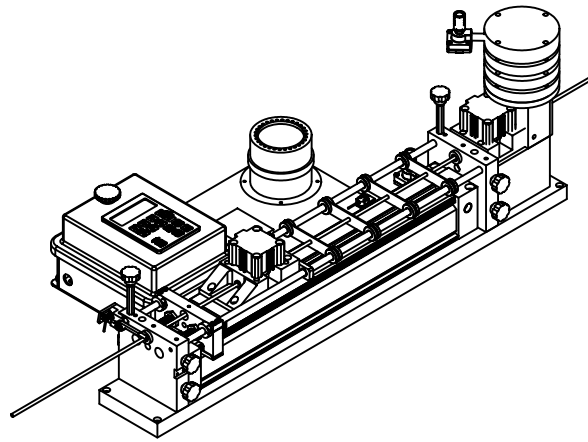
QUILL ON QUILL



| TOLERANCE UNLESS OTHERWISE STATED | |
|-----------------------------------|-------------------|
| $\pm 3'$ | FRACT +/- 1/16 |
| $\perp \pm 0.0003$ | .X $\pm .032$ |
| $\odot \pm 0.0002$ | .XX $\pm .015$ |
| $\oplus \pm 0.0005$ | .XXX $\pm .005$ |
| $\equiv \pm 0.0005$ | .XXXX $\pm .0005$ |

| | | |
|-------|---------|-----|
| CAD | DWN | KPL |
| CHK | | |
| SCALE | | |
| DATE | 1/20/03 | |

DRAWING / PART NO.
4004 SF&C
PART NAME
CUTTER HEAD ASSY.
EXPLODED & PART LIST
CUSTOMER



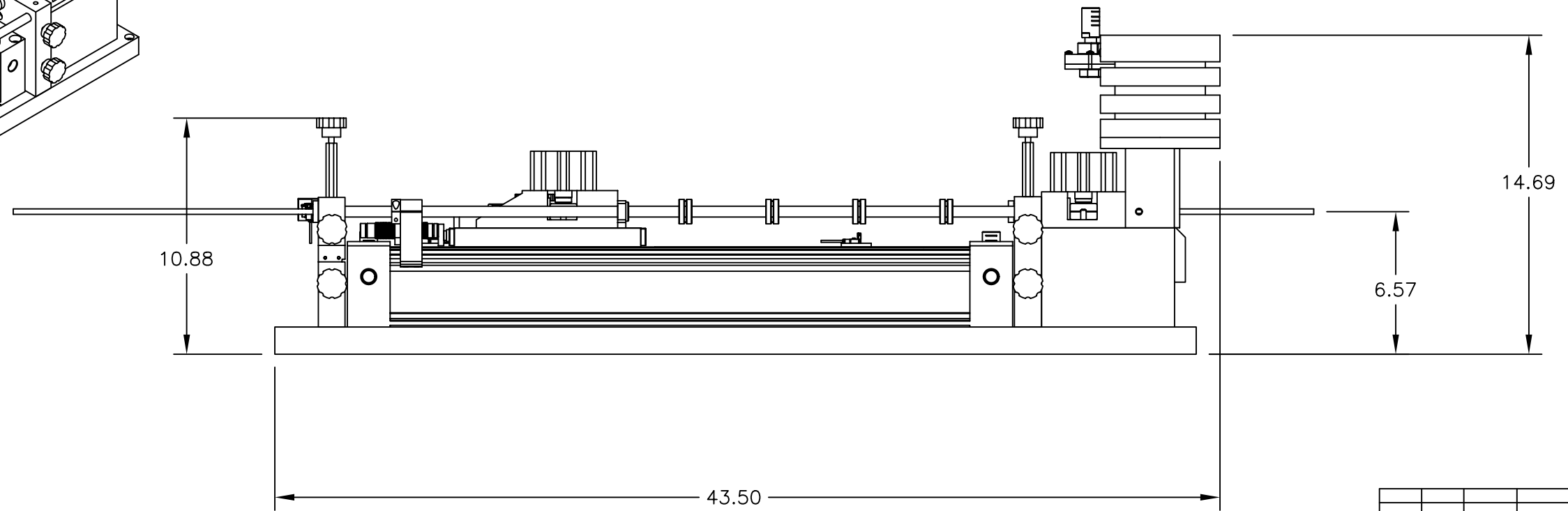
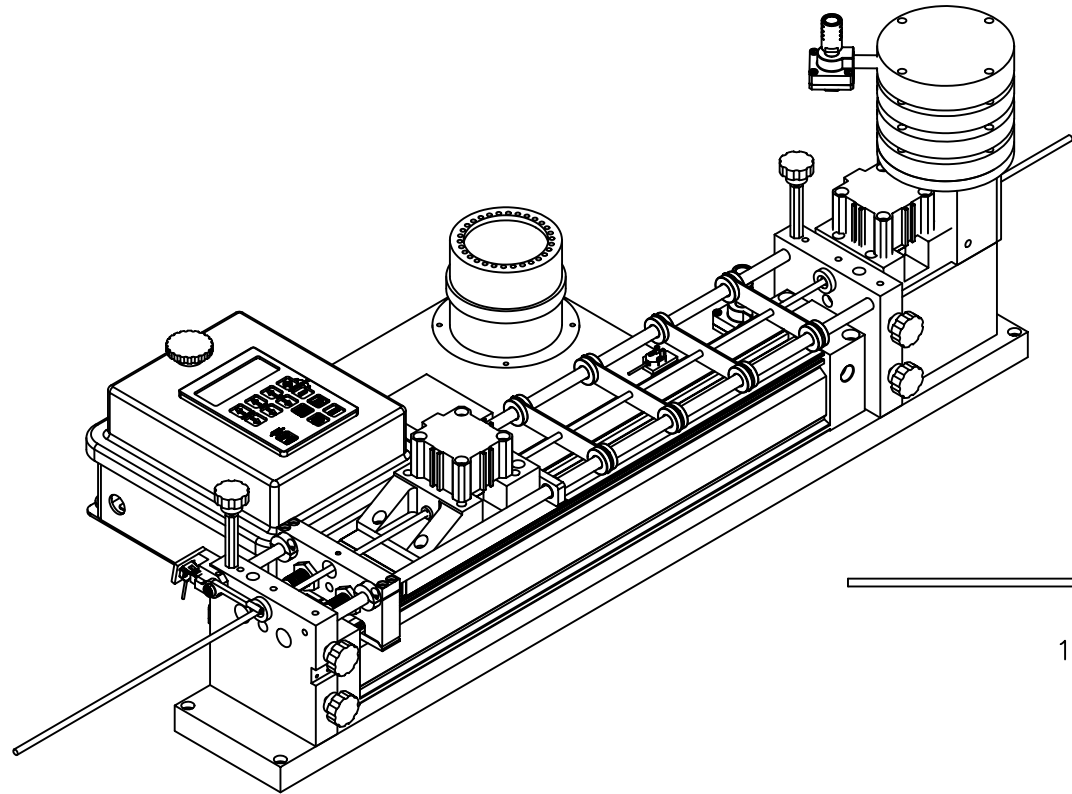
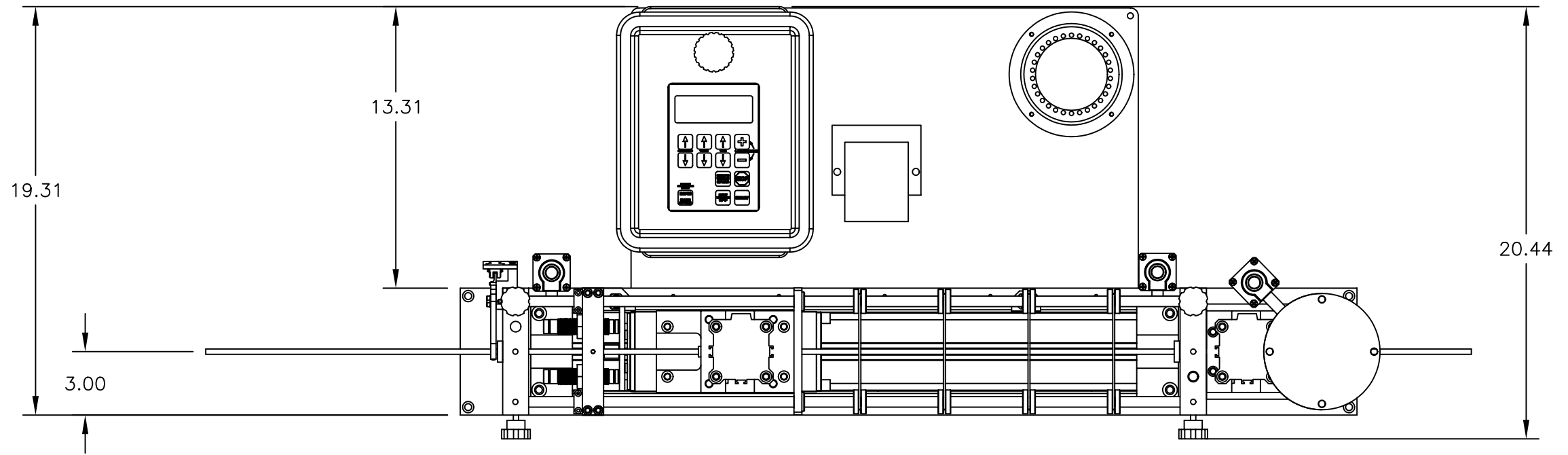
| No. | PART NUMBER | Rev# | QTY |
|-----|-------------|------|-----|
| 1 | 9400-533 | | 1 |
| 2 | 4004-118 | | 1 |
| 3 | 4004-108 | -B- | 1 |
| 4 | 4004-106 | -B- | 1 |
| 5 | 4004-2XX | | 1 |
| 6 | 4004-110 | | 1 |
| 7 | 4004-109 | -C- | 1 |
| 8 | 4004-3XX | | 1 |
| 9 | 4004-5XX | | 3 |
| 10 | 4004-111 | | 1 |
| 11 | 4004-103 | -F- | 1 |
| 12 | 9020-500 | | 1 |
| 13 | 4004-105 | | 1 |
| 14 | 900M-041 | | 1 |
| 15 | 9010-011 | | 6 |
| 16 | 4004-101 | -E- | 1 |
| 17 | 4004-9XX | | 4 |
| 18 | 9008-013 | | 16 |
| 19 | 9311-001 | | 2 |
| 20 | 4004-167 | | 1 |
| 21 | 4004-58XX | | 1 |
| 22 | 4004-102 | -D- | 1 |
| 23 | 9002-018 | | 6 |
| 24 | 9402-009 | | 3 |
| 25 | 9100-036 | | 3 |
| 26 | 4004-165 | | 1 |
| 27 | 4004-166 | | 2 |
| 28 | 4004-123 | | 1 |
| 29 | 4004-164 | | 1 |
| 30 | 9011-020 | | 1 |
| 31 | 4004-403 | | 1 |
| 32 | 9400-406 | | 1 |
| 33 | 4004-142 | | 2 |
| 34 | 4004-100 | -E- | 1 |
| 35 | 9800-008 | | 2 |
| 36 | 9802-007 | | 1 |
| 37 | 9007-024 | | 2 |
| 38 | 4004-169 | | 1 |
| 39 | 9002-118 | | 1 |
| 40 | 4000-090 | -B- | 1 |
| 41 | 4000-088 | | 1 |
| 42 | 4004-170 | | 1 |
| 43 | 9011-015 | | 2 |
| 44 | 9401-001 | | 2 |
| 45 | 9011-008 | | 2 |
| 46 | 4004-104 | -C- | 1 |
| 47 | 4004-168 | | 1 |
| 48 | 4004-124 | -A- | 2 |
| 49 | 9007-041 | | 4 |
| 50 | 4004-113 | -C- | 2 |
| 51 | 4004-121 | -B- | 1 |
| 52 | 4000-050 | -C- | 1 |
| 53 | 9100-021 | | 1 |
| 54 | 9805-001 | | 1 |
| 55 | 9402-024 | | 1 |
| 56 | 9403-024 | | 1 |
| 57 | 4004-6XX | | 2 |
| 58 | 9400-512 | | 2 |
| 59 | 4000-078 | | 1 |
| 60 | 9020-022 | | 4 |
| 61 | 4001-535 | | 2 |
| 62 | 9405-011 | | 3 |
| 63 | 4000-076 | -A- | 1 |
| 64 | 4000-051 | -D- | 1 |
| 65 | 4100-107 | | 1 |

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

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



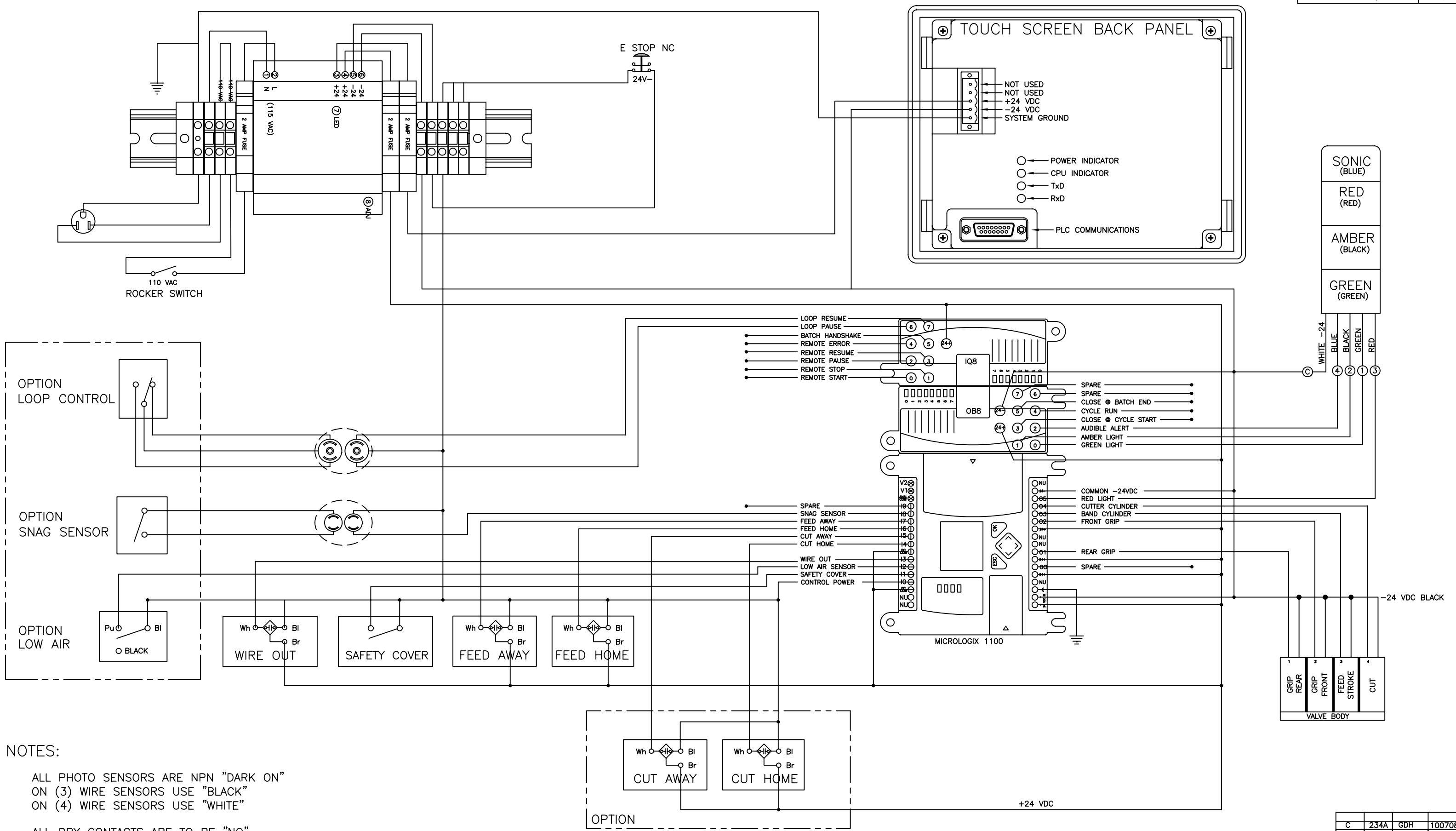
| | | |
|-----------------------------------|--------------|--------------------|
| TOLERANCE UNLESS OTHERWISE STATED | CAD | DRAWING / PART NO. |
| ± 3° | DWN KPL | 4004-012 |
| ± 0.0003 | CHK | PART NAME |
| ± 0.0002 | SCALE | #4L SF&C ASSY. |
| ± 0.0005 | DATE 1/20/03 | CUSTOMER |
| ± 0.0005 | | EXPLODED VIEW |



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



| | | |
|-----------------------------------|--------------|--------------------|
| TOLERANCE UNLESS OTHERWISE STATED | CAD | DRAWING / PART NO. |
| ± 3° | DWN KPL | 4004-012A DIMS |
| ± 0.0003 | CHK | PART NAME |
| ± 0.0002 | SCALE | #4L STANDARD |
| ± 0.0005 | DATE 1/23/03 | CUSTOMER |
| ± 0.0005 | | |

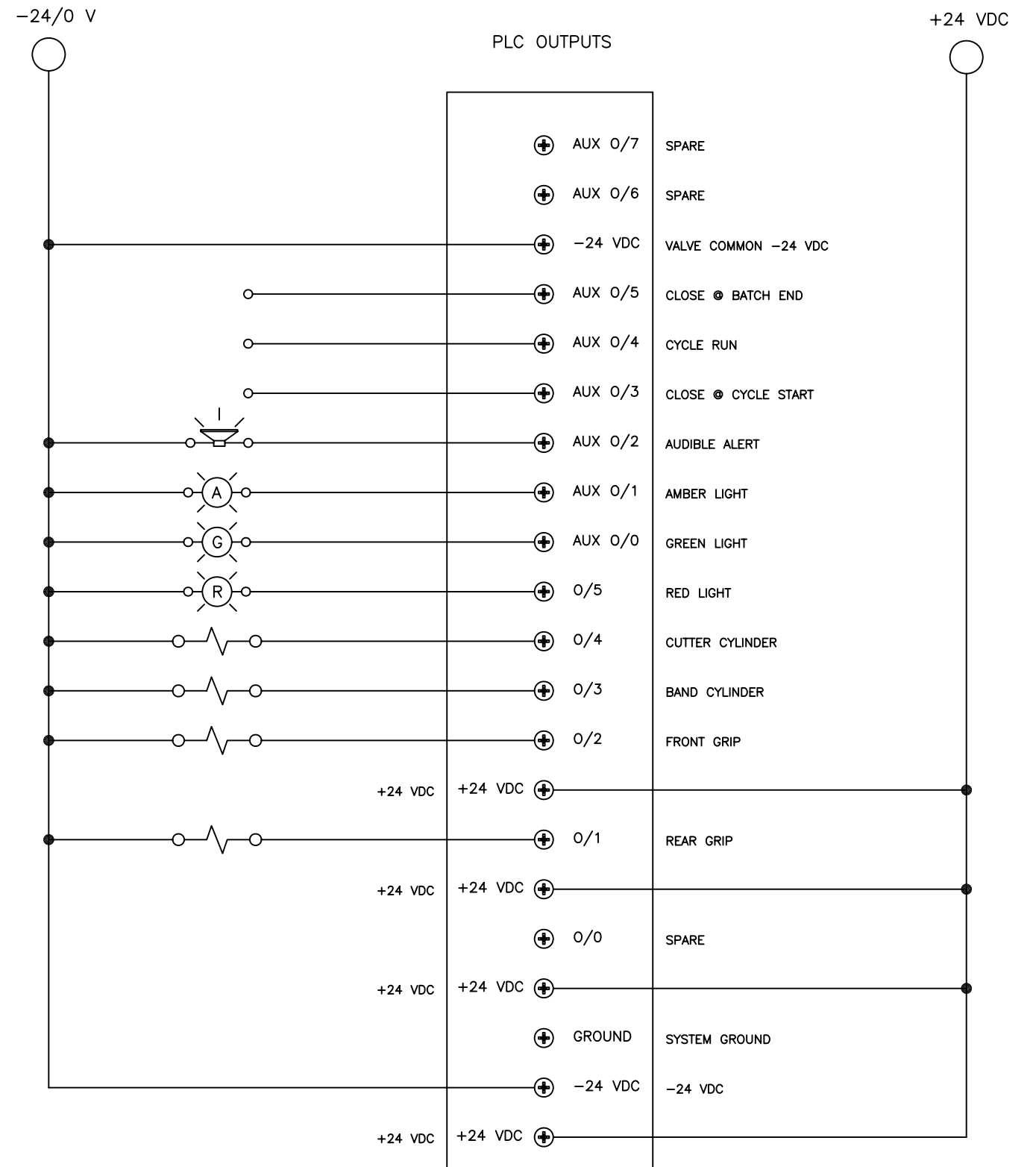
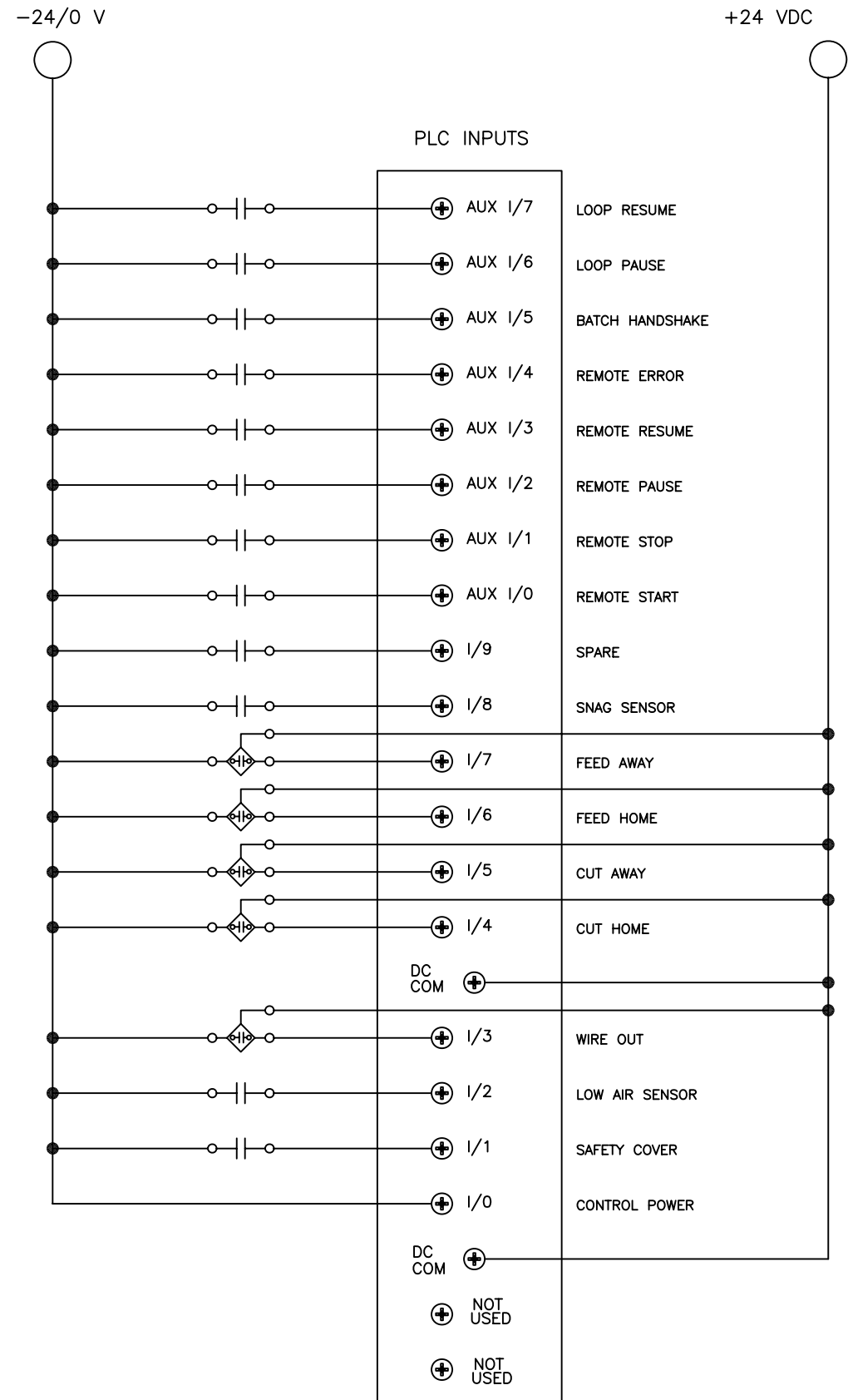


NOTES:
 ALL PHOTO SENSORS ARE NPN "DARK ON"
 ON (3) WIRE SENSORS USE "BLACK"
 ON (4) WIRE SENSORS USE "WHITE"
 ALL DRY CONTACTS ARE TO BE "NO"

| | | | |
|-----|------|--------|--------|
| C | 234A | GDH | 100708 |
| B | 230B | GDH | 072707 |
| REV | ECN | CHG BY | DATE |



| | | |
|-----------------------------------|-------------|-----------------------|
| TOLERANCE UNLESS OTHERWISE STATED | CAD | DRAWING / PART NO. |
| ± 3° | DWN GDH | 9111-101 |
| ± 0.0003 .X ± .032 | CHK | PART NAME |
| ± 0.0002 .XX ± .015 | SCALE | STANDARD TOUCH SCREEN |
| ± 0.0005 .XXX ± .005 | DATE 010307 | CUSTOMER |
| ± 0.0005 .XXXX ± .0005 | | TAK |



| | | | |
|-----|-----|--------|------|
| 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 | | |