QUADREL
LABELING SYSTEMS

Operating & Maintenance
Manual
For

BLACK FLANNEL BREWERY

ECONOLINE WRAP
Automatic Labeling System

Labeler Model #: Q65 STEPPER
Serial #: 84260-100

QUADREL LABELING SYSTEMS
7670 Jenther Drive
Mentor, Ohio 44060
440.602.4700

customerservice@quadrel.com
parts@quadrel.com

TERMS AND CONDITIONS OF SALE
QUADREL, INC
D/B/A Quadrel Labeling Systems Hereinafter Referred to as Quadrel

PERFORMANCE GUARANTEE:

If the surface of the product to be labeled is free from contamination so as to ensure proper label adhesion, the labels are manufactured in accordance with label specifications provided and the equipment is operated and maintained in accordance with the instructions contained in the Quadrel manual (two copies of the manual will be supplied by Quadrel with the labeling system; one printed copy, and one electronic copy). Quadrel guarantees the EQUIPMENT to perform after installation as stated.

1. Provided a sufficient amount of products are presented to the labeling system.
2. Dimensional inconsistency from one like product to be labeled to the other may result in additional label placement inaccuracy in direct relationship to the product inconsistency.
3. Slitting inconsistency within a given roll of labels or from one like roll to another may result in additional label placement inaccuracy in direct relationship to the slitting inconsistency.
4. If the Quadrel labeling system proposed herein does not include physical control of the product during label application, additional placement inaccuracy can occur in direct relationship to the product control inconsistency.
5. Label Placement Accuracy: Within Sigma 2 (approximately 95.5%) to be normal.

In the event of the failure if the Quadrel system to meet customer's specifications, as quoted by Quadrel or subsequently agreed to by Quadrel. Quadrel upon written notice from buyer shall, at its option, repair the system, or refund the purchase price upon return of the system. The warranty provided in this article and the obligations and liabilities of Quadrel thereunder are exclusive and in lieu of, and buyer hereby waived, other remedies warranties, guarantees or liabilities, express or implied arising by law or otherwise (including without limitation, any obligations of Quadrel with respect to fitness for a particular purpose, merchantability, specific performance, incidental and consequential damages) whether or not occasioned by Quadrel's negligence. This warranty should not be extended altered or varied except by written instrument signed by Quadrel and buyer.

EXCLUSIVE TERMS OF SALE: The proposal attached hereto or to which these Terms and Conditions of Sale apply (the "Proposal"), together with these Terms and Conditions of sale (collectively, the "Sale Agreement"), constitutes the complete and exclusive statement of the agreement between Quadrel and the purchaser specified in the Proposal ("Purchaser") concerning the equipment and other goods specified in the Proposal (collectively, the "Equipment"), as well as any and all services specified in the Proposal (collectively, the "Services"), and supersedes all prior contemporaneous agreements, representations and/or communications, either oral or written, between Quadrel and Purchaser or any representative such as parties with the respect to the subject matter of the Sale Agreement. No change to the Sale Agreement or waiver of any provision thereof will be binding on Quadrel unless made in writing and signed off by and authorized officer of Quadrel. Acceptance of the Equipment, in whole or part, or other express or implied assent by Purchaser to the terms hereof shall constitute Purchaser's agreement to the terms of the Sale Agreement. Acceptance of any purchase order or other document of Purchaser by Quadrel is expressly made conditional on the Purchaser's assent to the Sale Agreement. ANY ATTEMPTED MEMORIALIZATION OF THIS SALE BY A PURCHASE ORDER OR OTHER DOCUMENT CONTAINING TERMAND CONDITIONS INCOSISTANT WITH OR IN ADDITION TO THE CONDITIONS CONTAINED IN THE SALE AGREEMENT SHALL NOT BE BINDING UPON QUADREL AND QUADREL HEREBY EXPRESSLY OBJECTS TO AND REJECTS THE SAME.

GENERAL WARRANTY (EXCLUDES TABLETOP LABELERS)

Time from date of shipment	Covered Expenses
Up to 90 Days	All Parts , service time, living and travel expenses
UP to 12 Months	All parts

THE WARRANTIES PROVIDED ABOVE ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. NO OTHER WARRANTIES ARE OFFERED BY QUADREL WITH RESPECT TO THE EQUIPMENT OR SERVICES AND QUADREL HAS NOT AUTHORIZED ANY EMPLOYEE OR AGENT TO OFFER ANY WARRANTIES EXCEPT THOSE PROVIDED ABOVE. PURCHASER AND QUADREL EXPRESSLY AGREE THAT THE WARRANTIES PROVIDED ABOVE SHALL SERVE AS PURCHASER'S SOLE AND EXCLUSIVE REMEDY WITH RESPECT TO THE EQUIPMENT AND SERVICES.

PURCHASER REEQUIRMENTS. Purchaser must provide Quadrel descriptions and specifications of all labels and items to be labeled, including, without limitation, label material, product and label dimensions, and any other items required by Quadrel. Further, purchaser shall furnish Quadrel one (1) production size roll of each label and 100 samples of each item to be labeled for testing purposes. **Quadrel shall have no liability (whether under its Limited One-Year Warranty or otherwise) for labeling performance on labels or items to be labeled:**

(a) Which were not specified or sufficiently described in the Proposal: or

(b) With respect to which Purchaser fails to provide Quadrel the samples specified herein, even if such labels or items to be labeled were specified in the Proposal. Further, Quadrel shall have no liability for delays caused by Purchaser's failure to furnish samples as specified herein.

LIMITATION OF WARRANTIES. Quadrel shall have no obligation to honor its warranties and shall have no liability with respect to defective Equipment if:

(a) The Equipment has been modified, altered, damaged, abused or used for any other than those purposes intended by Quadrel.
(b) The Equipment has been changed without prior written consent from Quadrel.
(c) The equipment has not been operated and maintained in accordance with generally accepted commercial practices for similar equipment and Quadrel's specifications and instructions, as published in the Quadrel manual.
(d) The surface if the product to be labeled is not clean and free of contamination, including, but not limited to, mold release agents, condensation, dirt and oil.
(e) Labels are not manufactured in accordance with label specifications provided by Quadrel, or are not from defects such as cracked edges, deep die strikes, *etc*.
(f) Labels and items to be labeled are not set forth in the Proposal.
(g) Samples of all products and labels were not provided to Quadrel for testing prior to Equipment shipment as required under "Purchaser Requirements" outlined above.
(h) There is dimensional inconsistency from one like roll of labels to another.
(i) *The Equipment does NOT include physical control of the product.*

LIMITATION OF REMEDIES. All warranty claims shall be subject to review and approval by Quadrel. Quadrel's obligation to honor warranties is in all cases limited to, at Quadrel's sole option:

(a) Repair of defective Equipment or components: or
(b) Providing a cash refund or credit, after Purchaser has returned Equipment to Quadrel.

Where warranty service is to be provided at the Quadrel facility, Purchaser shall return Equipment claimed to be defective to Quadrel, freight prepaid, for review. No Equipment shall be returned to Quadrel, whether for inspection, repair, refund, or any other reason, without prior return authorization from Quadrel. Quadrel may charge Purchaser cost resulting from testing, handling and disposition of Equipment claimed to be defective by Purchaser which is found by Quadrel to conform to Quadrel's warranties.

LIMITIATION OF LIABILITY. QUADREL SHALL HAVE NO LIABILITY FOR ANY CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES BY REASON OF ANY ACT OR OMISSION OR ARISING OUT OF OR IN CONNECTION WITH THE (a) EQUIPMENT OR ITS SALE, DELIVERY, INSTALLATION, MAINTENANCE, OPERATION, OR PERFORMANCE, OR (b) SERVICES. IN NO EVENT SHALL QUADREL'S LIABILITY EXCEED THE PRICE OF THE EQUIPMENT (OR THE PRICE OF THE SERVICES IF A CLAIM IS MADE WITH RESPECT TO THE SERVICES) WITH RESPECT TO WHICH A CLAIM IS MADE REGARDLESS OF WHETHER SUCH CLAIM IS BROUGHT

AT LAS OR IN EQUITY AND REGARDLESS OF WHETHER SUCH CLAIM IS BROUGHT UNDER CONTRACT, BREACH OF WARRANTY, TORT OR ANY OTHER THEORY OF LAW OR EQUITY.

ORDERS:
Orders entered, verbal or written, cannot be cancelled except upon terms that will compensate Quadrel against any and all claims

START-UP SERVICE:
Quadrel will provide, at standard installation rates, the number of normal eight-hour working days for the Quadrel Field Service Technician to start the EQUIPMENT and to train PURCHASER'S operating and maintenance personnel. EQUIPMENT is not uncrated and emplaced in desired location by PURCHSER prior to arrival of Quadrel Field Service Technician, or if the EQUIPMENT cannot be made operational due to non-availability of products, labels, appropriate utilities and/or related production equipment, PURCHASER shall pay Quadrel for additional service time required including travel expenses, if applicable, in accordance with Quadrel's Field Service rates. It is PURCHASER's obligation to schedule the start-up service at a time when PURCHSER'S engineering, maintenance and selected production personnel are available.

SERVICE AFTER INSTALLATION:
Quadrel Field Service Technicians are available to customers who do not maintain their own service departments. This can be handles on a per visit basis. Field Service rates are available on request.

PAYMENT TERMS:
Payment terms are as follows: 50% of purchase with purchase order, 40% of purchase at the time of shipment, 10% of purchase (plus freight charges) due net 30 days. If shipment is delayed beyond 30 days after the EQUIPMENT has been made ready for shipment, and the delay is caused directly or indirectly by the PURCHASER, then the total of the unpaid balance, at option of Quadrel, may become immediately due and payable upon written notice. Payments not paid when due shall thereafter bear monthly service charges at the rate of 1.5% per month on the unpaid balance until paid. If, in Quadrel's opinion, PURCHASER'S financial condition does not justify continuance of production or shipment on the terms of payment specified above, Quadrel may require payments in advance.

FINANCIAL IMPAIRMENT. Quadrel may, at its option, suspend performance if in its opinion the credit of the Purchaser becomes impaired until such time as Quadrel has received full payment, including any general price increases or surcharges, is satisfactory security for deliveries made and is satisfied as to Purchasers credit for future deliveries. Quadrel reserves the right to cancel Purchaser's credit at any time for any reason. In addition, Quadrel reserves the right by written notice to cancel any order or require full or partial payment or adequate assurance of performance from Purchaser without Liability to Quadrel in the event of:

(a) Purchaser's insolvency
(b) Filing of a voluntary petition in bankruptcy by Purchaser
(c) Filing of an involuntary petition in bankruptcy against Purchaser
(d) Appointment of a receiver or trustee for Purchaser
(e) Execution by Purchaser of an assignment for the benefit of creditors

TAXES:
The amount of any present or future federal, state, local or other taxes applicable to the sale of EQUIPMENT shall be added to the price and paid by PURCHASER unless PURCHASER provides a valid exemption certificate acceptable to Quadrel and the appropriate tax authority.

GOVERNING LAW AND JURISDICTION. The sale agreement shall be governed and construed in accordance with the domestic laws of the State of Ohio without giving effect to any choice or conflict of law provision or rule that would cause the application of the laws of any jurisdiction other than the State of Ohio. Any legal action, suit or proceeding relating to the Sale Agreement shall be heard and determined exclusively in the United States District Court for the Northern District of Ohio or the Court of Common Pleas of Lake County, Ohio, and each party irrevocably submits to the jurisdiction of either such courts and waives any objection which such party may have to the laying of venue of any such legal action, suit or proceeding in any such court.

The Sale Agreement shall not be governed by the United Nations Convention on the International Sales of Goods. No actions arising out of the sale of Equipment or Services may be brought by either party more than one (1) year after shipment.

RETURNS:
EQUIPMENT sold by Quadrel is returnable only in accordance with the provisions hereof. Before returning of any EQUIPMENT or items thereof, PURCHASER must obtain Quadrel's written return authorization and instructions.

FORCE MAJEURE:
Quadrel shall not be liable for any loss, damage, delay, changes in shipment schedules or failure to deliver due to act of God, accidents, fires, strikes, riots, civil commotion, insurrection, war, the elements, embargoes, failure of carriers, inability to obtain electricity or other type of energy, transportation facilities, raw material, equipment or any problem or any similar or different contingency beyond its reasonable control which would make performance commercially impractical whether or not the contingency is of the same class as those above. Quadrel shall in no event be liable for any consequential damages.

TITLE AND RISK OF LOSS:
Title and risk of loss to EQUIPMENT shall pass to PURCHASER upon delivery by Quadrel to a common carrier, regardless of the freight terms stated or method of payment for transportation charges. Quadrel reserves the right to specify routing of shipments.

ENTIRE AGREEMENT:
This agreement embodies the entire agreement and understanding between the parties, is intended as complete and exclusive statement of terms of the agreement between the parties and supersedes any prior agreements or understandings between the parties relating to the subject matter hereof. PURCHASER acknowledges that Quadrel has not made any representations to PURCHASER other than those which are contained herein. Except as provided in this agreement, no change in or addition to the terms contained herein shall be valid as between the parties unless set forth in writing which is signed by an authorized representative of both parties and which specifically states that it constitutes an amendment to this agreement.

The parties may use their normal commercial forms in connection herewith: however, any such forms shall be used for convenience only and any terms or provisions which may be contained therein inconsistent with or in addition to those contained herein shall have no force or effect whatsoever between parties hereto.

EFFECTIVE:
This proposal is based upon the current cost of labor and materials and shall remain in effect for a period of sixty (60) days from the date hereof unless revoked by Quadrel in writing prior to acceptance.

INDEMNIFICATION:
The purchaser of this product ("Customer") hereby agrees to release, indemnify and hold harmless Quadrel and its agents, assignees and representatives for any and all liabilities, losses, costs, damages and expenses (including attorneys' fees and expenses) arising, directly or indirectly, from any and all manner of claims, demands, actions and proceedings that may be instituted against Quadrel on any grounds.
The Customer agrees to, at the Customer's own expense, promptly defend and continue the defense of any such claim, demands, actions or proceeding that may be brought against Quadrel, provided that Quadrel shall, within thirty (30) days of Quadrel receiving notice thereof, notify the Customer of such claims, demand, action or proceeding.
Quadrel shall at all times retain the right to defend itself and/or to otherwise participate in the defense of any such claim or action, and no settlement or other resolution of any such claims or action shall be finalized without Quadrel's written approval. Any failure by Quadrel to give prompt notice or provide copies of documents or furnish relevant data shall not constitute a defense in whole or in part to any claim by Quadrel against the Customer except to extend that such failure by Quadrel shall result in a material prejudice to the Customer.
The forgoing notwithstanding, if suit shall have been against Quadrel and the Customer shall have failed, after the lapse of a reasonable time after written notice to it of such suit, to take action to defend the same. Quadrel shall have the sole right to

defend the claim and shall be entitled to charge the customer with the reasonable cost of any such defense, including reasonable attorney's fees, and Quadrel shall have the right, after notifying but without consulting the Customer, to settle or compromise such claim on any terms reasonably provided by Quadrel.

This release and indemnification is and shall be binding upon the Customer, as well as the Customer's respective heirs, subsidiaries, affiliates, successors, assigns, agents and employees. If any provision or provisions of this release and indemnification shall be held to be invalid, illegal or unenforceable for any reason whatsoever, the validity, legality and enforceability of the remaining provisions aft h Agreement shall not in any way be affected or impaired thereby. No supplement, modification or amendment of this Agreement shall be binding unless executed in writing by all of the parties hereto.

Any order put on hold or left dormant for any reason for 90 days will be considered cancelled. See Cancellation Policy below.

CANCELLATION POLICY:

In the event of order cancellation, the 50% down payment is non-refundable. Customer may also be responsible for additional charges covering engineering resources expended and committed materials depending upon the custom nature of the project and the point in the order process in which the cancellation occurs.

NOTE. No salesman, representative or agent of Quadrel is authorized to give a guarantee, warranty or make any representation contrary to above.

Please sign and acknowledge acceptance to these terms and conditions_____Date_____

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Quadrel Labeling Systems
Quality Manual

Quality Statment:

Quadrel Labeling Systems strives to provide our customers with the highest quality labeling/sleeving solutions available on the market. In order to achieve total customer satisfaction, we shall adhere to the following objectives:

100% on-time delivery

zero defects

Value added service and support

Engineered solutions

Employee development and diversity

We will commit to continuously improve each facet of our business operations through implementation of, and compliance of this manual.

C. Wepl

Chuck Wepler
General Manager / President

Approved by: Jim Brazee
Issue Date: 1/1/2018

1 MANUAL PREFACE

Thank you for choosing Quadrel Labeling Systems. We have designed and manufactured this equipment with the upmost pride and care ensuring you the absolute best quality, maximum versatility and reliability.

This equipment is intended to be used only as described in this document. Quadrel Labeling Systems Inc. cannot be held responsible for the improper use or functioning of non-described functions of this machinery. Liability for any personal injury, loss of production or revenues, or property damage occasioned by the use of this manual in effect maintenance, operation, or repair of the equipment is in no way assumed by Quadrel Labeling Systems Inc. Anyone one using a procedure not recommended by the end user should first completely satisfy himself/herself that personal safety and equipment integrity will not be jeopardized in the method selected.

DO NOT attempt to install, operate, or adjust the labeling system without first reading and understanding the contents of this manual.

Only a trained person is to be permitted to operate this equipment. Training should include instruction in operation under normal conditions and emergency situations. Under no circumstances should an untrained person operate this machine.

This manual will provide operating instructions, parts listing and schematics. The information contained in this manual will help the user in his/her operations, troubleshooting, and maintaining the machine in good operating conditions. Information, illustrations and specifications contained in this manual are based on the latest product information available at the time of this manual release. Quadrel Labeling Systems Inc. reserves the right to alter and substitute information contained herein at any time.

Due to the customization it is also possible that you have received a different variation of this equipment, with several different options. Some pictures used in this manual may not totally reflect your configuration, although the labeling is completely the same.

2 GENERAL DISCRIPTION - ECONOLINE

In-line labeling machines apply labels to a wide variety of container shapes. In addition to conventional cylindrical containers, the in-line labeler can be used with specially contoured, elliptical or flat-sided containers. In-line labelers are manufacturing in a variety of configuration. Diagrams illustrate standard in-line labeler arrangements for different container designs.

The Econoline is a compact and economically priced labeling system. Simple to set-up, operate and maintain available in front/back or wrap configurations. Features include stainless steel construction and microprocessor control with speeds up to 250 products per minute (depending labeling head). This provides electronic synchronization of the labeling process and stores up to 50 label/ product presets. The “no tool” product changeover and modular design makes this inline labeling system ideal for pharmaceutical, cosmetic, automotive, chemical, food, personal care and many other markets.

3 WARNING/CAUTION SAFETY INSTRUCTION

Where safety is dependent upon starting or stopping devices, or both, they are to be kept free of obstructions that could endanger personnel.

The areas around loading and unloading points are to be kept free of obstructions that could endanger personnel. Instruct personnel working on or near this equipment as to the location and operation of pertinent stopping devices.

This equipment is to be used only for the purpose for which it is constructed.

Under no circumstances are the safety characteristics of this equipment to be altered.

Conduct routine inspections and corrective / preventive maintenance measures to ensure that all guards are installed and function properly. Alert personnel to the potential hazards indicated by the safety labels on this equipment.

3.1 SAFETY INTEGRATION

The end user's safety risk assessment will be the guiding document for proper integration of the equipment provided. Consideration of the following guidelines is recommended in order to achieve a safe result:

- Open areas under the equipment are to be guarded by the end user to prevent entry.
- Where conveyor flight lugs or product enters or exits the equipment, proper guarding and interlock are put in place by the end user to ensure mitigation of shear/jam points.
- The end user is responsible for properly guarding drive components on equipment that requires mechanical drive integration.

3.2 GENERAL SAFETY INFORMATION

This Quadrel Labeling System is engineered to feed and apply labels on your products. In designing the device, Quadrel valued personal safety; however we would like to draw your attention to the following safety acknowledgments.

⚠ WARNING Hazards or unsafe practices, which **COULD** result in severe personal injury or death.

⚠ CAUTION Hazards or unsafe practices, which **COULD** result in minor injury

⚠ CAUTION The presence of safety systems in these units does not exempt the operators to act cautiously, avoiding behaviors that could

endanger their health or the equipment. These models are engineered to feed and apply labels on your products. In designing this device, Quadrel valued personal safety; however we would like to draw your attention to the following safety acknowledgments.

- Operators should know the basic operations and setup procedures before operating this equipment.
- Safe operations should be maintained at all times.
- Know the location of E-stops and power switches prior to operating machinery such as this.

⚠ WARNING

To reduce risk of fire, electrocution, or other personal injury when operating. Follow basic safety precautions, including the following:

- This equipment must have an operator attending the machine at all times to monitor the operations. **DO NOT** leave this equipment unattended during maintenance or perform any maintenance unless the e-stop condition has been activated or power turned off.
- The electrical power to device is: ___120___ Volts, _SINGLE (1)_Phase, __60__Hz, __15__Amps. While installing make sure it's properly configured and connected by a qualified electrical technician.
- **DO NOT** by pass any of the safety circuits or safety features designed into this equipment.

- ALWAYS turn off **power and pneumatics** before performing repairs.
- The doors on all electrical enclosures must be closed. All covers on labeling heads must be on labeling heads. (if applicable)

- This device is built to perform in humid conditions, but must not be pressure washed. Wiping down the device is the recommended cleaning method.

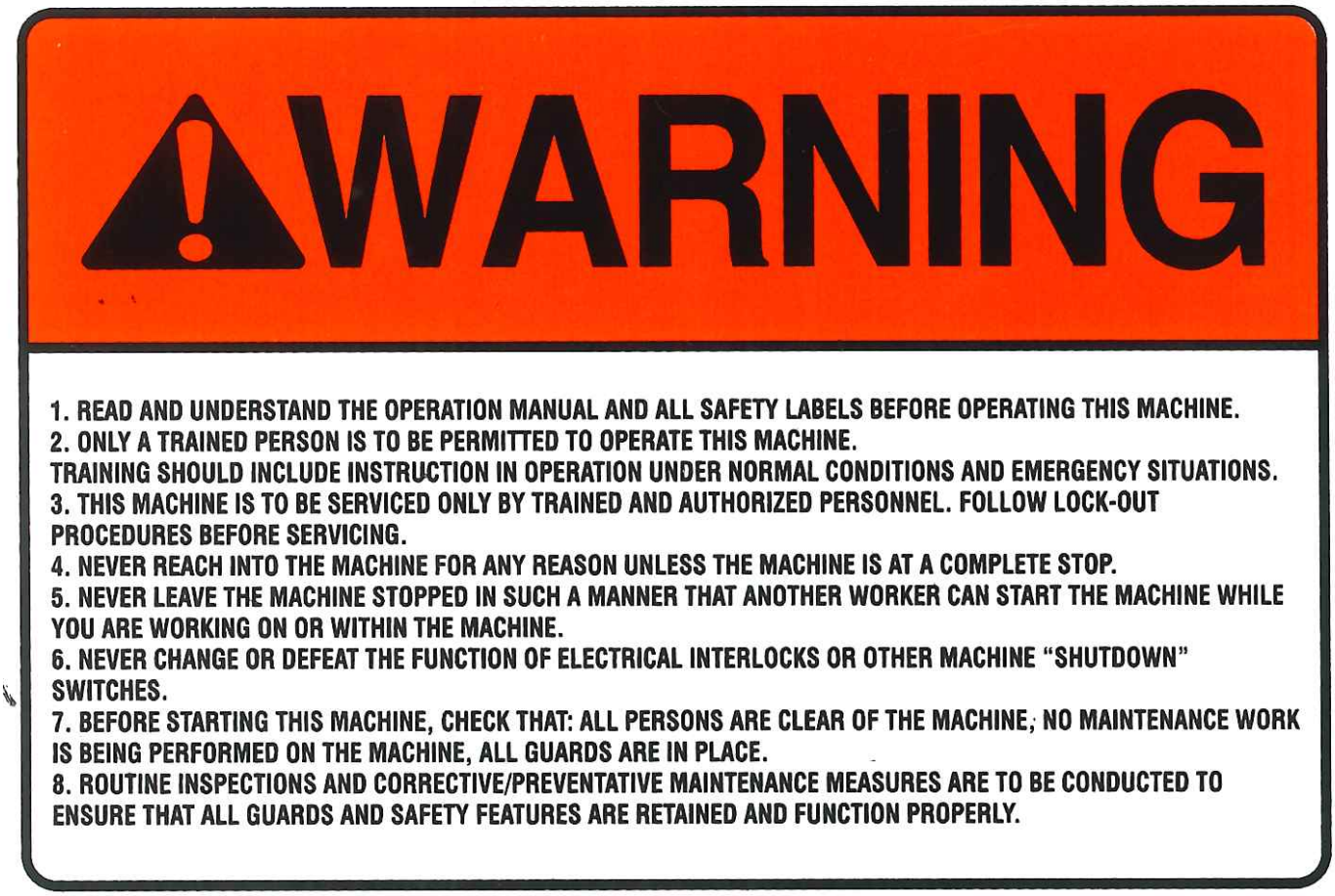
- Do not stand, sit, or allow any personnel to be within reach of the tamp cylinder/ swing arm activation (if so equip).
- Report any malfunctions, or problems with the equipment to qualified maintenance personnel for repair or adjustments that may be required.
- Keep hands clear of moving parts. Do not place hands near labeling head when in operation.

For systems containing conveyors, you must be vigilant with loose clothing or bodily parts as they can get caught in the conveyor's belt or chains as direct injury or death can incur. **DO NOT** use the conveyor as a working platform or walkway.

TUCK IN ANY LOOSE CLOTHING. DO NOT WEAR TIES. PENDANTS, JEWLERY OR ANY OTHER ARTICLE OF CLOTHING OR ACCESSORY THAT MAY GET CAUGHT ON ANY PORTION OF THE SYSTEM.

FOR PROLINE SYSTEMS ONLY

CASTERS WERE IMPLEMENTED FOR EASE OF SHIPPING PURPOSES ONLY. PLEASE USE CAUTION WHEN MOVING PROLINE THROUGH FACILITY. THE PROLINE RECOMMENDED USE: SET IN PLACE/POSITION WITH LEVELING PADS DOWN TO SECURE.



Using VFDs On GFCI Devices

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The National Electrical Code, or NEC, continues to expand protection requirements for safety reasons resulting in an increase in Ground-Fault Circuit-Interrupter (GFCI) outlets being used in more environments. As a result, the Variable Frequency Drives (VFDs) industry is finding more instances of VFDs being powered from GFCIs. VFDs introduce high frequency harmonic content which may cause nuisance tripping on some GFCI devices. This paper is intended to assist anyone that needs to use a VFD on a circuit with GFCI protection. KB Electronics has developed special VFDs suitable for use with most GFCIs*.
* Please contact KB Electronics with information regarding your specific GFCI.

What is a VFD?

A VFD (also termed adjustable frequency drive, variable speed drive, AC drive, adjustable speed drive, micro drive, motor control, or inverter drive) is a power conversion device that will accept normal fixed branch circuit voltage of (115V or 230V) and frequency (50 Hz or 60 Hz) and allow the operator to control the speed of an induction motor (AC Motor) by varying the output voltage and frequency. A simplistic version of a typical VFD system is shown in Figure-1.

In addition to operator controllability, the VFD with soft start/stop features offers extended equipment life, increased performance, reduced maintenance, protection from excessive currents and voltages, as well as energy savings.

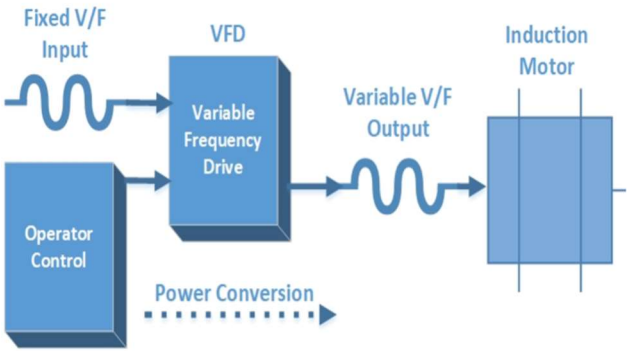


Figure-1: Typical VFD System

What is a GFCI?

A GFCI (shown in Figure-2) is a circuit breaker device which is designed to protect people from hazardous shock or electrocution by shutting off an electric power circuit when it detects current flowing in a way that it is not meant to, such as through water or a person.

Figure-2: Typical GFCI Outlet

The GFCI is intended to protect people from electrical shock, therefore, it is completely different from a fuse in the sense that it needs to shut off the electric power circuit at a low current, typically no more than 5 mA, in a quick amount of time (less than 1/10 of a second).

The GFCI does this by measuring and comparing the amount of current flowing in the ungrounded (hot) and grounded (neutral) conductors of the circuit. If the GFCI detects an imbalance in the circuit, it immediately shuts off the circuit.

Why Nuisance Trips Occur with Standard VFDs

Standard VFDs, when powered from GFCI outlets, can cause the GFCI to trip due to the leakage currents generated from the high switching frequency of the VFD's power devices and the harmonics associated with them. These high frequency leakage currents are not at the base frequency of the drive output which is normally 50 Hz or 60 Hz. These high frequency leakage currents, typically greater than 4 kHz, may cause the GFCI to trip because the GFCI is designed to work with 50 Hz or 60 Hz frequency inputs, not this higher value.

The high switching frequency of the VFD's power devices induce more capacitive-coupled currents, since a capacitor approximates a short circuit at high frequencies. This creates common-mode noise, referred to as leakage current, which travels through ground and can cause the GFCI to trip. The path to ground is made through the motor bearings or auxiliary equipment bearings.

In addition to the high switching frequency of the drive, there can be many other contributing factors which cause the GFCI to trip. Some drives have built-in filters which couple additional leakage current to earth ground. Other drives use external filters and replacing them with a low leakage filter may help.

One way to help determine if the GFCI tripping is occurring from the input filter or the VFD output is to remove either the input filter or the motor and observe if the GFCI still trips. For example, if the input filter is easily removed and doing so prevents the GFCI from tripping, the source of the leakage currents tripping the GFCI was largely from the input filter.

Another method is to disconnect the motor. If doing so prevents the GFCI from tripping the contributing source of leakage current is most likely from the output stage of the VFD. However, most often than not, the GFCI is tripping from a combination of the two and improvements on both the input and output will help.

Long motor power cables can also create noise spikes. These long leads add more capacitance which increases noise spikes from the fast switching power devices of the VFD. Use a VFD rated cable with the shortest leads possible when connecting the motor power cables. A choke on the VFD's motor outputs may help reduce noise spikes.

In addition, ensure that motor cables are properly shielded, sized, routed, terminated, and grounded at both the motor and drive.

KB's GFCI Solution

KB's engineering team has studied VFDs powered from a variety of GFCI devices. A solution has been created which considers all contributing factors to get a best-case scenario that successfully works with most GFCIs.

KB investigated switching frequencies and developed custom switching frequency algorithms to reduce audible noise and leakage currents. High frequency noise spikes and ringing were reduced by modifying our proprietary power circuits for optimal results. In addition, output chokes, low leakage filters, and shielded cable were introduced, if needed, to find a GFCI solution.

Conclusion

KB has had great success providing VFDs that work with GFCIs for numerous original equipment manufacturers (OEMs). KB offers a full range of motor controls (shown in Figure-3) which can be customized to work with GFCIs. Let KB Electronics provide a solution for you.

Figure-3: VFDs Available from KB Electronics

Unboxing your Quadrel Labeling Systems Machine

This section of your manual is aimed towards making the transition from Shipping Crate to Assembly line less Dramatic. If you have scheduled an install with one of our Professional Technicians the set-up of your machine will be a breeze. If not your manual as all of the information needed to get you going. In this section there may be some equipment shown that does not apply to the machine you purchased.

FOR PROLINE SYSTEMS ONLY CASTERS WERE IMPLEMENTED FOR EASE OF SHIPPING PURPOSES ONLY. PLEASE USE CAUTION WHEN MOVING PROLINE THROUGH FACILITY. THE PROLINE RECOMMENDED USE: SET IN PLACE/POSITION WITH LEVELING PADS DOWN TO SECURE.

NOTE This is general instruction for all equipment (your equipment may vary slightly).

Let's get started…

First things first, check your crate/box/machine for damage. If there is damage please note the exception and contact Quadrel immediately. Any extra boxes or pallets will be either in your crate or tethered to the crate or pallet. Once you have inspected your shipment you can open the crate. Check packing slip Bill of lading against boxes received. Notify Quadrel of any discrepancies.

Carefully remove all banding on the legs, misc. boxes and assemblies in the crate or on the pallet. If your machine is wrapped in bubble wrap or plastic wrap go ahead and carefully cut and remove that as well. Ensure you are wearing the appropriate safety gear when removing your machine from the crate.

Ensure all plastic wrap is removed from the assembly you are removing the support from before removing the support.

Remove the supports under your labeling heads, wrap station, top trap, HMI, Pacing wheel or belt. See images for various supported assemblies.

Most assemblies supported have a tool-less vertical adjustment using a knob or hand wheel.

The hand wheel may be wrapped to the assembly to prevent damage.

Remove the hand wheel from the wrap, then fasten the hand wheel to the square end on the lead screw using a 3/32 “L” handle Allen wrench.

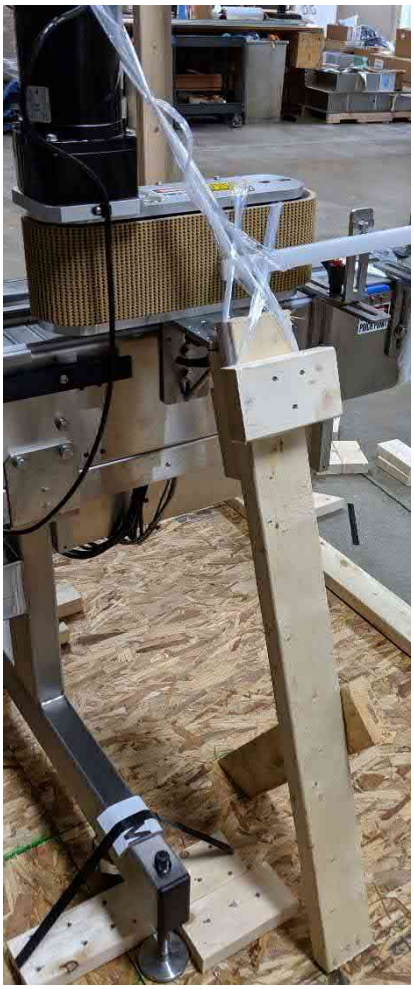
Turn the handle/knob to raise the assembly this will take the weight off the supports so you can remove them.

Top Trap Support (top) Labeler Head Support (bottom) Plastic wrapped hand wheel (right)

All top and bottom labeling heads will be supported similar to the image shown on the left.

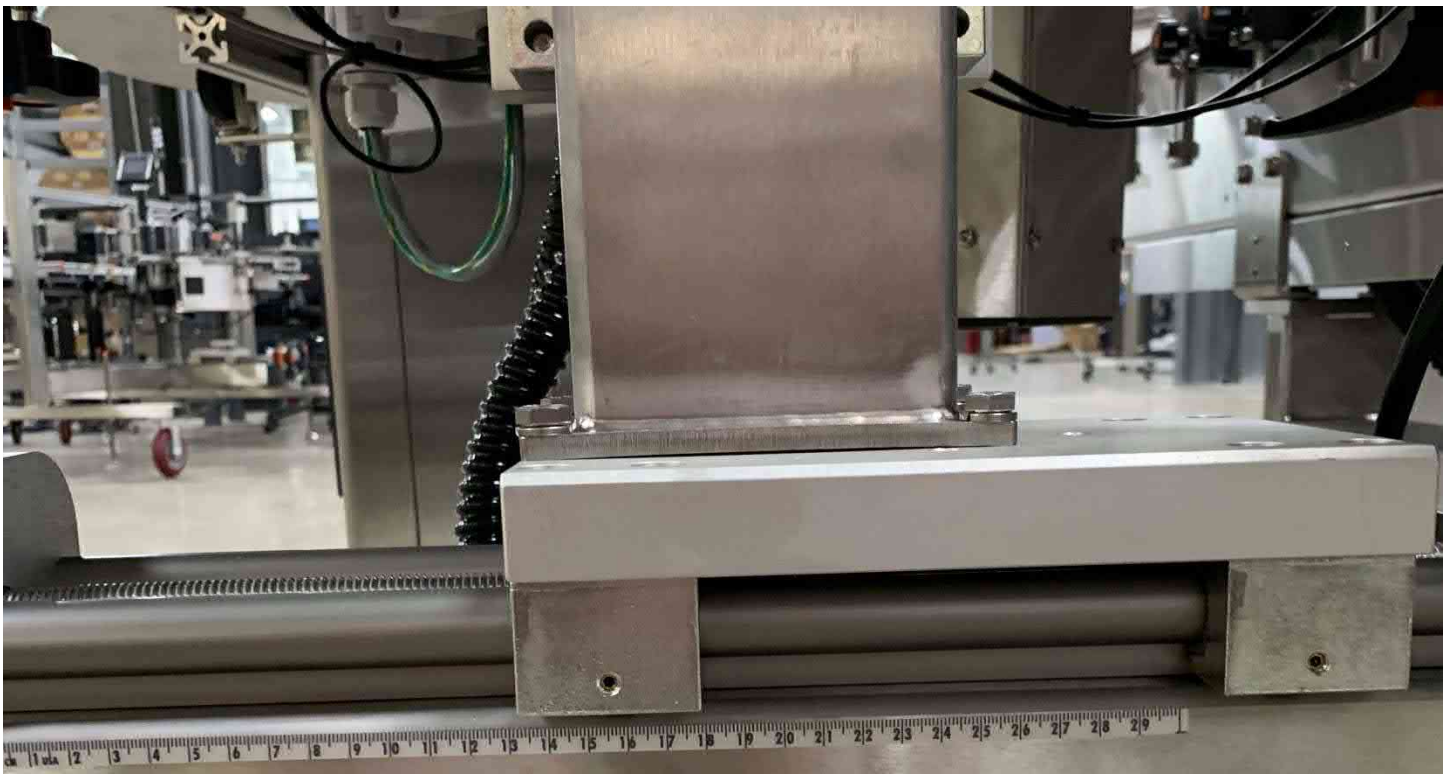
Wrap stations will have supports similar to the image to the right. These supports do not require moving the assembly.

Pacing belt assembly supports can be removed without raising the assembly.



Pacing wheels will be supported as shown

Often the head support will be moved in shipping or moved to be supported. When you are setting up your machine refer to your set up sheet in this manual. There are scales on the side of the assembly to line the carriage up to (as shown in the Image to the left and below).



Peel plates with or without the rods may be removed from the labeling head to move the head all the way in during shipping.

All assemblies removed will be bubble wrapped then plastic wrapped to the machine (as shown in image on the right) or in box on the pallet the machine is on (as shown in image below).

Mount the peel plate assembly using a 5/16 L handle Allen wrench (as shown in image on the left). The bolts are located in the assembly. You simply put the wrench in the quick change access holes to loosen or tighten the assembly.

NOTE When you are setting up your machine make sure the peel plate assembly is perpendicular to the conveyor. When the peel plate assembly is on the rods there is a small amount of play allowing you to make small adjustments to the assembly.

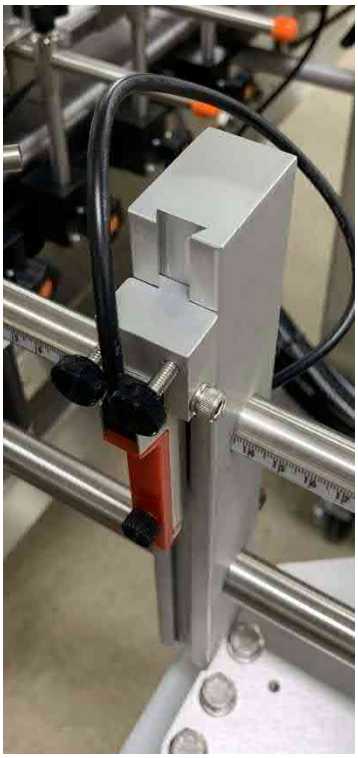
If you have the peel plate rods removed with the peel plate assembly and the label detect assembly (as shown below).

All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

First back the head out all the way. Locate your peel plate assembly and slide it into the holes in the drive roll assembly (as shown on the left of the image above). Make sure you take the bolts out of the end of the rods before putting them into the drive roll assembly.

Fasten the assembly to the drive roll with the bolts supplied using a 5/16 L handle Allen wrench. Make sure you have the lock washers on the bolts.

NOTE When you are setting up your machine make sure the peel plate assembly is perpendicular to the conveyor. When the peel plate assembly is on the rods there is a small amount of play allowing you to make small adjustments to the assembly.



When the peel plate rods are removed the label detect sensor is removed with it (show in image to the left). The sensor is locked into place so it won't move or need adjusted. All that will need done is simply reconnect the sensor to the zip port. To re-connect the sensor first locate the zip port (as shown in image on the right). The zip port is located under the head on the chassis or mounting plate. Take the cable coming from the sensor, route it neatly under the head, and screw it into the zip port where it says "label detect".

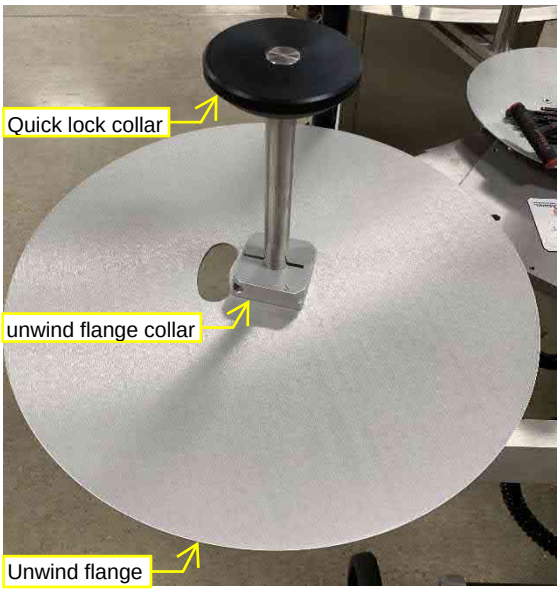
Some machines may have the unwind flange (shown in image to the right) removed to protect the flange during shipping do to the width of the machine.

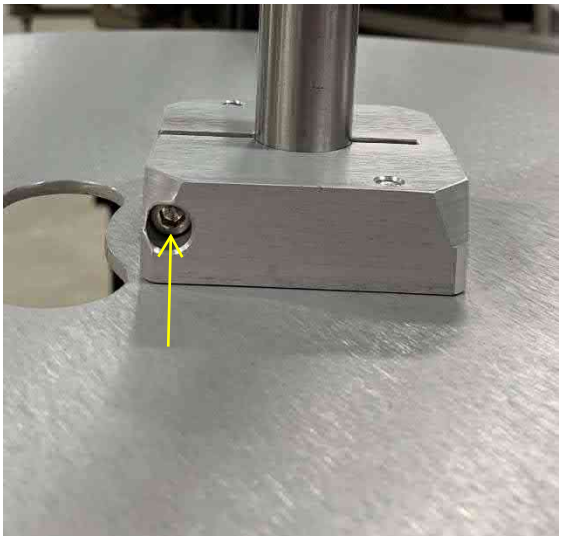
All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

First, slide the unwind flange (with the square unwind flange collar facing up as shown in image to the right) over the unwind shaft. Make sure the top of the flange is 1 ¼ inches off the side plate. There is a clamp colloar preset on unwind shaft so the unwind flange hub will rest on it.

Then, lock into place by tightening the collar with a 5/32 L handle Allen wrench.

Slide the quick lock collar over the shaft by lining the set screw up with the flat. The collar locks into place by rotating the collar 90 degrees.





Some machines may have the rewind flange (shown in image to the right) removed to protect the flange during shipping do to the width of the machine.

All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

First, slide the rewind flange (with the collar facing away from you as shown in image to the right) over the rewind hub make sure the flange just above the rubber bumper so it does not touch (roughly 1/2 inch off the side plate).

Then, lock into place by tightening the collar with a 5/32 L handle Allen wrench.

Rails and transfers on the infeed and outfeed may be removed for shipping purposes. They will be wrapped in bubble wrap and wrapped to the machine. Carefully remove wrap and place in position as shown lock into place by tightening the knobs or ratchet handles.

NOTE Your machine may have a different rail system either adjustment is tool-less and fastened by a knob of ratchet handle.

End transfers will be wrapped in bubble wrap and plastic wrap. They will be located in a box on the pallet with your machine or wrapped to the machine itself.

Fasten the end transfer plate to the machine using a 5/32 L handle Allen wrench and the supplied 10-32 socket head screws. Ensure the transfer plate is both level with the conveyor and DOES NOT hit the conveyor chain.

Stack lamps are usually placed at the highest point of the machine and for that reason they are either removed or rotated 180 degrees. The stack lamp will wrapped in bubble wrap and wrapped to the machine.

If the stack lamp is rotated then all you need to do is remove one of the bolts, rotate the stack lamp and put the screw back in. We use various screws on stack lamps you will need one of the following tools for the job.

-3/32 L handle Allen wrench

-1/8 L handle Allen wrench

-5/32 L handle Allen wrench

-3/16 L handle Allen wrench

-1/2 open end wrench

HMI over head touch screen displays may be laid flat across the top of the enclosure wrapped in bubble wrap and plastic wrap.

Carefully remove the plastic wrap and bubble wrap.

Rotate the HMI 90 degrees and slide into the mount on the enclosure.

Fasten the pole in place by tightening the 2 set screws on the mount with a 6MM L handle Allen wrench.

The HMI may be enclosed in a wooden support off the enclosure to hold it in place during shipping.

If HMI is located remotely off the enclosure it will still be supported during shipping.

If so, carefully remove the supports and you are done.

All printers, printer controllers and lasers are removed from the machine when shipping and placed in the manufacturer's box. The cabling will remain on the machine for ease of installation.

The printer is mounted to the printer mount with 1 ¼-20 ratchet handle. Make sure you line up the indents in the plates with the brass nut on the threaded rod. Then slide the ratchet handle through the center of all of the blocks and tighten. Plug in the cables and you are done.

Table top printers with printer tables will ship in separate boxes or pallets (as shown to the left) the printer will be disconnected and placed in the manufacturer's box. The table will either get banded to the pallet with the machine or a separate pallet tethered to the machine pallet. Printer tables may be connected to the machine via weldment or a remote from machine. If you have a weldment connected table, refer to the lay out drawing of your machine in this manual. Fasten the weldment to the frame of the conveyor using the supplied hardware and an open end wrench. If the table is remote then move into the desired position referring to your layout drawing. Remove the printer from the box set on the table and plug in the pre-wired connectors.

Print and apply printers will be removed from the labeling head as well and placed in the manufacturer's box. Your labeling head will likely ship in its own boxes with a few of the assemblies or flanges removed. Occasionally your head on a stand will ship on a framed pallet which will requires little work to get started.

The unwind flange is installed like the previous one discussed previously.

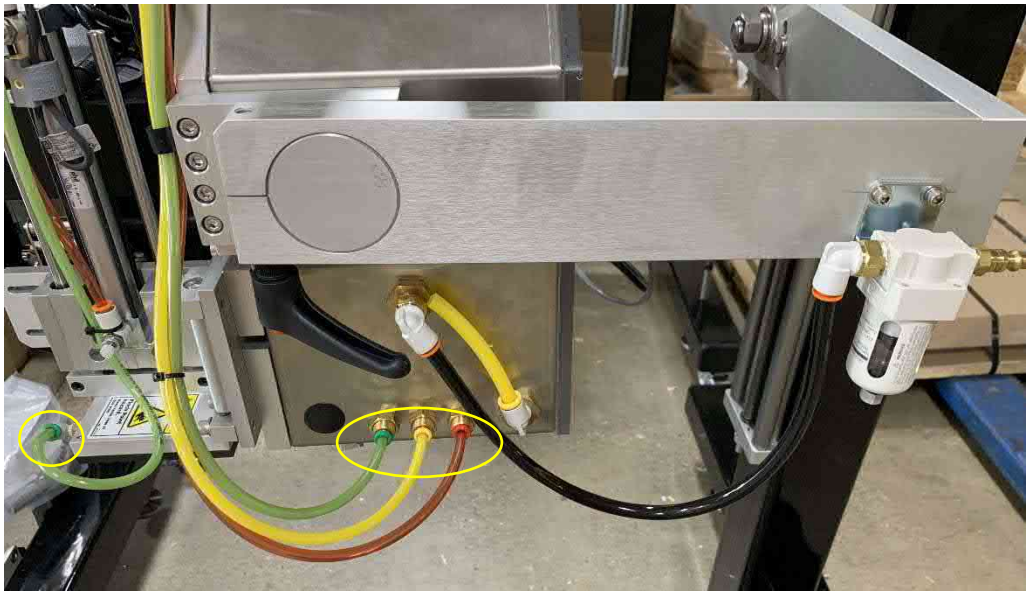
Remove the printer from the box and place it into the opening of the labeling head (as shown in image to the right). Fasten the printer to the side plate of the labeling head using the supplied (5) 10-32 socket head screws and a 5/32 L handle Allen wrench. Then, plug the printer in.

The corner wrap modules will be removed for shipping purposes. They will be wrapped in bubble wrap, plastic wrap, and placed into the box with the labeler.

Take out of the box, carefully remove the wrapping.

Then mount to the labeling head with (4) ¼-20 bolts using a 3/16 L handle Allen wrench.

To prevent kinking of the air lines during shipping on our Q34 print and apply labeling heads. All lines are pulled and labeled to the corresponding color. The hoses are color coded and marked. Simply plug in hose into the matching color (as shown in image to the right).



Rotary accumulation tables are banded to a pallet and wrapped.

These tables usually operate independently to the machine.

Carefully un-band and unwrap the table.

Line it up to the transfer plate on the conveyor.

Level the table using the leveling pads.

Plus in and adjust speed through the control box.

Sleeving applicators are typically on a stand and will ship on a pallet. They will be banded have many supports and be wrapped to protect the machine during the shipping process.

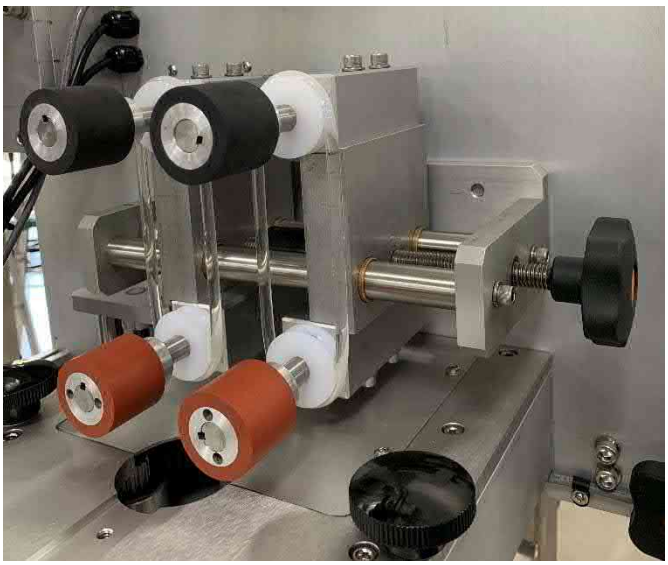
Carefully remove the banding and wrapping.

Raise the head and remove the supports.

The pallet will contain boxes with. Misc assemblies and or parts (ie mandrels).

Below is an image of the mandrel. The mandrel is the most precise and important part of the sleever system. Always handle the mandrel extremely carefully.

Your mandrel will be located on the machine pallet tethered to the machine. It will be wrapped and in a box or tube (as shown below).



Carefully remove the mandrel from the packaging.

Rotate the black handle to move the throw down rollers apart far enough to slide the mandrel in.

Ensure each roller is between 2 bearings, the fin on the top is between the sensor, and the cutter blades are in line with the cut in the mandrel.

Rotate the black handle to move the throw down rollers closer to the mandrel pinching it in the middle. DO NOT OVER TIGHTEN THE THROW DOWN ROLLERS INTO THE MANDREL. They need to be just tight enough that the bearing spins and a label feeds through.

Proline machines with guarding will either be left on the machine and have wooden supports to protect during shipping or the guards are removed and places on a pallet.

If the guarding has supports carefully remove the supports from the guarding.

If the guarding is removed from the machine each panel will be labeled and the machine will be labeled to make it easy to figure out which door goes where.

The doors are fastened to the frame of the machine with the supplied hardware.

Line the hinges up to the holes on the frame put the bolt through.

Tighten a nut on the opposite end with the supplied flat and lock washer.

During shipment if the conveyor gets skewed you may need to re-square it. First check the conveyor with a square to verify (as shown in images below). If the conveyor needs adjusted, adjust the conveyor by slightly loosening the 4 bolts connecting the 2 sections on conveyor you would like to adjust (as shown in image to left).

Make your adjustments and check the top and side with a square. Placing a square across the top will check the squareness vertically. Placing a square along the side will check squareness horizontally.

When the conveyor is square tighten the bolts and you are all set.

Due to customer height requirements and standard shipping doors. Shipment of prolines with an extended boom the dual swiveling elbows in the center of the boom get flipped 180 degrees to allow the machine to have enough over head clearance to ship safely (shown in image below).

Below are the instructions to flip the elbows to the correct configuration (as shown in image below)

Ensure the overhead controls are safely supported by a tow motor or at least 2 people so it does not fall when disconnecting the elbows.

Locate the 2 screws on the top and 2 screw on the bottom holding the prospective covers on.

With a t25 torx bit screw driver, loosen the 2 bolts holding the cover on the top and bottom.

With the cover off you can now access the 4 bolts holding each of the tubes in place.

Ensure the overhead enclosure is supported enough to hold for a few minutes while you loosen the bolts and flip the elbow.

Using a 6MM L handle Allen wrench loosen the 4 bolts on the top and bottom tube.

Quickly pull the tubes out and rotate the elbow as shown below.

BEFORE

AFTER

Slide the tubes in the overhead enclosures elevation is going to change when flipping the elbows if you have it supported via tow motor you will have to raise it.

Fasten the 8 bolts with a 6MM L handle Allen wrench.

Fasten the covers to the top and bottom elbow using a T25 torx bit screw driver.

To the left shows the correct orientation of the dual elbow boom for the overhead enclosure.

If you have any questions please give Technical Support team a call (440)602-4700.

HMI GUIDE

Operator Interface Guide

Q105 / Q110 Labeling Head

For SB22635-v100 files

Delta HMI, Keyence PLC, and Applied Motion STRAC8 Drive

Opening Splash Screen

Upon initial power up, the terminal will initialize and display a splash screen. The HMI will look at the PLC and display the file name in the upper left. The HMI file name will be in the upper right.

Button / Indicator Reference:

Menu Navigation Buttons: Navigation buttons will be purple circles with white outlines and icons of the target screen. Some buttons will have text below them to identify the target screen.

Standard Buttons: Standard buttons are used to turn features on/off, reset faults, clear counters, or various other functions that require operator control. Toggle buttons will typically have icons to reflect the status of the function that is being toggled while momentary buttons like Resets are circular and do not change images/colors.

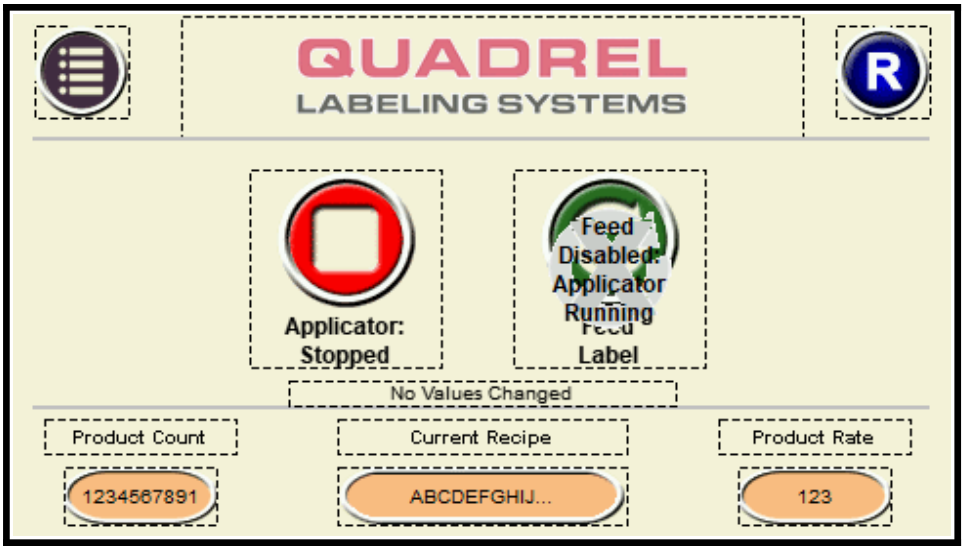
Indicators: Status Indicators will be circular and will change color based on states. Mode indicators will be oval in shape and will change colors and texts based on states.

Numeric and Text Displays: Numbers or Text displays will have a light orange background with black text, surrounded by a grey border. These are used to reflect numbers or text.

Numeric and Text Inputs: If a number can be entered, the button will have a dark green background with white text. The right side of the button will have a touch icon signify that it is an entry box.

Main Screen:

After touching the splash screen, the touch screen will display the Main screen.
You can also get to the Main screen by pressing the Home icon (pictured left).



Setup Button:
Pressing this button will navigate to the Menus screen, which has buttons for the sub-menus that make up the entire HMI application.

Fault/Message window:
The Red box at the top of the screen will appear if there is an active fault or message on the system. Pressing the blue Reset button to the right will clear these messages if the source of the fault has been remedied. When no faults are present, this box will disappear and a Quadrel Logo will be shown.
If multiple faults exist, it is necessary to scroll down to view them, or navigate to the Fault menu from the System Setup Menu to view a larger box.

Applicator Run/Stop:
The Labeling Applicator can be toggled between Run and Stop (pending fault conditions). The Run/Stop button will change colors and text based on the current status.

Green "Running" Button: This indicates the applicator is currently running and cannot be jogged. While running, the applicator will automatically apply labels to passing products. To **stop** the applicator, press this button.

Red "Stopped" Button: This indicates the applicator is currently stopped and may be jogged. While stopped, the applicator will ignore products passing by. To **run** the applicator, press this button.

Feed Label:
When the applicator is stopped, the Feed button becomes available. Pressing the Feed button will cause the applicator to dispense one label (pending proper threading and label gap detection). It is important to manually feed labels upon threading or changing over to verify the applicator is threaded and functioning properly.

Green “Feed” Button: This indicates the applicator can manually dispense labels. Press this button to start a feeding process. This button will be grey while the applicator is feeding.

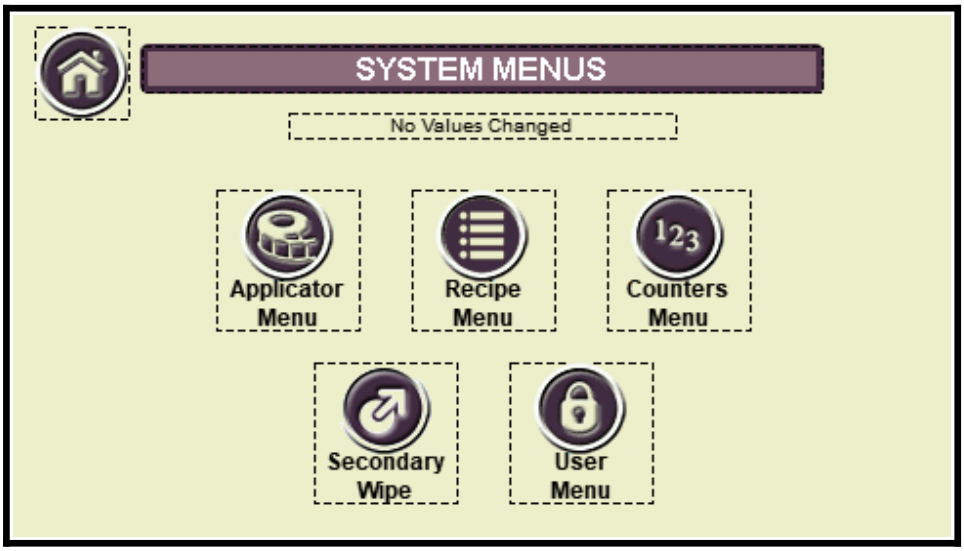
Greyed out “Feed” Button: This indicates the applicator is currently running, and may not be manually fed.

Product Count:
This counter reflects how many Products have passed the product detect sensor. This count can be reset in the Applicator Menu.

Product Rate (Parts Per Minute):
This indicator will reflect how many parts per minute are passing by the product detect sensor. This number will start being calculated after 5 products pass and will continue to average out until no product is detected for 30 seconds.

System Menus:

After touching the button to the left from the Main screen, the following menu appears. Note that the fault display will still appear over the title bar if the system has an active fault.



Main Menu:
Press this to return to the Main Menu.

Applicator Menu:
The Applicator Menu contains the parameters associated with dispensing labels onto products.

Recipe Menu:
System Recipes can be saved, copied, loaded, and descriptions changed in the Recipe Menu.

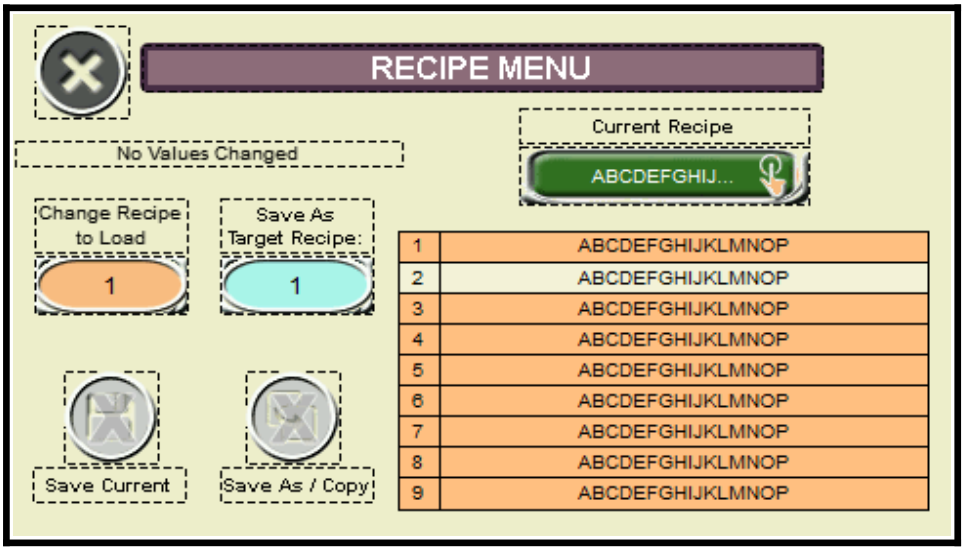
Counters Menu:
The Product and Label Counts can be viewed and reset in the Counters Menu.

Wipe Menu:
The Wipe Menu contains the toggle and parameters associated with controlling a wipe cylinder, typically used in trailing panel applications.

User Menu:
The User Menu allows an operator to log into the screen to change the Labeler Type.

Recipe Menu:

The Recipe Menu allows the user to change recipes, view all recipes by descriptions, save recipes, and save recipes as new.



Recipe:
Recipes are presets that contain parameters unique to each product. Setting Recipes for different products expedites changeover times. A total of 9 recipes can be stored and descriptions can be changed by pressing the bottom description box when logged in at a Supervisor Level.
Recipes store the following information:
Description (displayed in the list on the center of the screen)
Applicator Parameters: Product Delay, Label Stop, Max Feed, Dispense Speed / Dispense Ratio
Wipe Parameters: Wipe Enable, Wipe Delay, Wipe Duration

Loading:
Recipes can be loaded by entering a new Recipe number on the left side. Once entered, all stored toggles and parameters will be loaded to the system. If a new recipe is loaded it can trigger the save button to appear in the event the system loaded default/non-zero values to various toggles and parameters.

Saving:
Pressing the purple Save button in the bottom center will save all current recipe parameters to the current Recipe number.

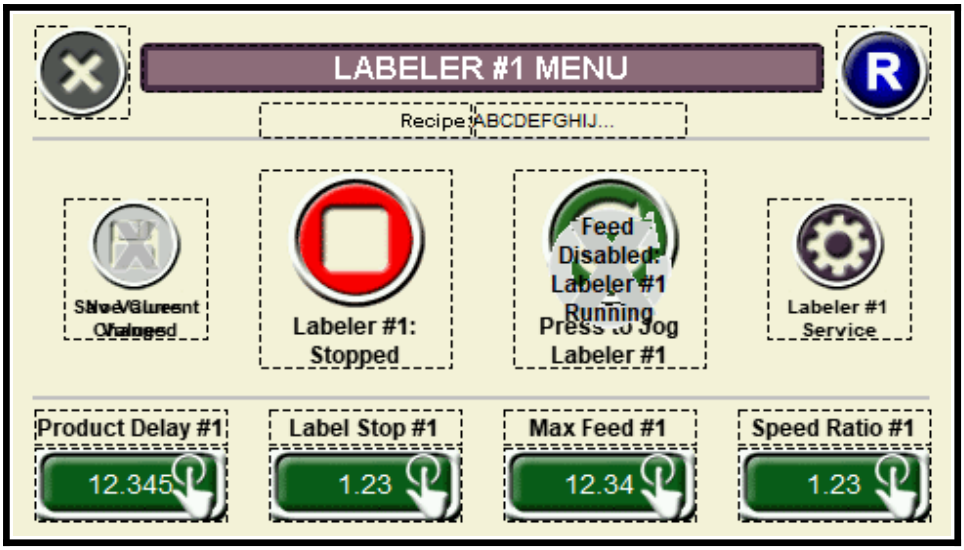
Save As Target Recipe (Supervisor Level):
This number can be used to create a copy of the current recipe when using the Save As button.

Save As (Supervisor Level):
Pressing the pink Save As button in the bottom left will save all current recipe parameters to the Save As Recipe number. Note that this button does not save the current values to the current recipe.

Change Description (Supervisor Level):
Pressing the Recipe Description at the top will bring up a keyboard that allows the user to enter a new description for the current recipe.

Labeler Menu:

After touching the button to the left from the Menus screen, the following screen appears. Note that the fault display will still appear over the title bar if the system has an active fault.



Close / Back:
Press this to return to the previous screen.

Labeler Service Menu:
The Labeler Setup Menu contains core values related to the dispensing speed of the labeler. These are typically set up at the factory and don't need further adjustment.

Labeler Run/Stop:
The Labeler can be toggled between Run and Stop (pending fault conditions). The Run/Stop button will change colors and text based on the current status.

Green "Running" Button: This indicates the labeler is currently running and cannot be jogged. While running, the labeler will automatically apply labels to passing products. To **stop** the labeler, press this button.

Red "Stopped" Button: This indicates the labeler is currently stopped and may be jogged. While stopped, the labeler will ignore products passing by. To **run** the labeler, press this button.

Labeler Jog:
When the Labeler is stopped, the Jog button becomes available. Pressing the Jog button will cause the labeler to dispense one label (pending proper threading and label gap detection). It is important to jog labels upon threading or changing over to verify the labeler is threaded and functioning properly.

Green "Jog" Button: This indicates the labeler can be jogged. Press this button to start a jog process. This button will be grey while the labeler is jogging.

Greyed out "Jog" Button: This indicates the labeler is currently running, and may not be manually jogged.

Product Delay:
The Product Delay is used to center the label on the product in the left/right direction. A higher value in the Product Delay parameter will move the label towards the infeed side of the conveyor.
The Product Delay value is entered as inches.

Label Stop:
The Label Stop controls the label's stop position. Typically the label should stop with 1/8" to ¼" sticking off of the peel plate. A higher Label Stop will result in more label off of the peel plate. The Label Stop value is entered as inches.

Max Feed Length:
The Max Feed controls how much liner (in inches) will be dispensed in the event no label gap is found. This is to prevent label runaway conditions and can be used to determine if labels are missing on the liner.
After a label is set up properly, this value can be set to the label length + .25.
When setting up a new label, it may be necessary to set this value to 2x the actual label length. This will allow the labeler to dispense more label to find and process the label stop value.

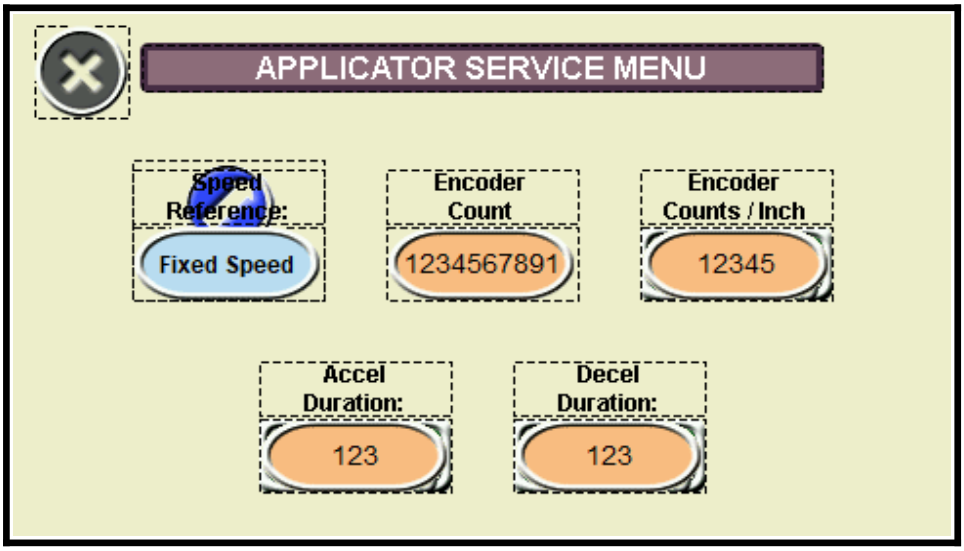
Speed Ratio (Encoder Mode):
This is a speed ratio based on the target speed of the conveyor that determines the dispensing speed of the labeler. A value of 1.00 means the labeler will dispense at the encoder signal reference.

Feed Speed (Non-Encoder Mode):
This entry box determined the dispensing speed of the labeler. This value is entered as inches per minute.

Saving:
When any of the stored recipe values are changed, the Save button will appear. The Save button must be pressed to save settings to the current recipe.
The text above any parameter will flash if it has been changed.

Labeler Service Menu:

After touching the button to the left from the Labeler Menu, the following screen appears.



Close / Back:
Press this to return to the previous screen.

Speed Reference (Supervisor Level):
Fixed Speed: The Applicator's dispensing speed will be determined by the Feed Speed parameter set in the Applicator Menu.
Encoder: The Applicator's dispensing speed will be determined by an incoming encoder signal.

Encoder Count:
This indicator will reflect the current encoder count as interpreted by the PLC. This number is used to calculate the counts per inch parameter.

Encoder Counts per Inch (Supervisor Level):
This entry box will tell the PLC how many encoder counts have been received for every inch of belt travel. This value is critical for proper speed following and product delay accuracy.

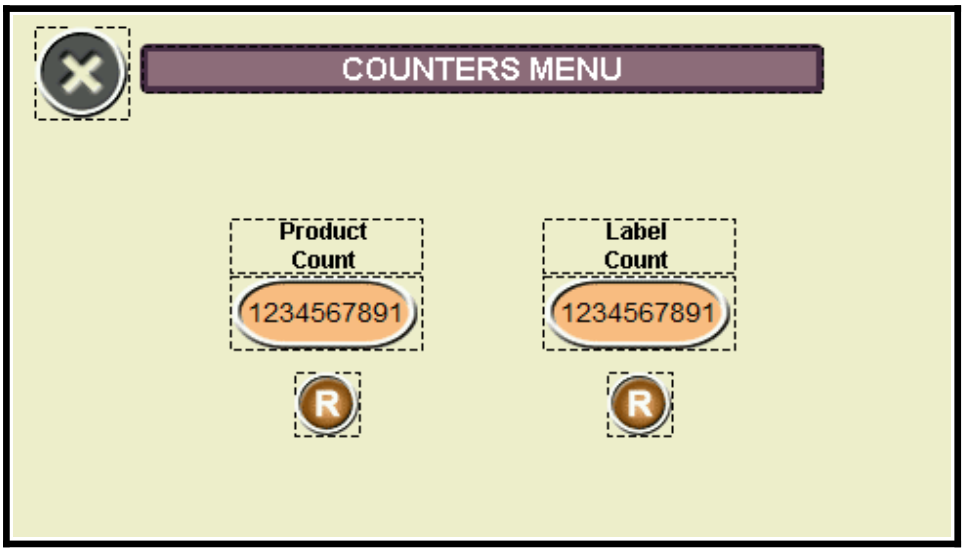
Accel (Supervisor Level):
The Accel Duration (entered in milliseconds x 10) is the rate at which the label will reach the target dispensing speed. Too low of a value may result in motor stalling or liner tears. Too high of a value may result in the label not being dispensed in time to reach production rates. **Calibration on!**
While the Calibration is active, the Speed Cal value can be changed so the labeler's dispensing speed is equal to that of the master encoder (conveyor or wrap belt). The Labeler should be Stopped to use the Calibration mode.

Accel (Supervisor Level):
The Accel Duration (entered in milliseconds x 10) is the rate at which the label will reach the target dispensing speed. Too low of a value may result in motor stalling or liner tears. Too high of a value may result in the label not being dispensed in time to reach production rates.

Feed Speed:
This entry box determined the dispensing speed of the labeler in fixed speed mode and the manual feed speed when encoder is used. This value is entered as inches per minute.

Counters Menu:

Product and Label Counters can be viewed and reset here.



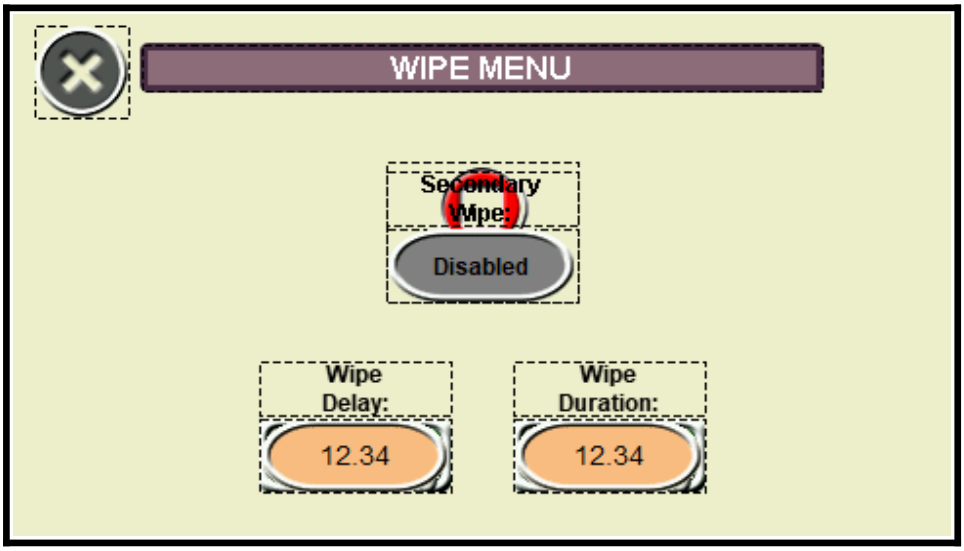
Close / Back:
Press this to return to the previous screen.

Product Count and Reset:
This counter reflects how many Products have passed the product detect sensor while the labeler is Running. The reset button below the counter will set this value to 0.

Label Count and Reset:
This counter reflects how many Labels have been dispensed when Jogging and Running. The reset button below the counter will set this value to 0.

Wipe Menu:

After touching the button to the left from the System Menu screen, the following screen appears. Note that the fault display will still appear over the title bar if the system has an active fault.



Close / Back:
Press this to return to the previous screen.

Secondary Wipe (Supervisor Level):
The system can control a secondary wipe cylinder that uses its own trigger sensor and delay settings. This is common in Trailing Panel applications, but could be used for other applications if needed.

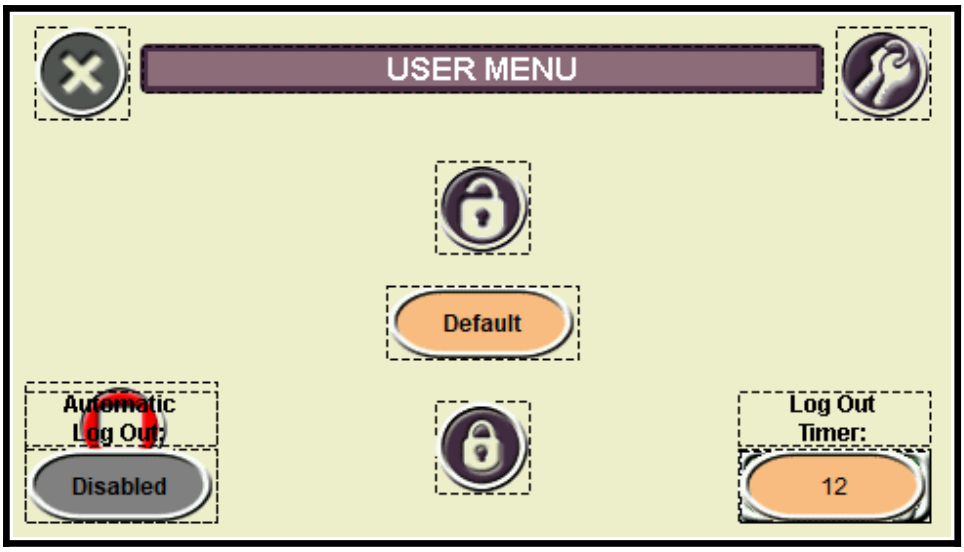
Enabled: This indicates the wipe function is enabled. After the trigger sensor is activated, the system will wait for a specified amount of time (Wipe Delay) before energizing the output for the wipe cylinder or device.

Disabled: The output for the cylinder or device will not turn on.

Wipe Delay:
The Wipe Delay (entered in Seconds) is how long the system waits from the trigger sensor being activated until the output for the cylinder or device is turned on.

Wipe Duration:
The Wipe Duration (entered in Seconds) is how long the output remains on once it is activated.

User Menu:



Close / Back:
Press this to return to the previous screen.

Password Input: Press this button to enter a user password.

Log Out: Press this button to enter to log the current user out.

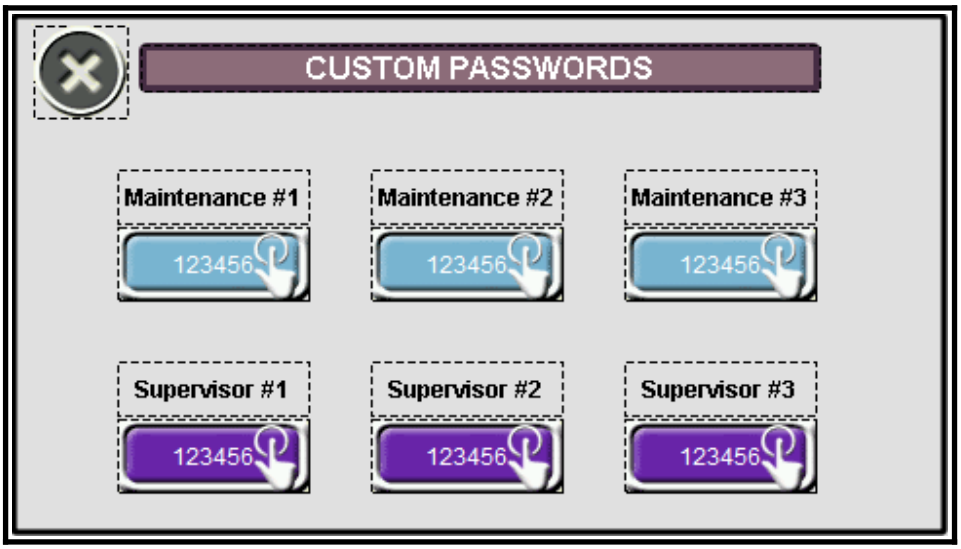
Password Menu: This will open up a security prompt before opening the password menu, where the passwords for the Maintenance and Supervisor levels are set.

Auto Log Out (Supervisor Level):
When Enabled (button will be Green), the logged in user will automatically be logged off at a set amount of time. Note that the system automatically enables the Auto Log Out feature upon startup.

Log Out Timer (Supervisor Level):
This timer (in minutes) determines the time it takes to log off a user if Auto Log Out is enabled.

Password Menu:

The Password Menu allows the creation and editing of the passwords for different security levels.



Maintenance:
There can be 3 user defined passwords for the Maintenance level. Note that there is one hard coded Maintenance Level password that cannot be viewed or changed.

Supervisor:
There can be 3 user defined passwords for the Supervisor level. Note that there is one hard coded Supervisor Level password that cannot be viewed or changed.

If a Maintenance and Supervisor password are the same, the system will log that user in at the Maintenance level.

The password(s) to open the Password Menu are stored in the HMI and cannot be modified. This will prevent any password loss in the event the PLC logic is altered.

Fault Messages and Indicators:

Green Lamp (option): A Green lamp will be steady to signal the labeler is free of all faults.

Amber Lamp (option): An Amber lamp will signal that there is a warning condition present on the system. Warning conditions typically allow the system to function normally, but action will be needed soon to replace labels, ribbon, etc. Some warning messages will turn into fatal faults if they are not addressed before taking additional actions.

Red Lamp / Buzzer (option): A Red lamp indicates that a fatal fault occurred and the system is unable to run properly.

Messages	Cause/Solution
Warning Messages	
Screen Boot Sequence Warning	The PLC will not execute it's internal program until the screen starts up. If the PLC powered was cycled but screen was not, this message will appear. Cycle power to the entire labeling head.
Low Label Supply #X	The label supply on the listed labeler has been determined low by the sensor fiber under the flange. Note that this message will not appear until the labeler is placed in run or is currently running.
End of Web Warning #X	The End Of Web sensor (between the drive system and unwind) on the listed Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Broken Web Warning #X	The Broken Web sensor (between the drive system and rewind) on the listed Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Missing Label / Max Feed #X	This message will appear if the drive determined there was no label gap detected when dispensing. Check the Max Feed distance, label sensor, and labels if this frequently occurs.
Labeler #X Drive Faulted Warning	The driver that controls the stepping motor on the labeler has been turned off or has become faulted. The warning indicated the labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Product Delay Warning	The system attempted to apply a label to a product but was already in a dispensing process. Verify the products are properly spaced and/or increase the Product Delay parameter.

Fatal Messages	
Safety Fault. Check E-Stops	An emergency stop is pressed in. When released, the safety circuit will restart, but the fault message must be manually cleared from the HMI.
Labeler #x Drive Faulted / Turned Off	The driver that controls the stepping motor on the labeler has been turned off or has become faulted. Refer to the stepper drive manual to read fault codes on the drive itself. This fault will become active if the labeler is Running or placed into Run.
Labeler #x Broken Web Fault	The Broken Web sensor (between the drive system and rewind) on the Labeler is active and the Labeler was Running or placed into Run.
Labeler #x End of Web Fault	The End Of Web sensor (between the drive system and unwind) on the Labeler is active and the Labeler was Running or placed into Run.

Fatal Messages, cont.	
Missing Label / Max Feed #X	This message will appear if the drive determined there was no label gap detected when dispensing. Check the Max Feed distance, label sensor, and labels if this frequently occurs.
Movement Error, Press Reset	The system attempted to dispense a label but could not due to an invalid parameter. Verify that a max feed and dispense speed is set.

Setup Sheets

QUADREL
LABELING SYSTEMS

Q105 Econoline Setup Parameters

Serial Number: 84260-100

Product: 12oz Beverage Can (Recipe #1)

Applicator Menu

Product Delay	**8.450**
Label Stop	**1.00**
Max Feed	**10.00**
Speed Ratio	**2.00**

Applicator Service Menu

Encoder Mode	**Enable**
Encoder Counts / Inch	**128**
Feed Speed	**600**
Accel Duration	**50**
Decel Duration	**50**

Wipe Menu

Wipe	**Disable**
Wipe Delay	**1.00**
Wipe Duration	**1.00**

QUADREL
LABELING SYSTEMS

Q105 Econoline Setup Parameters

Serial Number: 84260-100

Product:

Applicator Menu

Product Delay	
Label Stop	
Max Feed	
Speed Ratio	

Applicator Service Menu

Encoder Mode	
Encoder Counts / Inch	
Feed Speed	
Accel Duration	
Decel Duration	

Wipe Menu

Wipe	
Wipe Delay	
Wipe Duration	

Emerson M100 Drive Setup v.003

For ~~Motorized Stands~~ Local Operation, reference SB5172-001

Job: 84260-100 Drive: DR 1 Motor: Conveyor

SETUP AND ADJUSTMENTS: (Reference M100 drive manual for detailed information)

To view and change settings:

- Press UP or DOWN buttons until 00.010 (or similar number structure) is displayed. The 2 digits on the left will flash.
- Use the UP or DOWN buttons to select the first 2 digit group and press the ENTER (Left arrow) button. The 3 digits on the left will now flash.
- Use the UP or DOWN buttons to select the second 3 digit group. Press the ENTER button to view that parameter.
- When viewing the parameter, press the ENTER button to cause that parameter to flash.
- Use the UP or DOWN buttons to change the flashing parameter. Press the ENTER button to enter the new information to the selected parameter.
- Press the ESC (Loop) button to return to the parameter selection. Repeat the process for all parameters.

First time power up: The security parameter 00.010 for the drive must be set to ALL in order to view and change the appropriate parameters.

Parameter	M100 Default	Quadrel Default Value	Quadrel Final Value	Description
00.002	60.0	60.0	90.0	Max Frequency
00.003	5.0	2.0	3.00	Acceleration
00.004	10.0	2.0	3.00	Deceleration
00.005	AV	PAD.REF	PAD.REF ✓	Frequency Reference
00.006	Varies	See Table	1.00	Motor Current
00.018	0	60	32.40	Preset Frequency
00.027	Reset (0)	Preset (2)	Preset (2) ✓	Power Up Keypad Control
00.037	3	4	4 ✓	Switching Frequency
00.041	Ur.I	Ur	Ur ✓	Control Mode

After the base parameters are entered, perform a Stationary Auto-tuning procedure.

- Set **05.012 (Autotune)** to a value of **1** (for Stationary)
- Using a jumper wire, jump the **24V (pin 9)** to the **Run Forward (pin 12)** momentarily
- The drive should display "**tuning**" while it performs the tuning procedure
- When finished, the drive will display "**Inh**"
- **Set 00.041 to Ur**
- **Save** settings from the procedure below

Motor Reference Table for Common Techline Motors

Parameter	Description	Bodine 1/6 Conveyor	Bodine 1/6 Top Trap	Bodine 3/8 Wrap	Bodine Chains	Leeson 1 Conveyor
00.002	Max Frequency	90.0	89.0	90.0	130.0	90.0
00.006	Motor Current	1.0	1.0	1.9	2.0	3.6

Settings must be SAVED after entering!

- Change any second 3 digit group to .000 and press ENTER.
- Press ENTER again to have the displayed value (typically "NONE") flash.
- Use the UP or DOWN buttons to select "SAVE"
- Press and hold the red STOP button until "NONE" is displayed again.
- The parameters are now saved.

* 32.40 Hz = 600 IPM conveyor speed *

Emerson M100 Drive Setup v.003

For ~~Motorized Stands~~ Local Operation, reference SB5172-001

Job: 84260-100 Drive: DR 2 Motor: Wrap

SETUP AND ADJUSTMENTS: (Reference M100 drive manual for detailed information)

To view and change settings:

- Press UP or DOWN buttons until 00.010 (or similar number structure) is displayed. The 2 digits on the left will flash.
- Use the UP or DOWN buttons to select the first 2 digit group and press the ENTER (Left arrow) button. The 3 digits on the left will now flash.
- Use the UP or DOWN buttons to select the second 3 digit group. Press the ENTER button to view that parameter.
- When viewing the parameter, press the ENTER button to cause that parameter to flash.
- Use the UP or DOWN buttons to change the flashing parameter. Press the ENTER button to enter the new information to the selected parameter.
- Press the ESC (Loop) button to return to the parameter selection. Repeat the process for all parameters.

First time power up: The security parameter 00.010 for the drive must be set to ALL in order to view and change the appropriate parameters.

Parameter	M100 Default	Quadrel Default Value	Quadrel Final Value	Description
00.002	60.0	60.0	90.0	Max Frequency
00.003	5.0	2.0	3.00	Acceleration
00.004	10.0	2.0	3.00	Deceleration
00.005	AV	PAD.REF	PAD.REF ✓	Frequency Reference
00.006	Varies	See Table	1.90	Motor Current
00.018	0	60	32.30	Preset Frequency
00.027	Reset (0)	Preset (2)	Preset (2) ✓	Power Up Keypad Control
00.037	3	4	4 ✓	Switching Frequency
00.041	Ur.I	Ur	Ur ✓	Control Mode

After the base parameters are entered, perform a Stationary Auto-tuning procedure.

- Set **05.012 (Autotune)** to a value of 1 (for Stationary)
- Using a jumper wire, jump the **24V (pin 9)** to the **Run Forward (pin 12)** momentarily
- The drive should display "**tuning**" while it performs the tuning procedure
- When finished, the drive will display "**Inh**"
- **Set 00.041 to Ur**
- **Save** settings from the procedure below

Motor Reference Table for Common Techline Motors

Parameter	Description	Bodine 1/6 Conveyor	Bodine 1/6 Top Trap	Bodine 3/8 Wrap	Bodine Chains	Leeson 1 Conveyor
00.002	Max Frequency	90.0	89.0	90.0	130.0	90.0
00.006	Motor Current	1.0	1.0	1.9	2.0	3.6

Settings must be SAVED after entering!

- Change any second 3 digit group to .000 and press ENTER.
- Press ENTER again to have the displayed value (typically "NONE") flash.
- Use the UP or DOWN buttons to select "SAVE"
- Press and hold the red STOP button until "NONE" is displayed again.
- The parameters are now saved.

* 32.30 Hz = 1200 IPM wrap speed *

WARNING

- **KEEP HAND CLEAR OF MOVING PARTS. DO NOT PLACE HANDS NEAR LABELING HEAD WHEN IN OPERATION**

- **DO NOT OPERATE EQUIPMENT WITHOUT GUARDS OR COVERS INSTALLED**

6.1 LABELING HEAD INFORMATION

6.1.1 LOADING AND UNLOADING STOCK ROLL

⚠ CAUTION

To avoid injuries, you must keep the labeler stopped/paused. You can manually jog labels with the JOG button.

Look carefully at the diagram and follow the threading procedures indicated below.

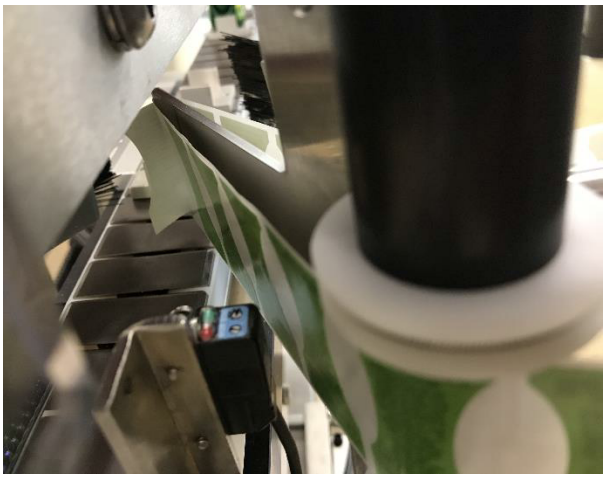
You will also find the threading diagram directly on the labeling head.

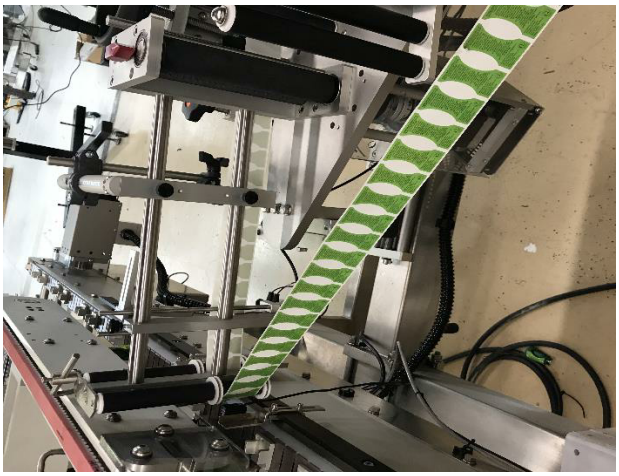
1) Place the label stock roll on the unwind shaft. Press the roll firmly against the flange. Then slide the locking collar over the unwind shaft aligning the set screw with the shaft. Press into the roll and twist to lock the collar in place.

2) Pull Approximately 36-40” of stock from label stock roll.

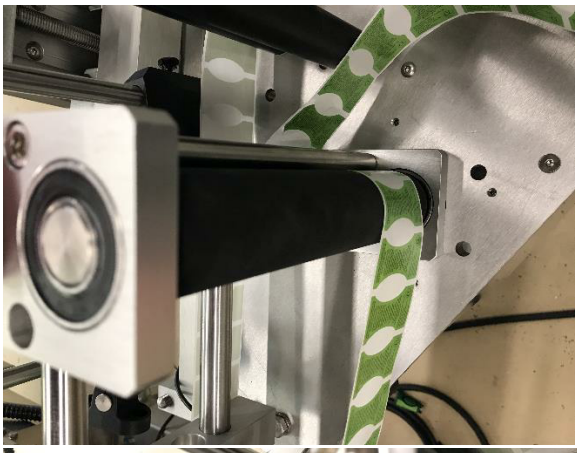
3) Follow the threading diagram on the labeling head for routing the web.
4) Thread through the dancer to the peel plate.

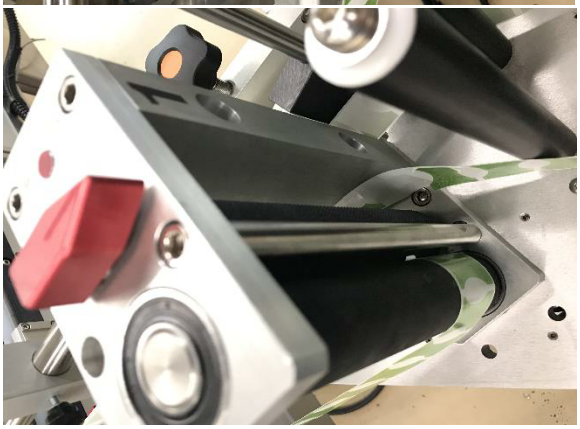
5) Feed the label around the peel plate and under the pressure shoe if (if there is one). Feed the label up the head to the pull roll. Pull all the slack out.



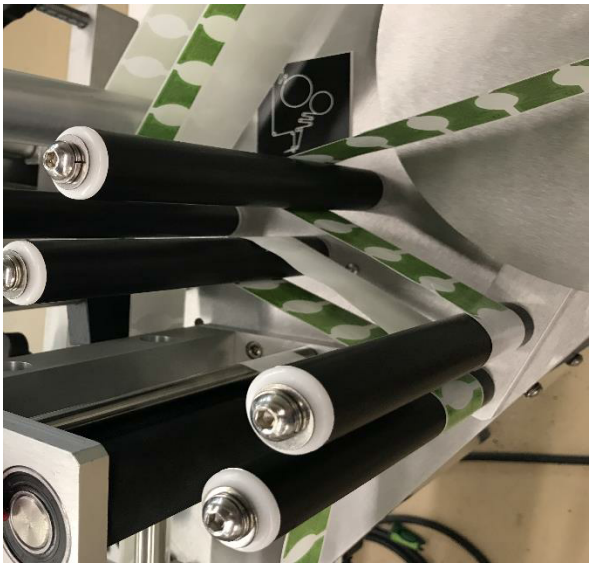


6) Wrap labels around the rubber roller as shown, then around the knurled roller. Make sure the knurled roller is not locked in by turning the red knob to the left or right of the red dot on the drive roll. When you have the labels completely threaded you can turn the knob to the red dot.





7) Thread the labels through the rewind dancers to the rewind shaft. Place the end of the label through the clip and rotate the rewind hub to take up the slack.



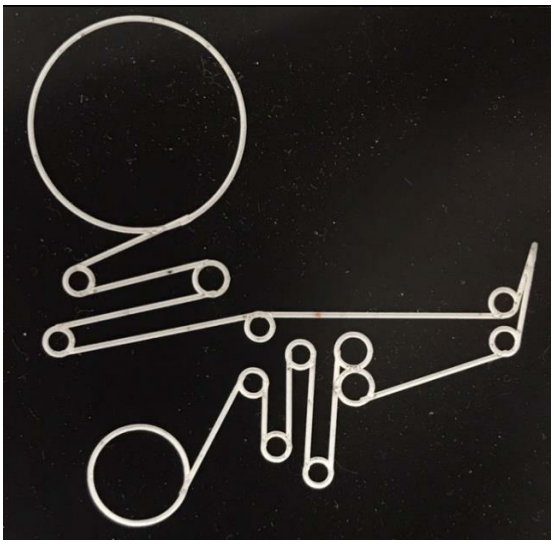
8) The finished product should look similar to the pictures below. Some heads are threaded differently depending on the style head you have. See threading diagrams on the head itself or the manual.

9) To unload the rewind loosen (counter clockwise) the “clevis” bolt on the top of the rewind hub. this will collapse the rewind and you can pull the liner off the hub.

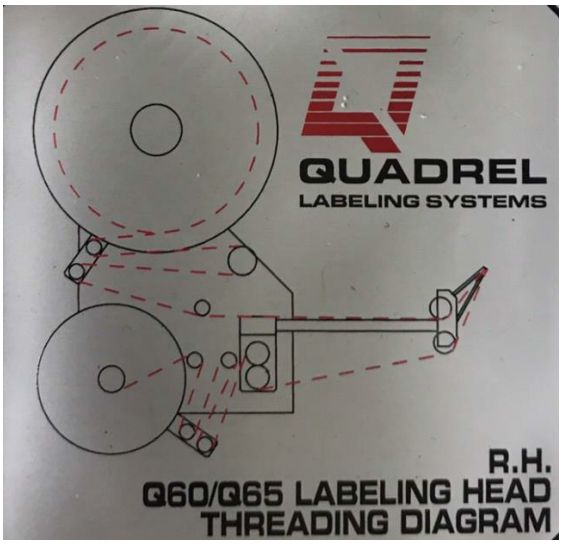
⚠ CAUTION There are many pinch points on a labeler. to avoid injury read and understand the owner’s manual before operating.

6.1.2 THREADING DIAGRAMS

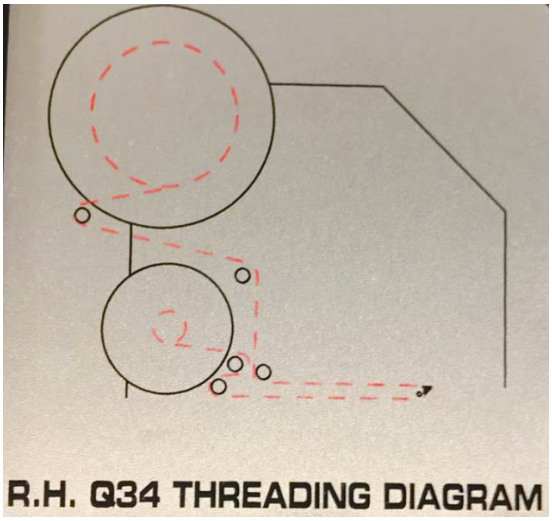
Here are the following threading diagrams for our standard labeling heads.



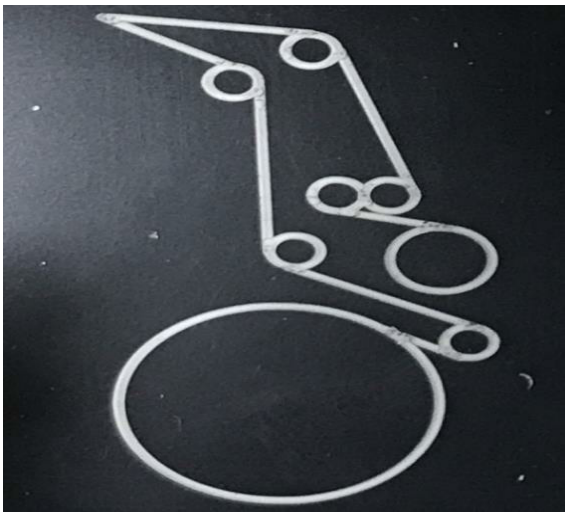
Q120/Q125/Q115/Q110



Q60/Q65



Q34



E100

6.1.3 LABELER ADJUSTMENTS

The vertical adjustment is to position the label on the container at different heights. It's practical if you have different size labels and/or containers. To adjust the height you simply rotate the handwheel at the top of the labeler counter clockwise to go down and clockwise to go up.

Horizontal adjustments are made the same way except you rotate the hand wheel under the labeler. Rotating the hand wheel counter clockwise will move the labeler in and rotating clockwise with move the labeler out.

To adjust the angle of the labeling head you first need to loosen the large ¾-10 nut with a 1 ¼ “wrench and the 5/16-18 hex head bolt. The angular adjustment is very important to increase the repeatability of the process. A good adjustment is when the exit of the label is tangent with the surface of the application.

⚠ CAUTION DO NOT remove the nut & bolt.

Now to adjust the tilt of the labeling head by tightening and loosening the jack screws.

Rotate adjustment is achieved by loosening the 2 ratchet handles under the labeling head. There is a jack screw holding the labeling head in place, but still use caution when loosening the ratchet handles the labeling head can rotate

freely when loose. This is a fine adjustment that increases the parallelism of the label to the shape of the container.

⚠ CAUTION When loosening the labeling head, the head may rotate freely. Keep positive pressure against the head to prevent the head from rotating on its own. `

ASSEMBLY TITLE: **Q65 LABELING HEAD - BRAKE BRUSH ASSEMBLY**

DRAWING NO: **NONE**

GENERAL FUNCTION:

- The brake brush establishes web tension and controls backlash

SET UP AND ADJUSTMENTS:

- For accurate label feeds, the web must establish proper tension.
- Loosen the holding set screw in the brake brush body. The brake brush assembly can now be rotated on axis.
- Turn brush body into the web and tighten. To check for proper web tension, jog a label and check for web slack. If the web is tight and the label feeds correctly, the brush tension is set correctly.
- If backlash persists, continue to increase brake brush tension.

MAINTENANCE:

- Replace brake brush when brush body contour no longer viable or bristles are worn down.

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Web break	-Too much brake tension. Decrease until no slack in web. - Debris or brake flaw causing web tear
- Motor stall	- Decrease brake tension
- Too much web slack	- Increase brake tension

ASSEMBLY TITLE: **LABELING HEAD - THREADING**

GENERAL FUNCTION:

- This section is used to guide the user through loading and feeding the label through the web path.

SET UP AND ADJUSTMENTS:

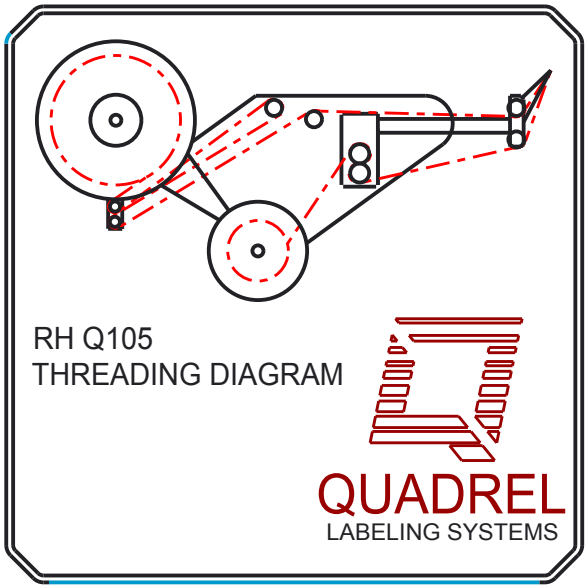
- Load label spool onto unwind hub. Secure unwind retainer onto hub and lock. Pull 3'-4' of web from unwind and strip labels free of web.
- Unlock the drive roller locking handle.
- Using the threading diagram located on the labeling head, feed the web through the labeling head. Start at the unwind dancer assembly and work forward.
- Feed the web through the drive roller assembly.
- Feed the web around the rewind dancer assembly and onto the rewind hub. Wrap the web around the hub once. Lock the web in place with the rewind retaining bracket.
- Once the web has been threaded, lock down the drive roll assembly by rotating the drive roll locking arm into the locked position. (Towards the drive roller assembly)

MAINTENANCE:

- None this section.

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Web break	- Check web path and insure web routed correctly. - Debris causing web tear and break. Clear as needed.
- No Web Tension	- Check web path through unwind and dancer assembly. - Check drive roller lock position.



NOTES:

1) LABEL MATERIAL IS .003" ALUMINUM FOIL W/PERMANENT PRESSURE SENSITIVE ADHESIVE.

2) ALL LETTERING IS .125" HIGH EUROSTYLE 2, BOLD EXTENDED 2.

3) USE QUADREL STANDARD LOGO.

4) ALL LINES AND LETTERS ARE BLACK ON A SILVER BACKGROUND QUADREL AND (WEB PATH) ARE RED #(199c) LINES ARE DASHED LINES.

5) LABEL SIZE 3.0" X 3.0".

REV	DATE	DESCRIPTION
A	4-29-19	NEW DRAWING

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE

.X± .1
.XX± .01
.XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	DRAWING SCALE
DATE:	4-29-19
DRW BY:	TJS
CHK BY:	
APPR BY:	

Q105 R.H. A-DRV. THREADING DIAGRAM

MAT'L
SEE NOTES

A26222-105RH

ASSEMBLY TITLE: **Q65 SIDE PLATE ASSEMBLY**

DRAWING NO.: **D24272-000**

GENERAL FUNCTION:

- To provide a rigid mounting surface for outboard labeling components, electronic components, and system components.
- The side plate also supports the system mount

SET UP AND ADJUSTMENTS:

- None

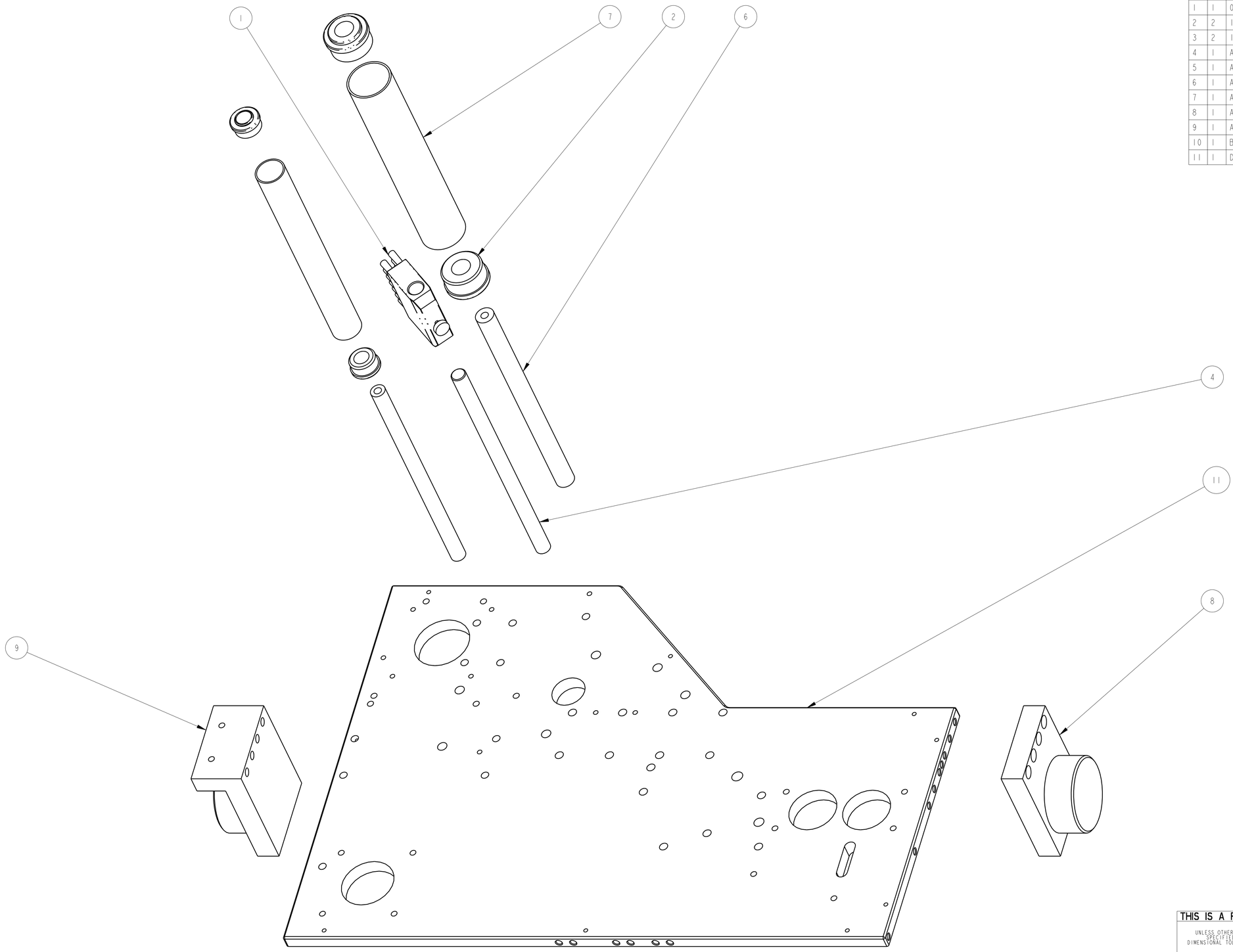
MAINTENANCE:

- None

TROUBLESHOOTING:

- None

ITEM	QTY	PART NO.	DESCRIPTION
1	1	00669-01	BRAKE BRUSH
2	2	181062-000	BEARING, ROLL END
3	2	181063-000	BEARING, ROLL END
4	1	A20654-003	ADJ. ROD
5	1	A20928-001	ROLLER SHAFT
6	1	A21618-001	IDLER SHAFT
7	1	A22291-006	ROLLER
8	1	A24905-001	PIVOT PIN MOUNTING PLATE
9	1	A24905-002	PIVOT PIN MOUNTING PLATE
10	1	B20071-002	IDLER ROLLER (DANCER)
11	1	D23842-000	Q65 SIDE PLATE



REV	DATE	DESCRIPTION
A	3-27-12	NEW DRAWING

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE
X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

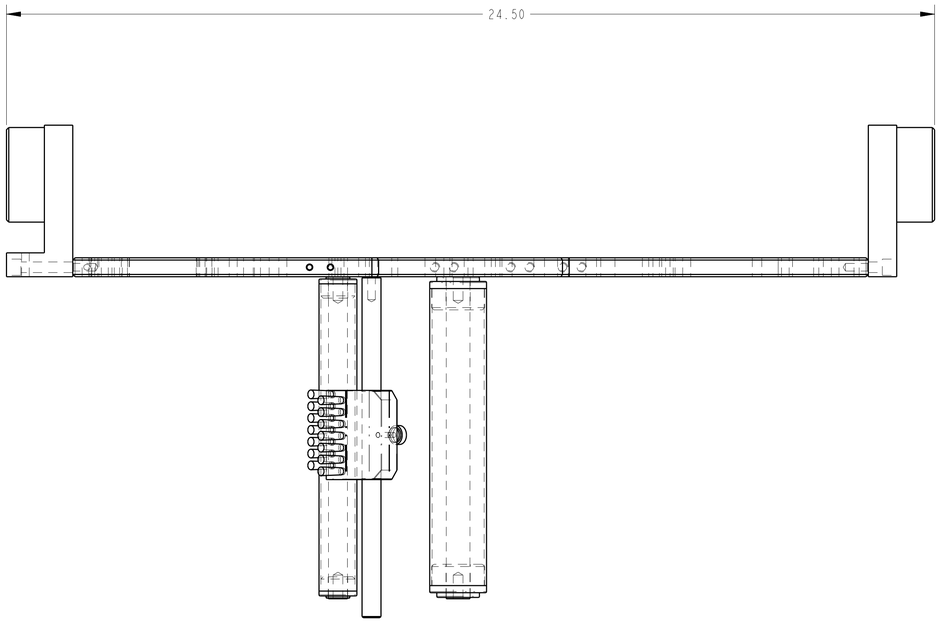
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

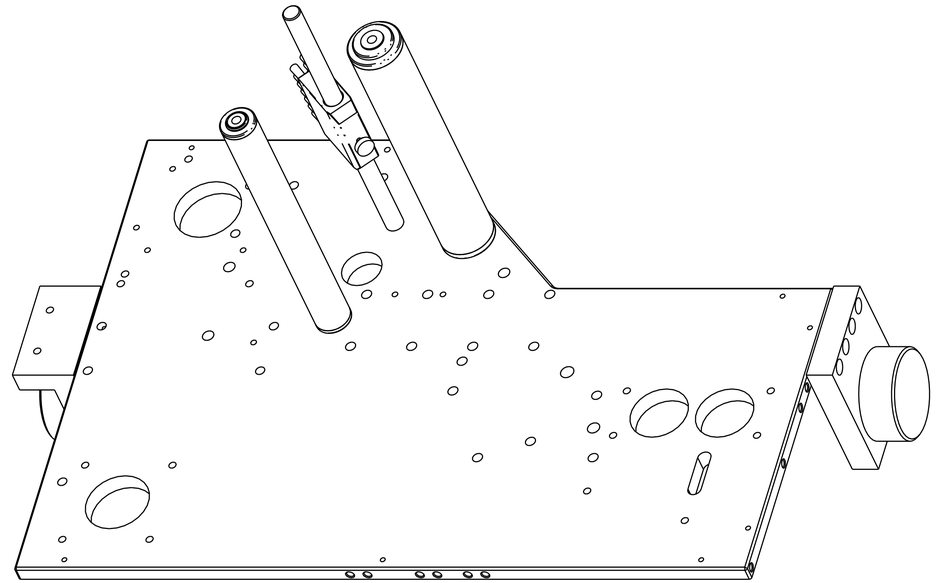
SCALE:	5/8
DATE:	3-27-12
DRW BY:	ATT
CHK BY:	
APPR BY:	

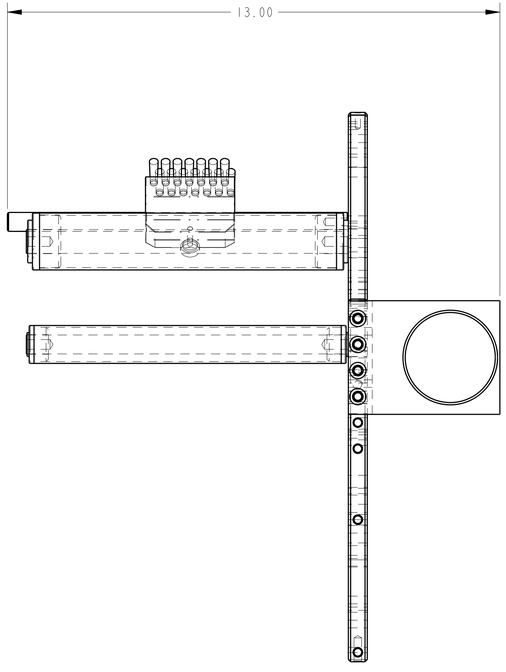
Q65 SIDE PLATE, 16" UNWIND

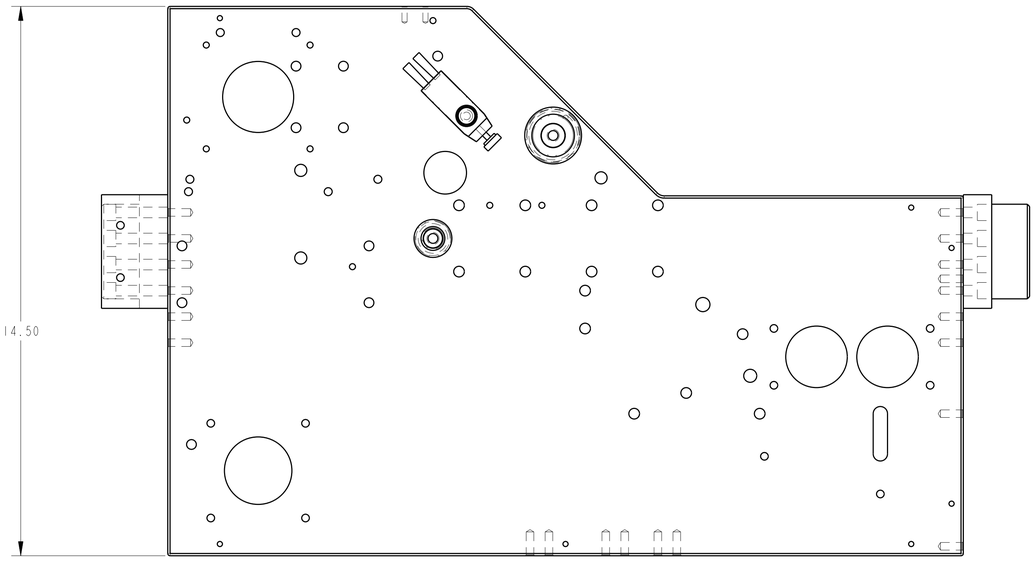
MAT'L 22510SP-LHH

D24272-000









SHEET 2 OF 2

REV	DATE	DESCRIPTION
A	3-27-12	NEW DRAWING

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE
.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	1/2
DATE:	3-27-12
DRW BY:	ATT
CHK BY:	
APPR BY:	

Q65 SIDE PLATE, 16" UNWIND

MAT'L: 22510SP-LHH

D24272-000

ASSEMBLY TITLE: **Q65 7" UNWIND ASSEMBLY**

DRAWING NO.: **D21434-000**

GENERAL FUNCTION:

- Unwind flange provides support for label rolls (side application)
- Dual flanges prevent roll and label movement (top application)
- Dancer arm prevents roll run-away.
- Idler roller with guide collars guides web through slot sensor.
- Brake brush prevents web buckling through slot sensor.

SET UP AND ADJUSTMENTS:

- Move flange to required height and tighten set screw in flange hub.
- For top labeling, add second flange and tighten ratchet knob.
- Adjust dancer tension by turning check nut so that dancer roll snaps back to braking position when labeling head is threaded.
- Slide brake brush so that center of brush lines up with center of web.
- Rotate brush to provide web tension, then lock into place using the locking knob.
- Position guide collars on idler roll, one slightly above, the other slightly below the web.

DANCER TENSION ADJUSTMENT LOCATION:

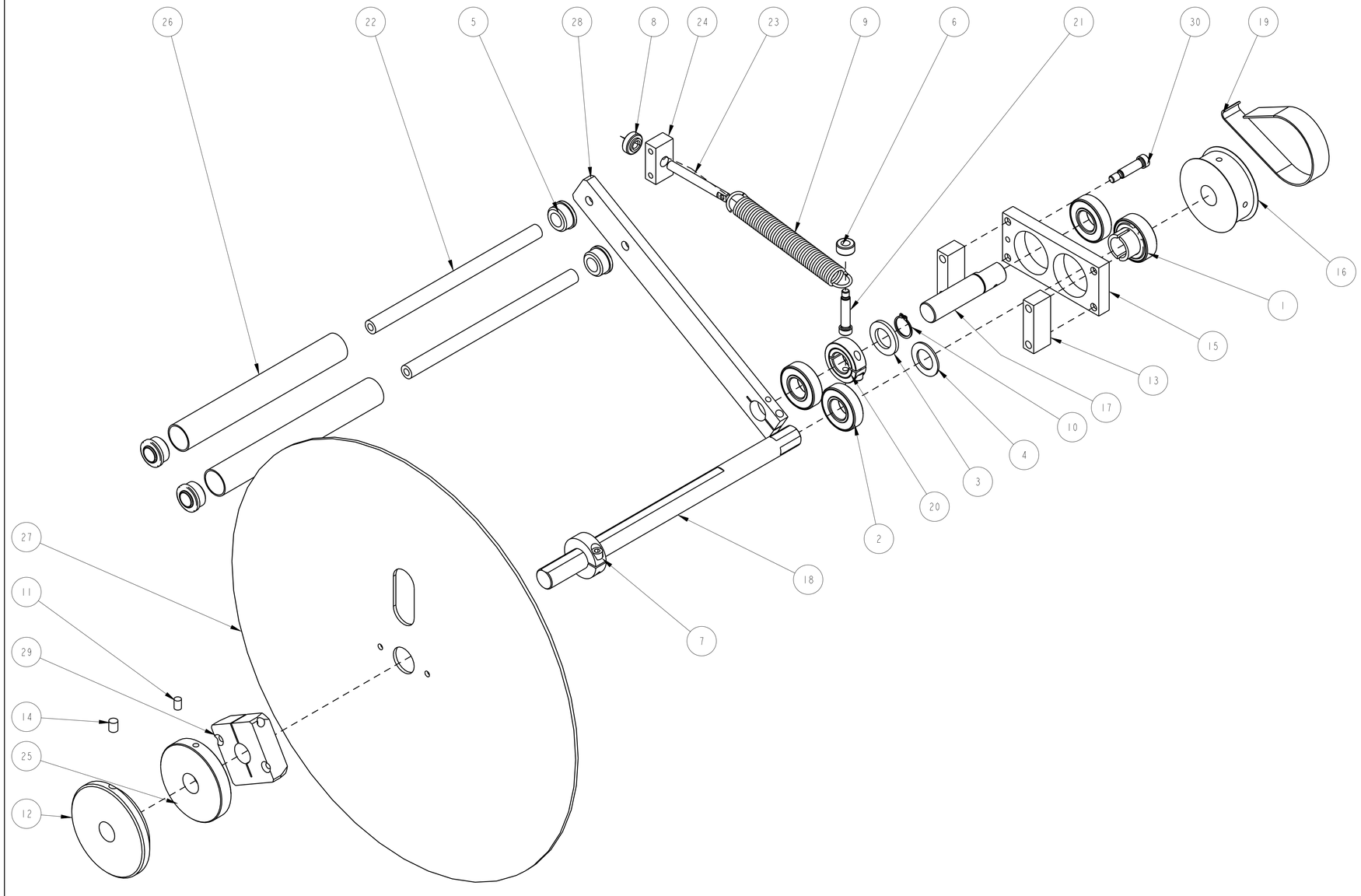
- **The unwind tension adjustment is located on the middle underside of the Q65 head. Use the knurled ring to adjust the dancer tension.**

MAINTENANCE:

- Clean all the parts that may acquire glue residue

TROUBLESHOOTING:

PROBLEM	**WHAT TO DO**
- Unwind roll run-away	- Tighten dancer spring, check nut or replace dancer spring, if necessary.
- Unwind roll not stopping	- Replace brake ring-belt if broken, or unevenly worn.
- Drive roll stalling	- Release web tension produced by brake brush.
- Brush taking fixed shape	- Turn brush around



ITEM	QTY	PART NO.	DESCRIPTION
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE
2	3	111074-000	BEARING, BALL
3	1	151001-000	BEARING, THRUST WASHER
4	1	151006-000	BEARING, THRUST WASHER
5	4	181063-000	BEARING, ROLL END
6	1	361165-000	COLLAR, SETSCREW, 5/16" BORE
7	1	361183-000	COLLAR, 3/4 ID ONE PIECE- S.S.
8	1	801601-000	CHECK NUT
9	1	811216-000	EXTENSION SPRING
10	1	871025-000	EXTERNAL SNAP RING
11	1	A20567-000	WHITE NYLON SLUG
12	1	A20583-000	QUICK LOCK COLLAR
13	2	A20585-000	SUPPORT SPACER
14	1	A20586-000	WHITE NYLON SLUG
15	1	A20590-000	BEARING PLATE
16	1	A20591-000	UNWIND BRAKE DRUM
17	1	A20592-000	UNWIND DANCER SHAFT
18	1	A20593-001	UNWIND SHAFT
19	1	A20594-000	BRAKE BAND, UNWIND
20	1	A20595-000	DANCER COLLAR
21	1	A20596-000	DANCER BOLT
22	2	A20928-002	ROLLER SHAFT
23	1	A23131-000	STUD
24	1	A23298-000	BLOCK, SPRING TENSION
25	1	A23406-000	SUPPLY REEL CENTER HUB
26	2	B20071-003	IDLER ROLLER (DANCER)
27	1	B20980-001	UNWIND FLANGE
28	1	B21113-000	DANCER ARM, 16" UNWIND
29	1	B21931-001	CORE HUB
30	1	841149-000	5/16 X 1 LG. SHOULDER BOLT

REV	DATE	DESCRIPTION
A	7-24-06	NEW DRAWING

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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

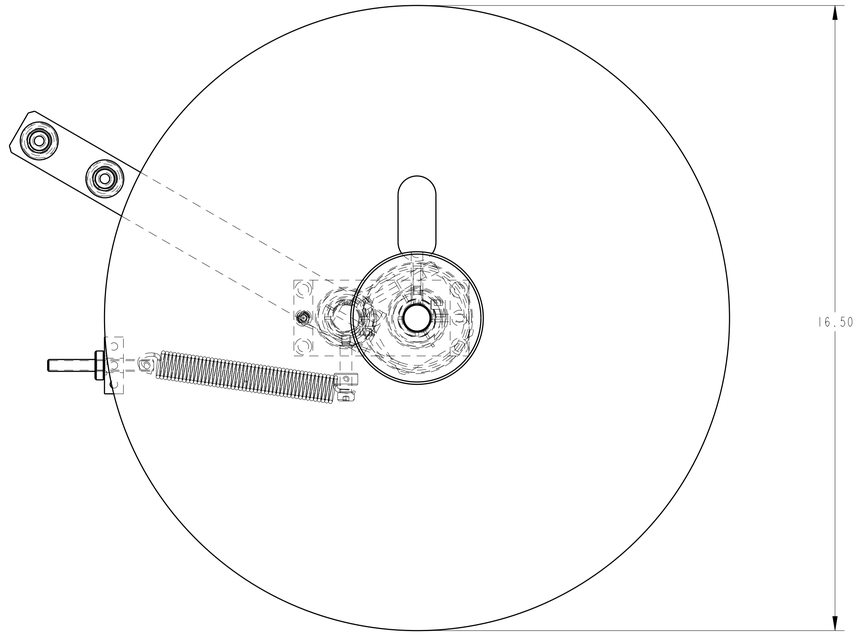
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

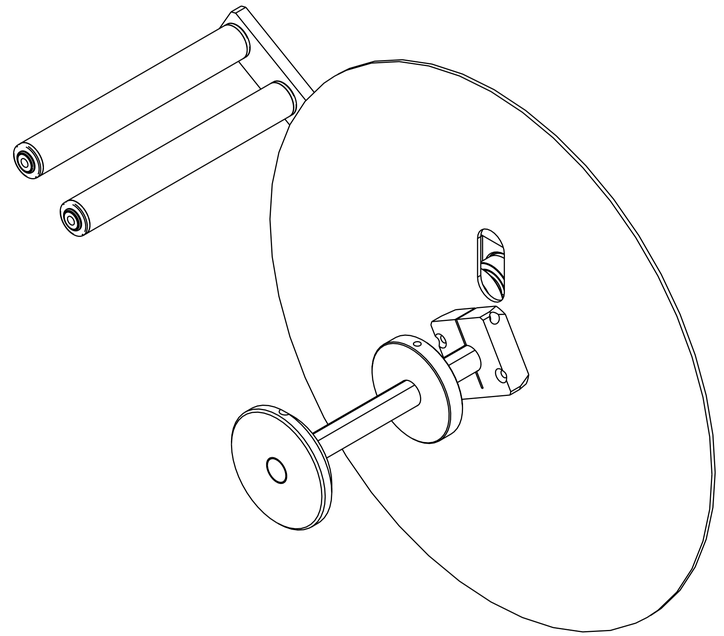
SCALE:	1/2
DATE:	7-24-06
DRW BY:	ATT
CHK BY:	
APPR BY:	

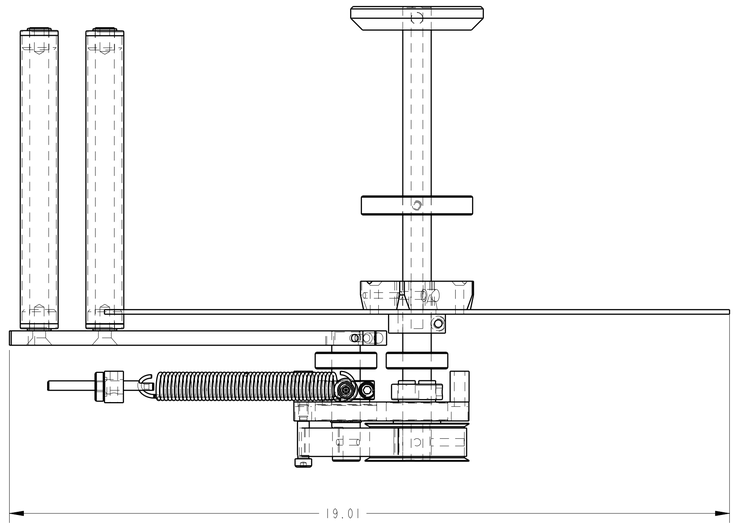
Q60/Q65 7" UNWIND & DANCER ASSEMBLY

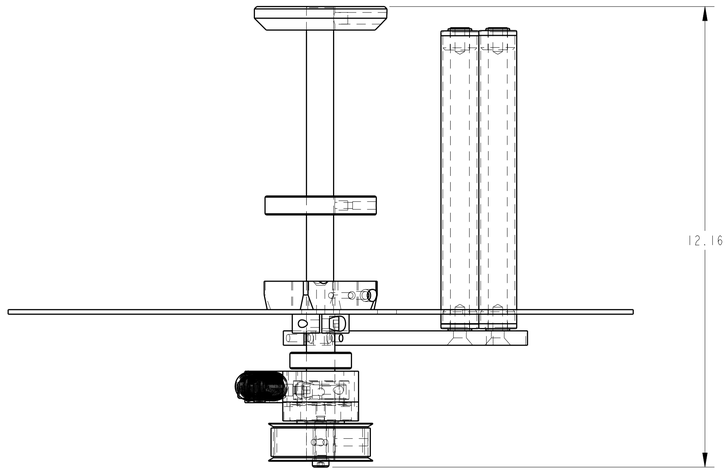
MAT'L 21753B-000

D21434-000









REV	DATE	DESCRIPTION
A	7-24-06	NEW DRAWING

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.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	1/2
DATE:	7-24-06
DRW BY:	ATT
CHK BY:	
APPR BY:	

Q60/Q65 7" UNWIND & DANCER ASSEMBLY

MAT'L 21753B-000

D21434-000

ASSEMBLY TITLE: **Q65 PEEL PLATE ASSEMBLY**

DRAWING NO.: **C20812-000**

GENERAL FUNCTION:

- The peel plate separates the label from the liner and puts the label in a “Flag" position.
- The mounting rods support the slot sensor assembly.
- The guide collars and the idler roller guide the web position over the peel plate
- The pivot pin provides for yoke mounting of the labeling head.

SET UP AND ADJUSTMENTS:

- On machines so equipped, the peel plate may be pivoted at various angles relating to the product by loosening the peel plate mounting bar. (The peel plate of all other models is mounted at a fixed angle and cannot be adjusted)
- To advance label flag on peel plate, move the slot sensor towards the peel plate. To decrease label flag, move slot sensor away from the peel plate.
- Position guide collars on idler roll, one slightly above and the other slightly below the web.

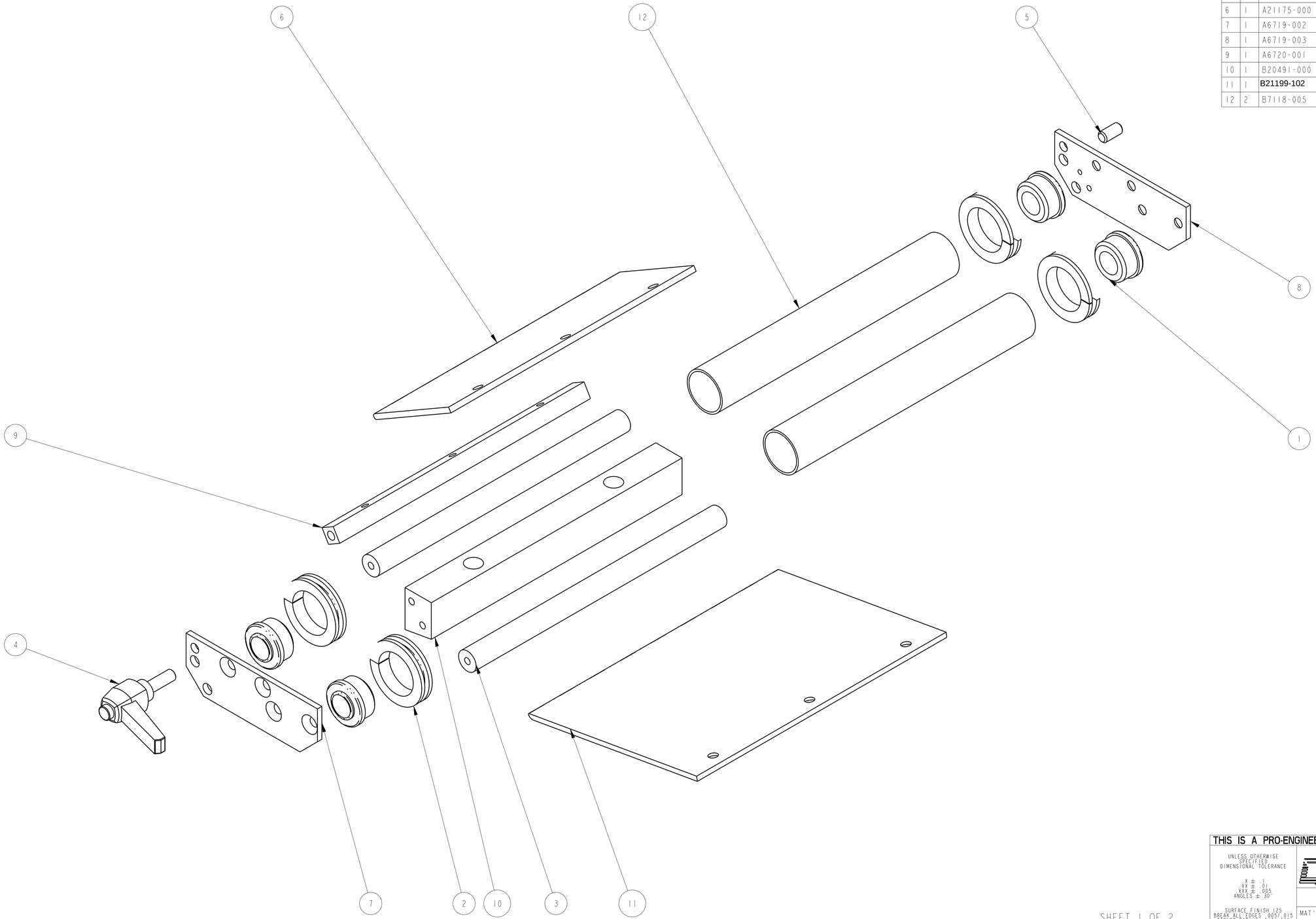
MAINTENANCE:

- Clean all the parts that may acquire labels or glue residue.

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Too much label flag at peel	- Move slot sensor away from peel plate edge.
- Too little label flag at peel	- Move slot sensor towards peel plate edge
- Web moving up and down peel plate	- Make sure guide collars are properly positioned on idler roll.

ITEM	QTY	PART NO.	DESCRIPTION
1	4	181063-000	BEARING, ROLL END
2	4	361198-000	COLLAR, GUIDE, 1 IN. ID
3	2	463418-051	SHAFT, IDLER ROLLER
4	1	801857-000	CLAMP LEVER
5	1	871369-000	DOWEL PIN, 1/4 DIA X 1/2 LONG
6	1	A21175-000	PRESSURE SHOE (7" WRAP)
7	1	A6719-002	SIDE PLATE
8	1	A6719-003	SIDE PLATE
9	1	A6720-001	PRESSURE SHOE MOUNTING BAR
10	1	B20491-000	PEEL PLATE MTG. BAR - 7" WRAP
11	1	B21199-102	PEEL PLATE, 7"
12	2	B7118-005	IDLER ROLLER



REV	DATE	DESCRIPTION
A	7/21/2010	NEW DRAWING

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DIMENSIONAL TOLERANCE
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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

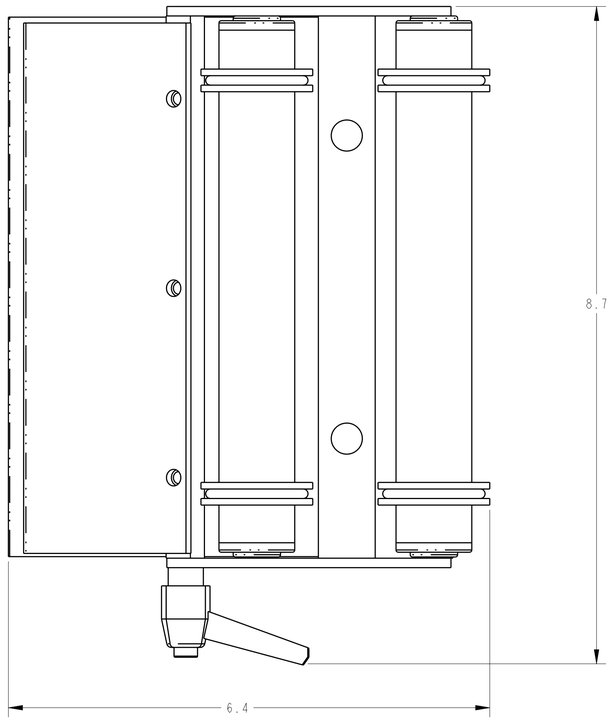
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

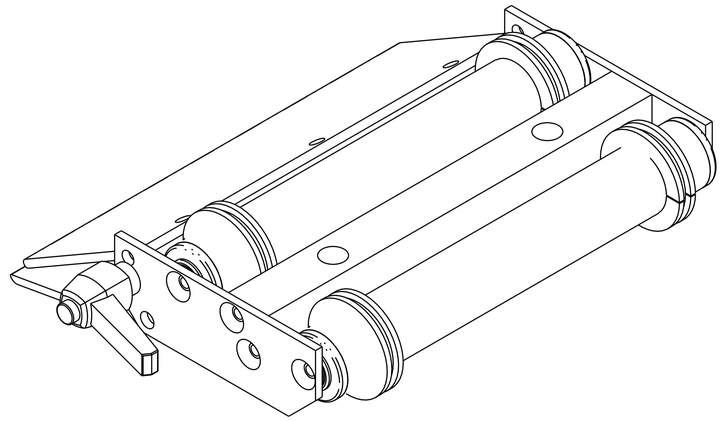
SCALE: 1/1
DATE: 7/21/2010
DRW BY:
CHK BY:
APPR BY:

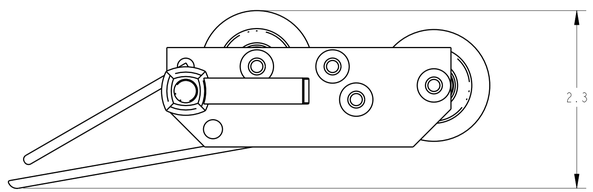
Q60/62 7" WRAP PEEL PLATE

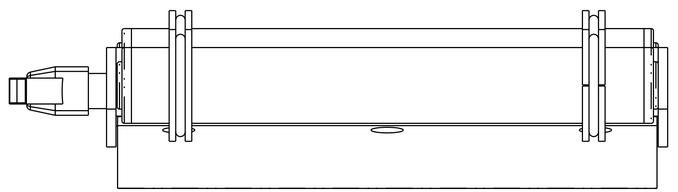
MAT'L 20793-000

D22244-001









REV	DATE	DESCRIPTION
A	7/21/2010	NEW DRAWING

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DIMENSIONAL TOLERANCE
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.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	1/1
DATE:	7/21/2010
DRW BY:	SEM
CHK BY:	
APPR BY:	

Q60/62 7" WRAP PEEL PLATE

MAT'L
20793-000

D22244-001

ASSEMBLY TITLE: **Q65 DRIVE AND PINCH ROLL ASSEMBLY**

GENERAL FUNCTION:

- The drive roll pulls the liner through the entire labeling head. As the liner is pulled over the peel edge, the label dispenses
- The drive roll pulls the liner through the entire labeling head. As the liner is pulled over the peel edge, the label dispenses.
- The spring-loaded pinch roll squeezes the liner against the drive roll to provide positive drive
- The primary roll is the pull or drive roll as shown. The knurl roll provides a constant pressure against the pull roll.

SET UP AND ADJUSTMENTS:

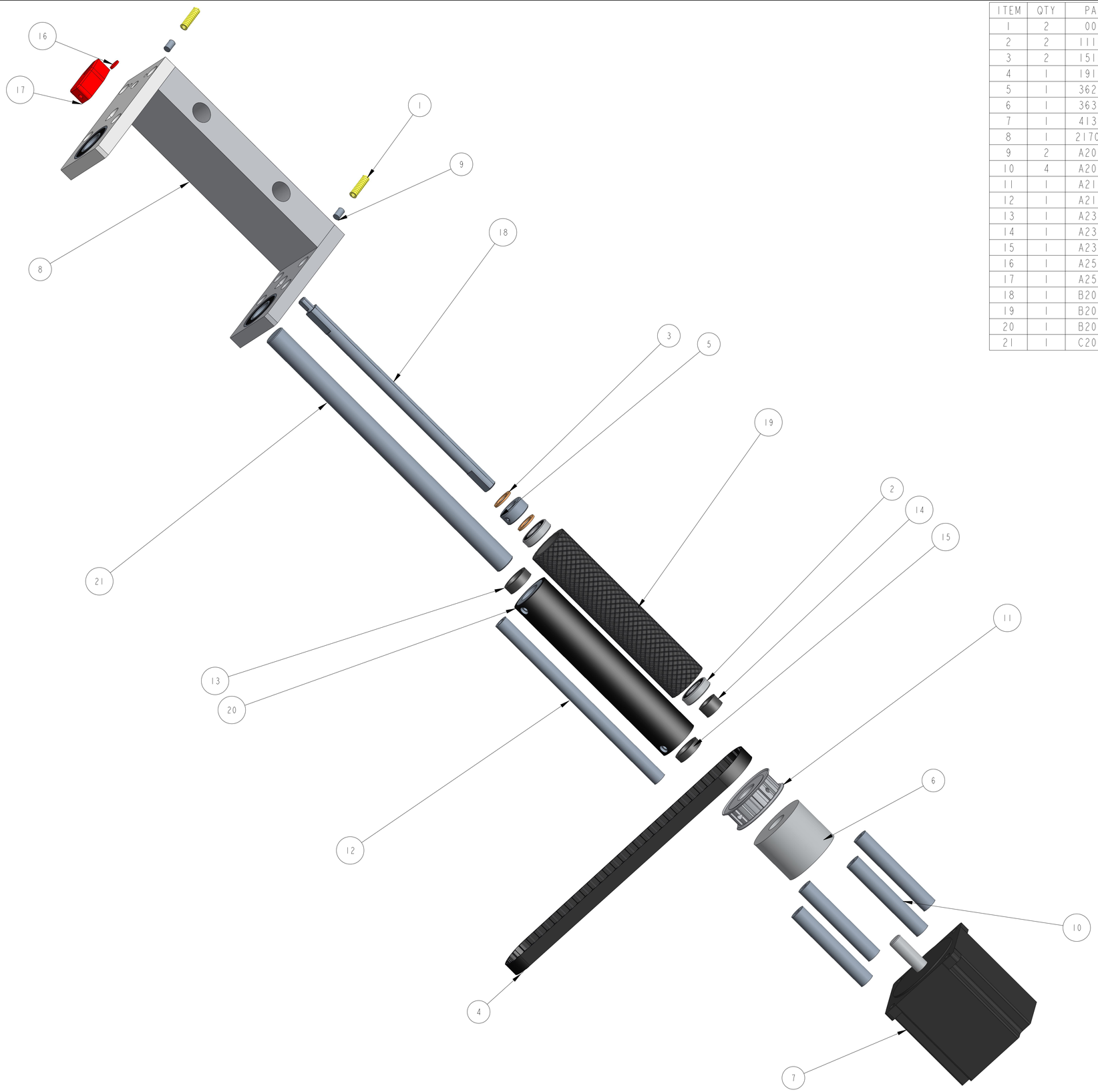
- When threading the labeling head, use the pinch roll lever to release the pinch roll from the drive roll.
- Use the spring plunger adjustment screws to adjust the contact pressure. between the knurl and pull rollers.
- The pressure should be adjusted as tight as necessary to prevent a loose liner, while still allowing full rotation of the pressure release arm.

MAINTENANCE:

- Clean all parts that may have acquired label or glue residue

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Meter pulley rubbing against side plate	- Center pulley on motor shaft and tighten two (2) set scr in pulley.
- Web slips	- Drive roller not closed. Turn drive roll arm to closed position.
- Drive roll not rotating when stepping motor rotates	- Replace timing belt from motor to drive roll
- Pinch roll not providing enough pressure against drive roll	- Replace pinch roll spring - Increase tension on drive roll by adjusting spring loaded locking pins.
- Drive roll unevenly worn causing tracking problem	- Replace drive roll



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	22638D-RHH
2	2	111072-000	BEARING, BALL	22638D-RHH
3	2	151004-000	BEARING, THRUST WASHER	22638D-RHH
4	1	191592-000	BELT, TIMING, 1/2P	22638D-RHH
5	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	22638D-RHH
6	1	363157-000	SERVO CLASS COUPLING	22638D-RHH
7	1	413027-000	MOTOR, STEPPER 2 STACK HI TORQUE	22638D-RHH
8	1	21700DY-000	3 PIECE ROLL ASSEMBLY	22638D-RHH
9	2	A20567-000	WHITE NYLON SLUG	22638D-RHH
10	4	A20568-008	DRIVE MOTOR RISER	22638D-RHH
11	1	A21421-000	DRIVE PULLEY (MODIFIED)	22638D-RHH
12	1	A21750-000	PINCH POINT GUARD ROD	22638D-RHH
13	1	A23125-000	SPACER	22638D-RHH
14	1	A23751-000	SPACER	22638D-RHH
15	1	A23752-000	SPACER	22638D-RHH
16	1	A25249-000	INDEX DOT	22638D-RHH
17	1	A25250-000	IND KNOB	22638D-RHH
18	1	B20125-001	KNURLED ROLL SHAFT,	22638D-RHH
19	1	B20126-001	KNURLED ROLL	22638D-RHH
20	1	B20137-002	PULL ROLL, 7"	22638D-RHH
21	1	C20097-611	PULL ROLL DRIVE SHAFT	22638D-RHH

REV	DATE	DESCRIPTION	BY
A	Apr-05-21	NEW DRAWING	TJS

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

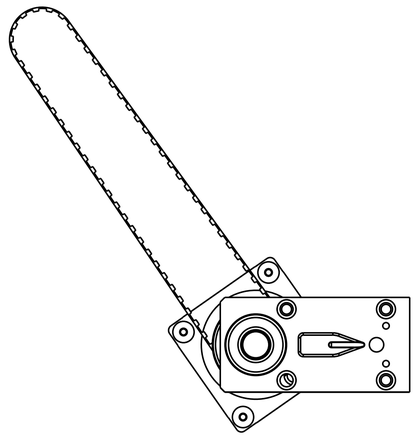
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

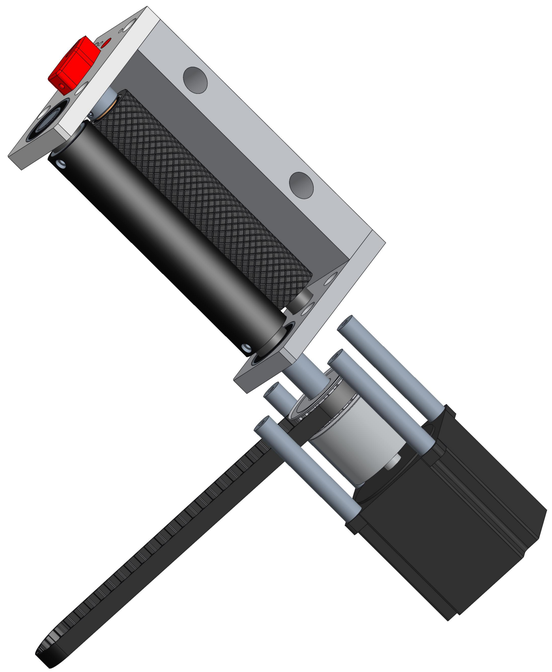
SCALE	9/16
DATE	Apr-05-21
DRAWN BY	TJS

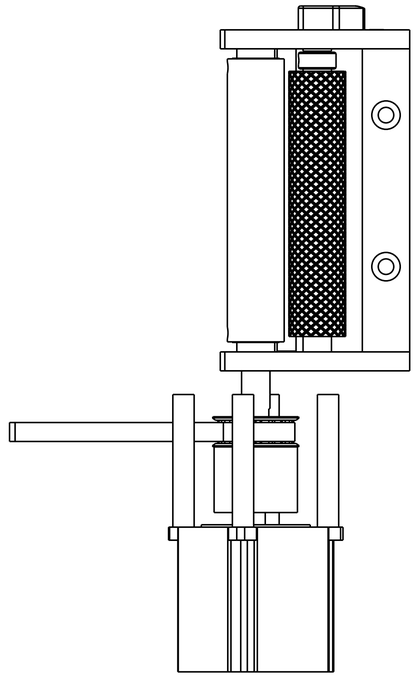
Q105 DRIVE ROLL ASSEMBLY, 7"

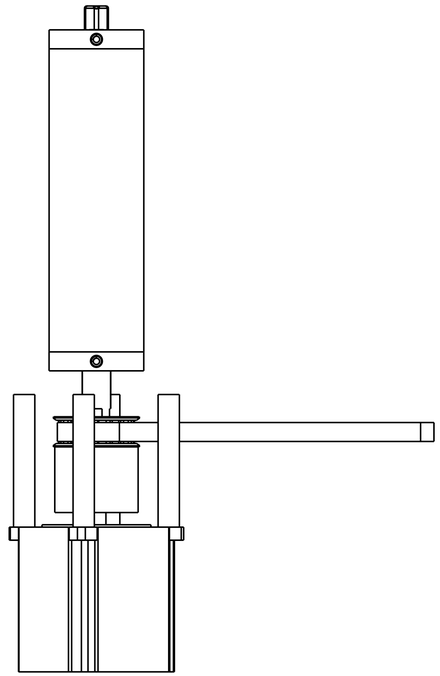
MAT'L: 22638D-RHH

22638D-RHH









A	Apr-05-21	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	1/2
DATE	Apr-05-21
DRAWN BY	TJS

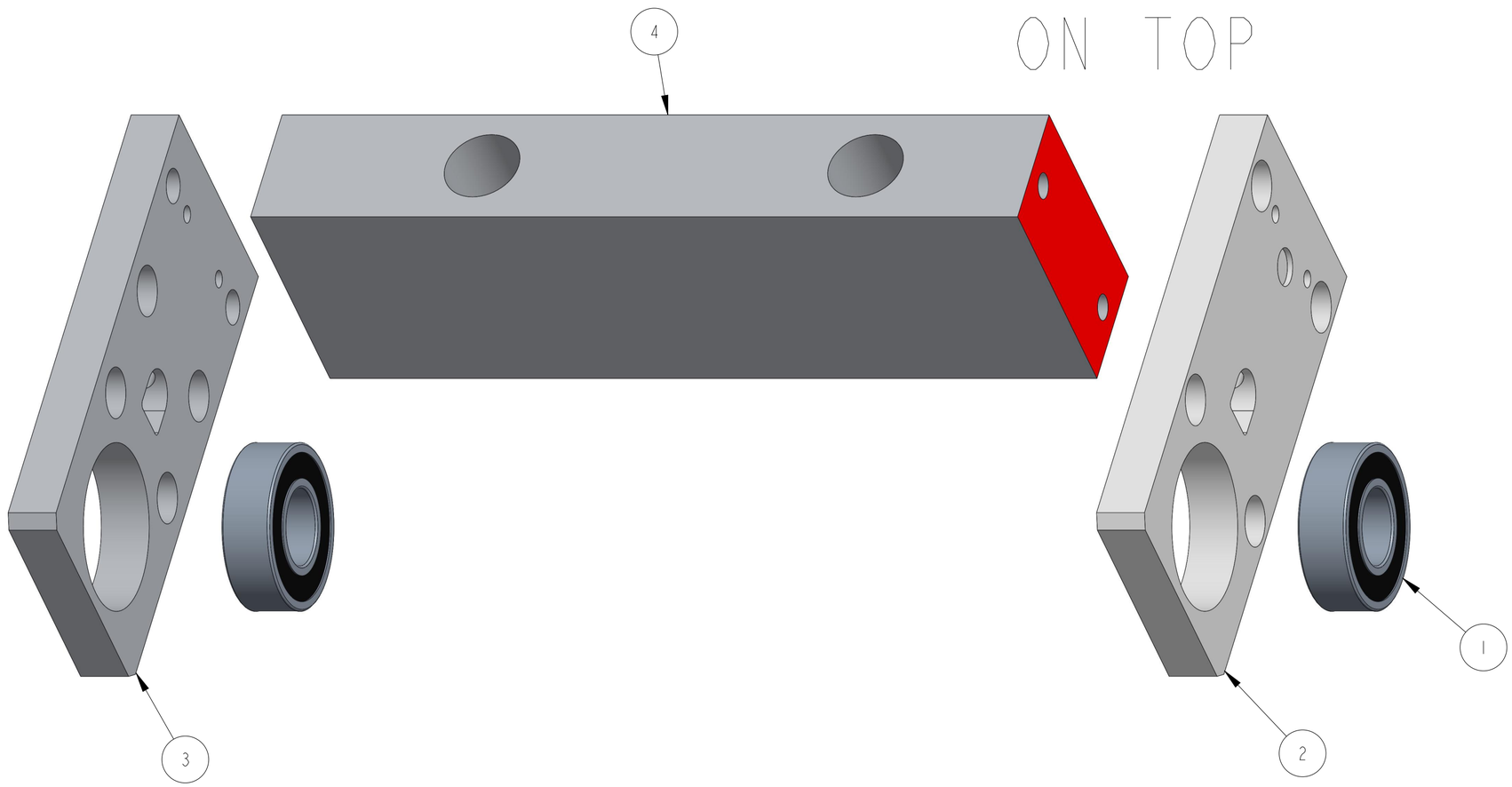
Q105 DRIVE ROLL ASSEMBLY, 7"

MAT'L 22638D-RHH

22638D-RHH

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111052-000	BEARING	21700DY-000
2	1	B21614-000	YOKE OUTSIDE PLATE	21700DY-000
3	1	B21615-000	YOKE INSIDE PLATE	21700DY-000
4	1	B21616-001	YOKE FILLER BAR	21700DY-000

SHORT SIDE
ON TOP



SHEET 1 OF 2

REV	DATE	DESCRIPTION
A	3-18-08	NEW DRAWING

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X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

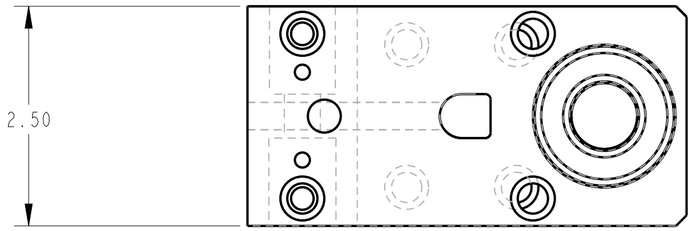
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

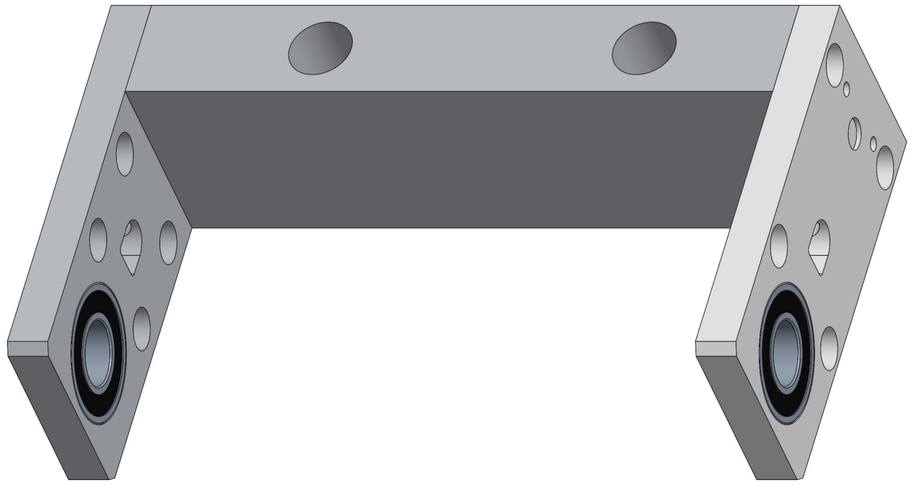
SCALE:	1/1
DATE:	3-18-08
DRW BY:	ATT
CHK BY:	
APPR BY:	

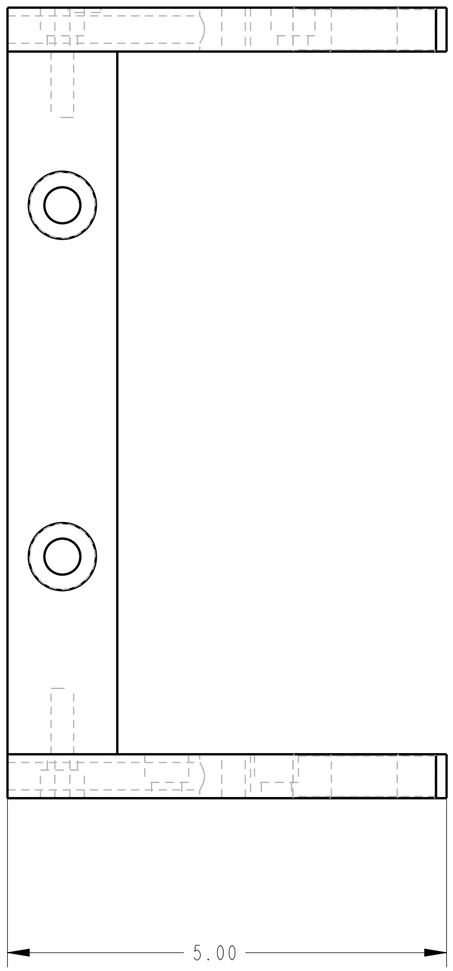
3 PIECE ROLL ASSEMBLY

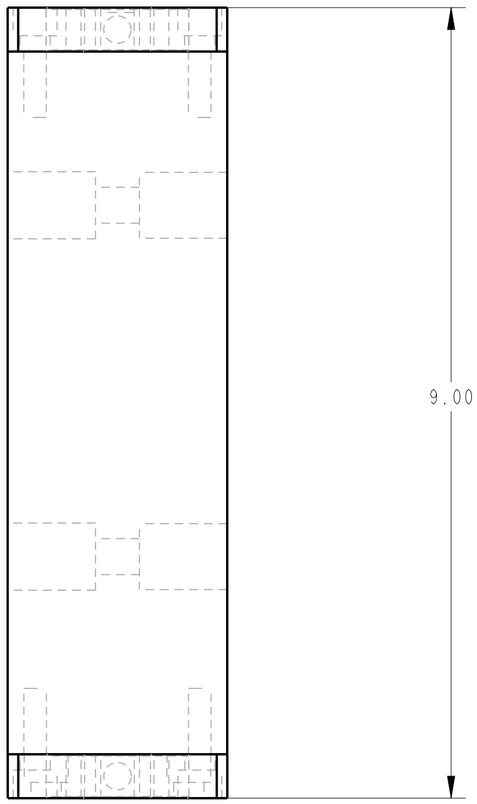
MAT'L 21700DY-000

C20800-001









A	3-18-08	NEW DRAWING
REV	DATE	DESCRIPTION

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.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	3/4
DATE:	3-18-08
DRW BY:	ATT
CHK BY:	
APPR BY:	

3 PIECE ROLL ASSEMBLY

MAT'L 21700DY-000

C20800-001

ASSEMBLY TITLE: **STEP MOTOR DRIVER ASSEMBLY**

DRAWING NO.: **None applicable**

GENERAL FUNCTION:

- Translates signal pulses from micro processer into incremental rotation of the step motor.

SET UP AND ADJUSTMENTS:

- With this Drive option, no user settings are required. If problems arise, consult Quadrel Labeling Systems service personnel.

ERROR CODES

1	RED	1	GREEN		MOTOR STALL (ENCODER OPTION)
1	RED	2	GREEN		MOVE ATTEMPTED WHILE DISABLED
2	RED	1	GREEN		CCW LIMIT
2	RED	2	GREEN		CW
3	RED	1	GREEN		DRIVE OVERHEATING
3	RED	2	GREEN		EXCESS REGEN
4	RED	1	GREEN		POWER SUPPLY OVERVOLTAGE
4	RED	2	GREEN		POWER SUPPLY UNDERVOLTAGE
5	RED	1	GREEN		OVER CURRENT / SHORT CIRCUIT
5	RED	2	GREEN		MOTOR RESISTANCE OUT OF RANGE
6	RED	1	GREEN		OPEN MOTOR WINDING
6	RED	2	GREEN		BAD ENCODER SIGNAL
7	RED	1	GREEN		SERIAL COMMUNICTION ERROR

MAINTENANCE: No maintenance is required on the step motor driver module.

TROUBLESHOOTING: 120V Replacement part is 412445-001
220V Replacement part is 412445-000

ASSEMBLY TITLE: **COLLAPSIBLE REWIND ASSEMBLY**

DRAWING NO.: **D24398-000**

GENERAL FUNCTION:

- The rewind drum rolls up the liner
- The rewind arm turns in, allows the liner to be released from the rewind drum.
- The rewind flange supports and guides the liner.
- The friction clutch allows for slippage to accommodate for varying speeds between the drive roll and rewind drum.
- The adjusting knob controls the torque adjustment of the drum.

SET UP AND ADJUSTMENTS:

- Position the rewind flange slightly below the web path and lock with the set screw in the hub.
- When threading liner to the rewind, place the liner around the drum and arm, making sure that the arm is turned out.
-Tighten adjusting knob just enough to allow the rewind drum to keep up with the drive roll.

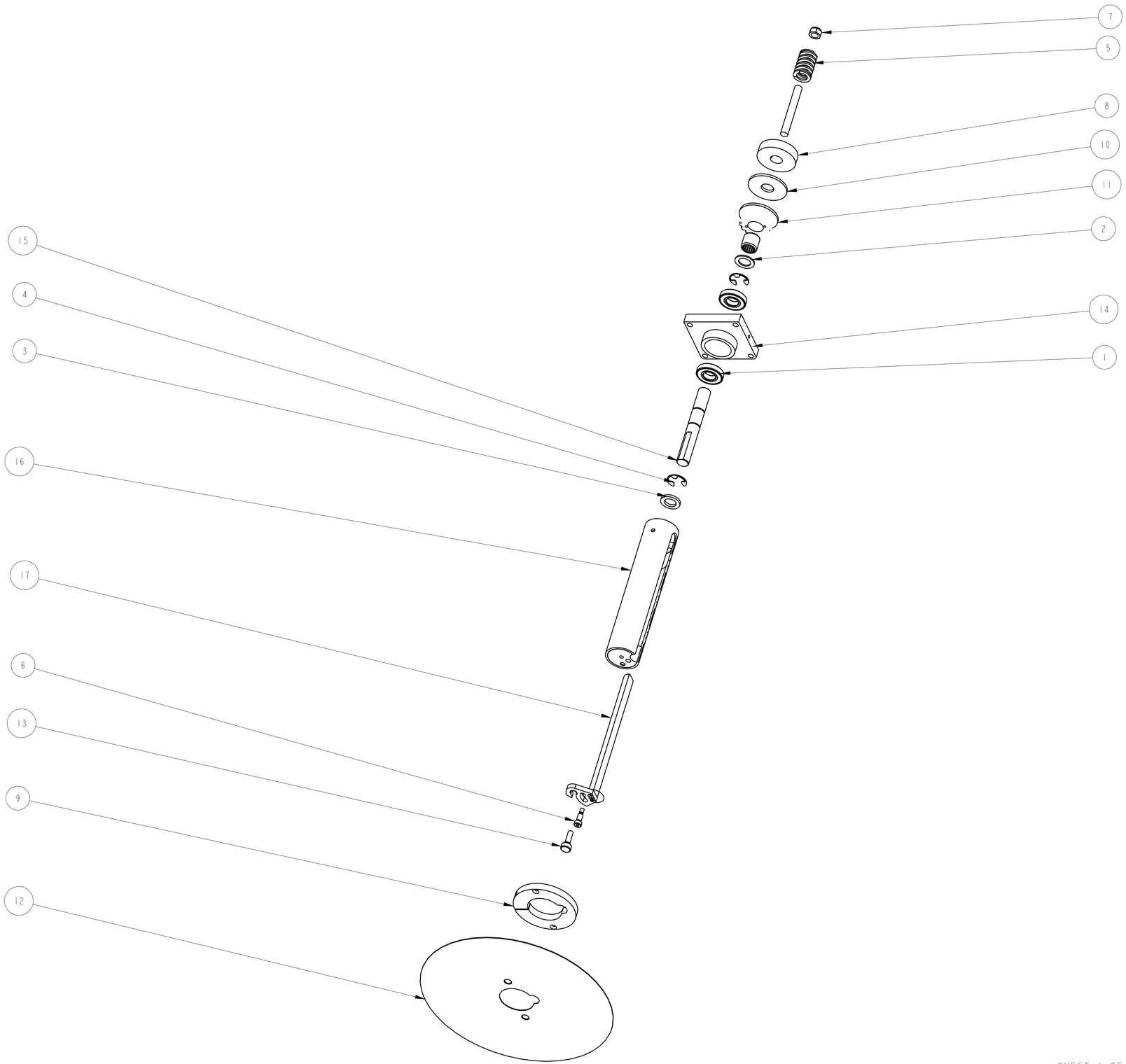
NOTE: Excessive tightening will cause the web to be wound very tight, causing difficulty in removal and possible step motor stall.

MAINTENANCE:

- Clean all parts that have acquired label or glue residue
- Replace friction disc when worn out.

TROUBLESHOOTING:

PROBLEM	**WHAT TO DO**
- Rewind drum not rotating when stepping motor rotates	- Replace timing belt from motor to rewind
- Rewind drum not keeping up with drive roll	- Tighten adjusting knob
- Web winding too tight on hub	- Loosen adjusting knob
- Grinding in rewind hub	- Replace friction disc by removing knob and sliding off rewind drum



ITEM	QTY	PART NO.	DESCRIPTION
1	2	111075-000	BEARING, BALL
2	1	151008-000	BEARING, THRUST WASHER
3	1	151017-000	BEARING, THRUST WASHER
4	2	791776-000	E-RING, RETAINING
5	1	811182-000	SPRING, COMPRESSION HEAVY DUTY
6	1	841145-000	1/4 X 1/2 LG. SHOULDER BOLT
7	1	841303-000	3/8-16 NUT
8	1	A20577-000	REWIND PRESSURE DISC
9	1	A21226-000	REWIND FLANGE HUB COLLAR
10	1	A21370-000	WASHER
11	1	A21801-000	REWIND PULLEY ASSEMBLY
12	1	A22085-001	COLLAPSIBLE REWIND REEL
13	1	A25263-000	KNOB, THUMB SCREW
14	1	B21859-000	REWIND BEARING PLATE
15	1	B21860-000	REWIND SHAFT ASSEMBLY
16	1	B22103-001	HUB ASSEMBLY
17	1	B22141-001	SHAFT ASSEMBLY

REV	DATE	DESCRIPTION
A	6-20-12	NEW DRAWING

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

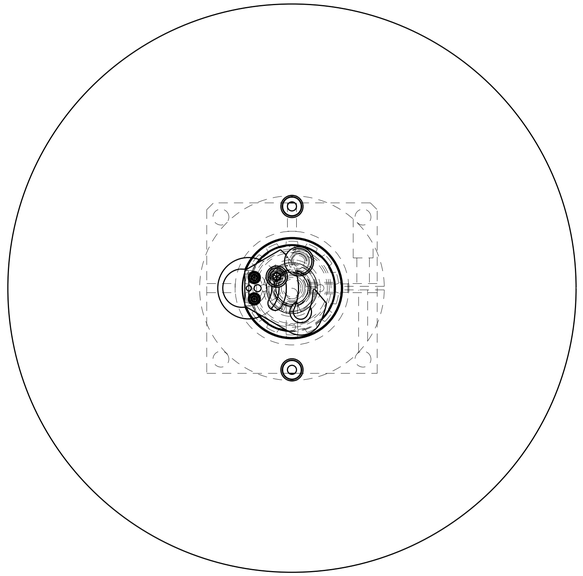
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

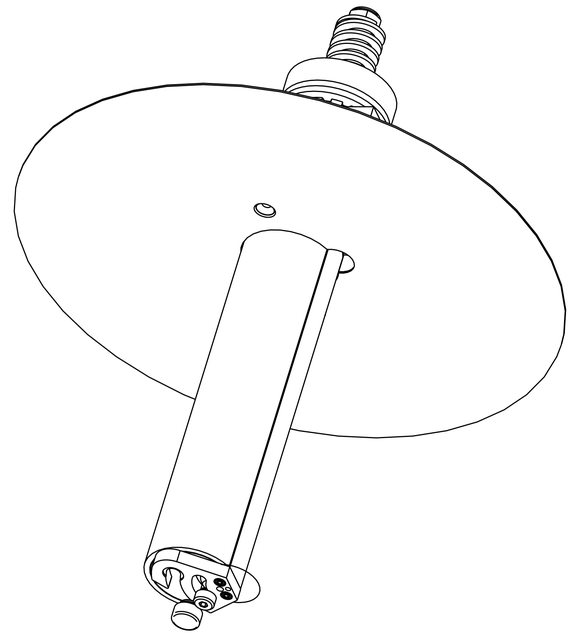
SCALE: 3/8
DATE: 6-20-12
DRW BY: ATT
CHK BY:
APPR BY:

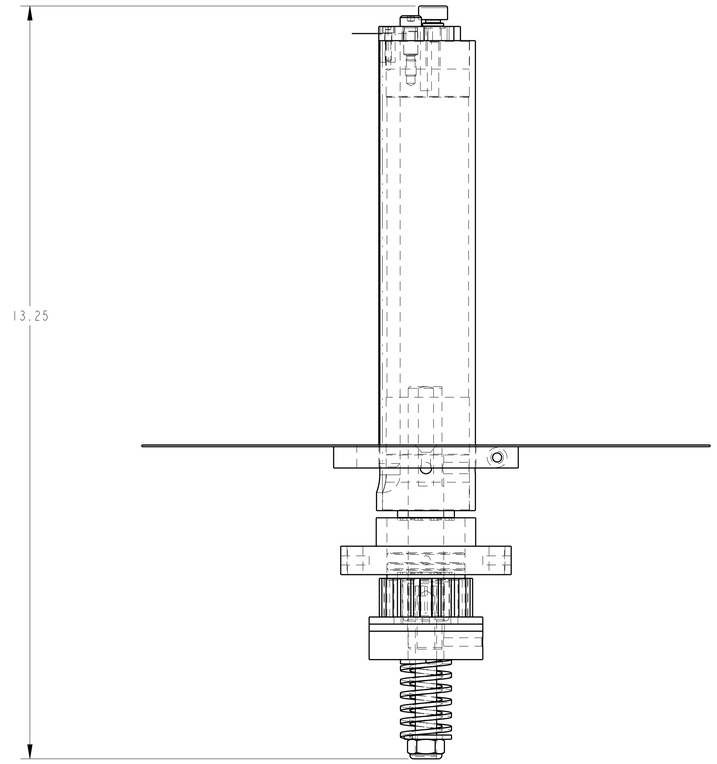
Q65 REWIND ASSEMBLY, 7"

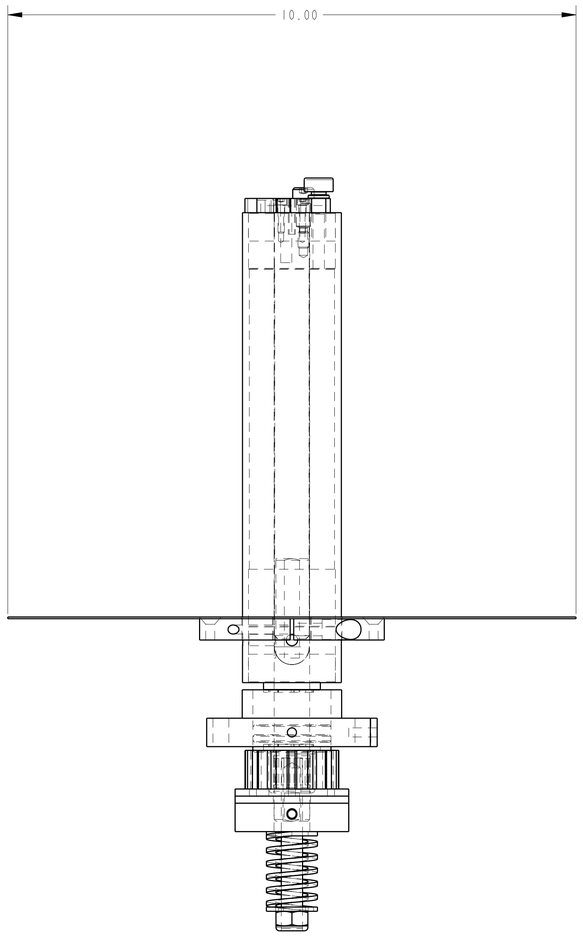
MAT'L 22510R-000

D24398-000









REV	DATE	DESCRIPTION
A	6-20-12	NEW DRAWING

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/4
DATE: 6-20-12
DRW BY: ATT
CHK BY:
APPR BY:

Q65 REWIND ASSEMBLY, 7"

MAT'L 22510R-000

D24398-000

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	22597-000	COLLAPSIBLE REWIND LOCKING HANDLE	22188-000
2	1	84I145-000	1/4 X 1/2 LG. SHOULDER BOLT	22188-000
3	1	A22090-001	COLLABSIBLE REWIND REEL HUB	22188-000
4	1	A23112-001	COLLAPSIBLE REWIND FLANGE	22188-000
5	1	B22103-003	REWIND HUB	22188-000
6	1	B22141-001	SHAFT ASSEMBLY	22188-000
7	2	CSEE253	10-32 X 3/8 LG. FLAT HEAD	22188-000
8	1	SYE103	1/4-20 X 5/8 LG. SET SCREW	22188-000

REV	DATE	DESCRIPTION	BY
A	Mar-30-21	NEW DRAWING	TJS

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ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

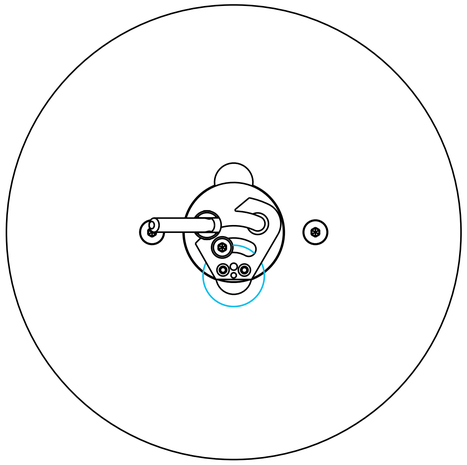
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

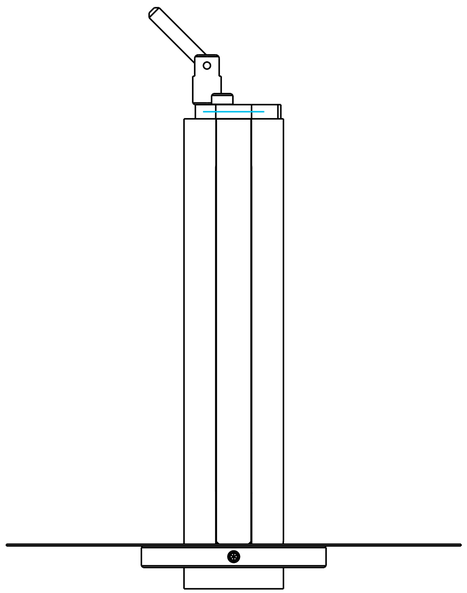
SCALE	1/1
DATE	Mar-30-21
DRAWN BY	TJS

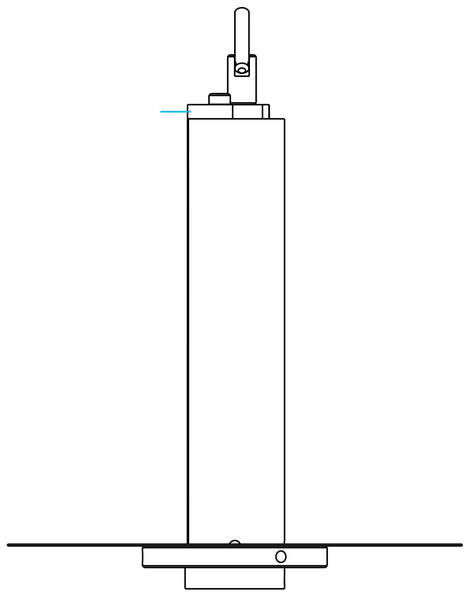
7" COLLAPSIBLE REWIND ASSEMBLY

MAT'L 22188-000

22188-000







REV	DATE	DESCRIPTION	BY
A	Mar-30-21	NEW DRAWING	TJS

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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

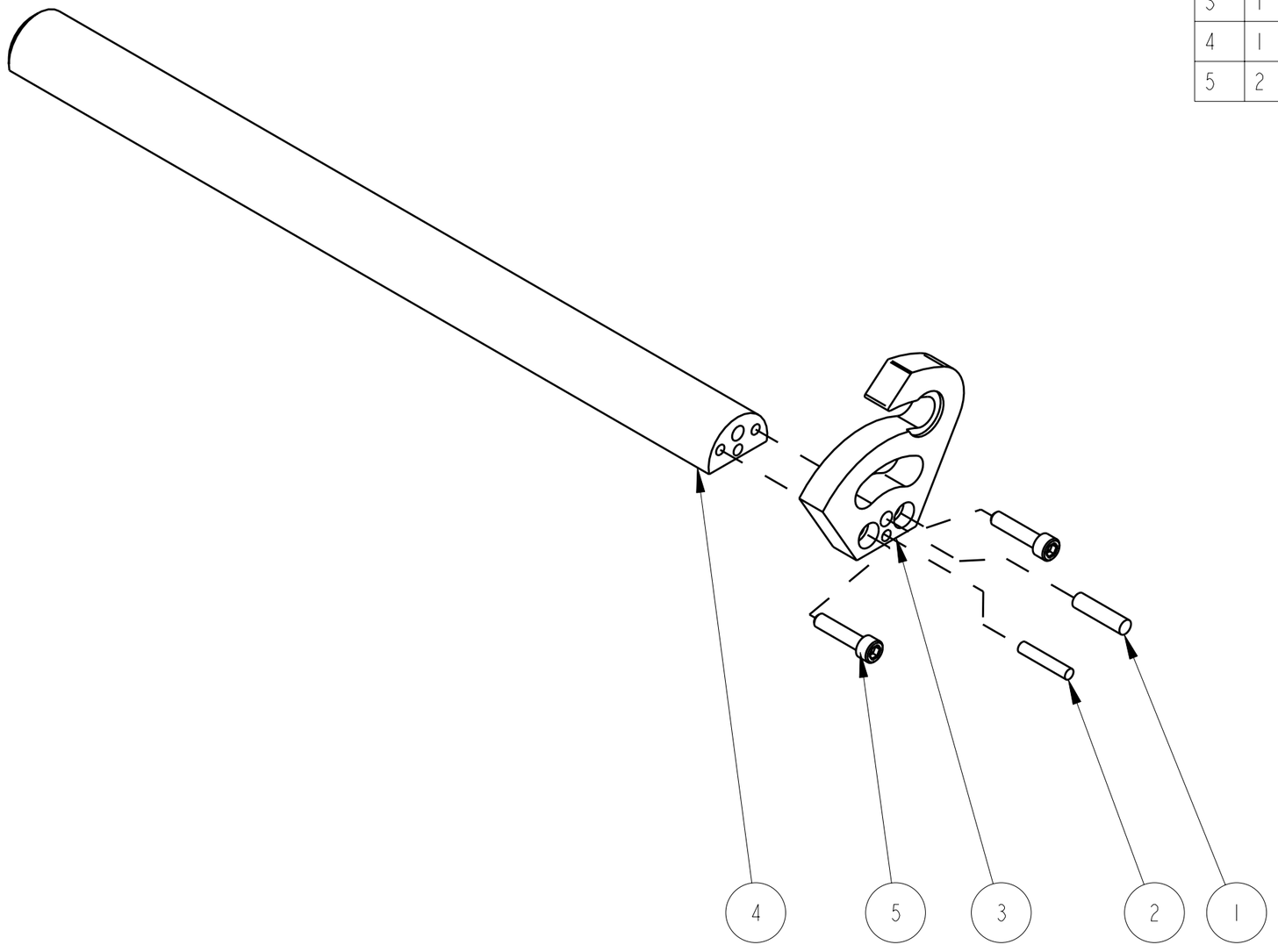
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	3/4
DATE	Mar-30-21
DRAWN BY	TJS

7" COLLAPSIBLE REWIND ASSEMBLY

MAT'L: 22188-000

22188-000



ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
2	1	871352-000	DOWELL,PIN 3/32" x 1/2" SS.
3	1	A22081-000	COLLAPSIBLE REWIND CAM
4	1	A25272-001	COLLAPSIBLE REWIND SHAFT
5	2	#4-40X0-500	SHCS #4-40 UNC 1/2" LG.

REV	DATE	DESCRIPTION
A	06/09/2008	NEW DRAWING

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.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(216) 975-0006

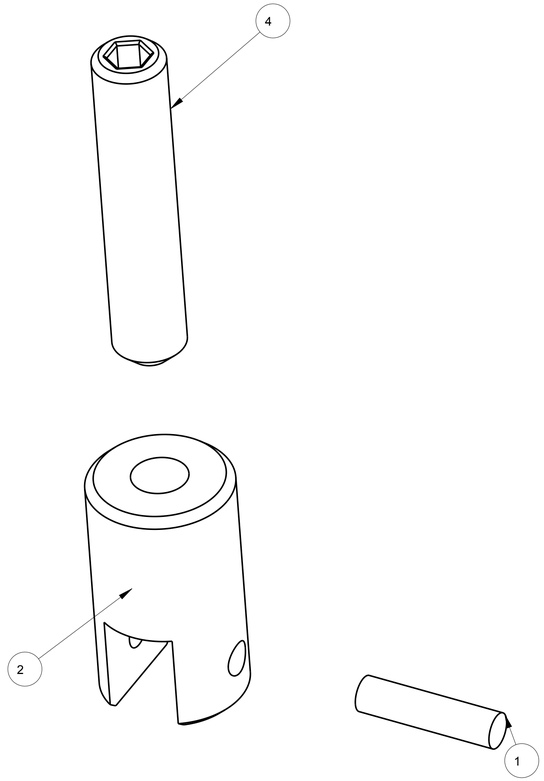
SCALE:	1/1
DATE:	06/09/2008
DRW BY:	SEM
CHK BY:	
APPR BY:	

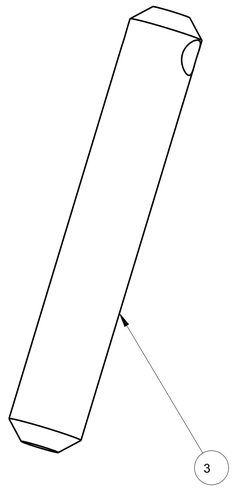
SHAFT ASSEMBLY 7.0"

MAT'L

B22141-001

ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
2	1	A26128-000	CLEVIS
3	1	A26129-000	HANDLE
4	1	SYE601	1/4-20 X 1-1/4 LG. SET SCREW





REV	DATE	DESCRIPTION	BY
A	12-11-14	NEW DRAWING	

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

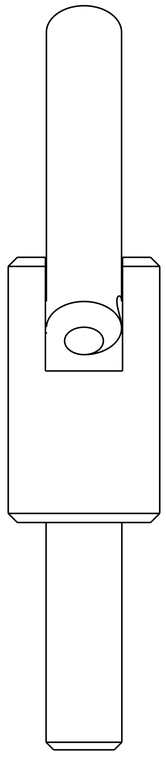
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

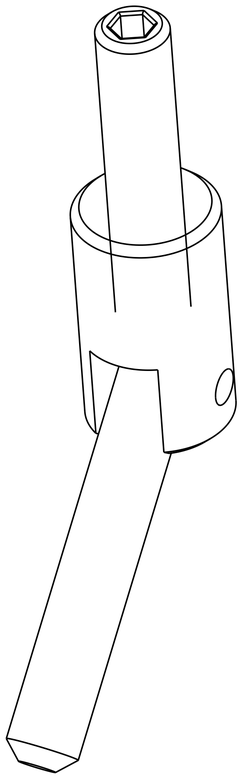
SCALE	4/1
DATE	12-11-14
DRAWN BY	ATT

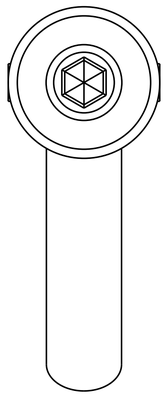
COLLAPSIBLE REWIND LOCKING HANDLE

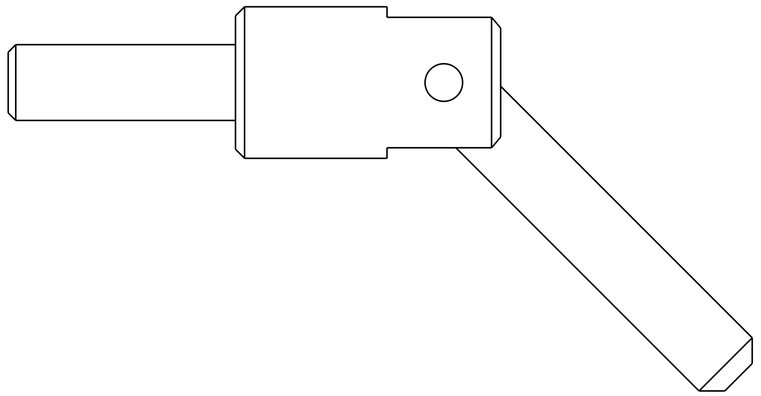
MAT'L 22597-000

22597-000









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SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	4/1
DATE	12-11-14
DRAWN BY	ATT

COLLAPSIBLE REWIND LOCKING HANDLE

MAT'L 22597-000

22597-000

ASSEMBLY TITLE: **SLOT SENSOR ASSEMBLY**

GENERAL FUNCTION:

- The slot sensor detects the separation between labels. This signals the electronics to stop the drive motor.
- The two (2) liner support rods prevent the liner from wearing out the slot sensor.
- The knob and thumbscrew lock the sensor firmly on the mounting rods.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- With the labeling head threaded and the proper label flag at the peel plate, slide the slot sensor along the guide rods and tighten it just past a label division (away from the peel plate)
- Apply main power and remove label material from sensor forks
- Turn sensitivity screw on slot sensor 15 turns CCW. The indicator light will be off.
- Remove a label from the label liner and place the liner only portion between the sensor forks.
- Turn the sensitivity screw CW until the indicator light turns ON.
- Then turn the sensitivity screw CW 2 more full turns.
- Correct set up is achieved when the indicator lamp is OFF through the entire label surface and ON when the division between labels passes between the sensor forks.

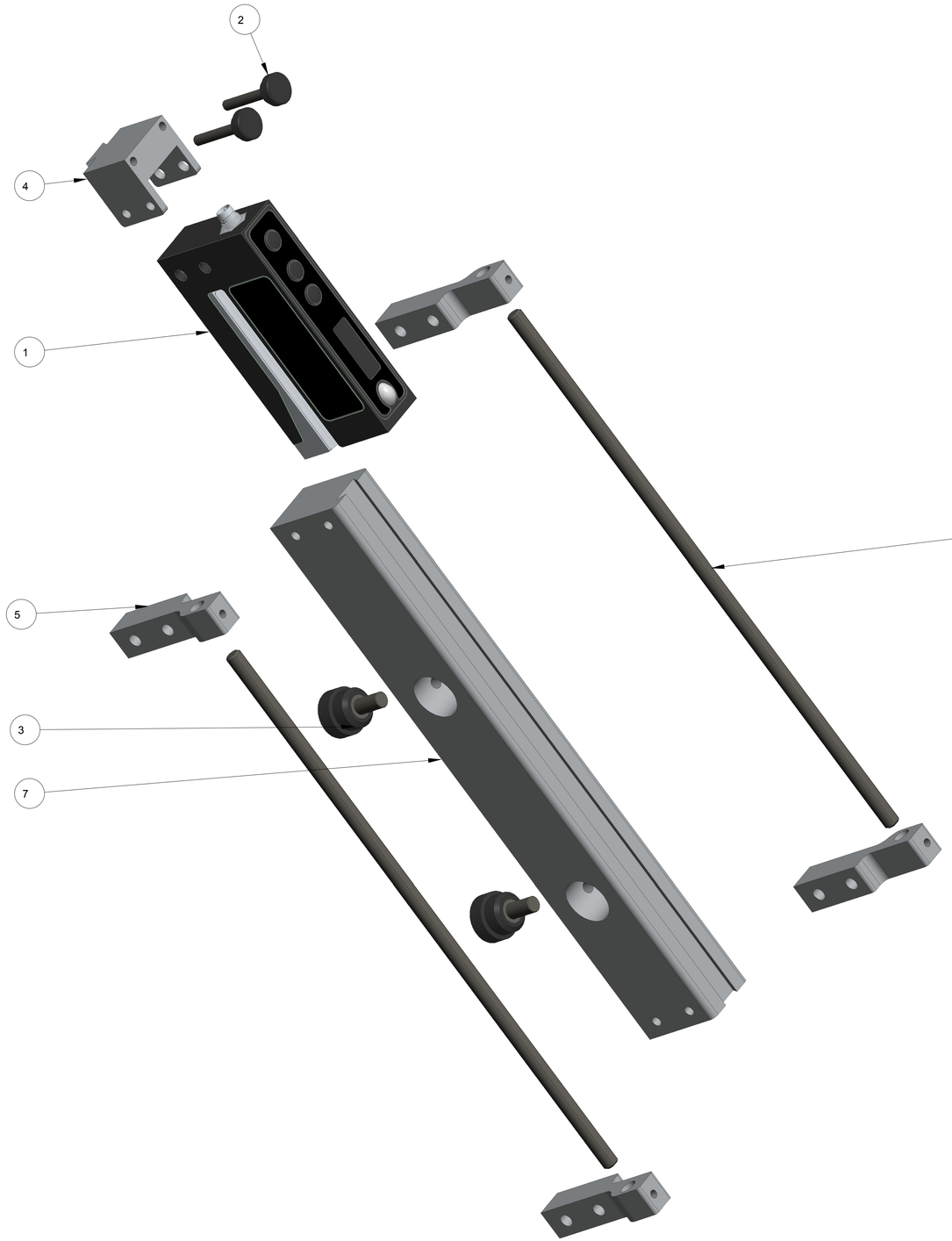
MAINTENANCE:

- Keep the sensor optical area clean from label and glue residue

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- No power to the sensor	- Check male connector and tightly secure connection to the head.
- Liner dragging over the slot	- Loosen knob and rotate slot sensor slot sensor surface liner rests on both support rods
- Too much slack through slot sensor	- Adjust brake brush tension
- Slot sensor moving with web	- Tighten all three (3) adjusting knobs

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	201444-301		20033-301
2	2	801297-000	THUMB SCREW	20033-301
3	2	801299-000	KNOB WITH STUD	20033-301
4	1	A21391-300	SLOT SENSOR ADAPTER	20033-301
5	4	A21749-300	SLOT SENSOR SUPPORT ROD MTG BLOCK	20033-301
6	2	A21770-300	SUPPORT ROD WITH FLAT	20033-301
7	1	B20852-300	7 IN. WEB SLOT SENSOR MTG. BAR	20033-301



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A	Jan-05-21	NEW DRAWING	TJS

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X± .1
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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

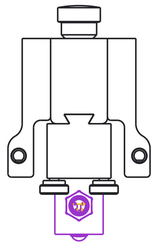
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

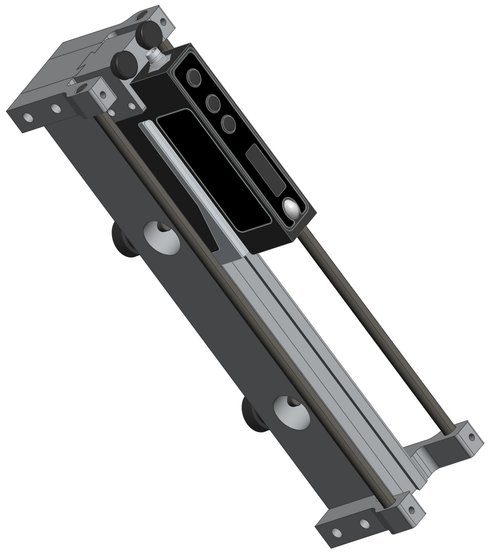
SCALE 1/1
DATE Jan-05-21
DRAWN BY TJS

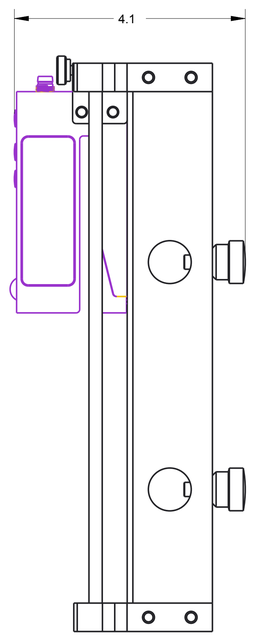
LABEL DETECT ASSEMBLY

MAT'L 20033-301

20033-301







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SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	3/4
DATE	Jan-05-21
DRAWN BY	TJS

LABEL DETECT ASSEMBLY

MAT'L 20033-301

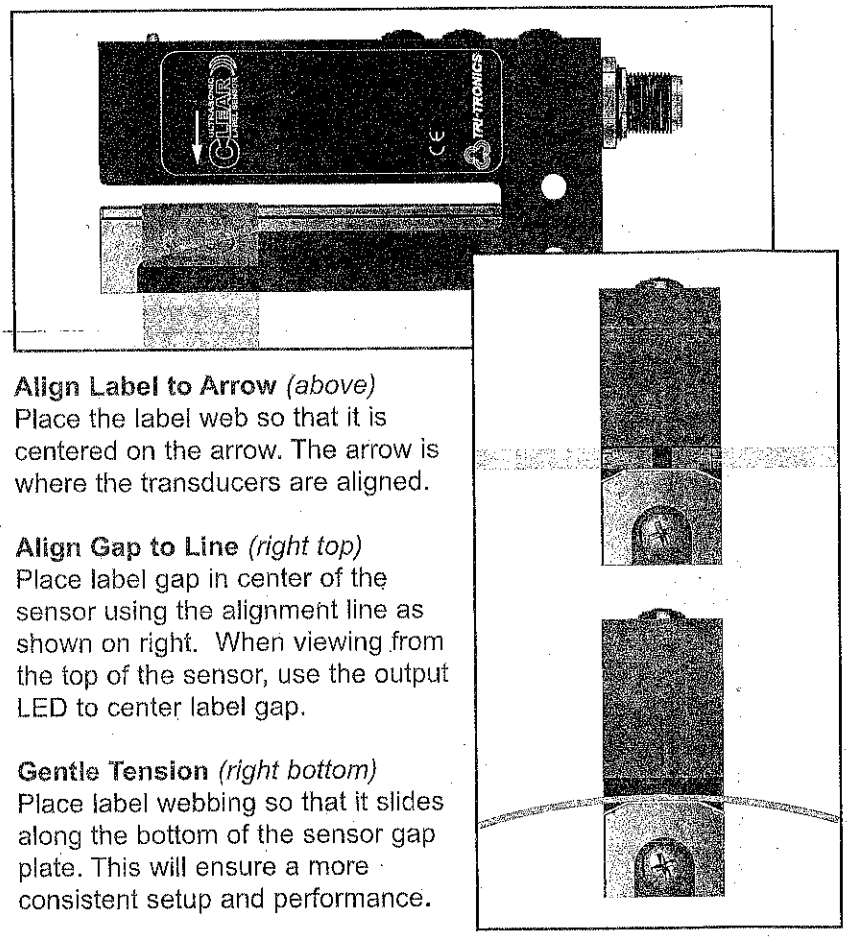
20033-301

Installation Manual

CLSC-1M8LEX185

ULTRASONIC CLEAR LABEL SENSOR

1. Position Label



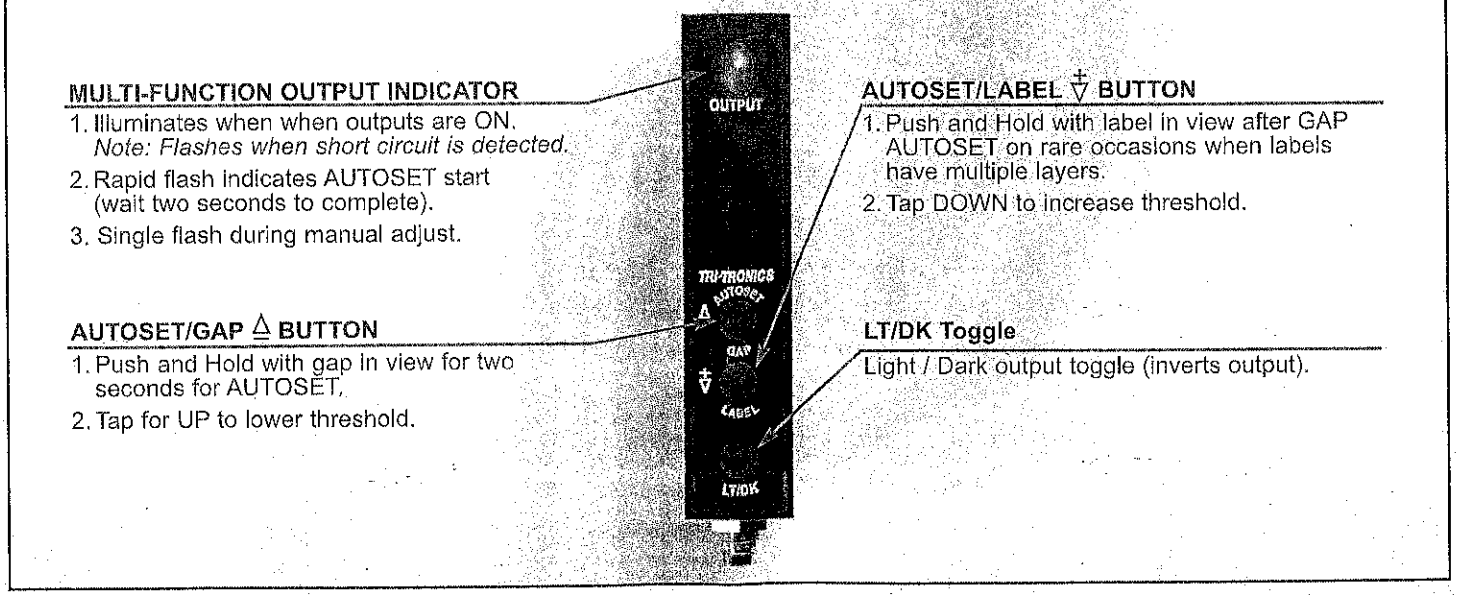
Align Label to Arrow *(above)*
Place the label web so that it is centered on the arrow. The arrow is where the transducers are aligned.

Align Gap to Line *(right top)*
Place label gap in center of the sensor using the alignment line as shown on right. When viewing from the top of the sensor, use the output LED to center label gap.

Gentle Tension *(right bottom)*
Place label webbing so that it slides along the bottom of the sensor gap plate. This will ensure a more consistent setup and performance.

2. Setup Instructions

Once the Gap is in view, press and hold the AUTOSET/GAP button for two seconds. This will result in a stable setup most every time. If you have any false triggers, put the Label in view, push and hold the AUTOSET/LABEL button for two seconds. This two-point setup will create a new threshold setting resulting in a more consistent signal span between web and label.
Note: Manual adjust by tapping arrows.



TRI-TRONICS®
P.O. BOX 25135, TAMPA, FL 33622-5135
813-886-4000 / 800-237-0946
ttco.com / info@ttco.com

Specifications

ULTRASONIC CLEAR LABEL SENSOR

SUPPLY VOLTAGE
- 12 to 30 VDC
- Polarity Protected
  Note: For use in Class 2 Circuits

CURRENT REQUIREMENTS
- 95mA @ 12 VDC, 45mA @ 30 VDC

DIGITAL OUTPUTS
- (1) NPN and (1) PNP open collector output 150mA Max; <2V Residual Voltage
- All outputs are continuously short circuit protected

DIAGNOSTIC INDICATOR
- Illuminates when when outputs are ON. *Note: Flashes when short circuit is detected.*
- Rapid flash indicates AUTOSET start (wait two seconds to complete).
- Single flash during manual adjust.

PUSHBUTTON CONTROL
- Three (3) push button controls
- Gap (for Gap AUTOSET)
- Label (for multi-layered labels)
- LT/DK= Light / Dark toggle

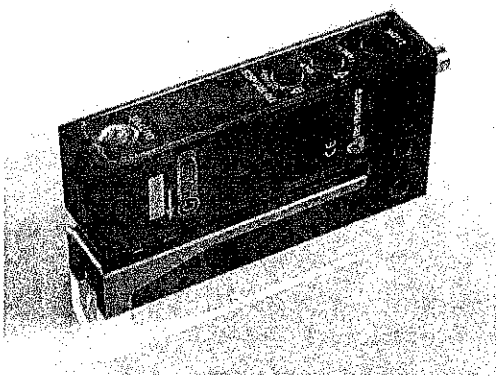
HYSTERESIS
- Dynamic – adjusted by AUTOSET

RESPONSE TIME
- 200µs

REPEATABILITY
- 125µs

AMBIENT TEMPERATURE
- 4°C to 50°C (39°F to 122°F)

RUGGED CONSTRUCTION
- Chemical resistant, high impact Aluminum housing
- Waterproof ratings: IP65
- Conforms to heavy industry grade CE requirements



THRESHOLD SET
- 1-Point, 2-Point.

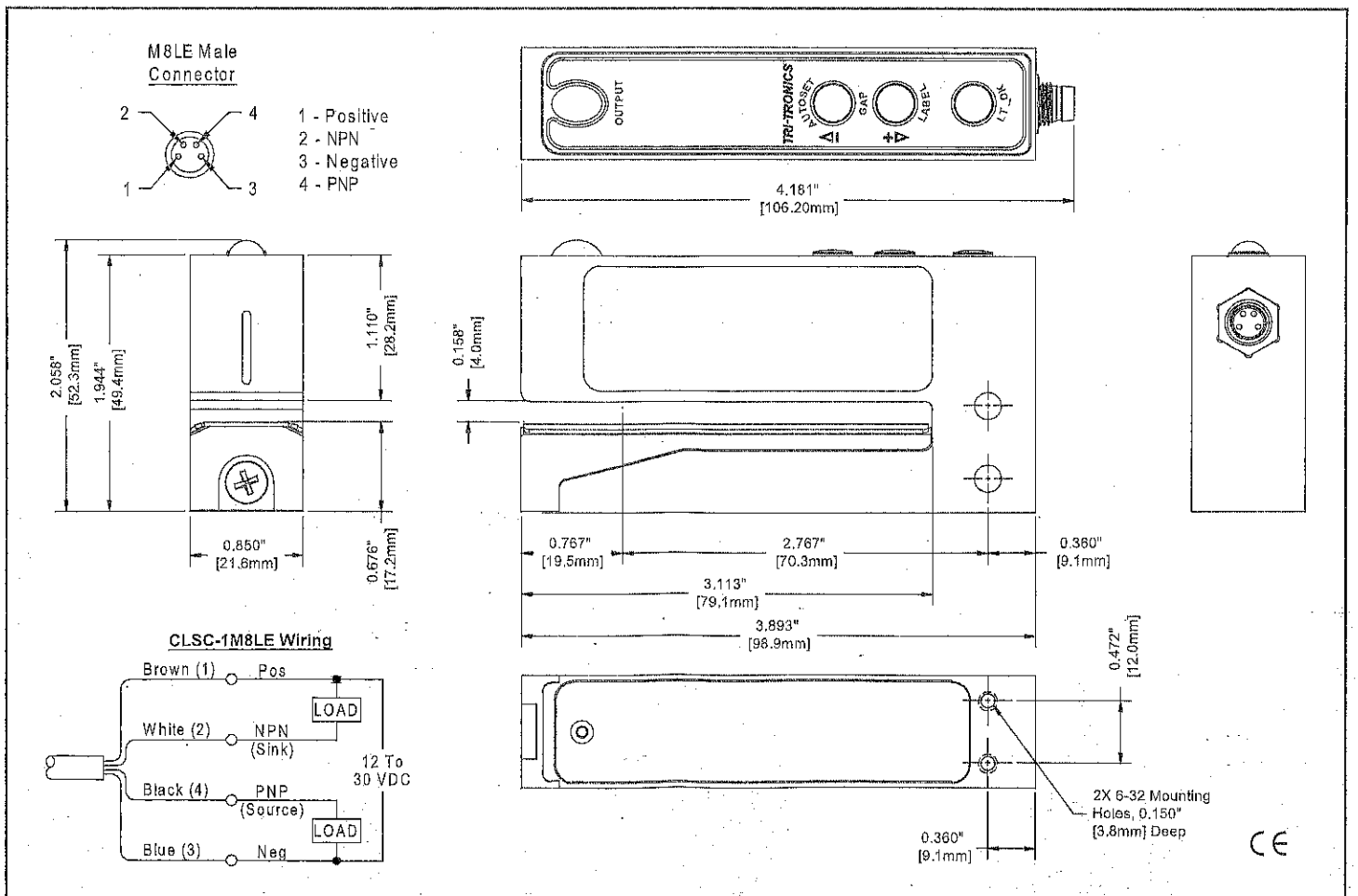
THRESHOLD ADJUST
- Manual Adjust

CONNECTOR
- M8 4-Pin

RoHS Compliant
Product subject to change without notice

Connections and Dimensions

Ultrasonic Clear Label Sensor X185



ASSEMBLY TITLE: **SLOT SENSOR ASSEMBLY**

GENERAL FUNCTION:

- The slot sensor detects the separation between labels. This signals the electronics to stop the drive motor.
- The two (2) liner support rods prevent the liner from wearing out the slot sensor.
- The knob and thumbscrew lock the sensor firmly on the mounting rods.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- See attached cut sheet

MAINTENANCE:

- Keep the sensor optical area clean from label and glue residue

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- No power to the sensor	- Check male connector and tightly secure connection to the head.
- Liner dragging over the slot	- Loosen knob and rotate slot sensor slot sensor surface liner rests on both support rods
- Too much slack through slot sensor	- Adjust brake brush tension
- Slot sensor moving with web	- Tighten all three (3) adjusting knobs

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
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5	4	A21749-300	SLOT SENSOR SUPPORT ROD MTG BLOCK	20033-300
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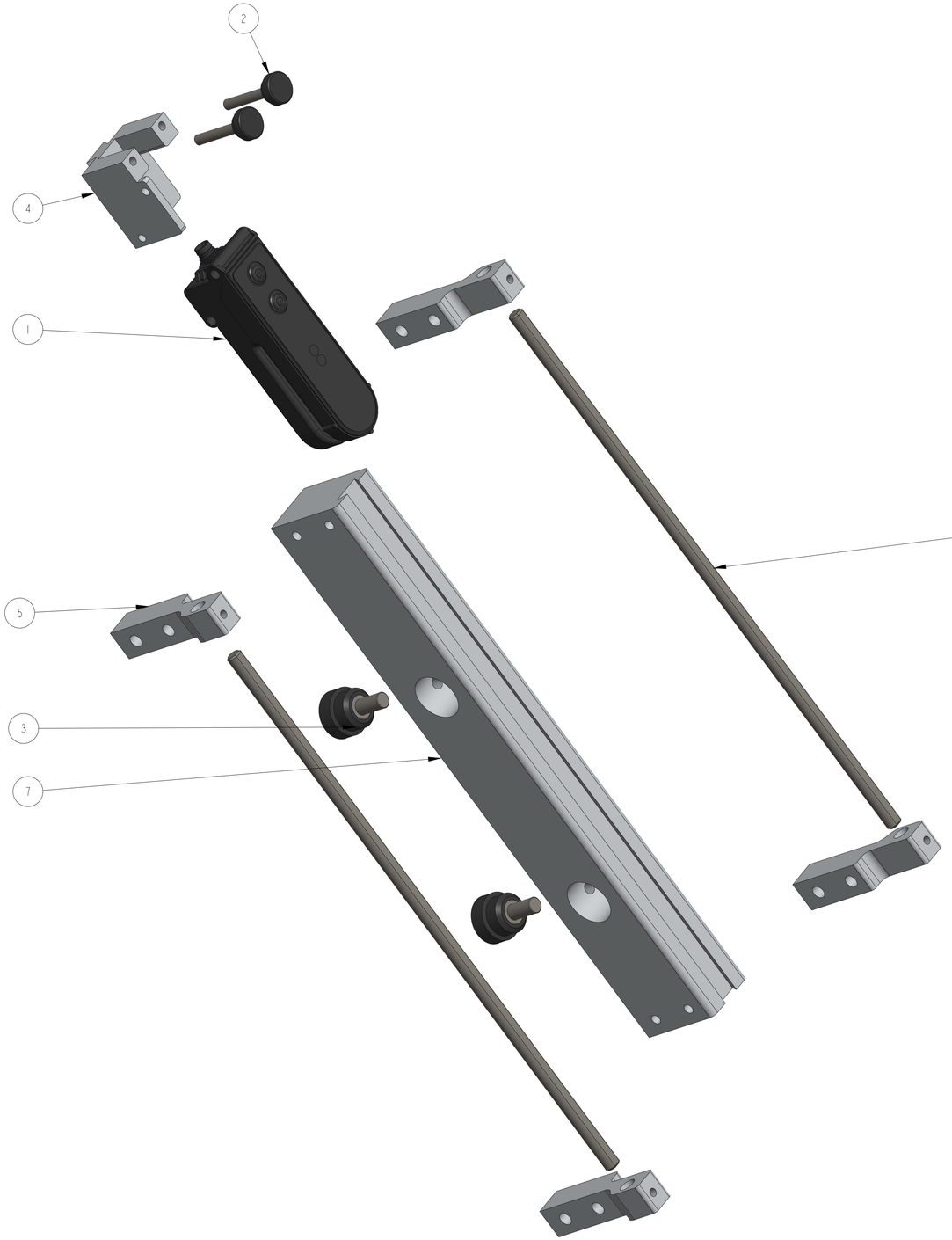

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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

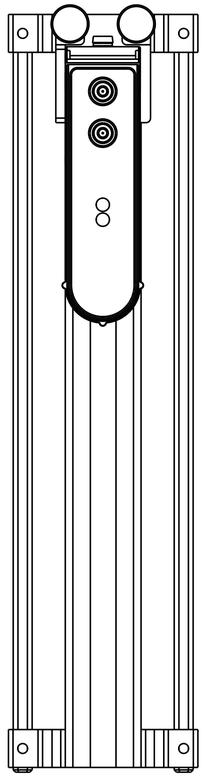
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

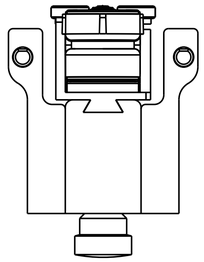
SCALE	1/1
DATE	Mar-04-21
DRAWN BY	TJS

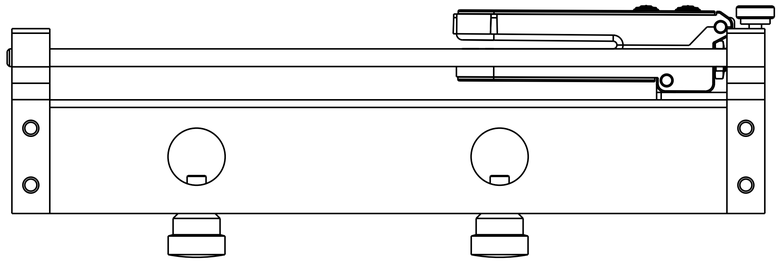
LABEL DETECT ASSEMBLY

MAT'L: 20033-300

20033-300







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QUADREL LABELING SYSTEMS
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SCALE	1/1
DATE	Mar-04-21
DRAWN BY	TJS

LABEL DETECT ASSEMBLY

MAT'L: 20033-300

20033-300

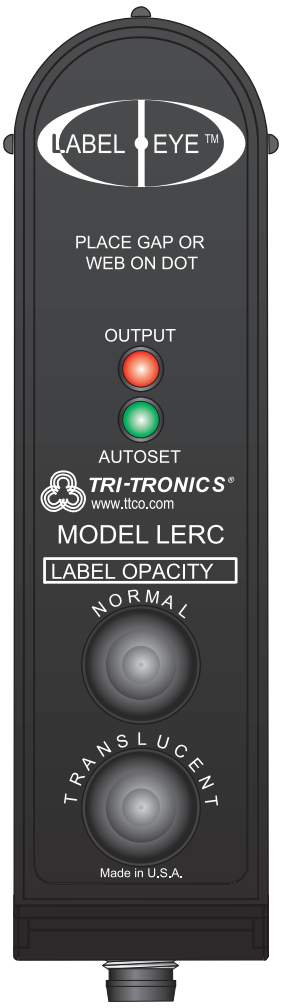
LABEL•EYE
Set-Up Instructions

Standard LABEL•EYE

Normal Label Opacity AUTOSET Button
This category includes most paper or melallized film labels adhering to paper or transparent backing materials. To implement the one button AUTOSET routine, utilize the external alignment guides to position the gap between labels in line with the dot shown in the center of the detection zone. Then push the AUTOSET button marked "Normal."

An alternative set up procedure would be to remove a label and the push the "Normal" AUTOSET button.

On rare occasions, when the light is unable to penetrate the backing materials, both the red and green led indicators will blink four times. When this indication occurs, the sensor will be unable to detect the presence of the labels.



Translucent Label Opacity AUTOSET Button
This category includes translucent labels adhering to transparent or paper backing materials. To implement the one button AUTOSET routine, utilize the external alignment guides to position the gap between labels in line with the dot shown in the center of the detection zone. Then push the AUTOSET button marked "Translucent".
Note: This sensor cannot detect transparent labels.

INVERT OUTPUT: The status of the red LED and output transistors can be inverted by pressing both buttons simultaneously. When the output status has been inverted, the red LED and the output transistors will turn off when the label comes into view.

TRI-TRONICS®

SPECIFICATIONS

SUPPLY VOLTAGE
- 10 to 30Vdc
- Polarity Protected
- Intended for use in class two circuits

CURRENT REQUIREMENTS
- 45 milliamps (exclusive of load)

OUTPUT TRANSISTORS
- (1) NPN and (1) PNP output transistors
- Sensor outputs can sink or source up to 150 milliamps (current limit)
- All outputs are continuously short circuit protected

REMOTE AUTOSET INPUT
- opto isolated momentary sinking input (10 milliamps)

Note: Remote models only

RESPONSE TIME
- Light state response = 100 microseconds
- Dark state response = 100 microseconds

LED LIGHT SOURCE
- High intensity red LED
- Pulse modulated

PUSH BUTTON CONTROL
- Automatic set-up routines based on web opacity
- One push button set-up
- Simultaneously pushing both buttons inverts the output

HYSTERESIS
- Minimal hysteresis promotes the detection between the backing material and the label depending on the settings

LIGHT IMMUNITY
- Responds to sensor's pulsed modulated light source … immune to most ambient light

INDICATORS
- Green LED flashes when AUTOSET routine is activated and stays illuminated when AUTOSET is completed
- Red LED illuminates when sensors output transistors are ON. *Note: The status of the output transistors can be inverted by pushing both buttons simultaneously. If Output LED flashes, a short circuit condition exists.*

AMBIENT TEMPERATURE
- -40°C to 70°C (-40°F to 158°F)

RUGGED CONSTRUCTION
- Chemical resistance to harsh cleaners such as detergents, alcohols, and ketones
- Type 1 Enclosure
- Conforms to heavy industry grade CE and UL requirements

RoHS Compliant
Product subject to change without notice.

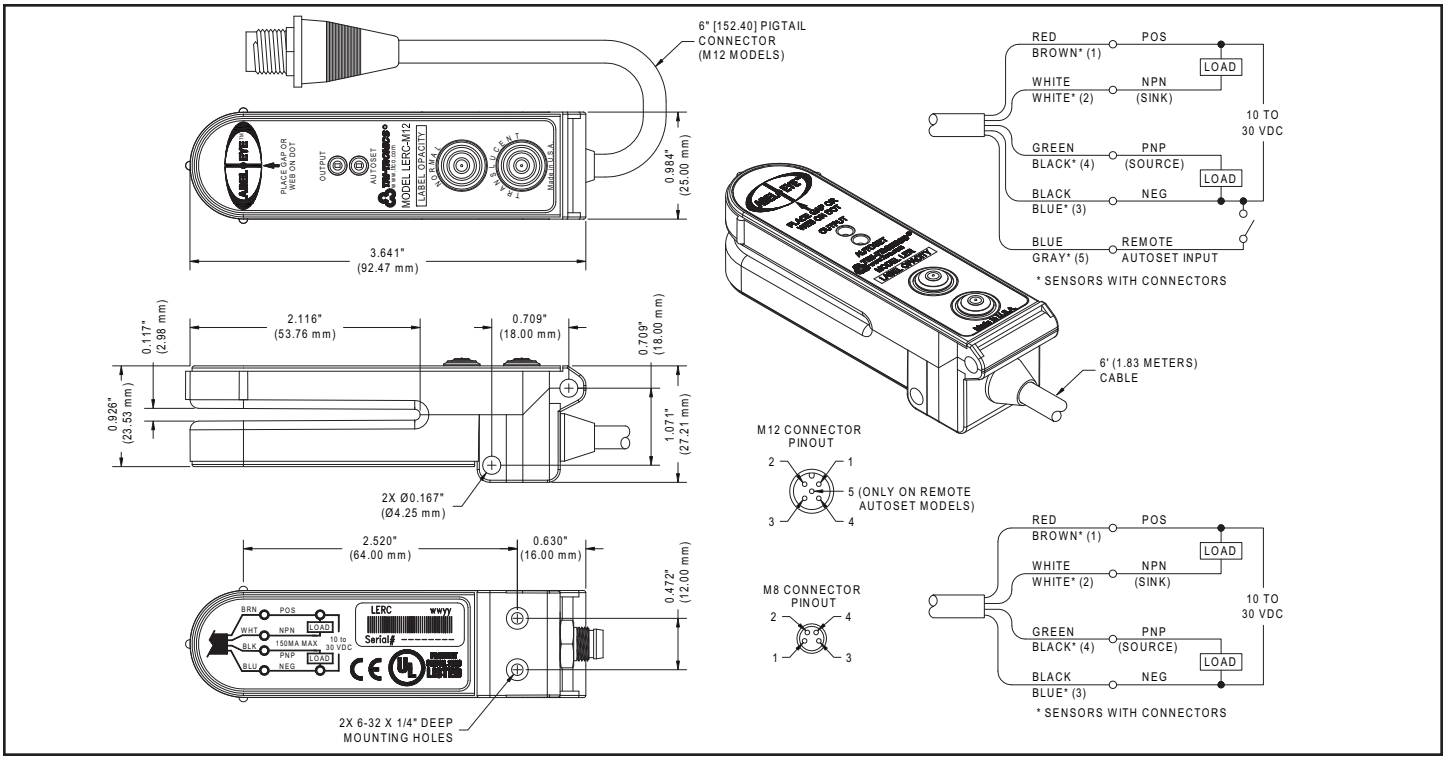
Model Numbers:

Label•Eye	Description
LER	Red LED, 4 Conductor 6ft Cable
LERC	Red LED, 4-pin M8 Connector
LERR	Red LED, 5 Conductor, 6ft Cable
LERRC-M12	Red LED, 5-Pin M12 Pigtail Connector
LERC-M12	Red LED, 4-Pin M12 Pigtail Connector

Nano Cable (M8) Selection Guide

P/N	Length	Thread Coupling
GEC-6	6ft (1.8m	Straight Female
GEC-15	15ft (4.6m)	Straight Female
RGEC-6	6ft (1.8m)	90° Female
RGEC-15	15ft (4.6m)	90° Female

DIMENSIONS



TRI-TRONICS®
P.O. BOX 25135, TAMPA, FL 33622-5135
813-886-4000 / 800-237-0946
ttco.com / info@ttco.com


System

ASSEMBLY TITLE: **FRAME ASSEMBLY**

GENERAL FUNCTION:

- Provides solid mounting for labeling head if not installed on a system that allows for vertical and horizontal adjustment.
- Allows for vertical and horizontal adjustment in the setup of the labeling head operation.

SET-UP AND ADJUSTMENTS:

- Rotate leveling pads to appropriate position. Secure locknut when proper height is achieved.
- Using ratchet handle, adjust labeling head vertical and horizontal position.

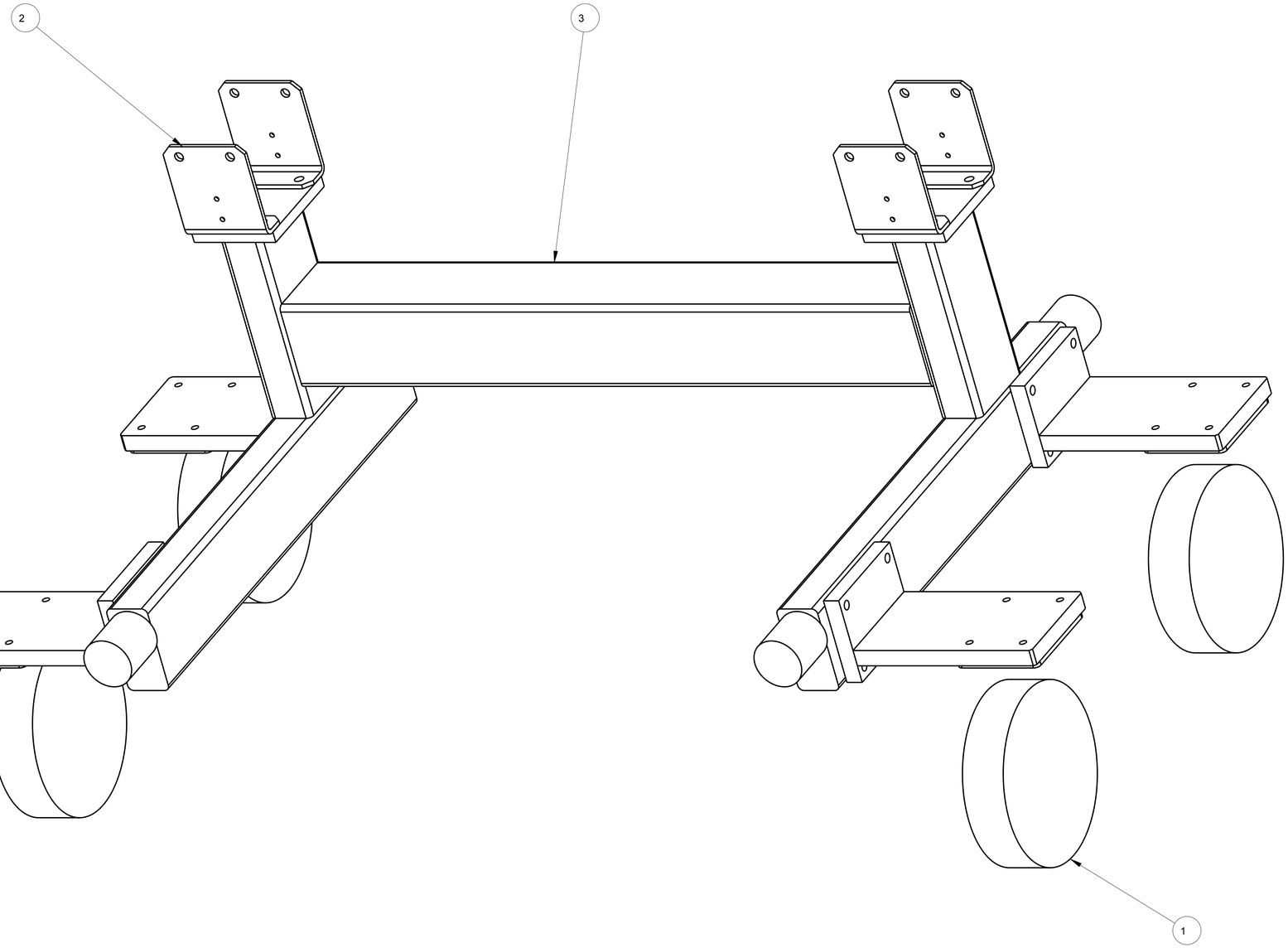
MAINTENANCE:

- Clean wipe down rails with clean cloth.

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	82411C-100	CUSTOM CASTER	82411F-000
2	4	B22787-000	CONVEYOR RISER	82411F-000
3	1	D24424-82411	WELDMENT, CONVEYOR FRAME	82411F-000

NOT SHOWN:

792754M-001 - MODIFY TRAILER JACK, 2000LBS



REV	DATE	DESCRIPTION	BY
A	Nov-01-17	NEW DRAWING	CRT

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

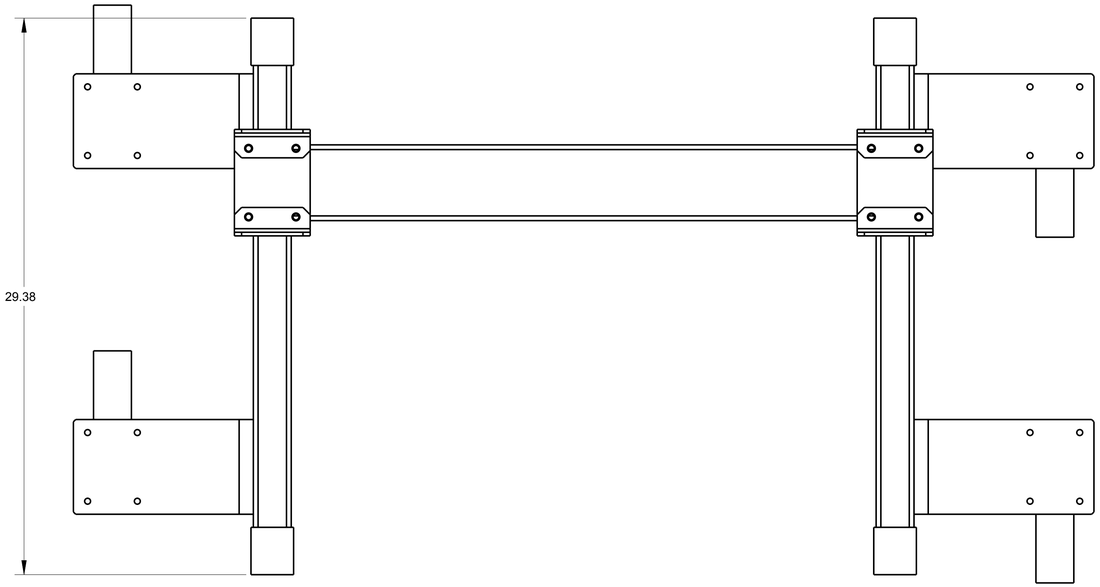
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

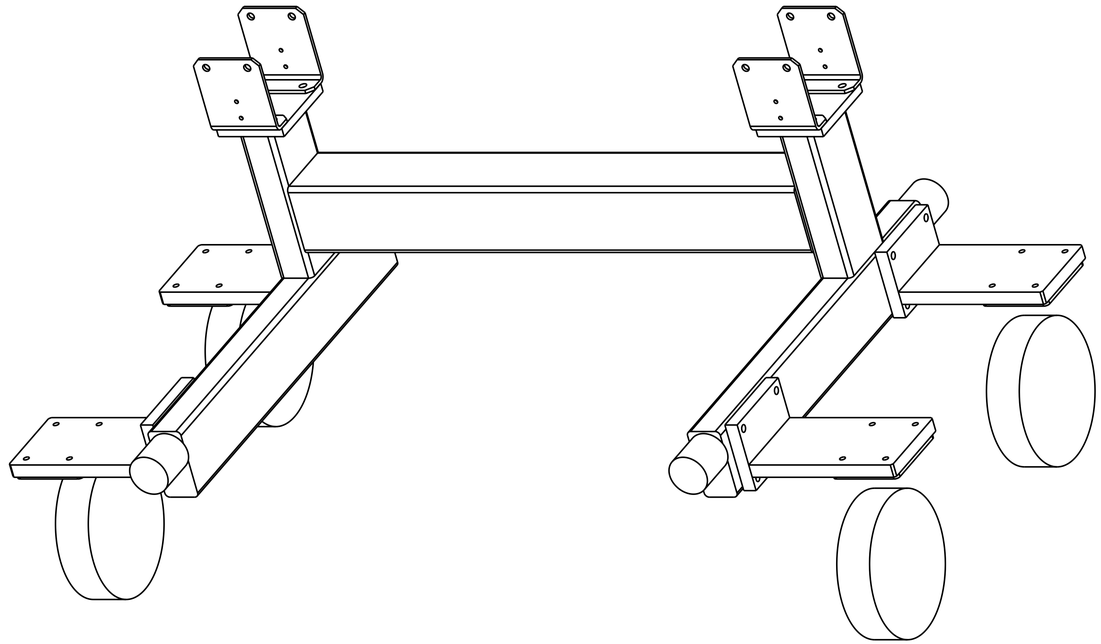
SCALE	3/8
DATE	Nov-01-17
DRAWN BY	CRT

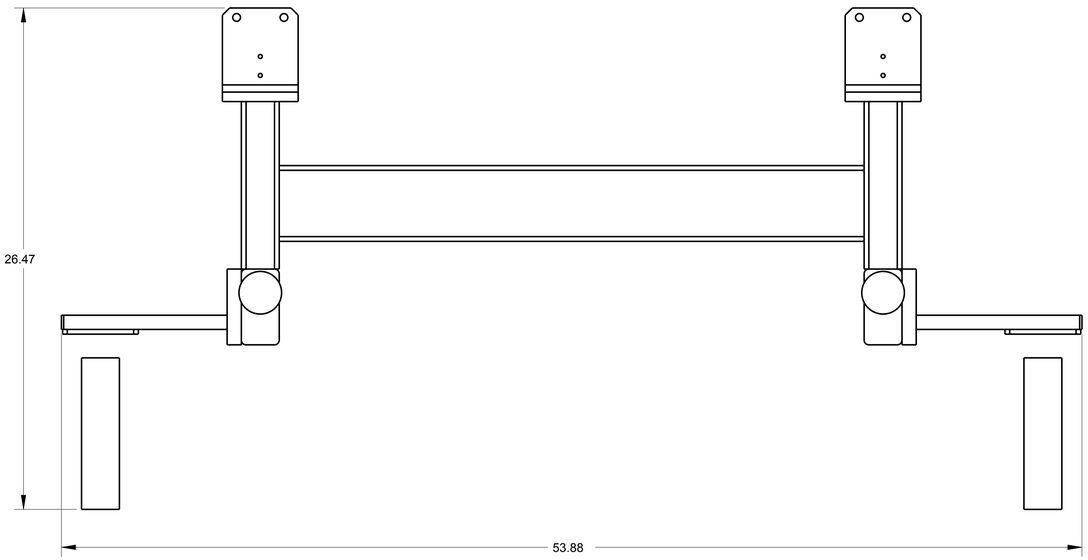
ASSEMBLY, CUSTOM FRAME

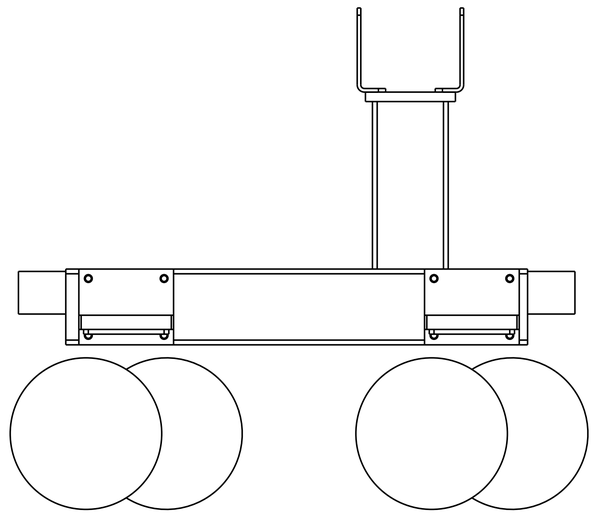
MAT'L: 82411F-000

82411F-000









REV	DATE	DESCRIPTION	BY
A	Nov-02-17	NEW DRAWING	CRT

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DIMENSIONAL TOLERANCE
X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	1/4
DATE	Nov-02-17
DRAWN BY	CRT

ASSEMBLY, CUSTOM FRAME

MAT'L 82411F-000

82411F-000

ASSEMBLY TITLE: **NON-INTEGRATED CONVEYOR**

GENERAL FUNCTION:

- To transfer the product to the labeling heads at a predetermined speed.
- To provide retention for the head support and guide rails.

SET-UP AND ADJUSTMENTS:

- Adjust conveyor to proper working height by rotating leveling pads to appropriate position. Secure locknut when proper height is achieved.
- Using ratchet handles, adjust guide rails to the product.
- Adjust conveyor speed by means of conveyor speed potentiometer (if applicable) located in the remote electronics enclosure mounted to the conveyor, or through the operator's touchscreen if provided.

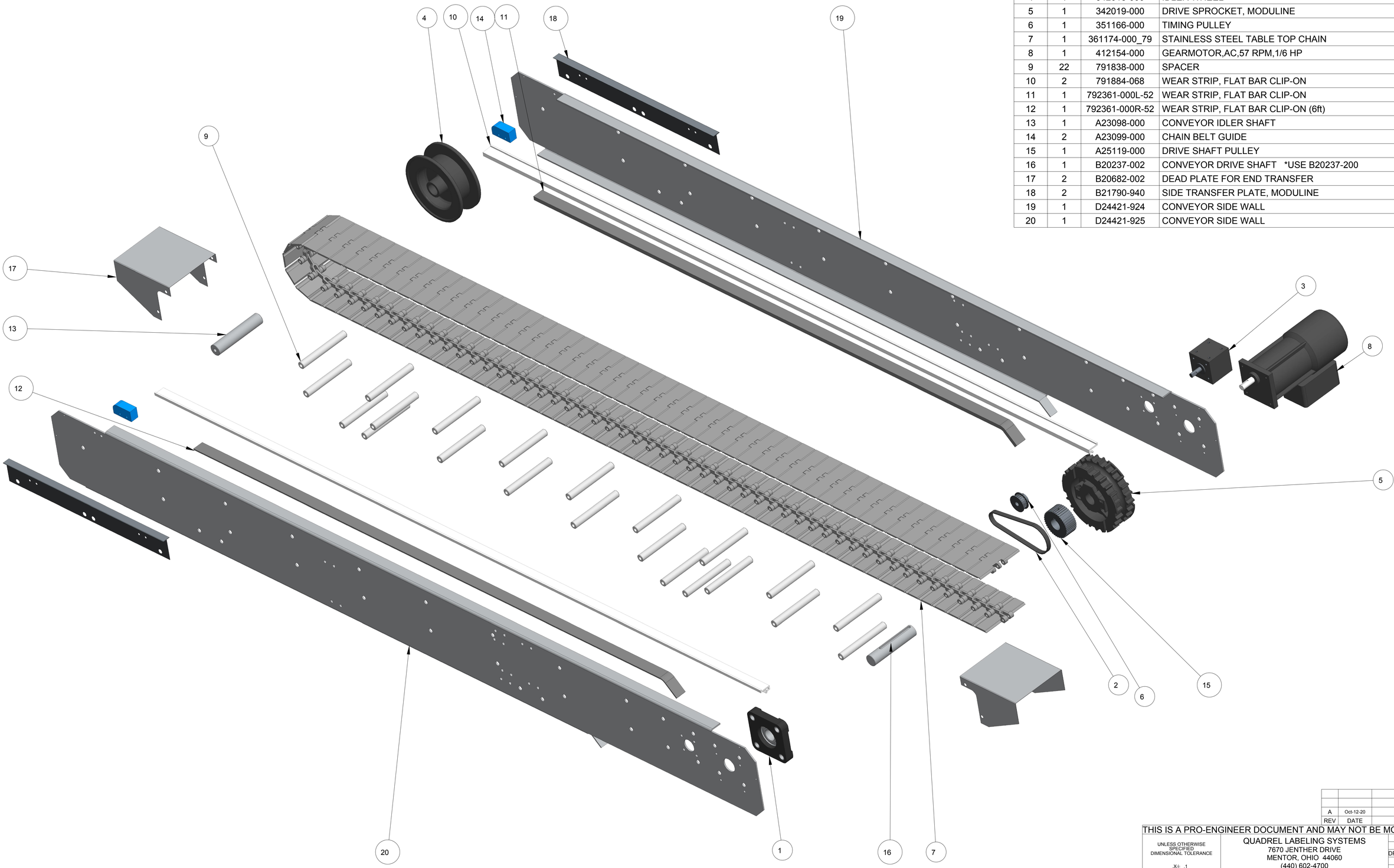
MAINTENANCE:

- The conveyor drive chain must be greased with white lithium grease.
- Do not allow chain and sprockets to run dry, lubricate periodically.
- The gear motor gearbox should be checked quarterly and filled with Synthetic based Tivela Oil SC320 or an ISO320 Gear Lube lubricant.
- Grease flange bearings often to prevent them from running dry.

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Excessive Noise	- Realign sprocket. - Check if chain and sprockets are lubricated. If dry, lubricate as discussed above.
- Chain too loose	- Slide gear motor downward to create more tension on chain.
- Uneven wear on sprockets.	- Realign sprockets.
- Shaft not running concentric	- Replace flange bearing.

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	171032-000	4 BOLT FLANGE BEARING	22528-940
2	1	192571-000_20-40	TIMING BELT	22528-940
3	1	202123-000	CUBE ENCODER, 1200PPM, 3/8 DIA	22528-940
4	1	342018-000	IDLER WHEEL	22528-940
5	1	342019-000	DRIVE SPROCKET, MODULINE	22528-940
6	1	351166-000	TIMING PULLEY	22528-940
7	1	361174-000_79	STAINLESS STEEL TABLE TOP CHAIN	22528-940
8	1	412154-000	GEARMOTOR,AC,57 RPM,1/6 HP	22528-940
9	22	791838-000	SPACER	22528-940
10	2	791884-068	WEAR STRIP, FLAT BAR CLIP-ON	22528-940
11	1	792361-000L-52	WEAR STRIP, FLAT BAR CLIP-ON	22528-940
12	1	792361-000R-52	WEAR STRIP, FLAT BAR CLIP-ON (6ft)	22528-940
13	1	A23098-000	CONVEYOR IDLER SHAFT	22528-940
14	2	A23099-000	CHAIN BELT GUIDE	22528-940
15	1	A25119-000	DRIVE SHAFT PULLEY	22528-940
16	1	B20237-002	CONVEYOR DRIVE SHAFT *USE B20237-200	22528-940
17	2	B20682-002	DEAD PLATE FOR END TRANSFER	22528-940
18	2	B21790-940	SIDE TRANSFER PLATE, MODULINE	22528-940
19	1	D24421-924	CONVEYOR SIDE WALL	22528-940
20	1	D24421-925	CONVEYOR SIDE WALL	22528-940



REV	DATE	DESCRIPTION	BY
A	Oct-12-20	NEW DRAWING	TJS

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

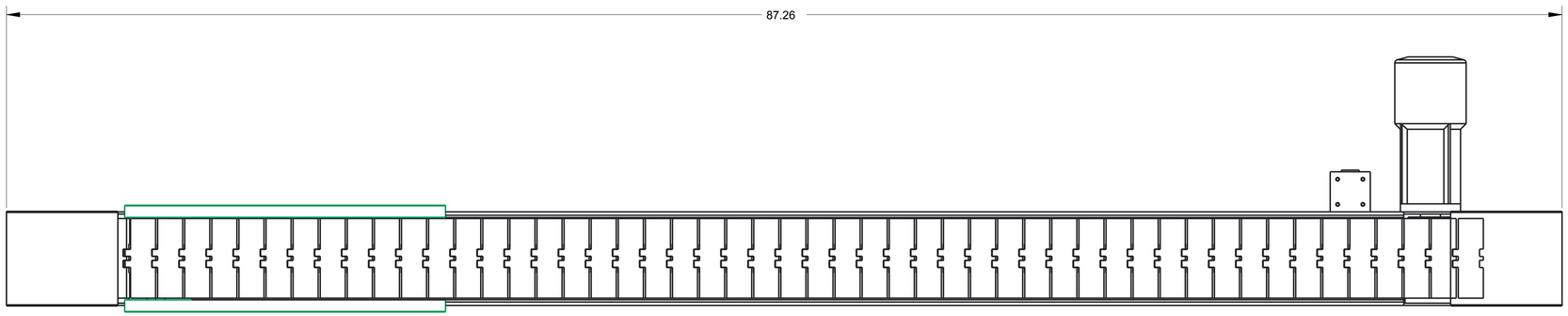
SCALE	9/32
DATE	Oct-12-20
DRAWN BY	TJS

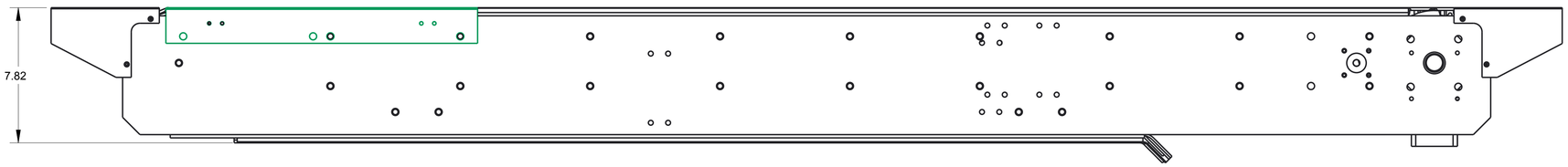
ECONOLINE CONVEYOR

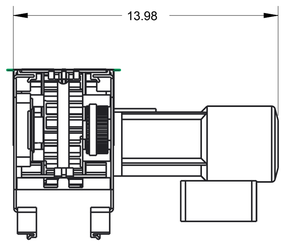
MAT'L 22528-940

22528-940

SHEET 1 OF 2







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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

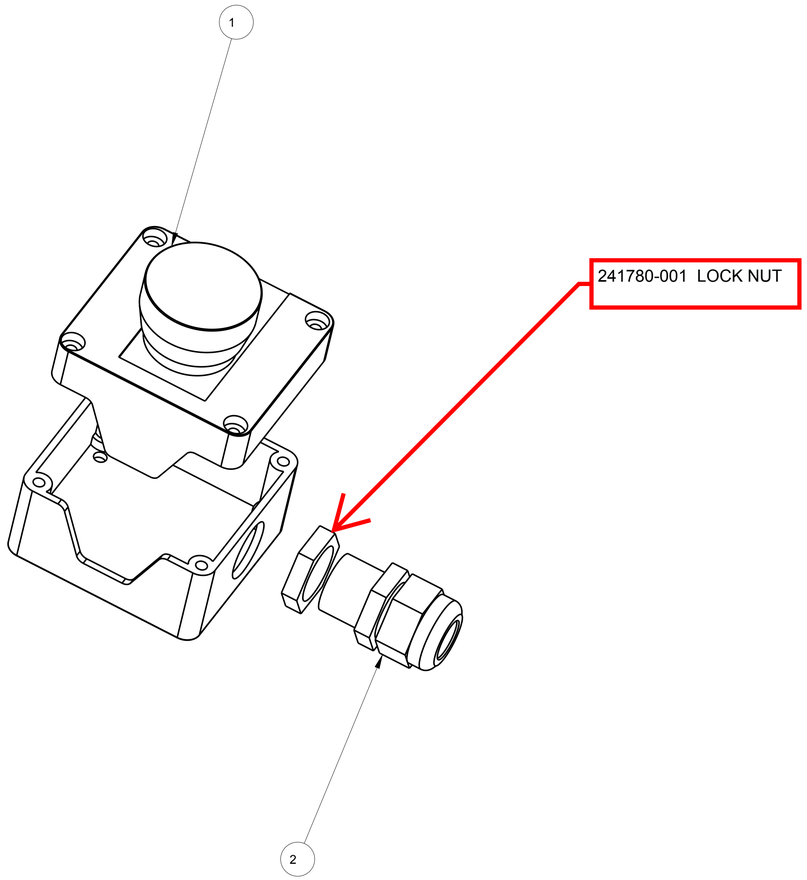
SCALE	1/4
DATE	Oct-12-20
DRAWN BY	TJS

ECONOLINE CONVEYOR

MAT'L: 22528-940

22528-940

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	221152-005	ENCLOSURE, E-STOP W/ BUTTON	20789-000
2	1	241780-000	STRAIN RELIEF, CABLE	20789-000



REV	DATE	DESCRIPTION	BY
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X± .1
.XX± .01
.XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
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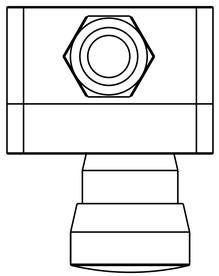
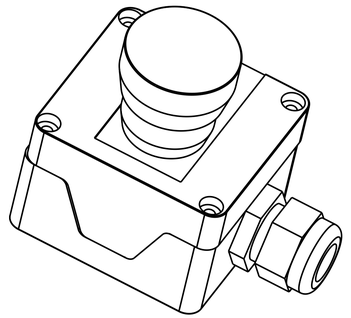
SCALE	1/1
DATE	8-29-16
DRAWN BY	TJS

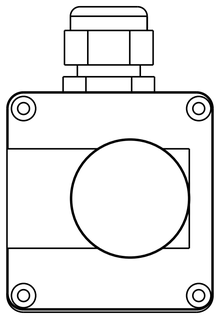
EMERGENCY STOP ASSEMBLY

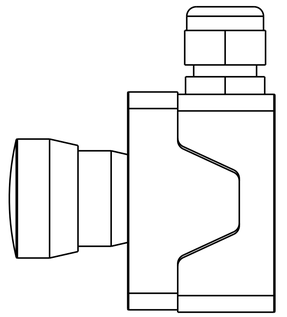
MAT'L 20789-000

20789-000









REV	DATE	DESCRIPTION	BY
A	8-29-16	NEW DRAWING	

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DIMENSIONAL TOLERANCE

X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
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(440) 602-4700

SCALE	1/1
DATE	8-29-16
DRAWN BY	TJS

EMERGENCY STOP ASSEMBLY

MAT'L 20789-000

20789-000

ASSEMBLY TITLE: HEAD SUPPORT ASSEMBLY

GENERAL FUNCTION:

The head support assembly keeps the labeling head in a “locked position” and prevents head vibration and wobbling as the label motor is engaged. The head support assembly is also used to set the camber or front/back tilt of the head.

SETUP AND ADJUSTMENTS:

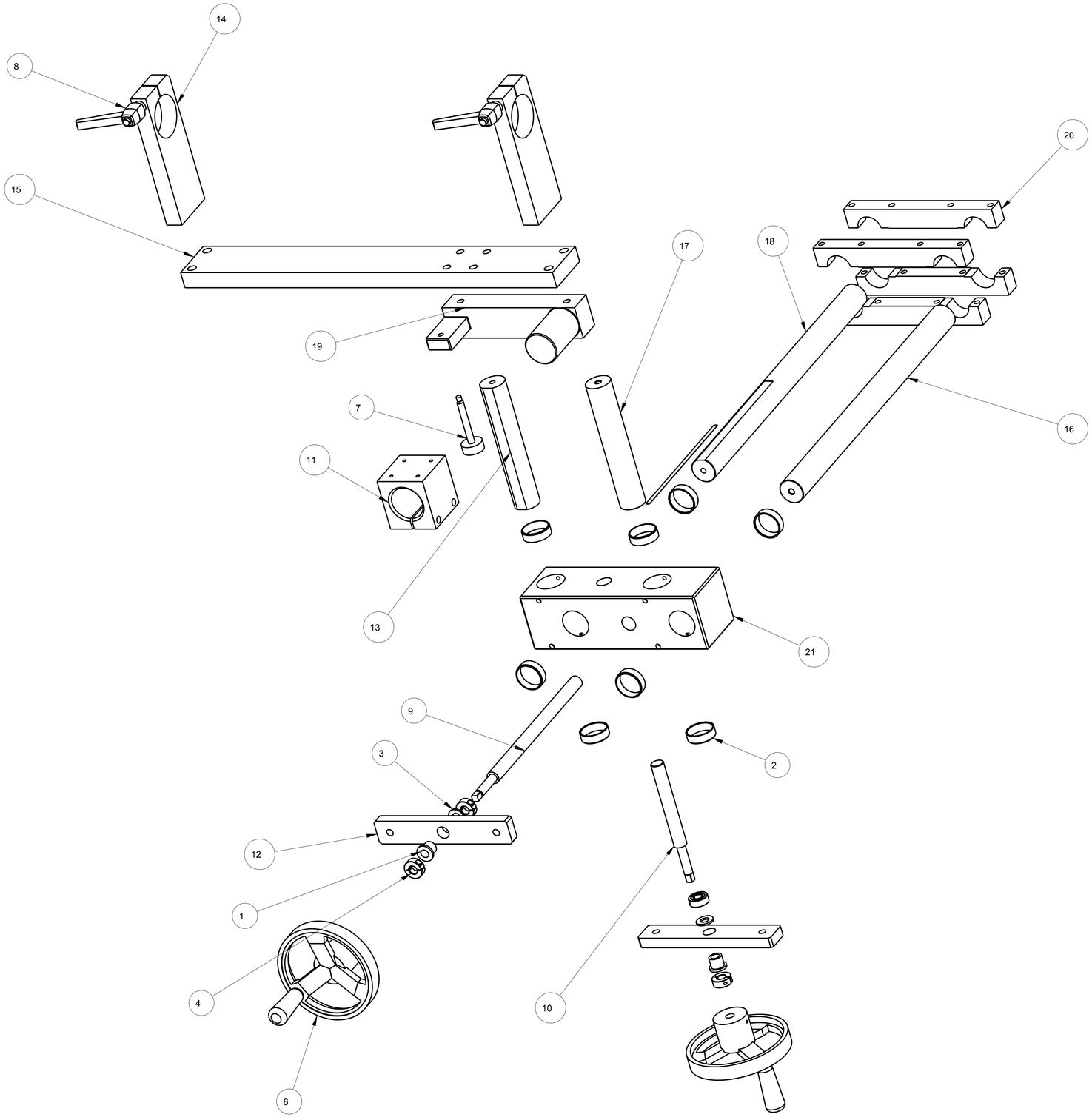
HORIZONTAL ADJUSTMENT: To set the horizontal position of the labeling head, use the side mount wheel handle (some older systems may feature the ratcheted handle). Turn the handle clockwise to move the head towards the conveyor. Turn it counter clockwise to move the head away from the conveyor.

VERTICAL ADJUSTMENT: Using the lower wheel handle to set the vertical position of the labeling head. Turn the wheel clockwise to lower labeling head. Turn the wheel counter clockwise to raise the labeling head.

MAINTENANCE:

No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

TROUBLESHOOTING: None this section.



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	131062-000	BEARING, FLANGE	82411HS-000
2	8	141194-000	SLEEVE BEARING 1 1/2"ID X1/2LG	82411HS-000
3	2	151018-000	BEARING, THRUST WASHER	82411HS-000
4	4	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	82411HS-000
5	1	791914-002_09	MYLAR SCALE, QUADREL LOGO	82411HS-000
6	2	801080-000	HANDLE WHEEL, MODIFIED	82411HS-000
7	1	801301-000	KNURLED HEAD SWIVEL	82411HS-000
8	2	801850-000	CLAMPING LEVER	82411HS-000
9	1	A21432-005	ADJUSTING SCREW	82411HS-000
10	1	A21432-009	ADJUSTING SCREW	82411HS-000
11	1	A21605-001	PIVOT MTG. BLOCK	82411HS-000
12	2	A23764-002	BEARING PLATE	82411HS-000
13	1	A23844-019	GUIDE ROD	82411HS-000
14	2	B21190-009	YOKE SIDE PLATE	82411HS-000
15	1	B21191-008	YOKE BACK PLATE	82411HS-000
16	1	B21562-019	GUIDE ROD	82411HS-000
17	1	B21562-048	GUIDE ROD	82411HS-000
18	1	B21850-020	GUIDE ROD	82411HS-000
19	1	B21973-002	ROTATED MODULINE HEAD SUPPORT MTG BLOCK	82411HS-000
20	4	B22092-000	HEAD SUPPORT MTG. BLOCK-S.S.	82411HS-000
21	1	B22252-000	CROSS MTG BLOCK, HEAD SUPPORT, IGUS BUSHING	82411HS-000

REV	DATE	DESCRIPTION	BY
A	Nov-02-17	NEW DRAWING	CRT

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

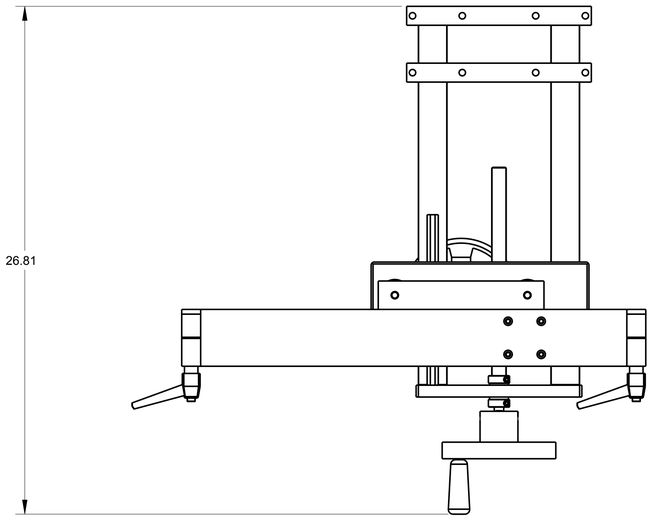
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

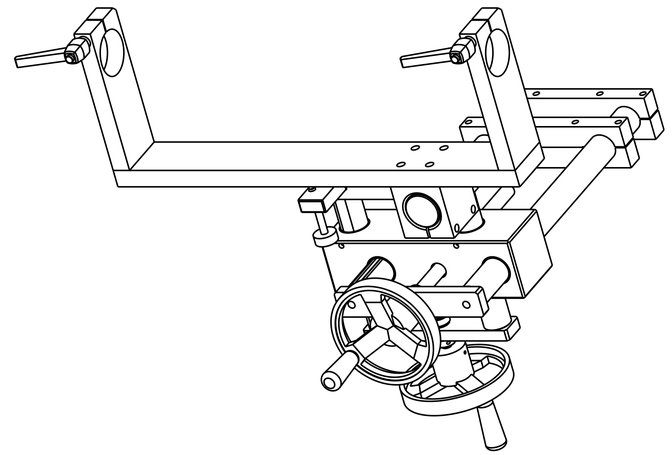
SCALE	5/16
DATE	Nov-02-17
DRAWN BY	CRT

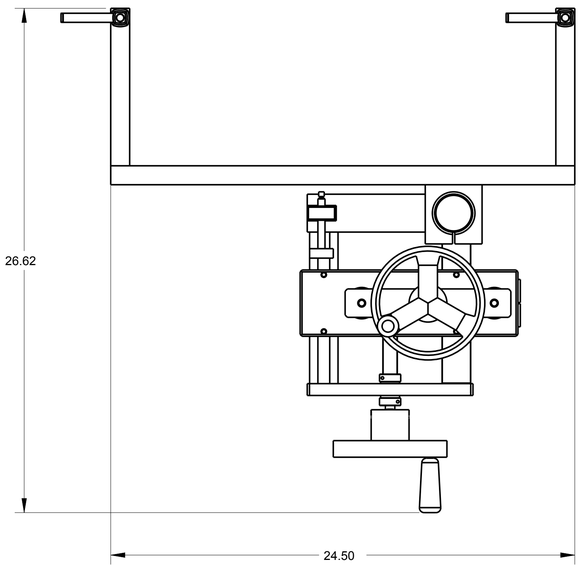
CUSTOM HEAD SUPPORT

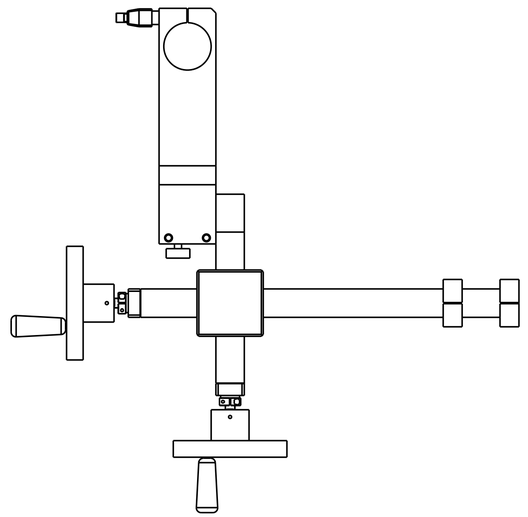
MAT'L: 82411HS-000

82411HS-000









REV	DATE	DESCRIPTION	BY
A	Nov-02-17	NEW DRAWING	CRT

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DIMENSIONAL TOLERANCE
X± .1
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XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	1/4
DATE	Nov-02-17
DRAWN BY	CRT

CUSTOM HEAD SUPPORT

MAT'L 82411HS-000

82411HS-000

SHEET 2 OF 2

7.4 PACING WHEEL / BELT ASSEMBLY

7.4.1 GENERAL INFORMATION

The pacing wheel/belt are an optional module that is generally placed at the entrance of the conveyor to allow adequate spacing of products as they travel towards the labeling head. The speed of the wheel/belt will vary how much spacing is created between the products. It is controlled by a DC motor and DC drive located in the electrical enclosure.

7.4.2 ADJUSTMENTS

The adjustments for both assemblies are fairly straight forward. The pacing wheel assembly has a pivoting in and out adjustment and height adjustment. The pivot in and out adjustment is made by loosening the ratcheting handle on the mount and rotating the assembly as needed.

The vertical adjustment for the pacing wheel is achieved by loosening the collar on the shaft then loosening the ratchet handle and manually pull up or push down as needed. The height is locked in place with the lock collar. Tighten the ratchet handle when finished.

⚠ **CAUTION** **Do not make any adjustments when assembly or conveyor are running.**

The pacing belt assembly has both vertical and horizontal adjustments. To adjust vertically loosen the 2 3/8-16 bolts and pull up on the assembly. To adjust horizontally (in and out) loosen the 2 ratchet handles under the assembly and slide in and out as needed.

ASSEMBLY TITLE: **PACING WHEEL ASSEMBLY**

DRAWING NO.: **D21452-001**

GENERAL FUNCTION:

- The product pacing wheel offsets each product a variable distance from the preceding product and guarantees adequate product separation.

SETUP AND ADJUSTMENTS:

- The mounting for the pacing wheel provides two axis of adjustment.

- Adjust the brackets so that the pacing wheel slightly presses the product against the back rail. Lock into place using the adjustment knobs.

- The speed of the pacing wheel is controlled by a potentiometer located on the remote enclosure mounted on the conveyor

MAINTENANCE:

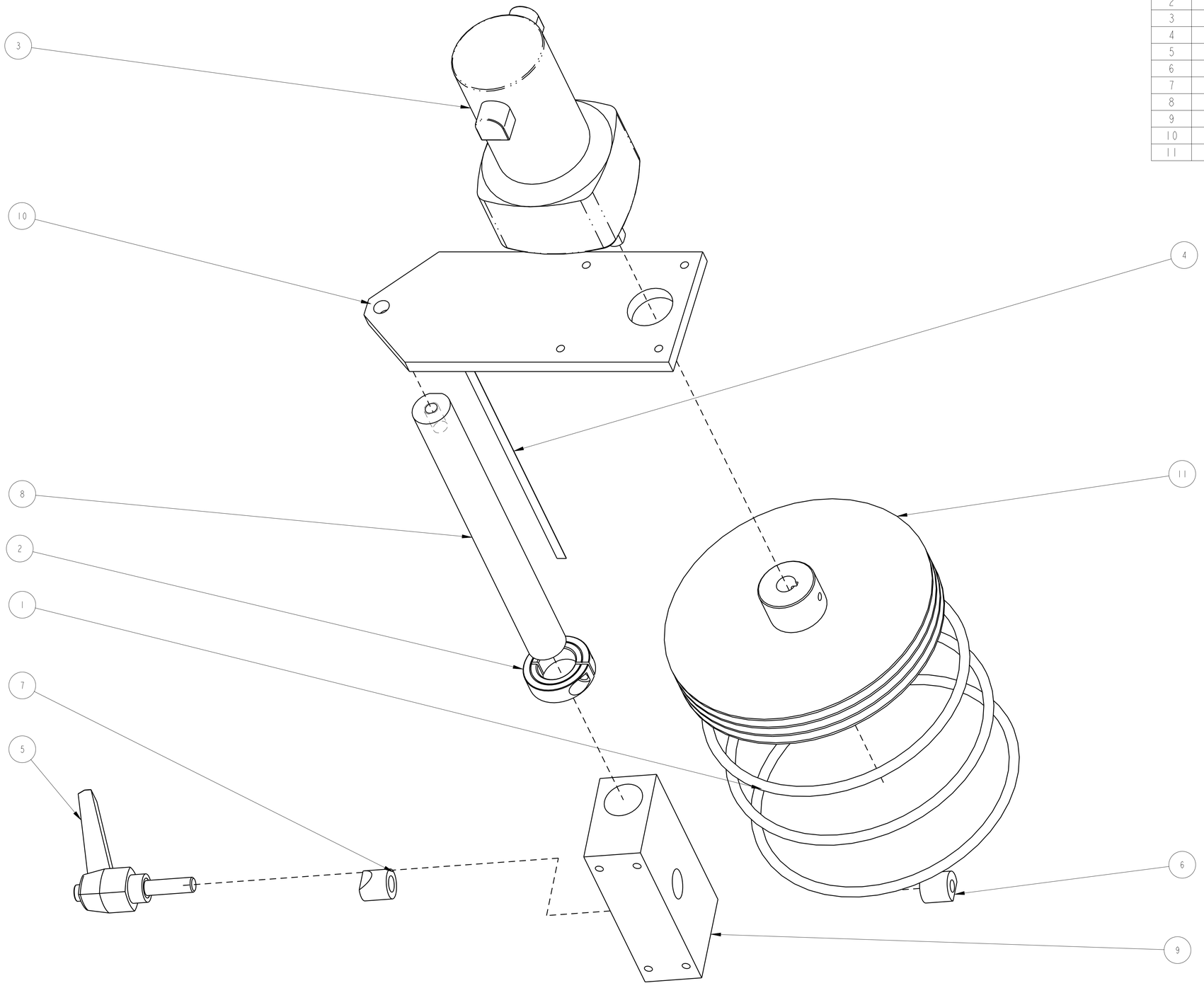
- No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

CAUTION: Before performing any maintenance or cleaning make sure the system is powered down.

TROUBLESHOOTING:

PROBLEM:	WHAT TO DO:
- Product compressed	- Using the horizontal adjustment, relieve the horizontal position
- Pacing wheel tilts products	- Set wheel vertical position at horizontal center of product. - Adjust backing guide rail.
- Product spaced to close	- Reduce the speed of the pacing wheel.
- Product spaced too far apart	- Increase the speed of the pacing wheel.

ITEM	QTY	PART NO.	DESCRIPTION
1	3	291030-000	O-RING
2	1	361170-000	COLLAR, 1 IN. ID ONE-PIECE CLAMP
3	1	411293-000	MOTOR
4	1	791914-002	MYLAR SCALE, QUADREL LOGO
5	1	801805-000	CLAMPING LEVER
6	1	A20688-000	LOCKING CLAMP
7	1	A20689-000	LOCKING CLAMP
8	1	A21426-002	GUIDE ROD
9	1	A21691-000	MOUNTING BLOCK
10	1	A23881-000	MOUNTING PLATE
11	1	B21756-000	PACING WHEEL



REV	DATE	DESCRIPTION
A	10-03-08	NEW DRAWING

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DIMENSIONAL TOLERANCE
X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30°

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

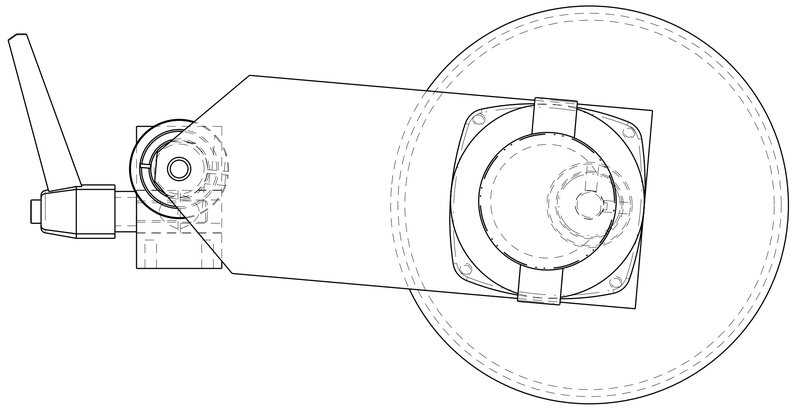
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

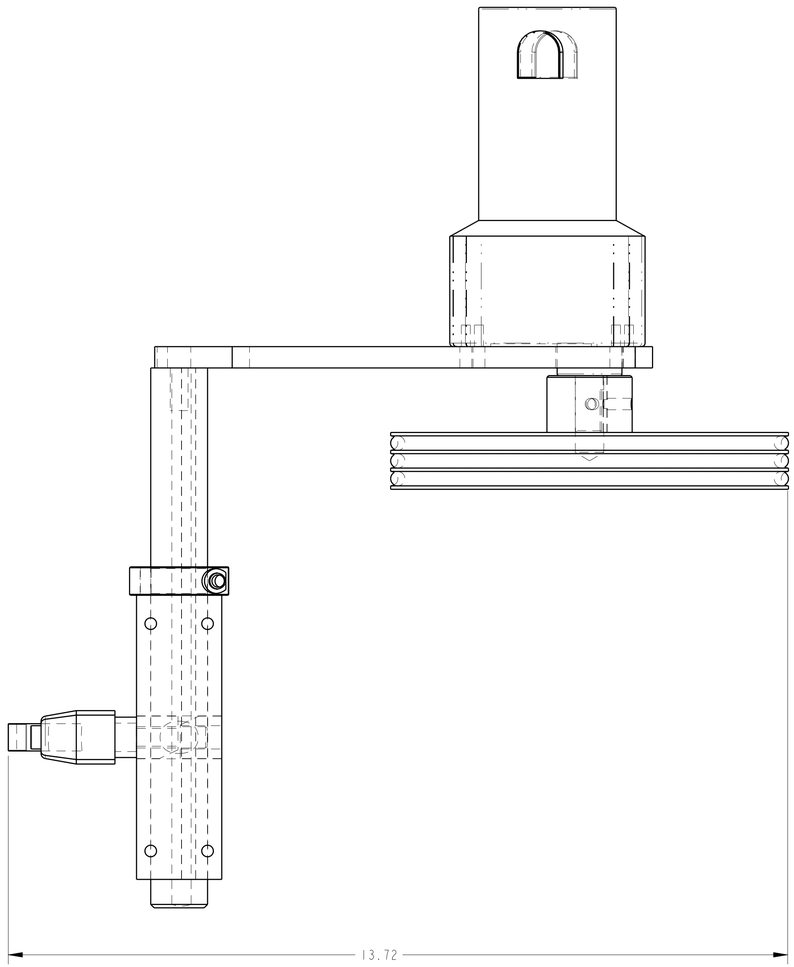
SCALE:	3/4
DATE:	10-03-08
DRW BY:	HAM
CHK BY:	
APPR BY:	

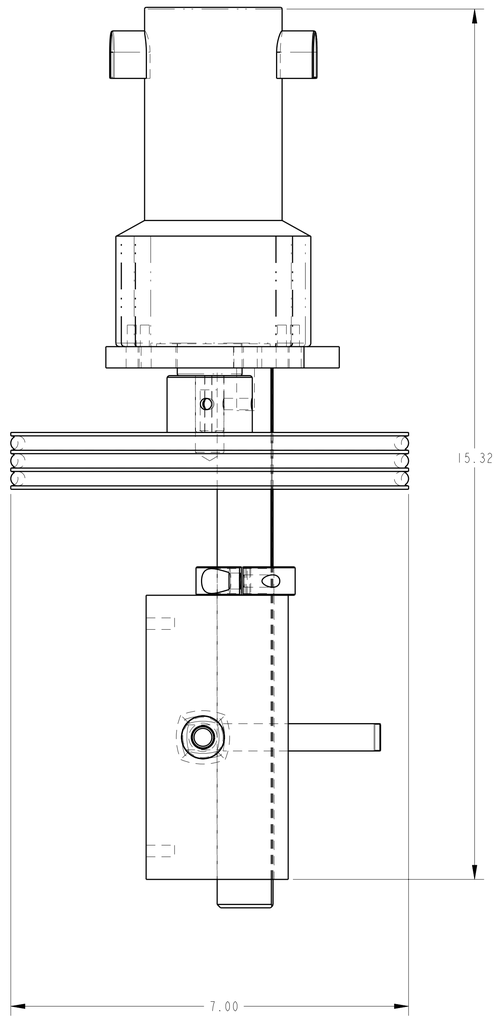
MODULINE O-RING PACING WHEEL ASSEMBLY

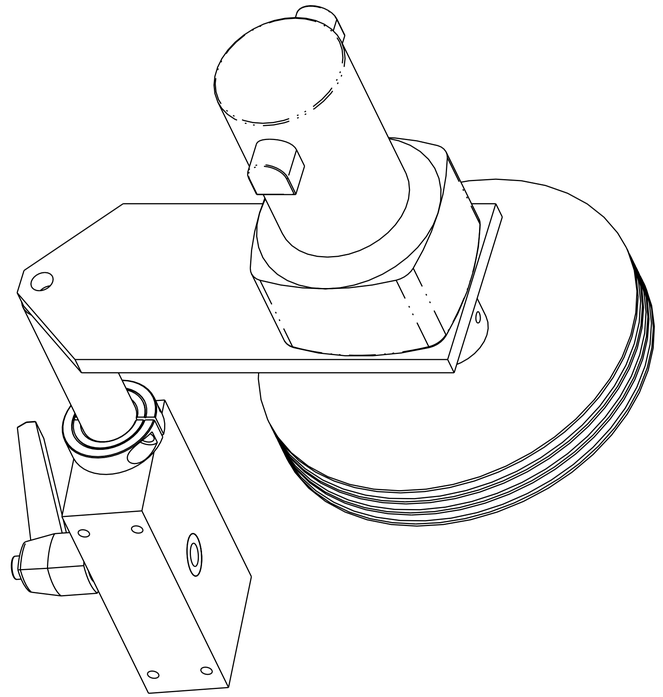
MAT'L 20543-001

D21452-001









REV	DATE	DESCRIPTION
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XX ± .01
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ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	3/4
DATE:	10-03-08
DRW BY:	HAM
CHK BY:	
APPR BY:	

MODULINE O-RING PACING WHEEL ASSEMBLY

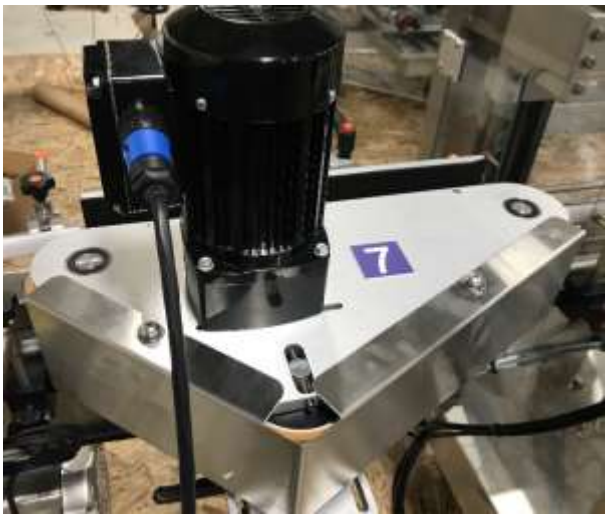
MAT'L 20543-001

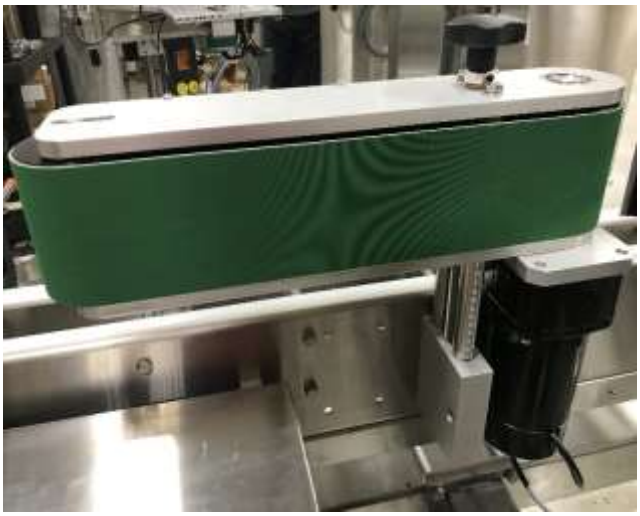
D21452-001

7.5 WRAP STATION ASSEMBLY

7.5.1 GENERAL INFORMATION

The wrap station is generally positioned near the labeler and is made up of a belt/roller assembly activated by a DC motor (with encoder), and AC motor, or servo motor coupled to a gear box and adjusting plate. The wrap station paired with a foam back plate assembly is used for cylindrical products to ensure impression 360 degrees around the container. There are two wrap styles depending on your specific application. A triangle wrap station (pictured on the left) is used primarily in “flag and wrap” applications where the wrap station is positioned after the top hold down. Our direct wrap or rectangle wrap station (pictured on the right) is positioned directly after the peel plate. This wrap station comes with a dc motor with an encoder to ensure absolute synchrony with the labeling head.





7.5.2 ADJUSTMENTS

Depending on the height of your product and placment of your label you may need to adjust the height of the wrap station. Adjusting the hieght on your wrap station is very simple. On a triangle wrap station rotate the handwheel counter clockwise or clockwise to raise and lower the wrap station.

On a rectangle wrap station locate the handle on the mount for the wrap station. loosen the ratchet handle, then simply turn the knob on top of the wrap station clockwise and counter clockwise to raise and lower the wrap station. This is the only adjustment for the rectangle wrap station on this mount.

The triangle wrap station has the ability to travel in and out. This adjustment is used in applications with skinnier products, or a cituation where you need to move the wrap out of the way. To achieve this adjustment loosen both ratchet handles und the wrap station. Tighten when in place.

⚠ **CAUTION** **Do not make this adjustment when the wrap station is running.**

In more difficult applications such as tapered containers you may need to adjust the tilt of the wrap station to match the products taper (If the taper is too great other methods are used). To adjust the tilt or to square the wrap station to the conveyor or container locate the 4 set screws on the wrap mount loosen the jam nuts and tighten or loosen the set screws to tilt the wrap station as desired.

ASSEMBLY TITLE: **WRAP ASSEMBLY**

GENERAL FUNCTION:

- The wrap station is used in conjunction with a single labeling head to apply a label around a cylindrical product. The wrap station length will vary with respect to the maximum length of label being applied.

SET UP AND ADJUSTMENTS:

- The wrap station is attached to mounting blocks which clamp to mounting rails affixed to the conveyor side plate. The wrap station can be moved by loosening the locking levers holding the wrap station in place. Position as needed and retighten locking levers.
- Set the speed of the wrap station with the manual speed control. The final wrap speed should be set from 1.5 to 2 times the rate of the conveyor. All line compensation systems will automatically adjust the labeling head speed with respect to the speed of the wrap station.

MAINTENANCE:

- Keep the wrap belt free of label adhesive and debris. This will prevent jamming and web tears.
- Periodically check belt tension. Use the setscrew adjustment at each end to control belt tension.

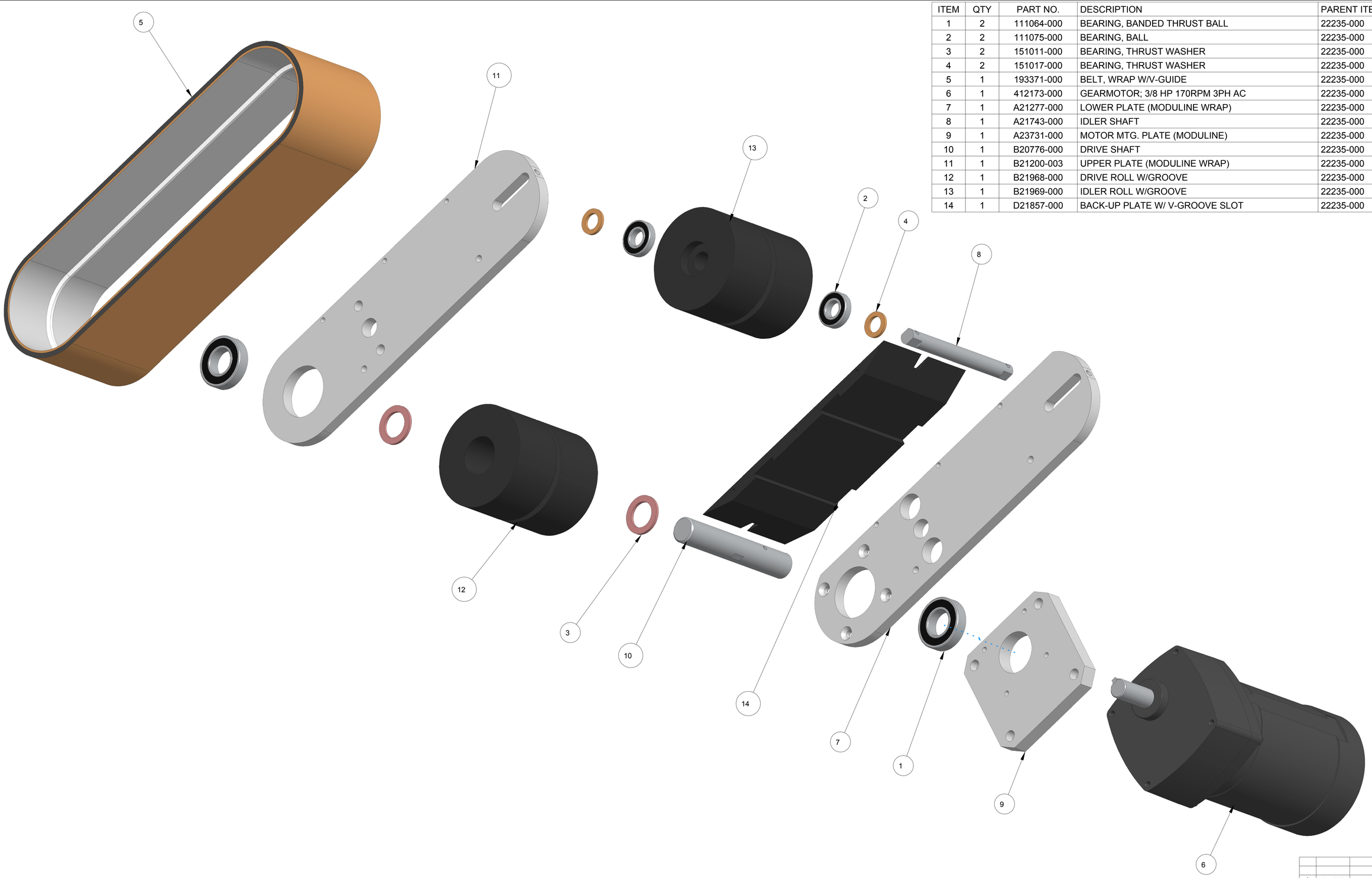
CAUTION:

- **Before performing any maintenance or cleaning make sure the system is powered down.**

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- Belt not fully engaged	- Increase tension on belt by adjusting tensioner set screws.
- Wrap station not feeding the label correctly	- Adjust wrap station inward.
- Speed set incorrectly	- Reset speed as necessary.
- Belt Jam	- Speed set incorrectly, reset speed as necessary.
- Tension too stiff	- Relieve tension.

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111064-000	BEARING, BANDED THRUST BALL	22235-000
2	2	111075-000	BEARING, BALL	22235-000
3	2	151011-000	BEARING, THRUST WASHER	22235-000
4	2	151017-000	BEARING, THRUST WASHER	22235-000
5	1	193371-000	BELT, WRAP W/V-GUIDE	22235-000
6	1	412173-000	GEARMOTOR; 3/8 HP 170RPM 3PH AC	22235-000
7	1	A21277-000	LOWER PLATE (MODULINE WRAP)	22235-000
8	1	A21743-000	IDLER SHAFT	22235-000
9	1	A23731-000	MOTOR MTG. PLATE (MODULINE)	22235-000
10	1	B20776-000	DRIVE SHAFT	22235-000
11	1	B21200-003	UPPER PLATE (MODULINE WRAP)	22235-000
12	1	B21968-000	DRIVE ROLL W/GROOVE	22235-000
13	1	B21969-000	IDLER ROLL W/GROOVE	22235-000
14	1	D21857-000	BACK-UP PLATE W/ V-GROOVE SLOT	22235-000



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A	Nov-19-20	NEW DRAWING	TJS

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

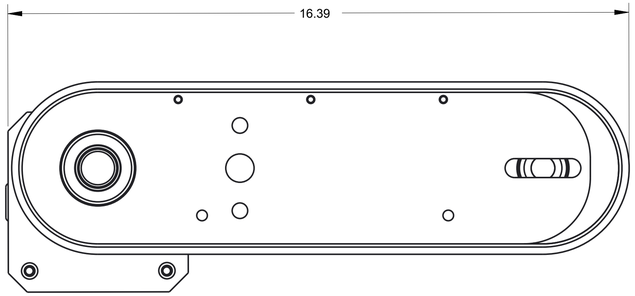
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	19/32
DATE	Nov-19-20
DRAWN BY	TJS

4 x 12 WRAP W/ V-GUIDE

MAT'L 22235-000

22235-000



REV	DATE	DESCRIPTION	BY
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XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

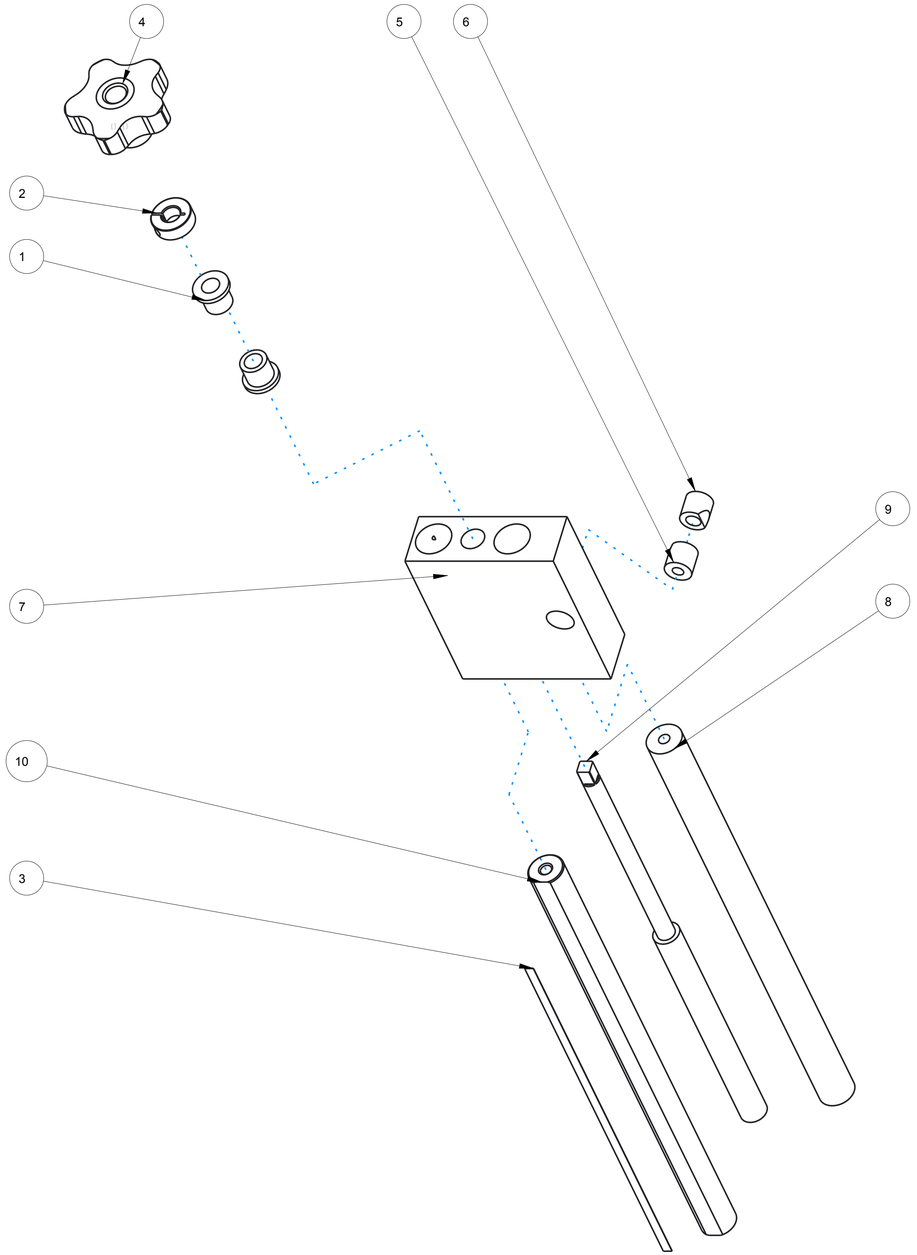
SCALE	1/2
DATE	Nov-19-20
DRAWN BY	TJS

4 x 12 WRAP W/ V-GUIDE

MAT'L: 22235-000

22235-000

ITEM	QTY	PART NO.	DESCRIPTION
1	2	131062-000	BEARING, FLANGE
2	1	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP
3	1	791914-002_12	MYLAR SCALE, QUADREL LOGO
4	1	801332-000	LOBE KNOB W/ ORANGE CENTER
5	1	A20688-000	LOCKING CLAMP
6	1	A20689-000	LOCKING CLAMP
7	1	A21276-000	WRAP MTG. BLOCK (MODULINE)
8	1	A21424-006	GUIDE ROD
9	1	A21437-000	ADJUSTING SCREW
10	1	A24246-009	CONNECTING ROD



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B	30-SEP-15	REMOVED 801079-000
A	2-4-10	NEW DRAWING

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X± .1
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XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

1/2
2-4-10
DC

MODULINE WRAP MOUNTING

22028-000

D23200-000

7.6 BACK UP PLATE ASSEMBLY

7.6.1 GENERAL INFORMATION

The back up plate assembly paired with the wrap station applies pressure to cylindrical containers to apply labels.

7.6.2 ADJUSTMENTS

The back up plate assembly has a variety of adjustments. To adjust vertically loosen the 2 ratchet handles in the main mounting blocks and pull up or push down. To make adjustments left or right loosen the 8 socket head bolts and slide the assembly along the black rail towards the infeed or outfeed of the conveyor.

Moving the back up plate assembly in and out is achieved by loosening the 2 ratchet handles on the top of the assembly and turning the knob clockwise or counter clockwise. To tilt the back up plate assembly to accommodate a tapered container loosen the 2 5/16-18 bolts at the end of the shafts tilt the plate as needed and retighten the bolts.

ASSEMBLY TITLE: **BACK-UP PLATE ASSEMBLY**

DRAWING NO: **D20733-001**
WRAP PLATE:

GENERAL FUNCTION:

The back up plate assembly is mounted opposite the wrap station. The assembly provides the pressure to rotate the product plus impression of the label to the product. The back up plate must cover the entire label width and length to ensure complete impression. Certain products may require the use of different size plates to impress into recessed areas of the product.

SET-UP AND ADJUSTMENTS:

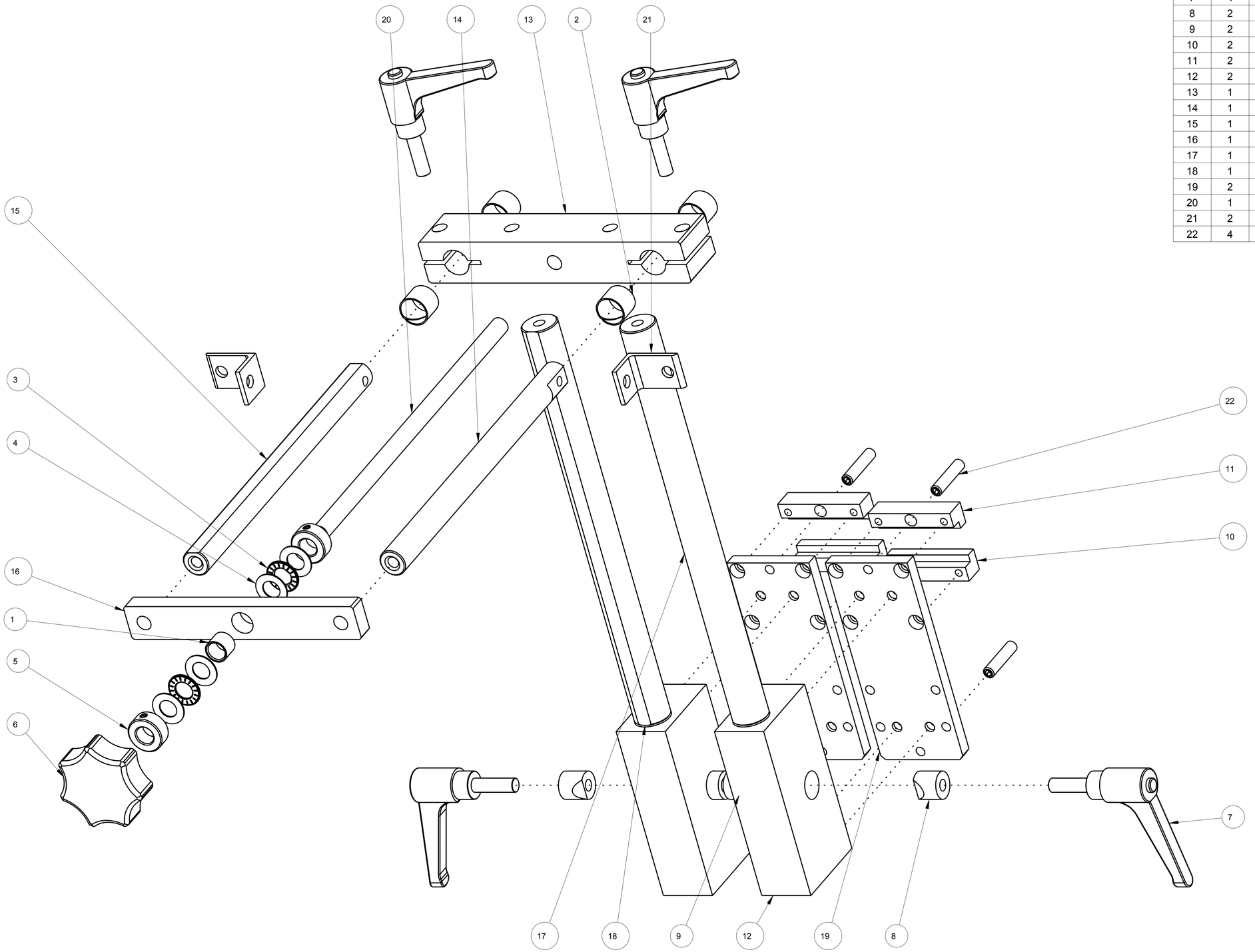
The only adjustment necessary is to ensure the horizontal pressure is sufficient to rotate the product completely and provide complete impression of the label. Place three products in wrap station area, one in the center of the wrap station, the other two at the in-feed and out-feed ends. Loosen knobs and slide backup plate close to the wrap station in order to apply light pressure to products. Retighten knobs when correct pressure is achieved.

MAINTENANCE:

- Clean all the parts that may acquire labels or glue residue.
- Exercise caution when removing bad labels from foam. Careless removal can result in torn foam which may leave the labeler inoperable until the roller is replaced.

TROUBLESHOOTING:

- none this section



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	141166-000	BEARING, SLEEVE	21485-82411
2	4	161031-000	BEARING, NYLINER TYPE 4	21485-82411
3	2	181079-000	BEARING, NEEDLE ROLLER	21485-82411
4	4	181080-000	BEARING, THRUST WASHER	21485-82411
5	2	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	21485-82411
6	1	801320-000	HAND KNOB	21485-82411
7	4	801884-000	ADJUSTABLE LEVER	21485-82411
8	2	A20688-000	LOCKING CLAMP	21485-82411
9	2	A20689-000	LOCKING CLAMP	21485-82411
10	2	A20844-000	GUIDE RAIL CLAMP BAR	21485-82411
11	2	A20845-000	GUIDE RAIL CLAMP BAR	21485-82411
12	2	A21691-000	MOUNTING BLOCK	21485-82411
13	1	A23474-000	TRAVEL PLATE	21485-82411
14	1	A23475-002	HORIZONTAL ADJUST ROD	21485-82411
15	1	A23476-002	HORIZONTAL ADJUST ROD W/ FLAT	21485-82411
16	1	A23477-000	ADJUSTMENT PLATE	21485-82411
17	1	A23478-003	VERTICAL ADJUSTMENT ROD	21485-82411
18	1	A23479-003	VERTICAL ADJUSTMENT ROD W/ FLAT	21485-82411
19	2	A23483-000	MOUNTING PLATE	21485-82411
20	1	A23490-000	THREADED ROD	21485-82411
21	2	A23853-000	BACK-UP MOUNTING ANGLE	21485-82411
22	4	SYE612	5/16-18 X 1-1/2 LG. SET SCREW	21485-82411

NOT SHOWN:

C20537-999 BACK UP PLATE

REV	DATE	DESCRIPTION	BY
A	11-26-13	NEW DRAWING	

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X± .1
XX± .01
XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

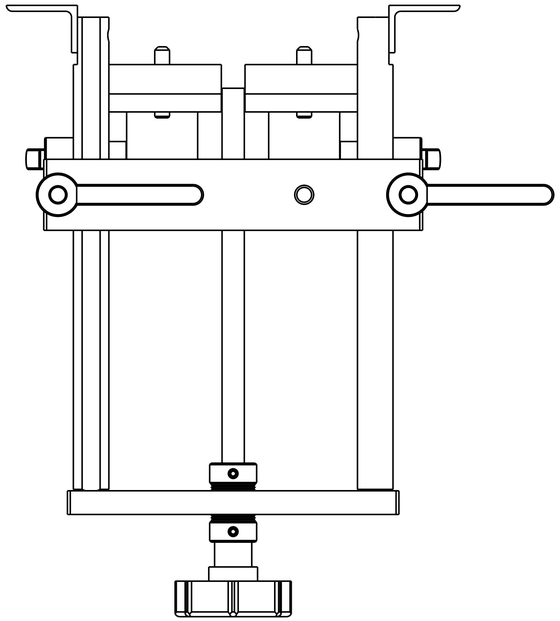
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

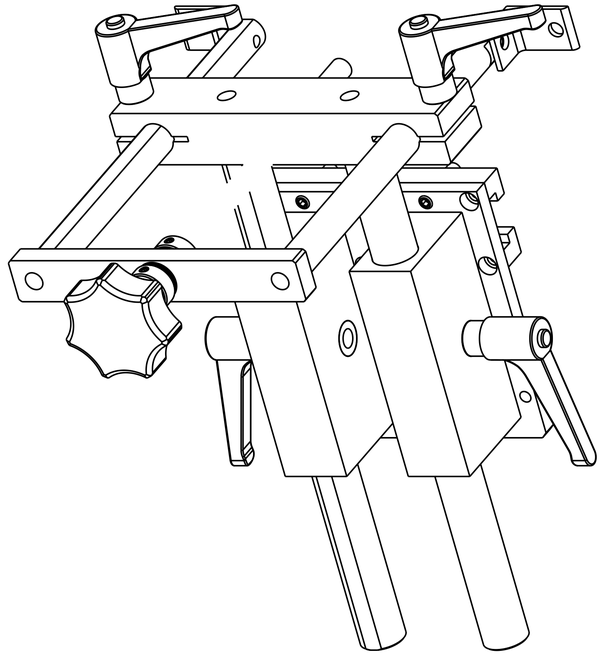
SCALE 3/4
DATE 11-26-13
DRAWN BY CRT

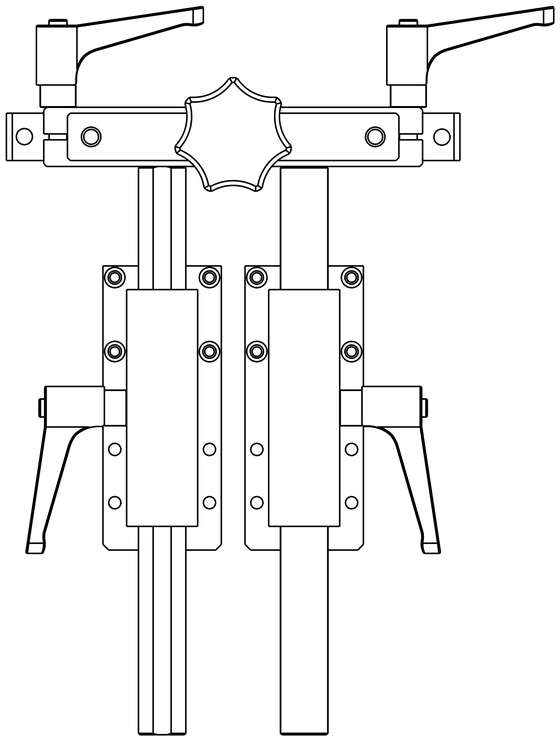
VERSALINE ADJUSTABLE BACK-UP PLATE

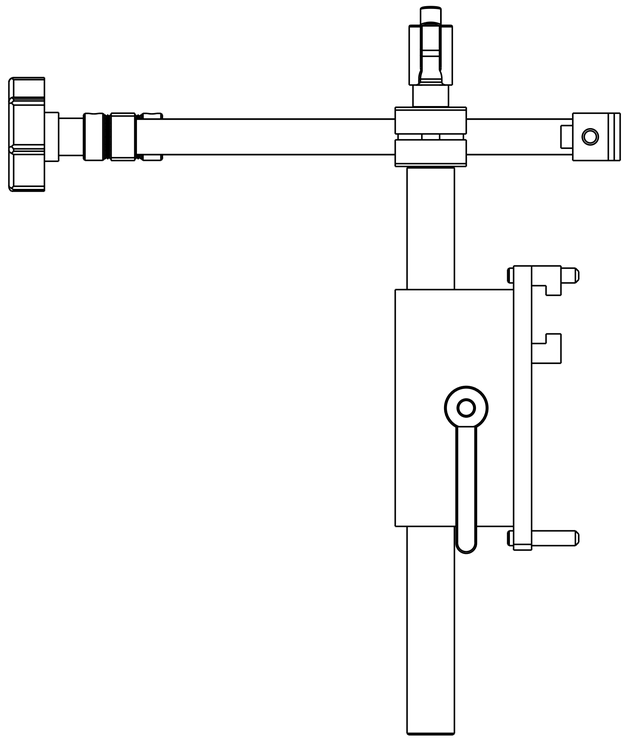
MAT'L 21485-82411

21485-82411









REV	DATE	DESCRIPTION	BY
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X± .1
.XX± .01
.XXX± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE	5/8
DATE	Nov-09-17
DRAWN BY	CRT

VERSALINE ADJUSTABLE BACK-UP PLATE

MAT'L 21485-82411

21485-82411

SHEET 2 OF 2

ASSEMBLY TITLE: **PRODUCT DETECT ASSEMBLY**

DRAWING NO: B21587-002

GENERAL FUNCTION:

The product detect signal is used to trigger the labeling cycle. Optimum placement and setup of the product detect sensor is critical to accurate and repeatable label placement.

SETUP AND ADJUSTMENTS:

Set the position of the product detect sensor at a point up-steam of the peel plate area. Set the vertical position of the sensor at a point on the product that provides a stable and repeatable sense area. Loosen the vertical adjustment knobs to move the assembly along the vertical axis.

Follow the manufactures data sheet for a particular set and calibration.

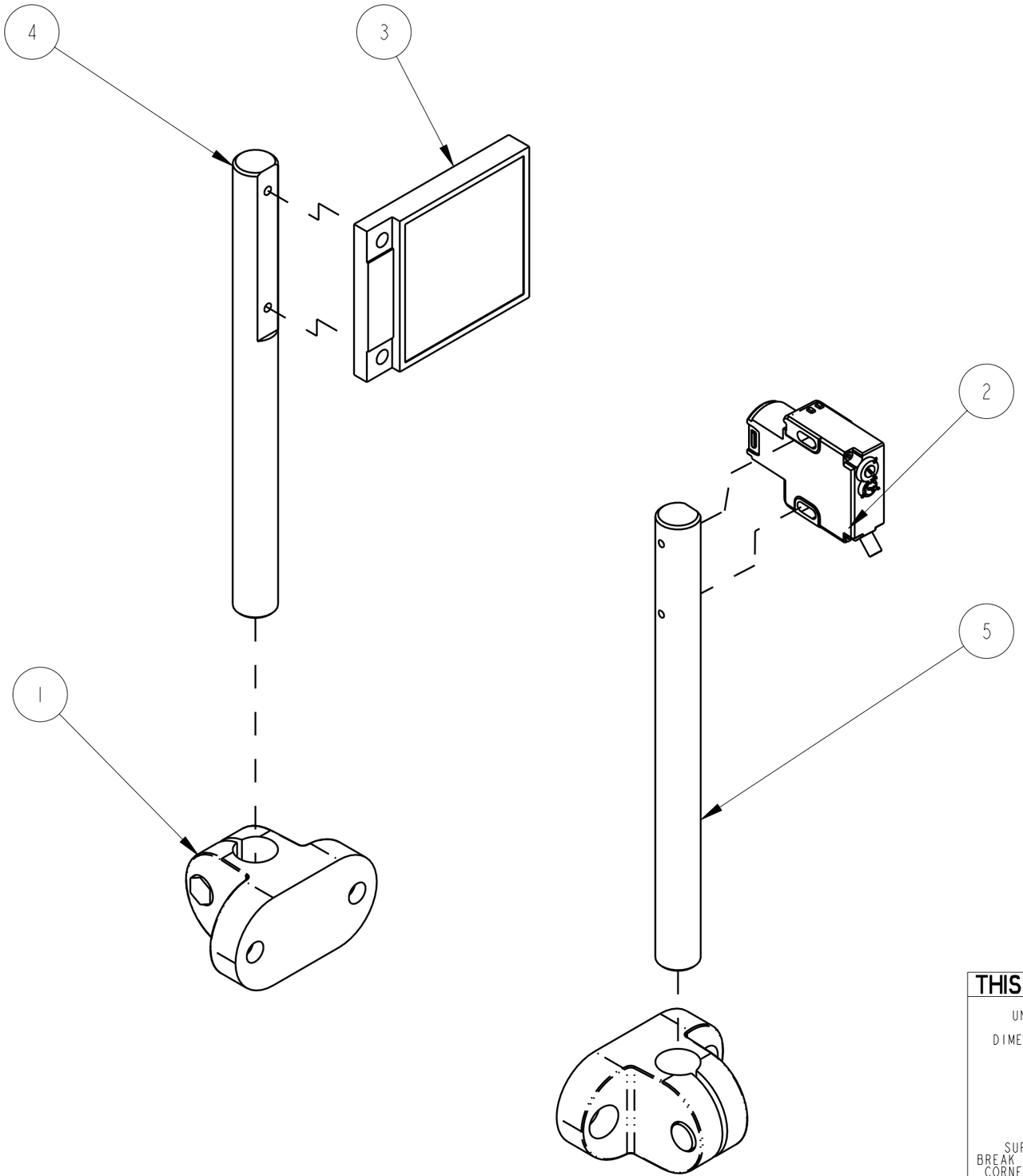
MAINTENANCE:

No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

CAUTION: Before performing any maintenance or cleaning make sure the system is powered down.

TROUBLESHOOTING:

PROBLEM:	**WHAT TO DO:**
- No label trigger or intermittent trigger.	- Product does not intersect sensor scan field. Adjust sensor position until sensor detects product. - Sensor gain set is too low. Increase gain until sensor indicator displays ON status(with product in sensor field).



ITEM	QTY	PART NO.	DESCRIPTION
1	2	092043-000	"T" CLAMP, 1/2 BORE
2	1	202192-002	SENSOR
3	1	203160-000	REFLECTOR
4	1	A24279-000	REFLECTOR MTG. SHAFT
5	1	A24278-001	SENSOR MTG. SHAFT

REV	DATE	DESCRIPTION
A	03/11/2008	NEW DRAWING

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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

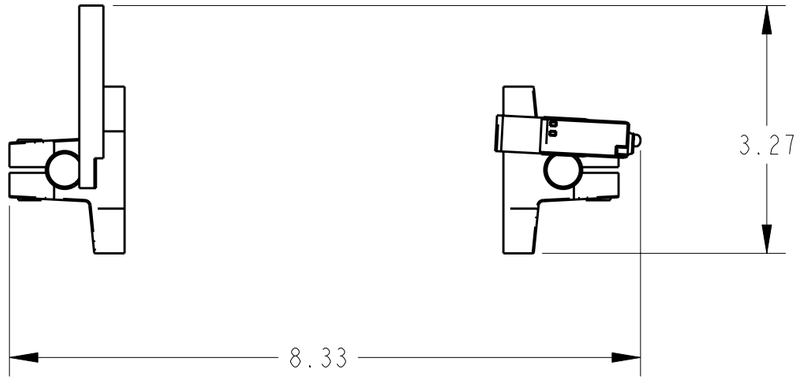
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(216) 975-0006

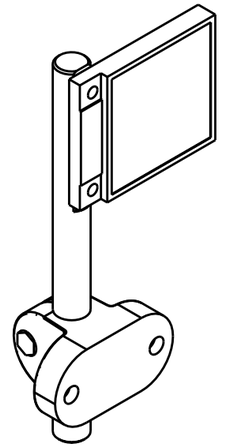
SCALE:	3/4
DATE:	03/11/2008
DRW BY:	sem
CHK BY:	
APPR BY:	

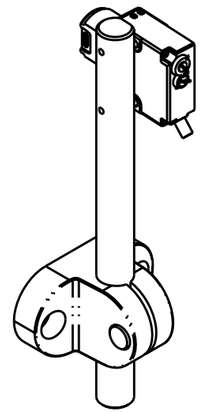
CONVEYOR MOUNTING PRODUCT DETECT

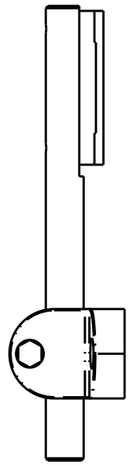
MAT'L

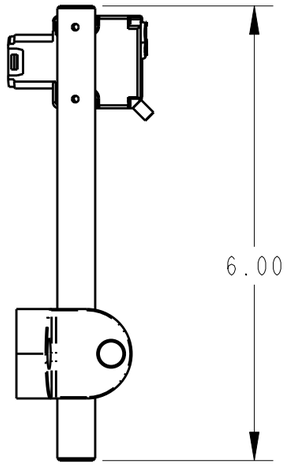
BOM 21679-005

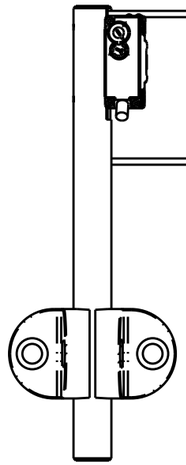












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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(216) 975-0006

SCALE:	1/2
DATE:	03/11/2008
DRW BY:	SEM
CHK BY:	
APPR BY:	

CONVEYOR MOUNTING PRODUCT DETECT

MAT'L

BOM 21679-005

KEYENCE

96M11227

Self-contained
Photoelectric Sensor

PZ-G Series
Instruction Manual

Read this manual thoroughly before using the product.
Keep this manual readily available for future reference.

■ Safety precautions

- Avoid running the PZ-G cable along with power and high voltage lines, as this may cause interference and/or permanent damage.
- When using a commercially available switching regulator, ground its chassis grounding and earth grounding terminals.
- Do not use in locations where direct ambient light or external light directly shines on the light receiving surface.
- With retro-reflective type sensors, when detecting highly reflective materials (such as mirrored surfaces), stabilization may be difficult. To correct this, change the angle of the sensor head, or adjust the sensitivity.
- Avoid using power which exceeds the specifications for ripple (10% max)
- Avoid using excess force when rotating the operation mode selector switch (Light-on, Dark-on) and the sensitivity adjustment trimmer.
- This product is just intended to detect the object(s). Do not use this product for the purpose to protect a human body or a part of human body.
- This product is not intended for use as explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.

Precautions on Regulations and Standards

■ UL Certificate

This product is an UL/C-UL Listed product.

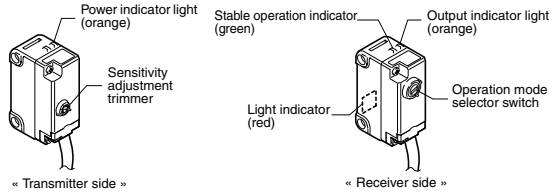
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

Be sure to consider the following specifications when using this product as an UL/C-UL Listed Product.

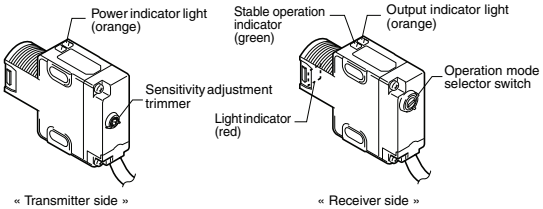
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

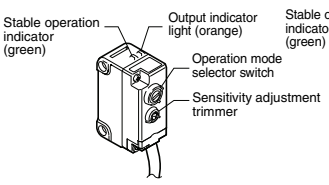
● **PZ-G5xN/G5xP**



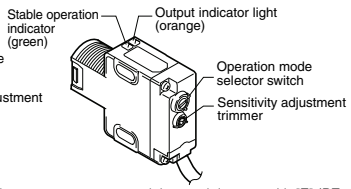
● **PZ-G5xB**



● **PZ-G4xN/G4xP/G10xN/ G10xP/G6xN/G6xP**



● **PZ-G4xB/G10xB/G6xB**

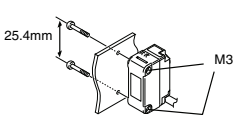


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

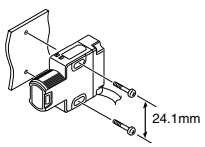
Mounting Method

■ Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less

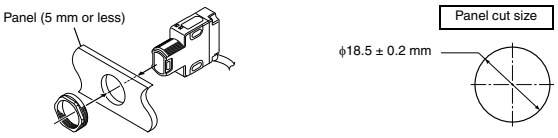


Tightening torque: 0.5 N·m or less



■ Mounting with the M18 nut (includes nut type)

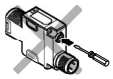
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque:1.0 N·m or less



Note

- Mount the M18 nut (supplied) straight in. If mounted at an angle it cannot be tightened properly.
- When tightening the M18 nut (supplied), firmly hold the main body down. The case of the main body may be damaged if held in place with a tool such as pliers.
- When tightening the M18 nut (supplied), if excess force is applied to the nut with a tool such as pliers, it may bend it out of shape. Therefore, do not apply excess force.

Sensitivity Adjustment Method

Caution ⚠	Avoid using excess force when rotating the sensitivity adjustment trimmer and operation mode selector switch as it may cause damage.	

■ Operation mode selector switch

With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.

LIGHT-ON setting

DARK-ON setting

■ Reflective type (PZ-G41/G42/G101/G102/G10R/G10G/G10B Series)

The following assumes LIGHT-ON (L) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Position target in place. Slowly rotate the sensitivity trimmer from the MIN position towards the MAX position until the (orange) output indicator turns on (Position "A"). If the output indicator does not turn off, even at MIN, then MIN is considered Position "A".	
②	Remove the target. Adjust the sensitivity trimmer from MIN towards MAX until the (orange) output indicator turns on (Position "B"). If the output indicator does not light up, the MAX position is considered Position "B".	
③	Adjust the sensitivity trimmer to the midpoint between "A" and "B". Verify that the (green) stable operation light turns on with and without a target in place.	

Reference To use the sensor in DARK-ON mode, adjust the mode selector switch to "D".

■ Thrubeam type (PZ-G51/G52 Series) / Retro-reflective type (PZ-G61/G62 Series)

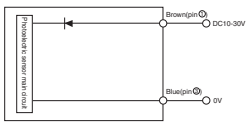
The following assumes DARK-ON (D) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Remove the target. Adjust the sensitivity trimmer to MAX. Mount the sensor heads in place so the (orange) output indicator turns off (on thrubeam models, the red light on the receiver face will turn on)	
②	Position target in place. Verify that the orange output indicator turns on (on thrubeam models, the red light on the receiver face will turn off). Adjust sensitivity lower if the output indicator does not turn on (or if the red light on the receiver face does not turn off on thrubeam models)	

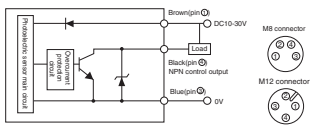
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

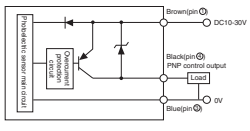
● **PZ-G5xN/G5xP/G5xB (Transmitter side)**



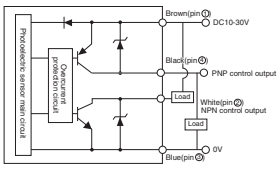
● **PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN**



● **PZ-G5xP (Receiver side)/ G4xP/G10xP/G6xP**



● **PZ-G5xB (Receiver side)/ G4xB/G10xB/G6xB**



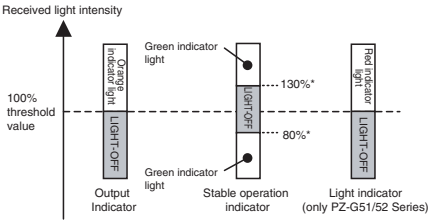
* The pin numbers represent those of the connector type / pigtail quick disconnect type. The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

PZ-GxxCN/GxxCP..... M8 connector
PZ-GxxCB/GxxEN/GxxEP..... M12 connector

■ Indicators

The following describes each ON/OFF condition of indicator when LIGHT-ON (L) is set.

Reference When the DARK-ON (D) is set, the output indicator ON/OFF will reverse.



* For PZ-G62, the upper limit is 107% and the lower limit is 93%.

If the stable operation indicator turns off during operation, readjust or fine-adjust the sensitivity.

■ Mutual interference

- For reflective type / retro-reflective type sensors, mutual interference protection can be set for up to 2 units. However, when the sensors are mounted facing each other, change the angle of the sensor head to prevent light being emitted into each unit.(The mark detection type does not include the mutual interference function.)
- Mutual interference prevention can be set when mounting a polarizing filter attachment (optional with thrubeam type sensors) (If operation is unstable even after mounting the polarizing filter, slightly lower the sensitivity.)
- For more detailed information about mutual interference or attachment, see the PZ-G Series catalog or contact your nearest KEYENCE office.

Specifications

Type			Thrubeam		Reflective				Retro-reflective		Mark detection		
Configuration	Cable shape	Output mode	Normal	High-power	Diffuse-reflective Long-detecting distance	Diffuse-reflective Short-detecting distance	Narrow-view reflective	Definite reflective	Long detecting distance (with P.R.O. function)	Transparent target detection (without P.R.O. function)	Red	Green	Blue
Rectangular	Cable	NPN	PZ-G51N	PZ-G52N	PZ-G41N	PZ-G42N	PZ-G101N	PZ-G102N	PZ-G61N	PZ-G62N	-		
		PNP	PZ-G51P	PZ-G52P	PZ-G41P	PZ-G42P	PZ-G101P	PZ-G102P	PZ-G61P	PZ-G62P			
	M8 connector	NPN	PZ-G51CN	PZ-G52CN	PZ-G41CN	PZ-G42CN	PZ-G101CN	PZ-G102CN	PZ-G61CN	PZ-G62CN	PZ-G10RCN	PZ-G10GCN	PZ-G10BCN
		PNP	PZ-G51CP	PZ-G52CP	PZ-G41CP	PZ-G42CP	PZ-G101CP	PZ-G102CP	PZ-G61CP	PZ-G62CP	PZ-G10RCP	PZ-G10GCP	PZ-G10BCP
	M12 pigtail quick disconnect	NPN	PZ-G51EN	PZ-G52EN	PZ-G41EN	PZ-G42EN	PZ-G101EN	PZ-G102EN	PZ-G61EN	PZ-G62EN	-		
		PNP	PZ-G51EP	PZ-G52EP	PZ-G41EP	PZ-G42EP	PZ-G101EP	PZ-G102EP	PZ-G61EP	PZ-G62EP			
Nut	Cable	Bipolar (NPN+PNP)	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B			
	M12 connector		PZ-G51CB	PZ-G52CB	PZ-G41CB	PZ-G42CB	PZ-G101CB	PZ-G102CB	PZ-G61CB	PZ-G62CB			
Detecting distance*1			20 m	40 m	1 m (30 × 30 cm white mat paper)	300 mm (10 × 10 cm white mat paper)	200 mm	5 to 45 mm	0.1 to 4.2 m (when R-2L reflector is used)	0.1 to 1 m (when R-2L reflector is used)	8 to 15 mm		
Spot diameter			-	-	-	-	Approx. ϕ 5 mm (when the detecting distance is 100 mm)	Approx. ϕ 2 mm (when the detecting distance is 40 mm)	-	-	Approx. 1.5 × 4 mm (when the detecting distance is 10 mm)		
Light source (LED)			Red LED	Infrared LED × 2	Red LED					Infrared LED	Red LED	Green LED	Blue LED
Sensitivity adjustment			1-turn trimmer (230 degrees)										
Response time			500 µs								50 µs		
Operation mode			LIGHT-ON/DARK-ON, trimmer-selectable										
Indicator (LED)			Transmitter: power (orange) Receiver: output (orange), stable operation (green), light (red)		Output (orange), stable operation (green)								
Control output			Open-collector 100 mA max. (30 V max.), Residual voltage 1 V max.										
Protection circuit			Reverse-polarity protection, over-current protection, output surge absorber										
Ratings	Power voltage		10 to 30 VDC, Ripple (P-P): ±10% max, Class 2.										
	Current consumption		Transmitter: 20 mA max. Receiver: 28 mA max.	Transmitter: 25 mA max. Receiver: 28 mA max.	34 mA max.								
Environmental resistance	Enclosure rating		IEC,JEM: IP67 / NEMA: 4X,6,12 / DIN: IP69K										
	Ambient light		Incandescent lamp: 5,000 (lx) max, Sunlight: 20,000 (lx) max.										
	Ambient temperature		-20 °C to +55°C (No freezing)										
	Relative humidity		35 to 85 % RH (No condensation)										
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions, 2 hours each										
	Shock resistance		1000 m/s^2 in X, Y, Z directions, 6 times each										
Interference prevention			2 units (when polarizing filter attachment is used)		2 units (with the automatic different cycle function)						-		
Material			Case, M18 nut (nut type only): reinforced glass polybutylene terephthalate (PBT), Trimmer: reinforced glass polyamide (PA) Cable (Cable type / pigtail quick disconnect type only): Polyvinyl chloride (PVC), Screw (Case connection): Steel, zinc-nickel plated, Packing (Case connection): Nitrile-butadiene rubber (NBR) Connector (pigtail quick disconnect type only): Brass-nickel plated, Polybutyleneterephtalate (PBT), Polyvinyl chloride (PVC)										
	Lens cover		Polyarylate (PAR)						Acrylic plastic (PMMA)	Polyarylate (PAR)			
Tightening torque			Rectangular type (side screw part): 0.5 N·m max. Nut type (front M18 part): 1.0 N·m max., (side slot part): 0.5 N·m max.										
Accessory*2			Instruction manual, M18 nut x 2 (nut thrubeam type), M18 nut x 1 (other nut types)										
Weight			Rectangular cable type: Approx. 60 g (Approx. 50 g for thrubeam transmitter), Rectangular M8 connector type: Approx 10 g, rectangular M12 pigtail quick disconnect type: Approx. 30 g Nut type cable type: Approx. 65 g (Approx. 55 g for thrubeam transmitter), Nut type M12 connector type: Approx 15 g										

*1 The detection distance is measured with the maximum sensitivity.
*2 The cable for the connector type / pigtail quick disconnect type is sold separately. The reflector for the retro-reflective type is sold separately.

WARRANTY

KEYENCE products are strictly factory-inspected. However, in the event of a failure, contact your nearest KEYENCE office with details of the failure.

1. WARRANTY PERIOD

The warranty period shall be for one year from the date that the product has been delivered to the location specified by the purchaser.

2. WARRANTY SCOPE

(1) If a failure attributable to KEYENCE occurs within the abovementioned warranty period, we will repair the product, free of charge. However, the following cases shall be excluded from the warranty scope.
- Any failure resulting from improper conditions, improper environments, improper handling, or improper usage other than described in the instruction manual, the user's manual, or the specifications specifically arranged between the purchaser and KEYENCE.
- Any failure resulting from factors other than a defect of our product, such as the purchaser's equipment or the design of the purchaser's software.
- Any failure resulting from modifications or repairs carried out by any person other than KEYENCE staff.
- Any failure that can certainly be prevented when the expendable part(s) is maintained or replaced correctly as described in the instruction manual, the user's manual, etc.
- Any failure caused by a factor that cannot be foreseen at a scientific/technical level at the time when the product has been shipped from KEYENCE.
- Any disaster such as fire, earthquake, and flood, or any other external factor, such as abnormal voltage, for which we are not liable.

(2) The warranty scope is limited to the extent set forth in item (1), and KEYENCE assumes no liability for any purchaser's secondary damage (damage of equipment, loss of opportunities, loss of profits, etc.) or any other damage resulting from a failure of our product.

3. PRODUCT APPLICABILITY

KEYENCE products are designed and manufactured as general-purpose products for general industries.

Therefore, our products are not intended for the applications below and are not applicable to them. If, however, the purchaser consults with us in advance regarding the employment of our product, understands the specifications, ratings, and performance of the product on their own responsibility, and takes necessary safety measures, the product may be applied. In this case, the warranty scope shall be the same as above.
- Facilities where the product may greatly affect human life or property, such as nuclear power plants, aviation, railroads, ships, motor vehicles, or medical equipment
- Public utilities such as electricity, gas, or water services
- Usage outdoors, under similar conditions or in similar environments

E 1040-1

KEYENCE CORPORATION

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Osaka, 533-8555, Japan
PHONE: +81-6-6379-2211 www.keyence.com

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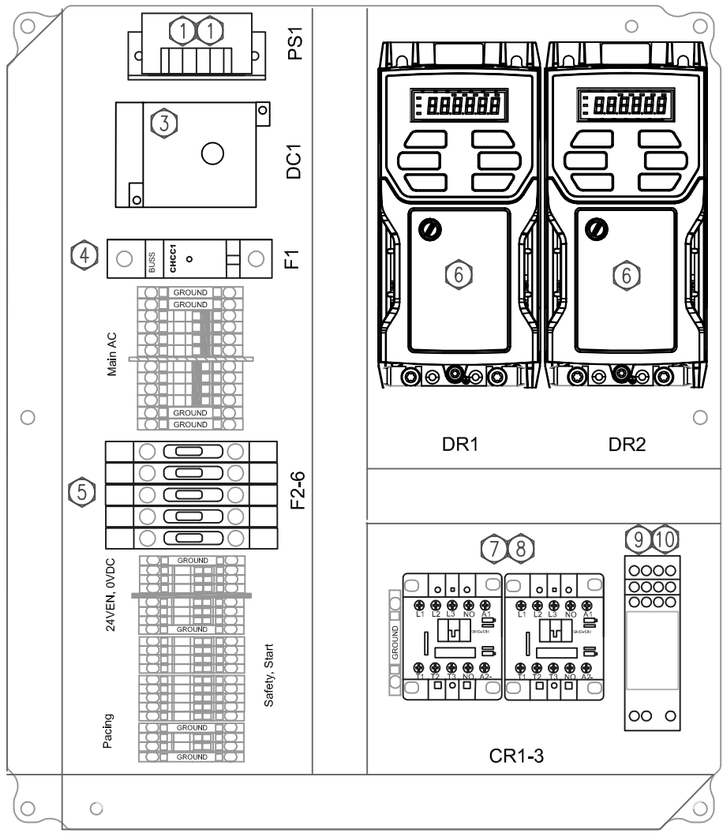
Printed in Japan


Electronics



--	222436-000	1	Enclosure, 16x14x9
--	222437-000	1	Panel, 16P14
11	411459-000	1	DC Drive, Door Mounted
10	201744-000	1	Relay, 24V, 4 Pole
9	251070-000	1	Relay Base
8	202607-000	2	Contactor Surge Suppressor
7	202604-000	2	Contactor, 24V, 12A
6	412448-002	2	AC Drive, Nidec C200, .5 HP
5	251788-001	5	Fuse Holder, 1.25x.25
4	241285-001	1	Fuse Holder, CC
3	272117-002	1	Disconnect, 25A Base Mount
2	A23200-000	1	Power Supply Mounting Bracket
1	211536-000	1	Power Supply, 24V, 25W

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
.X ± .XTOL
.XX ± .XXTOL
.XXX ± .XXXTOL
ANGLES ± ANGTOL
SURFACE FINISH FINISHTOL
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL
LABELING SYSTEMS
7670 Jenther Drive
Mentor, Ohio 44060
(440) 602-4700

SCALE: 1:1
DATE: 27JAN2020
DRAWN BY: CAV
REVISED:

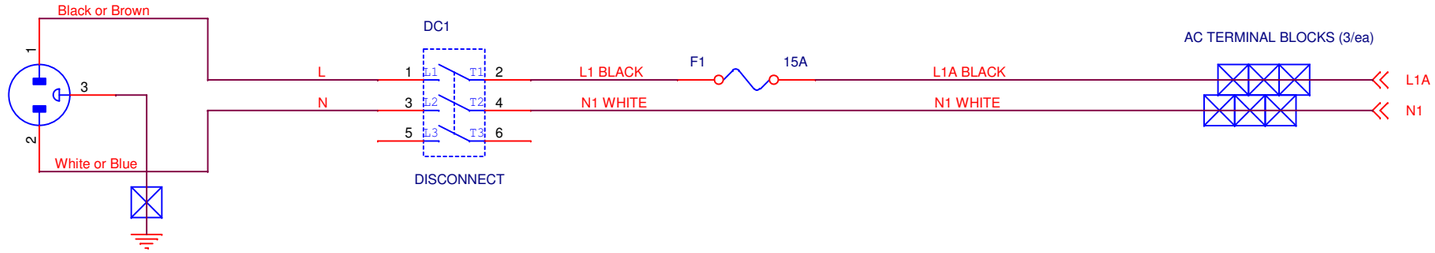
Econoline Drive Enclosure

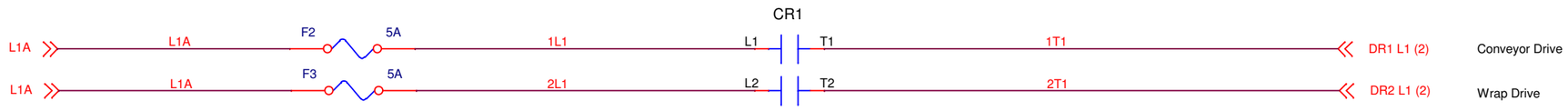
MAT'L 222437-000

B22268-011P

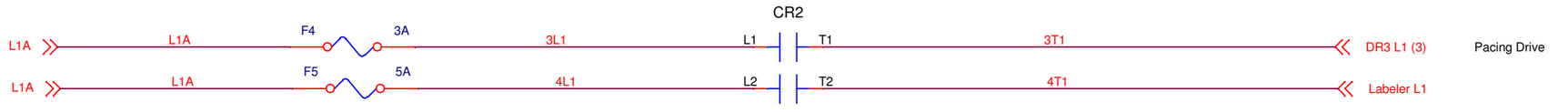
Main Power, Safety Page 1

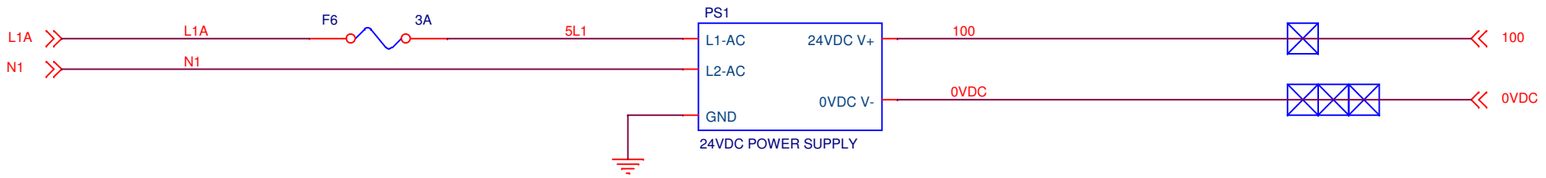
120V, 1PH, 15A
3-14 Cord

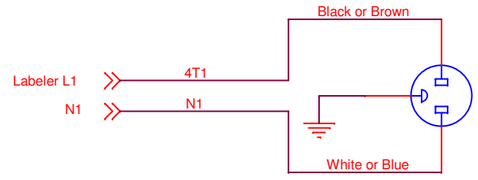




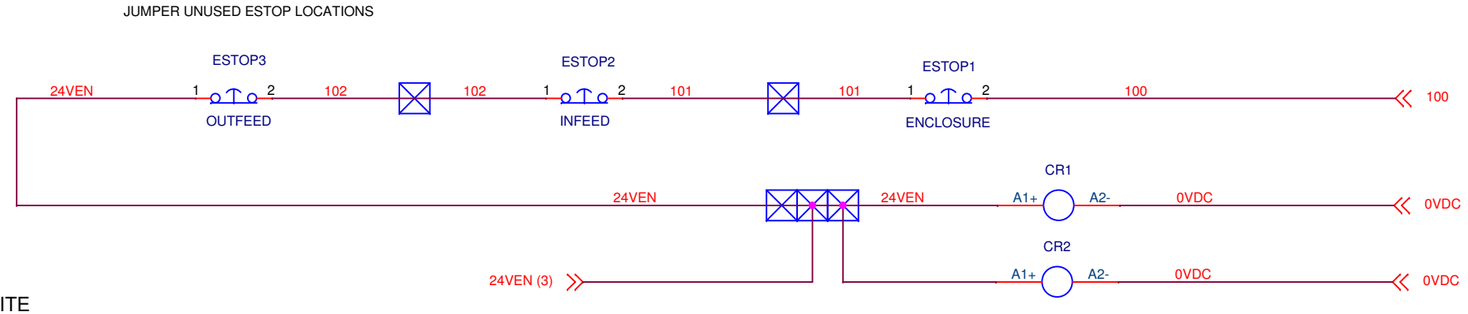
AC Wiring:
L: 14AWG Black
N: 14AWG White







Labeler Power
3-18 Cord



WIRING (UNLESS NOTED):
AC WIRING 14AWG: L: BLACK N: WHITE
+VDC/SIGNALS: 18AWG BLUE
0VDC: 18AWG WHITE/BLUE
GROUND: 14AWG GREEN/YELLOW

COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

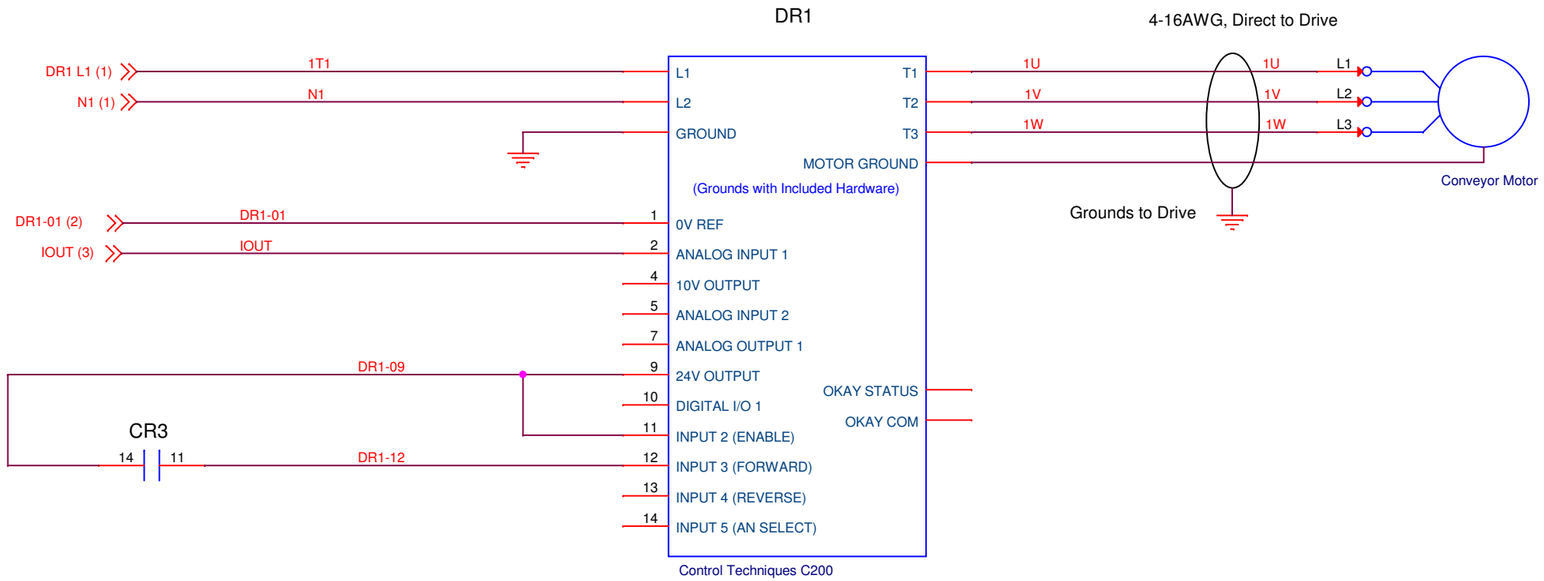
REV	DESCRIPTION	BY	DATE
	Release	CAV	04FEB2020

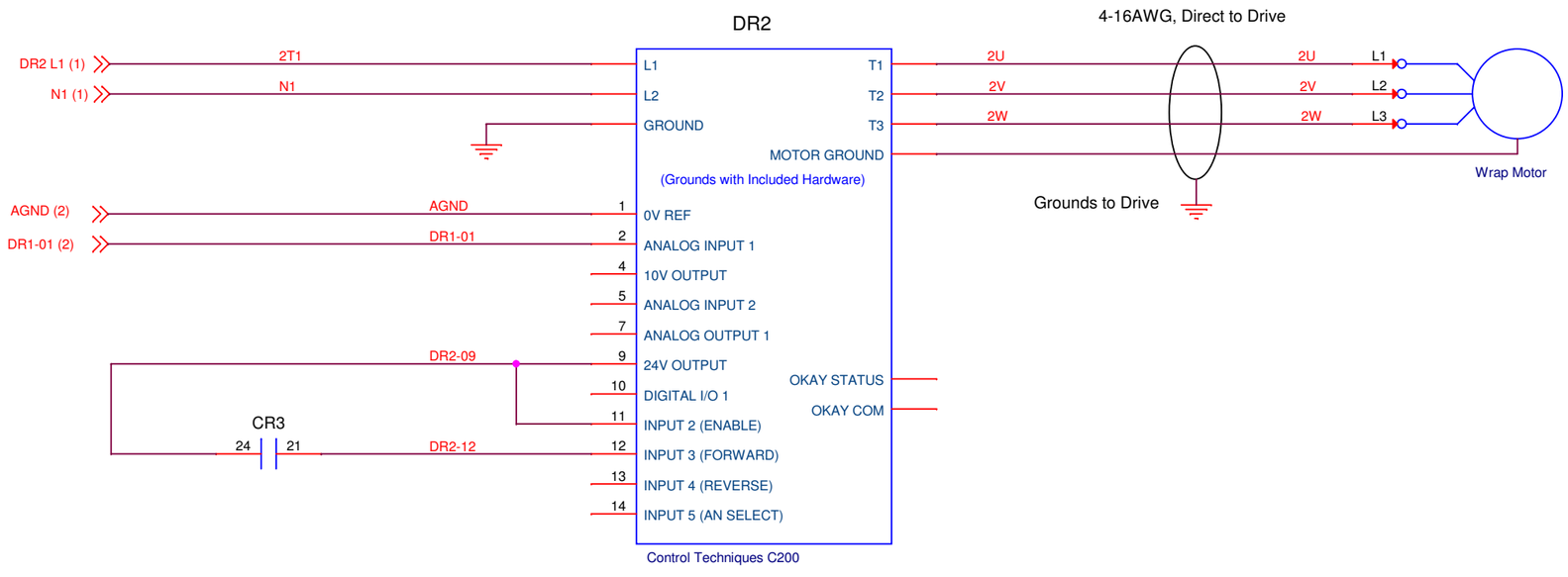
Title: MAIN POWER, SAFETY

Schematic # SB22268-011 Rev -

Date: Tuesday, February 04, 2020 Sheet 1 of 3

Drives: Conveyor Wrap Page 2





COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
	Release	CAV	04FEB2020

Title: CONVEYOR, WRAP

Schematic #: SB22268-011

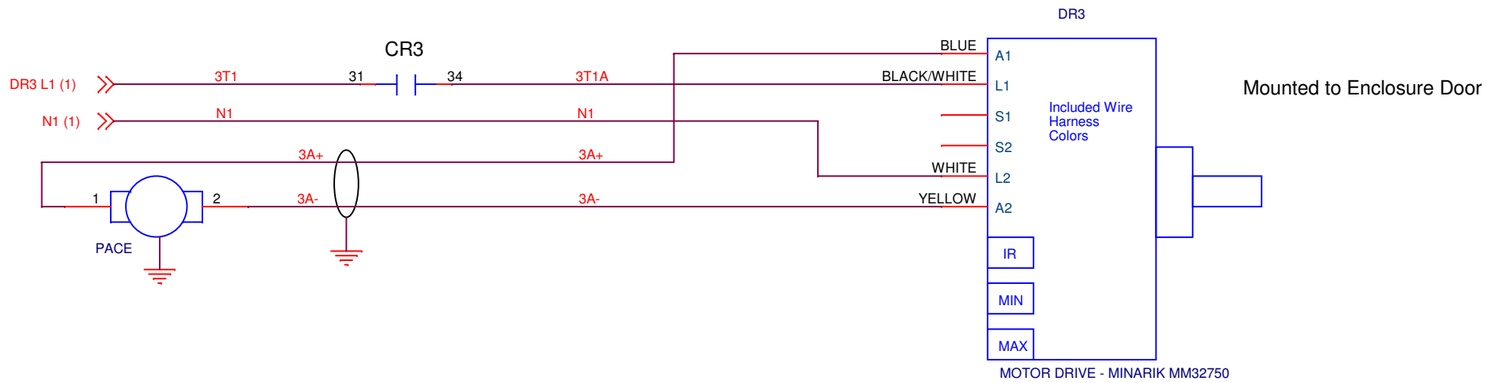
Rev: -

Date: Tuesday, February 04, 2020

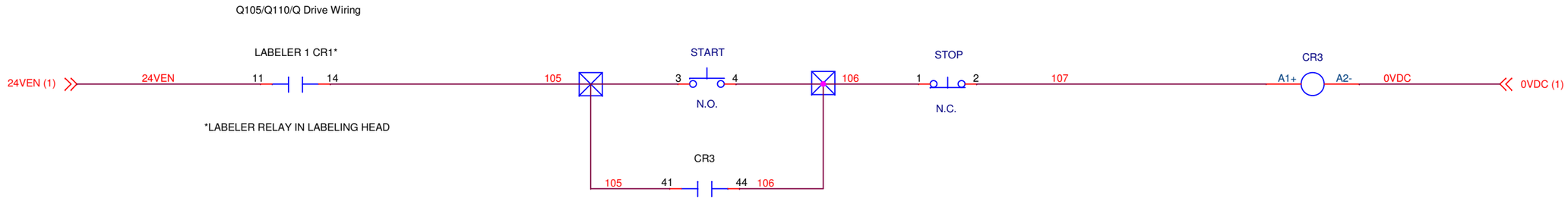
Sheet 2 of 3

Pacing,
Start
Page 3

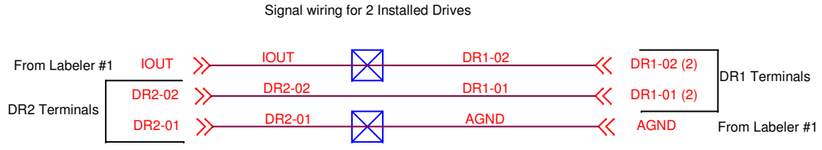
PACING DRIVE



SYSTEM START CIRCUIT



ANALOG FROM LABELER



4-20ma SIGNAL WIRING FROM LABELER

COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060
Drawn By: CAV

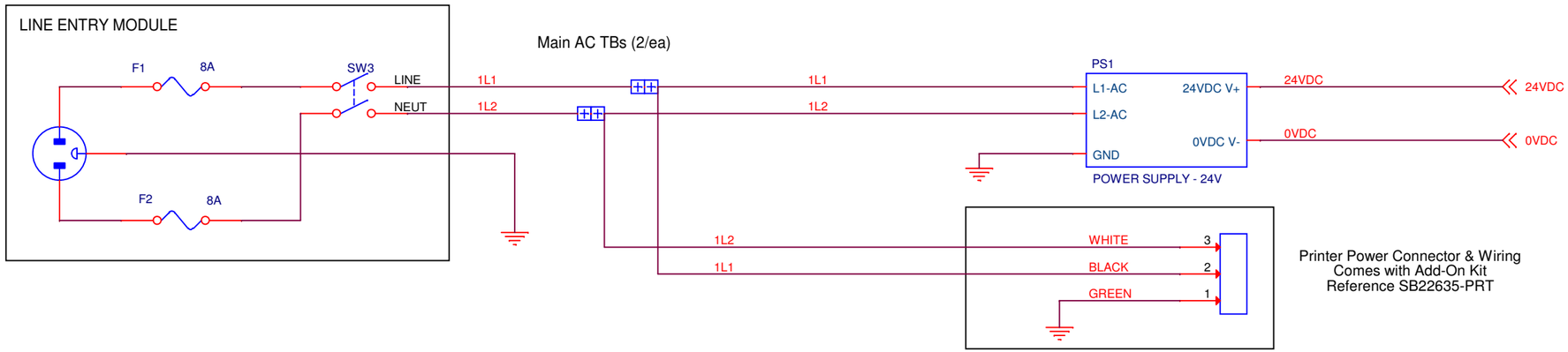
REV	DESCRIPTION	BY	DATE
	Release	CAV	04FEB2020

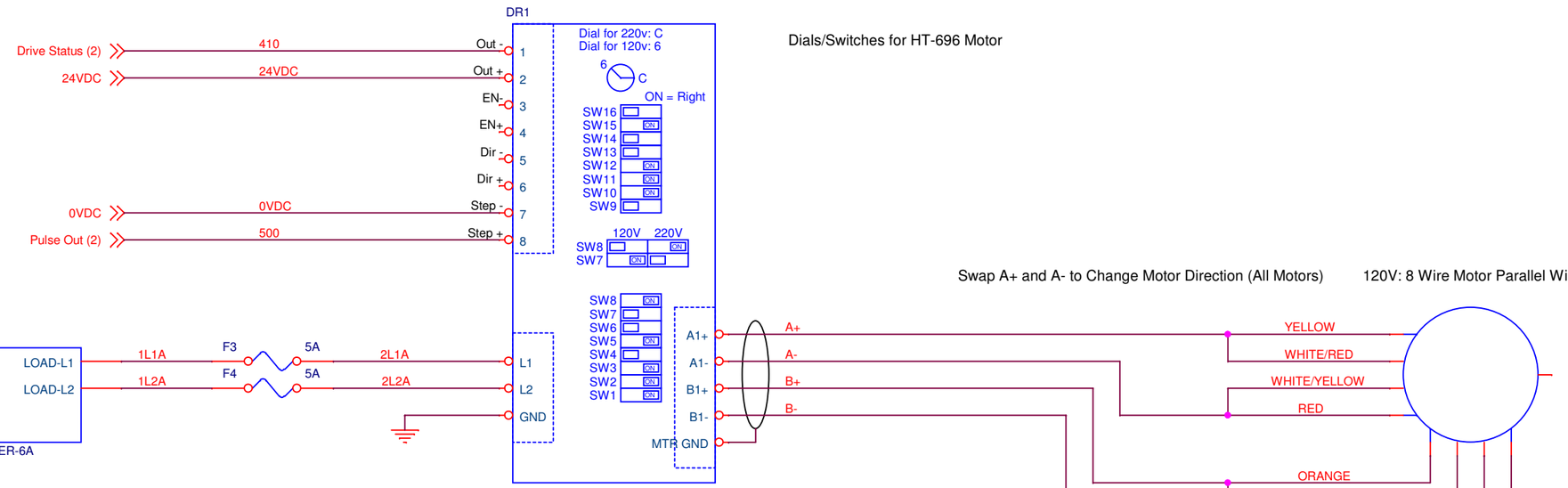
Title: PACING, SYSTEM START

Schematic # SB22268-011 Rev -

Date: Tuesday, February 04, 2020 Sheet 3 of 3

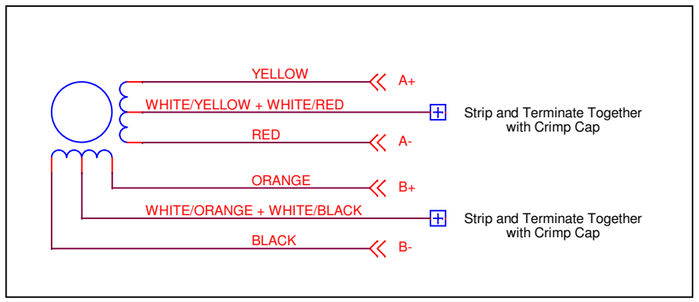
Power, Stepper Drive Page 1



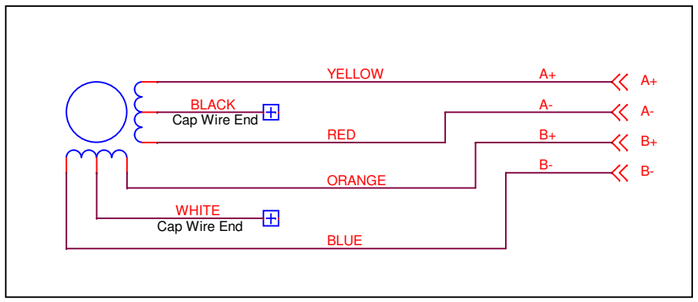


Dials/Switches for HT-696 Motor

220V: 8 Wire Motor Series Wiring



120V/220V: 6 Wire Motor Connection



AC Wiring: 18AWG Black

VDC/Signals: 20AWG Blue
0VDC: 20AWG White/Blue

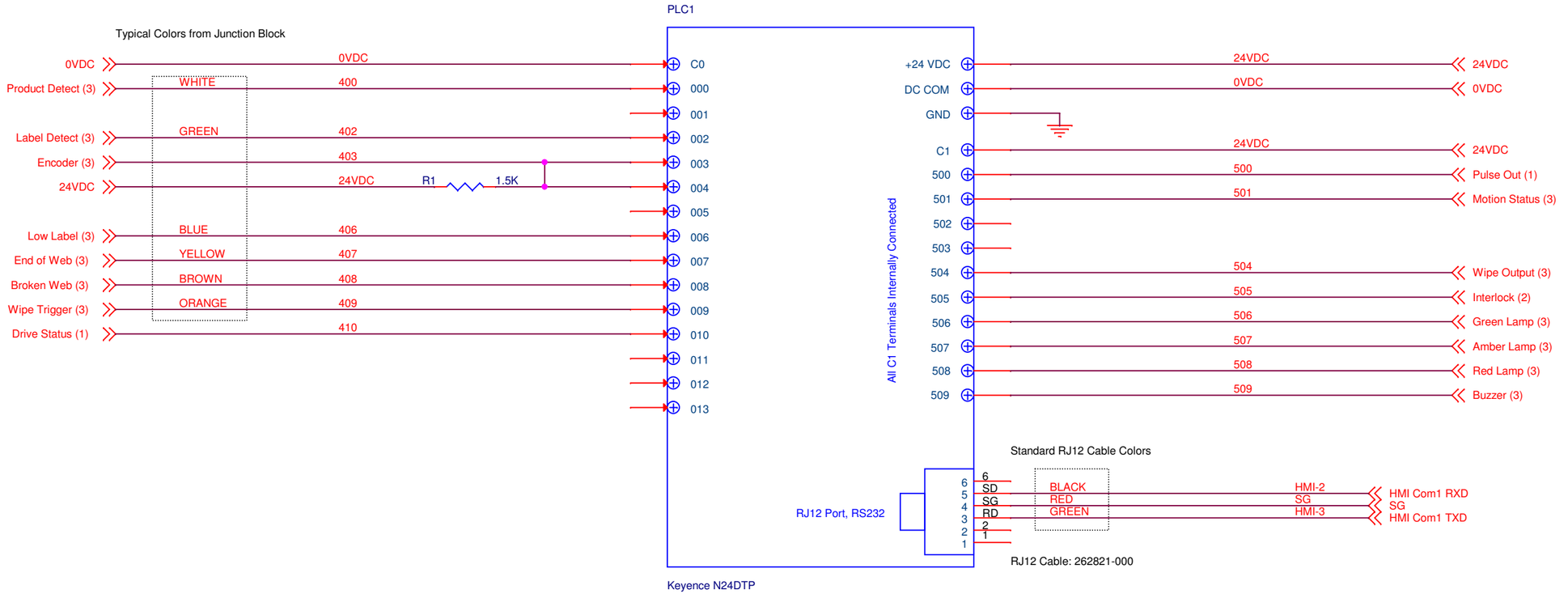
QUADREL LABELING SYSTEMS			
7670 JENTHER DR. MENTOR, OH 44060			
Drawn By: CAV			
REV	DESCRIPTION	BY	DATE
A	Wipe Option	CAV	07OCT2024
-	Release	CAV	29AUG2024

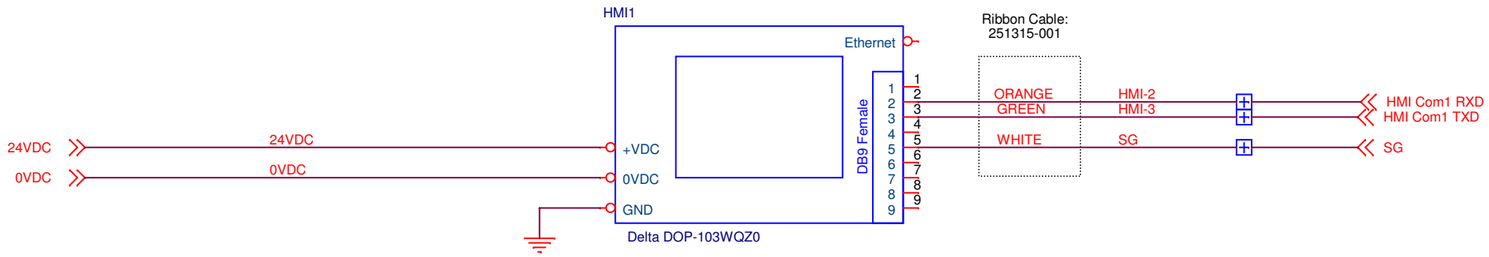
Title: POWER, DRIVE

Schematic # SB22635-Q-002 Rev A

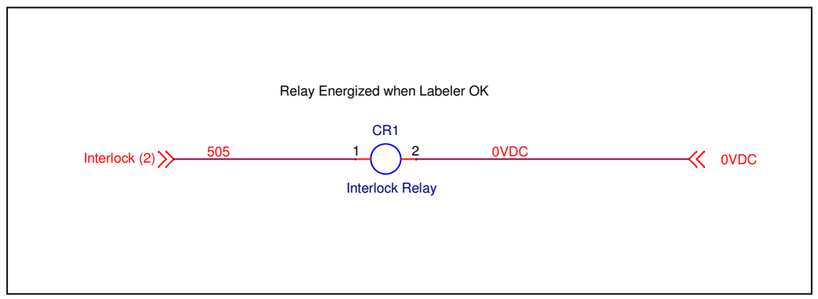
Date: Monday, October 07, 2024 Sheet 01 of 03

PLC & HMI
Page 2





Interlock Relay



QUADREL LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Wipe Option	CAV	07OCT2024
-	Release	CAV	29AUG2024

Title: PLC, HMI

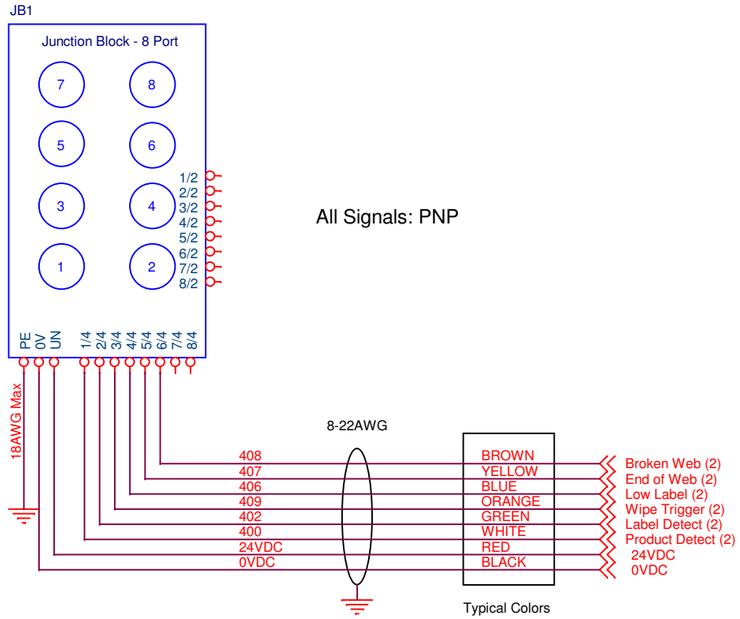
Schematic #: SB22635-Q-002

Rev: A

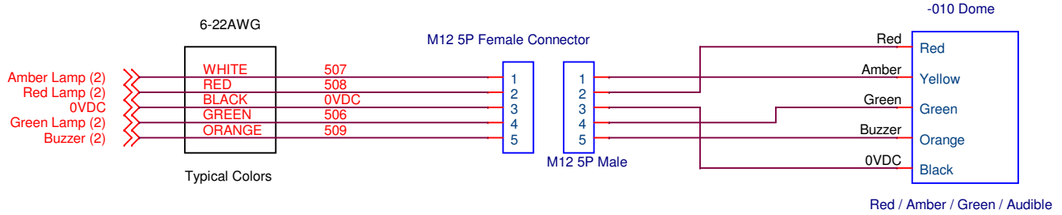
Date: Monday, October 07, 2024

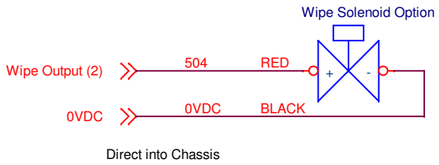
Sheet 02 of 03

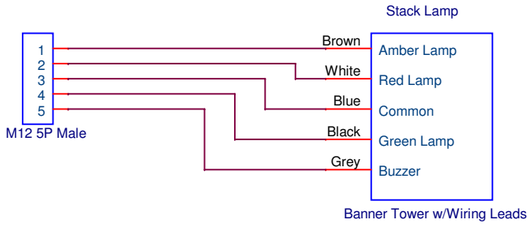
Sensors
Page 3

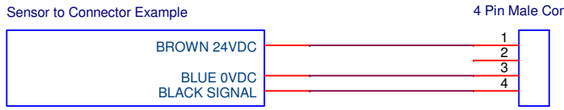


All Signals: PNP

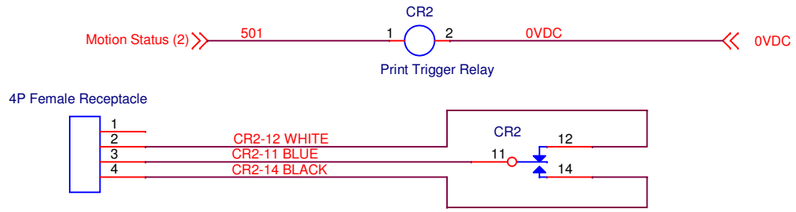






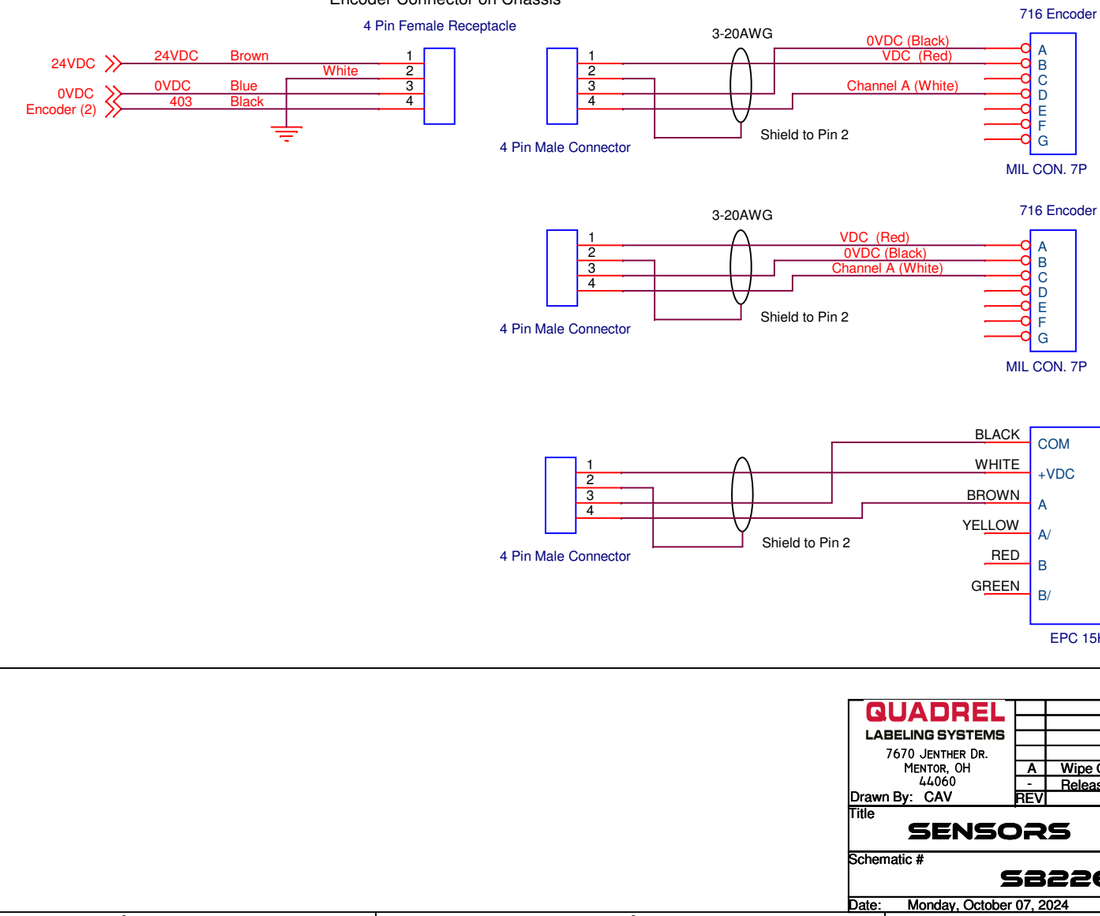


Standard Printer Connection
CR2 SPDT Relay and Receptacle part of 22635-PRINT Kit
Reference SB22635-PRT



Print Trigger Connector on Chassis
Pins 2 + 3: Closes when Labeler Stops Feeding, Intermittent Use
Pins 3 + 4: Closes when Labeler Starts Feeding, Continuous Use

Encoder Wiring



QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060			
	A	Wipe Option	CAV	07OCT2024
	-	Release	CAV	29AUG2024
Drawn By: CAV	REV	DESCRIPTION	BY	DATE

Title: SENSORS

Schematic # SB22635-Q-002 Rev A

Date: Monday, October 07, 2024 Sheet 03 of 03

9 MAINTENANCE

9.1 GENERAL INFORMATION

This labeler has been designed with the minimal maintenance requirement possible. There are however some things to take into consideration.

The system is built to perform in humid conditions, but **must not be pressure washed**. In case of wash down conditions, it is recommended to cover each labeling head with a plastic tarp.

For the overall cleaning, it is recommended to use compressed air and clean, damp wipes.

Always turn off the system before proceeding with cleaning and maintenance.

The following section explains the preventive maintenance for each section

After every 100 hours of operation, a visual inspection of the system should be done and where it is necessary, lubricate and cleaning should be performed.

⚠ **CAUTION** **WEAR PROTECTIVE EYEWEAR when performing any maintenance on this equipment.**

⚠ **CAUTION** **To reduce risk of fire, electrocution or other personal Injury when operating or maintaning the labeling head, follow basic safety precaution, including the following:**

DO NOT perform any servicing or maintenance with the power ON.

Always disconnect the electrical plug from the wall socket

Make sure that the power is OFF or that the available E-stop buttons have been activated.

LABELING HEAD ASSEMBLY

The Q65 labeling head is reliable, versatile and durable. It will operate for years with very light maintenance. Most of the maintenance takes only a few minutes and substantially increases the operational life of the machine and maintains label placement accuracy.

Daily:	**D**
Weekly:	**W**
Monthly	**M**
Semi-Annually	**S**

ASSEMBLY TITLE: LABELING HEAD ASSEMBLY

- **D-** Remove glue residue and labels from all rollers and idler
- **M-** Check and tighten all fasteners.

ASSEMBLY TITLE: UNWIND ASSEMBLY

- **W-** Check and adjust dancer spring if final spring tension is too soft. Replace
- **W-** Check and inspect band brake. Replace if torn

ASSEMBLY TITLE: REWIND ASSEMBLY

- **W-** Check and inspect friction disc, Replace when worn out. (A-DRIVE only)
- **W-** Check kinetrol for leaks, Replace if necessary. (B-DRIVE only)

ASSEMBLY TITLE: BRAKE BRUSH ASSEMBLY

- **W-** Reverse brake brush direction.
- **M-** Inspect Brake brush when brush body contour no longer viable or bristles are worn down. Replace

ASSEMBLY TITLE: SLOT SENSOR ASSEMBLY

- **D-** Keep the sensor optical area clean from label and glue residue

ASSEMBLY TITLE: SIDE PLATE ASSEMBLY

- **S-** Check and inspect and grease all rollers and idler**.**

ASSEMBLY TITLE: PEEL PLATE ASSEMBLY

- **D-** Clean all the parts that may acquire labels or glue residue.
- **W-** Inspect Teflon tap on peel plate tip
- **S-** Check and inspect and grease all rollers and idler**.**

ASSEMBLY TITLE: DRIVE AND PINCH ROLL ASSEMBLY

- **D-** Remove glue residue and labels from drive roller.
- **W-** Clean with soft brass brush knurled roll.
- **W-** Check and inspect drive roll, No play when powered up
- **S-** Replace springs and slugs.

ASSEMBLY TITLE: **ROLLER/BRUSH IMPRESSER**

D- Check the rollers/brushes free of label flash, glue and debris. This will prevent jamming and web tears.

W- Check the foam rollers. If foam wear is noticeable, replace as necessary.

NOTE: Exercise caution when removing bad labels from foam. Careless removal can result in torn foam which may leave the labeler inoperable until the roller is replaced!

ASSEMBLY TITLE: **OPERATOR PANEL**

-No maintenance is required for the operator panel

-Occasionally, the keypad may be cleaned with any non-solvent based cleaning solution.

ASSEMBLY TITLE: **ELECTRICAL**

W- Check the foam for fan clean or replace.

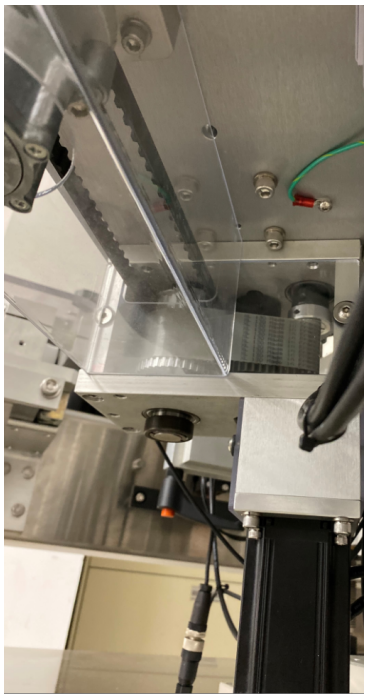
NOTES:

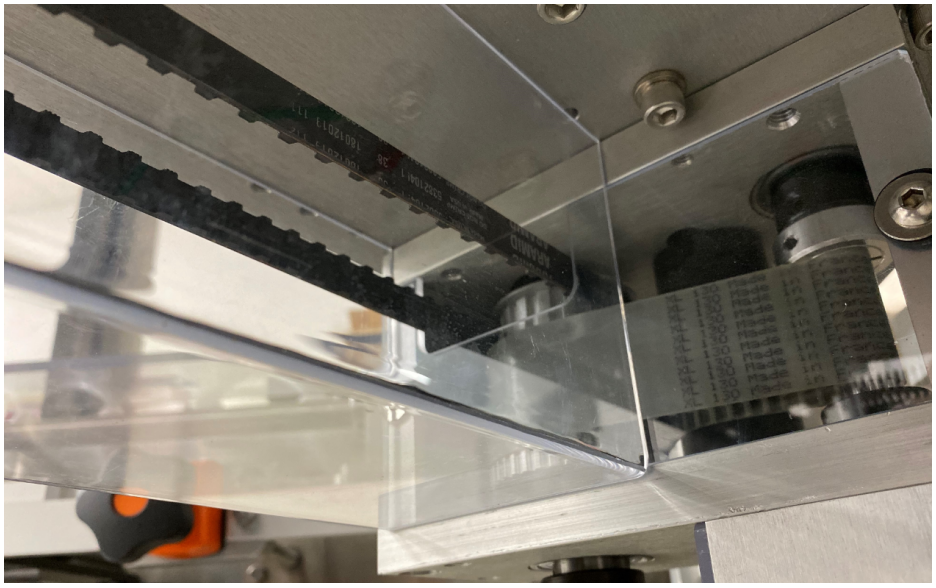
9.2 BELTS

Monthly, a visual inspection of the rewind belt and timing belt, to do this depending on the labeling head you may need to remove the bottom cover on the head.

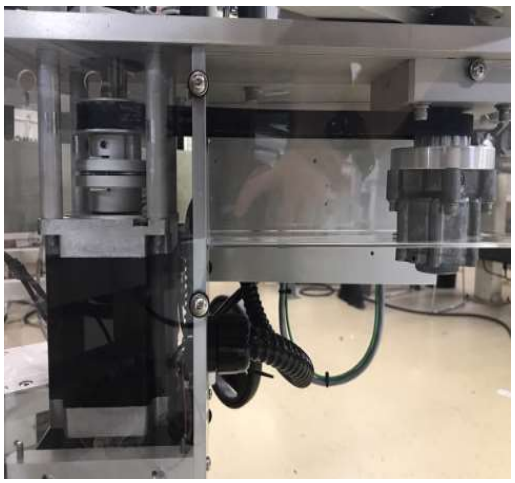
Refer to photos below.

Servo labeling head.





Stepping labeling head.



⚠ **CAUTION** **DO NOT ATTEMPT doing this with the equipment under tension (with power on).**

The visual inspection should consist of looking for cracks or defects in the belts. If this is the case, change the belts that are defective. Refer to the parts listing in the labeling head section of this manual.

The brake band mechanism requires a monthly visual inspection as well. Also once every 12 months you should consider replacing the belt (it is possible that you may need to change it later or earlier than 12 months depending the usage of the labeling head). The brake band belt assembly is located at the base of the unwind assembly. See images below for reference.

For replacement parts see the unwind assembly drawing for your labeling head in this manual.

9.3 ROLLERS

It is important that your labeler is as clean as possible in its environment in order for it to perform property. Daily, it is suggested to clean all the rollers including the drive roller (the rubber roller), the pressure shoe and peel plate using a damp cloth with alcohol. Make sure those parts have no glue or labels on it.

Weekly, spray a silicone base lubricant on each end of the plastic bearing.

9.4 SENSORS

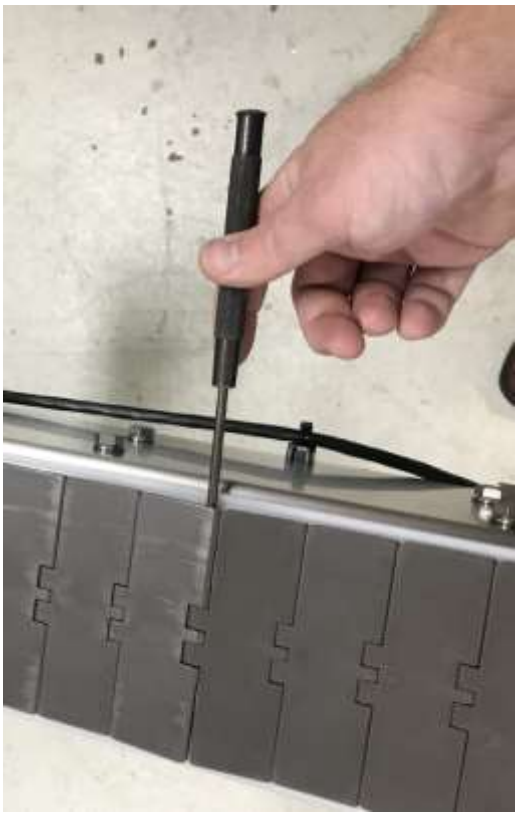
The sensors all have an electronic eye called a photocell; these must be free of lint or dirt. Since the photocells are generally made with glass or plastic lenses. They naturally attract substances which could easily trigger the sensor, use a cotton swap to gently clean the eye of the sensor as you would any lens, in a circular motion.

9.5 CONVEYOR

Always keep the belt or (chain) clean. To clean it simply use compressed air with an osha approved nozzle and/or damp wipes. If necessary, a soft cleaning agent can be used.

9.5.1 CLEANING

To clean the under carriage portion of the conveyor, simply remove the belt using an punch or similar tool and hammer to tap out the retaining belt link pin. (see images below, the chain has an oriention to the pins, you must tap it out from the narrow diameter) Clean the desired portion with a damp cloth and replace the pin to the belt. The pin will be tapped in the opposite side you tapped it out. *You can also lift the chain and wipe under it.



10 WARRANTY

The standard warranty period for Quadrel equipment is 12 months following invoicing. The warranty covers all parts with consideration taken towards reasonable use and normal wear and tear. Not covered by warranty are parts that have a limited wear factor, any required labor by Quadrel. Prior to return to Quadrel, parts must be verified defective.

Note: Any modifications to Quadrel equiptment are subject to void warranty.

Return of defective parts

To return a defective part, you will need to get an RMA number from Quadrel. All RMA's are issued though our parts department. Please specify the serial number of the equiptment, the client's name, address, phone number, contact name and the nature of the problem. To get a replacment part, a purchase order is required. You will be billed for the new part and credited for the defective part after return and evaluation. If the part is determined to be defective due to improper use, no credit will be issued.

Appropriate Use of Equipment

The equipment supplied to the end user by Quadrel are to be used for the sole purpose for which they were intended and must follow Quadrel's specifications on usage as well as appropriate functions. Quadrel will not assume any responsibility for any inappropriate use or modifications to the said equipment other than for the use it was initially built for.
The warranty will cease to apply forthwith, in Quadrel's opinion, the equipment has been used abnormally or in an abusive manner, if it has not been properly maintained, if it has not been carried on a truck equipped with an air-ride suspension when required by Quadrel or if it has been used, or maintained contrary to the owners manual provided by Quadrel.

Responsibility Limits

The solution put forth has been prepared with the information that has been provided to Quadrel by the end user. Subsequently, Quadrel cannot assume any responsibility for the exactitude, precision, and the validity of the information which was supplied. Moreover, Quadrel cannot be responsible for (a) any damages, direct or indirect, secondary, or accessory, including without limitations, the loss of profit, workflow interruption, loss of production, loss of profits and other; (b) any and all damages claimed against the end user by a third party; (c) any or all damages caused to the property of end user or any other third party; (d) any or all resulting in an act from the end user or third party, major force, or act of god, unforeseen cause, or event.
With all reservation, in the eventuality where the responsibility is that of Quadrel relative to any defect of quality of said equipment or proposed solution Quadrel would be able to accept the responsibility, to its entire discretion, with the replacement of part of the said equipment or solution. By a compatible or identical equipment or solution or by a reimbursement of value agreed upon. In no case can Quadrel's responsibility exceed the total monetary sums received for the said defective equipment or solution.